

Body/equipment mounting directives

FK.FM.FN

Australia



Body/equipment mounting directives

FK.FM.FN.FQ

Common Section

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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:

- 1 Introduction ▷ 1.1
- 2 General ▷ 2.1
- 3 Planning of bodies ▷ 3.1
- 4 Technical threshold values for planning ▷ 4.1
- 5 Damage prevention ▷ 5.1
- 6 Modifications to the basic vehicle ▷ 6.1
- 7 Construction of bodies ▷ 7.1
- 8 Electrics/electronics ▷ 8.1
- 9 Calculations ▷ 9.1
- 10 Technical data ▷ 10.1

Appendix

Index ▷



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 "Technical threshold values for planning" ▷ 4.1 as planning must be based on these values.

Section 6 "Modifications to the basic vehicle" ▷ 6.1 and Section 7 "Construction of bodies" ▷ 7.1 represent the main source of technical information contained in these body/equipment mounting directives.



1 Introduction



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.

1.1 The aim of these directives

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.

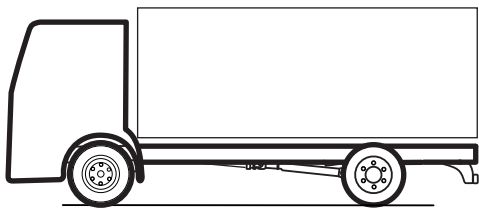
Additional information is available from any

MITSUBISHI FUSO authorized Distributer

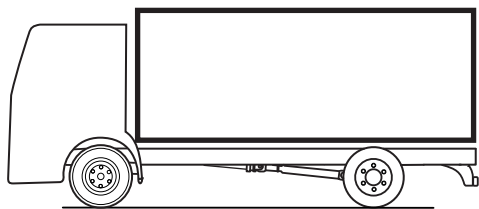
Your

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.



This symbol indicates the item on which you will find further information on the subject. These items 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 ▷ 2.2.

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, GVW 10.4 to 13.5, 14.0 tons M: 4 × 2, GVW 16.0, 17.1 tons N: 6 × 2, 6 × 4, GVW 23.2 to 24.0, 25.0 tons Q: 6 × 4, GVW 20.0 tons
	Development sequential number	
	Suspension type	<FK> 2: Leaf spring type suspension (full air brake) 5: Rear air suspension (full air brake) <FM> 5: Leaf spring type suspension (full air brake) 7: Rear air suspension (full air brake) <FN> 2: 6 × 4 Leaf spring type suspension (full air brake) 3: 6 × 2 Rear air suspension (full air brake) 4: 6 × 4 Rear air suspension (full air brake) <FQ> 2: Leaf spring type suspension (full air brake)
	Engine type	F: 6M60
F	Export specification (Except Australia/New Zealand)	Generation
K	Transmission type (Australia/New Zealand)	C: M070_Transmission D: ALLISON_AT Transmission (MY21~:GVW 11t-13.5t) G: M060_Transmission H: M070_Transmission + FUP (only Australia) J: ALLISON_AT Transmission + FUP K: EATON_Transmission + FUP (only Australia) L: ALLISON_AT Transmission (Euro V / VI:GVW 11t-13.5t) M: ALLISON_AT Transmission + FUP (only Australia) P: ALLISON_AT Transmission (MY21~:GVW 14t)
6	Export specification (Destination code)	DA: Hong Kong DB: Taiwan DE: Singapore FA: Australia FB: New Zealand KD:Morocco
2	Steering wheel position	L: Left hand R: Right hand
F	Engine type	2: 6M60T2 199 kW (270 PS)/2,500 rpm 5: 6M60T5 177 kW (240 PS)/2,270 rpm 6: 6M60T6 199 kW (270 PS)/2,500 rpm
H	Chassis arrangement for use	None: Single cab F: Fire engine Y: Higher-tonnage class GVW 11.0 tons (FK) Z: Higher-tonnage class GVW 12.0 to 14.0 tons (FK)
W	Wheelbase (m)	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
1		
R		
F		
A		
C		



2.2 Technical advice and contact persons

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.

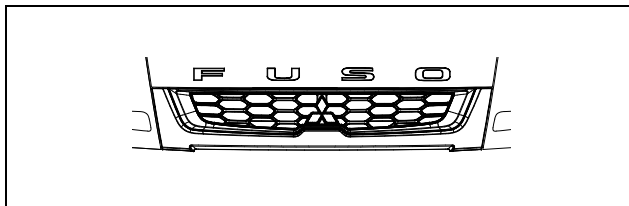
2.5 Mitsubishi three diamonds and Fuso emblem

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 ▷ 2.2.

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 environmentally-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 ▷ 2.2.

- 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" ▷ 5.6.2.

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.

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.

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.

3 Planning of bodies

3.3 Dimensions, weights, vehicle overall height

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" ▷ 4.1.

Information about changes in weight is available from the department responsible ▷ 2.2.

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 $\pm 3.5\%$ 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 Planning of bodies

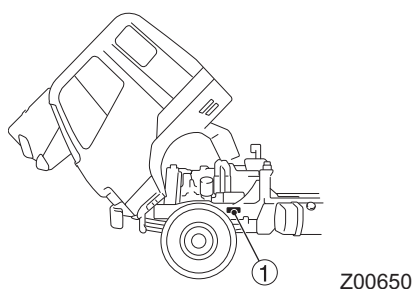
3.4 Vehicle type identification data

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: FK625F - A□□□□□
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

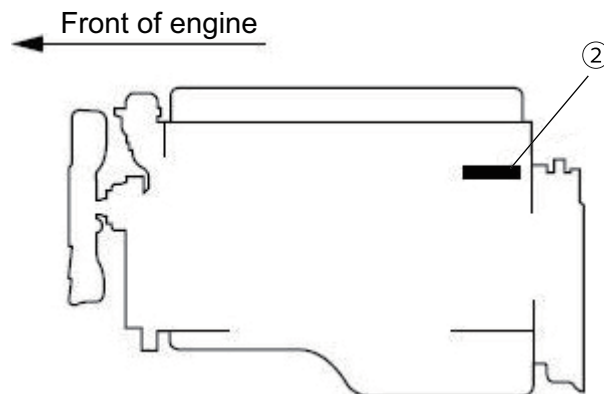
<Type 3>

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>

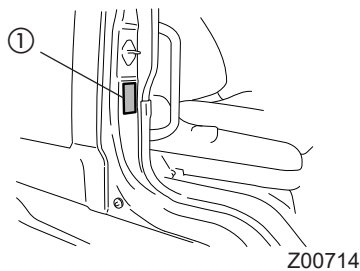


Example: 6M60 - □□□□□□
Engine number
Engine model

3 Planning of bodies

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.

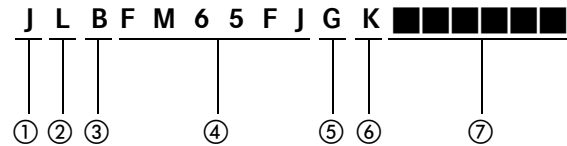
- The engine number.
- The vehicle identification number (V.I.N.) - shown on compliance plate.
- The S.O.A. No. (where applicable), option code, paint and trim codes located on date plate.

<Type 3>

Name plate is attached which location is decided by distributor.

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
H: 17M/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" ▷ 5.1 and Section 6 "Modifications to the basic vehicle" ▷ 6.1.

3.6.1 Bolted connections

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

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" ▷ 5.1 and Section 6 "Modifications to the basic vehicle" ▷ 6.1.



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"
▷ 10.15.3.
- 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 ▷ 2.2.

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" ▷ 6.14.

3.8.1 Euro VI



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.

To satisfy the Euro VI emission legislation, the BlueTec[®] system is used, which is based on combining the regeneration controlling diesel particulate filter (DPF) and the BlueTec[®] exhaust gas aftertreatment unit. The regeneration controlling diesel particulate filter regenerates the diesel particulate filter by removing the particulate matters (PM) accumulated in the ceramic filter by burning them using the high temperature exhaust gas. BlueTec[®] exhaust gas aftertreatment system consists of a Selective Catalytic Reduction (SCR) muffler with SCR catalyst and a series of components to add AdBlue[®] - urea tank, supply unit, dosing module, etc. The BlueTec[®] exhaust gas aftertreatment system reduces nitrogen oxide (NOx) contained in the engine exhaust.

3 Planning of bodies

3.9 Advanced Emergency Braking System (AEBS)

3.9 Advanced Emergency Braking System (AEBS)

Active Brake assist operates when there is a danger of collision with the vehicle, and it helps to alleviate collision damage.

- Place the starter switch in the "OFF" position before disconnecting the harness connector of the system control unit.
- For precautions when performing electric welding, refer to 5.2 "Welding work" ▸ 5.2.
- Radar unit and radar unit cover may cause trouble if repainted.
Mask these parts and components before starting painting to protect them against paint spray.
Remove radar unit if forced drying around radar unit.
- Contact a MITSUBISHI FUSO authorized Distributor to have calibration of radar if radar unit removed.
- Change to new radar unit if radar get damaged due to fallen
- Do not put any equipment in front of radar view area (fig. radar view area).

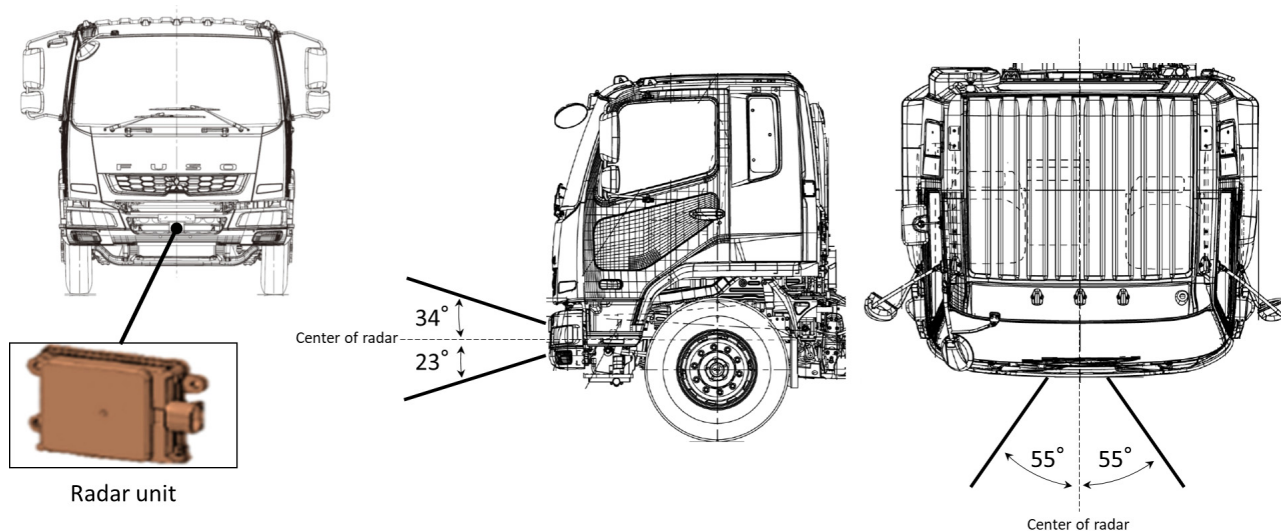


fig. Radar view area

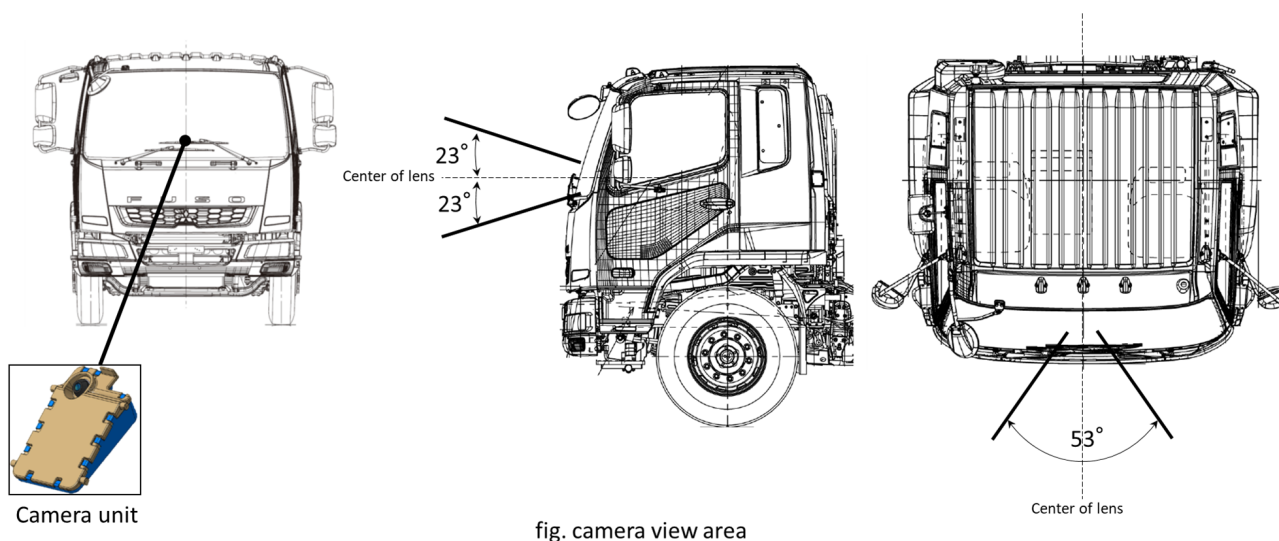
3 Planning of bodies

3.10 Lane Departure Warning System (LDWS)

3.10 Lane Departure Warning System (LDWS)

The lane departure warning system alerts the driver with a warning display and buzzer if the driver has left their lane unintentionally.

- Place the starter switch in the "OFF" position before disconnecting the harness connector of the system control unit.
- For precautions when performing electric welding, refer to 5.2 "Welding work" ▸ 5.2.
- Camera unit may cause trouble if repainted.
Mask camera unit before starting painting to protect them against paint spray.
- Check if lane detection is displayed to meter cluster correctly if camera unit removed.
(Clear lane marking and vehicle speed is over 60km/h).
Contact a MITSUBISHI FUSO authorized Distributor if lane cannot be detected.
- Change to new camera unit if camera get damaged due to fallen
- Do not put any equipment in front of camera view area (fig. radar view area).



3.1 1 Active Sideguard Assist (BSA)

Active sideguard assist alerts the driver with a collision warning lamp, a warning display and buzzer if the side millimeter wave radar detects any objects within the expected vehicle passing range when turning left or changing lanes.

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 painting

Mask radar unit before starting painting to protect it against paint spray.

Removal of the radar unit

Do not remove the radar unit.

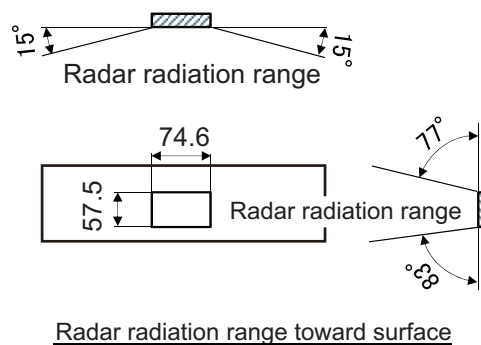
If the radar unit is removed, be sure to consult an authorized MITSUBISHI FUSO distributor or dealer to have the calibration of radar.

When dropped

A radar unit is precision equipment. If it is subjected to impact by dropping, etc., replace it.

Equipment

Do not put any equipment (including side guards) in the radiation range of the radar unit. It may cause a false alarm or malfunction.

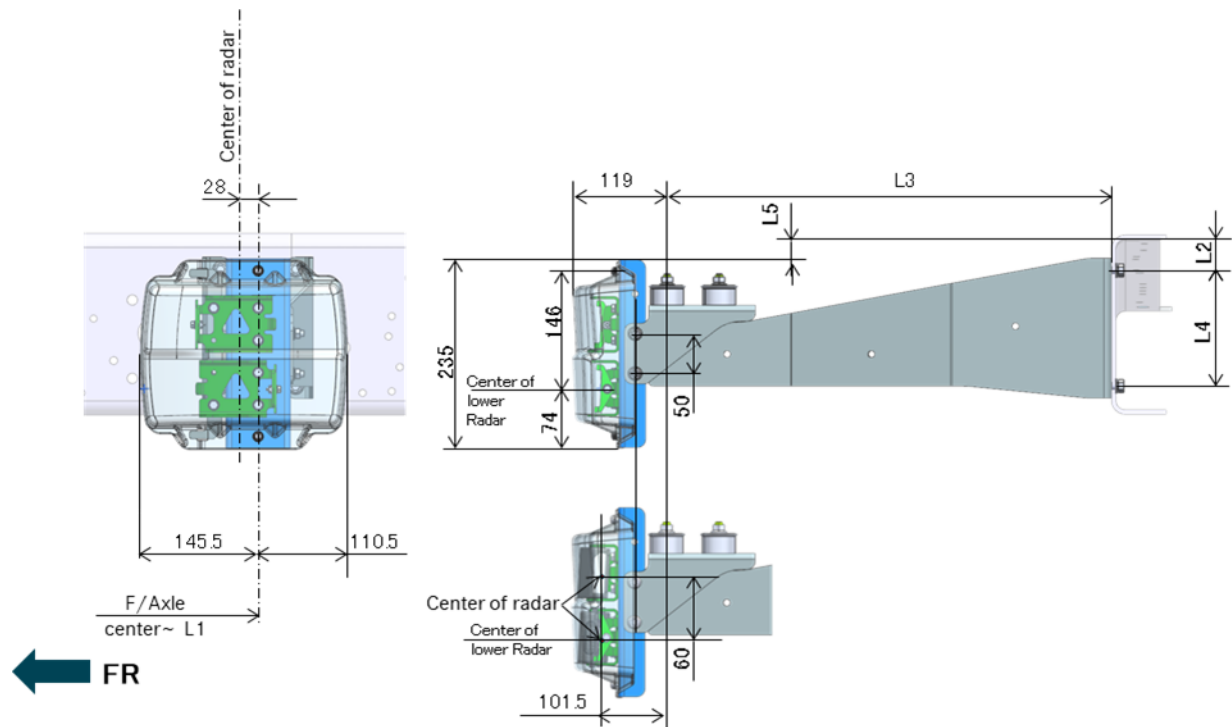


3 Planning of bodies

3.11 Active Sideguard Assist (BSA)



Radar layout
<FK>



MODEL	WB	CAB	GVW (t)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 {mm}
FK		STD	-	1506.5	39	554.5	145	26
FK-Y						584.5		
FK-Z	(Except WB:G)							
FK-Z	(WB:G)							

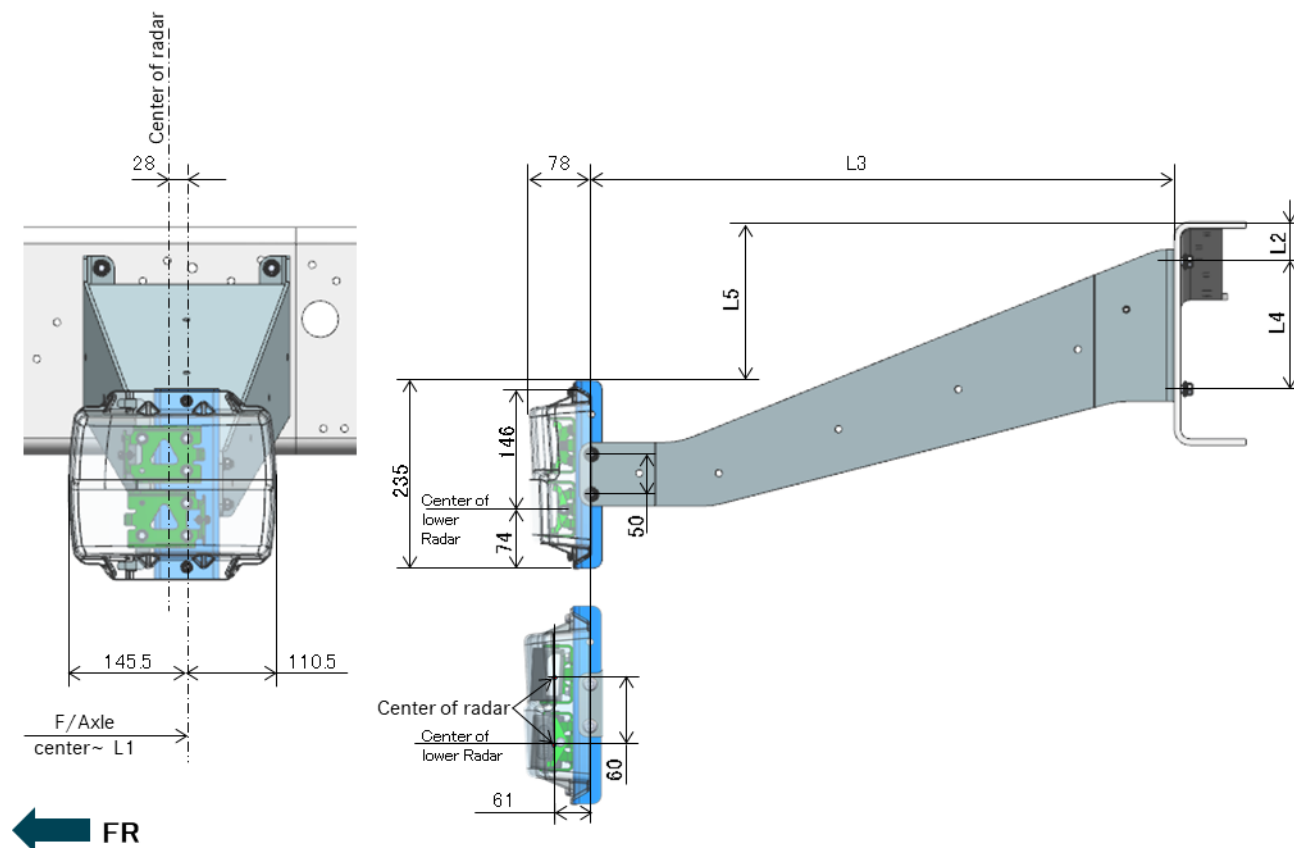


3 Planning of bodies

3.11 Active Sideguard Assist (BSA)



Radar layout
<FM, FN>



<Except Hong Kong>

MODEL	WB	CAB	GVW (t)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)
FM	—	WIDE	—	1335	50	730	160	199
FN	U		—					

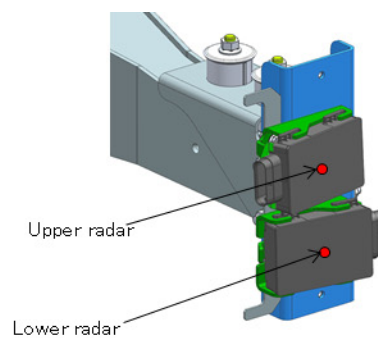
<Hong Kong>

MODEL	WB	CAB	GVW (t)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)
FM	-	WIDE	-	1445	49	730	160	198
FN	U				50			199



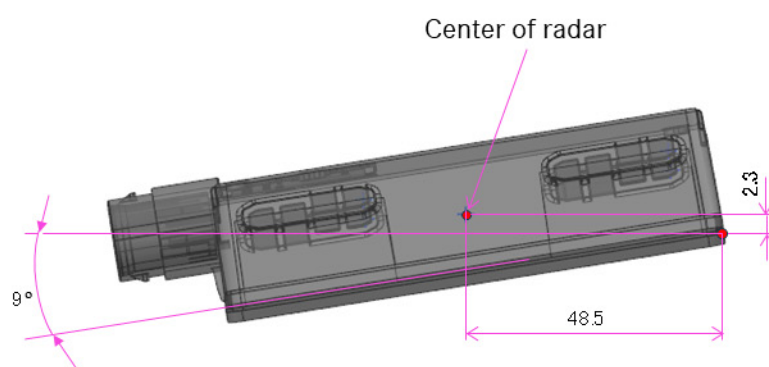
3 Planning of bodies

3.1 1 Active Sideguard Assist (BSA)

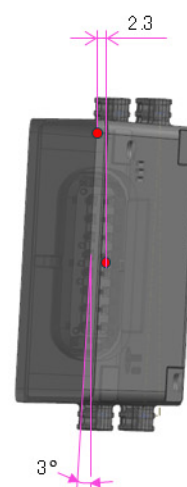


ISO View

<Upper radar>

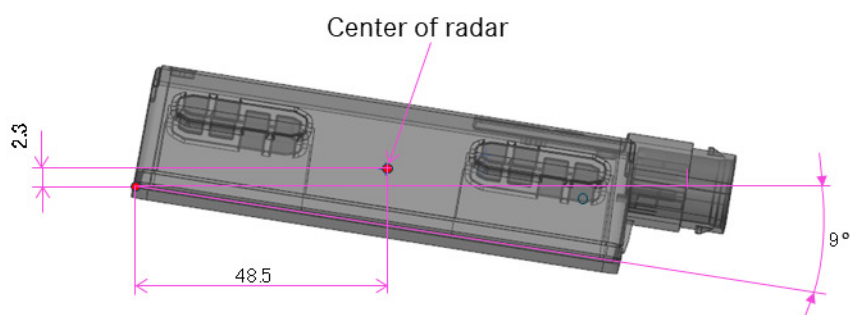


Top view

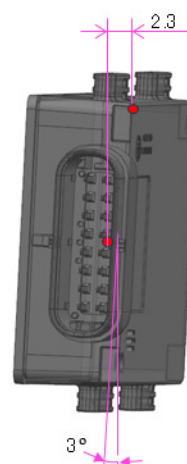


Side view

<Lower radar>



Top view

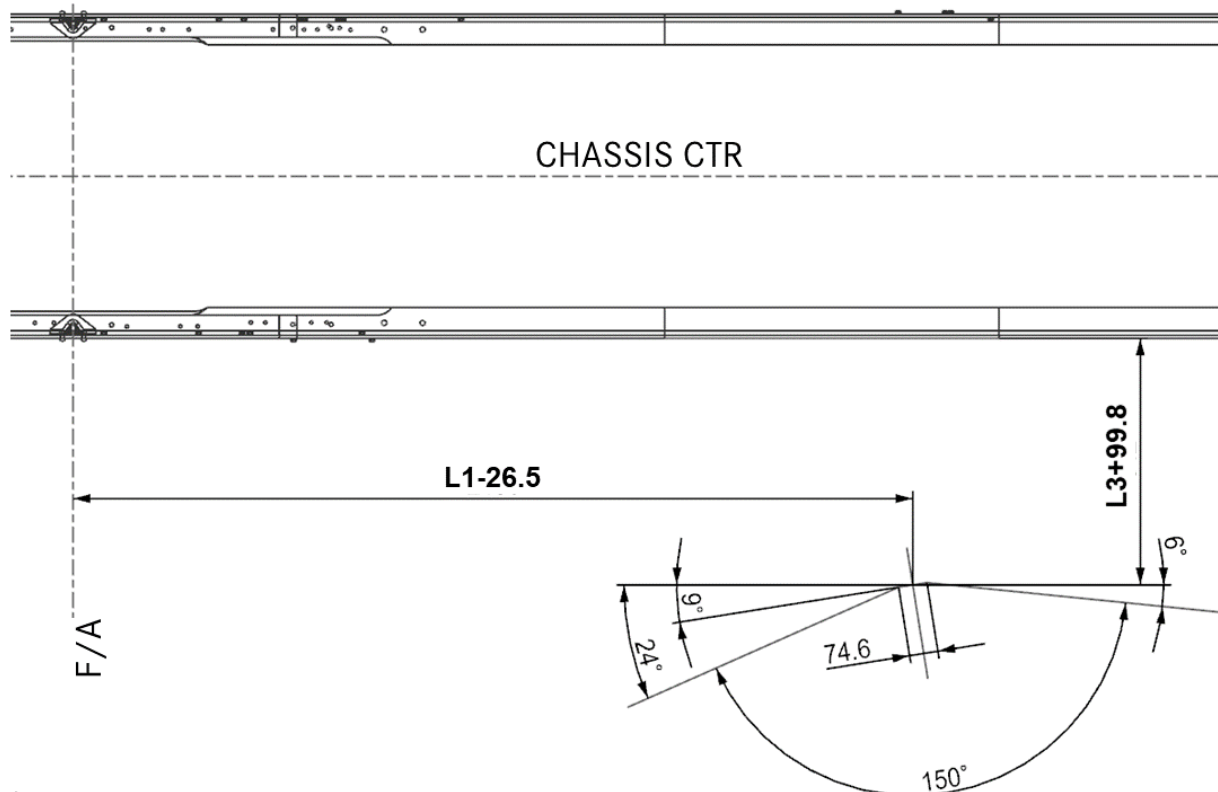


Side view

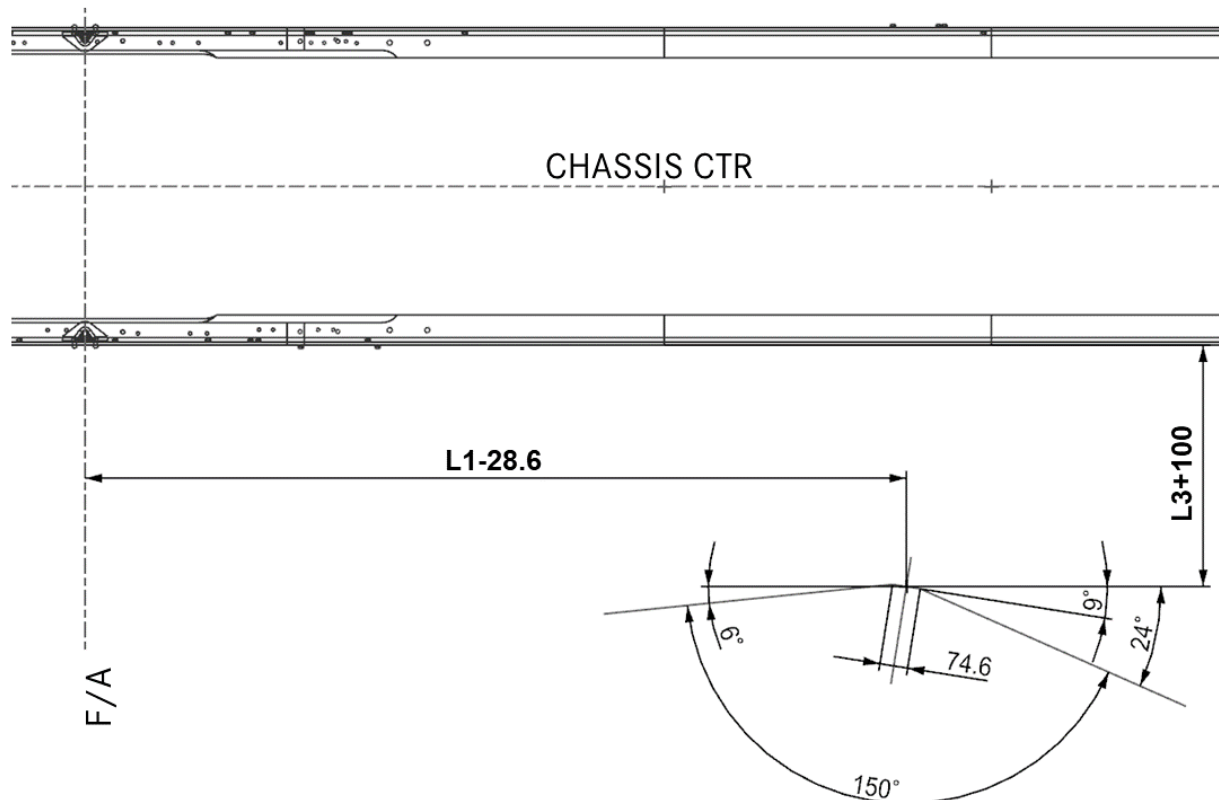
3 Planning of bodies

3.11 Active Sideguard Assist (BSA)

❖ UPPER RADAR



❖ LOWER RADAR



Title of presentation / Department / Date 1

3.12 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 Distributer 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 ▷ 3.12.2 and ▷ 3.12.3.

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.

3.12.1 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.

3.12.2 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/cm²} 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.

3.12.3 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.

3.12.4 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 Distributer 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 Distributer.

3.13 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 ▷ 2.2.

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 Technical threshold values for planning

4.1 Vehicle overhang and technical wheelbases

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 \triangleright 4.3.
- Take the weight of special equipment into consideration when making calculations.

4 Technical threshold values for planning

4.1 Vehicle overhang and technical wheelbases

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

Additional information

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

4 Technical threshold values for planning

4.2 Weight distribution, CoG height, anti-roll bars

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" ▷ 10.4.

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
▷ 2.2.



Property damage

The permissible front axle load must not be exceeded.

Observe the notes on product safety ▷ 2.3.



4 Technical threshold values for planning

4.4 Clearance for basic vehicle and bodies

4.4 Clearance for basic vehicle and bodies

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

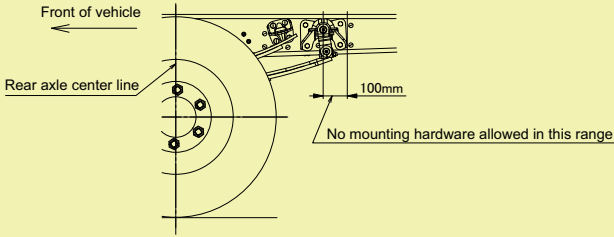
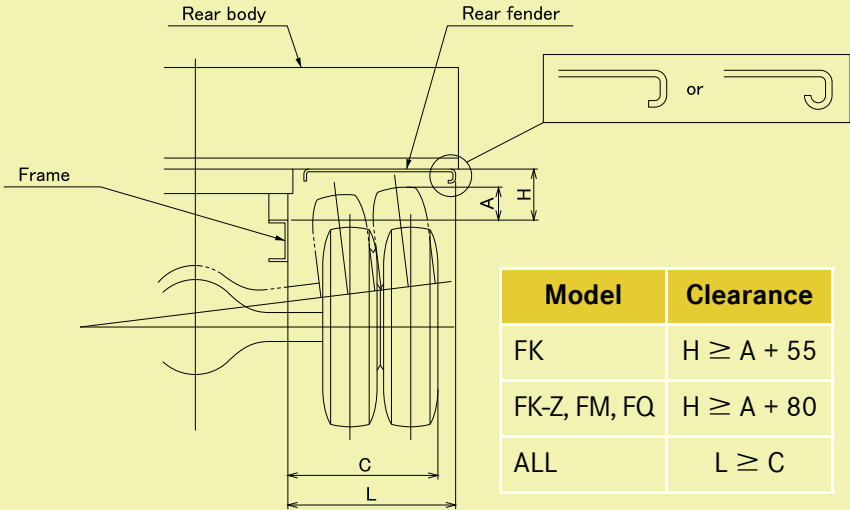
The minimum clearance between chassis parts and rear body parts must be kept according to the following table of minimum clearance standard.

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

Part	Minimum Clearance and Notes
1. Section behind cab	<p>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.</p> <p>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.</p> <p>Provide a protector in order to prevent loads from falling from the rear body front window of the dump or other rear body.</p>
2. Areas around engine	<p>Vertical direction 40 mm</p> <p>Lateral direction 30 mm</p> <p>Longitudinal direction 25 mm</p>
3. Clutch and Transmission Assembly	<p>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.</p>
4. The Surrounding part of Transmission	<p>25 mm at surrounding part of transmission except rear part.</p>
5. Upper part of Transmission	<p>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.</p>
6. The surrounding part of the Propeller shaft and the Rear axle	<p>Min. 25 mm of the surrounding part.</p>
7. The brake hose (which connects to the front and rear wheel)	<p>Keep min. 50 mm of clearance at worst. This brake hose is considered to move when vehicle is driven.</p>
8. Other hoses	<p>40 mm</p>

4 Technical threshold values for planning

4.4 Clearance for basic vehicle and bodies

Part	Minimum Clearance and Notes								
9. Rear springs	<p>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.</p> 								
10.Space above rear axle	<p>Air and electrical lines such as the brake hose and wiring harness are laid on top of the rear axle.</p> <p>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.</p> <p>Refer to 10.7.2 "Differential and tire bound height" ▷ 10.7.2.</p>								
11.Attaching the rear fender	<p>The clearance between the rear fender and tire must be designed to be optimum assuming that the vehicle is traveling in bad conditions.</p> <p>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" ▷ 10.7.2.</p>  <table border="1"> <thead> <tr> <th>Model</th><th>Clearance</th></tr> </thead> <tbody> <tr> <td>FK</td><td>$H \geq A + 55$</td></tr> <tr> <td>FK-Z, FM, FQ</td><td>$H \geq A + 80$</td></tr> <tr> <td>ALL</td><td>$L \geq C$</td></tr> </tbody> </table>	Model	Clearance	FK	$H \geq A + 55$	FK-Z, FM, FQ	$H \geq A + 80$	ALL	$L \geq C$
Model	Clearance								
FK	$H \geq A + 55$								
FK-Z, FM, FQ	$H \geq A + 80$								
ALL	$L \geq C$								

4 Technical threshold values for planning

4.4 Clearance for basic vehicle and bodies

Part	Minimum Clearance and Notes												
12.The exhaust system	<p>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.</p> <p style="text-align: right;">Unit: mm</p> <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> <p>Do not install a tailpipe under the fuel pipe, hose connection and fuel filter drain tube.</p> <p>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.</p>	Parts	Minimum Clearance	Air pipe, Air tank	100	Oil pipe, Brake pipe, air-servo assistance	150	Wiring harness, Fuel tank, Brake hose, Battery cable, Rubber parts, Plastic parts	200	Fuel pipe	200	Fuel hose	250
Parts	Minimum Clearance												
Air pipe, Air tank	100												
Oil pipe, Brake pipe, air-servo assistance	150												
Wiring harness, Fuel tank, Brake hose, Battery cable, Rubber parts, Plastic parts	200												
Fuel pipe	200												
Fuel hose	250												
13.Fuel tank	The fuel tank must be mounted so that refilling operations such as opening/closing the filler cap and pouring fuel are not obstructed.												
14.Battery	<p>The atmospheric temperature in the vicinity of the battery rises due to the heat generating of ATS module. For this reason, protect parts that do not withstand heat, such as plastic parts, by installing a heat shield plate, etc.</p> <p>Mounting hardware must be located so that battery removal/installation and inspection as well as battery cover detaching/attaching can be done easily.</p>												
15.Air dryer	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.												
16.Brake booster	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.												



Additional information

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

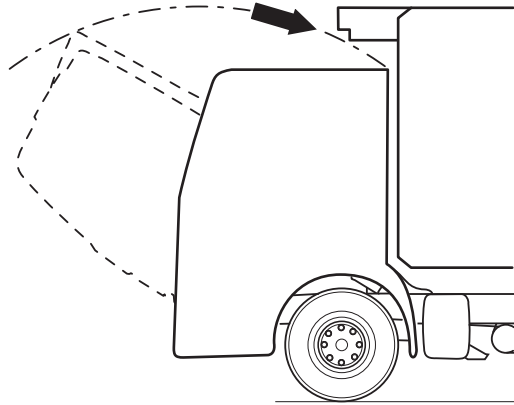


4 Technical threshold values for planning

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" ▷ 10.5.1.



N60.80-2157-00

Cab tilting range clearance

4 Technical threshold values for planning

4.5 Permissible load on cab roof

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

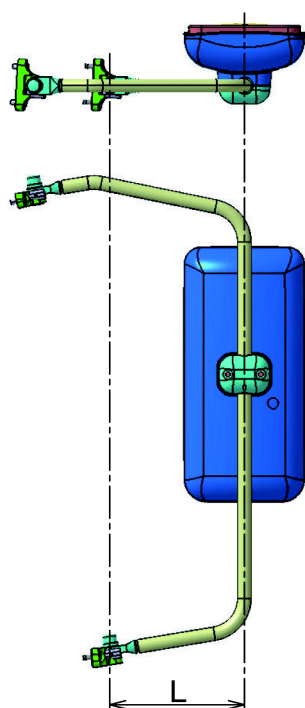
The maximum limits on the rear body width is prescribed in the local laws and regulations.

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>

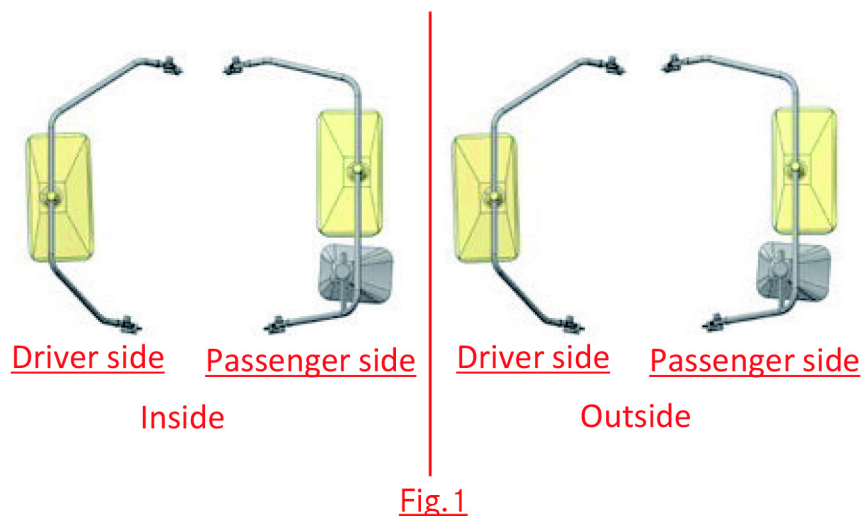


Table 1: Mirror setting position corresponding to rear body width

MODEL (CABIN WIDTH)	MIRROR SET	REAR BODY WIDTH (mm)
FK6	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 Damage prevention

5.1 Brake hoses/cables and lines

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.

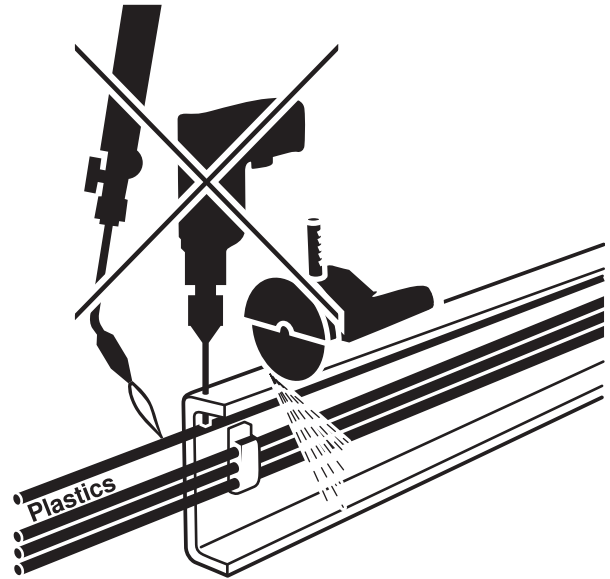
- Fuel and hydraulic lines and brake hoses must be covered or removed if necessary before carrying out any welding, drilling and grinding work and before working with cutting disks.
- After installing fuel lines, hydraulic lines and brake hoses, the potentially affected system must be tested for pressure 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" ▷ 6.13.



N00.01-2285-00



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.

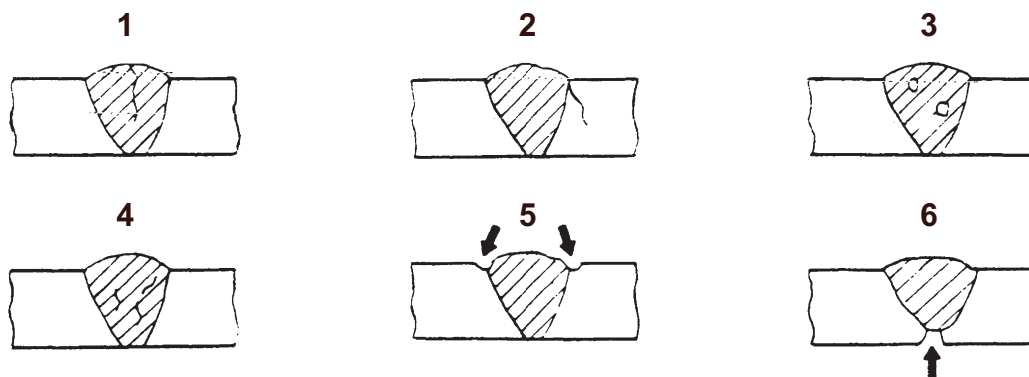


Fig. 1

- 1 Deposited metal cracking
- 2 Toe crack
- 3 Blow hole

- 4 Slag inclusion
- 5 Under cut
- 6 Poor penetration

i Additional information

Additional information on welded connections can be found in Section 6 "Modifications to the basic vehicles" ▷ 6.1 and Section 8 "Electrics/electronics" ▷ 8.1.

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 or 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.

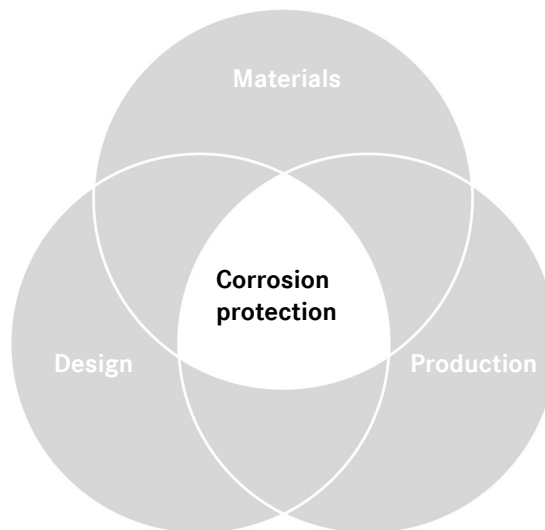
5.3 Corrosion protection measures

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

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 ▷ 2.2.

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.

Corrosion prevention in welding work

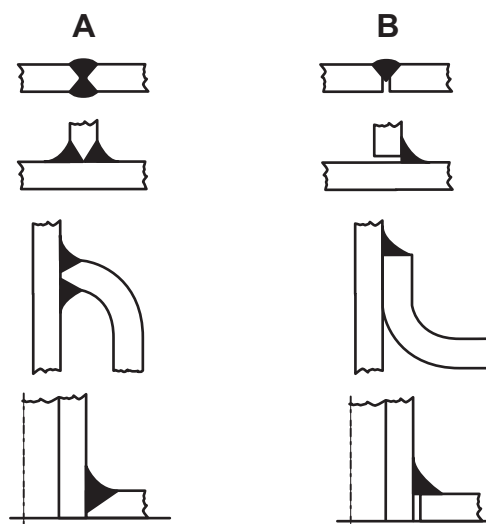
In order to avoid crevice corrosion at weld seams, the welds should be made in accordance with the examples shown.

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.



N31.00-2094-00

Example: Weld seams

A – Suitable

B – Unsuitable

i 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 Damage prevention







5.4 Bolted connections

5.4 Bolted connections

5.4.1 Standard tightening torque table <JIS standard>

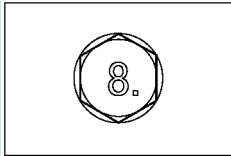
- The thread and seating surface are dry. (Dry tightening)
- When the strength class for nuts and bolts (or stud bolts) is different, tighten using the bolt torque.
- For vehicle screws, a 3 to 8 mm nominal diameter indicates a coarse thread screw while 10 mm or more indicates a fine thread screw.

Hex bolts and stud bolts (units: N·m {kgf·m})


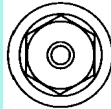

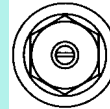
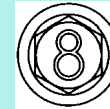
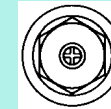
		Strength class					
		4T		7T		8T	
							
		(Stud)		(Stud)		(Stud)	
		Vehicle screw	Coarse thread screw	Vehicle screw	Coarse thread screw	Vehicle screw	Coarse thread screw
Nominal diameter mm	M5	2 to 3 {0.2 to 0.3}	—	4 to 6 {0.4 to 0.6}	—	5 to 7 {0.5 to 0.7}	—
	M6	4 to 6 {0.4 to 0.6}	—	7 to 10 {0.7 to 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 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}


5 Damage prevention

5.4 Bolted connections

		Strength class	
		8.8 (Nut 4T)	8.8 (Nut 6T)
			
		Vehicle screw	
Nominal diameter mm	M10	18 to 27 {1.8 to 2.8}	45 to 60 {4.6 to 6.1}
	M12	34 to 50 {3.5 to 5.1}	80 to 105 {8.2 to 11}
	M14	60 to 80 {6.1 to 8.2}	130 to 170 {13 to 17}

Hex flange bolts (units: N·m {kgf·m})


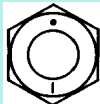



		Strength class					
		4T		7T		8T	
							
		Vehicle screw	Coarse thread screw	Vehicle screw	Coarse thread screw	Vehicle screw	Coarse thread screw
Nominal diameter mm	M6	4 to 6 {0.4 to 0.6}	—	8 to 12 {0.8 to 1.2}	—	10 to 14 {1.0 to 1.4}	—
	M8	10 to 15 {1.0 to 1.5}	—	19 to 28 {2.0 to 2.9}	—	22 to 33 {2.3 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}

		Strength class	
		8.8 (Nut 4T)	8.8
			
		Vehicle screw	
Nominal diameter mm	M10	21 to 31 {2.1 to 3.2}	50 to 65 {2.0 to 3.0}
	M12	38 to 56 {3.9 to 5.7}	90 to 120 {9.2 to 12}

5 Damage prevention

5.4 Bolted connections

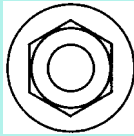
Hex nuts (units: N·m {kgf·m})

		Strength class					
		4T		6T (Bolts 7T)		6T (Bolts 8T)	
				   			
		Vehicle screw	Coarse thread screw	Vehicle screw	Coarse thread screw	Vehicle screw	Coarse thread screw
Nominal diameter mm	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 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 {25 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}

5 Damage prevention

5.4 Bolted connections

Hex flange nuts (units: N·m {kgf·m})

		Strength class	
		4T	
			
		Vehicle screw	Coarse thread screw
Nominal diameter mm	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}

General flare nut tightening torque (units: N·m {kgf·m})

Pipe diameter	mm	φ4.76	φ6.35	φ8	φ10	φ12	φ15
Tightening torque		17 {1.7}	25 {2.6}	39 {4.0}	59 {6.0}	88 {9.0}	98 {10}

Nylon tube for general air pipes tightening torque (DIN type) (units: N·m {kgf·m})

Nominal diameter x wall thickness	mm	6 × 1	10 × 1.25	12 × 1.5	15 × 1.5
Tightening torque		20 ⁺⁶ ₀ {2.0 ^{+0.6} ₀ }	34 ⁺¹⁰ ₀ {3.5 ^{+1.0} ₀ }	49 ⁺¹⁰ ₀ {5.0 ^{+1.0} ₀ }	54 ⁺⁵ ₀ {5.5 ^{+0.5} ₀ }

Nylon tube for general air pipes tightening torque (SAE type) (units: N·m {kgf·m})


Nominal diameter	in	1/4	3/8	1/2	5/8
Tightening torque		13 ⁺⁴ ₀ {1.3 ^{+0.4} ₀ }	29 ⁺⁵ ₀ {3.0 ^{+0.5} ₀ }	49 ⁺⁵ ₀ {5.0 ^{+0.5} ₀ }	64 ⁺⁵ ₀ {6.5 ^{+0.5} ₀ }

5 Damage prevention

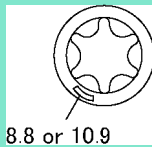
5.4 Bolted connections

5.4.2 Standard tightening torque table <DIN standard: Used for engine body and G211, G230 transmission body>

Hex flange bolts (units: N·m {kgf·m})

		Width across flats mm	Strength class	
			8.8	10.9
				
Nominal diameter mm	M5	8	5 {0.5}	7 {0.7}
	M6	10	10 {1.0}	15 {1.5}
	M8	13	25 {2.5}	30 {3.1}
	M10	16	40 {4.1}	60 {6.1}
	M12	18	80 {8.2}	100 {10}
	M12×1.5	18	80 {8.2}	100 {10}
	M14	21	120 {12}	180 {18}
	M14×1.5	21	120 {12}	180 {18}
	M16	24	180 {18}	270 {28}
	M16×1.5	24	180 {18}	270 {28}


Hex socket head bolts (units: N·m {kgf·m})

		Width across flats mm	Strength class	
			8.8	10.9
				
Nominal diameter mm	M5	4	5 {0.5}	–
	M6	5	10 {1.0}	–
	M8	6	–	30 {3.1}
	M10	8	–	60 {6.1}
	M12	10	–	100 {10}
	M12×1.5	10	–	100 {10}
	M14	12	–	180 {18}
	M14×1.5	12	–	180 {18}
	M16	14	–	250 {25}
	M16×1.5	14	–	250 {25}

5 Damage prevention

5.4 Bolted connections

Stud bolts (units: N·m {kgf·m})

		Width across flats mm	Strength class	
			8.8	10.9
			 8.8 or 10.9	
Nominal diameter mm	M5	—	2.5 {0.3}	3.5 {0.4}
	M6	—	5 {0.5}	7.5 {0.8}
	M8	—	12.5 {1.3}	15 {1.5}
	M10	—	20 {2.0}	30 {3.1}
	M12	—	40 {4.1}	50 {5.1}
	M12×1.5	—	40 {4.1}	50 {5.1}
	M14	—	60 {6.1}	90 {9.2}
	M14×1.5	—	60 {6.1}	90 {9.2}
	M16	—	90 {9.2}	135 {14}
	M16×1.5	—	90 {9.2}	135 {14}

Lifting eye (units: N·m {kgf·m})

		Torque
Nominal diameter mm	M8×1	8 {0.8}
	M10×1	15 {1.5}
	M12×1.5	25 {2.5}
	M14×1.5	35 {3.6}
	M16×1.5	35 {3.6}
	M18×1.5	40 {4.1}

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 repainting. 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.
- 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
 - Dosing module
 - 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
 - Parts related to radar performance
 - Radar cover

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
 - DCU (After treatment ECU)
 - Other systems' ECU

5 Damage prevention

5.5 Painting work

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

- 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

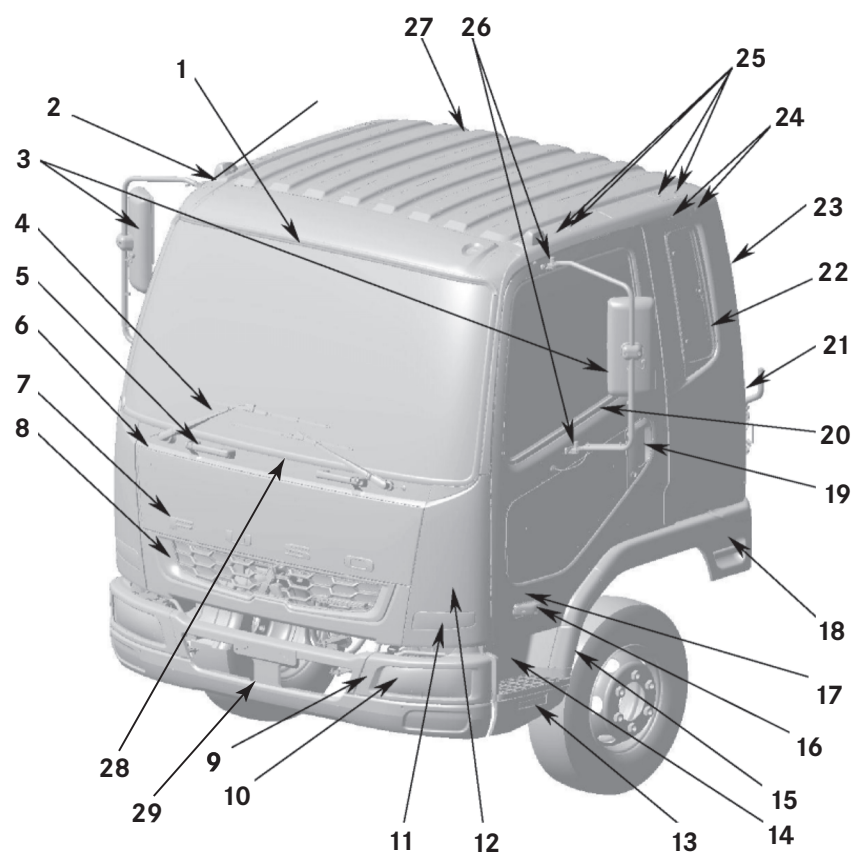
- Forced drying after painting the cab or bumper must be done at a temperature not exceeding 80°C.
- Avoid removing the under-window moulding, and protect it against heat by masking.

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

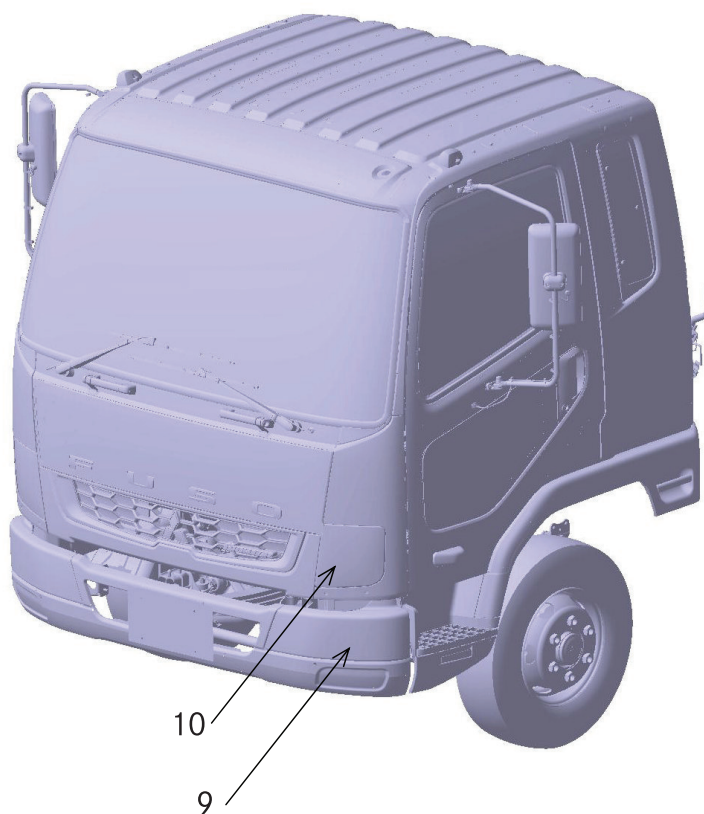
<Door mirror type>



- 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 Mirror stay assy (Cap, packing, power mirror motor unit, etc)
- 27 Snorkel duct & rubber boot (cab backside)
- 28 Black out tape
- 29 Radar cover

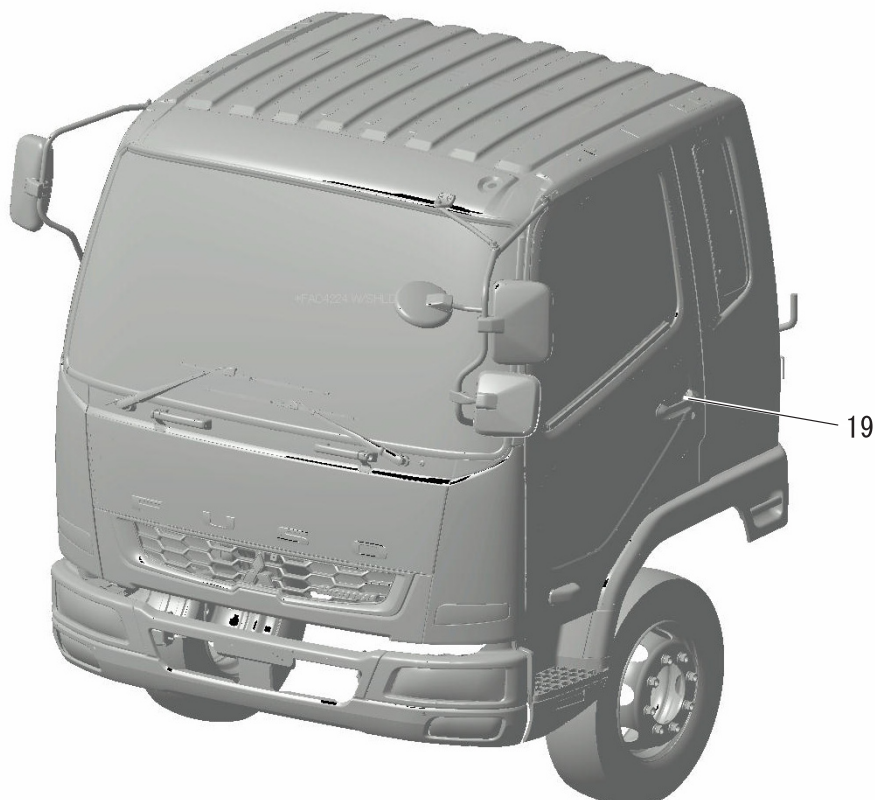
<Vehicle with head lamp on the cab>



9 Lamp bezel

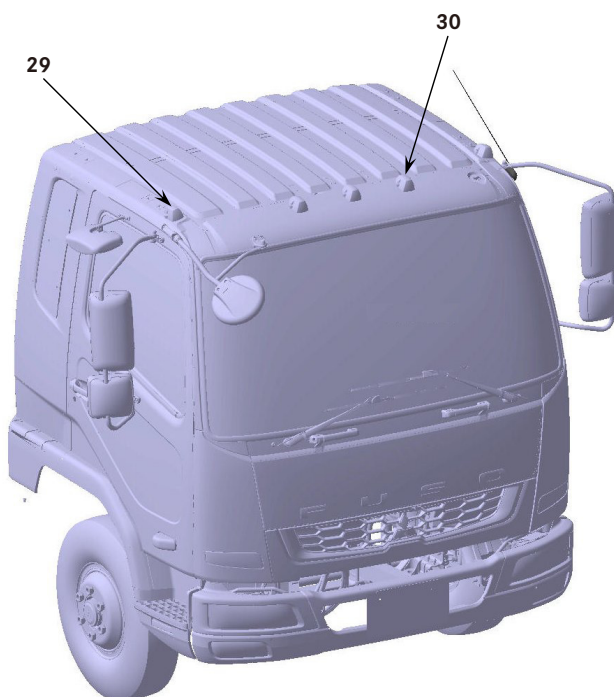
10 Headlamp

<Under window glass less vehicle>



19

<Vehicle with roof lamp>



29 Roof marker lamp

30 Front roof lamp

Natural drying

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

5 Damage prevention

5.5 Painting work

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

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

- 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

- 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

5 Damage prevention

5.5 Painting work

- 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 Damage prevention

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. Radar cover do not paint for performance.

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.

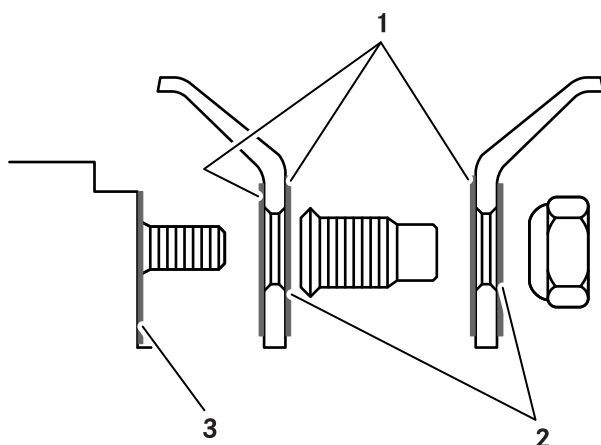
5.5.4 Painting the disk wheels

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

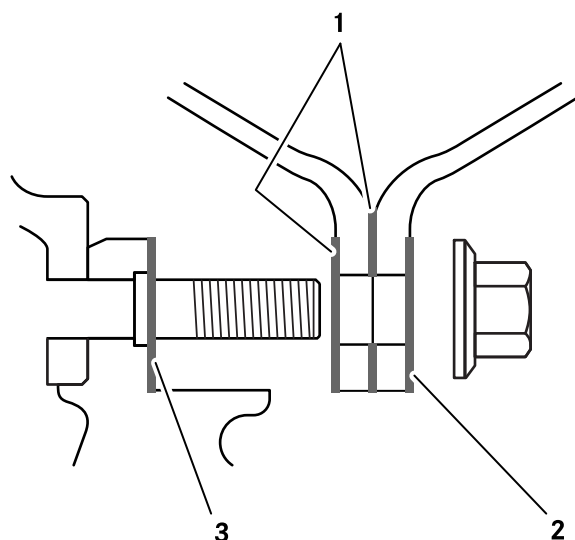
- Do not apply additional painting to disk wheel mounting surfaces, wheel nut seating surfaces and wheel hub mounting surfaces. This makes the paint coating thicker, which could lead to loose wheel nuts. If additional painting has been applied, remove it and clean the surface with a wire brush.

<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.

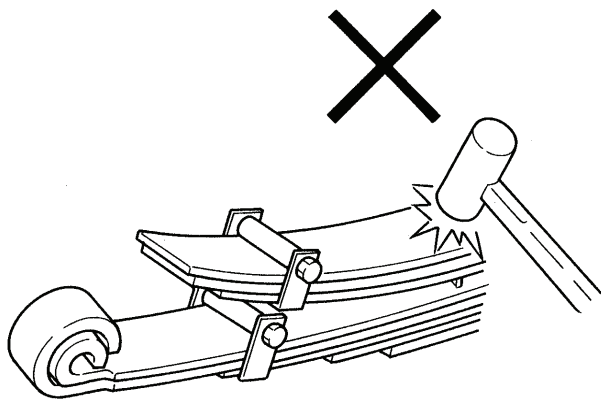
Tire rotation

- 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" ▷ 1.3 and ▷ 1.4 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 ▷ 3.12.2 and ▷ 3.12.3.

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 ▷ 3.12.4.

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" ▷ 3.6 and Section 5 "Damage prevention" ▷ 5.1.



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 ▷ 2.2.

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 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.

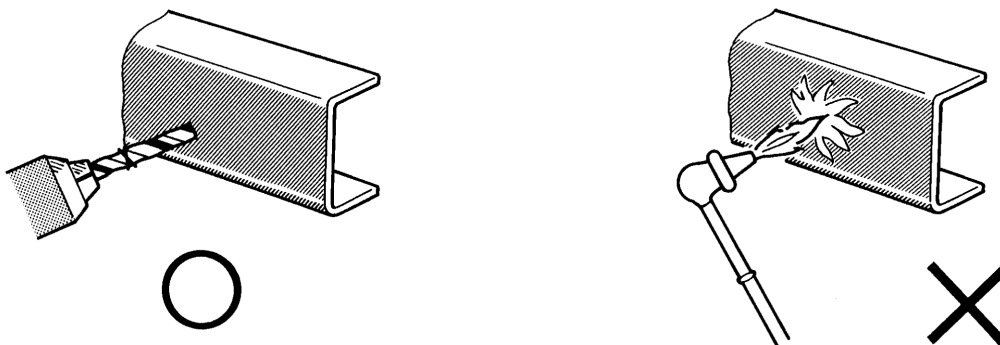
Material
HTP540

6 Modifications to the basic vehicle

6.3 Drilling work on the vehicle frame

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.



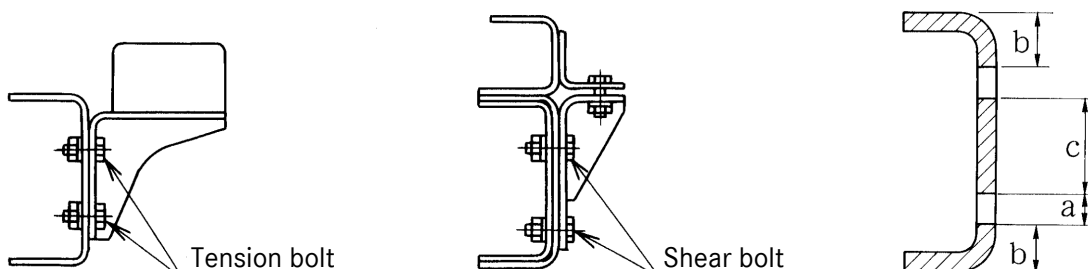
Remember that every drilled hole must be finished by chamfering.

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		
$\phi 13$ or less	$\phi 13$ or less	30 or more	For $\phi 13$ or less: min. 30 For $\phi 15$ or less: min. 45 For $\phi 17$ or less: min. 65

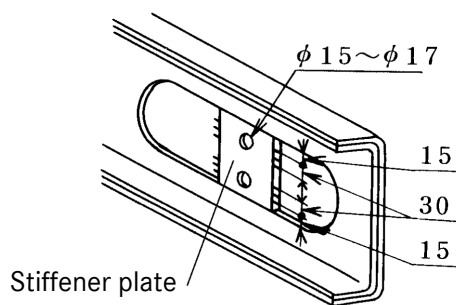


- Shear bolt holes of $\phi 15$ mm or more can be drilled exclusively in double frame sections (chassis frame with subframe inside). If the portion of the

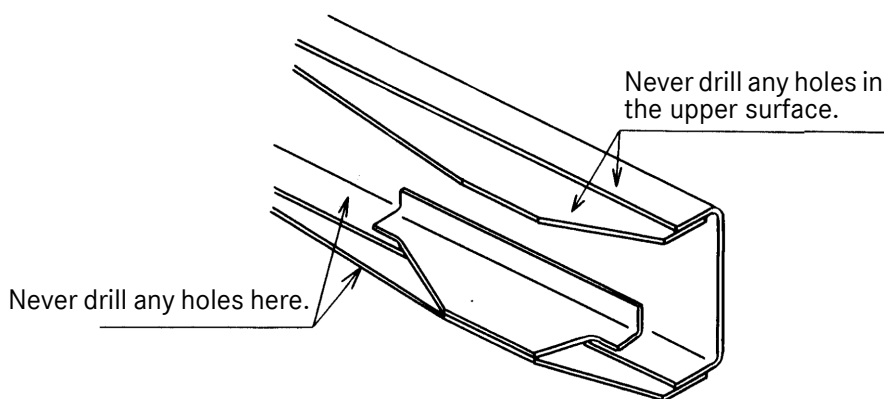
subframe in which a hole is to be drilled has been blanked out, weld a piece of stiffener plate to that section as shown in the figure below.

6 Modifications to the basic vehicle

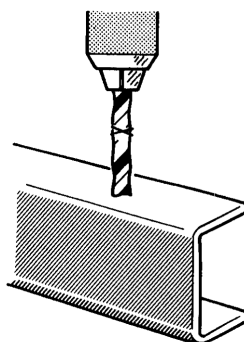
6.3 Drilling work on the vehicle frame



- 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 Modifications to the basic vehicle

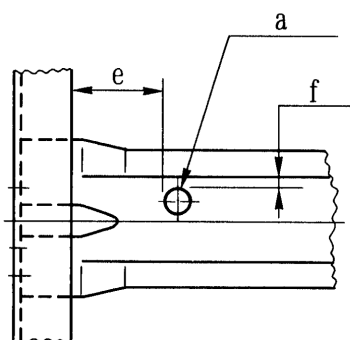
6.3 Drilling work on the vehicle frame

Drilling holes in a crossmember

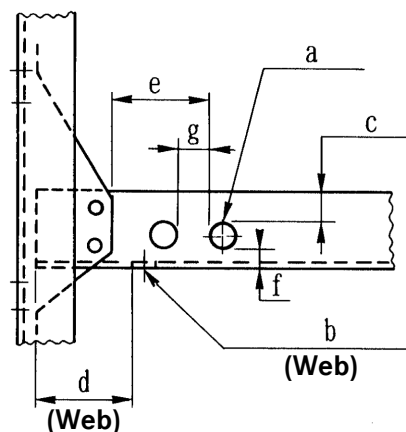
- Note that the hole diameter and the distance between holes given in the following table must be met. Even if existing holes (bolt or rivet holes) are to be used, these requirements must be met.

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 Modifications to the basic vehicle

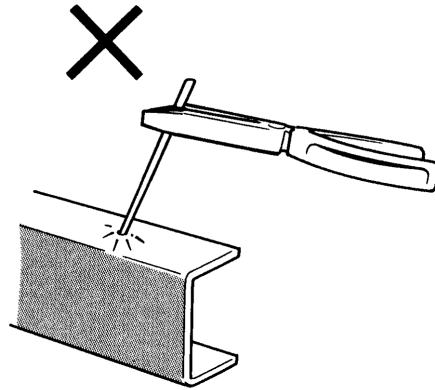
6.4 Welding work on the vehicle frame

6.4 Welding work on the vehicle frame

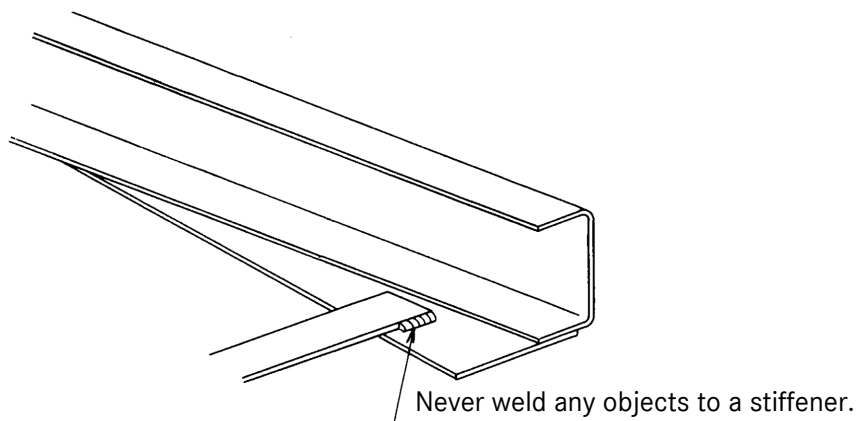
For welding procedures, refer to 5.2 "Welding work"

▷ 5.2.

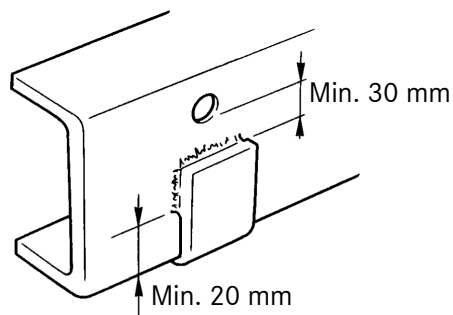
- Do not attempt to attach any objects to the upper or lower surface of side rails by welding.



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



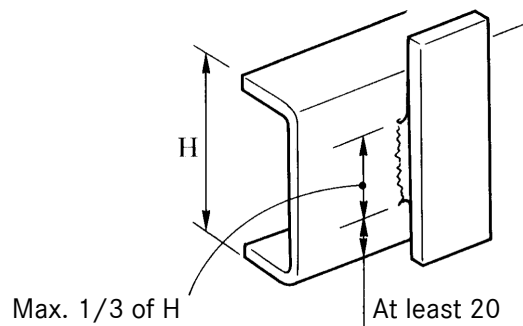
- Welding parts should be more than 20 mm away from the web corners and 30 mm away from each hole.



6 Modifications to the basic vehicle

6.4 Welding work on the vehicle frame

- 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 an 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).

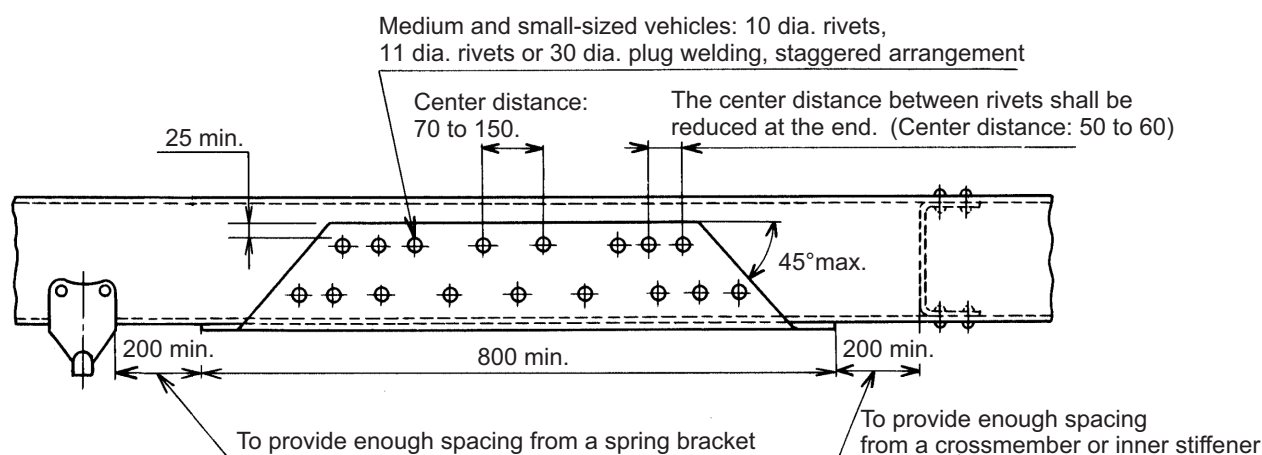
Precautions to be taken during welding on high tensile steel frame

- 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.

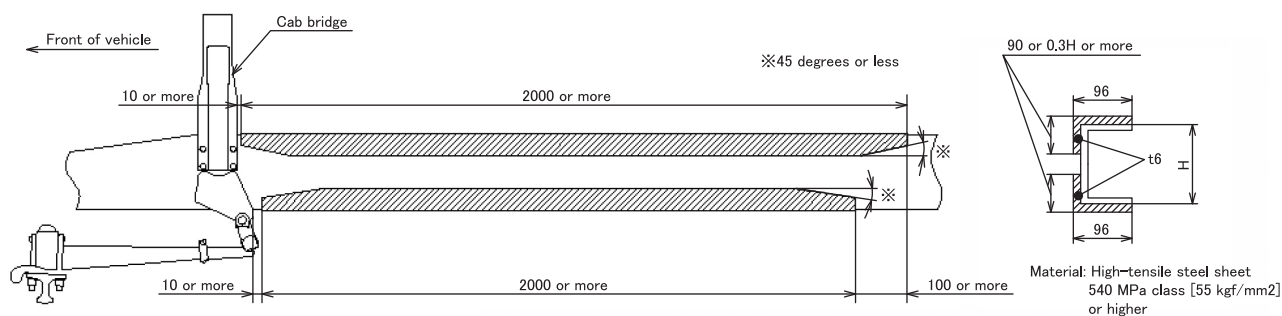
- An L-shaped stiffener is recommended. The channel type stiffener should not be used as it produces a gap with the side rail flange.
- Position the L-shaped stiffeners so the flange will be on the side of the side rail stress that receives the tension (the lower surface within the wheelbase and the 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 $\phi 10$ to $\phi 11$ if the minimum distance between the outer stiffener end and the rivet hole brim is more than 25 mm.
- Use rivets of $\phi 11$ 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.



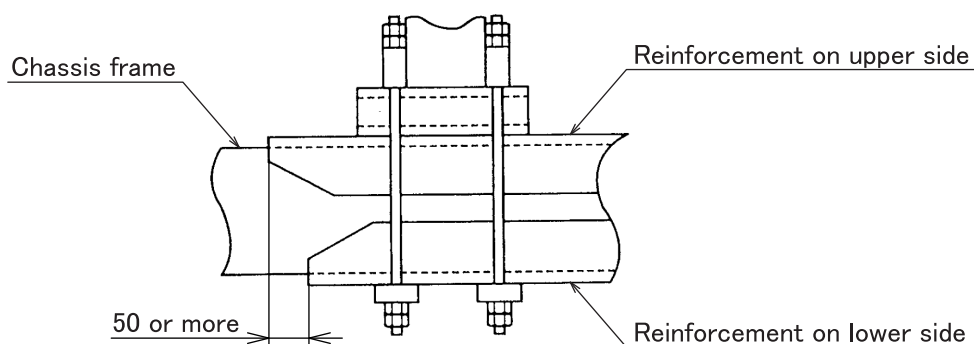
Example of reinforcement of crane mounting

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 ▷ 2.2.

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 ▷ 2.2.

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 Modifications to the basic vehicle

6.7 Frame modifications

6.7.2 Extension or shortening of frame

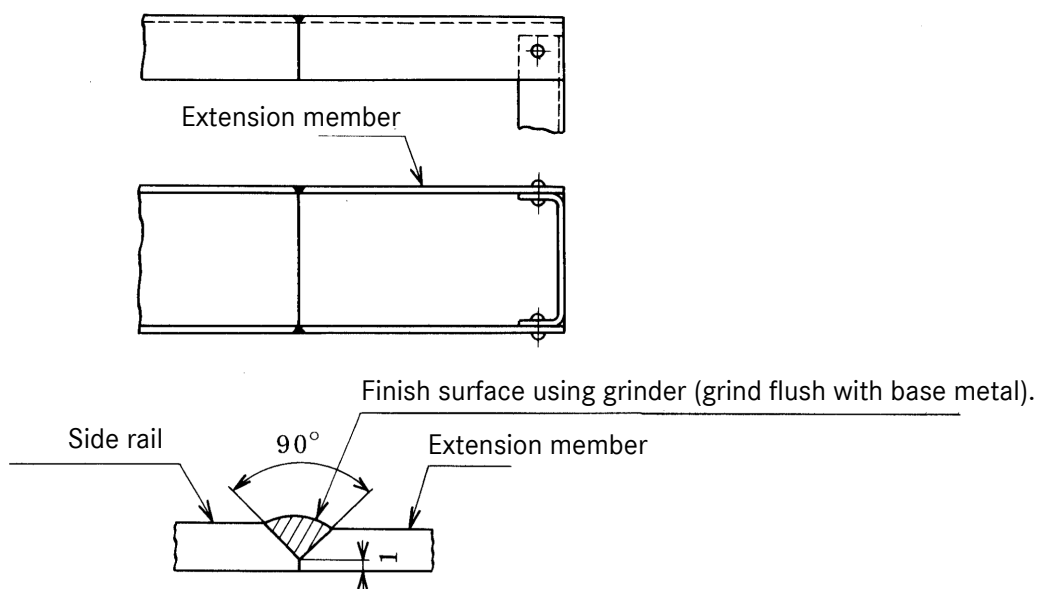
If the frame rear overhang is to be extended, proceed as follows:

Materials

Unit: mm

Member for extension		Stiffener	
Material	Plate thickness	Material	Plate thickness
MJSH440W	To be the same as side rail plate	MJSH440W	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

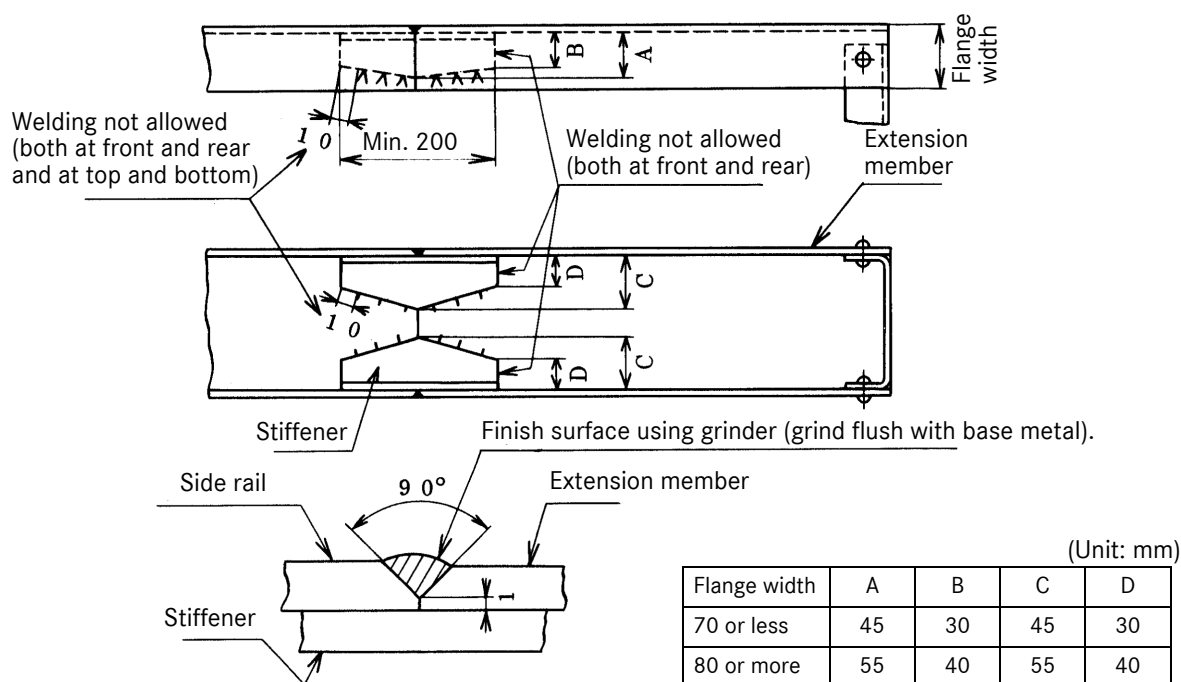


6 Modifications to the basic vehicle

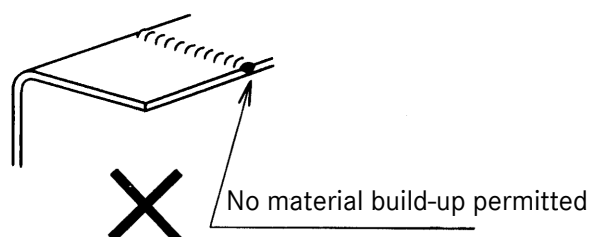
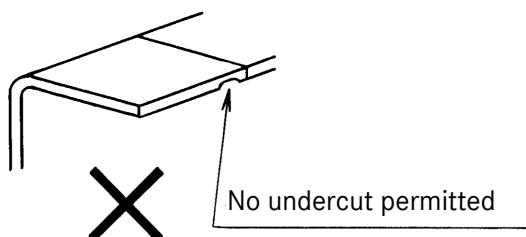
6.7 Frame modifications

- 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.

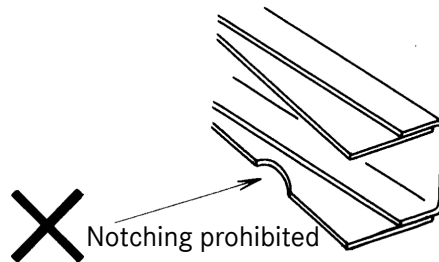
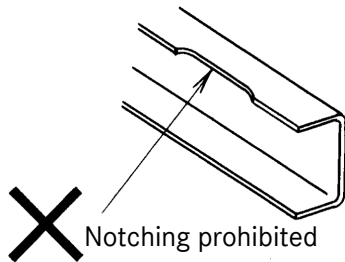


- On some models, the side rail has a slope provided on the bottom surface at the rear end. When cutting the rail or connecting an extension to it, take the slope into account.
- Finish the inside surfaces of the butt-welded flange sections of the side rails thoroughly by grinding them to such a extent 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 Modifications to the basic vehicle

6.8 Mounting of implements and auxiliary components

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:

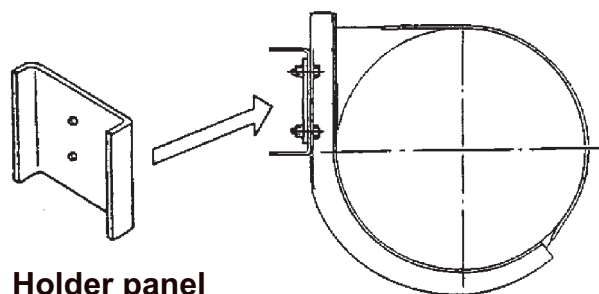


Fig. 1

- 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 Modifications to the basic vehicle

6.8 Mounting of implements and auxiliary components

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

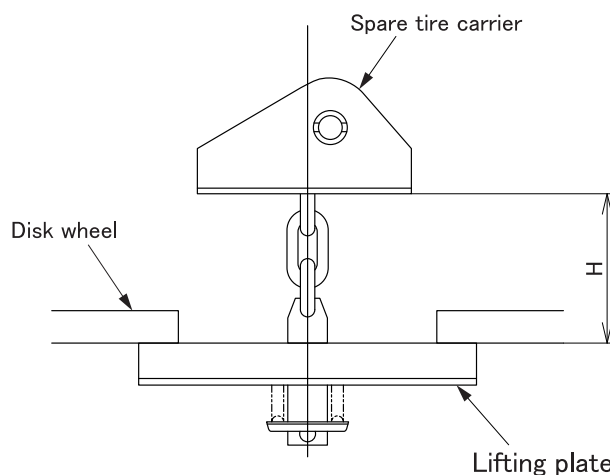
When mounting a spare tire carrier, observe the regulations of the country where the vehicle is used.

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 ▷ 2.2.
- 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" ▷ 4.4.
- 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" ▷ 6.3 and 6.4 "Welding work on the vehicle frame" ▷ 6.4.
 - 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.

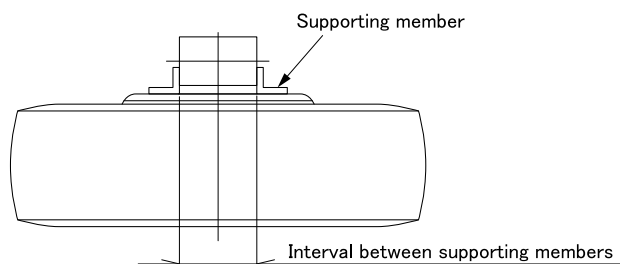
Checks after installation

- 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.

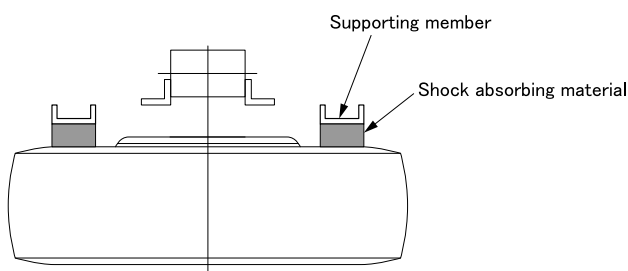
6 Modifications to the basic vehicle

6.8 Mounting of implements and auxiliary components

- 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

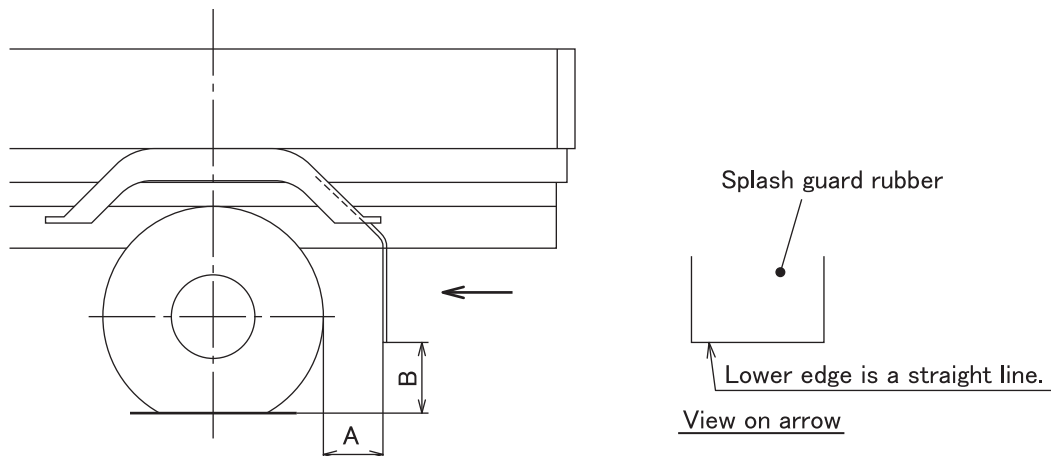
Mount components in accordance with local regulations.

6 Modifications to the basic vehicle

6.8 Mounting of implements and auxiliary components

Splash guard rubber of rear fender

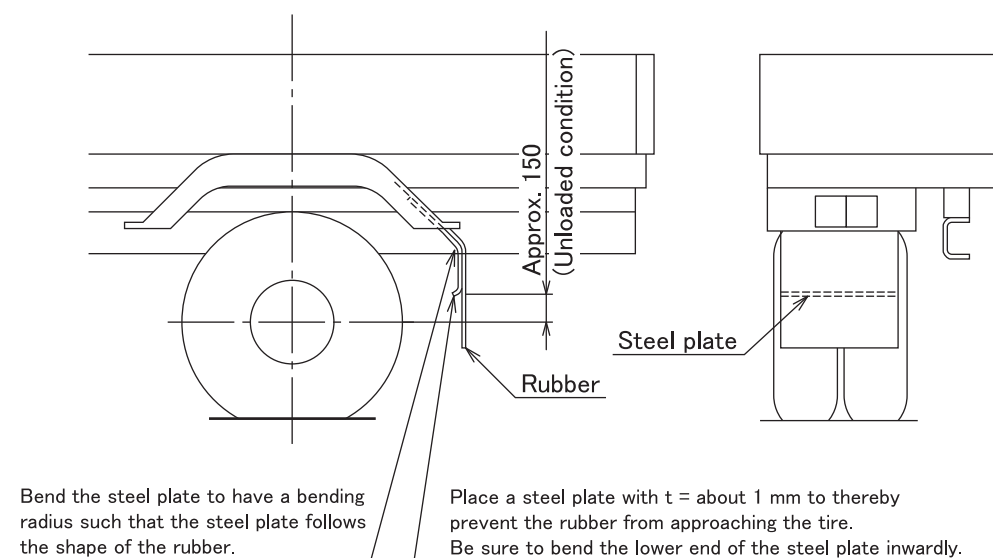
Install the splash guard rubber in consideration of splash guard effect and pedestrian protection side guard relative to the shape of the fender.



Unit: mm

A	FK	150 to 200
	FK-Z, FM, FQ	200 to 250
B (Unloaded condition)	FK	200 to 350
	FK-Z, FM, FQ	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 Modifications to the basic vehicle

6.8 Mounting of implements and auxiliary components

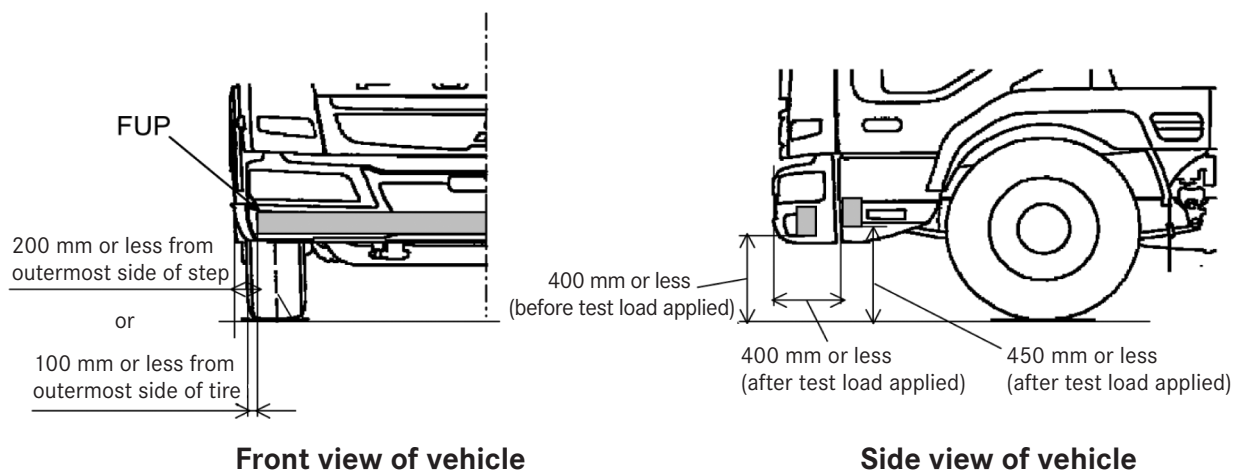
6.8.5 Front under-run protection <Vehicle with Front under-run protection>

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.

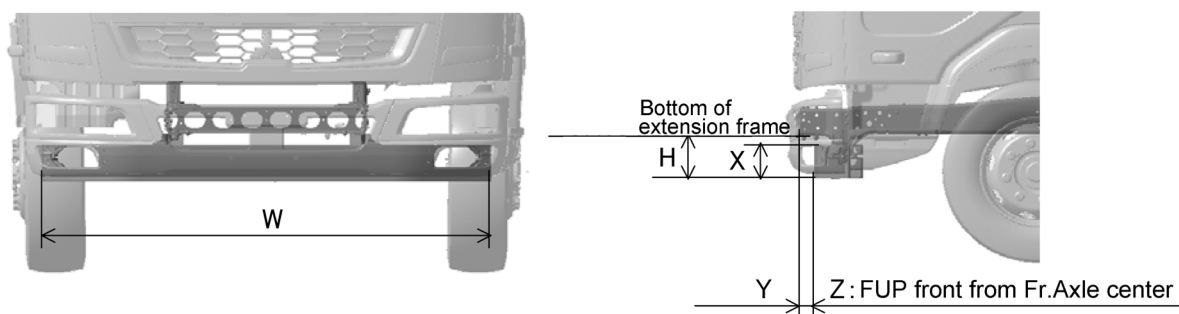
- Installation requirements



6 Modifications to the basic vehicle

6.8 Mounting of implements and auxiliary components

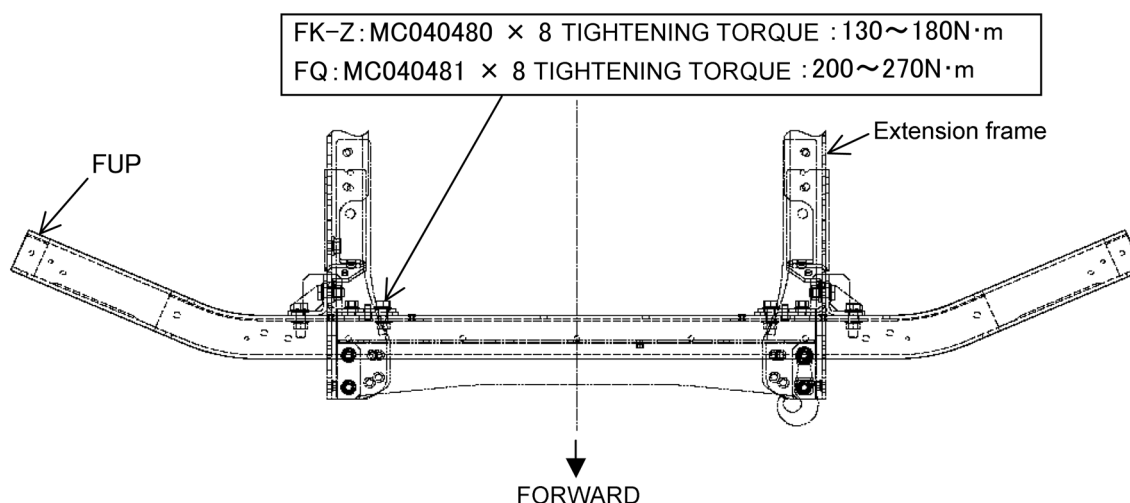
- Mounting dimensions



Unit: mm

Model	Cab type	W	X	H	Y	Z
FK-Z	STD	1,885	160	200	69.5	1009.5
	WIDE	2,085				
FQ	—	2,085	160	219	69.5	1119.5

- Mounting



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 ▷ 2.2.

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

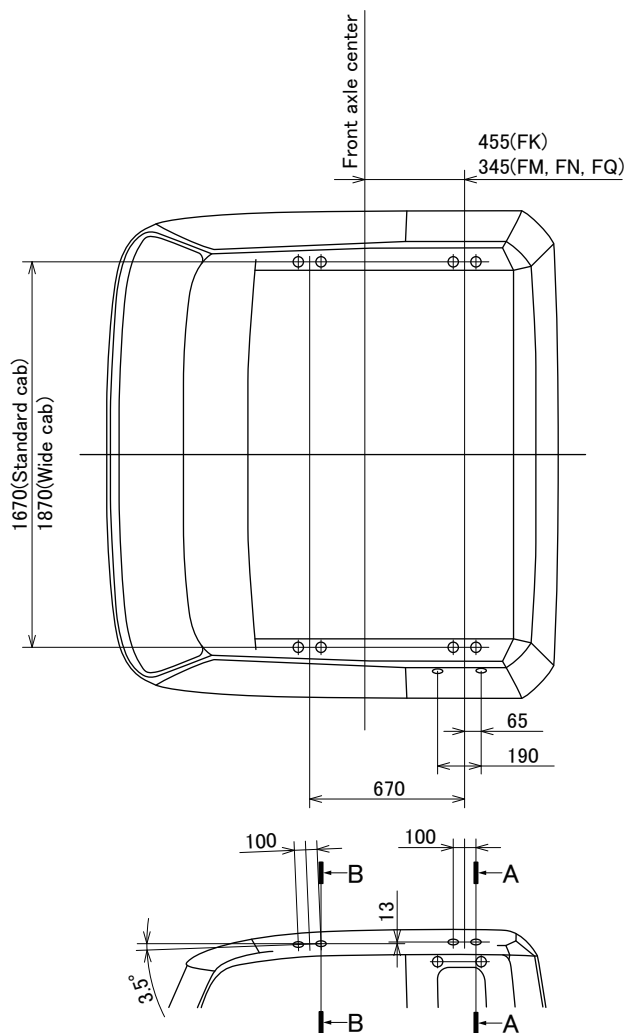


Fig. 1

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.)

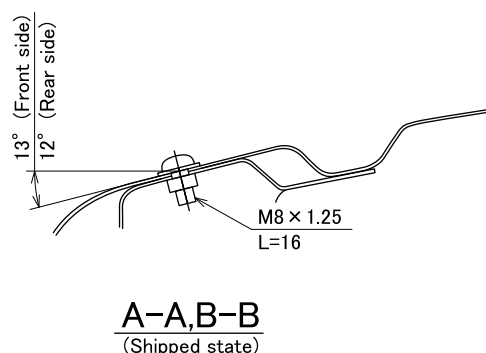


Fig. 2

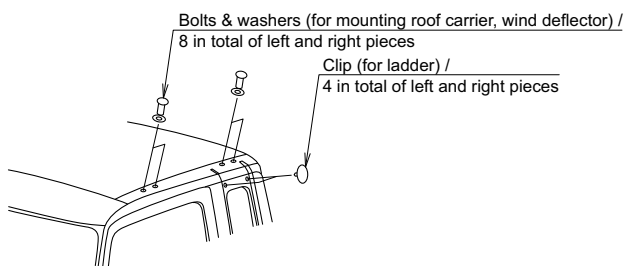


Fig.3

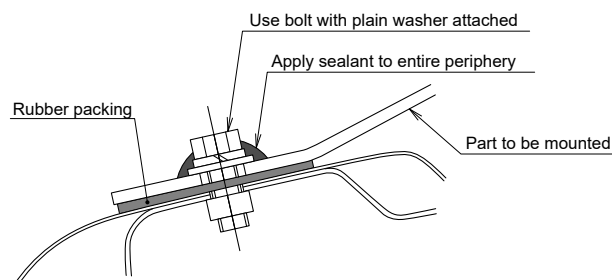


Fig.4

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 ▷ 2.2.



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.
▷ 2.2.

Additional information

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

Power taking-off torque

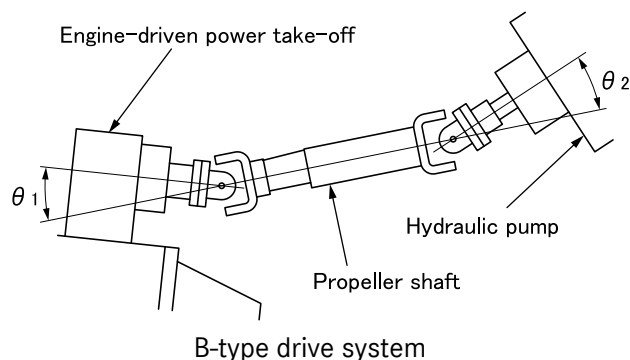
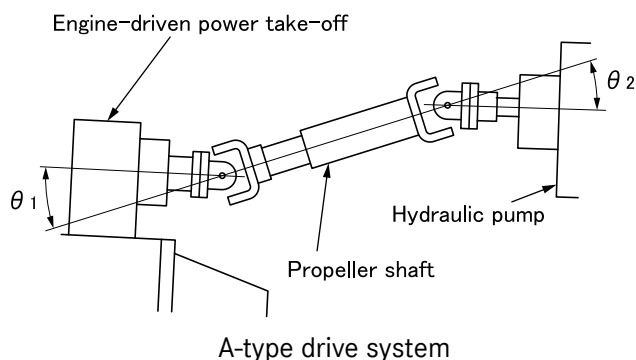
- When power for driving body equipment is obtained through transmission-driven power take-off, set the body equipment-side drive system so that the power taking-off torque does not exceed the allowable maximum take-off torque for the PTO. If excessive torque is imparted to the power take-off, the inside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

6.1.1.2 Engine power take-off

Propeller shaft driven by power take-off



- 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

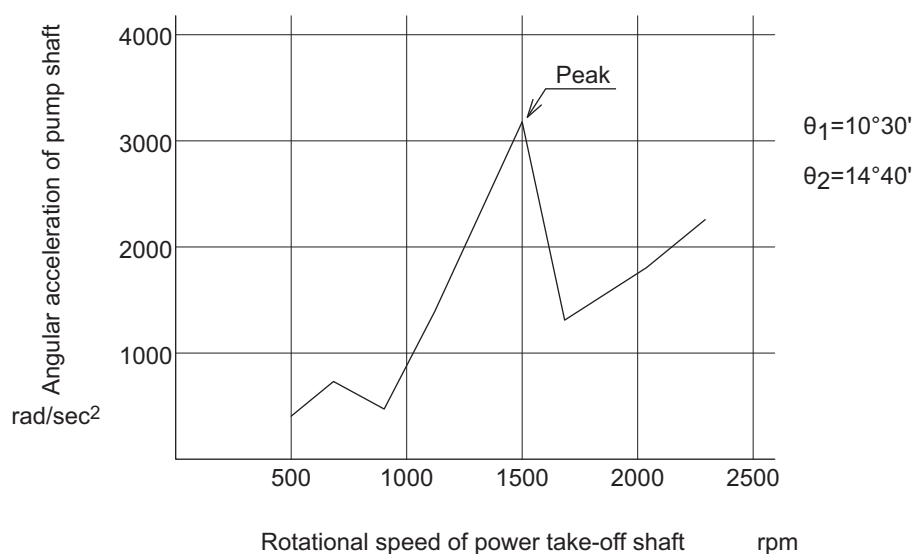
Unit: mm

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 ($\theta_1 - \theta_2$) 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.

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.

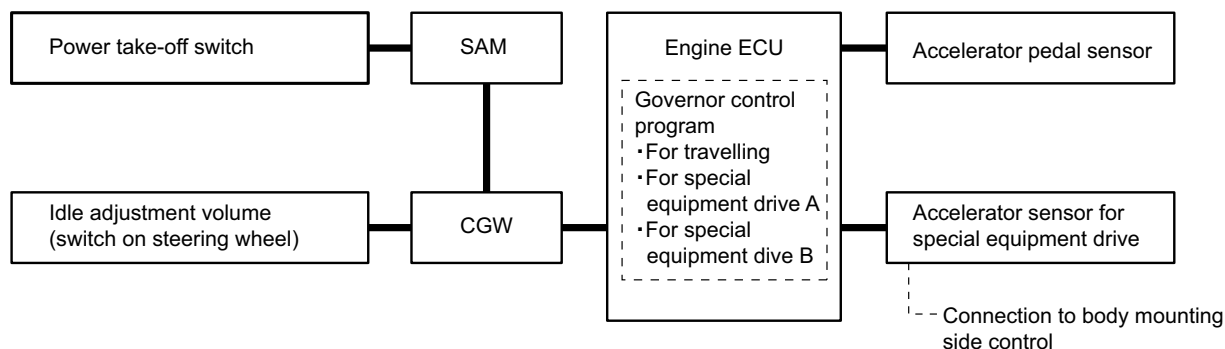


i Additional information

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

6.1.1.3 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 program for special equipment drive 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.
- 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 vehicle with cab back engine control, the governor program for special equipment drive is set by changing the parameters for engine electronic control unit.
- When setting or changing of governor program for special equipment drive, be sure to consult a MITSUBISHI FUSO authorized Distributor.

The idle adjustment volume signal is input to the engine electronic control unit on CAN signal via CGW (central gateway).

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

▷ 10.3.3.

6 Modifications to the basic vehicle

6.11 Power take-offs

Governor control program 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 governor program #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 governor program #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.

Order code	Governor program for special equipment drive	Part No.	Specifications with PTO ON					Remarks
			Accelerator sensor for special equipment drive	Accelerator pedal sensor	Idle adjustment volume	Governor control map	Maximum speed (rpm)	
Q1	#1	A 025 447 05 35	O	X	X	For special equipment drive B	3,210	For special equipment drive requiring higher speed stability
Q2	#2	A 025 447 06 35	O	X	X	For special equipment drive B	3,000	
Q3	#3	A 025 447 07 35	O	X	X	For special equipment drive B	2,345	
Q4	#4	A 025 447 08 35	O	X	X	For special equipment drive B	2,010	
Q5	#5	A 025 447 09 35	O	X	X	For special equipment drive B	1,675	
Q6	#6	A 025 447 10 35	O	X	X	For special equipment drive B	1,340	
Q7	#7	A 025 447 11 35	O	O	O	For special equipment drive A	3,210	For special equipment drive for general use
Q8	#8	A 025 447 12 35	O	O	O	For travelling	3,210	For mixer

O: Activated X: Deactivated

6 Modifications to the basic vehicle

6.11 Power take-offs

Shipping specifications for custom body/equipment mounting

- The shipping specifications for vehicles with the governor program system for custom mounting are described hereinafter.
- Vehicles with governor programs for custom mounting will be shipped with the specifications designated when ordering the vehicle.
- If the governor program for custom mounting has not been designated, the vehicle will be shipped without the governor program specifications for custom mounting.
- When either cab-back engine control or cab-back engine control (with idle speed adjustment) is selected as an option (order code: UV, UY), governor program #7 or #8 for custom mounting will be set.
- If governor programs other than #7 or #8 for custom mounting are selected, select options for the governor program for custom mounting (order code: Q1 through Q6).

Chassis	Cargo	Dump	Mixer	Crane	Special equipment (Wheelbase : D, E, F)
PTO	T/M PTO Less	T/M With PTO	F/W With PTO	T/M PTO Less	T/M With PTO
Accelerator sensor	Less	Less	With	With	With
Governor program for special equipment	Less	Less	With (#8)	With (#7)	With (#7)
PTO disconnection signal connector	Disconnected	Disconnected	Disconnected	Disconnected	Disconnected
Remarks			PTO switch not available Refer to 6.11.3 "Cab back engine control" (▷ 6.11.3)	PTO is mounted by the body manufacturer Refer to 6.11.3 "Cab back engine control" (▷ 6.11.3)	



6 Modifications to the basic vehicle

6.1 1 Power take-offs

Body/equipment mounting procedures

- At the time of mounting a cab-back sensor to the body, from among governor programs #1 through #8, select the program that meets custom mounting requirements. Provided however, that any custom mounting governor program other than #8 cannot be used for agitating trucks.
- Refer to "6.1 1.3 Cab-back engine control" (▷ 6.1 1.3) for the mounting location of the accelerator sensor, use an onboard harness (2 meters), which is delivered separately.

Precautions

- In the case of custom mounting governor programs #7 and #8, when the PTO switch is ON, the accelerator pedal, cab-back sensor and idle volume function as accelerator sensors. When a vehicle is being driven while the PTO switch is turned ON, the engine speed could change if the driver controls the vehicle or operates the idle volume from the body mounting side. This could change the engine revolution and disturb safe driving. Please advise users to turn OFF the PTO while driving.
- Agitating trucks are F/W PTO types and do not have switches. Therefore, accelerator pedals and cab-back sensors function at all times. Please advise users to set the body mounting control lever in the "STOP" or "AGITATE" position while driving.

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.

<OLD: ~June 2021>

Part name	Part No.	Quantity (pc/unit)	Remarks
Accelerator sensor	ML335584	1	-
Sub harness	MK398197	1	Harness length: 2 m
Sub harness (Conversion harness)	ML235330	1	Harness length: 130mm

<NEW: July 2021~>

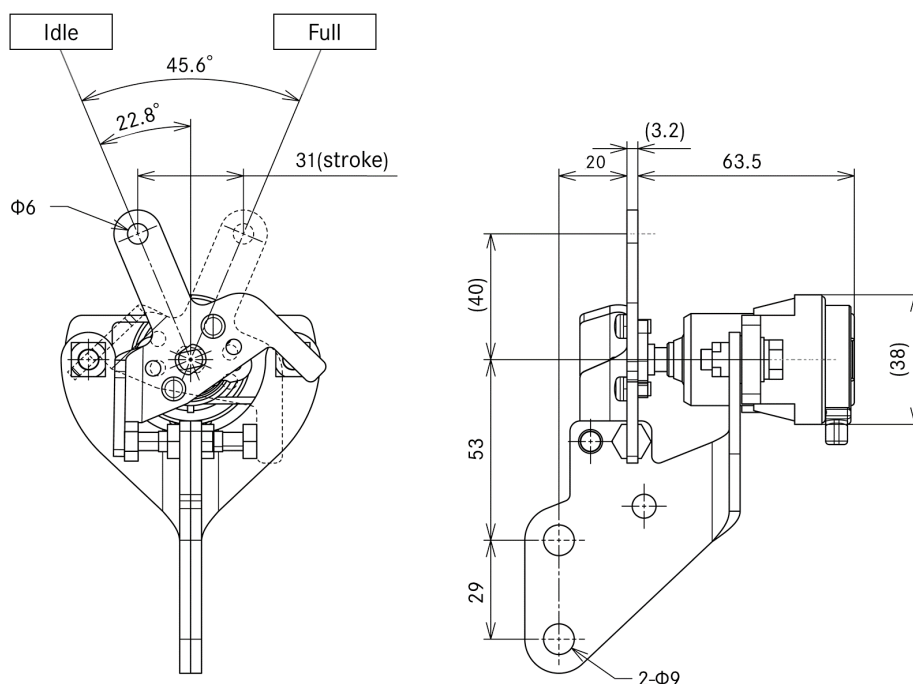
Part name	Part No.	Quantity (pc/unit)	Remarks
Accelerator sensor	ML343560	1	-
Sub harness	MK398197	1	Harness length: 2 m
Sub harness (Conversion harness)	ML235685	1	Harness length: 180mm



6 Modifications to the basic vehicle

6.11 Power take-offs

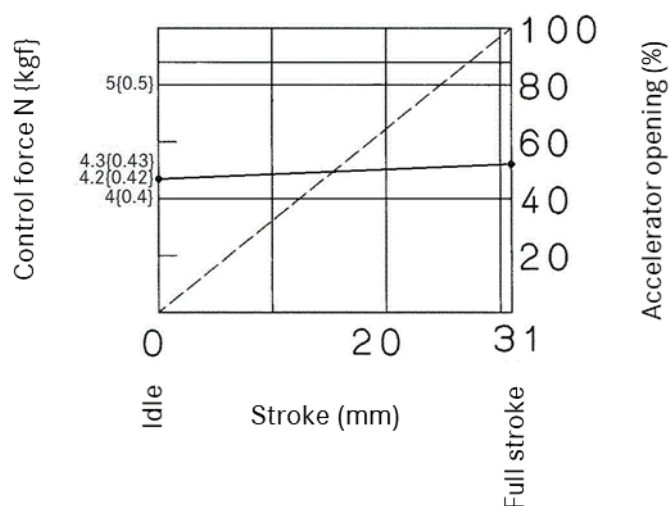
- Special fitment accelerator sensor
 - Details



Unit: mm

	Stroke	Control force N {kgf}		Lever length
		Idle	Full	
Lever stroke	31	4.2 {0.42}	4.3 {0.43}	40

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



6 Modifications to the basic vehicle

6.1 1 Power take-offs

- 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" (▷ 6.11.3).
 - 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).
 - Connect the connector conversion harness to the special equipment axle sensor.
- 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.
 - 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.
 - Do not use the return spring force of the Position the accelerator sensor when returning the body part/equipment side control.
 - 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.

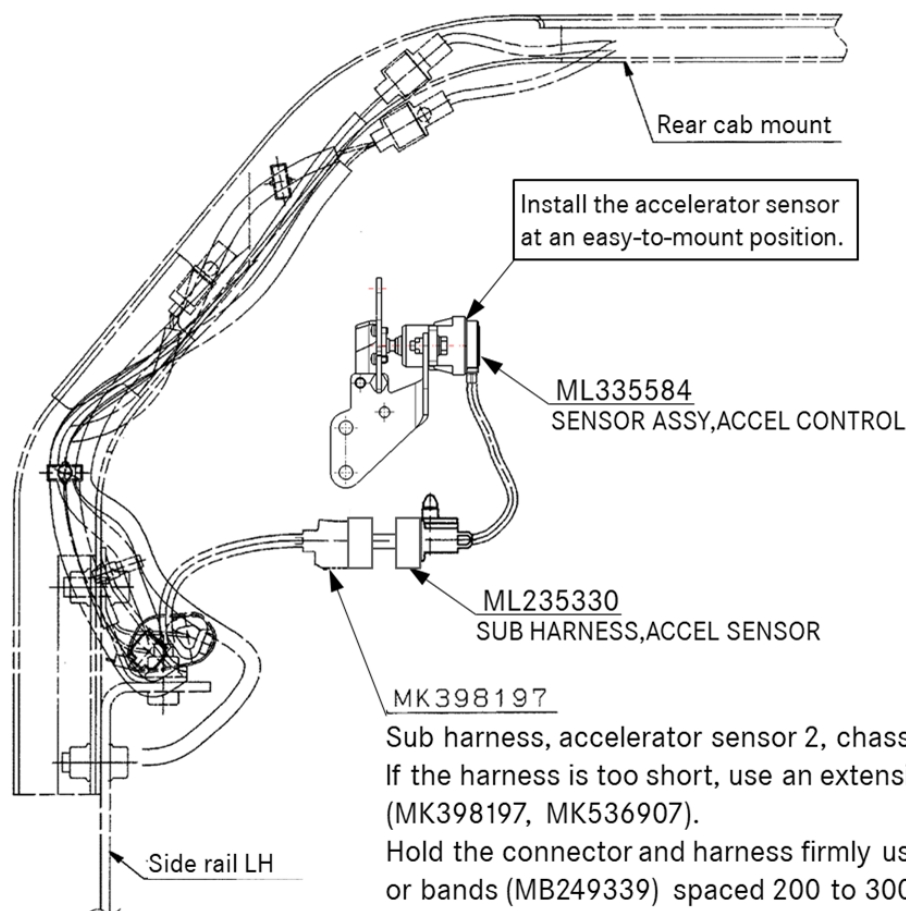
Part No.	Part name	Remarks
MK398197	Sub harness, accelerator sensor 2, chassis (extension harness)	Harness length: 2 m
MK536907	Sub harness, accelerator sensor 2, chassis (extension harness)	Harness length: 5 m
ML336227	Cover, accelerator sensor	Special fitment accelerator sensor cover

6 Modifications to the basic vehicle

6.11 Power take-offs

<OLD: ~June 2021>

Installation of cab-back control accelerator sensor harness



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

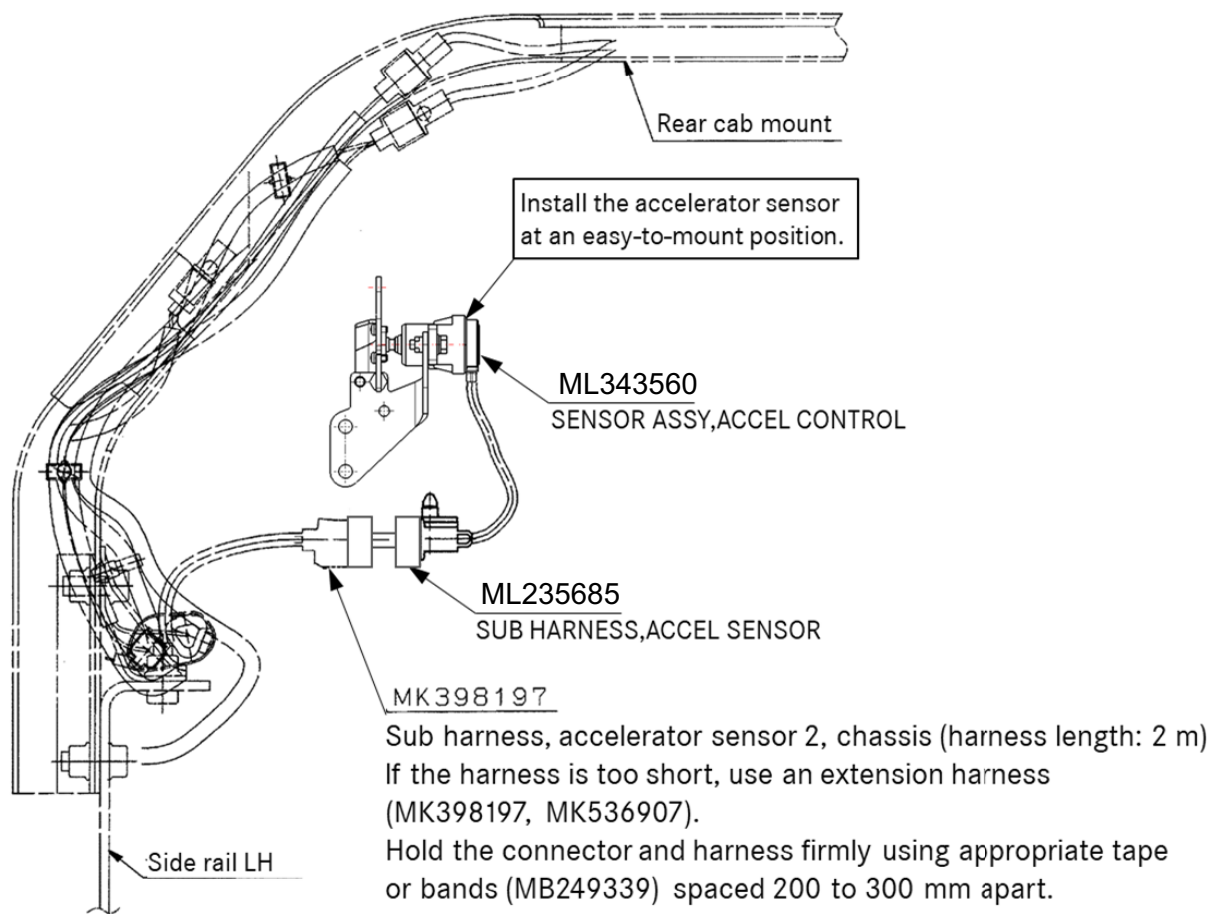
6 Modifications to the basic vehicle

6.11 Power take-offs



<NEW: July 2021~>

Installation of cab-back control accelerator sensor harness

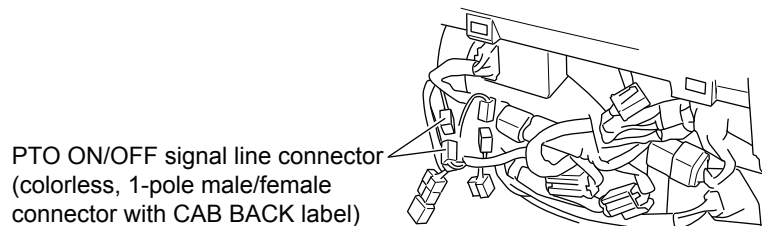
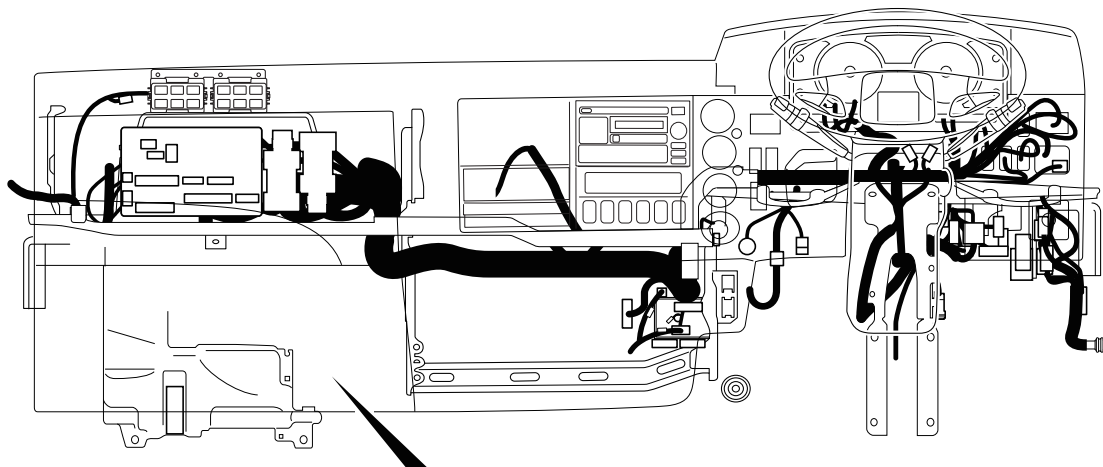


(Left-side cab back of vehicle: rear view)



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

- Procure the following parts:
- 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.



PTO ON/OFF signal line connector
(colorless, 1-pole male/female
connector with CAB BACK label)

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 governor program for special equipment drive #7 or #8 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.

6.12 Installation of propeller shafts

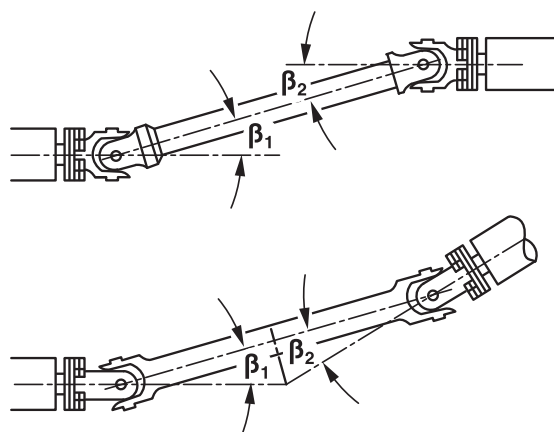
The modification of extending or shortening the wheelbase or additional installation of a transmission to the drive line requires the modification of the propeller shaft. If the propeller shaft is improperly modified such as a change in the pipe length by welding to the main unit of the propeller shaft, 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▷ 2.2.

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 ($\beta_1 = \beta_2$). 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



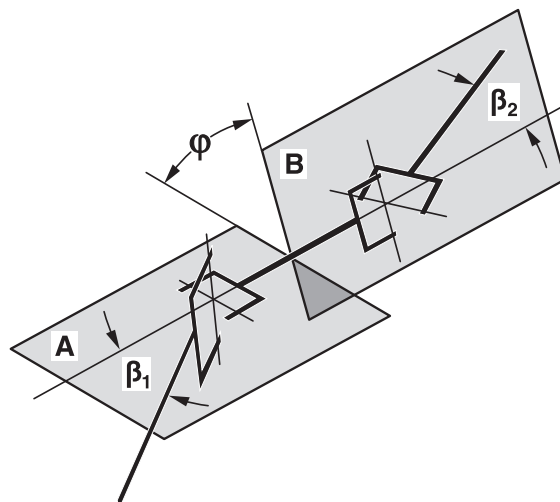
N41.00-2014-00

Angle in one plane (two-dimensional offset)

$$\beta_1 = \beta_2$$

Upper = Z-type offset

Lower = W-type offset



N41.00-2015-00

Angles in two planes (three-dimensional offset)

$$\beta_1 = \beta_2$$

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 laws.



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" ▷ 5.1.

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, suspension 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" ▷ 6.13.2 and "Nylon tubes for air piping" ▷ 6.13.2.

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 ▷ 2.2.

6 Modifications to the basic vehicle

6.13 Brake systems

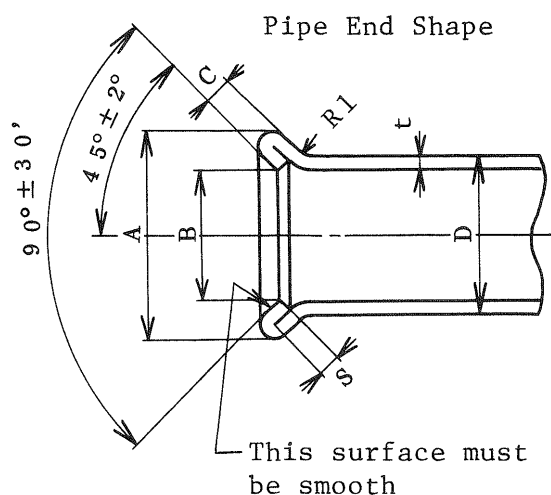
Steel pipes for fluid line

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}

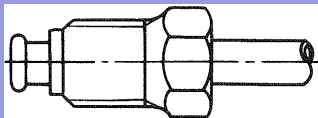
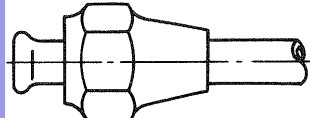
6 Modifications to the basic vehicle

6.13 Brake systems

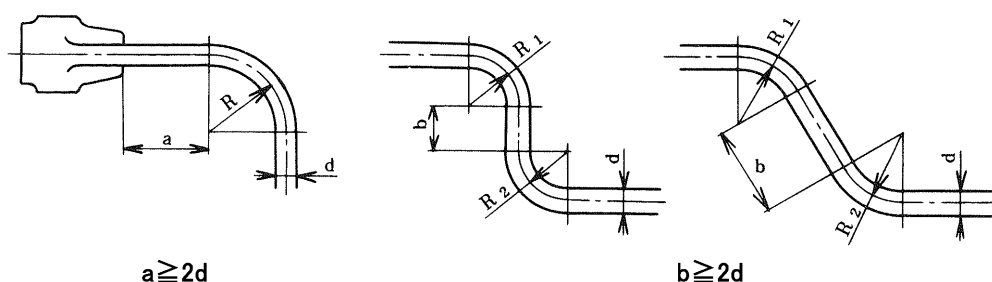
Notes on piping

- When extending pipes, new pipes of the same material should be made. Connect pipes with proper connectors.
- If the same materials are not available in your country, consult the department responsible
▷ 2.2.
- Use union nuts and tube nuts specified in the table below.

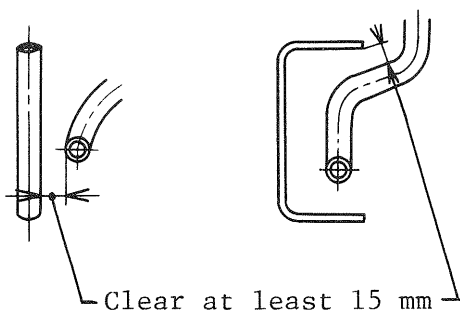
Unit: mm

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



- (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 dismantling 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.

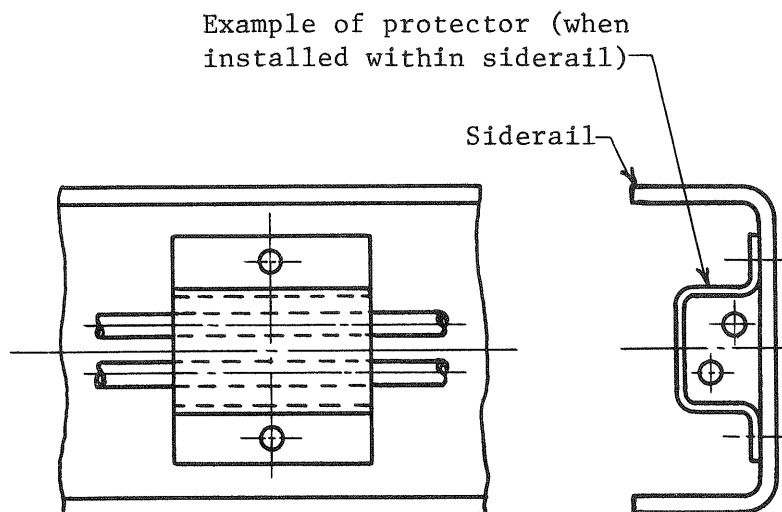
- The standards of pipe clamp distances are given in the table below.
- A shorter pipe clamping distance is acceptable if doing so is necessary to prevent interference with adjacent parts or to assure the safety in operations. If any pipe is to be laid near a movable part, clamp the pipe in a position 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 crossmembers. 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" ▹ 8.2.
- 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" ▹ 4.4.
- 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 Modifications to the basic vehicle

6.13 Brake systems

Unit: mm

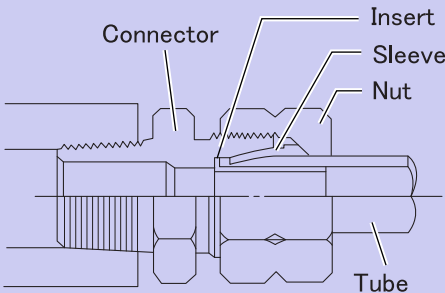
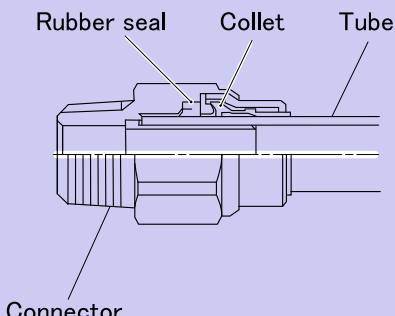
Nominal diameter x Thickness	Nylon material	Minimum bending radius (inner side)	Nylon tubes for parts supply	
			Part No.	Length
6×1	• PA11-PHL • PA12-HIPHL (According to DIN 73378)	30	MC085613	10,000
8×1		40	MC085614	10,000
10×1.25		60	MC085615	10,000
12×1.5		60	MC085616	10,000
15×1.5		90	MC085617	10,000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

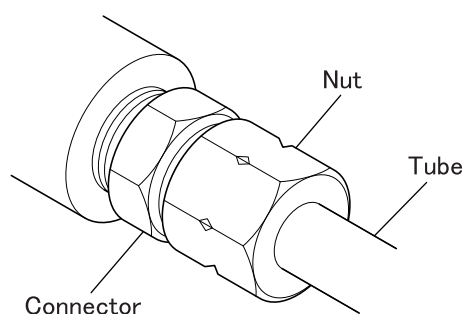
- Do not expose the tube (including connector) to a temperature higher than 100 °C.
(The nylon tube with no pressure applied can withstand a temperature of a maximum 125 °C even if it is temporary, but its service life will become shorter due to thermal aging.)
- During welding work, protect the tube 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 connector

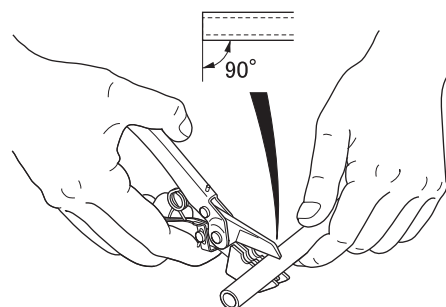
	Cross section	Structure
Compression type		<ul style="list-style-type: none"> • Install the nylon tube with fitted insert into the connector through the sleeve and tighten with the nut. • The sleeve deforms and cuts into the tube, thus preventing air from leaking and maintaining the sealed condition. • The tube, insert and sleeve are deformed and cannot be reused once connected.
Push-in type		<ul style="list-style-type: none"> • 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

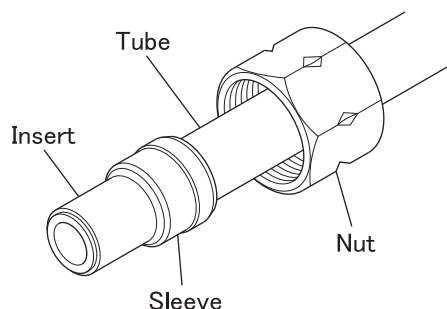
- Removal
 - (a) Bleed air from inside the tube completely. The connector becomes unusable if its inner surface is contaminated. Be sure to clean the outer peripheries of the connector, nut and tube before loosening the nut.



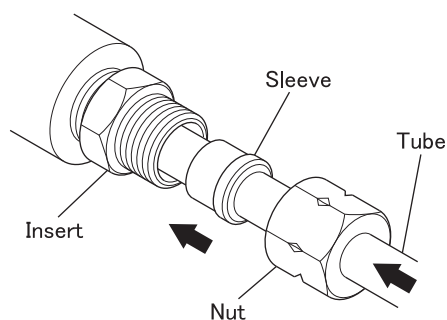
- Installation
 - (a) Ensure that the tube insertion section is free from any damage or contamination. If the section is damaged, cut it off using a tube cutter.



- (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}

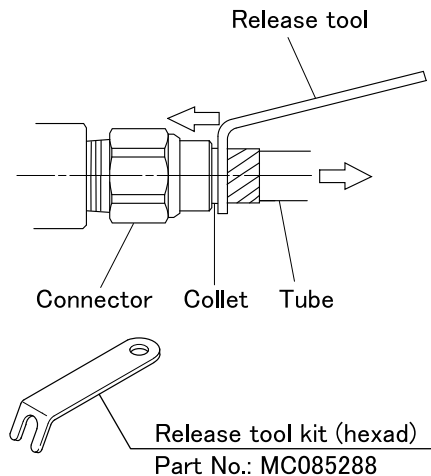
Removal and installation procedure for the push-in connector

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.

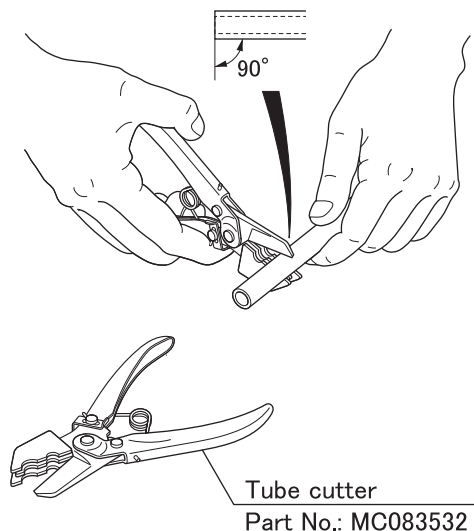
• Removal

- Bleed air from inside the tube completely.
- The connector becomes unusable once it is contaminated with foreign objects. Be sure to clean the connector and tube before pulling off the tube.
- While pressing the collet with a release tool, pull out the tube by hand.
- 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.

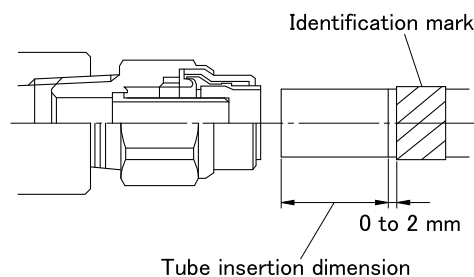


• Installation

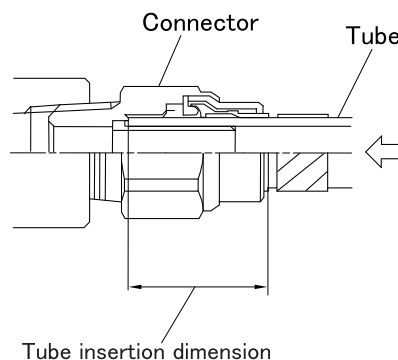
- Ensure that the insertion section of the tube is free from any damage or contamination.
- If the insertion section is damaged, cut the part off. The connector whose inside surface is contaminated can no longer be used. Replace the connector with a new one.



- 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.



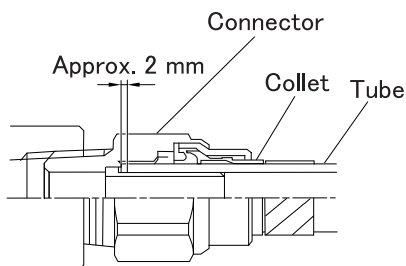
- Insert the tube into the connector straight until it is stopped at the far end. During insertion, use care that the tube is not slanted. Otherwise, it could result in a damaged tube.



6 Modifications to the basic vehicle

6.13 Brake systems

- (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 connector

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	MK714503
16 with cover	32	

- For the nylon tube with VOSS connector, the VOSS connector is friction fitted to the nylon tube. Once it is equipped onto the machinery, it cannot be removed.
When replacing the nylon tube, the entire socket union of the machinery must be removed. The nylon tube and socket union must both be replaced with new ones.
If it is necessary to extend the length of the nylon tube, install a relay connector, which uses the removal/installation procedure of a push-in connector, partway through the nylon tube.

Socket Union

Size	Parts No.
NG6	A0009974934
NG8	A0009974734
NG12	A0009974834

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" ▷ 6.13.2.
- 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 $\pm 1\%$ 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.

6.14.1 Exhaust gas purification devices (DPF, SCR catalyst)

Exhaust gas purification devices (DPF, SCR catalyst) and sensor

- The muffler with exhaust gas purification devices (DPF, SCR catalyst) 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 (DPF, SCR catalyst) and engine proper from being adversely affected, do not relocate the exhaust gas purification devices (DPF, SCR catalyst), exhaust temperature sensor, pressure sensor, NOx sensor and PM sensor. If temporary removal of these parts becomes inevitable during mounting, be sure to reinstall these parts in the original places. Connect the pressure sensor hose properly, not in reverse, too loose nor too tense. Also, securely install the clamp on hose connection and make sure of gas-tightness.
- The muffler with DPF is 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 tank
- Supply unit
- Dosing module
- Urea hose

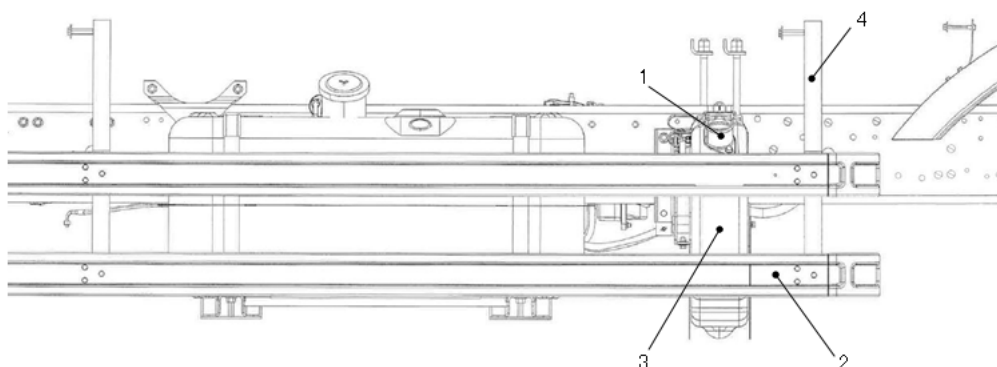
Property damage

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.

Installing a side guard and other parts around the urea tank

- Care is required when installing a side guard around the urea 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 tank and the following parts of the urea tank: front end, rear end, and outer side.
- Avoid directly attaching parts to any of the urea tank brackets.



