Body/equipment mounting directives

FK.FM.FN

Australia

FUSO

Body/equipment mounting directives

FK.FM.FN

Common Section

MITSUBISHI FUSO TRUCK & BUS CORPORATION
KAWASAKI, JAPAN

Contents

8 Electrics/electronics

9 Calculations

1 Introduction

MITSUBISHI FUSO TRUCK & BUS CORPORATION, as the manufacturer of MITSUBISHI FUSO vehicles, publishes this body/equipment mounting directive to provide body manufacturers with important technical information about the basic vehicle. This information must be observed by the body manufacturer in the production of bodies and equipment, fittings and modifications for MITSUBISHI FUSO vehicles.

Due to the large number of body manufacturers and body types, MITSUBISHI FUSO TRUCK & BUS CORPORATION cannot take into account all the possible modifications to the vehicle, e.g. performance, stability, load distribution, center of gravity and handling characteristics, that may result from the design of attachments, bodies, equipment or modifications. For this reason, MITSUBISHI FUSO TRUCK & BUS CORPORATION can accept no body manufacturer liability for accidents or injuries sustained as a result of such modifications to the vehicles if such modifications have a negative impact on the overall vehicle. Accordingly, MITSUBISHI FUSO TRUCK & BUS CORPORATION will only assume liability as vehicle manufacturer within the scope of the design, production and instruction services which it has performed itself.

The body manufacturer is bound to ensure that its bodies and equipment, fittings and modifications are themselves not defective, nor capable of causing defects or hazards to the overall vehicle. If this obligation is violated in any way, the body manufacturer shall assume full product liability. The body/equipment mounting directives enable MITSUBISHI FUSO TRUCK & BUS CORPORATION to instruct the body manufacturer about important aspects that must be observed when mounting its bodies and equipment, fittings and modifications.

These body/equipment mounting directives are primarily intended for the professional manufacturers of bodies, equipment, fittings and modifications for our vehicles. As a result, these body / equipment mounting directives assume that the body manufacturer has suitable background knowledge. If you intend to mount attachments, bodies and equipment on or carry out modifications to our vehicles, please be aware that certain types of work (e.g. welding work on load-bearing components) may only be carried out by qualified personnel. This will avoid the risk of injury while also ensuring that the degree of quality required for the attachments, bodies, equipment and modifications is given.

1.1 The aim of these directives

These directives serve as instructions for the manufacture of attachments, bodies, equipment and modification to other make bodies and major assemblies. These directives are divided into 10 interlinked chapters to help you find the information you require more quickly:

Additional information

Chapter 1-9 is Common Section for all markets.

Therefore, please note that this version is not necessarily the latest one.

Chapter 10 is for specific market(s).

The index, in PDF format, is linked to help you find the information you require quickly.

Make absolutely sure that you observe the technical threshold values selected in Section 4 "Technica l threshold values for planning" (▷ page 34) as planning must be based on these values.

Section 6 "Modifications to the basic vehicle" (▷ page 71) and Section 7 "Construction of bodies" (▷ page 136) represent the main source of technical information contained in these body/equipment mounting directives.

1.1 The aim of these directives

⚠ Risk of accident

Before installing any attachments, special-purpose bodies, equipment or carrying out any modifications to the basic vehicle and/or its assemblies, you must read the relevant sections of the Instruction Manual, as well as the operating and assembly instructions issued by the manufacturer of the accessories and items of optional equipment.

You could otherwise fail to recognize dangers, which could result in injury to yourself or others.

The instructions listed herein must be observed in full to maintain the operational reliability and road safety of the chassis and for observance of material defect claims.

Illustrations and schematic drawings are examples only and serve to explain the texts and tables.

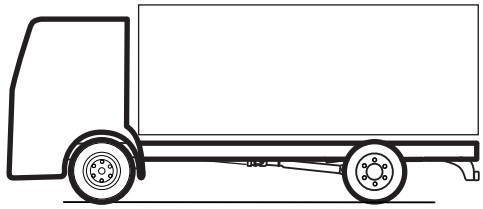
References to regulations, standards, directives etc. are given in keywords and serve for information only.

Additional information is available from any

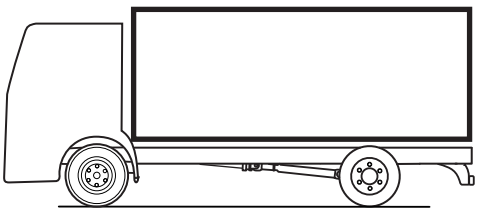
MITSUBISHI FUSO authorized Distributor

Your
MITSUBISHI FUSO TRUCK & BUS CORPORATION

The illustrations below explain the difference between "Basic vehicle" and "Body":



Basic vehicle



Body

1.2 Symbols

The following symbols are used in these directives:

Risk of accident

A warning draws your attention to possible risks of accident and injury to yourself and others.

Environmental note

An environmental note gives you tips on the protection of the environment.

Property damage

This note draws your attention to possible damage to your vehicle.

Additional information

This note points out any additional information.

▷ page

This symbol indicates the page on which you will find further information on the subject. These pages are cross-linked in the PDF file.

1.3 Vehicle safety

⚠ Risk of accident and injury

The use of parts, assemblies or conversion parts and accessories which have not been approved may jeopardize the safety of the vehicle.

Before installing any attachments, special-purpose bodies, equipment or carrying out any modifications to the basic vehicle and/or its assemblies, you must read the relevant sections of the Instruction Manual, as well as the operating and assembly instructions issued by the manufacturer of the accessories and items of optional equipment.

You could otherwise fail to recognize dangers, which could result in injury to yourself or others.

Official acceptance by public testing bodies or official approval does not rule out safety hazards.

In many countries, parts that make extensive changes to the vehicle can invalidate the general operating permit. Specifically, this concerns parts which:

- change the vehicle type approved in the general operating permit
- could endanger road users
- could adversely affect exhaust emissions or noise levels

ⓘ Additional information

Make absolutely sure that you comply with national registration regulations as attachments, bodies, equipment on or modifications to the vehicle will change the vehicle type approved and may invalidate the general operating permit.

Notes on vehicle safety

MITSUBISHI FUSO recommends

using appropriate parts only for each particular vehicle model.

1.4 Operational safety

Risk of accident

Before installing any attachments, special-purpose bodies, equipment or carrying out any modifications to the basic vehicle and/or its assemblies, you must read the relevant sections of the Instruction Manual, as well as the operating and assembly instructions issued by the manufacturer of the accessories and items of optional equipment.

You could otherwise fail to recognize dangers, which could result in injury to yourself or others.

Work incorrectly carried out on electronic components and their software could prevent this equipment from working correctly. Since the electronic systems are networked, this might also affect systems that have not been modified.

Malfunctions in the electronic systems could seriously jeopardize the operating safety of the vehicle.

1.5 Accident prevention

Observe the requirements and precautions set out in this manual when carrying out body-building work or modification work.

The body, the attached or installed equipment and any modifications must comply with the applicable laws and ordinances as well as work safety or accident prevention regulations, safety rules and accident insurer requirements.

All technical means shall be used to avoid operating conditions that may be unsafe or liable to cause an accident.

All national laws, directives and registration requirements must be complied with.

The manufacturer of the attachment, body, equipment or conversion or the device manufacturer is responsible for compliance with these laws and regulations.

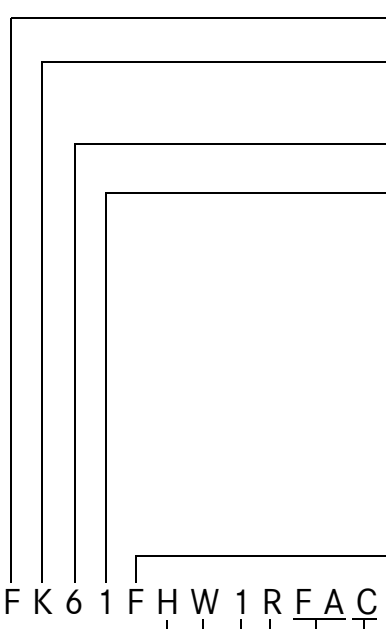
1.6 Note on copyright

All the text, illustrations and data contained in these body/equipment mounting directives are protected by copyright.

If you have any questions, please contact the department responsible ▷ page 12.

2.1 Vehicle and model designations

2.1.1 Model coding system



Cab style	F: Forward controlled cab
Driver system & Max. G.V.W.	K: 4 × 2, GVM 10.4 to 13.5, 14.0 tons M: 4 × 2, GVM 16.0, 17.1 tons N: 6 × 2, 6 × 4, GVM 23.2 to 24.0, 25.0 tons
Development sequential number	
Suspension type	<FK> 1: Leaf spring type suspension (air over hydraulic brake) 2: Leaf spring type suspension (full air brake) 5: Rear air suspension (full air brake) <FM> 5: Leaf spring type suspension 7: Rear air suspension <FN> 1: 6 × 2 Leaf spring type suspension 2: 6 × 4 Leaf spring type suspension 3: 6 × 2 Rear air suspension 4: 6 × 4 Rear air suspension
Engine type	F: 6M60
Export specification (Except Australia/New Zealand)	Generation 1.2:Spec different
Transmission type (Australia/New Zealand)	C: M070_Transmission D/L:ALLISON_AT Transmission F/K: EATON_Transmission G: M060_Transmission H: M070_Transmission + FUP M/J:ALLISON_AT Transmission + FUP K: EATON_Transmission + FUP
Export specification (Destination code)	DA: Hong Kong DB: Taiwan DE: Singapore DG: Malaysia DK: Indonesia FA: Australia, New Zealand KD: Morocco NS: Bolivia DR: Pakistan
Steering wheel position	L: Left hand R: Right hand
Engine type	1: 6M60T1 177 kW (240 PS)/2,500 rpm 2: 6M60T2 199 kW (270 PS)/2,500 rpm
Chassis arrangement for use	None: Single cab F: Fire engine H: GVW 11t (20 inch tire, A/H brake) R: Tractor W: Double (Crew) cab Y: GVM 11.0 tons (FK) Z: Higher-tonnage class GVM 12.0 to 13.5 tons (FK)
Wheelbase (m)	F: 3.500 to 3.800 G: 3.800 to 4.100 H: 4.100 to 4.400 J: 4.400 to 4.700 K: 4.700 to 5.000 L: 5.000 to 5.300 M: 5.300 to 5.600 N: 5.600 to 5.900 P: 5.900 to 6.200 R: 6.200 to 6.400 S: 6.400 to 6.700 U: 7.100 to 7.400

2.2 Technical advice and contact persons

Please log in from the following BODYBUILDER PORTAL URL and contact us.
It is correspondence of only English.
https://bb-portal.mitsubishi-fuso.com/en/

2.3 Product safety

Both the vehicle manufacturer and the body manufacturer must always ensure that they introduce their scopes into the market in a safe condition and that third parties are not at risk of any safety hazard. If this is not adhered to they may be subject to civil, criminal and public law consequences. Every manufacturer is liable for the products it manufactures.

From this, it follows that the vehicle body/conversion manufacturer therefore also bears responsibility for the following:

- the operating and road safety of the body
- the operating and road safety of parts and modifications
- testing and maintaining the operating and handling safety of the vehicle after the body/equipment is mounted (the body and/or equipment must not have a negative effect on the driving, braking or steering characteristics of the vehicle)
- influences of parts on or modifications to the chassis
- consequential damage resulting from the body, attachment, equipment or modification
- consequential damage resulting from retrofitted electrical and electronic systems
- maintaining the operational reliability and freedom of movement of all moving parts of the chassis after the body/equipment is mounted (e.g. axles, springs, propeller shafts, steering, transmission linkage, etc.) even in the case of diagonal torsion between the chassis and the bodies

Be careful of the following points when carrying out body-building or modification work.

Safety design

- Securing adequate safety and reliability, and preparing safety devices (design which is fail-safe and takes account of misoperation and misuse, safety evaluation)
- Storing technical material, drawings and documents during development

Manufacturing quality

- Manufacturing according to the drawings in order to prevent errors, missing parts and defective assembly, and secure high manufacturing quality
- Implementing a quality confirmation inspection, and storing the records of the inspection.

Preparing an instruction manual and warning indications

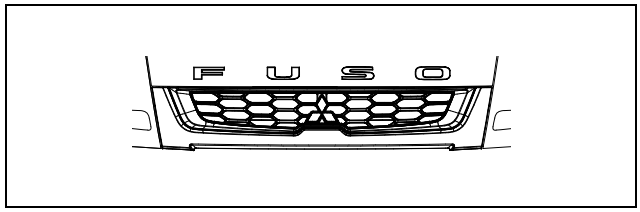
- Instruction manual
  Concrete indication of the effect of incorrect operation on the human body, the vehicle, and other locations (elimination of indications that are likely to cause misunderstanding, and also ambiguous expressions)
- Warning indications
  To ensure that the vehicle is used as safely as possible, warning indications must use expressions that are easy to understand and letters that are large enough to read easily, include pictures, and be applied to locations that are readily visible to the driver.

2.4 Ensuring traceability

Hazards in your implement/body which become known after delivery may necessitate supplementary measures in the market (customer notification, warnings, recalls). In order to make these measures as efficient as possible, your product must be traceable after delivery.

For this purpose and to enable the Department of Infrastructure in Australia, Transport Agency in New Zealand or comparable registers abroad to be used for determining which owners are affected, we advise you to promptly file the serial number/identification number of your equipment/add-on part linked to the vehicle identification number for the truck in your databases. Similarly, it is also advisable to store the addresses of your customers for this purpose and to grant subsequent purchasers the opportunity to register.

2.5 Mitsubishi three diamonds and Fuso emblem



The Mitsubishi three diamonds and Fuso emblem are owned or controlled by MITSUBISHI FUSO.

They must not be removed or affixed in another position.

Mitsubishi three diamonds and Fuso emblems supplied separately must be attached at the points specified by MITSUBISHI FUSO.

Overall appearance of the overall vehicle

If the vehicle fails to comply with the appearance and quality standards as required by MITSUBISHI FUSO TRUCK & BUS CORPORATION, the trademarks such as the Mitsubishi three diamonds and Fuso emblem must be removed.

Third-party trademarks

- may not be affixed next to MITSUBISHI FUSO trademarks

Binding ruling

The MITSUBISHI FUSO Brand Trademark Directive governs the use of trademarks by body manufacturers on integrated bodies mounted on chassis. MITSUBISHI FUSO TRUCK & BUS CORPORATION reserves the right to prohibit the body manufacturer from using MITSUBISHI FUSO trademarks in the event of any violations to this body/equipment mounting directives, including the trademark directive.

- If you have any question, contact the department responsible ▷ page 12.

2.6 Trademarks

Labels and marks must be applied to the predetermined positions.

2.7 Recycling of components

Environmental note

When planning attachments, bodies, equipment and modifications, the following principles for environ-mentally-compatible design and material selection shall be taken into account.

Materials with risk potential, such as halogen additives, heavy metals, asbestos, CFCs and CHCs, are to be avoided.

- It is preferable to use materials which permit recycling and closed material cycles.
- Materials and production processes are to be selected such that only low quantities of waste are generated during production and that this waste can be easily recycled.
- Plastics are to be used only where they provide advantages in terms of cost, function or weight.
- In the case of plastics, and composite materials in particular, only compatible substances within one material family are to be used.
- For components which are relevant to recycling, the number of different types of plastics used must be kept to a minimum.
- It must be assessed whether a component can be made from recycled material or with recycled elements.
- It must be ensured that components can be dismantled easily for recycling, e.g. by snap connections or predetermined breaking points. These components should generally be easily accessible and should permit the use of standard tools.
- Service products must be capable of being removed simply and in an environmentally responsible manner by means of drain plugs, etc.
- Wherever possible, components should not be painted or coated; colored plastic parts are to be used instead.
- Components in areas at risk from accidents must be designed in such a way that they are damage-tolerant, repairable and easy to replace.

2.8 Quality system

World-wide competition, increased quality standards demanded by the customer from the product as a whole, national and international product liability laws, new organizational forms and rising cost pressures make efficient quality assurance systems a necessity in all sectors of the automotive industry.

For the reasons quoted above, MITSUBISHI FUSO TRUCK & BUS CORPORATION urgently advises body manufacturers to set up a quality management system with the following minimum requirements:

- Does the quality management system clearly define responsibility and authority?
- Is there a description of processes/workflows?
- Are the contracts checked/is the feasibility of construction checked?
- Are product checks on the basis of specified instructions carried out?
- What provisions are made for the handling of faulty products?
- Are the inspection results documented and archived?
- Do all employees concerned have currently valid proof of the qualification required?
- Is the test equipment systematically monitored?
- Is there a system for labelling materials/parts?
- Are quality assurance measures carried out at suppliers?

3.1 Selecting the chassis

Property damage

When planning attachments, bodies, equipment or modification work, the selected vehicle must be checked to verify whether it fulfils the necessary requirements.

In order to ensure safe operation of the vehicle, it is essential to choose the chassis and equipment carefully in accordance with the intended use.

Along with the selection of the correct vehicle version, the required series and special equipment such as

- Wheelbase
- Engine/transmission
- Power take-offs
- Axle ratio
- Position of the center of gravity
- Legal registration requirements (e.g. underride guard)
- Permissible and technical gross vehicle weight

should be taken into consideration and be appropriate for the intended use.

Property damage

Observe the Model. The axle designation or the load capacity of the tires has only limited relevance to the gross weight of the vehicle.

Additional information

The non-availability of a vehicle version may be an indication that the vehicle is not suitable for the intended application.

Air suspension

The vehicle with an air suspension is right for cargo system body building mainly running on a good road or expressway.

If it is expected that the vehicle is to be run on a rough road or used with the following body building, use conditions and the method of body building and modifications should be examined. Contact the department responsible ▷ page 12.

- Dump truck (carrying industrial waste, raw stone, or chips)
- Bulk (carrying powder and granular materials or feed)
- Flat body (raw stone or raw wood)
- Construction machine carrier (including crane vehicles with long outriggers)
- Removable body

Additional information

For more information on the air suspension, refer to 5.6.2 "Air springs" ▷ page 65.

3.2 Vehicle modifications

⚠ Risk of accident

Do not carry out any modifications to major assemblies (steering, brake system etc.). Any modifications to the steering and the brake system may result in these systems malfunctioning and ultimately failing. The driver could lose control of the vehicle and cause an accident.

Alterations to the basic vehicle are permitted only within the framework of the procedures described in this body/equipment mounting directive.

The vehicles are shipped after adequate consideration has been given to safety, reliability and maintainability. Ensure that these functions remain intact after body-building or modification work.

The vehicles must still comply with the regulations of the country where the vehicle is used after modifications have been carried out.

Do not change critical safety parts or noise reduction parts because this may cause a serious accident and is also illegal.

When selecting body-building or modification parts, give consideration to strength, robustness and safety, and also strive to minimize weight.

Install body-building or modification parts in such a way that visibility in the forward direction is not impaired.

Take care not to damage or impair the function of parts on the chassis side.

Upon completion of the work, check to see if the manufacturing quality conforms to the design and also if the specified performance and functions have been secured.

Drive the vehicle and confirm that there is no unusual vibration or noise and also that the vehicle performance is stable.

If the method of handling or maintaining the vehicle changes as a result of carrying out body building or modification, prepare an instruction manual and keep a copy in the vehicle, and also apply warning labels to the vehicle.

The body or equipment manufacturer must apply an Intermediate or Final Stage Manufacturer's Label and inform the officially recognized approval authority or inspector of any modifications to the chassis when the vehicle is inspected.

Following all work on the brake system, i.e. even if merely disassembling parts, a complete check (operation, effectiveness and visibility) of the entire brake system must be performed.

3.3 Dimensions, weights, vehicle overall height

⚠ Risk of accident

The vehicle tire load capacity may not be exceeded by overloading the vehicle beyond its specified gross vehicle weight. The tires could overheat and suffer damage. This could cause an operator to lose control of the vehicle and cause an accident with possible injury or death.

Information on the permissible axle loads can be found in this manual and on the vehicle model plate.

All legal provisions governing the permissible vehicle length, height, and width must be taken into account when planning bodies.

ⓘ Additional information

Further information can be found in Section 4 "Technical threshold values for planning" ▷ page 34.

Information about changes in weight is available from the department responsible ▷ page 12.

Dimensions and weight details can be found in the drawings and technical data. They are based on a vehicle that is fitted with standard equipment. Weight tolerances of ±3.5% in production must be taken into consideration.

The permissible axle loads and the maximum permissible gross vehicle weight specified in the technical data may not be exceeded.

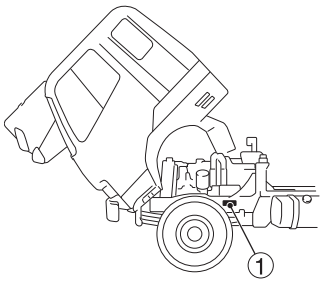
The technical data can be found in the vehicle documents, on the vehicle model plate.

3.4 Vehicle type identification data

If presented at the time of repair or parts order, the chassis number and engine number will facilitate the quick and smooth processing of your requests.

3.4.1 Chassis number

The indicated information varies depending on the country.



<Type 1>

The chassis number ① is indicated on the left frame, near the left front wheel.

Example: FK615F - □□□□□□

Chassis number

Vehicle model

<Type 2>

The vehicle identification number (VIN) is indicated on the left frame, near the left front wheel.

Example: FV51SKOK - □□□□□□

Chassis number

Vehicle model

<Type 3>

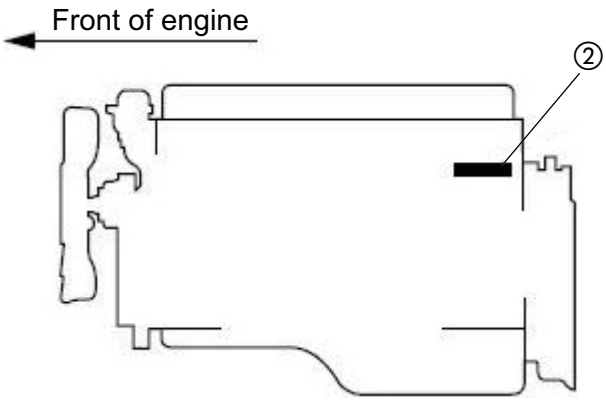
E

The vehicle identification number (VIN) is indicated on the right frame, near the right front wheel. (Opposite side of ① shown in the above drawing for Type 1.)

3.4.2 Engine number

The engine number ② is indicated on the left crankcase.

<6M6>



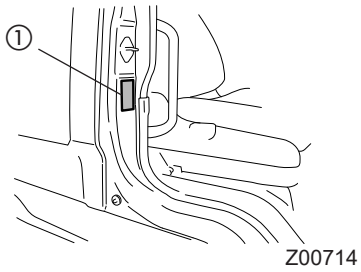
Example: 6M60 - □□□□□□

Engine number

Engine model

3.4 Vehicle type identification data

3.4.3 Nameplate



<Type 1>

A nameplate ① showing your vehicle model, chassis number, engine model, and other related information is affixed to the door pillar on the assistant driver's side.

<Type 2>

Both the compliance and data plates are attached to the assistant driver's door opening. The compliance plate certifies that your vehicle complied with Australian Design Rules at the time of manufacture.

In all correspondence related to your vehicle the following information should be quoted.

- The engine number.
- The vehicle identification number (V.I.N.) - shown on compliance plate.
- The S.O.A. No. (where applicable), option code, paint and trim codes located on date plate.

<Type 3>

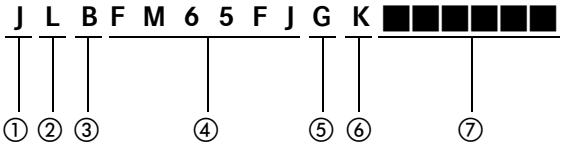
E

Name plate is attached which location is decided by distributor.

F

Vehicle identification number (VIN)

The meanings of VIN are listed below.



① Geographic area
J: Asia (Japan)
② Country
L: Japan
③ Manufacture
B: Mitsubishi Fuso Truck & Bus
④ Model Code
⑤ Model year
E: 14M/Y
F: 15M/Y
G: 16M/Y
⑥ Plant
K: Kawasaki
⑦ Plant Sequential Number

3.5 Tires

The body manufacturer must ensure that:

- the largest permissible MITSUBISHI FUSO authorized tires can be fitted.
- the distance between the tire and the mudguard or wheel housing is sufficient even when snow or anti-skid chains are fitted, with the suspension fully compressed (including any twist) (Adherence to valid regulations).
- that the relevant information in the drawings is observed.

If the option of fitting snow and anti-skid chains cannot be guaranteed, the operator should be informed by the body manufacturer (operating instructions).

⚠ Risk of accident

Exceeding the specified tire load-bearing capacity or the permissible maximum tire speed can lead to tire damage or failure. The operator could lose control of the vehicle, and cause an accident and injuries.

For this reason, only fit tires of a type and size approved for your vehicle and observe the tire load-bearing capacity required for your vehicle. Observe tire speed index.

Comply with national regulations governing the approval of tires. These regulations may define a specific type of tire for your vehicle or may forbid the use of certain tire types which are approved in other countries.

! Property damage

If you have other wheels fitted

- the brakes or components of the suspension system could be damaged
- wheel and tire clearance can no longer be guaranteed
- the brakes or components of the suspension system can no longer function correctly.

3.6 Bolted and welded connections

Risk of accident

Do not modify any bolted connections that are relevant to safety, e.g. that are required for wheel alignment, steering or braking functions.

When unfastening bolted connections make sure that, when work is complete, the connection again corresponds with the original condition.

Welding work on the chassis/body may only be carried out by trained and qualified personnel.

The body, the attached or installed equipment and any modifications must comply with the applicable laws and ordinances as well as work safety or accident prevention regulations, safety rules and accident insurer requirements.

Additional information

Further information on bolted and welded connections can be found in Section 5 "Damage prevention" ▷ page 46 and Section 6 "Modifications to the basic vehicle" ▷ page 71.

3.6.1 Bolted connections

Use the specified bolts and nuts. Unless otherwise specified, refer to 5.4 "Bolted connections" ▷ page 52.

3.6.2 Welded connections

Welding work on the chassis/body may only be carried out by trained and qualified personnel.

Property damage

Parts which must not be welded:

- Assemblies such as the engine, propeller shaft, transmission, axles, etc.
- The chassis frame (except frame modifications).

Additional information

Further information on bolted and welded connections can be found in Section 5 "Damage prevention" ▷ page 46 and Section 6 "Modifications to the basic vehicle" ▷ page 71.

3.7 Soundproofing

The following modifications can lead to noise problems:

- Change of engine model
- Change of reduction gear
- Change of transmission gear
- Replacement of tires with non-registered ones
- Change of exhaust pipe diameter, clamping position or muffler size
- Change of radiator cooling fan size, pitch, number of blades or rotational speed
- Change of air intake duct diameter, shape or length
- Modifications of shielding cover around the engine which can lead to reduced shielding performance or increased ambient temperature inside the shielding cover

Do not modify the vehicle except for those indicated in the Body/Equipment Mounting Directives.

Shielding covers around the engine and transmission, muffler with combined exhaust emission control device and exhaust pipe between exhaust manifold and muffler with combined exhaust emission control device are components to be noise-proofed. Therefore, never attempt to modify them.

Take utmost care not to damage these components if they are to be removed once and then reinstalled for facilitating mounting works.

To prevent modifications from changing the vehicle's sound levels, it must be ensured that interior sound levels are reduced when planning bodies.

- Noise-insulating parts fitted as standard must not be removed or modified.
  See 10.15.3 "Location of sound proofing plates" ▷ page 503.
- The level of interior noise must not be adversely affected.

Additional information

Comply with all national regulations and directives.

3.8 Exhaust system

The exhaust system must not be modified.

If modification is unavoidable, consult with the department in charge of the measures ▷ page 12.

Property damage

The original exhaust system mounting, by this we mean the bracket components including frame-mounted castings, may not be modified. Modifications can lead to damage to the exhaust system.

Additional information

For more information on exhaust system, refer to 6.14 "Exhaust system" ▷ page 120.

3.8.1 Euro V, Euro III, Euro II

Environmental note

Modifications carried out incorrectly to the routing of the exhaust system upstream of the catalytic converter can result in the leakage of untreated exhaust gas into the environment.

<For Euro V>

To satisfy the Euro V emissions legislation, the BlueTec, exhaust aftertreatment system is used, which is based on Selective Catalytic Reduction (SCR). BlueTec diesel technology reduces the nitrogen oxide content of the exhaust gas by the injection AdBlue. AdBlue is injected into the hot exhaust gas via a urea nozzle. The exhaust gas is transformed in the SCR muffler.

3.9 Maintenance and repairs

⚠ Risk of accident and injury

Always have maintenance work for installed body or equipment performed at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work.

MITSUBISHI FUSO recommends a MITSUBISHI FUSO authorized Distributor for all chassis-related service work.

It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

Before performing any maintenance work, always read the technical documentation, such as the Instruction Manual and the workshop information. Always have all maintenance work performed at the specified service intervals. If this is not done, malfunctions or failures may occur in systems that could be relevant to safety. This could cause an operator to have an accident, which could result in injury or death.

Maintenance and repair of the vehicle should not be made unnecessarily difficult by the body or other installed equipment.

Maintenance points and major assemblies must be easily accessible.

- The Instruction Manual must be followed and supplemented as necessary.
- Stowage boxes must be fitted with maintenance flaps or removable rear panels.
- The battery compartment must be sufficiently ventilated, with provision for air to enter and exit.
- Check the condition and capacity of batteries and service them in accordance with the manufacturer's specifications ▷ page 31.

Any additional expenses arising from the body in connection with warranty, maintenance or repair will not be borne by MITSUBISHI FUSO TRUCK & BUS CORPORATION or its authorized dealer.

3.9.1 Maintenance instructions

The following must be observed by the body manufacturer before delivery of the vehicle:

- Due date of inspection
- Be sure to set up the brake system.
- Check the condition and capacity of batteries and service them in accordance with the manufacturer's specifications.
- Check the headlamp setting or have this checked at a qualified specialist workshop.
- Retighten the wheel nuts to the specified torque.
- Instruction Manual and directives for maintenance of attachments, bodies, installations or conversions, which have been installed by the body manufacturer, must be provided with the vehicle in the language of the country of use.
- MITSUBISHI FUSO recommends adapting to each individual body the scope of maintenance work which has to be carried out on the body, co-ordinating it by means of the valid MITSUBISHI FUSO service systems. This applies both to the scope and type of service work, and for determining the service due dates for servicing intervals based on time elapsed and distance covered.

3.9.2 Preparation for storing the vehicle

Property damage

For vehicle deliveries in winter, to prevent paint, finish, and surface damage, please clean the vehicle at the earliest opportunity. Particular attention should be paid to the transmission housing and light-alloy wheels.

Storage in an enclosed space:

- Clean the overall vehicle.
- Check the oil and coolant levels.
- Inflate the tires to 50 kPa {0.5 kgf/cm^2} above the specified tire pressures.
- Release the handbrake and chock the wheels.
- Disconnect the battery and grease battery lugs and terminals.

Storing the vehicle in the open (< 1 month):

- Carry out the same procedure as for storing in an enclosed space.
- Close all air inlets and set the heating system to "Off".

Storing the vehicle in the open (> 1 month):

- Carry out the same procedure as for storing in an enclosed space.
- Fold the windscreen wipers away from the windscreen.
- Close all air inlets and set the heating system to "Off".
- Remove the battery and store it in accordance with the manufacturer's specifications.

Maintenance work on stored vehicles (in storage for > 1 month):

- Check the oil level once a month.
- Check the coolant once a month.
- Check the tire pressures once a month.
- Remove the battery.

Removing the vehicle from storage:

- Check the fluid levels in the vehicle.
- Correct the tire pressures to the manufacturer's specifications.
- Check the battery charge and install the battery.
- Clean the overall vehicle.

3.9.3 Battery maintenance and storage

To avoid damage to the battery, disconnect the battery if the vehicle is to be immobilized for a period of longer than 1 week.

If the vehicle is immobilized for periods of longer than 1 month, remove the battery and store it in a dry place at temperatures of between 0 °C to 30 °C.

Store the battery in an upright position.

The battery charge must be kept above 12.55 V at all times.

Property damage

If the battery voltage drops below 12.1 V, the battery may become damaged and have to be replaced.

Leaving the vehicle parked up for long periods of time can lead to battery damage. This can be avoided by disconnecting the battery and storing it appropriately.

3.9.4 Work before handing over the modified vehicle

The manufacturer must confirm the work and modifications carried out by making an entry in the vehicle or job file.

Checking the overall vehicle

Check the vehicle for perfect condition. All damage must be repaired.

Checking the batteries:

Test the battery charge before handing over the vehicle.

Checking the tires

Before handing over the vehicle, check that the tires are inflated to the specified pressure and check the tires for damage. Damaged tires must be replaced.

Checking wheel alignment

When equipment, attachments and bodies have been mounted, it is recommended to have the toe setting checked by a qualified specialist workshop. MITSUBISHI FUSO recommends a MITSUBISHI FUSO authorized Distributor for this work.

It is absolutely essential that all safety-relevant work and all work on safety-relevant systems be performed by a qualified specialist workshop.

Additional information

Further details are available from any MITSUBISHI FUSO authorized Distributor.

3.10 Optional equipment

⚠ Risk of accident and injury

The use of parts, assemblies or conversion parts and accessories which have not been approved may jeopardize the safety of the vehicle.

Before installing any attachments, special-purpose bodies, equipment or carrying out any modifications to the basic vehicle and/or its assemblies, you must read the relevant sections of the vehicle Owner's Handbook, as well as the operating and assembly instructions issued by the manufacturer of the accessories and items of optional equipment.

You could otherwise fail to recognize dangers, which could result in injury to yourself or others.

MITSUBISHI FUSO recommends using equipment available as option codes to adapt the vehicle to the body optimally.

All code-specific special equipment is available from your MITSUBISHI FUSO authorized dealer or from body manufacturer advisors ▷ page 12.

Optional equipment (e.g. , auxiliary tanks etc.) or retrofitted equipment increases the unladen weight of the vehicle.

When chassis are fitted with bodies or accessory equipment, the frame height can change considerably in both the laden and unladen state.

The actual vehicle weight and axle loads must be determined by weighing before mounting.

Not all optional equipment can be installed in any vehicle without problems. This applies, in particular, for retrofitted equipment because the installation space may already be occupied by other components or the special equipment may require other components.

4.1 Vehicle overhang and technical wheelbases

⚠ Risk of accident

The body must be designed in such a way that placement of excessive load weight at the rear is prevented. It is important to comply with the points listed below, otherwise the necessary steering and braking forces for safe vehicle operation cannot be transferred to the road.

- When calculating the length of the vehicle overhang, always take into account the permissible axle loads and the minimum front axle load.
- Comply with the minimum front axle load ▷ page 37.
- Take the weight of special equipment into consideration when making calculations.

4.1.1 Maximum vehicle overhangs

Country	Maximum vehicle overhang
Australia Newzealand	60% of wheelbase/3.7 m or less (whichever is shorter)
Hong Kong Singapore	60% of wheelbase
Taiwan	50% of wheelbase
Indonesia	ROH max 62,5% from Wheelbase FOH max 47,5% from wheelbase For Rigid truck maximum length not exceeding 12 m

Additional information

All national laws, directives and registration requirements must be complied with.

4.2 Weight distribution, CoG height, anti-roll bars

⚠ Risk of accident

The body must be designed in such a way that a placing of excessive load weight at the rear is prevented. It is important to comply with the points listed below, otherwise the necessary steering and braking forces for safe vehicle operation cannot be transferred to the road.

4.2.1 Weight distribution

Avoid one-sided or laterally asymmetric weight distribution.

The wheel load (1/2 the axle load) may be exceeded by no more than 4%. Observe the tire load capacity.

Example:

- Permissible axle load 10,000 kg
- Permissible wheel load distribution 5,200 kg to 4,800 kg

4.2.2 CoG height

Body/equipment manufacturer must calculate the vertical center of gravity, as measured from ground, for the completed and loaded vehicle. The provided maximum vertical center of gravity for the relevant chassis model cannot be exceeded under any operating condition.

For CoG height of the kerb weight, see 10.4 "Weight distribution table" ▷ page 264.

MITSUBISHI FUSO cannot vouch for the handling, braking and steering characteristics of vehicles with attachments, installations or modifications for payloads with centers of gravity that violate prescribed limits (e.g. rear-mounted. overheight and side-mounted loads). The vehicle body/equipment manufacturer/converter is responsible for the safety of the vehicle in the all cases.

4.3 Steerability

⚠ Risk of accident

The body must be designed in such a way that a placement of excessive load weight at the rear is prevented. The following points must be complied with otherwise the steering and braking forces necessary for safe driving cannot be transmitted.

To ensure sufficient vehicle steerability, the minimum front axle load (25% of gross vehicle weight) must be maintained under all load conditions. Consult the department responsible in the event of any deviations ▷ page 12.

! Property damage

The permissible front axle load must not be exceeded.

Observe the notes on product safety ▷ page 13.

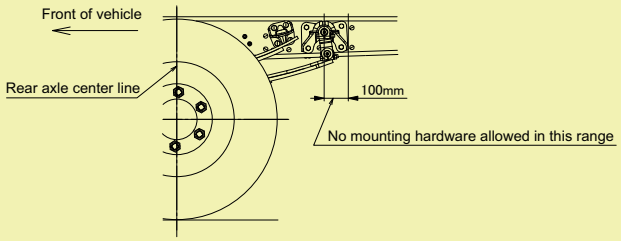
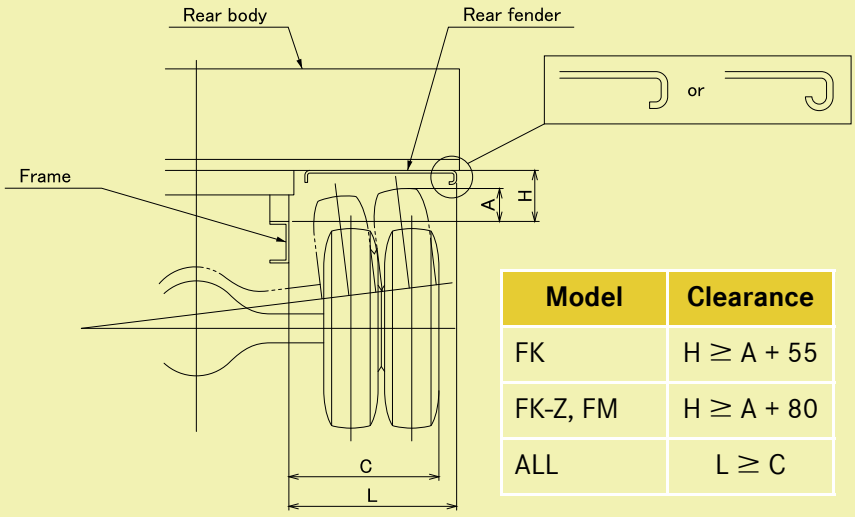
4.4 Clearance for basic vehicle and bodies

Certain clearances must be maintained in order to ensure the function and operational safety of assemblies.

Dimensional data in the Body/equipment mounting directives must be observed.

The minimum clearance between chassis parts and rear body parts must be kept according to the following table of minimum clearance standard.

Part	Minimum Clearance and Notes
1. Section behind cab	In the section behind the cab, there are a cab tilt locking unit, coolant reservoir tank or expansion tank, engine oil filler port, engine oil level gauge, etc. Ensure there is a clearance of at least 150 mm between the cab and rear body to facilitate trouble-free operation, inspection and filling works. The atmospheric temperature in the vicinity of the battery rises (to about 100°C) due to the heat generated inside of the engine compartment. For this reason, protect parts that do not withstand heat, such as plastic parts, by installing a heat shield plate, etc. Provide a protector in order to prevent loads from falling from the rear body front window of the dump or other rear body.
2. Areas around engine	Vertical direction 40 mm Lateral direction 30 mm Longitudinal direction 25 mm
3. Clutch and Transmission Assembly	Do not install any rear body part in the area of 140 mm of rear part, because clutch and transmission assembly is moved backward in the same inclination line of engine, to pull out the clutch spline shaft, when clutch and transmission assembly is removed from engine.
4. The Surrounding part of Transmission	25 mm at surrounding part of transmission except rear part.
5. Upper part of Transmission	Keep more than 120 mm of clearance between the upper surface of upper cover and the rear body part if possible, because this clearance is used when the transmission upper cover is removed.
6. The surrounding part of the Propeller shaft and the Rear axle	Min. 25 mm of the surrounding part.
7. The brake hose (which connects to the front and rear wheel)	Keep min. 50 mm of clearance at worst. This brake hose is considered to move when vehicle is driven.
8. Other hoses	40 mm

Part	Minimum Clearance and Notes
9. Rear springs	The link at the rear end of the main spring may move during traveling. Do not fit any mounting hardware within the range indicated in the figure. 
10.Space above rear axle	Air and electrical lines such as the brake hose and wiring harness are laid on top of the rear axle. Provide enough space above the rear axle so that these lines will not come into contact with any of the mounting parts even when the axle is elevated to the highest position. Refer to 10.7.2 "Differential and tire bound height" ▷ page 382.
11.Attaching the rear fender	The clearance between the rear fender and tire must be designed to be optimum assuming that the vehicle is traveling in bad conditions. Determine the standard clearance from the fender and top and side surfaces of the frame as follows from dimensions A listed in 10.7.2 "Differential and tire bound height" ▷ page 382.  **Model** / **Clearance** FK: H ≥ A + 55 FK-Z, FM: H ≥ A + 80 ALL: L ≥ C

4.4 Clearance for basic vehicle and bodies

<table>
<tr><th>Part</th><th>Minimum Clearance and Notes</th></tr>
<tr><td>12.The exhaust system</td><td>The heat affection and the interference of the exhaust system is a quite important factor in the safety of the vehicle. Keep the clearance between the rear body parts and these parts at least following figures on the table.
Unit: mm
<table>
<tr><th>Parts</th><th>Minimum Clearance</th></tr>
<tr><td>Air pipe, Air tank</td><td>100</td></tr>
<tr><td>Oil pipe, Brake pipe, air-servo assistance</td><td>150</td></tr>
<tr><td>Wiring harness, Fuel tank, Brake hose, Battery cable, Rubber parts, Plastic parts</td><td>200</td></tr>
<tr><td>Fuel pipe</td><td>200</td></tr>
<tr><td>Fuel hose</td><td>250</td></tr>
</table>
Do not install a tailpipe under the fuel pipe, hose connection and fuel filter drain tube.
Keep body mounting such as wood and rubber parts away from the muffler built in the emission control system and exhaust pipe by at least 100 mm. If this is impossible, install a heat shield plate to avoid a heat effect and check that there is no safety problem.</td></tr>
<tr><td>13.Fuel tank</td><td>The fuel tank must be mounted so that refilling operations such as opening/closing the filler cap and pouring fuel are not obstructed.</td></tr>
<tr><td>14.Battery</td><td>Mounting hardware must be located so that battery removal/installation and inspection as well as battery cover detaching/attaching can be done easily.</td></tr>
<tr><td>15.Air dryer</td><td>The air dryer must be inspected and replaced periodically because it contains desiccant. Mounting hardware must be located so that removal/installation of the air dryer body is not obstructed.</td></tr>
<tr><td>16.Brake booster</td><td>The air-over hydraulic brake has the fluid tank located near the brake air tank. Mounting hardware must be located so that fluid level inspection, fluid refilling, air bleeding and other operations are not obstructed.</td></tr>
</table>

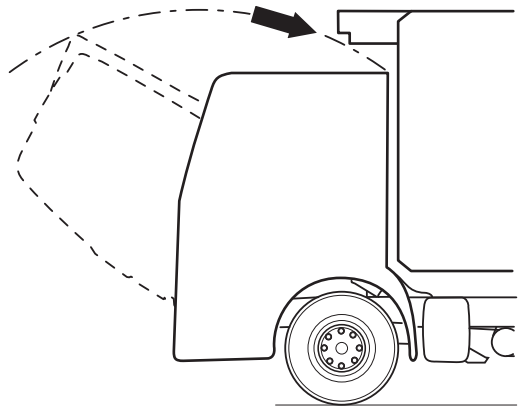
Additional information

Read and comply with the relevant sections of the Body/equipment mounting directives.

4.4 Clearance for basic vehicle and bodies

4.4.1 Attachment above cab

- Observe the permissible center of gravity location and the front axle load.
- Make sure that there is sufficient space for tilting
  Refer to 10.5.1 "Chassis cab drawings"
  ▷ page 302.



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Cab tilting range clearance

4.5 Permissible load on cab roof

When installing exterior equipment such as a roof deck or a ladder on the roof, ensure that the weight of the equipment does not exceed 70 kg.

4.6 Vehicle body incline

Plan the difference in weight between the left and right mounted components so that the lateral incline of the vehicle is within the standard value.

Vehicle lateral inclination criteria

Unit: mm

Measurement position		Difference in height between right and left
Front end	Headlamp center	15 max.
Rear end	Upper surface of frame rear end	15 max.

4.7 Others

4.7.1 Maximum rear body width

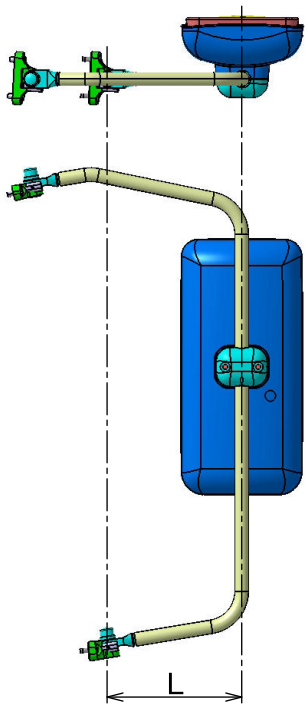
The maximum limits on the rear body width is prescribed in the local laws and regulations.

There is a limitation on rear body width for exterior mirror and Lamps.

Mirror

<For Australia/New Zealand>

On FK6, modify the stay in accordance with the rear body width, as shown below.



Unit: mm

STAY LENGTH	L
Short	223
Long	299

Unit: mm

MODEL (CABIN WIDTH)	STAY LENGTH	REAR BODY WIDTH
FK6 (Narrow)	Short	2245 to 2390
	Long	2390 to 2500
FM6, FN6 (Wide)	Short	2440 to 2500

<For Taiwan/Morocco/Malaysia>

Rear body width: 2390 mm to 2500 mm

<For South Africa>

FK6, FM61 vehicle is shipped from the factory with the outside mirrors installed in the "Inside set" position. Before dilivery, relocate the mirrors in the necessary positions shown in Figure 1 and table 1 dependding on the rear body width.

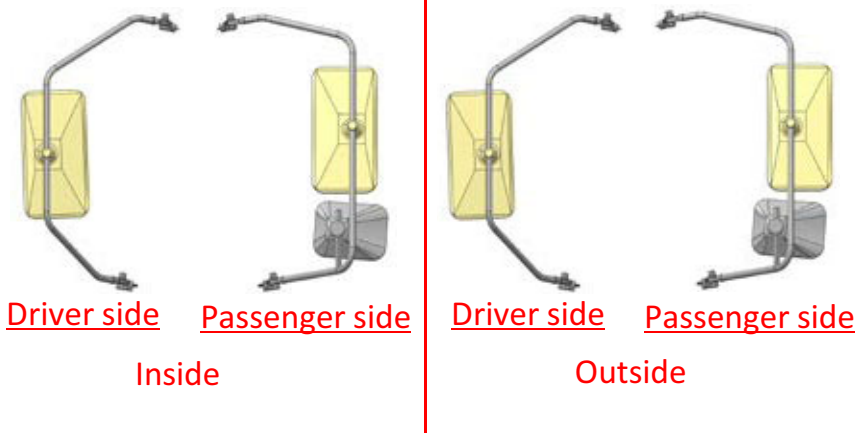


Fig.1

Table 1: Mirror setting position corresponding to rear body width

MODEL (CABIN WIDTH)	MIRROR SET	REAR BODY WIDTH (mm)
FK6 FM61	Inside Set	2340 to 2430
	Outside Set	2410 to 2500
FM65 FN6	Outside Set	2410 to 2500

Lamps

The maximum total width of FK series vehicles varies depending on the end outline marker lamp configuration:

If the rear body prevents the visibility of the front and side turn signal indicator lamps from meeting the regulatory requirements, additional side turn signal lamps must be installed to ensure compliance with visibility regulations.

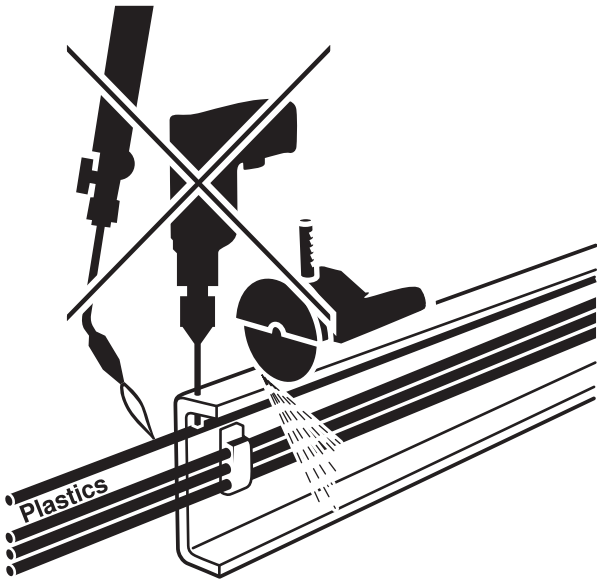
Unit: mm

MODEL	Maximum total width of vehicle
FK	2515
FK (Crew cab)	2485

5.1 Brake hoses/cables and lines

Risk of accident

Work carried out incorrectly on the brake hoses, cables and lines may impair their function. This may lead to the failure of components or parts relevant to safety.



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- Fuel and hydraulic lines and brake hoses must be covered or removed if necessary before carrying out any welding, drilling and grinding work and before working with cutting disks.
- After installing fuel lines, hydraulic lines and brake hoses, the potentially affected system must be tested for pressure loss and leaks.
- No other lines may be attached to brake hoses.
- Lines must be protected from heat by means of appropriate insulation.
- Line routing must be designed to prevent any pressure loss.

Comply with all national regulations and laws.

Additional information

Further information on brake hoses can be found in 6.13 "Brake systems" ▷ page 110.

5.2 Welding work

⚠ Risk of injury

Welding work in the vicinity of the airbags can cause the restraint system to malfunction.

Welding work near the airbags is strictly forbidden.

The airbag could be triggered or may no longer function correctly.

❗ Property damage

Do not connect the arc welder ground clamp to assemblies such as the engine, transmission or axles.

Welding work is not permitted on assemblies such as the engine, transmission, axles, etc.

All laws governing explosive substances must be complied with.

The following safety measures must be observed to prevent damage to components caused by overvoltage during welding work:

- Before starting the procedure, wait for at least 5 minutes after placing the starter switch in the OFF position (to allow the after-run process to finish).
- Disconnect the positive and negative terminals from the battery and cover them.
- Connect the welding-unit ground terminal directly to the part to be welded.
- Do not touch electronic component housings (e.g. control modules) and electric lines with the welding electrode or the ground contact clamp of the welding unit.
- Before welding, cover springs to protect them from welding spatter. Do not touch springs with welding electrodes or welding tongs.
- Cover the fuel tank and fuel system (lines, etc.) before carrying out welding work.
- Avoid welding work on inaccessible cavities in the cab.
- Welds must be ground down and reinforced with angular profiles to prevent notching from welding penetration.
- Avoid welds in bends.
- The distance from a weld to the outer edge should always be at least 15 mm.
- Avoid defects such as deposited metal cracking, toe crack, blow holes, slag inclusion, under cut, poor penetration, etc.

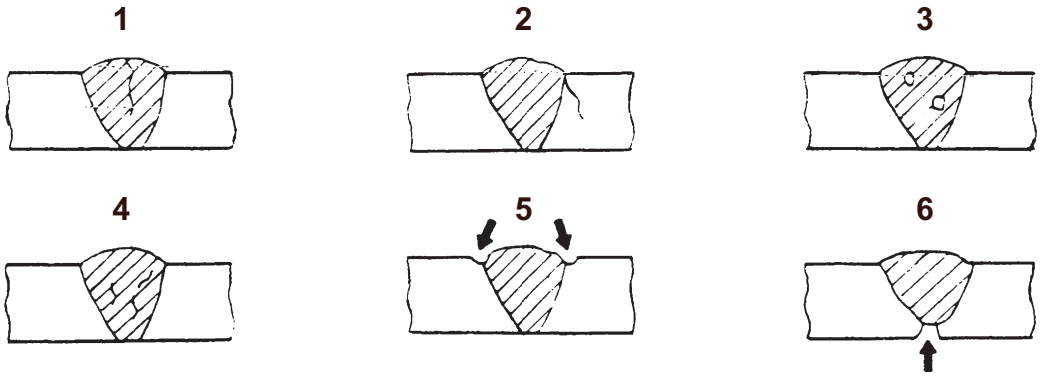


Fig. 1

1 Deposited metal cracking
2 Toe crack
3 Blow hole
4 Slag inclusion
5 Under cut
6 Poor penetration

Additional information

Additional information on welded connections can be found in Section 6 "Modifications to the basic vehicles" ▷ page 71 and Section 8 "Electrics/ electronics" ▷ page 170.

The following safety measures must be observed to prevent damage to welding parts;

- Do not weld any item to the frame to hold it temporarily.
- Clean parts thoroughly with a wire brush and dry them off before welding.
- Make sure the paint is completely removed, before welding a painted part.
- Use a low hydrogen type welding electrode. The welding electrode absorbs moisture when it is used, so it is necessary to dry it thoroughly before use.
- When welding, maintain the optimum welding speed and conditions for the preservation of the welding electrode.
- Maintain the welding current at the optimum value for safety.
- Make several short welding beads rather than one long bead.
- Make symmetrical beads to limit shrinkage.
- Avoid more than 3 welds at any one point.
- Avoid welding in strain hardened zones.
- When connecting the ground cable of the arc welder, make sure to disconnect the negative terminal from the battery. The ground of the welder should be connected to the side rail near the welded part. Never connect around the engine, transmission, propeller shaft, front and rear axles, etc.
- When performing welding work on the chassis, take proper measure to prevent the tubes, harnesses, rubber parts, springs, etc. from heat or spatter.
- Do not cool parts off with water after welding.

Risk of accident and injury

Before performing electric of arc welding as part of vehicle repair operation, disconnect the negative (-) cable from the battery. The ground cable of the welding machine should be connected to a point as close to the welding area as possible.

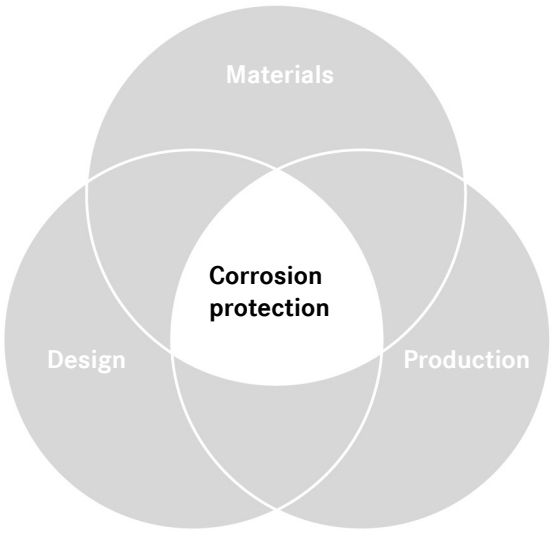
5.3 Corrosion protection measures

General

In order to preserve the durability and quality standard of the vehicle, measures must be taken to protect it against corrosion when the vehicle is modified and after installing bodies and fittings.

Information on the design, execution of work and the requirements of the materials and components to be used with regard to corrosion protection is listed below.

To achieve good corrosion protection, the areas of design (1), production (2) and materials (3) must be perfectly matched.



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Optimum corrosion protection

5.3 Corrosion protection measures

Disassembly of components

If the body manufacturer makes structural modifications to the chassis, the corrosion protection in the affected areas must be restored to match the production standards of MITSUBISHI FUSO. The areas must also be finished with appropriate paintwork. Information on approved MITSUBISHI FUSO refinishing paint suppliers is available on request from the responsible department ▷ page 12.

Damage to components

If components are damaged during disassembly (scratches, scuff marks), they must be professionally repaired. This applies especially for drilled holes and openings. Two-component epoxy primers are particularly suitable for repair work.

Cutting of components

When cutting and grinding work is carried out, the adjacent painted components must be protected against flying sparks and shavings. Grinding dust and shavings must be carefully removed because these contaminants can spread corrosion. Edges and drilled holes must be cleanly deburred in order to guarantee optimum corrosion protection.

Corrosion protection on reinforcements and fittings

Reinforcements and fittings must receive adequate anti-corrosion priming prior to installation. In addition to galvanizing, cataphoretic dip-priming and zinc-rich paint in sufficient coatings have proved satisfactory for this purpose.

5.3 Corrosion protection measures

Corrosion prevention in welding work

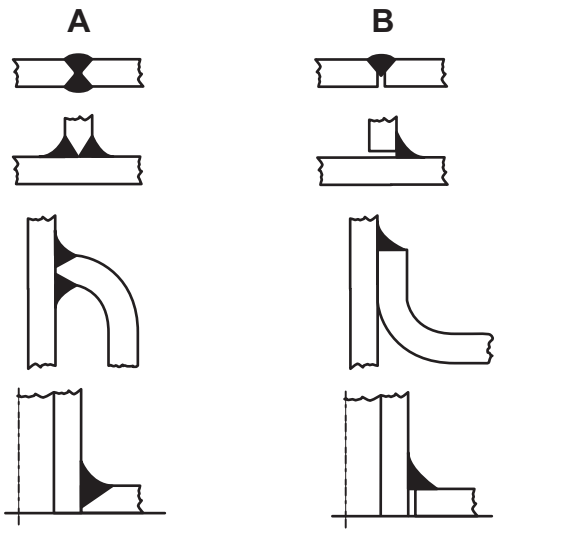
In order to avoid crevice corrosion at weld seams, the welds should be made in accordance with the examples shown.

Preparation

The welding area must be free from corrosion, grease, dirt or similar contamination. If painted surfaces are to be welded, the paint coat must first be removed by grinding or chemical stripping. If this is not done, the paint will burn and the residues can impair corrosion resistance.

After welding work

- Remove drilling shavings.
- Deburr sharp edges.
- Remove any burned paint and thoroughly prepare surfaces for painting.
- Prime and paint all unprotected parts.
- Preserve cavities with wax preservative.
- Carry out corrosion protection measures on the underbody and frame parts.



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Example: Weld seams

A – Suitable
B – Unsuitable

Additional information

Plug and slot welds, particularly on horizontal surfaces, should be avoided due to the risk of corrosion. If they are unavoidable, these welds must receive additional preservation. Furthermore, avoid designs which allow moisture to accumulate. These must be fitted with additional drainage holes or gaps in the weld seam.

5.4 Bolted connections

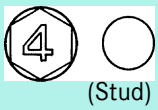
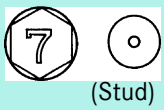
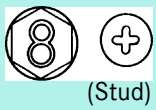
Use the specified bolts and nuts. Unless otherwise specified, tighten to the torques shown in the table below.

Make sure that the thread and washer are dry when tightening.

If strength categories differ between a nut and bolt (or stud bolt), tighten the nut to the torque specified for the bolt.

- Hexagon head bolt and stud bolt

Unit: N·m {kgf·m}

Strength category	4T		7T		8T	
Indication / Nominal diameter mm	 (Stud)		 (Stud)		 (Stud)	
M5	2 to 3 {0.2 to 0.3}	–	4 to 6 {0.4 to 0.6}	–	5 to 7 {0.5 to 0.7}	–
M6	4 to 6 {0.4 to 0.6}	–	7 to 10 {0.7 to 1.0}	–	8 to 12 {0.8 to 1.2}	–
M8	9 to 13 {0.9 to 1.3}	–	16 to 24 {1.7 to 2.5}	–	19 to 28 {2.0 to 2.9}	–
M10	18 to 27 {1.8 to 2.7}	17 to 25 {1.8 to 2.6}	34 to 50 {3.5 to 5.1}	32 to 48 {3.3 to 4.9}	45 to 60 {4.5 to 6.0}	37 to 55 {3.8 to 5.7}
M12	34 to 50 {3.4 to 5.1}	31 to 45 {3.1 to 4.6}	70 to 90 {7.0 to 9.5}	65 to 85 {6.5 to 8.5}	80 to 105 {8.5 to 11}	75 to 95 {7.5 to 10}
M14	60 to 80 {6.0 to 8.0}	55 to 75 {5.5 to 7.5}	110 to 150 {11 to 15}	100 to 140 {11 to 14}	130 to 170 {13 to 17}	120 to 160 {12 to 16}
M16	90 to 120 {9.0 to 12}	90 to 110 {9 to 11}	170 to 220 {17 to 23}	160 to 210 {16 to 21}	200 to 260 {20 to 27}	190 to 240 {19 to 25}
M18	130 to 170 {14 to 18}	120 to 150 {12 to 16}	250 to 330 {25 to 33}	220 to 290 {22 to 30}	290 to 380 {30 to 39}	250 to 340 {26 to 35}
M20	180 to 240 {19 to 25}	170 to 220 {17 to 22}	340 to 460 {35 to 47}	310 to 410 {32 to 42}	400 to 530 {41 to 55}	360 to 480 {37 to 49}
M22	250 to 330 {25 to 33}	230 to 300 {23 to 30}	460 to 620 {47 to 63}	420 to 560 {43 to 57}	540 to 720 {55 to 73}	490 to 650 {50 to 67}
M24	320 to 430 {33 to 44}	290 to 380 {29 to 39}	600 to 810 {62 to 83}	540 to 720 {55 to 73}	700 to 940 {72 to 96}	620 to 830 {63 to 85}

- Hexagon flange bolt

Unit: N·m {kgf·m}

Strength category	4T		7T		8T	
Indication / Nominal diameter mm						
M6	4 to 6 {0.4 to 0.6}	–	8 to 12 {0.8 to 1.2}	–	10 to 14 {1.0 to 1.4}	–
M8	10 to 15 {1.0 to 1.5}	–	19 to 28 {2.0 to 2.9}	–	22 to 33 {2.3 to 3.3}	–
M10	21 to 30 {2.1 to 3.1}	20 to 29 {2.0 to 3.0}	45 to 55 {4.5 to 5.5}	37 to 54 {3.8 to 5.6}	50 to 65 {5.0 to 6.5}	50 to 60 {5.0 to 6.5}
M12	38 to 56 {3.8 to 5.5}	35 to 51 {3.5 to 5.2}	80 to 105 {8.0 to 10.5}	70 to 95 {7.0 to 9.5}	90 to 120 {9 to 12}	85 to 110 {8.5 to 11}

- Hexagon nut

Unit: N·m {kgf·m}

Strength category	4T		6T	
Indication / Nominal diameter mm				
	Standard thread	Coarse thread	Standard thread	Coarse thread
M5	2 to 3 {0.2 to 0.3}	–	4 to 6 {0.4 to 0.6}	–
M6	4 to 6 {0.4 to 0.6}	–	7 to 10 {0.7 to 1.0}	–
M8	9 to 13 {0.9 to 1.3}	–	17 to 24 {1.7 to 2.5}	–
M10	18 to 27 {1.8 to 2.7}	17 to 25 {1.8 to 2.6}	34 to 50 {3.5 to 5.1}	32 to 48 {3.3 to 4.9}
M12	34 to 50 {3.4 to 5.1}	31 to 45 {3.1 to 4.6}	70 to 90 {7.0 to 9.5}	65 to 85 {6.5 to 8.5}
M14	60 to 80 {6.0 to 8.0}	55 to 75 {5.5 to 7.5}	110 to 150 {11 to 15}	100 to 140 {11 to 14}
M16	90 to 120 {9.5 to 12}	90 to 110 {9 to 11}	170 to 220 {17 to 23}	160 to 210 {16 to 21}
M18	130 to 170 {14 to 18}	120 to 150 {12 to 16}	250 to 330 {25 to 33}	220 to 290 {22 to 30}
M20	180 to 240 {19 to 25}	170 to 220 {17 to 22}	340 to 460 {35 to 47}	320 to 410 {32 to 42}
M22	250 to 330 {25 to 33}	230 to 300 {23 to 30}	460 to 620 {47 to 63}	420 to 560 {43 to 57}
M24	320 to 430 {33 to 44}	290 to 380 {29 to 39}	600 to 810 {62 to 83}	540 to 720 {55 to 73}

- Hexagon flange nut

Unit: N·m {kgf·m}

Strength category	4T	
Indication / Nominal diameter mm		
	Standard thread	Coarse thread
M6	4 to 6 {0.4 to 0.6}	–
M8	10 to 15 {1.0 to 1.5}	–
M10	21 to 31 {2.1 to 3.1}	20 to 29 {2.0 to 3.0}
M12	38 to 56 {3.8 to 5.5}	35 to 51 {3.5 to 5.2}

5.5 Painting work

If you removed parts, securely install them in their original positions.

If you peeled off labels, obtain new labels and stick them in their original positions.

Environmental note

Paints and lacquers are harmful to health and to the environment if they are not handled correctly.

Dispose of paints and lacquers in an environmentally responsible manner.

General precautions

- If you removed parts, be sure to re-install them in their original positions.
- If you removed any labels, obtain new labels and apply them to the same positions from which you removed the old labels.
- Paint compatibility should be checked when epainting. In order to avoid color variations on painted bodies, MITSUBISHI FUSO recommends that paints be used only if they have been tested and approved for the vehicle model in question.
- Depending upon the specifications, there are colors and parts which are not applicable. For details, please contact MITSUBISHI FUSO's authorized Distributer.

5.5.1 Repainting prohibited positions

The parts and components listed below may cause trouble if repainted. Mask these parts and components before starting painting to protect them against paint spray.

- Brake hoses and brake-related parts
- Various nylon tubes and identification tape
- Various rubber hoses
- Rubber and plastic parts of cab suspension, engine, chassis suspension and steering systems
- Dust indicator
- Electronic controls
  - Engine ECU
  - ACM (After-treatment ECU)
  - Other systems' ECU
- Electrical wiring, connectors and sensors for electronic controls
- Electric devices such as lamps, switches and battery
- Drive shaft connecting flanges (propeller shaft, power take-off output shaft)
- Piston rods of pneumatic cylinders
- Various air line control valves
- Breathers of transmission and axles
- Caution plates and name plates
- Rubber and PP resin parts
  - Weather-strip
  - Washer nozzle
  - Mudguards
  - Antenna legs
  - Under-mirror body
  - Front grip
  - Run channel
  - Retractable mirror motor unit
  - Wheel house cover
  - Tilt pump box
  - Tilt link, hook cover
  - Mudguard apron
  - Noise cover
  - Battery cover
- BlueTec exhaust gas aftertreatment
  - Supply unit
  - Pressure limiting unit
- Parts which must not be painted for design reasons
  - Emblems such as the Mitsubishi logo
  - Outside mirror stay and covers
  - Antenna and antenna bracket
  - Outside mirror housing
  - Front grille (unpainted areas)
  - Wiper arms and blades
  - Outer handles & covers

If you removed weatherstrips or opening seals, observe the following instructions when reinstalling them.

- Adhesive tapes cannot be reused. If you peeled off adhesive tapes, use new adhesive tapes and primer.

Part name	Manufacturer/ product number	Remarks
Adhesive tape	Sumitomo 3M/ GT7108 or equivalent	
Primer	Sumitomo 3M/K-520 or equivalent	

- If you removed a door weatherstrip, check that the plastic clip hook is not deformed and that the hook can be inserted correctly before reinstalling the weatherstrip. If the clip hook is deformed or damaged, replace the clip with a new one.

Part name	Manufacturer/ product number	Remarks
Clip	MC146853 (Mitsubishi part number)	For door weatherstrip

- If you removed the front panel weatherstrip, replace the clip with a new one. It cannot be reused.

Part name	Manufacturer/ product number	Remarks
Clip	MU481027 (Mitsubishi part number)	For front panel weatherstrip

F

- If you removed tape attached to a corner cab metal of the windshield, replace the tape with a new one. It cannot be reused.

Part name	Manufacturer/ product number	Remarks
TAPE, SEAL LH	MC927644 (Mitsubishi part number)	For windshield
TAPE, SEAL RH	MC927645 (Mitsubishi part number)	For windshield

5.5.2 Precautions during paint curing

Forced drying

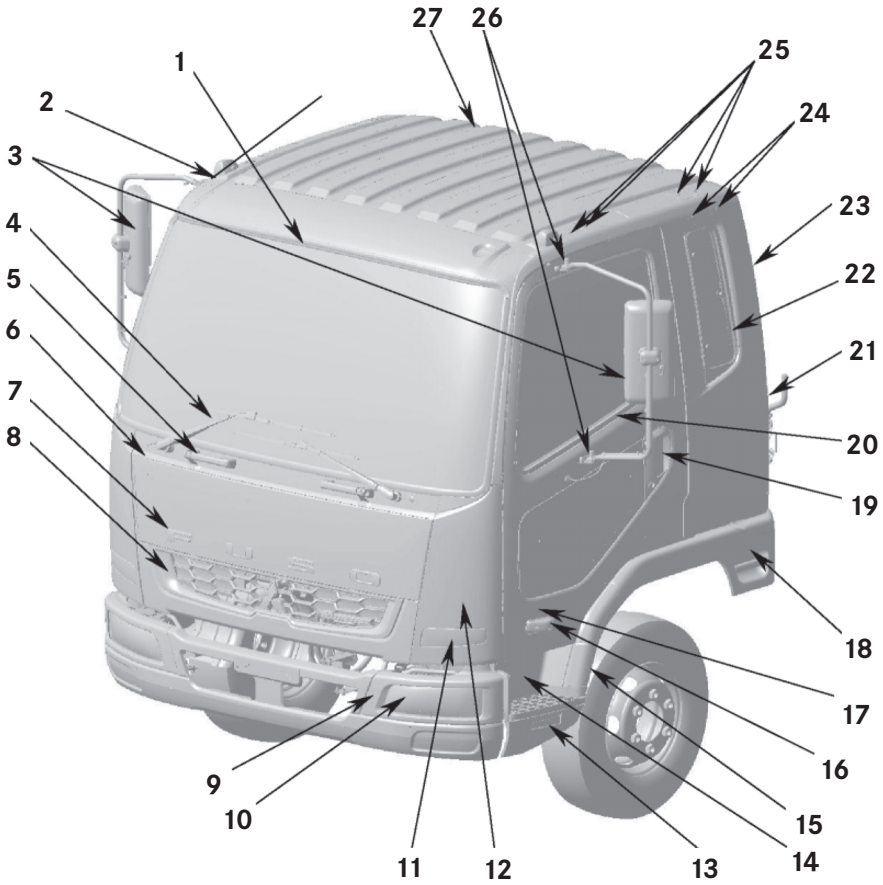
- Forced drying after painting the cab or bumper must be done at a temperature not exceeding 80°C.
- Avoid removing the under-window moulding, and protect it against heat by masking.

The front panel hinges are die-cast aluminum parts and can therefore be painted and dried together with other metal parts.

- If forced drying above 80°C is unavoidable, remove resin and rubber parts from the vehicle or shield them against heat.

Parts to be removed or heat-shielded when drying at higher than 80°C

<Door mirror type>

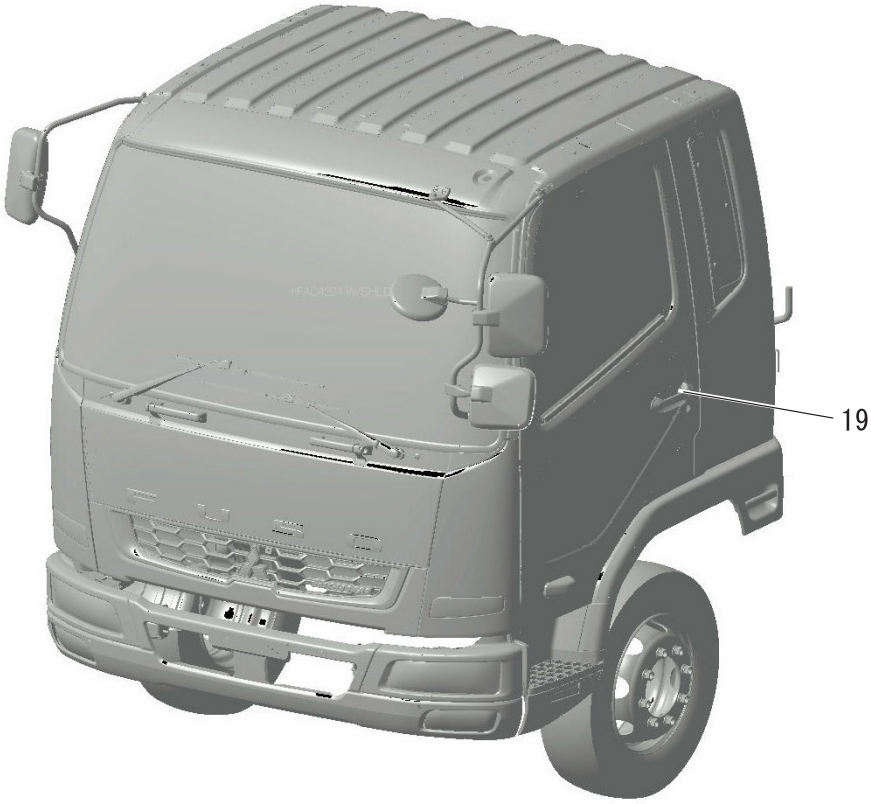


1 *Windshield weather strip*
2 *Antenna legs*
3 *Outside mirror*
4 *Wiper arm & blade, cap*
5 *Front grip & cap*
6 *Front panel weather strip*
7 *Emblem*
8 *Front grille (including emblem)*
9 *Lamp bezel*
10 *Headlamp*
11 *Front turn signal lamp*
12 *Corner panel*
13 *Front side reflector*
14 *Step wall*
15 *Wheel house cover (cab underside)*
16 *Side turn signal lamp*
17 *Ornament*
18 *Front fender (including fender splash shield)*
19 *Door outer handle*
20 *Door run channel & weather strip*
21 *Air outlet garnish*
22 *Side window weather strip*
23 *Rear window weather strip (cab backside)*
24 *Ladder mounting plugs*
25 *Screws and washers for mounting roof deck & deflector*
26 *Cap, packing (Mirror stay assy)*
27 *Snorkel duct & rubber boot (cab backside)*

<Vehicle with head lamp on the cab>

9 Lamp bezel *10 Headlamp*

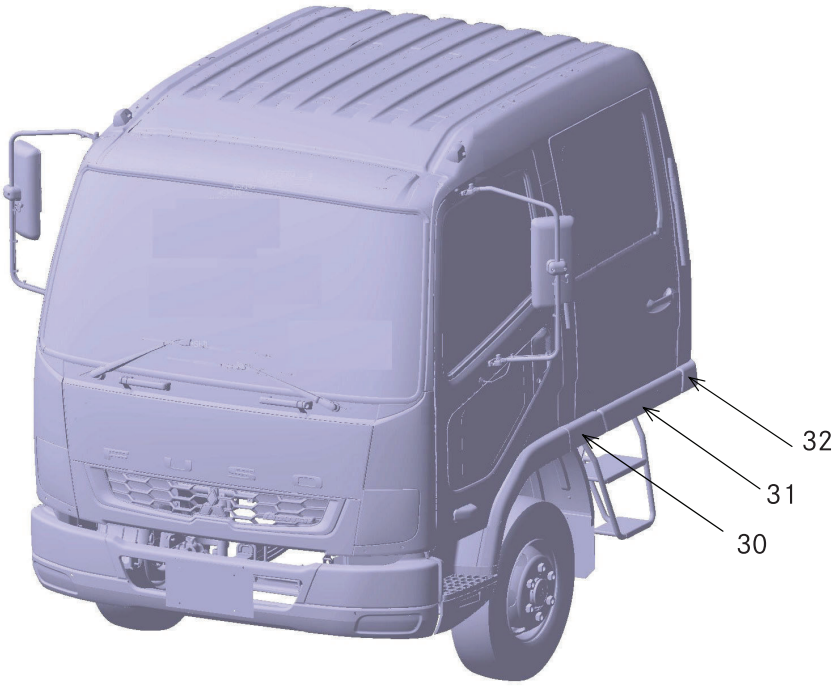
<Under window glass less vehicle>



<Vehicle with roof lamp>

28 Roof marker lamp *29 Front roof lamp*

<Vehicle with crew cab>



30 Side front fender *31 Door fender* *32 Side rear fender*

Natural drying

There is no need to remove resin parts and rubber parts from the vehicle.

5.5.3 Painting the cab

Cab painting of as-shipped vehicle

Metal sheet parts (cab metal, front panel, bumper)

Body color (color name)	Color part number	Paint manufacturer and product number		
Natural White	AC17031	Kansai Paint	MHS Amilac (modified)	Natural White
Mars Red	AC17023	Kansai Paint	Neo-Amilac	New Mars Red
Active Yellow	CFY10013	Kansai Paint	Neo-Amilac	Active Yellow
AUS Orange	CFO10001	Kansai Paint	Neo-Amilac	AUS Orange
Bright Orange	AC17024	Kansai Paint	Neo-Amilac	Bright Orange

Body color parts other than metal sheet parts

- Corner panel, front grill, lamp bezel, step wall

Body color (color name)	Material	Color part number	Paint manufacturer and product number		
Natural White	AEPDS	AC27731	(Material coloring)		
Mars Red	ABS	AC17023	Dai Nippon Toryo Co., Ltd.	Planitto PA	AC17023
Active Yellow	ABS	CFY10013	Dai Nippon Toryo Co., Ltd.	Planitto PA	CFY10013
AUS Orange	ABS	CFO10001	Dai Nippon Toryo Co., Ltd.	Acrythane 1000	CFO10001
Bright Orange	ABS	AC17024	Dai Nippon Toryo Co., Ltd.	Acrythane 1000	AC17024

- Front fender

Body color (color name)	Material	Color part number	Paint manufacturer and product number		
Natural White	AEPDS	AC27731	(Material coloring)		
Mars Red	AEPDS, PC+ABS	AC17023	Dai Nippon Toryo Co., Ltd.	Acrythane 1000	AC17023
Active Yellow	AEPDS, PC+ABS	CFY10013	Kansai Paint Co., Ltd.	Retan PG602 (modified)	CFY10013
AUS Orange	AEPDS, PC+ABS	CFO10001	Dai Nippon Toryo Co., Ltd.	Acrythane 1000	CFO10001
Bright Orange	AEPDS, PC+ABS	AC17024	Dai Nippon Toryo Co., Ltd.	Acrythane 1000	AC17024

5.5 Painting work

- Side front fender, door fender, side rear fender

Body color (color name)	Material	Color part number	Paint manufacturer and product number		
Natural White	FRP	AC17031	Dai Nippon Toryo Co., Ltd.	Planit	#3600 PA Natural White AC17031
AUS Orange	FRP	CFO10001	Dai Nippon Toryo Co., Ltd.	Acrythane 1000	CFO10001

- Outer grip

Body color (color name)	Material	Color part number	Paint manufacturer and product number		
Natural White	STKM11A	AC17031	Kansai-Paint	Neo-Amilac	Natural White
AUS Orange	STKM11A	CFO10001	Kansai-Paint	Neo-Amilac	AUS Orange

- Parts with specific color regardless of body color

Part name	Material	Color and color part number	Coloring method	Paint manufacturer and product number
Front panel hinge	ADC	Black, CFX18000	Painting	Dai Nippon Toryo Co., Ltd. T800LINE CFX18000 30% gloss BLACK
Front grip	PP-GF20	Black, AC20157	Material coloring	–
Air outlet garnish	AAS	Black, AC20157	Material coloring	–

5.5 Painting work

Painting the cab body

Cab painting of as-shipped vehicles uses non-sanding, high adhesion paint for the natural white color. However, to completely remove oils and contaminants on coating surfaces of these parts, sanding before painting is recommended.
Paints other than natural white are not of a high adhesion type. Perform sanding before painting. (Sanding method: Use #400 sanding paper to sand evenly until the gloss of the coating surface is gone.)

Repainting the cab

- Paint
  For repainting with lacquer or urethane paint, the following brands have been verified to provide sufficient coating adhesion without sanding.

Manufacturer	Paint name
Kansai Paint	Retan PG80 Retan PG60 Acric #1000
Rock Paint	38 Line Co-Rock 79 Line Rock Ace 73 Line High Rock 38 Line Rock Lacquer
Isamu Paint	AU21 High Art #3000
Dai Nippon Toryo	Auto V-Top Auto V Top Monarch Auto Magnum Auto Squall Auto Acrose Super Neo Lacquer
Nippon Paint	Nax Mighty Lac Nax Superio Nax Besta Nippe Acryl

For paints other than the above brands, you need to contact the paint manufacturer and confirm whether or not sanding is required.

It is recommended to use the following conditions for the paint and painting method.

Paint manufacturer	**Dai Nippon Toryo**
Paint type	Acrylic/urethane-based
Paint name	Planitto #3000
Hardener	Planitto #721 hardener
Mix ratio	Resin : Hardener = 100 : 15
Thinner	Planitto #30 thinner
Paint viscosity	12 to 14 seconds/Measured using Iwata cup*
Dried coating thickness	20 to 35 μ
Setting	5 to 10 minutes at normal temperature
Drying of coating	30 to 40 minutes at 60 to 70°C Touchably dry = approx. 15 to 20 minutes
Pretreatment of surface	1. Sanding white paint surface 2. Degreasing with IPA 3. Air blowing
Painting method	Spray gun

Note
1. If acrylic-based lacquer is used, swelling of paint coating may occur. Contact the paint manufacturer for details.
2. Without sanding treatment, poor adhesion may result.

* The Iwata cup:
is a simple paint viscometer, viscosity cup, NK-2 produced by ANEST IWATA Corporation

For design's sake, the front upper grill, front lower grill and air outlet garnish should be painted black or gray. Mask the Mitsubishi mark before painting.

The synthetic resins used in the grill and other parts are susceptible to organic solvents. If paint has adhered to these parts, be sure to select the correct solvent to wipe it off. Otherwise, cracks or marks may result.

- Usable organic solvents
  - Kerosene
  - Light oil
  - Non-freezing solution
  - Wax sol (from Nihon Parkerizing) Neo Rider
  - Industrial soap
  - Uni Gold
  - Car Spray 99
- Unusable organic solvents
  - Thinner
  - Turpentine oil
  - Gasoline
  - Escoat
  - Origin Veil
  - Tolepika
  - Emulsion wax
  - Commercially available wax
  - Acetone
  - Reagent alcohol (Japanese Pharmacopoeia grade 1)
  - Ketone
  - Ester
  - Chlorinated hydrocarbon

Handling of laminated glass

- When a repainted cab body is forced-dried, the temperature should not exceed 100°C and the process must be completed within 60 minutes. When using a temperature above 100°C, cover the glass surfaces with shields to prevent them from being heated beyond 100°C or remove the glass.
- Laminated glass is marked by a double slash (//) in the lower left corner.

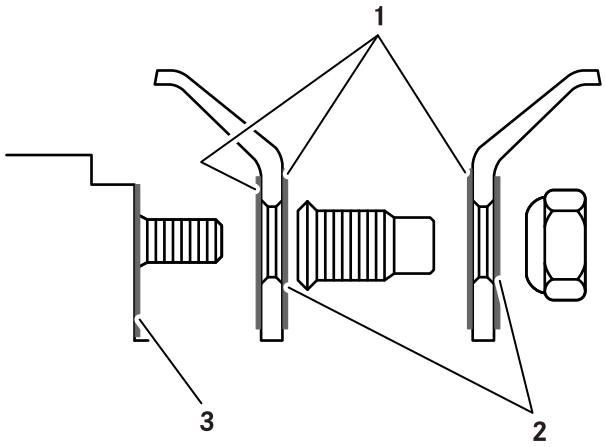
5.5.4 Painting the disk wheels

Disk wheels are sometimes painted in the specified color in addition to the original paint on the wheels as shipped by the wheel manufacturer. However, this could lead to loose wheel nuts depending on the thickness of the paint coating.

Prohibition of additional painting

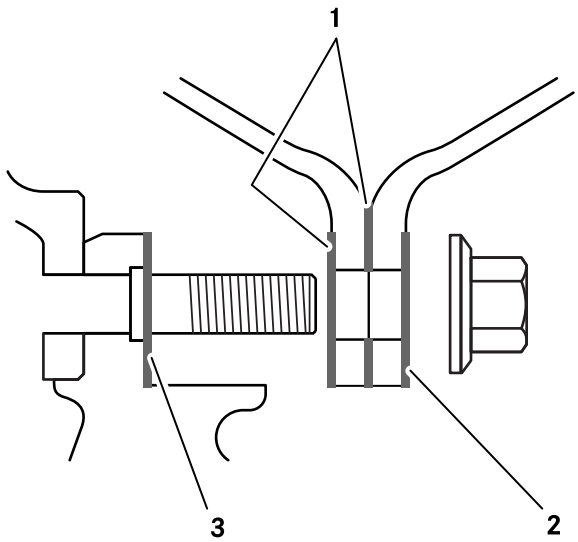
- Do not apply additional painting to disk wheel mounting surfaces, wheel nut seating surfaces and wheel hub mounting surfaces. This makes the paint coating thicker, which could lead to loose wheel nuts. If additional painting has been applied, remove it and clean the surface with a wire brush.

<Vehicles with 6-bolt disk wheels>



1 Disk wheel mounting surface
2 Wheel nut seating surface
3 Wheel hub mounting surface

<Vehicles with 8- or 10-bolt disk wheels>



1 Disk wheel mounting surface
2 Wheel nut seating surface
3 Wheel hub mounting surface

- If you removed parts, securely re-install them in their original positions. If you peeled off labels, obtain new labels and stick them in their original locations.

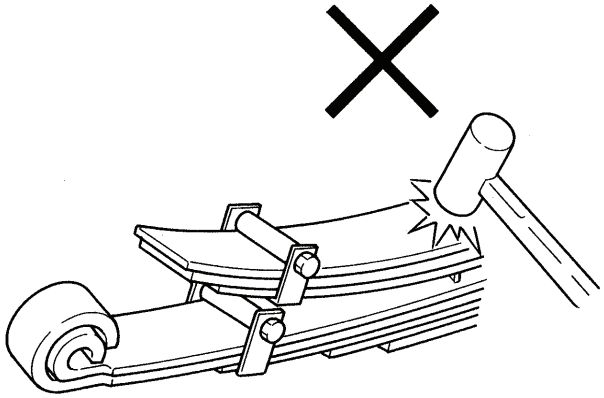
Tire rotation

- If additional paint on a disk wheel mounting surface becomes the mounting surface for the mating part (wheel hub or wheel) as a result of tire rotation, remove the paint on the wheel mounting surface and wheel nut seating surface and clean the surfaces with a wire brush before installing the disk wheel. If it is installed without removing the paint, the thick paint coating could lead to loose wheel nuts.

5.6 Chassis springs

5.6.1 Leaf springs

- When removing or reinstalling the leaf spring, use care not to damage the anticorrosive coating on the surface of the leaf.



- Only use spring leaves which have been tested and approved for the vehicle model in question. Reinforcement by installing additional spring leaves is not permitted.
- Do not damage the surface or the corrosion protection of the spring leaves when carrying out installation work.
- Before carrying out welding work, cover the spring leaves to protect them against welding spatter. Do not touch springs with welding electrodes or welding tongs.

5.6.2 Air springs

- Do not damage the air springs when carrying out installation work.
- Before carrying out welding work, cover the air springs to protect them against welding spatter.

5.7 Tilting the cab

Risk of injury

Before tilting the cab, please make sure that you read the "Tilting the cab" section in the detailed Owner's Handbook.

You could otherwise fail to recognize dangers, which could result in injury to yourself or others.

5.8 Towing and tow-starting

⚠ Risk of accident and injury

Before towing or tow-starting, please make sure that you read the "Towing" section in the detailed Owner's Handbook. You could otherwise fail to recognize dangers and cause an accident, which could result in injury or death.

! Property damage

Failure to observe the instructions in the Owner's Handbook can result in damage to the vehicle.

5.9 Risk of fire

⚠ Risk of fire

Work on live electrical lines carries a risk of short circuit.

Before starting work on the electrical system, disconnect the on-board electrical system from the power source, e.g. battery.

With all bodies make sure that neither flammable objects nor flammable liquids can come into contact with hot assemblies (including through leakages in the hydraulic system) such as the engine, transmission, exhaust system, turbocharger, etc.

Appropriate caps, seals and covers must be installed on the body in order to avoid the risk of fire.

5.10 Electromagnetic compatibility (EMC)

The different electrical consumers on board the vehicle cause electrical interference in the vehicle's electrical circuit. At MITSUBISHI FUSO, electronic components installed at the factory are checked for their electromagnetic compatibility in the vehicle.

When retrofitting electric or electronic systems, they must be tested for electromagnetic compatibility and this must be documented.

The equipment must have been granted type approval in accordance with EC Directive 2009/19/EC and must bear the "e" mark.

The following standards provide information on this:

- DIN50498
- DC11224 (EMC component requirements)
- DC10613 (EMC vehicle requirements)
- EU Directive 2009/19/EC

Additional information

The notes on operating safety and vehicle safety in Section 1 "Introduction" ▷ page 7 and ▷ page 8 must be complied with.

5.11 Storing and handing over the vehicle

Storage

To prevent any damage while vehicles are in storage, MITSUBISHI FUSO recommends that they be serviced and stored in accordance with the manufacturer's specifications ▷ page 31.

Handover

To prevent damage to the vehicle or to repair any existing damage, MITSUBISHI FUSO recommends that the vehicle be subjected to a full function check and a complete visual inspection before it is handed over ▷ page 32.

6.1 General

Risk of injury

Do not modify any bolted connections that are relevant to safety, e.g. that are required for wheel alignment, steering or braking functions.

When unfastening bolted connections make sure that, when work is complete, the connection again corresponds with the original condition.

Welding work on the chassis/body may only be carried out by trained and qualified personnel.

The body, the attached or installed equipment and any modifications must comply with the applicable laws and directives as well as work safety or accident prevention regulations, safety rules and accident insurer requirements.

Additional information

Further information on bolted and welded connections can be found in Section 3 "Planning of bodies" ▷ page 27 and Section 5 "Damage prevention" ▷ page 46.

6.1 General

Never modify (weld, padding, additional work, etc.) or heat critical safety parts such as the axle, steering, brake, suspension related components, propeller shaft. If you study the movement of critical safety parts owing to unavoidable circumstances, be sure to consult with the department responsible. ▷ page 12

Main critical safety parts

- Knuckle arm
- Knuckle arm bolt
- Tie rod assembly
- Tie rod arm
- Tie rod arm bolt
- Axle
- Steering shaft assembly
- Power steering booster
- Power steering booster bracket
- Pitman arm ball stud
- Steering drag link
- Steering ball stud
- Slave lever
- Slave lever bracket
- Steering booster end socket
- Steering universal yoke
- Steering slip joint
- Steering spider
- Front two axle steering connecting link-related parts
- Brake hose, brake pipe
- Brake booster, Brake valves
- Air tank
- Wheel bolt
- Wheel nut
- Spring bracket
- Spring U-bolt
- Propeller shaft

Observe the following precautions during body building work. Failure to observe any of them could damage an engine or intake system part.

- Do not run the engine with the air cleaner removed.
- Do not allow paint or organic solvent (including evaporated gas) to be drawn into the engine intake system.
- Do not heat the engine intake system from the outside.

6.2 Chassis frame material

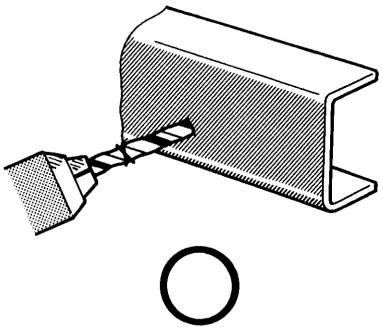
If the frame is extended, the material of the extension element and reinforcing bracket must have the same quality and dimensions as the standard chassis frame.

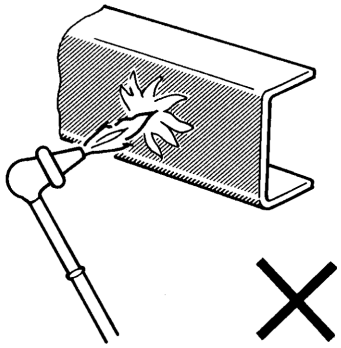
See the respective body/equipment mounting directives for the longitudinal frame member dimensions.

Material
HTP540

6.3 Drilling work on the vehicle frame

For making a hole in frame members, be sure to use a drill bit. Never attempt to make a hole using a gas torch.





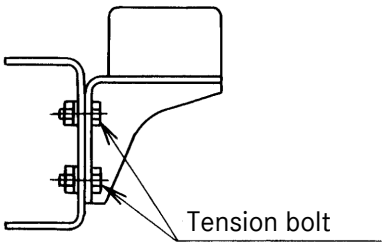
Remember that every drilled hole must be finished by chamfering.

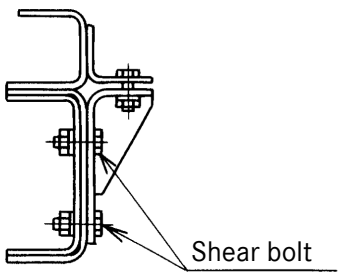
Drilling holes in side rail

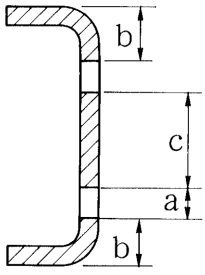
- Note that the hole diameter and the distance between holes given in the following table must be met. Even if existing holes (bolt or rivet holes) are to be used, these requirements must be met.

Unit: mm

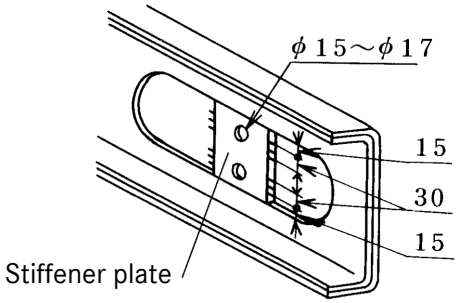
Hole diameter: a		Distance between corner and hole brim: b	Distance between holes: c
Tension bolt holes If tensile and compression forces are applied to bolts	Shear bolt holes If only shearing force is applied to bolts		
ϕ13 or less	ϕ13 or less	30 or more	For ϕ13 or less: min. 30 For ϕ15 or less: min. 45 For ϕ17 or less: min. 65



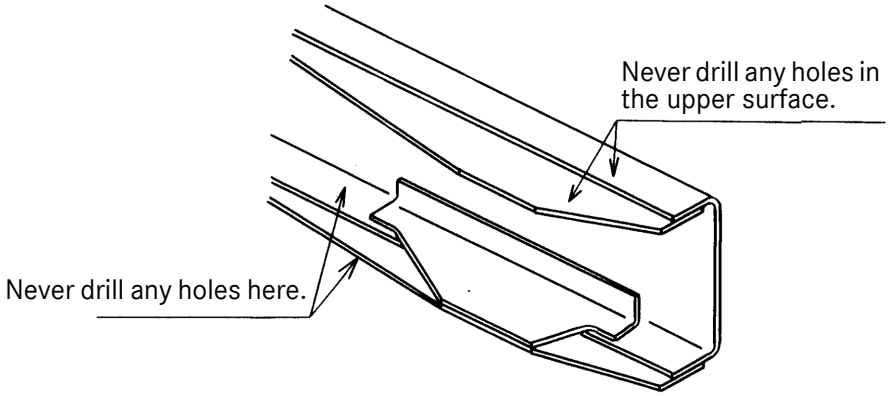




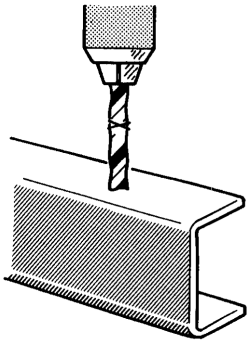
- Shear bolt holes of ϕ15 mm or more can be drilled exclusively in double frame sections (chassis frame with subframe inside). If the portion of the subframe in which a hole is to be drilled has been blanked out, weld a piece of stiffener plate to that section as shown in the figure below.



- Do not attempt to drill any holes in a trunnion stiffener or crossmember gusset.



- Do not drill any holes in either the upper or lower surface of the side rail flanges.



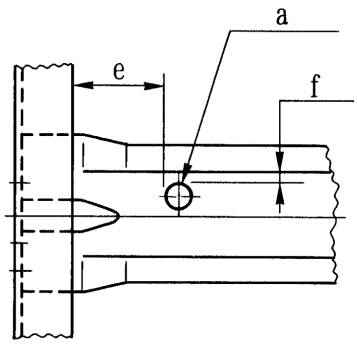
6.3 Drilling work on the vehicle frame

Drilling holes in a crossmember

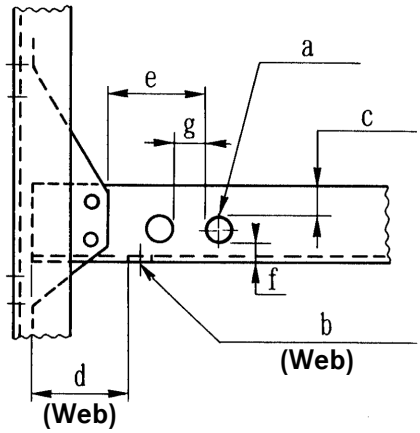
- Note that the hole diameter and the distance between holes given in the following table must be met. Even if existing holes (bolt or rivet holes) are to be used, these requirements must be met.

Unit: mm

Hole diameter		Span between plate end and hole edge		Distance between side rail or gusset edge and hole brim: e	Distance between corner and hole brim: f	Distance between holes: g
Flange: a	Web: b	Flange: c	Web: d			
ϕ11 max.	ϕ13 max.	30 min.	50 min.	100 min.	25 min.	30 min.



Alligator type crossmember

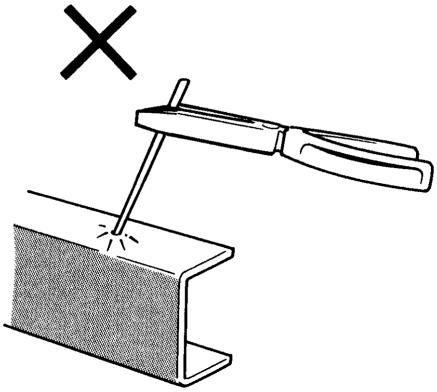


Channel type crossmember

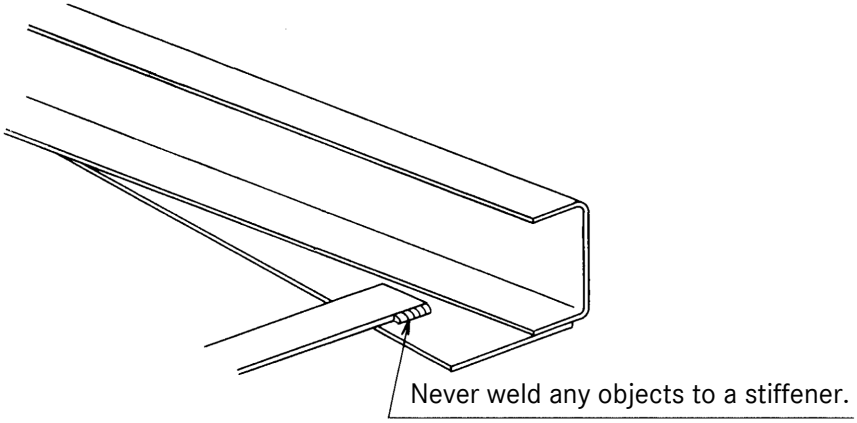
6.4 Welding work on the vehicle frame

For welding procedures, refer to 5.2 "Welding work"
▷ page 47.

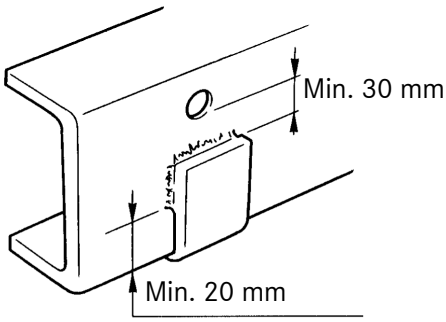
- Do not attempt to attach any objects to the upper or lower surface of side rails by welding.



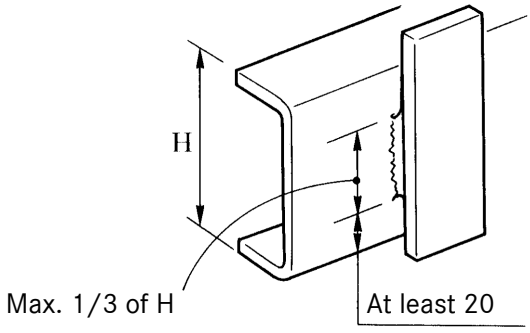
- Avoid welding an object to a trunnion stiffener or crossmember gusset.



- Welding parts should be more than 20 mm away from the web corners and 30 mm away from each hole.



- Within the wheelbase section, the length of a continuous welding bead in the vertical direction should not exceed 1/3 of side rail height.



- Do not tack-weld an object to the frame to hold it in position temporarily.
- Clean the areas to be welded thoroughly beforehand.
- Only use a welding rod of ilmenite base 540 MPa (55 kgf/mm^2) as a electrode.
- Welding rods may be moistened during storage. Ensure that only well-dried welding rods are used.
- Be sure to remove sludge completely from the previous layer.
- Throughout the welding process, take care that such welding flaws as undercut, sludge inclusion, blowhole, cracking, pitting, etc., are completely eliminated.
- Unevenly shaped welding beads can cause stress concentration to occur, which has a great effect on the fatigue strength. Finish the welding beads as smooth as possible using a grinder.
- Cover the hoses, nylon tubes, harnesses, chassis springs and so on with appropriate means to protect them against welding spatters (sparks).

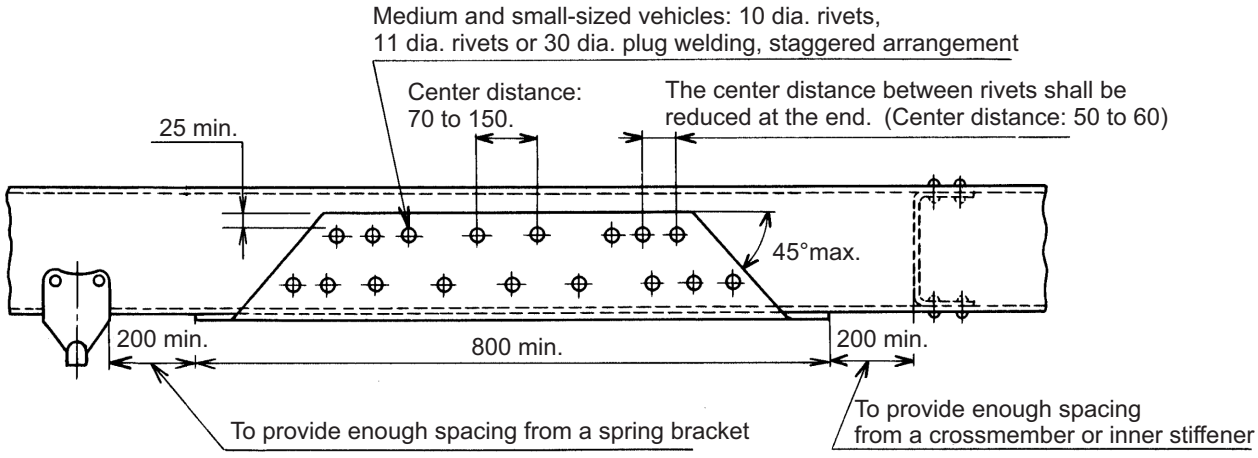
Precautions to be taken during welding on high tensile steel frame

- The side rails are made of high tensile steel plate. Welds on a high tensile steel plate are hardened more easily than those on a steel panel for an automobile structure (SAPH440: tensile strength of 440 MPa {45 kgf/mm^2}). When performing welding work on side rails, pay attention to the following:
- Always use a welding rod of a low-hydrogen type. For areas requiring the same strength as base metal, in particular, use a welding rod of a low-hydrogen type for high tensile steel plates.
- Welds having a shorter bead are low in their hardening rate, that is, likely to crack. Accordingly, the bead length should be more than 40 mm unless it is not possible. In an unavoidable case, pre-heat or post-heat the welded area to prevent the welds from prematurely being hardened.

6.5 Reinforcements

Avoid adding outside reinforcement to the side rail, as this can actually produce stress concentrations which cause cracks in the frame. If additional reinforcement is absolutely necessary, perform the procedures described below.

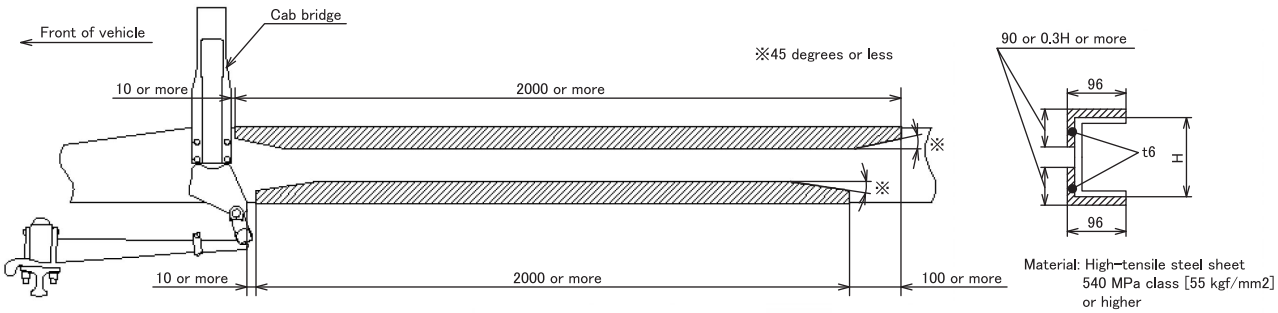
- An L-shaped stiffener is recommended. The channel type stiffener should not be used as it produces a gap with the side rail flange.
- Position the L-shaped stiffeners so the flange will be on the side of the side rail stress that receives the tension (the lower surface within the wheelbase and the upper side for the overhang).
- Do not align the outer stiffener ends with the ends of the sub side rail that have already been installed.
- Do not position the ends of the stiffener near stress concentration locations such as the rear surface of the cab, spring hangers, crossmember ends, etc.
- Do not cut the outer stiffener ends vertically. They should be cut at an angle of less than 45°.
- Do not use any outer stiffener which is shorter than 800 mm.
- Attach the stiffeners and the side rail by riveting or plug welding on the web.
- When drilling rivet holes, the outer stiffeners and side rails should be processed together. The difference between the rivet and hole diameters should be less than 0.7 mm.
- Do not attempt to secure the stiffeners again using rivets of the same diameter as the previous in the same positions. However, it is allowable to rivet the stiffeners again after enlarging the rivet hole diameter from ϕ10 to ϕ11 if the minimum distance between the outer stiffener end and the rivet hole brim is more than 25 mm.
- Use rivets of ϕ11 and arrange them in zigzag alignment. Use a riveter for riveting.
- Separate rivets and bolts at least 70 mm to prevent heat damage or distortion when they are plug welded.
- Holes for plug welding should be at least 30 mm dia and arranged in a zig-zag pattern.
- Position the end of the outer stiffeners 25 mm – 30 mm from the holes for rivets or plug welds.
- The pitch for rivets and plug welds should be 70 mm – 150 mm. Keep the pitch small (50 – 60 mm) near the edge of the stiffener.
- Do not drill any additional holes in the side rail flange. Only use the holes which have been already drilled in the flange.



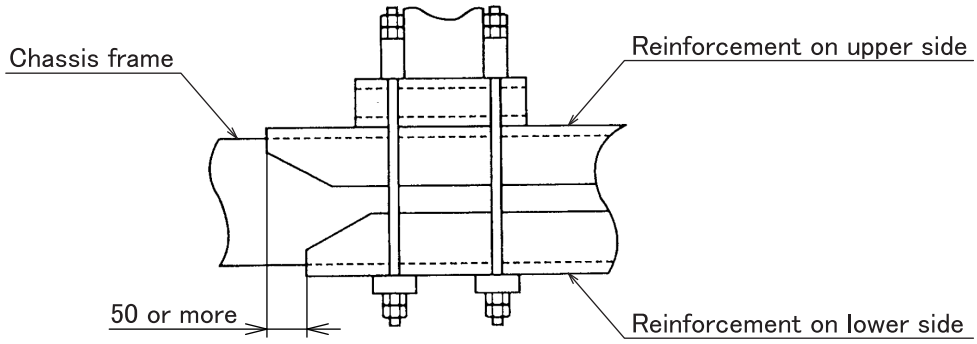
Example of reinforcement of crane mounting

Be sure to reinforce a frame because stress is concentrated locally in the surrounding of crane mounting during crane operation.

<Example of reinforcement>



Secure a level difference of 50 mm or more for front end positions of reinforcement on the upper and lower sides as shown below to prevent local stress concentration caused in the side rail.



6.6 Modifications to the wheelbase

The wheelbase should not be extended or shortened because considerations for the propeller shaft length, balancing, position of center bearings, brake piping and harness length are required.

If this is unavoidable, contact the department responsible ▷ page 12.

6.6.1 Prohibition on modifying the propeller shaft

⚠ Risk of accident

It is strictly prohibited to modify the propeller shaft by welding or other means to change its length.

An improperly modified propeller shaft may cause vibration during operation, which in turn may cause cracks and fractures in the clutch housing, separation of the propeller shaft, and other dangerous conditions, possibly resulting in a serious accident.

6.7 Frame modifications

The frame is a critical component exerting a great influence on the vehicle strength. Execute the modification of the frame only after fully examining the structure of the body to be mounted and the conditions of vehicle applications. If it is difficult to use modification methods described in the Body/ equipment mounting directives, contact the department responsible ▷ page 12.

6.7.1 Precautions for modification

In the case that a rear body of special design is mounted or the vehicle is to be used in special conditions, use utmost care that neither the structure nor the strength of the frame is impaired during mounting or modification work.

When mounting a rear body of special design, pay full attention to even weight distribution on the frame.

Attaching stiffeners, drilling holes or welding objects to the frame can affect the strength of the frame greatly, possibly resulting in a deformed or cracked frame. Avoid performing any unnecessary reinforcement, drilling or welding work on the frame.

6.7.2 Extension or shortening of frame

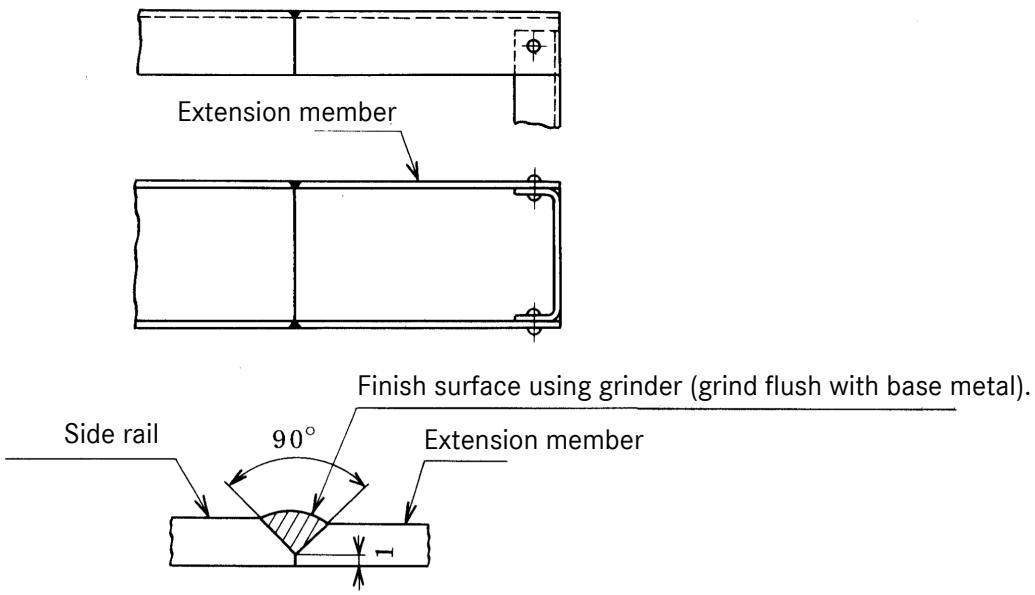
If the frame rear overhang is to be extended, proceed as follows:

Materials

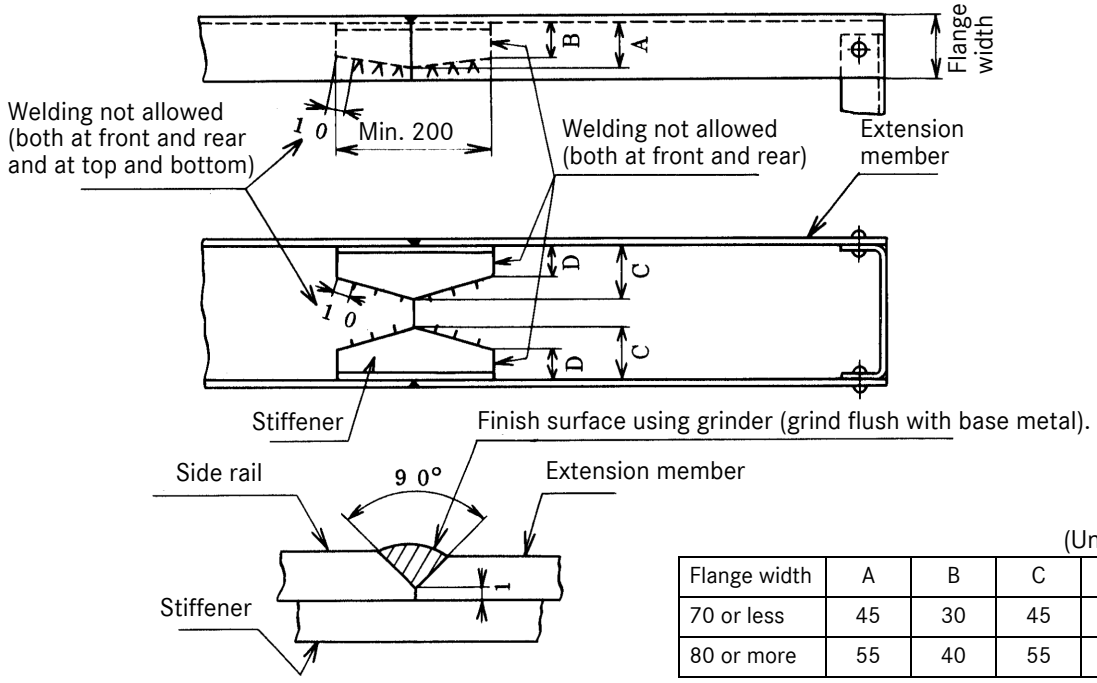
Unit: mm

Member for extension		Stiffener	
Material	**Plate thickness**	**Material**	**Plate thickness**
SAPH440	To be the same as side rail plate	SAPH440	6

- When length of extension is 300 mm or less: Perform butt-welding continuously from the outside and grind-finish the surfaces. No reinforcements are required for ordinary applications



- When the length of an extension is more than 300 mm or when a large weight may be exerted on the extended section during operation:
  With stiffeners added to the inside of the side rail, perform butt-welding continuously to joint the extension member to the side rail and grind-finish the surfaces.

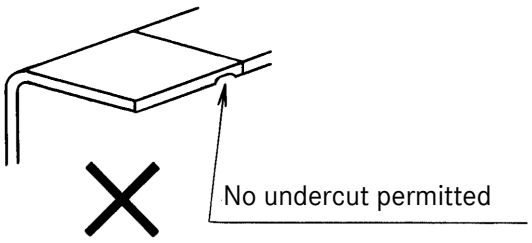


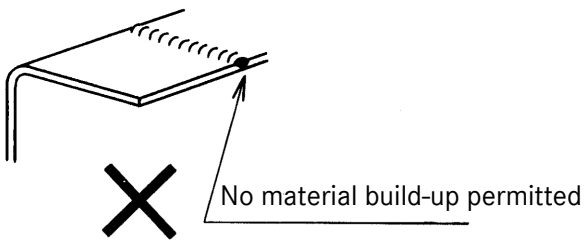
(Unit: mm)

Flange width	A	B	C	D
70 or less	45	30	45	30
80 or more	55	40	55	40

- On some models, the side rail has a slope provided on the bottom surface at the rear end. When cutting the rail or connecting an extension to it, take the slope into account.

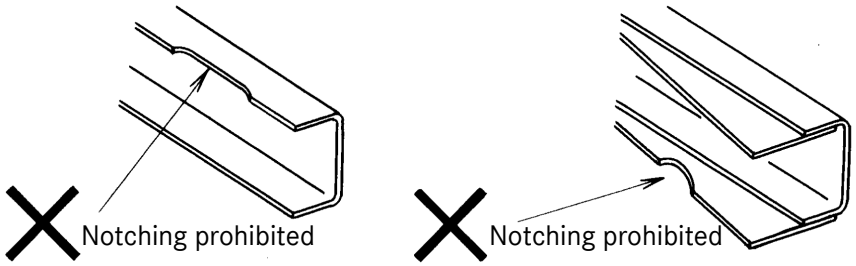
- Finish the inside surfaces of the butt-welded flange sections of the side rails thoroughly by grinding them to such a extent that neither undercuts nor material build-up are found.





6.7.3 Other points to be noted

- Never attempt to work a notch in the edge of a side rail, crossmember flange, trunnion stiffener and crossmember gusset.



- Do not attempt to secure the rear body together with the units attached on the frame side surface (fuel tank, air tank, brake booster, battery, etc.) by using their bolts.

6.8 Mounting of implements and auxiliary components

⚠ Risk of accident

The use of parts, assemblies or conversion parts and accessories which have not been approved may jeopardize the safety of the vehicle.

Before installing any attachments, special-purpose bodies, equipment or carrying out any modifications to the basic vehicle and/or its assemblies, you must read the relevant sections of the vehicle Owner's Handbook, as well as the operating and assembly instructions issued by the manufacturer of the accessories and items of optional equipment.

You could otherwise fail to recognize dangers, which could result in injury or death.

Official acceptance by public testing bodies or official approval does not rule out safety hazards.

All national laws, directives and registration requirements must be complied with.

6.8.1 Mounting equipment on the side rail

- Attach a stiffener to the inside of the side rail as shown in Fig. 1 when installing bolts to support heavy components on the side rail overhang. This will prevent cracks in the frame due to resonance of the component if the static load caused by the weight of the component exceeds 100 kg of force for each bolt.

Example:

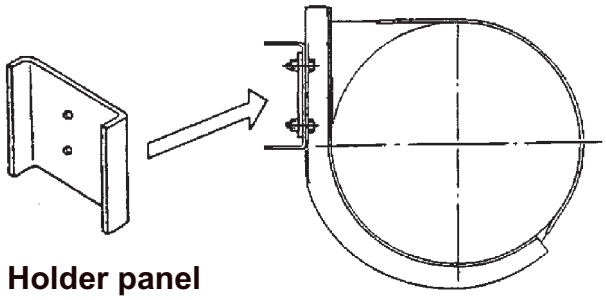


Fig. 1

- As a rule, avoid attaching additional equipment together with components (fuel tank, battery, etc.) which are already installed to the frame side. When this is absolutely necessary, increase the size of the bolts, or the number of bolt locations, to decrease the stress on each bolt.

6.8.2 Wheel chocks

Mounting

- In a suitable bracket so that they cannot rattle.
- Secured to prevent loss.
- Ensure good accessibility.

6.8.3 Spare tire carrier

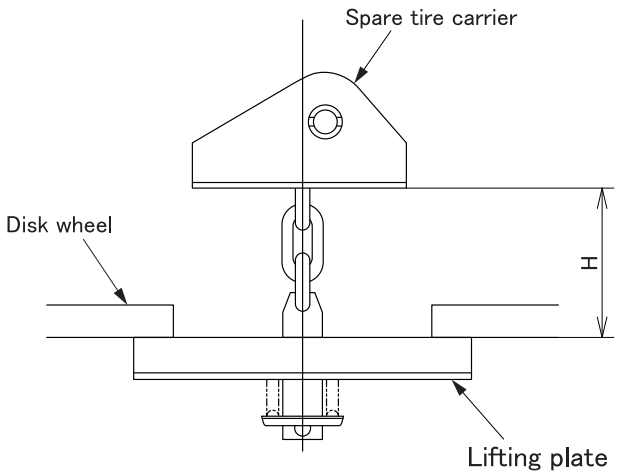
When mounting a spare tire carrier, observe the regulations of the country where the vehicle is used.

Examination of mounting position and other parameters

- On vehicles with spare tire carriers, do not relocate or modify the carrier or bracket. If relocation or modification is inevitable, contact the department responsible ▷ page 12.
- Use the genuine parts (handled by MITSUBISHI FUSO dealers) for the spare tire carrier and bracket. If non-genuine parts are to be used, find ones having sufficient strength and durability.
- Examine the mounting position of the spare tire carrier so that the spare tire, when mounted on the spare tire carrier, does not protrude from the rear end or the outside of the vehicle.
- Allow a clearance between a rotating part, movable part, and high-temperature part of the vehicle and the spare tire.
  E.g.: propeller shaft, spring, brake hose, exhaust pipe, and muffler
  For clearance specifications, 4.4 "Clearance for basic vehicle and bodies" ▷ page 38.
- Allow a ground clearance so that the spare tire will not be damaged through its contact with, for example, the road surface during running (running on a rough road, reversing, etc.).
- Allow an operating space for removal and reinstallation of the spare tire.
- Allow an inspecting and servicing space for the spare tire, carrier, and bracket.
- Set the crank handle to achieve the tightening force recommended by the carrier manufacturer.

Precautions for installation

- When mounting the bracket on the frame, see 6.3 "Drilling work on the vehicle frame" ▷ page 74 and 6.4 "Welding work on the vehicle frame" ▷ page 77.
- Support the spare tire by way of the disk wheel.
- Strictly observe dimension H (disk lifting plate height when the tire is wound up) recommended by the carrier manufacturer. Dimension H can be checked with a brochure prepared by the carrier manufacturer.
  Failure to observe dimension H impairs spare tire holding strength, resulting in the spare tire falling.

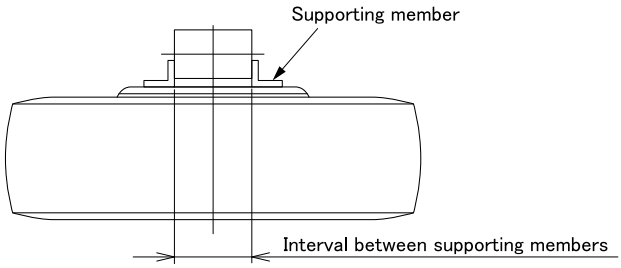


- Affix the spare tire caution plate.

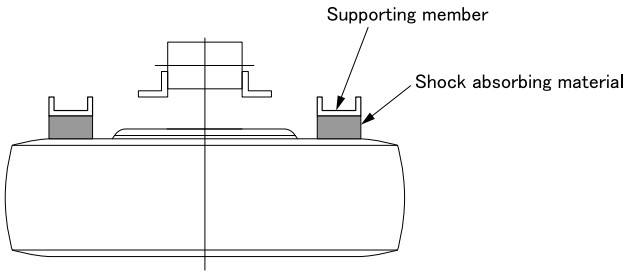
Checks after installation

- The spare tire can be removed and reinstalled by one person.
- There is a clearance available between the spare tire and chassis parts.
- There should be no harmful binding when the spare tire is raised.
- The spare tire, when tightened, may interfere only with an intended stopper.

- For supporting of the spare tire via the disk wheel, the interval between the supporting members should be such that an ample surface of the supporting member contacts the disk wheel. The spare tire carrier should also be structured so as to offer reaction to tightening when a tire that has gone flat is mounted.



- For supporting of the spare tire via the spare tire, the interval between the supporting members should be near the maximum tire width. If a shock absorbing material is to be inserted, fix it properly to the supporting member. The spare tire carrier should also be structured so as to offer reaction to the spare tire when a tire that has gone flat is mounted.



6.8.4 Mudguards and wheel arches

- The distance from the tire to the mudguard or wheel arch must be sufficient, even when snow chains or anti-skid chains are fitted and at full spring compression (including under torsion). The dimensional data in the body/equipment mounting directives must be observed.
- On chassis with standard bore holes for mudguard brackets, use these bore holes to secure the brackets.

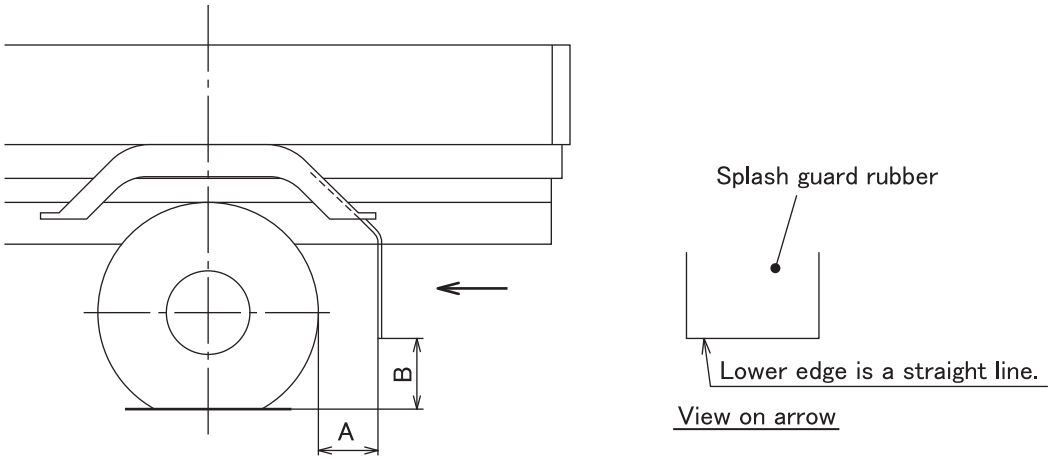
Rear mudguards

Mount components in accordance with local regulations.

6.8 Mounting of implements and auxiliary components

Splash guard rubber of rear fender

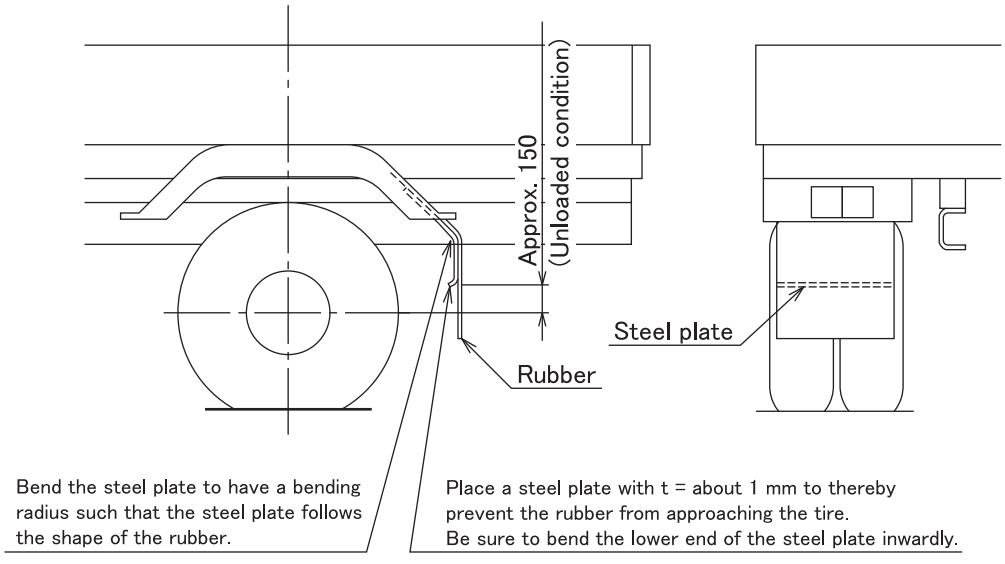
Install the splash guard rubber in consideration of splash guard effect and pedestrian protection side guard relative to the shape of the fender.



Unit: mm

A	**FK**	150 to 200
	FK-Z, FM	200 to 250
B (Unloaded condition)	**FK**	200 to 350
	FK-Z, FM	300 to 400

If a long splash guard rubber is to be mounted, take necessary measures to prevent the rubber from being caught by the tire.

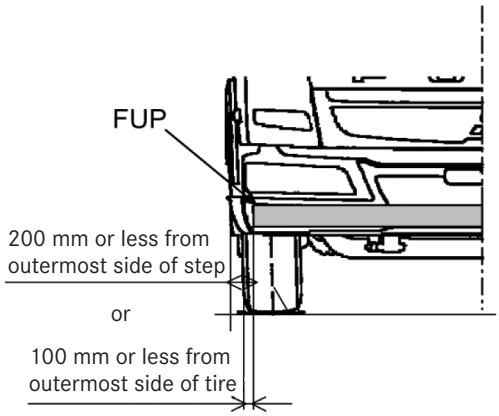


6.8.5 Front under-run protection <Vehicle with Front under-run protection>

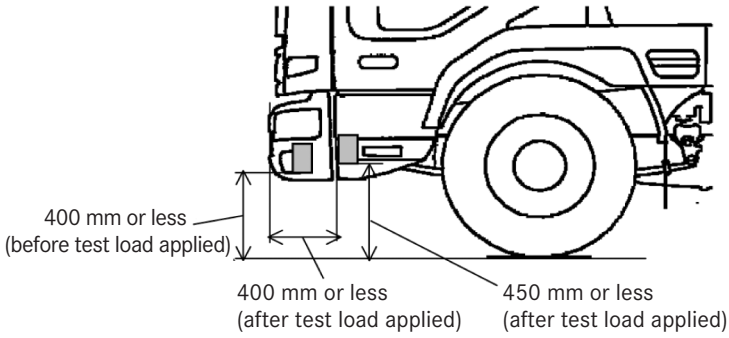
A

Front under-run protection (FUP) is a device to avoid the under run entry of a passenger car to the front of a truck during head to head collision and to improve safety against inflicting injury.
The chassis is delivered with an FUP installed. The FUP conforms to dimensions, performance, and other requirements specified in the FUP regulations. (See the table shown below.)
As a general rule, you must not change FUP ground clearance or modify FUP and stay. Otherwise, the altered FUP may no longer meet the Safety Standards and the running through performance may be decreased.

- Installation requirements



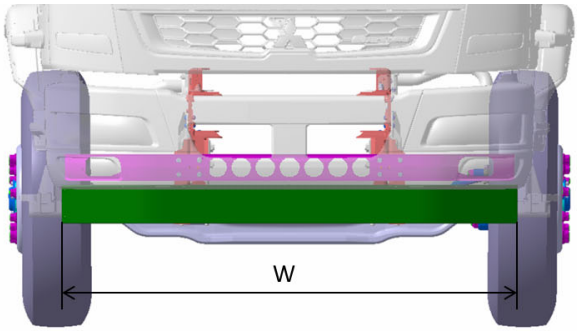
Front view of vehicle

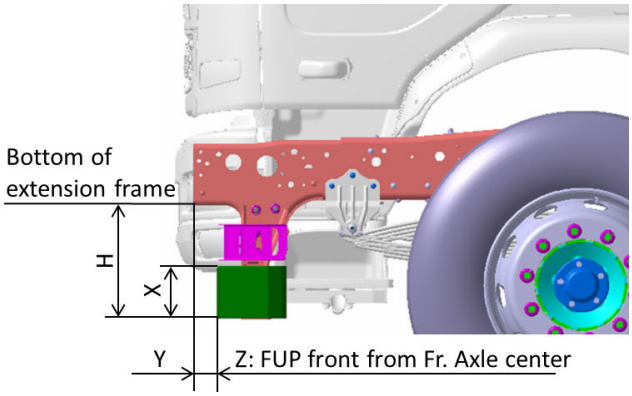


Side view of vehicle

6.8 Mounting of implements and auxiliary components

- Mounting dimensions





Unit: mm

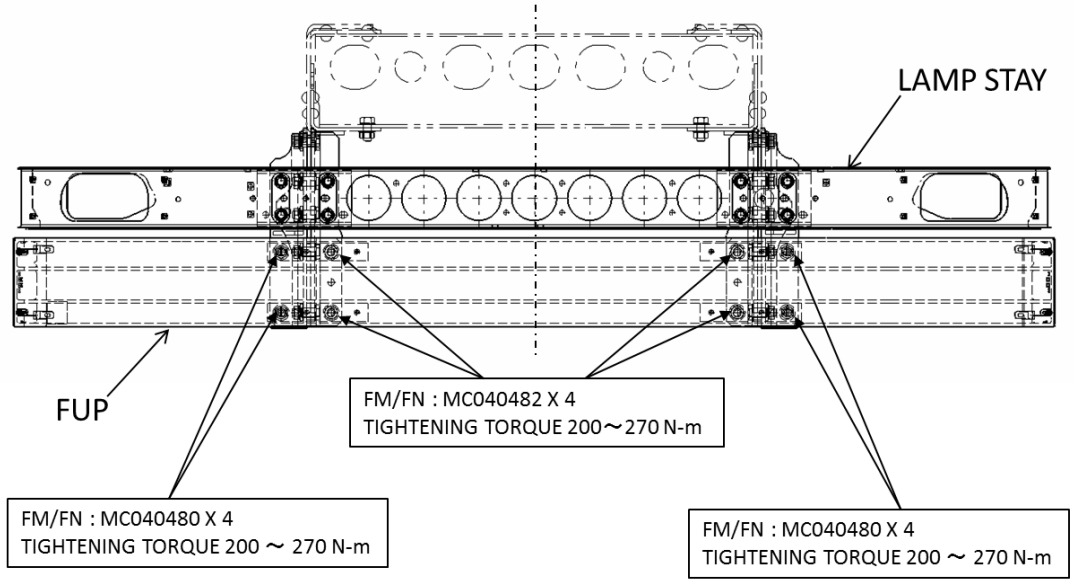
Model	Cab type	W	X	H	Y	Z	Country	Regulation
FK-Z	Standard	1886	200	240	69.5	1009.5	Australia	ADR84/00
FM FN	Wide	2052	135	316	64	1125		

Unit: mm

Model	Cab type	W	X	H	Y	Z	Country	Regulation
FK-Z	Standard	1886	200	240	69.5	1009.5	Except Australia	UN R93
FM FN	Standard	1893	160	346	74	1115		

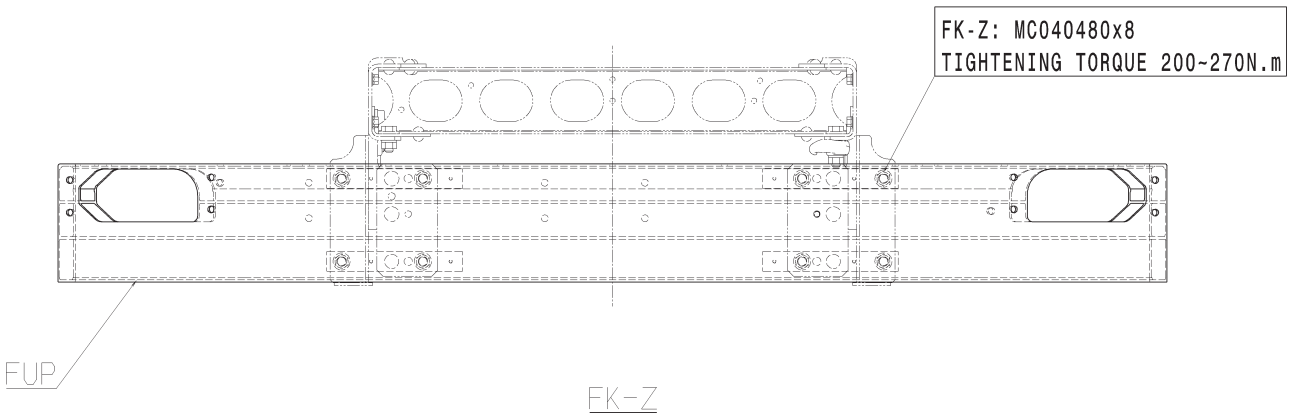
E

- Mounting



FM, FN

A



FK-Z

6.8.6 Rear under-run protection

Mount components in accordance with local regulations.

6.8.7 Side under-run protections

Mount components in accordance with local regulations.

6.8.8 Rear hooks

Relocation to side surface of frame

- If no crossmember is fitted at the rear end of the frame, attach a stiffener made of a 4.5 mm (T) × 150 mm (L) × 100 mm (W) steel plate to the inside of the frame by means of intermittent welding with a pitch of 20 mm.
- If a crossmember is available, install the hook in position directly.

Relocation to bottom surface of frame

- If a crossmember is available, secure the hook on the frame by sharing the fasteners of the crossmember.
- If frame rear ends are open (not linked), place a stiffener made of a 4.5 mm (T) × 150 mm (L) × 60 mm (W) steel plate on the frame bottom inside.

6.9 Cab

Modifications to the cab must not have a negative effect on the operation or strength of assemblies or control elements or on the strength of load-bearing parts.

The tilting cab must not be fixed rigidly to the bodywork. If any interventions to the cab are planned they must be co-ordinated with the department responsible ▷ page 12.

- The content relating to in Section 2.5 Mitsubishi three diamonds and emblem must be complied with ▷ page 16.

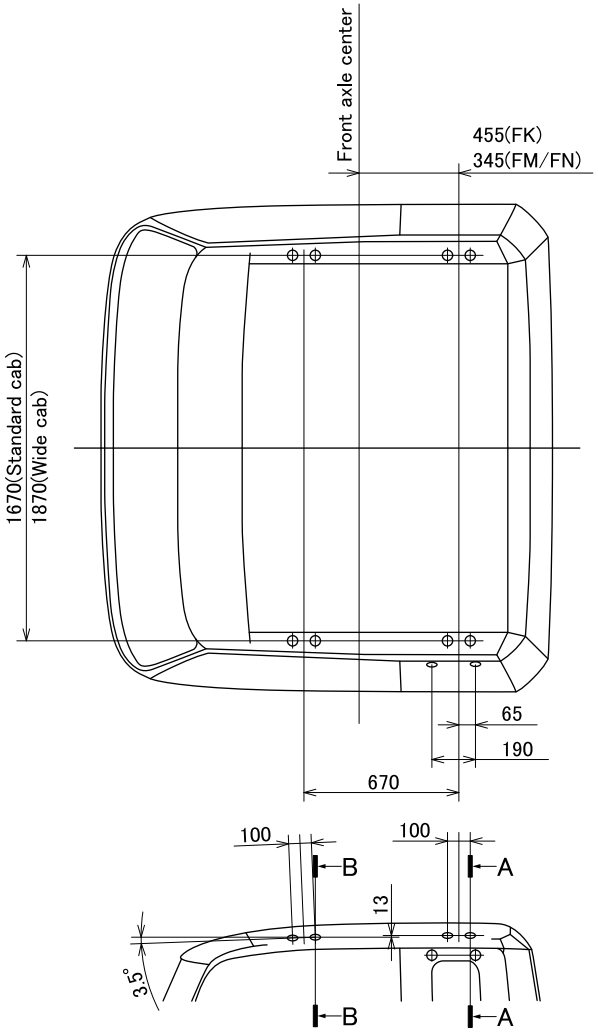


Fig.1

6.9.1 Attaching the roof deck and ladder

- When attaching externally mounted parts such as roof deck or drag foiler onto the roof, use the exclusive mounting holes provided on the roof. (See Figs. 1, 2 and 3.)
- Prevent the weight of externally mounted parts attached to the roof from exceeding 70 kg.
- On the upper part of the rear quarter garnish or side window glass panel, welded nuts are provided on the body for mounting a ladder.
  To attach an externally mounted part, remove the clips from the nuts and fit the part with M8 bolts. (See Figs. 1, 2 and 3.)
- Use nickel-chrome plated stainless steel bolts and washers.
- Take special care to prevent the body from becoming scratched when attaching externally mounted parts.
- Insert packing between externally mounted parts and the body to prevent rusting. Use RC710CP (EPDM) rubber or equivalent with a thickness of 2 mm or less and a hole diameter of 8 mm (for ozone crack prevention).
- After attaching externally mounted parts, coat the entire periphery of the mounting bolts with sealer.
- The top coat of paint must be applied to externally mounted parts before attaching to the roof. (See Fig. 4.)

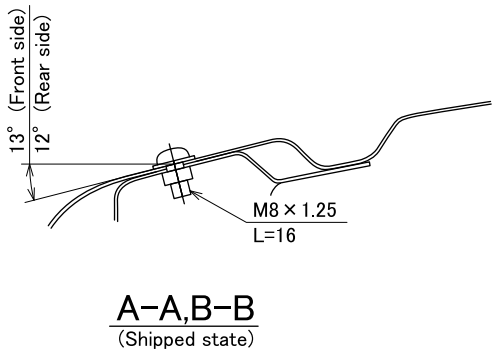


Fig.2

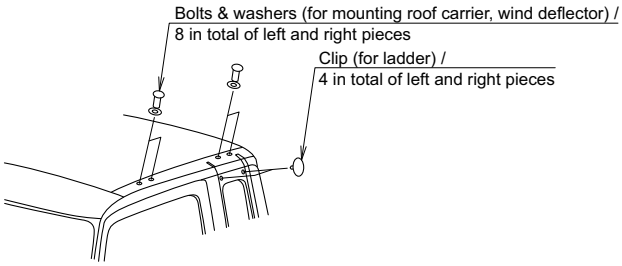


Fig.3

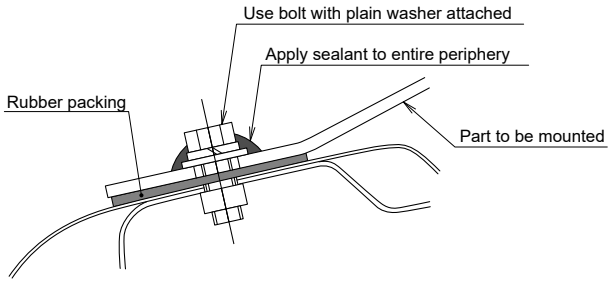


Fig.4

6.9.2 Additional work and modification of cab

- When installing a control lever and so on for mounted parts in the cab, secure clearance of at least 50 mm from levers and switches on the vehicle side.
- When drilling or notching is performed on the cab floor to install a control lever and so on for mounted parts, reinforce the floor so that its strength does not decrease. Rustproof worked areas to prevent rust from occurring.
- Oil that soaks into glass wool for noise insulation in the floor causes a fire. Securely perform after-treatment.
- See to it that removal and installation and maintainability of equipment parts on the vehicle side are not affected.
- Put identification marks on levers, switches and lamps of mounted parts to prevent misoperation and confusion.
- Do not install a deck or cab hand rail that needs drilling in the roof panel or drip rail in consideration of water leaks in the interior and rust prevention.

6.9.3 Floor mat

- Lay the floor mats on the cab floor on the left and right sides. Remove the following parts before laying the floor mats. Be sure to fully push in the left and right ends of the floor mats under the scuff plates so that they are held by the plates.
  (a) Assistant seat side
  Entrance scuff plate, seat under tray (if equipped)
  (b) Driver's seat side
  Entrance scuff plate, heel pad, foot rest (if equipped)

  Care needs to be taken with the following when reinstalling the floor mats:
- Install the driver's seat side floor mat with reference to the heel pad and mounting bracket. After installation, make sure that the floor mat does not interfere with the operation of the pedals.
- Be sure to fully push in the left and right ends of the floor mats below the scuff plates so that they are held by the plates. There is an electric wiring harness inside the scuff plates. When installing the scuff plates, be careful not to allow them to pinch the harness.

6.10 Seats and seat belts

⚠ Risk of injury

Modifications to or work incorrectly carried out on a restraint system (seat belt and seat belt anchorages, belt tensioner or airbag) or its wiring, could cause the restraint systems to stop functioning correctly, e.g. the airbags or belt tensioners could be triggered inadvertently or could fail in accidents in which the deceleration force is sufficient to trigger the airbag. For this reason, never carry out modifications to the restraint systems.

Comply with all national regulations and directives.

The retrofitting of original seats is only permitted and possible if the necessary preinstallations exist in the vehicle, such as suitable floor assembly, reinforced cab/cab suspension. For all other seat retrofittings, corresponding evidence (belt checks, tensile tests) is required as part of an endorsement check carried out by the department responsible ▷ page 12.

6.11 Power take-offs

6.11.1 Transmission-driven power take-off

- Unless special circumstances require otherwise, use the genuine power take-off.
- When special circumstances require the use of non-genuine power take-off, contact us before use. ▷ page 12.

Additional information

For more information on transmission-driven power take-off, refer to 10.9 "Power take-offs" ▷ page 387.

Power taking-off torque

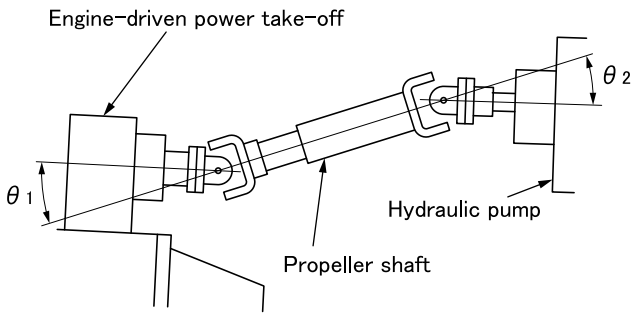
- When power for driving body equipment is obtained through transmission-driven power take-off, set the body equipment-side drive system so that the power taking-off torque does not exceed the allowable maximum take-off torque for the PTO. If excessive torque is imparted to the power take-off, the inside of the transmission could be damaged.

Propeller shafts driven by the power take-off

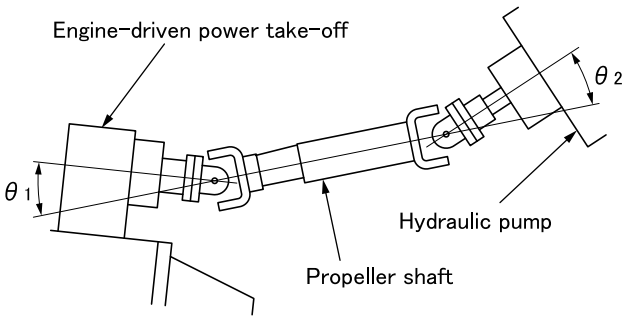
- Set the angle of intersection for the power take-off-driven propeller shaft so that it does not exceed 15 degrees in solid angle.
- Make the angles of intersection at both ends of the propeller shaft equal.
- Vertical and lateral displacements of ±10 mm can occur at the PTO outlet when the vehicle is running. Pay particular attention to the allowable intersection angle of the propeller shaft.

6.11.2 Engine power take-off

Propeller shaft driven by power take-off



A-type drive system



B-type drive system

- Propeller shafts connected to the engine power take-off are generally short in length, which means that the intersecting angle of the propeller shaft is likely to be large. Therefore, the location of the device to be driven by the propeller shaft (e.g., hydraulic pump in case of a mixer) should be selected so that the intersecting angles θ_1 and θ_2 of the propeller shaft are as small as practically possible and the difference between the intersecting angles is almost zero.
- Too large intersecting angles θ_1 and θ_2 , or too large equivalent crossing angle $\sqrt{|\theta_1^2 - \theta_2^2|}$ made by a difference between the intersecting angles can cause excessive torque variations to be generated in the driving system, possibly resulting in a broken flywheel power take-off, propeller shaft or hydraulic pump.
- Determine the location of each relevant device such that the intersecting angles of the propeller shaft meet the following requirements and that torque variations of the driving system are minimized.
  - Intersecting angles of propeller shaft: 12° or less in solid angle
  - Equivalent crossing angle made by difference between the intersecting angles: $\theta_1^2 - \theta_2^2 \approx 0$ (in stationary state for each case)
- When travelling on a rough road, such amounts of displacement as shown in the table below may occur at the power take-off outlet on the engine side. Therefore, an intersecting angle of 12° in the stationary condition can increase to around 15° during running. Mount all relevant devices such that the intersecting angles of the propeller shaft are as small as practically possible.

Displacement

Unit: mm

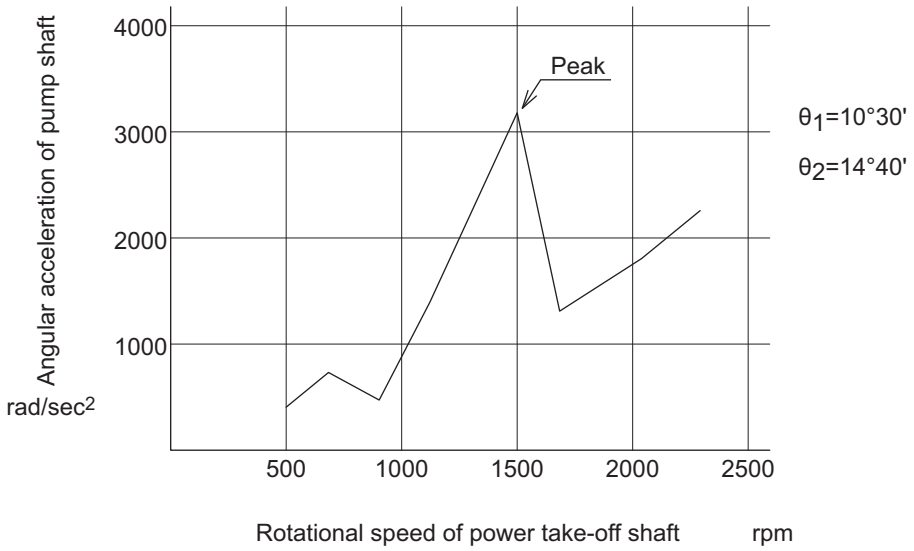
Vertical direction	Lateral direction	Longitudinal direction
±9	±5	±8

- In case of the B type driving system, some intersecting angle difference may be produced during running even if the difference between the intersecting angles (θ_1 - θ_2) in the stationary state is almost zero. Especially in the case of larger intersecting angles (θ_1 , θ_2), therefore, the intersecting angles (θ_1 , θ_2) should be set as small as possible since the equivalent crossing angle $\sqrt{|\theta_1^2 - \theta_2^2|}$ made by the difference between the intersecting angles is increased as well during running.
- Excessive torque exerted on the drive system could damage major components of the engine. Be sure to arrange the drive system such that these component parts are not subjected to torque exceeding 392 N·m {40 kgf·m} even momentarily.

6.11 Power take-offs

Reference:

- The graph below shows a typical example of the relationship between the rotational speed of the power take-off shaft and the angular acceleration of the pump shaft. If the equivalent crossing angle produced by the difference between intersecting angles of the propeller shaft is larger, the angular acceleration of the pump shaft will reach a greater peak when the rotational speed of power take-off is around 1500 rpm.

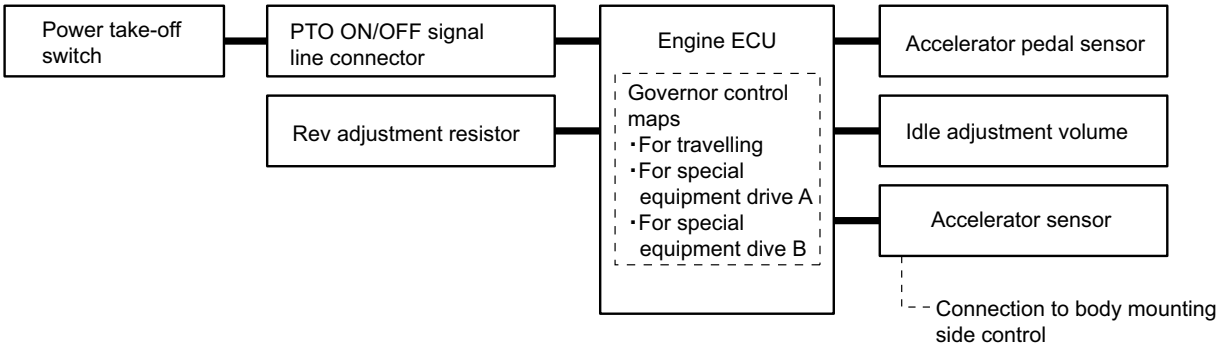


Additional information

For more information on engine power take-off, refer to 10.9 "Power take-offs" ▷ page 387.

6.11.3 Cab back engine control

System



- Engine control commands from the body mounting side (outside of cab) are issued by the accelerator sensor based on the governor control map for special equipment drive incorporated in the engine electronic control unit.
- By shifting the power take-off switch from OFF to ON or vice versa, input switching is performed between the accelerator pedal sensor and accelerator sensor for special equipment drive and between the governor control map for travelling and that for special equipment drive.
- For this switching to be performed, the connector of the power take-off ON/OFF signal line must be coupled to the engine electronic control unit which is left uncoupled at shipment.
- The engine electronic control unit contains two governor control maps for the special equipment drive in addition to that for travelling:
  For special equipment drive A: With medium-level speed stability

  For special equipment drive B: With high-level speed stability (allowing 6 kinds of maximum speed to be set)

For the performance curve of governor control, refer to "10.3.3 Governor and torque characteristics" ▷ page 262.

- The selection of A or B and the selection of maximum speed in B are achieved with the user's choice of rev adjustment resistors.

Governor control maps for special equipment

- When the power take-off switch is set to OFF, the governor control map for travelling is selected, and the accelerator sensor for special equipment drive is deactivated.
- If resistor #7 is connected in the circuit, all of the accelerator pedal sensor, idle adjustment volume and accelerator sensor for special equipment drive are activated when the power take-off switch is set to ON, and the governor control is performed using the maximum input among them.
- If resistor #8 is connected in the circuit, the accelerator pedal sensor and accelerator sensor for special equipment drive are activated when the power take-off switch is set to ON, and the governor control is performed with higher input. (The idle adjustment volume can be used only for adjusting the idle speed.)
- To prevent too rapid change of engine speed upon turning the power take-off switch ON or OFF, set the idle adjustment volume to the "Auto idle" position when the power take-off switch is placed in the ON position.

Resistor No.	Color		Part No.	Resistance value (Ω)	Specifications with PTO ON					Remarks
	Mould	Connector			Accelerator sensor for special equipment drive	Accelerator pedal sensor	Idle adjustment volume	Governor control map	Maximum speed (rpm)	
#1	Black	Colorless	MC854770	270	O	X	X	For special equipment drive B	3,210	For special equipment drive requiring higher speed stability
#2	Black	Green	MC854771	510	O	X	X	For special equipment drive B	3,000	
#3	Black	Yellow	MC854772	820	O	X	X	For special equipment drive B	2,345	
#4	Black	Brown	MC854773	1.3K	O	X	X	For special equipment drive B	2,010	
#5	Blue	Colorless	MC854774	2.0K	O	X	X	For special equipment drive B	1,675	
#6	Blue	Green	MC854775	3.3K	O	X	X	For special equipment drive B	1,340	
#7	Blue	Yellow	MC854776	5.6K	O	O	O	For special equipment drive A	3,210	For special equipment drive for general use
#8	Blue	Brown	MC854777	15.0K	O	O	O	For travelling	3,210	For mixer

O: Activated X: Deactivated

Rear body using cab back sensor

- Check that the number of the rev adjustment resistor incorporated in the dedicated connector (blue, with N RESISTOR label) is correct. If a rear body of different characteristics is to be mounted, replace the rev adjustment resistor with the appropriate one.
- The connector for the power take-off ON/OFF signal line (colorless, 1-pole male and female connector with CAB BACK label) is left uncoupled at the time of vehicle delivery. Couple this connector before starting the body mounting work.
- Connect the control on the rear body side to the lever of the cab back sensor.

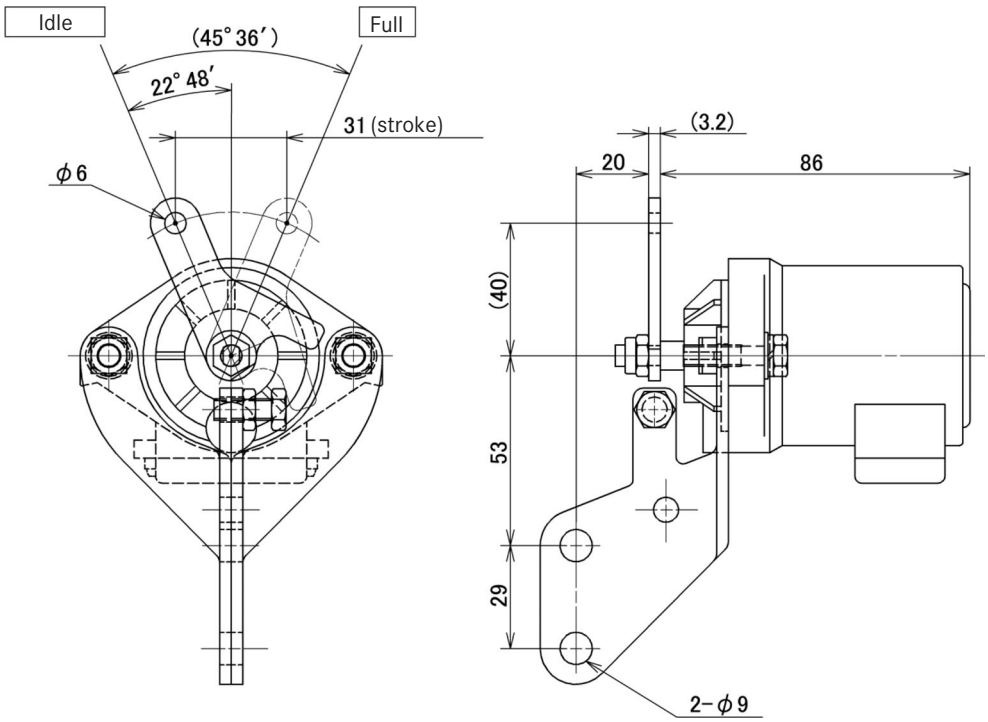
Cab-back engine control for specially-equipped vehicles

Special-purpose vehicles (PTO-equipped) are provided with a special fitment accelerator sensor for controlling the engine while mounting body parts or other equipment work.
Using this cab-back engine control, adjust the engine speed as required during work to match the necessary speed of mounted equipment.
When PTO is installed in a standard vehicle later, use the cab-back engine control.
NOTE: Dump trucks are not equipped with cab-back engine control.

When a standard vehicle is modified into a special-purpose truck, use the accelerator sensor and harness listed below.

Part name	Part No.	Quantity (pc/unit)	Remarks
Accelerator sensor	MK467548	1	–
Sub harness	MK398197	1	Harness length: 2 m

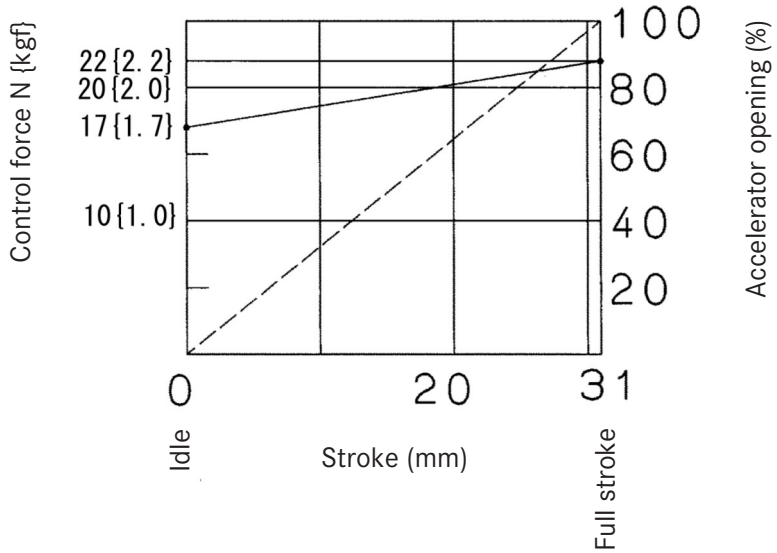
- Special fitment accelerator sensor
  - Details



Unit: mm

	Stroke	Control force N {kgf}		Lever length
		Idle	Full	
Lever stroke	31	17 {1.7}	22 {2.2}	40

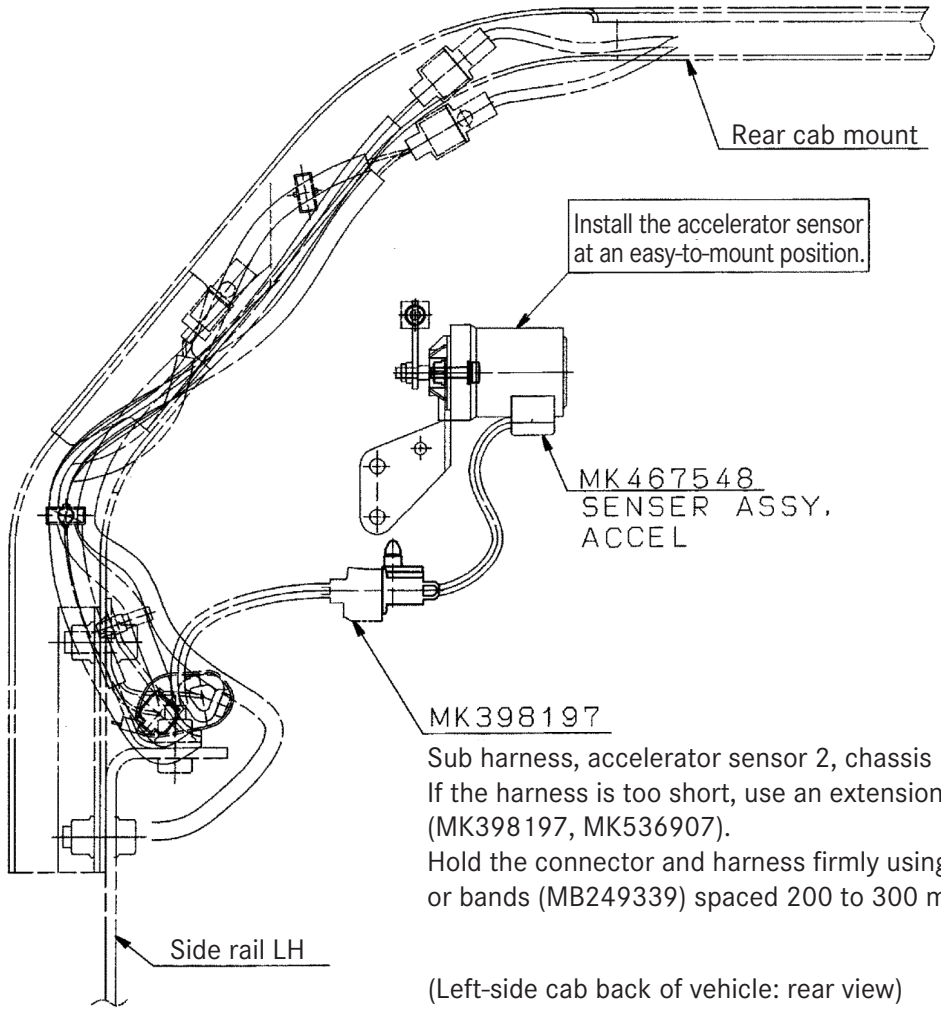
The accelerator sensor is a potentiometer (non-contact) type voltage output device, with the output and control force characteristics as shown below.



- Installation of special fitment accelerator sensor
  - A special fitment accelerator sensor can be operated just by connecting it to the harness from the vehicle side. Thus, install the sensor where it is easy to access and make the connection. For details, see the "Procedures for Harness Routing and Connection to Cab-back Control Accelerator Sensor" (▷ page 104).
  - After deciding the installation position, install the special fitment accelerator sensor on the mounted body part/equipment side with the provided mounting bracket.
  - The harness connector to the accelerator sensor is near the left-side rear cab mount of the vehicle. Using the sub harness in the kit, connect the harness connector to the special fitment accelerator sensor. If the sub harness is too short, use an extension harness (MK398197, MK536907).
- Precautions when installing the special fitment accelerator sensor
  - Vehicles are delivered with a dummy harness connected to the sensor harness connector (near the left-side rear cab mount of the vehicle). Remove this dummy harness first, then connect the harness connector to the special fitment accelerator sensor using the sub harness. After the accelerator sensor is installed, the dummy harness will not be used.
  - Install the accelerator sensor where it will not be harmed by pressurized water during car washing, flying stones thrown up by tires, etc. If such external impacts cannot be completely avoided, protect the sensor with a cover (MK398921).
  - Powder dust, high temperature, vibrations, interference with other parts, etc. must be avoided.
  - Position the accelerator sensor lever so that its pull and stroke are parallel in direction. Make sure that the sensor lever is free of bending and twisting stress.
  - Leave the accelerator sensor stopper bolt intact.
  - Make adjustments so that the body part/ equipment side control finishes with full stroke before the accelerator sensor lever.
  - To hold the connector and harness firmly and without stress, bind them with tape, bands (MB249339) or the like at a spacing of 200 to 300 mm.

Part No.	Part name	Remarks
MK398197	Sub harness, accelerator sensor 2, chassis (extension harness)	Harness length: 2 m
MK536907	Sub harness, accelerator sensor 2, chassis (extension harness)	Harness length: 5 m
MK398921	Cover, accelerator sensor	Special fitment accelerator sensor cover

Installation of cab-back control accelerator sensor harness



Sub harness, accelerator sensor 2, chassis (harness length: 2 m)
If the harness is too short, use an extension harness (MK398197, MK536907).
Hold the connector and harness firmly using appropriate tape or bands (MB249339) spaced 200 to 300 mm apart.

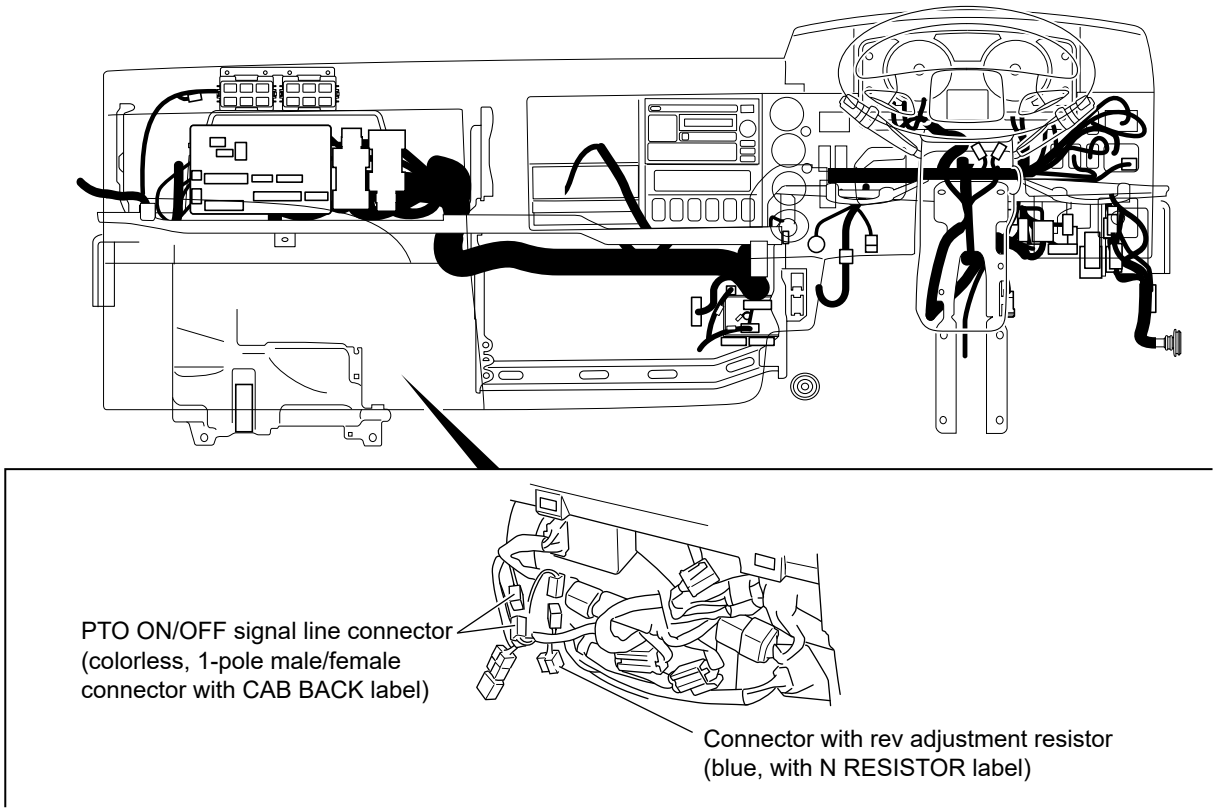
(Left-side cab back of vehicle: rear view)

Rear body not using cab back sensor (body not sending any control signal to engine)

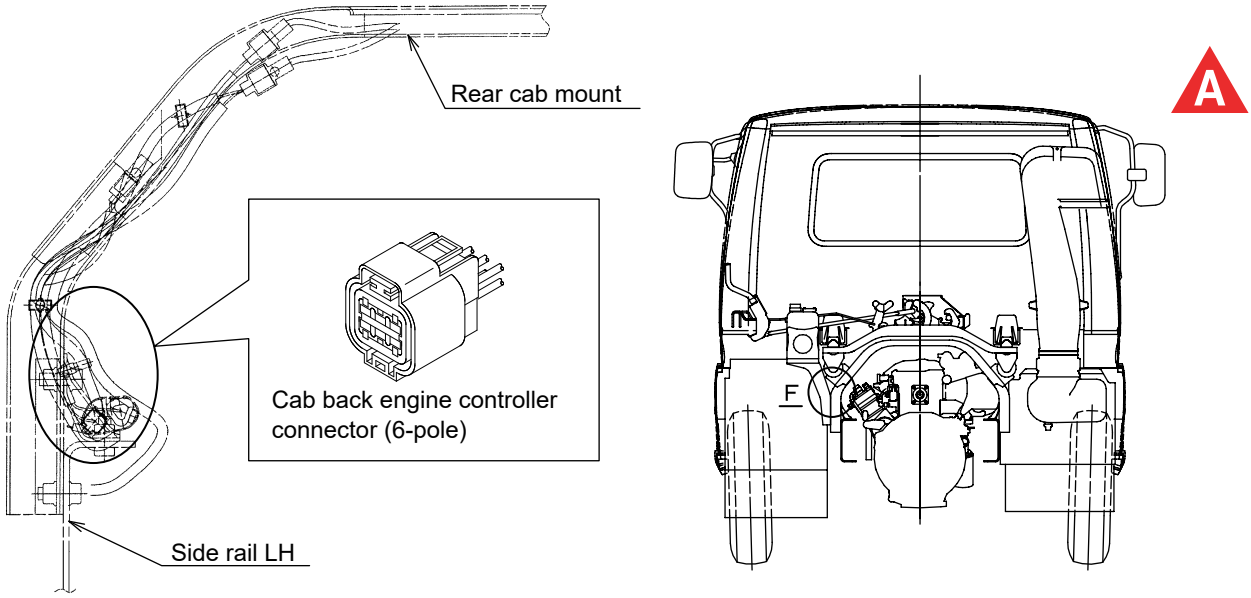
- Procure the following parts:

Part name	Part number
Rev control resistor (N adjust) No.7	MC854776
Accelerator control resistor harness	MK536549
Band	MB249339

- Connect the power take-off ON/OFF signal line connector to allow the engine control module to recognize that power take-off is ON.
- Fit a control resistor (MC854776) in the connector for the rev adjustment line.



- Attach the accelerator control resistor harness (MK536549) to the cab back engine controller connector. Secure additional harnesses with tape or band (MB249339) to prevent interference with adjacent parts.

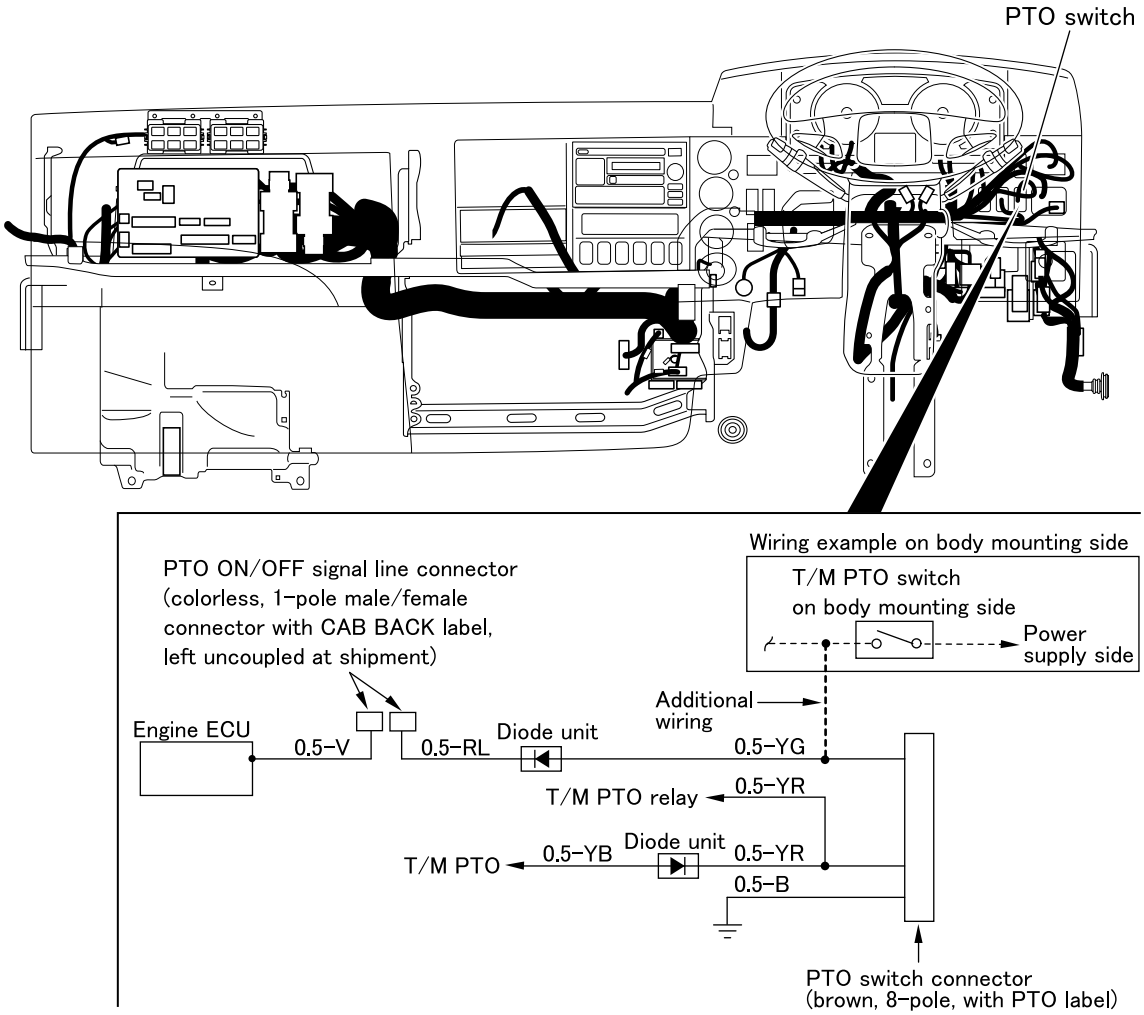


[Cab back on vehicle left side: View F]

6.11 Power take-offs

When the power take-off wire connection is made by a body mounting company:

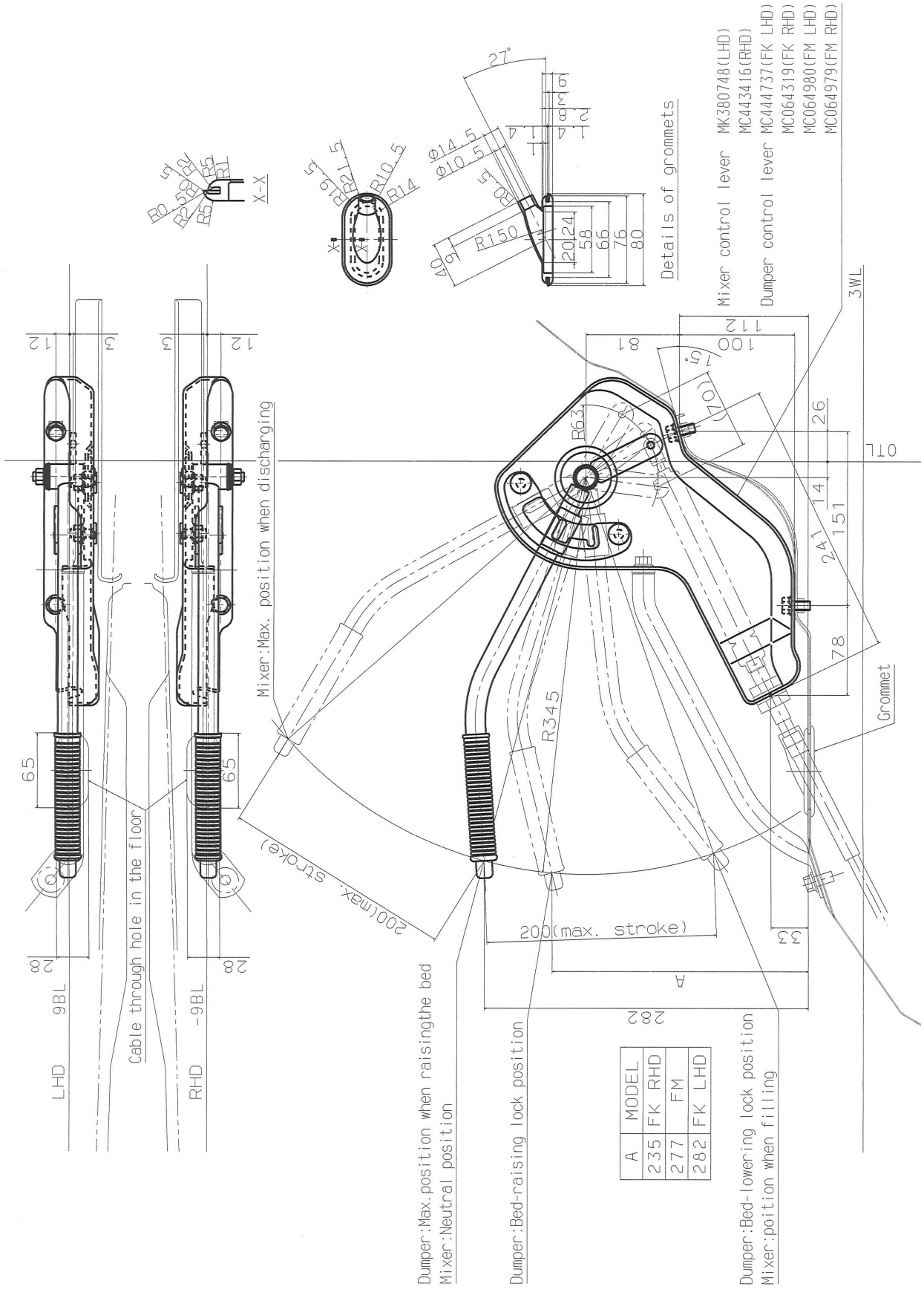
- The wiring on the body mounting side must be connected to that on the chassis side (power take-off switch connector, brown, 8-pole, with power take-off label) as follows to allow power take-off ON/OFF signals to be input to the engine electronic control unit.



- If a rev adjustment resistor #7 is installed, all of the accelerator pedal sensor, cab back sensor and idle volume (accelerator sensor) are activated when the power take-off switch is set to ON. Therefore, if the vehicle is driven with power take-off ON, the engine speed may be varied by control commands from the body mounting side or idle volume setting change, which could adversely affect driving safety. Be sure to inform the user that power take-off should remain OFF during travelling.
- If a rev adjustment resistor #8 is installed, the accelerator pedal sensor and cab back sensor are activated when the power take-off switch is set to ON. Therefore, if the vehicle is driven with power take-off ON, the engine speed may be varied by control commands from the body mounting side, which could adversely affect driving safety. Be sure to inform the user that power take-off should remain OFF during travelling.

6.11.4 Control lever

Control lever installation procedure

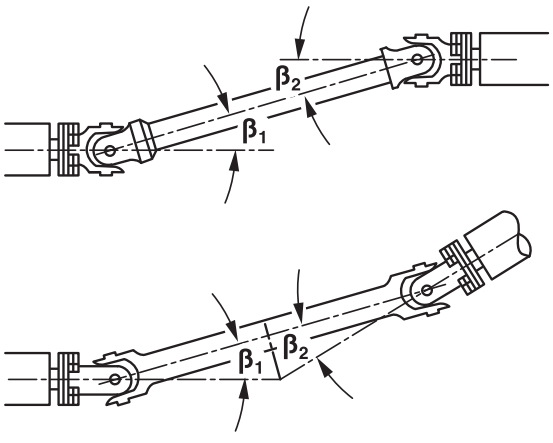


6.12 Installation of propeller shafts

The modification of extending or shortening the wheelbase or additional installation of a transmission to the drive line requires the modification of the propeller shaft. If the propeller shaft is improperly modified such as a change in the pipe length by welding to the main unit of the propeller shaft, vibration caused by the propeller shaft can lead to a serious trouble or accident such as cracks and rupture of the clutch housing and falling-off of the propeller shaft. Therefore, the modification of the propeller shaft is strictly prohibited.
If the modification of the propeller shaft is necessary due to a customer's request or body mounting layout, be sure to consult with the department responsible.
▷ page 12

Observe the following when installing propeller shafts:
- Installation guidelines of the propeller shaft manufacturer.
- If necessary, fit several propeller shafts with intermediate bearings.
- The flanging surfaces must be completely flat.
- The angular offsets must be identical at both universal joints ($ß_1 = ß_2$). They must not be greater than 10°.
- Balancing plates must not be removed.
- Eliminate any vibrations, e.g. by optimising the propeller shaft angles.

