

***HYUNDAI TRUCK***  
**BODY BUILDER BOOK**



2005. 6

**HYUNDAI MOTOR COMPANY**  
**COMMERCIAL VEHICLE ENGINEERING & RESEARCH CENTER**

## **INTRODUCTION**

Thanks for you to use HMC products consistently. This book provides general work instructions for vehicles needed for all sorts of structure modifications by using the trucks produced in the HMC. This book describes cautions needed for installation, modification, or alteration on the HMC Chassis with cab. Comply with instructions of this book to secure safety and serviceability of vehicles. Also, this book describes regulations and standards.

1. In case the details of this book don't conform to the those of VEHICLE MODEL BOOK, the latter shall prevail.
2. In case revision or additional details happen to detailed information, they are notified by the workshop communication and option revising communication. Therefore details previously published should be revised or added.
3. If you find any error or mistake in writing, or have any questions about installation of bodies on the HMC chassis, please contact with HMC freely.
4. Detailed information in this book can be altered without notice beforehand according to engineering revision

HMC all the time endeavors to improve technology and to manufacture perfect vehicles. HMC wishes that this book did good to you, and is appreciative of you to make habitual use of its vehicles regularly.

HYUNDAI MOTOR COMPANY  
COMMERCIAL VEHICLE ENGINEERING & RESEARCH CENTER

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## 1. GENERAL

### 1-1. Cautions regarding installation, modification or alteration

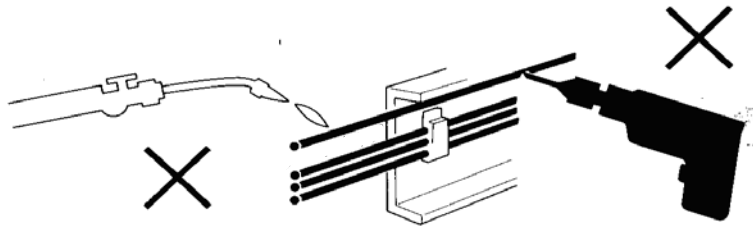
#### 1-1-1. Cautions needed for planning

After investigating on safety, rapidity, maintenance and applicable regulation fully, HMC sends out goods. When installing, modification, or alteration, be careful not to give a damage to the function here above stated.

- 1) Be careful not to give a revision to the security parts and the parts for measure to noise. Be free from heavy accident and regulation violation.
- 2) Be careful to strength, rigidity, regulation and safety of the installed , modified parts as well as light weight.
- 3) For weight difference between the left and right of fittings, the left/right slant to be within the standard.
- 4) Install the installation · modification parts in order that operation, detachment and check/repair be easily done.
- 5) Install the installation · modification parts in order that front view be prevented.

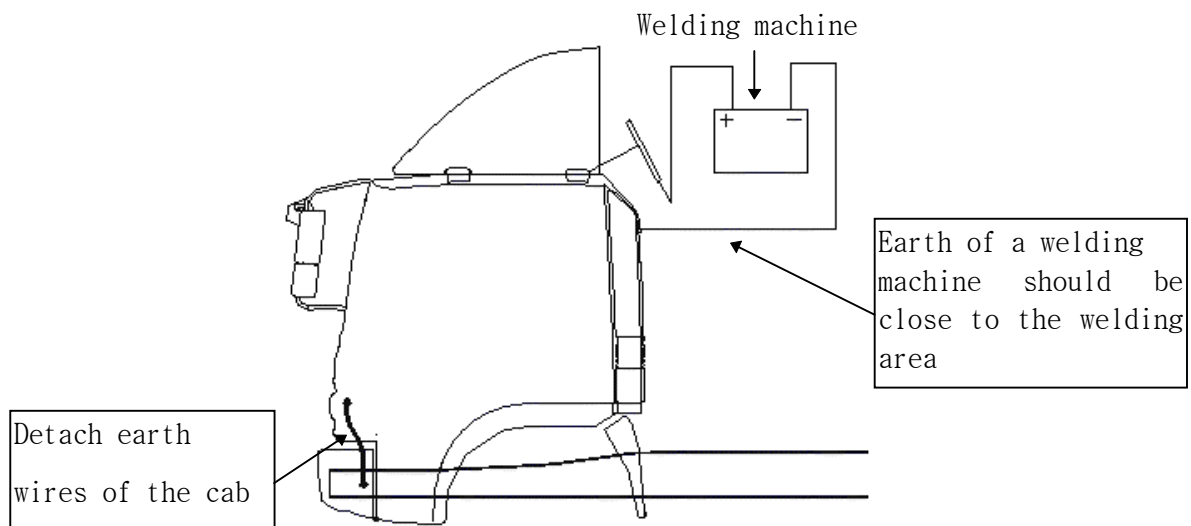
#### 1-1-2 Cautions needed for work procedures

Considering damage to Chassis components, be free from damage in function. Because particularly damage of the brake device, pipe wiring and security component results in heavy accident, be free from damage securely.

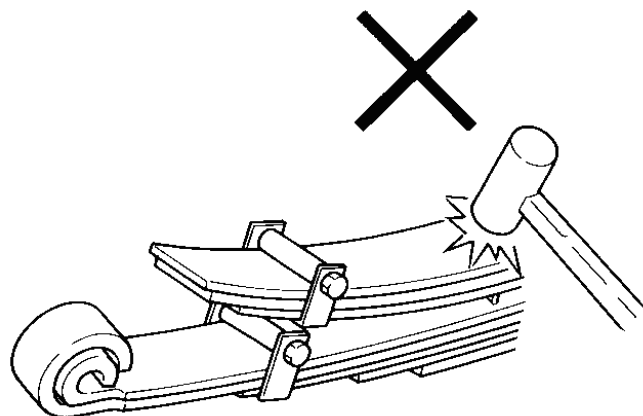


1)With a view to preventing a damage of an electrical equipment in electric welding, conform to the followings without fail.

- (1)'Off' of the starter switch
- (2)Disconnect the minus(-) terminal of battery, place covers
- (3)Detach earth wires of the cab to chassis
- (4)Detach the connector(control unit etc.)
- (5)Earth of a welding machine should be close to the welding area by all means.



2)In detaching the leaf spring, the anticorrosive applied to the leaf surface not to be damaged.



3) Before the painting, cover the followings with a masking tape etc.

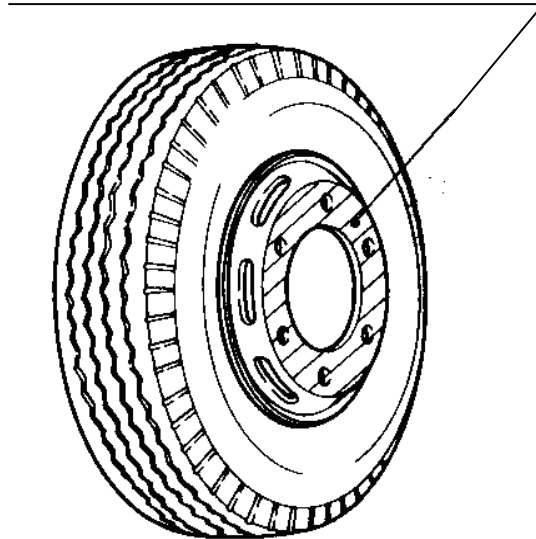
- (1) The contact face of disc wheel and brake drum, the contact face between disc wheels in double tires.
- (2) The contact face of wheel nut (p/shaft, PTO output shaft)
- (3) Matching flange of drive shaft
- (4) Piston rod of hydraulic pressure and air pressure cylinder
- (5) Each control valve of air line
- (6) Bleeder of transmission and axle
- (7) Disc brake
- (8) Caution plate, name plate etc.
- (9) Entrance of air cleaner air duct

In drying paint, the temperature of painted parts should be less than 80 ° C.

When detaching wheels for painting repair, assemble them, as conforming to the fastening torque of wheel nuts.



In case of a double tire, don't  
paint shaded area.



4) For the purpose of preventing the damage and a fire of battery related equipment, conform to the followings in treating battery.

- (1) During the revolution of engine, don't disconnect the terminal of a battery cable, or take it out.
- (2) When starting by traction (prohibition in an automatic vehicle), connect the battery by all means.
- (3) In case of a rapid charging of battery, detach a cable from the both terminal (+), (-) of battery.
- (4) The cables which are wired close to exhaust system to be prevented with heat resisting external material.
- (5) In wiring a cable, be free from mutual contact.

### 1-1-3. Cautions needed for finishing and sending out products

When finishing procedure, after checking that a little performance and function are secured , send out products.










- 1)After the practical driving, check securely that there are strange vibration on driving, noise, incompleteness of driving safety and other defects.
- 2)In case working, maintenance/repair, etc. on the HMC chassis are revised by the installation, modification, or alteration, make out the WORKSHOP MANUAL, and attach the label for warning signal and loading to the vehicle.

## 1-2. Standard fastening torque

- 1) Use the bolt and nut specified by regulations, and fasten the area which is not mentioned particularly with the torque of the following table.
- 2) Screw section and connected area should be drying condition.
- 3) In case of the strength classification of nuts and bolts (or stud bolt) differs, fasten with the torque of the bolt side.







HEXAGON bolt, Stud bolt

Unit : N · m(kgf · m)

Strength Dia(mm)	4T		7T		8T	
	 		 		 	
M5	2~3 (0.2~0.3)	—	4~6 (0.4~0.6)	—	5~7 (0.5~0.7)	—
M6	4~6 (0.4~0.6)	—	7~11 (0.7~1.1)	—	8~12 (0.8~1.2)	—
M8	9~14 (0.9~1.4)	—	17~26 (1.7~2.6)	—	20~29 (2.0~3.0)	—
M10	19~28 (1.9~2.8)	18~26 (1.8~2.7)	36~52 (3.5~5.5)	33~49 (3.5~5.0)	45~60 (4.5~6.0)	41~59 (4.3~6.9)
M12	34~50 (3.4~5.0)	31~46 (3.1~4.7)	70~95 (7.0~9.5)	65~85 (6.5~8.5)	85~110 (8.5~11)	75~100 (7.5~10)
M14	60~85 (6.0~8.5)	55~75 (5.5~7.5)	120~160 (12~16)	110~140 (11~14)	130~180 (13~18)	120~160 (12~17)
M16	90~130 (9.5~13)	90~120 (9.0~12)	180~240 (18~24)	160~220 (16~22)	200~270 (20~27)	190~260 (19~26)
M18	140~190 (14~19)	120~160 (12~16)	260~340 (25~35)	220~290 (22~30)	290~390 (30~40)	260~340 (26~35)
M20	190~260 (19~26)	170~230 (17~23)	350~470 (36~48)	320~420 (32~43)	410~550 (41~56)	370~490 (37~50)
M22	260~340 (26~35)	230~300 (23~31)	470~640 (48~65)	430~570 (43~58)	550~740 (56~75)	490~670 (50~68)
M24	340~450 (34~46)	290~390 (29~40)	630~840 (63~86)	530~730 (55~74)	730~980 (74~100)	630~840 (64~86)






HEXAGON FLANGE BOLT

Unit : N · m(kgf · m)

Strength	4T		7T		8T	
						
Dia(mm)						
M6	4~6 (0.4~0.6)	-	8~12 (0.8~1.2)	-	9~14 (0.9~1.4)	-
M8	10~15 (1.0~1.5)	-	19~28 (1.9~2.8)	-	22~32 (2.2~3.3)	-
M10	21~30 (2.1~3.1)	20~28 (1.9~2.9)	39~58 (3.9~6.0)	37~53 (3.6~5.4)	50~65 (5.0~6.5)	45~65 (4.5~6.5)
M12	38~54 (3.8~5.5)	35~51 (3.4~5.2)	80~110 (8.0~11)	70~95 (7.0~9.5)	90~120 (9.0~12)	85~110 (8.5~11)

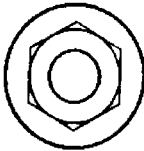
HEXAGON NUT

Unit : N · m(kgf · m)

Strength	4T		6T			
						
Dia(mm)						
	standard screw	bottle-neck screw	standard screw	bottle-neck screw		
M5	2~3 (0.2~0.3)	-	4~6 (0.4~0.6)	-		
M6	4~6 (0.4~0.6)	-	7~11 (0.7~1.1)	-		
M8	9~14 (0.9~1.4)	-	17~26 (1.7~2.6)	-		
M10	19~28 (1.9~2.8)	18~26 (1.8~2.7)	36~52 (3.5~5.5)	33~49 (3.5~5.0)		
M12	35~50 (3.5~5.0)	31~46 (3.1~4.7)	70~95 (7.0~9.5)	65~85 (6.5~8.5)		
M14	60~85 (6.0~8.5)	55~75 (5.5~7.5)	120~160 (12~16)	110~140 (11~14)		
M16	90~130 (9.5~13)	90~120 (9.0~12)	180~240 (18~24)	160~220 (16~22)		
M18	140~190 (14~19)	120~160 (12~16)	260~340 (25~35)	220~290 (22~30)		
M20	190~260 (19~26)	170~230 (17~23)	350~470 (36~48)	320~420 (32~43)		
M22	260~340 (26~35)	230~300 (23~31)	470~640 (48~65)	430~570 (43~58)		
M24	340~450 (34~46)	290~390 (29~40)	630~840 (63~86)	540~730 (55~74)		

HEXAGON FLANGE NUT

Unit : N · m(kgf · m)

Strength	4T	
		
Dia(mm)	standard screw	bottle-neck screw
	M6	4~6 (0.4~0.6)
M8	10~15 (1.0~1.5)	-
M10	21~30 (2.1~3.1)	20~28 (1.9~2.9)
M12	38~54 (3.8~5.5)	35~51 (3.4~5.2)

### 1-3. PL (Product Liability) confrontation

HMC does not guarantee for the extensive damage resulted from defects of installed components (fittings, modified or altered components on the HMC chassis). Therefore install · modify or alter according to the followings.

#### 1) Safety engineering

- (1) Enough guarantee of safety/trust and maintenance service of safety device.
- (2) Safe-keeping of technical data, drawings and documents used in developing.

## 2)Manufacturing quality

- (1)Be free from wrong production, defective parts and assembling badness. And secure quality
- (2)Performance of quality validation check and safe-keeping of check record.



## 3)Revision of workshop manual and warning signals

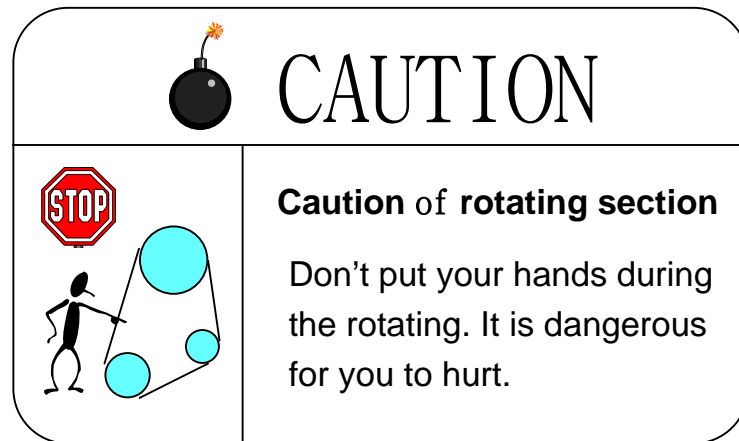
### (1)Workshop manual

Record an effect on bodies, vehicles and others concretely, when making wrong installation. (Be free from obscure expressions which cause misunderstanding)

(2)Warning signals

Attach warning signals with comprehensible sentences, large letters and pictures to the position where the Body and Equipment.

Manufactures can take a look at them securely in order to use vehicle more safely.



## 2. BODY AND EQUIPMENT INSTALLATION PRECAUTIONS

### 2-1. Fittings and chassis parts

2-1-1. Caution needed for the rear end of the cab and the front end of the rear body

Since the cab-over type truck has the cab tilt locking mechanism at the rear of the cab (including the safety lever), power steering oil reservoir or radiator water reservoir, ENG. oil filler, oil dipstick, check · refilling of oil for the auto T/M, be sure that the clearance between the rear end of the cab and the front end of the rear body is larger than the clearance indicated in the particular instructions 'Vehicle Model Book' to facilitate maintenance servicing.

But, install protectors to prevent goods on board from dropping into between the rear wall of the cab and the deck in the dump trucks.

2-1-2. Clearance between the rear parts of the ENG., T/M and fittings

Secure that the clearance between the rear parts of the ENG., T/M and fittings is the following dimensions.

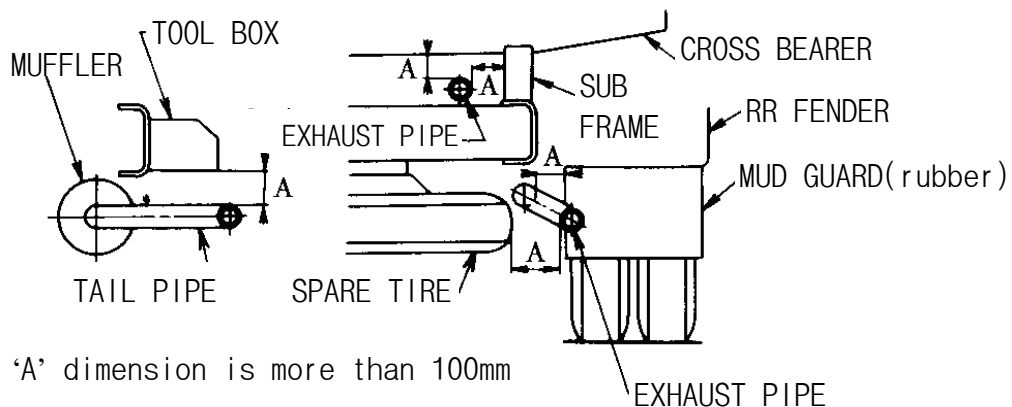


	Minimum clearance	N.B.
Near parts of the engine and fittings	Up and Down 40mm Left and Right 30mm Front and rear 25mm	Particularly, cable wiring should be attention in the dump and mixer type truck
Near parts of the T/M and fittings	25mm	Exclusion the back side of T/M
Detachment of the clutch and T/M	Large-sized vehicle 160mm Medium-sized vehicle 140mm Small-sized vehicle 100mm	To pull out the clutch spline shaft in accordance with slant
Detachment of the T/M upper cover	Large-sized vehicle 150mm Medium-sized vehicle 120mm Small-sized vehicle 100mm	

### 2-1-3. Clearance between the exhaust system and fittings

1) Make sure that the clearance between the installation and the inflammable materials (such as wood, rubber), the muffler and the exhaust pipe is 100mm MIN.

If otherwise, install the heat insulator.



'A' dimension is more than 100mm

FIG 2-1-1

- 2) For the clearance between the installation and any body or other equipment or device except those here above stated, electric wiring, control valve of hydraulic equipment, hydraulic hose, refer to the 3-1-5 'exhaust system'.
- 3) Don't install an installation to the outlet direction of the exhaust pipe.
- 4) In modifying or altering the exhaust pipe, the pipe opening section to be rear direction (left to be within  $30^\circ$ , right and up not to be allowed). And be free from heat loss of the near parts due to exhaust gas.

#### 2-1-4. Clearance of the propeller shaft and fittings

Clearance of the propeller shaft (including the flange) and installation to be 50mm MIN. in large-sized trucks and 25mm MIN. (up and down, left and right) in small-sized/medium-sized trucks in contrast with the floating quantity of P/Shaft. Refer to the 'Body Builder Drw'g' for the floating quantity of rear axle.

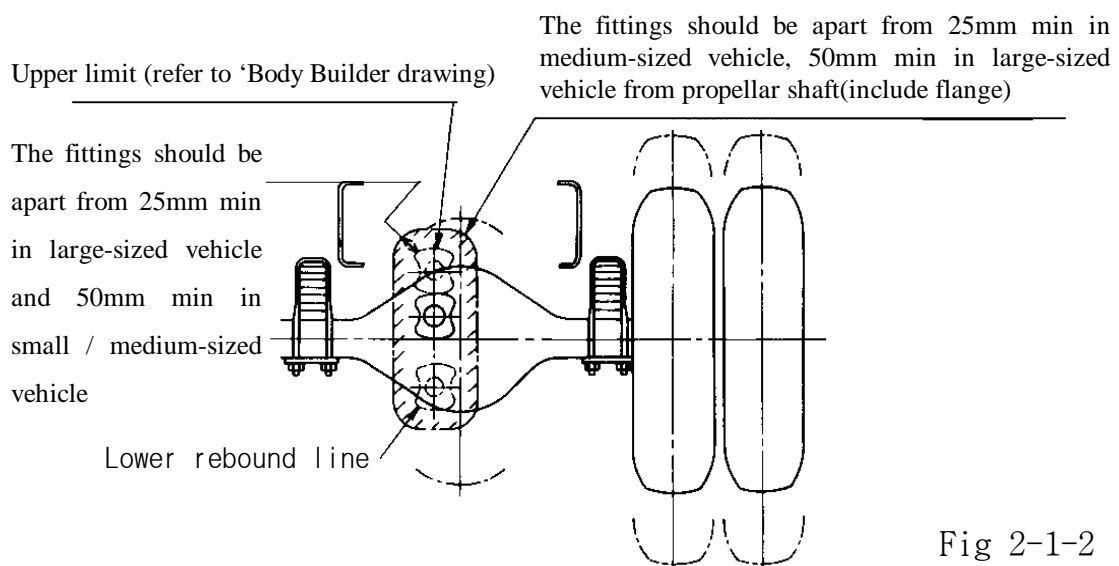


Fig 2-1-2

#### 2-1-5. Regarding to the rear axle

In case the pipe and the wiring of the brake hose and the electric harness are fitted over the rear axle, sufficient clearance is required in order not to contact with the fittings although the axle gets to be metal condition.

For details, refer to the dimensions of the 'Vehicle Model Book'.

#### 2-1-6. Fuel tank filler cap

Make sure that other fittings don't interfere with pouring fuel into the fuel tank and with the manipulation of the filler cap. If pouring fuel is difficult due to the side guard which is in the near parts of the fuel tank inevitably, be careful not to interfere with pouring fuel into the fuel tank by cutting a part of the side guard or changing the shape.

#### 2-1-7. Cautions needed for the installation of the rear parts of the brake air master

In case of the air over hydraulic type brake used in the large-sized · medium-sized trucks, oil reservoir is installed in the rear parts of the brake air master.

Therefore installed fittings should not interfere with the work of oil level check, refilling oil and air bleeding.

#### 2-1-8. Cautions needed for the installation of the air dryer

As the air dryer is equipped with an aid to dryness in the inside, periodical check and exchange are required. At this time the fittings should be prevented from interfering with the detaching work of the air

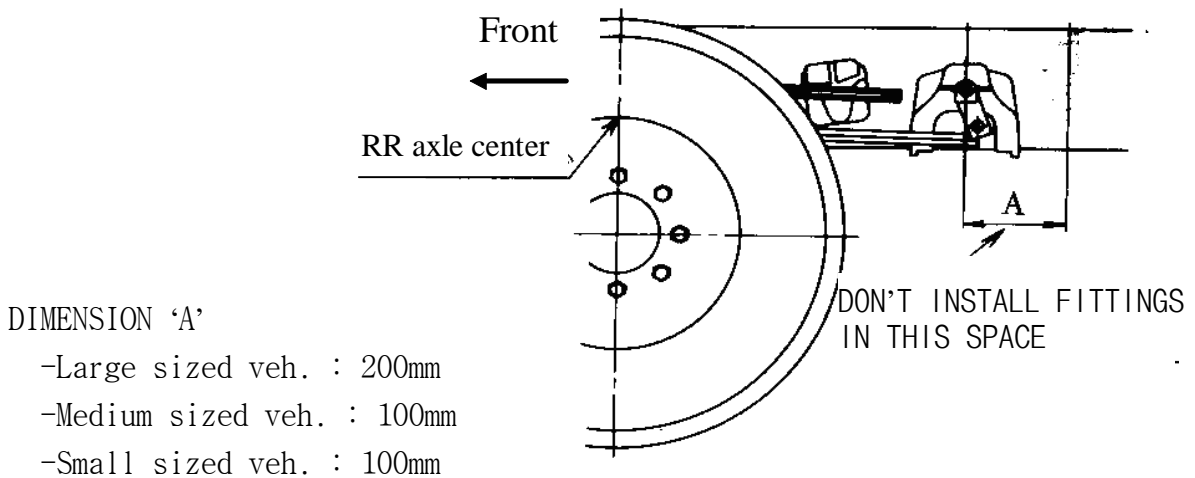
dryer

2-1-9. Cautions needed for the installation of the near parts of the battery

The fittings should be prevented from interfering with battery check · detachment and the detaching work of the battery cover.

2-1-10. Clearance between the rear spring and fittings

As the leaf and the auto grease tube of the rear of the main spring move while driving, fittings should not be installed within the 'A' dimensions indicated in the figure.



## 2-2. Installation of the rear body

### 2-2-1. General precautions regarding the strength

#### 1) Concentrated load by fittings

(1) In case of the fittings resulting in partial load, concentrated load, or heavy load on the chassis frame during the stoppage work, install the Sub-frame and allot the load.

(2) In case of installing sub-frame, stress allotment should be calculated by mixed quantity. In this case, allot the load, with chassis and Sub frame united. Make sure that chassis frame and Sub-frame should be united securely.

(3) Apply chassis load distribution and the frame sectional coefficient indicated in the 'Vehicle Model Book' to the stress calculation of the chassis frame and the Sub-frame.

(4) Stress of the chassis should conform to the following table

	Static stress			
	Large-sized vehicle		Medium	Small
Material	High tension steel plate	Steel plate for frame	High tension steel plate	Steel plate for frame
Driving condition	(normal stress 55kg/mm <sup>2</sup> )	(normal stress 45kg/mm <sup>2</sup> )	(normal stress 55kg/mm <sup>2</sup> )	(normal stress 45kg/mm <sup>2</sup> )
good condition road drive car	less than 9.0kg/mm <sup>2</sup>	less than 7.5kg/mm <sup>2</sup>	less than 9.0kg/mm <sup>2</sup>	less than 7.5kg/mm <sup>2</sup>
bad condition road drive car	less than 6.5kg/mm <sup>2</sup>	less than 5.5kg/mm <sup>2</sup>	less than 6.5kg/mm <sup>2</sup>	less than 5.5kg/mm <sup>2</sup>

2-2-2. Combined section of the rear body and chassis frame

1) When installing a sub frame, gradually reduce rigidity toward the front in order to avoid stress concentration due to sudden change in the rigidity of the frame as illustrated below.

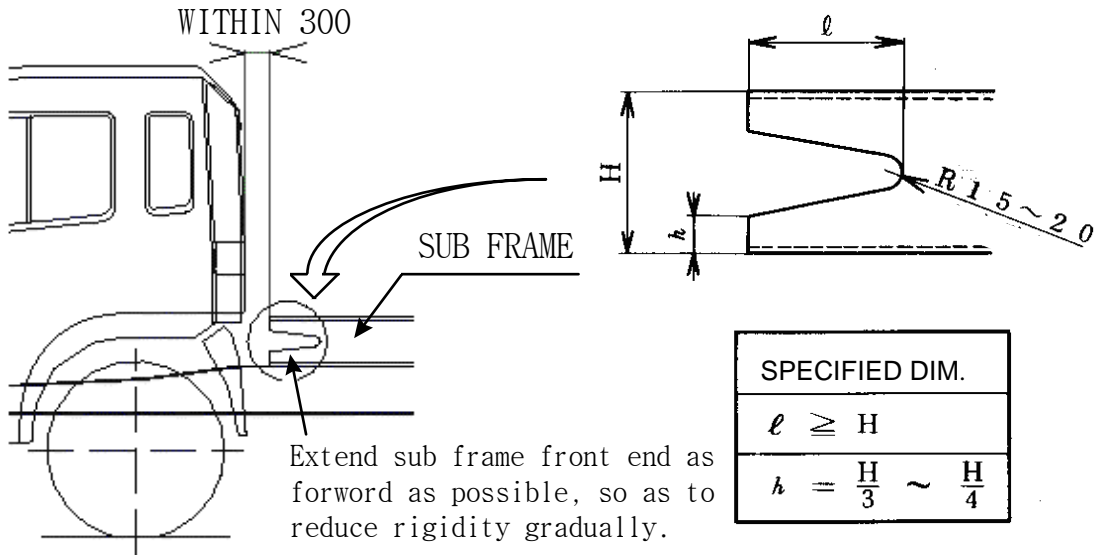


Fig 2-2-1

The method here above stated is the most desirable shape of the sub frame. But the process as shown in Fig. 2-2-2 may be used if the cab back permits space.

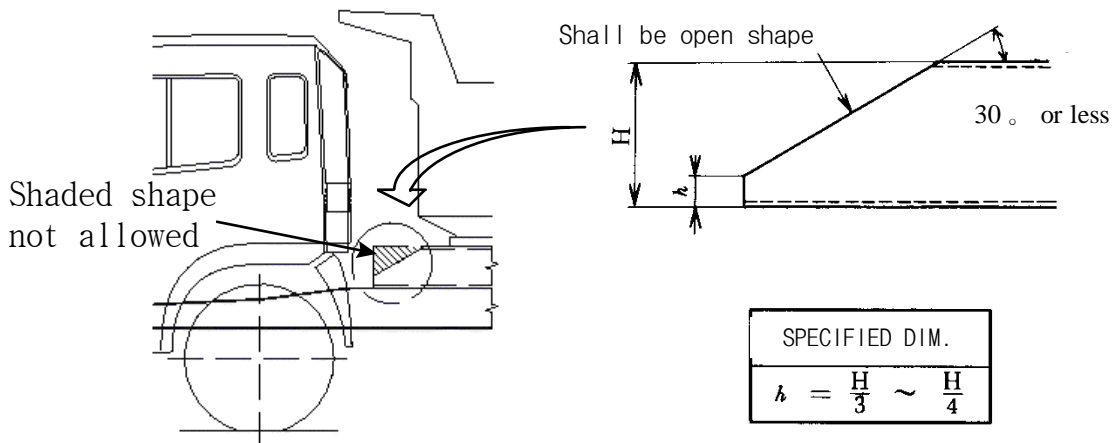


Fig 2-2-2

2) In case of short wheel base vehicle, add cross member for

support among sub frames.

- 3) If in terms of installation, it's difficult to shape the front end of sub frame as described above, grind it to the shape as shown in figure below before installation so that load point changes by bend of the side frame .

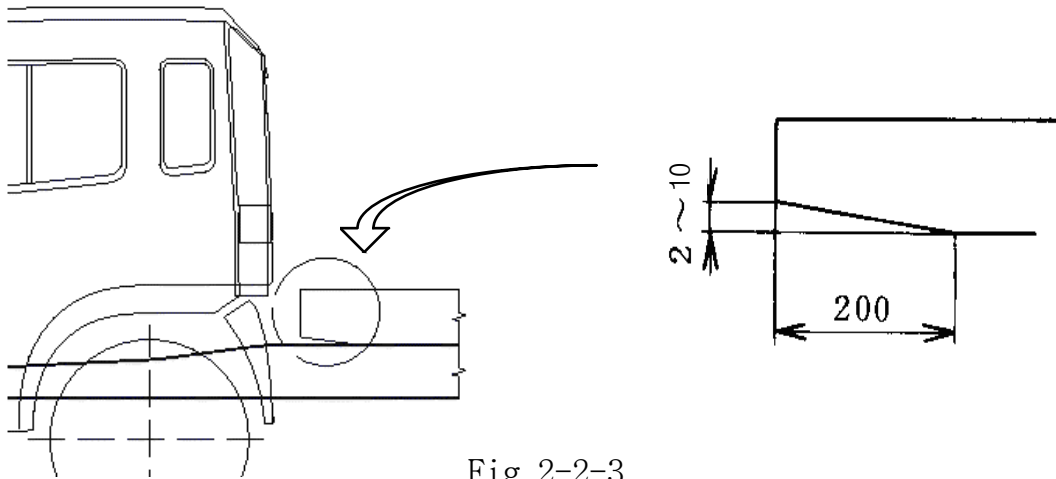


Fig 2-2-3

- 4) When using wood liner, form its front end as shown in figure below so as to release stress concentration.

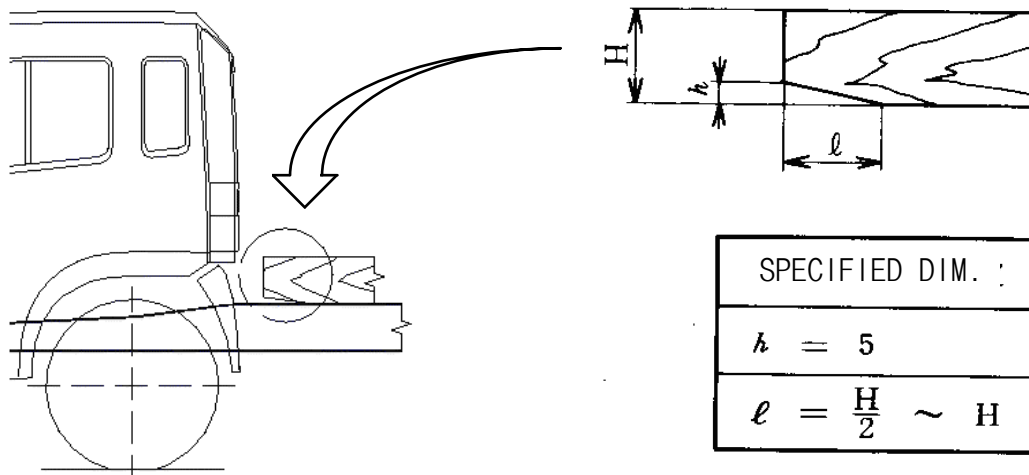


Fig 2-2-4

- 5) In case of large-sized cab over truck, there is *taper-cut*

*portions* (width of frame changes into 840 to 940mm) close to the cab back face as shown in figure below. When liner sub frame gets stuck in this area, unite it with chassis frame.

Also, reinforce the *taper-cut portions* of the liner and sub frame by using steel plates to the inside and outside.

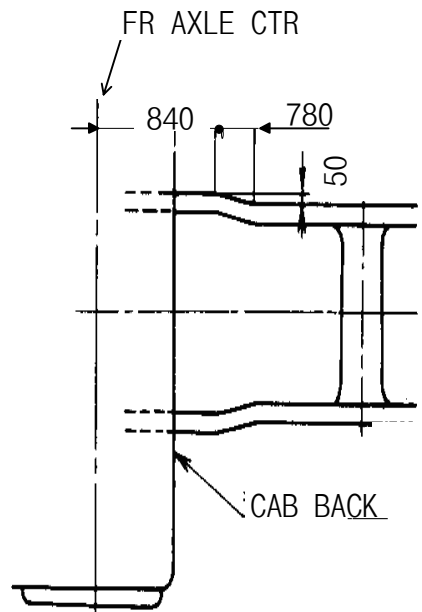


Fig 2-2-5

6) In case of the distance between the rear face of the cab and the front end of the fittings is wide in assembling sub frame.

(1) For installation of fittings with extremely great rigidity such as tank lorry, bulk, van and the like, it is necessary to select allowing attachment of the fitting close to the cab back face.

(2) If it is necessary to provide a large distance between the cab and fittings because of weight distribution, the sub frame should be extended as close to the cab as possible and be attached rigidly to the chassis frame again as described above.



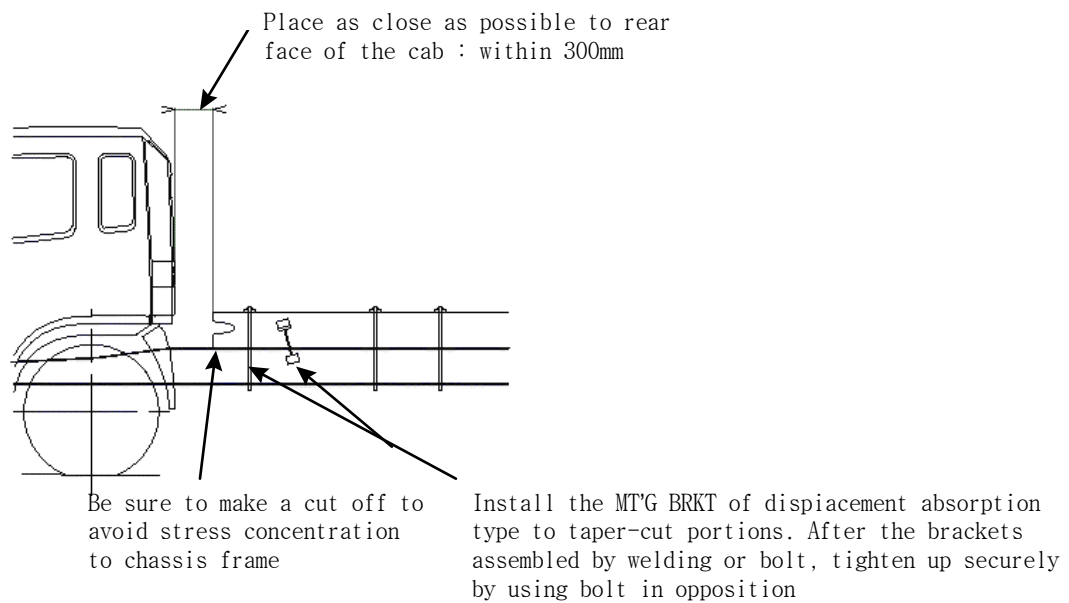


Fig 2-2-6

(3) In long wheel base vehicles, avoid installation of the welding type brace in trunion base area, and tighten up the MT'G BRKT of displacement absorption type or U-bolts.

7) Sliding prevention of before and behind and left and right

In assembling sub frame by 'U' bolts and brackets, install the sliding prevention of before and behind in the rear end of the sub frame, the sliding prevention of left and right in the front end each one.

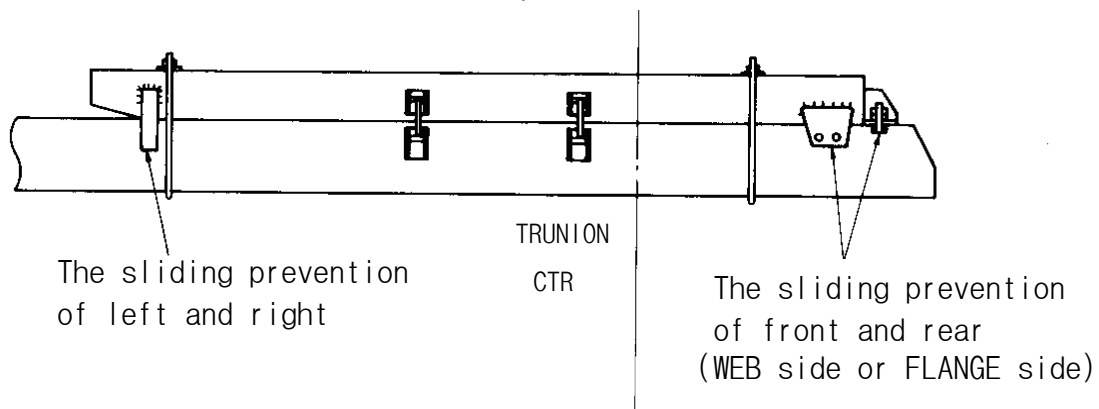


Fig 2-2-7

### 8)Cautions needed for installing liner

In case rivet head isn't installed on the flange side, add the sliding prevention of liner.

### 2-2-3. Cautions needed for fastening 'U'- Bolts

- 1)Give sufficient clearance to prevent the 'U' bolt for fastening sub frame and liner from contacting pipes, hoses, cables, and harness wires.
- 2)Refer to the data described in respective 'Vehicle Model Book' for locations where the 'U' bolts are used. Also, don't fasten 'U' bolt to the taper-cut portion of sub frames and liner.
- 3)When tightening 'U' bolt, place a wooded spacer inside the flange

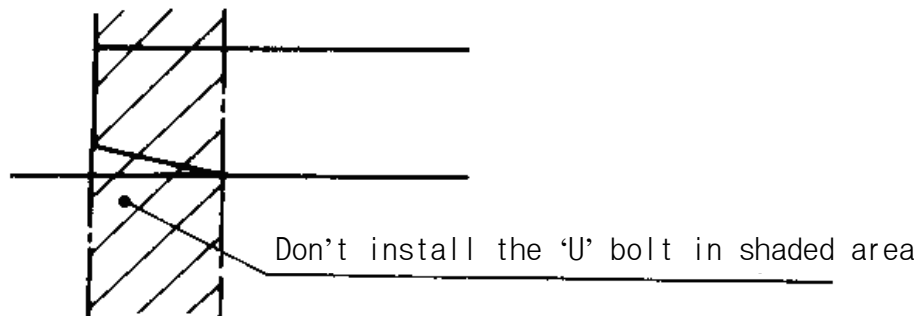


Fig 2-2-8

of side frame to prevent its deformation. But, use metal spacer in locations subject to heat such as near the muffler.

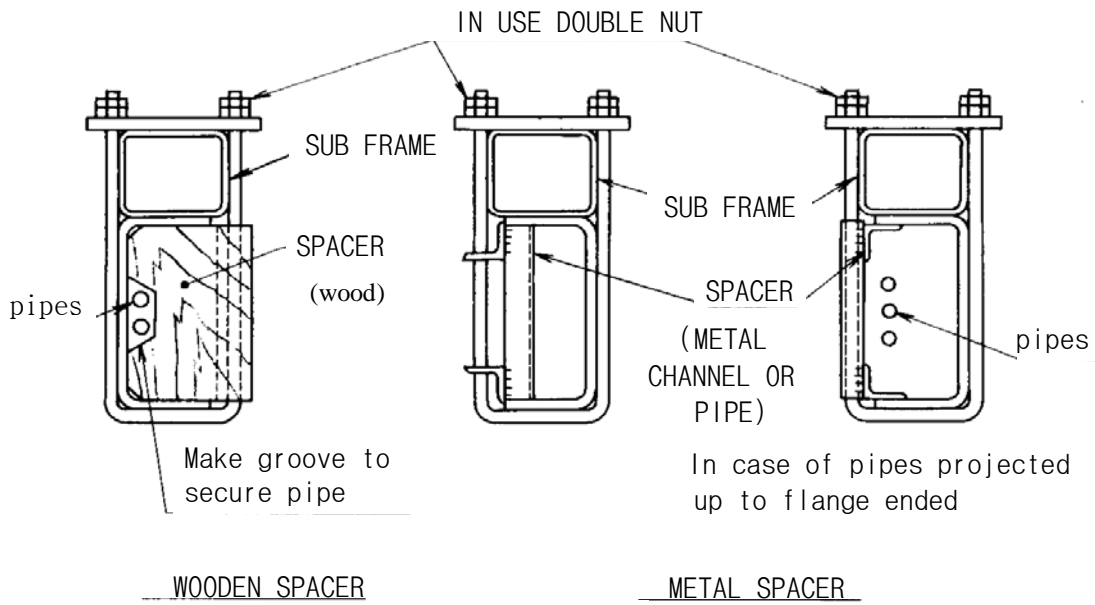


Fig 2-2-9

4) When it's difficult to use 'U' bolt because of mounted tanks, attach brackets.

(1) Attach the brackets in opposition to the chassis frame with bolts as a rule, and in accordance with paragraph '3-1-1 chassis frame precessing'

(2) Don't attach brackets to crossmember ends, gusset ends, stiffener, or near the bend of the frame.

Don't install bracket in shaded area

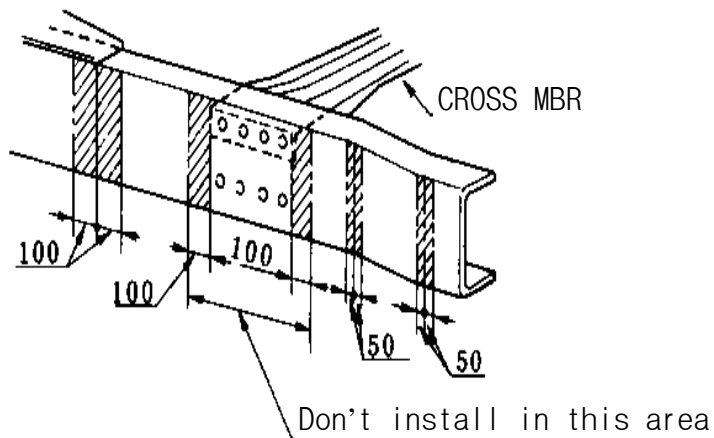


Fig 2-2-10

5) When rigidity of fittings is insufficient in long wheel base

vehicle

In long wheel base vehicles, when installing decks which are insufficient in rigidity such as low floor deck and deck for transporting light materials, which causes torsion vibration, be sure to observe the cautions described in the following items.

(1) Sub frame

As steel material (pipes or channel), use dimensions not less than those specified in figure 2-2-12.

(2) Liner

Use apiton or steel band. Don't use soft materials such as rubber belt and cotton belt, which cause insufficient fastening force of the 'U' bolt.

(3) 'U' bolt and opposition bracket

Tighten wooden liner to chassis frame securely, with 'U' bolt and opposed bracket arranged as shown in figure below

The direction of opposition bracket as follows.

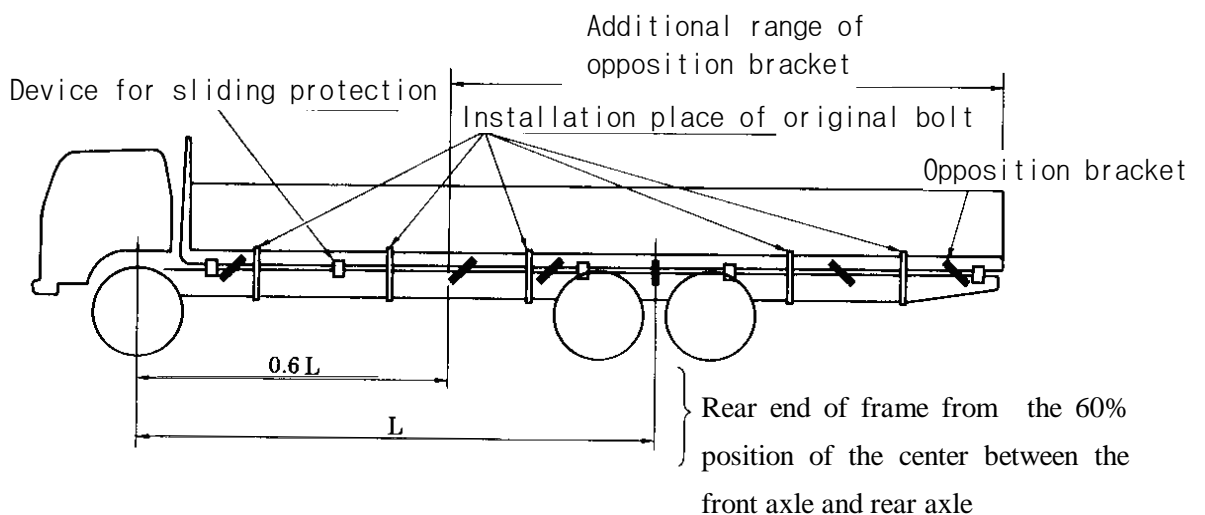


Fig 2-2-11

(4) Apply the MT'G parts which can absorb torsion and vibration to

crossmember NO.2 .

#### 2-2-4. Other cautions needed for installing rear body

##### 1)Sub frame for large-sized vehicle with long wheel base

When a vehicle with a long wheel base is used to transport heavy materials (steel bars, steel plates, timbers) causing nonuniform weight distribution, insufficient rigidity of the rear body causes greater load concentration on the chassis frame resulting in lesser strength.

Therefore, always use sub frames of cross sectional dimensions not less than those specified in figure below.

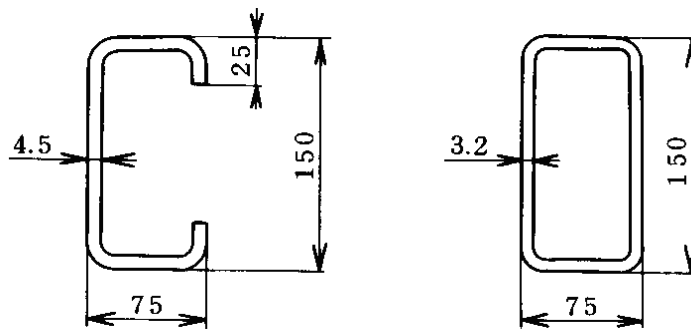


Fig 2-2-12

##### 2)Sub frame for large-sized vehicle with low floor

The height of sub frames of vehicles need installing the low floor rear body is required to be low. But when used to transport heavy materials, maintain the same strength and rigidity as here above stated. Also, absolutely be free from installation without sub frames causing greater load concentration on the chassis frame resulting in damages.

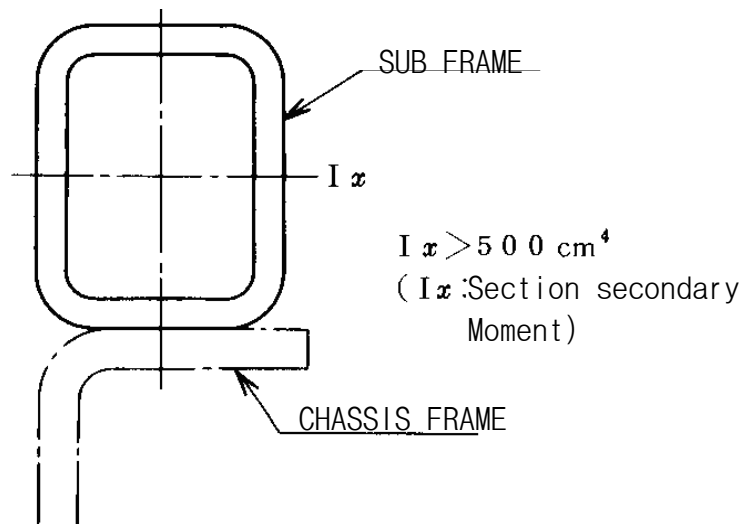


Fig 2-2-13

### 3) Center post

(1) When installing two-piece side gate rear body, vehicles used to transport heavy materials and insufficient deck, the center post should be installed in front of the rear front axle in order to prevent slacking of frame and allow smooth opening & closing of the side gate smooth in loading.

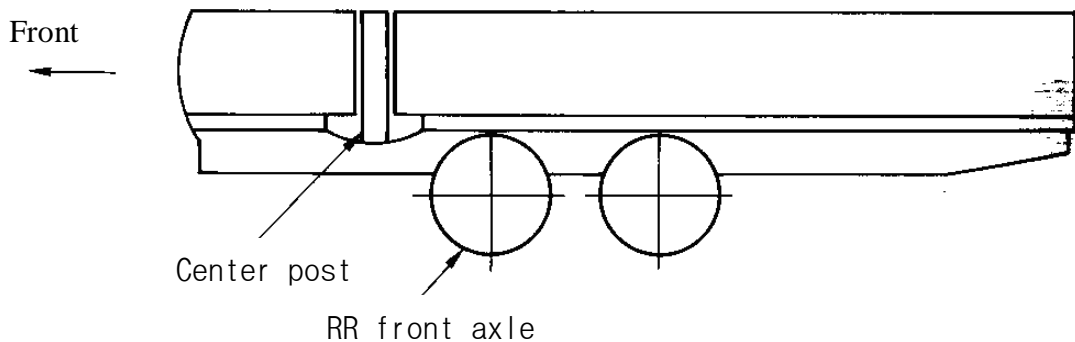


Fig 2-2-14

(2) When installing center posts in vehicle with long wheel base, frame is sometimes bent greatly. Therefore the clearance between the center post and the gate should be 2mm to allow smooth opening & closing of the side gate.

#### 4) Frame related data

##### (1) Rivet dimensions

When installing spare holes in sub frame, use the frame related rivet dimensions as shown in the following table

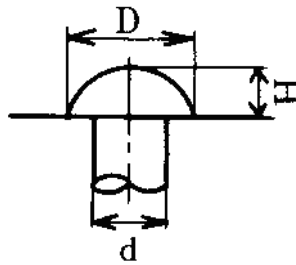


Fig 2-2-15

Rivet diameter(d)	Head diameter(D)	Head Height(H)	Using line
Φ 10	Φ 16.5	8	Side frame of middle-sized vehicle : a side
Φ 11	Φ 18	9	Side frame of Large/Medium-sized vehicle : upper,lower,side Side frame of small-sized vehicle : a side
Φ 13	Φ 21	10	Side frame of Large/Medium-sized vehicle : upper,lower,side

##### (2) Tolerance of frame width and height

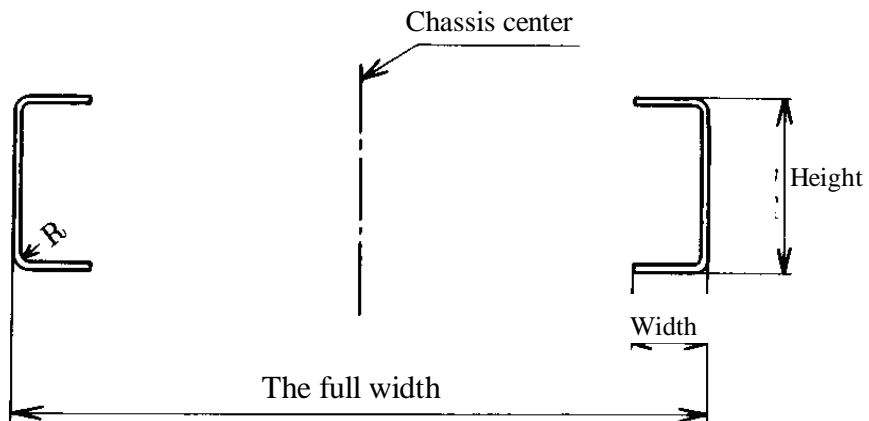


Fig 2-2-16

vehicle	Full width	height	width	R
large-sized vehicle	±3	+1	±3	12
medium-sized vehicle		0	+3	10
small-sized vehicle	±1	+1	+2	7
		0	0	

### 5)Lateral Inclination

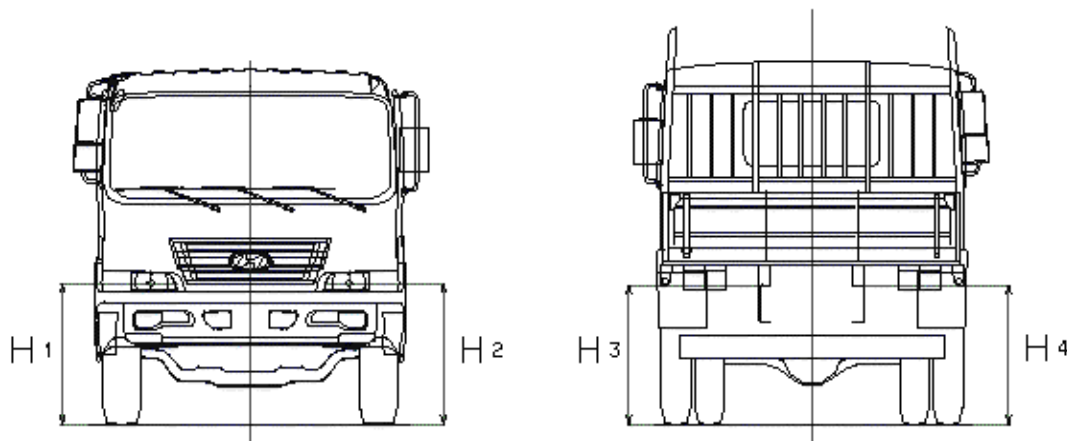


Fig 2-2-17

(1)The height difference allowed between the left and right sides for kerb weight due to weight difference is shown in the table below.

Location	Symbol	Allowance
Headlamp (measured at centers of lights right and left sides respectively)	H1-H2	less than 15mm
Frame Rear ends(left and right ends)	H3-H4	less than 15mm

(2)Vehicles installed with rear bodies (including passengers, full fuel, with or without load) should also satisfy the



allowance specified the lateral inclination table above. When mounting rear bodies, check the inclination (using the formulas given in Vehicle Model Book on the base of the measurement for the chassis with cab

6) Install covers for water protection and splash board

Install water protection covers for transmission breathers, clutch power cylinders, clutch boosters, air masters, batteries, etc. When a large quantity of water may possibly pour over them. Install the covers allowing for easy servicing or inspection of the pipings connected to the air tank.

An example of installing covers on a tank-truck is shown in figure below.

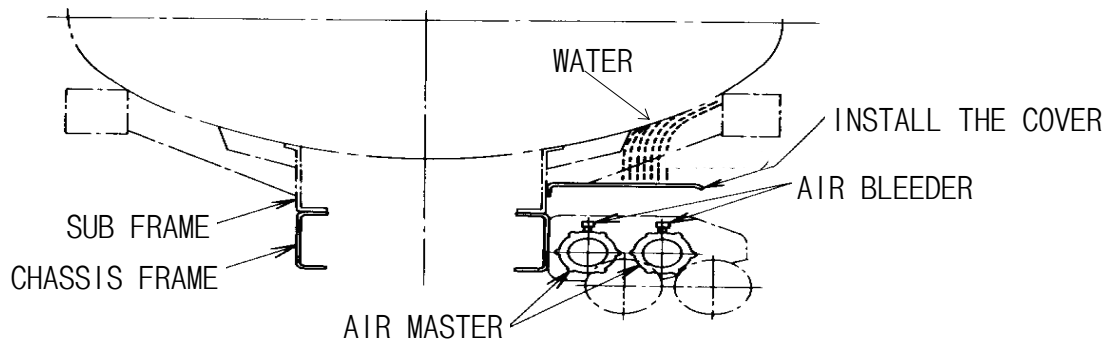


Fig 2-2-18

7) When installing fittings around the chassis number stamping position of the forward side of the side frame, the chassis number should be identified from the side of vehicle.