1 Cap

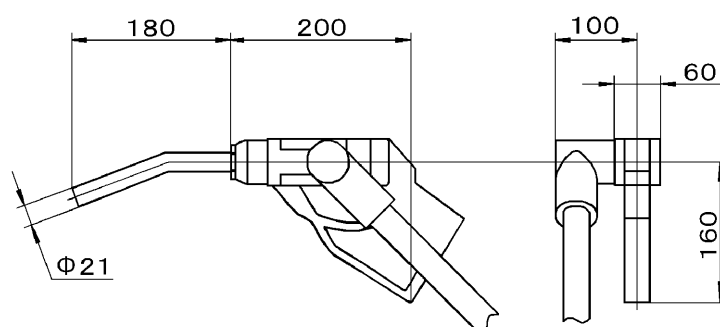
2 Side guard

3 Urea tank

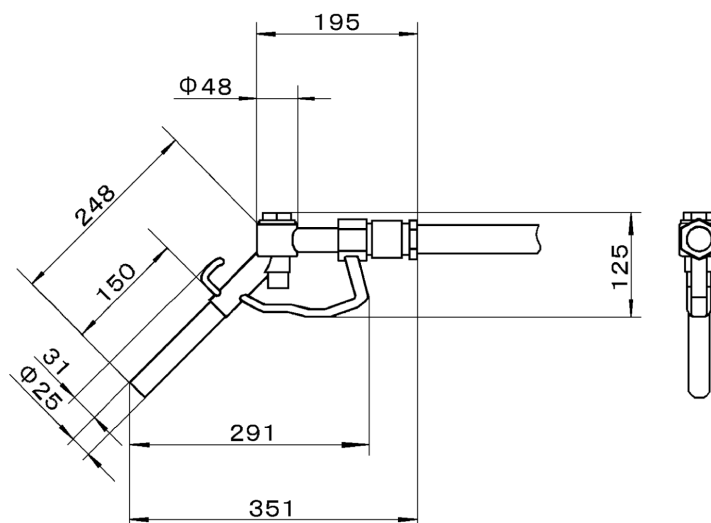
4 Side guard mounting stay

Filler gun - Examples

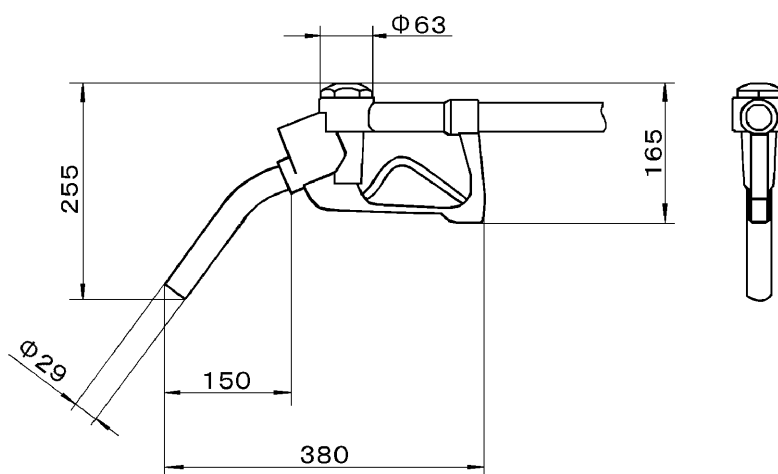
Filler gun for dispensers



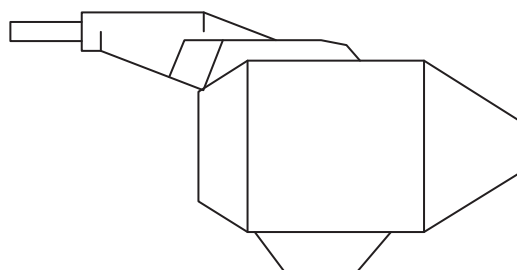
Filler gun for IBC pump units



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



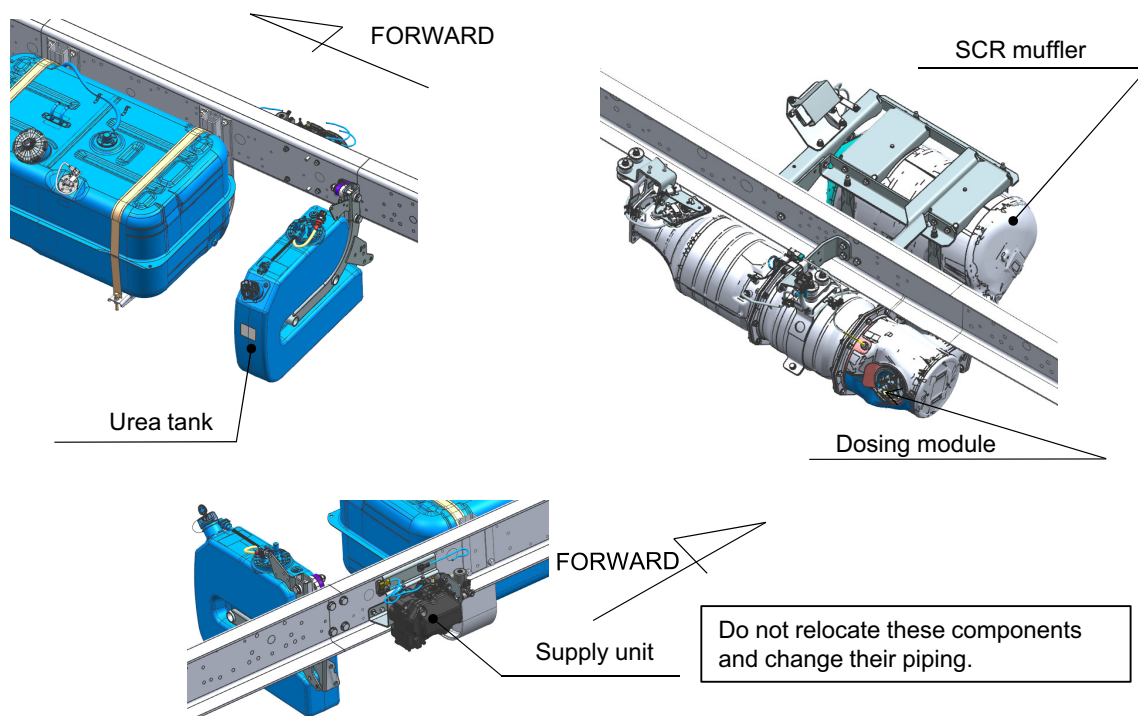
Filler gun for ISO/DIS 22241-5 type



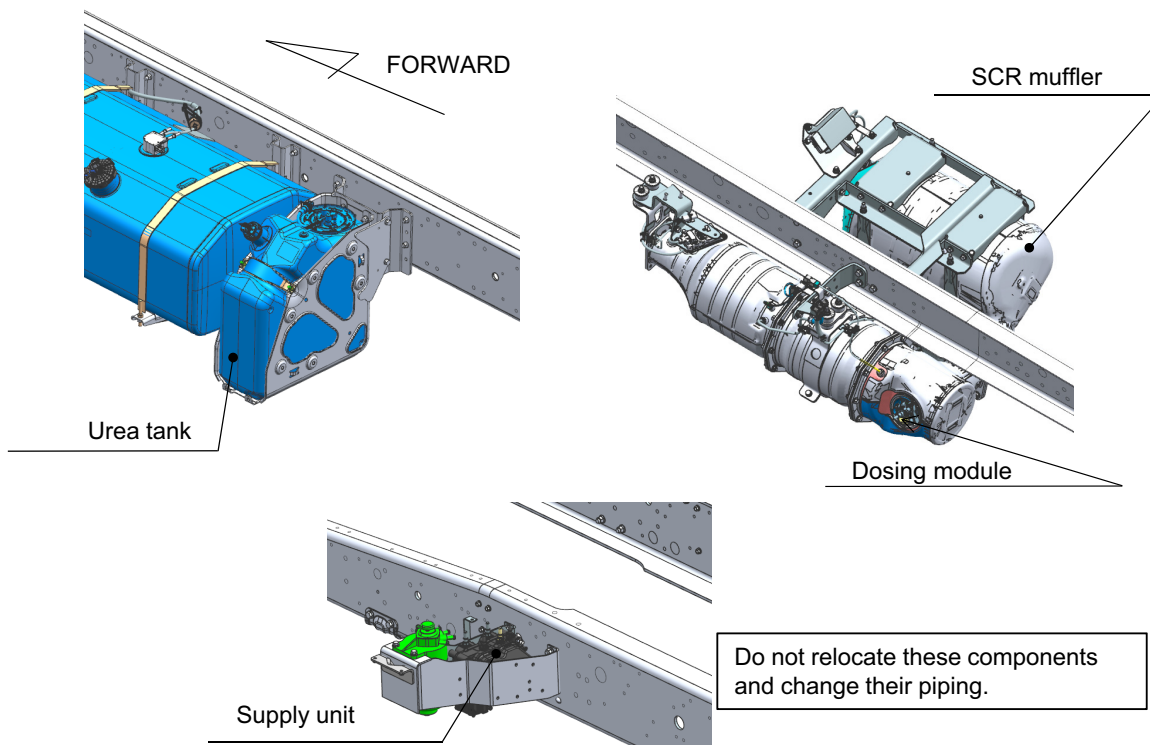
Urea tank and connection piping

The SCR muffler, the urea tank, the urea supply unit, the dosing module, 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.

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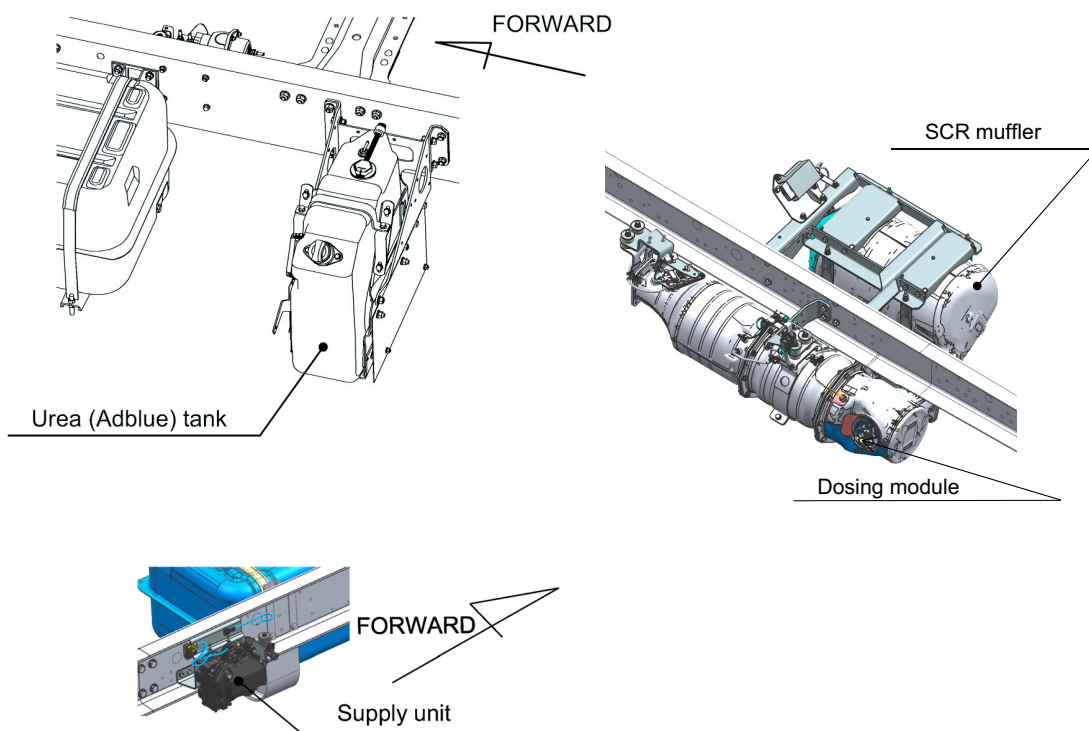


6 Modifications to the basic vehicle

6.14 Exhaust system

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Do not relocate these components
and change their piping.

There are urea 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
6	MH033965	5,000
	MH033966	10,000
8	MH033967	5,000
	MH033968	20,000
10	MH033851	5,000
	MH033852	20,000
12	MH033876	5,000
	MH033877	20,000

Steel pipe

Use the steel pipe with anticorrosion treatment on the inner and outer surface, and with the following shapes of the pipe end.

Corrosion protection:

FK, FM, FN: Inner surface- Nickel plating (thickness: 6 or more)

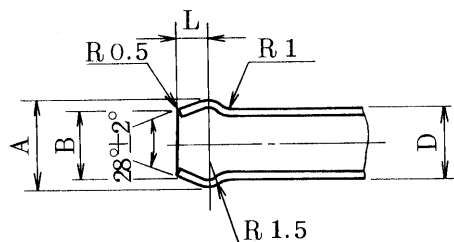
FQ: Inner surface - Copper plating (thickness: 8 μ or more)

Outer surface - Zinc plating (thickness: 8 μ or more)

6 Modifications to the basic vehicle

6.15 Fuel system

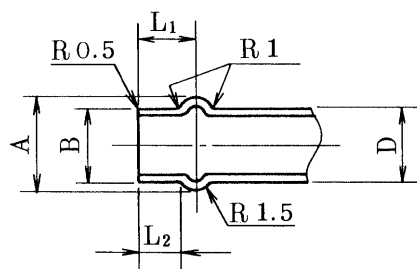
Bulge type



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.

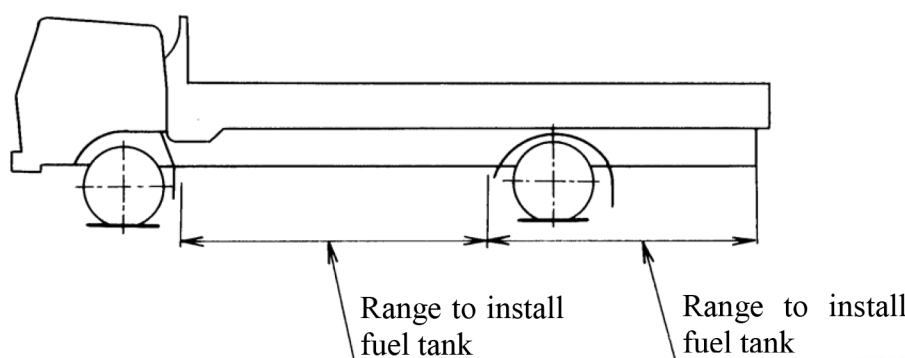
- If the freezer engine will be supplied with fuel from the fuel tank for a vehicle engine, be sure to take out fuel from the fuel tank. Never attempt to supply fuel for a freezer engine through a branch line from the fuel supply line for a vehicle engine. Such an attempt could result in the vehicle 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.
- Install the fuel tank in the range for installations shown in the diagram below.



Installation of fuel tank

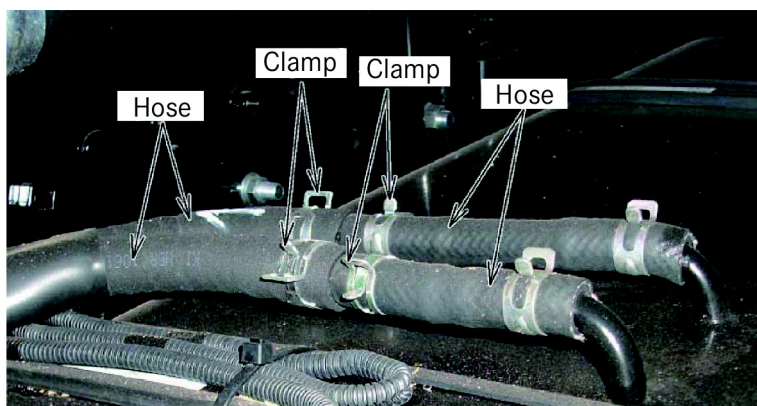
- Install the fuel tank in such a way that no loosened fasteners will occur under any circumstances, taking the conditions such as vibrations and mounting position fully into consideration. If new type brackets should be used, verify that they can provide sufficient strength to the construction.
- To 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	

Fuel hose connecting procedure

Example of connection



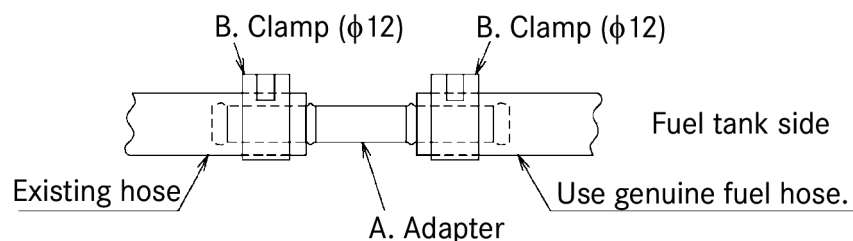
Example of parts used

Unit: mm

Part name	Feed line	Return line
ADAPTER $\phi 12-\phi 12$	○	○
CLAMP $\phi 12$	○	○
ADAPTER $\phi 12-\phi 10$	○*	○*
CLAMP $\phi 10$	○*	○*

*: FQ type (200L fuel tank equipped vehicle)

- If extension of the fuel hose is required to relocate the fuel tank to the rear of the vehicle, extend the existing hose (nominal diameter: 12 mm) using the service parts, adapters and clamps.
- For the extension hose, use genuine fuel hose.



- Prepare the necessary service parts.
- Do not position the adapter near the engine and transmission, or between the transmission and frame.
- Only one adapter can be used for each feed line and return line.
- Secure the hose near the adapter to the frame, etc. to avoid interference with the brake pipes and electrical harnesses.
- Be careful not to connect the feed line and return line in reverse.

Service parts

Unit: mm

Code	Part name	Part No.	Remarks
A	ADAPTER	MK629322	φ12-φ12
B	CLAMP (φ12)	MC159619	

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 ▸ 2.2.


- (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  is not indicated on the multi-information display when the starter switch is turned ON. If  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. ▷ 2.2.
- 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  is not indicated on the

multi-information display in the meter cluster when the starter switch is turned ON. If  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 ▷ 2.2.

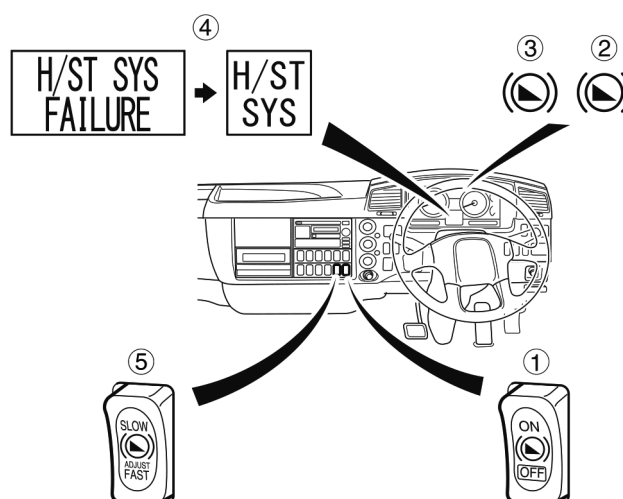
6.16.2 Hill start assist system <Vehicles with hill start assist system>

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 | 4 | Multi-information display |
| 2 | Indicator lamp (green) | 5 | Hill start assist system adjusting switch |
| 3 | Warning lamp (amber) | | |

Operations

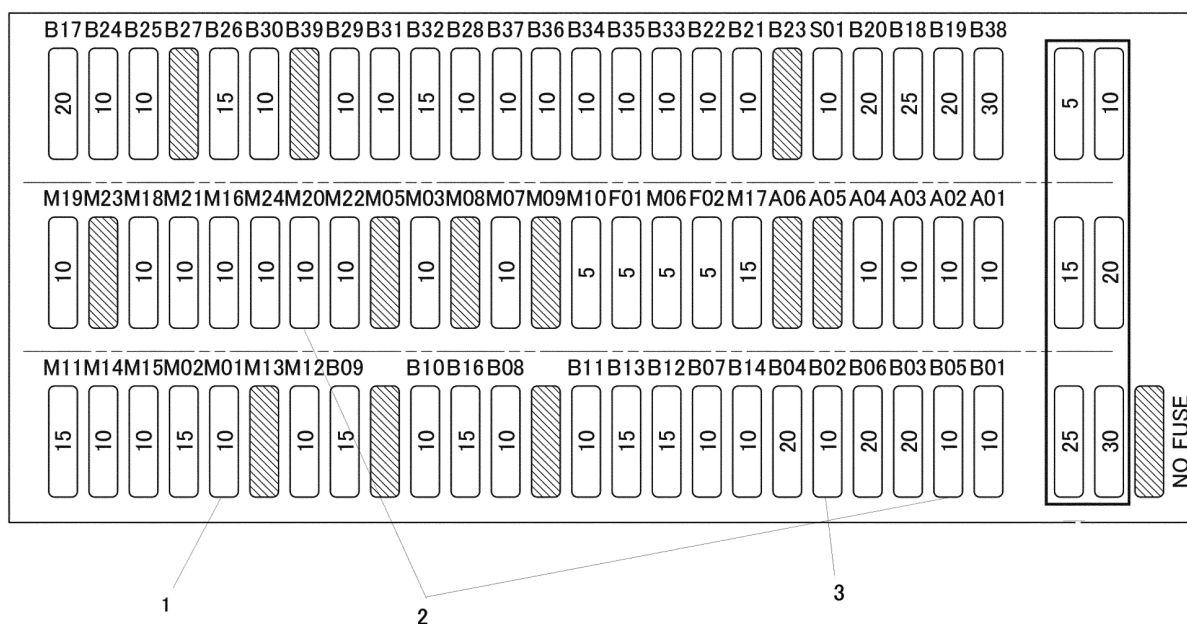
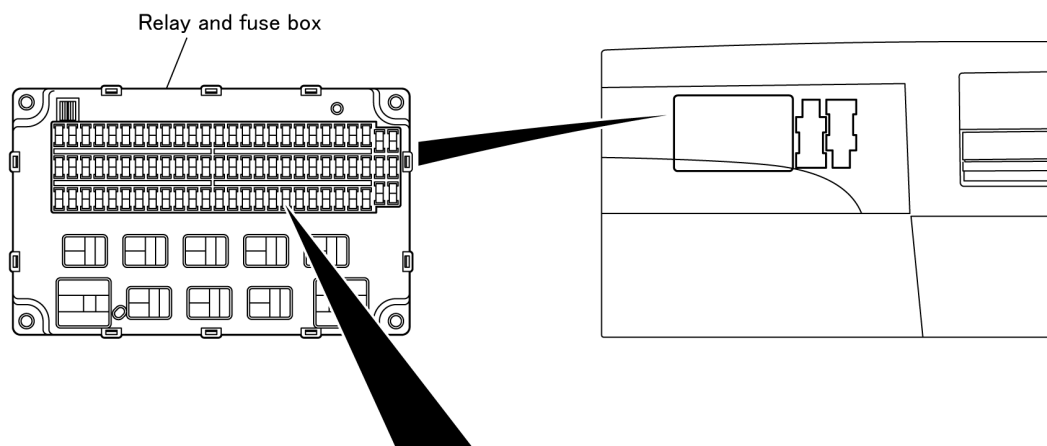
- The hill start assist system is activated when the hill start assist system main switch is turned ON and deactivated when it is turned OFF.
- While the hill start assist system is active, the indicator lamp (green) remains lit.
- The warning lamp (amber) is lit when the starter switch is placed in 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" > 5.2.
- For safety, avoid sharing existing 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

- Fuse for EZGO (10 A)^{*2} or fuse for MVCU (main power supply) (10 A)^{*3} <Vehicle with EZGO in Full air brake vehicle>
- Fuse for anti-lock brake system and EZGO (10 A)^{*1} <Vehicle with EZGO in Air-over hydraulic brake vehicle> or fuse for anti-lock brake system (10 A)^{*2}
- Fuse for EZGO (10 A)^{*2} or fuse for lock brake/MVCU (backup power supply) (10 A)^{*3} <Vehicle with EZGO in Full air brake vehicle>

*1: FK (162 kW vehicle)

*2: FK (177 & 199 kW vehicle)

*3: FK-Y, FK-Z, FQ

CAUTION: All the FQ vehicle is equipped with EZGO in full air 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) and electronic stability program (ESP®)

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

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

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

If the following parts are removed and reinstalled, be sure to consult an authorized MITSUBISHI FUSO distributor or dealer to have the calibration of ESP® sensor.

- Steering-related parts (e.g. steering wheel etc.)
- Steering wheel angle sensor
- ESP® sensor

If it is necessary to drive without the calibration, use the ESP® cut switch not to activate the ESP®. The ABS will operate even if the ESP® is deactivated.

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

- Modification between control valve (various control modules) and brake chamber

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

Do not change the mounting position and direction of the ESP® sensor.

Do not apply shock to the ESP® sensor such as putting your foot on it or dropping it.

If the fuse of the ESP® system is blowout, the system will not work. For safety, do not take out the power for other electrical components from the fuse of the ABS system.

Do not use impact tools when installing an ESP® sensor as may cause malfunction the parts.

Do not change the wheel base.

When wearing tires whose outside diameter is significantly different from the specified one, or when wearing a combination of tires of different maker or brand in front, back, left and right, the anti-lock brake system, ASR and ESP® system may not operate normally.

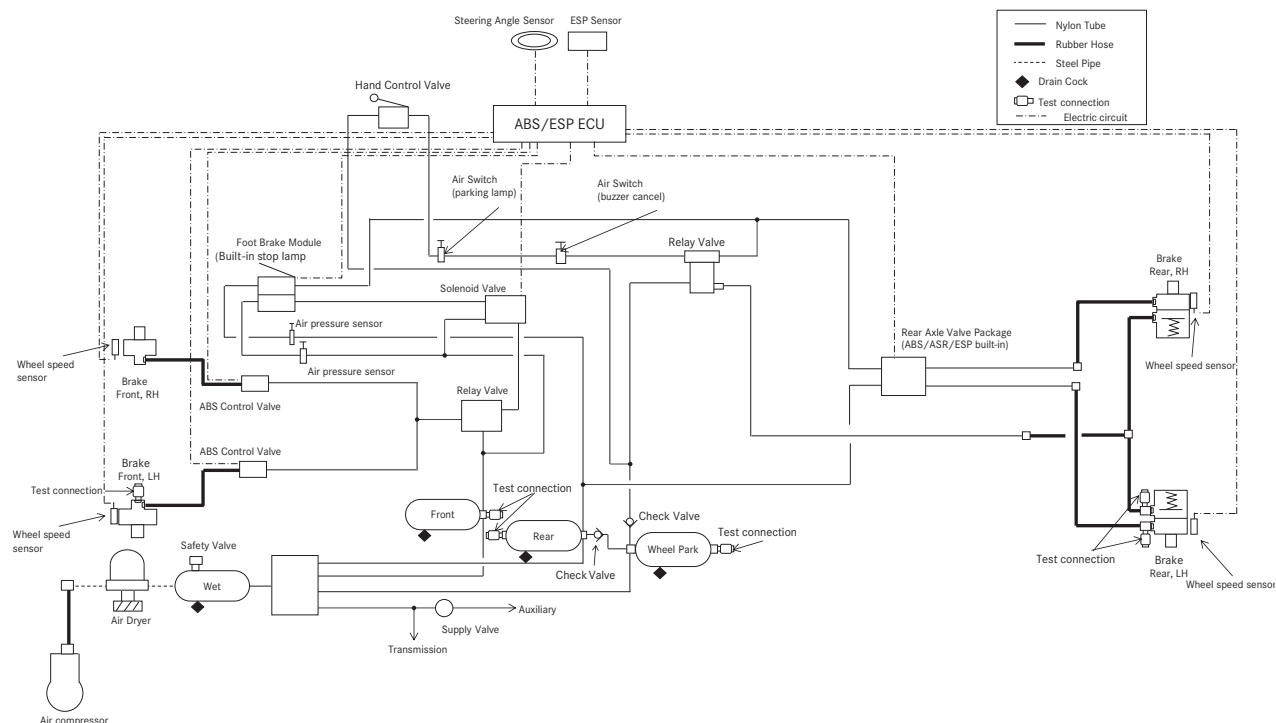
6 Modifications to the basic vehicle

6.16 Others

Schematic system diagram

System diagram (FK, FM, FN)

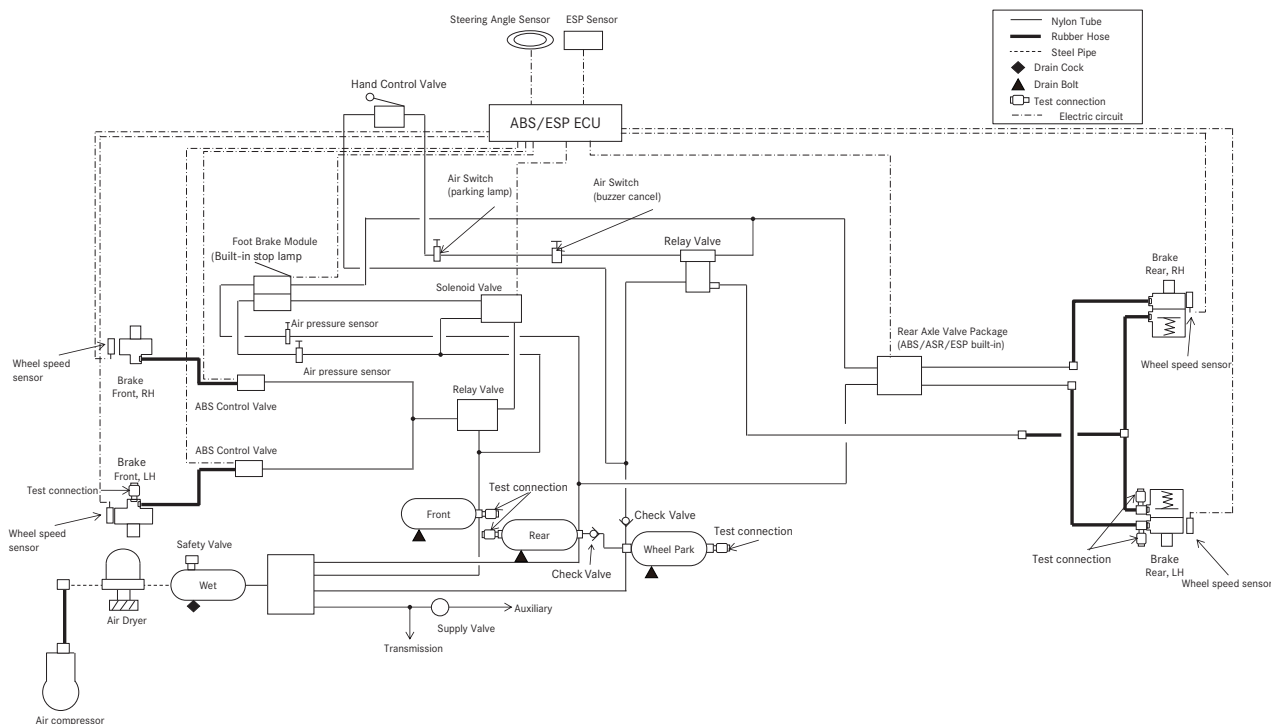
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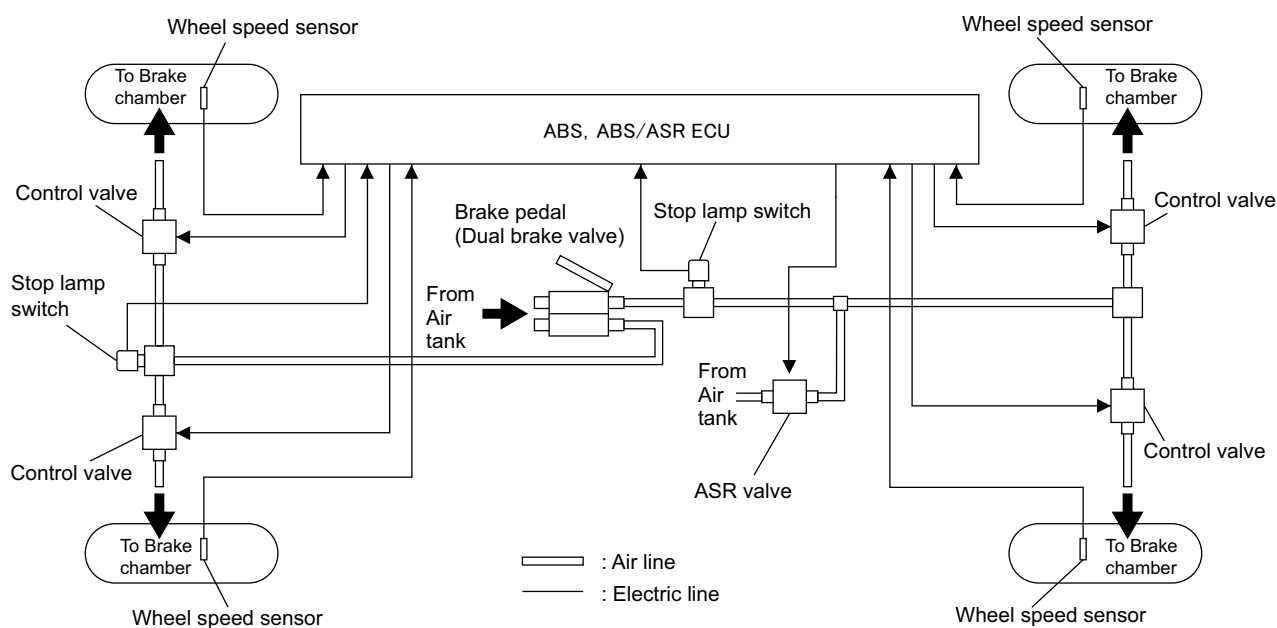
Schematic system diagram

System diagram (FK, FM)

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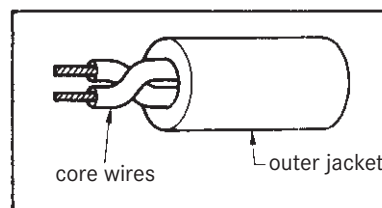
System diagram (ABS in full air brake: FQ)



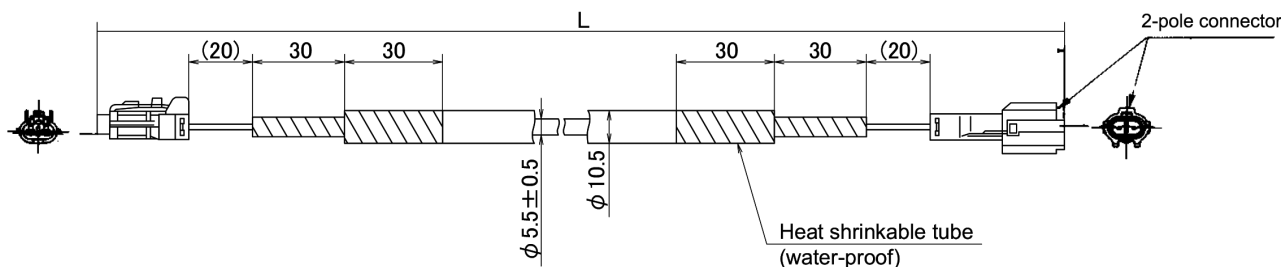
Change of anti-lock brake system-related parts

- 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

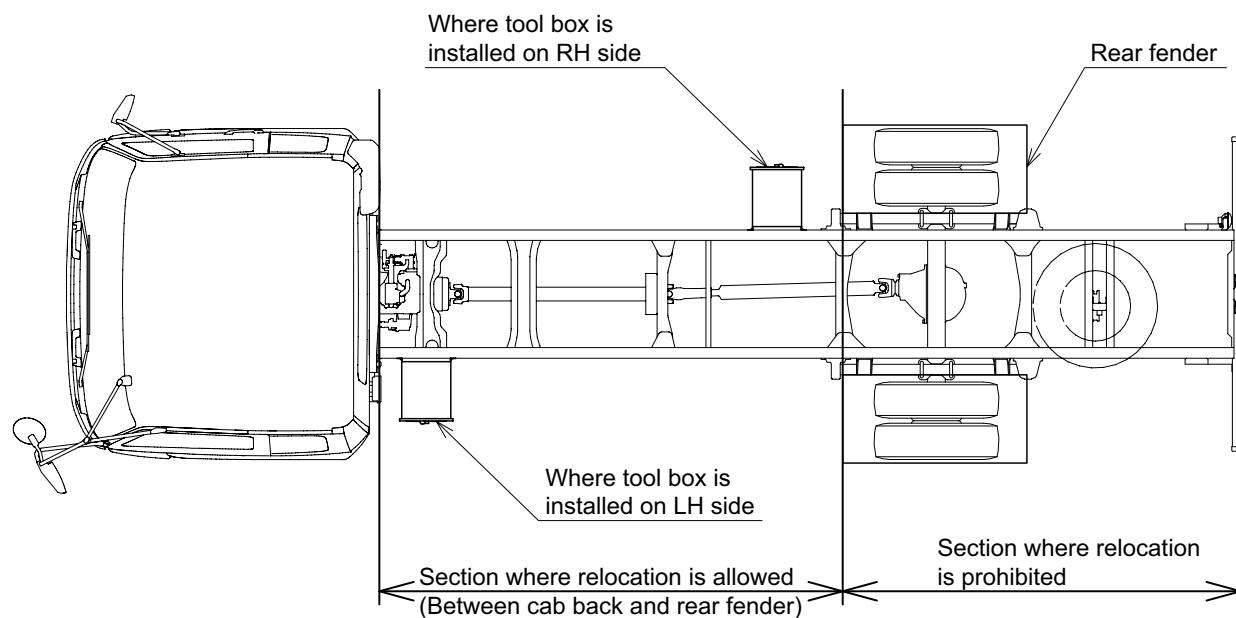
Checking the anti-lock brake electrical system after completing the body mounting procedure

- 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.

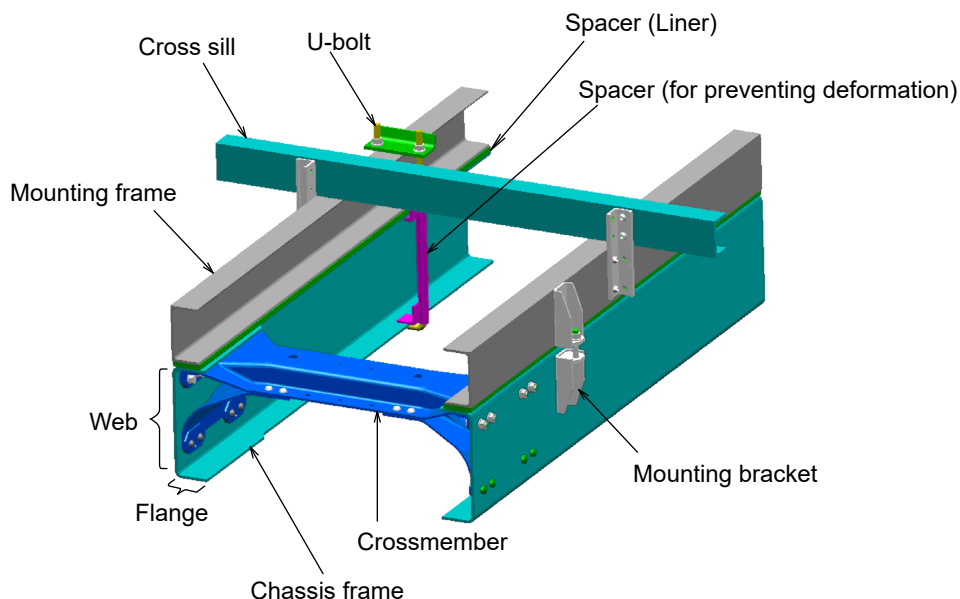


Additional information

Further information on bolted and welded connections can be found in Section 3 "Planning of bodies" ▷ 3.1 and Section 5 "Damage prevention" ▷ 5.1.

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" ▷ 10.4 and 10.6.2 "Frame section modulus" ▷ 10.6.2.
- The frame stress should be less than the values shown in the table below.

Table of frame stresses (when loaded to rating)

Material	High tensile steel plate: HTP540 Tensile strength: 540 MPa {55 kgf/mm ² }
Condition	
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 Construction of bodies

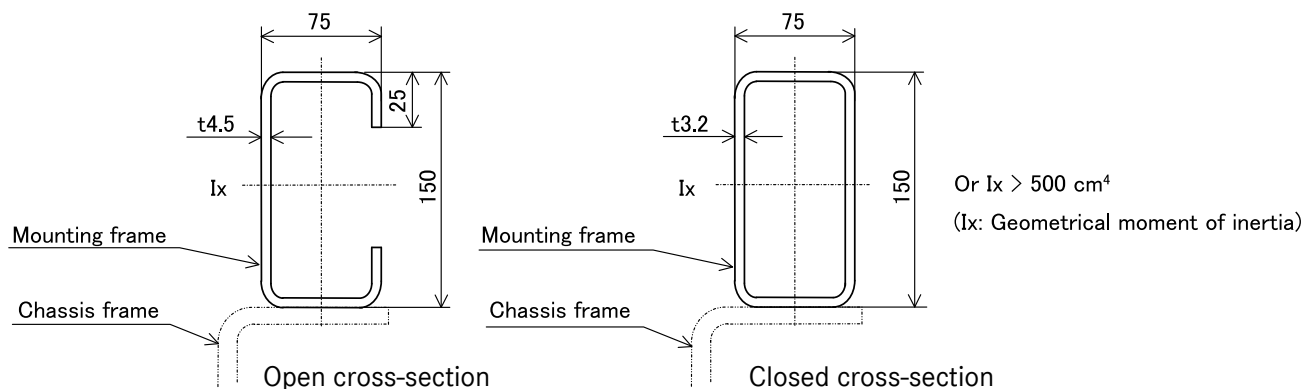
7.2 Fastening mounting frame to chassis frame

Cargo

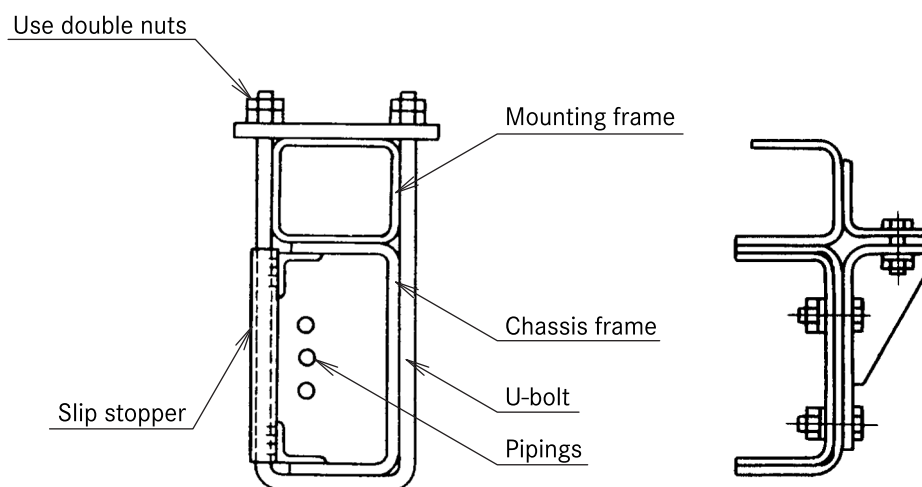
7.2 Fastening mounting frame to chassis frame

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 Construction of bodies

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.

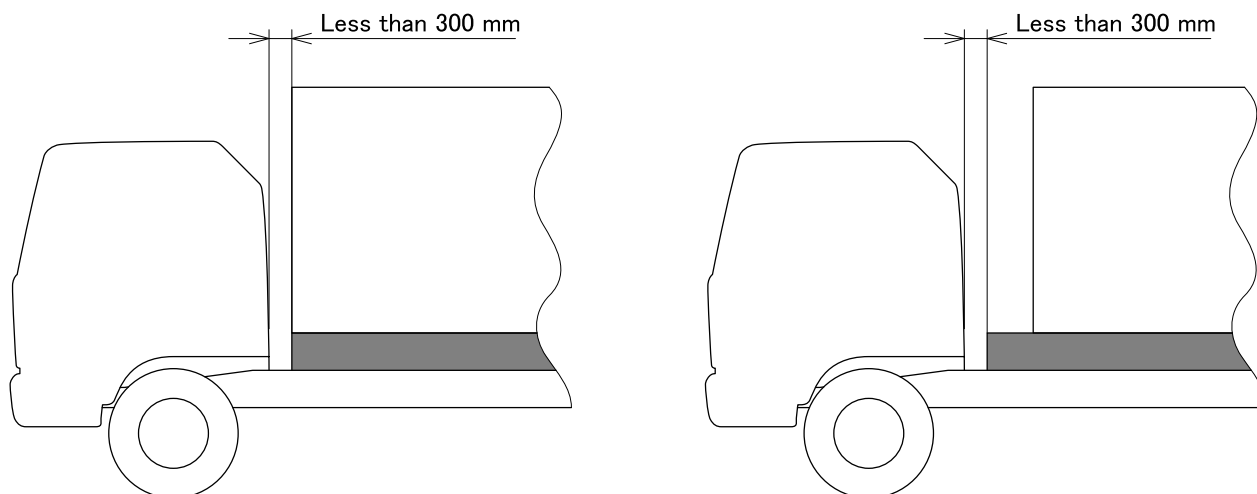


Fig. 1

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.

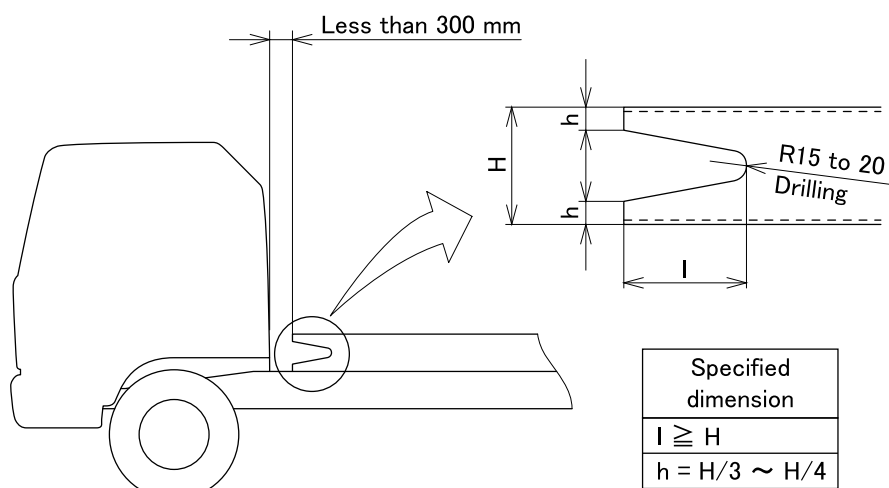


Fig. 2

7 Construction of bodies

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.

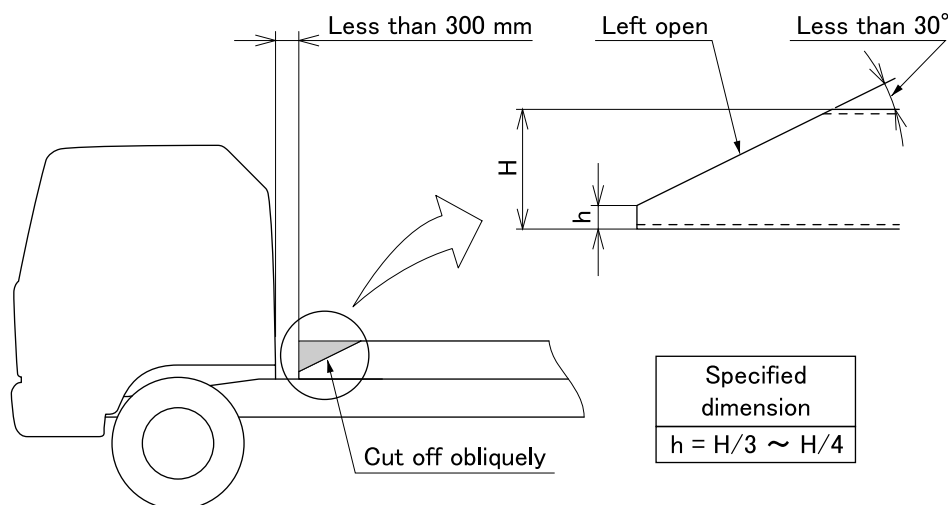


Fig. 3

- 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.

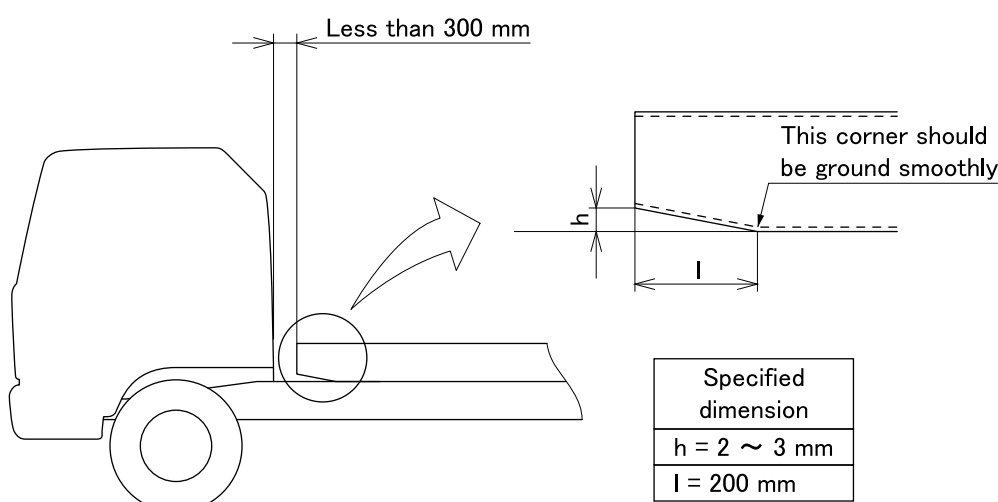


Fig. 4

7 Construction of bodies

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.

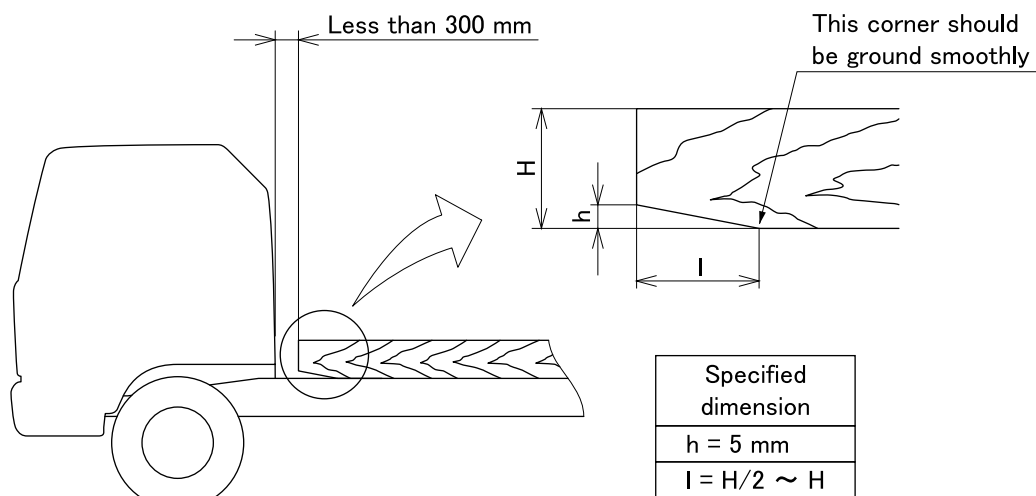


Fig. 5

- 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.

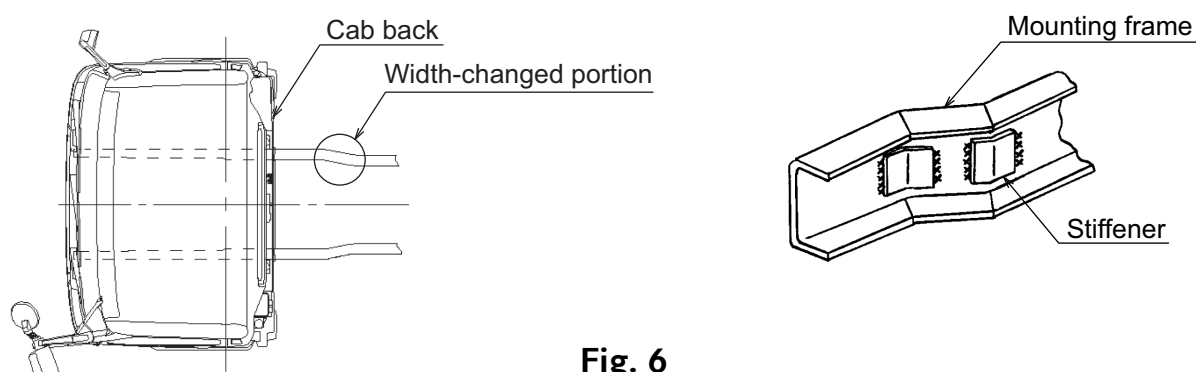
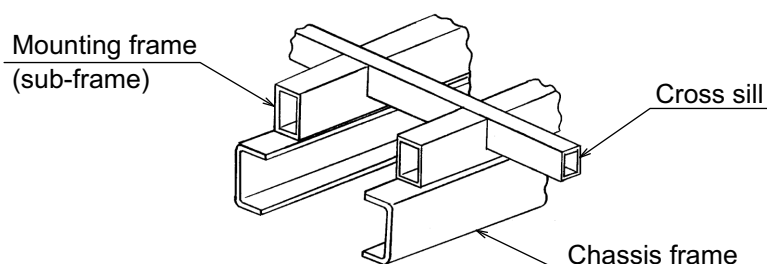


Fig. 6

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 Construction of bodies

7.2 Fastening mounting frame to chassis frame

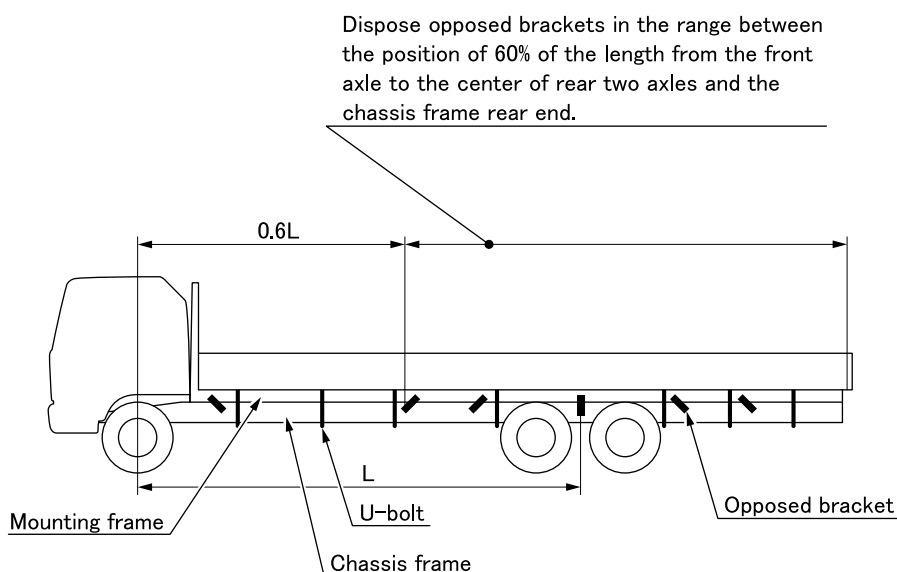
Cargo

(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.

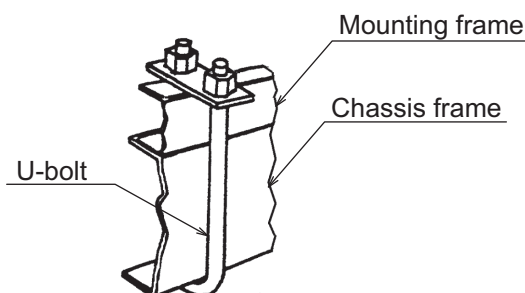
(3) Frame fasteners and their features

- 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.



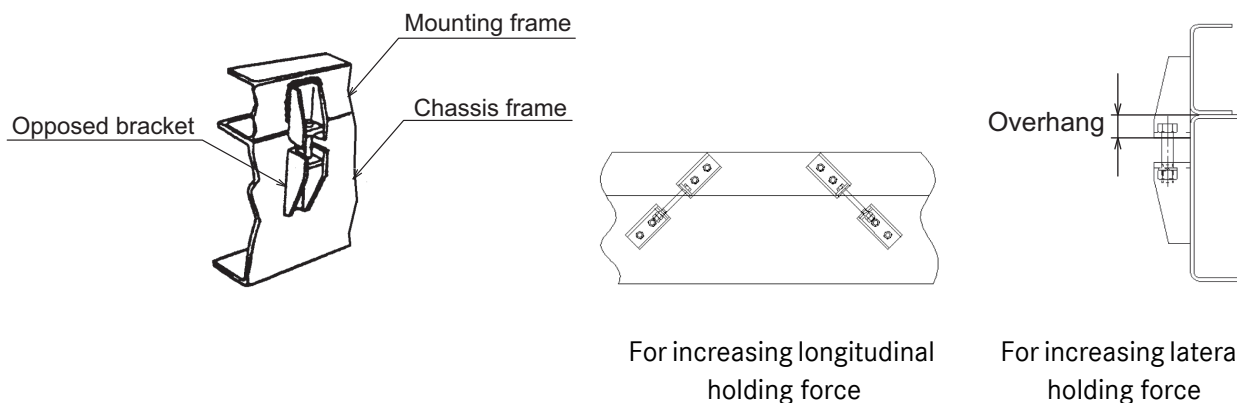
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

Cargo

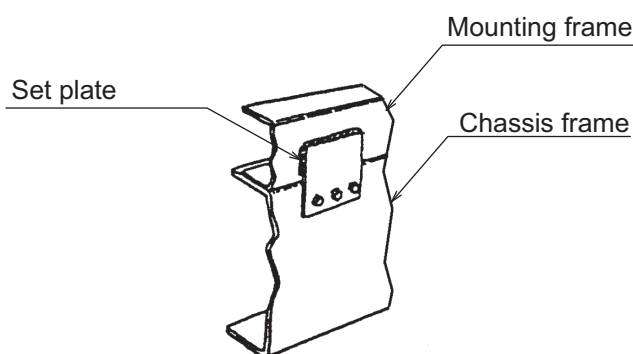
- Opposed bracket

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.

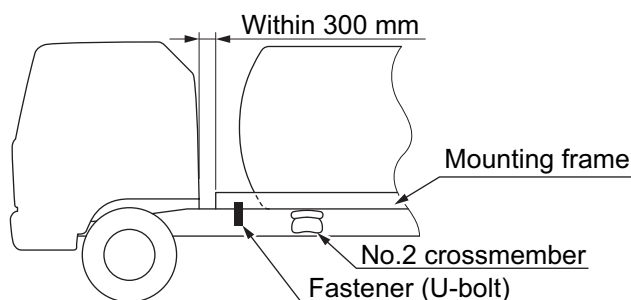


- Mounting flange

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.

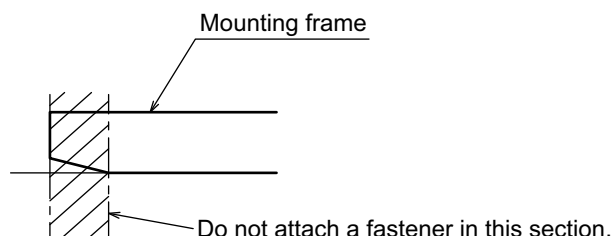


7 Construction of bodies

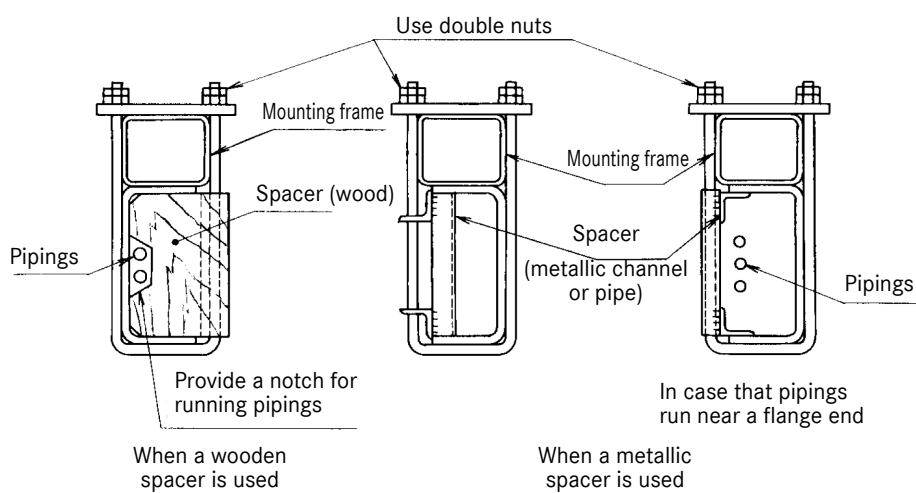
7.2 Fastening mounting frame to chassis frame

Cargo

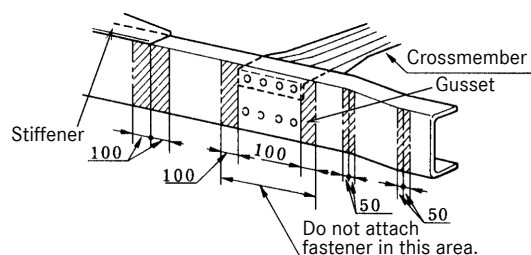
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



- 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.

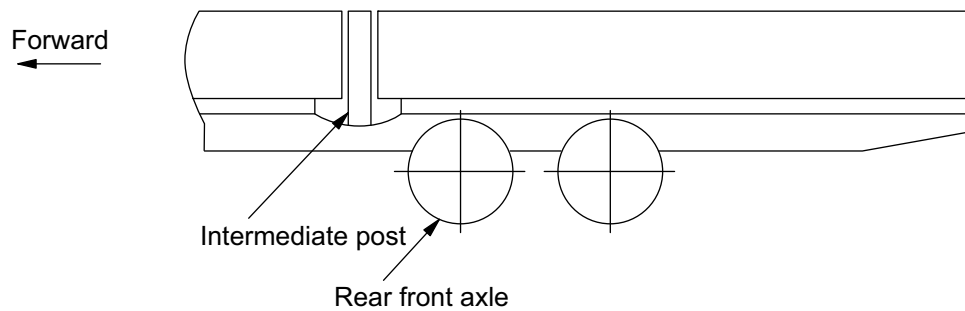


- Attaching opposed brackets to a chassis frame should be done with bolts. For the procedure, refer to 6.2 "Chassis frame material" ▸ 6.2.
- Do not use U-bolts or opposed brackets for crossmember, stiffener and gusset attaching sections or near the curved section of the chassis frame because these sections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

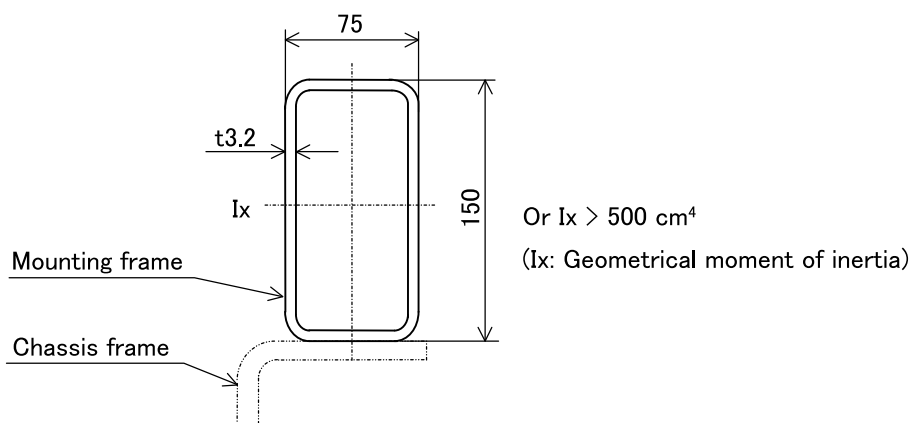
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

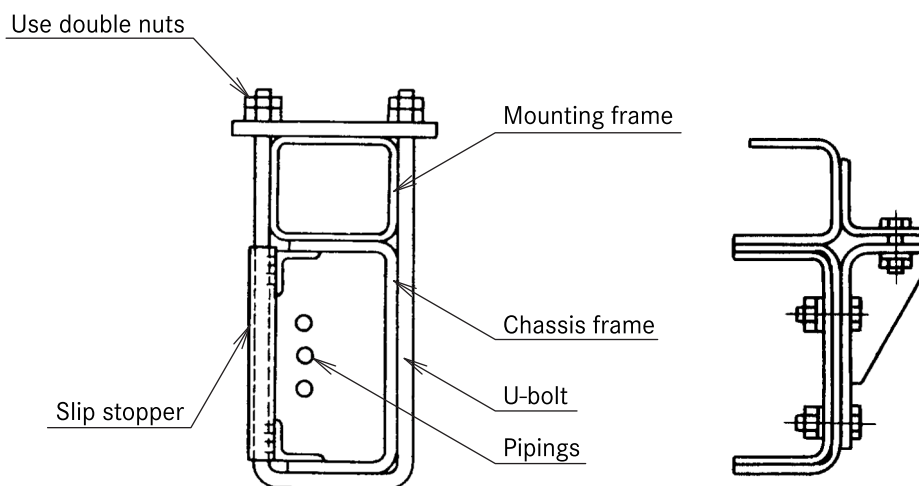
Tipper

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 Construction of bodies

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.

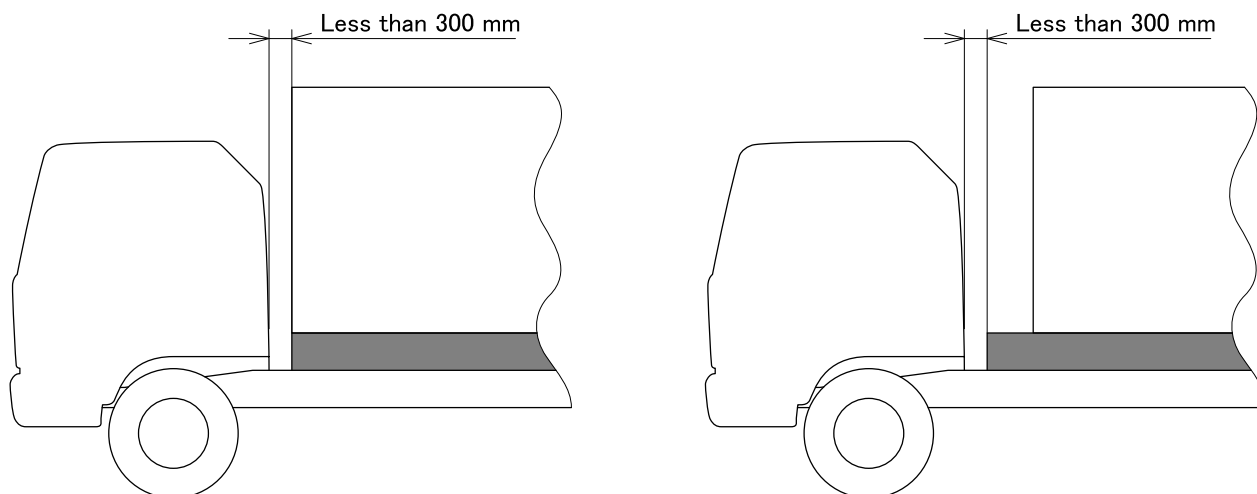


Fig. 1

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.

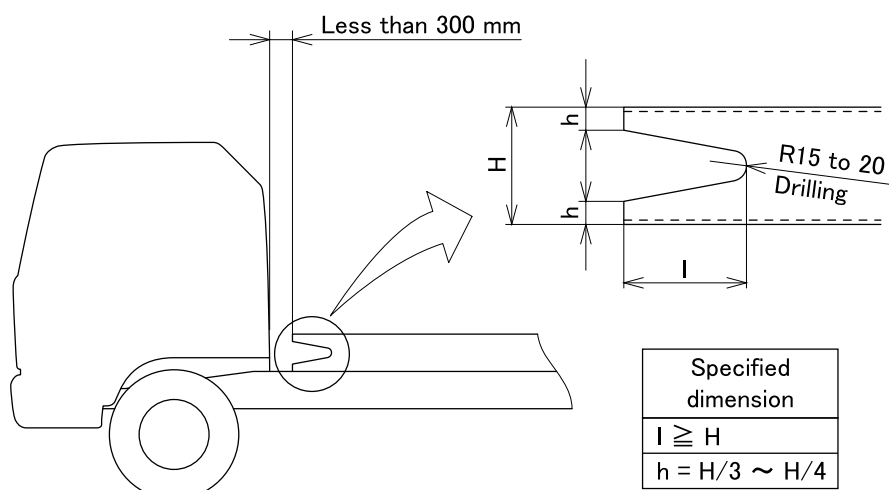


Fig. 2

7 Construction of bodies

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.

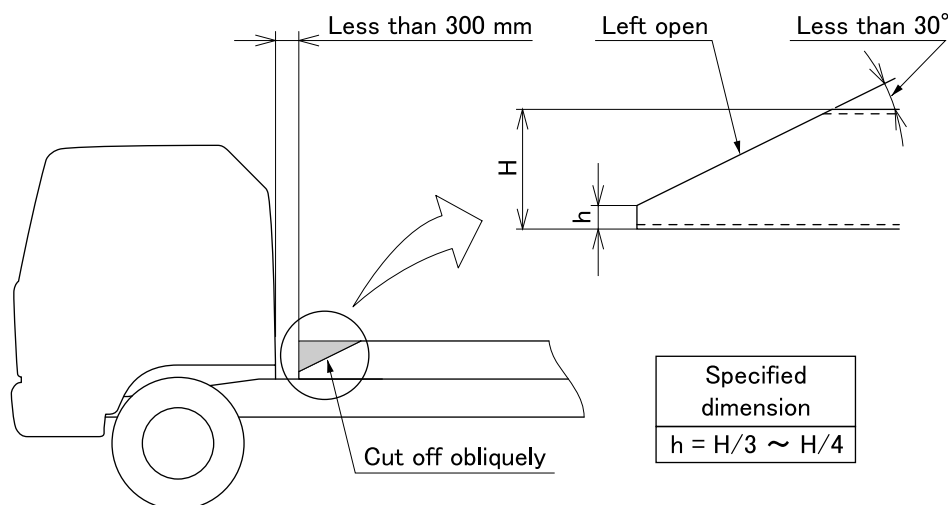


Fig. 3

- 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.

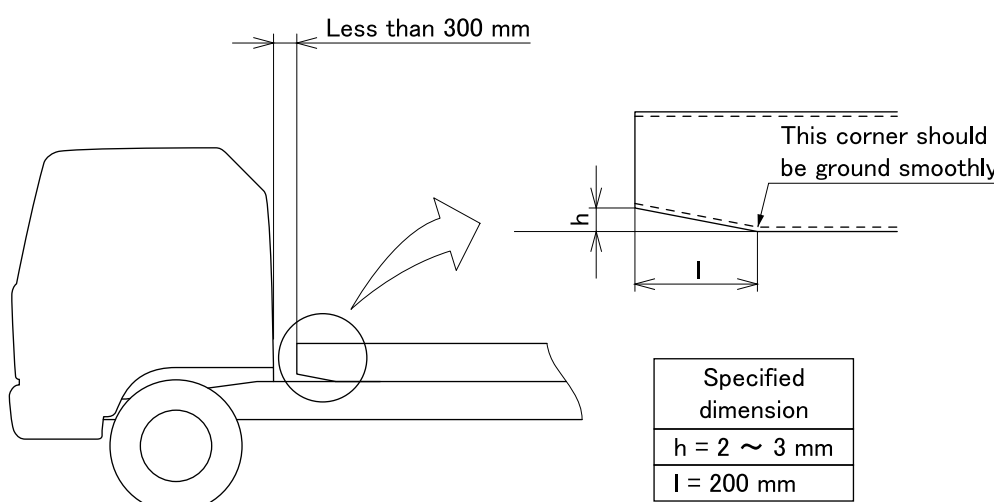


Fig. 4

7 Construction of bodies

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.

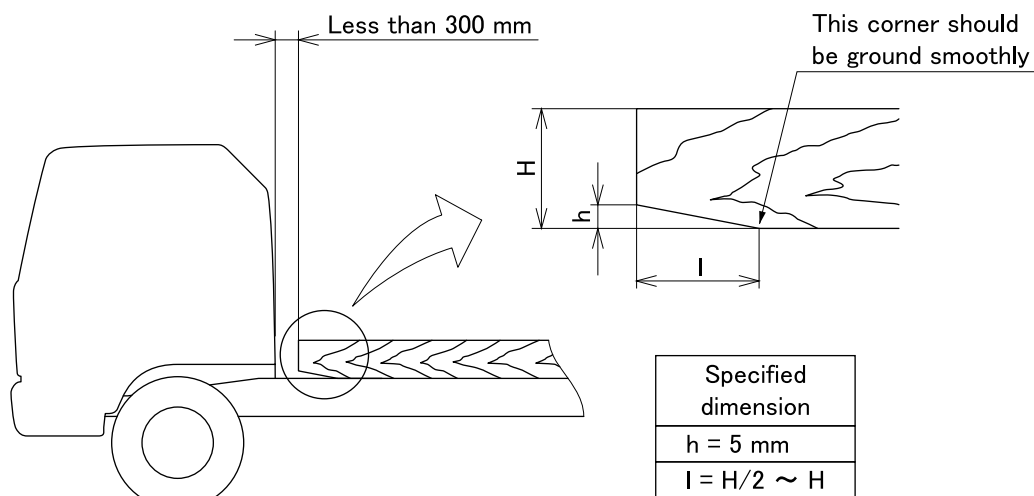


Fig. 5

- 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.

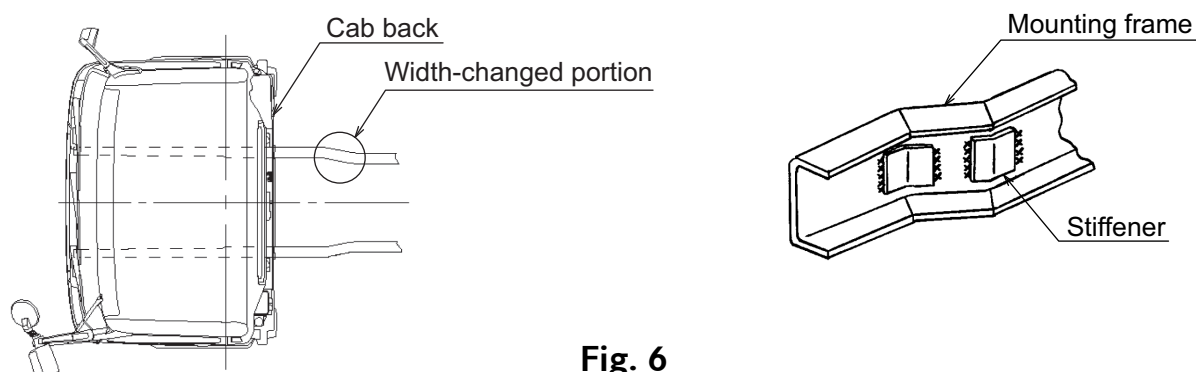
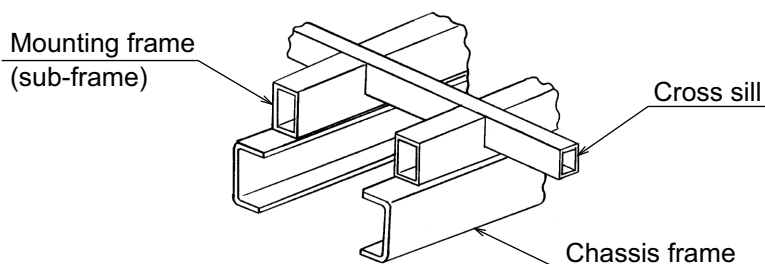


Fig. 6

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.



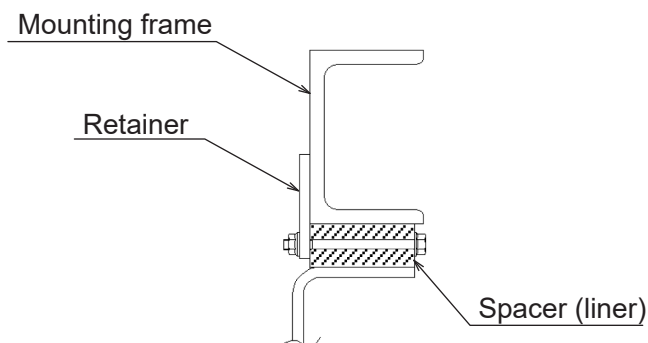
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

Tipper

(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.

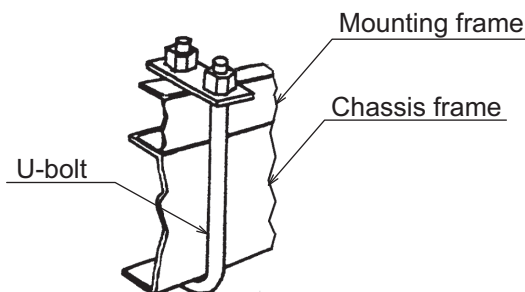


Installation of out-of-position preventive retainer

(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.



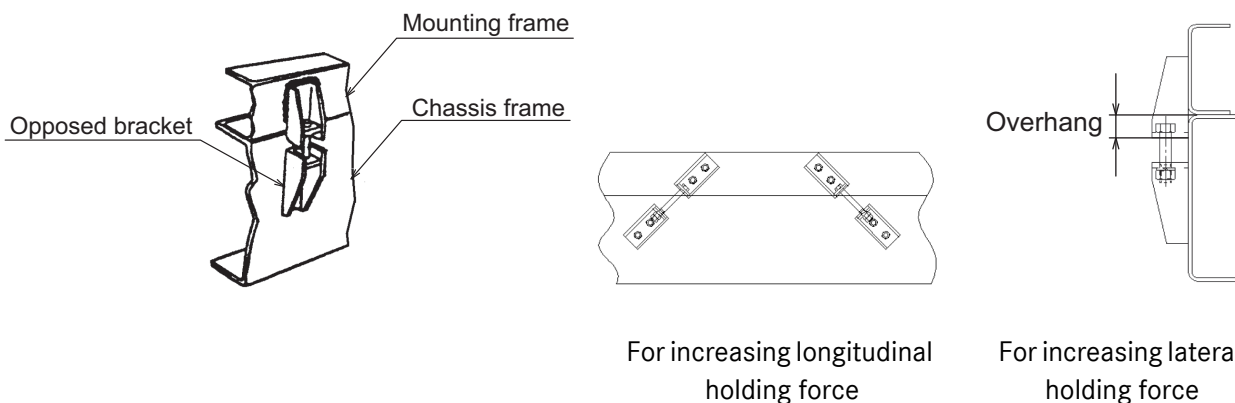
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

Tipper

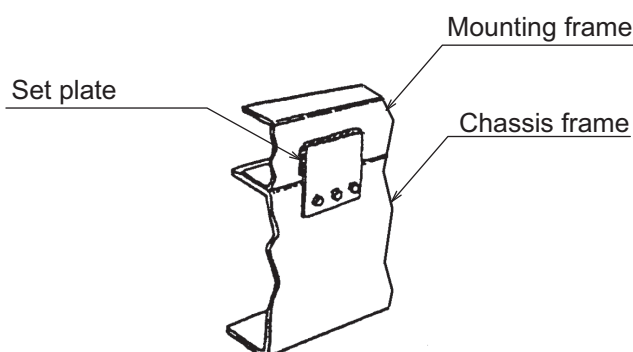
- Opposed bracket

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.



- 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 ▸ 2.2.

7 Construction of bodies

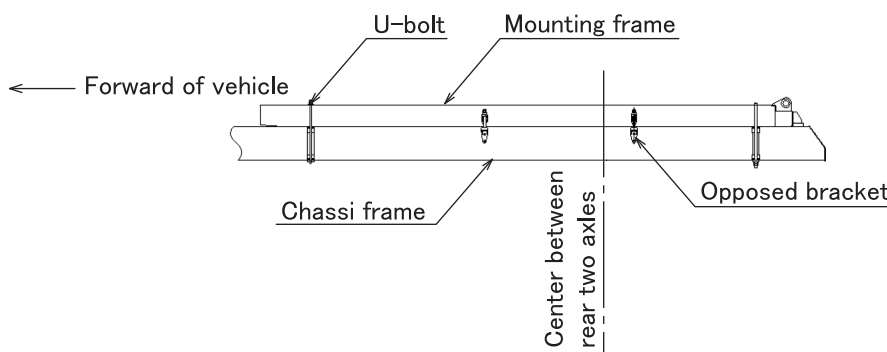
7.2 Fastening mounting frame to chassis frame

Tipper

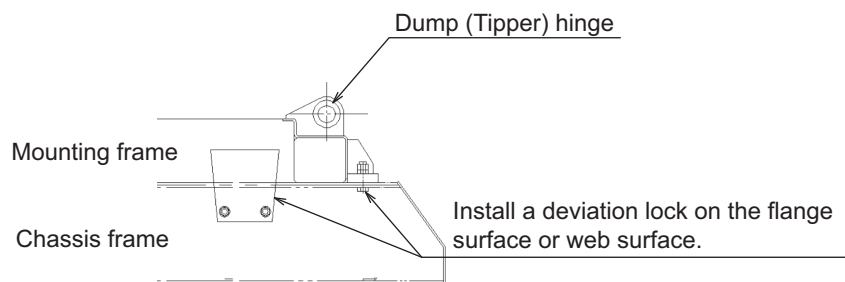
(4) Fastening of body

- 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.

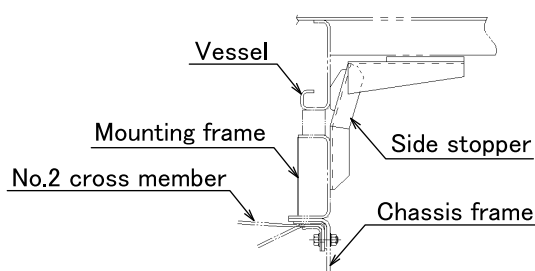
The U-bolt should be of M16 or more. Dispose it forwardly of the No.2 cross member.



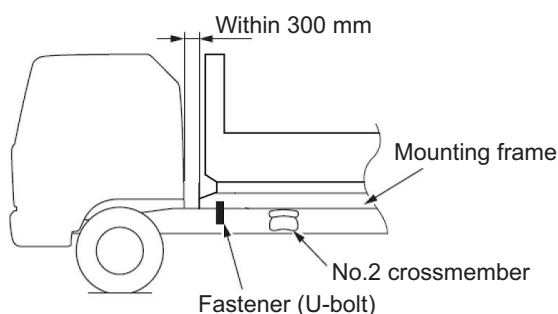
- Install a rigid deviation lock at the rear end of the mounting frame. A large load acts from the dump (Tipper) hinge.



- 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.

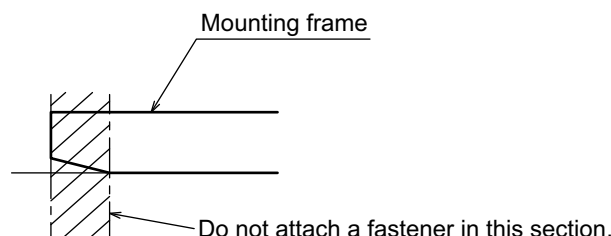


7 Construction of bodies

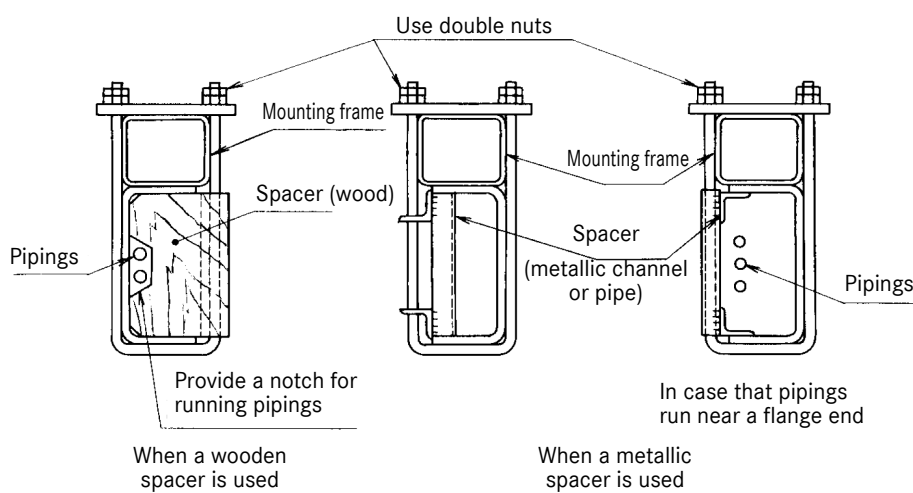
7.2 Fastening mounting frame to chassis frame

Tipper

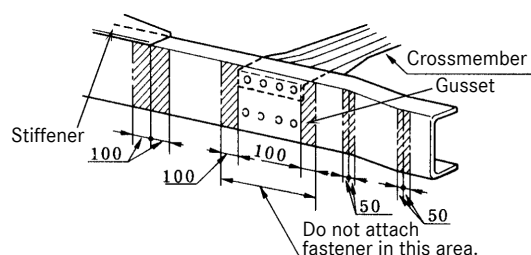
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



- 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" ▢ 6.2.
- 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.



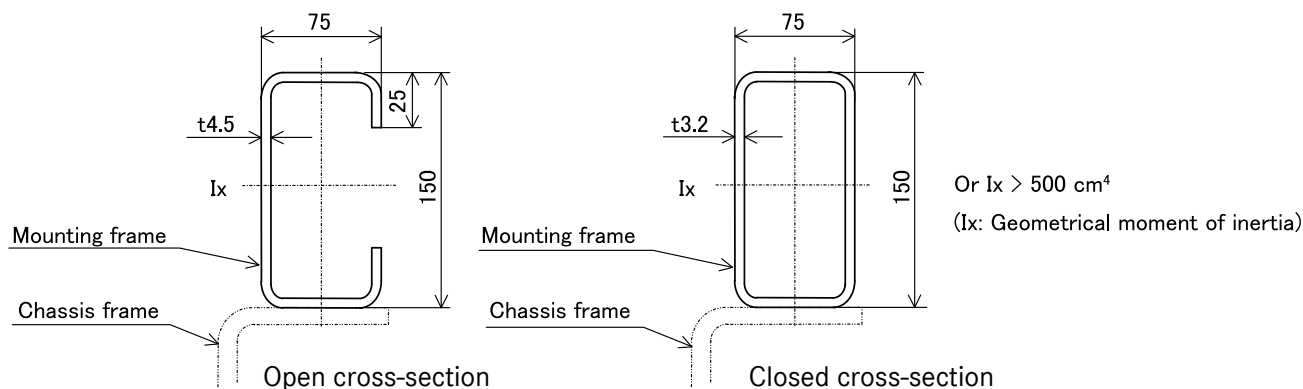
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

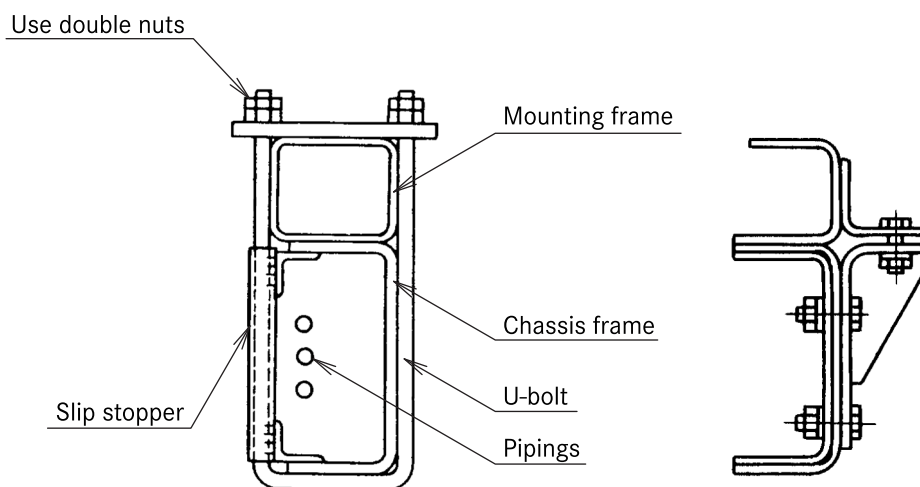
Tank truck

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).

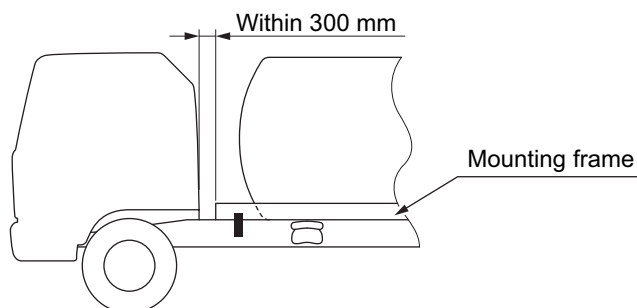


Fig. 1

Examples of front-end shape of mounting frame

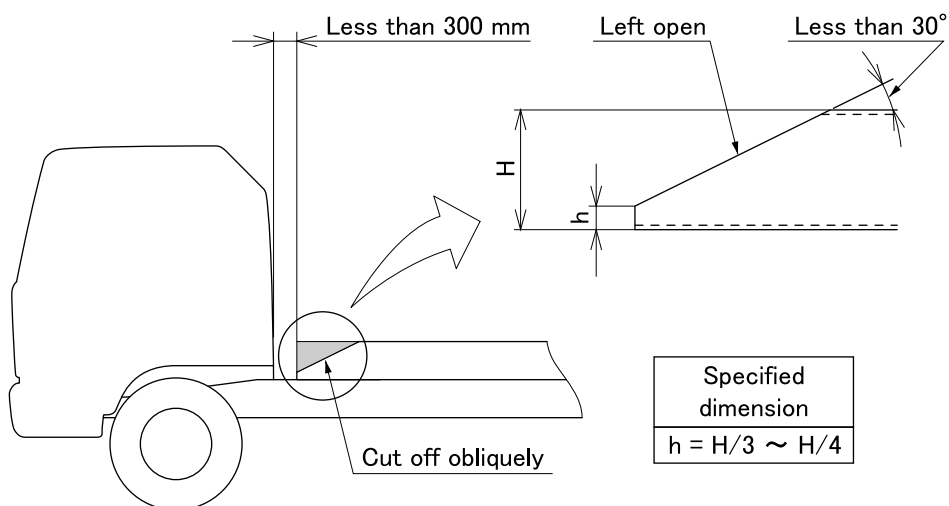


Fig. 2

7 Construction of bodies

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.

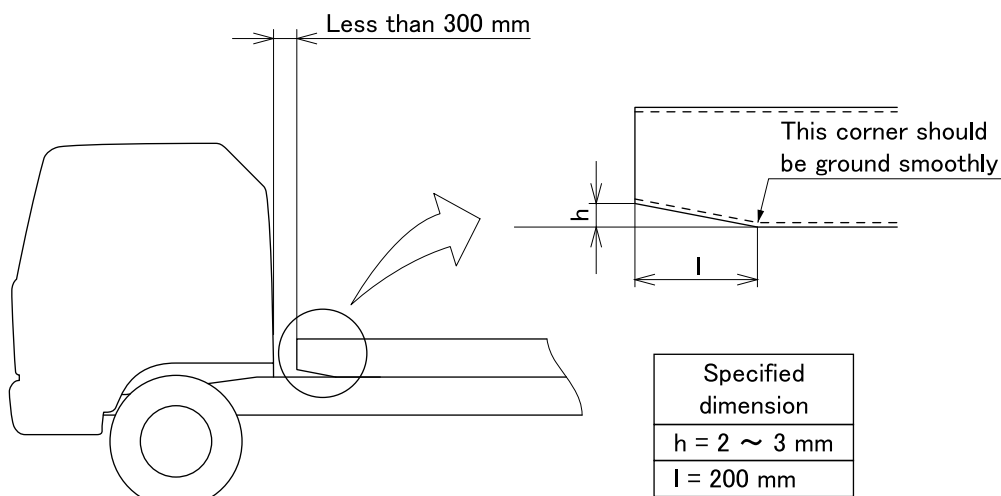


Fig. 3

- 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.

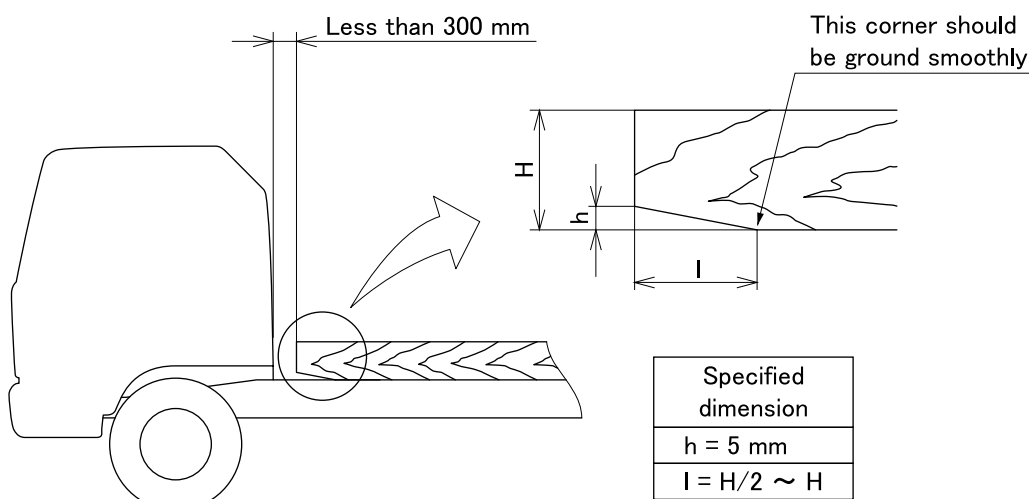


Fig. 4

7 Construction of bodies

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.

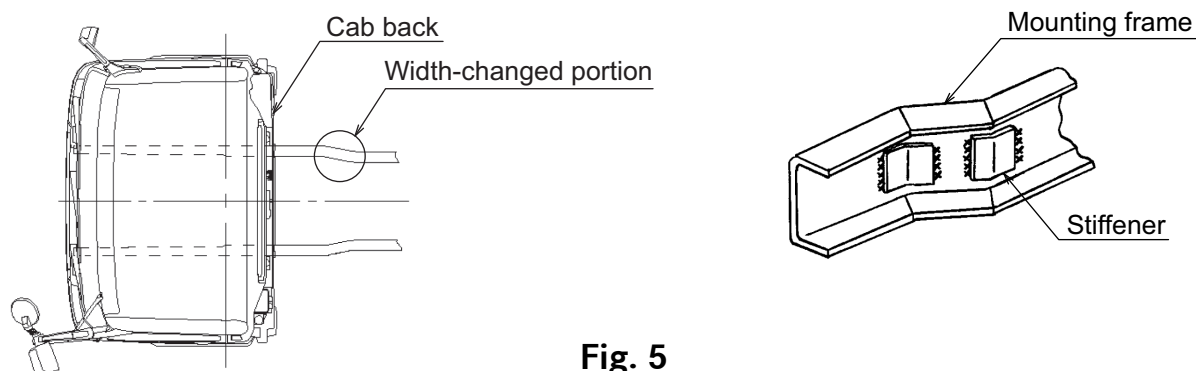
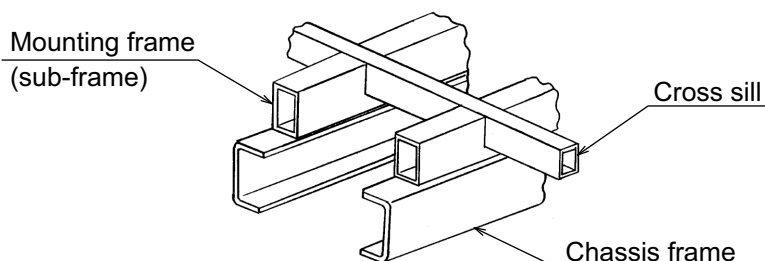


Fig. 5

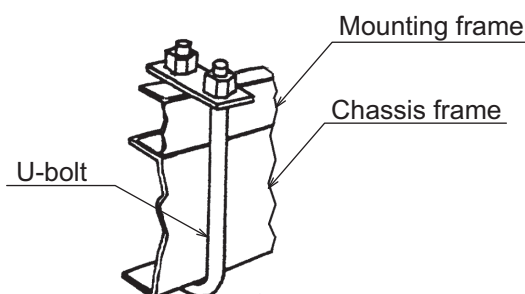
Other notes

- 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.



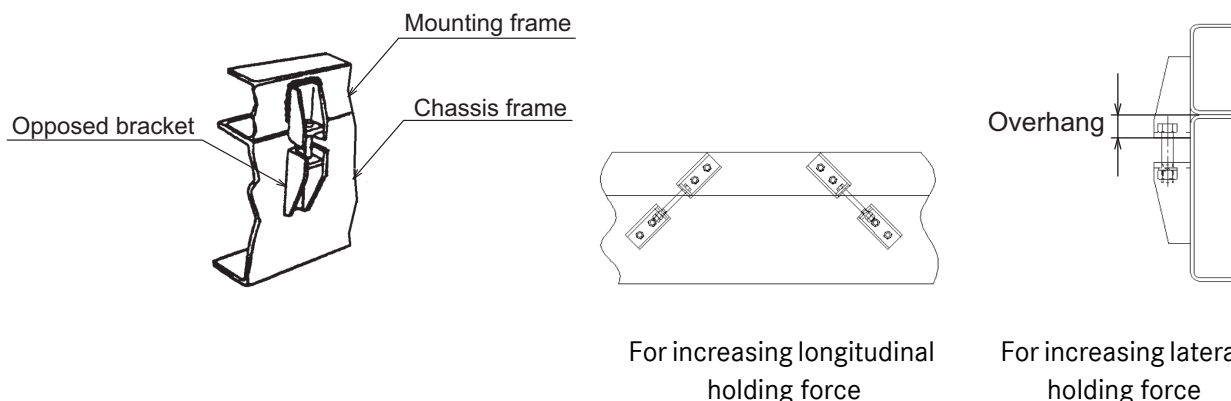
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

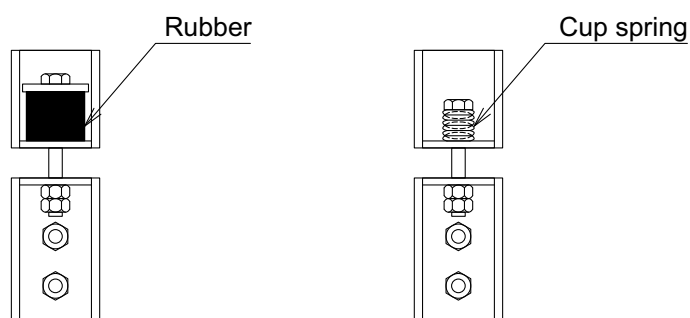
Tank truck

- 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.

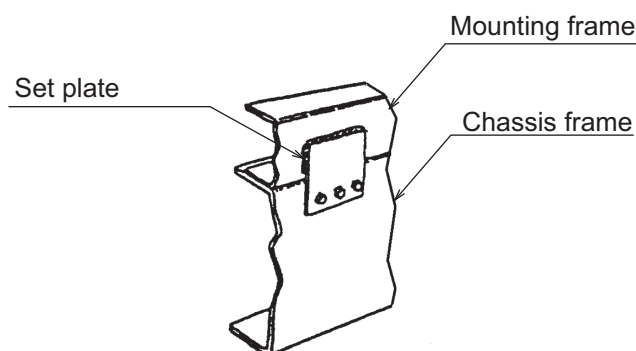


- For fastening at the forefront, use a flexible joint such as shown in the figure below to absorb the relative displacement between the mounting frame and chassis frame.



- 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.



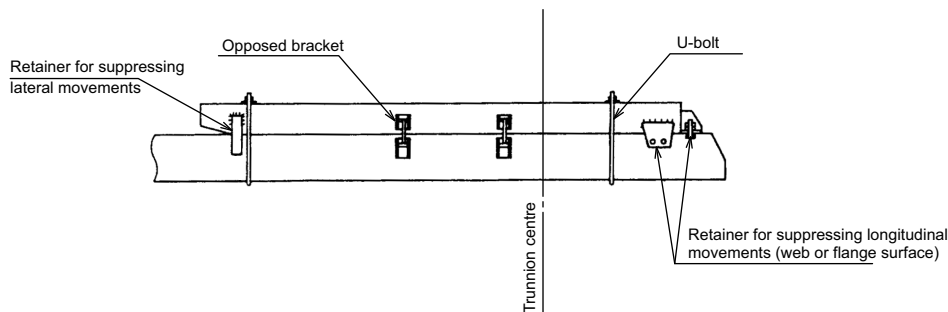
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

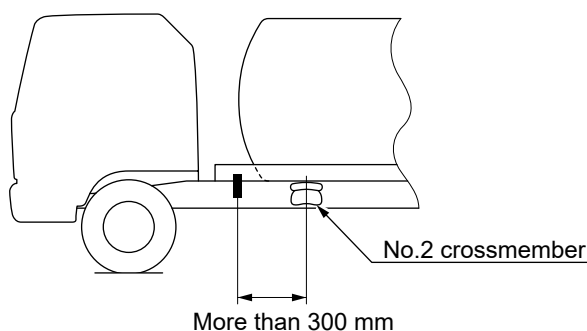
Tank truck

Precautions for fastening frames

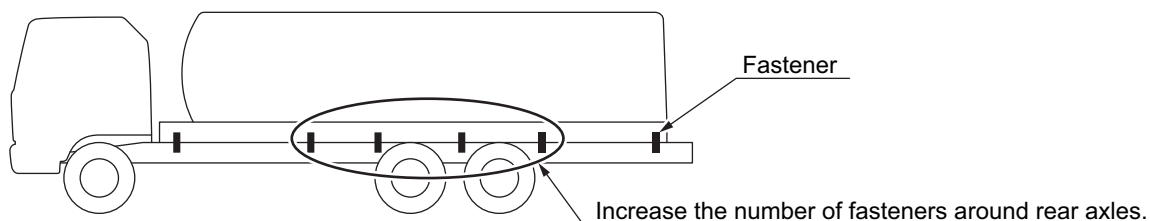
- When fastening the mounting frame to the chassis frame using U-bolts and opposed brackets, use retainers for preventing longitudinal and lateral movements together.



- 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.



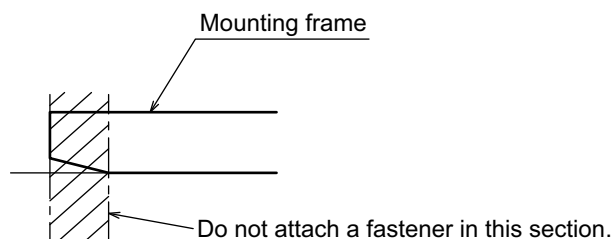
- Inserting spacers (liners) between frames is not recommended because it reduces the fastening force.

7 Construction of bodies

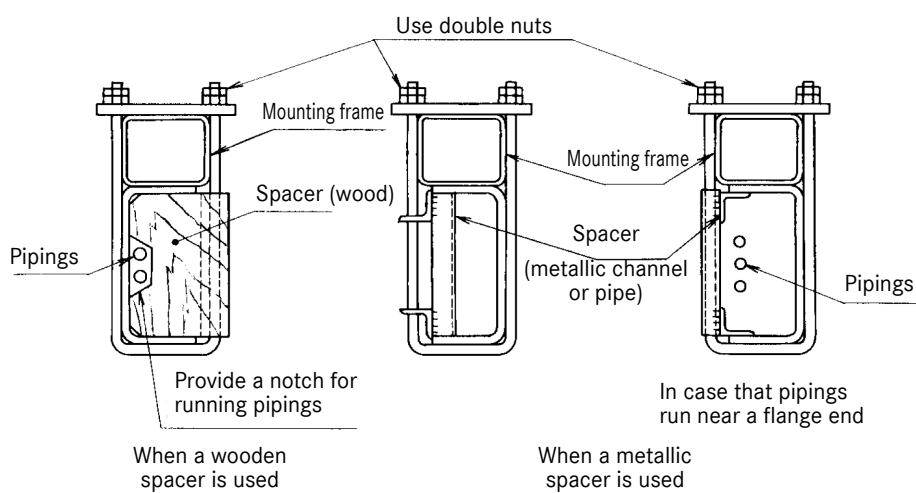
7.2 Fastening mounting frame to chassis frame

Tank truck

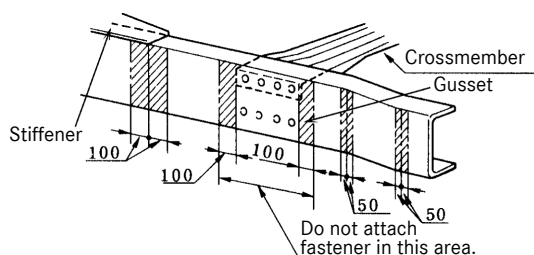
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



- 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" ▸ 6.2.
- 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.



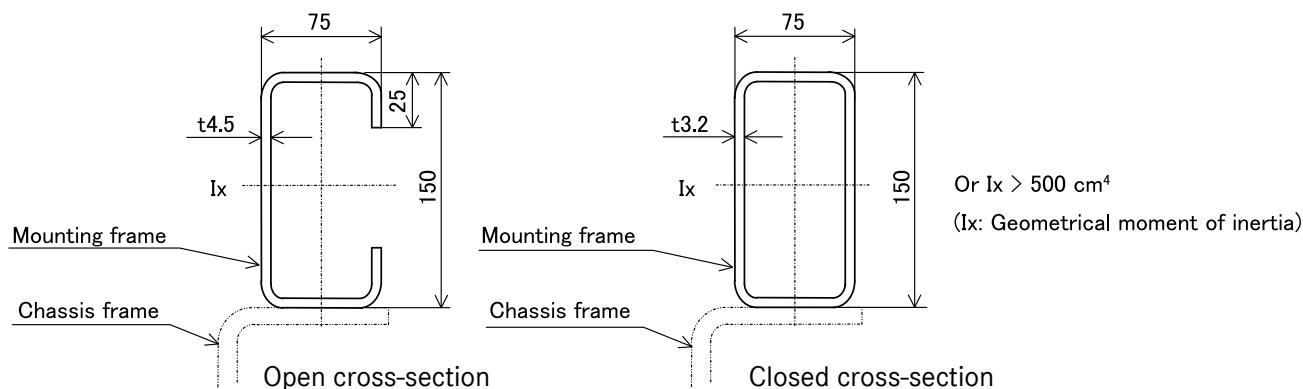
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

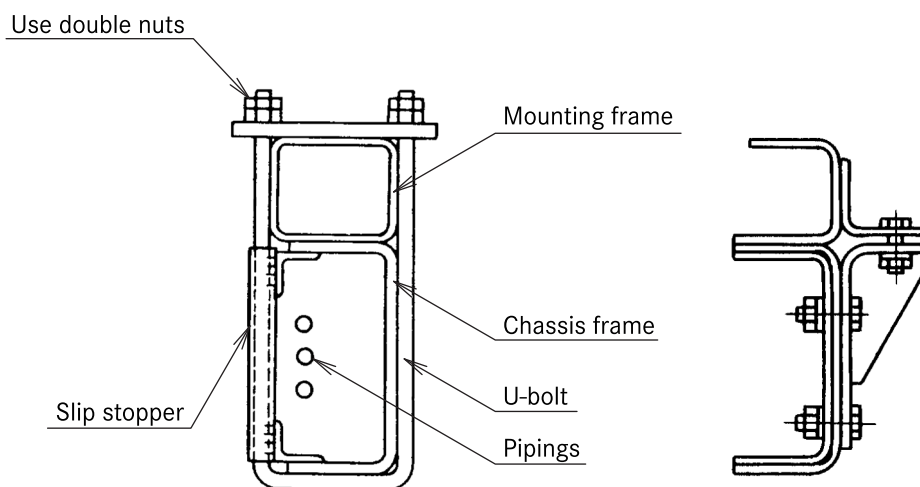
Loading crane

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 Construction of bodies

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" ▸ 6.5.

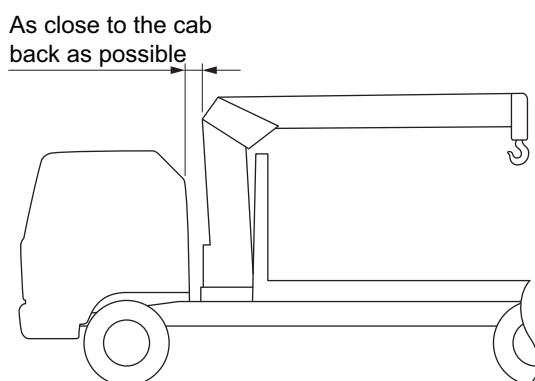


Fig. 1

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.

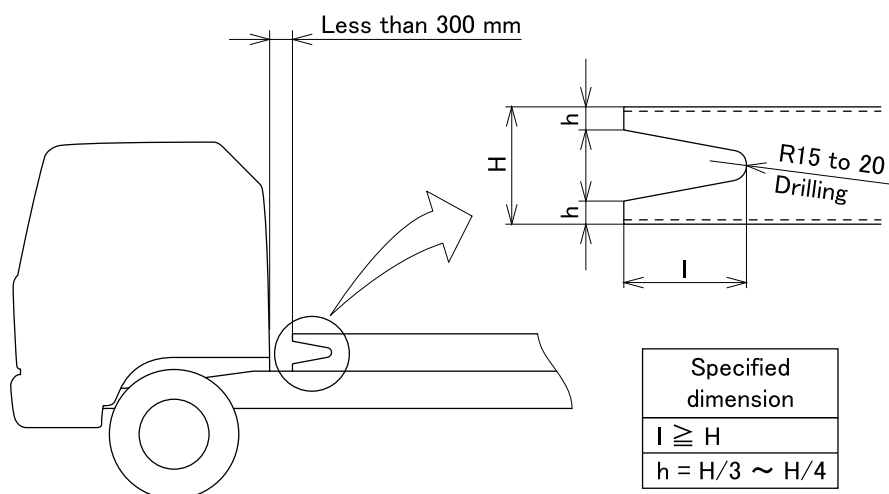


Fig. 2

7 Construction of bodies

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.

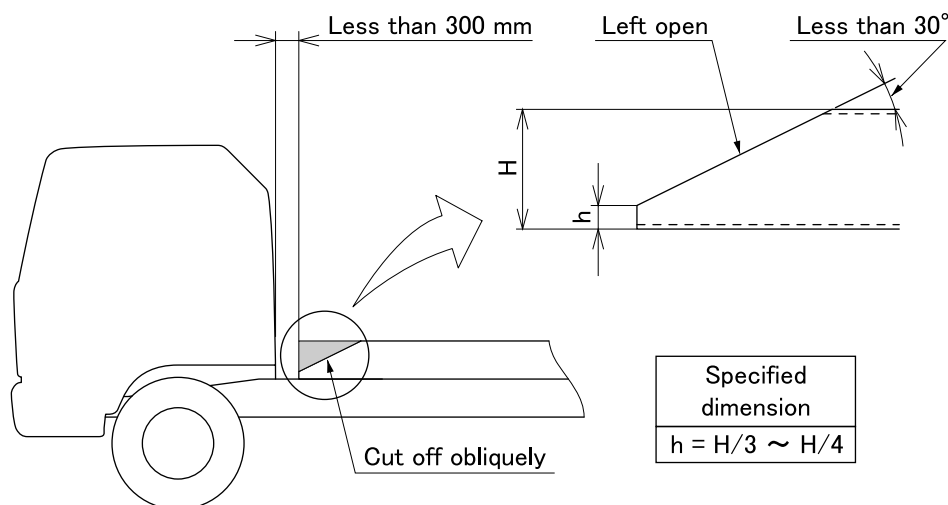


Fig. 3

- 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.

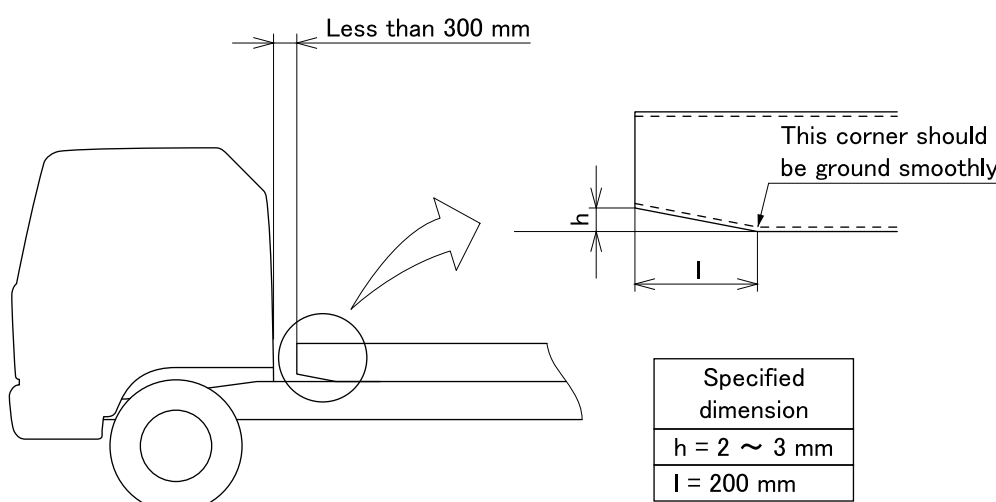


Fig. 4

7 Construction of bodies

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.

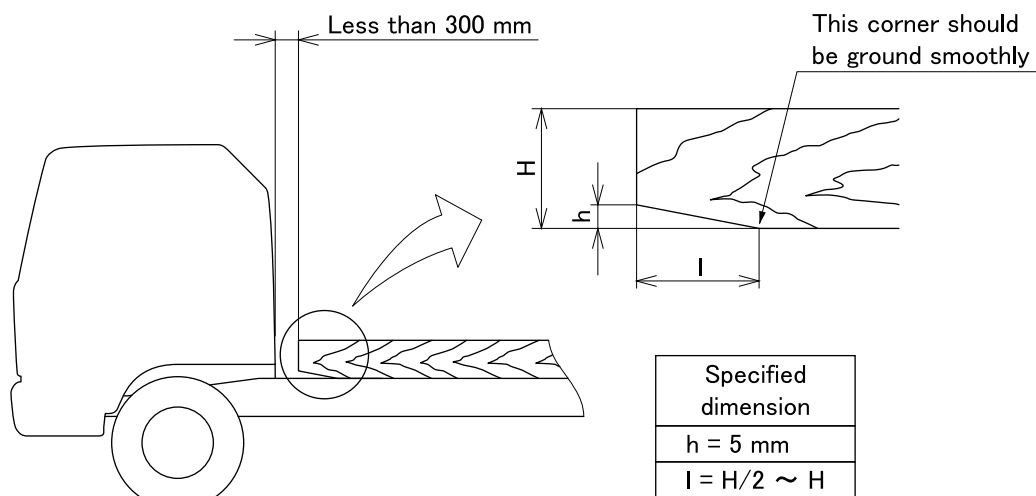


Fig. 5

- 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.

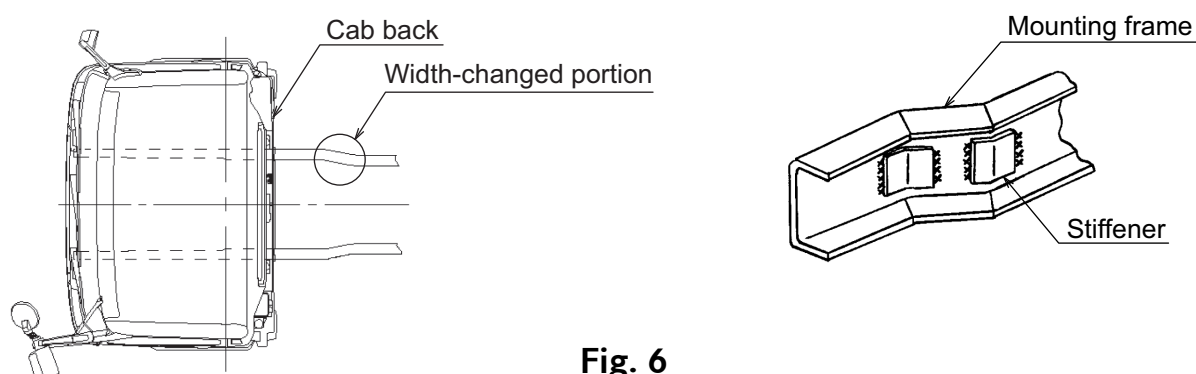
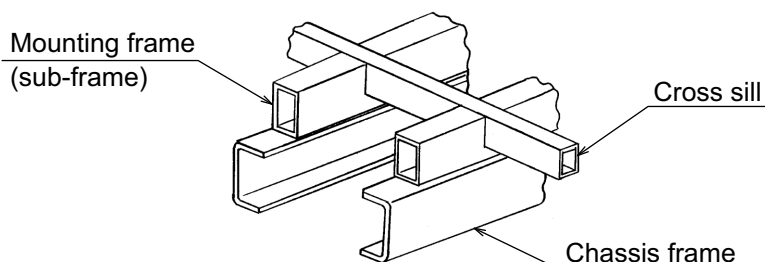


Fig. 6

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

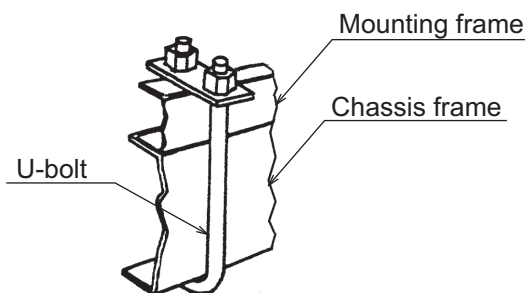
(2) Spacer (liner)

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

(3) Frame fasteners and their features

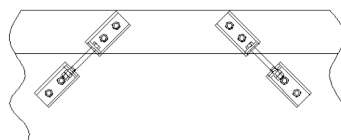
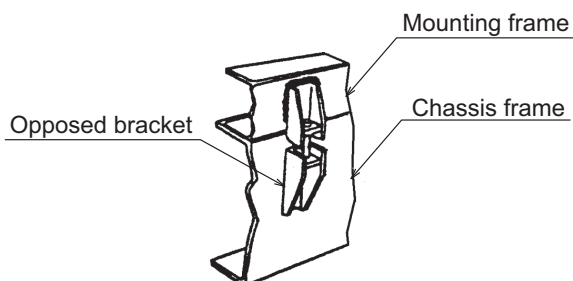
• U-bolt

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.

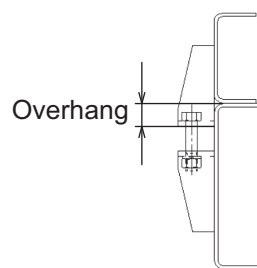


• Opposed bracket

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

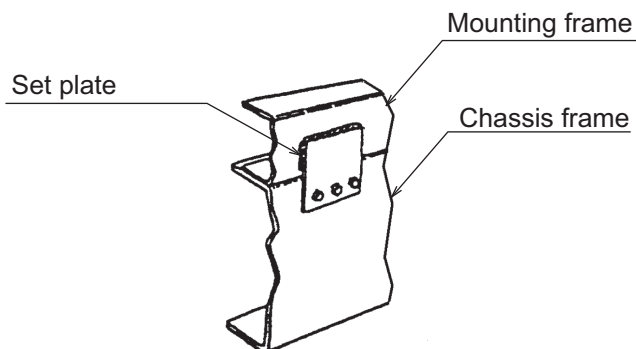
7 Construction of bodies

7.2 Fastening mounting frame to chassis frame

Loading crane

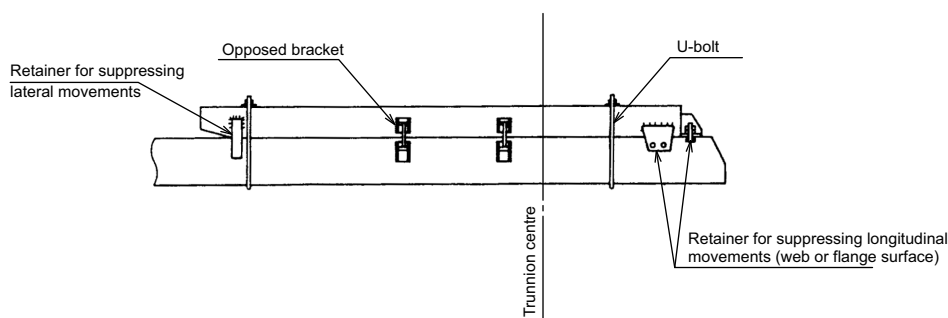
- Mounting flange

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.

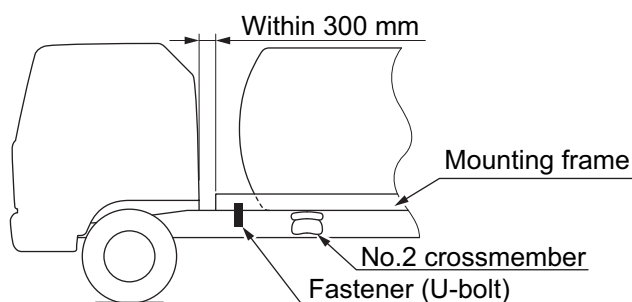


Precautions for fastening frames

- 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.

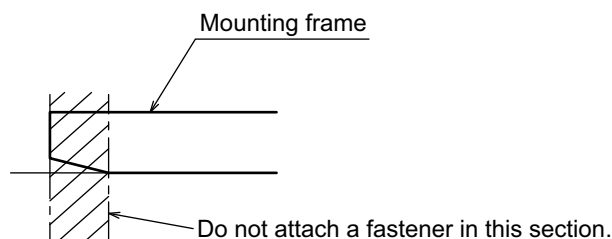


7 Construction of bodies

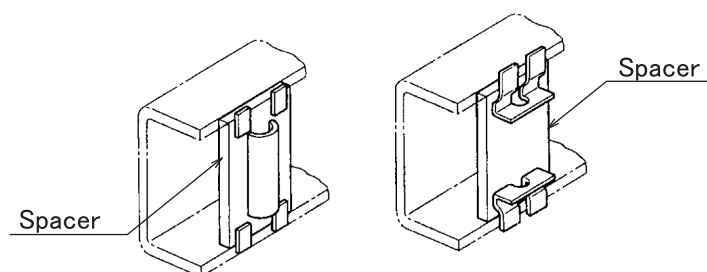
7.2 Fastening mounting frame to chassis frame

Loading crane

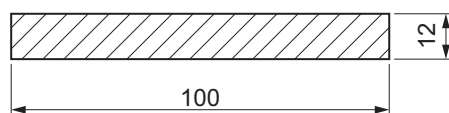
- When fastening with a U-bolt, ensure that ample spaces are left for running pipes, hoses, wires and harnesses.
- Do not attach any fastener in the mounting frame front end section where the sectional shape is different from the remaining part.



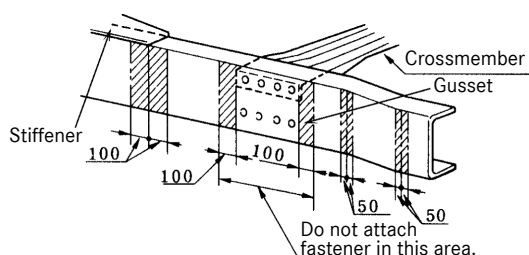
- In order to prevent the chassis frame flanges from deforming, provide the chassis frame with spacers for supporting the flanges. Avoid welding a metallic spacer to the chassis frame to hold it in position.



- 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" ▸ 6.2.
- 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 Construction of bodies

7.2 Fastening mounting frame to chassis frame

7.2.5 Fuel tank



Risk of fire

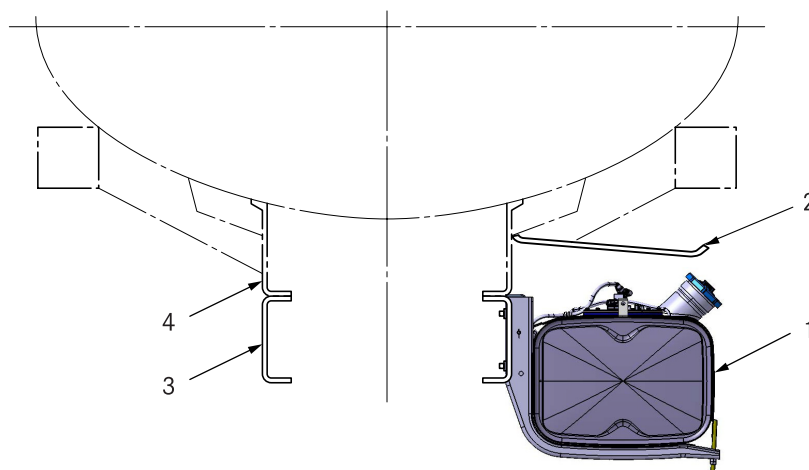
Firmly attach the airvent hose to the Fuel Tank Bracket if it comes away when relocating the fuel tank ▷ 10.12.

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" ▷ 1.3 and ▷ 1.4.



8.2 Electrical wiring

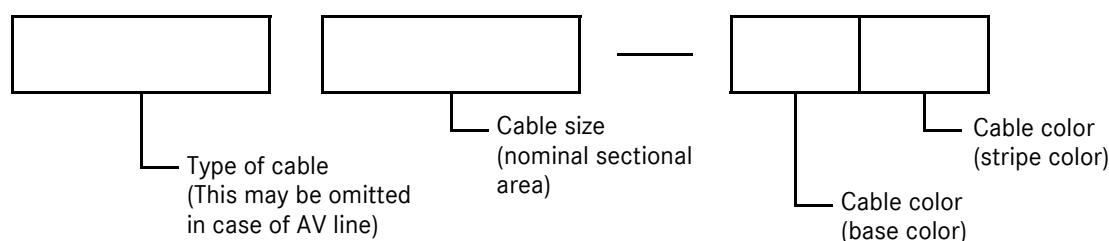
8.2.1 General precautions

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
 - Stripe color: White
 - Base color: Green
 - Cable size: 0.85 mm²
- AVX1.25 – L
 - Base color: Blue (no stripe color)
 - Cable size: 1.25 mm²
 - Type of cable: AVX line

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.

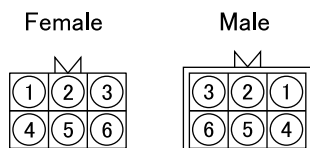
8.2.3 Connector code

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" ▸ 8.2.2.
- 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" ▸ 8.2.2.

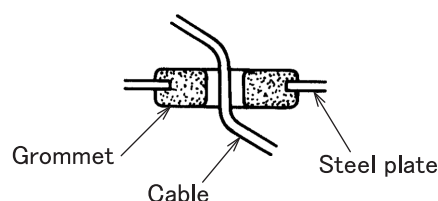
Wiring procedure

- 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.

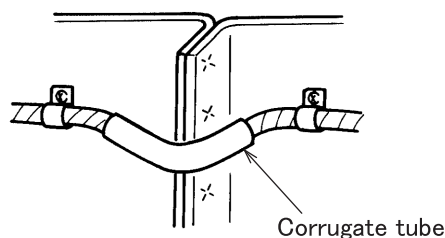
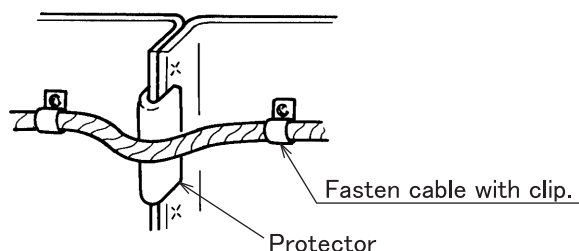
Unit: mm

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.

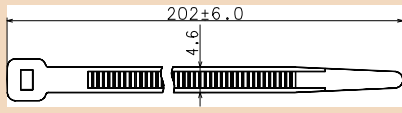
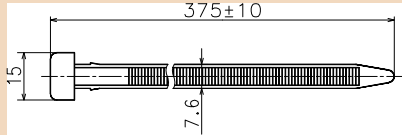
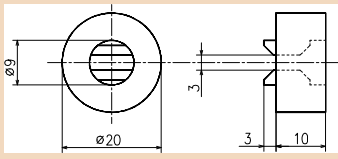
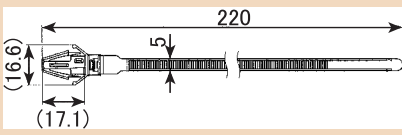
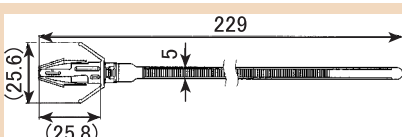
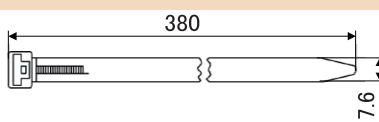
Unit: mm

Wiring method	Minimum clearance
Parallel	10
Crossover	20

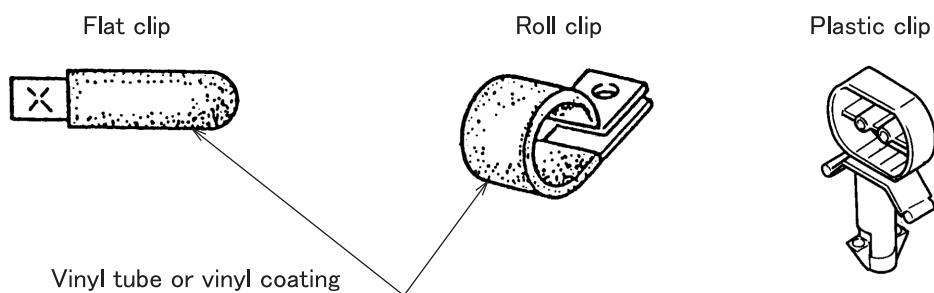
- For clearance between cable and exhaust system part, see 4.4 "Clearance for the basic vehicle and bodies" ▸ 4.4.
- Install harnesses or battery cables where they will not be covered with accumulated dirt, snow, etc., iced nor damaged by flying stones. In an unavoidable case, provide a metal shield 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.

If a cable band is cut for some work reason, arrange the band according to the following table and restore it.

Part name	Part No.	Shape	Remarks
BAND, CABLE	MK663741		Hellermann Tyton Co., Ltd. Cable tie: T50R-HSW equivalent
BAND, CABLE	MK663652		Hellermann Tyton Co., Ltd. Cable tie: CT375 equivalent
SPACER, BAND	MK663653		For MK663652
BAND, CLIP	MK677891		Hellermann Tyton Co., Ltd. Cable tie: OS220-PM9-HSW Mounting metal thickness: t = 2.0 to 5.5
BAND, CLIP	MK677892		Hellermann Tyton Co., Ltd. Cable tie: OS230-PM9-HSW Mounting metal thickness: t = 7.0 to 14.0
BAND, CABLE	A0029975890		Hellermann Tyton Co., Ltd. Cable tie: AB350-W equivalent

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

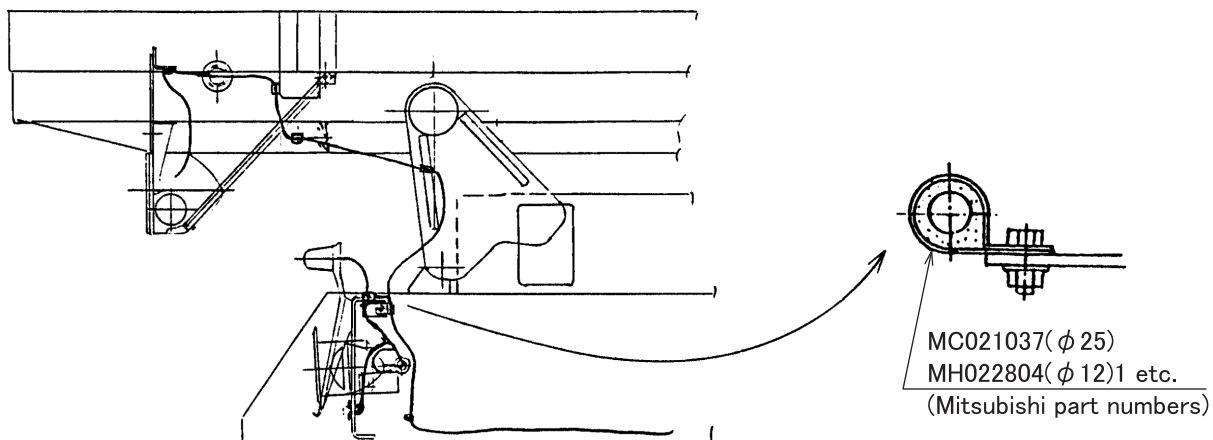


Given below are the standard limits of spacing for cable clamps.

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.

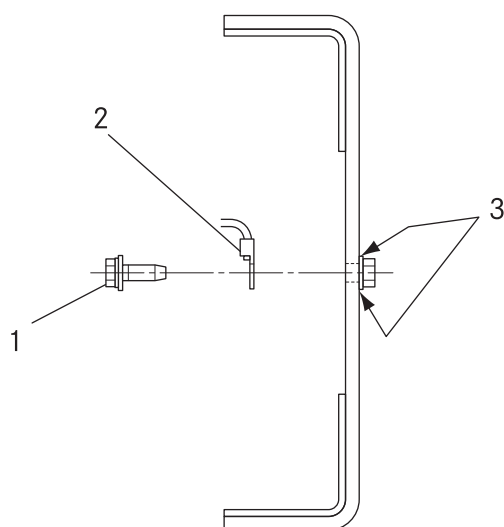
8.2.6 Grounding

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.

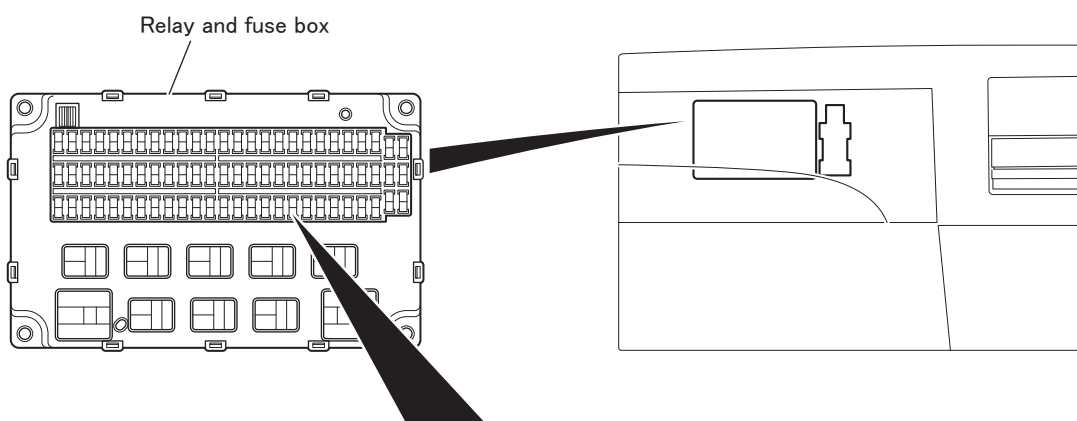
8.2.7 Fuse and relay

- Considering the service load and frequency of use, a fuse with optimal capacity is mounted on the chassis side. When adding electrical equipment or devices related to body mounting, do not install parts that could transmit incorrect signals to the chassis side power line and grounding line, and do not wire the harness.

In relation to body mounting, be sure to connect power lines for devices and lamps from the designated fuse or connector.

- It is prohibited to connect additional wires to the middle of existing wires or change fuses to expand their capacity. It will allow excessive electric current to flow into the power fuse box and could cause fire.
- Power fuse, instrument panel relays, sensors, ECU layout diagram

<Location of fuse>

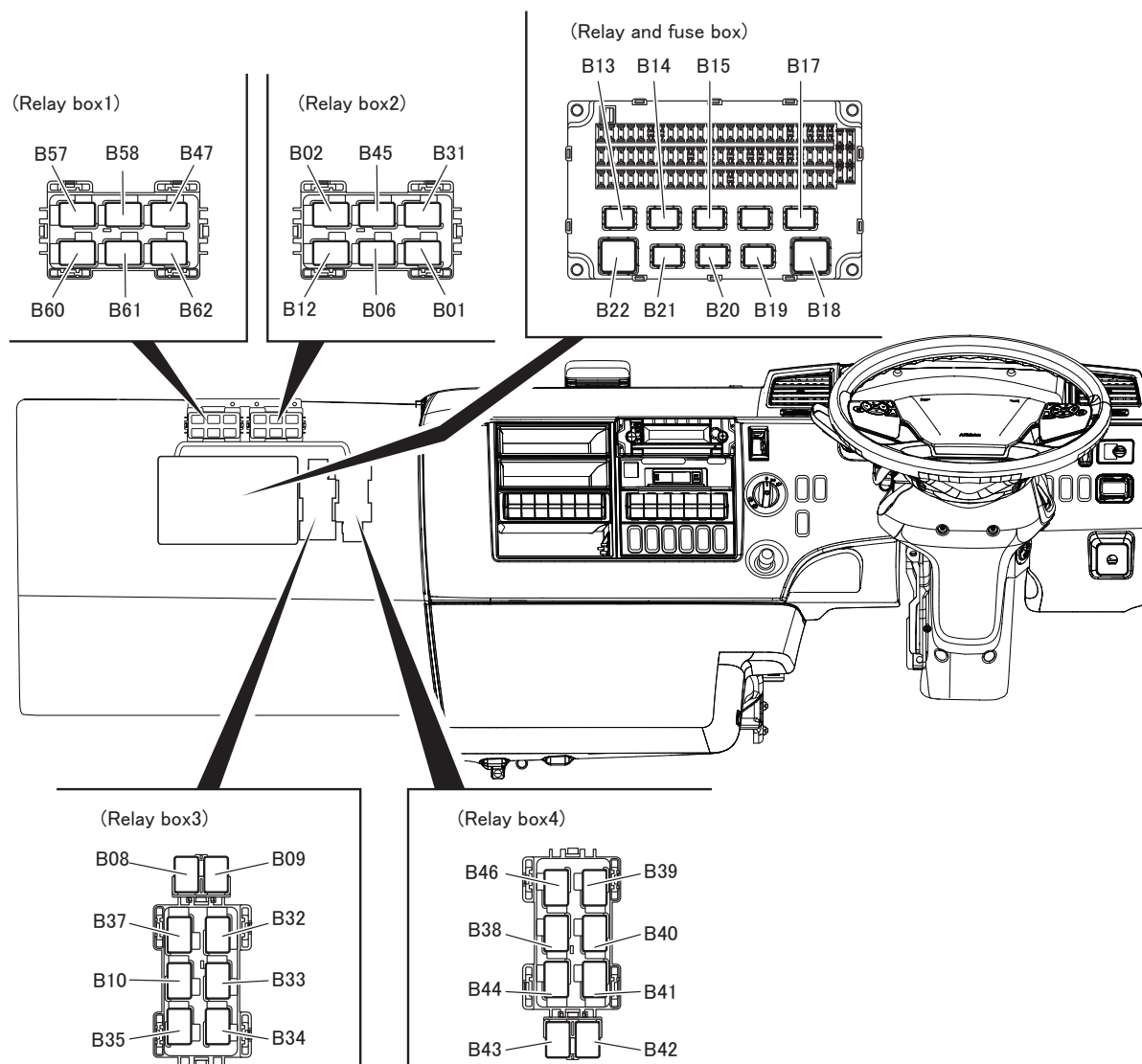


F01	F02	F03	F04	F05	F06	F07	F08	F09	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	F21	F22	F23	F24			
20	10	10		15	10	30	10	10	15	10	10			10	20	10	10			20	25	20	30	5	10	
F25	F26	F27	F28	F29	F30	F31	F32	F33	F34	F35	F36	F37	F38	F39	F40	F41	F42	F43	F44	F45	F46	F47	F48			
											10			5		5					10	10	10	15	20	
F49	F50	F51	F52	F53	F54	F55	F56	F57	F58	F59	F60	F61	F62	F63	F64	F65	F66	F67	F68	F69	F70					
15	10	10	15				15		10		10		10	30	10	10	10	30	10	20	20		5	25	30	

Fuse No.	Main load	capacity
F01	Blower	20A
F02	Option(Battery)	10A
F03	Socket	10A
F04	–	–
F05	Mirror	15A
F06	A/T	10A
F07	A/T	30A
F08	VRDU	10A
F09	CLCS	10A
F10	Tester	15A
F11	Retarder	10A
F12	OPT (IGN on)	10A
F13	–	–
F14	–	–
F15	CAB TILT	10A
F16	Power window (Assistant seat)	20A
F17	Audio	10A
F18	ACC ON	10A
F19	–	–
F20	–	–
F21	AIR CONDITIONER	20A
F22	Power window (Driver)	25A
F23	Engine electronic control unit	20A
F24	A/T	30A
F25	–	–
F26	–	–
F27	–	–
F28	–	–
F29	–	–
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F32	–	–
F33	–	–
F34	–	–
F35	–	–

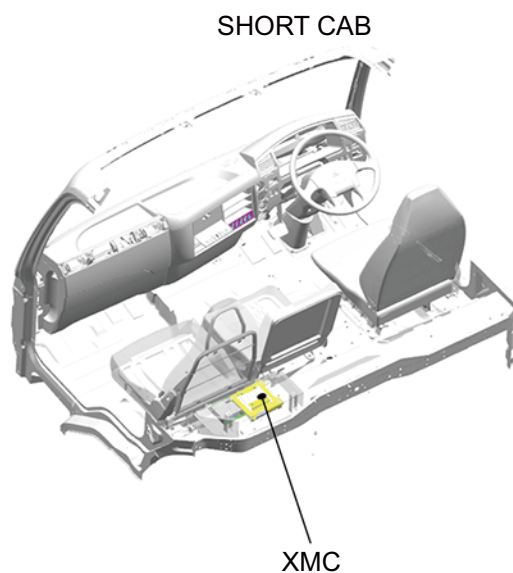
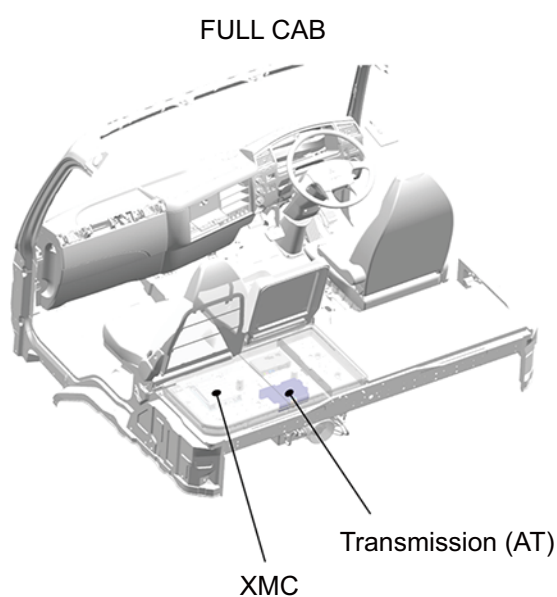
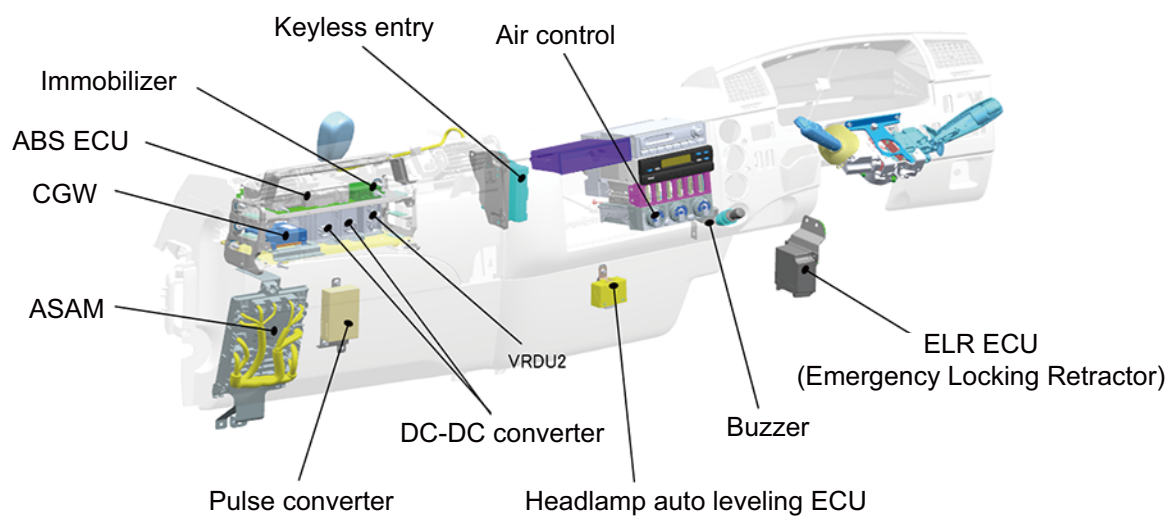
Fuse No.	Main load	capacity
F36	ASAM	10A
F37	–	–
F38	–	–
F39	Relay	5A
F40	–	–
F41	Relay	5A
F42	–	–
F43	–	–
F44	–	–
F45	–	–
F46	Air drier	10A
F47	Air bag	10A
F48	Engine electronic control unit	10A
F49	Engine	15A
F50	Engine	10A
F51	Starter	10A
F52	OPT (ILL)	15A
F53	–	–
F54	–	–
F55	–	–
F56	Engine	15A
F57	IGN ON	10A
F58	–	–
F59	Engine	10A
F60	Engine	10A
F61	XMC	30A
F62	OPT (ACC ON)	10A
F63	Heater mirror	10A
F64	Room lamp	10A
F65	IGN relay	30A
F66	ECU main	10A
F67	ABS	20A
F68	Engine	20A
F69	–	–
F70	Meter	5A

Location of relays, sensors and ECU in the instrument panel



B01	Retarder brake relay
B02	Retarder combination SW relay <Retarder>
B06	Mirror heater relay
B08	Mirror wiper relay LH
B09	Mirror wiper relay RH
B10	Urea water relay <6M6>
B13	Headlamp relay (High)
B14	Headlamp relay (Low) RH
B15	Horn relay
B17	Tail lamp relay
B18	Wiper relay (Low)
B19	Fog lamp relay
B20	Headlamp relay (Low) LH
B21	Stop lamp relay
B22	Wiper relay (High)
B31	ISS starter relay
B32	Starter safety relay
B33	Power tilt lock SW relay
B34	Spare DC relay

B35	Blower relay
B37	Glow drive relay <4V20>
	Glow drive relay
B38	EDC relay
B39	ECU main power relay
B40	Spare DC relay (ILL)
B41	Condenser fan relay
B42	Retarder adjust signal relay
B43	Starter cranking relay
B44	Compressor clutch relay <6M6>
B45	Retarder neutral relay <Retarder>
B46	NOX sensor drive relay <6M6>
	Urea backflow heater relay <4V20>
B47	Seat heater relay -2
B58	Compressor clutch relay <4V20>
B60	Urea pressure heater relay <4V20>
B61	Seat heater relay -1
B62	Horn relay



8.2.8 Handling of electronic equipment

SAM related parts

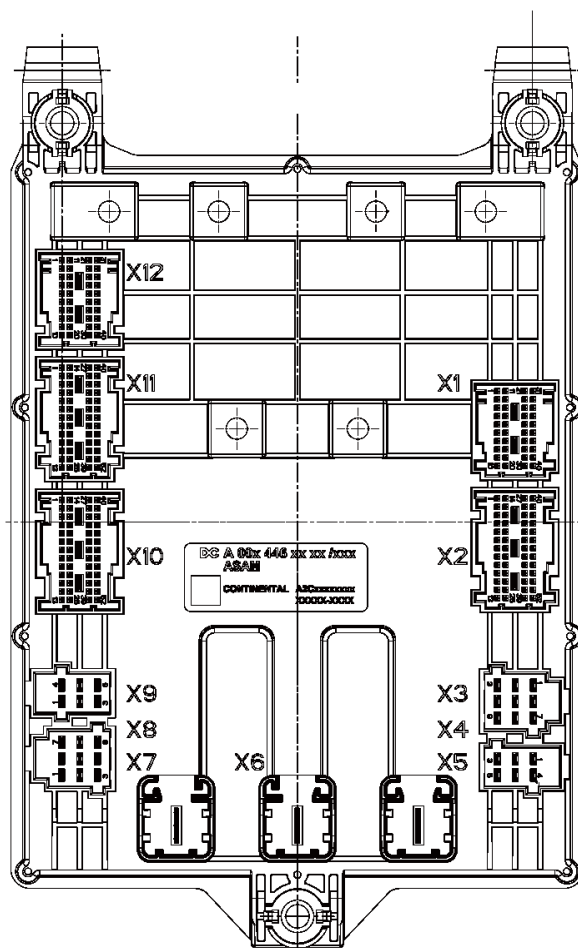
Precautions for SAM (control unit for electric body equipment)

The SAM is a module that distributes power to and controls electronic equipment in the cab and body.

- Turn off the vehicle's starter switch before disconnecting the cables and connectors connected to the SAM control unit.
- When cleaning the interior, be very careful that water does not get on the SAM control unit (including connectors).
- Before removing the SAM control unit from a vehicle, turn off the vehicle's starter switch, and remove the harness from the battery terminal, and then remove connectors and screws according to the following procedure. For installation, do the procedure in reverse.

Remove the SAM bracket assembly from the vehicle.

- Remove the power line.
- Remove each connector.
- Remove the GND line.
- Remove the screws (N0000000001146: 3 screws), and then remove the SAM from the bracket.



Prohibitions related to SAM equipment installation

The following have a bad effect on SAM functions, so never do them.

- (a) Modifications, such as cutting or adding to the connectors and power harnesses, except from connectors for bodywork, are prohibited.
- (b) Conversion of the SAM control unit is prohibited.
- (c) Painting of the SAM control unit is prohibited.

Output for added wiring

Obtain power and signals through connectors for bodywork.