6.12.1 Types of angular offset



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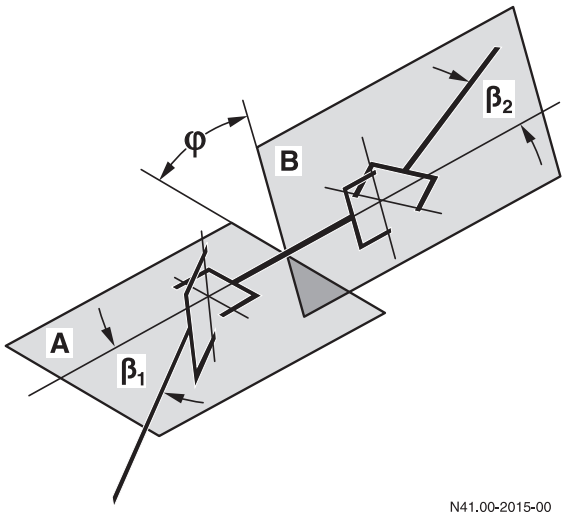
Angle in one plane (two-dimensional offset)

$ß_1 = ß_2$
Upper = Z-type offset
Lower = W-type offset



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Angles in two planes (three-dimensional offset)

$ß_1 = ß_2$

With three-dimensional offset, the input and output shafts intersect in different planes (combined W- and Z-offset).

In order to compensate for any irregularities, the inner joint fork must be offset.

! Property damage

Failure to observe these instructions could result in damage to the major assemblies.

6.13 Brake systems

Risk of accident

Work carried out incorrectly on the brake system may impair its function. This may lead to the failure of components or parts relevant to safety. This could cause an operator to lose control of the vehicle and cause an accident with possible injury or death.

All accident prevention regulations must be complied with when working on the vehicle.

Comply with all national regulations and lows.

Additional information

After any modifications the brake system must be tested for proper operation and approved by a technical inspection authority otherwise the operating permit will be invalidated.

Further information can be found in Section 5 "Damage prevention" ▷ page 46.

Extreme caution is required in handling brake tubing because of the importance of the components due to brake safety. Tubing, joints, and brake components should be protected with covers during mounting work to prevent them from dents, damages, welding sparks, and heat and routing changes of tubing necessary for coupling with trailers, etc., should be performed in accordance with the following cautions.

6.13.1 ESP (Electronic Stability Program)

<Vehicle with ESP>

- Be sure not to change the engine power, gear box, tire size, suspention system, wheel base.
- Be sure not to alter ESP-associated devices, sensor, harnesses or connectors in any way.

6.13.2 Hydraulic and pneumatic pipings

The hydraulic and pneumatic pipings of the brake and steering systems are critical parts for safe operation of vehicles. Never attempt to modify these parts. If it is necessary to remove the pipings for a compelling reason such as body mounting work involving temporary pipe removal/installation or replacement, be sure to follow the cautionary instructions shown in "Steel pipes for fluid line" ▷ page 111 and "Nylon tubes for air piping" ▷ page 114.

Extreme caution is required in handling brake piping because of the importance of the components in respect to brake safety. Pipings, joints, and brake components should be protected with covers during mounting work to prevent them from denting, damage, welding sparks, and heating. Addition and routing change of piping necessary for coupling with trailer, etc, should be performed in accordance with the following standard.

Tapping compressed air for auxiliary consumers

To take out pneumatic power for rear body equipment from the brake piping, many preliminary examinations are required to make clear the relationship between the frequency of equipment operations and the air supply capacity, the points to be checked for safety assurance, etc. If this method is to be used, be sure to consult the department responsible beforehand ▷ page 12.

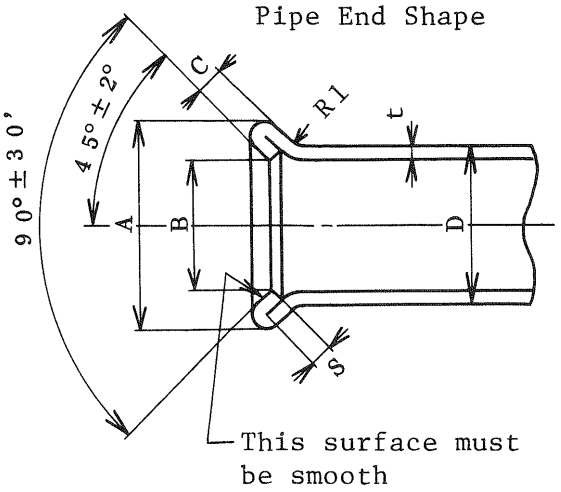
Steel pipes for fluid line

The chassis uses steel pipes conforming to specifications below.

Flare-jointed pipes

Unit: mm

Nominal diameter D	A	B	t	C	S min.	Minimum bend radius allowable	Material	Surface treatment
4.76	6.6-7.1	3.0-3.7	0.7	1.4	1.0	20	Double walled steel tube of SPCC under JIS G3141 or equivalent	Inner surface:Copper plating not less than 3μ thick,except for double-walled tube whose copper plating should remain unaltered because of brazing. Outer surface:Zinc plating 8μ thick.
6.35	8.6-9.1	4.5-5.2	0.7	1.4	1.0	30		
8	10.5-11.0	6.2-6.9	0.7	1.4	1.6	30		
10	13.0-13.5	8.2-8.9	0.7	1.4	1.6	30		
12	15.0-15.7	9.8-10.5	0.9	1.8	1.6	35		
15	18.1-18.8	12.7-13.4	1.0	2.0	1.6	40		



The tightening torque for tube nuts or union nuts used in combination with the pipes specified in the table above should be as follows.

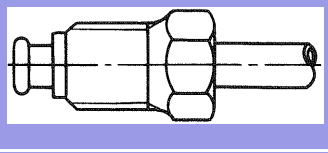
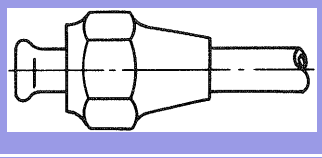
Unit: mm

Nominal diameter	Tightening torque (N·m {kg·m})
4.76	13-17 {1.3-1.7}
6.35	19-26 {1.9-2.6}
8	29-39 {3.0-4.0}
10	39-50 {4.0-5.1}
12	77-90 {7.5-8.9}
15	85-100 {8.3-9.8}

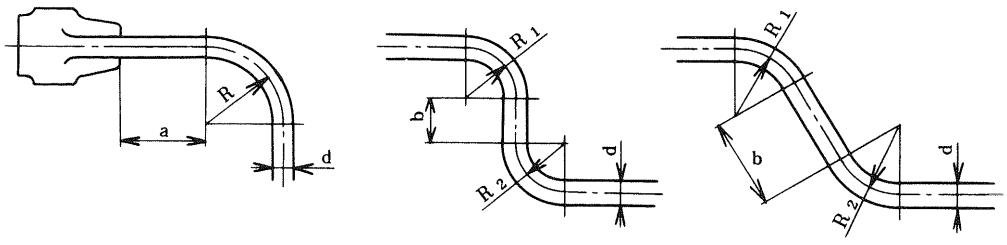
Notes on piping

- When extending pipes, new pipes of the same material should be made. Connect pipes with proper connectors.
- If the same materials are not availabe in your country, consult the department responsible ▷ page 12.
- Use union nuts and tube nuts specified in the table below.

Unit: mm

Nominal diameter	Part No. of tube nuts 	Part No. of union nuts 
	Pipe material	Pipe material
	Steel	Steel
5 (4.76)	MF651001	
6 (6.35)	MF651002	
8		MF651205
10		MF651206
12		MF651207
Remarks	Material SS400	Material SS400

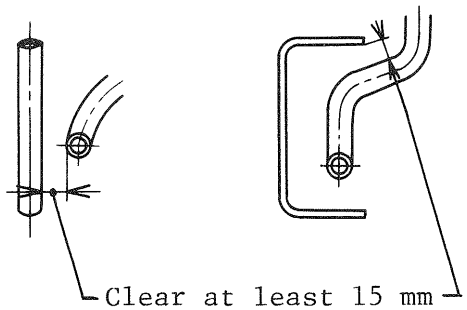
- Perform the pipe bending work as follows:
  (a) The bending of pipes should be performed with a bender. Do not use heat bending.
  (b) Bend roundness R should be strictly in accordance with the allowable minimum bend radius R in the table.
  (c) The required length of the straight portion of pipe end and bent portion should be in accordance with the figure below.



a≧2d b≧2d

(d) Clean and remove foreign matters from inside of the pipes with a high pressure air blower before use. Use compressed air for cleaning. Cleaning oil is not recommended, but if used completely remove any residue.

- Do not attempt to splice one pipe to another.
- If it is unavoidable to connect an extension pipe, always use a flare type joint provided with arrangements for retightening.
- The pipes have a corrosion preventive coating provided on both inner and outer surfaces. Avoid brazing and other similar acts which can expose the pipes to high temperatures.
- If it is necessary to run a pipe through the frame, always provide a grommet in the through-hole and secure the grommet firmly to prevent the pipe from directly contacting the brim of the through-hole.
- For dismounting the transmission, it is necessary to draw it rearward along the slope of the engine. Therefore, a space large enough for that purpose must be saved there. Do not lay any piping over the area from behind the transmission to just before the crossmember.
- Avoid locating fuel, oil or fluid pipe joints over or near the component parts of the exhaust system to prevent a fire resulting from oil leaks.
- Do not lay any pipings in the vicinity of rotating parts such as propeller shaft.
- Avoid laying pipes in a place where dirt is likely to accumulate or moisture is hard to be removed. Also, avoid covering the pipes with pieces of rubber or a vinyl tube. Otherwise, moisture may be trapped in-between, resulting in rust formation.
- Avoid crossing pipes. If unavoidable, allow each pipe to clear any other by more than 15 mm space.



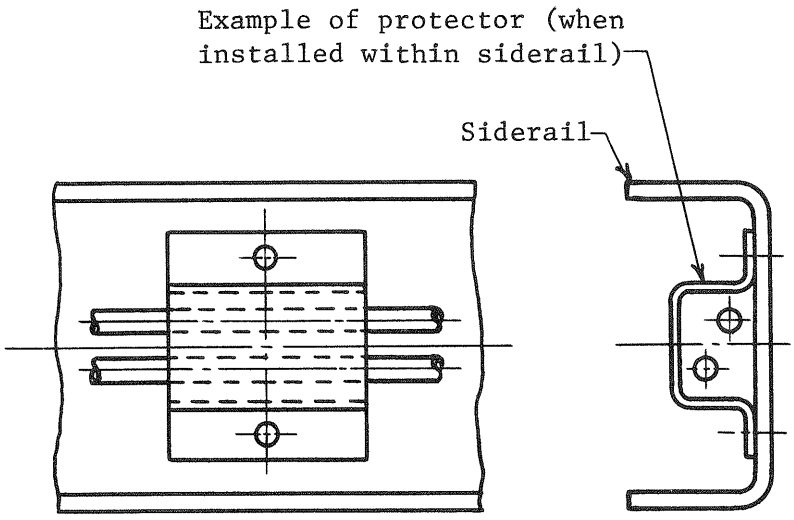
- Do not allow pipes to come in contact with sharp edges of the frame or other components.
- Securely clamp pipes with vinyl-coated clamps or grommets in order to prevent vibrations when the vehicle is running.
- The standards of pipe clamp distances are given in the table below.
- A shorter pipe clamping distance is acceptable if doing so is necessary to prevent interference with adjacent parts or to assure the safety in operations. If any pipe is to be laid near a movable part, clamp the pipe in a position as close to the part as practically possible.

Unit: mm

	Pipe Dia.	Clamp distance
Straight pipe	4.76 to 8	550 max.
	10 to 15	750 max.
Curved pipe	4.76 to 8	400 max.
	10	550 max.
	12 to 15	750 max.

- Pipes should be laid along the inside web of the side rail as a rule. When they cross over to the opposite side rail, they should be placed along crossmenbers. Place pipes more than 10 mm away from bolts and rivets.
- Make sure oil pipes can be easily air bled.
- Do not leave a wave form in the air pipe such as will permit water to stay in the pipe. (Use of a form such as ∪ is prohibited.)
- Electrical wires should never be clamped or taped to the brake pipe lest it should cause pipe corrosion. Maintain the clearance described in 8.2 "Electrical wiring" ▷ page 171.
- When replacing oil line pipes, do not reuse the extracted fluid. Completely drain the fluid and replace with fresh fluid.
- The clearance between the pipes and exhaust system components should be in accordance with the specifications in 4.4 "Clearance for basic vehicle and bodies" ▷ page 38.
- Install pipings in order to protect against damage due to flying pebbles when driving.

- If necessary to prevent above damage, install a protection panel in accordance with the requirements below.
  (a) Do not allow the protection panel to deform by the flying pebbles and to come in contact with the pipes.
  (b) Position and form the protection panel properly (for drain holes, etc) allowing water to run well off.



Pipe connection procedure

- Insert the pipe in the joint and tighten the flare nut loosely by hand to check for proper fit. If no abnormalities are found, tighten the pipe joint to the specified torque.
- If it is difficult to fit, do not proceed to fully tighten the joint until necessary remedial measures are taken to fit the pipes in the joint correctly.

Nylon tubes for air piping

Do not disconnect the nylon tubes from the connectors unless it is absolutely necessary. If it is unavoidable because the damaged tube must be replaced or the modification to be made requires temporary removal of them, proceed as follows:

Applicable standards and dimensions

Exclusively use nylon tubes having the following data indicated on the outer surface. Never use any tubes having no such indications.

Unit: mm

Example of indications	DIN number	Nominal size	Material	Maker name	Production date
	DIN74324	10 × 1.25	PA11	ABCD	9803

6.13 Brake systems

Unit: mm

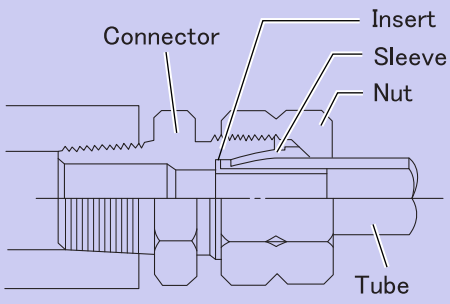
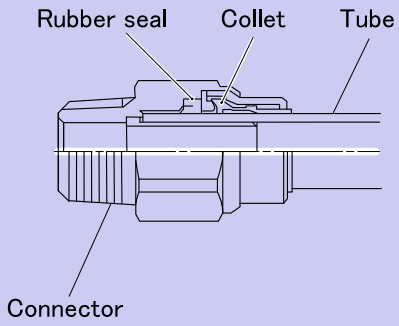
Nominal diameter x Thickness	Nylon material	Minimum bending radius (inner side)	Nylon tubes for parts supply	
			Part No.	Length
6×1	• PA11-PHL • PA12-HIPHL (According to DIN 73378)	30	MC085613	10,000
8×1		40	MC085614	10,000
10×1.25		60	MC085615	10,000
12×1.5		60	MC085616	10,000
15×1.5		90	MC085617	10,000
16×2		95	MC085618	10,000

Notes on nylon tube

Pay attention to the following since the nylon tube is vulnerable to heat, acid and impact. If any abnormalities are found on the tube during body mounting work, be sure to replace it with a new one.

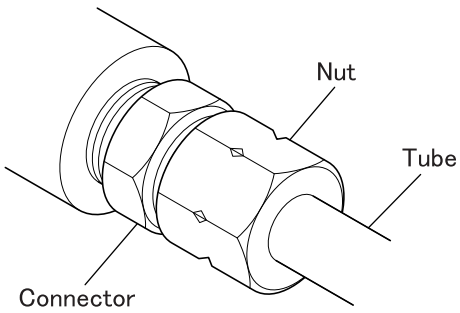
- Do not expose the tube (including connector) to a temperature higher than 100 °C.
  (The nylon tube with no pressure applied can withstand a temperature of a maximum 125 °C even if it is temporary, but its service life will become shorter due to thermal aging.)
- During welding work, protect the tube against heat and welding spatters (sparks).
- Keep the nylon tubes away from battery electrolyte and brake fluid.
- Avoid stamping on, sharply bending or holding the tube against a sharp edge.
  (These can damage the tube, causing it to burst when high air pressure is applied.)
- During cleaning using a high pressure cleaning machine, be careful that the jetting nozzle is not oriented to the nylon tube. (There is a potential of it being pierced.)

Nylon tube piping connecter

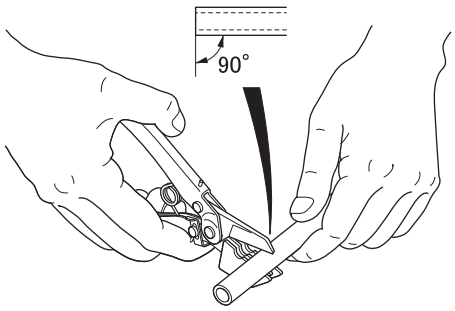
	Cross section	Structure
Compression type		• Install the nylon tube with fitted insert into the connector through the sleeve and tighten with the nut. • The sleeve deforms and cuts into the tube, thus preventing air from leaking and maintaining the sealed condition. • The tube, insert and sleeve are deformed and cannot be reused once connected.
Push-in type		• The nylon tube can be installed only by inserting it into the push-in connector. • Seal the air pressure using the rubber seal. Damage or contamination in the rubber seal can cause air leakage. • The collet prevents the tube from coming off. • The tube can be removed by pressing the collet.

Removal and installation procedure for a compression connector

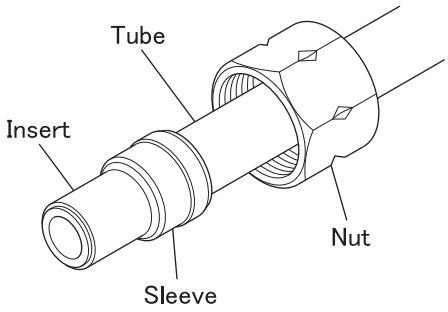
- Removal
  (a) Bleed air from inside the tube completely. The connector becomes unusable if its inner surface is contaminated. Be sure to clean the outer peripheries of the connector, nut and tube before loosening the nut.



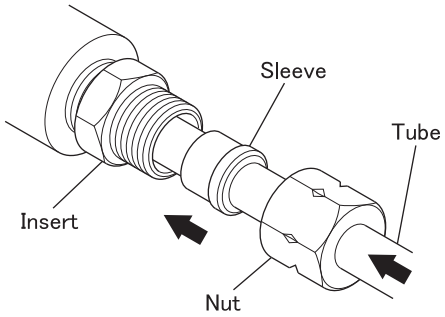
- Installation
  (a) Ensure that the tube insertion section is free from any damage or contamination. If the section is damaged, cut it off using a tube cutter.



(b) Check to confirm that the insert, sleeve, nut and tube are positioned as shown in the figure.



(c) Insert the tube into the connector until it is brought in contact with the connector end. Slide the sleeve into the connector and secure it by tightening the nut by hand. Tighten the nut to the specified torque. Then, pull on the tube to confirm that there is no air leakage or that it does not cause the tube to slip off.



- Part numbers and tightening torques of connector components

Unit: mm

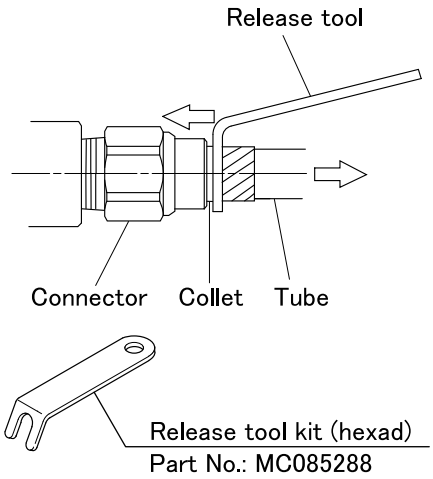
Nominal diameter	Part number			Part number of relay connector	Tightening torque N·m {kgf·m}
	Insert	Sleeve	Nut		
6	MH038022	MH038014	MH037911	MH038148	20 {2.0}
10	MH038023	MH038015	MH037912	MH038149	34 {3.5}
12	MH038027	MH038019	MH037931	MH039082	49 {5.0}
15	MH038028	MH038029	MH037935	-	54 {5.5}

Removal and installation procedure for the push-in connector

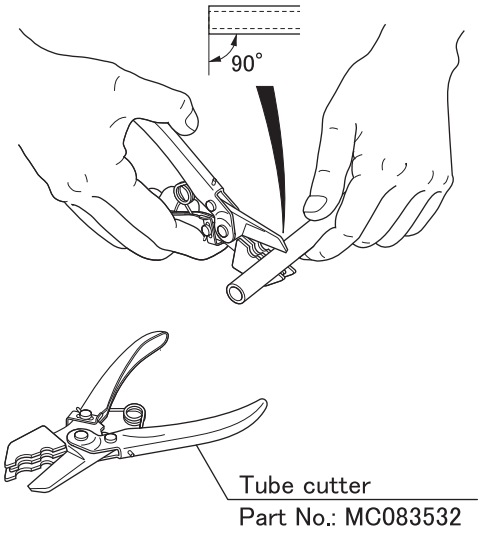
For push-in connectors, it is very important that the insertion section of tubes is free from any damage, contamination, etc. (Damage or contamination in the seal rubber contacting section of tubes, in particular, can cause air leakage.)

Avoid disconnecting/reconnecting of tubes unless it is absolutely necessary. These actions can increase the chance of damaging the tube.

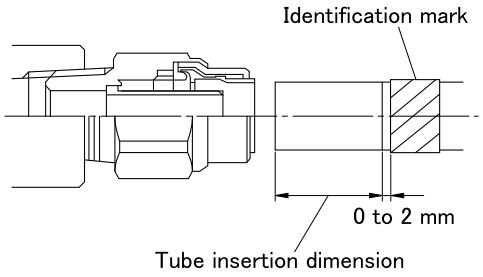
- Removal
  (a) Bleed air from inside the tube completely.
  (b) The connector becomes unusable once it is contaminated with foreign objects. Be sure to clean the connector and tube before pulling off the tube.
  (c) While pressing the collet with a release tool, pull out the tube by hand.
  (d) Avoid pulling out the tube with undue force or using a tool other than the special release tool. Otherwise, a damaged tube or collet could result.



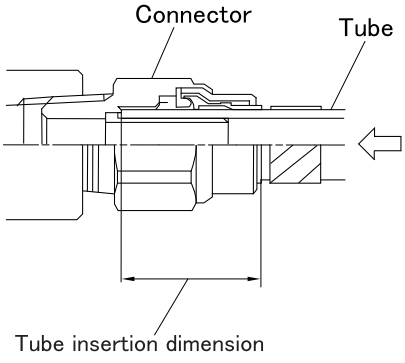
- Installation
  (a) Ensure that the insertion section of the tube is free from any damage or contamination.
  (b) If the insertion section is damaged, cut the part off. The connector whose inside surface is contaminated can no longer be used. Replace the connector with a new one.



  (c) Put an identification mark on the tube at a distance of the tube insertion dimension plus 0 to 2 mm. This mark can be used as a reference for insertion.

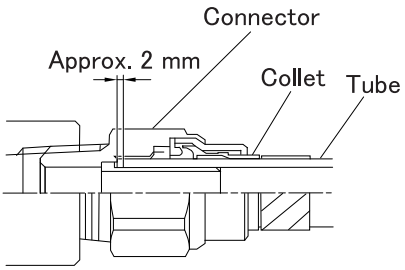


  (d) Insert the tube into the connector straight until it is stopped at the far end. During insertion, use care that the tube is not slanted. Otherwise, it could result in a damaged tube.



(e) After securing the tube, pull on the tube to check that it has not slipped off. Note that the collet and the tube move as a unit approximately 2 mm in the direction of coming off when air pressure is applied or a pulling force is exercised.

(f) Check the connector for air leakage.



- Tube insertion dimension and relay connecter

Unit: mm

Nominal diameter	Tube insertion dimension	Part number of relay connector
6	20	MC072033
8	21	MC084118
10	22	MC072308
12	22	MC072309
15	24	-
16	29	-
16 with cover	32	-

Notes on piping

- Cut each tube perpendicular to the center line of the tube using a tube cutter.
- The bending radius must be larger than the minimum bending radius given in the table under "Applicable standards and dimensions" ▷ page 114.
- Provide suitable heat shields around the components which become hot during engine running to prevent tubes and connectors from being heated up to a temperature higher than 100°C.
- Portions likely to be damaged or worn must be provided with a suitable protector such as a corrugate tube, grommet, etc.
- The piping must have an allowance of ±1% in length for expansion or shrinkage due to temperature change after being laid down.
- The tube must be secured at an interval of about 500 mm with clamps of such design that will not damage tubes.
- Tubes must be replaced with new ones, the length of which is reduced below the specification due to cutting off of a damaged end or for some other reason.
- As far as possible, do not use a relay connector. If it is unavoidable, clamp the connector in such a way that its deflection is suppressed while giving full consideration to protection of the clamped side.
- The nylon tube hardens considerably within several months after it is produced. In other words, it loses the flexibility gradually and becomes harder to be laid down with the lapse of time. Use as new a tube as possible.
- After piping work is completed, recheck that the piping is free from any air leaks, tube deflection and interference with adjacent parts.

6.14 Exhaust system

The modification of the exhaust system is prohibited because it has an adverse effect on the noise regulation, fire prevention, emission control system and engine.

<Vehicles with SCR and DPF systems>

F

6.14.1 Exhaust gas purification devices (BlueTec system) and sensors

- Exhaust gas purification devices (BlueTec system) may be damaged by heavy impact against their body or fall. When mounting, handle them with sufficient care.
- To prevent the exhaust gas purification devices (BlueTec system) and engine proper from being adversely affected, do not relocate the exhaust gas purification devices (BlueTec system), exhaust temperature senor and NOx sensor.
  If temporary removal of these parts becomes inevitable during mounting, be sure to reinstall these parts in the original places.
- Exhaust gas purification devices and sensors are periodically removed for maintenance. Install them so that removal and reinstallation work can be carried out without any problems.

6.14.2 BlueTec system

BlueTec exhaust gas aftertreatment

BlueTec exhaust gas aftertreatment removes NOx in the exhaust gas.
Do not modify and transfer the following parts because the performance of the system is deteriorated.

- SCR muffler
- Urea (Adblue) tank
- Supply unit
- Dosing unit
- Pressure limiting unit
- Urea hose

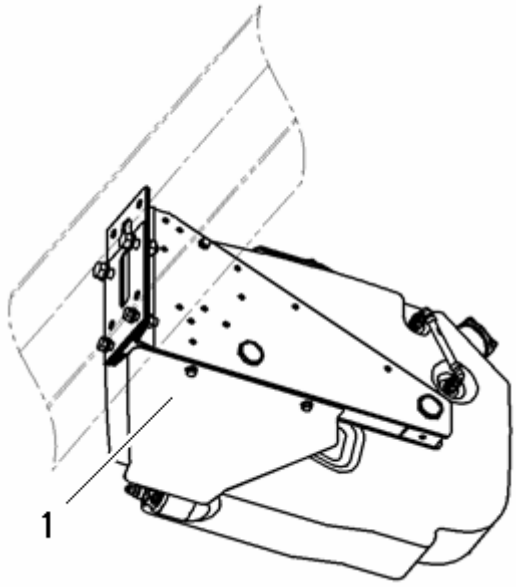
Property damage

Don't take out the power for other electric components from the existing fuse.

Especially the function of BlueTec exhaust gas after treatment can not work when the fuse of system is blowout.

E

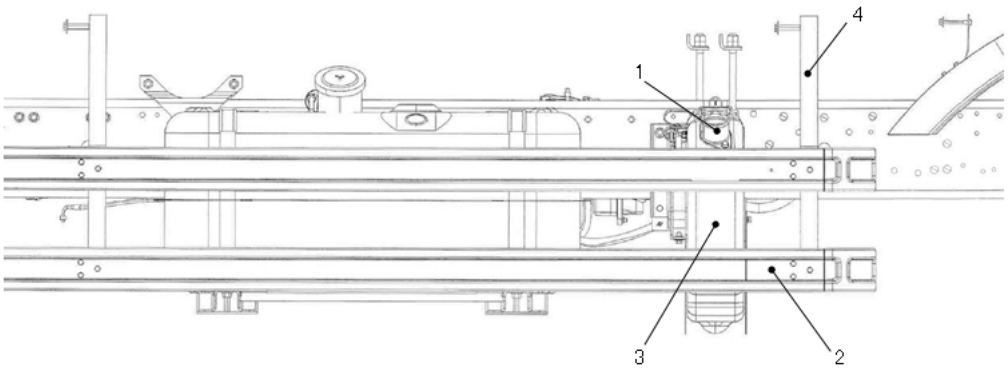
FM dump car please attach the guard if you have the removal and relocation of the spare tire carrier.



1 Guard

Installing a side guard and other parts around the urea (Adblue) tank

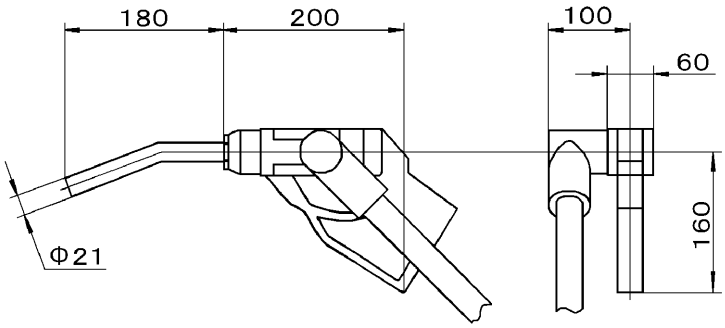
- Care is required when installing a side guard around the urea (Adblue) tank. Do not let the side guard and its mounting stay hide the filler cap of the tank and interfere with refilling the tank with AdBlue. Be sure to open up sufficient space around the cap to allow a filler gun of AdBlue to be inserted; typical dimensions of filler guns are shown in the figures below.
- Allow a clearance of at least 25 mm between the side guard, mud guard, etc. installed around the urea (Adblue) tank and the following parts of the urea (Adblue) tank: front end, rear end, and outer side.
- Avoid directly attaching parts to any of the urea (Adblue) tank brackets.



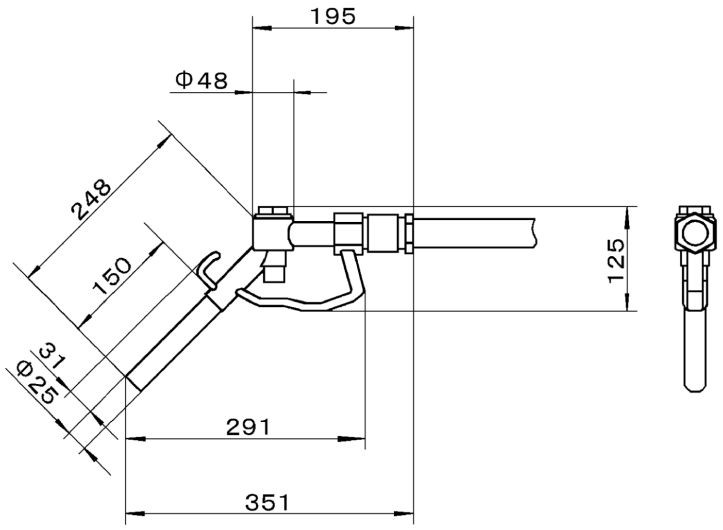
1 Cap
2 Side guard
3 Urea (Adblue) tank
4 Side guard mounting stay

Filler gun - Examples

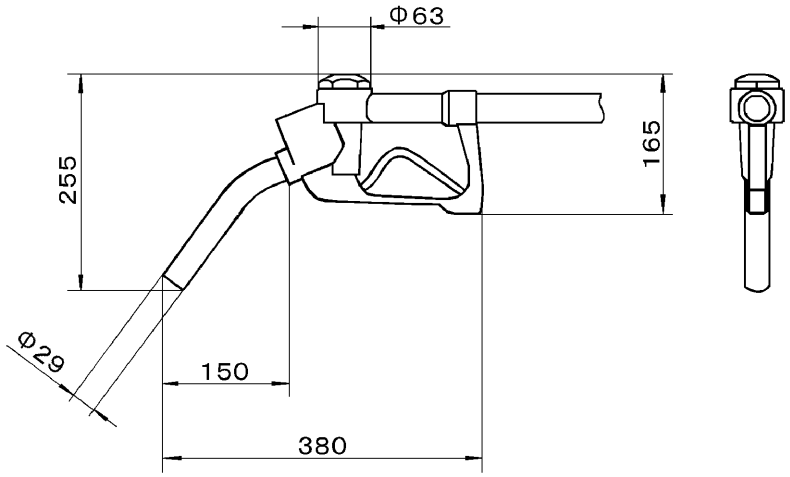
Filler gun for dispensers



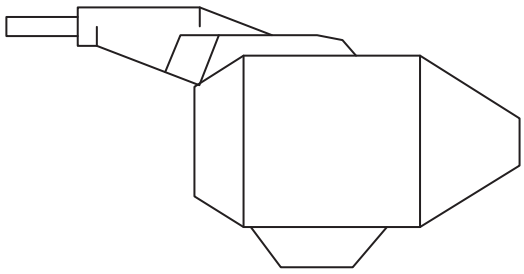
Filler gun for IBC pump units



Filler gun for IBC pump units (with auto-stopping function)

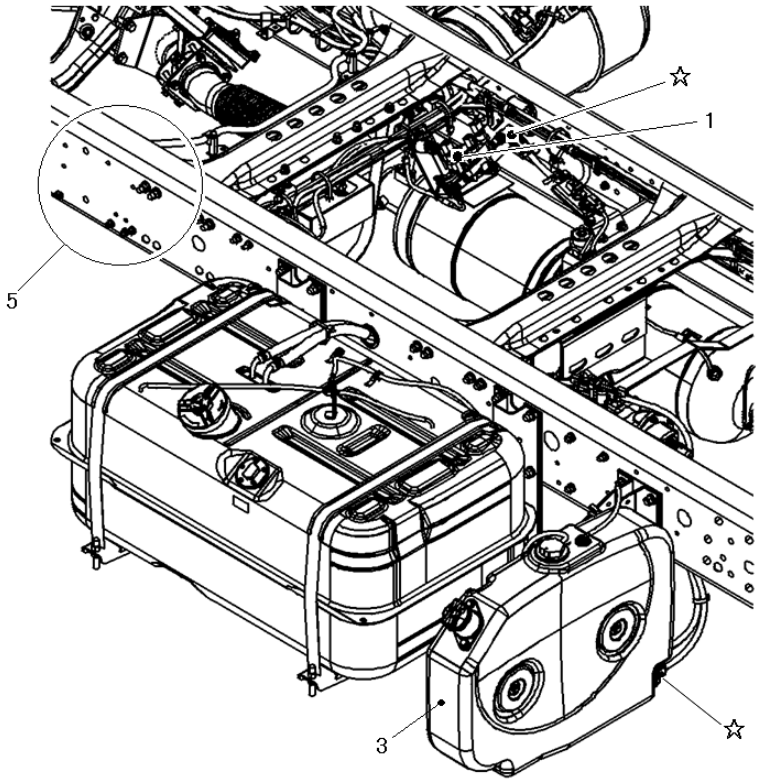


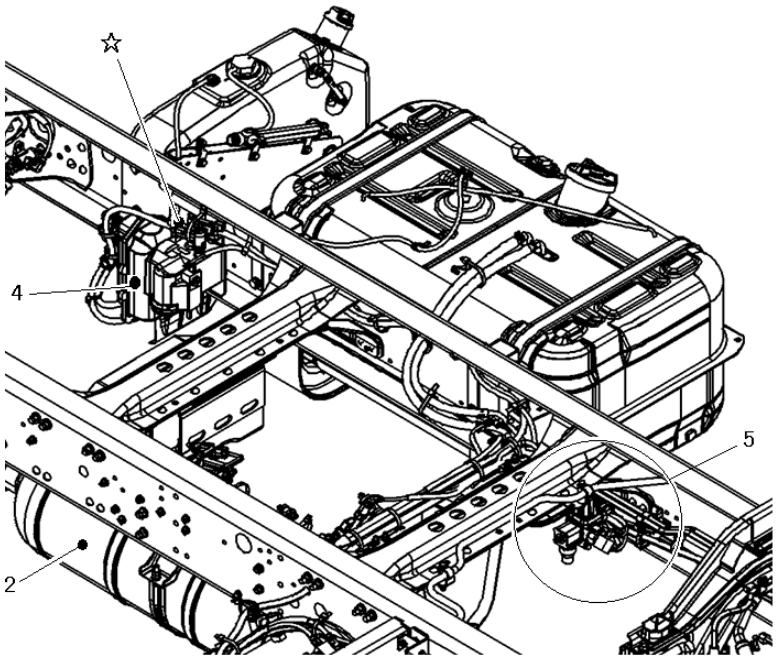
Filler gun for ISO/DIS 22241-5 type



Urea (Adblue) tank and connection piping

The SCR muffler, the urea (Adblue) tank, the urea supply unit, the dosing unit, the pressure limiting unit, and their connection piping are all installed conforming to the relevant exhaust gas control requirements. It is prohibited to relocate these components and change their piping when mounting the body or equipment.





1 *Dosing unit*
2 *SCR muffler*
3 *Urea (Adblue) tank*
4 *Supply unit*
5 *Pressure limiting unit*

There are urea (Adblue) hose connecting ports near the paints marked ☆ (3 places in total). After any operation including mounting the body or equipment, visually check that the clamps of the coupling connector is fully closed regardless of whether you touch the piping or not.

Property damage

Applying undue force to hoses may damage their connections. Do not pull on hoses or step on their connections.

Precautions for electric welding

If electric welding is performed while the electric wiring for the supply unit of the BlueTec system is still connected, the internal electric circuits on the module could be damaged. Be sure to disconnect the module's electric wiring connector as follows before starting electric welding:

- Turn the starter switch to "OFF".
- Leave the starter switch in the "OFF" position for at least 5 minute. (This is necessary for the after-running processing.)
- Be sure to ground the welder close to the welding area.

6.15 Fuel system

6.15.1 Fuel tanks

General information

- Fuel hoses of poor quality can cause a fire. If any fuel hose is to be replaced, always utilize an fuel hose or a steel pipe of the following type.

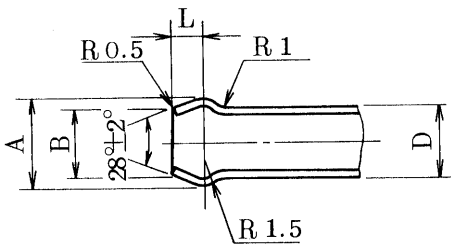
Fuel hose

Unit: mm

Nominal diameter D	Part No.	Length
8	MH033916 (shortest)	170
	MH033921 (longest)	450
10	MH033938 (shortest)	220
	MH033852 (longest)	20000
12	MH033873 (shortest)	180
	MH033877 (longest)	20000

Steel pipe

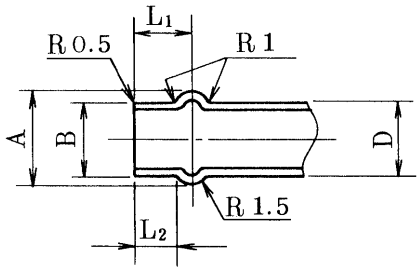
Bulge type



Unit: mm

Nominal diameter D	A	B	L (Reference)	Corrosion protection	Inner diameter of rubber hose (Reference)
6.35	7.1 -7.7	5.8 - 6.4	2.8	Inner surface: Copper plating (thickness: 8µ or more) Outer surface: Zinc plating (thickness: 8µ or more)	5
8	9.0 -9.6	7.6 - 8.2	3.2		7
10	11.2 - 11.8	9.7 - 10.3	3.2		9
12	13.2 - 13.8	11.7 - 12.3	3.2		11
15	16.4 - 17.0	14.7 - 15.3	3.6		14

Spool type



Unit: mm

Nominal diameter D	A	B	L1	L2	Corrosion protection	Inner diameter of rubber hose (Reference)
6.35	7.1 -7.7	6.35	4.5	3.5	Inner surface: Copper plating (thickness: 8µ or more) Outer surface: Zinc plating (thickness: 8µ or more)	5
8	9.0 -9.6	8	4.5	3.5		7
10	11.2 - 11.8	10	4.5	3.5		9
12	13.2 - 13.8	12	4.5	3.5		11
15	16.4 - 17.0	15	4.5	3.5		14

- Adding fuel hoses is prohibited.
- Use metal tubes within the engine compartment.
- Any change of clips or transfer of clamp locations with regard to relatively movable parts between the engine and frame are prohibited.
- If the freezer engine will be supplied with fuel from the fuel tank for a vehicle engine, be sure to take out fuel from the fuel tank. Never attempt to supply fuel for a freezer engine through a branch line from the fuel supply line for a vehicle engine. Such an attempt could result in the vehicle engine suffering from an instable fuel supply.
- Ensure that the filler port in the fuel tank is located at least 300 mm away from the exhaust pipe opening and 200 mm away from exposed electric terminals or switches.
- Route the fuel piping in such a way that any fuel leaked from the fuel piping does not reach the exhaust pipe. (Avoid a piping design in which a fuel pipe joint is located above the exhaust pipe.)
- Never attempt to modify the fuel tank.
- Do not tamper with the plug of the spare fuel tank except when replacing the fuel tank with a new larger tank.

Transfer of fuel tanks

- Do not relocate the fuel tank to a position where it may interfere with the side guard.
- The fuel tank installation position should be in the wheelbase section.
- Clamp the fuel hose to the frame at an interval of 400 to 500 mm. Do not lay down the piping along the electric wiring or battery cable. Ensure that the fuel hose is at least 20 mm distant from the electric wiring and battery cable.
- The fuel pipes must be so routed and clamped that at least 15 mm distance from every corner of adjacent parts and 25 mm distance from the movable parts may be assured.

Addition of fuel tanks

- Fuel tanks of a larger capacity can be procured from an authorized MITSUBISHI FUSO distributor or dealer.
- When adding fuel tanks, attach a cut-off valve to the union tube connecting each tank. The necessary parts can be procured from an authorized MITSUBISHI FUSO distributor or dealer.
- If any commercially available tank is used, check the tank for the presence of foreign objects before installing it.

Installation of fuel tank

- Install the fuel tank in such a way that no loosened fasteners will occur under any circumstances, taking the conditions such as vibrations and mounting position fully into consideration. If new type brackets should be used, verify that they can provide sufficient strength to the construction.
- To fasten the fuel tank to the frame, be sure to use the flange bolts and nuts categorized into the following strength classes and tighten them to the specified torque.

Unit: N·m {kgf·m}

	Size	Strength class	Tightening torque
Flange bolt	M10	10T or higher	70 to 90 {7.1 to 9.2}
Flange nut	M10	6T or higher	
Flange bolt	M12	10T or higher	125 to 170 {12.7 to 17.3}
Flange nut	M12	10T or higher	

6.16 Others

6.16.1 Supplemental restraint system(SRS)-air bag

When installing equipment or making modifications on vehicles equipped with an SRS air bag and pretensioner-equipped seat belt, observe the following precautions. Otherwise, normal operation could be hampered or the air bag could explode accidentally while working.

Precautions on installing equipment or modifying vehicles

- If modifications are made in the front section of the vehicle or equipment is installed on the front of the cab, the SRS air bag may not operate normally. When making such modifications or installing such equipment, modify the air bag to disable its activation after explaining the reason to the purchaser of the vehicle.

If you have any questions about the modification method to disable air bag activation or if you install special equipment other than those listed below, consult the department in charge ▷ page 12.

(a) Modifications to front bumper, vehicle front frame or cab (mobile X-ray vehicles, etc.)
(b) Installation of grill guard or winch (off-road vehicles, etc.)
(c) Installation of snow plow (snow-removal vehicles)
(d) Installation of front hanging type cab back crane without hook stowing mechanism (vehicles driven with the hook hanging in front of the cab)

- Never disassemble or modify the steering wheel (including pad section), air bag module (driver's seat), air bag ECU, emergency locking retractor (ELR) of pretensioner-equipped seat belt or air bag harness.
- Do not install or mount equipment above the steering wheel.
- Do not modify or reinforce the cab floor or air bag ECU mounting bracket. Also, take care to ensure they are not subjected to strong shocks.

Precautions when performing electric welding

- Never perform welding work near the air bag. This could cause the air bag to deploy or the SRS air bag system to malfunction.
- In order to discharge electricity stored in the back-up capacitor in the SRS air bag ECU, turn the starter switch OFF, then disconnect the negative terminal of the battery cable and leave it disconnected for at least 1 minute.
- Ground the welding machine near the welded section.
- When the welding work has completed, reconnect the battery cable. Check that AIR BAG is not indicated on the multi-information display when the starter switch is turned ON. If AIR BAG is indicated on the multi-information display, be sure to consult an authorized MITSUBISHI FUSO distributor or dealer.

Precautions when installing equipment

- The SRS air bag system components are installed near the steering wheel and on the seat belt retractor. Do not apply shock to these components, e.g. by hitting the nearby area.
- Do not remove the SRS air bag system components.
- Do not modify the harnesses or connectors for the SRS air bag system. Do not secure other harnesses to the air bag or pretensioner harnesses.
- Do not check the SRS air bag circuit using a multimeter.
- When doing work that subjects the cab to heat (e.g. painting), remove the air bag ECU, air bag module, clock spring and ELR of the pretensioner-equipped seat belt in advance if the cab is heated above 93°C. Consult the department in charge before removing these components. ▷ page 12.
- If the air bag module has been removed, store it on a flat surface with the horn pad facing up. Do not place any objects on the air bag module.
- Take special care when handling the air bag module and air bag ECU. Do not drop them or splash water or oil on them. Never apply shock to the air bag ECU. If the air bag module or air bag ECU is dropped, be sure to replace it with a new one even if there appears to be no problem.
- Do not modify the electric circuit of the SRS air bag. Never use a general-purpose multimeter.
- Never draw power from the SRS air bag fuse.
- Do not turn the clock spring more than 3 revolutions from the neutral position (straight-forward position). Otherwise, the internal harness may break.
- When removing the steering wheel and steering shaft joint, be sure to place the front tires in the straight-forward position and remove the starter key to lock the steering.
- To reinstall the steering wheel, place the front tires in the straight-forward position and the clock spring in the neutral position.
  The clock spring neutral position is where the alignment marks are aligned after turning the spring clockwise as far as it can go and then returning it counterclockwise by the number of revolutions indicated on the label.
- After completing the work, check the SRS air bag warning to confirm that the air bag operates normally. Check that AIR BAG is not indicated on the multi-information display in the meter cluster when the starter switch is turned ON. If AIR BAG is indicated on the multi-information display, be sure to consult an authorized MITSUBISHI FUSO distributor or dealer.

Miscellaneous

- When doing work that is not listed in this section, be sure to consult an authorized MITSUBISHI FUSO distributor or dealer.
- When replacing or disposing of an SRS air bag, or when taking actions to put the vehicle out of service with an SRS air bag, be sure to consult an authorized MITSUBISHI FUSO distributor or dealer.
- If you have any questions about installing equipment or modifying the vehicle, consult the department in charge ▷ page 12.

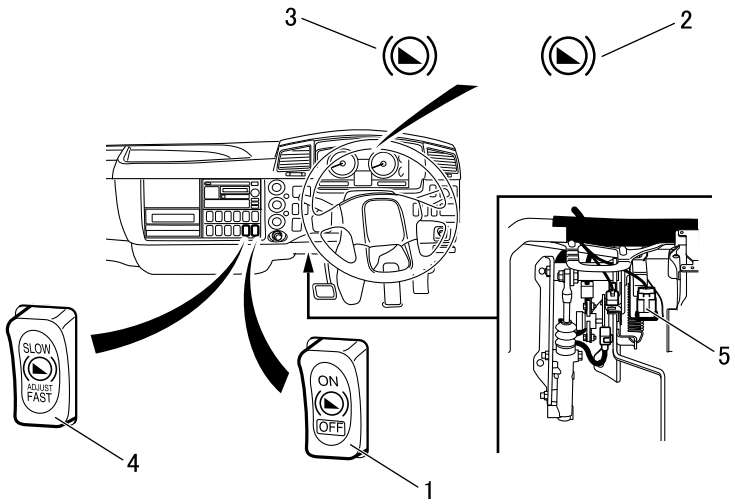
6.16.2 Hill start assist system <Vehicles with hill start assist system>

The hill start assist system is an electronic system controlled by a computer.

To prevent damage to electronic parts, special attention must be paid to this system when performing body mounting operations involving electric welding.

Functions

The hill start assist system retains the braking force generated when the brake pedal is depressed to enable the vehicle to stand still on a hill for a while even after the brake pedal is released. The system releases the braking force automatically when the accelerator pedal is depressed, thus making it easy to start off on a hill.



Names of parts

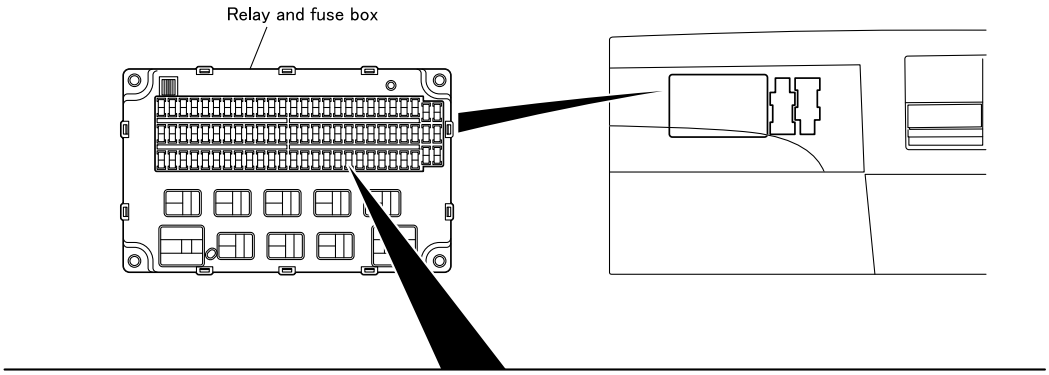
1 *Hill start assist system main switch*
2 *Indicator lamp (green)*
3 *Warning lamp (amber)*
4 *Hill start assist system adjusting switch*
5 *Hill start assist system reset switch*

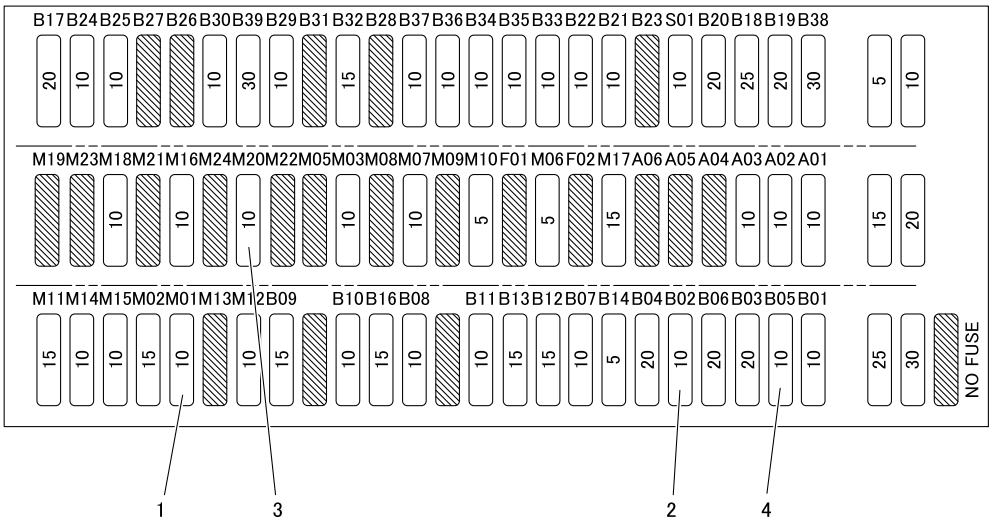
Operations

- The hill start assist system is activated when the hill start assist system main switch is turned ON and deactivated when it is turned OFF.
- While the hill start assist system is active, the indicator lamp (green) remains lit.
- The warning lamp (amber) is lit when the starter switch is placed in the ON position, and extinguished in a few seconds if no abnormalities are found. If the lamp does not come on when the starter switch is turned ON or it does not go out after several seconds, have the system checked at an authorized MITSUBISHI FUSO distributor or dealer.
  If the lamp illuminates during travelling, the hill start assist system may be faulty. Turn the hill start assist system main switch to the OFF position and have the system checked at an authorized MITSUBISHI FUSO distributor or dealer.
- The hill start assist system adjusting switch is used to adjust the time until the braking force is released.
- The hill start assist system reset switch is used to restore the brake release timing if its setting is disturbed by replacing the clutch or adjusting the play of the clutch play.

Precautions during body mounting

- For precautions to be taken when performing electric welding works, refer to 5.2 "Welding work" ▷ page 47.
- For safety, avoid sharing exsiting fuse with extra electrical device. In the case of fuse for Hill start assist system blow out, the system stops working.





Fuse for hill start assist system

1 *Fuse for MVCU <Full air brake vehicle>*
2 *Fuse for MVCU <Full air brake vehicle>*
3 *Fuse for anti-lock brake system <Vehicle with ABS in Air-over hydraulic brake vehicle>*
4 *Fuse for anti-lock brake system and hill start assist <Vehicle with ABS in Air-over hydraulic brake vehicle>*

- If the warning lamp (amber) is lit or indicator lamp (green) is not lit when the brake pedal is depressed, the hill start assist system may be faulty.
  In such a case, press down the OFF switch before having the system checked at an authorized MITSUBISHI FUSO distributor or dealer.

If the electronic control unit needs to be replaced for some reason, contact your nearest MITSUBISHI FUSO dealer.

If you have any questions about the hill start assist system, consult an authorized MITSUBISHI FUSO distributor or dealer.

6.16.3 Anti-lock brake system (ABS)

Place the starter switch in the "OFF" position before disconnecting the harness connector of the anti-lock brake system control unit.

For precautions when performing electric welding, refer to 5.2 "Welding work" ▷ page 47.

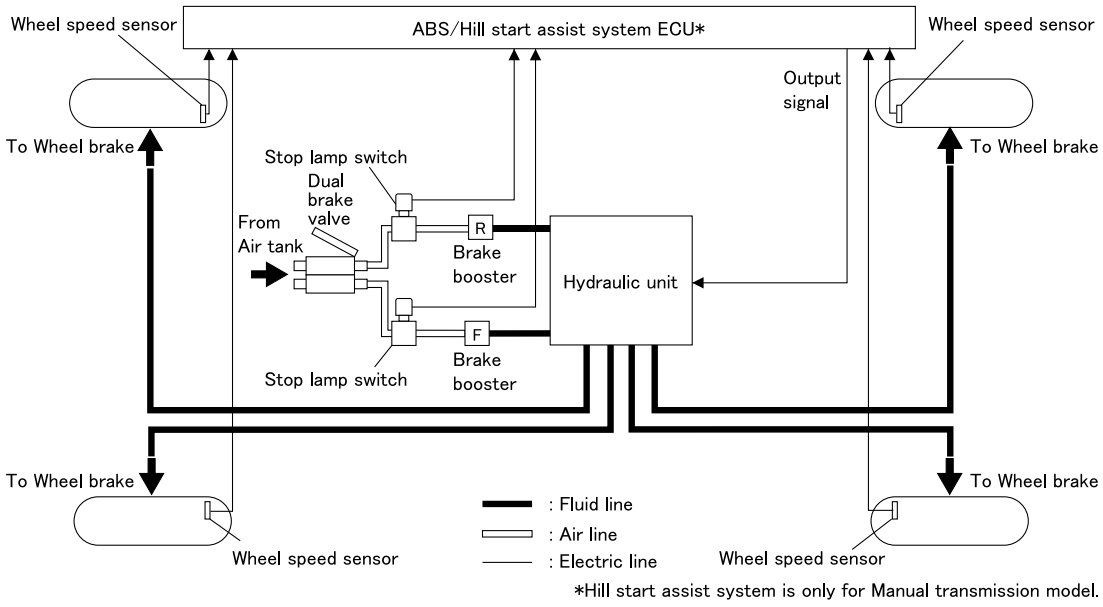
When cleaning the inside of the cab, be careful not to splash water on the control unit, relay, connectors, etc.

Do not attempt to make the following modifications, otherwise the parts may malfunction:

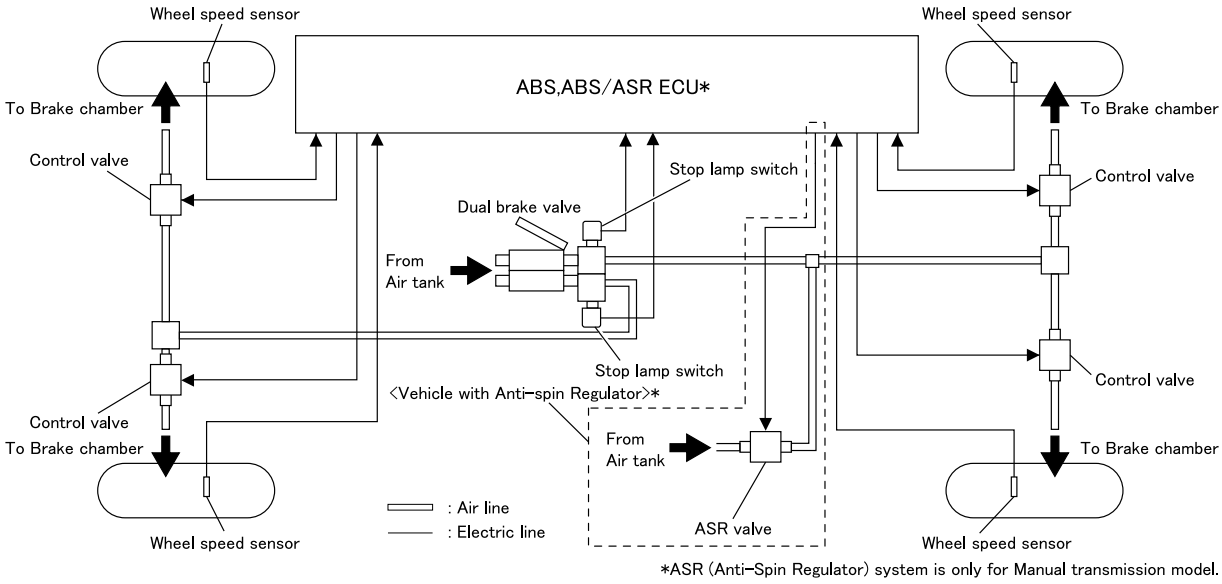
- Modification (such as cutting off, splicing, etc.) of wiring harnesses and connectors of the anti-lock brake system, ASR and hill start assist system
- Reconfiguration of the control unit

Schematic system diagram

<Air-over hydraulic brake>



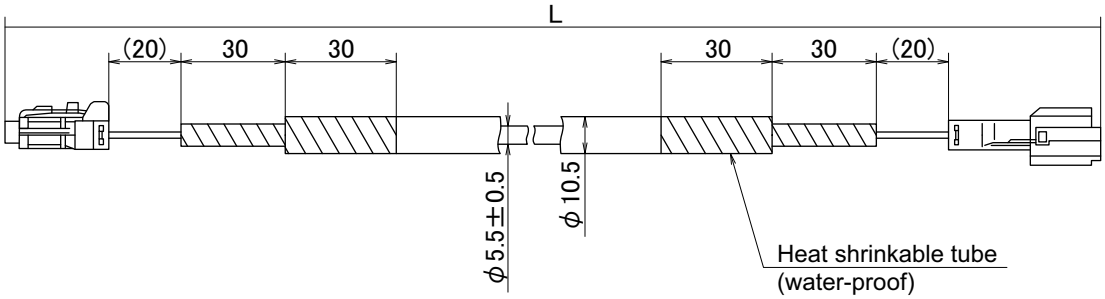
<Full air brake>



Change of anti-lock brake system-related parts

- The control valve may not operate normally if its exhaust port is blocked with ice, snow, etc. Install the control valve in a place free from ice or snow accumulation, with enough space below the exhaust port.
- The piping may be extended provided it is done before the control valve.
- Wires other than those in the sensor harness can be extended. However, only extension wires of the specified size must be used.
- It is permitted to use a larger capacity air tank or to relocate the tank.
- For wheel speed sensors, 2-core twisted wires are used to protect wheel speed sensor signals against electromagnetic interference which are critical for normal anti-lock brake system operation. Do not attempt to cut the wheel speed sensor harness midway and connect other wires in-between.
  If the wheel speed sensor harness is to be extended, always use the following extension harness:

Extension harness for wheel speed sensor, with 2-pole connector



Class	L	Mitsubishi part number	NABCO part number	Connector color	Application
1	1000	MC666016	2AZ-57484-1	Black	For RH wheel
2	1000	MC666017	2AZ-57484-2	Gray	For LH wheel
3	2000	MC666018	2AZ-57484-3	Black	For RH wheel
4	2000	MC666019	2AZ-57484-4	Gray	For LH wheel
5	3000	MC666020	2AZ-57484-5	Black	For RH wheel
6	3000	MC666021	2AZ-57484-6	Gray	For LH wheel

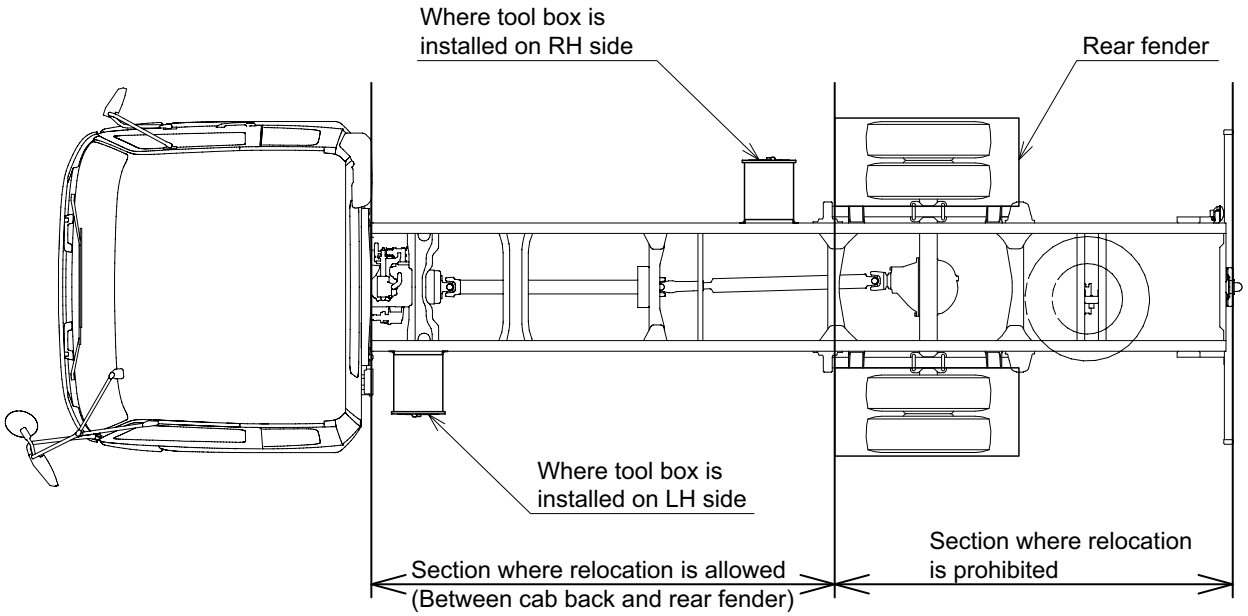
Checking the anti-lock brake electrical system after completing the body mounting procedure

- Upon completion of body mounting works, check the anti-lock brake electrical system for abnormalities using an appropriate tester such as MUT.
- After confirming that the anti-lock brake electrical system is working normally, erase diagnostic trouble codes using an MUT or other proper means.

For details on how to use an MUT, contact an authorized MITSUBISHI FUSO distributor or dealer.

6.16.4 Tool box

- Install the tool box in the section between the cab back and rear fender. Do not install it in a section where relocation is prohibited, otherwise it could fall down due to body vibrations.
- If relocation is unavoidable, select an appropriate mounting position for the tool box by taking the operating conditions into consideration and install it such that it will not become loose.



7.1 General

Risk of accident and injury

Do not modify any bolted connections that are relevant to safety, e.g. that are required for wheel alignment, steering or braking functions.

When unfastening bolted connections make sure that, when work is complete, the connection again corresponds with the original condition.

Welding work on the chassis/body may only be carried out by trained and qualified personnel.

The body, attached or installed equipment and any modifications must comply with the applicable laws and directives as well as workplace safety or accident prevention regulations, safety rules and accident insurer requirements.

Risk of fire

With all bodies make sure that neither flammable objects nor flammable liquids can come into contact with hot assemblies (including through leakages in the hydraulic system) such as the engine, transmission, exhaust system, turbocharger, etc.

Appropriate caps, seals and covers must be installed on the body in order to avoid the risk of fire.

Property damage

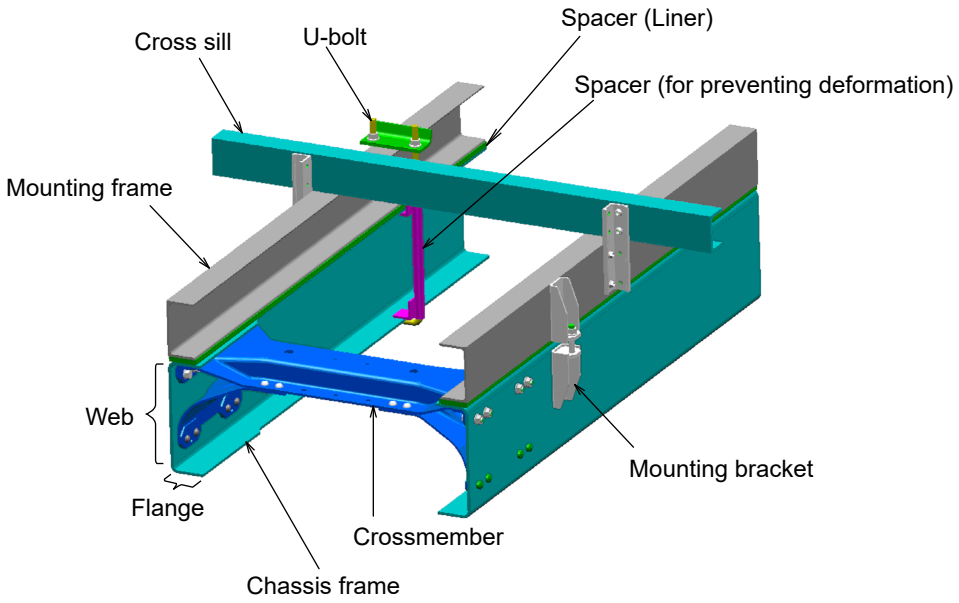
Bodies on which the transmission can be expected to be exposed to high levels of water, e.g. cleaning water (flushing, overflowing or similar), require an effective cover over the transmission (transmission guard) which will prevent abrupt cooling as well as water ingestion via the transmission breather.

Additional information

Further information on bolted and welded connections can be found in Section 3 "Planning of bodies" ▷ page 27 and Section 5 "Damage prevention" ▷ page 46.

7.1.1 Body mounting methods

General



Correct calculation of load on the chassis frame

- If a mounting frame is used, the stress calculation of the chassis frame must be conducted for beams combined with the body to be mounted.
- The mounting frame must be fastened to the chassis frame so firmly that the rear body weight may be borne evenly by the combined chassis frame and mounting frame.
- For the strength calculation of the chassis frame and mounting frame, refer to 10.4 "Weight distribution table" ▷ page 264 and 10.6.2 "Frame section modulus" ▷ page 363.
- The frame stress should be less than the values shown in the table below.

Table of frame stresses (when loaded to rating)

Material / Condition	High tensile steel plate: HTP540 Tensile strength: 540 MPa {55 kgf/mm^2}
Vehicles mainly driven on paved roads	88 MPa {9.0 kgf/mm^2} or less
Vehicles mainly driven on rough roads	64 MPa {6.5 kgf/mm^2} or less

Front structure of the rear body

The cab, air intake duct, side deflector and drag foiler move while the vehicle is travelling. Take care that the mounted components do not interfere with the cab, the air intake duct or other parts.

7.1.2 Mounting frame

All bodies require a mounting frame or a substructure that assumes the function of a mounting frame to ensure a reliable connection between the chassis and the body.

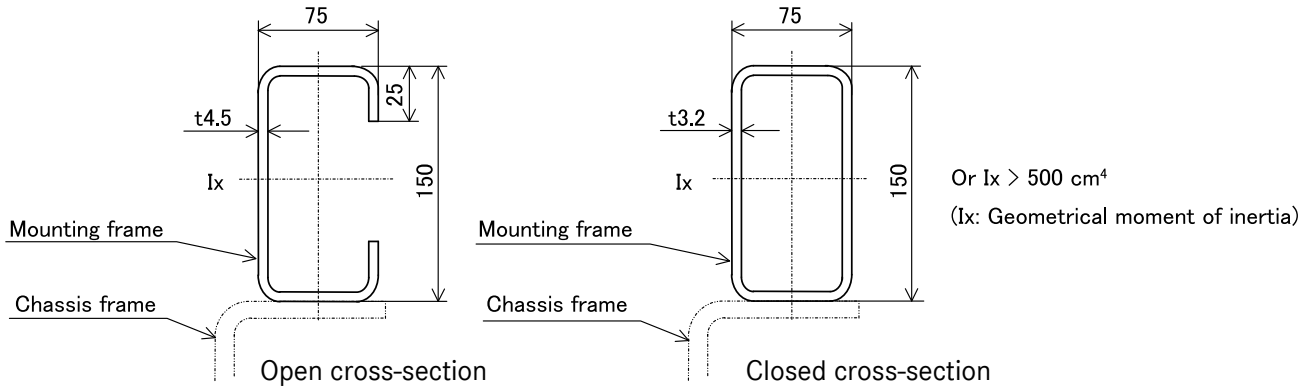
Property damage

If more than one body is mounted on the same chassis (e.g. platform and loading tailgate), the larger of the specified moments of resistance must be taken to determine the mounting frame.

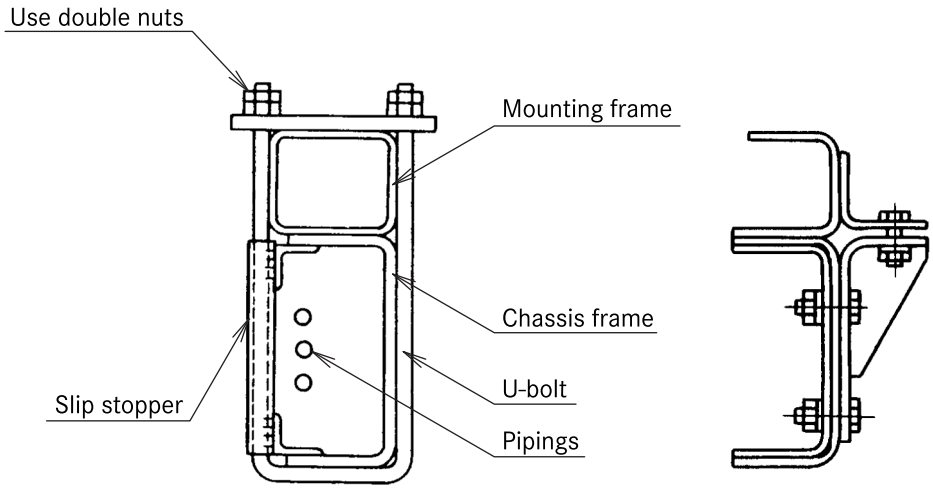
7.2 Fastening mounting frame to chassis frame

7.2.1 Cargo trucks

- For the mounting frame, use one made of steel having the following dimensions or a geometrical moment of inertia greater than those.



- To connect the mounting frame to the chassis frame, either use U-bolts, or in the case of a heavy body building part fix the mounting frame with opposing brackets and ensure that the load imposed by the body building part plus the freight is borne by both the mounting frame and the chassis frame.
  Ensure that the front end connecting part is frontward of the No.2 cross member (transmission suspension part). A large number of holes and wires pass through this area, so take care not to damage them when installing the U-bolts.



7.2 Fastening mounting frame to chassis frame

Cargo

(1) Position of mounting frame

- The front end of the mounting frame should be installed as close to the rear of the cab as possible. Extend the mounting frame as far toward the cab as possible when the rear body is installed far from the cab.

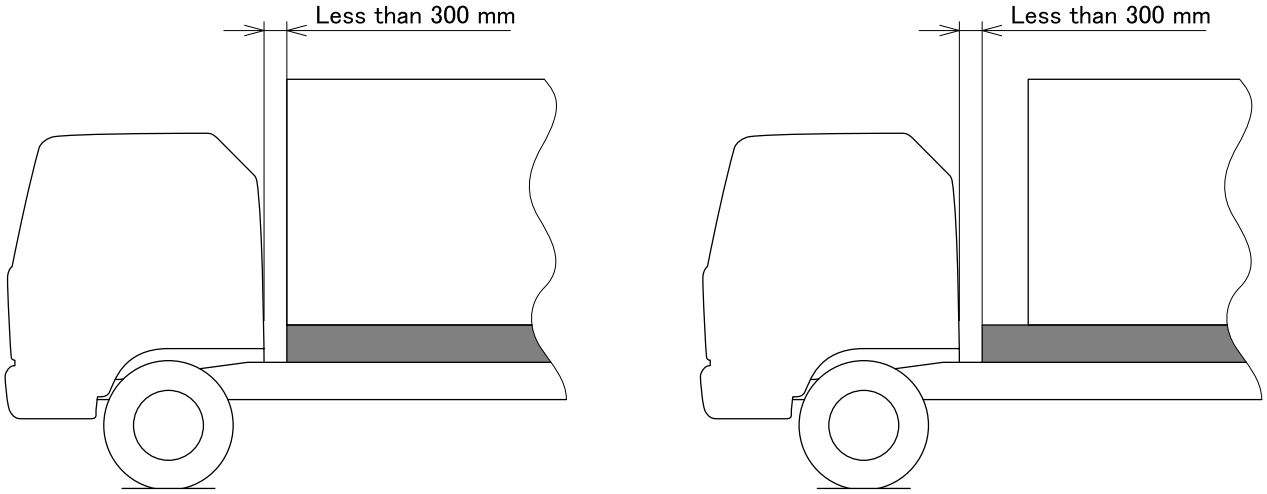
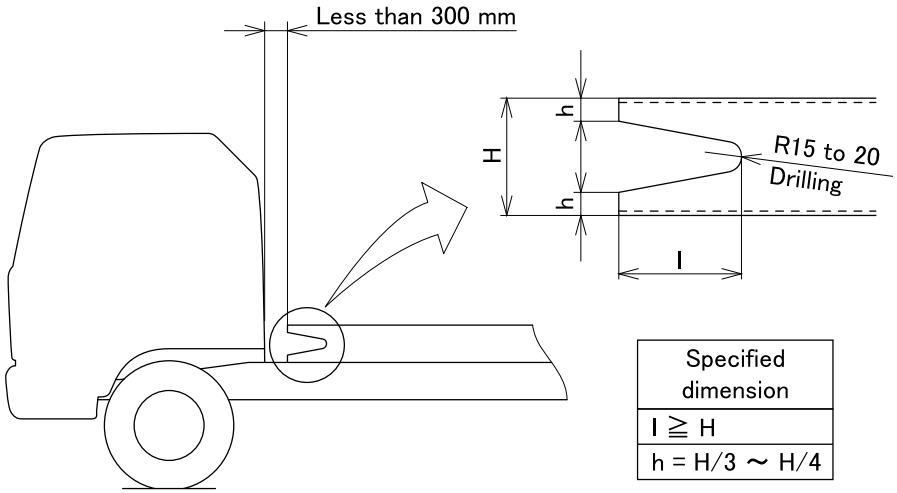


Fig. 1

Examples of front-end shape of mounting frame

- Install the mounting frame having the shape as shown in Fig. 2 to gradually reduce the stress concentrations in the front end.



Specified dimension
l ≧ H
h = H/3 ～ H/4

Fig. 2

7.2 Fastening mounting frame to chassis frame

Cargo

- The shape of the mounting frame front end as shown in Fig. 2 is highly desirable. However, if there is enough room behind the cab, the shape as shown in Fig. 3 is also acceptable.

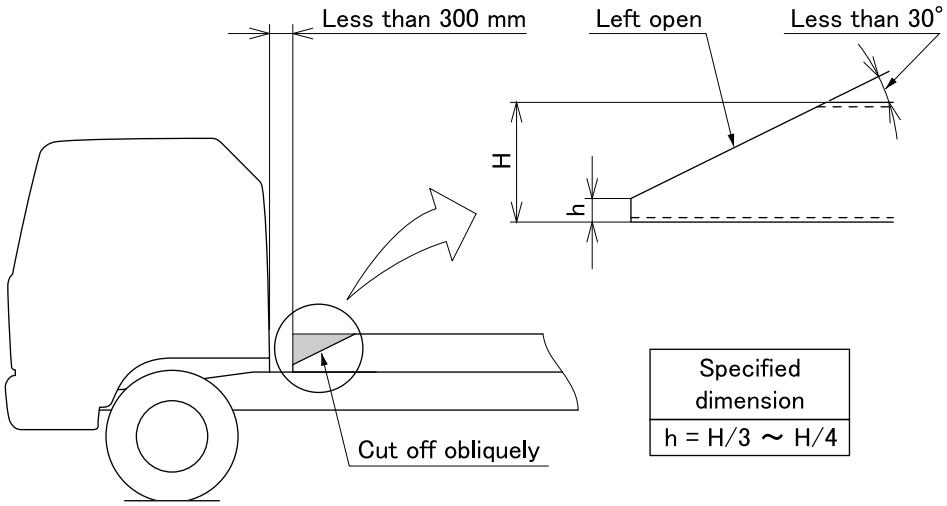


Fig. 3

- If it is difficult to shape the front end of the mounting frame as described in Fig. 2 and Fig. 3, cut it to the shape as shown in Fig. 4 before installation.

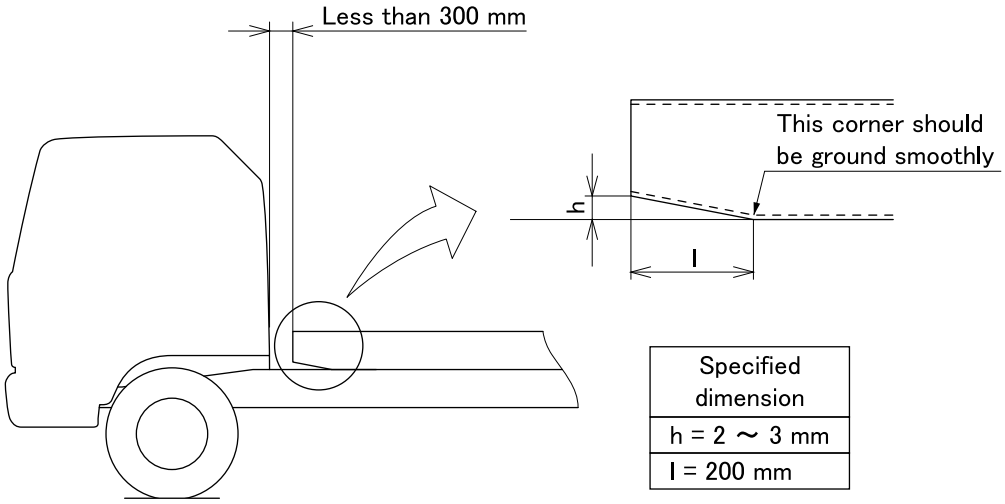
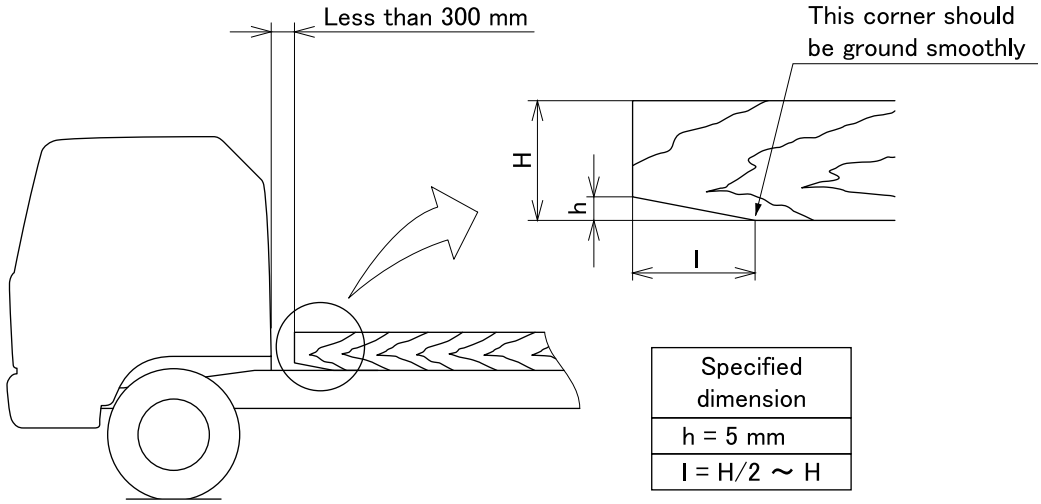


Fig. 4

7.2 Fastening mounting frame to chassis frame

Cargo

- When using a wooden block as a mounting frame, shape its front end as shown in Fig. 5 so that no stress concentration may occur between the front end of the mounting frame and the chassis frame.



Specified dimension
h = 5 mm
l = H/2 ~ H

Fig. 5

- If the chassis frame changes its width behind the cab back as shown in Fig. 6 and the mounting frame should extend forward beyond the width-changed portion, the mounting frame must also change its width along the chassis frame. The portion of the mounting frame where the width changed must have the internal surface reinforced with stiffeners as shown in the figure.

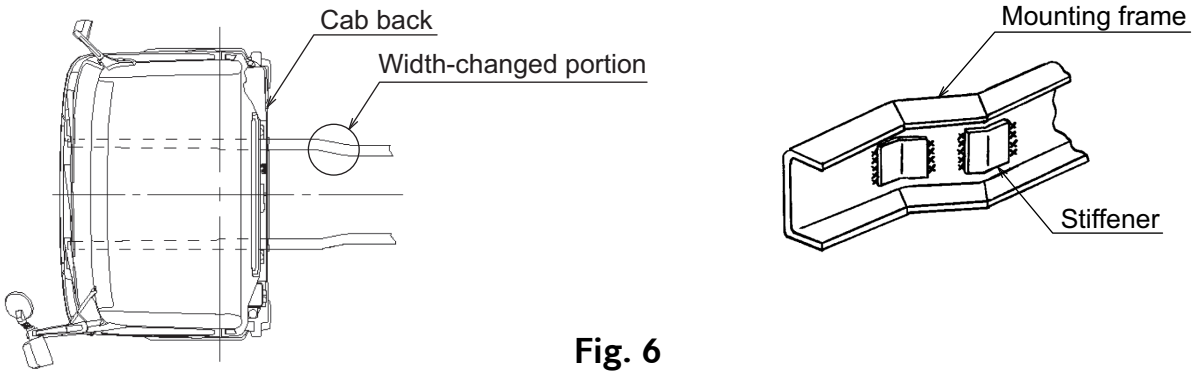
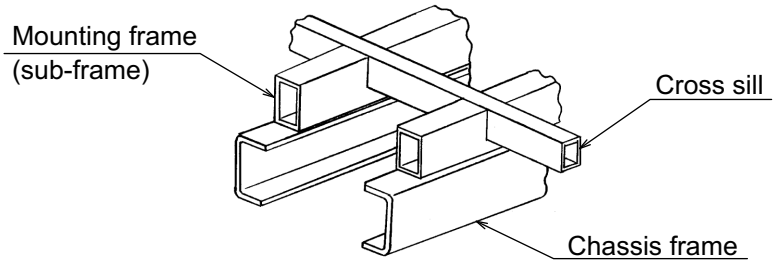


Fig. 6

Other notes

- If, for the sake of a low deck design, the mounting frame and the cross sill must be arranged on the same plane, pass the cross sill member through the mounting frame.

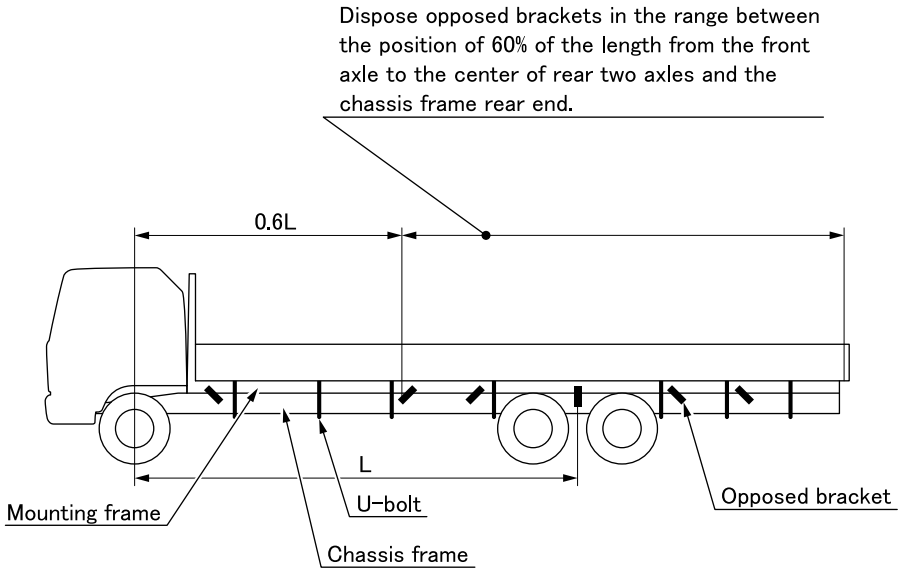


(2) Spacer (liner)

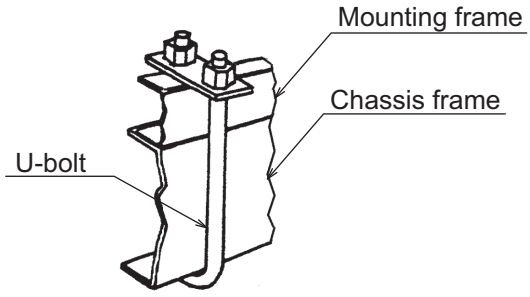
- It is recommended that a spacer (liner) inserted between the chassis frame and mounting frame not be inserted, as it reduces the fastening force.
- For a spacer (liner) to be inserted to adjust floor surface height, use a material having a high rigidity, such as a steel belt and polymer waste.

(3) Frame fasteners and their features

- If there is a concern over the rear overhang drooping on a long wheelbase model, dispose U-bolts and facing brackets as shown below and rigidly fasten the mounting frame and chassis frame in the rear portion of the built body. As guidelines for a long wheelbase model, install seven or more U-bolts and facing brackets at five or more locations on one side of the vehicle.



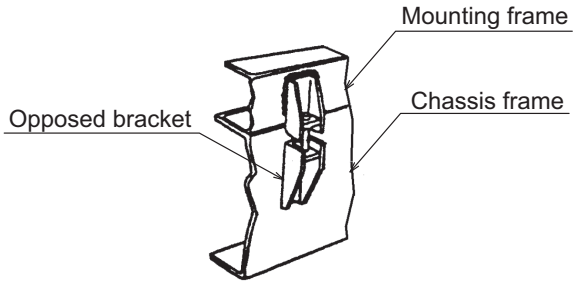
- U-bolt
  The U-bolt is a fastener widely used for combining two or more members. This offers a considerable fastening force and is effective for preventing lateral movement of members. However, it is not so effective for suppressing the longitudinal movement. Therefore, it is required that a retainer be used together for that purpose.

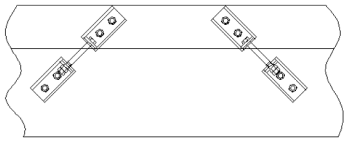


7.2 Fastening mounting frame to chassis frame

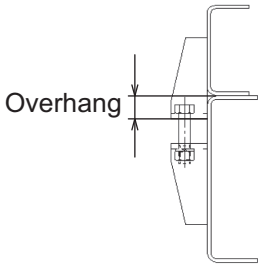
Cargo

- Opposed bracket
  This is a fastener composed of two brackets opposed to each other (one on chassis frame, one on mounting frame) and one bolt connecting these brackets. This offers a larger fastening force in a vertical direction as compared to a U-bolt. However, it is inferior in the longitudinal and lateral holding forces. To increase the longitudinal holding force of this fastener, arrange two pairs of brackets diagonally as shown below. To increase the lateral holding force, overhang the bracket on the mounting frame side toward the chassis frame side.



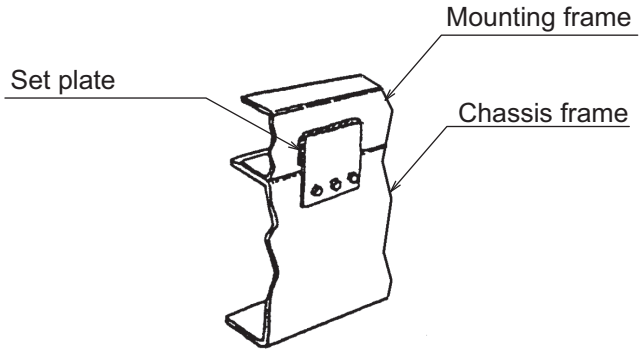


For increasing longitudinal holding force

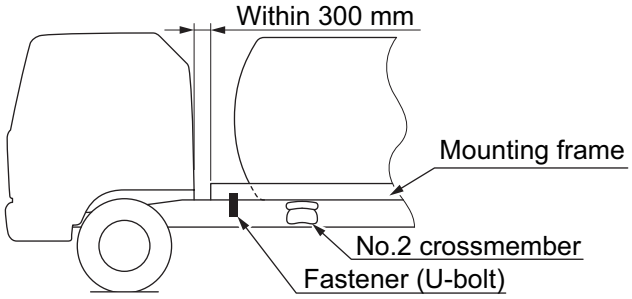


For increasing lateral holding force

- Mounting flange
  This is a retainer composed of a set plate fastening the chassis frame and mounting frame to each other. This offers a strong holding force in the longitudinal direction but is inferior to a U-bolt or opposed bracket in vertical and lateral holding forces.



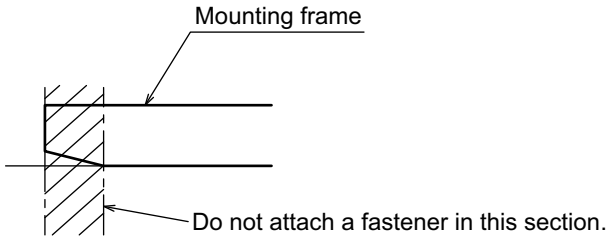
- Even if the distance between the cab back and body front end is larger, extend the mounting frame to near the cab back and secure it at a position before a No.2 crossmember with a fastener.



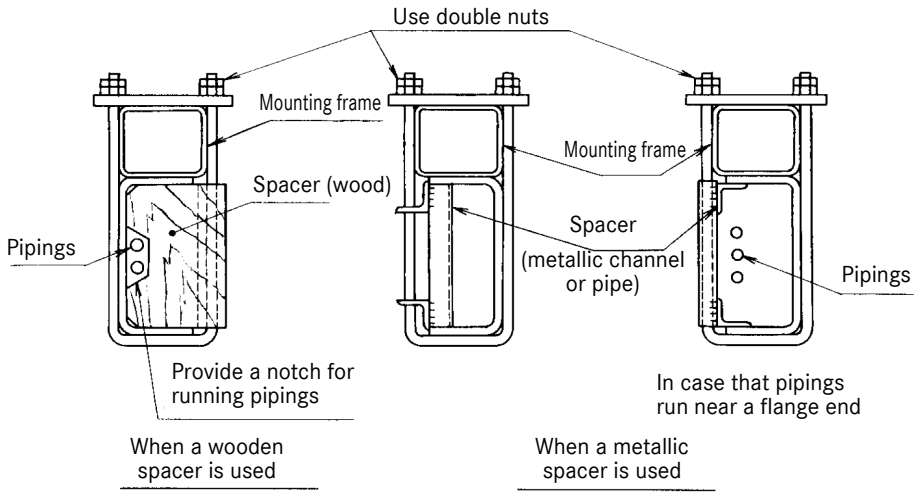
7.2 Fastening mounting frame to chassis frame

Cargo

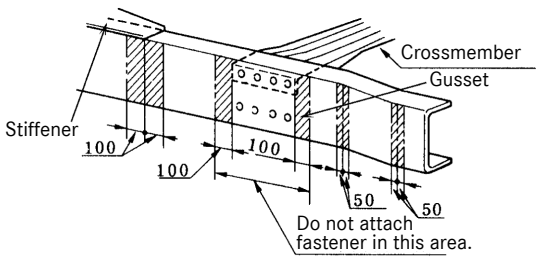
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



- When the mounting frame and chassis frame are combined with a U-bolt, insert a spacer in the chassis frame at the combined position to prevent the side rail flanges from deforming. When attaching the U-bolt near a hot component such as a muffler, use a metallic spacer, not a wooden spacer which can catch fire. Avoid welding a metallic spacer to the chassis frame to hold it in position.

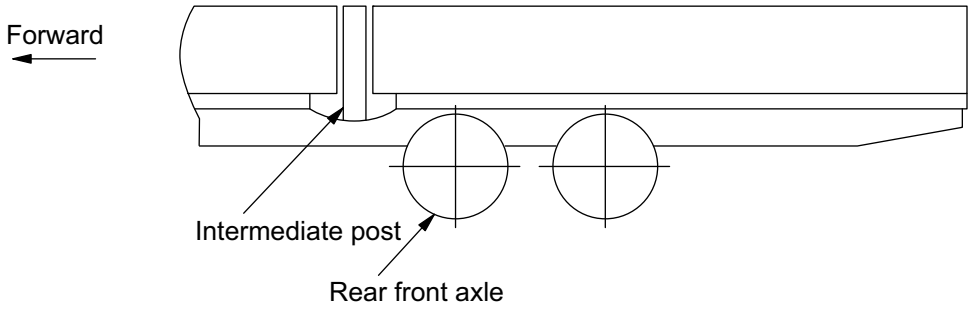


- Attaching opposed brackets to a chassis frame should be done with bolts. For the procedure, refer to 6.2 "Chassis frame material" ▷ page 73.
- Do not use U-bolts or opposed brackets for crossmember, stiffener and gusset attaching sections or near the curved section of the chassis frame because these sections are likely to be subjected to stress concentration.



(4) Intermediate post

- On chassis mounted with a 5-way openable rear body, heavy object container or low rigidity body, install an intermediate post at a position just before the rear front axle to prevent the body from drooping rearward or to facilitate sideway swinging of a gate to open or close it during loading.



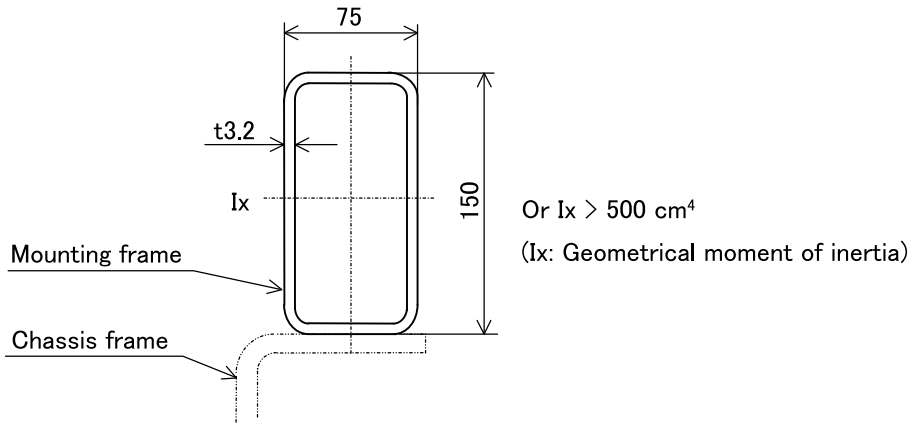
- When installing an intermediate post on a truck with a long wheelbase, taking the chassis frame deflection during loading into consideration, provide an ample space between the post and the side gate so that trouble-free side gate opening/closing operations may be assured.

7.2 Fastening mounting frame to chassis frame

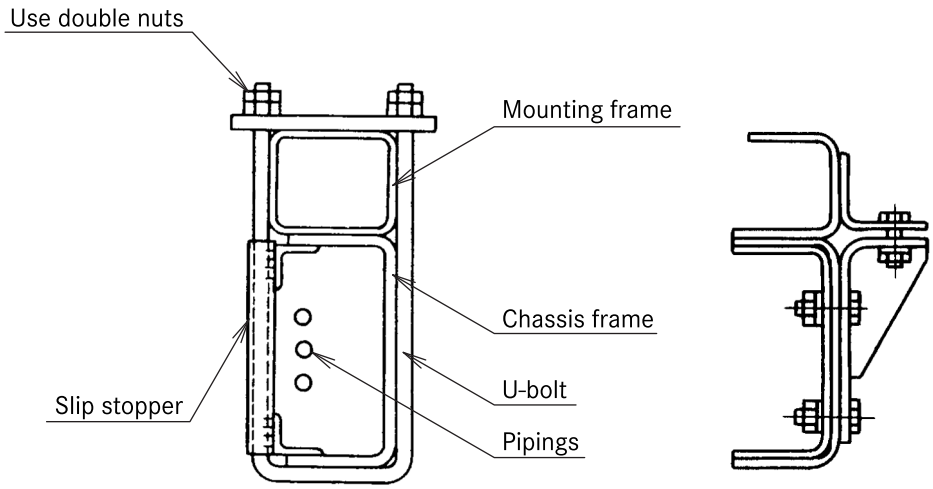
Tipper

7.2.2 Tipper trucks

- To achieve vehicle torsional rigidity on rough roads, make sure that the mounting frame is of a closed section structure.
- Ensure that the mounting frame has the following dimensions or a geometrical moment of inertia greater than those.



- To connect the mounting frame to the chassis frame, either use U-bolts, or in the case of a heavy body building part fix the mounting frame with opposing brackets and ensure that the load imposed by the body building part plus the freight is borne by both the mounting frame and the chassis frame.
  Ensure that the front end connecting part is frontward of the No.2 cross member (transmission suspension part). A large number of holes and wires pass through this area, so take care not to damage them when installing the U-bolts.



7.2 Fastening mounting frame to chassis frame

Tipper

(1) Position of mounting frame

- The front end of the mounting frame should be installed as close to the rear of the cab as possible. Extend the mounting frame as far toward the cab as possible when the rear body is installed far from the cab.

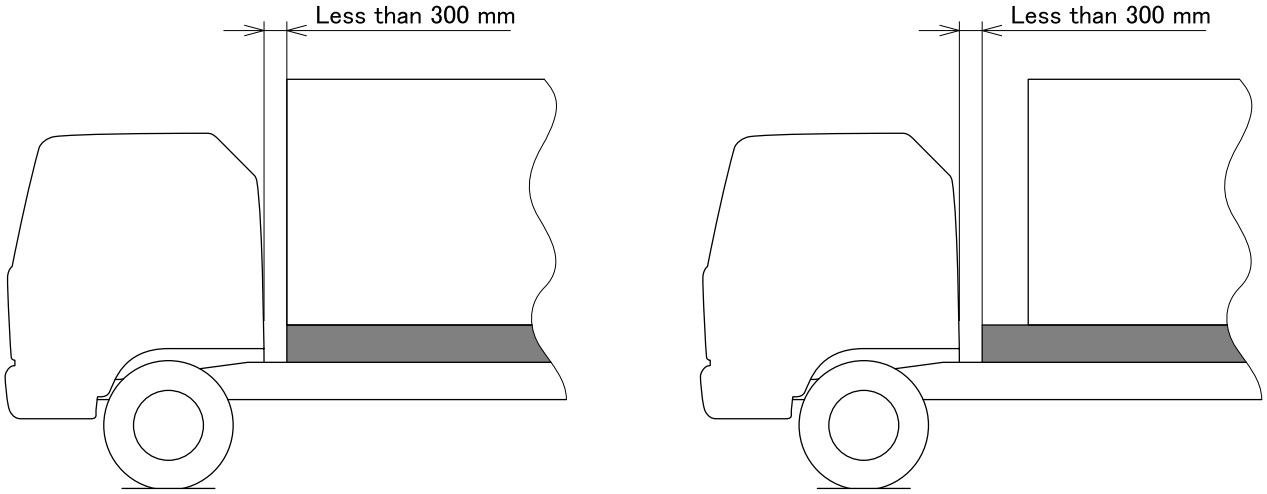
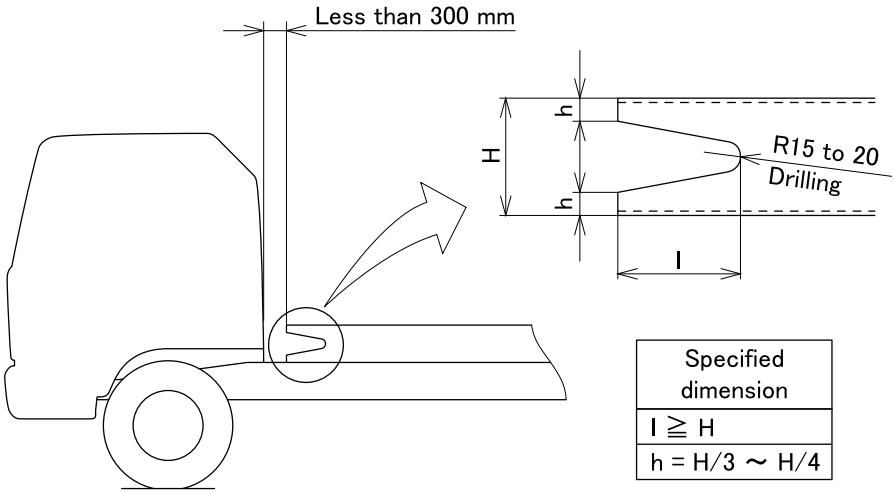


Fig. 1

Examples of front-end shape of mounting frame

- Install the mounting frame having the shape as shown in Fig. 2 to gradually reduce the stress concentrations in the front end.



Specified dimension
l ≧ H
h = H/3 ～ H/4

Fig. 2

7.2 Fastening mounting frame to chassis frame

Tipper

- The shape of the mounting frame front end as shown in Fig. 2 is highly desirable. However, if there is enough room behind the cab, the shape as shown in Fig. 3 is also acceptable.

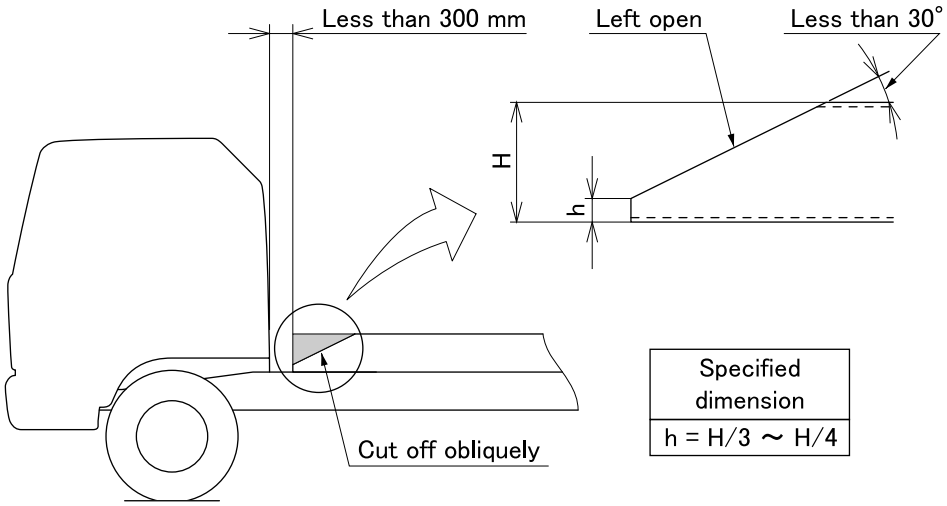


Fig. 3

- If it is difficult to shape the front end of the mounting frame as described in Fig. 2 and Fig. 3, cut it to the shape as shown in Fig. 4 before installation.

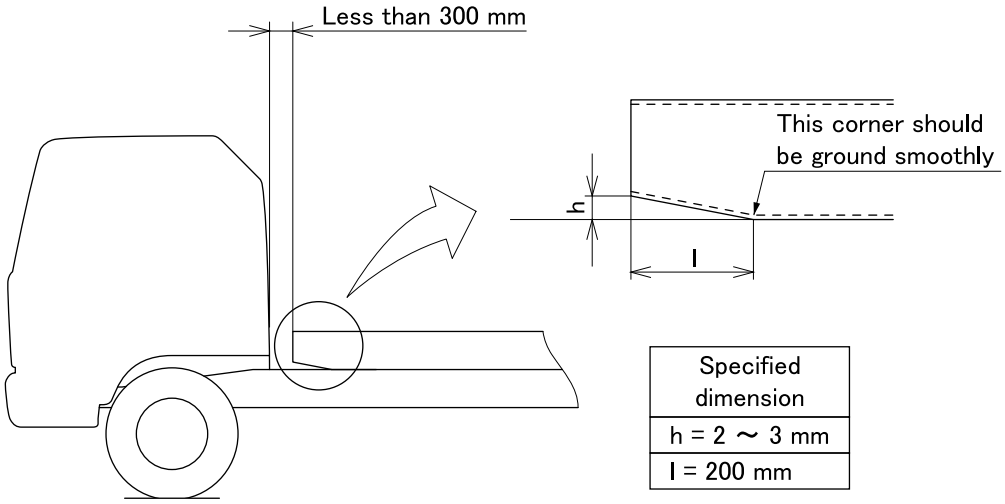
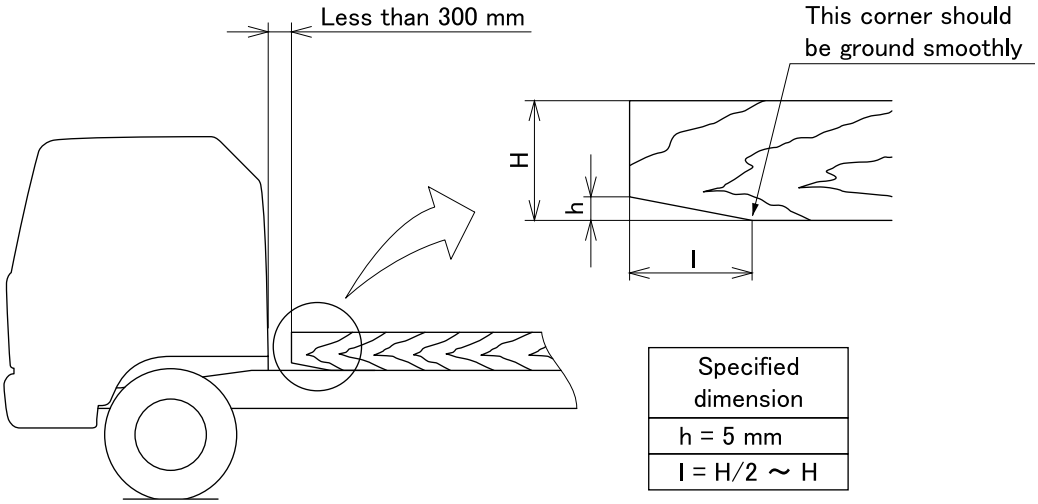


Fig. 4

7.2 Fastening mounting frame to chassis frame

Tipper

- When using a wooden block as a mounting frame, shape its front end as shown in Fig. 5 so that no stress concentration may occur between the front end of the mounting frame and the chassis frame.



Specified dimension
h = 5 mm
l = H/2 ~ H

Fig. 5

- If the chassis frame changes its width behind the cab back as shown in Fig. 6 and the mounting frame should extend forward beyond the width-changed portion, the mounting frame must also change its width along the chassis frame. The portion of the mounting frame where the width changed must have the internal surface reinforced with stiffeners as shown in the figure.

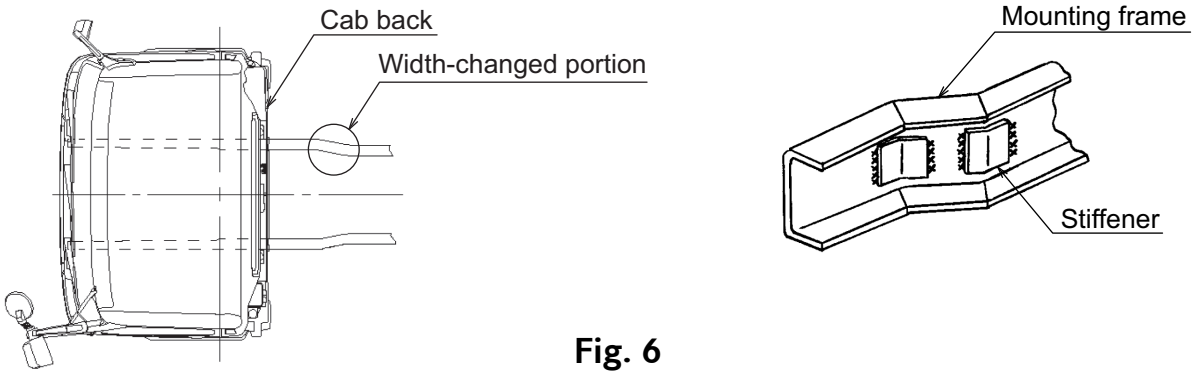
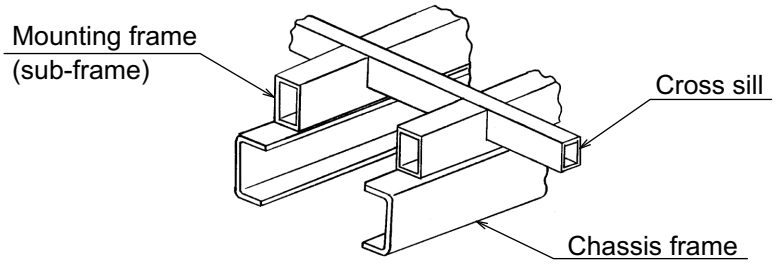


Fig. 6

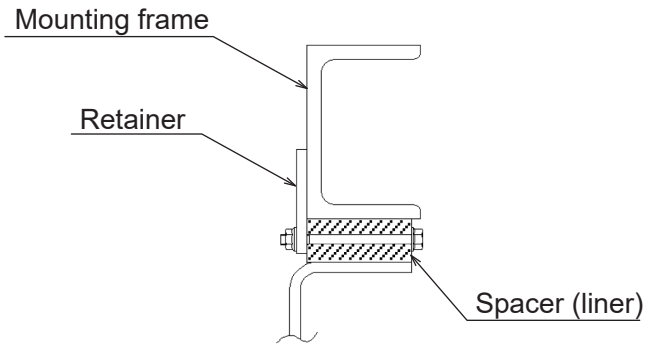
Other notes

- If, for the sake of a low deck design, the mounting frame and the cross sill must be arranged on the same plane, pass the cross sill member through the mounting frame.



(2) Spacer (liner)

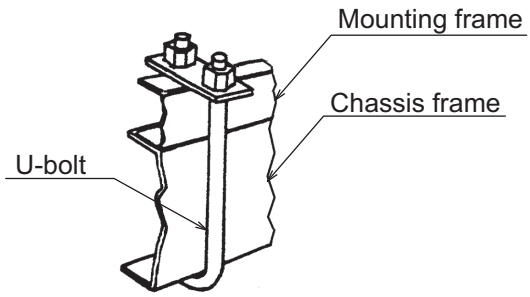
- Placing a spacer (liner) between the chassis frame and the mounting frame is not recommended because the combining force between both frames may be lowered.
- In an unavoidable case, hold the spacer (liner) in position with an additional retainer.



Installation of out-of-position preventive retainer

(3) Frame fasteners and their features

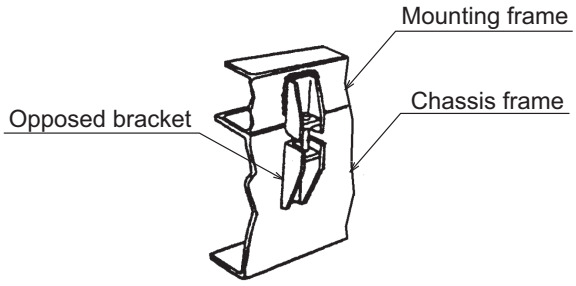
- U-bolt
  The U-bolt is a fastener widely used for combining two or more members. This offers a considerable fastening force and is effective for preventing lateral movement of members. However, it is not so effective for suppressing the longitudinal movement. Therefore, it is required that a retainer be used together for that purpose.

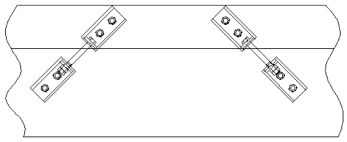


7.2 Fastening mounting frame to chassis frame

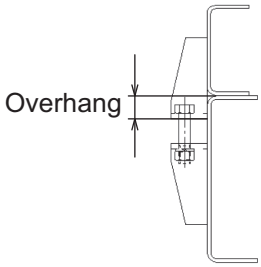
Tipper

- Opposed bracket
  This is a fastener composed of two brackets opposed to each other (one on chassis frame, one on mounting frame) and one bolt connecting these brackets. This offers a larger fastening force in a vertical direction as compared to a U-bolt. However, it is inferior in the longitudinal and lateral holding forces. To increase the longitudinal holding force of this fastener, arrange two pairs of brackets diagonally as shown below. To increase the lateral holding force, overhang the bracket on the mounting frame side toward the chassis frame side.



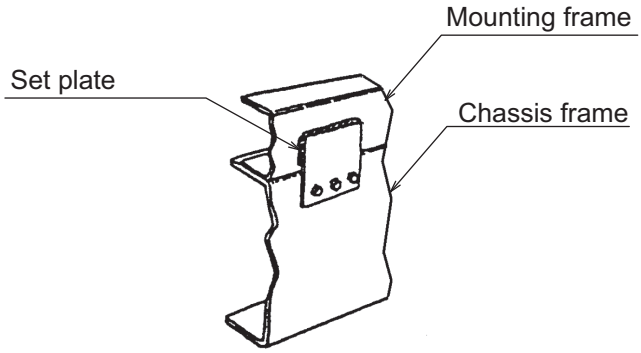


For increasing longitudinal holding force



For increasing lateral holding force

- Mounting flange
  This is a retainer composed of a set plate fastening the chassis frame and mounting frame to each other. This offers a strong holding force in the longitudinal direction but is inferior to a U-bolt or opposed bracket in vertical and lateral holding forces.



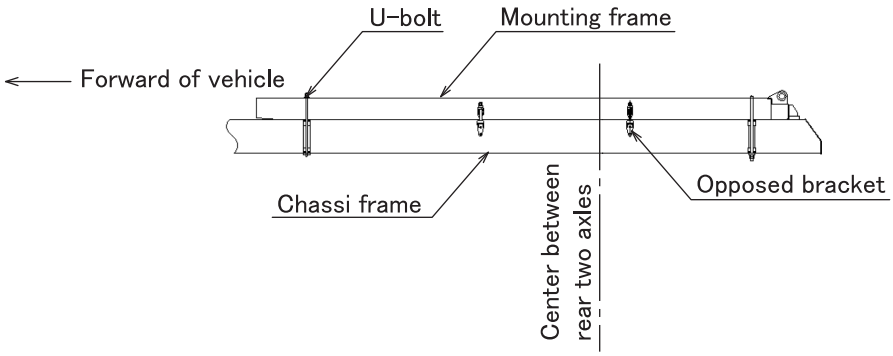
- Be sure to install a mounting frame. If your body building does not have any mounting frames, the chassis frame needs reinforcement. In this case, consult the department responsible ▷ page 12.

7.2 Fastening mounting frame to chassis frame

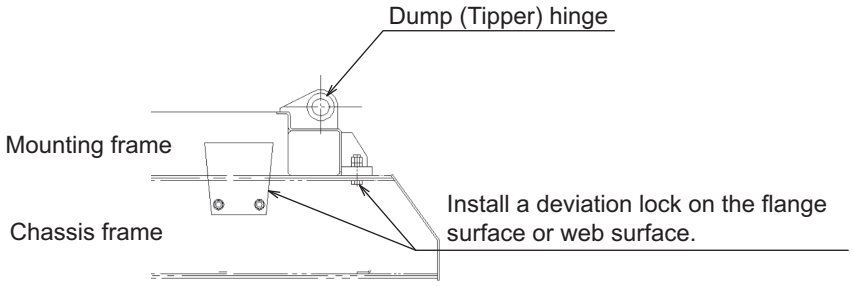
Tipper

(4) Fastening of body

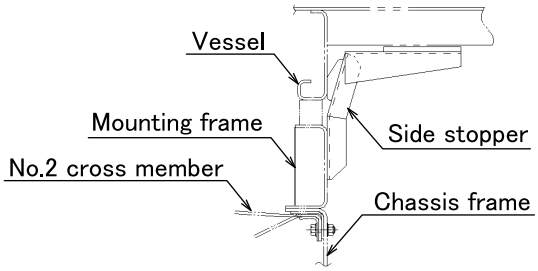
- Rigidly fasten the chassis frame with the mounting frame so that the two bears the load as a single integrated body.
- Use of a U-bolt is recommended for fastening at the frontmost portion in order to absorb relative displacement between the chassis frame and mounting frame.
  The U-bolt should be of M16 or more. Dispose it forwardly of the No.2 cross member.



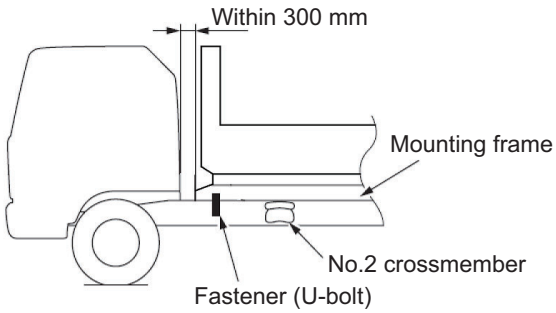
- Install a rigid deviation lock at the rear end of the mounting frame. A large load acts from the dump (Tipper) hinge.



- The side stopper for supporting lateral load at the front side of the bezel helps reduce stress on the chassis frame. Dispose the side stopper forwardly of the chassis frame No.2 cross member.



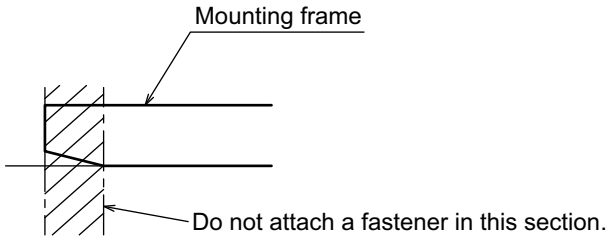
- Even if the distance between the cab back and body front end is larger, extend the mounting frame to near the cab back and secure it at a position before a No.2 crossmember with a fastener.



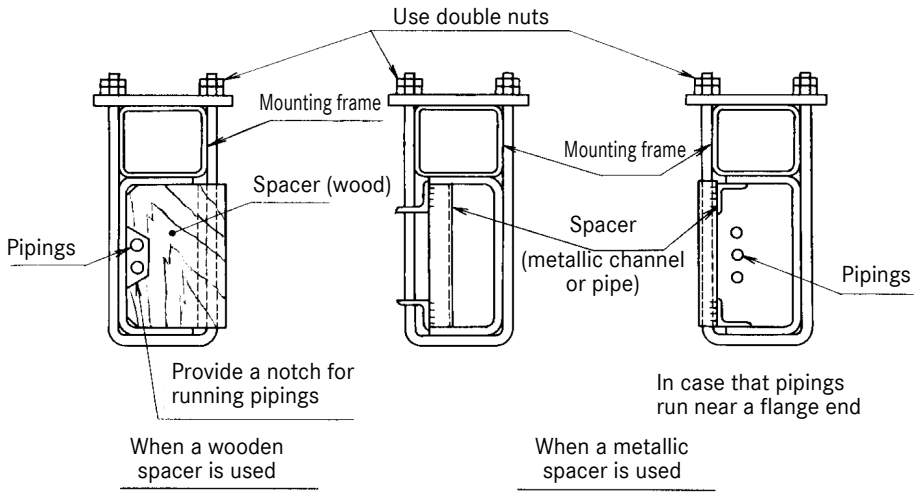
7.2 Fastening mounting frame to chassis frame

Tipper

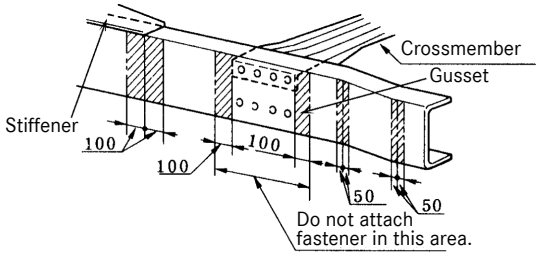
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



- When the mounting frame and chassis frame are combined with a U-bolt, insert a spacer in the chassis frame at the combined position to prevent the side rail flanges from deforming. When attaching the U-bolt near a hot component such as a muffler, use a metallic spacer, not a wooden spacer which can catch fire. Avoid welding a metallic spacer to the chassis frame to hold it in position.



- Attaching opposed brackets to a chassis frame should be done with bolts. For the procedure, refer to 6.2 "Chassis frame material" ▷ page 73.
- Do not use U-bolts or opposed brackets for crossmember, stiffener and gusset attaching sections or near the curved section of the chassis frame because these sections are likely to be subjected to stress concentration.

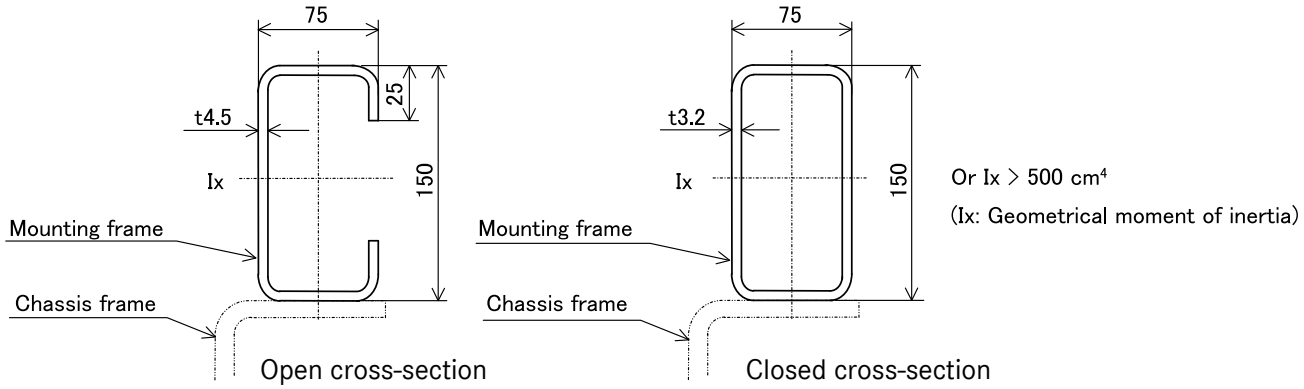


7.2 Fastening mounting frame to chassis frame

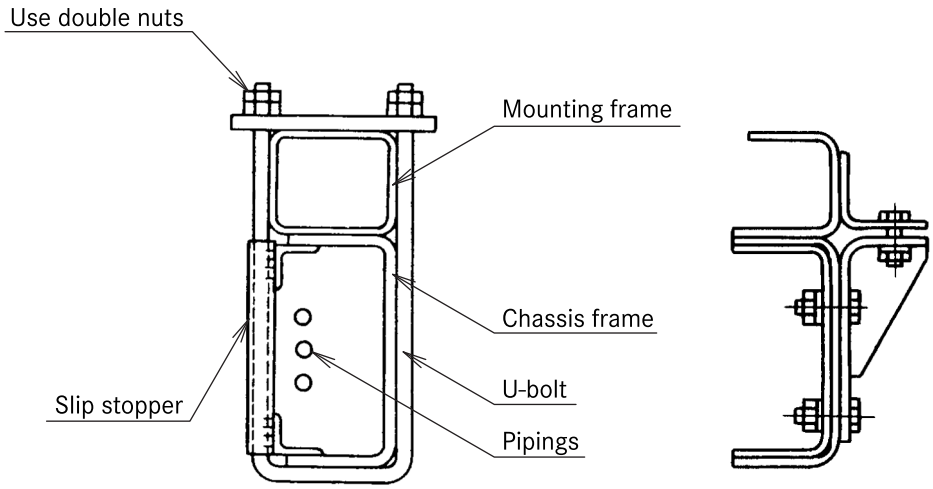
Tank truck

7.2.3 Tank truck, powder carrying vehicle

- For the mounting frame, use one made of steel having the following dimensions or a geometrical moment of inertia greater than those.



- To connect the mounting frame to the chassis frame, either use U-bolts, or in the case of a heavy body building part fix the mounting frame with opposing brackets and ensure that the load imposed by the body building part plus the freight is borne by both the mounting frame and the chassis frame.
  Ensure that the front end connecting part is frontward of the No.2 cross member (transmission suspension part). A large number of holes and wires pass through this area, so take care not to damage them when installing the U-bolts.



7.2 Fastening mounting frame to chassis frame

Tank truck

(1) Position of mounting frame

- For reducing cab vibrations and protecting the chassis frame, extend the mounting frame forward until its front end comes within a range of 300 mm from the cab back end face (to the extent not affecting cab tilting).

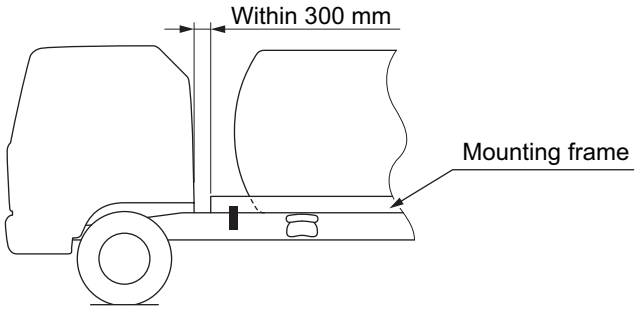


Fig. 1

Examples of front-end shape of mounting frame

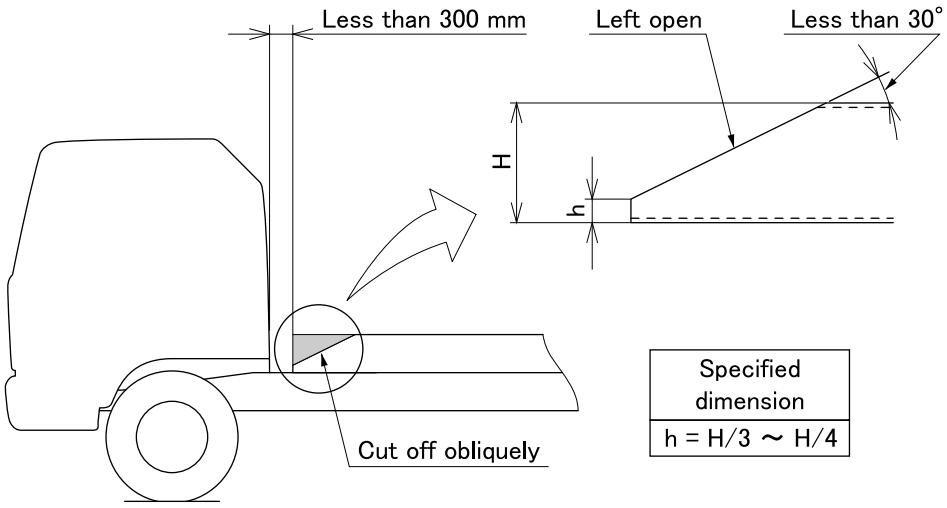


Fig. 2

7.2 Fastening mounting frame to chassis frame

Tank truck

- If it is difficult to shape the front end of the mounting frame as described in Fig. 2, cut it to the shape as shown in Fig. 3 before installation.

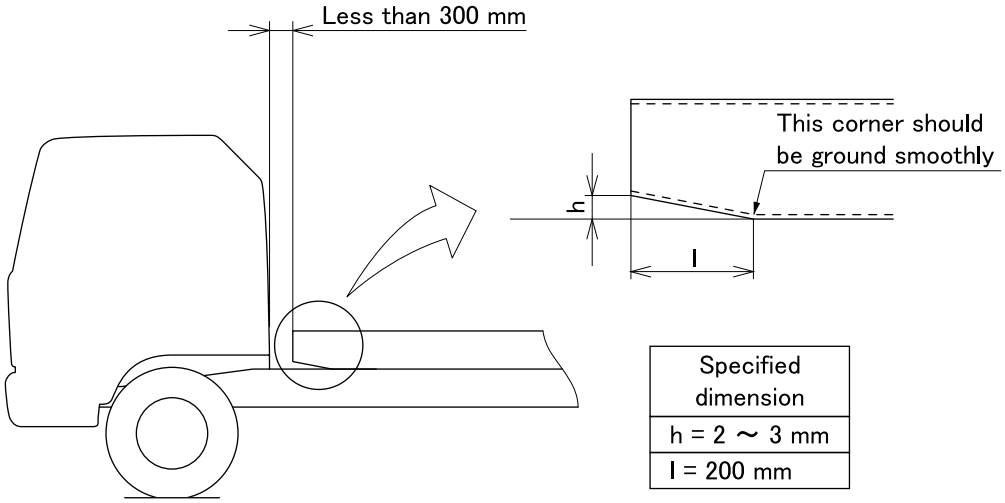


Fig. 3

- When using a wooden block as a mounting frame, shape its front end as shown in Fig. 4 so that no stress concentration may occur between the front end of the mounting frame and the chassis frame.

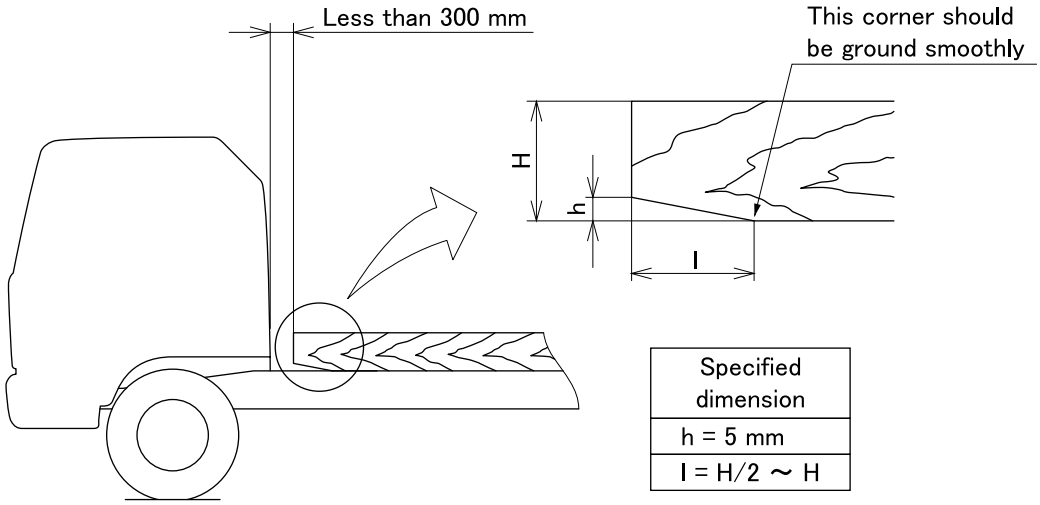


Fig. 4

7.2 Fastening mounting frame to chassis frame

Tank truck

- If the chassis frame changes its width behind the cab back as shown in Fig. 5 and the mounting frame should extend forward beyond the width-changed portion, the mounting frame must also change its width along the chassis frame. The portion of the mounting frame where the width changed must have the internal surface reinforced with stiffeners as shown in the figure.

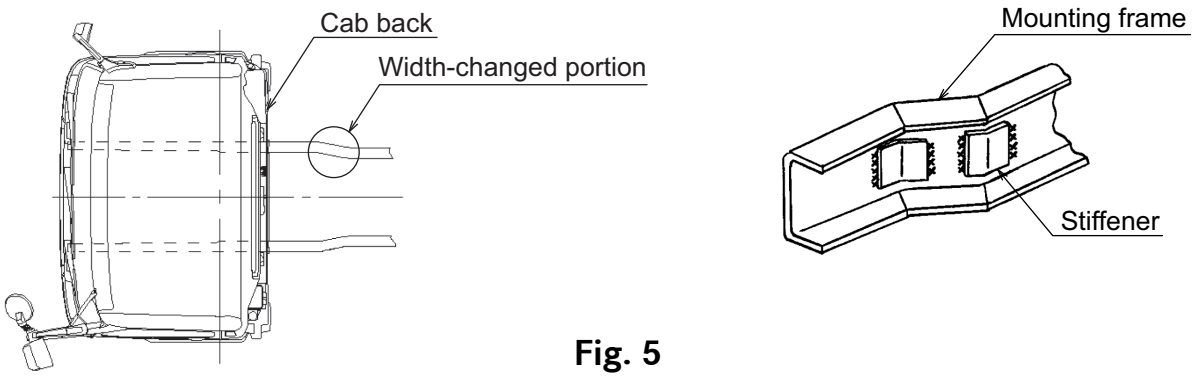
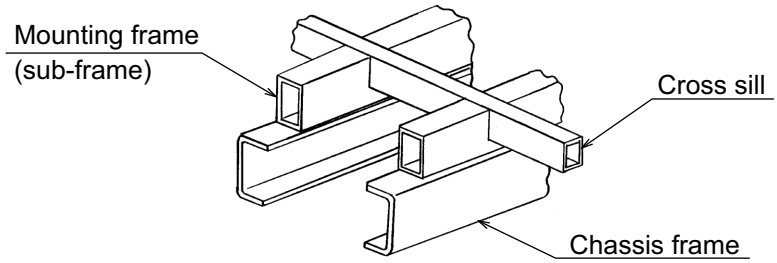


Fig. 5

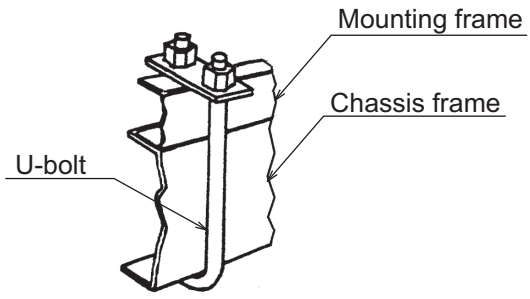
Other notes

- If, for the sake of a low deck design, the mounting frame and the cross sill must be arranged on the same plane, pass the cross sill member through the mounting frame.



(2) Frame fasteners and their features

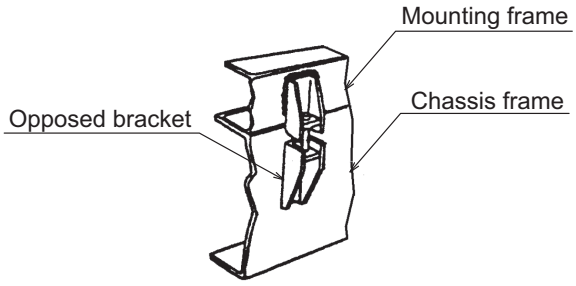
- U-bolt
  The U-bolt is a fastener widely used for combining two or more members. This offers a considerable fastening force and is effective for preventing lateral movement of members. However, it is not so effective for suppressing the longitudinal movement. Therefore, it is required that a retainer be used together for that purpose.

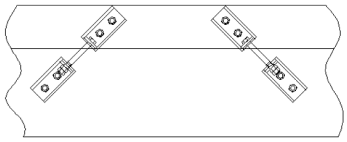


7.2 Fastening mounting frame to chassis frame

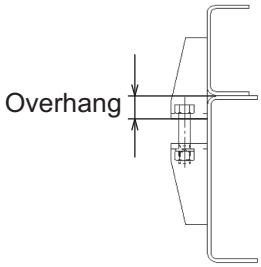
Tank truck

- Opposed bracket
  This is a fastener composed of two brackets opposed to each other (one on chassis frame, one on mounting frame) and one bolt connecting these brackets. This offers a larger fastening force in a vertical direction as compared to a U-bolt. However, it is inferior in the longitudinal and lateral holding forces. To increase the longitudinal holding force of this fastener, arrange two pairs of brackets diagonally as shown below. To increase the lateral holding force, overhang the bracket on the mounting frame side toward the chassis frame side.



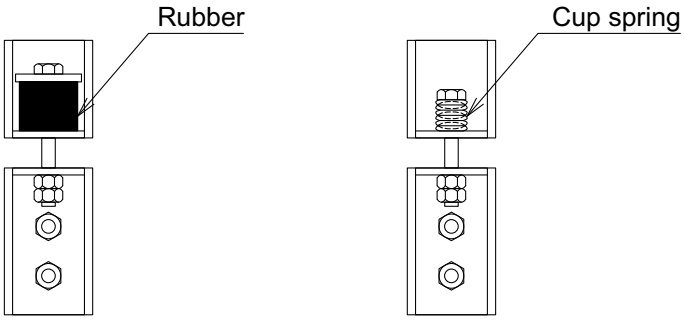


For increasing longitudinal holding force

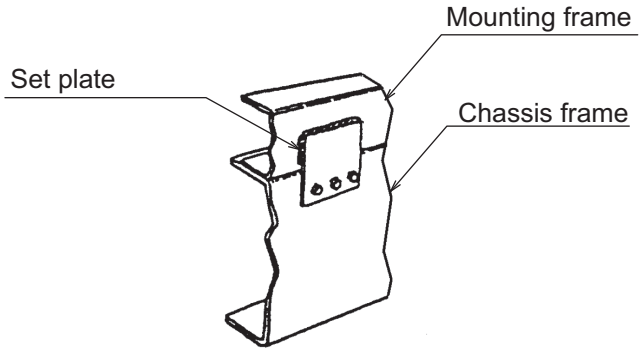


For increasing lateral holding force

- For fastening at the forefront, use a flexible joint such as shown in the figure below to absorb the relative displacement between the mounting frame and chassis frame.



- Mounting flange
  This is a retainer composed of a set plate fastening the chassis frame and mounting frame to each other. This offers a strong holding force in the longitudinal direction but is inferior to a U-bolt or opposed bracket in vertical and lateral holding forces.

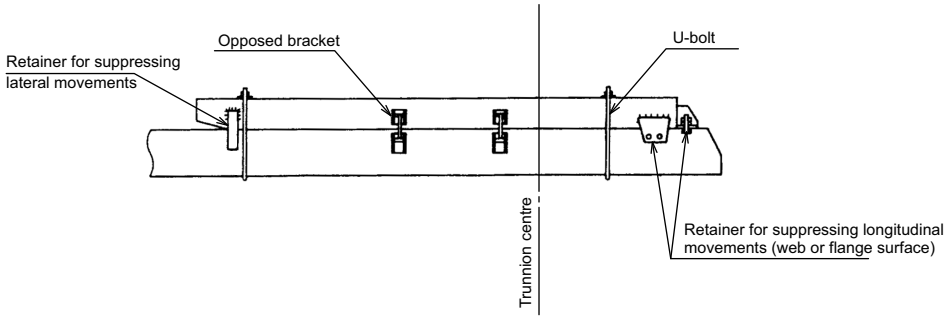


7.2 Fastening mounting frame to chassis frame

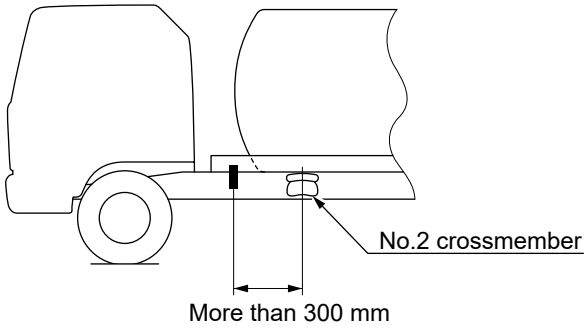
Tank truck

Precautions for fastening frames

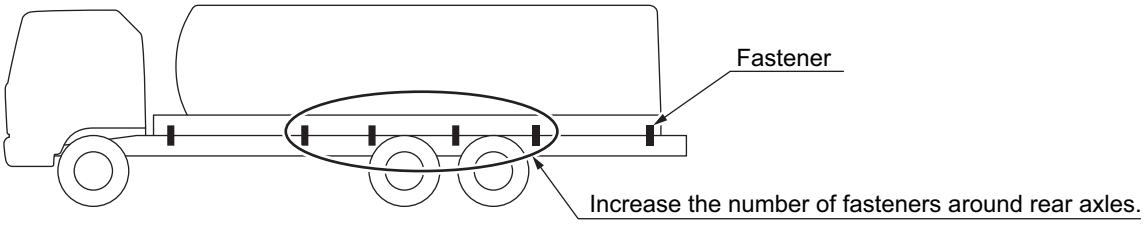
- When fastening the mounting frame to the chassis frame using U-bolts and opposed brackets, use retainers for preventing longitudinal and lateral movements together.



- Locate the forefront fastener at least 300 mm ahead from the No.2 crossmember to reduce the load input on the chassis frame.



- In case of body mounting on a chassis with a rear tandem axle, use an adequate number of opposed brackets for the area around the rear axles because the body weight is concentrated in the area of the mounting frame and the chassis frame.

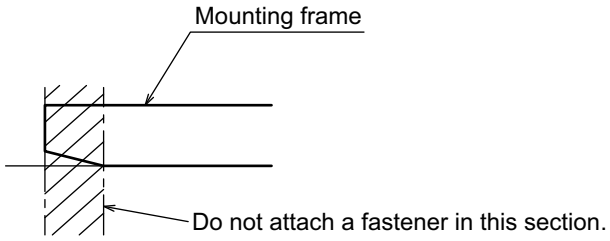


- Inserting spacers (liners) between frames is not recommended because it reduces the fastening force.

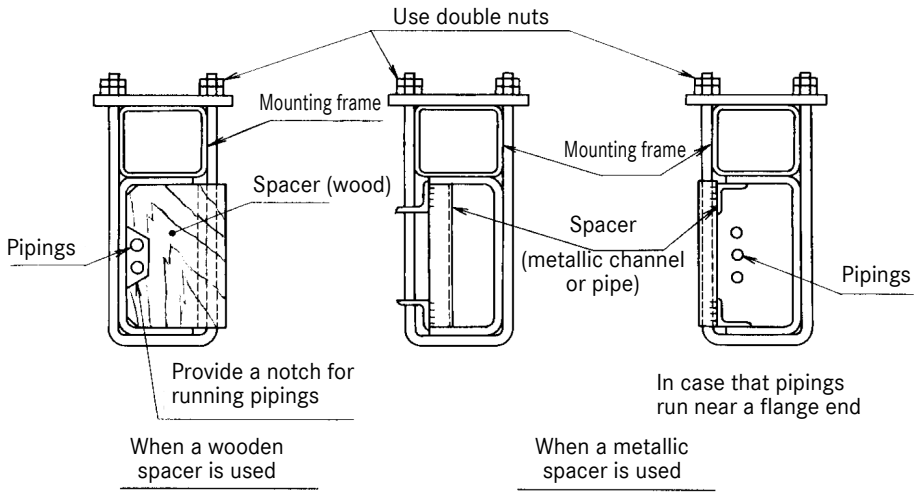
7.2 Fastening mounting frame to chassis frame

Tank truck

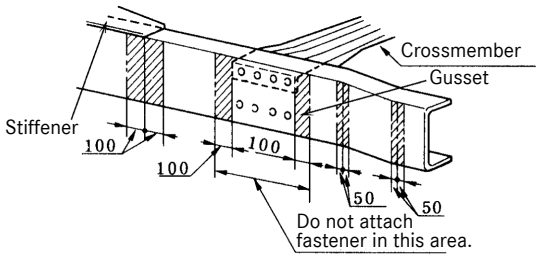
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



- When the mounting frame and chassis frame are combined with a U-bolt, insert a spacer in the chassis frame at the combined position to prevent the side rail flanges from deforming. When attaching the U-bolt near a hot component such as a muffler, use a metallic spacer, not a wooden spacer which can catch fire. Avoid welding a metallic spacer to the chassis frame to hold it in position.

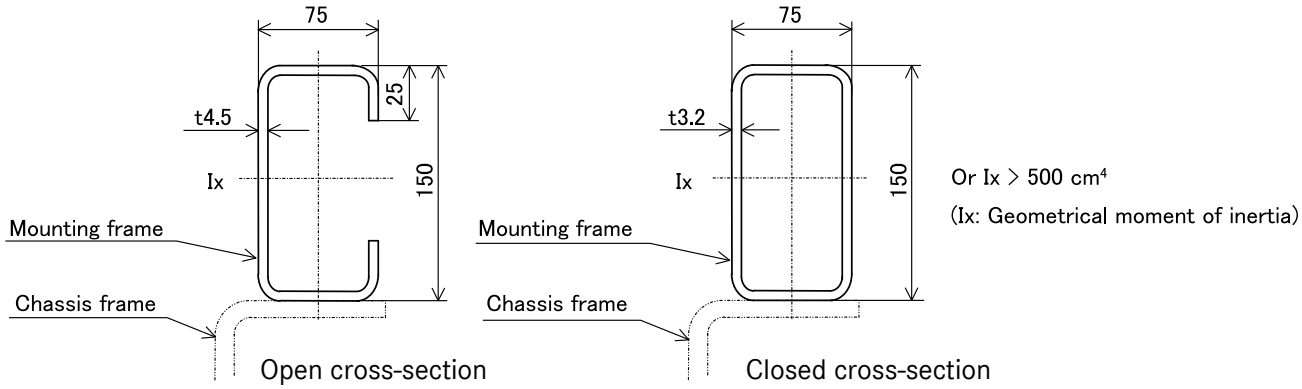


- Attaching opposed brackets to a chassis frame should be done with bolts. For the procedure, refer to 6.2 "Chassis frame material" ▷ page 73.
- Do not use U-bolts or opposed brackets for crossmember, stiffener and gusset attaching sections or near the curved section of the chassis frame because these sections are likely to be subjected to stress concentration.

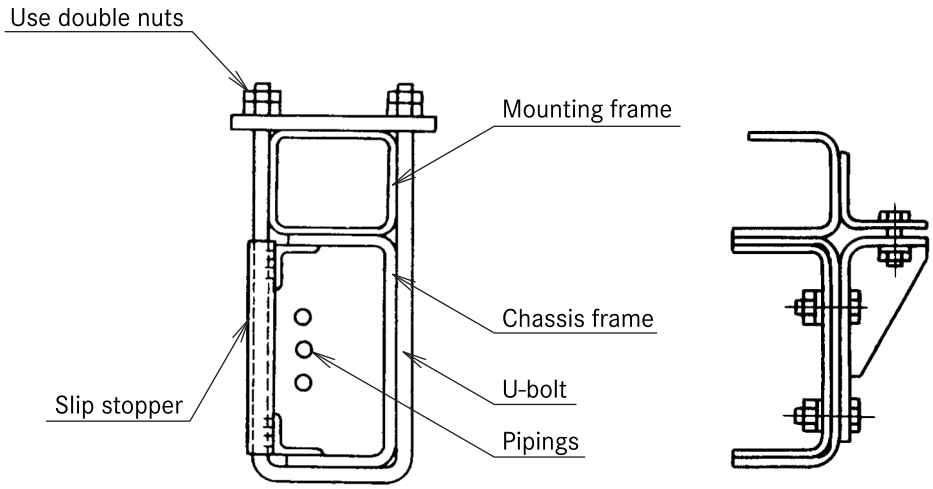


7.2.4 Loading crane

- For the mounting frame, use one made of steel having the following dimensions or a geometrical moment of inertia greater than those.



- To connect the mounting frame to the chassis frame, either use U-bolts, or in the case of a heavy body building part fix the mounting frame with opposing brackets and ensure that the load imposed by the body building part plus the freight is borne by both the mounting frame and the chassis frame.
  Ensure that the front end connecting part is frontward of the No.2 cross member (transmission suspension part). A large number of holes and wires pass through this area, so take care not to damage them when installing the U-bolts.



7.2 Fastening mounting frame to chassis frame

Loading crane

(1) Position of mounting frame

- Be sure to use a mounting frame of box construction for ensuring higher rigidity.
- For reducing cab vibrations and protecting a chassis frame, mount the crane at a position as close to the cab back as possible.
- The frame section near the crane mounting position can be locally subjected to stress concentration during crane operation. Do not forget to reinforce this section with stiffeners. For the frame reinforcement procedure, refer to 6.5 "Reinforcements" ▷ page 79.

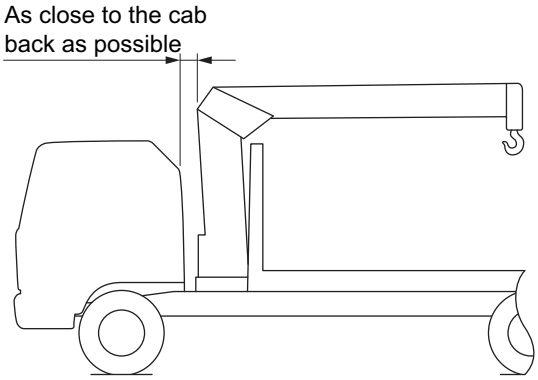
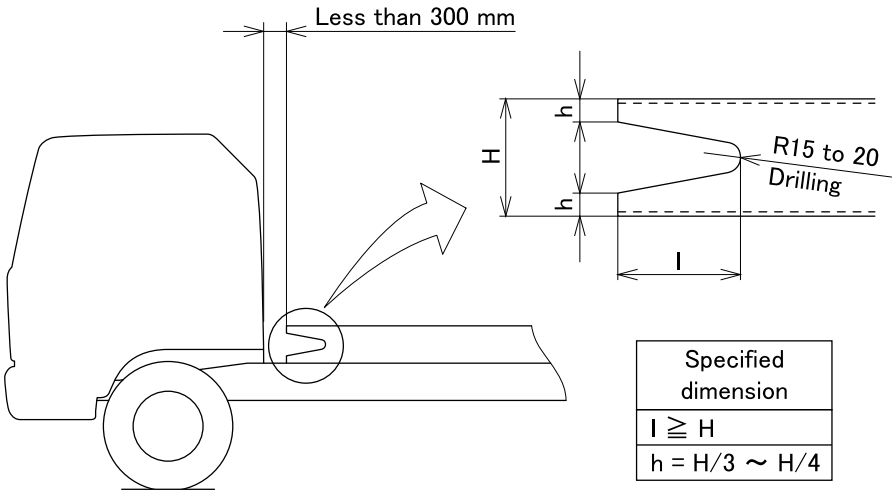


Fig. 1

Examples of front-end shape of mounting frame

- Install the mounting frame having the shape as shown in Fig. 2 to gradually reduce the stress concentrations in the front end.



Specified dimension
l ≧ H
h = H/3 ～ H/4

Fig. 2

7.2 Fastening mounting frame to chassis frame

Loading crane

- The shape of the mounting frame front end as shown in Fig. 2 is highly desirable. However, if there is enough room behind the cab, the shape as shown in Fig. 3 is also acceptable.

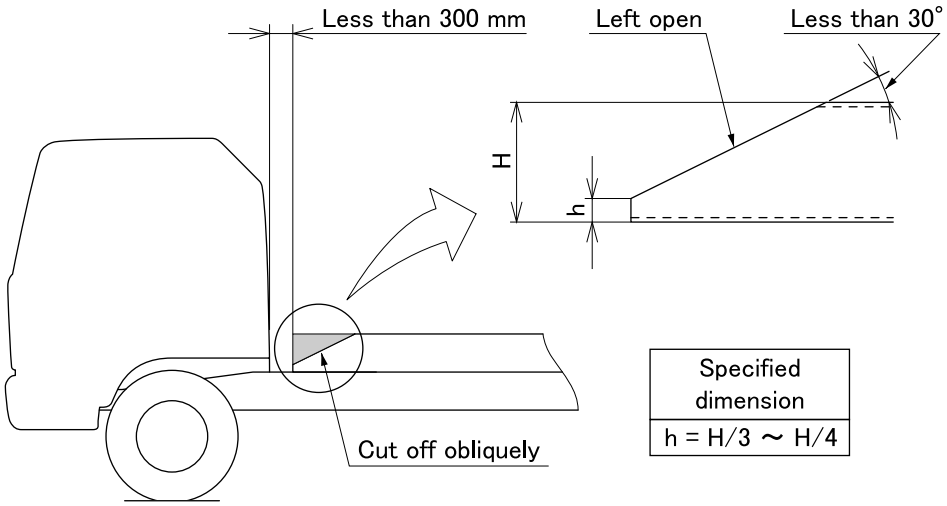


Fig. 3

- If it is difficult to shape the front end of the mounting frame as described in Fig. 2 and Fig. 3, cut it to the shape as shown in Fig. 4 before installation.

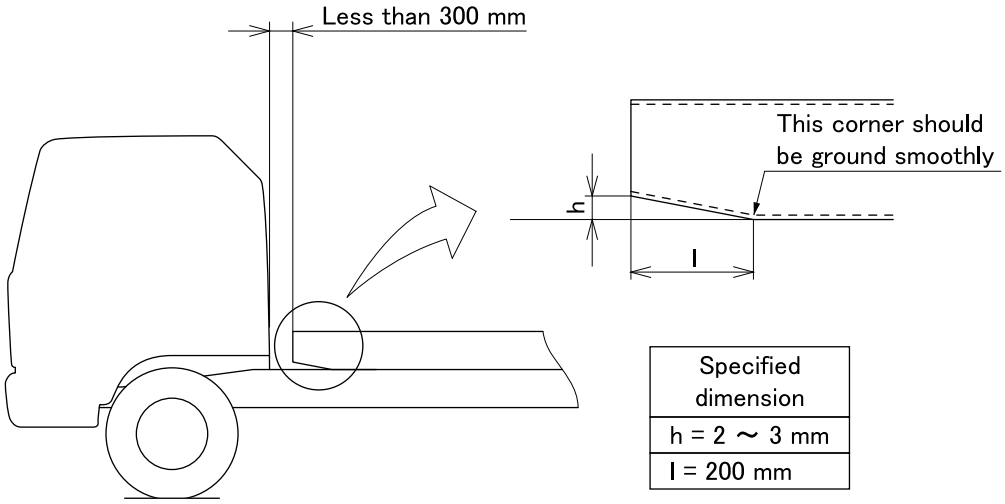
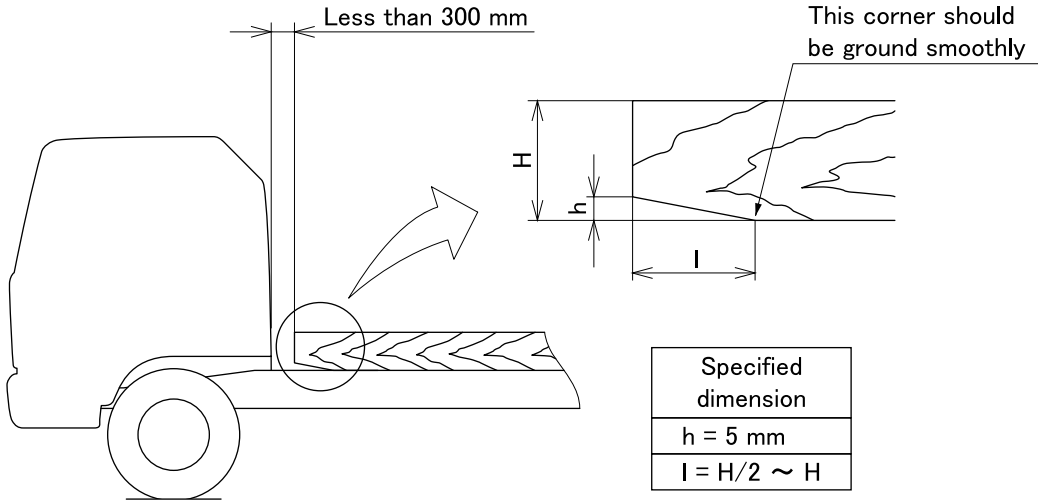


Fig. 4

7.2 Fastening mounting frame to chassis frame

Loading crane

- When using a wooden block as a mounting frame, shape its front end as shown in Fig. 5 so that no stress concentration may occur between the front end of the mounting frame and the chassis frame.



Specified dimension
h = 5 mm
l = H/2 ～ H

Fig. 5

- If the chassis frame changes its width behind the cab back as shown in Fig. 6 and the mounting frame should extend forward beyond the width-changed portion, the mounting frame must also change its width along the chassis frame. The portion of the mounting frame where the width changed must have the internal surface reinforced with stiffeners as shown in the figure.

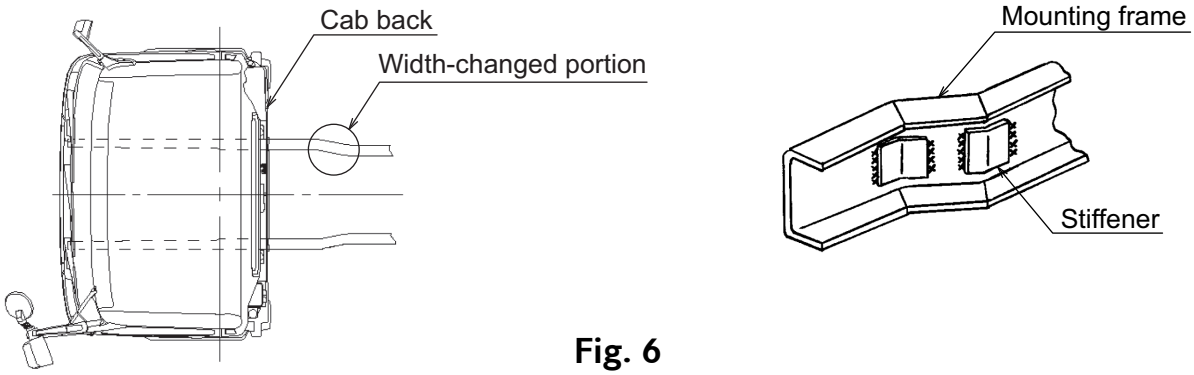
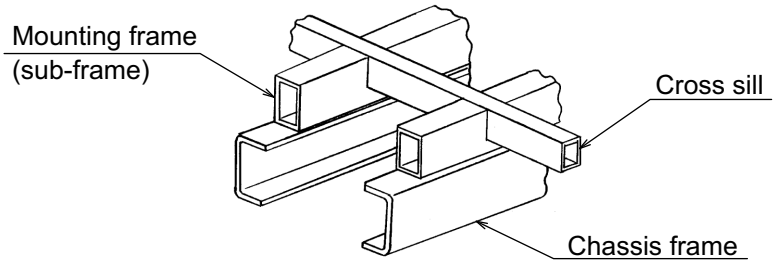


Fig. 6

Other notes

- If, for the sake of a low deck design, the mounting frame and the cross sill must be arranged on the same plane, pass the cross sill member through the mounting frame.



7.2 Fastening mounting frame to chassis frame

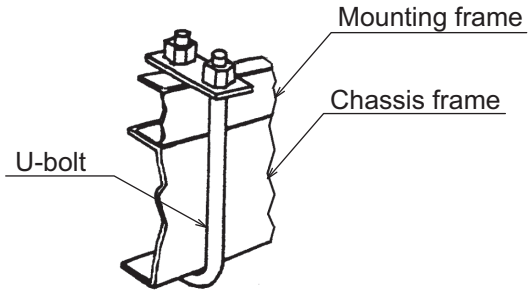
Loading crane

(2) Spacer (liner)

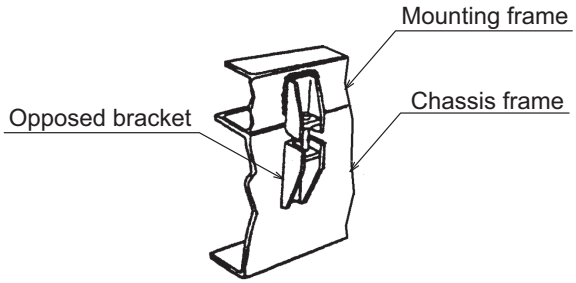
- Avoid inserting a spacer (liner) between the frames. This can lead to reduced fastening force.

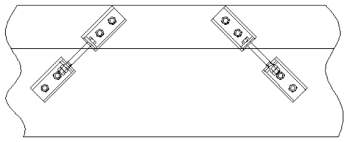
(3) Frame fasteners and their features

- U-bolt
  The U-bolt is a fastener widely used for combining two or more members. This offers a considerable fastening force and is effective for preventing lateral movement of members. However, it is not so effective for suppressing the longitudinal movement. Therefore, it is required that a retainer be used together for that purpose.

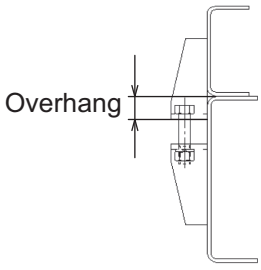


- Opposed bracket
  This is a fastener composed of two brackets opposed to each other (one on chassis frame, one on mounting frame) and one bolt connecting these brackets. This offers a larger fastening force in a vertical direction as compared to a U-bolt. However, it is inferior in the longitudinal and lateral holding forces. To increase the longitudinal holding force of this fastener, arrange two pairs of brackets diagonally as shown below. To increase the lateral holding force, overhang the bracket on the mounting frame side toward the chassis frame side.





For increasing longitudinal holding force

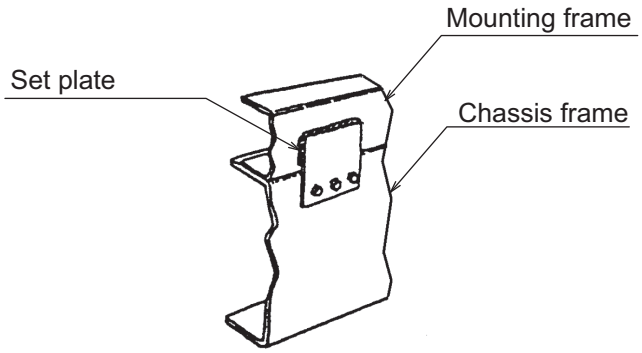


For increasing lateral holding force

7.2 Fastening mounting frame to chassis frame

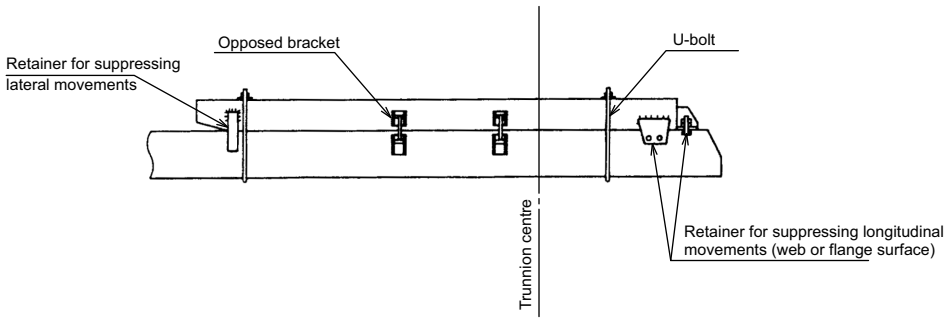
Loading crane

- Mounting flange
  This is a retainer composed of a set plate fastening the chassis frame and mounting frame to each other. This offers a strong holding force in the longitudinal direction but is inferior to a U-bolt or opposed bracket in vertical and lateral holding forces.

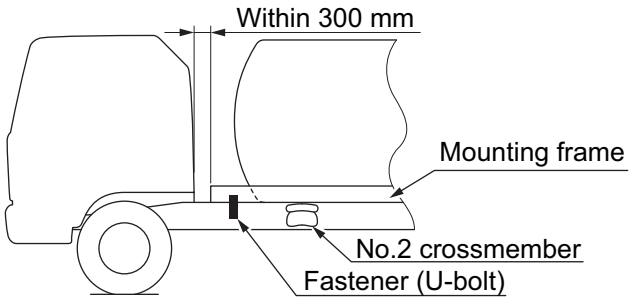


Precautions for fastening frames

- When fastening the mounting frame to the chassis frame using U-bolts and opposed brackets, use retainers for preventing longitudinal and lateral movements together.



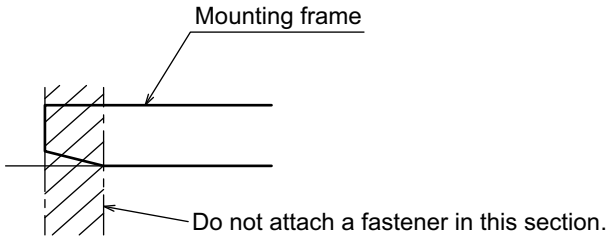
- Even if the distance between the cab back and body front end is larger, extend the mounting frame to near the cab back and secure it at a position before a No.2 crossmember with a fastener.



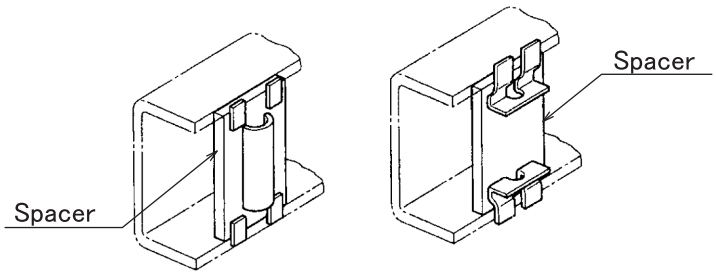
7.2 Fastening mounting frame to chassis frame

Loading crane

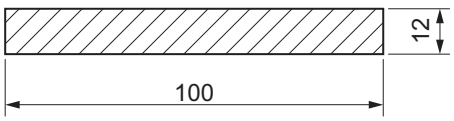
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



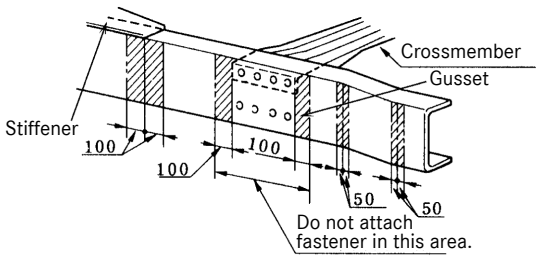
- In order to prevent the chassis frame flanges from deforming, provide the chassis frame with spacers for supporting the flanges. Avoid welding a metallic spacer to the chassis frame to hold it in position.



- Spacers for preventing deformation of the chassis frame must be fabricated from a steel plate having a sectional area of minimum 1200 mm^2.



- Attaching opposed brackets to a chassis frame should be done with bolts. For the procedure, refer to 6.2 "Chassis frame material" ▷ page 73.
- Do not use U-bolts or opposed brackets for crossmember, stiffener and gusset attaching sections or near the curved section of the chassis frame because these sections are likely to be subjected to stress concentration.



7.2.5 Fuel tank

Risk of fire

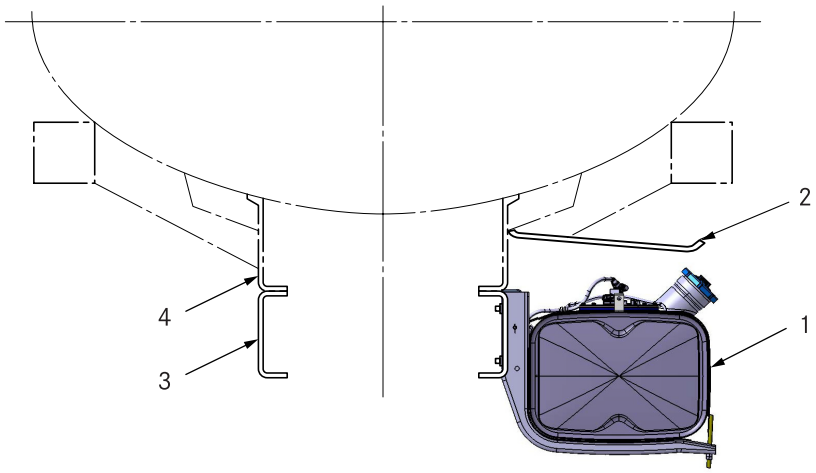
Firmly attach the airvent hose to the Fuel Tank Bracket if it comes away when relocating the fuel tank ▷ page 397

Attaching the splash guard protective cover

To protect the fuel hoses, a protection cover must be attached over the fuel hoses for the vehicle which has a large space between the tank and the body. (e.g. concrete mixer, tankbody)

Fig. 1 shows an example of a cover installed on a vehicle equipped as a lorry.

Fig. 1



1 Fuel tank
2 Cover bracket
3 Chassis frame
4 Mounting frame

8.1 Electrical system

Risk of fire

Work carried out incorrectly on the electrical system may impair its function. This may lead to the failure of components or parts relevant to safety.

Work on live electrical lines carries a risk of short circuit.

Before starting work on the electrical system, disconnect the on-board electrical system from the power source, e.g. battery.

All accident prevention regulations must be complied with when working on the vehicle.

Comply with all national regulations and laws.

Additional information

Observe the notes on operational safety and vehicle safety in Section 1 "Introduction" ▷ page 7 and ▷ page 8.

8.2 Electrical wiring

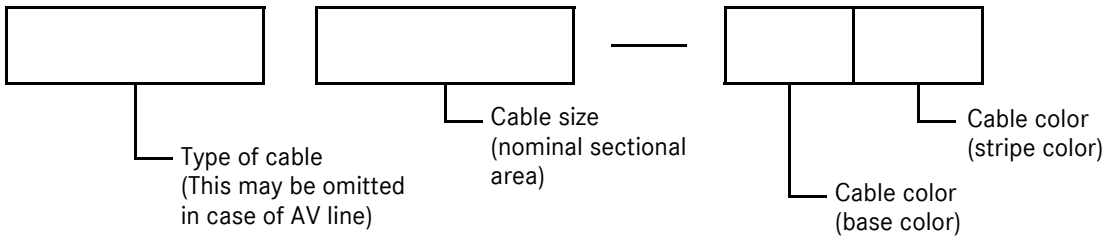
8.2.1 General precautions

The vehicle is delivered after electric wiring and fuses on the chassis side are checked with respect to load capacity, frequency of use, etc. to make sure of fire prevention and running safety. Do not alter the wiring unless it is absolutely necessary. Should it become unavoidable to extend or modify the wiring, be sure to follow the instructions given in 8.2 "Electrical wiring".

8.2.2 Cable Identification

Cable size and cable color

Coding system

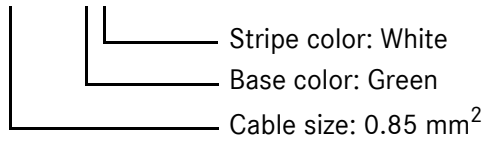


Alphabetical symbols of cable colors

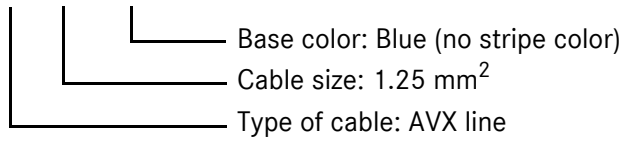
Symbol	Color	Symbol	Color
W	WHITE	L	BLUE
B	BLACK	Br	BROWN
R	RED	Lg	LIGHT GREEN
Y	YELLOW	O	ORANGE
G	GREEN		

Typical examples of cable identification codes

- 0.85 – GW



- AVX1.25 – L



Select types of cables

Related standards
(JIS C 3406: Low voltage cables for automotive use)
(JASO D 608: Heat-resistive low voltage cables for automotive use)
(JASO D 609: Current capacity of low voltage cables for automotive use)

Type of cable

Select necessary types of cables from the list below.

Type of cable	Location of use
AV line Vinyl-insulated low voltage cable for automotive use	Used for ordinary wiring
AVX line Cross-linked vinyl heat-resistive low voltage cable for automotive use	Used for wiring in areas where ambient temperature is high, such as around engine
AEX line Cross-linked polyethylene heat-resistive low voltage cable for automotive use	

Cable size

Select necessary cable sizes from the list below.

Nominal sectional area	Number of strands/ Strand diameter (mm)	Allowable current (A)		
		AV line	AVX line	AEX line
0.5f	20/0.18	8	7	7
0.5	7/0.32	9	8	8
0.75f	30/0.18	10	9	9
0.85	11/0.32	11	10	10
1.25f	50/0.18	14	13	13
1.25	16/0.32	14	14	13
2	26/0.32	20	18	18
3	41/0.32	27	25	25
5	65/0.32	36	34	33
8	50/0.45	47	44	43

"f" suffixed to nominal sectional area stands for "flexible."

Use flexible cables in vibrating and crooked areas, such as at the cab to chassis, engine, transmission and dump hinge.

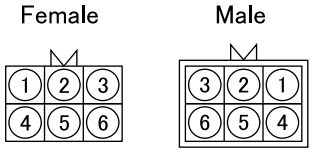
8.2.3 Connector code

Connector pin numbers

Numbering of terminals

Female terminals: Numbering started from upper left

Male terminal: Numbering started from upper right



8.2.4 Existing wiring and truck body on chassis side

- Make sure that wiring is not caught in by truck body.
- Make sure that wiring clear of sharp edges.
- When handling, do not pull wiring with excessive force.
- Remove harness connector by the connector body. Do not pull the harness.
- Make sure that wiring has a sufficient distance from heating parts.
- After installing truck body, make sure that associated wiring and parts can be inspected and serviced without hindrance.
- When a buzzer is provided for truck body, avoid shared use of chassis-side buzzer or use of a buzzer that is the same in tone as the chassis-side one.

8.2.5 Change and extension of wiring

Cables to be used

- Use cables conforming to JIS C 3406 (low voltage cables for automotive use), JASO D 608 (heat-resistive low voltage cables for automotive use) or equivalent. As to vinyl tape, use products conforming to JIS C 2336 (vinyl adhesive tapes for electric insulation) or equivalent. See "Type of cable" in "8.2.2 Cable Identification" ▷ page 172.
- When selecting a cable size, make sure that its allowable current conforms to the system rating. Especially in a system where a motor, etc. is used as a load, allow for the overcurrent which will occur in case the motor locks (seizes). See "Cable size" in "8.2.2 Cable Identification" ▷ page 172.

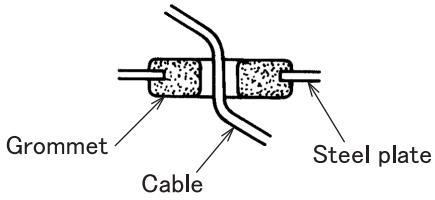
Wiring procedure

- When truck body-side wiring is extended, do not relocate existing cables and wires installed at the time of delivery from the manufacturer. If relocation is unavoidable, make sure that there is sufficient space from neighbouring parts and there is no interference with them.
- For wiring, install cables along rear body members, frame, etc. Do not stretch them in the air.
- Install cables clear of chassis and truck body rotary parts, vibrating parts and sharp edged parts. Firmly clamp cables.
  Secure the following clearances.

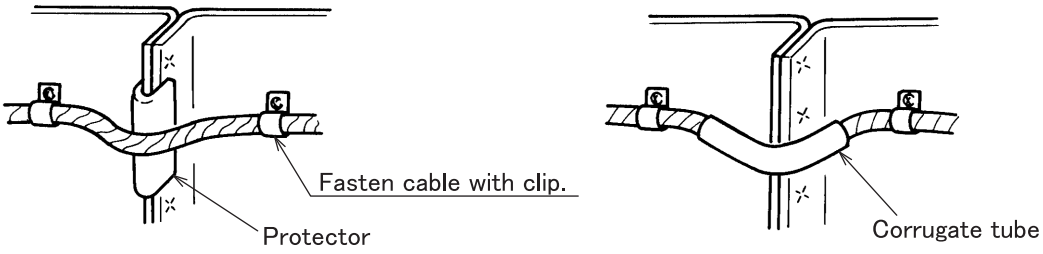
Unit: mm

Location	Minimum clearance
Between moving part and wiring	10
Between sharp edge and wiring	10

- Be sure to use a grommet in every cable through hole in the steel plate to prevent the cable from being damaged in the sheathing and short-circuited.



- Use additional clips as required where the cable may contact the edges of metal parts to prevent damage to sheathing due to vibration-induced contact. Alternatively, cover the metal edges with a protector or wrap corrugate tube around the part of the cable that contacts the metal edges.



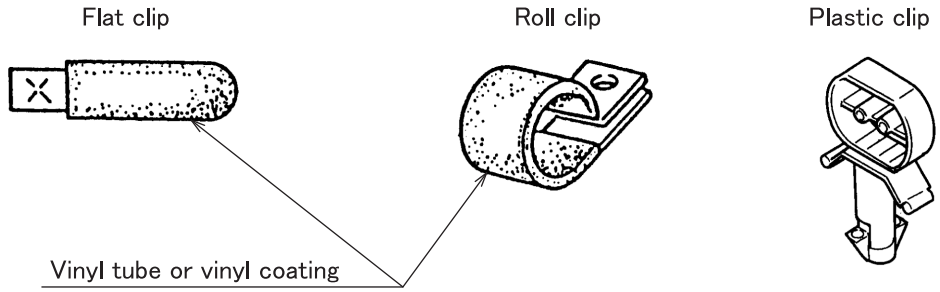
- If a harness exists nearby, tape the cable along to the harness. It is positively prohibitive to lay cables along the brake piping (including brake hose and brake pipe), fuel piping (including all metal and rubber hoses) and grease piping. Maintain clearances between cable and existing harness.

Unit: mm

Wiring method	Minimum clearance
Parallel	10
Crossover	20

- For clearance between cable and exhaust system part, see 4.4 "Clearance for the basic vehicle and bodies" ▷ page 38.
- Install harnesses or battery cables where they will not be covered with accumulated dirt, snow, etc., iced nor damaged by flying stones. In an unavoidable case, provide a metal shield to protect the harness or cable.
- Do not connect cables with sheathing broken and wires drawn out.
- When equipment is wired, water may run down the cable into the equipment. Seal the through hole firmly with a grommet or the like and install the cable with its terminal upward.
- Route cables through places where they are not splashed with water or covered with dust.
- Do not install cables onto the top and outer sides of the frame. They may be damaged by feet put on the frame or stones flying to the frame during running.
- Install cables in the engine compartment apart enough from heat sources and along existing harness. Bind cables extensively with heat-resistive vinyl tape or fasten with metal sheet clamps (rubber- or vinyl-coated). Do not use non-heat-resistive vinyl tape because it is degraded to separate by heat.
- Install cables to engine- and transmission-mounted parts routing along existing harnesses so that their relative movements can be absorbed. Also, give cables a proper amount of slack so that they do not contact with other parts.
- When the routing of battery cables is changed for relocation of battery or other reason, do not extend or shorten battery cables and/or charging circuits of alternator, etc. Especially, do not change clamping method, clamping position, slack, etc. in areas of relative movement between starter and frame.
- When battery is relocated, locate it at least 200 mm apart from the exhaust system (muffler with emission gas purifier and tail pipe). If less than 200 mm apart, provide a heat insulator.
- When cables are shortened, do not cut them short but bind excess length of cable to existing harness or the like bundled with vinyl type.
- Hold MWP water-proof connectors for rear combination lamp, license lamp, side turn lamp, etc. in place by fastening the connector body with hook type plastic clips (MH056347 to MH056350) or band clips.
- When cable bands are cut off for convenience of work, obtain other same ones and restore the cable bands to their original state.

- For clipping, use coating tape, protective rubber or plastic clip. Limit sticking and clasping clips to auxiliary use.

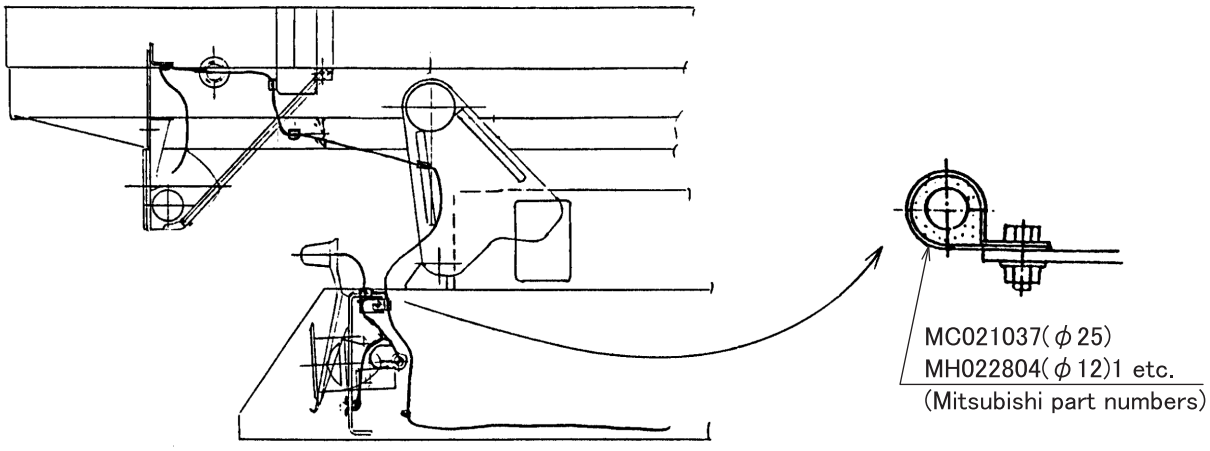


Given below are the standard limits of spacing for cable clamps.

Unit: mm

Harness diameter	Limit of spacing
5 or less	300 or less
5 to 10	400
10 to 20	500

For cables to rotary portions of dump hinge and other truck body parts and vibrating bodies of engine, transmission, etc., use solid rubber clips.



Procedure for wire connection

- In the case of wire connection using plug and plug receptacle, use the plug receptacle on the power supply side, so that if the plug and plug receptacle should be separated, the disconnected wire is not short-circuited even if it touches the vehicle body.
- When cable is extended, the extension cable should be identical in sectional area and hue. Connect the cable ends firmly by soldering or using crimp type terminal and provide the joint with solid insulating covering. Be sure not to connect cables by twisting together. When soldering, do not use hydrochloric acid.
Especially, when wires of chassis harnesses (all harnesses outside of the cab) are extended, properly protect joints against water and insulate them.