8) Most end cross member of large-sized vehicle

The most end cross member of dump and a part of long wheel base

vehicles is installed with bolt fastening to facilitate installation work.

But in shifting the cross member, be sure to observe the cautions described in the following items.

(1)How to install the cross member in side frame after shifting it

①In case of installing the cross member with bolt, enlarge the hole and then use the 7T-M12 bolt. Also the bolt used for temporal fastening before shifting should not be used absolutely.

②In case of installing the cross member with rivet, use the  $\Phi 11$  rivet

9)How to install protecting plate of large-sized short wheel base vehicle

(1)Protecting plate used for splashed stone

In case of the vehicle with misgivings that pipes and device or equipment around air tank can be damaged by the stones splashed by the rear wheel, driving on the off-road many times, install protecting plate in the side guard stay by the main principle shown in figure below.

(2)Preventing plate used for freezing

In case of the vehicle with misgivings that it is hard to detach spare tire due to snow and mud which is splashed by the rear wheel and attached to near spare tire in cold place, as shown in figure below, install protecting plate

in the side guard stay of the left in vehicle also.

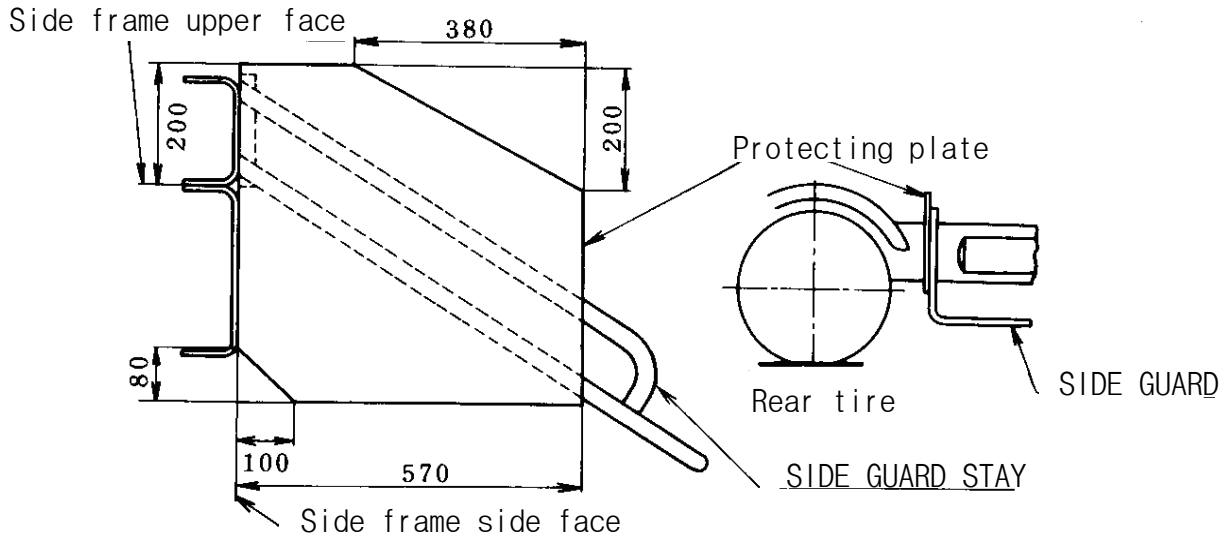


Fig 2-2-19

10) So care should be taken not to damage harnesses and pipes, in fixing the fittings.

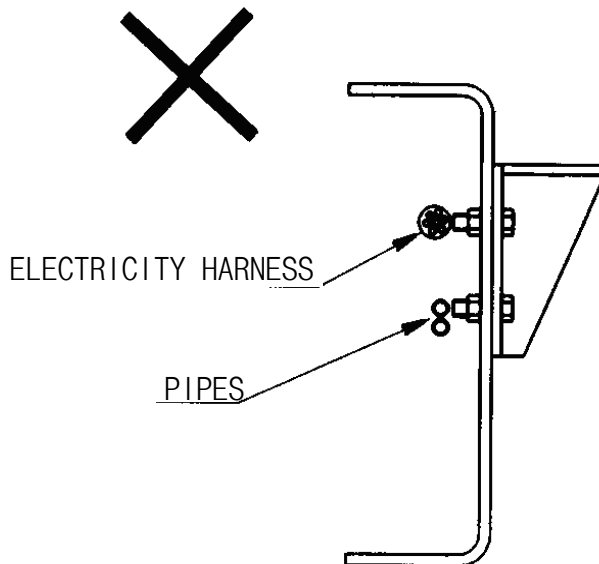


Fig 2-2-20

## 2-2-5. Cautions needed for fender installation

### 1) Rear fender

The clearance between the Rear fender and the tire should be decided in accordance with the rear axle upper rebound limit “h” specified in Vehicle Model Book as shown in figure.

(1)The shape of the rear fender outside should be bent to raise safety and strength. Also as cracks happen easily at edges of the rear fender, make bends on the inside.

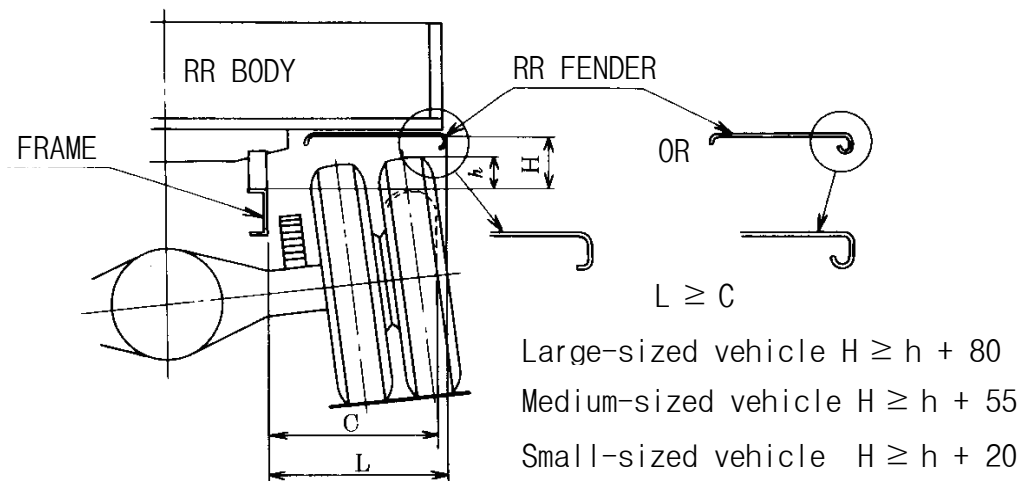


Fig 2-2-21

(2)In installing rear fender , observe the following items

- ① Overall width of fender should be 2,500mm MAX.
- ② The outer edge of the fender should be placed outside of the rotating part of the tire. And cover the range of the front 30° and rear 50° line by all means. So care should be taken, because the regulating items as to the pedestrian's safety measures have been decided.

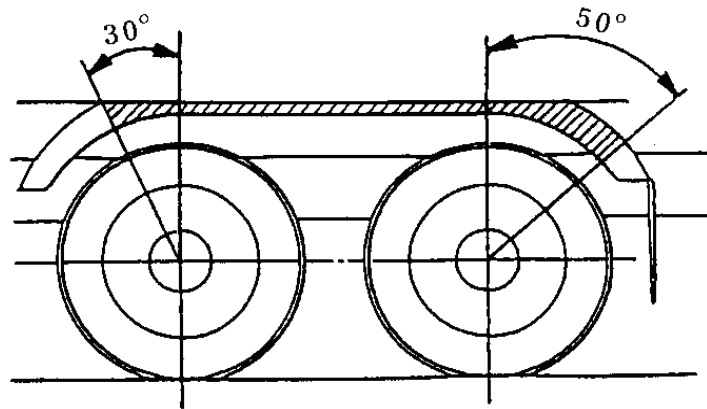


Fig 2-2-22

## 2)Front fender

Cautions needed for installation fender in the front two-axle vehicle.

- (1)After watching the moving of tires carefully when steering, install fenders.
- (2)The cross bearer shape and position of rope hook near fender must conform to the moving of tires.

## 2-2-6. Rear fender mudguard rubber

- 1)Install mudguards, depending upon the fender or in consideration of splash protection or preventing roll-in with wheels.

(Unit : mm)

	LARGE-SIZED	MEDIUM-SIZED	SMALL-SIZED
A	200 ~ 250	150 ~ 200	130 ~ 200
B (Unloaded)	300 ~ 400	200 ~ 350	200 ~ 300

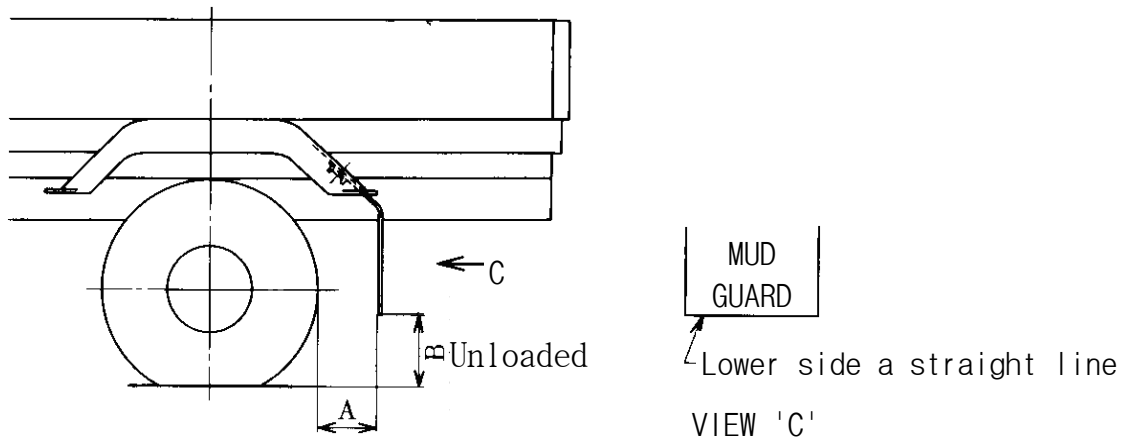


Fig 2-2-23

2)When installing long mudguards, work out a countermeasure to keep rubbers away from the tire.

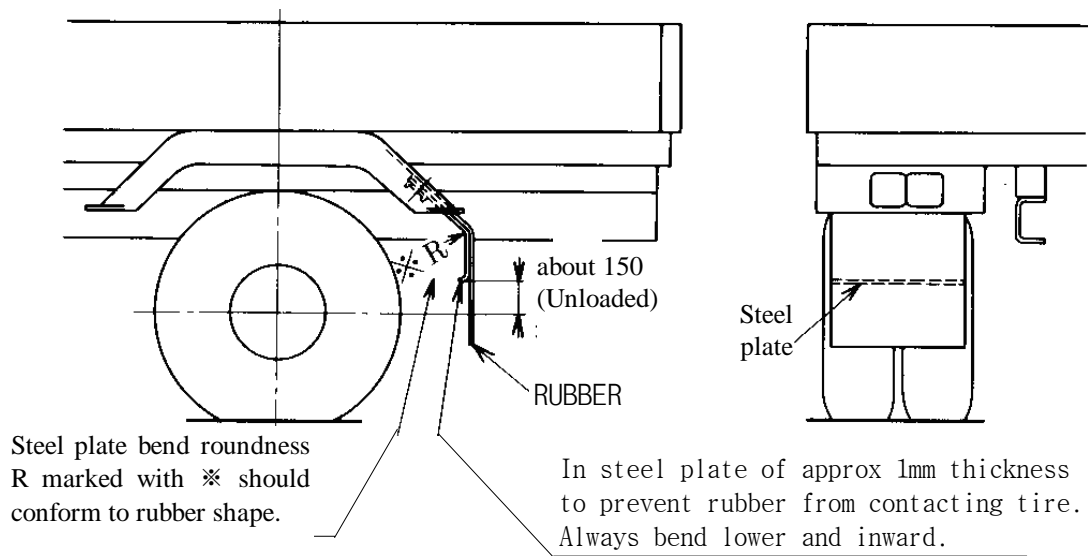


Fig 2-2-24

## 2-2-7. Rear bumper

### 1) Vehicle model which needs installing rear bumper

In the ordinary vehicles supplied for goods transport, the vehicles that GVW is more than 8ton or payload is more than 5ton (excluding tractor).

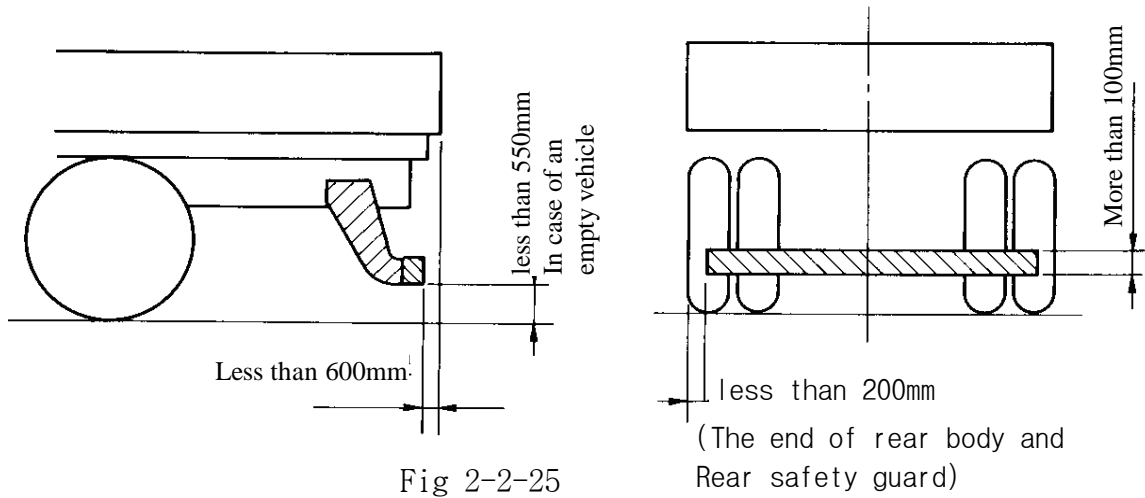
### 2) How to install rear bumper

(1) Rear bumpers and stays installed in sending out Chassis conform to the Korea Safety Standards, Article 19 Clause 3, Performance and Strength condition. If nothing happens in installing, install in this position. After making sure that the position of rear bumper installation conforms to the dimensions indicated in figure below, make a use. But, when sending out chassis, since rear bumpers have not been installed regularly to prevent pedestrians danger while transporting goods, install them in the legal direction.

(2) Even when installing in legal position in special bodies, move and install rear bumpers by the followings when they are suitable for the following dimensions.

- ① The installation of the rear bumper and stay should be assembled with the standard bolt of the Chassis section.
- ② Install stay in the chassis frame.
- ③ Be careful not to interfere with the mark of the registered number check and a light type.
- ④ Within the limits of meeting the following dimension,

make the departure angle large as much as possible .



(3)The following items should conform to the performance and strength condition of the Korea Safety Standards, Article 19 Clause 3.

- ①In case of modifying or altering the rear bumper or stay installed in chassis
- ②In case of manufacturing rear bumper or stay newly
- ③Instead of installing the rear bumper and stay with a normal bolt, In case of installing them by welding
- ④In case of inserting spacer between the rear bumper and stay

#### 2-2-8. Rear reflector

1)Vehicle model which needs installing a rear reflector

In the ordinary vehicles supplied for goods transport, the vehicles that GVW is more than 8ton or payload is more than 5ton.

2)How to install rear reflector

(1)The rear reflector installed in sending out Chassis



conform to performance of the Safety Standards, Article 49 Clause 2.

(2) Installing position

- ① The installing position to be left and right symmetry from the center line of vehicle, the center point of the reflected section should be within upper more than 250 ~ less than 1500mm from ground.
- ② The area of a reflected section to be 800cm<sup>2</sup> MIN., the area of fluorescent section to be 400cm<sup>2</sup> MIN.

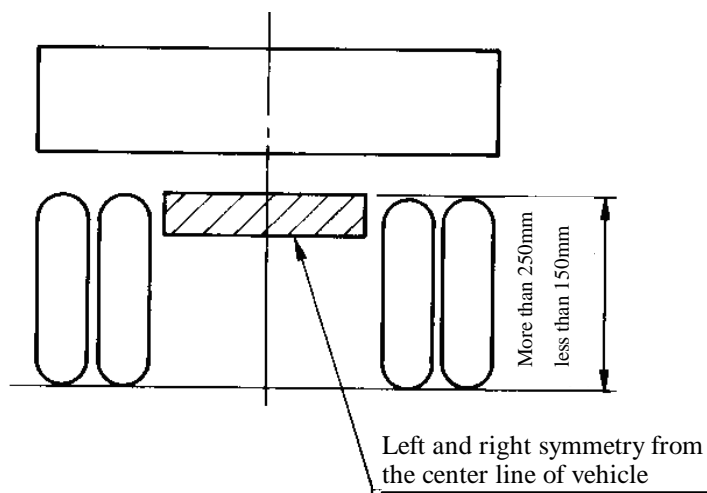


Fig 2-2-26

2-2-9. Side guard

1) Vehicle model which needs installing a side guard

- (1) In the ordinary vehicles supplied for goods transport, the vehicles that GVW is more than 8ton or payload is more than 5ton
- (2) For details, reference should be made the Safety Standards Article 19 Clause 3.

## 2)Cautions needed for installation

Be free from impediment, when checking, supplying and detaching the following device or equipment of chassis frame side.

- (1)Battery, switch box
- (2)Fuel tank
- (3)Brake oil tank
- (4)Vacuum tank, air master, air tank
- (5)Tool box (oil jack should be fixed with strap)
- (6)Spare tire
- (7)In case of installing the side guard of a channel and plate type, pay due attention to operation of the air tank drain cock. In case hand doesn't touch with the air tank drain cock, operate it with chain and wire connected as shown in figure below. Make sure that ground clearance should be kept not to be caught in projections of road surface in attaching to chain.

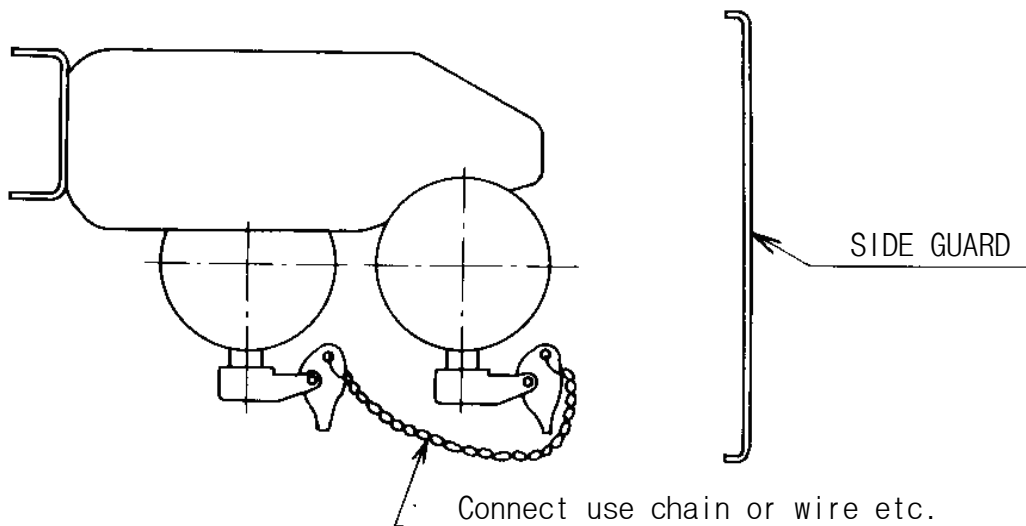


Fig 2-2-27

(8) In case the device such as fuel tank and the like is disposed at the outside rather than side straight section of the side guard.

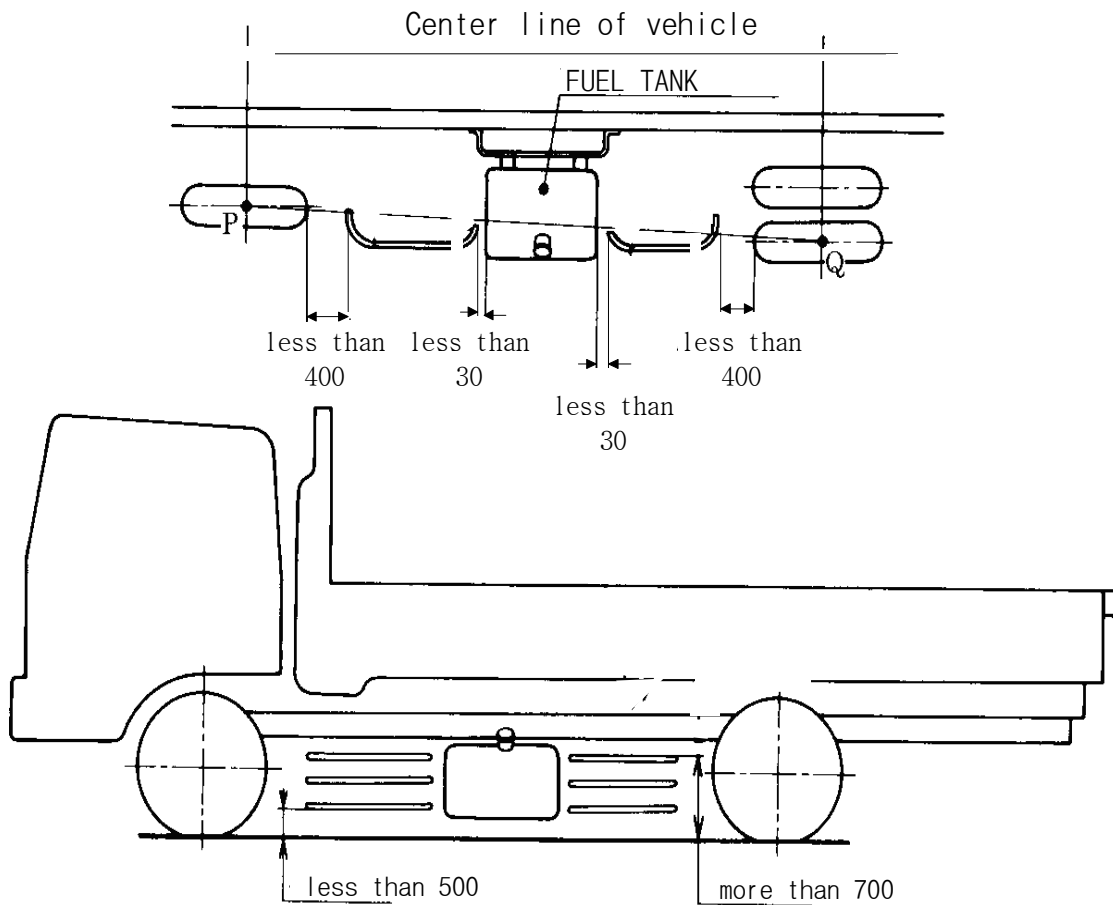


Fig 2-2-28

### 3) Installation of stay

(1) In case of installing stay in cross bearer

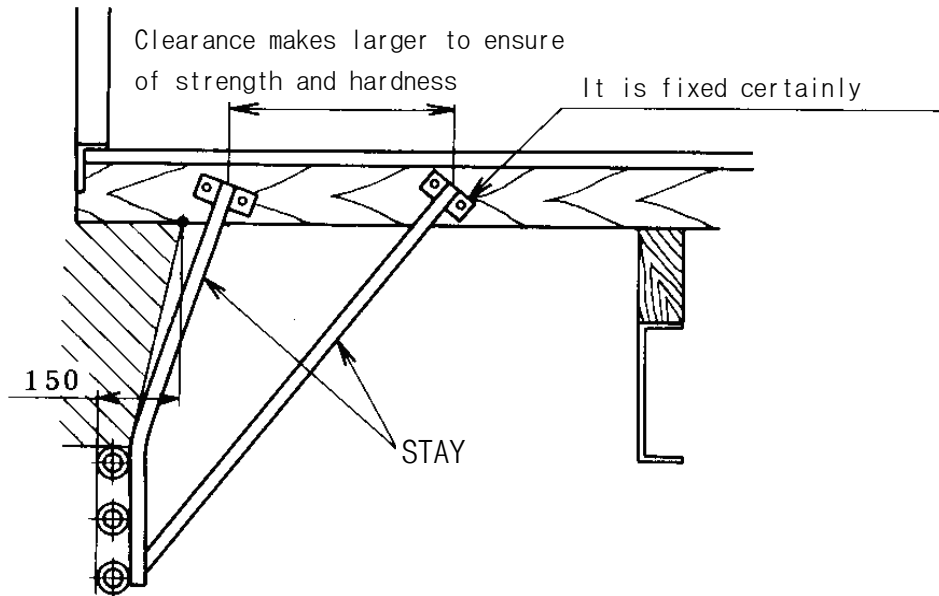


Fig 2-2-29

(2) In case of installing stay in sub frame

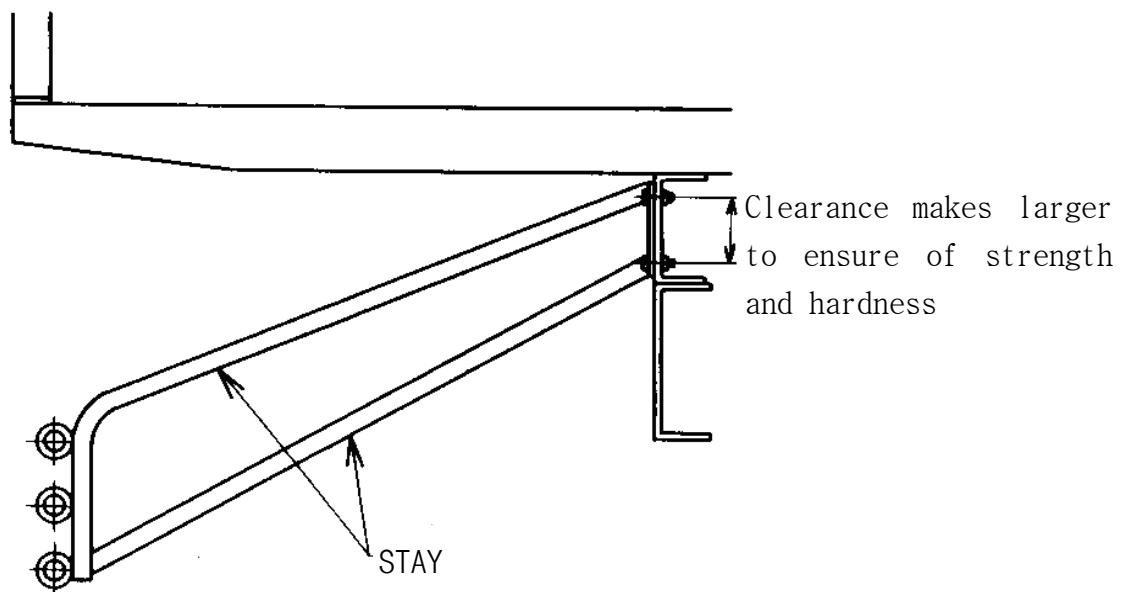


Fig 2-2-30

#### 4)Cautions needed in special installing vehicle

In case of having no body(fender and the like) in the oblique line section as shown in figure below on the rear wheel, or installing a part of body with thick rubber and the like, and being installed in the inner side rather than a revolving area (tire, wheel, wheel step, wheel cap, and the like) in semi tractor, the side straight section of the side guard should be out rather than the straight line connected with most outside of the revolving area of the front and rear wheel(excluding the swelled parts of a contact surface).

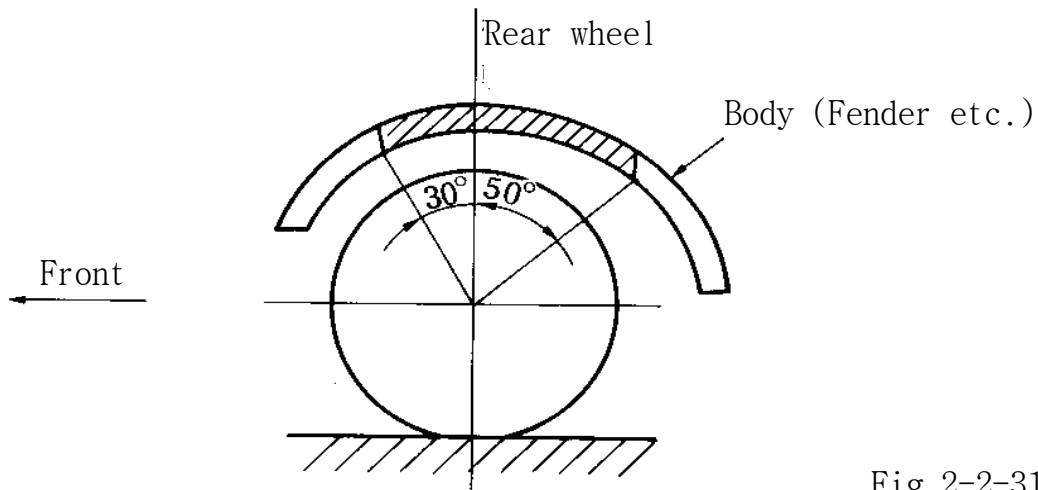


Fig 2-2-31

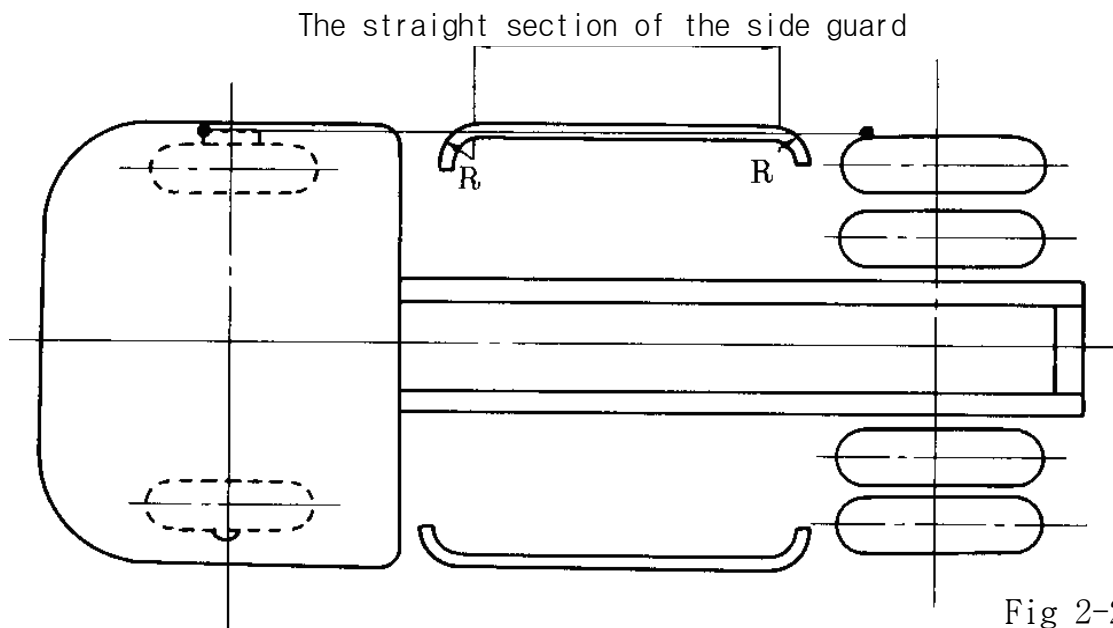


Fig 2-2-32

### 3. MODIFICATION OR ALTERATION PRECAUTIONS

#### 3-1. Chassis modifications

##### 3-1-1. Chassis frame machining

When machining on the chassis frame, be sure to observe the cautions described in the following items.

##### 1)Generals needed in drilling hole through the frame

- (1)Be sure to use a drill in making holes, never use a gas torch.

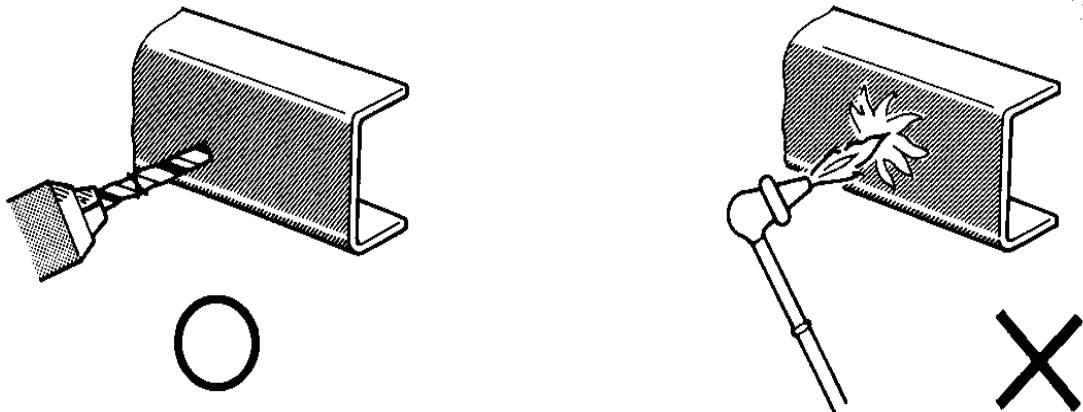


Fig 3-1-1

- (2)Holes should be deburred after drilling.

- (3)When drilling holes, fuel hose, cable type, and tube type should be protected against damage.

##### 2)Cautions needed in drilling holes through the side frame

- (1)The size of holes and distance between holes should conform to the following table. The conventional holes (bolt and rivet hole)should conform to the following table.

VEHICLE	HOLE DIA : a		CORNER~ HOLE END (b)	HOLE END~ HOLE (c)
	Hole for tension bolt (In case of bolt has a tension force and compression force applied)	Hole for shearing bolt (In case of bolt only has a shearing force applied)		
Large-sized veh.	less than $\Phi 13$	less than $\Phi 17$	more than 30	less than $\Phi 13$ ~ more than 30 less than $\Phi 15$ ~ more than 45 less than $\Phi 17$ ~ more than 60
Medium-sized veh	less than $\Phi 13$	less than $\Phi 13$		
Small-sized veh.	less than $\Phi 11$	less than $\Phi 11$	more than 20	less than $\Phi 11$ ~ more than 20

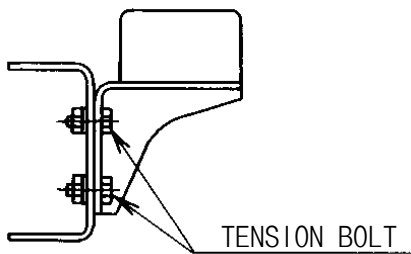


Fig 3-1-2

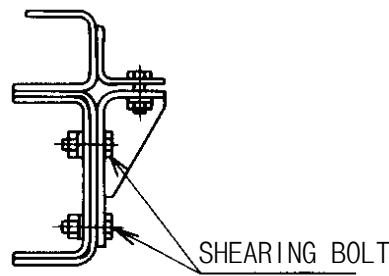


Fig 3-1-3

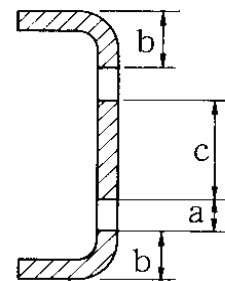


Fig 3-1-4

(2)The hole more than  $\Phi 15$  for shearing bolts should be applied to the double frame lying in the sub frame. The section applicable to the weight decrease hole should be welded with a reinforced plate attached as shown in figure below.

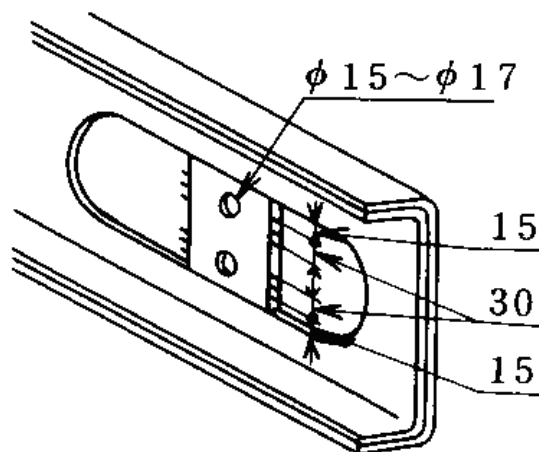


Fig 3-1-5

(3) Don't drill holes through the trunnion stiffener and cross member gussette.

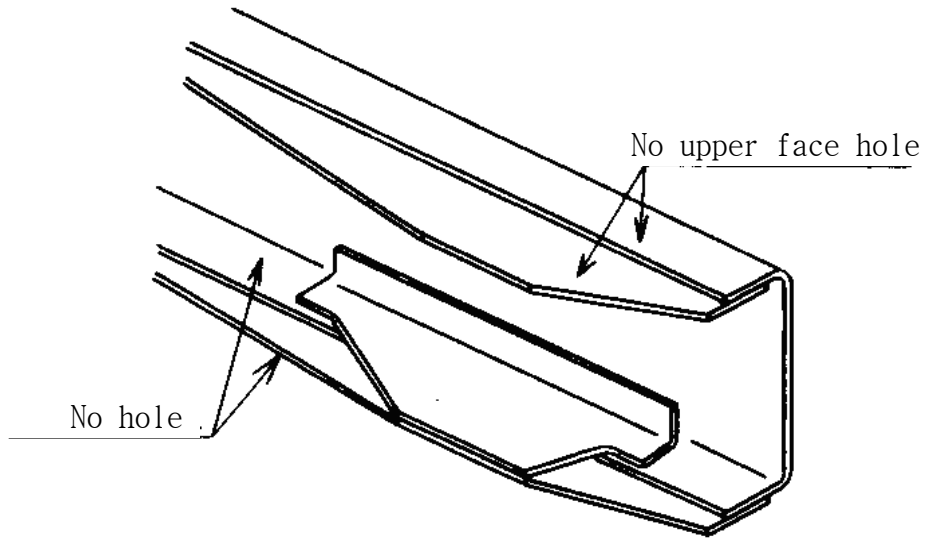


Fig 3-1-6

(4) In case of the super frame (Web type frame)  
Do not drill the side frame upper or lower flanges by all means.

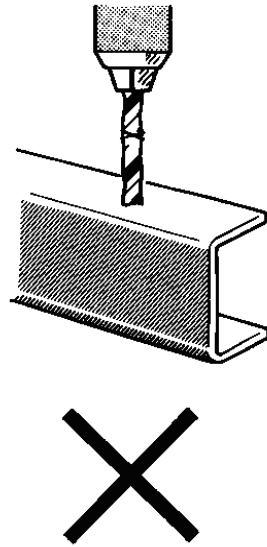


Fig 3-1-7

(5) When drilling holes except for the super frame (Web type frame)

① Do not drill the lower flange between wheel base and the



upper flange of the rear over hang.

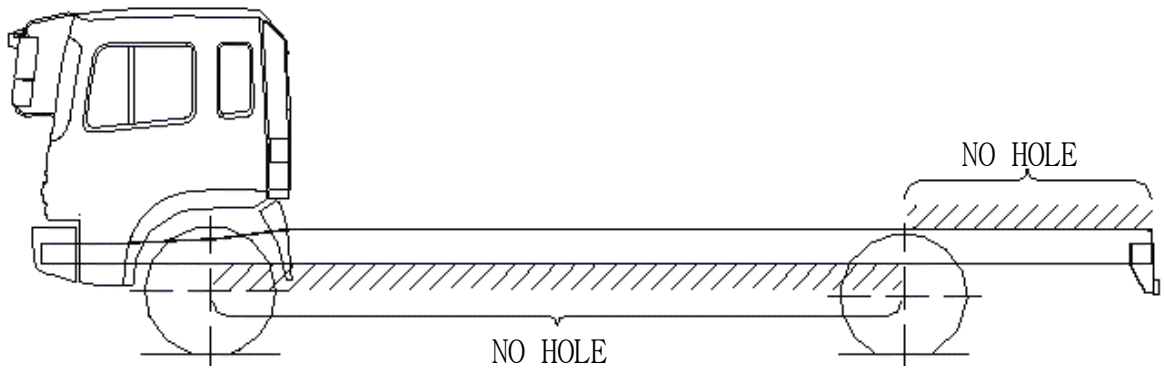


Fig 3-1-8

②A hole on the flange surface for a horizontal direction.  
And observe the following dimensions.

vehicle	HOLE a	PLATE ended~ HOLE ended b	CORNER section~ HOLE ended c	HOLE ended~ HOLE ended d
Large-sized vehicle	less than $\Phi 13$	more than 30	more than 30	more than 30

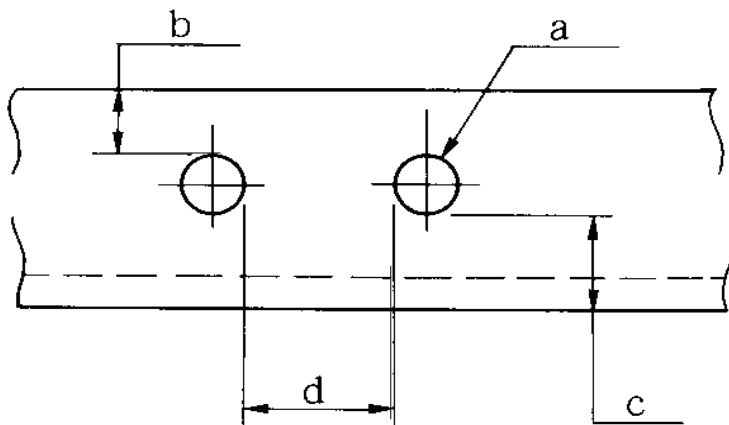


Fig 3-1-9

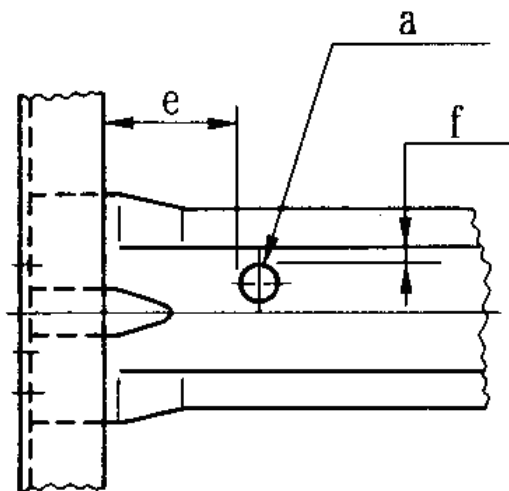
Small-sized vehicle	less than $\Phi 11$	more than 20	more than 20	more than 20
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3)Cautions needed in drilling holes through the cross member

For hole diameters and distance between holes should conform to the following table. The conventional holes (bolt and rivet hole) should conform to the following table

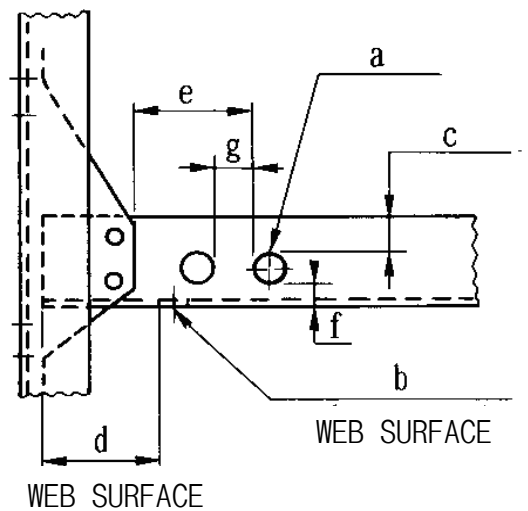
(Unit: mm)

VEHICLE	HOLE DIA		PLATE END~HOLE END		SIDE FRM or GUSSETTE ~ HOLE END: e	CORNER ~END: f	END ~END : g
	FLANGE FACE: a	WEB FACE: b	FLANGE FACE: a	WEB FACE: b			
MEDIUM/LARGE- SIZED VEHICLE	LESS THAN $\Phi 11$	LESS THAN	MORE THAN 30	MORE THAN	MORE THAN	MORE THAN 25	MORE THAN 30
SMALL- SIZED VEHICLE	LESS THAN $\Phi 9$	$\Phi 13$	MORE THAN 20	50	100	MORE THAN 20	MORE THAN 20



ELLIGATE TYPE CROSS MEMBER

Fig 3-1-10



CHANNELTYPE CROSS MEMBER

Fig 3-1-11

#### 4) General warning when welding the frame

When welding the frame, refer to the '1-1. Cautions regarding installation, modification, or alteration'

- (1) Avoid welding on the side frame upper or lower flanges.

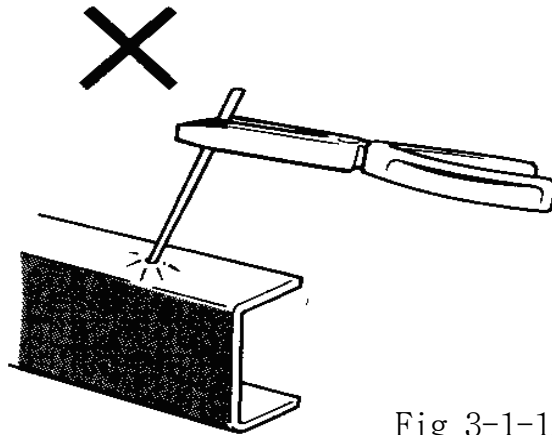


Fig 3-1-12

(2) Avoid welding on the trunnion stiffener and cross member gussette.

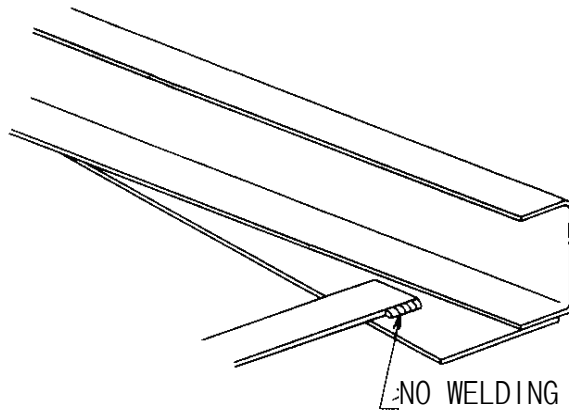


Fig 3-1-13

(3) Be free from the welding of the web side within the 20mm from corner, and 30mm from the hole edge.

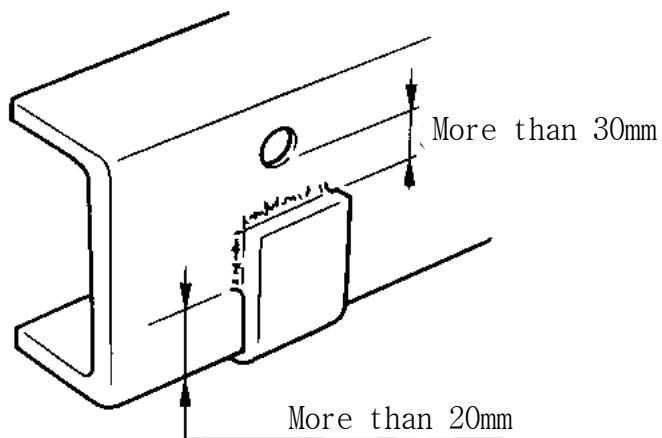


Fig 3-1-14

- (4) The up and down consecutive welding length between the wheel base should be less than a third of the side frame height.

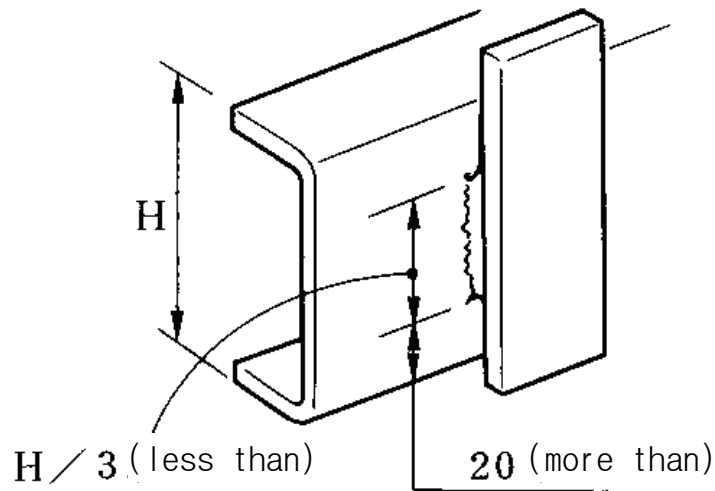


Fig 3-1-15

- (5) Don't weld to install the fittings in the frame temporarily.
- (6) Give welded parts a good cleaning beforehand.
- (7) Use the welding rod for the iluminite system 5~6kg/mm<sup>2</sup>.  
In case of a wet welding rod, use it after drying the wet welding rod by all means.
- (8) Be free from the welding sludge securely.
- (9) Be free from welding defects in welding, under cut, a blow hole, pit etc.
- (10) In case the shape of the welding beads is not good, which results in stress concentration and has an effect on fatigue strength, grind with a grinder.
- (11) In order to prevent the damage caused by spots of welding operation, take protective measures on the hoses, nylon tubes, harnesses, chassis spring, etc. by means of covers.

5)Cautions needed in welding the tension plate frame

There is the vehicle model using the tension steel plate for 55kg/mm<sup>2</sup> in the side frame. The welded area of the tension steel plate is apt to harden rather than that of the steel plate(SAPH45 : tension stress 45kg/mm<sup>2</sup>) for frame. Therefore in case of having need of welding the side frame, follow the instructions given below carefully. But, for the vehicle model using the tension steel plate, refer to the frame section coefficient table of the Vehicle Model Book.

(1)Use the welding rod for low hydrogen system absolutely. And particularly for the places needing the strength equivalent to base metal, use the welding rod for the low hydrogen system tension steel plate.

(2)As the welding places where the length of beads is short tear easily and, are not apt to harden, beads should be 40mm. In case of using short beads inevitably, be free from hardening with preheating or postheating treatment.

6)How to extend the frame rear overhang

In case of extending the frame rear overhang, follow the instructions below carefully.

(1)Material

vehicle	Extension Material		Reinforcement Material	
	material	plate thickness(mm)	material	plate thickness(mm)
Large/medium-sized vehicle	SAPH 45	same as the base vehicle	SAPH 45	6
small-sized vehicle		same as the base vehicle		3.2~4.5

(2)How to extend the frame rear overhang

① In case the length of extension section is less than 300mm  
 Perform the butt consecutive welding from the outside,  
 and grind the surface with a grinder. There is no  
 necessity for reinforcement for ordinary use. But in  
 case heavy loading works upon the extension section,  
 perform additional reinforcement by the main points shown  
 in figure 3-1-17.

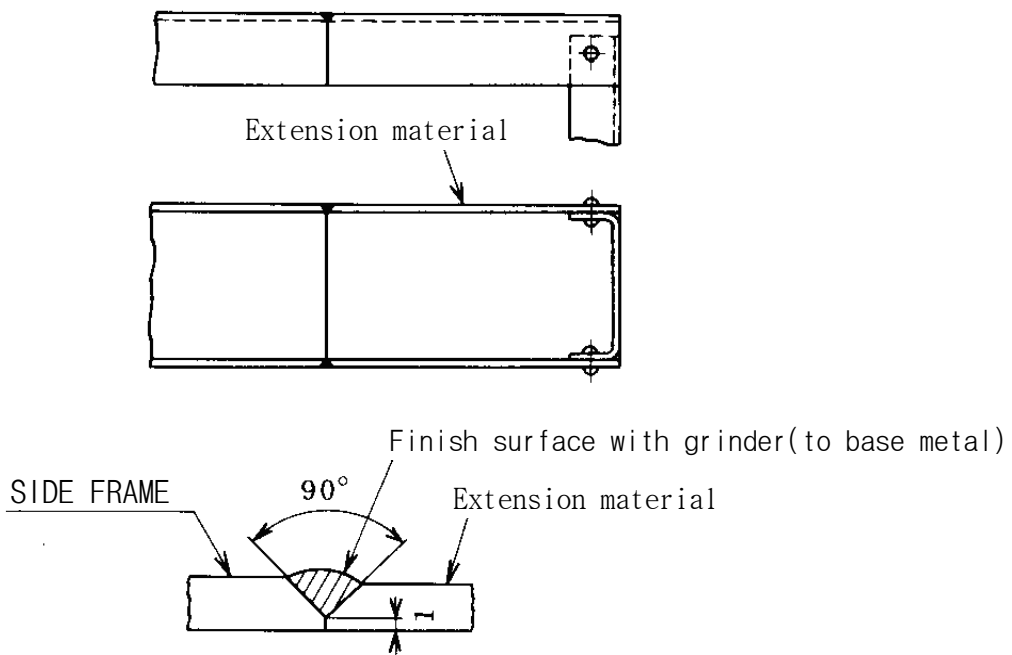


Fig 3-1-16

② In case the length of extension section is more than  
 300mm.  
 Add reinforcing material to the inner side of the side  
 frame. Perform the butt consecutive welding onto the  
 side frame and extending material, and grind the welded  
 surface with a grinder.

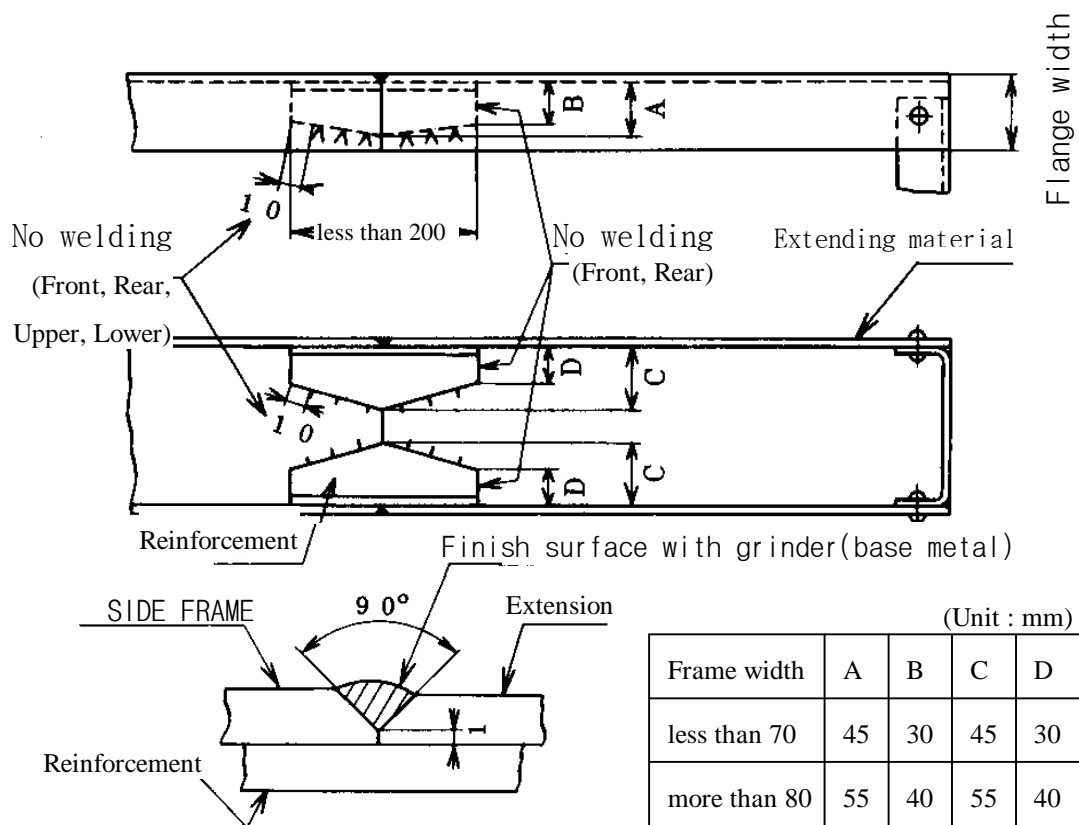


Fig 3-1-17

③ In case there is the vehicle model having a taper on the lower surface of the side frame rear ends, so care should be taken in cutting perpendicular to or extending (flat to upper surface).

(3) Cautions

When grinding the flange inside of the butt-welded side frame, make sure of a clean finish by grinding free from under cut, pile up or convexed bead.

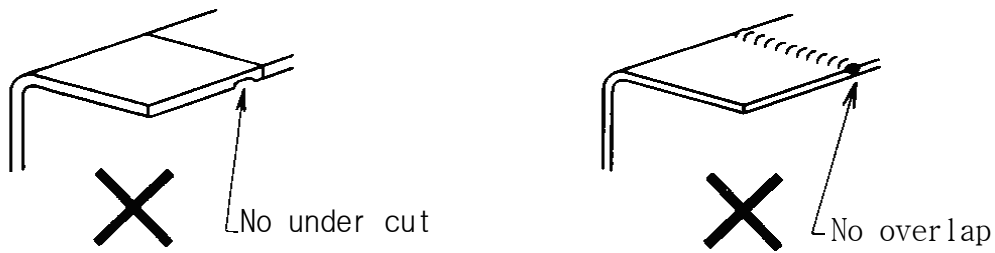


Fig 3-1-18

7)Extension and shortening of the wheel base

Consult with HMC on extension and shortening of the wheel base by all means.

8)Cautions needed in installing the fittings in the side of the side frame

As a rule, do not attach added equipment together with components on the frame side (fuel tank, air tank, air master, battery, etc.).