- (a) Precautions for output from added wiring
 - Allowable current value is set for output. Confirm that the voltage rating of the added electric equipment is lower than the allowable current.
 - Use the drive side of the operation relay to operate bodywork equipment by using signal output. Furthermore, use a relay that has an internal noise absorbing element.
 - Regarding connectors for obtaining various outputs, see 8.4.1 "Power supply from existing wiring"
▷ 8.4.1



8.3 Handling of electric/electronic equipment

8.3.1 Available types of electronic control systems (typical examples)

- (1) Engine electronic control unit
- (2) ABS (anti-lock brake system)
- (3) ESP (Electronic stability program)
- (4) LDWS (Lane departure warning system)
- (5) ABA5 (Active brake assist 5)
- (6) ASR (anti-spin regulator)
- (7) Hillholder (hill start assist system)
- (8) Retarder control
- (9) Transmission control (AT)
- (10) SRS airbag
- (11) ASAM (Electronic control system with integrated relay and fuse)
- (12) XMC (control system for body mounting)
- (13) ASGA (Active side guard assist)
- (14) TPMS (Tire pressure monitoring system)
- (15) ELR (emergency locking retractor)
- (16) Keyless entry system
- (17) Advanced Emergency Braking System (AEBS)
- (18) Immobilizer

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 varistor noise absorbing elements.

8.3.3 Handling of batteries

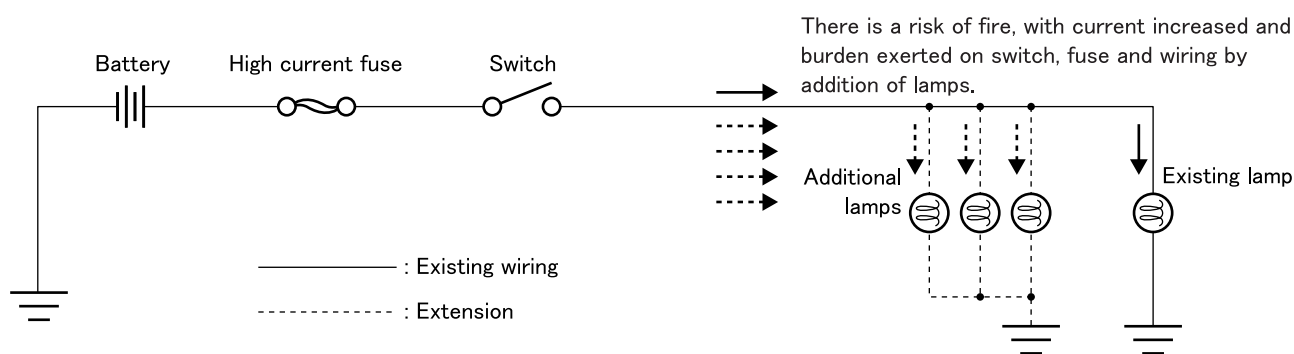
- Never place any metal objects or tools on the batteries.
- There is a risk of short circuit if the positive terminal clamp on the connected battery comes into contact with vehicle parts. This could cause the highly explosive gas mixture to ignite. You and others could be seriously injured as a result.
- 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

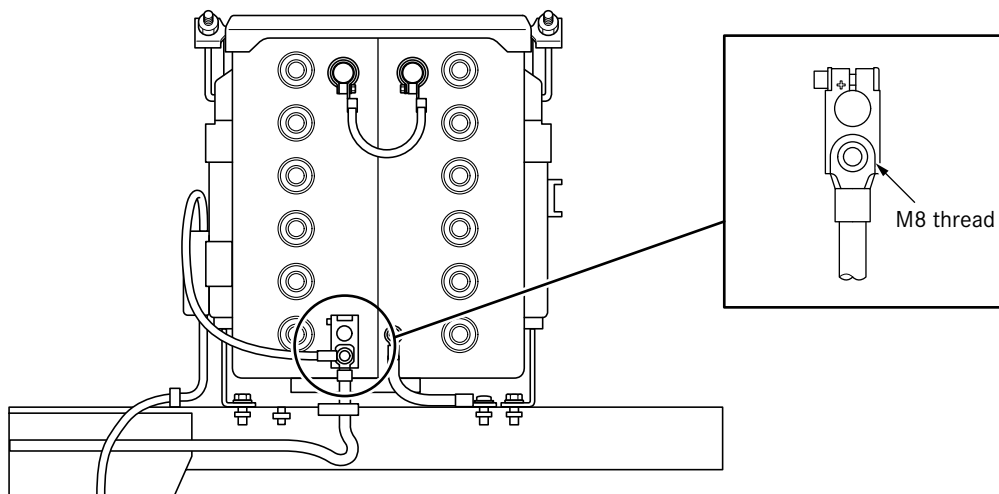


8.4.2 Power supply from vehicle-mounted battery

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 mm² or more in size over the range A (see "Between battery terminal and fuse" > 8.4.2). 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" > 8.4.2.
- 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

$$10 \times 0.7 = 7 \text{ (A)}$$

→ 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 mm ²	0.85 mm ²	1.25 mm ²	2 mm ²	3 mm ²	5 mm ²	8 mm ²
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	—	—

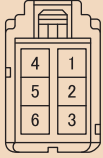
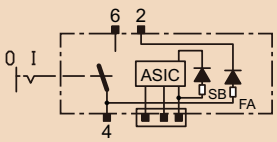
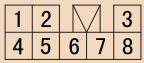
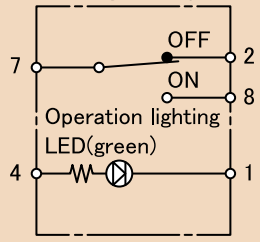
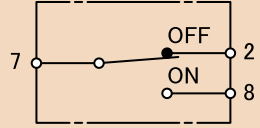

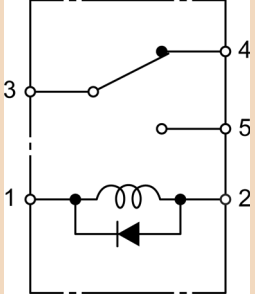
Heavy current fuse

Fuse current capacity (A)	Cable type	Ambient temperature	Cable size (sectional area)/length						
			0.5 mm ²	0.85 mm ²	1.25 mm ²	2 mm ²	3 mm ²	5 mm ²	8 mm ²
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

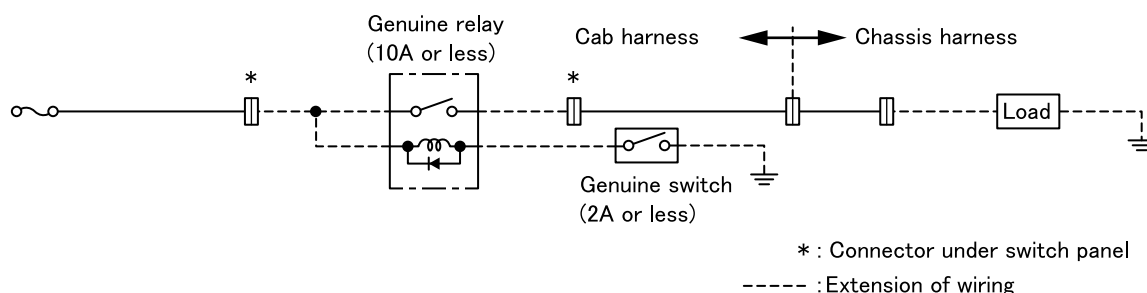
Note 2: AV/AVS: Ordinary cable; AVX: Heat resistive cable

8.4.3 Specifications for switches and relay for truck body

Part name	Mitsubishi parts number	Allowable current	Connector (harness side)	Circuit
Seesaw switch	A0195450707	5 A or less	 TYCO-AMP MCP 2.8 A0135456026	
	MK322980 (with operation lighting circuit)	2.0 A or less	 Connector type: AK8A (MH056882)	Circuit diagram Type B-5 
	MK322979 (without operation lighting circuit)	2.0 A or less		Circuit diagram Type B-3 
Relay	MK420479 for 24-V vehicle	<ul style="list-style-type: none"> 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.

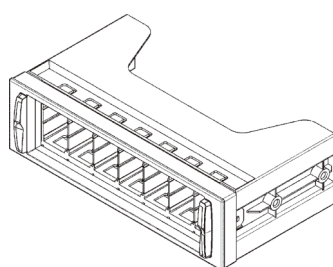
Typical example of use



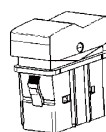
- Switch module

By using a switch module, it is possible to mount a switch for body mounting on the instrument panel.

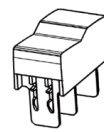
- (a) Remove the storage box on the lower right side of the instrument panel and install the switch module.



Switch module



Body mounting switch

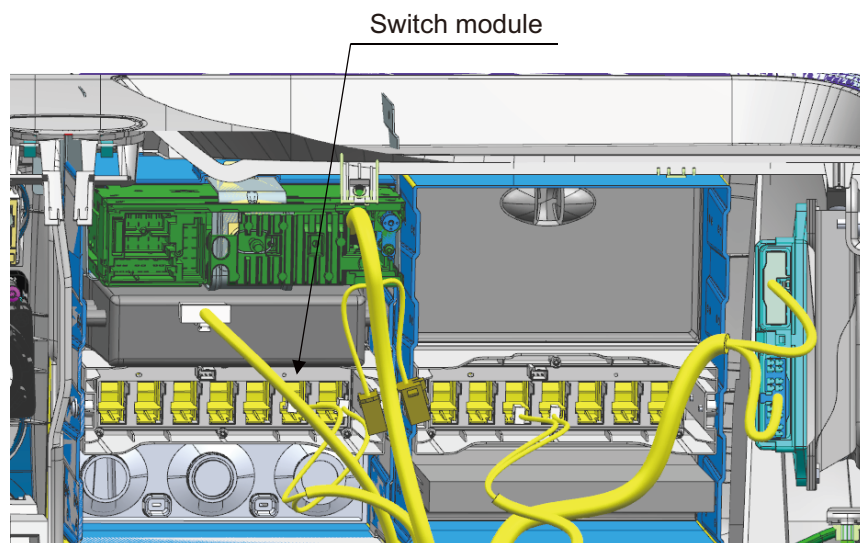


Plug(Blind plug)

Part name	Part No.	Application
Switch module	MX940350 (A9605452613)	
Body mounting switch	MX929999 (A0195450707)	
Connector	MX937840 (A0135456026)	Body mounting switch on the harness side
Terminal (0.75sq)	MX928105 (A0135457626)	Terminal in the connector
Terminal (1.25sq)	MX937951 (A0135457826)	Terminal in the connector
Plug	MX918033 (A9605420090)	Blind plug (Blank plug)

- (b) Connect the harness (wound in pink tape) to the switch module.

The harness circuit can be interlocked with the switch night lighting and operating lighting within the module.



- (c) Install the body mounting switch within the switch module.
- (d) Fit plugs to the empty spaces within the switch module.
- (e) Empty spaces within other switch modules can be used for switches.

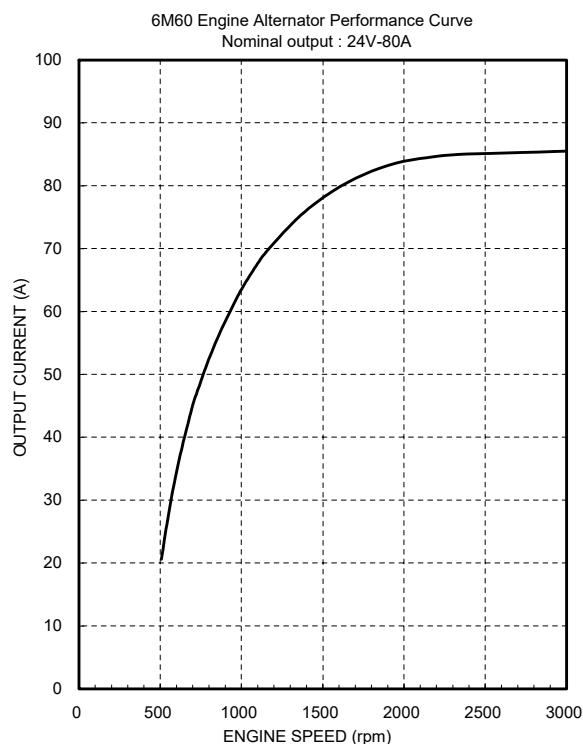
8.5 Charging/discharging balance

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" ▷ 8.5.1.

- 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.

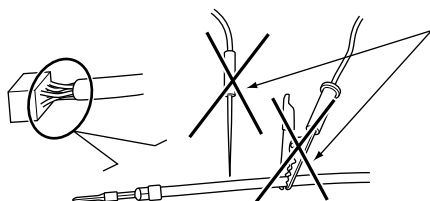
8.5.1 Engine alternator performance curves



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.



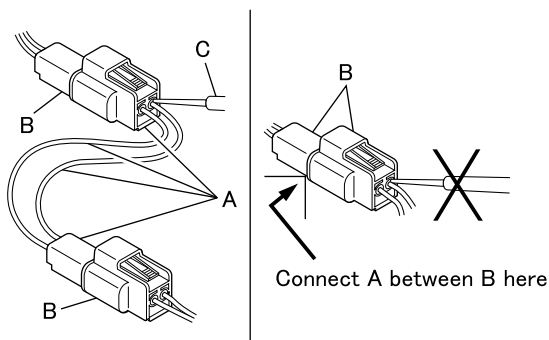
Sticking of test bar or electric circuit check lamp needle into cable insulation is prohibitive.

8.6.1 Check procedures

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

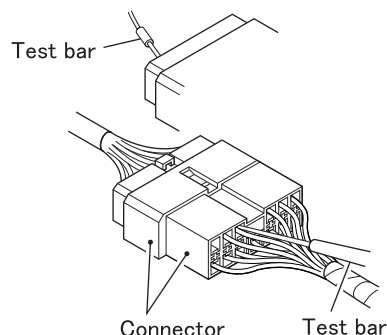
Waterproof connector

- 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

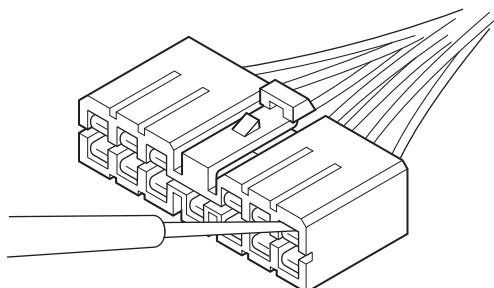
- Insert the test bar from the harness side.
- If joined connectors are so small that test bar cannot be inserted, such as control unit connectors, do not push in the test bar by force but use a superfine pointed test bar.



Continuity check with connectors disjoined

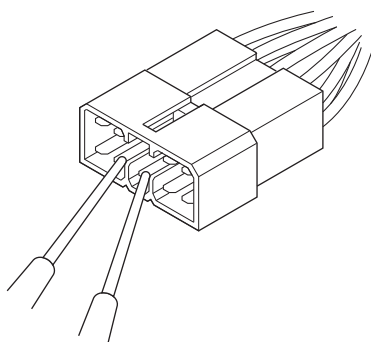
Check with female connector pins

- 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

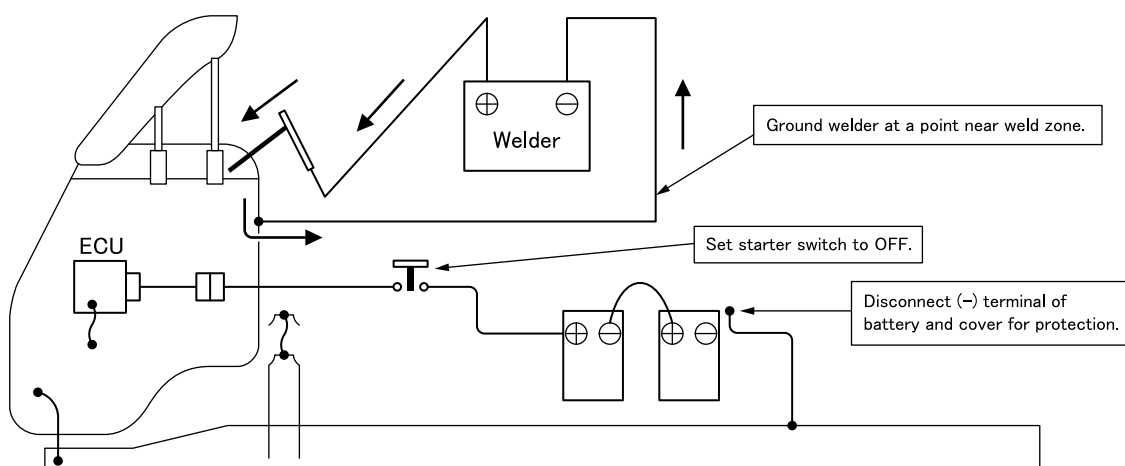
Electric wiring harnesses and electronic parts of vehicle may be damaged during electric welding work. To prevent it, follow the precautionary instructions described below.

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 ▷ 2.2.

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

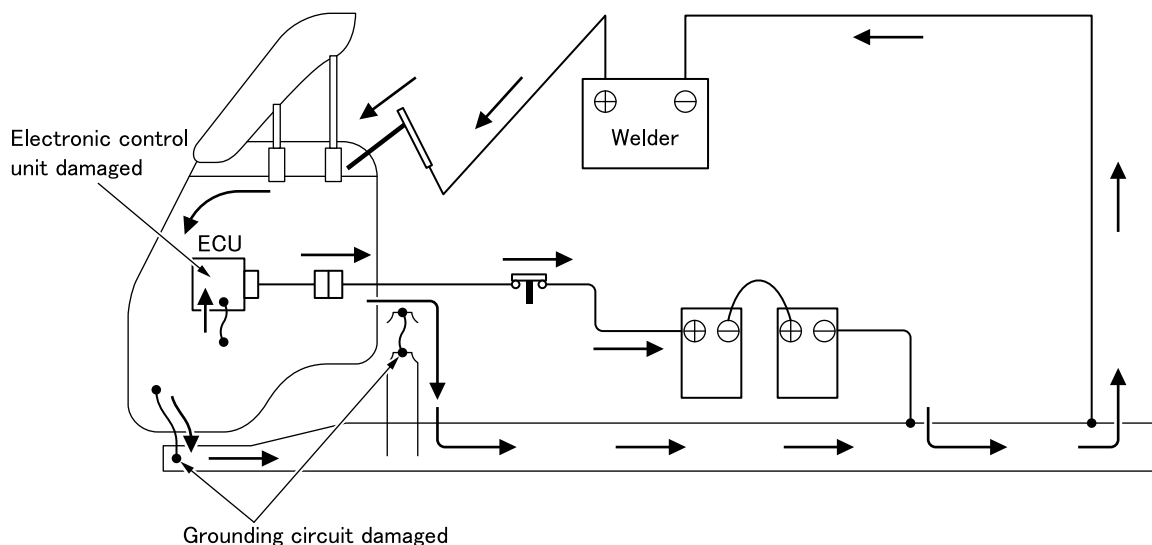
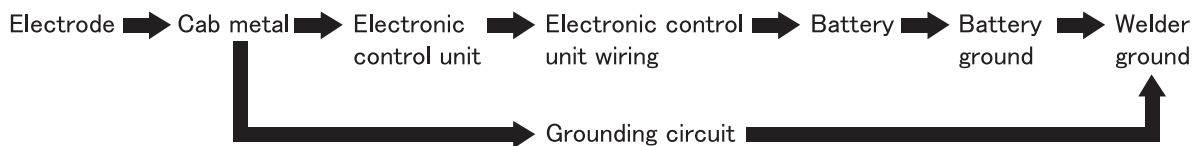
- Cover electronic equipment rubber hoses, wiring harnesses, pipes, tubes, chassis springs, tires, etc. in the neighbourhood of weld zone for protection against spatters during welding. Use utmost care when welding near an electronic control unit. If the welding electrode directly touches the housing 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 frame 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" ▷ 6.16.1.
- For cautions to take in electric welding involving BlueTec[®] system, refer to 6.14.2 "BlueTec[®] system." ▷ 6.14.2

If precautionary instructions for welding work are not followed

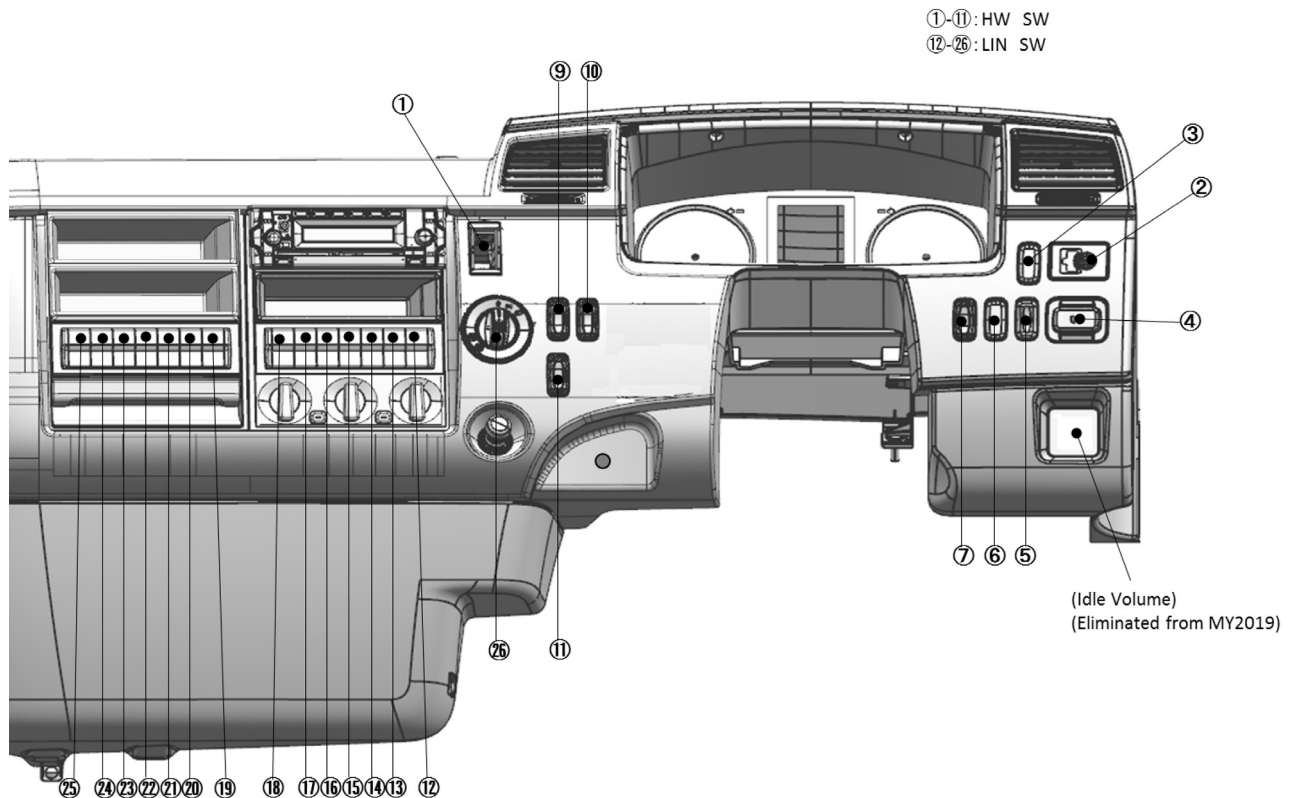
The welding current will flow as shown below, resulting in damage to other circuits including the ECU and ground wire.



8 Electrics/electronics

8.8 Locations and identification of various switches in cab

8.8 Locations and identification of various switches in cab



No.	Switch Name	RHD	LHD
		Std/Opt	Std/Opt
1	Hazard	Std	Std
2	Head lamp leveling	Opt	Opt
3	A/T power mode	Std	-
4	Remote Controller & Power mirror	Std	Std
5	Wiper mirror	Opt	Opt
6	Heater mirror	Opt	Opt
7	Heated Seat	Opt	Opt
9	Fluorescent light	Std	Std
10	Cold start	Opt	-
11	Launch assist (4V20 only)	Std	-
	Cold start	-	Opt
12	EZGO	Opt	-
13	Lock brake	Opt	Opt
14	Inter diff lock	Opt	Opt

No.	Switch Name	RHD	LHD
		Std/Opt	Std/Opt
15	ASR	Opt	Opt
	ESP	Opt	Opt
16	-	-	-
17	PTO	Opt	Opt
18	Rock free mode SW	Opt	Opt
19	DPF Regeneration	Std	Std
20	ISS Cut	Std	Std
	ISS main	-	-
21	LDWS CUT	Std	Std
22	AEBS CUT	Std	Std
23	Driver assistance	Opt	Opt
24	-	-	-
25	-	-	-
26	Lighting SW	Std	Std
	Front fog lamp	Opt	Opt
	Rear fog lamp	-	Opt

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" ▷ 10.15.

Rear registration plate lamp

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

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.

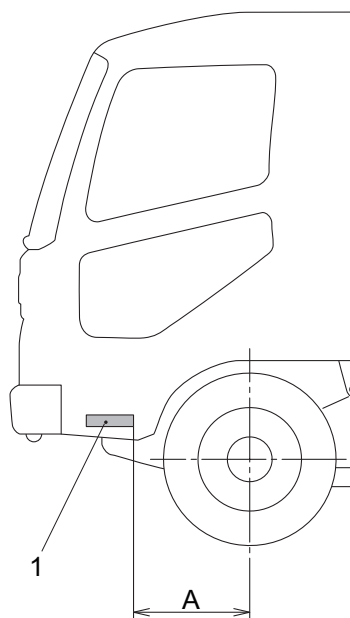
Flasher relay

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.



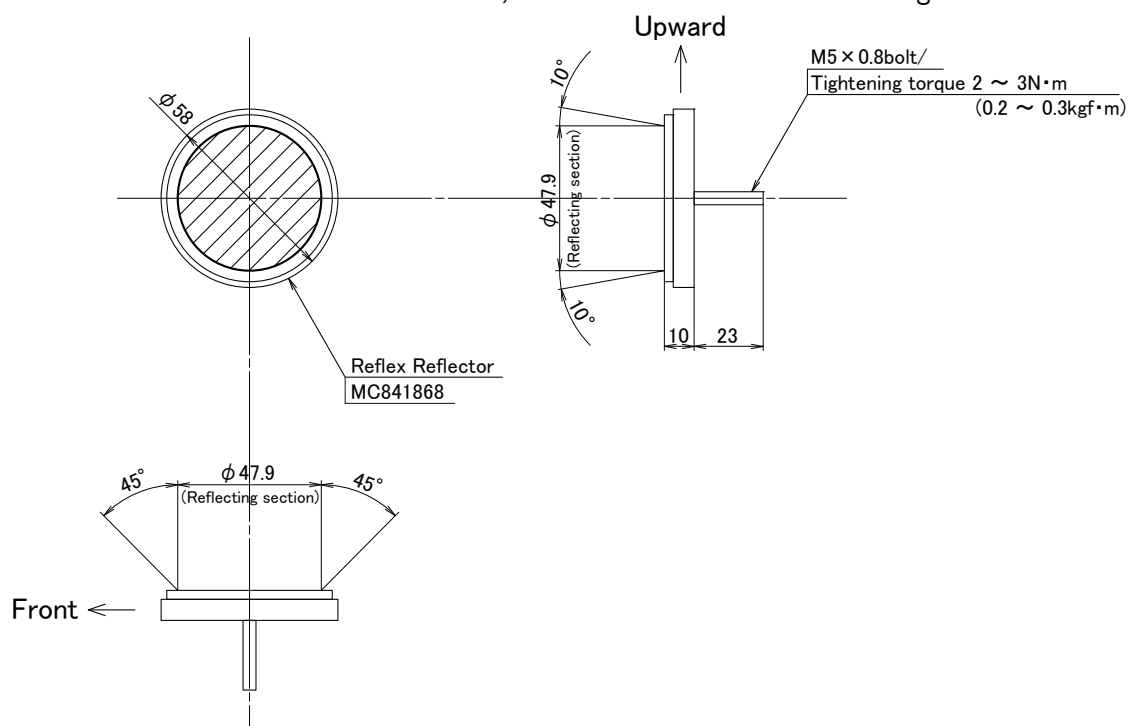
1 Front side reflector rear end

Model	A (mm)
FK	585
FM/FN/FQ	700

Side reflector

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

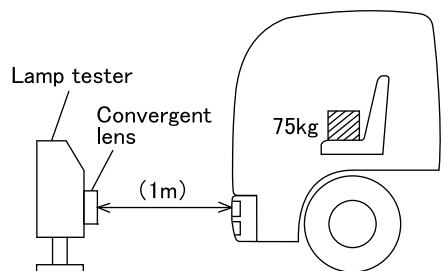
If any additional side reflectors are to be installed, be sure to use MITSUBISHI FUSO genuine reflectors.



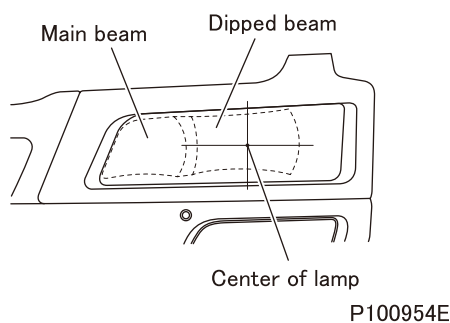
8.9.3 Headlamp aiming

Preparation before Adjustment

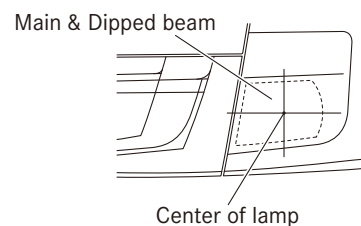
- Park the vehicle on a level place.
- Be sure to put tire chocks securely in place.
- Unload the vehicle and make sure no one is in it.
- Inflate the tires to the specified pressure.
- Seat one person of an equivalent mass (75 kg) in the vehicle.
- Start the engine and check that the battery is being 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



RHD shown LHD symmetry opposite.

Adjustment

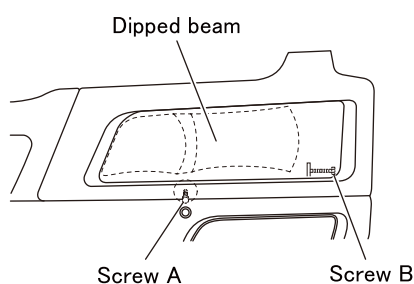
- Do not mask a lit headlamp for more than 2 minutes or the heat generated might cause a fire.

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.

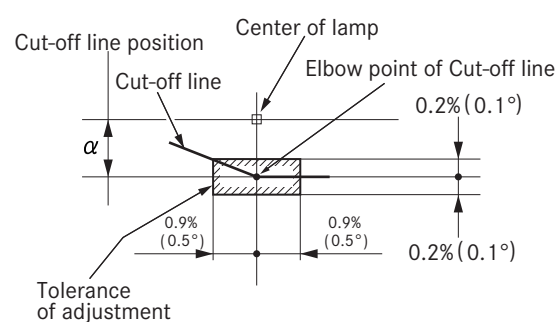
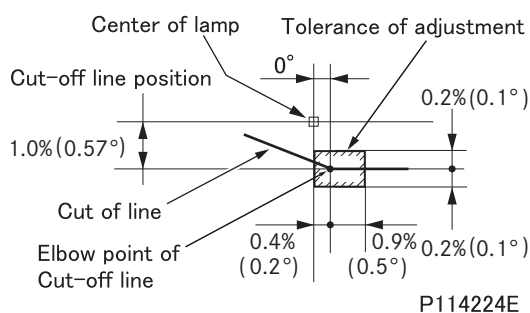
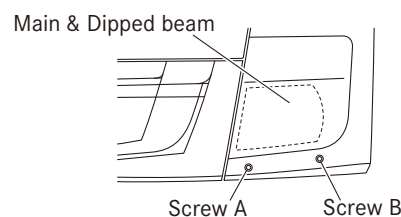
Cut-off line position	Standard value
	1.0%(0.57°)

Head lamp on the bumper



P100955E

Head lamp on the cab



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>

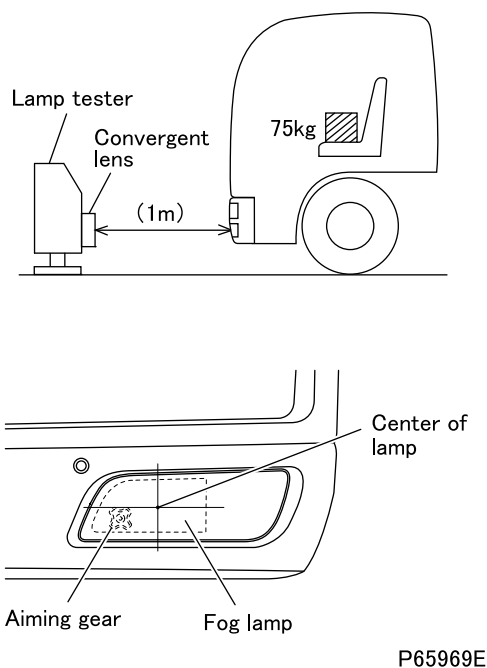
	Upward	Downward	Leftward	Rightward
Screw A	Counter-clockwise	Clockwise	–	–
Screw B	Counter-clockwise	Clockwise	Counter-clockwise	Clockwise

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.



Adjustment

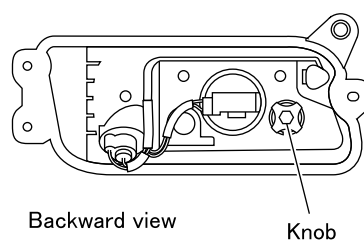
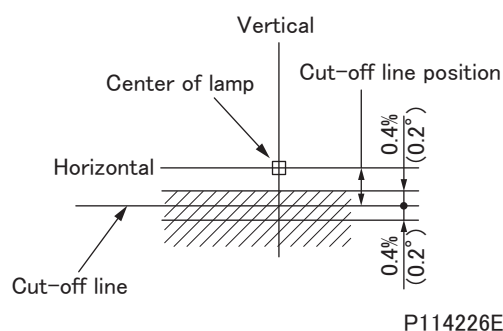
- Do not mask a lit fog lamp for more than 10 minutes or the heat generated might cause a fire.

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
	$2.0 \pm 0.4\%$ ($1.15 \pm 0.2^\circ$)

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



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.

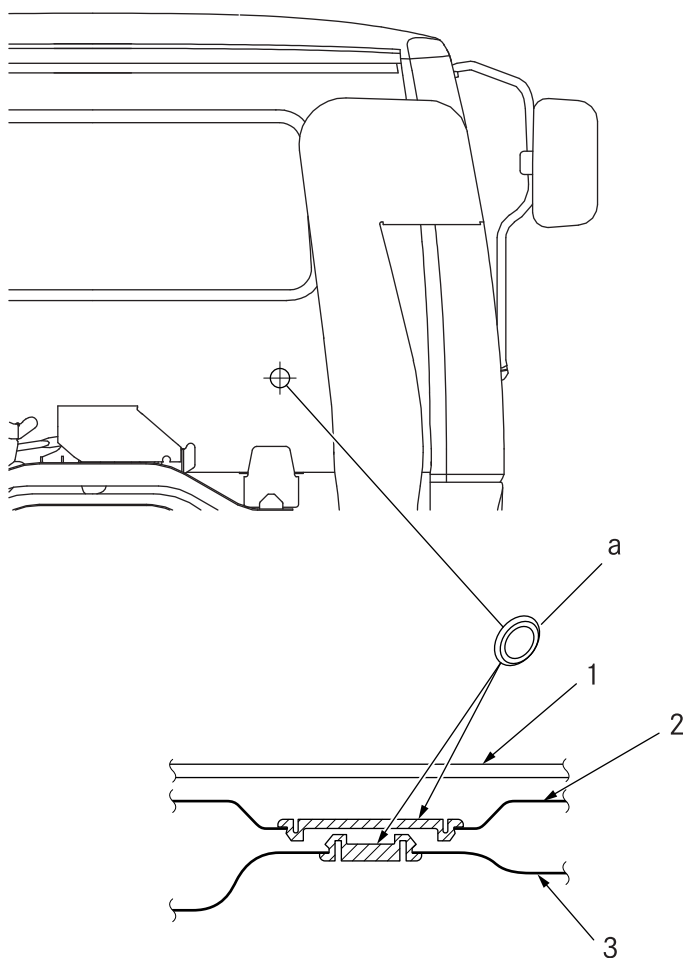
Aerial (for two-way radio sets)

- The aerial must be officially licensed.

Connection and wiring

- The connection should be made directly to terminal 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



a Remove the plugs and install grommets.

1 Center back trim

2 Back inner center panel

3 Back outer center trim

i Additional information

The notes on operating safety and vehicle safety in Section 1 "Introduction" ▷ 1.3 and ▷ 1.4 must be complied with.

8.11 Additional wiring for PTO

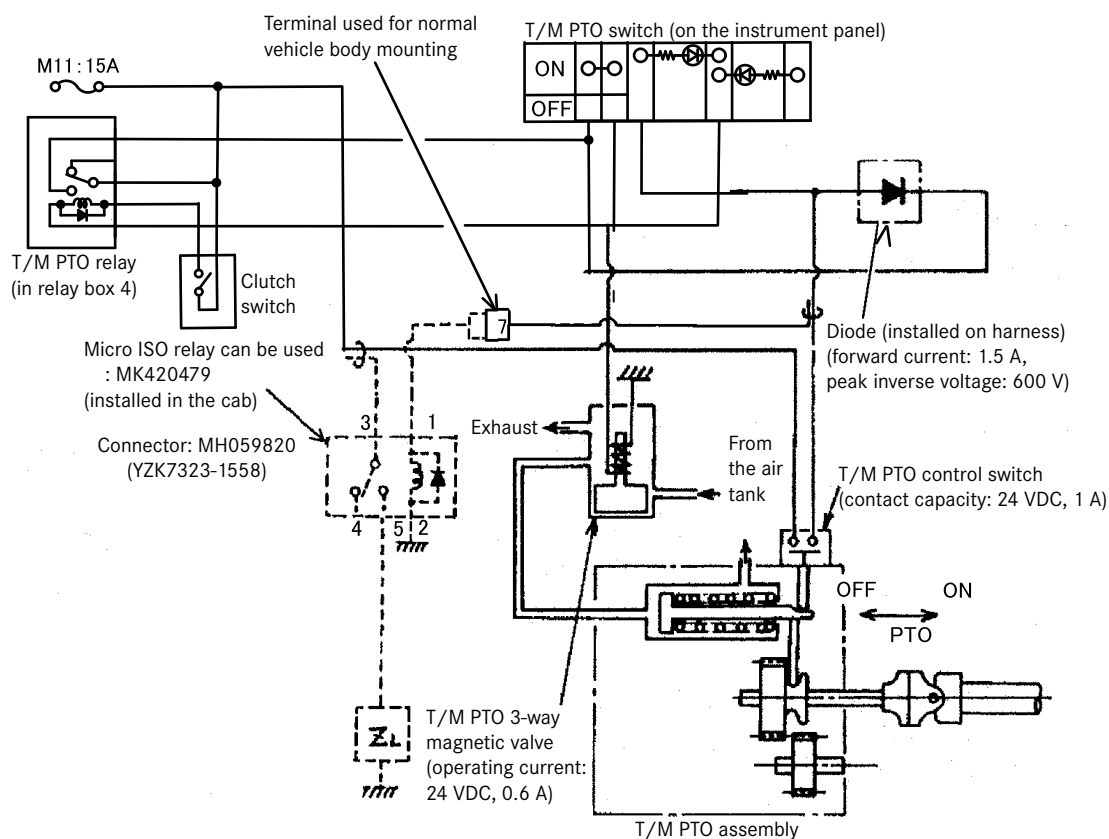
8.11.1 Adding electric circuits

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" > 8.2 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.

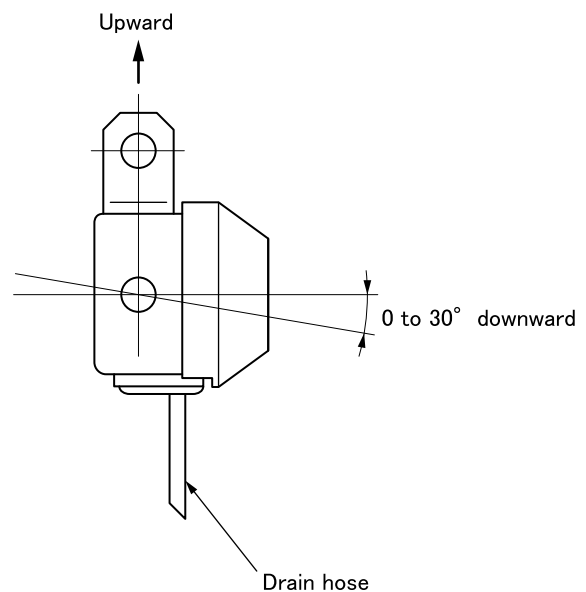
When dropped

- 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.

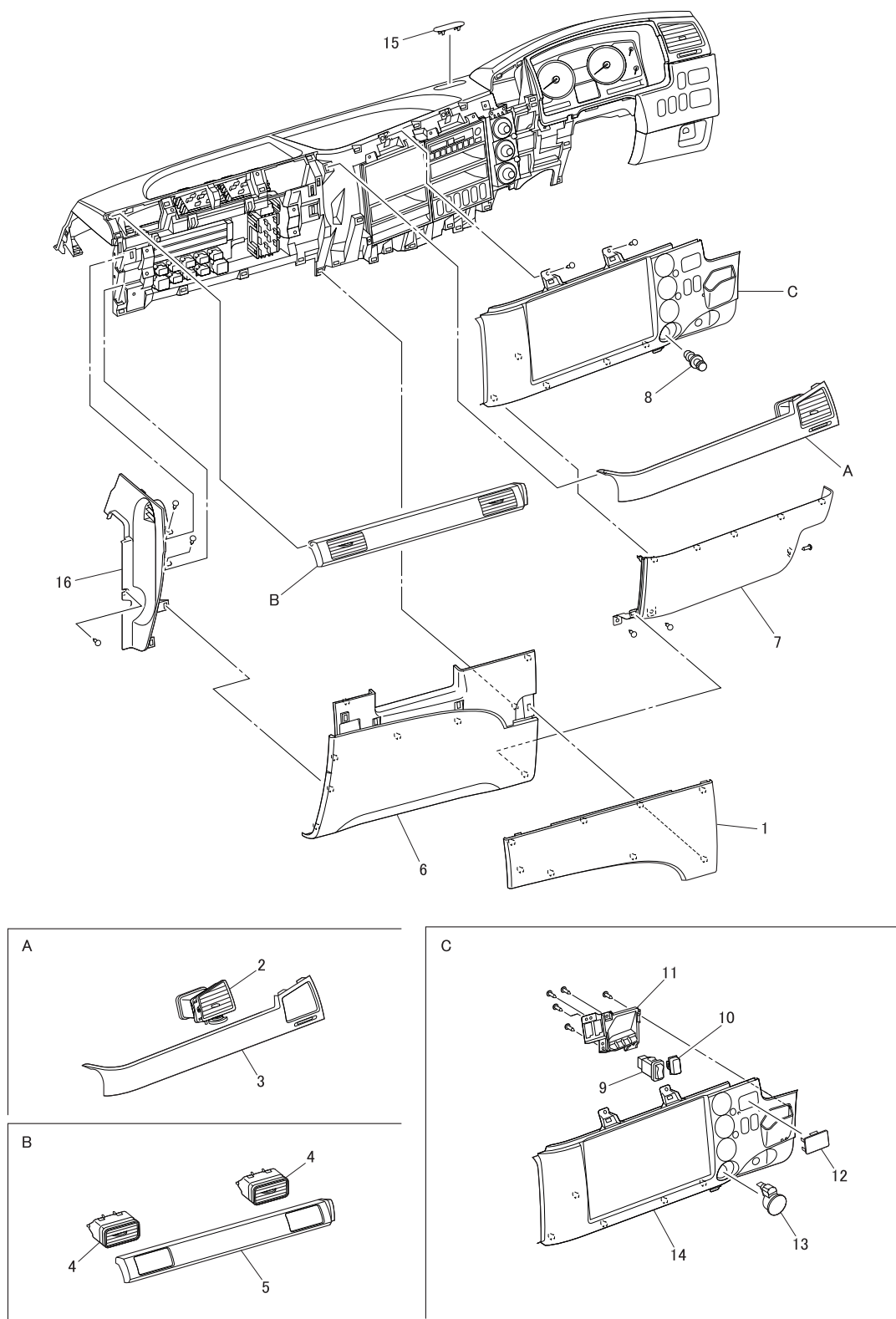


8.12.3 Instrument panel

- Removal and installation procedures

<Passenger-side panel>

(1) Removal and installation procedures



P105518

(a) Removal sequence

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

(b) Installation sequence

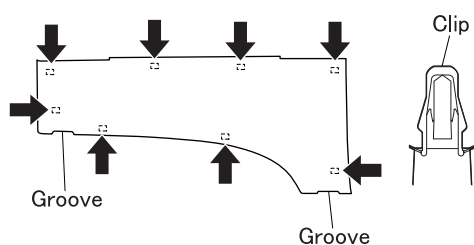
Follow the removal sequence in reverse.

(2) Removal procedure

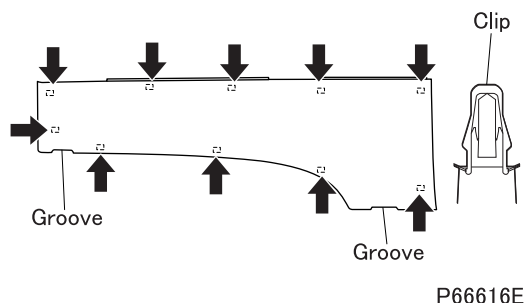
(a) Removal: Upper passenger panel

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

<Standard width cab>

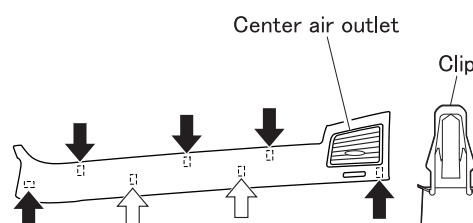


<Wide cab>



(b) Removal: Center garnish

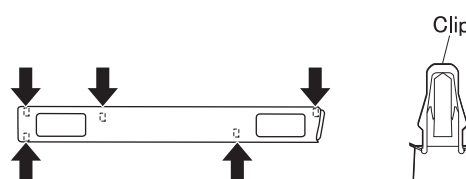
- Remove the clips near the center air outlet.
- Pull out the center garnish rearward in a straight axial line so as not to damage the clips indicated by ←.



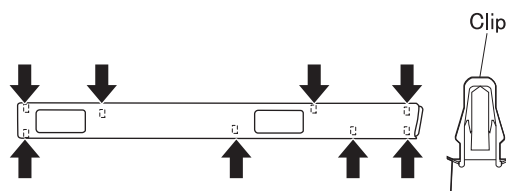
P104885E

(c) Removal: Passenger garnish

<Standard width cab>



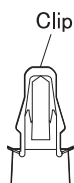
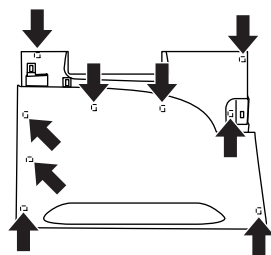
<Wide cab>



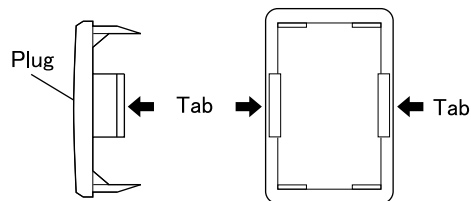
P66620E

(d) Removal: Lower passenger panel

<Standard width cab>

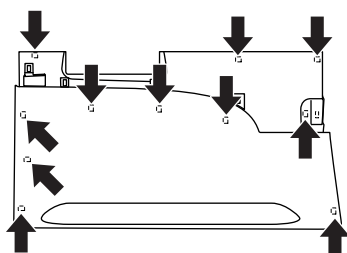


(g) Removal: Plug A



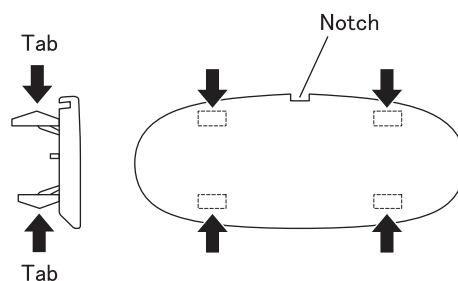
P49510E

<Wide cab>



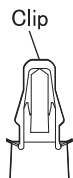
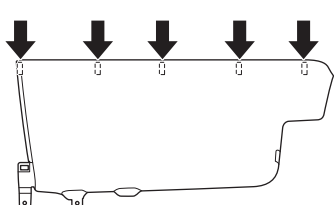
P66617E

(h) Removal: Instrument panel cover



P66622E

(e) Removal: Lower center panel

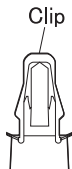
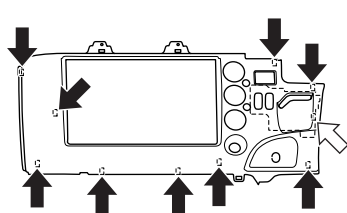


P66618E

(f) Removal: Upper center panel and switch plate

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

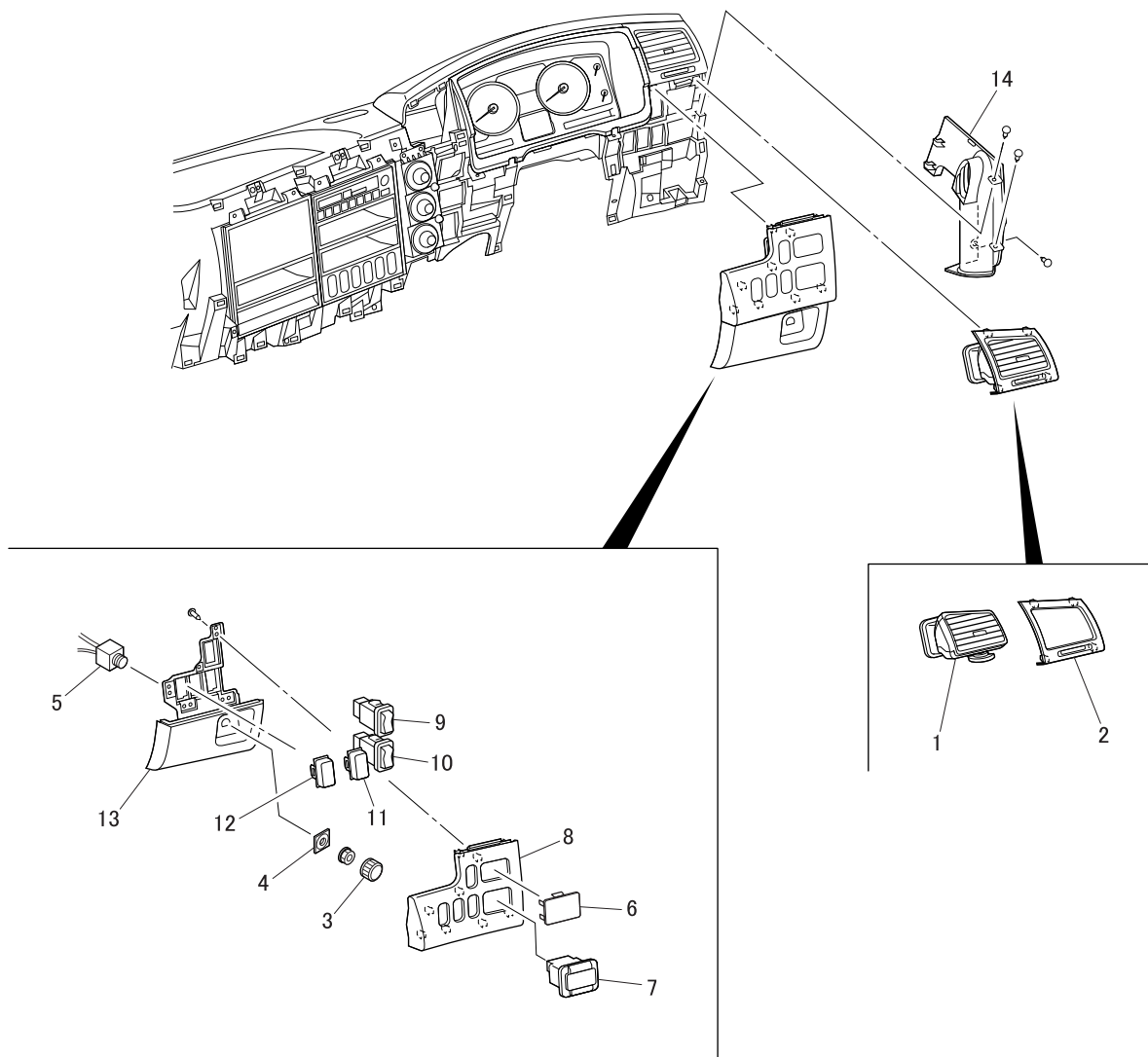
⇐ : Clip on switch plate side (1 place)



P105519E

<Driver-side panel>

(1) Removal and installation procedures



P117118

(a) Removal sequence

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

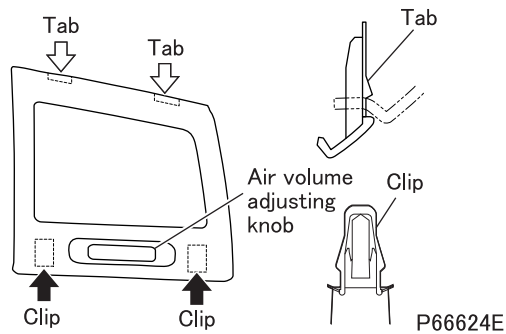
(b) Installation sequence

Follow the removal sequence in reverse.

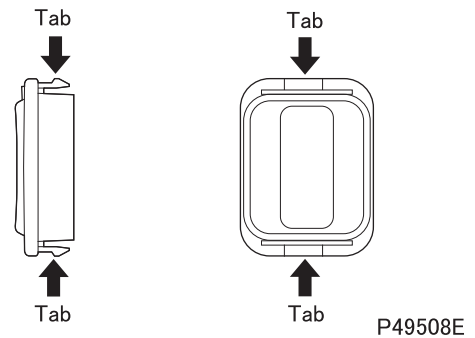
(2) Removal procedure

(a) Removal: Driver air outlet, driver garnish

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



(d) Removal: Plug D

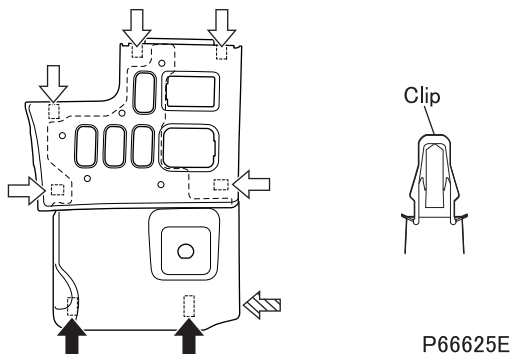


(b) Removal: Lower driver panel and upper driver panel

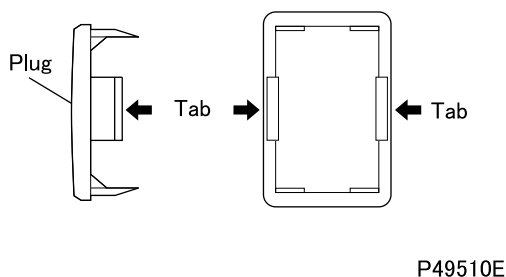
↔ : Clip on upper driver panel side (5 places)

← : 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.

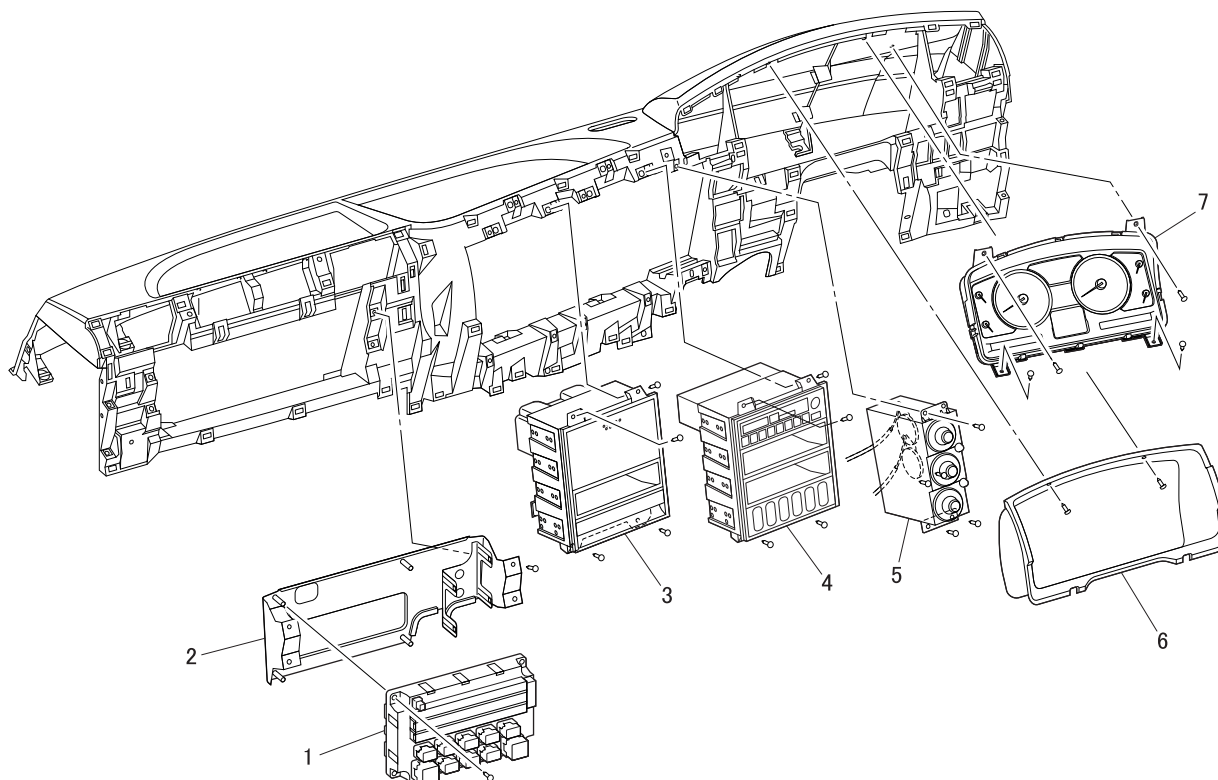


(c) Removal: Plug A



<Electrical Components>

(1) Removal and installation procedures



P117119

(a) Removal sequence

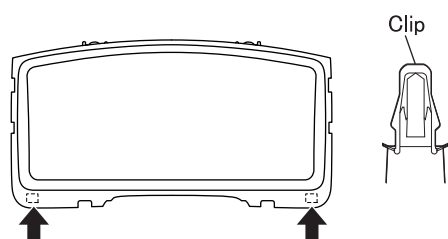
- | | | |
|---|---------------------------------------|-----------------|
| 1 Relay and fuse box | 4 Box and switch (See later section.) | 7 Meter cluster |
| 2 Relay and fuse plate | 5 Air-conditioner control | |
| 3 Box and cup holder (See later section.) | 6 Meter bezel | |

(b) Installation sequence

Follow the removal sequence in reverse.

(2) Removal procedure

(a) Removal: Meter bezel

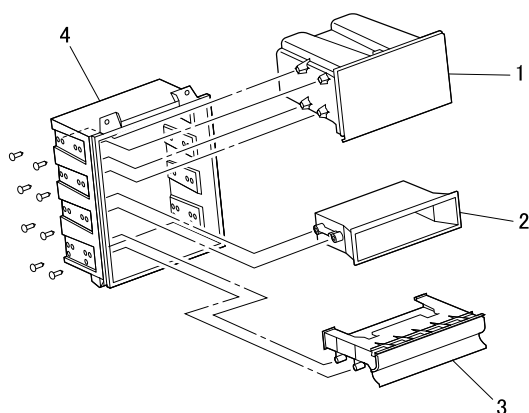


P66663E

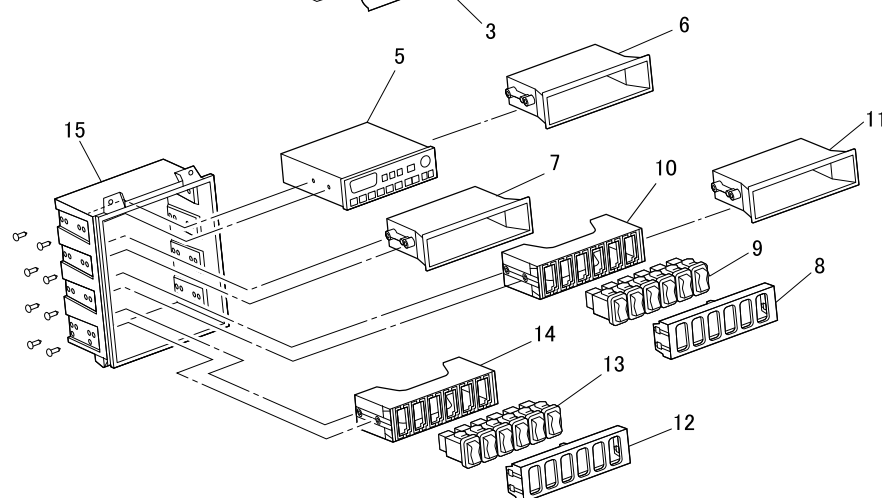
<Box and Cup Holder, Box and switch>

(1) Removal and installation procedures

<Box and cup holder>



<Box and switch>



P117293E

(a) Disassembly sequence

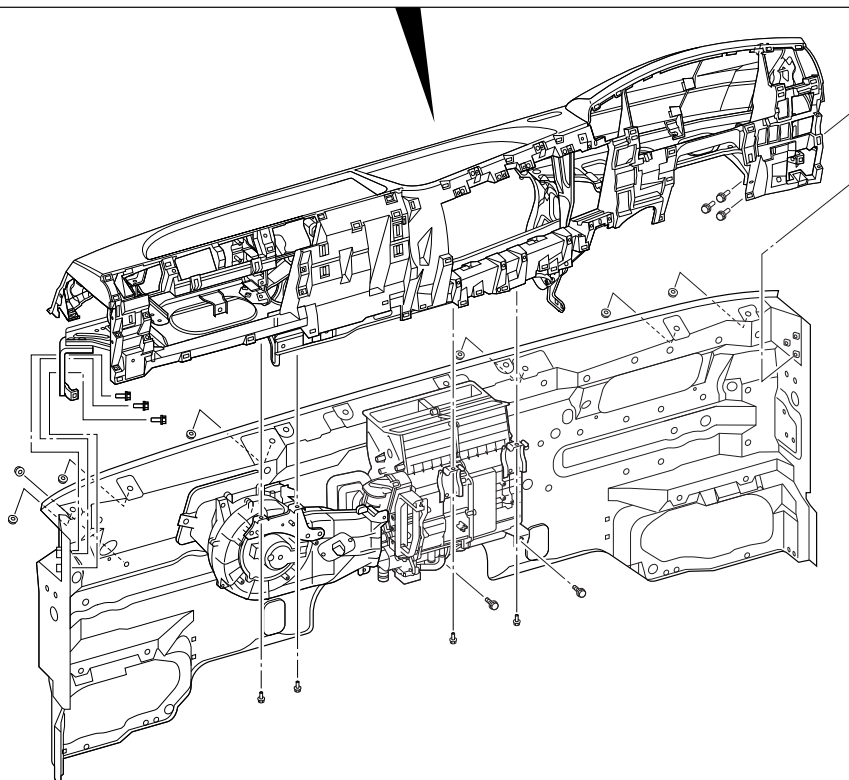
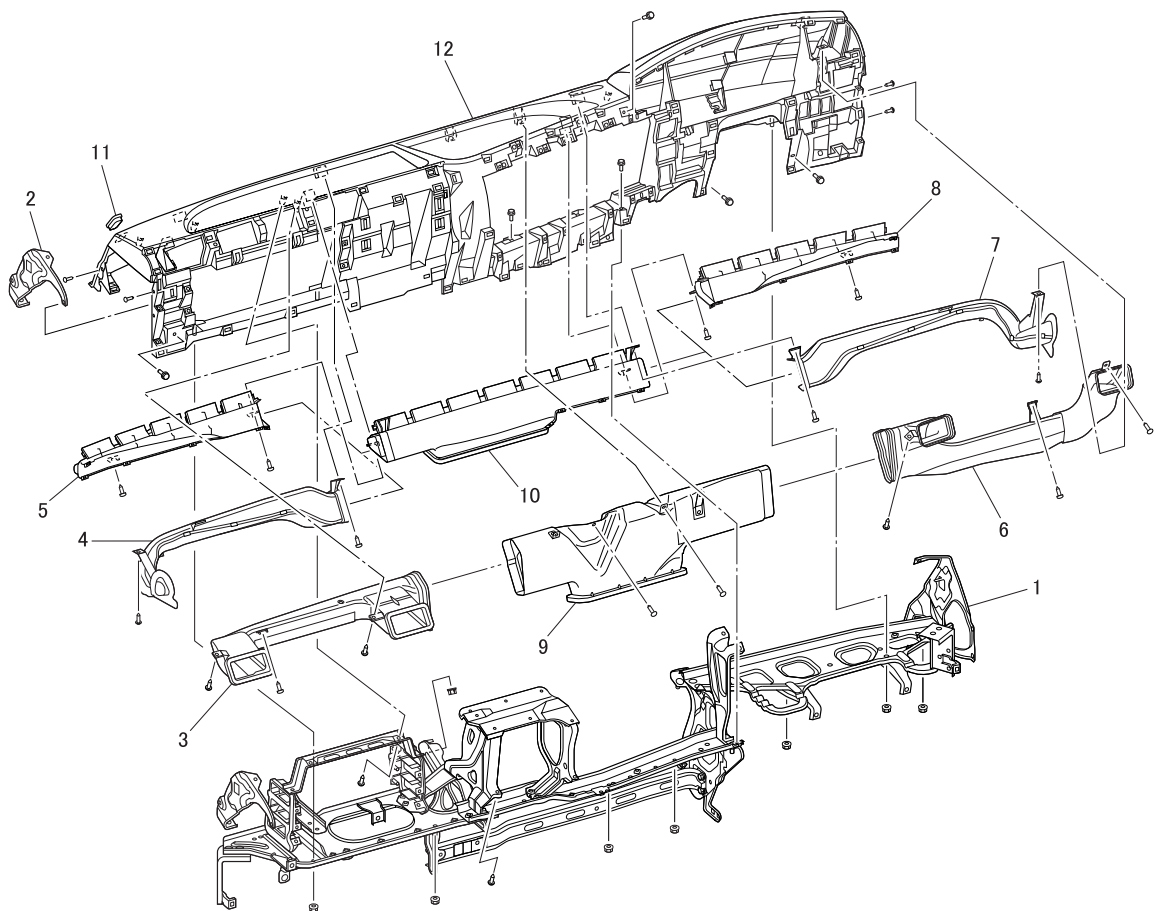
- | | | |
|-------------------------------------|--------------------------------------|-------------------|
| 1 Glove box | 7 Box | 13 Switch or plug |
| 2 Box | 8 Switch bezel | 14 Switch plate |
| 3 Cup holder | 9 Switch or plug | 15 Case |
| 4 Case | 10 Switch plate | |
| 5 Audio | 11 Box <for Hong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

(b) Assembly sequence

Follow the disassembly sequence in reverse.

<Instrument panel>

(1) Removal and installation procedures



P101382

(a) Removal sequence

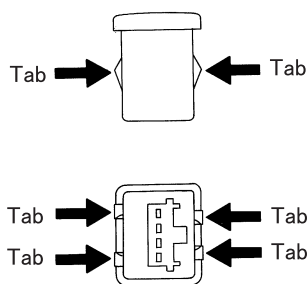
- | | | |
|---|------------------------------------|--------------------------|
| 1 Instrument panel frame (See later section.) | 5 Defroster duct (left-hand) | 10 Center defroster duct |
| 2 Reinforcement | 6 Face duct (right-hand) | 11 Plug |
| 3 Face duct (left-hand) | 7 Side defroster duct (right-hand)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

(b) Installation sequence

Follow the removal sequence in reverse.

(2) Removal procedure

(a) Removal: Plug

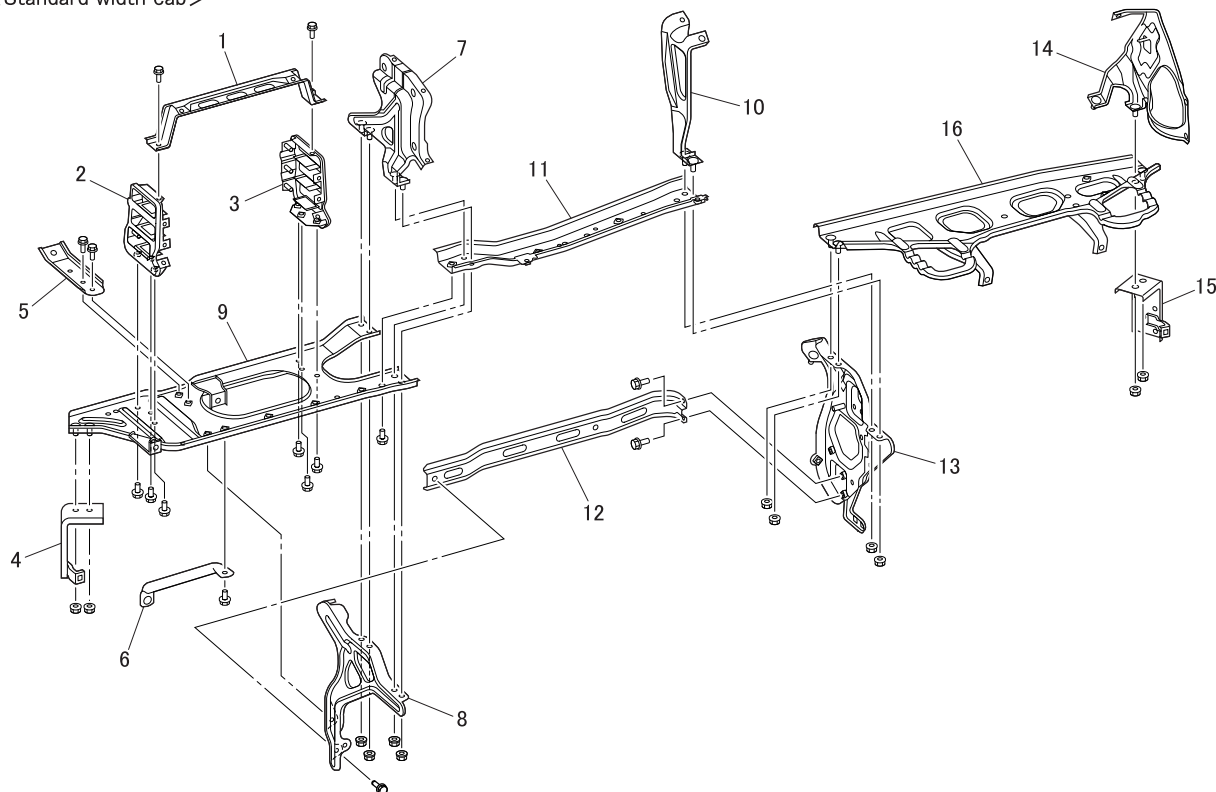


18557E

<Instrument panel frame>

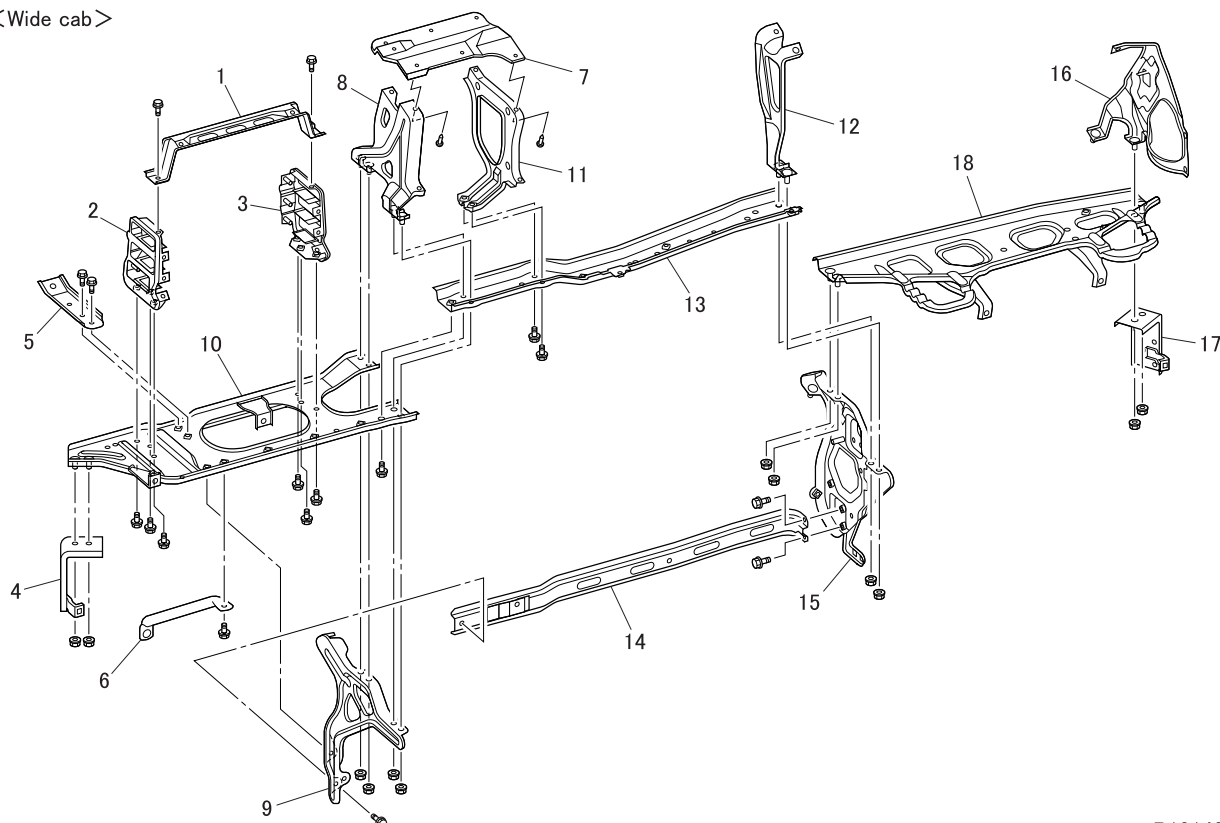
(1) Removal and installation procedures

<Standard width cab>



P66666E

<Wide cab>



P101403E

(a) Disassembly sequence

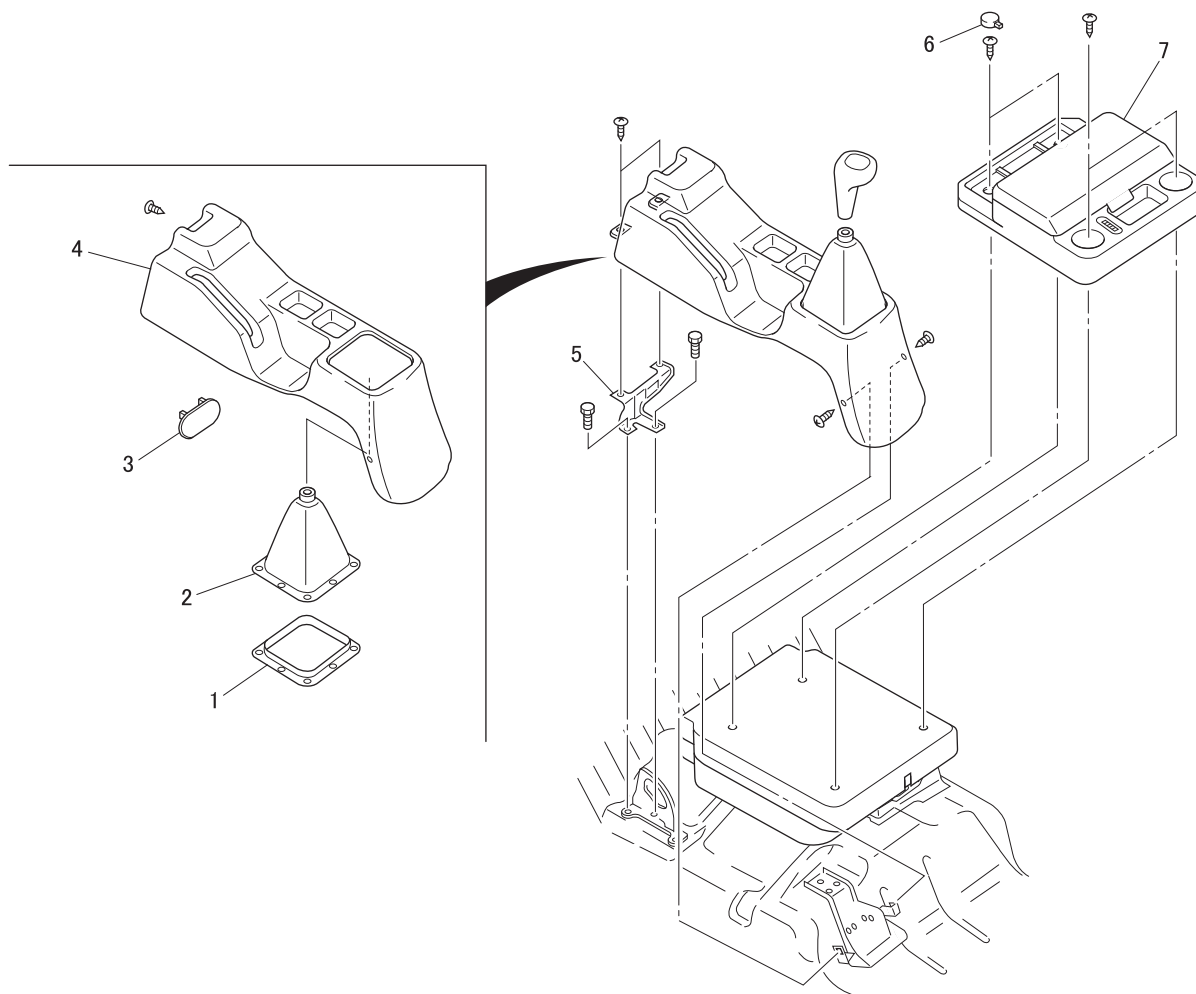
- | | | |
|---|---|---|
| 1 <i>Electronic control unit frame</i> | 9 <i>Lower passenger instrument panel support</i> | 14 <i>Lower center instrument panel frame</i> |
| 2 <i>Electronic control unit frame support LH</i> | 10 <i>Passenger instrument panel frame</i> | 15 <i>Lower driver instrument panel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

(b) Assembly sequence

Follow the disassembly sequence in reverse.

<Floor console>

(1) Removal and installation procedures



P105523

(a) Removal sequence

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

(b) Installation sequence

Follow the removal sequence in reverse.

- Removal method

9.1 Technical wheelbase

9.1.1 Technical wheelbase calculation for 3-axle vehicles

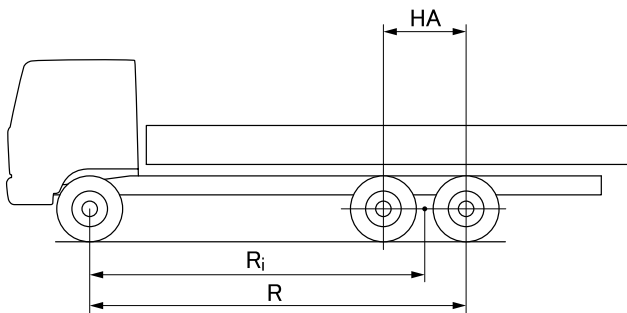
You require the following values to calculate the technical wheelbase R_i :

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:

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



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:

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

ΔG_{HA} = Change in weight on rear axle in [kg]

$G_{\text{component}}$ = Component weight in [kg]

a = Axle distance to theoretical center of front axle in [mm]

R = Theoretical wheelbase [mm]

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

ΔG_{VA} = Change in weight on front axle in [kg]

$G_{\text{component}}$ = Component weight in [kg]

ΔG_{HA} = Change in weight on rear axle in [kg]

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

<FN, FQ>

First rear axle load=

$(\text{Total weight of the rear two axles} + 60 \text{ kg}) / 2$

Second rear axle load=

$(\text{Total weight of the rear two axles} - 60 \text{ kg}) / 2$

A

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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.

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Body/equipment mounting directives <Common section>

FK.FM.FN.FQ

MITSUBISHI FUSO TRUCK & BUS CORPORATION**December. 2022 TM301**

Body/equipment mounting directives
Technical data section
Australia

10 Technical data

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10.1 Model line-up

	Model	Type	Drive system	Crew	Engine	GVW(Kg)	TIRE
1	FK62FHY5RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	11,000	245/70R19.5
2	FK62FHY5RFAD	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	11,000	245/70R19.5
3	FK62FKY5RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	11,000	245/70R19.5
4	FK62FLY5RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	11,000	245/70R19.5
5	FK62FLY5RFAD	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	11,000	245/70R19.5
6	FK62FLY5RFAL	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	11,000	245/70R19.5
7	FK62FMY5RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	11,000	245/70R19.5
8	FK62FHZ5RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	12,000	265/70R19.5
9	FK62FLZ5RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	12,000	265/70R19.5
10	FK62FLZ5RFAD	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	12,000	265/70R19.5
11	FK62FLZ5RFAL	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	12,000	265/70R19.5
12	FK62FLZ5RFAP	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	14,000	265/70R19.5
13	FK62FLZ5RFAH	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	14,000	265/70R19.5
14	FK65FLZ5RFAD	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	12,000	265/70R19.5
15	FK65FLZ5RFAL	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	12,000	265/70R19.5
16	FK65FLZ5RFAP	Forward control, tilt cab	4 × 2	3	6M60-CAT5, diesel, 177 kW (240 PS)/2,270 rpm	14,000	265/70R19.5
17	FK65FLZ6RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	12,000	265/70R19.5
18	FK65FMZ6RFAC	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	12,000	265/70R19.5
19	FK65FMZ6RFAH	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	14,000	265/70R19.5
20	FM65FH6RFAH	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	11R22.5
21	FM65FH6RFAK	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	11R22.5





	Model	Type	Drive system	Crew	Engine	GVW(Kg)	TIRE
22	FM65FM6RFAH	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
23	FM65FS6RFAH	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
24	FM65FS6RFAK	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	11R22.5
25	FM67FM6RFAJ	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	11R22.5
26	FM67FM6RFAM	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	11R22.5
27	FM67FM6RFAK	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
28	FM67FS6RFAH	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
29	FM67FS6RFAJ	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
30	FM67FS6RFAM	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
31	FM67FS6RFAK	Forward control, tilt cab	4 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	16,000	275/70R22.5
32	FN63FU6RFAJ	Forward control, tilt cab	6 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,200	275/70R22.5
33	FN63FU6RFAM	Forward control, tilt cab	6 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,200	275/70R22.5
34	FN63FU6RFAK	Forward control, tilt cab	6 × 2	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,200	275/70R22.5
35	FN62FK6RFAJ	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,500	11R22.5
36	FN62FK6RFAM	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,500	11R22.5
37	FN62FK6RFAK	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,500	11R22.5
38	FN62FR6RFAJ	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,500	11R22.5
39	FN62FR6RFAM	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	23,500	11R22.5
40	FN64FU6RFAJ	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	24,000	275/70R22.5
41	FN64FU6RFAM	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	24,000	275/70R22.5
42	FN64FU6RFAK	Forward control, tilt cab	6 × 4	3	6M60-CAT6, diesel, 199 kW (270 PS)/2,500 rpm	24,000	275/70R22.5



10.2 Specifications



10.2.1 Specifications

FK

Model	FK62FHY5RFAC	FK62FHY5RFAD	FK62FKY5RFAC
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	4,270	4,270	4,870
Tread, front (mm)	1,780	1,780	1,780
Tread, rear (mm)	1,710	1,710	1,710
Curb weight (kg) *	3,970	3,925	3,995
Front	2,450	2,425	2,445
Rear	1,520	1,500	1,550
Max. G.V.W. (kg)	11,000	11,000	11,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT5	6M60-CAT5	6M60-CAT5
Max. Output	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm
Max. Torque	745 N·m (76 kgf·m)/950-2270 rpm	745 N·m (76 kgf·m)/950-2270 rpm	745 N·m (76 kgf·m)/950-2270 rpm
Clutch	C7M38	—	C7M38
Transmission	M070S6	LCT2500	M070S6
Gear ratios (1st/top) **	6.807/0.774	3.512/0.737	6.807/0.774
Control	Floor shift, Manual Transmission	Floor shift, Automatic Transmission	Floor shift, Manual Transmission
Oil cooler	—	Standard (Water cooled)	—
Propeller shaft	P10	P8	P10
Transfer	—	—	—
Rear Axle	R052T	R052T	R052T
Final reduction gear	D052H	D052H	D052H
Ratio	4.625	4.875	4.625
Front axle	F500T	F500T	F500T
Tires	245/70R19.5	245/70R19.5	245/70R19.5
Disc wheels	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs
Steering angle (in/out)	44° / 34°	44° / 34°	44° / 34°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	1300×70×16-1,19-2	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 Litres with key, steel	200 Litres with key, steel	200 Litres with key, steel
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.730	0.730	0.730

* 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.





Model	FK62FLY5RFAC	FK62FLY5RFAD/L	FK62FMY5RFAC
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	5,210	5,210	5,540
Tread, front (mm)	1,780	1,780	1,780
Tread, rear (mm)	1,710	1,710	1,710
Curb weight (kg) *	4,075	4,030	4,085
Front	2,475	2,445	2,480
Rear	1,600	1,585	1,605
Max. G.V.W. (kg)	11,000	11,000	11,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT5	6M60-CAT5	6M60-CAT5
Max. Output	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm
Max. Torque	745 N·m (76 kgf·m)/950-2270 rpm	745 N·m (76 kgf·m)/950-2270rpm	745 N·m (76 kgf·m)/950-2270 rpm
Clutch	C7M38	—	C7M38
Transmission	M070S6	LCT2500	M070S6
Gear ratios (1st/top) **	6.807/0.774	3.512/0.737	6.807/0.774
Control	Floor shift, Manual Transmission	Floor shift, Automatic Transmission	Floor shift, Manual Transmission
Oil cooler	—	Standard (Water cooled)	—
Propeller shaft	P10	P8	P10
Transfer	—	—	—
Rear Axle	R052T	R052T	R052T
Final reduction gear	D052H	D052H	D052H
Ratio	4.625	4.875	4.625
Front axle	F500T	F500T	F500T
Tires	245/70R19.5	245/70R19.5	245/70R19.5
Disc wheels	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs
Steering angle (in/out)	44° / 34°	44° / 34°	44° / 34°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	1300×70×16-1,19-2	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 Litres with key, steel	200 Litres with key, steel	200 Litres with key, steel
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.730	0.730	0.730

* 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.





Model	FK62FHZ5RFAC	FK62FLZ5RFAC	FK62FLZ5RFAD/L
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	4,270	5,210	5,210
Tread, front (mm)	1,780	1,780	1,780
Tread, rear (mm)	1,710	1,710	1,710
Curb weight (kg) *	4,055	4,170	4,125
Front	2,470	2,520	2,495
Rear	1,585	1,650	1,630
Max. G.V.W. (kg)	12,000	12,000	12,000
Max. G.C.W. (kg) **	—	—	—
Engine	6M60-CAT5	6M60-CAT5	6M60-CAT5
Max. Output	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm
Max. Torque	745 N·m (76 kgf·m)/950-2270 rpm	745 N·m (76 kgf·m)/950-2270 rpm	745 N·m (76 kgf·m)/950-2270 rpm
Clutch	C7M38	C7M38	—
Transmission	M070S6	M070S6	LCT2500
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	4.875	4.875	5.428
Front axle	F500T	F500T	F500T
Tires	265/70R19.5	265/70R19.5	265/70R19.5
Disc wheels	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs
Steering angle (in/out)	44° / 34°	44° / 34°	44° / 34°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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, 16-1	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 Litres with key, steel	200 Litres with key, steel	200 Litres with key, steel
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.755	0.755	0.755

* 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.





Model	FK62FLZ5RFAP	FK62FLZ5RFAH	FK65FLZ5RFAD/L
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	5,210	5,210	5,210
Tread, front (mm)	1,780	1,780	1,780
Tread, rear (mm)	1,710	1,710	1,710
Curb weight (kg) *	4,145	4,185	4,180
Front	2,520	2,540	2,500
Rear	1,625	1,645	1,680
Max. G.V.W. (kg)	14,000	14,000	12,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT5	6M60-CAT5	6M60-CAT5
Max. Output	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm	177 kW (240 PS)/2,270 rpm
Max. Torque	745 N·m (76 kgf·m)/950-2270 rpm	745 N·m (76 kgf·m)/950-2270 rpm	745 N·m (76 kgf·m)/950-2270 rpm
Clutch	—	C7M38	—
Transmission	LCT2500	M070S6	LCT2500
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	5.428	4.875	5.428
Front axle	F500T	F500T	F500T
Tires	265/70R19.5	265/70R19.5	265/70R19.5
Disc wheels	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs
Steering angle (in/out)	44° / 34°	44° / 34°	44° / 34°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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, 16-1	1300×70×16-1, 18-2, 16-1	1300×70×16-1, 18-2, 16-1
Stabilizer	Standard	Standard	—
Rear suspension	Multi leaf springs	Multi leaf springs	Air suspension
Dimensions	1300×70×12-10 900×70×11-8	1300×70×12-10 900×70×11-8	(660+355)×90×40-2
Stabilizer	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 Litres with key, steel	200 Litres with key, steel	200 Litres with key, steel
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.755	0.755	0.725

* 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.





Model	FK65FLZ5RFAP	FK65FLZ6RFAC	FK65FMZ6RFAC
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	5,210	5,210	5,540
Tread, front (mm)	1,780	1,780	1,780
Tread, rear (mm)	1,710	1,710	1,710
Curb weight (kg) *	4,200	4,220	4,240
Front	2,520	2,550	2,580
Rear	1,680	1,670	1,660
Max. G.V.W. (kg)	14,000	12,000	12,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT5	6M60-CAT6	6M60-CAT6
Max. Output	177 kW (240 PS)/2,270 rpm	199 kW (270 PS)/2,500 rpm	199 kW (270 PS)/2,500 rpm
Max. Torque	745 N·m (76 kgf·m)/950-2270 rpm	785 N·m (80 kgf·m)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	—	C7M38	C7M38
Transmission	LCT2500	M070S6	M070S6
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	4.625	4.625
Front axle	F500T	F500T	F500T
Tires	265/70R19.5	265/70R19.5	265/70R19.5
Disc wheels	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs	19.5×6.75-147-12t, 8 studs
Steering angle (in/out)	44° / 34°	44° / 34°	44° / 34°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	1300×70×16-1,18-2,16-1	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 Litres with key, steel	200 Litres with key, steel	200 Litres with key, steel
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.725	0.725	0.725

* 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.



Model	FK65FMZ6RFAH
Emission	EuroVI
Wheelbase (mm)	5,540
Tread, front (mm)	1,780
Tread, rear (mm)	1,710
Curb weight (kg) *	4,260
Front	2,605
Rear	1,655
Max. G.V.W. (kg)	14,000
Max. G.C.W. (kg)	—
Engine	6M60-CAT6
Max. Output	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1 100-2400 rpm
Clutch	C7M38
Transmission	M070S6
Gear ratios (1st/top) **	6.807/0.774
Control	Floor shift, Manual Transmission
Oil cooler	—
Propeller shaft	P10
Transfer	—
Rear Axle	R052T
Final reduction gear	D052H
Ratio	4.625
Front axle	F500T
Tires	265/70R19.5
Disc wheels	19.5×6.75-147-12t, 8 studs
Steering angle (in/out)	44° / 34°
SRS air bag	Standard
Service brake	Full air, Dual circuit
Parking brake	Rear wheel spring actuated
Brake piping	Nylon tube
High functional brake system	ABS
Front suspension	Long taper leaf springs
Dimensions	1300×70×16-1,18-2,16-1
Stabilizer	—
Rear suspension	Air suspension
Dimensions	(660+355)×90×40-2
Stabilizer	—
P.T.O.	—
Fuel system	—
Injection pump	Unit pump
Governor	Electronic control governor
Fuel tank	200 Litres with key, steel
Water separator	—
Exhaust system	SCR & DPF 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)	0.725

* 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.

FM

Model	FM65FH6RFAH	FM65FH6RFAK	FM65FM6RFAH
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	4,280	4,280	5,550
Tread, front (mm)	1,925	1,925	1,925
Tread, rear (mm)	1,850	1,850	1,850
Curb weight (kg) *	4,965	5,115	5,145
Front	2,990	3,085	3,155
Rear(front)	1,975	2,030	1,990
Rear rear	—	—	—
Max. G.V.W. (kg)	16,000	16,000	16,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT6	6M60-CAT6	6M60-CAT6
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)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	C7M38	C7M38	C7M38
Transmission	M070S6D	EATON ES11109	M070S6D
Gear ratios (1st/top) **	8.064/1.000	12.64/1.00	8.064/1.000
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Manual Transmission
Oil cooler	—	—	—
Propeller shaft	P10	P12	P10
Transfer	—	—	—
Rear Axle	R060T	R080T	R060T
Final reduction gear	D8H	D10H	D8H
Ratio	5.142	4.625	4.444
Front axle	F650T	F650T	F650T
Tires	11R22.5	11R22.5	275/70R22.5
Disc wheels	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs
Steering angle (in/out)	46° / 37°	46° / 37°	46° / 37°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	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 Litres with key, steel	200 Litres with key, steel	300 Litres with key, steel
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.845	0.845	0.800

* 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.





Model	FM65FS6RFAH	FM65FS6RFAK	FM67FM6RFAJ/M
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	6,500	6,500	5,550
Tread, front (mm)	1,925	1,925	1,925
Tread, rear (mm)	1,850	1,850	1,850
Curb weight (kg) *	5,295	5,460	5,380
Front	3,230	3,330	3,290
Rear(front)	2,065	2,130	2,090
Rear rear	—	—	—
Max. G.V.W. (kg)	16,000	16,000	16,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT6	6M60-CAT6	6M60-CAT6
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)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	C7M38	C7M38	—
Transmission	M070S6D	EATON ES11109	Allison MD3500
Gear ratios (1st/top) **	8.064/1.000	12.64/1.00	4.593/0.651
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Automatic Transmission
Oil cooler	—	—	Standard (Air cooled)
Propeller shaft	P10	P12	P10
Transfer	—	—	—
Rear Axle	R060T	R080T	R080T
Final reduction gear	D8H	D10H	D10H
Ratio	4.444	4.625	6.666
Front axle	F650T	F650T	F650T
Tires	275/70R22.5	11R22.5	11R22.5
Disc wheels	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs
Steering angle (in/out)	46° / 37°	46° / 37°	46° / 37°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	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	Air suspension
Dimensions	1400×80×11-10 960×80×11-10	1400×80×11-10 960×80×11-10	(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 Litres with key, steel	300 Litres with key, aluminum	300 Litres with key, aluminum
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.800	0.845	0.810

* 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.





Model	FM67FM6RFAK	FM67FS6RFAH	FM67FS6RFAJ/M
Emission	EuroVI	EuroVI	EuroVI
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) *	5,260	5,255	5,465
Front	3,245	3,235	3,350
Rear(front)	2,015	2,020	2,115
Rear rear	—	—	—
Max. G.V.W. (kg)	16,000	16,000	16,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT6	6M60-CAT6	6M60-CAT6
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)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	C7M38	C7M38	—
Transmission	EATON ES11109	M070S6D	Allison MD3500
Gear ratios (1st/top) **	12.64/1.00	8.064/1.000	4.593/0.651
Control	Floor shift, Manual Transmission	Floor shift, Manual Transmission	Floor shift, Automatic Transmission
Oil cooler	—	—	Standard (Air cooled)
Propeller shaft	P12	P10	P10
Transfer	—	—	—
Rear Axle	R080T	R060T	R060T
Final reduction gear	D10H	D8H	D8H
Ratio	4.222	4.444	6.166
Front axle	F650T	F650T	F650T
Tires	275/70R22.5	275/70R22.5	275/70R22.5
Disc wheels	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs
Steering angle (in/out)	46° / 37°	46° / 37°	46° / 37°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	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 Litres with key, aluminum	300 Litres with key, steel	300 Litres with key, aluminum
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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.



Model	FM67FS6RFAK
Emission	EuroVI
Wheelbase (mm)	6,500
Tread, front (mm)	1,925
Tread, rear (mm)	1,850
Curb weight (kg) *	5,395
Front	3,315
Rear(front)	2,080
Rear rear	—
Max. G.V.W. (kg)	16,000
Max. G.C.W. (kg)	—
Engine	6M60-CAT6
Max. Output	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	C7M38
Transmission	EATON ES11109
Gear ratios (1st/top) **	12.64/1.00
Control	Floor shift, Manual Transmission
Oil cooler	—
Propeller shaft	P12
Transfer	—
Rear Axle	R080T
Final reduction gear	D10H
Ratio	4.222
Front axle	F650T
Tires	275/70R22.5
Disc wheels	22.5×8.25-165-13t, 10 studs
Steering angle (in/out)	46° / 37°
SRS air bag	Standard
Service brake	Full air, Dual circuit
Parking brake	Rear wheel spring actuated
Brake piping	Nylon tube
High functional brake system	ABS
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	300 Litres with key, aluminum
Water separator	—
Exhaust system	SCR & DPF 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.



FN

Model	FN63FU6RFAJ/M	FN63FU6RFAK	FN62FK6RFAJ/M
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	7,190	7,190	4,960
Tread, front (mm)	1,925	1,925	1,925
Tread, rear (mm)	1,850	1,850	1,850
Curb weight (kg) *	6,805	6,715	7,050
Front	3,480	3,440	3,245
Rear(front)	1,780	1,755	1,975
Rear rear	1,545	1,520	1,830
Max. G.V.W. (kg)	23,200	23,200	23,500
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT6	6M60-CAT6	6M60-CAT6
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)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	—	C7M38	—
Transmission	Allison MD3500	EATON ES11109	Allison MD3500
Gear ratios (1st/top) **	4.593/0.651	12.64/1.00	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	6.166
Front axle	F650T	F650T	F650T
Tires	275/70R22.5	275/70R22.5	11R22.5
Disc wheels	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs
Steering angle (in/out)	46°/37°	46°/37°	46°/37°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	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	Long taper leaf springs
Dimensions	(615+380)×80×35-2	(615+380)×80×35-2	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	400 Litres with key, aluminum	400 Litres with key, aluminum	200 Litres with key, steel
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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)	0.775	0.775	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.





Model	FN62FK6RFAK	FN62FR6RFAJ/M	FN64FU6RFAJ/M
Emission	EuroVI	EuroVI	EuroVI
Wheelbase (mm)	4,960	6,310	7,190
Tread, front (mm)	1,925	1,925	1,925
Tread, rear (mm)	1,850	1,850	1,850
Curb weight (kg) *	6,955	7,505	7,130
Front	3,210	3,575	3,485
Rear (front)	1,945	2,040	1,875
Rear rear	1,800	1,890	1,770
Max. G.V.W. (kg)	23,500	23,500	24,000
Max. G.C.W. (kg)	—	—	—
Engine	6M60-CAT6	6M60-CAT6	6M60-CAT6
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)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	C7M38	—	—
Transmission	EATON ES11109	Allison MD3500	Allison MD3500
Gear ratios (1st/top) **	12.64/1.00	4.593/0.651	4.593/0.651
Control	Floor shift, Manual Transmission	Floor shift, Automatic 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	5.142	6.166	5.857
Front axle	F650T	F650T	F650T
Tires	11R22.5	11R22.5	275/70R22.5
Disc wheels	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs	22.5×8.25-165-13t, 10 studs
Steering angle (in/out)	46°/37°	46°/37°	46°/37°
SRS air bag	Standard	Standard	Standard
Service brake	Full air, Dual circuit	Full air, Dual circuit	Full air, 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	1400×80×18-1,22-2	1400×80×18-1,22-2	1400×80×18-1,22-2
Stabilizer	—	—	—
Rear suspension	Long taper leaf springs	Long taper leaf springs	Air suspension
Dimensions	1320×90×30-5	1320×90×30-5	(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	200 Litres with key, steel	400 Litres with key, aluminum	400 Litres with key, aluminum
Water separator	—	—	—
Exhaust system	SCR & DPF system	SCR & DPF system	SCR & DPF 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	0.825	0.775

* 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.



Model	FN64FU6RFAK
Emission	EuroVI
Wheelbase (mm)	7,190
Tread,front (mm)	1,925
Tread,rear (mm)	1,850
Curb weight (kg) *	7,035
Front	3,440
Rear(front)	1,850
Rear rear	1,745
Max. G.V.W. (kg)	24,000
Max. G.C.W. (kg)	—
Engine	6M60-CAT6
Max. Output	199 kW (270 PS)/2,500 rpm
Max. Torque	785 N·m (80 kgf·m)/1100-2400 rpm
Clutch	C7M38
Transmission	EATON ES11109
Gear ratios (1st/top) **	12.64/1.00
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	22.5×8.25-165-13t, 10 studs
Steering angle (in/out)	46°/37°
SRS air bag	Standard
Service brake	Full air, Dual circuit
Parking brake	Rear wheel spring actuated
Brake piping	Nylon tube
High functional brake system	ABS
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 Litres with key, aluminum
Water separator	—
Exhaust system	SCR & DPF 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)	0.775

* 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)	
		245/70R19.5 136/134M	265/70R19.5 140/138M	275/70R22.5 148/145L	11R22.5 148/145L 16PR	Front	Rear
11000	FK62FLY5RFAD	X				5000	9500
	FK62FLY5RFAL	X				5000	9500
	FK62FHY5RFAC	X				5000	9500
	FK62FHY5RFAD	X				5000	9500
	FK62FKY5RFAC	X				5000	9500
	FK62FLY5RFAC	X				5000	9500
	FK62FMY5RFAC	X				5000	9500
12000	FK62FLZ5RFAD		X			5000	9500
	FK62FLZ5RFAL		X			5000	9500
	FK65FLZ5RFAD		X			5000	9500
	FK65FLZ5RFAL		X			5000	9500
	FK62FHZ5RFAC		X			5000	9500
	FK62FLZ5RFAC		X			5000	9500
	FK65FLZ6RFAC		X			5000	9500
14000	FK65FMZ6RFAC		X			5000	9500
	FK62FLZ5RFAH		X			5000	9500
	FK62FLZ5RFAP		X			5000	9500
	FK65FMZ6RFAH		X			5000	9500
16000	FK65FLZ5RFAP		X			5000	9500
	FM65FH6RFAH				X	6300	10200
	FM65FM6RFAH			X		6300	10200
	FM67FM6RFAJ				X	6300	10800
	FM67FM6RFAM				X	6300	10800
	FM65FS6RFAH			X		6300	10200
	FM67FS6RFAH			X		6300	10200
	FM67FS6RFAJ			X		6300	10200
	FM67FS6RFAM			X		6300	10200
	FM65FH6RFAK				X	6300	10800
	FM67FM6RFAK			X		6300	10800
	FM65FS6RFAK				X	6300	10800
	FM67FS6RFAK			X		6300	10800
Tire Capacity (kg)*1		Front	2240×2=4480	2500×2=5000	3000×2=6000	3000×2=6000	
		Rear	2120×4=8480	2360×4=9440	FM: 2550×4=10200	FM: 2550×4=10200	

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

245/70R19.5 136/134M ... 825/825

265/70R19.5 140/138M ... 775/775

11R22.5 148/145L 16PR ... FM: 825/725

275/70R22.5 148/145L ... FM: 825/775

Axle capacity: Suspension strength and steering system strength etc. are taken into consideration.





Max. GVW (kg)	Vehicle Model	Tire Size		Axle Capacity (kg)	
		275/70R22.5 148/145L	11R22.5 148/145L 16PR		
				Front	Rear
23200	FN63FU6RFAK	X		6300	17200
	FN63FU6RFAJ	X		6300	17200
	FN63FU6RFAM	X		6300	17200
23500	FN62FK6RFAK		X	6300	21600
	FN62FK6RFAJ		X	6300	21600
	FN62FK6RFAM		X	6300	21600
	FN62FR6RFAJ		X	6300	21600
	FN62FR6RFAM		X	6300	21600
24000	FN64FU6RFAK	X		6300	21600
	FN64FU6RFAJ	X		6300	21600
	FN64FU6RFAM	X		6300	21600
Tire Capacity (kg)* 1		Front	3000×2=6000		
		Rear	FN63: 2150×8=17200 FN64: 2300×8= 18400		
			FN62: 2700×8=21600		

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

275/70R22.5 148/145L ... FN63: 825/625

11R22.5 148/145L 16PR ... FN62: 825/800

FN64: 825/675

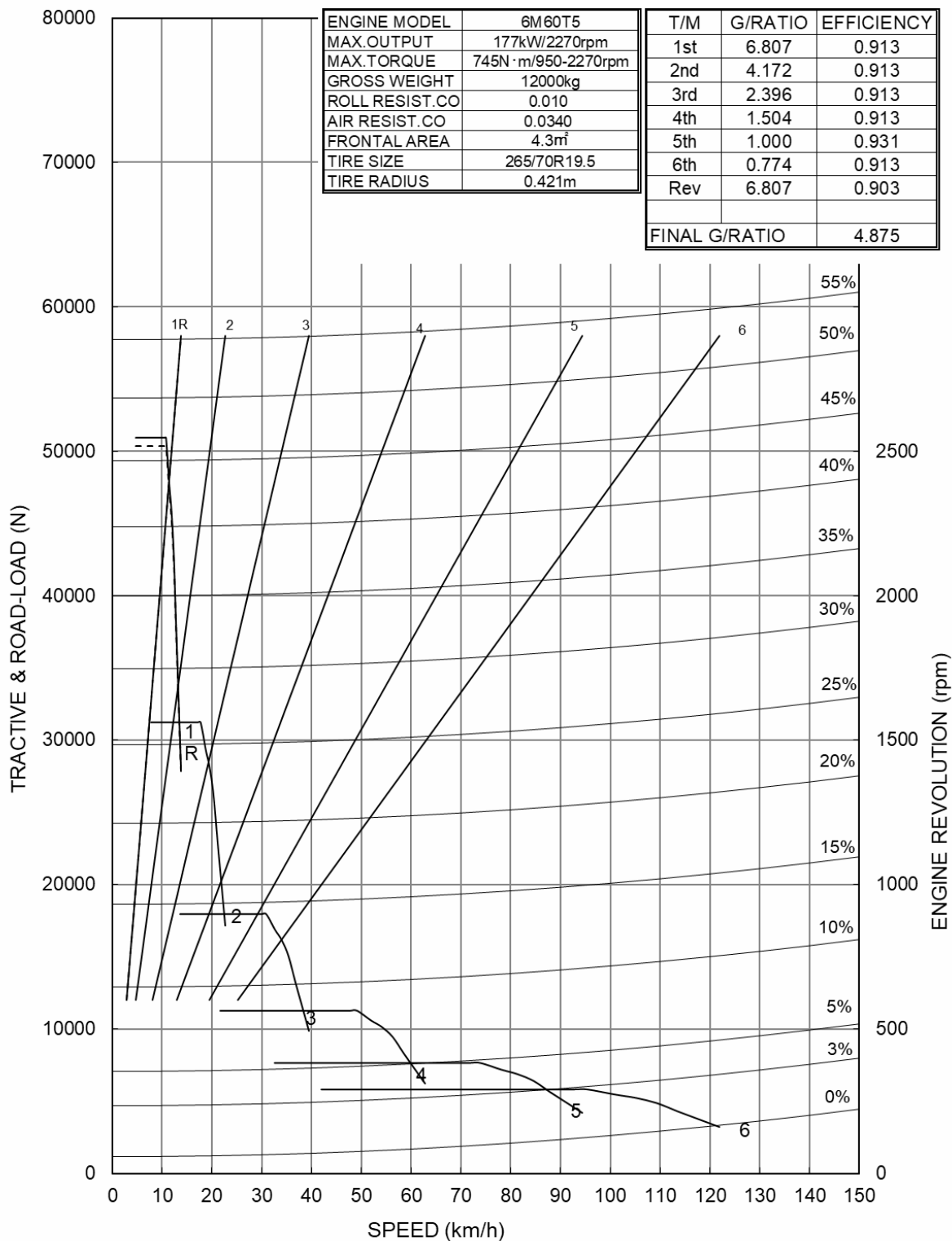
Axle capacity: Suspension strength and steering system strength etc. are taken into consideration.



10.3 Performance curve

10.3.1 Vehicle performance curve

FK62F-Z5RFAC

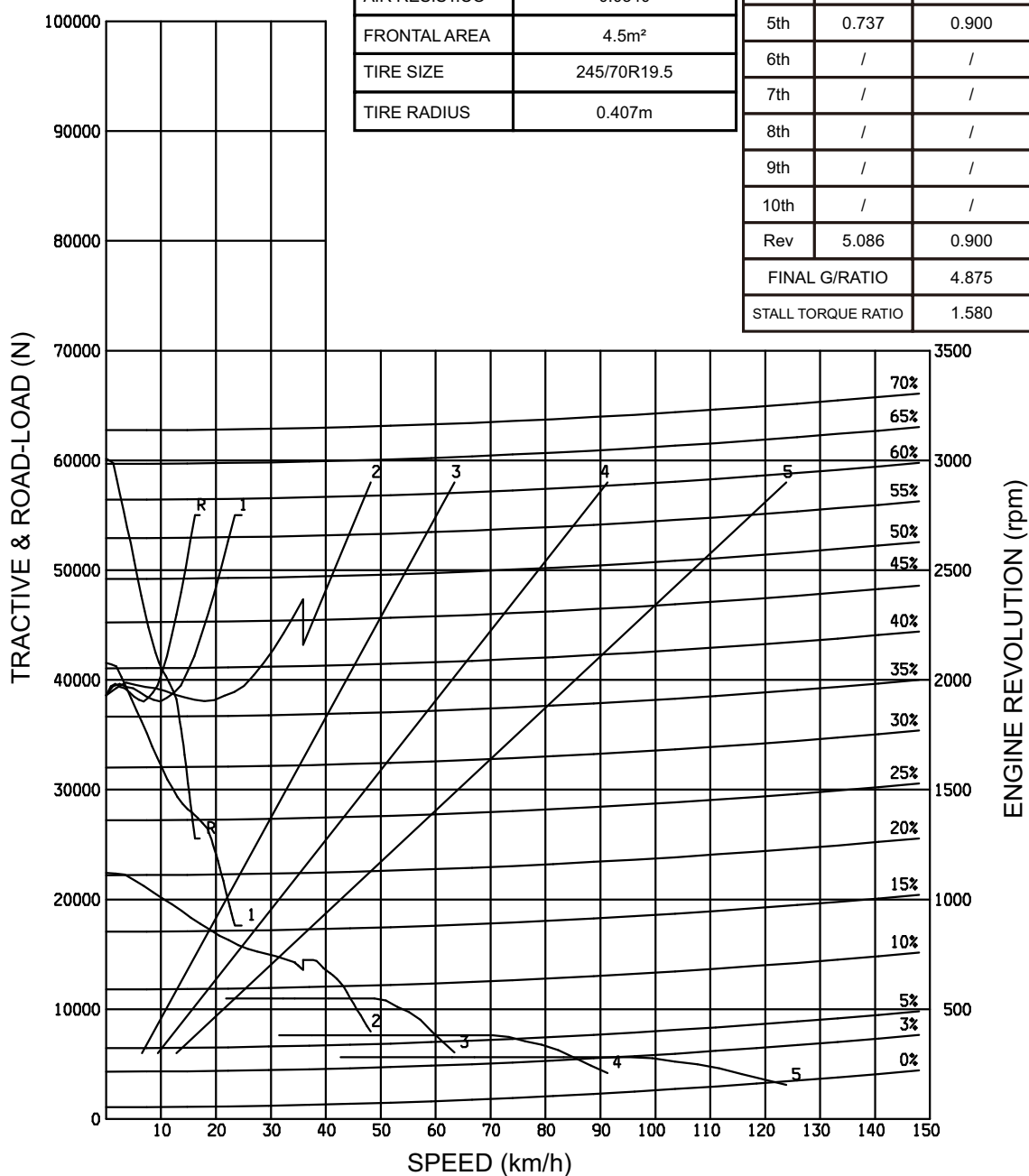




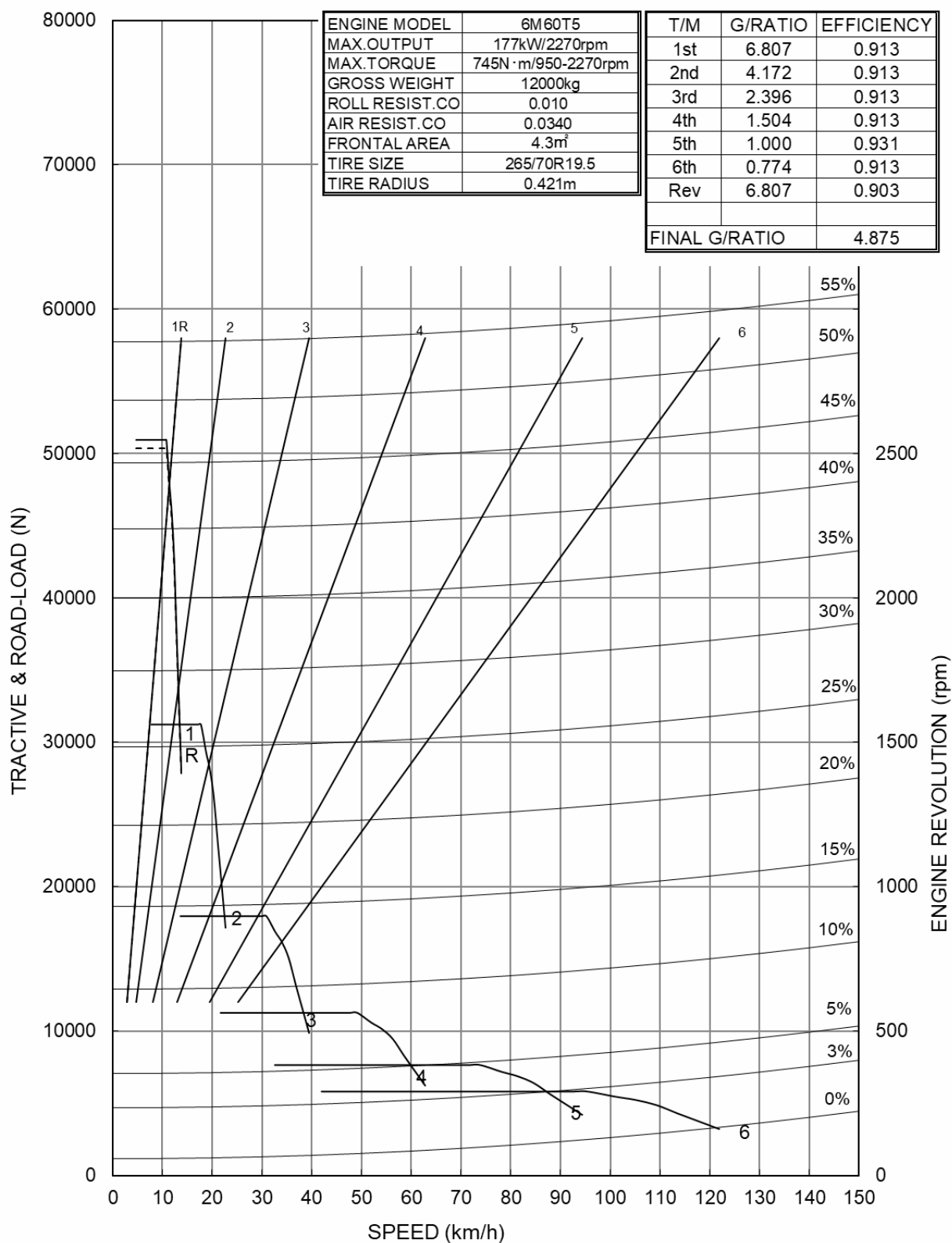
FK62FLY5RFAD/L

MAX.OUTPUT	177kW/2500rpm
MAX.TORQUE	745N•m/950rpm
GROSS WEIGHT	11000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	4.5m²
TIRE SIZE	245/70R19.5
TIRE RADIUS	0.407m

T/M	G/RATIO	EFFICIEBCY
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-Z5RFAC

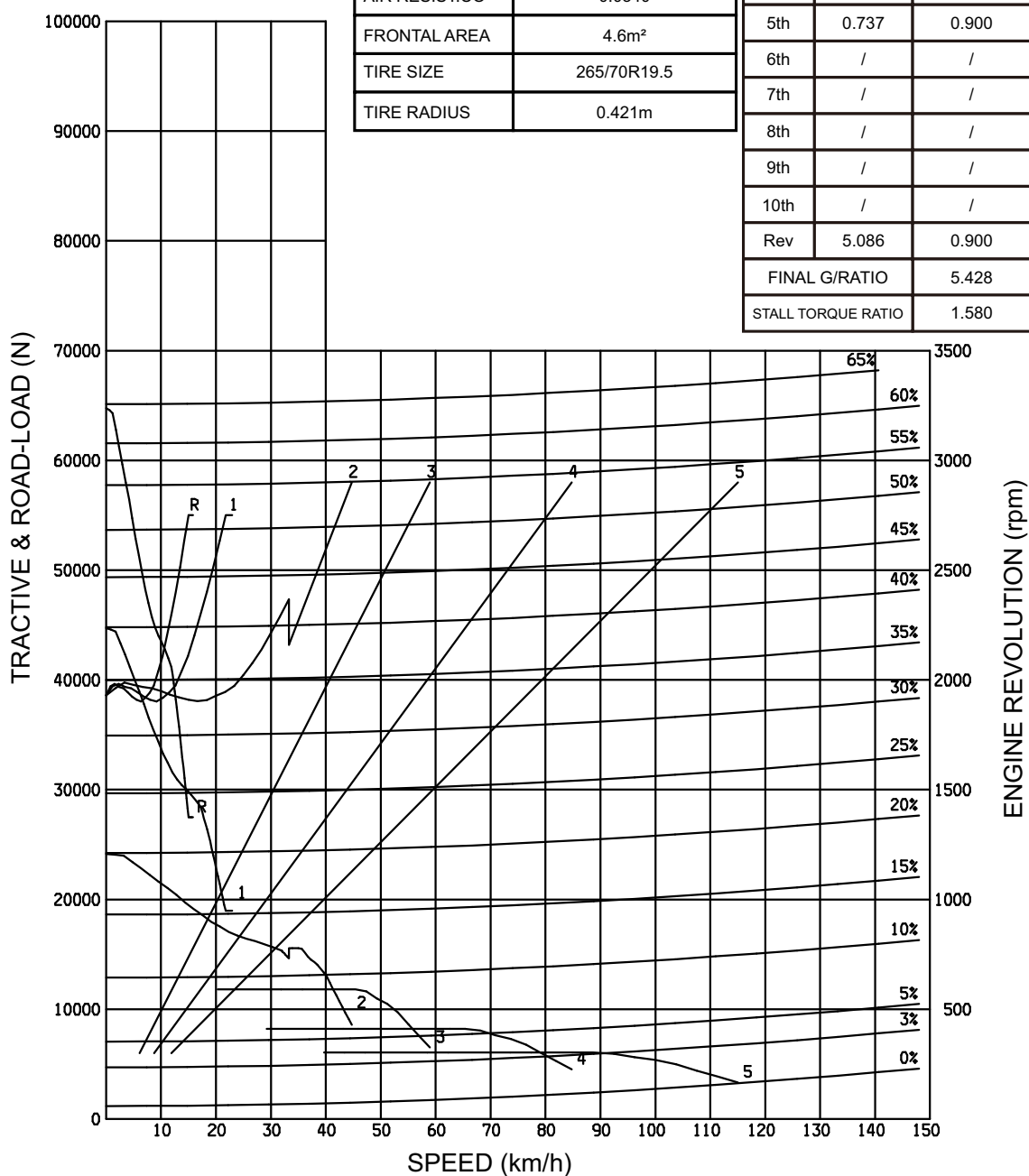




FK62/5FLZ5RFAD/L

MAX.OUTPUT	177kW/2500rpm
MAX.TORQUE	745N•m/950rpm
GROSS WEIGHT	12000kg
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	EFFICIEBCY
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

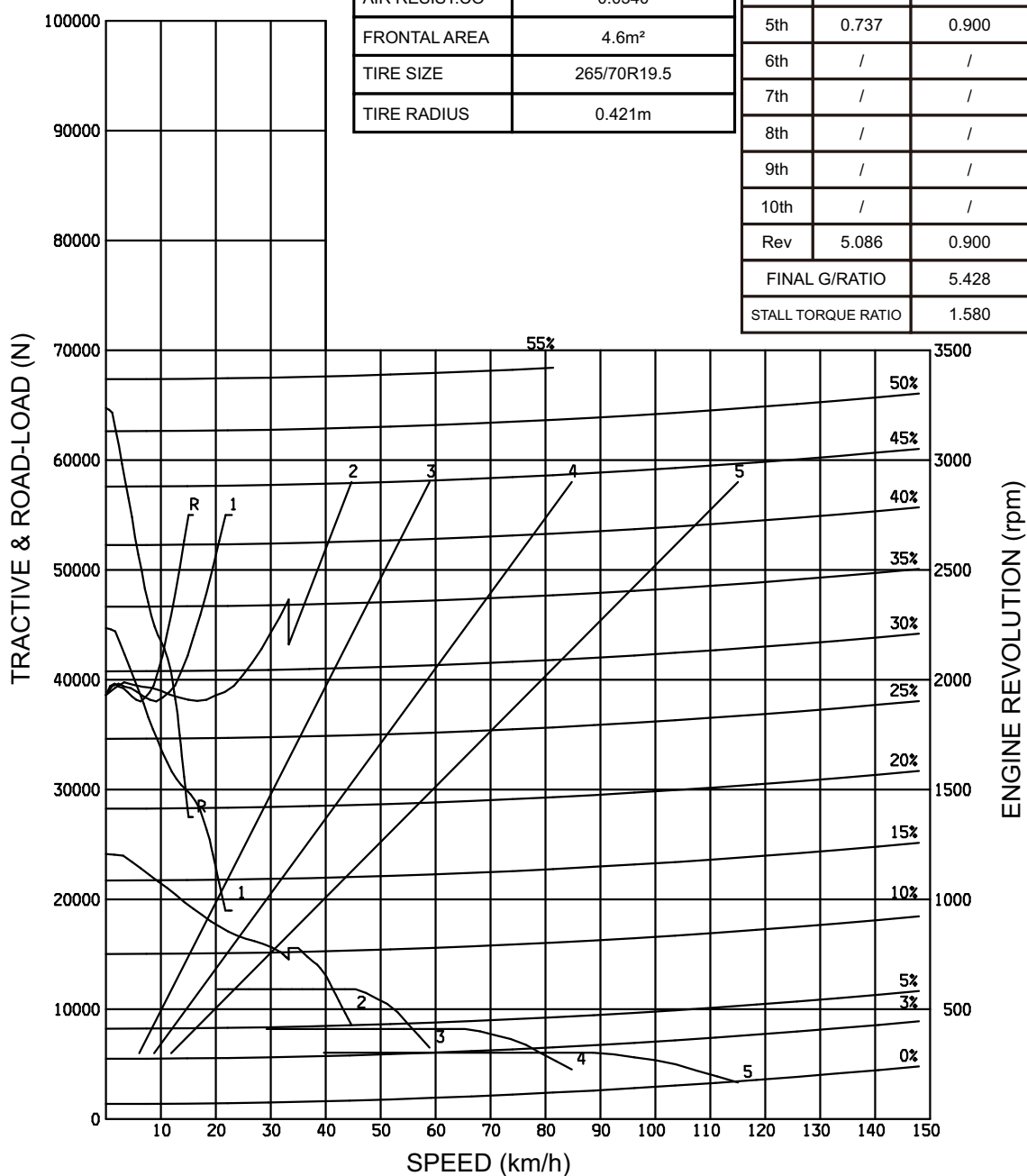




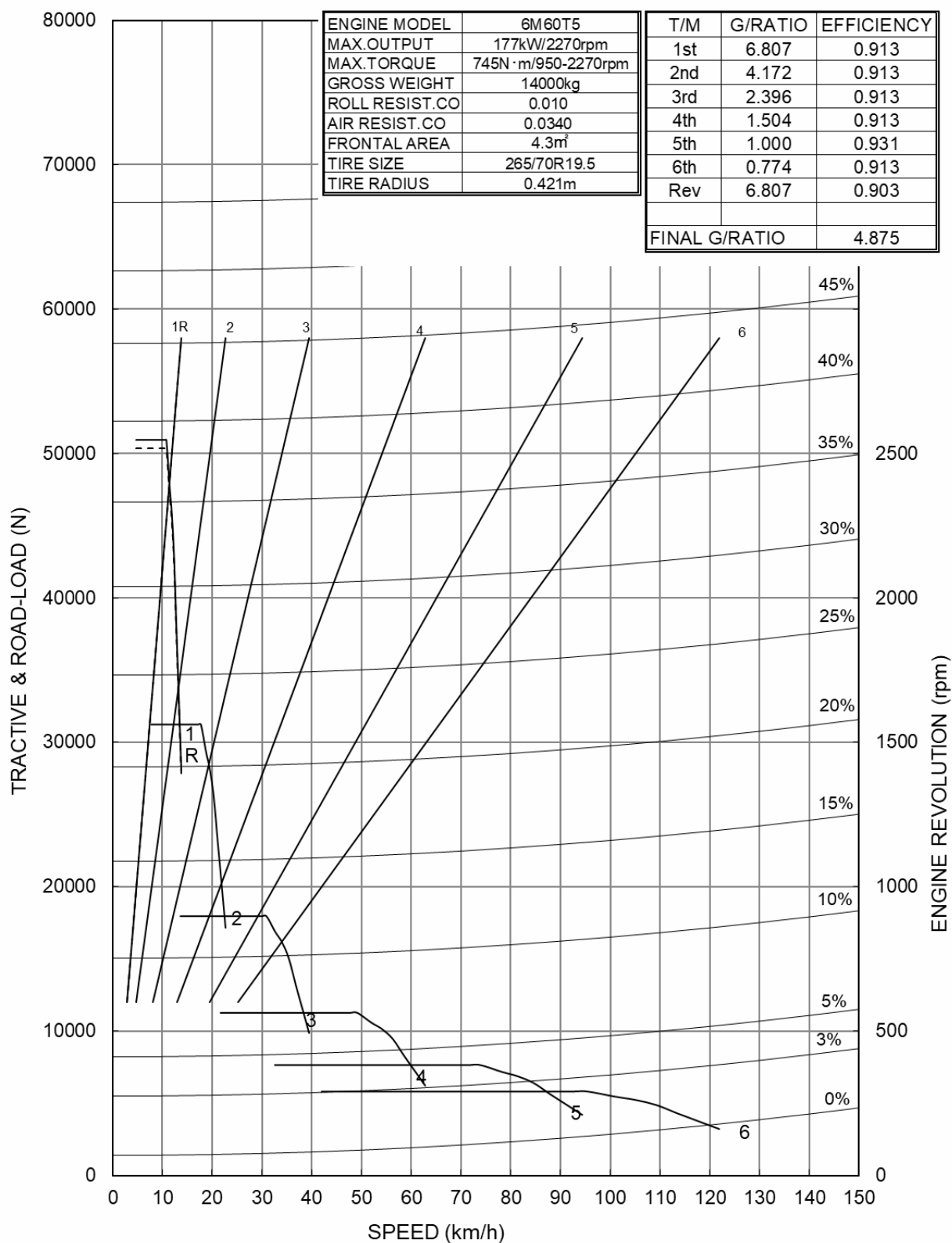
FK62/5FLZ5RFAP

MAX.OUTPUT	177kW/2270rpm
MAX.TORQUE	745N·m/950-2270rpm
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

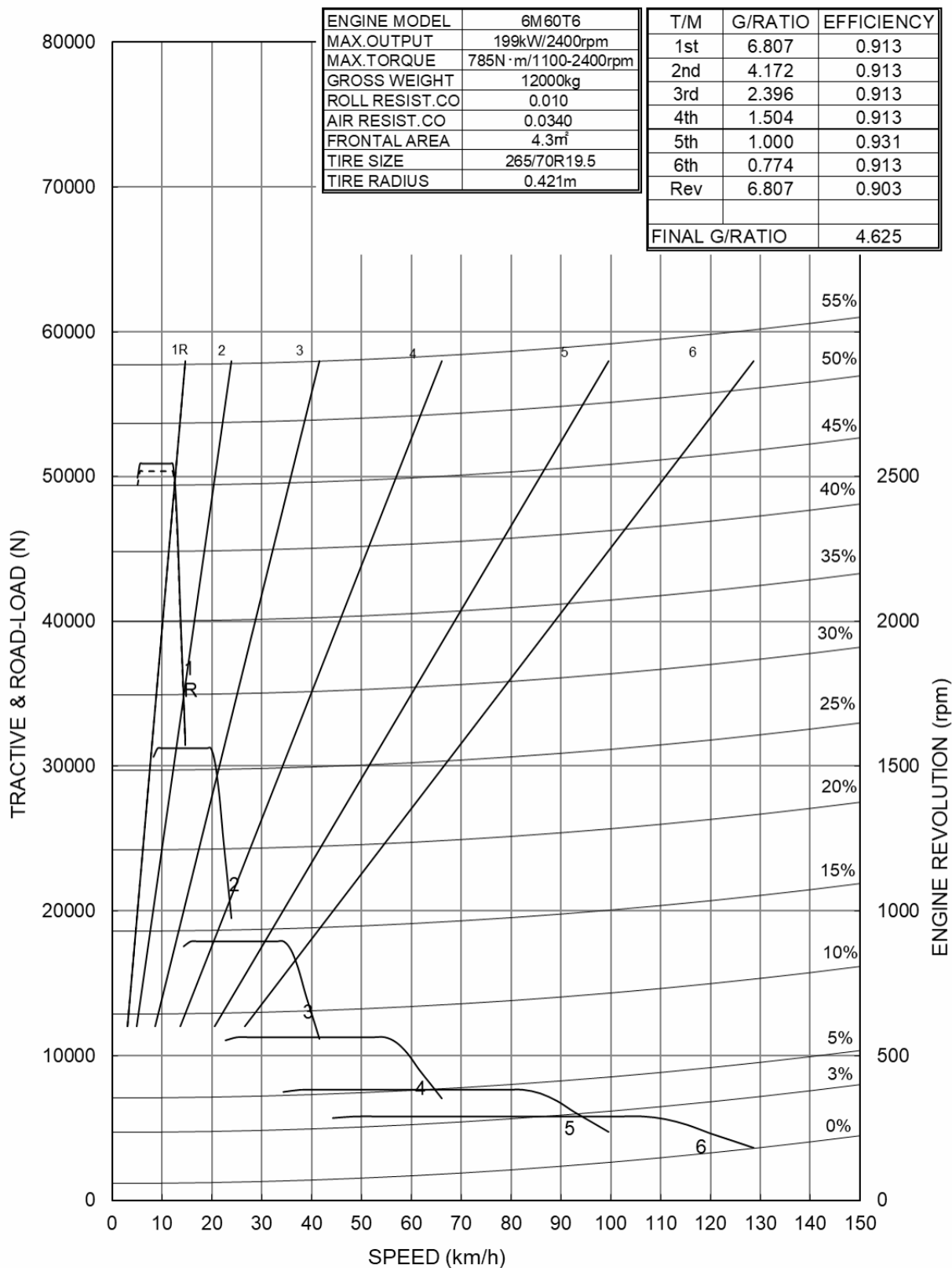
T/M	G/RATIO	EFFICIEBCY
1st	3.512	0.900
2nd	1.896	0.900
3rd	1.439	0.900
4th	1.000	0.900
5th	0.737	0.900
6th	/	/
7th	/	/
8th	/	/
9th	/	/
10th	/	/
Rev	5.086	0.900
FINAL G/RATIO		5.428
STALL TORQUE RATIO		1.580



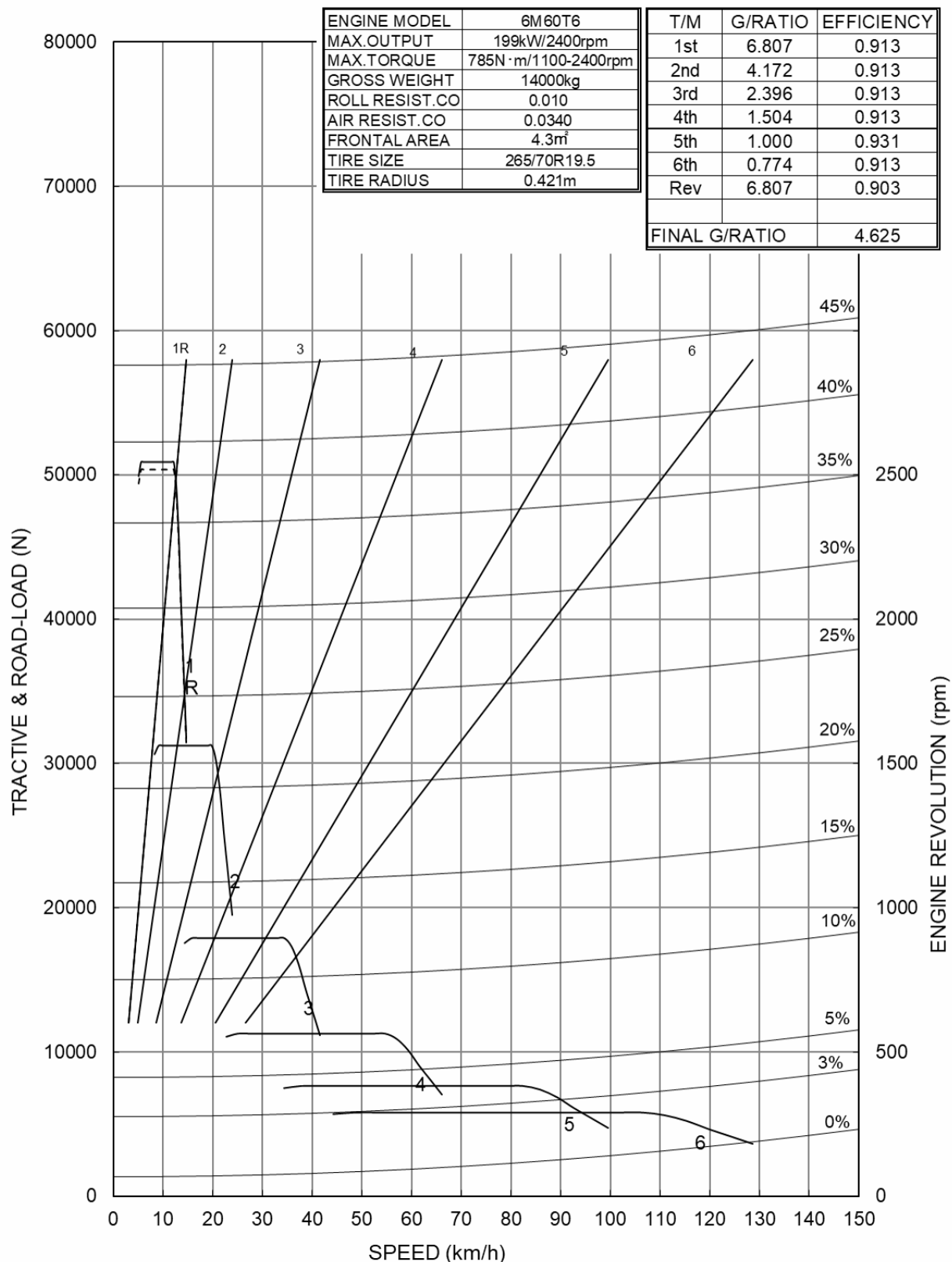
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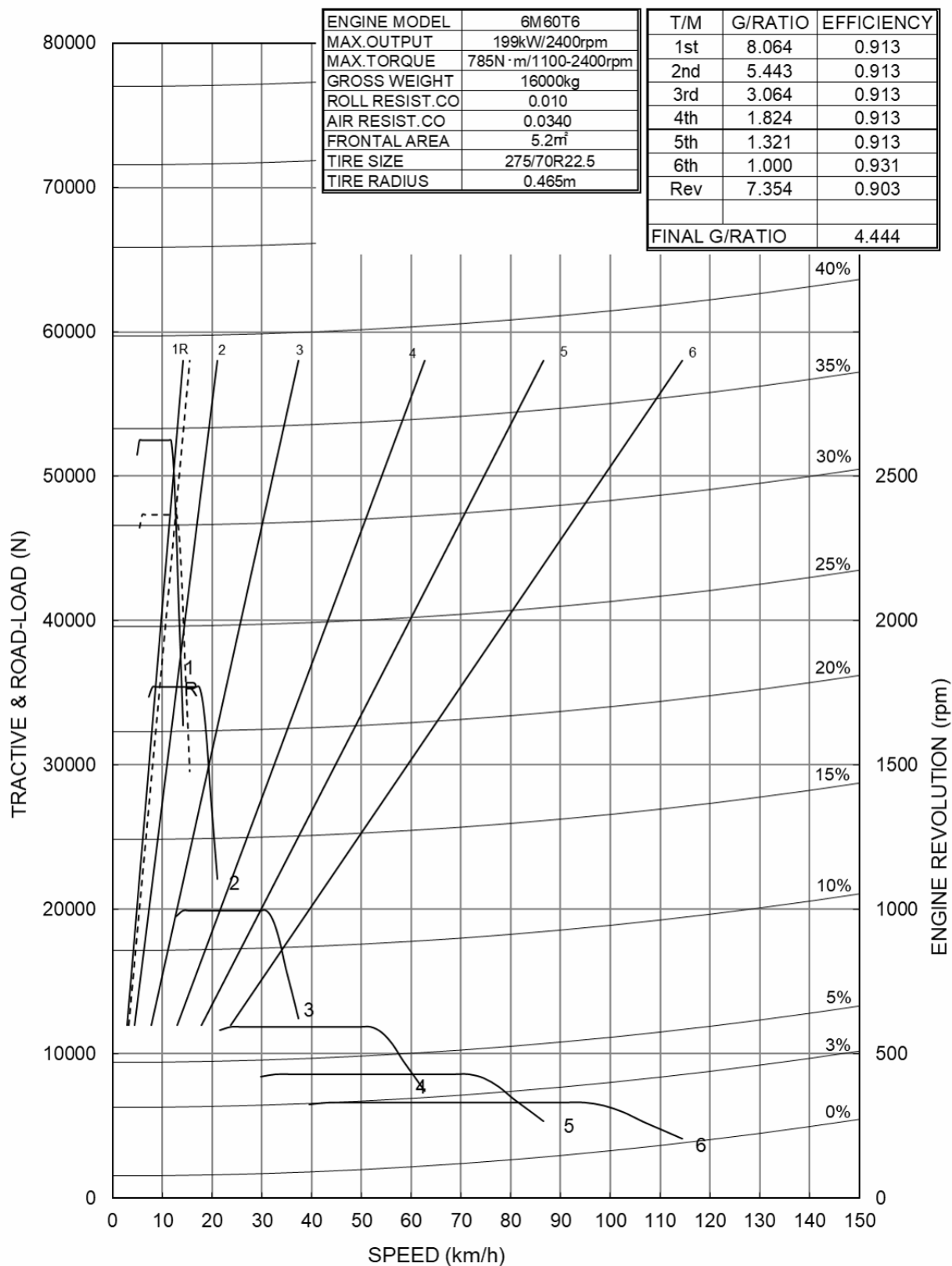
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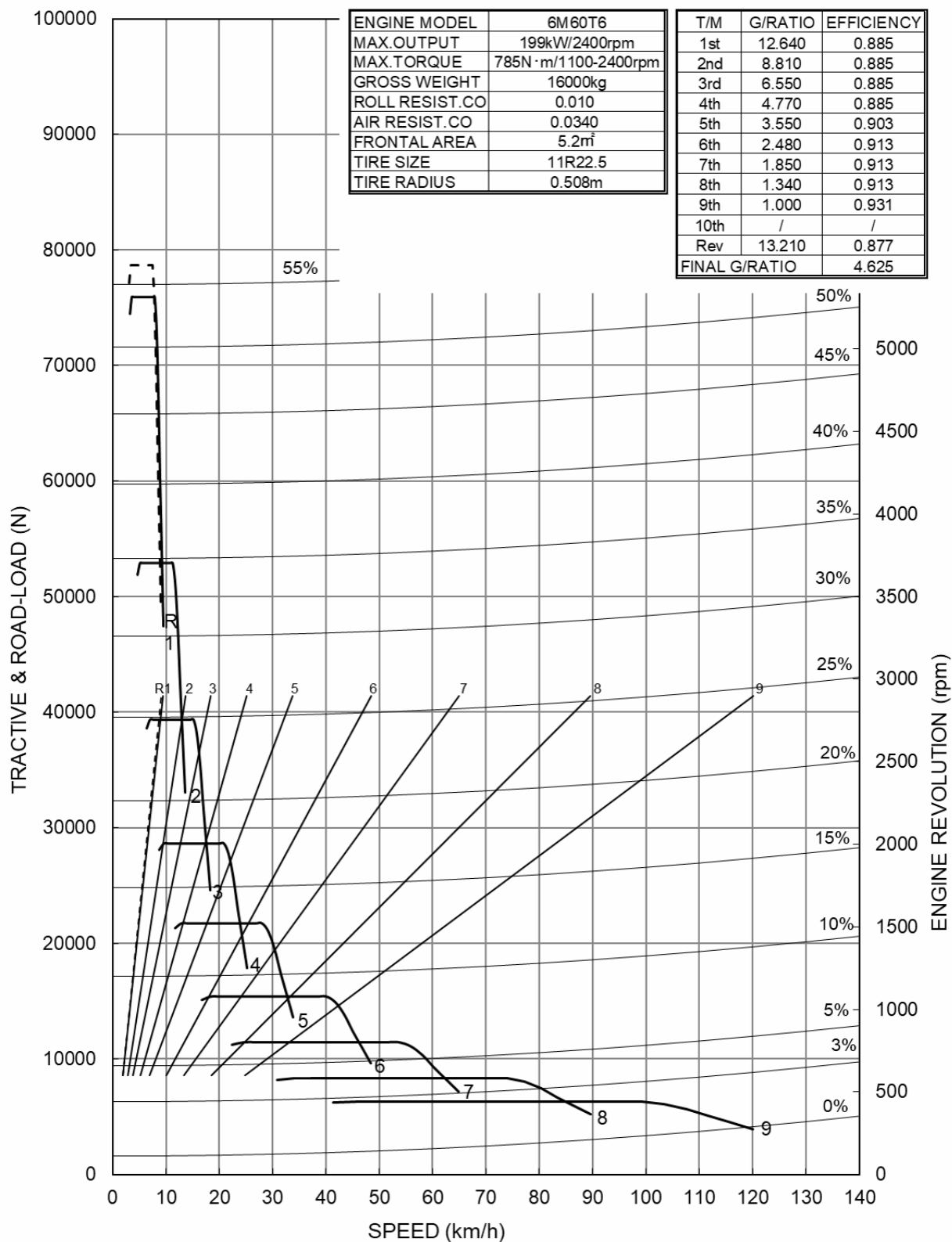
FK65F-Z6RFAH