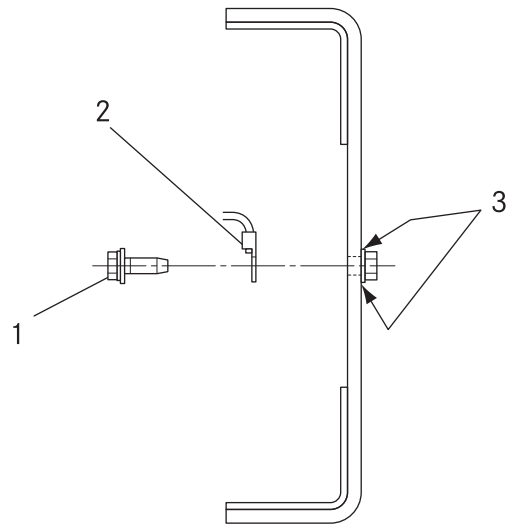
8.2.6 Grounding

Ground extended power cable to the circuit connecting to the minus (–) terminal of battery. In the case of grounding to the frame, establish the grounding point on unmasked or uncoated surface.

Use eyelet terminal for grounding.

Dedicated bolt for grounding is used for tightening ground terminal. In the case where dedicated grounding bolt is removed during truck body installation, do the following.

- If grounding point is not relocated
  Reinstall the removed dedicated grounding bolt by tightening to the specified torque.
- If grounding point is relocated
  Use designated dedicated grounding bolt shown below. Spot weld nut to the frame and tighten bolt to the specified torque. Provide the weld with touch-up coating.



1 Bolt for ground use
2 Grounding terminal
3 Weld the nut here

Unit: N·m {kgf·m}

Parts name		Tightening torque
Bolt For ground use	M10	39 to 49 {4.0 to 5.0}
	M8	22 to 33 {2.2 to 3.3}

When wiring from the truck body side is grounded to the frame, do the same as described in [If grounding point is relocated] above.

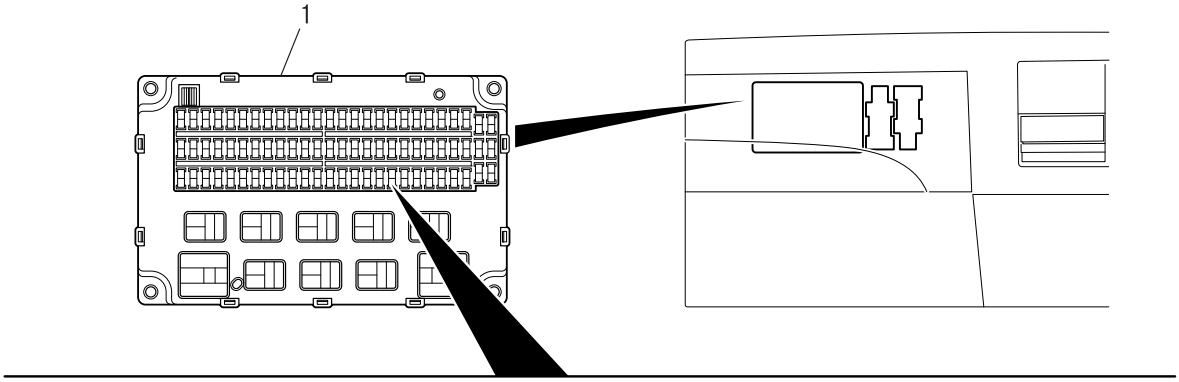
8.2.7 Fuse and relay

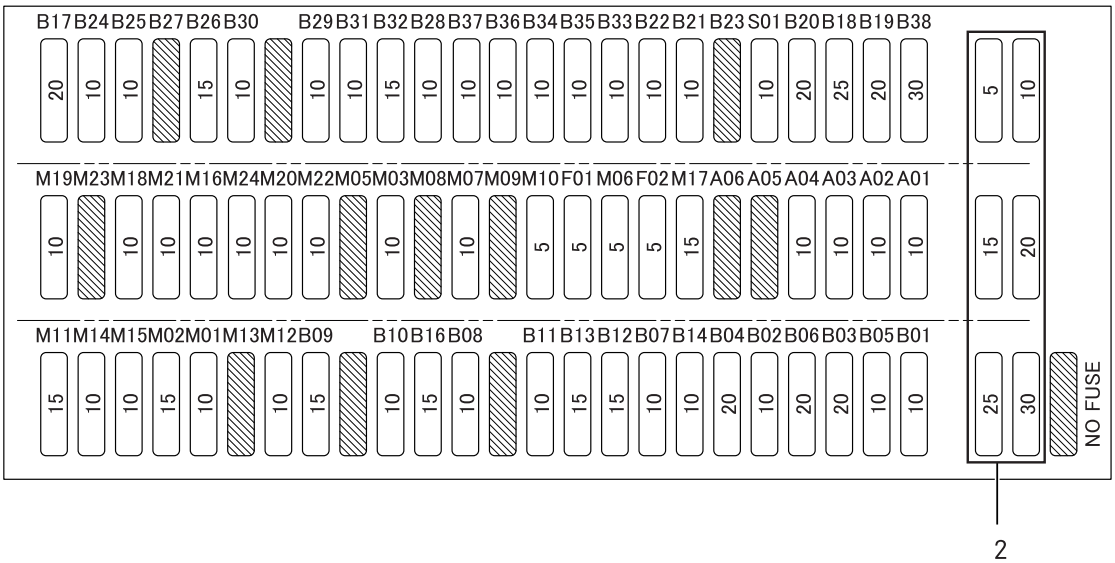
Existing fuses on the chassis side optimally match in capacity with the kind of load used, frequency of use of such load, etc. When additional truck body-related electric devices are installed, avoid using such parts and harnesses as may cause false signals to the chassis side power line and grounding line.

Extension from existing wiring at a midway point or replacement of existing fuse with one having larger capacity could cause an excessive current to flow through power fuse box, resulting in a fire. Be sure to obtain power for truck body-related equipment and lamps power by way of designated fuses or connectors.

Fuse arrangements

<For Euro V>
The drawing below shows the arrangement for the EURO V variant.
For other variants, refer to "High Current Fuse Box (2)" in "10.14 Electrical Systems" ▷ page 413.





1 Relay and fuse box
2 Spare fuse

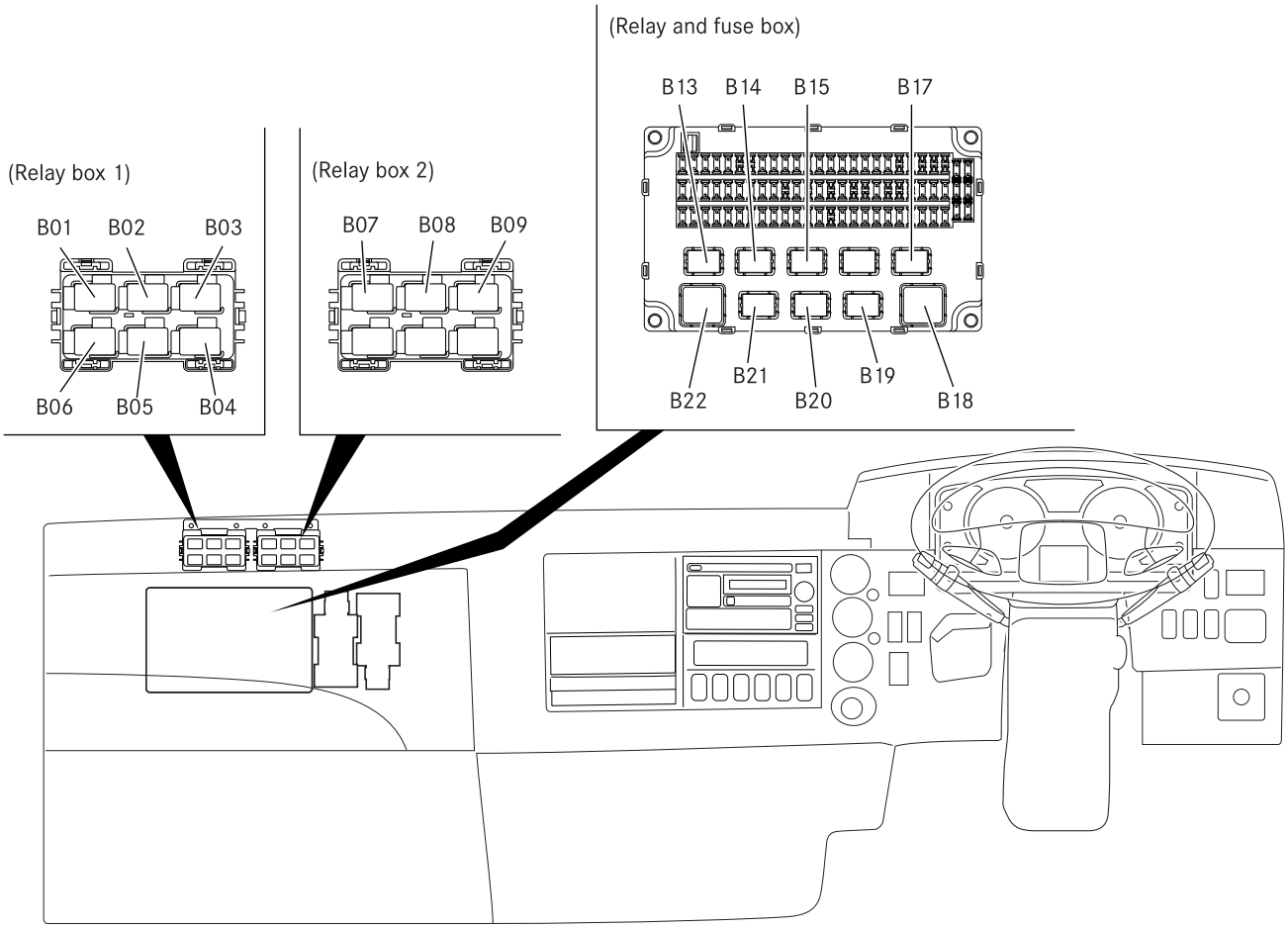
Fuse No.	Main load	Capacity
A01	Air suspension	10 A
A02	Power socket, cigarette lighter	10 A
A03		
A04		
B01	Meter cluster	10 A
B02	MVCU	10 A
B03	Engine control (EDU power supply)	20 A
B04	Engine control (main power supply)	20 A
B05	ABS, hill start	10 A
B06	ABS/ESP	20 A
B07	Stop lamp	10 A
B08	Headlamp, low beam (LH)	10 A
B09	Headlamp, high beam	15 A
B10	Headlamp, low beam (RH)	10 A
B11	Tail lamp	10 A
B12	Fog lamp	15 A
B13		
B14	Tail lamp relay*2	5 A
B16	Turn signal lamp/Hazard lamp	15 A
B17	Air-conditioner (blower)	20 A
B18	Power window (driver), power window and mirror ECU, keyless entry system	25 A
B19	Power window (passenger), power window and mirror ECU	20 A
B20	Air-conditioner (compressor)	20 A
B21	Horn	10 A
B22	Audio	10 A
B24	Optional (B)	10 A
B25		–
B26		–
B28		–
B29	Air suspension	10 A
B30	Automatic transmission (A/T)	10 A
B31		–
B32	Diagnosis connector (power supply)	15 A
B33	–	10 A
B34	Mirror heater	10 A

Fuse No.	Main load	Capacity
B35	Electric cab tilt	10 A
B36	Room lamp	10 A
B37		
B38	ABS motor, A/T cooler fan*1	30 A
B39	A/T cooler fan*1	30A
F01	Headlamp relay, starter switch terminal (M)	5 A
F02	Tail lamp relay, fog lamp relay	5 A
M01	MVCU (main power supply), combination switch, hill start switch (main, adjustment), etc.	10 A
M02	–	15 A
M03	MUTIC, relay control	10 A
M06	Keyless entry system, power window and mirror ECU	5 A
M07	DRL	10 A
M10	Engine control (key-on signal), engine ECU	5 A
M11	Engine control (actuators), cold starter switch, etc.	15 A
M12	Air bag	10 A
M14	Air dryer	10 A
M15	Meter cluster, differential lock, etc.	10 A
M16	Backup lamp	10 A
M17	Wiper	15 A
M18	Automatic transmission (A/T)	10 A
M19		
M20	ABS	10 A
M21		
M22		
M23	ESP	15 A
M24		
S01	Starter	10 A

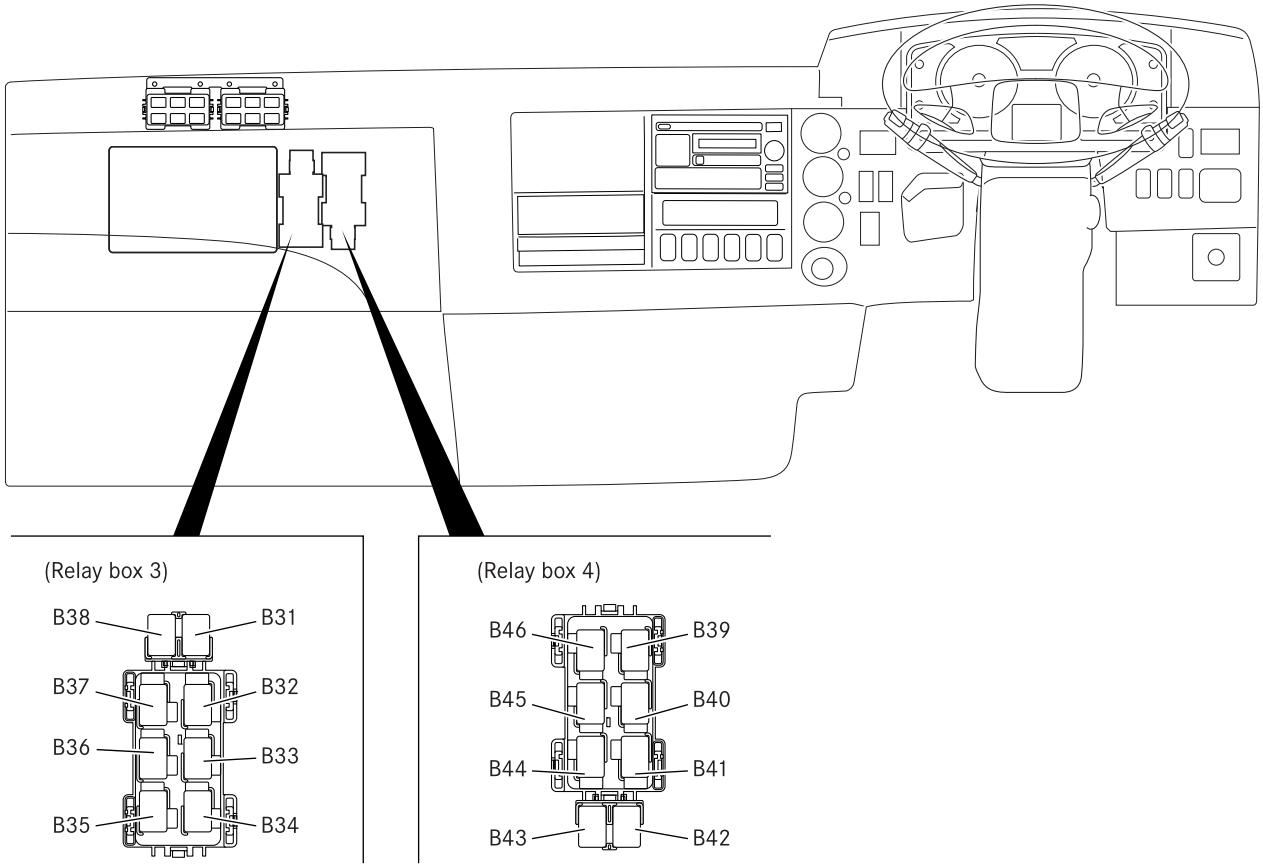
*1: For Australia FM A/T, FN A/T, Hong Kong FN A/T
*2: For Australia all models, Hong Kong FN

Location of relays, sensors and ECU in the instrument panel

<For Euro V>
The drawing below shows the arrangement for the EURO V variant.
For other variants, refer to "Relay, Electronic Control Unit and Fuse (1)" in "10.14 Electrical Systems"
▷ page 413.

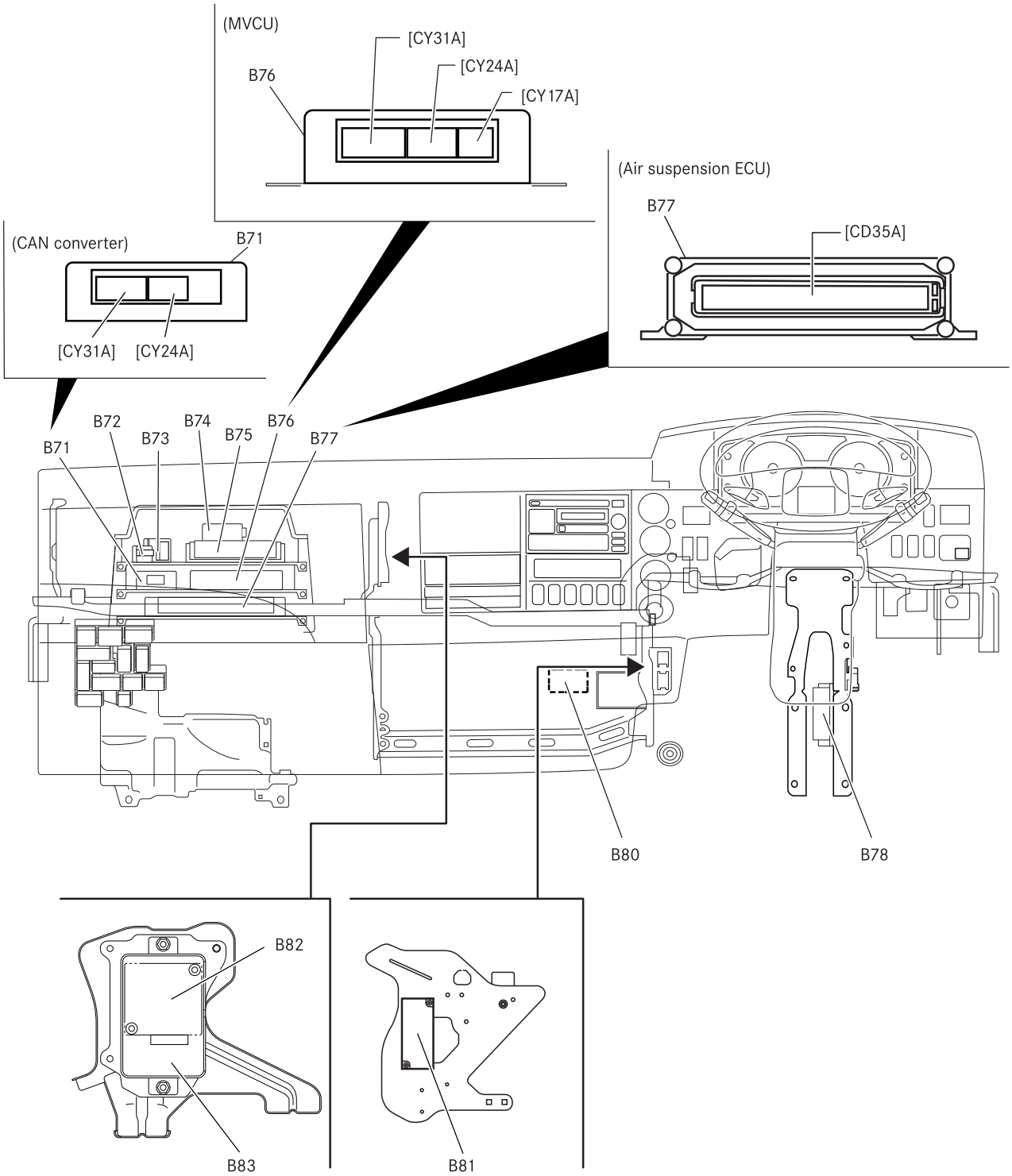


B01 *A/T Neutral start (A/T)*
B02 *A/T Stop lamp relay (A/T)*
B03 *A/T Exhaust brake cut relay (A/T)*
B04 *A/T Fan motor relay (FM, A/T)*
B05 *A/T Back buzzer relay (A/T)*
B06 *A/T Neutral relay (A/T)*
B07 *Air suspension parking relay*
B08 *Air suspension neutral relay*
B09 *Air suspension buzzer*1*
B13 *Head lamp relay (high beam)*
B14 *Headlamp relay (low beam), RH*
B15 *Horn relay*
B17 *Tail lamp relay*
B18 *Wiper relay (low)*
B19 *Fog lamp relay*
B20 *Headlamp relay (low beam), LH*
B21 *Stop lamp relay*
B22 *Wiper relay (high)*
**1: For Australia*



B31 *Wheel parking brake relay <for operation detection>*
DRL cut relay (fog lamp)
B32 *Safety relay*
B33 *ABS exhaust brake cutoff relay ABS*
ESP stop lamp relay
B34 *Hi/Lo indicator relay <With EATON transmission>*
B35 *Blower motor relay*
B36 *Engine oil level check lamp relay*
B37 *Glow indicator drive relay*
B38 *EDU relay*
B39 *ECU main power relay*
B40 *Power take-off relay*
B41 *Condenser fan relay*
B42 *A/T fan motor relay <FM>*
DRL cut relay (parking brake)
B43 *Auto cruise control relay*
DRL cut relay (head lamp)
B44 *Magnet clutch relay*
B45 *Heater mirror relay/Rear fog lamp relay*
B46 *DRL main relay*

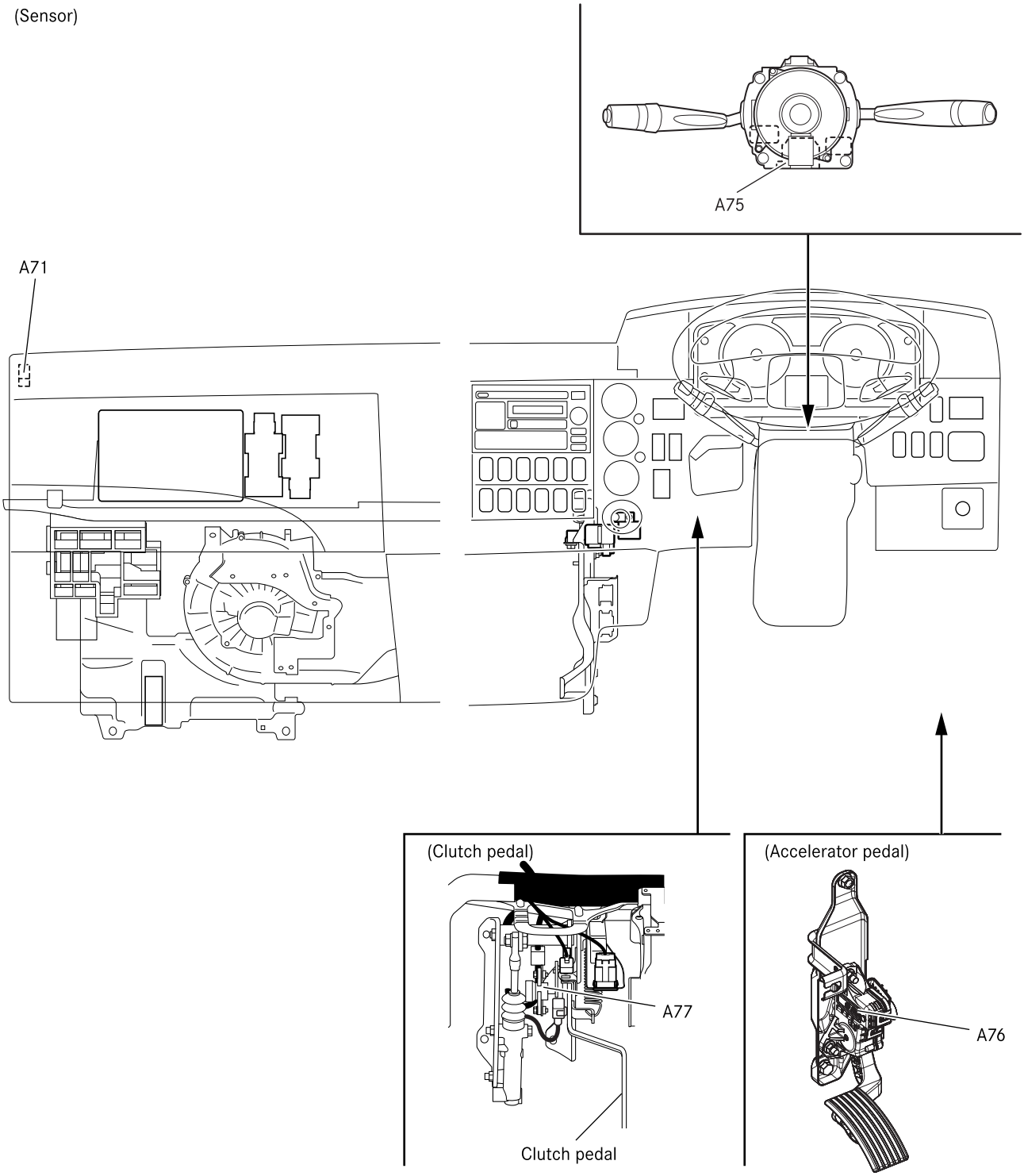
The relay with which it is equipped changes with specifications of vehicles.



B71 *CAN converter*
B72 *ABS motor relay (ABS/EZGO [for Australia/Hong Kong], ABS/ASR/EZGO [for Australia/Hong Kong])*
B73 *ABS solenoid relay (ABS/EZGO [for Australia/Hong Kong], ABS/ASR/EZGO [for Australia/Hong Kong])*
B74 *Automatic light ECU (optional)*
B75 *ABS, ABS/ASR ECU, ABS/EZGO ECU, ABS/ASR/EZGO ECU*
B76 *MVCU*
B77 *Air suspension ECU*
B78 *Air bag ECU*
B80 *Automatic headlamp leveling ECU (automatic leveling), DC/DC converter (manual leveling)*
B81 *MUTIC, interval wiper relay*
B82 *Flasher and cornering lamp unit, flasher unit*
B83 *Power window and mirror ECU*

Note: *The code in the brackets "[ ]" indicates the connector model.*

(Sensor)



A71 *Sunlight sensor (fully-automatic air-conditioner, automatic light)*
A75 *Steering angle sensor*
A76 *Accelerator position sensor*
A77 *Clutch stroke sensor*

8.3 Handling of electric/electronic equipment

8.3.1 Available types of electronic control systems (typical examples)

(1) Engine
(2) ABS (anti-lock brake system)
(3) ASR (anti-spin regulator)
(4) EZGO (hill start assist system and parking assist system)
(5) MVCU (Multi Vehicle Control Unit)
(6) Electric air suspension
(7) SRS air bag
(8) ELR (emergency locking retractor)
(9) Keyless entry system

8.3.2 Handling of electronic parts

In the vehicle equipped with the electronic control systems, multi-way connectors suited for weak current of such electronic parts and circuits as sensors, control units and actuators are used. When handling these connectors, use particular care in the following respects.

- Do not disjoin and rejoin connectors unless necessary. Connector pins could be deformed or damaged, resulting in poor contact.
- Disjoin connectors holding their housings. Pulling by cable or by force may deform connector pins
- When disjoining connectors, do not let water, oil or dust adhere to their pin, or poor contact or unsteady continuity could result.
- Join connectors firmly after completion of work. When a harness is removed for servicing, restore it firmly to the original place after work.
- Use of electronic equipment, such as relays, solenoid valves and motors, for installation on the vehicle body is limited to those incorporating diode or varister noise absorbing elements.

8.3.3 Handling of batteries

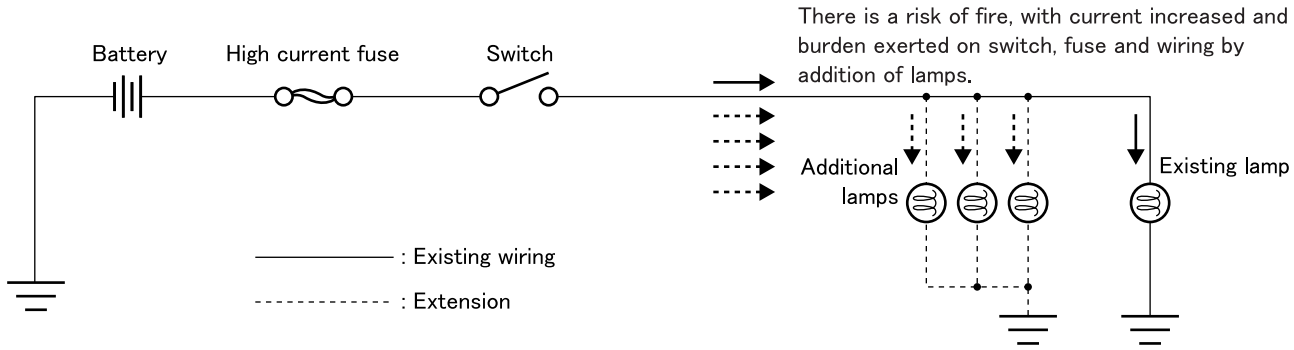
- Never place any metal objects or tools on the batteries.
- There is a risk of short circuit if the positive terminal clamp on the connected battery comes into contact with vehicle parts. This could cause the highly explosive gas mixture to ignite. You and others could be seriously injured as a result.
- When disconnecting the batteries, always disconnect the negative terminal clamp first and then the positive terminal.
- When connecting the batteries, always connect the positive terminal clamp first and then the negative terminal.
- Incorrect polarity of the supply voltage can cause irreparable damage to the control units.
- Never start the engine without a connected battery (battery terminals tightened).
- Do not disconnect or remove the battery terminals while the engine is running.
- If the batteries are flat, the engine can be jump-started using jump leads connected to the batteries of another vehicle. Observe the Instruction Manual. Do not use a quick charger for jump-starting.
- Only tow-start the vehicle with the batteries connected.
- Quick-charge the batteries only after disconnecting them from the vehicle's electrical system. Both the positive and negative terminals must be disconnected.
- Protect the cable to be routed near the exhaust system with a heat-resistant outer jacket.
- Route cables so that none rub together.

8.4 Power supply

8.4.1 Power supply from existing wiring

Obtain power for body-building-related lamps and equipment by way of designated connectors. When body-building-related electric equipment are additionally installed, do not use such parts and harnesses as may cause false signals to the power and grounding lines for vehicle-side electric equipment. Extension of existing wiring at a midway point or use of fuse with increased capacity could cause an excessive current to flow through the power supply or fuse box, resulting in a fire. Any change or extension of electric wiring not specified in this manual is prohibited.

Typical example of improper wiring for power

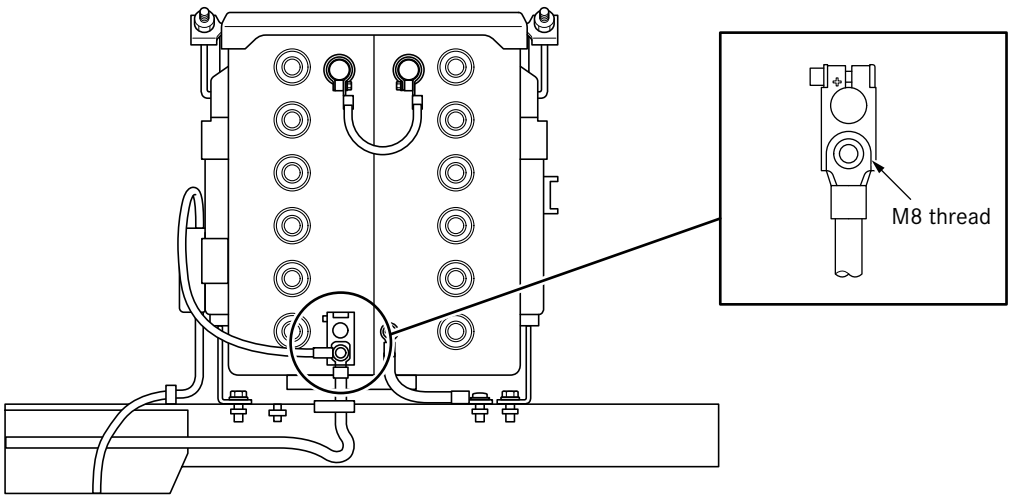


8.4.2 Power supply from vehicle-mounted battery

Do not use the vehicle-mounted battery for power for truck body-related electric equipment unless it is unavoidable for convenience of truck body.
If connection to the vehicle-mounted battery for power is unavoidable, carry it out taking care in the following respects:

- Add proper fuse to the extension to protect the circuit.
- Of the extension, use a cable of 5.0 mm^2 or more in size over the range A (see "Between battery terminal and fuse" ▷ page 185). Make it as short as practically possible and protect it properly so as to avoid damaged sheathing and consequent short circuit.
- Select optimal combination of additional fuse capacity and fuse-to-additional load cable size by (○) mark in the "List of recommended fuse capacity and cable size combinations" ▷ page 185
- Install additional fuse in water cover (electric cover or the like) or provide equivalent water protection.
- The use of a direct-connected power supply is liable to drain the vehicle-mounted battery. For this reason, please tell the customer not to draw power from the battery for a long period in order to drive a clock or a memory, for example, while engine is not running.

Between battery terminal and fuse



Use a ring terminal for a power line. Secure the terminal with the nut that fastens the battery cable terminal. Do not connect more than one power terminal. Use of two or more power terminals may cause heating or short-circuiting due to looseness.

List of recommended fuse capacity and cable size combinations

○: Usable ×: Unusable

Fuse		Cable size (mm^2) [upper] and allowable current for cable (A) [lower]							
Type	Specifications	0.3	0.5	0.85	1.25	2.0	3.0	5.0	(mm^2)
		11	14	18	23	31	42	57	(A)
Blade type and glass tube type	5 A	○	○	○	○	○	○	○	
	7.5 A	○	○	○	○	○	○	○	
	10 A	×	○	○	○	○	○	○	
	15 A	×	×	○	○	○	○	○	
	20 A	×	×	×	○	○	○	○	

Note: Continuous allowable current must be 70 % or less of specified fuse capacity.
(Example) If fuse in use is 10 A in current capacity
$10 \times 0.7 = 7$ (A)
→ Load is allowable up to 7 A.

Fuse capacity and cable size/length

When extension harnesses are manufactured by the truck body, select appropriate types, sizes and lengths of cables by reference to the following tables.

Blade type fuse

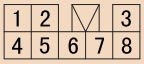
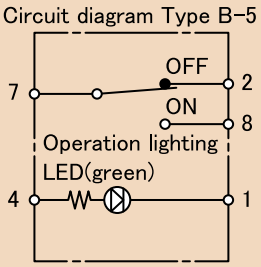
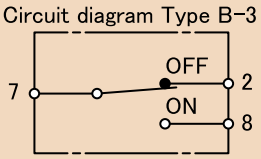
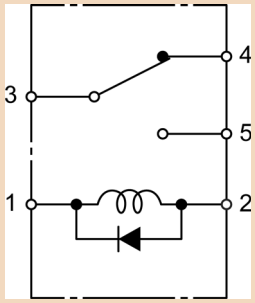
Fuse current capacity (A)	Cable type	Ambient temperature	Cable size (sectional area)/length						
			0.5 mm²	0.85 mm²	1.25 mm²	2 mm²	3 mm²	5 mm²	8 mm²
5	AV/AVS	40°C or less	34 m or less	–	–	–	–	–	–
	AVX	80°C or less	30 m or less	48 m or less	–	–	–	–	–
10	AV/AVS	40°C or less	17 m or less	27 m or less	39 m or less	–	–	–	–
	AVX	80°C or less	15 m or less	24 m or less	35 m or less	–	–	–	–
15	AV/AVS	40°C or less	11 m or less	18 m or less	26 m or less	43 m or less	–	–	–
	AVX	80°C or less	×	16 m or less	23 m or less	38 m or less	–	–	–
20	AV/AVS	40°C or less	×	13 m or less	19 m or less	32 m or less	–	–	–
	AVX	80°C or less	×	×	17 m or less	28 m or less	44 m or less	–	–

Heavy current fuse

Fuse current capacity (A)	Cable type	Ambient temperature	Cable size (sectional area)/length						
			0.5 mm²	0.85 mm²	1.25 mm²	2 mm²	3 mm²	5 mm²	8 mm²
30	AV/AVS	40°C or less	×	×	×	8 m or less	13 m or less	21 m or less	33 m or less
	AVX	80°C or less	×	×	×	7 m or less	12 m or less	19 m or less	29 m or less
40	AV/AVS	40°C or less	×	×	×	6 m or less	10 m or less	16 m or less	24 m or less
	AVX	80°C or less	×	×	×	5 m or less	9 m or less	14 m or less	22 m or less
50	AV/AVS	40°C or less	×	×	×	×	8 m or less	13 m or less	19 m or less
	AVX	80°C or less	×	×	×	×	7 m or less	11 m or less	17 m or less
60	AV/AVS	40°C or less	×	×	×	×	6 m or less	10 m or less	16 m or less
	AVX	80°C or less	×	×	×	×	×	9 m or less	14 m or less
80	AV/AVS	40°C or less	×	×	×	×	×	8 m or less	12 m or less
	AVX	80°C or less	×	×	×	×	×	×	11 m or less

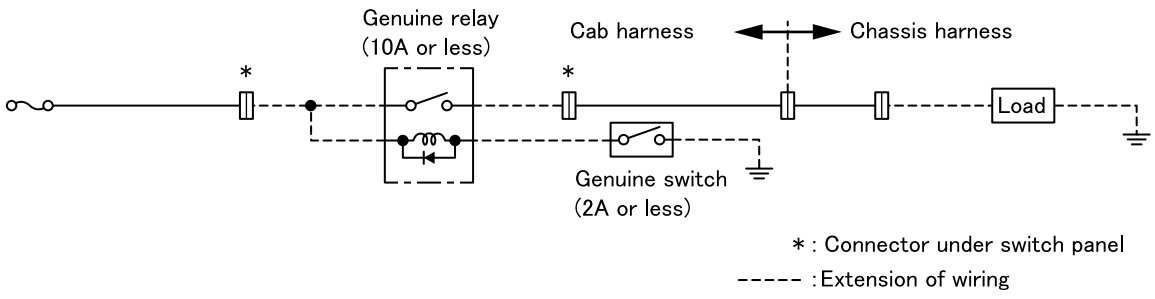
Note 1: ×: Not usable; –: 50 m or less
Note 2: AV/AVS: Ordinary cable; AVX: Heat resistive cable

8.4.3 Specifications for switches and relay for truck body

Part name	Mitsubishi parts number	Allowable current	Connector (harness side)	Circuit
Seesaw switch	MK322980 (with operation lighting circuit)	2.0 A or less	 Connector type: AK8A (MH056882)	
	MK322979 (without operation lighting circuit)	2.0 A or less		
Relay	MK420479 for 24-V vehicle	• Between (5) and (4) (Normally open side): 10 A or less • Between (5) and (2) (Normally close side): 5 A or less	 Connector type: EQ5A (MH059820)	 1: Power supply side 2: Grounding side

- When switches for truck body are used, allowable current is so small (2 A) that use of appropriate relays is required to prevent flow of load current to the switch.
- Do not connect any load exceeding allowable current (10 A) for relay.

Typical example of use



8.5 Charging/discharging balance

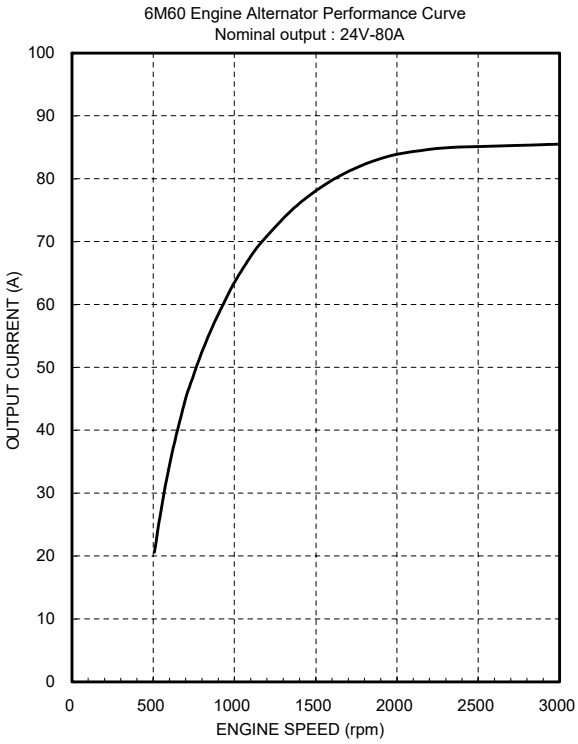
The charging/discharging balance may become unequalized in the following operating conditions. For this reason, reduce the electrical load during work referring to 8.5.1 "Engine alternator performance curves" ▷ page 188.

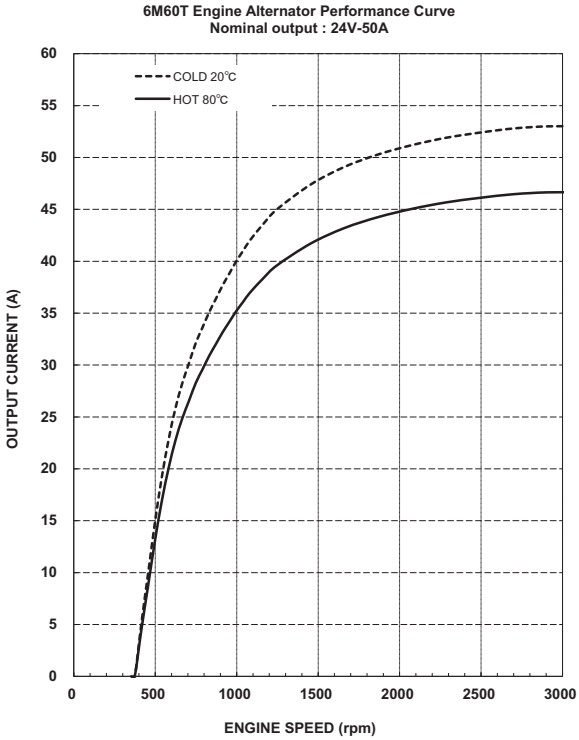
- When there is a lot of night work
- When working for a long time with the engine idling
- When many large load electrical auxiliary equipment are connected

In particular, when mainly idling the engine during night work, make sure that the electrical load is lower than the output current of the alternator.

8.5.1 Engine alternator performance curves

F

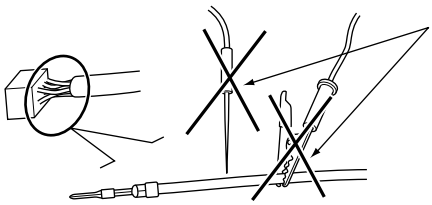




8.6 Electric circuit continuity check

Needling check is prohibitive.

Damage to cable insulation by test bar or electric circuit check lamp needle can result in premature corrosion of chassis harness.



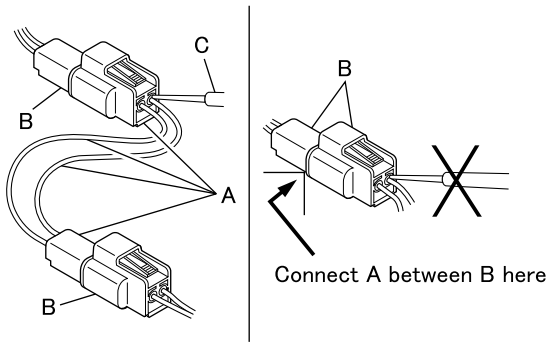
Sticking of test bar or electric circuit check lamp needle into cable insulation is prohibitive.

8.6.1 Check procedures

Continuity check with mating connectors joined (with continuity established in circuit)

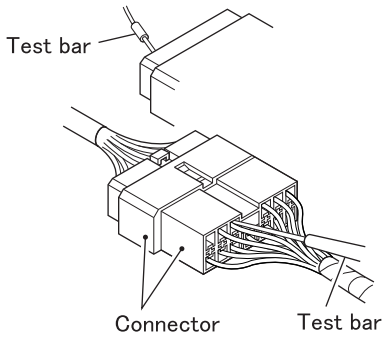
Waterproof connector

- Connect check harness A between joined circuit connectors B.
- Perform the check with the test bar applied to the check harness A connector
- Do not put in the test bar from connector B-side harness. The connector would lose waterproofing performance to result in harness corrosion.



Non-waterproof connector

- Insert the test bar from the harness side.
- If joined connectors are so small that test bar cannot be inserted, such as control unit connectors, do not push in the test bar by force but use a superfine pointed test bar.

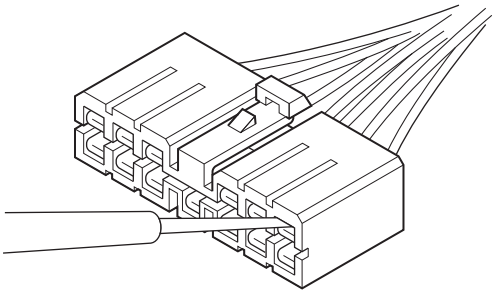


8.6 Electric circuit continuity check

Continuity check with connectors disjoined

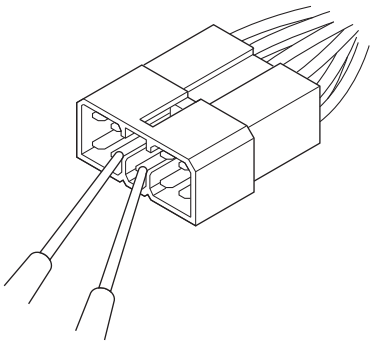
Check with female connector pins

- Perform the check with the test bar inserted in the pins.
- Forced bar insertion could result in poor contact.



Check with male connector pins

- Perform the check applying the test bar directly to connector pins.
- Take care that the test bar does not short-circuit between connector pins. In the case of electronic control units, short-circuiting could break down their internal circuit.



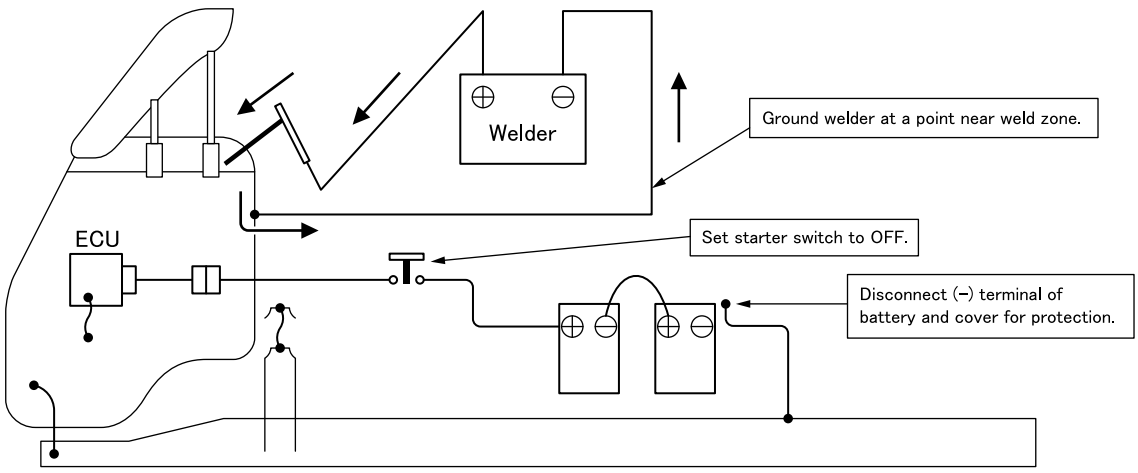
8.7 Precautions for electric welding

Electric wiring harnesses and electronic parts of vehicle may be damaged during electric welding work. To prevent it, follow the precautionary instructions described below.

Preparatory procedures for electric welding

Vehicles are equipped with electronic equipment directly coupled to battery and electronic control units. Neglect of necessary preparation for electric welding may result in damaged electronic equipment, etc. due to back flow of welder current to the grounding circuit. If precautionary instructions for welding work are not followed ▷ page 12.
Be sure to carry out the following preparatory work before welding.

- Set the starter switch to OFF and leave it as it is for at least 5 minutes (after-run procedure).
- Disconnect the minus (–) battery cable and cover the minus (–) terminal for protection.
- Be sure to ground the welder at a point near the weld zone.
  - Welding to cab
    Ground the welder at a nearby plated bolt or at a proper point on cab metal near the weld zone. When grounding the cab itself, peel paint from the surface where it is connected to ground.
  - Welding to frame
    Ground the welder at a nearby plated bolt or at a proper point on the frame near the weld zone. When grounding the frame itself, peel paint from the surface where it is connected to ground. Do not ground at the chassis spring as it could cause damage to the spring.



8.7 Precautions for electric welding

Other cautions

- Cover electronic equipment rubber hoses, wiring harnesses, pipes, tubes, chassis springs, tires, etc. in the neighbourhood of weld zone for protection against spatters during welding. Use utmost care when welding near an electronic control unit. If the welding electrode directly touches the housing of an electronic control unit, damage due to consequent short-circuiting is unavoidable.
- Perform welding under adequate welding conditions to achieve the quality of weld as required while using care to minimize impact on the neighbouring areas.

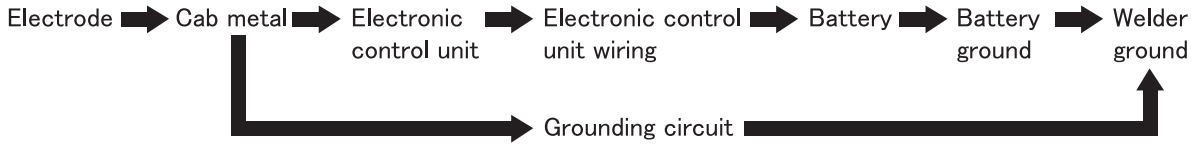
Post-welding procedure

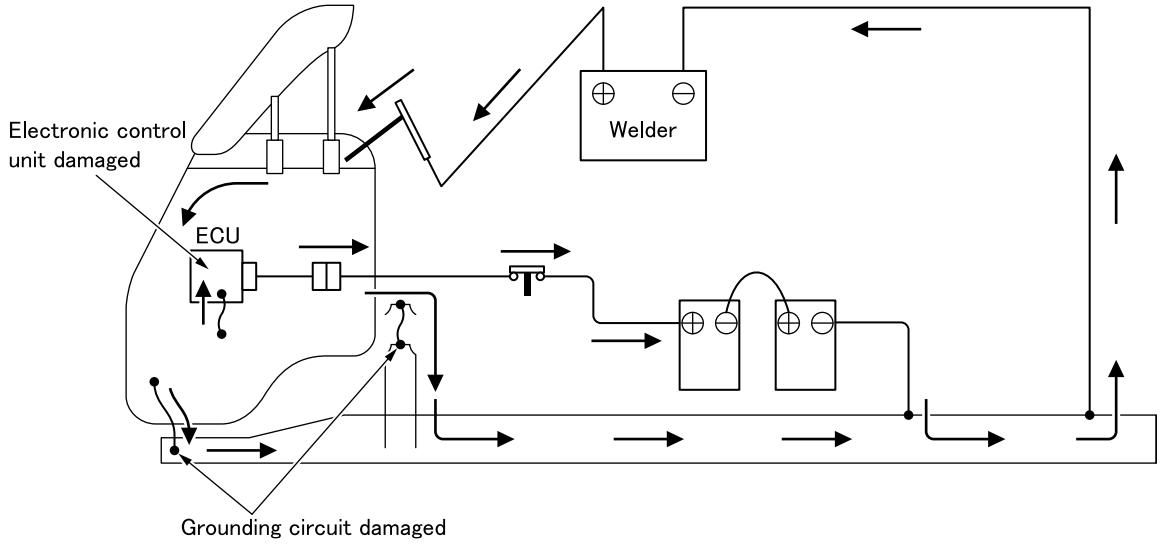
- Connect the minus (–) cable back firmly to the battery.
  Recoat the paint-stripped surfaces of the fame or cab with rust preventive paint in the same color.
- Check electronic equipment for function
  For details on the check, contact an authorized MITSUBISHI FUSO distributor or dealer.
- For cautions to take in electric welding involving SRS airbag, refer to 6.16.1 "Supplemental restraint system (SRS)-air bag" ▷ page 128
- For cautions to take in electric welding involving BlueTec exhaust cleaner, refer to 6.14.2 "BlueTec system." ▷ page 120

D

If precautionary instructions for welding work are not followed

The welding current will flow as shown below, resulting in damage to other circuits including the ECU and ground wire.

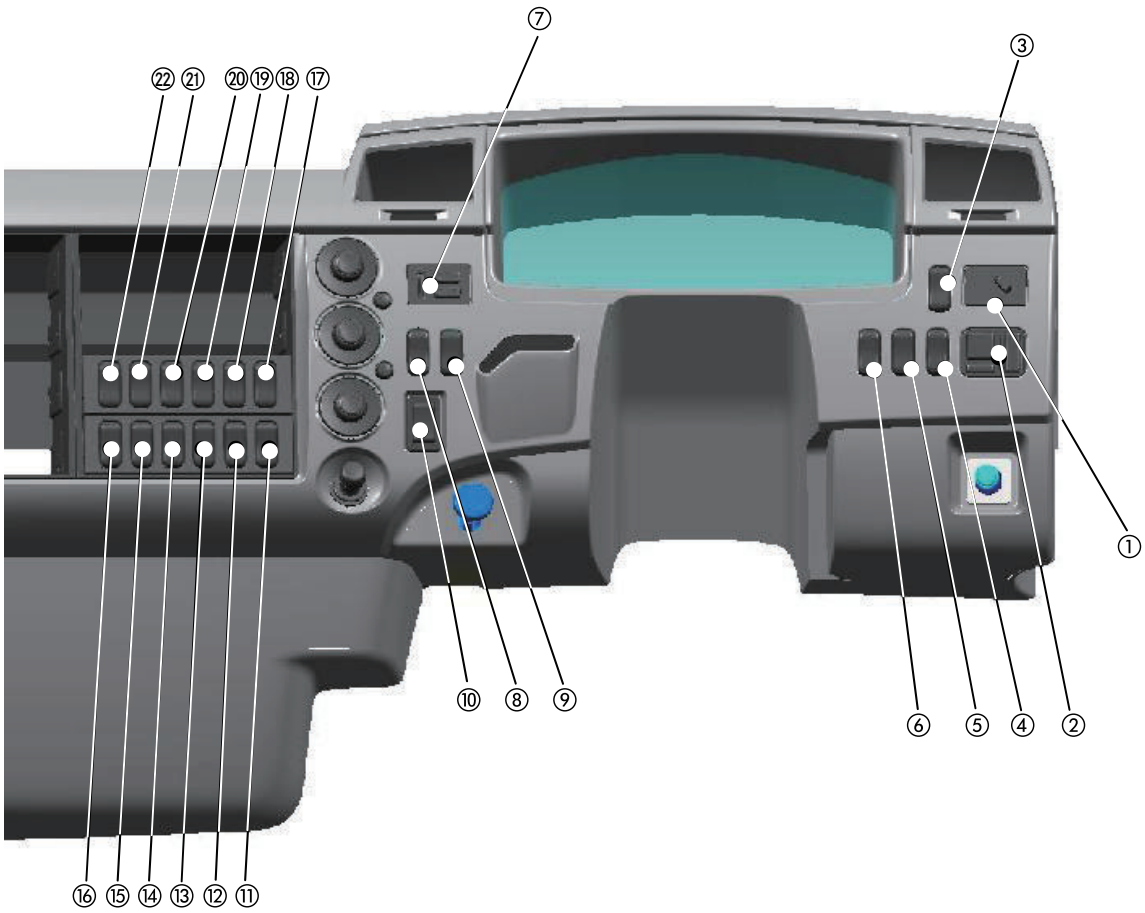




8.8 Locations and identification of various switches in cab

8.8 Locations and identification of various switches in cab

C



E

No.	Switch	Switch-equipped vehicles
①	Headlamp leveling switch	Vehicle of leveling with a halogen head lamp
②	Remote control mirror switch	Vehicle with remote control mirror
③	Front fog lamp switch	Vehicle with fog lamp
④	PTO switch	Vehicle with PTO
⑤	–	–
⑥	–	–
⑦	Multi-information display switch	Provided as standard
⑧	Automatic cruise control switch	Vehicle with cruise control
⑨	Cold starter switch	Optional
⑩	(for special vehicles)	
⑪	Automatic transmission power mode switch	Vehicle with Automatic transmission power mode
	EZGO main switch	Vehicle with Manual transmission

No.	Switch	Switch-equipped vehicles
⑫	ESP OFF switch	Vehicle with ESP
	EZGO adjustment switch	Vehicle with manual transmission
	Height control switch	Air suspension vehicle for Taiwan
⑬	Diff. lock switch	Vehicle with Diff. lock
⑭	ASR switch	Vehicle with ASR
	Rear fog lamp switch	Vehicle with rear fog lamp
⑮	Height control switch	Air suspension vehicle for Aus/Nz
⑯	Fluorescent lamp switch	Provided in all vehicles as standard
⑰	–	–
⑱	–	–
⑲	Mirror heater switch	Vehicle with mirror heater
⑳	–	–
㉑	–	–
㉒	–	–

8.9 Lighting

8.9.1 Installation of rear end lamps

The rear combination lamps, backup lamps and number plate lamp are attached on the chassis temporarily before shipping. Use these lamps as rear end lamps.

Install these lamp groups symmetrically about the vertical center line of the vehicle. Lay the lamp wiring harnesses along the frame members, crossmember and rear end face edges of the rear body. Secure them as necessary with clamps to keep the appearance looking neat.

Rear combination lamp

In the case of a chassis with cab, the rear combination lamps are temporarily attached with the upper side down, and so the water drain holes in the lamp body are covered with a strip of tape. This tape must be removed after installing the lamps in the designated positions.
Do not attempt to arrange the combination lamps vertically.
For details on the rear combination lamp, refer to 10.15 "Other equipment" ▷ page 496.

Rear registration plate lamp

For details on the rear combination lamp, refer to 10.15 "Other equipment" ▷ page 496.

Side direction indicator lamp

When you add side direction indicator lamp, change flasher relay to the followings and use 21watt bulb of side direction indicator lamp.

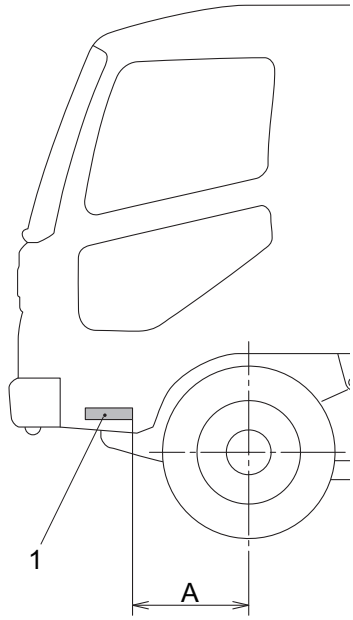
Flasher relay

Type	Parts No.
24V	ML234054

8.9.2 Installation of side reflectors

Front side reflector

All cabs are equipped with front side reflectors (side reflectors on frontmost end). The fitting parts of the front side reflectors cannot be reused. If any damaged front side reflector is to be replaced, attach a new deflector with new fitting parts.



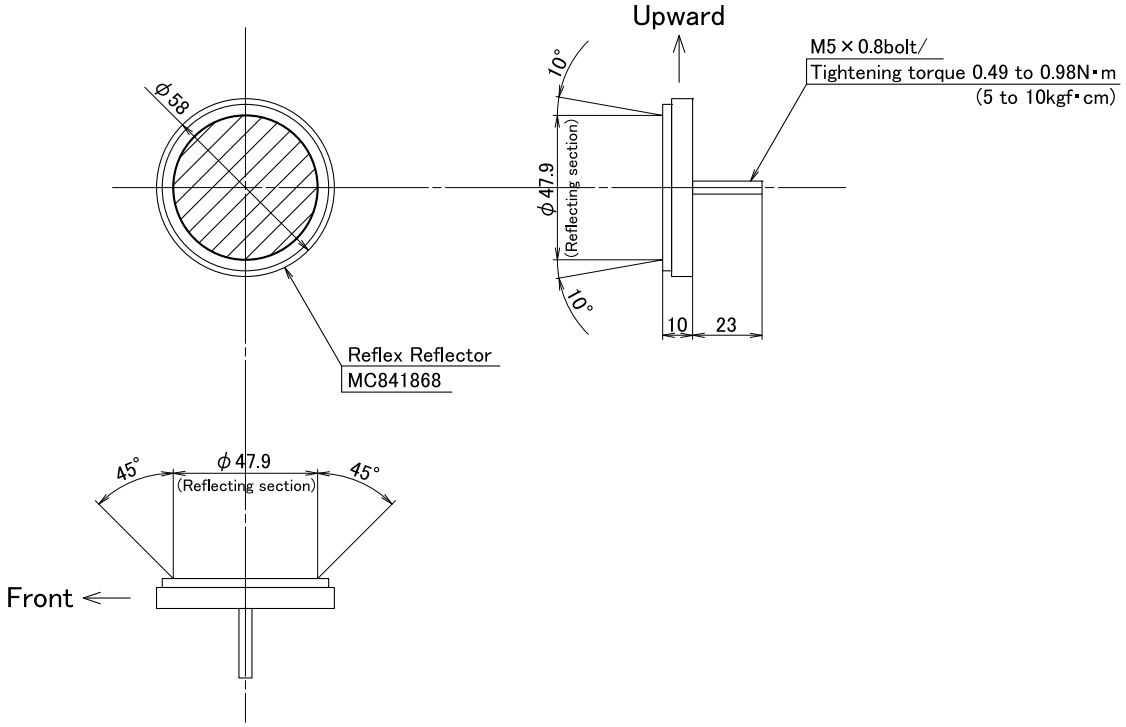
Model	A (mm)
FK	585
FM/FN	700

1 Front side reflector rear end

Side reflector

The side reflectors must be removed before starting the body mounting work.

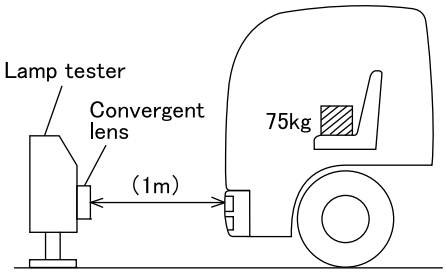
If any additional side reflectors are to be installed, be sure to use MITSUBISHI FUSO genuine reflectors.



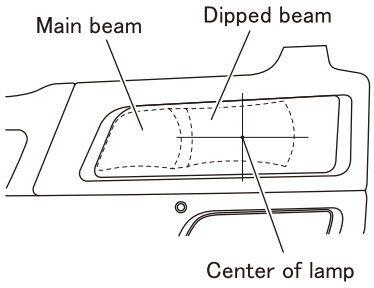
8.9.3 Headlamp aiming

Preparation before Adjustment

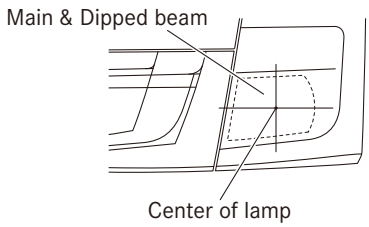
- Park the vehicle on a level place.
- Be sure to put tire chocks securely in place.
- Unload the vehicle and make sure no one is in it.
- Inflate the tires to the specified pressure.
- Seat one person of an equivalent mass (75 kg) in the vehicle.
- Start the engine and check that the battery is being charged.
- Place convergent lamp tester and the vehicle facing each other as shown in the drawing.
- Align the center of headlamp bulb and the center of convergent lens of convergent lamp tester. (The drawing shows the left- hand headlamp.)
- When adjusting one headlamp, mask the other to avoid light leakage.



Head lamp on the bumper



Head lamp on the cab



P100954E

RHD shown LHD symmetry opposite.

Adjustment

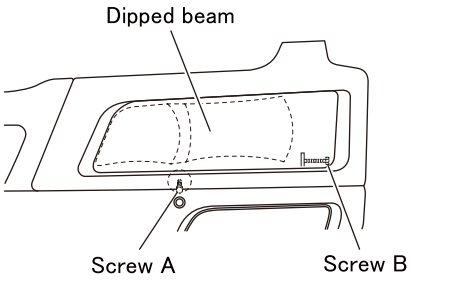
- Do not mask a lit headlamp for more than 2 minutes or the heat generated might cause a fire.

Adjustment of dipped beam

- Turn on dipped beam.
- Make adjustment by the following procedure so that the elbow point of dipped beam cut-off line is in the illustrated position.
- Vertical adjustment: Adjust by turning screws A and B in this order by the same amount.
- Horizontal adjustment: Turn screw B.
- Adjust the optical axes of the dipped beams so that the cut-off line position can conform to the standard value.

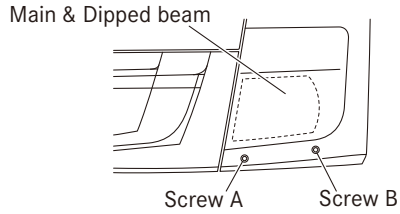
Cut-off line position	Standard value
	0.57°

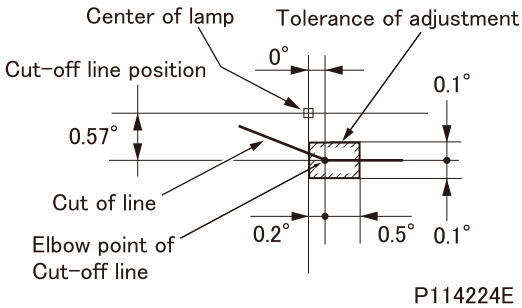
Head lamp on the bumper



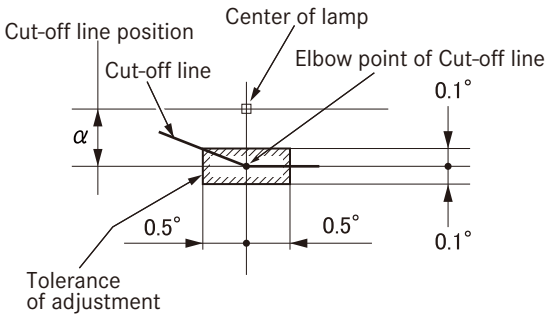
P100955E

Head lamp on the cab





P114224E



RHD shown LHD symmetry opposite.

Adjusting direction for optical axis

<Left-hand headlamp>

	Upward	Downward	Leftward	Rightward
Screw A	Counter-clockwise	Clockwise	–	–
Screw B	Counter-clockwise	Clockwise	Clockwise	Counter-clockwise

<Right-hand headlamp>

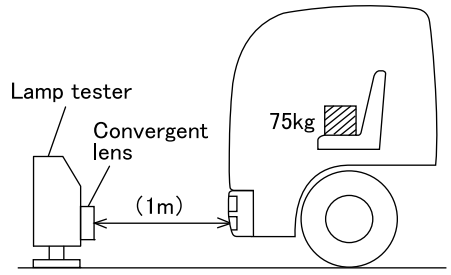
	Upward	Downward	Leftward	Rightward
Screw A	Counter-clockwise	Clockwise	–	–
Screw B	Counter-clockwise	Clockwise	Counter-clockwise	Clockwise

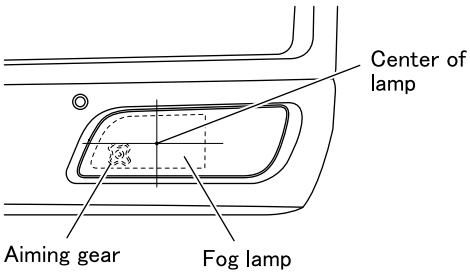
Turning direction of the screws in the table is as viewed from the front.

8.9.4 Fog lamp aiming

Preparation before Adjustment

- Park the vehicle on a level place.
- Be sure to put tire chocks securely in place.
- Unload the vehicle and make sure no one is in it.
- Inflate the tires to the specified pressure.
- Seat one person of an equivalent mass (75 kg) in the vehicle.
- Start the engine and check that the battery is being charged.
- Place convergent lamp tester and the vehicle facing each other as shown in the drawing.
- Align the center of fog lamp bulb and the center of convergent lens of convergent lamp tester. (The drawing shows the left- hand fog lamp.)
- When adjusting one fog lamp, mask the other to avoid light leakage.





P65969E

Adjustment

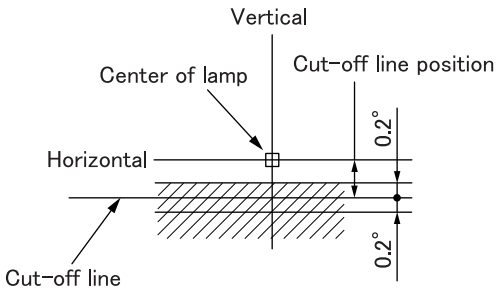
- Do not mask a lit fog lamp for more than 10 minutes or the heat generated might cause a fire.

Adjustment of fog lamp

- Turn on the fog lamp.
- Make adjustments by turning the knob bring for the fog lamp's cut-off line into the illustrated position.

Cut-off line position	Standard value
	1.15 ± 0.2°

	Adjusting direction for optical axis	
	Upward	Downward
Knob	Counter-clockwise	Clockwise



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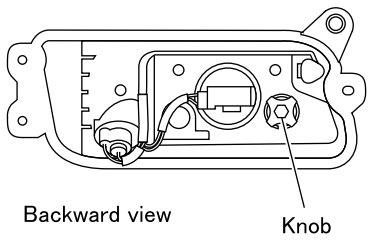


P65971E

RHD shown LHD symmetry opposite.

8.10 Mobile communications systems

Regulation of the country of use as well as the equipment manufacturer's information and installation specifications must be observed.

If mobile communication systems (e.g. telephone, CB radio) are retrofitted, the following requirements must be fulfilled in order to avoid malfunctions developing on the vehicle at a later stage.

Equipment

- The equipment must have official approval and meet regulation of the country of use for power, operating frequency, and interference.
- The equipment must be permanently installed.
- Operation of portable or mobile equipment inside the cab is only permitted if this equipment is connected to a permanently installed external aerial.
- The transmitter must be installed separately from all other vehicle electronics.
- Protect equipment from moisture.
- Observe the permissible operating temperature.
- Protect the equipment against severe mechanical vibrations.

Aerial (for two-way radio sets)

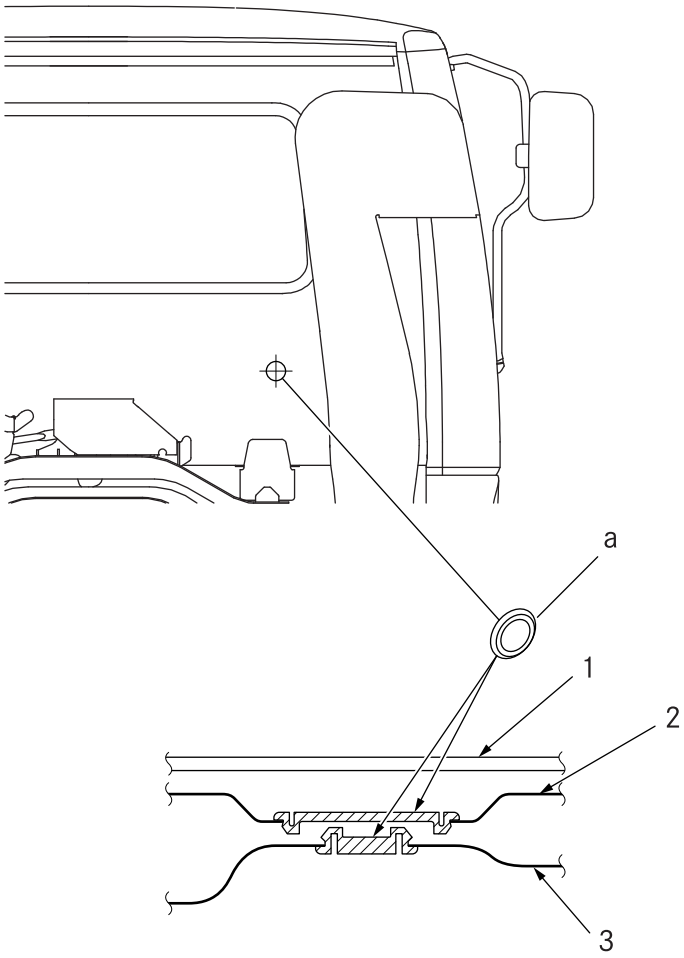
- The aerial must be officially licensed.

Connection and wiring

- The connection should be made directly to teriminal inside cab.
- Disconnect the unit from the electrical system before jump-starting.
- Cables should be wired via the shortest possible route (not looped) and twisted.
- Ensure that the system has a good ground connection to the body (aerial and equipment).
- The aerial and connecting cables between the transmitter, receiver and control panel must be routed separately from the vehicle wiring harness in the vicinity of the body ground.
- Do not run the radio antenna cable along vehicle's harnesses or wires.
  Route the antenna cable about 300 mm or more away from these harnesses and wires.
  Electronic device malfunction could occur if the antenna cable is routed along the harnesses or wires.
- The antenna cable portion that is routed outside the cab should be secured with corrosion-resistant wire stickers or the like.
- Clamp the antenna cable so that it does not touch edged parts such as a drip rail.
- Make sure that the aerial cable is not kinked or crushed.
- Install the antenna using nickel-chrome stainless steel bolts and nuts. Do not use tapping screws, which could cause rust.
- To bring the antenna cable into the cab, run it through the hole in the back panel using grommet for water proofing.

Parts name	Parts No.
Grommet	MH022627

8.10 Mobile communications systems



a Remove the plugs and install grommets.

1 Center back trim
2 Back inner center panel
3 Back outer center trim

Additional information

The notes on operating safety and vehicle safety in Section 1 "Introduction" ▷ page 7 and ▷ page 8 must be complied with.

8.11 Additional wiring for PTO

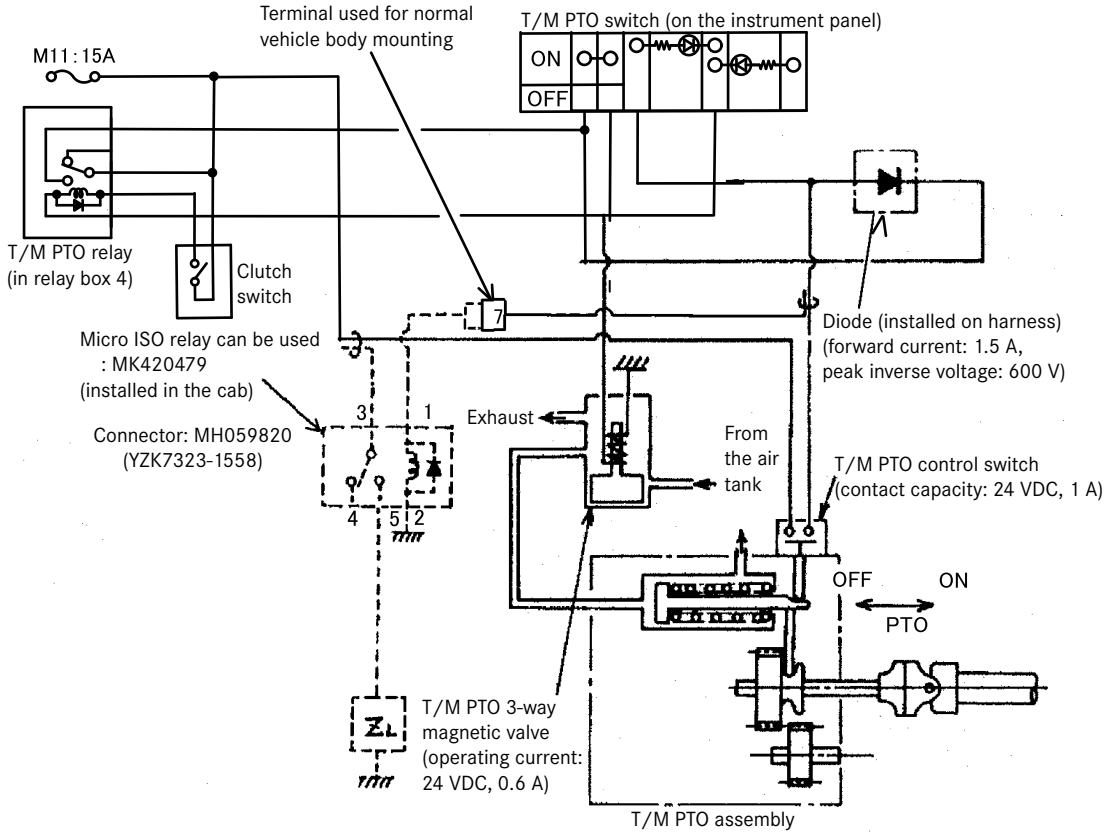
8.11.1 Adding electric circuits

When adding an electric circuit to the pneumatic PTO actuation circuit to supply power to the electric load of installed equipment simultaneously with PTO actuation, add a power relay for protecting the diode as shown below.

Electric wiring instructions

- The wirings indicated in solid lines (——) in the wiring diagram below are included in the chassis harness. To add an electric circuit to the pneumatic PTO actuation circuit, make additional wiring as indicated in broken lines (- - -).
- Use power relay MK420479 (Mitsubishi parts number). Install the relay in the cab or on the electric parts cover.
- The connected external load should be 24 VDC at 4 A or less.
- Use electric wires of AV 0.5 size.
- Refer to 8.2 "Electrical wiring" ▷ page 171 for precautions on wiring.

Circuit diagram



8.12 Others

8.12.1 Installing the tachograph

Preparations

- Turn the starter switch to OFF when performing installation work that involves electric welding.
- Disconnect the negative terminal (–) of the battery cable.
- Ground the welding machine near the welded section.

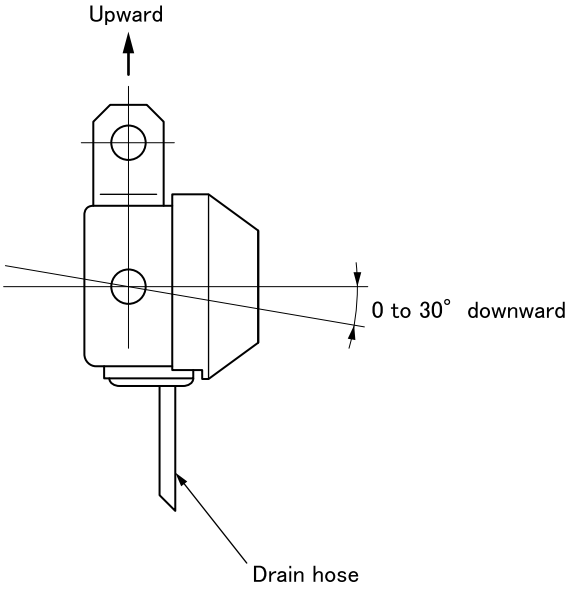
When dropped

- A tachograph is precision equipment. If it is subjected to impact by dropping, etc., replace it.

8.12.2 Installing the back buzzer

Relocating the back buzzer

Direct the back buzzer should be angled downward to prevent malfunction caused by water entry into the buzzer.

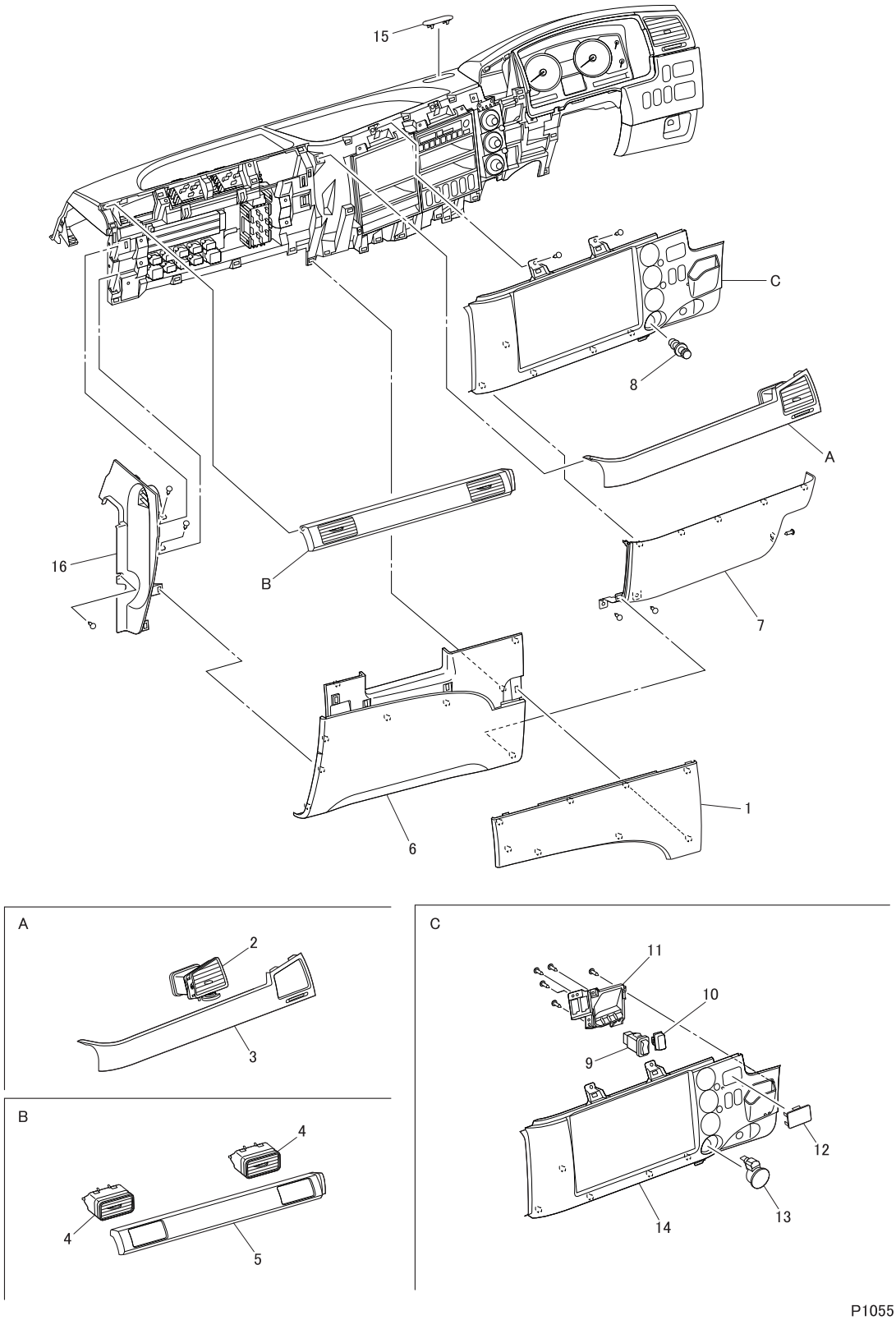


8.12.3 Instrument panel

- Removal and installation procedures

<Passenger-side panel>

(1) Removal and installation procedures



(a) Removal sequence

1 *Upper passenger panel*
2 *Center air outlet*
3 *Center garnish*
4 *Passenger air outlet*
5 *Passenger garnish*
6 *Lower passenger panel*
7 *Lower center panel*
8 *Cigarette lighter*
9 *Plug or switch*
10 *Plug*
11 *Switch plate*
12 *Plug A*
13 *Cigarette lighter ring*
14 *Upper center panel*
15 *Instrument panel cover*
16 *Side passenger panel*

(b) Installation sequence

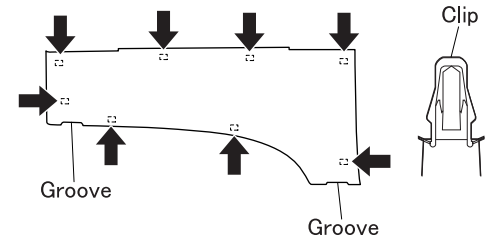
Follow the removal sequence in reverse.

(2) Removal procedure

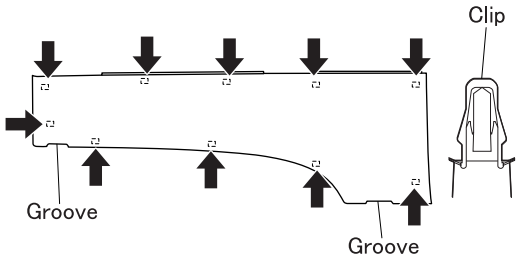
(a) Removal: Upper passenger panel

- To remove the upper passenger panel, pull the panel toward you by making use of its grooves.

<Standard width cab>



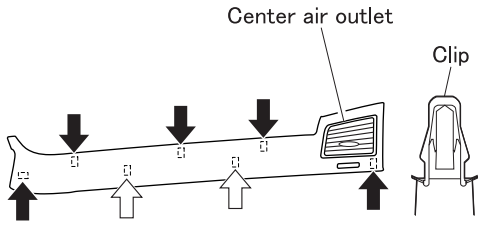
<Wide cab>



P66616E

(b) Removal: Center garnish

- Remove the clips near the center air outlet.
- Pull out the center garnish rearward in a straight axial line so as not to damage the clips indicated by ⇦ .



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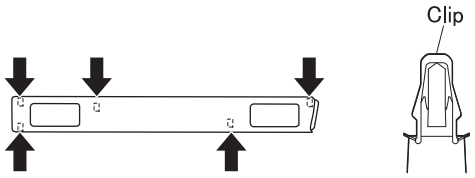
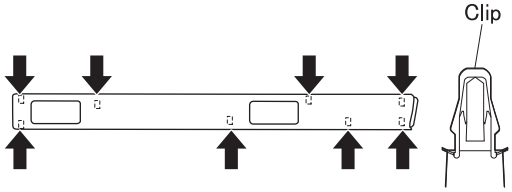
(c) Removal: Passenger garnish

<Standard width cab>



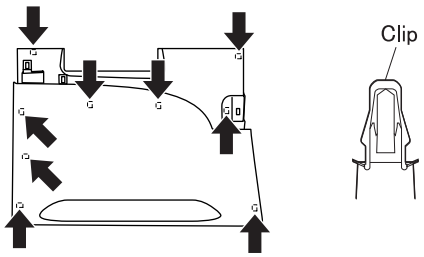
<Wide cab>



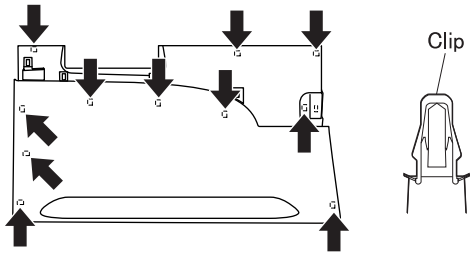
P66620E

(d) Removal: Lower passenger panel

<Standard width cab>

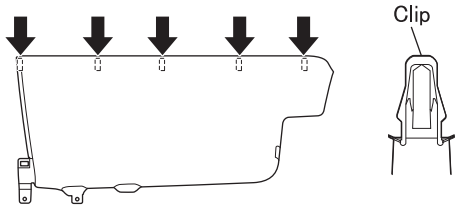


<Wide cab>



P66617E

(e) Removal: Lower center panel

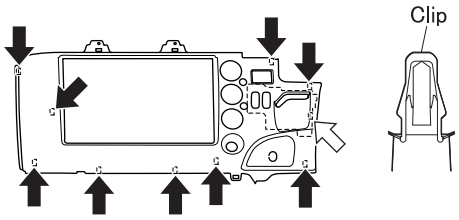


P66618E

(f) Removal: Upper center panel and switch plate

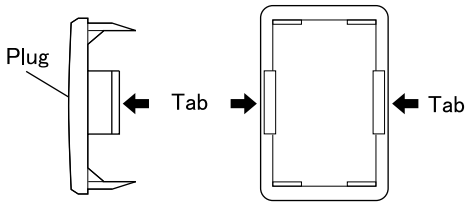
⬅ : Clip on upper center panel side (9 places)

⇦ : Clip on switch plate side (1 place)



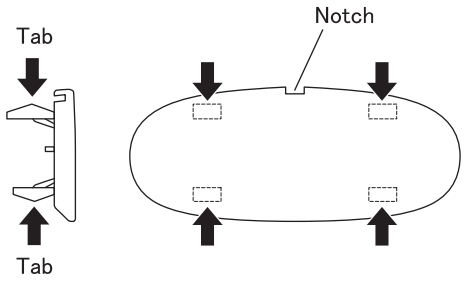
P105519E

(g) Removal: Plug A



P49510E

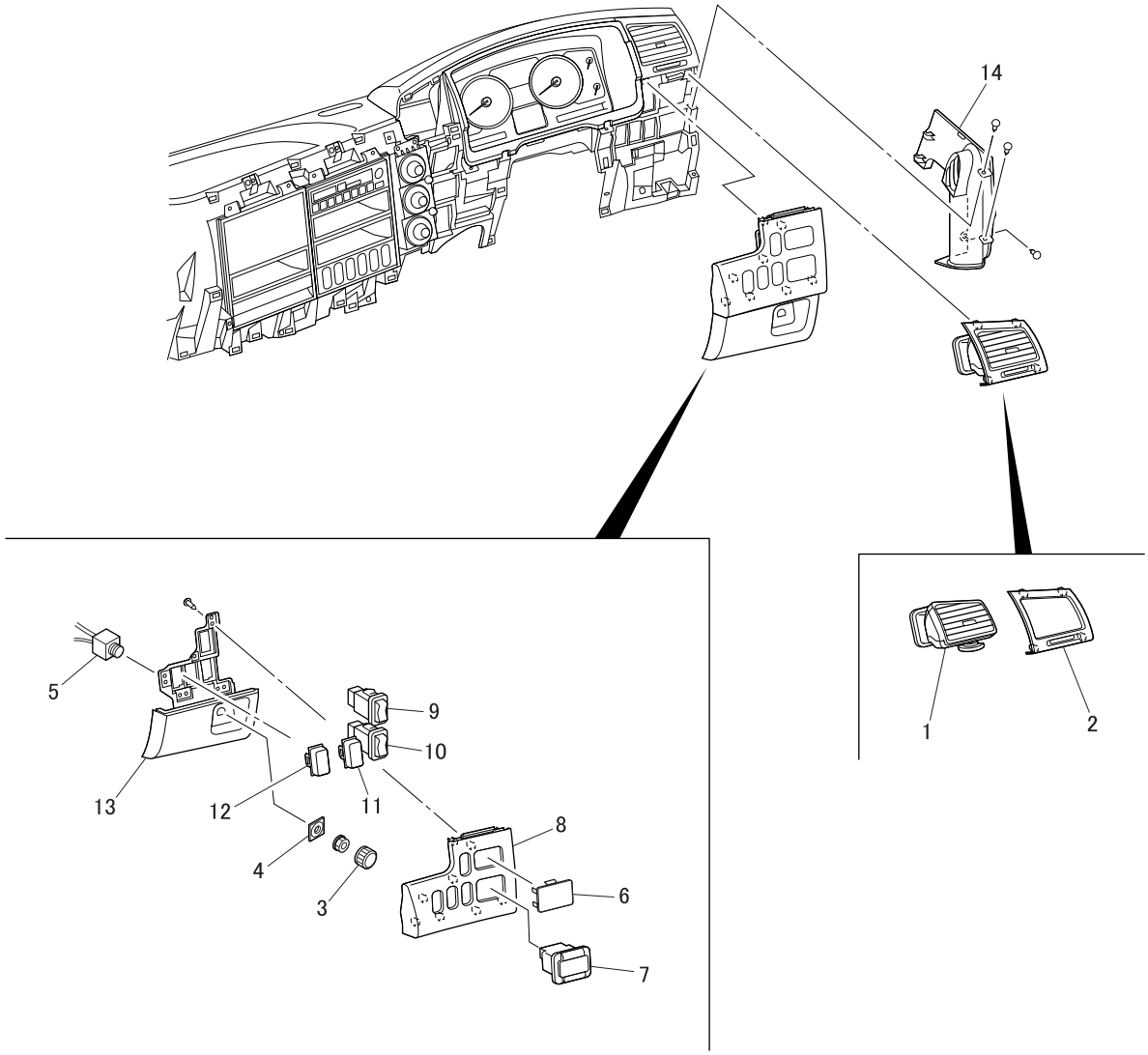
(h) Removal: Instrument panel cover



P66622E

<Driver-side panel>

(1) Removal and installation procedures



P117118

(a) Removal sequence

1 *Driver air outlet*
2 *Driver garnish*
3 *Knob*
4 *Plate*
5 *Idling speed adjustment knob*
6 *Plug A*
7 *Plug D*
8 *Upper driver panel*
9 *Fog lamp switch or plug*
10 *Transmission power take-off switch or plug*
11 *Plug*
12 *Plug*
13 *Lower driver panel*
14 *Side driver panel*

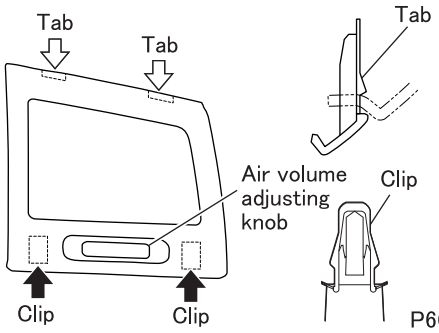
(b) Installation sequence

Follow the removal sequence in reverse.

(2) Removal procedure

(a) Removal: Driver air outlet, driver garnish

- Be sure to set air volume adjusting knob to neutral position before removing the garnish.



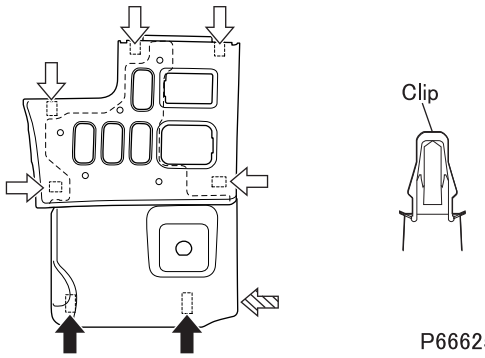
P66624E

(b) Removal: Lower driver panel and upper driver panel

⇦ : Clip on upper driver panel side (5 places)

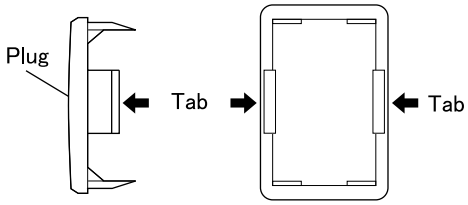
⬅ : Clip on lower driver panel side (2 places)

- Remove the panels while pushing the ⇦ part of lower driver panel towards steering. Be careful not to damage the tabs of side driver panel.



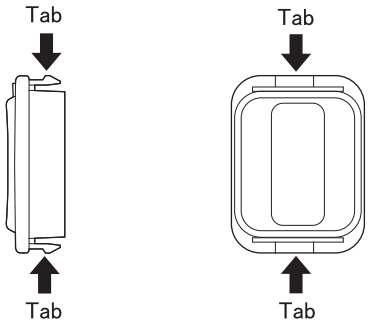
P66625E

(c) Removal: Plug A



P49510E

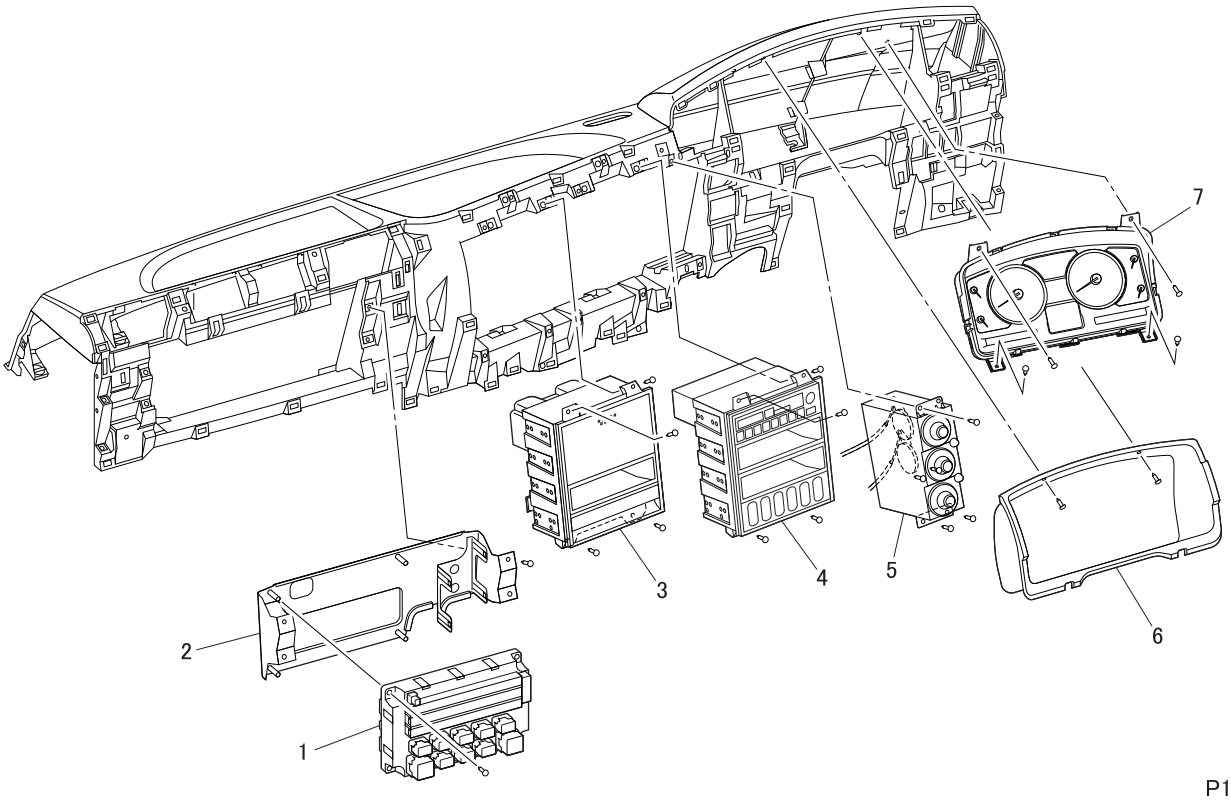
(d) Removal: Plug D



P49508E

<Electrical Components>

(1) Removal and installation procedures



P117119

(a) Removal sequence

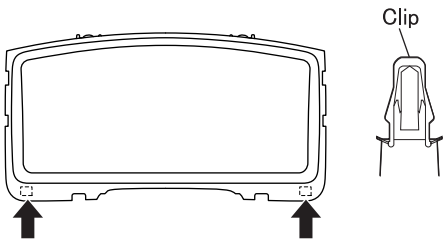
1 *Relay and fuse box*
2 *Relay and fuse plate*
3 *Box and cup holder (See later section.)*
4 *Box and switch (See later section.)*
5 *Air-conditioner control*
6 *Meter bezel*
7 *Meter cluster*

(b) Installation sequence

Follow the removal sequence in reverse.

(2) Removal procedure

(a) Removal: Meter bezel



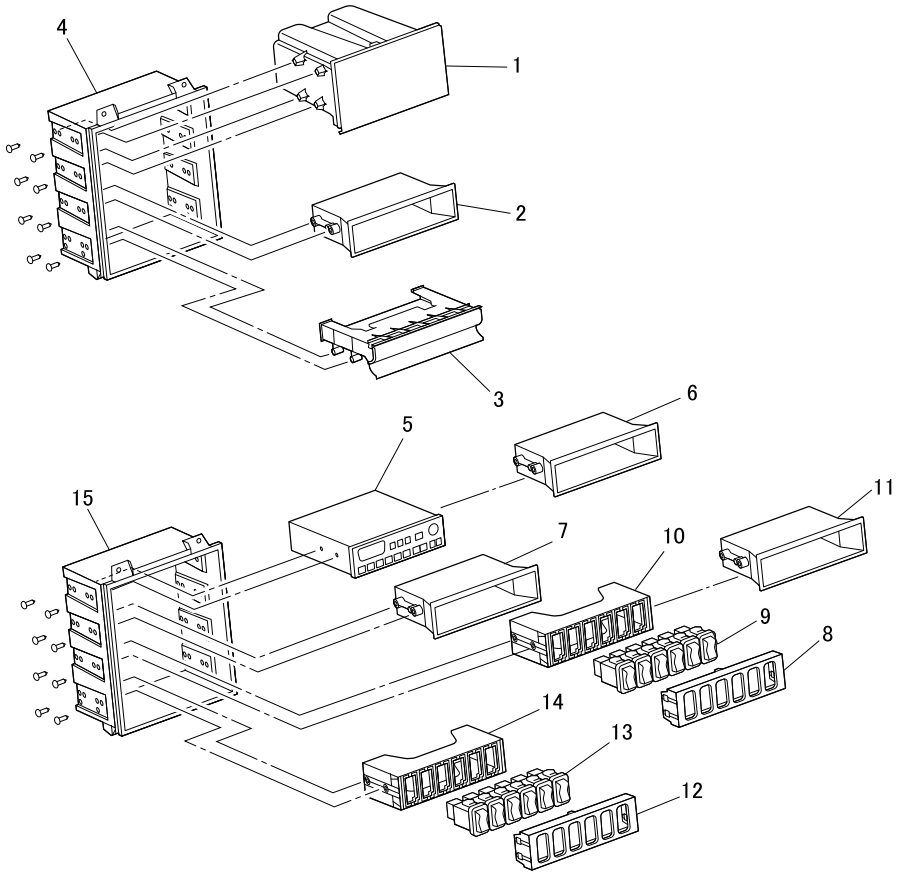
P66663E

<Box and Cup Holder, Box and switch>

(1) Removal and installation procedures

<Box and cup holder>

<Box and switch>



P117293E

(a) Disassembly sequence

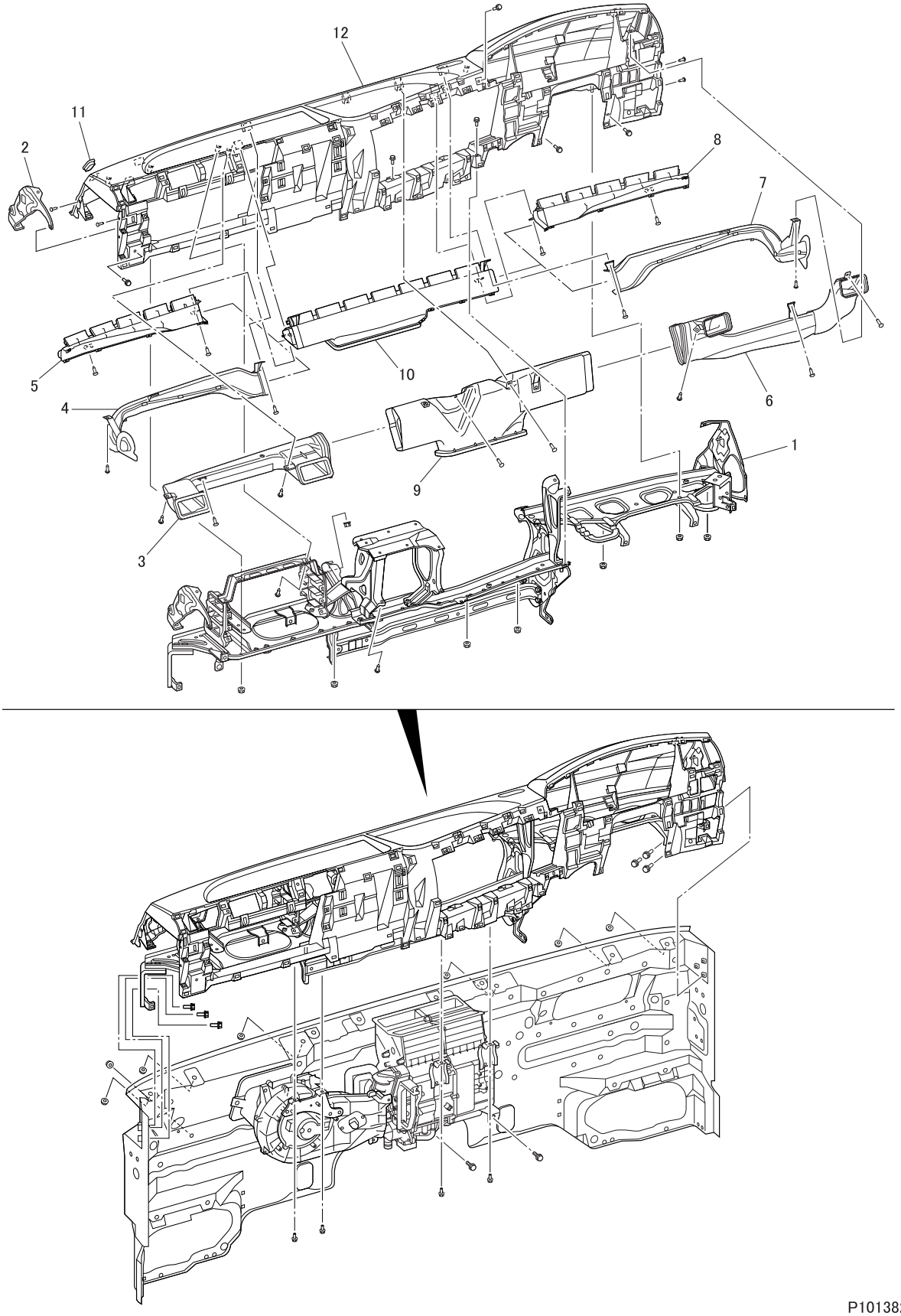
1 *Glove box*
2 *Box*
3 *Cup holder*
4 *Case*
5 *Audio*
6 *Box <for Hong Kong and Singapore>*
7 *Box*
8 *Switch bezel*
9 *Switch or plug*
10 *Switch plate*
11 *Box <for Hong Kong and Singapore>*
12 *Switch bezel*
13 *Switch or plug*
14 *Switch plate*
15 *Case*

(b) Assembly sequence

Follow the disassembly sequence in reverse.

<Instrument panel>

(1) Removal and installation procedures



P101382

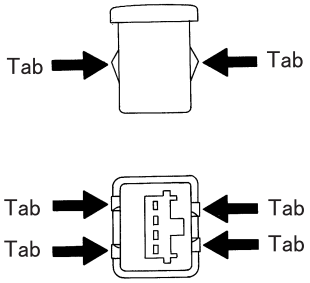
(a) Removal sequence

1 *Instrument panel frame (See later section.)*
2 *Reinforcement*
3 *Face duct (left-hand)*
4 *Side defroster duct (left-hand)*
5 *Defroster duct (left-hand)*
6 *Face duct (right-hand)*
7 *Side defroster duct (right-hand)*
8 *Defroster duct (right-hand)*
9 *Center face duct*
10 *Center defroster duct*
11 *Plug*
12 *Instrument panel*

(b) Installation sequence
Follow the removal sequence in reverse.

(2) Removal procedure

(a) Removal: Plug

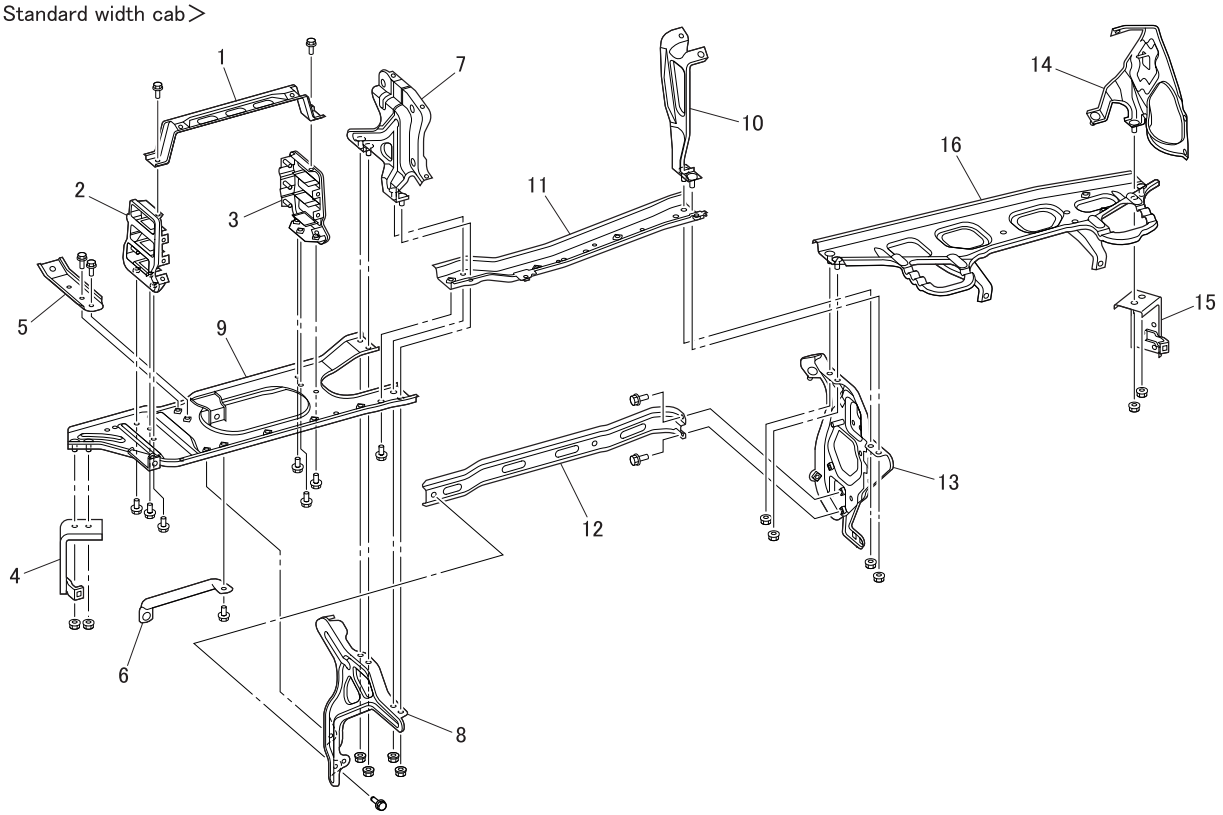


18557E

<Instrument panel frame>

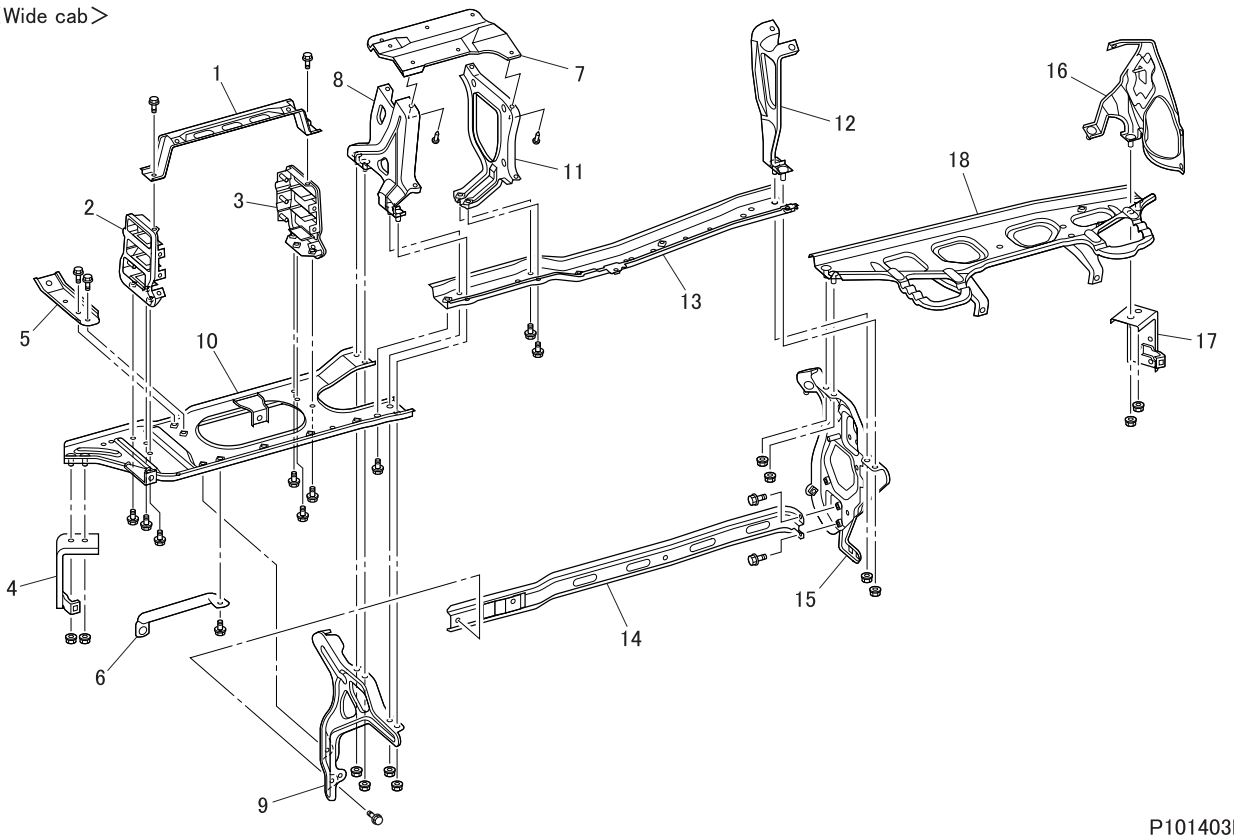
(1) Removal and installation procedures

＜Standard width cab＞



P66666E

＜Wide cab＞



P101403E

(a) Disassembly sequence

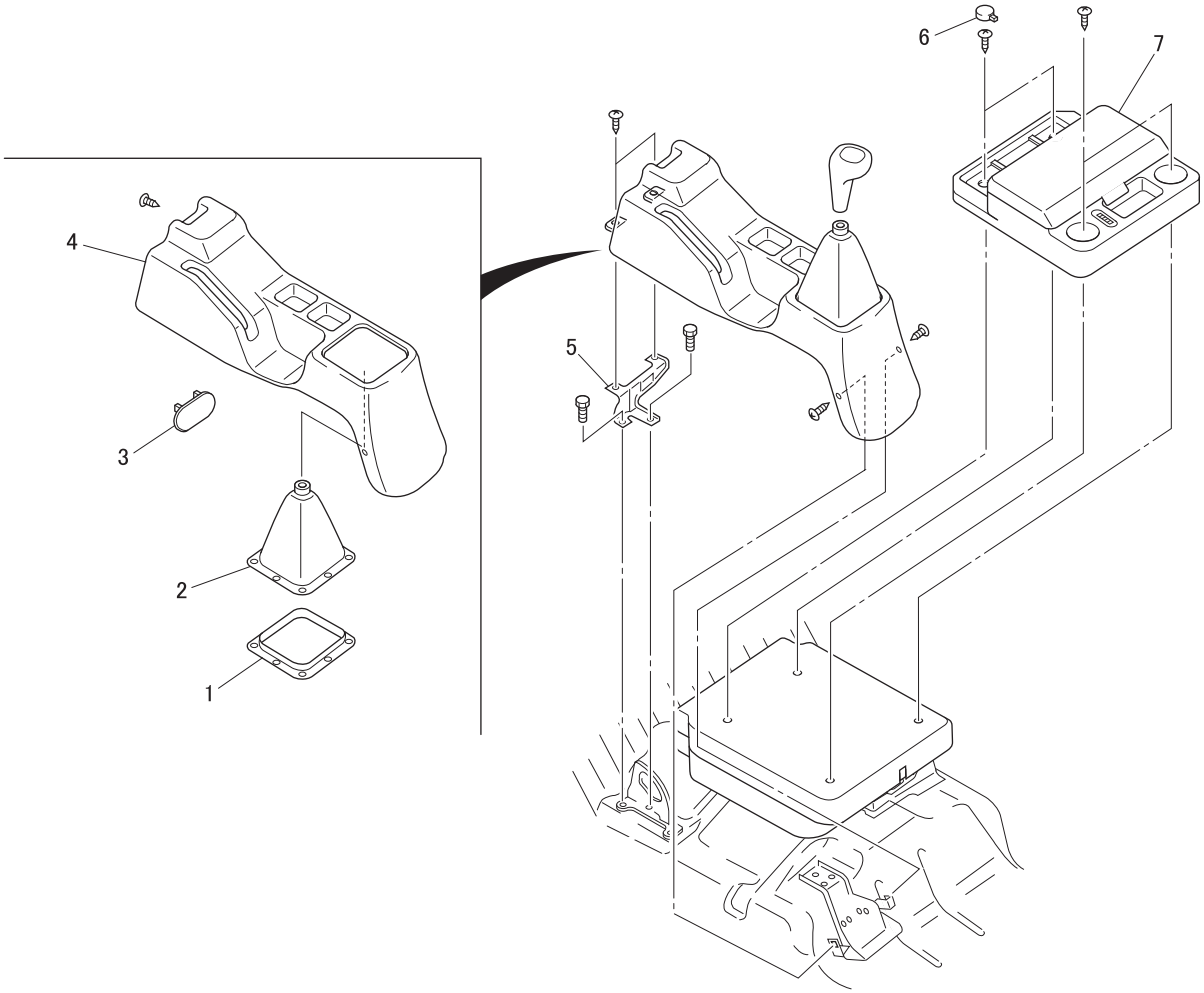
1 *Electronic control unit frame*
2 *Electronic control unit frame support LH*
3 *Electronic control unit frame support RH*
4 *Side bracket LH*
5 *Upper stay*
6 *Lower stay*
7 *Reinforcement <Wide cab>*
8 *Upper passenger instrument panel support*
9 *Lower passenger instrument panel support*
10 *Passenger instrument panel frame*
11 *Electronic control unit center support <Wide cab>*
12 *Upper driver instrument panel support*
13 *Upper center instrument panel frame*
14 *Lower center instrument panel frame*
15 *Lower driver instrument panel support*
16 *Reinforcement*
17 *Side bracket RH*
18 *Driver instrument panel frame*

(b) Assembly sequence

Follow the disassembly sequence in reverse.

<Floor console>

(1) Removal and installation procedures



P105523

(a) Removal sequence

1 *Boots holder*
2 *Shift lever boots*
3 *Concent plug*
4 *Shift lever console*
5 *Shift lever bracket*
6 *Cap*
7 *Center seat console*

(b) Installation sequence

Follow the removal sequence in reverse.

8.12 Others

- Removal method

9.1 Technical wheelbase

9.1.1 Technical wheelbase calculation for 3-axle vehicles

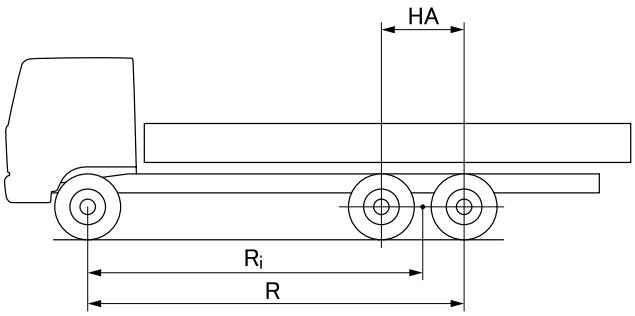
You require the following values to calculate the technical wheelbase Ri:

R = Vehicle wheelbase measured from center of axle 1 to center of axle 3

HA = Rear axle distance

The following formula is used to calculate the technical wheelbase:

$$Ri = R - \frac{(HA)}{(2)}$$



3-axle vehicle

9.2 Axle load calculation

An axle load calculation is required to optimize the overall vehicle (vehicle and body). It is only possible to match the body to the truck if the vehicle is weighed before any work on the body is carried out. The weights measured by weighing form the basis of the axle load calculation.

The moment theorem is used to distribute the weight of the equipment on the front and rear axles. All distances relate to the center front axle (theoretical center). Mark the weight with mathematically correct signs and enter them in the table. The result will assist you in choosing the optimum positioning of the body.

It has proved useful to make the following calculations:

Weight

+ (plus) is everything when the vehicle is laden
– (minus) is everything that the vehicle can unload (weights)

Axle distance

+ (plus) is everything behind the center of the front axle
– (minus) is everything in front of the center of the front axle

Calculate the weight distribution on the front and rear axle using the formula:

$$\triangle G_{HA} = \frac{G_{component} \cdot a}{R} \text{ [kg]}$$

$\triangle G_{HA}$	=	Change in weight on rear axle in [kg]
$G_{component}$	=	Component weight in [kg]
a	=	Axle distance to theoretical center of front axle in [mm]
R	=	Theoretical wheelbase [mm]

$$\triangle G_{VA} = G_{component} - G_{HA} \text{ [kg]}$$

$\triangle G_{VA}$	=	Change in weight on front axle in [kg]
$G_{component}$	=	Component weight in [kg]
$\triangle G_{HA}$	=	Change in weight on rear axle in [kg]

9.2.1 Method of calculating the weight distribution on the rear two axles

<FN>

First rear axle load=
(Total weight of the rear two axles+60 kg)/2

Second rear axle load=
(Total weight of the rear two axles-60 kg)/2

Index

P

Q

R

S

T

V

W

Revision record <Common section (Chapter 1-9)>

Rev. code	Date issued	Remarks
M	21. Dec. 2018	Other models have been added.
L	31. Aug. 2018	Other models have been added.
K	23. Apr. 2018	Other models have been added.
J	31. Oct. 2017	Contact name change.
I	22. May. 2017	Other models have been added.
H	21. Feb. 2017	Other models have been added.
G	21. Oct. 2016	Other models have been added.
F	17. Jul. 2015	Euro II models have been added.
E	28. Nov. 2014	Other models have been added.
D	25. Nov. 2013	Revised due to reviewing
C	28. Jun. 2013	Other models have been added.
B	15. Feb. 2013	Revised due to Chassis cab drawings
A	10. Dec. 2012	Other models have been added.
–	31. Aug. 2012	Newly issued

NOTE:

1, Chapter 1-9 is Common Section for all markets and to be revised without any special notification. Therefore, please note that this version is not necessarily the latest one.

2, Chapter 10 is for specific market(s). MFTBC will distribute the latest version whenever it will be revised.

Body/equipment mounting directives <Common section>

FK.FM.FN

General Export

MITSUBISHI FUSO TRUCK & BUS CORPORATION

Dec. 2018 TM201

Body/equipment mounting directives
Technical data section
Australia

MITSUBISHI FUSO TRUCK & BUS CORPORATION
December. 2022 TM2FA

Contents

10 Technical data

10.1 Model line-up

	Model	Type	Drive system	Crew	Engine	GVW(Kg)	TIRE
1	FK61FH1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	235/75R17.5
2	FK61FH1RFAG	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	9.5R17.5
3	FK61FK1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	235/75R17.5
4	FK61FKWRFAC	Forward control, fixed cab	4 × 2	7	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	235/75R17.5
5	FK61FL1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	235/75R17.5
6	FK61FL1RFAL	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	235/75R17.5
7	FK61FL1RFAG	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	9.5R17.5
8	FK61FM1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	10,400	235/75R17.5
9	FK62FHY1RFAC	Forward control,tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	11,000	245/70R19.5
10	FK62FLY1RFAC	Forward control,tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	11,000	245/70R19.5
11	FK62FLY1RFAL	Forward control,tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	11,000	245/70R19.5
12	FK62FHZ1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	12,000	265/70R19.5
13	FK62FKY1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	11,000	245/70R19.5
14	FK62FLZ1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	12,000	265/70R19.5
15	FK62FLZ1RFAL	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	12,000	265/70R19.5
16	FK62FLZ1RFAM	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	14,000	265/70R19.5
17	FK62FLZ1RFAH	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	14,000	265/70R19.5
18	FK62FMY1RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	11,000	245/70R19.5
19	FK65FLZ1RFAL	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	12,000	265/70R19.5
20	FK65FLZ1RFAM	Forward control, tilt cab	4 × 2	3	6M60-9AT1, Diesel, 177 kW (240 PS)/2,500 rpm	14,000	265/70R19.5
21	FK65FLZ2RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel, 199 kW (270 PS)/2,500 rpm	12,000	265/70R19.5

10.1 Model line-up

	Model	Type	Drive system	Crew	Engine	GVW(Kg)	TIRE
22	FK65FMZ2RFAC	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	12,000	265/70R19.5
23	FK65FMZ2RFAH	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	14,000	265/70R19.5
24	FM65FH2RFAH	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	11R22.5
25	FM65FH2RFAM	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	11R22.5
26	FM65FH2RFAK	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	11R22.5
27	FM65FM2RFAH	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
28	FM65FS2RFAH	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
29	FM65FS2RFAK	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	11R22.5
30	FM67FM2RFAM	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	11R22.5
31	FM67FM2RFAK	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
32	FM67FS2RFAH	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
33	FM67FS2RFAM	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
34	FM67FS2RFAK	Forward control, tilt cab	4 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
35	FN62FK2RFAM	Forward control, tilt cab	6 × 4	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	23,500	11R22.5
36	FN62FK2RFAK	Forward control, tilt cab	6 × 4	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	23,500	11R22.5
37	FN62FR2RFAM	Forward control, tilt cab	6 × 4	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	23,500	11R22.5
38	FN63FU2RFAM	Forward control, tilt cab	6 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	23,200	275/70R22.5
39	FN63FU2RFAK	Forward control, tilt cab	6 × 2	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	23,200	275/70R22.5
40	FN64FU2RFAM	Forward control, tilt cab	6 × 4	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	24,000	275/70R22.5
41	FN64FU2RFAK	Forward control, tilt cab	6 × 4	3	6M60-9AT2, Diesel,199 kW (270 PS)/2,500 rpm	24,000	275/70R22.5

10.2 Specifications

10.2.1 Specifications

FK

Model	FK61FH1RFAC	FK61FH1RFAG	FK61FK1RFAC
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	4,270	4,270	4,870
Tread, front (mm)	1,800	1,800	1,800
Tread, rear (mm)	1,665	1,665	1,665
Curb weight (kg) *			
Front	2,295	2,270	2,295
Rear	1,360	1,320	1,400
Max. G.V.W. (kg)	10,400	10,400	10,400
Max. G.C.W. (kg)	20,000	16,000	20,000
Engine	6M60-9AT1	6M60-9AT1	6M60-9AT1
Max. Output	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm
Clutch	C7M38	C7M38	C7M38
Transmission	M070S6	M060S6	M070S6-OD
Gear ratios (1st/top) **	6.807/0.774	6.748/0.731	6.807/0.774
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	–	–	–
Propeller shaft	P10	P8	P10
Transfer	–	–	–
Rear Axle	R052T	R050T	R052T
Final reduction gear	D052H	D050H	D052H
Ratio	4.444	4.625	4.444
Front axle	F400T	F400T	F400T
Tires	235/75R17.5	9.5R17.5	235/75R17.5
Disc wheels	17.5×6.75-131-10 t, 6 stud	17.5×6.75-131-10t, 6 stud	17.5×6.75-131-10 t, 6 stud
Steering angle (in/out)	51° /38°	51° /38°	51°/38°
SRS air bag	With	With	With
Service brake	Air over, Dual circuit	Air over, Dual circuit	Air over, Dual circuit
Parking brake	Rear wheel spring actuated	Center brake	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS	ABS	ABS
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 18-2	1300×70×16-1,18-2	1300×70×16-1, 18-2
Stabilizer	Standard	Standard	Standard
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1300×70×11-9, 900×70×10-7	1300×70×11-9, 900×70×10-7	1300×70×11-9, 900×70×10-7
Stabilizer	Standard	Standard	Standard
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/ –	Standard/ –	Standard/ –
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.740	0.757	0.740

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FK61FKWRFAC	FK61FL1RFAC	FK61FL1RFAL
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	4,870	5,210	5,210
Tread, front (mm)	1,800	1,800	1,800
Tread, rear (mm)	1,665	1,665	1,665
Curb weight (kg) *			
Front	2,520	2,320	2,285
Rear	1,480	1,445	1,435
Max. G.V.W. (kg)	10,400	10,400	10,400
Max. G.C.W. (kg) **	20,000	20,000	15,000 <20,000>
Engine	6M60-9AT1	6M60-9AT1	6M60-9AT1
Max. Output	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm
Clutch	C7M38	C7M38	–
Transmission	M070S6-OD	M070S6-OD	LCT 2500
Gear ratios (1st/top) ***	6.807/0.774	6.807/0.774	3.512 / 0.737
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Automatic Transmission
Oil cooler	–	–	Standard (Water cooled)
Propeller shaft	P10	P10	P8
Transfer	–	–	–
Rear Axle	R052T	R052T	R052T
Final reduction gear	D052H	D052H	D052H
Ratio	4.444	4.444	4.444
Front axle	F400T	F400T	F400T
Tires	235/75R17.5	235/75R17.5	235/75R17.5
Disc wheels	17.5×6.75-131-10 t, 6 stud	17.5×6.75-131-10 t, 6 stud	17.5×6.75-131-10 t, 6 stud
Steering angle (in/out)	51°/38°	51°/38°	51°/38°
SRS air bag	With	With	With
Service brake	Air over, Dual circuit	Air over, Dual circuit	Air over, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS	ABS	ABS
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 18-2	1300×70×16-1, 18-2	1300×70×16-1, 18-2
Stabilizer	Standard	Standard	Standard
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1300×70×11-9, 900×70×10-7	1300×70×11-9, 900×70×10-7	1300×70×11-9, 900×70×10-7
Stabilizer	Standard	Standard	Standard
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	7	3	3
Front bumper/FUP	Standard/ –	Standard/ –	Standard/ –
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.735	0.740	0.740

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.

** < > : Indicates City use.
City use refers to use on non-long hills or at a speed of 60km/h or less.

*** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FK61FL1RFAG	FK61FM1RFAC	FK62FHY1RFAC
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	5,210	5,540	4,270
Tread, front (mm)	1,800	1,800	1,780
Tread, rear (mm)	1,665	1,665	1,710
Curb weight (kg) *			
Front	2,290	2,330	2,415
Rear	1,400	1,455	1,475
Max. G.V.W. (kg)	10,400	10,400	11,000
Max. G.C.W. (kg)	16,000	20,000	20,000
Engine	6M60-9AT1	6M60-9AT1	6M60-9AT1
Max. Output	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm
Clutch	C7M38	C7M38	C7M38
Transmission	M060S6	M070S6-OD	M070S6-OD
Gear ratios (1st/top) **	6.748/0.731	6.807/0.774	6.807/0.774
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	–	–	–
Propeller shaft	P8	P10	P10
Transfer	–	–	–
Rear Axle	R050T	R052T	R052T
Final reduction gear	D050H	D052H	D052H
Ratio	4.625	4.444	4.625
Front axle	F400T	F400T	F500T
Tires	9.5R17.5	235/75R17.5	245/70R19.5
Disc wheels	17.5×6.75-131-10 t, 6 stud	17.5×6.75-131-10 t, 6 stud	19.5×6.75-147-12 t, 8 stud
Steering angle (in/out)	51°/38°	51°/38°	44°/34°
SRS air bag	With	With	With
Service brake	Air over, Dual circuit	Air over, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Center brake	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS	ABS	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 18-2	1300×70×16-1, 18-2	1300×70×16-1, 19-2
Stabilizer	Standard	Standard	Standard
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1300×70×11-9, 900×70×10-7	1300×70×11-9, 900×70×10-7	1300×70×12-10, 900×70×11-8
Stabilizer	Standard	Standard	Standard
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/ –	Standard/ –	Standard/ –
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.757	0.740	0.740

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FK62FHZ1RFAC	FK62FKY1RFAC	FK62FLY1RFAC
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	4,270	4,870	5,210
Tread, front (mm)	1,775	1,780	1,780
Tread, rear (mm)	1,705	1,710	1,710
Curb weight (kg) *			
Front	2,440	2,405	2,435
Rear	1,555	1,510	1,560
Max. G.V.W. (kg)	12,000	11,000	11,000
Max. G.C.W. (kg)	20,000	20,000	20,000
Engine	6M60-9AT1	6M60-9AT1	6M60-9AT1
Max. Output	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm
Clutch	C7M38	C7M38	C7M38
Transmission	M070S6-OD	M070S6-OD	M070S6-OD
Gear ratios (1st/top) **	6.807/0.774	6.807/0.774	6.807/0.774
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	–	–	–
Propeller shaft	P10	P10	P10
Transfer	–	–	–
Rear Axle	R052T	R052T	R052T
Final reduction gear	D052H	D052H	D052H
Ratio	4.875	4.625	4.625
Front axle	F500T	F500T	F500T
Tires	265/70R19.5	245/70R19.5	245/70R19.5
Disc wheels	19.5×6.75-147-12 t, 8 stud	19.5×6.75-147-12 t, 8 stud	19.5×6.75-147-12 t, 8 stud
Steering angle (in/out)	44°/34°	44°/34°	44°/34°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS, ASR	ABS, ASR	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 18-2, 16-1	1300×70×16-1, 19-2	1300×70×16-1, 19-2
Stabilizer	Standard	Standard	Standard
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1300×70×12-10, 900×70×11-8	1300×70×12-10, 900×70×11-8	1300×70×12-10, 900×70×11-8
Stabilizer	Standard	Standard	Standard
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/ –	Standard/ –	Standard/ –
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.750	0.740	0.740

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FK62FLY1RFAL	FK62FLZ1RFAC	FK62FLZ1RFAL
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	5,210	5,210	5,210
Tread, front (mm)	1,780	1,775	1,775
Tread, rear (mm)	1,710	1,705	1,705
Curb weight (kg) *			
Front	2,405	2,485	2,460
Rear	1,540	1,625	1,605
Max. G.V.W. (kg)	11,000	12,000	12,000
Max. G.C.W. (kg) **	15,000 <20,000>	20,000	15,000 <20,000>
Engine	6M60-9AT1	6M60-9AT1	6M60-9AT1
Max. Output	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm
Clutch	–	C7M38	–
Transmission	LCT 2500	M070S6-OD	LCT 2500
Gear ratios (1st/top) ***	3.512 / 0.737	6.807/0.774	3.512 / 0.737
Control	Floor shift, Automatic Transmission	Floor shift, Manual Transmission	Floor shift, Automatic Transmission
Oil cooler	Standard (Water cooled)	–	Standard (Water cooled)
Propeller shaft	P8	P10	P8
Transfer	–	–	–
Rear Axle	R052T	R052T	R052T
Final reduction gear	D052H	D052H	D052H
Ratio	4.875	4.875	5.428
Front axle	F500T	F500T	F500T
Tires	245/70R19.5	265/70R19.5	265/70R19.5
Disc wheels	19.5×6.75-147-12 t, 8 stud	19.5×6.75-147-12 t, 8 stud	19.5×6.75-147-12 t, 8 stud
Steering angle (in/out)	44°/34°	44°/34°	44°/34°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS, ASR	ABS, ASR	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 19-2	1300×70×16-1, 18-2, 16-1	1300×70×16-1,18-2, 16-1
Stabilizer	Standard	Standard	Standard
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1300×70×12-10, 900×70×11-8	1300×70×12-10, 900×70×11-8	1300×70×12-10, 900×70×11-8
Stabilizer	Standard	Standard	Standard
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/ –	Standard/ –	Standard/ –
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.740	0.750	0.750

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.

** < > : Indicates City use.
City use refers to use on non-long hills or at a speed of 60km/h or less.

*** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FK62FLZ1RFAM	FK62FLZ1RFAH	FK62FMY1RFAC
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	5,210	5,210	5,540
Tread, front (mm)	1,775	1,775	1,780
Tread, rear (mm)	1,705	1,705	1,710
Curb weight (kg) *			
Front	2,477	2,510	2,435
Rear	1,585	1,620	1,565
Max. G.V.W. (kg)	14,000	14,000	11,000
Max. G.C.W. (kg) **	15,000 <20,000>	20,000	20,000
Engine	6M60-9AT1	6M60-9AT1	6M60-9AT1
Max. Output	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm
Clutch	–	C7M38	C7M38
Transmission	LCT 2500	M070S6-OD	M070S6-OD
Gear ratios (1st/top) ***	3.512/0.737	6.807/0.774	6.807/0.774
Control	Floor shift, Automatic Transmission	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	Standard (Water cooled)	–	–
Propeller shaft	P8	P10	P10
Transfer	–	–	–
Rear Axle	R052T	R052T	R052T
Final reduction gear	D052H	D052H	D052H
Ratio	5.428	4.875	4.625
Front axle	F500T	F500T	F500T
Tires	265/70R19.5	265/70R19.5	245/70R19.5
Disc wheels	19.5×6.75-147-12 t, 8 stud	22.5×8.25-165-12 t, 10 stud	19.5×6.75-147-12 t, 8 stud
Steering angle (in/out)	44°/34°	44°/34°	44°/34°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS, ASR	ABS, ASR	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 18-2, 16-1	1300×70×16-1, 18-2, 16-1	1300×70×16-1, 19-2
Stabilizer	Standard	Standard	Standard
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1300×70×12-10, 900×70×11-8	1300×70×12-10, 900×70×11-8	1300×70×12-10, 900×70×11-8
Stabilizer	Standard	Standard	Standard
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/Standard	Standard/Standard	Standard/ –
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.750	0.750	0.740

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.

** < > : Indicates City use.
City use refers to use on non-long hills or at a speed of 60km/h or less.

*** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FK65FLZ1RFAL	FK65FLZ1RFAM	FK65FLZ2RFAC
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	5,210	5,210	5,210
Tread, front (mm)	1,775	1,775	1,775
Tread, rear (mm)	1,705	1,705	1,705
Curb weight (kg) *			
Front	2,460	2,478	2,520
Rear	1,605	1,637	1,645
Max. G.V.W. (kg)	12,000	14,000	12,000
Max. G.C.W. (kg) **	15,000 <20,000>	15,000 <20,000>	20,000
Engine	6M60-9AT1	6M60-9AT1	6M60-9AT2
Max. Output	177 kW (240 PS)/2,500 rpm	177 kW (240 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/1,400 rpm	745 N·m (76 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	–	–	C7M38
Transmission	LCT 2500	LCT 2500	M070S6OD
Gear ratios (1st/top) ***	3.512/0.737	3.512/0.737	6.807/0.774
Control	Floor shift, Automatic Transmission	Floor shift, Automatic Transmission	Floor shift, Manual Transmission
Oil cooler	Standard (Water cooled)	Standard (Water cooled)	–
Propeller shaft	P8	P8	P10
Transfer	–	–	–
Rear Axle	R052T	R052T	R052T
Final reduction gear	D052H	D052H	D052H
Ratio	5.428	5.428	4.625
Front axle	F500T	F500T	F500T
Tires	265/70R19.5	265/70R19.5	265/70R19.5
Disc wheels	19.5×6.75-147-12 t, 8 stud	19.5×6.75-147-12 t, 8 stud	19.5×6.75-147-12 t, 8 stud
Steering angle (in/out)	44°/34°	44°/34°	44°/34°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS, ASR	ABS, ASR	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 18-2, 16-1	1300×70×16-1, 18-2, 16-1	1300×70×16-1, 18-2, 16-1
Stabilizer	–	–	–
Rear suspension	Air suspension	Air suspension	Air suspension
Dimensions	(660+355)×90×40-2	(660+355)×90×40-2	(660+355)×90×40-2
Stabilizer	–	–	–
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/ –	Standard/Standard	Standard/ –
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.750	0.750	0.720

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.

** < > : Indicates City use.
City use refers to use on non-long hills or at a speed of 60km/h or less.

*** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FK65FMZ2RFAC	FK65FMZ2RFAH
Emission	EuroV	EuroV
Wheelbase (mm)	5,540	5,540
Tread, front (mm)	1,775	1,775
Tread, rear (mm)	1,705	1,705
Curb weight (kg) *		
Front	2,545	2,570
Rear	1,640	1,635
Max. G.V.W. (kg)	12,000	14,000
Max. G.C.W. (kg)	20,000	20,000
Engine	6M60-9AT2	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	C7M38	C7M38
Transmission	M070S6OD	M070S6OD
Gear ratios (1st/top) **	6.807/0.774	6.807/0.774
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	–	–
Propeller shaft	P10	P10
Transfer	–	–
Rear Axle	R052T	R052T
Final reduction gear	D052H	D052H
Ratio	4.625	4.625
Front axle	F500T	F500T
Tires	265/70R19.5	265/70R19.5
Disc wheels	19.5×6.75-147-12 t, 8 stud	22.5×8.25-165-12 t, 10 stud
Steering angle (in/out)	44°/34°	44°/34°
SRS air bag	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube
High functional brake system	ABS, ASR	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs
Dimensions	1300×70×16-1, 18-2, 16-1	1300×70×16-1, 18-2, 16-1
Stabilizer	–	–
Rear suspension	Air suspension	Air suspension
Dimensions	(660+355)×90×40-2	(660+355)×90×40-2
Stabilizer	–	–
P.T.O.	–	–
Fuel system		
Injection pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–
Exhaust system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type
Electrical		
Voltage	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof
Cab suspension	–	–
Crew number	3	3
Front bumper/FUP	Standard/ –	Standard/Standard
Rear bumper/RUP	– / –	– / –
CoG height (m) (kerb weight)	0.720	0.720

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

FM

Model	FM65FH2RFAH	FM65FH2RFAM	FM65FH2RFAK
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	4,280	4,280	4,280
Tread, front (mm)	1,925	1,925	1,925
Tread, rear (mm)	1,850	1,850	1,850
Curb weight (kg) *			
Front	2,935	3,055	3,040
Rear	1,935	2,030	1,990
Max. G.V.W. (kg)	16,000	16,000	16,000
Max. G.C.W. (kg)	25,000	25,000	32,000
Engine	6M60-9AT2	6M60-9AT2	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	C7M38	–	C7M38
Transmission	M070S6D	MD3500	ES11109
Gear ratios (1st/top) **	8.064/1.000	4.593/0.651	12.64/1.000
Control	Floor shift, Manual Transmission	Floor shift, Automatic Transmission	Floor shift, Manual Transmission
Oil cooler	–	Standard (Air cooled)	–
Propeller shaft	P10	P10	P12
Transfer	–	–	–
Rear Axle	R060T	R080T	R080T
Final reduction gear	D8H	D10H	D10H
Ratio	5.142	6.666	4.625
Front axle	F650T	F650T	F650T
Tires	11R22.5	11R22.5	11R22.5
Disc wheels	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud
Steering angle (in/out)	46°/37°	46°/37°	46°/37°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS, ASR	ABS	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1400×80×18-1, 22-2	1400×80×18-1, 22-2	1400×80×18-1, 22-2
Stabilizer	–	–	–
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1400×80×11-10, 960×80×11-10	1400×80×11-10, 960×80×11-10	1400×80×11-10, 960×80×11-10
Stabilizer	–	–	–
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	200 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/Standard	Standard/Standard	Standard/Standard
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.835	0.835	0.835

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FM65FM2RFAH	FM65FS2RFAH	FM65FS2RFAK
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	5,550	6,500	6,500
Tread, front (mm)	1,925	1,925	1,925
Tread, rear (mm)	1,850	1,850	1,850
Curb weight (kg) *			
Front	3,100	3,175	3,270
Rear	1,980	2,060	2,105
Max. G.V.W. (kg)	16,000	16,000	16,000
Max. G.C.W. (kg)	25,000	25,000	32,000
Engine	6M60-9AT2	6M60-9AT2	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	C7M38	C7M38	C7M38
Transmission	M070S6D	M070S6D	ES11109
Gear ratios (1st/top) **	8.064/1.000	8.064/1.000	12.64/1.000
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	–	–	–
Propeller shaft	P10	P10	P12
Transfer	–	–	–
Rear Axle	R060T	R060T	R080T
Final reduction gear	D8H	D8H	D10H
Ratio	4.444	4.444	4.625
Front axle	F650T	F650T	F650T
Tires	275/70R22.5	275/70R22.5	11R22.5
Disc wheels	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud
Steering angle (in/out)	46°/37°	46°/37°	46°/37°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS, ASR	ABS, ASR	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1400×80×18-1, 22-2	1400×80×18-1, 22-2	1400×80×18-1, 22-2
Stabilizer	–	–	–
Rear suspension	Multi leaf springs	Multi leaf springs	Multi leaf springs
Dimensions	1400×80×11-10, 960×80×11-10	1400×80×11-10, 960×80×11-10	1400×80×11-10, 960×80×11-10
Stabilizer	–	–	–
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	300 Liters with key, steel	300 Liters with key, steel	300 Liters with key, Alminium
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/Standard	Standard/Standard	Standard/Standard
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.795	0.795	0.835

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FM67FM2RFAM	FM67FM2RFAK	FM67FS2RFAH
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	5,550	5,550	6,500
Tread, front (mm)	1,925	1,925	1,925
Tread, rear (mm)	1,850	1,850	1,850
Curb weight (kg) *			
Front	3,225	3,195	3,185
Rear	2,030	2,000	2,010
Max. G.V.W. (kg)	16,000	16,000	16,000
Max. G.C.W. (kg)	25,000	32,000	25,000
Engine	6M60-9AT2	6M60-9AT2	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	–	C7M38	C7M38
Transmission	MD3500	ES11109	M070S6D
Gear ratios (1st/top) **	4.593/0.651	12.64/1.000	8.064/1.000
Control	Floor shift, Automatic Transmission	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	Standard (Air cooled)	–	–
Propeller shaft	P10	P12	P10
Transfer	–	–	–
Rear Axle	R060T	R080T	R060T
Final reduction gear	D8H 6	D10H	D8H
Ratio	6.666	4.222	4.444
Front axle	F650T	F650T	F650T
Tires	11R22.5	275/70R22.5	275/70R22.5
Disc wheels	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud
Steering angle (in/out)	46°/37°	46°/37°	46°/37°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS	ABS, ASR	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1400×80×18-1, 22-2	1400×80×18-1, 22-2	1400×80×18-1, 22-2
Stabilizer	–	–	–
Rear suspension	Air suspension	Air suspension	Air suspension
Dimensions	(615+380)×80×35-2	(615+380)×80×35-2	(615+380)×80×35-2
Stabilizer	–	–	–
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	300 Liters with key, Alminium	300 Liters with key, Alminium	300 Liters with key, steel
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/Standard	Standard/Standard	Standard/Standard
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.765	0.765	0.765

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FM67FS2RFAM	FM67FS2RFAK
Emission	EuroV	EuroV
Wheelbase (mm)	6,500	6,500
Tread, front (mm)	1,925	1,925
Tread, rear (mm)	1,850	1,850
Curb weight (kg) *		
Front	3,295	3,260
Rear	2,105	2,070
Max. G.V.W. (kg)	16,000	16,000
Max. G.C.W. (kg)	25,000	32,000
Engine	6M60-9AT2	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	–	C7M38
Transmission	MD3500	ES11109
Gear ratios (1st/top) **	4.593/0.651	12.64/1.000
Control	Floor shift, Automatic Transmission	Floor shift, Manual Transmission
Oil cooler	Standard (Air cooled)	–
Propeller shaft	P10	P12
Transfer	–	–
Rear Axle	R060T	R080T
Final reduction gear	D8H 6	D10H
Ratio	6.166	4.222
Front axle	F650T	F650T
Tires	275/70R22.5	275/70R22.5
Disc wheels	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud
Steering angle (in/out)	46°/37°	46°/37°
SRS air bag	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube
High functional brake system	ABS	ABS, ASR
Front suspension	Long taper leaf springs	Long taper leaf springs
Dimensions	1400×80×18-1, 22-2	1400×80×18-1, 22-2
Stabilizer	–	–
Rear suspension	Air suspension	Air suspension
Dimensions	(615+380)×80×35-2	(615+380)×80×35-2
Stabilizer	–	–
P.T.O.	–	–
Fuel system		
Injection pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor
Fuel tank	300 Liters with key, Alminium	300 Liters with key, Alminium
Water separator	–	–
Exhaust system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type
Electrical		
Voltage	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof
Cab suspension	–	–
Crew number	3	3
Front bumper/FUP	Standard/Standard	Standard/Standard
Rear bumper/RUP	– / –	– / –
CoG height (m) (kerb weight)	0.765	0.765

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

FN

Model	FN62FK2RFAM	FN62FK2RFAK	FN62FR2RFAM
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	4,960	4,960	6,310
Tread,front (mm)	1,925	1,925	1,925
Tread,rear (mm)	1,850	1,850	1,850
Curb weight (kg) *			
Front	3,210	3,155	3,525
Rear Front	1,955	1,925	2,020
Rear Rear	1,810	1,780	1,875
Max. G.V.W. (kg)	23,500	23,500	23,500
Max. G.C.W. (kg)	32,000	32,000	32,000
Engine	6M60-9AT2	6M60-9AT2	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	–	C7M38	–
Transmission	MD3500	ES11109	MD3500
Gear ratios (1st/top) **	4.593/0.651	12.64/1.000	4.593/0.651
Control	Floor shift, Automatic Transmission	Floor shift, Manual Transmission	Floor shift, Automatic Transmission
Oil cooler	Standard (Air cooled)	–	Standard (Air cooled)
Propeller shaft	P140/P8	P140/P8	P140/P8
Transfer	–	–	–
Rear Axle	R10TT/R10T	R10TT/R10T	R10TT/R10T
Final reduction gear	D10HT/D10H	D10HT/D10H	D10HT/D10H
Ratio	6.166	5.142	6.166
Front axle	F650T	F650T	F650T
Tires	11R22.5	11R22.5	11R22.5
Disc wheels	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud
Steering angle (in/out)	46°/37°	46°/37°	46°/37°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS	ABS, ASR	ABS
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1400×80×18-1, 22-2	1400×80×18-1, 22-2	1400×80×18-1, 22-2
Stabilizer	–	–	–
Rear suspension	LTL Suspension with trunnion base	LTL Suspension with trunnion base	LTL Suspension with trunnion base
Dimensions	1320×90×30-5	1320×90×30-5	1320×90×30-5
Stabilizer	–	–	–
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	200 Liters with key, steel	200 Liters with key, steel	400 Liters with key, aluminum
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/Standard	Standard/Standard	Standard/Standard
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.830	0.830	0.830

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FN63FU2RFAM	FN63FU2RFAK	FN64FU2RFAM
Emission	EuroV	EuroV	EuroV
Wheelbase (mm)	7,190	7,190	7,190
Tread,front (mm)	1,925	1,925	1,925
Tread,rear (mm)	1,850	1,850	1,850
Curb weight (kg) *			
Front	3,450	3,385	3,450
Rear Front	1,785	1,760	1,875
Rear Rear	1,545	1,520	1,775
Max. G.V.W. (kg)	23,200	23,200	24,000
Max. G.C.W. (kg)	32,000	32,000	32,000
Engine	6M60-9AT2	6M60-9AT2	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm	785 N·m (80 kgf·m)/1,400 rpm
Clutch	–	C7M38	–
Transmission	MD3500	ES11109	MD3500
Gear ratios (1st/top) **	4.593/0.651	12.64/1.000	4.593/0.651
Control	Floor shift, Automatic Transmission	Floor shift, Manual Transmission	Floor shift, Automatic Transmission
Oil cooler	Standard (Air cooled)	–	Standard (Air cooled)
Propeller shaft	P140	P140	P140/P8
Transfer	–	–	–
Rear Axle	R10T/R10D	R10T/R10D	R10TT/R10T
Final reduction gear	D10H	D10H	D10HT/D10H
Ratio	5.857	4.222	5.857
Front axle	F650T	F650T	F650T
Tires	275/70R22.5	275/70R22.5	275/70R22.5
Disc wheels	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud	22.5×8.25-165-13 t, 10 stud
Steering angle (in/out)	46°/37°	46°/37°	46°/37°
SRS air bag	With	With	With
Service brake	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated	Rear wheel spring actuated	Rear wheel spring actuated
Brake piping	Nylon tube	Nylon tube	Nylon tube
High functional brake system	ABS	ABS, ASR	ABS
Front suspension	Long taper leaf springs	Long taper leaf springs	Long taper leaf springs
Dimensions	1400×80×18-1, 22-2	1400×80×18-1, 22-2	1400×80×18-1, 22-2
Stabilizer	–	–	–
Rear suspension	Air suspension	Air suspension	Air suspension
Dimensions	(615+380)×80×35-2	(615+380)×80×35-2	(615+380)×80×35-2
Stabilizer	–	–	–
P.T.O.	–	–	–
Fuel system			
Injection pump	Unit pump	Unit pump	Unit pump
Governor	Electronic control governor	Electronic control governor	Electronic control governor
Fuel tank	400 Liters with key, aluminum	400 Liters with key, aluminum	400 Liters with key, aluminum
Water separator	–	–	–
Exhaust system	SCR system	SCR system	SCR system
Air intake system	Snorkel type	Snorkel type	Snorkel type
Electrical			
Voltage	24 V Negative ground	24 V Negative ground	24 V Negative ground
Alternator	24 V-80 Amp	24 V-80 Amp	24 V-80 Amp
Batteries	65D23R×2	65D23R×2	65D23R×2
Cab	Standard roof	Standard roof	Standard roof
Cab suspension	–	–	–
Crew number	3	3	3
Front bumper/FUP	Standard/Standard	Standard/Standard	Standard/Standard
Rear bumper/RUP	– / –	– / –	– / –
CoG height (m) (kerb weight)	0.770	0.770	0.770

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2 Specifications

Model	FN64FU2RFAK
Emission	EuroV
Wheelbase (mm)	7,190
Tread,front (mm)	1,925
Tread,rear (mm)	1,850
Curb weight (kg) *	
Front	3,395
Rear Front	1,850
Rear Rear	1,745
Max. G.V.W. (kg)	24,000
Max. G.C.W. (kg)	32,000
Engine	6M60-9AT2
Max. Output	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1,400 rpm
Clutch	C7M38
Transmission	ES11109
Gear ratios (1st/top) **	12.64/1.000
Control	Floor shift, Manual Transmission
Oil cooler	–
Propeller shaft	P140/P8
Transfer	–
Rear Axle	R10TT/R10T
Final reduction gear	D10HT/D10H
Ratio	4.222
Front axle	F650T
Tires	275/70R22.5
Disc wheels	22.5×8.25-165-13 t, 10 stud
Steering angle (in/out)	46°/37°
SRS air bag	With
Service brake	Full air Wedge, Dual circuit
Parking brake	Rear wheel spring actuated
Brake piping	Nylon tube
High functional brake system	ABS, ASR
Front suspension	Long taper leaf springs
Dimensions	1400×80×18-1, 22-2
Stabilizer	–
Rear suspension	Air suspension
Dimensions	(615+380)×80×35-2
Stabilizer	–
P.T.O.	–
Fuel system	
Injection pump	Unit pump
Governor	Electronic control governor
Fuel tank	400 Liters with key, aluminum
Water separator	–
Exhaust system	SCR system
Air intake system	Snorkel type
Electrical	
Voltage	24 V Negative ground
Alternator	24 V-80 Amp
Batteries	65D23R×2
Cab	Standard roof
Cab suspension	–
Crew number	3
Front bumper/FUP	Standard/Standard
Rear bumper/RUP	– / –
CoG height (m) (kerb weight)	0.770

* For details of curb weight, refer to 10.4.1 "Weight distribution table" ▷ 10.4.1.
** For details of gear ratio, refer to 10.3.1 "Vehicle performance curve" ▷ 10.3.1.

10.2.2 Axle and Tire Load Carrying Capacity

Max. GVW (kg)	Vehicle Model	Tire Size						Axle Capacity (kg)	
		9.5R17.5 129/127M	235/75R17.5 132/130M	245/70R19.5 136/134M	265/70R19.5 140/138M	275/70R22.5 148/145L	11R22.5 148/145L 16PR	Front	Rear
10400	FK61FH1RFAG	X						3800	6800
	FK61FL1RFAG	X						3800	6800
	FK61FH1RFAC		X					3800	6800
	FK61FK1RFAC		X					3800	6800
	FK61FL1RFAC		X					3800	6800
	FK61FL1RFAL		X					3800	6800
	FK61FM1RFAC		X					3800	6800
	FK61FKWRFAC		X					3800	6800
11000	FK62FHY1RFAC			X				4480	8480
	FK62FKY1RFAC			X				4480	8480
	FK62FLY1RFAC			X				4480	8480
	FK62FLY1RFAL			X				4480	8480
	FK62FMY1RFAC			X				4480	8480
12000	FK62FHZ1RFAC				X			5000	9200
	FK62FLZ1RFAC				X			5000	9200
	FK62FLZ1RFAL				X			5000	9200
	FK65FLZ1RFAL				X			5000	9200
	FK65FLZ2RFAC				X			5000	9200
	FK65FMZ2RFAC				X			5000	9200
14000	FK62FLZ1RFAH				X			5000	9200
	FK62FLZ1RFAM				X			5000	9500
	FK65FLZ1RFAM				X			5000	9500
	FK65FMZ2RFAH				X			5000	9200
16000	FM65FH2RFAH						X	6000	10000
	FM65FM2RFAH					X	Opt.	6000	10000
	FM65FS2RFAH					X		6000	10000
	FM67FS2RFAH					X		6000	10000
	FM67FS2RFAM					X		6000	10000
	FM67FM2RFAM					Opt.	X	6000	10000
	FM65FH2RFAK						X	6000	10000
	FM65FH2RFAM						X	6000	10000
	FM65FS2RFAK						X	6000	10000
	FM67FM2RFAK					X		6000	10000
	FM67FS2RFAK					X		6000	10000
23200	FN63FU2RFAK					X		6000	17200
	FN63FU2RFAM					X		6000	17200
23500	FN62FK2RFAK						X	6000	21600
	FN62FK2RFAM						X	6000	21600
	FN62FR2RFAM						X	6000	21600
24000	FN64FU2RFAK					X		6000	18000
	FN64FU2RFAM					X		6000	18000

10.2 Specifications

Max. GVW (kg)	Vehicle Model		Tire Size						Axle Capacity (kg)	
			9.5R17.5 129/127M	235/75R17.5 132/130M	245/70R19.5 136/134M	265/70R19.5 140/138M	275/70R22.5 148/145L	11R22.5 148/145L 16PR	Front	Rear
Tire Capacity (kg)*1		Front	1850×2=3700	2000×2=4000	2240×2=4480	2500×2=5000	3000×2=6000	3000×2=6000		
		Rear	1750×4=7000	1900×4=7600	2120×4=8480	2360×4=9440	FM: 2550×4=10200 FN63: 2150×8=17200 FN64: 2300×8=18400	FM: 2550×4=10200 FN62: 2700×8=21600		

*1: At Tire Placard information pressure (kPa, cold: Fr/Re)

235/75R17.5 132/130M ... 775/775
245/70R19.5 136/134M ... 825/825
265/70R19.5 140/138M ... 775/775
9.5R17.5 129/127M ... 750/750

275/70R22.5 148/145L ... FM: 825/775
FN63: 825/625
FN64: 825/675

11R22.5 148/145L 16PR ... FM: 825/725
FN62: 825/800

Axle capacity: Suspension strength and steering system strength etc. are taken into consideration.