9)Other notices about frame

(1)Absolutely, do not make notches on the edges of side frames, cross member flanges and trunnion stiffeners, cross member gussette ends like the cutting shown in figure below

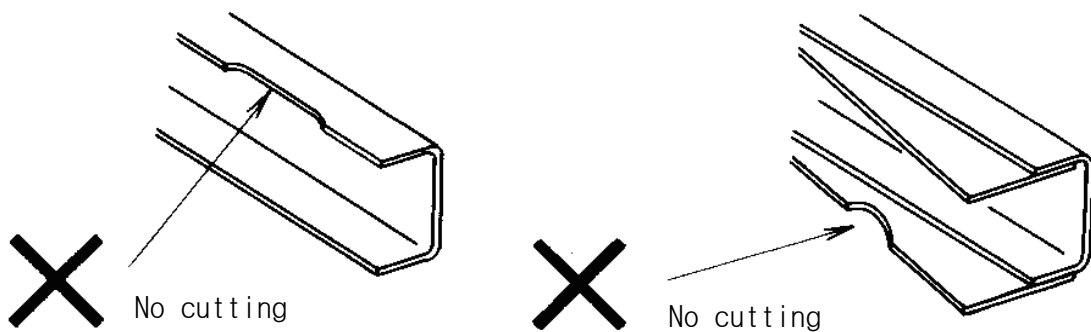


Fig 3-1-19



## (2)Side frame reinforcement

In case of attaching the additional outer stiffeners to the side members, which cause sudden changes of the rigidity at the end of the frame reinforced partially, what's more, cracks on the frame, there is no need for reinforcement in ordinary circumstances. The use of such stiffeners are, however, inevitable due to some special fittings or operating conditions, pay full attentions to the following points.

- ①Do not bring the end of outer stiffener close to the end of the sub side frame in the inner side of the side frame.
- ②The end of stiffener should not be brought close to locations of stress concentration such as cab back face, spring hangers, cross member ends, etc.
- ③Do not cut off stiffeners vertically. It should be cut so that its end has an angle of slope less than  $45^\circ$ , and its length should be more than 800mm.
- ④Outer stiffeners should be fixed to the side frame by means of riveting or plug welding on the web.
- ⑤When drilling rivet holes, side frames and outer stiffeners should be processed together. And the difference between the hole and rivet diameter should be less than 0.7mm.
- ⑥Use the  $\Phi 10$  rivet in medium/small-sized vehicles,  $\Phi 11$  in large-sized vehicles, and arrange them in JIG-JAG layout.

- ⑦The identical dia. Rivet should not be riveted again upon the identical position. But, only when the dimension from the edge to the edge of the rivet hole is more than 25mm, it is possible to fasten again after enlarging the  $\Phi 10$  rivet to the  $\Phi 11$  rivet, the  $\Phi 11$  rivet to the  $\Phi 13$ .
- ⑧In order to prevent the damage of the rivets and the bolts caused by plug welding.
- ⑨The hole diameter of plug welding should be  $\Phi 30$ , and arrange them in JIG-JAG layout.
- ⑩The edges of the holes for riveting and plug welding should be 25 to 30mm away from the edge of the outer stiffener.
- ⑪The pitches of riveting and plug welding should be 70~150mm, and the pitch near the edge of the outer stiffener should be of a small size.
- ⑫As  $\sqsubset$ -shaped stiffener can not be strictly fitted to the side frame due to difficulty of machining accuracy, L-shaped stiffener is recommendable
- ⑬When installing a L-shaped stiffener, the flange should be placed onto the tensile side of the side frame's stress.

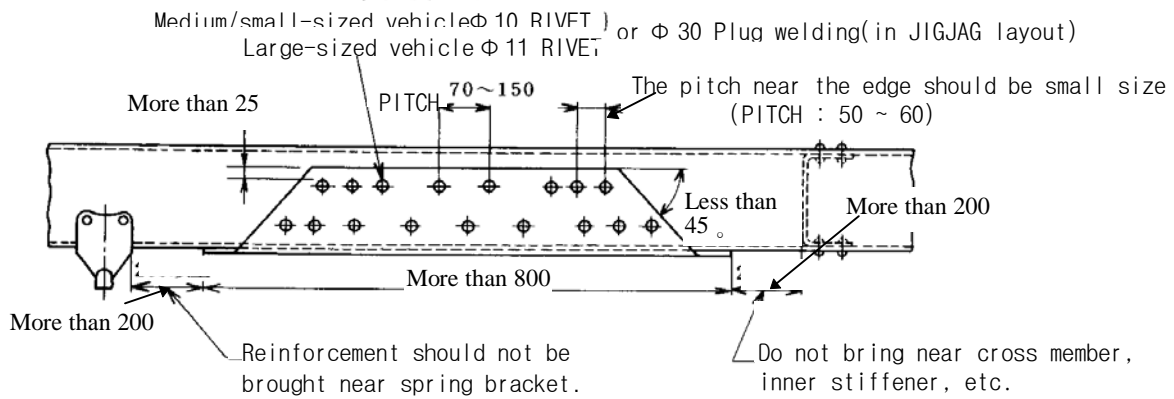


Fig 3-1-20

### 10)Rear hook

When moving rear hook, be sure to observe the instructions below.

#### (1)In case of installing in the side of the frame

In case cross member is not installed in the rear end of the frame, perform intermittent welding (20mm) onto the inner side of the frame with a steel plate(plate thickness 4.5mm, length 150mm, width 100mm). And in case cross member is installed, be sure to install as it is.

#### (2)In case of installing in the lower side of the frame

In case cross member is installed, do not attach added equipment. And In case the rear end of the frame is opened , be sure to install the reinforcing material (plate thickness 4.5mm, length 150mm, width 60mm) in the inner side of the lower frame.

### 3-1-2. Safety part

#### 1)Cautions needed in treating

(1)Be free from modifying or heating the safety parts such as

front axle, steering relation, brake hose, etc.

(2) Heating-related parts among safety parts as follows

KNUCKLE ARM KNUCKLE ARM BOLT TIE ROD TIE ROD ARM TIE ROD ARM BOLT FRONT AXLE STEERING SHAFT ASS'Y PITMAN ARM BALL STUD STEERING DRAG LINK STEERING BALL STUD SLAVE LEVER SLAVE LEVER BRACKET STEERING BOOSTER END SOCKET	STEERING UNIVERSAL YOKE STEERING SLEEP JOINT STEERING SPIDER Related part of STEERING CONNECTING LINK BRAKE HOSE, BRAKE PIPE WHEEL NUT SPRING BRACKET (FRONT, REAR) SPRING U-BOLT AIR MASTER AIR TANK ELECTRIC HARNESS
--	--

(3) Cautions regarding brake hose and air hose

The hoses close to front and rear wheel should be maintained 50mm away from the fittings even in the worst state, considering a clearance during vehicle run.

Other hoses should be maintained 40mm away from the fitting. As mutual contact causes early damage and heavy accident, so care should be taken.

### 3-1-3. Part for measure to noise

1) Cautions needed in treating

The parts for measure to noise like a cover for shelter around the engine and T/M, muffler, exhaust pipe between exhaust manifold and muffler should not be modified or altered absolutely.

2) Items regarding a noise as follows, be free from chassis modification except 'BODY BUILDER BOOK'

(1) Change of engine model

(2) Change of reducing gear

(3) Change of shifting gear

(4) Change into unapproved tire

(5) Change of the size of exhaust pipe diameter, clamp and muffler

(6) Change of the size, pitch, number sheets and rotation of a radiator cooling fan

(7) Change of the diameter, shape and length of air intake duct

(8) Chassis modification interfering with cover performance of a cover for shelter around the engine and raising temperature of the inside of the cover

#### 3-1-4. Oil pressure · air piping

As brake system and the oil · air piping of the steering system are safety parts, should not be modified absolutely.

1) Cautions needed in arranging pipes onto installing device or equipment

When connecting air to installing device from pipes of the brake system, since it is necessary to check on safety, using frequency, relation to air supply capability sufficiently.

2) Nylon tube for air piping

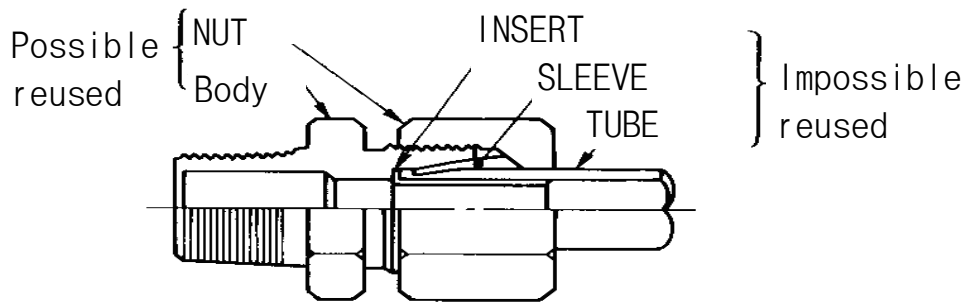
In case of modifying the pipes inevitably because of shifting

device or equipment, faithfully follow the instructions below.

(1)Cautions needed in laying pipes

- ①Temperature should be within a range from  $-40$  to  $+93^{\circ}\text{C}$ , and pressure be less than  $980\text{kPa}(10\text{kgf}/\text{cm}^2)$ .
- ②When intending to lay pipes less than minimum bend radius, do not use a bent tube once.
- ③Be free from laying pipes along the moving areas on harness and under spring.
- ④In case of laying pipes along the engine room, install a heat insulating plate between high temperature area and the tube.
- ⑤If necessary to prevent above damage of the edge area, install a protection panel.
- ⑥1% deformation is due to an effect in temperature.  
Therefore, maintain proper length in laying pipes.
- ⑦A clearance of clamp should be less than  $600\text{mm}$ .
- ⑧The edge shape of clamp should be the shape of flange not to damage tube.
- ⑨If tubes contact with steel pipes, surface of steel pipes take place corrosion. Therefore, layout of tubes do not contact with steel pipes.
- ⑩Absolutely, be free from giving the high temperature of  $100^{\circ}\text{C}$  in the process of drying of painting after placing pipes, as it leads to leakage in joints.
- ⑪Oil like fuel, oil, grease, etc. makes no problem, but battery fluid should not be stained.
- ⑫Do not allow sparks of welding contact.

⑬ Once disassembling nuts, do not reuse insert, sleeve, and use new ones. And connector and nut can be reused. Assembling nuts temperature should be within  $20 \pm 15^{\circ}\text{C}$ .



NAME	Minimum bend radius (mm)	Nominal torque (kg.m)
6x1	40	0.98~1.32
10x1.25	60	1.66~2.35
12x1.5	75	3.44~4.56

(2) Be sure to purchase the nylon tube related parts by referring to the following part number.

Part Name	Part Number		
	1/4 inch	3/8 inch	1/2 inch
TUBE-NYLON	17915-4000*	17916-6000*	17916-7000*
NUT	19517-04060	19517-06100	19517-08130
SLEEVE	19502-04000	19502-06000	19502-08000
INSERT	19506-04030	19506-06050	19506-08080

(3) Piping procedure

- ① Attachment connector to device or equipment.
- ② Cut off a tube at sharp angle.
- ③ Put insert in tube, and assemble nut and sleeve.

- ④ Hold tube until it adheres closely to the tube end of the connector, and fasten nut.
- ⑤ After tightening with hands temporarily, tighten tube to nominal torque with a spanner or torque wrench until it is pressed.
- ⑥ Pull tube with hands and check that it comes out, after tightening it.

### 3-1-5. Exhaust system

#### 1) Alteration prohibition limits

- (1) Do not modify exhaust system except tail pipes in terms of noise standards

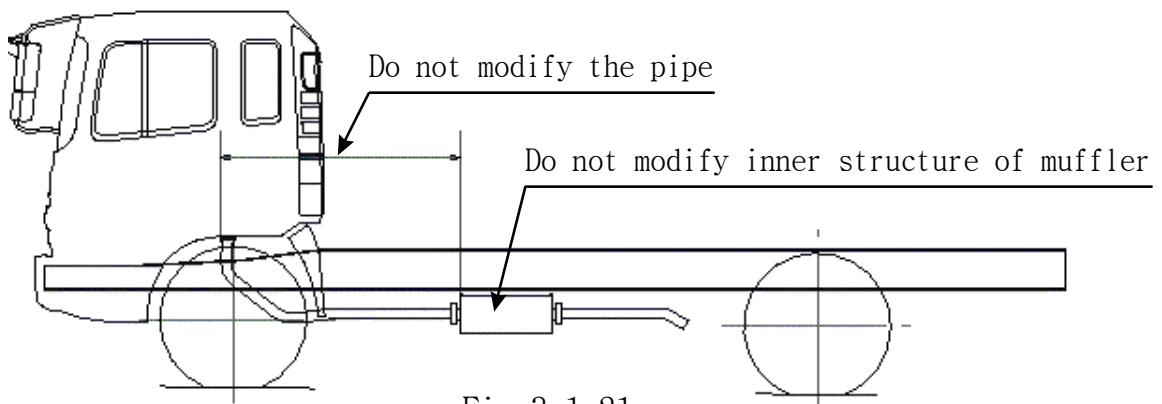


Fig 3-1-21

#### 2) How to modify tail pipes

- (1) Use the same diameter and material as the original pipe.  
(Material of pipe : SEHC or equivalent)
- (2) Do not give consideration to pipe extension.
- (3) The bend radius  $R$  of pipes should be 150 to 250mm.
- (4) Support the pipes elastically with cushion rubber HMC genuine parts, and the distance between the supports



should be less than 1,000 mm.

(5)As a rule, tail pipes should be placed in the direction as shown in figure below.

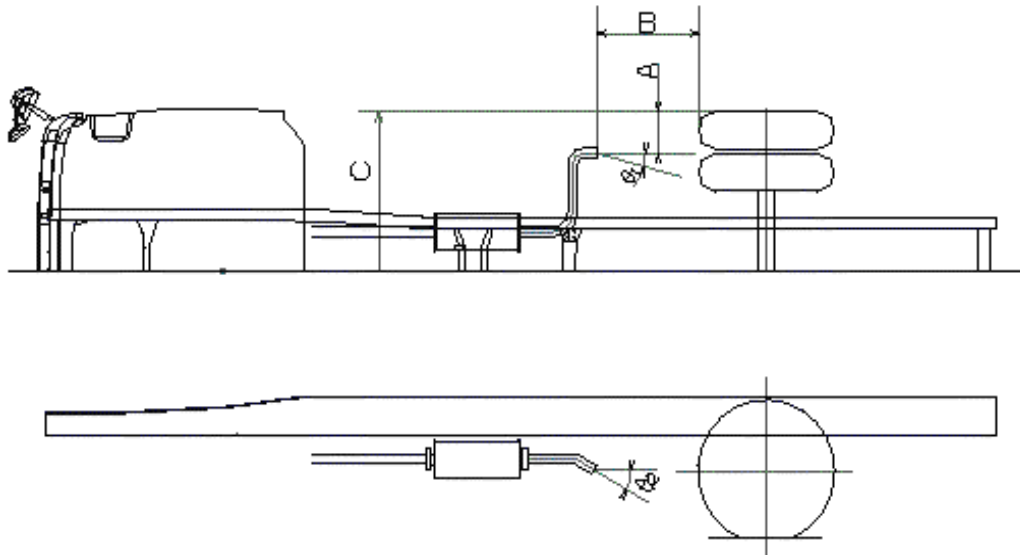


Fig 3-1-22

(Unit : mm)

	A	B	C	$\theta 1$	$\theta 2$
Fixed value of maker	less than 100	less than 1000	Don't exceed the over all width	$0^{\circ} \sim 15^{\circ}$	less than $30^{\circ}$
Safety standard	-	-		Left direction less than $30^{\circ}$	-

### 3) Clearance between exhaust system and other components

(1)When chassis components and tail pipes are modified, maintain the clearance below. If impossible to maintain clearance, install heat insulators.

(Unit : mm)

Minimum clearance		Related chassis components
Large/medium-sized vehicle	small-sized vehicle	
100	80	Air pipe, Air tank, Vacuum tank
150	100	Oil pipe, Air master
200	150	Electricity harness, Fuel tank, Battery, Cable, Rubber parts, Resin parts
200	200	Fuel pipe
250	200	Fuel hose

(2) Tail pipes should not be installed under fuel pipes, hose joints and fuel filter drain tubes.

(3) Tail pipe outlet should not be placed in the direction of the filler port of the fuel tanks or it should be more than 300mm.

### 3-1-6. Fuel tank

#### 1) Caution needed for transfer and addition of fuel tanks

(1) When changing fuel hoses, use rubber hoses or steel pipes. Because products of poor quality may cause a fire, use HMC genuine parts by all means.

#### ① Steel pipe

Steel pipes treat rust preventing at inner/outer face and the section of pipe end uses shape like figure below.

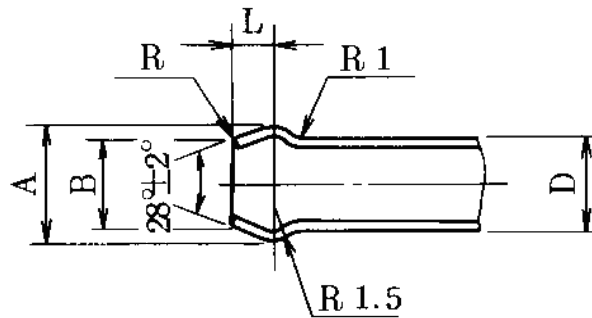
Rust preventing : inner face - copper coating

- thickness : more than 8 $\mu$

: outer face - zinc coating

- thickness : more than 8 $\mu$

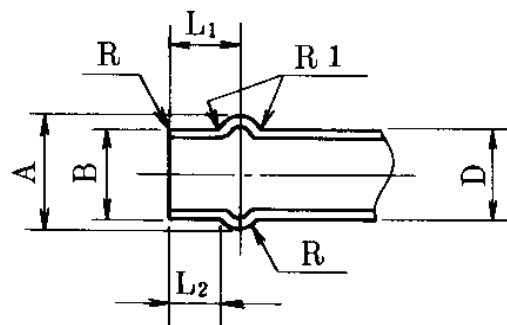
BULGE TYPE



(Unit : mm)

Diameter(D)	A	B	L(reference)	Rubber hose inner dia.(ref.)
6.35	7.1~7.7	5.8~6.4	2.8	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

SPOOL TYPE



(Unit : mm)

diameter(D)	A	B	L1	L2	RUBBER HOSE inner dia.(ref.)
6.35	7.1~7.7	6.35	4.5	3.5	5
8	9.0~9.6	8	4.5	3.5	7
10	11.2~11.8	10	4.5	3.5	9

- (2) Extending fuel hoses is prohibited
- (3) Use steel pipes within the engine room
- (4) Any change of clips and transfer of clamp locations with

regard to relatively movable parts between the engine and frame are prohibited.

(5)When sharing with the fuel tank for vehicle in order to supply fuel to the engine for a refrigerator, connect from the tank body by all means. Detachment from the engine supply system for vehicle is prohibited, as it interferes with the supply of fuel to the engine.

(6)The filler port of the fuel tanks should be more than 200mm apart from exposed electrical terminals and switches.

## 2)Transfer of fuel tanks

(1)Do not interfere with the side guard and the fuel tank components

(2)Install the fuel tank within the wheel base.

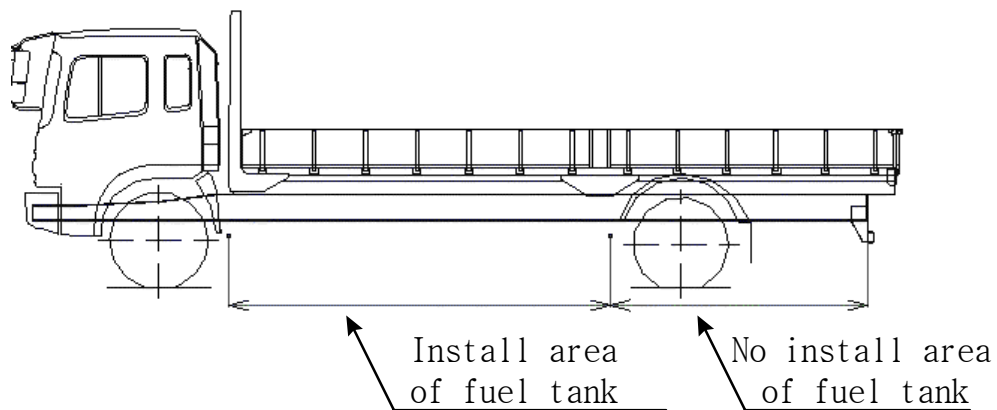


Fig 3-1-23

(3)Clamp fuel hoses at intervals of 400 to 500mm. Do not install hoses along electrical wires or battery cables.

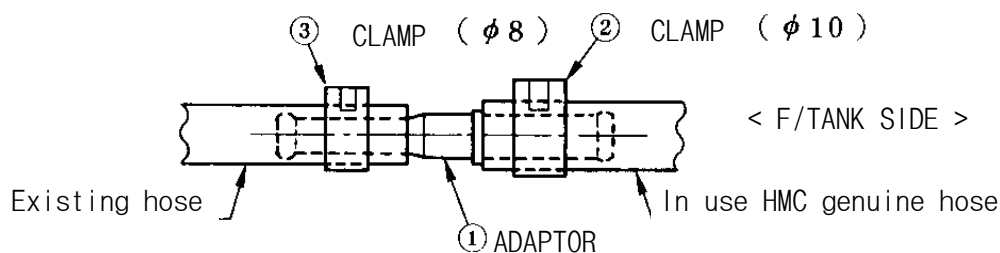
Fuel hoses should be 20mm apart from electrical wires or

battery cables.

- (4) Fuel pipes should be fastened securely by means of clamps, 15mm apart from the edge of other parts and more than 25mm from relatively moving part.

### 3) Addition of fuel tanks

- (1) When an additional fuel tank is to be installed, use HMC genuine parts.
- (2) When an additional fuel tank is to be installed, a cut-off cock should be provided in the tube connecting each tank. Only use HMC genuine parts.
- (3) When the outer diameter of the return pipe is 10mm (Sent out fuel tank 8mm) in case of exchange installation, pipes should be connected in accordance with the followings.
- ① Cut the return hose which has been already installed halfway, add arranged adaptor.



- ② Do not install the adaptor in the engine, T/M, and between T/M and the frame. Fasten securely with a clamp so that adaptor does not sway, and be sure to prevent it from interfering with brake pipes, hoses and electrical

harness.

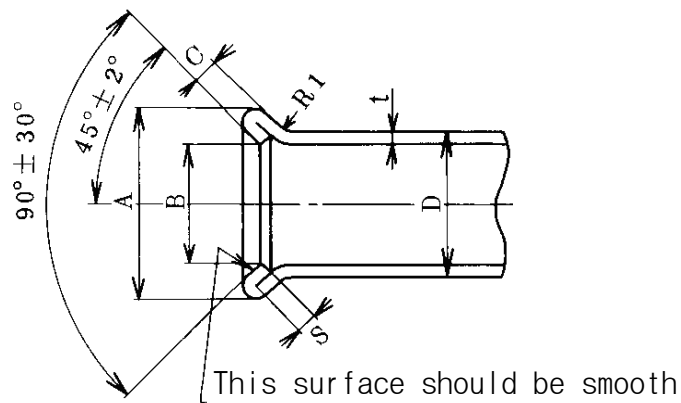
③Feed line and return line should not be turned upside down.

[Reference Data] Pipes for an example

1)The shapes and dimensions of chassis pipes

Use following steel pipes for chassis.

D Dia.	A	B	t	C	S Min	MATERIAL	TORQUE N · m (kgf · m)
4.76	6.6~7.1	3.0~3.7	0.7	1.4	1.0	SPCC  (Fluorine	13~17(1.3~ 1.7)
6.35	8.6~9.1	4.5~5.2	0.7	1.4	1.0		19~26(1.9~ 2.6)
8	10.5~11.0	6.2~6.9	0.7	1.4	1.6		29~39(3.0~ 4.0)



10	13.0~13.5	8.2~8.9	0.7	1.4	1.6	resin	39~50(4.0~ 5.1)
12	15.0~15.7	9.8~10.5	0.9	1.8	1.6	coating)	59~78(6.0~ 8.0)

15	18.1~18.8	12.7~13.4	1.0	2.0	1.6	69~93(7.0~ 9.5)
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## 2)Cautions needed in laying pipes

- (1)When extending pipes, do not let each pipe be stuck together.
- (2)When connecting pipes, join in a flare style, and do not tighten forcedly. Also choose the place which makes retightening work possible.
- (3)Be free from high temperature heating absolutely.
- (4)When pipes passes through frame, insert grommet into the area of passing through, and again fasten securely with a clip. Be sure to prevent pipes from coming in contact with the area of passing through.
- (5)When detaching T/M, as pipes move to the rear in accordance with he engine slant, do not install in front of cross member.
- (6)Install the pipe within the frame and the cross member.
- (7)Do not install joints of the oil and fluid pipes above or near the exhaust system to avoid fire hazard when oil leakage occurs.
- (8)Do not install pipes between spring brackets (The outside of the flange between frames) and within movable part of the spring shackle.
- (9)Do not install pipes near such driving rotation as the propeller shaft or PTO shaft of the chassis side.

- (10) Be free from kick up parts in the course of a piping in order to facilitate air deflecting of the oil and fuel pipe.
- (11) Do not install steel pipe in the place where earth and sand are apt to be piled up and to run down. Also coating rubber with vinyl tube is prohibited, because staying wet causes rust.
- (12) Regarding the shape of air pipes, follow the instructions given below in order to prevent freezing when it's cold.
- (13) The bending of pipes should conform to the requirements below.

① The bending of pipes should be performed with a bender.

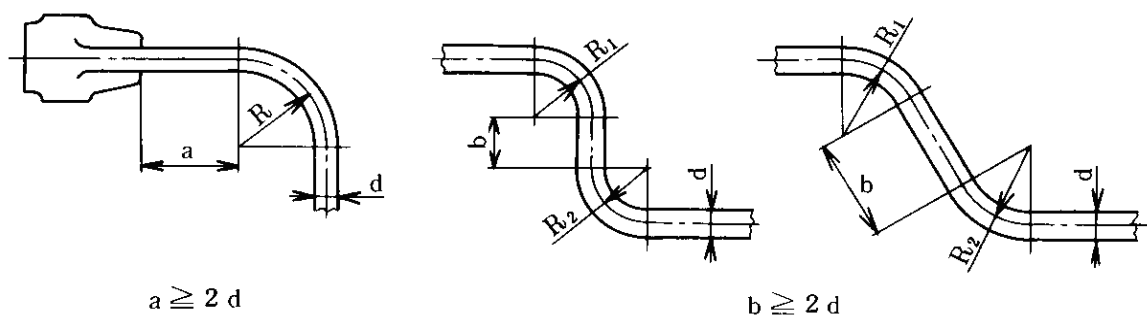
Do not use heat bending.

② The bend radius  $R$  of pipes should be strictly in accordance with the following minimum bend radius.

(unit : mm)

Pipe nominal diameter	4.76	6.35	8	10	12	15
Minimum bend radius $R$	20	30	40	40	50	60

③ The required length of the straight portion of pipe end and bent portion should be in accordance with the following figure.





④Clean and remove foreign matters from inside of the pipes with compressed air blower.

3)How to assemble when exchanging pipes

(1)Pipes in exchanging assemble a joint etc., and flare nut of both ends tightens slightly.

(2)In assembling pipes, when it's difficult to assemble, forced tightening by spanner is prohibited. Get pipes fixed and assemble them by the main point of the (1) item, with joints fitted properly.

## 3-2. Cab modifications

3-2-1. Cautions needed in additional machining and modification of the cab

1)When installing the control lever and the like for installation, they should be more than 50mm from the lever and switch types.

2)When the cab floor has been drilled or notched in order to install the control lever and the like, pay attention to prevention of reduction in strength of the cab floor. Also perform rust preventing to additional parts in order to prevent rust.

3)Take a post measure securely to avoid fire hazard due to the glass wool for soundproofing stained with oil.

4)Be free from having an effect on detachment and service of the parts of device or equipment in vehicle.

5)Pay attention to identification mark to prevent a wrong operation and confusion of installation related levers,

switches and lamps

### 3-2-2. Roof machining

1)When installing the roof spoiler, roof deck and the like, use genuine parts. But, do not install the deck or cab railing which need drilling holes through the roof panel or the drip rail for an inflow of the interiors and a rust preventing. Installation of genuine parts should be in accordance with 'Vehicle Model Book'

2)Cautions needed in installing the parts except genuine parts

(1)Roof area

①When installing exterior device such as roof spoiler, roof deck and the like on the roof, use the exclusive holes provided on the roof.

②The exterior device installed on the roof should be less than 70kg in large-sized vehicle, 50kg in small-sized vehicle

(2)Cautions needed for installation

①The bolt and washer made from Nickle-cromium stainless material are recommended.

②Be careful not to give a damage to the body paint in installing exterior device.

③Use packing between the exterior device and the body to prevent rust.

④Recommended material for the packing is R715COP(EPDM), thickness less than 2mm, hole diameter 10mm (in large-sized vehicle).

⑤ Install exterior device by all means after finishing paint.

⑥ Bolt tightening torque 36 to 52N · m (3.5 to 5.5kgf · m).

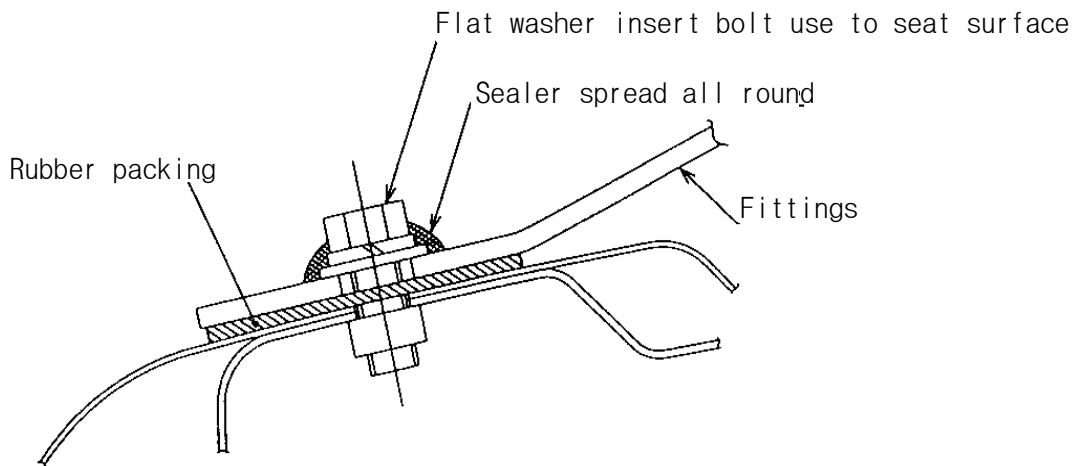


Fig 3-2-1

### 3-2-3. Installation of radio apparatus

#### 1) Cautions needed for installation

- (1) The antenna cable of a wireless device should be away from harnesses · wires. As passing wires close to harnesses · wires causes wrong operation of electrical parts, pass wires 300mm away from harnesses · wires.
- (2) Fasten securely cables passing along the outside of the cab with wire stickers of high durability. Also they should be clipped to prevent them from interfering with the engine.
- (3) Since installing antenna by a tapping screw causes rust, use bolts and nuts. Also the bolt and nut made from Nickle-cromium material are recommended.

## 4. ELECTRICAL PRECAUTIONS

### 4-1. Electrical wiring

Because electrical wiring and fuse are completed and sent out, after checking using load and frequency, and affirming a fire prevention and driving safety, add to and modify electrical wiring in accordance with the requirements below.

#### 4-1-1. Wiring and fittings already installed on the chassis

- 1) Be free from damages by the fittings.
- 2) Be free from coming in contact with sharp parts.
- 3) Be free from pulling by strong power in treating.
- 4) In connecting, do not pull harnesses and perform with the connector held.
- 5) Wiring and fittings should be away from the high-temperature parts.
- 6) Be free from interfering with check and service of the wiring electrical equipment after installing.
- 7) In installing buzzer type for the fittings, common use with the buzzer of chassis and installation of similar sound are prohibited.

#### 4-1-2. General cautions needed for additional wiring or alteration

- 1) The wires to be used

Use the wires equivalent to KS C 3311 (Low pressure wires for vehicle) and JASO D 608 (Heat resisting low pressure wires for vehicle), and the vinyl tapes equivalent to KS C 2306 (Vinyl adhesive tape for electric insulation).

2)How to wire

(1)Always pass wires along rear bodies, frames, etc. and do not let them hang free in the air.

(2)All wires should be securely clamped to prevent them from coming in contact with moving parts, vibrating parts and sharp corners on the chassis and fittings. Maintain the following clearance.

Region	Clearance
The clearance between moving and wiring	When they were closest : more than 25mm
The clearance between sharp and wiring	Minimum clearance : more than 25mm

(3)Use grommets whenever penetrating steel plates to prevent electric shorts due to covering damage.

(4)Add clamps to the place where wires can come in contact with the edges of metal parts or insert the protectors into the edges to prevent covering damage due to moving contact.

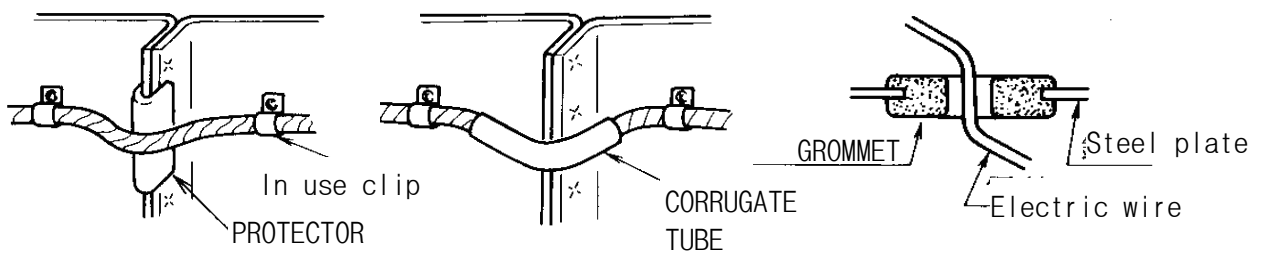


Fig 4-1-1

(5)Tape wiring together with chassis harnesses, if any nearby. Wires should never pass along brake pipes (Including brake hoses), fuel pipes (Including metal sheets, rubber hoses, etc.) and grease pipes. Clearance should be as follows.

Method of wiring	Clearance
Parallel	More than 10mm
Crossing	More than 20mm

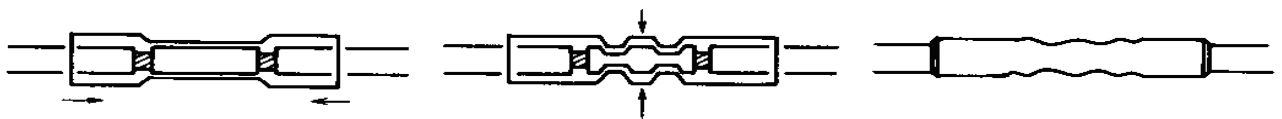
- (6)The clearance between electric wires and the parts of exhaust system should conform to the page 3-1-5-3 'Clearance between exhaust system and other components'.
- (7)Wires should never pass along the place where there are misgivings that harnesses or cables are damaged due to mud, accumulation of snow and the like, freezing and flying stones.
- (8)Connecting electrical wires of peeled covering is prohibited with respect to safety.
- (9)When passing wires along device or equipment, since there are misgivings that waters enter into the inside, seal them securely with grommets and the like. Maintain the terminal of each wire upward.
- (10)Always do not pass wires along water or polluted places.
- (11)Always do not pass wires along the upper face and outside of frames to prevent damage due to flying stones.
- (12)When modifying the wires of the battery cables due to moving of battery, do not extend or shorten the battery cables and discharging circuits of alternator and the like. Especially do not modify clamping, location and slack of wiring connected to components movable relatively to each other between the starter and the frame.
- (13)Wires should be placed more than 200mm away from exhaust system such as tail pipes and mufflers. If otherwise,

provide a heat insulator.

(14) When extending wires, use wires with the same cross sectional area and color as the original wires. Connections should be made secure by soldering or press terminals and completely insulated by coverings. Also never make connections by twisting the ends of the wires. Especially when extending electrical wires of chassis harnesses (Whole harnesses of the cab outside), waterproof and insulation of connections should be made secure.

For example, followings shows the method by the adhesive heat shrinkage tube.

- When using DURACELL tube



1. After the electric line carry out 8mm, it assembles like a figure

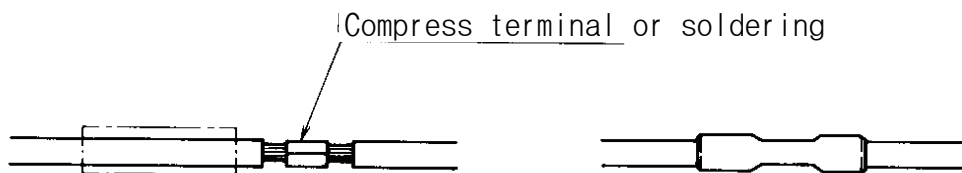
2. Compression use the press punch

3. After compression, heating use the heating tools

Fig 4-1-2

Use exclusive press punch and heating tools.

- When using MVT tube



1. It does compress or soldering after the electric line carries out and the tube insertes that

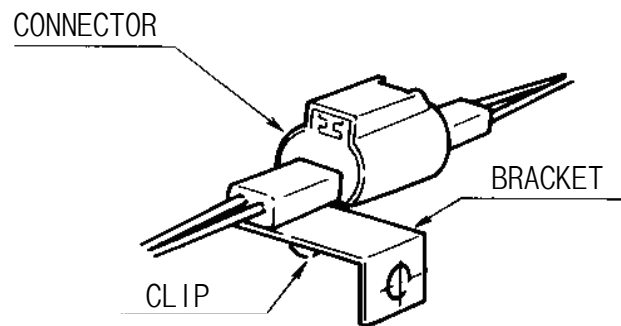
2. After the tube inserts the middle of joint section, it heats by the heating tools

Fig 4-1-3

Use exclusive heating tools.

(15) In due consideration of cutting off wires, the spare length to be cut off should be clamped to the harnesses already installed with vinyl tape.

(16) The SWP waterproof connectors such as the license lamp, side turn signal lamp and the like should be fastened with hook type resin or band clips.



( Fixing the bracket etc. )

Fig 4-1-4

(17) When wiring inside the engine compartment, wires should pass directly along with the chassis harnesses already installed. They should be clamped with vinyl tape, wrapped up widely with thin metal sheets (rubber or vinyl coated).

Do not use weak vinyl tape that could soon fall off due to engine heat

(18) Wires connecting engine and transmission components should be run along the harnesses already installed so as to allow them to absorb relative motions. Also, give them proper slack so as to keep them from contacting other components.

(19) Clip

① Use coating tapes or protective rubber when clamping



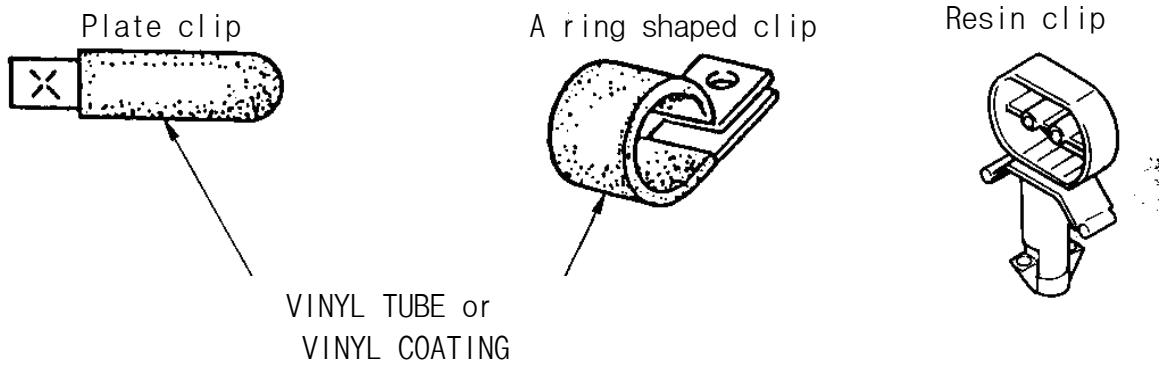


Fig 4-1-5

②Clamp intervals of wirings are given below as stand.

HARNESS	CLAMP CLEARANCE
less than $\Phi 5$	less than 350mm
$\Phi 5 \sim \Phi 10$	350mm
$\Phi 10 \sim \Phi 20$	350mm

※Clamp clearance of wiring near rounded area is 100~200mm

③Use rubber clamp near moving parts such as dump hinges or the like on the fittings and vibrating parts like engine and transmission.

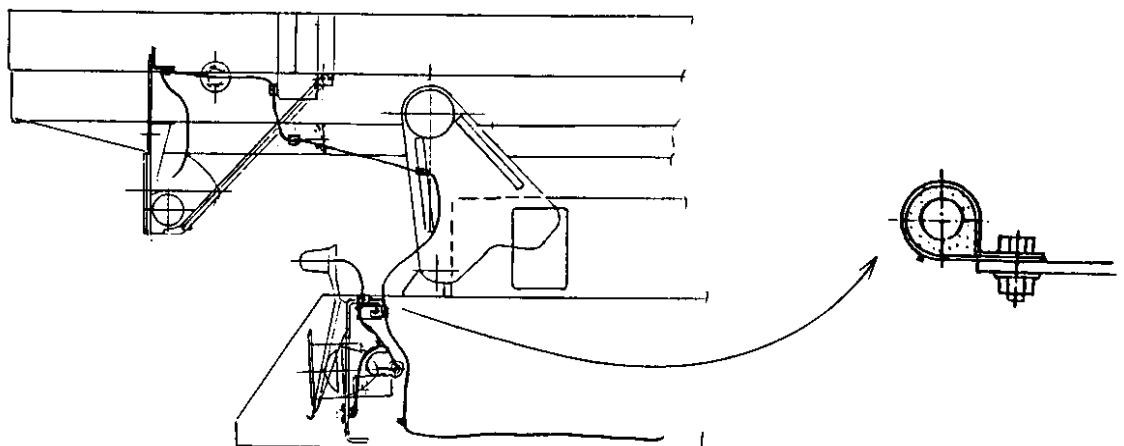


Fig 4-1-6

#### 4-1-3. Earth

1)Earth of increase power source should be the circuit connected to minus (-) terminal of battery by all means. Also, when earthing to frames, use masking parts and the paint removed parts. But, do not earth together with the bolts already installed .

2)Use ring in earth , assemble it securely together with tooth washer.

#### 4-1-4. Fuse

1)Since in due consideration of use load and frequency, the fuse with optimum capacity has been already installed on chassis, when adding electrical components, do not install the parts giving wrong signals to power source and earth line on chassis and do not lay harness wires.

Power supplies for installation related components and lamps should be taken out of fuse or connectors.

2)Do not add wires to the already installed wiring and in order to prevent a fire due to an excessive current draw, do not increase capacity by modifying the fuses on the fuse box.

## 4-2. Cautions in installing electrical equipment

When installing bodies with electronic control system, be sure to observe the instructions below

### 4-2-1. Sort of electronic control system

- 1) Electronic governor
- 2) Electronic timer
- 3) ABS
- 4) ASR
- 5) EGS (Electric Gear Shift)
- 6) Power steering
- 7) Distance Warning System
- 8) Electronic Controlled Auto T/M
- 9) Retarder Control

### 4-2-2. Cautions in installing electrical equipment

Since using electrical components such as sensors, control units, actuators and the like in electronic controlled vehicles and the multipole connectors which are suitable for weak current of electronic circuit, pay attention to the instructions described in below

- 1) Do not eliminate or add connectors unnecessarily, which causes deformation and damage of terminals resulting in insufficient connection.
- 2) Eliminate connectors together with housing by all means.  
Pulling electric wires forcibly or pulling them with them twisted deforming terminals are prohibited.

- 3)When eliminating connectors, do not stain terminals with water, oil and dust causing insufficient connection or unstable current flow.
- 4)After the work, assemble connector securely. Also, when eliminating harness, attach it to the original position securely after servicing.
- 5)Use electrical components such as relays, solenoid valves, motors, etc. , which include only noise absorbing elements like diode, veristar, etc.

### 4-3. Size of electric wire and permitted current

#### 4-3-1. Sort of electric wire

Select by the following table.

a kind of electric wire	using place
AVSS wire vinyl insulated a low voltage cable for vehicle	General
AVX wire bridge-building heat-resistant a low voltage cable for vehicle	This cable uses of a highly temperature region ; engine circumference, etc.
AEX wire bridge-building polyethylene heat-resistant a low voltage cable for vehicle	

#### 4-3-2. Size of electric wire

Select by the following table.

nominal section area	wire number/wire diameter(mm)	allowable current(A)		
		AVSS wire	AVX wire	AEX wire
0.5f	20/0.18	8	7	7
0.5	7/0.32	9	8	8
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	50/0.32	47	44	43

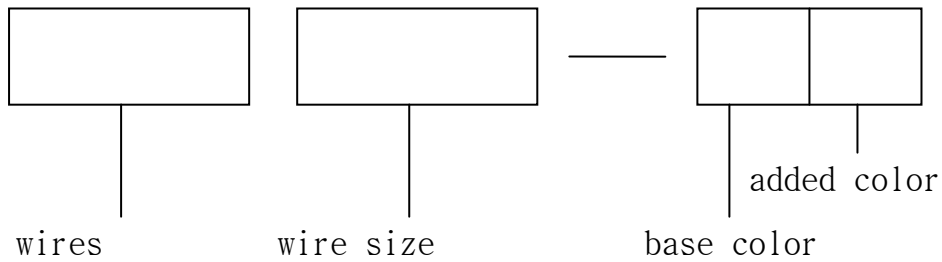
※ f : flexible

Use the flexible wire in moving & vibrating places such as T/M, Engine, Dump Hinge, Cab ~ Chassis etc.

4-3-3. Method of indicating an electric wire and connector

1) Wire size, Method of indicating color

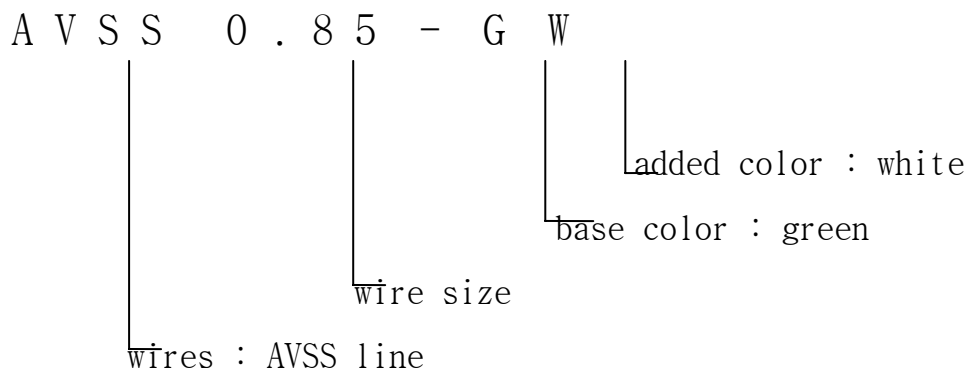
(1) Method of indicating



Symbol of wire color

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

(2) Example of indication



HYUNDAI TRUCK  
BODY BUILDER BOOK  
(HD65 / HD72 / HD78 TRUCK)



2005. 6.

HYUNDAI MOTOR COMPANY  
COMMERCIAL VEHICLE ENGINEERING & RESEARCH CENTER

# I N D E X

## 1. IDENTIFICATION CODE

## 2. GENERAL SPECIFICATION

## 3. EXTERIOR DRAWING OF THE COMPLETE VEHICLE

## 4. ENGINE PERFORMANCE CURVE

## 5. CAUTIONS REGARDING INSTALLATION, MODIFICATION OR ALTERATION

5-1. Cautions needed for the front structure of the rear body

5-2. Cautions needed for the fastening U-bolt

5-3. Noise prevention parts

## 6. WEIGHT AND FRAME INFORMATION

6-1. Permissible weight

6-2. Side frame material and main section

## 7. P.T.O CONTROL

7-1. Transmission P.T.O

7-2. Dump control lever

## 8. EXTERIOR DRAWING OF THE CAB

## 9. CHASSIS CAB DRAWING

## 10. CAUTIONS NEEDED FOR THE INSTALLATION OF THE PROPELLAR SHAFT

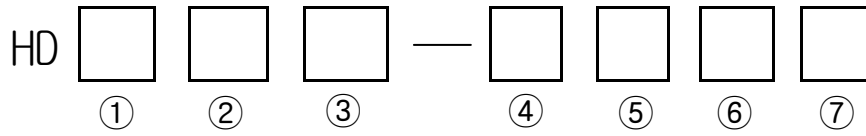
## 11. OTHERS

11-1. Fuel tank



# 1. IDENTIFICATION CODE

# 1. IDENTIFICATION CODE



①	②	③	④	⑤	⑥	⑦
MODEL	VEHICLE TYPE	CAB	WHEEL BASE		ENGINE	SERIAL NO.
65	CARGO : C	· NARROW CAB : N	LONG : L	HIGH DECK : H	D4AF : F	
72	DUMP : D	· WIDE CAB	SHORT : S	LOW DECK : L	D4AL : L	
78		- STD CAB : S			D4DB : B	
		- SUPER CAB : P			D4DB-d : Bd	
		- DOUBLE CAB : D			D4DC : C	
					D4DD : D	

EX) HD65 WIDE SUPER LONG CARGO LOW DECK : HD65CP - LLF

## 2. GENERAL SPECIFICATION

## 2. GENERAL SPECIFICATION

			WIDE CAB				
			HD65 STADARD CAB				
			HIGH DECK SHORT				
			HD65CS-SHF	HD65CS-SHL	HD65CS-SHBd	HD65CS-SHC	HD65CS-SHD
0. A. L	mm	5,200	←	←	←	5,275	
0. A. W	mm	2,030	←	←	←	←	
0. A. H	mm	2,335	←	←	←	←	
BODY INSIDE	LENTH	mm	3,410	←	←	←	←
	WIDTH	mm	1,920	←	←	←	←
	HEIGHT	mm	380	←	←	←	←
DECK OFFSET		mm	385	←	←	←	←
WHEEL BASE		mm	2,750	←	←	←	2,780
WHEEL TREAD	FRT	mm	1,665	←	←	←	1,680
	RR	mm	1,495	←	←	←	←
OVER HANG	FRT	mm	1,075	←	←	←	1,120
	RR	mm	1,375	←	←	←	←
KERB WT	FRT	kg	1,575	1,605	1,625	1,605	1,665
	RR	kg	1,120	1,140	1,140	1,140	1,180
	TTL	kg	2,695	2,745	2,765	2,745	2,845
G.V.W	FRT	kg	2,110	2,140	2,160	2,140	2,200
	RR	kg	3,280	3,300	3,300	3,300	3,340
	TTL	kg	5,390	5,440	5,460	5,440	5,540
ENGINE	MODEL		D4AF	D4AL	D4DB-d	D4DC	D4DD
	ASPIRATION		NA	TCI	TCI	NA	TCI
	DISPLACEMENT	cc	3.6 l	3.3 l	3.9 l	3.9 l	3.9 l
	OUTPUT	ps	96	120	105	105	140
	TORQUE	kgm	24	30	29	27	38
PERFOR- MANCE	MAX.SPD	km/h	103	112	107	107	122
	MAX.GRD	tan θ	0.385	0.416	0.4	0.374	0.436
	T/RAD	m	5.0	←	←	←	←
T / M	MODEL		M2S5	M3S5	←	←	M03S5
	GEAR RATIO	1st	5.494	5.181	←	←	5.380
		2nd	2.836	2.865	←	←	3.208
		3rd	1.592	1.593	←	←	1.700
		4th	1.000	1.000	←	←	1.000
		5th	0.746	0.739	←	←	0.722
		6th	-	-	←	←	-
		7th	-	-	←	←	-
REV	5.494	5.181	←	←	5.380		
R/AXLE	MODEL		D2H	D3H	←	←	D3H
	RATIO		6.666	6.166	←	←	5.000
TIRE	FRT		7.00R16-10PR	←	←	←	←
	RR		7.00R16-10PR	←	←	←	←

			WIDE CAB				
			HD65 STADARD CAB				
			HIGH DECK LONG				
			HD65CS-LHF	HD65CS-LHL	HD65CS-LHBd	HD65CS-LHC	HD65CS-LHD
O. A. L	mm	6,130	←	←	←	6,175	
O. A. W	mm	2,030	←	←	←	←	
O. A. H	mm	2,325	←	←	←	←	
BODY INSIDE	LENTH	mm	4,350	←	←	←	4,310
	WIDTH	mm	1,920	←	←	←	←
	HEIGHT	mm	380	←	←	←	←
DECK OFFSET		mm	560	←	←	←	530
WHEEL BASE		mm	3,375	←	←	←	←
WHEEL TREAD	FRT	mm	1,665	←	←	←	1,680
	RR	mm	1,495	←	←	←	←
OVER HANG	FRT	mm	1,075	←	←	←	1,120
	RR	mm	1,680	←	←	←	1,680
KERB WT	FRT	kg	1,590	1,620	1,640	1,620	1,680
	RR	kg	1,180	1,200	1,200	1,200	1,240
	TTL	kg	2,770	2,820	2,840	2,820	2,920
G.V.W	FRT	kg	2,190	2,220	2,240	2,220	2,280
	RR	kg	3,270	3,290	3,290	3,290	3,330
	TTL	kg	5,460	5,510	5,530	5,510	5,610
ENGINE	MODEL		D4AF	D4AL	D4DB-d	D4DC	D4DD
	ASPIRATION		NA	TCI	TCI	NA	TCI
	DISPLACEMENT	cc	3.6 l	3.3 l	3.9 l	3.9 l	3.9 l
	OUTPUT	ps	96	120	105	105	140
	TORQUE	kgm	24	30	29	27	38
PERFOR- MANCE	MAX.SPD	km/h	103	112	107	107	122
	MAX.GRD	tan θ	0.379	0.411	0.395	0.369	0.431
	T/RAD	m	6.0	←	←	←	←
T / M	MODEL		M2S5	M3S5	←	←	M035S5
	GEAR RATIO	1st	5.494	5.181	←	←	5.380
		2nd	2.836	2.865	←	←	3.208
		3rd	1.592	1.593	←	←	1.700
		4th	1.000	1.000	←	←	1.000
		5th	0.746	0.739	←	←	0.722
		6th	-	-	←	←	-
		7th	-	-	←	←	-
REV	5.494	5.181	←	←	5.380		
R/AXLE	MODEL		D2H	D3H	←	←	D3H
	RATIO		6.666	6.166	←	←	5.000
TIRE	FRT		7.00R16-10PR	←	←	←	←
	RR		7.00R16-10PR	←	←	←	←

			WIDE CAB				
			HD65 SUPER CAB				
			HIGH DECK LONG				
			HD65CP-LHF	HD65CP-LHL	HD65CP-LHBd	HD65CP-LHC	HD65CP-LHD
O. A. L	mm	6,420	←	←	←	6,465	
O. A. W	mm	2,030	←	←	←	←	
O. A. H	mm	2,335	←	←	←	←	
BODY INSIDE	LENTH	mm	4,350	←	←	←	4,340
	WIDTH	mm	1,920	←	←	←	←
	HEIGHT	mm	380	←	←	←	←
DECK OFFSET		mm	455	←	←	←	440
WHEEL BASE		mm	3,570	←	←	←	←
WHEEL TREAD	FRT	mm	1,665	←	←	←	1,680
	RR	mm	1,495	←	←	←	←
OVER HANG	FRT	mm	1,075	←	←	←	←
	RR	mm	1,775	←	←	←	←
KERB WT	FRT	kg	1,615	1,645	1,665	1,645	1,705
	RR	kg	1,210	1,230	1,230	1,230	1,270
	TTL	kg	2,825	2,875	2,895	2,875	2,975
G.V.W	FRT	kg	2,120	2,150	2,170	2,150	2,210
	RR	kg	3,400	3,420	3,420	3,420	3,460
	TTL	kg	5,520	5,570	5,590	5,570	5,670
ENGINE	MODEL		D4AF	D4AL	D4DB-d	D4DC	D4DD
	ASPIRATION		NA	TCI	TCI	NA	TCI
	DISPLACEMENT	cc	3.6 l	3.3 l	3.9 l	3.9 l	3.9 l
	OUTPUT	ps	96	120	105	105	140
	TORQUE	kgm	24	30	29	27	38
PERFORMANCE	MAX.SPD	km/h	103	112	107	107	122
	MAX.GRD	tan θ	0.375	0.406	0.391	0.365	0.426
	T/RAD	m	6.5	←	←	←	←
T / M	MODEL		M2S5	M3S5	←	←	M035S5
	GEAR RATIO	1st	5.494	5.181	←	←	5.380
		2nd	2.836	2.865	←	←	3.208
		3rd	1.592	1.593	←	←	1.700
		4th	1.000	1.000	←	←	1.000
		5th	0.746	0.739	←	←	0.722
		6th	-	-	←	←	-
		7th	-	-	←	←	-
REV	5.494	5.181	←	←	5.380		
R/AXLE	MODEL		D2H	D3H	←	←	D3H
	RATIO		6.666	6.166	←	←	5.000
TIRE	FRT		7.00R16-10PR	←	←	←	←
	RR		7.00R16-10PR	←	←	←	←