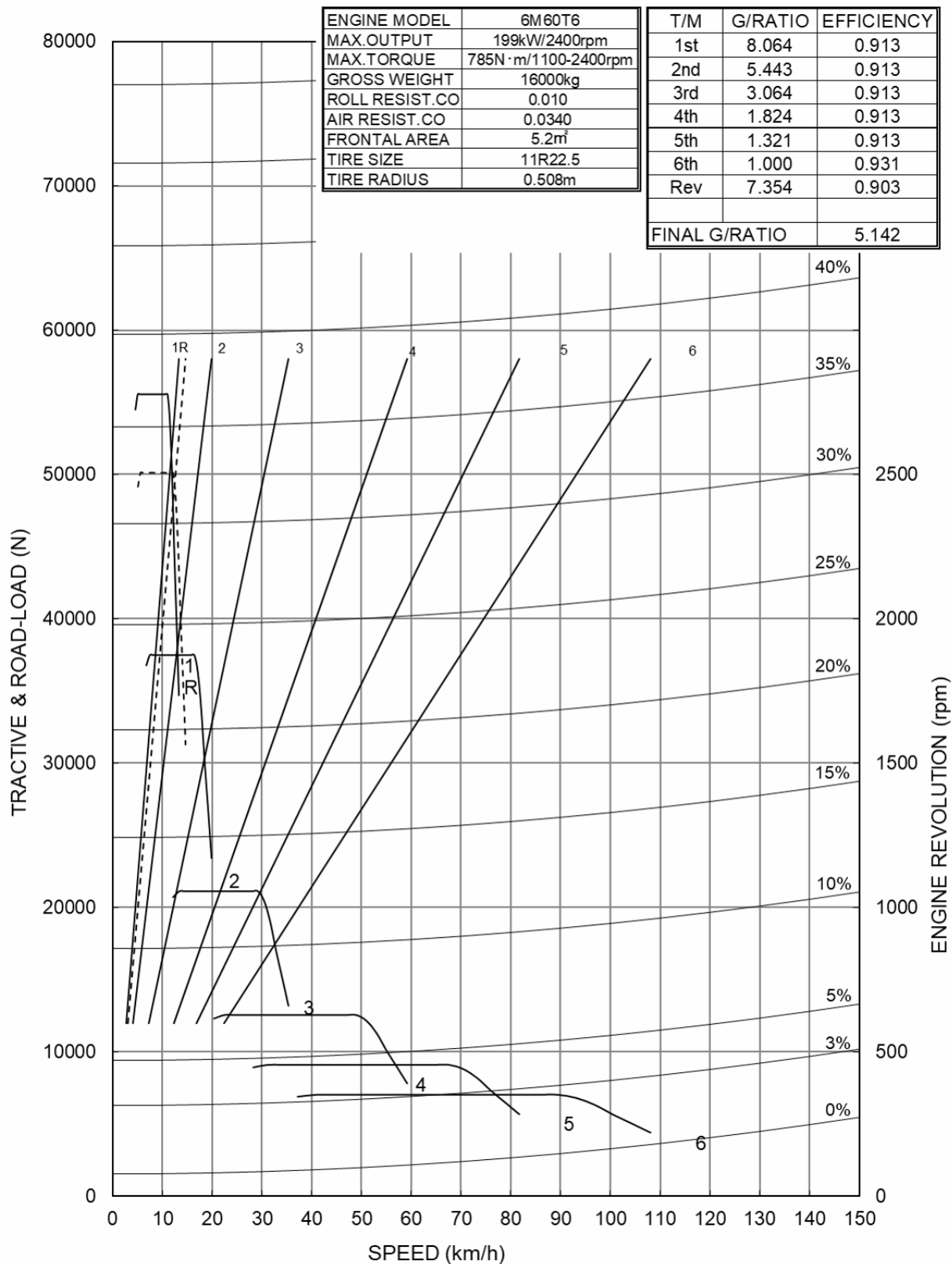
FM6-6RFAH



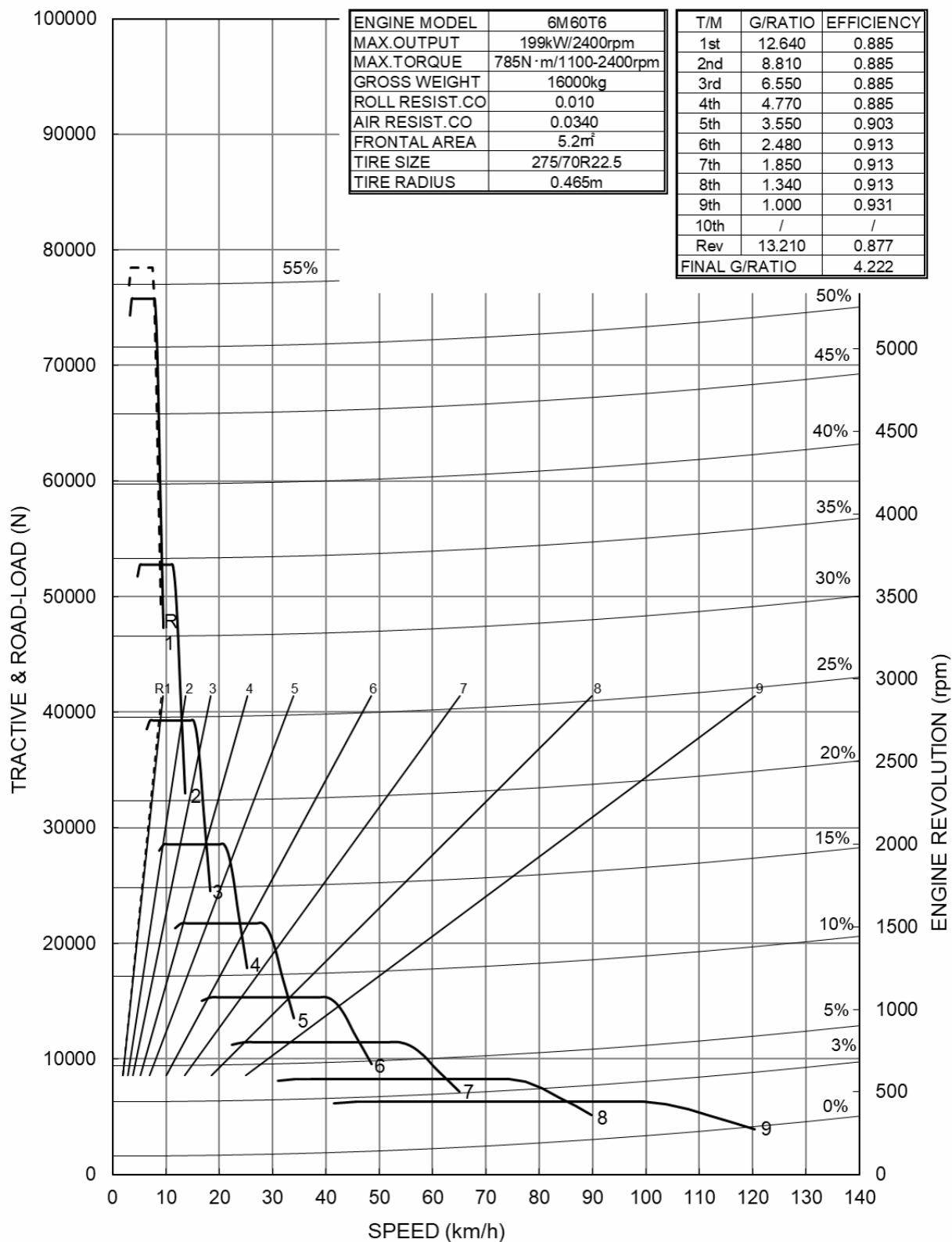
FM65F-6RFAK



FM65FH6RFAH



FM67F-6RFAK

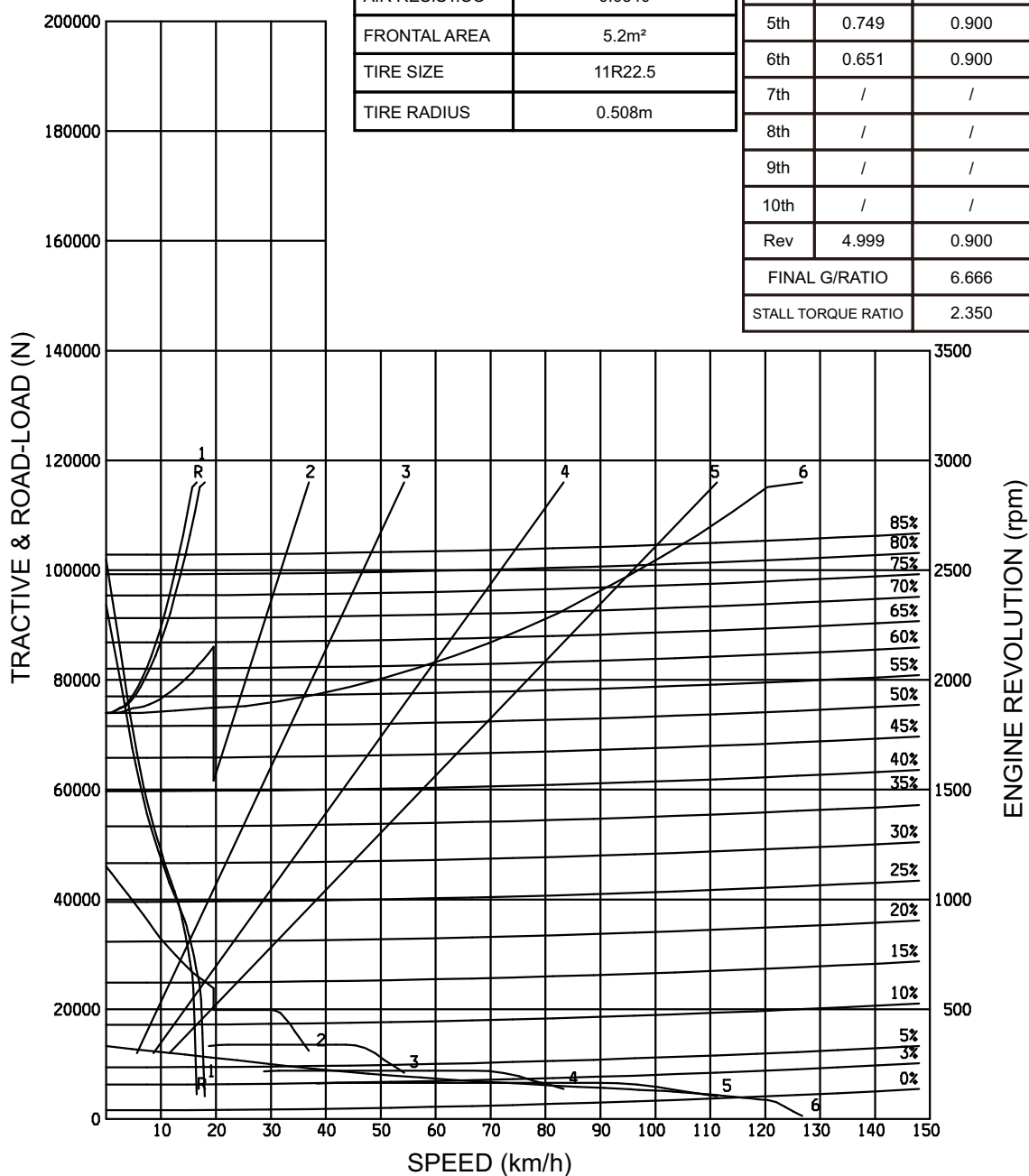




FM67FM6RFAJ/M

MAX.OUTPUT	199kW/2500rpm
MAX.TORQUE	785N•m/1100rpm
GROSS WEIGHT	16000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	5.2m²
TIRE SIZE	11R22.5
TIRE RADIUS	0.508m

T/M	G/RATIO	EFFICIEBCY
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		6.666
STALL TORQUE RATIO		2.350

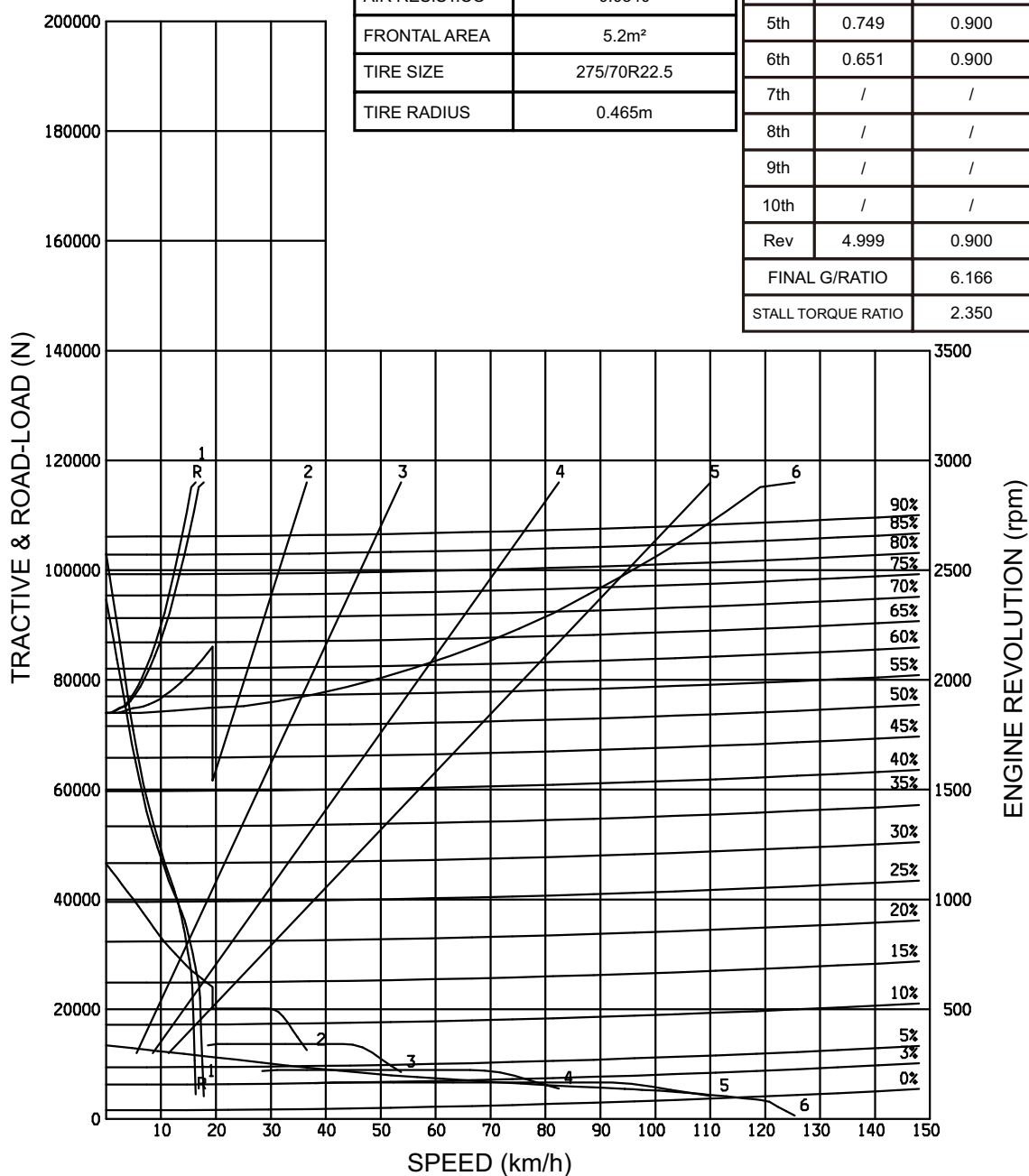




FM67FS6RFAJ/M

MAX.OUTPUT	199kW/2500rpm
MAX.TORQUE	785N•m/1100rpm
GROSS WEIGHT	16000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	5.2m²
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

T/M	G/RATIO	EFFICIEBCY
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

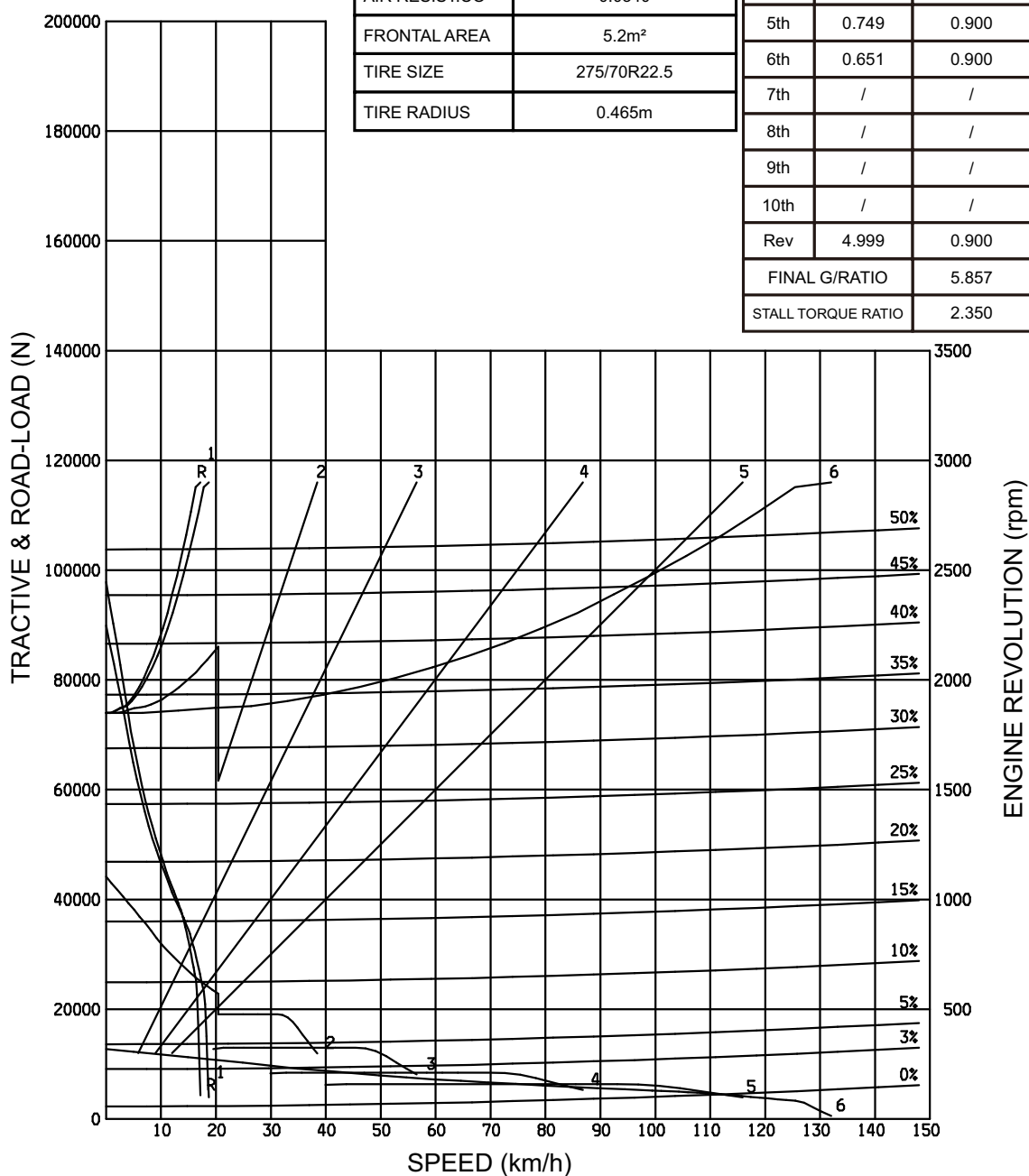




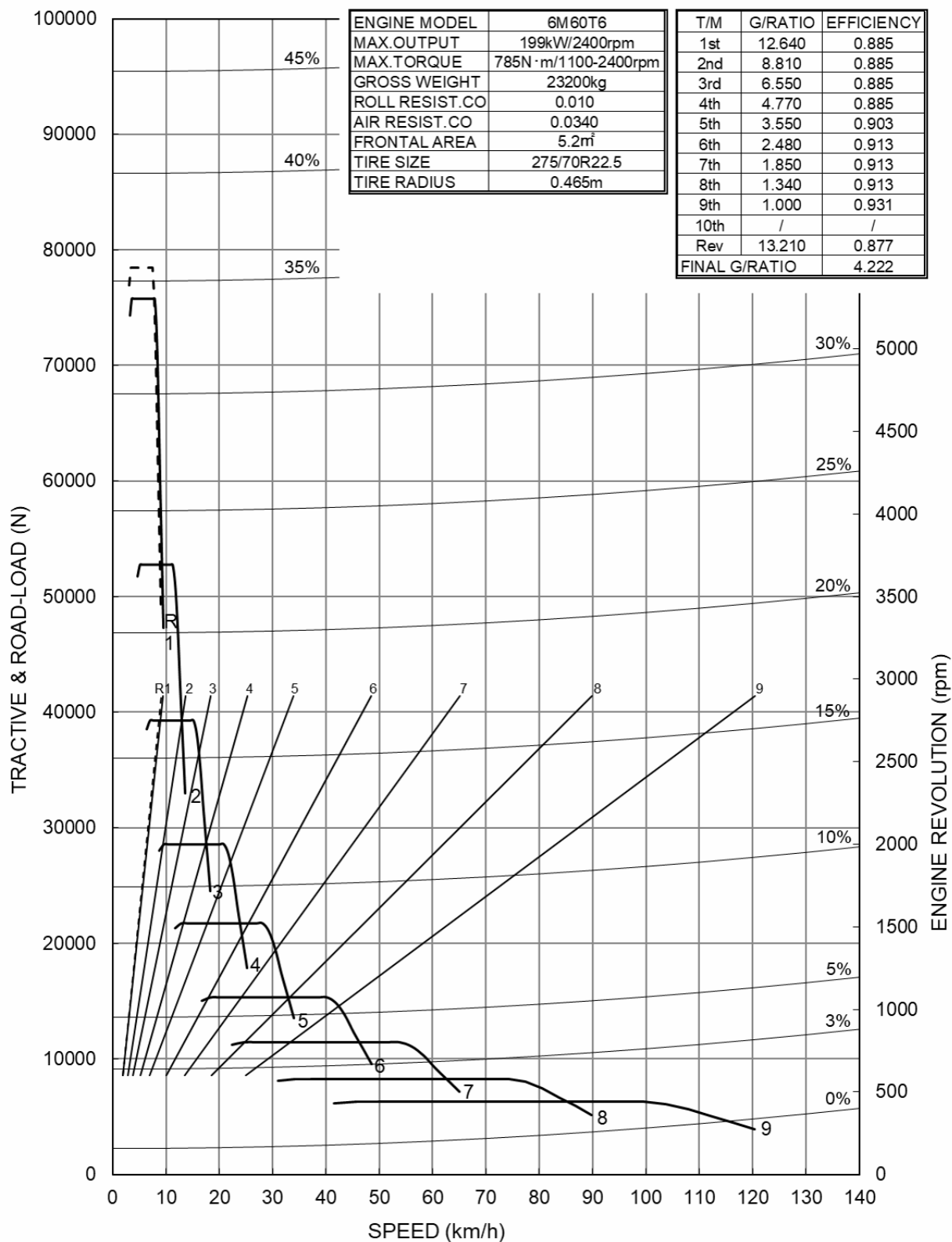
FN63FU6RFAJ/M

MAX.OUTPUT	199kW/2500rpm
MAX.TORQUE	785N•m/1100rpm
GROSS WEIGHT	23200kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	5.2m²
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

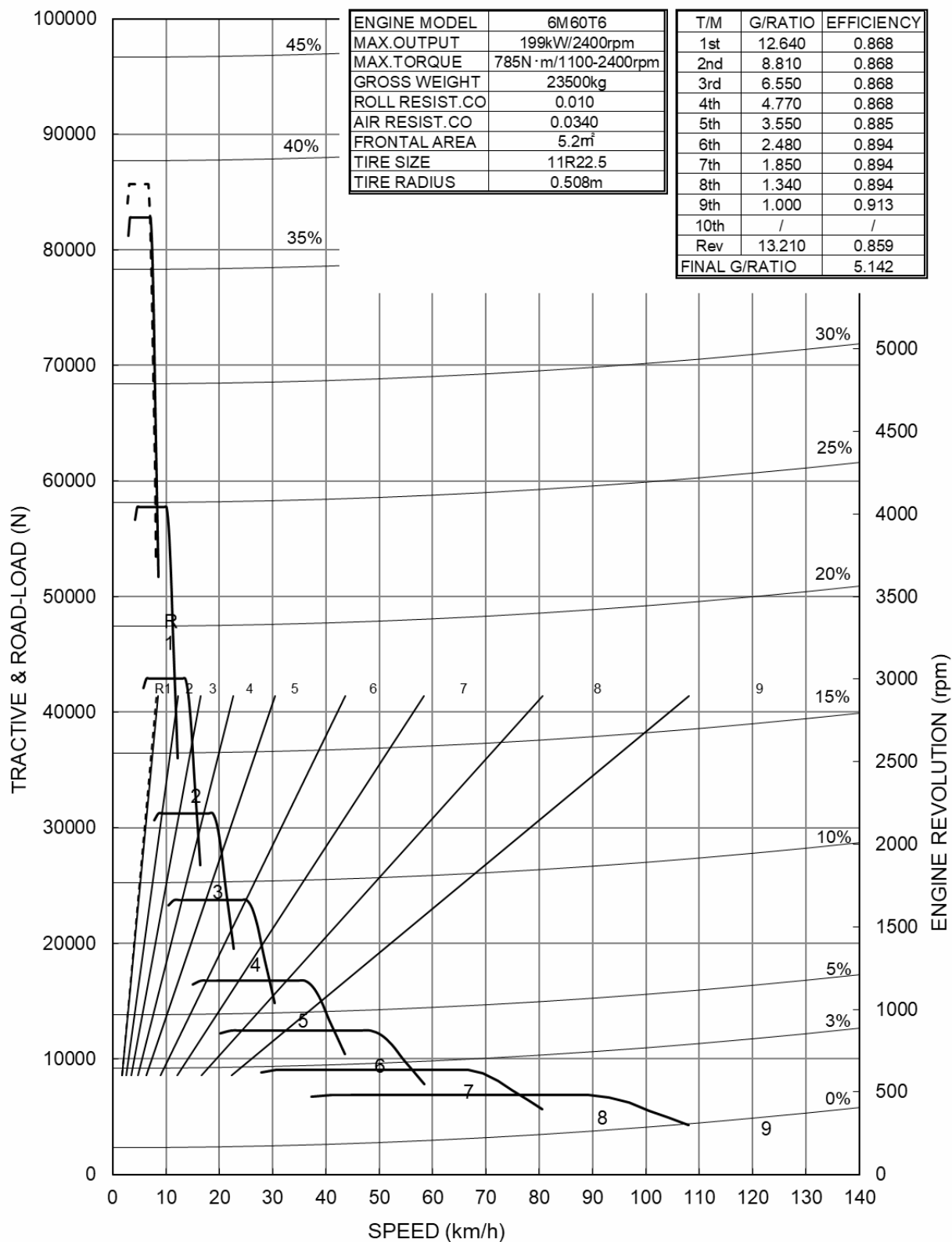
T/M	G/RATIO	EFFICIEBCY
1st	4.593	0.900
2nd	2.257	0.900
3rd	1.535	0.900
4th	1.000	0.900
5th	0.749	0.900
6th	0.651	0.900
7th	/	/
8th	/	/
9th	/	/
10th	/	/
Rev	4.999	0.900
FINAL G/RATIO		5.857
STALL TORQUE RATIO		2.350



FN63FU6RFAK



FN62F-6RFAK

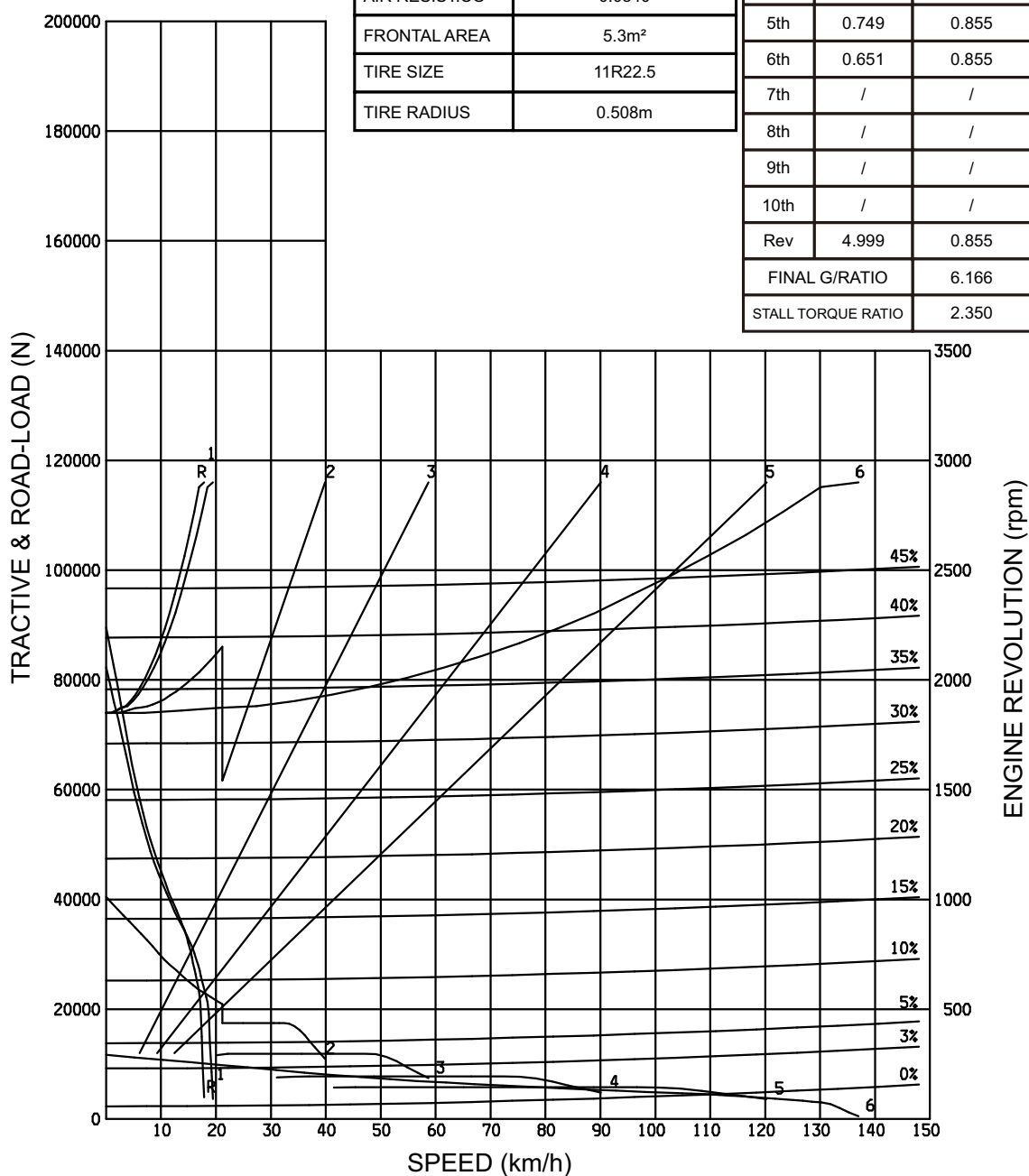




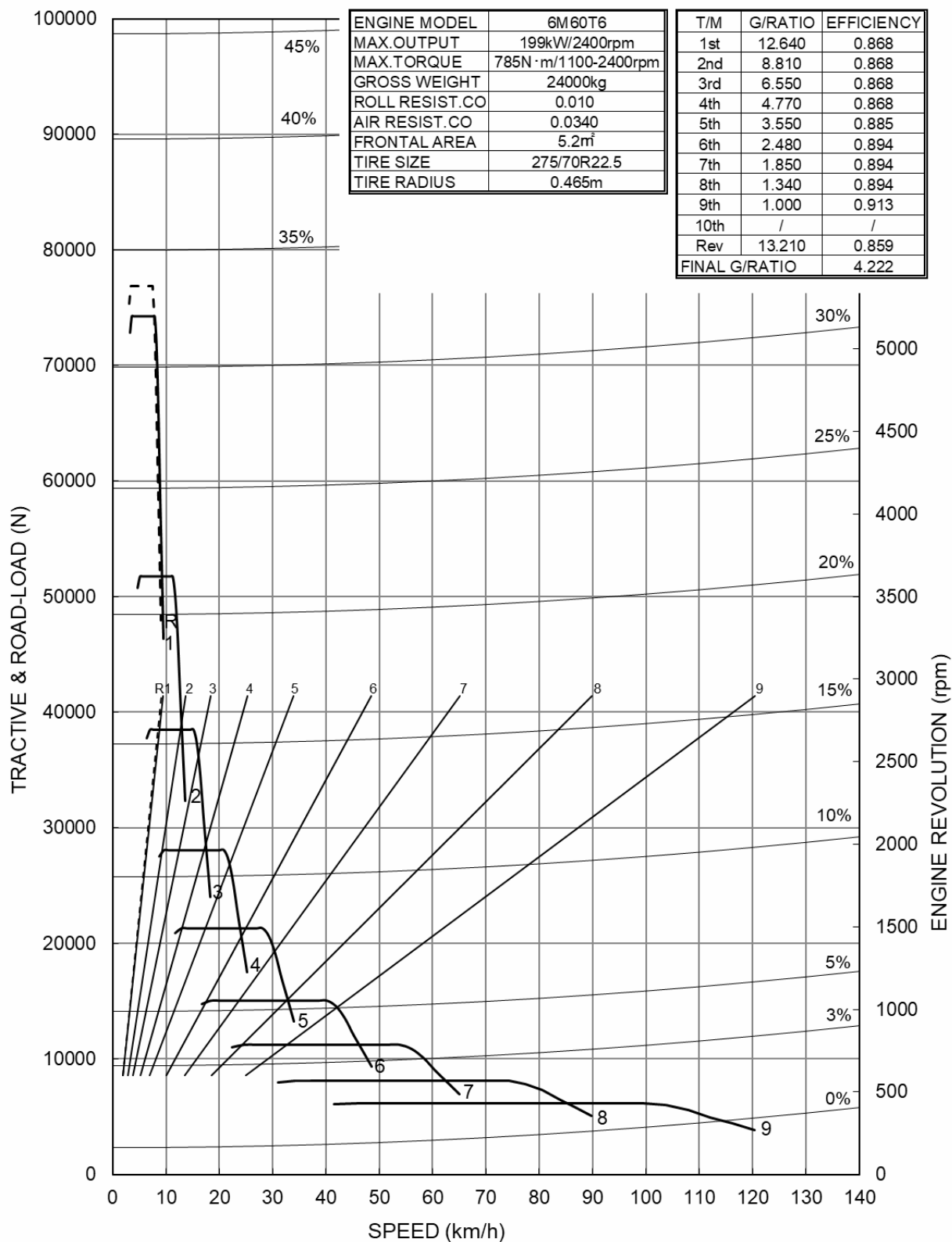
FN62FK/R6RFAJ/M

MAX.OUTPUT	199kW/2500rpm
MAX.TORQUE	785N•m/1100rpm
GROSS WEIGHT	23500kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	5.3m²
TIRE SIZE	11R22.5
TIRE RADIUS	0.508m

T/M	G/RATIO	EFFICIEBCY
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



FN64FU6RFAK

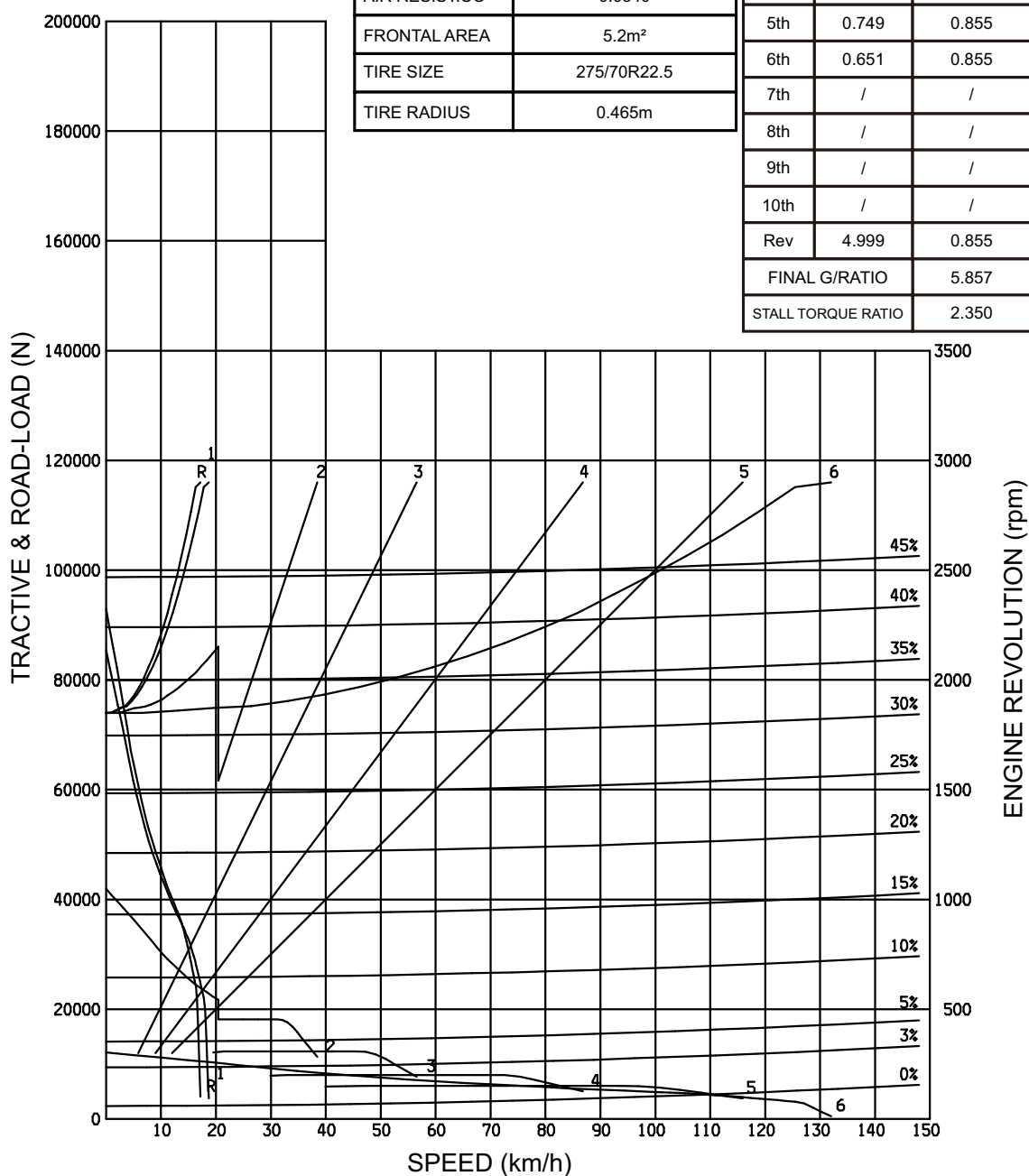




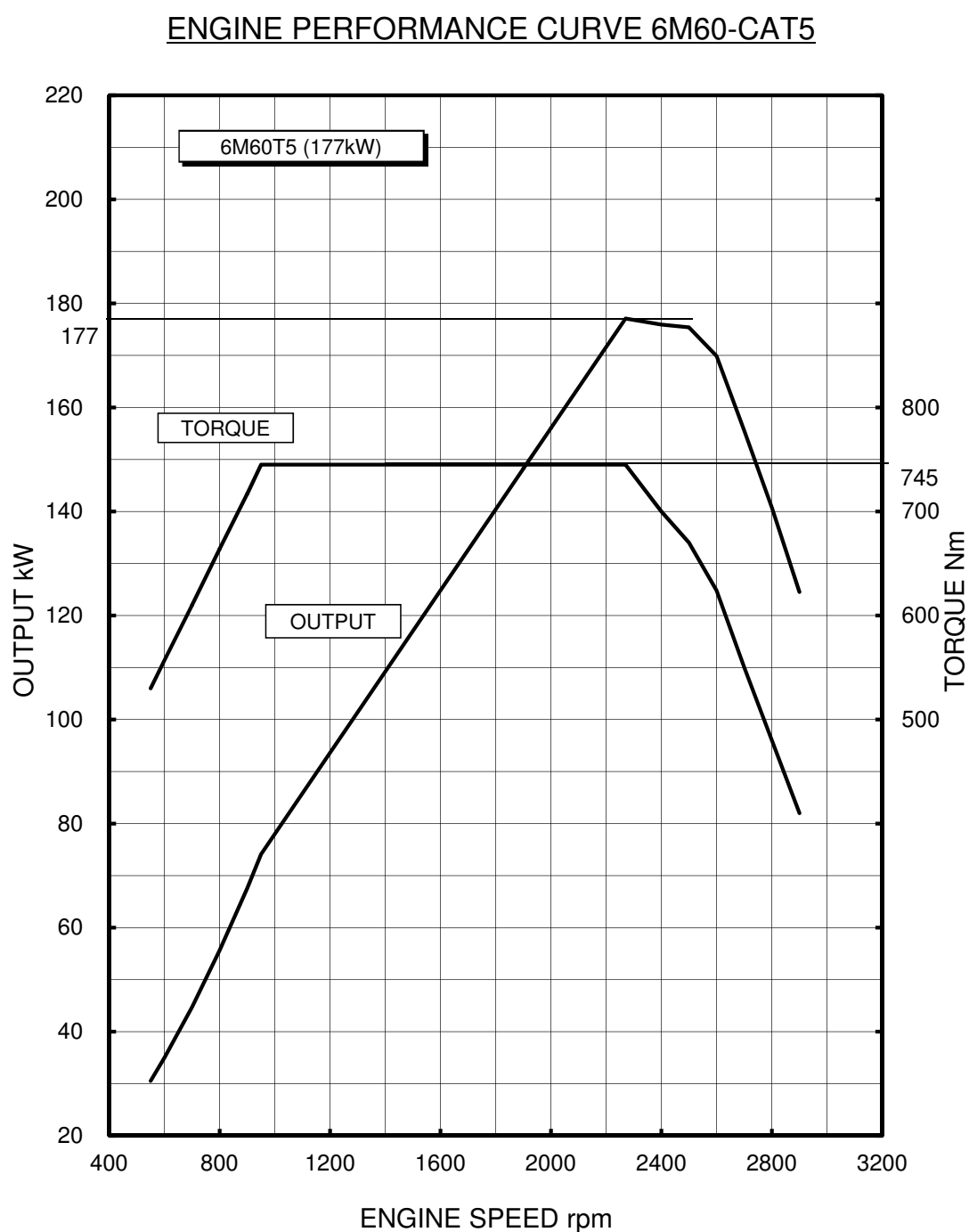
FN64FU6RFAJ/M

MAX.OUTPUT	199kW/2500rpm
MAX.TORQUE	785N•m/1100rpm
GROSS WEIGHT	24000kg
ROLL RESIST.CO	0.010
AIR RESIST.CO	0.0340
FRONTAL AREA	5.2m²
TIRE SIZE	275/70R22.5
TIRE RADIUS	0.465m

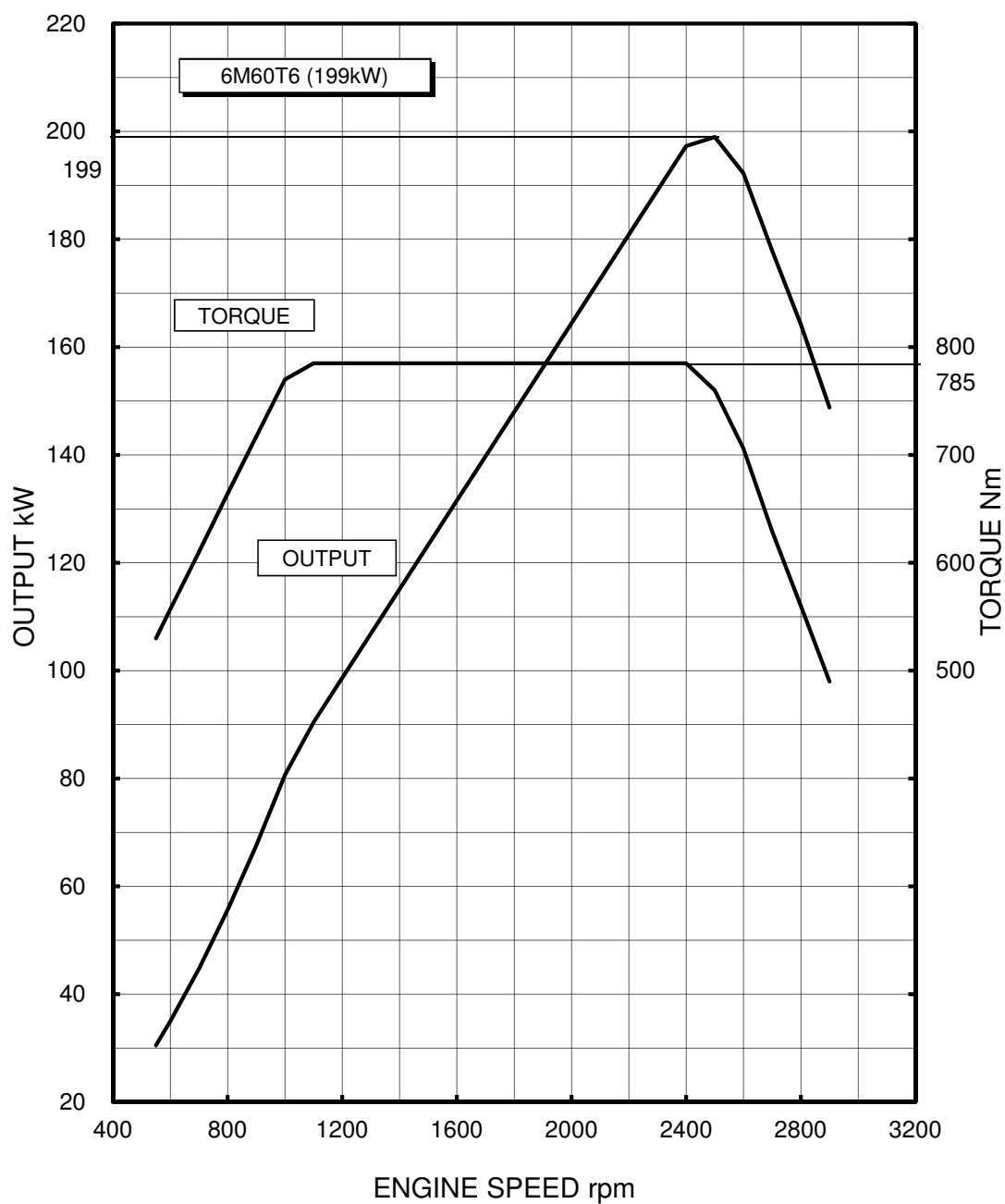
T/M	G/RATIO	EFFICIEBCY
1st	4.593	0.855
2nd	2.257	0.855
3rd	1.535	0.855
4th	1.000	0.855
5th	0.749	0.855
6th	0.651	0.855
7th	/	/
8th	/	/
9th	/	/
10th	/	/
Rev	4.999	0.855
FINAL G/RATIO		5.857
STALL TORQUE RATIO		2.350



10.3.2 Engine performance curve

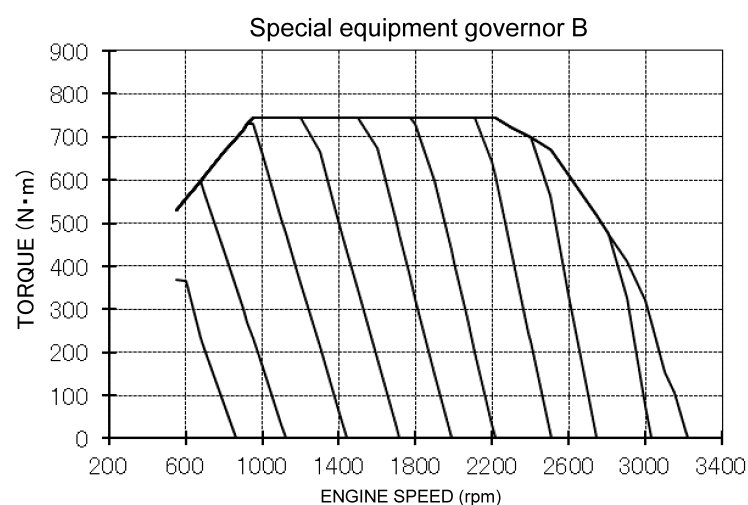
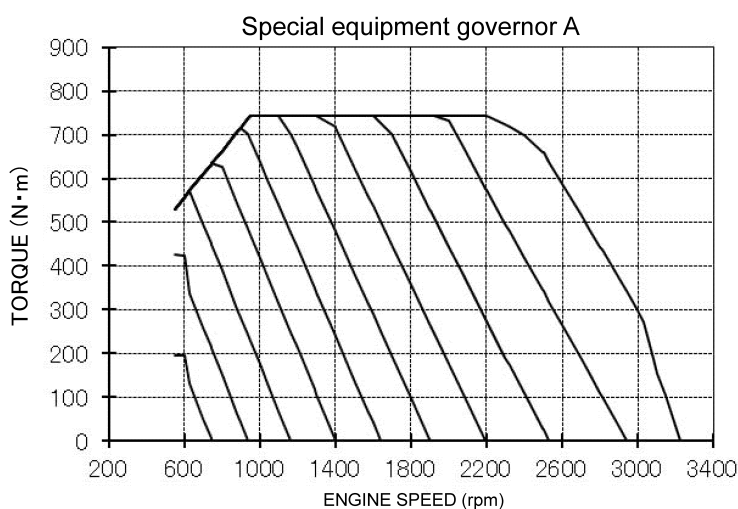
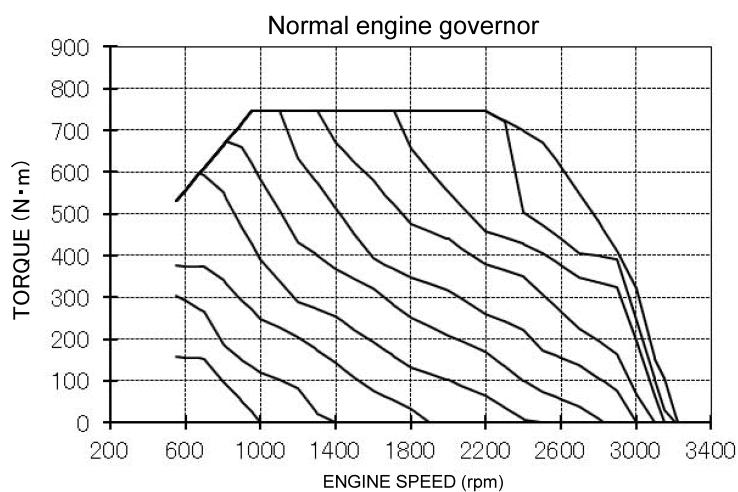


ENGINE PERFORMANCE CURVE 6M60-CAT6

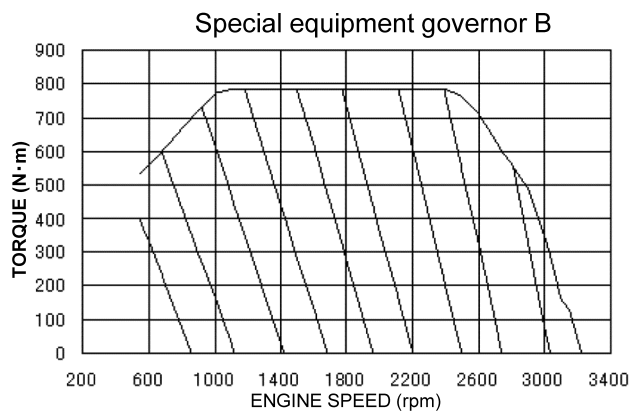
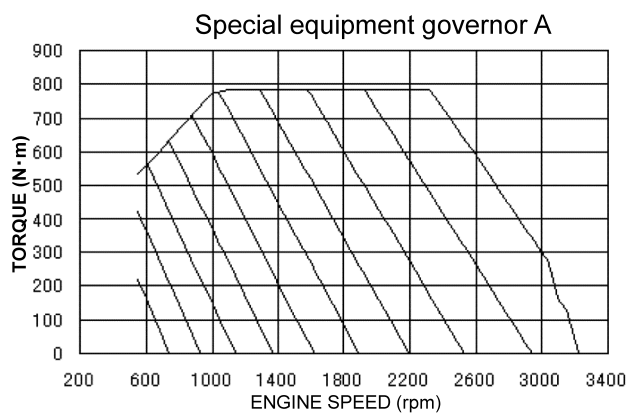
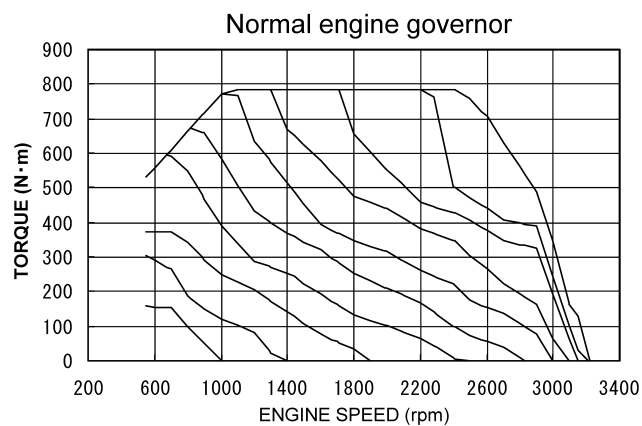


10.3.3 Governor and torque characteristics

6M60T5 (177kW)



6M60T6 (199kW)



10.4 Weight distribution table

10.4 Weight distribution table

10.4.1 Weight distribution table

Model: FK62FHY5RFAC

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	122	2.406	53.3	68.8
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	50	3.361	10.6	39.1
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
T/M oil cooler				
Total	2614	1.077	1955.3	659.2
Front axle	279			
Front suspension	95			
Front wheel & tire	122			
Front total	495			
Rear axle	390			
Rear suspension	229			
Rear wheel & tire	243			
Rear total	862			
Curb weight	Front	2451	(2450)	
	Rear	1522	(1520)	
	Total	3972	(3970)	

* 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: FK62FHY5RFAD

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	24.7	-4.7
Front cab mounting		21	-0.995	25.8	-4.8
Control		20	-0.765	23.6	-3.6
Steering		64	-0.700	74.4	-10.4
Cooling		37	-0.350	40.1	-3.1
Cab		440	-0.239	464.6	-24.6
Air conditioning		26	-0.279	27.7	-1.7
Engine		638	0.410	576.8	61.2
Air intake		13	0.554	11.3	1.7
Electrical		46	0.390	41.8	4.2
Enclosure		2	0.420	1.8	0.2
Rear cab mounting		23	0.860	18.5	4.5
Exhaust system		122	2.406	53.2	68.8
Clutch & Transmission		181	1.257	127.7	53.3
Service brake equipment		78	1.607	48.7	29.3
Battery		36	2.208	17.6	18.4
Fuel tank		57	2.575	22.4	34.6
Fuel		170	2.575	67.5	102.5
SCR system		21	2.406	8.9	12.1
SCR tank		50	3.361	10.9	39.1
Propeller shaft		49	2.829	16.5	32.5
Frame assy		433	2.270	203.0	230.0
Tool box		5	1.465	3.5	1.5
T/M oil cooler		19	-0.875	22.8	-3.8
Total		2569	1.059	1933.8	637.2
Front axle		279			
Front suspension		95			
Front wheel & tire		122			
Front total		495			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		243			
Rear total		862			
Curb weight	Front	2427	(2425)		
	Rear	1500	(1500)		
	Total	3926	(3925)		

* 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: FK62FKY5RFAC

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		122	2.406	61.8	60.3
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		50	3.961	9.3	40.4
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
T/M oil cooler					
		0			
Total		2639	1.272	1949.4	689.4
Front axle		279			
Front suspension		95			
Front wheel & tire		122			
Front total		495			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		243			
Rear total		862			
Curb weight	Front	2445	(2445)		
	Rear	1552	(1550)		
	Total	3997	(3995)		

* 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: FK62FLY5RFAC

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	11.3	1.0
Rear cab mounting		23	0.860	18.8	3.7
Exhaust system		122	2.406	65.7	56.4
Clutch & Transmission		218	1.257	165.3	52.6
Service brake equipment		78	1.607	53.8	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		50	4.301	8.7	41.0
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
T/M oil cooler					
Total		2720	1.416	1980.8	738.9
Front axle		279			
Front suspension		95			
Front wheel & tire		122			
Front total		495			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		243			
Rear total		862			
Curb weight	Front	2476	(2475)		
	Rear	1601	(1600)		
	Total	4077	(4075)		

* 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: FK62FLY5RFAD/L

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		122	2.406	65.7	56.4
Clutch & Transmission		181	1.257	137.3	43.7
Service brake equipment		78	1.607	53.8	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		50	4.301	8.7	41.0
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
T/M oil cooler		19	-0.875	21.8	-3.1
Total		2,672	1.405	1951.2	720.3
Front axle		279			
Front suspension		95			
Front wheel & tire		122			
Front total		495			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		243			
Rear total		862			
Curb weight	Front	2,447	(2,445)		
	Rear	1,583	(1,585)		
	Total	4,029	(4,030)		

* 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: FK62FMY5RFAC

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		122	2.406	69.0	53.0
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		50	4.531	9.1	40.7
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
T/M oil cooler					
Total		2726	1.510	1983.0	742.8
Front axle		279			
Front suspension		95			
Front wheel & tire		122			
Front total		495			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		243			
Rear total		862			
Curb weight	Front	2478	(2480)		
	Rear	1605	(1605)		
	Total	4084	(4085)		

* 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: FK62FHZ5RFAC

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		122	2.406	53.3	68.8
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		50	3.361	10.6	39.1
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
T/M oil cooler					
Total		2662	1.140	1951.3	710.6
Front axle		279			
Front suspension		110			
Front wheel & tire		129			
Front total		518			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		255			
Rear total		875			
Curb weight	Front	2469	(2470)		
	Rear	1585	(1585)		
	Total	4054	(4055)		

* 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: FK62FLZ5RFAC

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	42.8	3.5
Enclosure		12	0.420	11.3	1.0
Rear cab mounting		23	0.860	18.8	3.7
Exhaust system		122	2.406	65.7	56.4
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		50	4.301	8.7	41.0
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
T/M oil cooler					
Total		2775	1.451	2002.0	773.0
Front axle		279			
Front suspension		110			
Front wheel & tire		129			
Front total		518			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		255			
Rear total		875			
Curb weight	Front	2520	(2520)		
	Rear	1648	(1650)		
	Total	4168	(4170)		

* 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: FK62FLZ5RFAD/L

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		122	2.406	65.7	56.4
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		50	4.301	8.7	41.0
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
T/M oil cooler		19	-0.875	21.8	-3.1
Total		2732	1.438	1977.9	754.2
Front axle		279			
Front suspension		110			
Front wheel & tire		129			
Front total		518			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		255			
Rear total		875			
Curb weight	Front	2496	(2495)		
	Rear	1629	(1630)		
	Total	4125	(4125)		

* 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: FK62FLZ5RFAP

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		122	2.406	65.6	56.4
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		57	3.515	18.3	38.7
Fuel		170	3.515	55.3	114.7
SCR system		21	2.406	11.1	9.9
SCR tank		50	4.301	9.0	41.0
Propeller shaft		73	3.220	27.7	45.3
Frame assy		566	3.216	216.3	349.7
Tool box		5	4.165	1.4	3.6
T/M oil cooler		19	-0.875	22.1	-3.1
Total		2751	1.421	2001.5	750.5
Front axle		279			
Front suspension		110			
Front wheel & tire		129			
Front total		518			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		255			
Rear total		875			
Curb weight	Front	2518	(2520)		
	Rear	1625	(1625)		
	Total	4144	(4145)		



10.4 Weight distribution table

Model: FK62FLZ5RFAH

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	46.4	-7.6
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	42.8	3.5
Enclosure		12	0.420	11.3	1.0
Rear cab mounting		23	0.860	18.8	3.7
Exhaust system		122	2.406	65.7	56.4
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		50	4.301	8.7	41.0
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
T/M oil cooler					
Total		2794	1.434	2024.8	769.3
Front axle		279			
Front suspension		110			
Front wheel & tire		129			
Front total		518			
Rear axle		390			
Rear suspension		229			
Rear wheel & tire		255			
Rear total		875			
Curb weight	Front	2543	(2,540)		
	Rear	1644	(1,645)		
	Total	4187	(4,185)		

* 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: FK65FLZ5RFAD/L

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		122	2.406	65.7	56.4
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		50	4.531	6.5	43.2
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
Total		2776	1.496	1978.6	797.1
Front axle		279			
Front suspension		110			
Front wheel & tire		129			
Front total		518			
Rear axle		415			
Rear suspension		214			
Rear wheel & tire		255			
Rear total		884			
Curb weight	Front	2496	(2500)		
	Rear	1681	(1680)		
	Total	4178	(4180)		

* 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: FK65FLZ5RFAP

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		122	2.406	65.6	56.4
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		50	4.531	6.8	43.2
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
Total		2795	1.479	2003.7	793.3
Front axle		279			
Front suspension		110			
Front wheel & tire		129			
Front total		518			
Rear axle		415			
Rear suspension		214			
Rear wheel & tire		255			
Rear total		884			
Curb weight	Front	2519	(2520)		
	Rear	1678	(1680)		
	Total	4197	(4200)		

* 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: FK65FLZ6RFAC

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	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		47	0.390	43.1	3.5
Enclosure		12	0.420	11.3	1.0
Rear cab mounting		23	0.860	18.8	3.7
Exhaust system		122	2.406	65.7	56.4
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		21	2.406	11.5	9.9
SCR tank		50	4.201	9.6	40.1
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
T/M oil cooler					
Total		2815	1.454	2028.9	785.7
Front axle		279			
Front suspension		113			
Front wheel & tire		129			
Front total		520			
Rear axle		415			
Rear suspension		214			
Rear wheel & tire		255			
Rear total		884			
Curb weight	Front	2549	(2550)		
	Rear	1670	(1670)		
	Total	4219	(4220)		

* 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: FK65FMZ6RFAC

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	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		47	0.390	43.3	3.3
Enclosure		12	0.420	11.4	0.9
Rear cab mounting		23	0.860	19.1	3.5
Exhaust system		122	2.406	69.0	53.0
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		21	2.406	12.1	9.3
SCR tank		50	4.531	9.1	40.7
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
T/M oil cooler					
Total		2834	1.514	2059.5	774.4
Front axle		279			
Front suspension		113			
Front wheel & tire		129			
Front total		520			
Rear axle		415			
Rear suspension		214			
Rear wheel & tire		255			
Rear total		884			
Curb weight	Front	2580	(2580)		
	Rear	1659	(1660)		
	Total	4239	(4240)		

* 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: FK65FMZ6RFAH

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		39	-1.021	46.0	-7.2
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		47	0.390	43.3	3.3
Enclosure		12	0.420	11.4	0.9
Rear cab mounting		23	0.860	19.1	3.5
Exhaust system		122	2.406	69.0	53.0
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		21	2.406	12.1	9.3
SCR tank		50	4.531	9.1	40.7
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
T/M oil cooler					
Total		2853	1.497	2082.1	770.9
Front axle		279			
Front suspension		113			
Front wheel & tire		129			
Front total		520			
Rear axle		415			
Rear suspension		214			
Rear wheel & tire		255			
Rear total		884			
Curb weight	Front	2603	(2605)		
	Rear	1655	(1655)		
	Total	4258	(4260)		

* 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: FM65FH6RFAH

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		28	-0.875	33.9	-5.8
Steering		82	-0.810	97.5	-15.5
Cooling		39	-0.460	43.4	-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		42	-0.369	45.2	-3.6
Enclosure		13	0.310	11.7	0.9
Rear cab mounting		23	0.750	18.6	4.0
Exhaust system		126	2.347	57.1	69.3
Clutch & Transmission		235	1.147	172.3	63.1
Service brake equipment		87	1.877	48.6	38.0
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		83	2.727	30.2	53.0
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					
Total		3026	1.013	2309.2	716.4
Front axle		377			
Front suspension		118			
Front wheel & tire		185			
Front total		679			
Rear axle		601			
Rear suspension		268			
Rear wheel & tire		391			
Rear total		1259			
Curb weight	Front	2989	(2990)		
	Rear	1976	(1975)		
	Total	4964	(4965)		

* 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: FM65FH6RFAK

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		30	-0.875	35.7	-6.1
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		47	-0.369	51.6	-4.1
Enclosure		22	0.310	20.5	1.6
Rear cab mounting		23	0.750	18.6	4.0
Exhaust system		126	2.347	57.1	69.3
Clutch & Transmission		266	1.147	194.6	71.2
Service brake equipment		87	1.943	47.3	39.3
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		21	2.347	9.5	11.6
SCR tank		83	2.727	30.2	53.0
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
Air suspension equipment				0.0	0.0
Total		3125	1.011	2386.6	738.5
Front axle		377			
Front suspension		141			
Front wheel & tire		185			
Front total		703			
Rear axle		630			
Rear suspension		269			
Rear wheel & tire		391			
Rear total		1289			
Curb weight	Front	3090	(3085)		
	Rear	2028	(2030)		
	Total	5117	(5115)		

* 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: FM65FM6RFAH

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		71	-1.021	84.4	-13.1
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	-0.460	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		42	-0.369	44.4	-2.8
Enclosure		13	0.310	12.0	0.7
Rear cab mounting		23	0.750	19.5	3.0
Exhaust system		126	2.347	73.0	53.5
Clutch & Transmission		235	1.147	186.7	48.6
Service brake equipment		87	1.877	57.3	29.3
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		21	2.347	12.2	8.9
SCR tank		83	2.727	42.4	40.9
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
Air suspension equipment					
Total		3264	1.326	2483.8	779.8
Front axle		377			
Front suspension		118			
Front wheel & tire		173			
Front total		668			
Rear axle		601			
Rear suspension		268			
Rear wheel & tire		343			
Rear total		1212			
Curb weight	Front	3152	(3155)		
	Rear	1991	(1990)		
	Total	5143	(5145)		

* 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: FM65FS6RFAH

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		71	-1.021	82.5	-11.2
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	-0.460	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		42	-0.369	44.0	-2.4
Enclosure		13	0.310	12.1	0.6
Rear cab mounting		23	0.750	20.0	2.6
Exhaust system		126	2.347	80.8	45.7
Clutch & Transmission		235	1.147	193.8	41.5
Service brake equipment		87	1.877	61.6	25.0
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		21	2.347	13.5	7.6
SCR tank		83	2.727	48.3	34.9
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
Air suspension equipment					
Total		3415	1.626	2560.3	854.2
Front axle		377			
Front suspension		118			
Front wheel & tire		173			
Front total		668			
Rear axle		601			
Rear suspension		268			
Rear wheel & tire		343			
Rear total		1212			
Curb weight	Front	3228	(3230)		
	Rear	2066	(2065)		
	Total	5294	(5295)		

* 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: FM65FS6RFAK

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		71	-1.021	82.5	-11.2
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	-0.460	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		47	-0.376	50.2	-2.7
Enclosure		22	0.310	21.0	1.1
Rear cab mounting		23	0.750	20.0	2.6
Exhaust system		126	2.347	80.8	45.7
Clutch & Transmission		266	1.147	218.9	46.9
Service brake equipment		87	1.943	60.7	25.9
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		21	2.347	13.5	7.6
SCR tank		83	2.727	48.3	34.9
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
Air suspension equipment				0.0	0.0
Total		3500	1.618	2629.2	871.0
Front axle		377			
Front suspension		141			
Front wheel & tire		185			
Front total		703			
Rear axle		625			
Rear suspension		268			
Rear wheel & tire		366			
Rear total		1259			
Curb weight	Front	3332	(3330)		
	Rear	2130	(2130)		
	Total	5462	(5460)		

* 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: FM67FM6RFAJ/M

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	71	-1.021	84.4	-13.1
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	-0.460	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	42	-0.369	44.5	-2.8
Enclosure	2	0.310	1.8	0.1
Rear cab mounting	23	0.750	19.5	3.0
Exhaust system	126	2.347	73.0	53.5
Clutch & Transmission	320	1.147	253.9	66.1
Service brake equipment	87	1.943	56.3	30.3
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	21	2.347	12.2	8.9
SCR tank	83	2.727	42.4	40.9
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
Total	3452	1.389	2588.1	863.8
Front axle	377			
Front suspension	141			
Front wheel & tire	185			
Front total	703			
Rear axle	631			
Rear suspension	229			
Rear wheel & tire	366			
Rear total	1225			
Curb weight	Front	3291	(3290)	
	Rear	2089	(2090)	
	Total	5380	(5380)	

* 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: FM67FM6RFAK

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		71	-1.021	84.4	-13.1
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	-0.460	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		42	-0.369	44.5	-2.8
Enclosure		22	0.310	20.8	1.2
Rear cab mounting		23	0.750	19.5	3.0
Exhaust system		126	2.347	73.0	53.5
Clutch & Transmission		266	1.147	210.9	54.9
Service brake equipment		87	1.943	56.3	30.3
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		21	2.347	12.2	8.9
SCR tank		83	2.727	42.4	40.9
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		9	6.020	-0.8	9.8
Total		3368	1.339	2555.3	812.2
Front axle		377			
Front suspension		141			
Front wheel & tire		173			
Front total		692			
Rear axle		631			
Rear suspension		229			
Rear wheel & tire		343			
Rear total		1202			
Curb weight	Front	3247	(3245)		
	Rear	2014	(2015)		
	Total	5261	(5260)		

* 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: FM67FS6RFAH

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		71	-1.021	82.5	-11.2
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	-0.460	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		48	-0.376	51.3	-2.8
Enclosure		13	0.310	12.1	0.6
Rear cab mounting		23	0.750	20.0	2.6
Exhaust system		126	2.347	80.8	45.7
Clutch & Transmission		235	1.147	193.8	41.5
Service brake equipment		87	1.943	60.7	25.9
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		21	2.347	13.5	7.6
SCR tank		83	2.727	48.3	34.9
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					
Total		3385	1.621	2540.7	844.2
Front axle		377			
Front suspension		141			
Front wheel & tire		173			
Front total		692			
Rear axle		605			
Rear suspension		229			
Rear wheel & tire		343			
Rear total		1177			
Curb weight	Front	3232	(3235)		
	Rear	2021	(2020)		
	Total	5254	(5255)		

* 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: FM67FS6RFAJ/M

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		71	-1.021	82.5	-11.2
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	-0.460	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		42	-0.376	44.1	-2.4
Enclosure		2	0.310	1.8	0.1
Rear cab mounting		23	0.750	20.0	2.6
Exhaust system		126	2.347	80.8	45.7
Clutch & Transmission		320	1.147	263.5	56.5
Service brake equipment		87	1.943	60.7	25.9
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		21	2.347	13.5	7.6
SCR tank		83	2.727	48.3	34.9
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
Total		3598	1.696	2658.9	938.7
Front axle		377			
Front suspension		141			
Front wheel & tire		173			
Front total		692			
Rear axle		605			
Rear suspension		229			
Rear wheel & tire		343			
Rear total		1177			
Curb weight	Front	3351	(3350)		
	Rear	2116	(2115)		
	Total	5466	(5465)		

* 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: FM67FS6RFAK

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		71	-1.021	82.5	-11.2
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	-0.460	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		42	-0.376	44.1	-2.4
Enclosure		22	0.310	21.0	1.1
Rear cab mounting		23	0.750	20.0	2.6
Exhaust system		126	2.347	80.8	45.7
Clutch & Transmission		266	1.147	218.9	46.9
Service brake equipment		87	1.943	60.7	25.9
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		21	2.347	13.5	7.6
SCR tank		83	2.727	48.3	34.9
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
Total		3501	1.626	2625.1	875.4
Front axle		377			
Front suspension		141			
Front wheel & tire		173			
Front total		692			
Rear axle		631			
Rear suspension		229			
Rear wheel & tire		343			
Rear total		1202			
Curb weight	Front	3317	(3315)		
	Rear	2078	(2080)		
	Total	5394	(5395)		

* 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: FN63FU6RFAJ/M(6x2)

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	71	-1.021	82.4	-11.1
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	-0.460	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	2	0.310	1.8	0.1
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	126	2.347	81.0	45.4
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	21	2.347	13.7	7.7
SCR tank	83	2.965	45.5	37.8
Propeller shaft	136	3.328	66.7	69.3
Frame assy	1064	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
Total	3923	1.845	2814.6	1108.2
Front axle	377			
Front suspension	118			
Front wheel & tire	173			
Front total	668			
Rear front axle	655			
Rear front suspension	229			
Rear front wheel & tire	343			
Rear front total	1226			
Rear rear axle	417			
Rear rear suspension	229			
Rear rear wheel & tire	343			
Rear rear total	989			



10.4 Weight distribution table

Parts name		Weight (Kg)	Distance* 1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Curb weight	Front	3483	(3480)		
	Rear front	1780	(1780)		
	Rear rear	1543	(1545)		
	Total	6806	(6805)		

* 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: FN63FU6RFAK (6x2)

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	71	-1.021	82.4	-11.1
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	-0.460	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	22	0.310	21.1	1.0
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	126	2.347	81.0	45.4
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	21	2.347	13.7	7.7
SCR tank	83	2.965	45.5	37.8
Propeller shaft	136	3.328	66.7	69.3
Frame assy	1064	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
T/M oil cooler				
Total	3830	1.805	2771.2	1058.7
Front axle	377			
Front suspension	118			
Front wheel & tire	173			
Front total	668			
Rear front axle	655			
Rear front suspension	229			
Rear front wheel & tire	343			
Rear front total	1226			
Rear rear axle	417			
Rear rear suspension	229			
Rear rear wheel & tire	343			
Rear rear total	989			

10.4 Weight distribution table

Parts name		Weight (Kg)	Distance* 1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Curb weight	Front	3439	(3440)		
	Rear front	1756	(1755)		
	Rear rear	1518	(1520)		
	Total	6713	(6715)		

* 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: FN62FK6RFAJ/M (6x4)

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	71	-1.021	88.2	-16.9
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	-0.460	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	2	0.310	1.7	0.1
Rear cab mounting	23	0.750	18.6	3.9
Exhaust system	126	2.347	57.4	69.0
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	21	2.347	9.7	11.7
SCR tank	83	1.155	60.9	22.4
Propeller shaft	78	2.979	23.9	53.8
Frame assy	1013	2.786	356.7	656.4
Tool box			0.0	0.0
Air suspension equipment			0.0	0.0
Rear suspension	672	4.300	0.0	672.2
T/M oil cooler	69	2.755	24.7	44.1
Total	4278	1.726	2560.9	1716.6
Front axle	377			
Front suspension	118			
Front wheel & tire	185			
Front total	679			
Rear front axle	728			
Rear front suspension				
Rear front wheel & tire	391			
Rear front total	1118			
Rear rear axle	582			
Rear rear suspension				
Rear rear wheel & tire	391			
Rear rear total	973			



10.4 Weight distribution table

Parts name		Weight (Kg)	Distance* 1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Curb weight	Front	3240	(3245)		
	Rear front	1977	(1975)		
	Rear rear	1831	(1830)		
	Total	7048	(7050)		

* 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: FN62FK6RFAK (6x4)

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	71	-1.021	88.2	-16.9
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	-0.460	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	22	0.310	20.5	1.6
Rear cab mounting	23	0.750	18.6	3.9
Exhaust system	126	2.347	57.4	69.0
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	21	2.347	9.7	11.7
SCR tank	83	1.155	60.9	22.4
Propeller shaft	78	2.979	23.9	53.8
Frame assy	1013	2.786	356.7	656.4
Tool box			0.0	0.0
Air suspension equipment			0.0	0.0
Rear suspension	672	4.300	0.0	672.2
T/M oil cooler			0.0	0.0
Total	4185	1.703	2527.2	1657.5
Front axle	377			
Front suspension	118			
Front wheel & tire	185			
Front total	679			
Rear front axle	728			
Rear front suspension				
Rear front wheel & tire	391			
Rear front total	1118			
Rear rear axle	582			
Rear rear suspension				
Rear rear wheel & tire	391			
Rear rear total	973			



10.4 Weight distribution table

Parts name		Weight (Kg)	Distance* 1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Curb weight	Front	3207	(3210)		
	Rear front	1947	(1945)		
	Rear rear	1801	(1800)		
	Total	6955	(6955)		

*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: FN62FR6RFAJ/M (6x4)

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	126	2.347	73.9	52.5
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	83	1.155	66.2	17.0
Propeller shaft	118	3.085	53.7	64.6
Frame assy	1232	3.816	399.8	831.9
Tool box	5	3.763	1.8	3.6
Air suspension equipment			0.0	0.0
Rear suspension	672	4.990	78.5	593.7
T/M oil cooler	69	3.280	28.9	40.0
Total	4736	2.193	2897.2	1838.5
Front axle	377			
Front suspension	118			
Front wheel & tire	185			
Front total	679			
Rear front axle	728			
Rear front suspension				
Rear front wheel & tire	391			
Rear front total	1118			
Rear rear axle	582			
Rear rear suspension				
Rear rear wheel & tire	391			
Rear rear total	973			



10.4 Weight distribution table

Parts name		Weight (Kg)	Distance* 1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Curb weight	Front	3577	(3575)		
	Rear front	2038	(2040)		
	Rear rear	1892	(1890)		
	Total	7506	(7505)		

* 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: FN64FU6RFAJ/M (6x4)

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	71	-1.021	82.4	-11.1
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	-0.460	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	2	0.310	1.8	0.1
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	126	2.347	81.0	45.4
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	21	2.347	13.7	7.7
SCR tank	83	2.965	45.5	37.8
Propeller shaft	165	3.787	69.4	95.8
Frame assy	1064	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
Rear suspension			0.0	0.0
T/M oil cooler	69	3.756	29.3	39.6
Total	3952	1.875	2817.1	1134.7
Front axle	377			
Front suspension	118			
Front wheel & tire	173			
Front total	668			
Rear front axle	735			
Rear front suspension	229			
Rear front wheel & tire	343			
Rear front total	1306			
Rear rear axle	631			
Rear rear suspension	229			
Rear rear wheel & tire	343			
Rear rear total	1202			



10.4 Weight distribution table

Parts name		Weight (Kg)	Distance* 1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Curb weight	Front	3485	(3485)		
	Rear front	1874	(1875)		
	Rear rear	1770	(1770)		
	Total	7128	(7130)		

*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: FN64FU6RFAK (6x4)

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	71	-1.021	82.4	-11.1
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	-0.460	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	22	0.310	21.1	1.0
Rear cab mounting	23	0.750	20.0	2.6
Exhaust system	126	2.347	81.0	45.4
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	21	2.347	13.7	7.7
SCR tank	83	2.965	45.5	37.8
Propeller shaft	165	3.787	69.4	95.8
Frame assy	1064	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
Rear suspension			0.0	0.0
T/M oil cooler			0.0	0.0
Total	3859	1.836	2773.7	1085.1
Front axle	377			
Front suspension	118			
Front wheel & tire	173			
Front total	668			
Rear front axle	735			
Rear front suspension	229			
Rear front wheel & tire	343			
Rear front total	1306			
Rear rear axle	631			
Rear rear suspension	229			
Rear rear wheel & tire	343			
Rear rear total	1202			



10.4 Weight distribution table

Parts name		Weight (Kg)	Distance* 1 to center of gravity (m)	Front axle load (Kg)	Rear axle load (Kg)
Curb weight	Front	3442	(3440)		
	Rear front	1849	(1850)		
	Rear rear	1745	(1745)		
	Total	7035	(7035)		

*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

10.4.2 Option equipment

The following additional weight must be taken into consideration when calculating vehicle weight.

Cab type	Model	Weight (kg)	Distance to center gravity (m)
Single Cab	FK (Driver/Center/Assist)	75 /75 /75	-0.130 /0/-0.085
	FM, FN (Driver/Center/Assist)	75 /75 /75	-0.240 /-0.110 /-0.195

<Table No.1>

Group	Option	Mass Variation [kg]	Mass Center Position [m] * 1		Remark, applicable model, etc.
			FK	FM, FN	
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

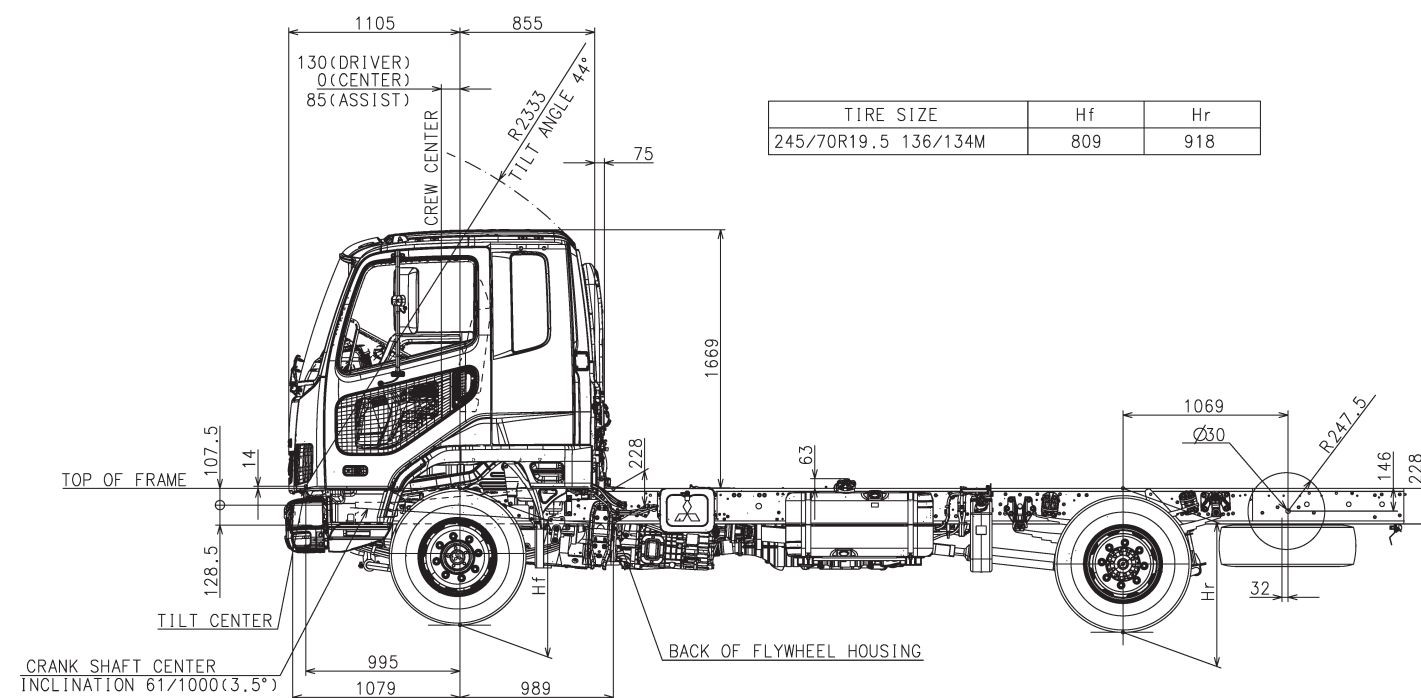
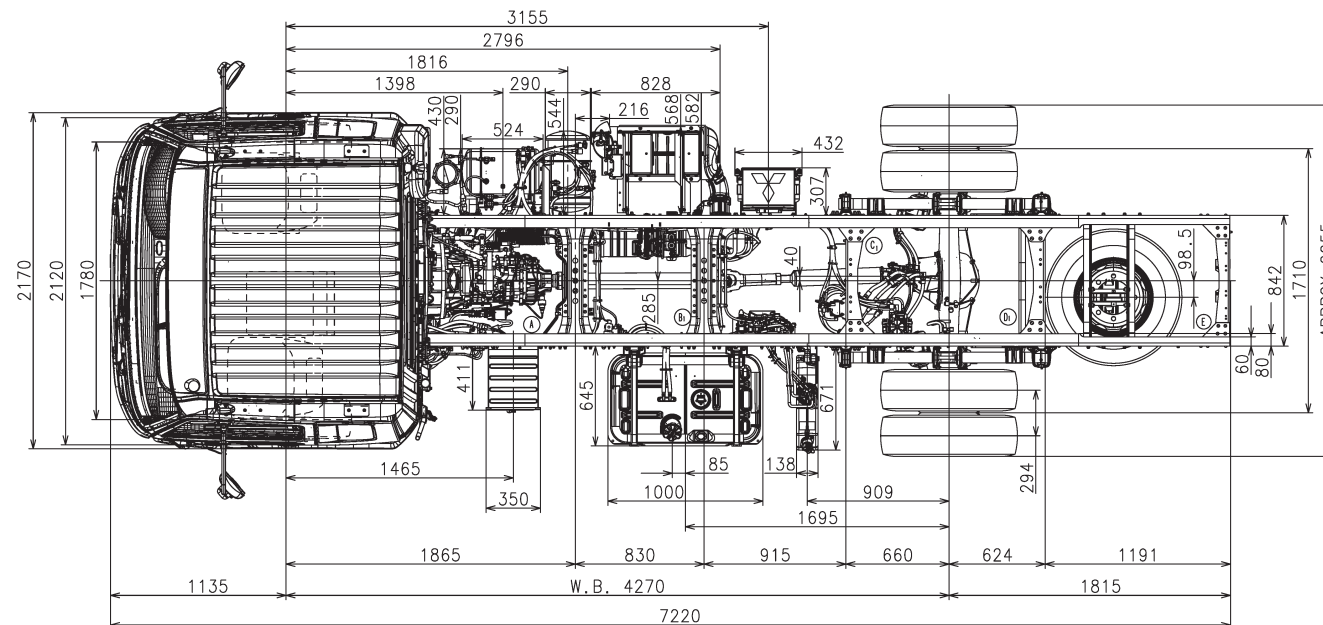
Model	Page
FK62FHY5RFAC	85
FK62FHY5RFAD	86
FK62FKY5RFAC	87
FK62FLY5RFAC	88
FK62FLY5RFAD	89
FK62FLY5RFAL	90
FK62FMY5RFAC	91
FK62FHZ5RFAC	92
FK62FLZ5RFAC	93
FK62FLZ5RFAD	94
FK62FLZ5RFAL	95
FK62FLZ5RFAP	96
FK62FLZ5RFAH	97
FK65FLZ5RFAD	98
FK65FLZ5RFAL	99
FK65FLZ5RFAP	100
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FK65FMZ6RFAC	102
FK65FMZ6RFAH	103
FM65FH6RFAH	104
FM65FH6RFAK	105
FM65FM6RFAH	106
FM65FS6RFAH	107
FM65FS6RFAK	108
FM67FM6RFAJ	109
FM67FM6RFAM	110
FM67FM6RFAK	111
FM67FS6RFAH	112
FM67FS6RFAJ	113
FM67FS6RFAM	114
FM67FS6RFAK	115
FN63FU6RFAJ	116
FN63FU6RFAM	117
FN63FU6RFAK	118
FN62FK6RFAJ	119
FN62FK6RFAM	120
FN62FK6RFAK	121

Model	Page
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FN62FR6RFAM	123
FN64FU6RFAJ	124
FN64FU6RFAM	125
FN64FU6RFAK	126

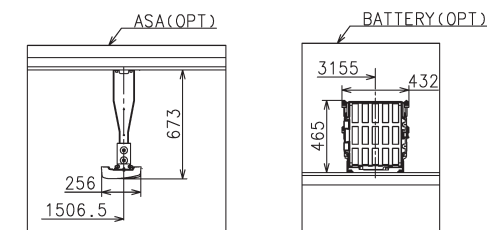


10.5 Chassis cab drawings

FK62FHY5RFAC



TIRE SIZE	Hf	Hr
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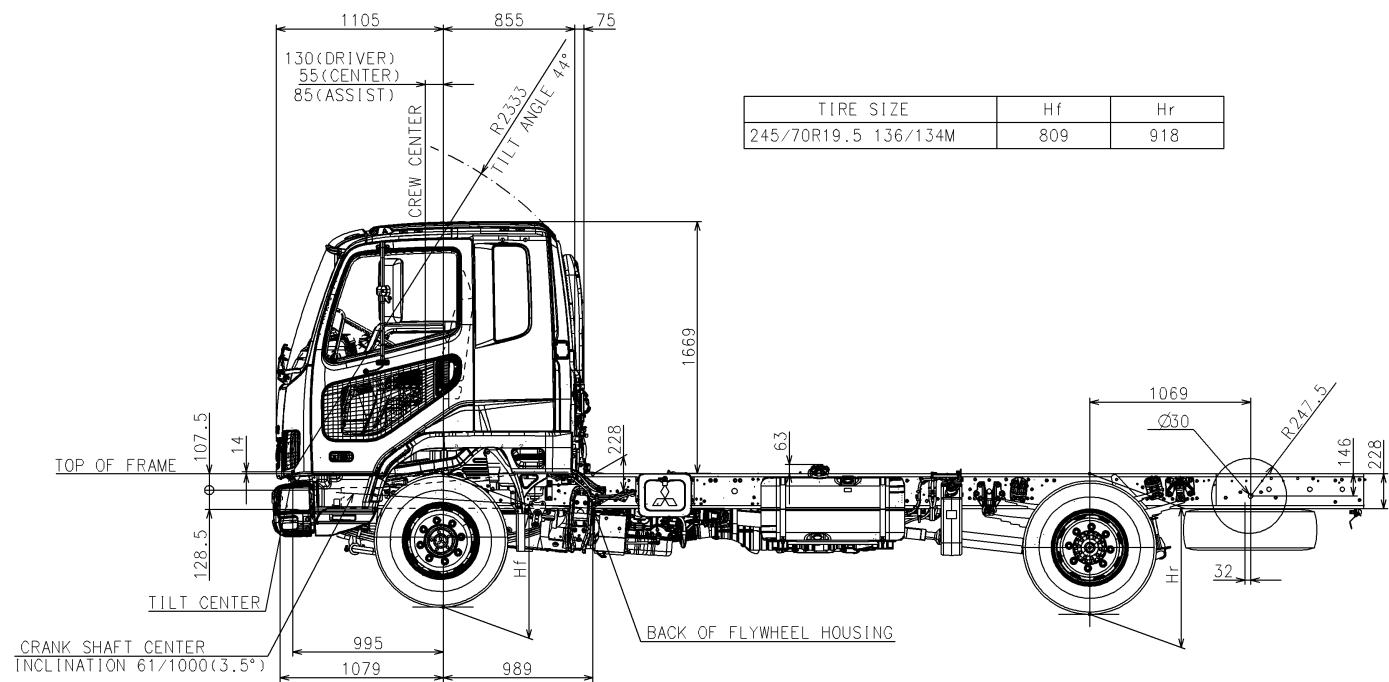
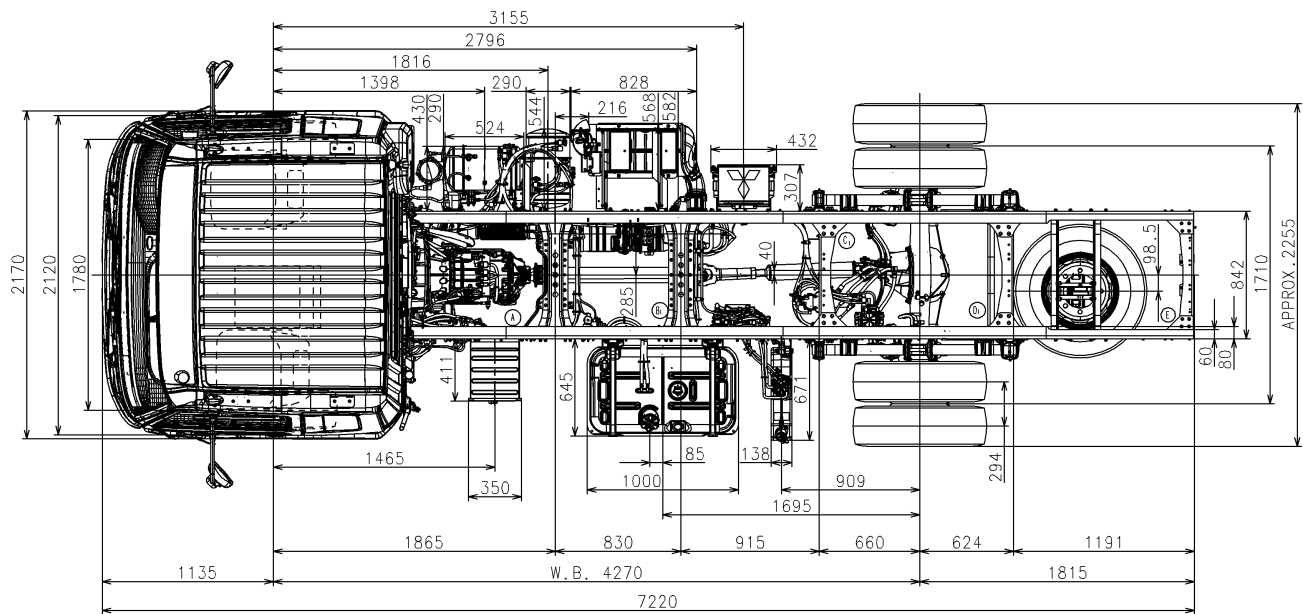
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SCALE : 1/40

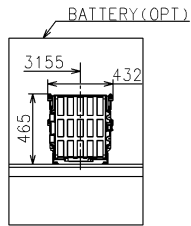
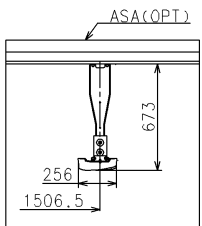
10.5 Chassis cab drawings



FK62FHY5RFAD



TIRE SIZE	Hf	Hr
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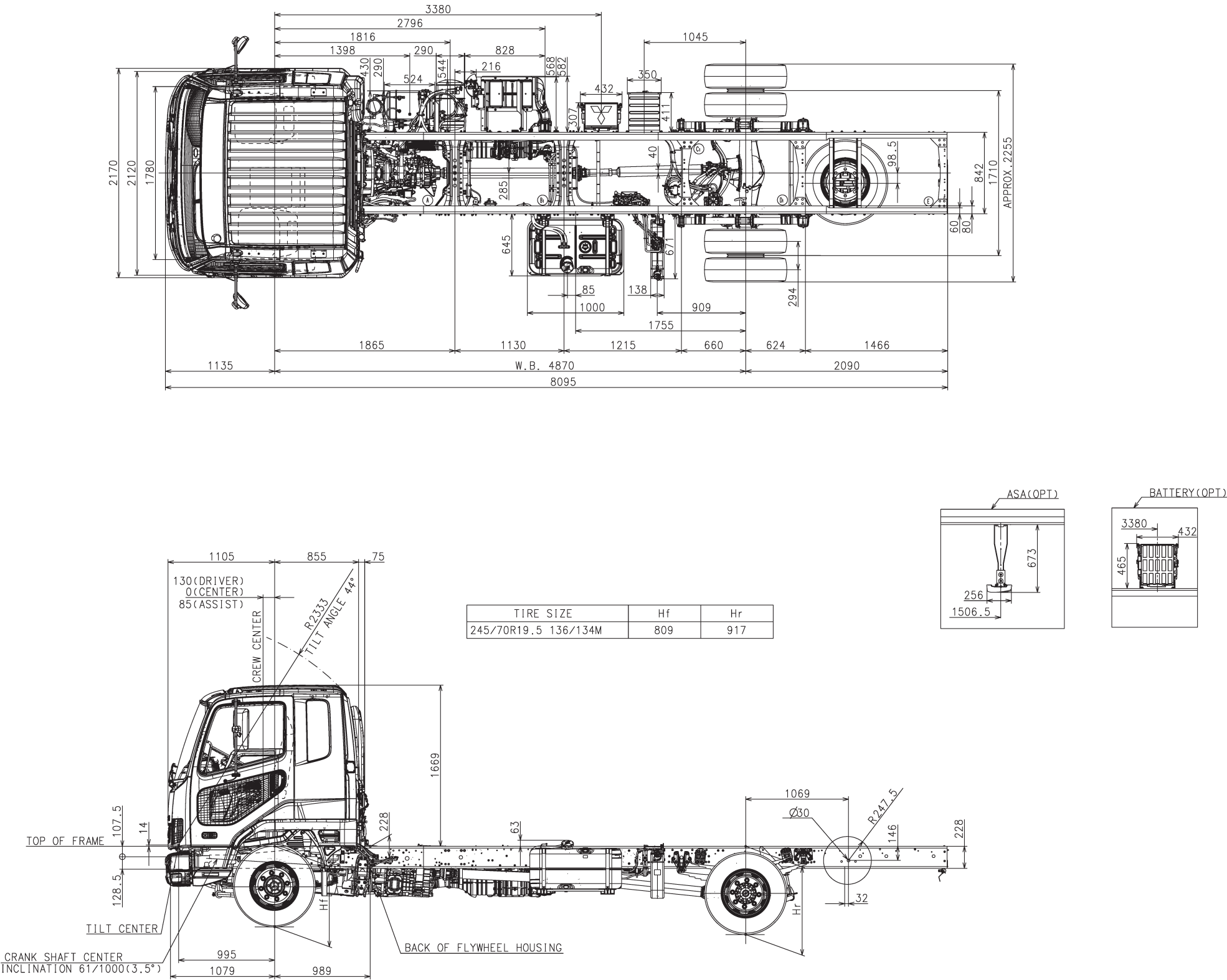
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UNIT : mm
SCALE : 1/40



10.5 Chassis cab drawings

FK62FKY5RFAC



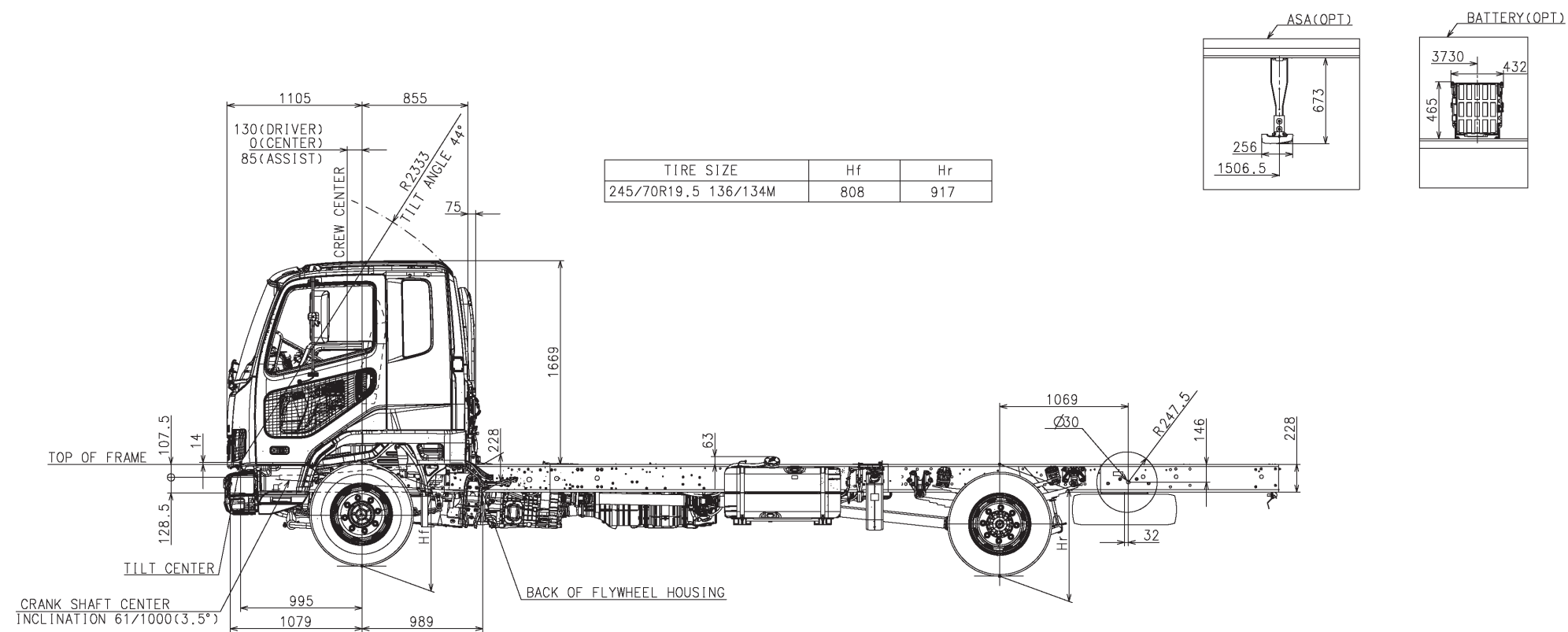
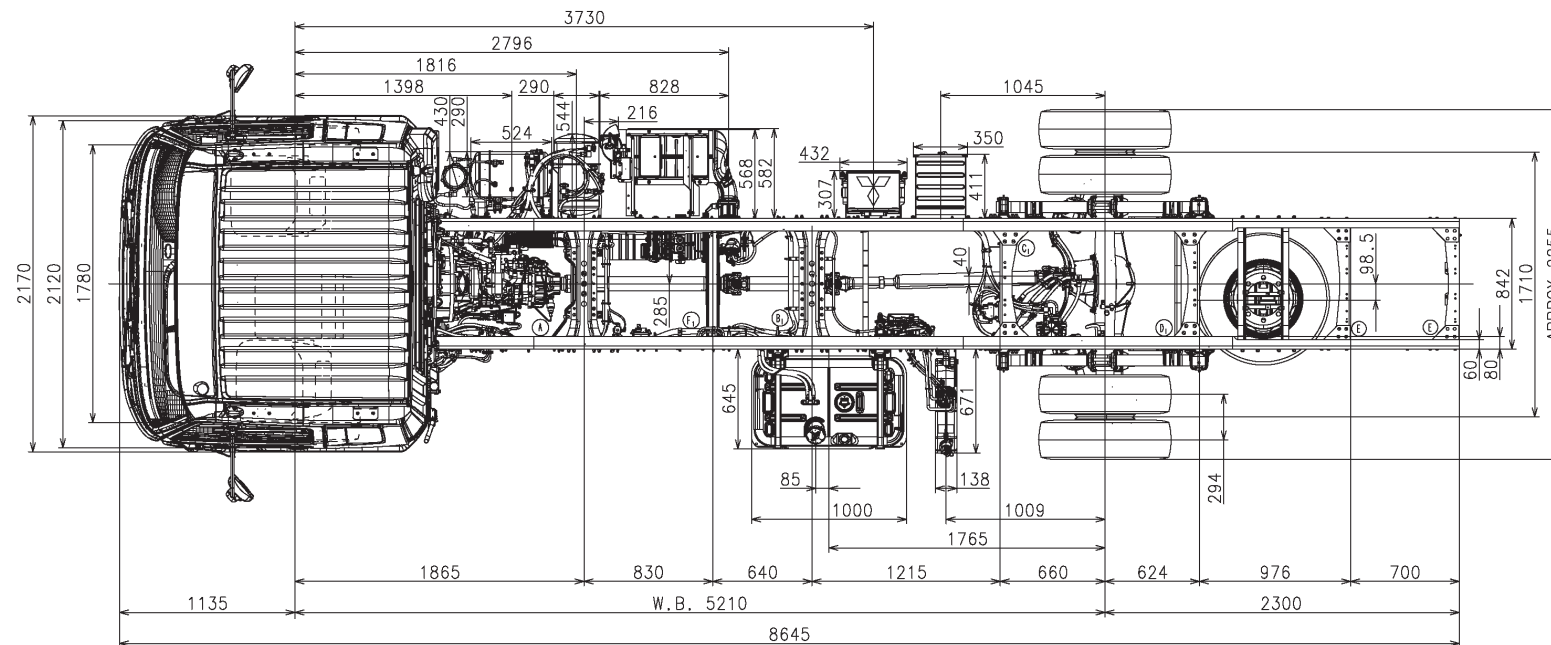
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10.5 Chassis cab drawings

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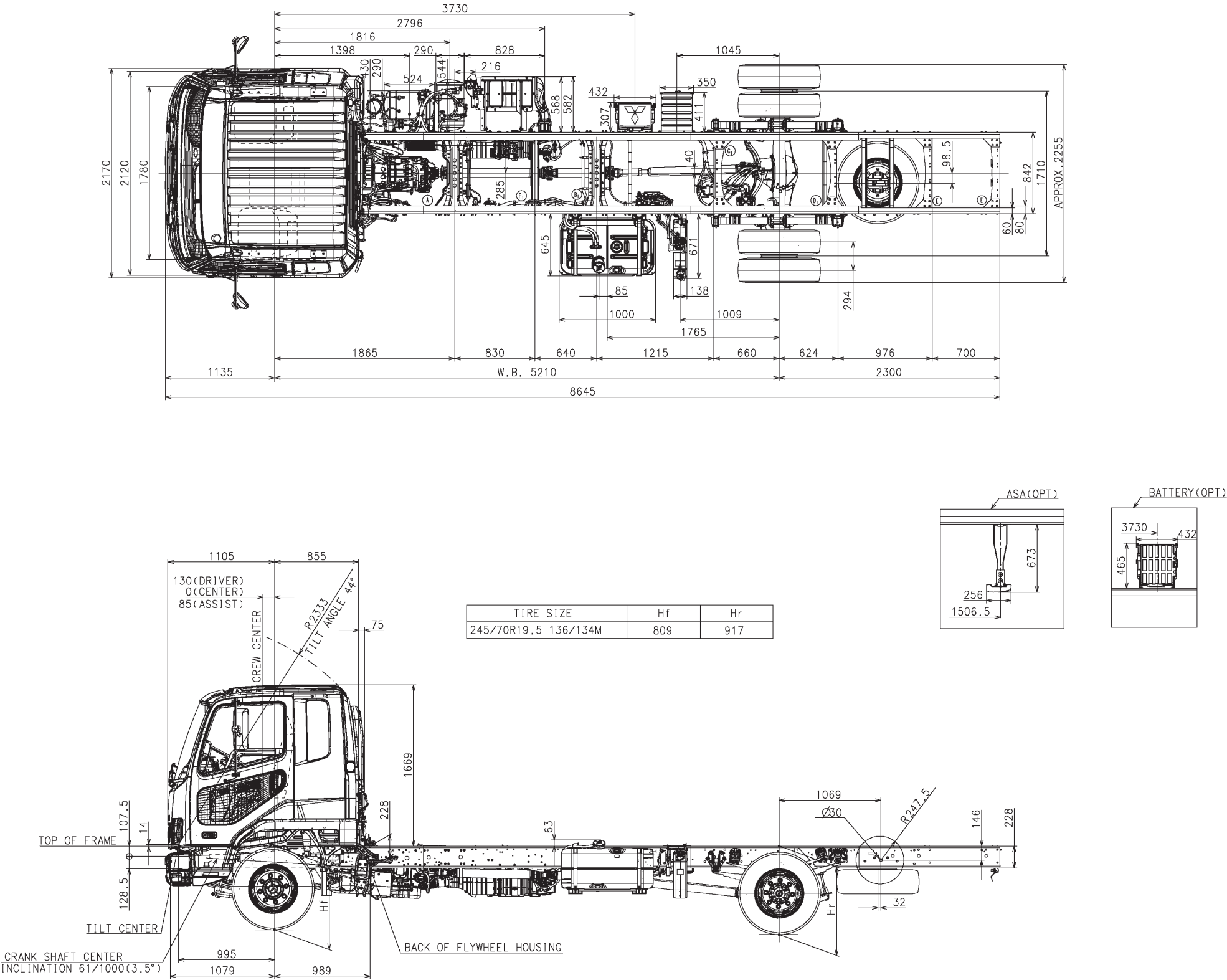


NOTE. FOR THE DETAILS OF CROSSMEMBERS,
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10.5 Chassis cab drawings

FK62FLY5RFAD



NOTE. FOR THE DETAILS OF CROSSMEMBERS,
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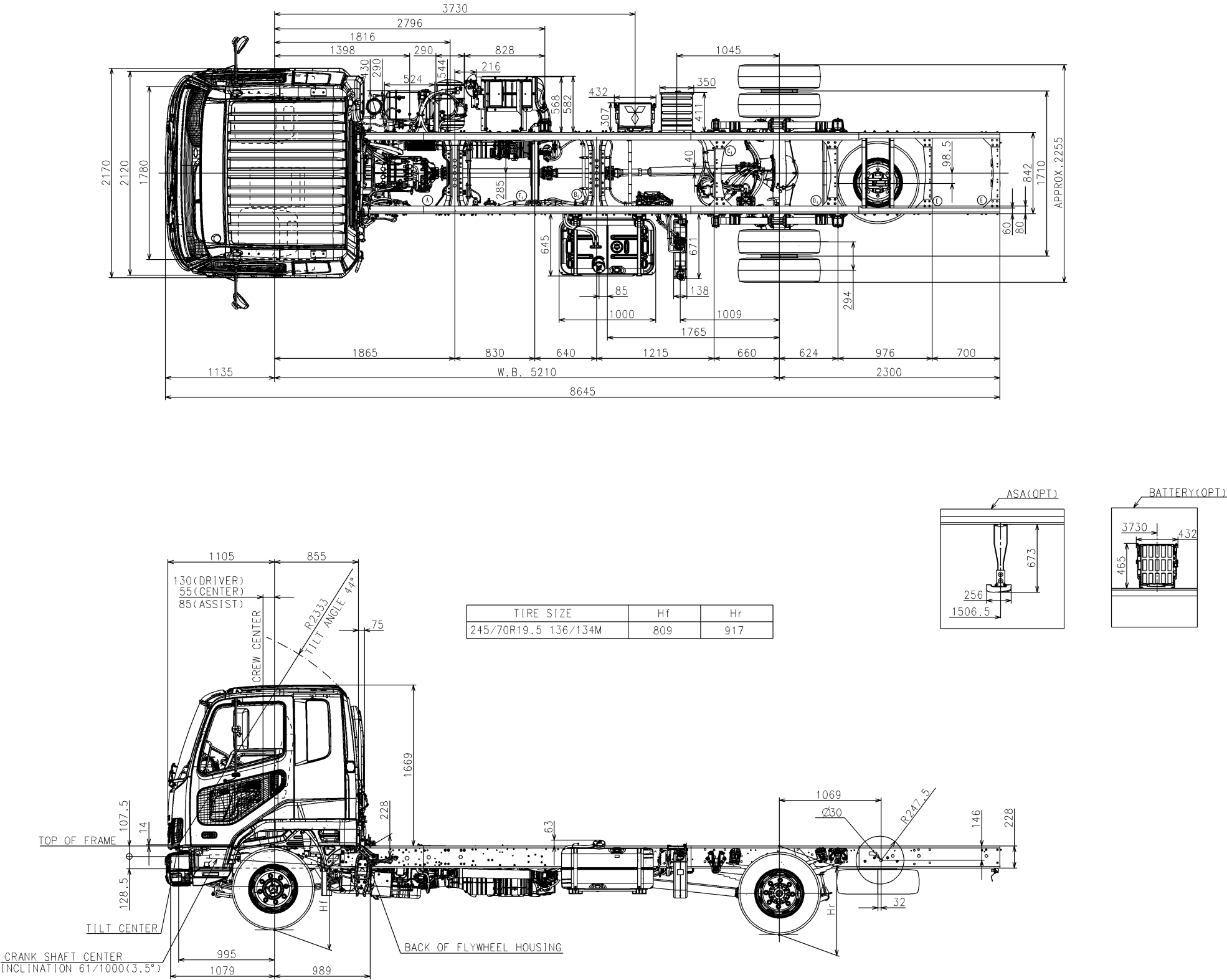
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10.5 Chassis cab drawings



FK62FLY5RFAL



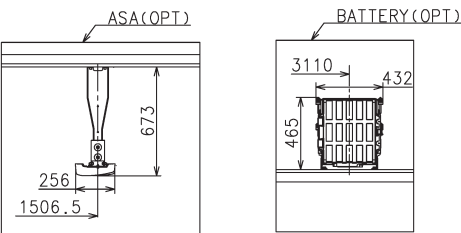
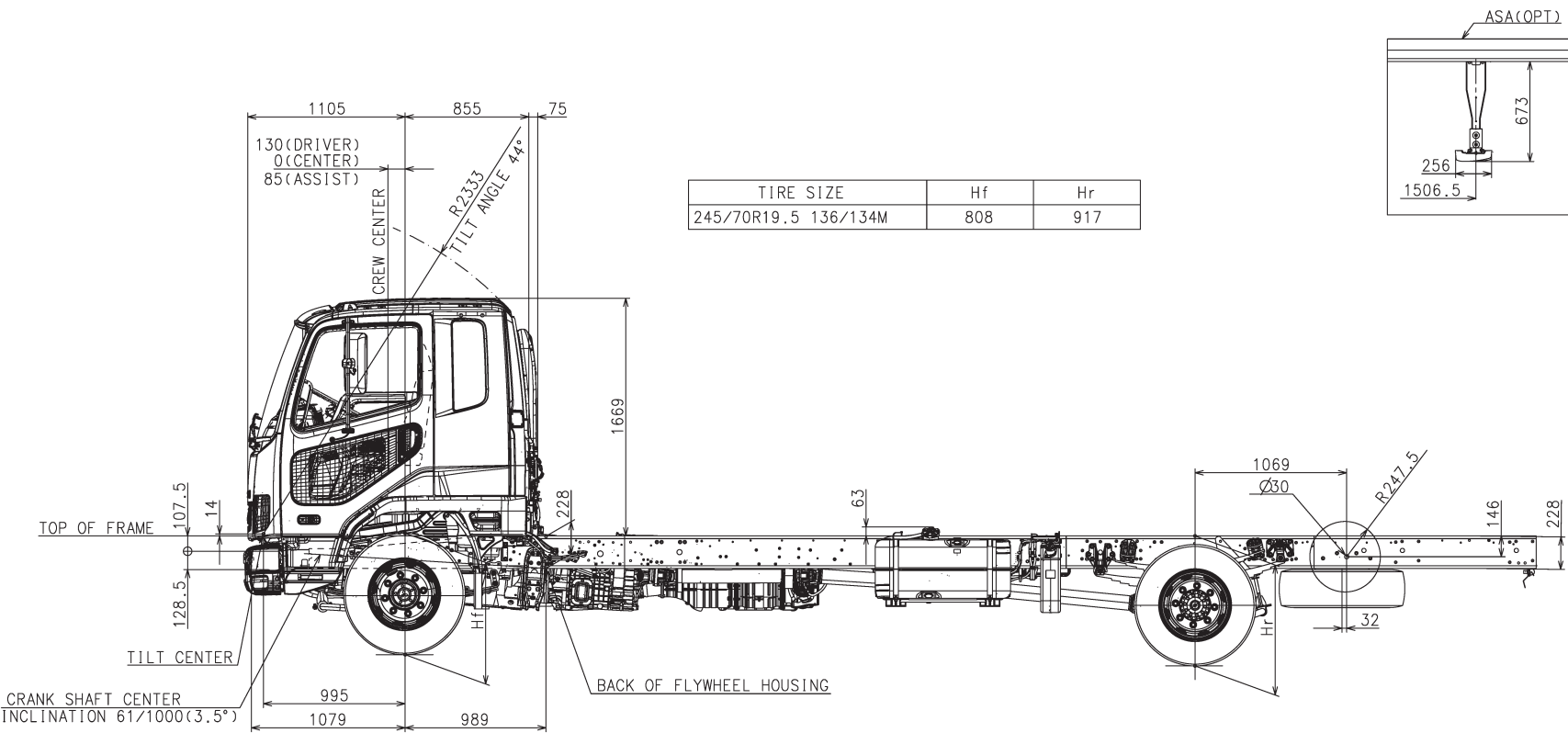
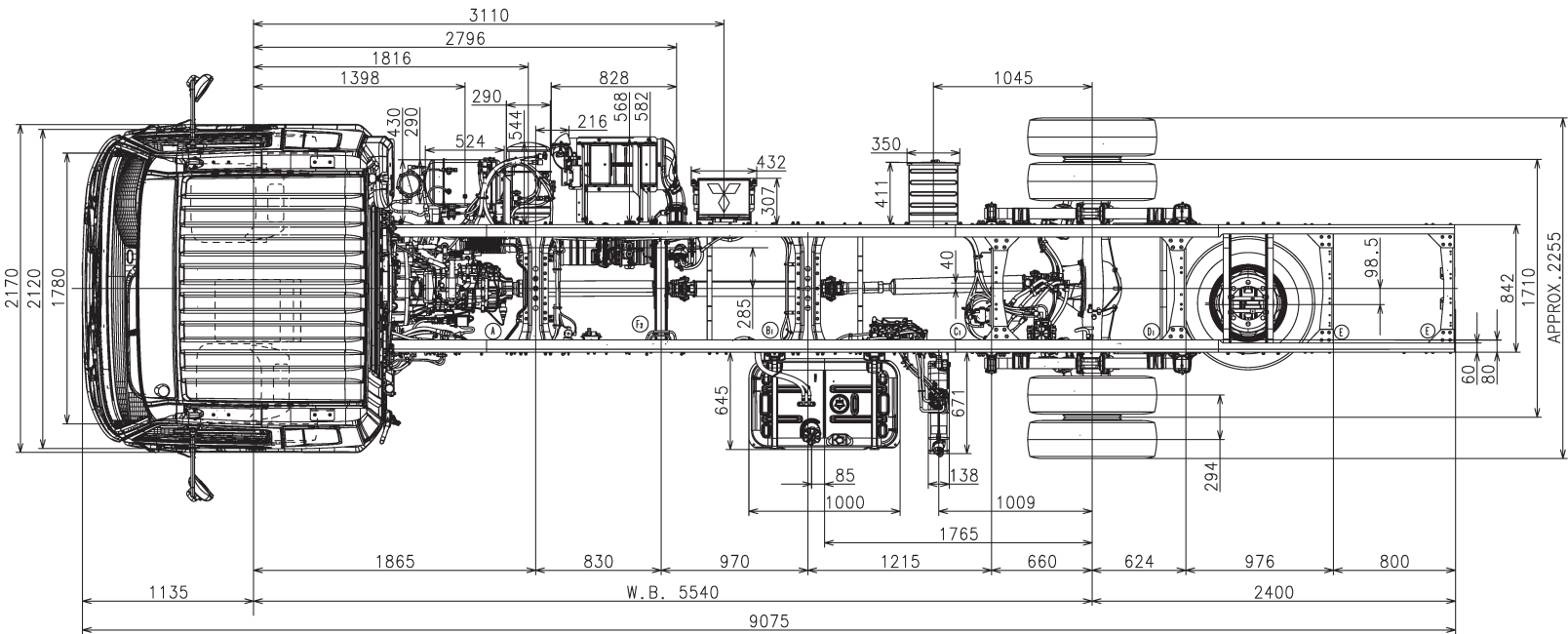
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10.5 Chassis cab drawings

FK62FMY5RFAC



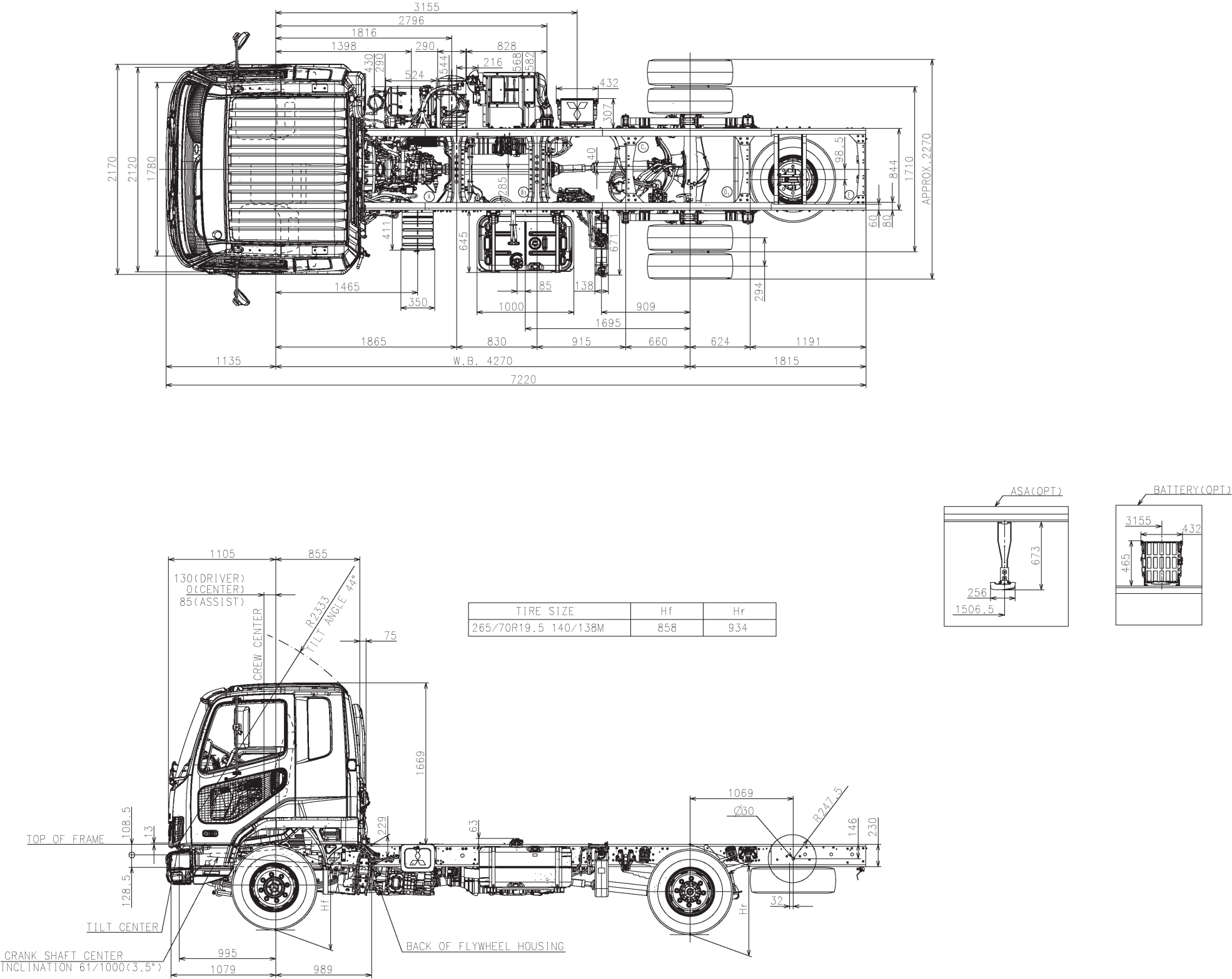
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10.5 Chassis cab drawings

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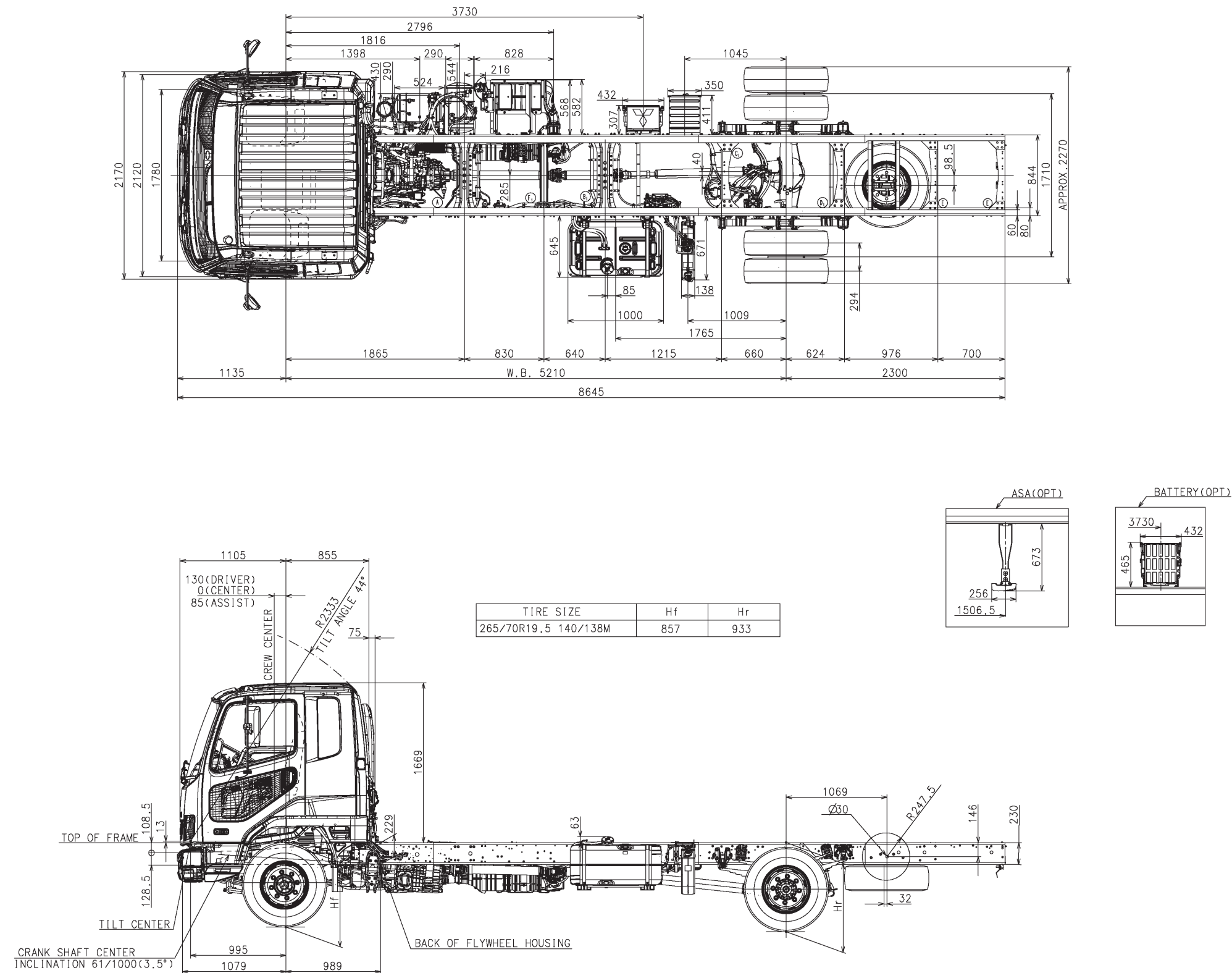


NOTE. FOR THE DETAILS OF CROSSMEMBERS,
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10.5 Chassis cab drawings

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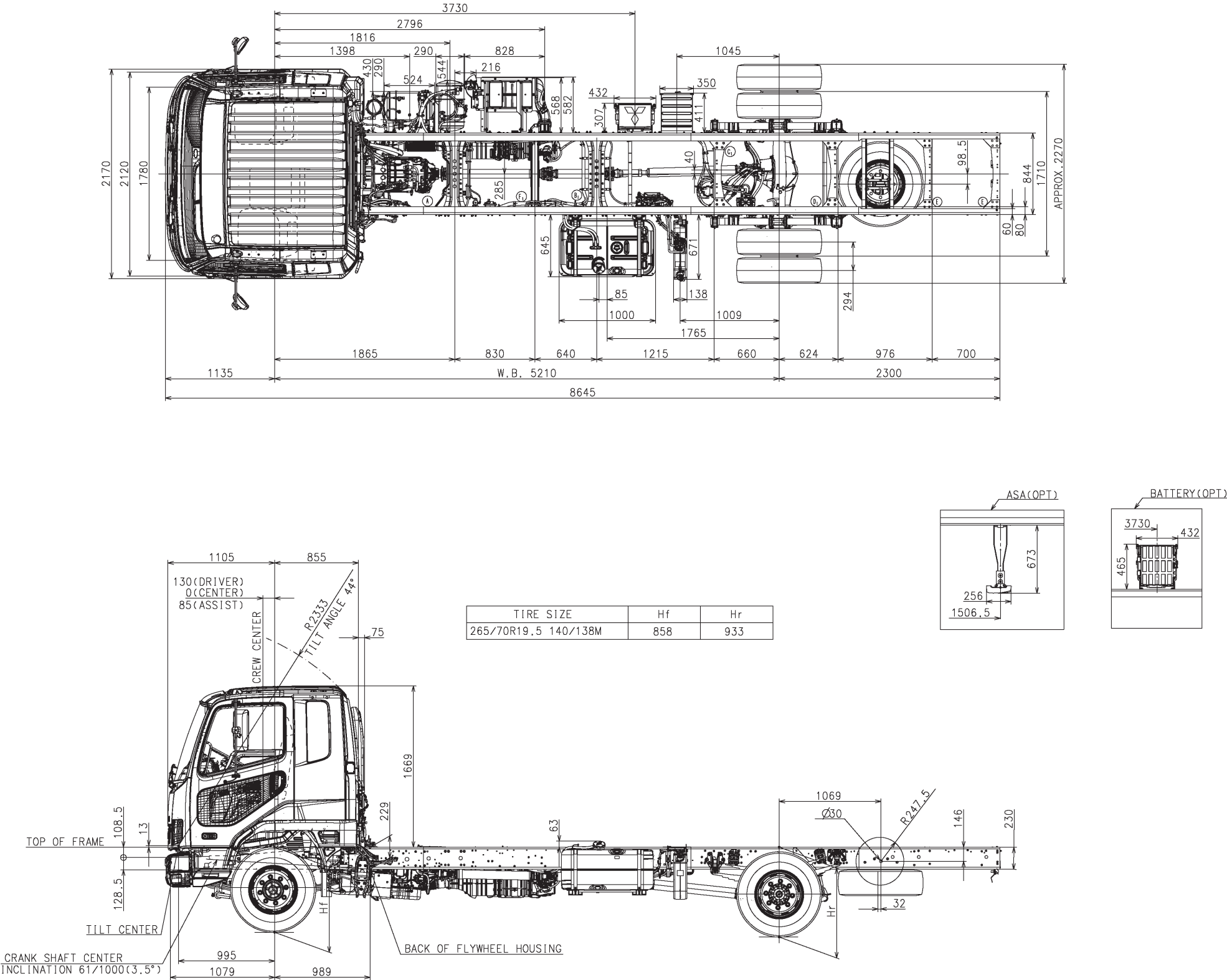


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10.5 Chassis cab drawings

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NOTE. FOR THE DETAILS OF CROSSMEMBERS, SEE "DETAILS OF CROSSMEMBERS".