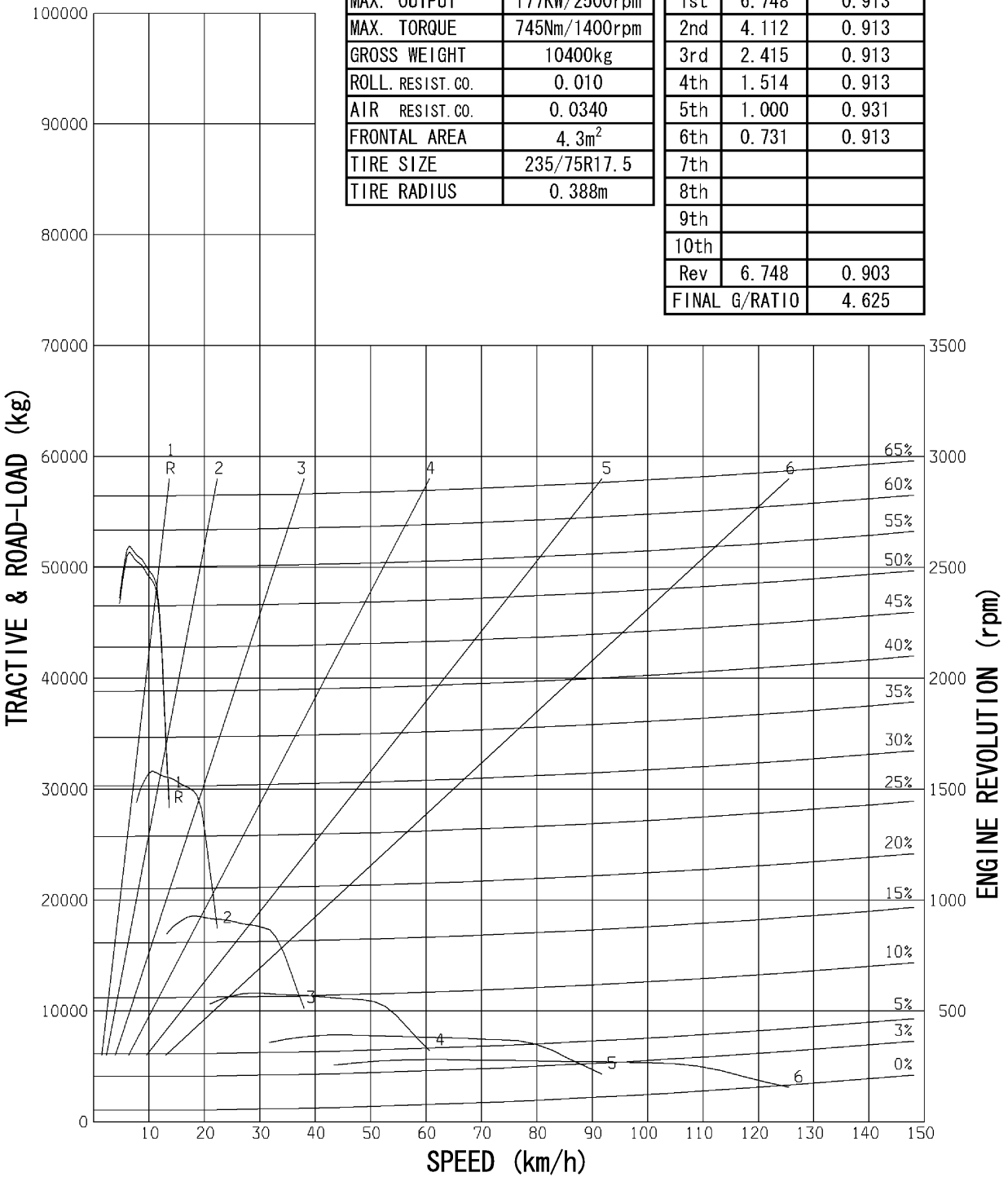
10.3 Performance curve

10.3.1 Vehicle performance curve

FK61F-1RFAG

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	10400kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	4.3m^2
TIRE SIZE	235/75R17.5
TIRE RADIUS	0.388m

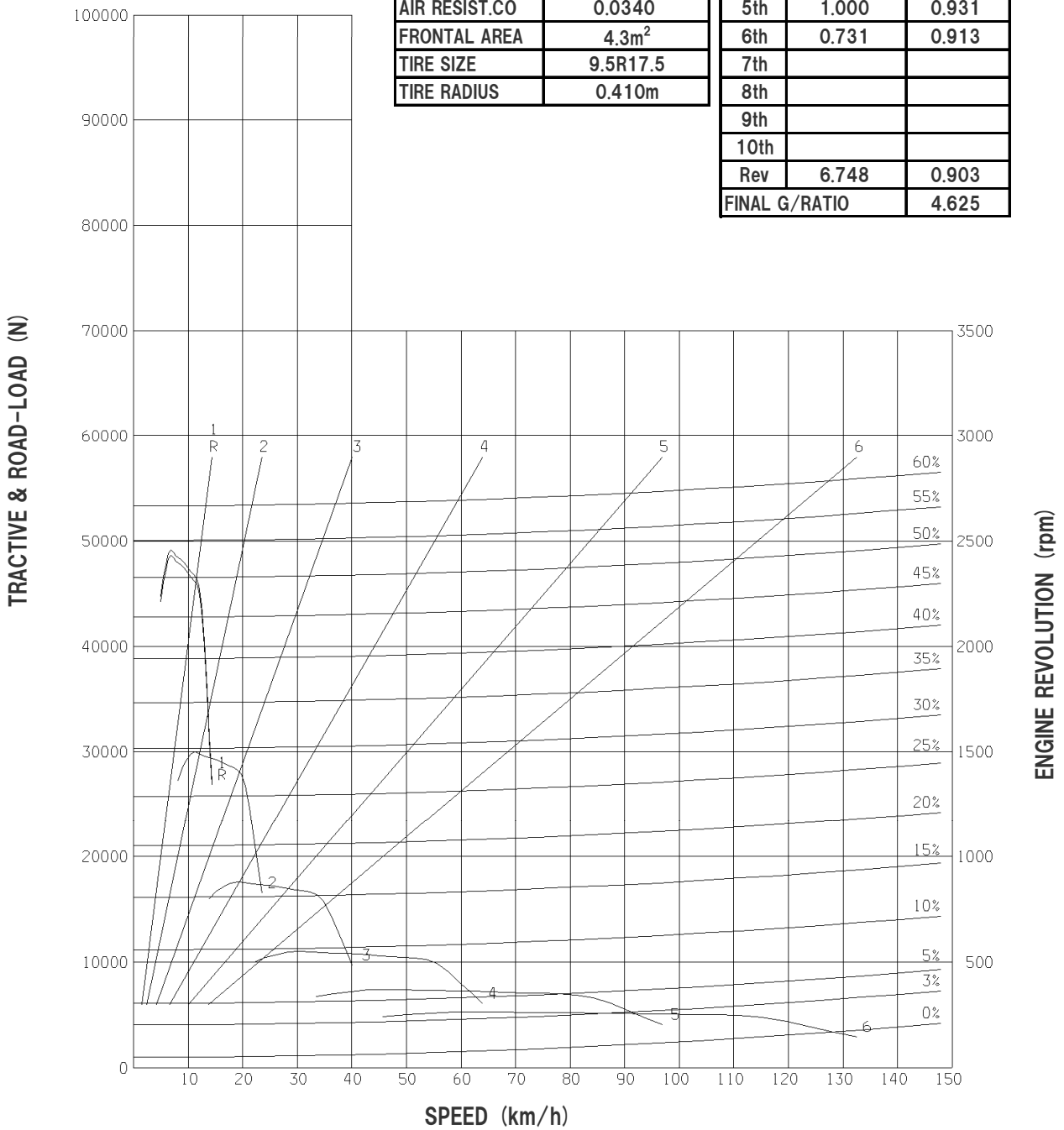
T/M	G/RATIO	EFFICIENCY
1st	6.748	0.913
2nd	4.112	0.913
3rd	2.415	0.913
4th	1.514	0.913
5th	1.000	0.931
6th	0.731	0.913
7th		
8th		
9th		
10th		
Rev	6.748	0.903
FINAL G/RATIO		4.625



FK61FH/L1RFAG

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	10400kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.3m^2
TIRE SIZE	9.5R17.5
TIRE RADIUS	0.410m

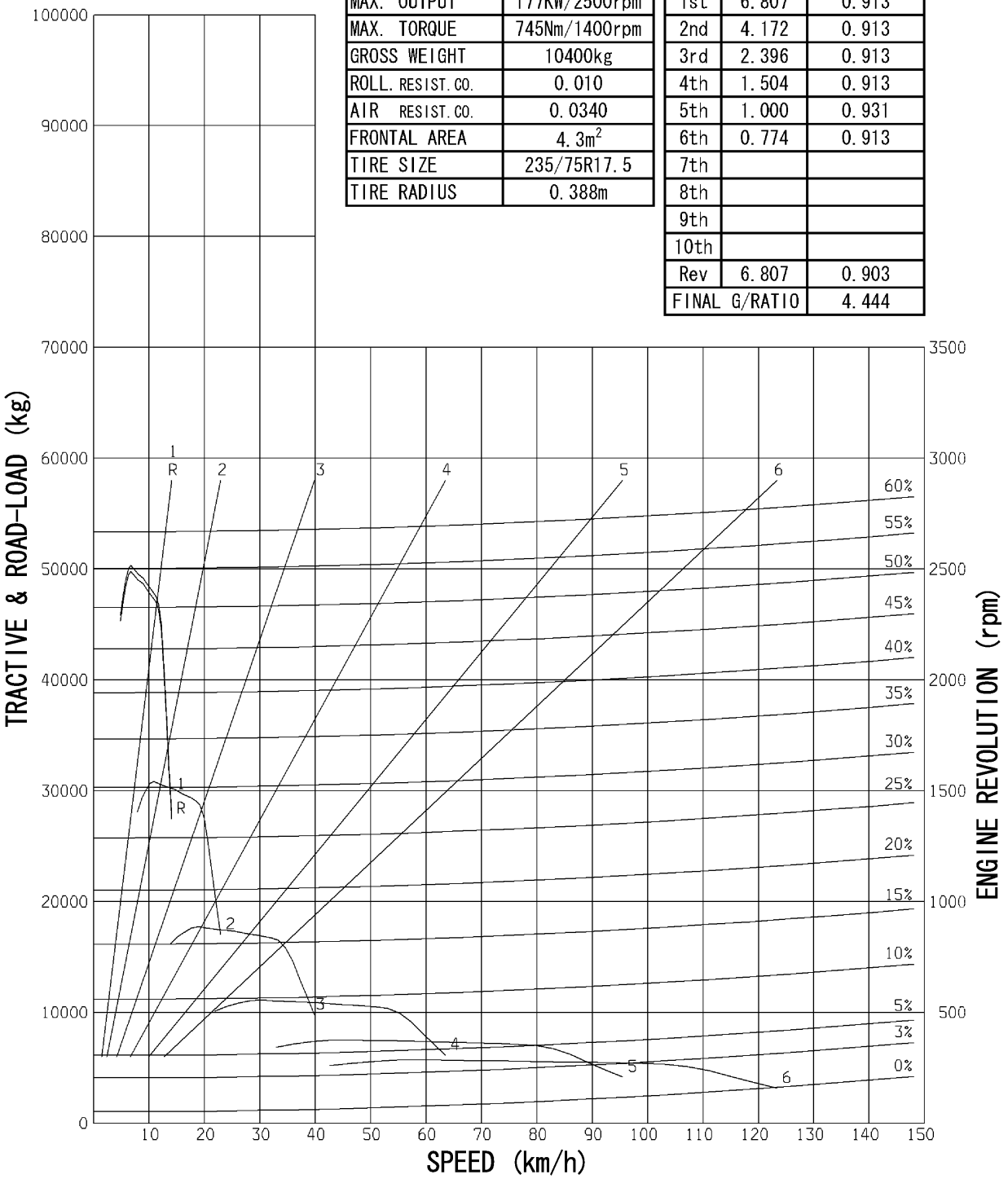
T/M	G/RATIO	EFFICIENCY
1st	6.748	0.913
2nd	4.112	0.913
3rd	2.415	0.913
4th	1.514	0.913
5th	1.000	0.931
6th	0.731	0.913
7th		
8th		
9th		
10th		
Rev	6.748	0.903
FINAL G/RATIO		4.625



FK61F-1RFAC

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	10400kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	4.3m^2
TIRE SIZE	235/75R17.5
TIRE RADIUS	0.388m

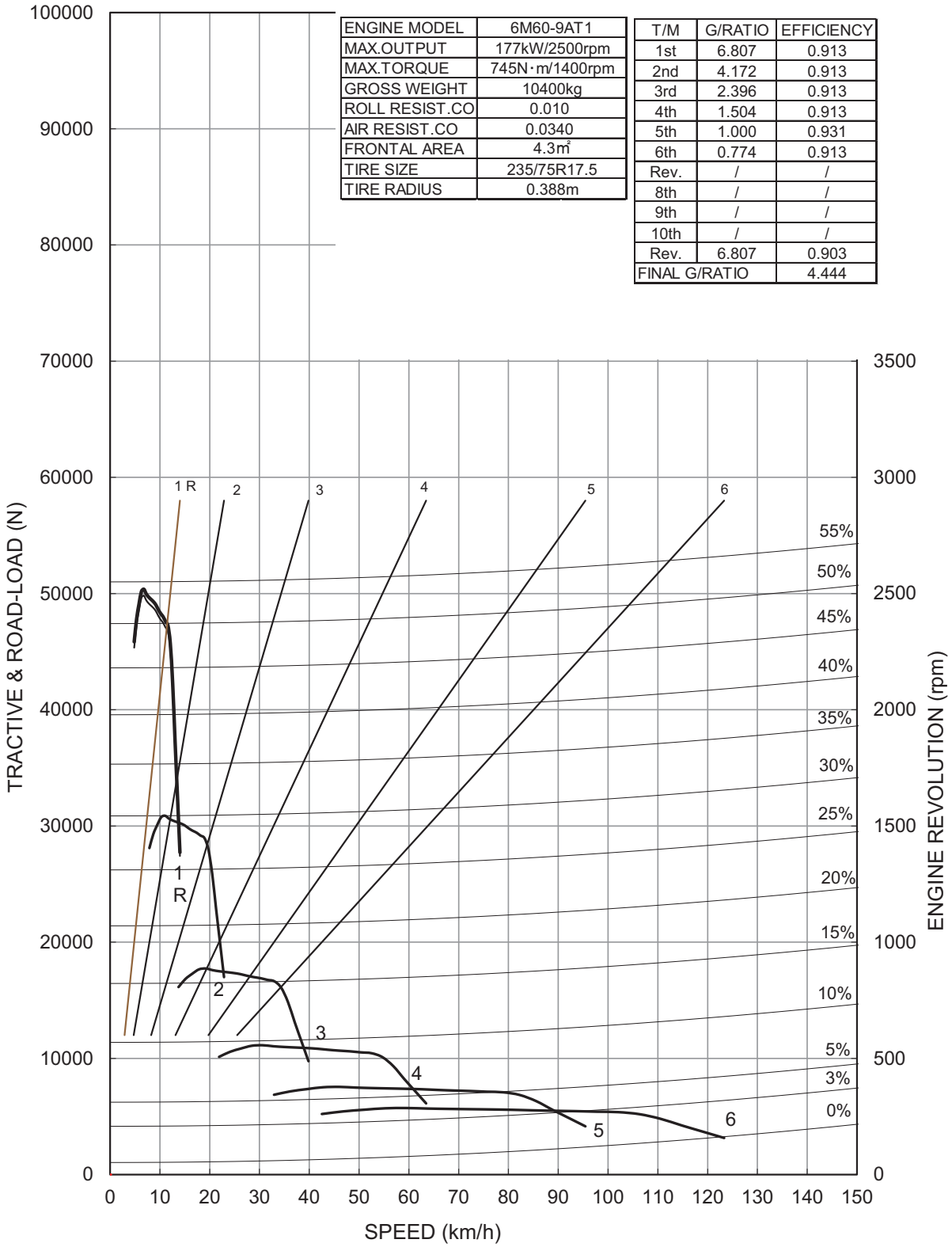
T/M	G/RATIO	EFFICIENCY
1st	6.807	0.913
2nd	4.172	0.913
3rd	2.396	0.913
4th	1.504	0.913
5th	1.000	0.931
6th	0.774	0.913
7th		
8th		
9th		
10th		
Rev	6.807	0.903
FINAL G/RATIO		4.444



FK61FKWRFAC

ENGINE MODEL	6M60-9AT1
MAX.OUTPUT	177kW/2500rpm
MAX.TORQUE	745N·m/1400rpm
GROSS WEIGHT	10400kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.3㎡
TIRE SIZE	235/75R17.5
TIRE RADIUS	0.388m

T/M	G/RATIO	EFFICIENCY
1st	6.807	0.913
2nd	4.172	0.913
3rd	2.396	0.913
4th	1.504	0.913
5th	1.000	0.931
6th	0.774	0.913
Rev.	/	/
8th	/	/
9th	/	/
10th	/	/
Rev.	6.807	0.903
FINAL G/RATIO		4.444

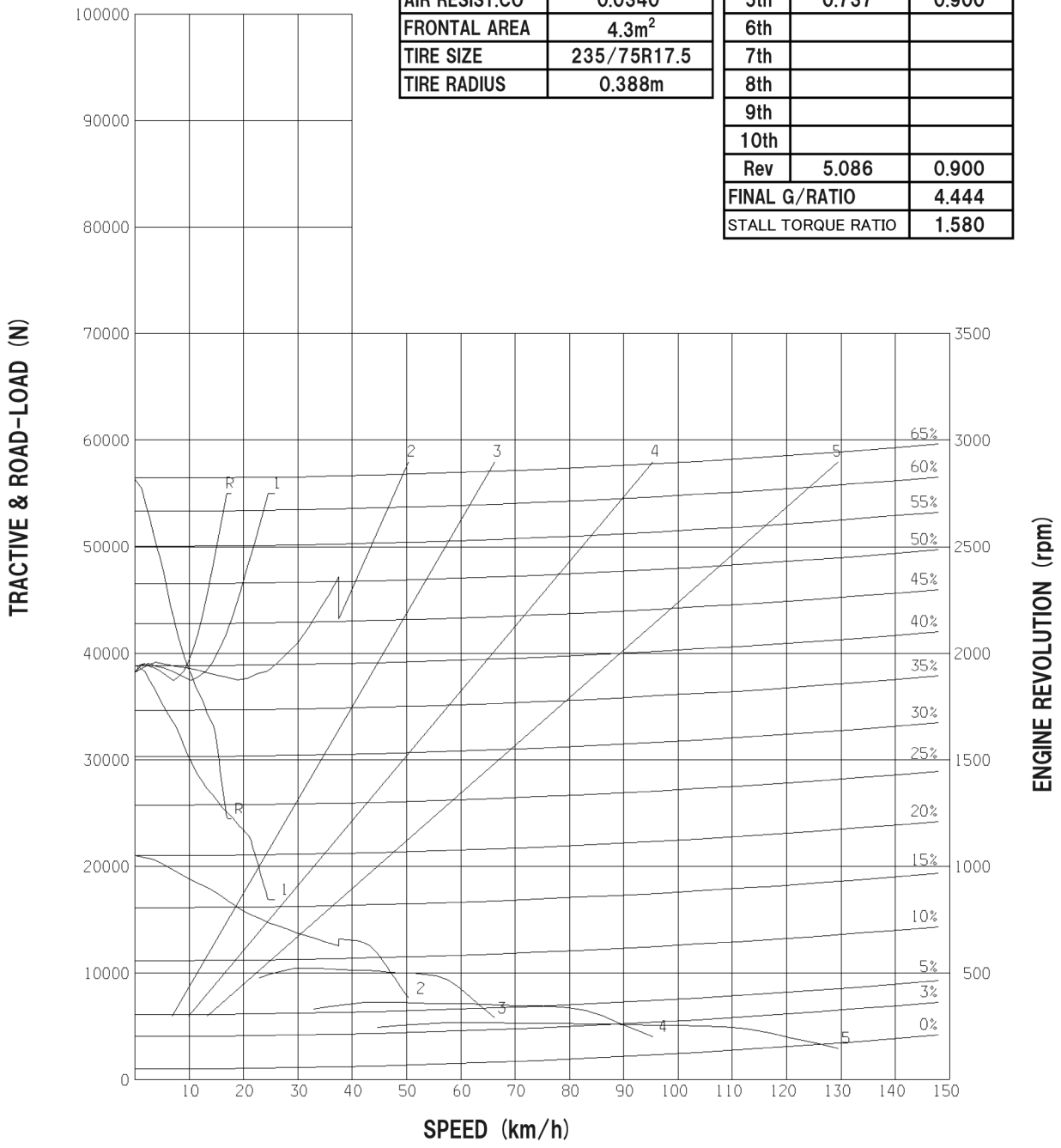


C

FK61FL1RFAL

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	10400kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.3m^2
TIRE SIZE	235/75R17.5
TIRE RADIUS	0.388m

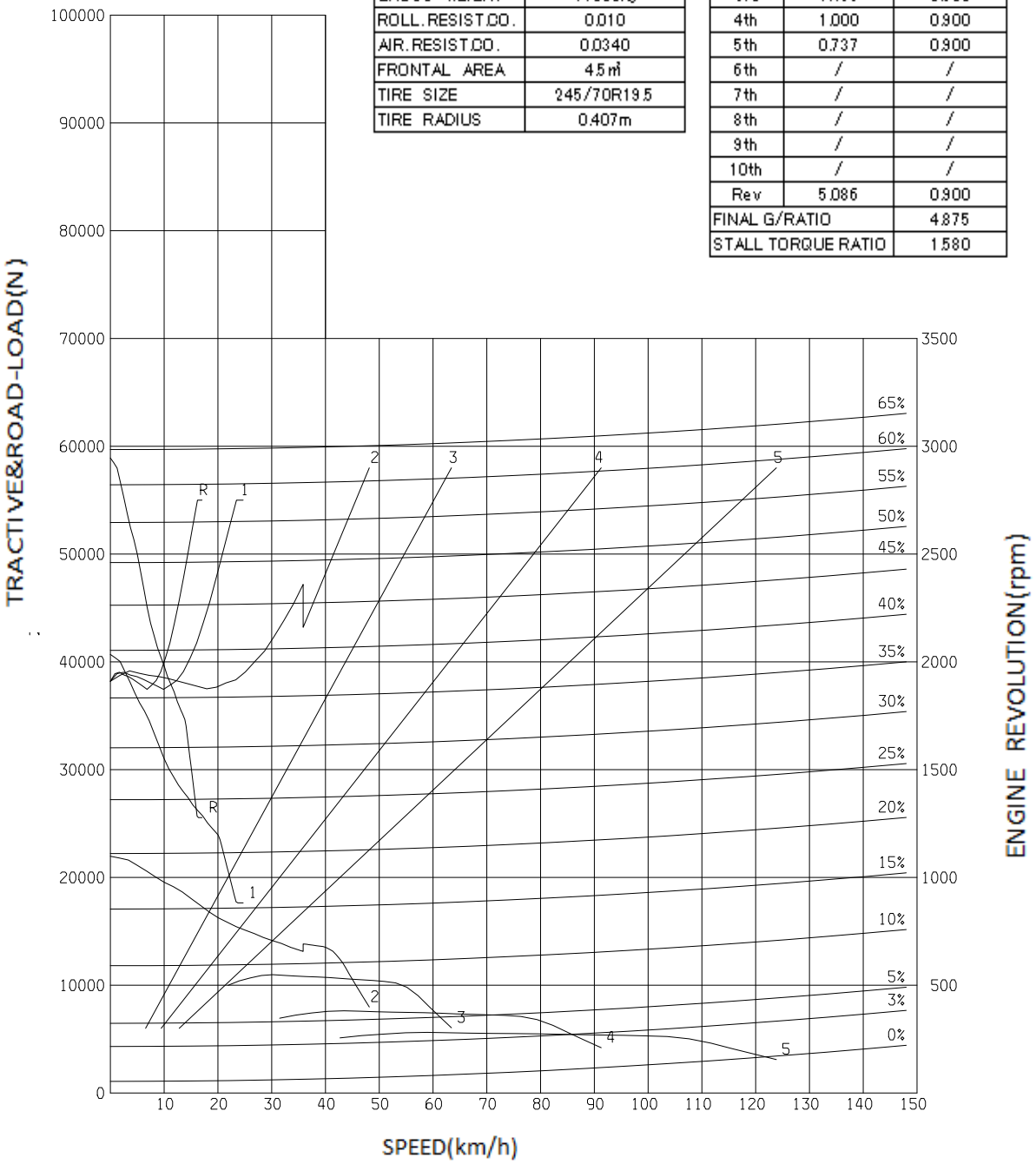
T/M	G/RATIO	EFFICIENCY
1st	3.512	0.900
2nd	1.896	0.900
3rd	1.439	0.900
4th	1.000	0.900
5th	0.737	0.900
6th		
7th		
8th		
9th		
10th		
Rev	5.086	0.900
FINAL G/RATIO		4.444
STALL TORQUE RATIO		1.580



FK62FLY1RFAL

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	11000kg
ROLL. RESIST.CO.	0.010
AIR. RESIST.CO.	0.0340
FRONTAL AREA	4.5㎡
TIRE SIZE	245/70R19.5
TIRE RADIUS	0.407m

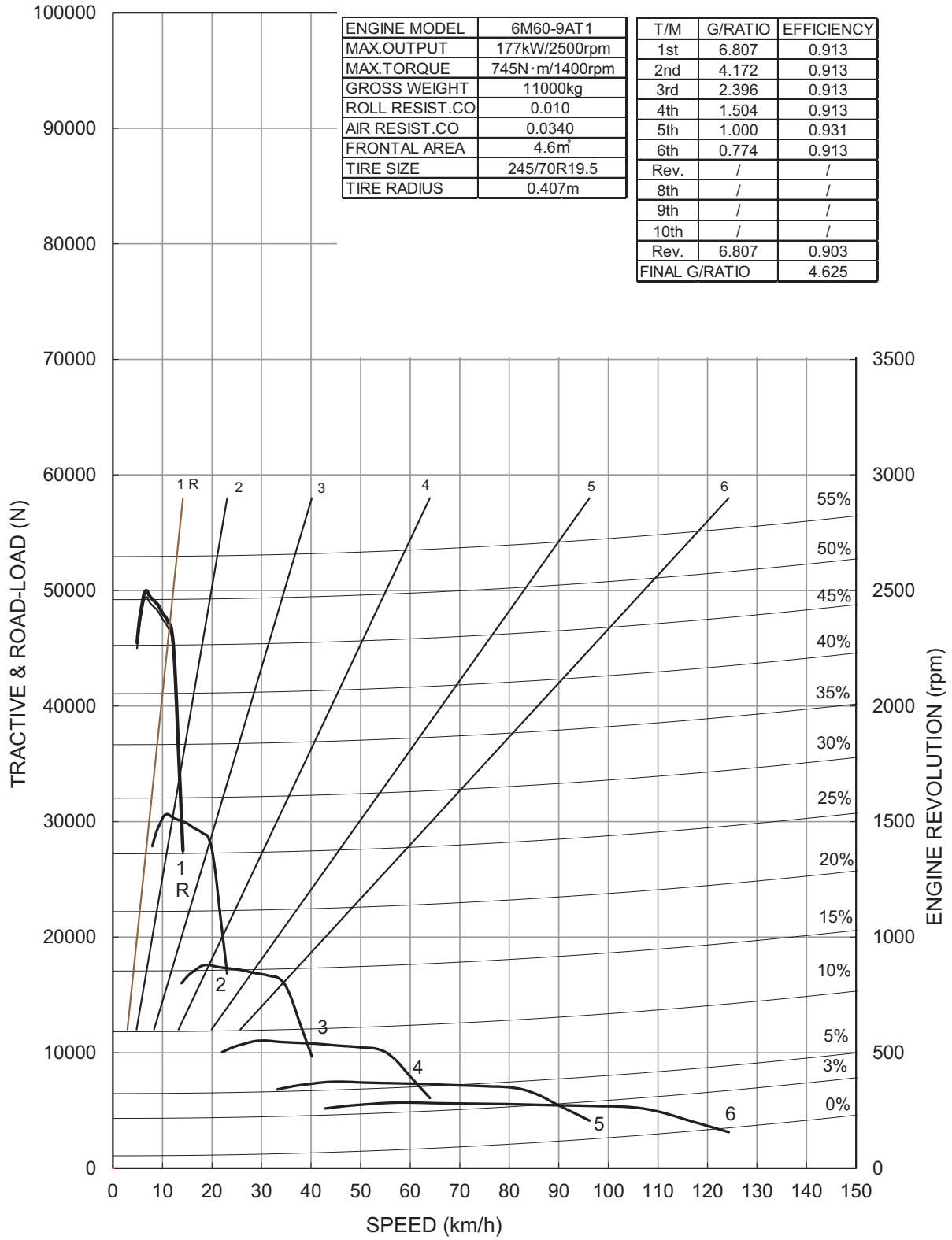
T/M	G/RATIO	EFFICIENCY
1st	3.512	0.900
2nd	1.896	0.900
3rd	1.439	0.900
4th	1.000	0.900
5th	0.737	0.900
6th	/	/
7th	/	/
8th	/	/
9th	/	/
10th	/	/
Rev	5.086	0.900
FINAL G/RATIO		4.875
STALL TORQUE RATIO		1.580



FK62F-Y1RFAC

ENGINE MODEL	6M60-9AT1
MAX.OUTPUT	177kW/2500rpm
MAX.TORQUE	745N·m/1400rpm
GROSS WEIGHT	11000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.6m²
TIRE SIZE	245/70R19.5
TIRE RADIUS	0.407m

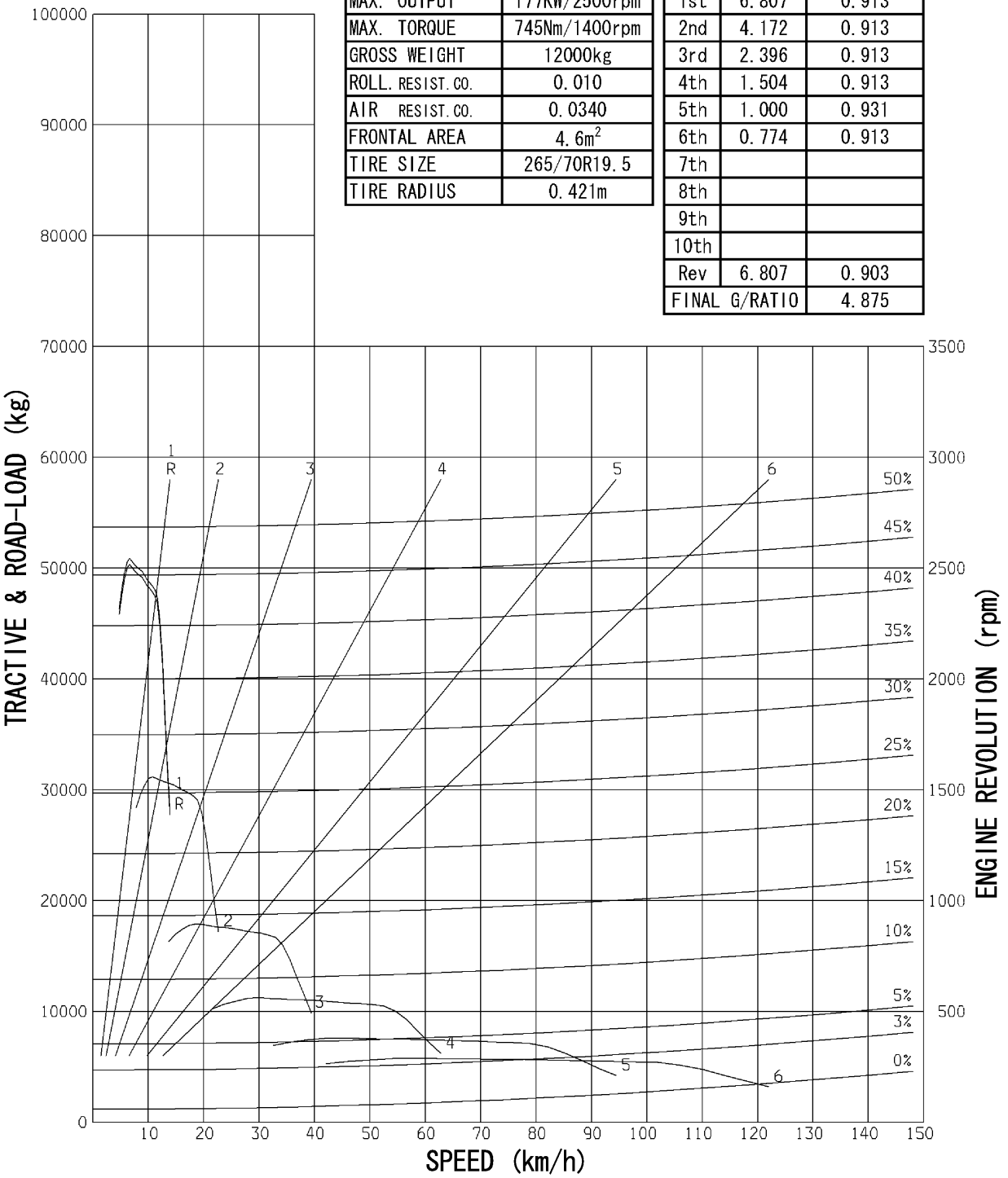
T/M	G/RATIO	EFFICIENCY
1st	6.807	0.913
2nd	4.172	0.913
3rd	2.396	0.913
4th	1.504	0.913
5th	1.000	0.931
6th	0.774	0.913
Rev.	/	/
8th	/	/
9th	/	/
10th	/	/
Rev.	6.807	0.903
FINAL G/RATIO		4.625



FK62F-Z1RFAC
FK62F-Z1RFAH

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	12000kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	4.6m^2
TIRE SIZE	265/70R19.5
TIRE RADIUS	0.421m

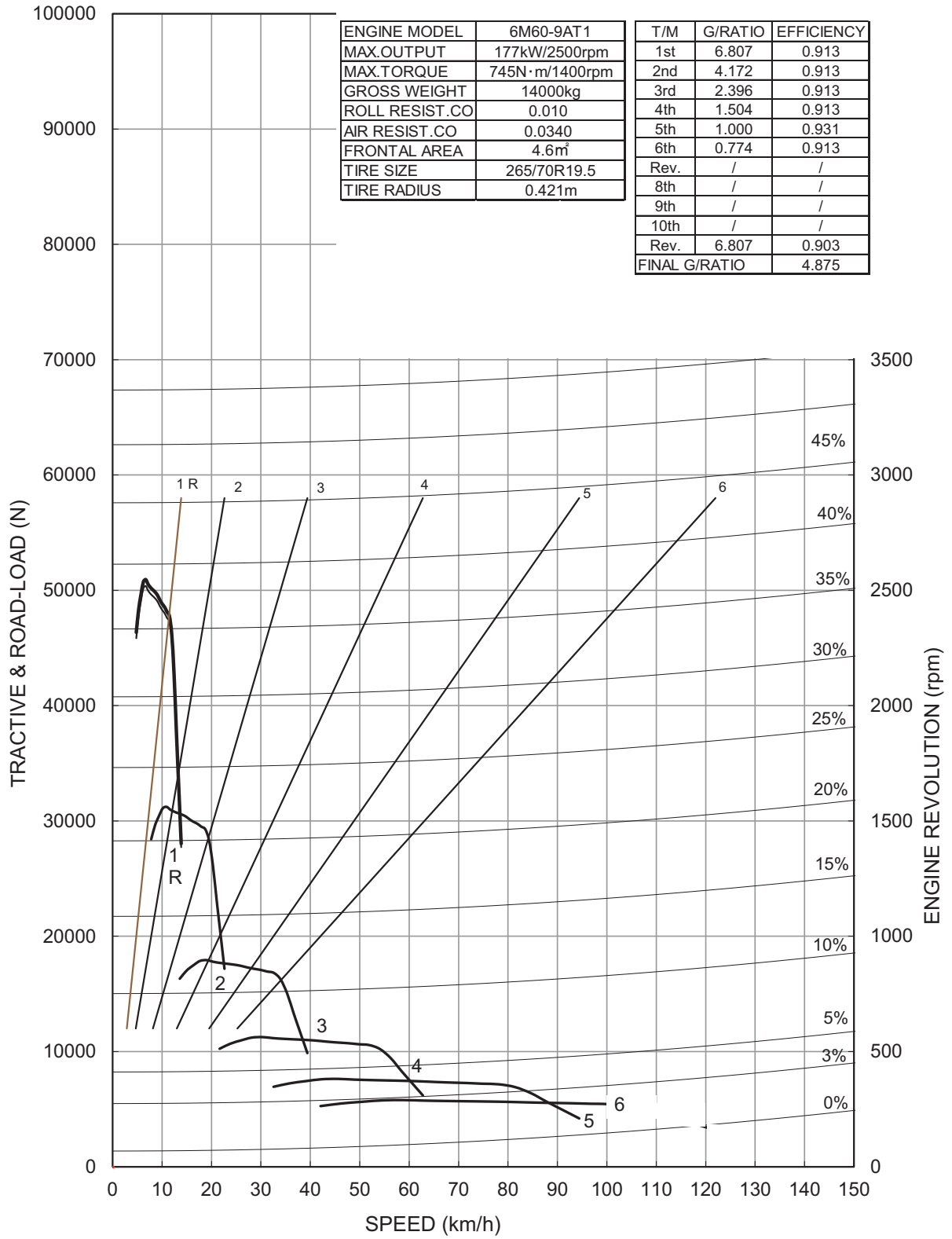
T/M	G/RATIO	EFFICIENCY
1st	6.807	0.913
2nd	4.172	0.913
3rd	2.396	0.913
4th	1.504	0.913
5th	1.000	0.931
6th	0.774	0.913
7th		
8th		
9th		
10th		
Rev	6.807	0.903
FINAL G/RATIO		4.875



FK62F-Z1RFAH

ENGINE MODEL	6M60-9AT1
MAX.OUTPUT	177kW/2500rpm
MAX.TORQUE	745N·m/1400rpm
GROSS WEIGHT	14000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.6m²
TIRE SIZE	265/70R19.5
TIRE RADIUS	0.421m

T/M	G/RATIO	EFFICIENCY
1st	6.807	0.913
2nd	4.172	0.913
3rd	2.396	0.913
4th	1.504	0.913
5th	1.000	0.931
6th	0.774	0.913
Rev.	/	/
8th	/	/
9th	/	/
10th	/	/
Rev.	6.807	0.903
FINAL G/RATIO		4.875

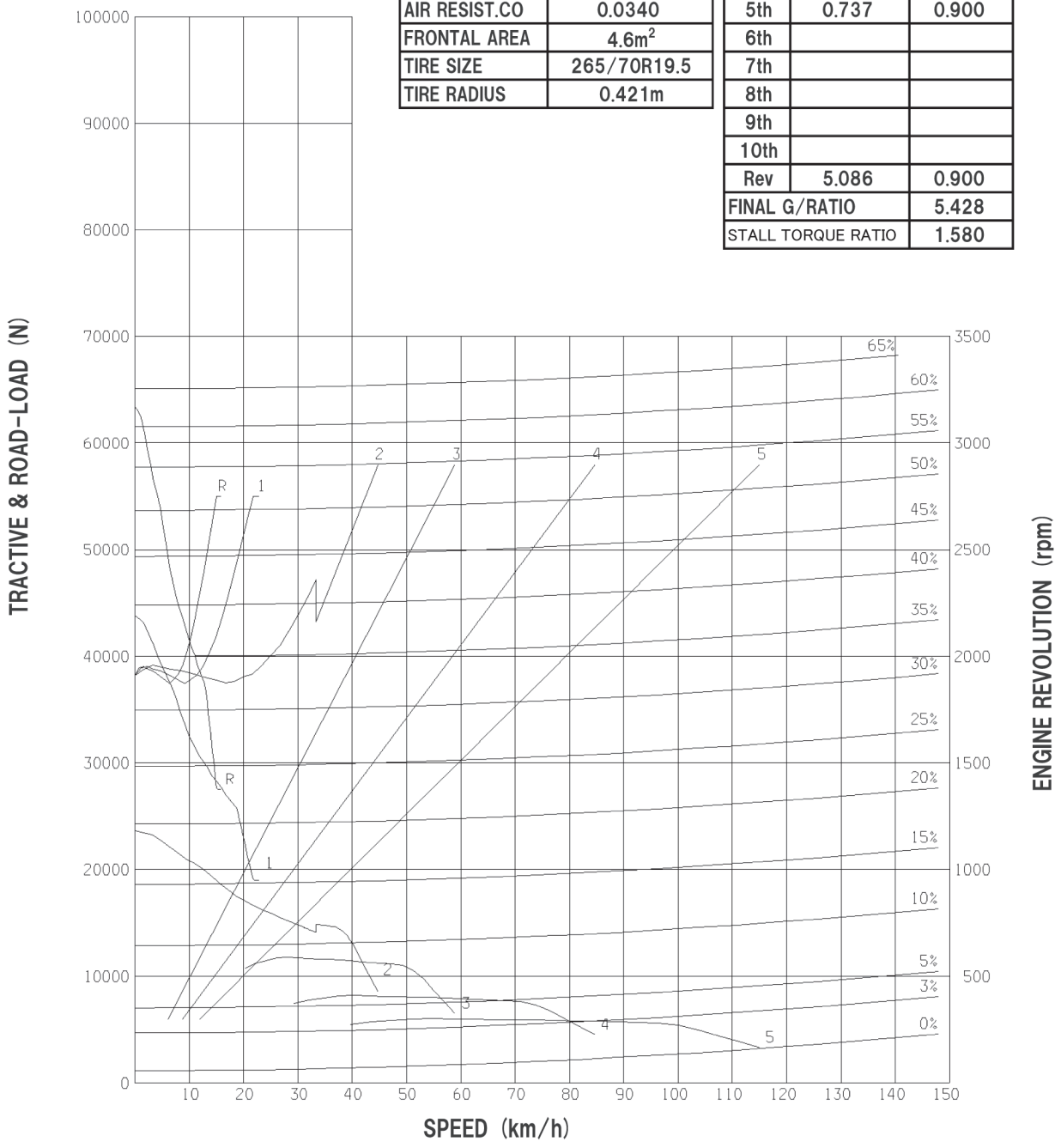


C

FK62FLZ1RFAD/L
FK65FLZ1RFAL

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	12000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.6m^2
TIRE SIZE	265/70R19.5
TIRE RADIUS	0.421m

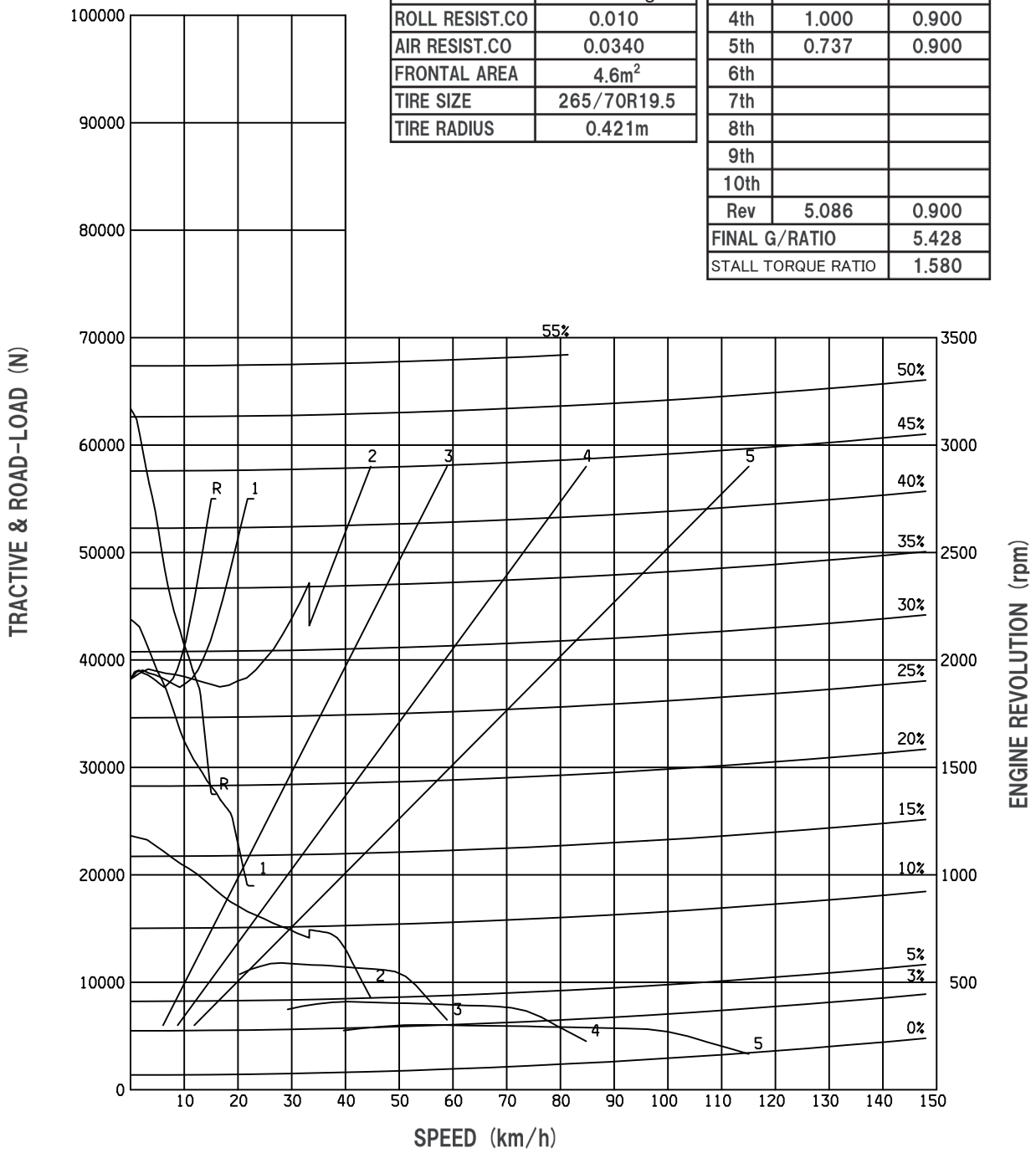
T/M	G/RATIO	EFFICIENCY
1st	3.512	0.900
2nd	1.896	0.900
3rd	1.439	0.900
4th	1.000	0.900
5th	0.737	0.900
6th		
7th		
8th		
9th		
10th		
Rev	5.086	0.900
FINAL G/RATIO		5.428
STALL TORQUE RATIO		1.580



FK62FLZ1RFAM
FK65FLZ1RFAM

ENGINE MODEL	6M60T1
MAX. OUTPUT	177KW/2500rpm
MAX. TORQUE	745Nm/1400rpm
GROSS WEIGHT	14000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.6m^2
TIRE SIZE	265/70R19.5
TIRE RADIUS	0.421m

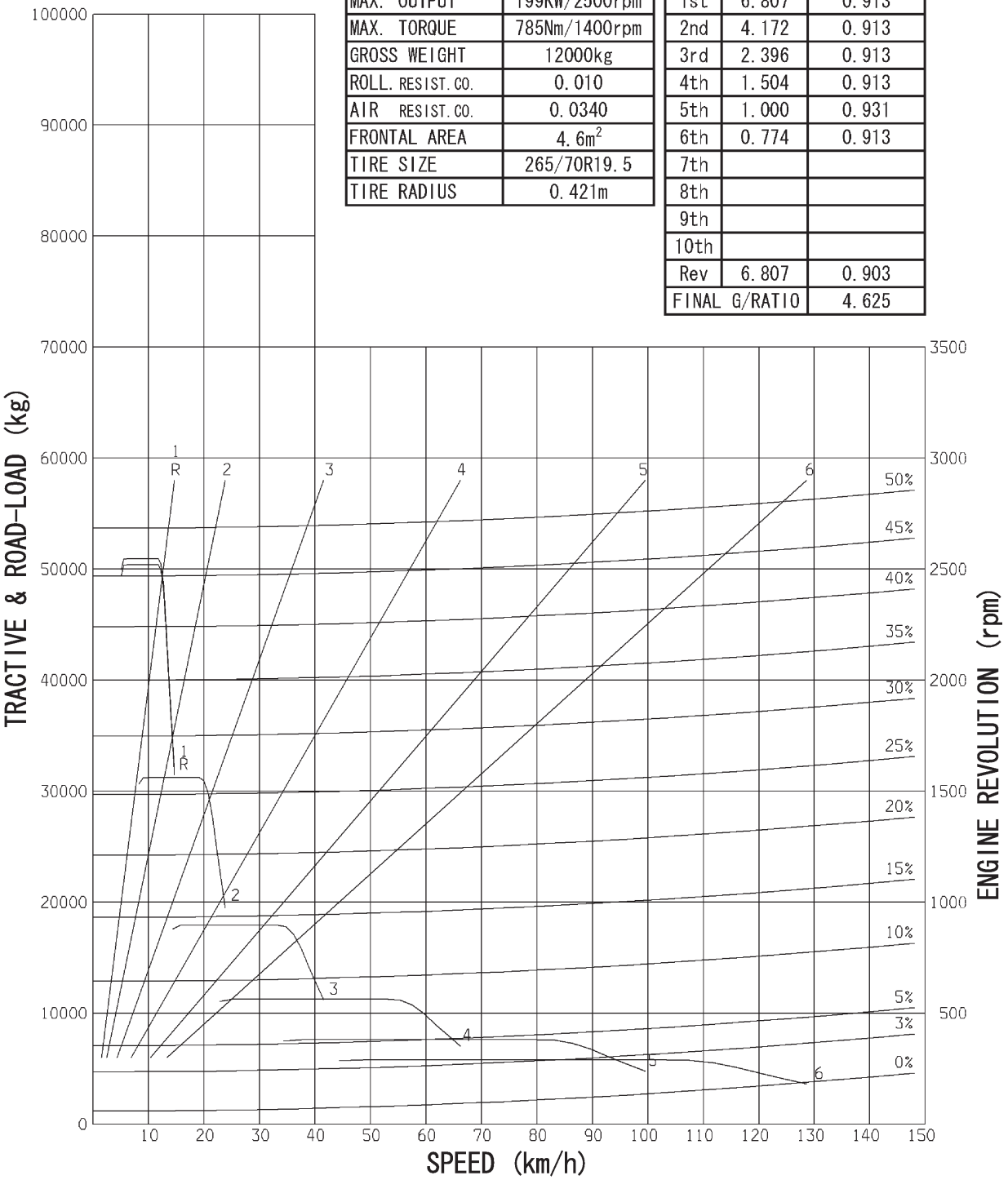
T/M	G/RATIO	EFFICIENCY
1st	3.512	0.900
2nd	1.896	0.900
3rd	1.439	0.900
4th	1.000	0.900
5th	0.737	0.900
6th		
7th		
8th		
9th		
10th		
Rev	5.086	0.900
FINAL G/RATIO		5.428
STALL TORQUE RATIO		1.580



FK65F-Z2RFAC

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	12000kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	4.6m^2
TIRE SIZE	265/70R19.5
TIRE RADIUS	0.421m

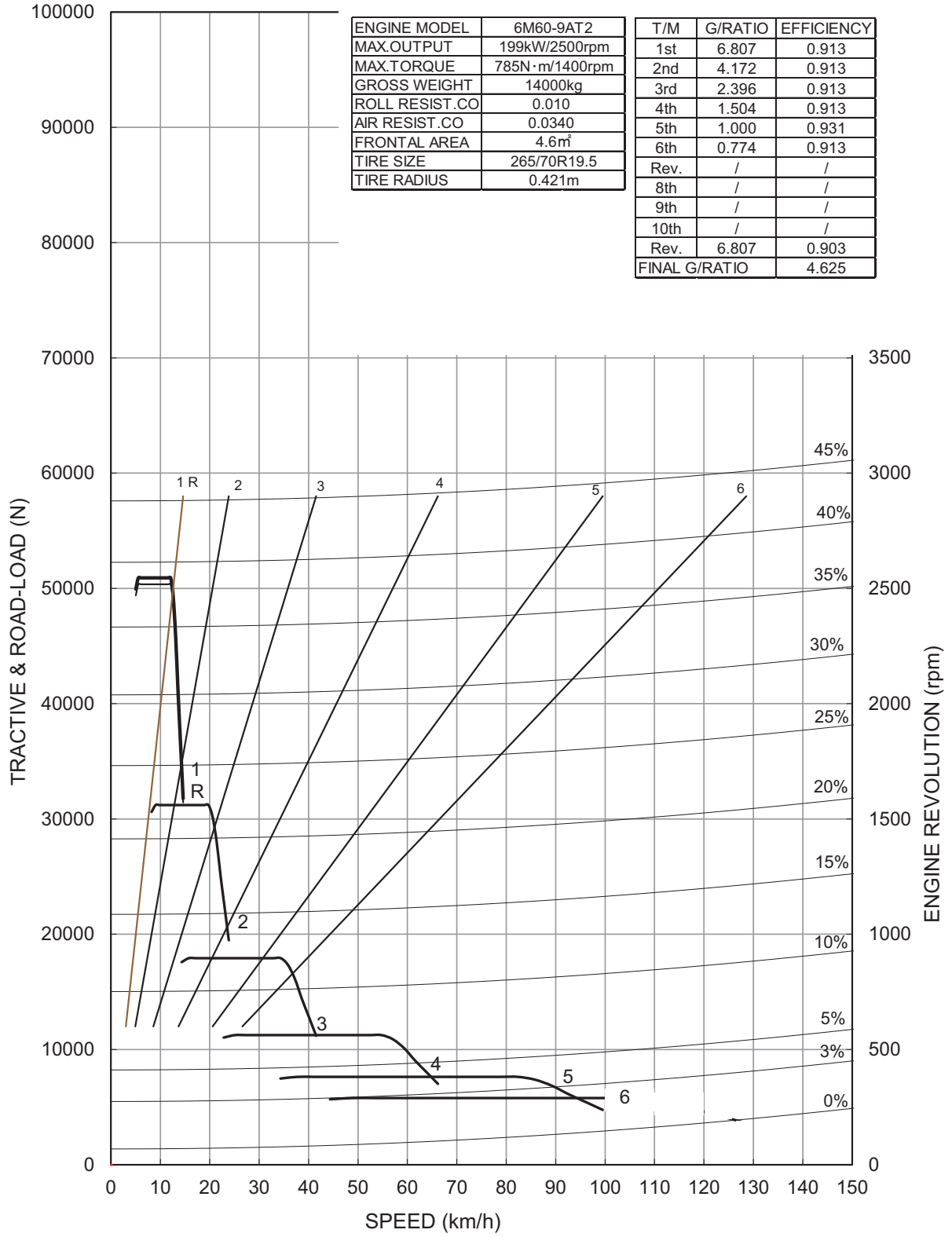
T/M	G/RATIO	EFFICIENCY
1st	6.807	0.913
2nd	4.172	0.913
3rd	2.396	0.913
4th	1.504	0.913
5th	1.000	0.931
6th	0.774	0.913
7th		
8th		
9th		
10th		
Rev	6.807	0.903
FINAL G/RATIO		4.625



FK65F-Z2RFAH

ENGINE MODEL	6M60-9AT2
MAX.OUTPUT	199kW/2500rpm
MAX.TORQUE	785N·m/1400rpm
GROSS WEIGHT	14000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.6㎡
TIRE SIZE	265/70R19.5
TIRE RADIUS	0.421m

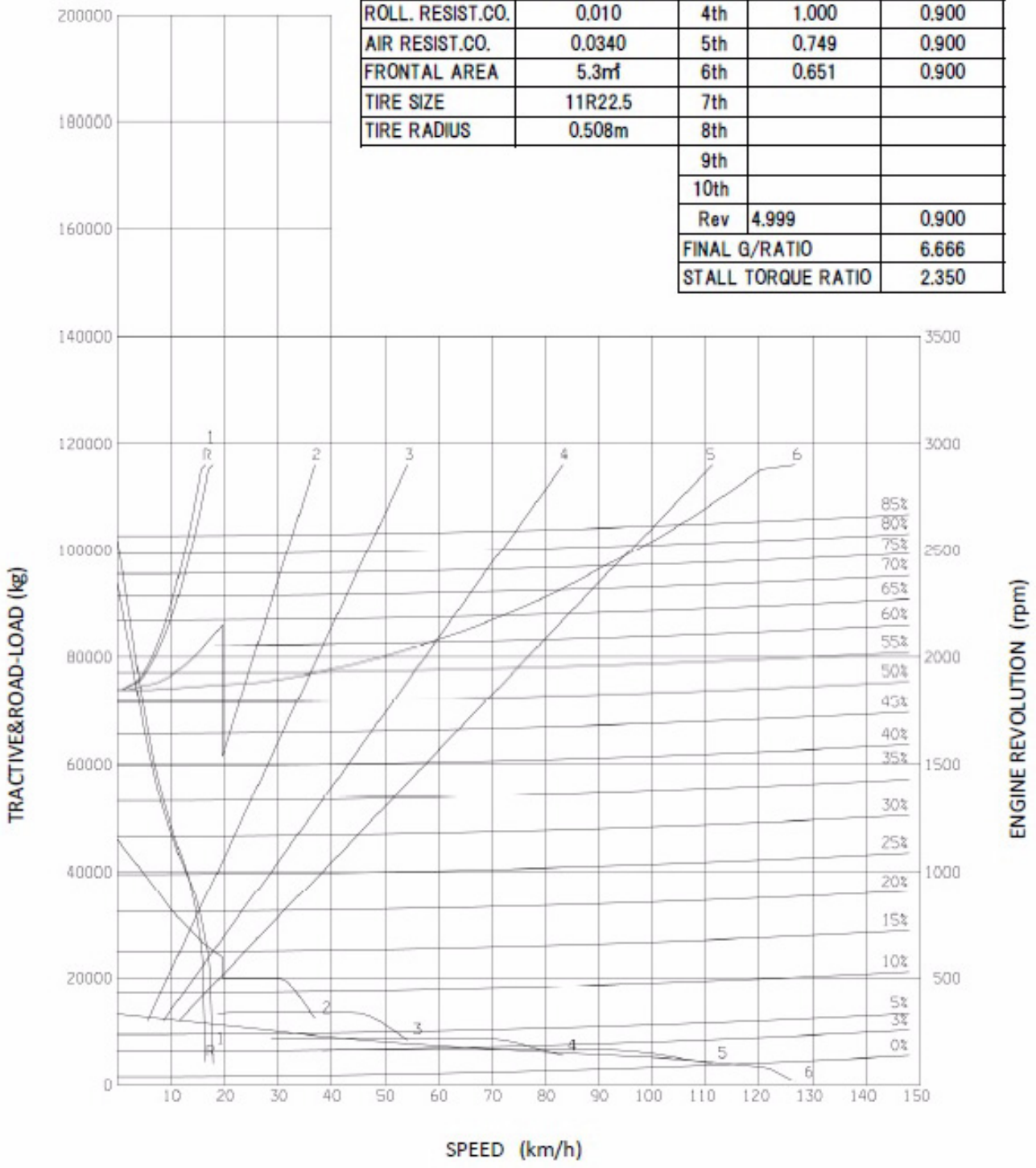
T/M	G/RATIO	EFFICIENCY
1st	6.807	0.913
2nd	4.172	0.913
3rd	2.396	0.913
4th	1.504	0.913
5th	1.000	0.931
6th	0.774	0.913
Rev.	/	/
8th	/	/
9th	/	/
10th	/	/
Rev.	6.807	0.903
FINAL G/RATIO		4.625



10.3 Performance curve

FM65FH2RFAM
FM67FM2RFAM

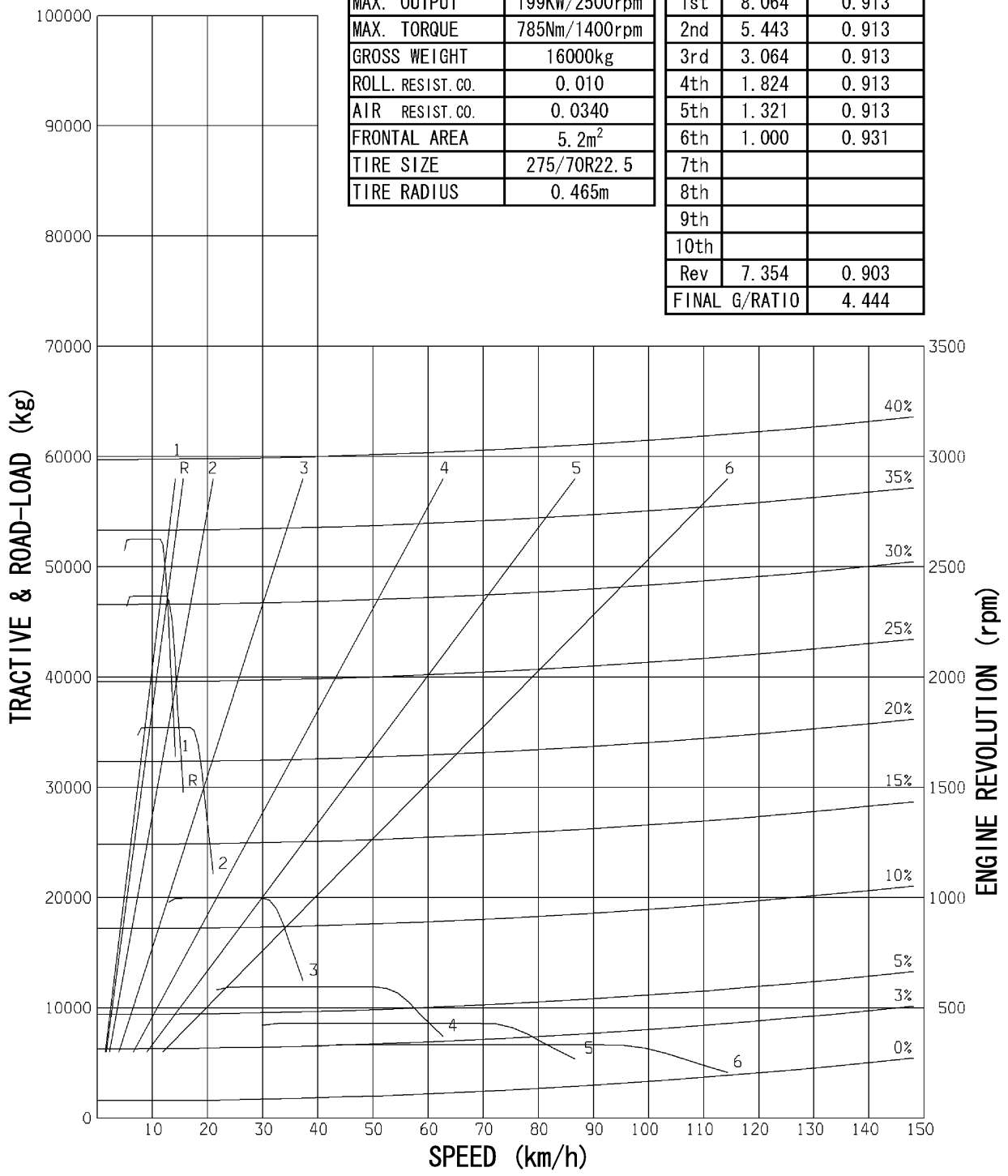
ENGINE MODEL	6M60T2	T/M	G/RATIO	EFFICIENCY
MAX.OUTPUT	199kw/2500rpm	1st	4.593	0.900
MAX.TORQUE	785Nm/1400rpm	2nd	2.257	0.900
GROSS WEIGHT	16000kg	3rd	1.535	0.900
ROLL. RESIST.CO.	0.010	4th	1.000	0.900
AIR RESIST.CO.	0.0340	5th	0.749	0.900
FRONTAL AREA	5.3㎡	6th	0.651	0.900
TIRE SIZE	11R22.5	7th		
TIRE RADIUS	0.508m	8th		
		9th		
		10th		
		Rev	4.999	0.900
		FINAL G/RATIO		6.666
		STALL TORQUE RATIO		2.350



FM65F-2RFAH

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	16000kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	5.2m^2
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

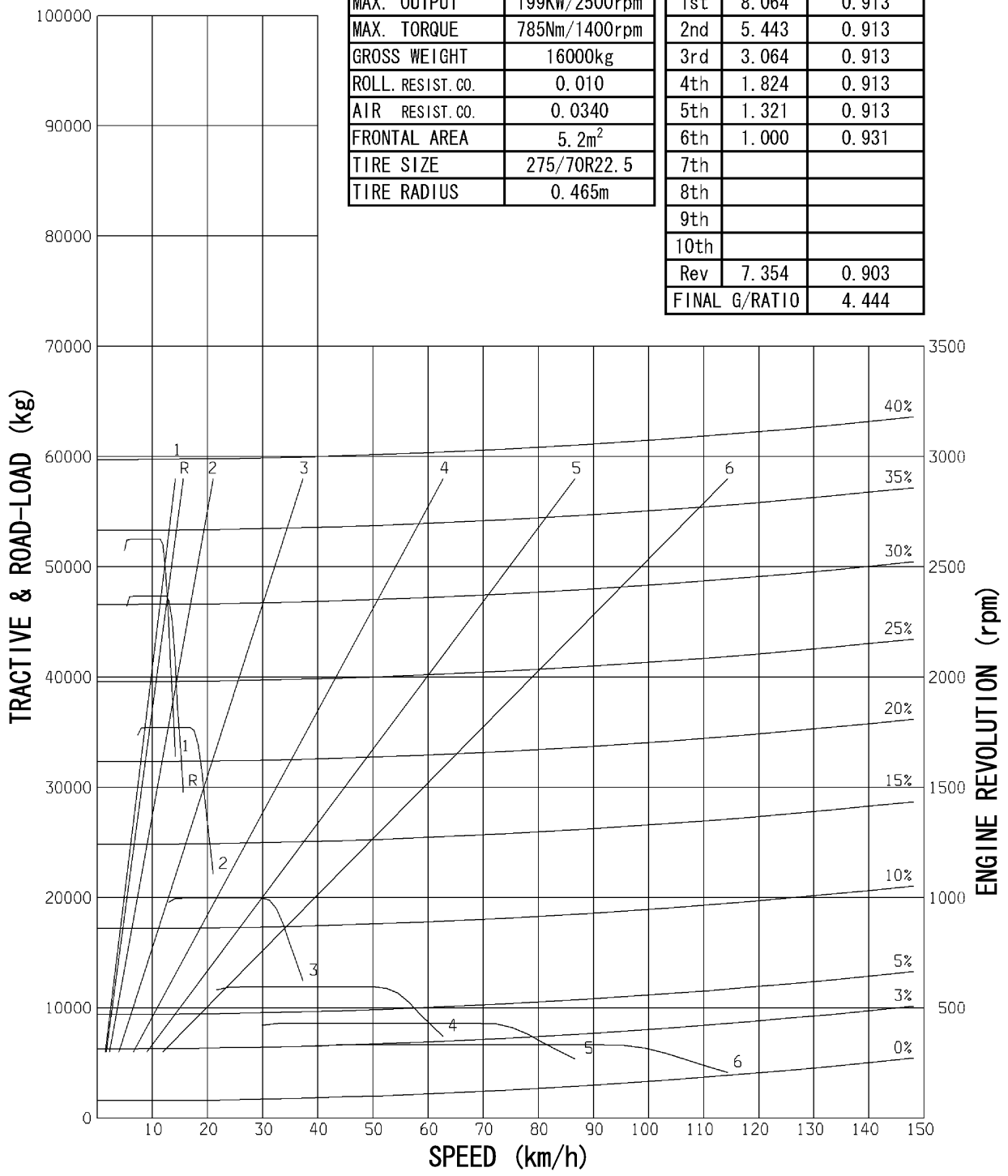
T/M	G/RATIO	EFFICIENCY
1st	8.064	0.913
2nd	5.443	0.913
3rd	3.064	0.913
4th	1.824	0.913
5th	1.321	0.913
6th	1.000	0.931
7th		
8th		
9th		
10th		
Rev	7.354	0.903
FINAL G/RATIO		4.444



FM67FS2RFAH

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	16000kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	5.2m^2
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

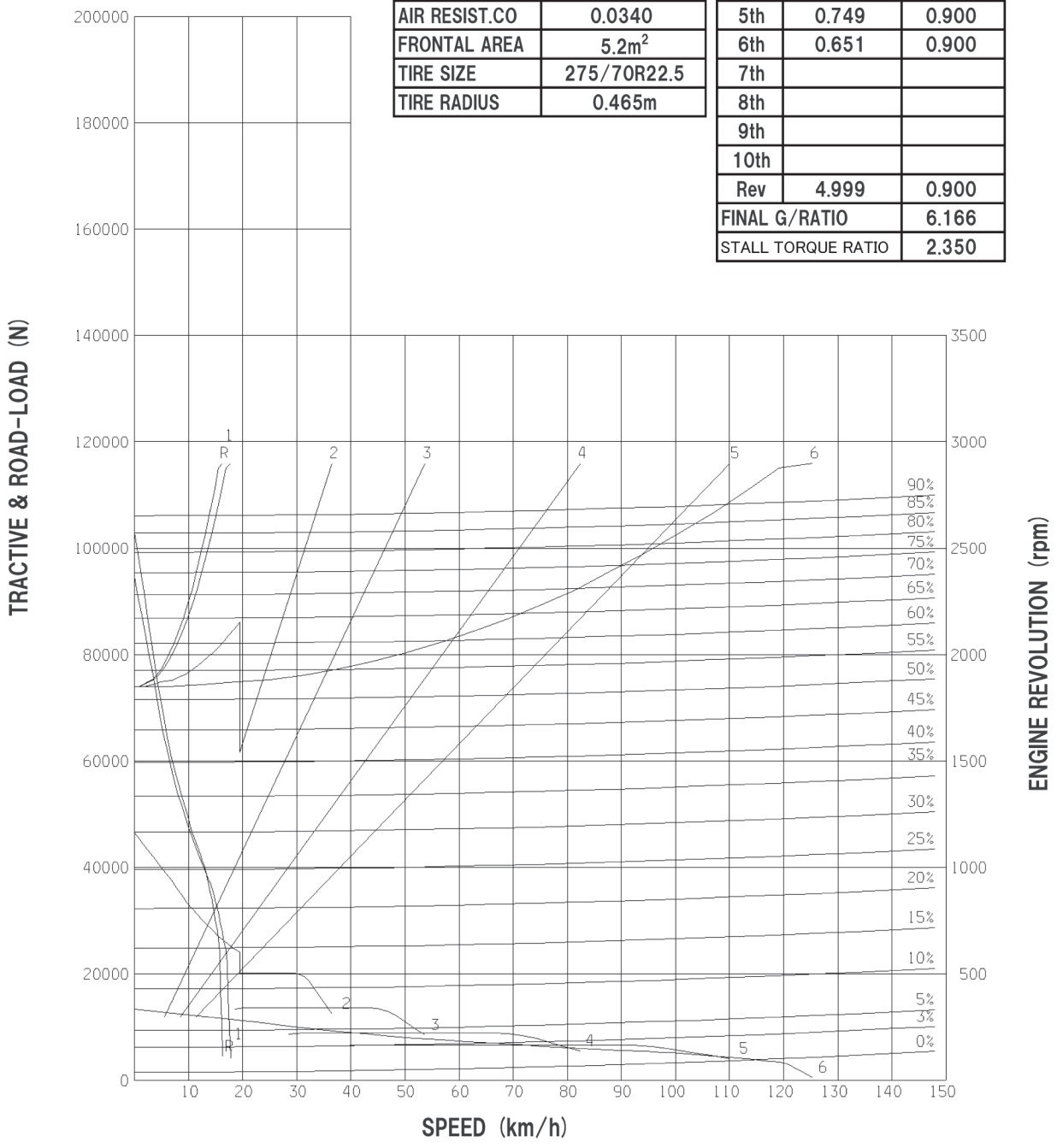
T/M	G/RATIO	EFFICIENCY
1st	8.064	0.913
2nd	5.443	0.913
3rd	3.064	0.913
4th	1.824	0.913
5th	1.321	0.913
6th	1.000	0.931
7th		
8th		
9th		
10th		
Rev	7.354	0.903
FINAL G/RATIO		4.444



FM67F-2RFAM

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	16000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	5.2m^2
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

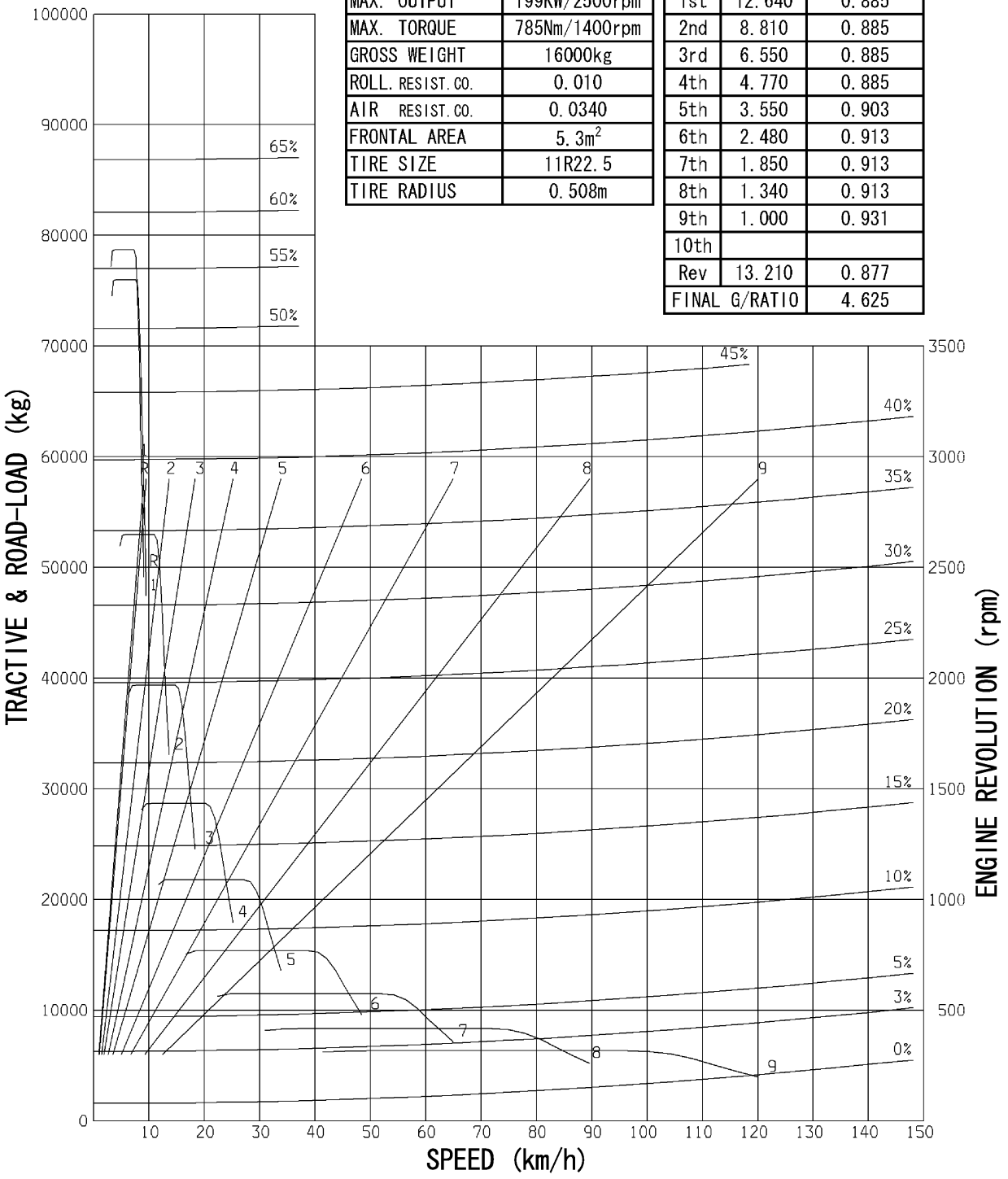
T/M	G/RATIO	EFFICIENCY
1st	4.593	0.900
2nd	2.257	0.900
3rd	1.535	0.900
4th	1.000	0.900
5th	0.749	0.900
6th	0.651	0.900
7th		
8th		
9th		
10th		
Rev	4.999	0.900
FINAL G/RATIO		6.166
STALL TORQUE RATIO		2.350



FM65F-2RFAK

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	16000kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	5.3m^2
TIRE SIZE	11R22.5
TIRE RADIUS	0.508m

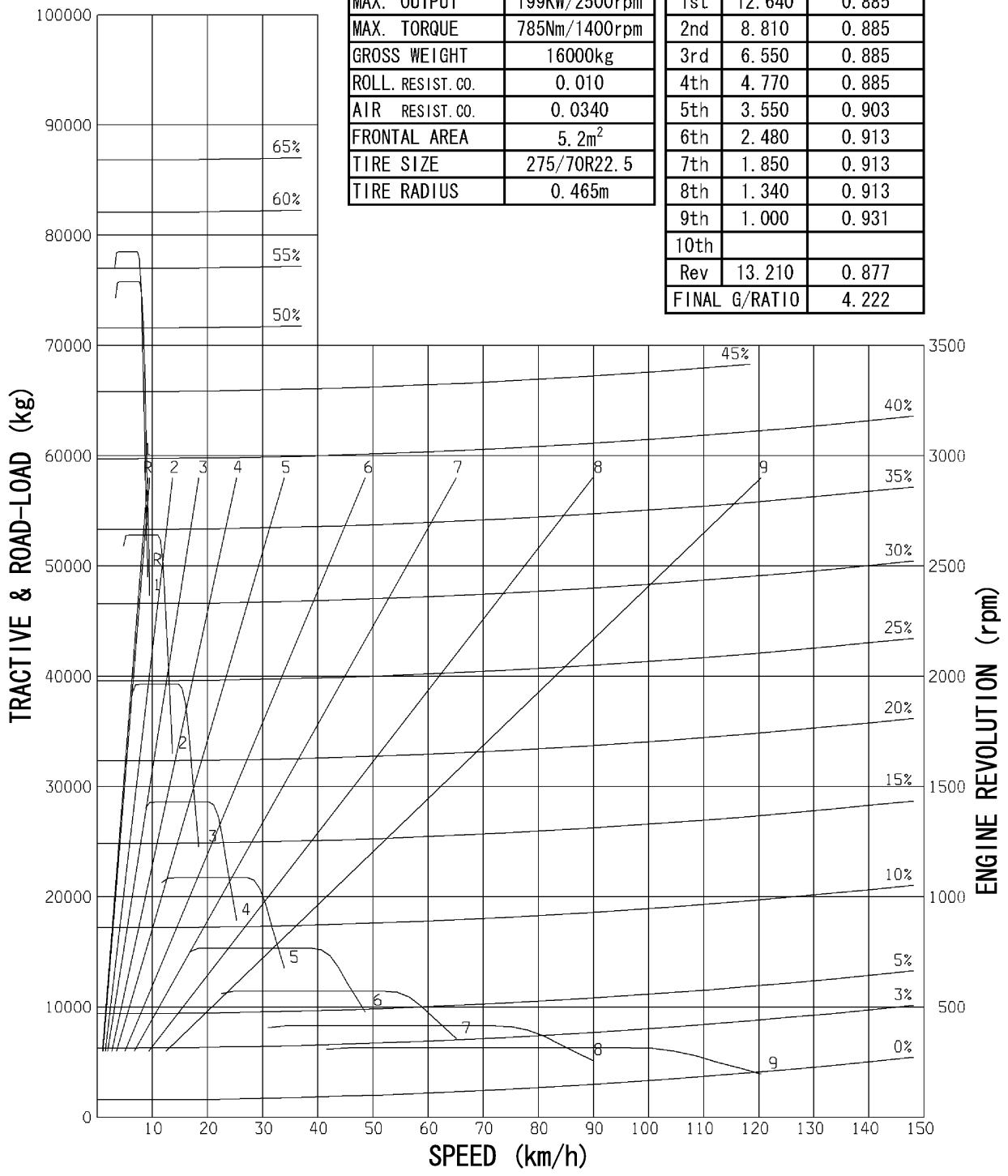
T/M	G/RATIO	EFFICIENCY
1st	12.640	0.885
2nd	8.810	0.885
3rd	6.550	0.885
4th	4.770	0.885
5th	3.550	0.903
6th	2.480	0.913
7th	1.850	0.913
8th	1.340	0.913
9th	1.000	0.931
10th		
Rev	13.210	0.877
FINAL G/RATIO		4.625



FM67F-2RFAK

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	16000kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	5.2m^2
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

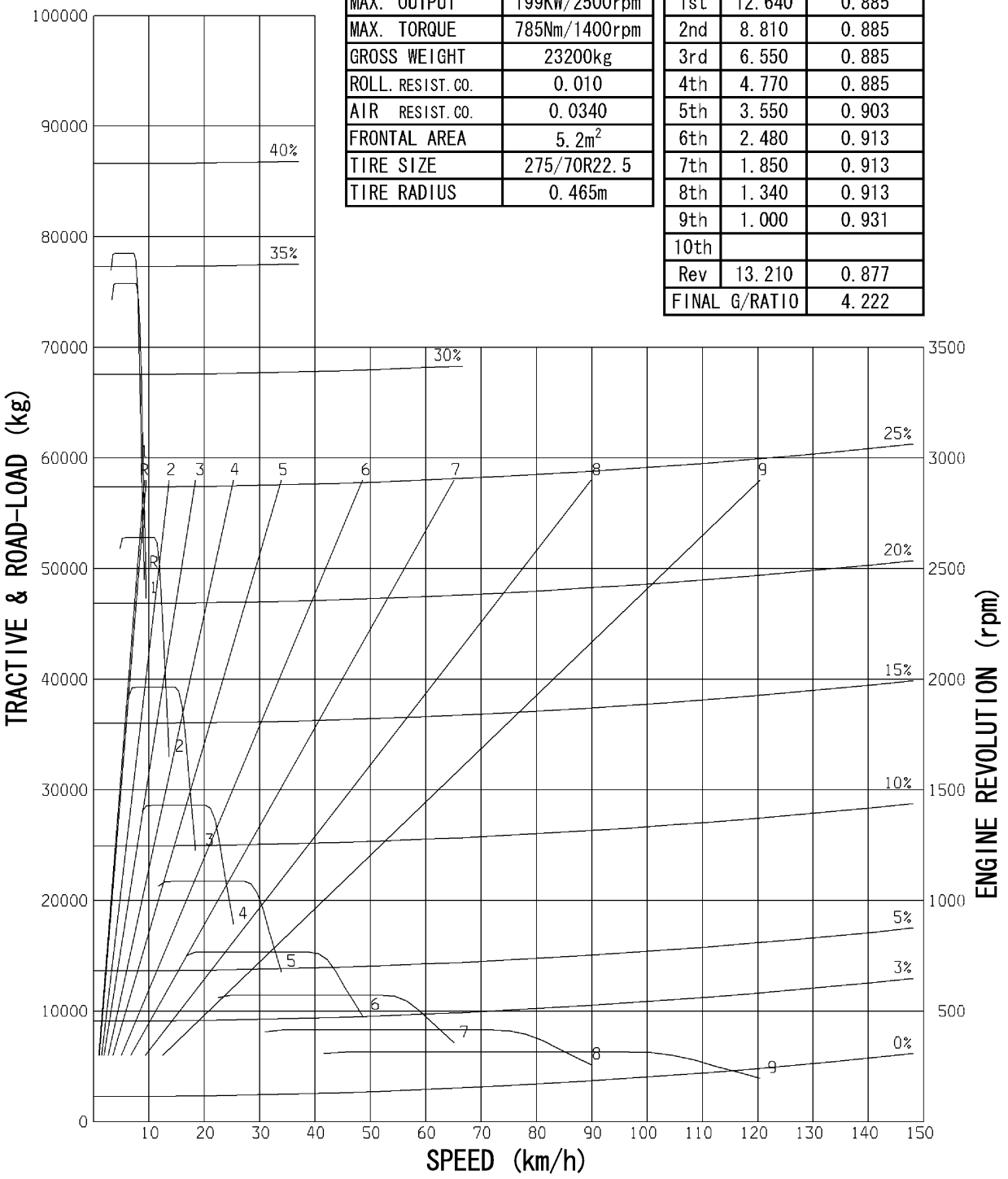
T/M	G/RATIO	EFFICIENCY
1st	12.640	0.885
2nd	8.810	0.885
3rd	6.550	0.885
4th	4.770	0.885
5th	3.550	0.903
6th	2.480	0.913
7th	1.850	0.913
8th	1.340	0.913
9th	1.000	0.931
10th		
Rev	13.210	0.877
FINAL G/RATIO		4.222



FN63FU2RFAK

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	23200kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	5.2m^2
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

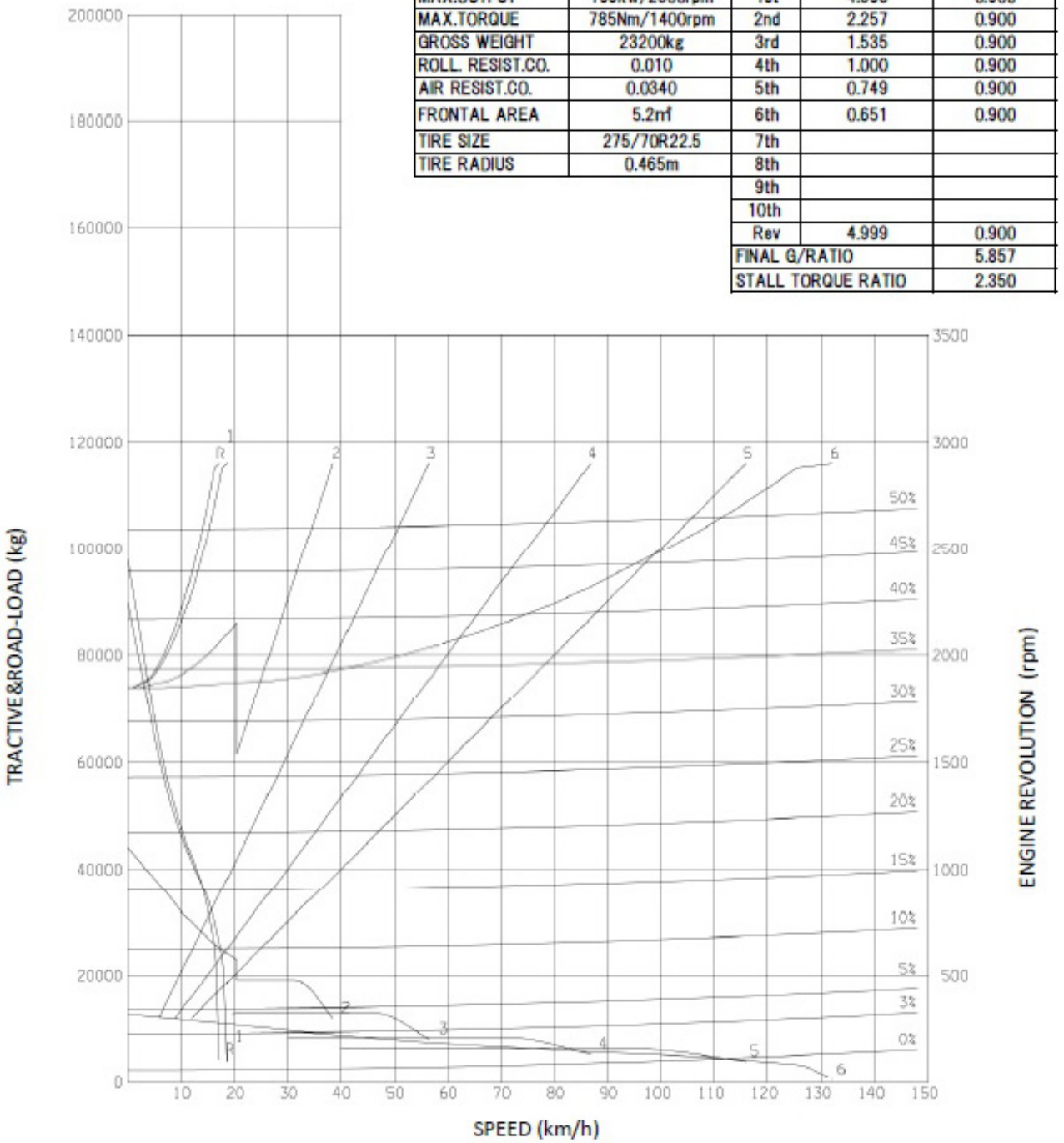
T/M	G/RATIO	EFFICIENCY
1st	12.640	0.885
2nd	8.810	0.885
3rd	6.550	0.885
4th	4.770	0.885
5th	3.550	0.903
6th	2.480	0.913
7th	1.850	0.913
8th	1.340	0.913
9th	1.000	0.931
10th		
Rev	13.210	0.877
FINAL G/RATIO		4.222



10.3 Performance curve

FN63FU2RFAM

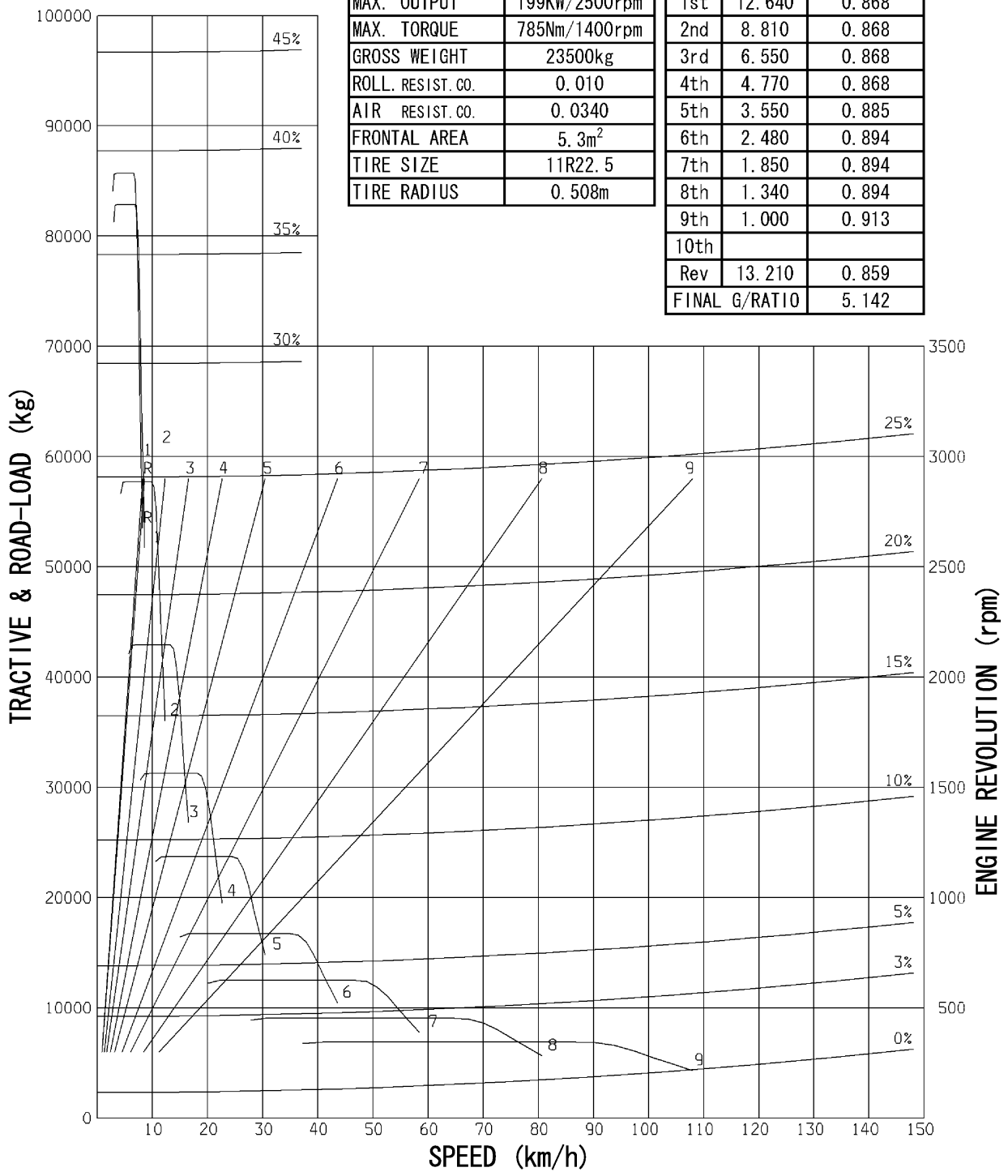
ENGINE MODEL	6M60T2	T/M	G/RATIO	EFFICIENCY
MAX.OUTPUT	199kw/2500rpm	1st	4.593	0.900
MAX.TORQUE	785Nm/1400rpm	2nd	2.257	0.900
GROSS WEIGHT	23200kg	3rd	1.535	0.900
ROLL. RESIST.CO.	0.010	4th	1.000	0.900
AIR RESIST.CO.	0.0340	5th	0.749	0.900
FRONTAL AREA	5.2㎡	6th	0.651	0.900
TIRE SIZE	275/70R22.5	7th		
TIRE RADIUS	0.465m	8th		
		9th		
		10th		
		Rev	4.999	0.900
		FINAL G/RATIO		5.857
		STALL TORQUE RATIO		2.350



FN62FK2RFAK

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	23500kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	5.3m^2
TIRE SIZE	11R22.5
TIRE RADIUS	0.508m

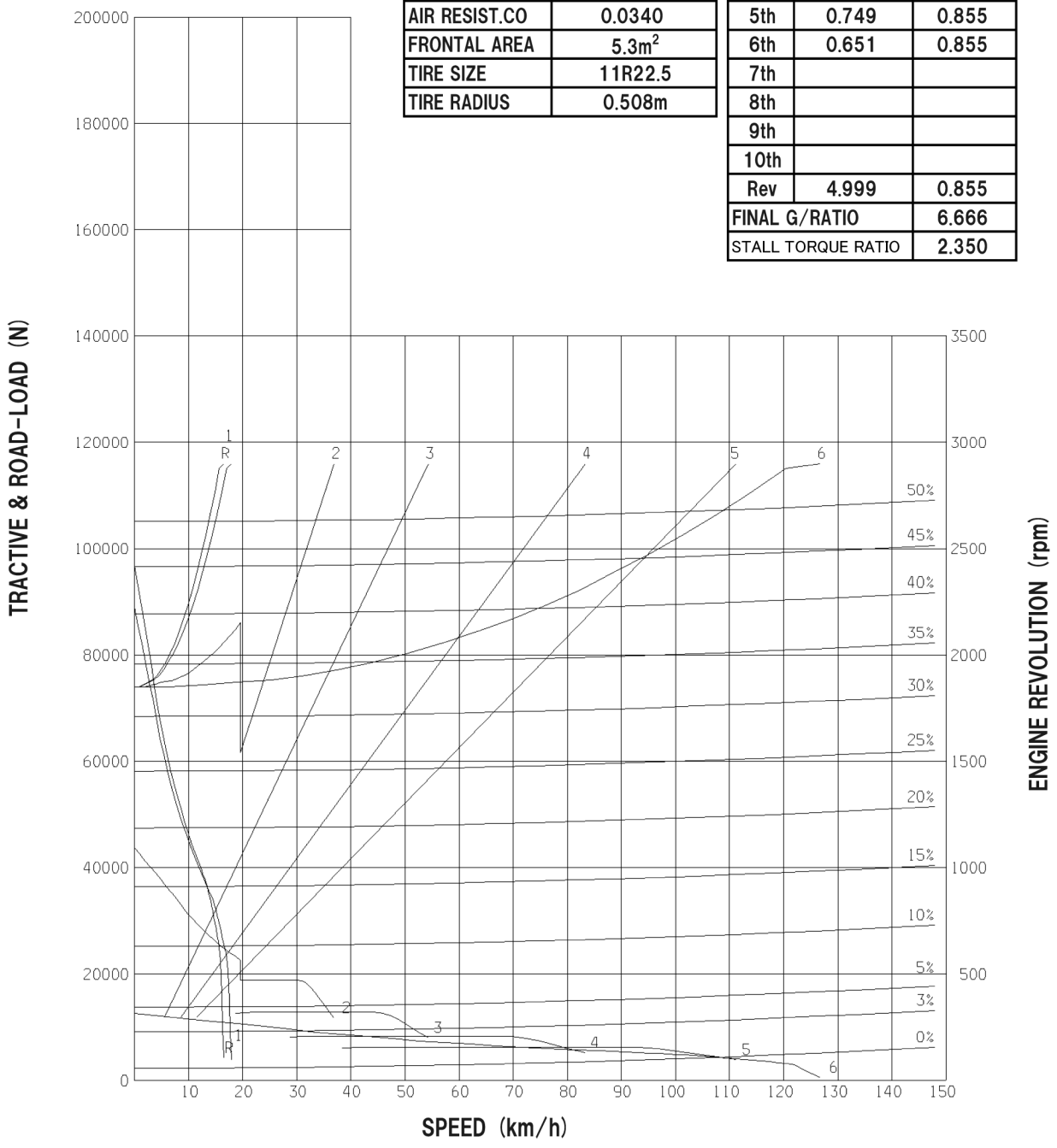
T/M	G/RATIO	EFFICIENCY
1st	12.640	0.868
2nd	8.810	0.868
3rd	6.550	0.868
4th	4.770	0.868
5th	3.550	0.885
6th	2.480	0.894
7th	1.850	0.894
8th	1.340	0.894
9th	1.000	0.913
10th		
Rev	13.210	0.859
FINAL G/RATIO		5.142



FN62FK2RFAM

ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	23500kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	5.3m^2
TIRE SIZE	11R22.5
TIRE RADIUS	0.508m

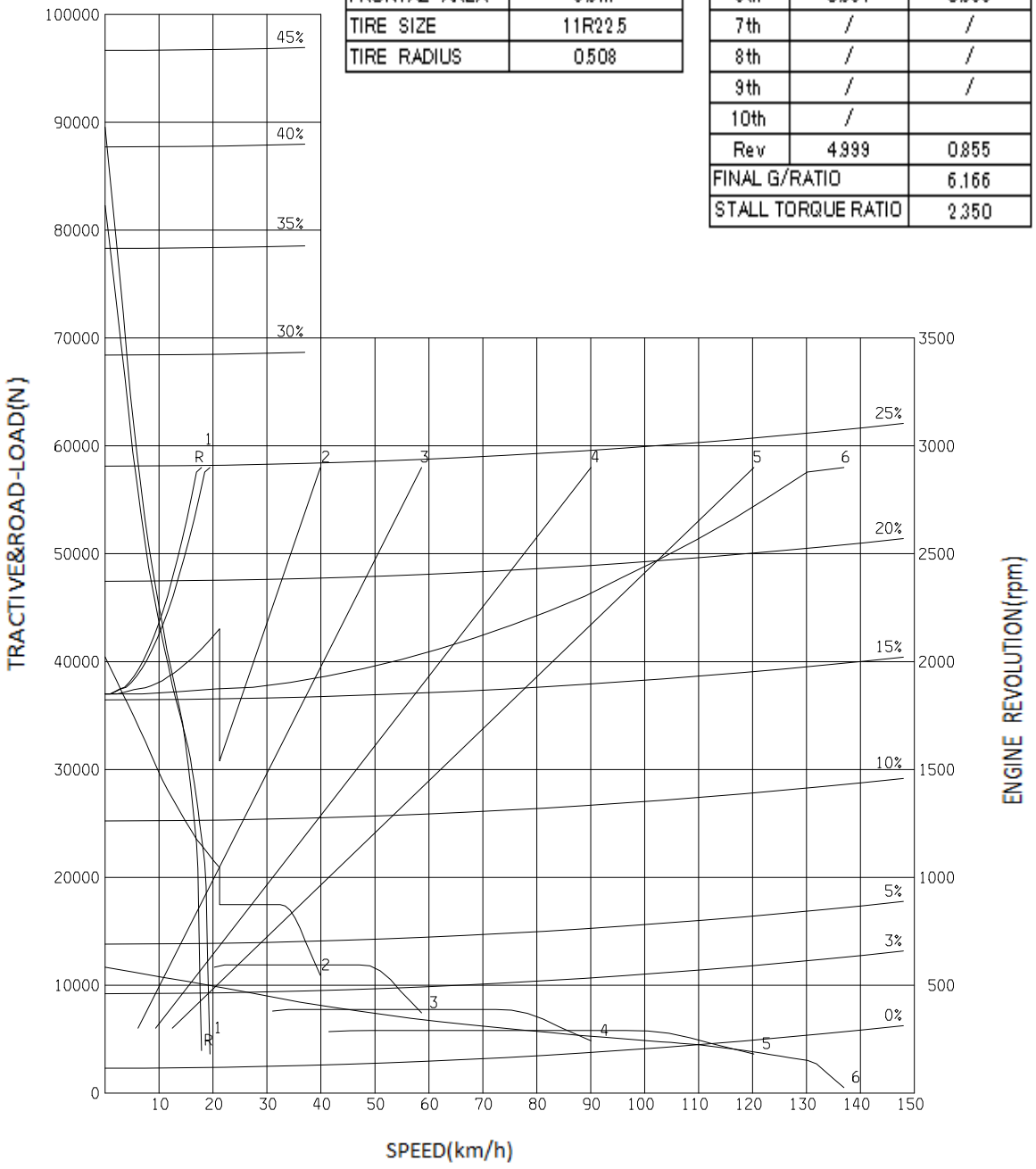
T/M	G/RATIO	EFFICIENCY
1st	4.593	0.855
2nd	2.257	0.855
3rd	1.535	0.855
4th	1.000	0.855
5th	0.749	0.855
6th	0.651	0.855
7th		
8th		
9th		
10th		
Rev	4.999	0.855
FINAL G/RATIO		6.666
STALL TORQUE RATIO		2.350



FN62F-2RFAM

ENGINE MODEL	6M60T2
MAX.OUTPUT	199KW/2500rpm
MAX.TORQUE	785Nm/1400rpm
GROSS WEIGHT	23500kg
ROLL.RESIST.CO.	0.010
AIR.RESIST.CO.	0.0340
FRONTAL AREA	5.3㎡
TIRE SIZE	11R22.5
TIRE RADIUS	0.508

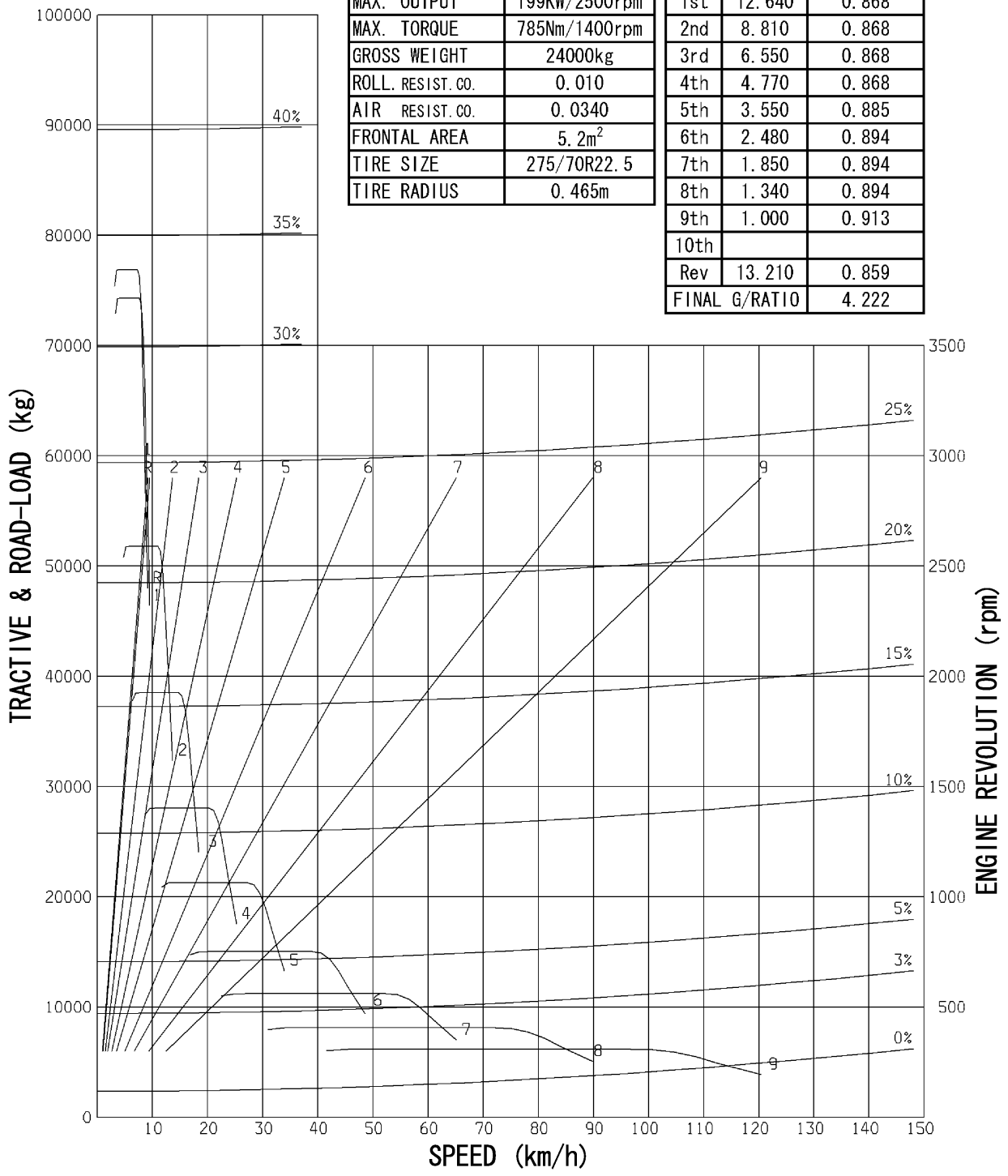
T/M	G/RATIO	EFFICIENCY
1st	4.593	0.855
2nd	2.257	0.855
3rd	1.535	0.855
4th	1.000	0.855
5th	0.749	0.855
6th	0.651	0.855
7th	/	/
8th	/	/
9th	/	/
10th	/	
Rev	4.999	0.855
FINAL G/RATIO		6.166
STALL TORQUE RATIO		2.350



FN64FU2RFAK

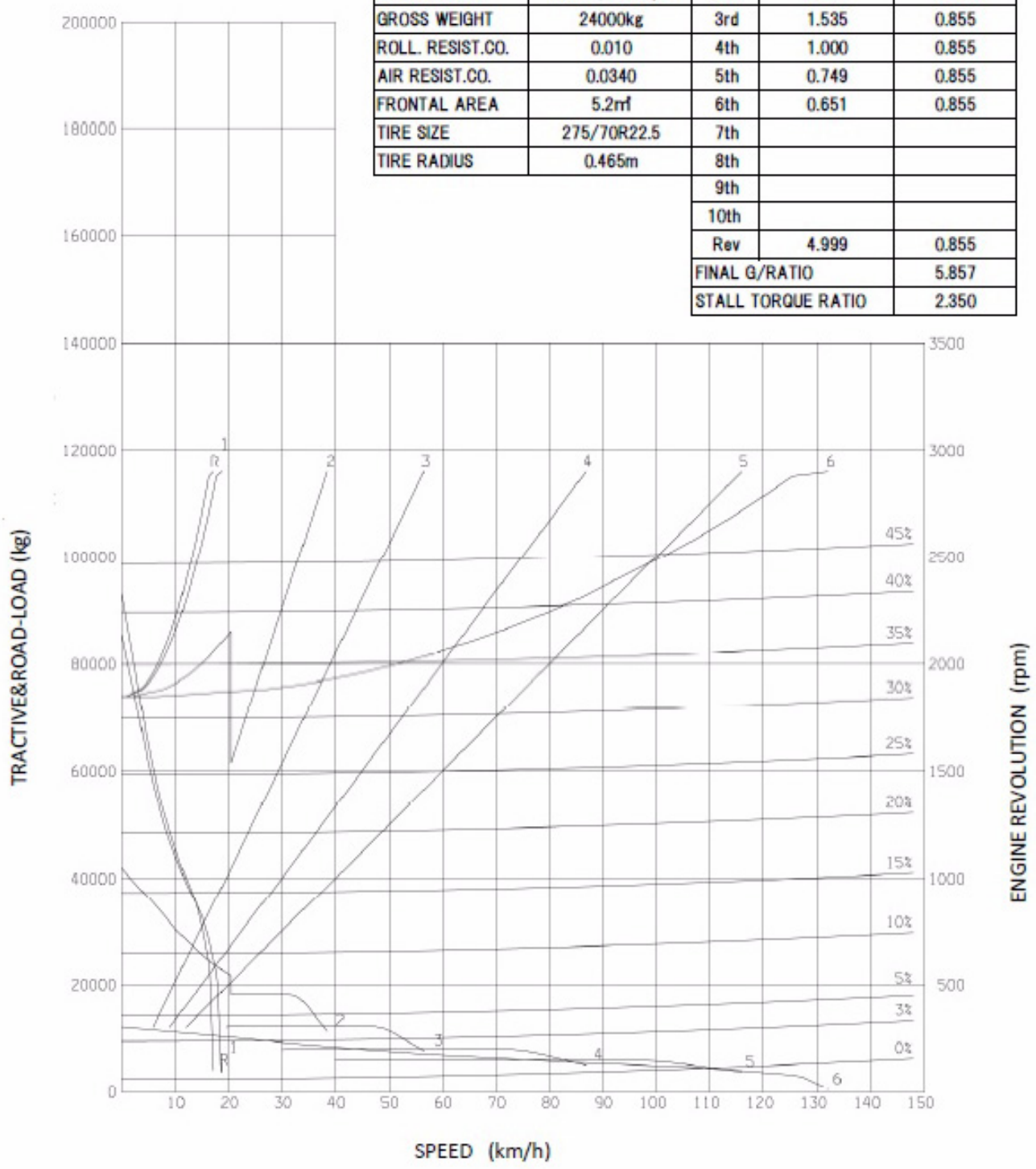
ENGINE MODEL	6M60T2
MAX. OUTPUT	199KW/2500rpm
MAX. TORQUE	785Nm/1400rpm
GROSS WEIGHT	24000kg
ROLL. RESIST. CO.	0.010
AIR RESIST. CO.	0.0340
FRONTAL AREA	5.2m^2
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

T/M	G/RATIO	EFFICIENCY
1st	12.640	0.868
2nd	8.810	0.868
3rd	6.550	0.868
4th	4.770	0.868
5th	3.550	0.885
6th	2.480	0.894
7th	1.850	0.894
8th	1.340	0.894
9th	1.000	0.913
10th		
Rev	13.210	0.859
FINAL G/RATIO		4.222



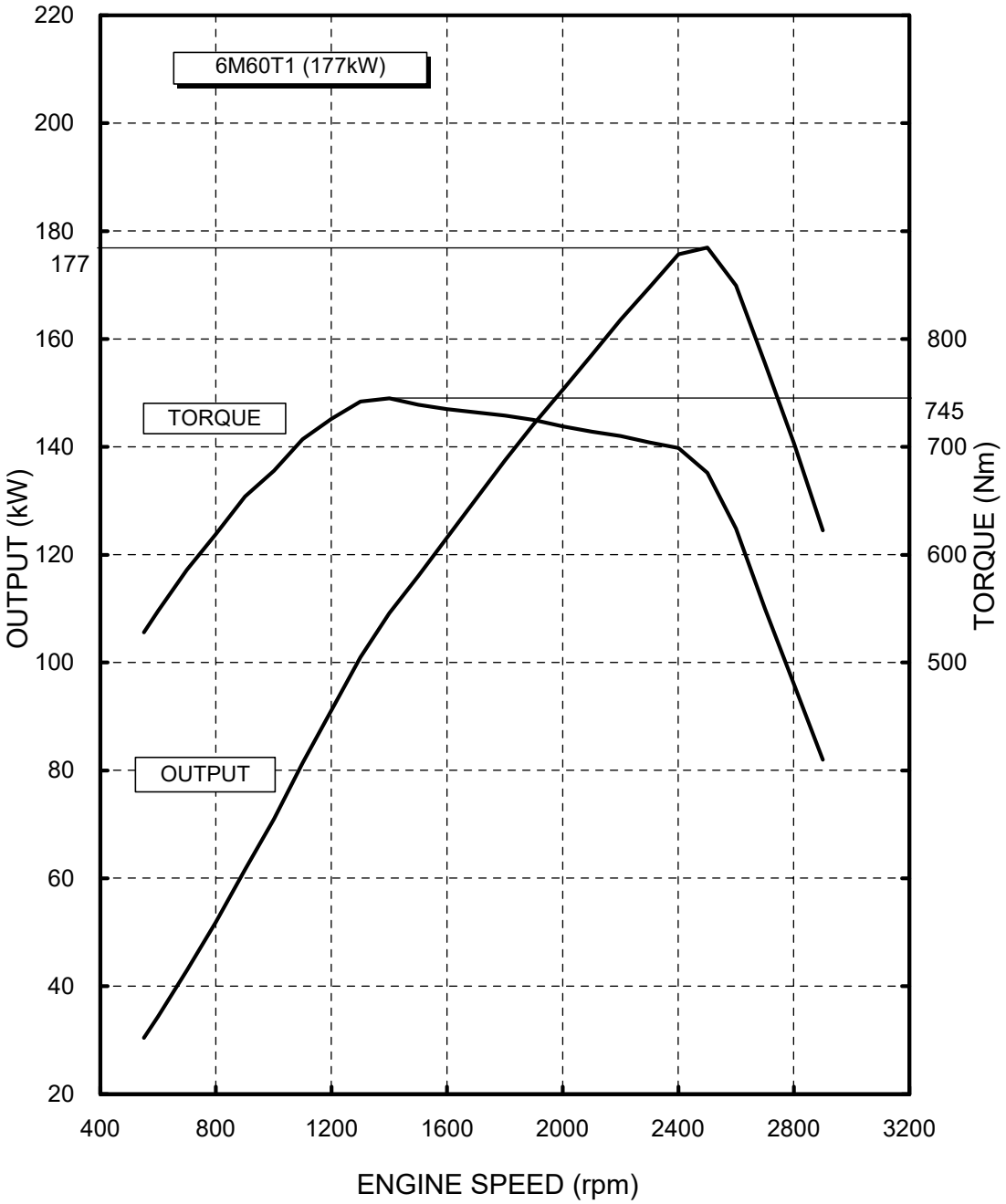
FN64FU2RFAM

ENGINE MODEL	6M60T2	T/M	G/RATIO	EFFICIENCY
MAX.OUTPUT	199kw/2500rpm	1st	4.593	0.855
MAX.TORQUE	785Nm/1400rpm	2nd	2.257	0.855
GROSS WEIGHT	24000kg	3rd	1.535	0.855
ROLL. RESIST.CO.	0.010	4th	1.000	0.855
AIR RESIST.CO.	0.0340	5th	0.749	0.855
FRONTAL AREA	5.2㎡	6th	0.651	0.855
TIRE SIZE	275/70R22.5	7th		
TIRE RADIUS	0.465m	8th		
		9th		
		10th		
		Rev	4.999	0.855
		FINAL G/RATIO		5.857
		STALL TORQUE RATIO		2.350

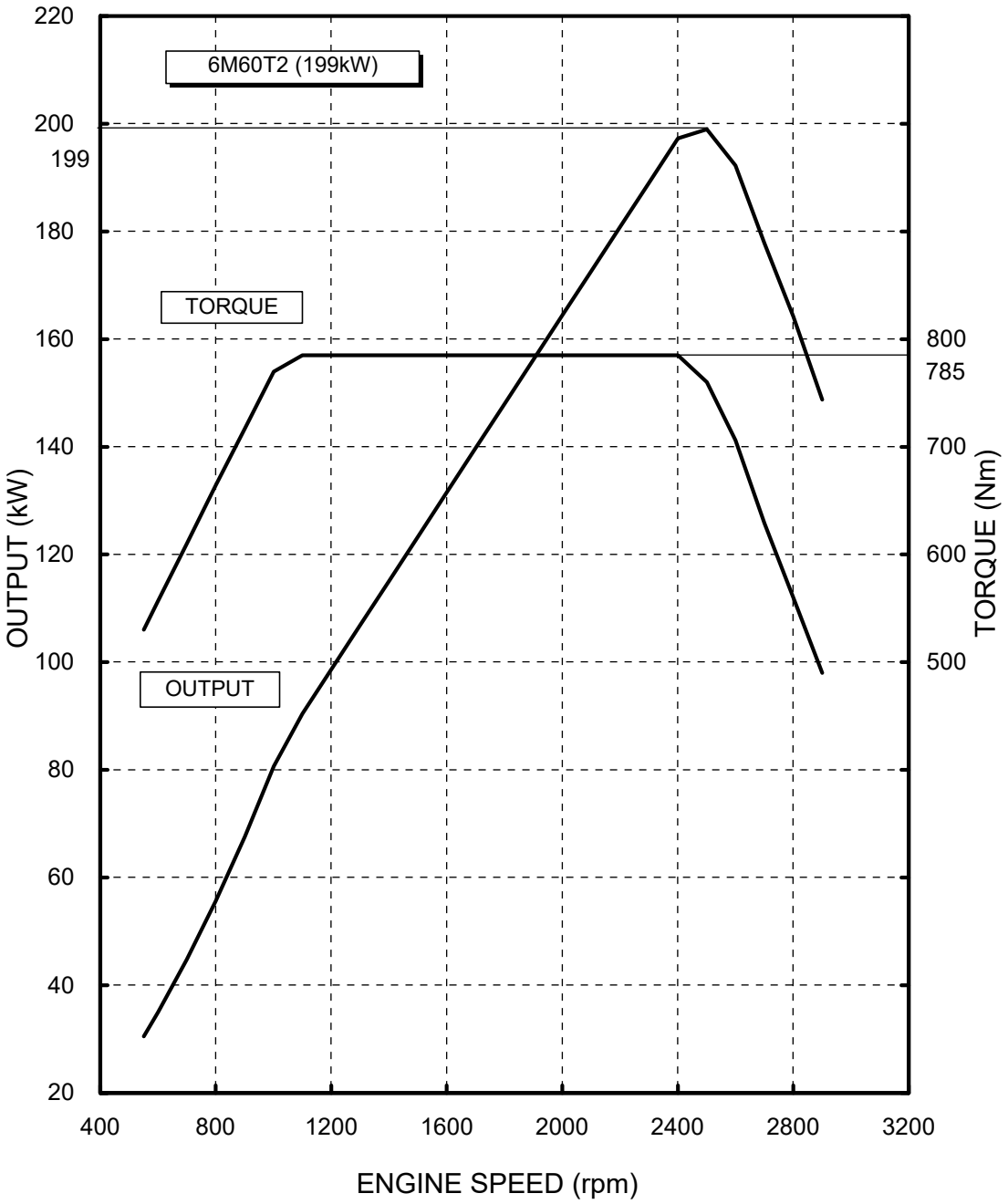


10.3.2 Engine performance curve

Engine performance curve 6M60-9AT1



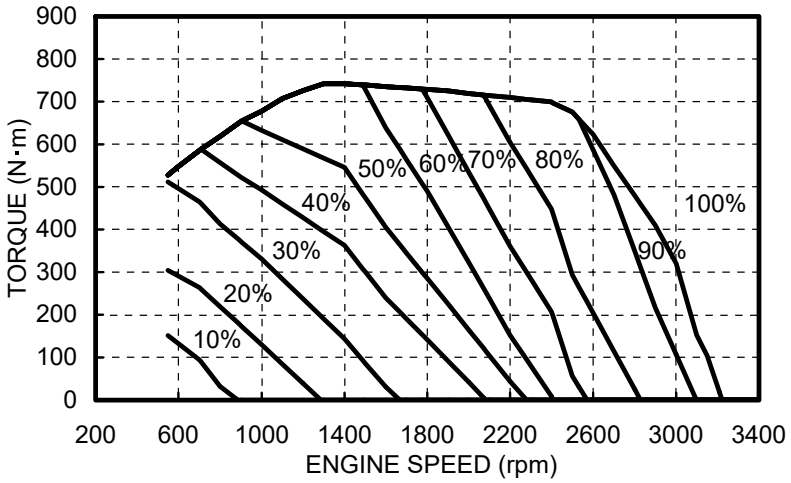
Engine performance curve 6M60-9AT2



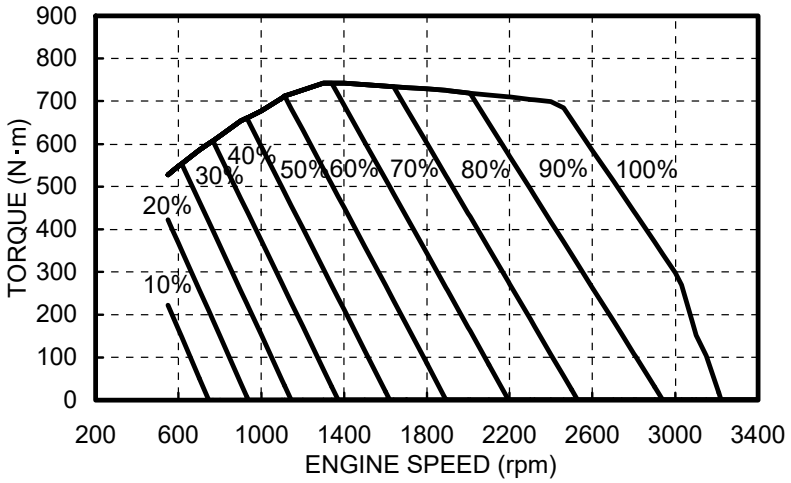
10.3.3 Governor and torque characteristics

6M60T1 (177kW)

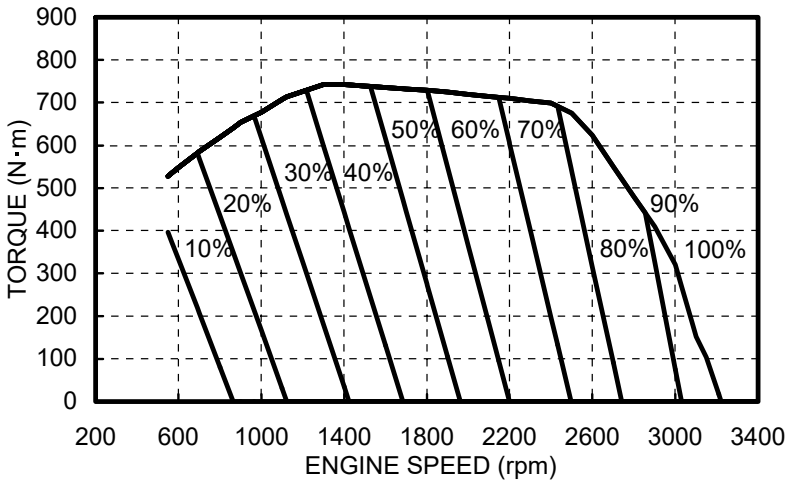
Normal engine governor



Special equipment governor A

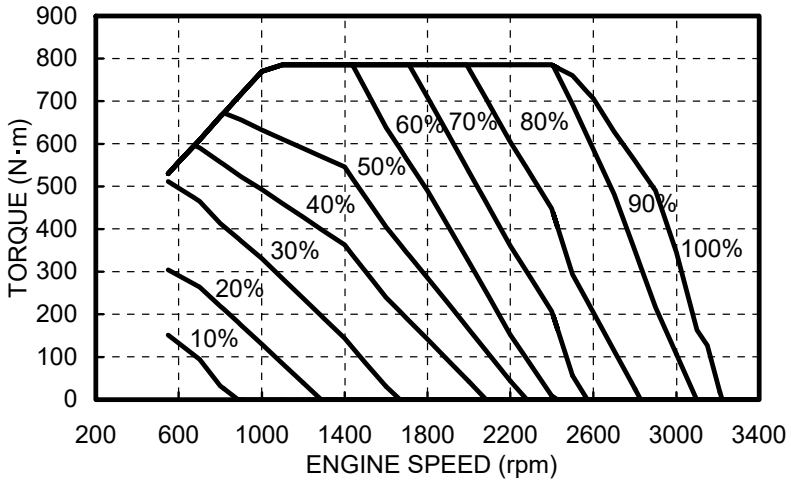


Special equipment governor B

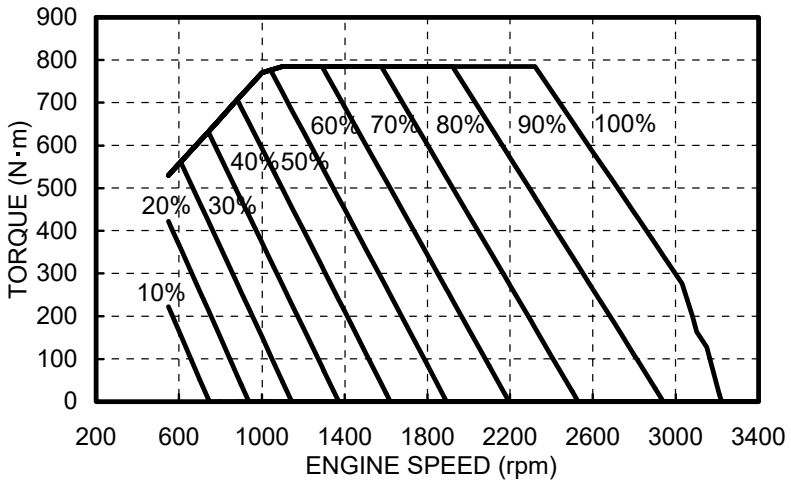


6M60T2 (199kW)

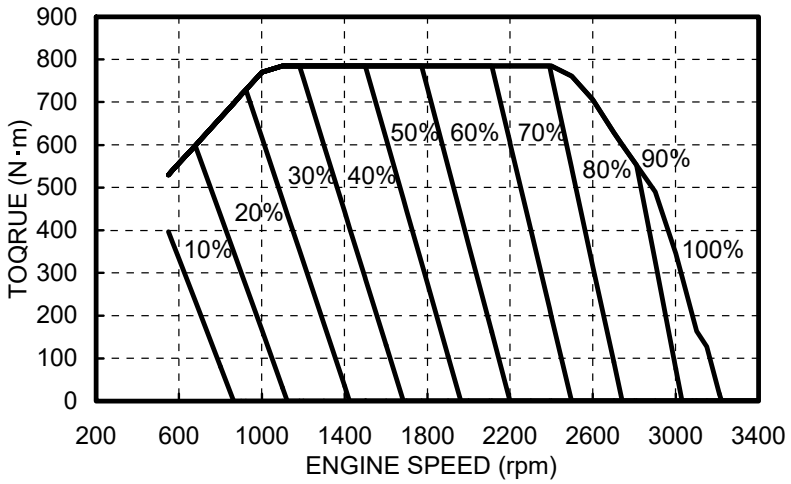
Normal engine governor



Special equipment governor A



Special equipment governor B



10.4 Weight distribution table

10.4.1 Weight distribution table

Model: FK61FH1RFAG

Wheelbase (m) : 4.270

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	30.8	-5.9
Front cab mounting	21	-0.995	25.6	-4.8
Control	26	-0.765	30.9	-4.7
Steering	60	-0.700	70.2	-9.9
Cooling	38	-0.350	40.6	-3.1
Cab	430	-0.239	454.5	-24.1
Air conditioning	26	-0.279	27.4	-1.7
Engine	634	0.410	573.0	60.9
Air intake	13	0.167	12.3	0.5
Electrical	42	0.390	38.2	3.8
Enclosure	16	0.420	14.4	1.6
Rear cab mounting	23	0.860	18.0	4.5
Exhaust system	47	2.406	20.5	26.4
Clutch & Transmission	193	1.257	136.2	56.8
Service brake equipment	65	1.427	43.1	21.6
Battery	36	2.208	17.2	18.4
Fuel tank	57	2.575	22.8	34.6
Fuel	170	2.575	67.5	102.5
SCR system	19	2.406	8.4	10.8
SCR tank	52	3.361	11.0	40.5
Propeller shaft	51	2.829	17.1	33.5
Frame assy	433	2.270	202.7	230.0
Tool box	5	3.225	1.1	3.4
Sprung weight	2479 2480		1883.2 1883	595.9 596
Unsprung weight	1085		379	706
Chassis cab weight *2	3564 3565		2262 2265	1302 1300

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK61FL1RFAG

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.7	-4.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	26	-0.765	30.0	-3.8
Steering	60	-0.700	68.5	-8.1
Cooling	38	-0.350	40.0	-2.5
Cab	430	-0.239	450.2	-19.7
Air conditioning	26	-0.279	27.1	-1.4
Engine	634	0.410	584.0	49.9
Air intake	13	0.167	12.4	0.4
Electrical	42	0.390	38.9	3.1
Enclosure	16	0.420	14.7	1.3
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	193	1.257	146.4	46.6
Service brake equipment	65	1.427	47.2	17.8
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	19	2.406	10.4	8.9
SCR tank	52	4.301	9.0	42.5
Propeller shaft	74	3.220	28.1	45.5
Frame assy	512	3.149	202.6	309.6
Tool box	5	4.165	0.9	3.6
Sprung weight	2582 2580		1903.2 1903	678.6 679
Unsprung weight	1085		379	706
Chassis cab weight *2	3667 3665		2282 2280	1385 1385

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK61FH1RFAC

Wheelbase (m) : 4.270

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	30.8	-5.9
Front cab mounting	21	-0.995	25.6	-4.8
Control	29	-0.765	33.7	-5.1
Steering	60	-0.700	70.0	-9.9
Cooling	37	-0.350	40.5	-3.1
Cab	430	-0.239	454.5	-24.1
Air conditioning	26	-0.279	27.4	-1.7
Engine	634	0.410	573.0	60.9
Air intake	13	0.554	11.1	1.7
Electrical	42	0.390	38.2	3.8
Enclosure	16	0.420	14.4	1.6
Rear cab mounting	23	0.860	18.0	4.5
Exhaust system	47	2.406	20.5	26.4
Clutch & Transmission	218	1.257	153.8	64.1
Service brake equipment	67	1.427	44.8	22.5
Battery	36	2.208	17.2	18.4
Fuel tank	57	2.575	22.8	34.6
Fuel	170	2.575	67.5	102.5
SCR system	19	2.406	8.4	10.8
SCR tank	52	3.361	11.0	40.5
Propeller shaft	58	2.829	19.6	38.4
Frame assy	433	2.270	202.7	230.0
Tool box	5	3.225	1.1	3.4
Sprung weight	2516.2 2515		1906.5 1907	609.7 610
Unsprung weight	1140		387	753
Chassis cab weight *2	3656 3655		2294 2295	1362 1360

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK61FK1RFAC

Wheelbase (m) : 4.870

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	30.0	-5.2
Front cab mounting	21	-0.995	25.0	-4.2
Control	29	-0.765	33.1	-4.5
Steering	60	-0.700	68.8	-8.6
Cooling	37	-0.350	40.2	-2.7
Cab	430	-0.239	451.5	-21.1
Air conditioning	26	-0.279	27.2	-1.5
Engine	634	0.410	580.5	53.4
Air intake	13	0.554	11.3	1.5
Electrical	42	0.390	38.6	3.4
Enclosure	16	0.420	14.6	1.4
Rear cab mounting	23	0.860	18.6	4.0
Exhaust system	47	2.406	23.7	23.2
Clutch & Transmission	218	1.257	161.7	56.2
Service brake equipment	67	1.427	47.7	19.8
Battery	36	2.208	19.5	16.2
Fuel tank	57	3.175	20.0	37.4
Fuel	170	3.175	59.2	110.8
SCR system	19	2.406	9.7	9.5
SCR tank	52	3.961	9.6	41.9
Propeller shaft	63	3.139	22.3	40.4
Frame assy	466	2.850	193.3	272.7
Tool box	5	3.825	1.0	3.5
Sprung weight	2554.1 2555		1906.9 1907	647.2 647
Unsprung weight	1140		387	753
Chassis cab weight *2	3694 3695		2294 2295	1400 1400

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK61FL1RFAC

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.7	-4.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	29	-0.765	32.9	-4.2
Steering	60	-0.700	68.3	-8.1
Cooling	37	-0.350	40.0	-2.5
Cab	430	-0.239	450.2	-19.7
Air conditioning	26	-0.279	27.1	-1.4
Engine	634	0.410	584.0	49.9
Air intake	13	0.554	11.4	1.4
Electrical	42	0.390	38.8	3.1
Enclosure	16	0.420	14.7	1.3
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	218	1.257	165.3	52.6
Service brake equipment	67	1.427	49.0	18.5
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	19	2.406	10.4	8.9
SCR tank	52	4.301	9.0	42.5
Propeller shaft	85	3.220	32.3	52.3
Frame assy	512	3.149	202.6	309.6
Tool box	5	4.165	0.9	3.6
Sprung weight	2622.4 2620		1929.7 1930	692.7 693
Unsprung weight	1140		387	753
Chassis cab weight *2	3763 3765		2317 2320	1445 1445

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK61FM1RFAC

Wheelbase (m) : 5.540

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.4	-4.6
Front cab mounting	21	-0.995	24.5	-3.7
Control	29	-0.765	32.7	-4.0
Steering	60	-0.700	67.8	-7.6
Cooling	37	-0.350	39.8	-2.4
Cab	430	-0.239	449.0	-18.6
Air conditioning	26	-0.279	27.0	-1.3
Engine	634	0.410	587.0	46.9
Air intake	13	0.554	11.5	1.3
Electrical	42	0.390	39.0	3.0
Enclosure	16	0.420	14.8	1.2
Rear cab mounting	23	0.860	19.1	3.5
Exhaust system	47	2.406	26.5	20.4
Clutch & Transmission	218	1.257	168.5	49.4
Service brake equipment	69	1.427	51.1	17.7
Battery	36	2.208	21.4	14.2
Fuel tank	57	3.845	17.6	39.8
Fuel	170	3.845	52.0	118.0
SCR system	19	2.406	10.9	8.4
SCR tank	52	4.631	8.5	43.0
Propeller shaft	87	3.404	33.7	53.7
Frame assy	529	3.358	208.2	320.4
Tool box	5	4.495	0.8	3.7
Sprung weight	2643.0 2645		1940.6 1941	702.4 702
Unsprung weight	1140		387	753
Chassis cab weight *2	3783 3785		2328 2330	1455 1455

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK61FKWRFAC

Wheelbase (m) : 4.870

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	30.0	-5.2
Front cab mounting	13	-0.995	16.1	-2.7
Control	29	-0.765	33.2	-4.5
Steering	59	-0.700	67.6	-8.5
Cooling	37	-0.350	40.2	-2.7
Cab	673	0.146	652.9	20.2
Air conditioning	26	-0.279	27.2	-1.5
Engine	634	0.410	580.6	53.4
Air intake	18	0.554	15.6	2.0
Electrical	45	0.390	41.1	3.6
Enclosure	19	0.420	17.3	1.6
Rear cab mounting	29	1.481	20.5	9.0
Exhaust system	47	2.406	23.7	23.2
Clutch & Transmission	218	1.257	161.7	56.2
Service brake equipment	71	1.427	50.4	20.9
Battery	36	2.208	19.5	16.2
Fuel tank	57	3.175	20.0	37.4
Fuel	170	3.175	59.2	110.8
SCR system	19	2.406	9.7	9.5
SCR tank	52	3.961	9.6	41.9
Propeller shaft	63	3.139	22.3	40.4
Frame assy	518	2.850	214.7	303.0
Tool box	5	3.825	1.0	3.5
Sprung weight	2861.6 2860		2134.0 2134	727.6 728
Unsprung weight	1140		387	753
Chassis cab weight *2	4002 4000		2521 2520	1480 1480

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK61FL1RFAL

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.7	-4.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	20	-0.765	23.4	-3.0
Steering	60	-0.700	68.3	-8.1
Cooling	37	-0.350	40.0	-2.5
Cab	436	-0.239	455.6	-20.0
Air conditioning	26	-0.279	27.1	-1.4
Engine	634	0.410	584.0	49.9
Air intake	13	0.554	11.4	1.4
Electrical	42	0.390	38.8	3.1
Enclosure	4	0.420	3.6	0.3
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	181	1.257	137.3	43.7
Service brake equipment	67	1.427	49.0	18.5
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	19	2.406	10.4	8.9
SCR tank	52	4.301	9.0	42.5
Propeller shaft	73	3.220	28.0	45.3
Frame assy	512	3.149	202.6	309.6
Tool box	5	4.165	0.9	3.6
Air suspension equipment			0.0	0.0
T/M oil cooler	18	-0.875	19.1	-0.7
Sprung weight	2578 2580		1901.5 1901	676.2 676
Unsprung weight	1140		387	753
Chassis cab weight *2	3718 3720		2282 2285	1435 1435

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FHZ1RFAC

Wheelbase (m) : 4.270

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	30.8	-5.9
Front cab mounting	21	-0.995	25.6	-4.8
Control	28	-0.765	33.5	-5.1
Steering	64	-0.700	74.1	-10.4
Cooling	37	-0.350	40.5	-3.1
Cab	440	-0.239	464.7	-24.6
Air conditioning	26	-0.279	27.4	-1.7
Engine	638	0.410	576.5	61.2
Air intake	13	0.554	11.1	1.7
Electrical	43	0.390	38.9	3.9
Enclosure	12	0.420	11.1	1.2
Rear cab mounting	23	0.860	18.0	4.5
Exhaust system	47	2.406	20.5	26.4
Clutch & Transmission	218	1.257	153.8	64.1
Service brake equipment	78	1.607	48.5	29.3
Battery	36	2.208	17.2	18.4
Fuel tank	57	2.575	22.8	34.6
Fuel	170	2.575	67.5	102.5
SCR system	19	2.406	8.4	10.8
SCR tank	52	3.361	11.0	40.5
Propeller shaft	58	2.829	19.6	38.4
Frame assy	480	2.503	198.7	281.4
Tool box	5	3.225	1.1	3.4
Sprung weight	2588.0 2590		1921.2 1921	666.9 667
Unsprung weight	1408		522	886
Chassis cab weight *2	3996 3995		2443 2440	1553 1555

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FHY1RFAC

Wheelbase (m) : 4.270

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	20	-1.021	24.4	-4.7
Front cab mounting	21	-0.995	25.6	-4.8
Control	28	-0.765	33.5	-5.1
Steering	64	-0.700	74.1	-10.4
Cooling	37	-0.350	40.5	-3.1
Cab	440	-0.239	464.7	-24.6
Air conditioning	26	-0.279	27.4	-1.7
Engine	638	0.410	576.5	61.2
Air intake	13	0.554	11.1	1.7
Electrical	46	0.390	42.0	4.2
Enclosure	12	0.420	11.1	1.2
Rear cab mounting	23	0.860	18.0	4.5
Exhaust system	47	2.406	20.5	26.4
Clutch & Transmission	218	1.257	153.8	64.1
Service brake equipment	78	1.607	48.5	29.3
Battery	36	2.208	17.2	18.4
Fuel tank	57	2.575	22.8	34.6
Fuel	170	2.575	67.5	102.5
SCR system	21	2.406	9.3	12.1
SCR tank	43	3.361	9.2	33.8
Propeller shaft	58	2.829	19.6	38.4
Frame assy	433	2.270	202.7	230.0
Tool box	5	3.225	1.1	3.4
Sprung weight	2533.0 2535		1921.0 1921	611.5 612
Unsprung weight	1357		495	862
Chassis cab weight *2	3890 3890		2416 2415	1474 1475

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FKY1RFAC

Wheelbase (m) : 4,870

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	20	-1.021	23.8	-4.1
Front cab mounting	21	-0.995	25.0	-4.2
Control	28	-0.765	32.9	-4.5
Steering	64	-0.700	72.9	-9.2
Cooling	37	-0.350	40.2	-2.7
Cab	440	-0.239	461.6	-21.6
Air conditioning	26	-0.279	27.2	-1.5
Engine	638	0.410	584.1	53.7
Air intake	13	0.554	11.3	1.5
Electrical	46	0.390	42.5	3.7
Enclosure	12	0.420	11.3	1.1
Rear cab mounting	23	0.860	18.6	4.0
Exhaust system	47	2.406	23.7	23.2
Clutch & Transmission	218	1.257	161.7	56.2
Service brake equipment	78	1.607	52.1	25.7
Battery	36	2.208	19.5	16.2
Fuel tank	57	3.115	20.7	36.7
Fuel	170	3.115	61.3	108.7
SCR system	21	2.406	10.8	10.6
SCR tank	43	3.961	8.0	35.0
Propeller shaft	63	3.156	22.2	40.8
Frame assy	452	2.953	177.9	274.1
Tool box	5	3.825	1.0	3.5
Sprung weight	2,557	1.232	1,910	647
Unsprung weight	1,358		495	862
*2	2,405	(2,405)		
Chassis cab weight	1,509	(1,510)		
	3,915	(3,915)		

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FLY1RFAC

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	20	-1.021	23.6	-3.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	28	-0.765	32.6	-4.2
Steering	64	-0.700	72.3	-8.6
Cooling	37	-0.350	40.0	-2.5
Cab	440	-0.239	460.2	-20.2
Air conditioning	26	-0.279	27.1	-1.4
Engine	638	0.410	587.6	50.2
Air intake	13	0.554	11.4	1.4
Electrical	46	0.390	42.7	3.5
Enclosure	12	0.420	11.4	1.0
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	218	1.257	165.3	52.6
Service brake equipment	78	1.607	53.9	24.0
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	21	2.406	11.5	9.9
SCR tank	43	4.301	7.5	35.5
Propeller shaft	85	3.220	32.3	52.3
Frame assy	511	3.216	195.7	315.6
Tool box	5	4.165	0.9	3.6
Sprung weight	2638 2640		1939.1 1939	698.7 699
Unsprung weight	1357		495	862
Chassis cab weight *2	3995 3995		2434 2435	1561 1560

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FLY1RFAL

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	20	-1.021	23.6	-3.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	20	-0.765	23.2	-3.0
Steering	64	-0.700	72.3	-8.6
Cooling	37	-0.350	40.0	-2.5
Cab	440	-0.239	460.2	-20.2
Air conditioning	26	-0.279	27.1	-1.4
Engine	638	0.410	587.6	50.2
Air intake	13	0.554	11.4	1.4
Electrical	46	0.390	42.7	3.5
Enclosure	2	0.420	1.8	0.2
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	181	1.257	137.3	43.7
Service brake equipment	78	1.607	53.9	24.0
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	21	2.406	11.5	9.9
SCR tank	43	4.301	7.5	35.5
Propeller shaft	73	3.220	28.0	45.3
Frame assy	511	3.216	195.7	315.6
Tool box	5	4.165	0.9	3.6
FUP				
T/M oil cooler	19	-0.875	21.8	-3.1
Sprung weight	2590 2590		1909.6 1910	680.1 680
Unsprung weight	1357		495	862
Chassis cab weight *2	3947 3945		2405 2405	1542 1540

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FLZ1RFAC

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.7	-4.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	28	-0.765	32.6	-4.2
Steering	64	-0.700	72.3	-8.6
Cooling	37	-0.350	40.0	-2.5
Cab	440	-0.239	460.2	-20.2
Air conditioning	26	-0.279	27.1	-1.4
Engine	638	0.410	587.6	50.2
Air intake	13	0.554	11.4	1.4
Electrical	43	0.390	39.6	3.2
Enclosure	12	0.420	11.4	1.0
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	218	1.257	165.3	52.6
Service brake equipment	78	1.607	53.9	24.0
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	19	2.406	10.4	8.9
SCR tank	52	4.301	9.0	42.5
Propeller shaft	85	3.220	32.3	52.3
Frame assy	566	3.216	216.8	349.7
Tool box	5	4.165	0.9	3.6
Sprung weight	2701.2 2700		1963.7 1964	737.5 738
Unsprung weight	1408		522	886
Chassis cab weight *2	4109 4110		2486 2485	1624 1625

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FLZ1RFAH

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.7	-4.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	28	-0.765	32.6	-4.2
Steering	64	-0.700	72.3	-8.6
Cooling	37	-0.350	40.0	-2.5
Cab	440	-0.239	460.2	-20.2
Air conditioning	26	-0.279	27.1	-1.4
Engine	638	0.410	587.6	50.2
Air intake	13	0.554	11.4	1.4
Electrical	43	0.390	39.6	3.2
Enclosure	12	0.420	11.4	1.0
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	218	1.257	165.3	52.6
Service brake equipment	78	1.607	53.9	24.0
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	19	2.406	10.4	8.9
SCR tank	52	4.301	9.0	42.5
Propeller shaft	85	3.220	32.3	52.3
Frame assy	566	3.216	216.8	349.7
Tool box	5	4.165	0.9	3.6
FUP	22	-0.945	26.0	-4.0
Sprung weight	2723.2 2725		1989.7 1990	733.5 734
Unsprung weight	1408		522	886
Chassis cab weight *2	4131 4130		2512 2510	1620 1620

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FMY1RFAC

Wheelbase (m) : 5.540

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	20	-1.021	23.3	-3.6
Front cab mounting	21	-0.995	24.5	-3.7
Control	28	-0.765	32.3	-3.9
Steering	64	-0.700	71.7	-8.0
Cooling	37	-0.350	39.8	-2.4
Cab	440	-0.239	459.0	-19.0
Air conditioning	26	-0.279	27.0	-1.3
Engine	638	0.410	590.6	47.2
Air intake	13	0.554	11.5	1.3
Electrical	46	0.390	42.9	3.3
Enclosure	12	0.420	11.4	0.9
Rear cab mounting	23	0.860	19.1	3.5
Exhaust system	47	2.406	26.5	20.4
Clutch & Transmission	218	1.257	168.5	49.4
Service brake equipment	78	1.607	55.2	22.6
Battery	36	2.208	21.4	14.2
Fuel tank	57	3.775	18.3	39.1
Fuel	170	3.775	54.2	115.8
SCR system	21	2.406	12.1	9.3
SCR tank	43	4.531	7.8	35.2
Propeller shaft	88	3.414	33.8	54.2
Frame assy	514	3.520	187.4	326.6
Tool box	5	4.495	0.8	3.7
Sprung weight	2,644	1.476	1,939	704.6
Unsprung weight	1,358		495	862
*2	2,435	(2,435)		
Chassis cab weight	1,567	(1,565)		
	4,002	(4,000)		

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK65FLZ1RFAL

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	20	-1.021	23.6	-3.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	20	-0.765	23.2	-3.0
Steering	64	-0.700	72.3	-8.6
Cooling	37	-0.350	40.0	-2.5
Cab	445	-0.239	465.7	-20.4
Air conditioning	26	-0.279	27.1	-1.4
Engine	638	0.410	587.6	50.2
Air intake	13	0.554	11.4	1.4
Electrical	46	0.390	42.8	3.5
Enclosure	2	0.420	1.8	0.2
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	181	1.257	137.3	43.7
Service brake equipment	78	1.607	53.9	24.0
Battery	36	2.208	20.6	15.1
Fuel tank	59	3.775	16.3	42.9
Fuel	170	3.775	46.8	123.2
SCR system	21	2.406	11.5	9.9
SCR tank	43	4.531	5.6	37.4
Propeller shaft	73	3.220	28.0	45.3
Frame assy	604	3.216	231.0	372.6
Tool box	5	4.165	0.9	3.6
Air suspension equipment	5	5.834	-0.5	5.0
T/M oil cooler	19	-0.875	21.8	-3.1
Sprung weight	2,694 2,695		1,937.3 1,938	756.6 757
Unsprung weight	1,402		518	884
Chassis cab weight *2	4,096 4,095		2,455 2,455	1,641 1,640

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK65FLZ1RFAM

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	39	-1.021	46.6	-7.6
Front cab mounting	21	-0.995	25.0	-4.0
Control	20	-0.765	23.0	-3.0
Steering	64	-0.700	72.6	-8.6
Cooling	37	-0.350	39.5	-2.5
Cab	445	-0.239	465.4	-20.4
Air conditioning	26	-0.279	27.4	-1.4
Engine	638	0.410	587.8	50.2
Air intake	13	0.554	11.6	1.4
Electrical	46	0.390	42.5	3.5
Enclosure	2	0.420	1.8	0.2
Rear cab mounting	23	0.860	19.3	3.7
Exhaust system	47	2.406	25.4	21.6
Clutch & Transmission	181	1.257	137.3	43.7
Service brake equipment	78	1.607	54.0	24.0
Battery	36	2.208	20.9	15.1
Fuel tank	59	3.775	16.1	42.9
Fuel	170	3.775	46.8	123.2
SCR system	21	2.406	11.1	9.9
SCR tank	43	4.531	5.6	37.4
Propeller shaft	73	3.220	27.7	45.3
Frame assy	604	3.216	231.4	372.6
Tool box	5	4.165	1.4	3.6
Air suspension equipment	5	5.834	0.0	5.0
T/M oil cooler	19	-0.875	22.1	-3.1
Sprung weight	2,715 2,716		1,962.3 1,963	752.7 753
Unsprung weight	1,402		518	884
Chassis cab weight *2	4,115 4,115		2,478 2,480	1,637 1,635

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FLZ1RFAL

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.7	-4.9
Front cab mounting	21	-0.995	24.7	-4.0
Control	20	-0.765	23.2	-3.0
Steering	64	-0.700	72.3	-8.6
Cooling	37	-0.350	40.0	-2.5
Cab	445	-0.239	465.7	-20.4
Air conditioning	26	-0.279	27.1	-1.4
Engine	638	0.410	587.6	50.2
Air intake	13	0.554	11.4	1.4
Electrical	43	0.390	39.6	3.2
Enclosure	0	0.420	0.3	0.0
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	47	2.406	25.2	21.6
Clutch & Transmission	181	1.257	137.3	43.7
Service brake equipment	78	1.607	53.9	24.0
Battery	36	2.208	20.5	15.1
Fuel tank	57	3.515	18.7	38.7
Fuel	170	3.515	55.3	114.7
SCR system	19	2.406	10.4	8.9
SCR tank	52	4.301	9.0	42.5
Propeller shaft	73	3.220	28.0	45.3
Frame assy	566	3.216	216.8	349.7
Tool box	5	4.165	0.9	3.6
FUP				
T/M oil cooler	19	-0.875	21.8	-3.1
Sprung weight	2656.6 2655		1938.1 1938	718.6 719
Unsprung weight	1408		522	886
Chassis cab weight *2	4065 4065		2460 2460	1605 1605

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK62FLZ1RFAM

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	39	-1.021	31.2	7.8
Front cab mounting	21	-0.995	17.1	3.9
Control	20	-0.765	17.7	2.3
Steering	64	-0.700	58.0	6.0
Cooling	37	-0.350	36.1	0.9
Cab	445	-0.239	440.1	4.9
Air conditioning	26	-0.279	25.6	0.4
Engine	638	0.410	617.4	20.6
Air intake	13	0.554	12.2	0.8
Electrical	46	0.390	44.7	1.3
Enclosure	2	0.420	1.9	0.1
Rear cab mounting	23	0.860	19.8	3.2
Exhaust system	47	2.406	-5.1	52.1
Clutch & Transmission	181	1.257	126.1	54.9
Service brake equipment	78	1.607	39.4	38.6
Battery	36	2.208	2.7	33.3
Fuel tank	57	3.515	-79.1	136.1
Fuel	170	3.515	-233.1	403.1
SCR system	21	2.406	-2.8	23.8
SCR tank	43	4.301	-109.7	152.7
Propeller shaft	73	3.220	-73.0	146.0
Frame assy	566	3.216	-558.6	1,124.6
Tool box	5	4.165	-10.0	15.0
FUP				
T/M oil cooler	19	-0.875	16.3	2.7
Sprung weight	2,670 2,670		434.9 435	2,235.1 2,235
Unsprung weight	1,393		518	875
Chassis cab weight *2	4,062 4,060		2,477 2,475	1,585 1,585

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK65FLZ2RFAC

Wheelbase (m) : 5.210

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.7	-4.9
Front cab mounting	21	-0.995	25.2	-4.0
Control	29	-0.765	32.9	-4.2
Steering	64	-0.700	72.3	-8.6
Cooling	39	-0.350	41.9	-2.6
Cab	440	-0.239	460.2	-20.2
Air conditioning	26	-0.279	27.1	-1.4
Engine	638	0.410	587.6	50.2
Air intake	13	0.554	11.4	1.4
Electrical	43	0.390	40.0	3.2
Enclosure	13	0.420	11.8	1.0
Rear cab mounting	23	0.860	18.8	3.7
Exhaust system	50	2.406	26.9	23.1
Clutch & Transmission	219	1.257	165.9	52.8
Service brake equipment	78	1.607	54.0	24.1
Battery	36	2.208	20.6	15.1
Fuel tank	59	3.445	20.1	39.2
Fuel	170	3.445	57.6	112.4
SCR system	19	2.406	10.4	8.9
SCR tank	52	4.201	10.0	41.5
Propeller shaft	85	3.220	32.3	52.3
Frame assy	596	3.149	235.6	360.0
Tool box	5	4.030	1.0	3.5
Air suspension equipment	5	5.834	-0.5	5.0
Sprung weight	2744.4 2745		1992.8 1993	751.6 752
Unsprung weight	1421		525	896
Chassis cab weight *2	4165 4165		2518 2520	1647 1645

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK65FMZ2RFAC

Wheelbase (m) : 5.540

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.4	-4.6
Front cab mounting	21	-0.995	25.0	-3.8
Control	29	-0.765	32.7	-4.0
Steering	64	-0.700	71.7	-8.0
Cooling	39	-0.350	41.7	-2.5
Cab	440	-0.239	459.0	-19.0
Air conditioning	26	-0.279	27.0	-1.3
Engine	638	0.410	590.6	47.2
Air intake	13	0.554	11.5	1.3
Electrical	43	0.390	40.2	3.0
Enclosure	13	0.420	11.8	1.0
Rear cab mounting	23	0.860	19.1	3.5
Exhaust system	50	2.406	28.3	21.7
Clutch & Transmission	219	1.257	169.1	49.6
Service brake equipment	78	1.607	55.5	22.7
Battery	36	2.208	21.5	14.2
Fuel tank	59	3.775	18.9	40.4
Fuel	170	3.775	54.2	115.8
SCR system	19	2.406	10.9	8.4
SCR tank	52	4.531	9.4	42.1
Propeller shaft	85	3.220	35.4	49.2
Frame assy	615	3.216	258.0	357.0
Tool box	5	4.360	1.0	3.5
Air suspension equipment	5	6.164	-0.5	5.0
Sprung weight	2763.7 2765		2021.2 2021	742.5 742
Unsprung weight	1421		525	896
Chassis cab weight *2	4184 4185		2546 2545	1638 1640

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FK65FMZ2RFAH

Wheelbase (m) : 5.540

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	25	-1.021	29.4	-4.6
Front cab mounting	21	-0.995	25.0	-3.8
Control	29	-0.765	32.7	-4.0
Steering	64	-0.700	71.7	-8.0
Cooling	39	-0.350	41.7	-2.5
Cab	440	-0.239	459.0	-19.0
Air conditioning	26	-0.279	27.0	-1.3
Engine	638	0.410	590.6	47.2
Air intake	13	0.554	11.5	1.3
Electrical	43	0.390	40.2	3.0
Enclosure	13	0.420	11.8	1.0
Rear cab mounting	23	0.860	19.1	3.5
Exhaust system	50	2.406	28.3	21.7
Clutch & Transmission	219	1.257	169.1	49.6
Service brake equipment	78	1.607	55.5	22.7
Battery	36	2.208	21.5	14.2
Fuel tank	59	3.775	18.9	40.4
Fuel	170	3.775	54.2	115.8
SCR system	19	2.406	10.9	8.4
SCR tank	52	4.531	9.4	42.1
Propeller shaft	85	3.220	35.4	49.2
Frame assy	615	3.216	258.0	357.0
Tool box	5	4.360	1.0	3.5
Air suspension equipment	5	6.164	-0.5	5.0
FUP	22	-0.945	26.0	-4.0
Sprung weight	2785.7 2785		2046.9 2047	738.7 739
Unsprung weight	1421		525	896
Chassis cab weight *2	4206 4205		2572 2570	1634 1635

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM65FH2RFAH

Wheelbase (m) : 4.280

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	35.4	-6.8
Front cab mounting	21	-1.105	26.1	-5.4
Control	28	-0.875	33.9	-5.8
Steering	82	-0.810	97.5	-15.5
Cooling	39	-0.463	43.5	-4.2
Cab	509	-0.463	564.2	-55.1
Air conditioning	26	-0.389	28.6	-2.4
Engine	644	0.349	591.4	52.5
Air intake	13	0.570	11.1	1.7
Electrical	38	-0.369	41.5	-3.3
Enclosure	14	0.310	13.2	1.0
Rear cab mounting	23	0.750	18.6	4.0
Exhaust system	48	2.347	21.7	26.4
Clutch & Transmission	235	1.147	172.3	63.1
Service brake equipment	99	1.877	55.4	43.3
Battery	35	1.154	25.8	9.5
Fuel tank	54	1.942	29.5	24.5
Fuel	170	1.942	92.9	77.1
SCR system	19	2.347	8.7	10.6
SCR tank	79	2.727	28.7	50.3
Propeller shaft	58	2.641	22.3	36.0
Frame assy	640	2.544	259.5	380.2
Tool box	5	3.115	1.5	3.9
Fup	29	-0.946	34.8	-6.3
Sprung weight	2937.2 2935		2257.9 2258	679.3 679
Unsprung weight	1935		678	1257
Chassis cab weight *2	4872 4870		2936 2935	1937 1935

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM65FH2RFAM

Wheelbase (m) : 4.280

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	71	-1.021	88.3	-17.0
Front cab mounting	21	-1.105	26.1	-5.4
Control	20	-0.875	24.1	-4.1
Steering	82	-0.810	97.5	-15.5
Cooling	39	-0.460	43.4	-4.2
Cab	507	-0.463	561.8	-54.8
Air conditioning	26	-0.389	28.6	-2.4
Engine	683	0.349	627.5	55.7
Air intake	13	0.570	11.1	1.7
Electrical	42	-0.369	45.2	-3.6
Enclosure	2	0.310	1.7	0.1
Rear cab mounting	23	0.750	18.6	4.0
Exhaust system	48	2.347	21.7	26.4
Clutch & Transmission	320	1.147	234.2	85.8
Service brake equipment	99	1.877	55.4	43.3
Battery	35	1.154	25.8	9.5
Fuel tank	54	1.942	29.5	24.5
Fuel	170	1.942	92.9	77.1
SCR system	21	2.347	9.5	11.6
SCR tank	73	2.727	26.3	46.2
Propeller shaft	58	2.641	22.3	36.0
Frame assy	640	2.544	259.5	380.2
Tool box	5	3.115	1.5	3.9
Air suspension equipment			0.0	0.0
T/M oil cooler	67	2.800	23.3	44.1
Sprung weight	3119 3120		2375.8 2375	743.0 745
Unsprung weight	1967		679	1288
Chassis cab weight *2	5086 5085		3055 3055	2031 2030

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM65FM2RFAH

Wheelbase (m) : 5.550

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.9	-5.3
Front cab mounting	21	-1.105	24.9	-4.1
Control	28	-0.875	32.7	-4.5
Steering	82	-0.810	93.9	-12.0
Cooling	39	-0.463	42.5	-3.3
Cab	509	-0.463	551.6	-42.5
Air conditioning	26	-0.389	28.0	-1.8
Engine	644	0.349	603.4	40.5
Air intake	13	0.570	11.5	1.3
Electrical	38	-0.369	40.8	-2.5
Enclosure	14	0.310	13.4	0.8
Rear cab mounting	23	0.750	19.5	3.0
Exhaust system	48	2.347	27.8	20.4
Clutch & Transmission	235	1.147	186.7	48.6
Service brake equipment	100	1.877	66.1	33.8
Battery	35	1.154	27.9	7.3
Fuel tank	61	1.910	40.1	21.1
Fuel	255	1.910	167.2	87.8
SCR system	19	2.347	11.1	8.1
SCR tank	79	2.727	40.2	38.8
Propeller shaft	88	3.242	36.5	51.3
Frame assy	756	3.417	290.5	465.4
Tool box	5	4.380	1.1	4.2
Fup	29	-0.946	33.4	-4.9
Sprung weight	3176.5 3175		2424.9 2425	751.6 752
Unsprung weight	1904		676	1228
*2 Chassis cab weight	5081 5080		3101 3100	1980 1980

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM65FS2RFAH

Wheelbase (m) : 6.500

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	28	-0.875	32.2	-3.8
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	509	-0.463	545.4	-36.3
Air conditioning	26	-0.389	27.8	-1.6
Engine	644	0.349	609.3	34.6
Air intake	13	0.570	11.7	1.1
Electrical	38	-0.369	40.4	-2.2
Enclosure	14	0.310	13.5	0.7
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	48	2.347	30.8	17.4
Clutch & Transmission	235	1.147	193.8	41.5
Service brake equipment	101	1.877	72.0	29.2
Battery	35	1.154	29.0	6.3
Fuel tank	61	1.910	43.2	18.0
Fuel	255	1.910	180.1	74.9
SCR system	19	2.347	12.3	7.0
SCR tank	79	2.727	45.9	33.1
Propeller shaft	114	3.643	50.3	64.1
Frame assy	880	4.170	315.5	564.7
Tool box	5	5.330	1.0	4.4
Fup	29	-0.946	32.6	-4.1
Sprung weight	3328.7 3330		2498.2 2498	830.5 831
Unsprung weight	1904		676	1228
Chassis cab weight *2	5233 5235		3174 3175	2058 2060

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM67FS2RFAH

Wheelbase (m) : 6.500

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	24	-0.875	26.9	-3.2
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	543.1	-36.1
Air conditioning	26	-0.389	27.8	-1.6
Engine	644	0.349	609.3	34.6
Air intake	13	0.570	11.7	1.1
Electrical	45	-0.376	47.7	-2.6
Enclosure	14	0.310	13.5	0.7
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	48	2.347	30.8	17.4
Clutch & Transmission	235	1.147	193.8	41.5
Service brake equipment	106	1.943	74.1	31.6
Battery	35	1.154	29.0	6.3
Fuel tank	61	1.910	43.2	18.0
Fuel	255	1.910	180.1	74.9
SCR system	19	2.347	12.3	7.0
SCR tank	79	2.727	45.9	33.1
Propeller shaft	114	3.643	50.3	64.1
Frame assy	842	4.201	297.8	544.1
Tool box	5	5.272	1.0	4.3
Air suspension equipment	5	6.970	-0.3	4.8
Fup	29	-0.946	32.6	-4.1
Sprung weight	3299.4 3300		2481.9 2482	817.5 817
Unsprung weight	1893		700	1193
Chassis cab weight *2	5193 5195		3182 3185	2011 2010

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM67FM2RFAM

Wheelbase (m) : 5.550

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.9	-5.3
Front cab mounting	21	-1.105	24.9	-4.1
Control	20	-0.875	23.0	-3.1
Steering	82	-0.810	93.9	-12.0
Cooling	39	-0.463	42.5	-3.3
Cab	507	-0.463	549.2	-42.3
Air conditioning	26	-0.389	28.0	-1.8
Engine	683	0.349	640.3	43.0
Air intake	13	0.570	11.5	1.3
Electrical	38	-0.369	40.9	-2.5
Enclosure	2	0.310	1.8	0.1
Rear cab mounting	23	0.750	19.5	3.0
Exhaust system	48	2.347	27.8	20.4
Clutch & Transmission	320	1.147	253.9	66.1
Service brake equipment	99	1.943	64.5	34.7
Battery	35	1.154	27.9	7.3
Fuel tank	49	1.910	32.4	17.0
Fuel	255	1.910	167.2	87.8
SCR system	19	2.347	11.1	8.1
SCR tank	79	2.727	40.2	38.8
Propeller shaft	113	3.242	47.0	66.0
Frame assy	756	3.417	290.6	465.5
Tool box	5	4.322	1.2	4.2
Air suspension equipment	5	6.020	-0.4	4.9
T/M oil cooler	67	3.825	21.0	46.5
Fup	29	-0.946	33.4	-4.9
Sprung weight	3362.5 3365		2527.1 2527	835.4 835
Unsprung weight	1928		703	1225
Chassis cab weight *2	5290 5290		3230 3230	2060 2060

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM67FS2RFAM

Wheelbase (m) : 6.500

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	20	-0.875	22.5	-2.7
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	543.1	-36.1
Air conditioning	26	-0.389	27.8	-1.6
Engine	683	0.349	646.5	36.7
Air intake	13	0.570	11.7	1.1
Electrical	38	-0.376	40.5	-2.2
Enclosure	2	0.310	1.8	0.1
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	48	2.347	30.8	17.4
Clutch & Transmission	320	1.147	263.5	56.5
Service brake equipment	99	1.943	69.5	29.6
Battery	35	1.154	29.0	6.3
Fuel tank	49	1.910	34.9	14.5
Fuel	255	1.910	180.1	74.9
SCR system	19	2.347	12.3	7.0
SCR tank	79	2.727	45.9	33.1
Propeller shaft	143	3.643	63.1	80.4
Frame assy	870	4.201	307.7	562.2
Tool box	5	5.272	1.0	4.3
Air suspension equipment	5	6.970	-0.3	4.8
T/M oil cooler	69	4.775	18.3	50.6
Fup	29	-0.946	32.6	-4.1
Sprung weight	3508.2 3510		2593.8 2594	914.5 914
Unsprung weight	1893		700	1193
Chassis cab weight *2	5401 5400		3294 3295	2108 2105

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM65FH2RFAK

Wheelbase (m) : 4.280

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	35.4	-6.8
Front cab mounting	21	-1.105	26.1	-5.4
Control	30	-0.875	35.7	-6.1
Steering	82	-0.810	97.5	-15.5
Cooling	39	-0.463	43.5	-4.2
Cab	507	-0.463	561.8	-54.8
Air conditioning	26	-0.389	28.6	-2.4
Engine	683	0.349	627.5	55.7
Air intake	13	0.570	11.1	1.7
Electrical	44	-0.369	47.9	-3.8
Enclosure	27	0.310	24.7	1.9
Rear cab mounting	23	0.750	18.6	4.0
Exhaust system	48	2.347	21.7	26.4
Clutch & Transmission	266	1.147	194.6	71.2
Service brake equipment	98	1.943	53.5	44.5
Battery	35	1.154	25.8	9.5
Fuel tank	54	1.942	29.6	24.6
Fuel	170	1.942	92.9	77.1
SCR system	19	2.347	8.7	10.6
SCR tank	79	2.727	28.7	50.3
Propeller shaft	73	2.641	28.0	45.2
Frame assy	640	2.544	259.5	380.2
Tool box	5	3.110	1.5	3.9
Fup	29	-0.946	34.8	-6.3
Sprung weight	3039.2 3040		2337.7 2338	701.5 702
Unsprung weight	1989		701	1288
Chassis cab weight *2	5028 5030		3039 3040	1989 1990

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM65FS2RFAK

Wheelbase (m) : 6.500

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	30	-0.875	33.7	-4.0
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	543.1	-36.1
Air conditioning	26	-0.389	27.8	-1.6
Engine	683	0.349	646.5	36.7
Air intake	13	0.570	11.7	1.1
Electrical	44	-0.376	46.7	-2.6
Enclosure	27	0.310	25.4	1.3
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	48	2.347	30.8	17.4
Clutch & Transmission	266	1.147	218.9	46.9
Service brake equipment	101	1.943	70.5	30.1
Battery	35	1.154	29.0	6.3
Fuel tank	45	1.910	31.8	13.2
Fuel	255	1.910	180.1	74.9
SCR system	19	2.347	12.3	7.0
SCR tank	79	2.727	45.9	33.1
Propeller shaft	143	3.643	63.1	80.4
Frame assy	869	4.201	307.3	561.5
Tool box	5	5.330	1.0	4.4
Fup	29	-0.946	32.6	-4.1
Sprung weight	3416.9 3415		2569.5 2569	847.4 847
Unsprung weight	1958		701	1257
Chassis cab weight *2	5376 5375		3271 3270	2105 2105

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM67FM2RFAK

Wheelbase (m) : 5.550

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.9	-5.3
Front cab mounting	21	-1.105	24.9	-4.1
Control	30	-0.875	34.5	-4.7
Steering	82	-0.810	93.9	-12.0
Cooling	39	-0.463	42.5	-3.3
Cab	507	-0.463	549.2	-42.3
Air conditioning	26	-0.389	28.0	-1.8
Engine	683	0.349	640.3	43.0
Air intake	13	0.570	11.5	1.3
Electrical	38	-0.369	40.9	-2.5
Enclosure	23	0.310	21.5	1.3
Rear cab mounting	23	0.750	19.5	3.0
Exhaust system	48	2.347	27.8	20.4
Clutch & Transmission	266	1.147	210.9	54.9
Service brake equipment	99	1.943	64.5	34.7
Battery	35	1.154	27.9	7.3
Fuel tank	49	1.910	32.4	17.0
Fuel	255	1.910	167.2	87.8
SCR system	19	2.347	11.1	8.1
SCR tank	79	2.727	40.2	38.8
Propeller shaft	113	3.242	47.0	66.0
Frame assy	759	3.417	291.6	467.1
Tool box	5	4.322	1.2	4.2
Air suspension equipment	5	6.020	-0.4	4.9
Fup	29	-0.946	33.4	-4.9
Sprung weight	3274.4 3275		2495.4 2495	779.0 779
Unsprung weight	1919		700	1219
Chassis cab weight *2	5193 5195		3195 3195	1998 2000

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FM67FS2RFAK

Wheelbase (m) : 6.500

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	30	-0.875	33.8	-4.0
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	543.1	-36.1
Air conditioning	26	-0.389	27.8	-1.6
Engine	683	0.349	646.5	36.7
Air intake	13	0.570	11.7	1.1
Electrical	38	-0.376	40.5	-2.2
Enclosure	23	0.310	21.7	1.1
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	48	2.347	30.8	17.4
Clutch & Transmission	266	1.147	218.9	46.9
Service brake equipment	99	1.943	69.5	29.6
Battery	35	1.154	29.0	6.3
Fuel tank	49	1.910	34.9	14.5
Fuel	255	1.910	180.1	74.9
SCR system	19	2.347	12.3	7.0
SCR tank	79	2.727	45.9	33.1
Propeller shaft	143	3.643	63.1	80.4
Frame assy	866	4.201	306.2	559.5
Tool box	5	5.272	1.0	4.3
Air suspension equipment	5	6.970	-0.3	4.8
Fup	29	-0.946	32.6	-4.1
Sprung weight	3411.8 3410		2560.6 2561	851.2 851
Unsprung weight	1919		700	1219
Chassis cab weight *2	5330 5330		3260 3260	2070 2070

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FN62FK2RFAK (6×4)

Wheelbase (m) : 4.300 (4.960)

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	35.4	-6.8
Front cab mounting	21	-1.105	26.1	-5.3
Control	31	-0.875	36.7	-6.2
Steering	82	-0.810	97.4	-15.4
Cooling	39	-0.463	43.4	-4.2
Cab	507	-0.463	561.5	-54.6
Air conditioning	26	-0.389	28.6	-2.4
Engine	688	0.349	632.2	55.8
Air intake	13	0.570	11.1	1.7
Electrical	46	-0.358	49.6	-3.8
Enclosure	33	0.310	30.3	2.4
Rear cab mounting	23	0.750	18.6	3.9
Exhaust system	49	2.347	22.1	26.5
Clutch & Transmission	266	1.147	194.9	70.9
Service brake equipment	104	1.838	59.7	44.5
Battery	36	1.154	26.3	9.7
Fuel tank	46	1.842	26.5	19.9
Fuel	170	1.842	97.2	72.8
SCR system	19	2.347	8.7	10.5
SCR tank	79	1.155	57.8	21.2
Propeller shaft	78	2.979	23.9	53.8
Frame assy	1,013	2.786	356.7	656.4
Tool box				
Air suspension equipment				
Rear suspension	672	4.300	0.0	672.2
Fup	29	-0.946	34.8	-6.3
Sprung weight	4096.7 4095		2479.5 2479	1617.2 1617
Unsprung weight	2766		678	2088
*2 Chassis cab weight	6862 6860		3157 3155	3705 3705

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FN62FK2RFAM (6×4)

Wheelbase (m) : 4.300 (4.960)

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	35.4	-6.8
Front cab mounting	21	-1.105	26.1	-5.3
Control	21	-0.875	24.8	-4.2
Steering	82	-0.810	97.4	-15.4
Cooling	39	-0.463	43.4	-4.2
Cab	507	-0.463	561.5	-54.6
Air conditioning	26	-0.389	28.6	-2.4
Engine	688	0.349	632.2	55.8
Air intake	13	0.570	11.1	1.7
Electrical	46	-0.358	49.6	-3.8
Enclosure	33	0.310	30.3	2.4
Rear cab mounting	23	0.750	18.6	3.9
Exhaust system	49	2.347	22.1	26.5
Clutch & Transmission	320	1.147	234.6	85.4
Service brake equipment	104	1.838	59.7	44.5
Battery	36	1.154	26.3	9.7
Fuel tank	46	1.842	26.5	19.9
Fuel	170	1.842	97.2	72.8
SCR system	19	2.347	8.7	10.5
SCR tank	79	1.155	57.8	21.2
Propeller shaft	78	2.979	23.9	53.8
Frame assy	1,013	2.786	356.7	656.4
Tool box				
Air suspension equipment				
Rear suspension	672	4.300	0.0	672.2
T/M oil cooler	69	2.755	24.7	44.1
Fup	29	-0.946	34.8	-6.3
Sprung weight	4209.8 4210		2532.0 2532	1677.8 1678
Unsprung weight	2766		678	2088
Chassis cab weight *2	6975 6975		3210 3210	3766 3765

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FN62FR2RFAM (6×4)

Wheelbase (m) : 5.650 (6.310)

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	71	-1.021	84.2	-12.9
Front cab mounting	21	-1.105	24.8	-4.1
Control	21	-0.875	23.8	-3.2
Steering	82	-0.810	93.7	-11.8
Cooling	39	-0.460	42.4	-3.2
Cab	507	-0.463	548.5	-41.5
Air conditioning	26	-0.389	28.0	-1.8
Engine	688	0.349	645.5	42.5
Air intake	13	0.570	11.5	1.3
Electrical	46	-0.358	48.6	-2.9
Enclosure	2	0.310	1.8	0.1
Rear cab mounting	23	0.750	19.6	3.0
Exhaust system	49	2.347	28.4	20.2
Clutch & Transmission	320	1.147	255.0	65.0
Service brake equipment	104	1.838	70.3	33.9
Battery	36	1.154	28.7	7.4
Fuel tank	70	2.130	43.6	26.4
Fuel	340	2.130	211.8	128.2
SCR system	21	2.347	12.5	8.9
SCR tank	73	1.155	57.7	14.8
Propeller shaft	118	3.085	53.7	64.6
Frame assy	1,232	3.816	399.8	831.9
Tool box	5	3.763	1.8	3.6
Air suspension equipment				
Rear suspension	672	4.990	78.5	593.7
T/M oil cooler	69	3.280	28.9	40.0
Sprung weight	4647 4647		2843.1 2843	1803.9 1804
Unsprung weight	2771		680	2091
Chassis cab weight *2	7418 7420		3523 3525	3895 3895

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FN63FU2RFAM (6×2)

Wheelbase (m) : 6.530 (7.190)

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	31	-0.875	35.1	-4.1
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	542.9	-35.9
Air conditioning	26	-0.389	27.8	-1.6
Engine	688	0.349	651.2	36.8
Air intake	13	0.570	11.7	1.1
Electrical	47	-0.358	49.8	-2.6
Enclosure	33	0.310	31.0	1.5
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	49	2.347	31.1	17.5
Clutch & Transmission	266	1.147	219.1	46.7
Service brake equipment	107	1.838	76.9	30.1
Battery	36	1.154	29.6	6.4
Fuel tank	70	2.130	47.2	22.8
Fuel	340	2.130	229.1	110.9
SCR system	19	2.347	12.3	6.9
SCR tank	79	2.965	43.1	35.9
Propeller shaft	136	3.328	66.7	69.3
Frame assy	1,064	4.337	357.4	706.8
Tool box	5	4.635	1.6	3.8
Air suspension equipment	5	1.838	3.2	1.3
Fup	29	-0.946	32.6	-4.1
Sprung weight	3741.9 3740		2710.9 2711	1031.0 1031
Unsprung weight	2924		676	2248
Chassis cab weight *2	6666 6665		3387 3385	3279 3280

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FN63FU2RFAM (6×2)

Wheelbase (m) : 6.530 (7.190)

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	21	-0.875	23.8	-2.8
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	542.9	-35.9
Air conditioning	26	-0.389	27.8	-1.6
Engine	688	0.349	651.2	36.8
Air intake	13	0.570	11.7	1.1
Electrical	47	-0.358	49.8	-2.6
Enclosure	33	0.310	31.0	1.5
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	49	2.347	31.1	17.5
Clutch & Transmission	320	1.147	263.8	56.2
Service brake equipment	107	1.838	76.9	30.1
Battery	36	1.154	29.6	6.4
Fuel tank	70	2.130	47.2	22.8
Fuel	340	2.130	229.1	110.9
SCR system	19	2.347	12.3	6.9
SCR tank	79	2.965	43.1	35.9
Propeller shaft	136	3.328	66.7	69.3
Frame assy	1,064	4.337	357.4	706.8
Tool box	5	4.620	1.6	3.8
Air suspension equipment	5	1.838	3.2	1.3
T/M oil cooler	69	3.756	29.3	39.6
Fup	29	-0.946	32.6	-4.1
Sprung weight	3855.1 3855		2773.6 2774	1081.5 1081
Unsprung weight	2924		676	2248
Chassis cab weight *2	6779 6780		3450 3450	3329 3330

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FN64FU2RFAK (6×4)

Wheelbase (m) : 6.530 (7.190)

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	31	-0.875	35.1	-4.1
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	542.9	-35.9
Air conditioning	26	-0.389	27.8	-1.6
Engine	688	0.349	651.2	36.8
Air intake	13	0.570	11.7	1.1
Electrical	47	-0.358	49.8	-2.6
Enclosure	33	0.310	31.0	1.5
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	49	2.347	31.1	17.5
Clutch & Transmission	266	1.147	219.1	46.7
Service brake equipment	107	1.838	76.7	30.0
Battery	36	1.154	29.6	6.4
Fuel tank	70	2.130	47.2	22.8
Fuel	340	2.130	229.1	110.9
SCR system	19	2.347	12.3	6.9
SCR tank	79	2.965	43.1	35.9
Propeller shaft	165	3.787	69.4	95.8
Frame assy	1,064	4.337	357.4	706.8
Tool box	5	4.618	1.6	3.8
Air suspension equipment	5	1.838	3.2	1.3
Fup	29	-0.946	32.6	-4.1
Sprung weight	3770.9 3770		2713.4 2713	1057.5 1057
Unsprung weight	3218		676	2542
Chassis cab weight *2	6988 6990		3390 3395	3598 3595

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4 Weight distribution table

Model: FN64FU2RFAM (6×4)

Wheelbase (m) : 6.530 (7.190)

Parts name	Weight (Kg)	Distance*1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Front bumper	29	-1.021	33.1	-4.5
Front cab mounting	21	-1.105	24.3	-3.5
Control	21	-0.875	23.8	-2.8
Steering	82	-0.810	92.2	-10.2
Cooling	39	-0.463	42.0	-2.8
Cab	507	-0.463	542.9	-35.9
Air conditioning	26	-0.389	27.8	-1.6
Engine	688	0.349	651.2	36.8
Air intake	13	0.570	11.7	1.1
Electrical	47	-0.358	49.8	-2.6
Enclosure	33	0.310	31.0	1.5
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	49	2.347	31.1	17.5
Clutch & Transmission	320	1.147	263.8	56.2
Service brake equipment	107	1.838	76.7	30.0
Battery	36	1.154	29.6	6.4
Fuel tank	70	2.130	47.2	22.8
Fuel	340	2.130	229.1	110.9
SCR system	19	2.347	12.3	6.9
SCR tank	79	2.965	43.1	35.9
Propeller shaft	165	3.787	69.4	95.8
Frame assy	1,064	4.337	357.4	706.8
Tool box	5	4.618	1.6	3.8
Air suspension equipment	5	1.838	3.2	1.3
T/M oil cooler	69	3.756	29.3	39.6
Fup	29	-0.946	32.6	-4.1
Sprung weight	3884.0 3885		2776.1 2776	1107.9 1108
Unsprung weight	3218		676	2542
Chassis cab weight *2	7102 7100		3452 3450	3650 3650

*1: From front axle center

*2: Chassis cab weight include oil, fuel and coolant but exclude spare tire, tools and persons.

10.4.2 Option equipment

The following additional weight must be taken into consideration when calculating vehicle weight.