			WIDE CAB			
			HD65 DOUBLE			
			HIGH DECK LONG			
			HD65CD-LHF	HD65CD-LHL		
O. A. L	mm	6,130	←			
O. A. W	mm	2,030	←			
O. A. H	mm	2,325	←			
BODY INSIDE	LENTH	mm	4,350	←		
	WIDTH	mm	1,920	←		
	HEIGHT	mm	380	←		
DECK OFFSET	mm	60	←			
WHEEL BASE	mm	3,375	←			
WHEEL	FRT	mm	1,665	←		
TREAD	RR	mm	1,495	←		
OVER	FRT	mm	1,075	←		
HANG	RR	mm	1,680	←		
KERB WT	FRT	kg	1,645	1,675		
	RR	kg	1,235	1,255		
	TTL	kg	2,880	2,930		
G.V.W	FRT	kg	2,045	2,075		
	RR	kg	3,790	3,810		
	TTL	kg	5,835	5,885		
ENGINE	MODEL		D4AF	D4AL		
	ASPIRATION		NA	TCI		
	DISPLACEMENT	cc	3.6 l	3.3 l		
	OUTPUT	ps	96	120		
	TORQUE	kgm	24	30		
PERFOR- MANCE	MAX.SPD	km/h	102	112		
	MAX.GRD	tan $\Theta$	0.354	0.384		
	T/RAD	m	6.0	←		
T / M	MODEL		M2S5	M3S5		
	GEAR RATIO	1st	5.494	5.181		
		2nd	2.836	2.865		
		3rd	1.592	1.593		
		4th	1.000	1.000		
		5th	0.746	0.739		
		6th	-	-		
		7th	-	-		
REV	5.494	5.181				
R/AXLE	MODEL		D2H	D3H		
	RATIO		6.666	6.166		
TIRE	FRT		7.00R16-10PR	←		
	RR		7.00R16-10PR	←		

			WIDE CAB				
			HD72 STADARD CAB				
			HIGH DECK SHORT				
			HD72CS-SHL	HD72CS-SHA	HD72CS-SHB	HD72CS-SHC	HD72CS-SHD
O. A. L	mm	5,200	←	←	←	5,275	
O. A. W	mm	2,030	←	←	←	←	
O. A. H	mm	2,355	←	←	←	←	
BODY INSIDE	LENTH	mm	3,140	←	←	←	3,410
	WIDTH	mm	1,920	←	←	←	←
	HEIGHT	mm	380	←	←	←	←
DECK OFFSET	mm	385	←	←	←	←	
WHEEL BASE	mm	2,750	←	←	←	2,780	
WHEEL TREAD	FRT	mm	1,650	←	←	←	1,667
	RR	mm	1,495	←	←	←	←
OVER HANG	FRT	mm	1,075	←	←	←	1,120
	RR	mm	1,375	←	←	←	←
KERB WT	FRT	kg	1,620	1,655	1,655	1,620	1,685
	RR	kg	1,280	1,300	1,300	1,280	1,320
	TTL	kg	2,900	2,955	2,955	2,900	3,005
G.V.W	FRT	kg	2,295	2,330	2,330	2,295	2,360
	RR	kg	4,300	4,320	4,320	4,300	4,340
	TTL	kg	6,595	6,650	6,650	6,595	6,700
ENGINE	MODEL		D4AL	D4DA	D4DB	D4DC	D4DD
	ASPIRATION		TCI	TCI	TCI	NA	TCI
	DISPLACEMENT	cc	3.3 l	3.9 l	3.9 l	3.9 l	3.9 l
	OUTPUT	ps	120	155	130	105	140
	TORQUE	kgm	30	38	37	27	38
PERFORMANCE	MAX.SPD	km/h	107	129	122	102	116
	MAX.GRD	tan θ	0.359	0.382	0.372	0.322	0.379
	T/RAD	m	5.2	←	←	←	←
T / M	MODEL		M3S5	M035S5	←	M3S5	M035S5
	GEAR RATIO	1st	5.181	5.380	←	5.181	5.380
		2nd	2.865	3.028	←	2.865	3.208
		3rd	1.593	1.700	←	1.593	1.700
		4th	1.000	1.000	←	1.000	1.000
		5th	0.739	0.722	←	0.739	0.722
		6th	-	-	←	-	-
		7th	-	-	←	-	-
REV	5.181	5.380	←	5.181	5.380		
R/AXLE	MODEL		D3H	D033H	←	D3H	D033H
	RATIO		6.666	5.428	←	6.666	5.428
TIRE	FRT		7.50R16-14PR	←	←	←	←
	RR		7.50R16-14PR	←	←	←	←



			WIDE CAB				
			HD72 STANDARD CAB				
			HIGH DECK LONG				
			HD72CS-LHL	HD72CS-LHA	HD72CS-LHB	HD72CS-LHC	HD72CS-LHD
O. A. L	mm	6,670	←	←	←	6,715	
O. A. W	mm	2,170	←	←	←	←	
O. A. H	mm	2,355	←	←	←	←	
BODY INSIDE	LENTH	mm	4,880	←	←	←	←
	WIDTH	mm	2,060	←	←	←	←
	HEIGHT	mm	380	←	←	←	←
DECK OFFSET	mm	635	←	←	←	←	
WHEEL BASE	mm	3,735	←	←	←	←	
WHEEL TREAD	FRT	mm	1,650	←	←	←	1,667
	RR	mm	1,495	←	←	←	←
OVER HANG	FRT	mm	1,075	←	←	←	1,120
	RR	mm	1,860	←	←	←	←
KERB WT	FRT	kg	1,695	1,730	1,730	1,695	1,760
	RR	kg	1,365	1,385	1,385	1,365	1,405
	TTL	kg	3,060	3,115	3,115	3,060	3,165
G.V.W	FRT	kg	2,480	2,515	2,515	2,480	2,545
	RR	kg	4,280	4,300	4,300	4,280	4,320
	TTL	kg	6,760	6,815	6,815	6,760	6,865
ENGINE	MODEL		D4AL	D4DA	D4DB	D4DC	D4DD
	ASPIRATION		TCI	TCI	TCI	NA	TCI
	DISPLACEMENT	cc	3.3 l	3.9 l	3.9 l	3.9 l	3.9 l
	OUTPUT	ps	120	155	130	105	140
	TORQUE	kgm	30	38	37	27	38
PERFORMANCE	MAX.SPD	km/h	107.0	129.0	121.6	102.6	116.1
	MAX.GRD	tan θ	0.350	0.373	0.362	0.314	0.370
	T/RAD	m	7.0	←	←	←	←
T / M	MODEL		M3S5	M035S5	←	M3S5	M035S5
	GEAR RATIO	1st	5.181	5.380	←	5.181	5.380
		2nd	2.865	3.028	←	2.865	3.208
		3rd	1.593	1.700	←	1.593	1.700
		4th	1.000	1.000	←	1.000	1.000
		5th	0.739	0.722	←	0.739	0.722
		6th	-	-	←	-	-
		7th	-	-	←	-	-
REV	5.181	5.380	←	5.181	5.380		
R/AXLE	MODEL		D3H	D033H	←	D3H	D033H
	RATIO		6.666	5.428	←	6.666	5.428
TIRE	FRT		7.50R16-12PR	←	←	←	←
	RR		7.50R16-12PR	←	←	←	←

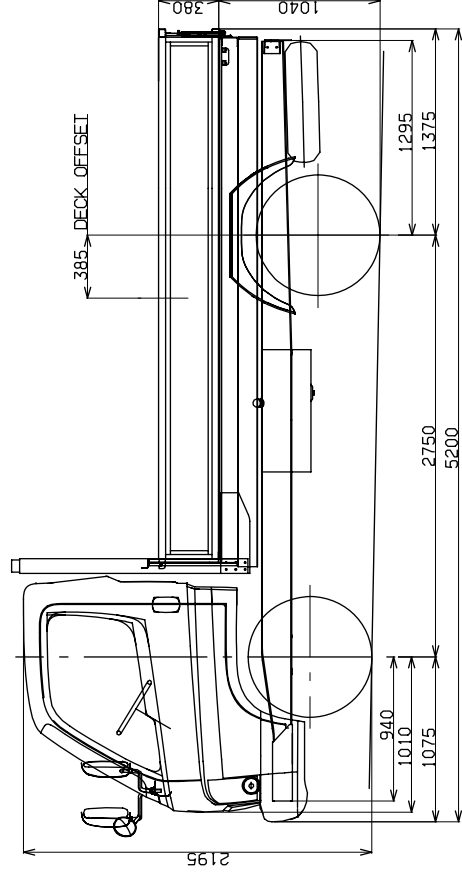
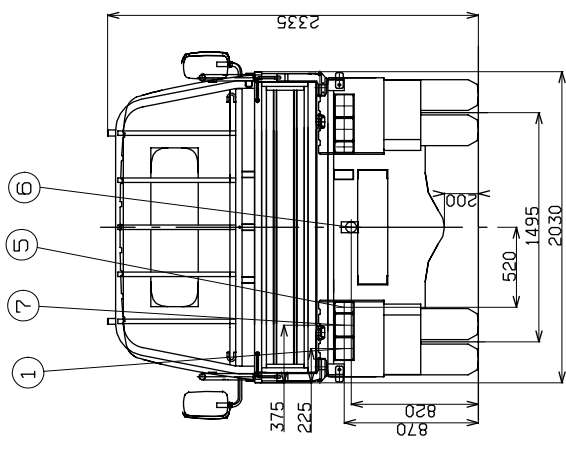
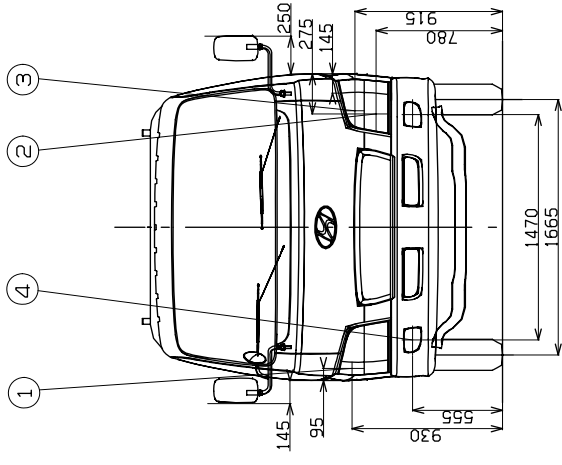
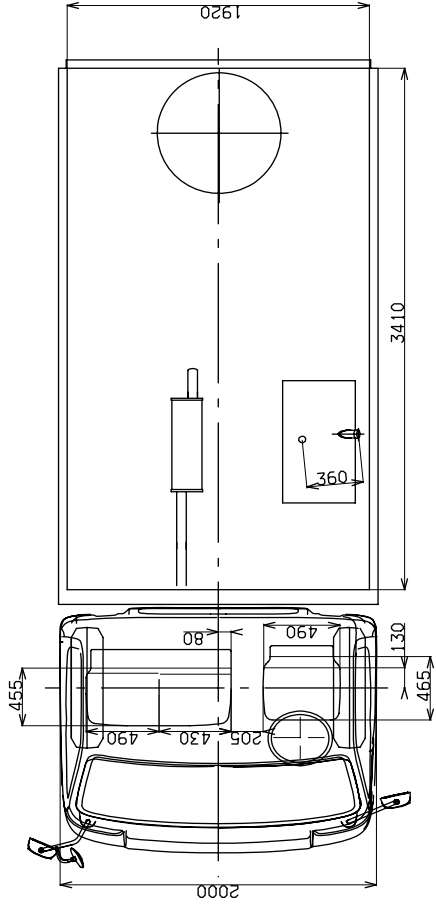
			WIDE CAB				
			HD72 SUPER CAB				
			HIGH DECK LONG				
			HD72CP-LHL	HD72CP-LHA	HD72CP-LHB	HD72CP-LHC	HD72CP-LHD
O. A. L	mm	6,670	←	←	←	6,715	
O. A. W	mm	2,170	←	←	←	←	
O. A. H	mm	2,355	←	←	←	←	
BODY INSIDE	LENTH	mm	4,580	←	←	←	←
	WIDTH	mm	2,060	←	←	←	←
	HEIGHT	mm	380	←	←	←	←
DECK OFFSET		mm	485	←	←	←	←
WHEEL BASE		mm	3,735	←	←	←	←
WHEEL TREAD	FRT	mm	1,650	←	←	←	1,667
	RR	mm	1,495	←	←	←	←
OVER HANG	FRT	mm	1,075	←	←	←	1,120
	RR	mm	1,860	←	←	←	←
KERB WT	FRT	kg	1,665	1,700	1,700	1,665	1,730
	RR	kg	1,390	1,410	1,410	1,390	1,430
	TTL	kg	3,055	3,110	3,110	3,055	3,160
G.V.W	FRT	kg	2,305	2,340	2,340	2,305	2,370
	RR	kg	4,440	4,460	4,460	4,440	4,480
	TTL	kg	6,745	6,800	6,800	6,745	6,850
ENGINE	MODEL		D4AL	D4DA	D4DB	D4DC	D4DD
	ASPIRATION		TCI	TCI	TCI	NA	TCI
	DISPLACEMENT	cc	3.3 l	3.9 l	3.9 l	3.9 l	3.9 l
	OUTPUT	ps	120	155	130	105	140
	TORQUE	kgm	30	38	37	27	38
PERFORMANCE	MAX.SPD	km/h	107.0	129.0	121.6	102.6	116.1
	MAX.GRD	tan θ	0.351	0.373	0.363	0.315	0.371
	T/RAD	m	7.0	←	←	←	←
T / M	MODEL		M3S5	M035S5	←	M3S5	M035S5
	GEAR RATIO	1st	5.181	5.380	←	5.181	5.380
		2nd	2.865	3.028	←	2.865	3.208
		3rd	1.593	1.700	←	1.593	1.700
		4th	1.000	1.000	←	1.000	1.000
		5th	0.739	0.722	←	0.739	0.722
		6th	-	-	←	-	-
		7th	-	-	←	-	-
REV	5.181	5.380	←	5.181	5.380		
R/AXLE	MODEL		D3H	D033H	←	D3H	D033H
	RATIO		6.666	5.428	←	6.666	5.428
TIRE	FRT		7.50R16-12PR	←	←	←	←
	RR		7.50R16-12PR	←	←	←	←

			WIDE CAB			
			HD78 STANDARD CAB			
			HIGH DECK LONG			
			HD78CS-LHA	HD78CS-LHB	HD78CS-LHC	HD78CS-LHD
O. A. L	mm	6,670	←	←	6,715	
O. A. W	mm	2,170	←	←	←	
O. A. H	mm	2,355	←	←	←	
BODY INSIDE	LENTH	mm	4,880	←	←	←
	WIDTH	mm	2,060	←	←	←
	HEIGHT	mm	380	←	←	←
DECK OFFSET	mm	635	←	←	←	
WHEEL BASE	mm	3,735	←	←	←	
WHEEL	FRT	mm	1,650	←	←	1,667
TREAD	RR	mm	1,495	←	←	←
OVER	FRT	mm	1,075	←	←	1,120
HANG	RR	mm	1,860	←	←	←
KERB WT	FRT	kg	1,730	1,760	1,695	1,760
	RR	kg	1,385	1,395	1,365	1,405
	TTL	kg	3,115	3,155	3,060	3,165
G.V.W	FRT	kg	2,515	2,560	2,480	2,545
	RR	kg	4,300	4,390	4,280	4,320
	TTL	kg	6,815	6,950	6,760	6,865
ENGINE	MODEL		D4DA	D4DB	D4DC	D4DD
	ASPIRATION		TCI	TCI	NA	TCI
	DISPLACEMENT	cc	3.9 l	3.9 l	3.9 l	3.9 l
	OUTPUT	ps	155	130	105	140
	TORQUE	kgm	38	37	27	38
PERFOR- MANCE	MAX.SPD	km/h	131	129	111	116
	MAX.GRD	tan θ	0.358	0.355	0.301	0.356
	T/RAD	m	7.0	←	←	←
T / M	MODEL		M035S5	←	M3S5	M035S5
	GEAR RATIO	1st	5.380	←	5.181	5.380
		2nd	3.208	←	2.865	3.208
		3rd	1.700	←	1.593	1.700
		4th	1.000	←	1.000	1.000
		5th	0.722	←	0.739	0.722
		6th	-	←	-	-
		7th	-	←	-	-
REV	5.300	←	5.181	5.300		
R/AXLE	MODEL		D033H	←	D3H	D033H
	RATIO		5.428	←	6.166	5.428
TIRE	FRT		7.50R16-12PR	←	←	←
	RR		7.50R16-12PR	←	←	←

			NARROW CAB			
			HD65 STADARD CAB			
			HIGH DECK SHORT		HIGH DECK LONG	
			HD65CN-SHF	HD65CN-SHL	HD65CN-LHF	HD65CN-LHL
O. A. L	mm	4,940	←	6,120	←	
O. A. W	mm	1,900	←	←	←	
O. A. H	mm	2,275	←	2,275	←	
BODY INSIDE	LENTH	mm	3,110	←	4,350	←
	WIDTH	mm	1,790	←	←	←
	HEIGHT	mm	380	←	←	←
DECK OFFSET	mm	335	←	560	←	
WHEEL BASE	mm	2,550	←	3,375	3,375	
WHEEL	FRT	mm	1,475	←	←	←
TREAD	RR	mm	1,435	←	←	←
OVER HANG	FRT	mm	1,075	←	←	←
	RR	mm	1,270	1,670	1,680	1,670
KERB WT	FRT	kg	1,500	1,530	1,540	1,570
	RR	kg	1,090	1,100	1,180	1,190
	TTL	kg	2,590	2,630	2,720	2,760
G.V.W	FRT	kg	2,015	2,045	2,140	2,170
	RR	kg	3,270	3,280	3,275	3,285
	TTL	kg	5,285	5,325	5,415	5,455
ENGINE	MODEL		D4AF	D4AL	D4AF	D4AL
	ASPIRATION		NA	TCI	NA	TCI
	DISPLACEMENT	cc	3.6 l	3.3 l	3.6 l	3.3 l
	OUTPUT	ps	96	120	96	120
	TORQUE	kgm	24	30	24	30
PERFORMANCE	MAX.SPD	km/h	103	121	103	121
	MAX.GRD	tan θ	0.392	0.393	0.383	0.384
	T/RAD	m	5.4	←	6.8	←
T / M	MODEL		M2S5	M3S5	M2S5	M3S5
	GEAR RATIO	1st	5.494	5.181	5.494	5.181
		2nd	2.836	2.865	2.836	2.865
		3rd	1.592	1.593	1.592	1.593
		4th	1.000	1.000	1.000	1.000
		5th	0.746	0.739	0.746	0.739
		6th	-	-	-	-
		7th	-	-	-	-
REV	5.494	5.181	5.494	5.181		
R/AXLE	MODEL		D2H	D3H	D2H	D3H
	RATIO		6.666	5.714	6.666	5.714
TIRE	FRT		7.00R16-10PR	←	←	←
	RR		7.00R16-10PR	←	←	←

### 3. EXTERIOR DRAWING OF THE COMPLETE VEHICLE

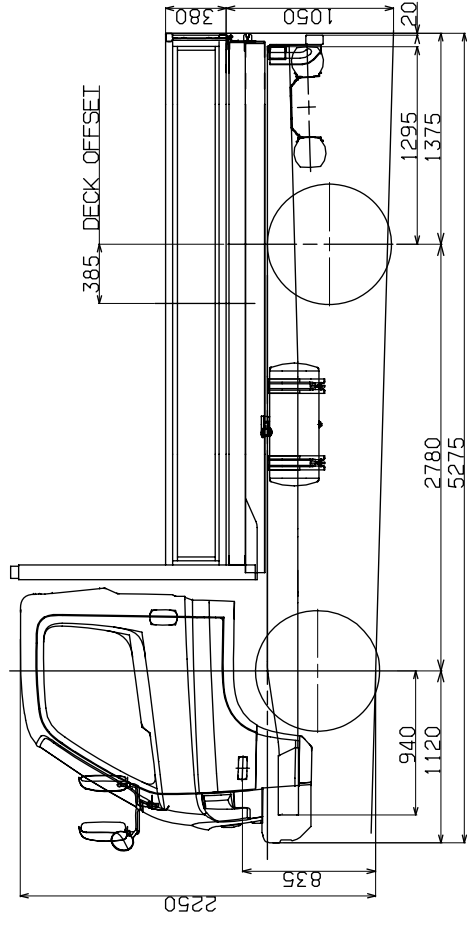
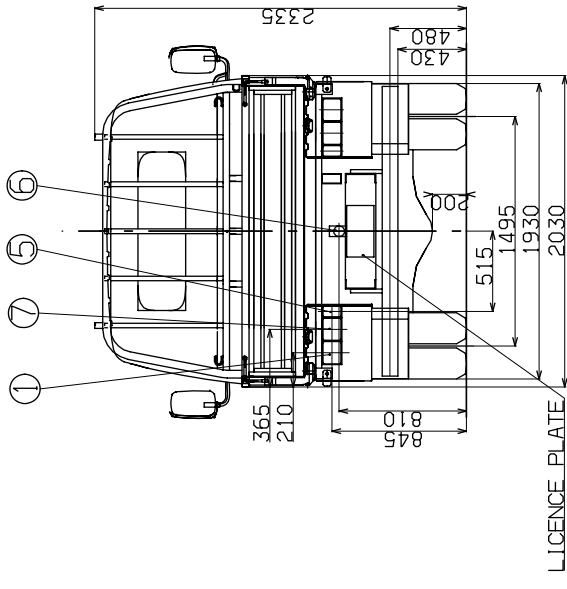
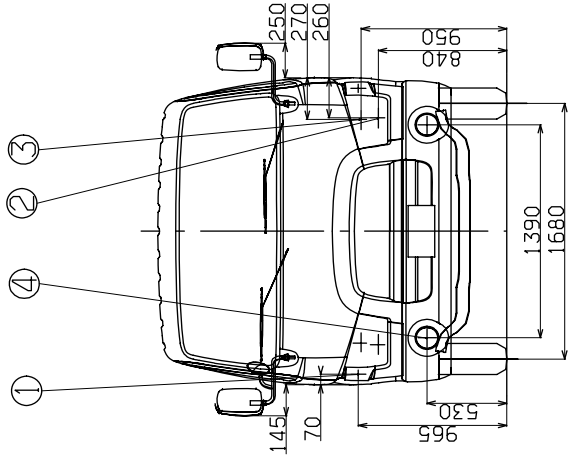
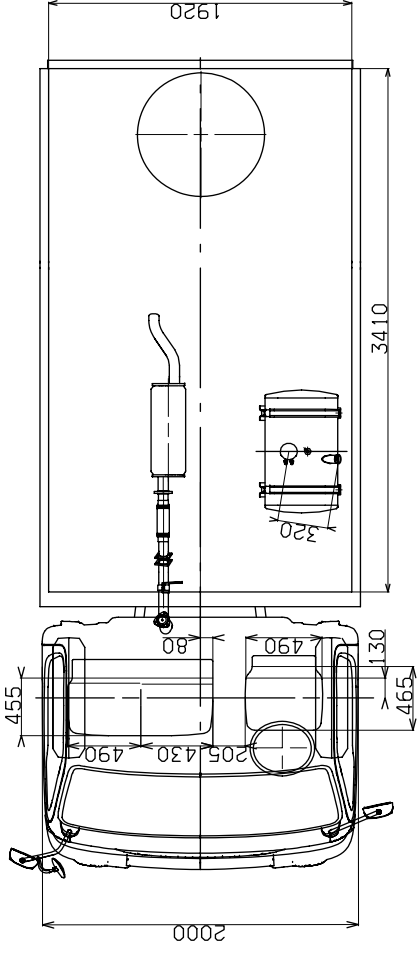
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	CORNER LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT. )		



HD65 SHORT (D4AF/AL/DB-d/DC) STD CARGO TRUCK

W. B: 2750mm

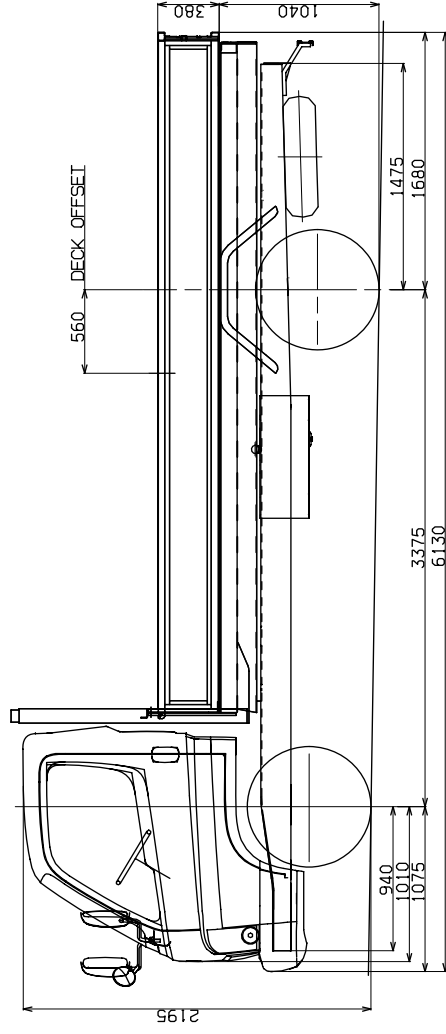
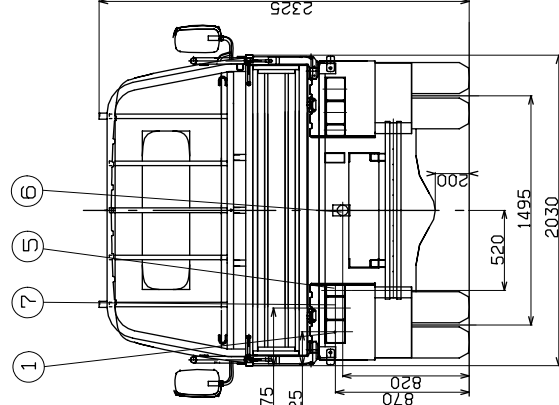
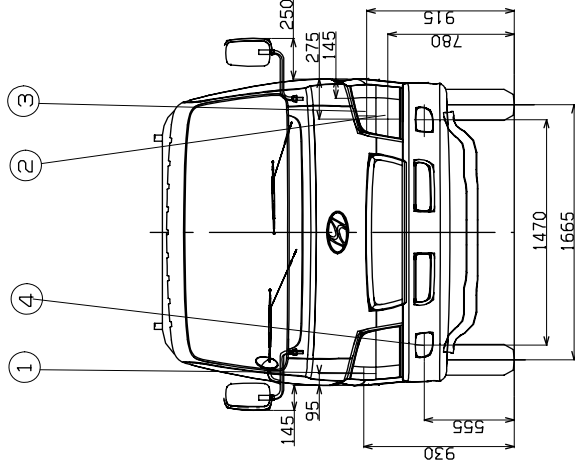
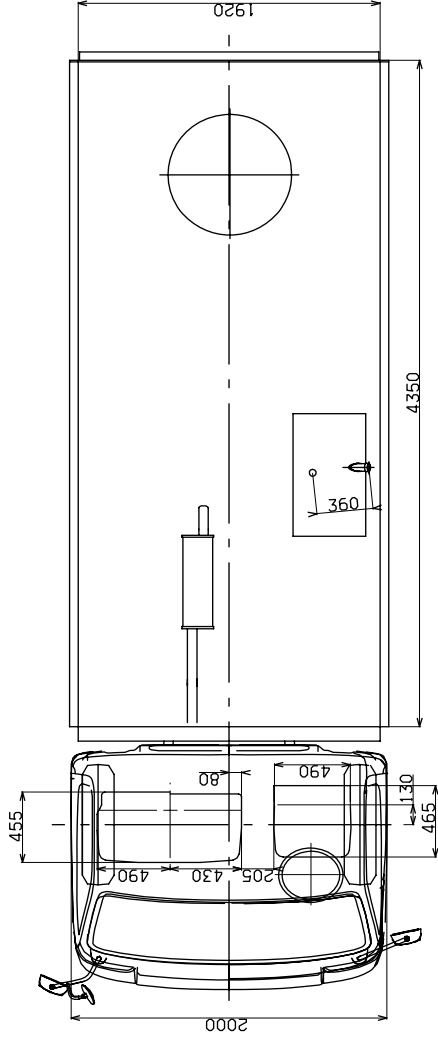
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP (OPT. )		



HD65 SHORT (D4DD) STD CARGO TRUCK

W. B : 2780mm

1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT.)		

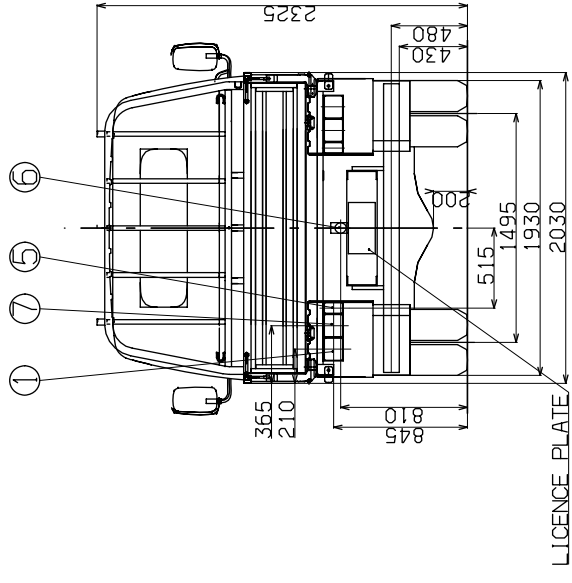
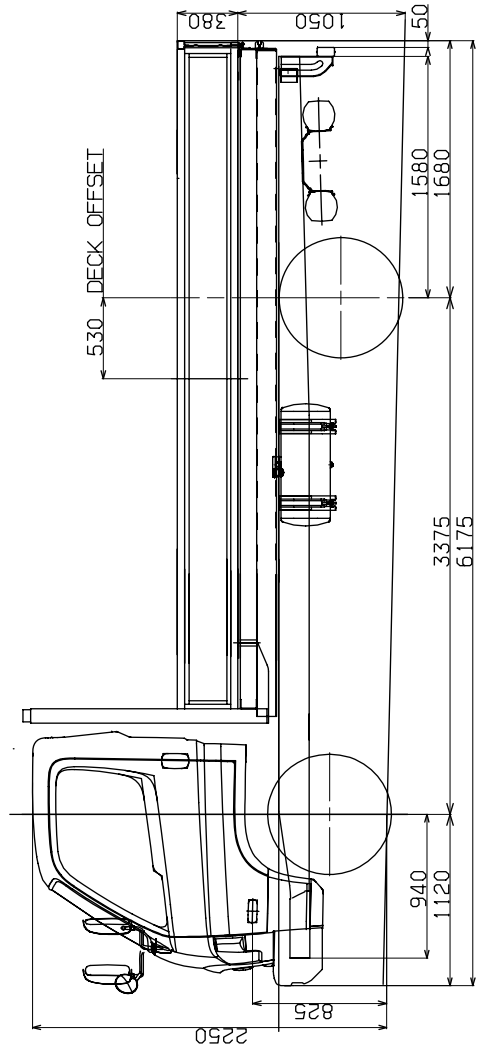
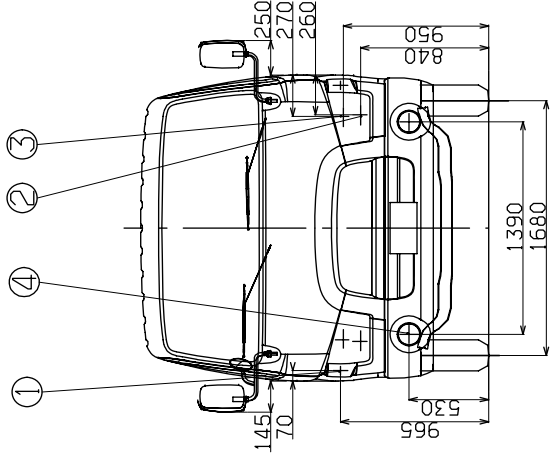
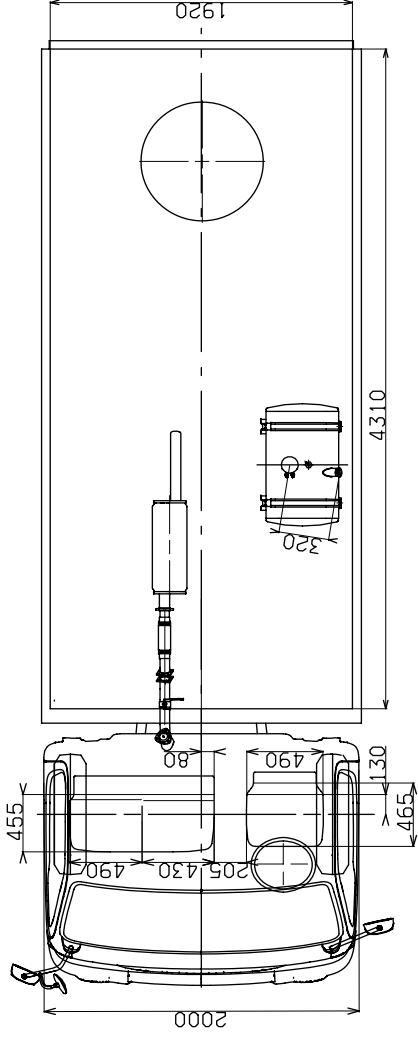


HD65 LONG(D4AF/AL/DB-d/DC) STD CARGO TRUCK

W. B : 3375mm



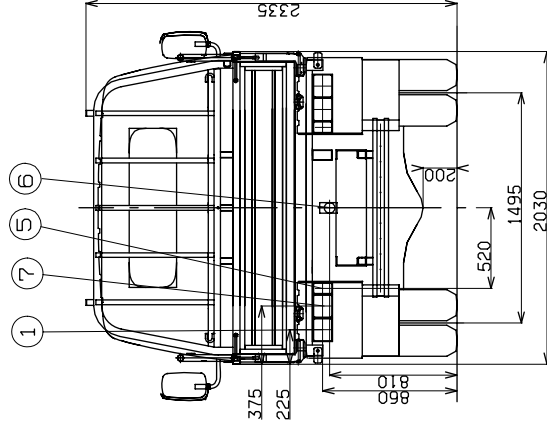
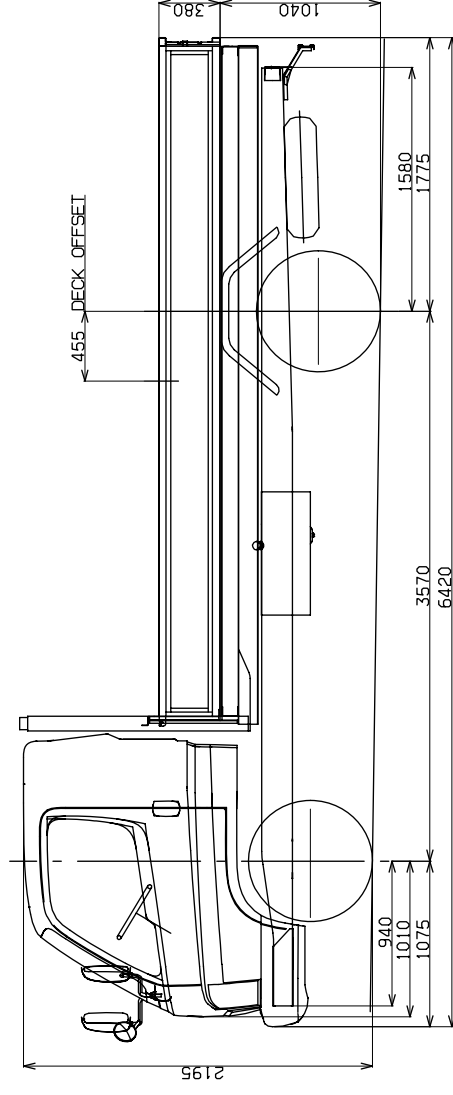
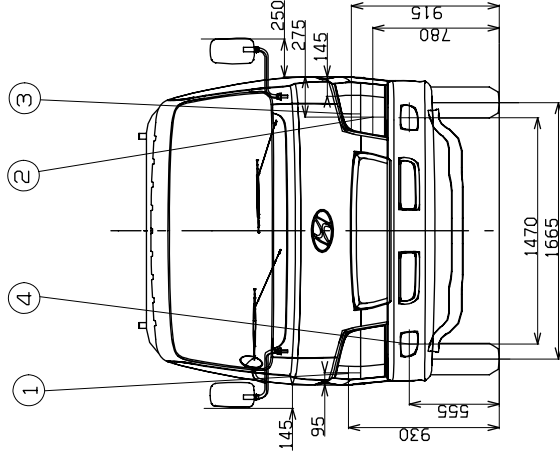
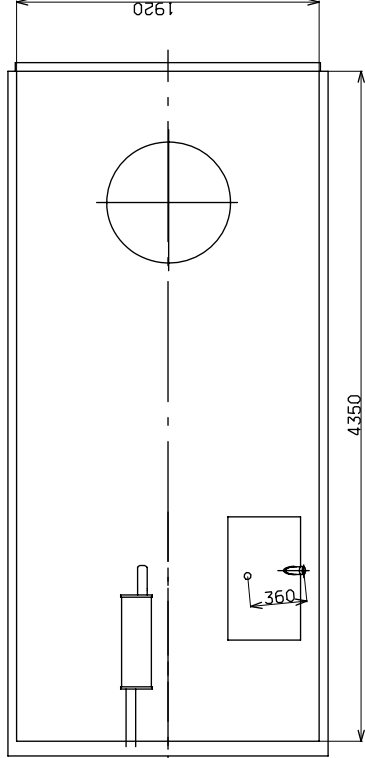
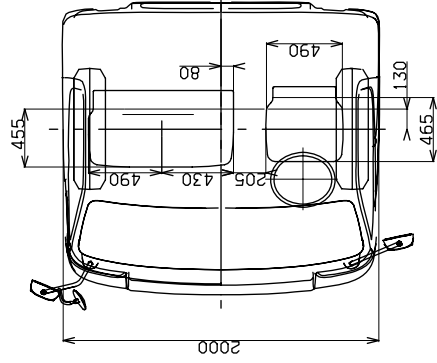
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT.)		



HD65 LONG(D4DD) STD CARGO TRUCK

W. B: 3375mm

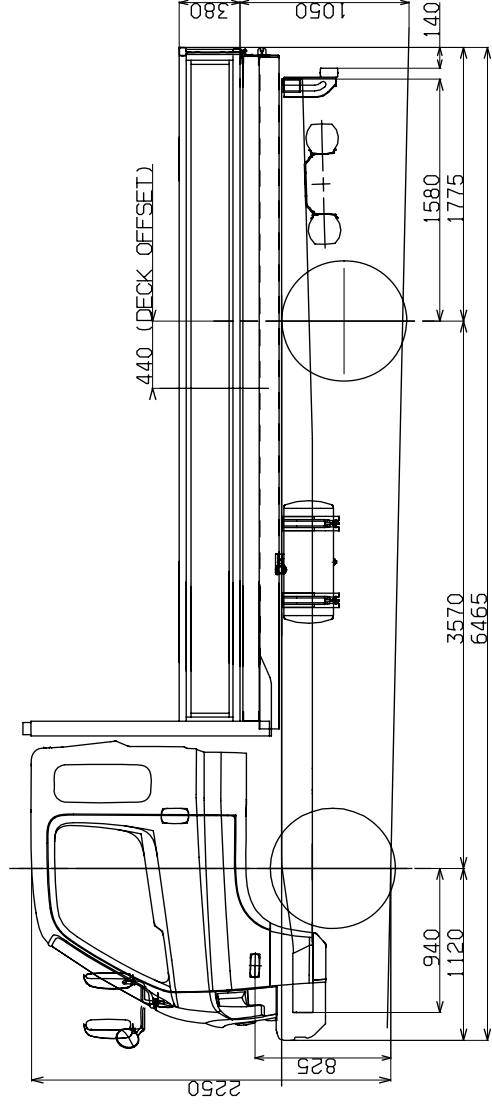
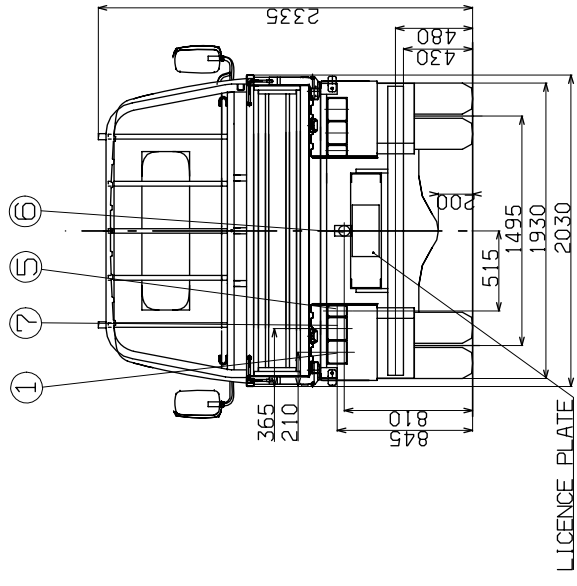
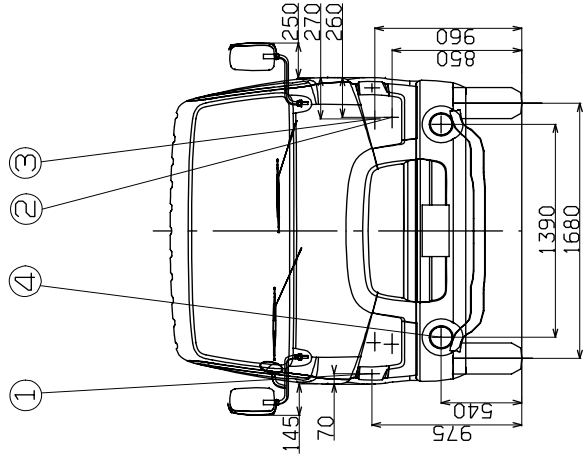
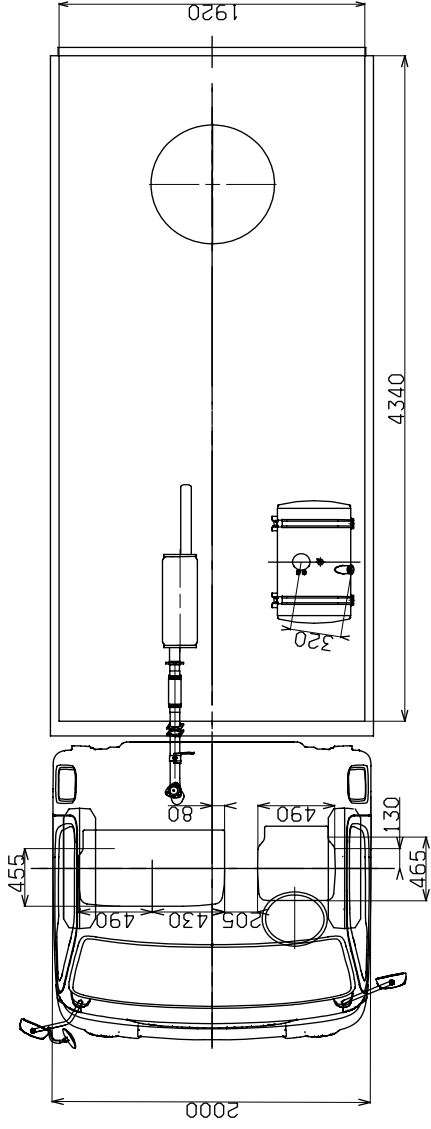
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP (OPT.)		



HD65 LONG (D4AF / AL / DB-d / DC) SUPER CARGO TRUCK

W. B : 3570mm

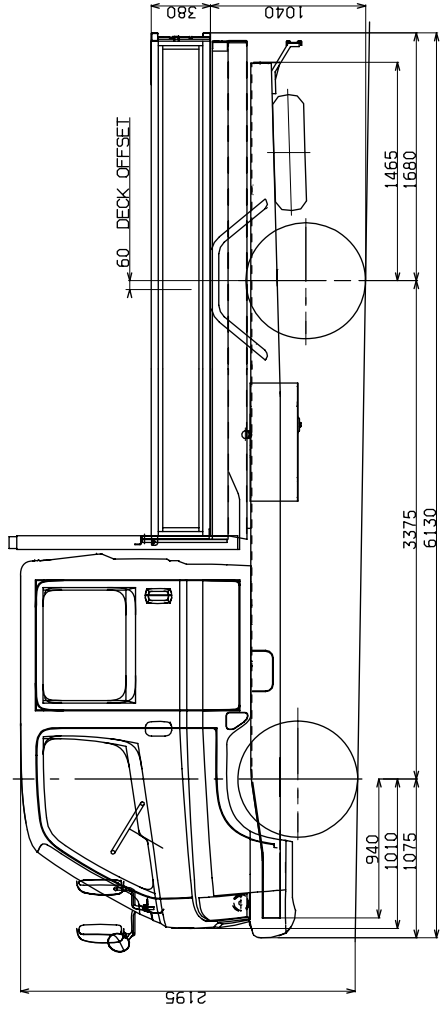
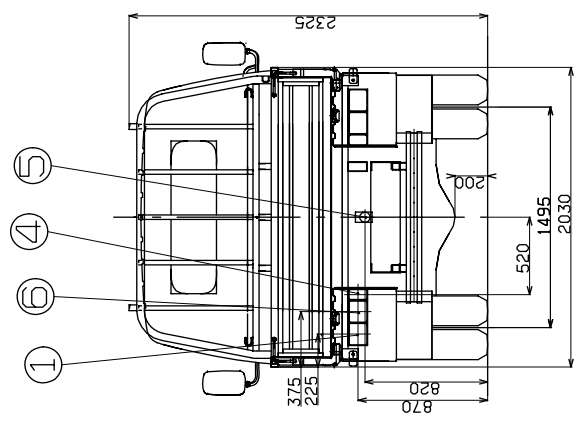
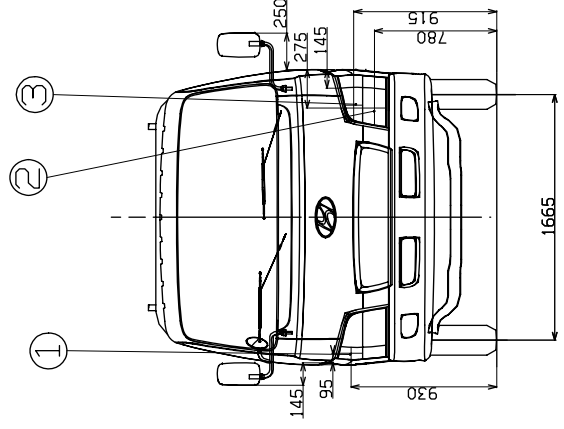
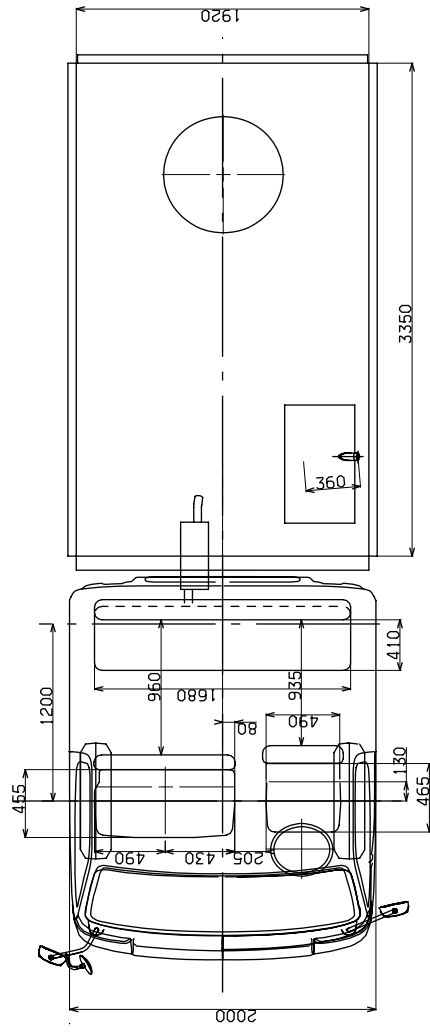
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT. )		



HD65 LONG(D4DD) SUPER CARGO TRUCK

W. B: 3570mm

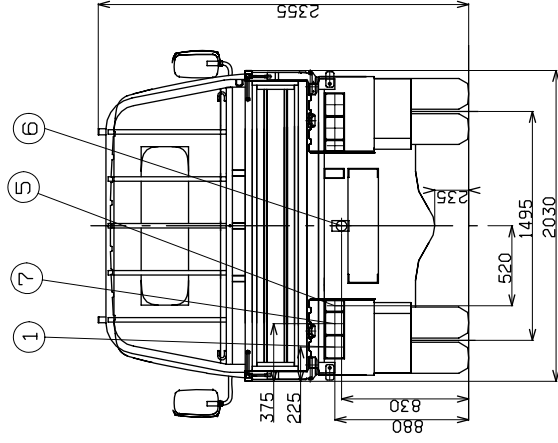
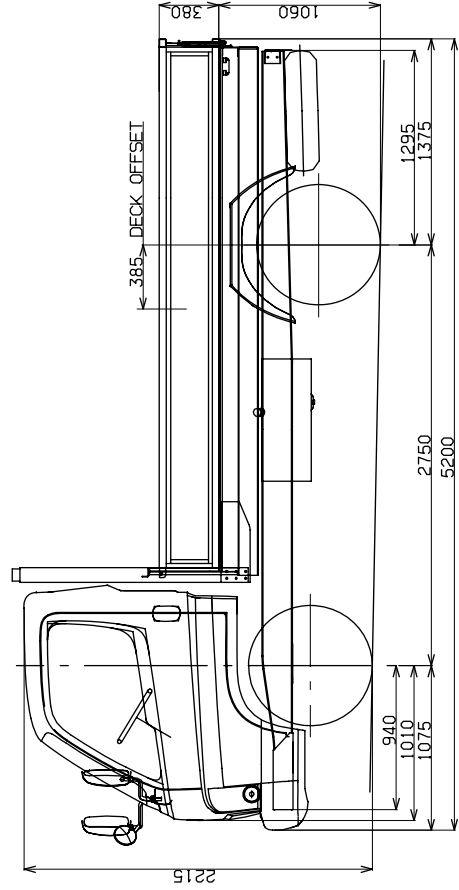
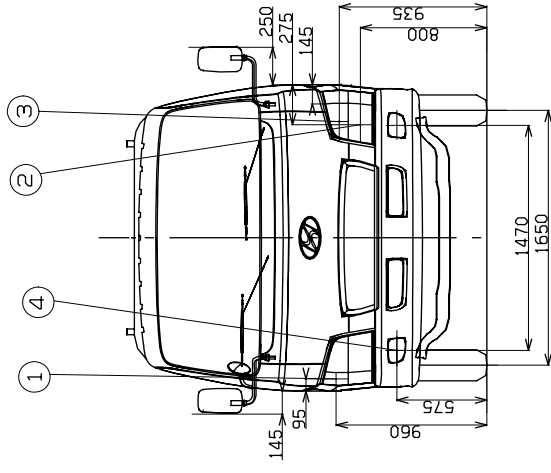
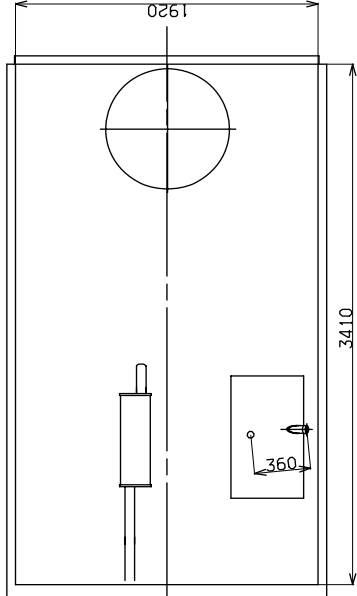
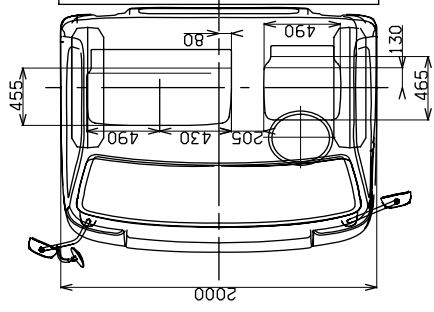
1	TURN SIGNAL LAMP	5	LICENCE PLATE LAMP
2	CORNERING LAMP	6	TAIL LAMP, STOP LAMP
3	HEAD LAMP, PARKING LAMP		
4	POSITION LAMP		
	BACK-UP LAMP		



HD65 DOUBLE (D4AF/AL) CARGO TRUCK

W. B: 3375mm

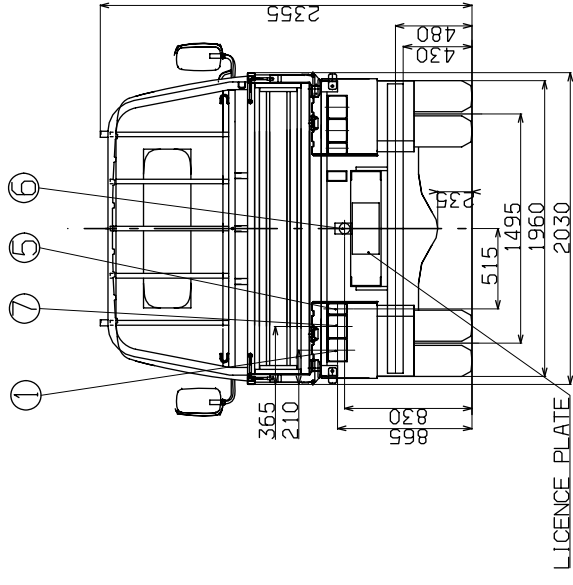
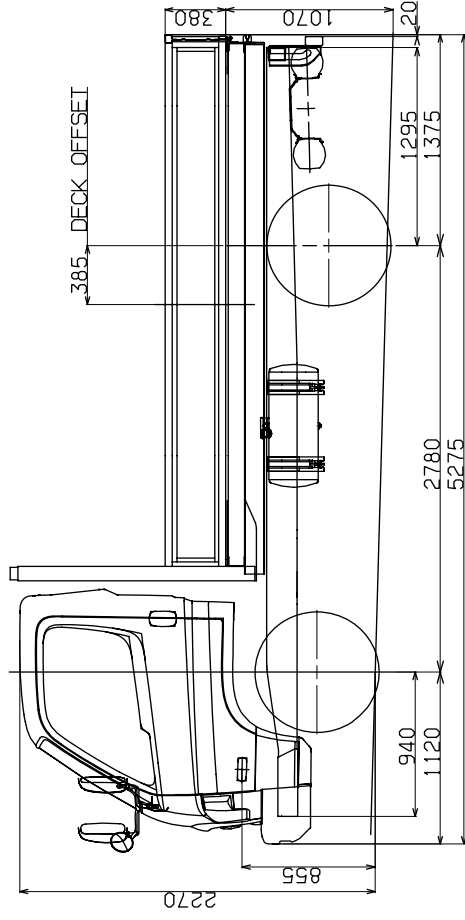
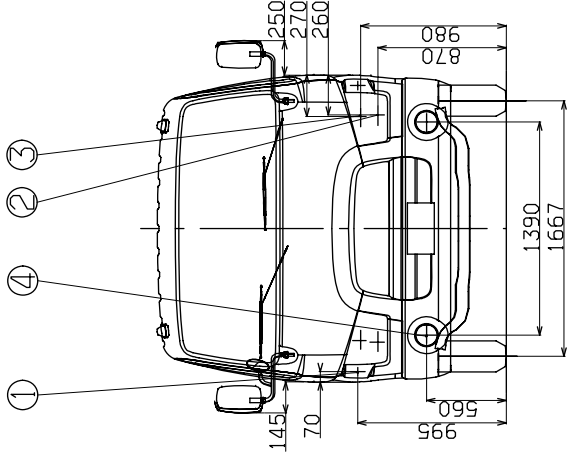
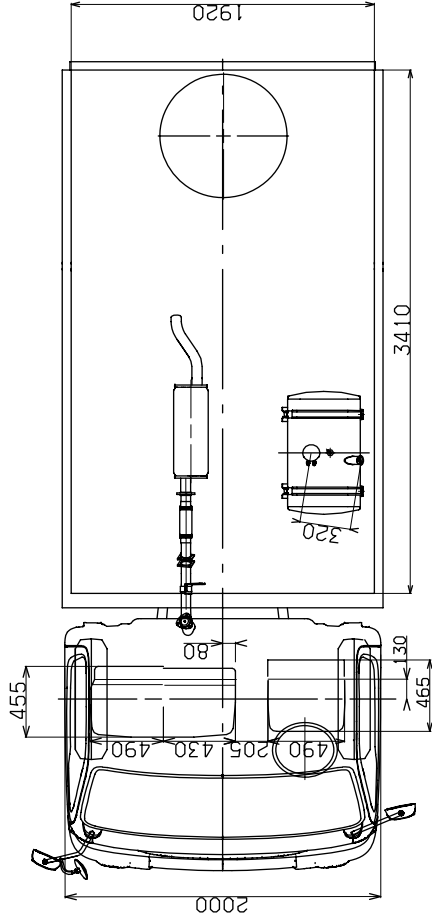
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT.)		