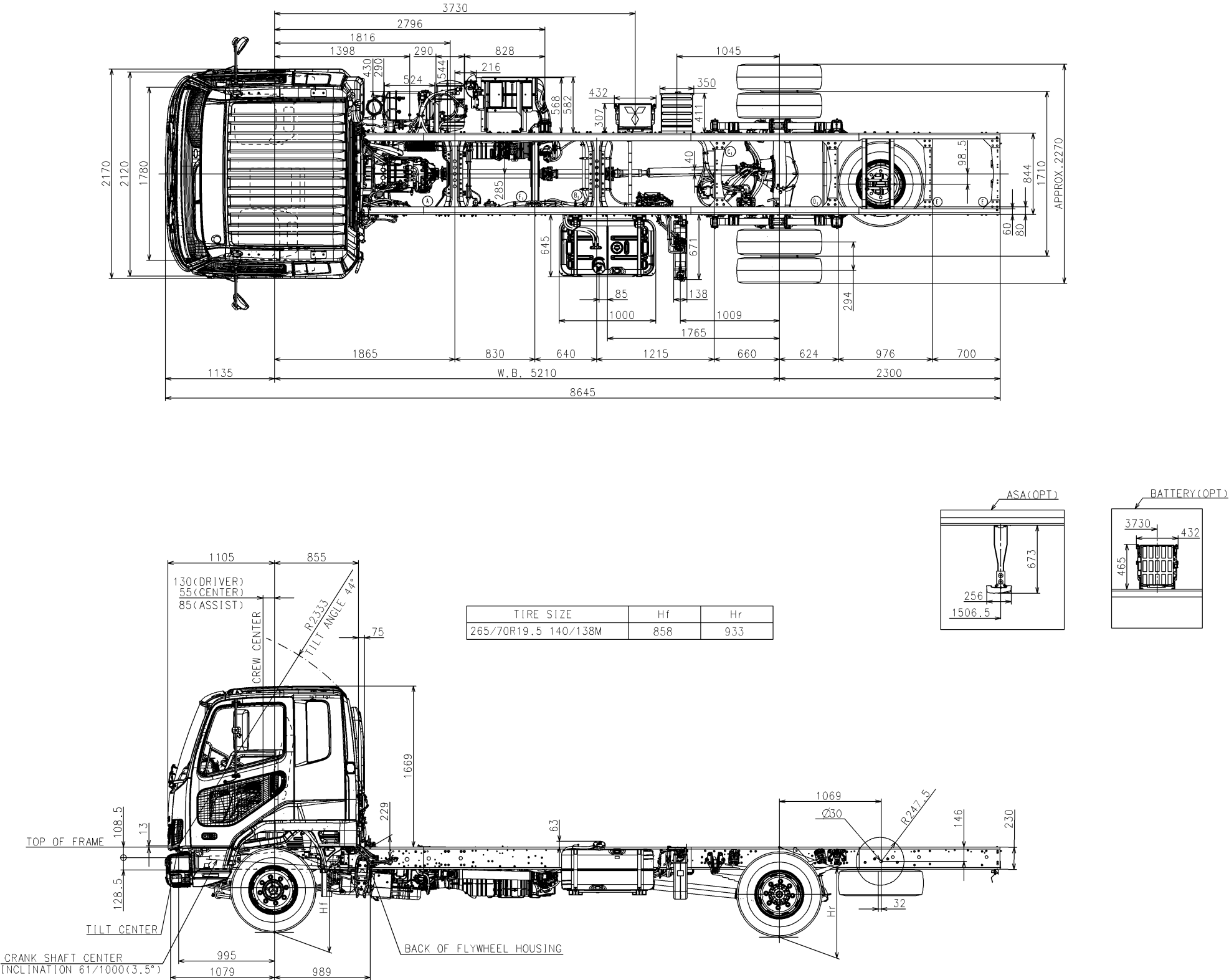
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10.5 Chassis cab drawings



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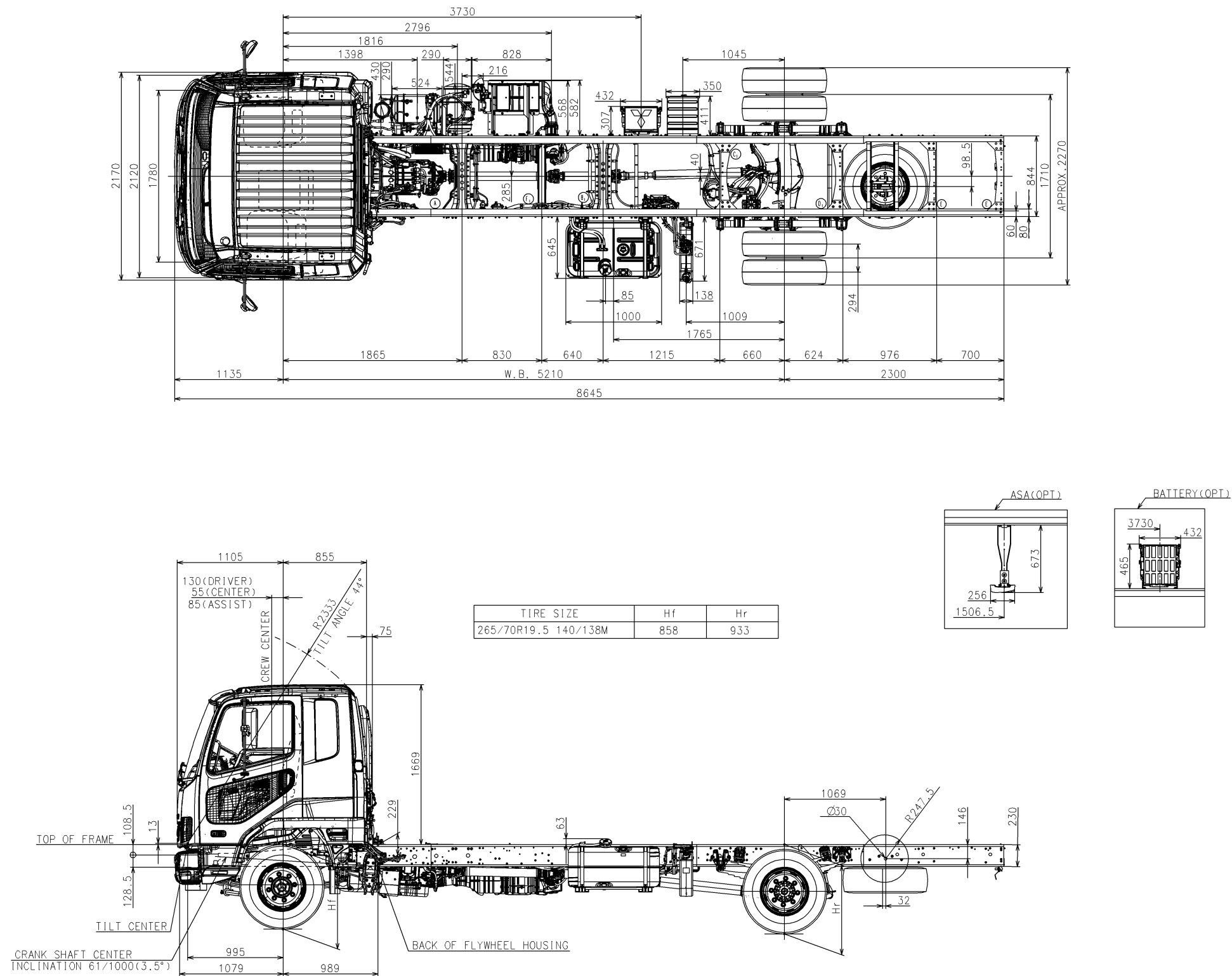
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10.5 Chassis cab drawings



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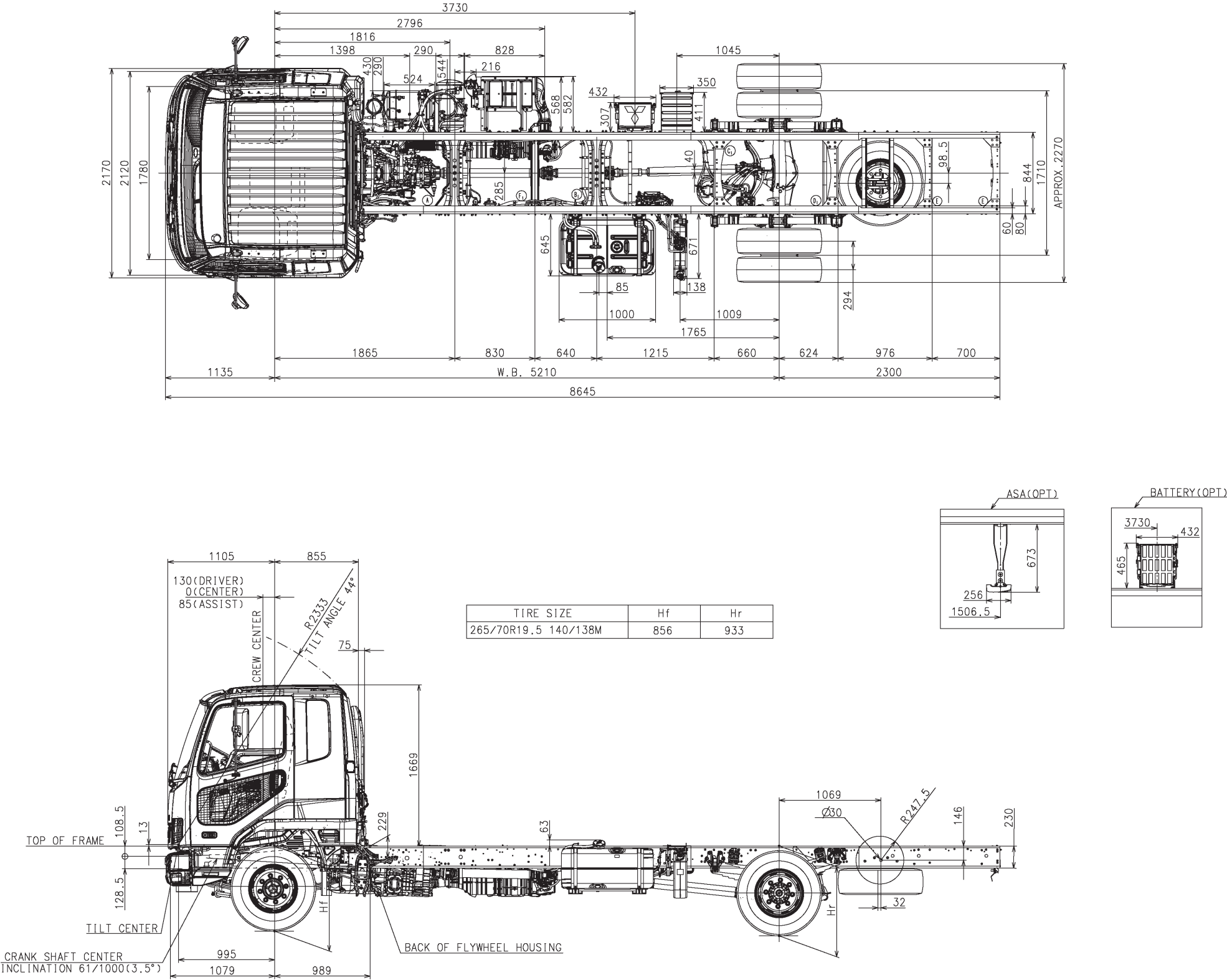


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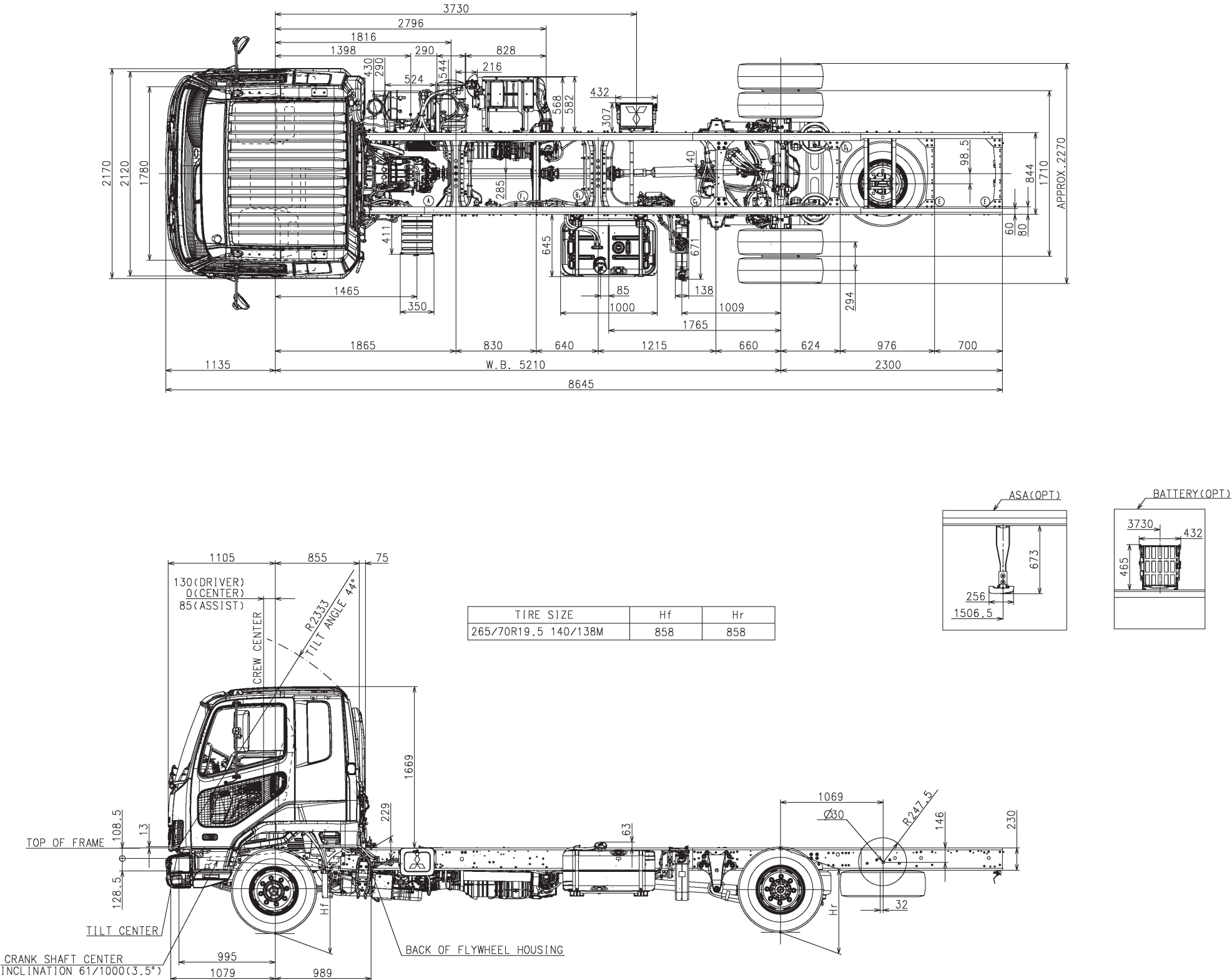
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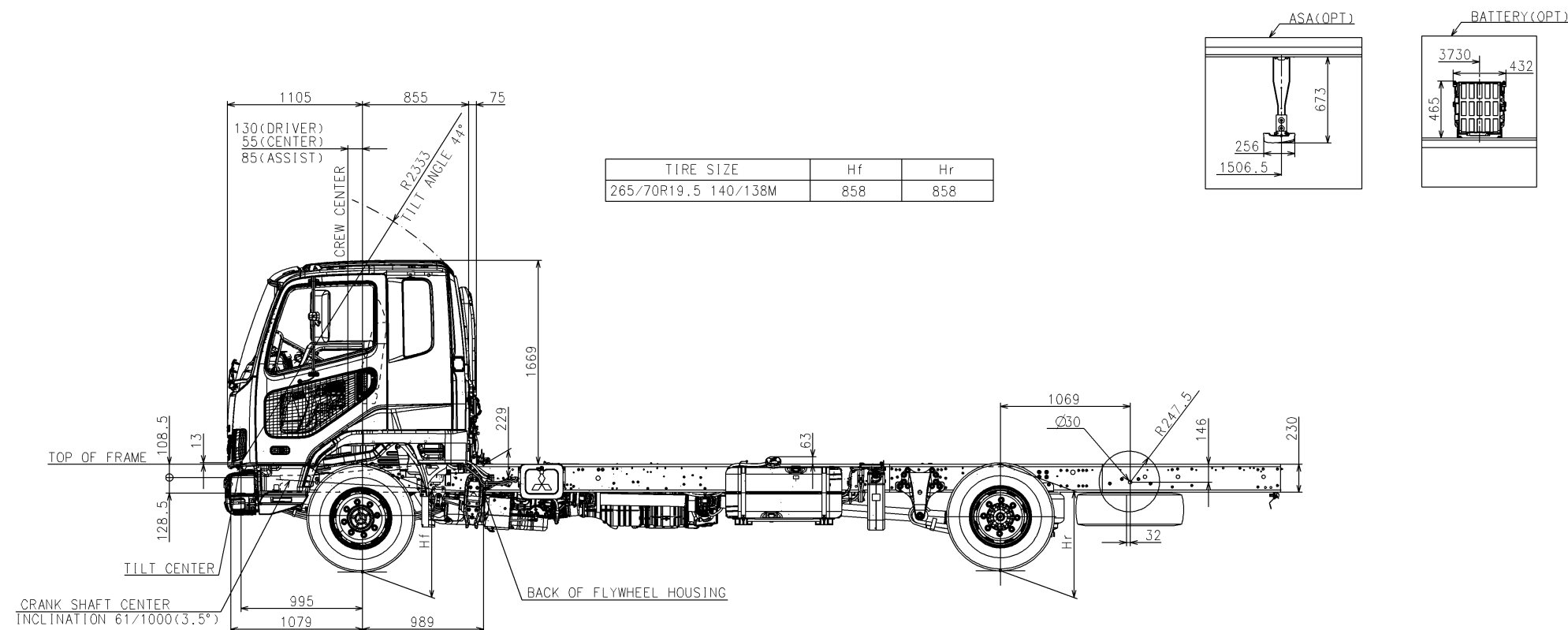
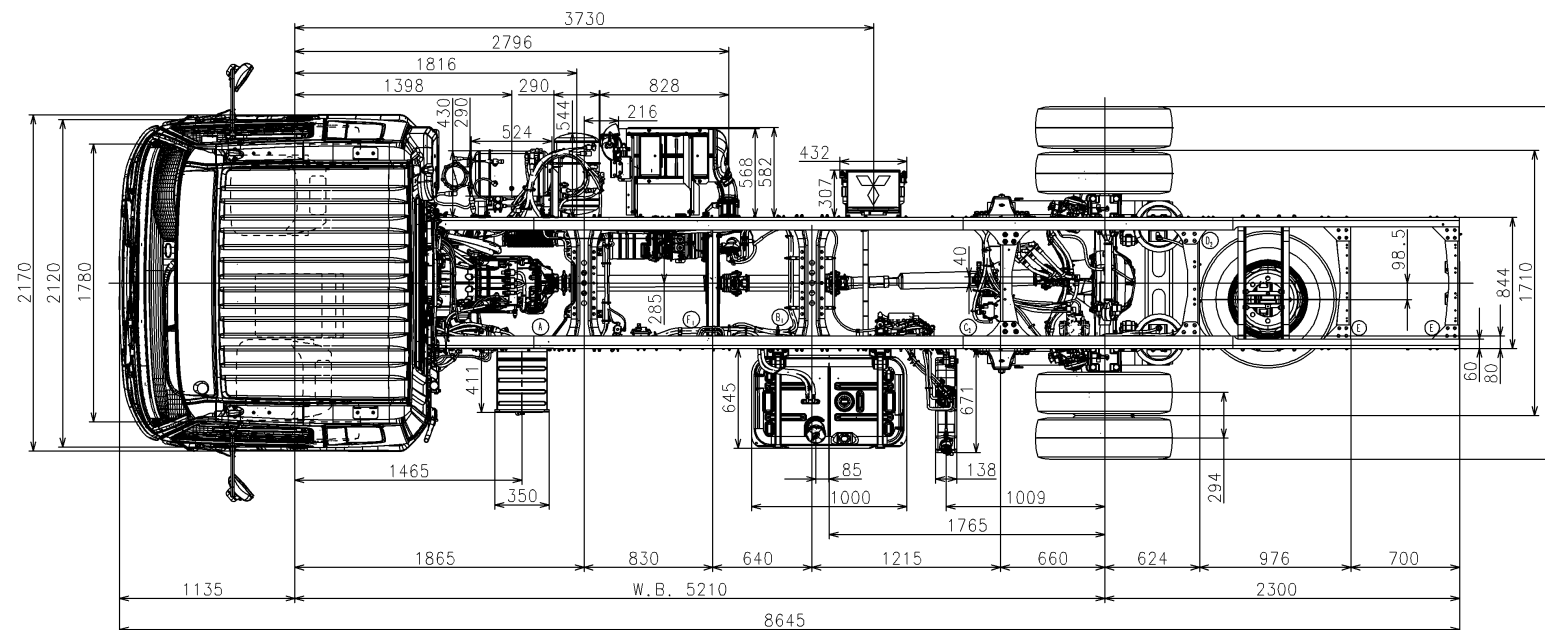
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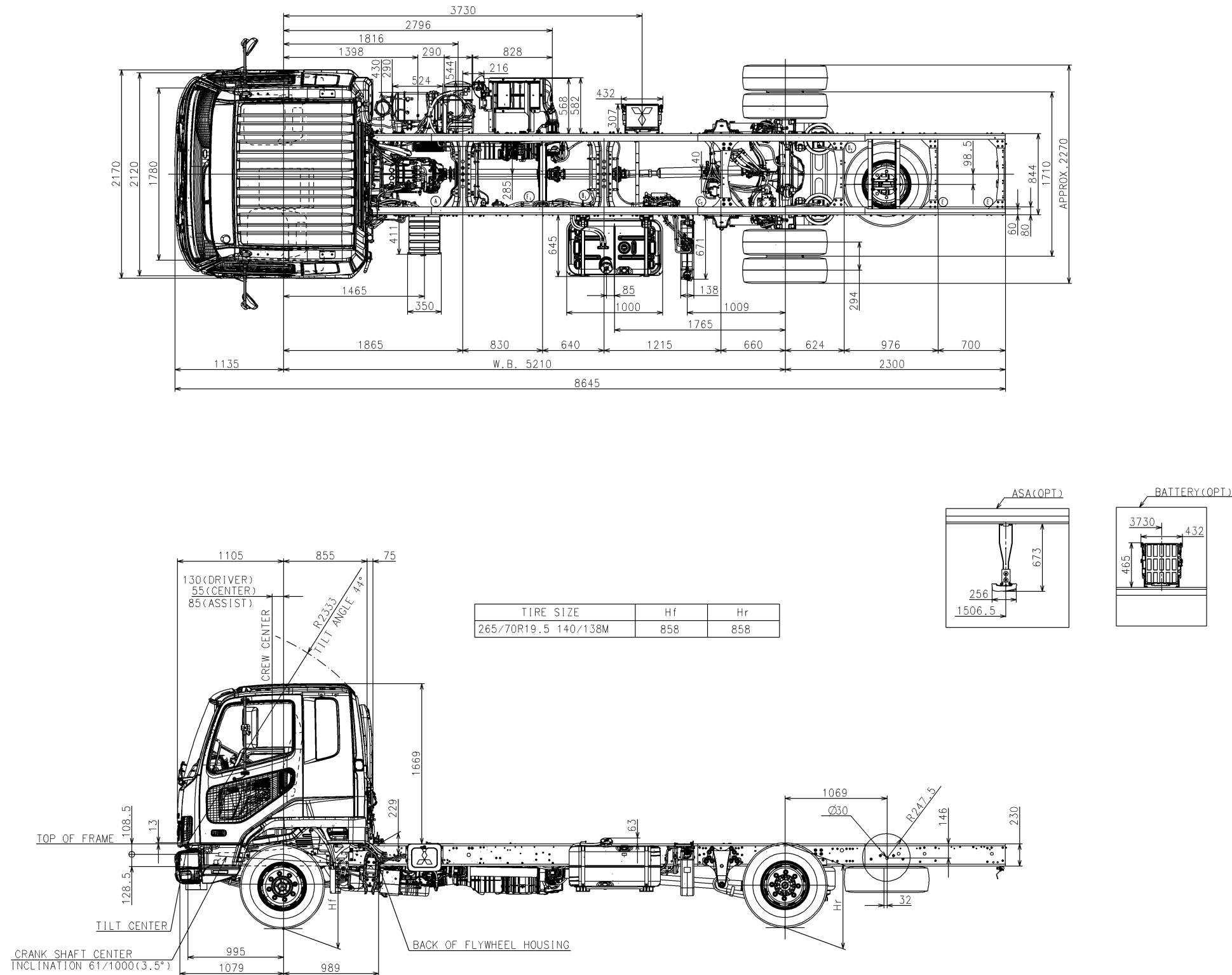
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10.5 Chassis cab drawings



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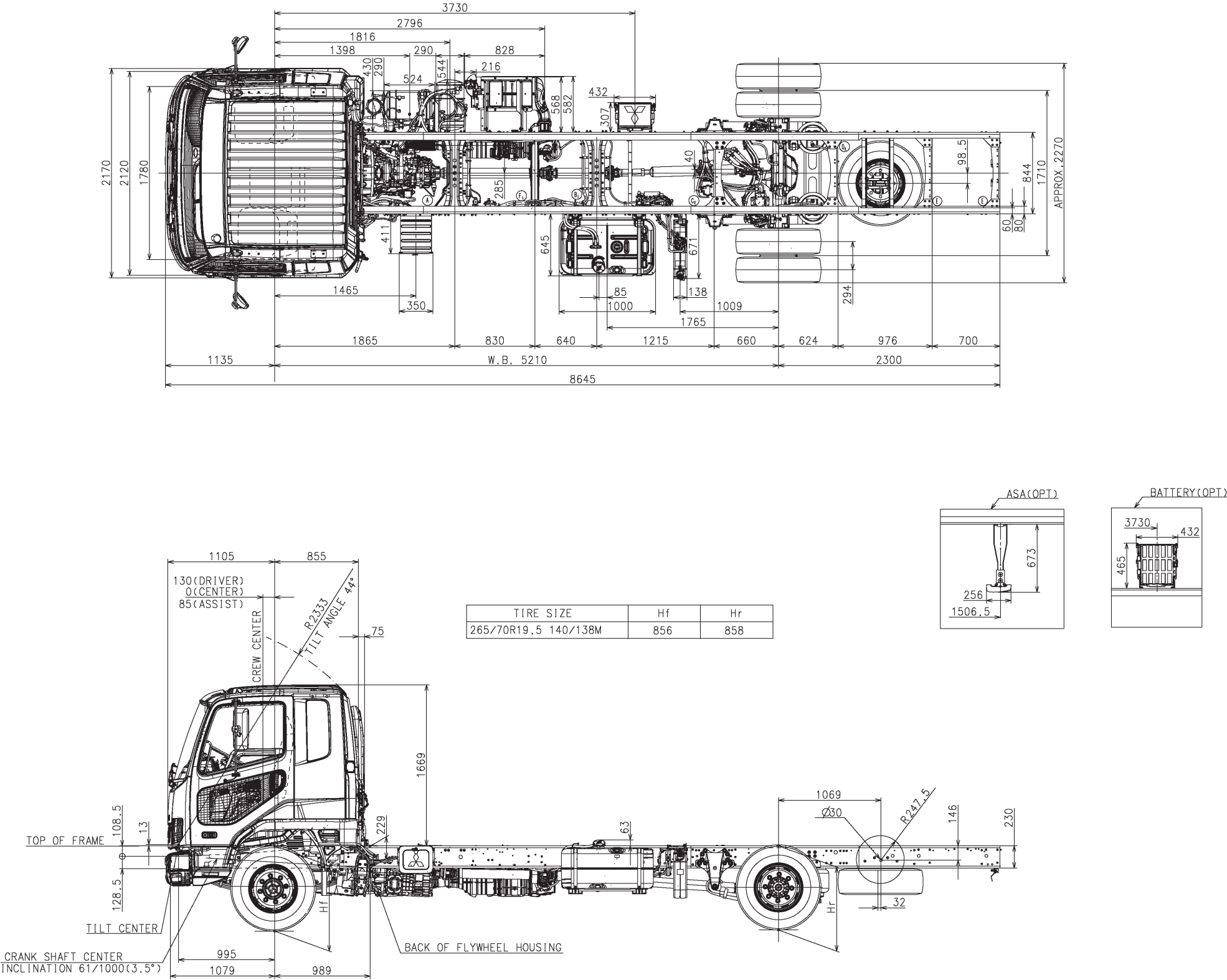


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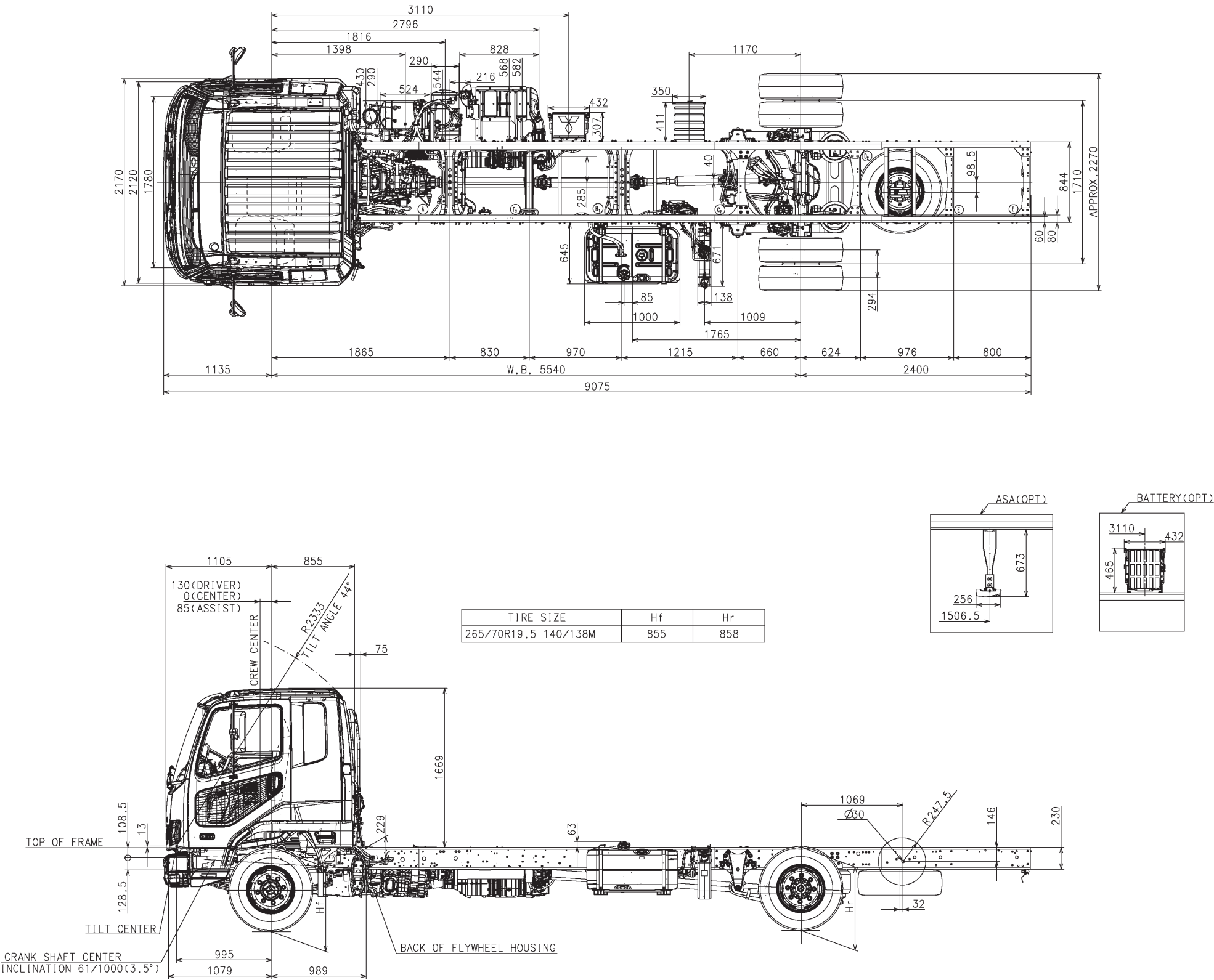
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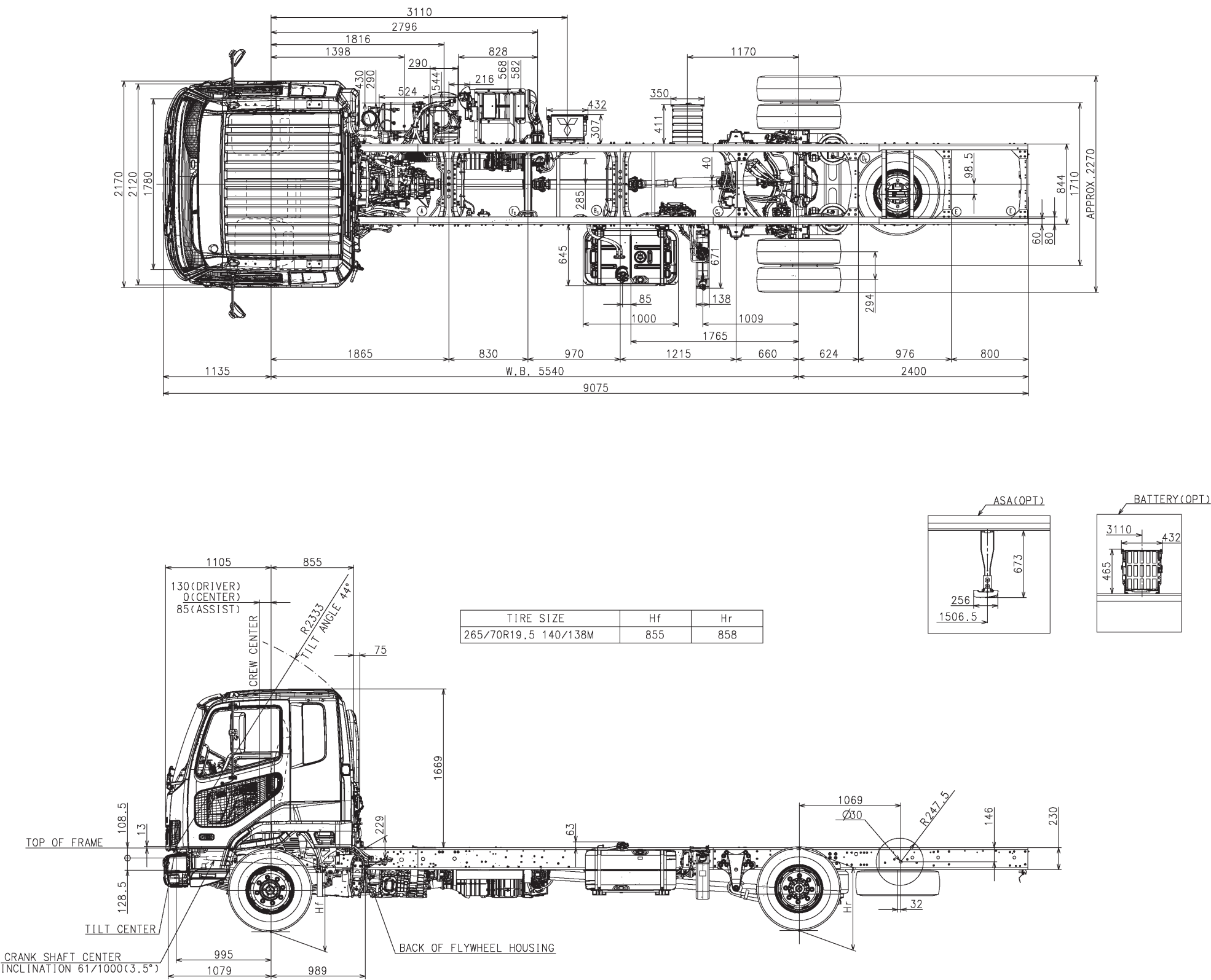
10.5 Chassis cab drawings

FK65FMZ6RFAC



10.5 Chassis cab drawings

FK65FMZ6RFAH



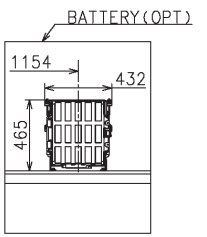
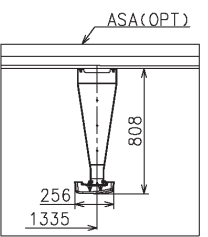
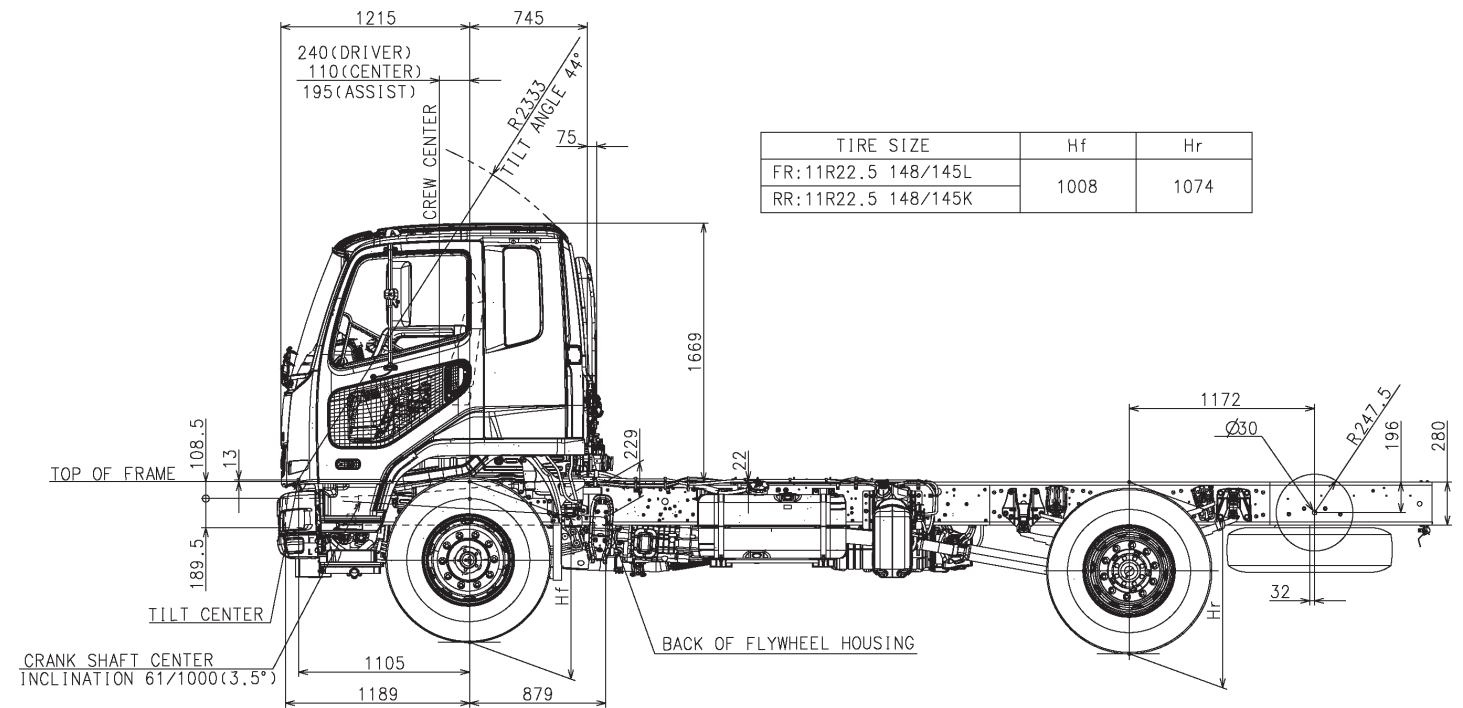
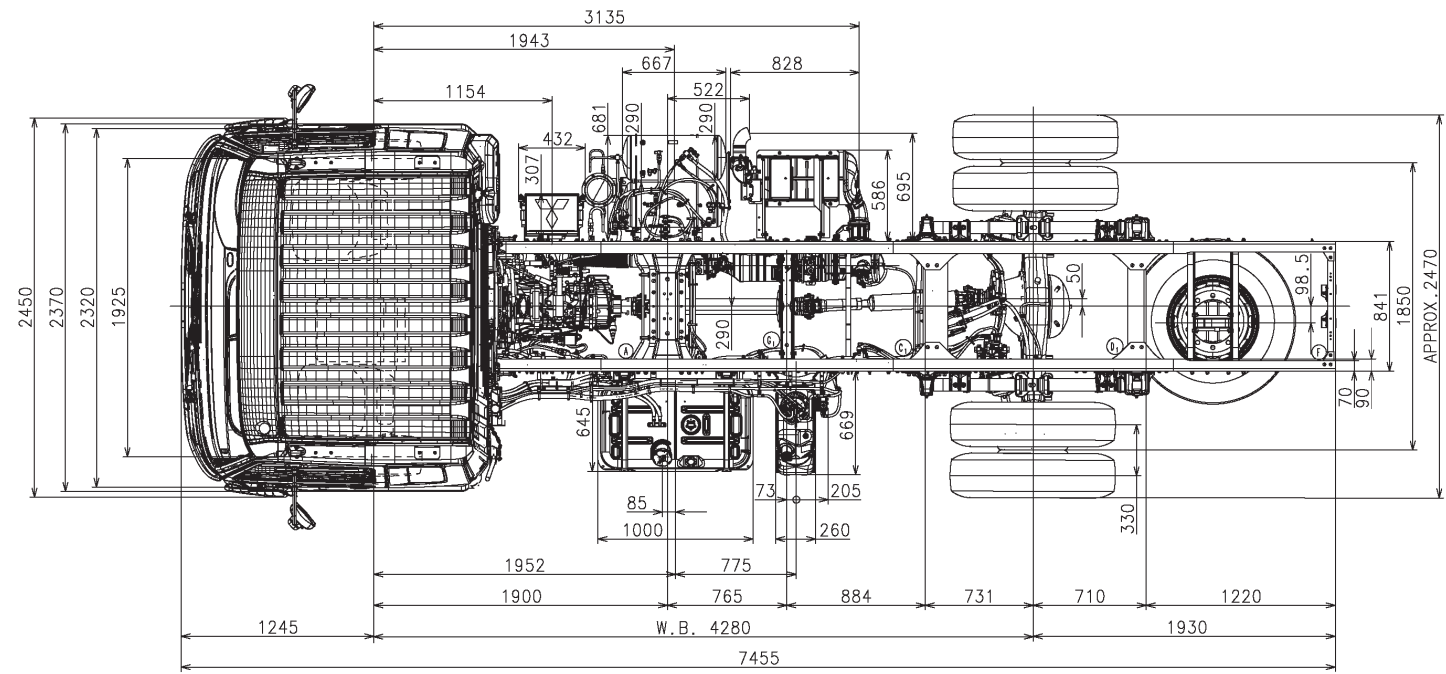
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10.5 Chassis cab drawings

FM65FH6RF AH



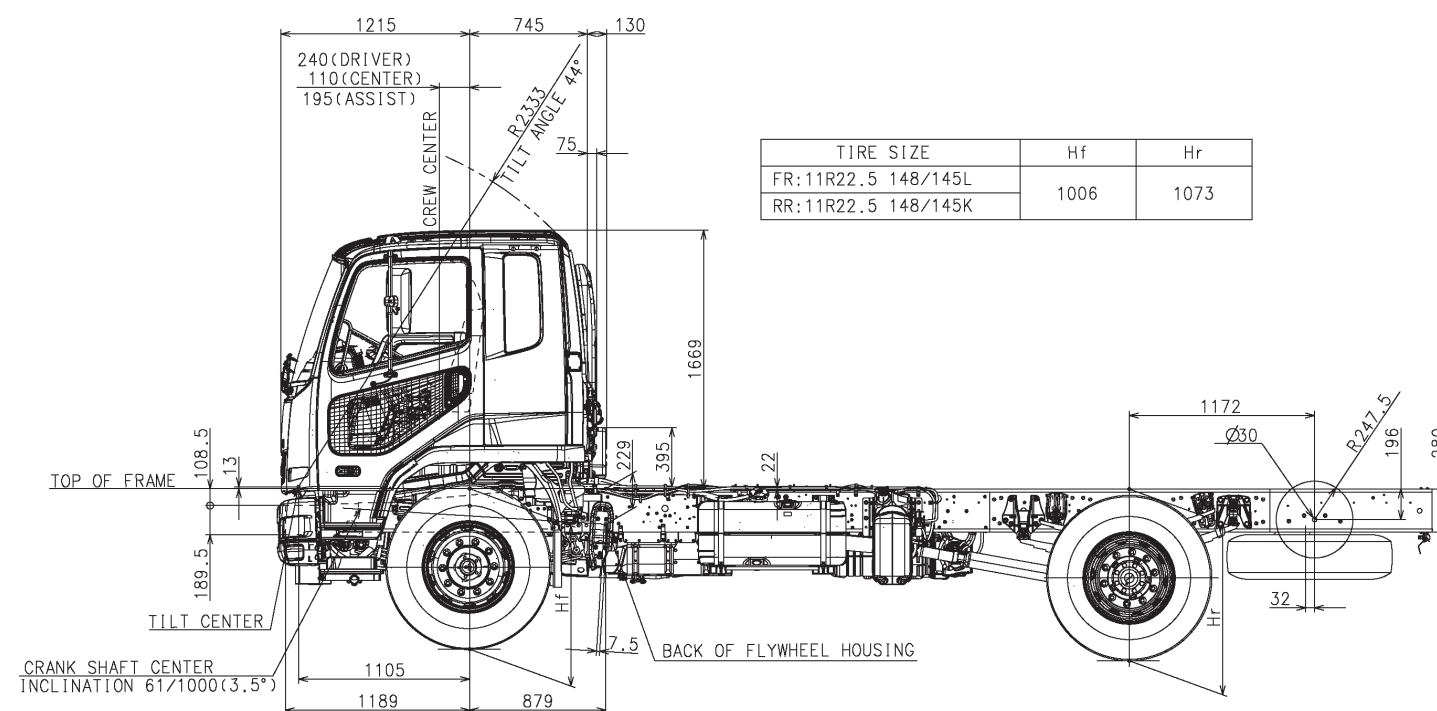
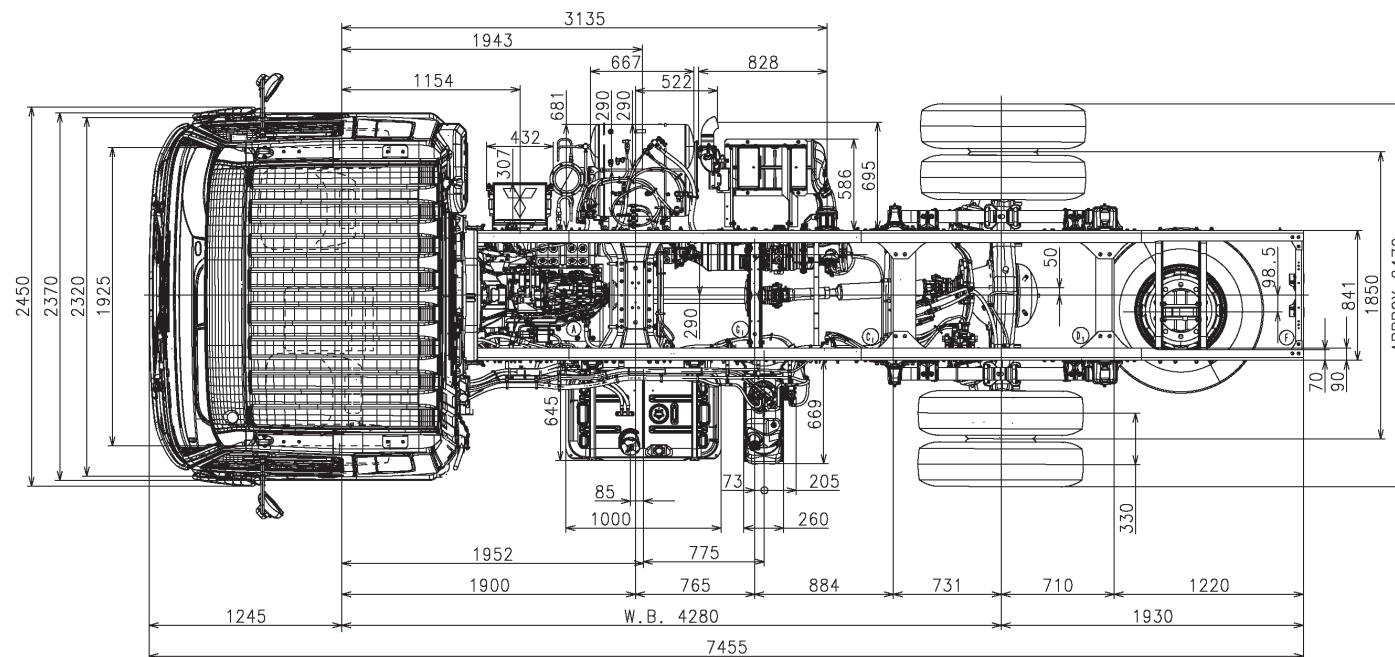
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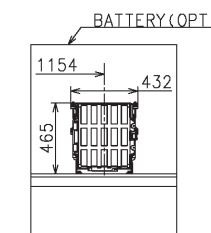
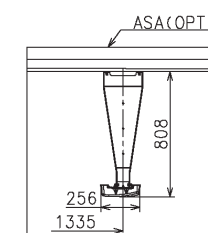


10.5 Chassis cab drawings

FM65FH6RF AK



TIRE SIZE	Hf	Hr
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RR:11R22.5 148/145K		

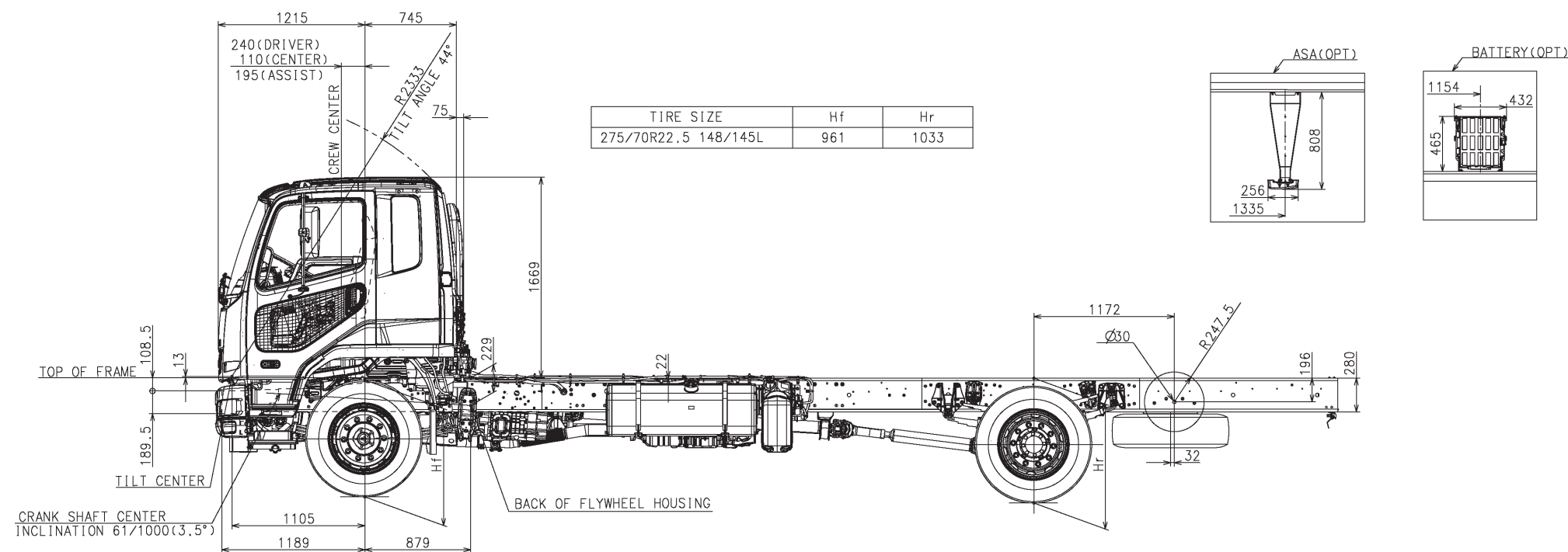
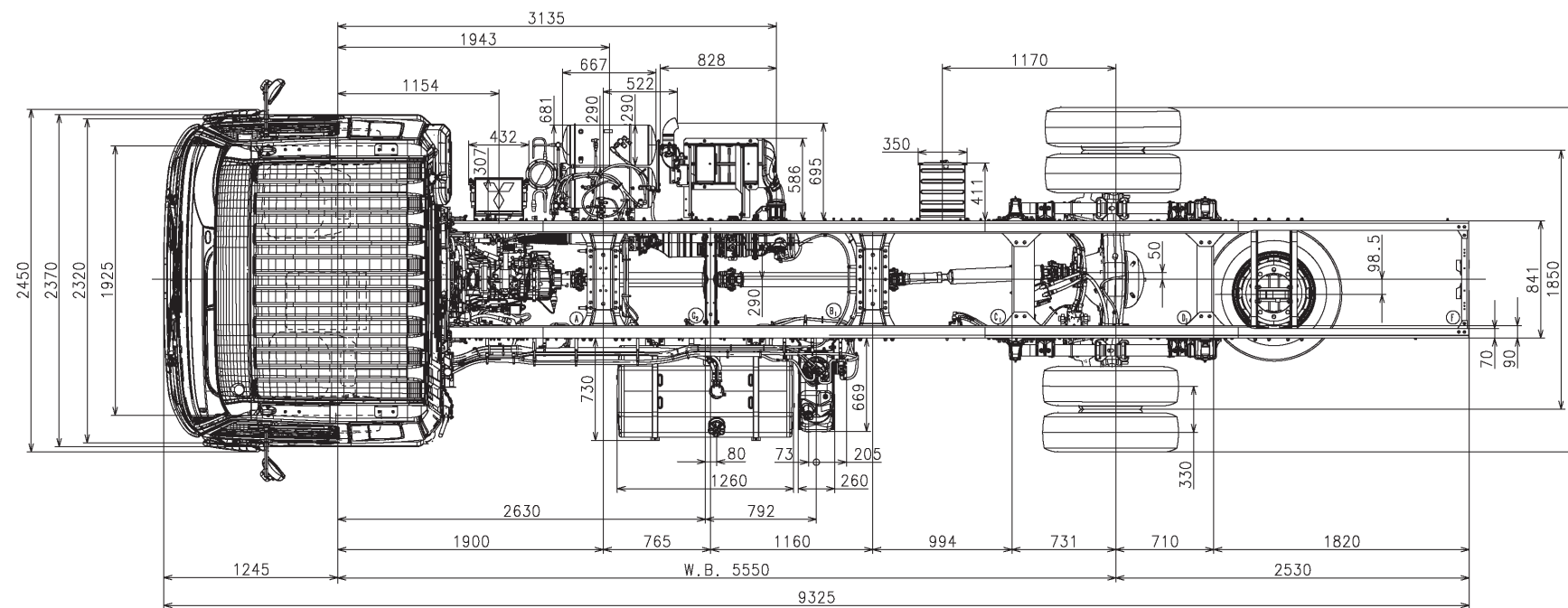


NOTE. FOR THE DETAILS OF CROSSMEMBERS,
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UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FM65FM6RF AH

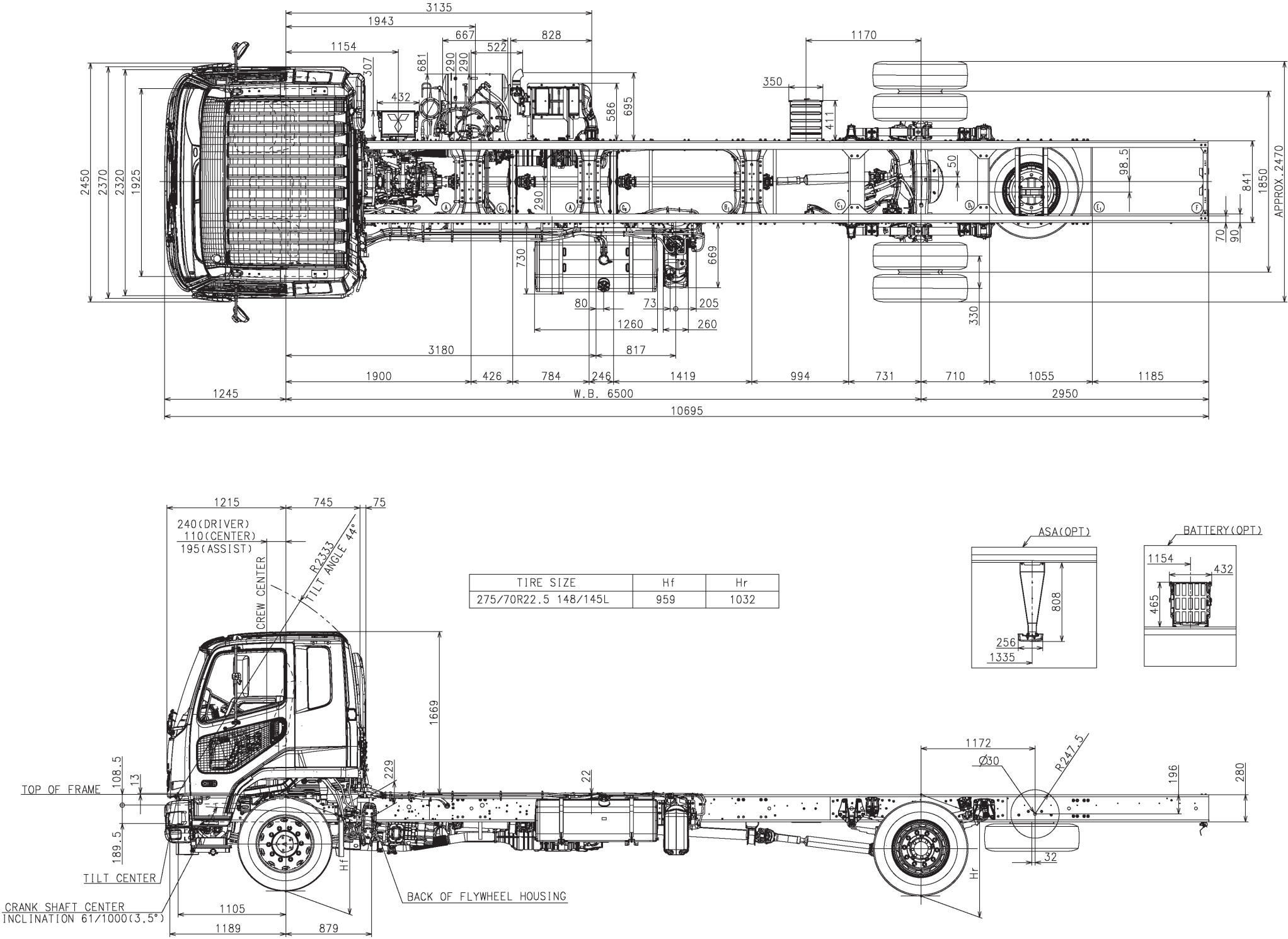


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UNIT : mm
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10.5 Chassis cab drawings

FM65FS6RFAH



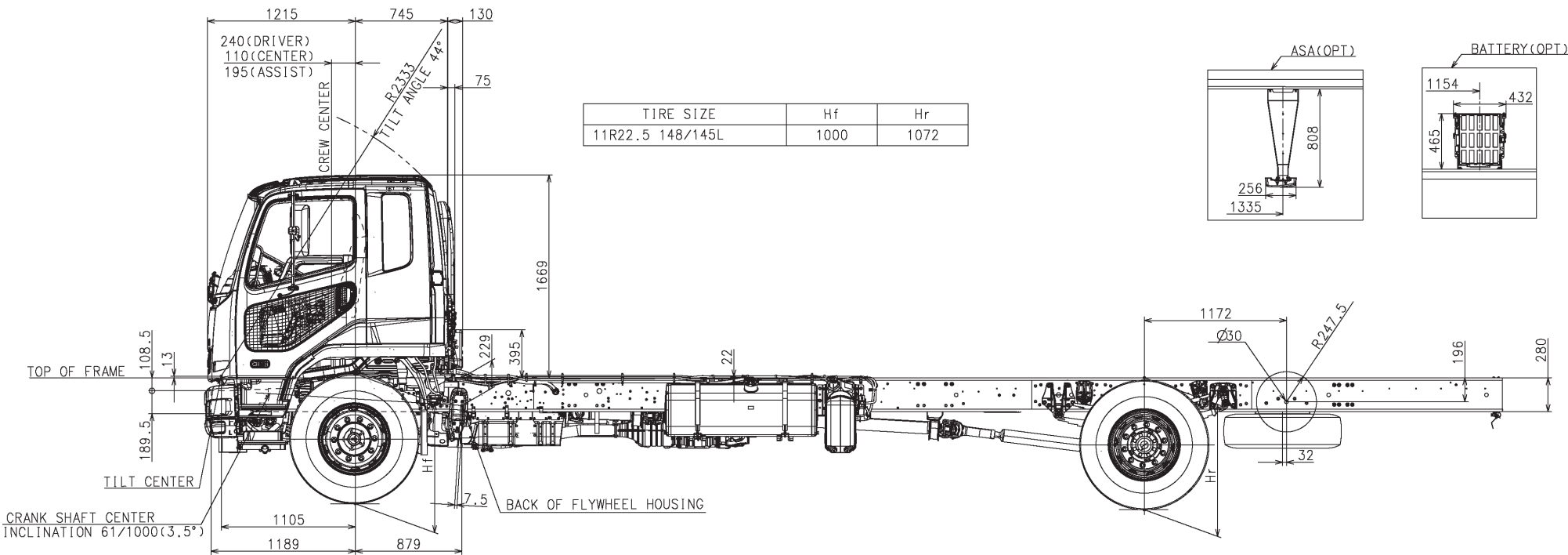
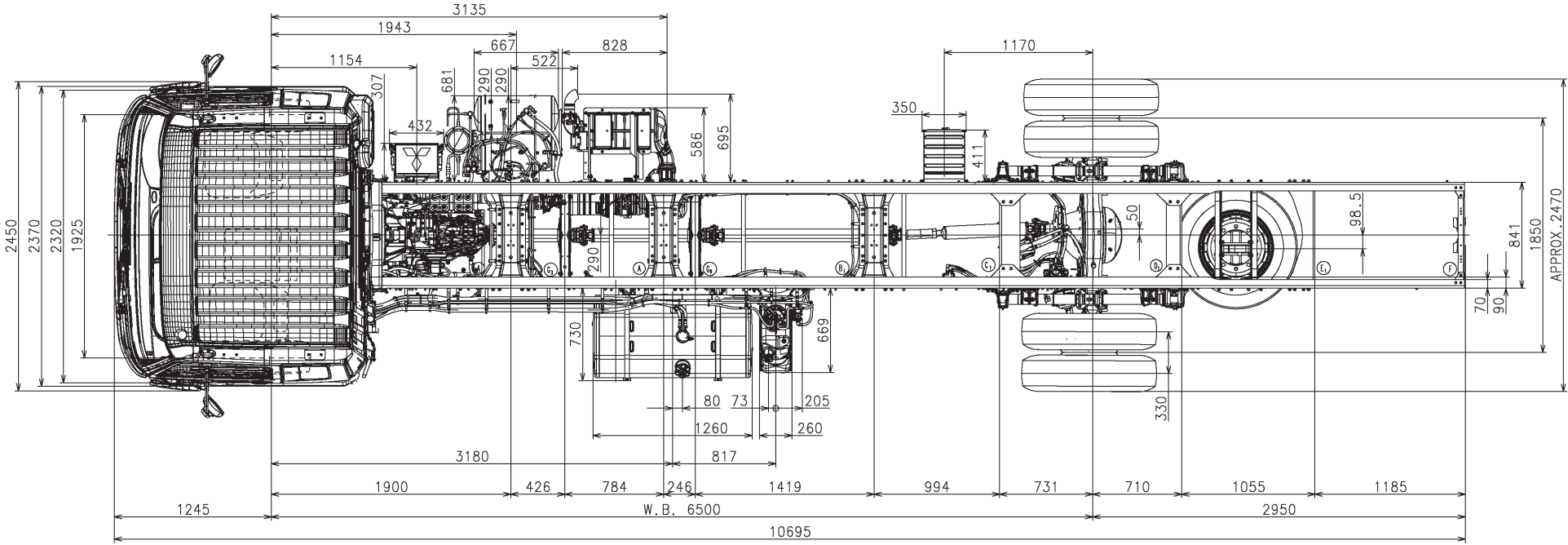
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SCALE : 1/40



10.5 Chassis cab drawings

FM65FS6RFAK



TIRE SIZE	Hf	Hr
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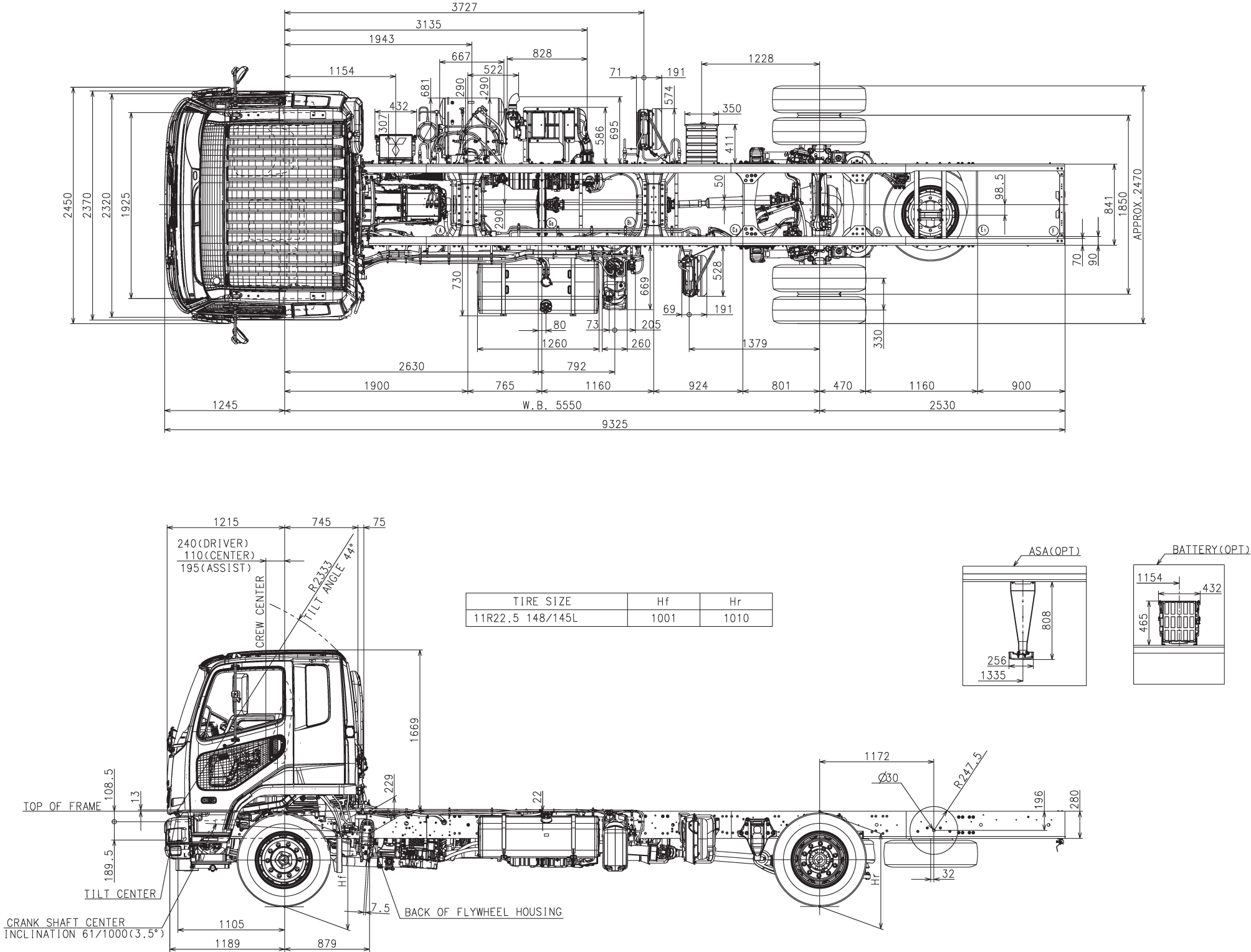
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UNIT : mm
SCALE : 1/40



10.5 Chassis cab drawings

FM67FM6RFAJ

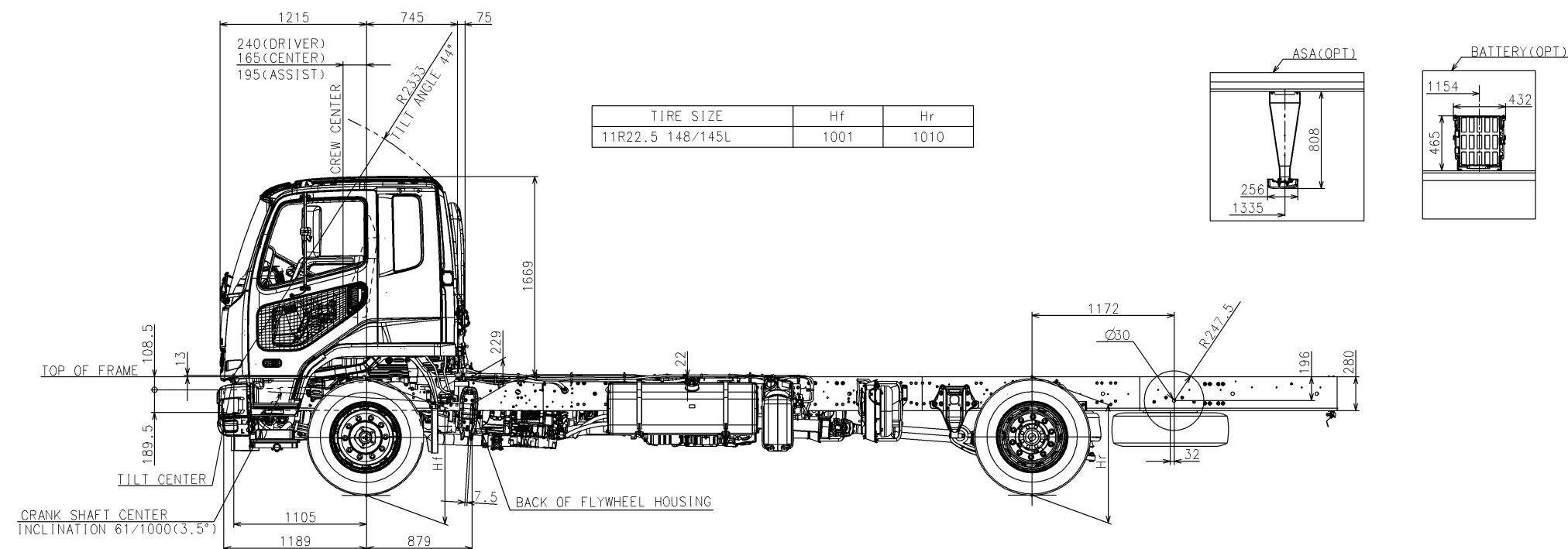
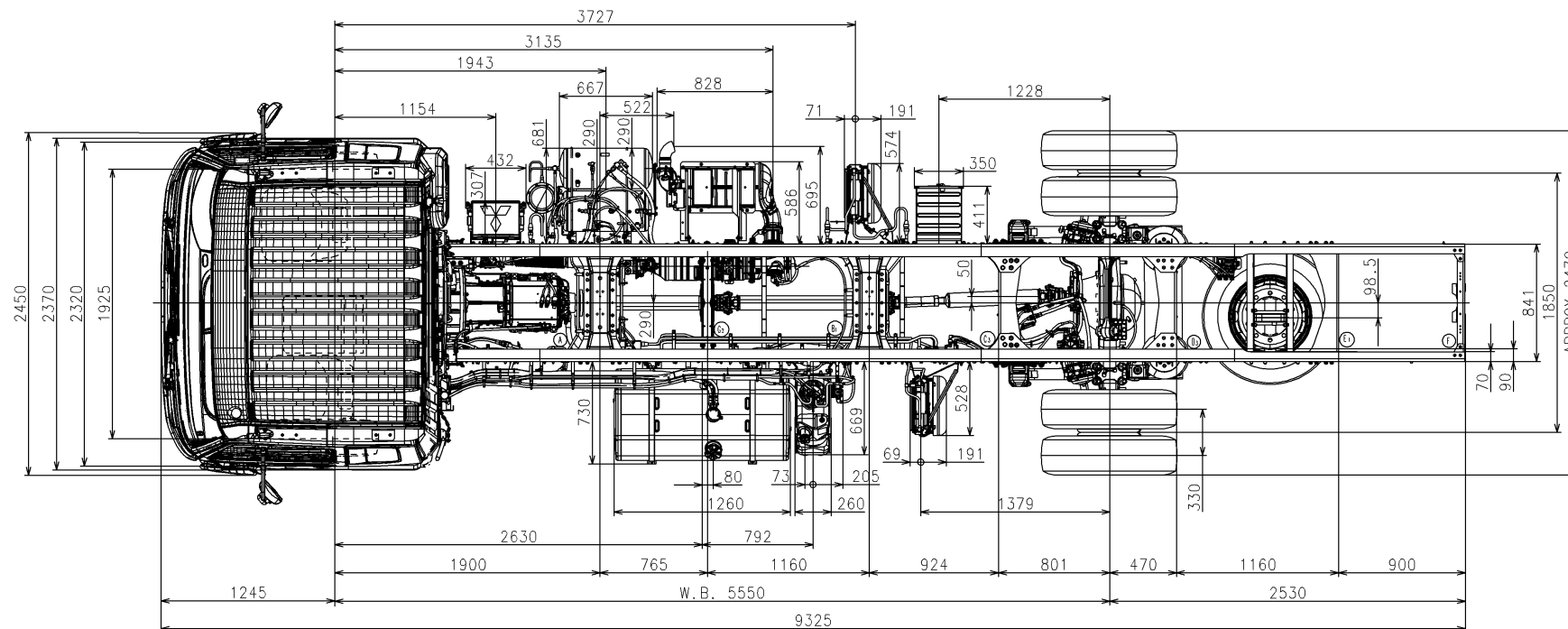


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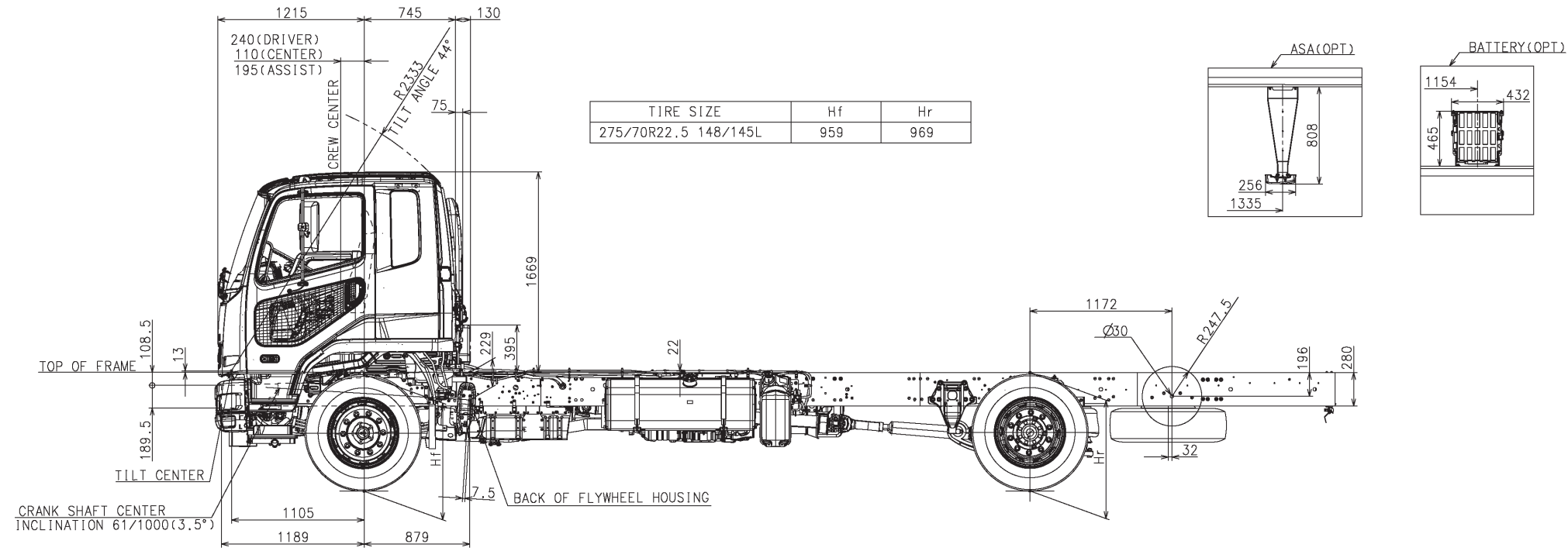
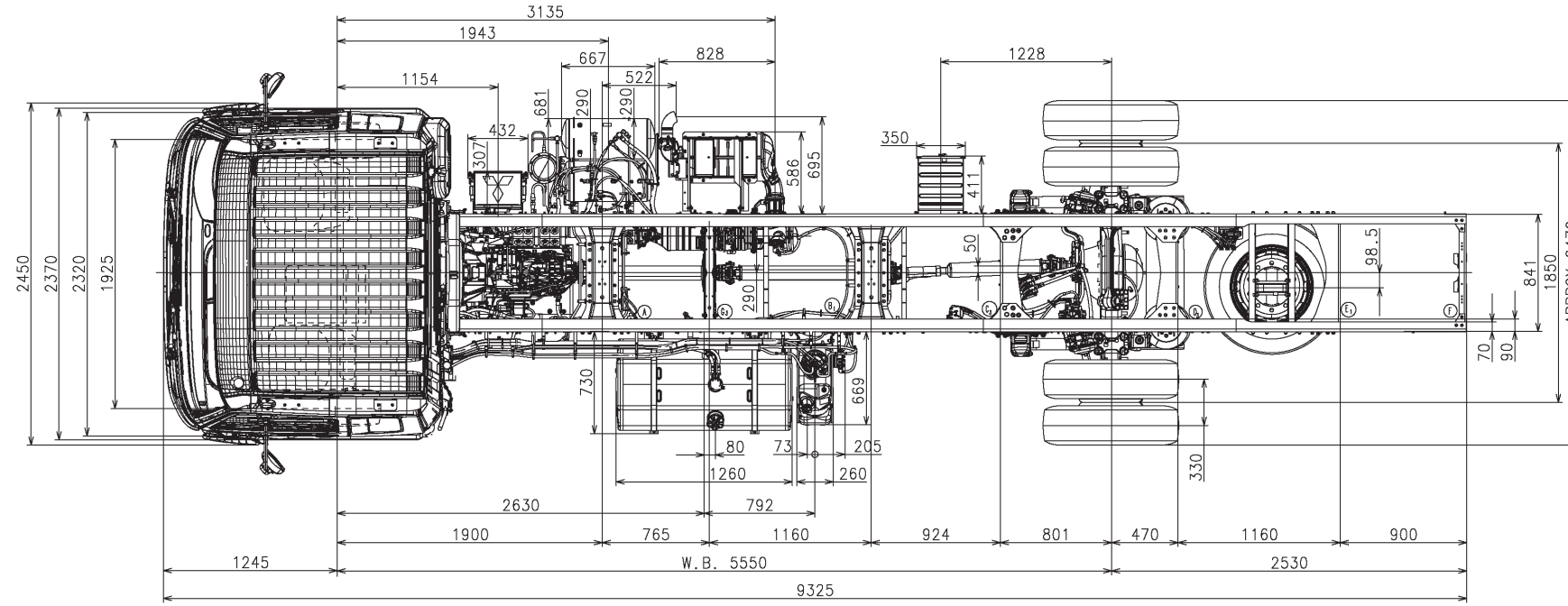
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10.5 Chassis cab drawings

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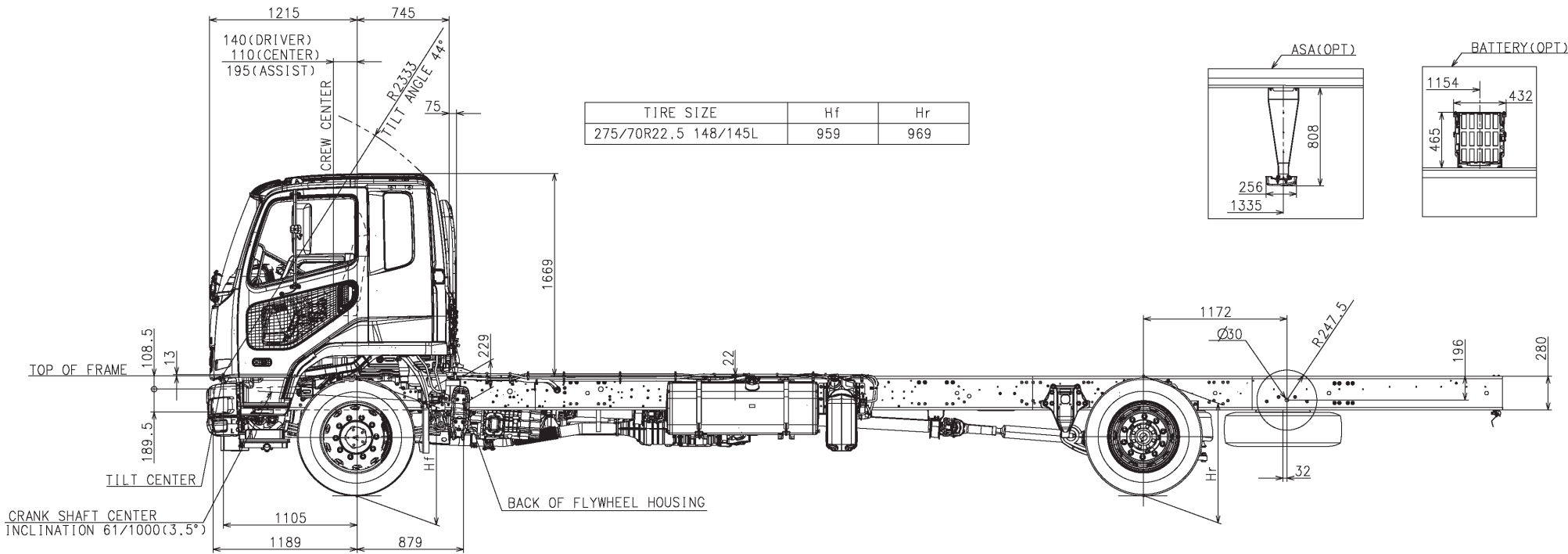
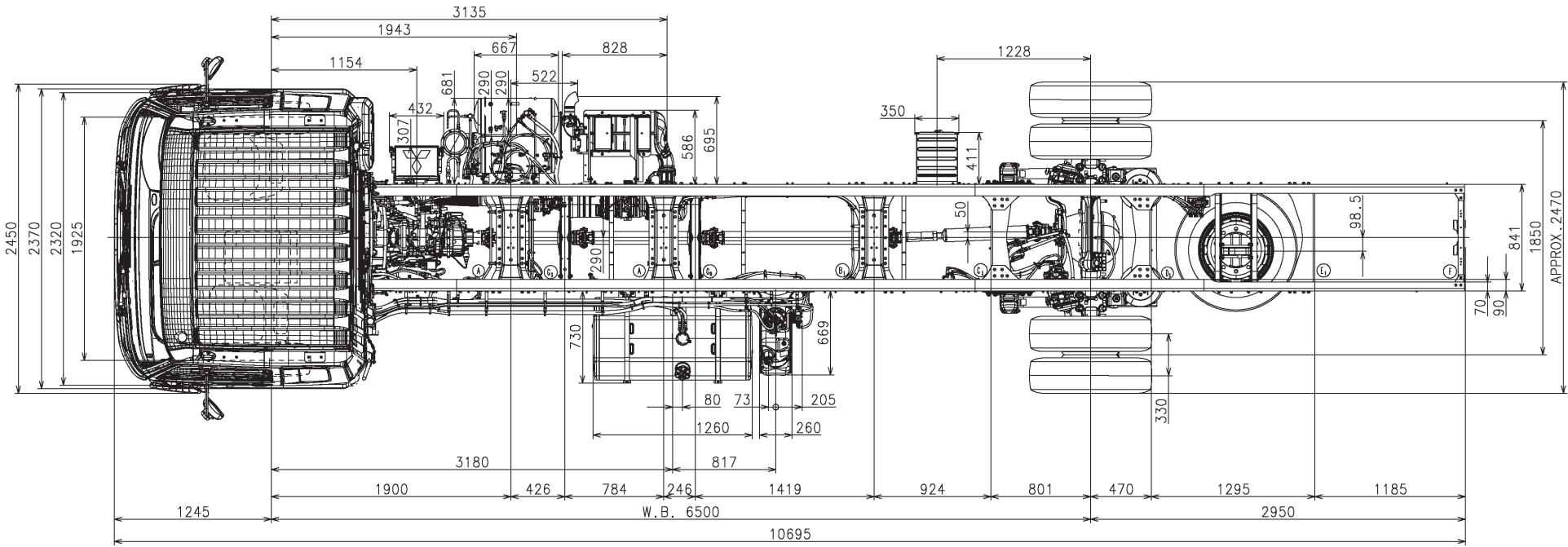


NOTE. FOR THE DETAILS OF CROSSMEMBERS,
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UNIT : mm
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10.5 Chassis cab drawings

FM67FS6RF AH



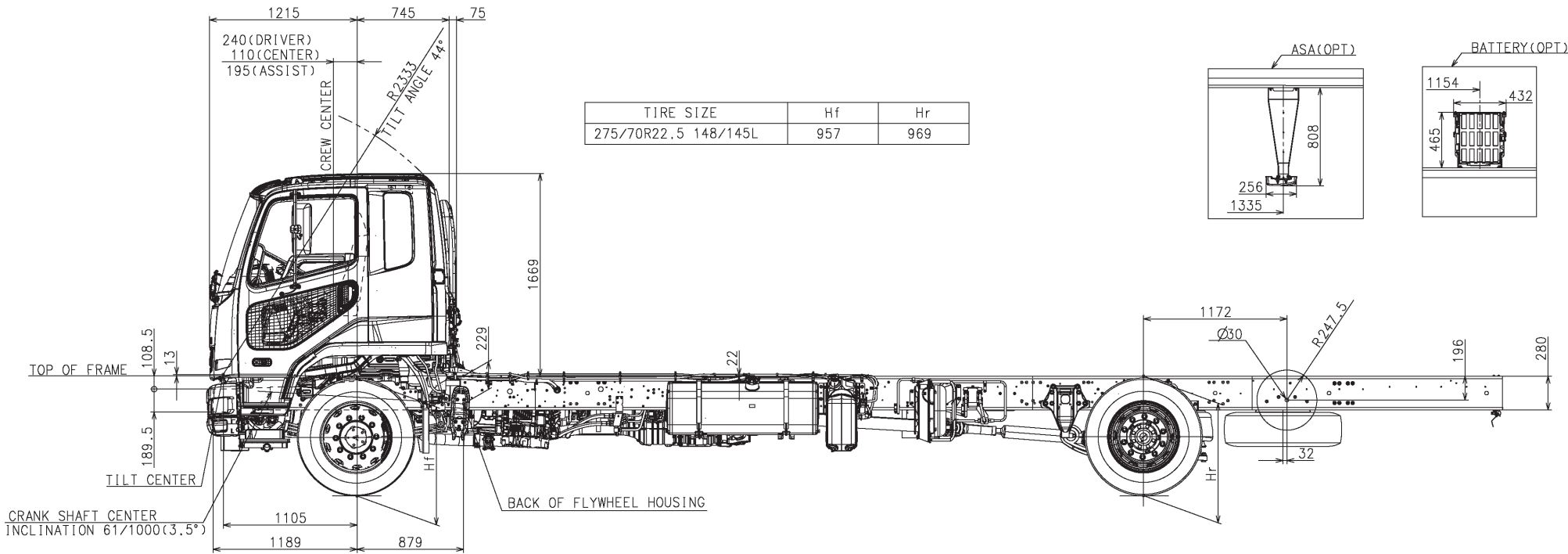
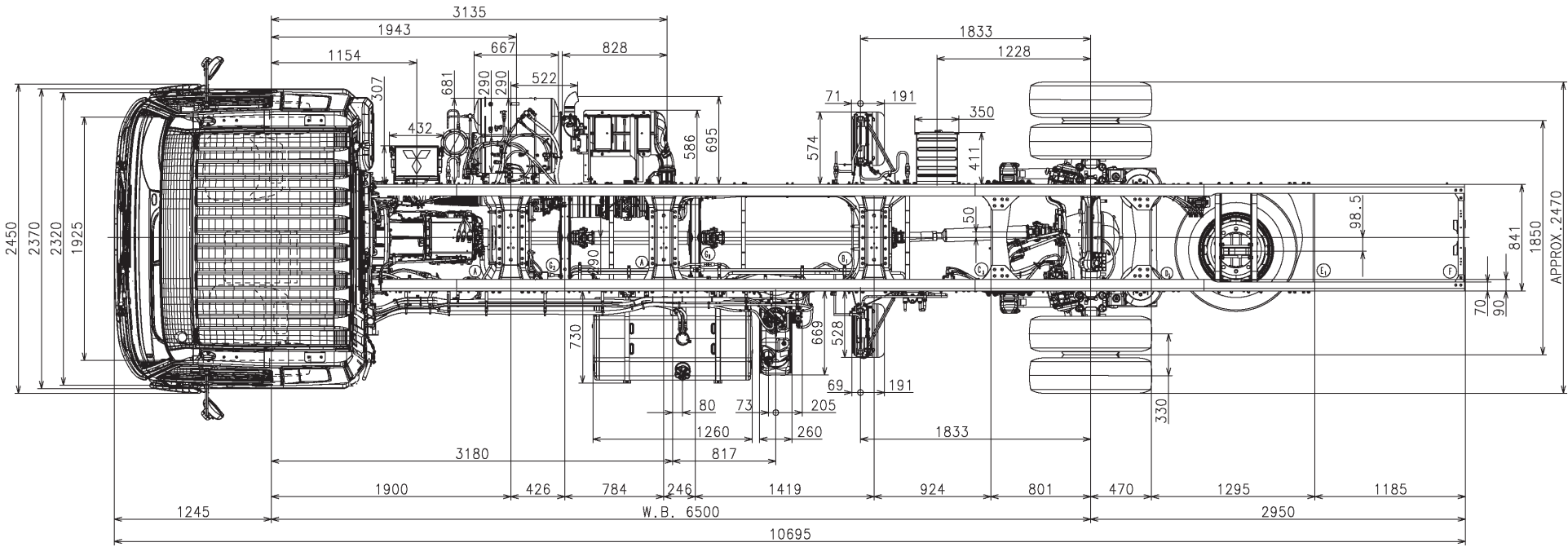
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40



10.5 Chassis cab drawings

FM67FS6RFAJ



TIRE SIZE	Hf	Hr
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NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

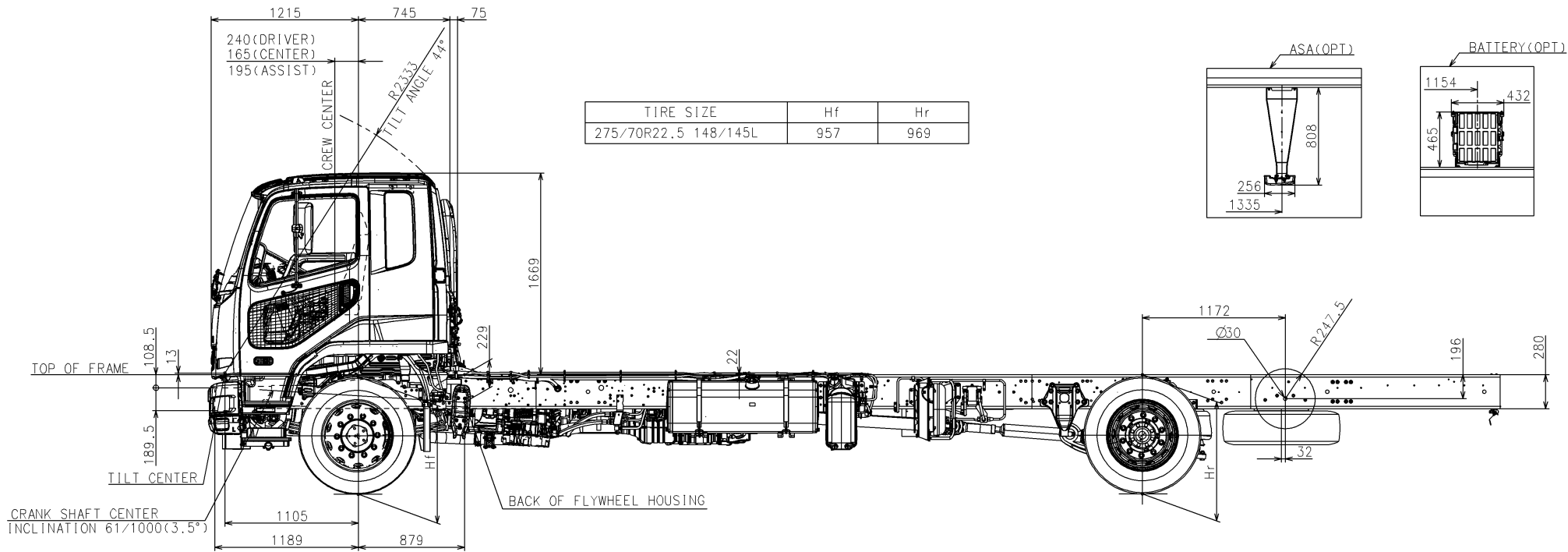
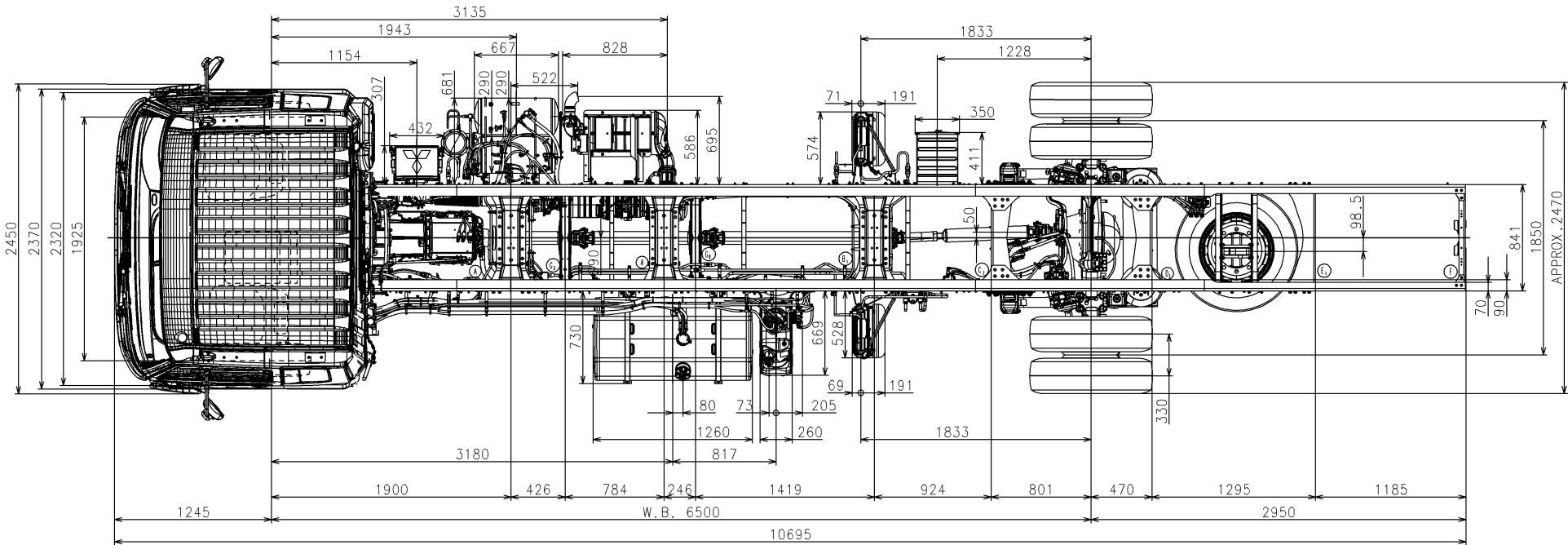
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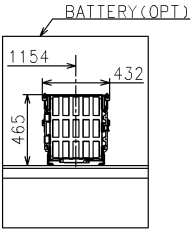
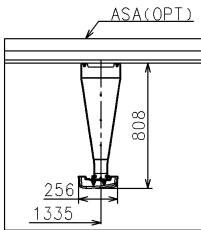
10.5 Chassis cab drawings



FM67FS6RFAM



TIRE SIZE	Hf	Hr
275/70R22.5 148/145L	957	969



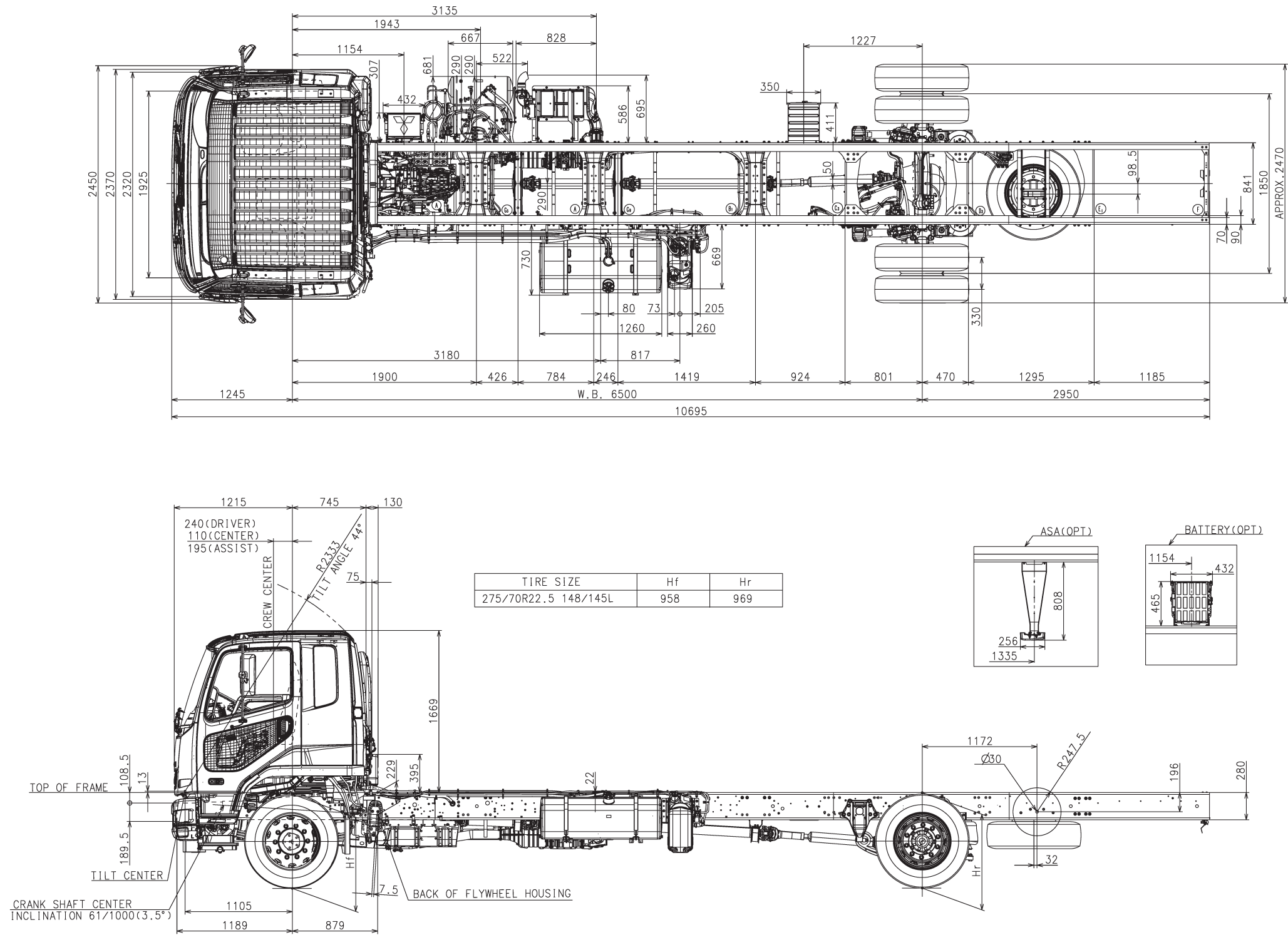
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UNIT : mm
SCALE : 1/40



10.5 Chassis cab drawings

FM67FS6RFAK



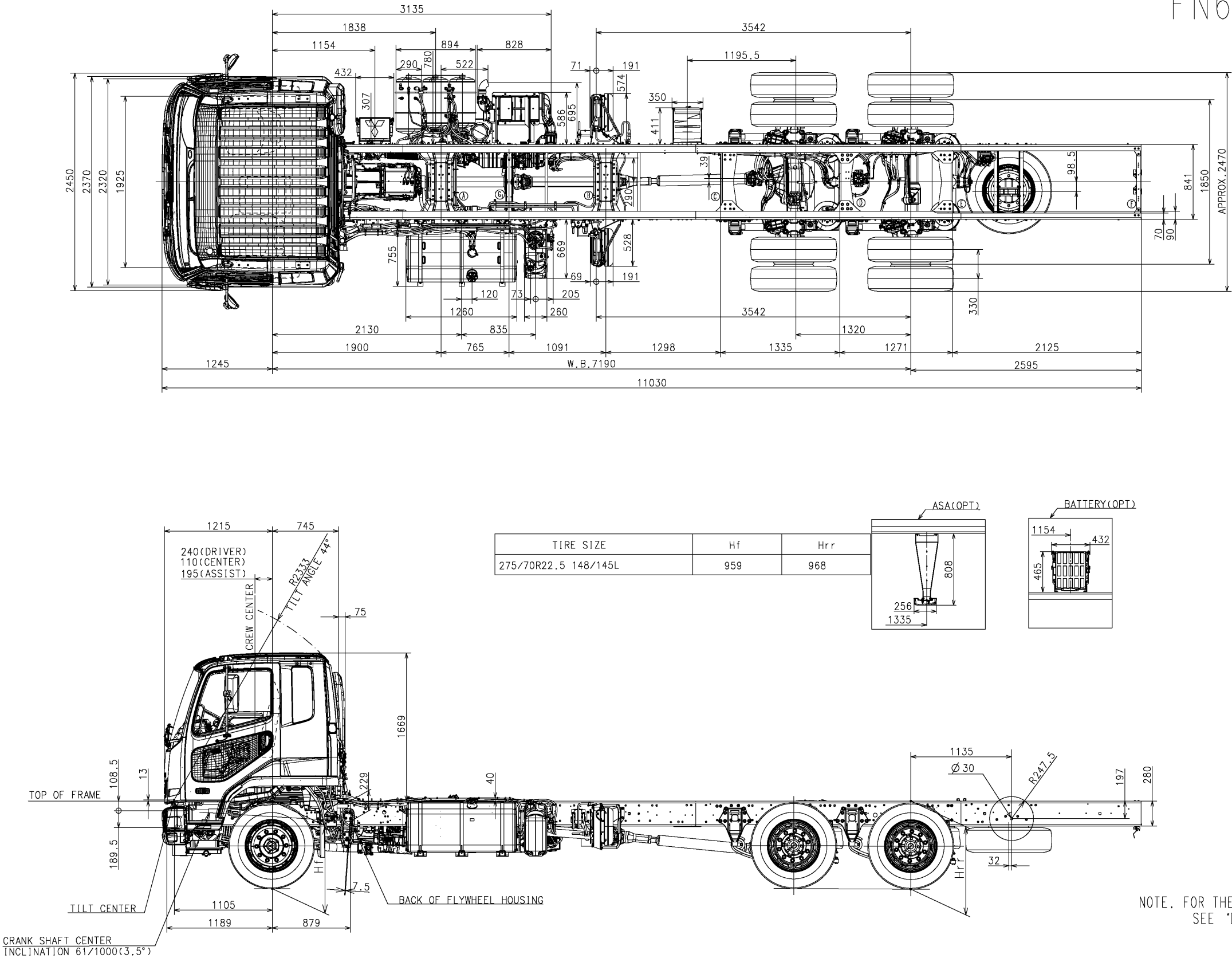
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10.5 Chassis cab drawings

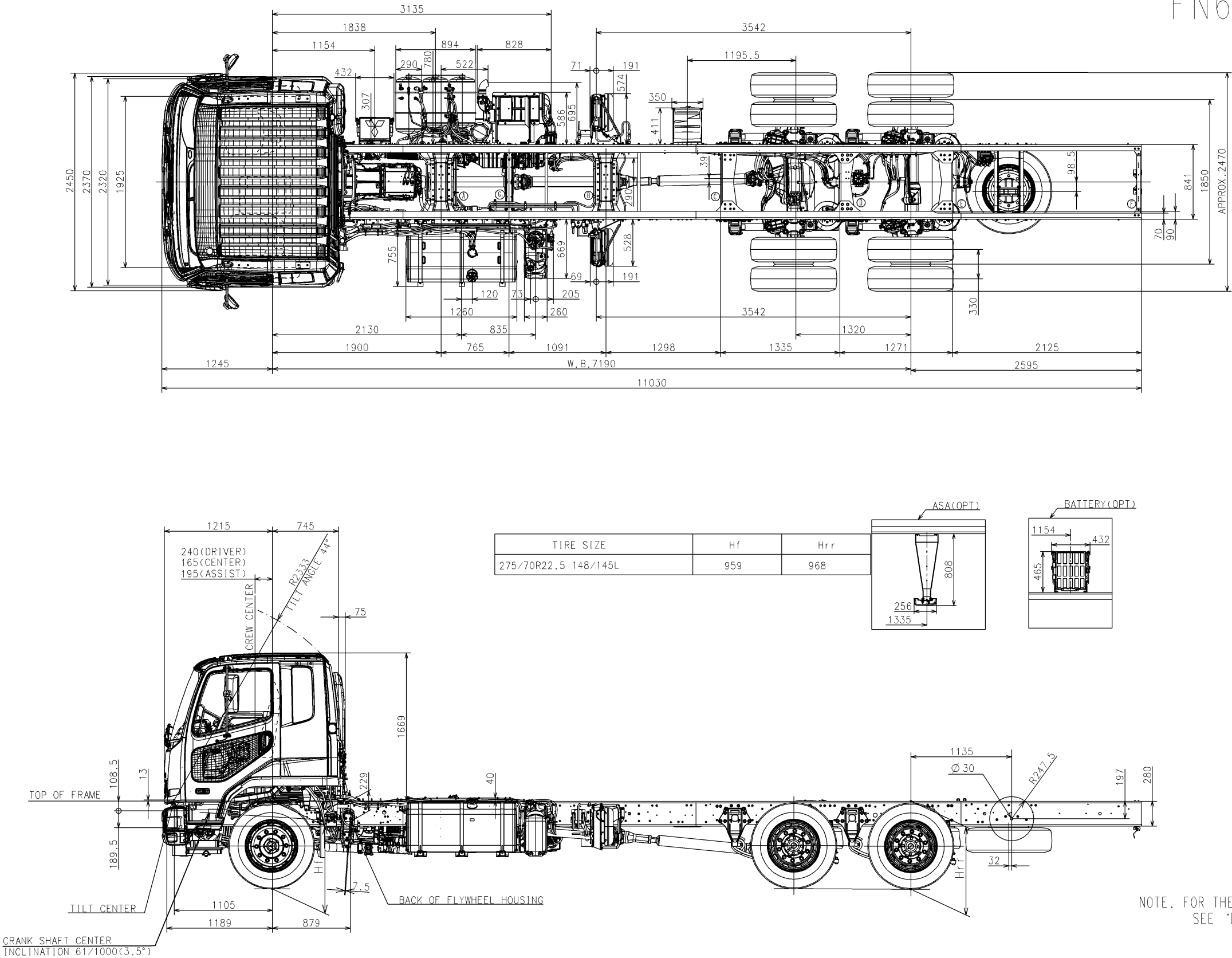
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10.5 Chassis cab drawings

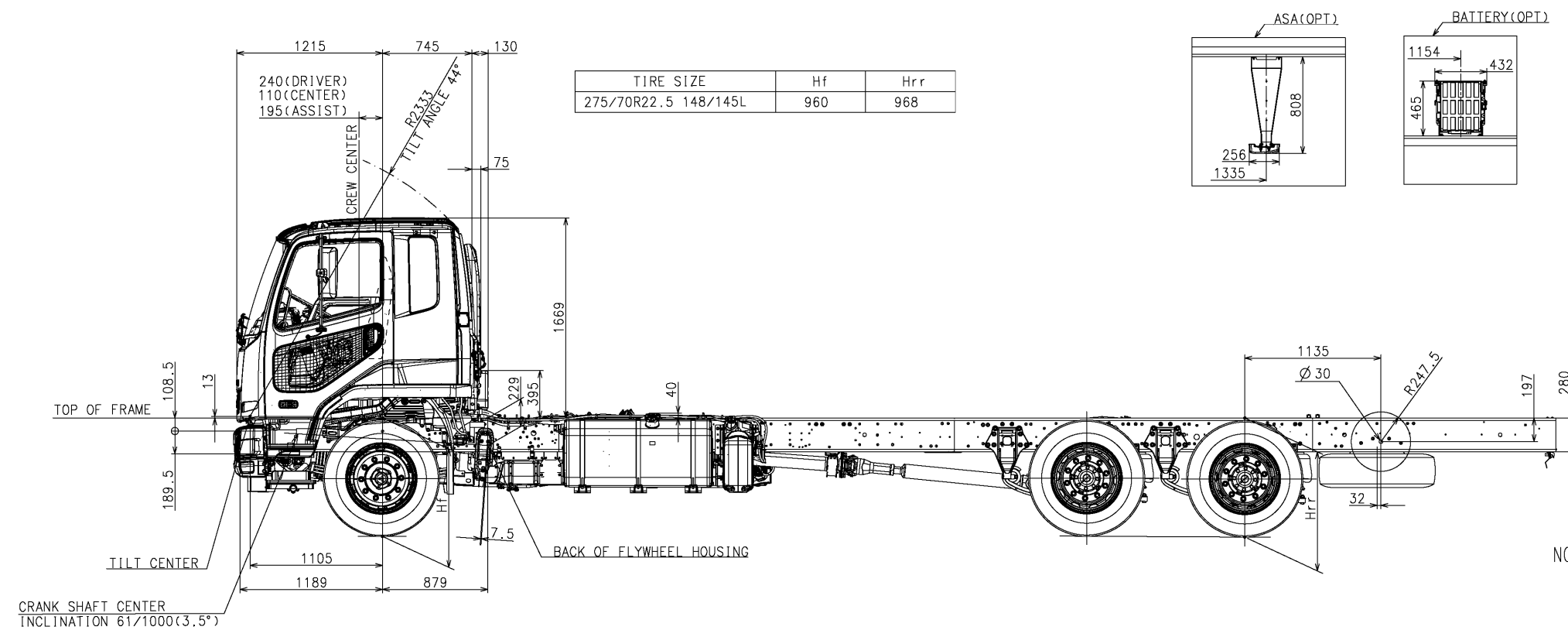
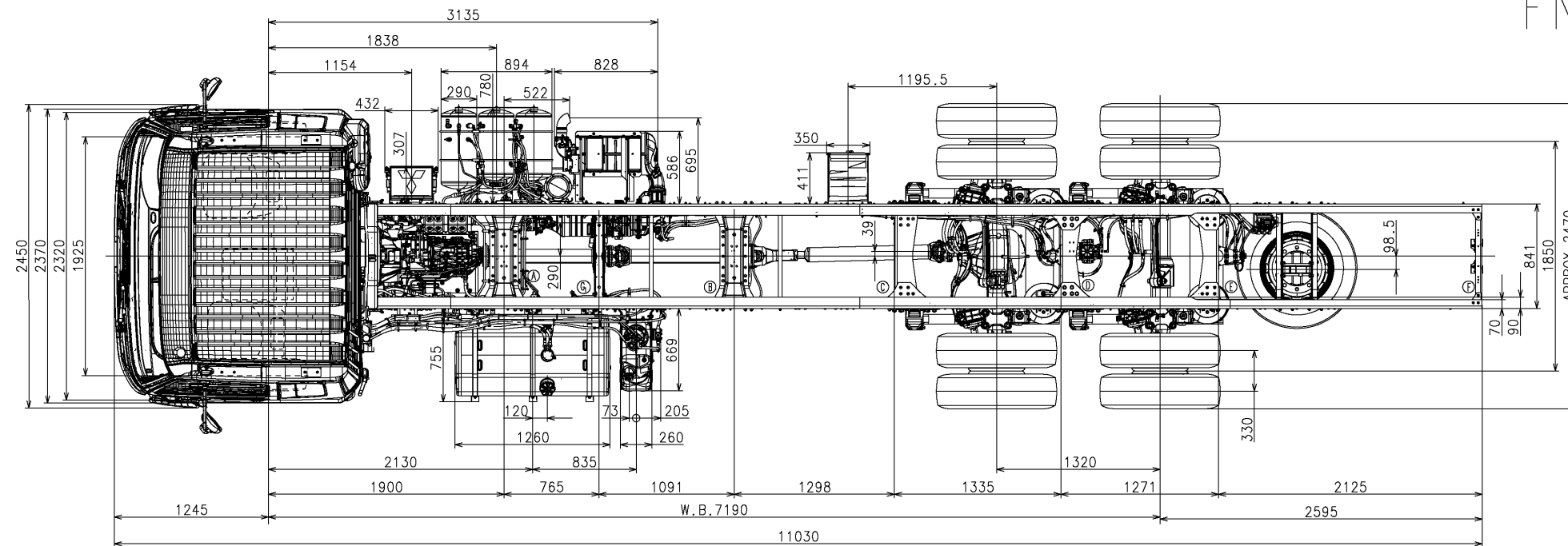


FN63FU6RFAM



10.5 Chassis cab drawings

FN63FU6RFAK

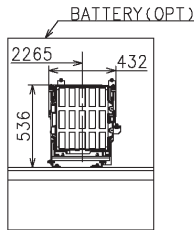
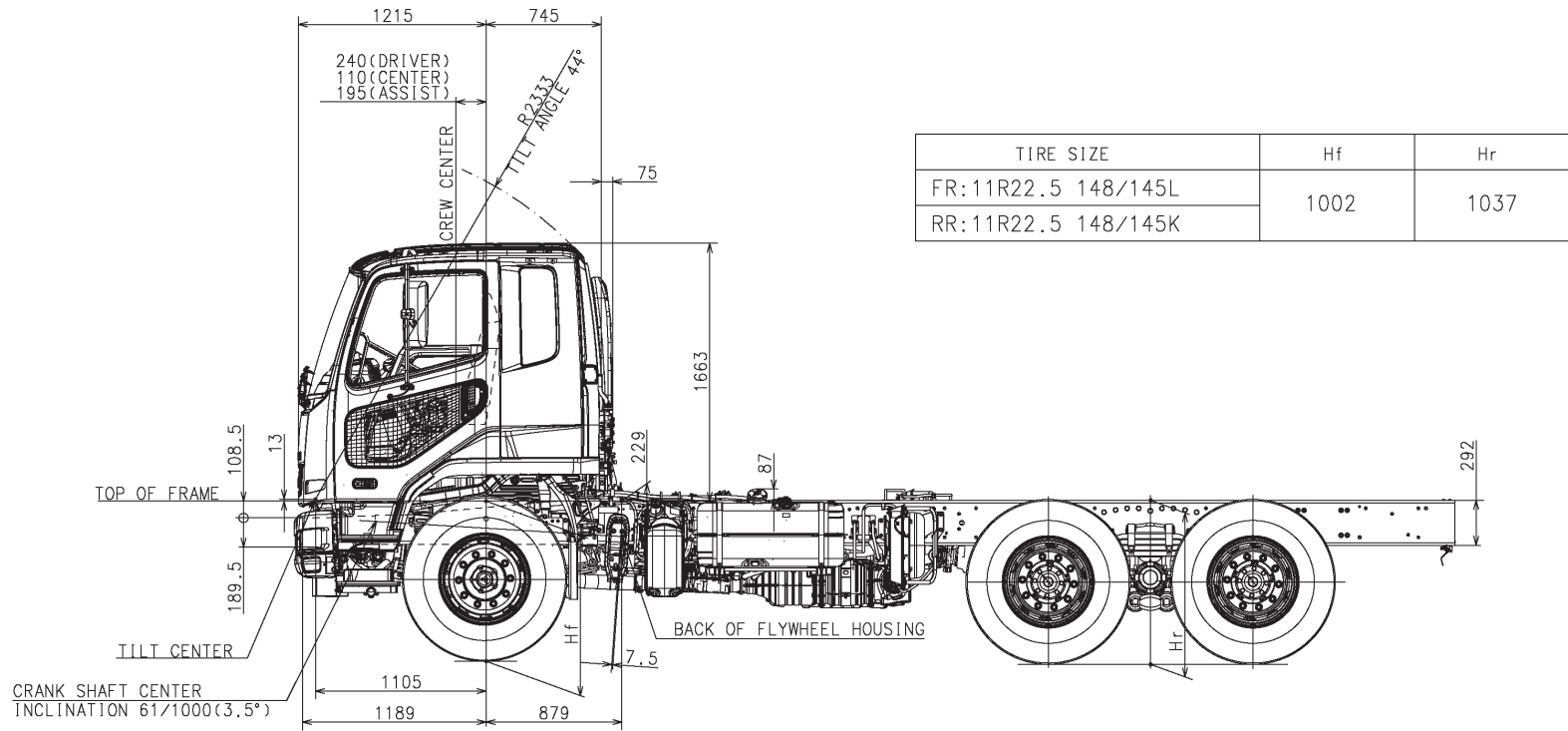
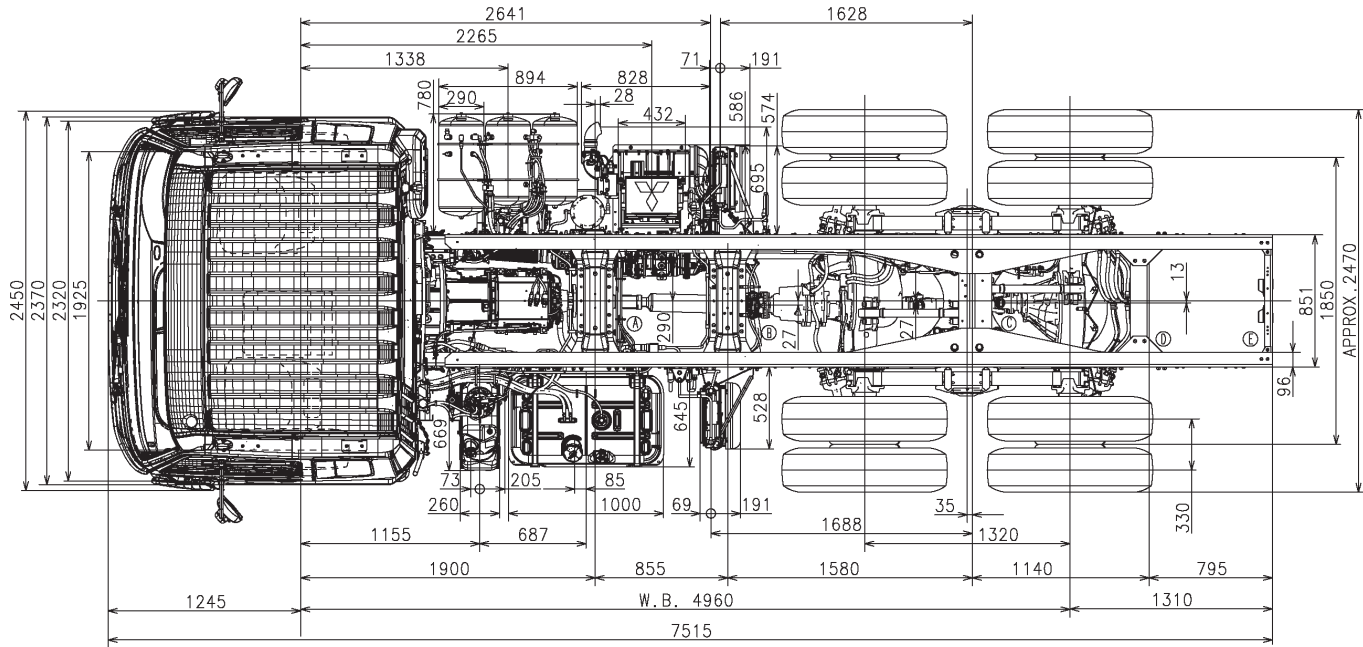


NOTE. FOR THE DETAILS OF CROSSMEMBERS,
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10.5 Chassis cab drawings

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NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

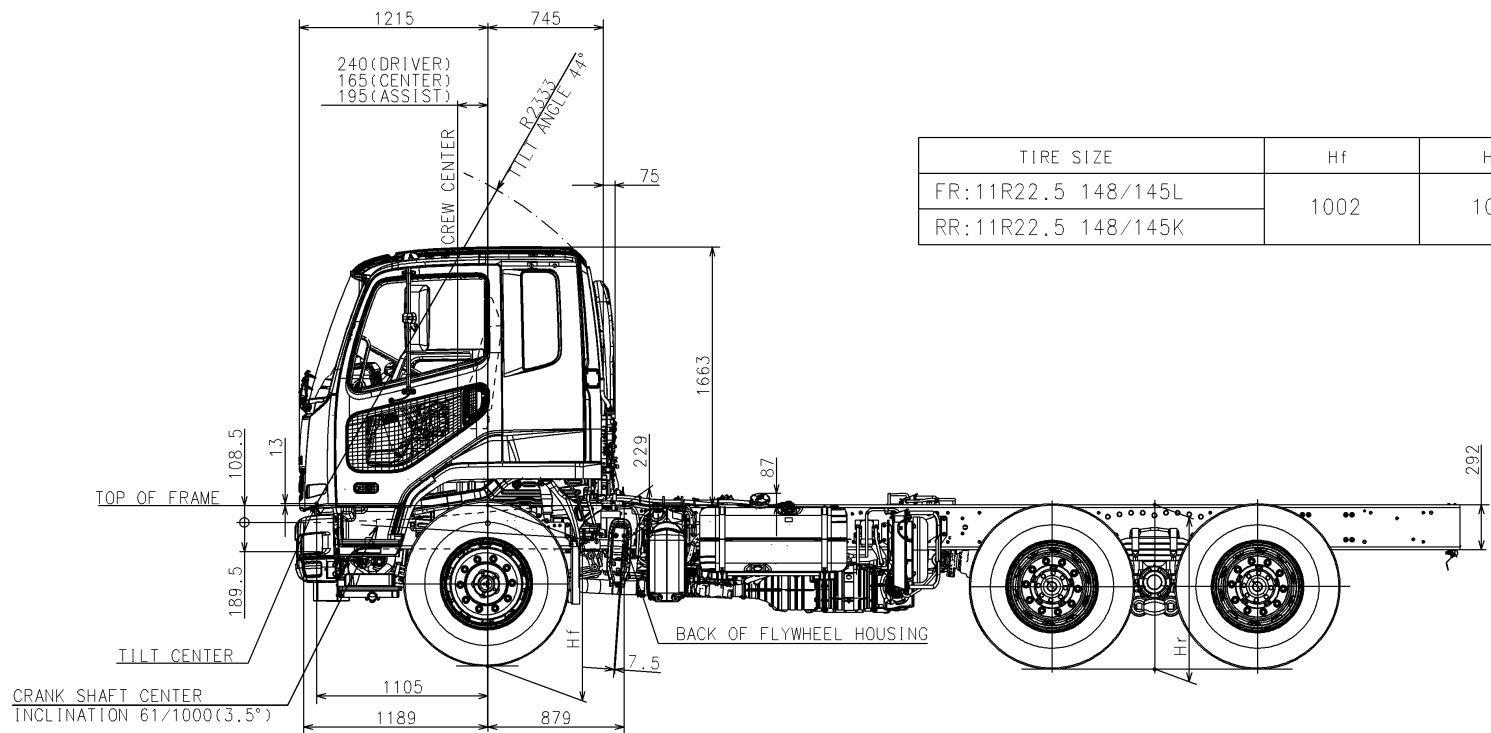
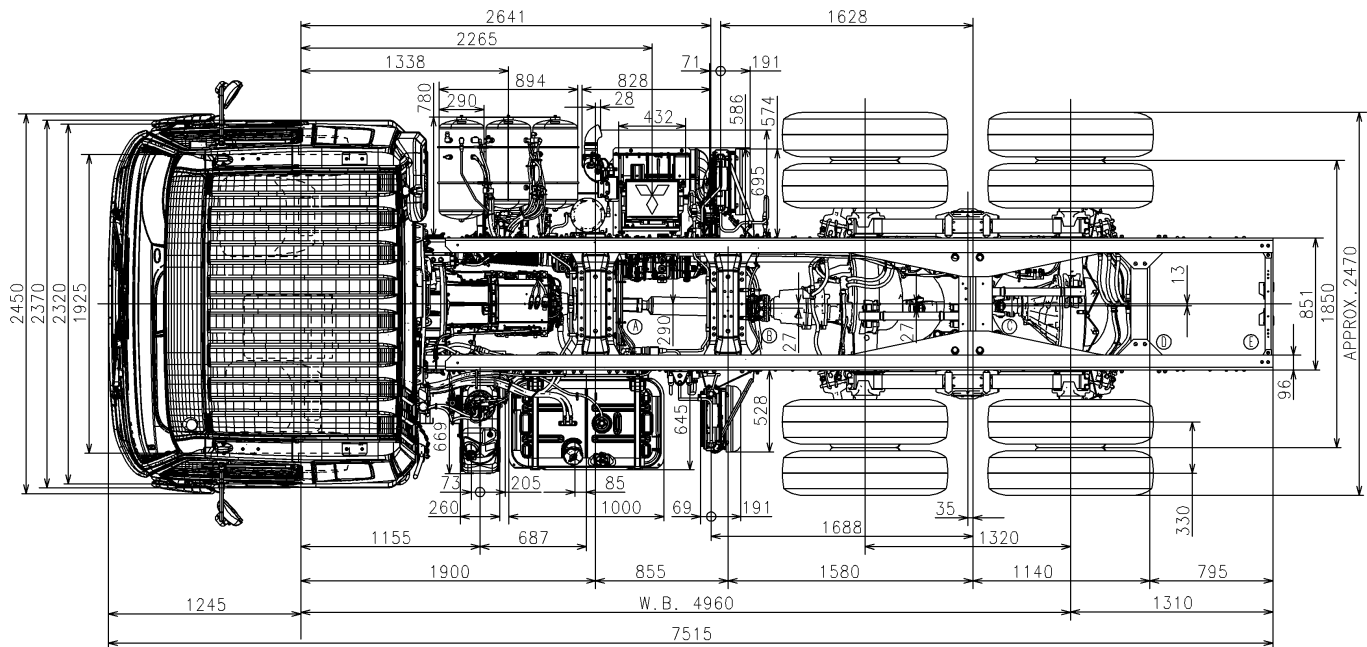
UNIT : mm
SCALE : 1/40



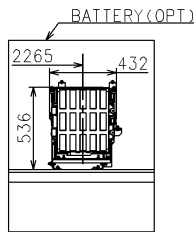
10.5 Chassis cab drawings



FN62FK6RFAM



TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	1002	1037
RR:11R22.5 148/145K		



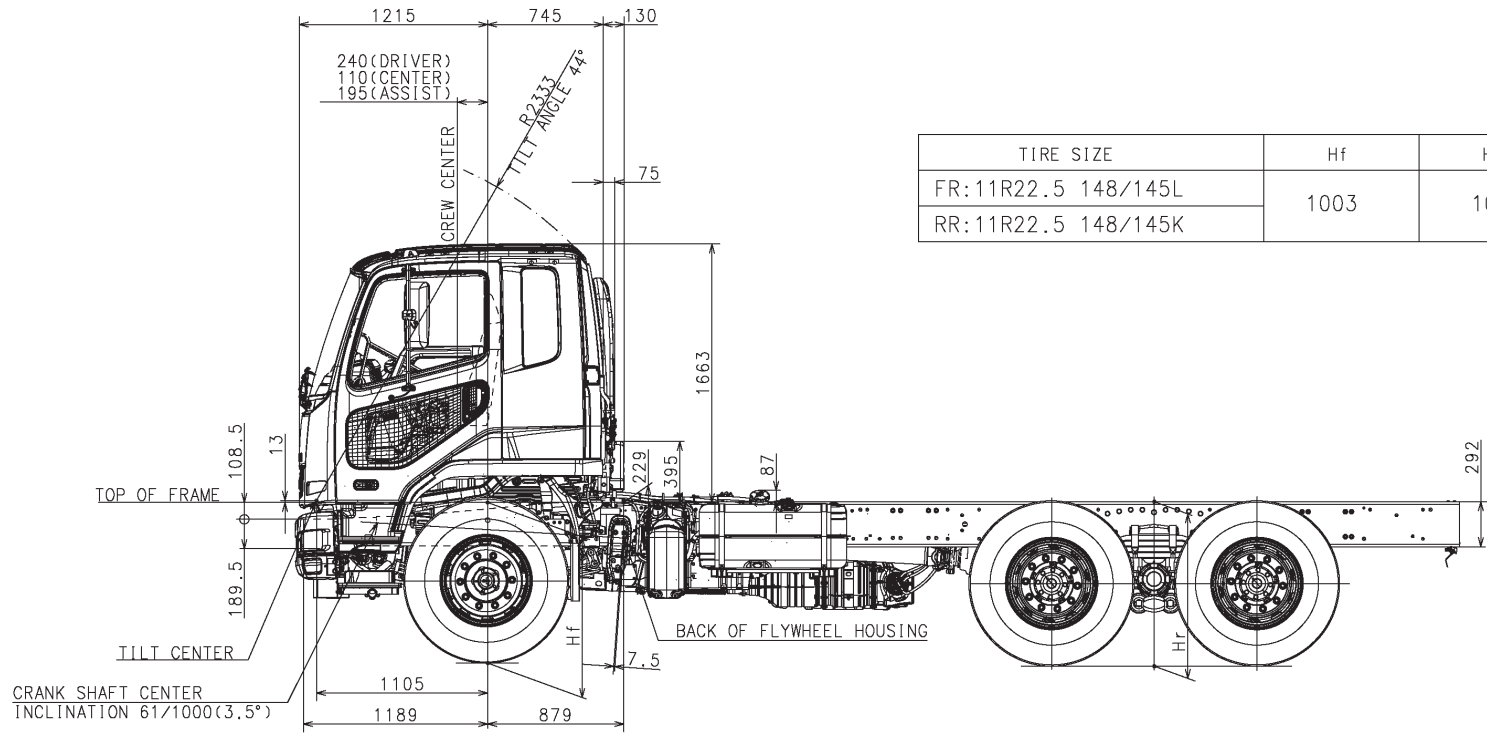
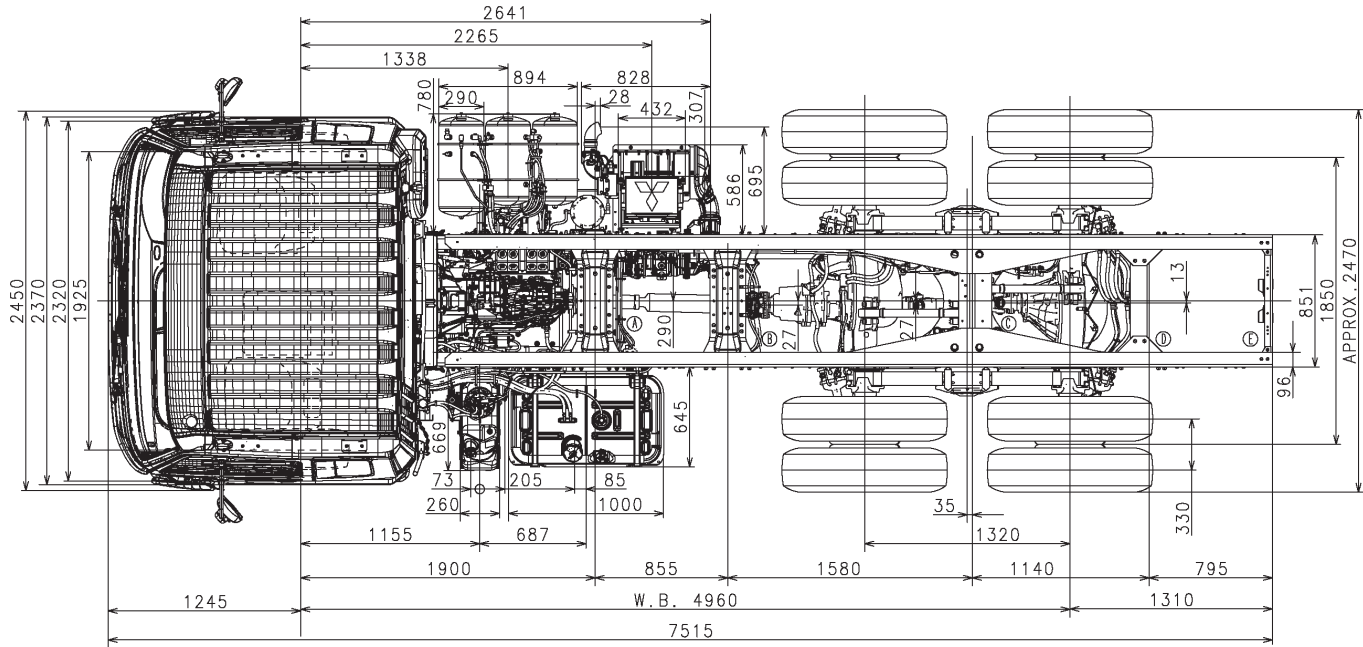
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

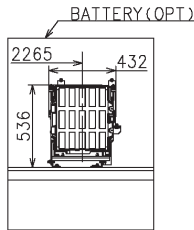


10.5 Chassis cab drawings

FN62FK6RFAK



TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	1003	1037
RR:11R22.5 148/145K		



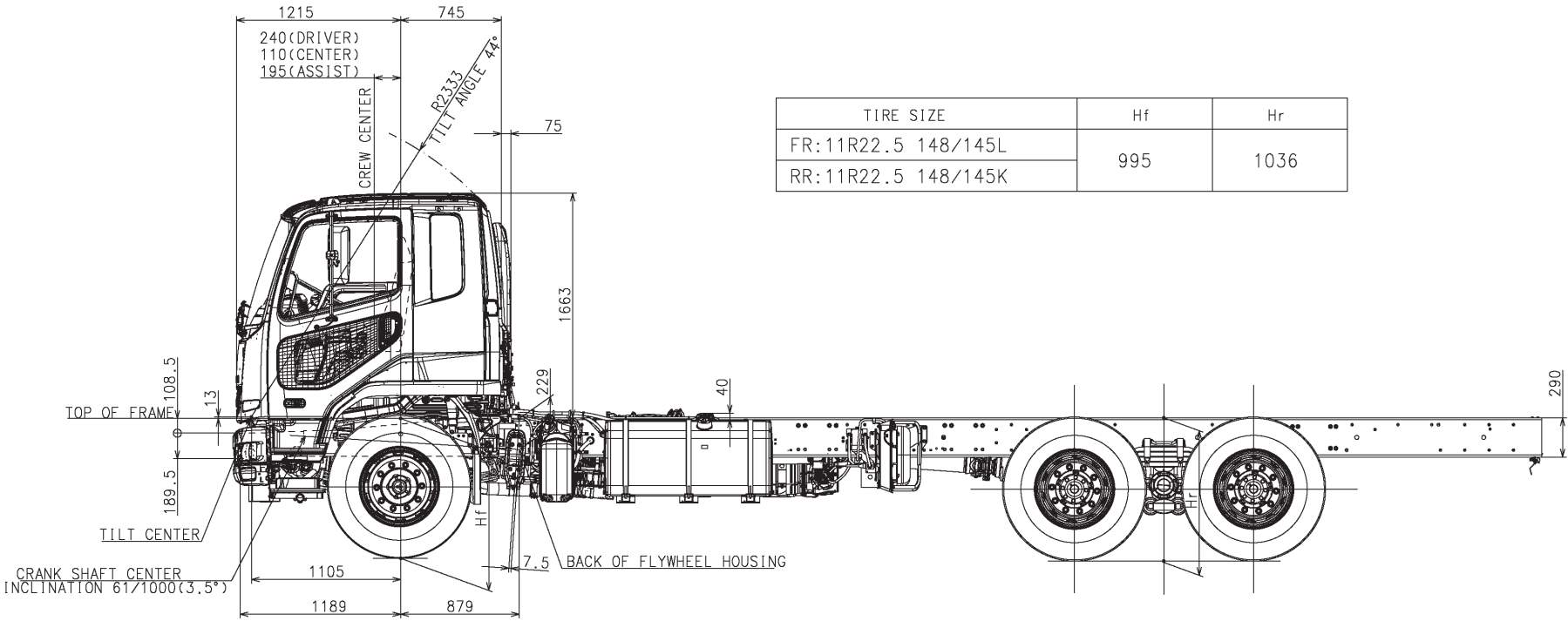
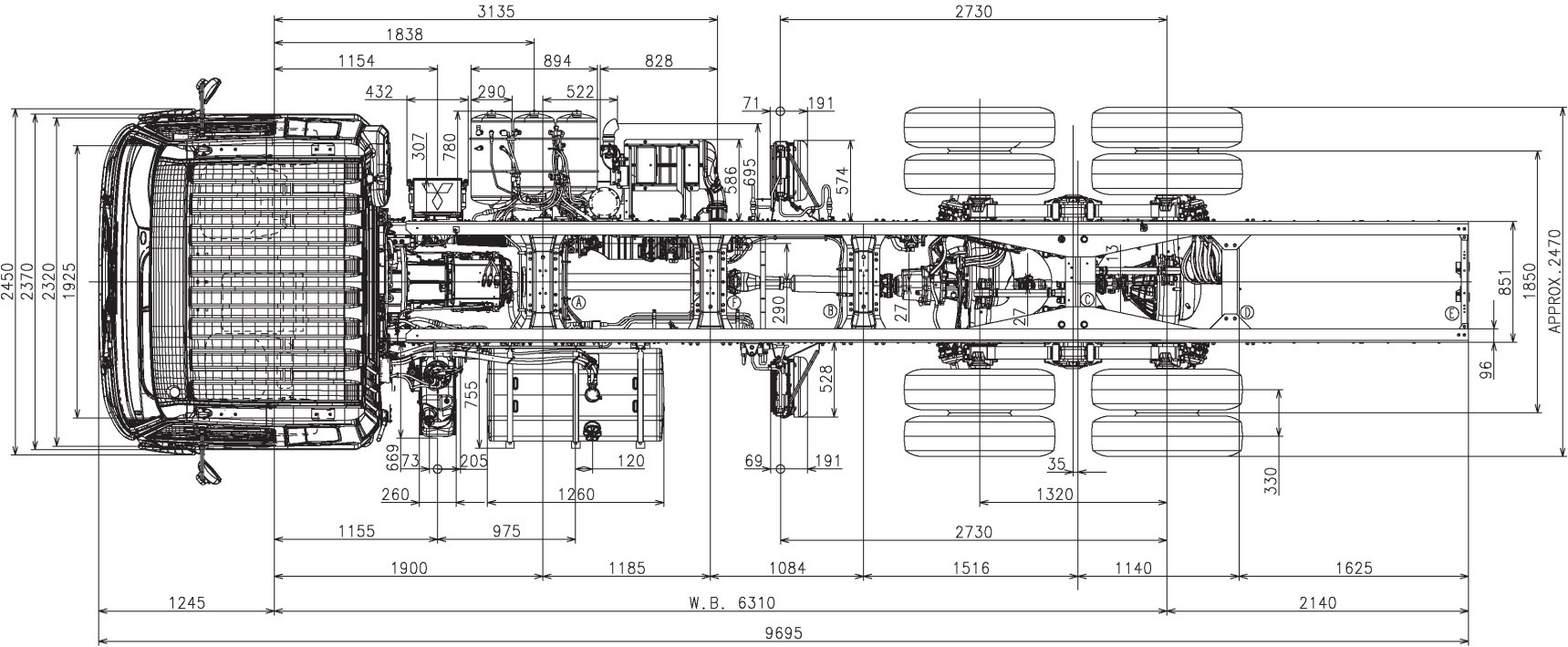
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40

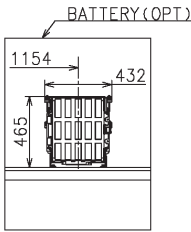


10.5 Chassis cab drawings

FN62FR6RFAJ



TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	995	1036
RR:11R22.5 148/145K		



NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

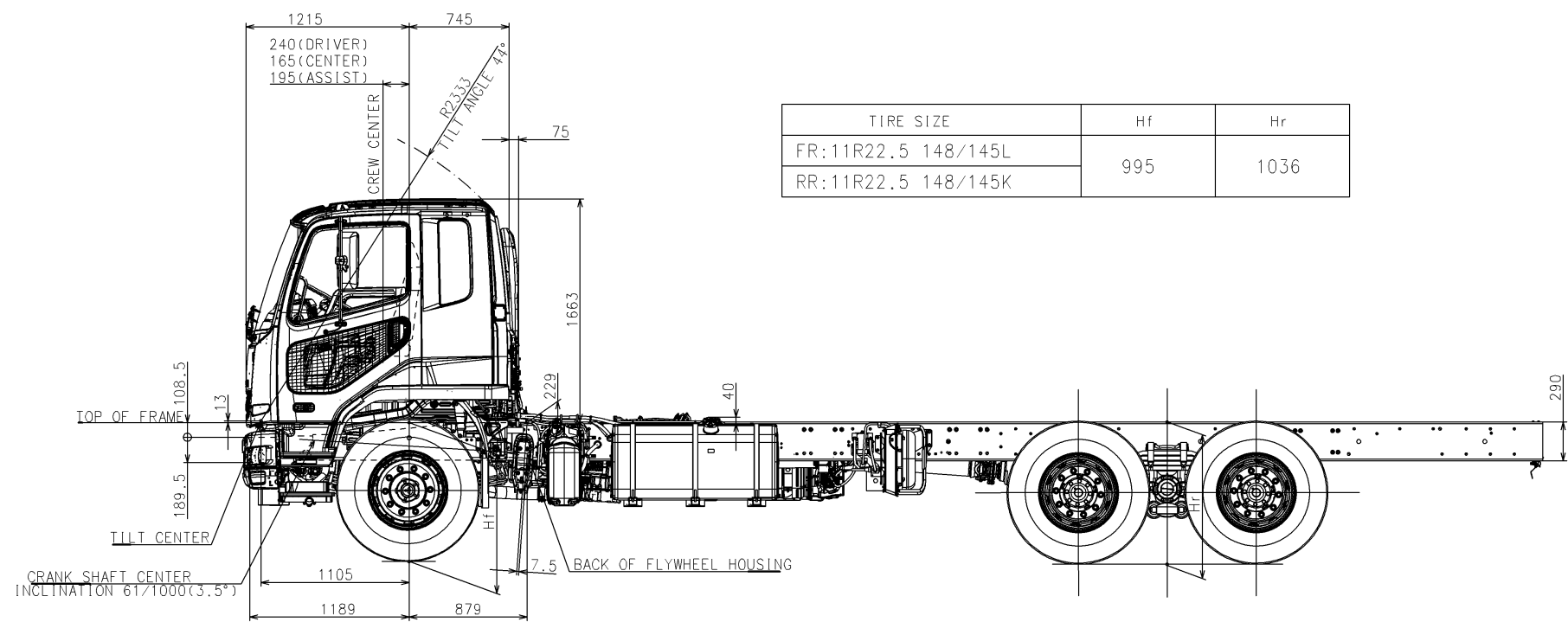
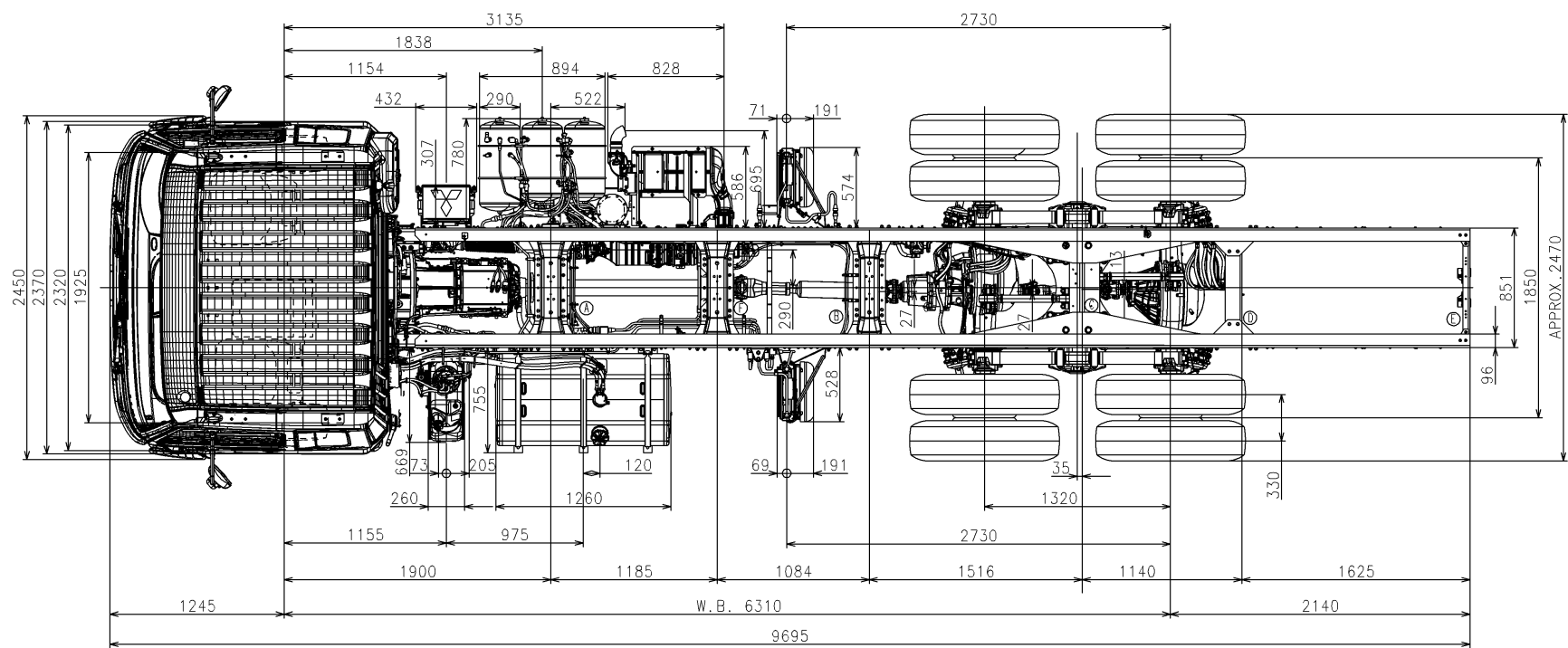
UNIT : mm
SCALE : 1/40



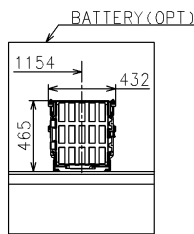
10.5 Chassis cab drawings



FN62FR6RFAM



TIRE SIZE	Hf	Hr
FR:11R22.5 148/145L	995	1036
RR:11R22.5 148/145K		



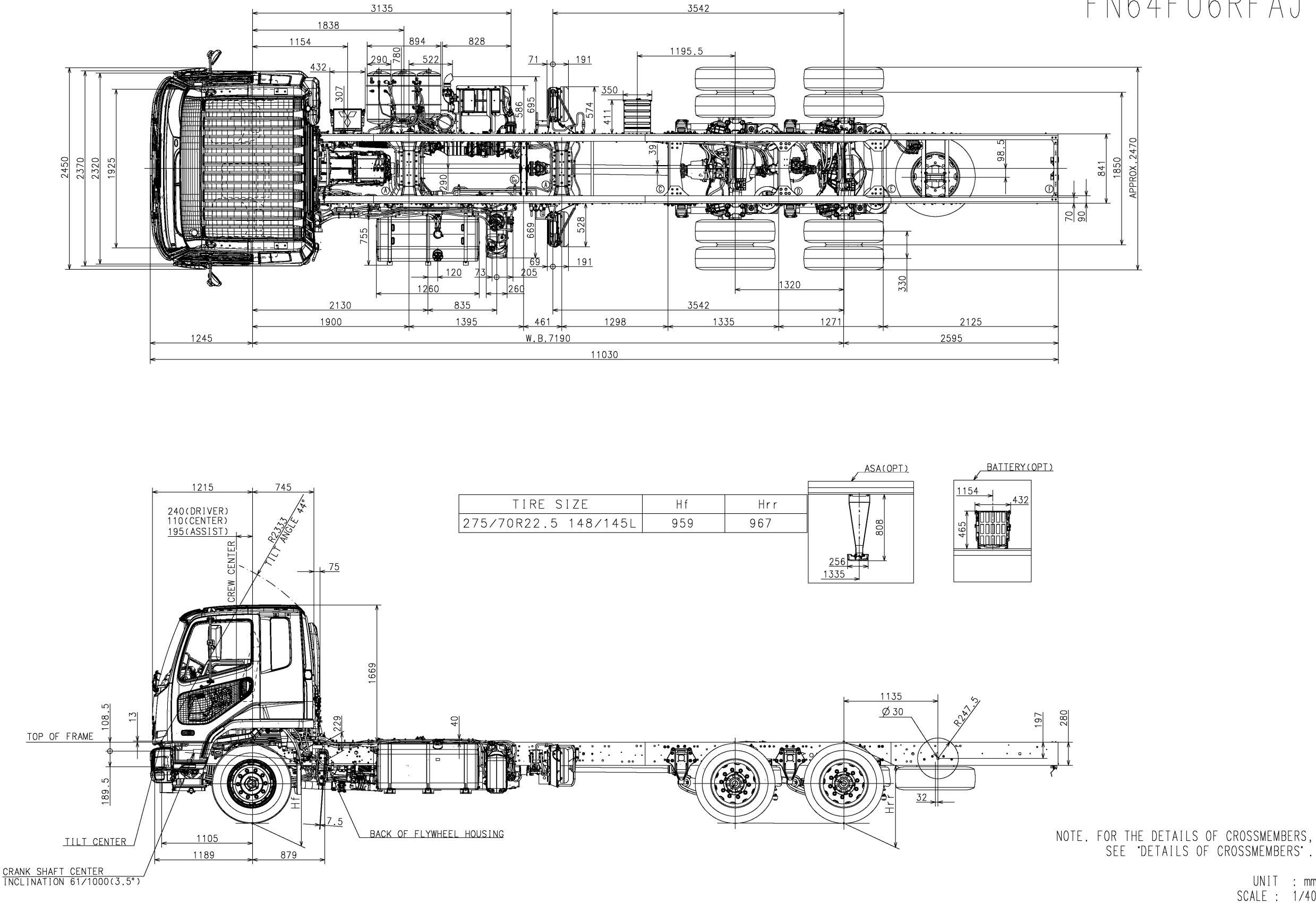
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE "DETAILS OF CROSSMEMBERS".

UNIT : mm
SCALE : 1/40



10.5 Chassis cab drawings

FN64FU6RFAJ



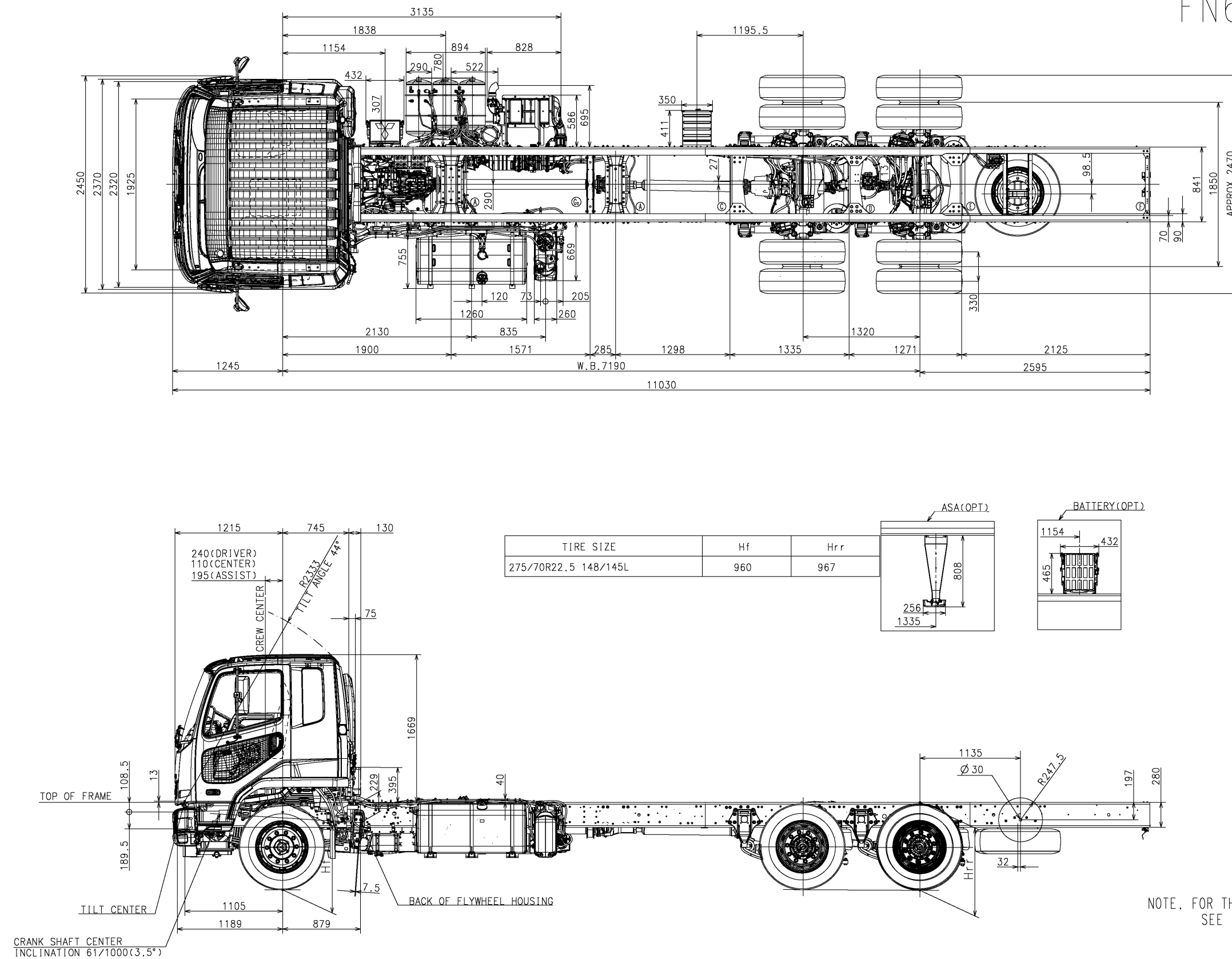
FN64FU6RFAM



UNIT : mm
SCALE : 1/40

10.5 Chassis cab drawings

FN64FU6RFAK



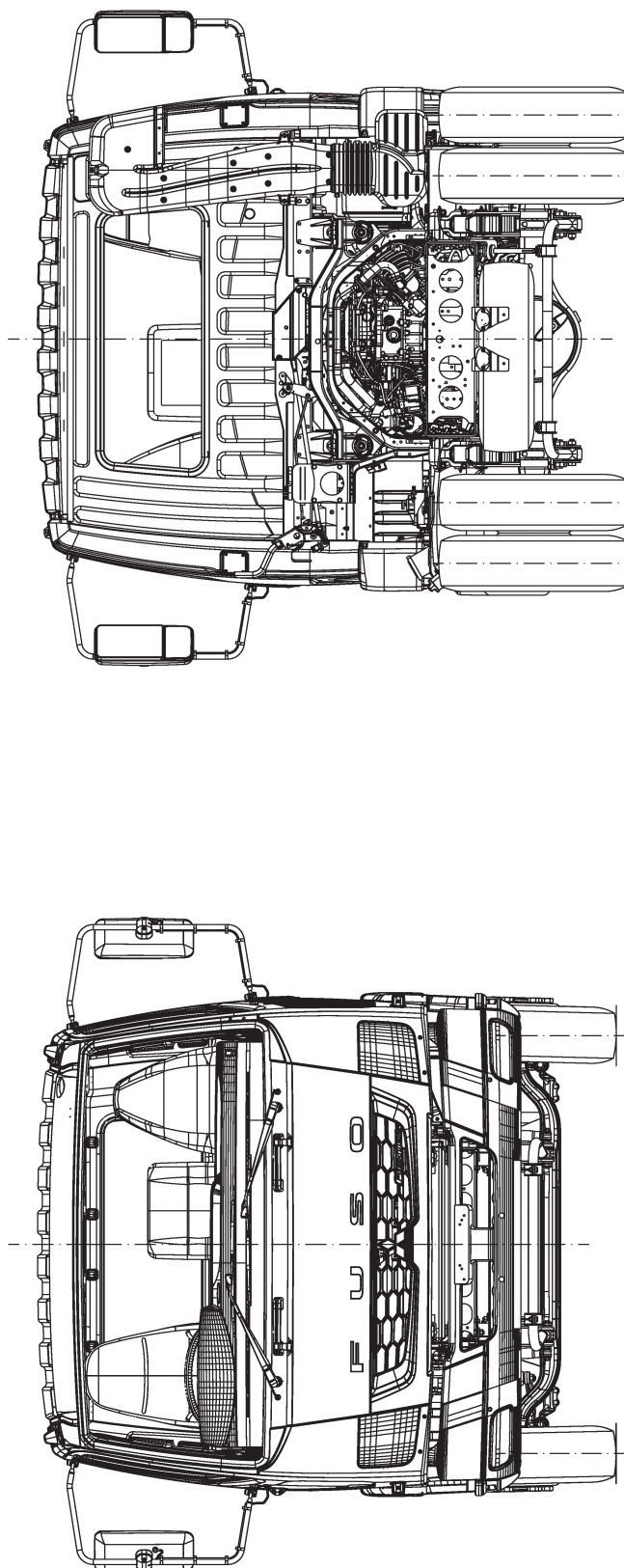
NOTE. FOR THE DETAILS OF CROSSMEMBERS,
SEE 'DETAILS OF CROSSMEMBERS'.