<Crew>

Cab type	Model	Weight (kg)	Distance to center gravity (m)
Single Cab	FK (Driver/Center/Assist)	75 /75 /75	-0.130 /-0.055 /-0.085
	FM, FN (Driver/Center/Assist)	75 /75 /75	-0.240 /-0.165 /-0.195

<Table No.1>

Group	Option	Mass Variation [kg]	Mass Center Position (distance from Fr. Axle center) [m] *1		Remark, applicable model, etc.
			FK	FM	
Chassis	T/M P.T.O	+10	1.257	1.147	

Note. - *1 Distance from Fr. Axle Center ; +: backward, -: forward

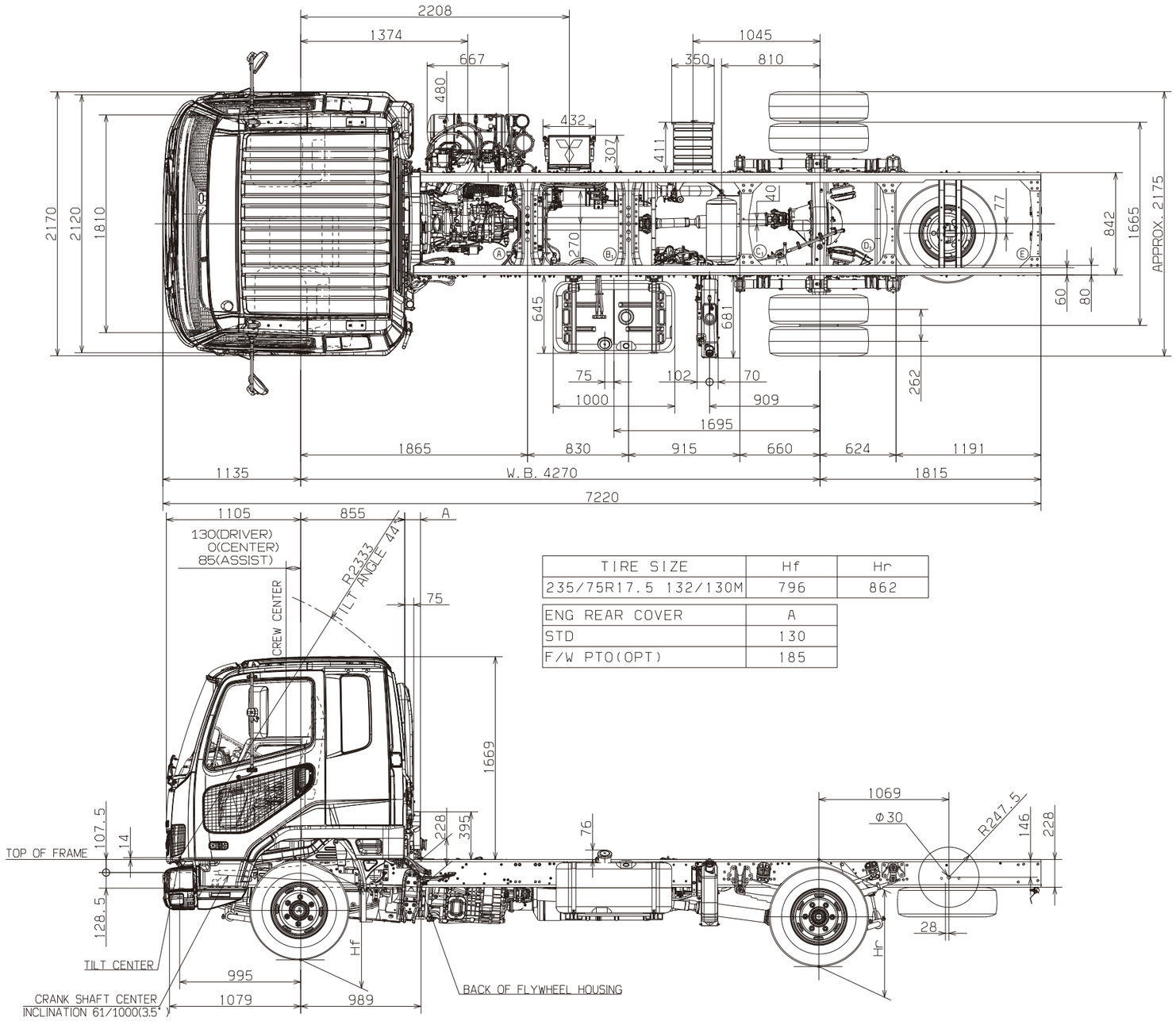
10.5 Chassis cab drawings

10.5.1 Chassis cab drawings

10.5 Chassis cab drawings

B

FK61FH1RFAC



TIRE SIZE	Hf	Hr
235/75R17.5 132/130M	796	862

ENG REAR COVER	A
STD	130
F/W PTO(OPT)	185

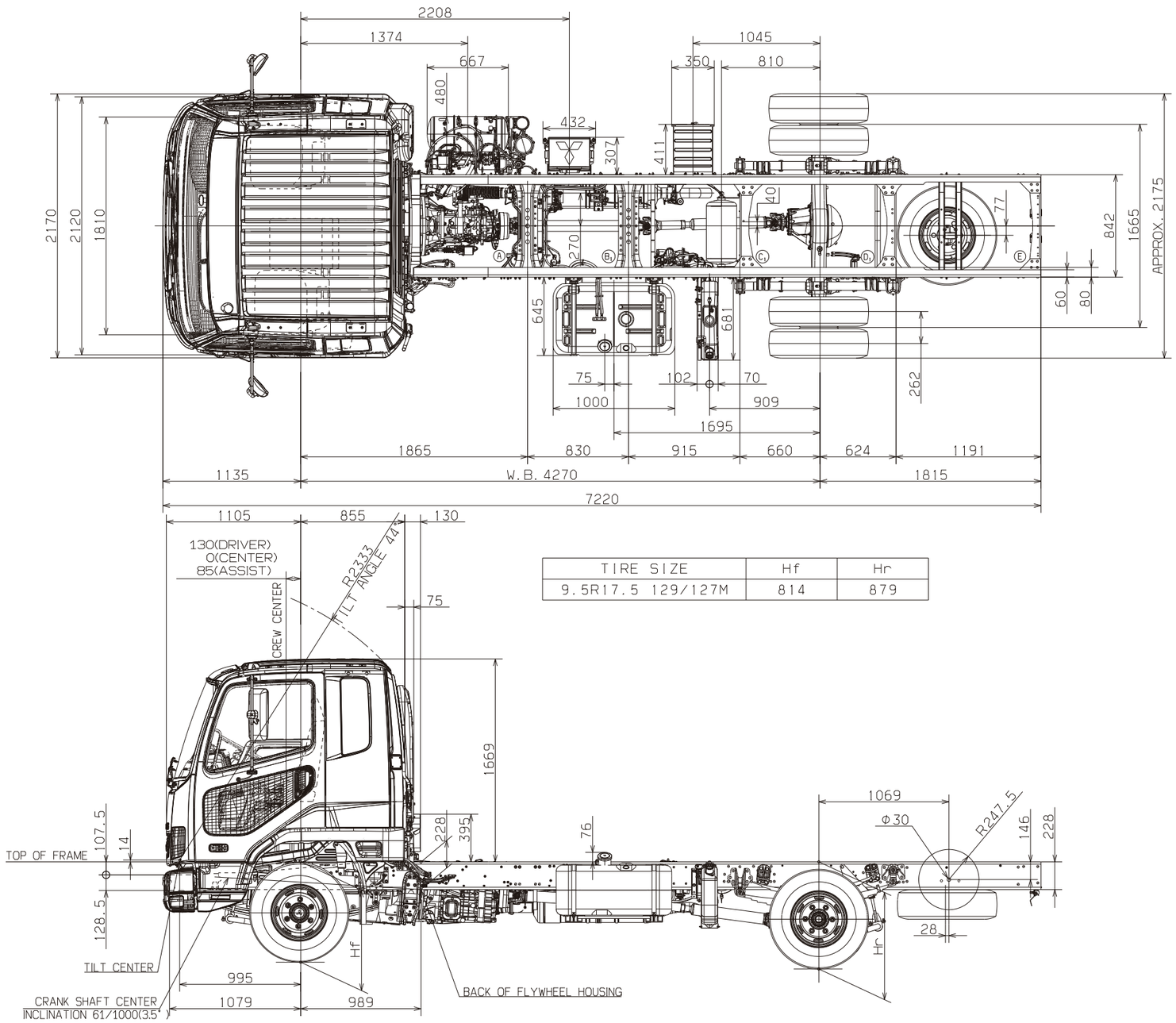
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK61FH1RFAG



TIRE SIZE	Hf	Hr
9.5R17.5 129/127M	814	879

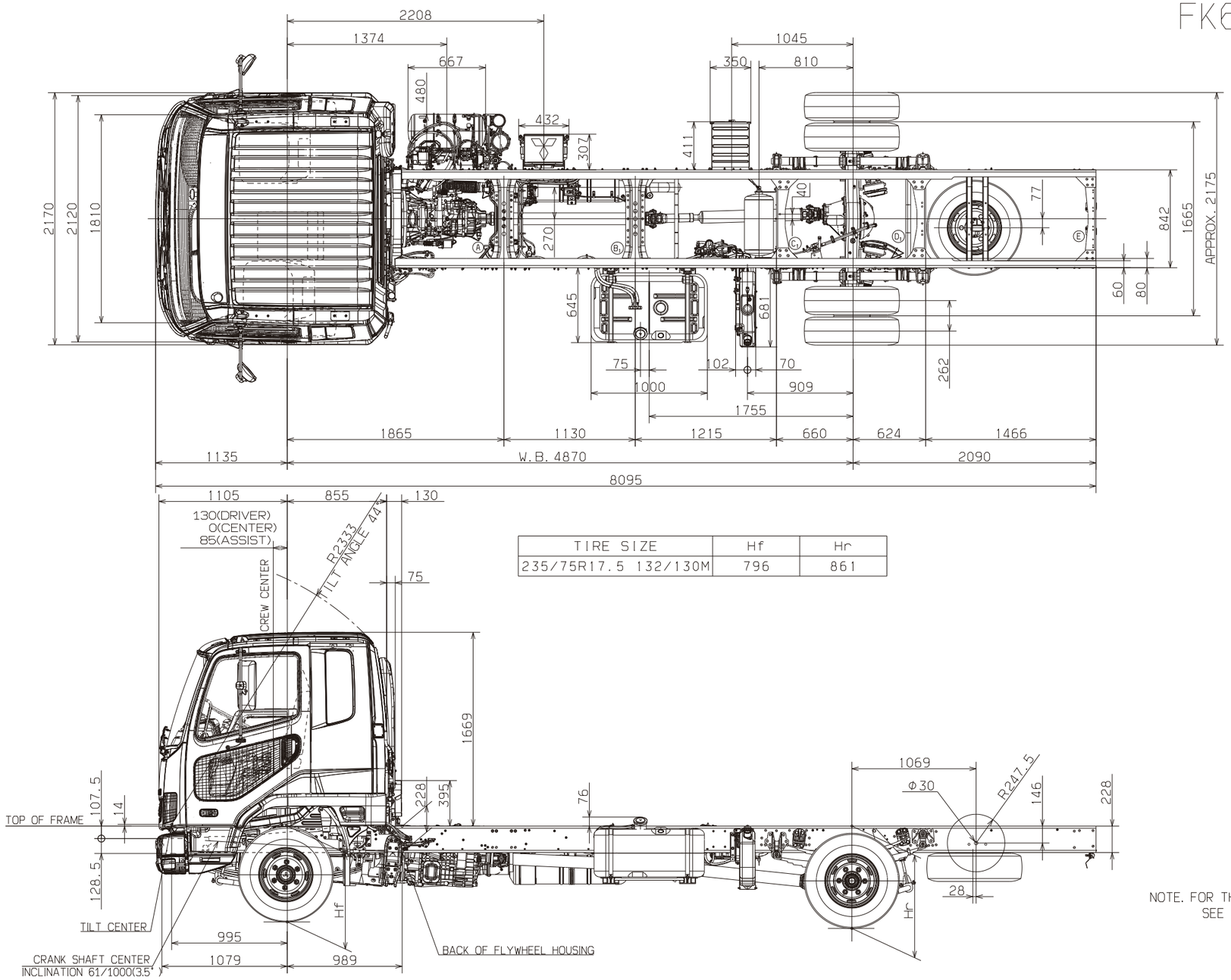
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK61FK1RFAC



TIRE SIZE	Hf	Hr
235/75R17.5 132/130M	796	861

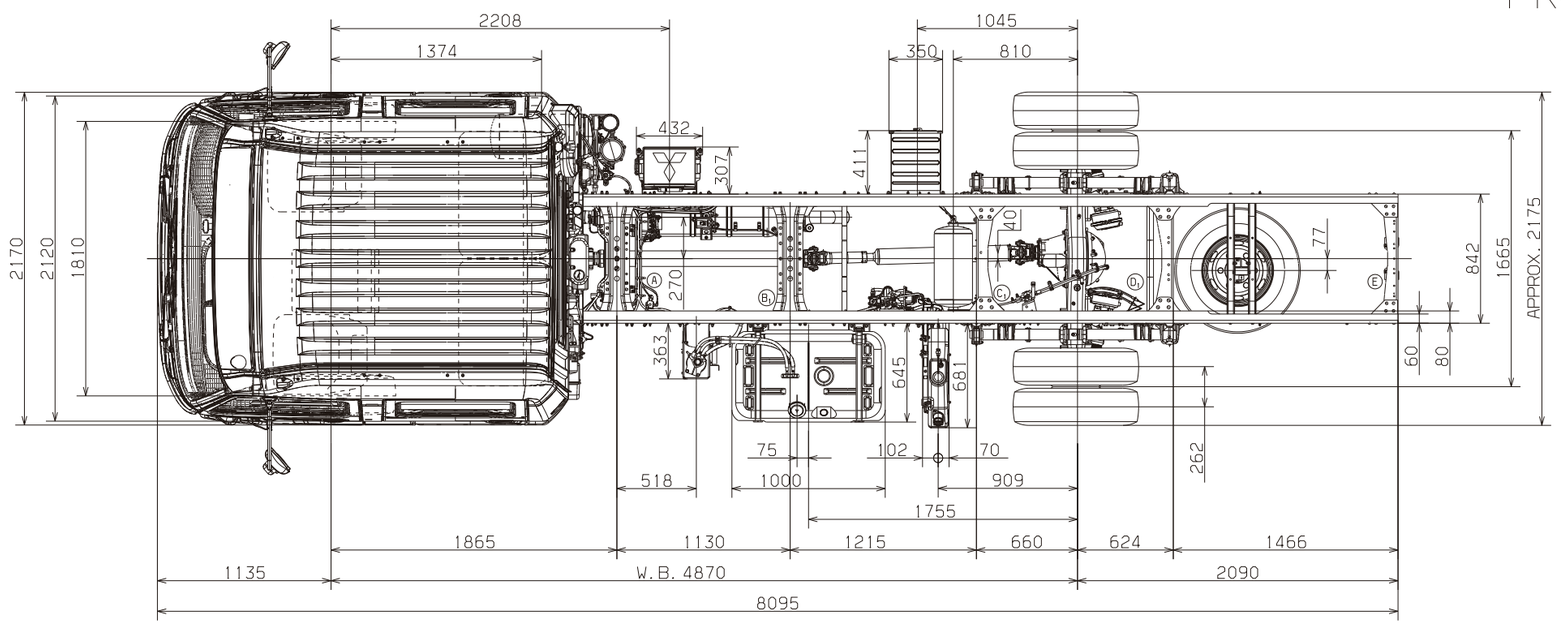
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

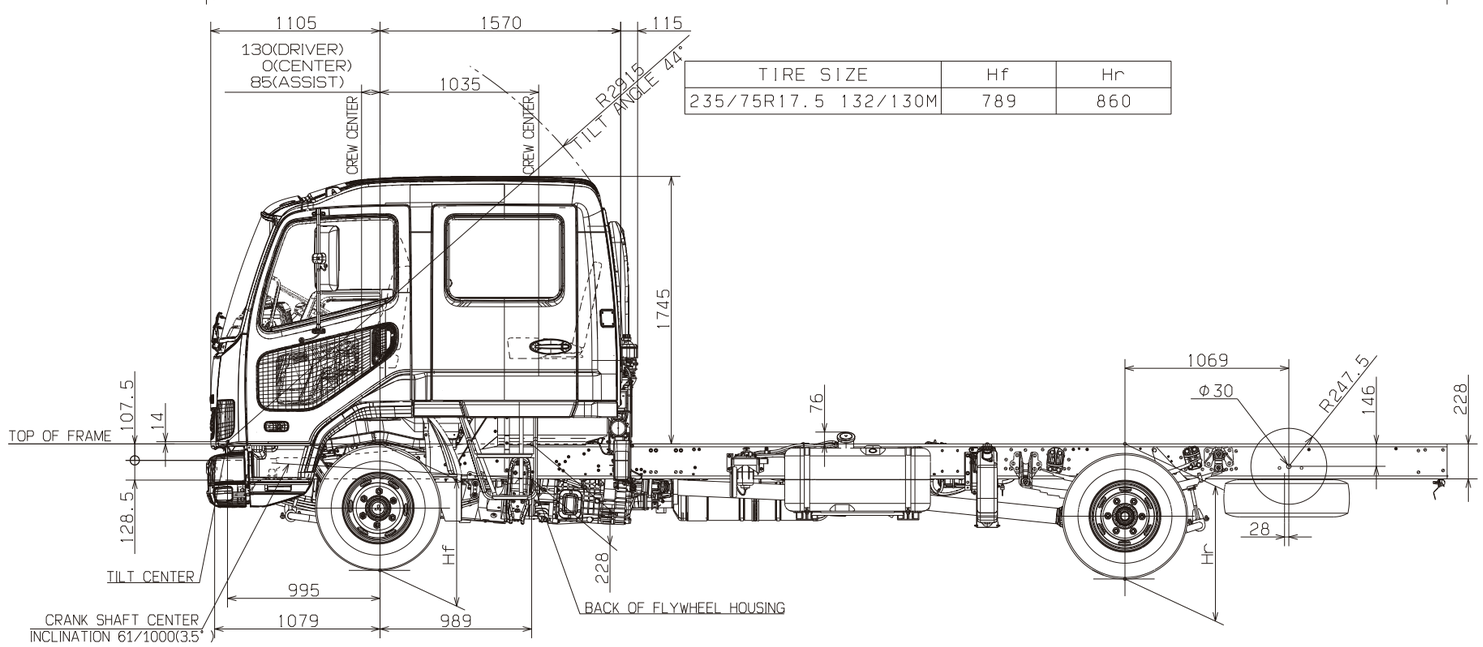
UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK61FKWRFAC





TIRE SIZE	Hf	Hr
235/75R17.5 132/130M	789	860

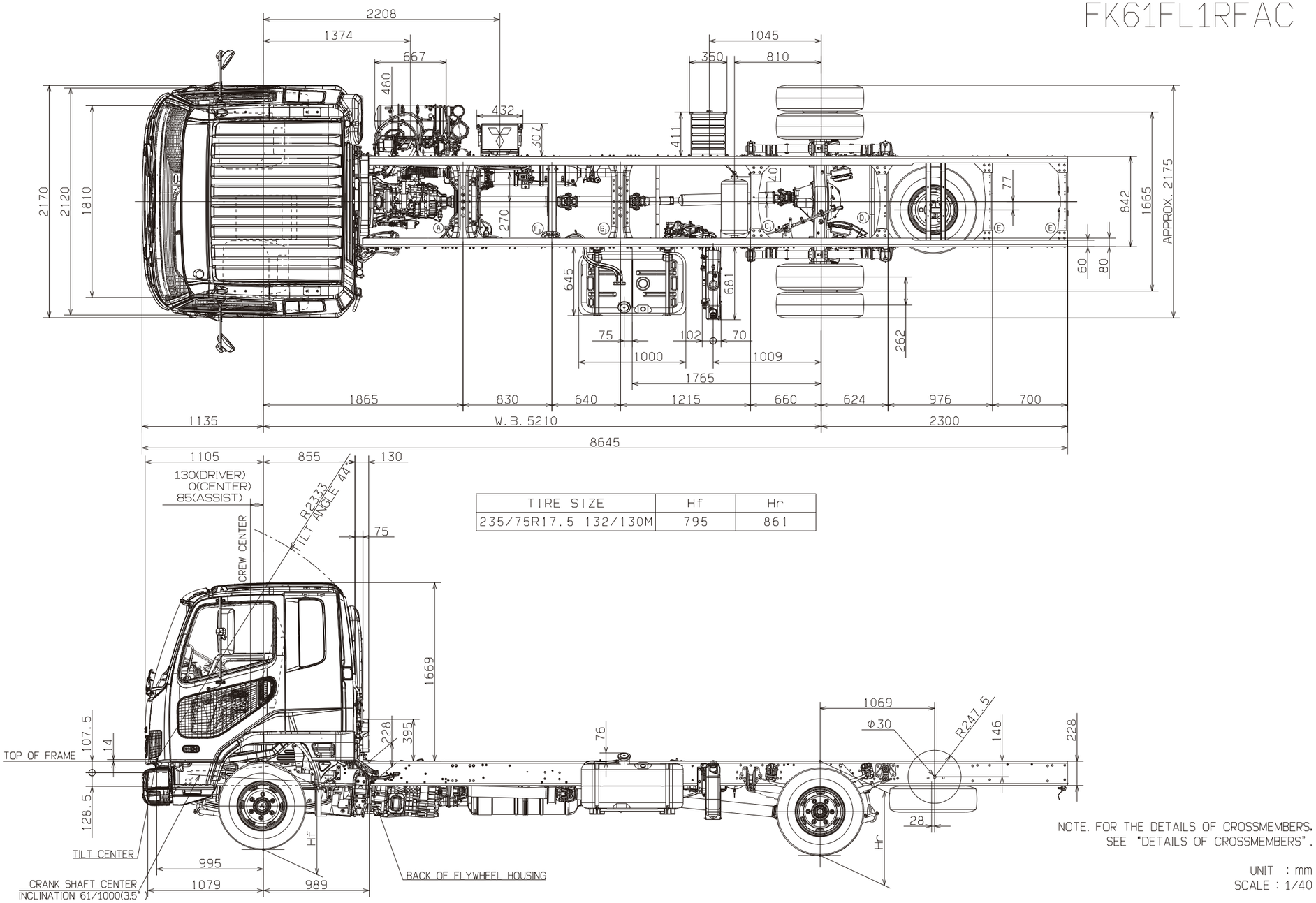
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK61FL1RFAC



TIRE SIZE	Hf	Hr
235/75R17.5 132/130M	795	861

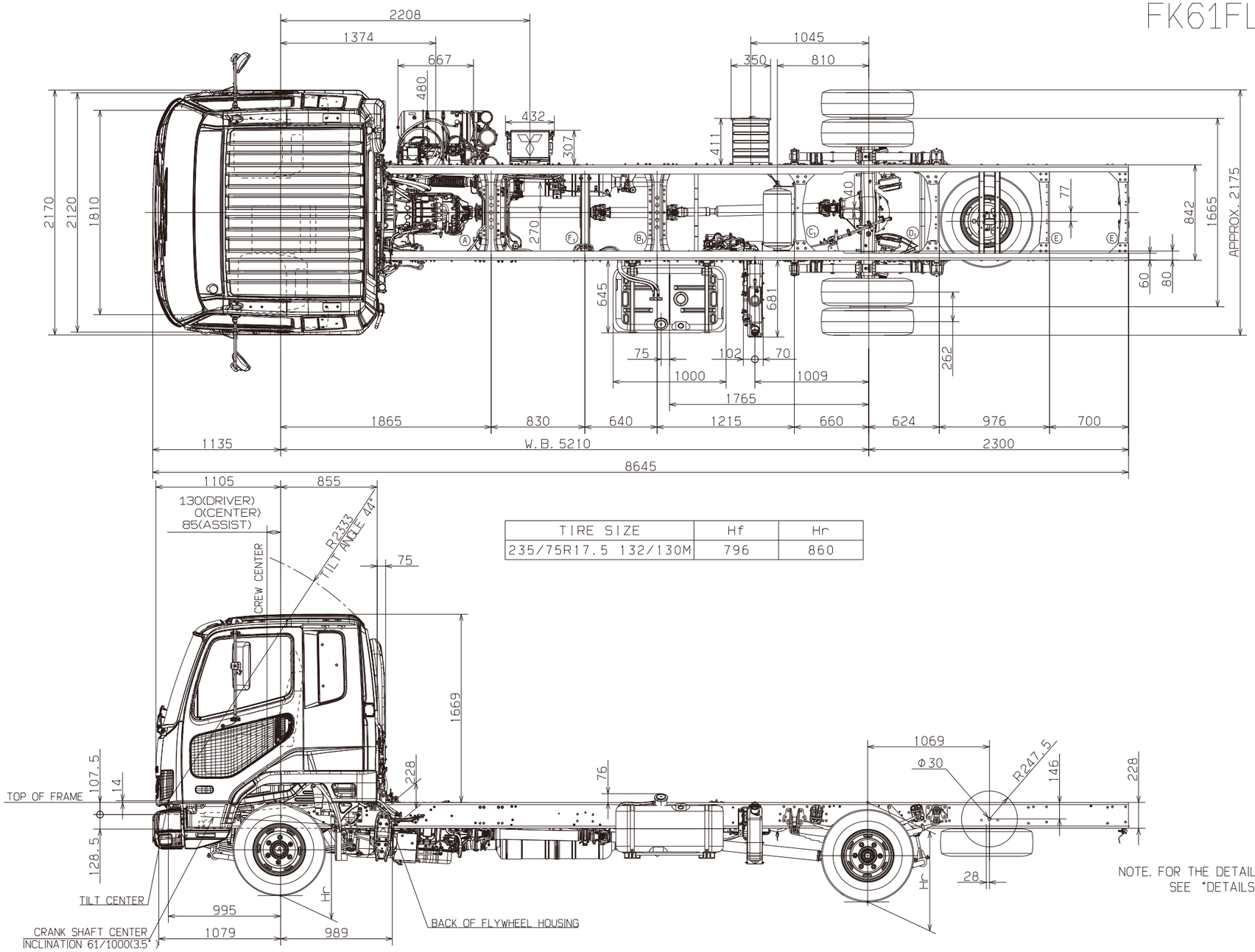
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

C

FK61FL1RFAL



TIRE SIZE	Hf	Hr
235/75R17.5 132/130M	796	860

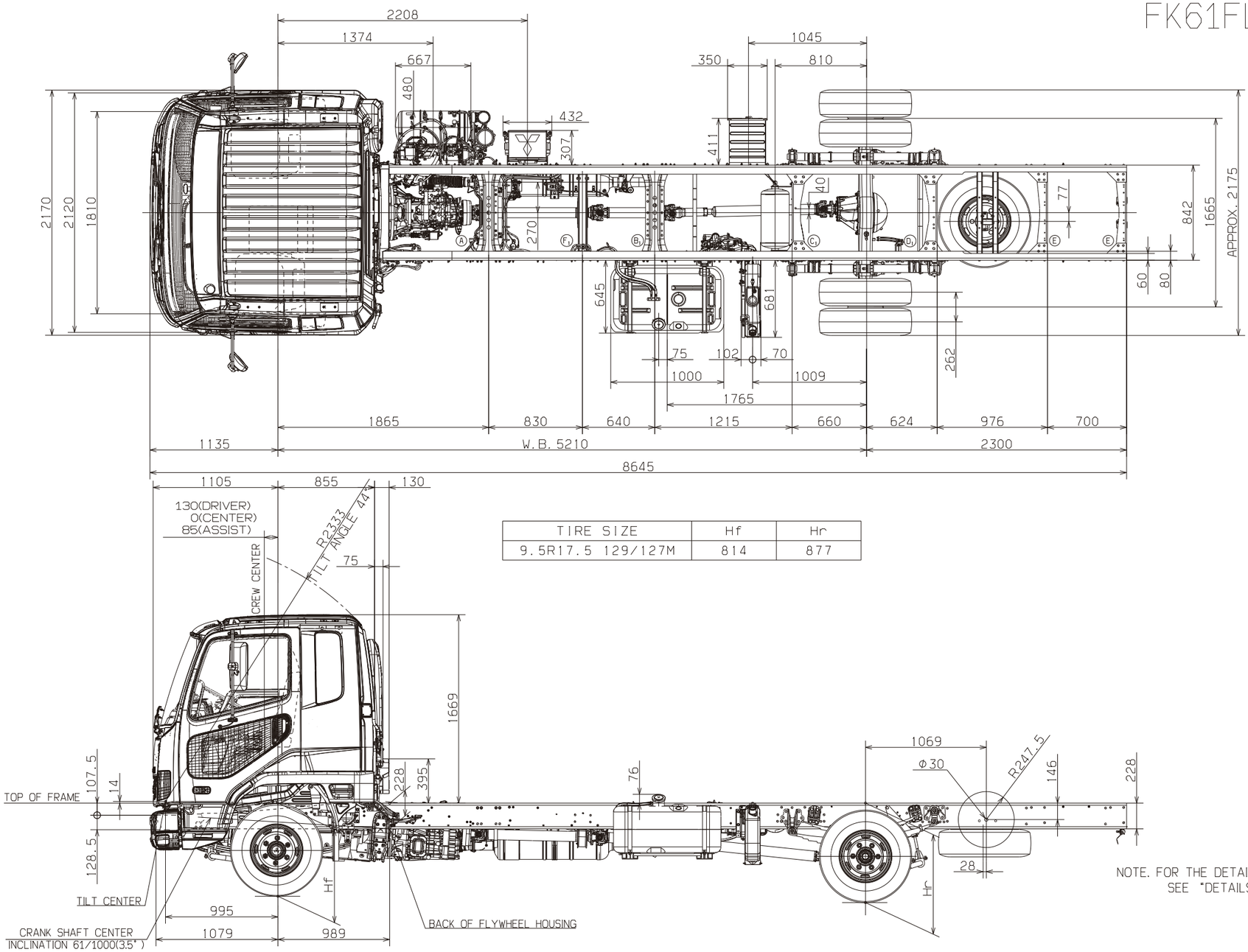
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK61FL1RFAG



TIRE SIZE	Hf	Hr
9.5R17.5 129/127M	814	877

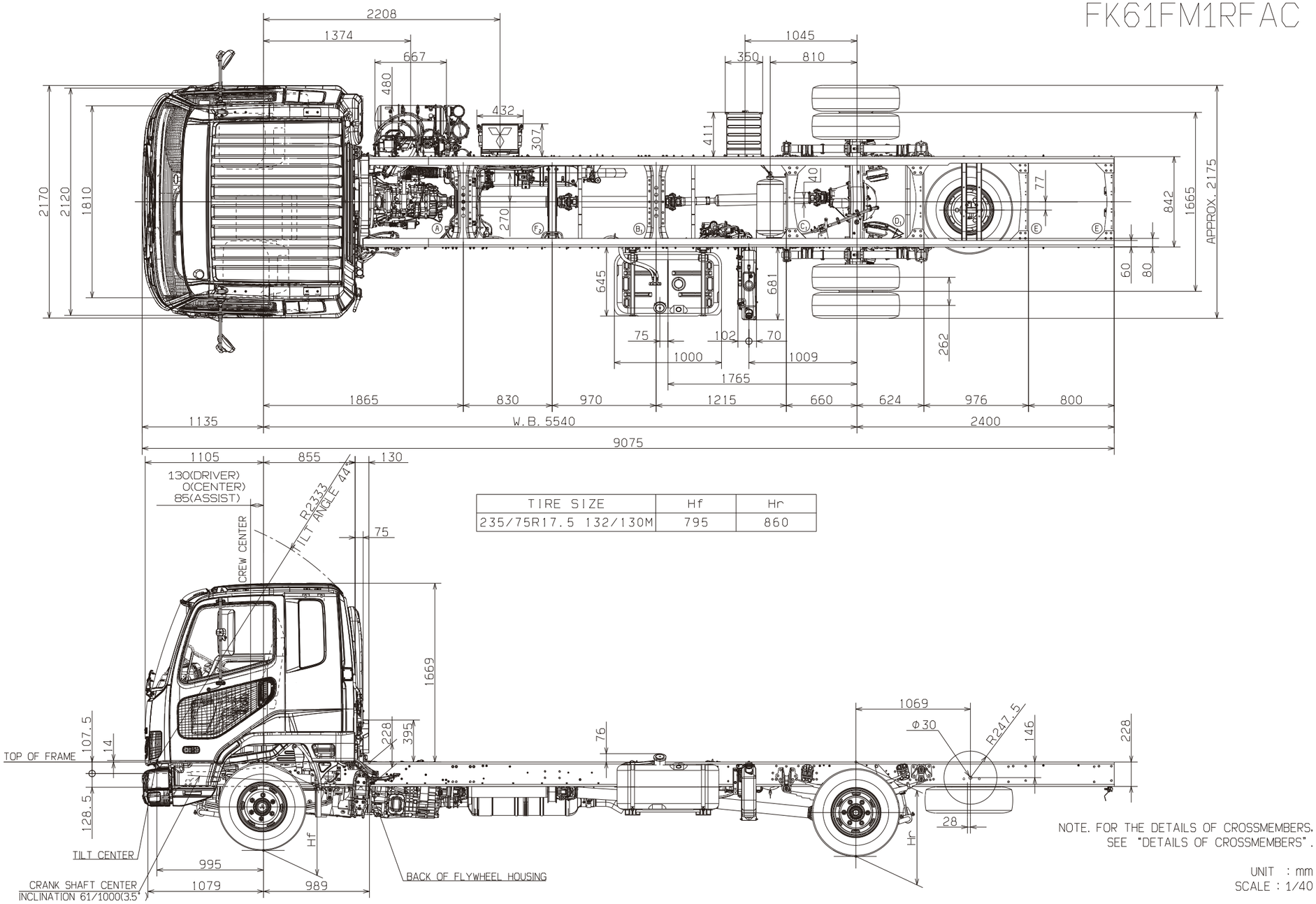
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK61FM1RFAC



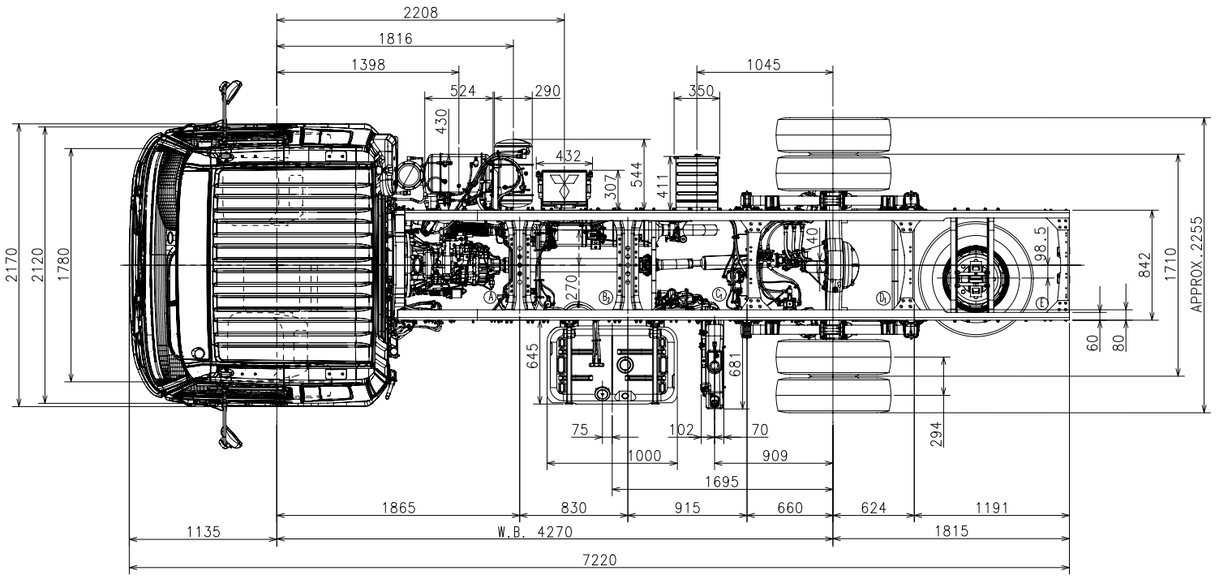
TIRE SIZE	Hf	Hr
235/75R17.5 132/130M	795	860

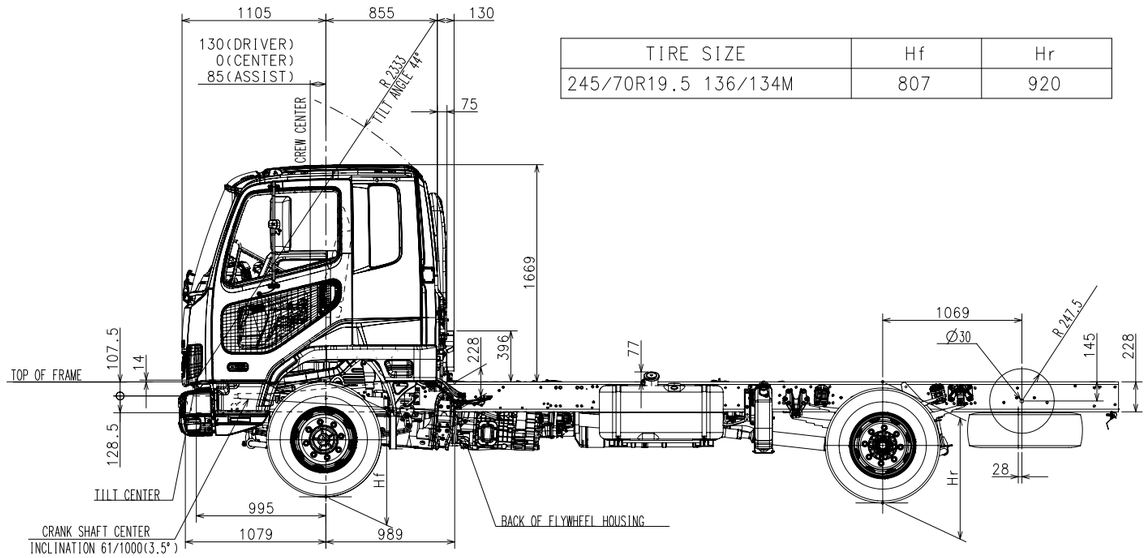
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FK62FHY1RFAC





TIRE SIZE	Hf	Hr
245/70R19.5 136/134M	807	920

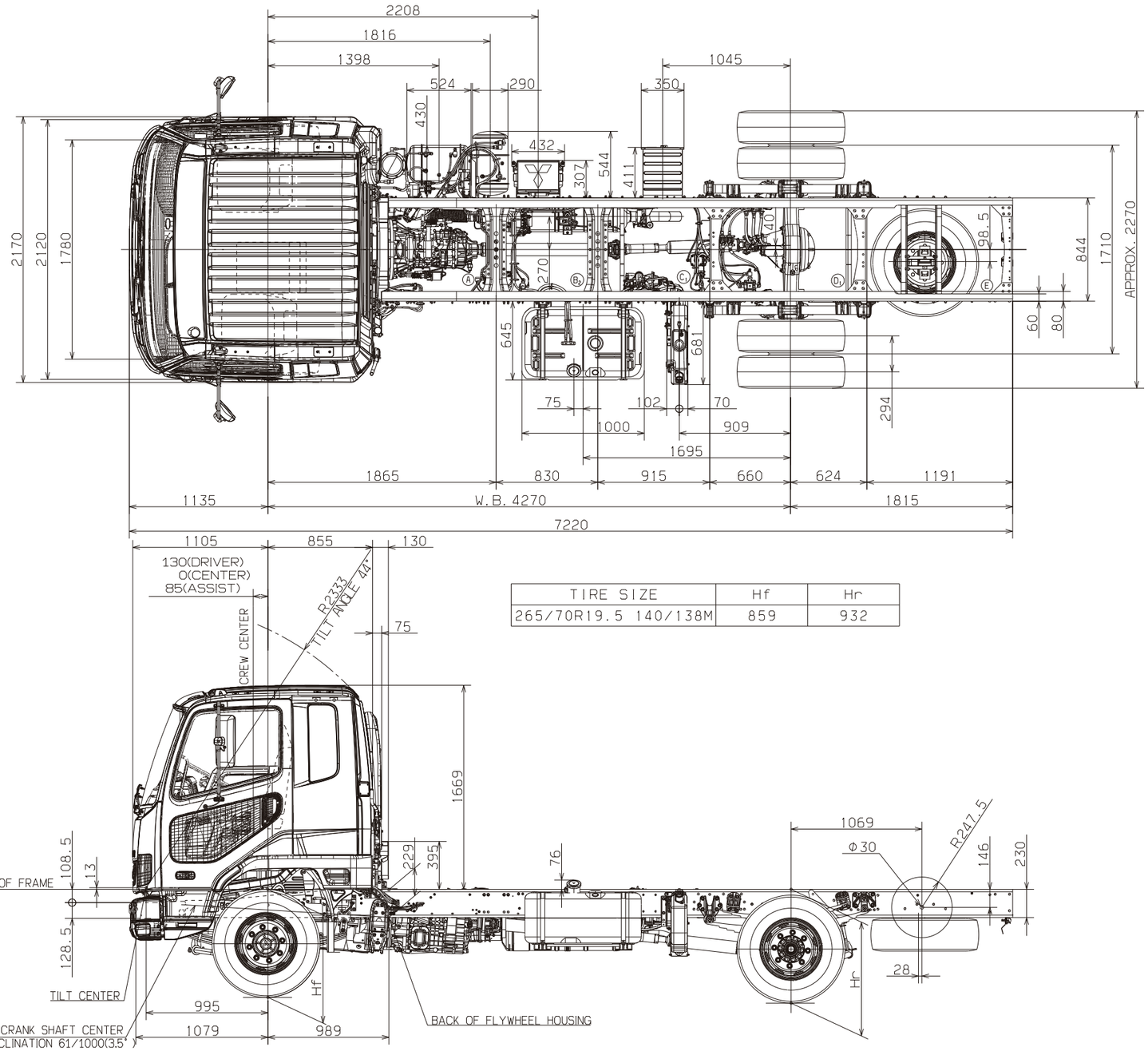
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK62FHZ1RFAC



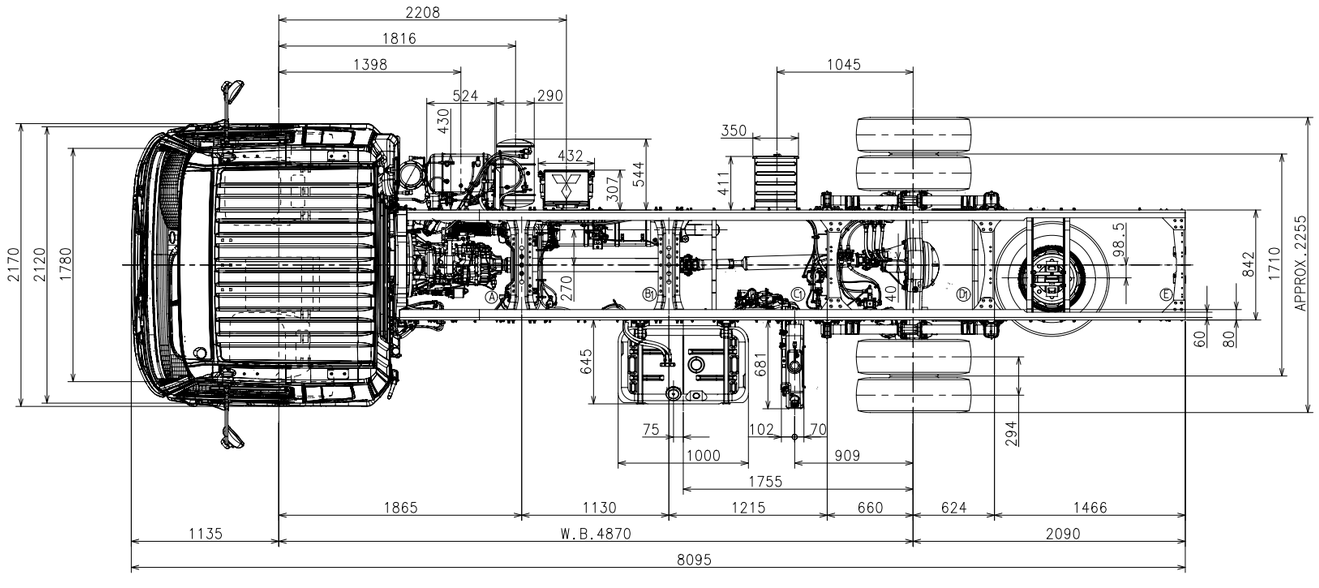
TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	859	932

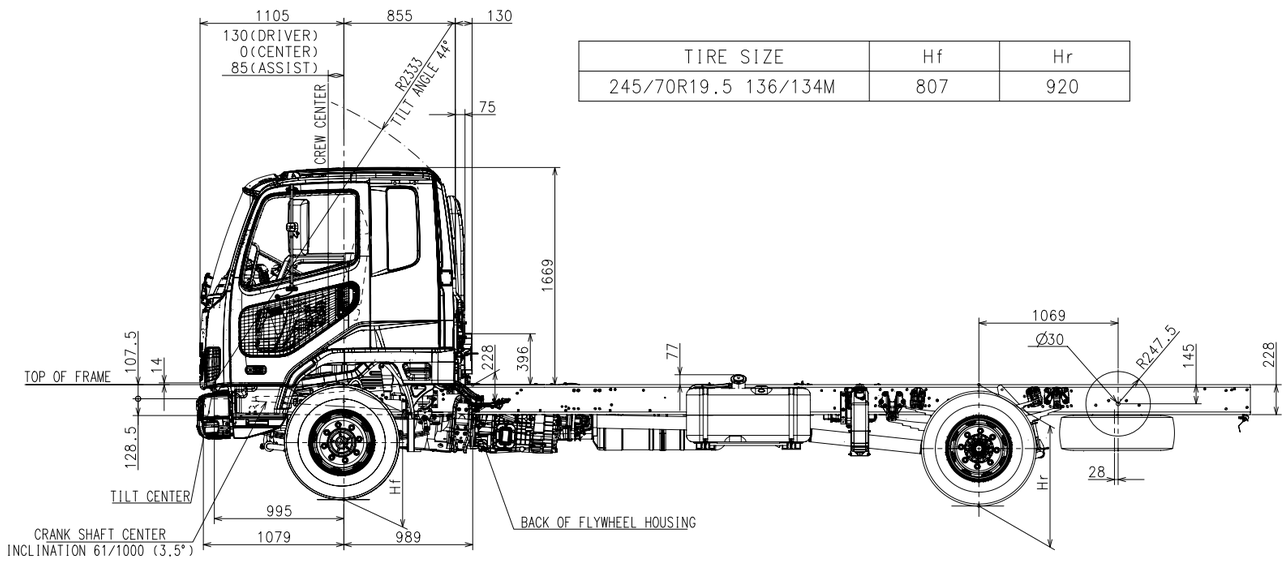
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FK62FKY1RFAC





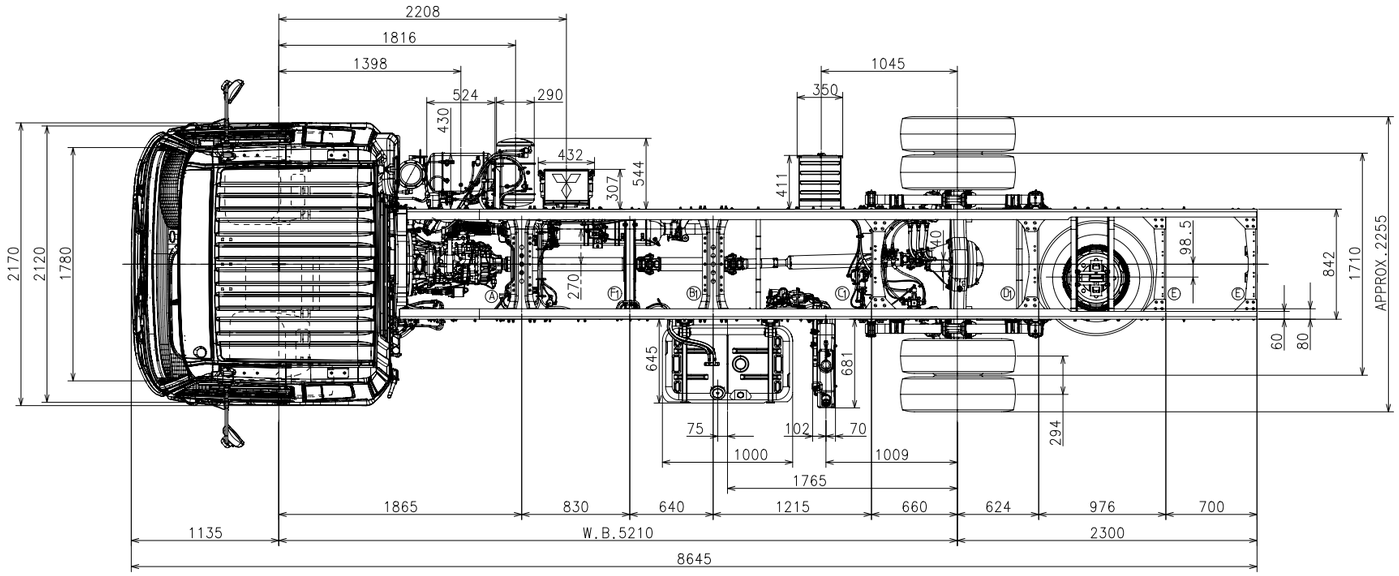
TIRE SIZE	Hf	Hr
245/70R19.5 136/134M	807	920

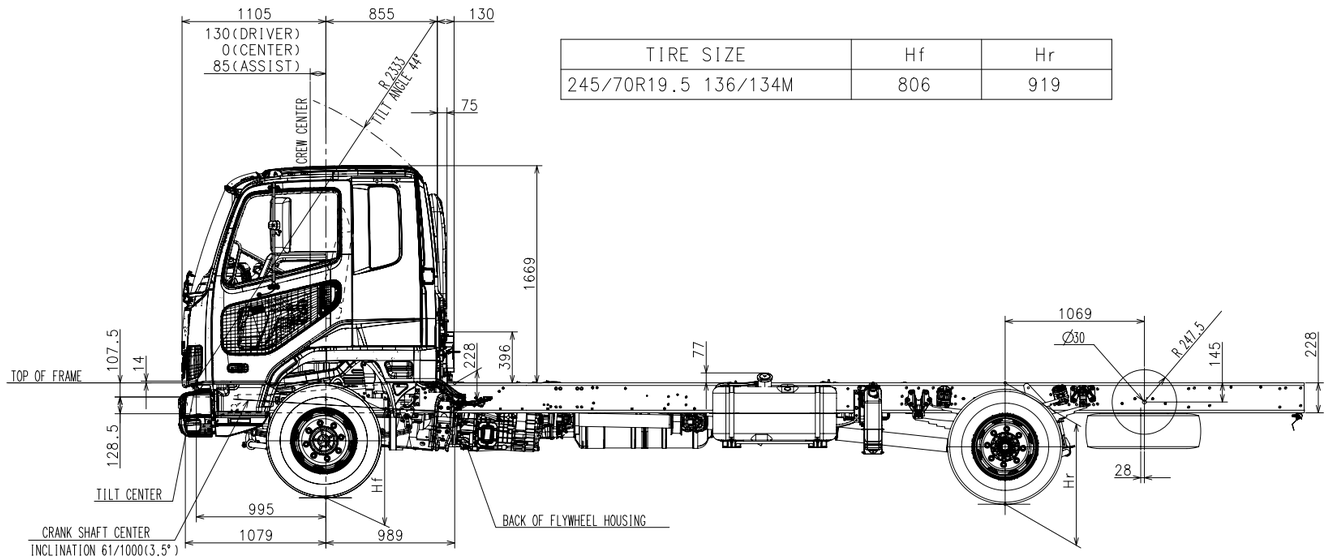
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS"

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FK62FLY1RFAC





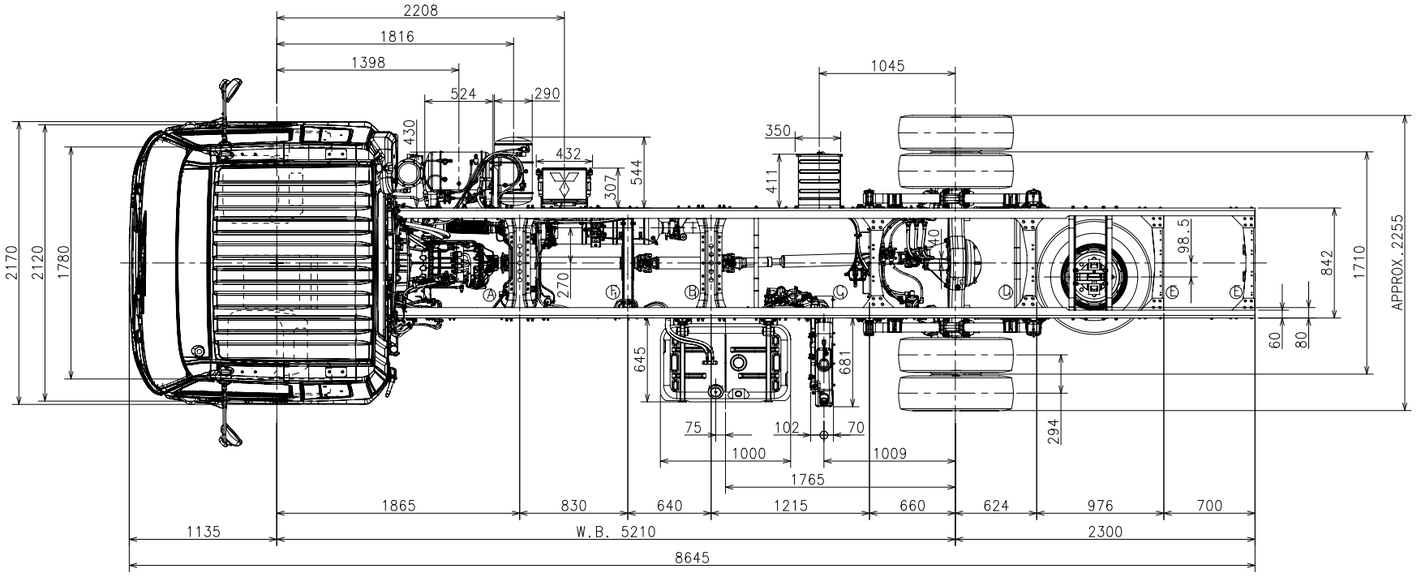
TIRE SIZE	Hf	Hr
245/70R19.5 136/134M	806	919

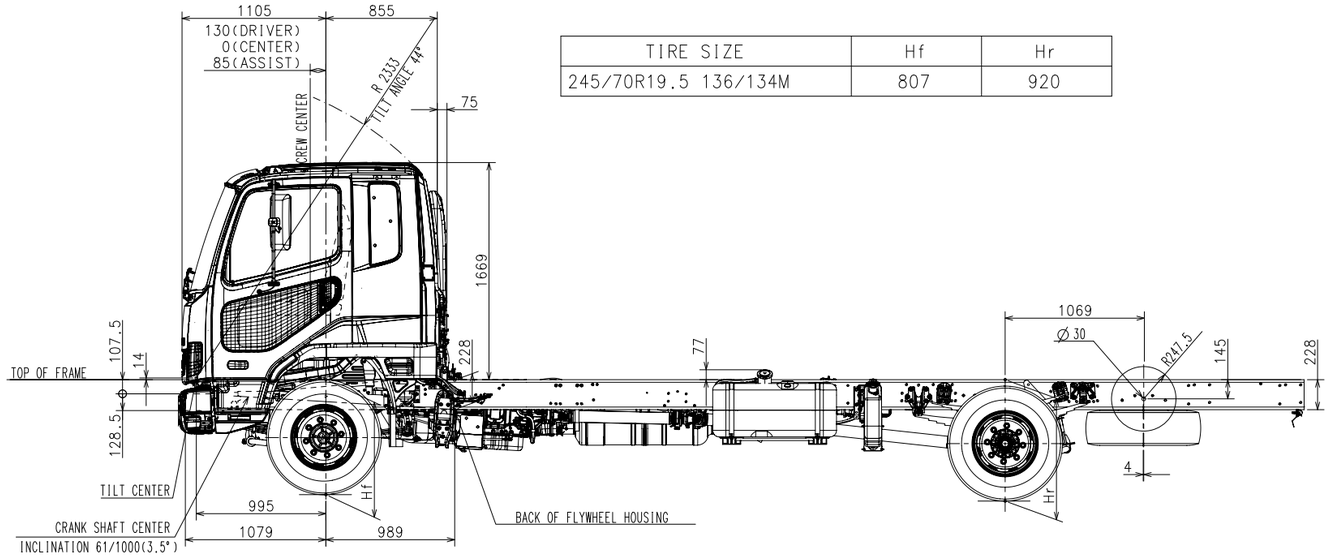
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FK62FLY1RFAL





TIRE SIZE	Hf	Hr
245/70R19.5 136/134M	807	920

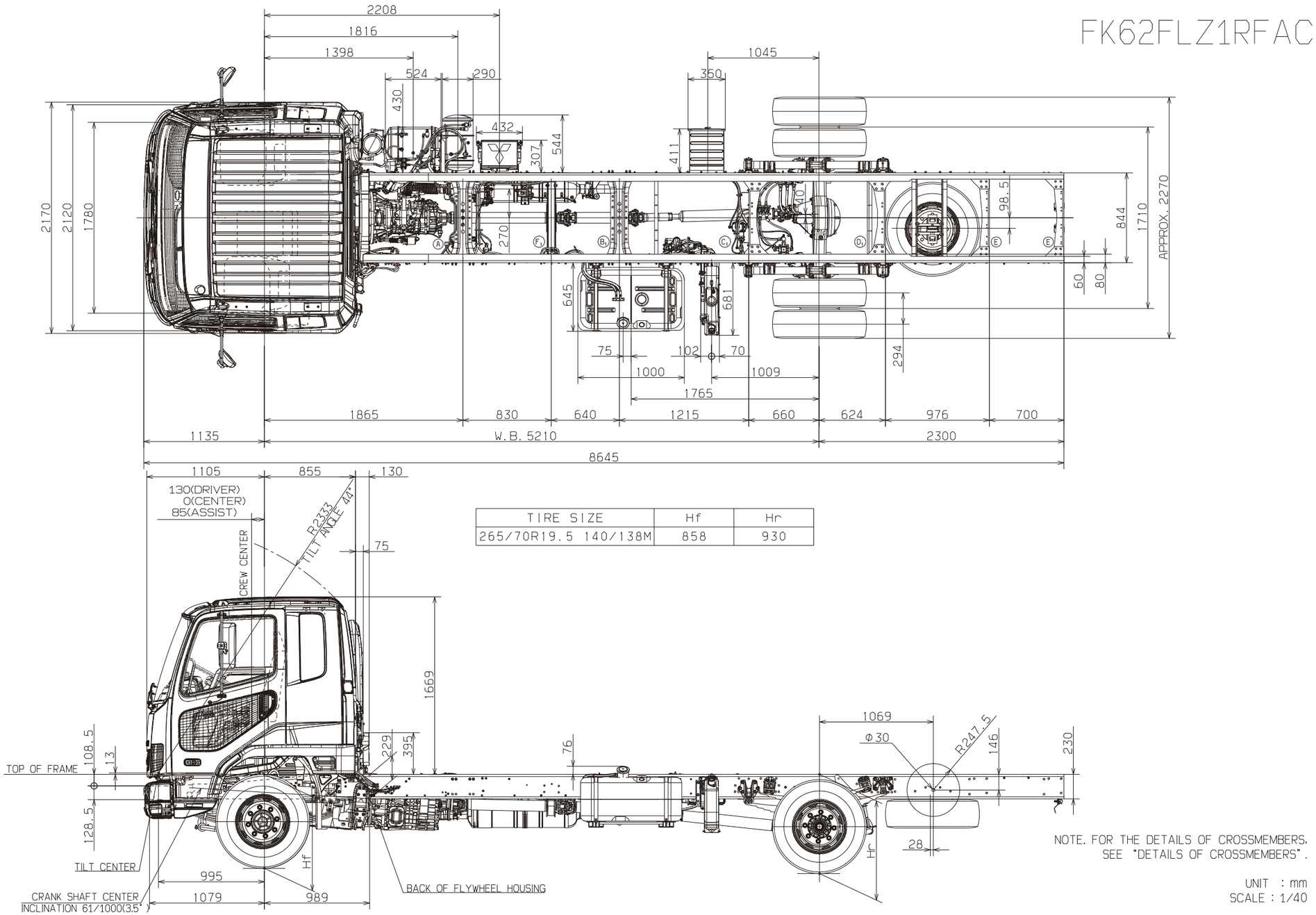
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK62FLZ1RFAC



TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	858	930

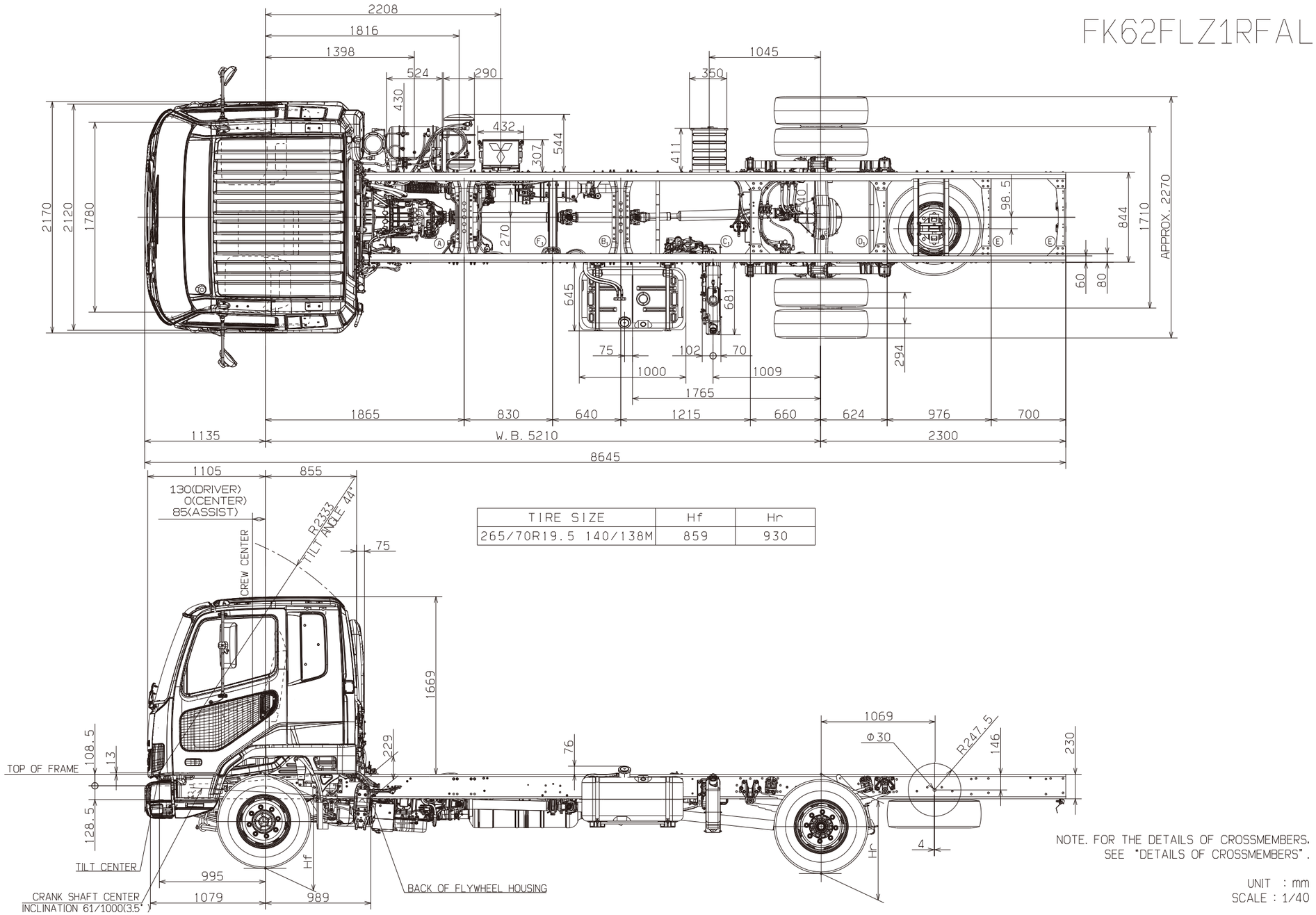
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

C

FK62FLZ1RFAL



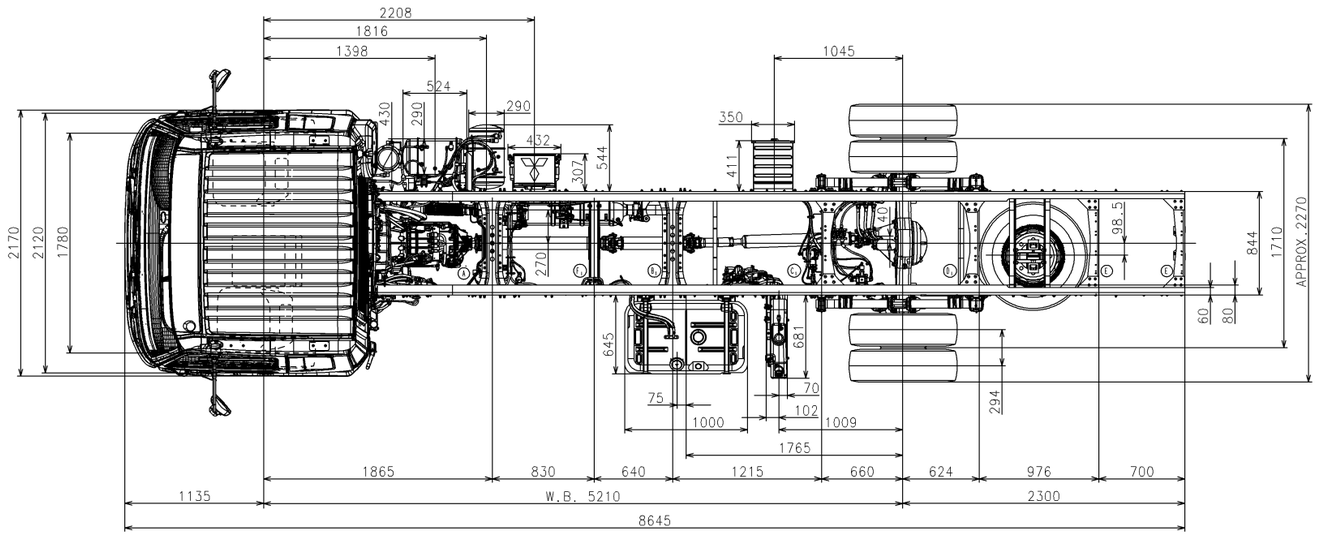
TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	859	930

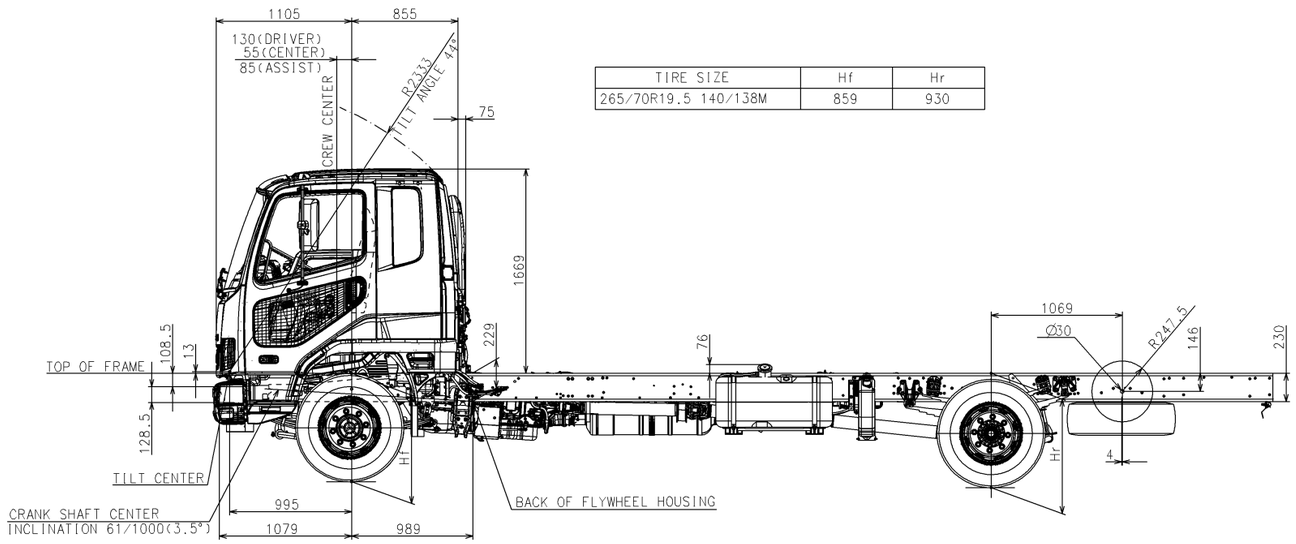
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

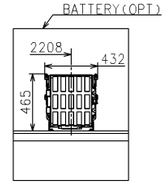
10.5 Chassis cab drawings

FK62FLZ1RFAM





TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	859	930



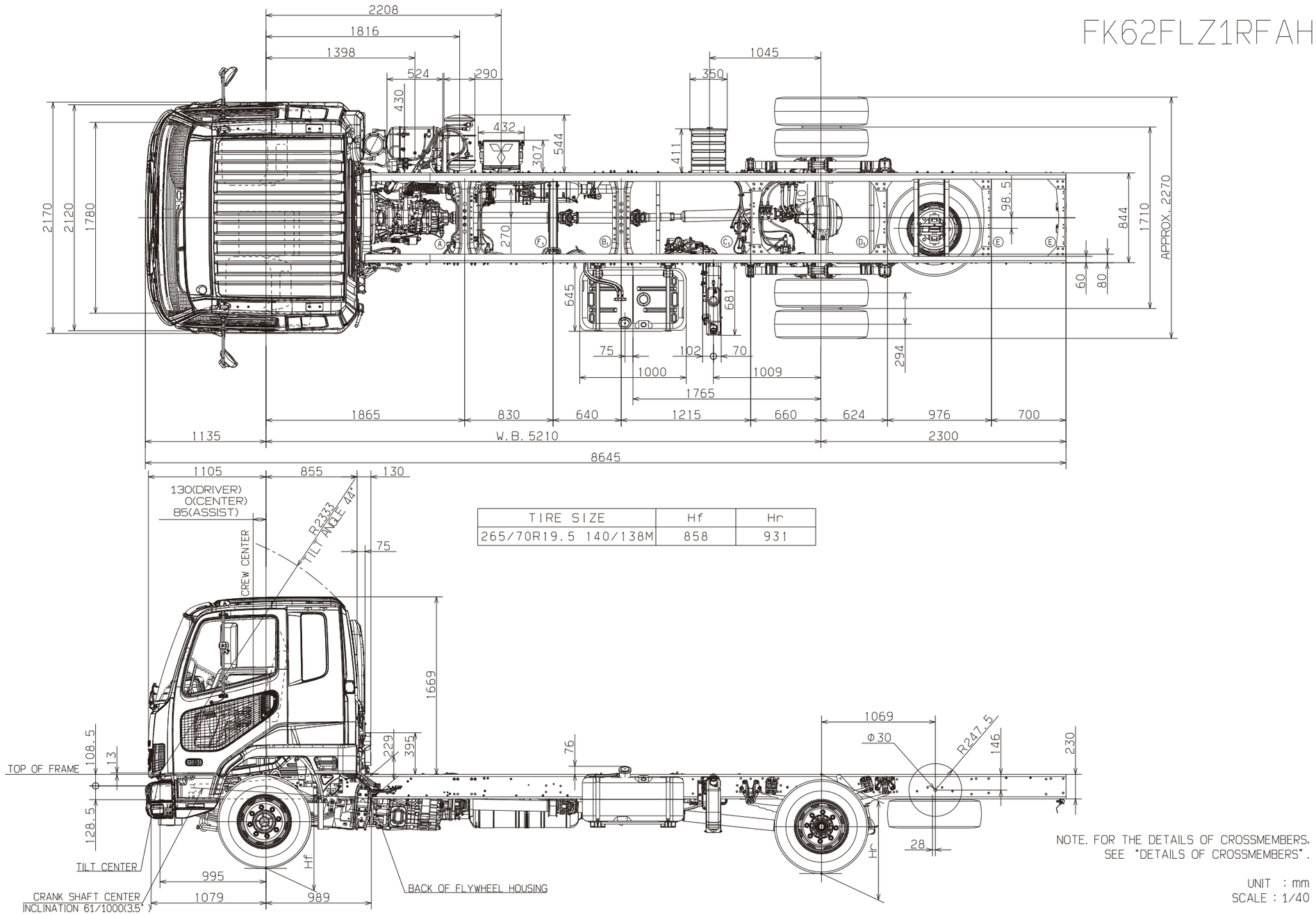
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK62FLZ1RFAH



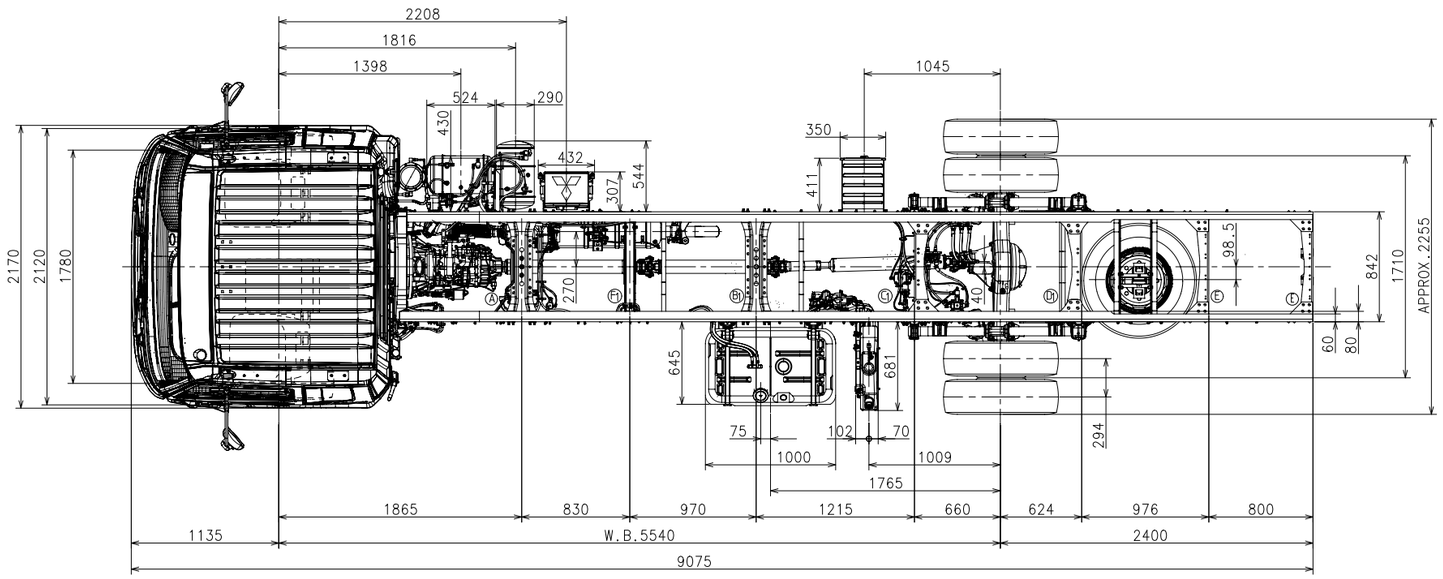
TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	858	931

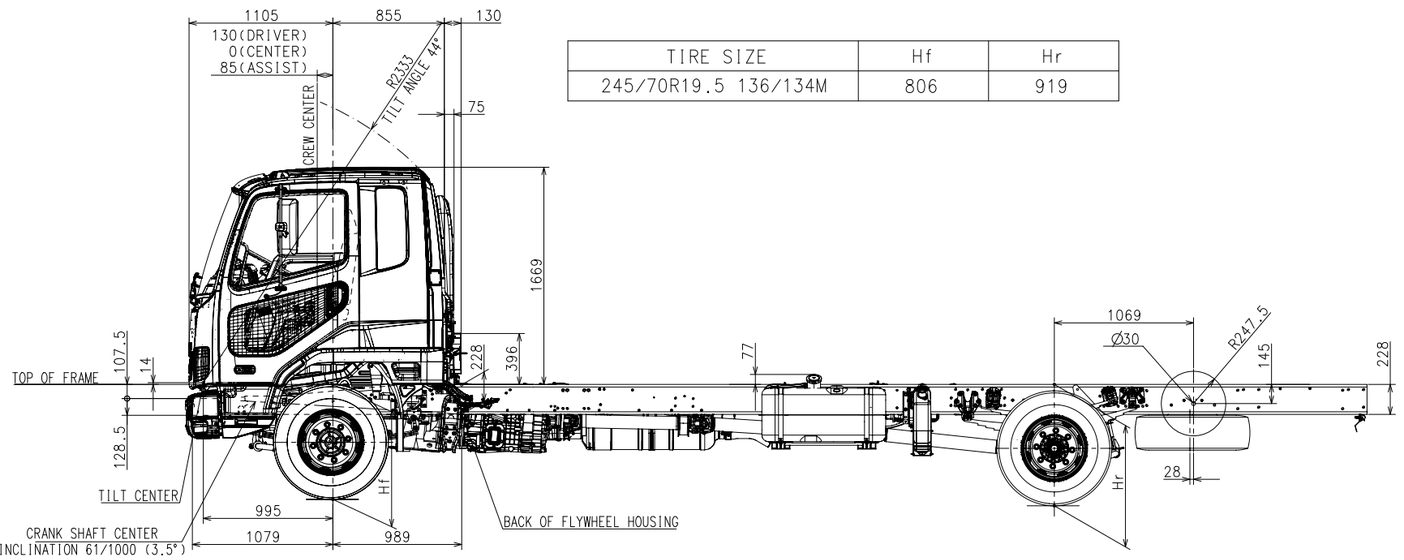
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FK62FMY1RFAC





TIRE SIZE	Hf	Hr
245/70R19.5 136/134M	806	919

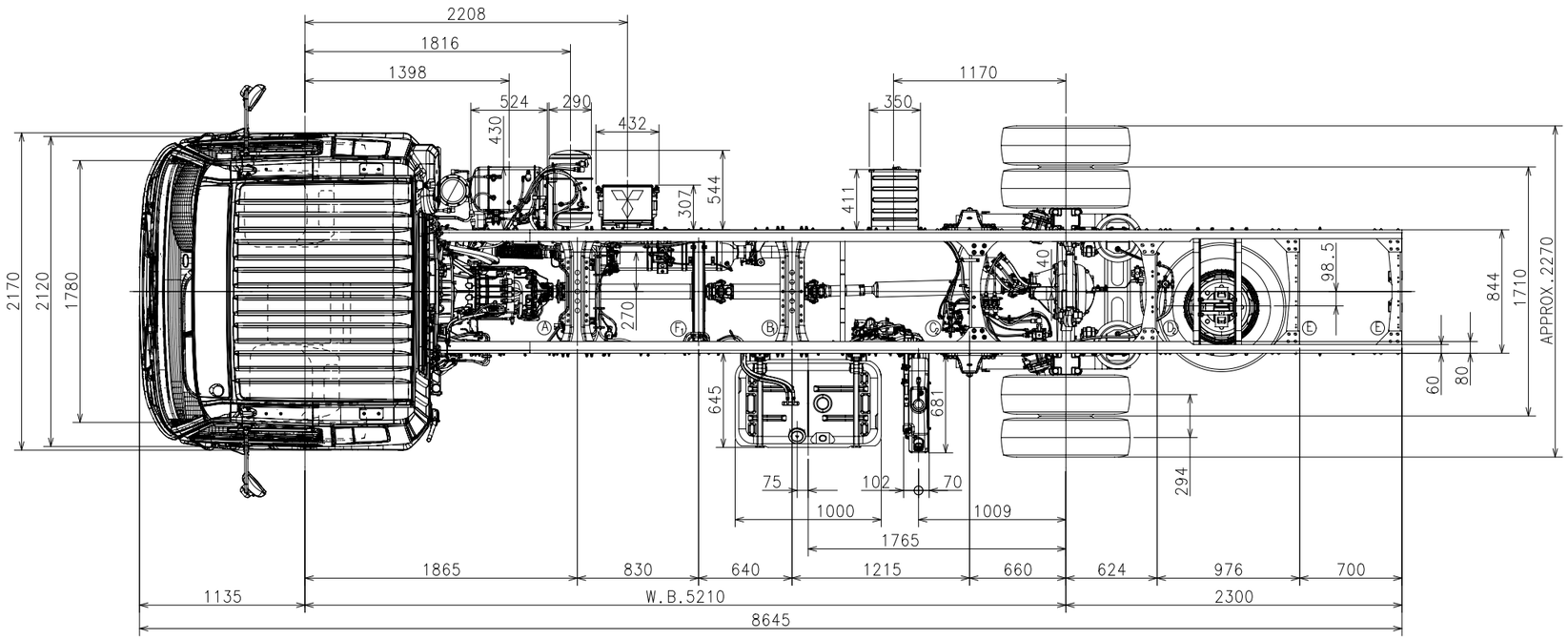
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS"

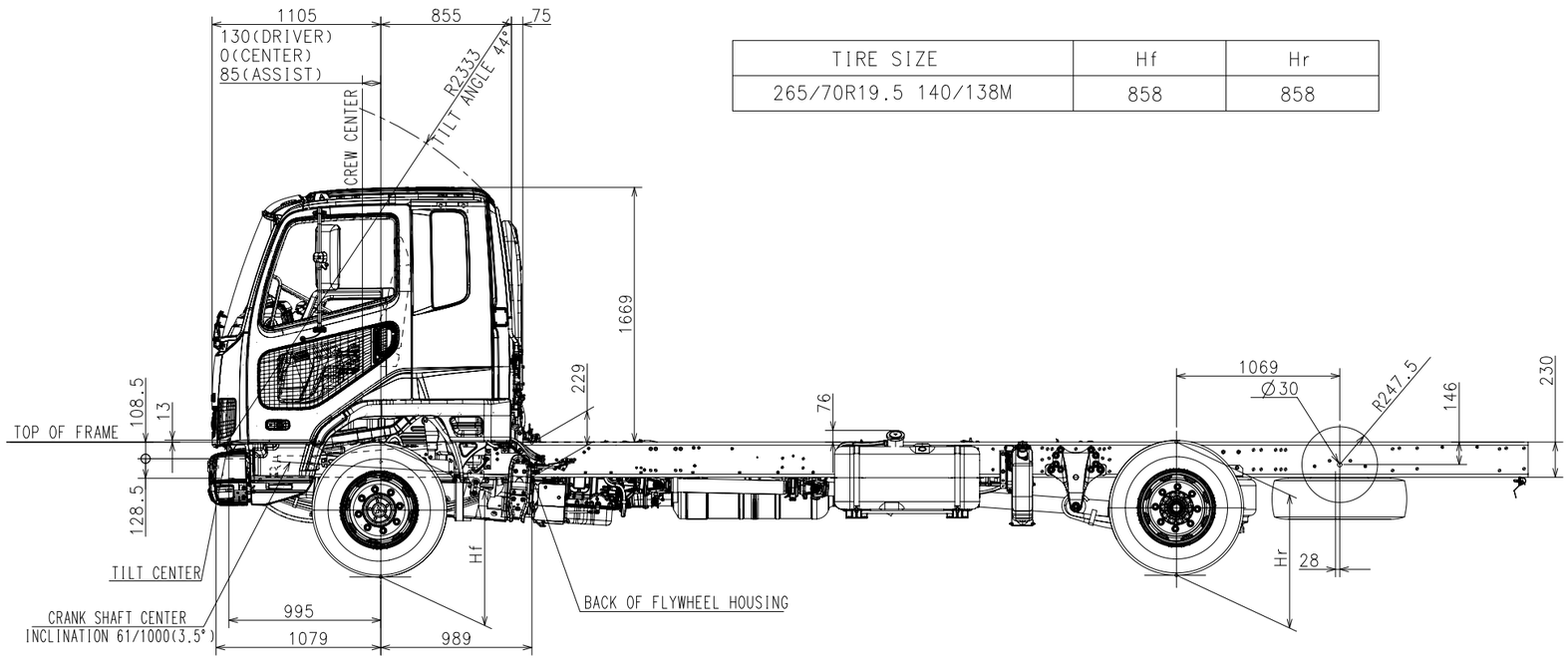
UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

C

FK65FLZ1RFAL





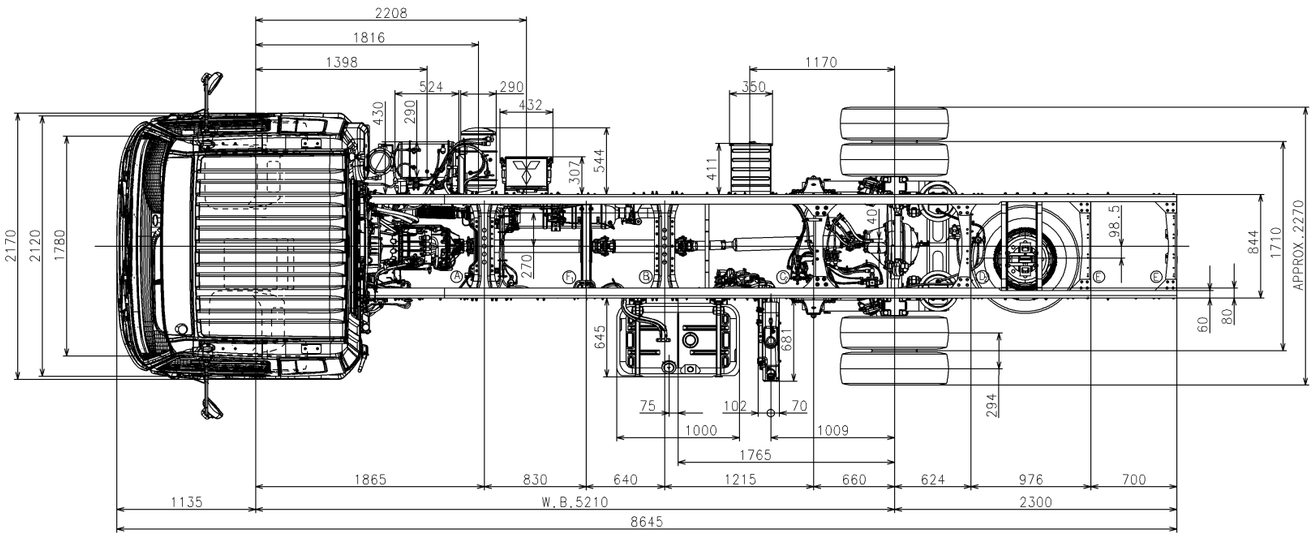
TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	858	858

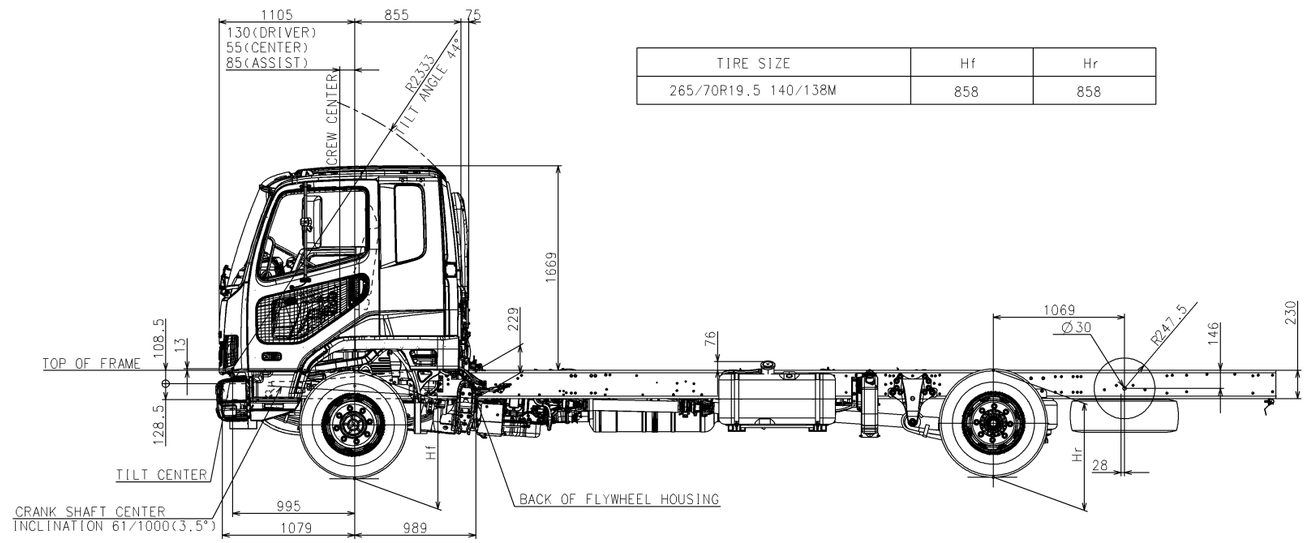
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FK65FLZ1RFAM





TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	858	858

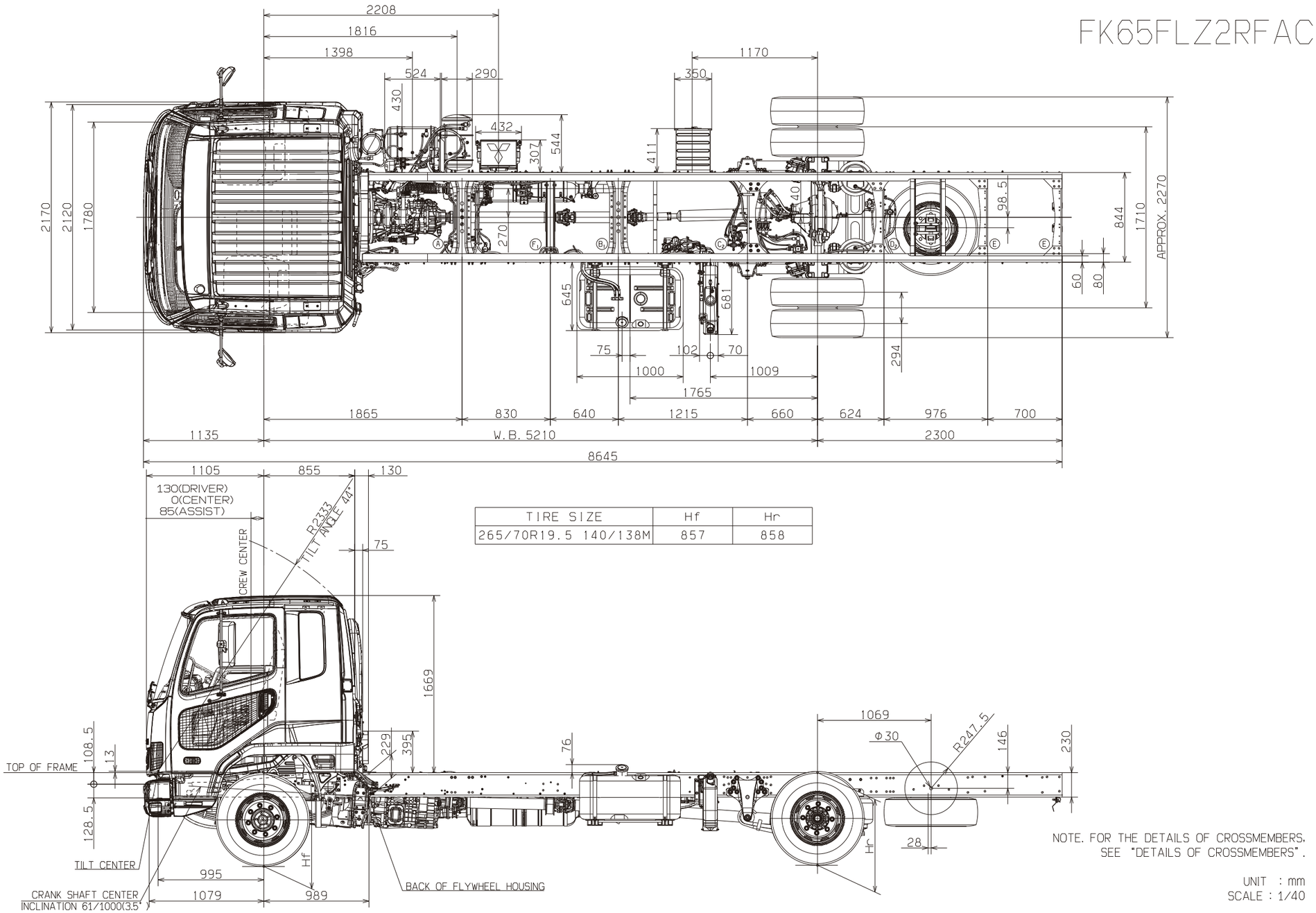
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK65FLZ2RFAC



TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	857	858

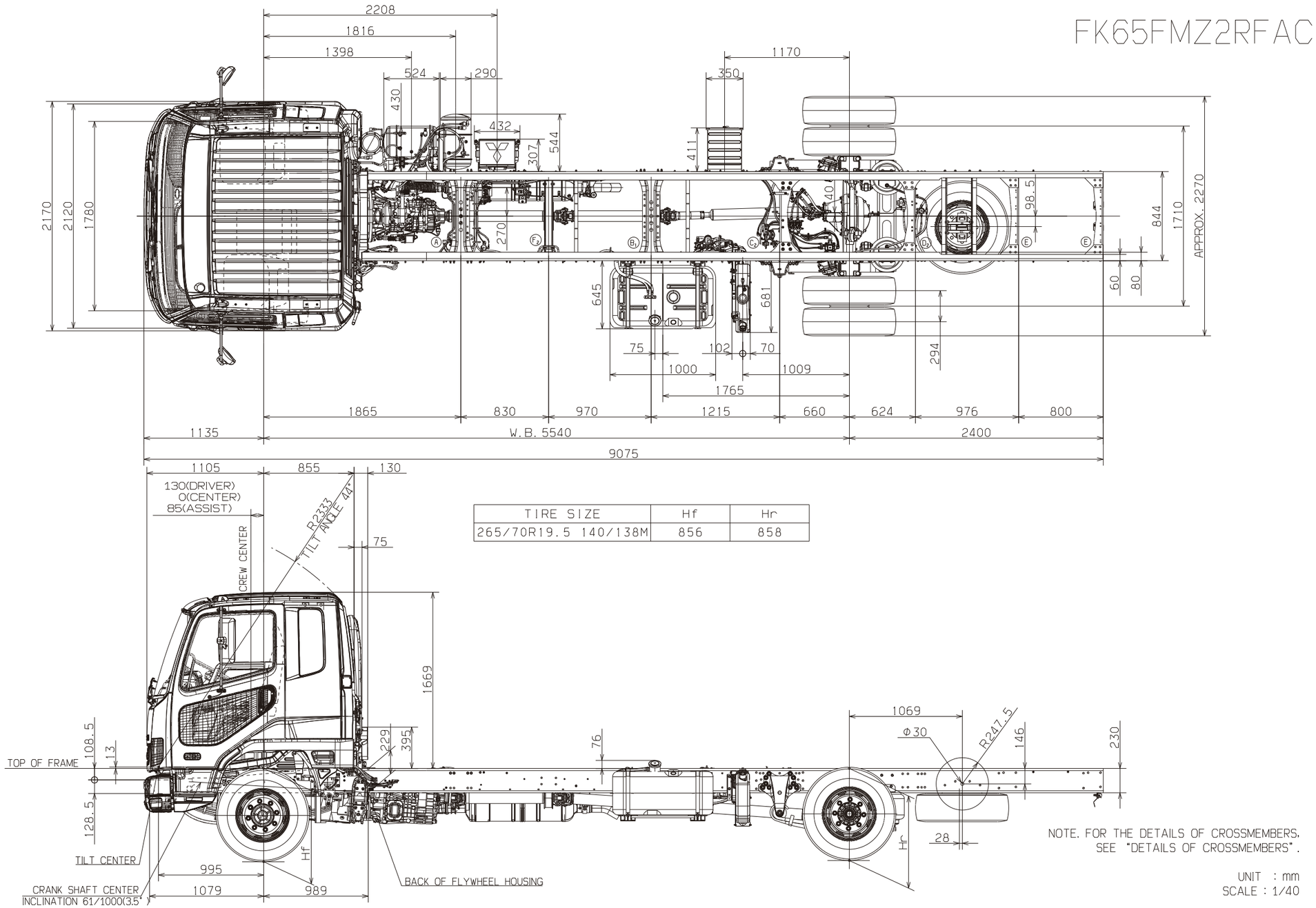
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK65FMZ2RFAC



TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	856	858

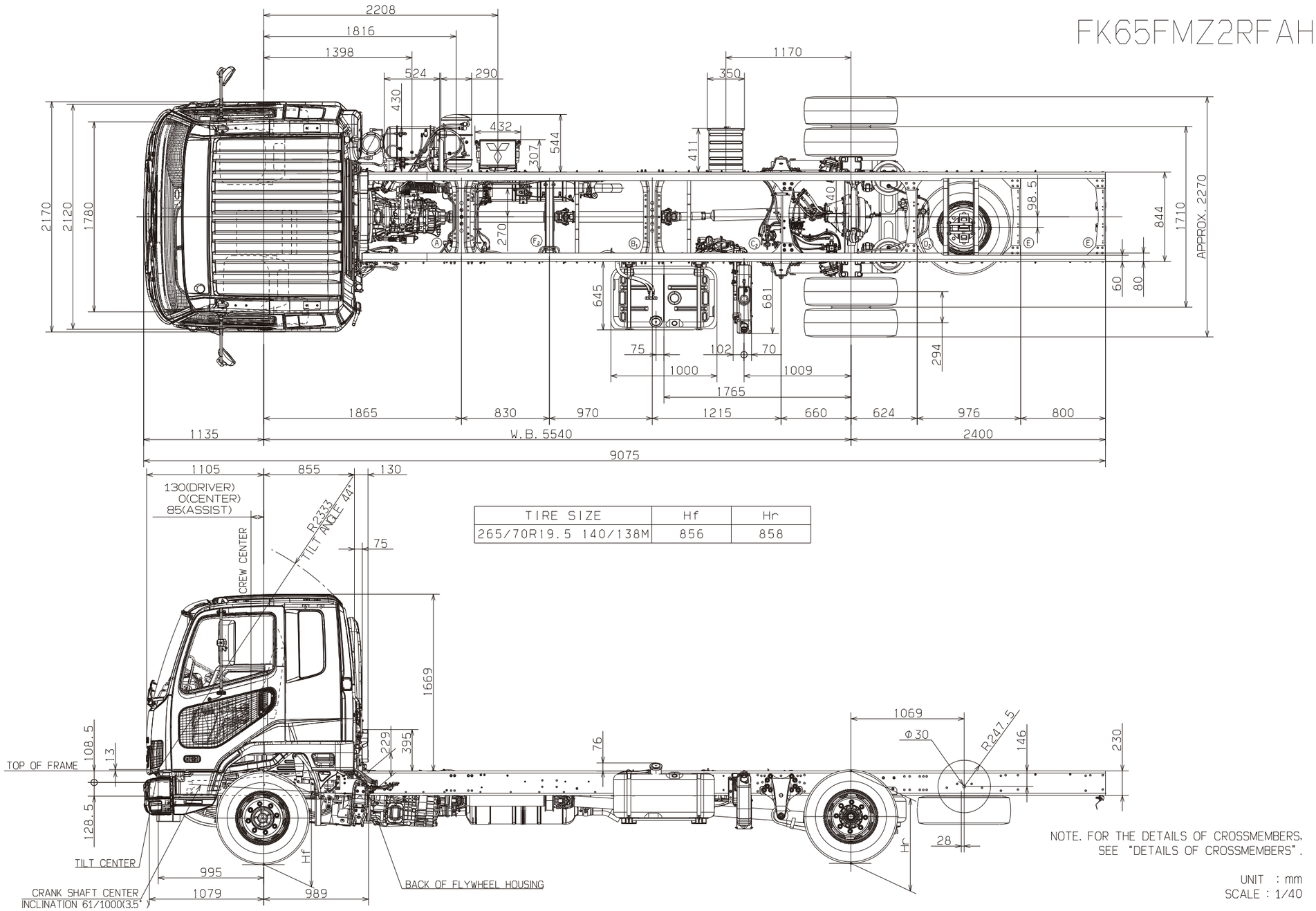
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FK65FMZ2RFAH



TIRE SIZE	Hf	Hr
265/70R19.5 140/138M	856	858

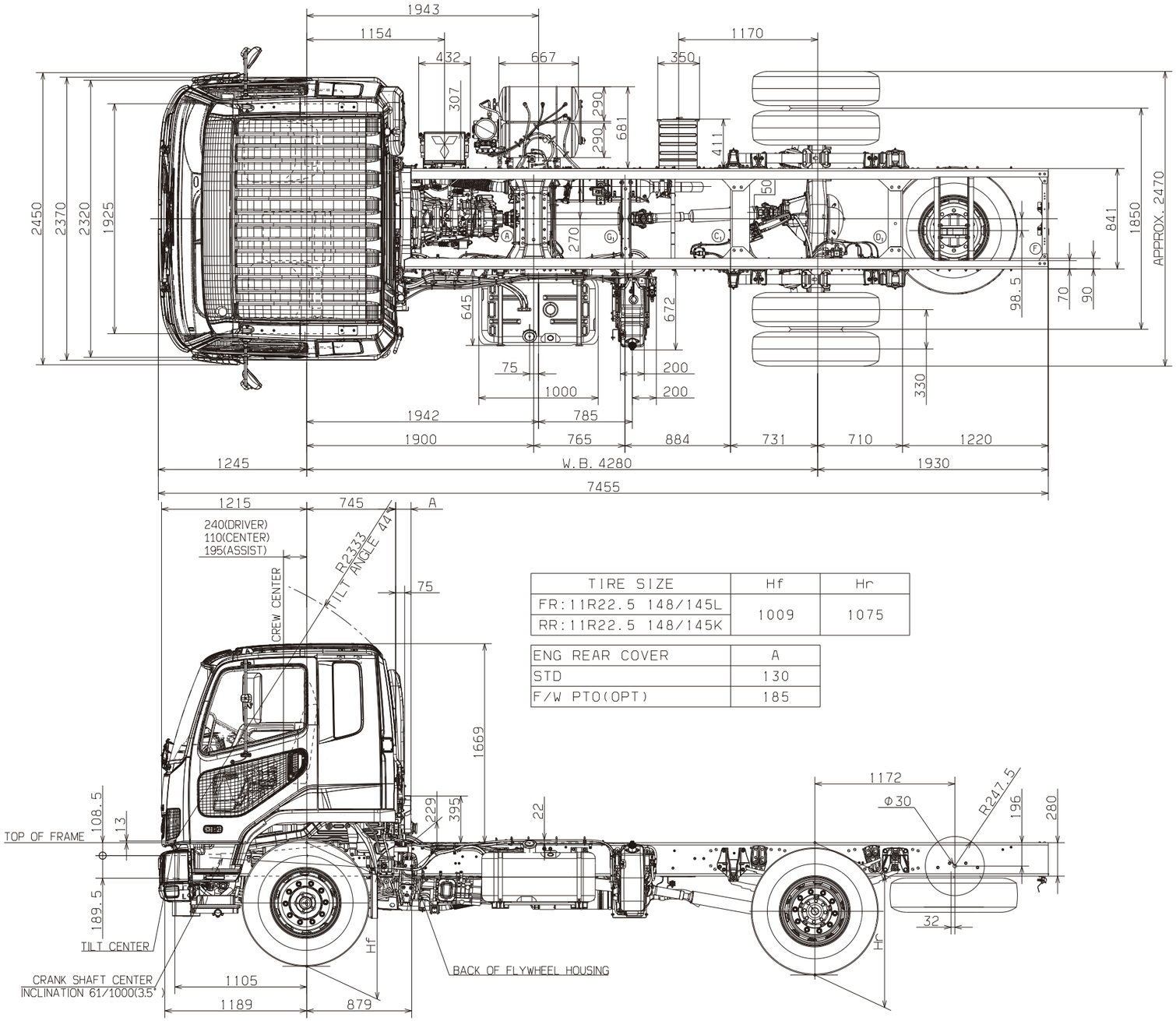
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FM65FH2RFAH



TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	1009	1075
RR:11R22.5 148/145K		

ENG REAR COVER	A
STD	130
F/W PTO(OPT)	185

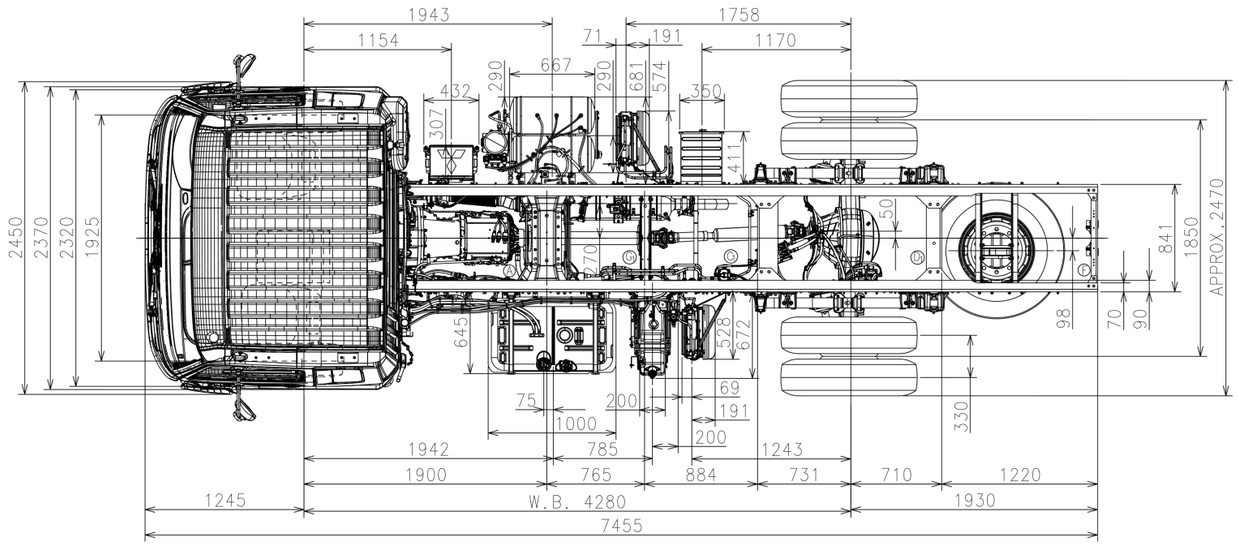
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

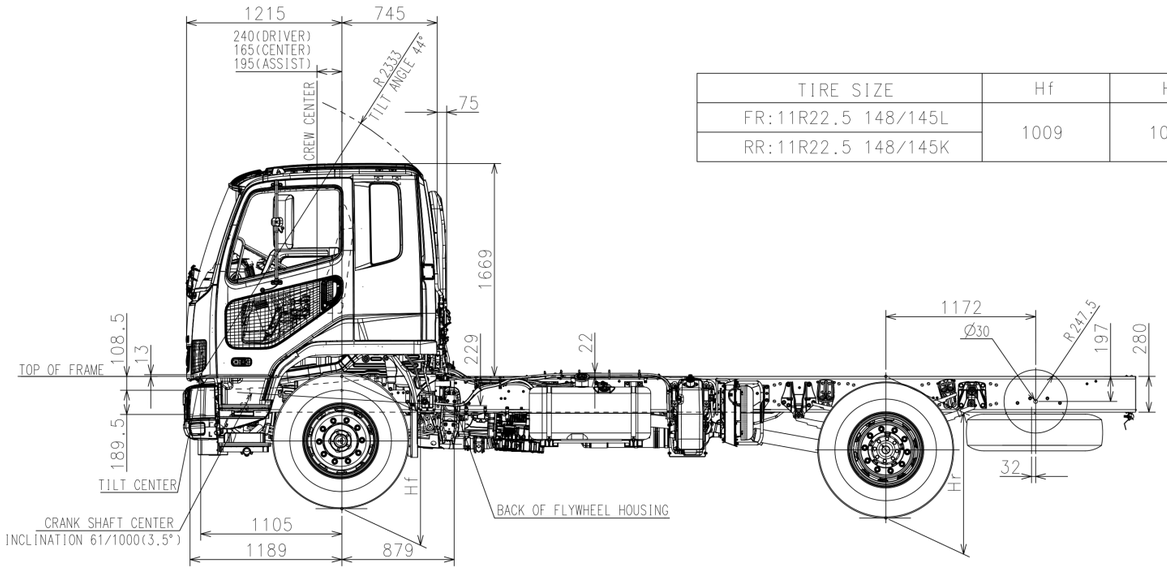
UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

E

FM65FH2RFAM





TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	1009	1075
RR:11R22.5 148/145K		

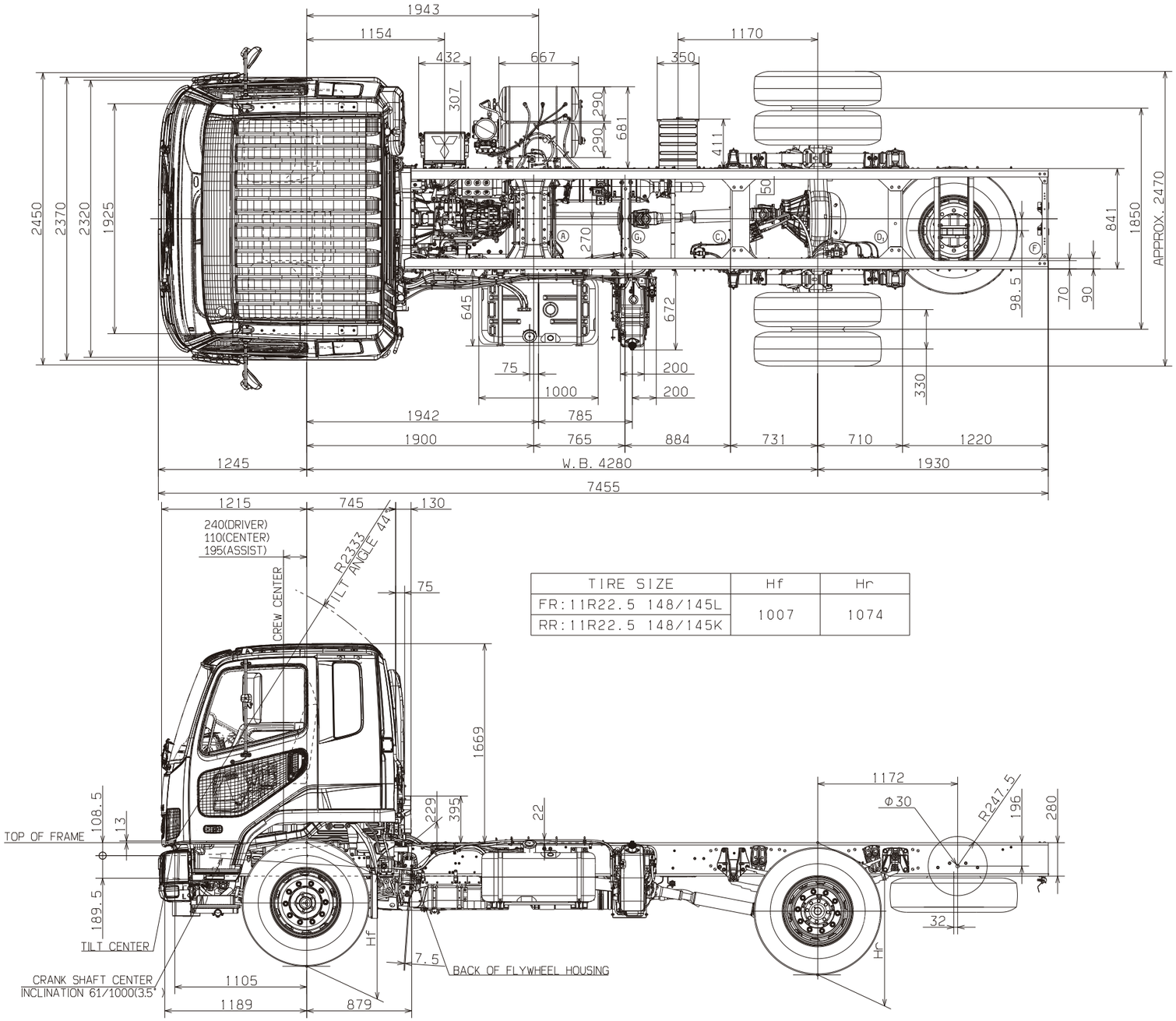
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FM65FH2RFAK



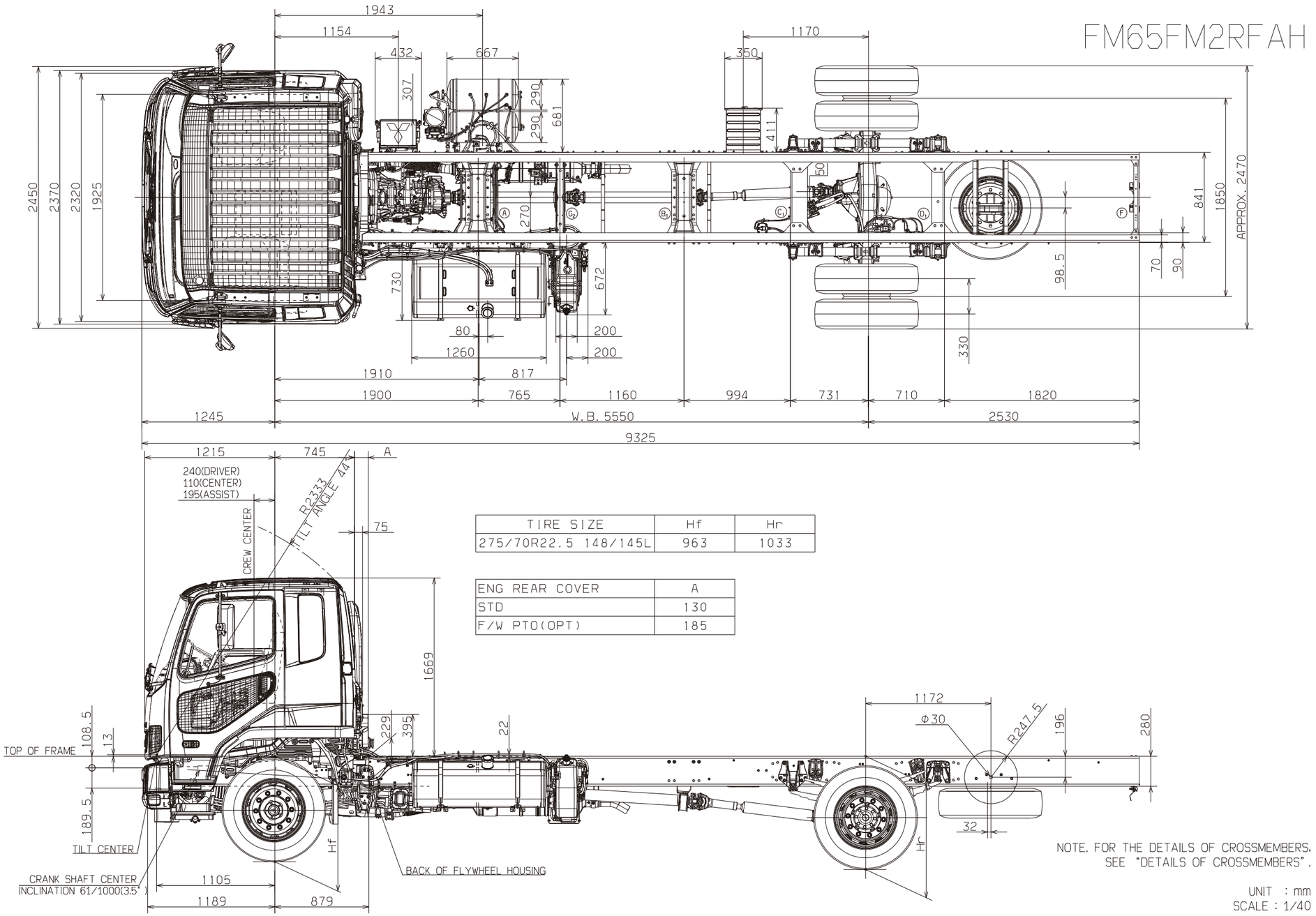
TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	1007	1074
RR:11R22.5 148/145K		

NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B



TIRE SIZE	Hf	Hr
275/70R22.5 148/145L	963	1033

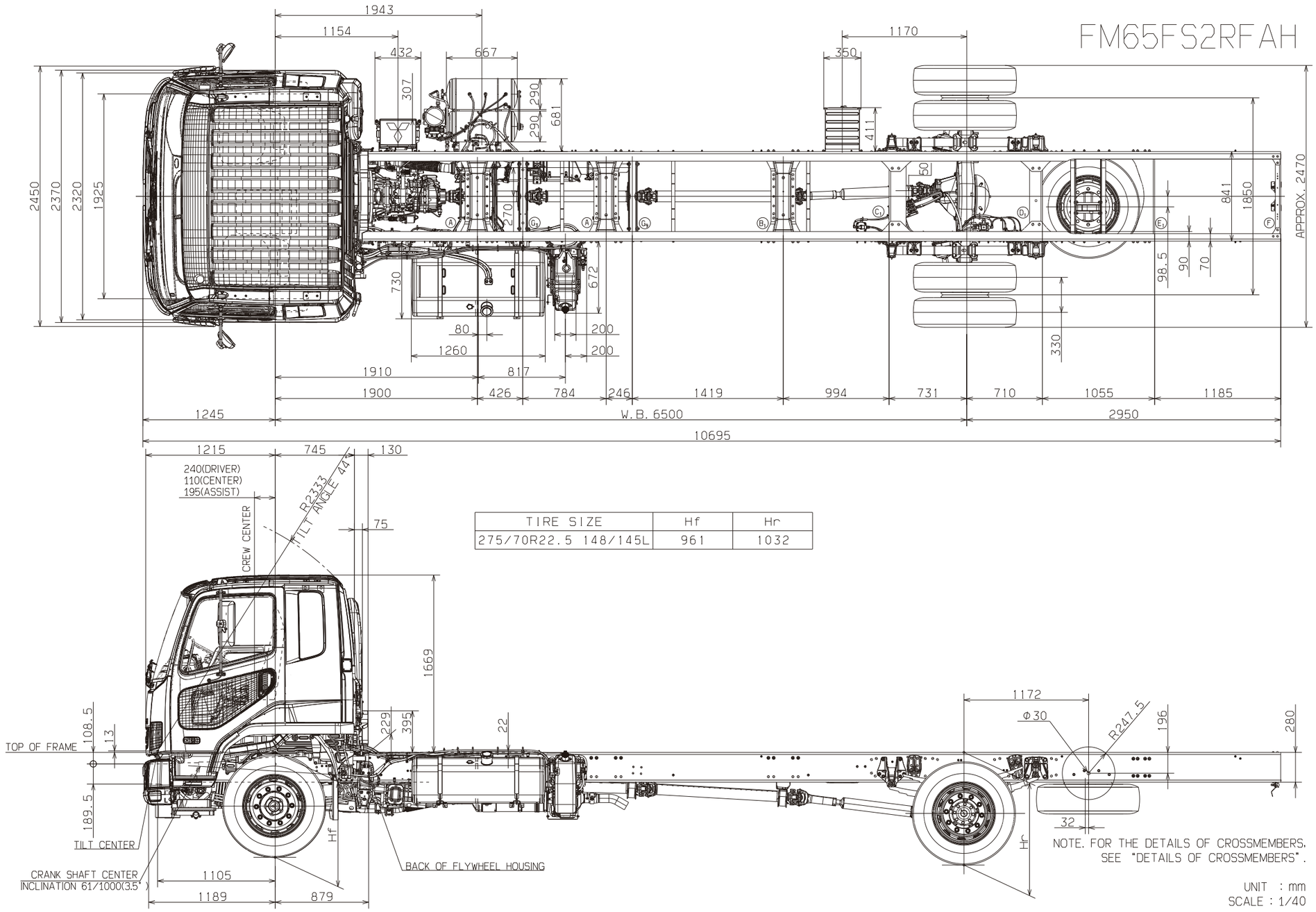
ENG REAR COVER	A
STD	130
F/W PTO(OPT)	185

NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B



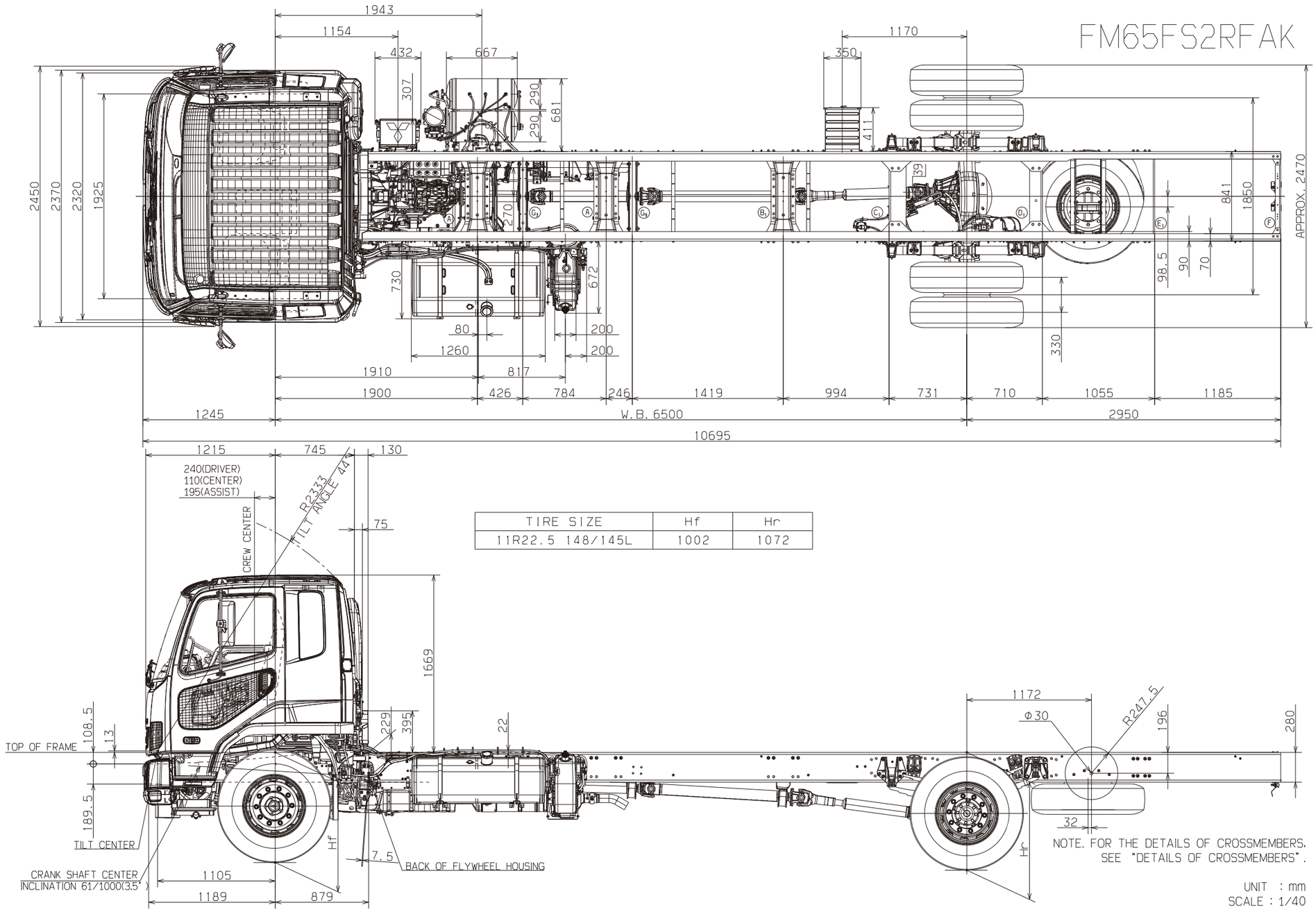
TIRE SIZE	Hf	Hr
275/70R22.5 148/145L	961	1032

NOTE. FOR THE DETAILS OF CROSSMEMBERS, SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

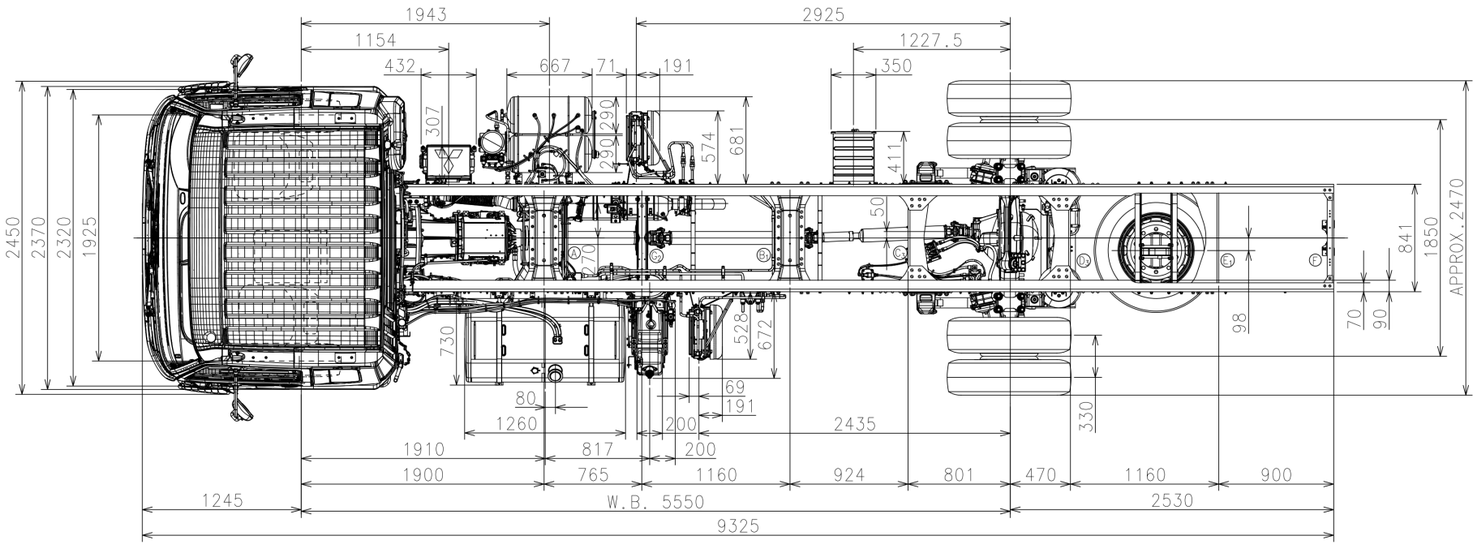


TIRE SIZE	Hf	Hr
11R22.5 148/145L	1002	1072

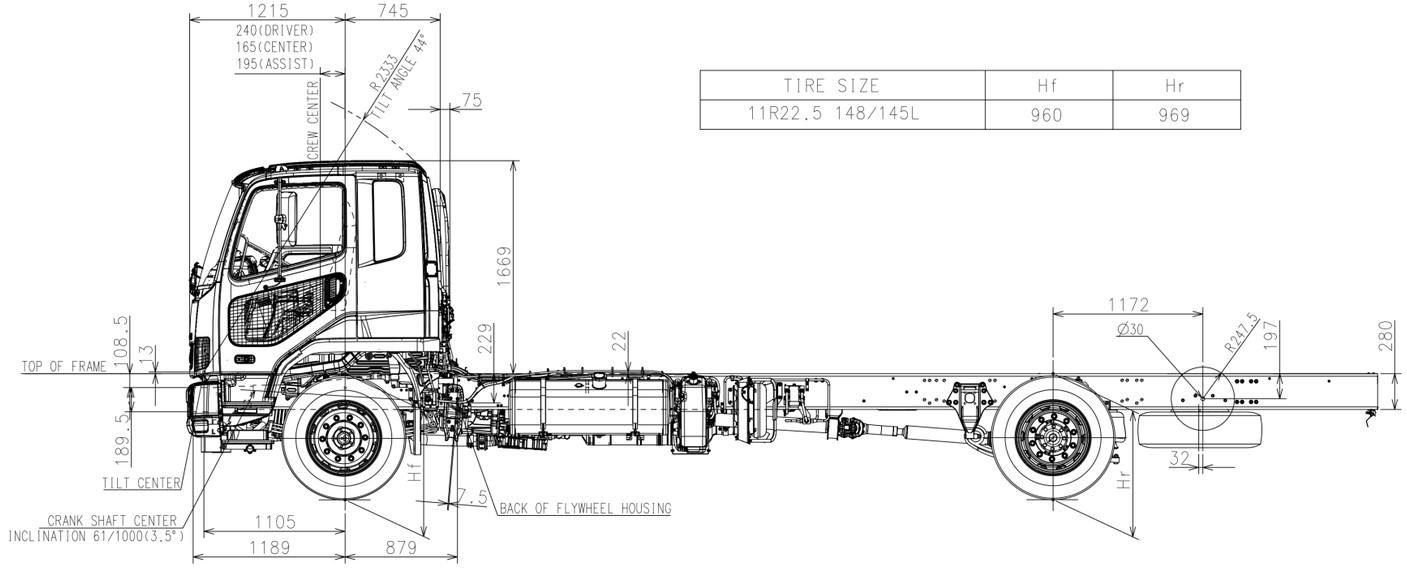
10.5 Chassis cab drawings

E

FM67FM2RFAM



TIRE SIZE	Hf	Hr
11R22.5 148/145L	960	969

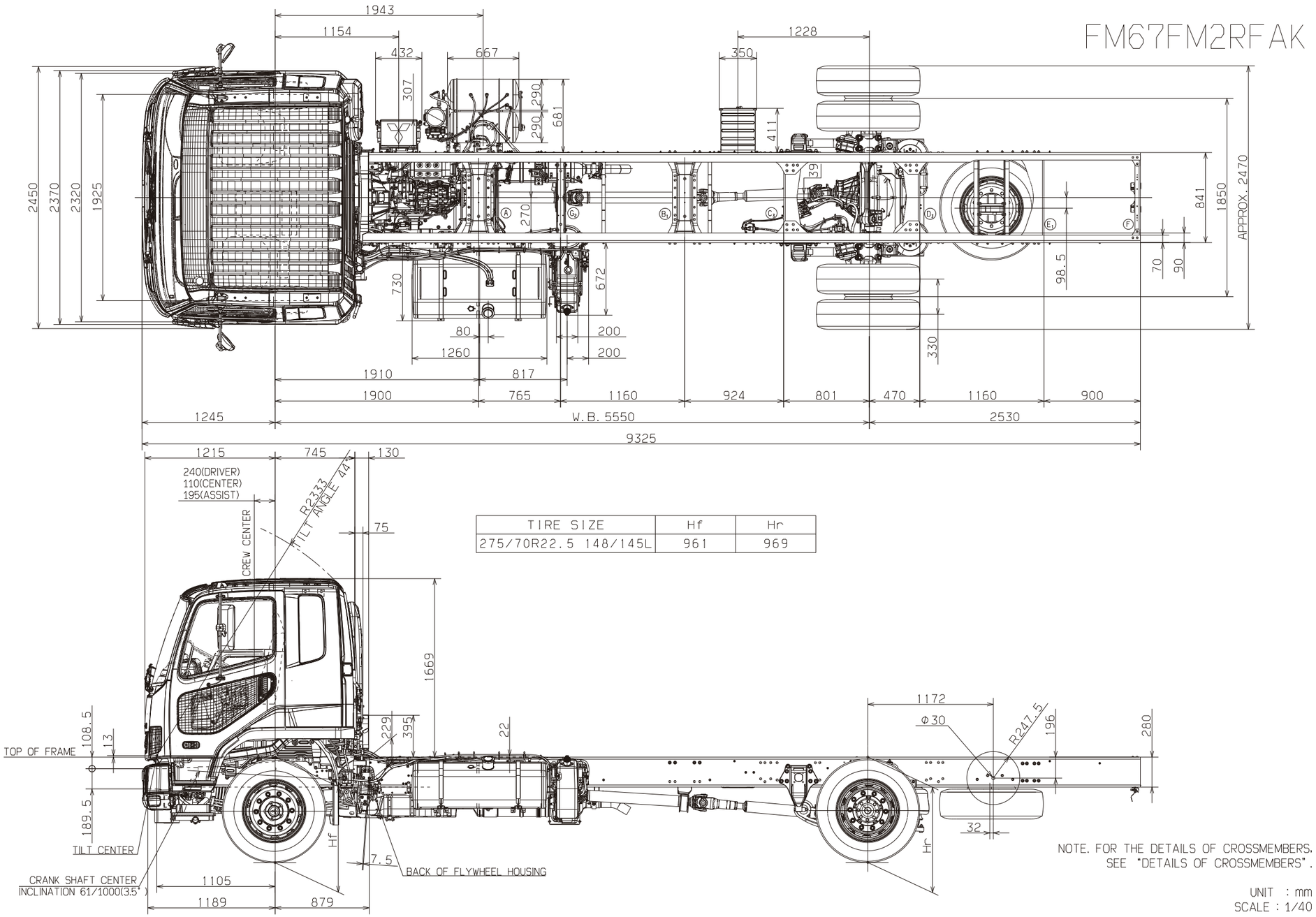


NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

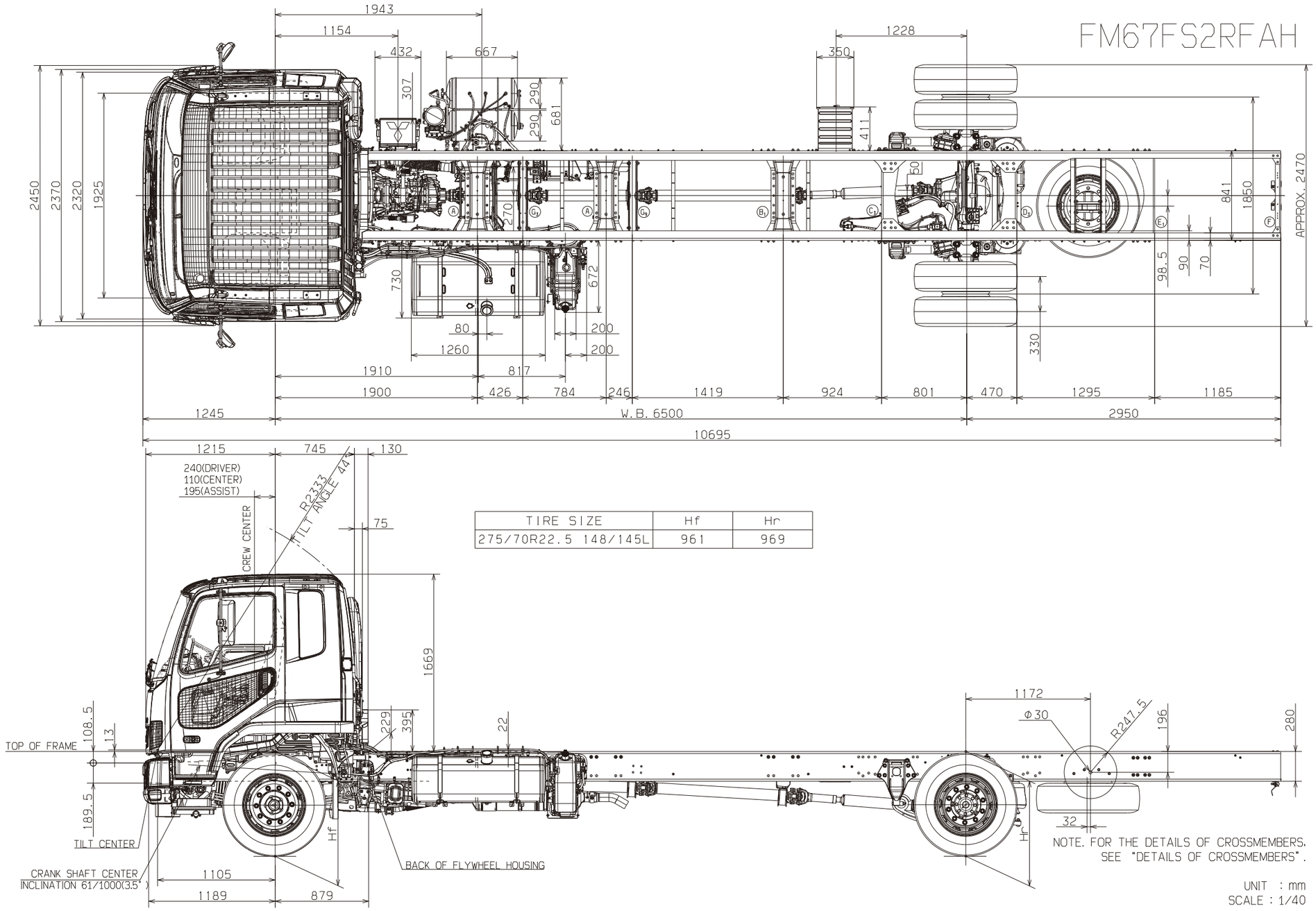
B



TIRE SIZE	Hf	Hr
275/70R22.5 148/145L	961	969

10.5 Chassis cab drawings

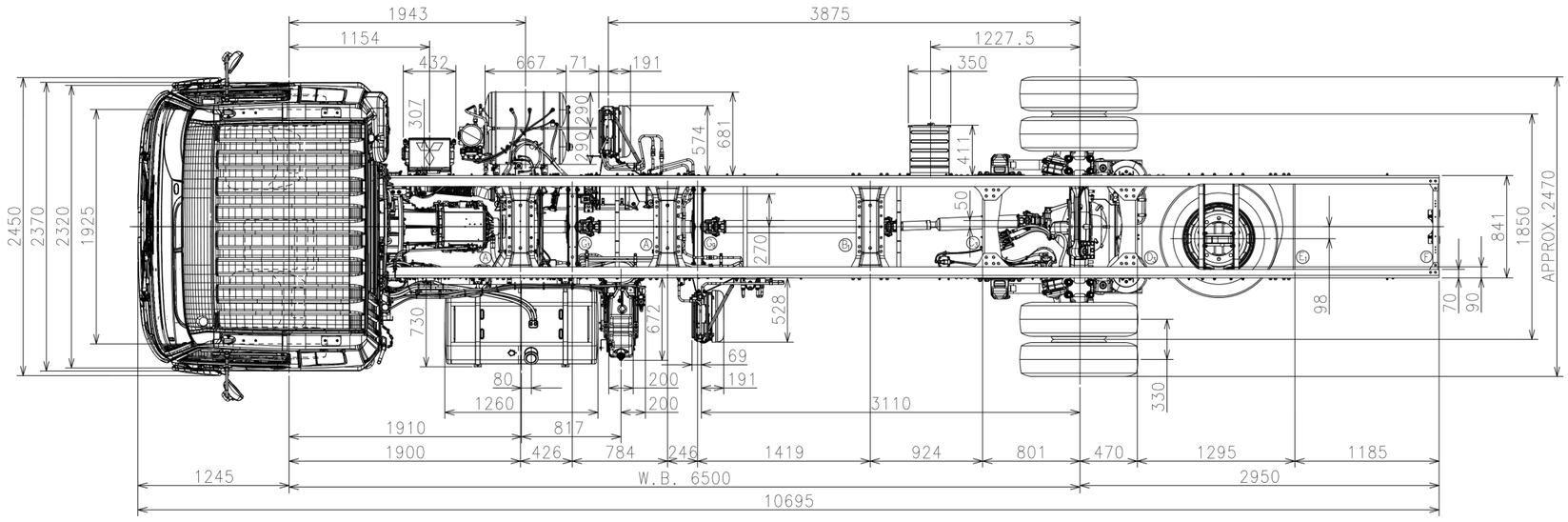
B

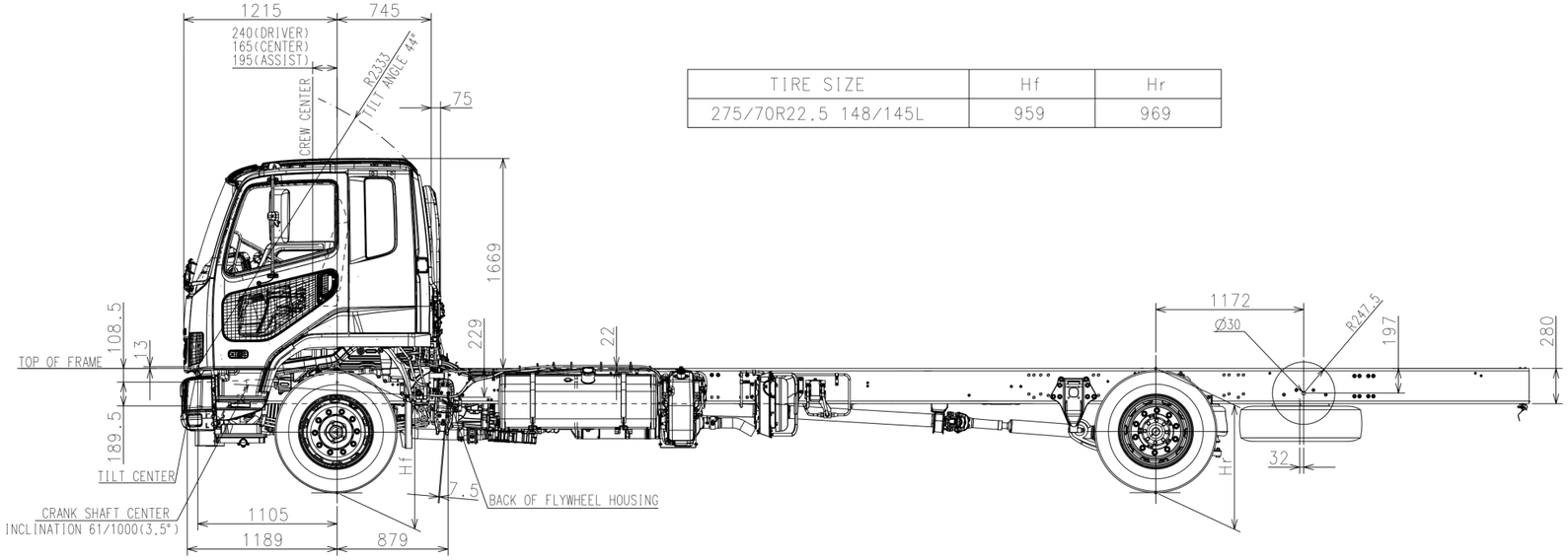


10.5 Chassis cab drawings

C

FM67FS2RFAM





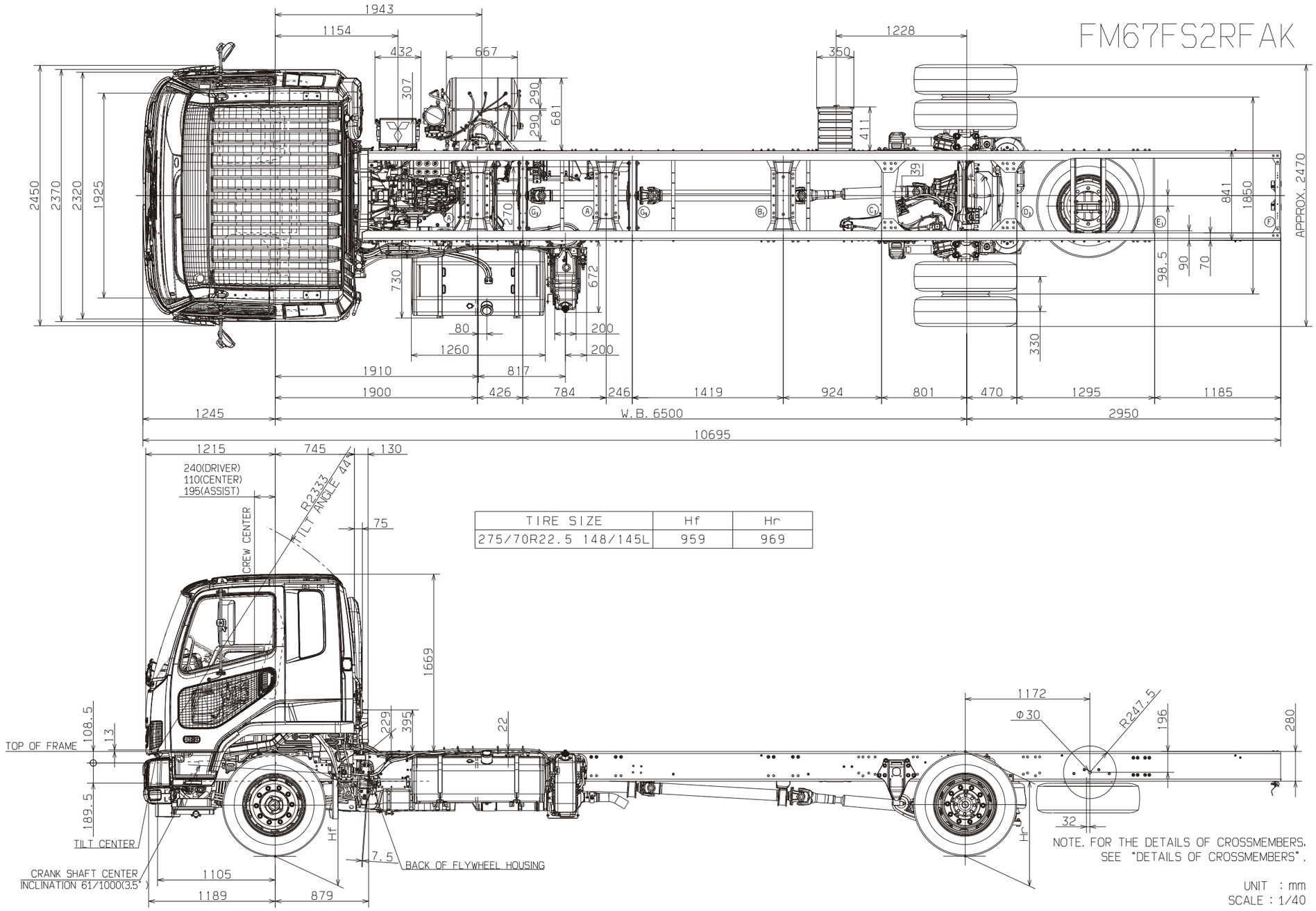
TIRE SIZE	Hf	Hr
275/70R22.5 148/145L	959	969

NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

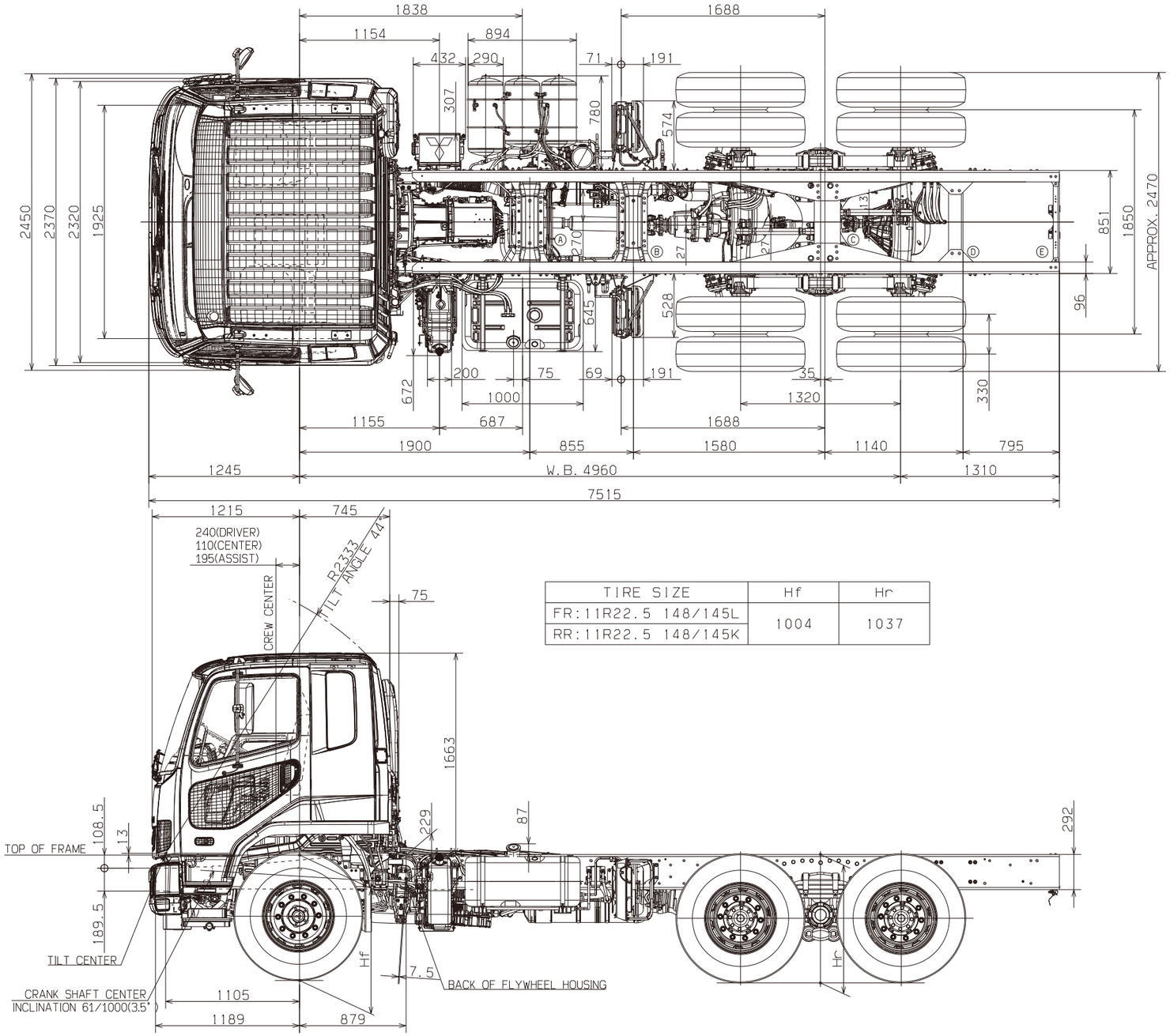


TIRE SIZE	Hf	Hr
275/70R22.5 148/145L	959	969

10.5 Chassis cab drawings

C

FN62FK2RFAM



TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	1004	1037
RR:11R22.5 148/145K		

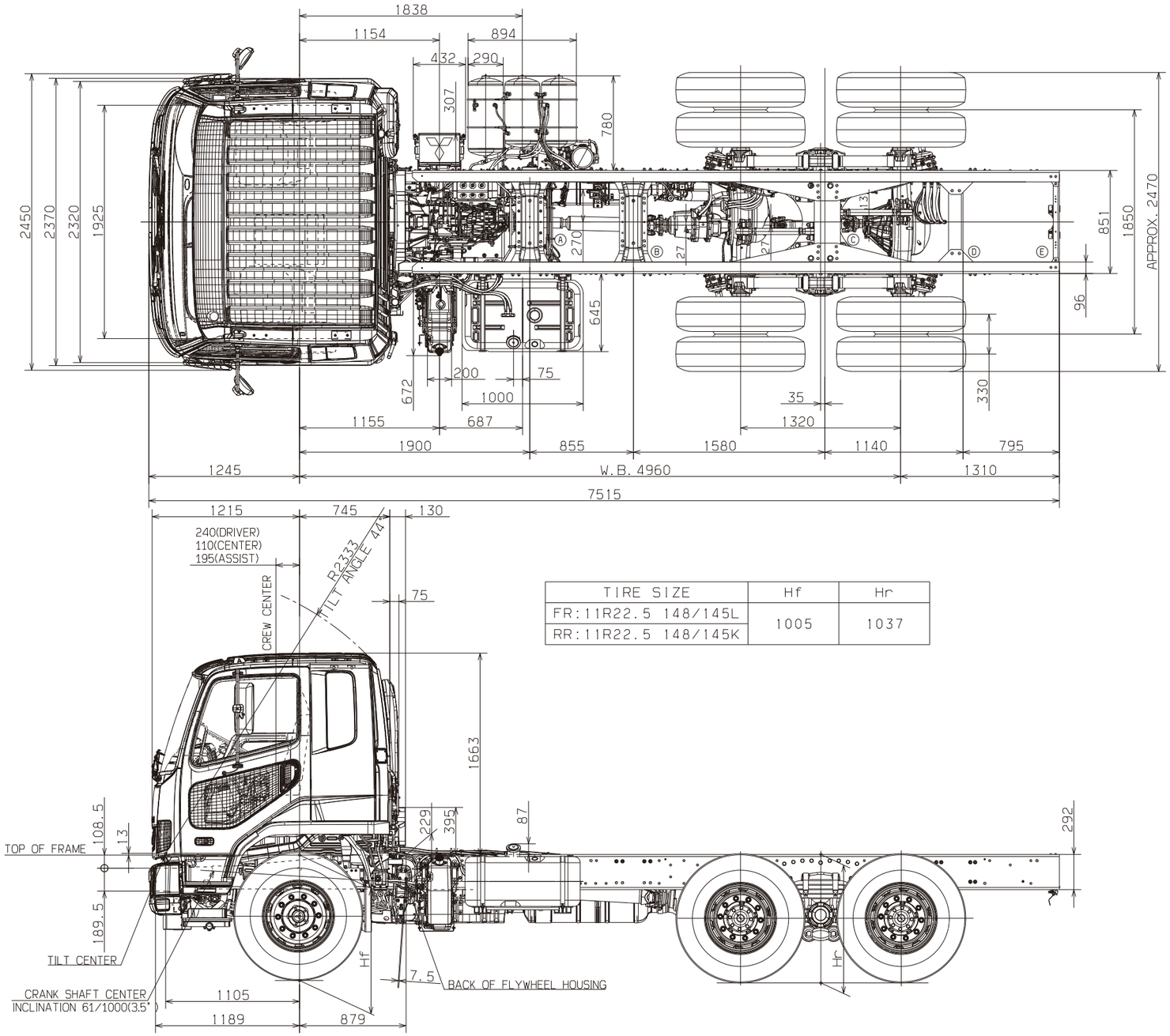
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

FN62FK2RFAK



TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	1005	1037
RR:11R22.5 148/145K		

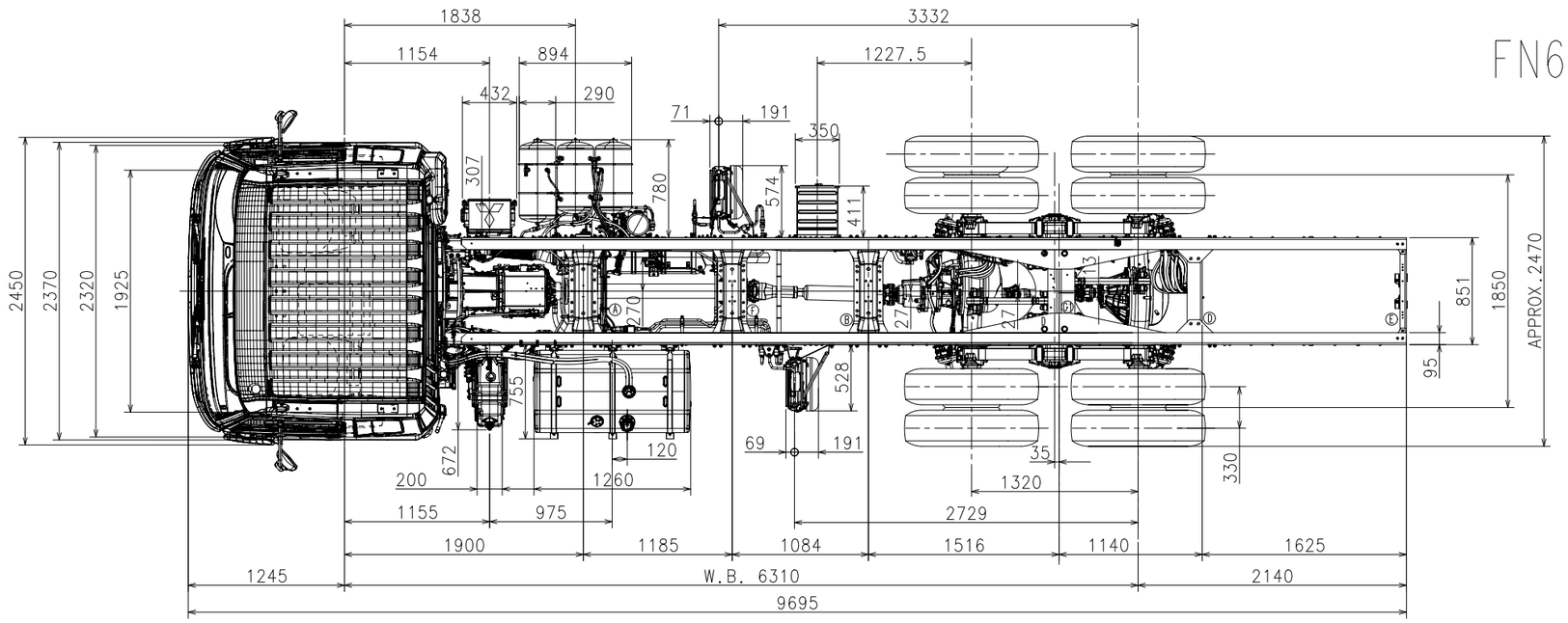
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

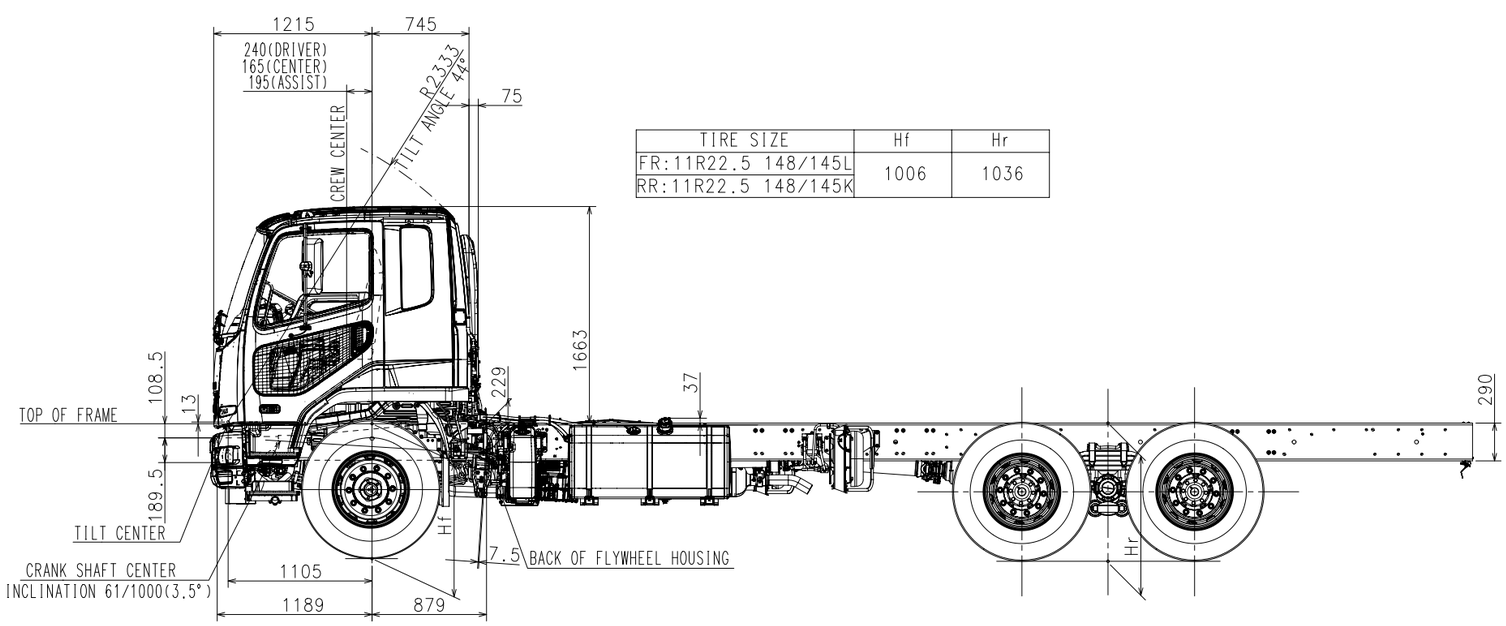
UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

D

FN62FR2RFAM





TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L RR:11R22.5 148/145K	1006	1036

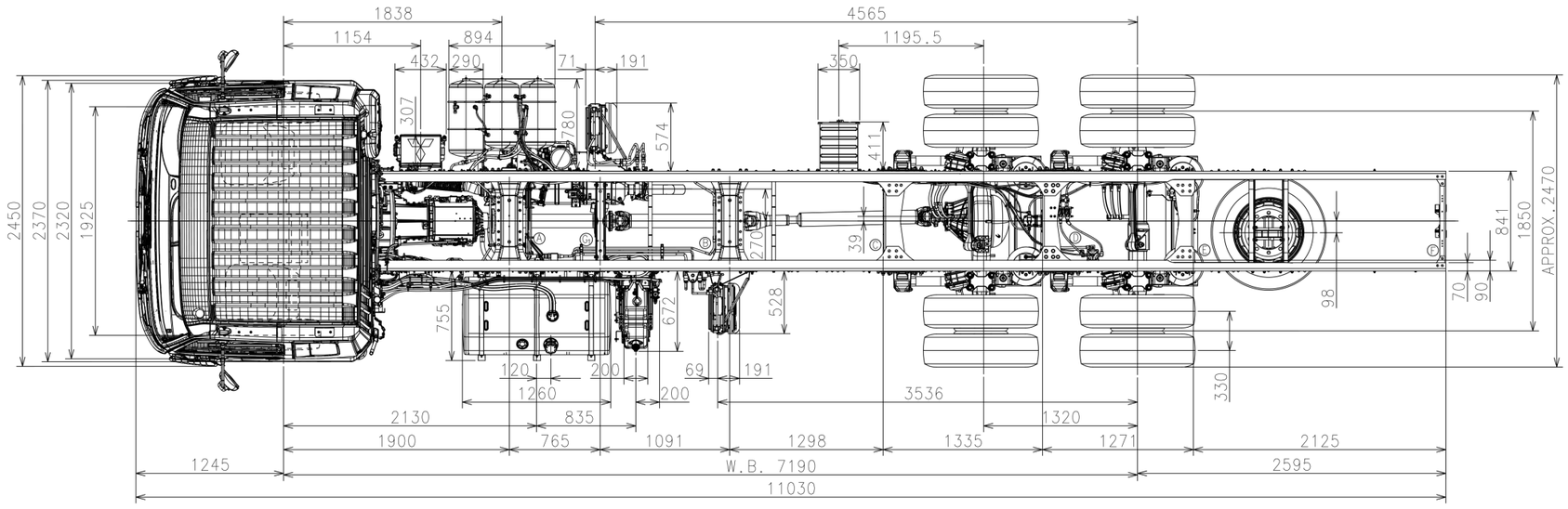
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

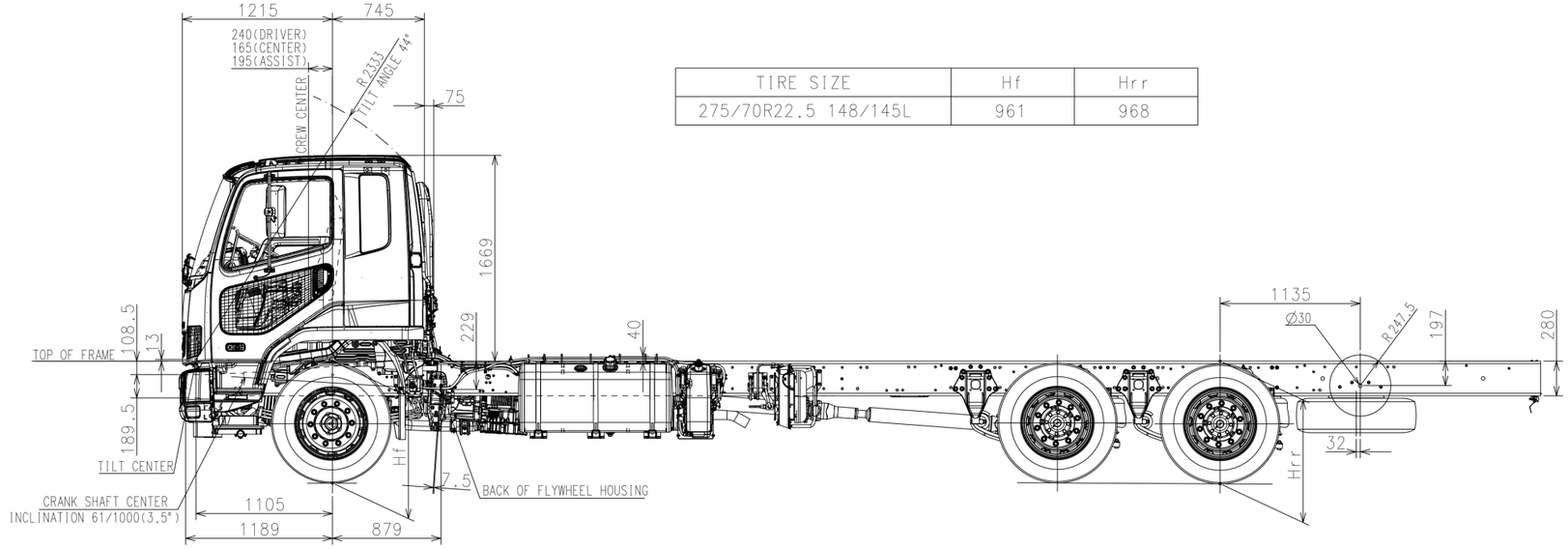
UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

E

FN63FU2RFAM





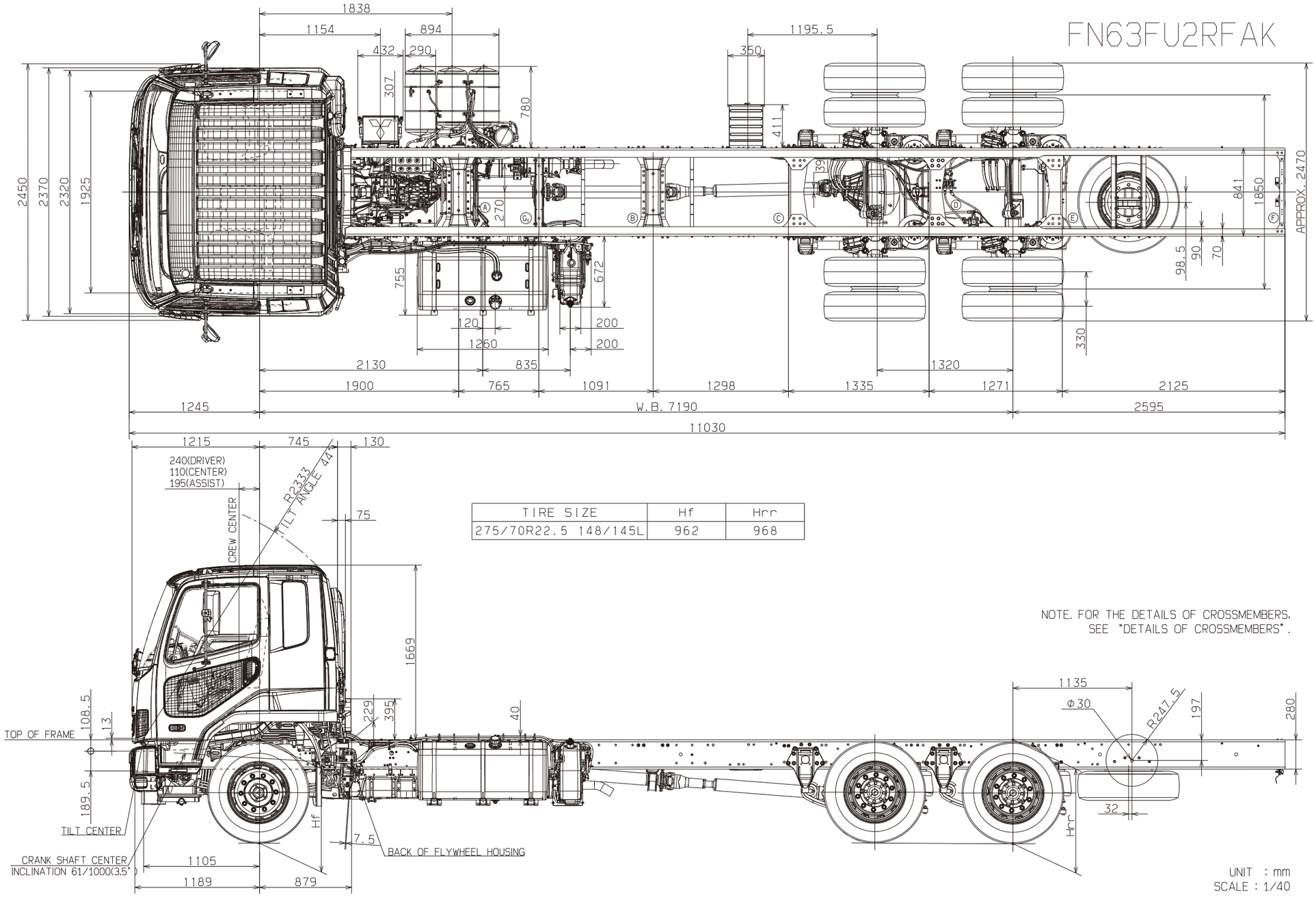
TIRE SIZE	Hf	Hrr
275/70R22.5 148/145L	961	968

NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B

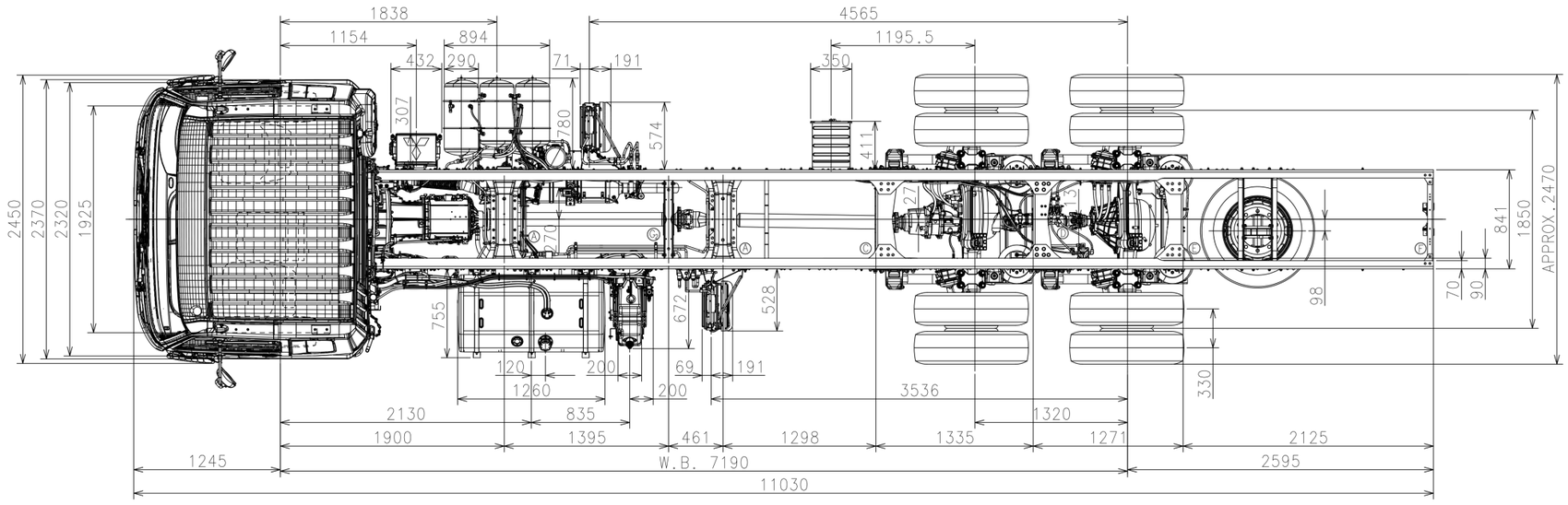


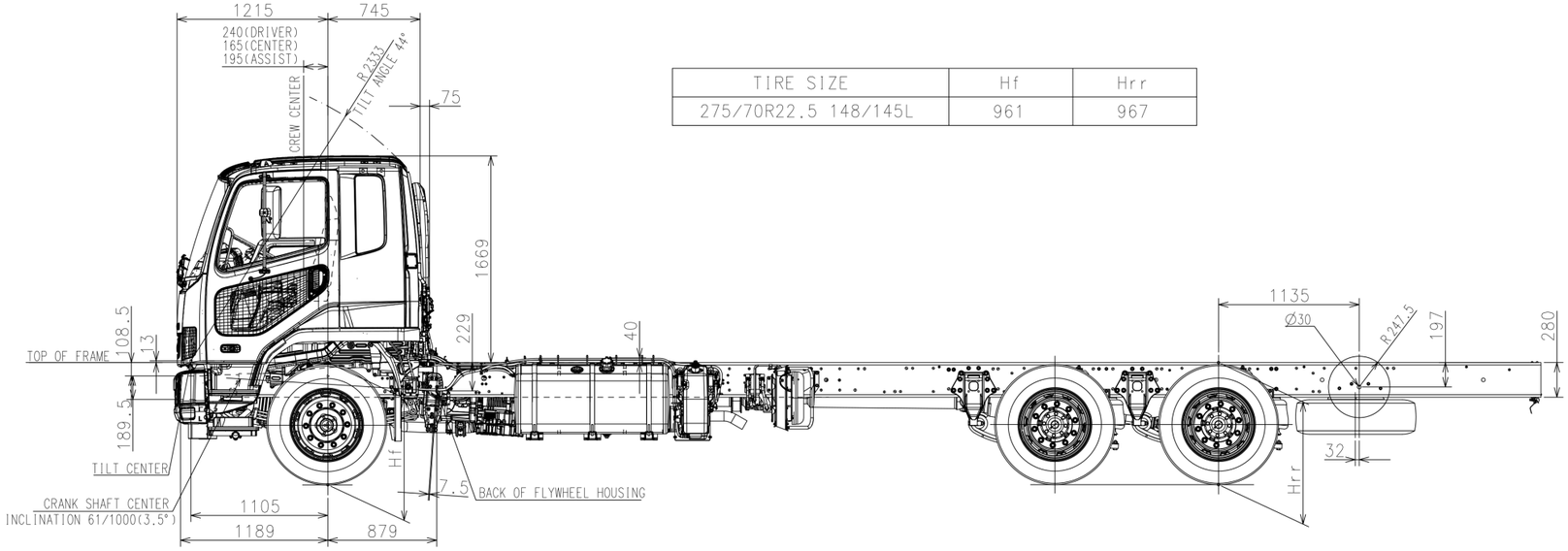
TIRE SIZE	Hf	Hrr
275/70R22.5 148/145L	962	968

10.5 Chassis cab drawings

E

FN64FU2RFAM





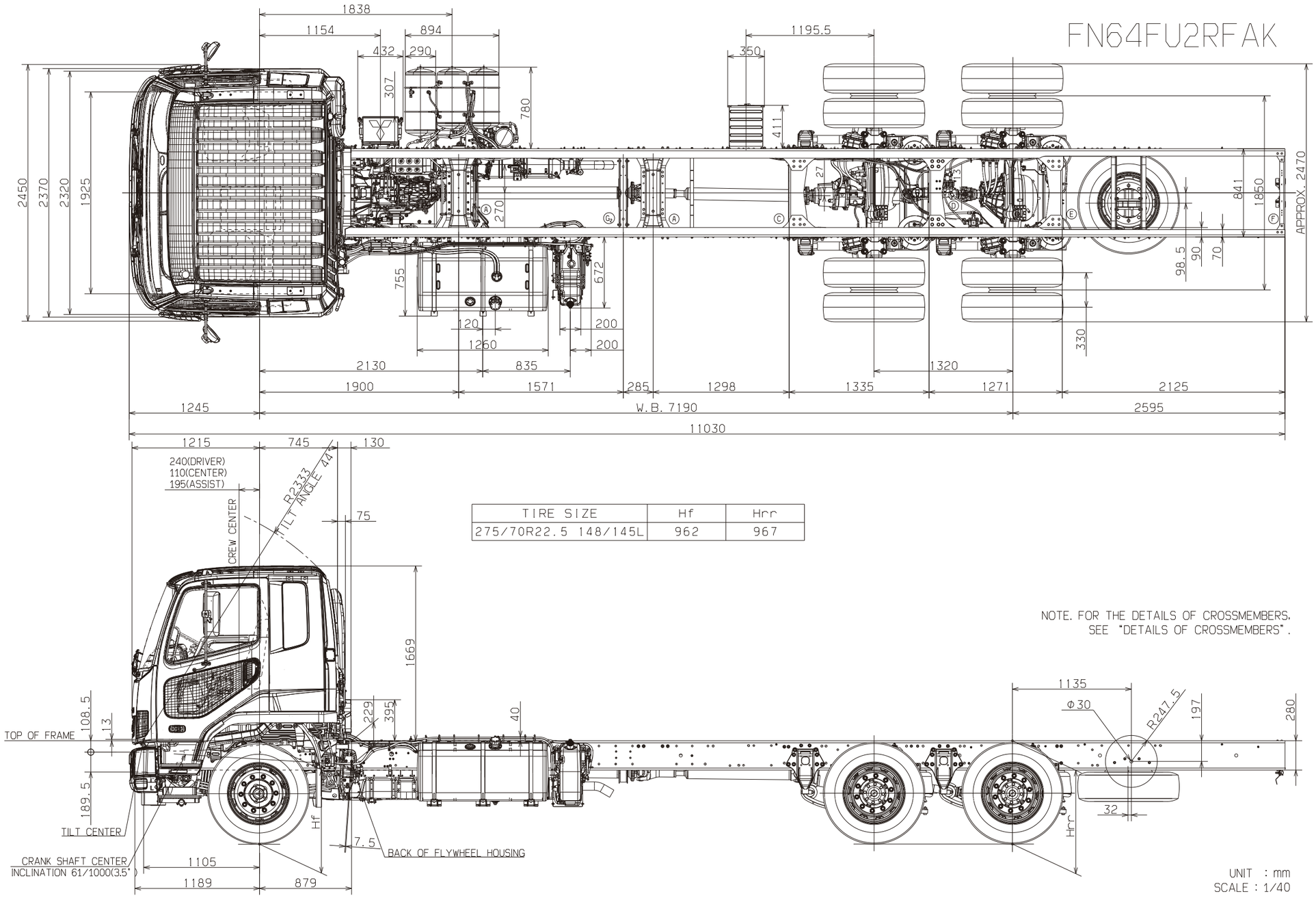
TIRE SIZE	Hf	Hrr
275/70R22.5 148/145L	961	967

NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

B



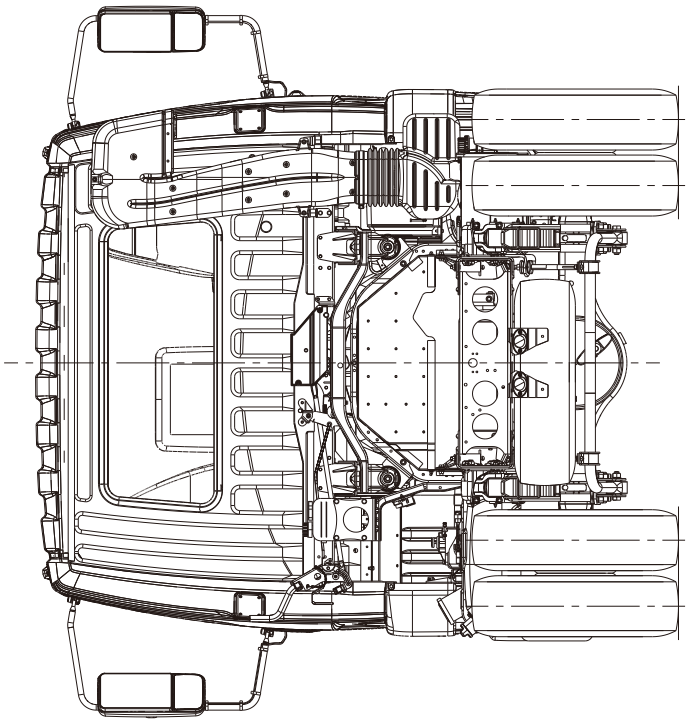
TIRE SIZE	Hf	Hrr
275/70R22.5 148/145L	962	967

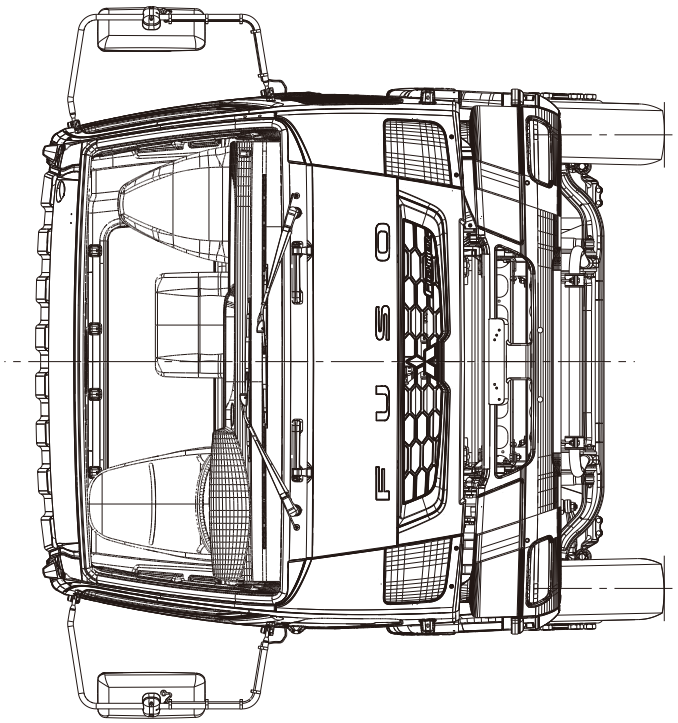
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

10.5.2 Cab drawings

10.5 Chassis cab drawings

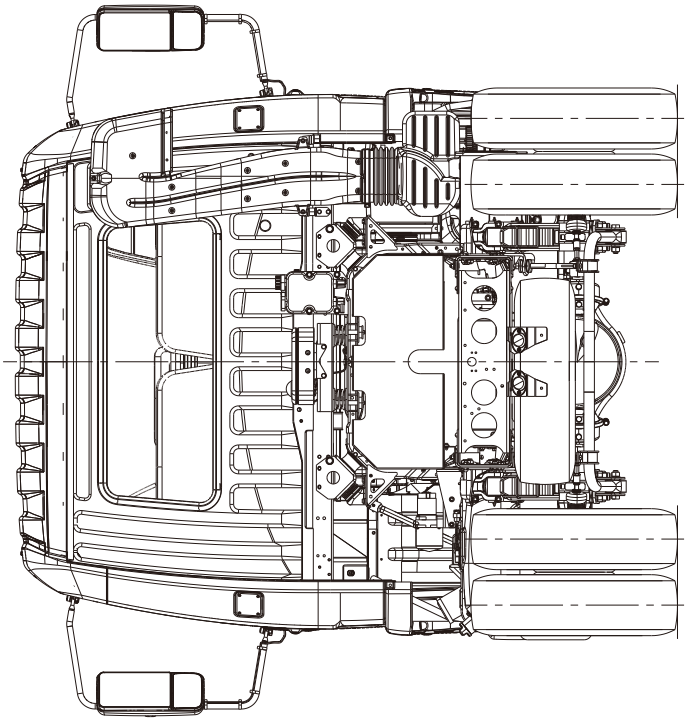


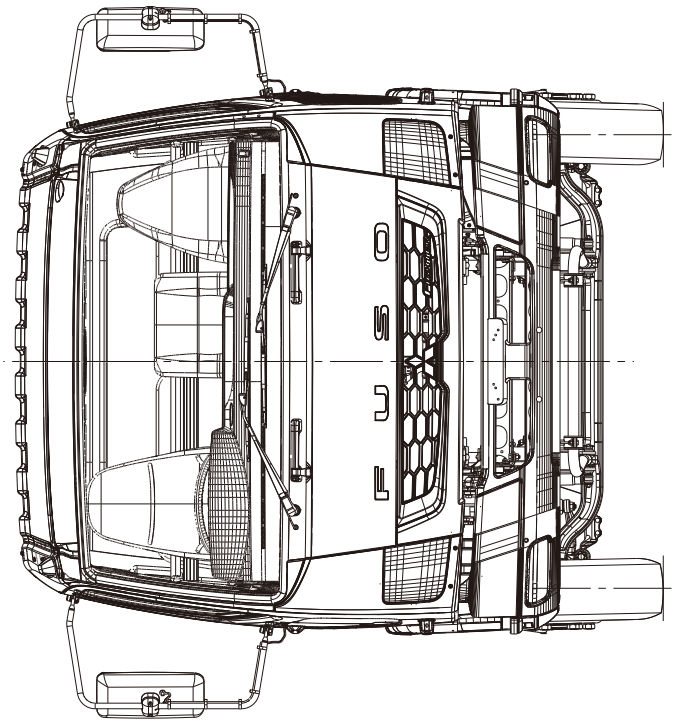


FK61F

10.5 Chassis cab drawings

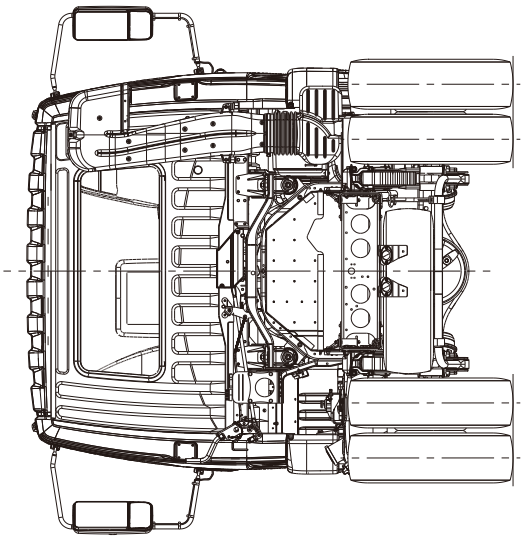
B

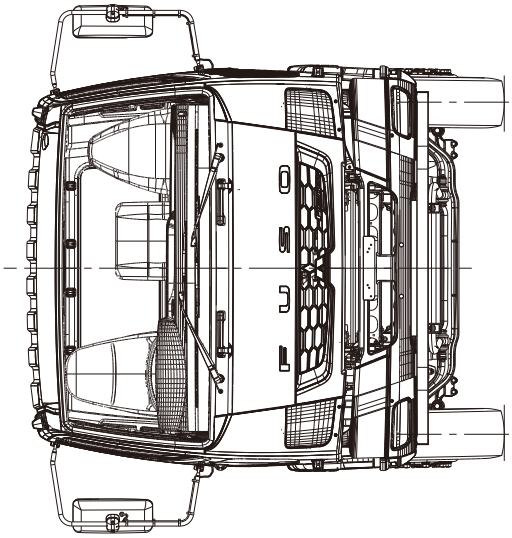




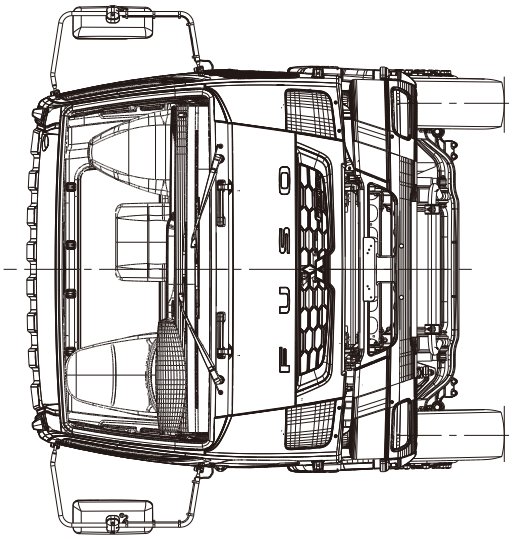
FK61F□W

10.5 Chassis cab drawings





With-FUP

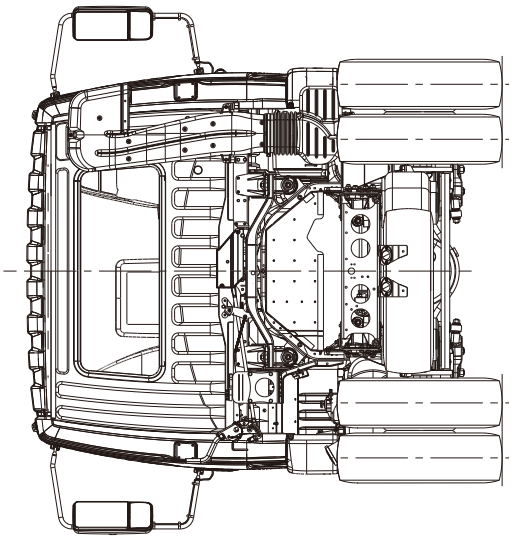


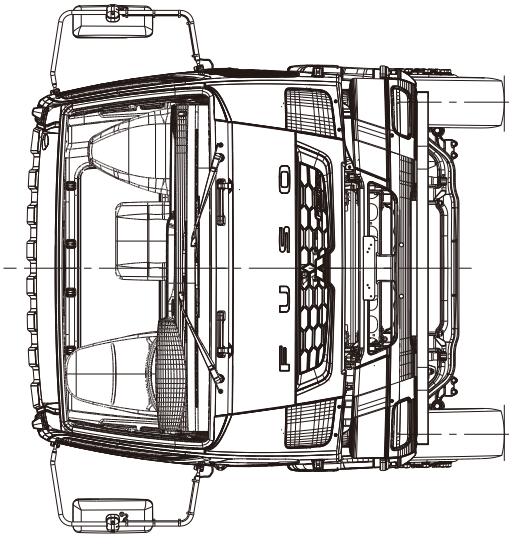
Without-FUP

FK62F

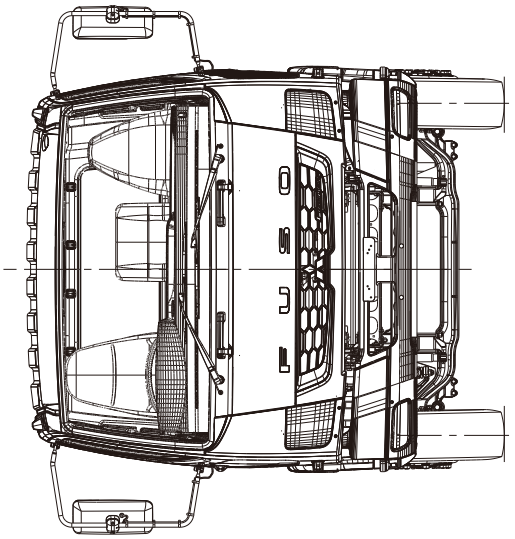
10.5 Chassis cab drawings

B





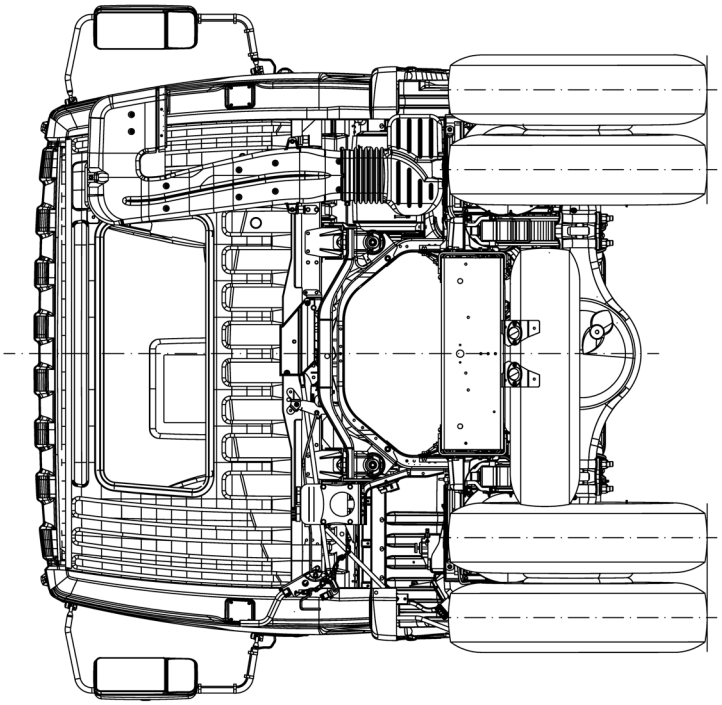
With-FUP

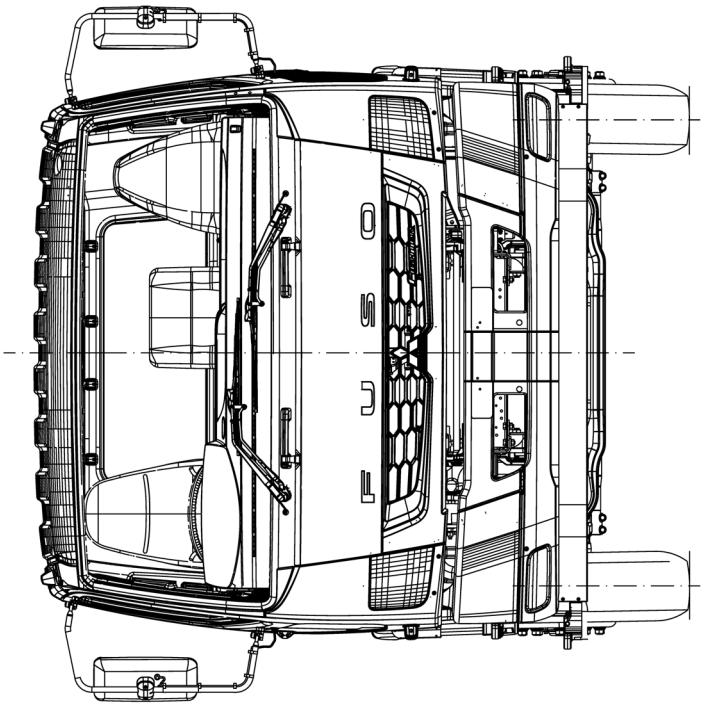


Without-FUP

FK65F

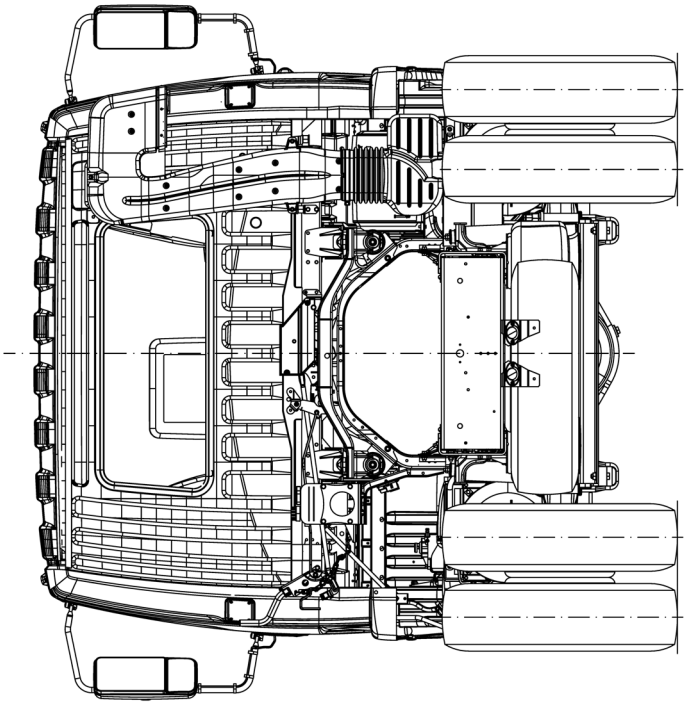
10.5 Chassis cab drawings

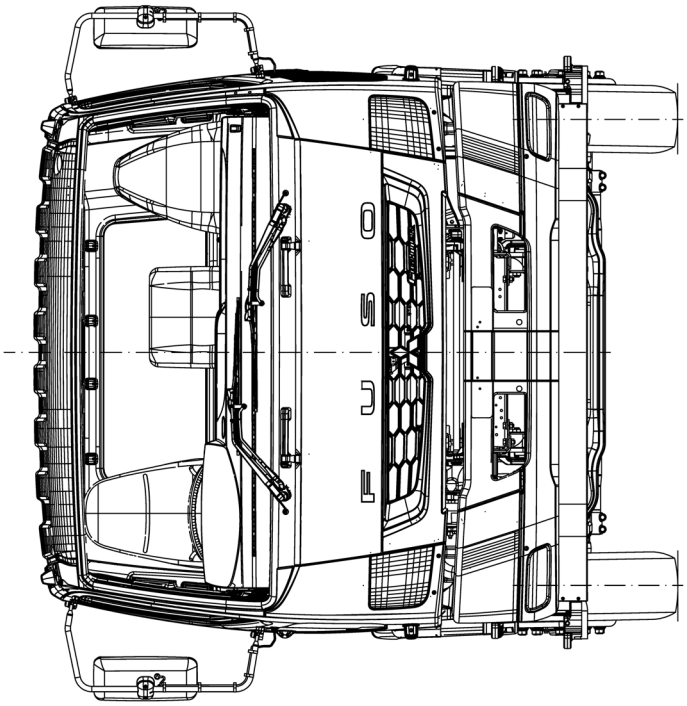




FM65F

10.5 Chassis cab drawings

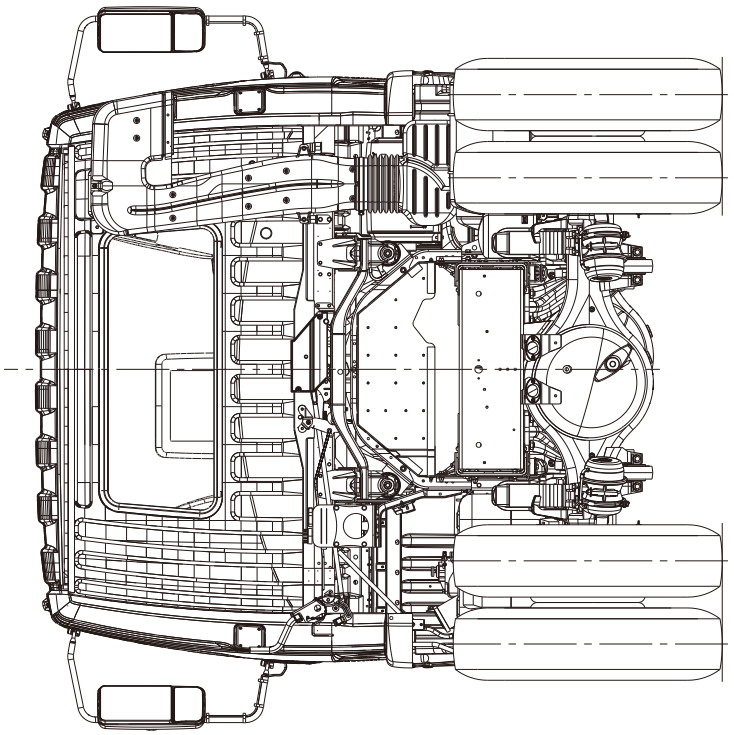


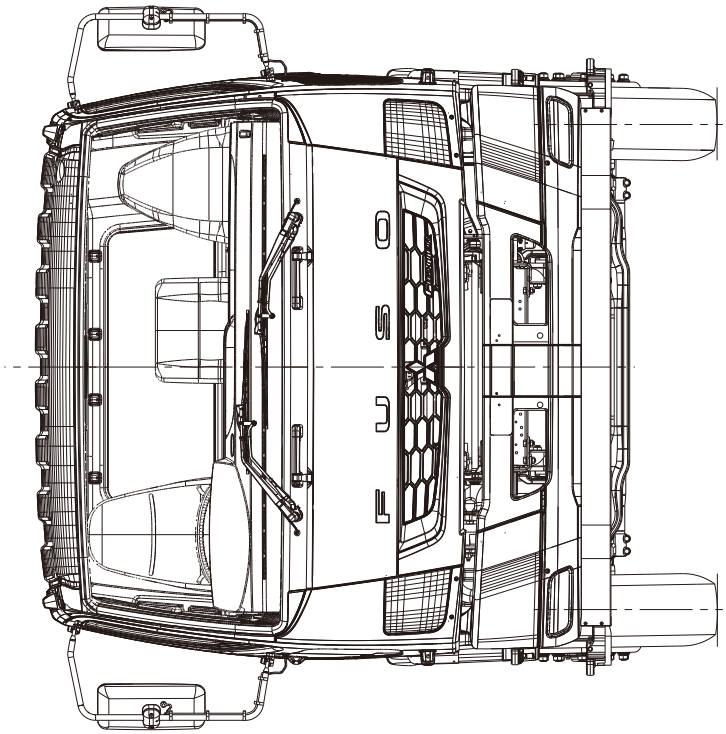


FM67F

10.5 Chassis cab drawings

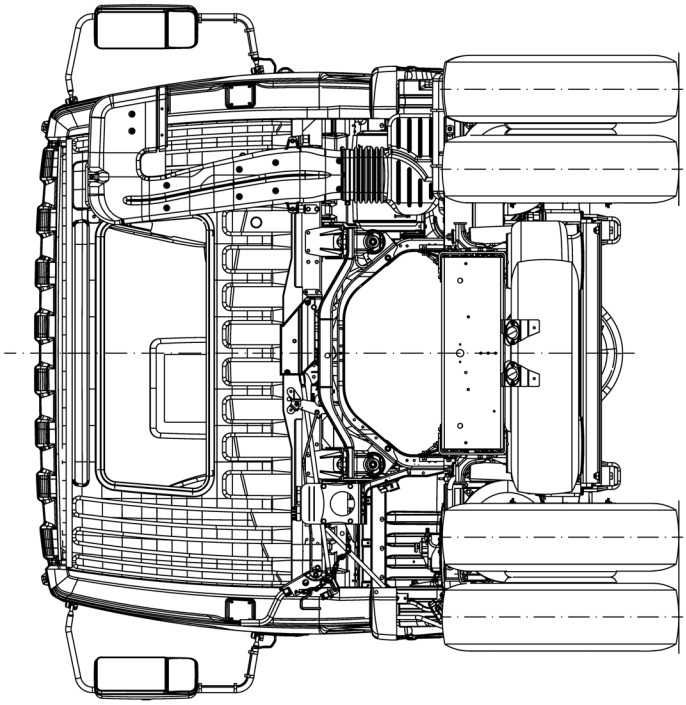
B

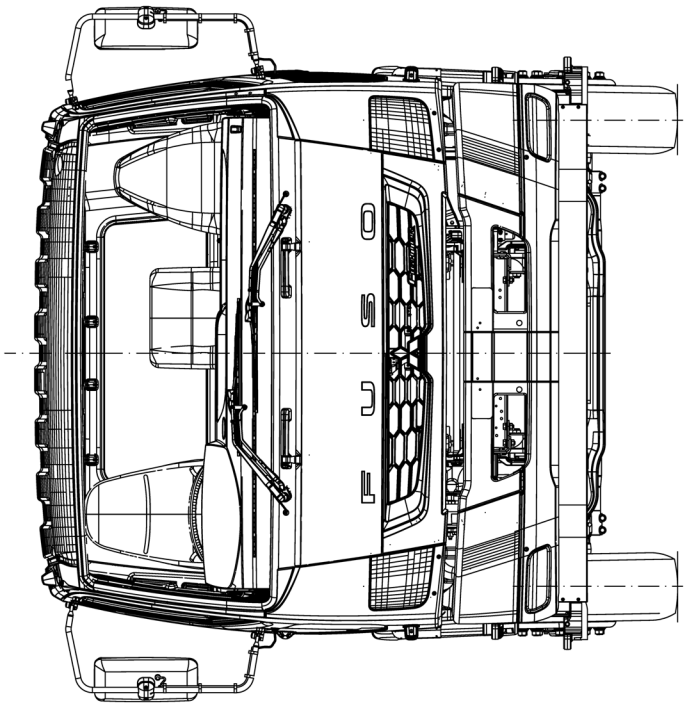




FN62F

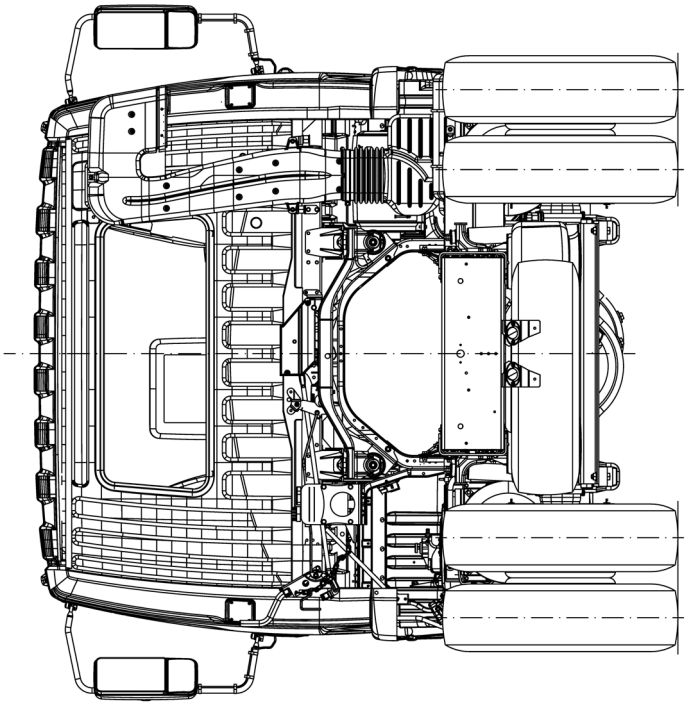
B

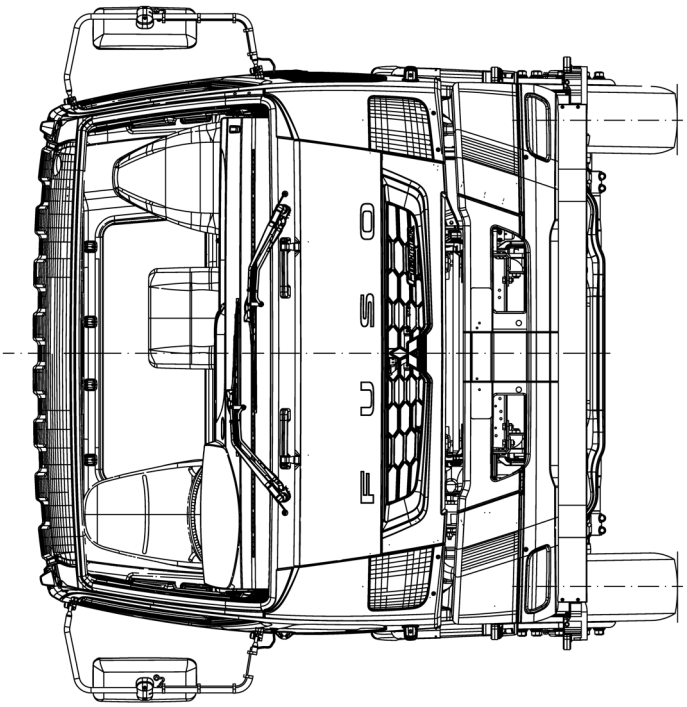




FN63F

10.5 Chassis cab drawings



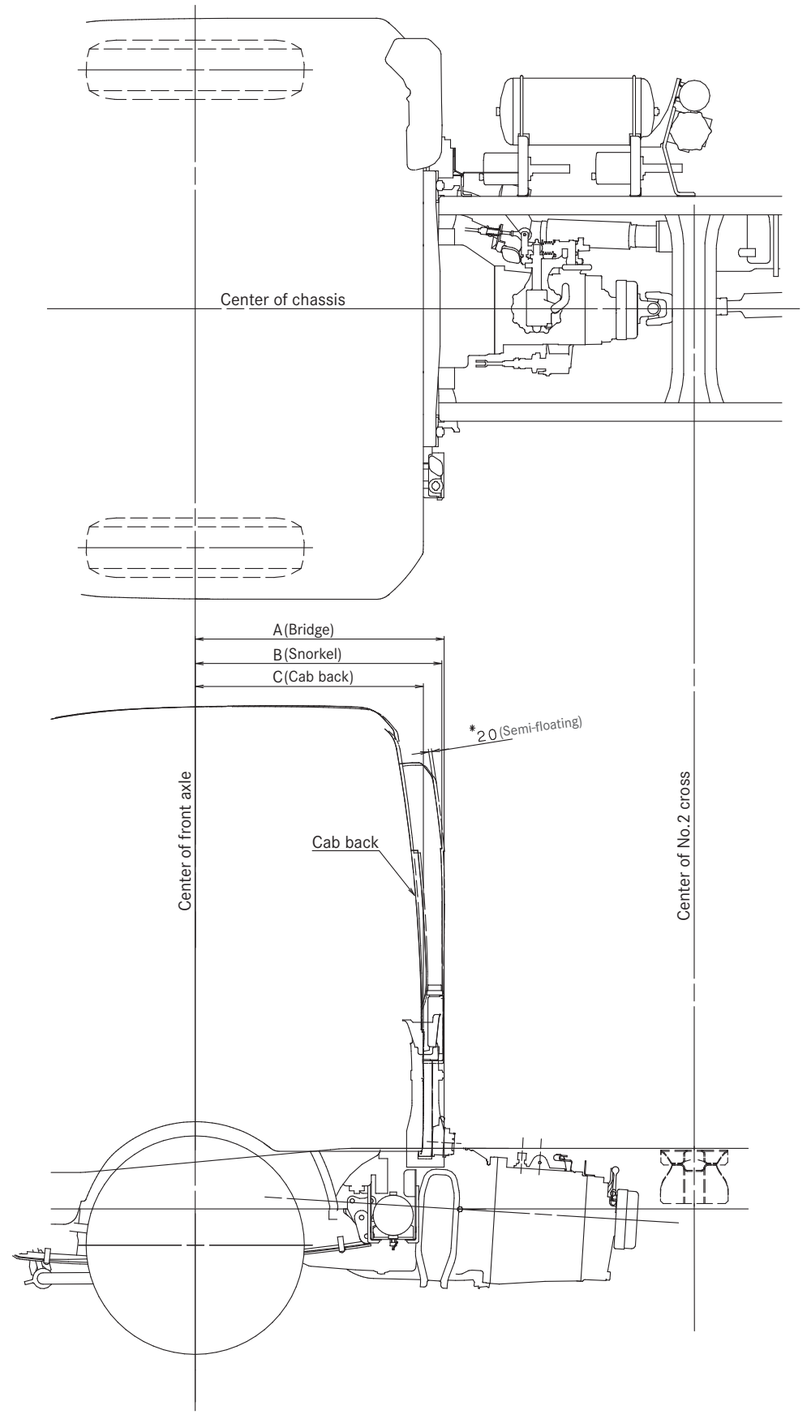


FN64F

10.5 Chassis cab drawings

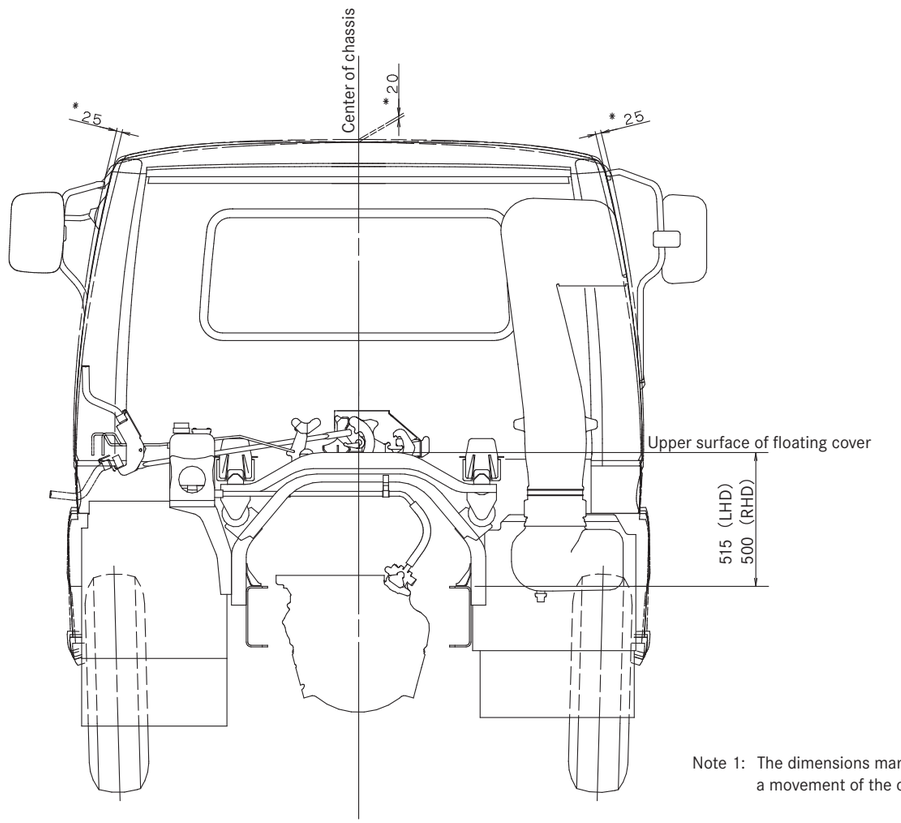
10.5.3 Reference drawing for building the front part of the rear body

Motion of the cab and the snorkel



Unit:mm

Series	A (Bridge)	B (Shunokel)	C (Cab back)
FK series	930	923	855
FM,FN series	820	813	745



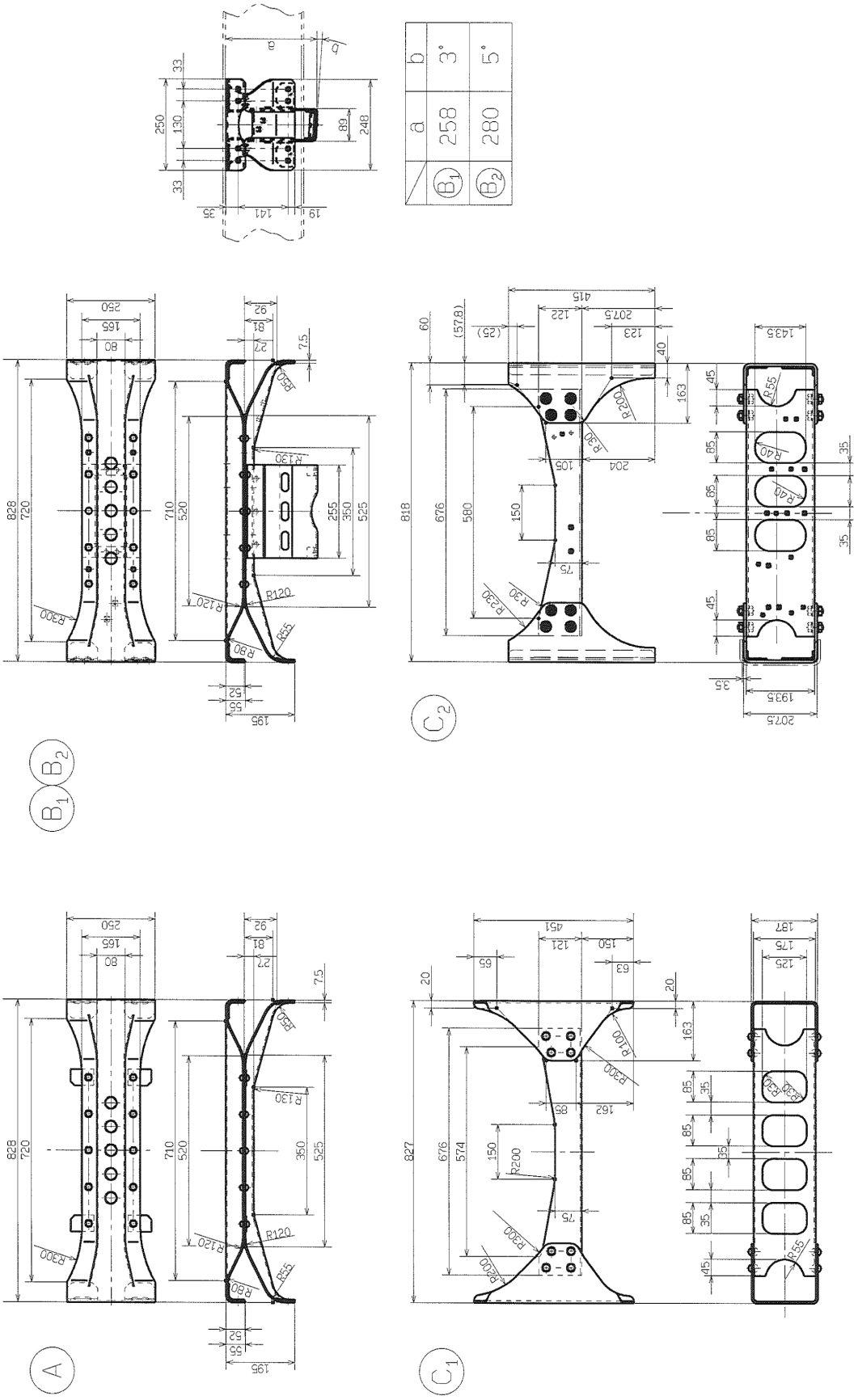
Note 1: The dimensions marked with * show a movement of the cab.