HD72 SHORT (D4AL/DA/DB/DC) STD CARGO TRUCK

W. B: 2750mm

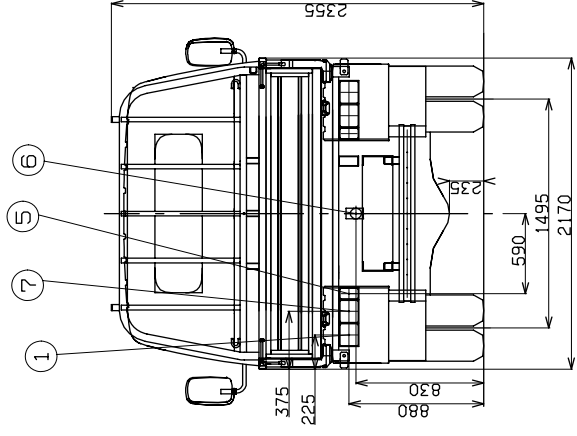
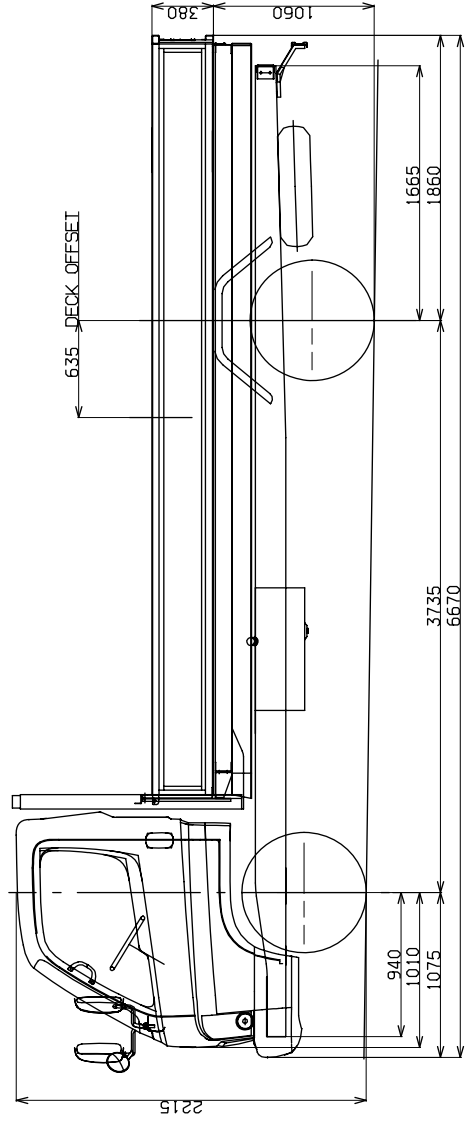
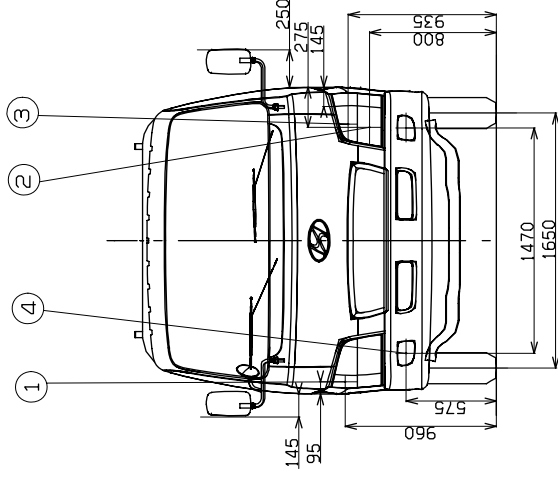
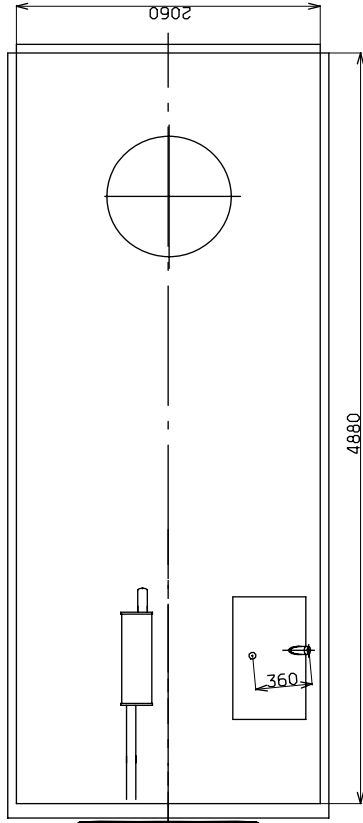
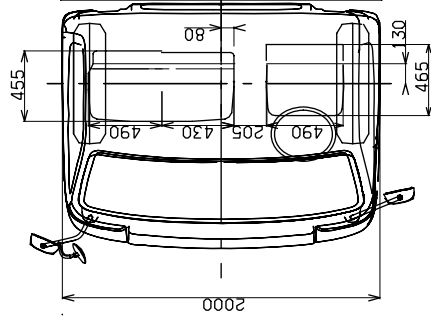
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT. )		



HD72 SHORT(D4DD) STD CARGO TRUCK

W. B: 2780mm

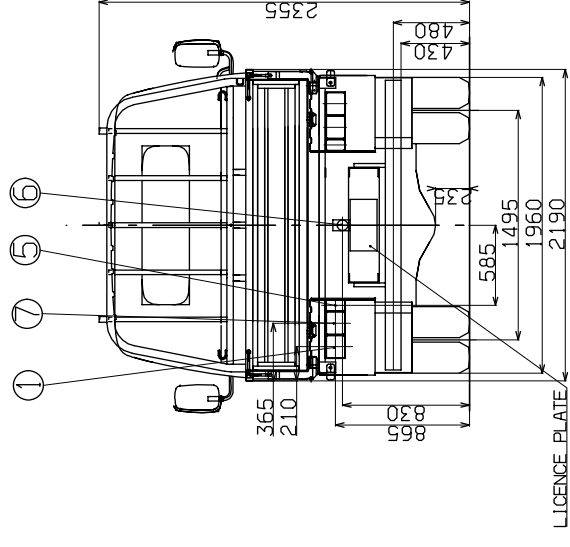
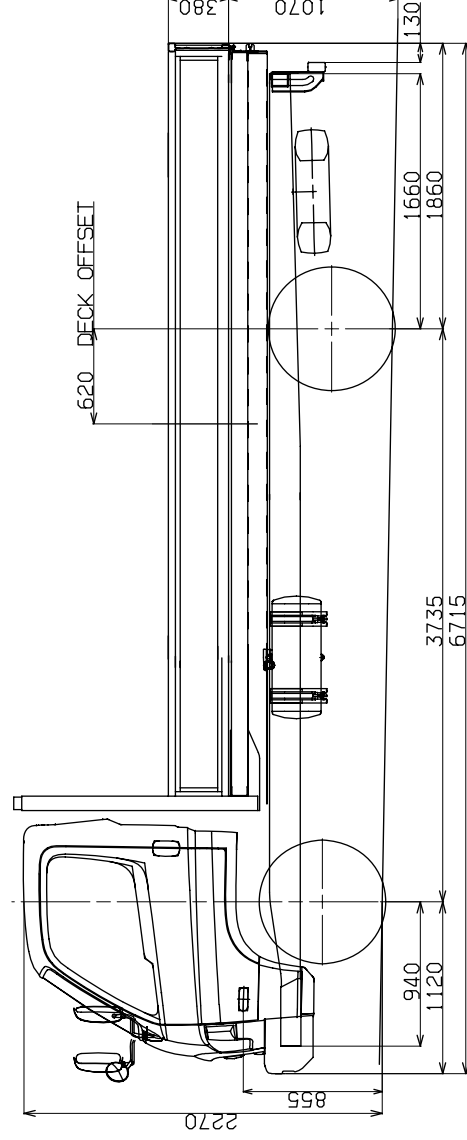
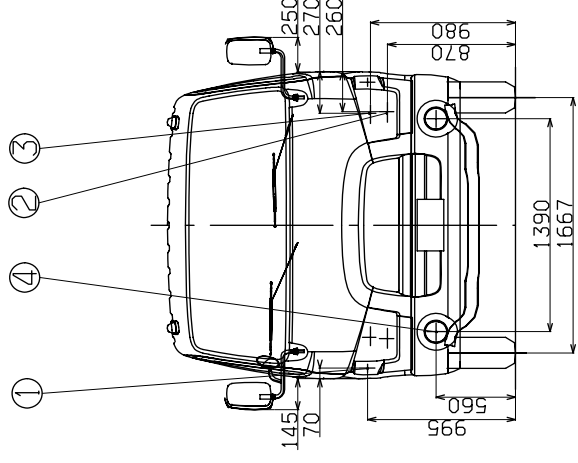
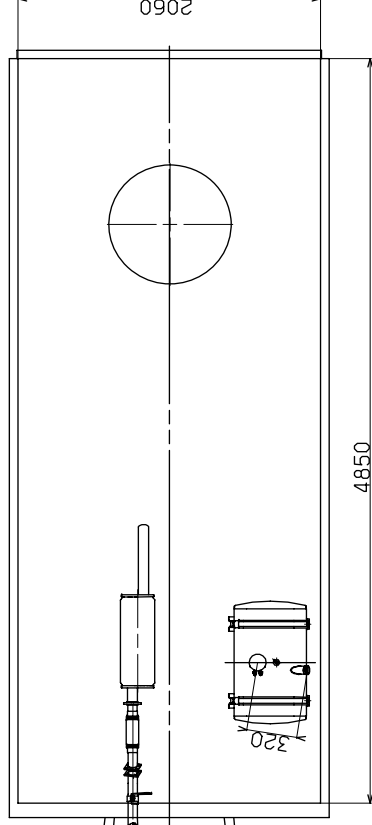
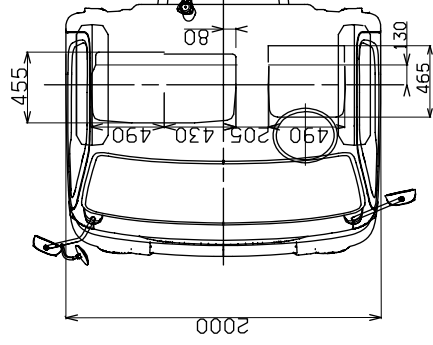
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT.)		



HD72 LONG(D4AL/DA/DB/DC) STD CARGO TRUCK

W. B: 3735mm

1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT. )		

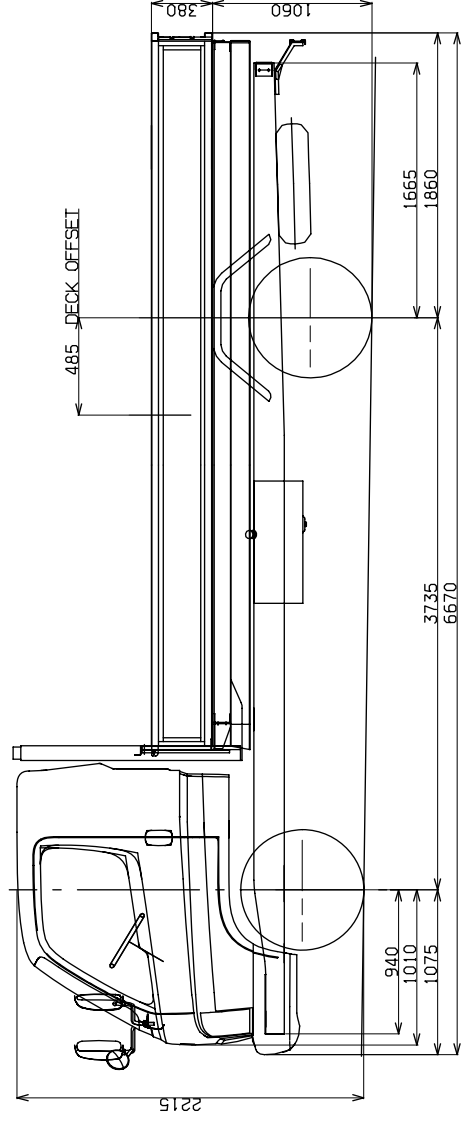
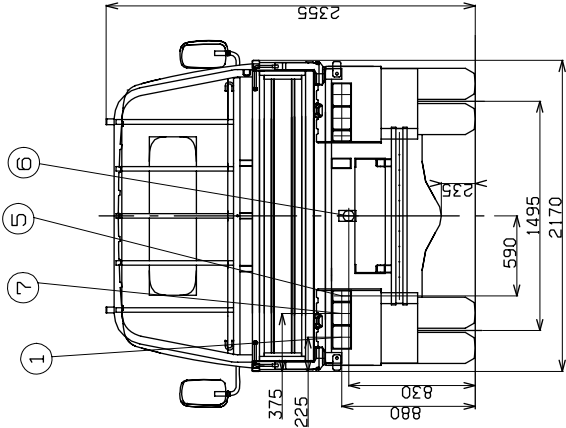
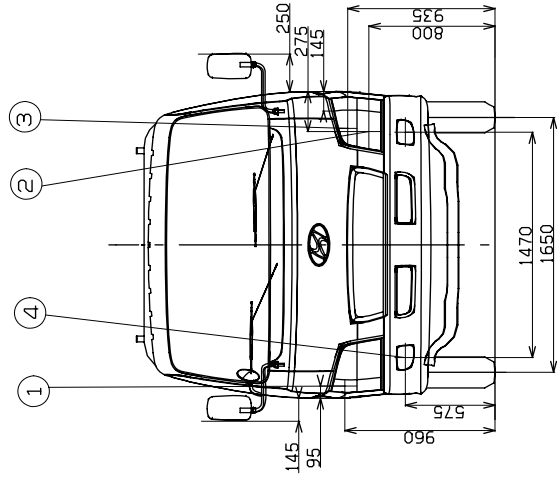
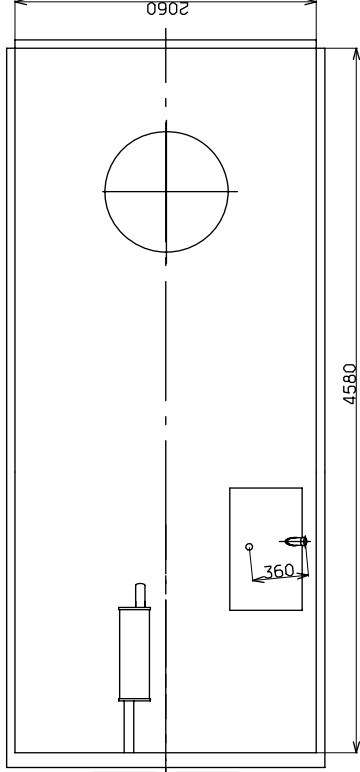
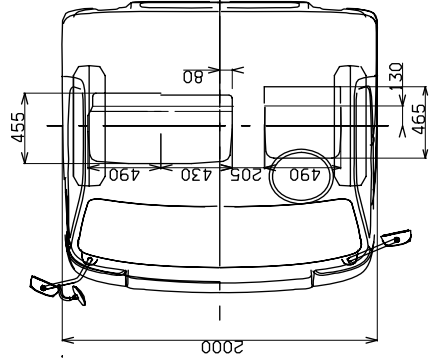


HD72 LONG(D4DD) STD CARGO TRUCK

W. B: 3735mm



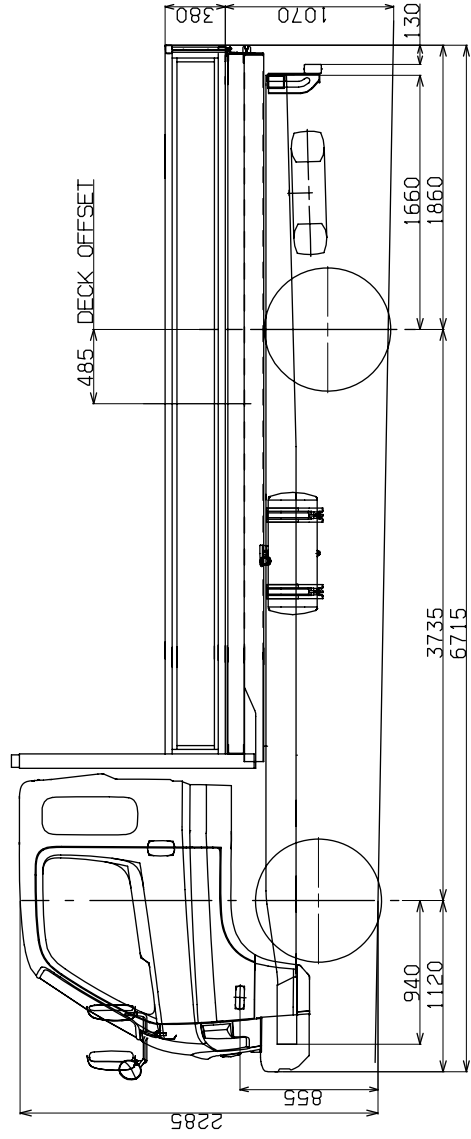
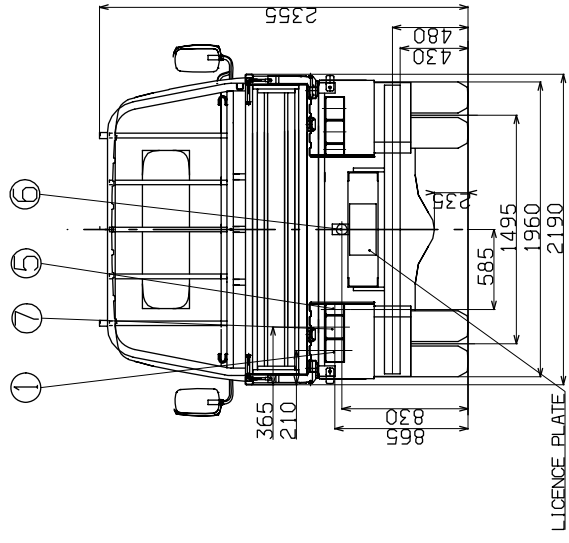
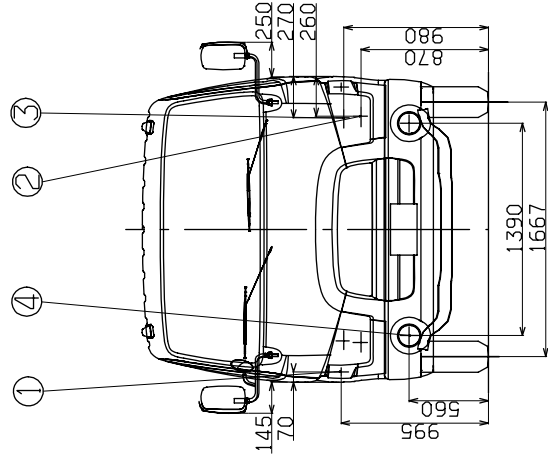
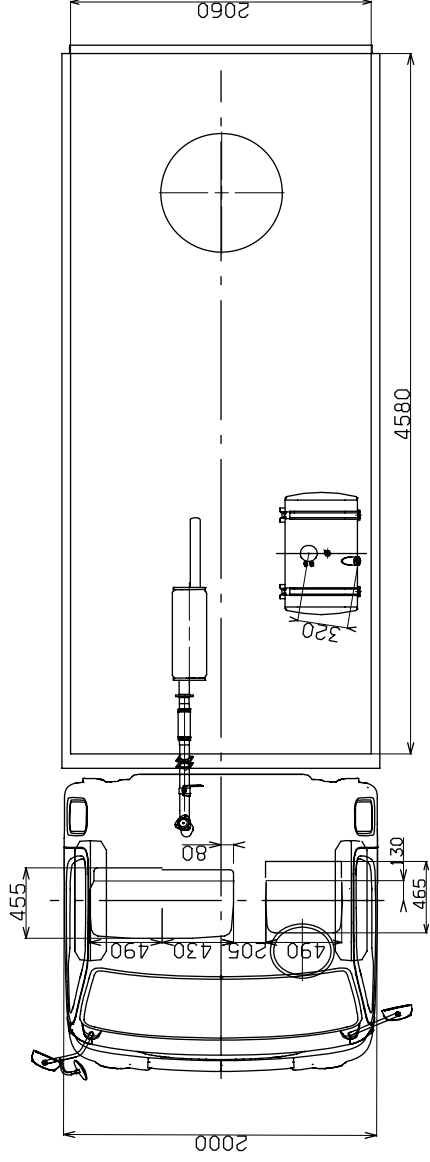
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT.)		



HD72 LONG(D4AL/DA/DB/DC) SUPER CARGO TRUCK

W. B: 3735mm

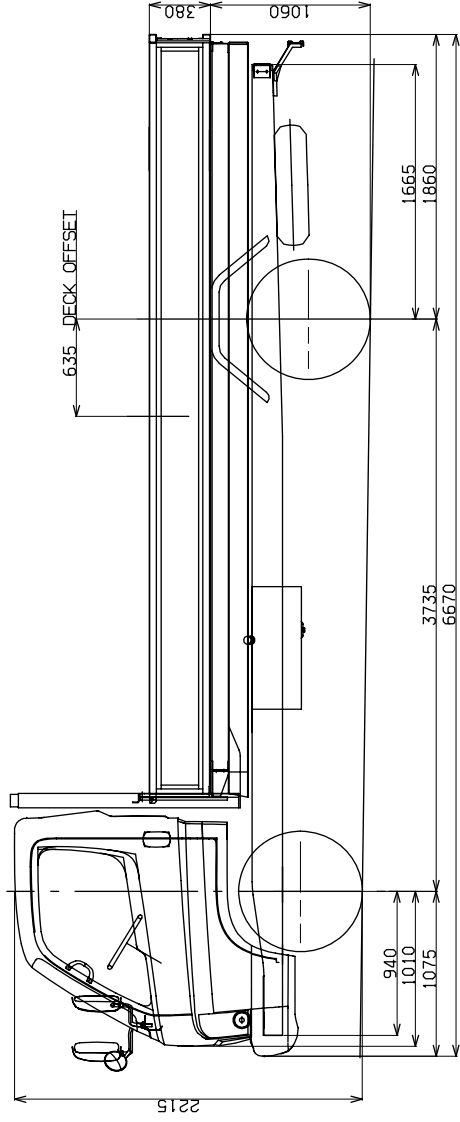
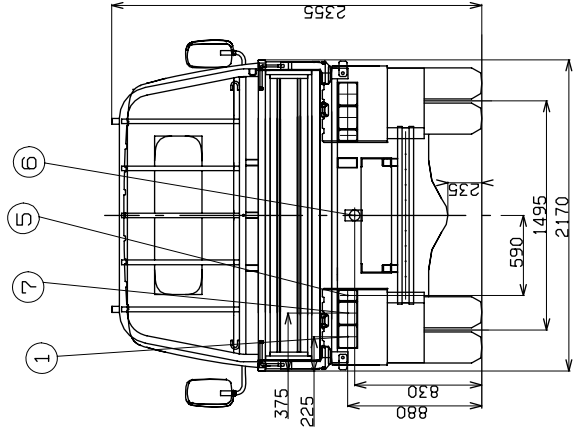
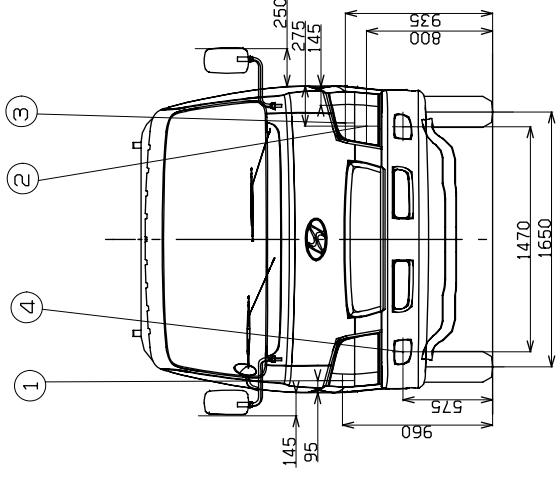
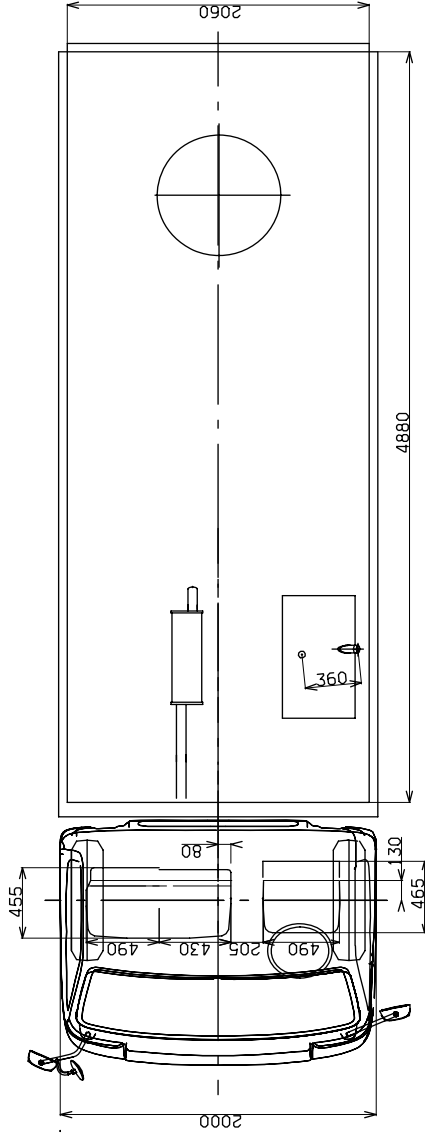
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT. )		



HD72 LONG(D4DD) SUPER CARGO TRUCK

W. B: 3735mm

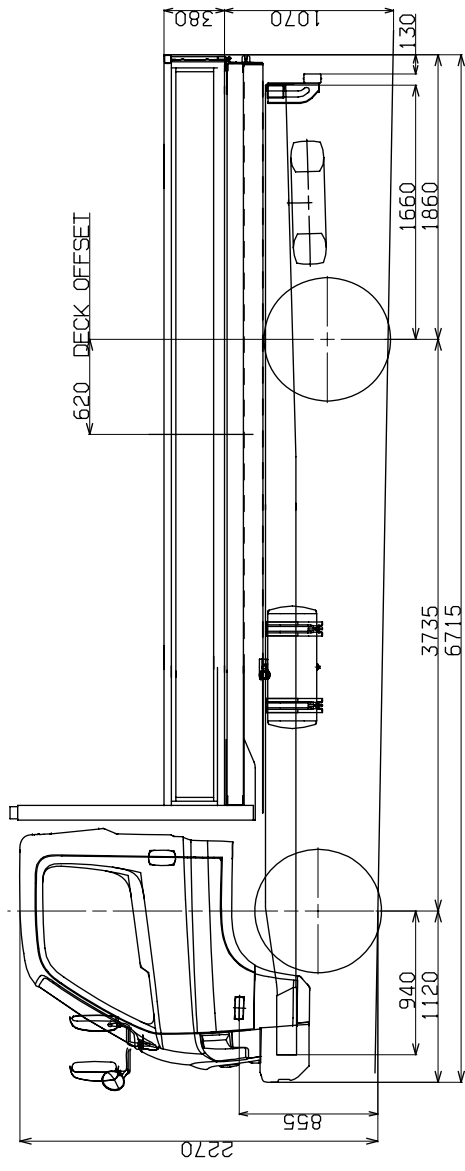
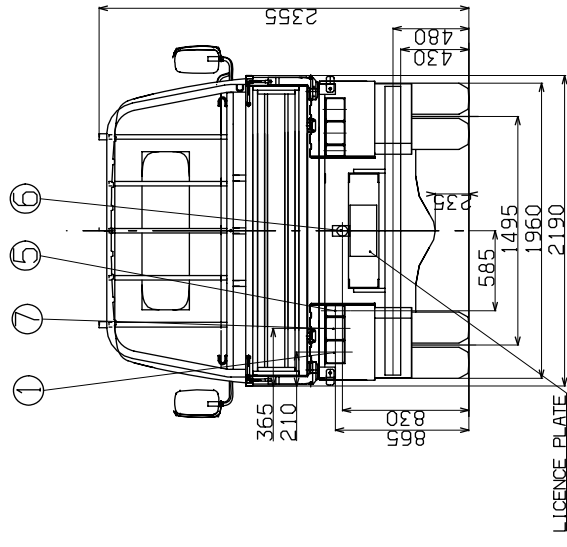
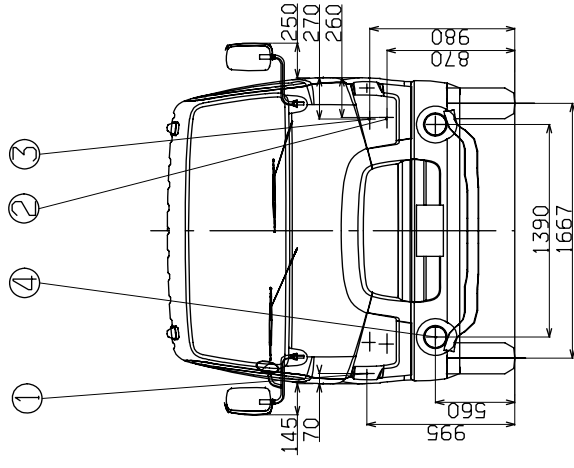
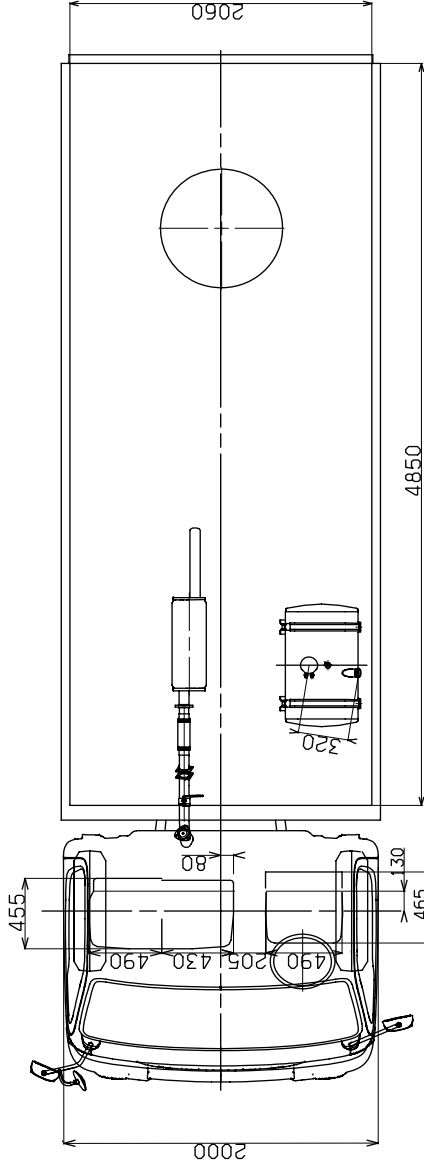
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT.)		



HD78 LONG(D4DA/DB/DC) STD CARGO TRUCK

W. B : 3735mm

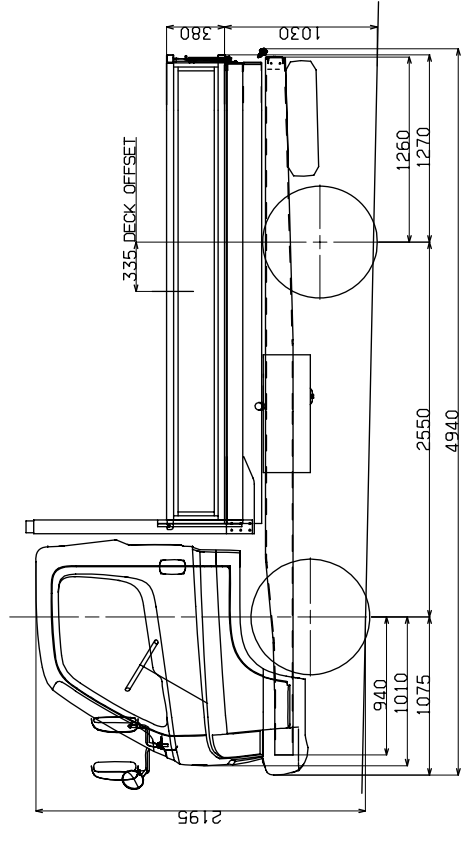
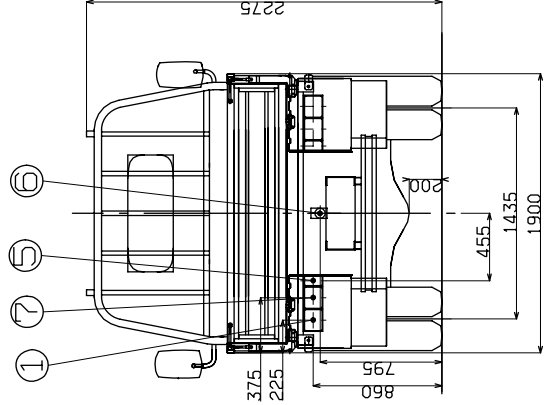
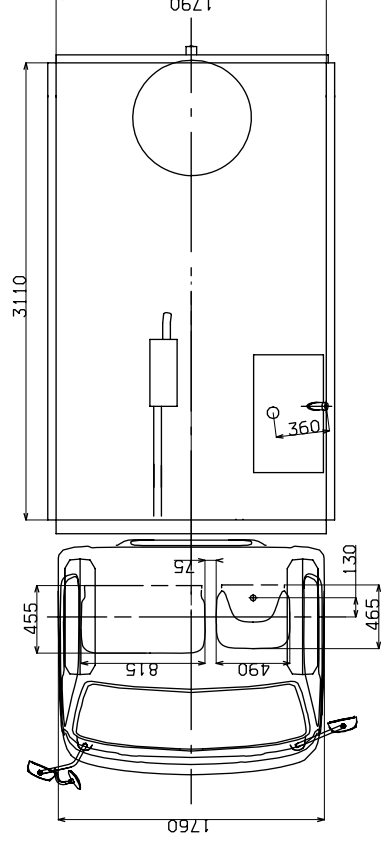
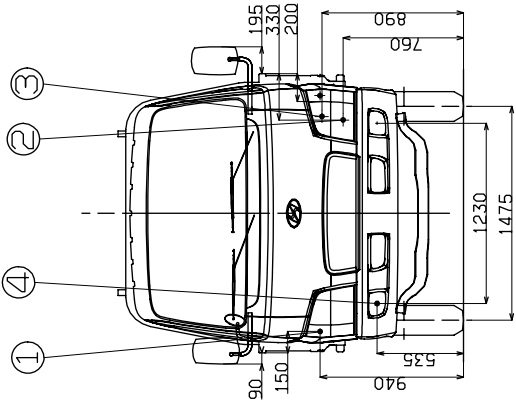
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP, PARKING LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP(OPT.)		



HD78 LONG (D4DD) STD CARGO TRUCK

W. B : 3735mm

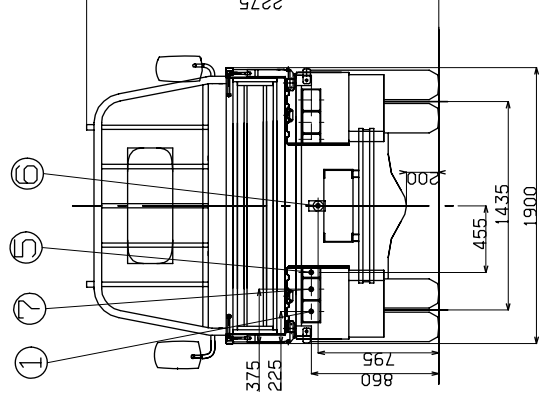
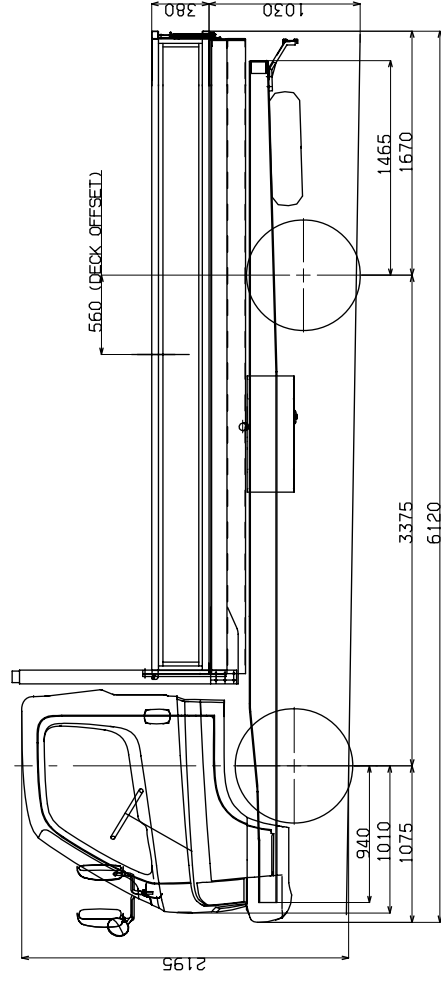
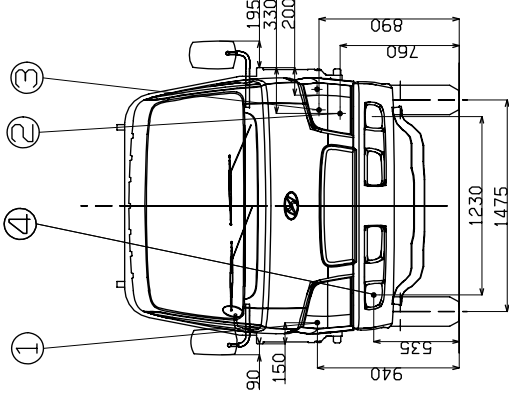
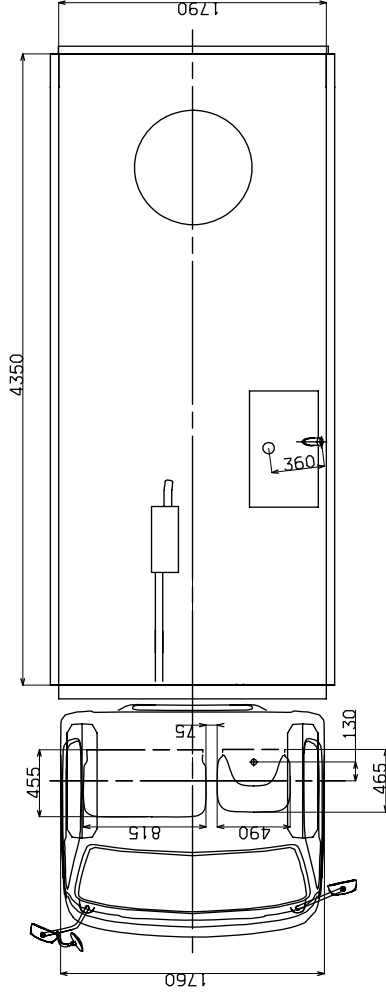
1	TURN SIGNAL LAMP	5	BACK-UP LAMP
2	CORNERING LAMP	6	LICENCE PLATE LAMP
3	HEAD LAMP	7	TAIL LAMP, STOP LAMP
4	POSITION LAMP		REAR REFLECTOR
	FOG LAMP (OPT)		



HD65 SHORT (N) (D4AF/AL) CARGO TRUCK

W. B: 2550mm

1	TURN SIGNAL LAMP	5	BACK-UP LAMP
	CORNERING LAMP	6	LICENCE PLATE LAMP
2	HEAD LAMP	7	TAIL LAMP, STOP LAMP
3	POSITION LAMP		REAR REFLECTOR
4	FOG LAMP (OPT)		

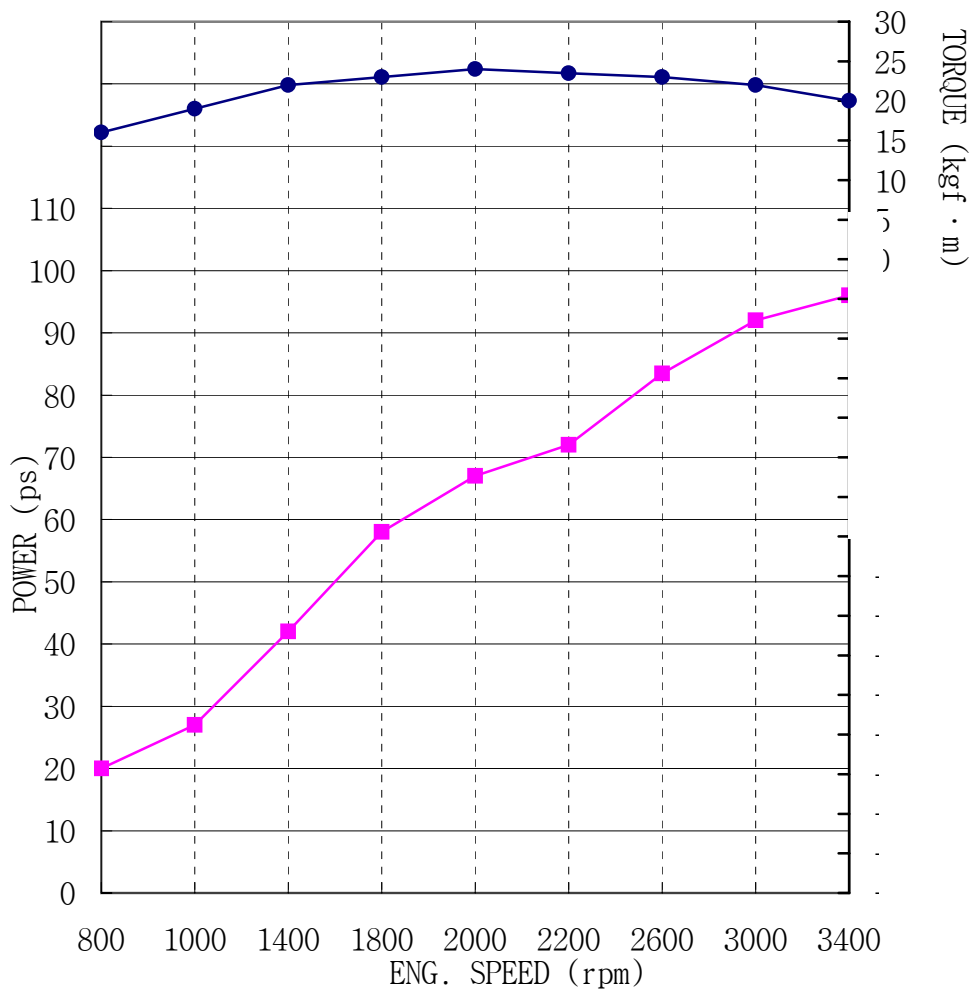


HD65 LONG(N) (D4AF/AL) CARGO TRUCK

W. B : 3375mm

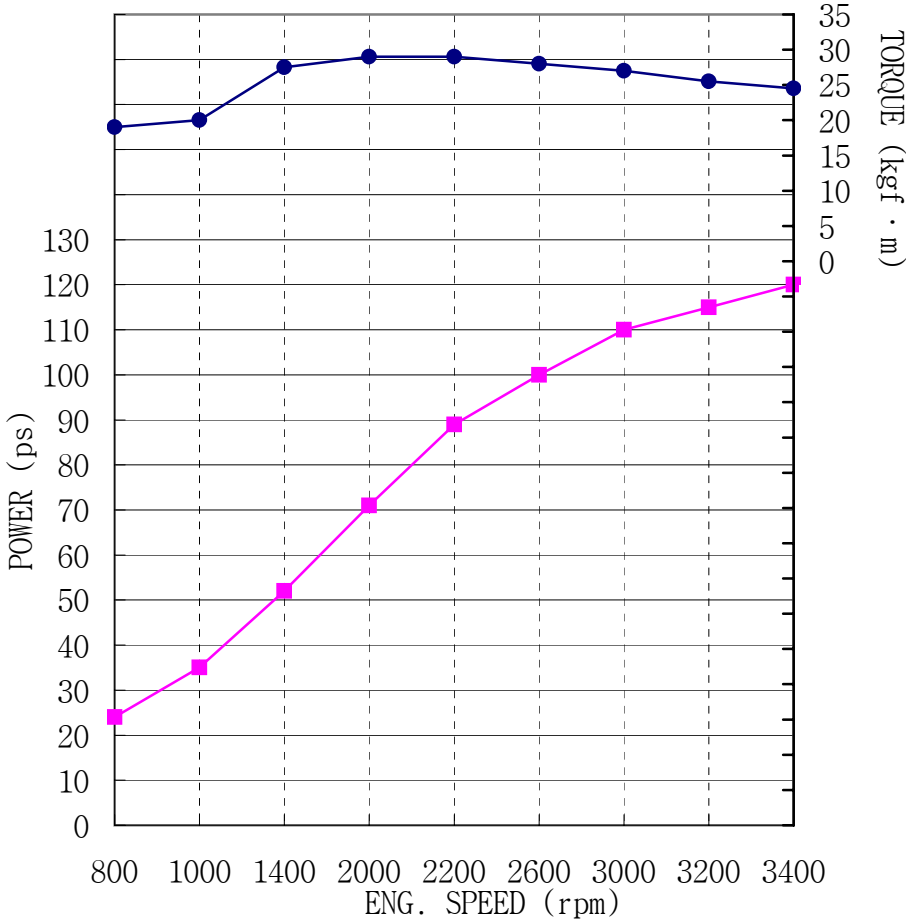
## 4. ENGINE PERFORMANCE CURVE

# 1) D4AF

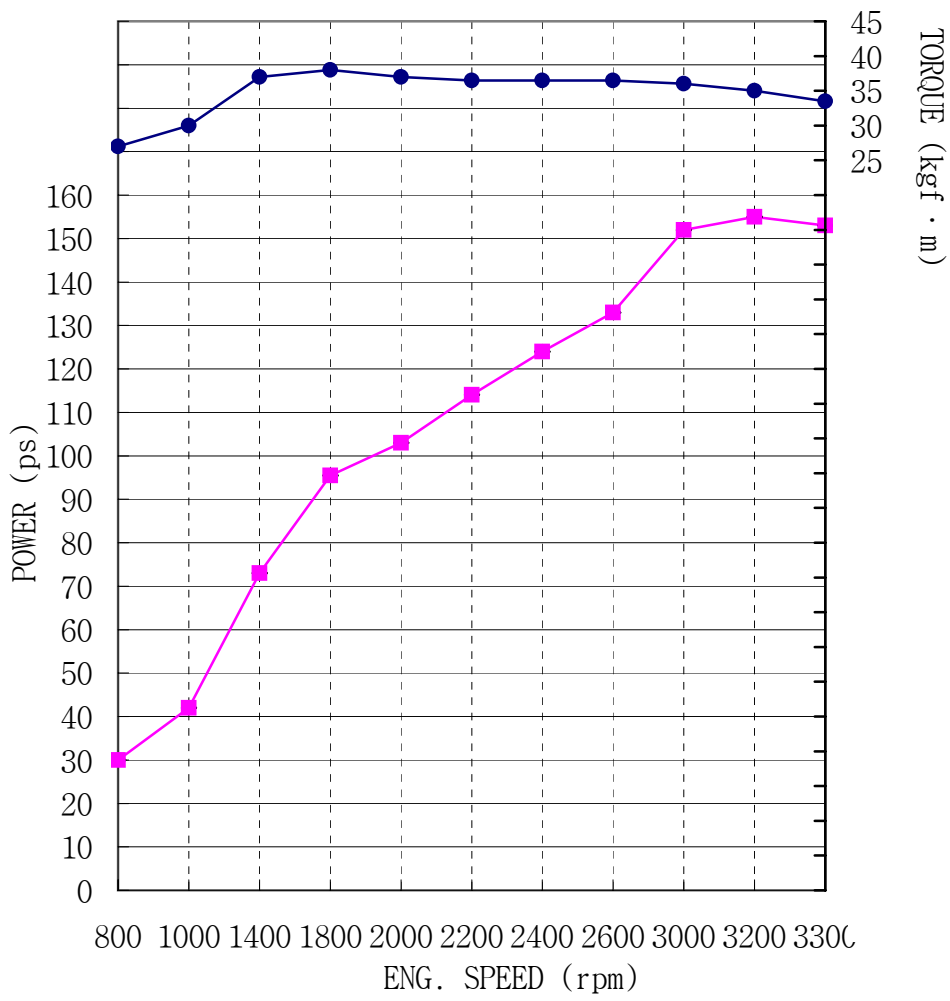




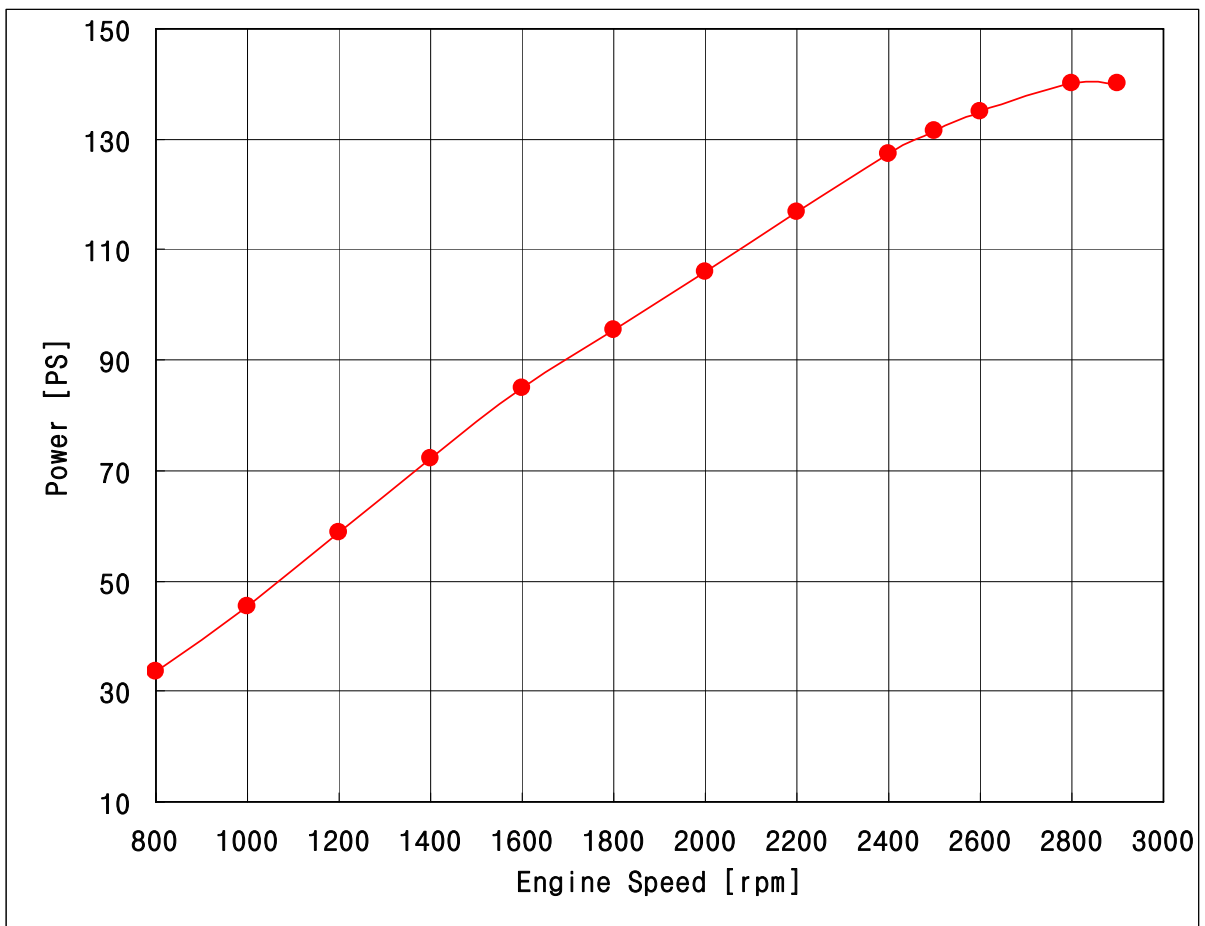
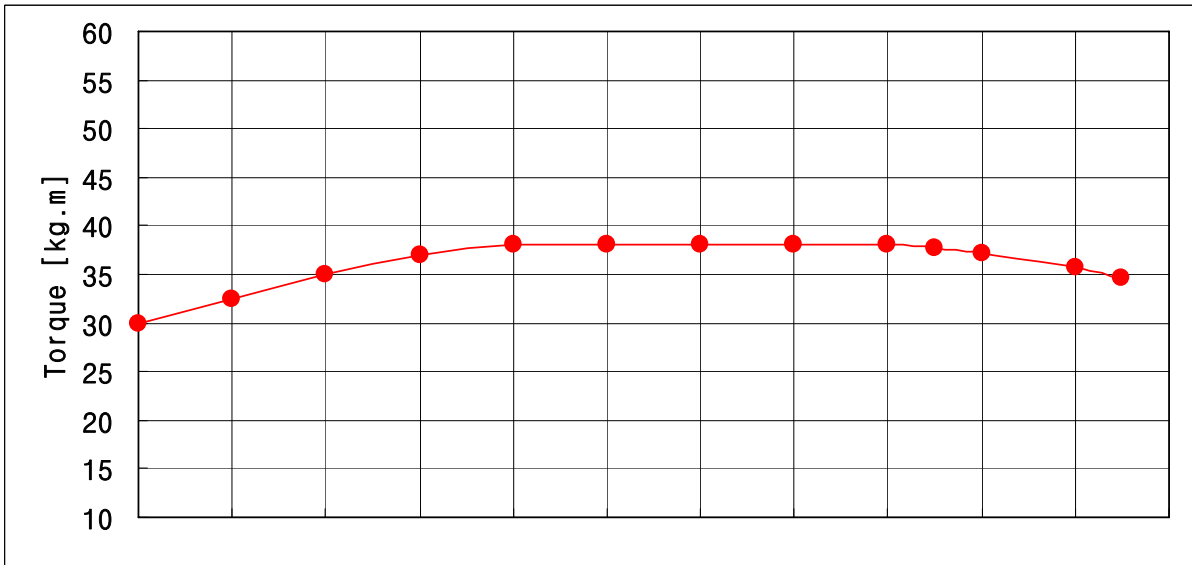
2) D4AL



### 3) D4DA



#### 4) D4DD



## 5. CAUTIONS REGARDING INSTALLATION MODIFICATION OR ALTERATION

## 5-1. Cautions needed for the front structure of the rear body

The structure of the front area of the rear body in relation to front wheel tires, exhaust pipe, cab and intake duct should be installed carefully as the followings.

### (1) Move of the cab and the intake duct

In case of applying the floating cab mounting, be free from interference with the cab and the intake duct. Make reference to the reference drawing for the moving range of the cab and the intake duct.

### (2) Sub frame

As the forward area of the sub frame is near exhaust pipe, be careful not to take fire by adding a protector to the outside of the sub frame. Also the ground clearance of the rear body floor and the height of fender should be more than 50mm from tires. Make reference to BODY BUILDER DRAWING for a rising quantity of tires. If the height of sub frame is low, as strength drops, use the steel sub frame surely in using the sub frame less than standard height. Make reference to the paragraph 2-2-4, COMMON BOOK of BODY BUILDER BOOK for dimension of the steel frame.

### (3) Projecting relation of the upper side of transmission and chassis frame

As harness connector and the sensor of gear shift unit are on the upper side of transmission, be free from ascending the upper side of transmission.

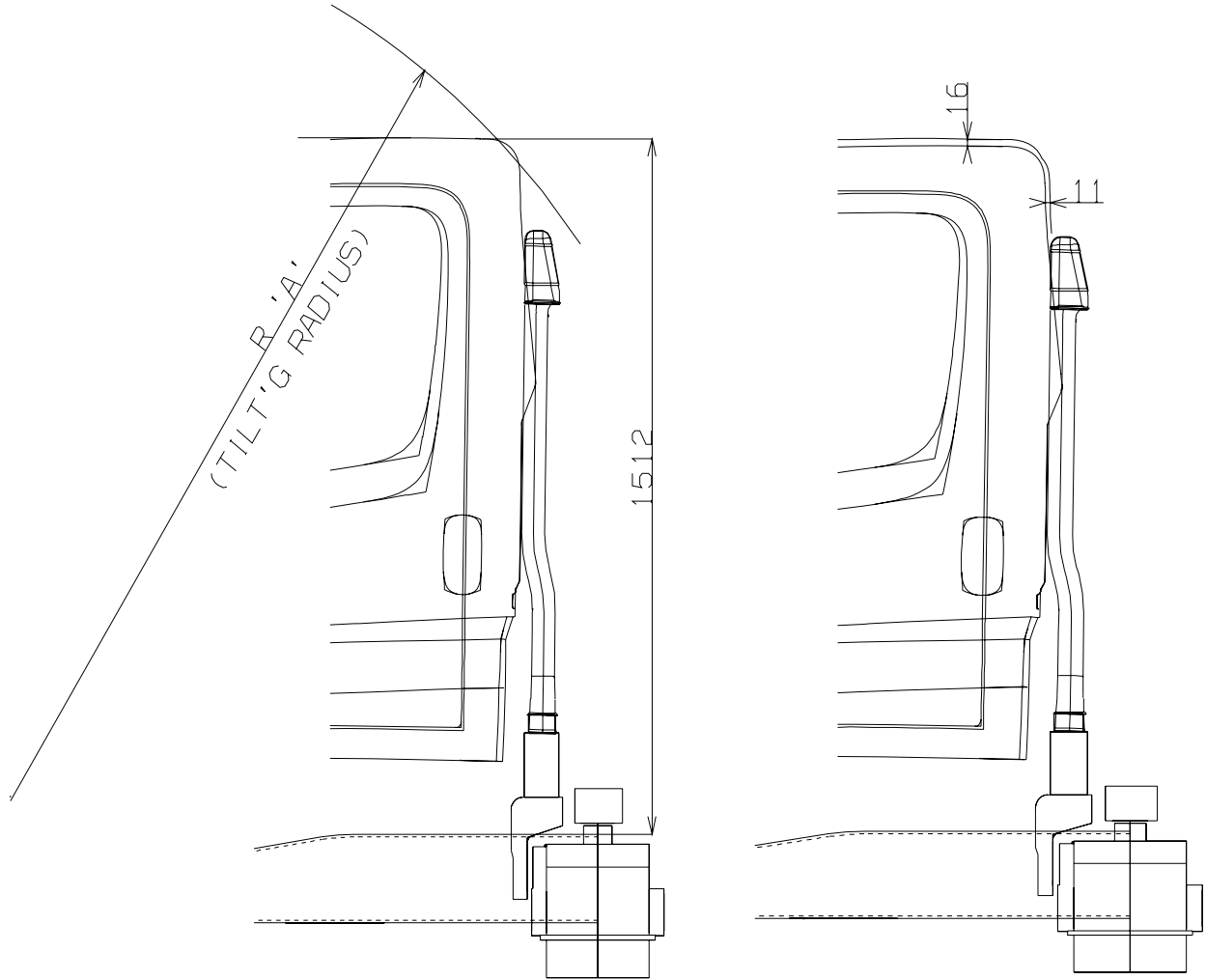
### (4) Object for stain prevention between cab and rear body

Install a object for stain prevention between cab and rear body figure to prevent stain by front forward wheels as the appendix drawing.