UNIT : mm
SCALE : 1/40

10.5.2 Cab drawings

Model	Page
FK62F	128
FK62F□Z	129
FK65F	130
FM65F	131
FM67F	132
FN63F	133
FN62F	134
FN64F	135

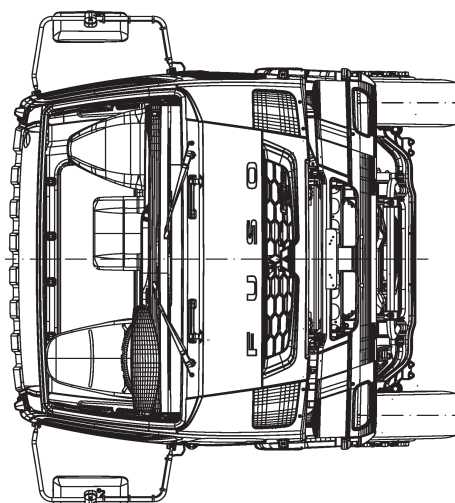
FK62F Series



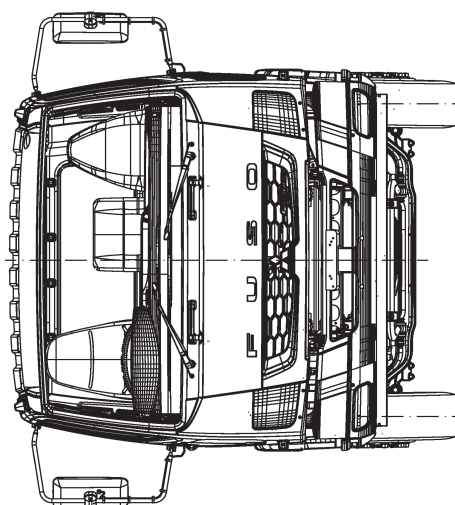
SCALE: 1/30

10.5 Chassis cab drawings

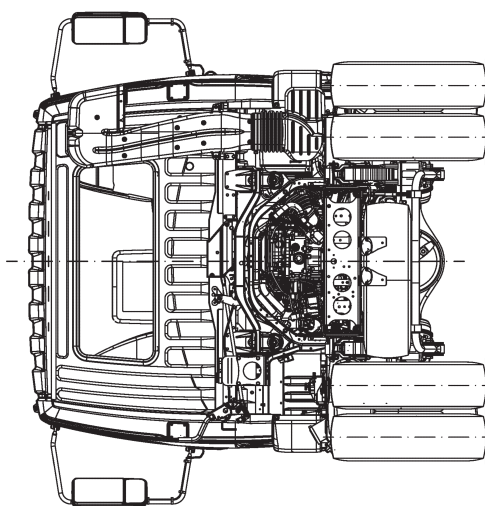
FK62F Series



Without-FUP



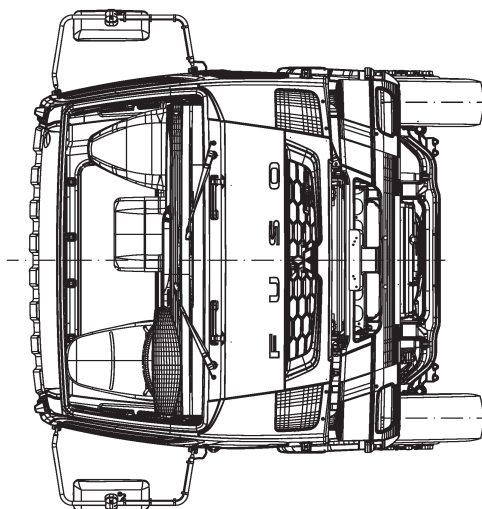
With-FUP



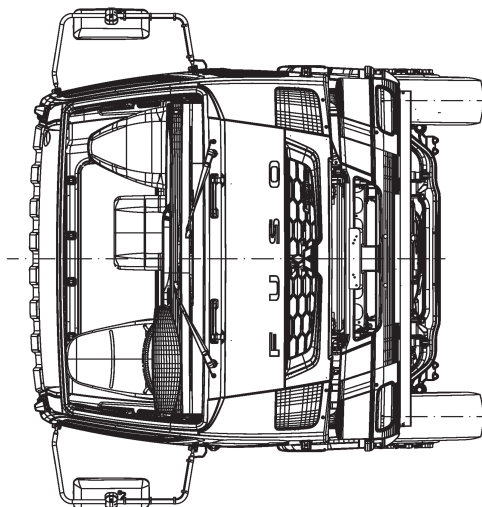
SCALE: 1/40

10.5 Chassis cab drawings

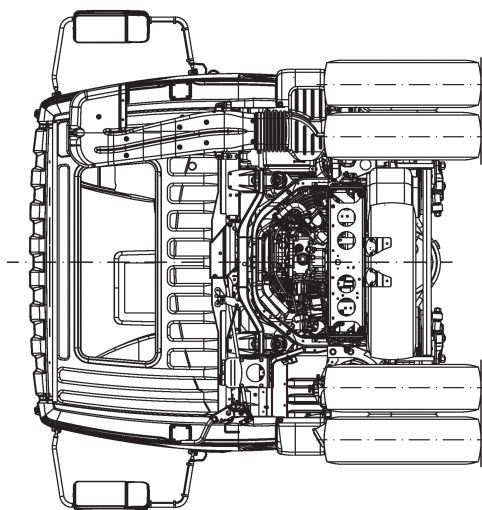
FK65F Series



Without-FUP

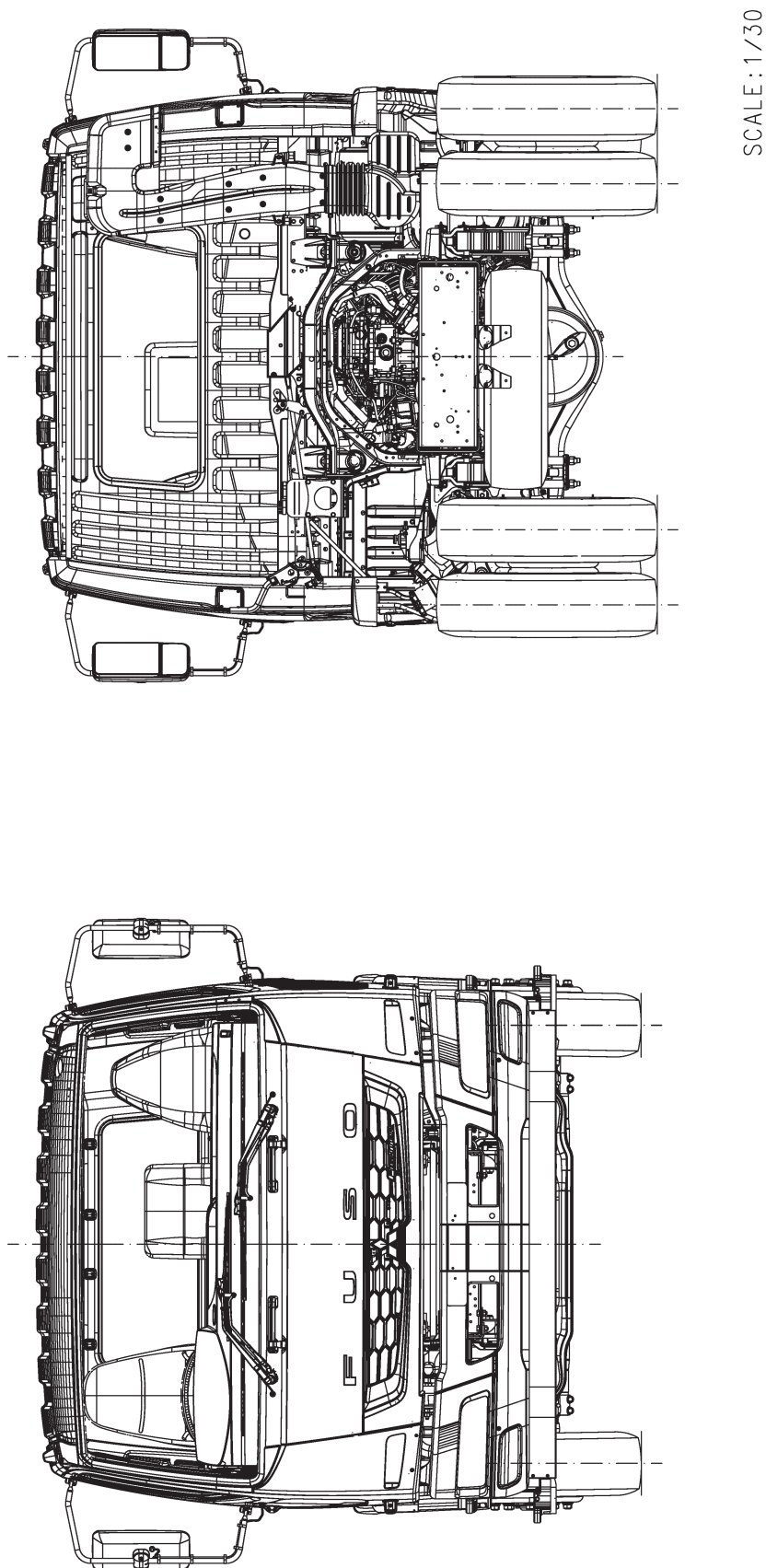


With-FUP

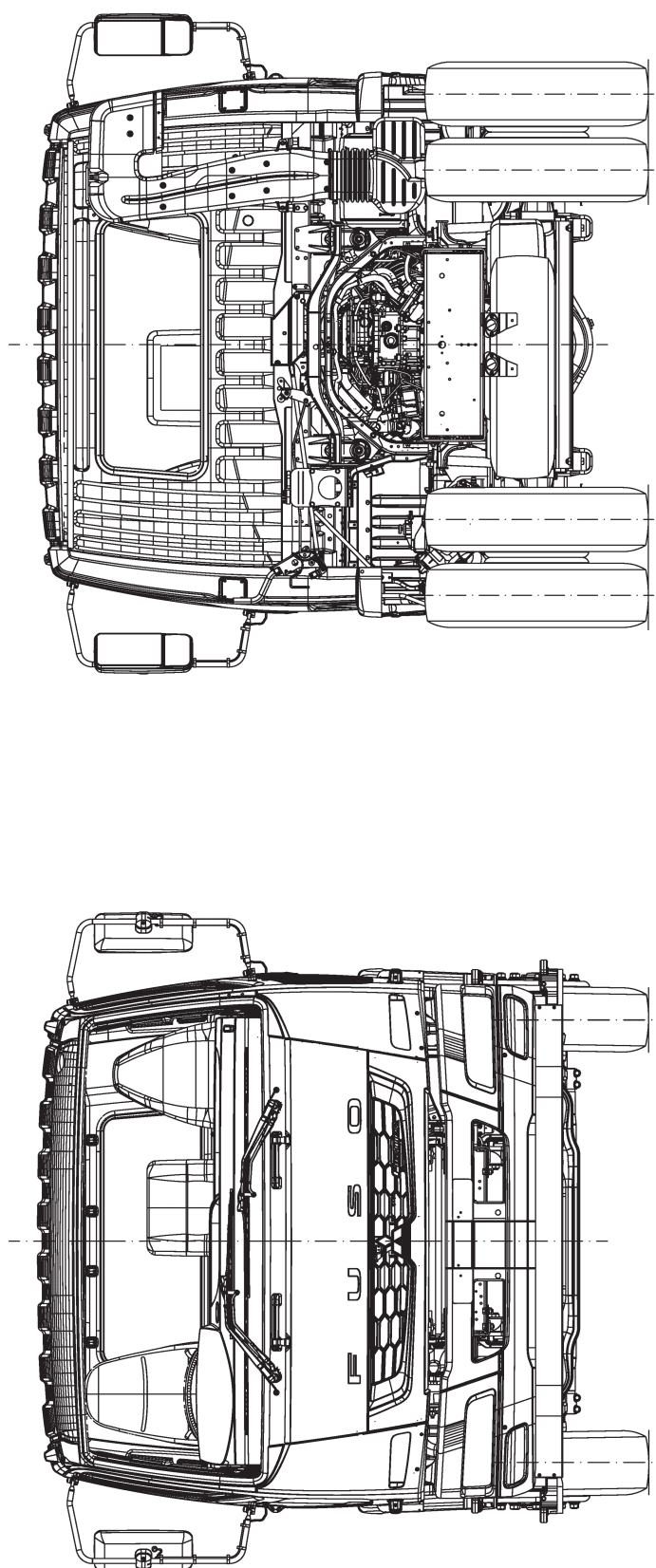


SCALE: 1/40

FM65F Series



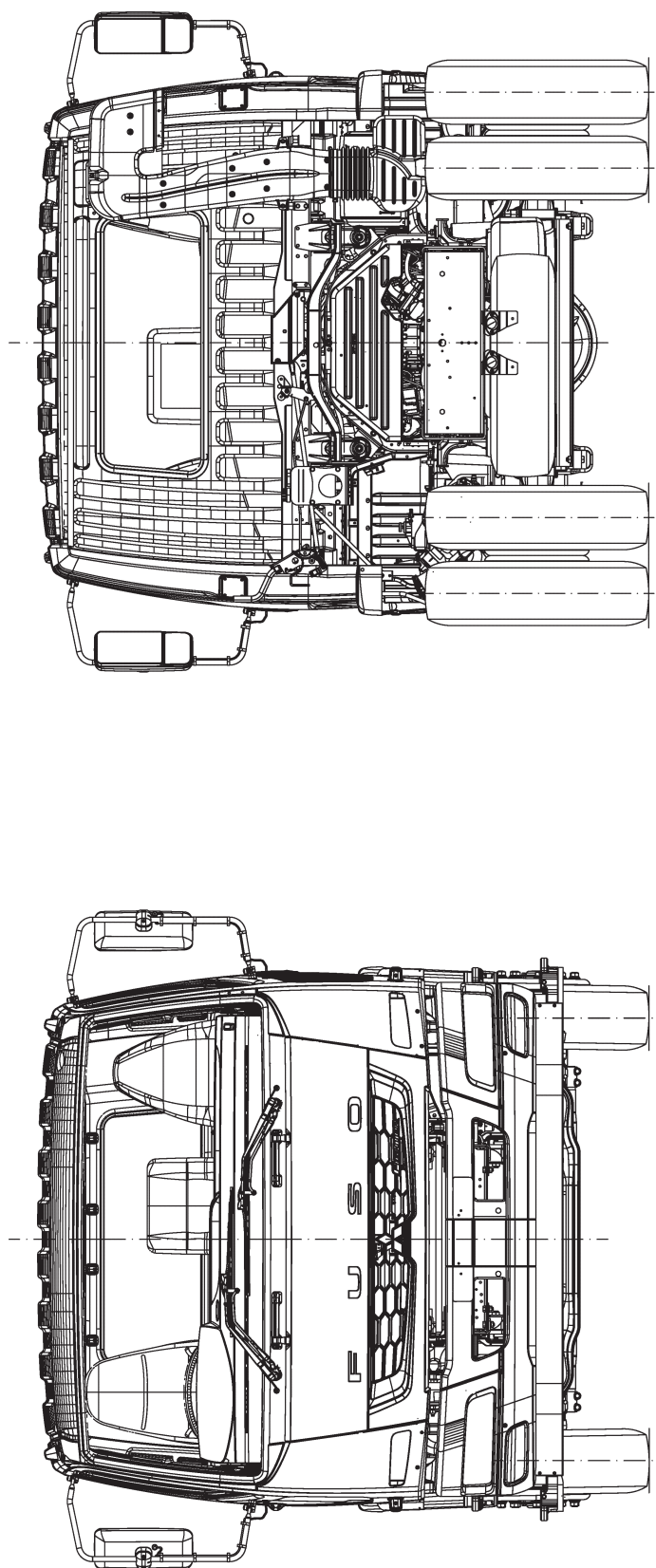
FM67F Series



SCALE: 1/30



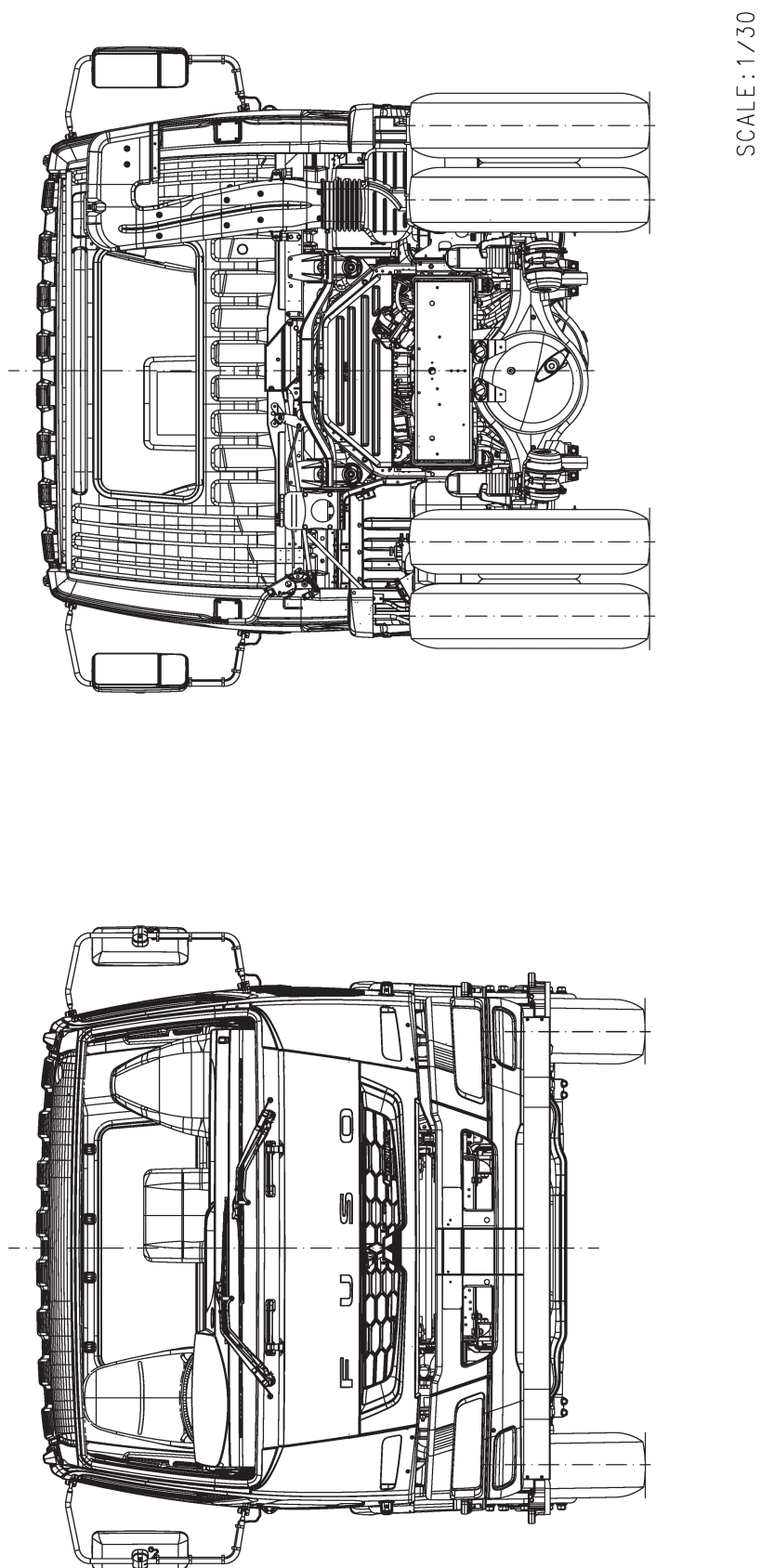
FN63F Series



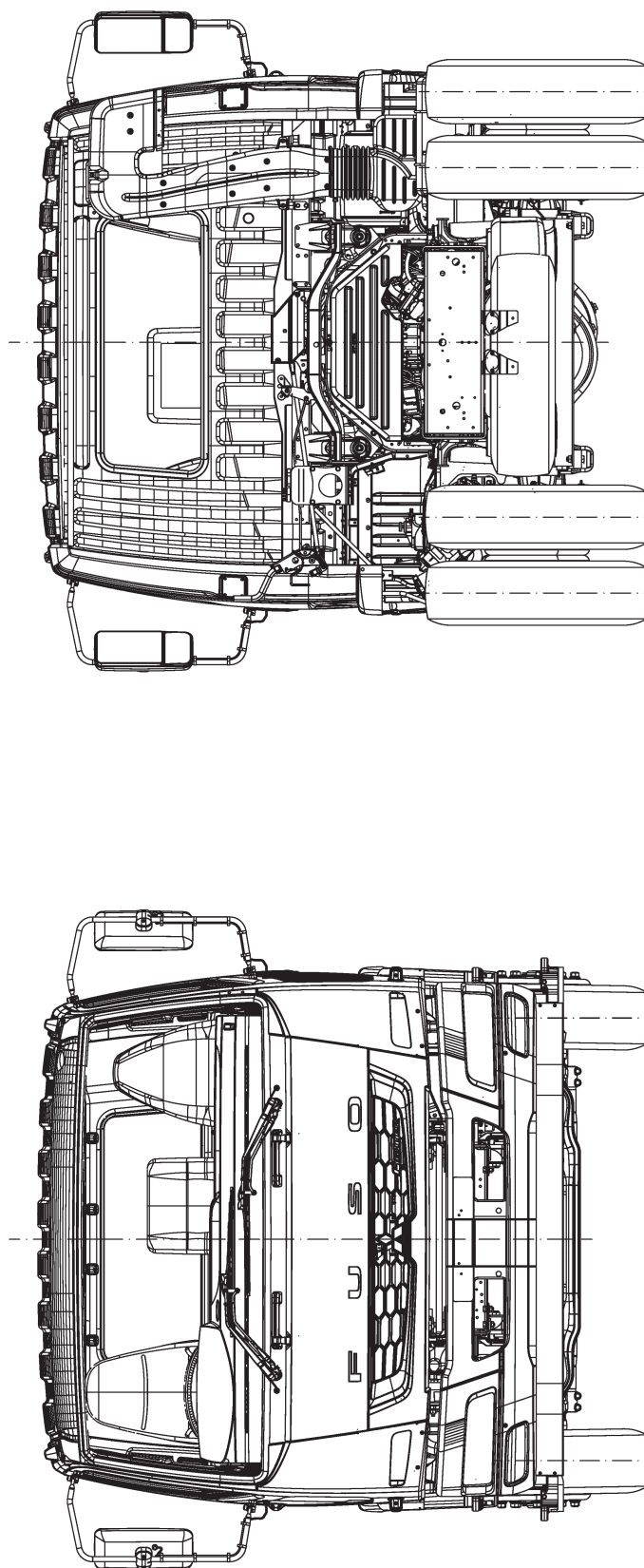
SCALE: 1/30



FN62F Series



FN64F Series



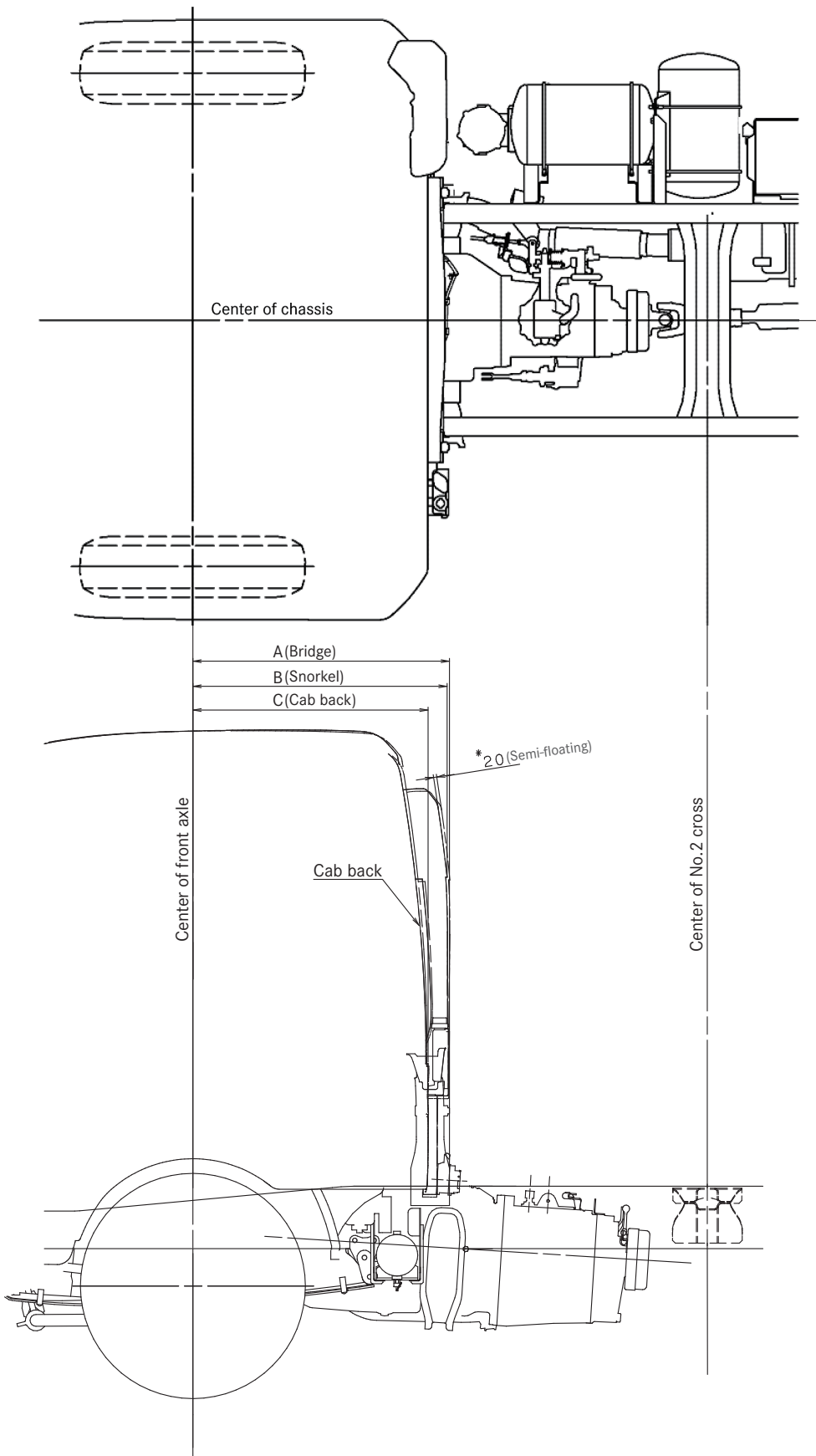
SCALE: 1/30



10.5 Chassis cab drawings

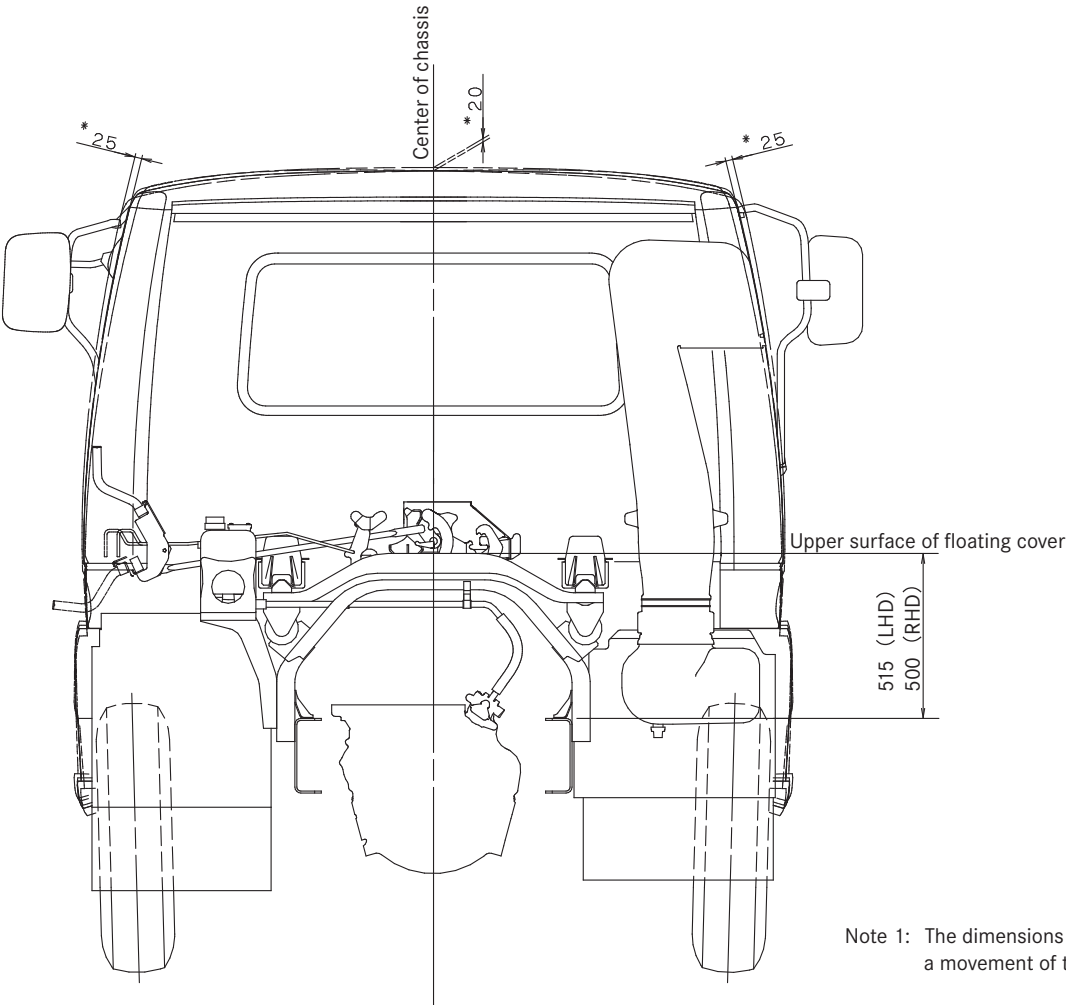
10.5.3 Reference drawing for building the front part of the rear body

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

Model	Section	Page
FK	A, B1, B2, B3, C1, C2	138
	D1, D2, E, E1	139
	F1, F2	140
FM	A, B1	141
	C1, C3	142
	D1, D3, E1	143
	F, G1, G2, G3, G9	144
FN62	A, B, C, F	145
	D, E	146
FN63, 64	A, B, C	147
	D, E, F, G1, G2	148

UNIT : mm

Technical drawing of a three-bore drill bit, showing three views (A, B₁, B₂, B₃) and a table of parameters.

View A (Front View): Shows the overall dimensions of the drill bit. The total length is 828 mm. The distance from the tip to the first bore is 720 mm. The distance between the first and second bores is 710 mm. The distance between the second and third bores is 520 mm. The distance from the third bore to the end is 195 mm. The diameter of the first bore is 250 mm. The diameter of the second bore is 165 mm. The diameter of the third bore is 80 mm. The radius of the first bore is R300. The radius of the second bore is R120. The radius of the third bore is R80. The distance from the tip to the first bore is 7.5 mm. The distance from the tip to the second bore is 350 mm. The distance from the tip to the third bore is 525 mm. The distance from the tip to the end is 195 mm. The distance from the tip to the first bore is 92 mm. The distance from the tip to the second bore is 81 mm. The distance from the tip to the third bore is 27 mm. The distance from the tip to the end is 7.5 mm.

View B₁ (Side View): Shows the side view of the drill bit. The total length is 828 mm. The distance from the tip to the first bore is 720 mm. The distance between the first and second bores is 710 mm. The distance between the second and third bores is 520 mm. The distance from the third bore to the end is 195 mm. The diameter of the first bore is 250 mm. The diameter of the second bore is 165 mm. The diameter of the third bore is 80 mm. The radius of the first bore is R300. The radius of the second bore is R120. The radius of the third bore is R80. The distance from the tip to the first bore is 7.5 mm. The distance from the tip to the second bore is 350 mm. The distance from the tip to the third bore is 525 mm. The distance from the tip to the end is 195 mm. The distance from the tip to the first bore is 92 mm. The distance from the tip to the second bore is 81 mm. The distance from the tip to the third bore is 27 mm. The distance from the tip to the end is 7.5 mm.

View B₂ (Side View): Shows the side view of the drill bit. The total length is 828 mm. The distance from the tip to the first bore is 720 mm. The distance between the first and second bores is 710 mm. The distance between the second and third bores is 520 mm. The distance from the third bore to the end is 195 mm. The diameter of the first bore is 250 mm. The diameter of the second bore is 165 mm. The diameter of the third bore is 80 mm. The radius of the first bore is R300. The radius of the second bore is R120. The radius of the third bore is R80. The distance from the tip to the first bore is 7.5 mm. The distance from the tip to the second bore is 350 mm. The distance from the tip to the third bore is 525 mm. The distance from the tip to the end is 195 mm. The distance from the tip to the first bore is 92 mm. The distance from the tip to the second bore is 81 mm. The distance from the tip to the third bore is 27 mm. The distance from the tip to the end is 7.5 mm.

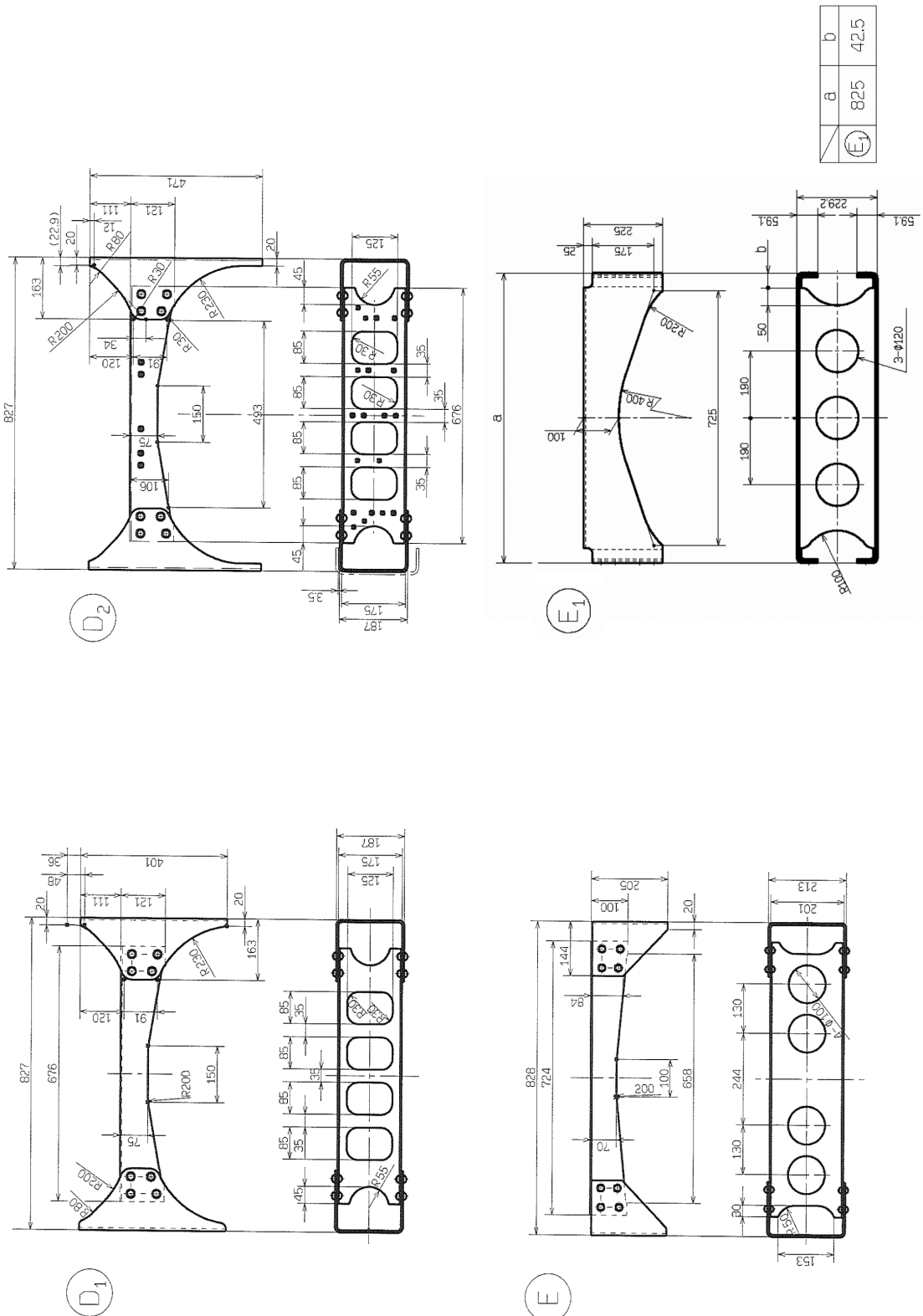
View B₃ (Side View): Shows the side view of the drill bit. The total length is 828 mm. The distance from the tip to the first bore is 720 mm. The distance between the first and second bores is 710 mm. The distance between the second and third bores is 520 mm. The distance from the third bore to the end is 195 mm. The diameter of the first bore is 250 mm. The diameter of the second bore is 165 mm. The diameter of the third bore is 80 mm. The radius of the first bore is R300. The radius of the second bore is R120. The radius of the third bore is R80. The distance from the tip to the first bore is 7.5 mm. The distance from the tip to the second bore is 350 mm. The distance from the tip to the third bore is 525 mm. The distance from the tip to the end is 195 mm. The distance from the tip to the first bore is 92 mm. The distance from the tip to the second bore is 81 mm. The distance from the tip to the third bore is 27 mm. The distance from the tip to the end is 7.5 mm.

Table of Parameters:

	a	b	3°	5°	3°
B ₁	258				
B ₂	280				
B ₃	296				

UNIT : mm

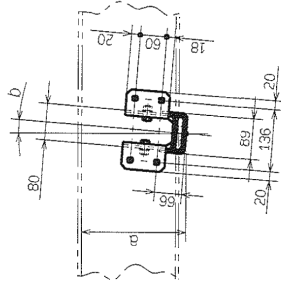
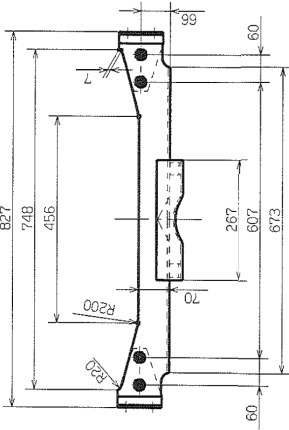
DETAILS OF CROSSMEMBERS (FK SERIES)



UNIT : mm

DETAILS OF CROSSMEMBERS (FK SERIES)

	a	b
(F ₁)	225	1° 30'
(F ₂)	207	0° 30'

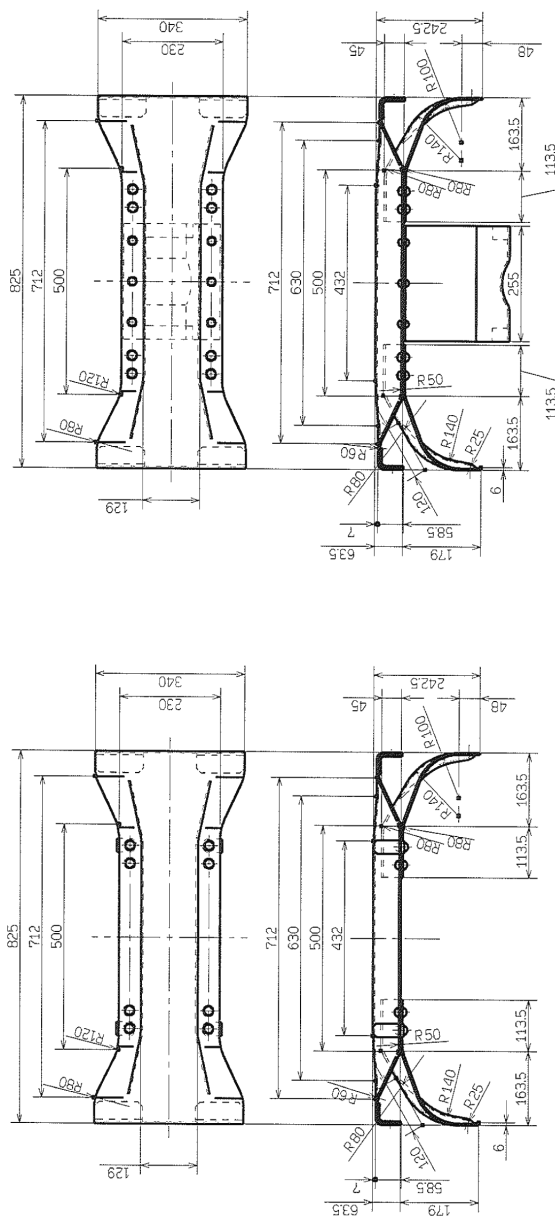


DETAILS OF CROSSMEMBERS (FM SERIES)

	a	b
(B ₁)	342	4° 1'

B₁

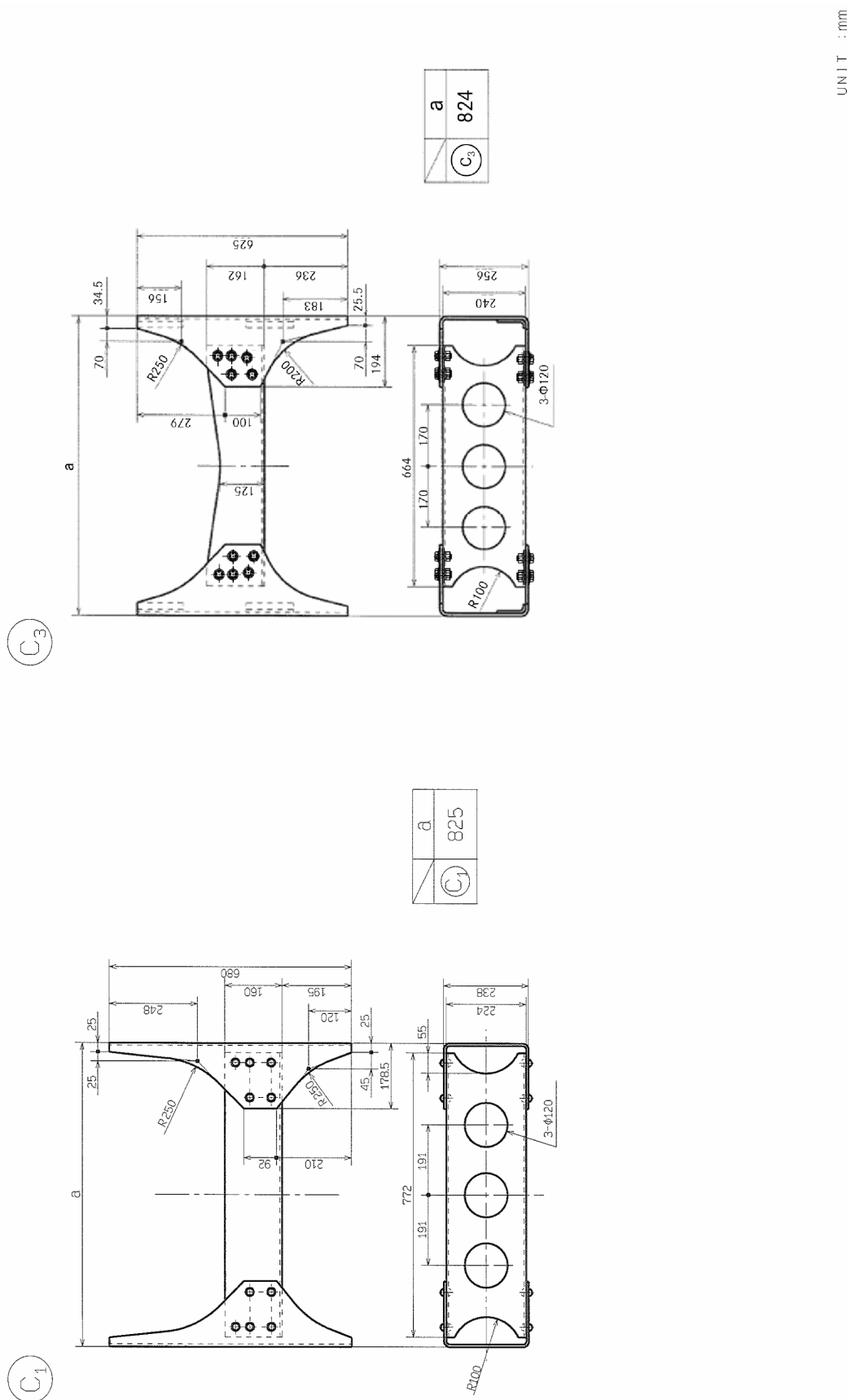
A



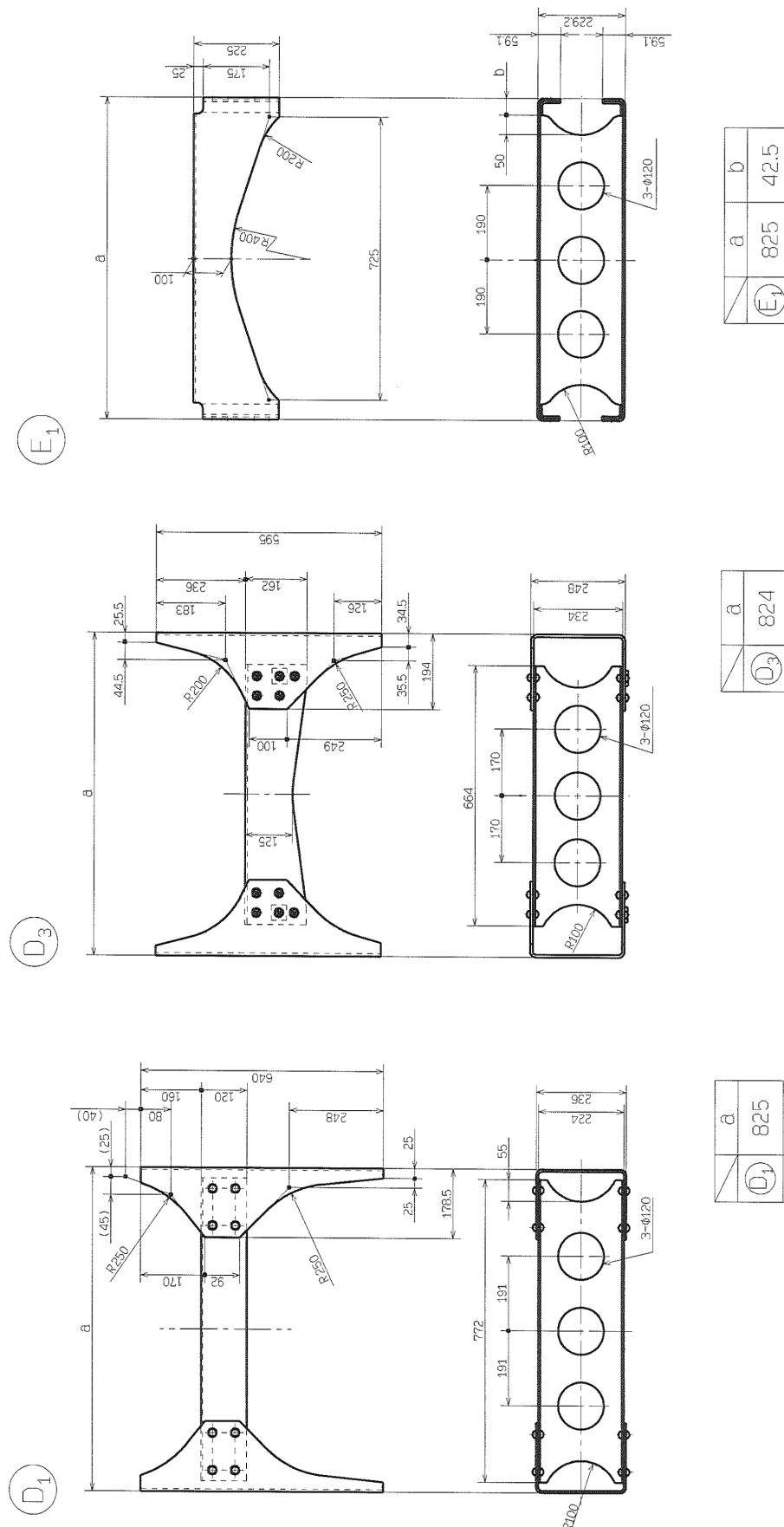
UNIT : mm



DETAILS OF CROSSMEMBERS (FM SERIES)

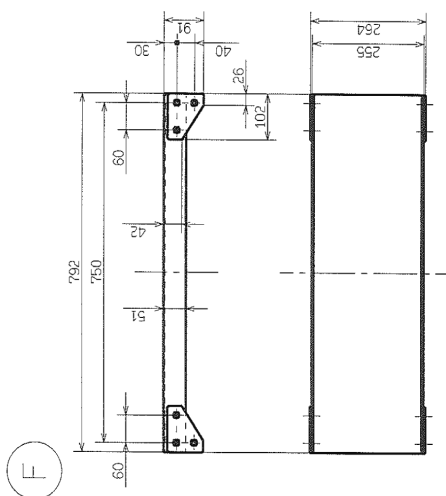


DETAILS OF CROSSMEMBERS (FM SERIES)



UNIT : mm

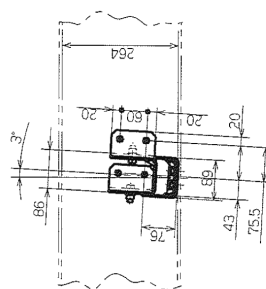
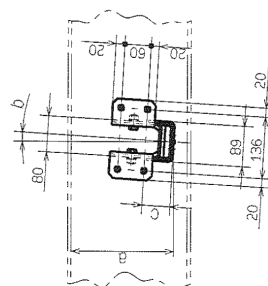
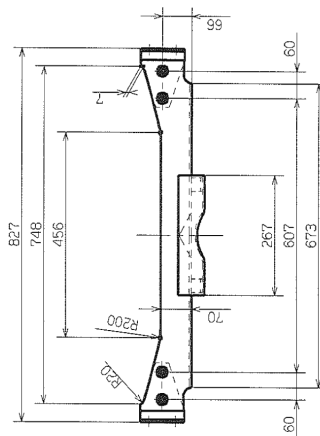
DETAILS OF CROSSMEMBERS (FM SERIES)



G₁ G₂ G₃

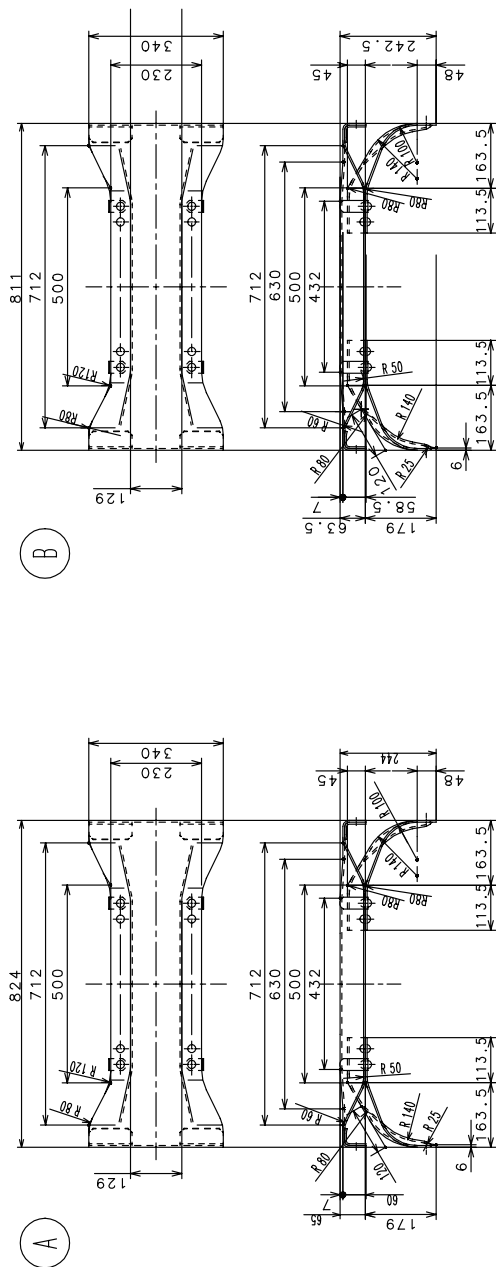
	a	b	c
G ₁	295	5° 35'	86
G ₂	270	3° 45'	66
G ₃	233	3° 20'	66

G₉

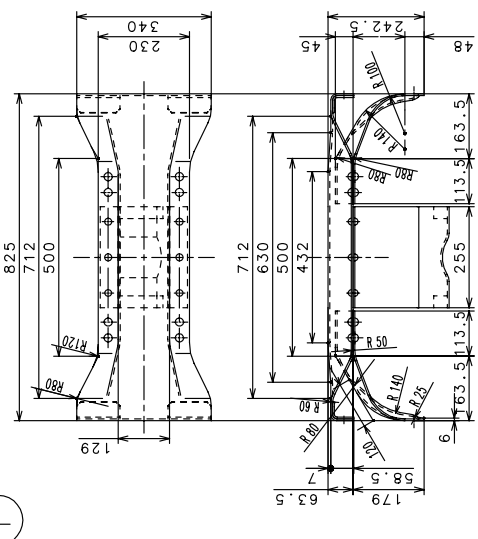


UNIT : mm

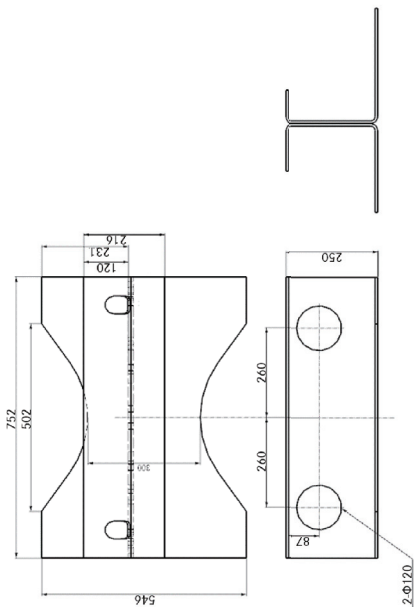
DETAILS OF CROSSMEMBERS (FN62 SERIES)



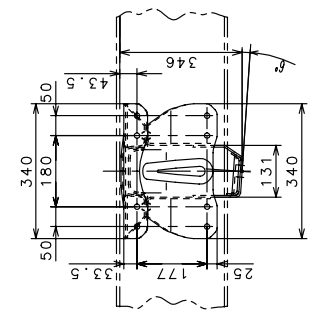
A



B



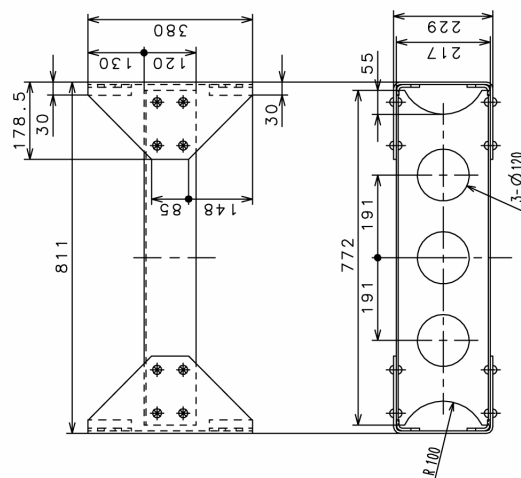
C



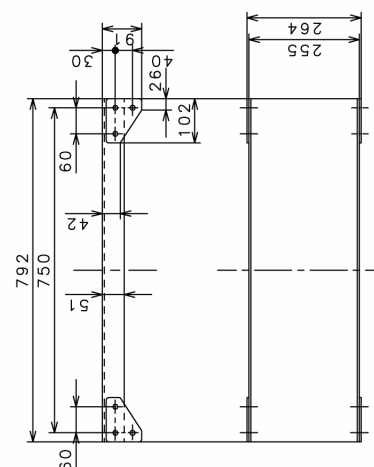
UNIT : mm

DETAILS OF CROSSMEMBERS (FN62 SERIES)

D



E

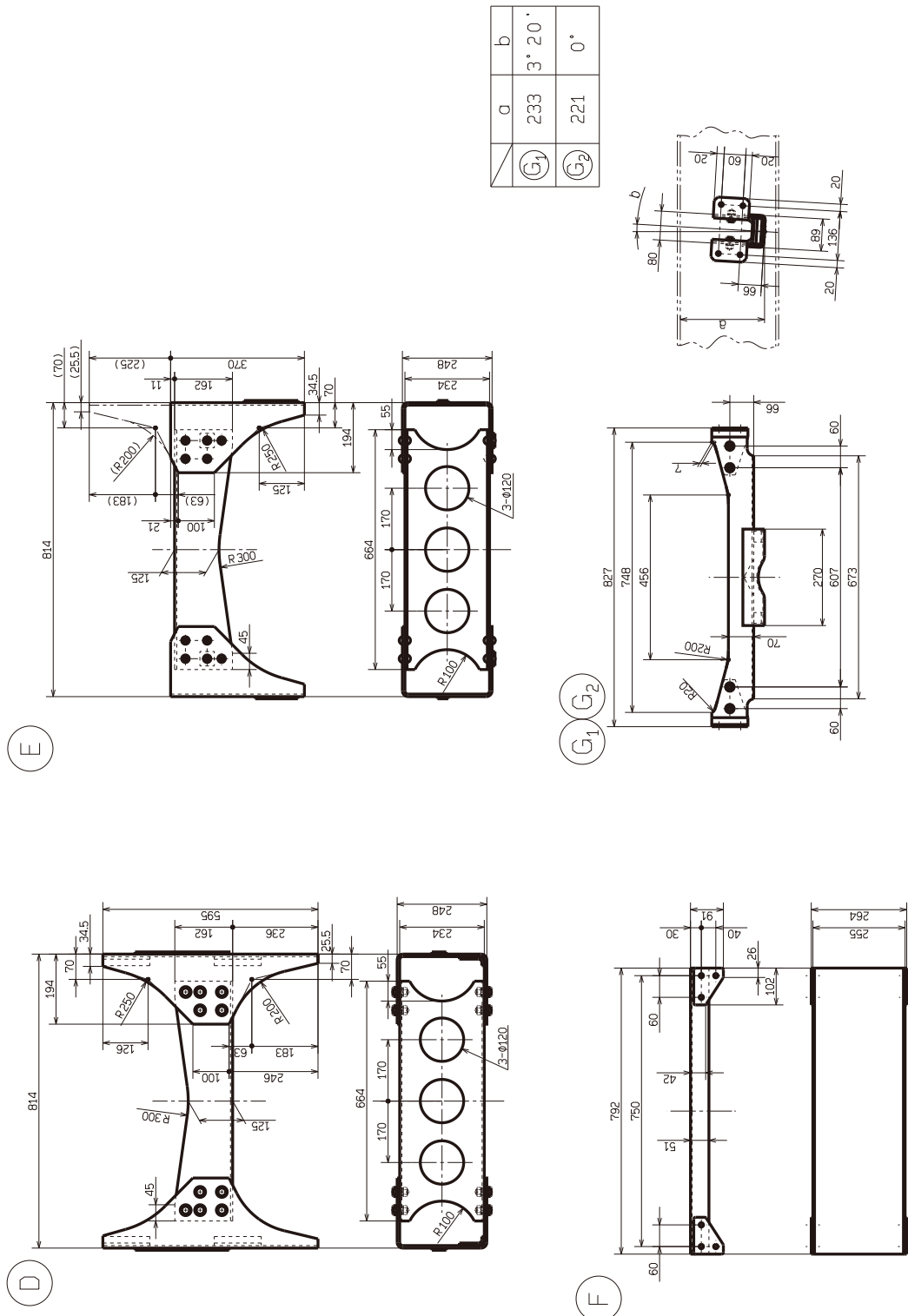


UNIT :mm



[illegible]

DETAILS OF CROSSMEMBERS (FN63F & FN64F SERIES)



10.6.2 Frame section modulus



Model	Page
FK62FHY5RFAC/D	150
FK62FKY5RFAC	151
FK62FLY5RFAC FK62FLY5RFAD/L	152
FK62FMY5RFAC	153
FK62FHZ5RFAC	154
FK62FLZ5RFAC FK62FLZ5RFAD/L/P FK62FLZ5RFAH	155
FK65FLZ6RFAC FK65FLZ5RFAD/L/P	156
FK65FMZ6RFAC FK65FMZ6RFAH	157
FM65FH6RFAH FM65FH6RFAK	158
FM65FM6RFAH	159
FM65FS6RFAH FM65FS6RFAK	160
FM67FM6RFAJ/M FM67FM6RFAK	161
FM67FS6RFAH FM67FS6RFAJ/M FM67FS6RFAK	162
FN62FK6RFAJ/M FN62FK6RFAK	163
FN62FR6RFAJ/M	164
FN63FU6RFAJ/M FN63FU6RFAK FN64FU6RFAJ/M FN64FU6RFAK	165

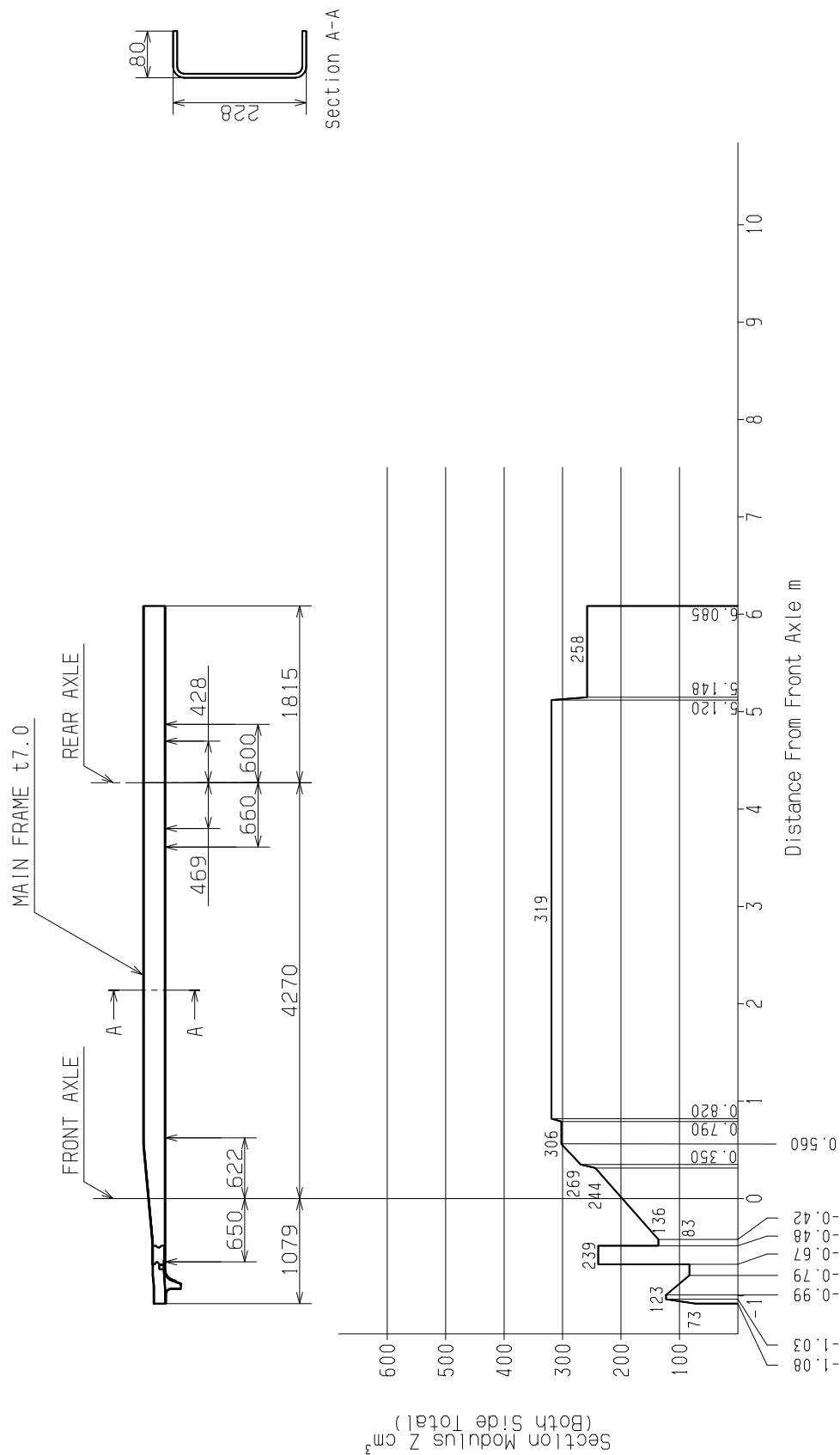




FK62FHY5RFAC/D

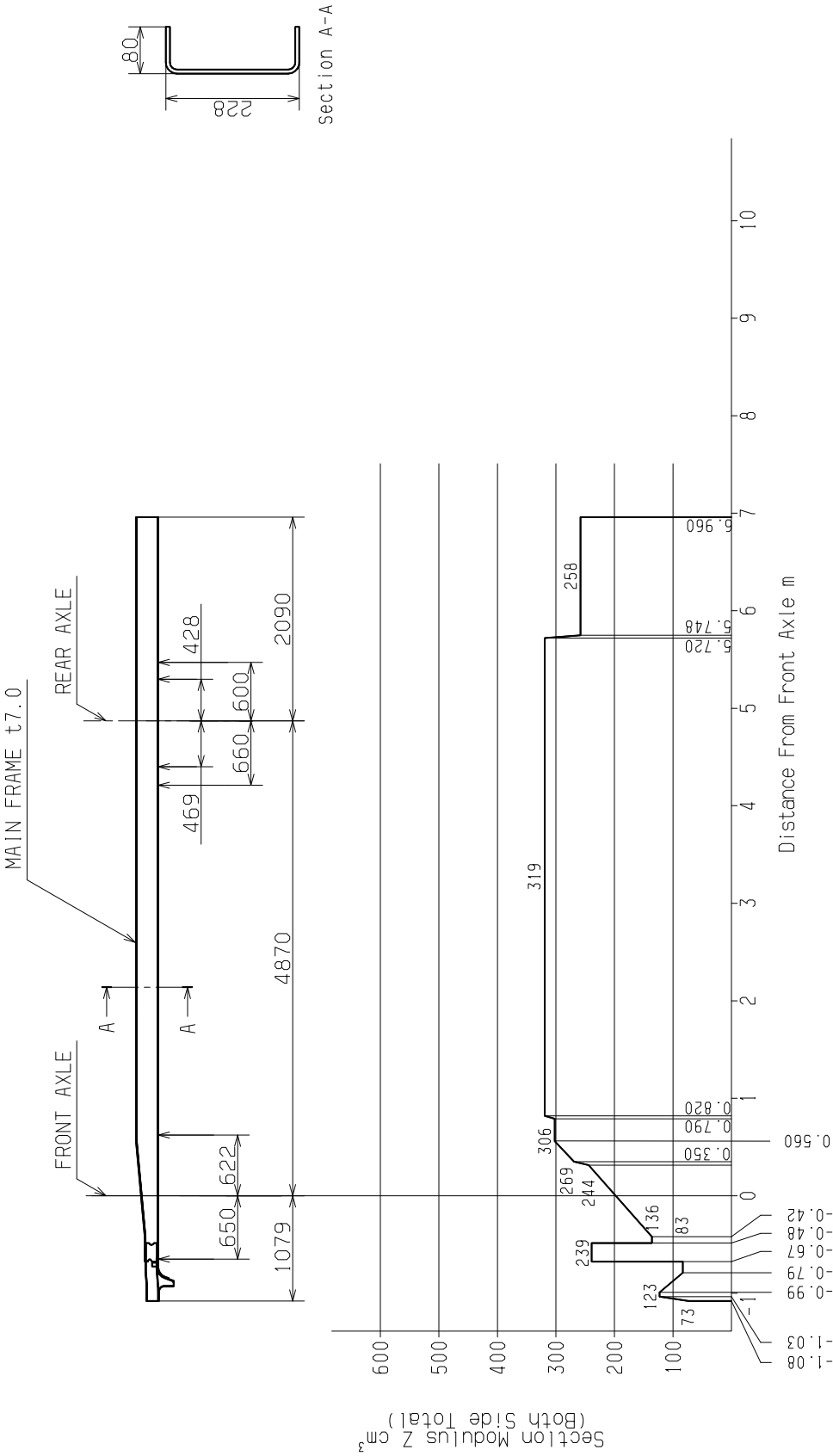
NOTES:

- (1) Tensile strength: over 540MPa
- (2) Tensile yield strength: over 390MPa
- (3) "↑" indicates reaction point of spring.



FK62FKY5RFAC

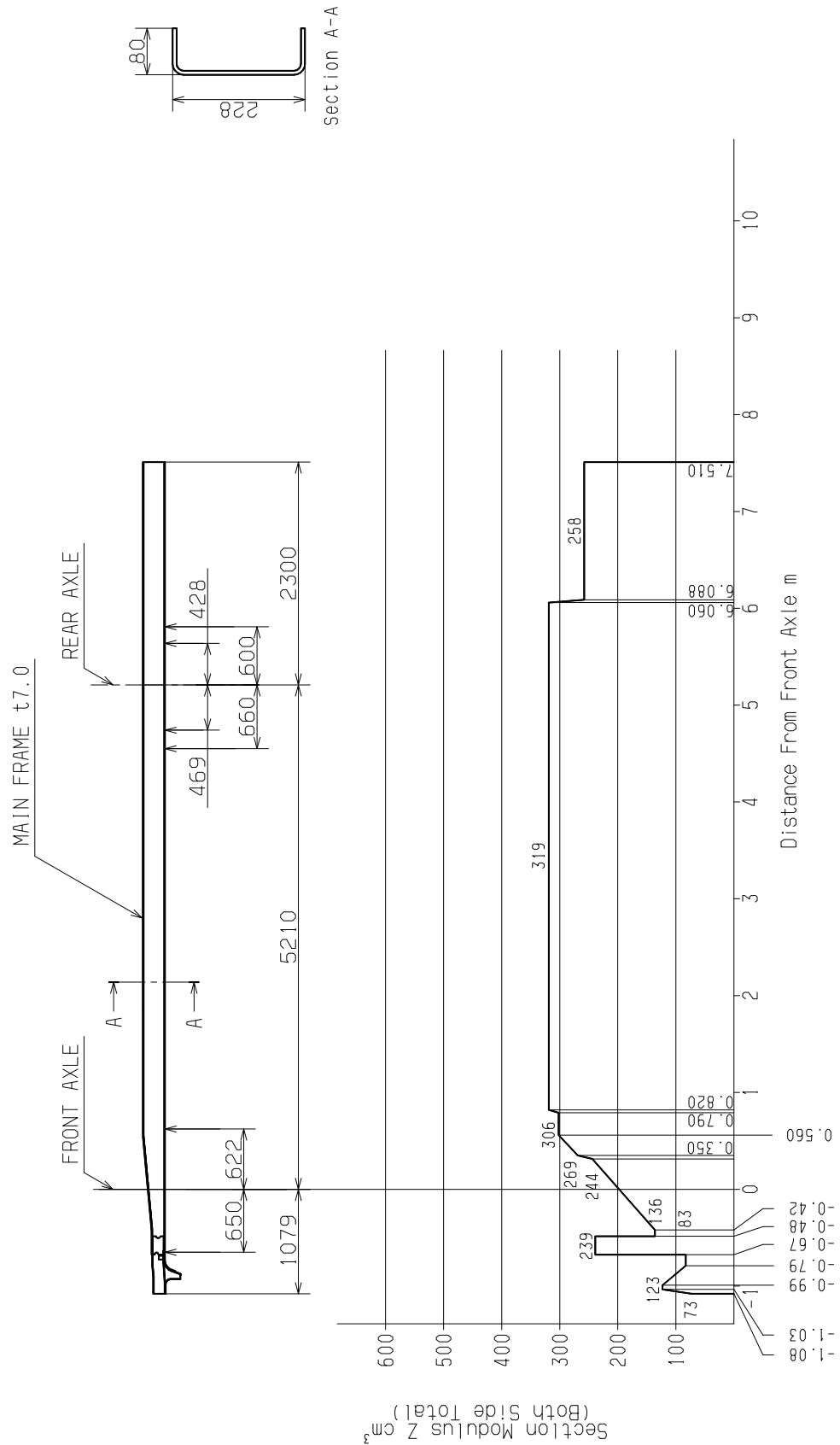
- NOTES:
- (1) Tensile strength: over 540MPa
 - (2) Tensile yield strength: over 390MPa
 - (3) "↑" indicates reaction point of spring.





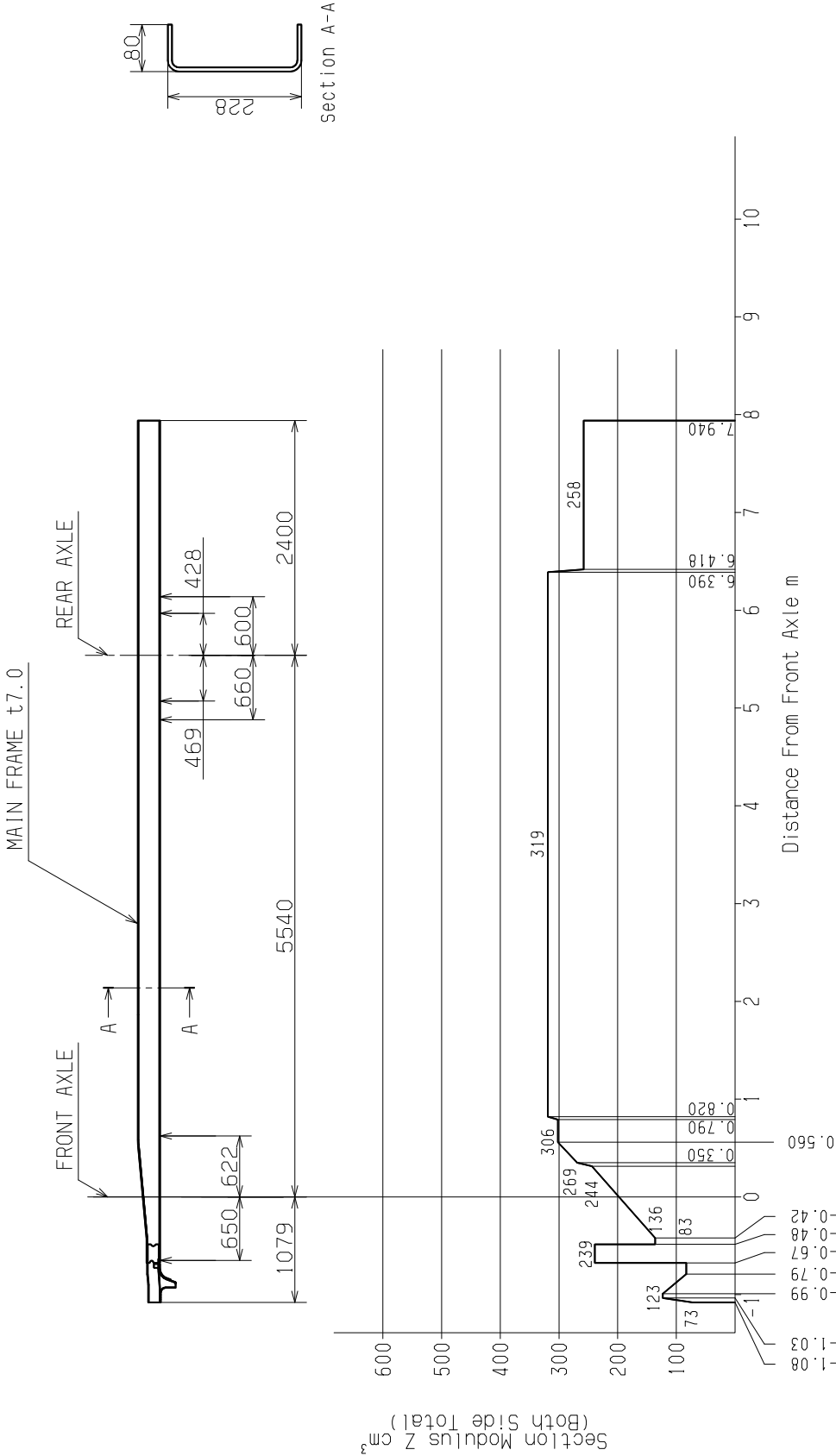
FK62FLY5RFAD/L FK62FLY5RFAD

- NOTES:
- (1) Tensile strength: over 540MPa
 - (2) Tensile yield strength: over 390MPa
 - (3) "↑" indicates reaction point of spring.



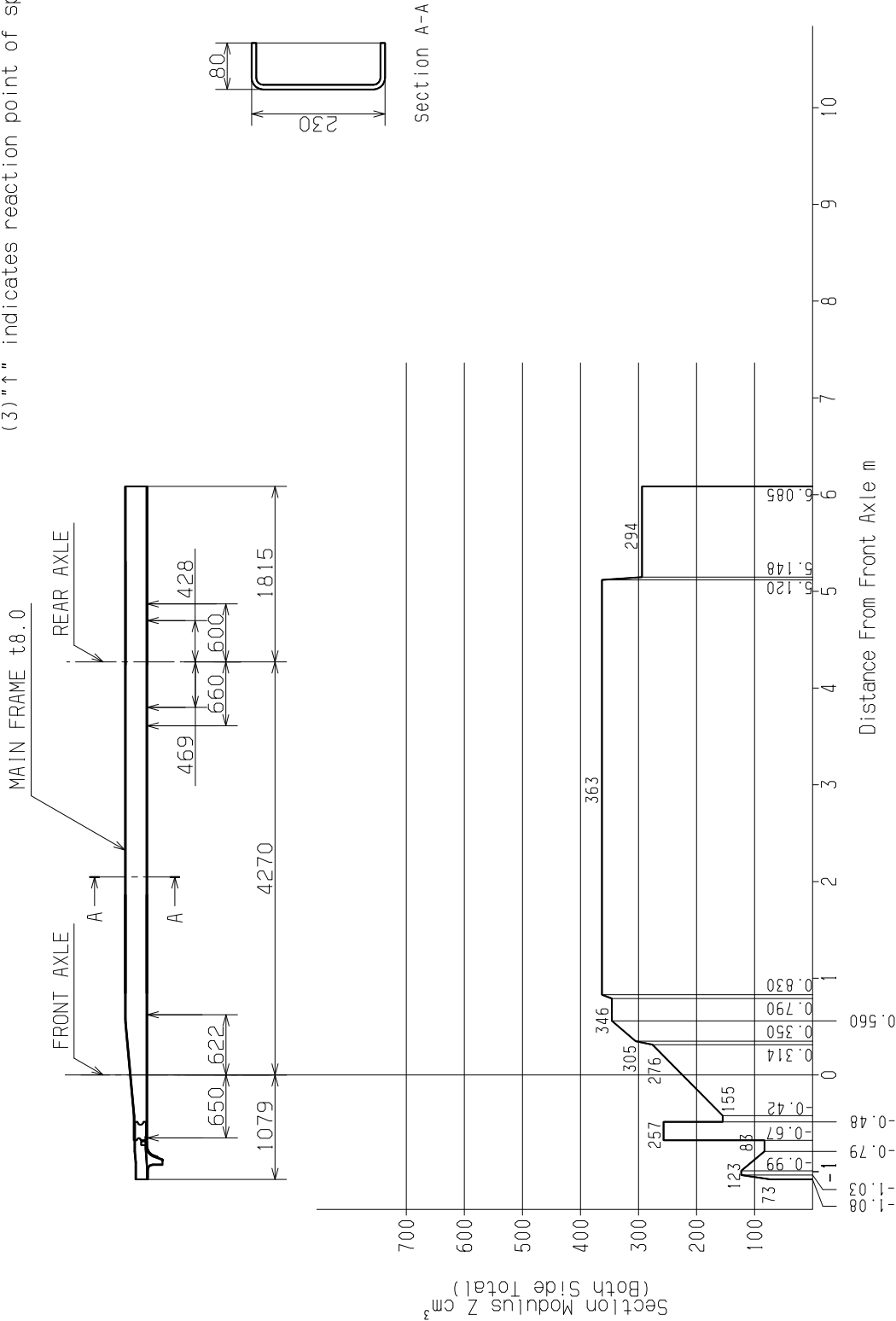
FK62FMY5RFAC

- NOTES:
- (1) Tensile strength: over 540MPa
 - (2) Tensile yield strength: over 390MPa
 - (3) "↑" indicates reaction point of spring.



FK62FHZ5RFAC

- NOTES:
- (1) Tensile strength: over 540MPa
 - (2) Tensile yield strength: over 390MPa
 - (3) "↑" indicates reaction point of spring.

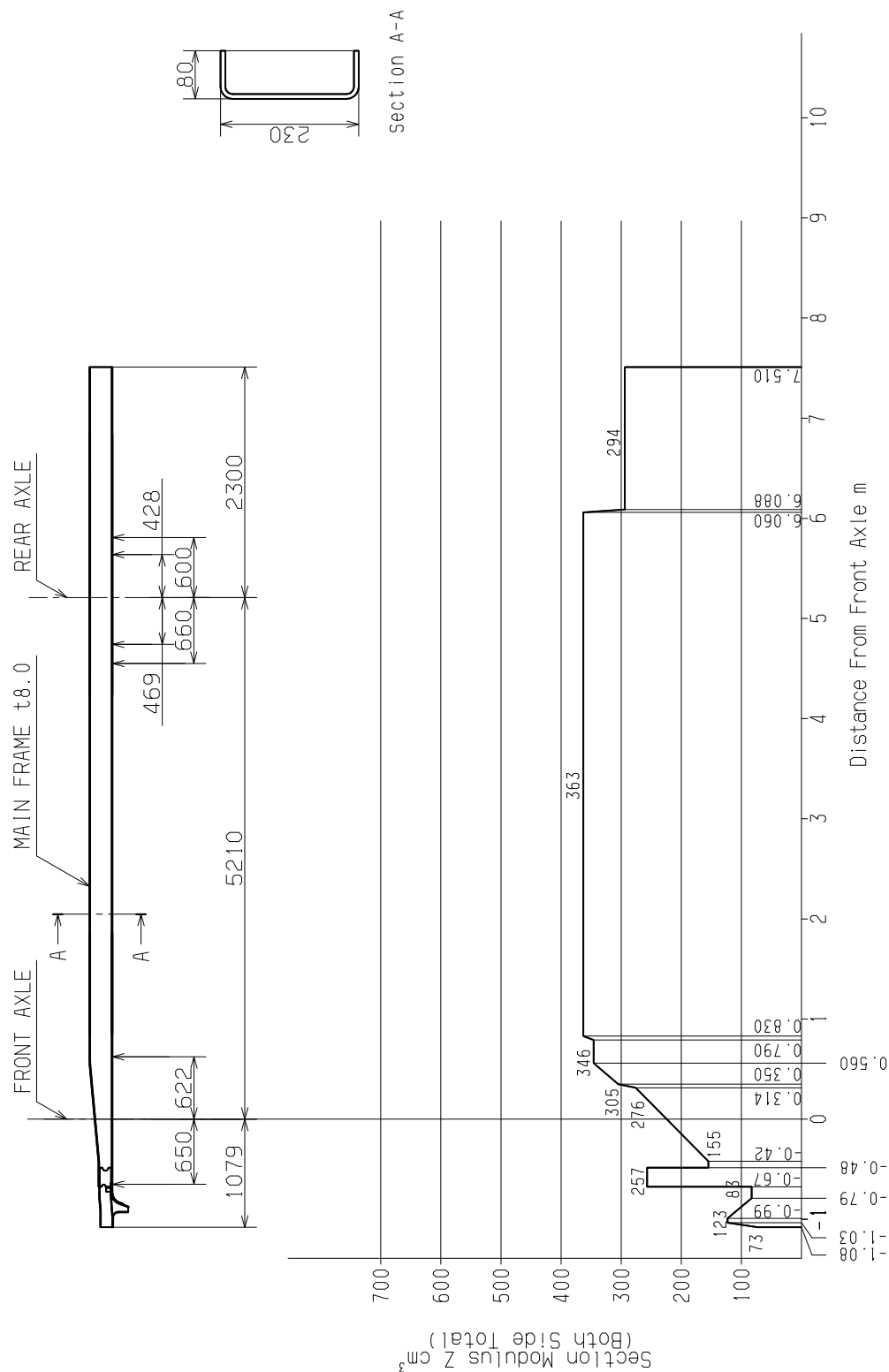




FK62FLZ5RFAC
FK62FLZ5RFAD/L/P
FK62FLZ5RFAH

NOTES:

- (1) Tensile strength: over 540MPa
- (2) Tensile yield strength: over 390MPa
- (3) "↑" indicates reaction point of spring.

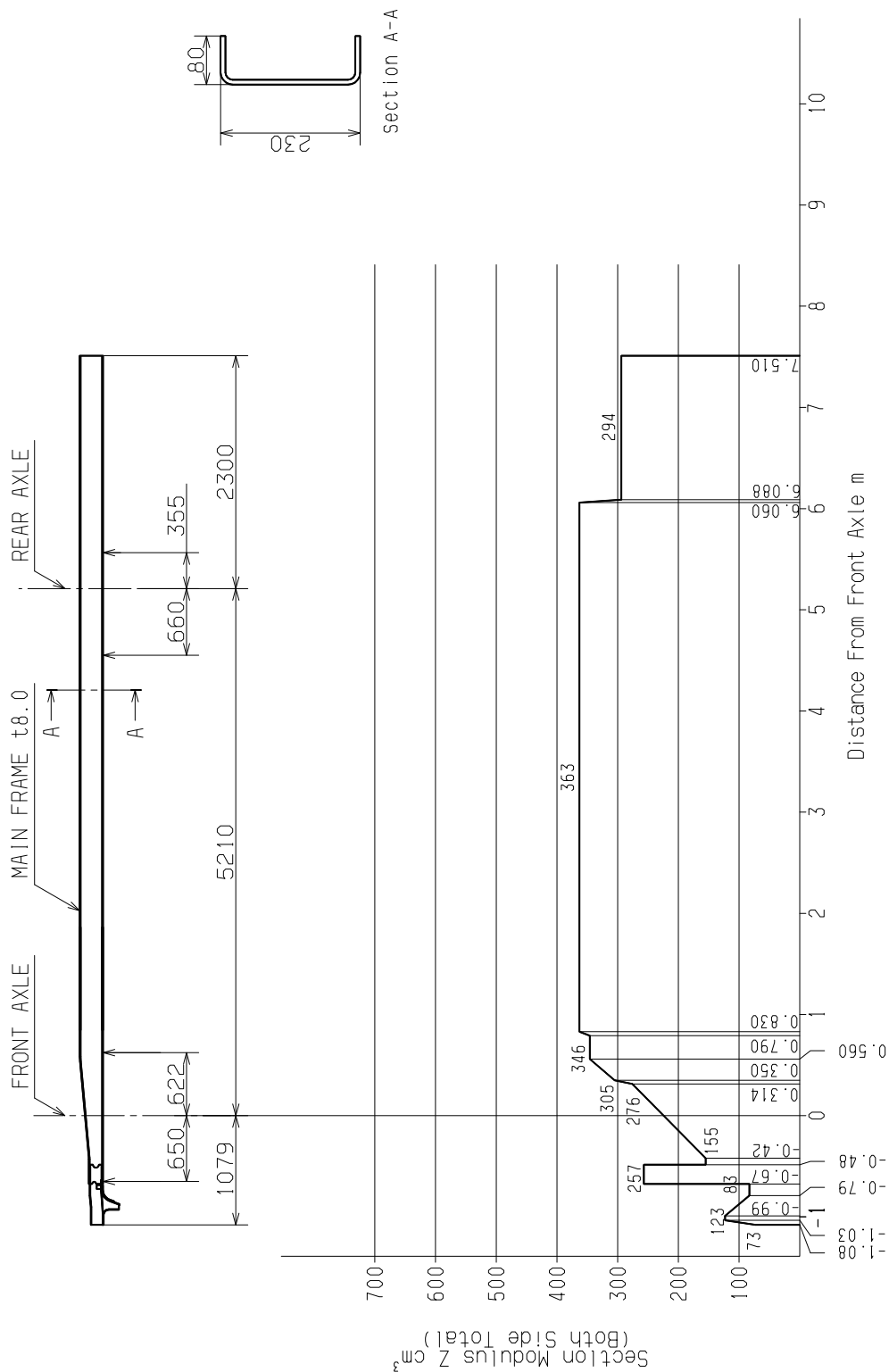




FK65FLZ6RFAC FK65FLZ5RFAD/L/P

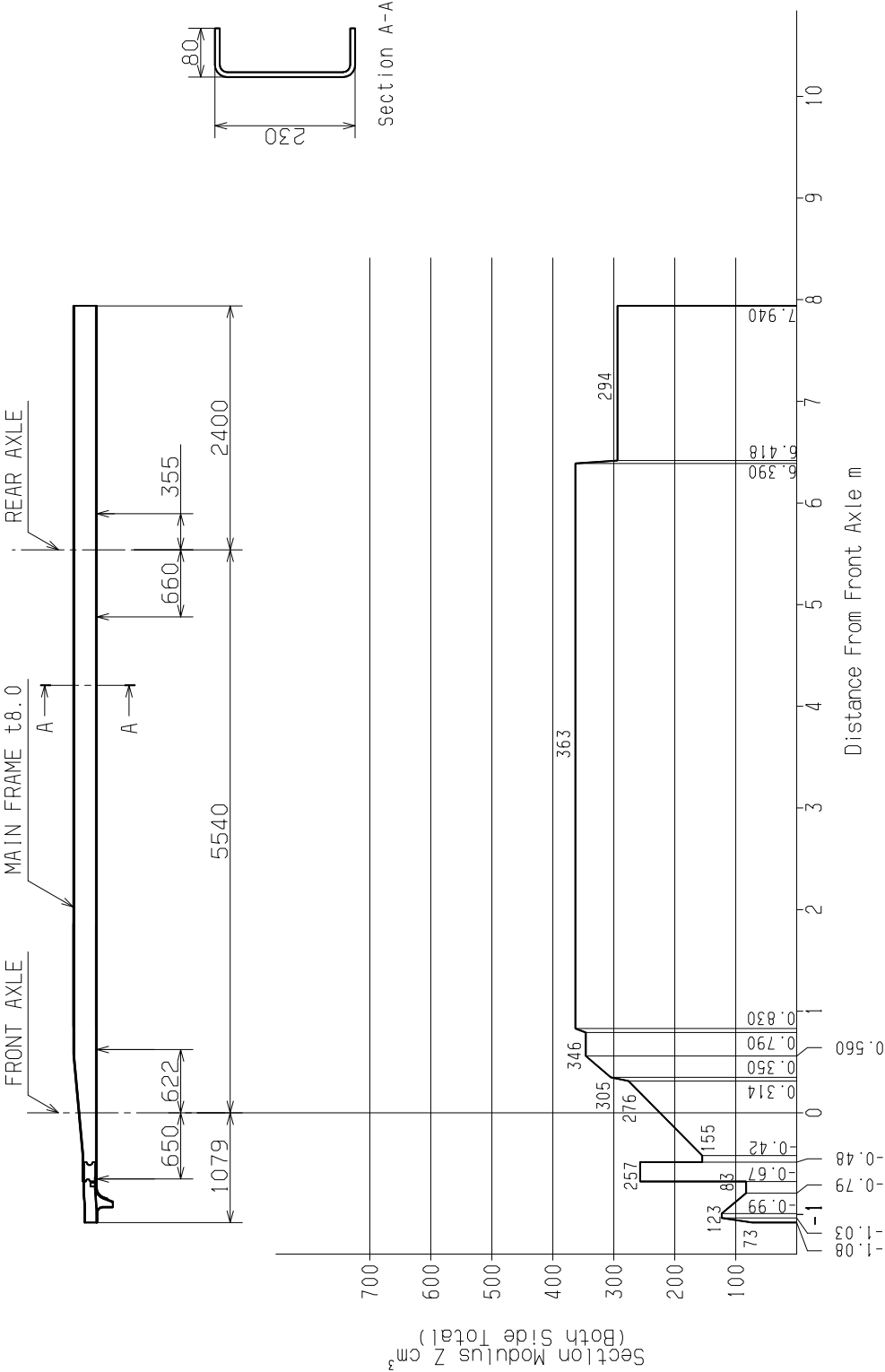
NOTES:

- (1) Tensile strength: over 540MPa
- (2) Tensile yield strength: over 390MPa
- (3) "↑" indicates reaction point of spring.

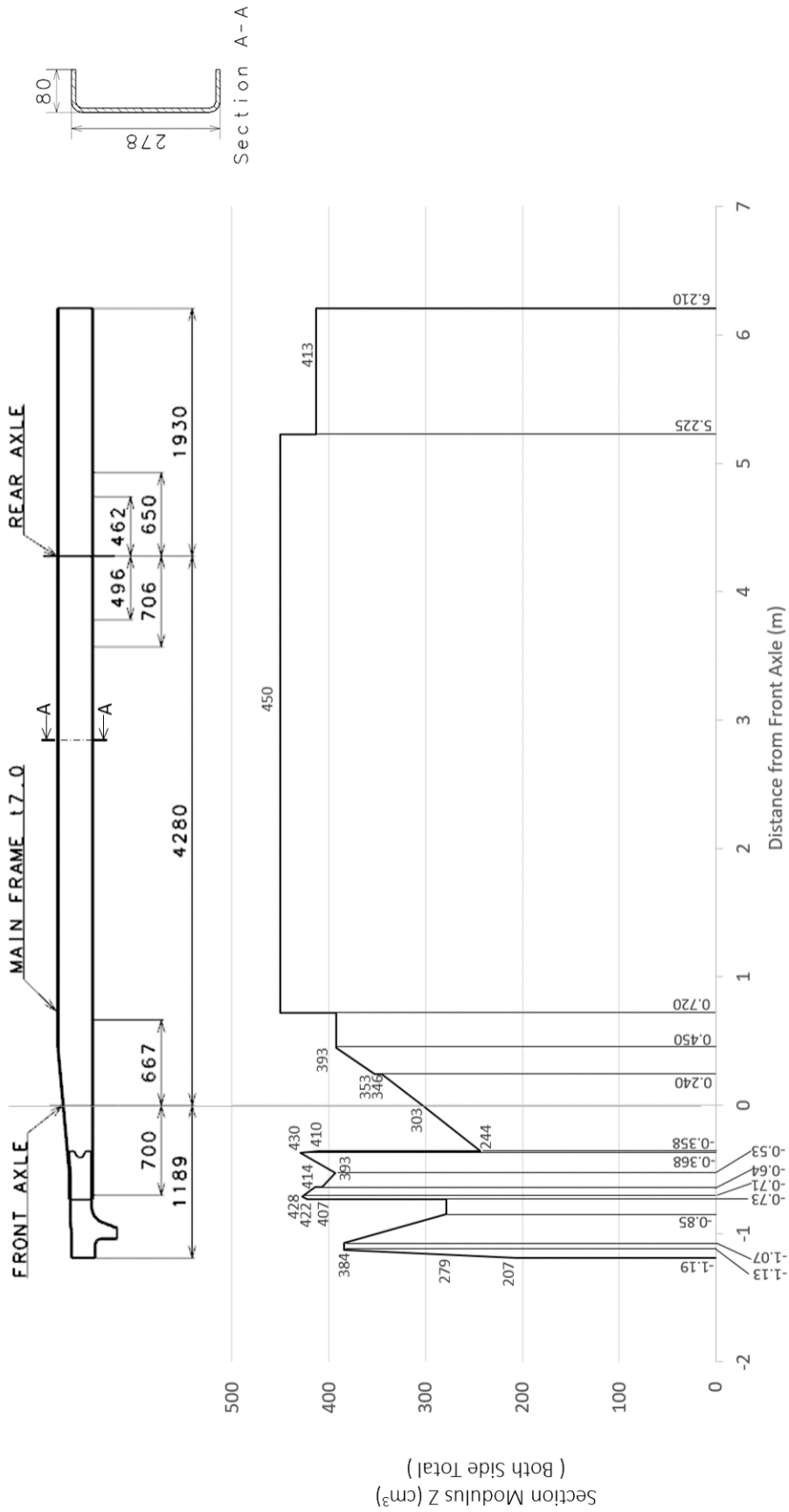


FK65FMZ6RFAC
FK65FMZ6RFAH

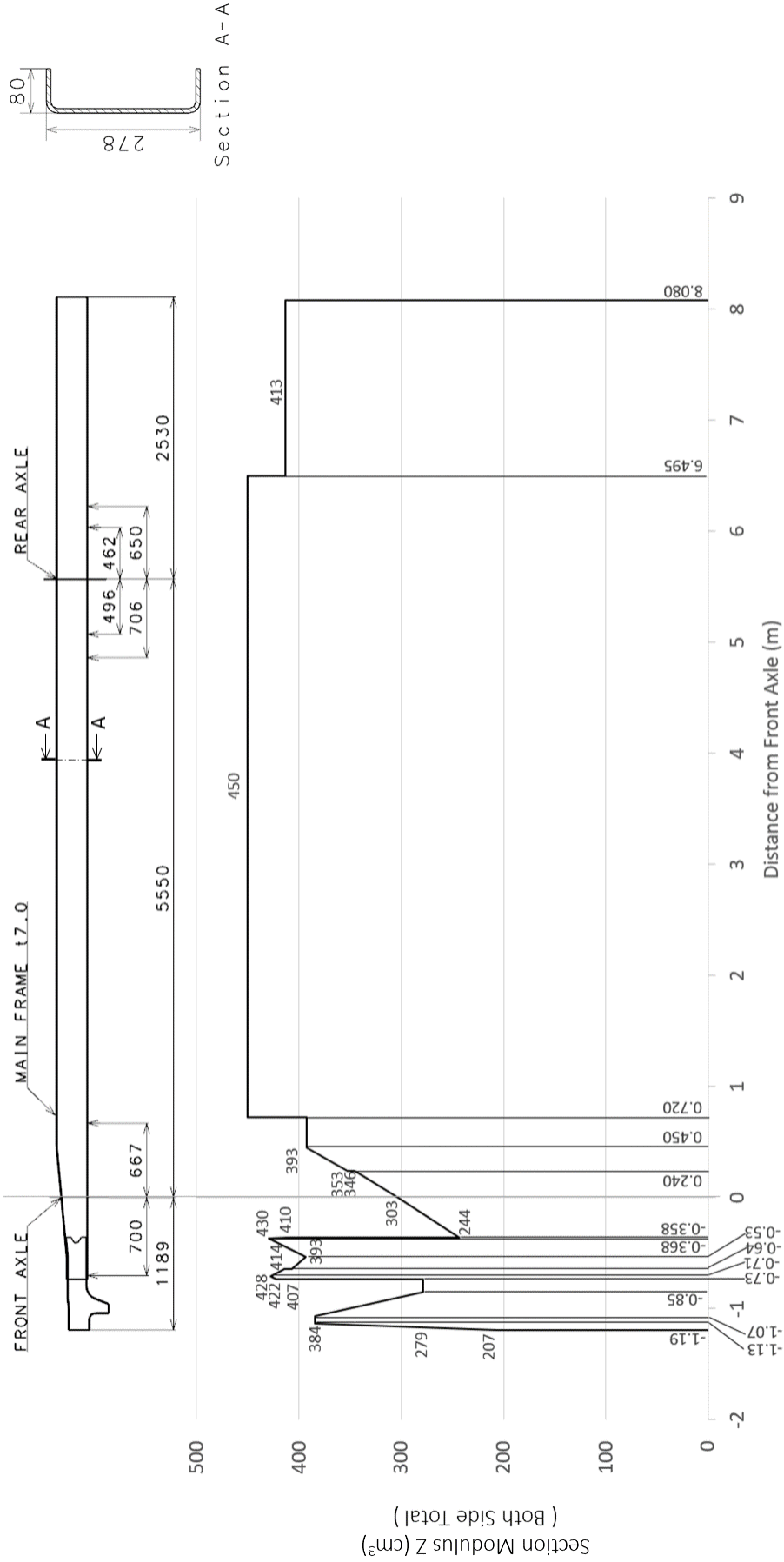
- NOTES:
- (1) Tensile strength: over 540MPa
 - (2) Tensile yield strength: over 390MPa
 - (3) "↑" indicates reaction point of spring.



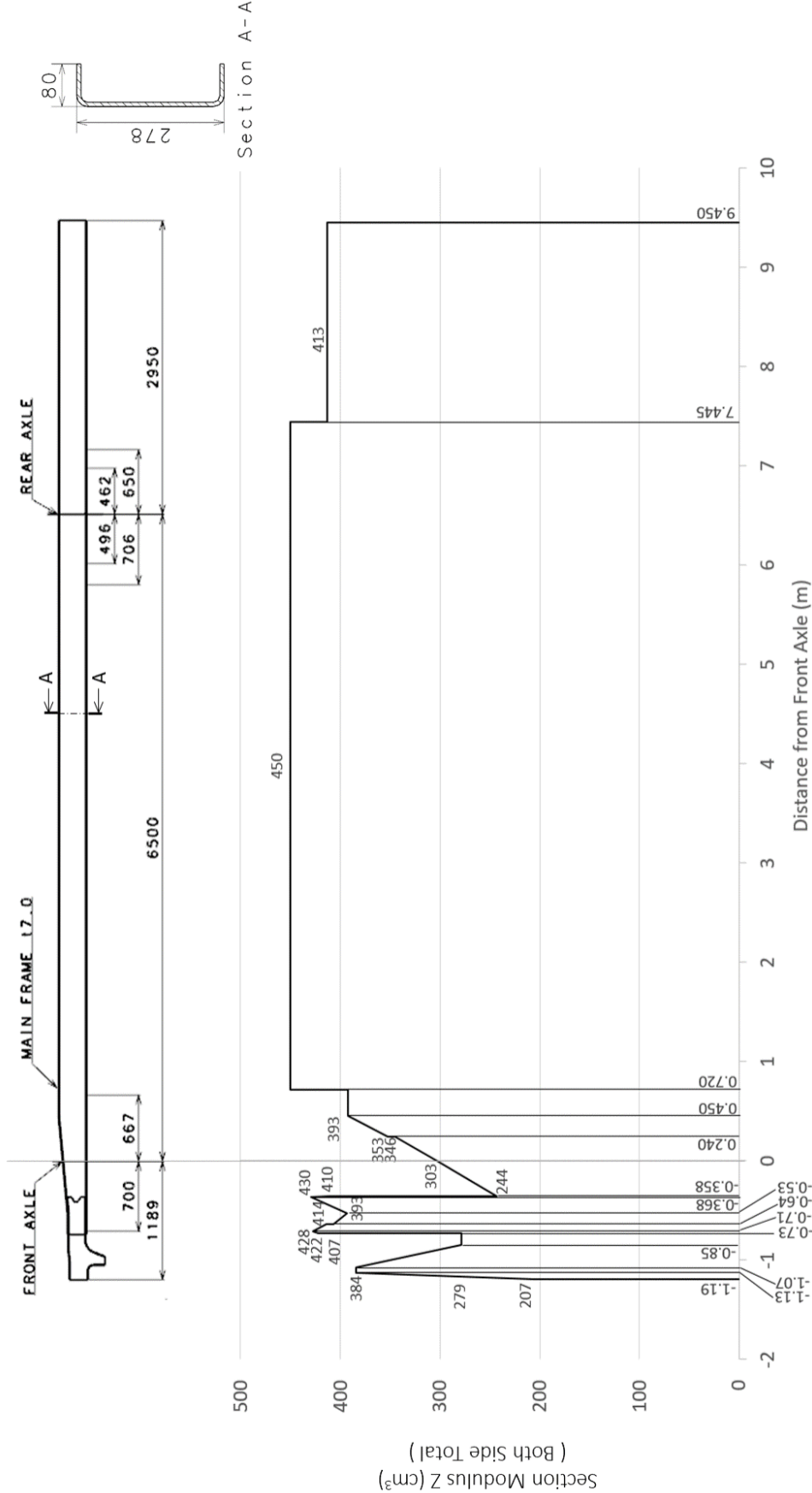
FM65FH6RFAH
FM65FH6RFAK



FM65FM6RFAH



FM65FS6RFAH
FM65FS6RFAK

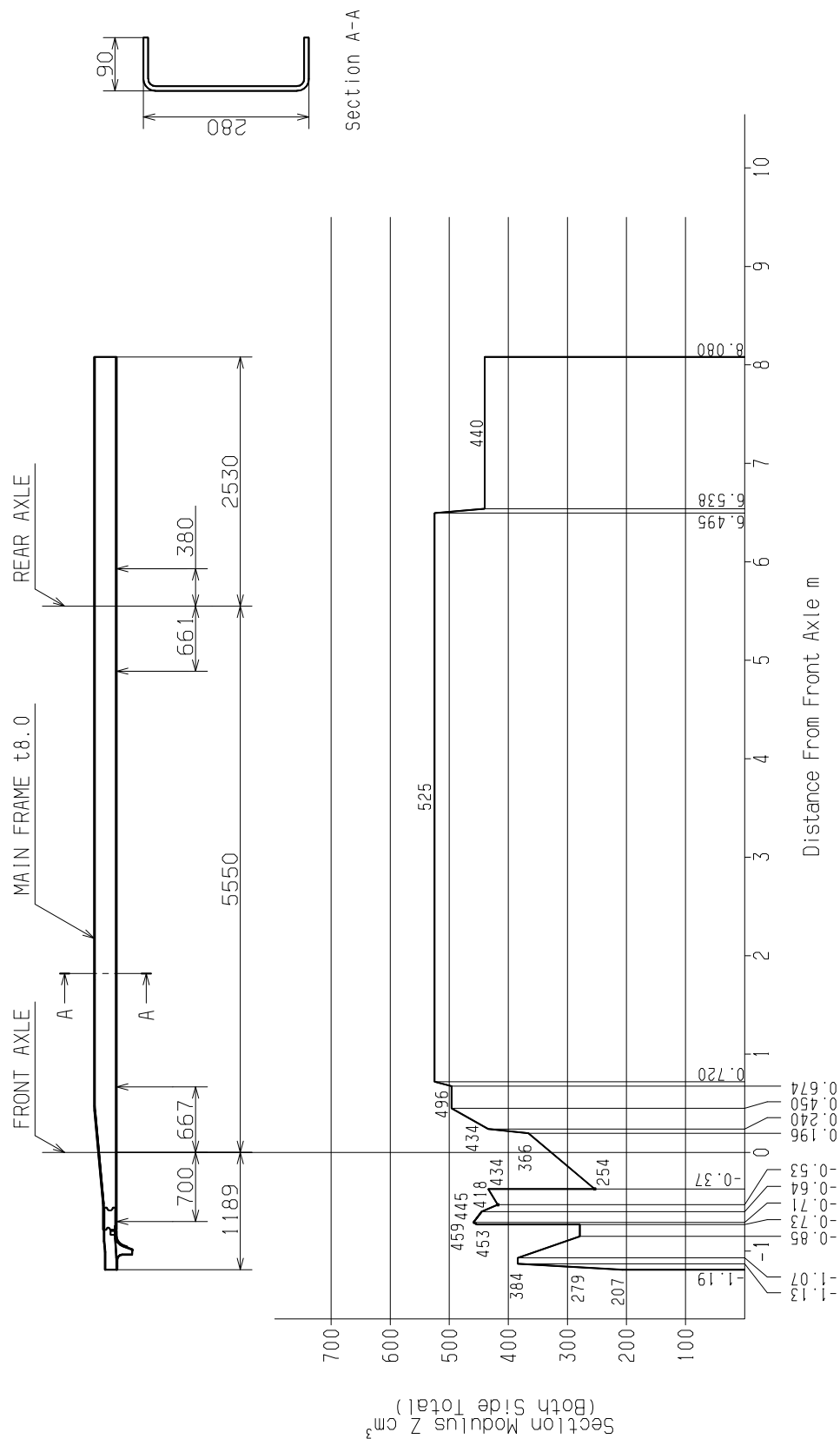




FM67FM6RFAJ/M FM67FM6RFAK

NOTES:

- (1) Tensile strength: over 540MPa
- (2) Tensile yield strength: over 390MPa
- (3) "↑" indicates reaction point of spring.

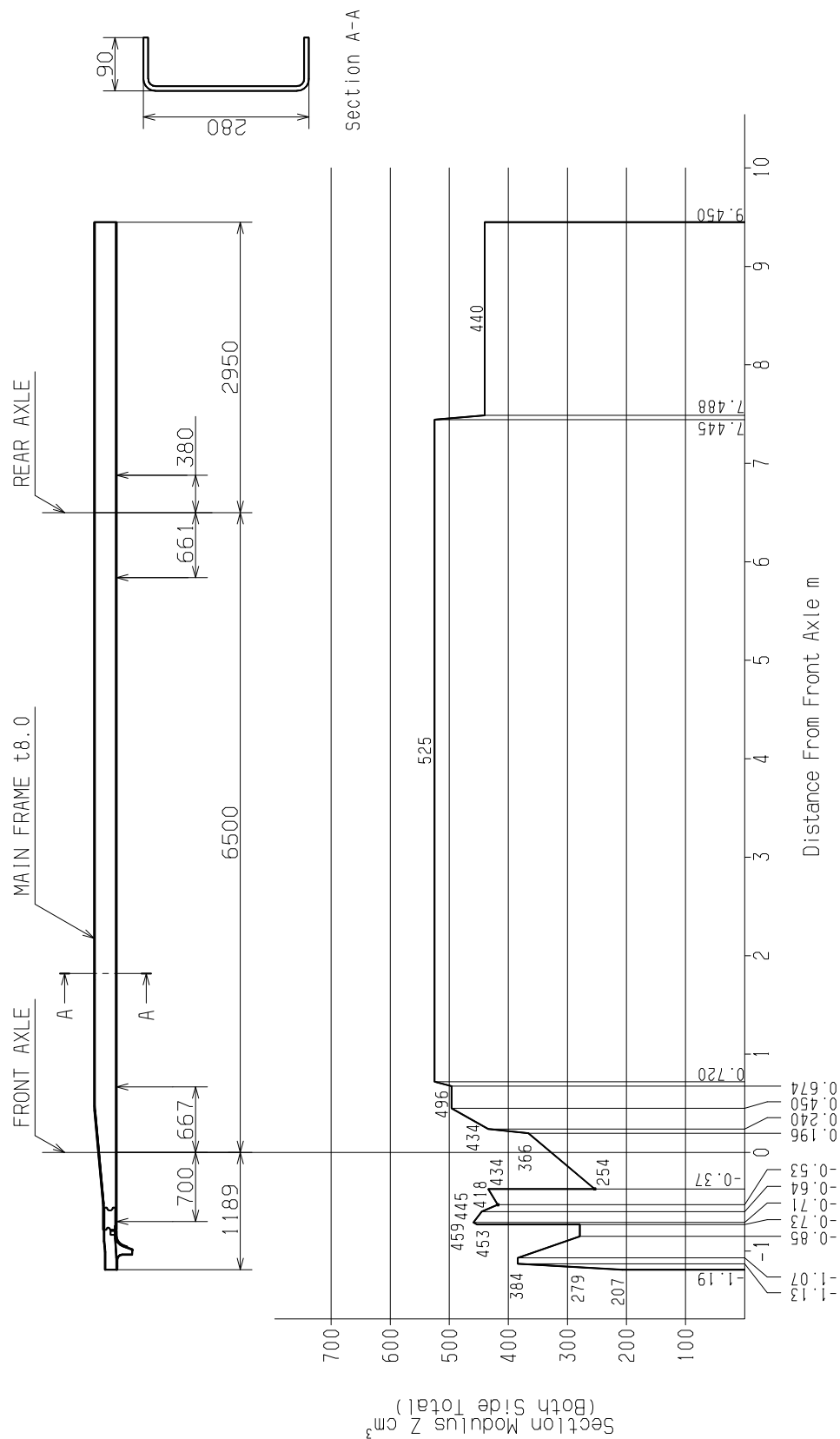


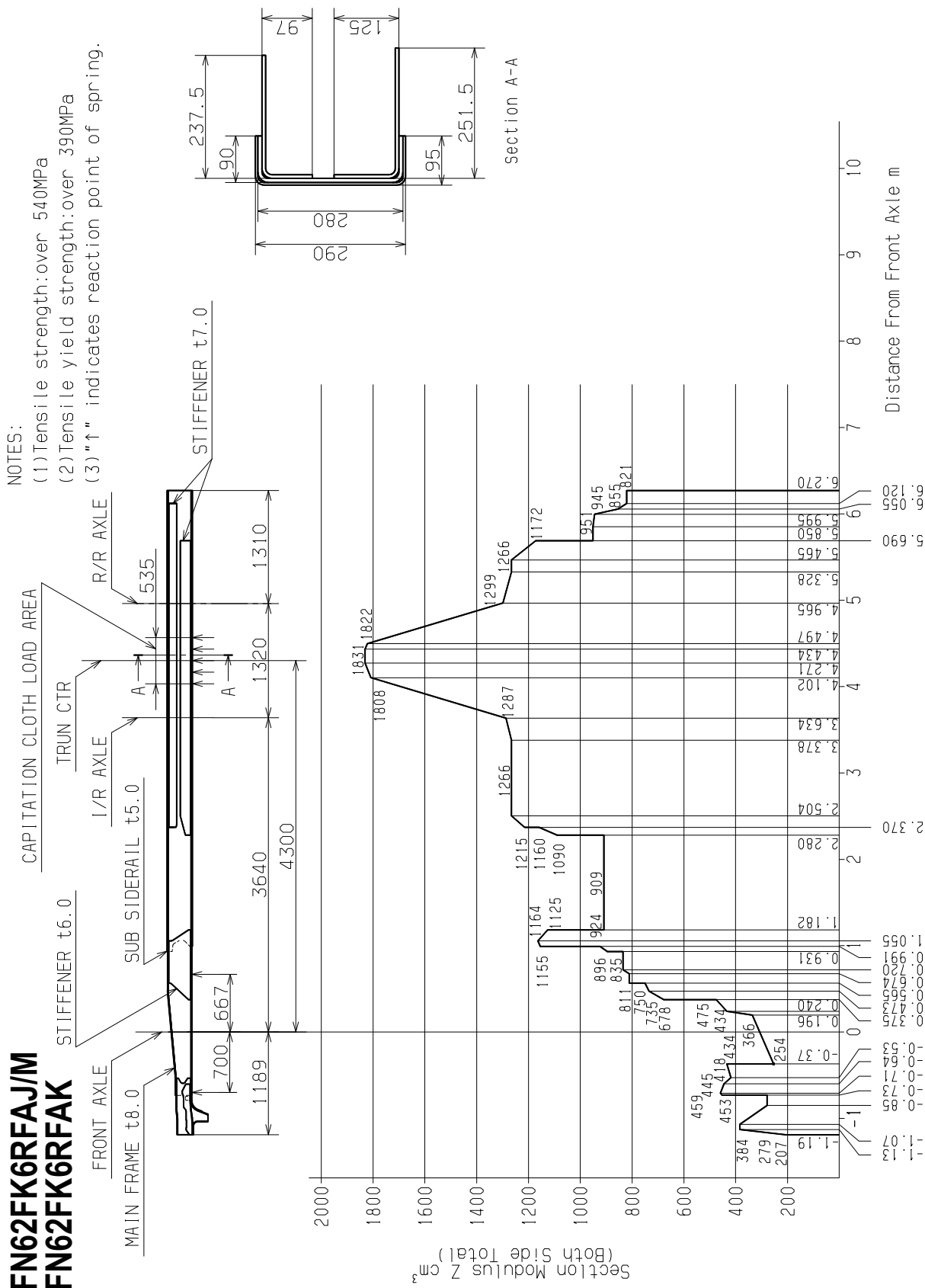


FM67FS6RFAH
FM67FS6RFAJ/M
FM67FS6RFAK

NOTES:

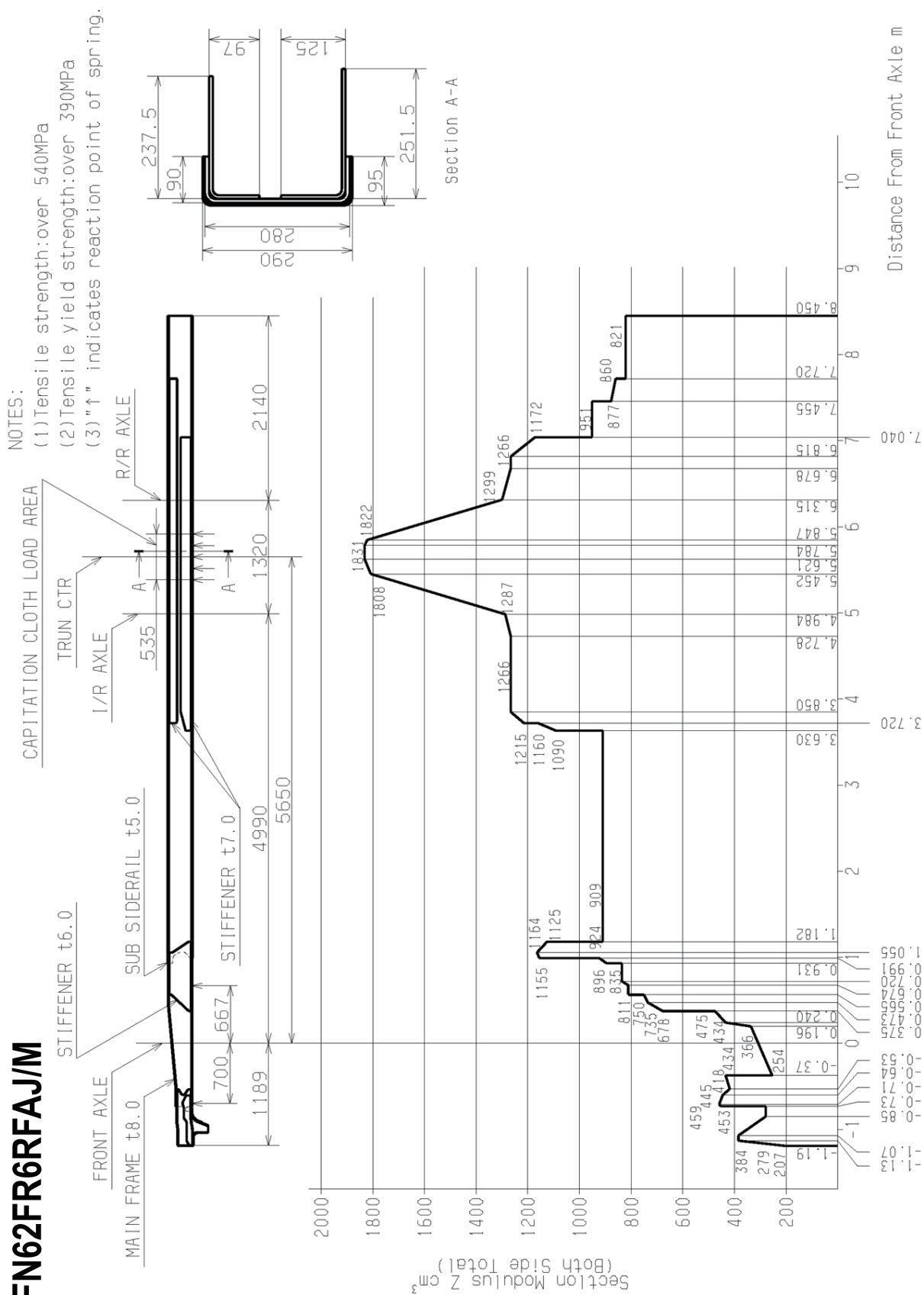
- (1) Tensile strength: over 540MPa
- (2) Tensile yield strength: over 390MPa
- (3) "↑" indicates reaction point of spring.







FN62FR6RFAJ/M

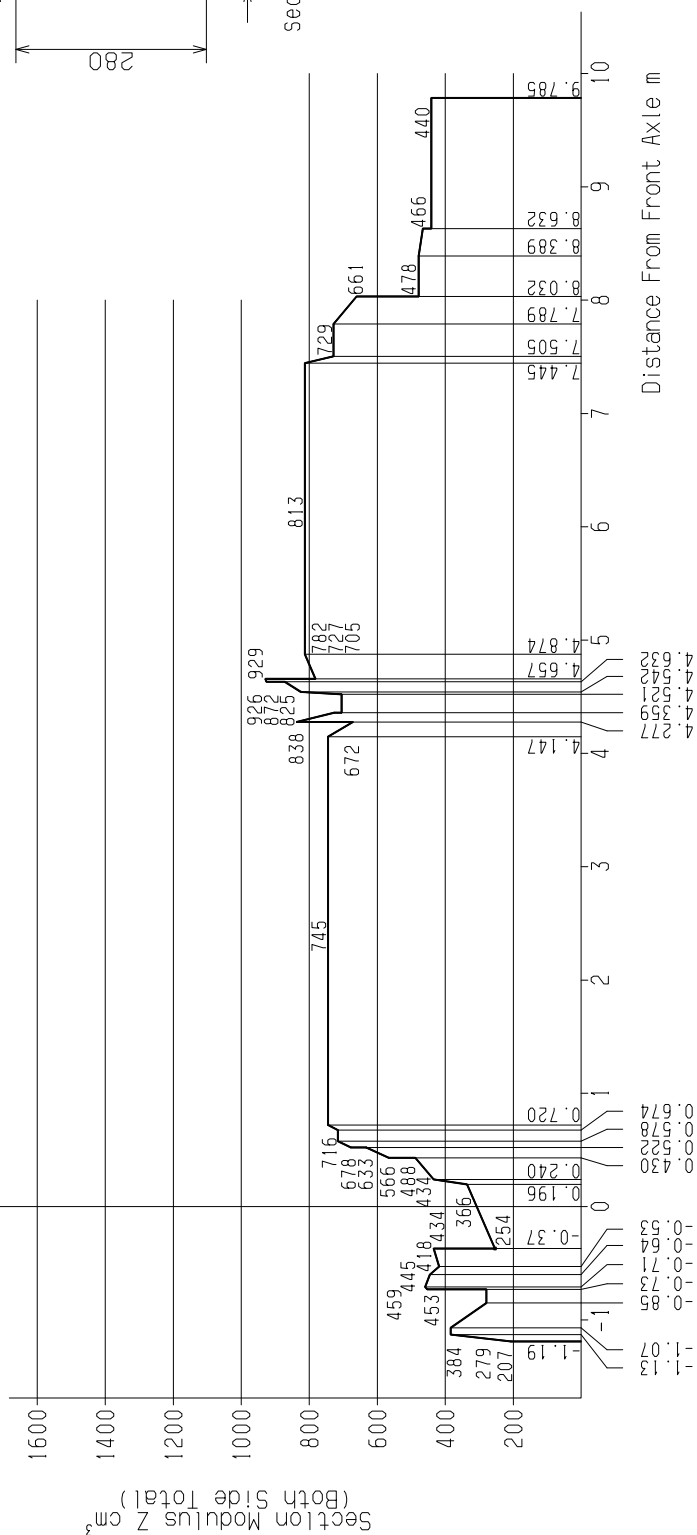
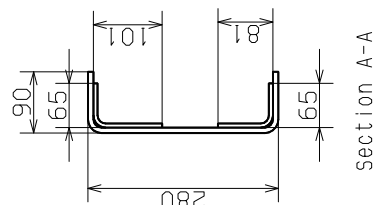
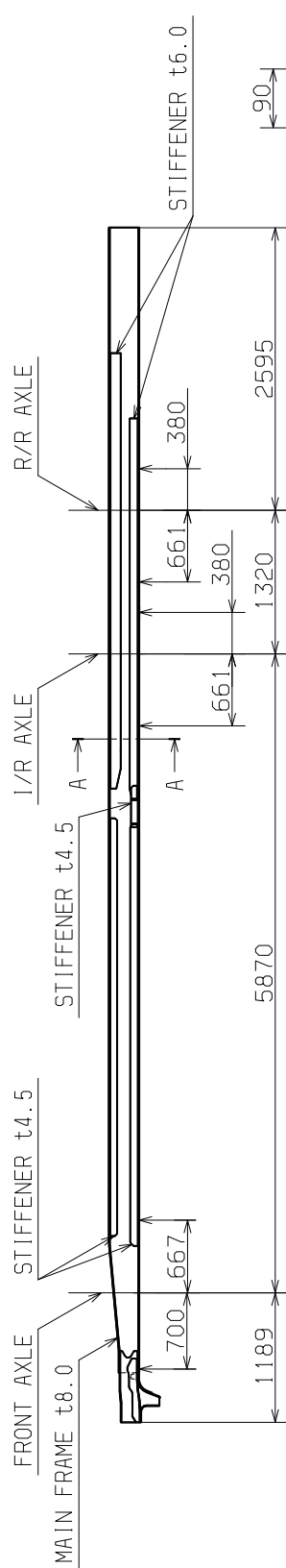




FN63FU6RFAJ/M
FN63FU6RFAK
FN64FU6RFAJ/M
FN64FU6RFAK

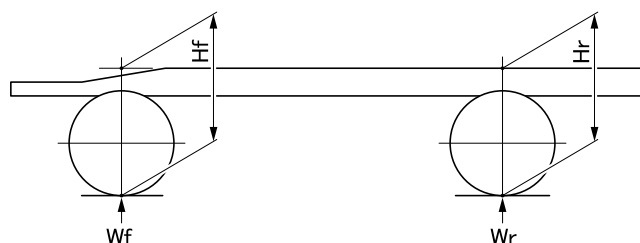
NOTES:

- (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}
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}
		$H_f = (879 - 0.0287W_f) \pm 10$		$W_r \leq 6120\text{kg}, H_r = (940 - 0.0146W_r) \pm 25$ $W_r > 6120\text{kg}, H_r = (893 - 0.0068W_r) \pm 25$		
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}
		$H_f = (923 - 0.0262W_f) \pm 10$		$W_r \leq 6133\text{kg}, H_r = (957 - 0.0146W_r) \pm 25$ $W_r > 6133\text{kg}, H_r = (909 - 0.0068W_r) \pm 25$		
FM65	STD	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}
		$H_f = (1027 - 0.0209W_f) \pm 10$		$W_r \leq 4571\text{kg}, H_r = (1068 - 0.0176W_r) \pm 25$ $W_r > 4571\text{kg}, H_r = (1015 - 0.0059W_r) \pm 25$		
	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}
		$H_f = (1070 - 0.0209W_f) \pm 10$		$W_r \leq 4554\text{kg}, H_r = (1109 - 0.0176W_r) \pm 25$ $W_r > 4554\text{kg}, H_r = (1055 - 0.0059W_r) \pm 25$		
FN62	11R22.5-16PR	1400×80×18-1 22-2	309 {31.5}	1320×90×30-5	3059 {312}	-
		$H_f = (1070 - 0.0209W_f) \pm 10$		$H_f = (1048 - 0.0030W_f) \pm 25$		

10.7 Spring characteristics

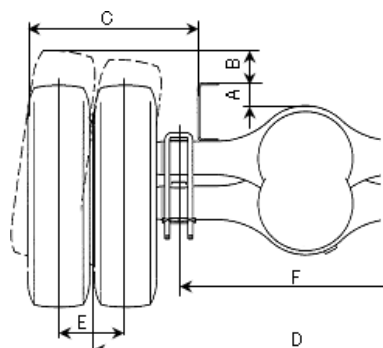
Rear air suspension

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

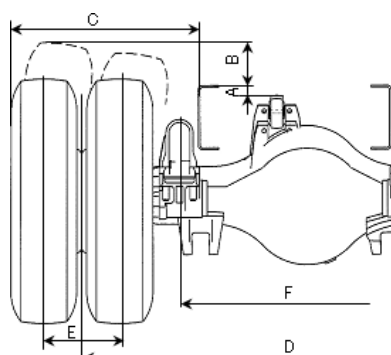
Rear axle

Rear leaf suspension (single)



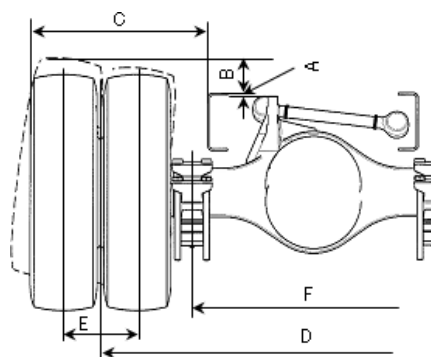
Model	Tire	A	B	C	D	E	F
FK62**Y	245/70R19.5	89	141	710	1710	294	990
FK62**Z	265/70R19.5	91	155	716	1710	294	990
FM65	275/70R22.5	128	145	808	1850	330	1015
	11R22.5	128	195	810	1850	330	1015

Rear leaf suspension (tandem)



Model	Tire	A	B	C	D	E	F
FN62	11R22.5	42	200	810	1850	330	1003

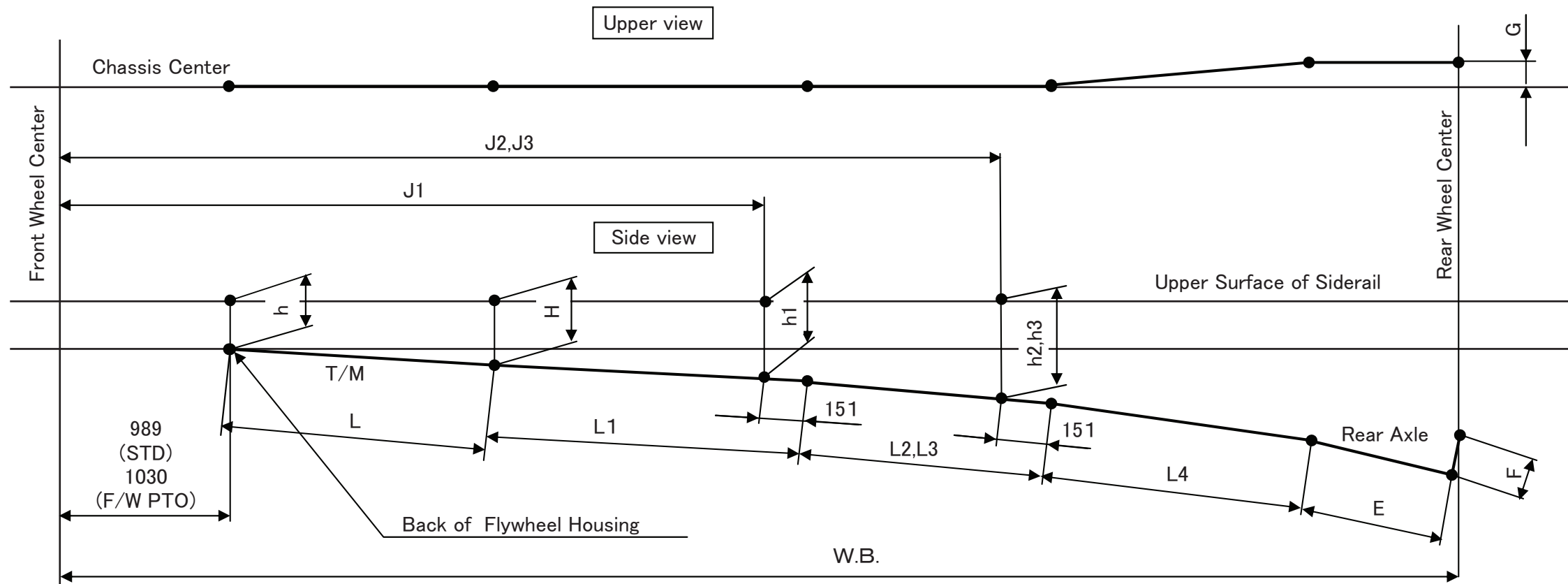
Rear air suspension (single & tandem)



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

10.8 Propeller shaft layout



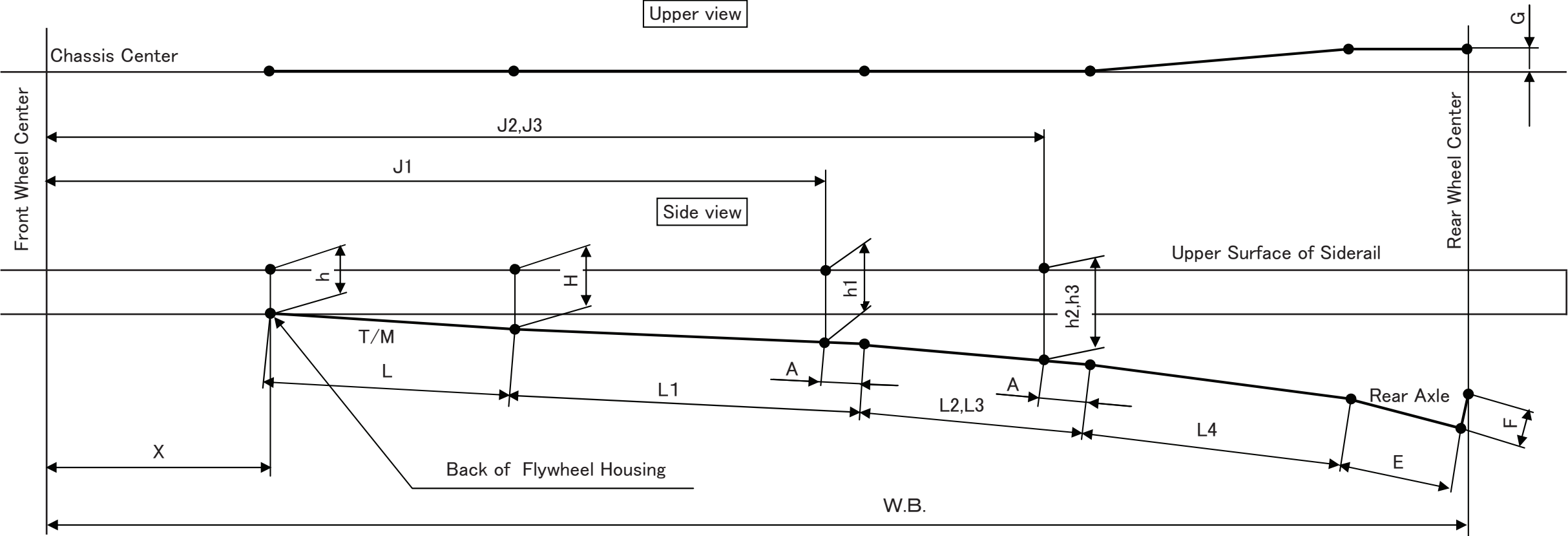
Model	W.B. (mm)	PTO	T/M			Propeller shaft						Rear Axle				Distance from upper surface of siderail (mm)					Distance from Front Wheel Center (mm)									
			Model	L (mm)	C/B ^{*1} W/P ^{*2}	Model (O.D×I.D)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)		Model	E (mm)	F (mm)	G (mm)	h	H	h1	h2	h3	J1	J2	J3							
										Max	Mini																			
FK62FHY5RFAC	4,270	-	M070S6	855.5	W/P	P10 (101.6×95.2)	1006	-		1060	1045	D052H	371.75	30	40	228	280.4	352	-		2695	-								
FK62FHY5RFAD			LCT2500	830.4		P8 (90×83.6)	1031										278.9													
FK62FHZ5RFAC																														
FK62FKY5RFAC	4,870		M070S6	855.5		P10 (101.6×95.2)	1306	1355	1345	228	280.4					330	2995													
FK62FLY5RFAC																														
FK62FLY5RFAD/L			LCT2500	830.4		P8 (90×83.6)	1031		1360		278.9					297				330	2695									
FK62FLZ5RFAC	5,210		M070S6	855.5		P10 (101.6×95.2)	1006	636	-	1360	229					281.4	298	331		-				3335						
FK62FLZ5RFAH																														
FK62FLZ5RFAD/L			LCT2500	830.4		P8 (90×83.6)	1031																							
FK62FLZ5RFAP																														
FK62FMY5RFAC	5,540		M070S6	855.5		P10 (101.6×95.2)	1006	971	1355	1345	228					280.4	279	330		2695	3665									
FK65FLZ5RFAD/L	5,210		LCT2500	830.4		P8 (90×83.6)	1031	636								1360	229	279.9						298		331	3335			
FK65FLZ5RFAP																														
FK65FLZ6RFAC			5,540	M070S6		855.5	P10 (101.6×95.2)			1006	971									1360	1350							281.4	280	3665
FK65FMZ6RFAC																														
FK65FMZ6RFAH																														

*1 C/B: Center Brake

*2 W/P: Wheel Park Brake

*3 F/W: Flywheel

10.8 Propeller shaft layout

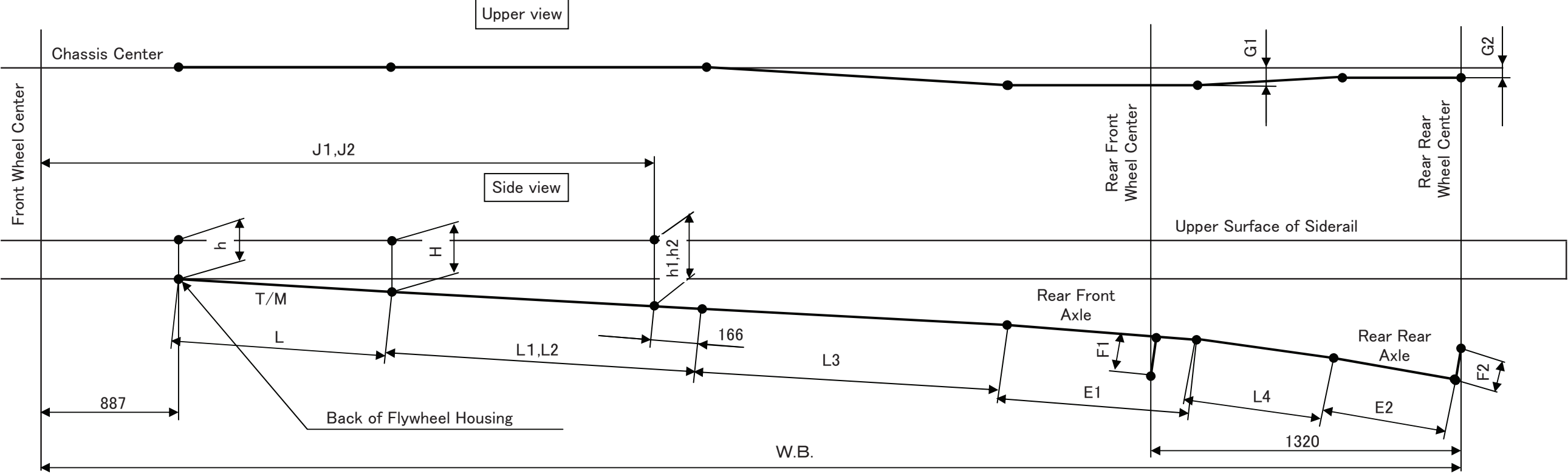


Model	W.B. (mm)	X (mm)	PTO	T/M			Propeller shaft							Rear Axle				Distance from upper surface of siderail (mm)					Distance from Front Wheel Center (mm)															
				Model	L (mm)	C/B ^{*1} W/P ^{*2}	Model (O.D×I.D)	A (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)		Model	E (mm)	F (mm)	G (mm)	h	H	h1	h2	h3	J1	J2	J3													
												Max	Mini																									
FM65FH6RFAH	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							—	—											
FM65FM6RFAH	5,550	879	—						1086	1161		1160	1145					229	281.4	343	415			2665		3825												
		920	F/W ^{*3}						1046									232	283.9																			
FM65FS6RFAH	6,500	879	—						MD3500	956.1	746	1031	1421					1150	229	281.4	306	337	415	2326	3356	4775												
FM67FS6RFAH											976	1161	—					1155	1140	230	288.0	343	415	—	2665	3825	—											
FM67FM6RFAJ/M	5,550	887									ES11109	961	P12 (101.6×93.6)					171	636			1031	1421	991	—	—	995	975	D10H	466.5	45	39	230	288.3	306	337	415	2326
FM67FS6RFAJ/M	6,500																		991	—	—	1095	1080	343	415	—	2665	3825							—			
FM65FH6RFAK	4,280																		991	—	—	1090	1075	306	337	415	2326	3356							4775			
FM65FS6RFAK	6,500																		656	1031	1416	1095	1080	306	337	415	2326	3356							4775			
FM67FM6RFAK	5,550			656	1031		1416	1090						1075	306	337	415		2326	3356	4775																	
FM67FS6RFAK	6,500			656	1031		1416	1090						1075	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.DxI.D)	L1	L2	L3		Model	L4		Model	Rear Front (mm)			Rear Rear (mm)			h	H	h1	h2	J1	J2
									Max	Mini		Max	Mini		E1	F1	G1	E2	F2	G2						
FN62FK6RFAK	4,960	-	ES11109	951	W/P	P140 (114.3x106.3)	-	-	1135	1075	P8	580	510	D10HT /D10H	1075	110	27	456.5	45	13	230	287.7	-	-	-	-
FN63FU6RFAK	7,190						996	1091	1490	1485	-	-	-	D10H	460.5	45	-39	-	-	-			311	387	2665	3756
FN64FU6RFAK							1806	-	1525	1480	P8	570	505	D10HT /D10H	1075	110	27	456.5	45	13			299	-	3471	-
FN62FK6RFAJ/M	4,960		MD3500	966.1			-	-	1120	1060	P8	580	510	D10HT /D10H	1075	110	27	456.5	45	13		-	-	-	-	
FN63FU6RFAJ/M	7,190						981	1091	1490	1485	-	-	-	D10H	460.5	45	-39	-	-	-		311	387	2665	3756	
FN64FU6RFAJ/M	7,190						1616	-	1700	1655	P8	570	505	D10HT /D10H	1075	110	27	456.5	45	13		299	-	3295	-	
FN62FR6RFAJ/M	6310						1406	-	1065	1005	P8	580	510	D10HT /D10H	1075	110	27	456.5	45	13		310	-	3085	-	

*1 C/B: Center Brake

*2 W/P: Wheel Park Brake



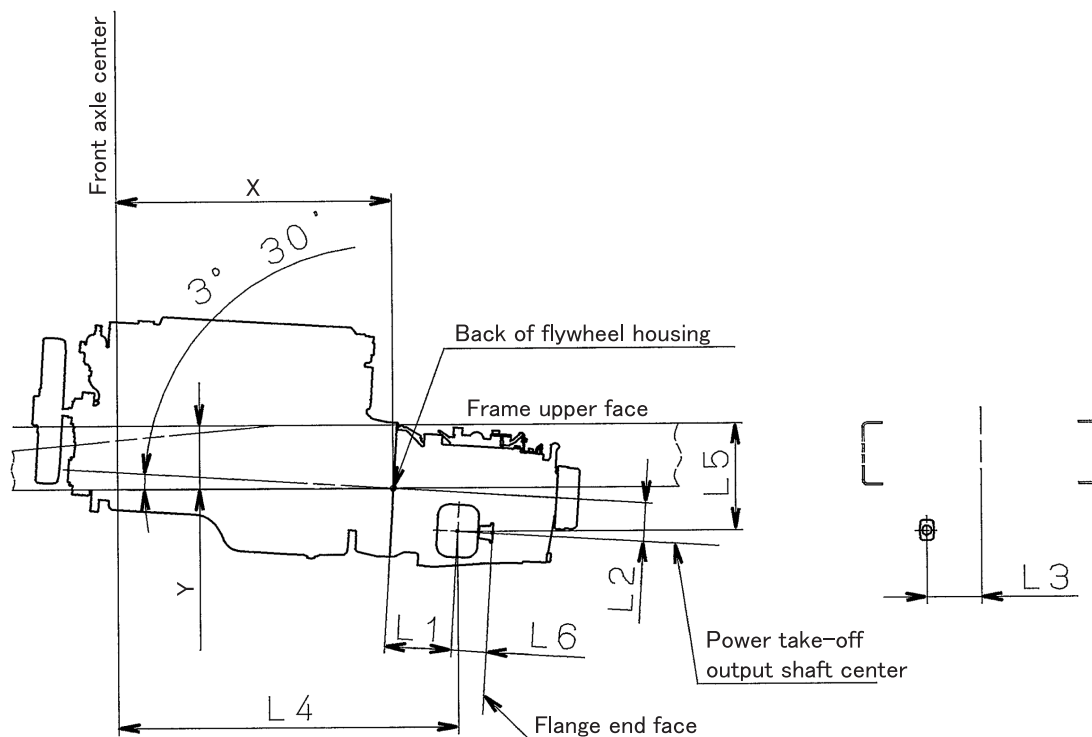
10.9 Power take-offs

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-CAT5
M070S6OD	Air	ME533036	245N·m {25kgf·m}/ 1500rpm	0.792	6M60-CAT6 6M60-CAT5
M070S6D	Air	ME635050	245N·m {25kgf·m}/ 1500rpm	0.921	60M60-CAT6

(2) Power take-off mounting position drawing



Vehicle model	Transmission model	T/M P.T.O.	X	Y	L1	L2	L3 *	L4	L5	L6 *
		Control type								
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									

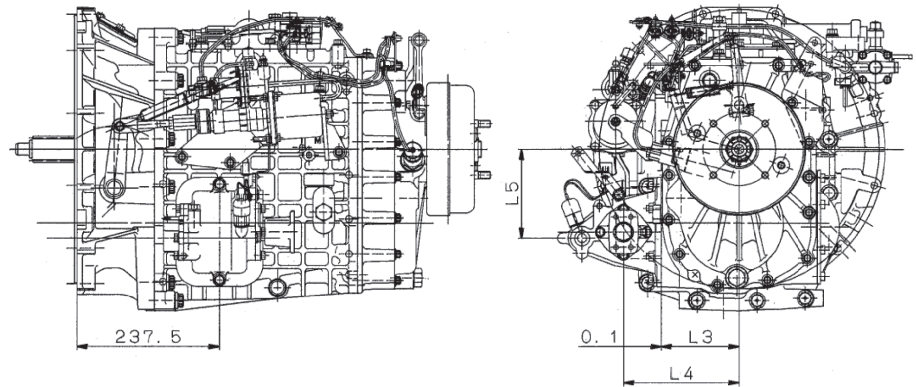
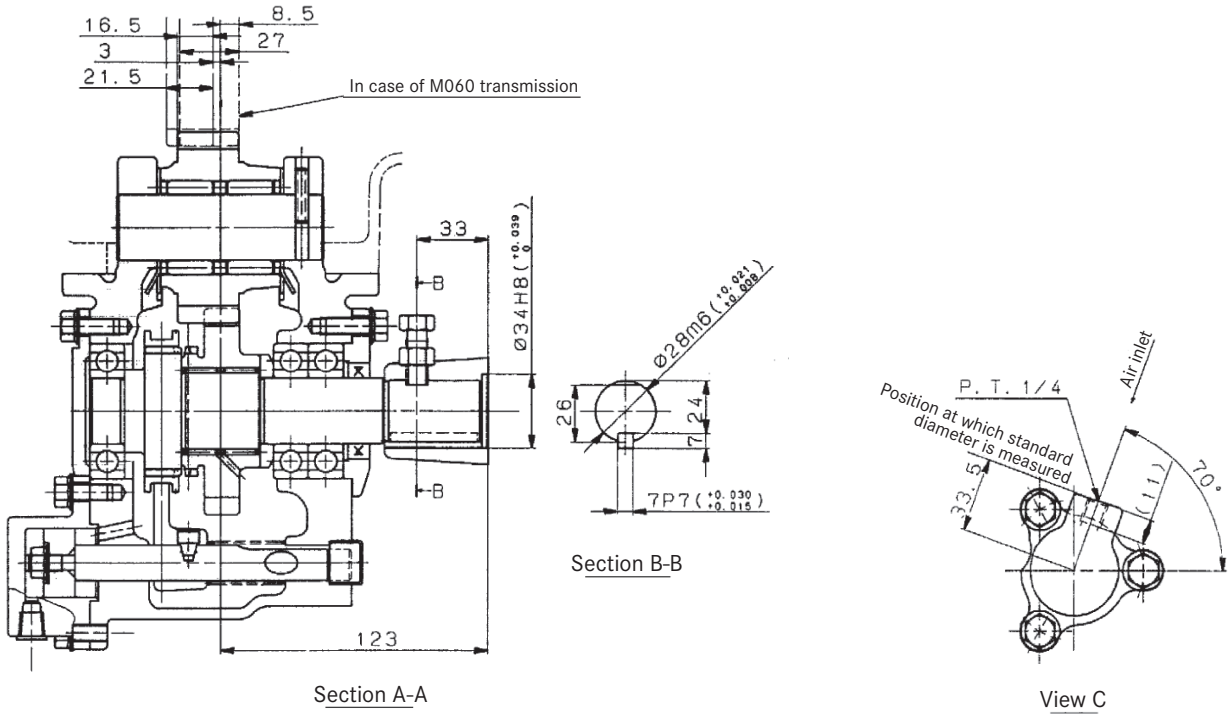
* Without setting for the transmission-driven power take-off.

** For information about the transmission manufactured by Eaton Corporation/Allison transmission, contact the corporation.

10.9 Power take-offs

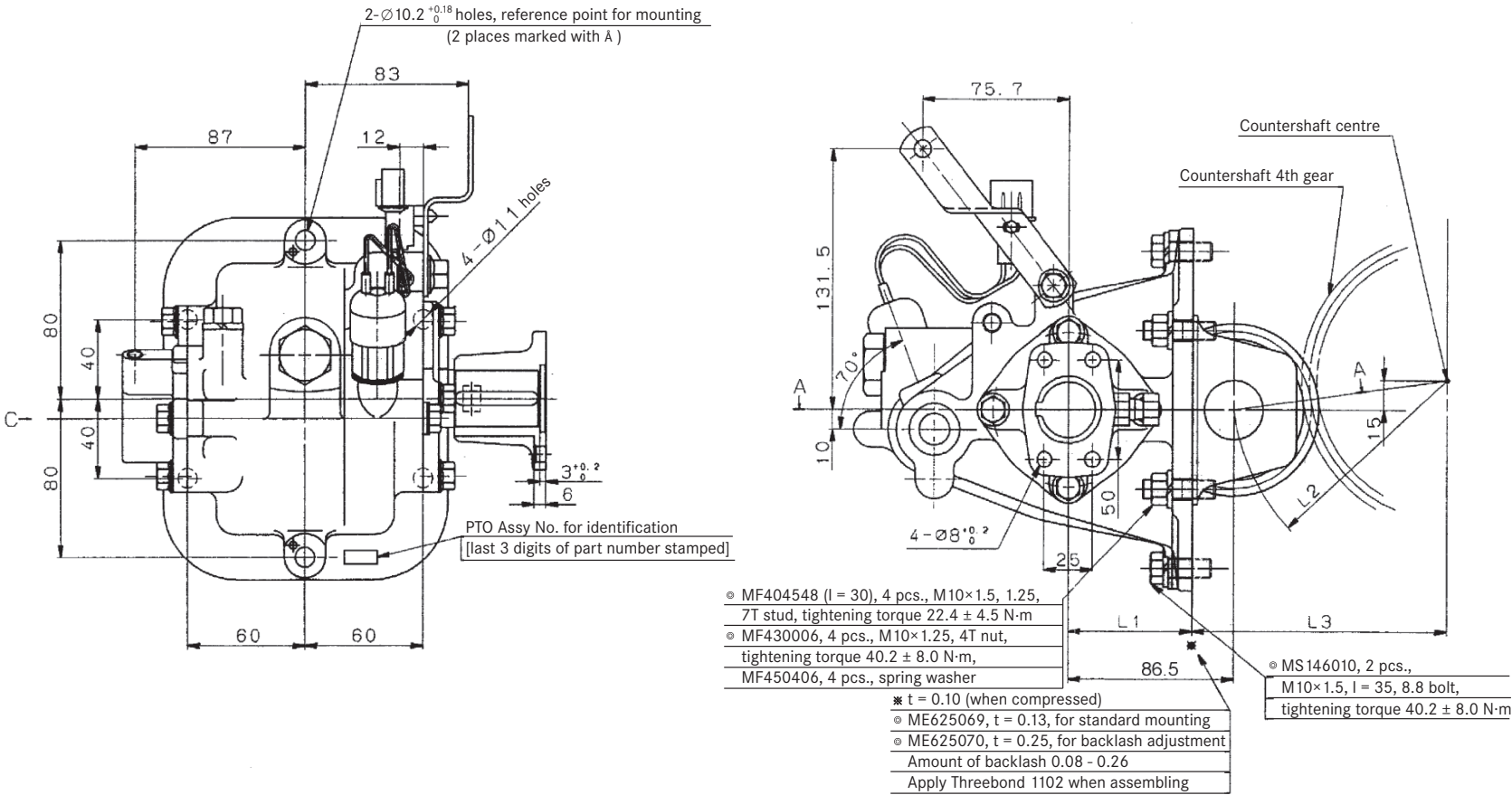
(3) Transmission-driven power take-off layout

M060 (Air type)



Drawing for PTO mounting

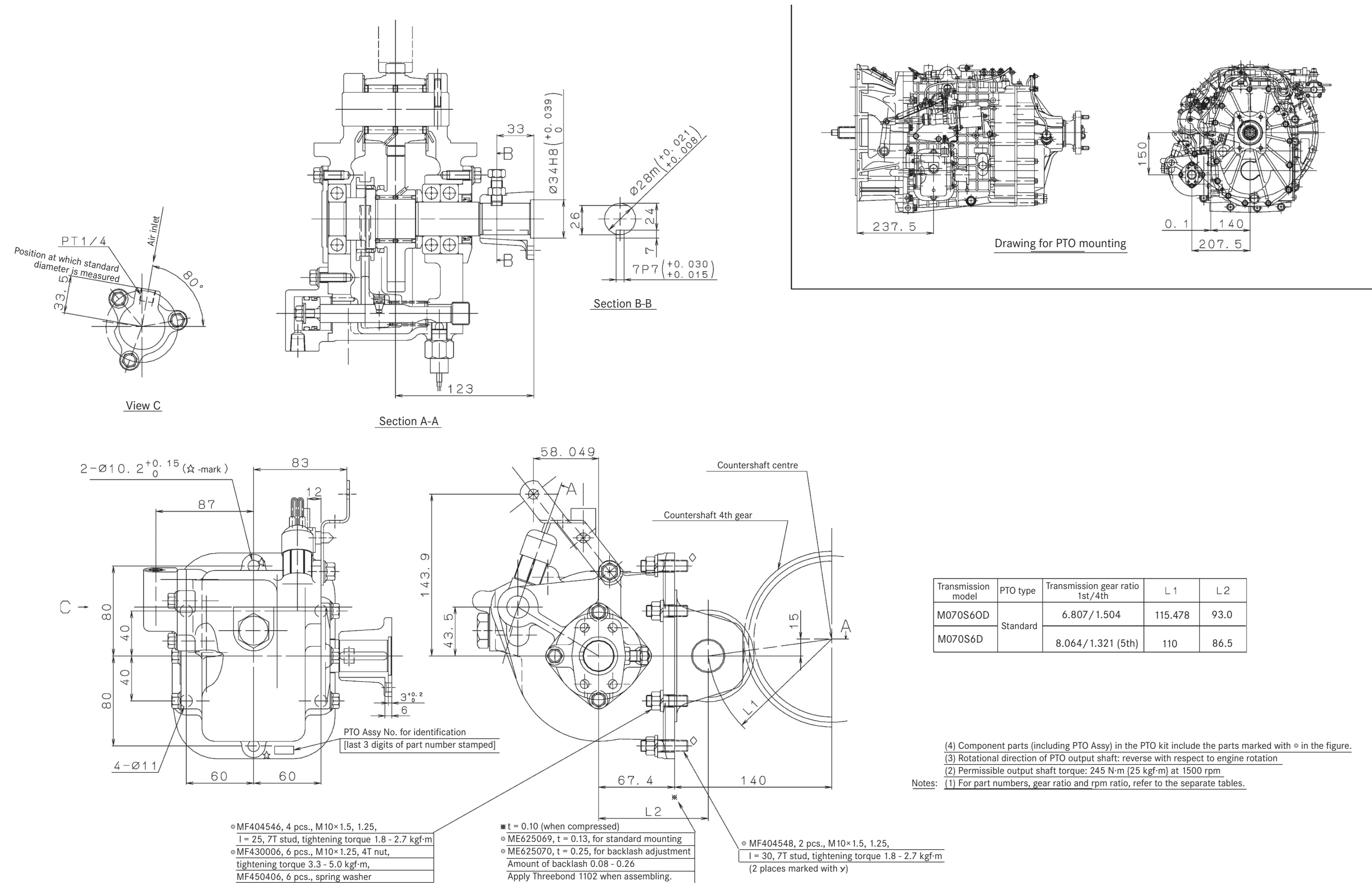
Transmission Model	Change Gear Ratio 1st/4th	L1	L2	L3	L4	L5
M060S6	6.748/1.514	66.886	111.5	130	196.986	138.5



- (4) Component parts (including PTO Assy) in the PTO kit include the parts marked with ® in the figure.
- (3) Rotational direction of PTO output shaft: reverse with respect to engine rotation
- (2) Permissible output shaft torque: 245 N·m (25 kgf·m) at 1500 rpm
- Notes: (1) For part numbers, gear ratio and rpm ratio, refer to the separate tables.