10.6 Frame structure

10.6.1 Details of crossmembers

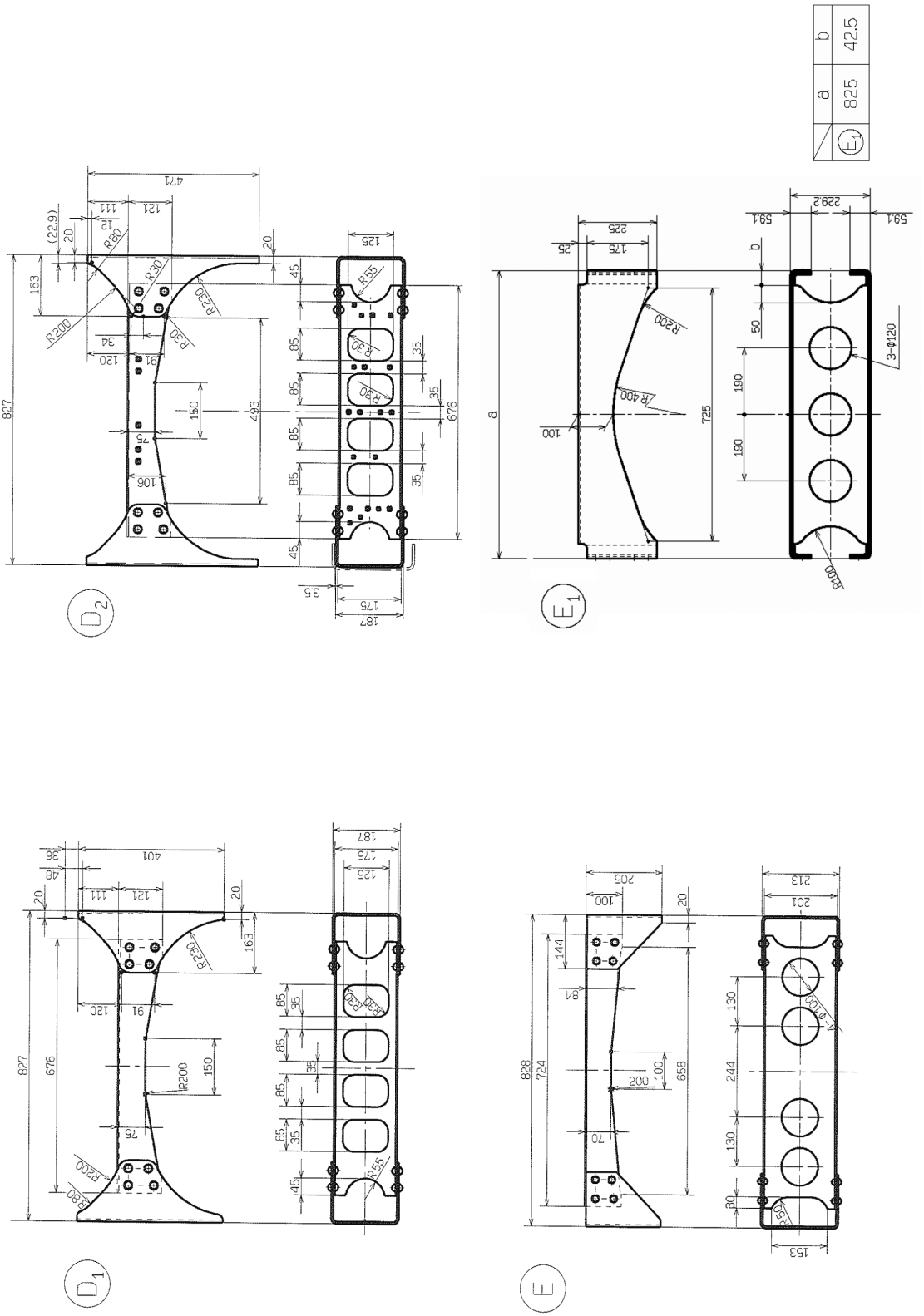
UNIT : mm

DETAILS OF CROSSMEMBERS (FK SERIES)



UNIT : mm

DETAILS OF CROSSMEMBERS (FK SERIES)

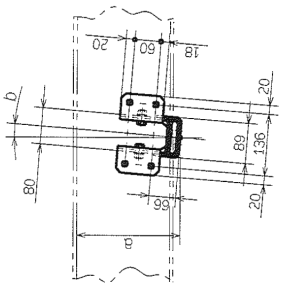


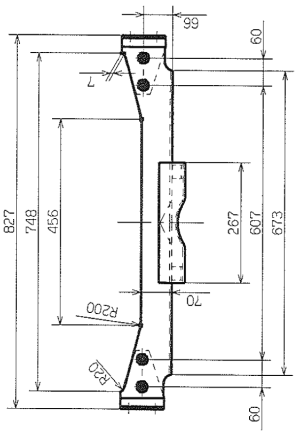
E

UNIT : mm

DETAILS OF CROSSMEMBERS (FK SERIES)

	a	b
F1	225	1° 30'
F2	207	0° 30'



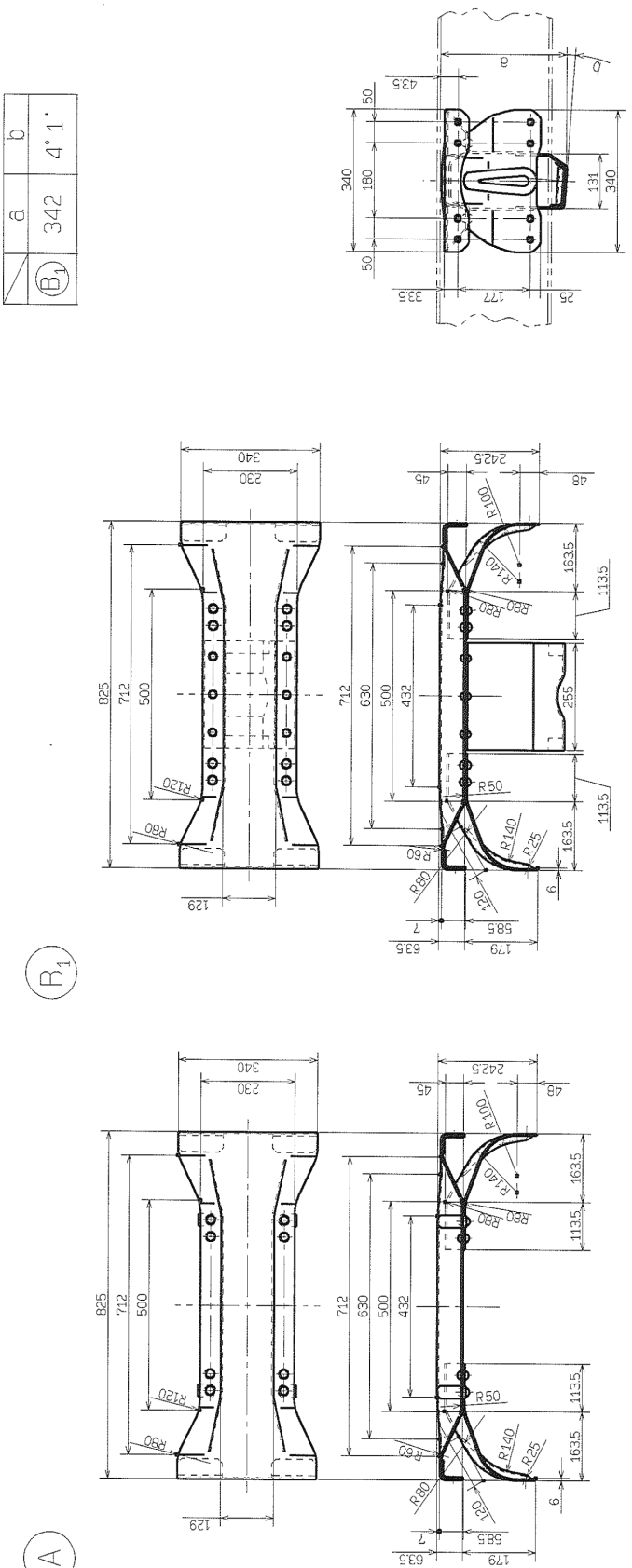


F1 F2

DETAILS OF CROSSMEMBERS (FM SERIES)

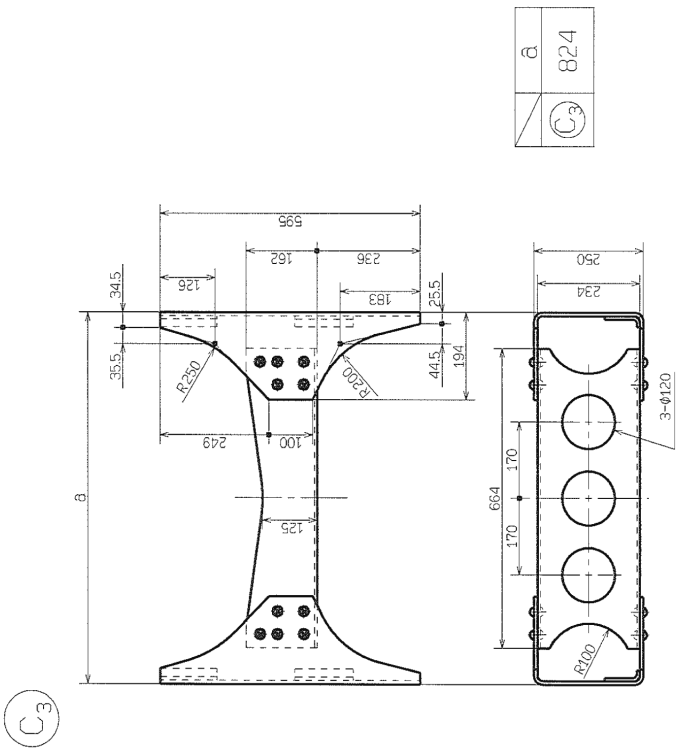
UNIT : mm

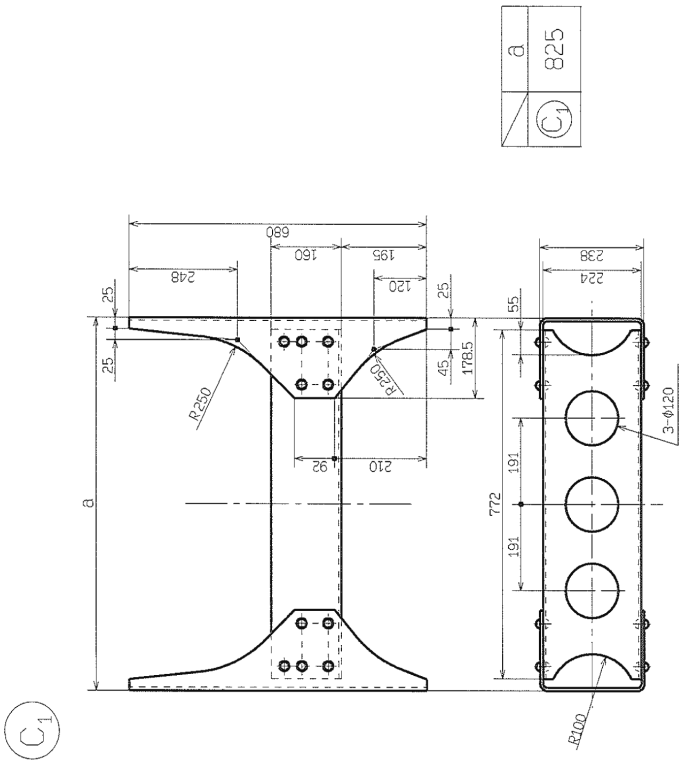
	a	b
(B1)	342	4°1'



UNIT : mm

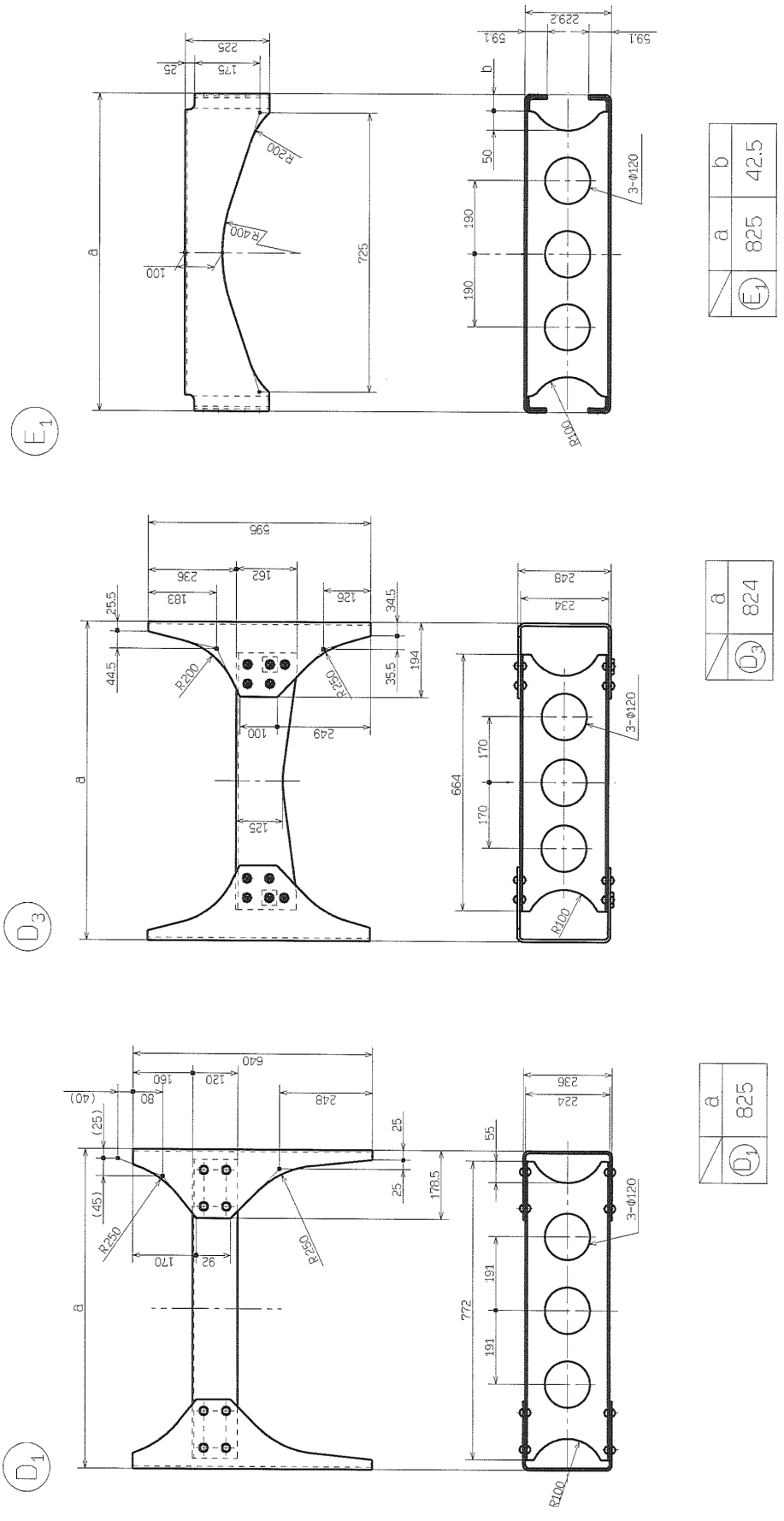
DETAILS OF CROSSMEMBERS (FM SERIES)





DETAILS OF CROSSMEMBERS (FM SERIES)

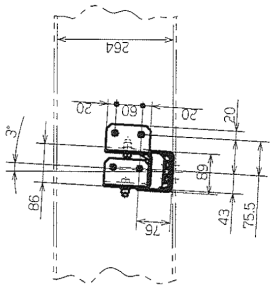
UNIT : mm



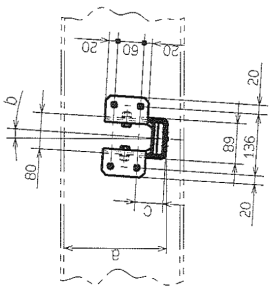
UNIT : mm

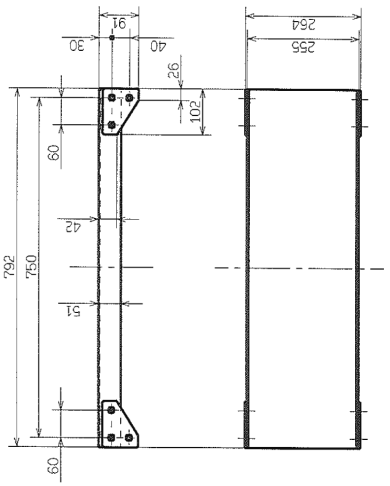
DETAILS OF CROSSMEMBERS (FM SERIES)

	a	b	c
G1	295	5° 35'	86
G2	270	3° 45'	66
G3	233	3° 20'	66

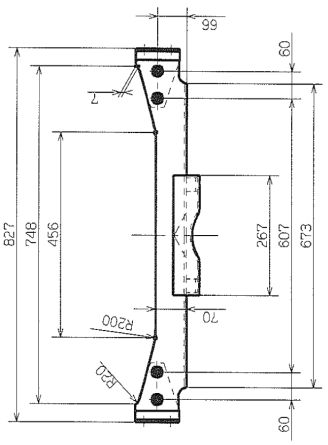


G9





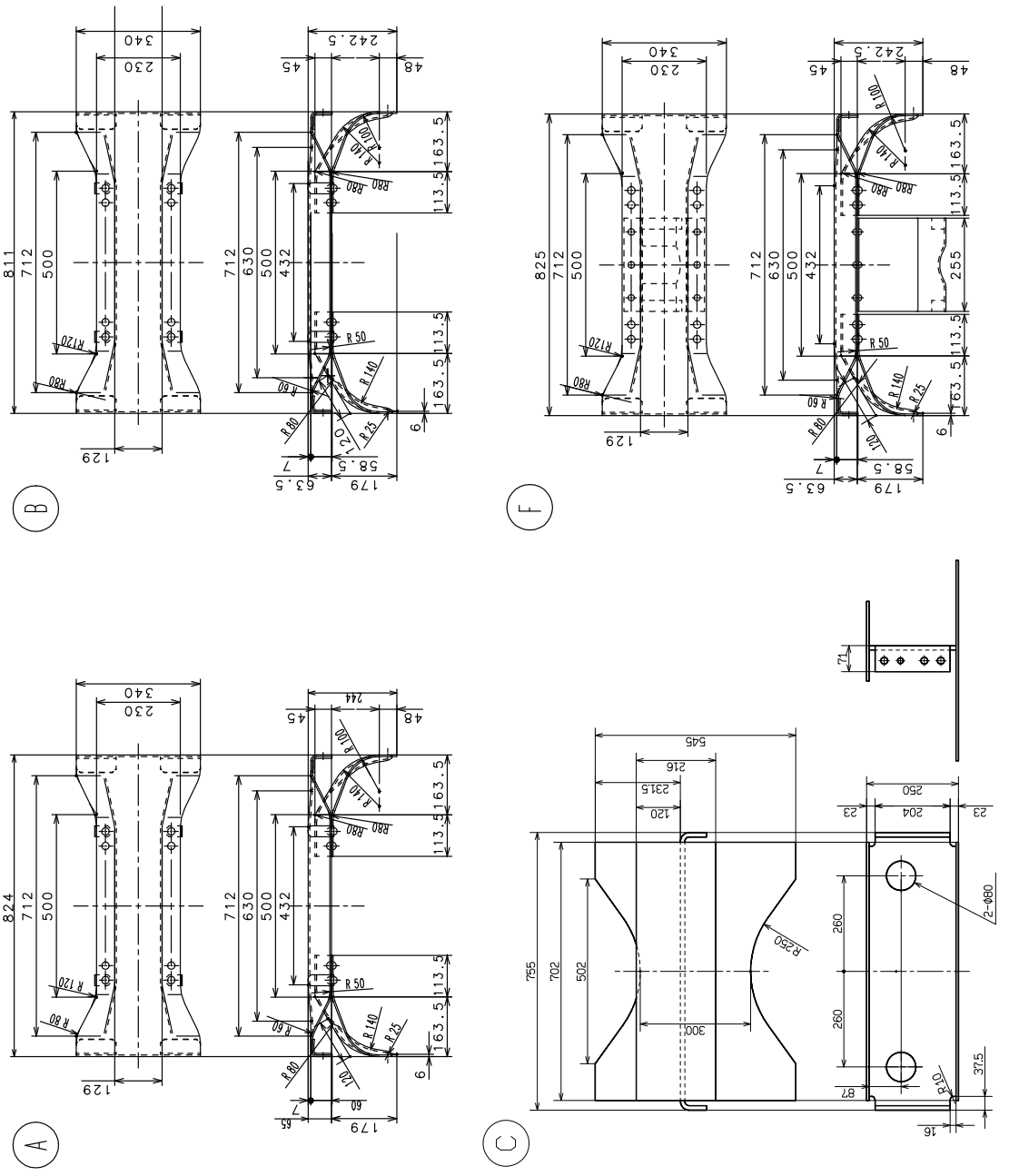
F

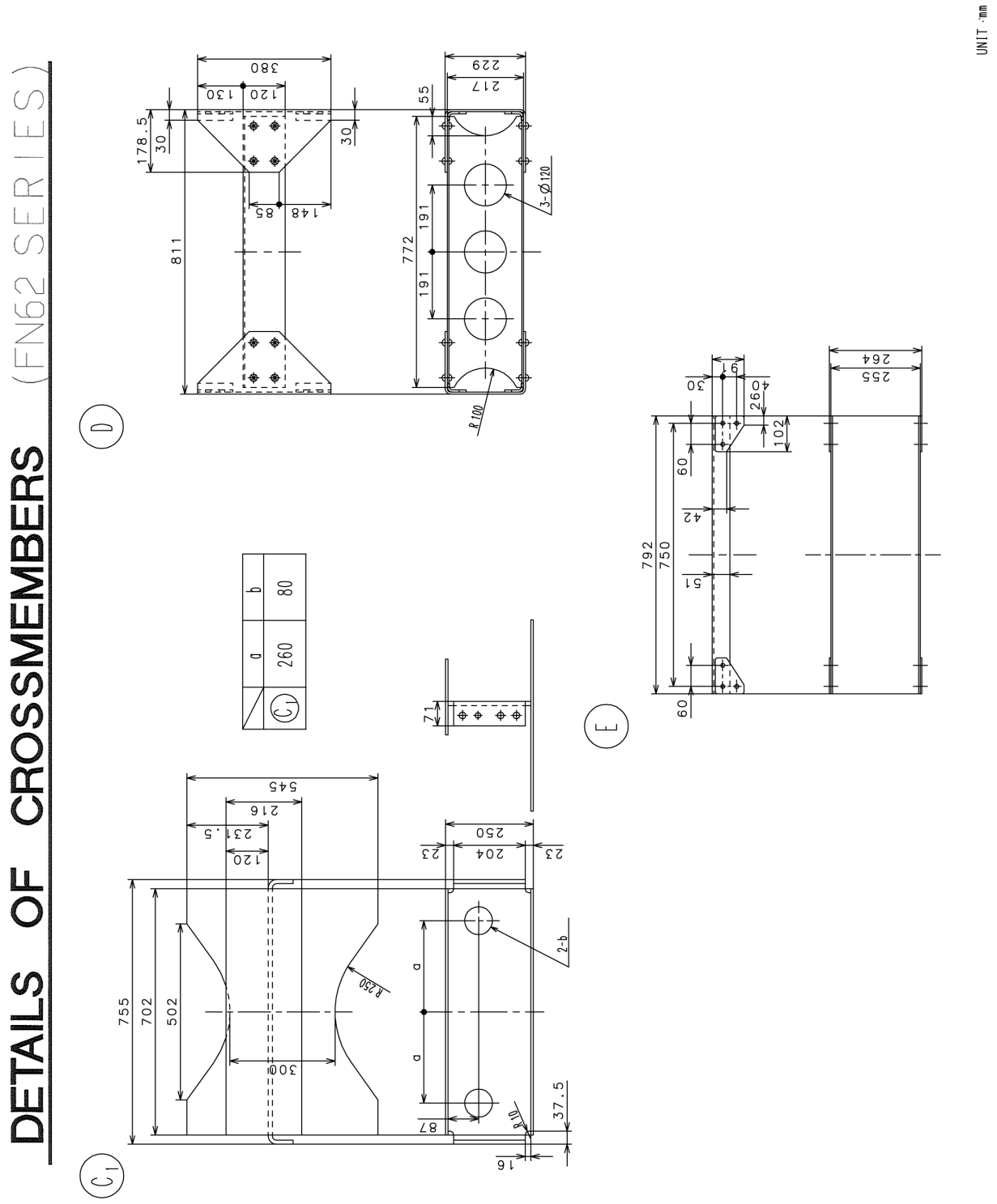


G1 G2 G3

DETAILS OF CROSSMEMBERS (FN62 SERIES)

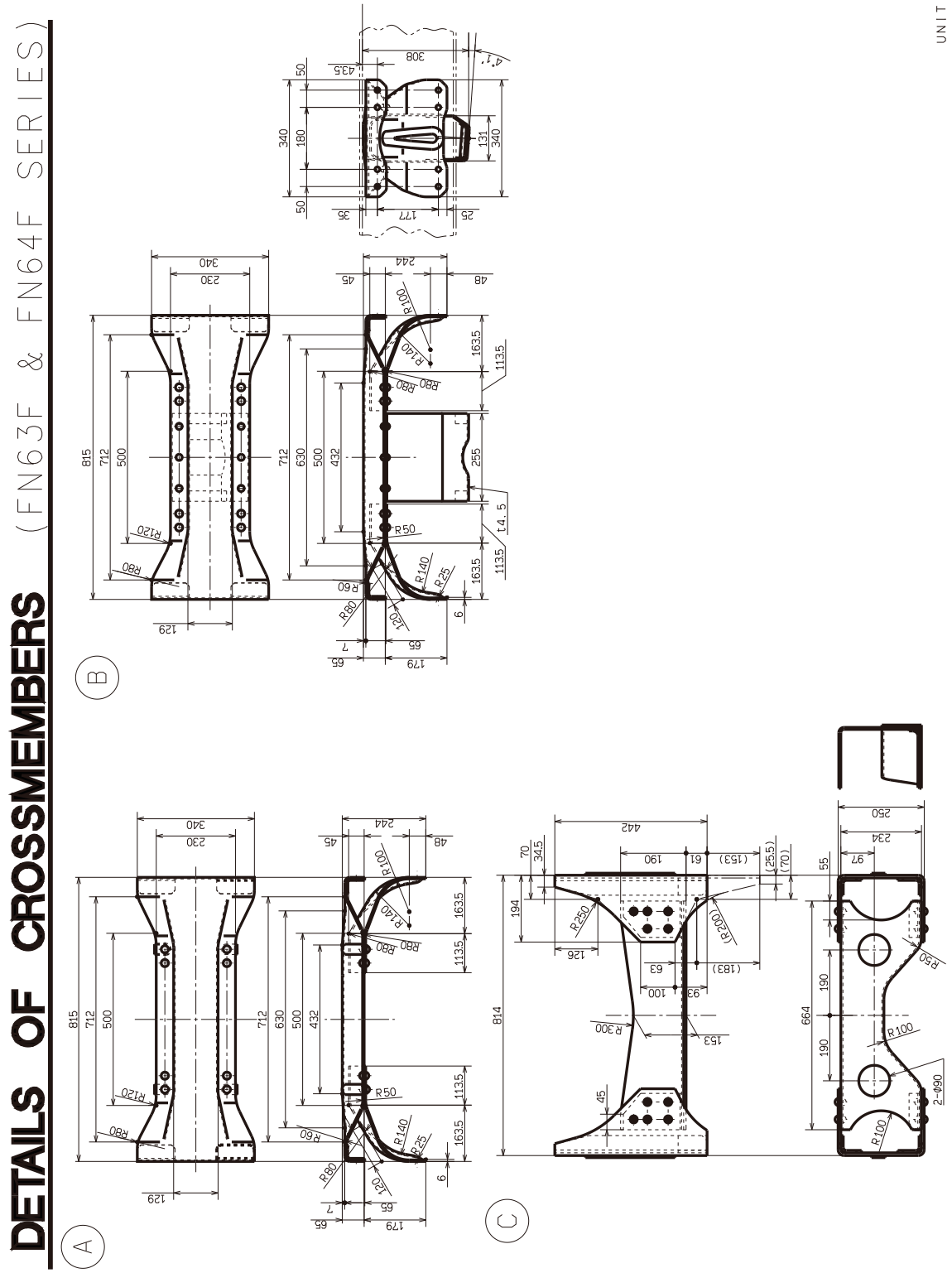
UNIT : mm




DETAILS OF CROSSMEMBERS (FN62 SERIES)
UNIT : mm
D
380
130
120
178.5
30
30
148
85
811
229
217
55
772
191
191
3-Ø120
R100
E
264
255
30
9
40
26
102
60
42
51
792
750
60
C1
b
80
a
260
71
545
216
231.5
120
250
204
23
23
2-b
a
a
R250
755
702
502
300
87
R10
37.5
16

UNIT : mm

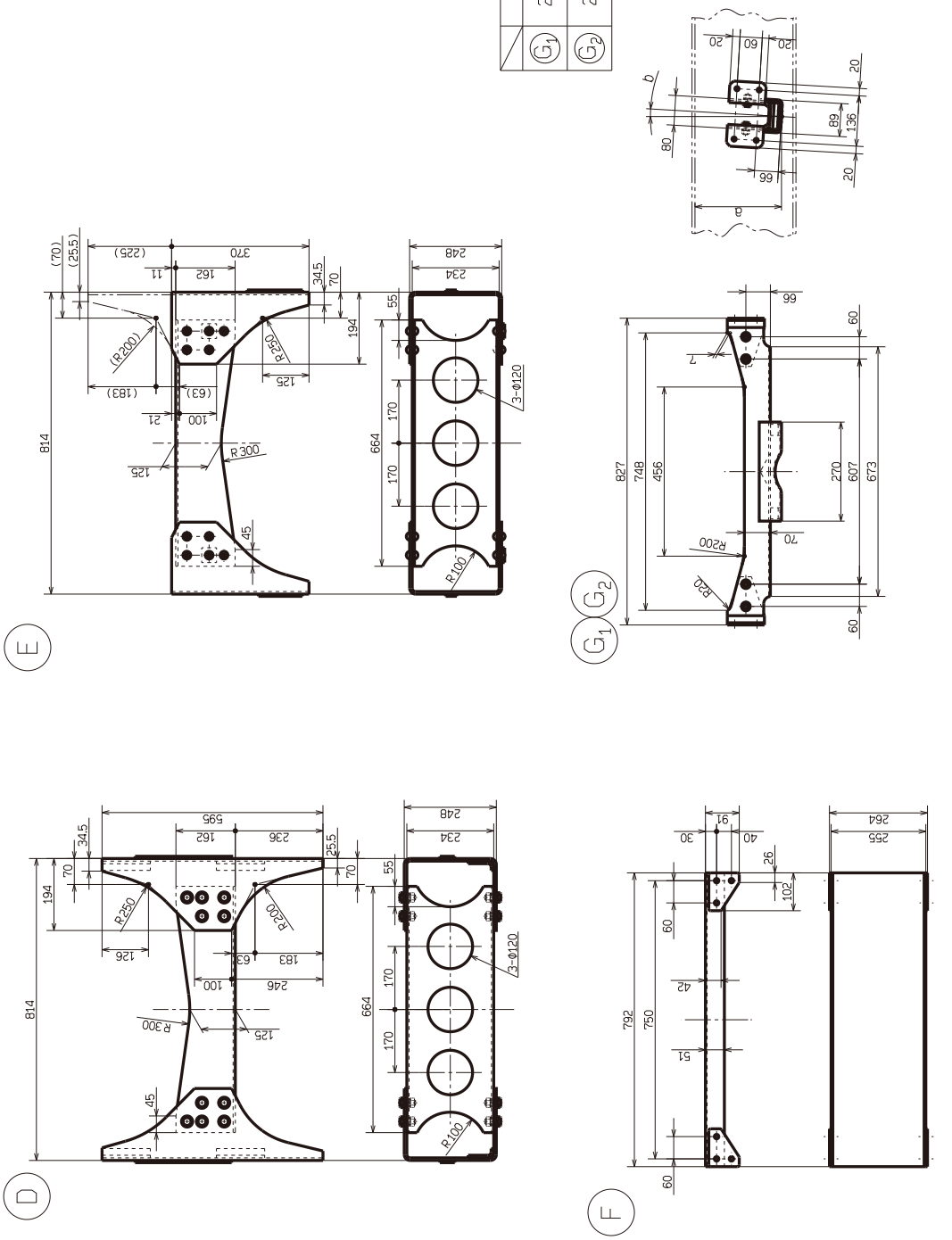
DETAILS OF CROSSMEMBERS (FN63F & FN64F SERIES)



DETAILS OF CROSSMEMBERS (FN63F & FN64F SERIES)

UNIT : mm

	a	b
G1	233	3° 20'
G2	221	0°



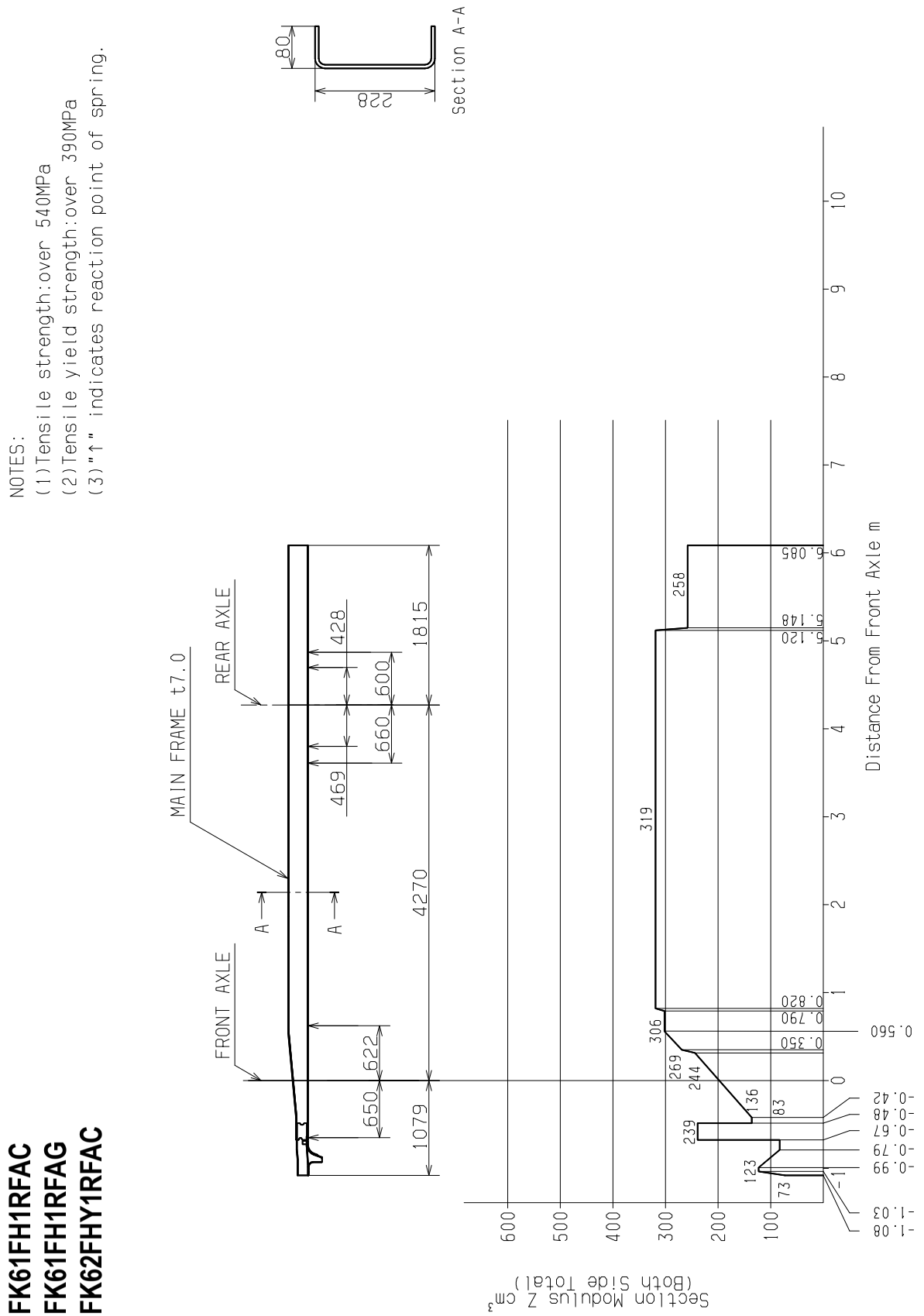
10.6.2 Frame section modulus

Model	Page
FK61FH1RFAC FK61FH1RFAG FK62FHY1RFAC	159
FK61FK1RFAC FK61FKWRFAC FK62FKY1RFAC	160
FK61FL1RFAC FK61FL1RFAL FK61FL1RFAG FK62FLY1RFAC FK62FLY1RFAL	161
FK61FM1RFAC FK62FMY1RFAC	162
FK62FHZ1RFAC	163
FK62FLZ1RFAC FK62FLZ1RFAL/M FK62FLZ1RFAH	164
FK65FLZ2RFAC FK65FLZ1RFAL/M	165
FK65FMZ2RFAC FK65FMZ2RFAH	166
FM65FH2RFAH FM65FH2RFAM FM65FH2RFAK	167
FM65FM2RFAH	168
FM65FS2RFAH FM65FS2RFAK	169
FM67FM2RFAM FM67FM2RFAK	170
FM67FS2RFAH FM67FS2RFAM FM67FS2RFAK	171
FN62FK2RFAM FN62FK2RFAK	172

Model	Page
FN62FR2RFAM	173
FN63FU2RFAM FN63FU2RFAK FN64FU2RFAM FN64FU2RFAK	174

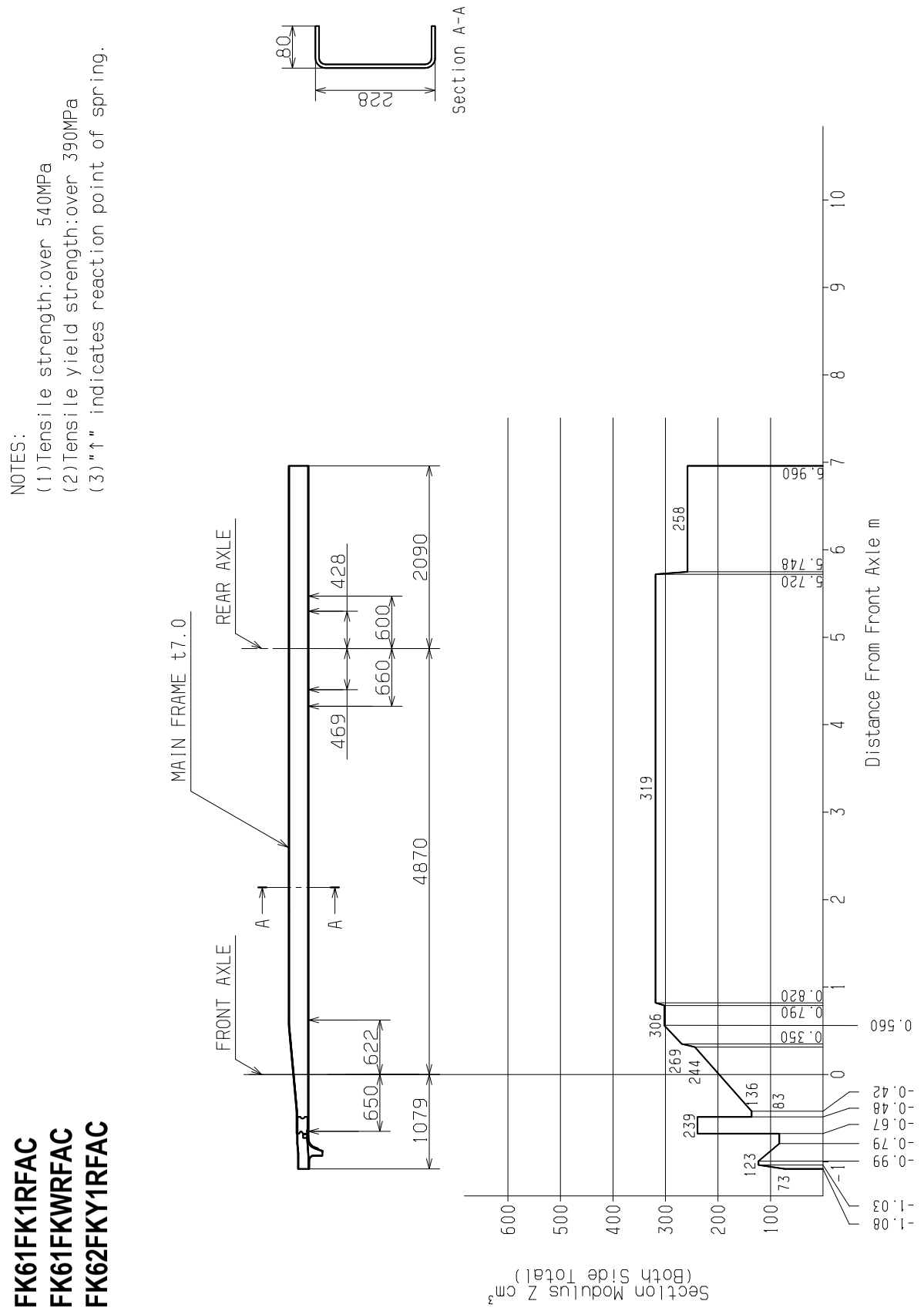
FK61FH1RFAC
FK61FH1RFAG
FK62FHY1RFAC

NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.



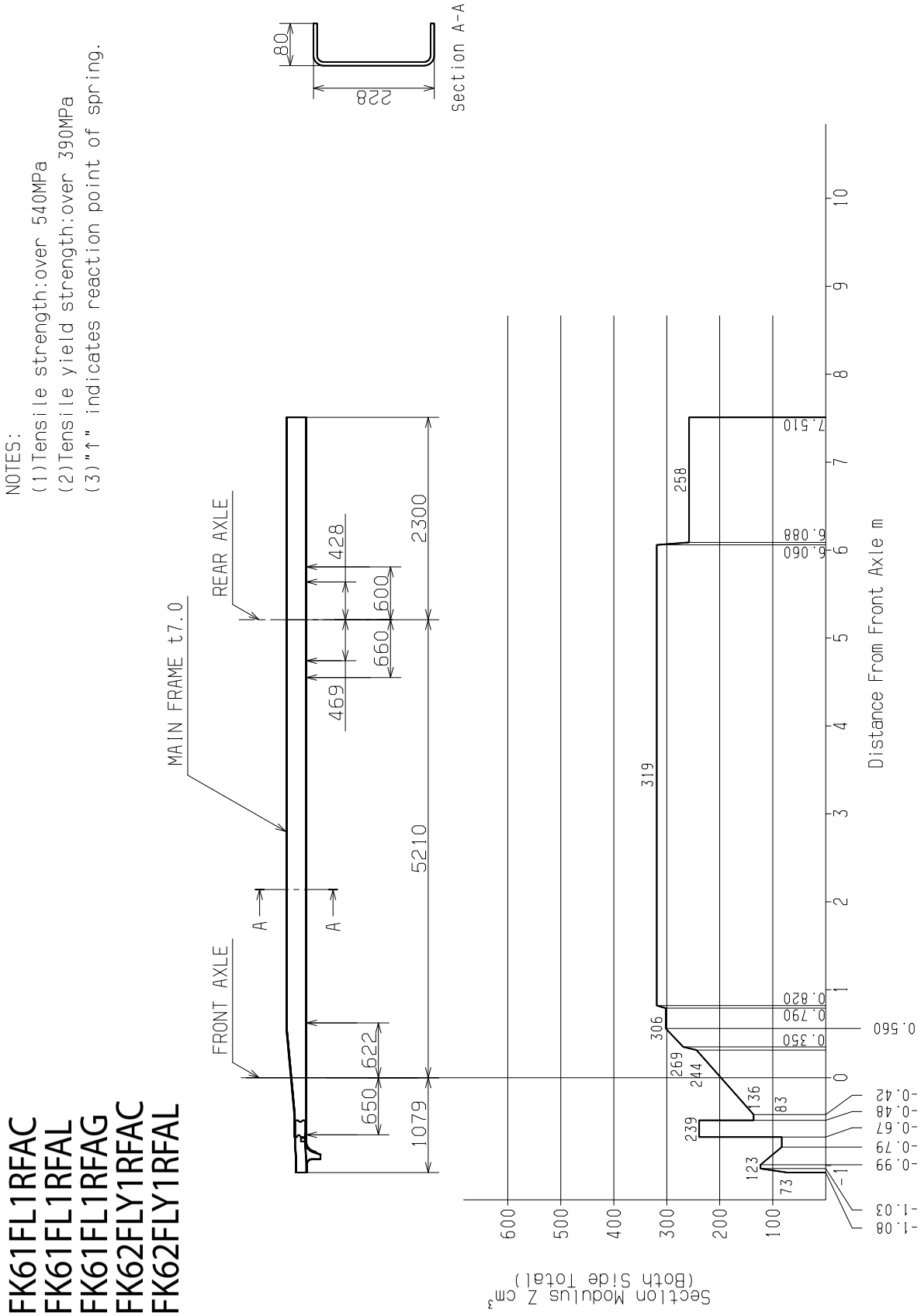
FK61FK1RFAC
FK61FKWRFAC
FK62FKY1RFAC

NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.



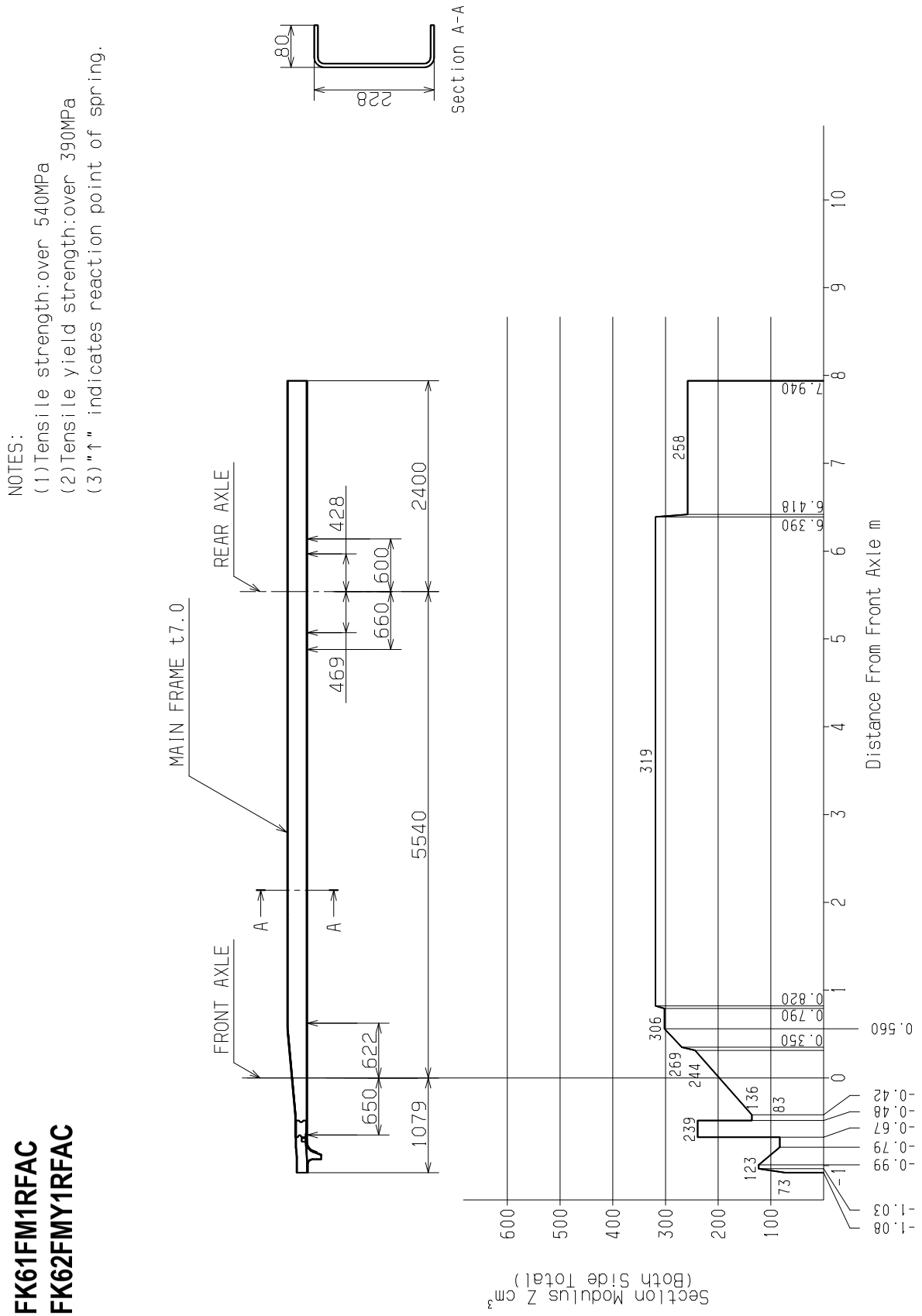
10.6 Frame structure

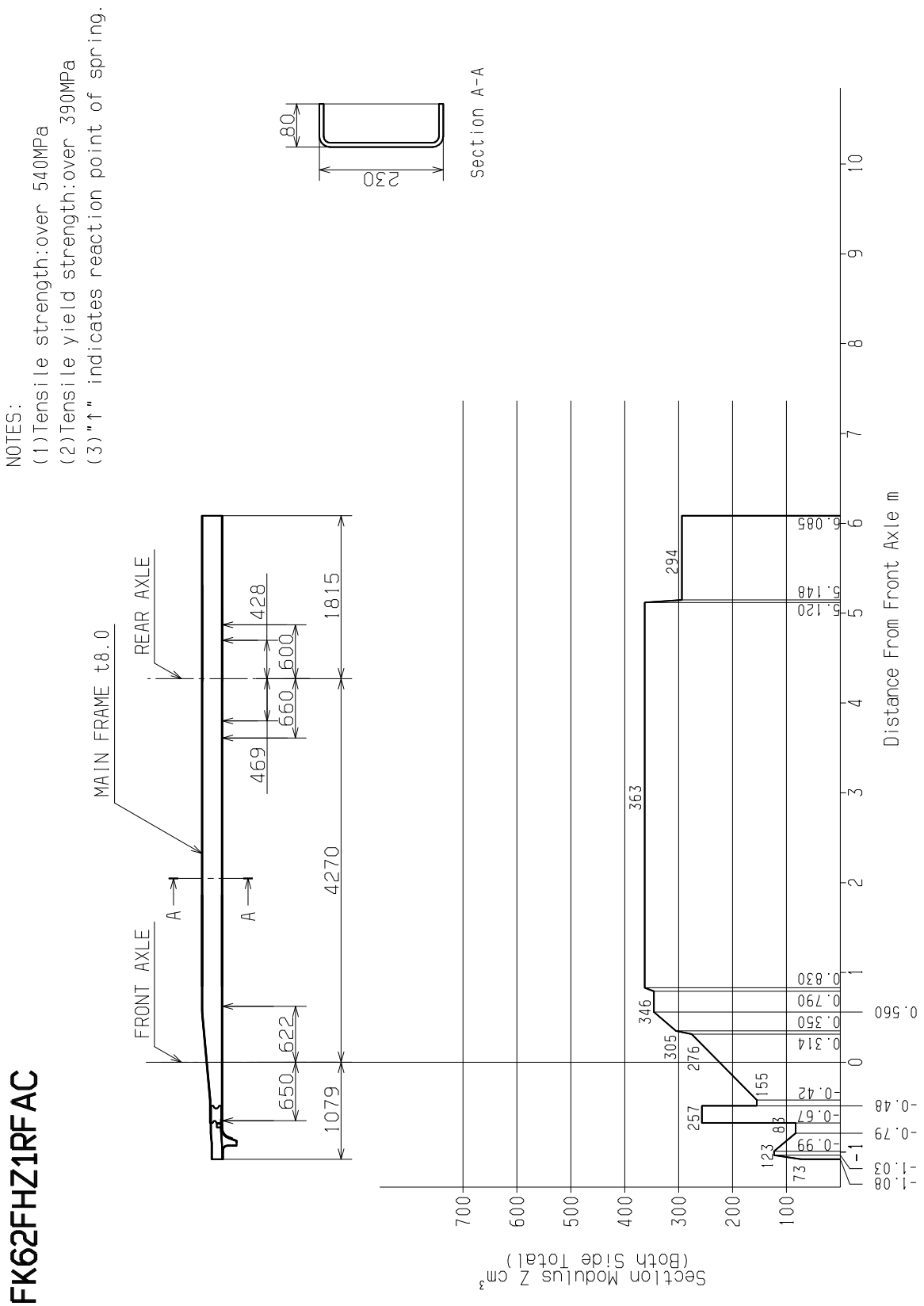
FK61FL1RFAC
FK61FL1RFAL
FK61FL1RFAG
FK62FLY1RFAC
FK62FLY1RFAL



FK61FM1RFAC
FK62FMY1RFAC

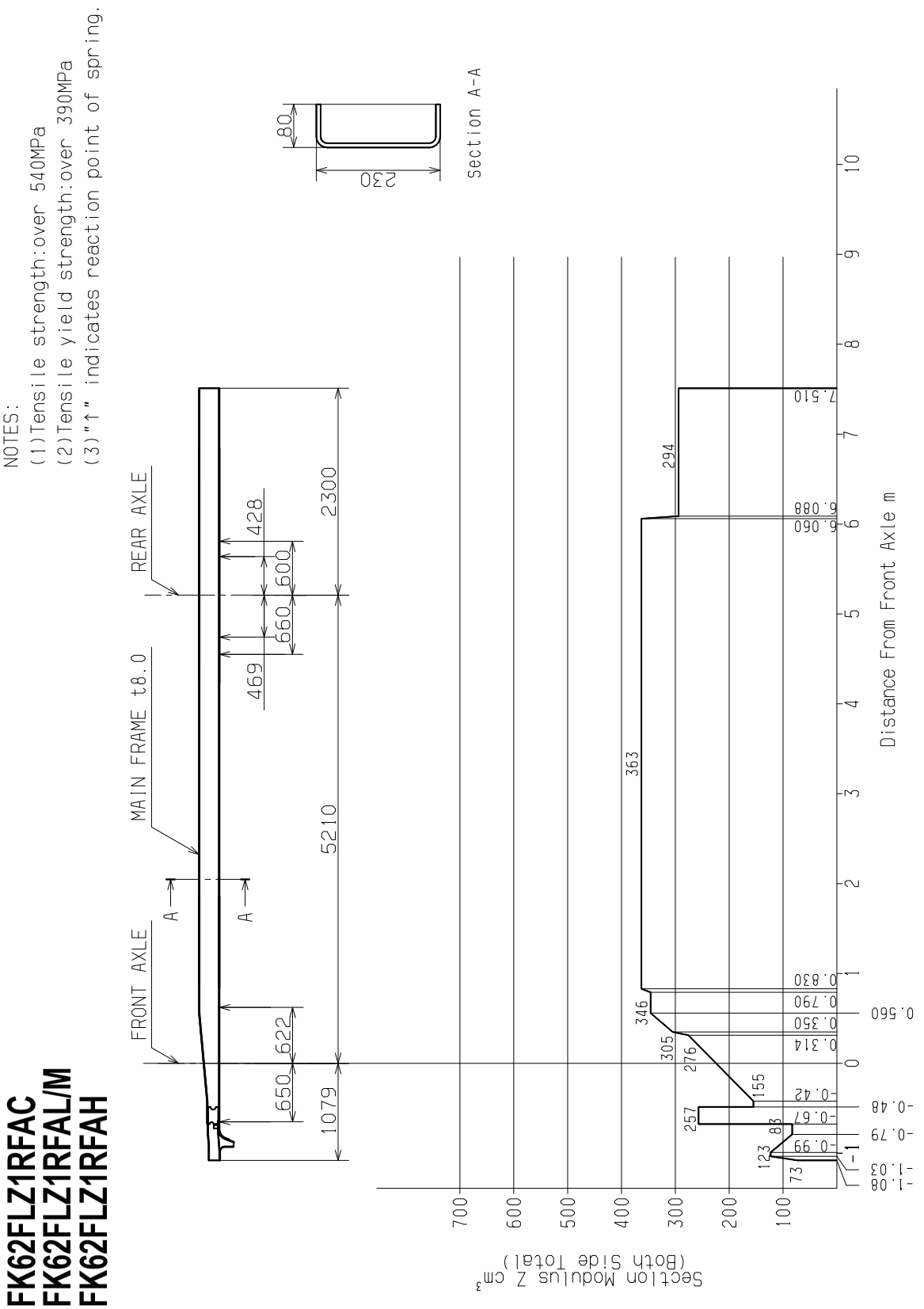
NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.



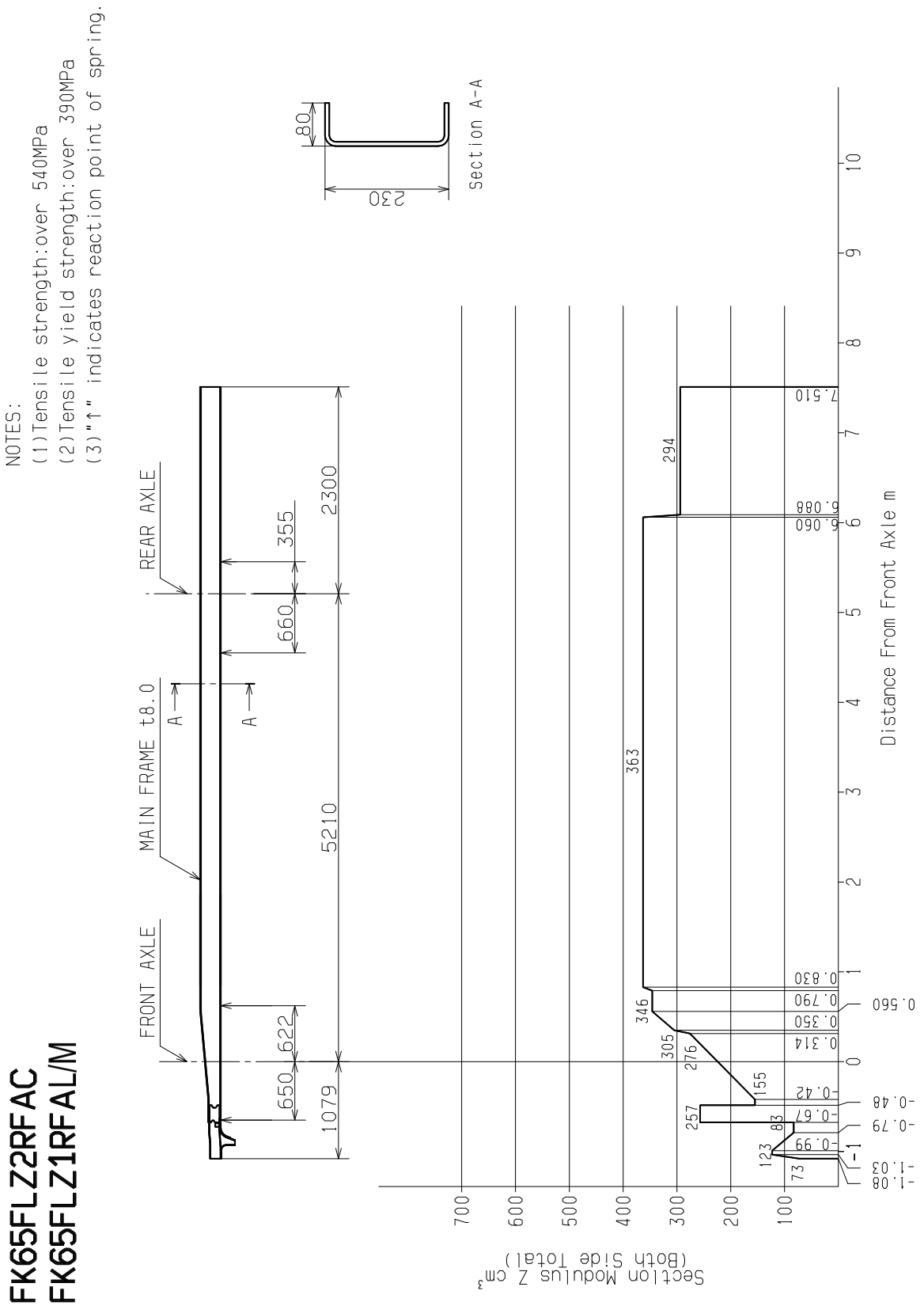


FK62FHZ1RFAC

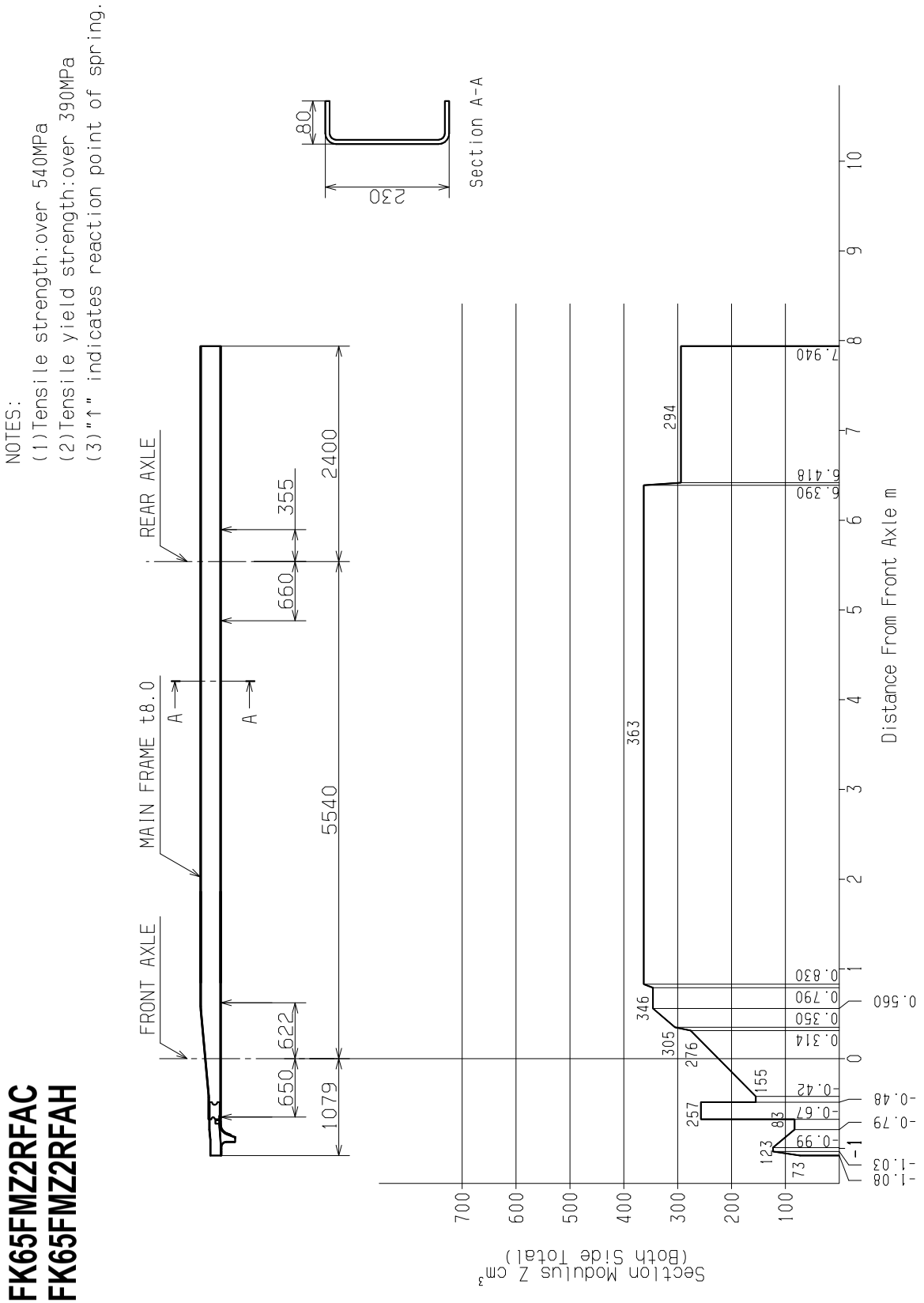
FK62FLZ1RFAC
FK62FLZ1RFAL/M
FK62FLZ1RFAH



FK65FLZ2RFAC
FK65FLZ1RFAL/M

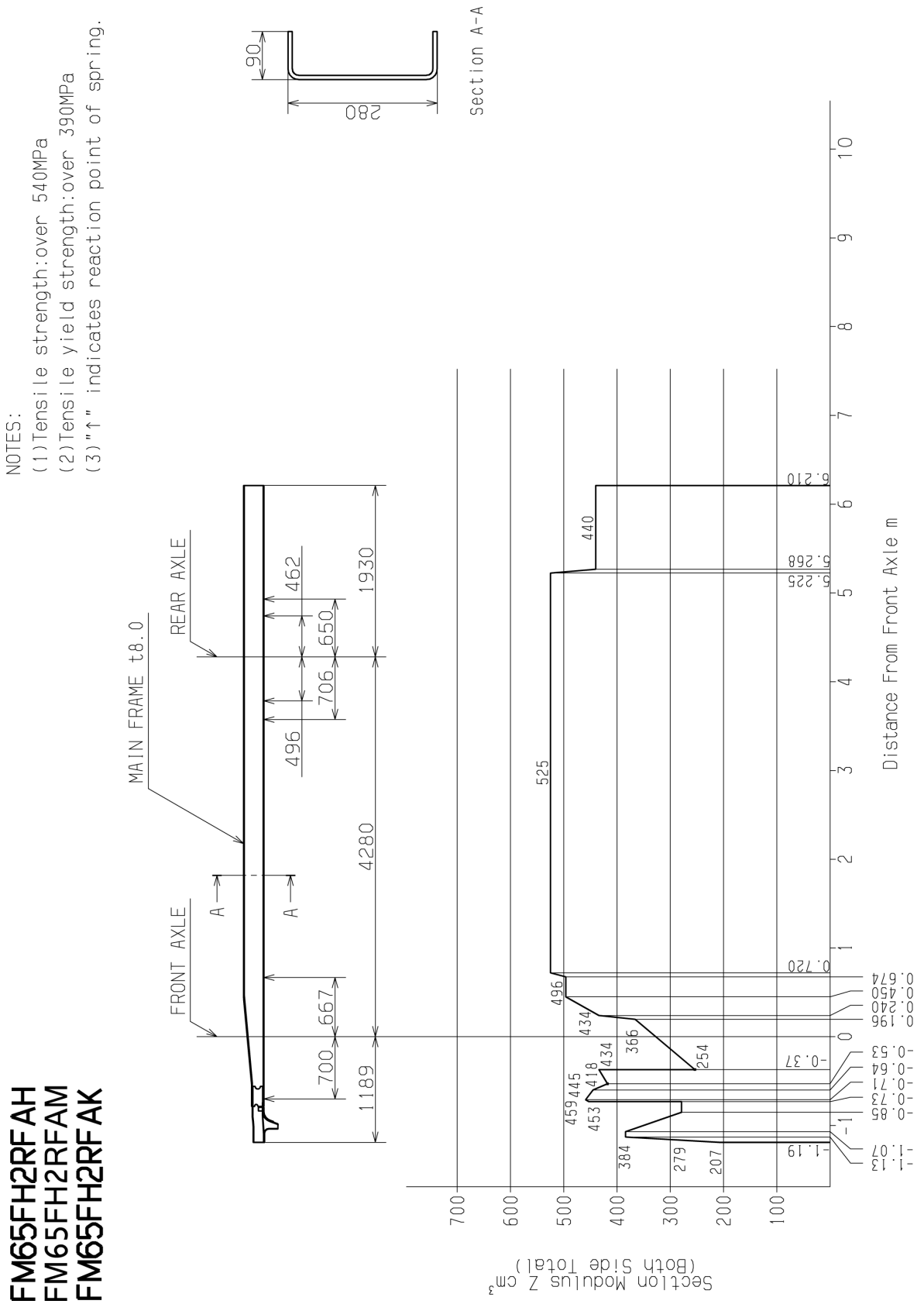


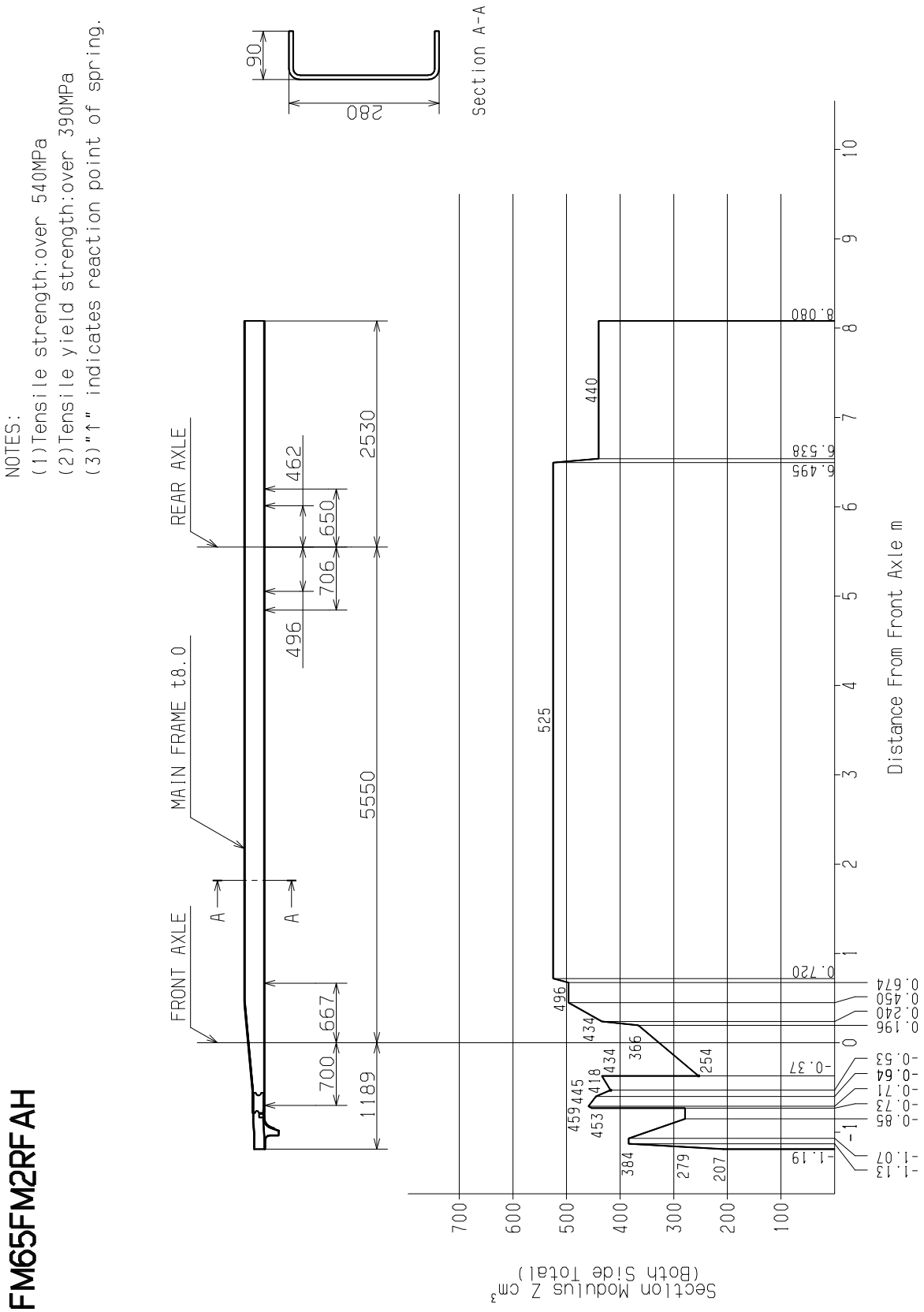
FK65FMZ2RFAC
FK65FMZ2RFAH



FM65FH2RFAH
FM65FH2RFAM
FM65FH2RFAK

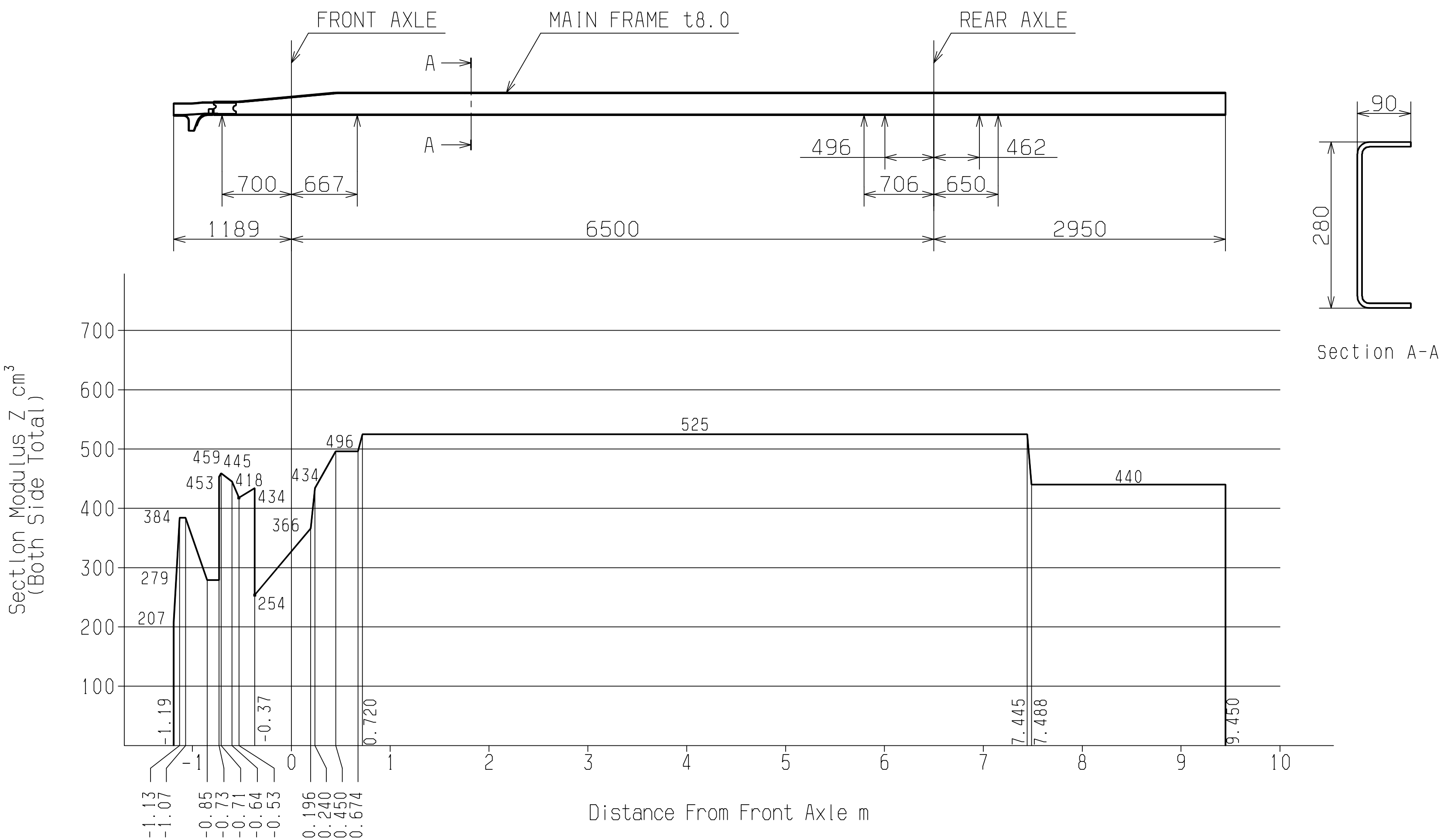
NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.

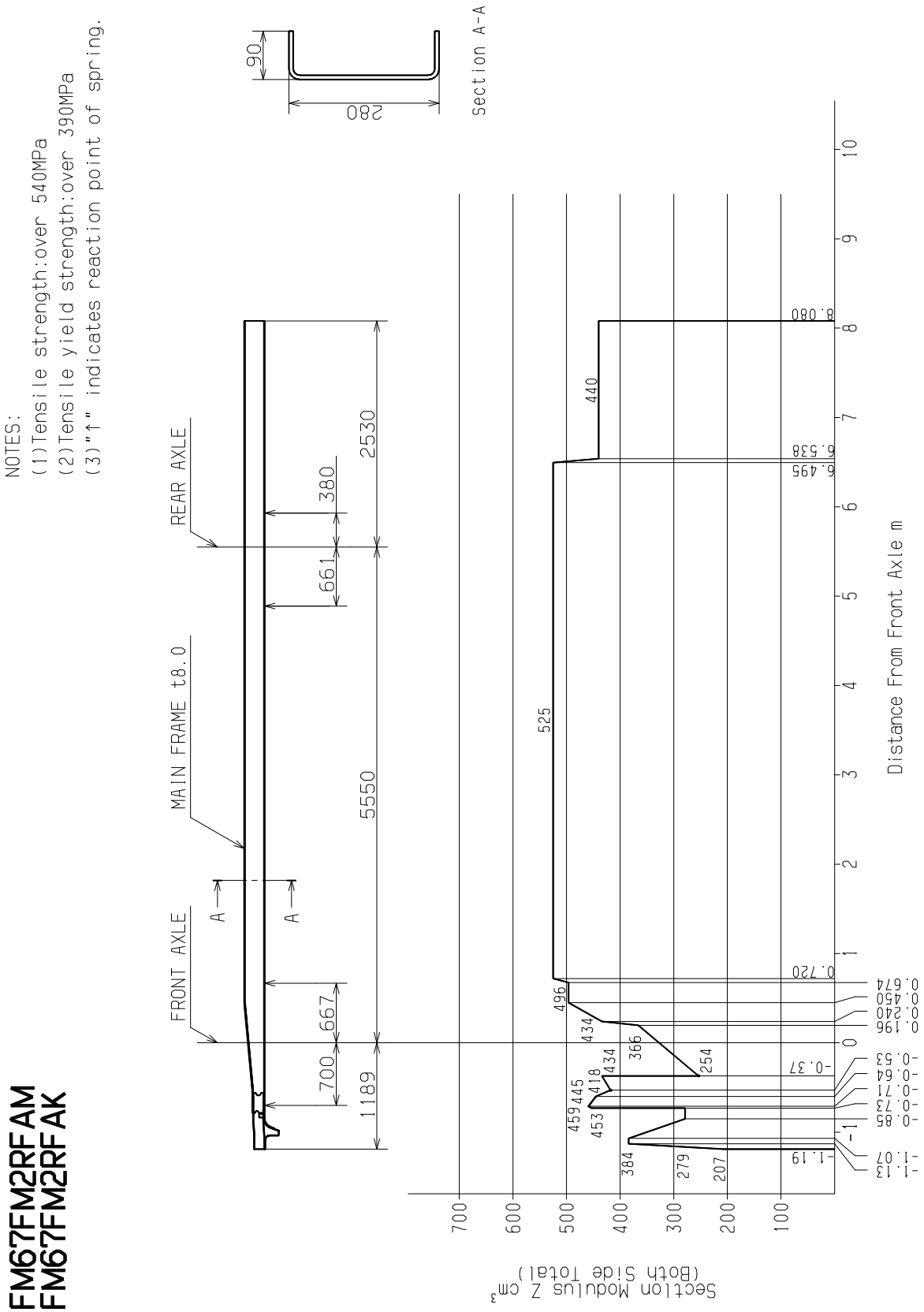


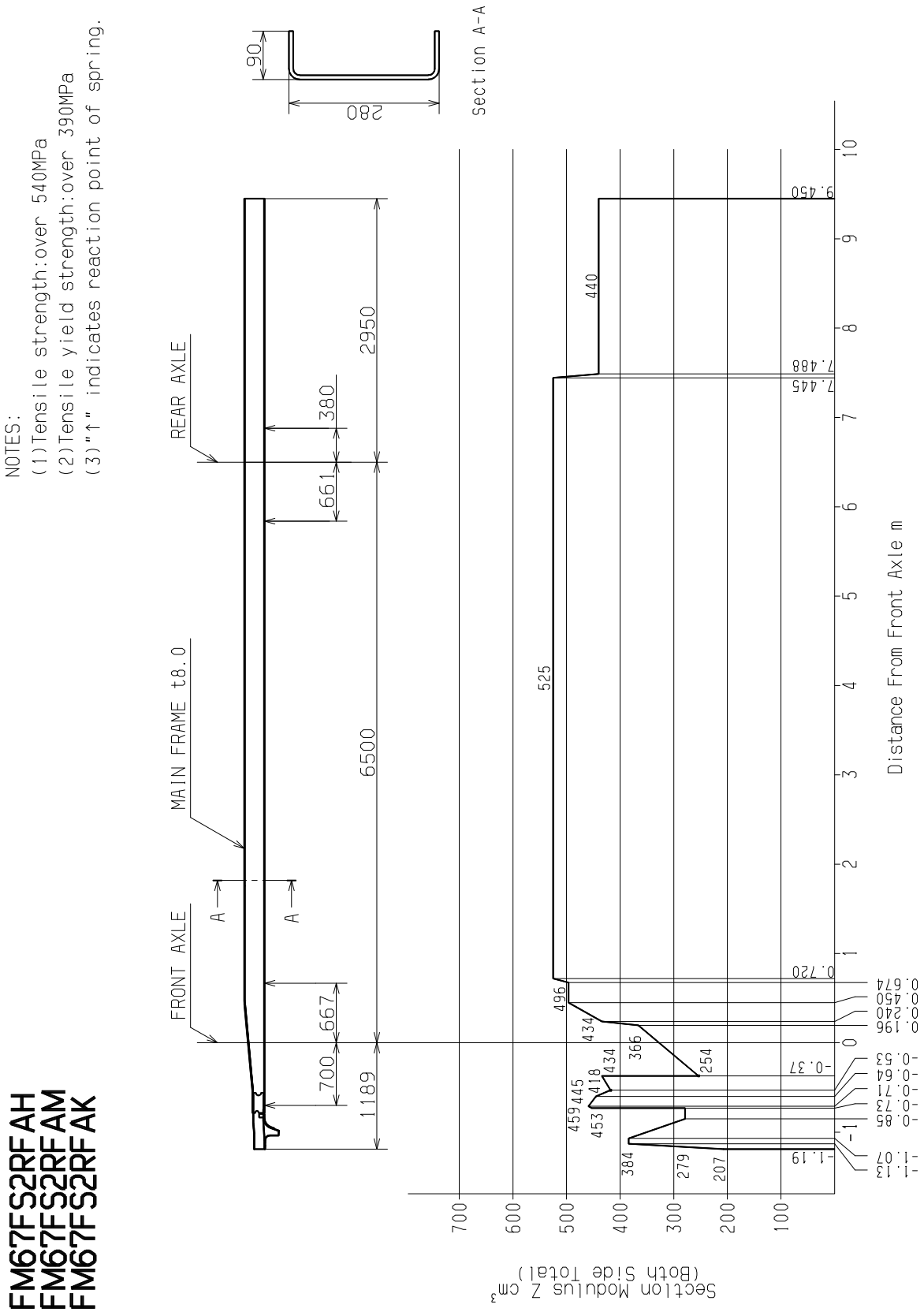

NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.
FM65FM2RFAH
REAR AXLE
MAIN FRAME t8.0
FRONT AXLE
462
650
706
496
2530
5550
667
700
1189
A
A
90
80
Section A-A
Section Modulus Z cm³
(Both Side Total)
Distance From Front Axle m

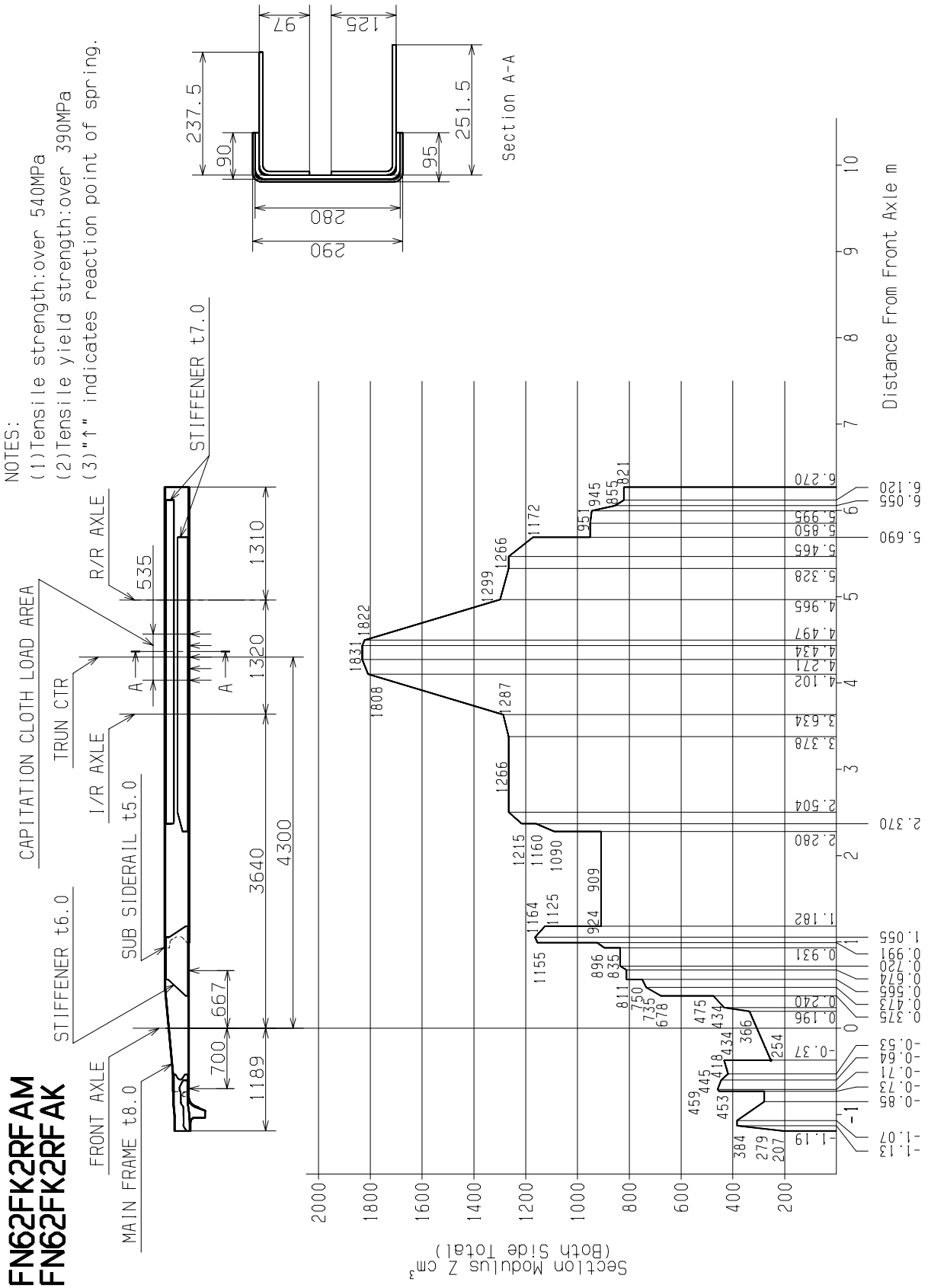
FM65FS2RFAH
FM65FS2RFAK

NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.

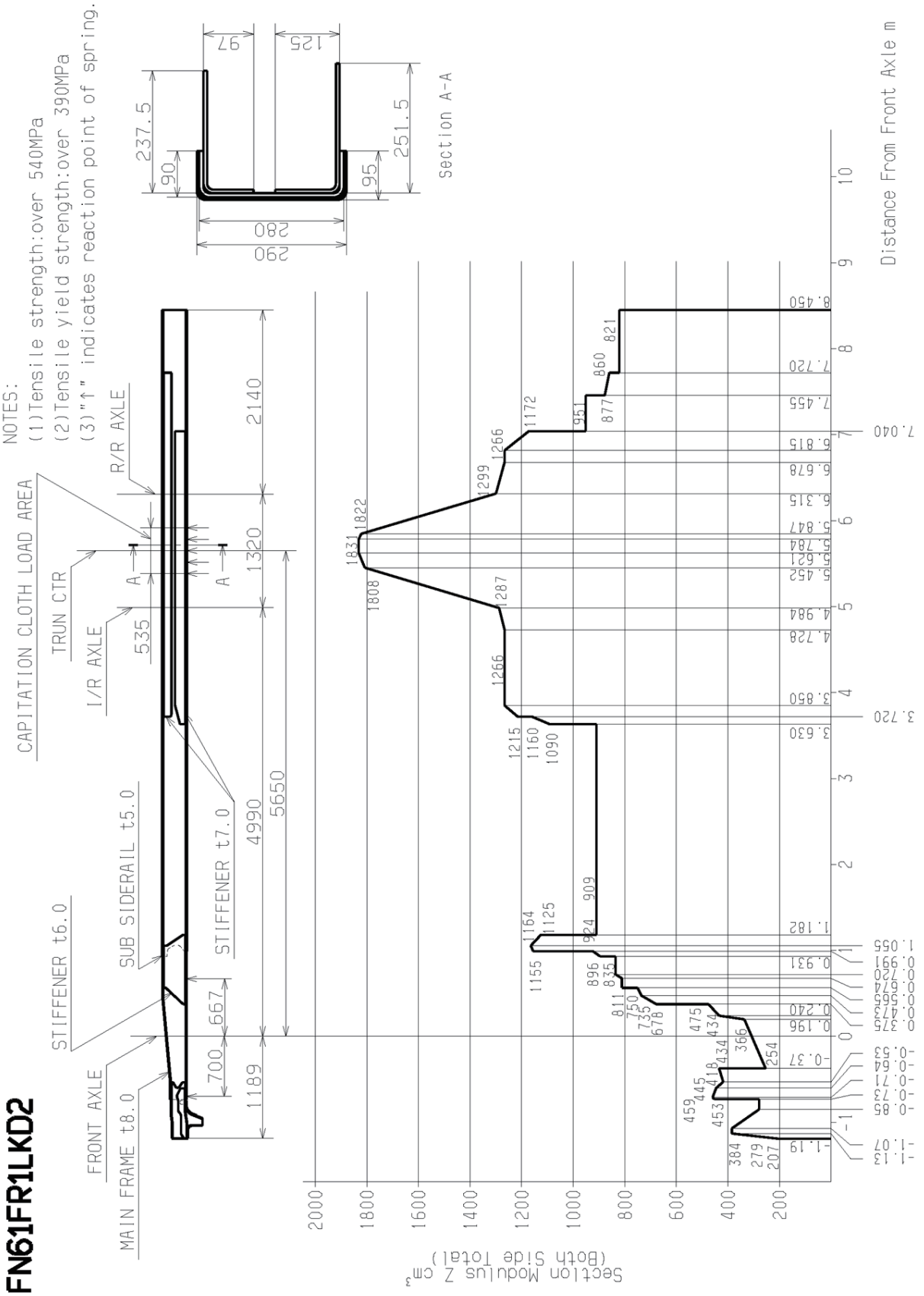



NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.
Section A-A
90
80
REAR AXLE
MAIN FRAME t8.0
FRONT AXLE
A
A
380
661
667
700
2530
5550
1189
Distance From Front Axle m
Section Modulus Z cm³
(Both Side Total)
FM67FM2RFAM
FM67FM2RFAK


NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.
Section A-A
90
80
REAR AXLE
MAIN FRAME t8.0
FRONT AXLE
A
A
2950
380
661
6500
667
700
1189
Section Modulus Z cm³
(Both Side Total)
Distance From Front Axle m
FM67FS2RFAH
FM67FS2RFAM
FM67FS2RFAK


FN62FK2RFAM
FN62FK2RFAK
NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.
Section A-A
237.5
90
97
125
251.5
95
280
290
MAIN FRAME t8.0
FRONT AXLE
STIFFENER t6.0
CAPITATION CLOTH LOAD AREA
TRUN CTR
I/R AXLE
SUB SIDERAIL t5.0
R/R AXLE
STIFFENER t7.0
700
667
1189
3640
4300
1320
1310
535
Distance From Front Axle m
Section Modulus Z cm³
(Both Side Total)

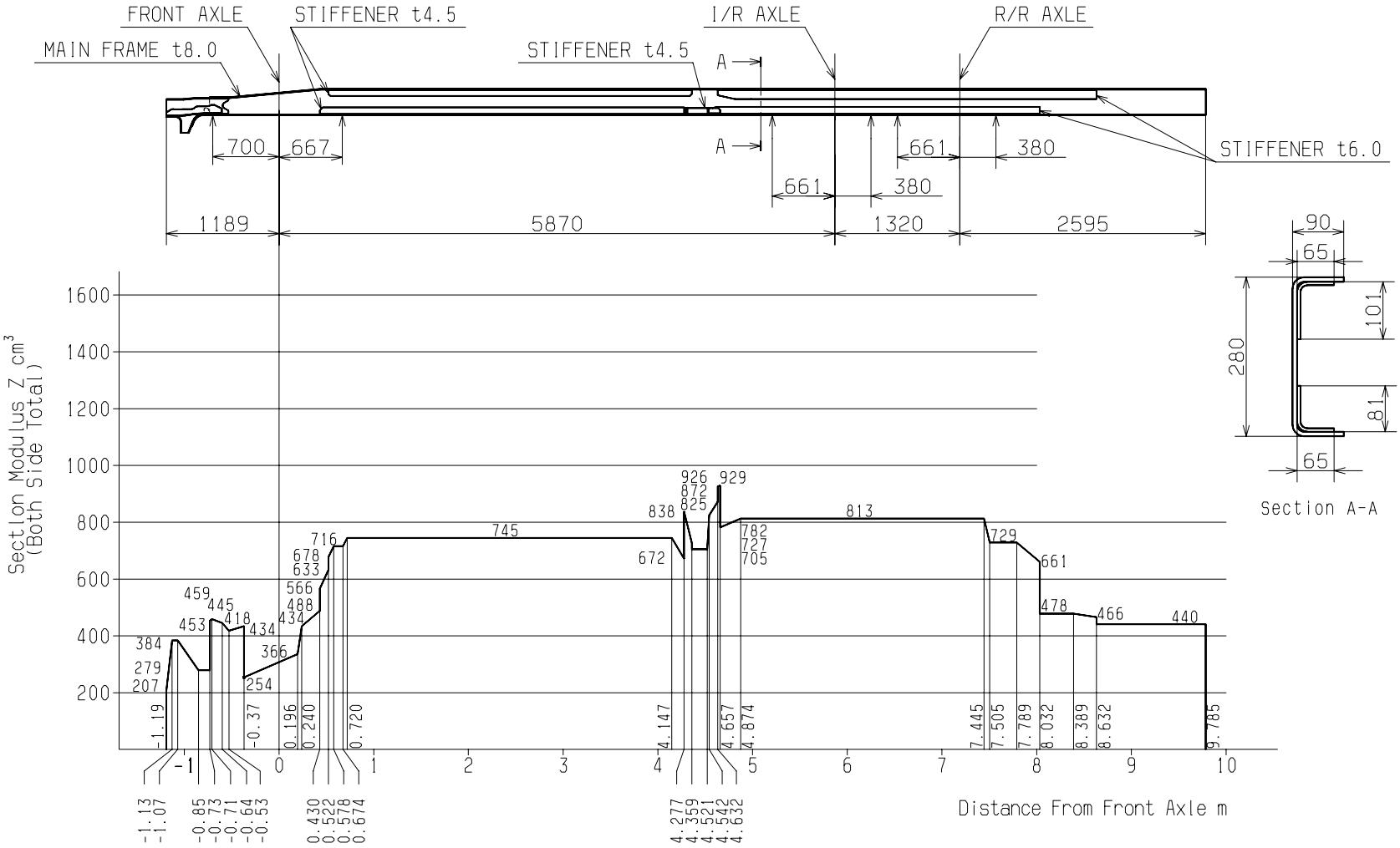
10.6 Frame structure



C

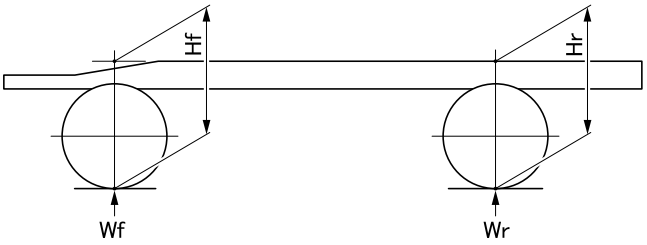
FN63FU2RFAM
FN63FU2RFAK
FN64FU2RFAM
FN64FU2RFAK

NOTES:
(1)Tensile strength:over 540MPa
(2)Tensile yield strength:over 390MPa
(3)"↑" indicates reaction point of spring.



10.7 Spring characteristics

10.7.1 Formulas of frame height



Rear steel suspension

Model		Tire	Front		Rear		
			Dimension (mm) Length×width× thickness - No. of leaves	Spring rate N/mm {kgf/mm}	Dimension (mm) Length×width× thickness - No. of leaves	Spring rate N/mm {kgf/mm}	Helper contact load N {kg}
FK61		235/75R17.5	1300×70×16-1 18-2	195 {19.9}	1300×70×11-9 900×70×10-7	308/827 {31.4/84.2}	14367 {1465}
			Hf = (868 - 0.0314Wf) ± 10		Wr≤3587kg, Hr = (888 - 0.0190Wr) ± 25 Wr>3587kg, Hr = (853 - 0.0091Wr) ± 25		
		9.5R17.5	1300×70×16-1 18-2	195 {19.9}	1300×70×11-9 900×70×10-7	308/827 {31.4/84.2}	14367 {1465}
			Hf = (885 - 0.0314Wf) ± 10		Wr≤3572kg, Hr = (905 - 0.0190Wr) ± 25 Wr>3572kg, Hr = (870 - 0.0091Wr) ± 25		
FK62**Y		245/70R19.5	1300×70×16-1 19-2	219 {22.3}	1300×70×12-10 900×70×11-8	426/1329 {43.4/135.5}	25780 {2629}
			Hf = (879 - 0.0287Wf) ± 10		Wr≤6120kg, Hr = (940 - 0.0146Wr) ± 25 Wr>6120kg, Hr = (893 - 0.0068Wr) ± 25		
FK62**Z		265/70R19.5	1300×70×16-1 18-2 16-1	246 {25.1}	1300×70×12-10 900×70×11-8	426/1329 {43.4/135.5}	25780 {2629}
			Hf = (923 - 0.0262Wf) ± 10		Wr≤6133kg, Hr = (957 - 0.0146Wr) ± 25 Wr>6133kg, Hr = (909 - 0.0068Wr) ± 25		
FM65	STD	275/70R22.5	1400×80×18-1 22-2	309 {31.5}	1400×80×11-10 960×80×11-10	325/1452 {33.1/148.1}	16670 {1700}
			Hf = (1027 - 0.0209Wf) ± 10		Wr≤4571kg, Hr = (1068 - 0.0176Wr) ± 25 Wr>4571kg, Hr = (1015 - 0.0059Wr) ± 25		
		11R22.5-16PR	1400×80×18-1 22-2	309 {31.5}	1400×80×11-10 960×80×11-10	325/1452 {33.1/148.1}	16670 {1700}
			Hf = (1070 - 0.0209Wf) ± 10		Wr≤4554kg, Hr = (1109 - 0.0176Wr) ± 25 Wr>4554kg, Hr = (1055 - 0.0059Wr) ± 25		
FN62		11R22.5-16PR	1400×80×18-1 22-2	309 {31.5}	1320×90×30-5	3059 {312}	-
			Hf = (1070 - 0.0209Wf) ± 10		Hf = (1048 - 0.0030Wf) ± 25		

10.7 Spring characteristics

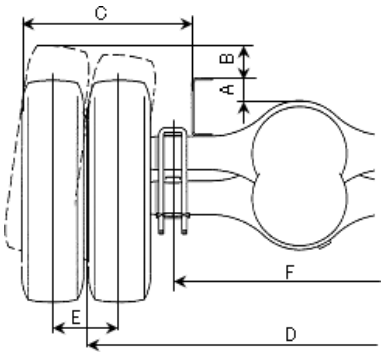
Rear air suspension

Model		Tire	Front		Rear
			Dimension (mm) Length×width× thickness - No. of leaves	Spring rate N/mm {kgf/mm}	Dimension (mm) Length×width×thickness - No. of leaves, Air spring effective diameter×height
FK65		265/70R19.5	1300×70×16-1 18-2 16-1	246 {25.1}	1015×90×40-2 ϕ270×h304
			Hf = (923 - 0.0262Wf) ± 10		Hr = (863 - 0.0031Wr) ± 25
FM67	STD	275/70R22.5	1400×80×18-1 22-2	309 {31.5}	995×80×35-2 ϕ250×h293
			Hf = (1027 - 0.0209Wf) ± 10		Hr = (974 - 0.0025Wr) ± 25
		11R22.5-16PR	1400×80×18-1 22-2	309 {31.5}	995×80×35-2 ϕ250×h293
			Hf = (1070 - 0.0209Wf) ±10		Hr = (1015 - 0.0025Wr) ± 25
FN63	STD	275/70R22.5	1400×80×18-1 22-2	309 {31.5}	995×80×35-2 ϕ250×h294
			Hf = (1032 - 0.0209Wf) ± 10		Hr = (976 - 0.0025Wr) ± 25
FN64	STD	275/70R22.5	1400×80×18-1 22-2	309 {31.5}	995×80×35-2 ϕ250×h294
			Hf = (1032 - 0.0209Wf) ± 10		Hr = (976 - 0.0025Wr) ± 25

10.7.2 Differential and tire bound height

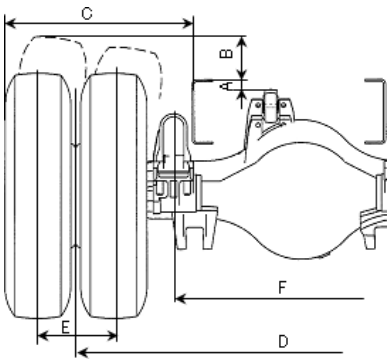
Rear axle

Rear leaf suspension (single)



Model	Tire	A	B	C	D	E	F
FK61	235/75R17.5	87	145	660	1665	262	990
	9.5R17.5	87	155	670	1665	270	990
FK62**Y	245/70R19.5	89	141	710	1710	294	990
FK62**Z	265/70R19.5	91	155	716	1710	294	990
FM65	275/70R22.5	128	145	808	1850	330	1015
	11R22.5	128	195	810	1850	330	1015

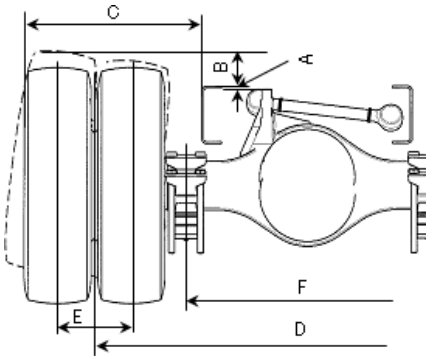
Rear leaf suspension (tandem)



Model	Tire	A	B	C	D	E	F
FN62	11R22.5	42	200	810	1850	330	1003

10.7 Spring characteristics

Rear air suspension (single & tandem)



Model	Tire	A	B	C	D	E	F
FK65	265/70R19.5	0	160	707	1705	294	970
FM67	275/70R22.5	20	135	808	1850	330	1015
	11R22.5	20	175	810	1850	330	1015
FN63	275/70R22.5	20	135	808	1850	330	1015
FN64	275/70R22.5	20	135	808	1850	330	1015

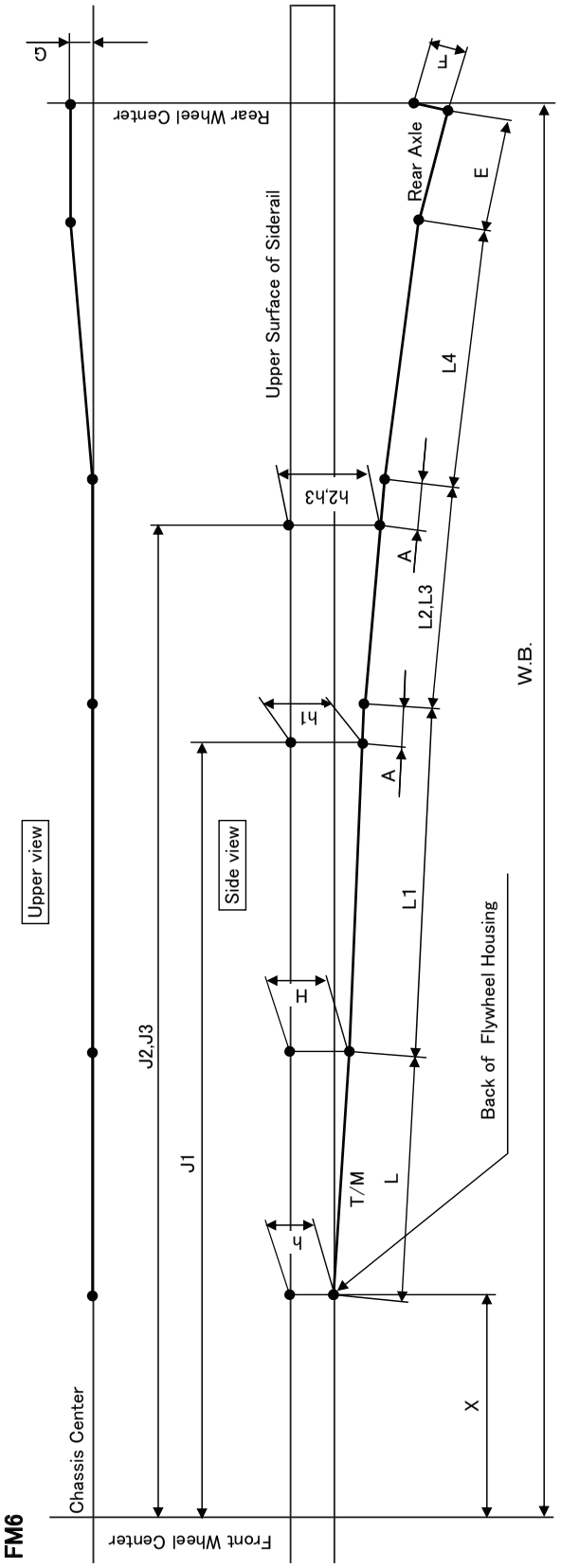
10.8 Propeller shaft layout

FK6

Model	W.B. (mm)	PTO	T/M			Propeller shaft						Rear Axle				Distance from upper surface of siderail (mm)					Distance from Front Wheel Center (mm)		
			Model	L (mm)	C/B*1 W/P*2	Model (O.D×I.D)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm) Max	L4 (mm) Mini	Model	E (mm)	F (mm)	G (mm)	h	H	h1	h2	h3	J1	J2	J3
FK61FH1RFAG	4,270	-	M060S6	792.5	C/B	P8 (90×83.6)	1066	-	-	1060	1050	D050H	371.75	30	40	228	276.5	330	-	-	2695	-	-
FK61FH1RFAC		F/W*3	M070S6	855.5	W/P	P10 (101.6×95.2)	1006			1055	1045						280.4						
							966									231	282.9						
FK61FK1RFAC	4,870						1306			1355	1345	D052H				228	280.4				2995		
FK61FKWRFAC																							
FK61FL1RFAC	5,210						1006			1360							276.5	297	330		2695	3335	
FK61FL1RFAG			M060S6	792.5	C/B	P8 (90×83.6)	1071	636				D050H											
FK61FL1RFAL			LCT2500	830.4	W/P		1031					D052H					278.9						
FK61FM1RFAC	5,540		M070S6	855.5		P10 (101.6×95.2)	1006	971		1355	1345						280.4	279				3665	
FK62FHY1RFAC	4,270							-		1060	1045							352				-	
FK62FHZ1RFAC																229	281.4	353	-				
FK62FKY1RFAC	4,870						1306			1355	1345					228	280.4	330			2995		
FK62FLY1RFAC	5,210						1006	636	-	1360								297	330	-	2695	3335	-
FK62FLY1RFAL			LCT2500	830.4		P8 (90×83.6)	1031				1360						278.9						
FK62FLZ1RFAC			M070S6	855.5		P10 (101.6×95.2)	1006				1345					229	281.4	298	331				
FK62FLZ1RFAD			LCT2500	830.4		P8 (90×83.6)	1031										279.9						
FK62FLZ1RFAH			M070S6	855.5		P10 (101.6×95.2)	1006										281.4						
FK62FLZ1RFAL			LCT2500	830.4		P8 (90×83.6)	1031					D052H					279.9				2695		
FK62FLZ1RFAM																							
FK62FMY1RFAC	5,540		M070S6	855.5		P10 (101.6×95.2)	1006	971		1355						228	280.4	279	330			3665	
FK65FLZ1RFAL	5,210		LCT2500	830.4		P8 (90×83.6)	1031	636		1360						229	279.9	298	331			3335	
FK65FLZ1RFAM																							
FK65FLZ2RFAC			M070S6	855.5		P10 (101.6×95.2)	1006			1365	1355						281.4	280				3665	
FK65FMZ2RFAC	5,540							971		1360	1350												
FK65FMZ2RFAH																							

*1 C/B: Center Brake *2 W/P: Wheel Park Brake *3 F/W: Flywheel

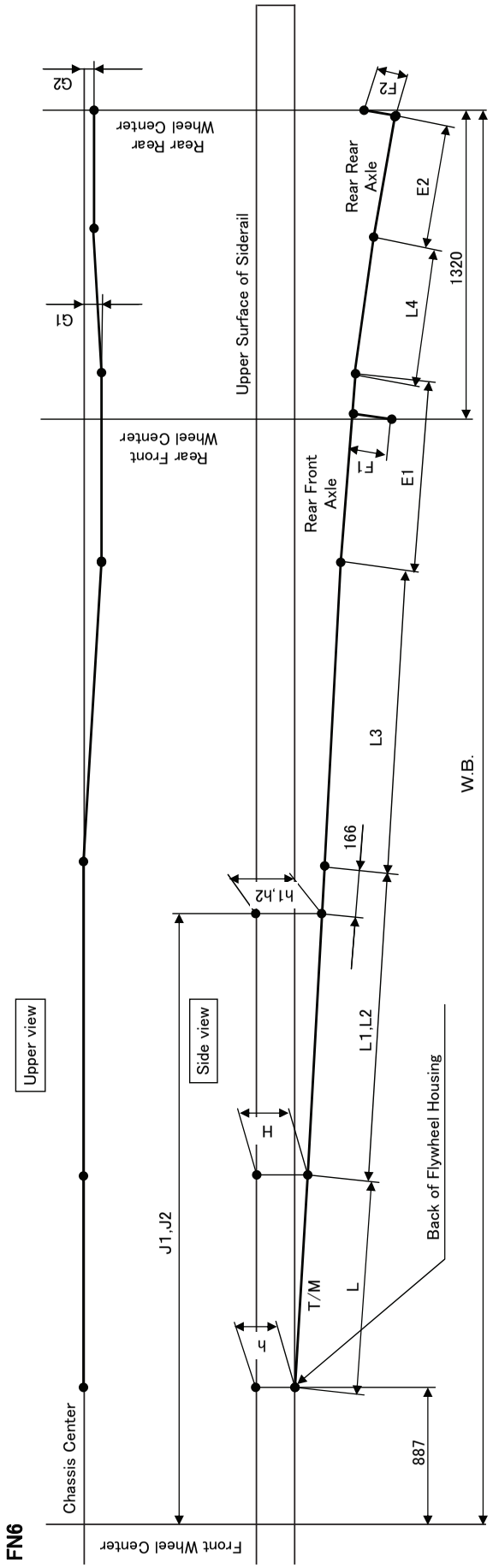
10.8 Propeller shaft layout



Model	W.B. (mm)	X (mm)	PTO	T/M Model	T/M L (mm)	T/M C/B*1 W/P*2	Propeller shaft Model (O.D×I.D)	A (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm) Max	L4 (mm) Mini	Rear Axle Model	Rear Axle E (mm)	Rear Axle F (mm)	Rear Axle G (mm)	Distance from upper surface of siderail (mm) h	H	h1	h2	h3	Distance from Front Wheel Center (mm) J1	J2	J3
FM65FH2RFAH	4,280	879	-	M070S6D	855.5	W/P	P10 (101.6×95.2)	151	1086	-	-	1055	1035	D8H	424	35	50	229	281.4	368	-	-	2665	-	-
		920	F/W*3						1046									232	283.9						
FM65FM2RFAH	5,550	879	-						1086	1161	-	1160	1145					229	281.4	343	415	-		3825	-
		920	F/W*3						1046									232	283.9						
FM65FS2RFAH	6,500	879							746	1031	1421							229	281.4	306	337	415	2326	3356	4775
FM67FS2RFAH	6,500											1150													
FM65FH2RFAM	4,280	887		MD3500	956.1	W/P			976	-	-	1033.5	1013.7	D10H	466.5	45	39		288.0	368	-	-	2665	-	-
FM67FM2RFAM	5,550								976	1161	-	1155	1140	D8H	424	35	50			343	415	-		3825	-
FM67FS2RFAM	6,500		-						636	1031	1421									306	337	415	2326	3356	4775
FM65FH2RFAK	4,280	887		FS8209	961		P12 (101.6×93.6)	171	991	-	-	995	975	D10H	466.5	45	39	230	288.3	368	-	-	2665	-	-
FM65FS2RFAK	6,500								656	1031	1416	1095	1080							306	337	415	2326	3356	4775
FM67FM2RFAK	5,550								991	1166	-	1090	1075							343	415	-	2665	3825	-
FM67FS2RFAK	6,500								656	1031	1416									306	337	415	2326	3356	4775

*1 C/B: Center Brake *2 W/P: Wheel Park Brake *3 F/W: Flywheel

10.8 Propeller shaft layout



Model	W.B. (mm)	PTO	T/M			Propeller shaft							Axle									Distance from upper surface of siderail (mm)				Distance from Front Wheel Center (mm)	
			Model	L (mm)	C/B*1 W/P*2	Model (O.Dxl.D)	L1	L2	L3		L4		Model	Rear Front (mm)			Rear Rear (mm)			h	H	h1	h2	J1	J2
									Max	Mini	Model	Max	Mini		E1	F1	G1	E2	F2	G2						
FN62FK2RFAK	4,960	-	FS8209	951	W/P	P140 (114.3x106.3)	-	-	1135	1075	P8	580	510	D10HT /D10H	1075	110	27	456.5	45	13	230	287.7	-	-	-	-
FN63FU2RFAK	7,190						996	1091	1490	1485	-	-	-	D10H	460.5	45	-39	-	-	-			311	387	2665	3756
FN64FU2RFAK	7,190						1806	-	1525	1480	P8	570	505	D10HT /D10H	1075	110	27	456.5	45	13			299	-	3471	-
FN62FK2RFAM	4,960	-					-	1120	1060		580	510	D10H	460.5	45	-39	-	-	-			-	-	-	
FN63FU2RFAM	7,190						981	1091	1490	1485	-	-	-	D10H	460.5	45	-39	-	-	-			311	387	2665	3756
FN64FU2RFAM	7,190		MD3500	966.1			1616	-	1700	1655	P8	570	505	D10HT /D10H	1075	110	27	456.5	45	13		288.6	299	-	3295	-
FN62FR2RFAM	6310						1406		1065	1005		580	510	D10HT /D10H	1075	110	27	456.5	45	13			310		3085	

*1 C/B: Center Brake *2 W/P: Wheel Park Brake

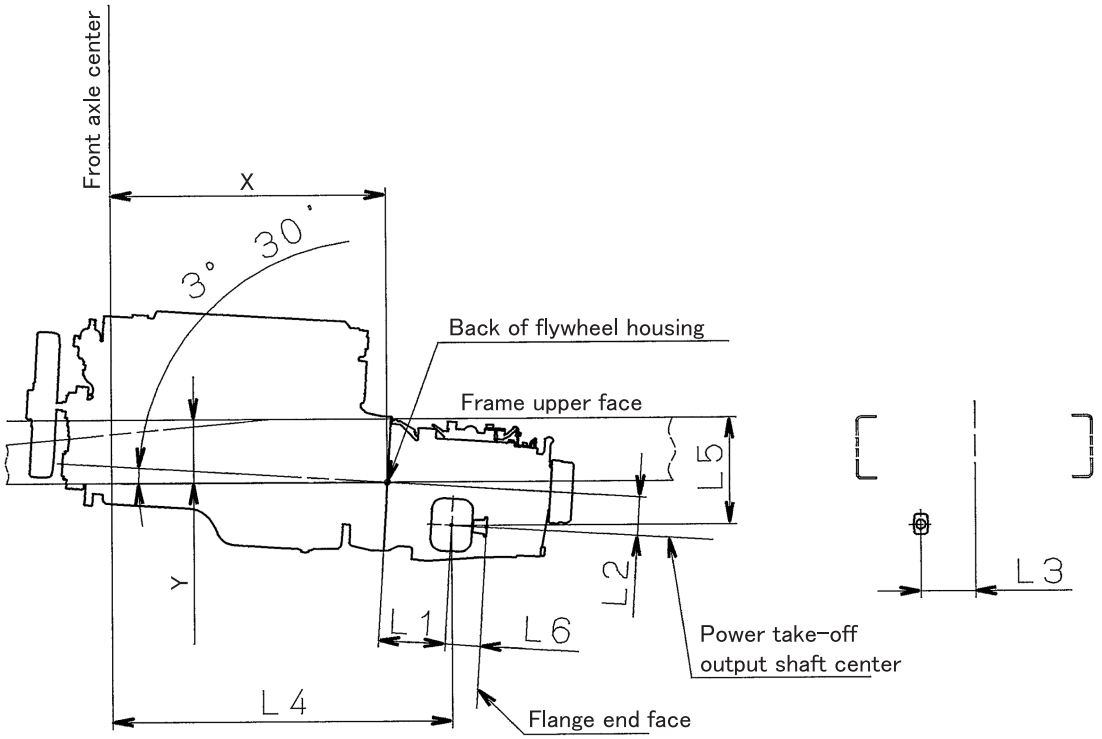
10.9 Power take-offs

10.9.1 Transmission driven power take-off

(1) Specifications

Transmission model	Control type	Part No.	Maximum output torque	Speed ratio	Engine
M060S6	Air	ME535501	245N·m {25kgf·m}/1500rpm	0.870	6M60-9AT1
M070S6OD	Air	ME533036	245N·m {25kgf·m}/1500rpm	0.792	6M60-9AT2 6M60-9AT1
M070S6D	Air	ME635050	245N·m {25kgf·m}/1500rpm	0.921	60M60-9AT2

(2) Power take-off mounting position drawing



Vehicle model	Transmission model	T/M P.T.O. Control type	X	Y	L1	L2	L3 *	L4	L5	L6 *
FK	M060S6	Air	989	228	261.0	138.5	–	1241.5	384.4	–
	M070S6OD		989	228	261.0	150.0		1240.8	395.8	
	Allison LCT2500		989	228	**					
FM	M070S6D	Air	879	229	261.0	150.0	1140.8	1140.8	393.8	–
	EATON ES11109		887	229	**					
	Allison MD3500									
FN	EATON ES11109	Air	887	230						
	Allison MD3500									

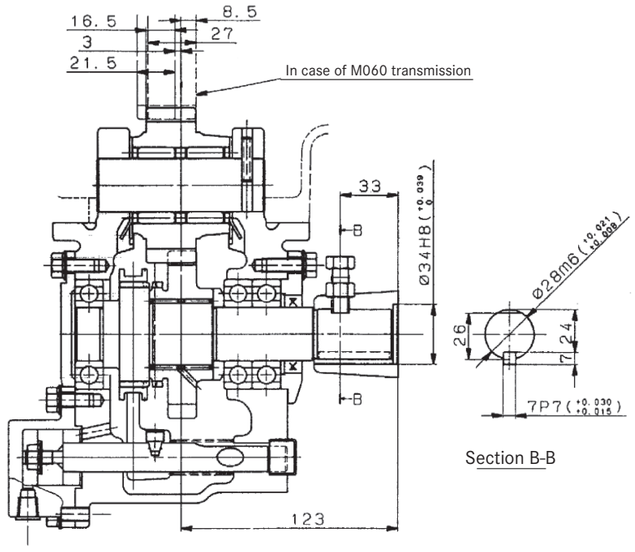
* Without setting for the transmission-driven power take-off.

** For information about the transmission manufactured by Eaton Corporation/Allison transmission, contact the corporation.

10.9 Power take-offs

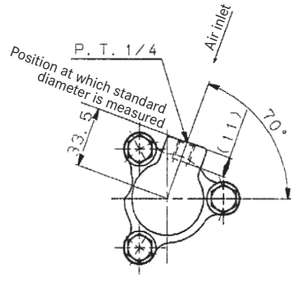
(3) Transmission-driven power take-off layout

M060 (Air type)

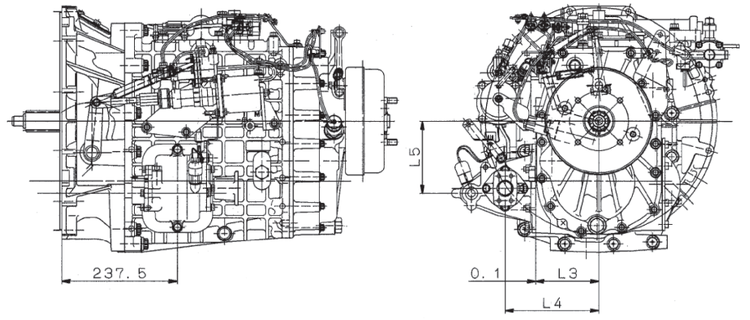


Section A-A

Section B-B

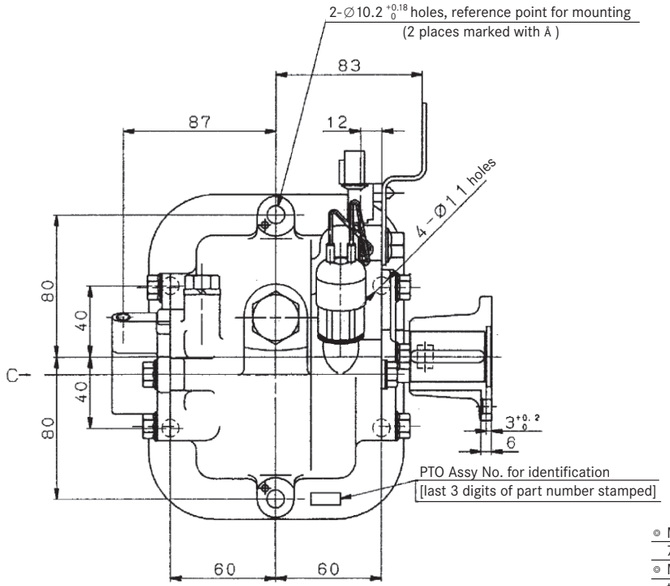


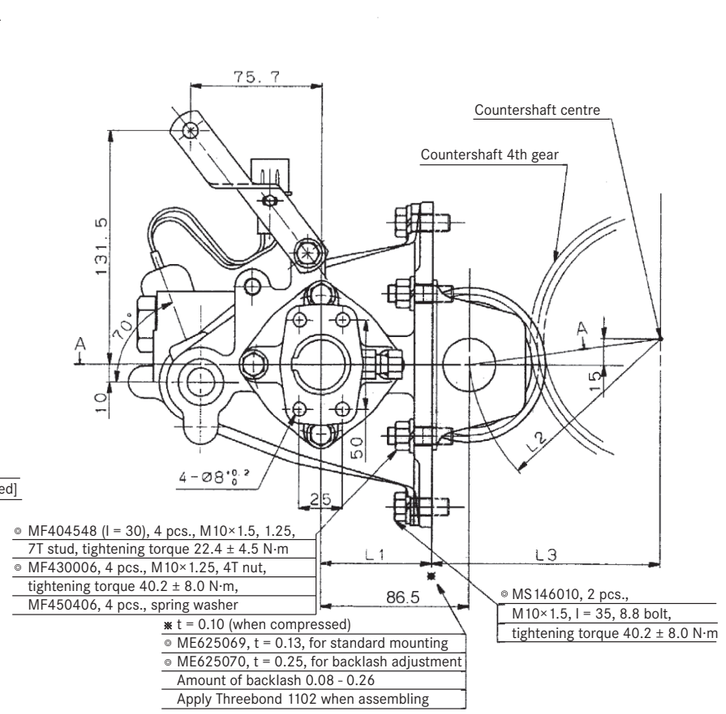
View C



Drawing for PTO mounting

Transmission Model	Change Gear Ratio 1st/4th	L1	L2	L3	L4	L5
M060S6	6.748/1.514	66.886	111.5	130	196.986	138.5

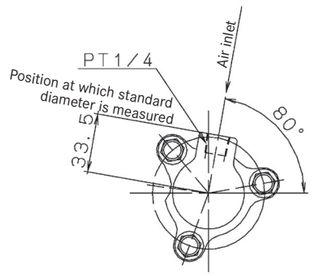




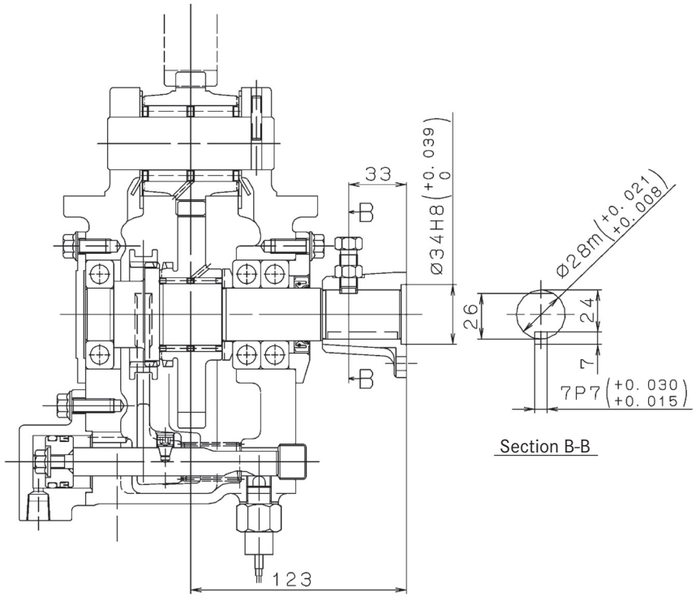
Notes: (1) For part numbers, gear ratio and rpm ratio, refer to the separate tables.
(2) Permissible output shaft torque: 245 N·m {25 kgf·m} at 1500 rpm
(3) Rotational direction of PTO output shaft: reverse with respect to engine rotation
(4) Component parts (including PTO Assy) in the PTO kit include the parts marked with ⊚ in the figure.

10.9 Power take-offs

M070 (Air type)

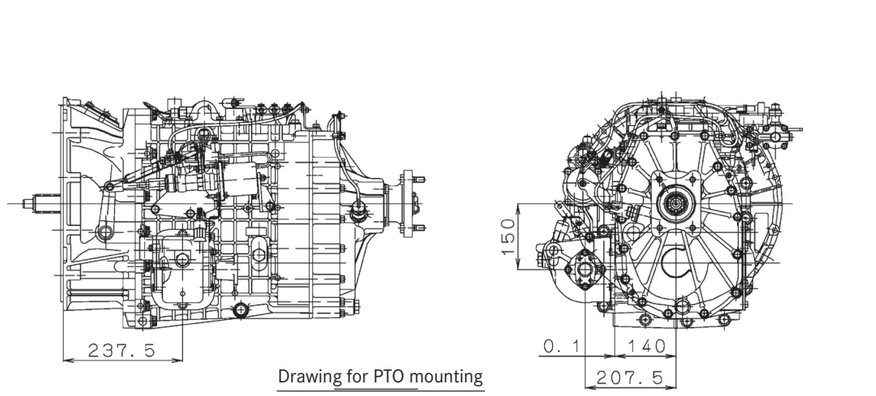


View C

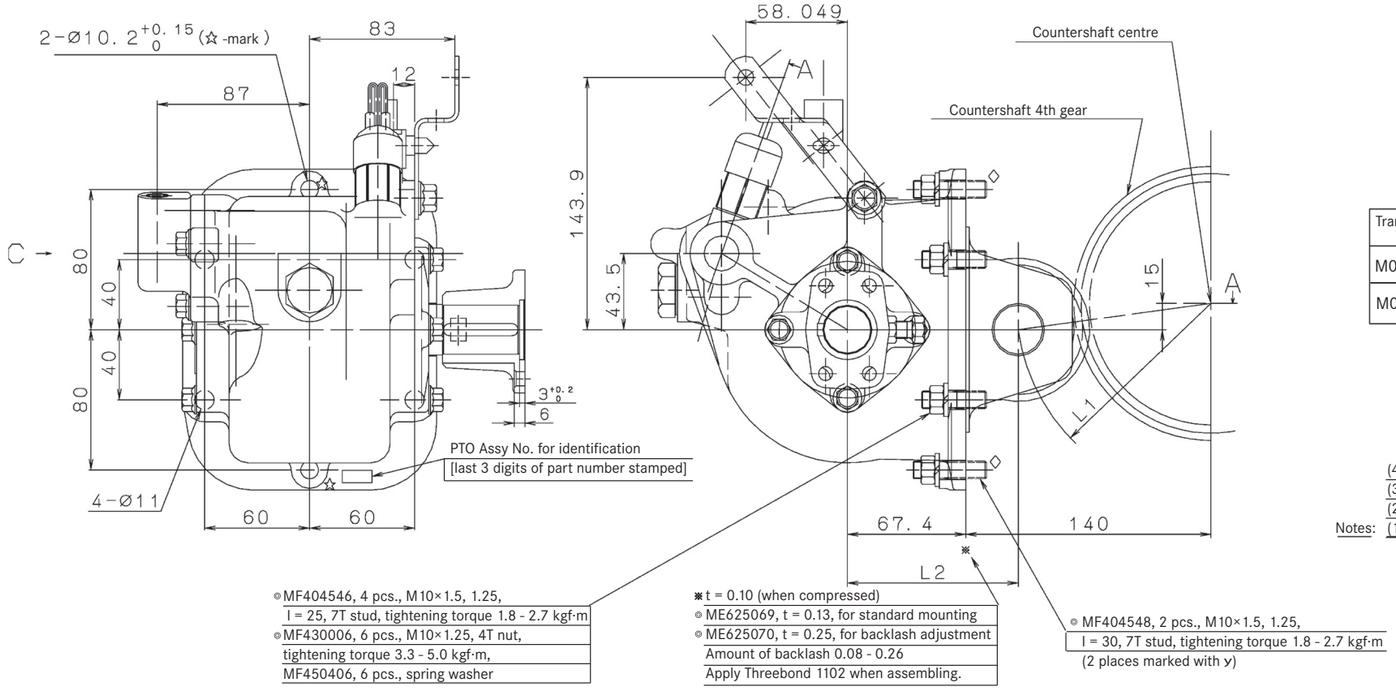


Section A-A

Section B-B



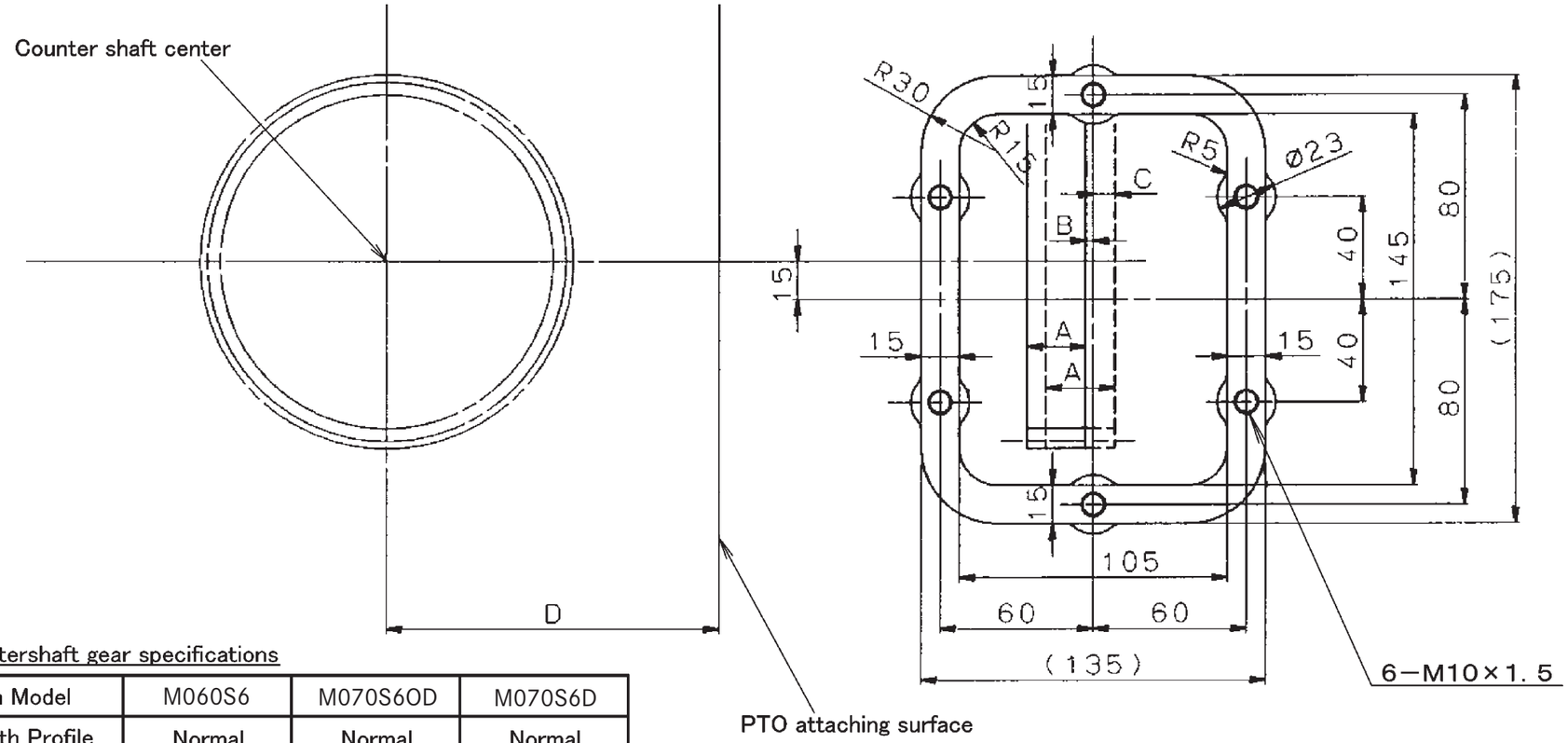
Drawing for PTO mounting



Transmission model	PTO type	Transmission gear ratio 1st/4th	L1	L2
M070S6OD	Standard	6.807/1.504	115.478	93.0
M070S6D		8.064/1.321 (5th)	110	86.5

Notes:
(1) For part numbers, gear ratio and rpm ratio, refer to the separate tables.
(2) Permissible output shaft torque: 245 N·m {25 kgf·m} at 1500 rpm
(3) Rotational direction of PTO output shaft: reverse with respect to engine rotation
(4) Component parts (including PTO Assy) in the PTO kit include the parts marked with ◎ in the figure.

(4) Details of transmission PTO opening for M060, M070 T/M



PTO output countershaft gear specifications

Transmission Model		M060S6	M070S6OD	M070S6D
Reference Tooth Profile		Normal	Normal	Normal
Cutter	Tooth Profile	Tall Tooth	Tall Tooth	Tall Tooth
	Module	3.58/4.296	3.35/4.02	3.35/4.02
	Pressure Angle	20°	20°	20°
NO. of Teeth		35	38	41
Helix Angle & Hand of Helix		22° (RH)	30° (RH)	30° (RH)
Outer Diameter		143.059	156.251	167.150
P.C.D.		135.140	146.993	158.598
Whole Depth		10.096	8.828	8.828
Amount of Addendum Modification		−0.337	+0.658	+0.305
Diplacement Over a Given NO. of Teeth (NO. of Teeth)		49.505 −0.038 −0.091 (5)	67.414 −0.017 −0.037 (7)	77.274 −0.036 −0.085 (8)

------ M060S6,M070S6

Transmission Model	4th Gear Face Width A	4th Gear Offset B	4th Gear Offset C	D
M060S6	27	—	8.5	130
M070S6OD	30	—	16	140

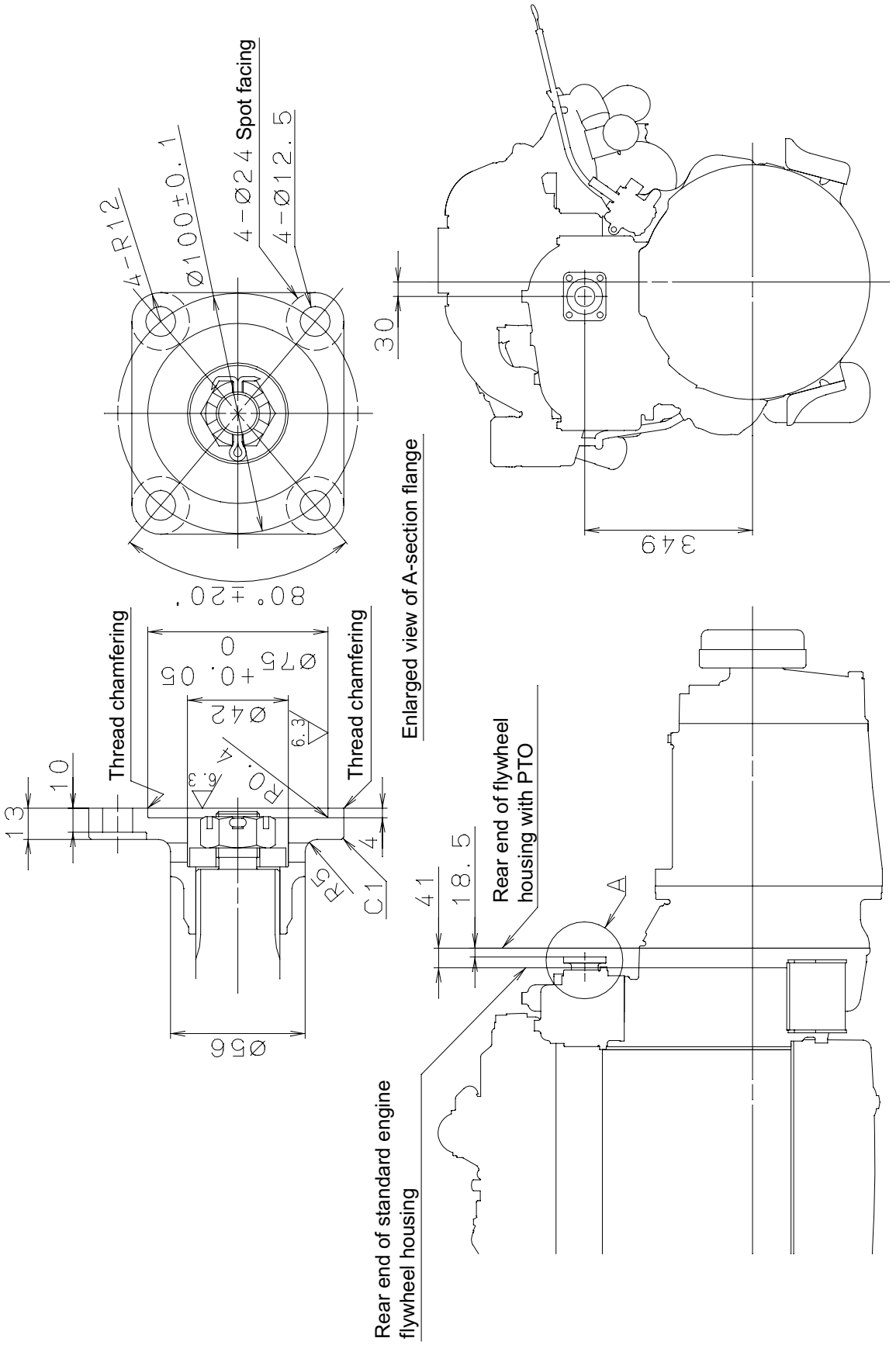
Transmission Model	5th Gear Face Width A	5th Gear Offset B	5th Gear Offset C	D
M070S6D	25.5	—	5.5	140

10.9.2 Engine power take-off

(1) Specifications

Maximum torque to be taken off N·m {kgf·m}	PTO rotation ratio (with respect to engine rotation)	Direction of rotation (with respect to engine rotation)
294 {30}	0.635	Normal direction

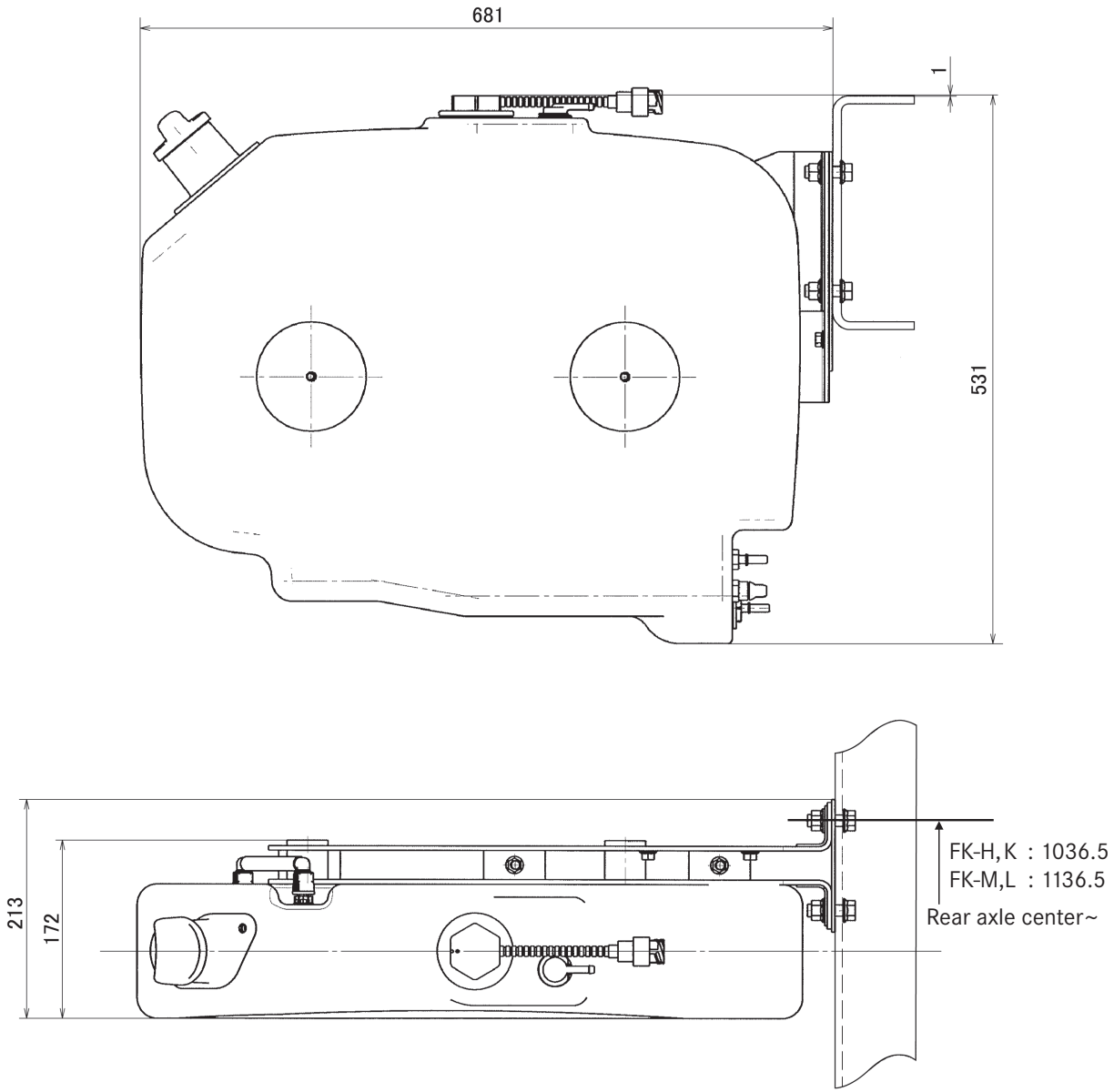
(2) Engine power take-off layout



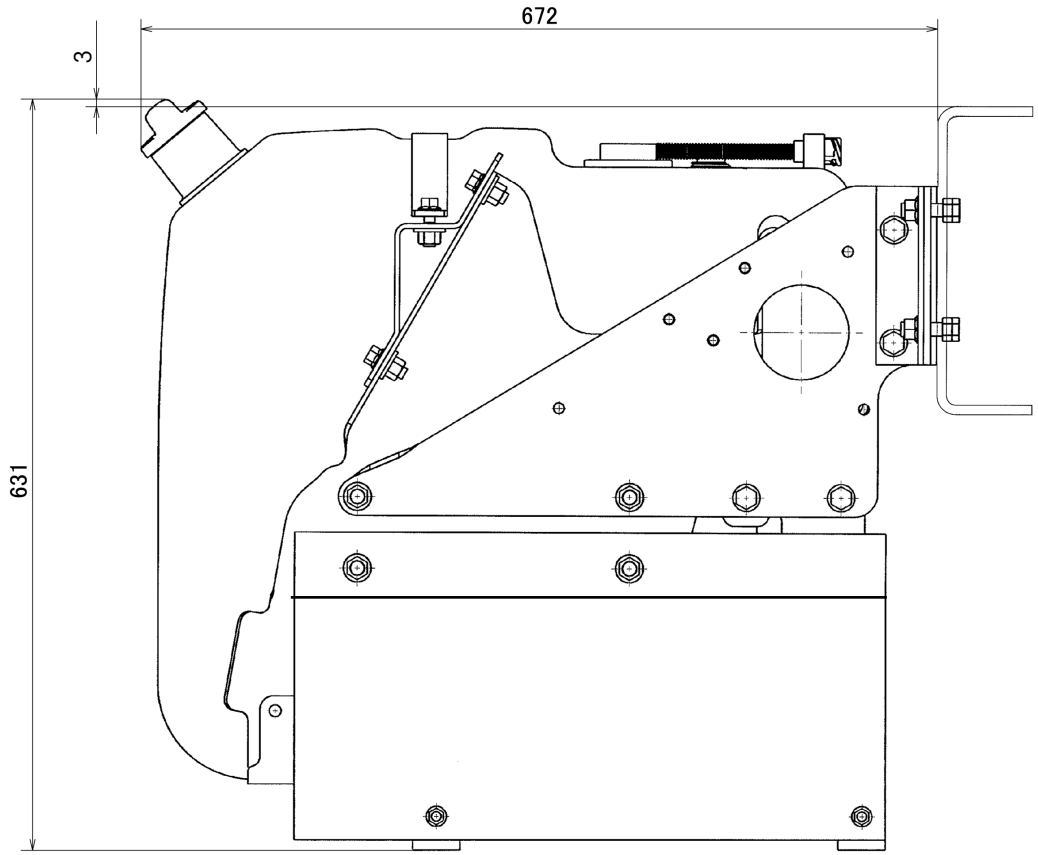
10.10 Exhaust system layout

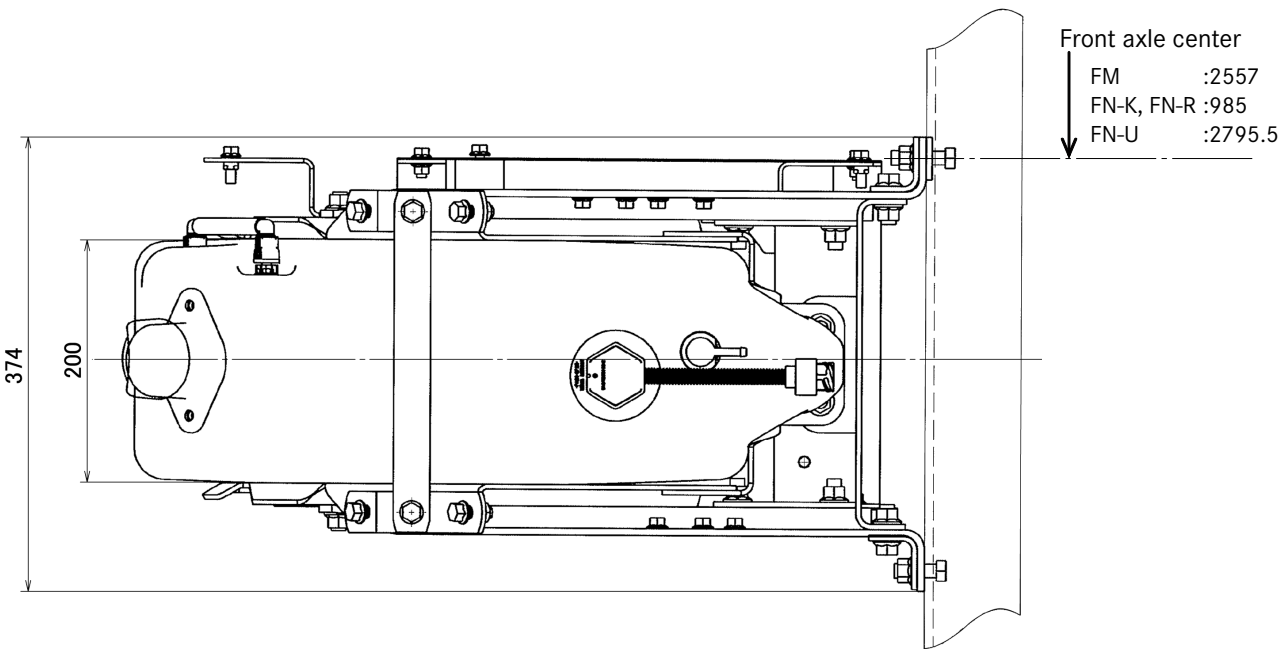
10.10.1 Urea tank mounting layout

25-liter tank



40-liter tank

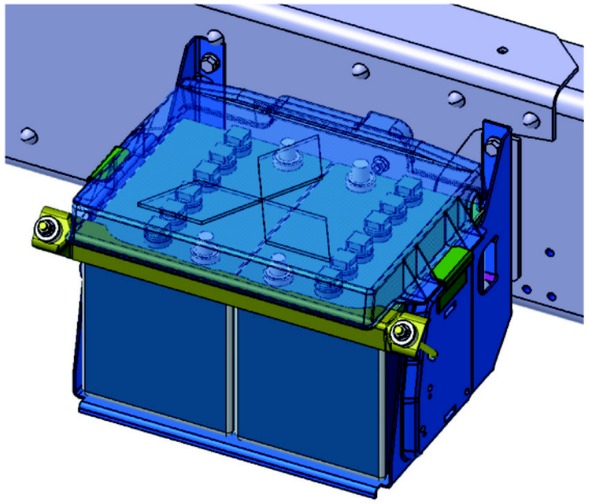


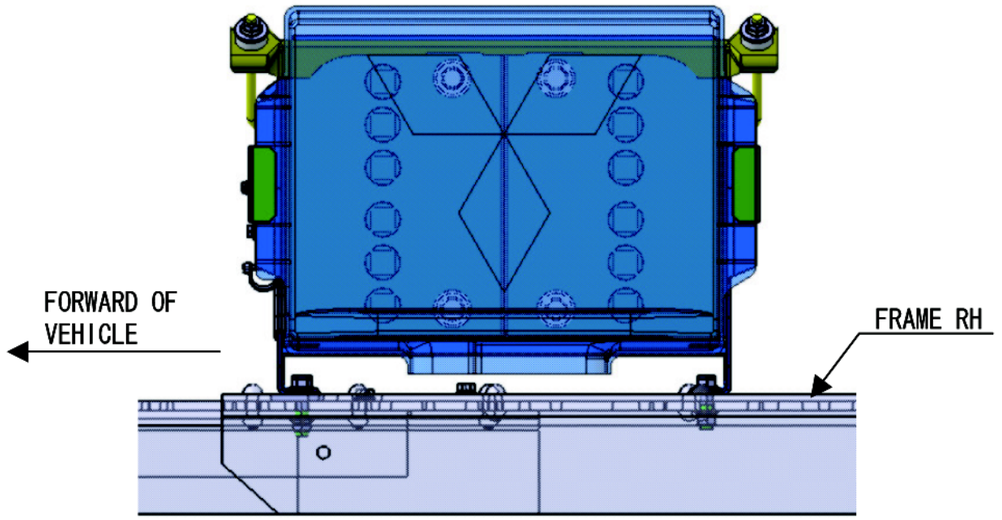


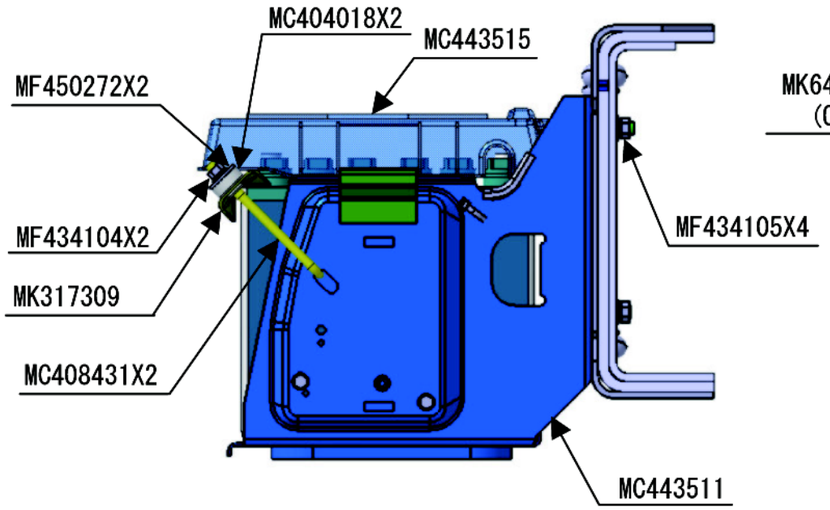
10.11 Battery mounting layout

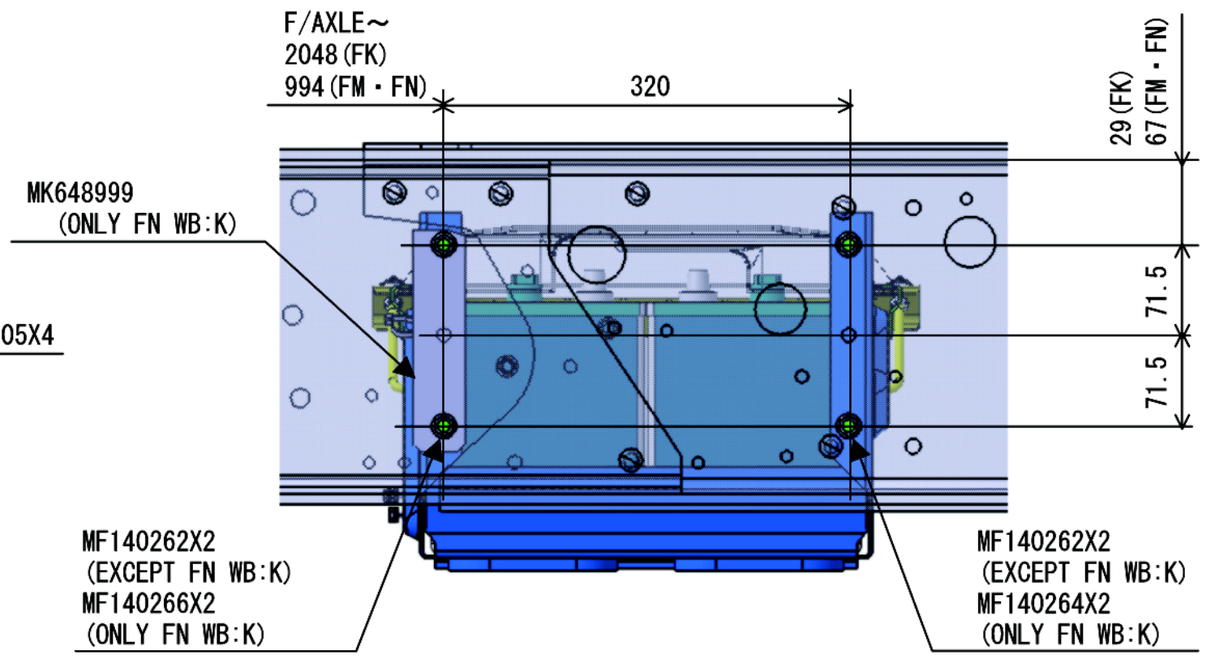
10.11 Battery mounting layout

65D23R



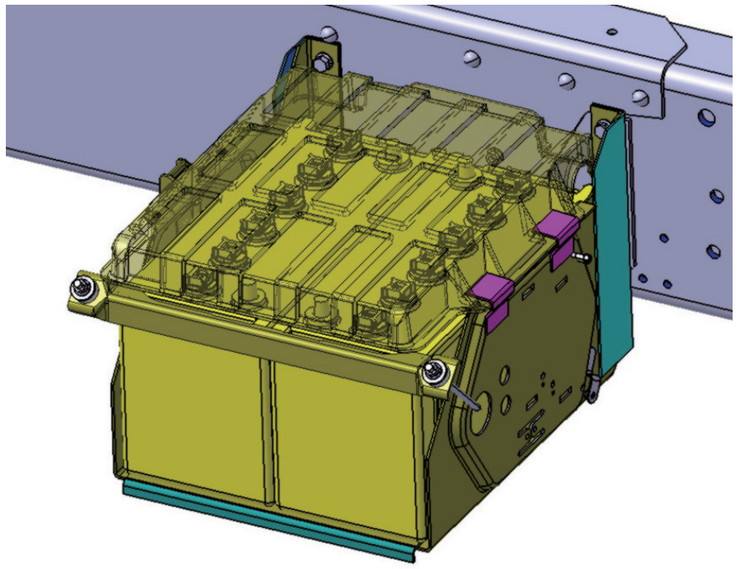


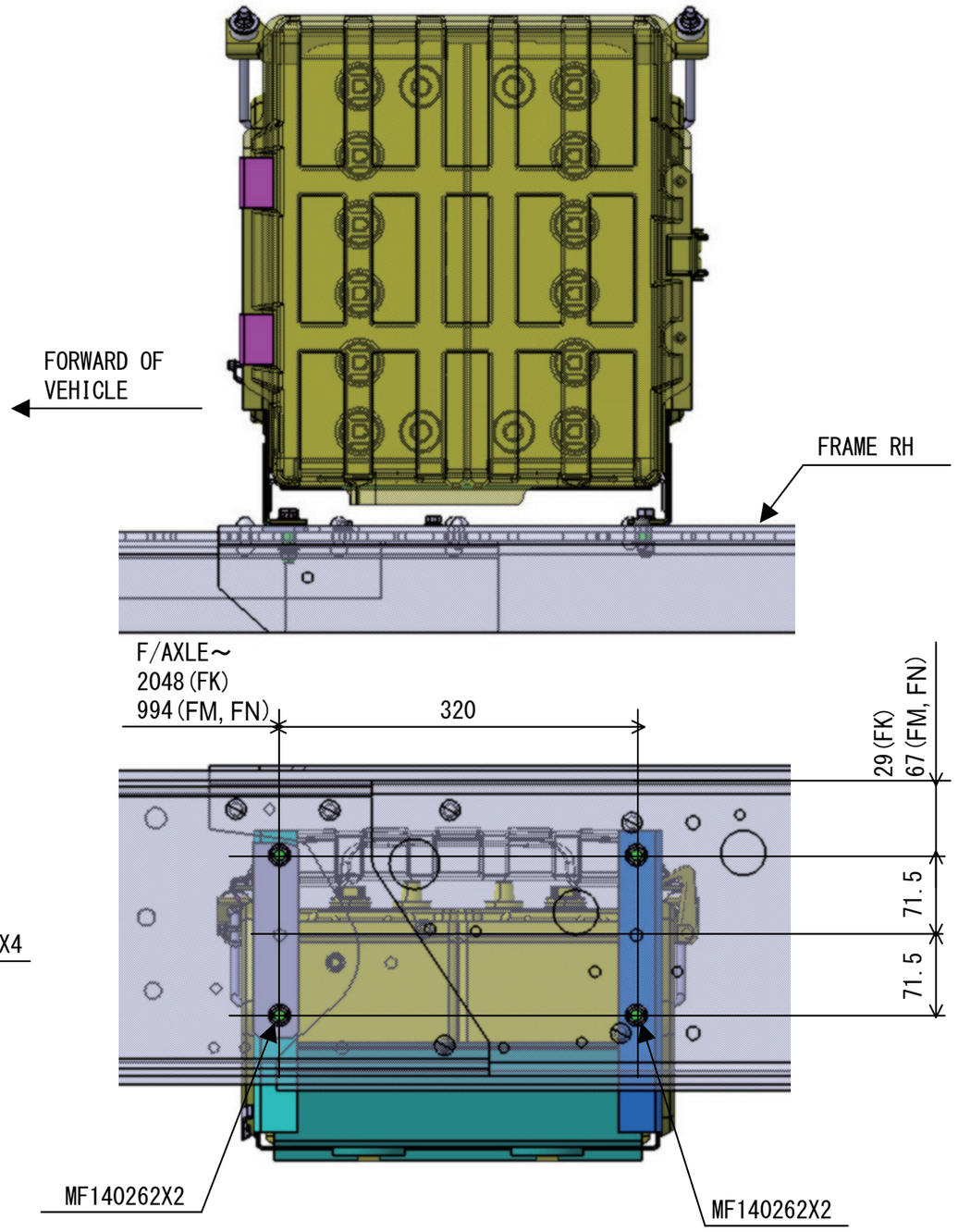


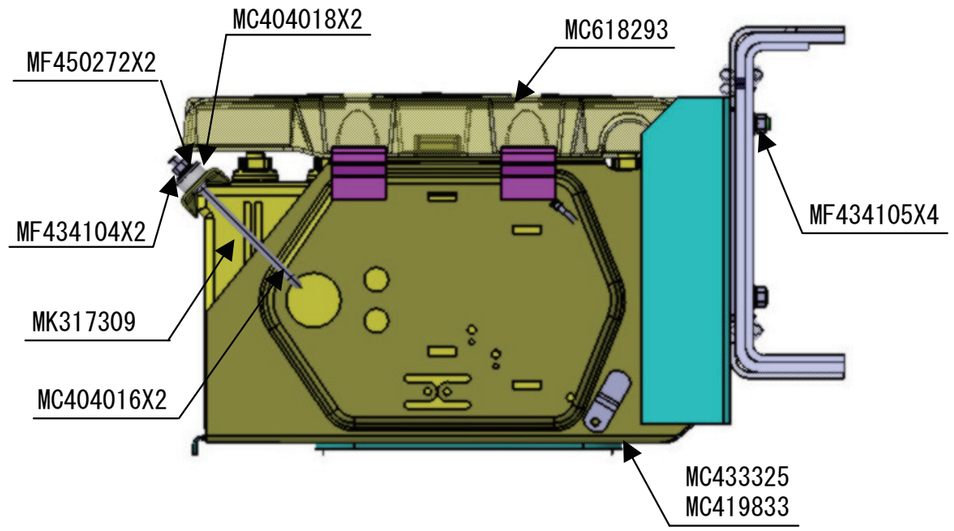


10.11 Battery mounting layout

95E41R

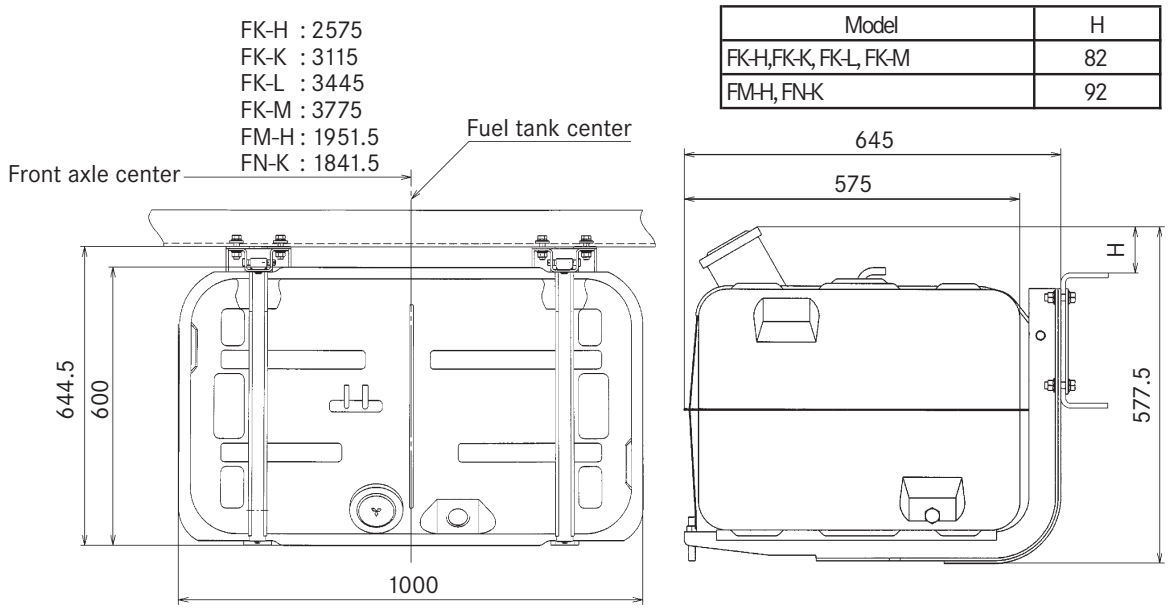






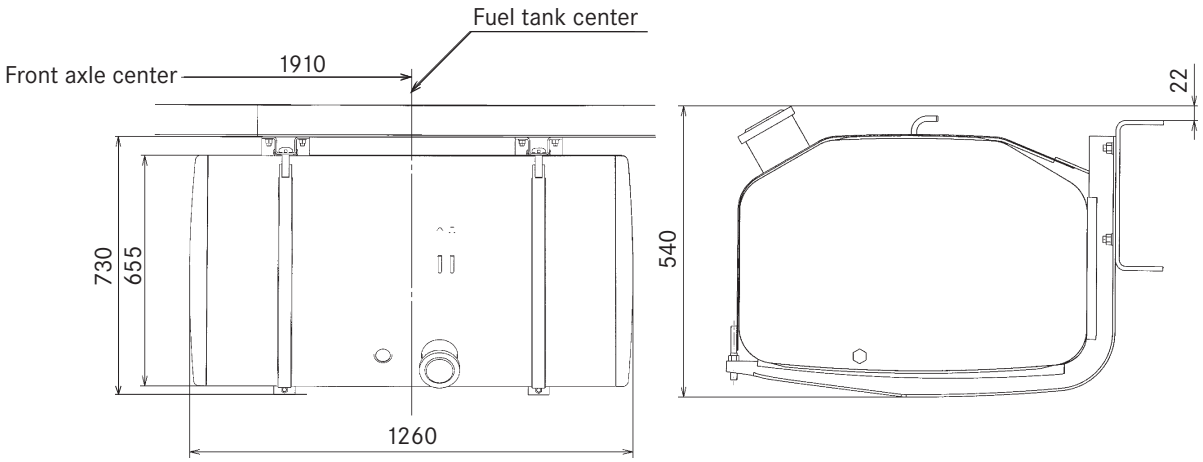
10.12 Fuel tank mounting layout

200-liter tank

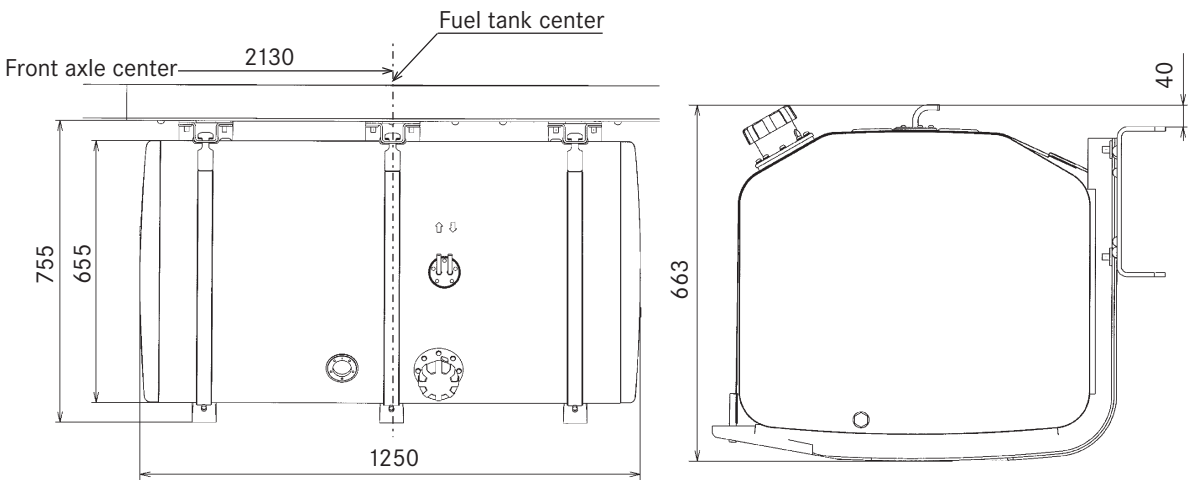


Model	H
FK-H,FK-K, FK-L, FK-M	82
FM-H, FN-K	92

300-liter tank



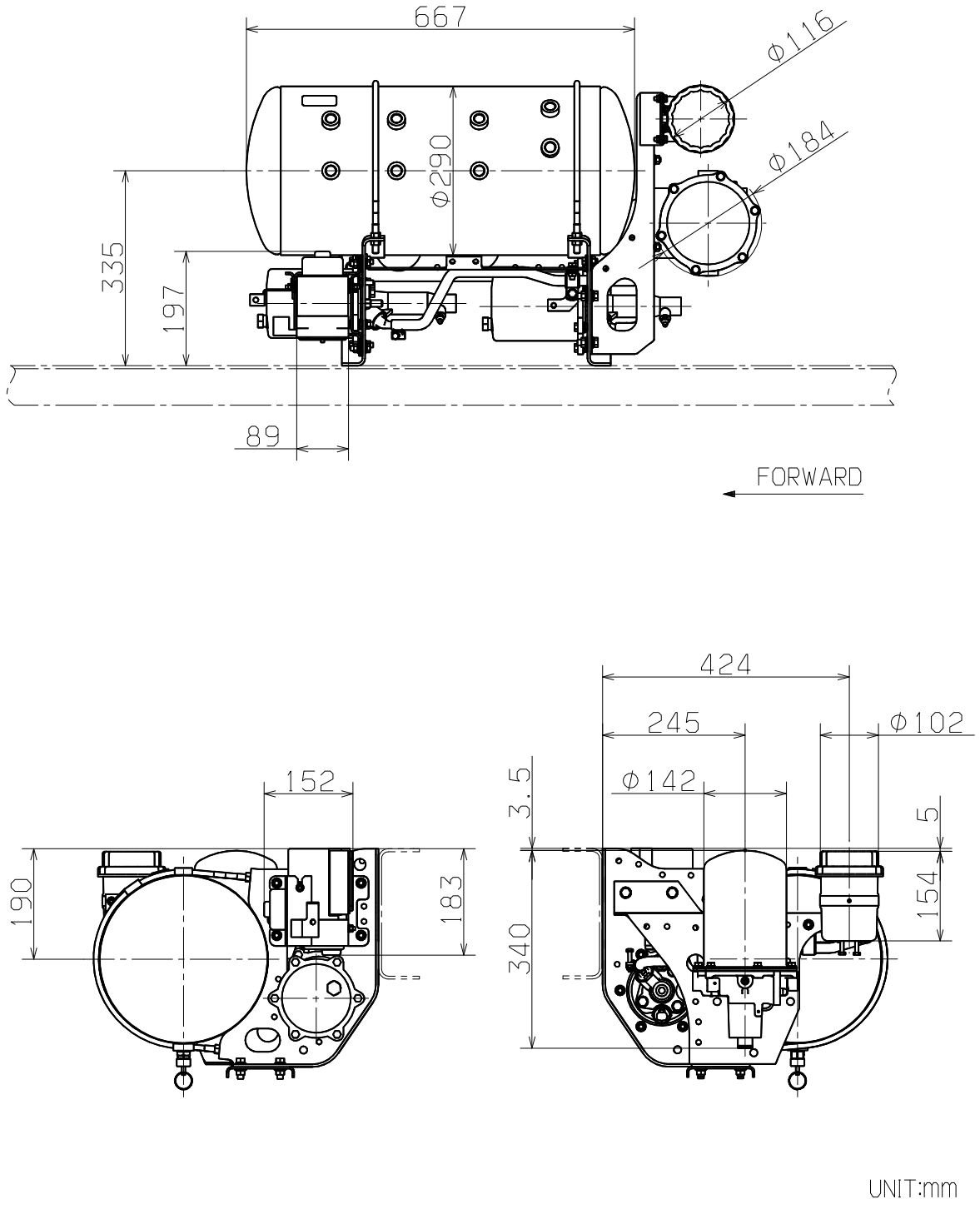
400-liter tank



10.13 Brake systems

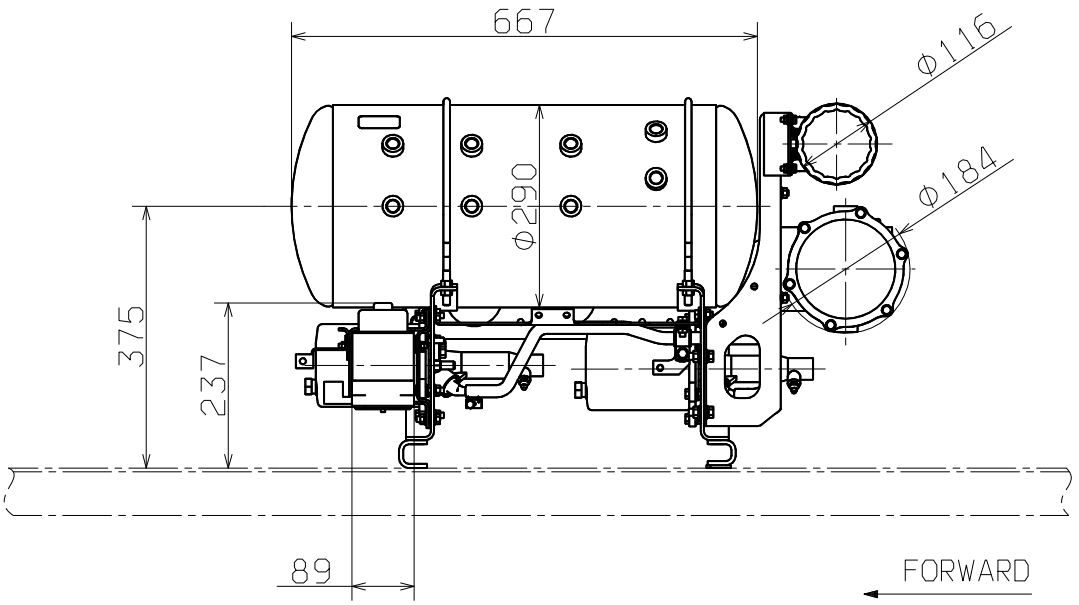
10.13.1 Air servo assistance and air tank