### (5) Front and rear wheel fender

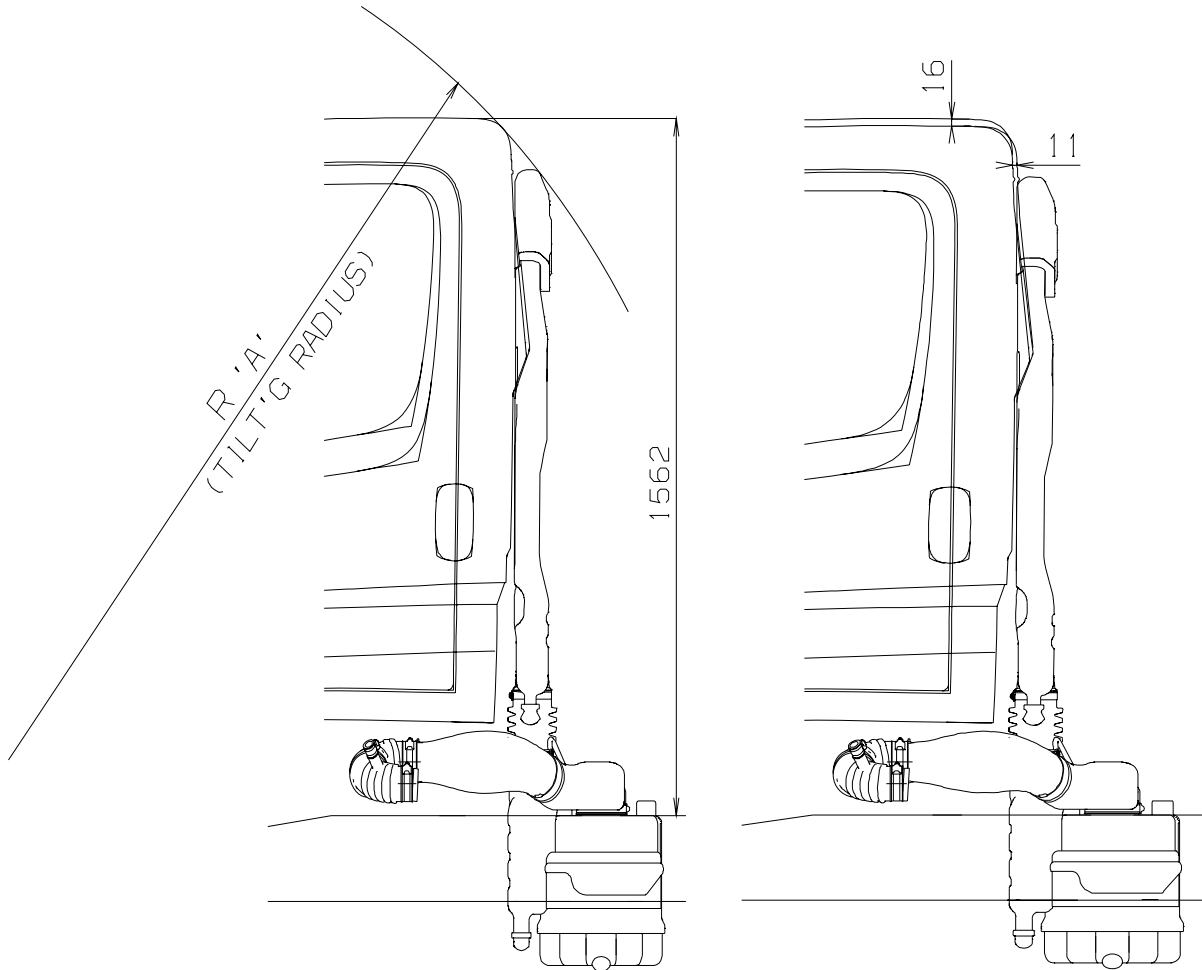
Make reference to the appendix drawing for the height of fender and mudguard. Also make reference to the paragraph 2-2-5, COMMON BOOK of BODY BUILDER BOOK.

\*) MOVE OF THE CAB & THE INTAKE DUCT  
 (D4AF/D4AL/D4DA/D4DB/D4DB-d/D4DC)



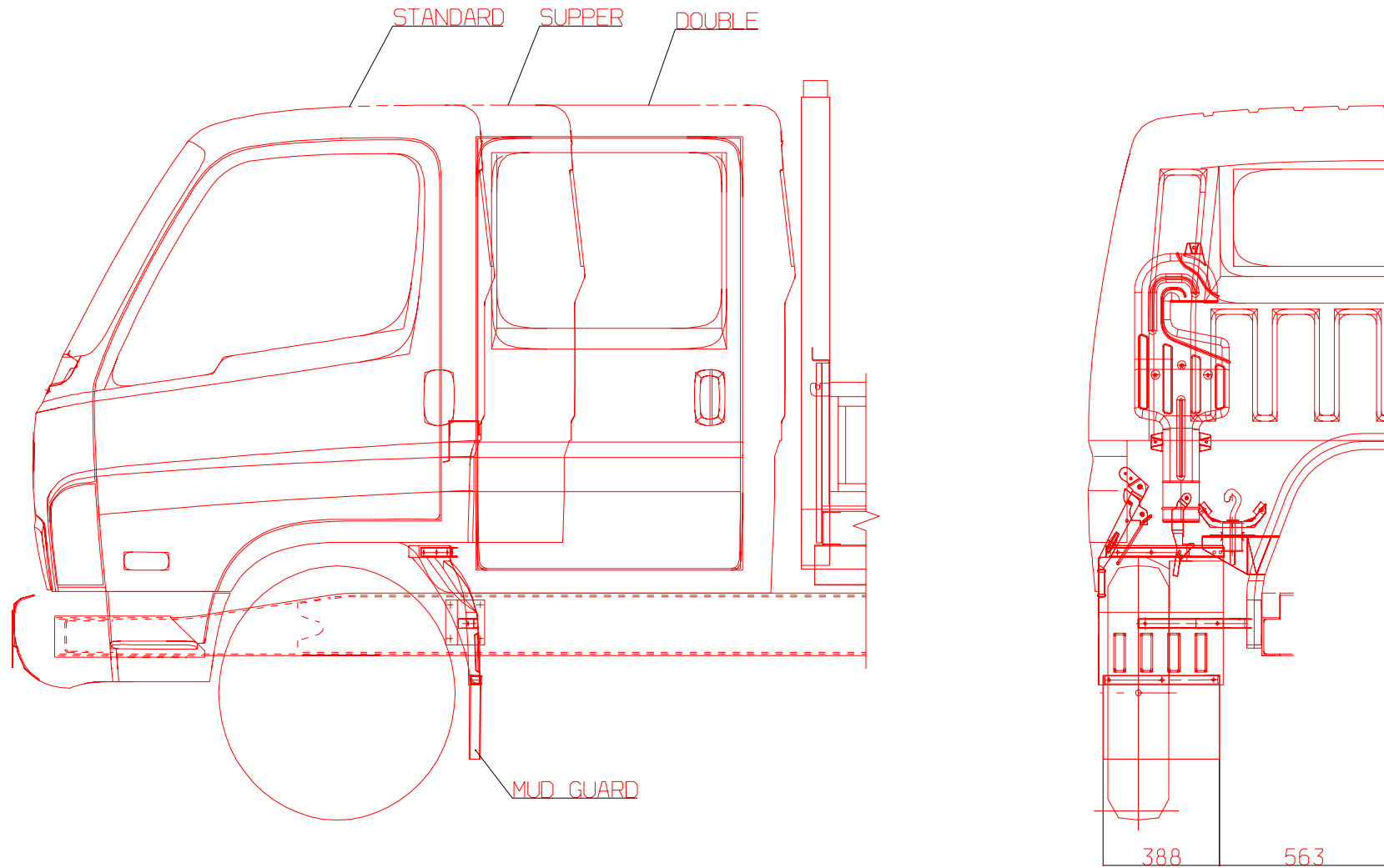
	WIDE CAB		NARROW CAB
	STANDARD	SUPER	
'A'	1925	2139	1925

(D4DD)



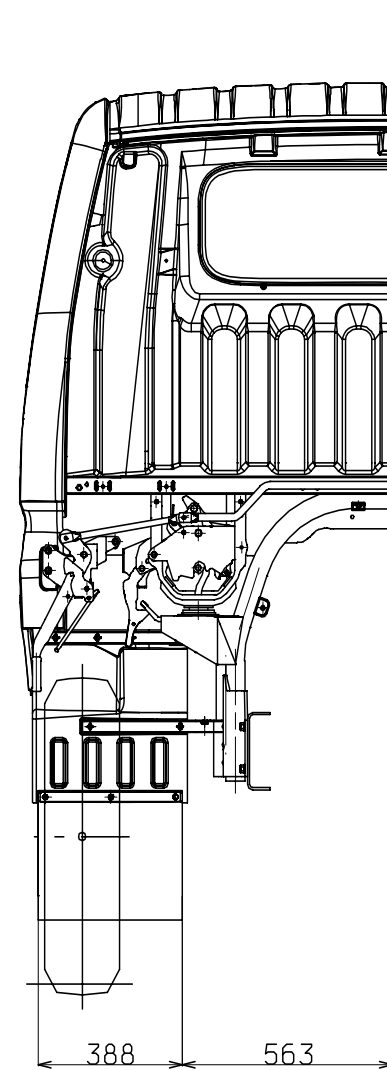
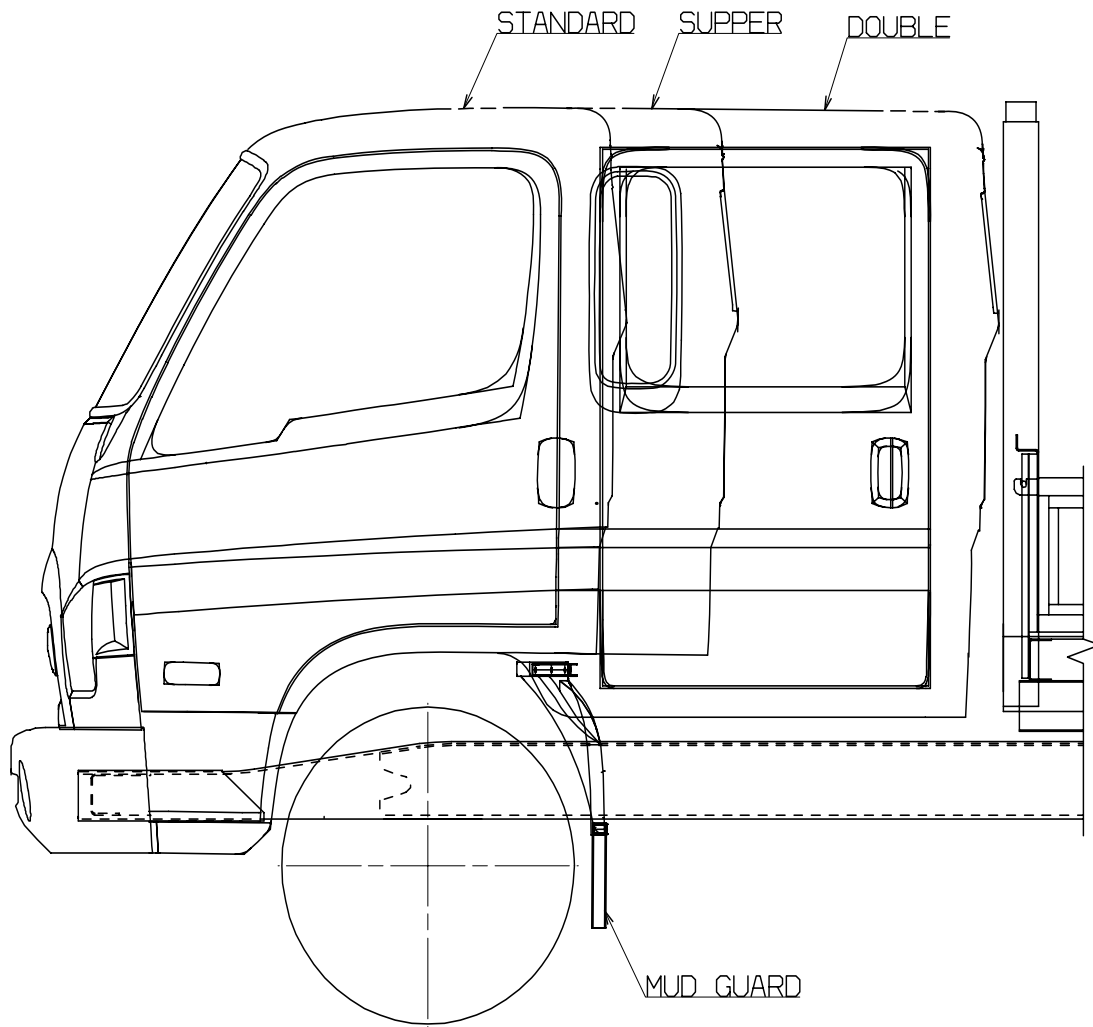
	WIDE CAB		NARROW CAB
	STANDARD	SUPER	
'A'	1940	2170	1925

1) REFERENCE DRAWING OF MUD GUARD

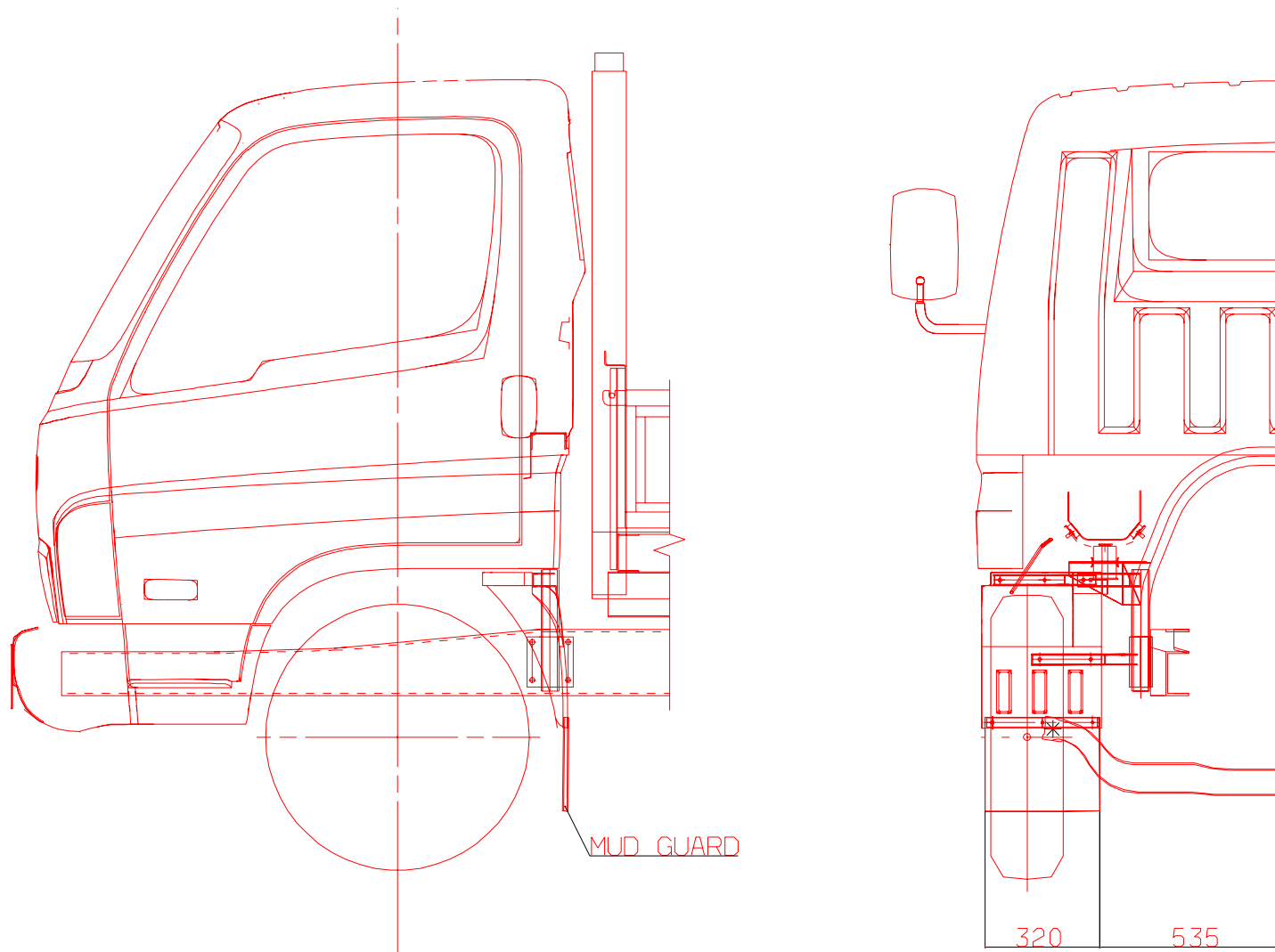


( WIDE CAB :D4AF/D4AL/D4DA/D4DB/D4DB-d/D4DC )





( WIDE CAB : D4DD )



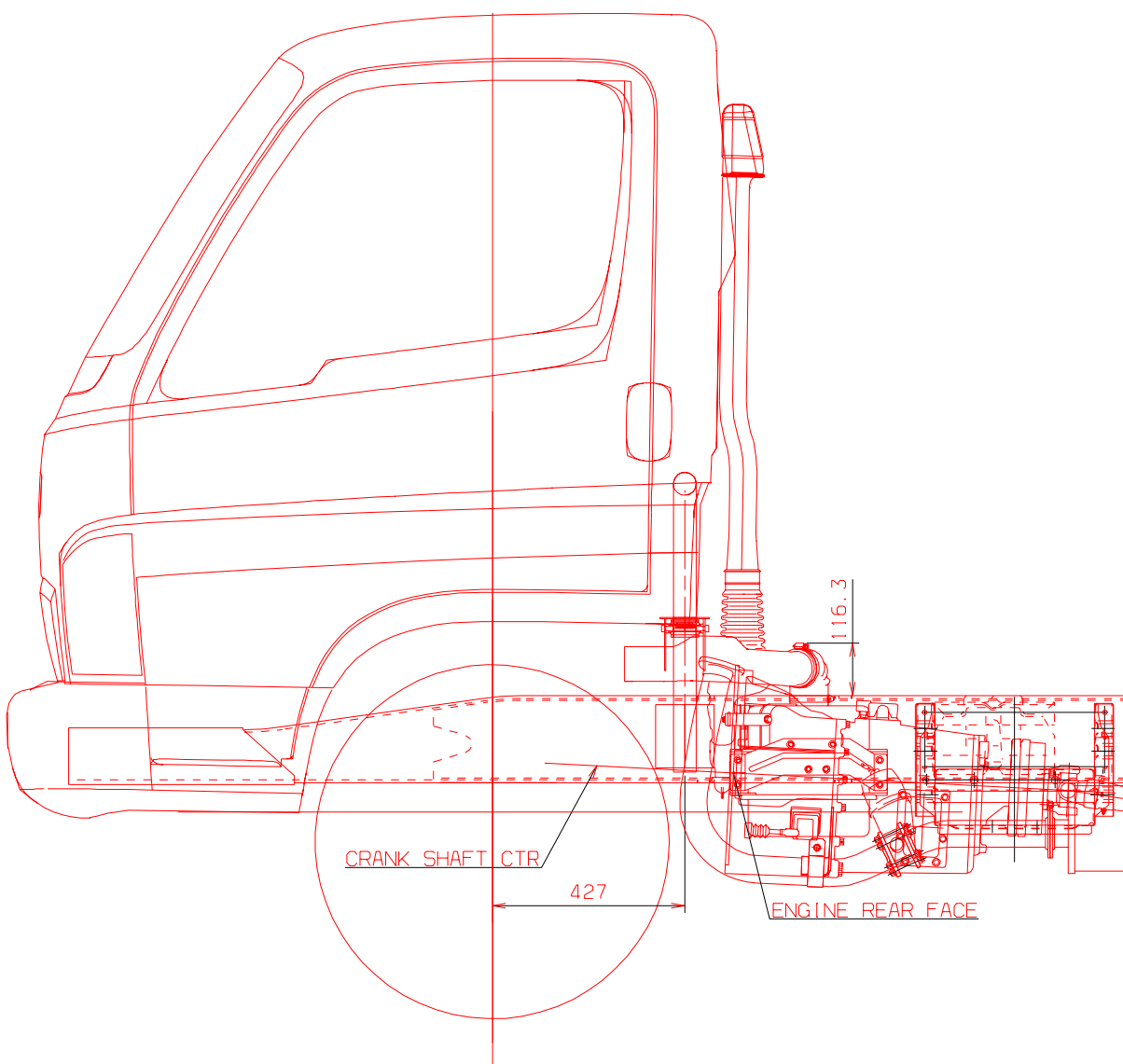
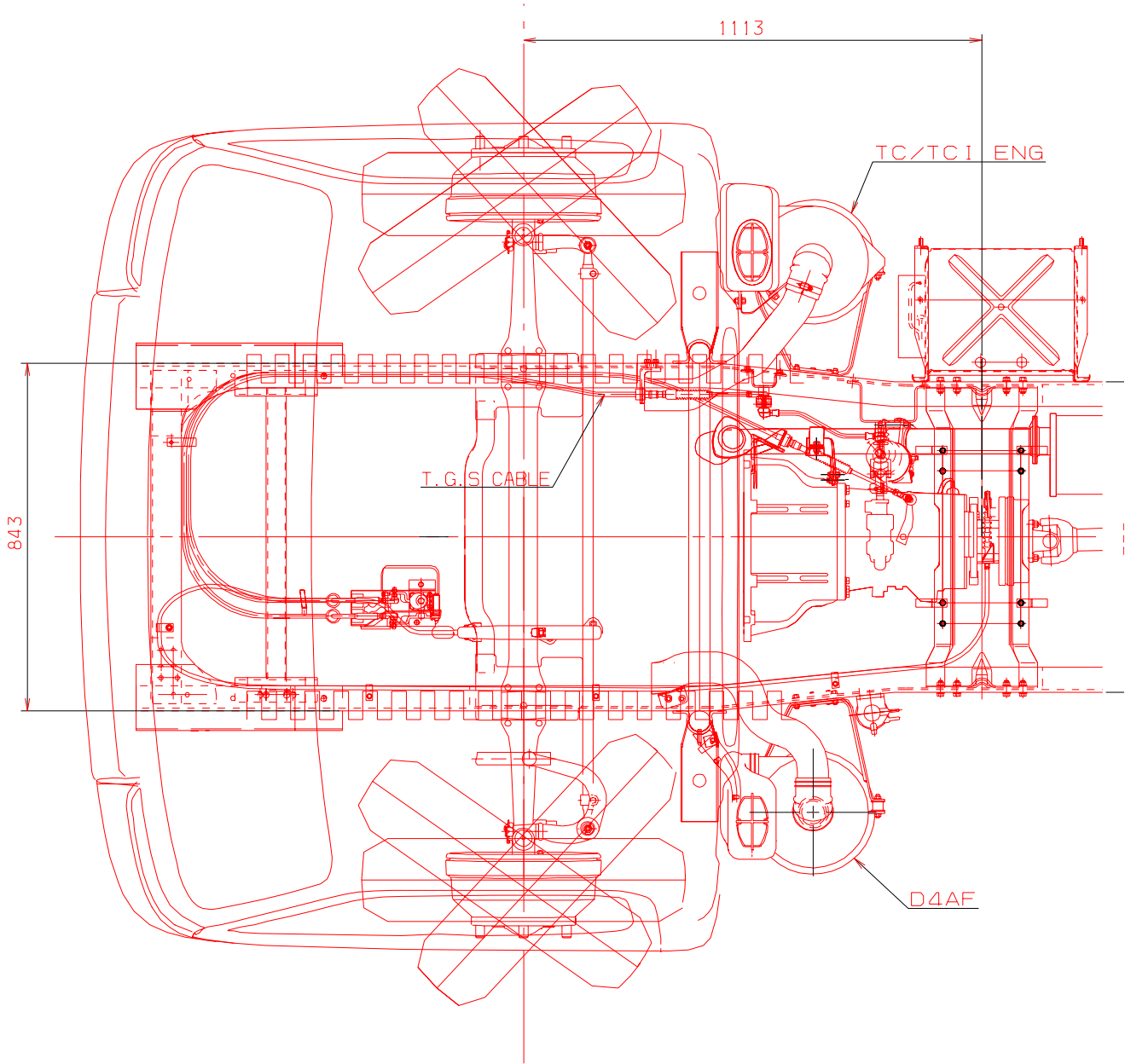
( NARROW CAB : D4AF/D4AL )

## 5-2. CAUTIONS NEEDED FOR FASTENING 'U-BOLT'

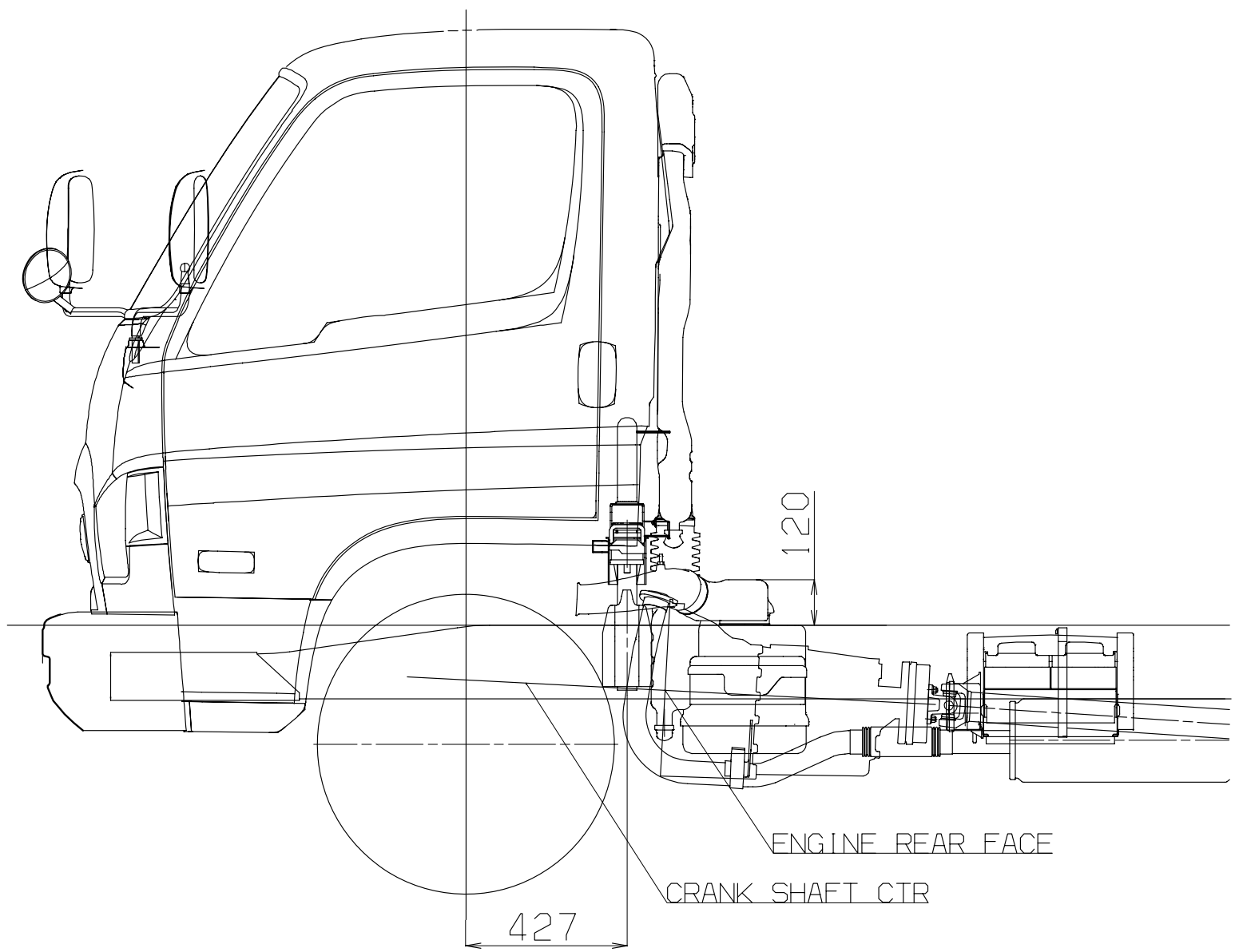
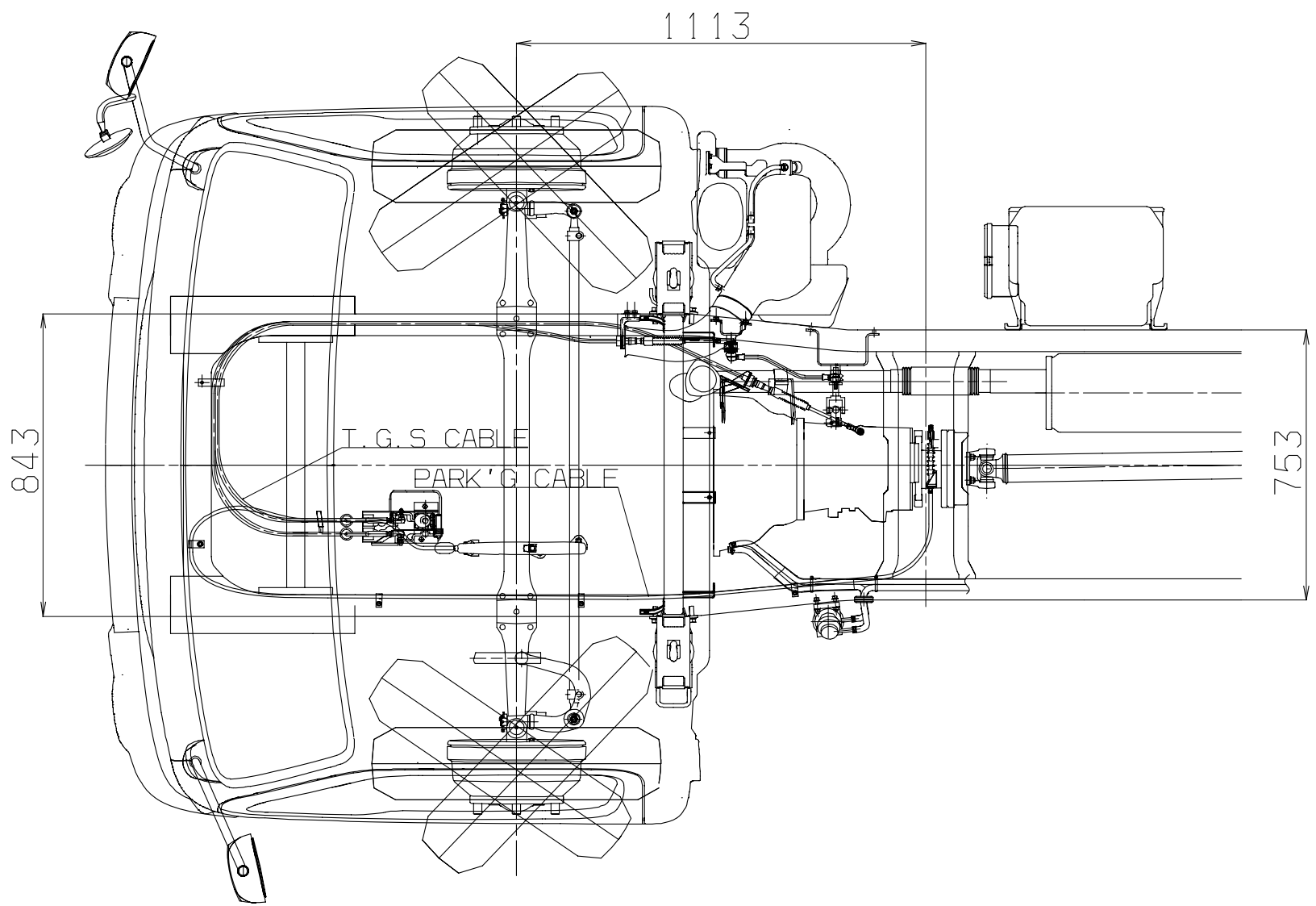
In case of fastening U-bolt between the cab rear and No.2 cross member, refer to the appendix drawing of U-bolt installation.

\* REFERENCE DRAWING OF THE 'U-BOLT' INSTALLATION

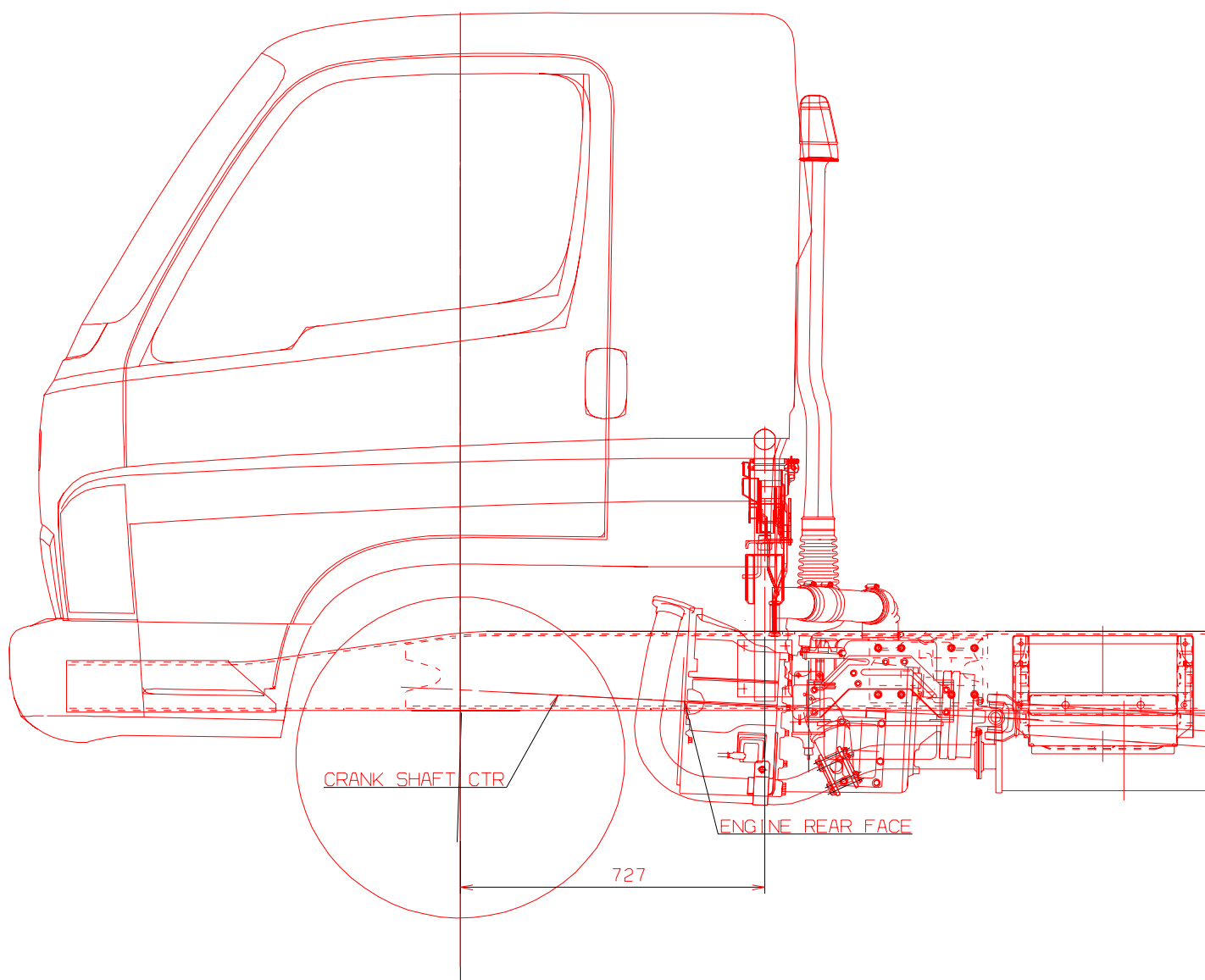
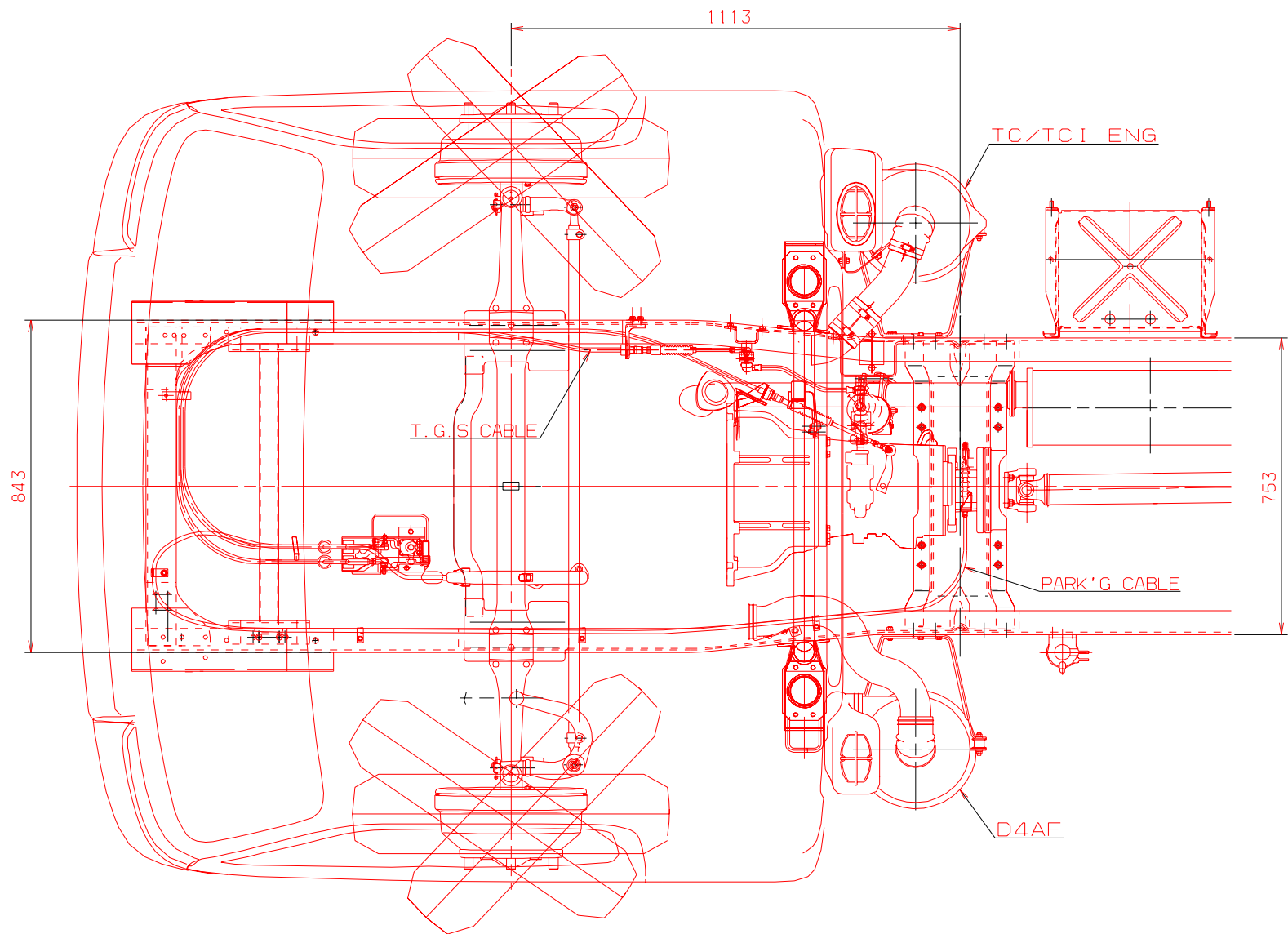
(1) FRONT AXLE TO NO.2 C/MBR AREA



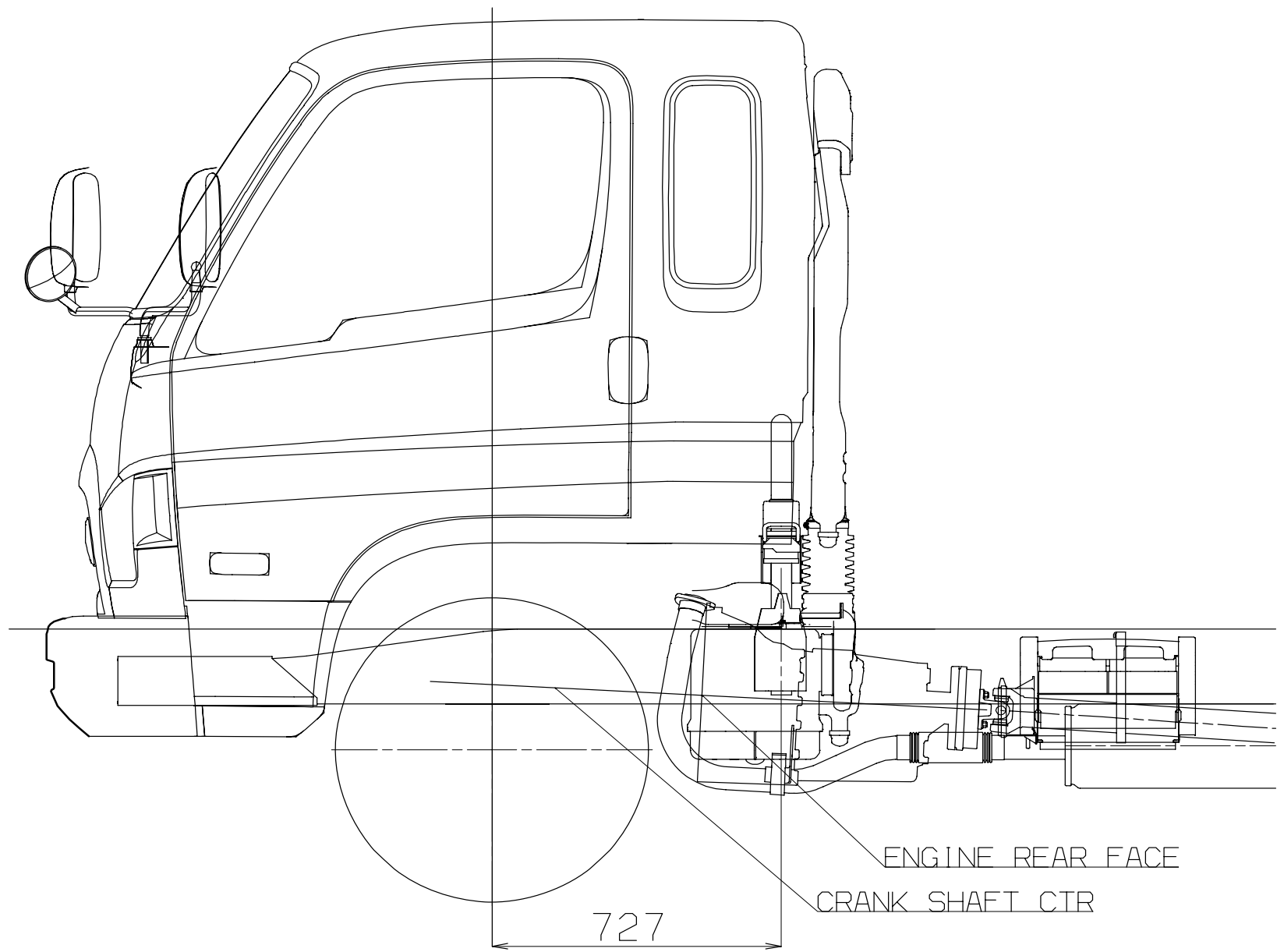
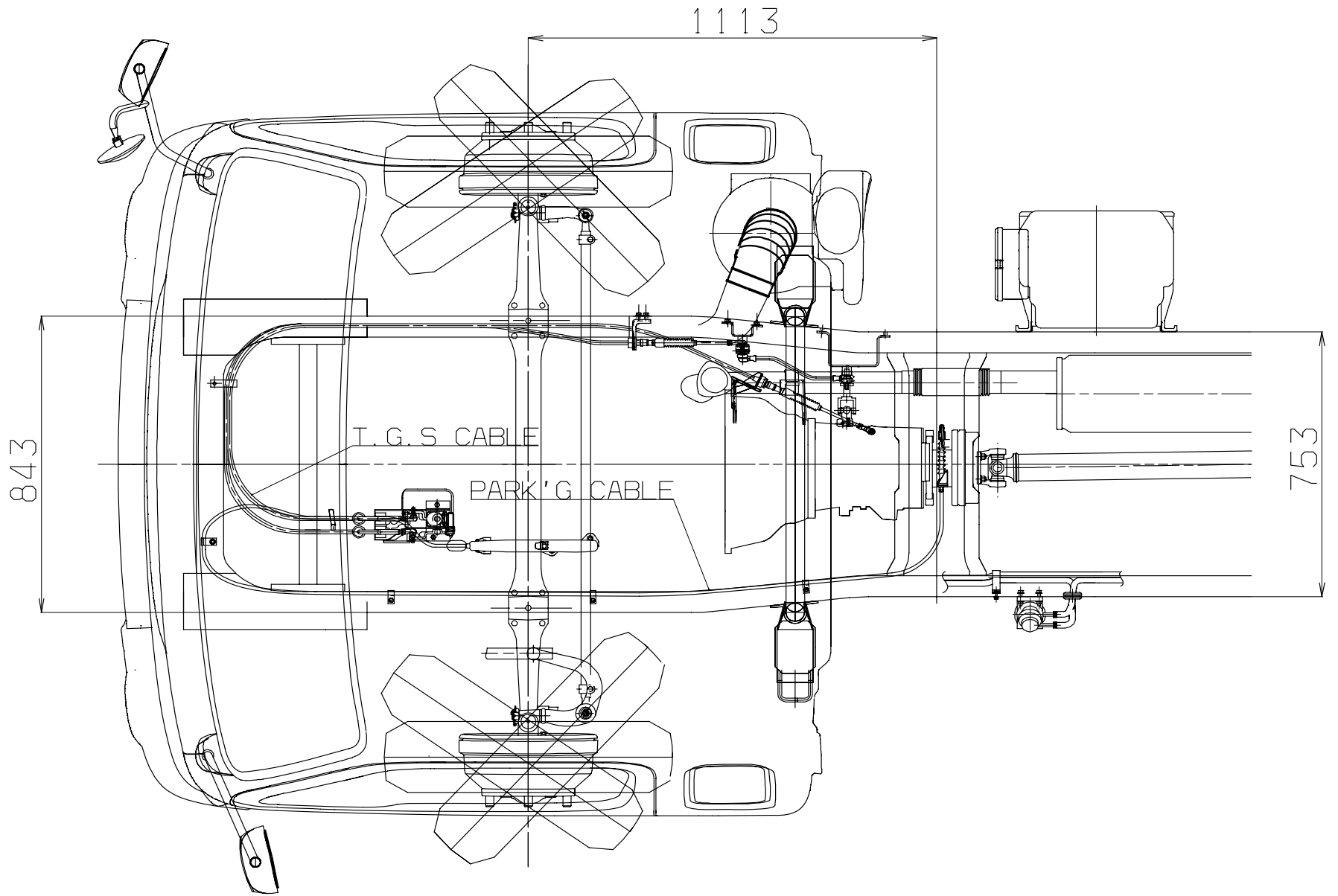
WIDE STD CAB(HD\*CS-D4AF/D4AL/D4DA/D4DB/D4DB-d/D4DC)



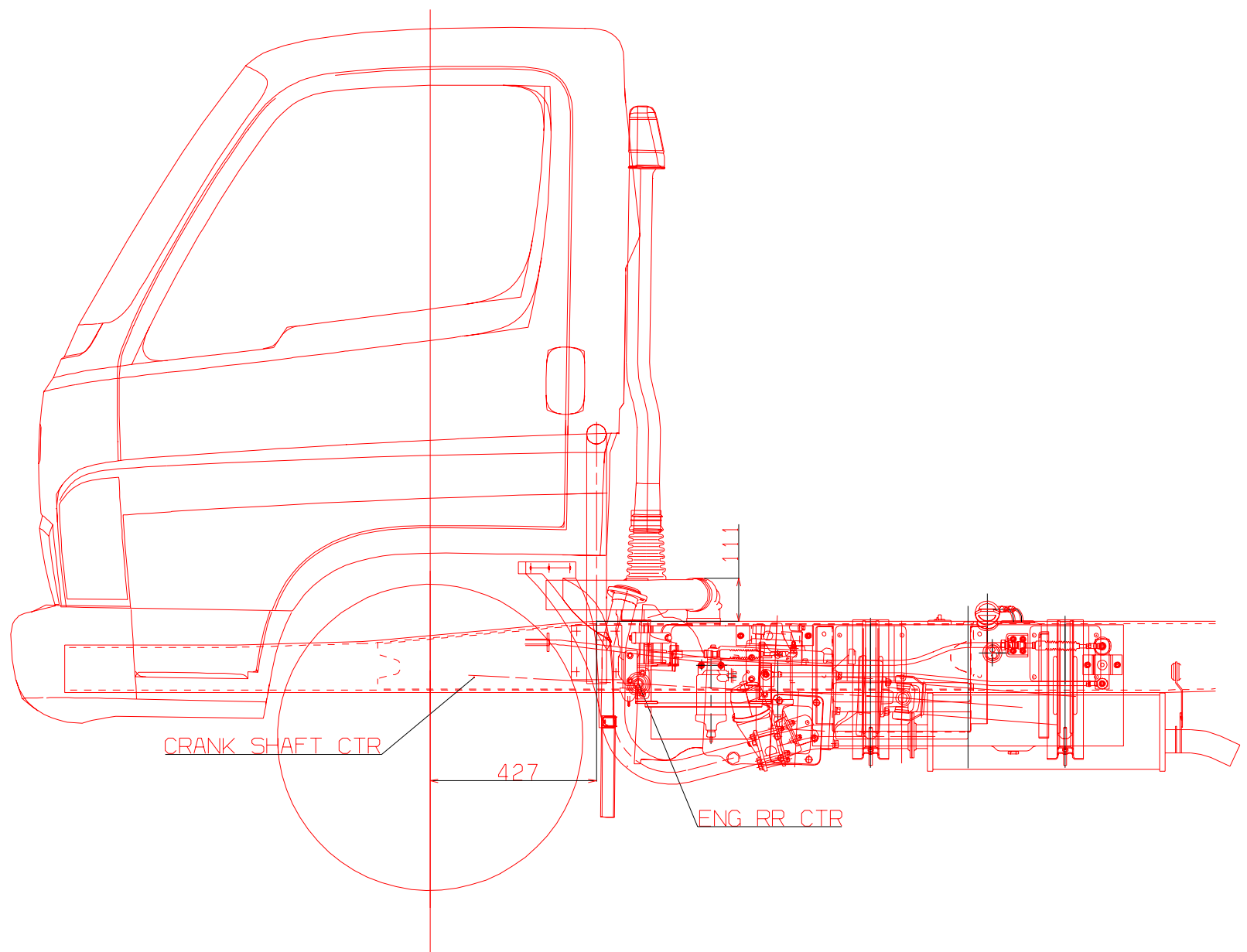
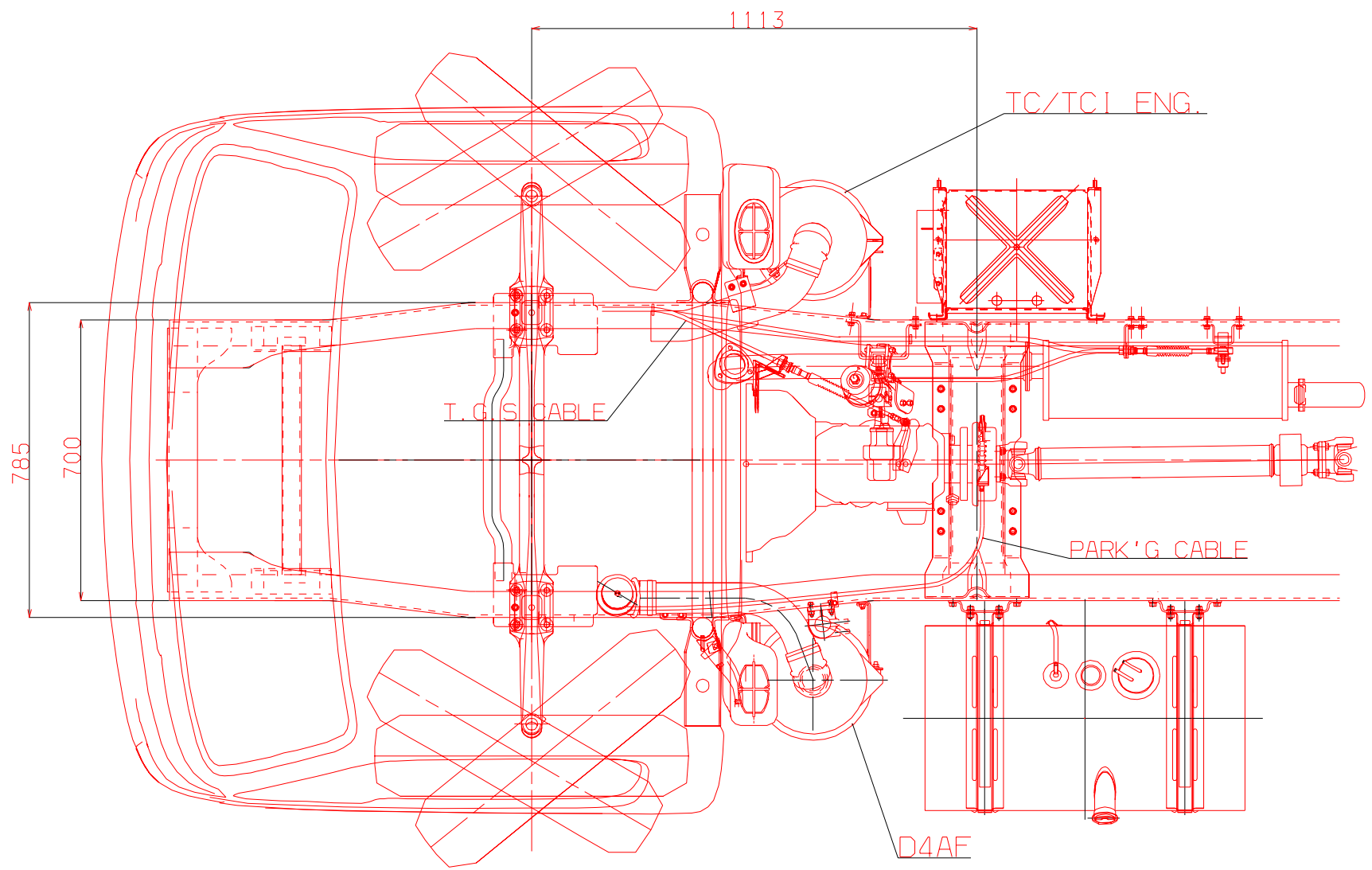
WIDE STD CAB(HD\*CS-D4DD)



WIDE SUPER CAB(HD\*DP-D4AF/D4AL/D4DA/D4DB/D4DB-d/D4DC)



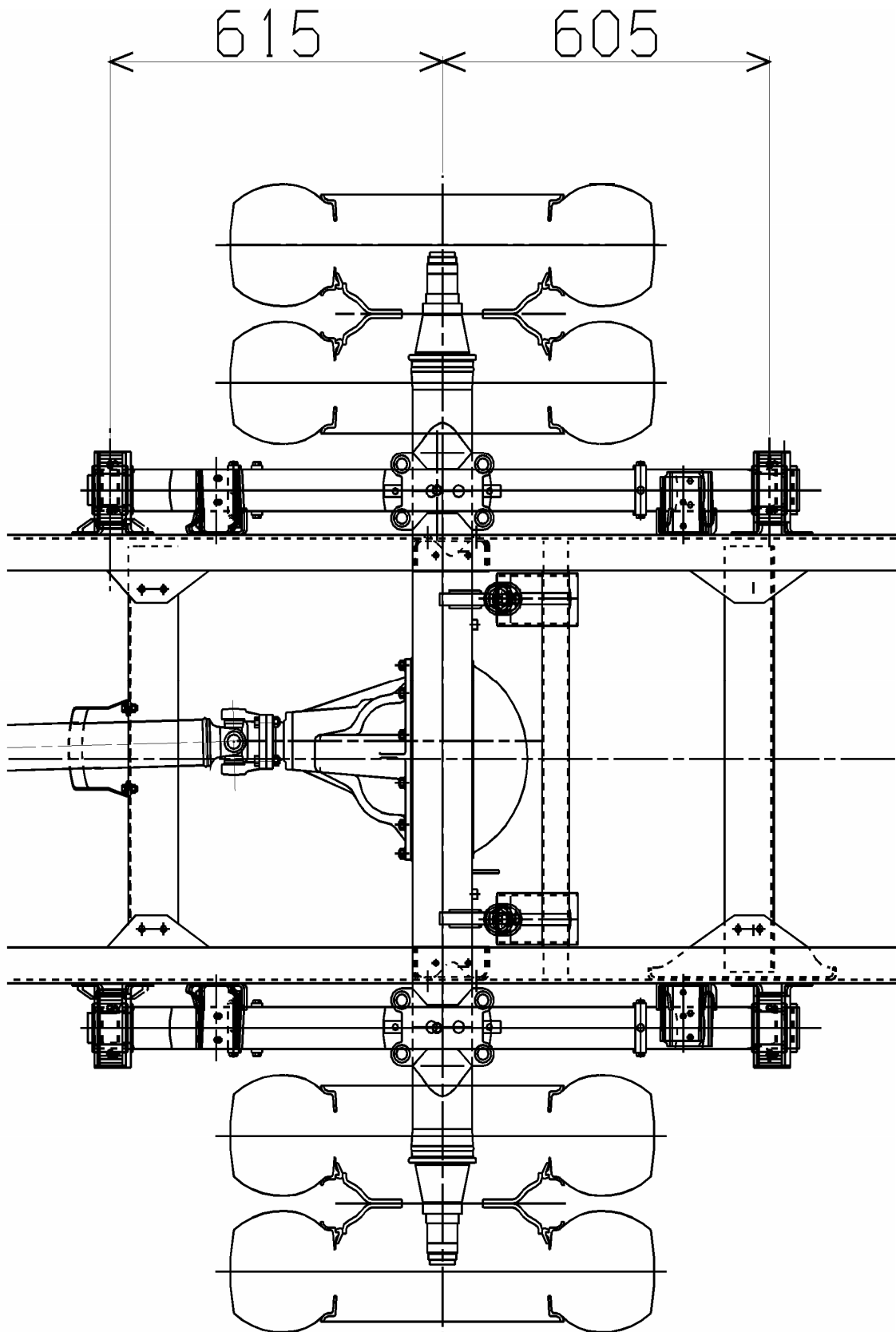
WIDE SUPER CAB(HD\*DP-D4DD)



NARROW CAB(HD\*CN-D4AF/D4AL)



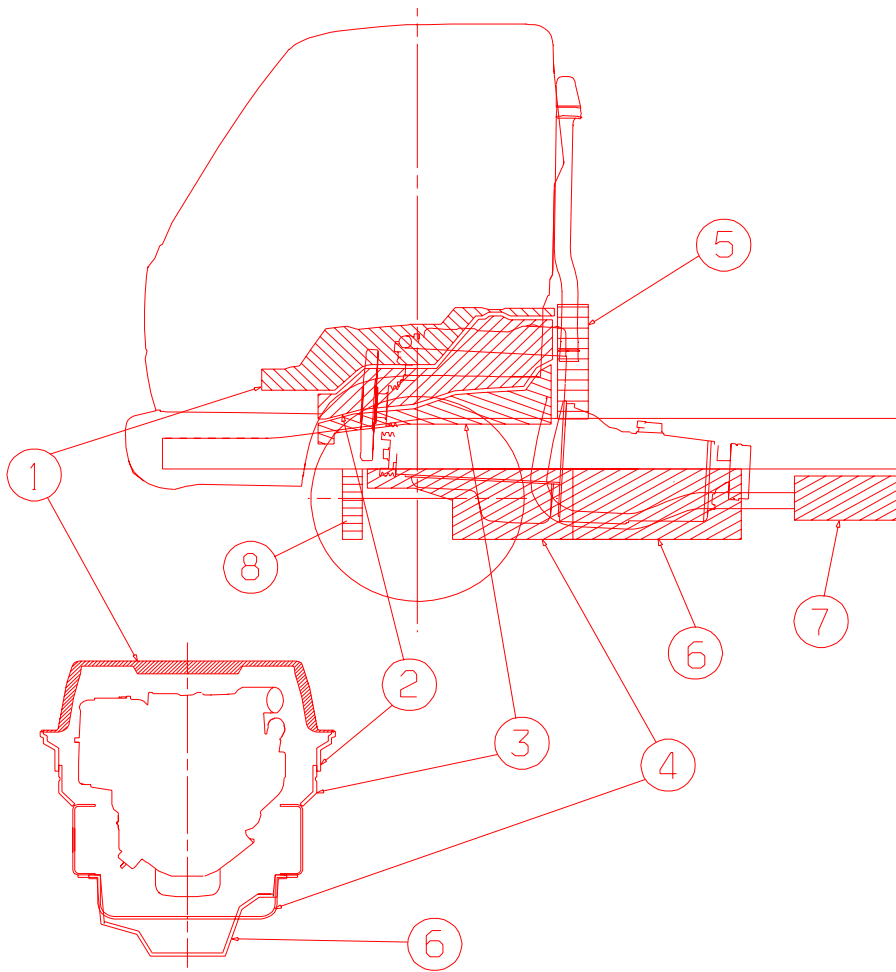
(2) REAR AXLE AREA



### 5-3. NOISE PREVENTION PARTS

Don't modify or alterate noise prevention parts, which conform to the noise regulations. But in an unavoidable case, please contact with HMC. Also in case detaching noise prevention parts when installing or modifying them, be sure to install them as ever again after finishing installation or modification.