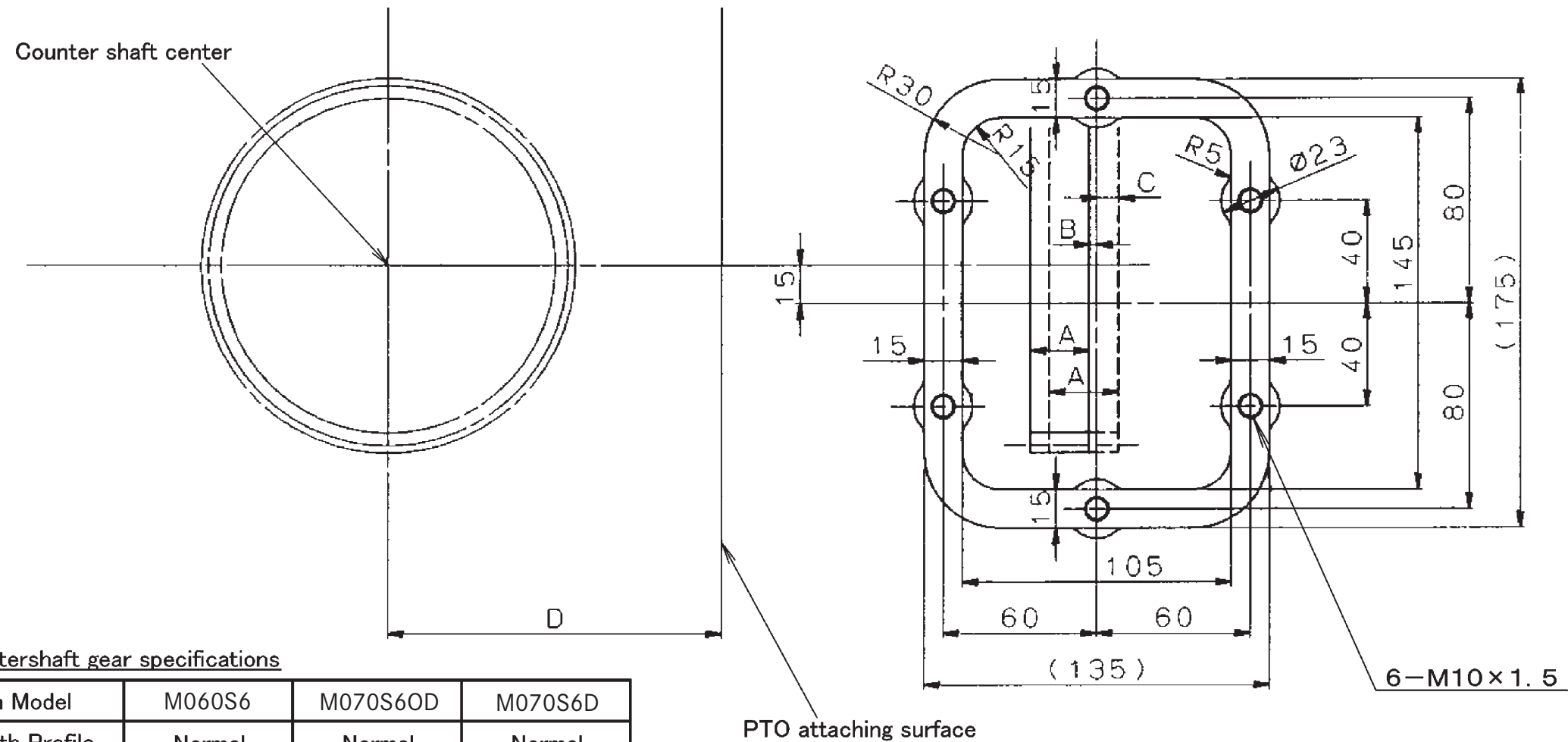
10.9 Power take-offs

M070 (Air type)



10.9 Power take-offs

(4) Details of transmission PTO opening for M060, M070 T/M



PTO output countershaft gear specifications

Transmission Model		M060S6	M070S60D	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
Displacement Over a Given NO. of Teeth		49.505 -0.038 -0.091	67.414 -0.017 -0.037	77.274 -0.036 -0.085
(NO. of Teeth)		(5)	(7)	(8)

Transmission Model	4th Gear Face Width A	4th Gear Offset B	4th Gear Offset C	D
M060S6	27	—	8.5	130
M070S60D	30	—	16	140

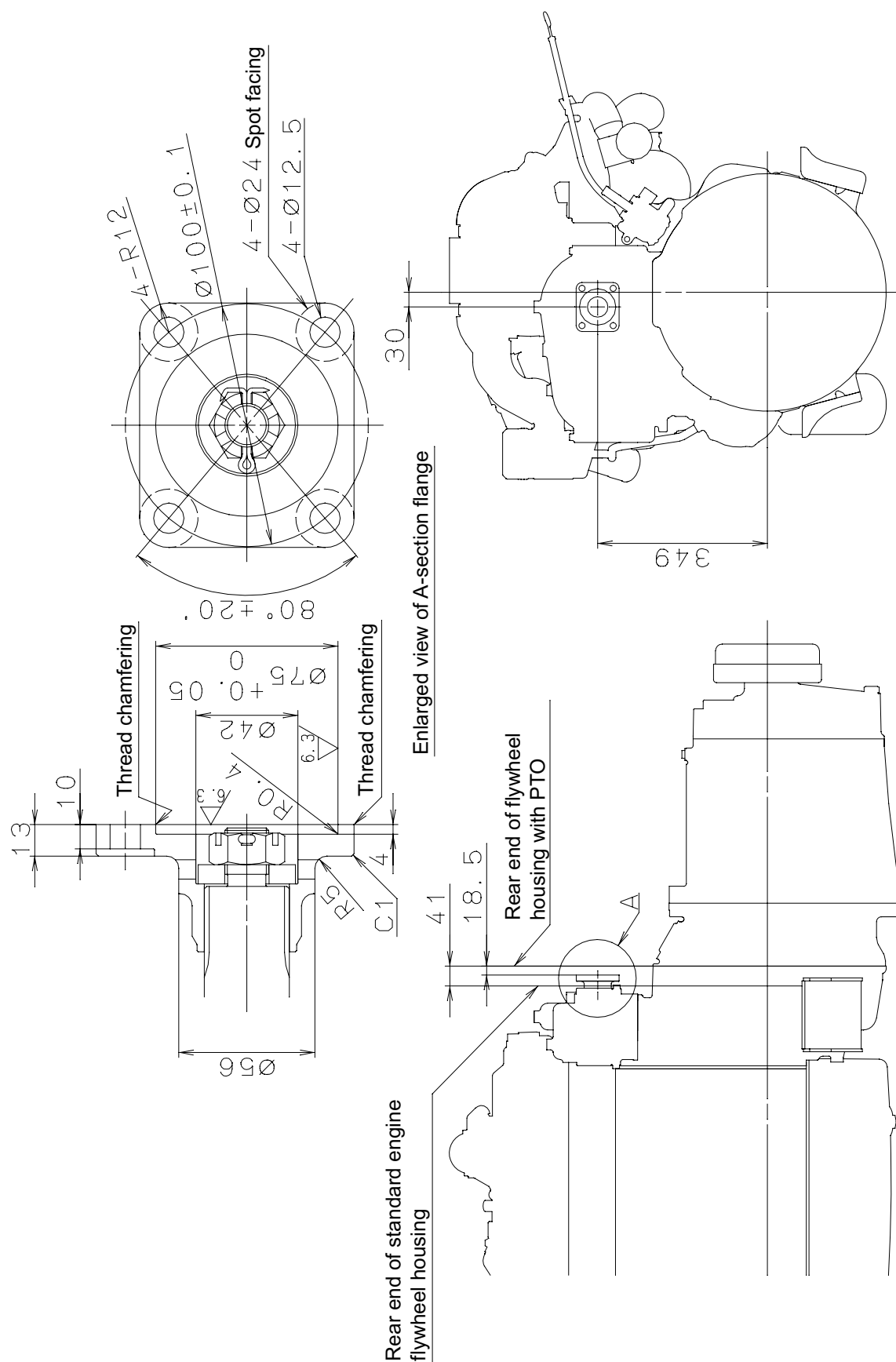
Transmission Model	5th Gear Face Width A	5th Gear Offset B	5th Gear Offset C	D
M070S6D	25.5	—	5.5	140

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

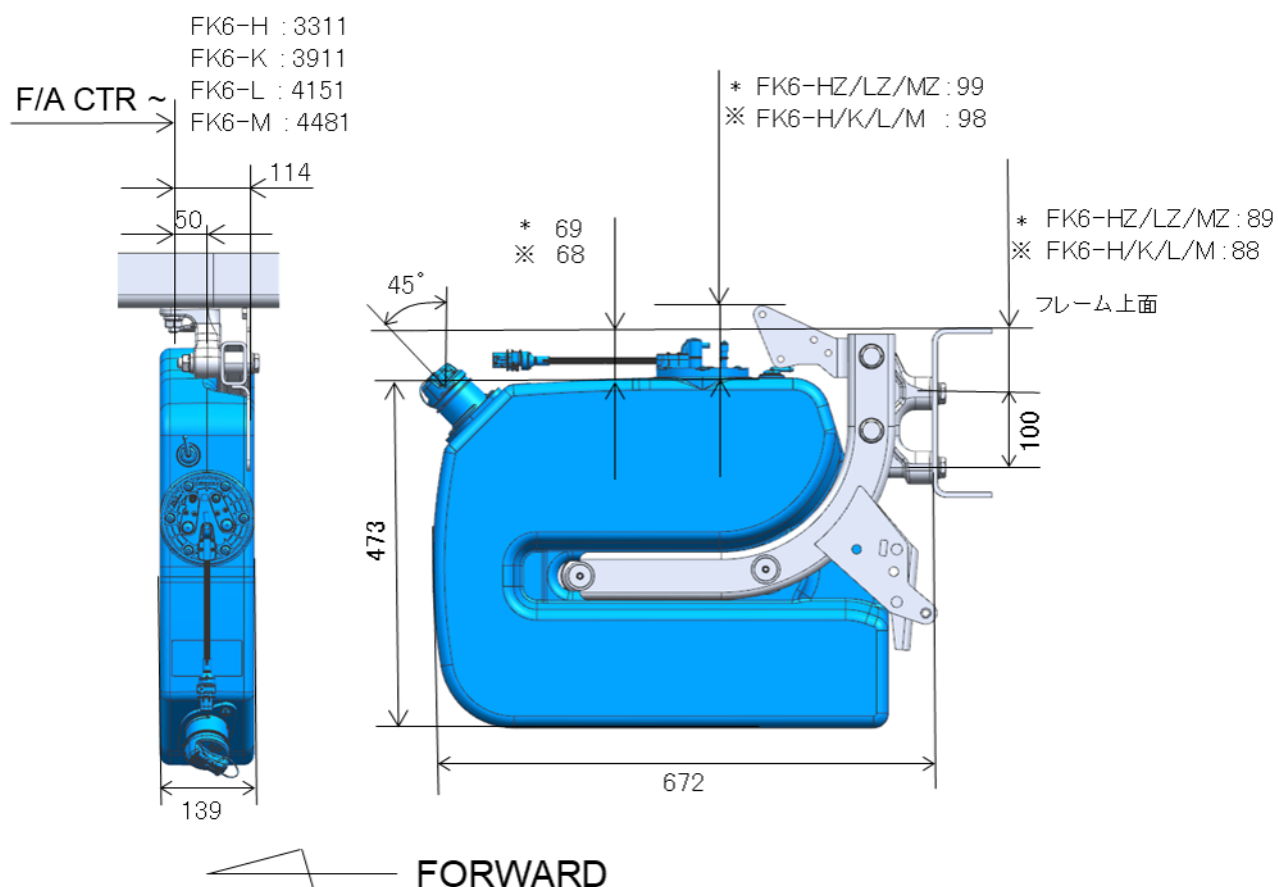
(2) Engine power take-off layout



10.10 Exhaust system layout

10.10.1 Urea tank mounting layout

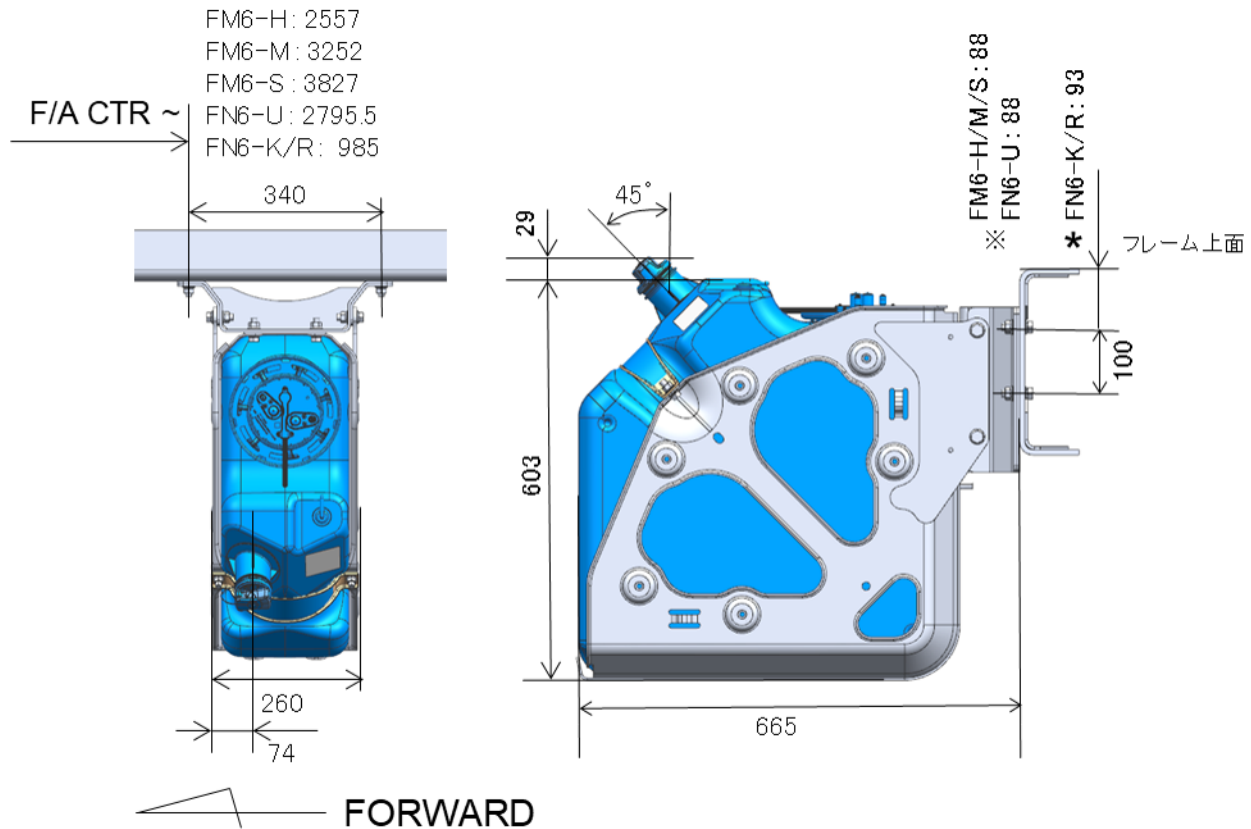
23-liter tank



※ : The dimensions are for a frame thickness of 7 mm.

* : The dimensions are for a frame thickness of 8 mm.

49-liter tank



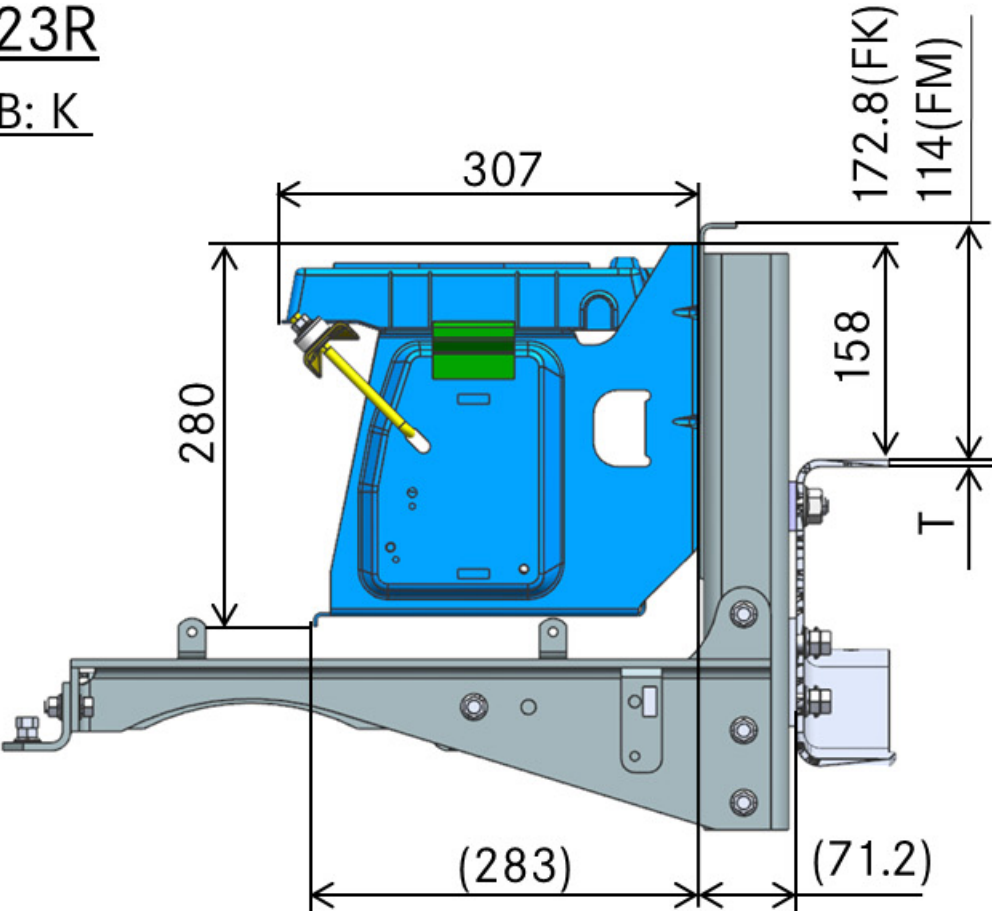
※: The dimensions are for a frame thickness of 8 mm.

*: This is the dimension when the frame thickness is 13 mm (Frame + Stiffner).

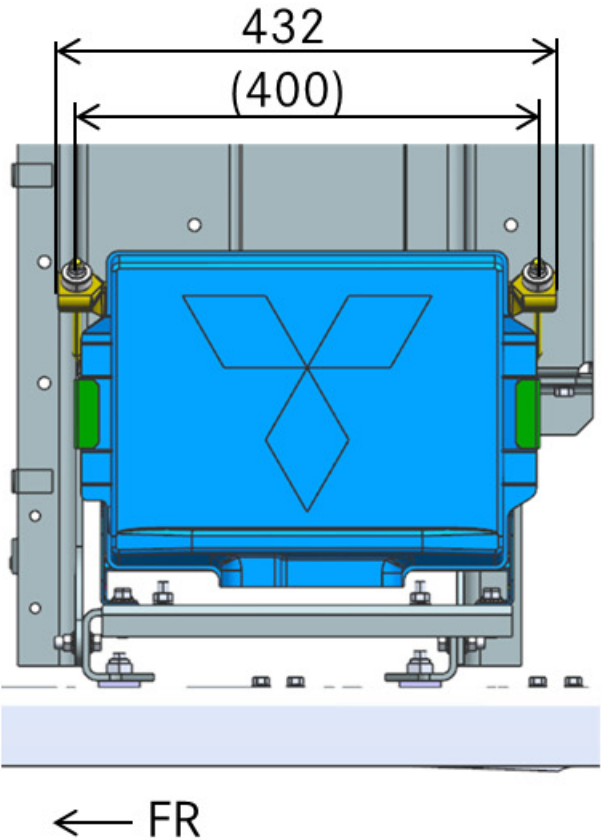
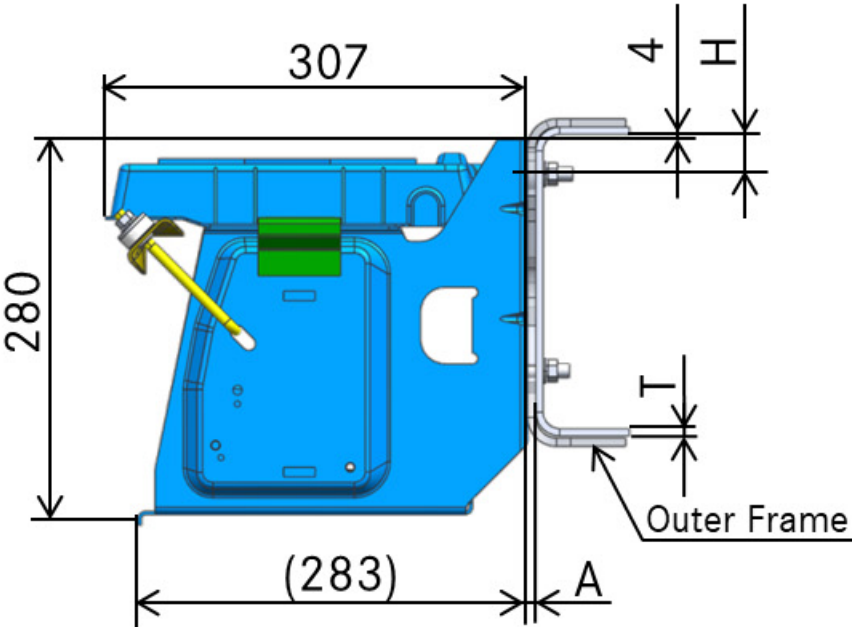
10.11 Battery mounting layout

10.11 Battery mounting layout

65D23R
FN WB: K



Except for FN WB: K



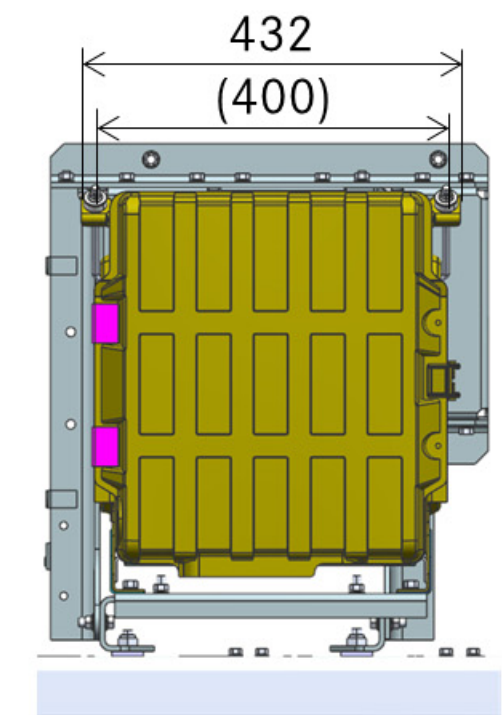
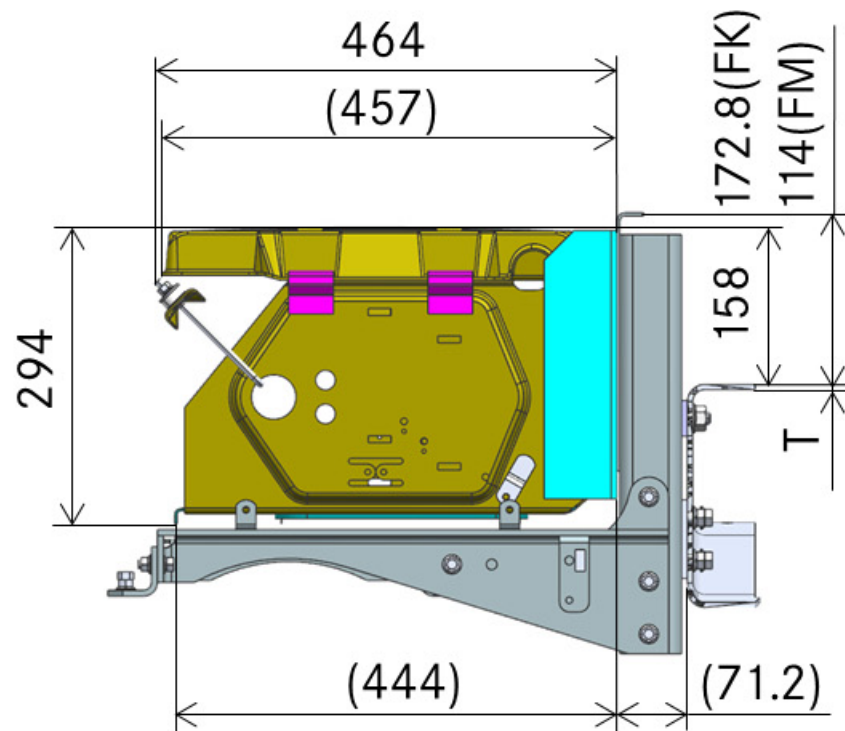
MODEL	WB	H	A
FK	—	29	—
FM	—	67	—
FN	U	67	—
	K, R	67	5

MODEL	WB	T
FK, FK-Y	—	7
FK-Z, FM, FN	—	8

10.11 Battery mounting layout

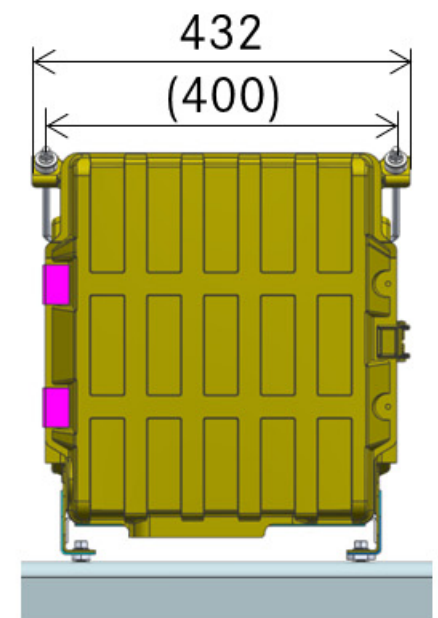
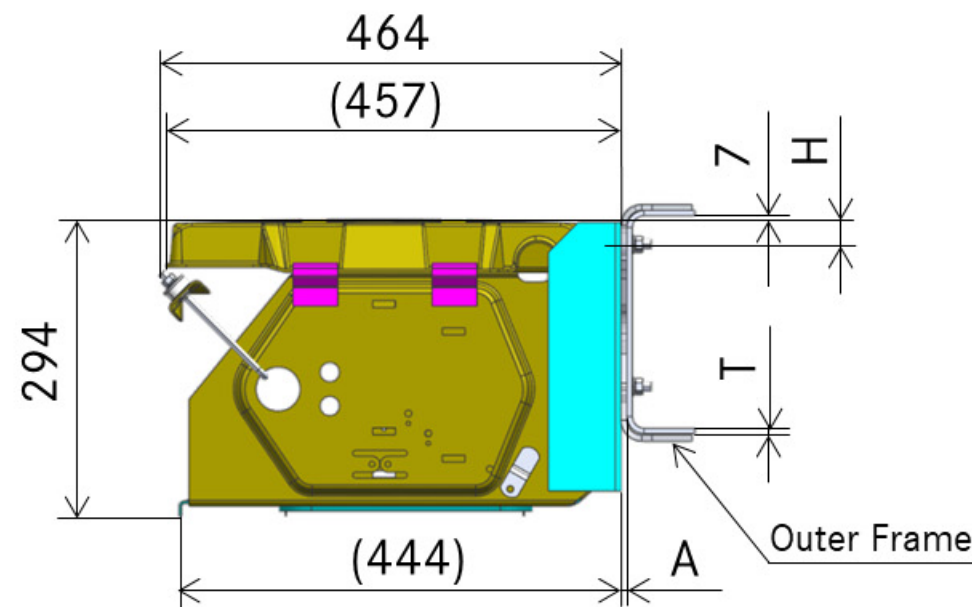
95E41R

FN WB: K



← FR

Except for FN WB: K

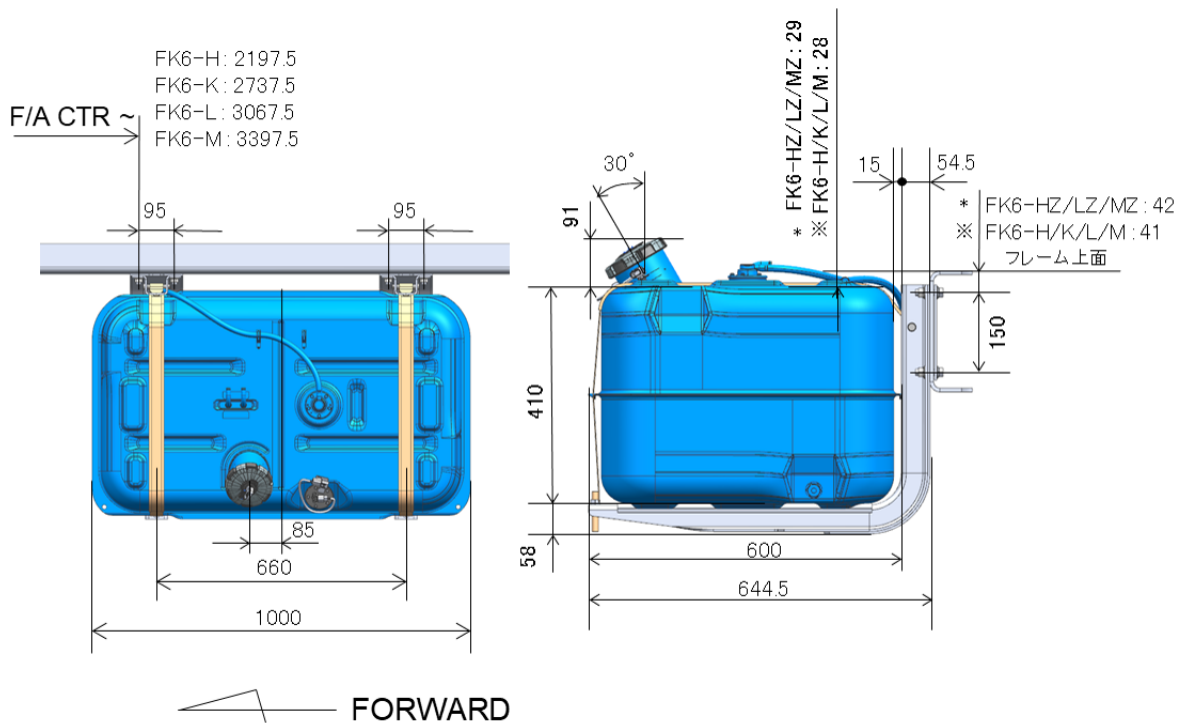


MODEL	WB	H	A
FK	—	29	—
FM	—	67	—
FN	U	67	—
	K, R	67	5

MODEL	WB	T
FK, FK-Y	—	7
FK-Z, FM, FN	—	8

10.12 Fuel tank mounting layout

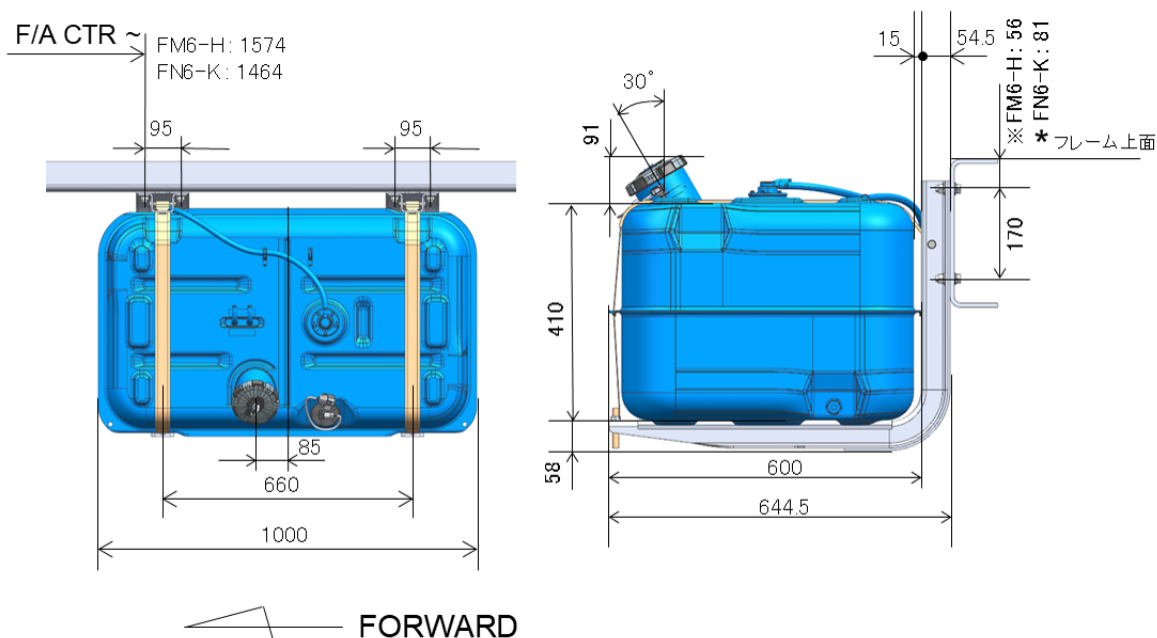
200-litter tank <FK>



※: The dimensions are for a frame thickness of 7 mm.

*: The dimensions are for a frame thickness of 8 mm.

200-litter tank <FM, FN>

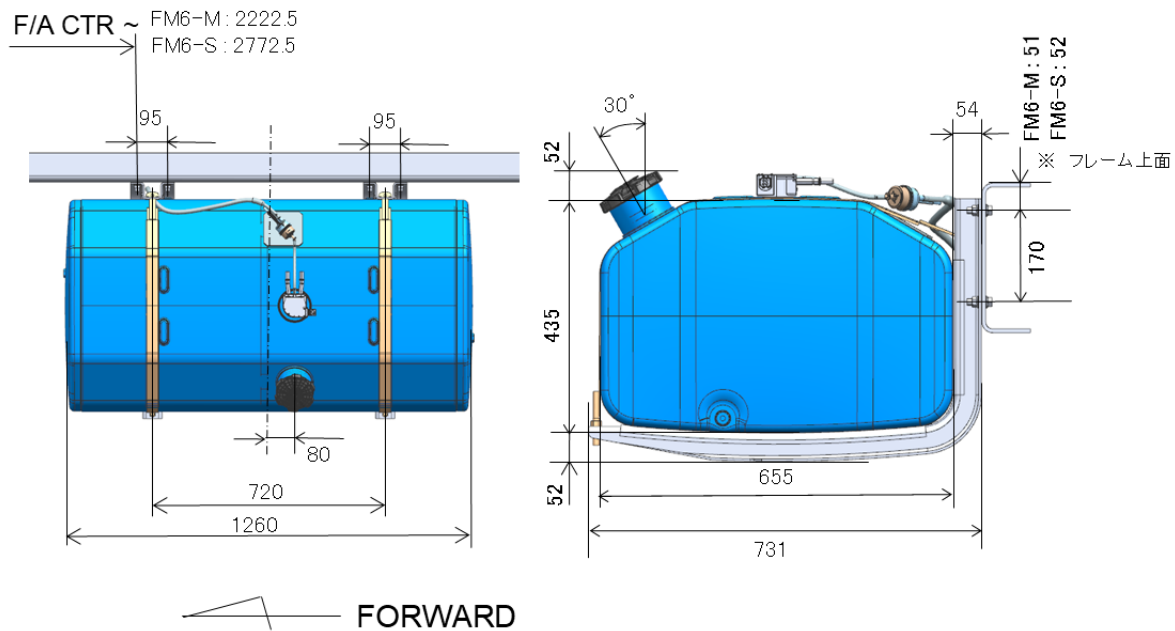


※: The dimensions are for a frame thickness of 8 mm.

*: This is the dimension when the frame thickness is 13 mm (Frame + Stiffner).

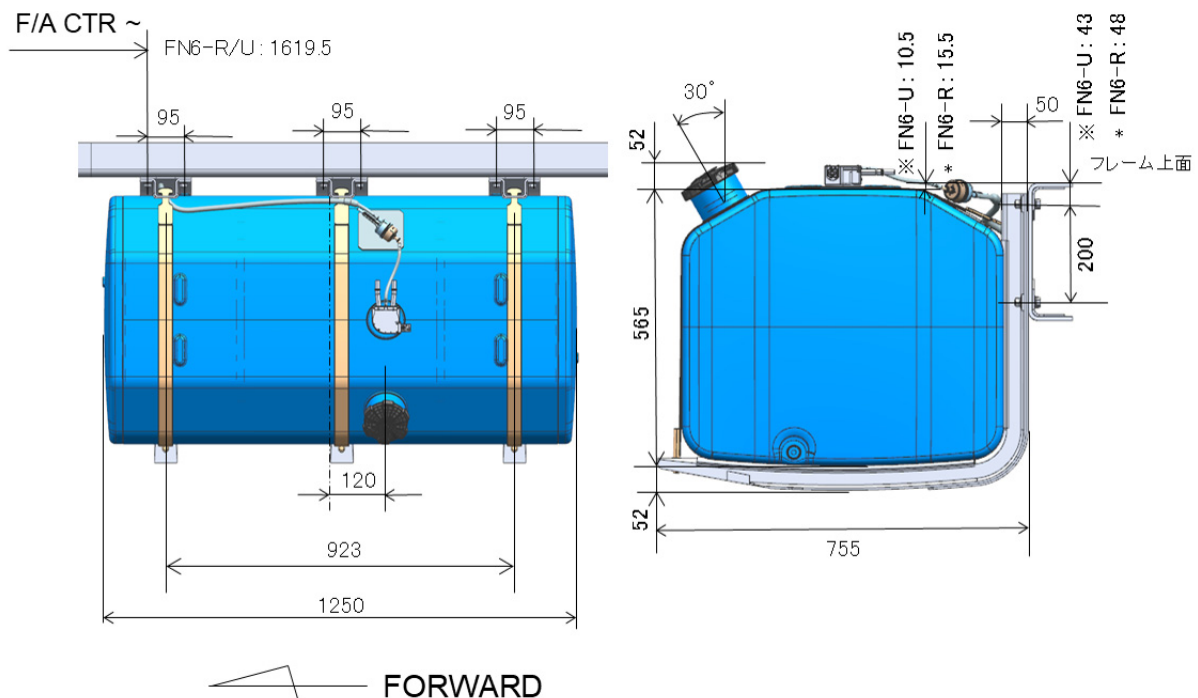
10.12 Fuel tank mounting layout

300-liter tank



※: The dimensions are for a frame thickness of 8 mm.

400-liter tank



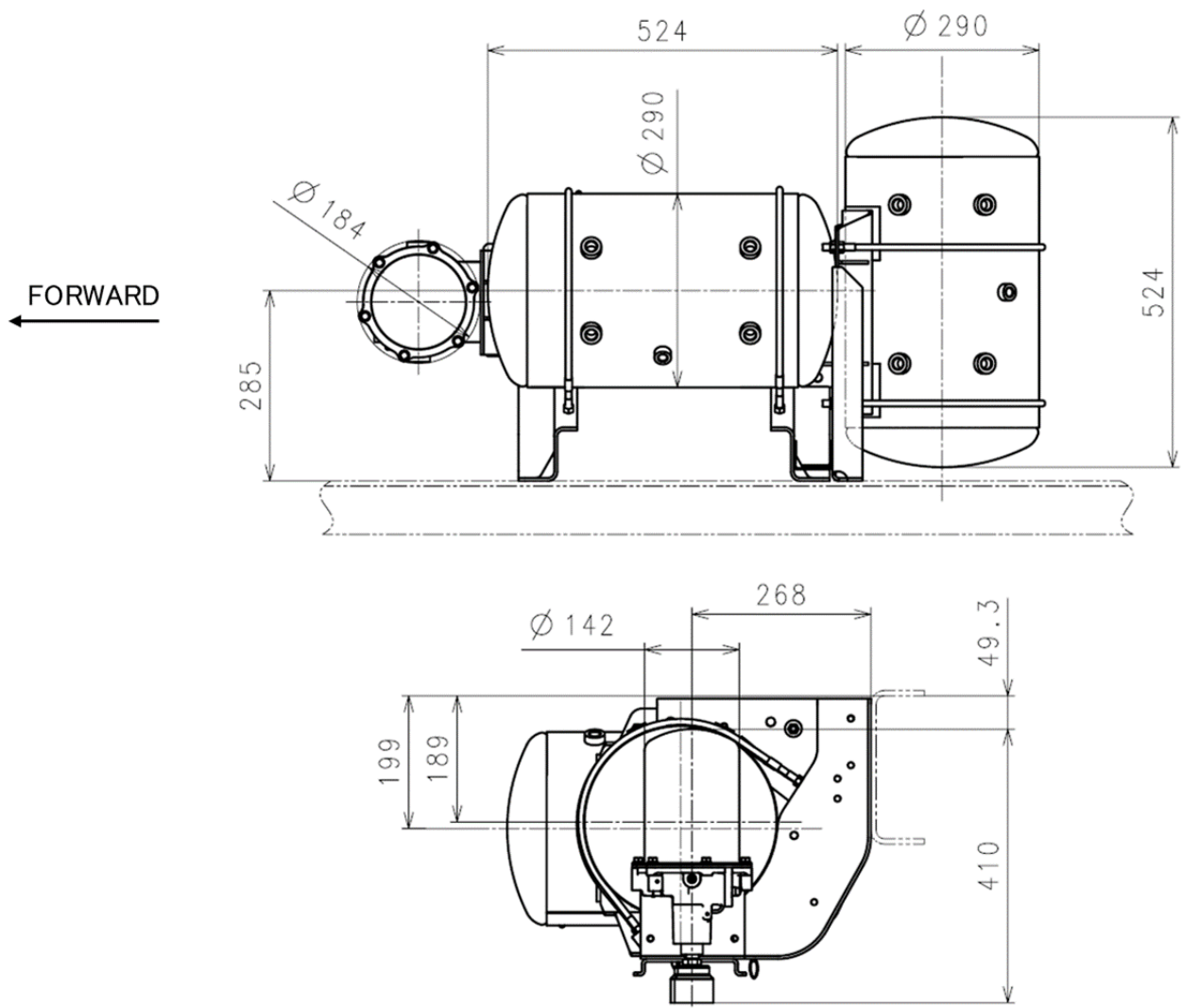
※: The dimensions are for a frame thickness of 8 mm.

*: This is the dimension when the frame thickness is 13 mm (Frame + Stiffner).

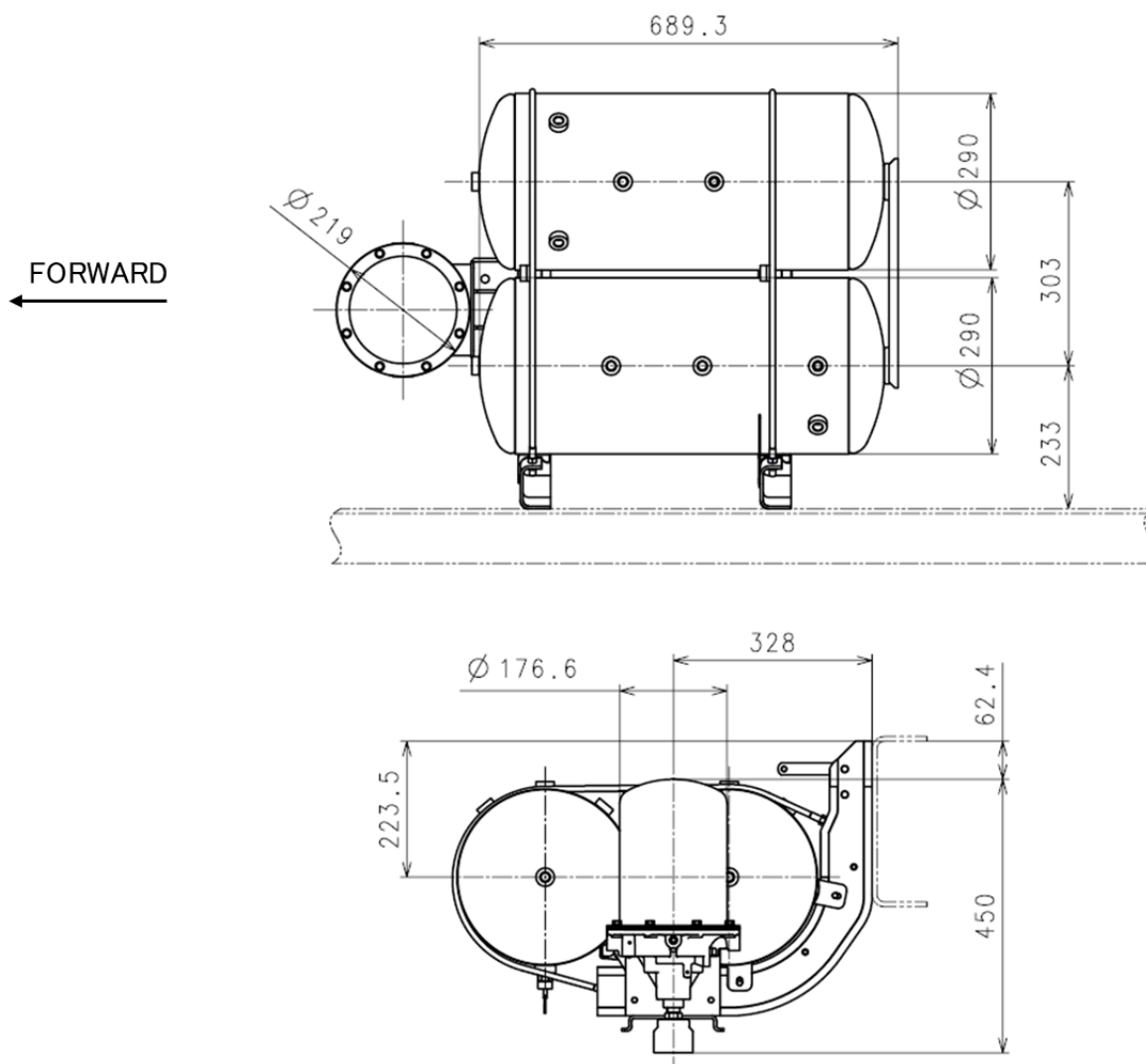
10.13 Brake systems

10.13.1 Air servo assistance and air tank

<FK62F, FK65F>

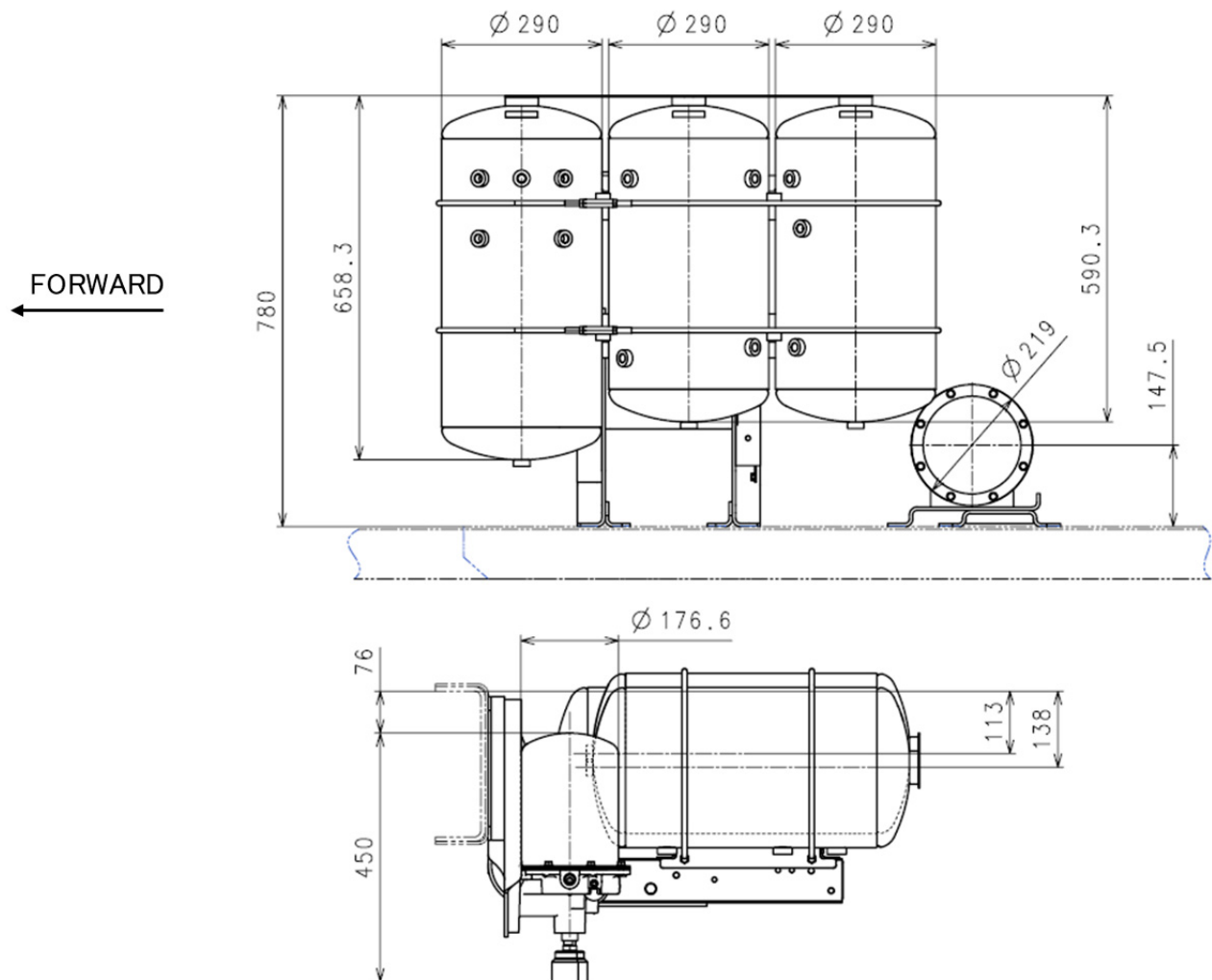


<FM65F, FM67F>



\angle

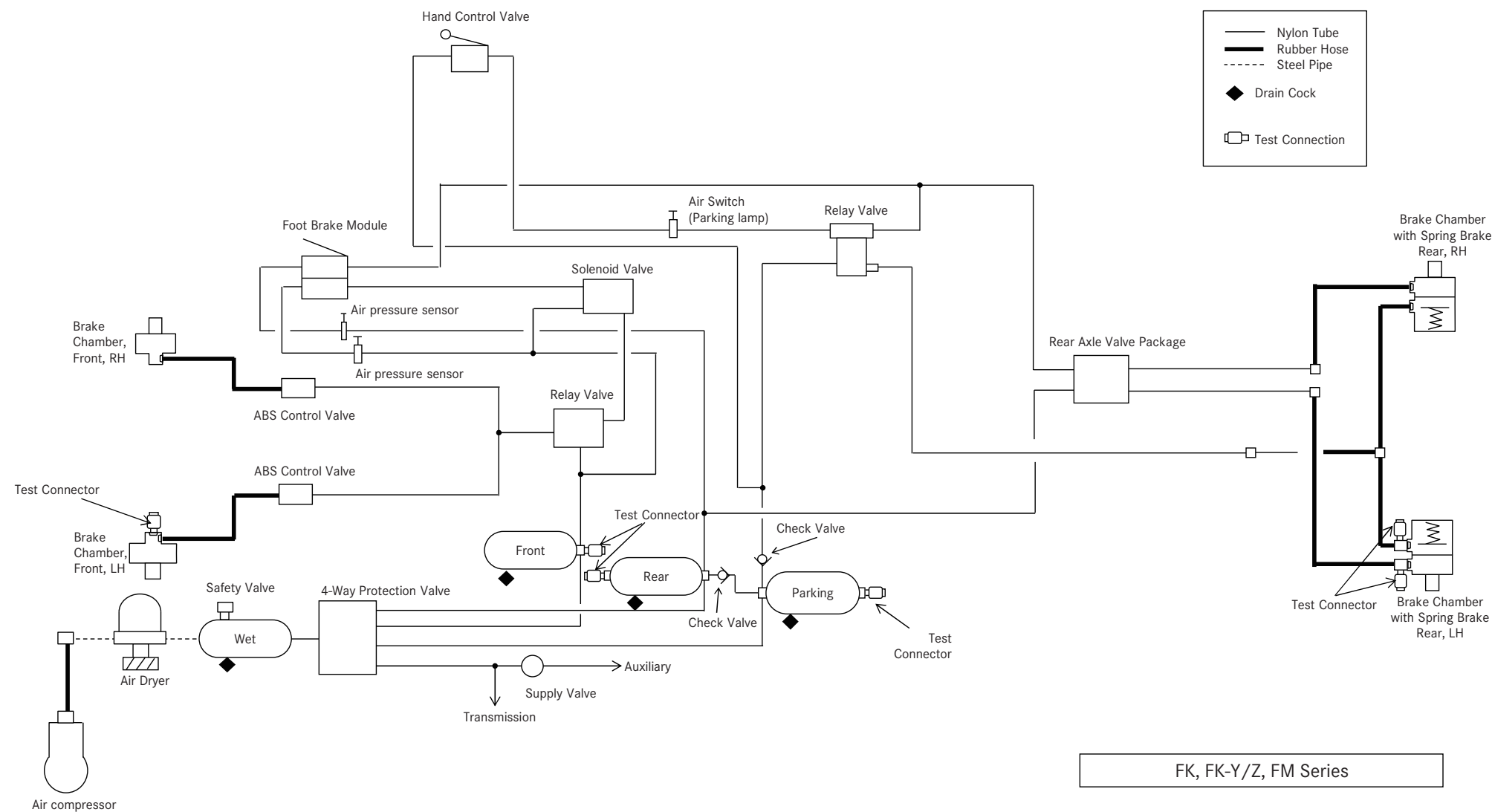
<FN62FK>



10.13 Brake systems

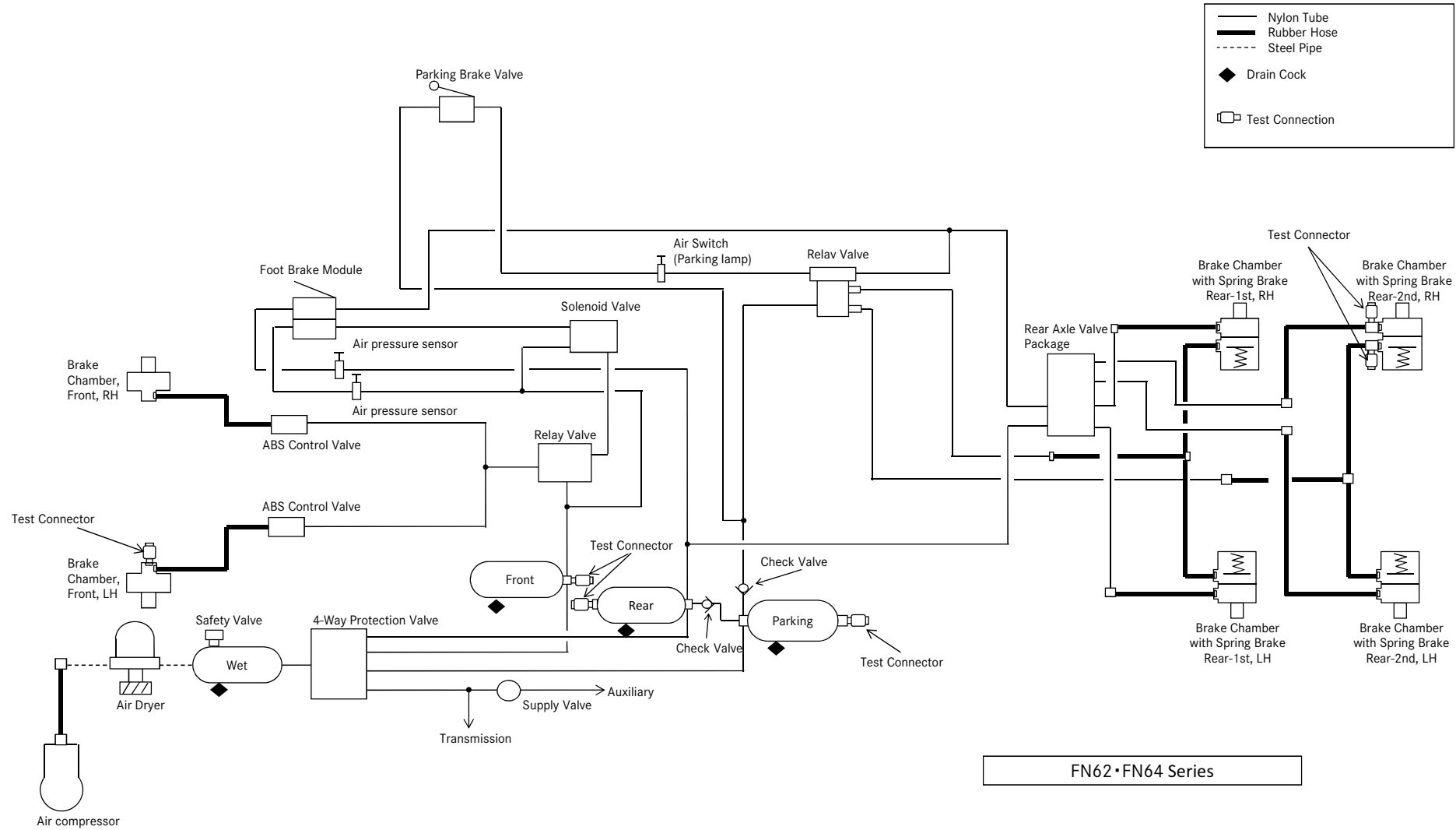
10.13.2 Brake piping diagram

A <FK, FM>



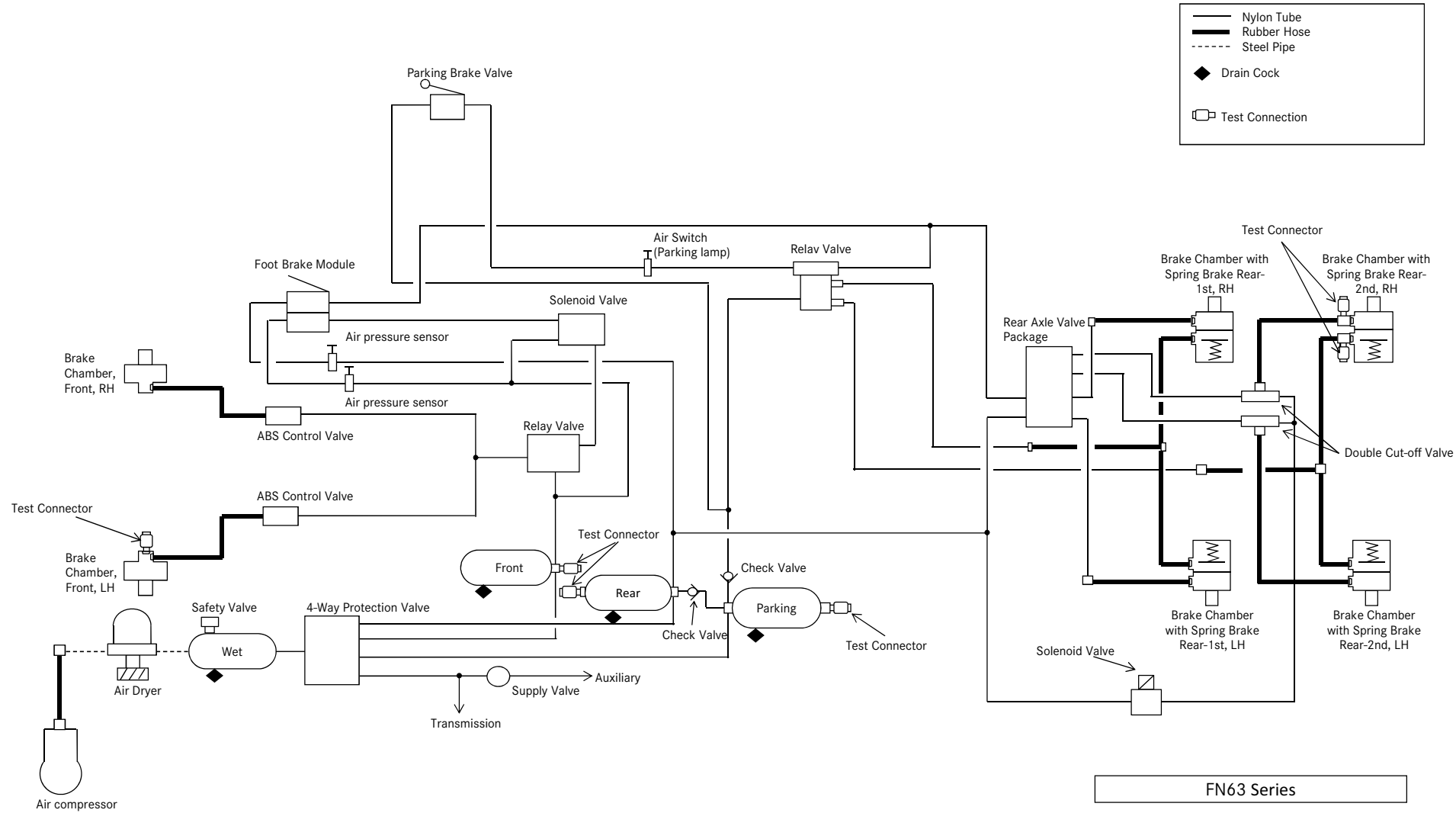
10.13 Brake systems

<FN62,64>



10.13 Brake systems

<FN63>



10.14 Electrical systems

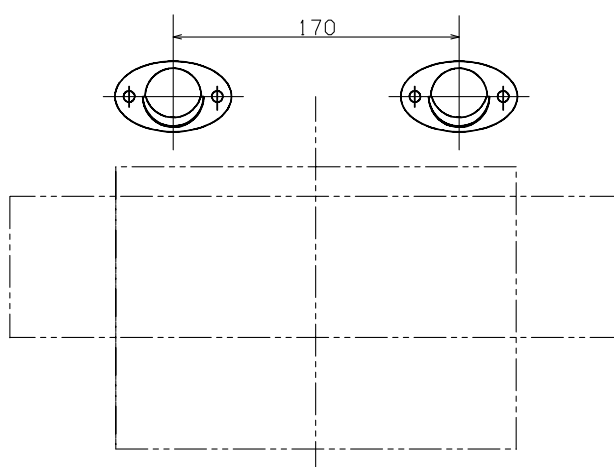
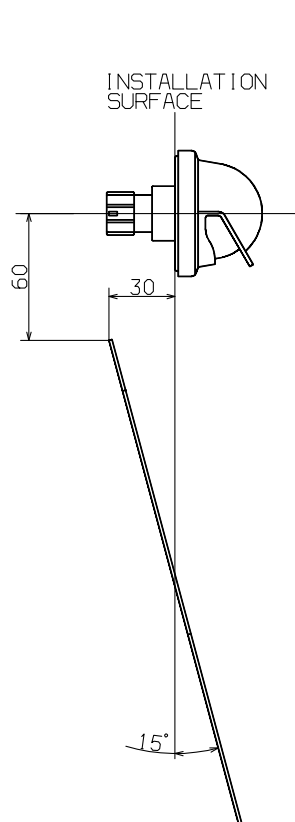
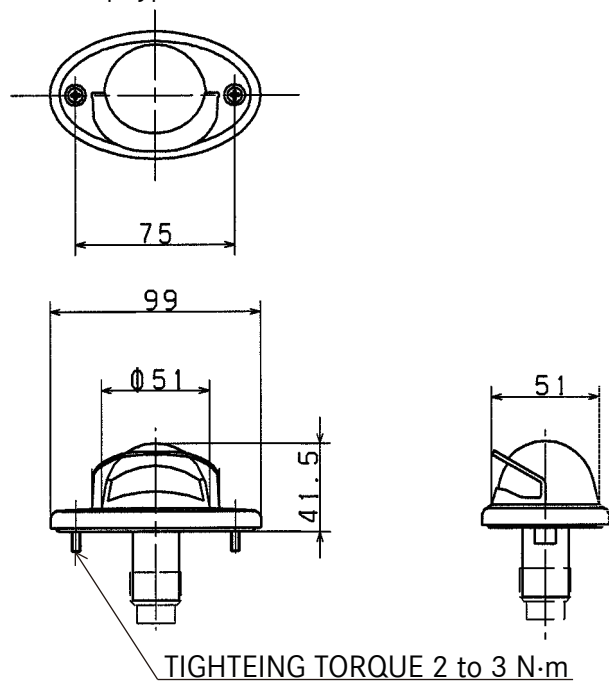
See the electrical systems section.

<Large type>

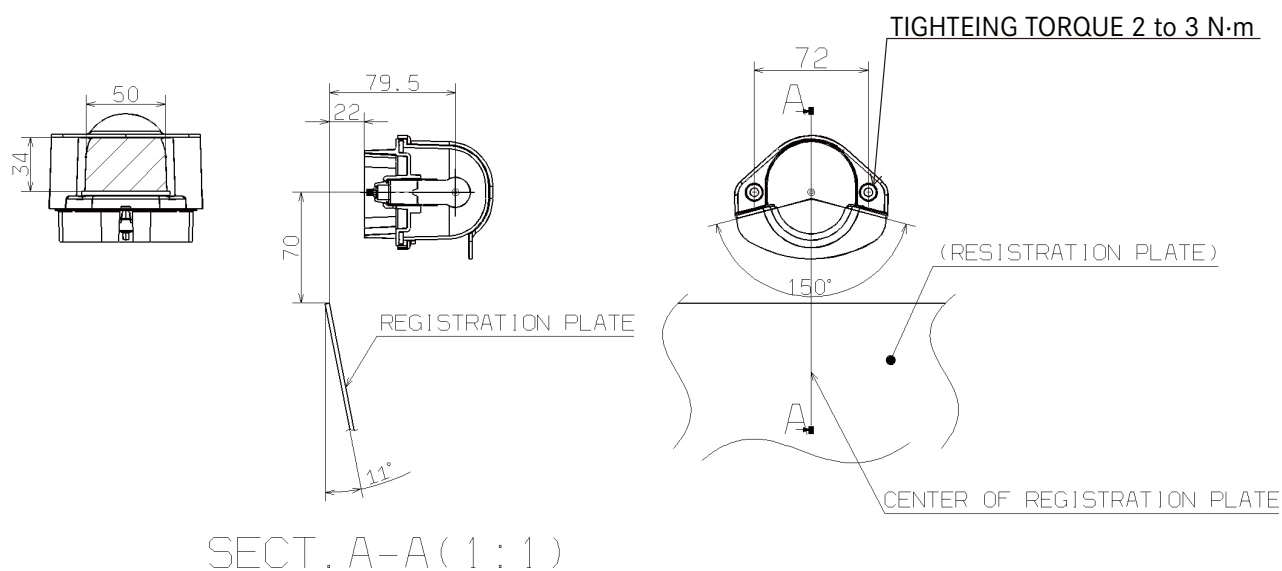


Rear registration plate lamp

<Dual lamp type>



<Single lamp type>



10.15.2 Labels and markings

List of the attaching locations of labels and emblems

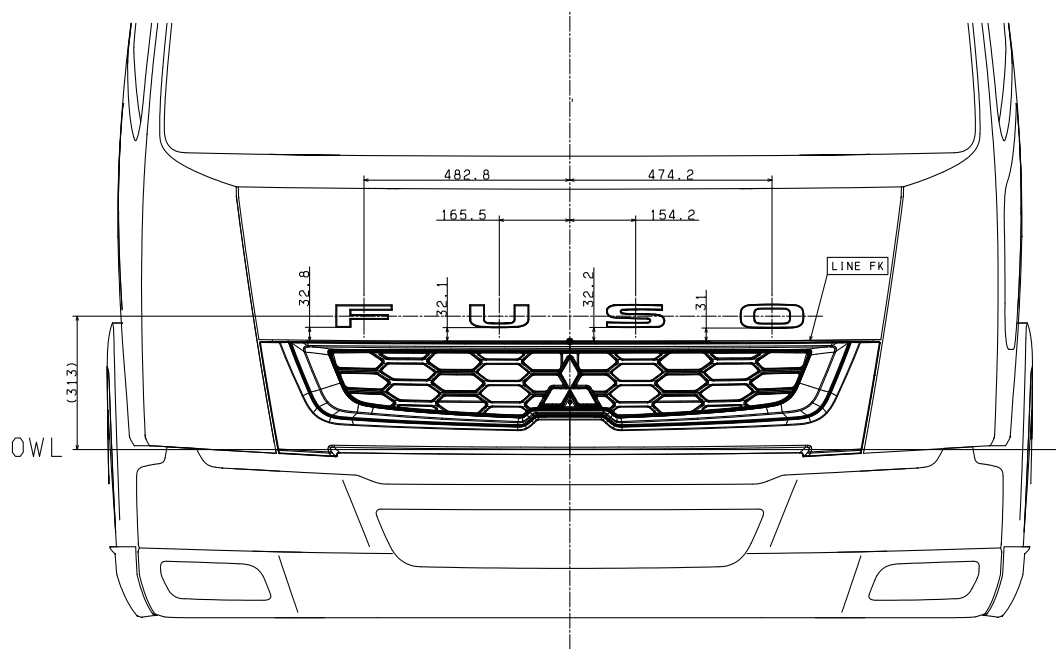
Description \ Location	Location		
	Front part of cab	Right door	Left door
FUSO	○	—	—
BlueTec®	—	○	○

Note: Types of the label and emblem attaching on a vehicle differ depending on the vehicle types.

Procedure for applying emblems and decals

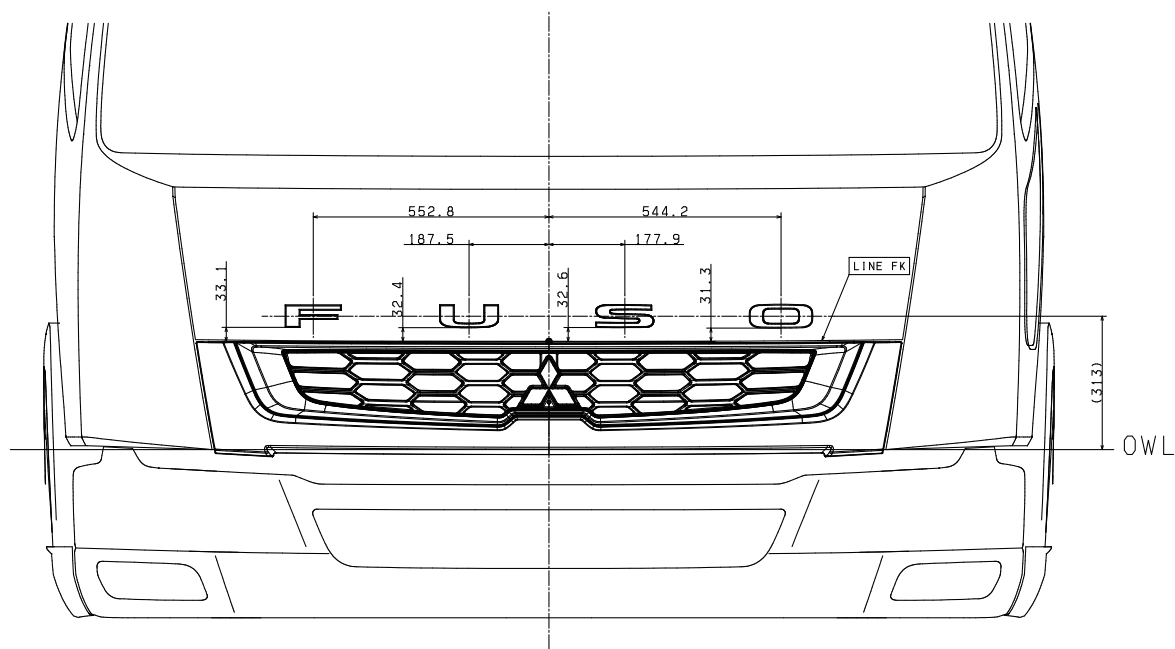
Before applying the labels and emblems, remove dirt and other contaminants from the surfaces to which they are to be applied.

FUSO logo mark mounting position (standard cab)



FUSO logo mark mounting position (standard cab)

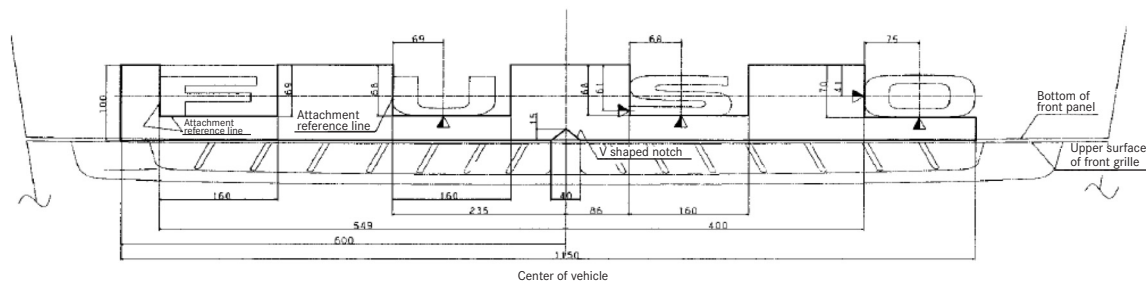
FUSO logo mark mounting position (wide cab)



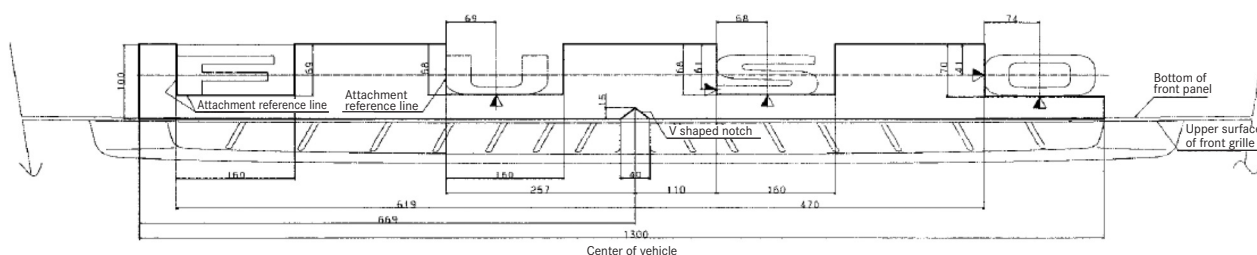
FUSO logo mark mounting position (wide cab)

Paper pattern shape

<Standard cab>




<Wide cab>



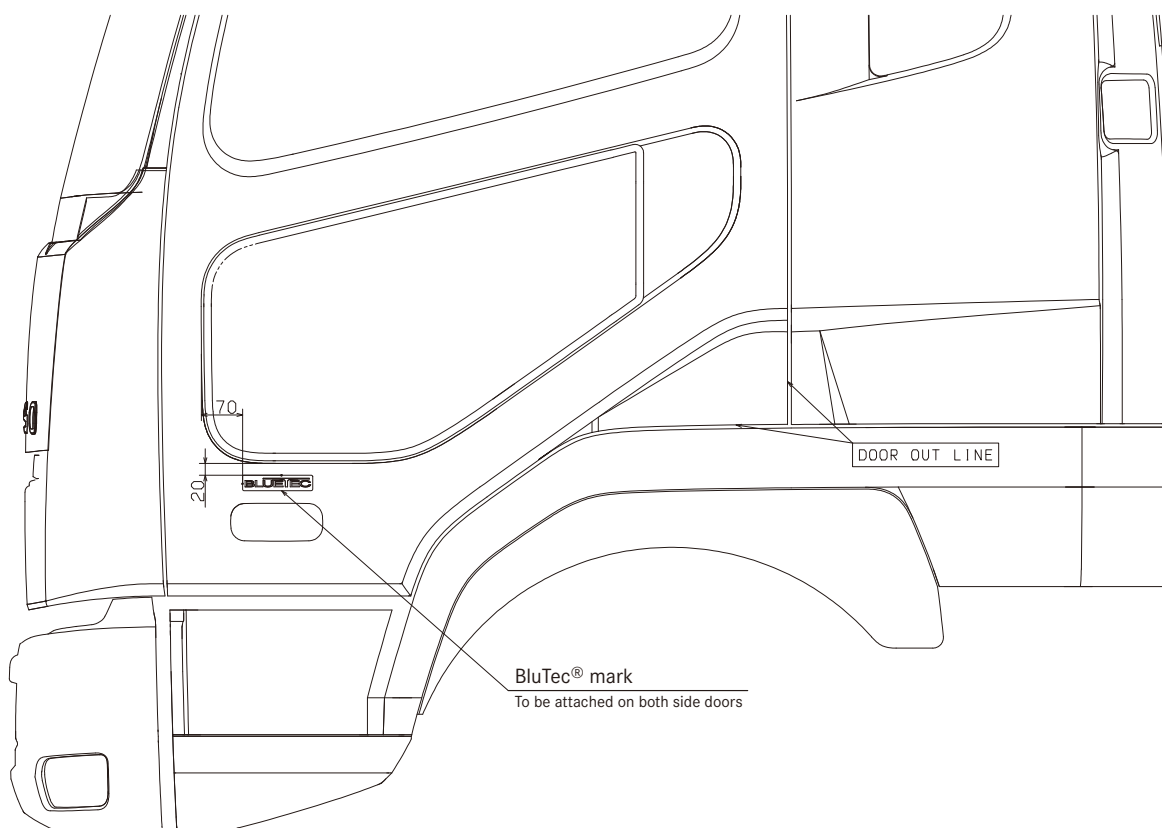
1. Paper template set

- 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

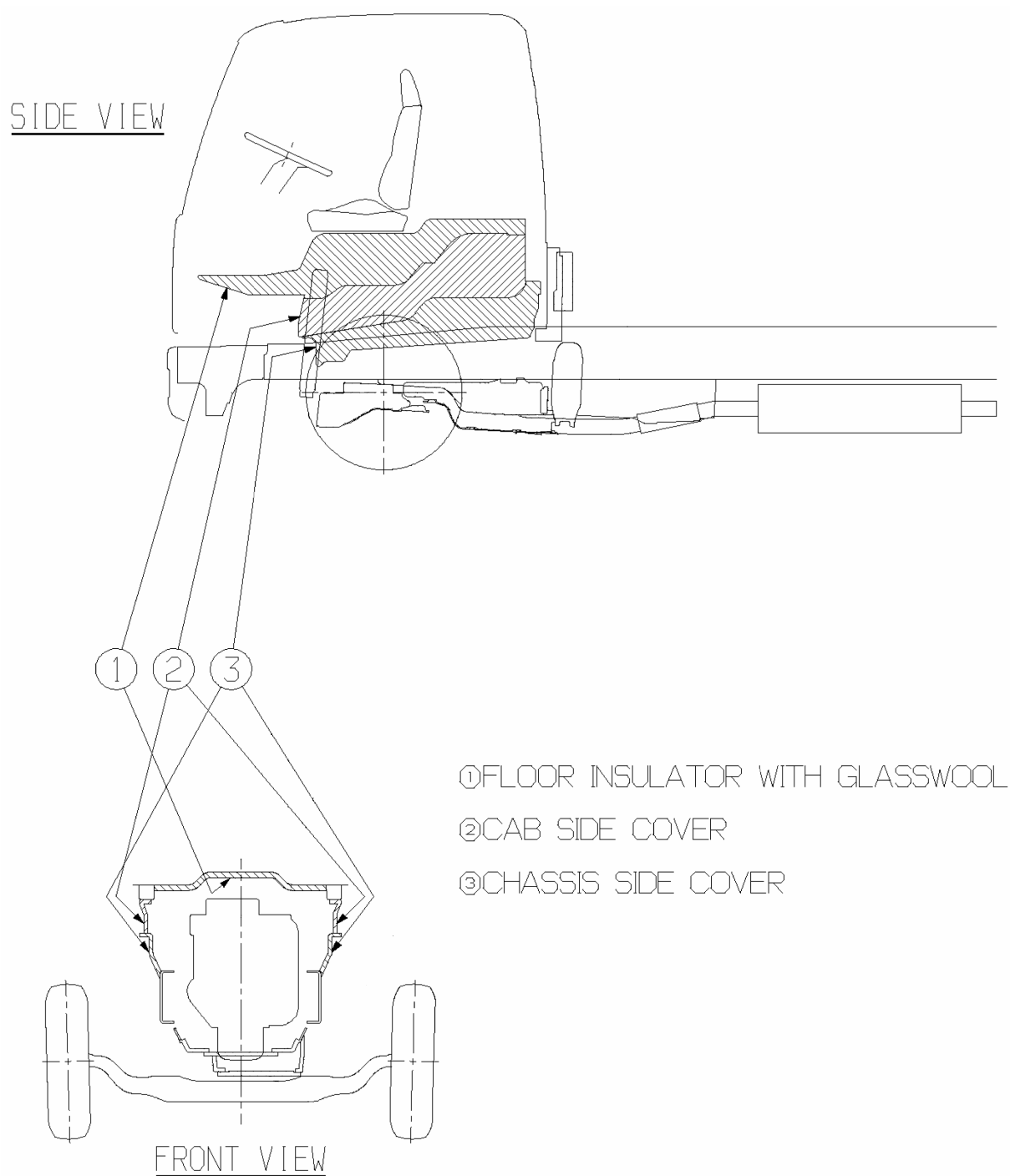


Assistant driver's side

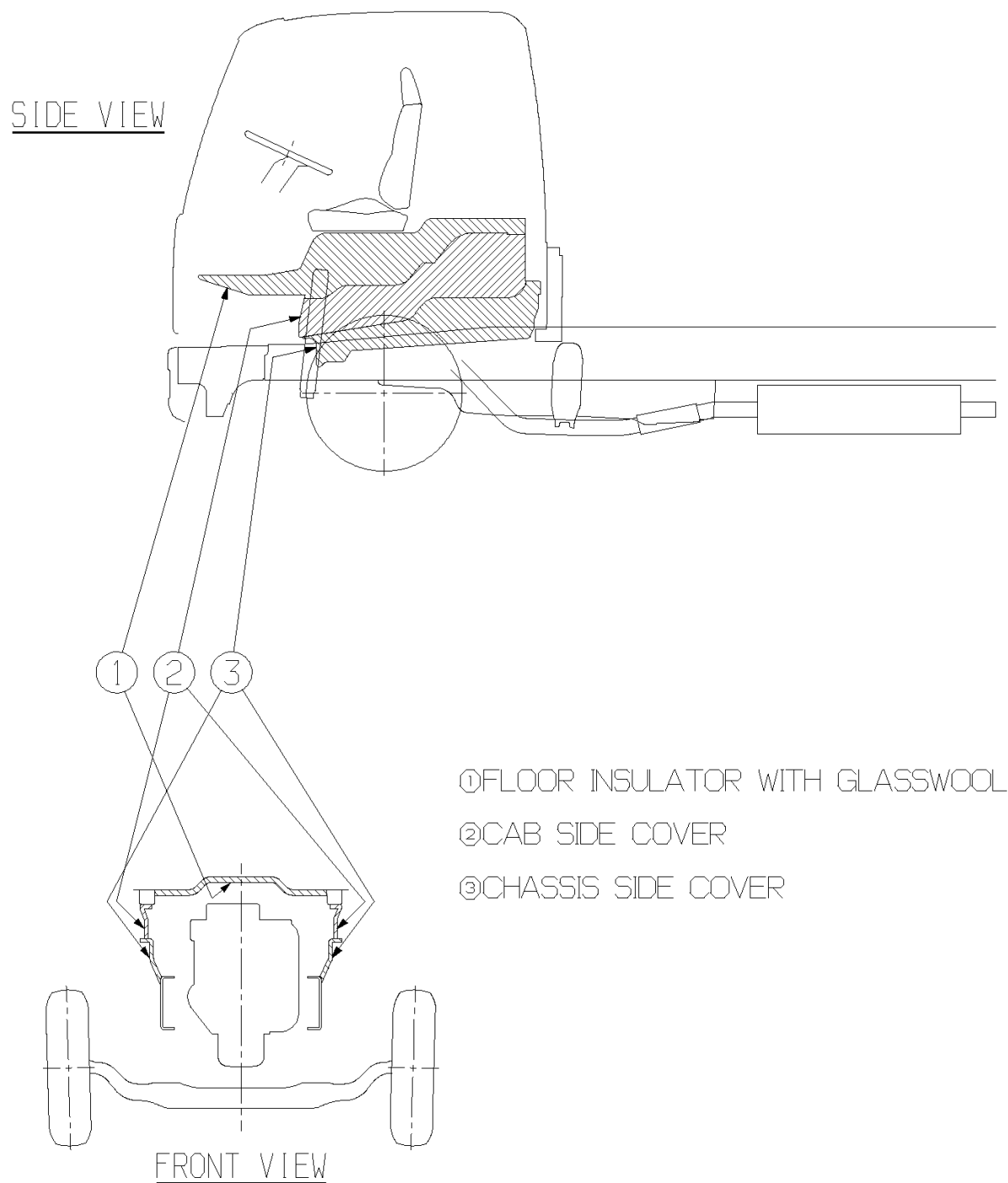
Shall be in a symmetrical position with the mark on the driver's side.

10.15.3 Location of sound proofing plates

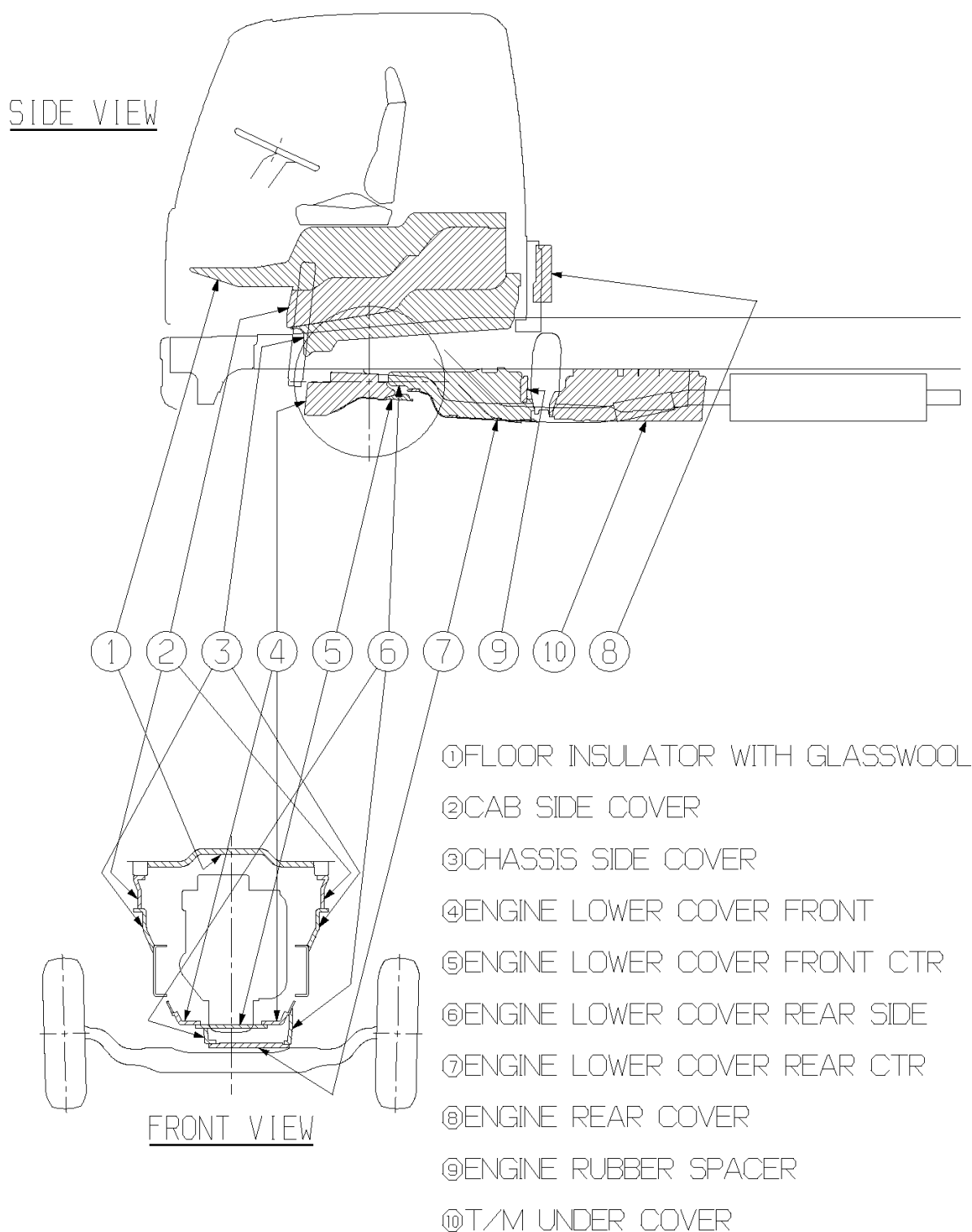
FK, FM M Series T/M



FK, FM, FN Allison T/M



FM, FN EATON T/M



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Revision record <Technical data section>

	23. December. 2022	Other models added
–	31. March. 2021	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.

BlueTec®: A brand of Daimler AG
AdBlue®: The registered trademark of German Association of the Automobile Industry

Body/equipment mounting directives

<Technical data section>

FK.FM.FN

Australia

MITSUBISHI FUSO TRUCK & BUS CORPORATION

December. 2022 TM3FA

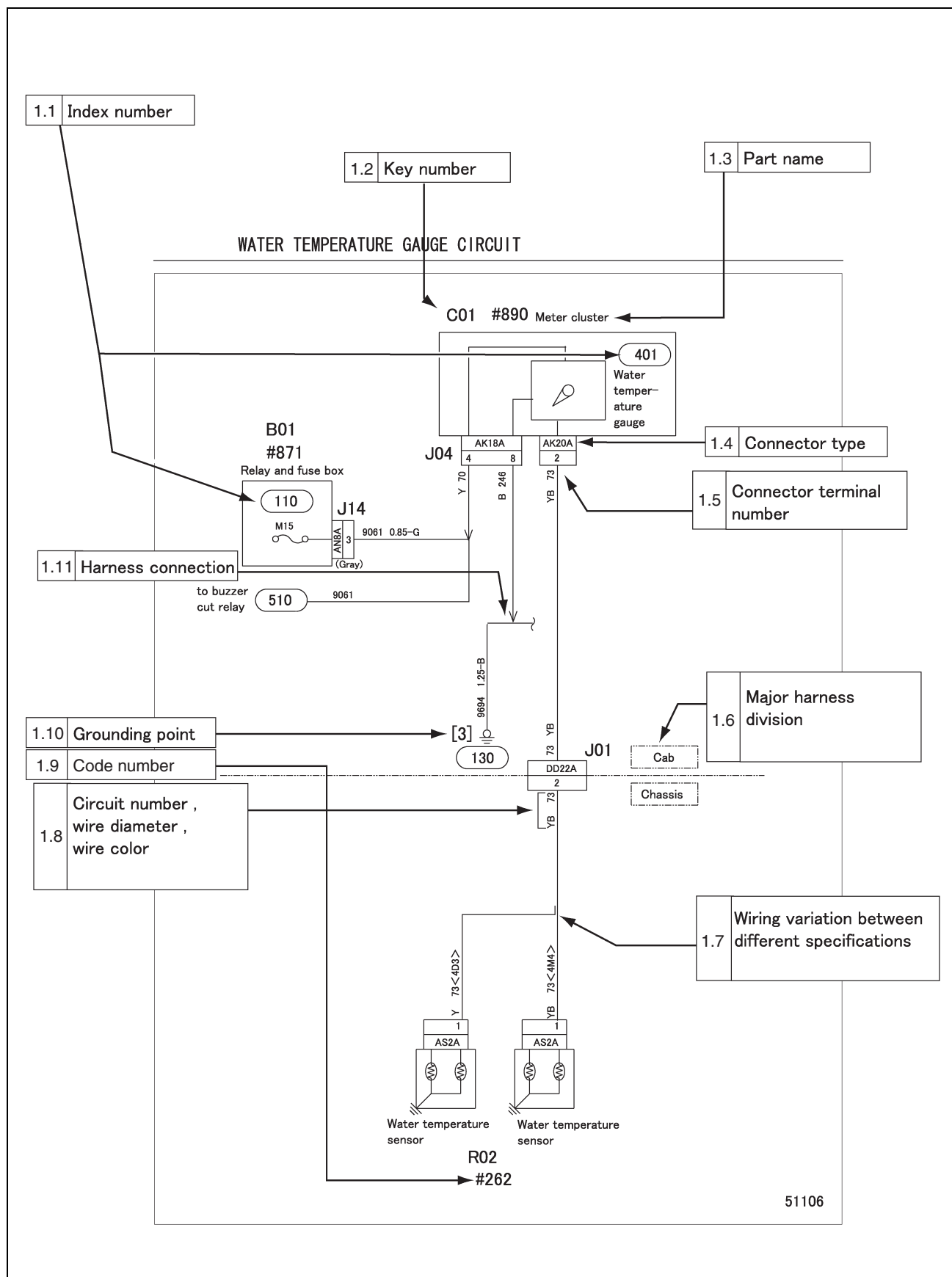
Body/equipment mounting directives
Electrical systems section
Australia

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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.

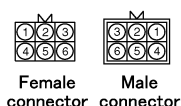
All of the electrical equipment installation locations are listed in Gr54-10. (Group Number Service Manual)

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.

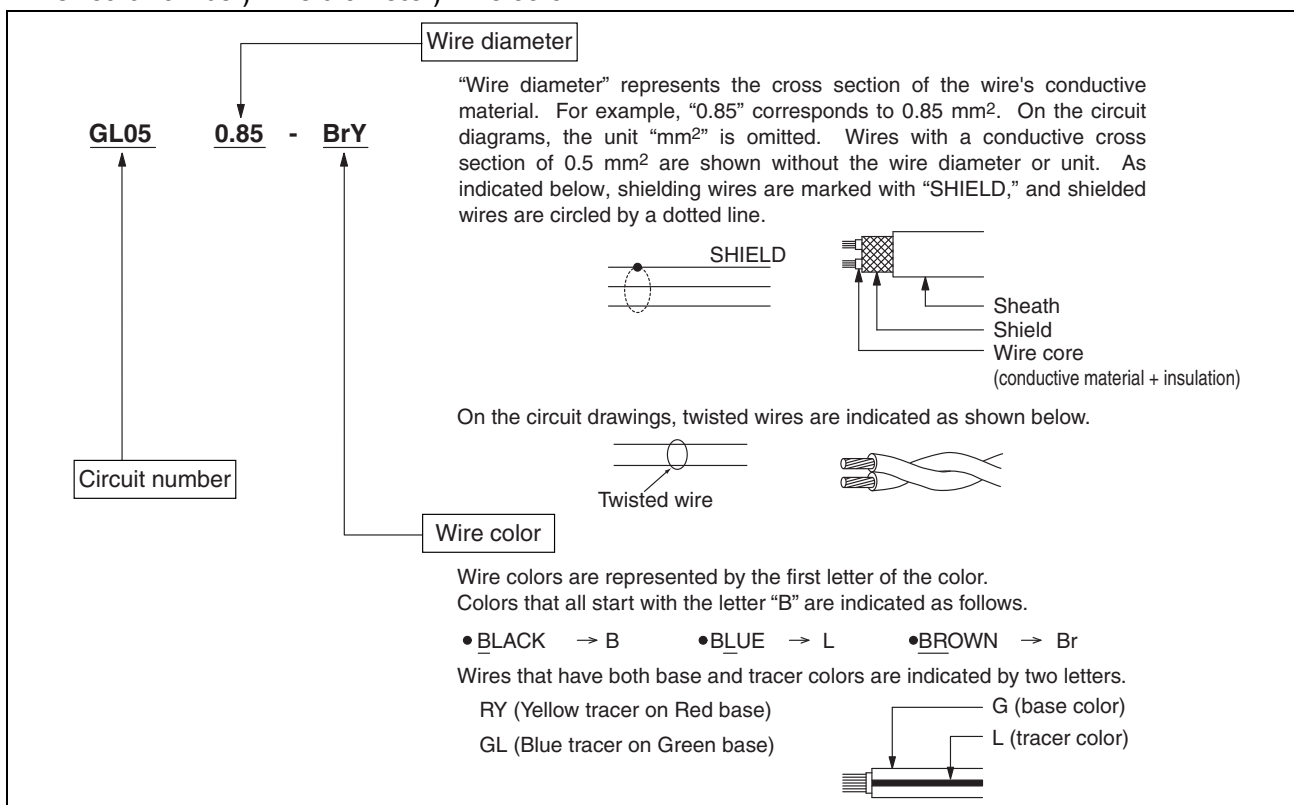
1.6 Major harness division

- 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.

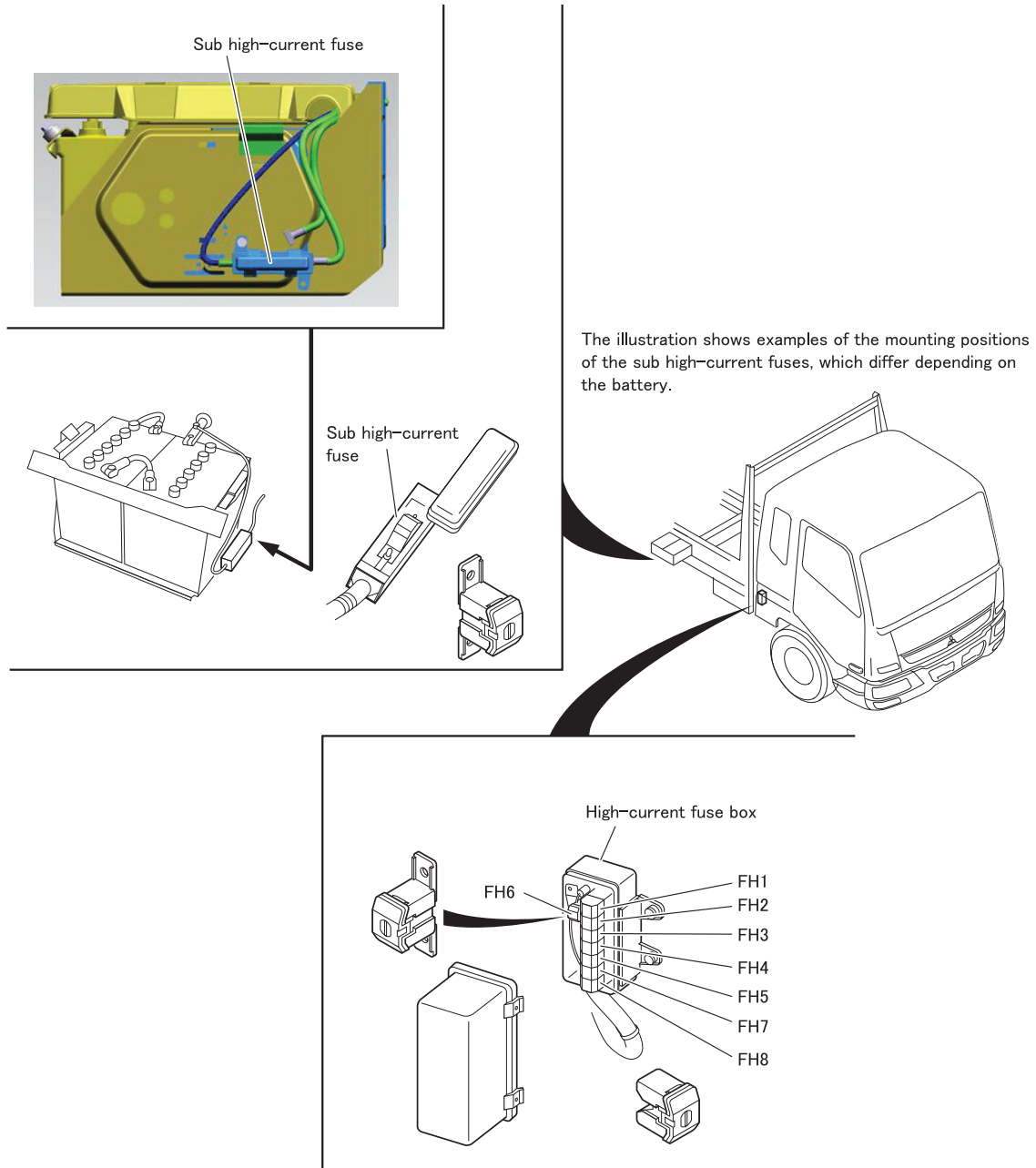
Wire color

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



HIGH-CURRENT FUSE BOX (1)



⚠ CAUTION

- Before removing a high-current fuse, be sure to disconnect the (–) battery cable of the battery and insulate the (–) terminal and the (–) battery cable of the battery with tape.
With the (–) battery cable connected, the battery voltage is always applied to some high-current fuses. If a high-current fuse is replaced with power supplied, an arc could be generated, causing damage to electronic devices.
- If a fuse blows, identify the cause and repair the faulty part completely before installing the fuse.
- Be sure to use a fuse of the designated ampere.

54-614827HF-1



**HIGH-CURRENT FUSE BOX (2)**

High-current fuse box

Fuse No.	Main load	Capacity
FH1	Relay and fuse box (F36 to F41, F49 to F52)	60A
FH2	Relay and fuse box (F56 to F64)	60A
FH3	Relay and fuse box (F01 to F05, F17 to F23)	60A
FH4	Relay and fuse box (F65 to F70)	60A
FH5	Relay and fuse box (F07, F24)	50A
FH6	Alternator (terminal B)	140A
FH7	Relay and fuse box (F06, F08 to F12, F16)	60A
FH8	DCU (ATS ECU)	40A

Sub high-current fuse box

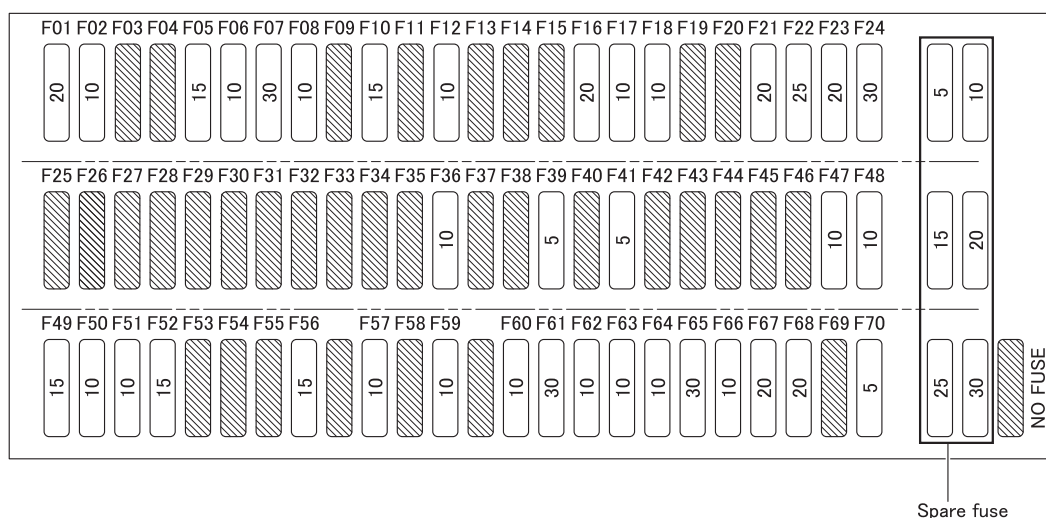
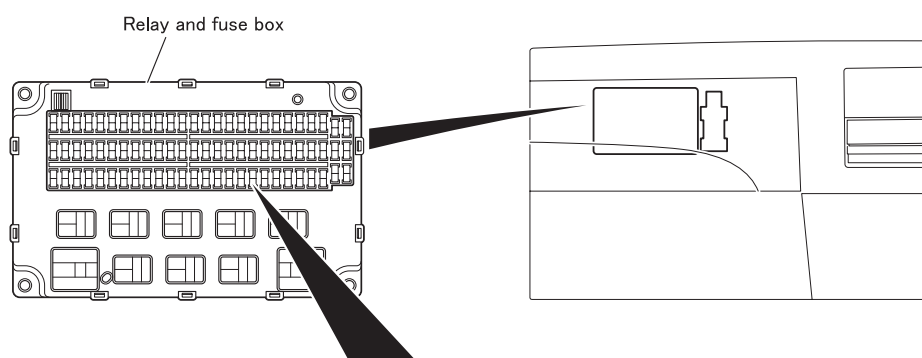
Fuse No.	Main load	Capacity
–	ASAM	50A

54-614827HF-2





RELAY AND FUSE BOX (1)



⚠ CAUTION

- Before removing a fuse, be sure to disconnect the (–) battery cable of the battery and insulate the (–) terminal and the (–) battery cable of the battery with tape.
With the (–) battery cable connected, the battery voltage is always applied to some fuses. If a fuse is replaced with power supplied, an arc could be generated, causing damage to electronic devices.
- If a fuse blows, identify the cause and repair the faulty part completely before installing the fuse.
- Be sure to use a fuse of the designated ampere.

54-614827FUSE-1





RELAY AND FUSE BOX (2)

Fuse No.	Main load	Capacity
F01	Blower	20A
F02	Spare DC cab 1 and 2, ETC connector	10A
F03	–	–
F04	–	–
F05	Door control module, Power mirror switch	15A
F06	A/T ECU	10A
F07	A/T fan motor relay 1	30A
F08	VRDU2	10A
F09	–	–
F10	Diagnosis connector	15A
F11	–	–
F12	Spare DC (M) relay	10A
F13	–	–
F14	–	–
F15	–	10A
F16	Door control module	20A
F17	Radio	10A
F18	ACC ON	10A
F19	–	–
F20	–	–
F21	Compressor clutch relay	20A
F22	Door control module	25A
F23	Engine electronic control unit	20A
F24	A/T fan motor relay 2	30A
F25	–	–
F26	–	–
F27	–	–
F28	–	–
F29	–	–
F30	–	–
F31	–	–
F32	–	–
F33	–	–
F34	–	–
F35	–	–
F36	ASAM	10A

Fuse No.	Main load	Capacity
F37	–	–
F38	–	–
F39	IGN relay 1, IGN relay 2 and IGN relay 6	5A
F40	–	–
F41	IGN relay 4, ACC relay 2	5A
F42	–	–
F43	–	–
F44	–	–
F45	–	–
F46	–	–
F47	Airbag	10A
F48	Engine electronic control unit	10A
F49	Urea heater relay	15A
F50	NOx sensor relay	10A
F51	Starter cranking relay	10A
F52	Spare DC (ILL) relay	15A
F53	–	–
F54	–	–
F55	–	–
F56	IGN relay 1	15A
F57	IGN relay 2	10A
F58	–	–
F59	IGN relay 6, Engine ECU	10A
F60	IGN relay 4	10A
F61	XMC	30A
F62	ACC relay 2	10A
F63	IGN relay 5	10A
F64	Personal lamp	10A
F65	IGN relay 2	30A
F66	CGW	10A
F67	ABS ECU	20A
F68	EDU relay	20A
F69	–	–
F70	ICUC(Meter)	5A

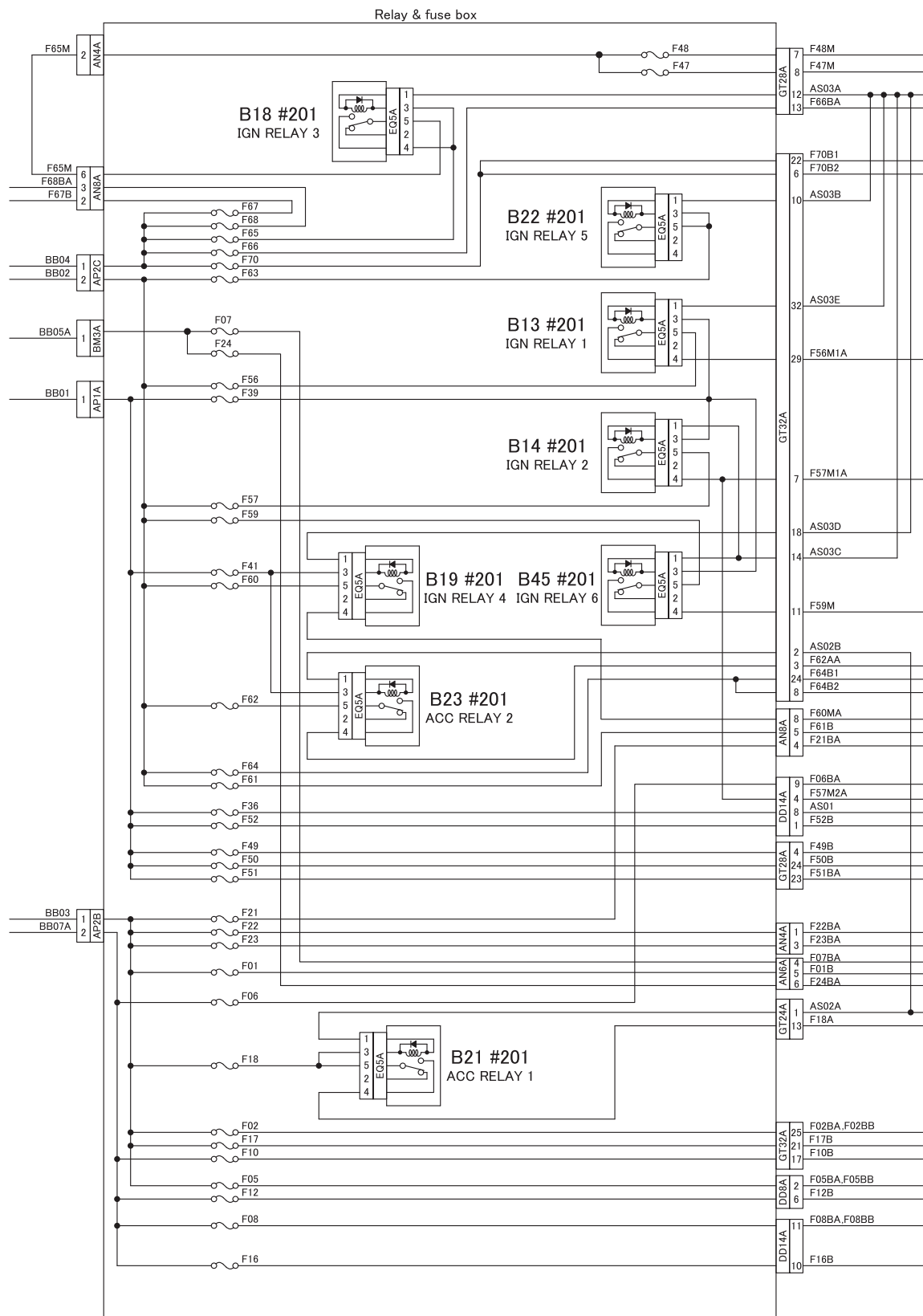
A/T: Automatic transmission

● This table includes main loads only. See 110 for other load connections.

54-614827FUSE-2



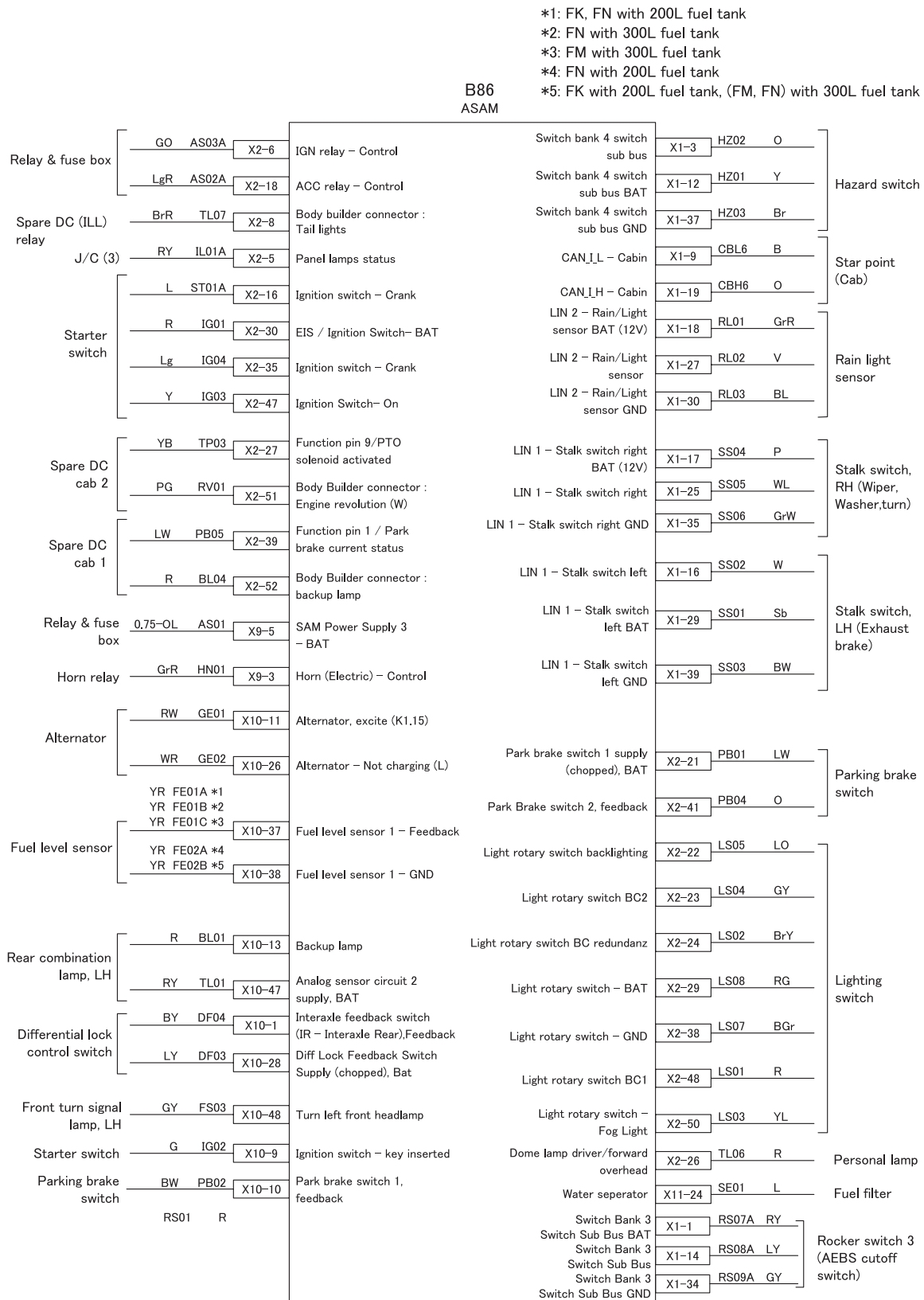
RELAY AND FUSE BOX (3)



104-614827



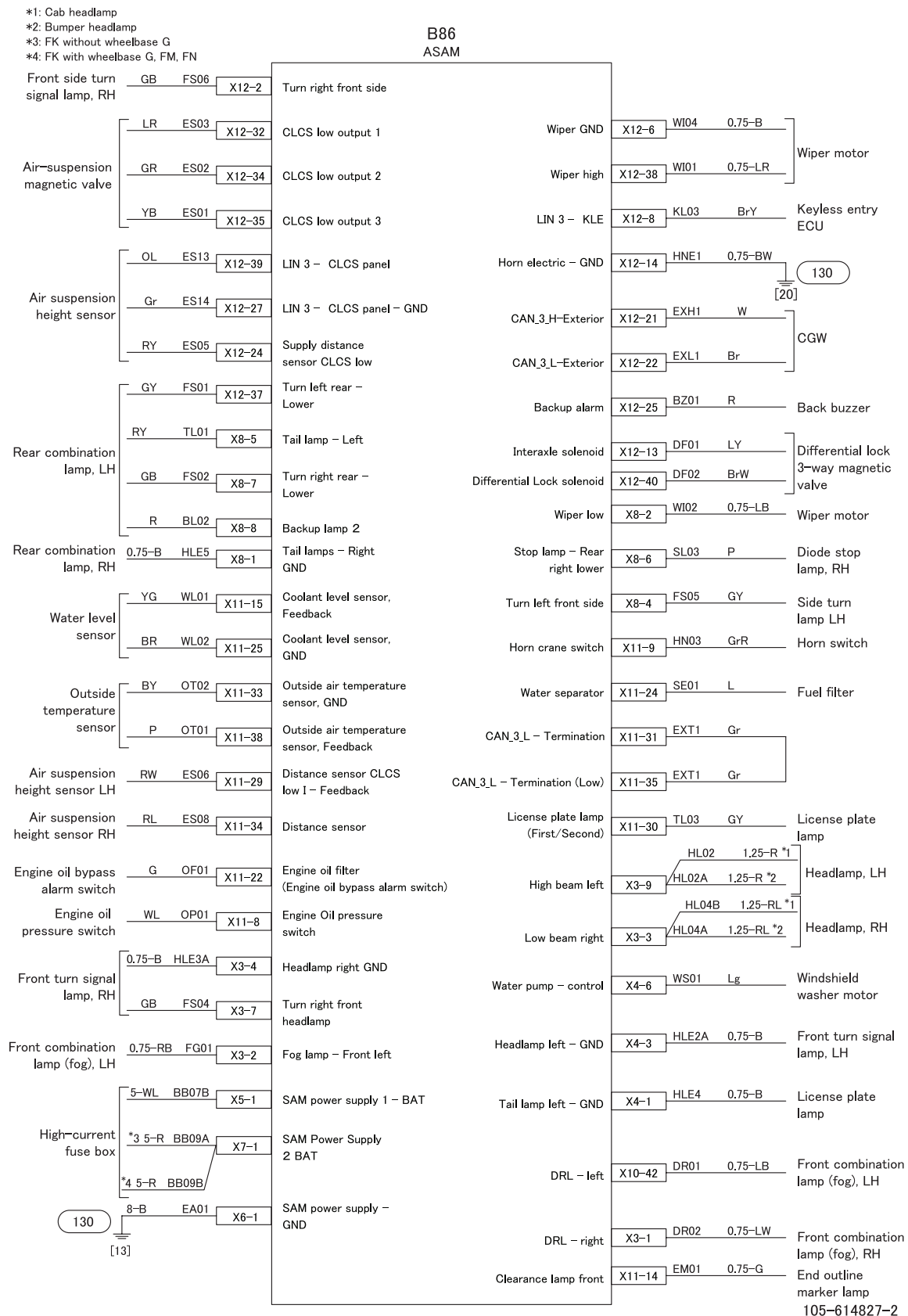
ASAM INTERNAL CIRCUIT (1)



105-614827-1

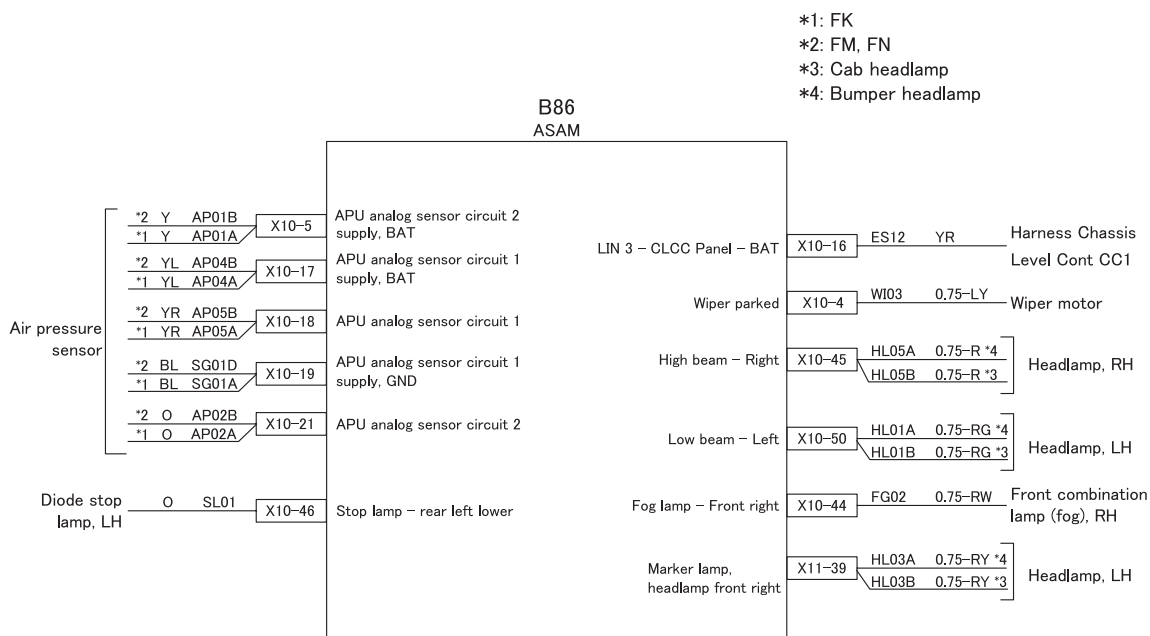


ASAM INTERNAL CIRCUIT (2)





ASAM INTERNAL CIRCUIT (3)



105-614827-3



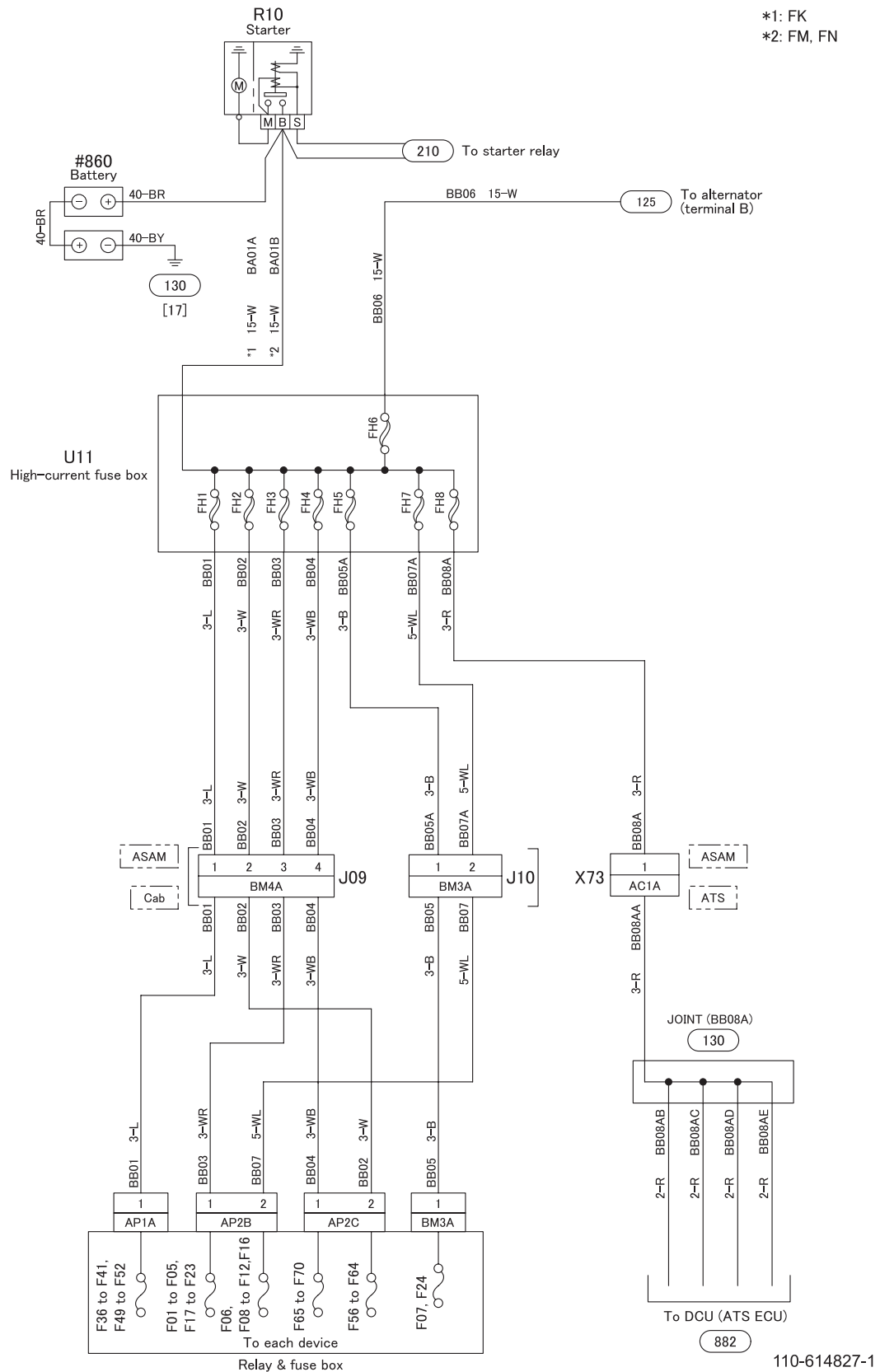
POWER CIRCUIT (1)

Battery to fuse

(1/5)

*1: FK

*2: FM, FN



110-614827-1

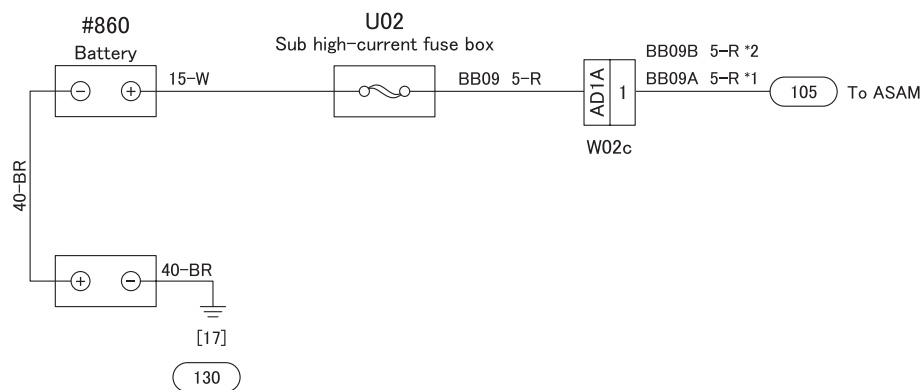




POWER CIRCUIT (2)

(2/5)

*1: FK
*2: FM, FN

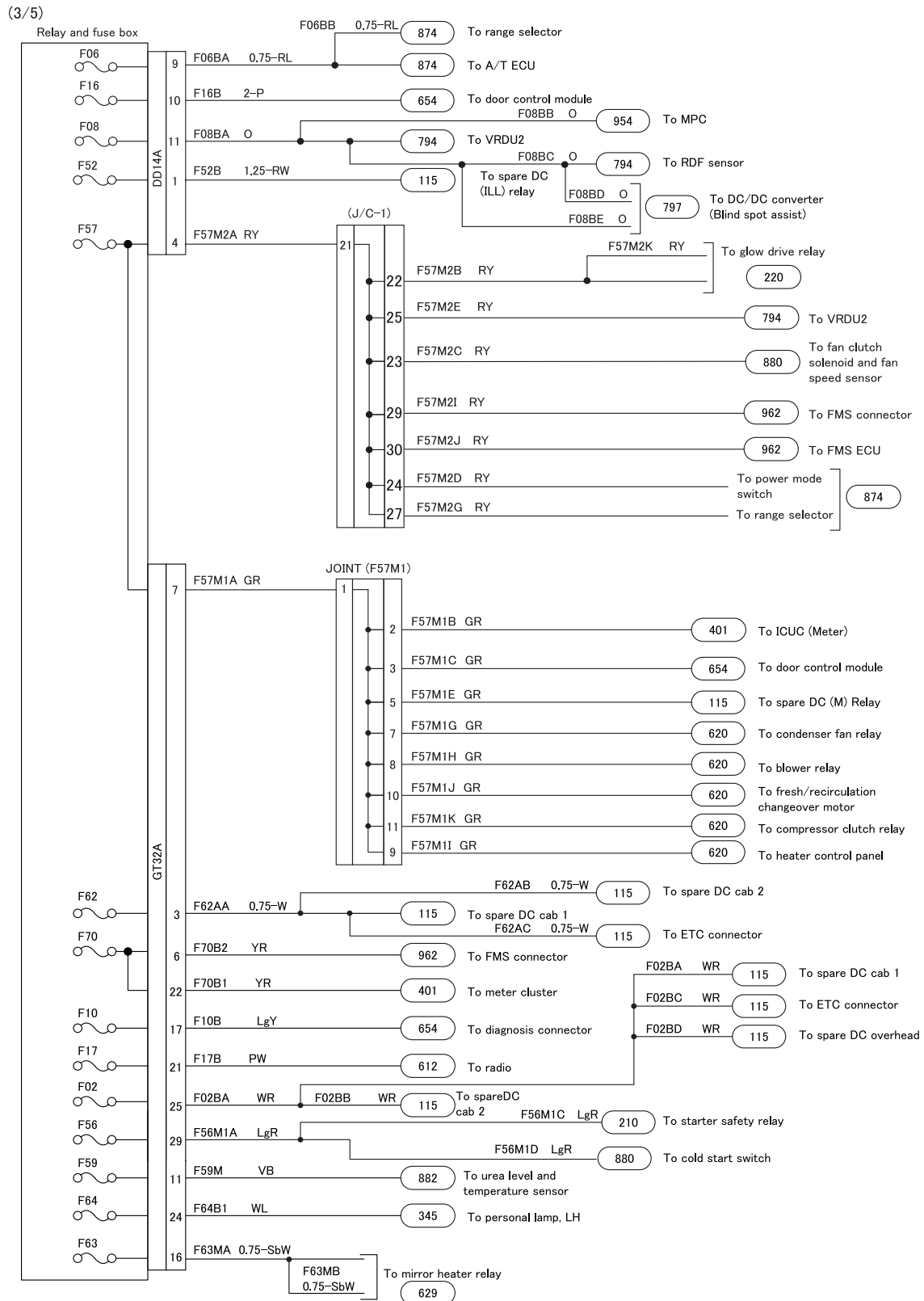


110-614827-2





POWER CIRCUIT (3)



110-614827-3



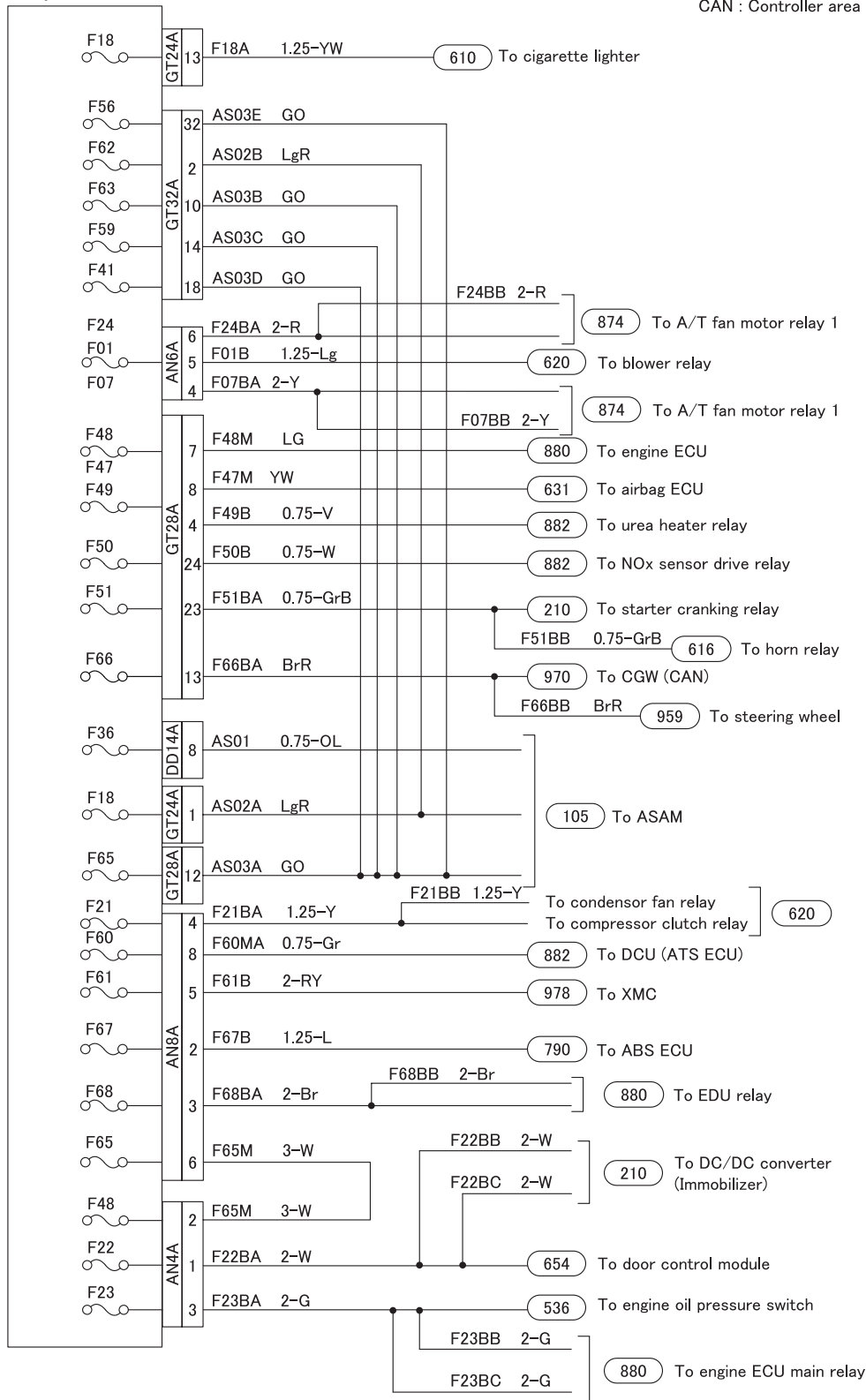


POWER CIRCUIT (4)

(4/5)

Relay and fuse box

ECU : Electronic control unit
CAN : Controller area network



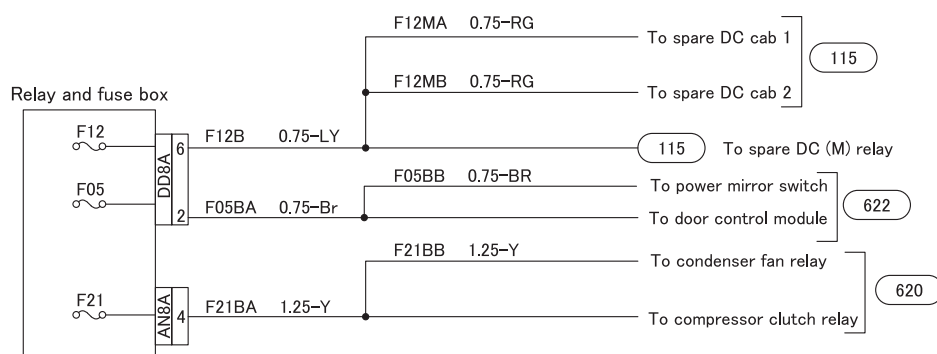
110-614827-4





POWER CIRCUIT (5)

(5/5)

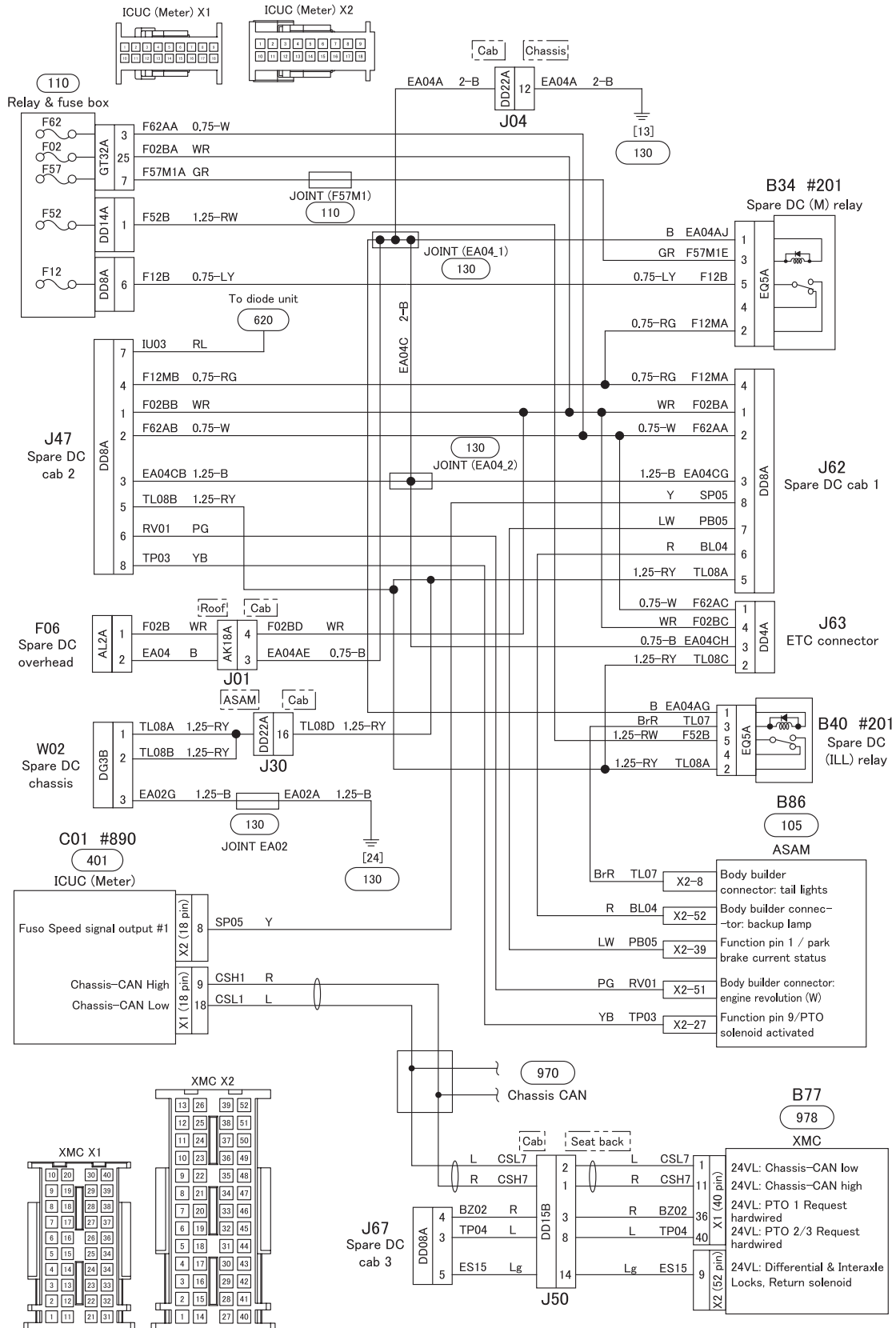


110-614827-5





STANDBY POWER CIRCUIT

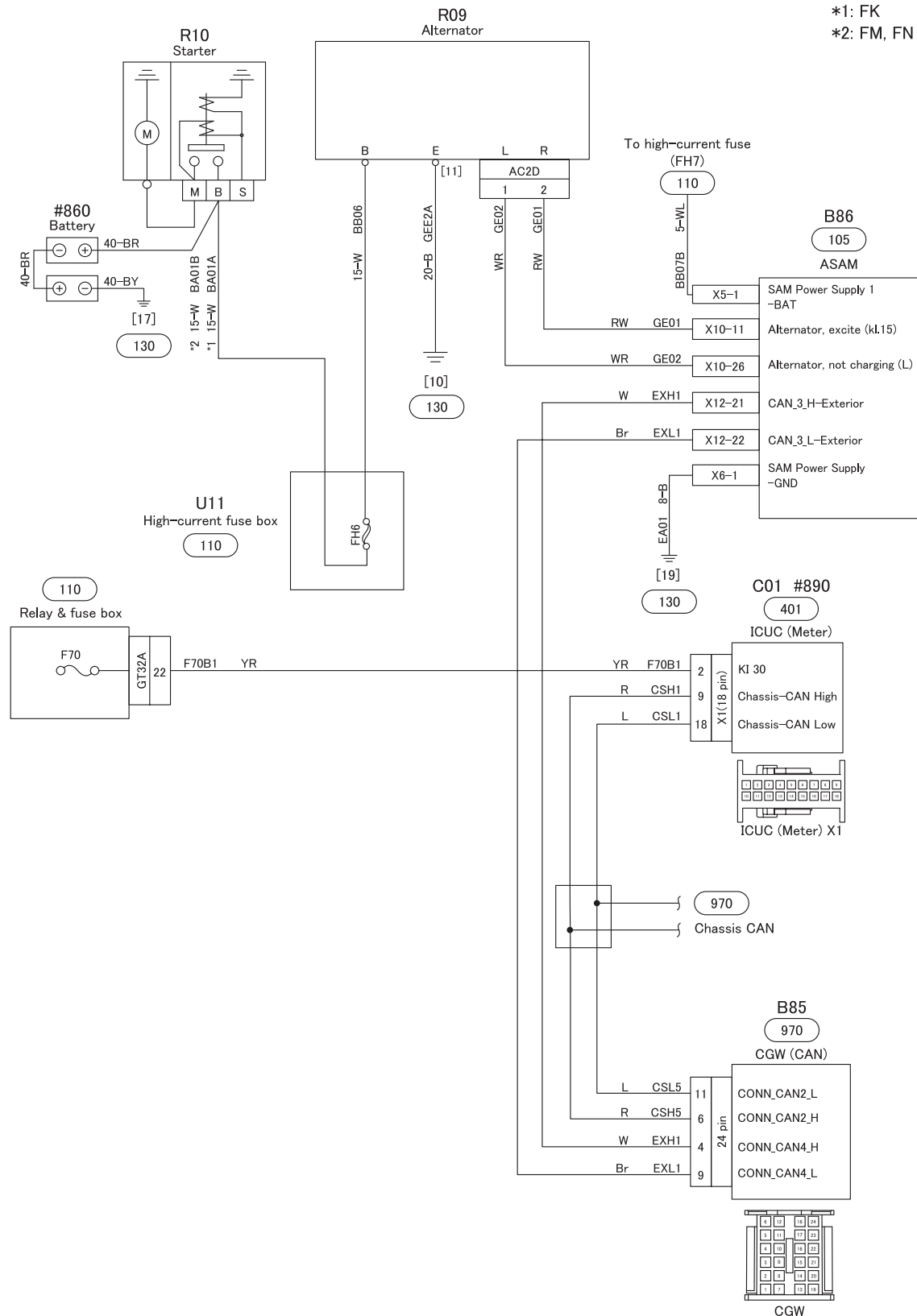


115-614827





CHARGING CIRCUIT



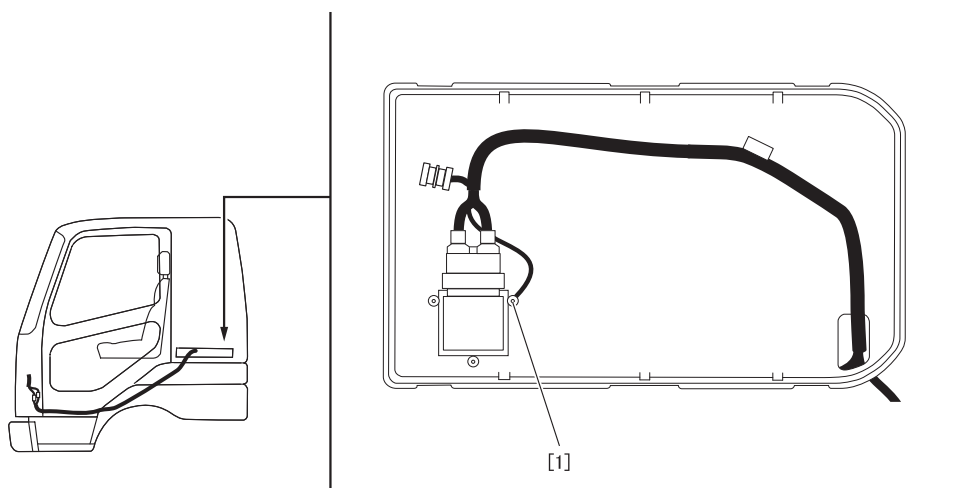
125-614827





GROUND (1)

[1]



Location	Circuit No.	Wire diameter— wire color	Destination	Remarks
[1]	ATE1E	B	A/T ECU	A/T <LCT2500>
	MDE1D			A/T <MD3500>

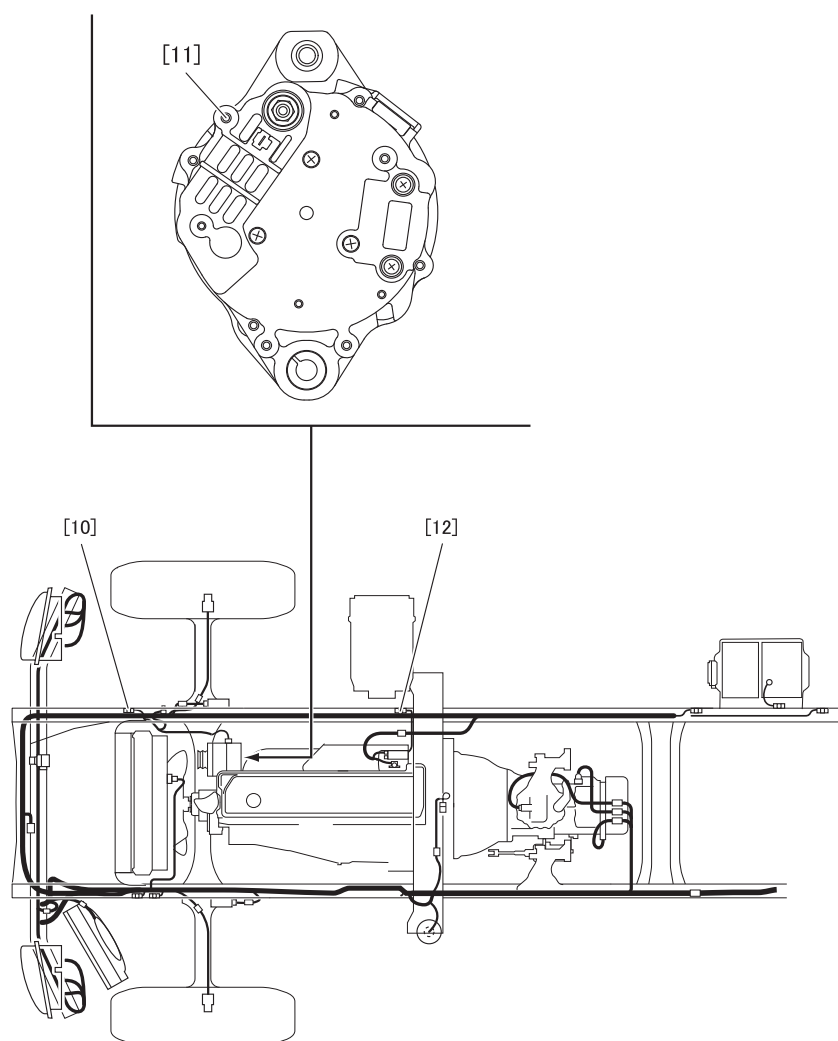
A/T : Automatic transmission
ECU : Electronic control unit

54-L614827GND-1



**GROUND (2)**

[10] - [12]



Ground position	Circuit No.	Wire Diameter - Color	Destination	Remarks
[10]	GEE2A	20-B	Alternator	
[11]	GEE2A	20-B	Alternator	
[12]	-	40	Starter	

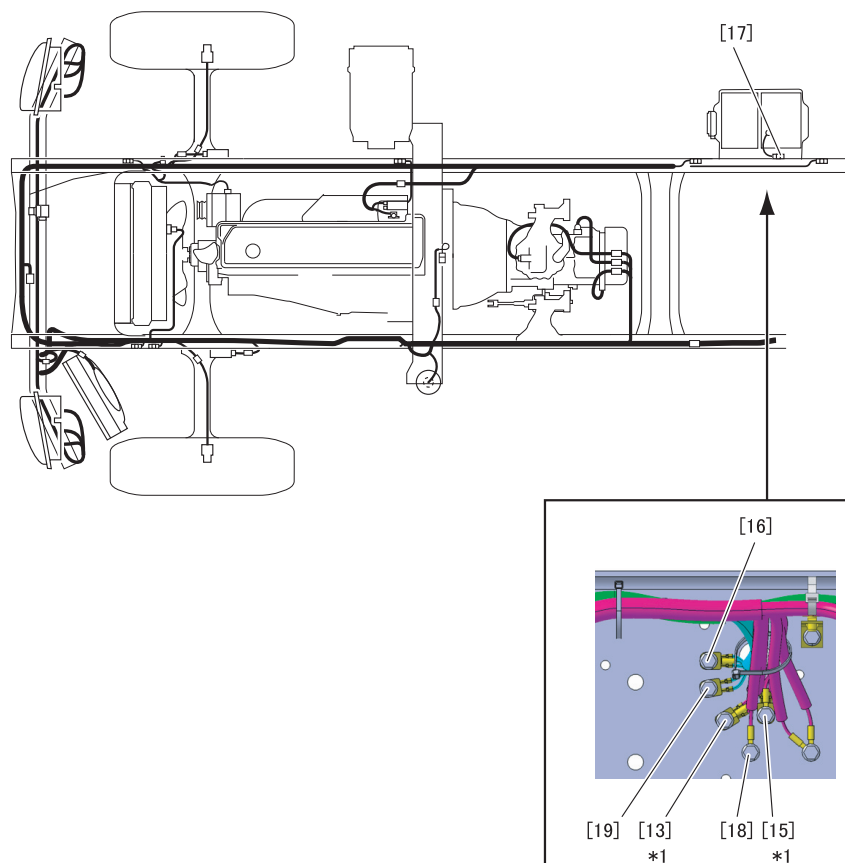
54-614827GND-1





GROUND (3)

[13] - [17] <FK>



*1: These grounds have the same length and can be installed to either ground point.