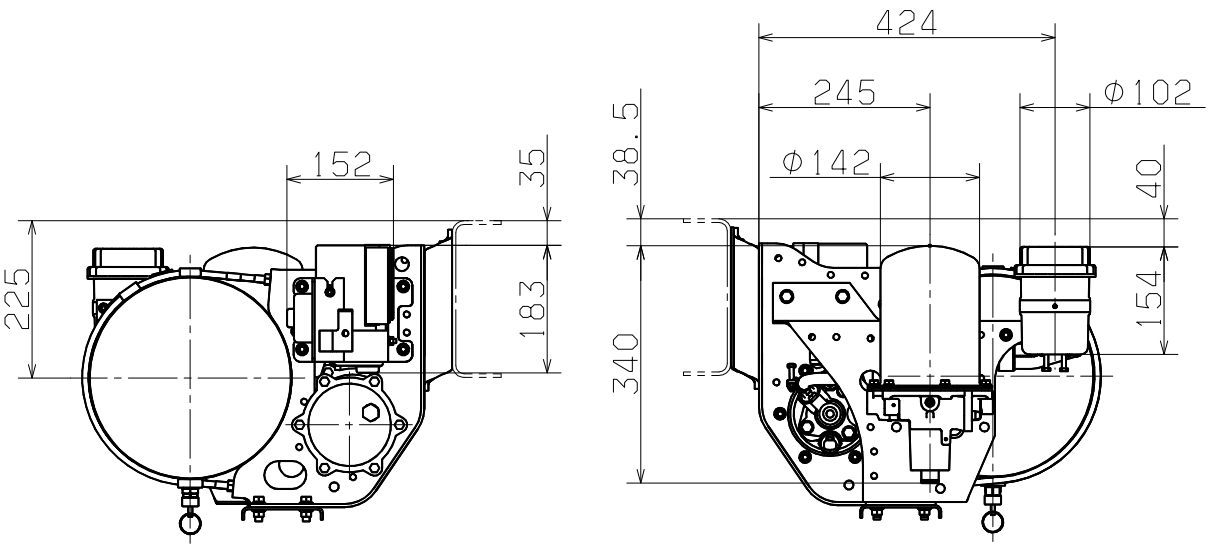
<FK61F Series>



FK61F Series AIR SERVO ASSISTANCE & AIR TANK

<FK61F Series Crew cab>

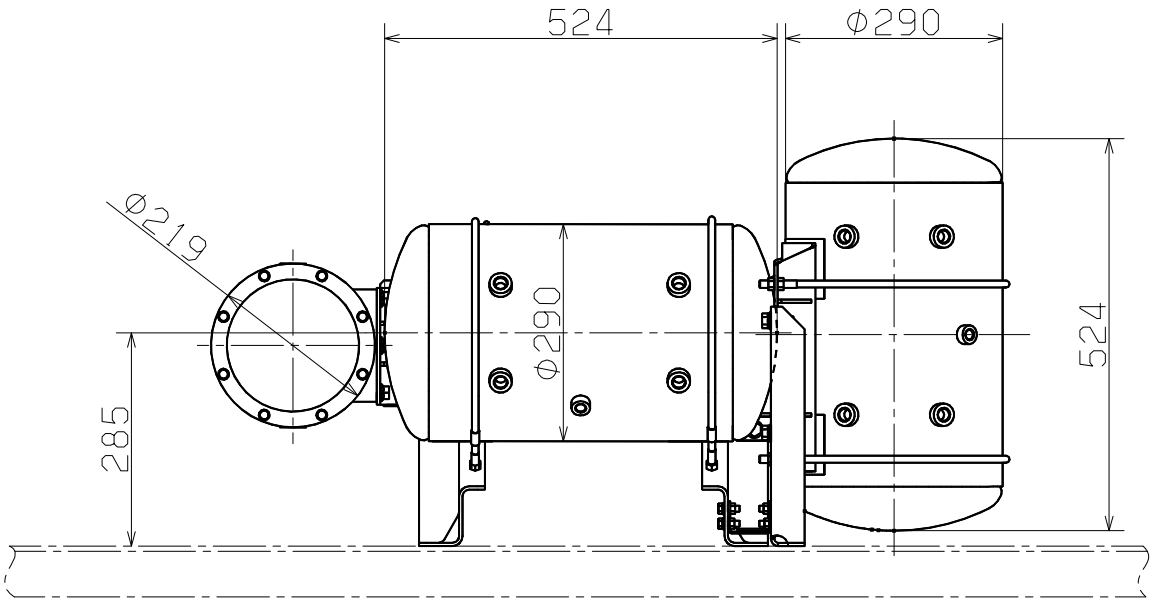


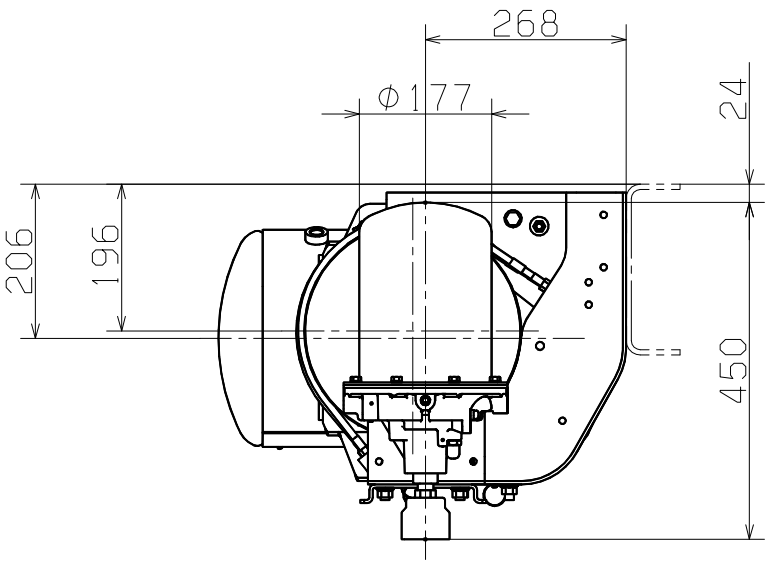


UNIT:mm

FK61F-W Series AIR SERVO ASSISTANCE & AIR TANK

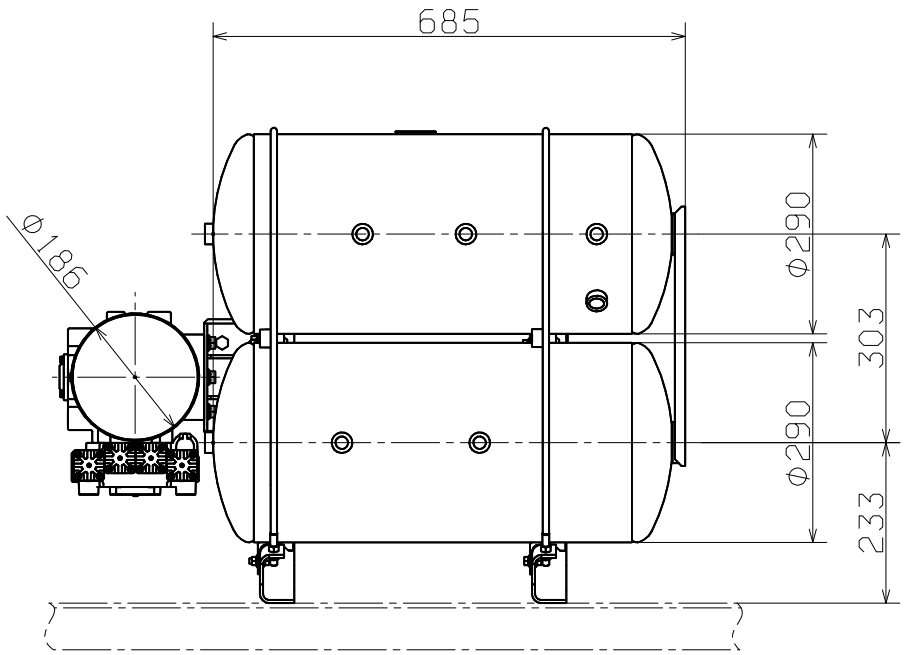
<FK62F, 65F Series>

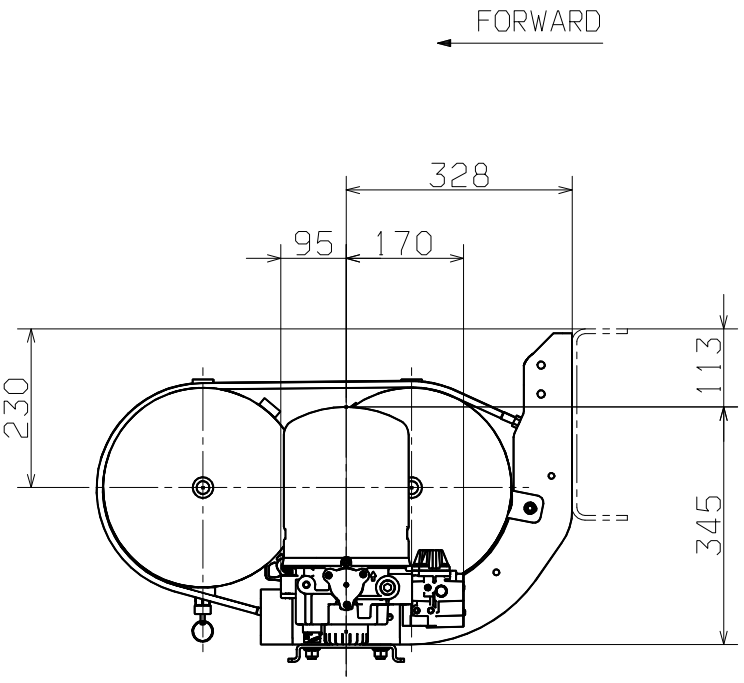




UNIT:mm

<FM65F, 67F Series>





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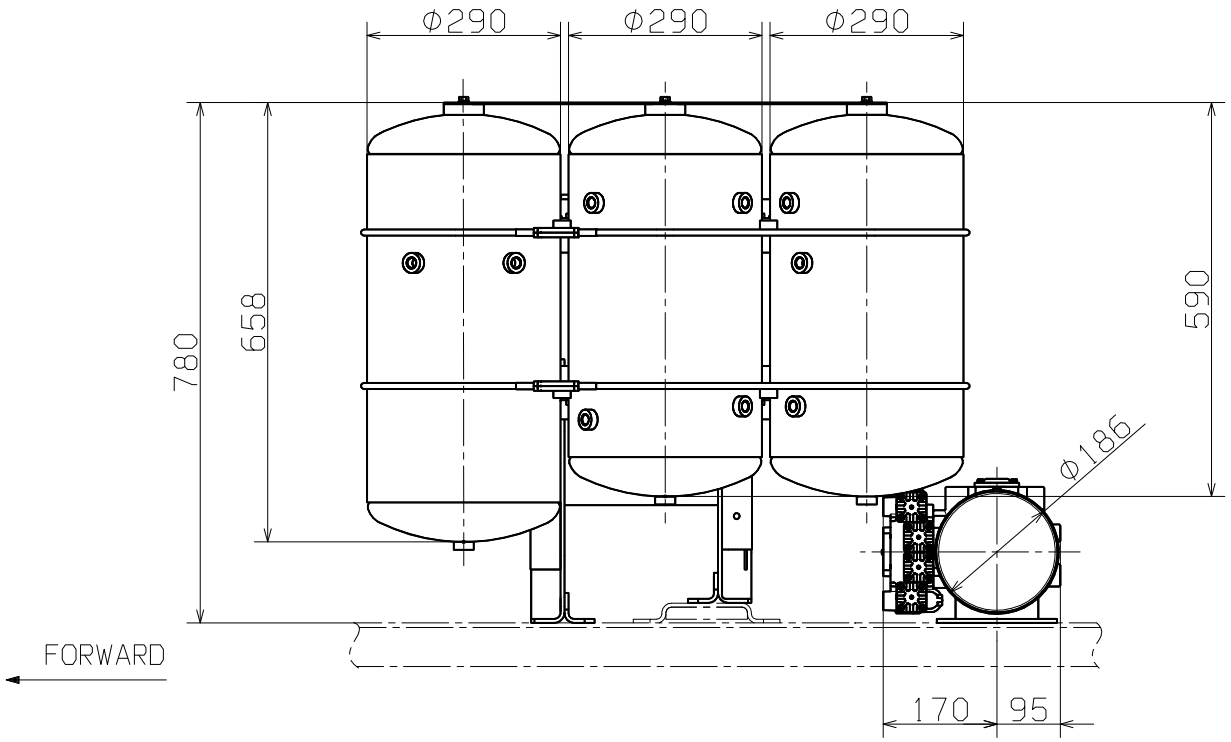
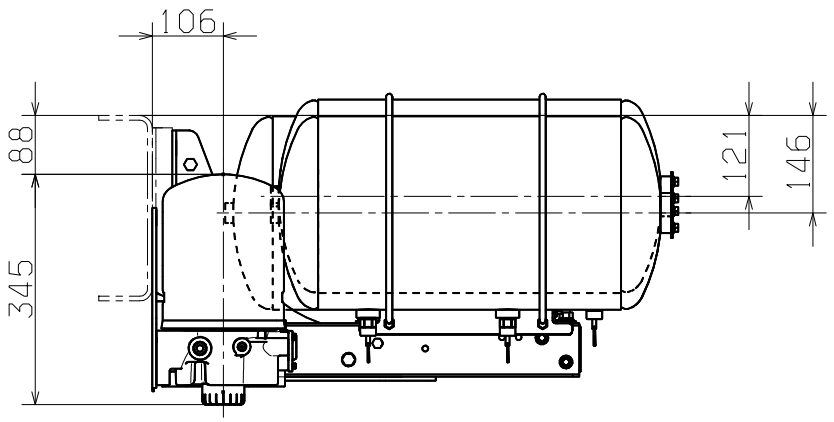
<FN6 Series>





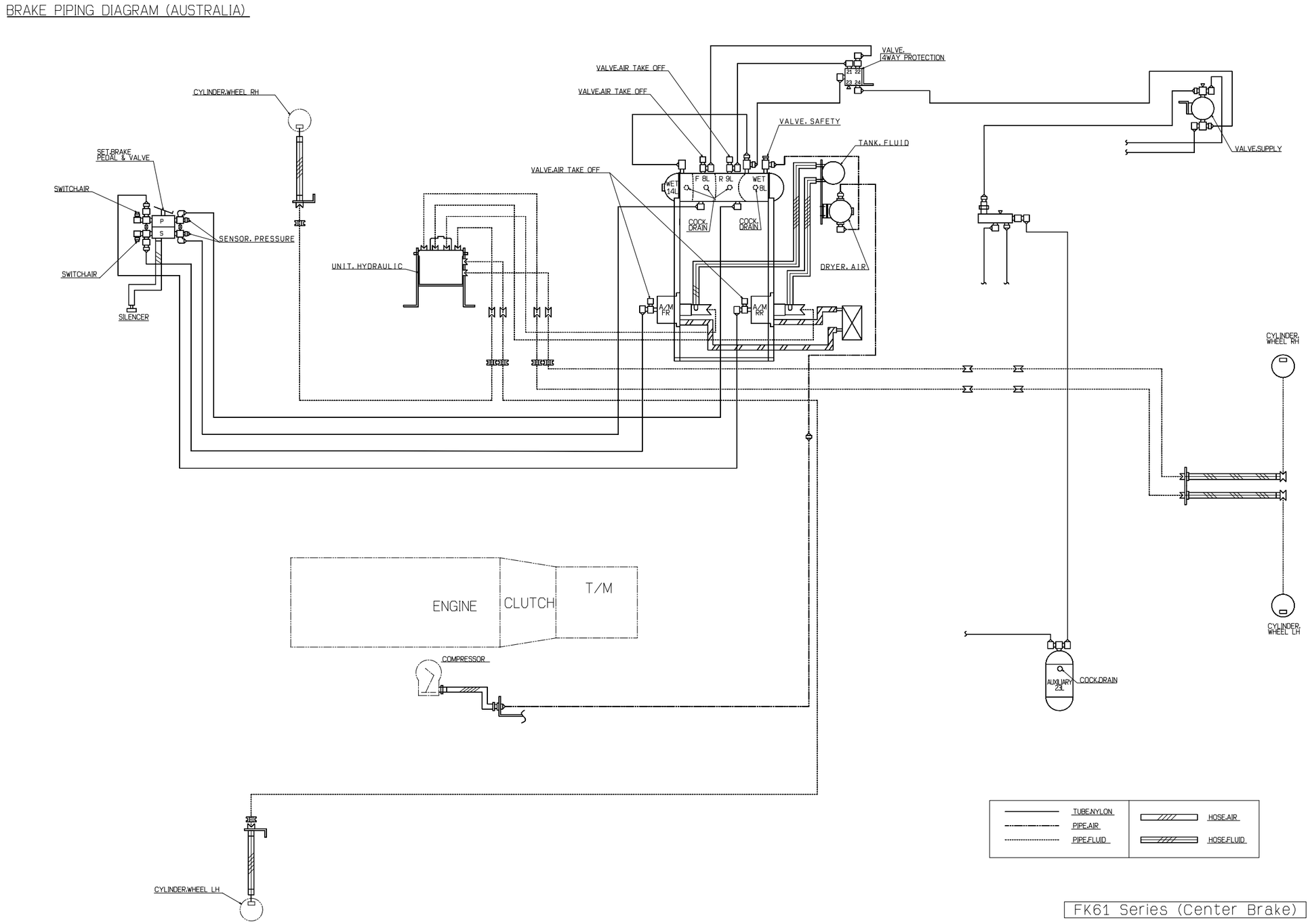
UNIT:mm

FN6 Series AIR SERVO ASSISTANCE & AIR TANK

10.13 Brake systems

10.13.2 Brake piping diagram

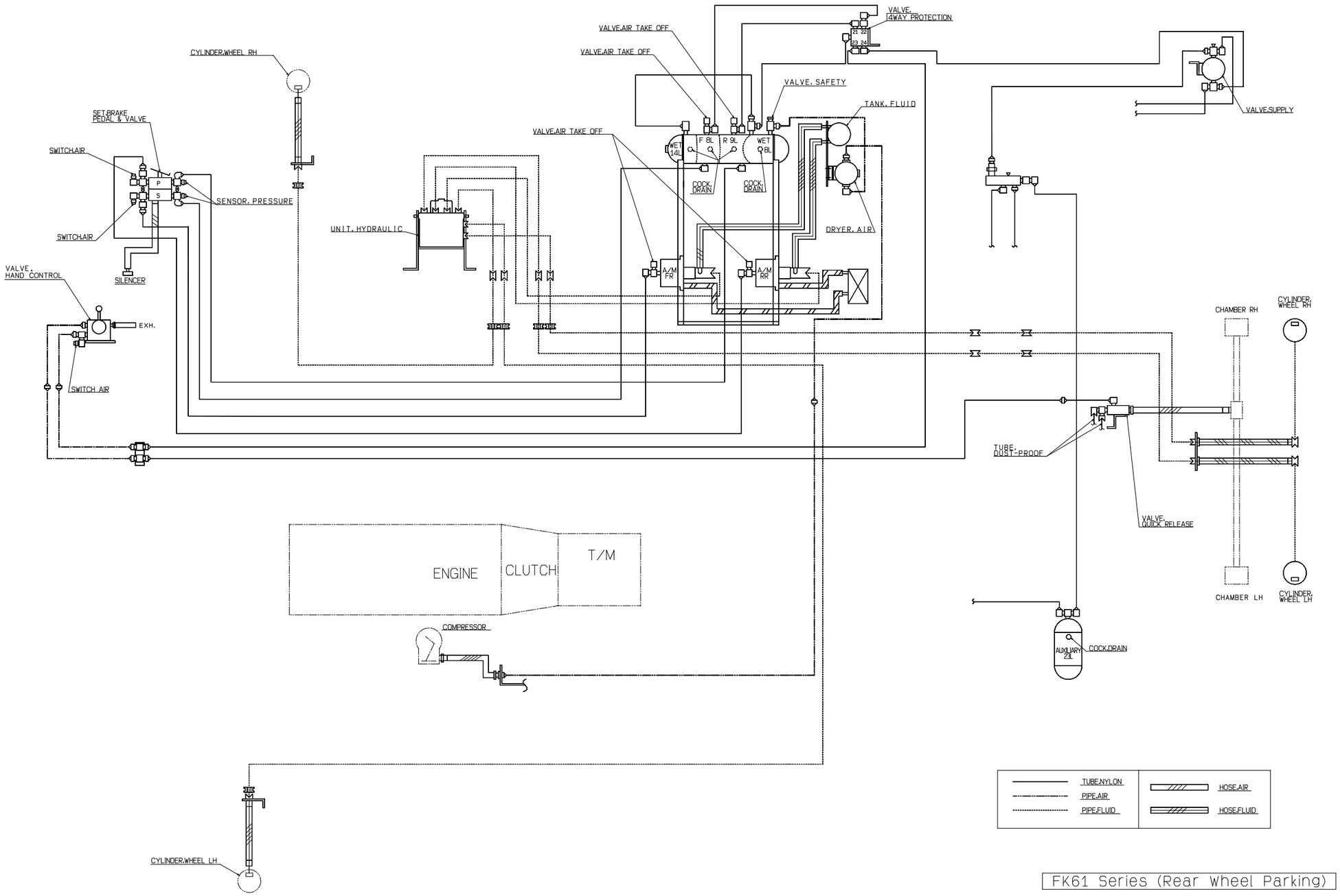
<FK61 Series>



10.13 Brake systems

<FK61 Series>

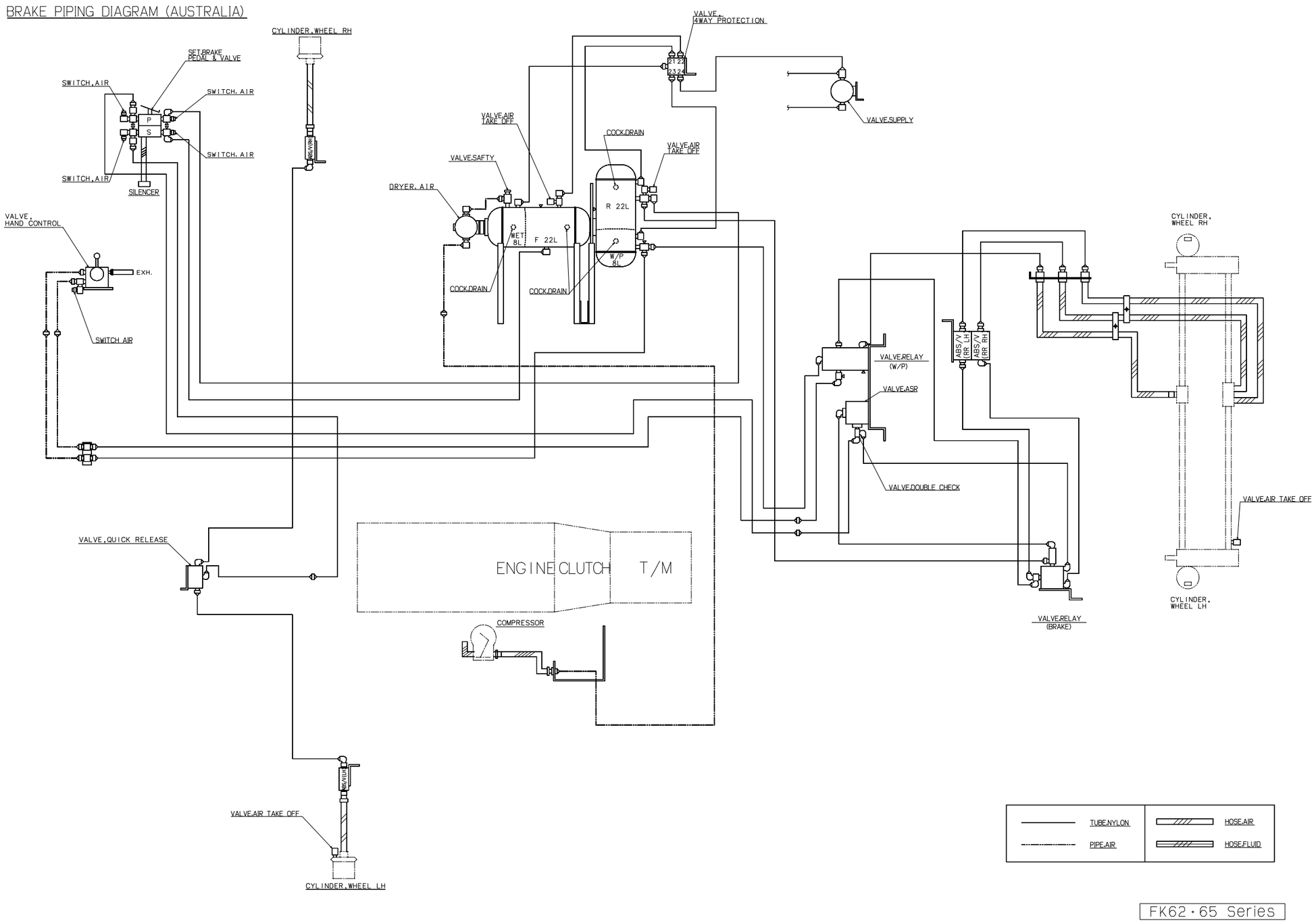
BRAKE PIPING DIAGRAM (AUSTRALIA)



FK61 Series (Rear Wheel Parking)

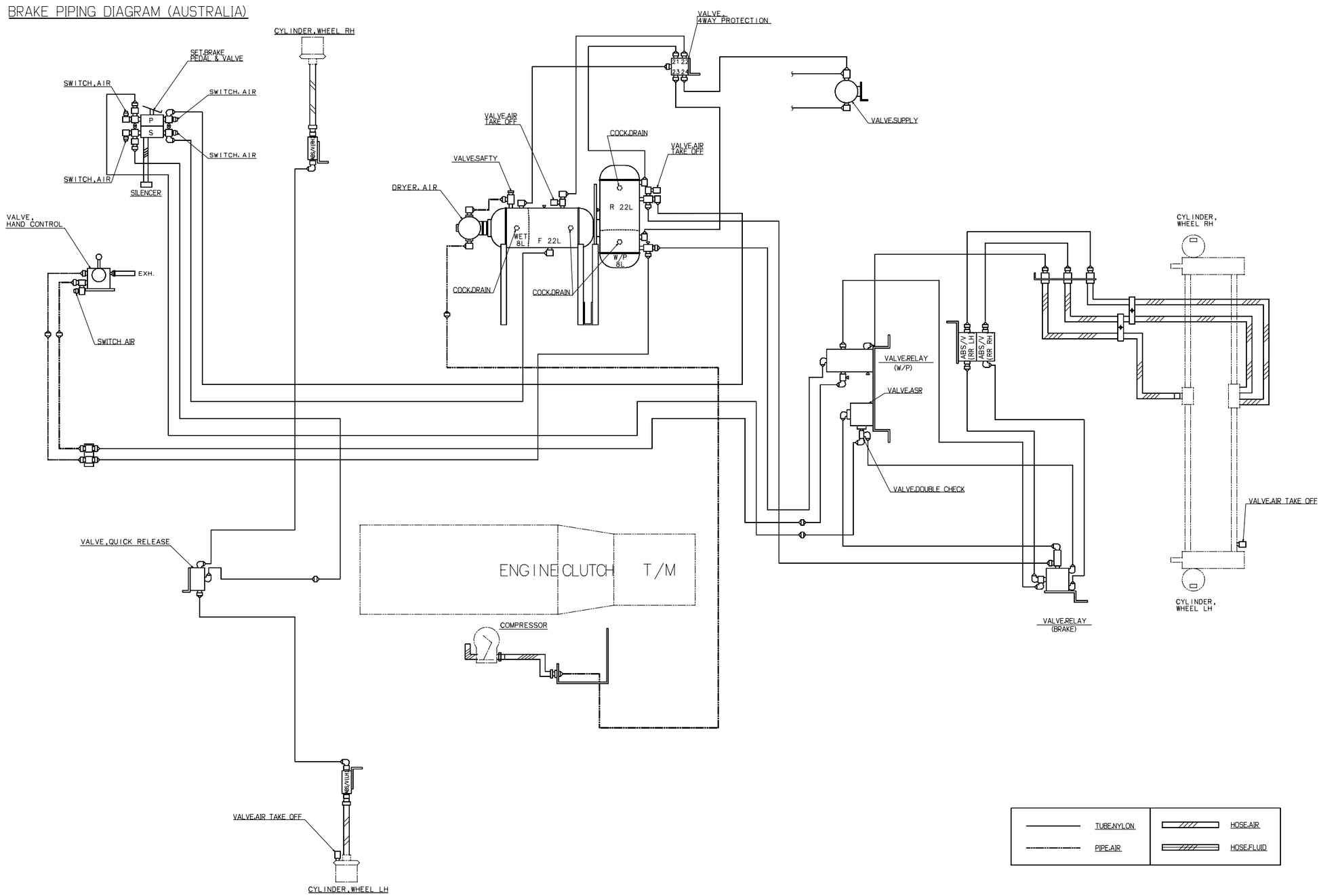
10.13 Brake systems

<FK62•65 Series>



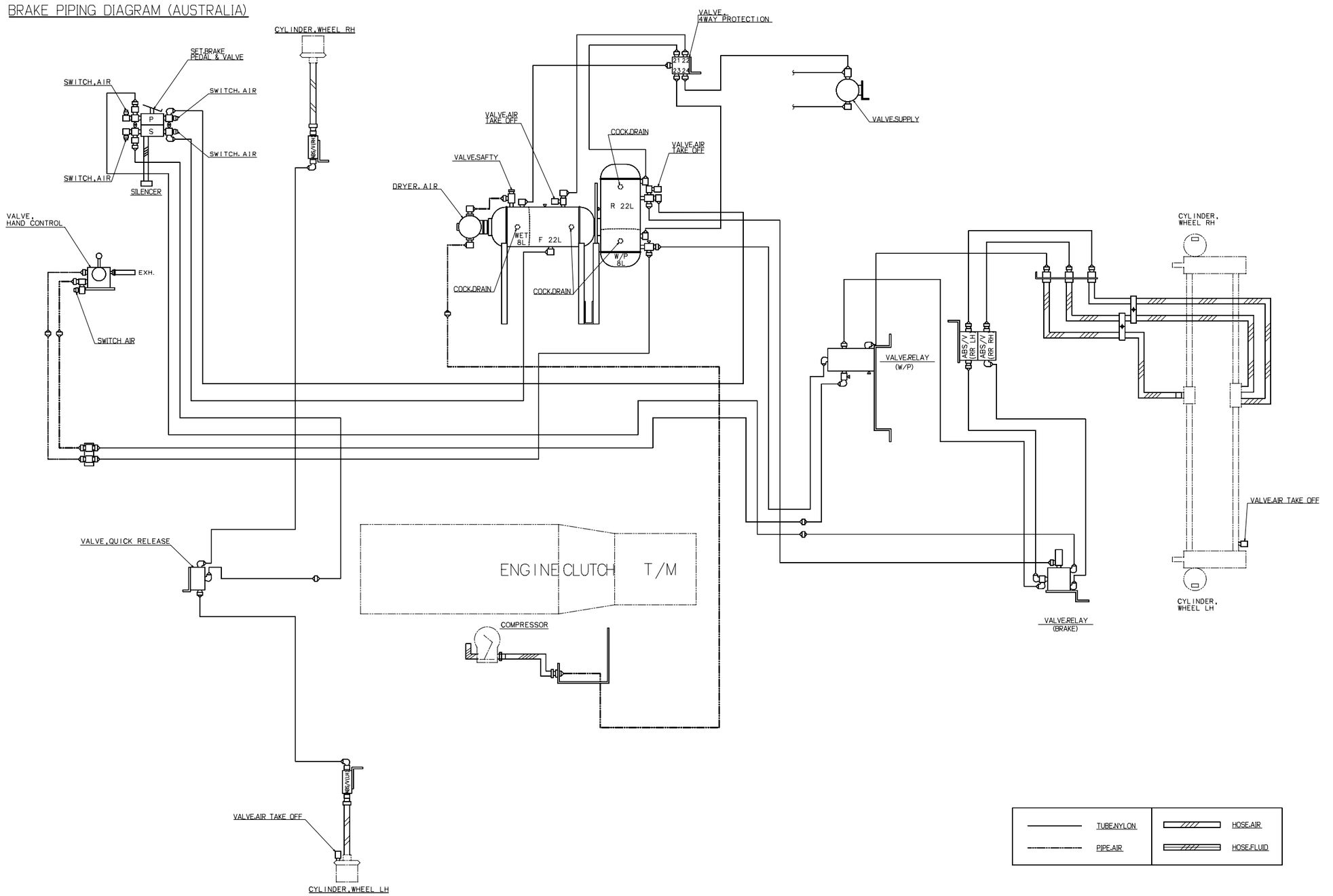
10.13 Brake systems

<FK62•65 Series>



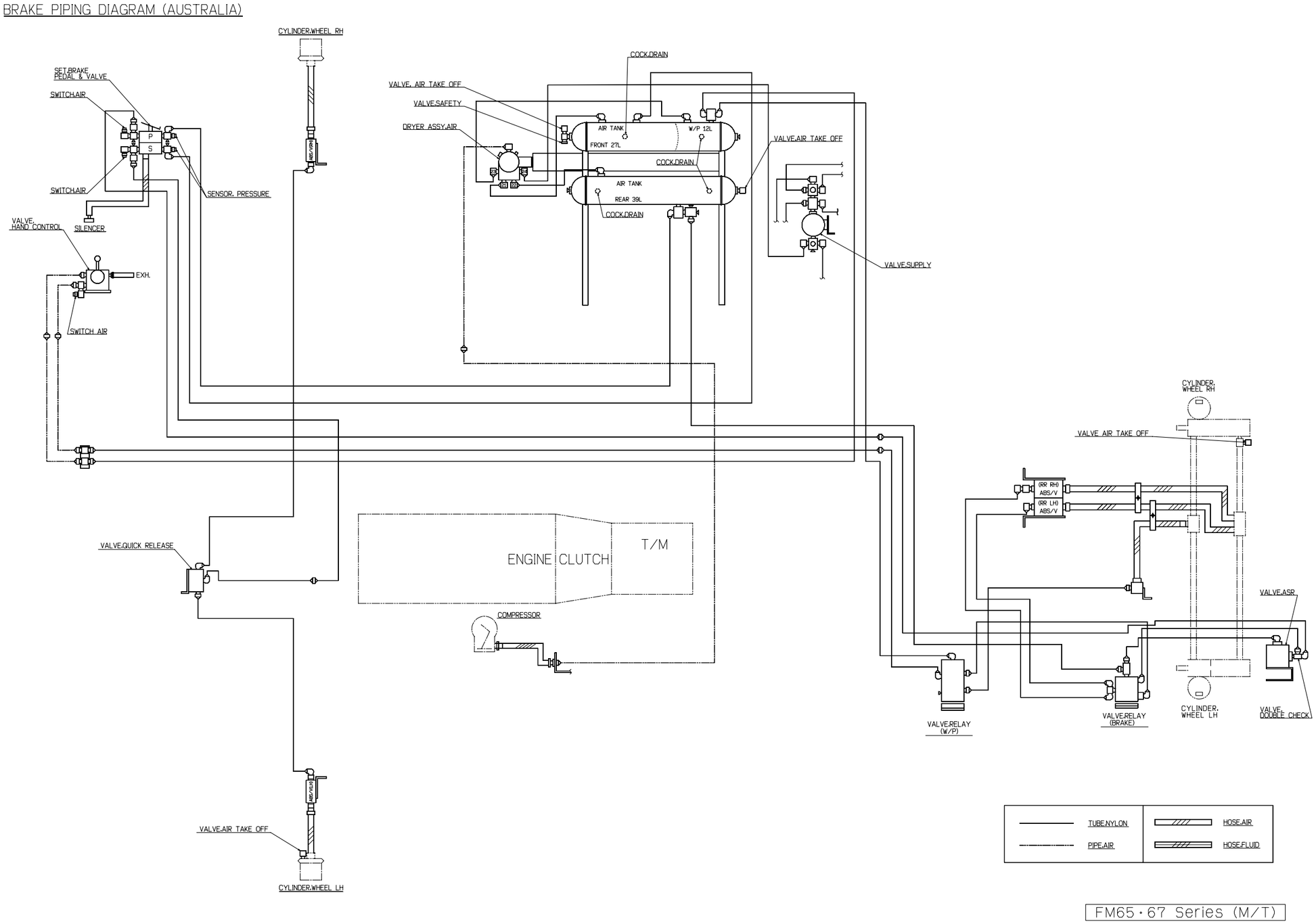
10.13 Brake systems

<FK62•65 Series>



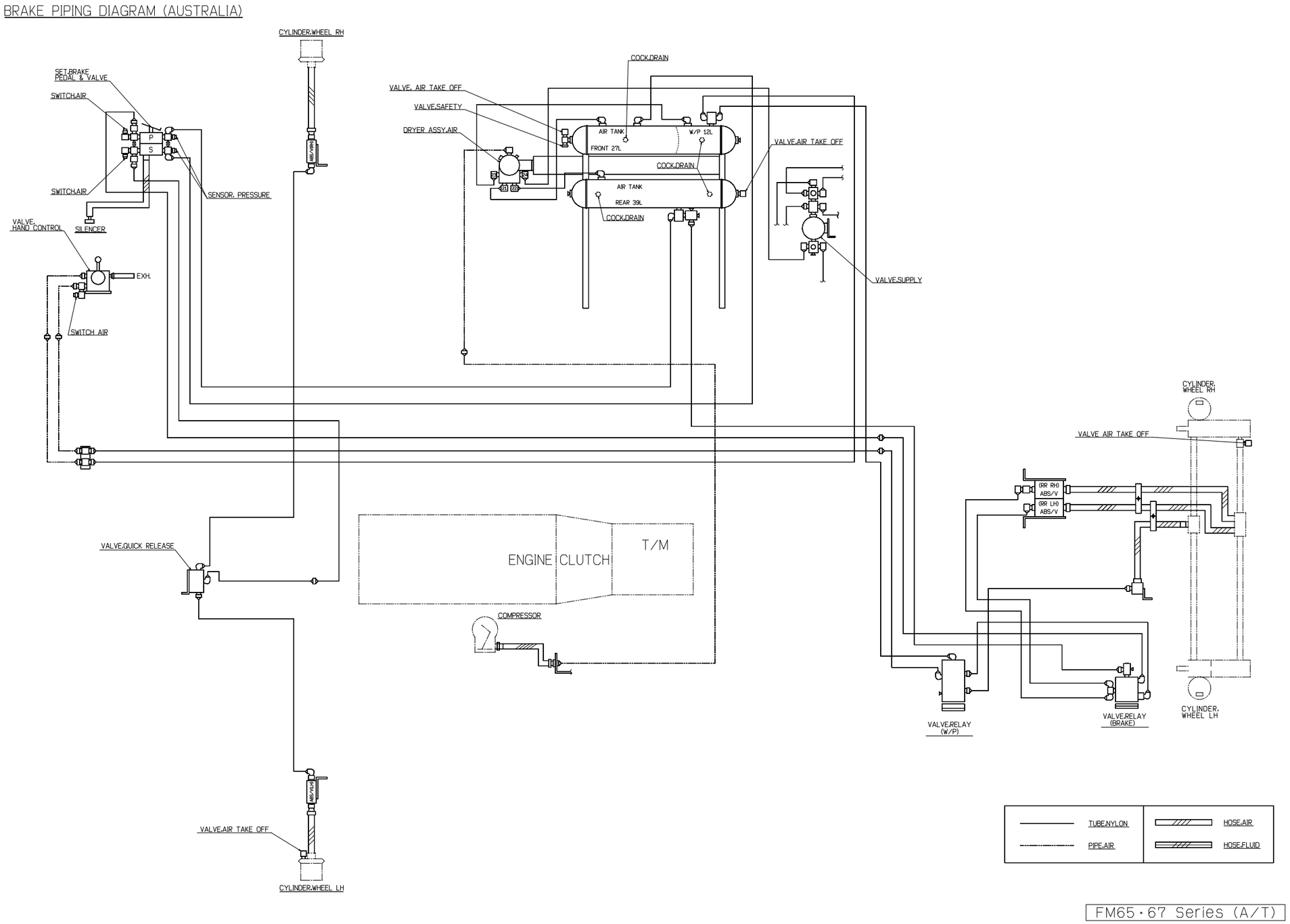
10.13 Brake systems

<FM65 • 67 Series>



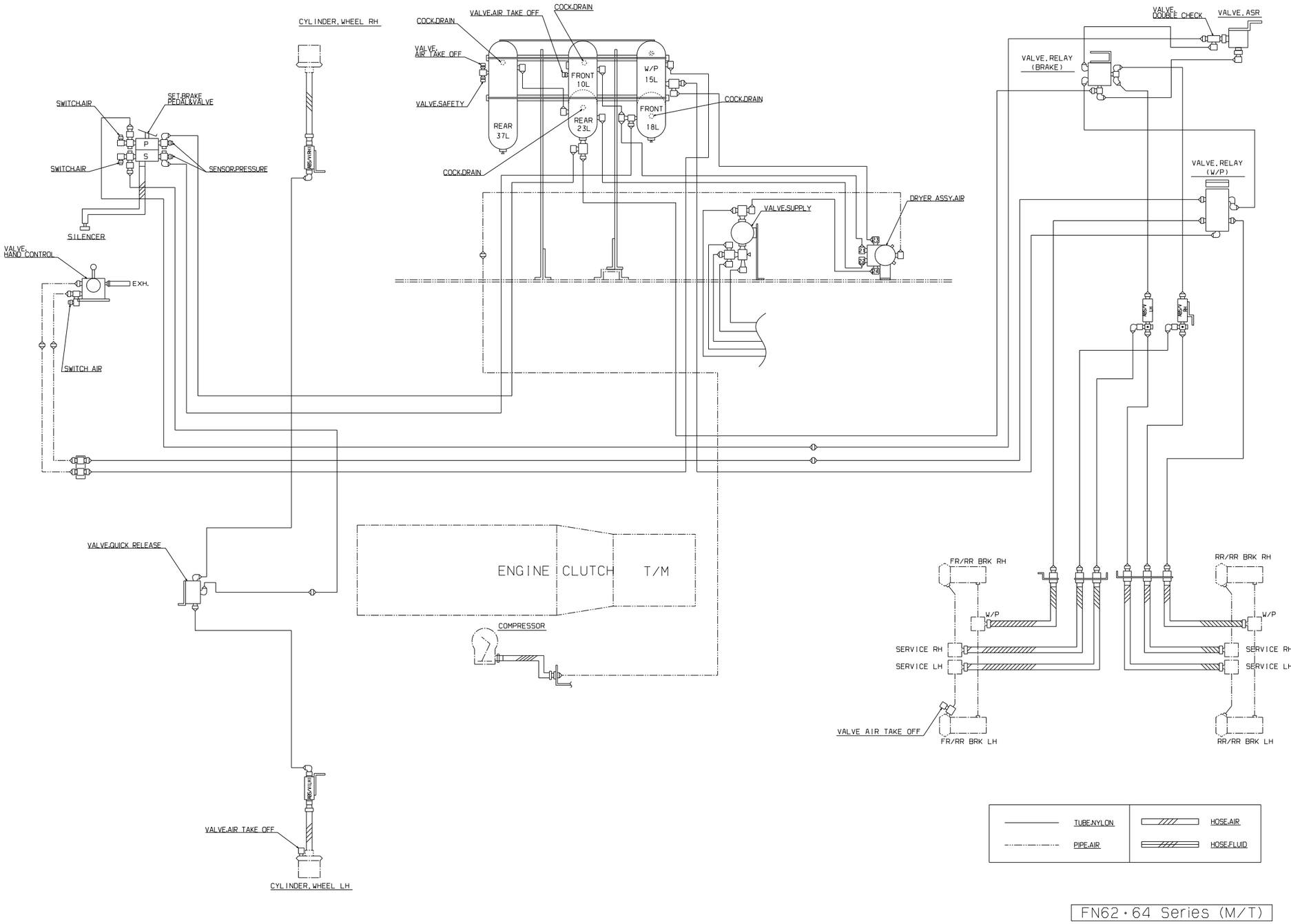
10.13 Brake systems

<FM65 • 67 Series>



10.13 Brake systems

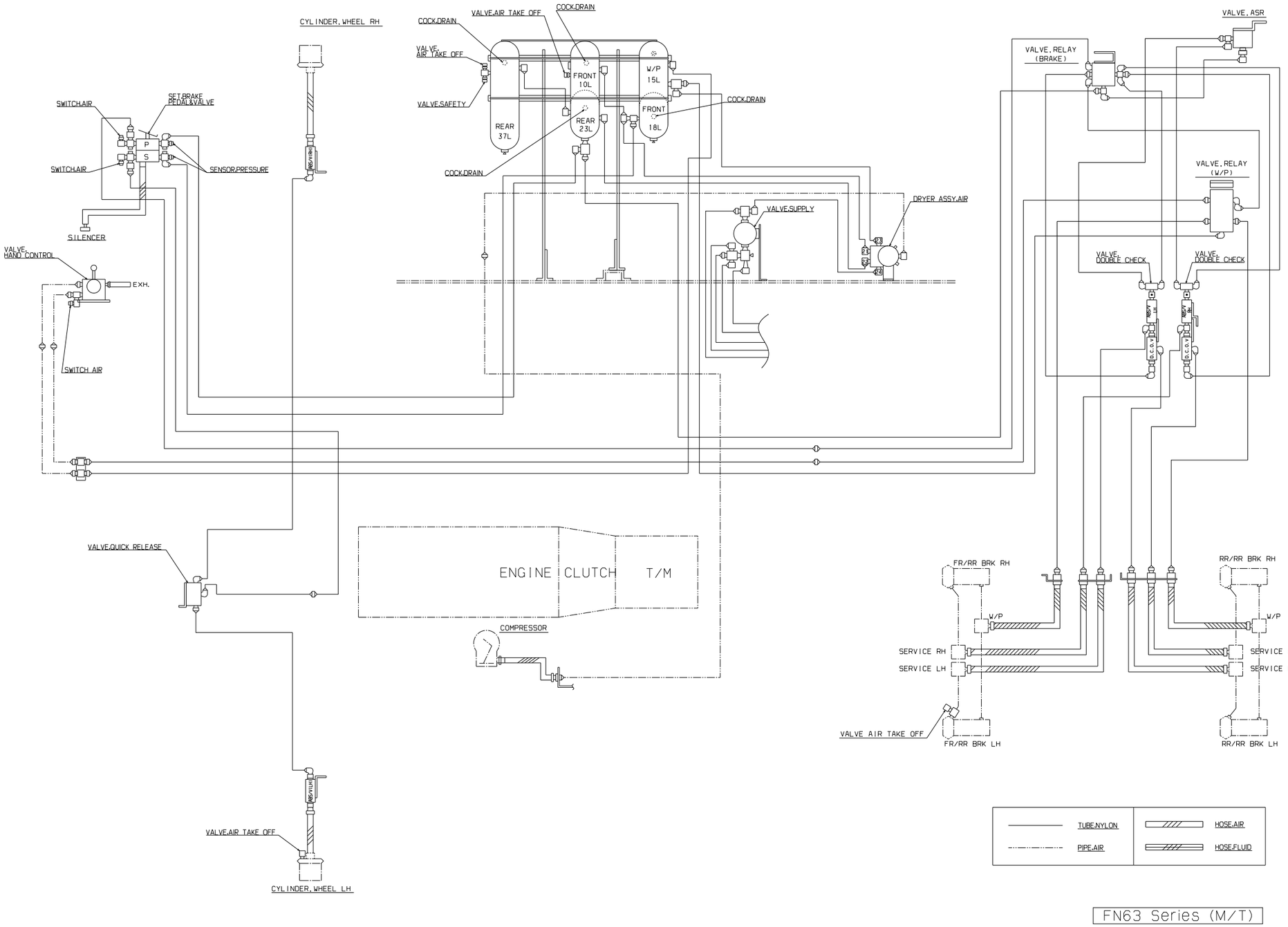
<FN62 • 64 Series>



FN62・64 Series (M/T)

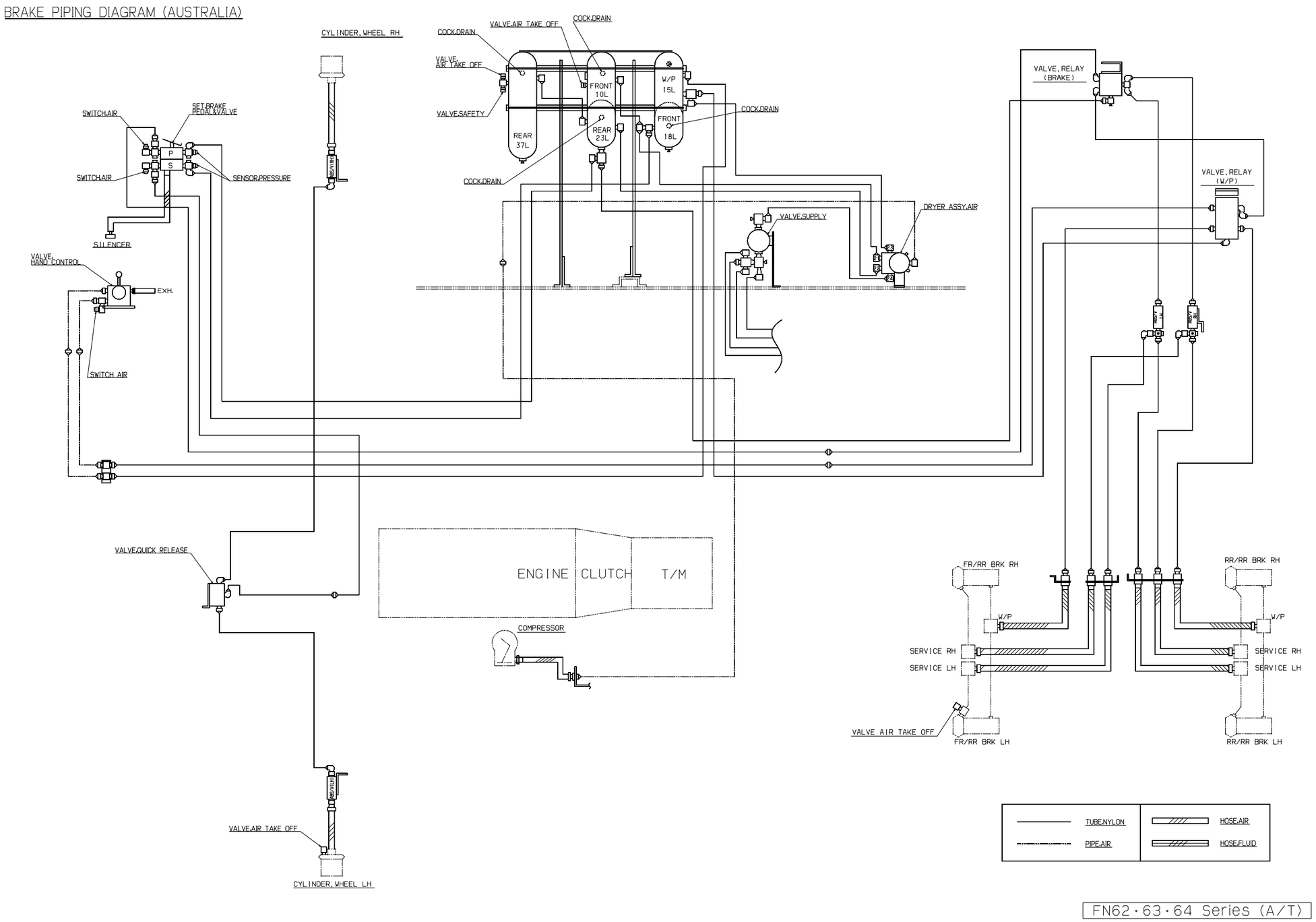
10.13 Brake systems

<FN63 Series>



10.13 Brake systems

<FN62 • 63 • 64 Series>



10.14 Electrical systems

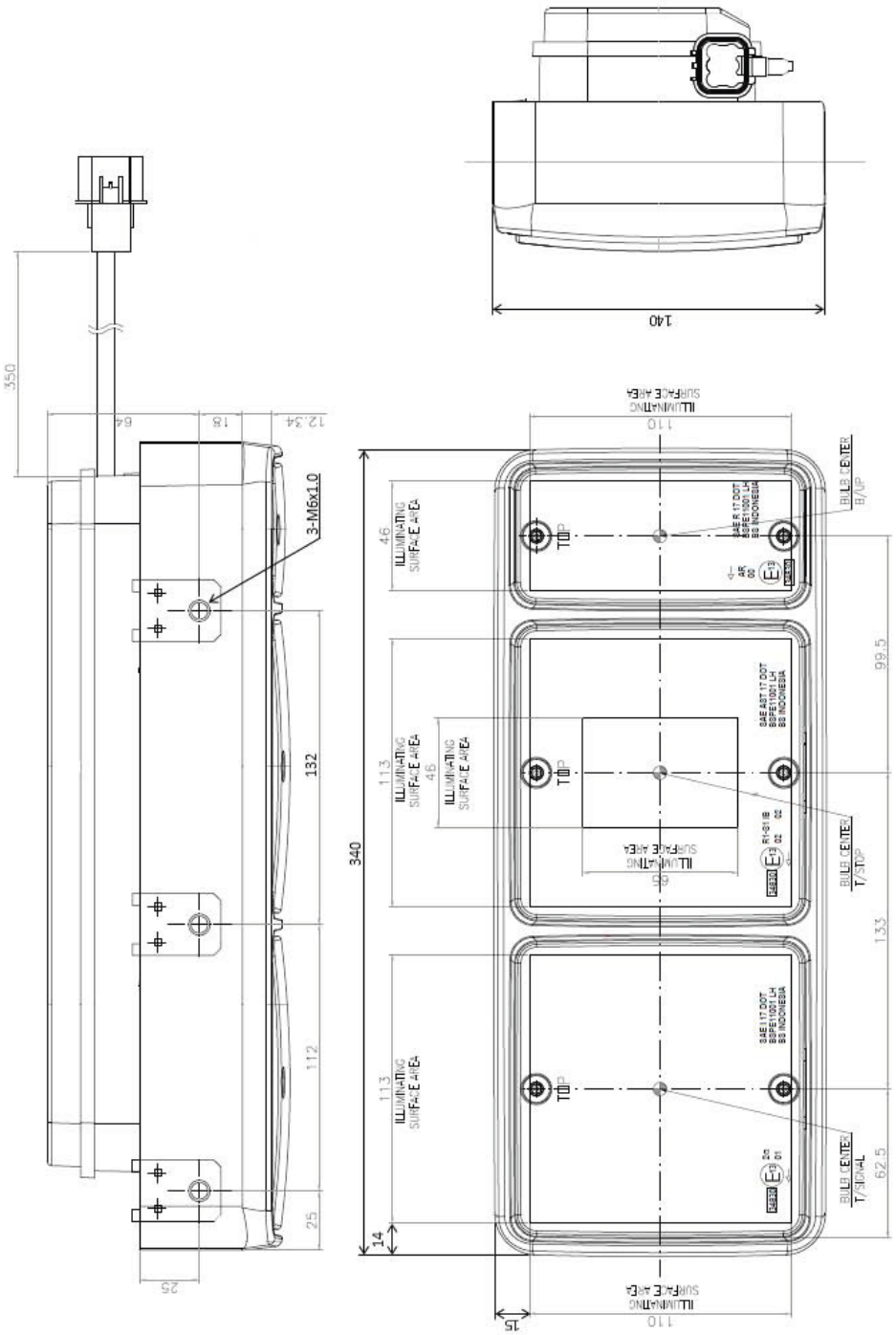
See the electrical systems section.

10.15 Other equipment

10.15.1 Lighting

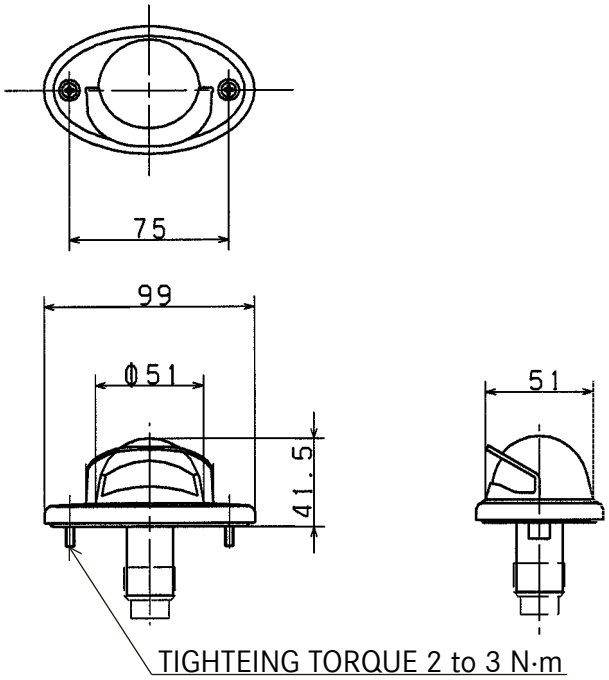
Rear combination lamp

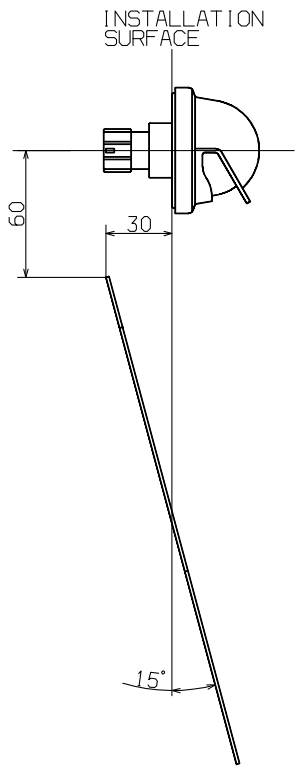
<Large type>

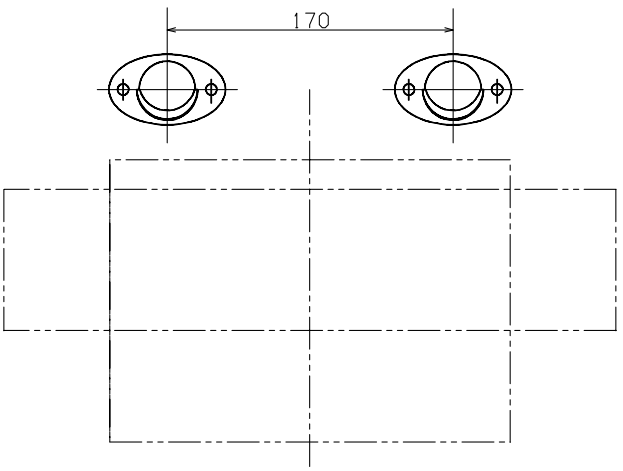


Rear registration plate lamp

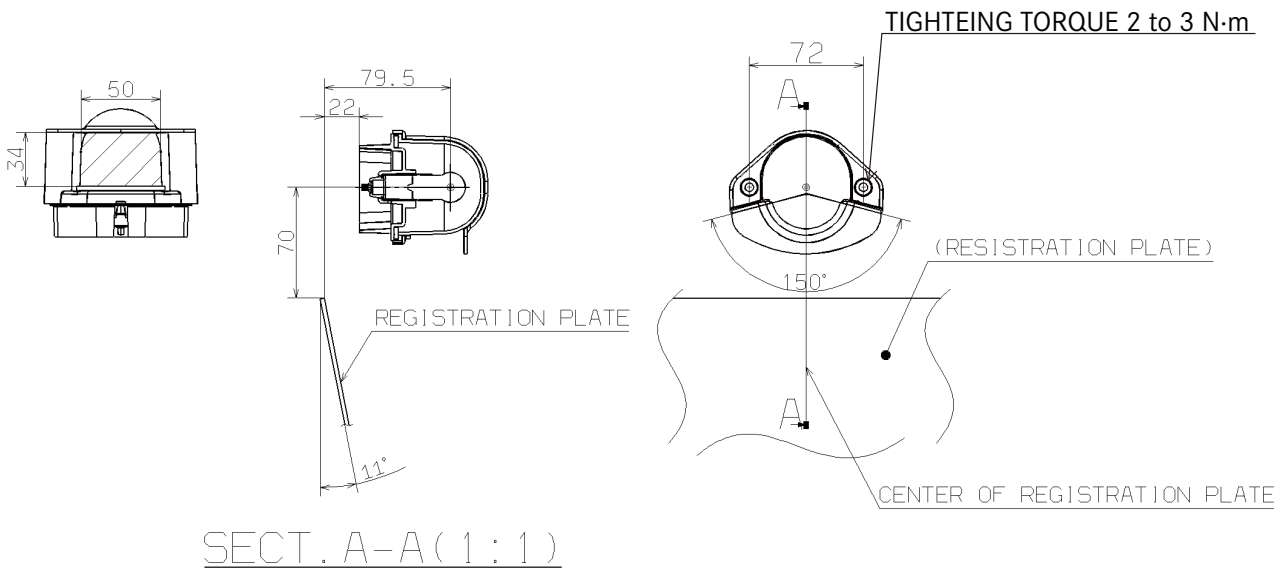
<Dual lamp type>







<Single lamp type>



10.15.2 Labels and markings

List of the attaching locations of labels and emblems

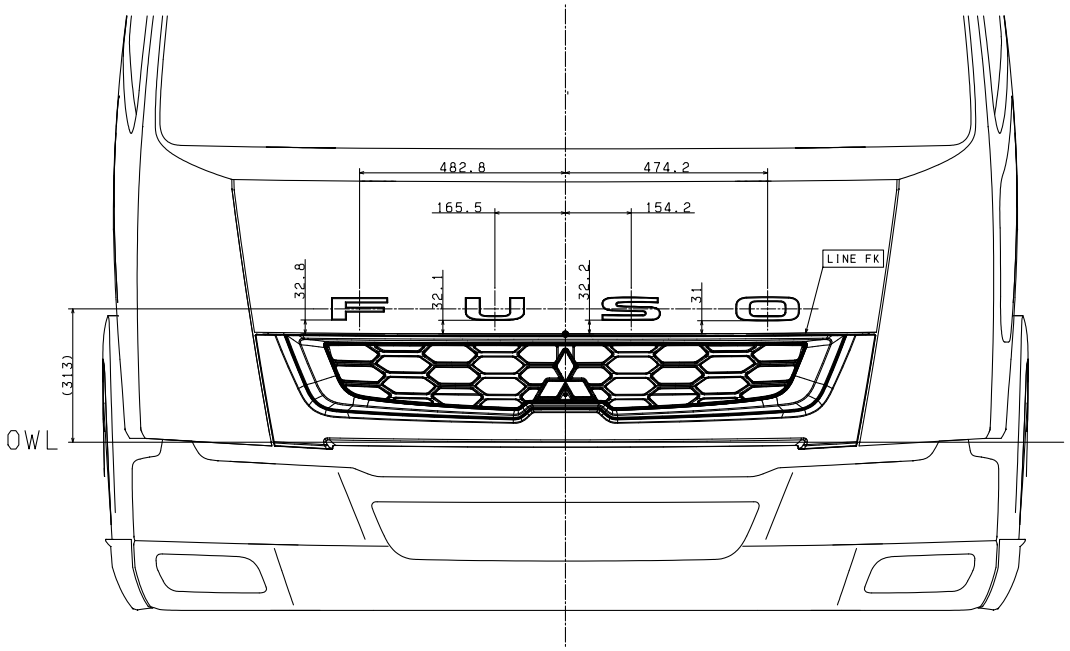
Location / Description	Front part of cab	Right door	Left door
FUSO	○	–	–
BlueTec®	–	○	○

Note: Types of the label and emblem attaching on a vehicle differ depending on the vehicle types.

Procedure for applying emblems and decals

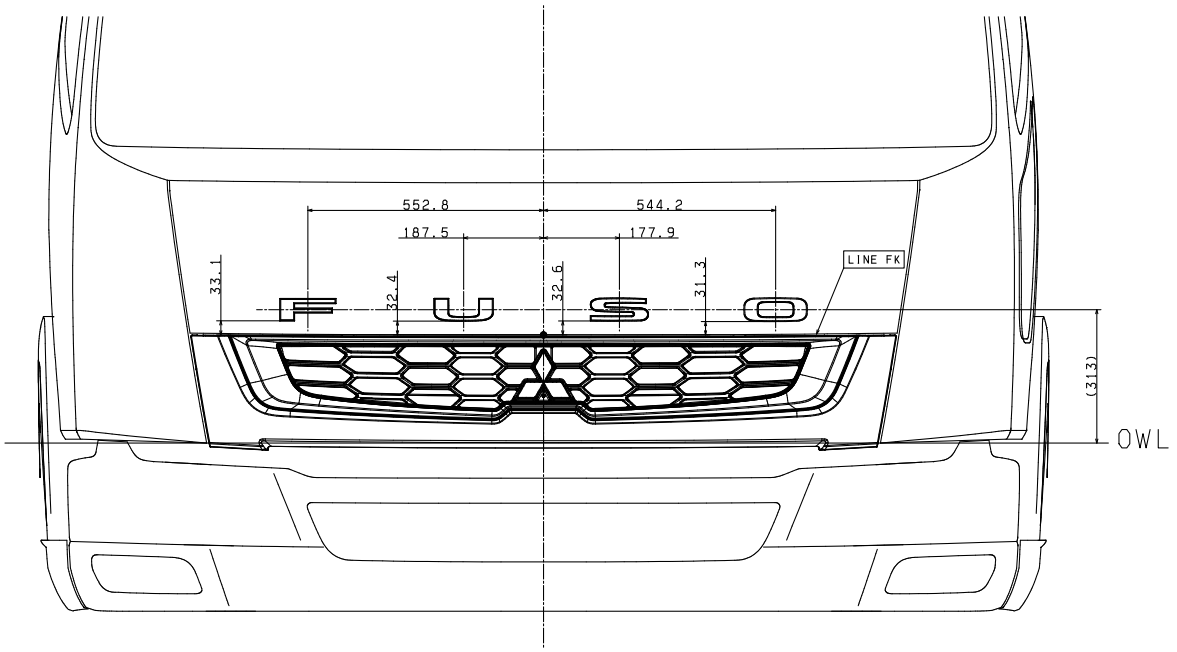
Before applying the labels and emblems, remove dirt and other contaminants from the surfaces to which they are to be applied.

FUSO logo mark mounting position (standard cab)



FUSO logo mark mounting position (standard cab)

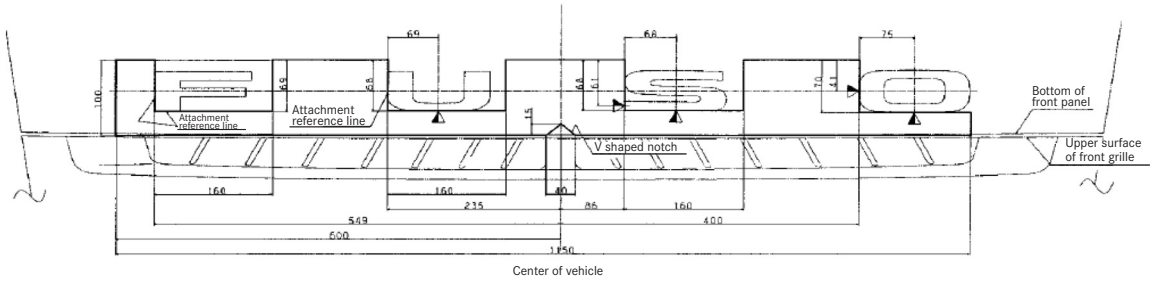
FUSO logo mark mounting position (wide cab)



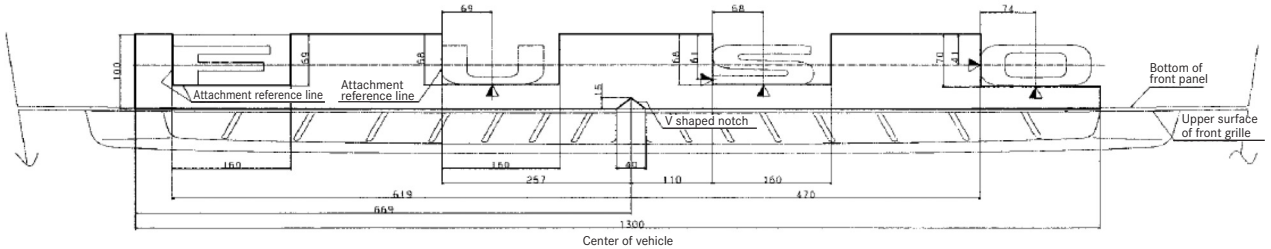
FUSO logo mark mounting position (wide cab)

Paper pattern shape

<Standard cab>



<Wide cab>



1. Paper template set

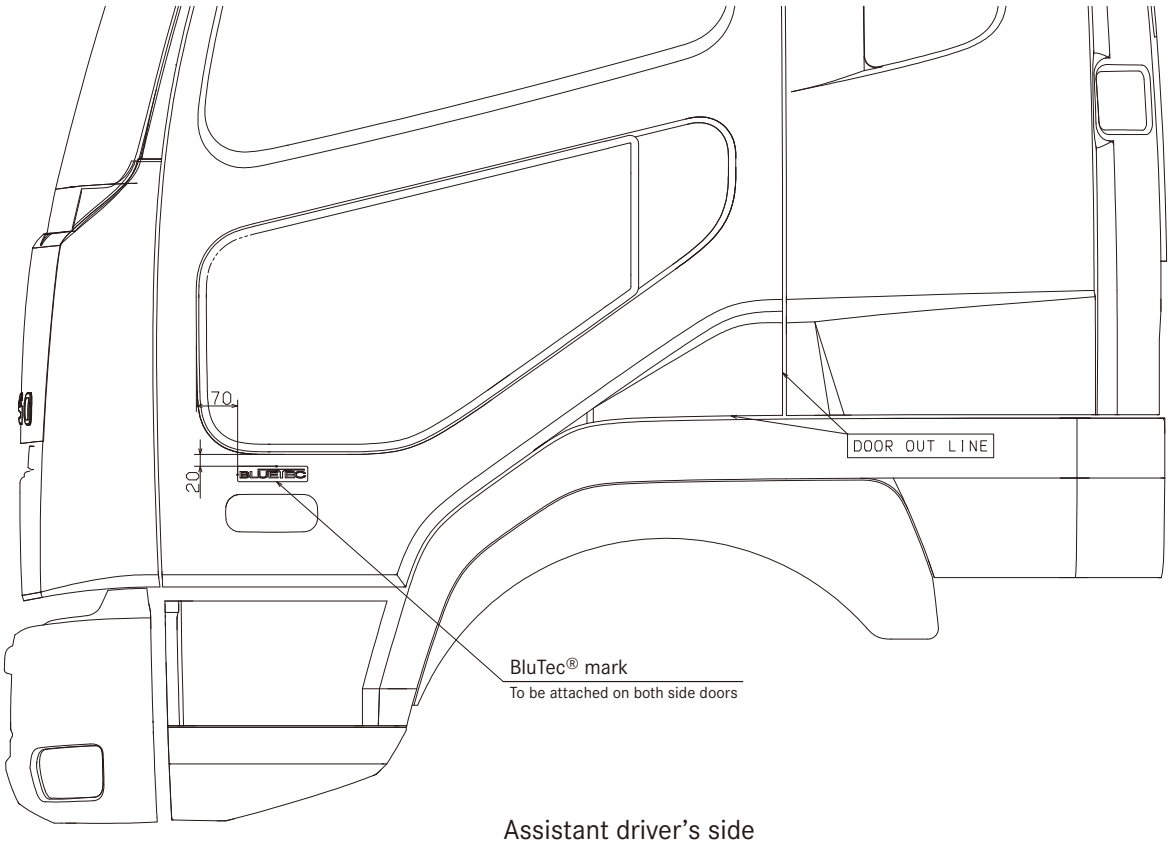
   1) For the position in the left-right direction, align the V-notch in the bottom edge of the paper template with the center of the vehicle.

   2) For the position in the up-down direction, align the bottom edge of the paper template with the top end of the upper grille.

2. Installation

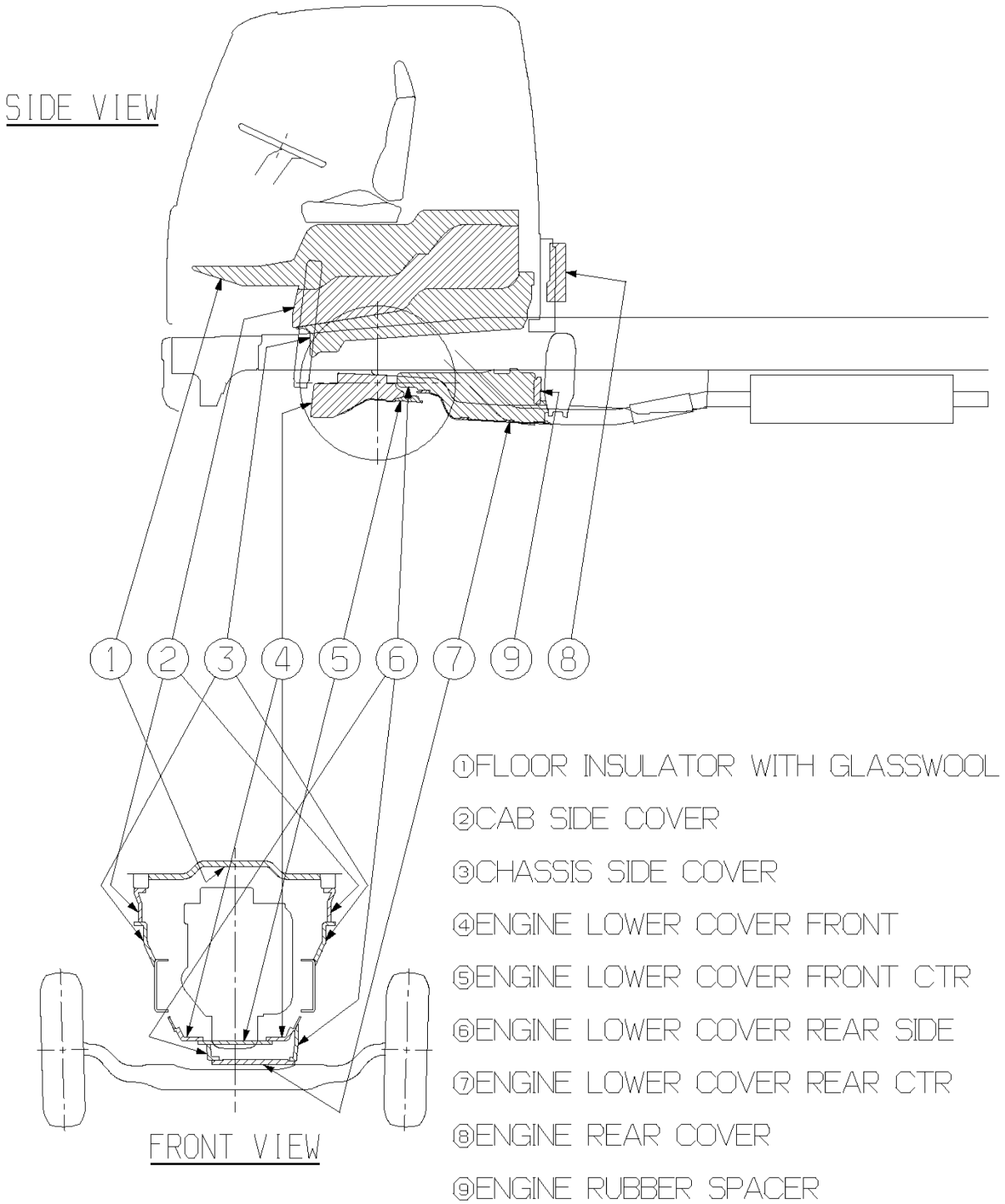
   Set each letter to the correct position, and while using the left side and bottom side line of the paper template as a guide, install the paper template so that it touches the ◭ mark.

BlueTec® decal

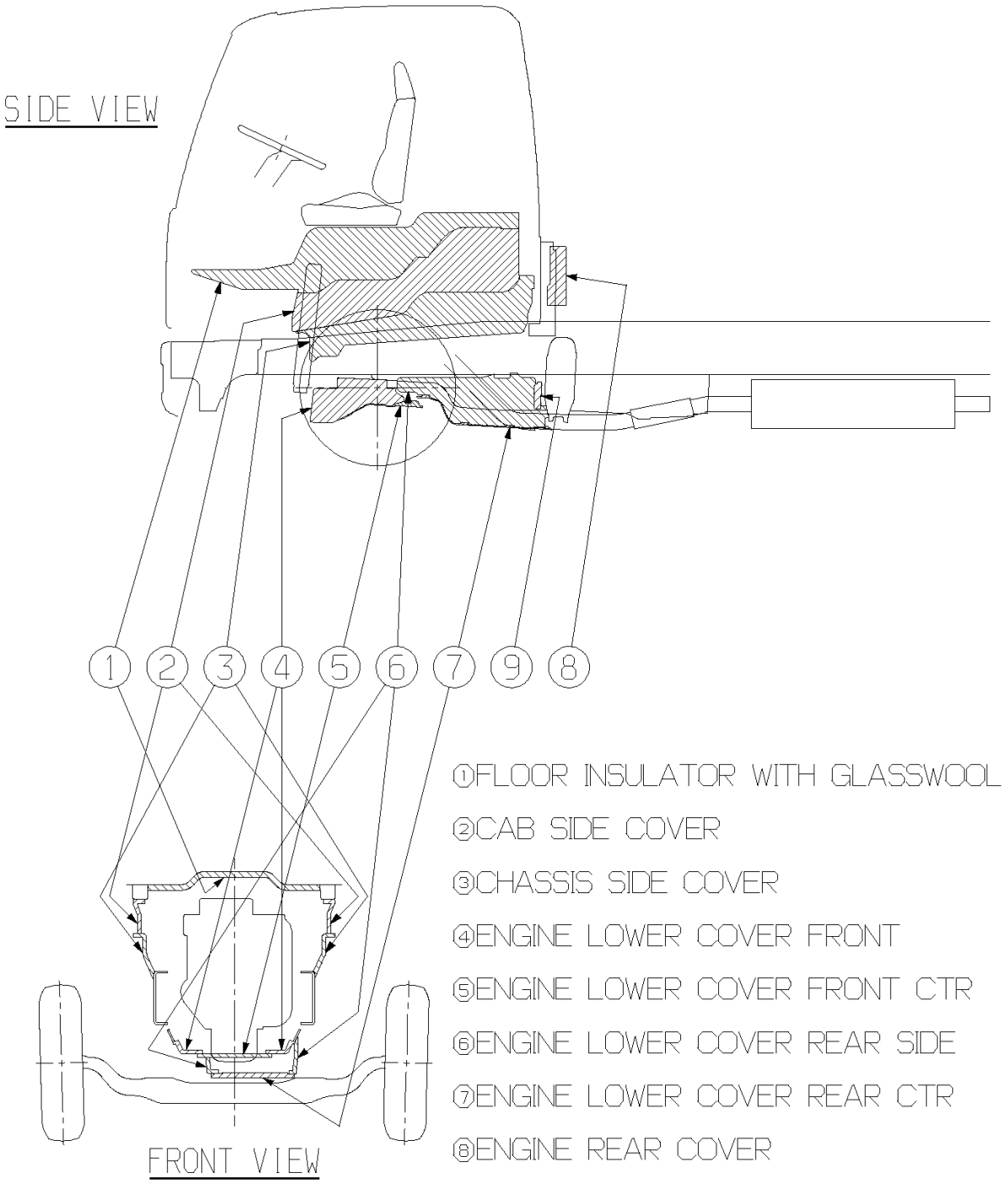


10.15.3 Location of sound proofing plates

FK61, FK62 Series

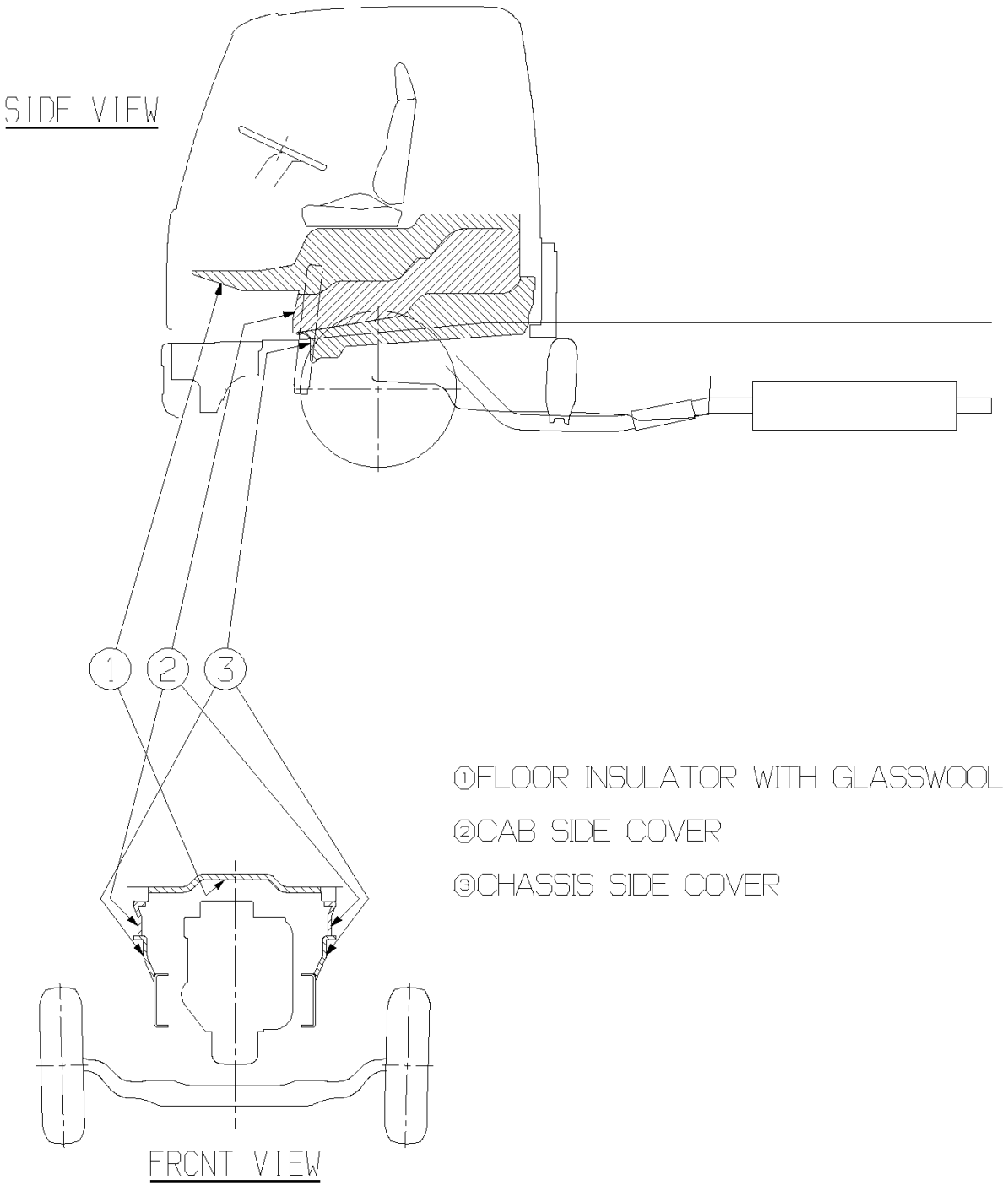


FK65, FM6□F□2RFAH Series

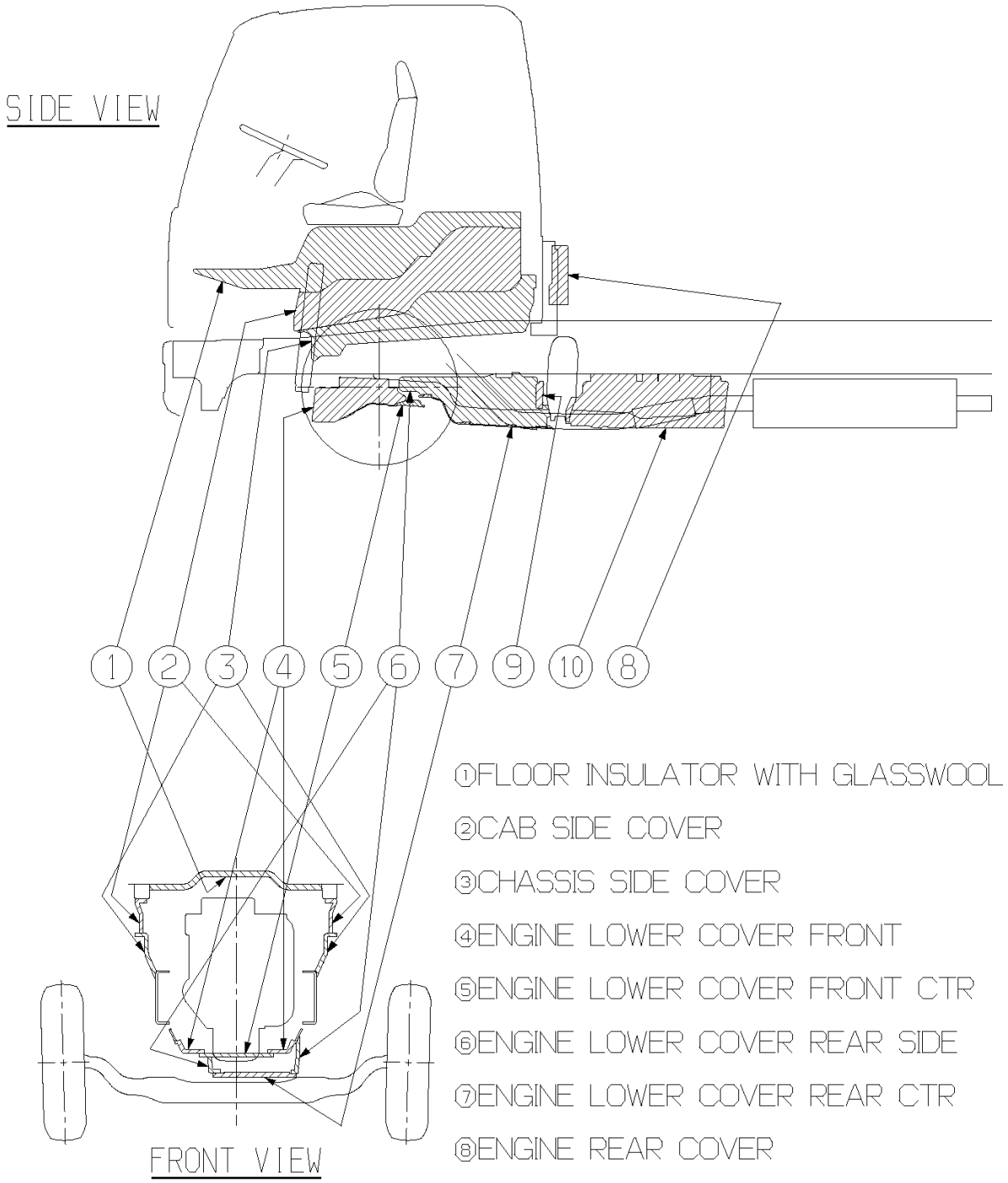


C

FM6□F□2RFAM, FN6□F□2RFAM Series
FK61FL1RFAL, FK62FLZ1RFAL Series
FK65FL1RFAL



FM6□F□2RFAK, FN6□F□2RFAK Series



Index

Index

Revision record <Technical data section>

G	5. Dec. 2022	Other models have been added.
E	26. Oct. 2018	Other models have been added.
D	31. Oct. 2017	Other models have been added.
C	21. Feb. 2017	Other models have been added.
B	15. Feb. 2013	Revised due to Chassis cab drawings
A	10. Dec. 2012	Other models have been added.
–	31. Aug. 2012	Newly issued
Rev. code	Date issued	Remarks

NOTE:
1, Chapter 1-9 is Common Section for all markets and to be revised without any special notification. Therefore, please note that this version is not necessarily the latest one.
2, Chapter 10 is for specific market(s). MFTBC will distribute the latest version whenever it will be revised.

Body/equipment mounting directives

<Technical data section>

FK.FM.FN

Australia

MITSUBISHI FUSO TRUCK & BUS CORPORATION

December. 2022 TM2FA

Body/equipment mounting directives
Electrical systems section
Australia

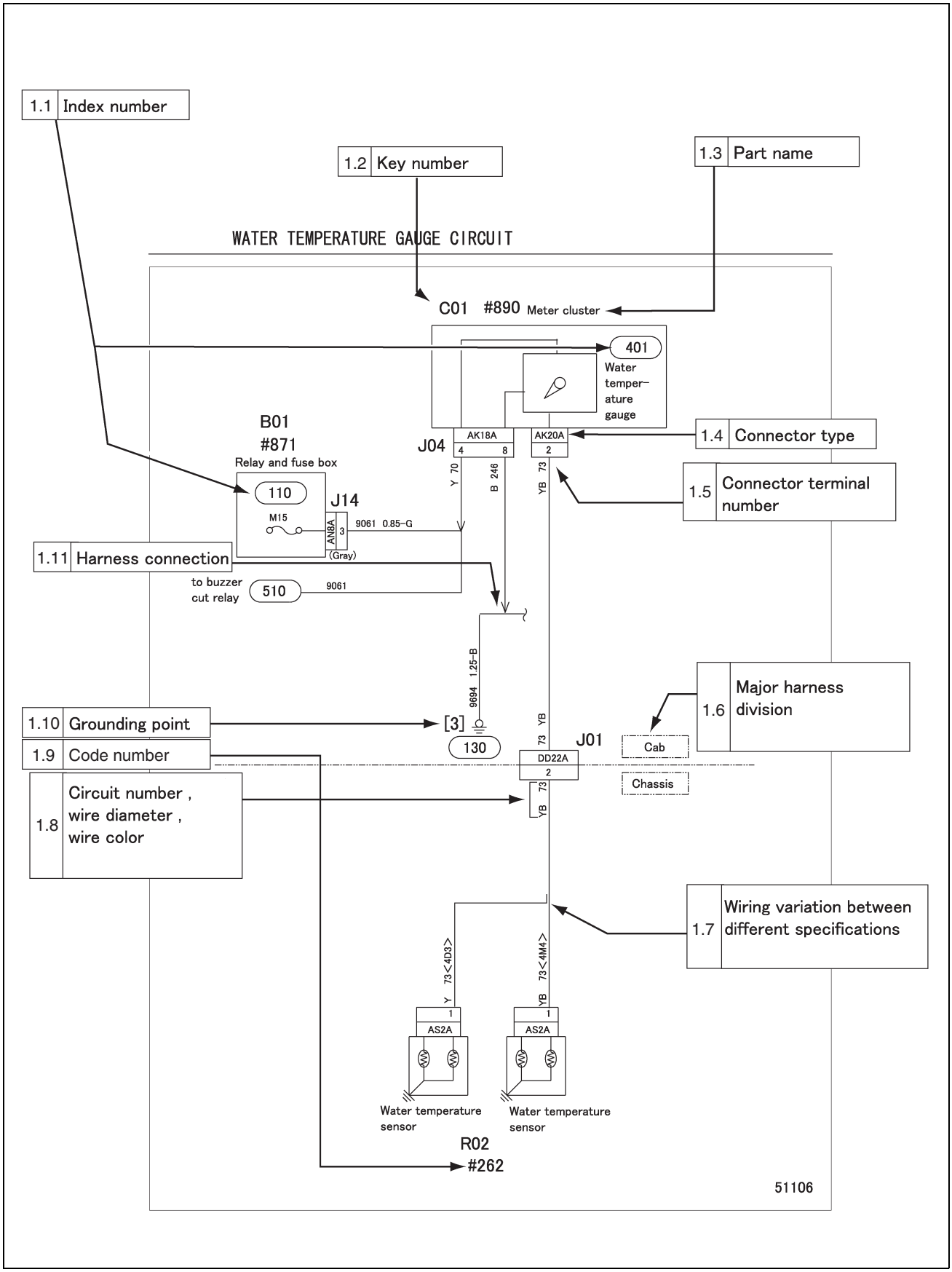
MITSUBISHI FUSO TRUCK & BUS CORPORATION
Aug. 2012 TM2FA

Contents

Contents

10.14 Electrical systems

HOW TO READ CIRCUITS



1.1 Index number: (100) - (999)

- Index numbers are used as reference numbers for electrical circuits. Each electrical circuit has been assigned its own index number.

1.2 Key number: A01 - Z99

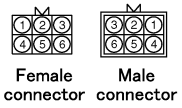
- Key numbers indicate parts installation locations. The installation location of an electrical equipment can be easily found using its key number shown in a circuit diagram.
  All of the electrical equipment installation locations are listed in Gr54-10. (Group Number Service Manual)

1.3 Part name

1.4 Connector type (type indication)

- A list of the connectors used is included in Gr54-10. (Group Number Service Manual)

1.5 Connector terminal number



Connector terminal numbering starts with the upper left corner for female connectors and with the upper right corner for male connectors.

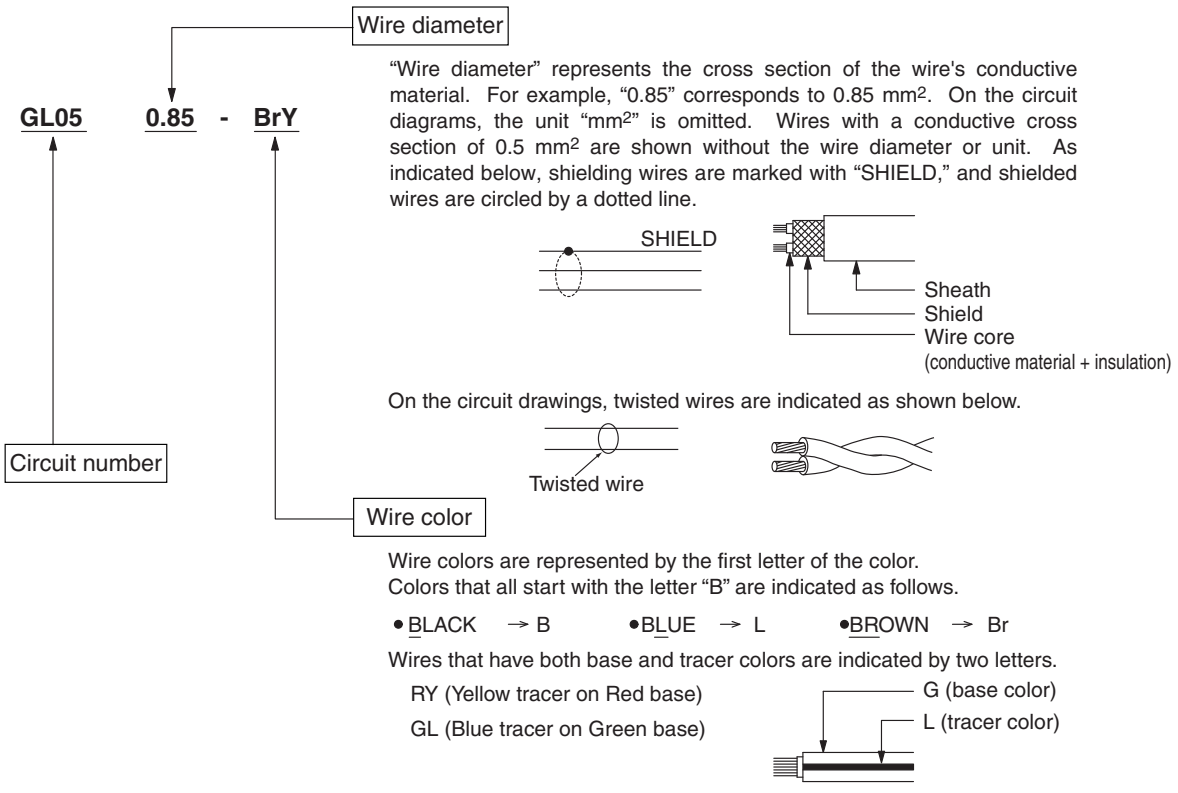
1.6 Major harness division

- Major harness divisions are shown

1.7 Wiring variations between different specifications

- Variations in wiring/circuit between different vehicle specifications are clearly indicated as shown.

1.8 Circuit number, wire diameter, wire color



1.9 Code number: #001 - #999

- Code numbers are reference numbers to find individual electrical equipment inspection procedures. The inspection procedure for an electrical equipment can be found using its code number shown in a circuit diagram.

1.10 Grounding point: [1] - [99]

- Locations where wires are grounded to the vehicle. All of the grounding points are listed in (130). (Index number Service Manual)

1.11 Harness connection

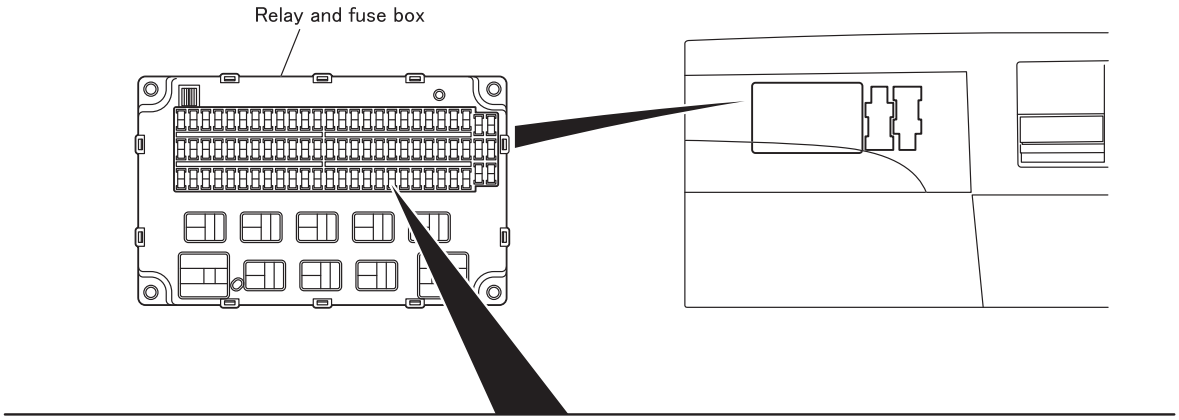
- The arrow in the wiring diagram indicates where harnesses are connected, and NOT the flow of electricity.

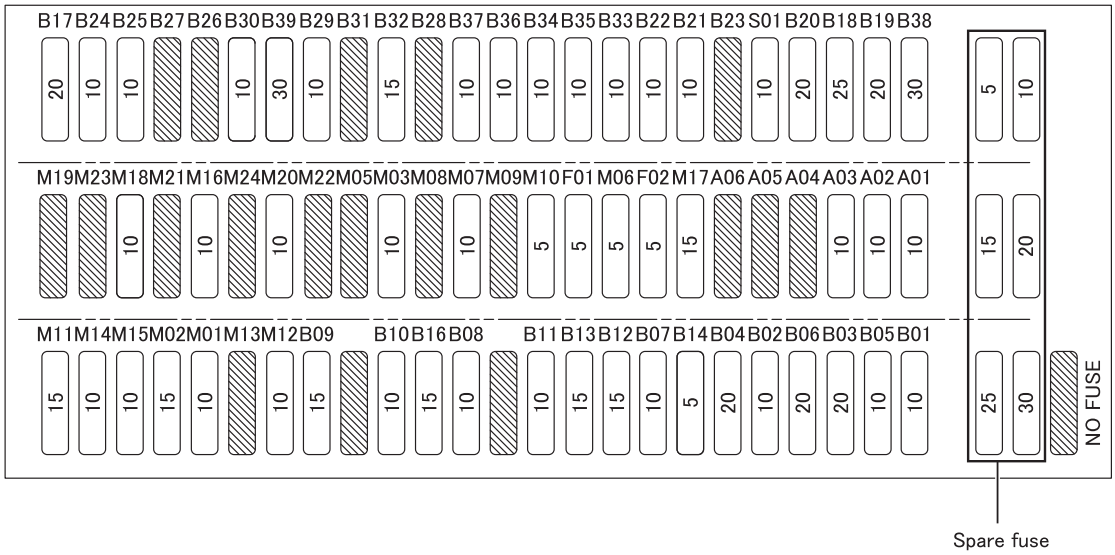
Wire color

Wire color		Base color / Tracer color											
B	Black	BW	Black/ white	BY	Black/ yellow	BR	Black/red	BG	Black/ green	BL	Black/ blue		
Br	Brown	BrW	Brown/ white	BrB	Brown/ black	BrY	Brown/ yellow	BrR	Brown/ red	BrG	Brown/ green		
G	Green	GW	Green/ white	GR	Green/ red	GY	Green/ yellow	GB	Green/ black	GL	Green/ blue	GO	Green/ orange
Gr Gy	Gray	GrL GyL	Gray/ blue	GrR GyR	Gray/ red								
L	Blue	LW	Blue/ white	LR	Blue/red	LY	Blue/ yellow	LB	Blue/ black	LO	Blue/ orange	LG	Blue/ green
Lg	Light green	LgR	Light green/ red	LgY	Light green/ yellow	LgB	Light green/ black	LgW	Light green/ white				
O	Orange	OL	Orange/ blue	OB	Orange/ black	OG	Orange/ green						
P	Pink	PB	Pink/ black	PG	Pink/ green	PL	Pink/ blue	PW	Pink/ white				
Pu	Purple												
R	Red	RW	Red/ white	RB	Red/ black	RY	Red/ yellow	RG	Red/ green	RL	Red/blue	RO	Red/ orange
Sb	Sky blue												
V	Violet	VY	Violet/ yellow	VW	Violet/ white	VR	Violet/red	VG	Violet/ green				
W	White	WR	White/ red	WB	White/ black	WL	White/ blue	WG	White/ green	WO	White/ orange		
Y	Yellow	YR	Yellow/ red	YB	Yellow/ black	YG	Yellow/ green	YL	Yellow/ blue	YW	Yellow/ white	YO	Yellow/ orange
		YP	Yellow/ pink	YV	Yellow/ violet								

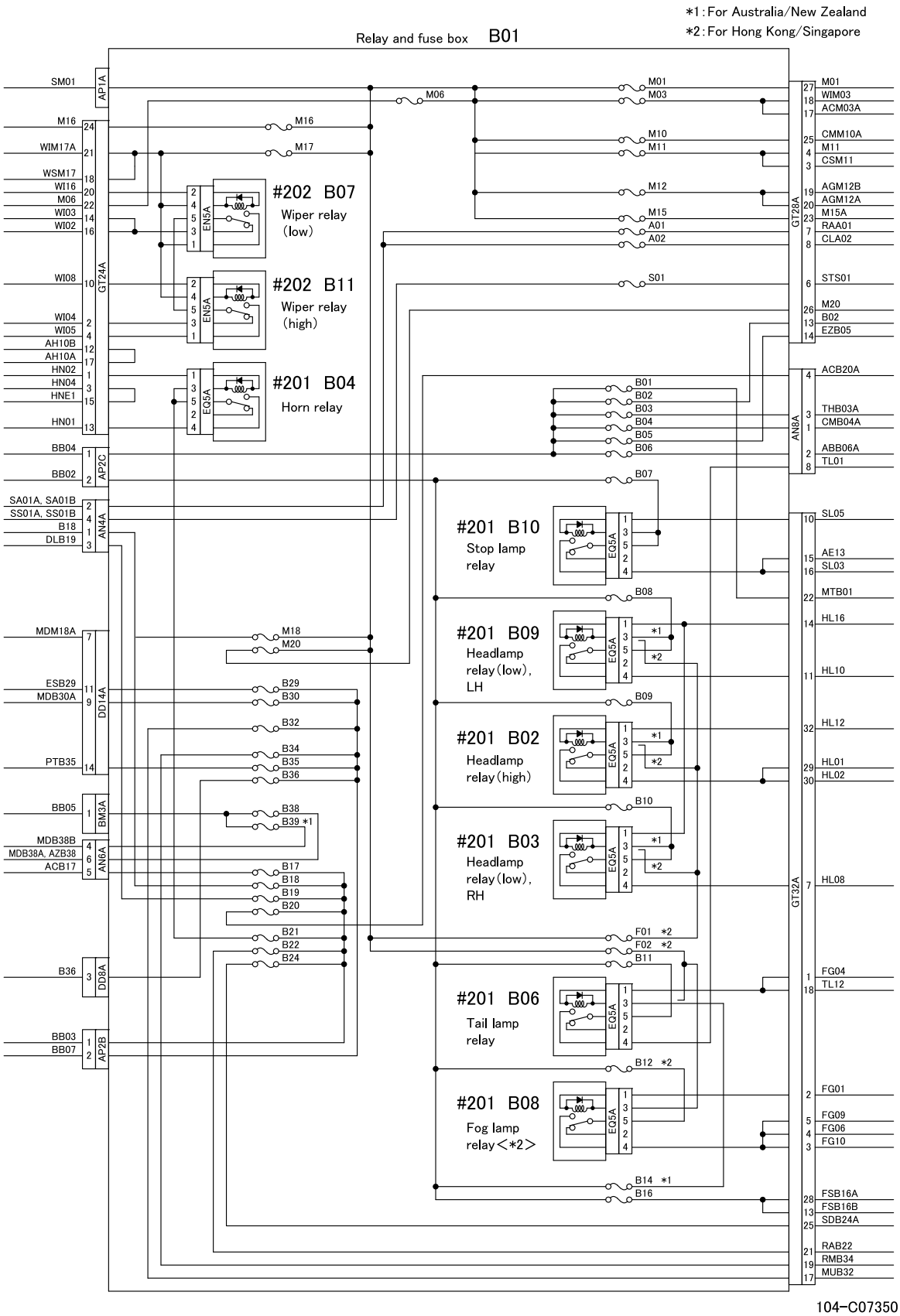
10.14.1 Electrical wiring diagram

RELAY AND FUSE BOX CIRCUIT (1)





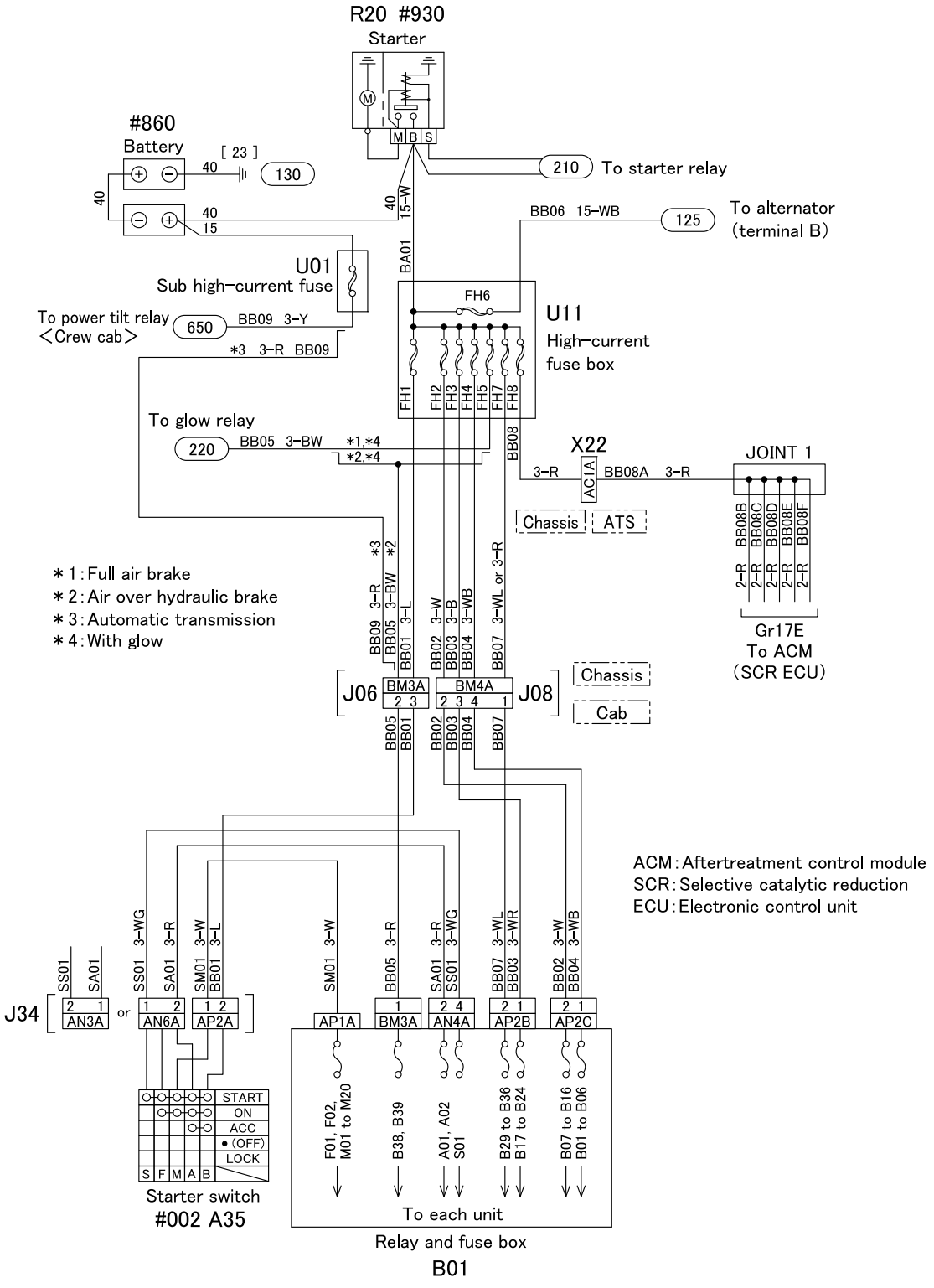
RELAY AND FUSE BOX CIRCUIT (2)



104-C07350

POWER CIRCUIT (1)

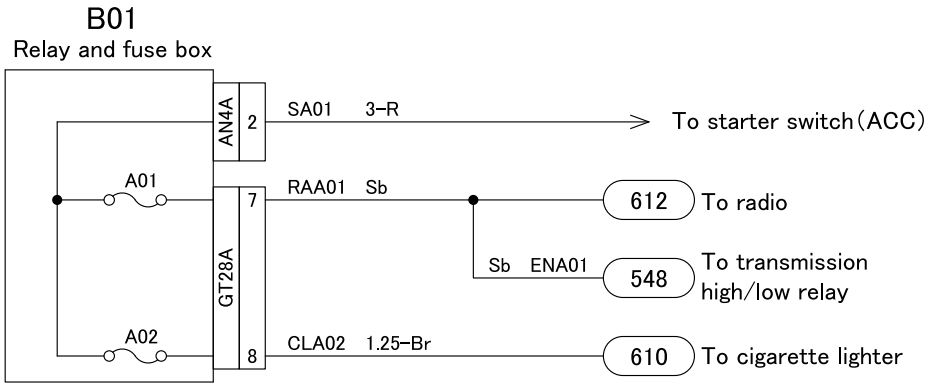
Battery to fuse



110-C07350ALL

POWER CIRCUIT (2)

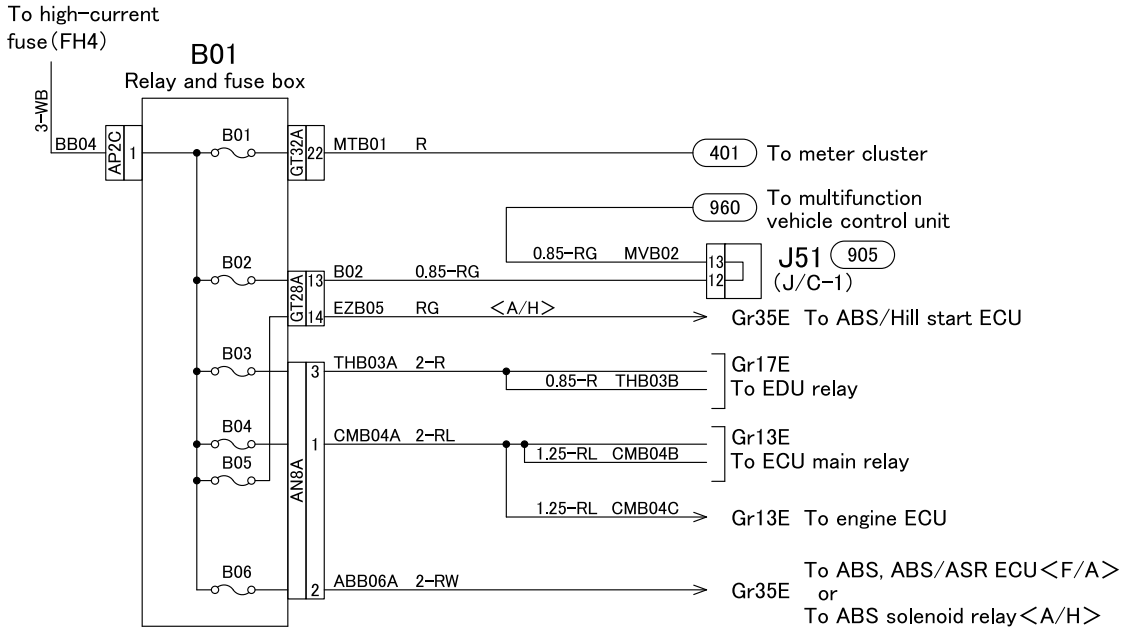
Relay and fuse box
(Fuse A01, A02)



110-C07350A01

POWER CIRCUIT (3)

Relay and fuse box
(Fuse B01 to B06)

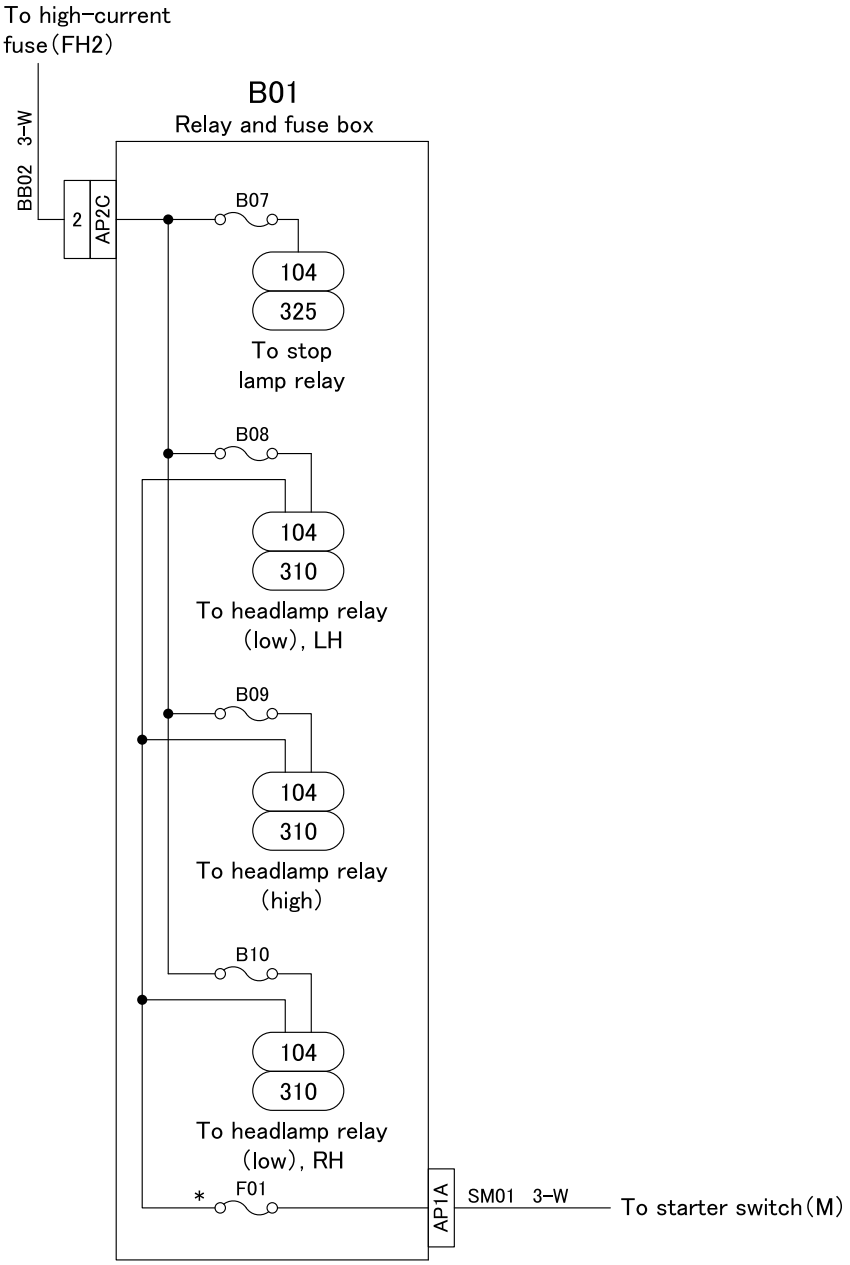


ABS : Anti-lock brake system
ECU : Electronic control unit
F/A : Full air brake
A/H : Air over hydraulic brake
EDU : Electronic drive unit

110-C07350B01

POWER CIRCUIT (4)

Relay and fuse box
(Fuse B07 to B10, F01)

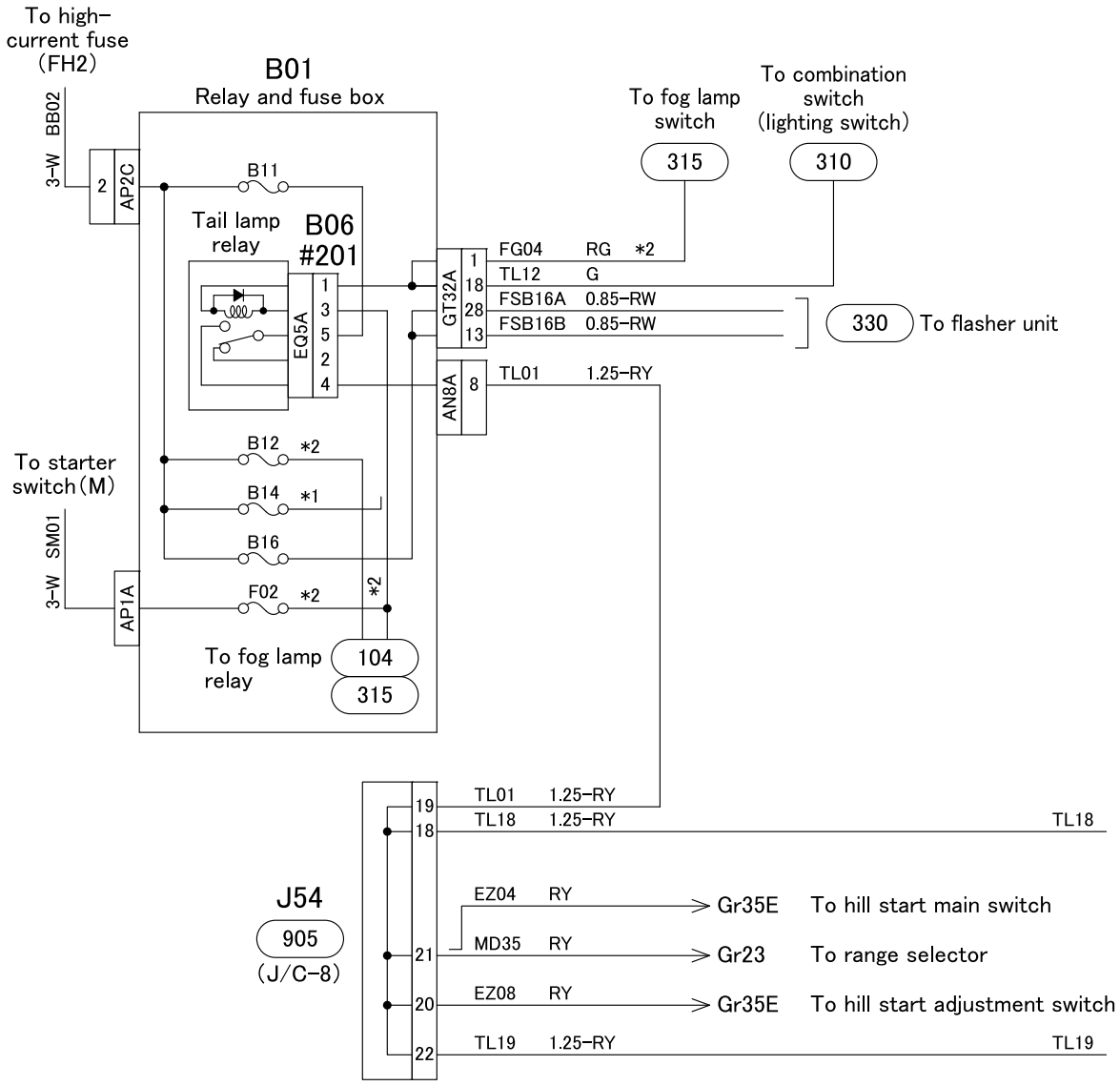


*: For Hong Kong/Singapore

110-C07350B07

POWER CIRCUIT (5)

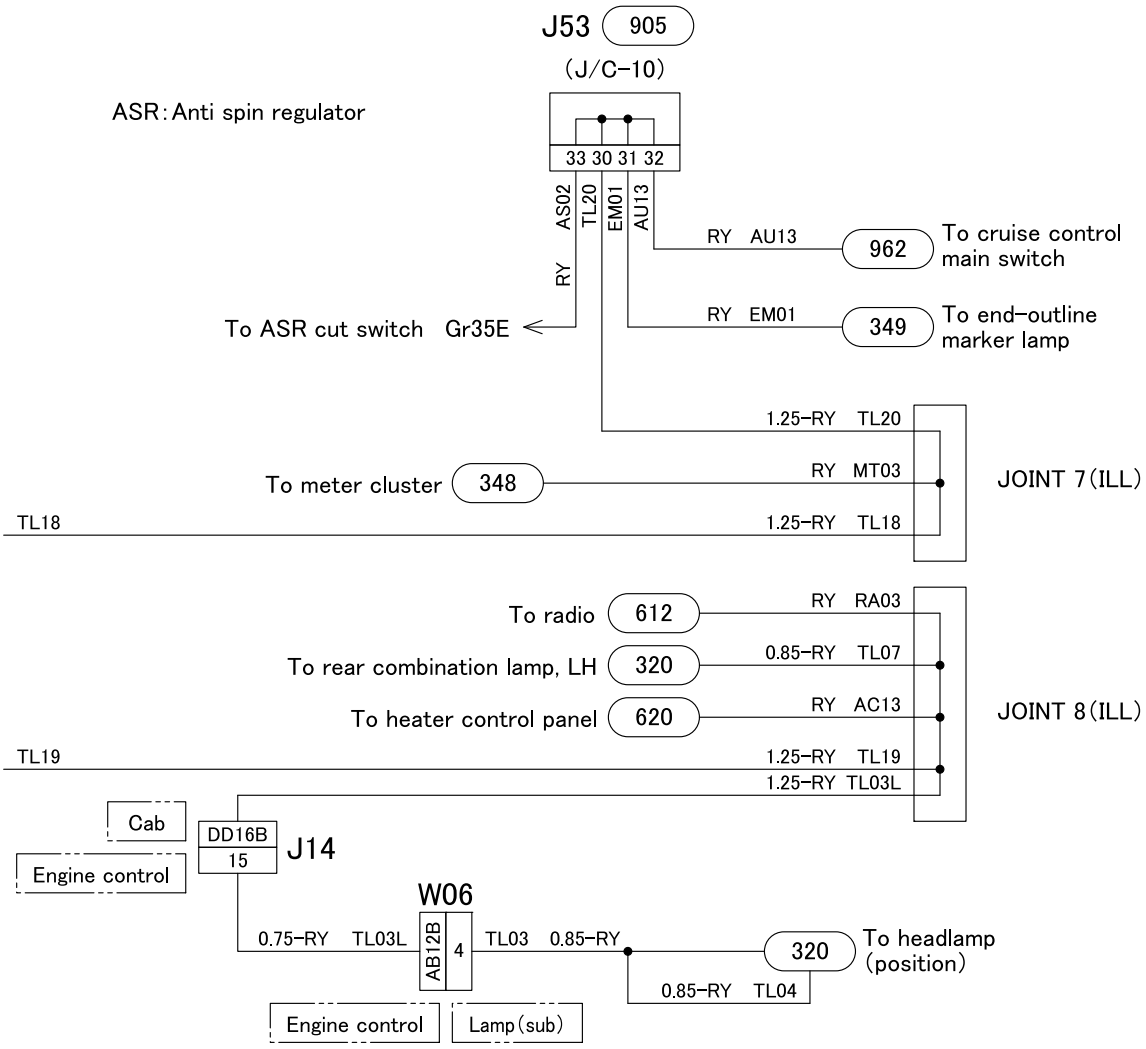
Relay and fuse box
(Fuse B11 to B16, F02)



*1 : For Australia/New Zealand
*2 : For Hong Kong/Singapore

110-C07350B11-1

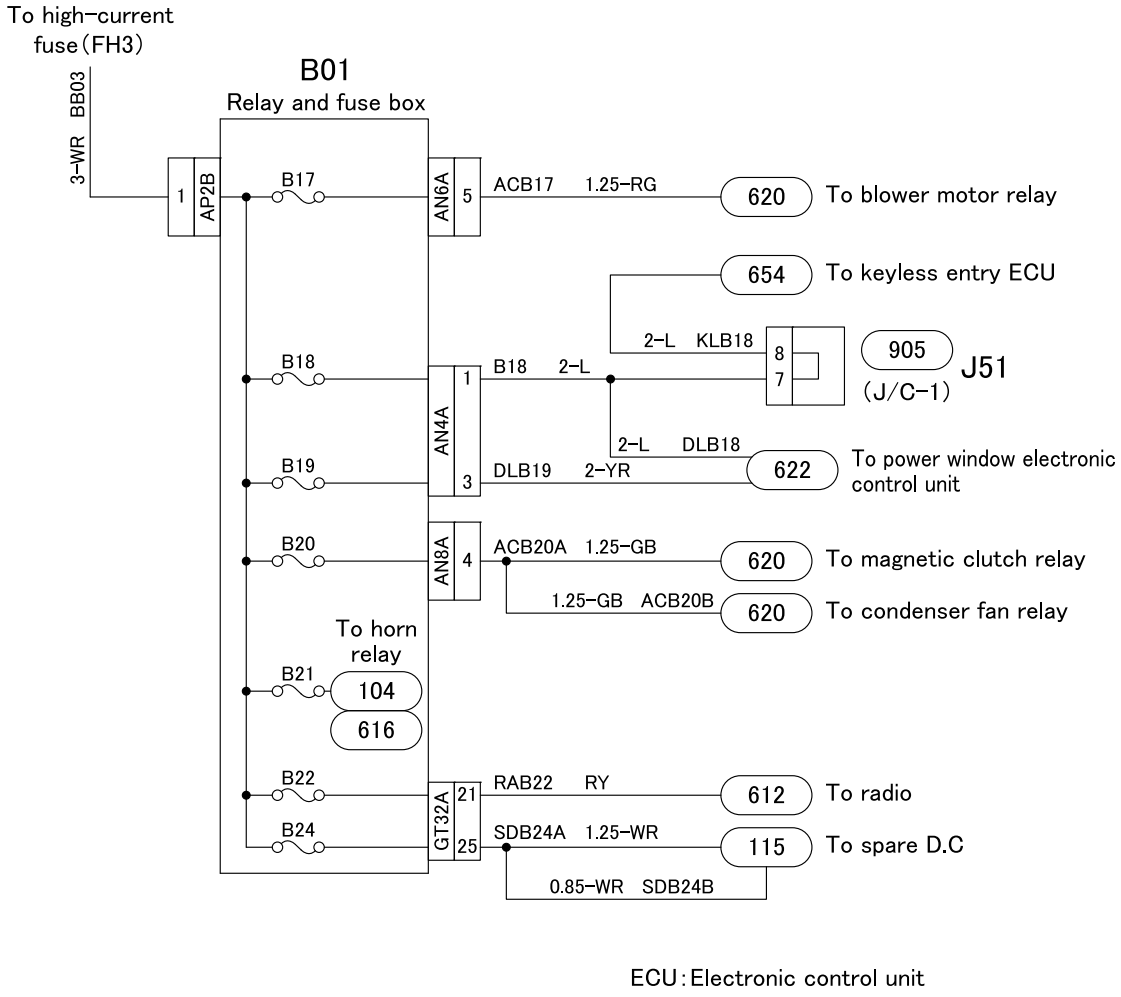
POWER CIRCUIT (6)



110-C07350B11-2

POWER CIRCUIT (7)

Relay and fuse box
(Fuse B17 to B24)

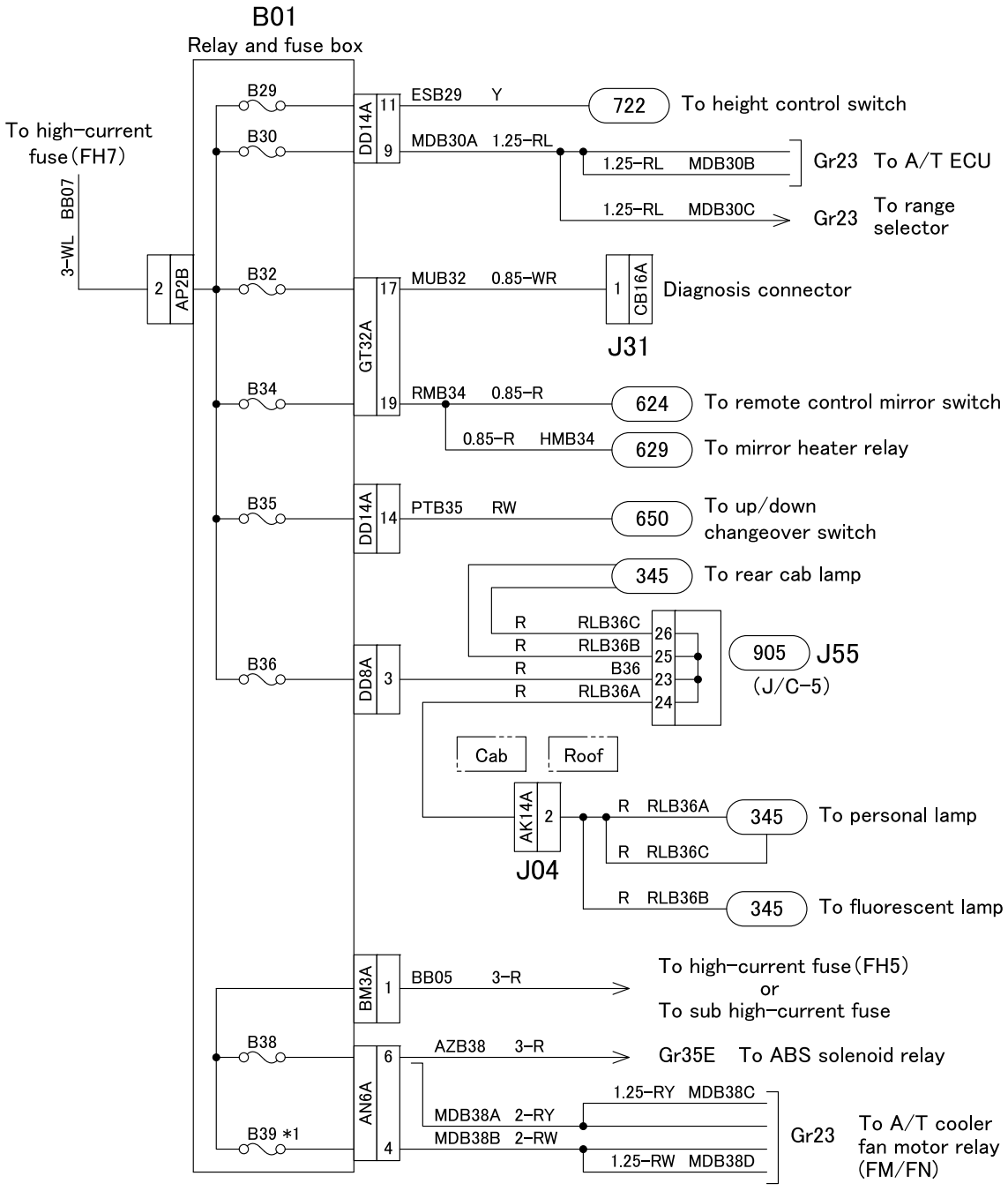


ECU : Electronic control unit

110-C07350B17

POWER CIRCUIT (8)

Relay and fuse box
(Fuse B29 to B39)



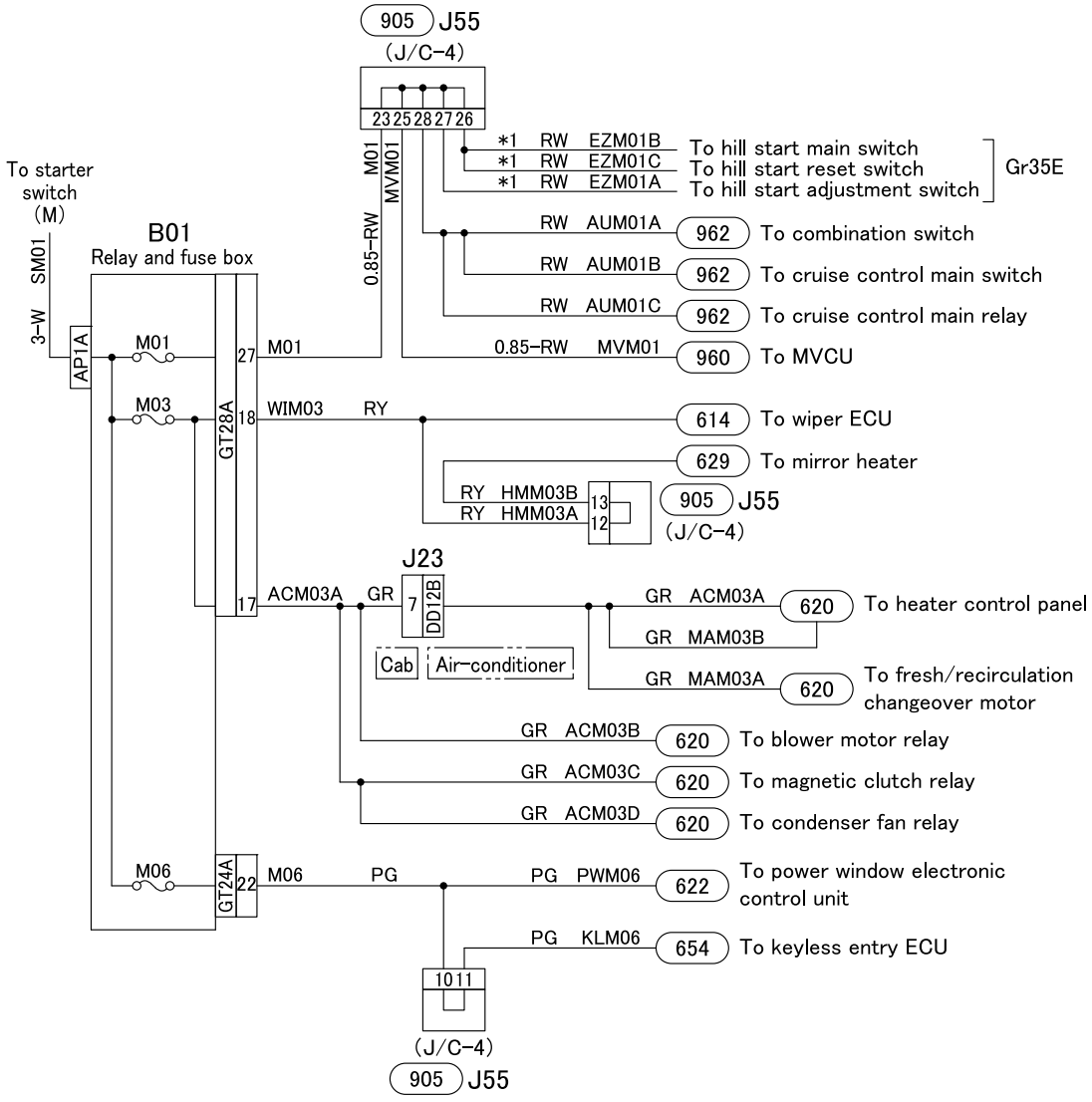
*1 : For Australia

ABS : Anti-lock brake system
A/T : Automatic transmission
ECU : Electronic control unit

110-C07350B29

POWER CIRCUIT (9)

Relay and fuse box
(Fuse M01 to M06)



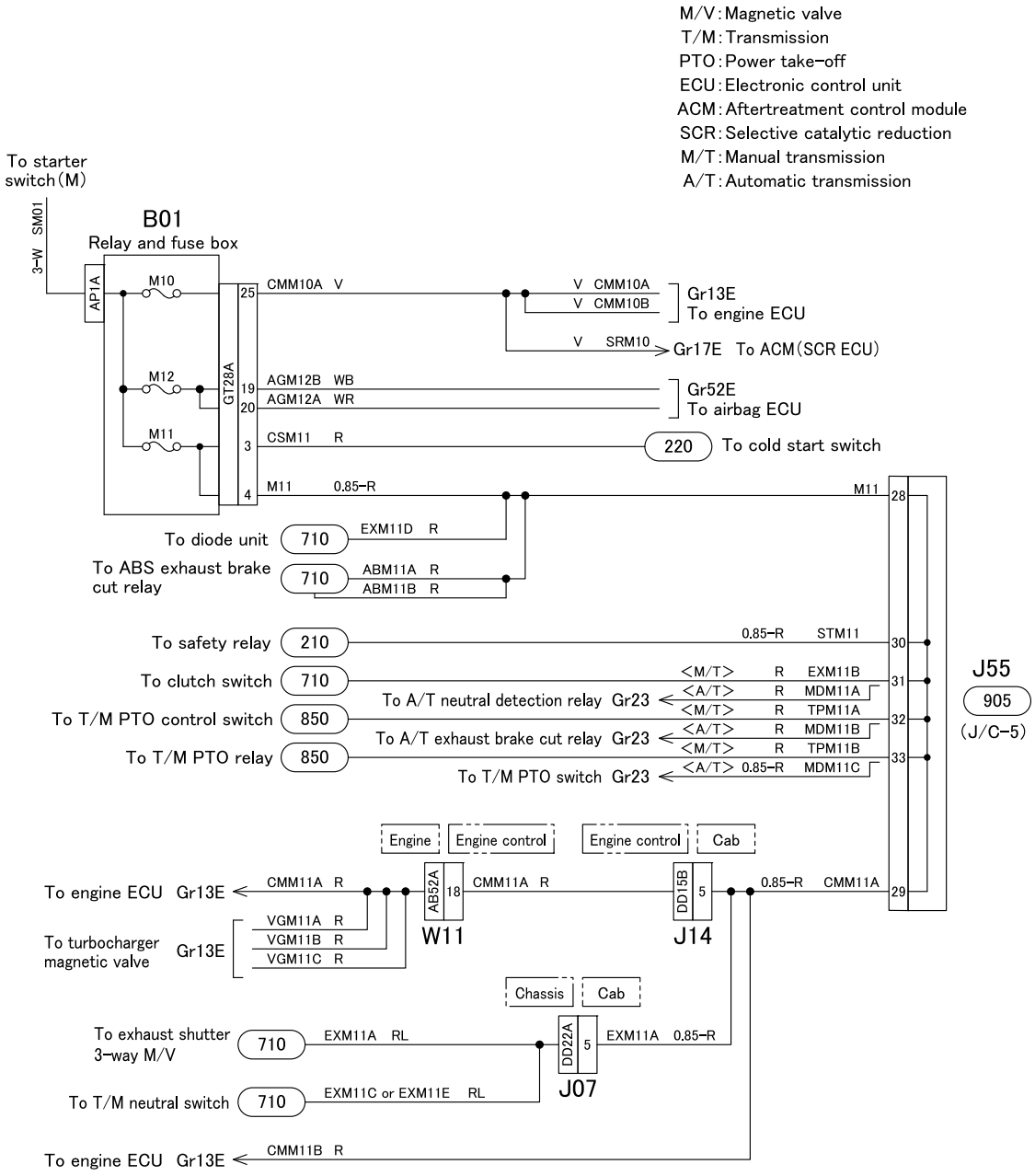
MVCU : Multifunction vehicle control unit
ECU : Electronic control unit

*1 : Full air brake

110-C07350M01

POWER CIRCUIT (10)

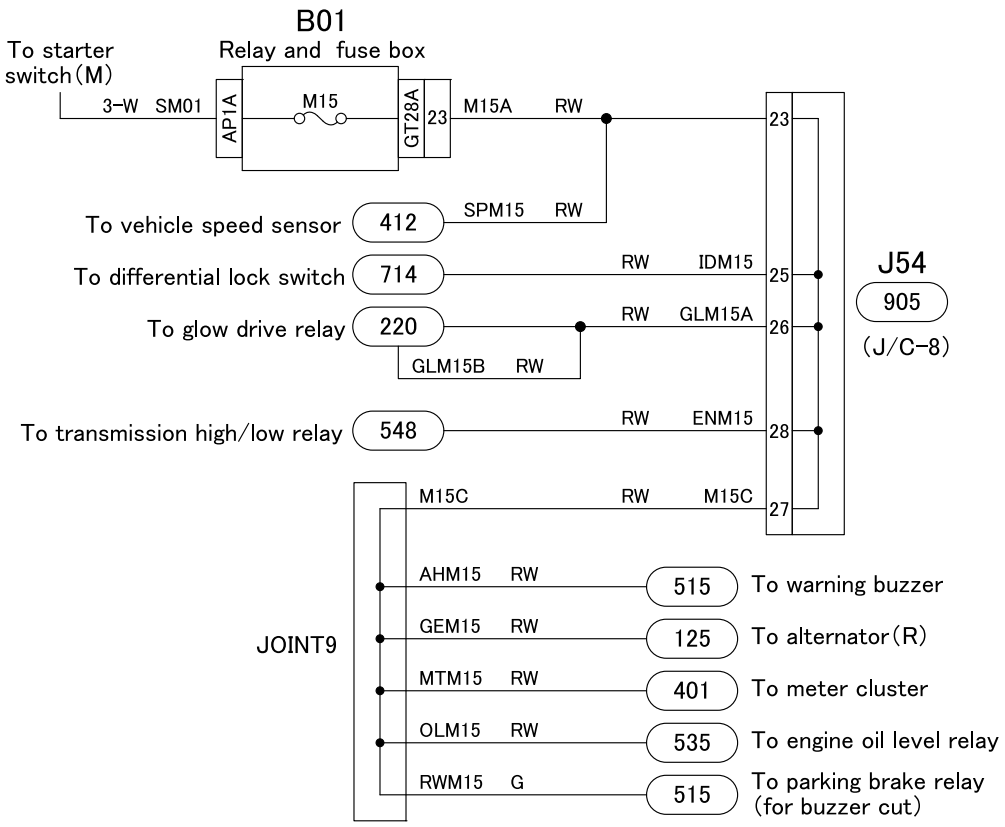
Relay and fuse box
(Fuse M10 to M12)



110-C07350M10

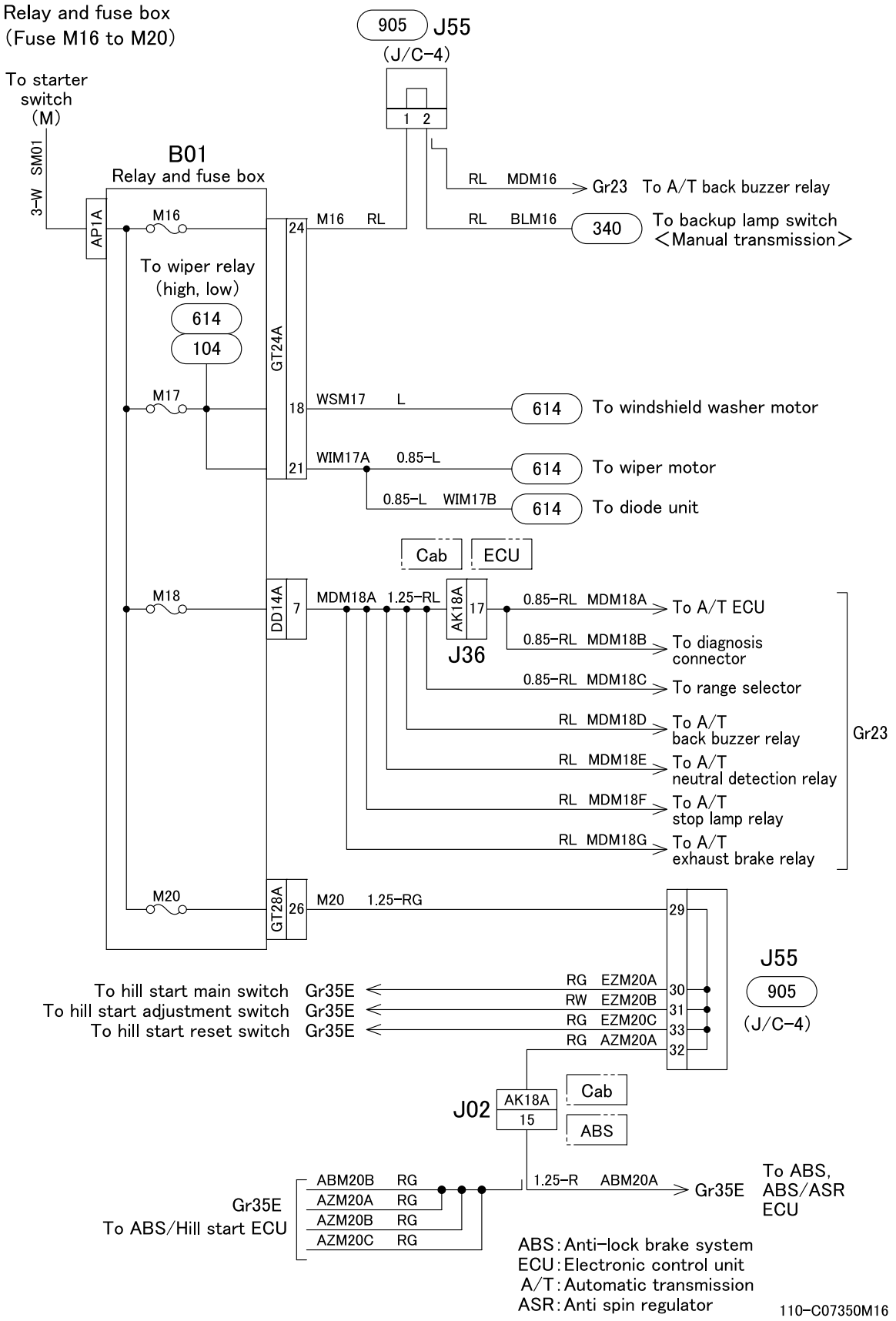
POWER CIRCUIT (11)

Relay and fuse box
(Fuse M15)



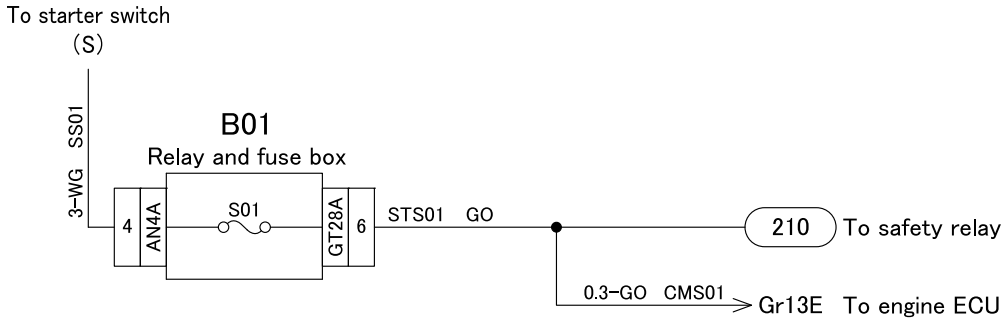
110-C07350M15

POWER CIRCUIT (12)



POWER CIRCUIT (13)

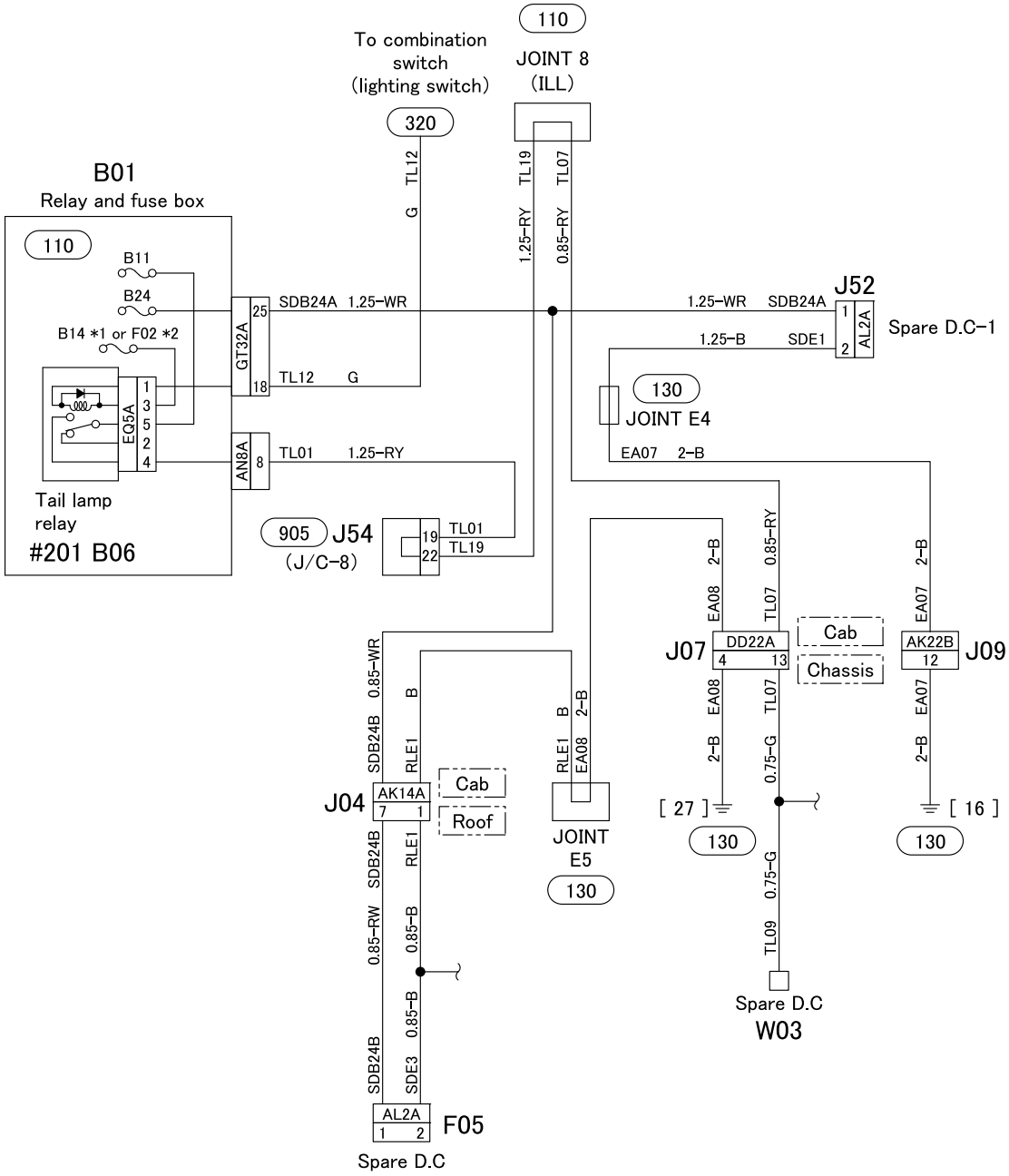
Relay and fuse box
(Fuse S01)



ECU : Electronic control unit

110-C07350S01

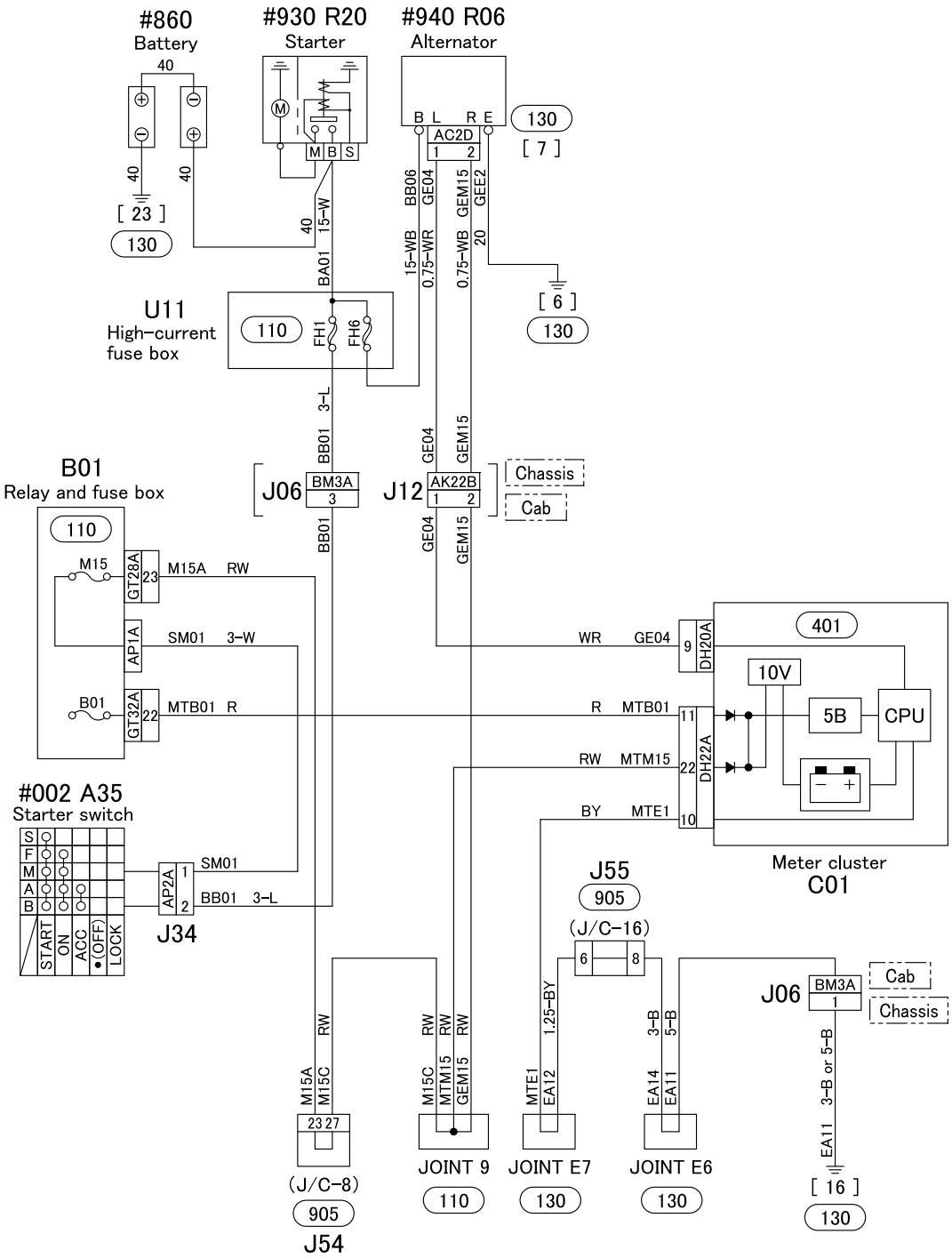
RESERVE POWER CIRCUIT



*1 : For Australia/New Zealand
*2 : For Hong Kong/Singapore

115-C07350

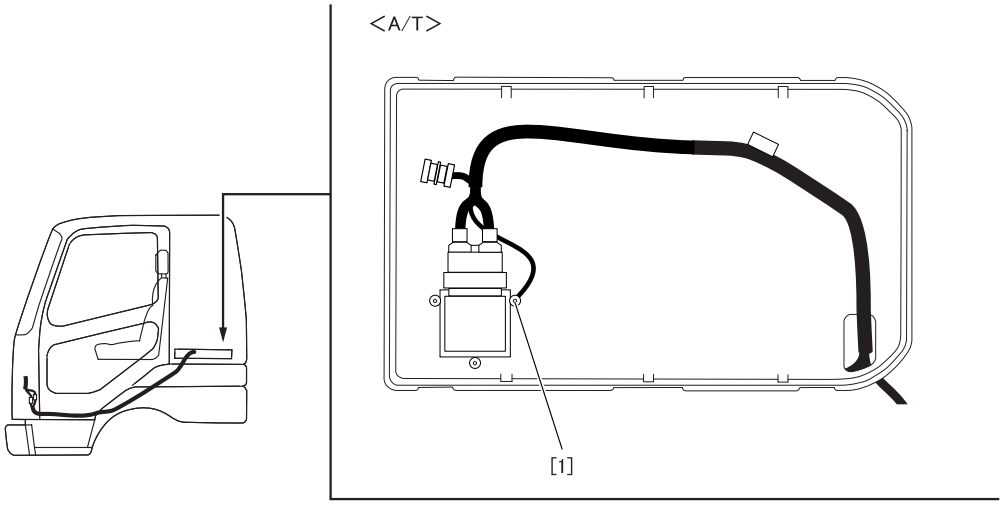
BATTERY CHARGING CIRCUIT



125-C07350

GROUND (1)

[1]



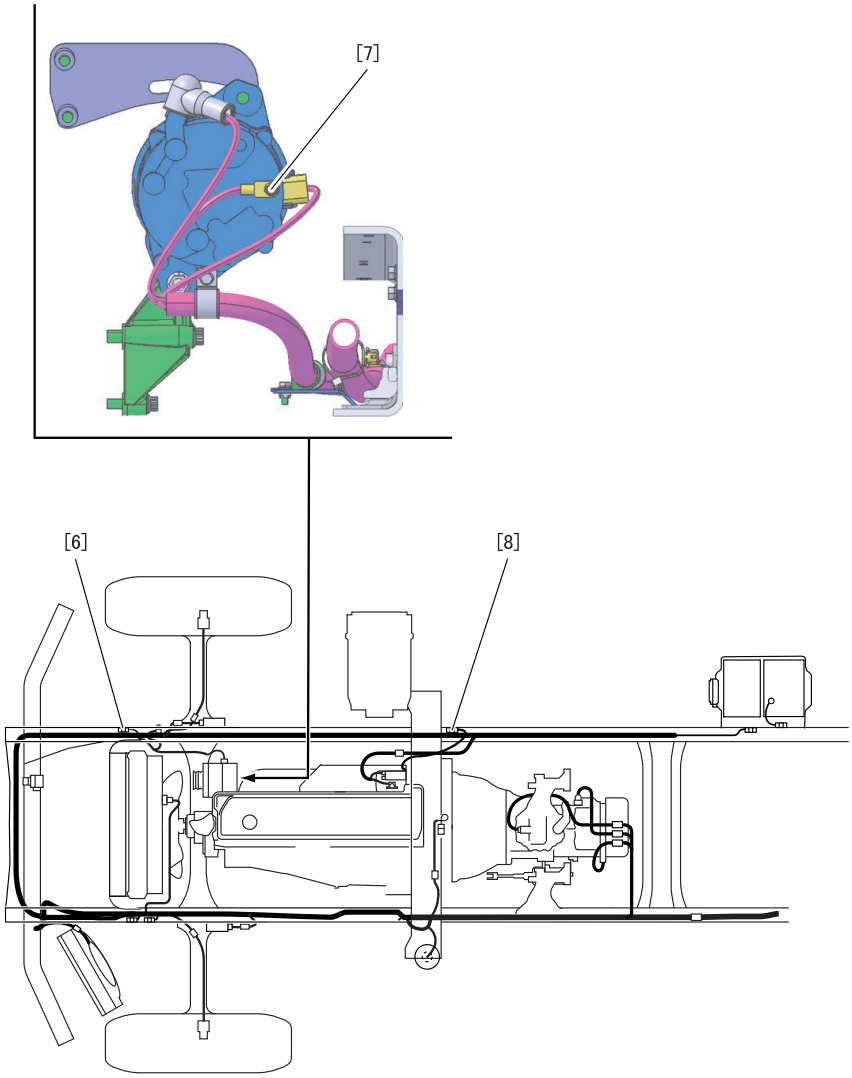
Location	Circuit No.	Wire diameter-wire color	Destination	Remarks
[1]	MDE0	B	A/T ECU	A/T

A/T : Automatic transmission
ECU : Electronic control unit

54-L05233GND-1

GROUND (2)

[6] – [8]

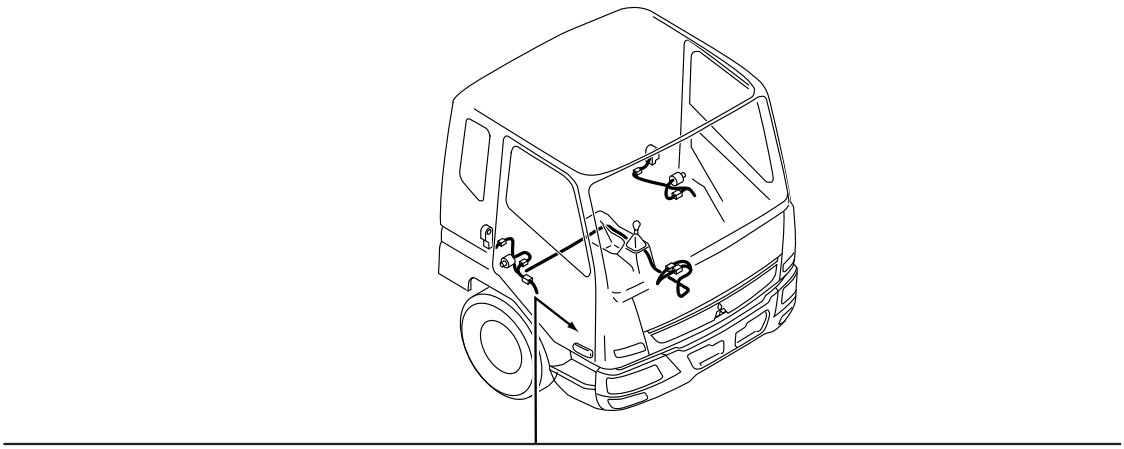


Location	Circuit No.	Wire diameter-wire color	Destination	Remarks
[6]	GEE2	20	Alternator	
[7]	GEE2	20	Alternator	
[8]	—	40	Starter	

54–L05233GND–2

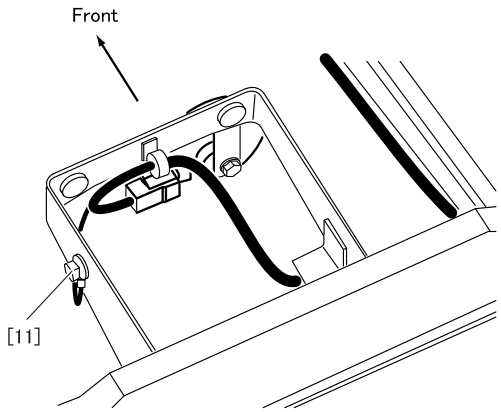
GROUND (3)

[11]

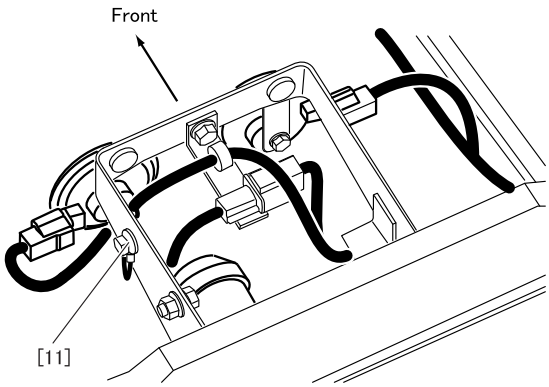


(Driver's seat side floor under)

＜For Hong Kong/Singapore＞



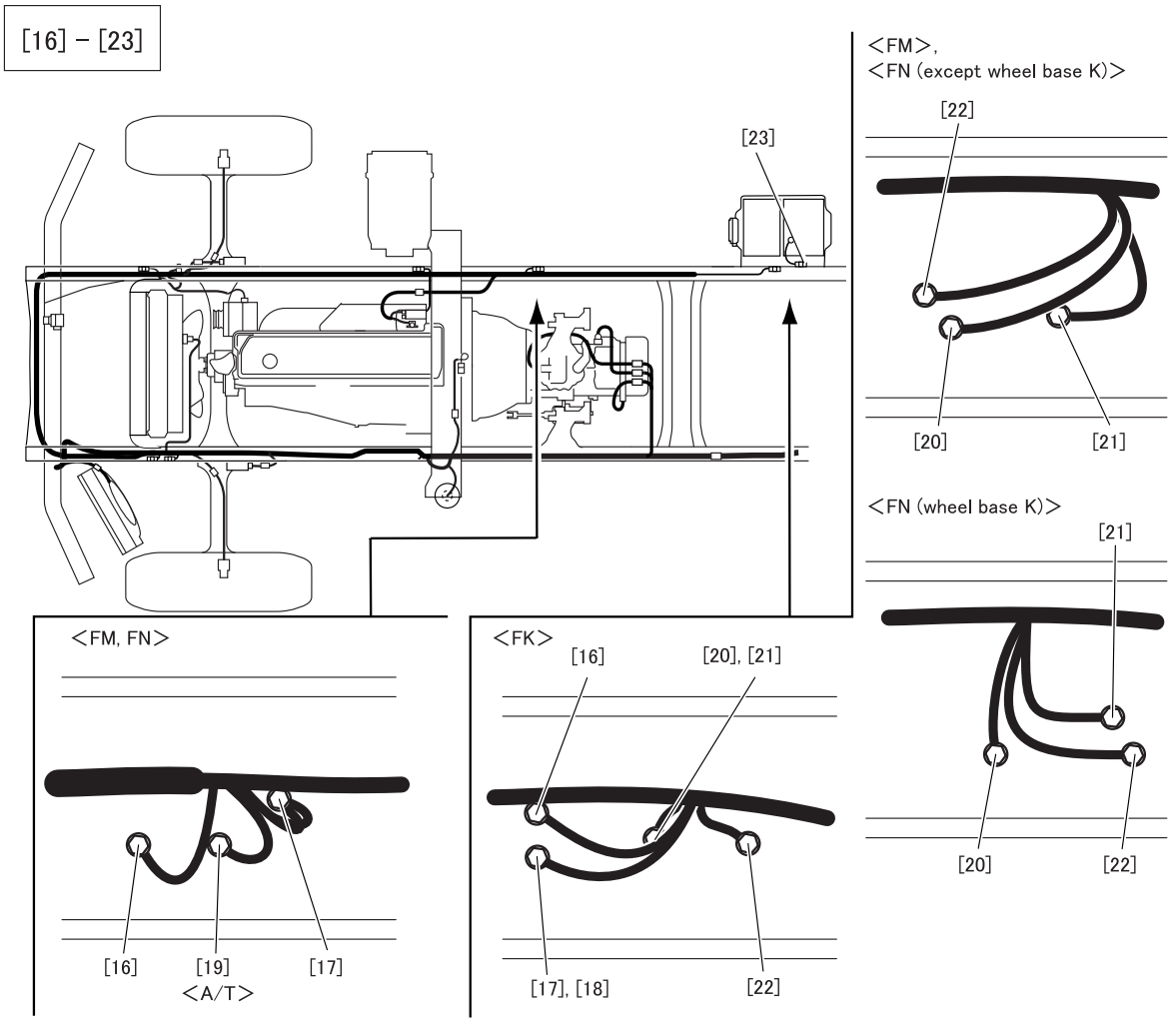
＜For Australia/New Zealand＞



Location	Circuit No.	Wire diameter-wire color	Destination	Remarks
[11]	HN04	LW	Horn	

54–L05233GND–3

GROUND (4)



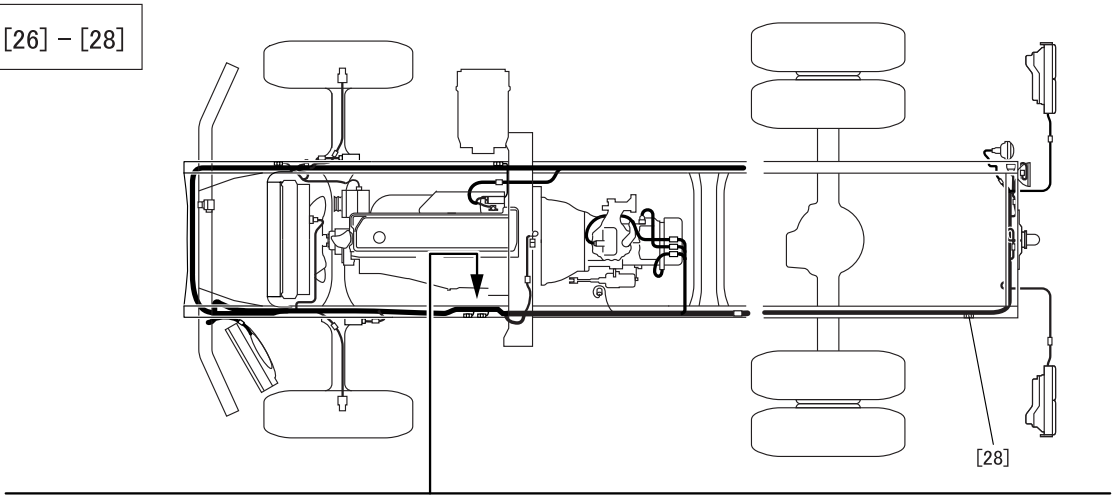
Location	Circuit No.	Wire diameter-wire color	Destination	Remarks
[16]	EA07	2-B	JOINT E4	
	EA11	3-B	JOINT E6	FK
	EA11	5-B		FM, FN
[17]	AFE1	B	Dust indicator <for Australia/New Zealand>	
	PWE5	2-B	Joint connector (J/C-1)	
	MDE8	2-B	ATF cooler fan motor 1	A/T
[18]	AZE4	3-B	ABS solenoid relay	A/H
	AZE7	3-B	Hydraulic unit	
[19]	MDE1	1.25-B	A/T ECU	A/T
	MDE6		Oil sensor	
[20]	SRE1	2-B	ACM (SCR ECU)	BlueTec® exhaust gas aftertreatment
[21]	SRE2			
	SRE3			
[22]	SRE4			
	SRE5			
[23]	–	40	Battery	

ABS : Anti-lock brake system
ATF : Automatic transmission fluid
ACM : Aftertreatment control module
A/T : Automatic transmission
ECU : Electronic control unit
SCR : Selective catalytic reduction
A/H : Air over hydraulic brake

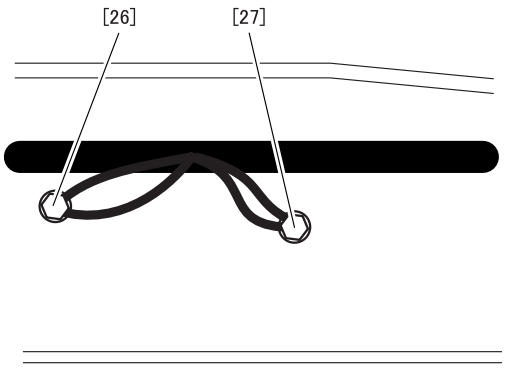
54-L05233GND-4

GROUND (5)

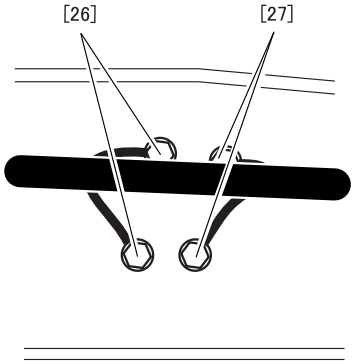
[26] – [28]



＜FK6＞



＜FM, FN＞



Location	Circuit No.	Wire diameter-wire color	Destination	Remarks
[26]	ABE1	2-B	ABS ECU	
	AGE1	B	Airbag ECU	FK
		0.75-B	Airbag ECU	FM, FN
	CME3	0.75-B	Engine ECU	
	CME5	0.75-B		
	CME7	B		
[27]	EA08	2-B	JOINT E5	
	CME1	0.75-B	Engine ECU	
	MDE9	2-B	ATF cooler fan motor 2	A/T
[28]	ESE1	B	Height control 3-way magnetic valve	Air suspension＜Except FN64＞
	IDE1	B	Differential lock 3-way magnetic valve	FN
	TLE5	0.85-B	Rear combination lamp, LH	
	TLE7	0.85-B	License plate lamp	

ABS : Anti-lock brake system
ATF : Automatic transmission fluid
A/T : Automatic transmission
ECU : Electronic control unit
ASR : Anti-spin regulator system

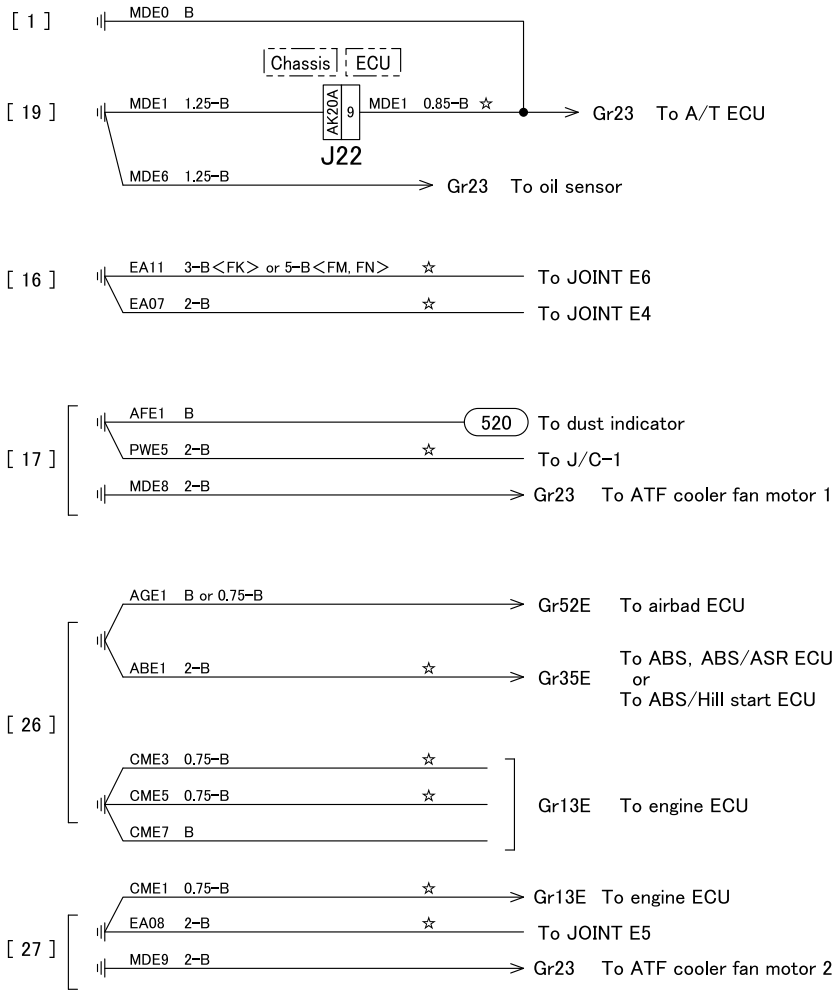
54–L05233GND–5

GROUND (6)

Entire ground

- This diagram indicates grounding points.
- See the following pages for branching of grounding (wiring for ☆) (in circuit No. order)

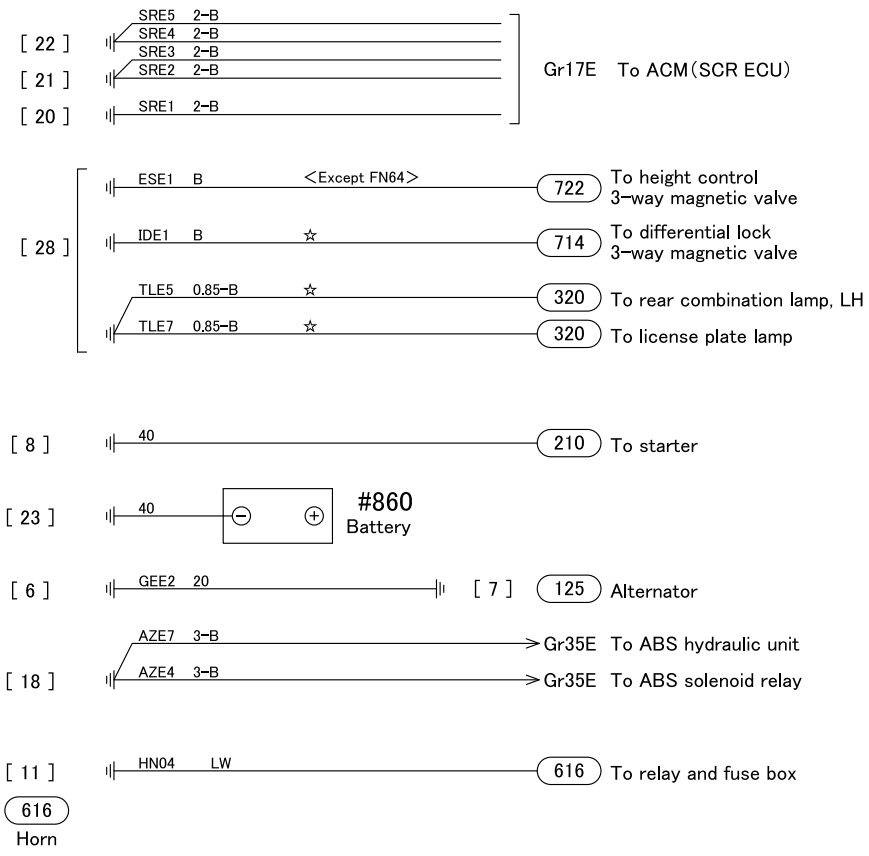
A/T : Automatic transmission
ATF : Automatic transmission fluid
ABS : Anti-lock brake system
ASR : Anti spin regulator
ECU : Electronic control unit