Position describing drawing of noise prevention parts.



	PATRS
D4AF	1,2,3,4,5,7
D4AE	1,2,3,4,5,7
D4AL	1,2,3,4,5,6,7,8
D4DA	1,2,3,4,5,6,7,8

NO	NOISE PREVENTION PARTS
①	ENGINE UPPER COVER INSULATOR
②	ENGINE SIDE-UPPER INSULATOR
③	ENGINE SIDE COVER
④	ENGINE UNDER COVER
⑤	ENGINE REAR COVER
⑥	T/M UNDER COVER
⑦	MUFFLER
⑧	RADIATOR UNDER COVER

## 6. WEIGHT AND FRAME INFORMATION

## 6-1. PERMISSIBLE WEIGHT

Permissible weight must not exceed axle and tire capacity.

### (1) AXLE CAPACITY

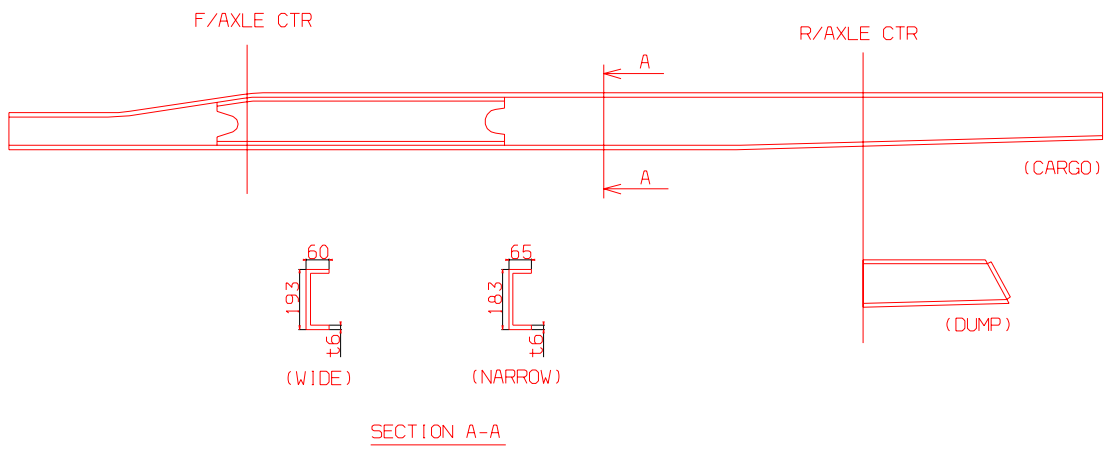
		ENGINE	FRONT(Kg)	REAR(Kg)	REMARKS
WIDE CAB	HD65	D4AF/D4AL D4DB-d/D4DC	2,300	4,100	
		D4DD	2,600	4,400	
	HD72	D4AL/D4DA	2,600	4,700	SHORT WHEEL BASE
		D4DB/D4DC	2,600	4,300	LONG WHEEL BASE
		D4DD	3,100	4,700	
	HD78	D4DA/D4DB D4DC/D4DD	3,100	4,700	
NARROW CAB	HD65	D4AF/D4AL	2,300	4,100	

## (2) TIRE SPECIFICATION

TIRE TYPE	LBS / PSI	PERMISSIBLE WEIGHT (Kg)	AIR PRESSURE (Kg/cm <sup>2</sup> )	EFF. RAD(mm)		OTR DIA.
				STATIC RAD.	DYNAMIC RAD.	
6.50-16LT-10PR	(S) 2227 / 78	1010	5.5	354	356	740~
	(D) 2116 / 78	960	5.5	355	357	760
6.50R16LT-10PR	(S) 2227 / 78	1010	5.5	351	353	740~
	(D) 2116 / 78	960	5.5	352	354	760
7.00-16LT-10PR	(S) 2490 / 75	1130	5.25	365	367	766~
	(D) 2370 / 75	1075	5.25	366	368	786
7.00R16LT-10PR	(S) 2535 / 80	1150	5.62	362	372	766~
	(D) 2470 / 80	1120	5.62	363	373	786
195R15LT-12PR	(S) 2447 / 85	1110	5.98	321	333	681~
	(D) 2337 / 85	1060	5.98	322	334	702
7.50-16LT-12PR	(S) 3110 / 90	1410	6.32	381	382	794~
	(D) 2730 / 90	1240	6.32	382	383	816
7.50R16LT-12PR	(S) 3090 / 95	1400	6.68	375	386	794~
	(D) 2730 / 95	1240	6.68	376	387	816
7.50-16LT-14PR	(S) 3329 / 92	1510	6.5	381	382	794~
	(D) 3175 / 92	1440	6.5	382	383	816
8.5R17.5-12PR	(S) 3195 / 89	1450	6.25	374	388	791~
	(D) 3085 / 89	1400	6.25	375	389	813

(S) : SINGLE, (D) : DOUBLE

## 6-2. FRAME MATERIAL & MAIN SECTION



### \*NOTE

- 1) FRAME MATERIAL : HIGH TENSILE PLATE  
TENSION STRENGTH : 45kg/mm<sup>2</sup>  
YIELD STRENGTH : 30kg/mm<sup>2</sup>

## 7. PTO CONTROL

## 7. P.T.O CONTROL

### 7-1. T/M P.T.O

#### (1) Use of genuine parts P.T.O

1) Unless otherwise provided for, be sure to use genuine parts.

2) Refer to appendix P.T.O ASSY drawing for details in using power.

#### (2) Use P.T.O other than genuine parts

A particular reason, when using P.T.O other than genuine parts, consult with HMC.

#### (3) Cautions regarding the propeller shaft driving P.T.O

1) Make sure that an angle of intersection of propeller shaft makes a solid angle be 15° MAX, and also the angle of intersection of the both ends of propeller shaft is the same.

2) As in driving, there is a displacement of about  $\pm 10$ mm (up and down, left and right) from the position of P.T.O outlet, take notice of an allowable angle of intersection of propeller shaft.

3) The direction of P.T.O output shaft is contrary to the direction of engine revolution.

#### (4) T/M P.T.O table

1) P.T.O TYPE : 47110-5H050(M035S5)  
47110-DS031A(M2S5, M3S5)

2) T/M TYPE : M2S5, M3S5, M035S5

3) TORQUE : 15kg · m/2000rpm

4) T/M & P.T.O RATIO : M2S5 : 43/24 X 36/15 X 13/36  
: M3S5 : 49/29 X 36/15 X 13/36  
: M035S5 : 43/23 X 35/16 X 13/35

5) SHIFT STROKE : 11.5mm

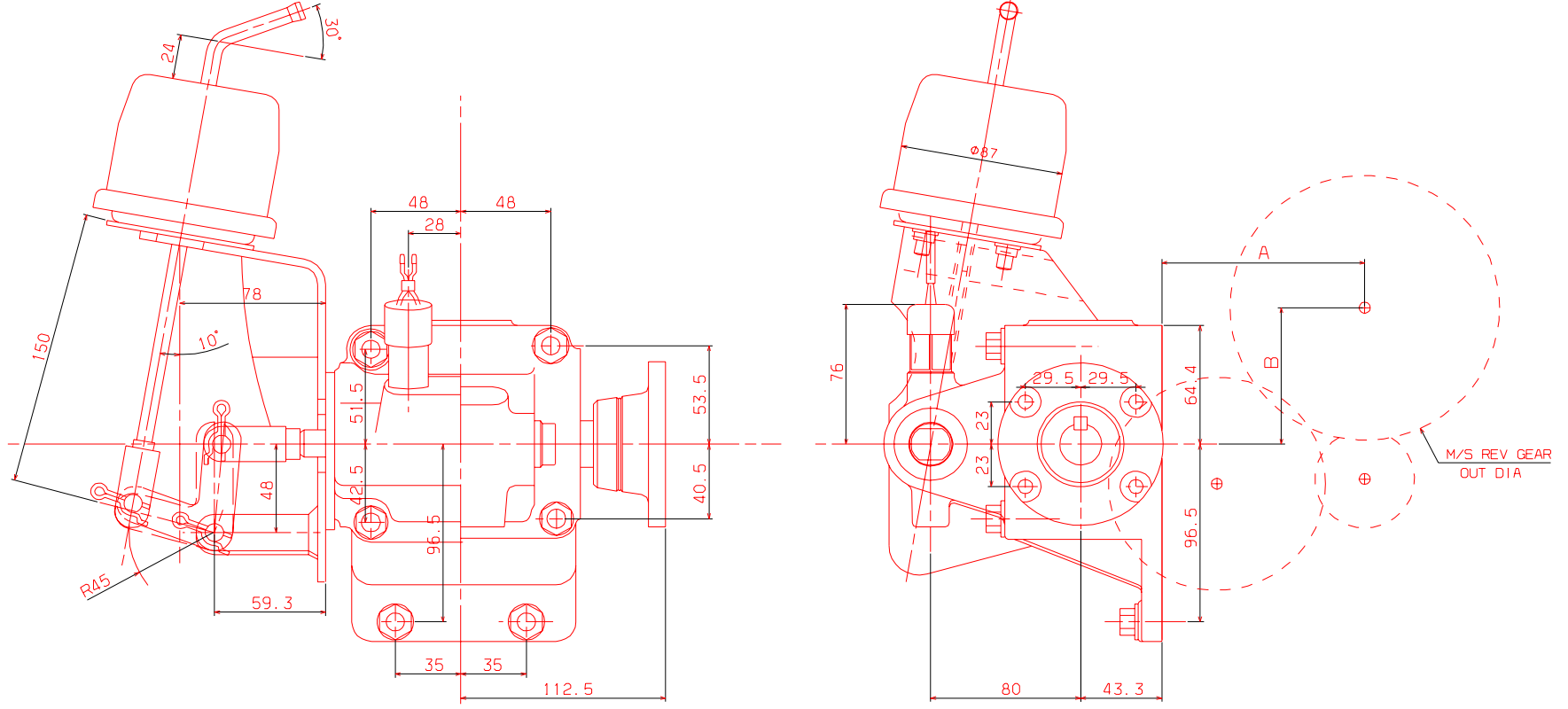
6) ALLOWABLE TORQUE : 850kg · cm



\* TRANSMISSION P.T.O

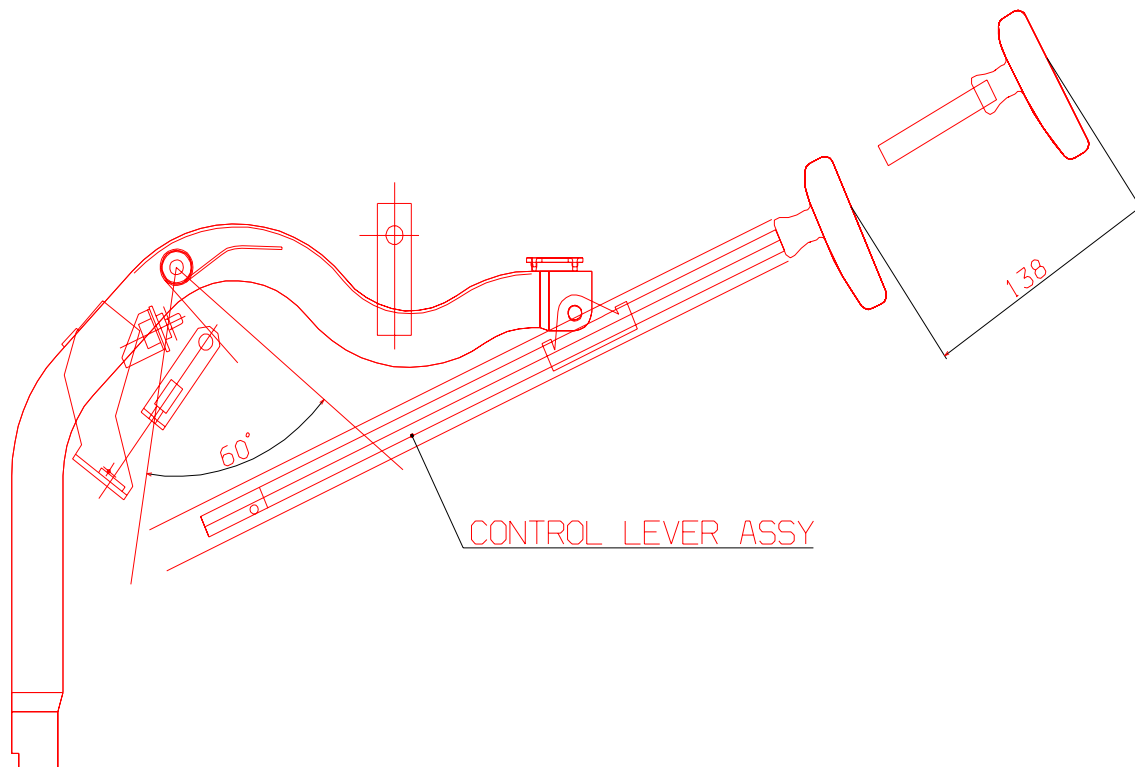
- P.T.O TYPE : 47110-5H050(M035S5)  
47110-DS031A(M3S5)

	A	B
M2S5/M3S5	108.5	74.1
M035S5	108.1	81.7



7-2. DUMP CONTROL LEVER

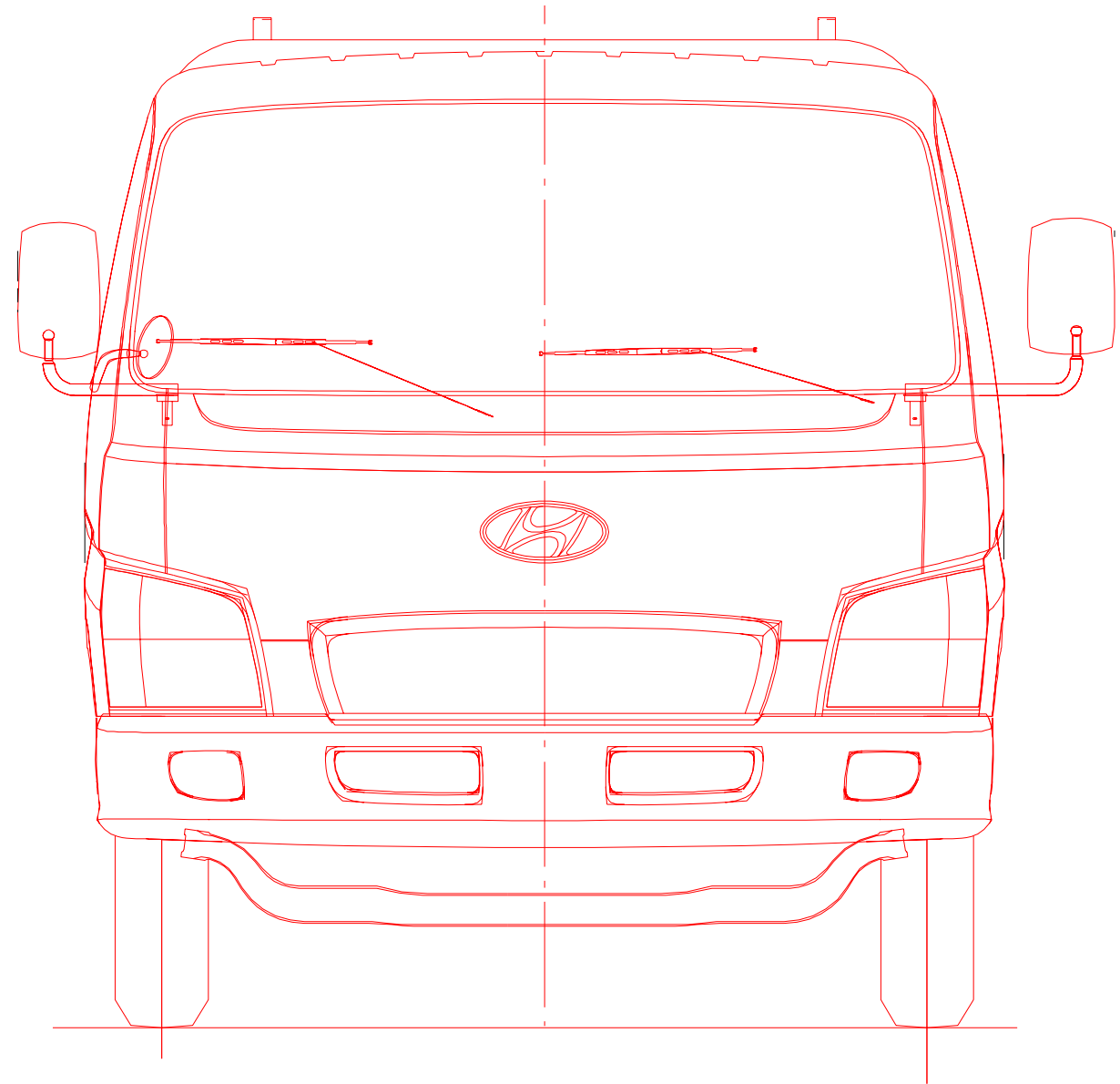
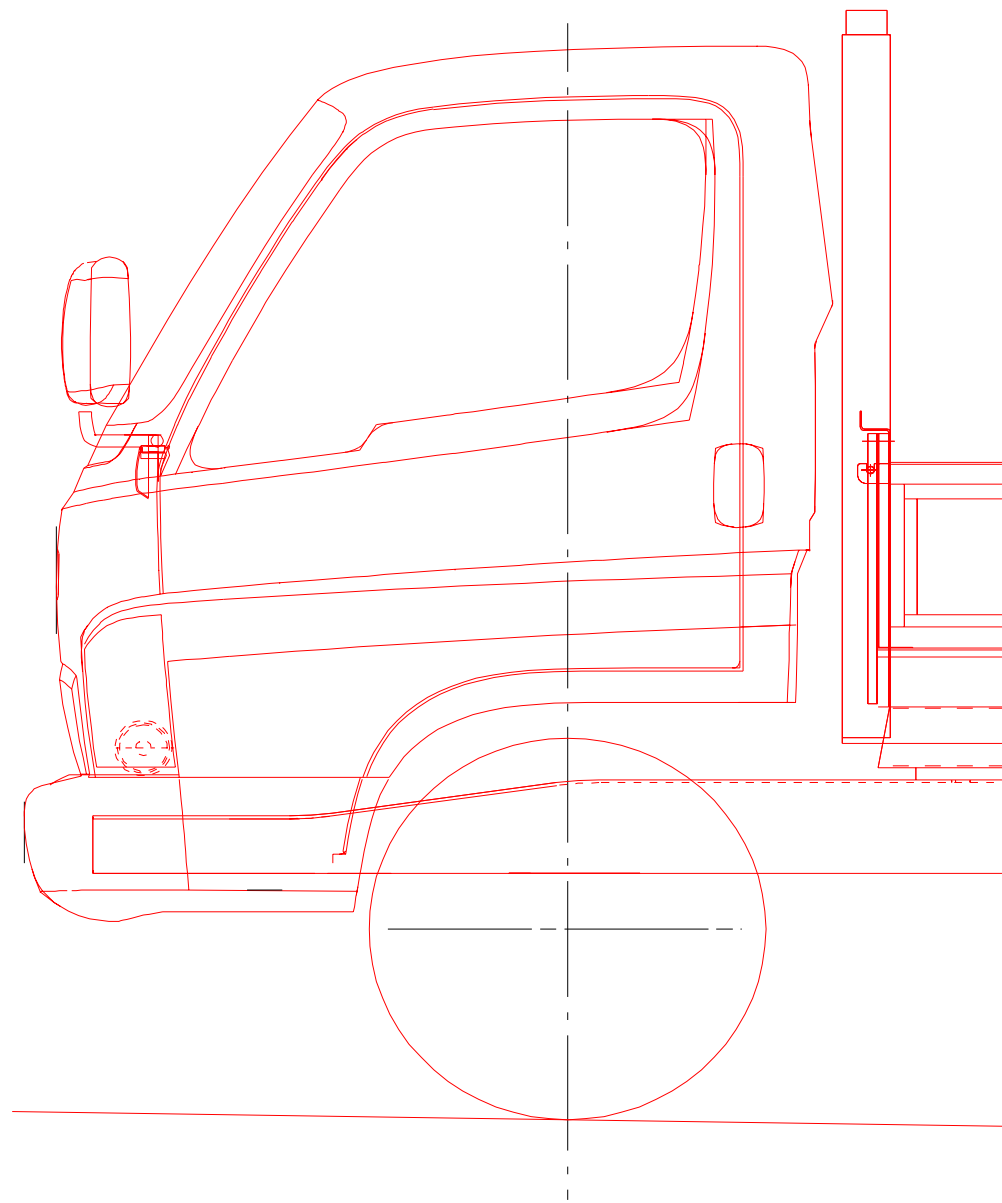
- VEHICLE : HD65 DUMP  
HD72 DUMP



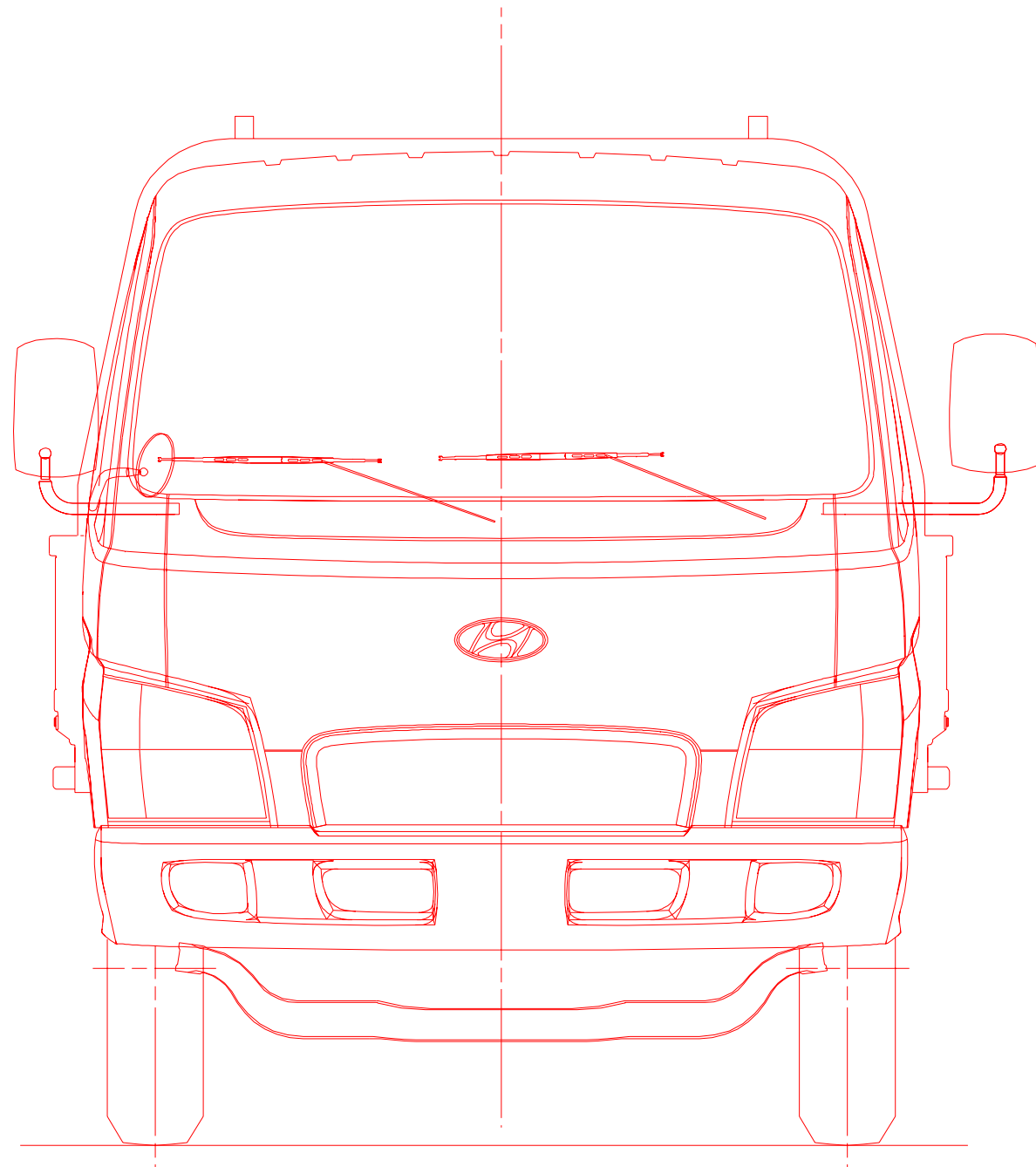
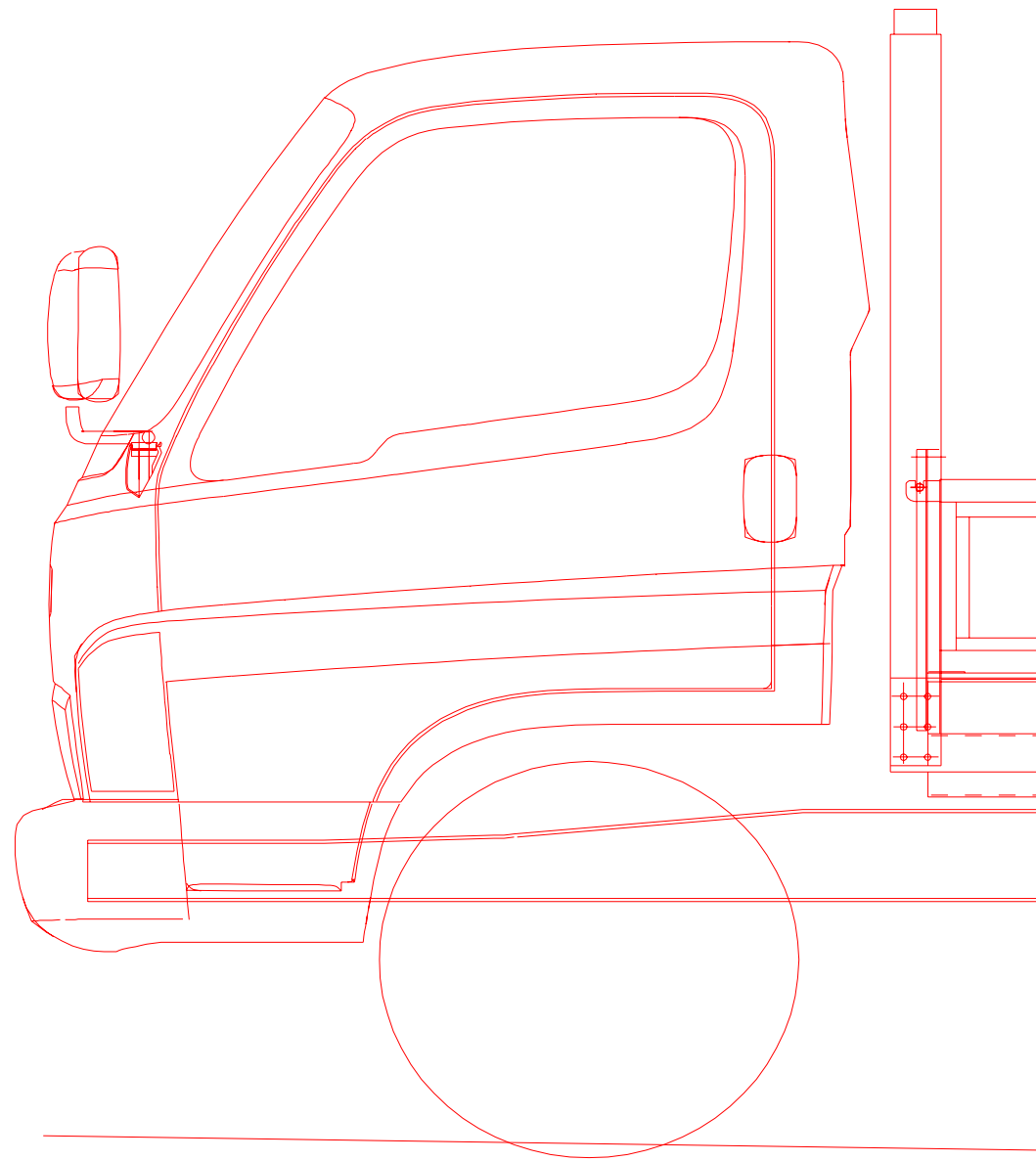
## 8. EXTERIOR DRAWING OF THE CAB

## 9. EXTERIOR DRAWING OF THE CAB

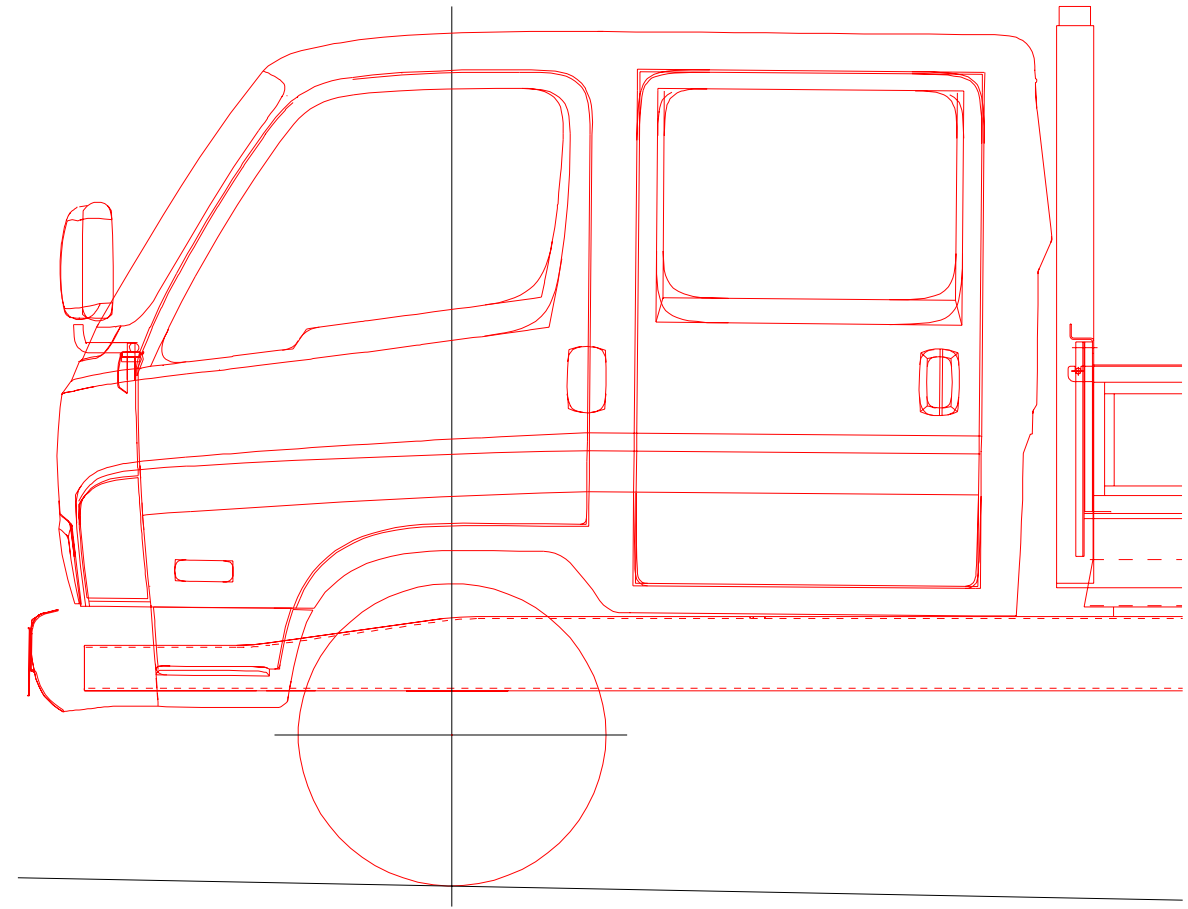
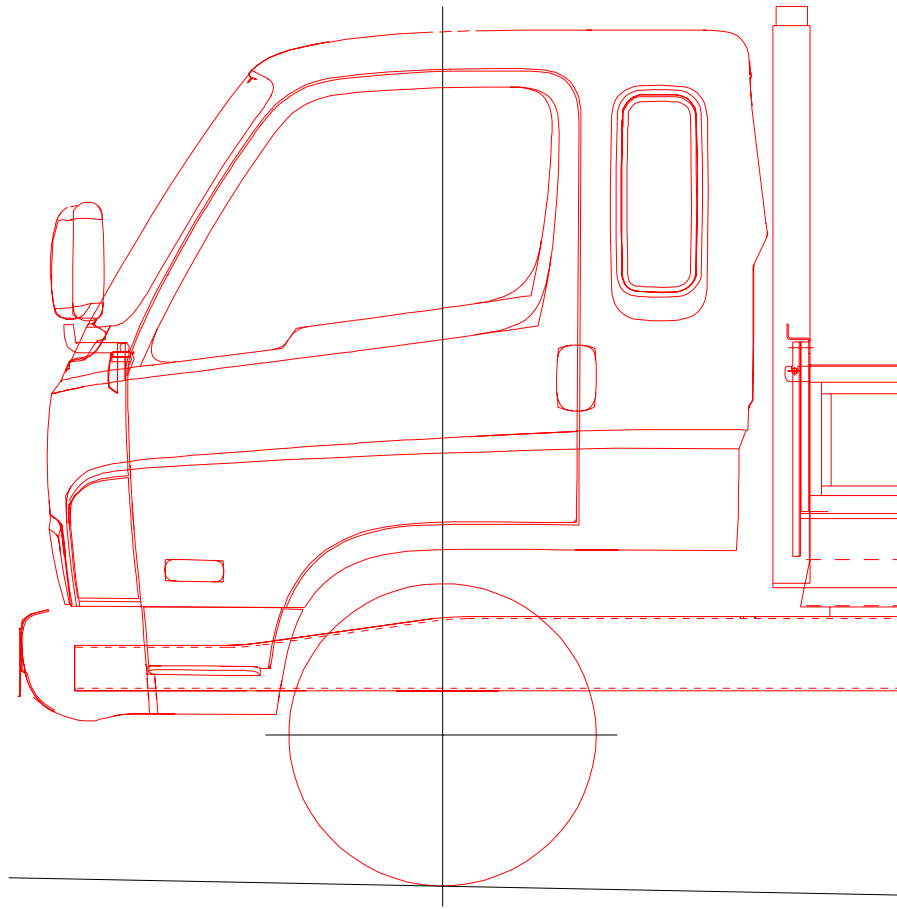
(WIDE CAB)



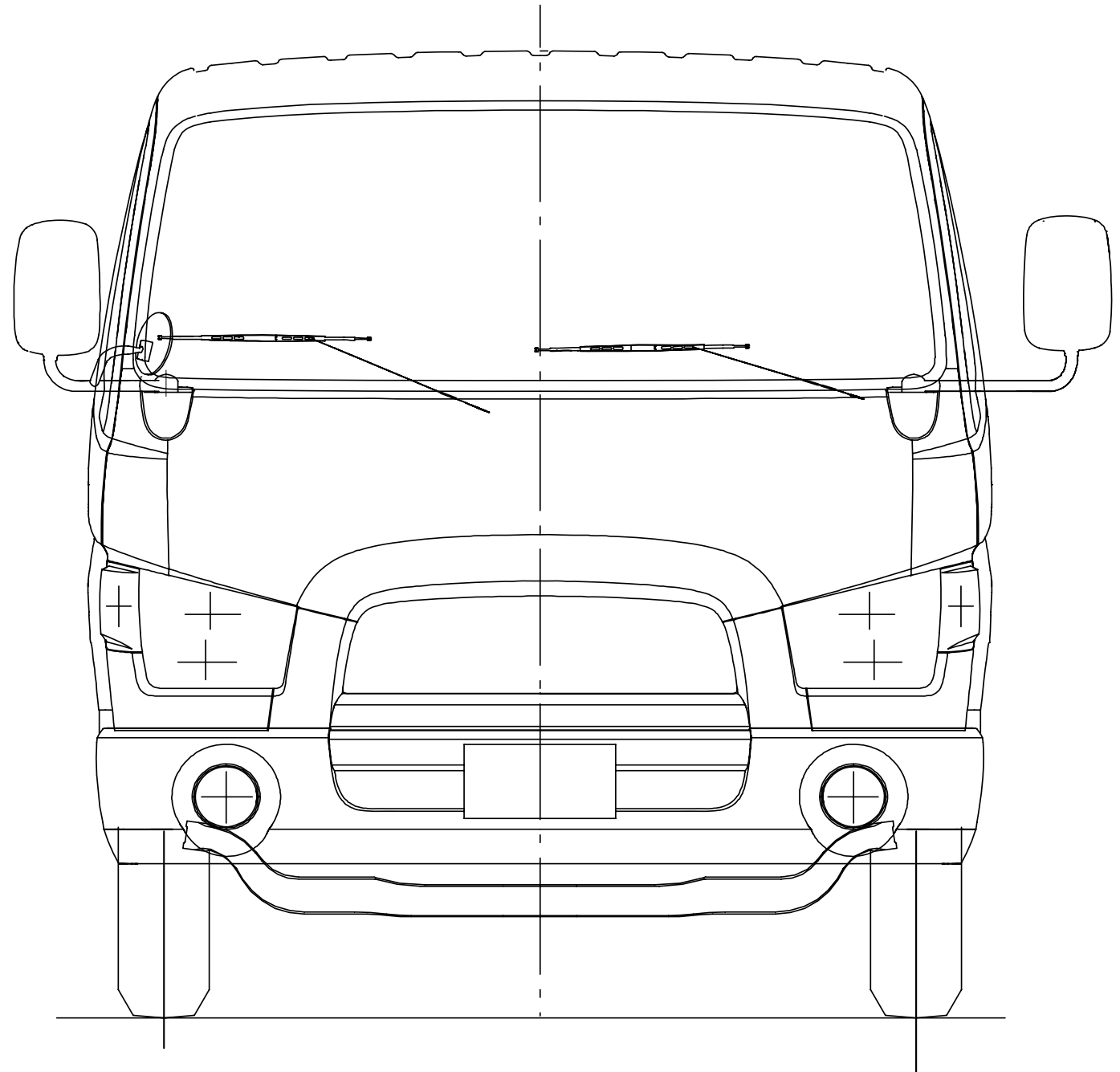
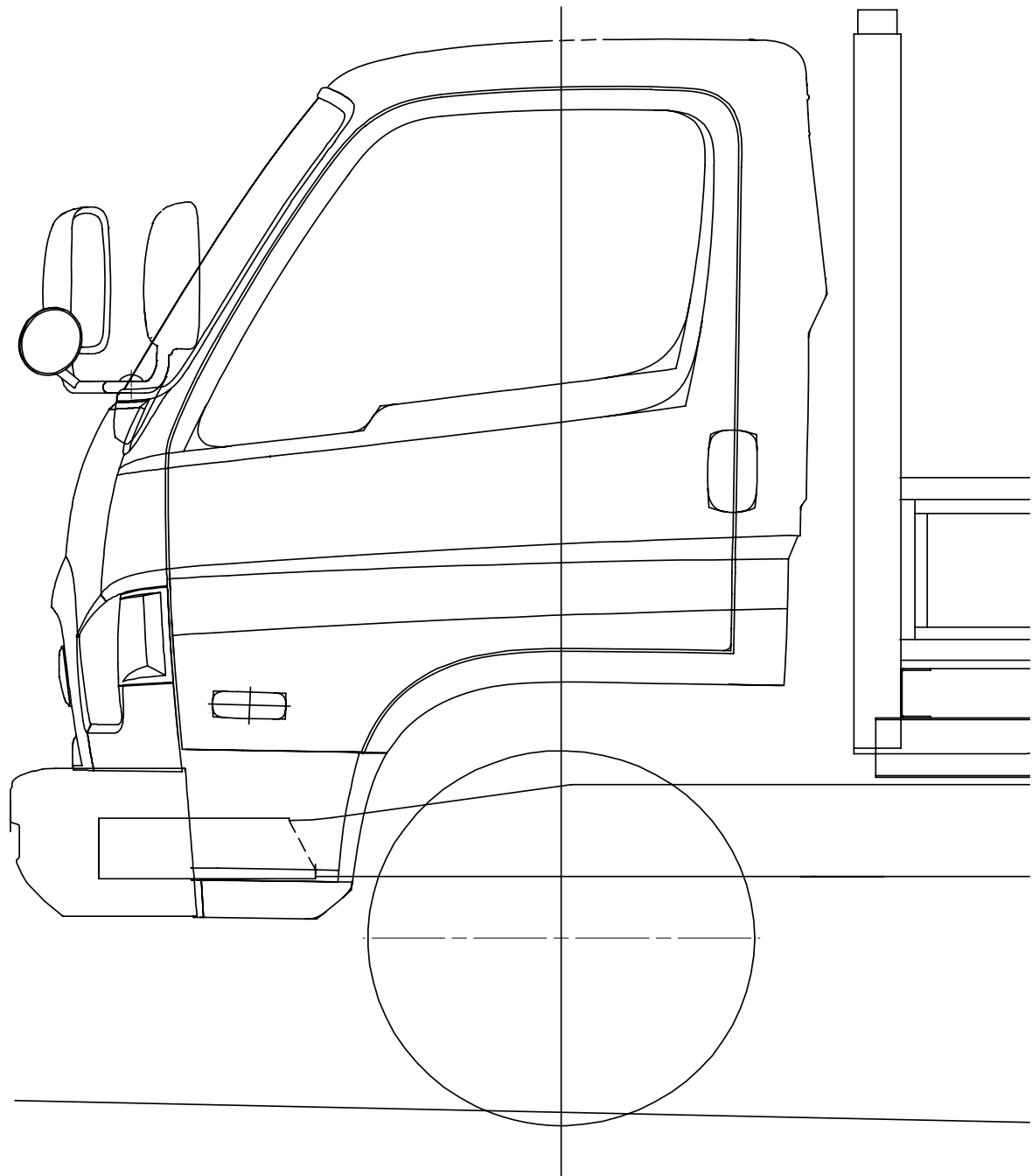
(NARROW CAB)



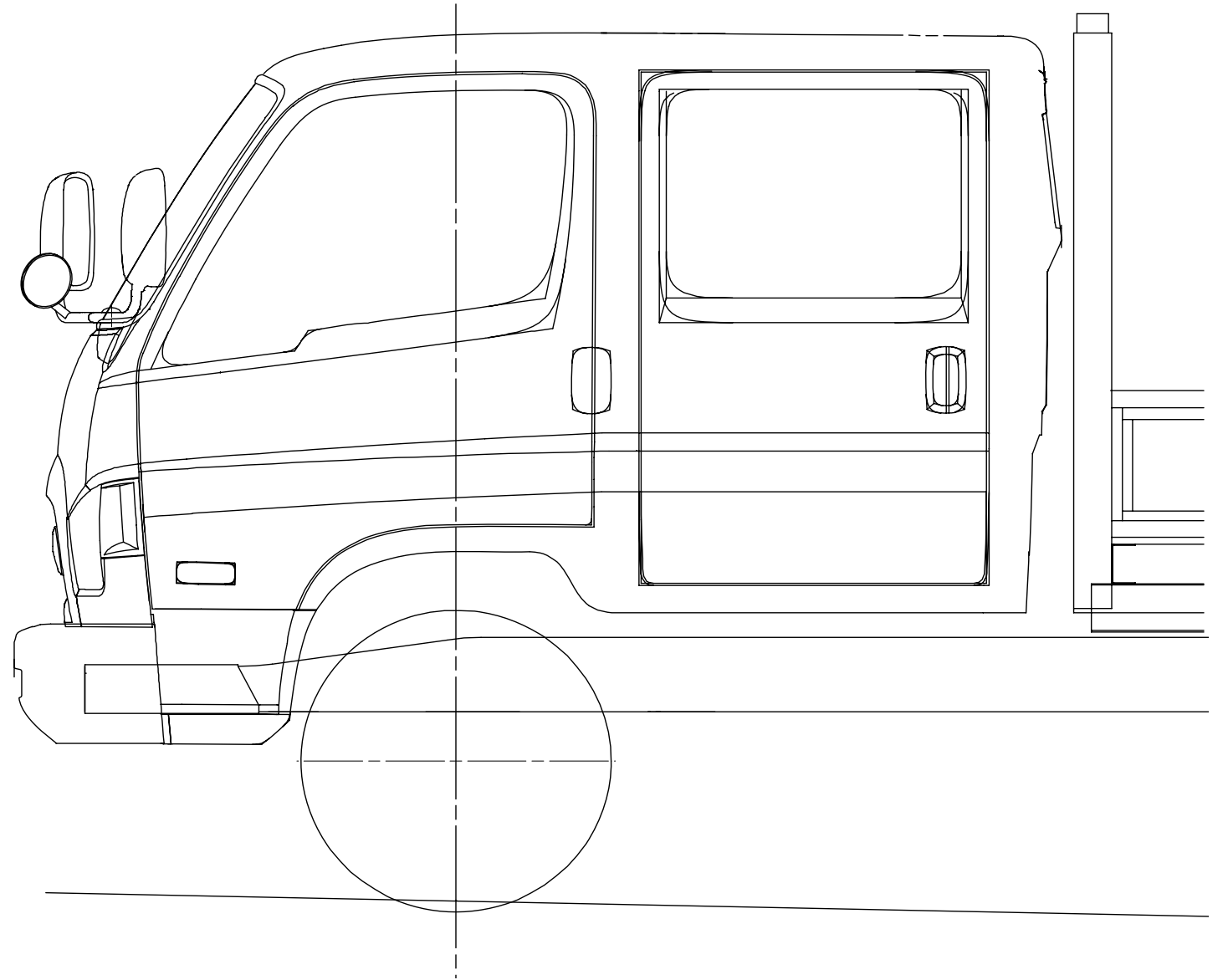
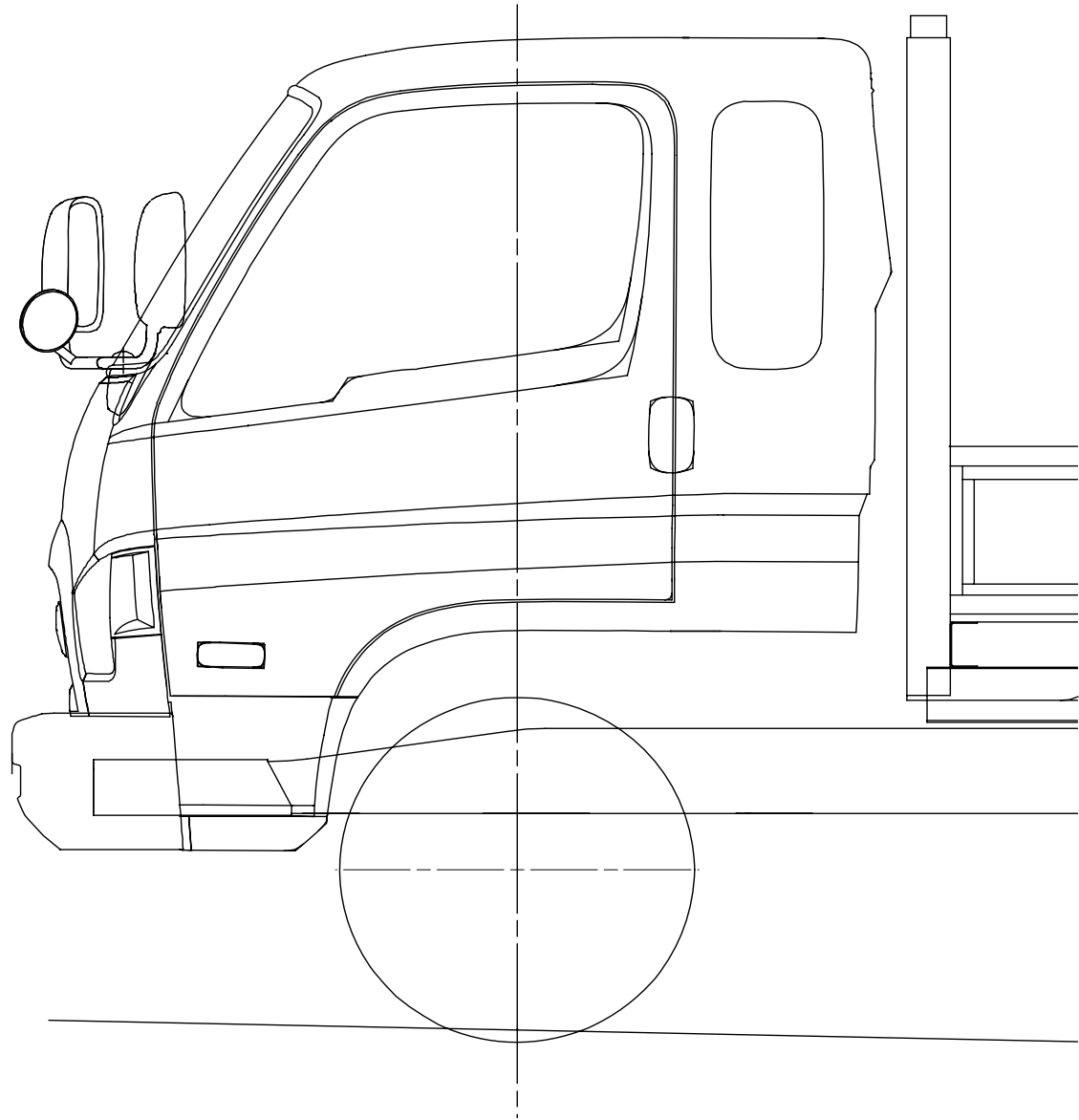
(SUPER CAB, DOUBLE)