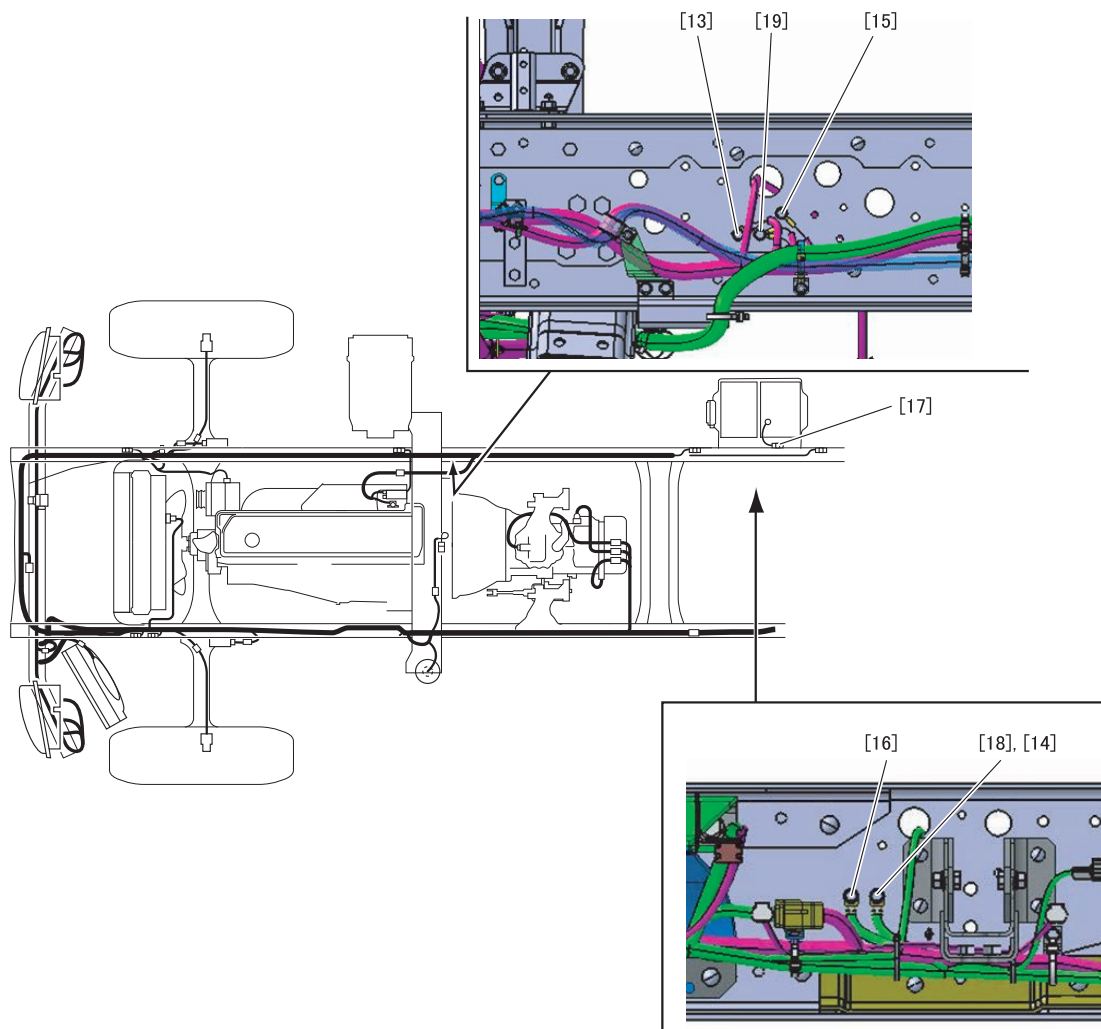
Ground position	Circuit No.	Wire Diameter – Color	Destination	Remarks
[13]	EA03A	2-B	J/C (1)	
	EA04A	2-B	JOINT EA04_1	
[15]	DCE7A	B	NOx sensor 1	
[16]	DCE1F	3-B	DCU (ATS ECU)	DCU
[17]	–	40-BY	Battery	
[18]	ATE1A	0.75-B	A/T ECU	A/T <LCT2500>
[19]	EA01	8-B	ASAM	
	HLE1A	2-B	J/C (2)	

54-614827GND-2



GROUND (4)

[13] - [17] <FM, FN>



Ground position	Circuit No.	Wire Diameter - Color	Destination	Remarks
[13]	EA03A	2-B	J/C (1)	
	EA04A	2-B	JOINT EA04_1	
[14]	MDE3	2-B	A/T oil cooler fan	A/T <MD3500>
[15]	DCE7A	B	NOx sensor 1	
[16]	DCE1F	3-B	DCU (ATS ECU)	DCU
[17]	-	40-BY	Battery	
[18]	MDE1A	0.75-B	A/T ECU	A/T <MD3500>
[19]	EA01	8-B	ASAM	
	HLE1A	2-B	J/C (2)	

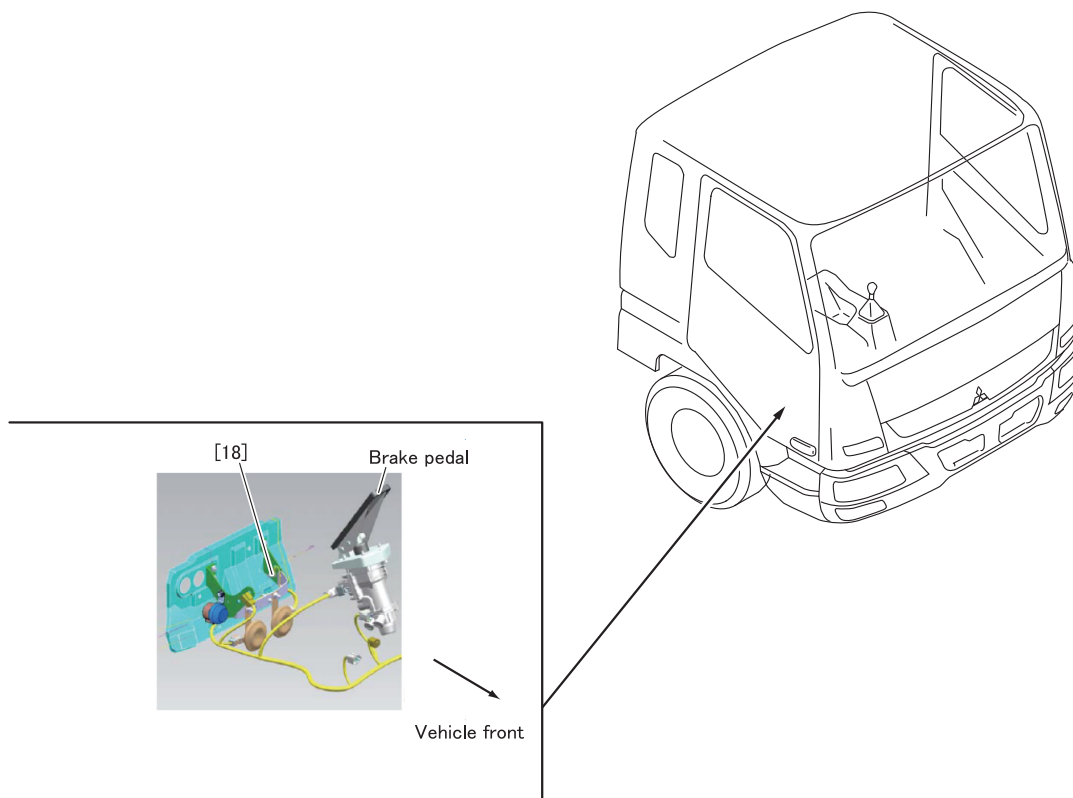
54-614827GND-3





GROUND (5)

[20]



Ground position	Circuit No.	Wire Diameter – Color	Destination	Remarks
[20]	HNE1	BW	Horn	

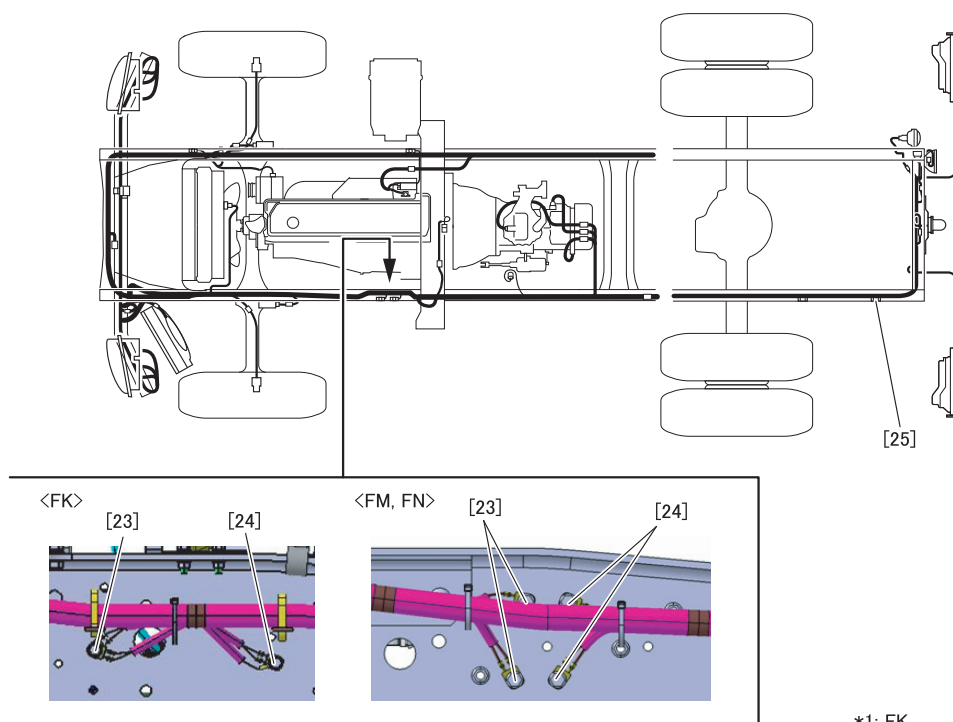
54-614827GND-4





GROUND (6)

[23] - [25]



*1: FK
*2: FM, FN

Ground position	Circuit No.	Wire Diameter - Color	Destination	Remarks
[23]	AGE1A *1, AGE1B *2	B	Airbag ECU	
	ABE1A *1, ABE1B *2	1.25-B	ABS ECU	
[24]	EA02A *1, EA02B *2	1.25-B	JOINT EA02	
	CME1A *1, CME1B *2	0.75-B	Engine ECU	
	CME3A *1, CME3B *2	0.75-B		
	CME5A *1, CME5B *2	0.75-B		
[25]	TLE1	B	Back buzzer lamp, LH	
	ESE1	0.75-B	Air-suspension magnetic valve	

54-614827GND-5



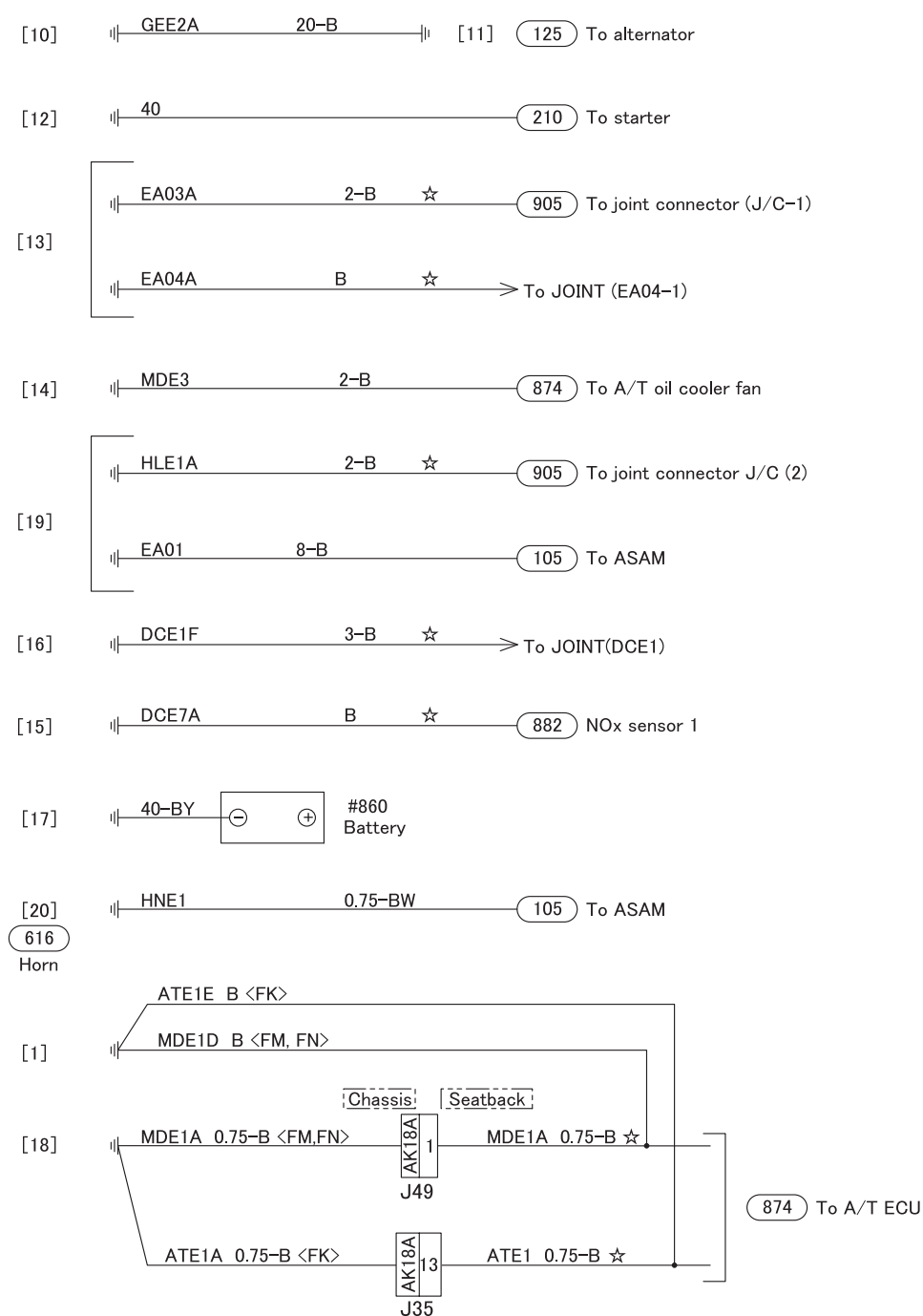


GROUND (7)

Overall ground diagram

• This diagram indicates grounding points.

• See the following pages for branching of grounding (wiring for ☆).
(in circuit No. order)



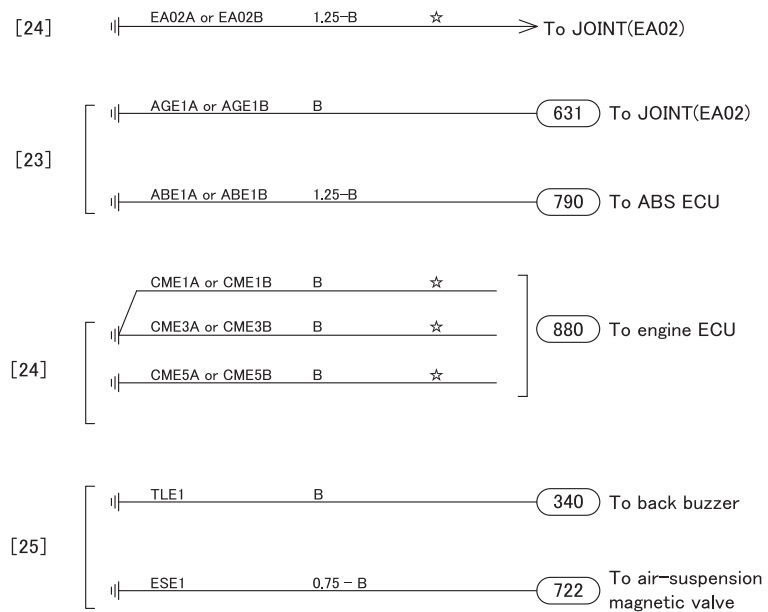
130-614827-1





GROUND (8)

Overall ground diagram



130-614827-2

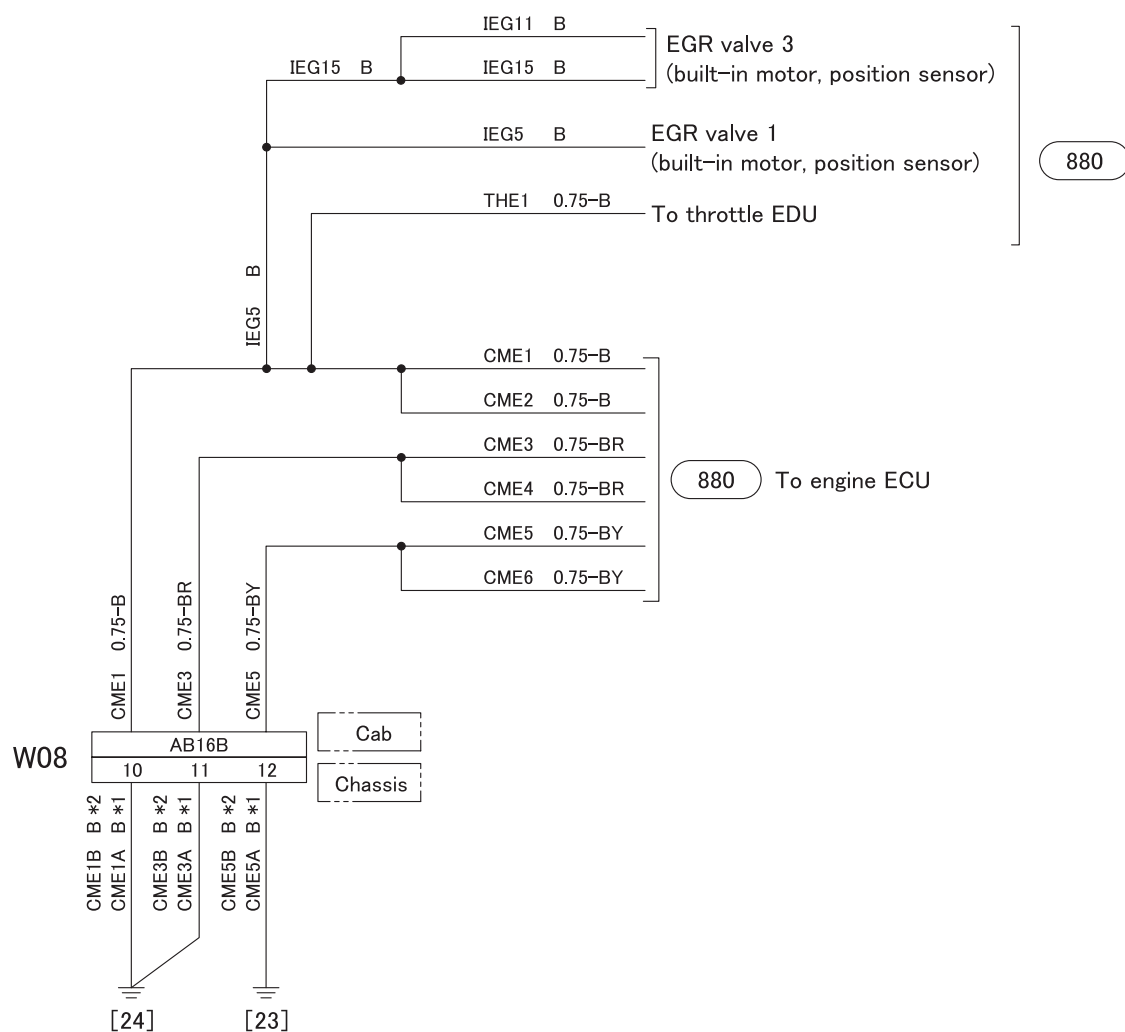




GROUND (9)

Circuit No. CME chassis ground

*1 : FK
*2 : FM, FN



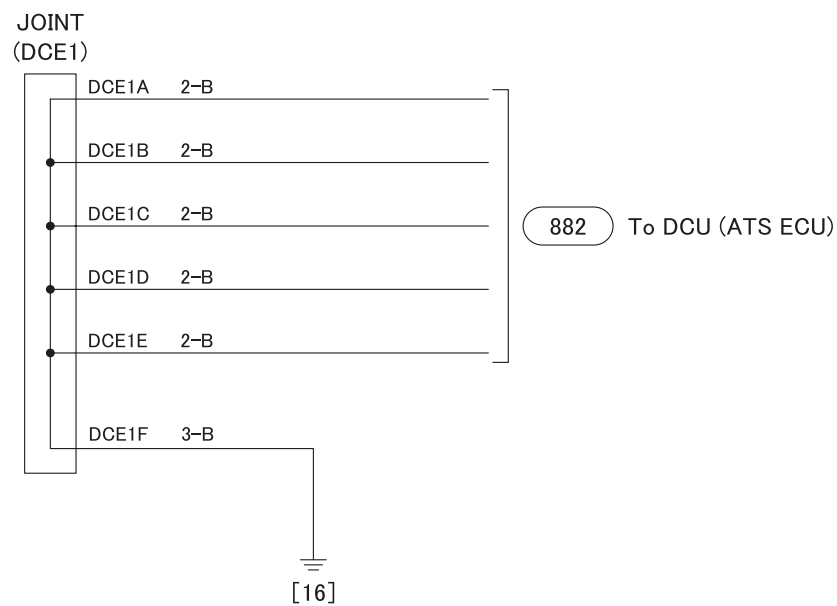
130-614827-3





GROUND (10)

Circuit No. DCE1F ATS Ground



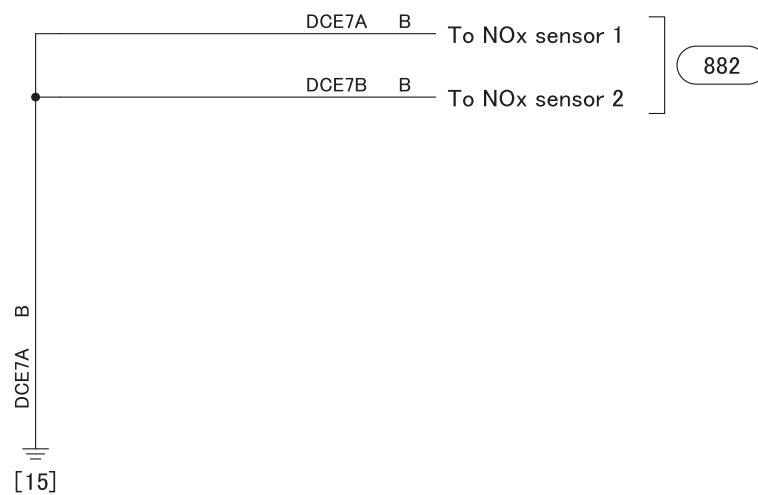
130-614827-4





GROUND (11)

Circuit No. DCE1F ATS Ground



130-614827-5

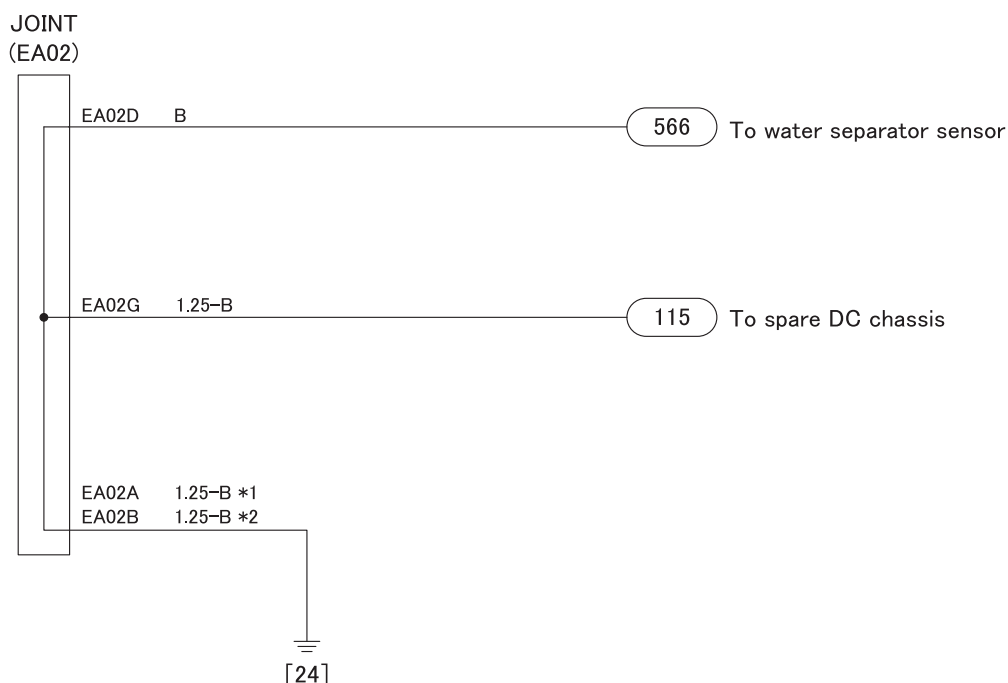




GROUND (12)

Circuit No. EA02 ASAM Ground

*1: FK
*2: FM, FN



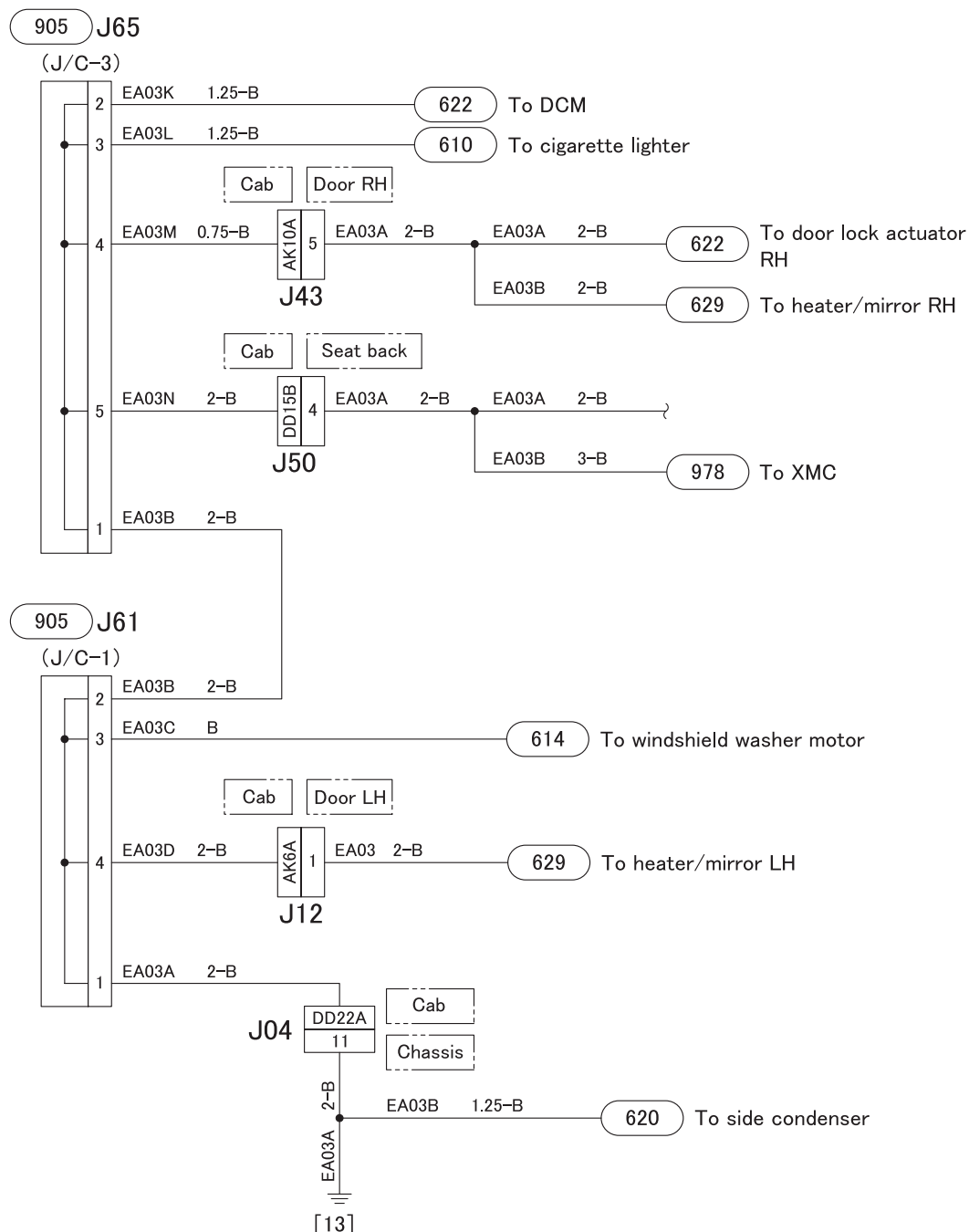
130-614827-6





GROUND (13)

Circuit No. EA03A Chassis Ground



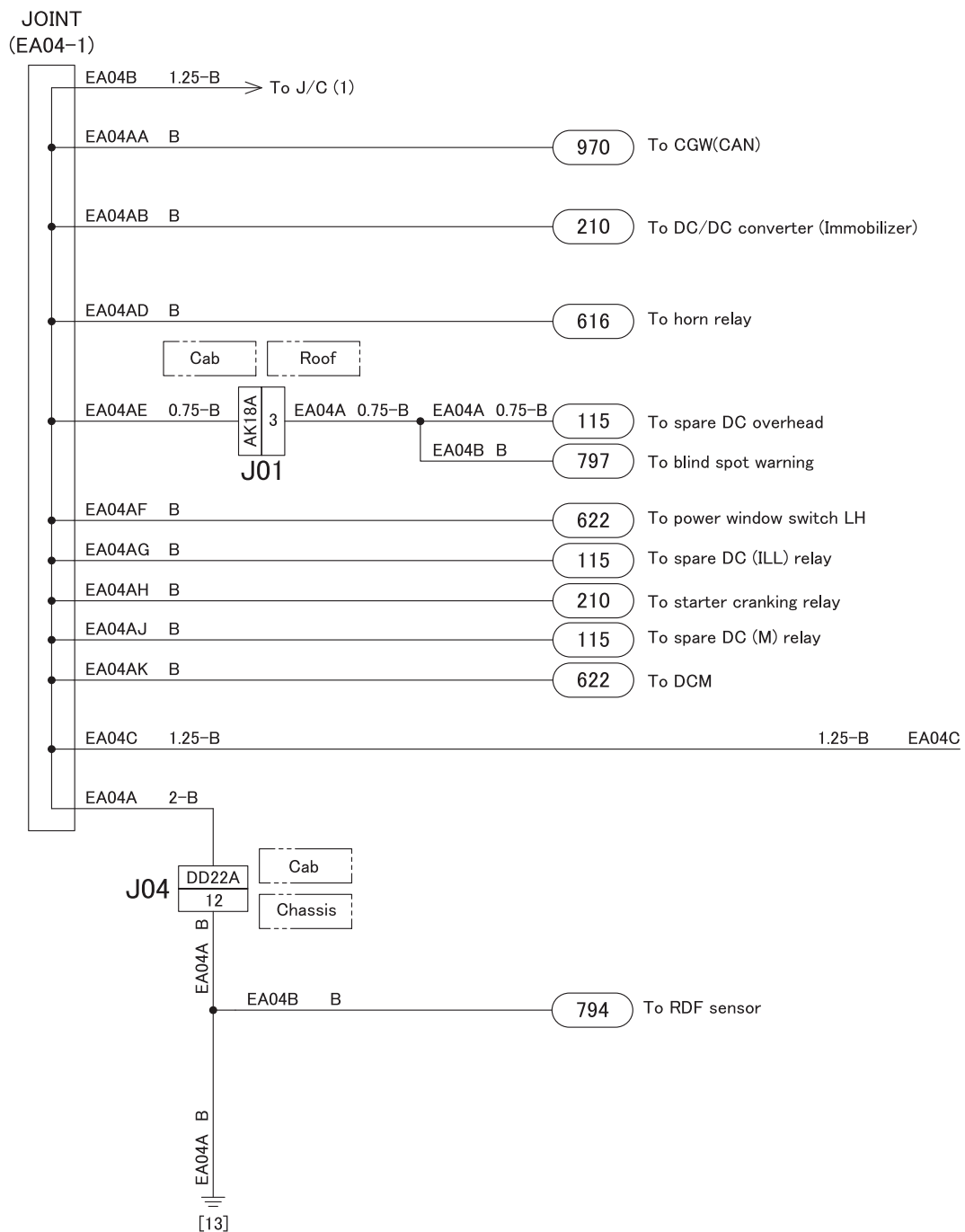
130-614827-7





GROUND (14)

Circuit No. EA04A Chassis ground <JOINT EA04-1>

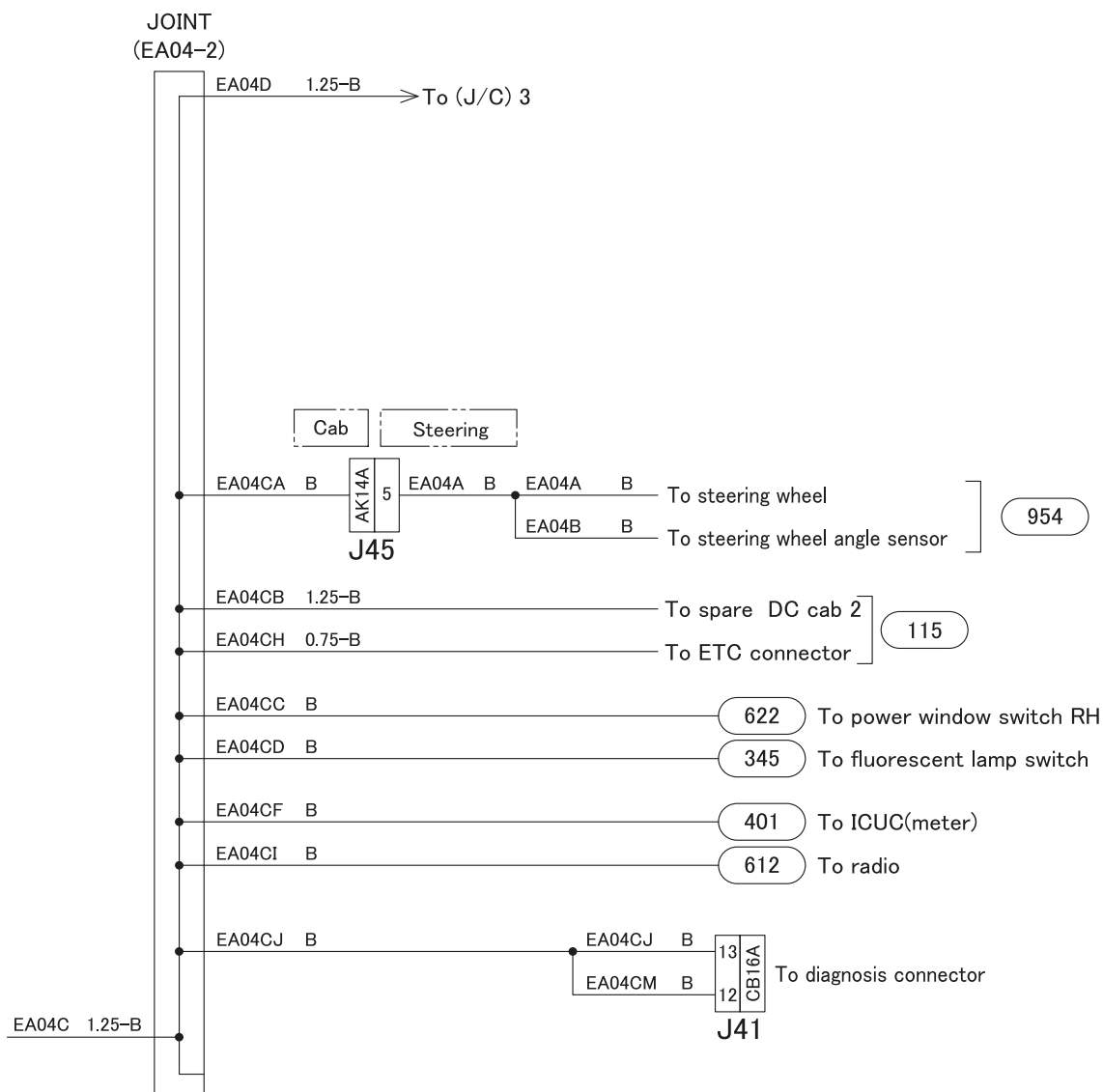


130-614827-8



GROUND (15)

Circuit No. EA04A Chassis ground <JOINT EA04-2>

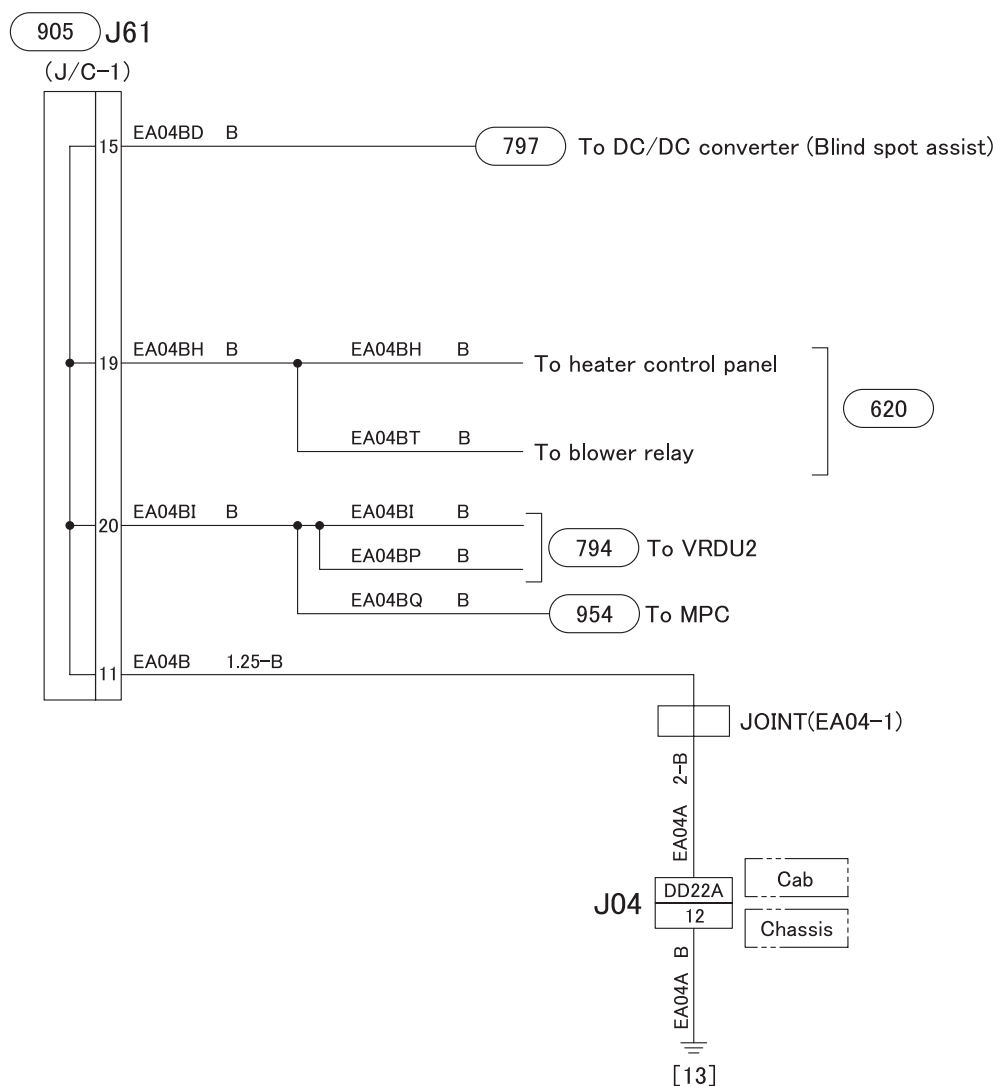


130-614827-9



**GROUND (16)**

Circuit No. EA04A Chassis ground <J/C-1>

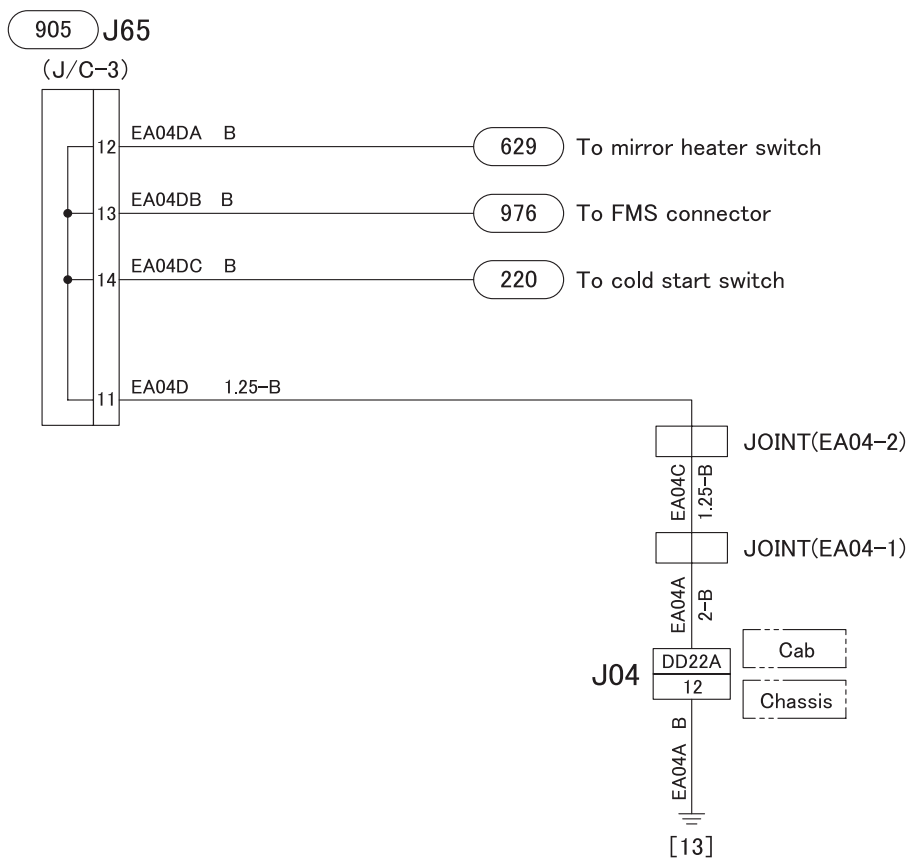


130-614827-10



**GROUND (17)**

Circuit No. EA04A Chassis ground <J/C-3>



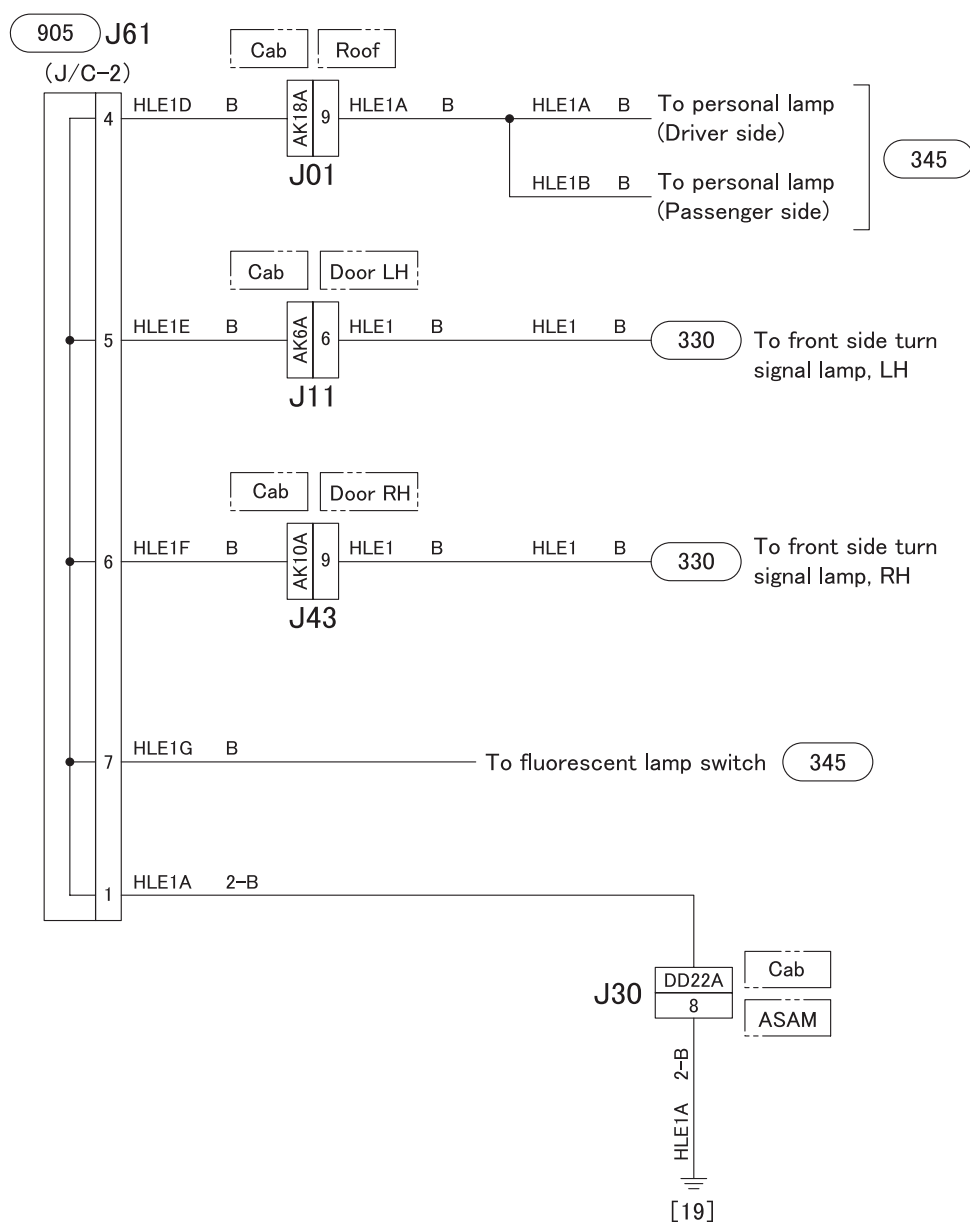
130-614827-11





GROUND (18)

Circuit No. HLE1A Chassis ground <J/C-2>



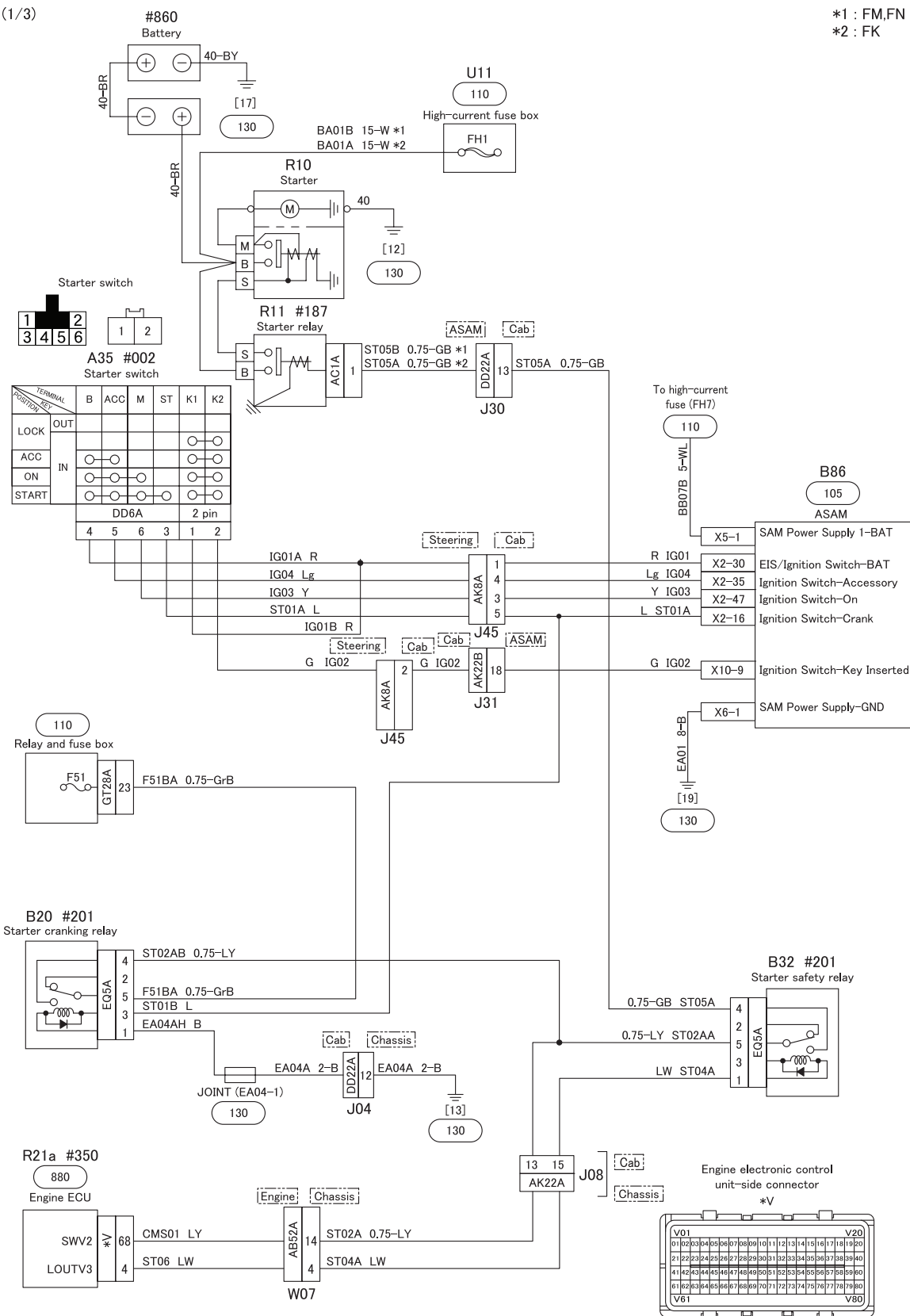
130-614827-12



ENGINE STARTING CIRCUIT (1)

(1/3)

*1 : FM,FN
*2 : FK



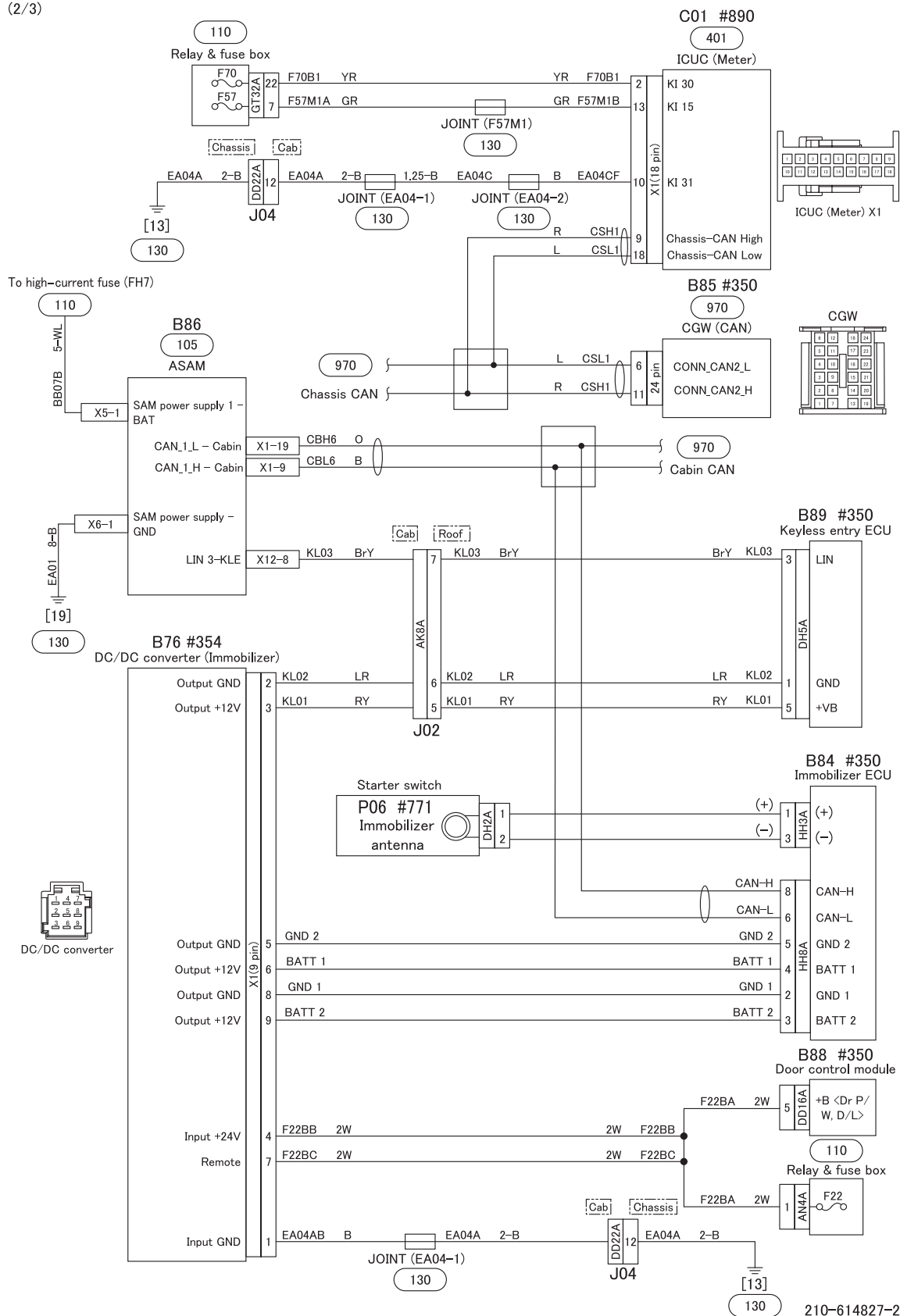
210-614827-1





ENGINE STARTING CIRCUIT (2)

(2/3)



210-614827-2



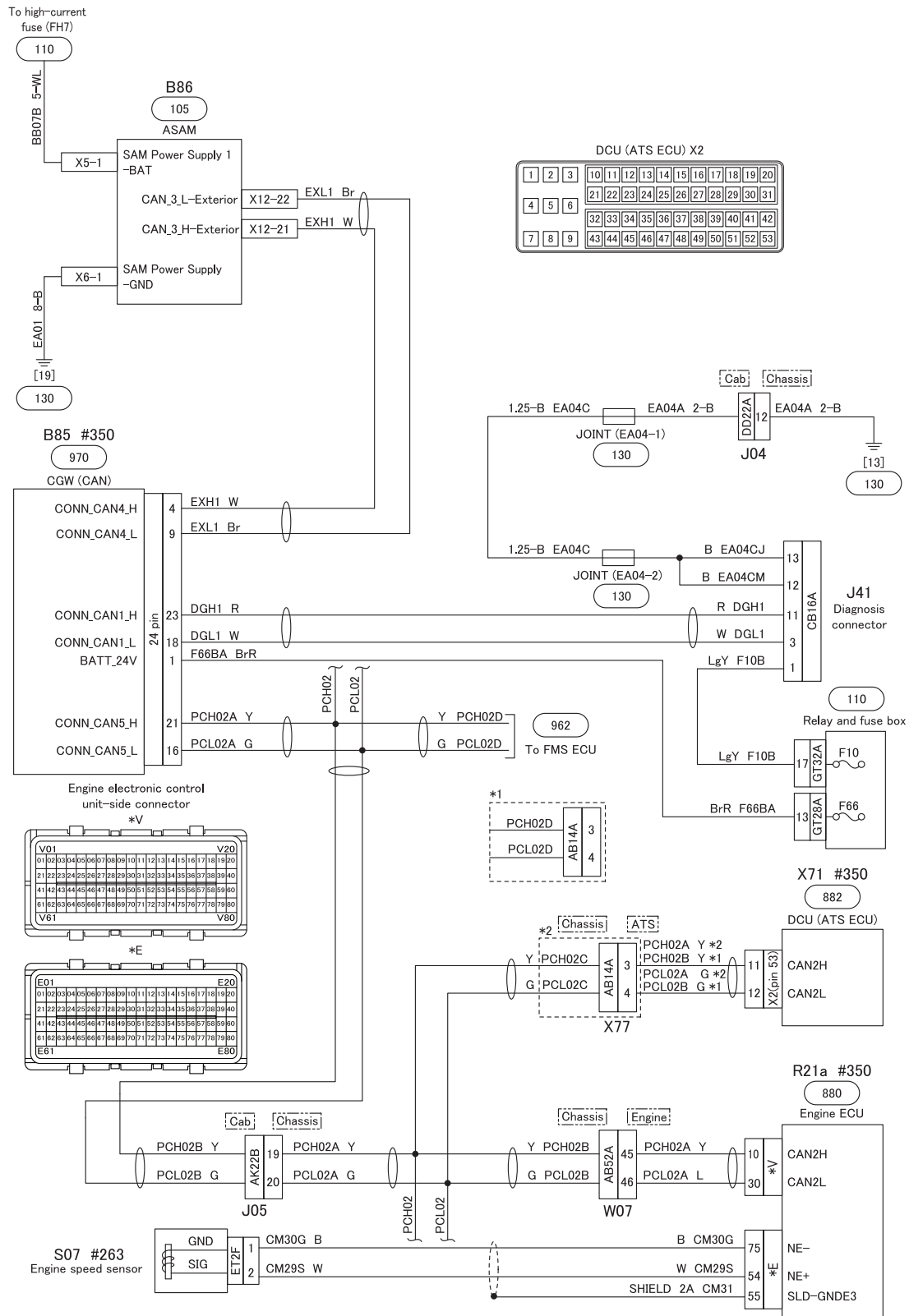


ENGINE STARTING CIRCUIT (3)

(3/3)

*1 : FM,FN

*2 : FK



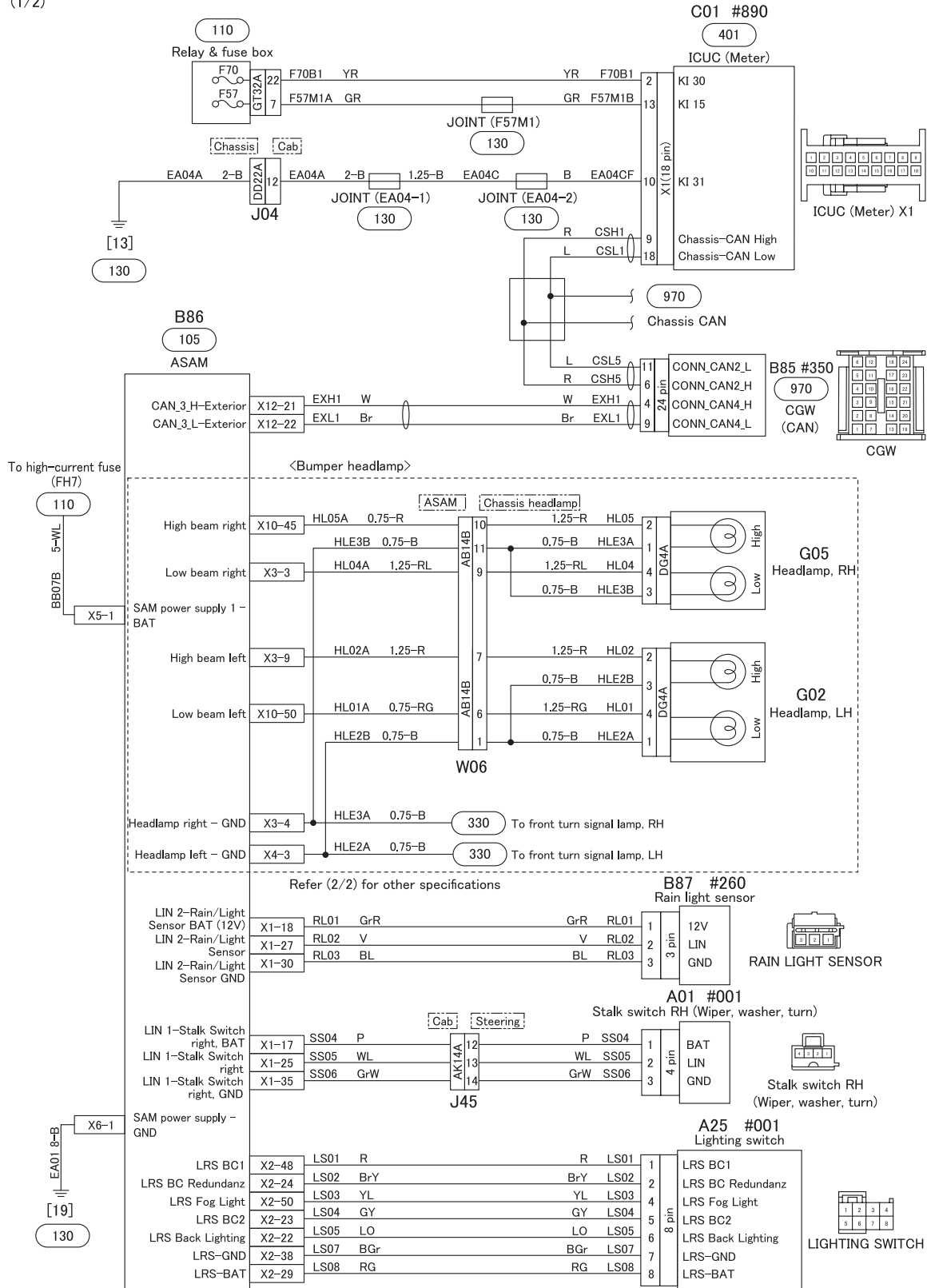
210-614827-3





HEADLAMP CIRCUIT (1)

(1/2)



310-614827-1

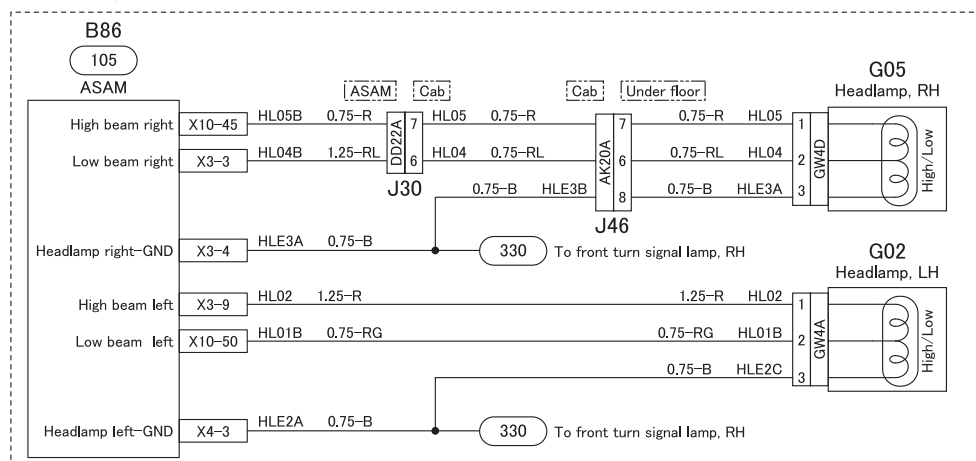




HEADLAMP CIRCUIT (2)

(2/2)

<Cab headlamp>

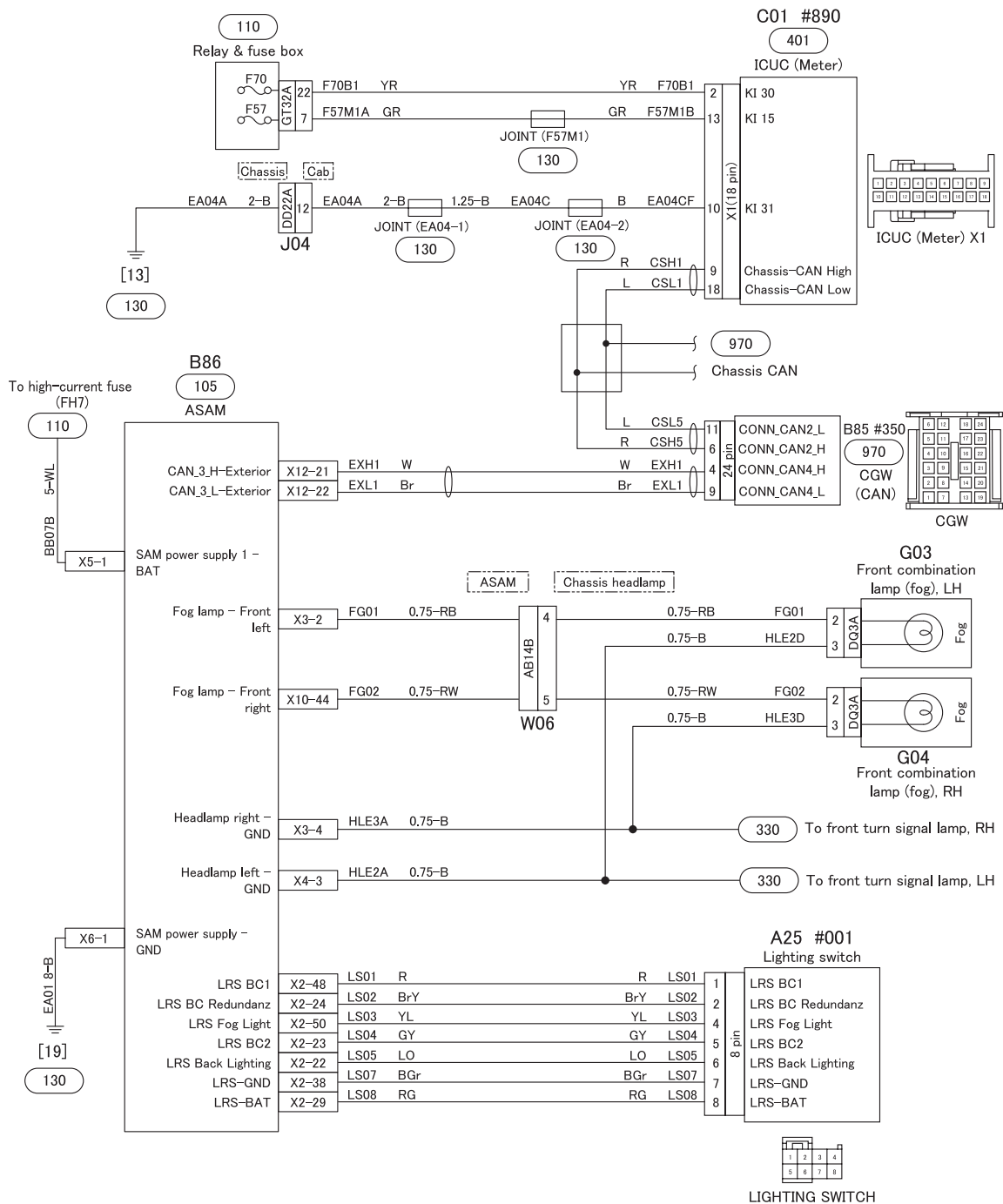


310-614827-2





FOG LAMP CIRCUIT



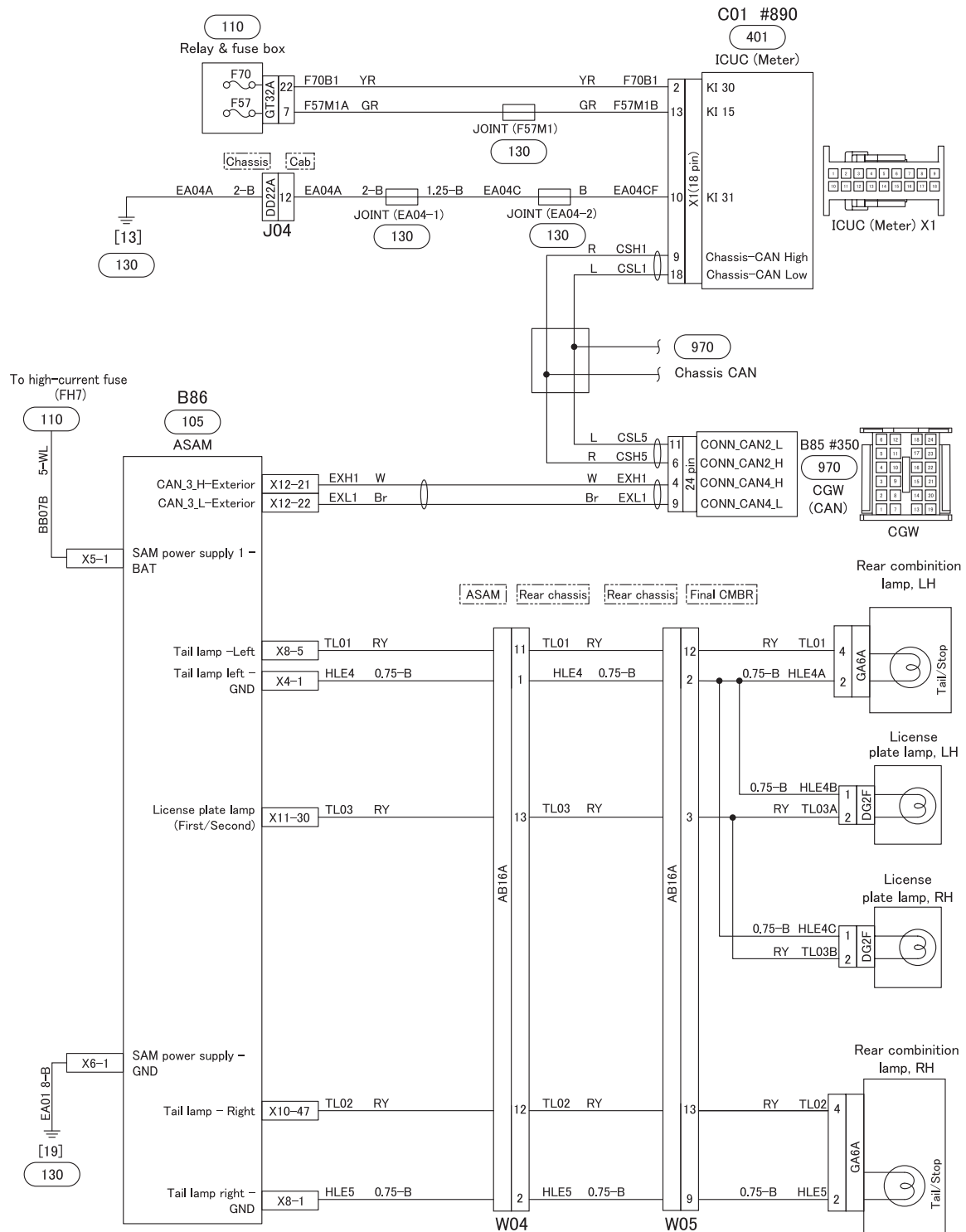
315-614827





TAIL, POSITION AND LISENCE PLATE LAMPS CIRCUIT (1)

(1/2)



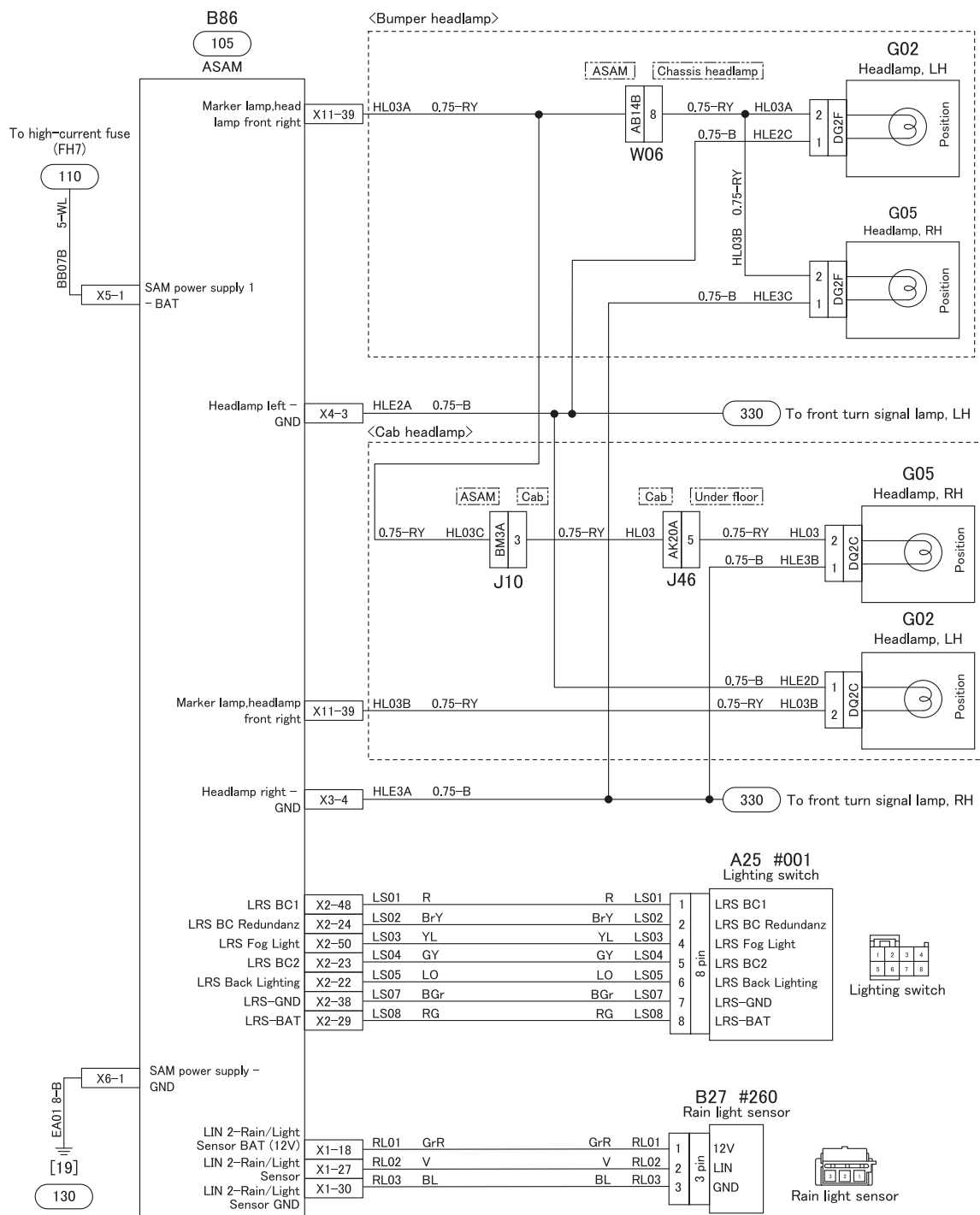
320-614827-1





TAIL, POSITION AND LISENCE PLATE LAMPS CIRCUIT (2)

(2/2)



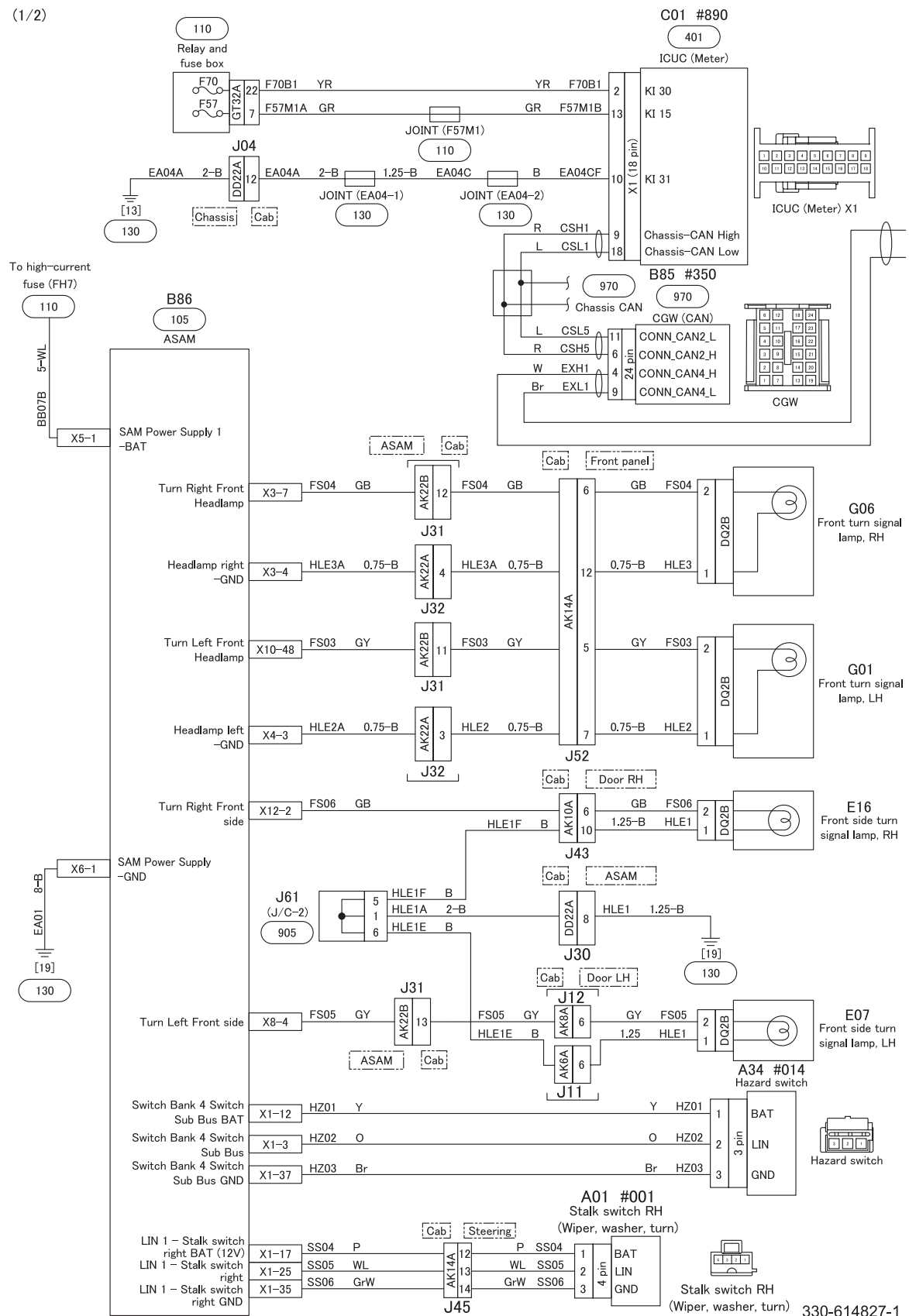
320-614827-2





TURN SIGNAL AND HAZARD LAMP CIRCUIT (1)

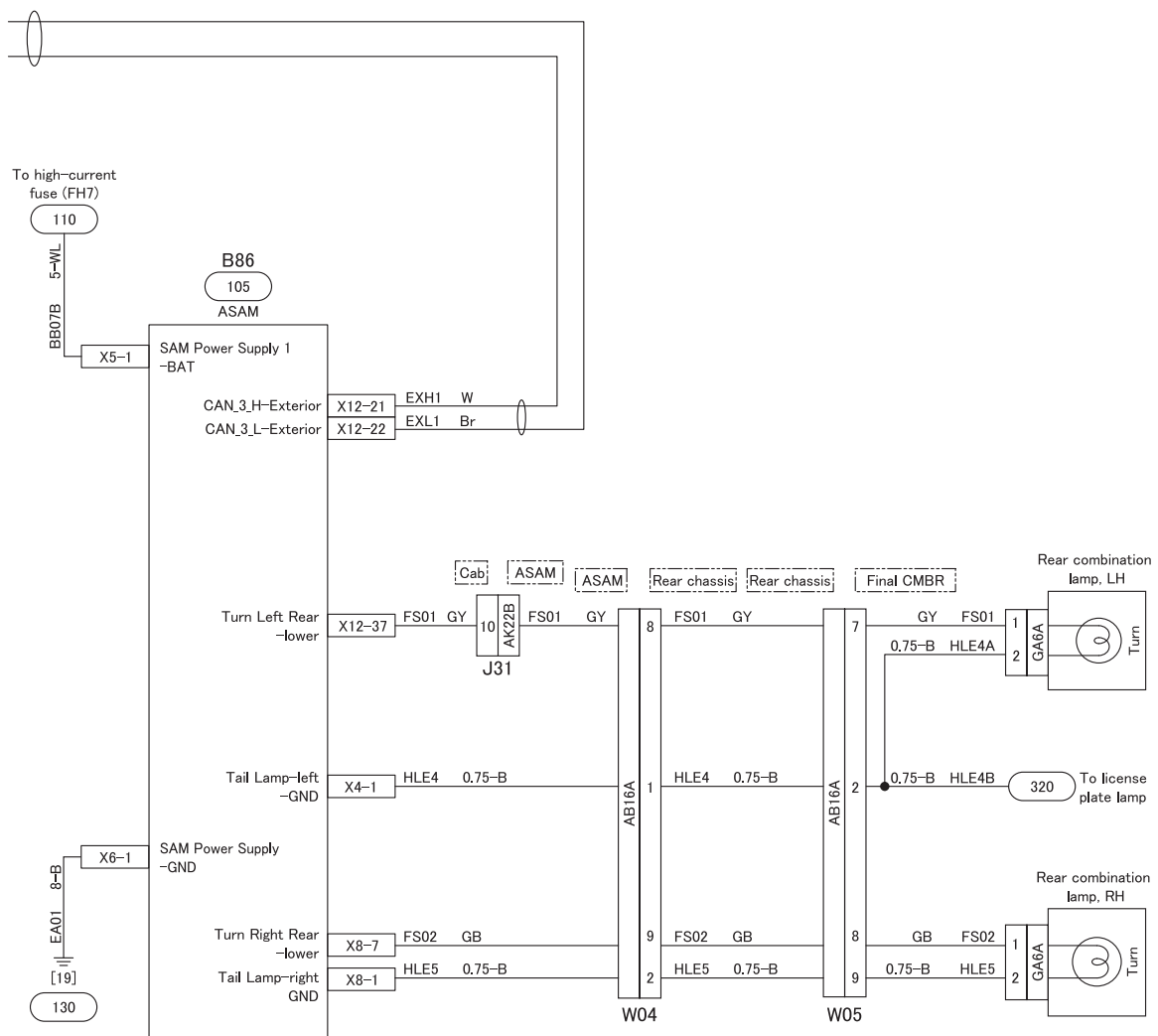
(1/2)





TURN SIGNAL AND HAZARD LAMP CIRCUIT (2)

(2/2)

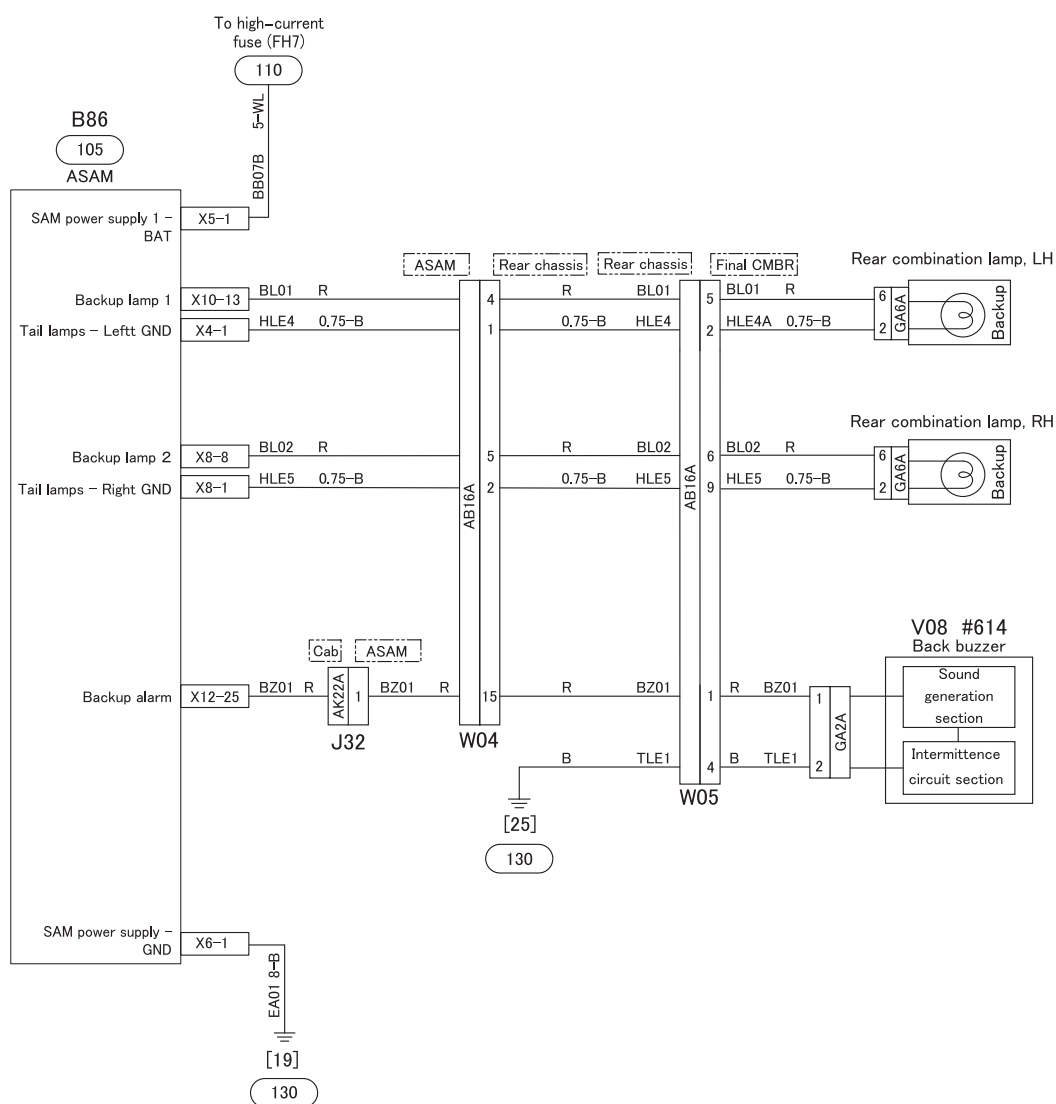


330-614827-2





BACKUP LAMP CIRCUIT

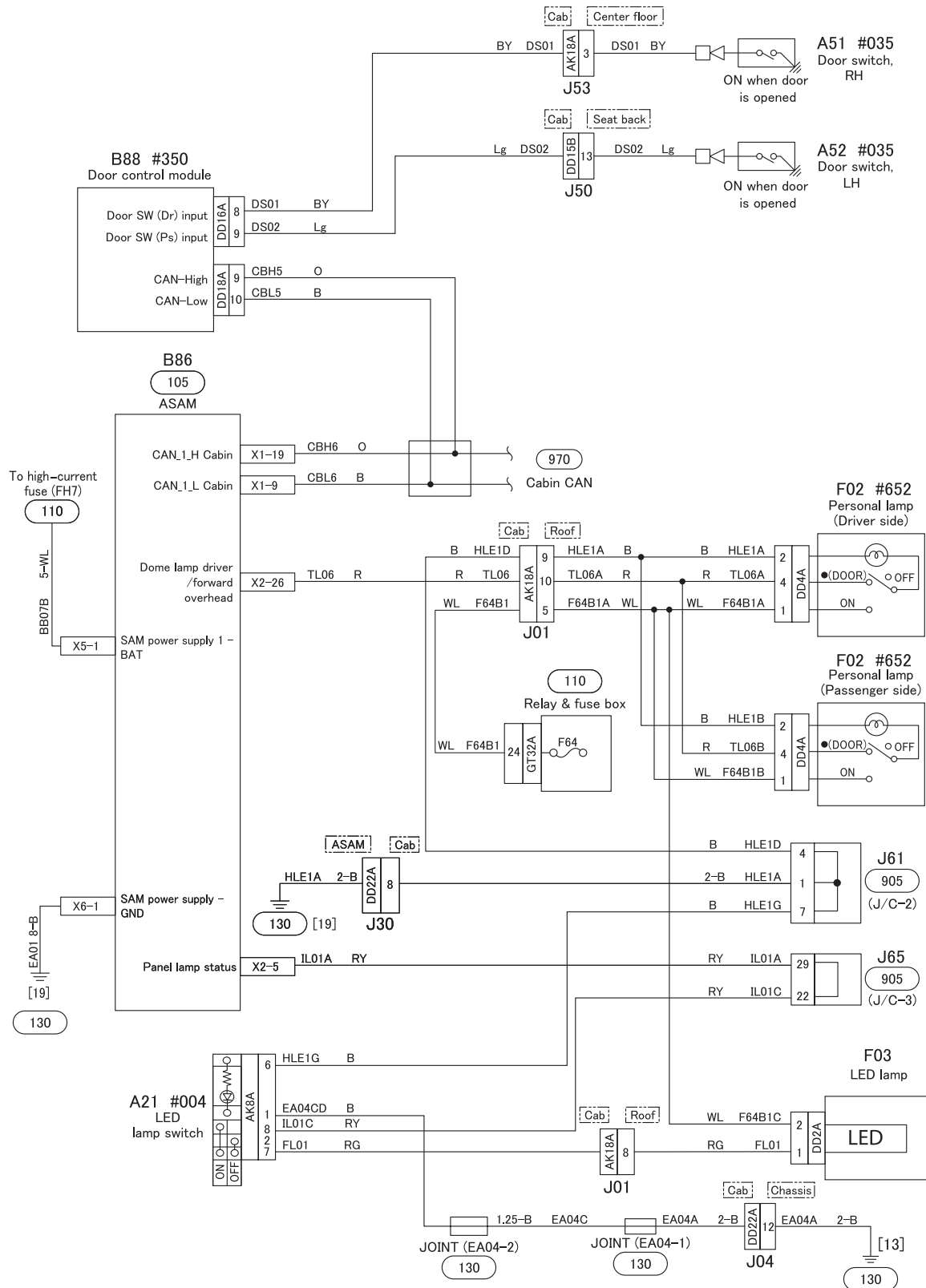


340-614827





ROOM LAMP CIRCUIT

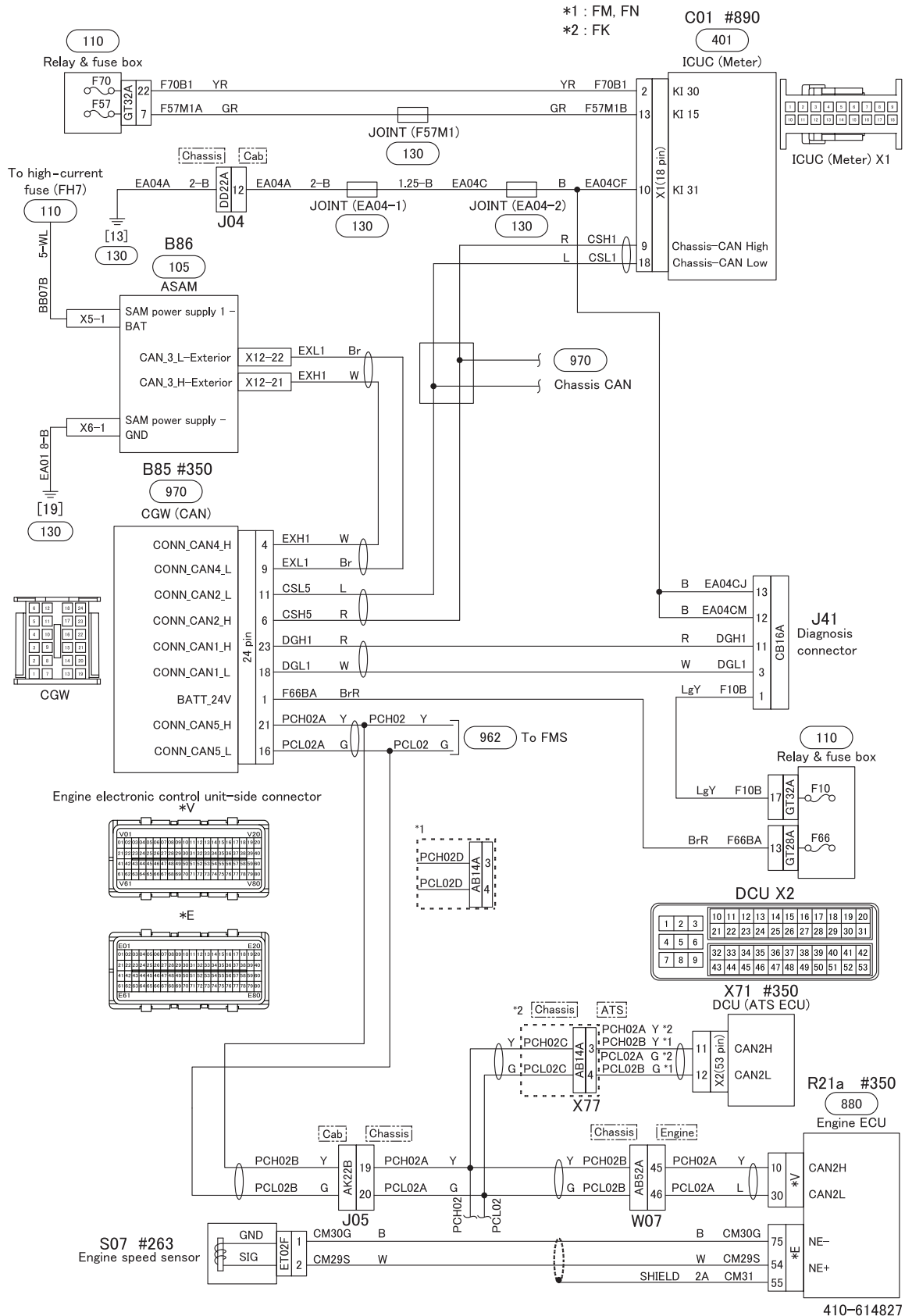


345-614827



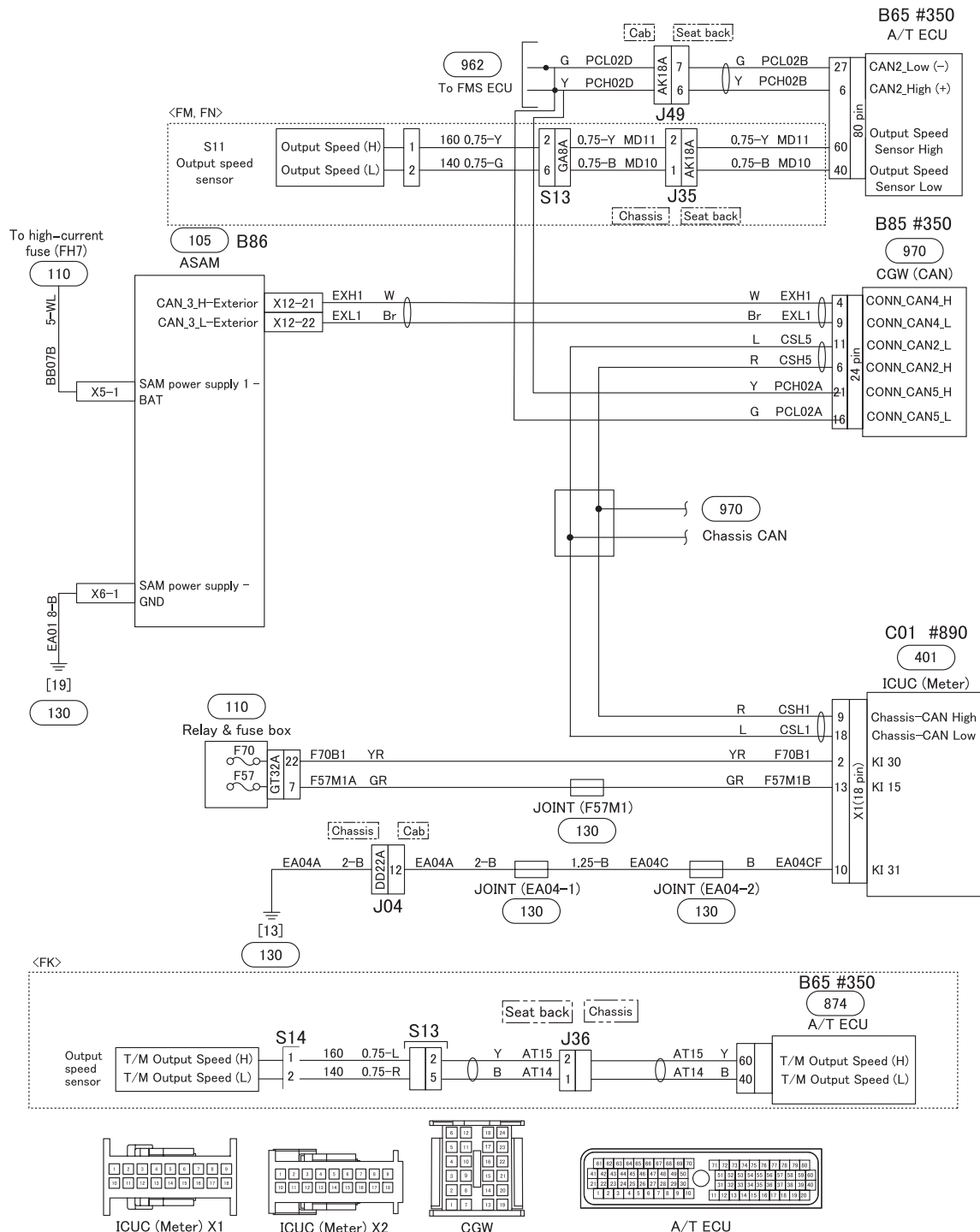


TACHOMETER CIRCUIT





SPEEDOMETER CIRCUIT



412-614827

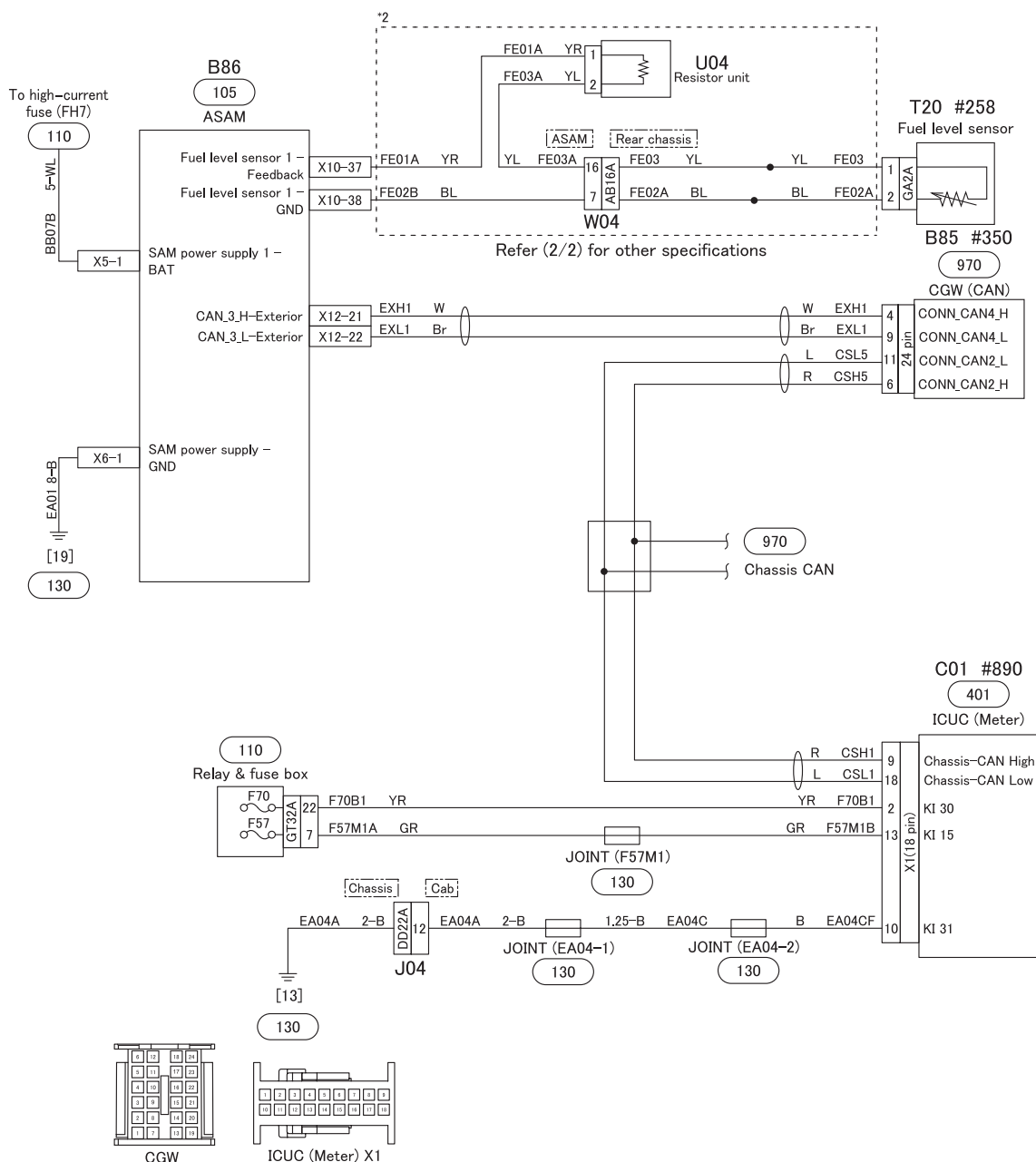




FUEL GAUGE CIRCUIT(1)

(1/2)

- *1 : FM with 300L fuel tank
- *2 : FK with 200L fuel tank
- *3 : FN with 200L fuel tank
- *4 : FN with 300L fuel tank



420-614827-1

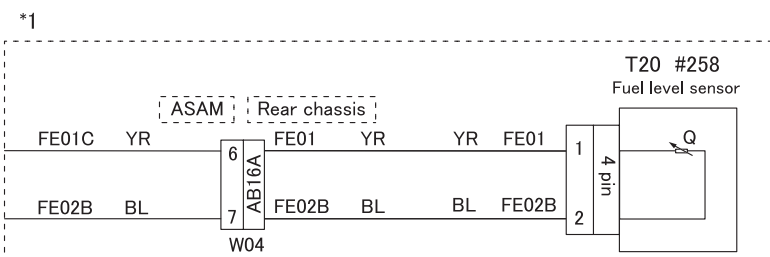
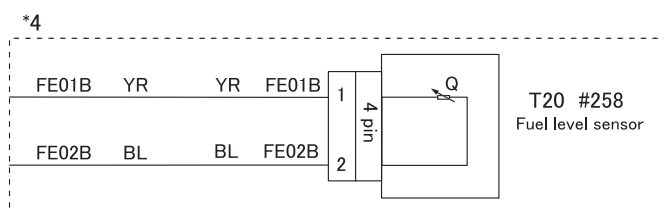
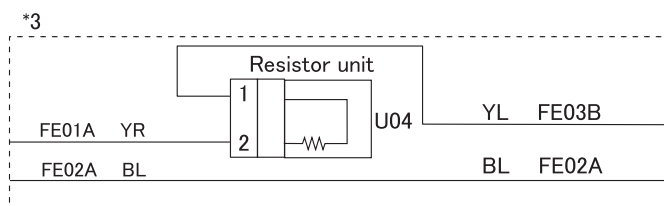




FUEL GAUGE CIRCUIT(2)

(2/2)

- *1 : FM with 300L fuel tank
- *2 : FK with 200L fuel tank
- *3 : FN with 200L fuel tank
- *4 : FN with 300L fuel tank

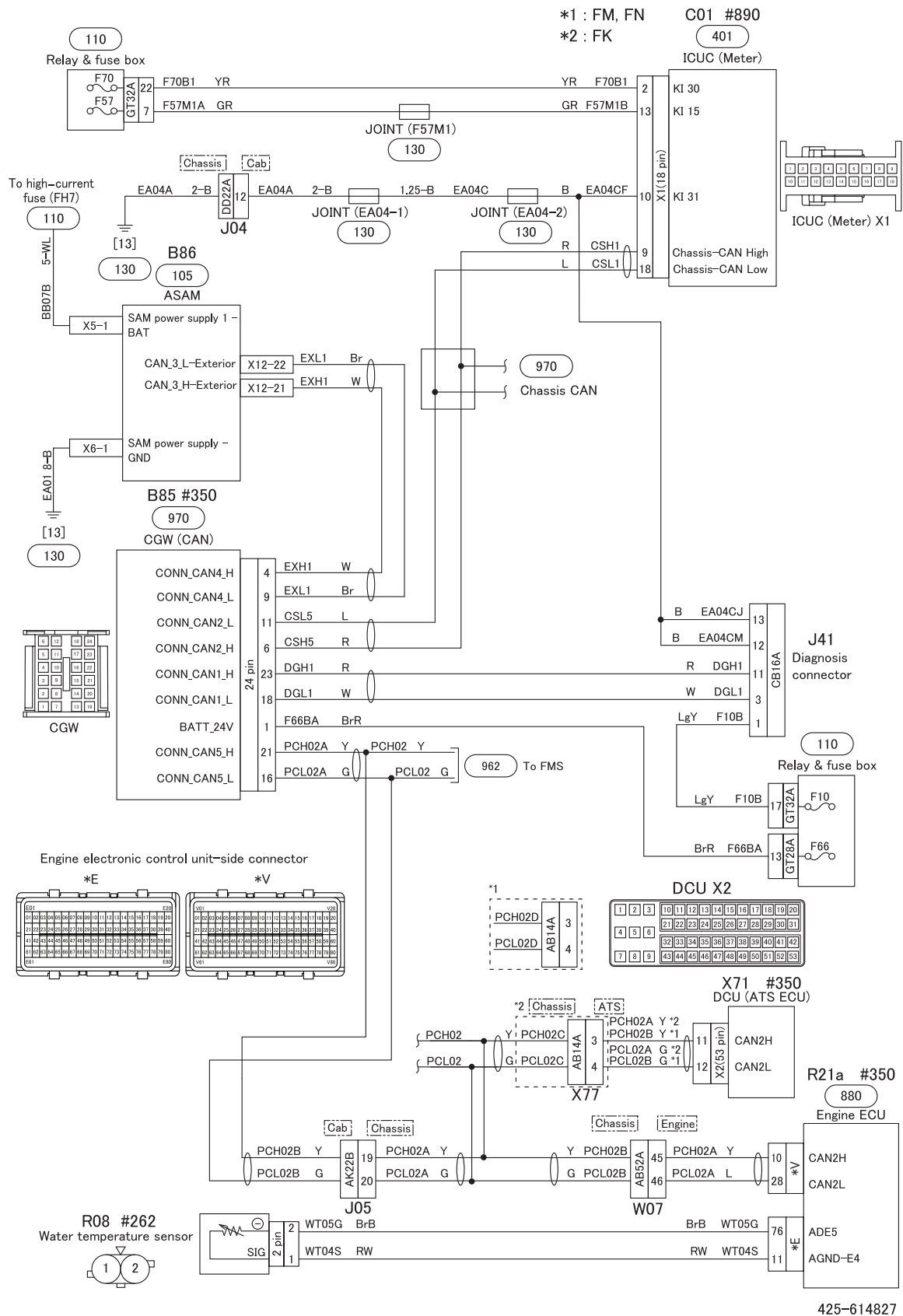


420-614827-2



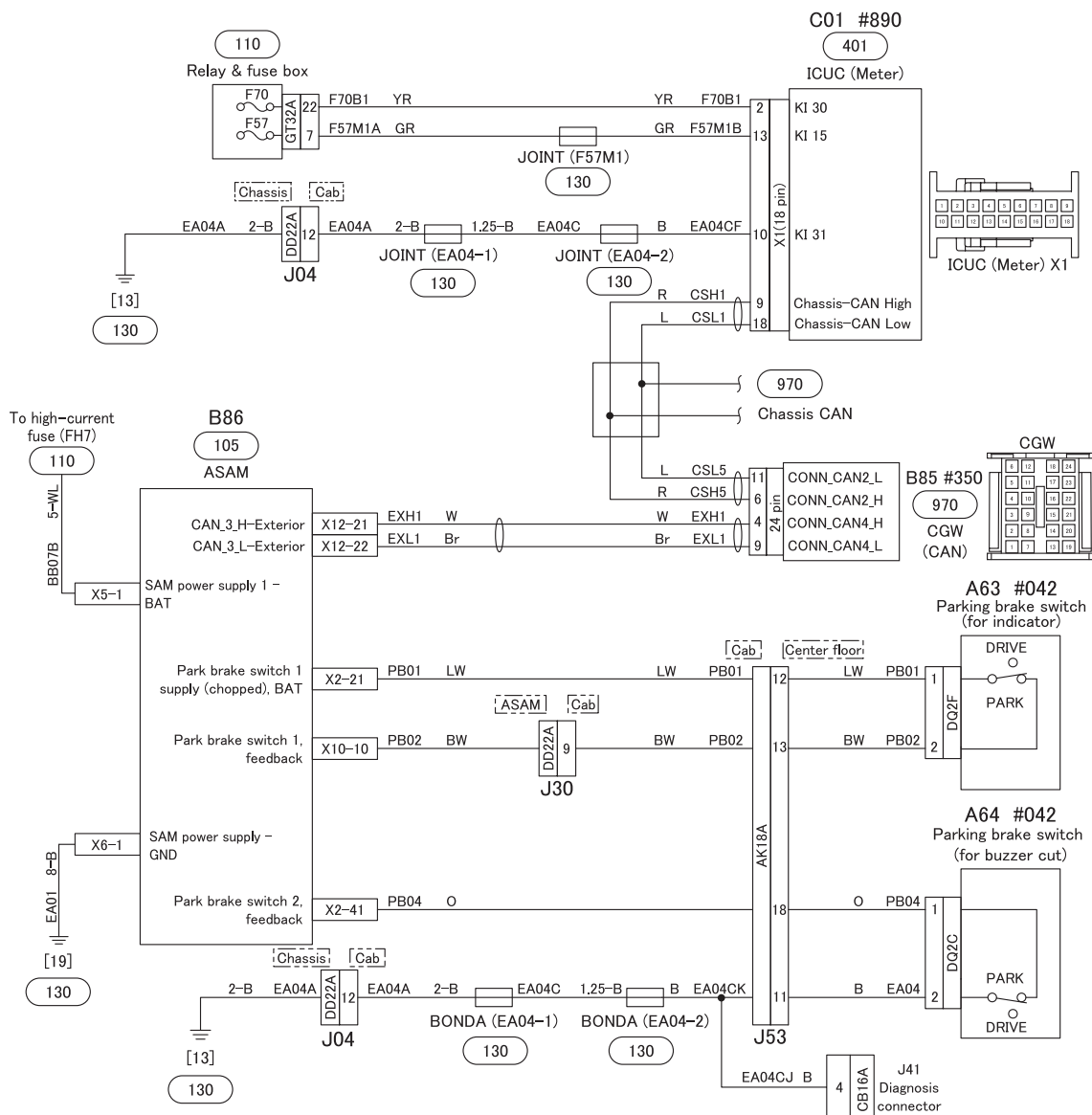


WATER TEMPERATURE GAUGE CIRCUIT





PARKING BRAKE INDICATOR CIRCUIT

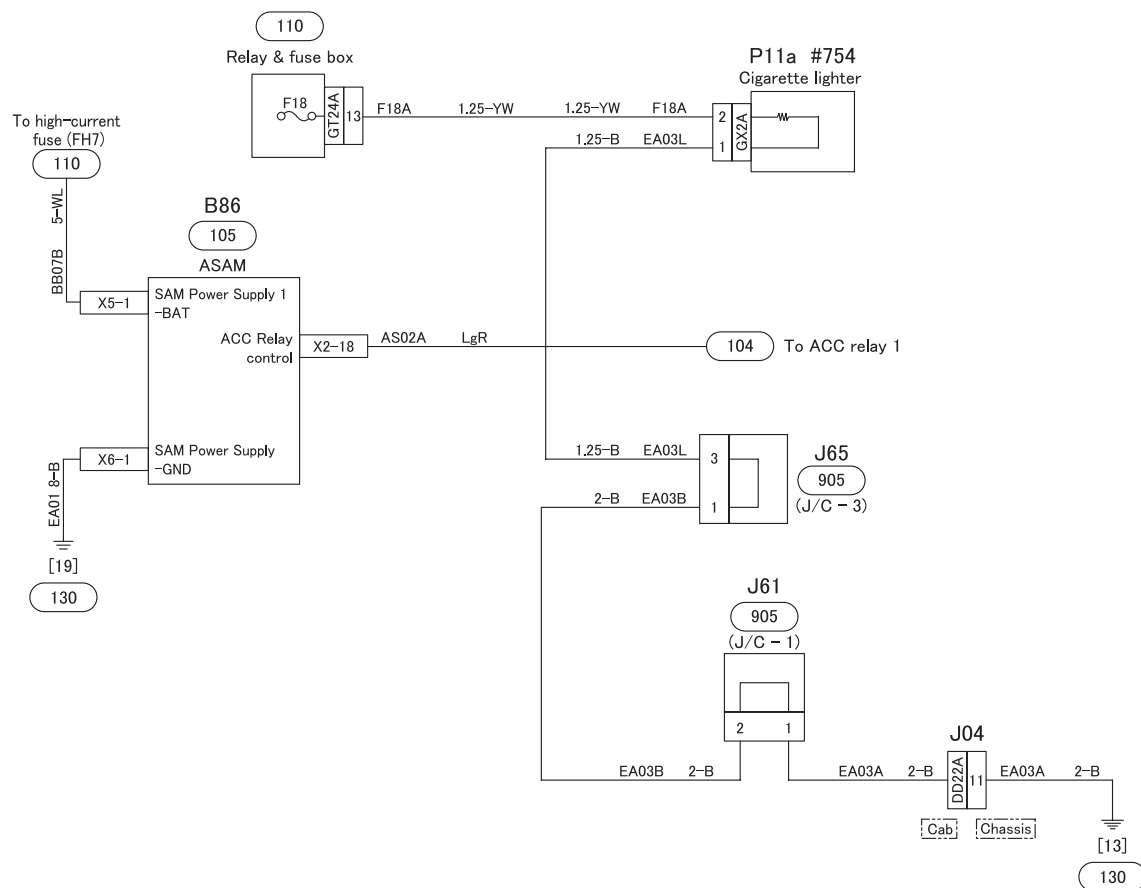


510-614827





CIGARETTE LIGHTER CIRCUIT

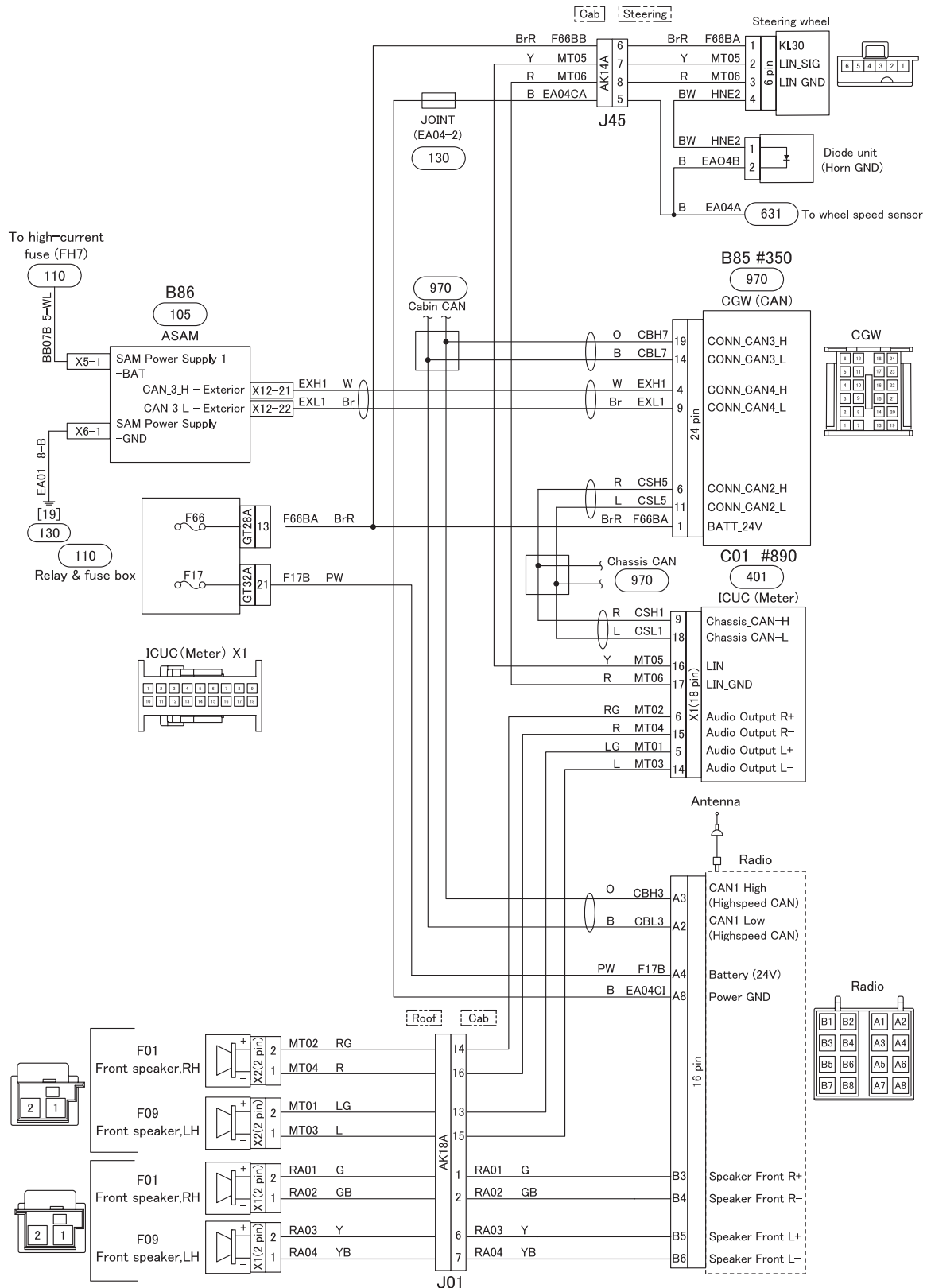


610-614827





AUDIO CIRCUIT

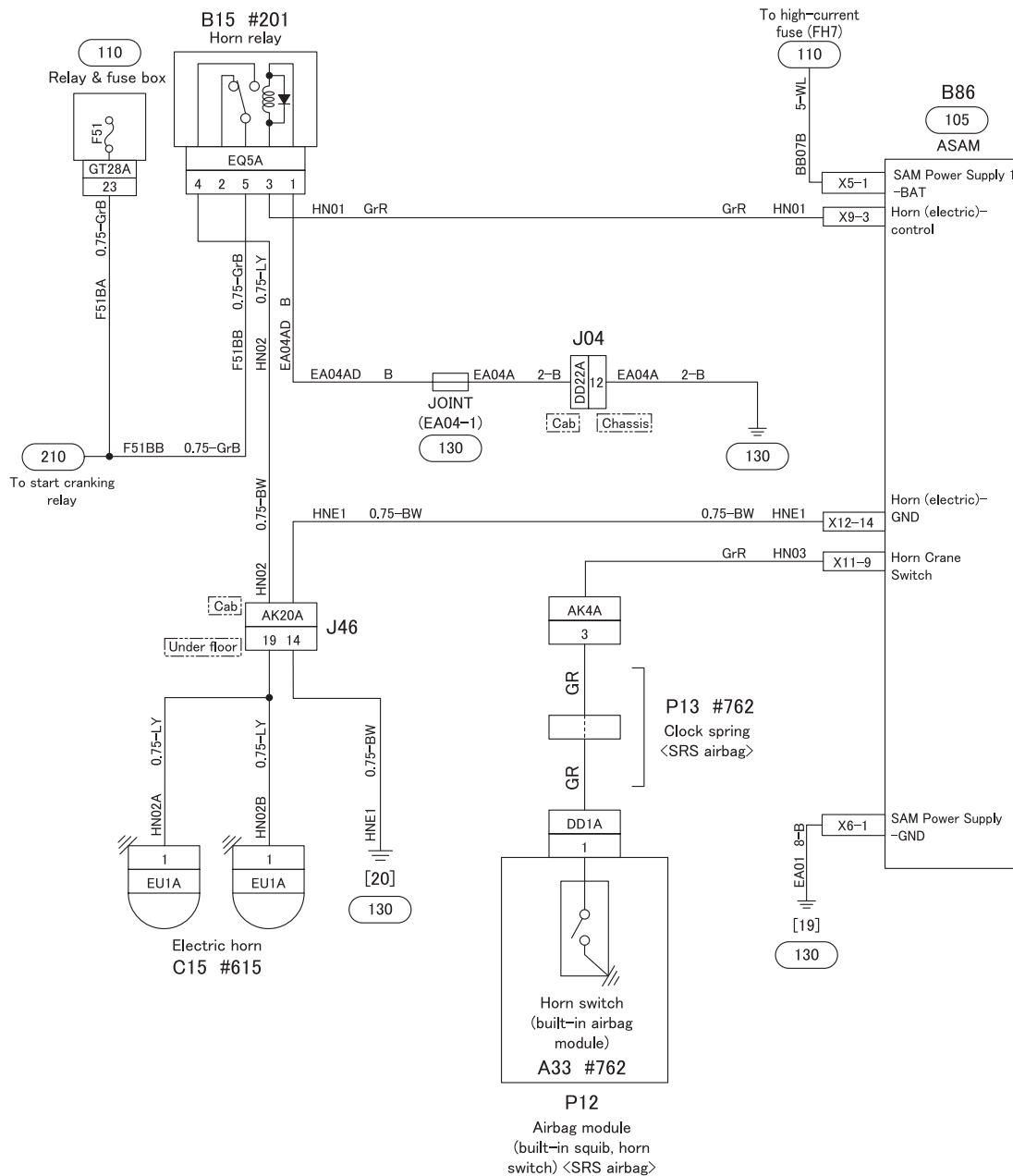


612-614827





HORN CIRCUIT

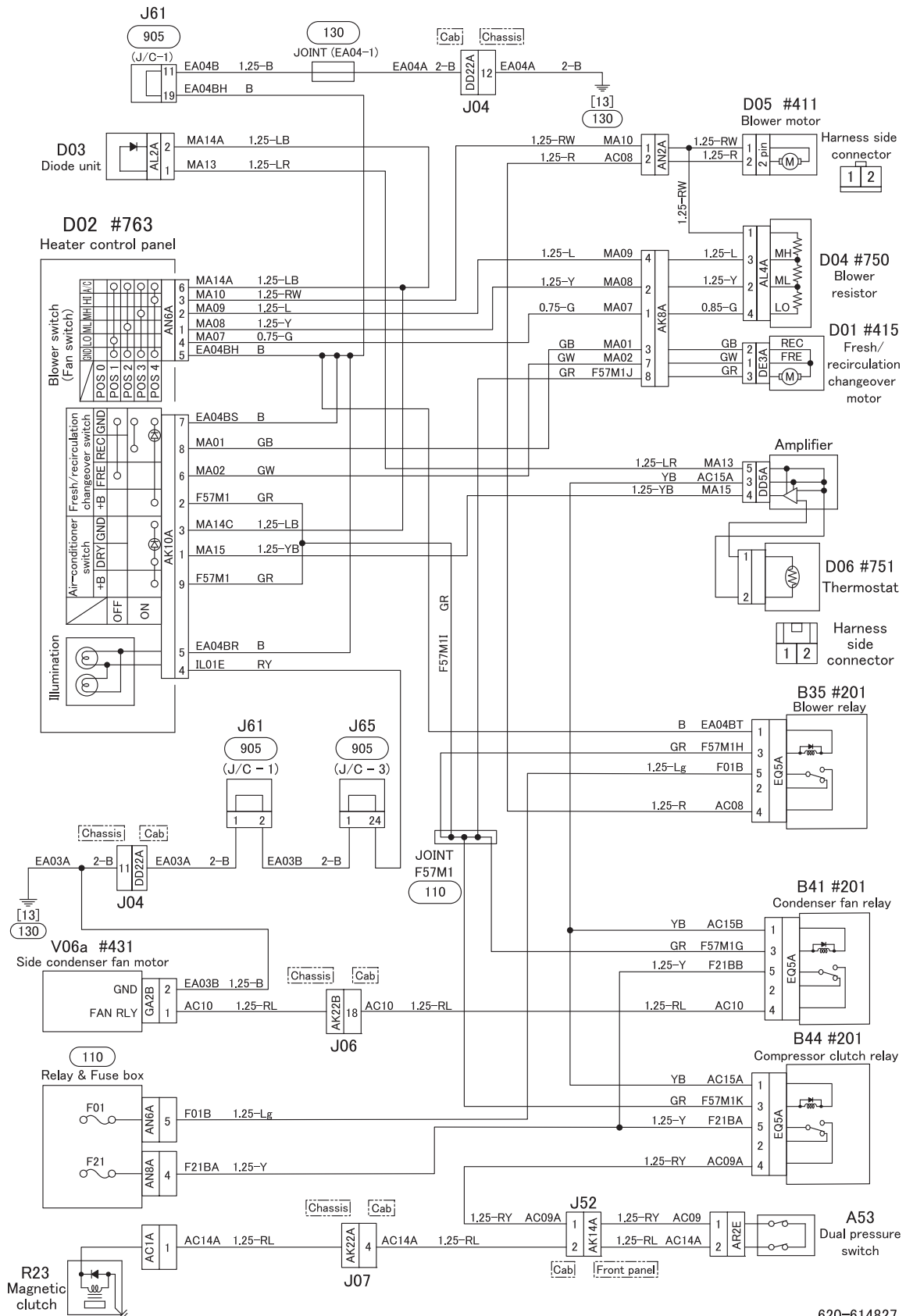


616-614827



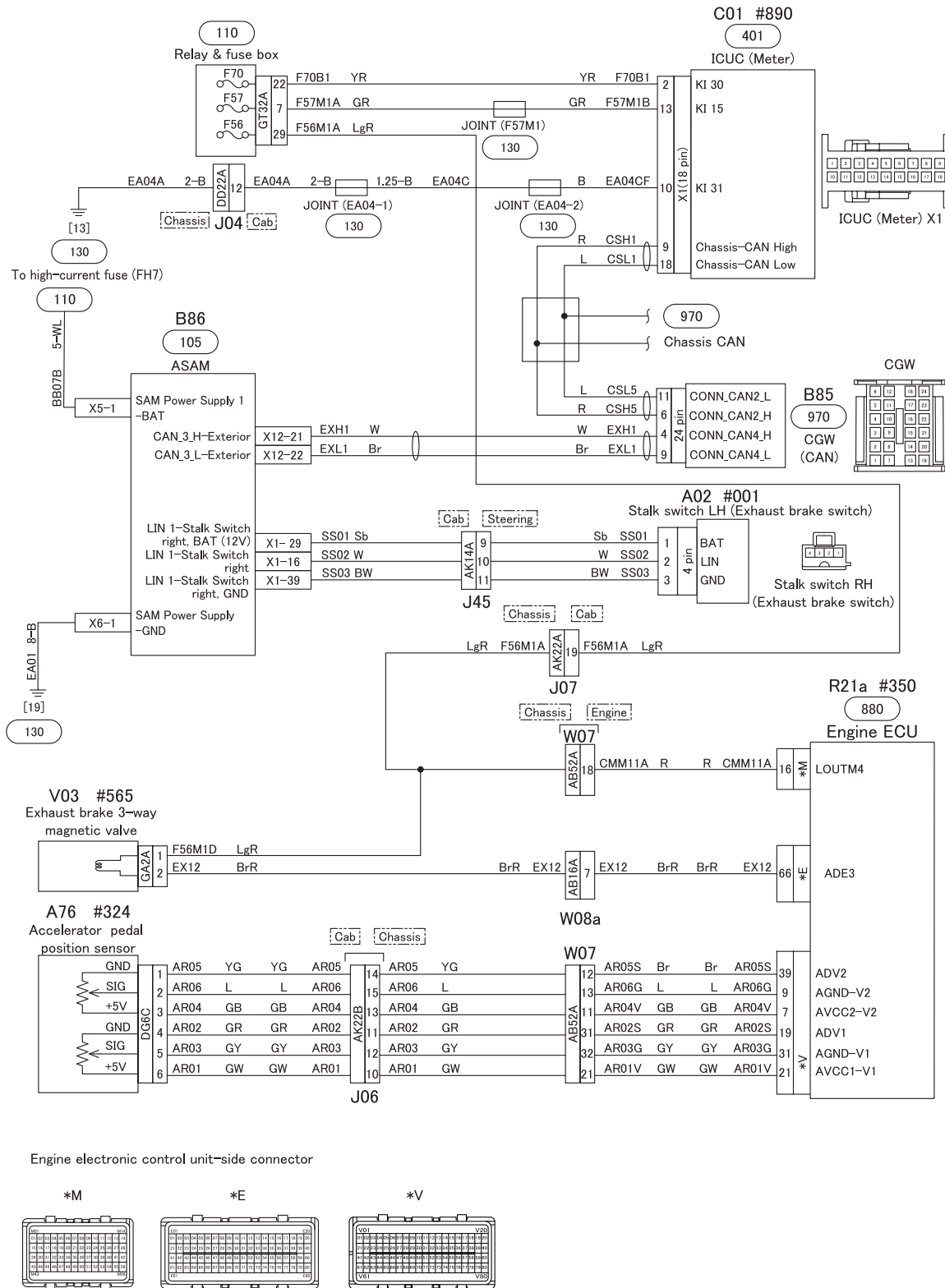


AIR CONDITIONER CIRCUIT





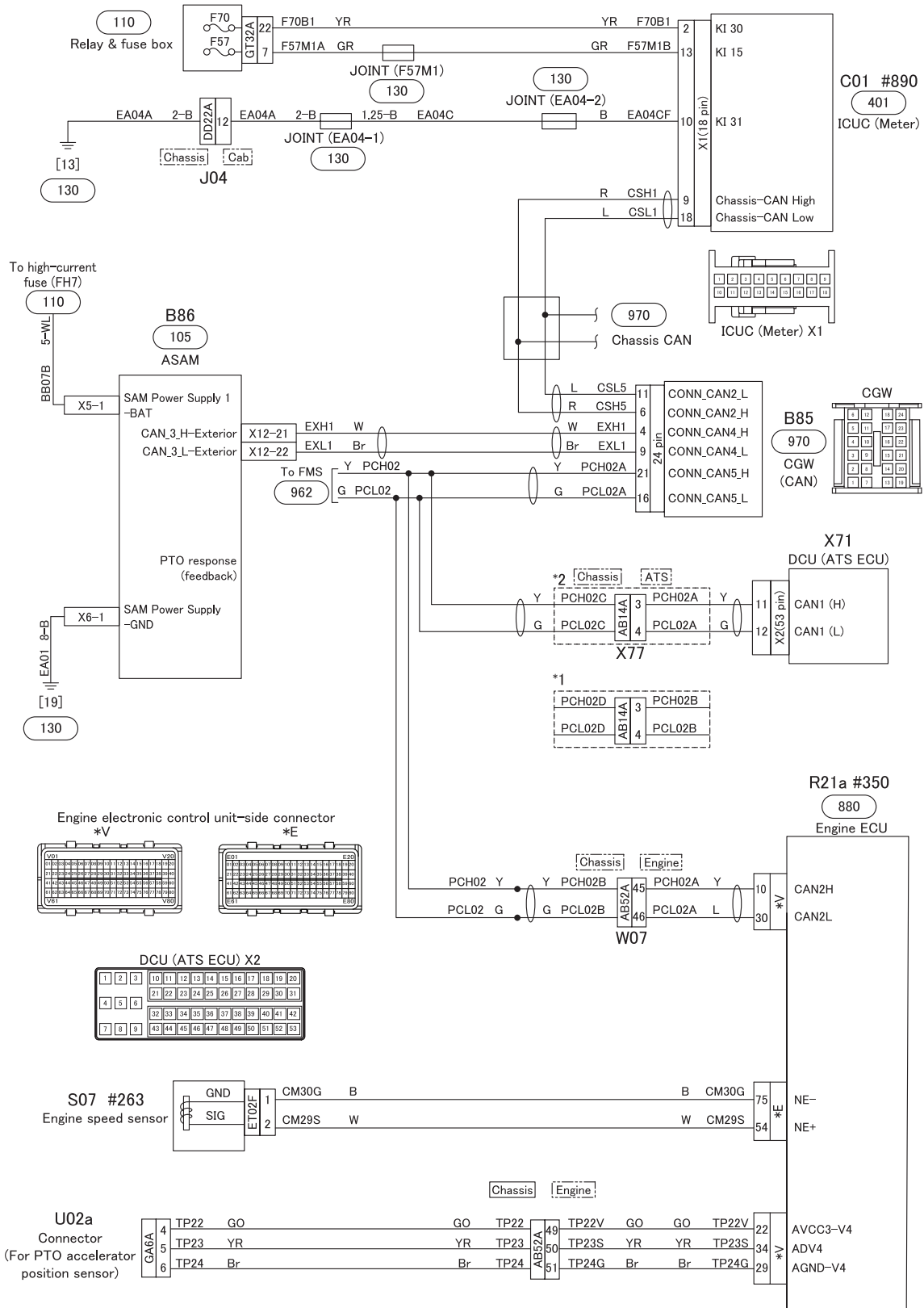
EXHAUST BRAKE CIRCUIT



710-614827



TRANSMISSION POWER TAKE-OFF CIRCUIT



850-614827

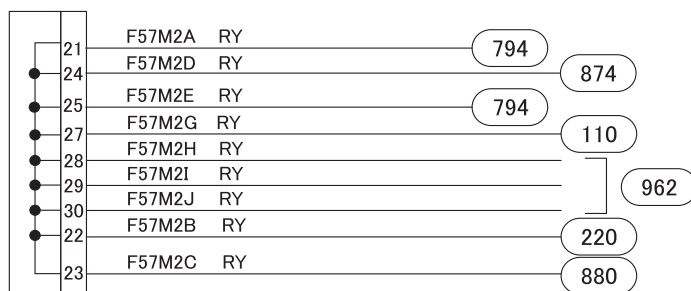
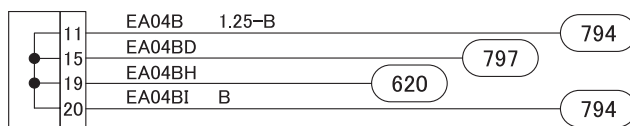
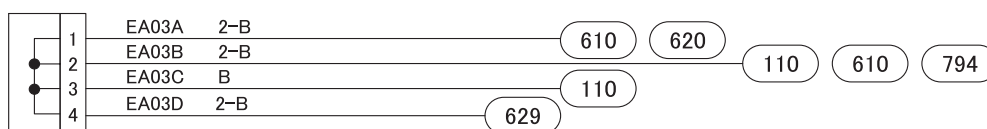




JOINT CONNECTOR (J/C) (1)

<J/C-1>

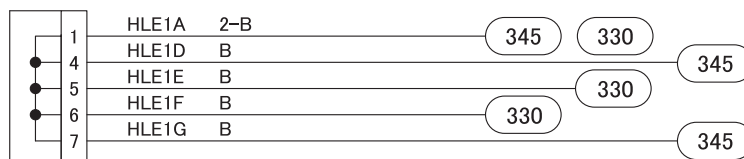
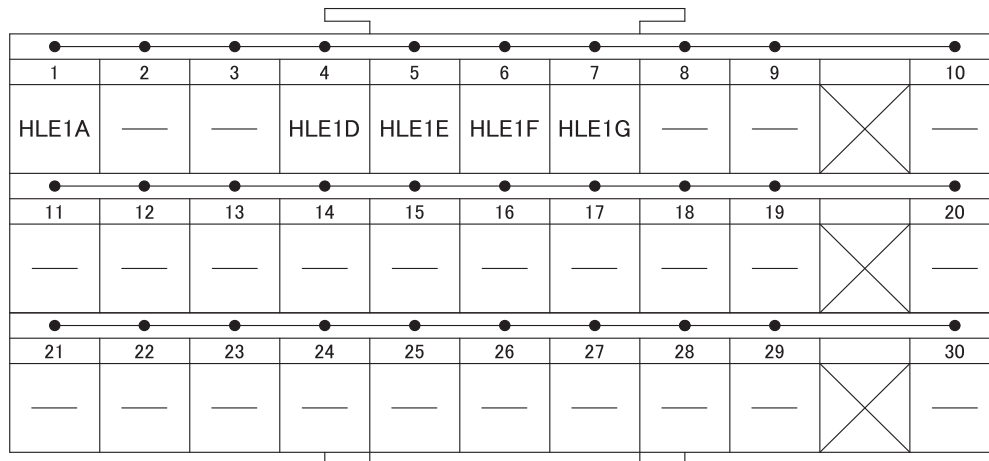
1	2	3	4	5	6	7	8	9		10
EA03A	EA03B	EA03C	EA03D	—	—	—	—	—		—
11	12	13	14	15	16	17	18	19		20
EA04B	—	—	—	EA04BD	—	—	—	EA04BH		EA04BI
21	22	23	24	25	26	27	28	29		30
F57M2A	—	—	F57M2D	F57M2E	—	F57M2G	F57M2H	F57M2I		F57M2J





JOINT CONNECTOR (J/C) (2)

<J/C-2>

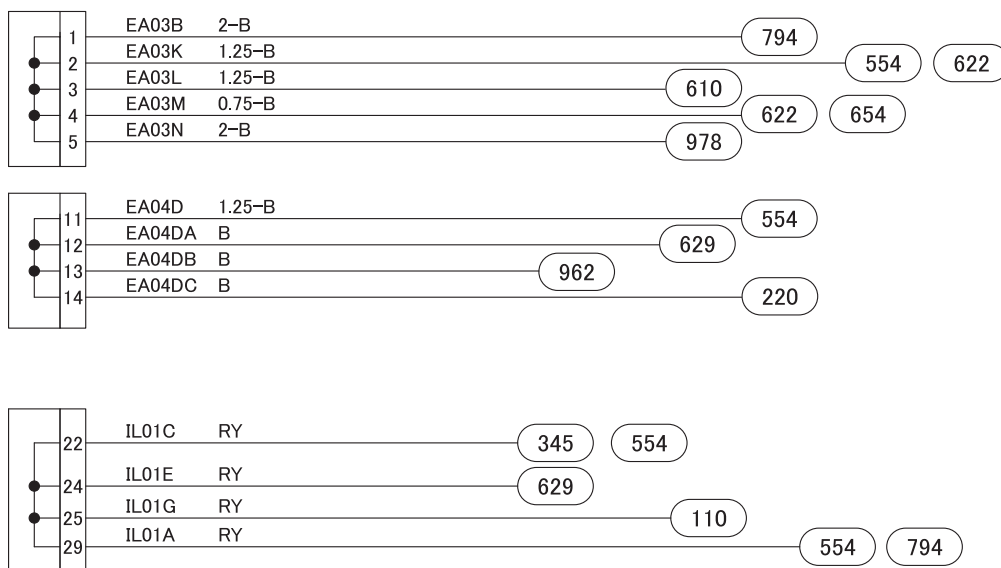




JOINT CONNECTOR (J/C) (3)

<J/C-3>


1	2	3	4	5	6	7	8	9	10
EA03B	EA03K	EA03L	EA03M	EA03N	—	—	—	—	—
11	12	13	14	15	16	17	18	19	20
EA04D	EA04DA	EA04DB	EA04DC	—	—	—	—	—	—
21	22	23	24	25	26	27	28	29	30
—	IL01C	—	IL01E	IL01G	—	—	—	IL01A	—



905-614827-3



Revision record <Electrical systems section>

	23. December. 2022	Correction
-	31. March. 2021	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.

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Body/equipment mounting directives

<Electrical systems section>

FK.FM.FN

Australia

MITSUBISHI FUSO TRUCK & BUS CORPORATIONDecember. 2022 TM3FA