130-C07350ALL-1

GROUND (7)

ACM : Aftertreatment control module
SCR : Selective catalytic reduction
ECU : Electronic control unit



130-C07350ALL-2

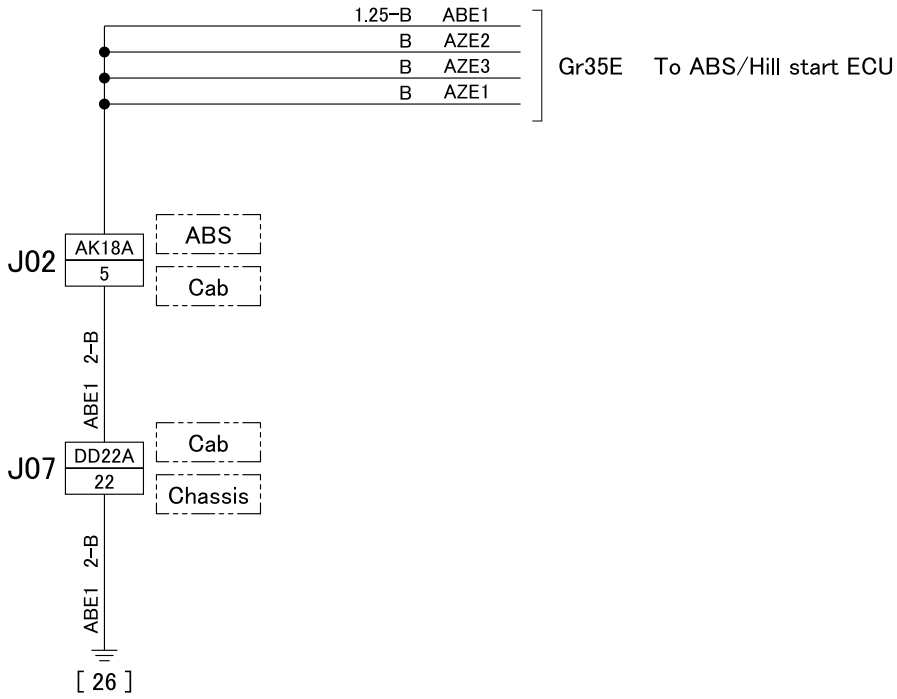
GROUND (8)

Circuit No. ABE1 ground

ABS : Anti-lock brake system
ASR : Anti spin regulator
ECU : Electronic control unit

＜Full air brake (ABS, ABS/ASR)＞

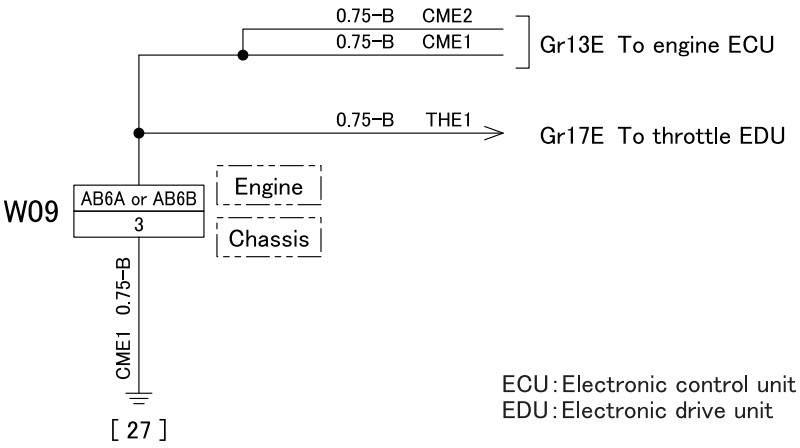
＜Air over hydraulic brake (ABS)＞



130-C07350ABE1

GROUND (9)

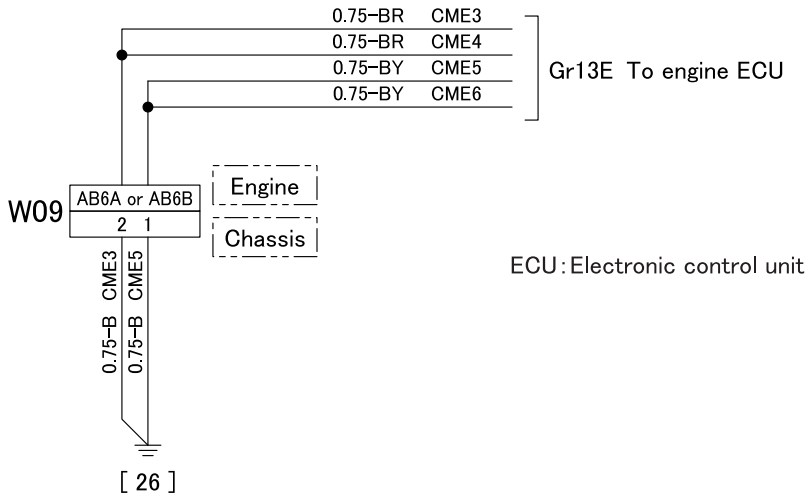
Circuit No. CME1 ground



130-C07350CME1

GROUND (10)

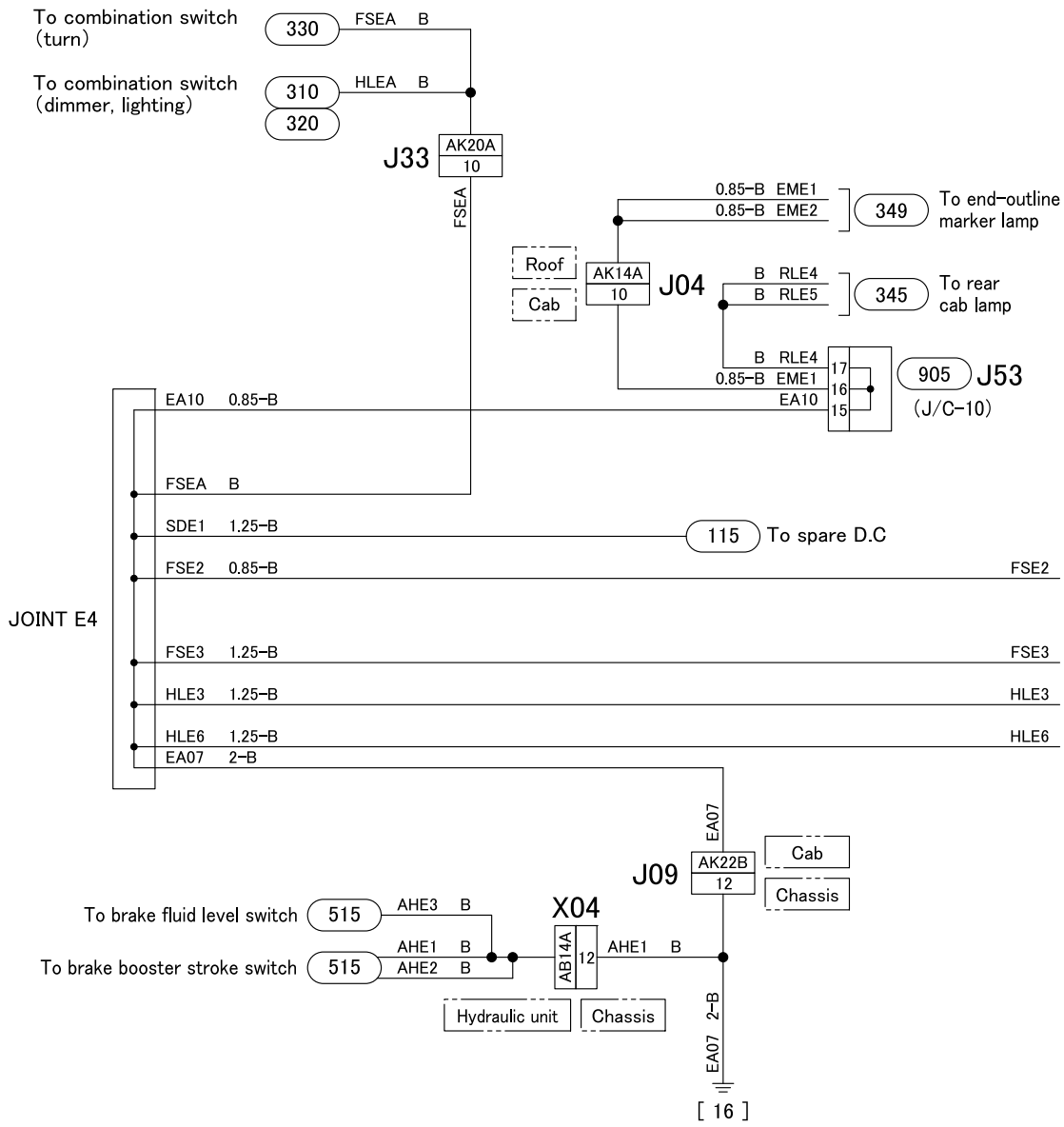
Circuit No. CME3, CME5 ground



130-C07350CME3

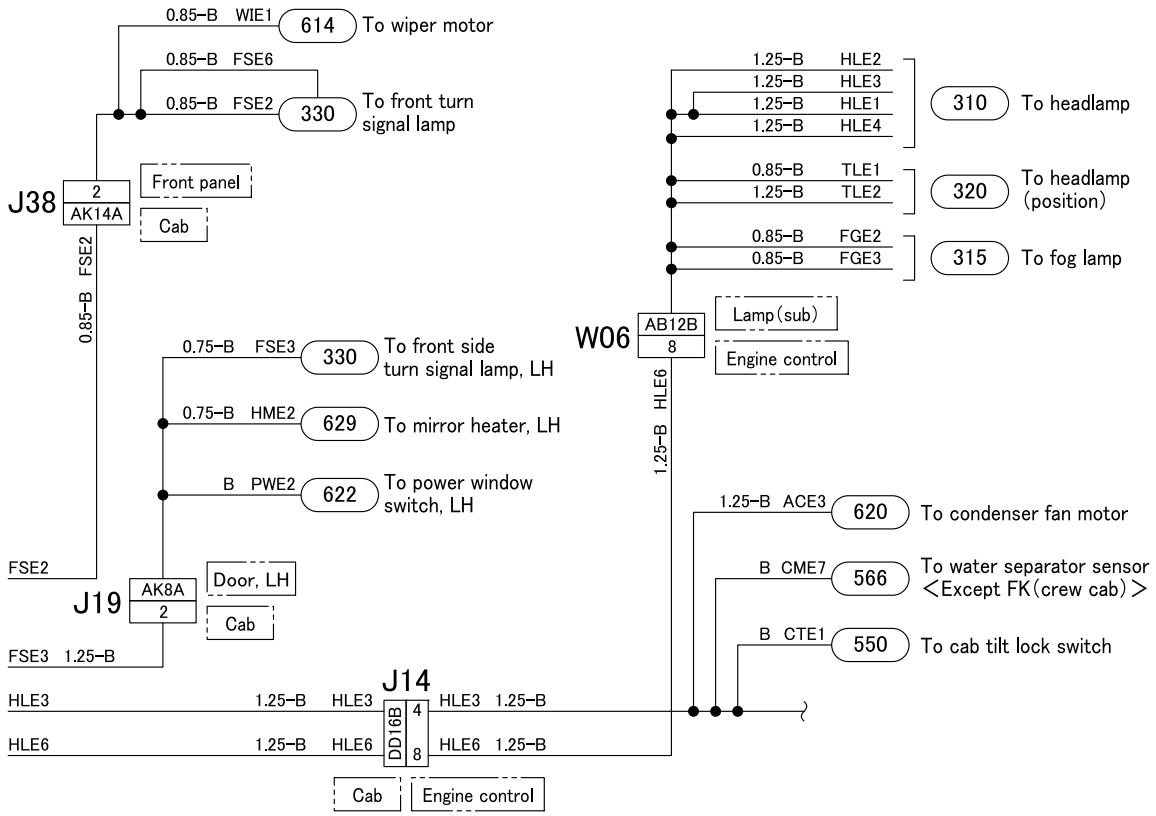
GROUND (11)

Circuit No. EA07 ground



130-C07350EA07-1

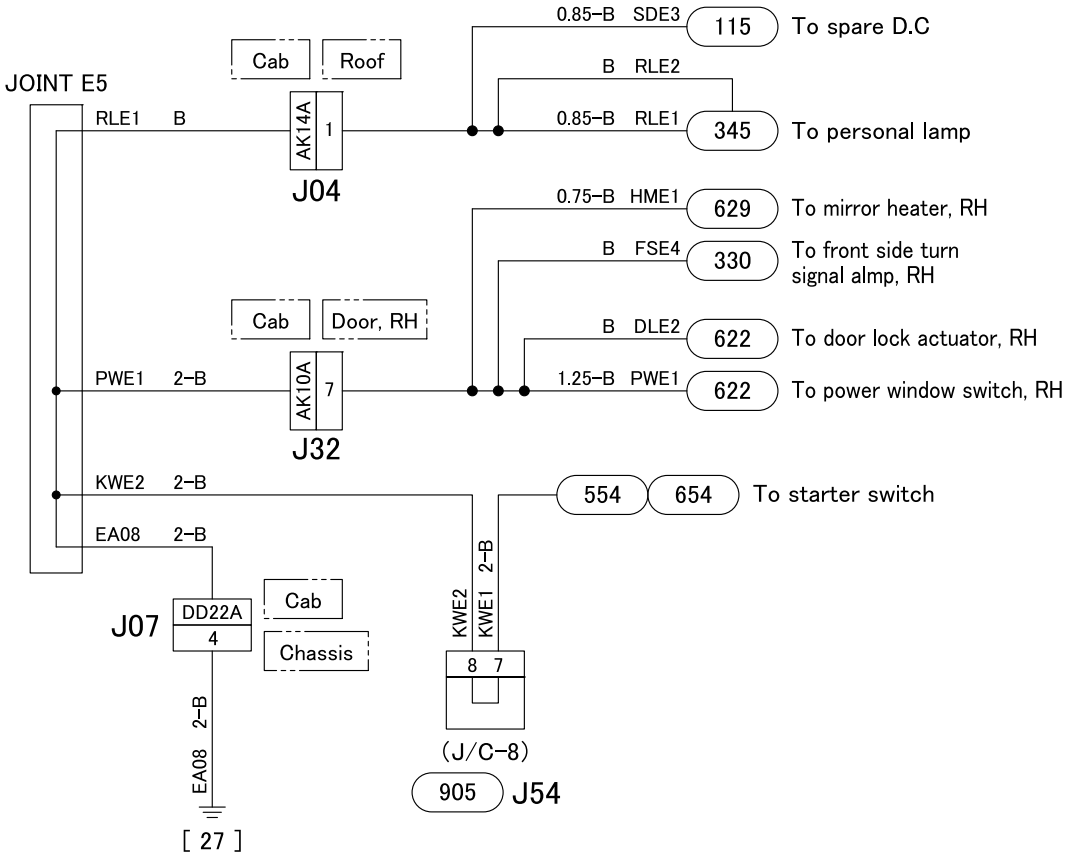
GROUND (12)



130-C07350EA07-2

GROUND (13)

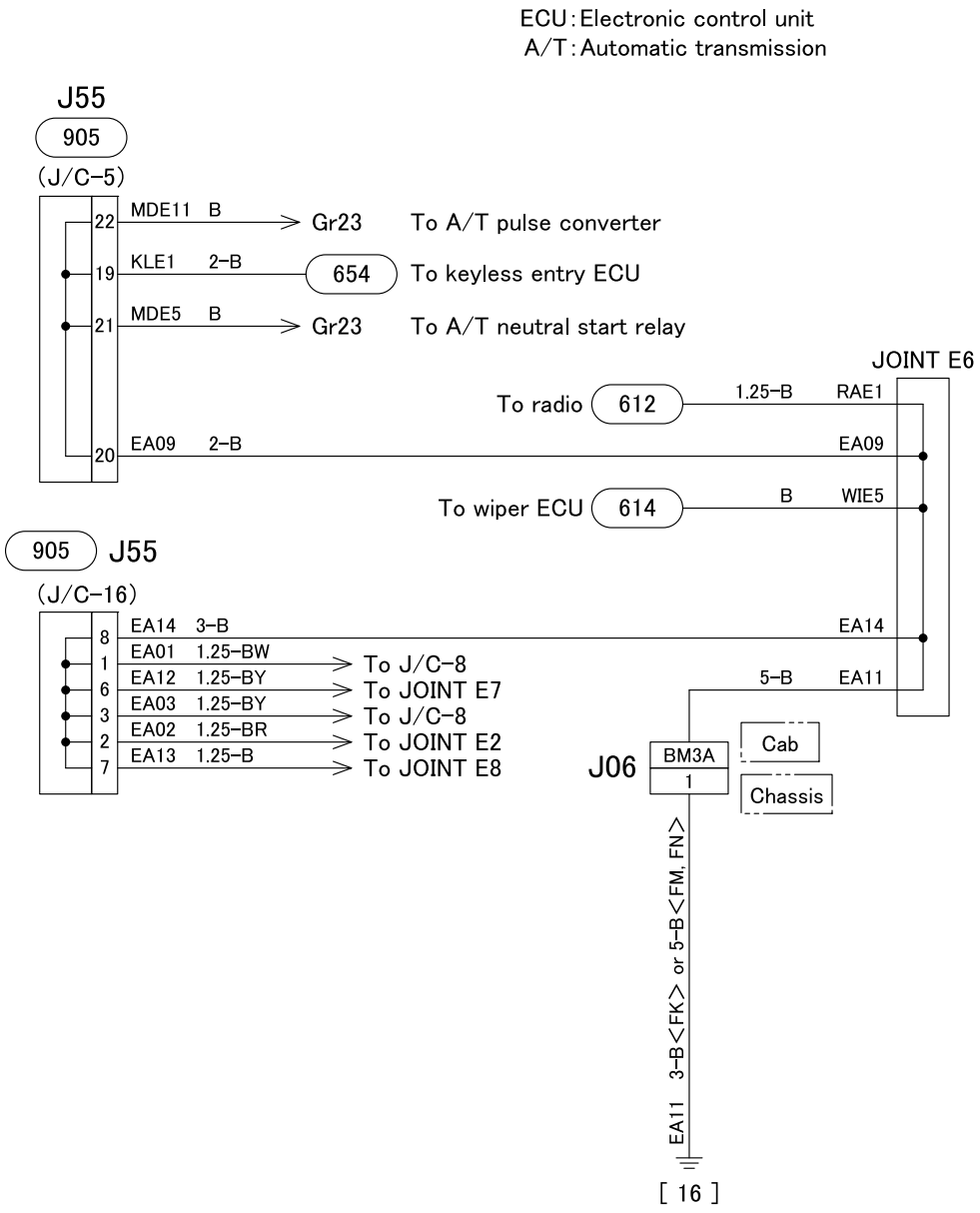
Circuit No. EA08 ground



130-C07350EA08

GROUND (14)

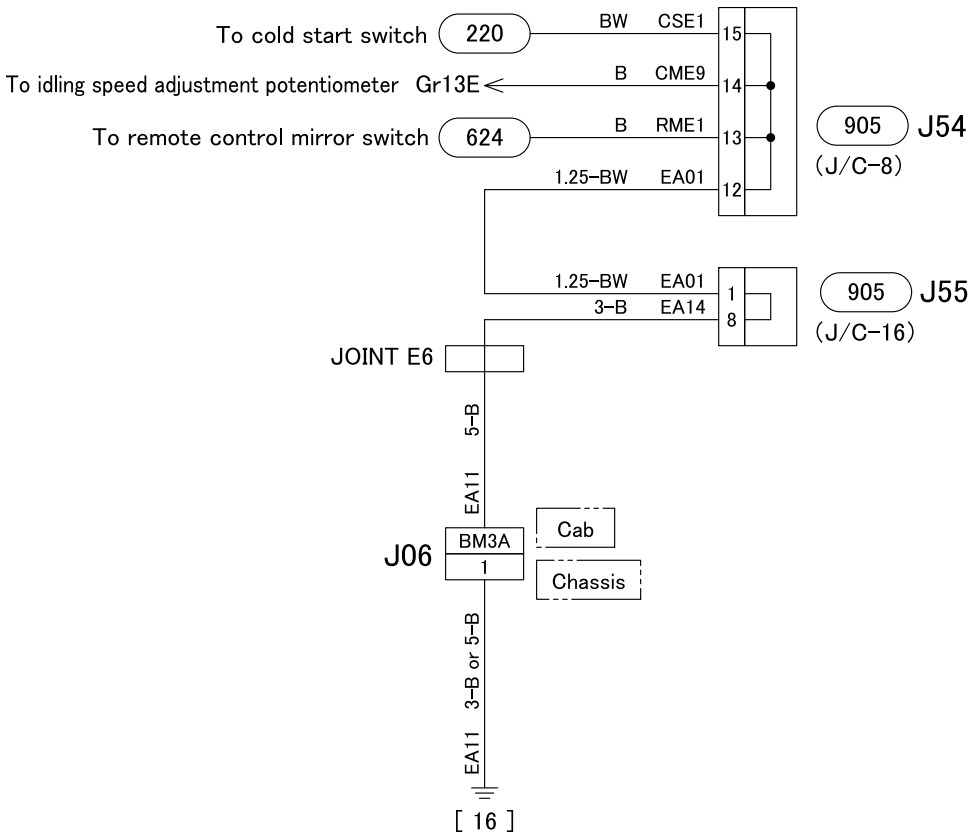
Circuit No. EA11 ground
＜Main ground＞



130-C07350EA11

GROUND (15)

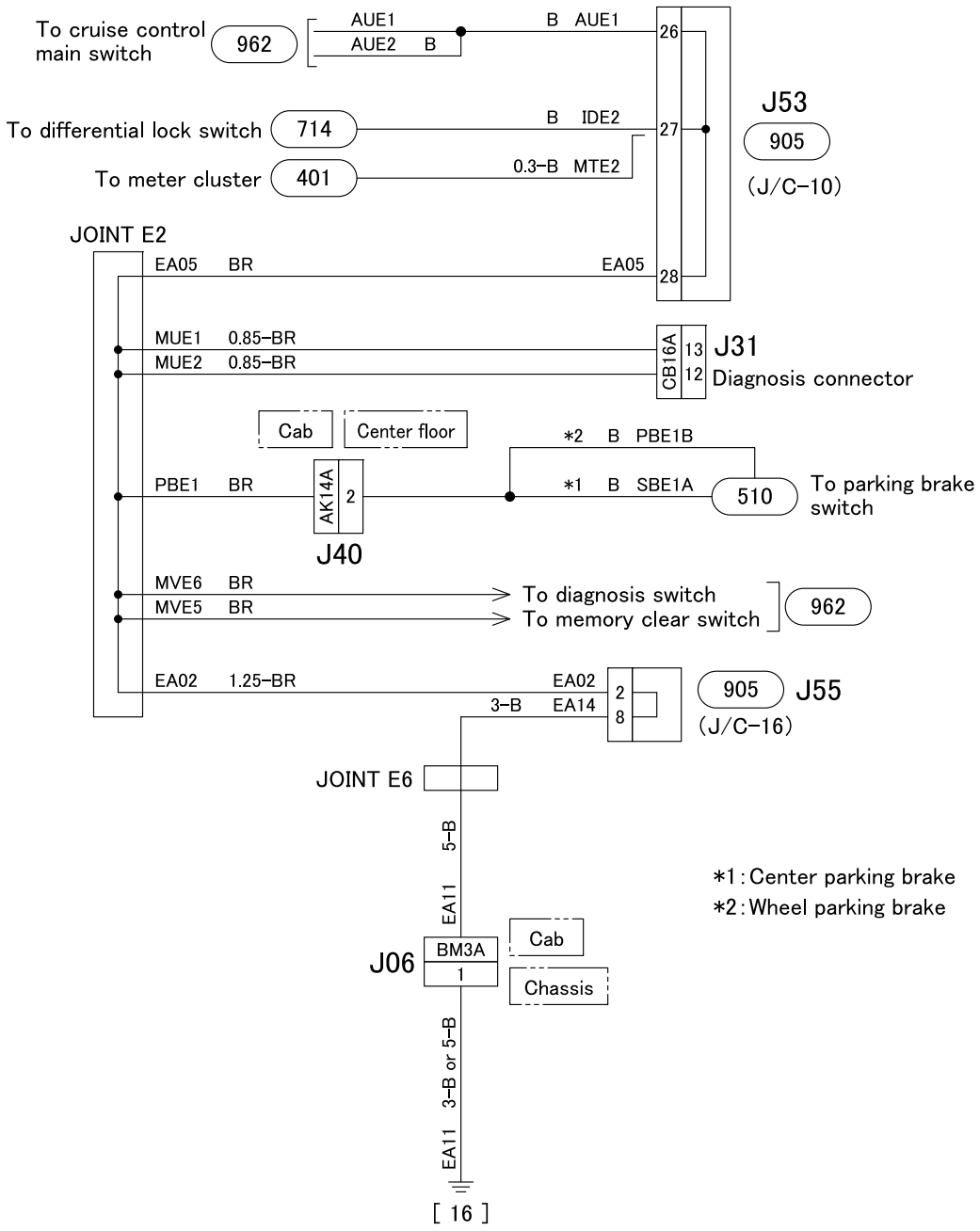
Circuit No. EA11 ground
＜J/C-8（Circuit No. EA01）＞



130-C07350EA01

GROUND (16)

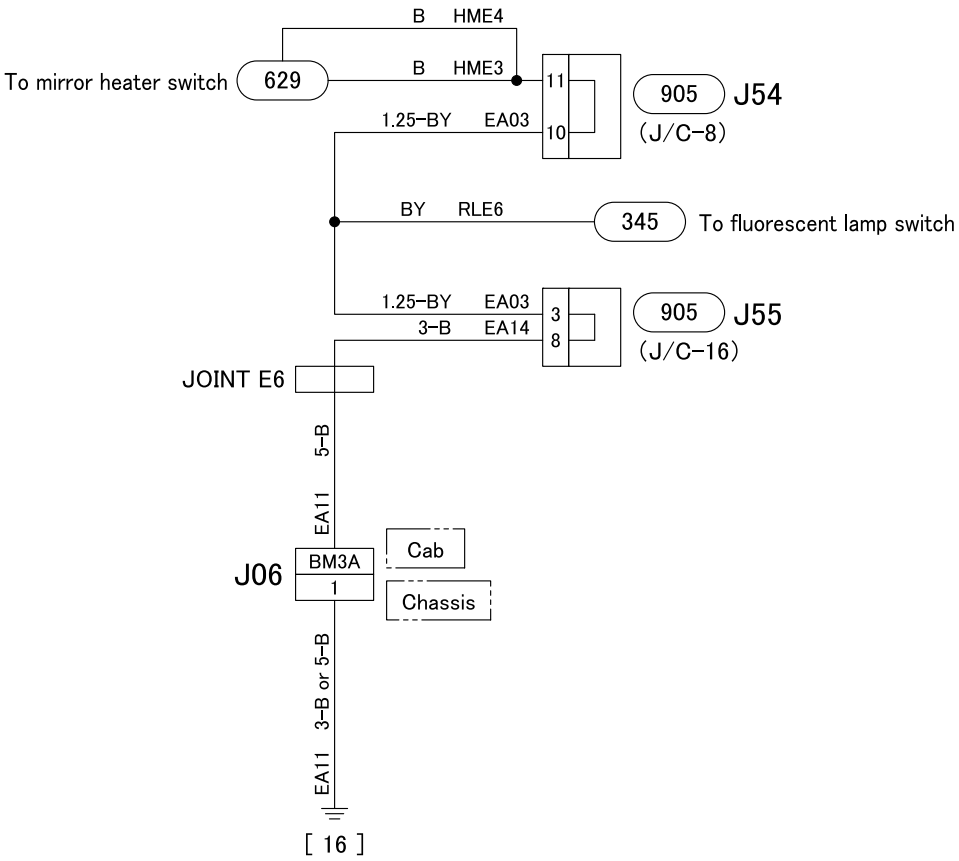
Circuit No. EA11 ground
＜JOINT E2＞



130-C07350EA02

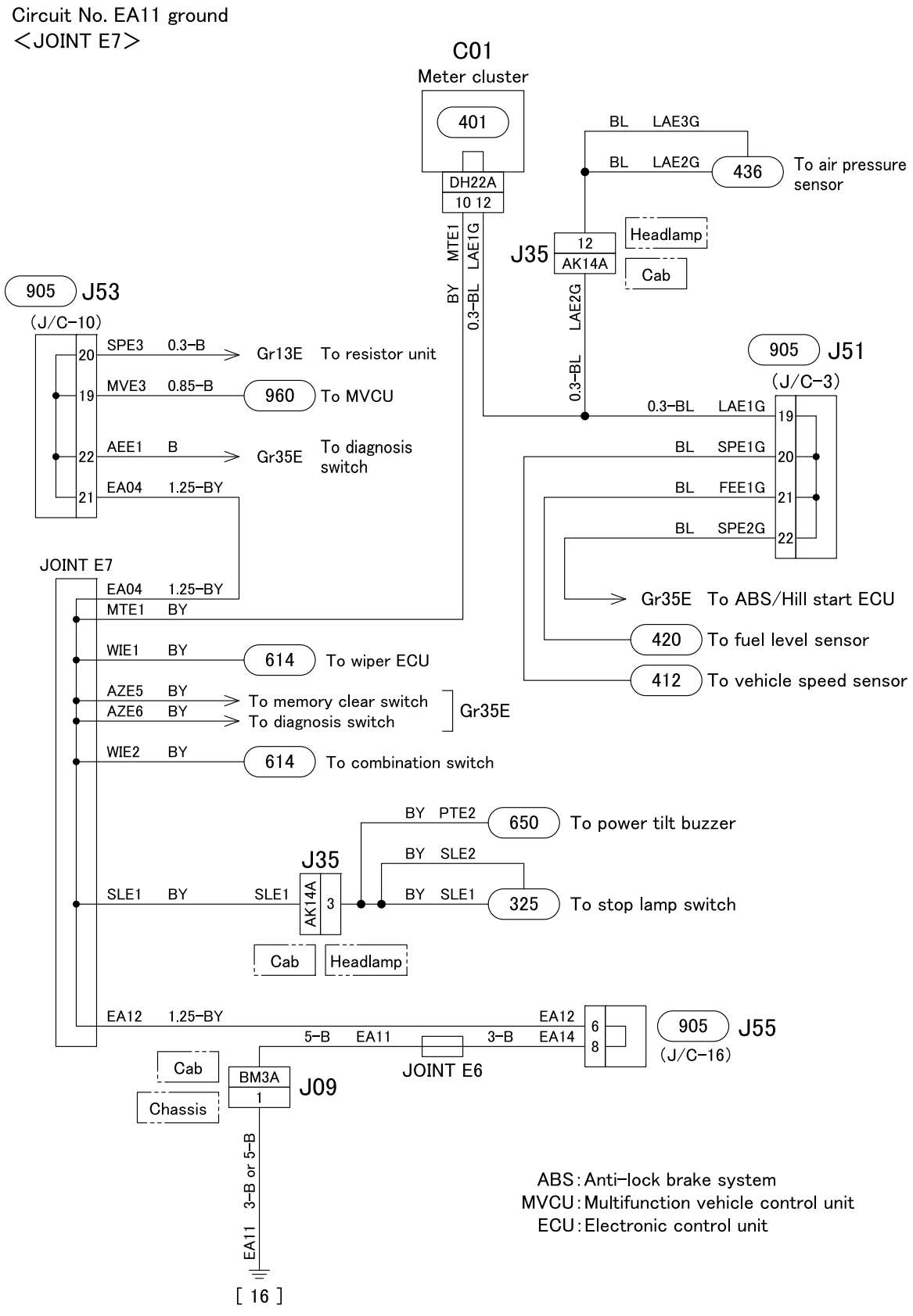
GROUND (17)

Circuit No. EA11 ground
＜J/C-8（circuit No.EA03）＞



130-C07350EA03

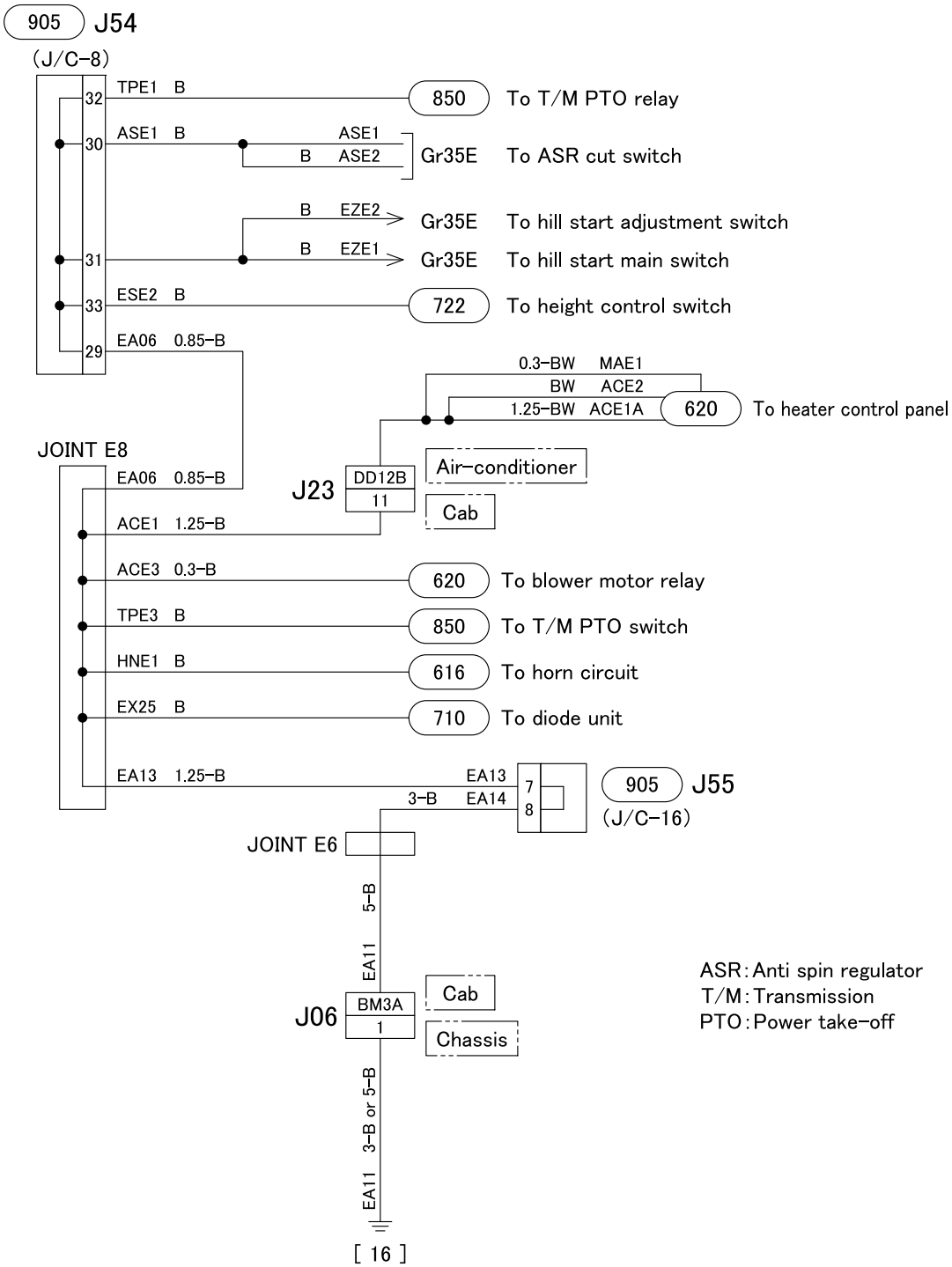
GROUND (18)



130-C07350EA12

GROUND (19)

Circuit No. EA11 ground
＜JOINT E8＞



130-C7350EA13

GROUND (20)

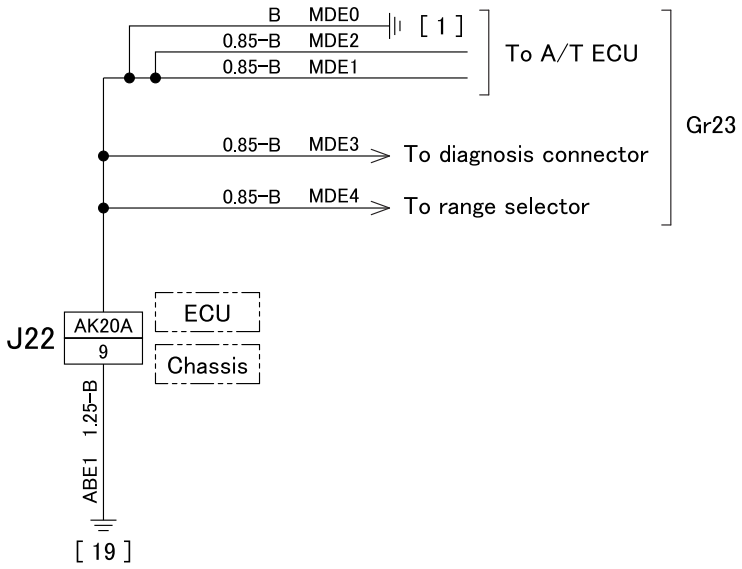
Circuit No. IDE1 ground

130-C07350IDE1

GROUND (21)

Circuit No. MDE1 ground
＜Automatic transmission＞

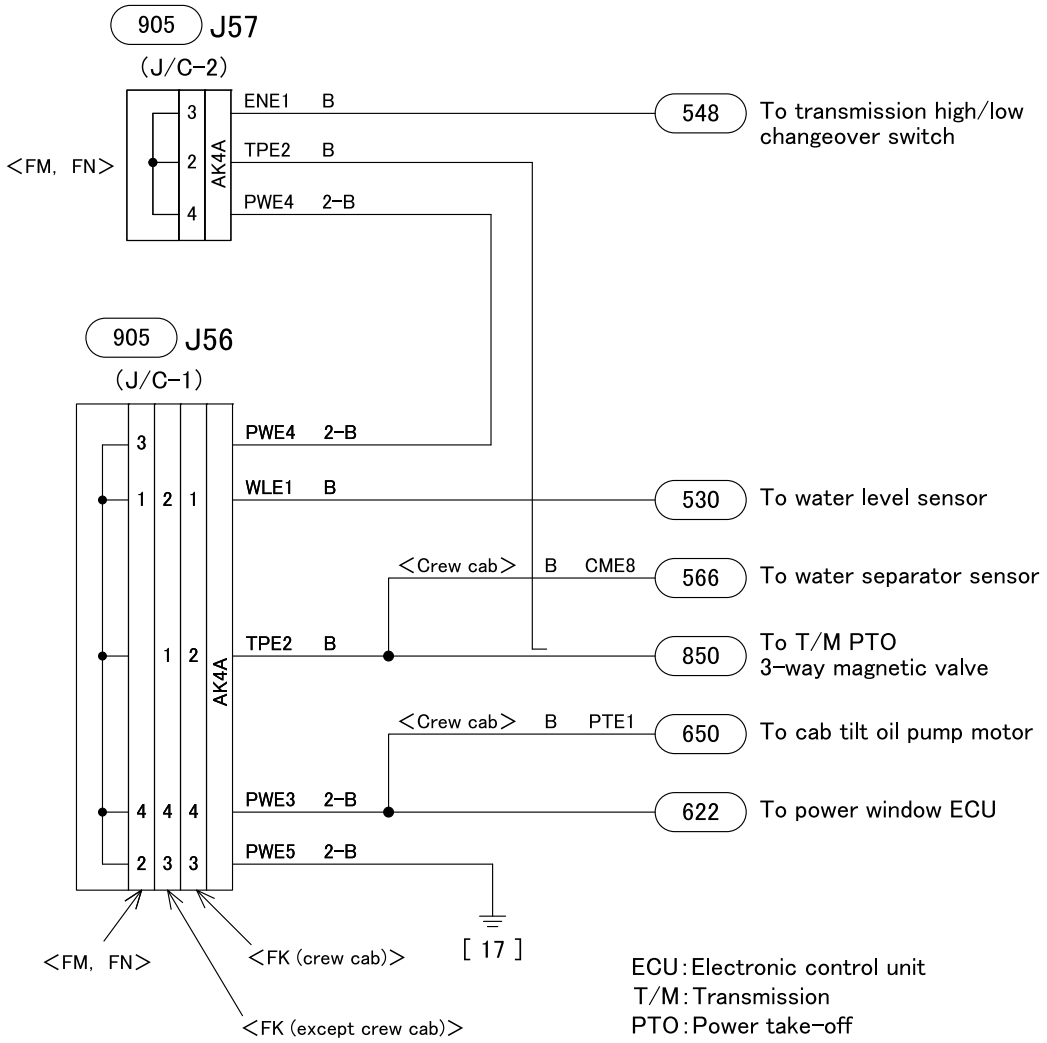
A/T : Automatic transmission
ECU : Electronic control unit



130-C07350MDE1

GROUND (22)

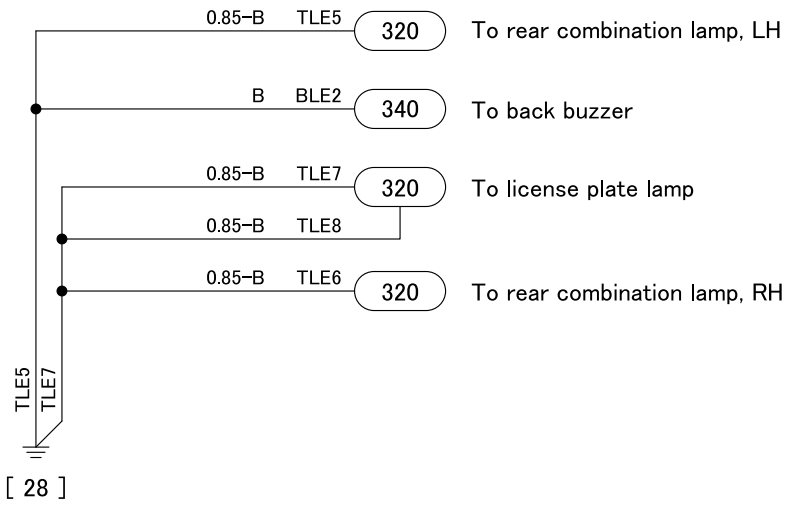
Circuit No. PWE5 ground



130-C07350PWE5

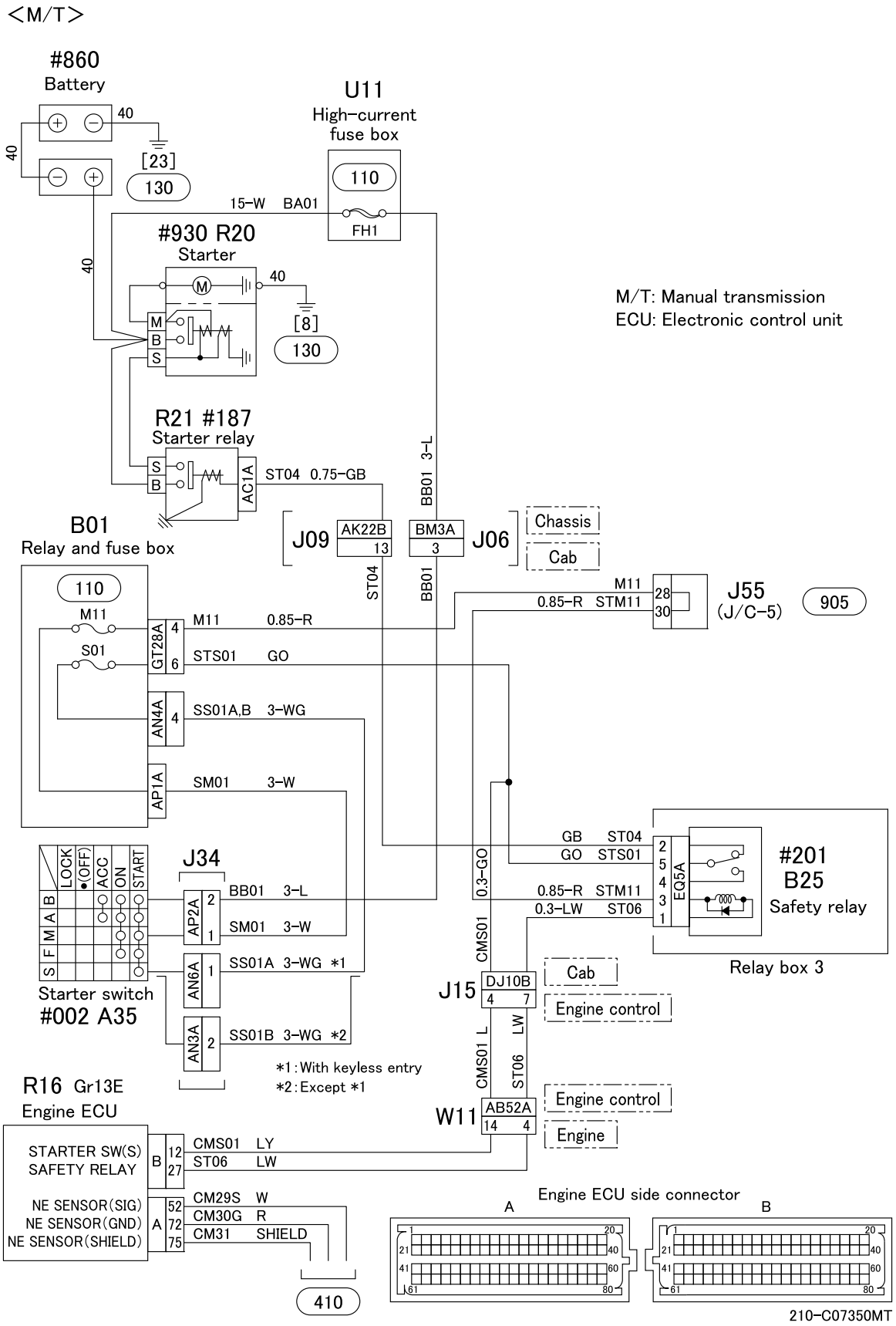
GROUND (23)

Circuit No.TLE5, TLE7 ground

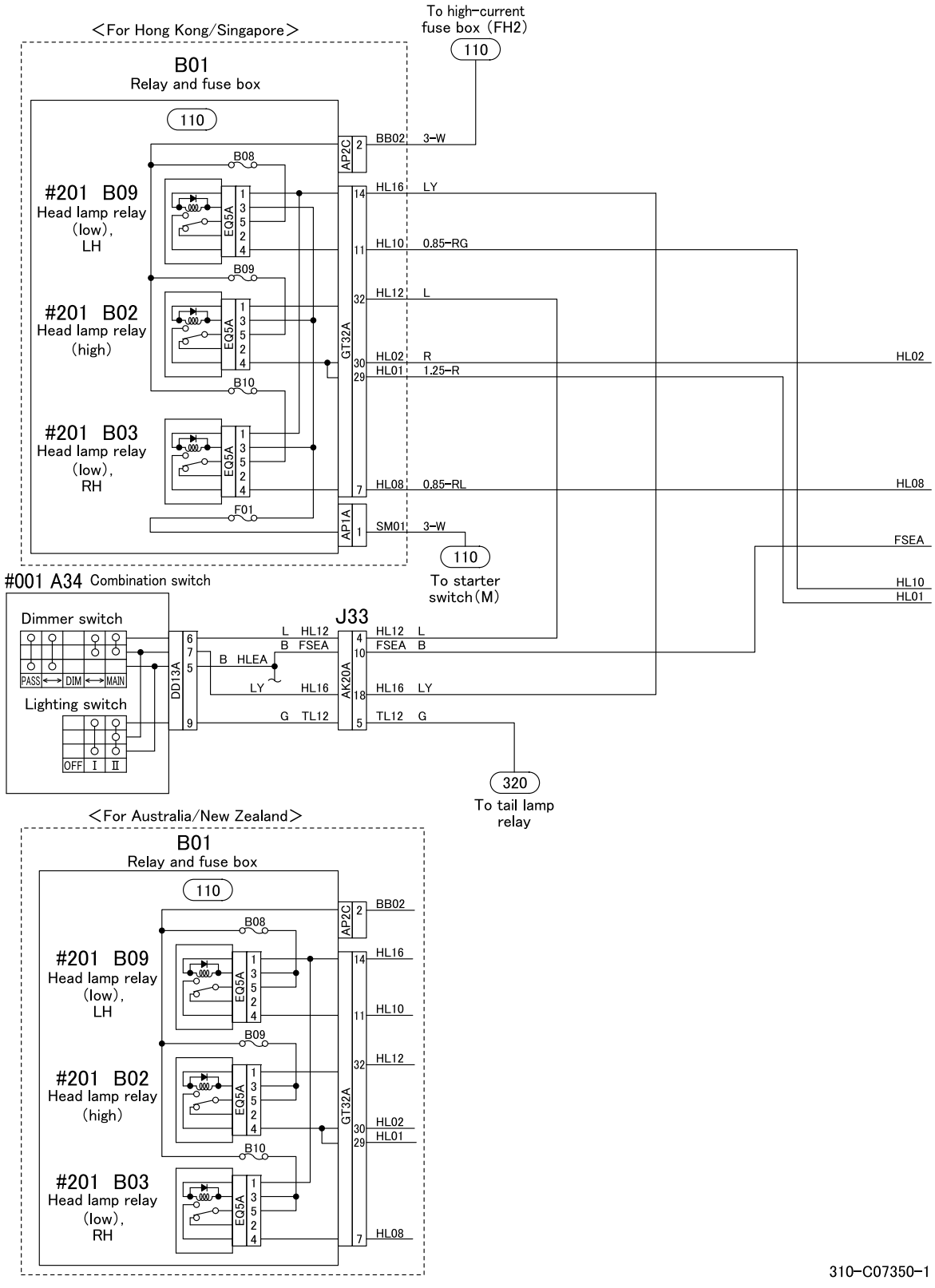


130-C07350TLE5

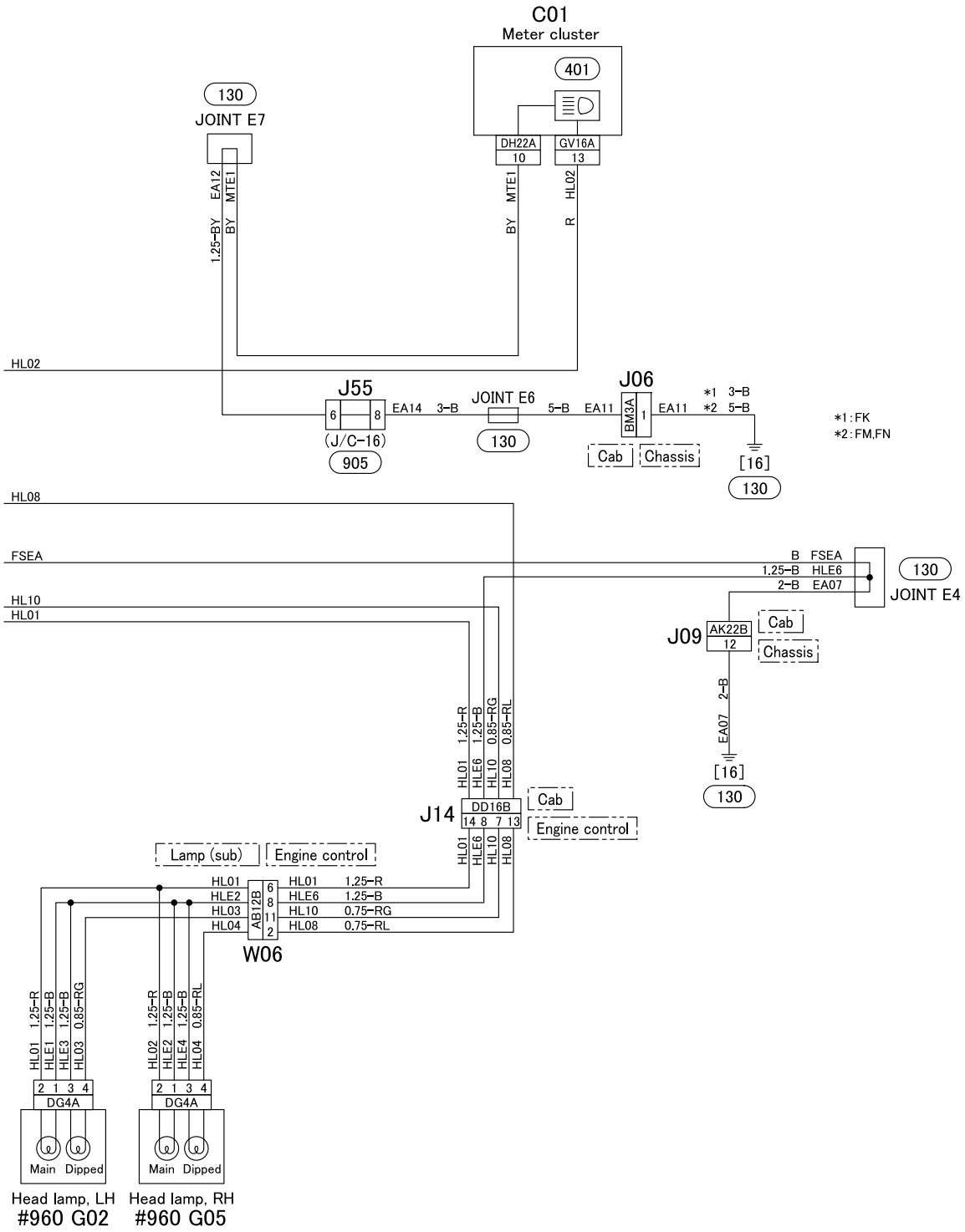
ENGINE STARTING AND STOPPING CIRCUIT



HEADLAMP CIRCUIT (1)

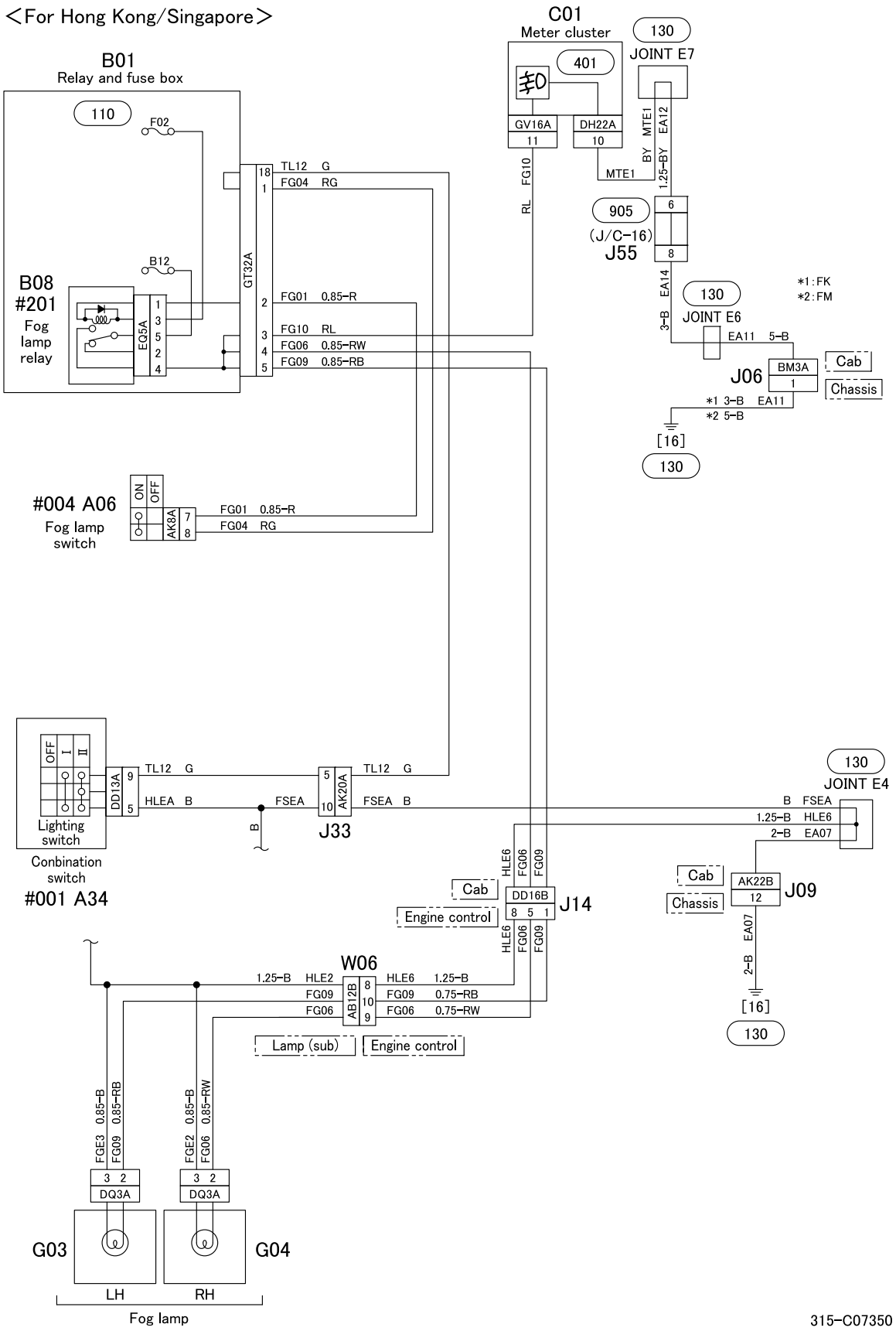


HEADLAMP CIRCUIT (2)

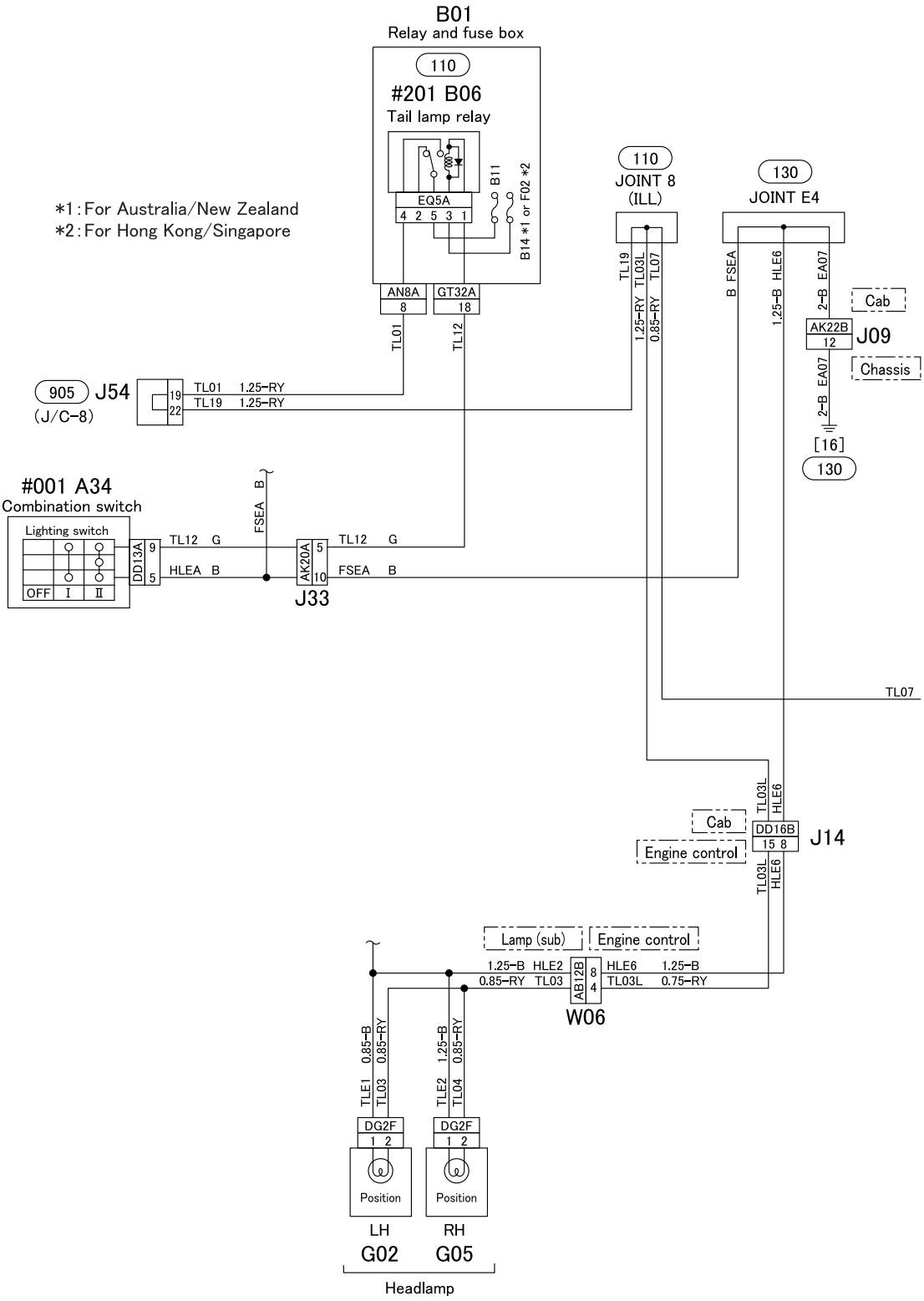


310-C07350-2

FOG LAMP CIRCUIT

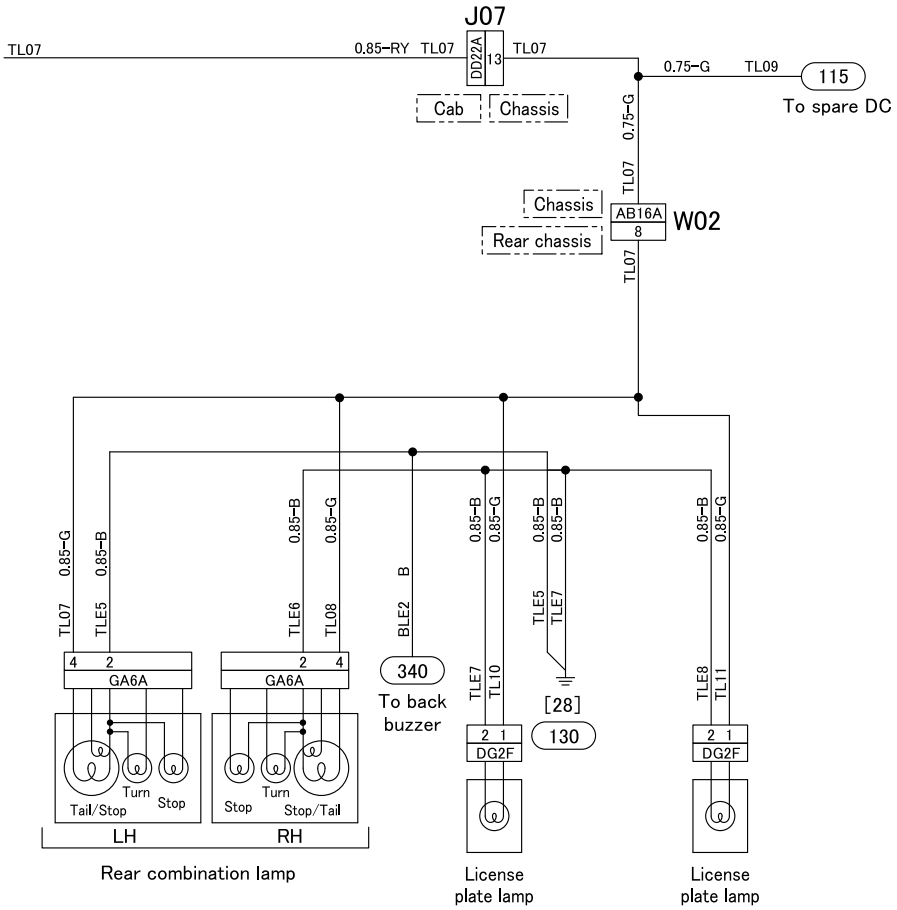


TAIL, POSITION AND LISENCE PLATE LAMPS CIRCUIT (1)



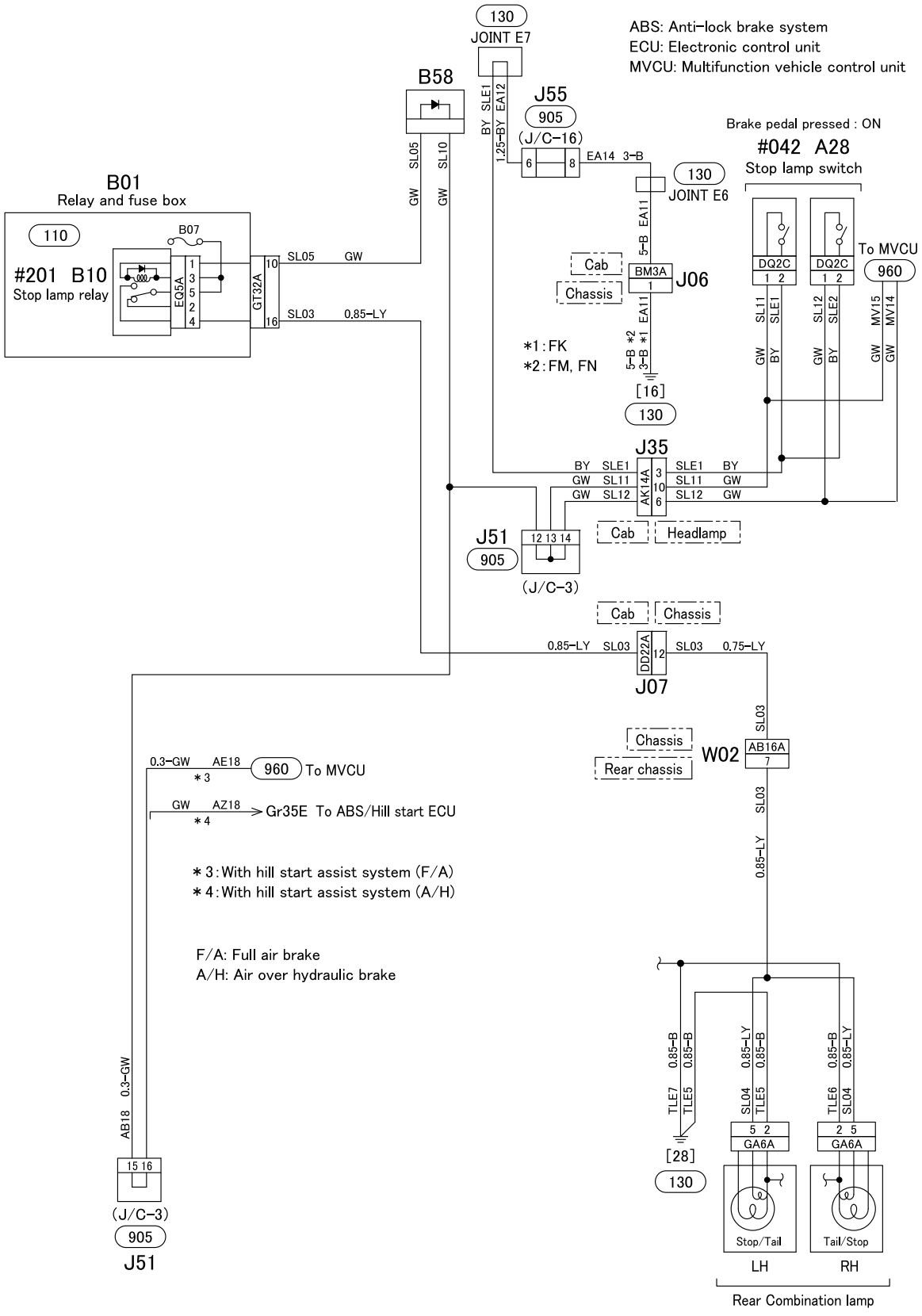
320-C07350-1

TAIL, POSITION AND LISENCE PLATE LAMPS CIRCUIT (2)



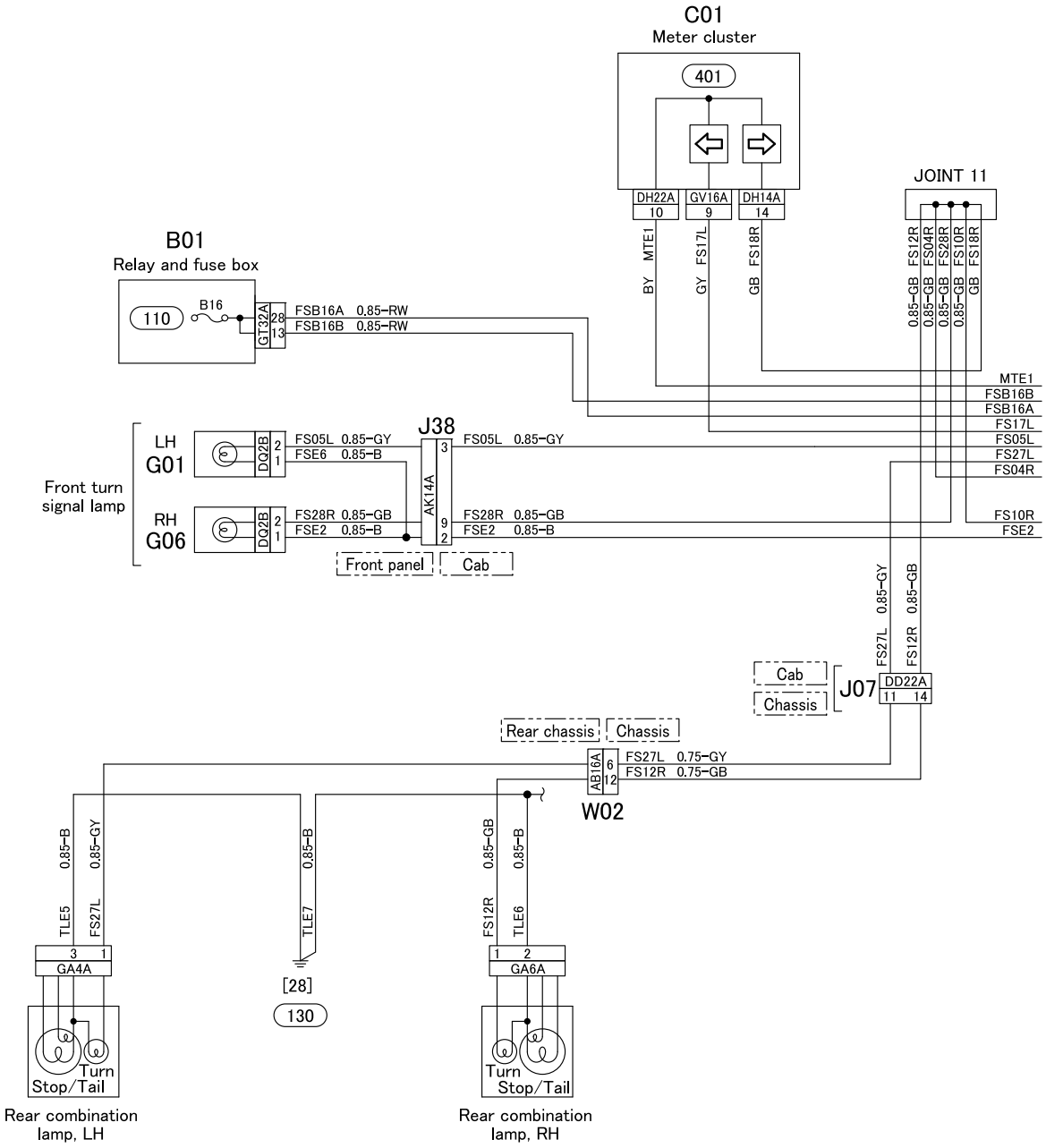
320-C07350-2

STOP LAMP CIRCUIT



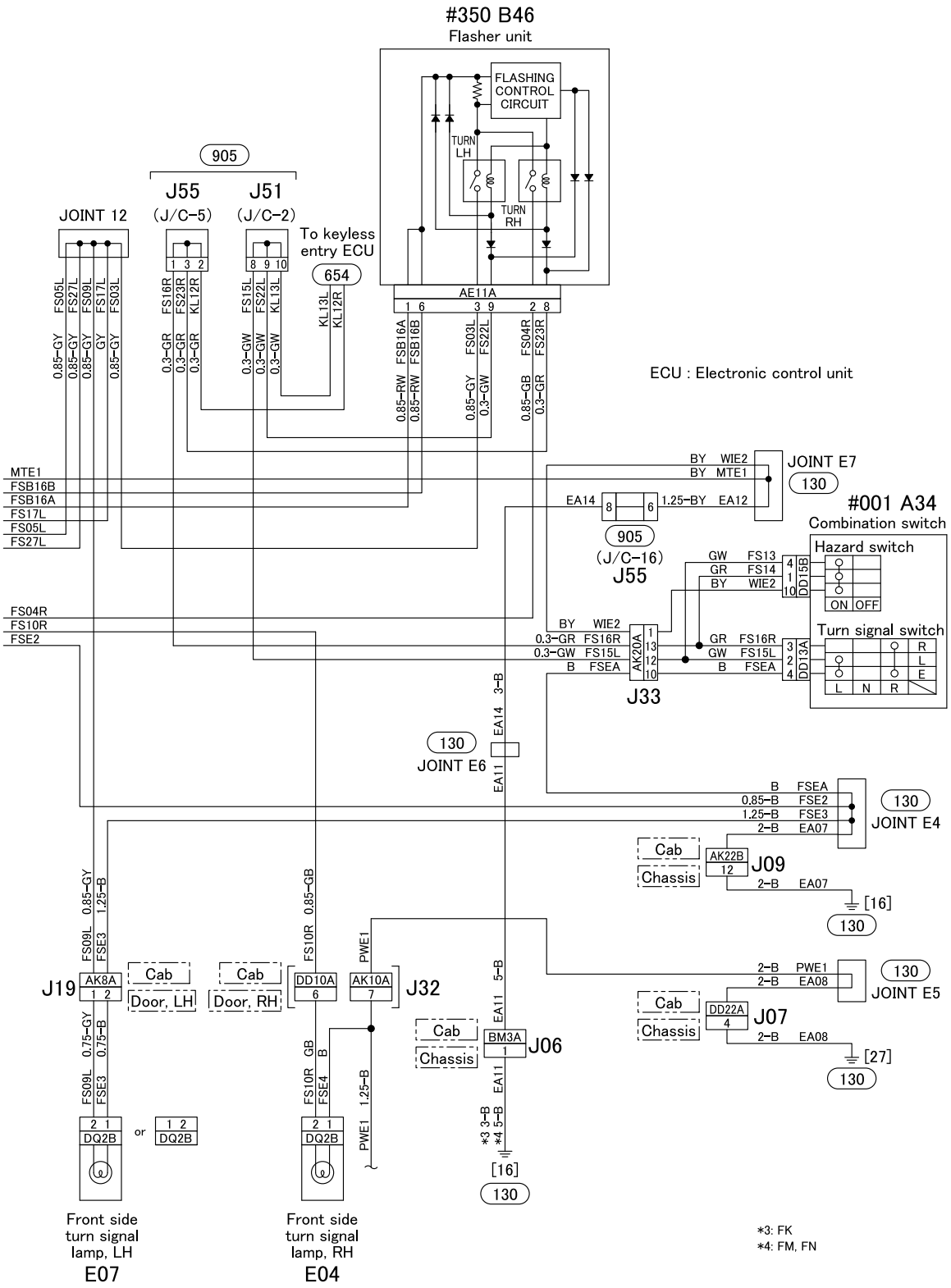
325-C07350

TURN SIGNAL AND HAZARD LAMP CIRCUIT (1)



330-C07350-1

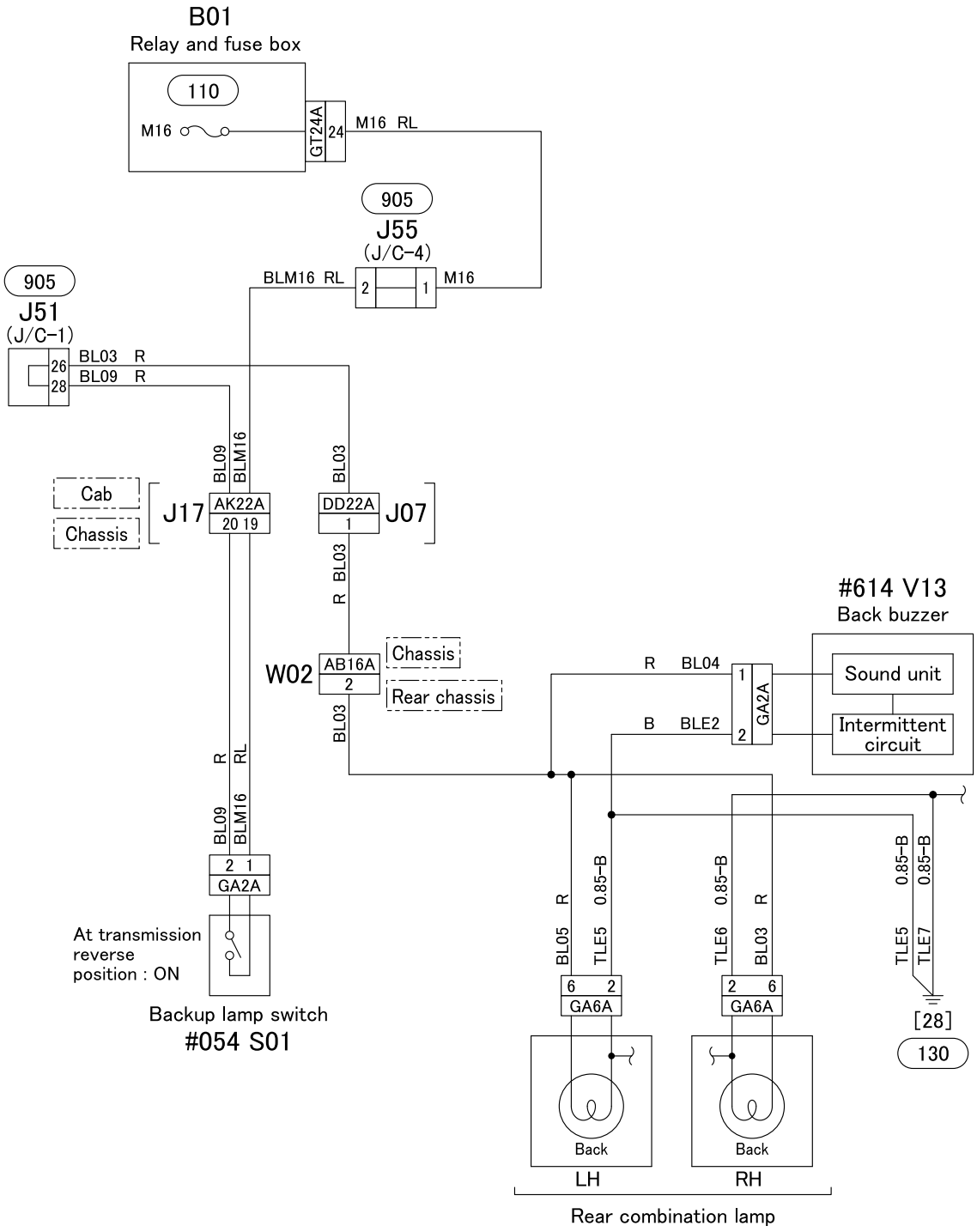
TURN SIGNAL AND HAZARD LAMP CIRCUIT (2)



330-C07350-2

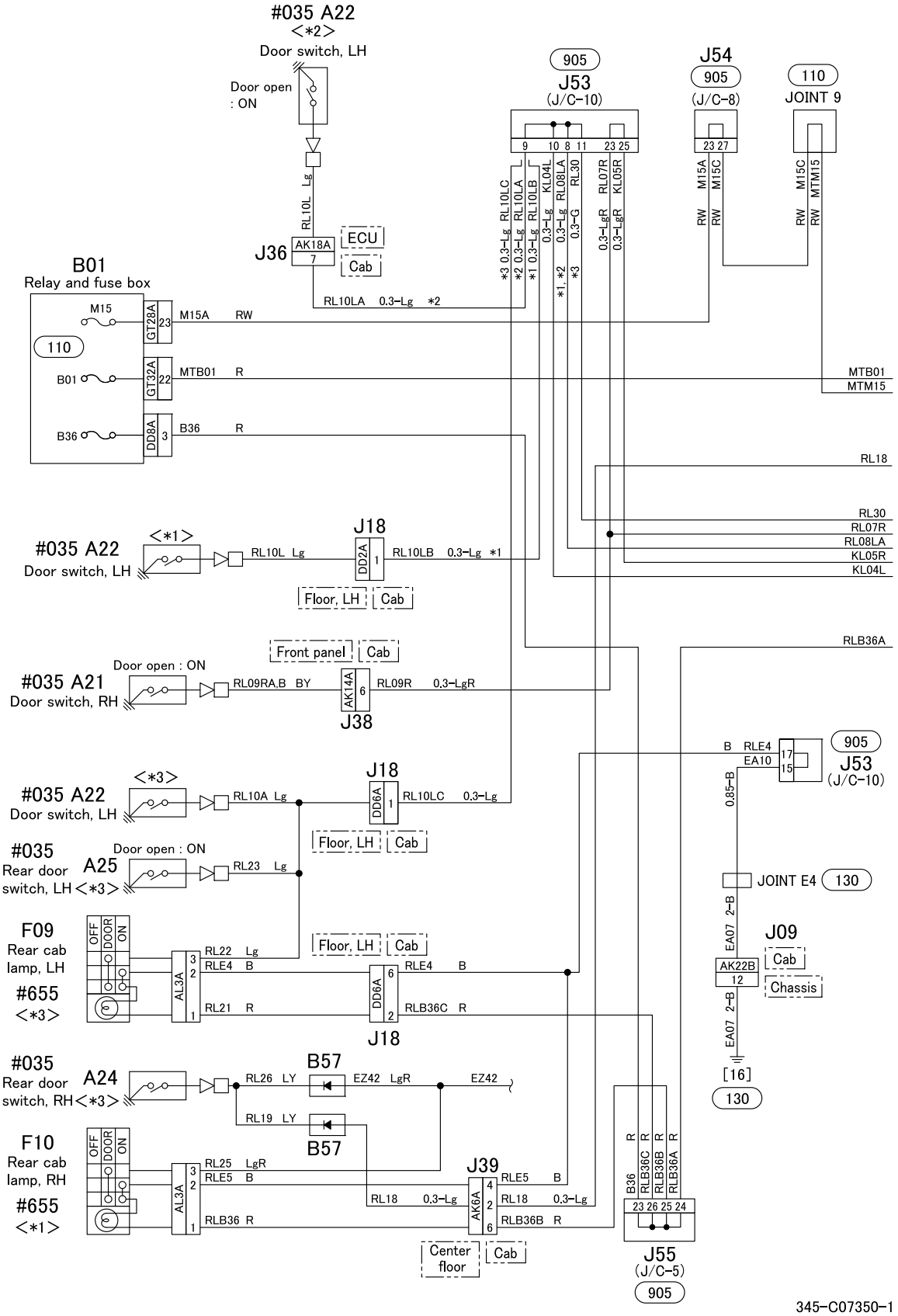
BACKUP LAMP CIRCUIT

＜Manual transmission＞

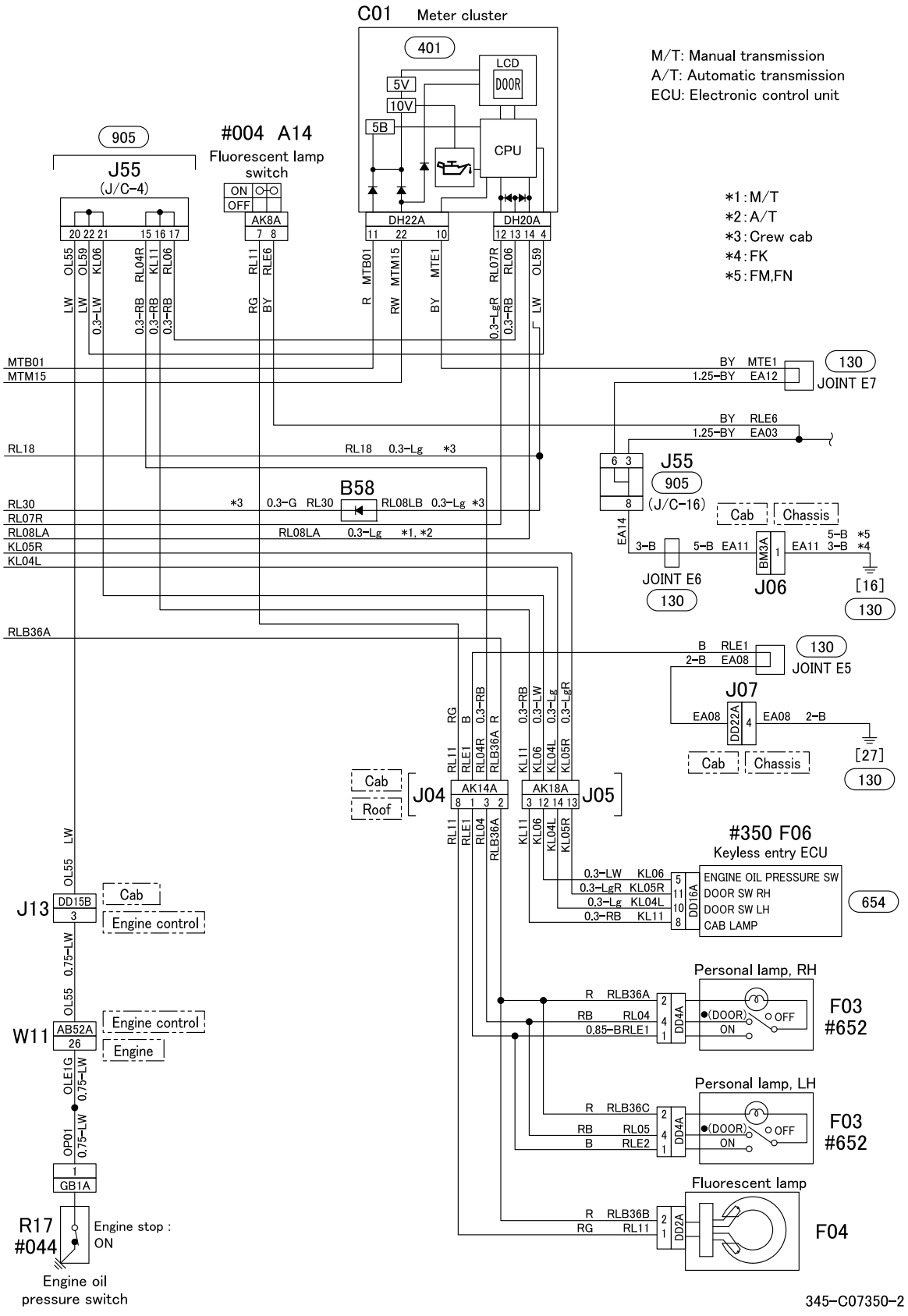


340-C07350MT

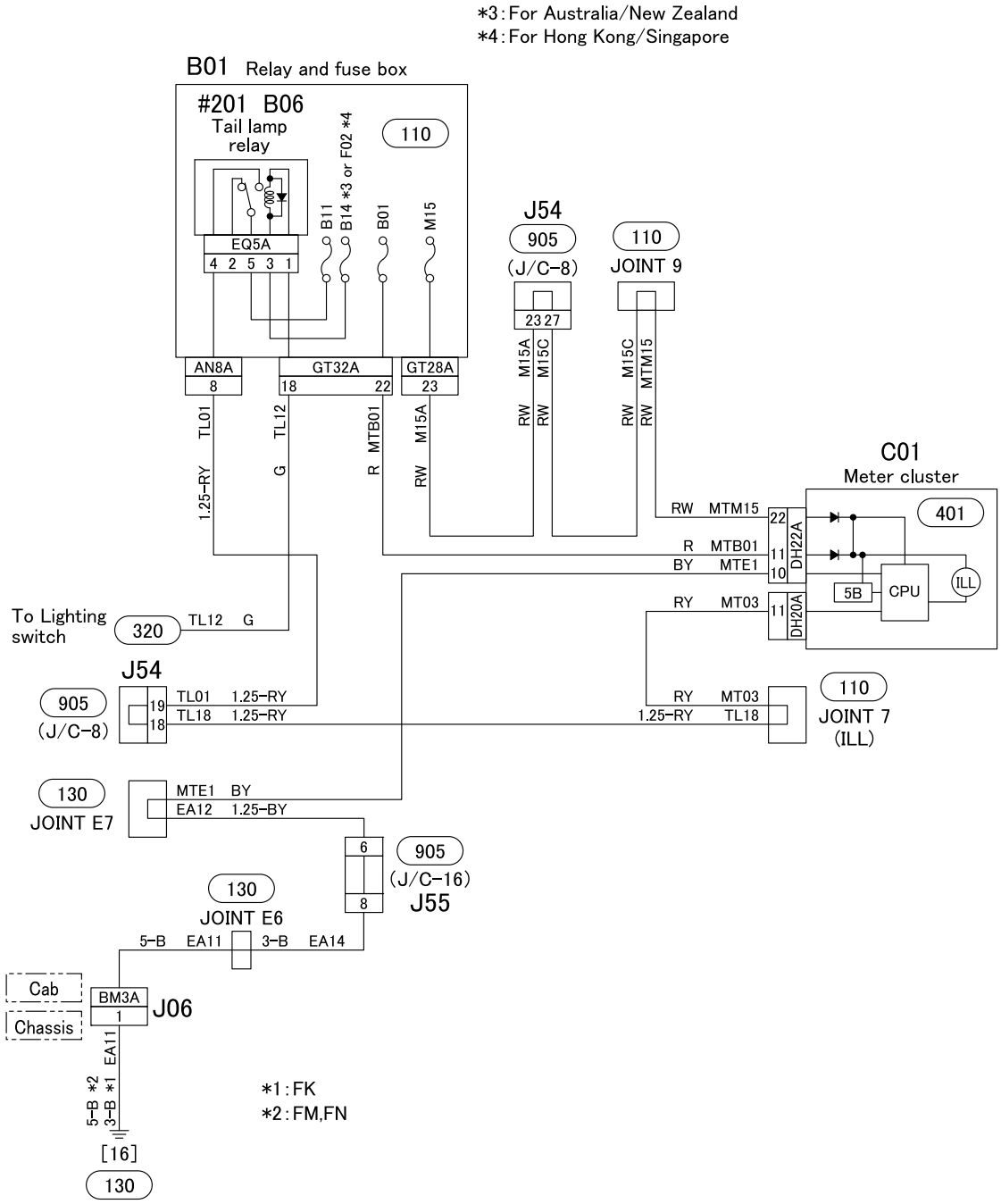
CAB LAMP CIRCUIT (1)



CAB LAMP CIRCUIT (2)

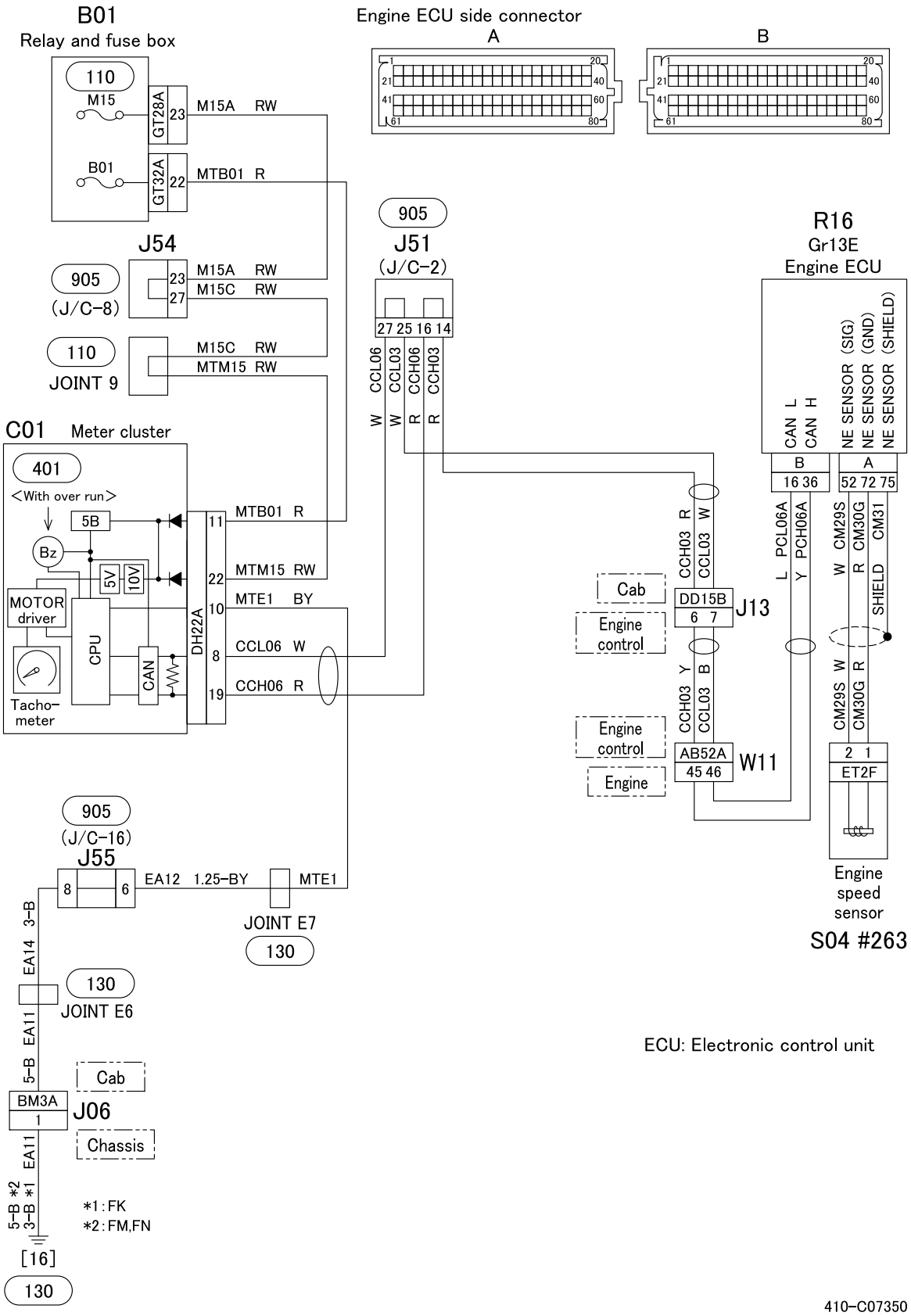


ILLUMINATION LAMP CIRCUIT

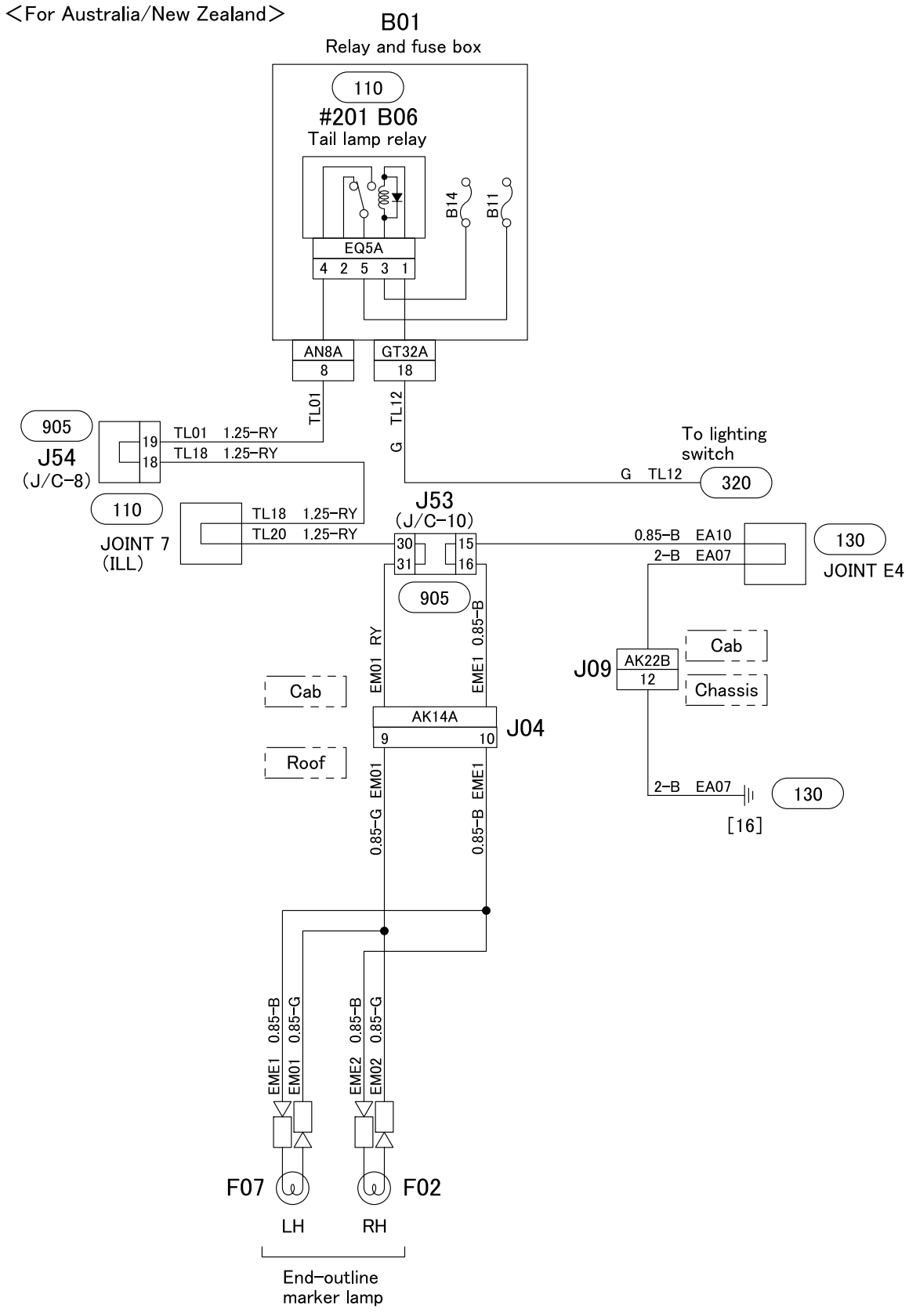


348-C07350

TACHOMETER CIRCUIT

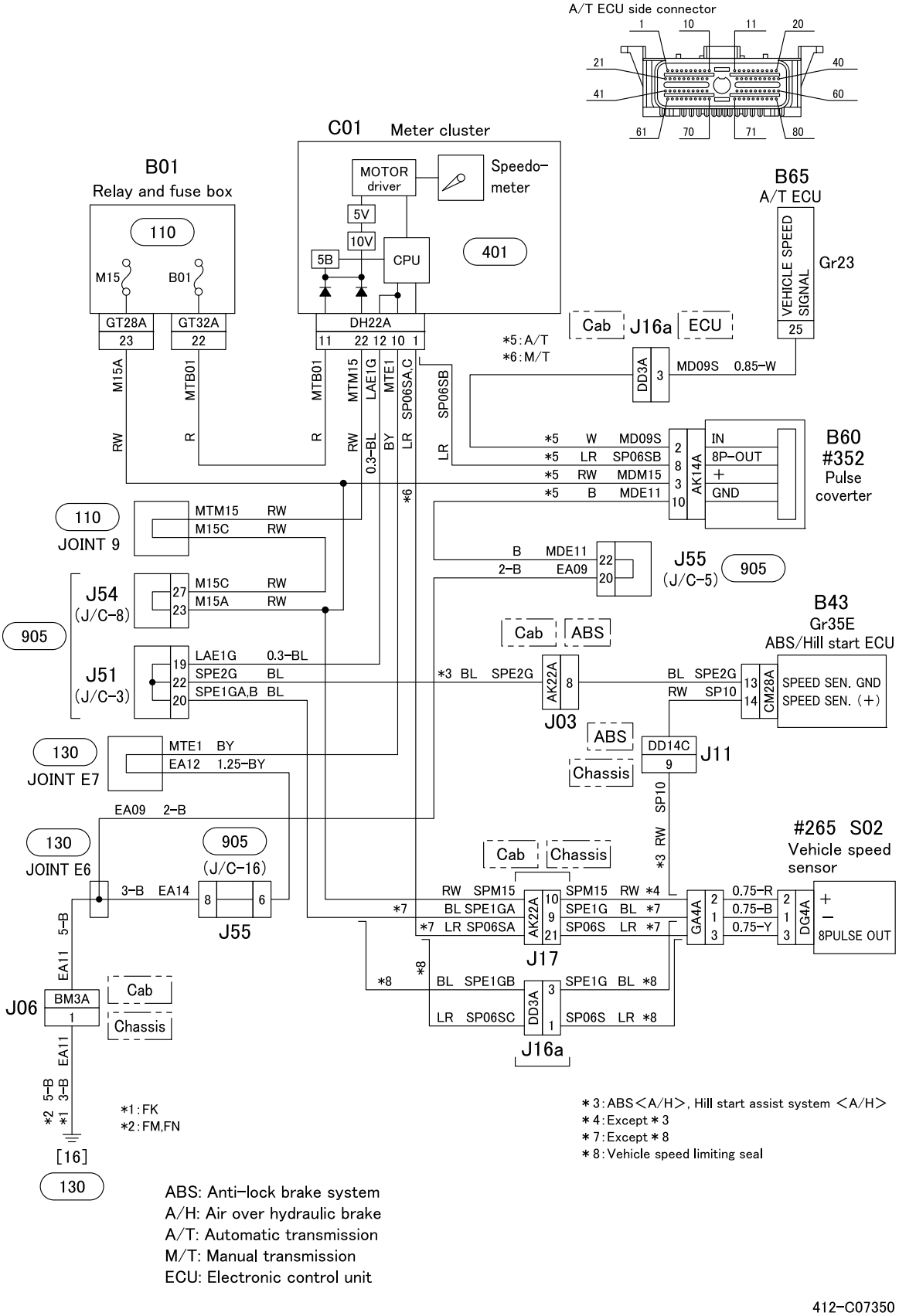


MARKER AND IDENTIFICATION LAMP CIRCUIT

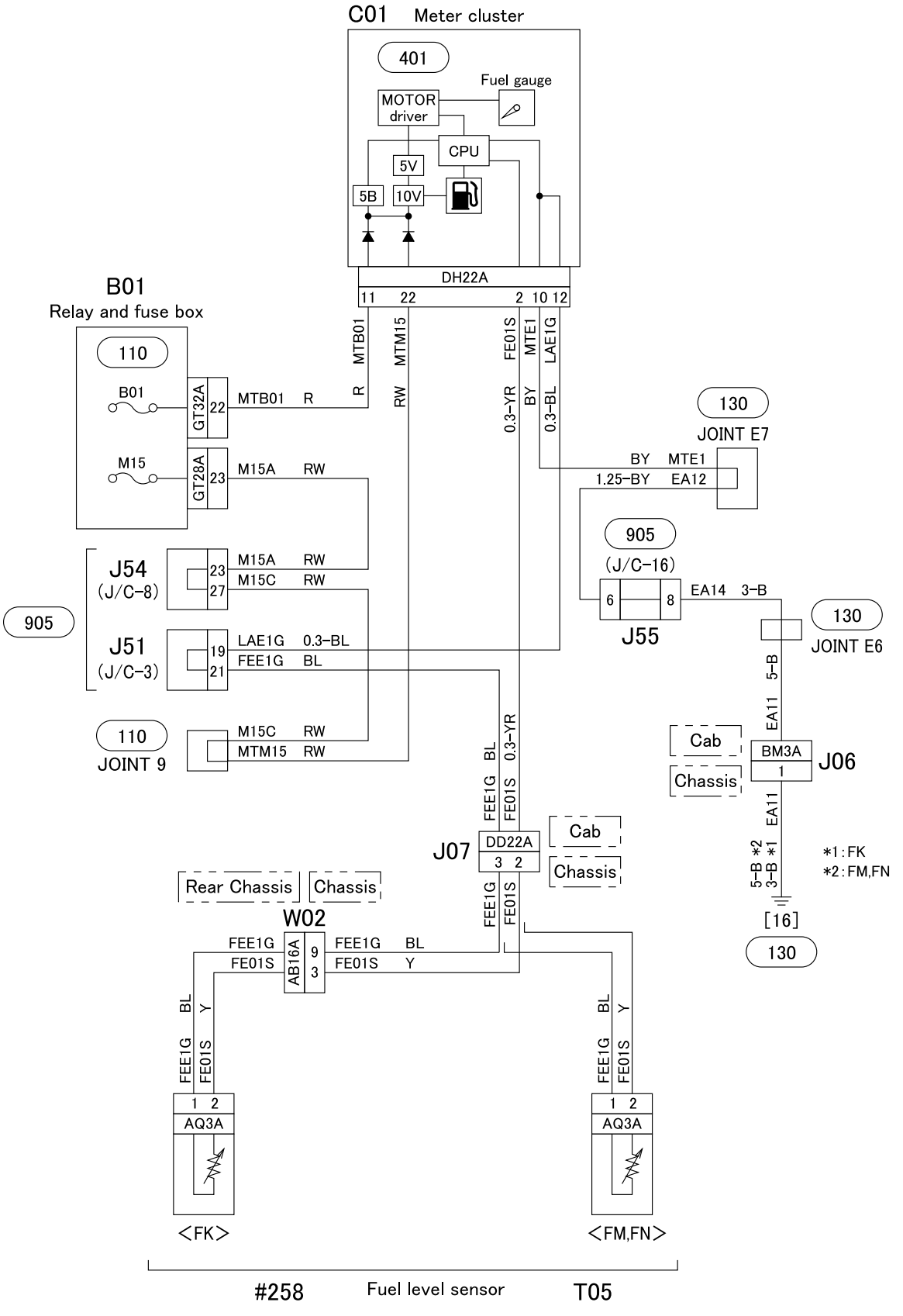


349-C07350

SPEEDOMETER CIRCUIT

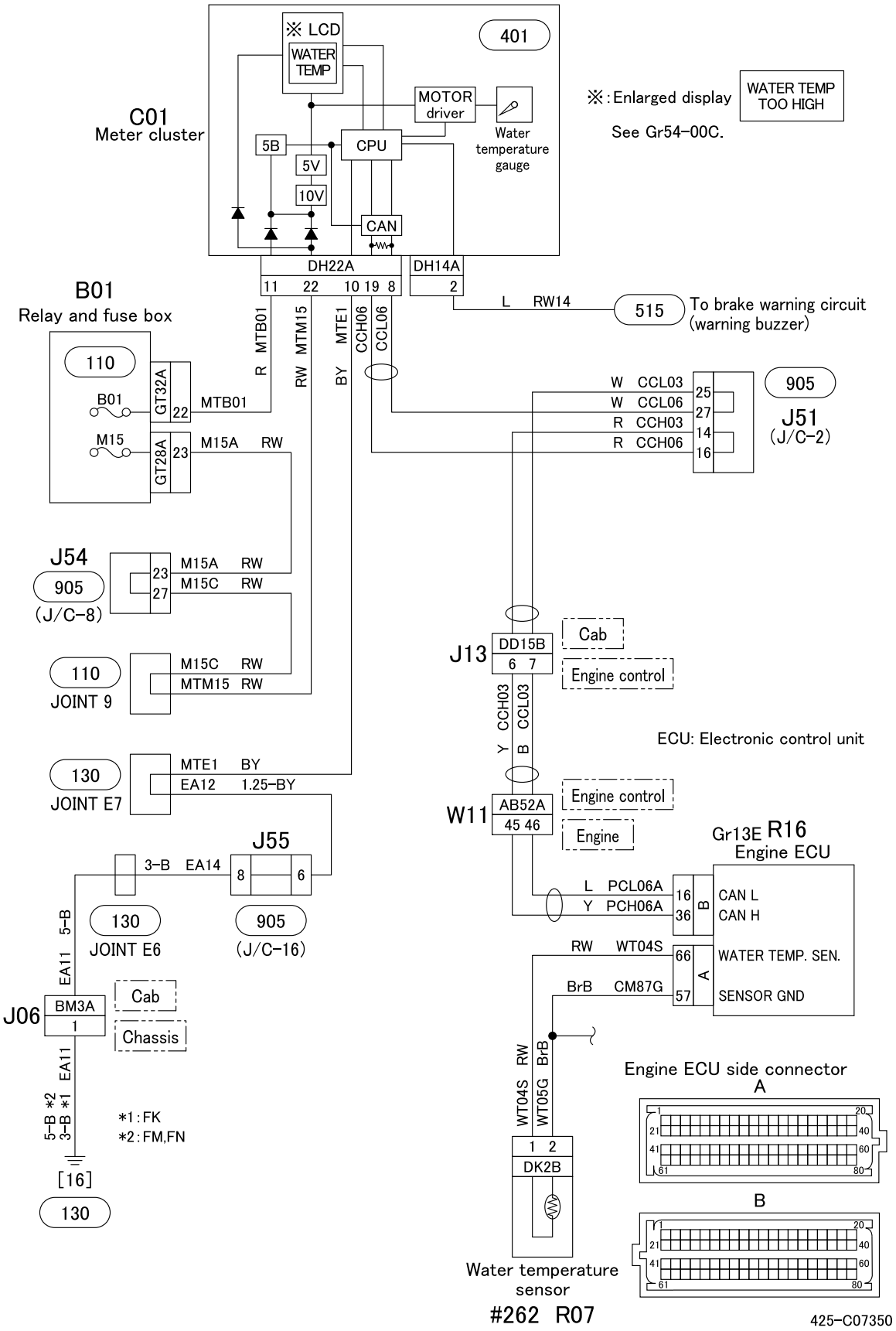


FUEL GAUGE CIRCUIT

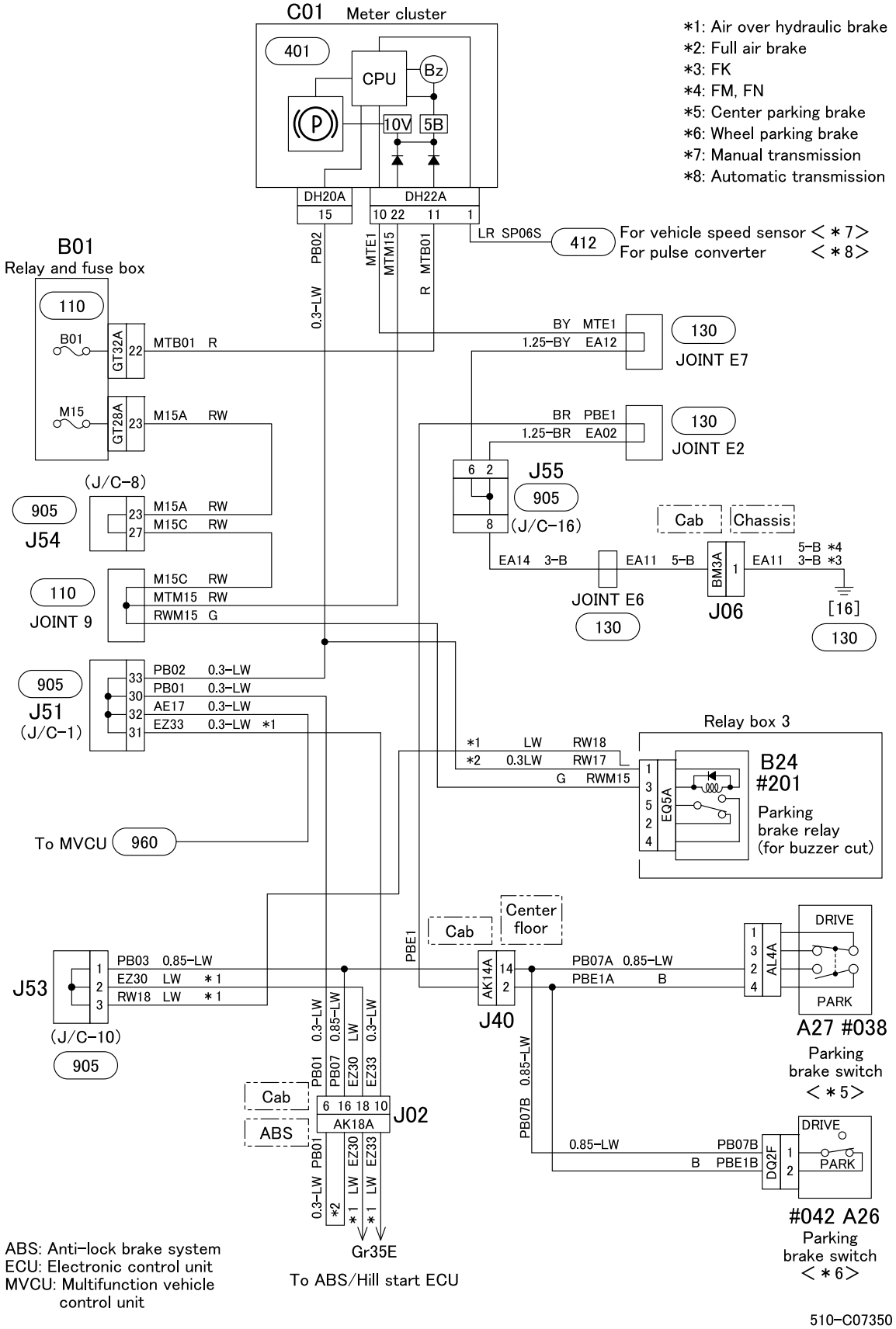


420-C07350

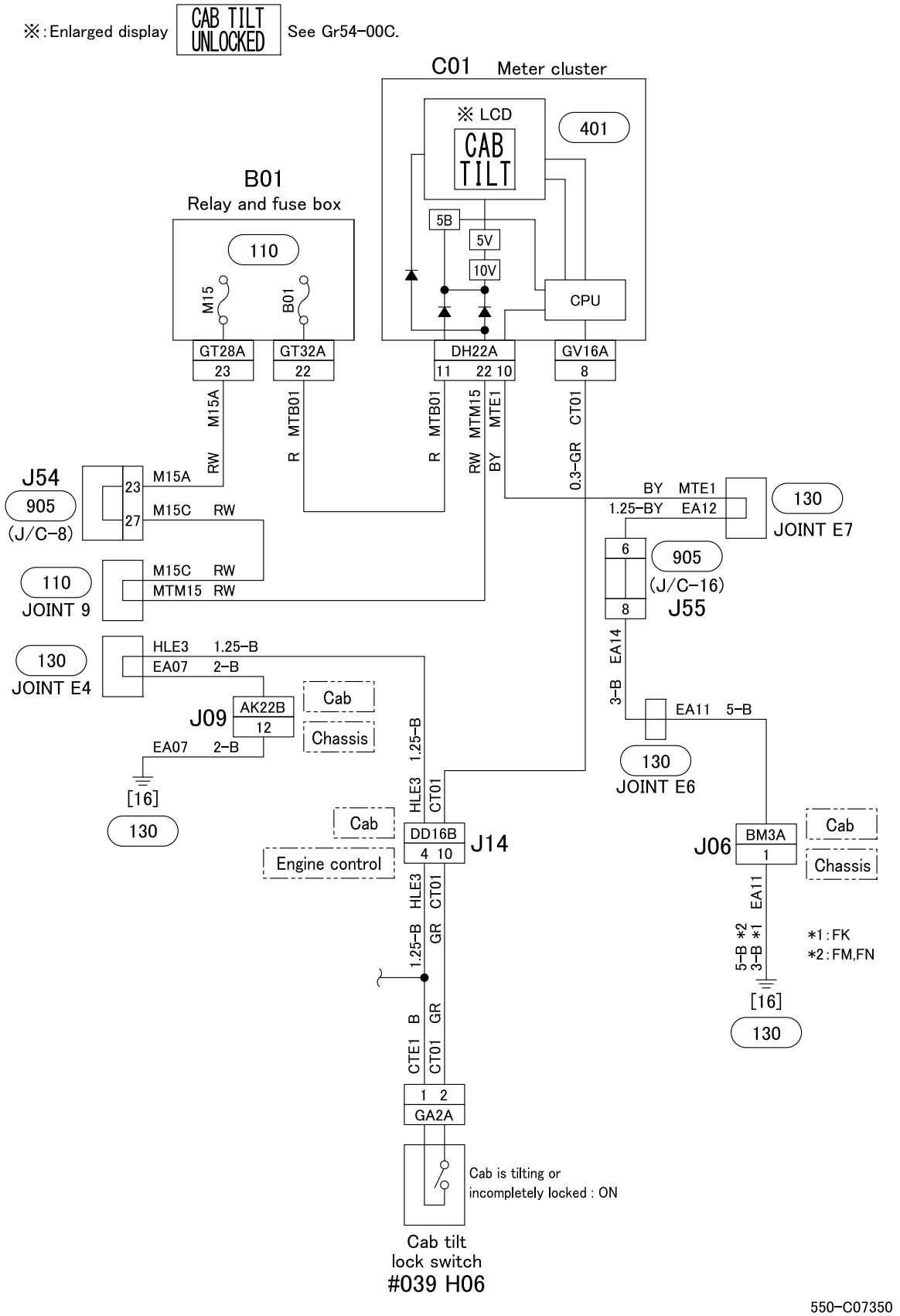
WATER TEMPERATURE GAUGE CIRCUIT



PARKING BRAKE INDICATOR CIRCUIT

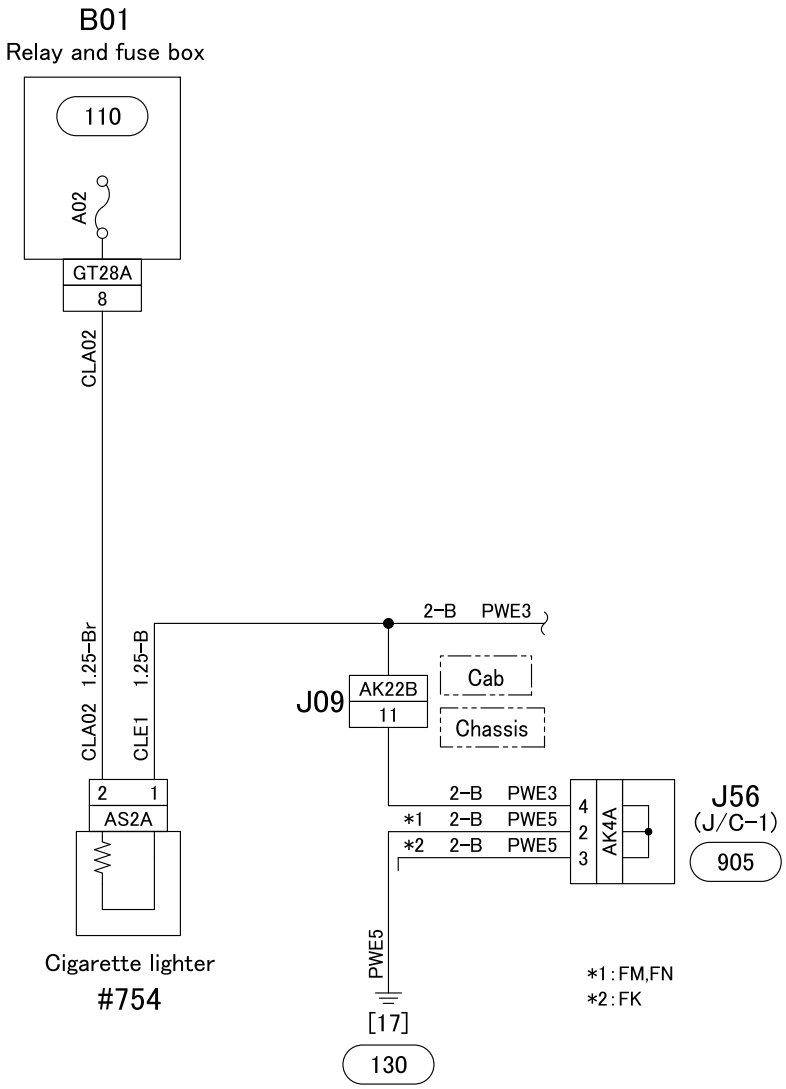


CAB TILT WARNING CIRCUIT



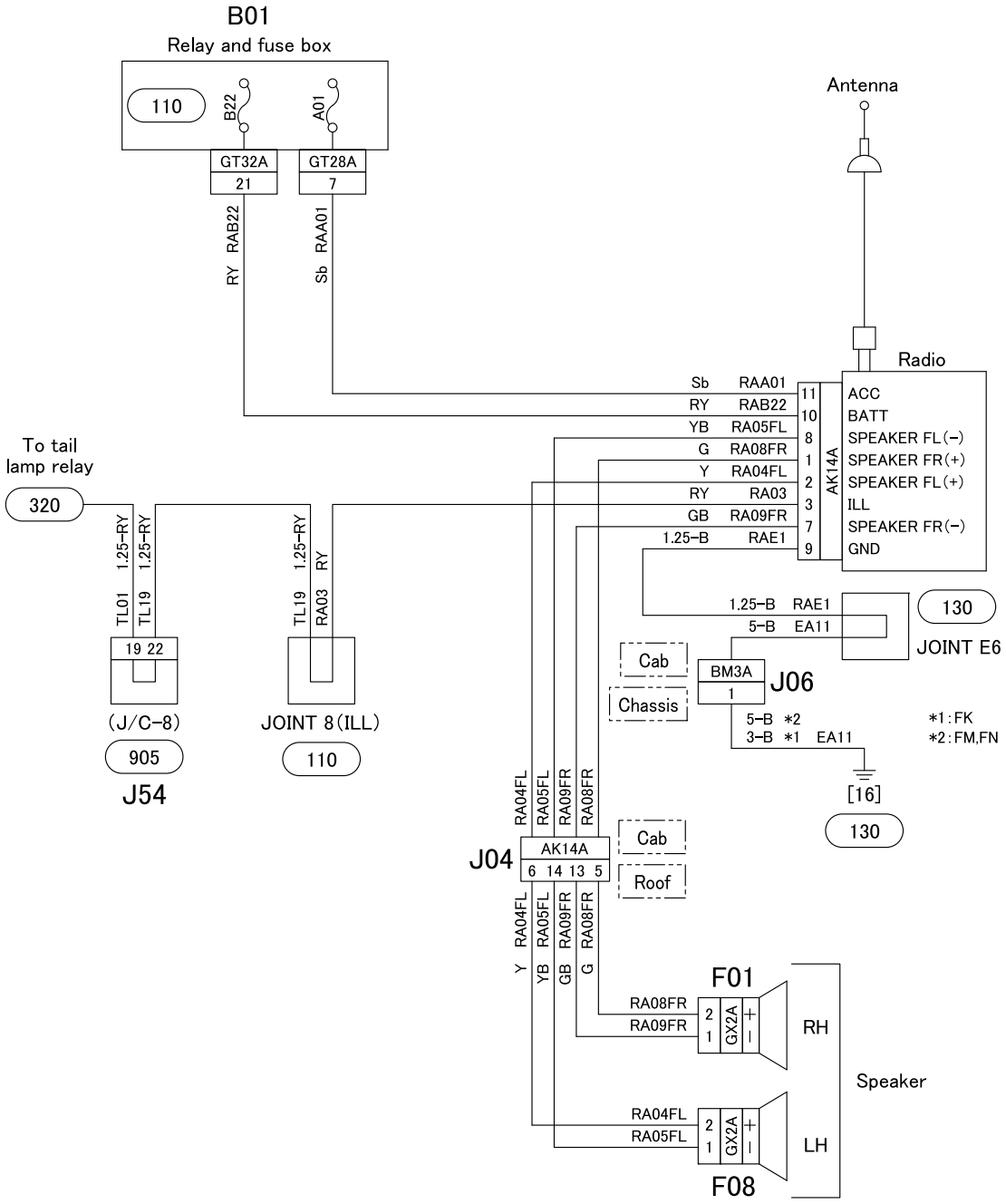
550-C07350

CIGARETTE LIGHTER CIRCUIT



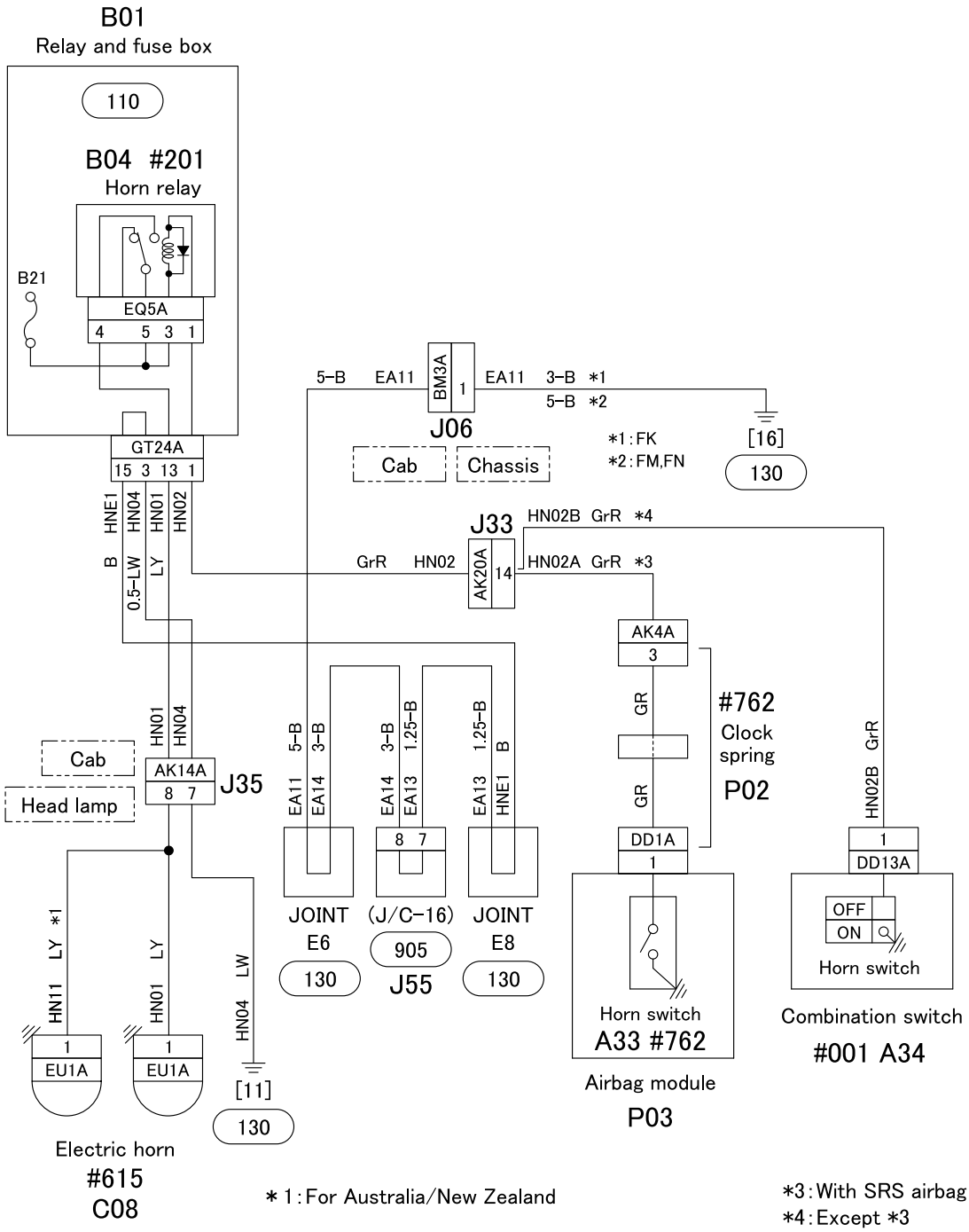
610-C07350

AUDIO CIRCUIT



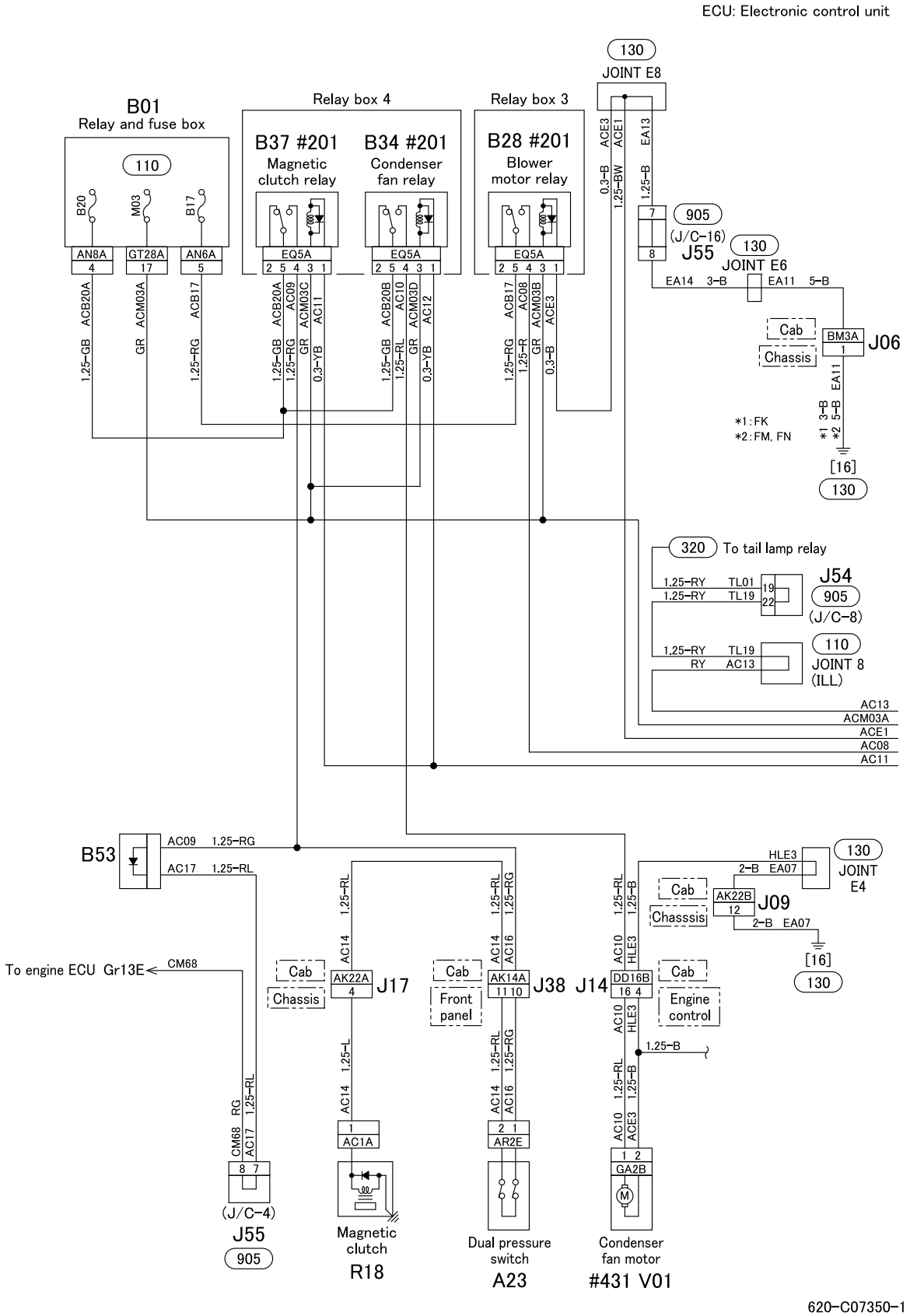
612-C07350

HORN CIRCUIT

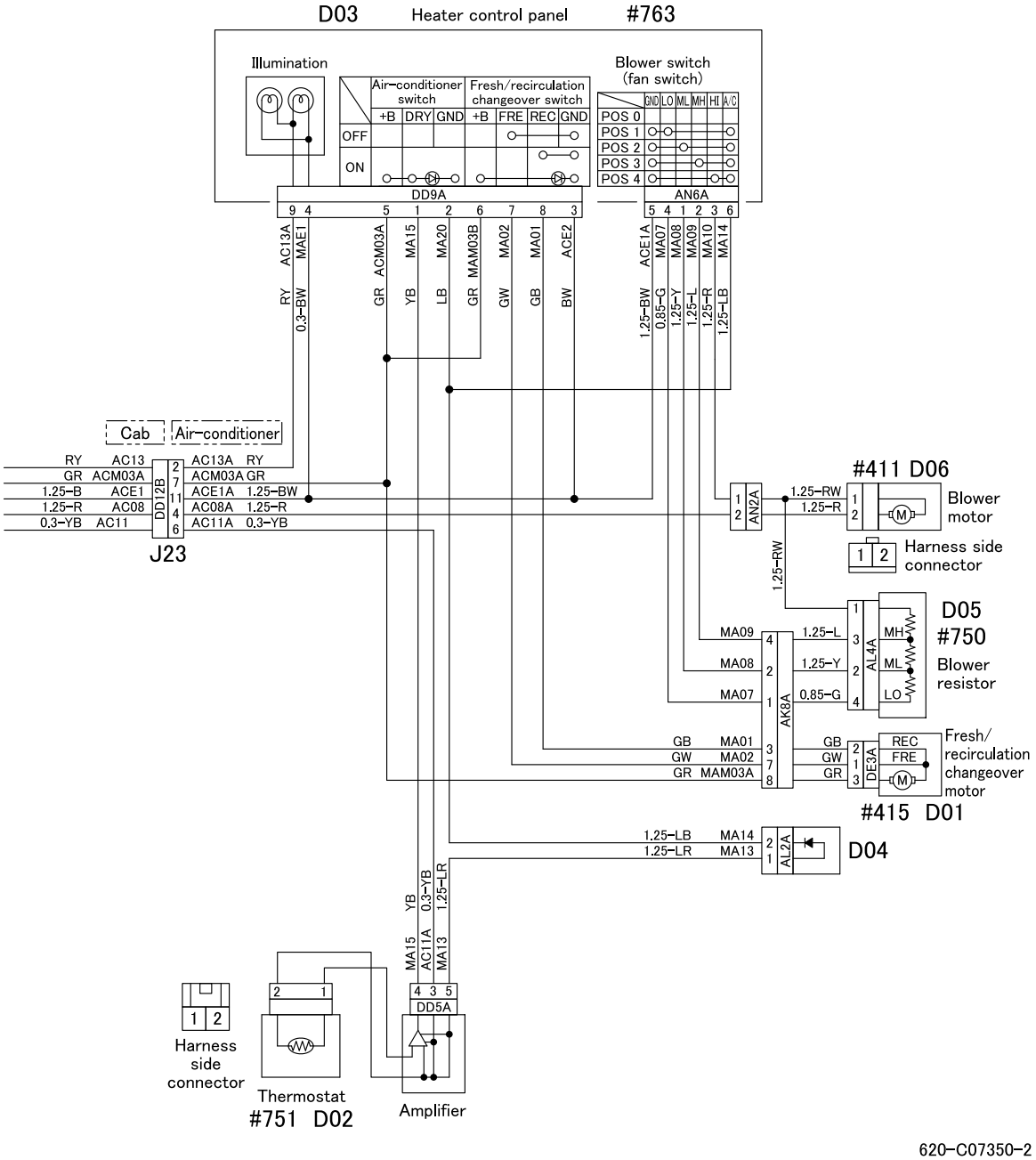


616-C07350

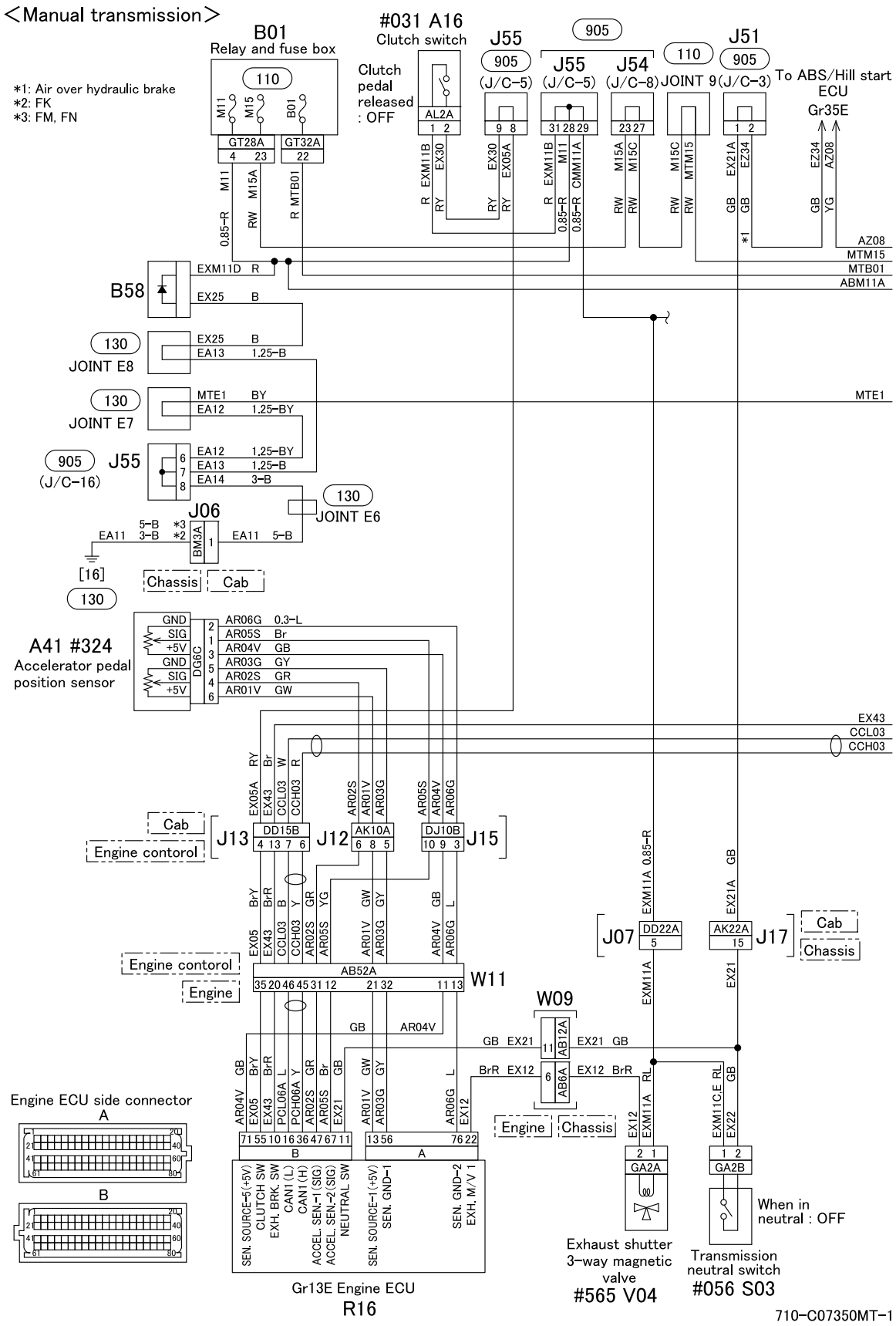
AIR CONDITIONER CIRCUIT (1)



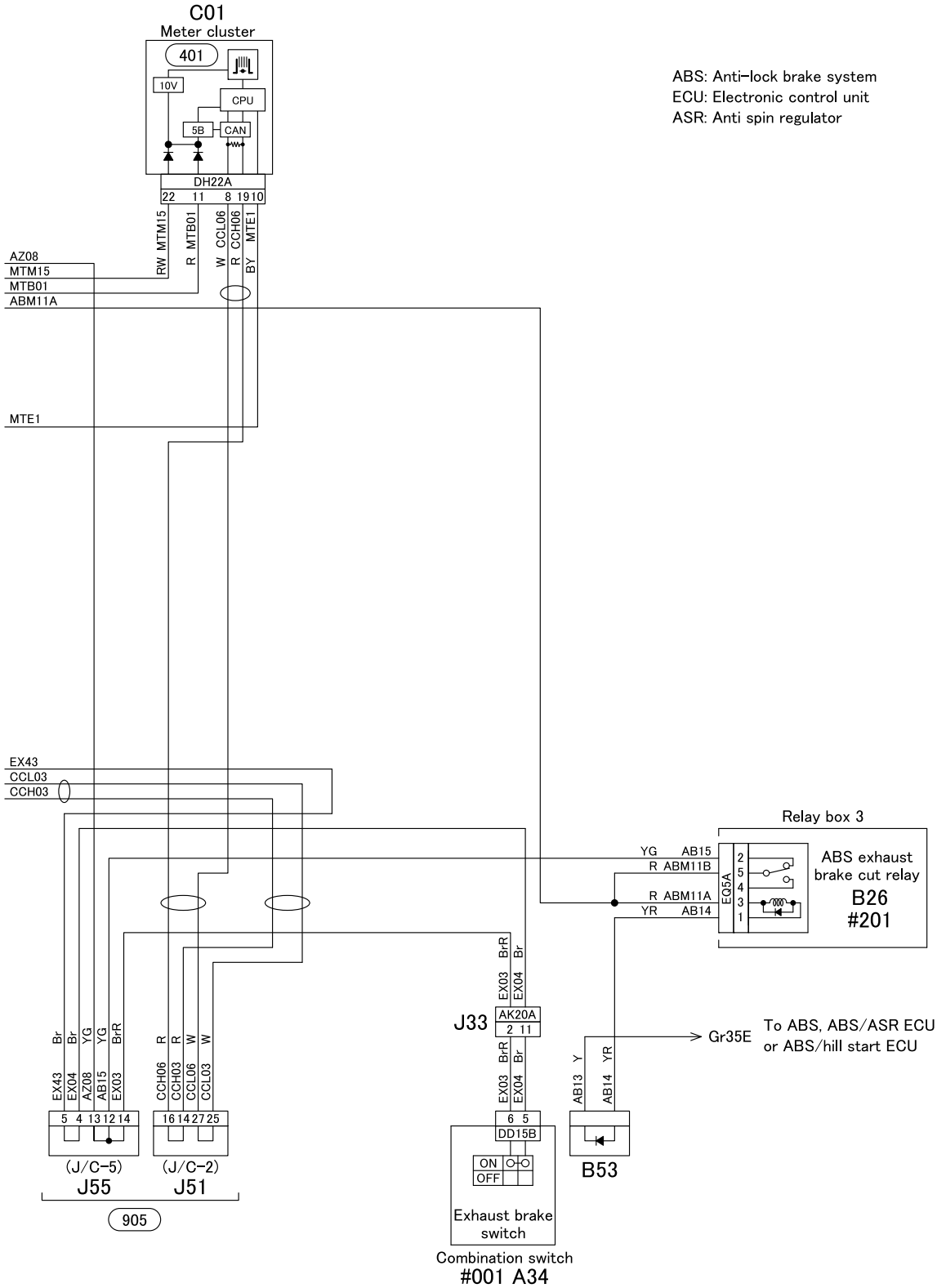
AIR CONDITIONER CIRCUIT (2)



EXHAUST BRAKE CIRCUIT (1)

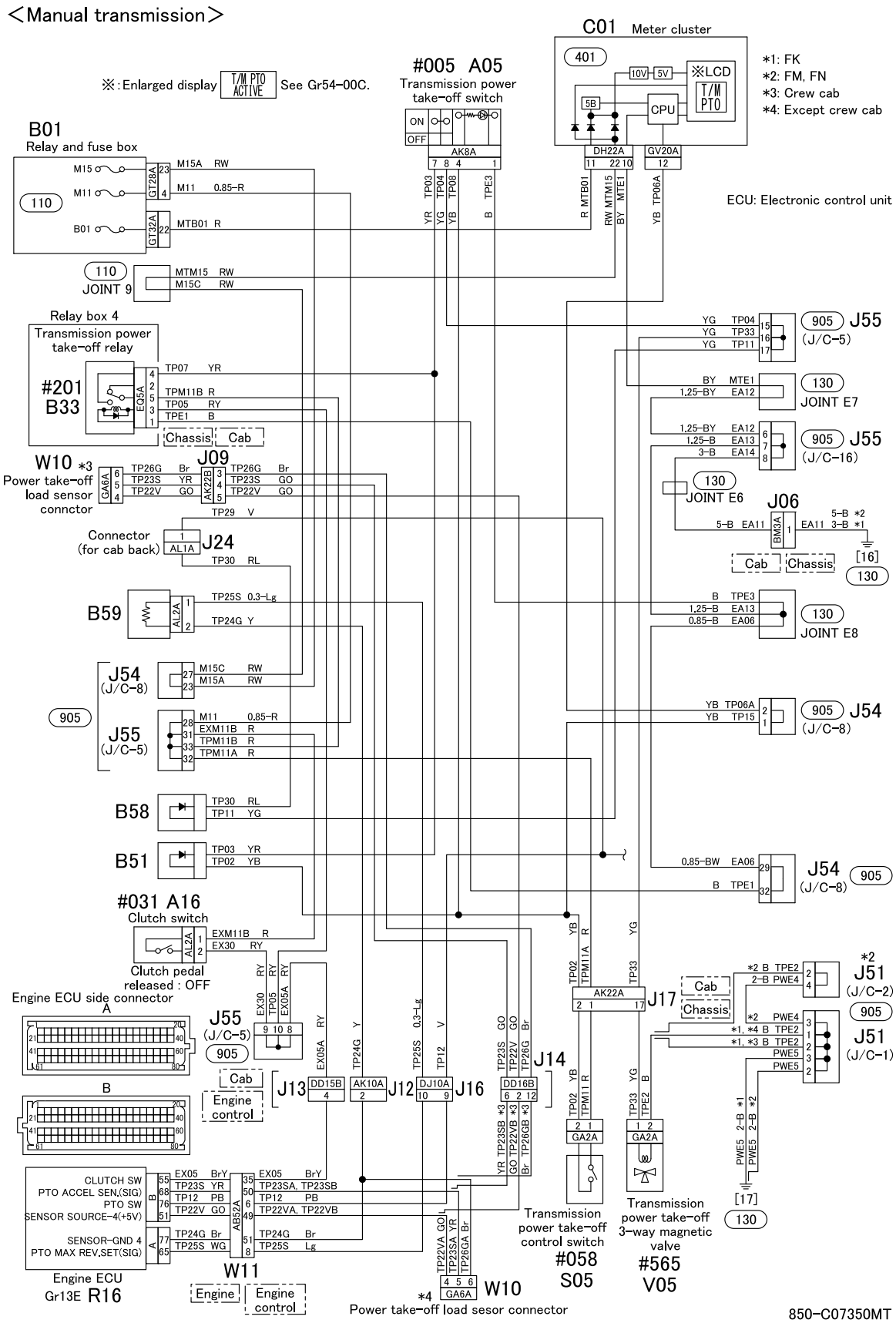


EXHAUST BRAKE CIRCUIT (2)



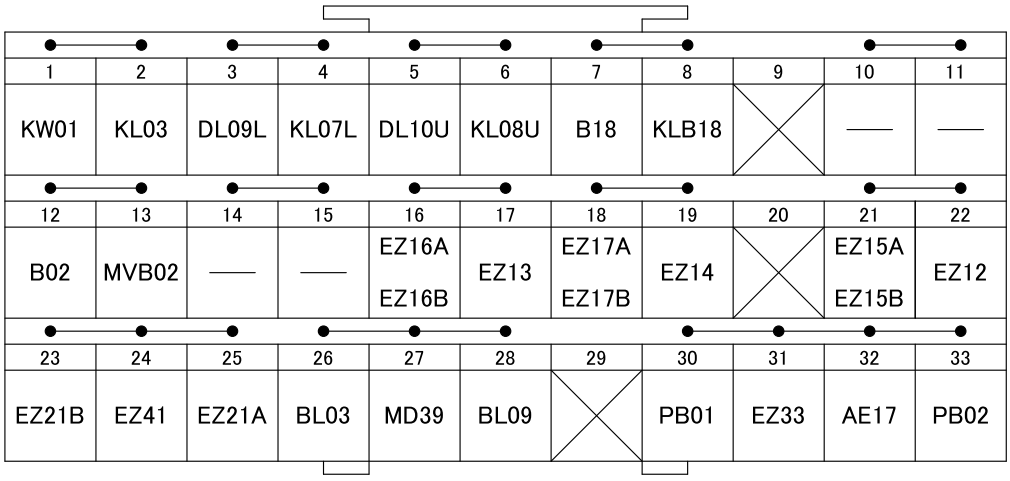
710-C07350MT-2

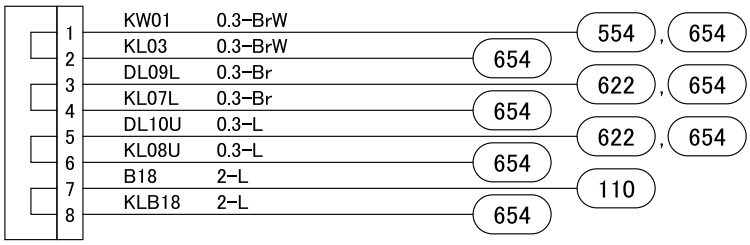
TRANSMISSION POWER TAKE-OFF CIRCUIT

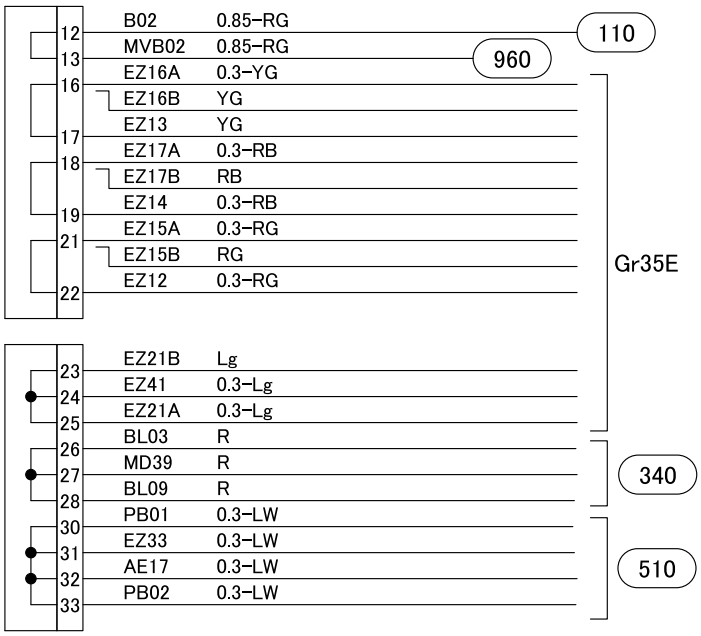


JOINT CONNECTOR (J/C) (1)

＜J/C-1＞





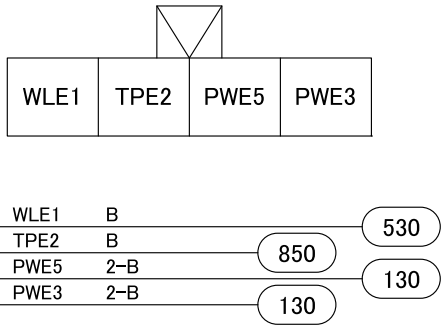


905-C07350JC1-1

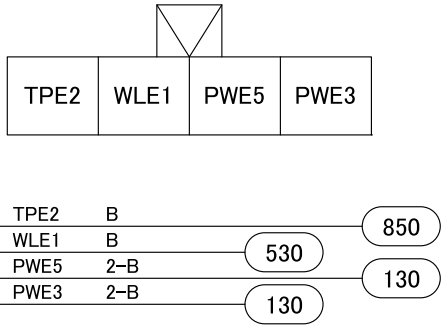
JOINT CONNECTOR (J/C) (2)

＜J/C-1＞
(Connector type : AK4A)

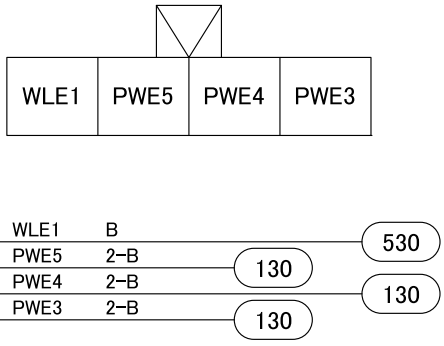
FK (crew cab)



FK (single cab)



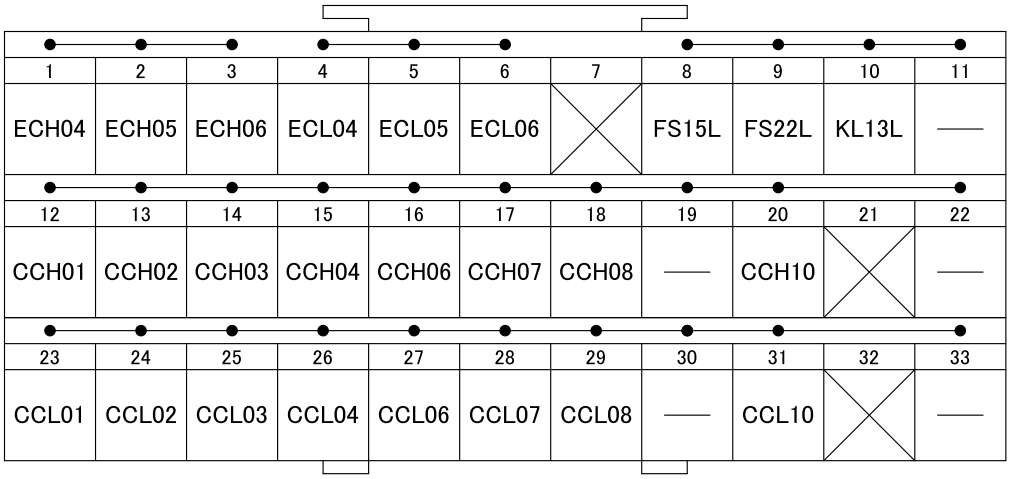
FM, FN

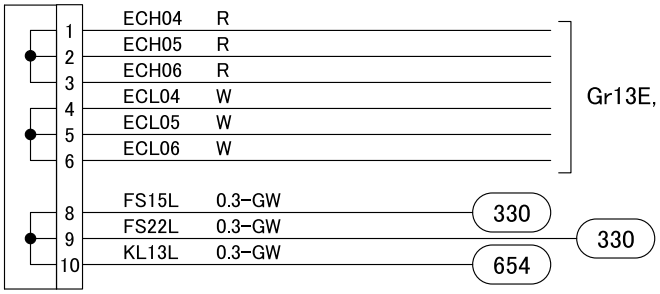


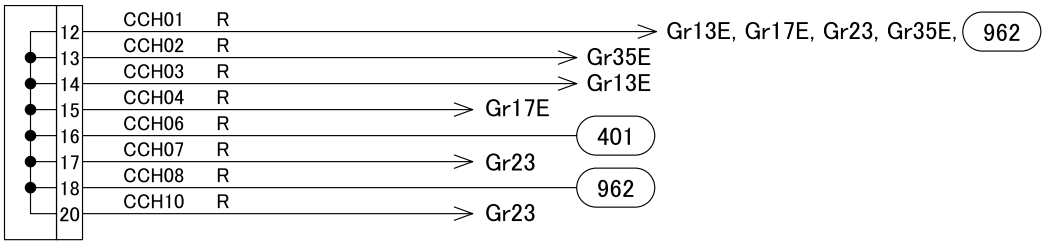
905-C07350JC1-2

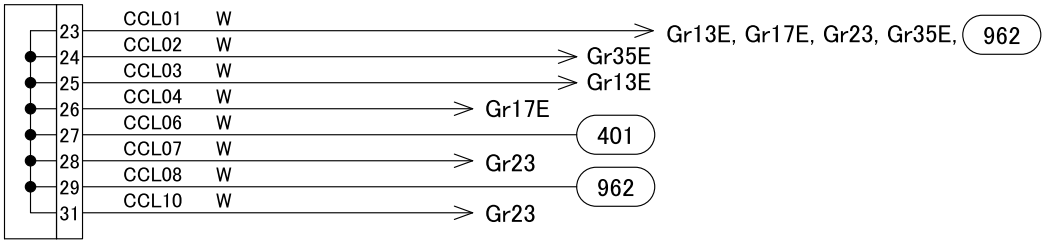
JOINT CONNECTOR (J/C) (3)

＜J/C-2＞







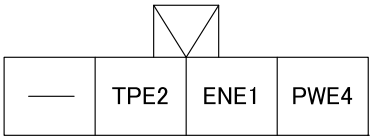


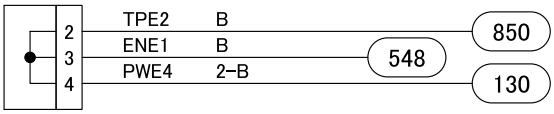
905-C07350JC2-1

JOINT CONNECTOR (J/C) (4)

＜J/C-2＞
(Connector type : AK4A)

FM, FN

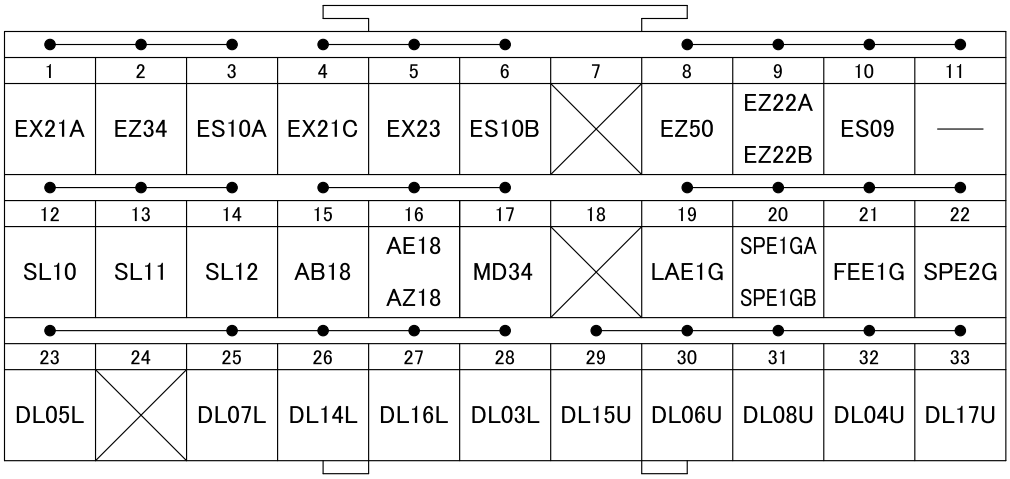


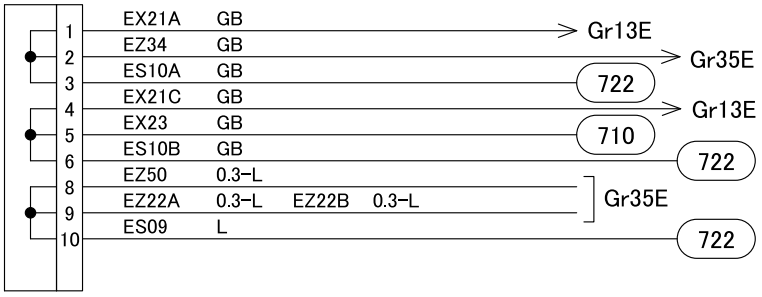


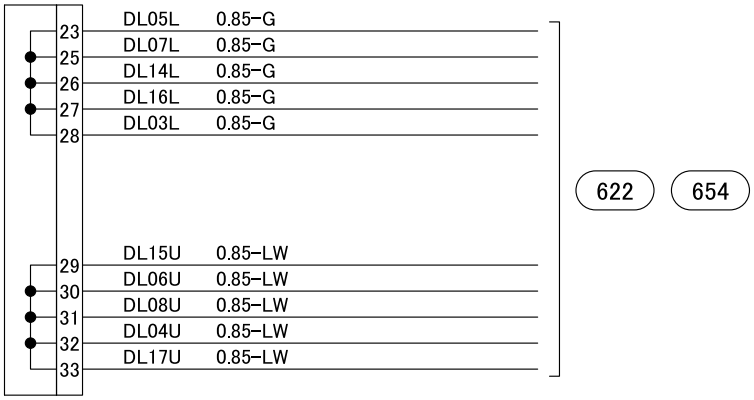
905-C07350JC2-2

JOINT CONNECTOR (J/C) (5)

＜J/C-3＞



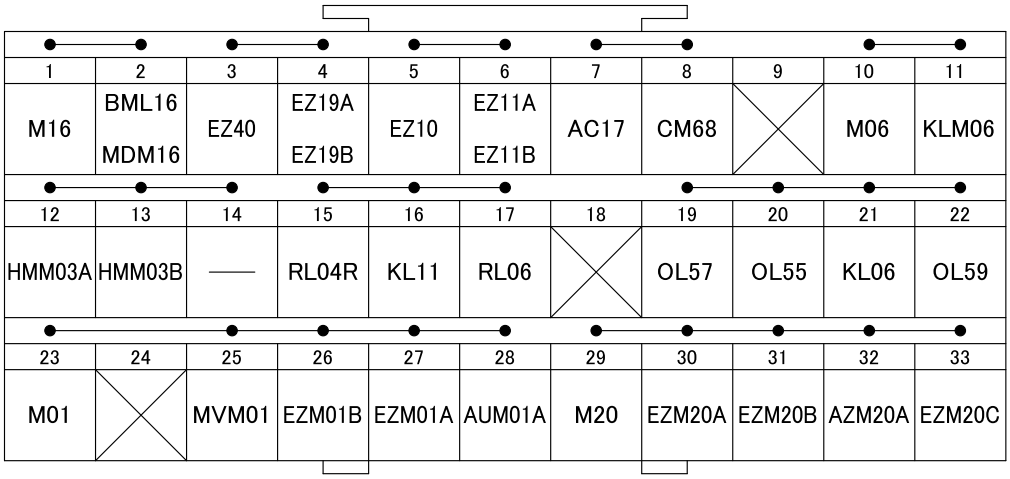


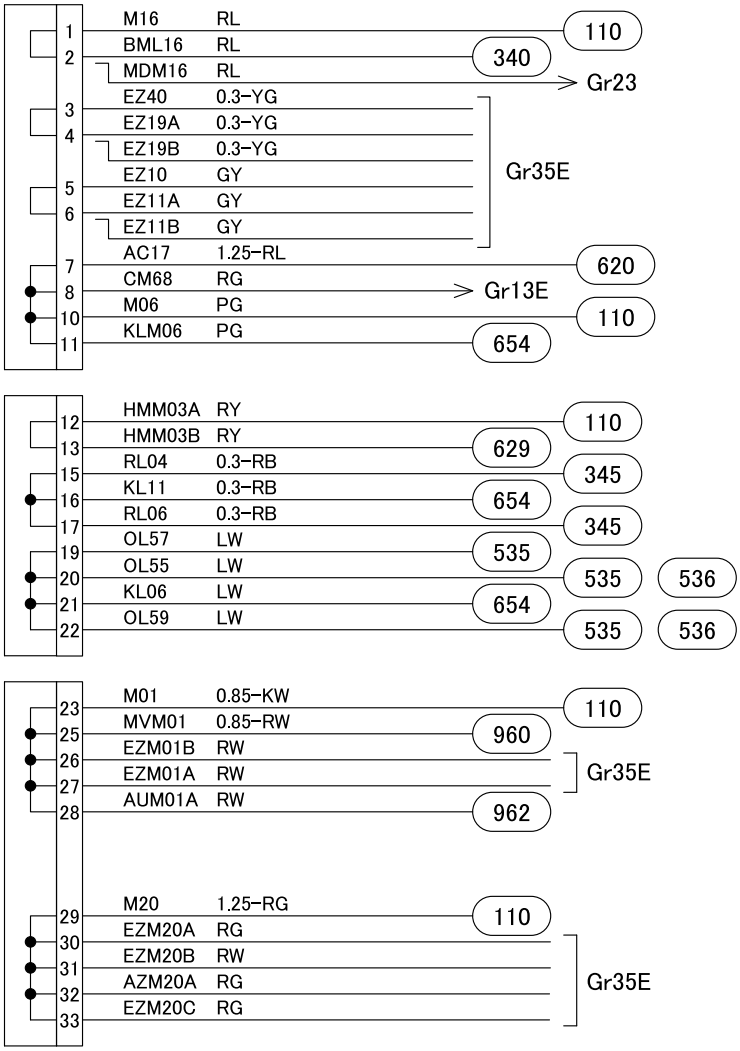


905-C07350JC3

JOINT CONNECTOR (J/C) (6)

＜J/C-4＞

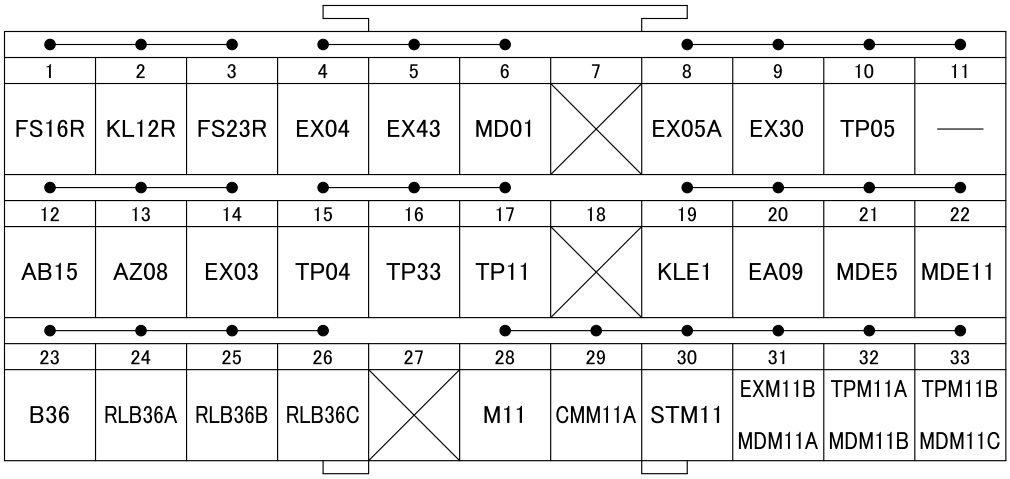


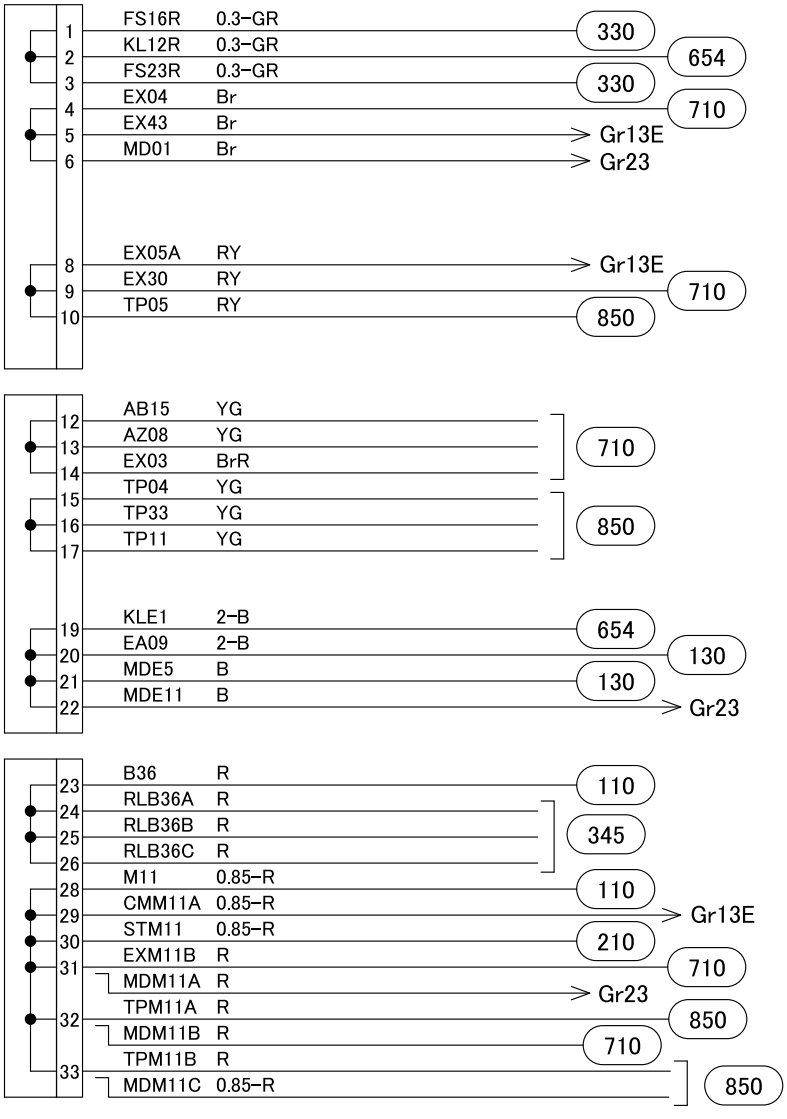


905-C07350JC4

JOINT CONNECTOR (J/C) (7)

＜J/C-5＞

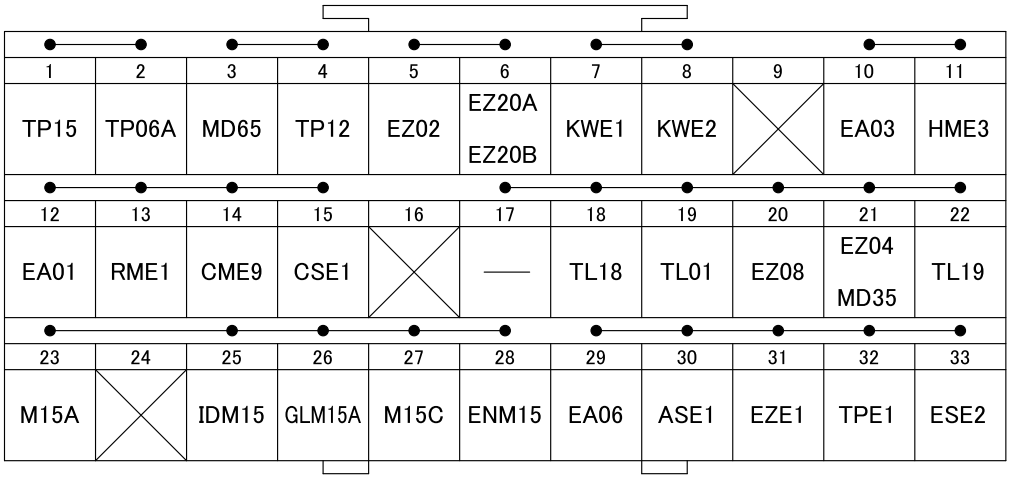


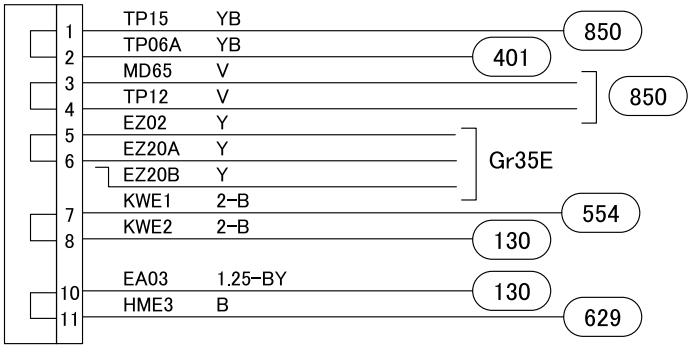


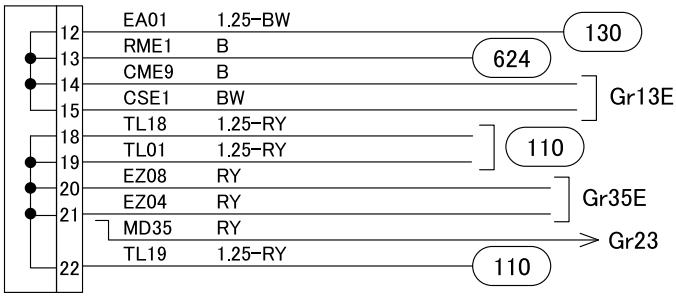
905-C07350JC5

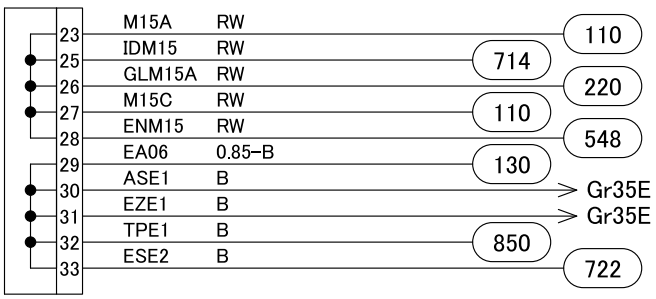
JOINT CONNECTOR (J/C) (8)

＜J/C-8＞





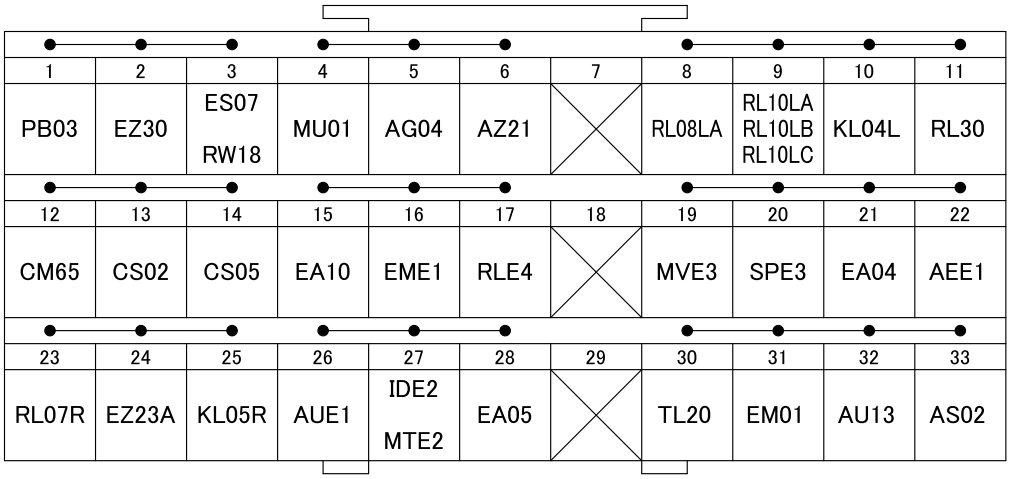


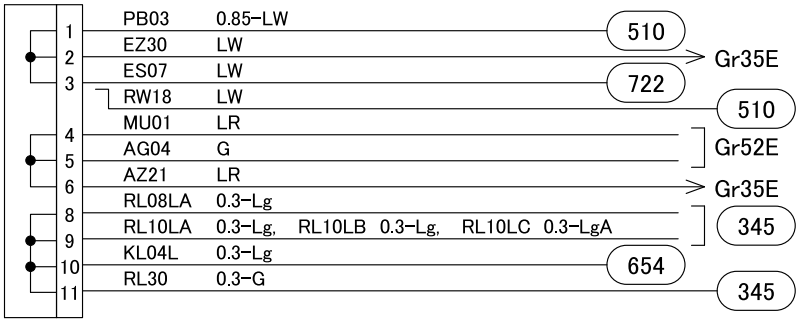


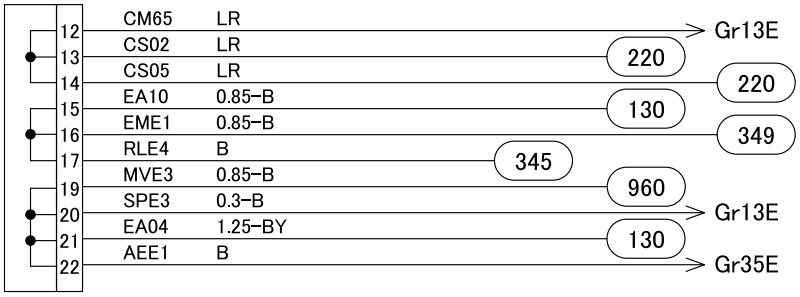
905-C07350JC8

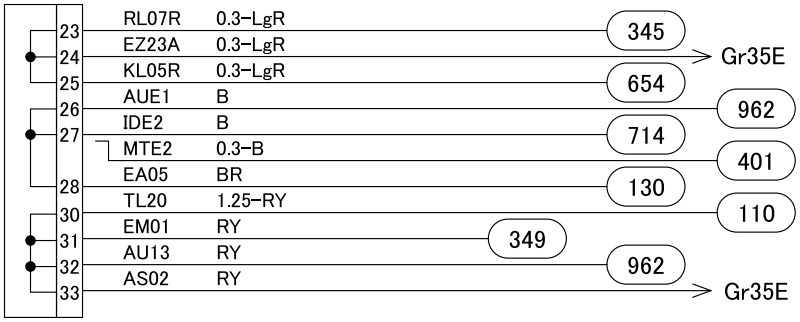
JOINT CONNECTOR (J/C) (9)

＜J/C-10＞





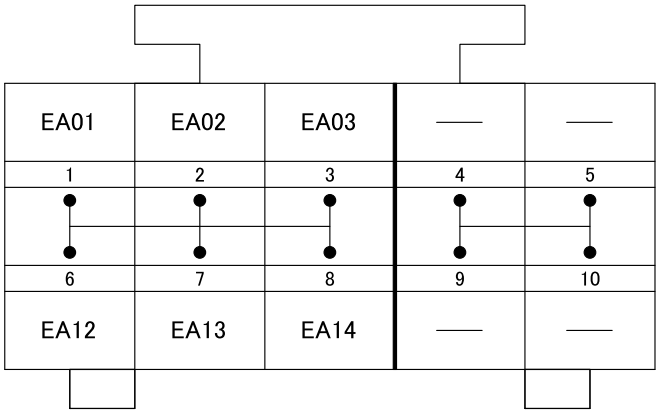


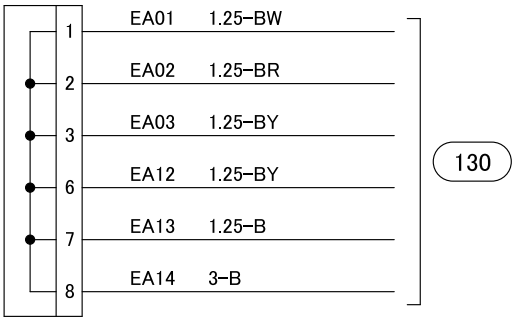


905-C07350JC10

JOINT CONNECTOR (J/C) (10)

＜J/C-16＞

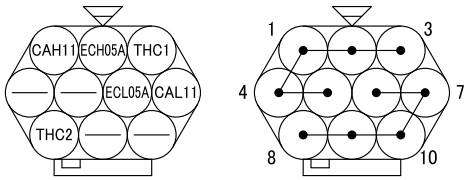


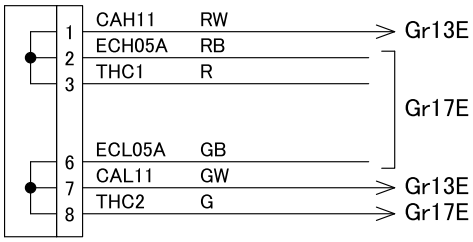


905-C07350JC16

JOINT CONNECTOR (J/C) (11)

＜J/C＞

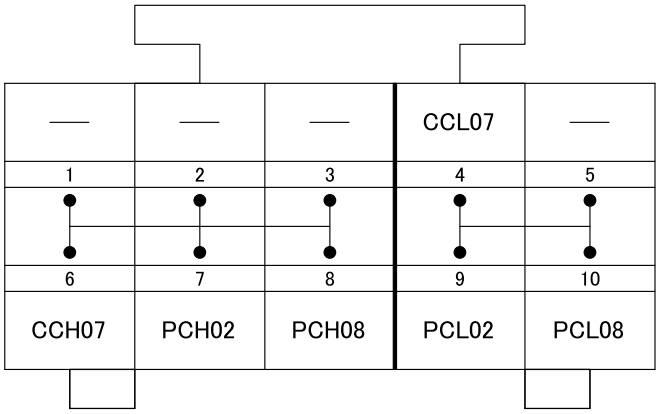


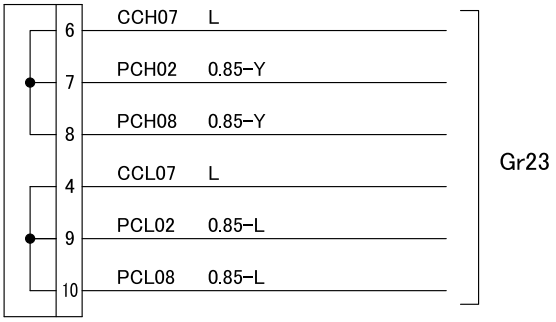


905–C07350JC

JOINT CONNECTOR (J/C) (12)

＜J/C-M1＞





905-C07350JCM1

Revision record <Electrical systems section>

–	31. Aug. 2012	Newly issued
Rev. code	Date issued	Remarks

NOTE:

1, Chapter 1-9 is Common Section for all markets and to be revised without any special notification. Therefore, please note that this version is not necessarily the latest one.

2, Chapter 10 is for specific market(s). MFTBC will distribute the latest version whenever it will be revised.

Body/equipment mounting directives

<Electrical systems section>

FK.FM.FN

Australia

MITSUBISHI FUSO TRUCK & BUS CORPORATION

Aug. 2012 TM2FA