(WIDE CAB) - D4DD ENGINE

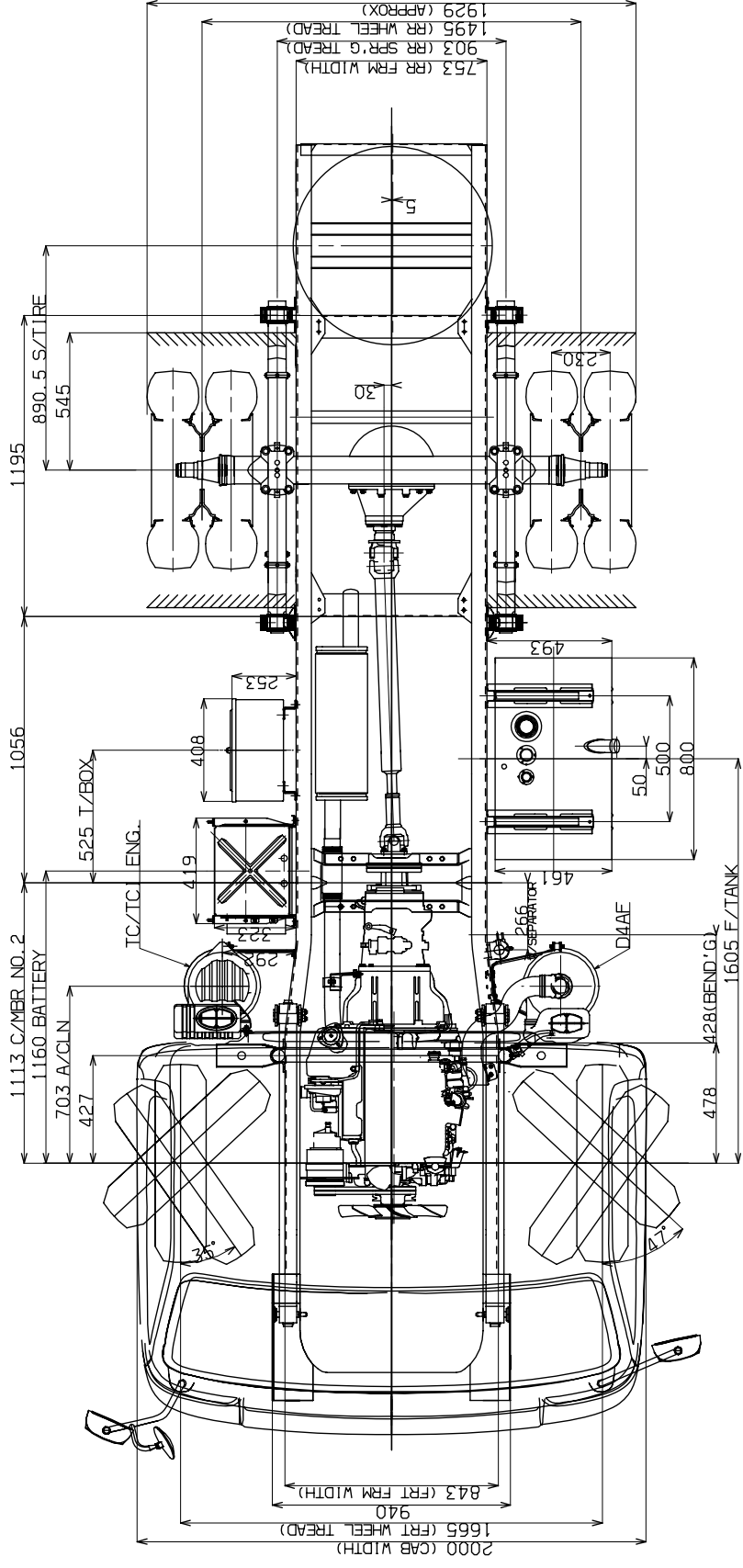


(SUPER CAB, DOUBLE) - D4DD ENGINE



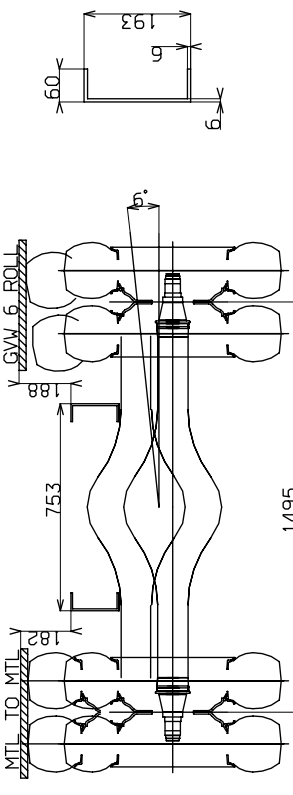


## 9. CHASSIS CAB DRAWING



APPLICATION DATA

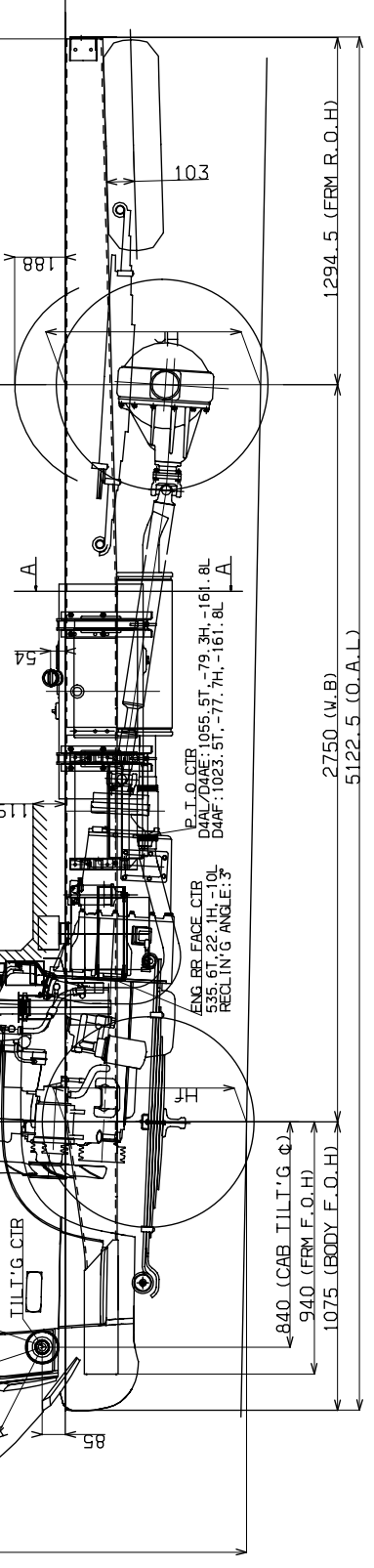
		HD65(SHORT)		MAX G. V. W	
		CHASSIS CAB			
D4AF	Hf	D4AL/D4DC	D4DB-d		
685	685	685	685		
765	765	765	765		
1485	FRT	1515	1535	2300	
795	RR	805	805	4400	
2280	TTL	2320	2340	6700	
TIRE SIZE				7.00R16-10PR	



SECTION A-A

REAR TIRE GEOMETRY

2187 (O.A.H)

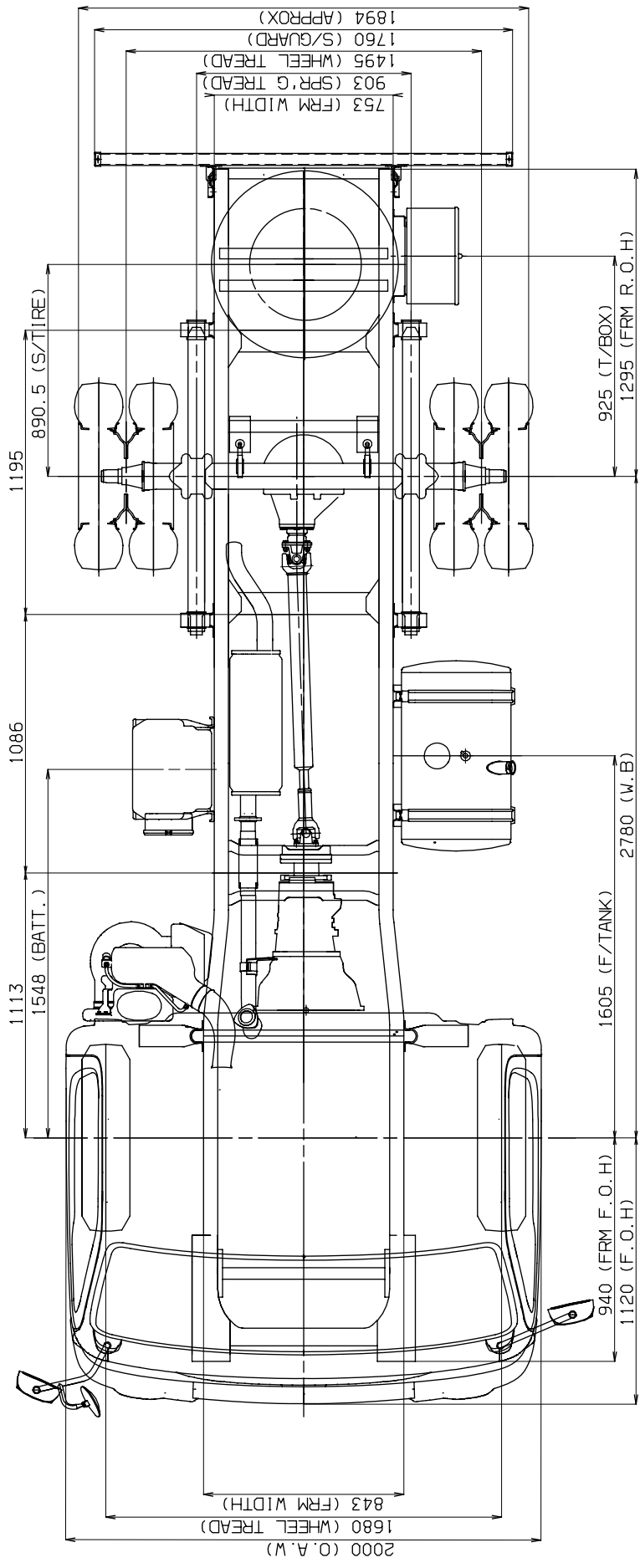


ENG. REF. FACE CTR  
D4AL/D4AE: 1055.5T, -79.3H, -161.8L  
D4AF: 1023.5T, -77.7H, -161.8L  
P.T.O. CTR  
D4AL/D4AE: 1055.5T, -79.3H, -161.8L  
D4AF: 1023.5T, -77.7H, -161.8L  
RECLIN'G ANGLE: 3

840 (CAB TILT'G Ø)  
940 (FRM F.O.H)  
1075 (BODY F.O.H)

2187 (O.A.H)

DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2006.04
DESIGN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	QTY	VT(NQ)
GENERAL DIM:	SCALE	
CASTING DIM:	APPROVED	
MATERIAL		PROJECTION 3RD ANGLE
FINISH		DIMENSION
PART NAME	HD65CS HIGH DECK SHORT	
PART NO.	BODY BUILDERS DRWG	
	FORM	SHT

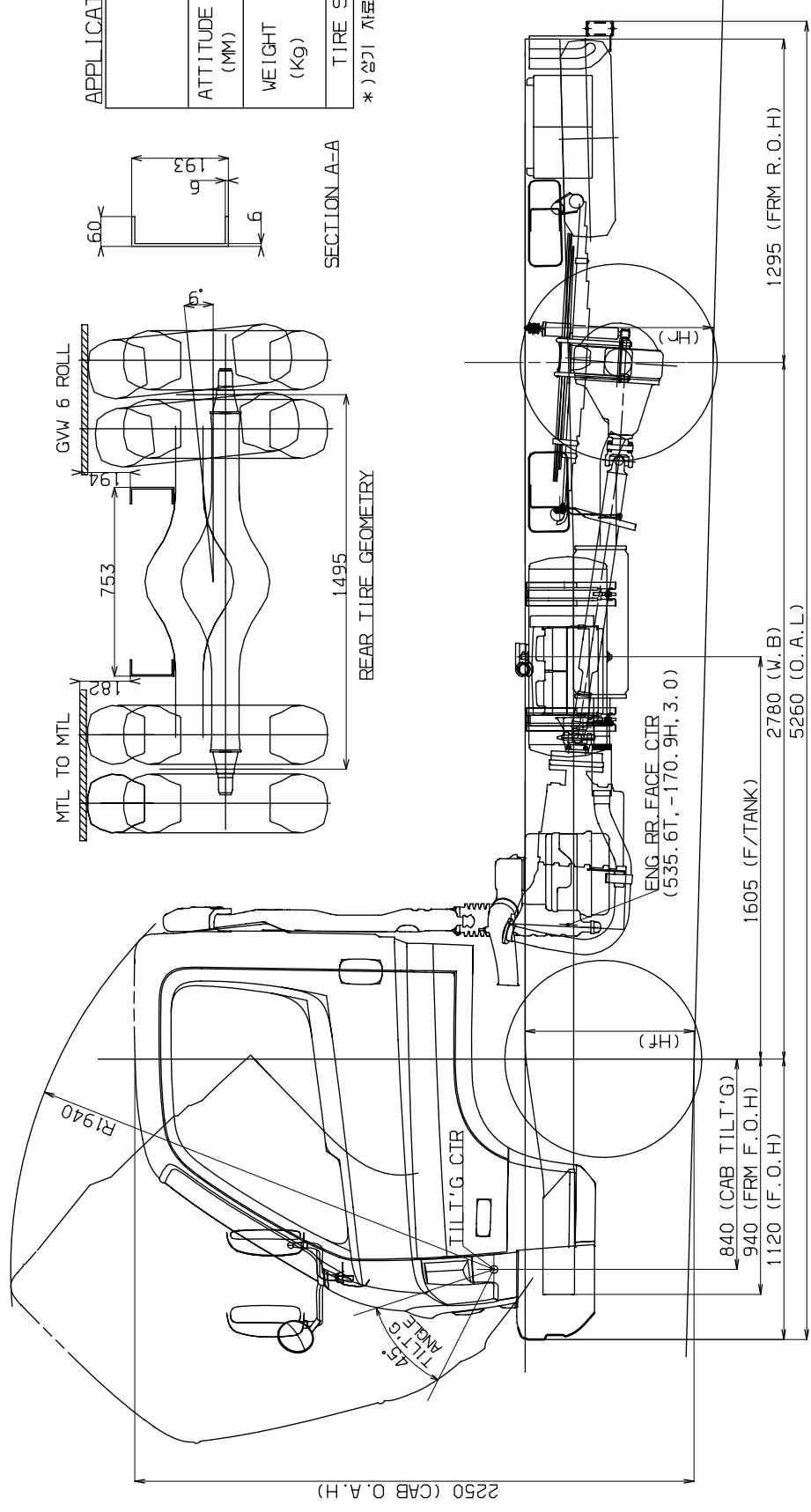
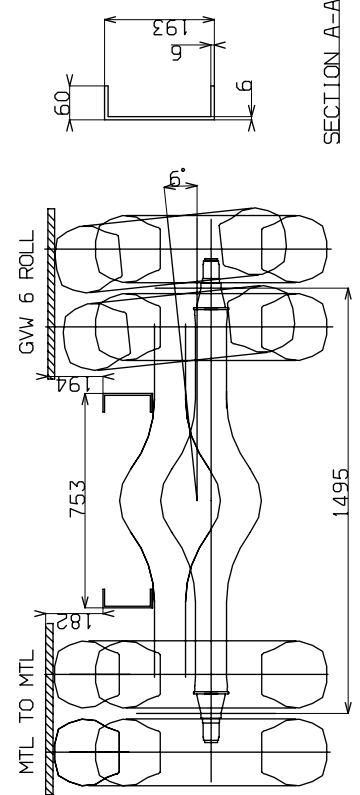


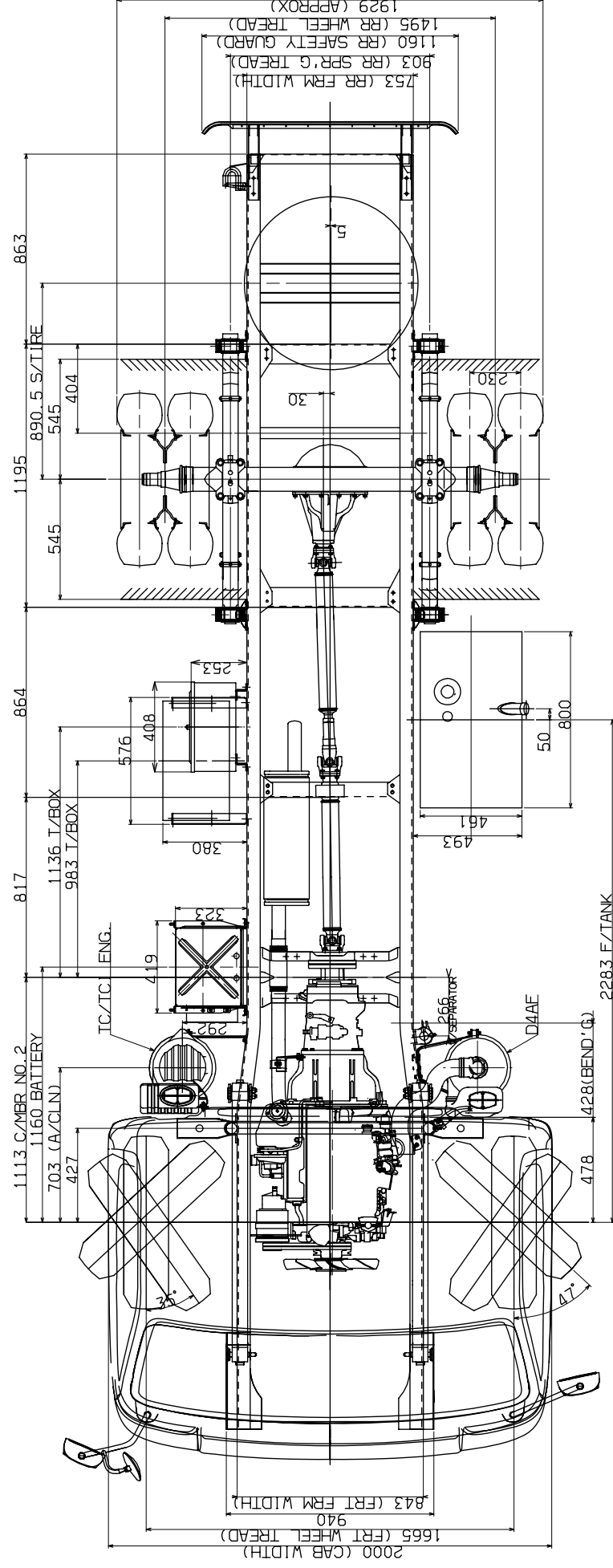
DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	
DRAWN	CHECKED	APPROVED
DO NOT SCALE		
TANKS GENERATE SPECIFIED	QTY	UNIT
GENERAL DIM:	SCALE	
MACHINE DIM:	APPROVED	PROJECTION
CASTING DIM:		3RD ANGLE
MATERIAL		DIMENSION
FINISH		
PART NAME	HD65CS HIGH DECK SHORT	
PART NO.	BODY BUILDERS DRWG	
	FORM	SHT

APPLICATION DATA

CHASSIS CAB		HD65(SHORT)
D4DD		
Hf	675	
Hr	750	
FRT	1580	2300
RR	830	4400
TTL	2410	6700
TIRE SIZE		7.00R16-10PR

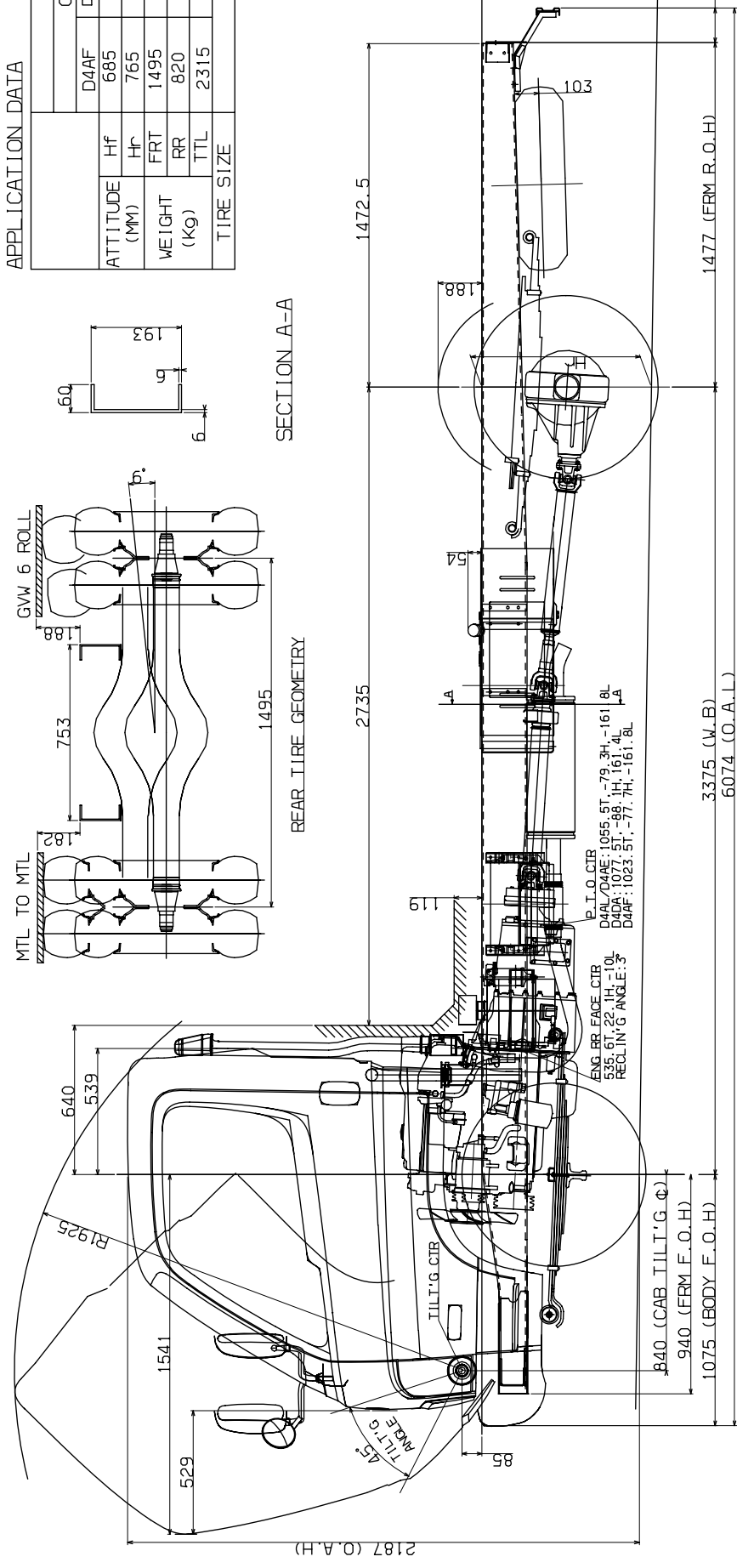
\*) 상기 자료는 참조용 임.



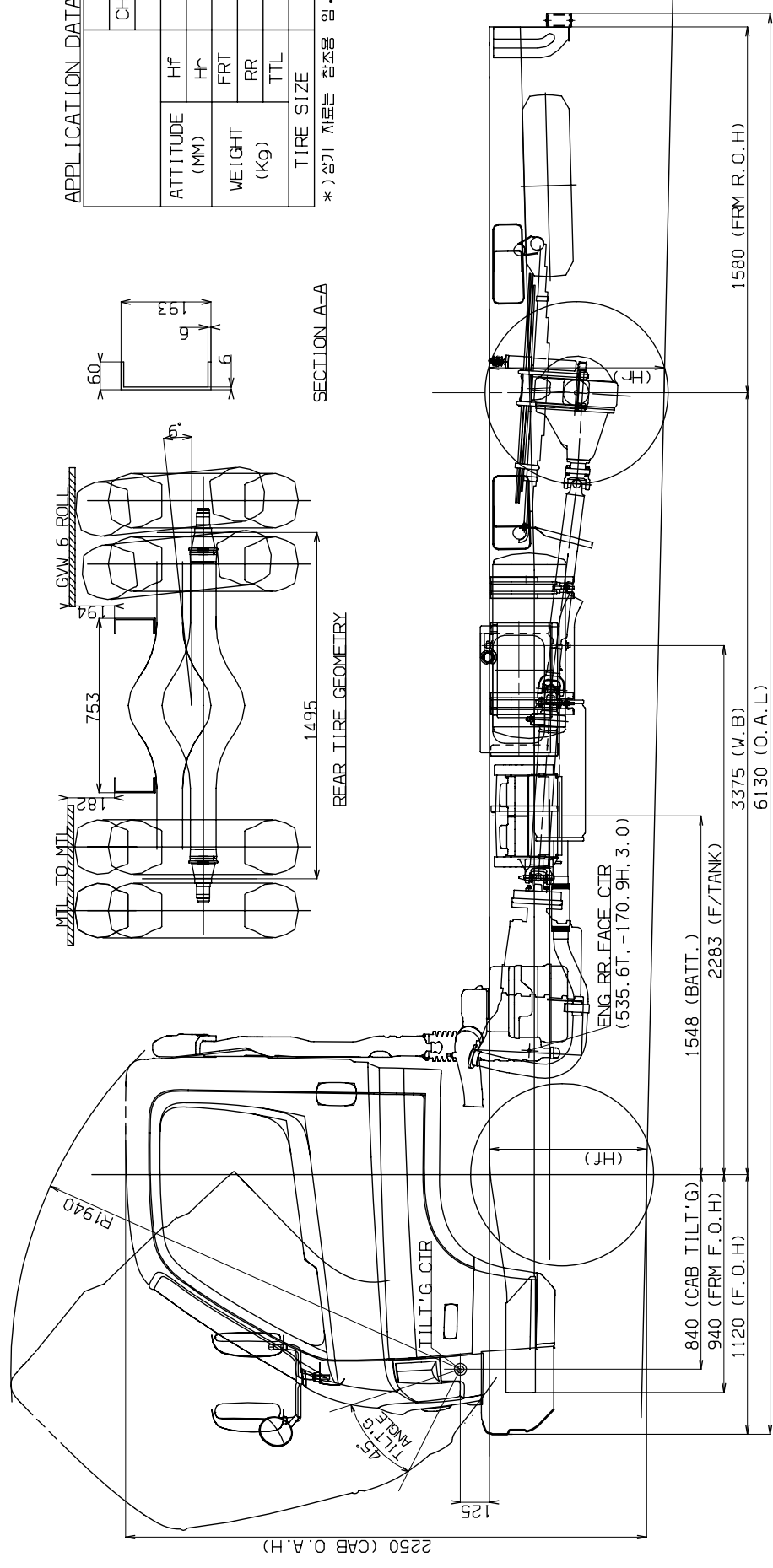
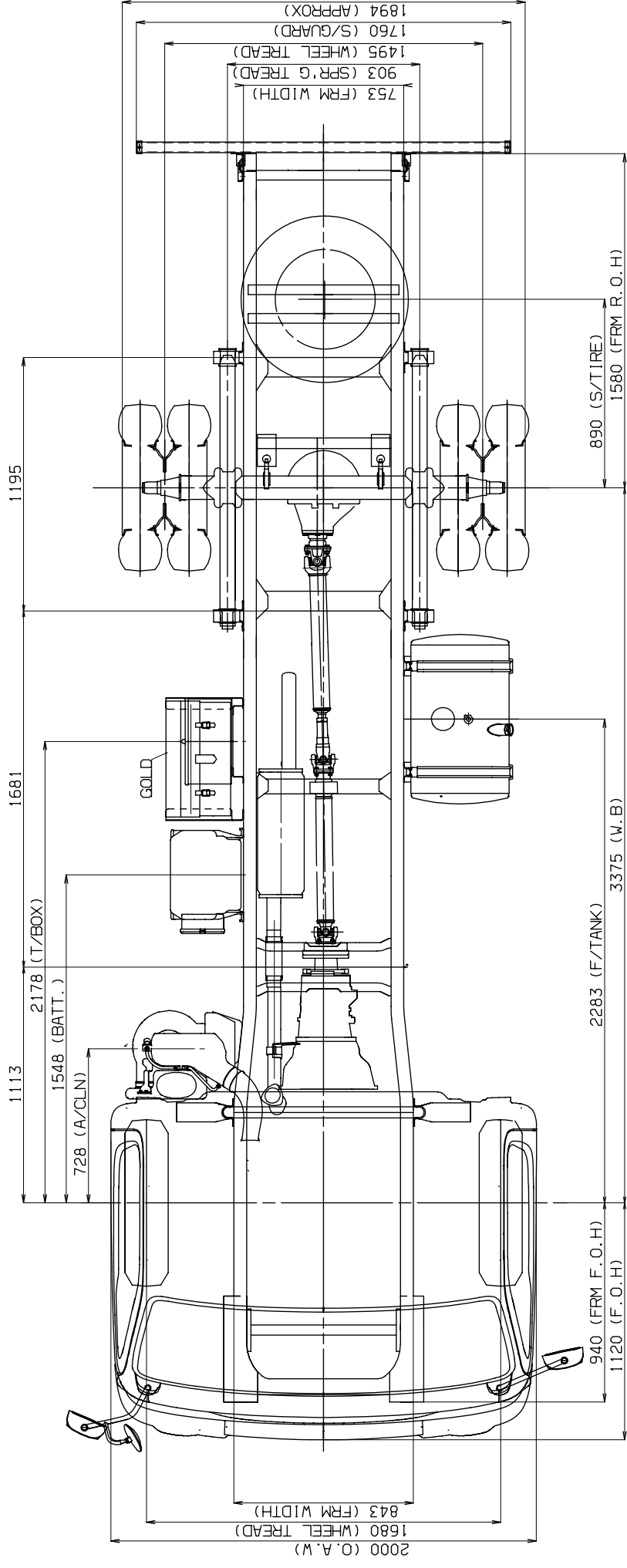


APPLICATION DATA

HD65(LONG)			CHASSIS CAB		MAX G. V. W
	D4AF	D4AL/D4AE	D4DB-d		
ATTITUDE (MM)	685	765	685		-
WEIGHT (Kg)	1495	1525	1545		2300
	820	830	830		4400
TIRE SIZE	2315	2355	2375		6700
	7.00R16-10PR				



DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE		
DRAWN	CHECKED	APPROVED
DATE 2005.04	DO NOT SCALE	
UNLESS OTHERWISE SPECIFIED	QTY	UNIT
WORKING DIM:	SCALE	
CASTING DIM:	APPROVED	PROJECTION
MATERIAL		3RD ANGLE
FINISH		DIMENSION
PART NAME	HD65CS HIGH DECK LONG	
PART NO.	FORM	SHT
BODY BUILDERS DRWG		

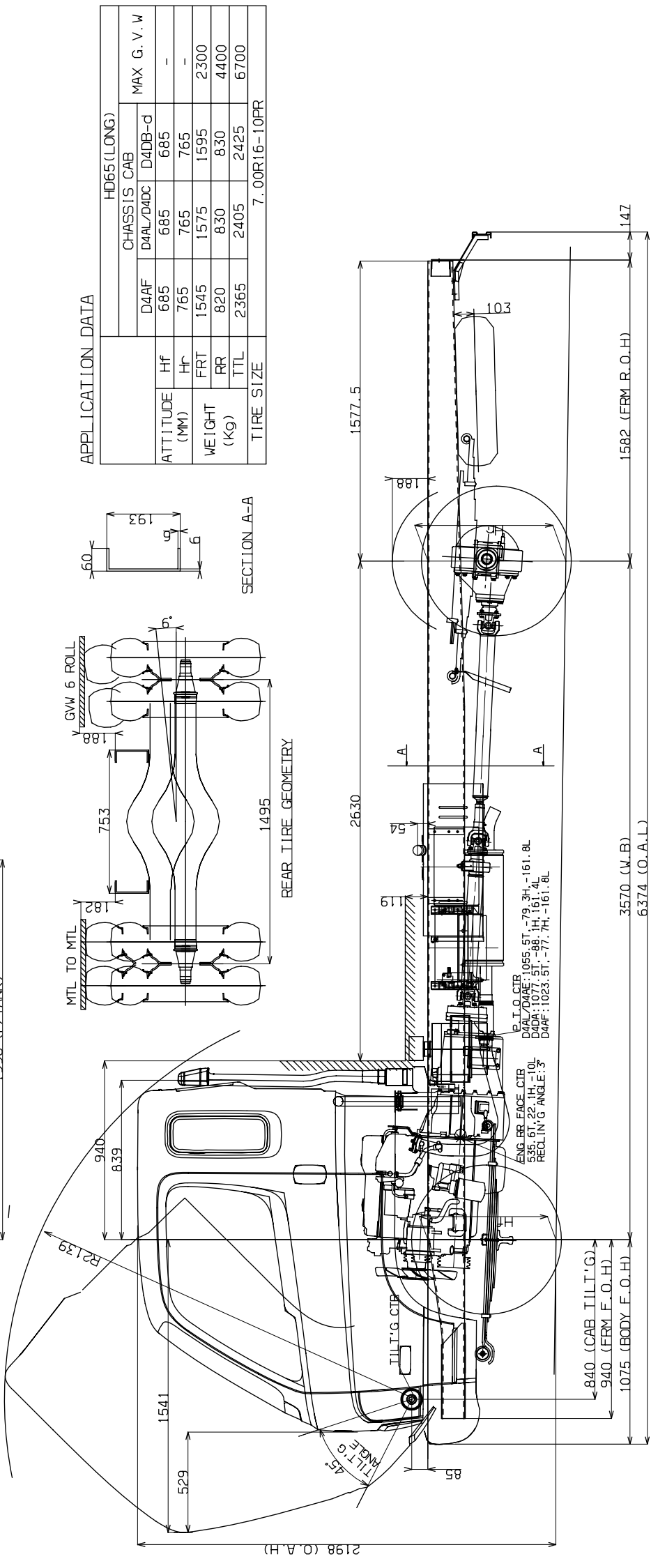
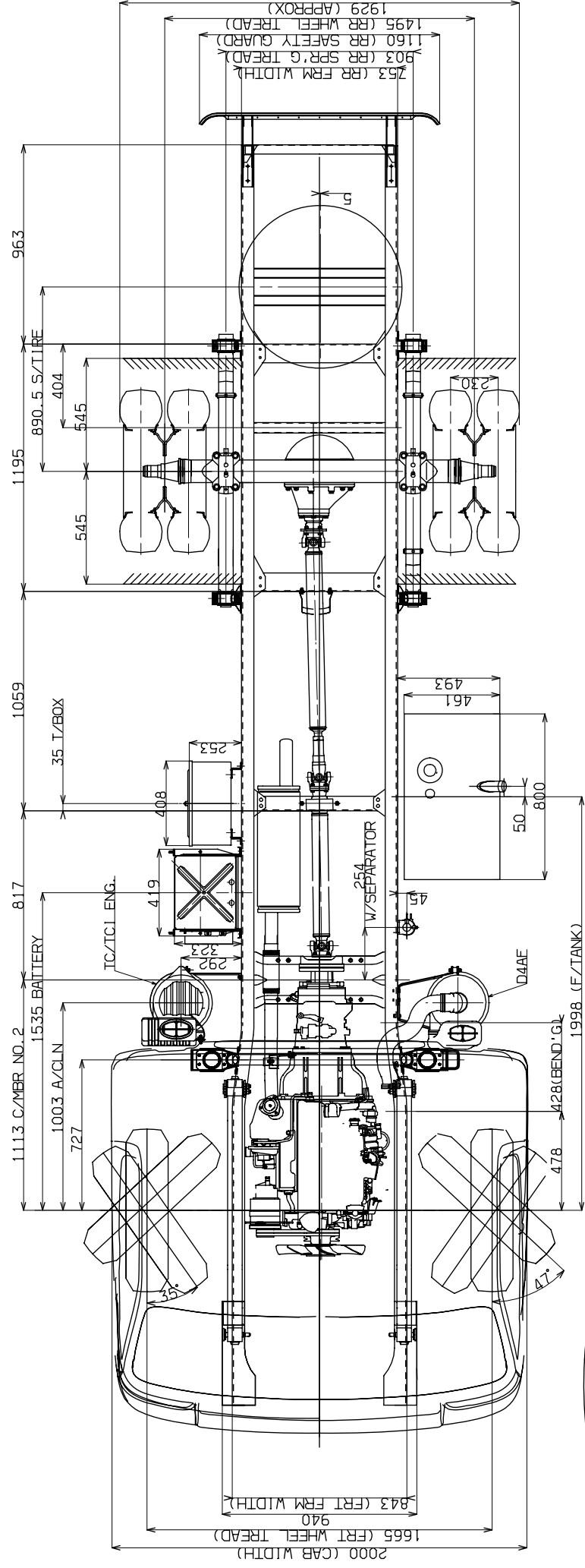


APPLICATION DATA

CHASSIS CAB		HD65(LONG)
D4DD		MAX G. V. W
ATTITUDE (MM)	Hf	-
	Hr	-
WEIGHT (Kg)	FRT	2300
	RR	4400
TIRE SIZE	TTL	2450
		7.00R16-10PR

\* ) 상기 자료는 참조용 임.

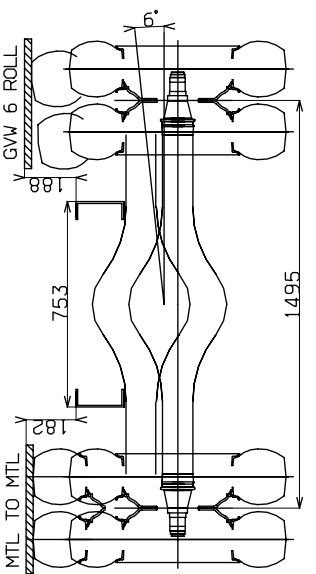
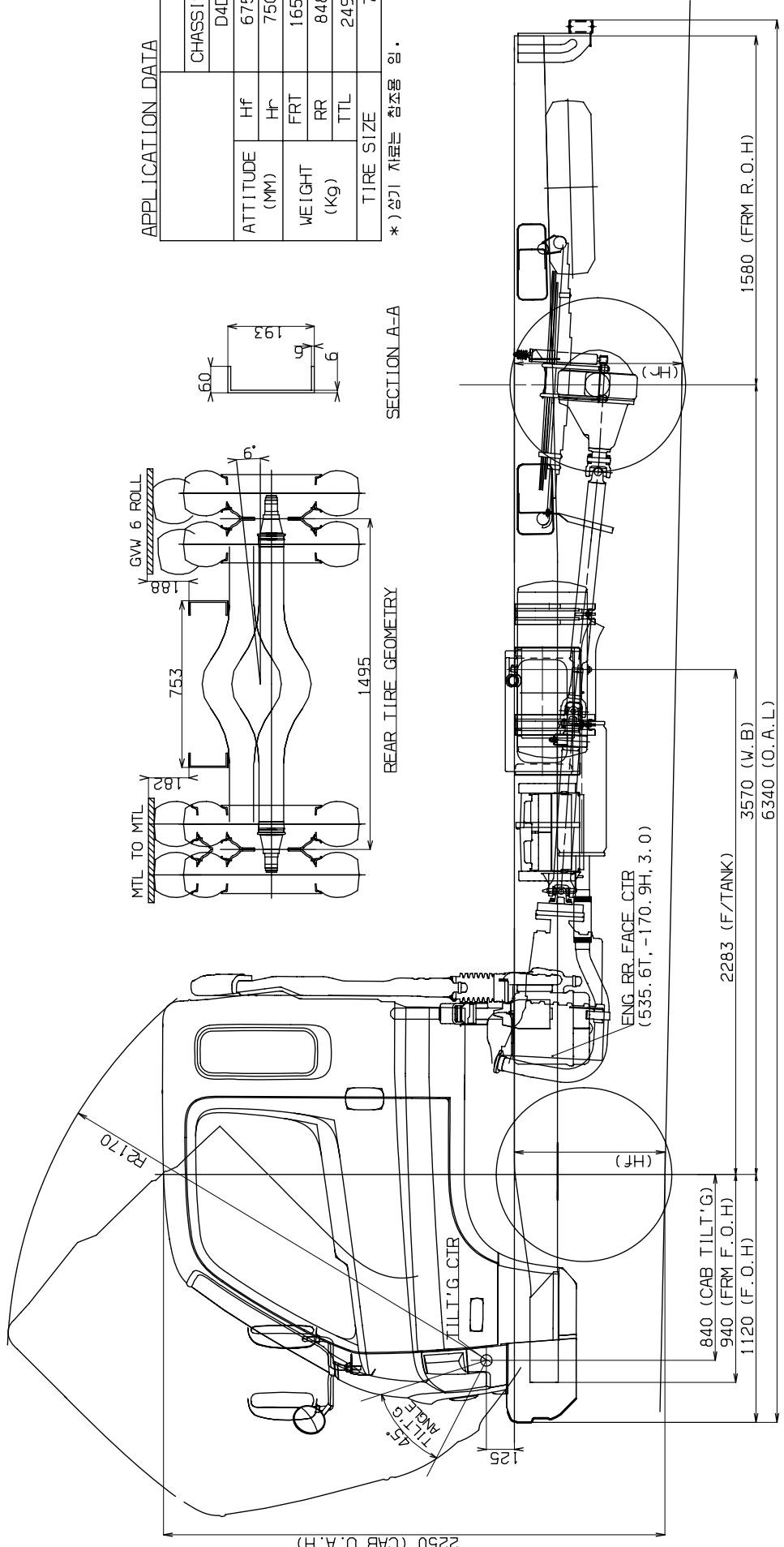
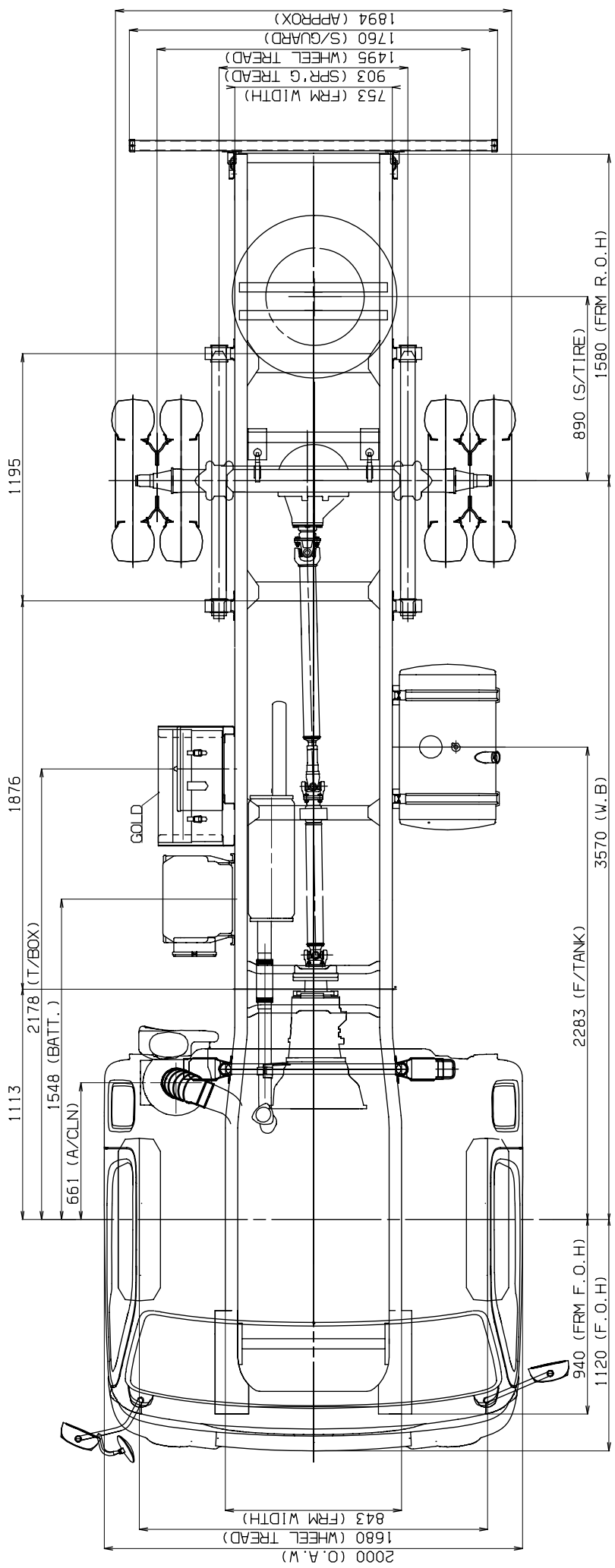
DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04.
DRAWN	CHECKED	APPROVED
UNLESS OTHERWISE SPECIFIED		DO NOT SCALE
GENERAL DIM:	SCALE	MT(40)
ASSEMBLY DIM:	APPROVED	
MATERIAL	PROJECTION	3RD ANGLE
FINISH	DIMENSION	MM
PART NAME	HD65CS HIGH DECK LONG	
	BODY BUILDERS DRWG	
PART NO.	FORM	SHT



APPLICATION DATA

ATTITUDE (MM)	Hf	CHASSIS CAB		MAX G. V. W
		D4AF	D4AL/D4DC D4DB-d	
Hf	685	685	685	-
Hc	765	765	765	-
FRT	1545	1575	1595	2300
RR	820	830	830	4400
TTL	2365	2405	2425	6700
TIRE SIZE			7.00R16-10PR	

DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04
DESIGN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	QTY	LT(KG)
GENERAL DIM:	SCALE	
CASTING DIM:	APPROVED	PROJECTION 3RD ANGLE
MATERIAL		DIMENSION MM
FINISH		
PART NAME	HD65CP HIGH DECK LONG	
PART NO.	BODY BUILDERS DRWG	
	FORM	SHT

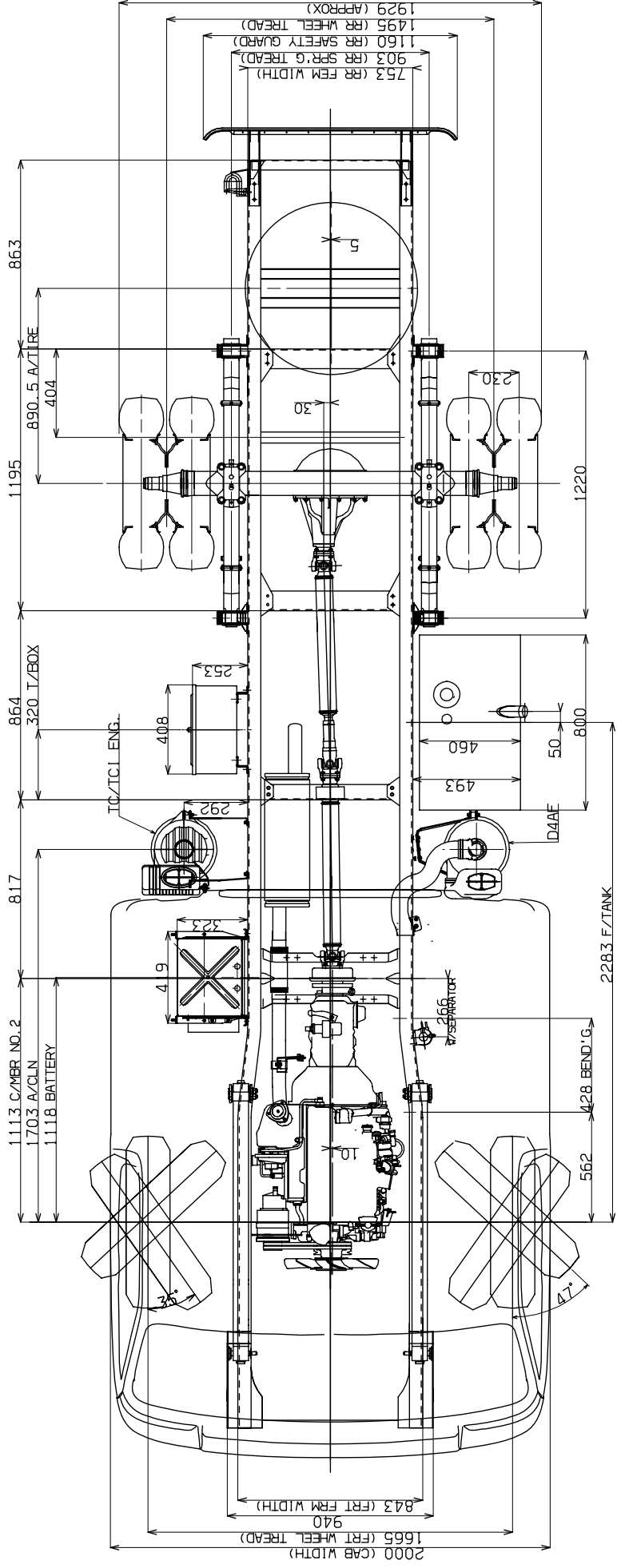


APPLICATION DATA

CHASSIS CAB		HD65 (LONG)	MAX G. V. W
ATTITUDE (MM)	D4DD		
Hf	675		-
Hc	750		-
FRT	1650		2300
RR	848		4400
TTL	2498		6700
TIRE SIZE		7.00R16-10PR	

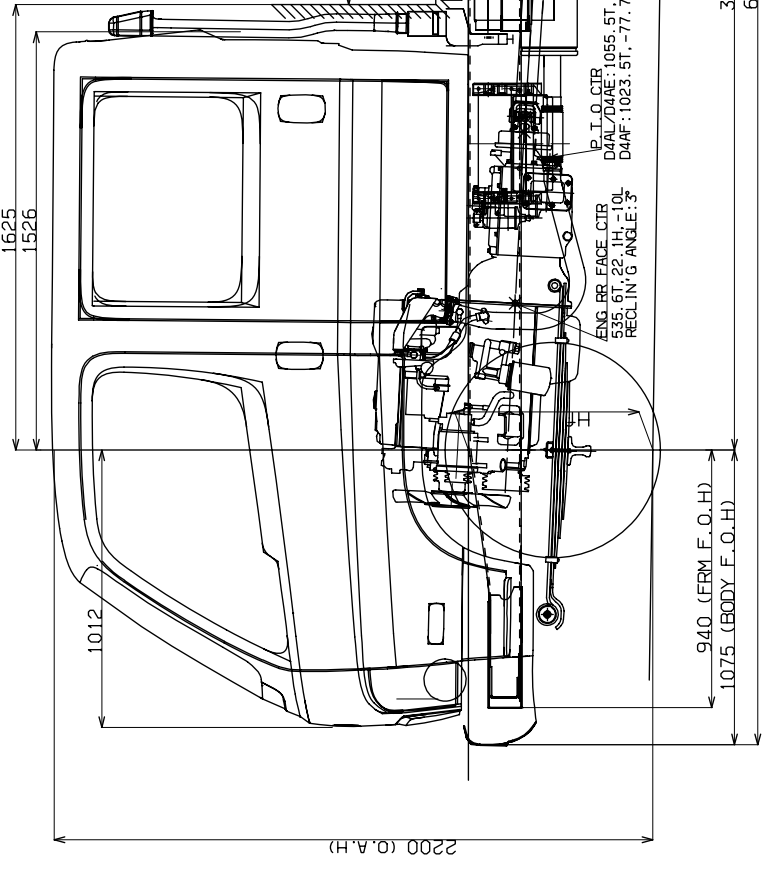
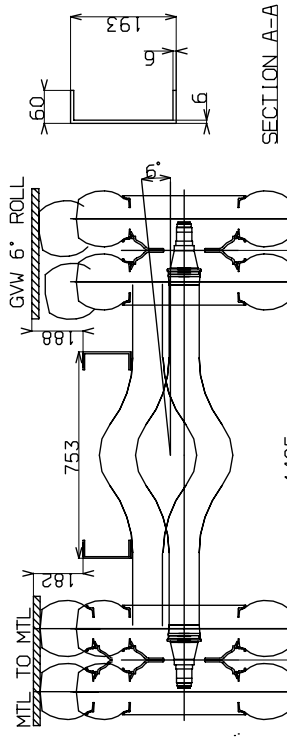
\* ) 상기 차체는 참조용임.

DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04.
DESIGN	CHECKED	APPROVED
DO NOT SCALE		QTY
UNLESS OTHERWISE SPECIFIED		SCALE
DRAWING DIM:		APPROVED
CASTING DIM:		PROJECTION
MATERIAL:		DIMENSION
FINISH:		MM
PART NAME HD65CP HIGH DECK LONG		
BODY BUILDERS DRWG		
PART NO.	FORM	SHT



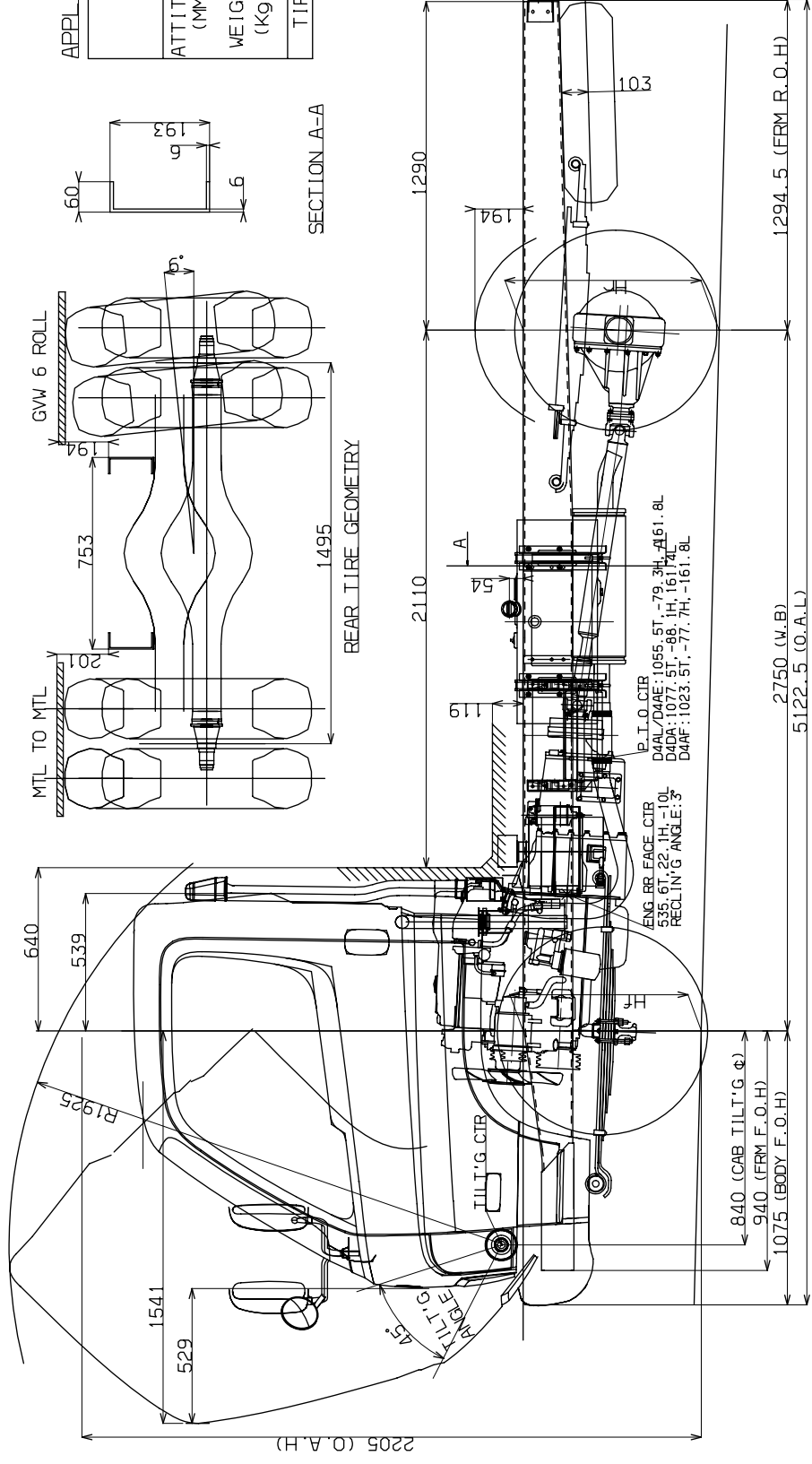
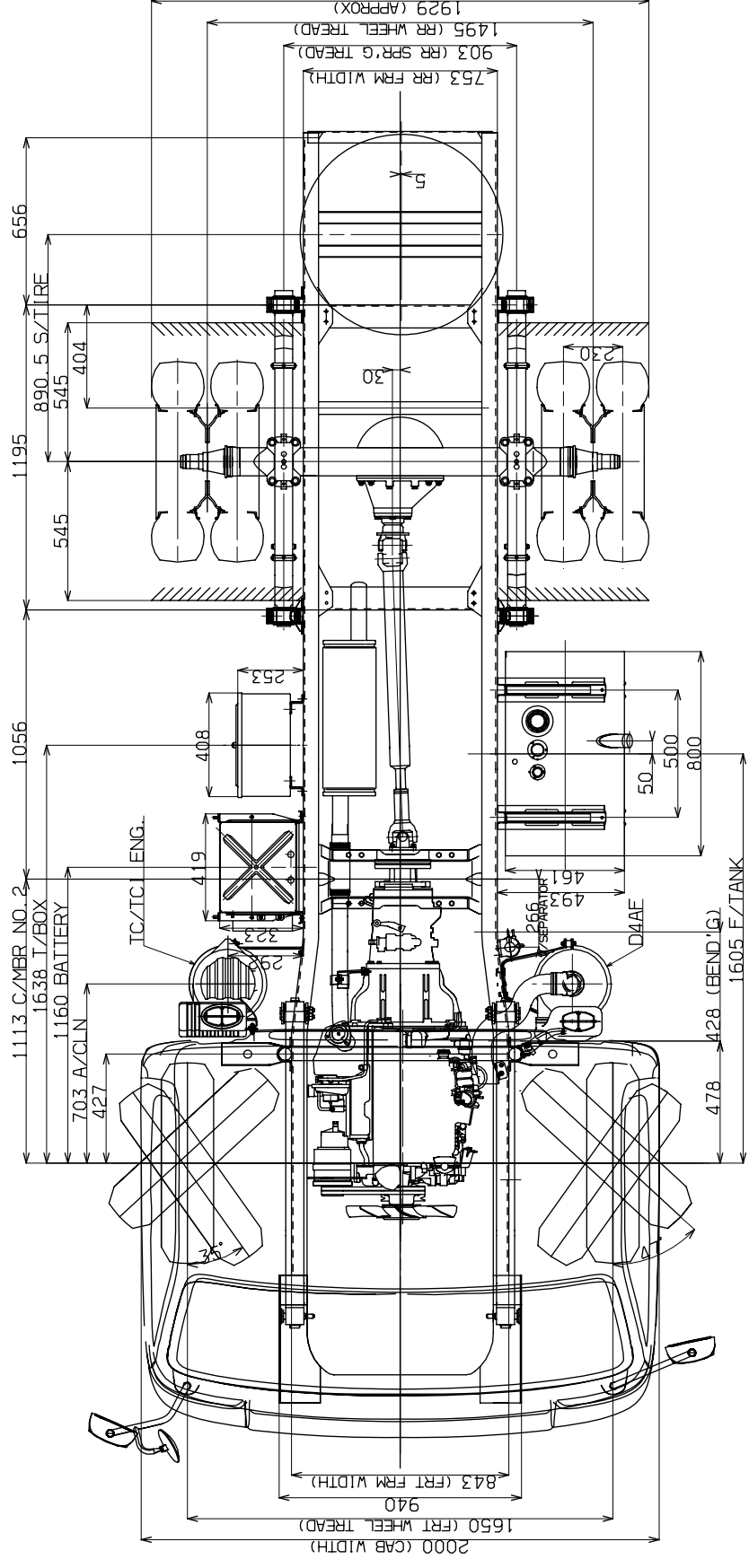
APPLICATION DATA

HD65 (LONG)		CHASSIS CAB		MAX G. V. W
ATTITUDE (MM)	Hf	D4AF	D4AL	
	685	685	685	-
	765	765	765	-
WEIGHT (Kg)	FRT	1600	1630	2300
	RR	920	930	4400
TIRE SIZE	TTL	2520	2560	6700
				7.00R16-10PR



DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2006.04.
DESIGN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	QTY	UNIT (kg)
GENERAL DIM:	SCALE	
CASTING DIM:	APPROVED	PROJECTION
MATERIAL		3RD ANGLE
FINISH		DIMENSION
		MM
PART NAME	HD650D HIGH DECK LONG	
PART NO.	BODY BUILDERS DRWG	
	FORM	SHT

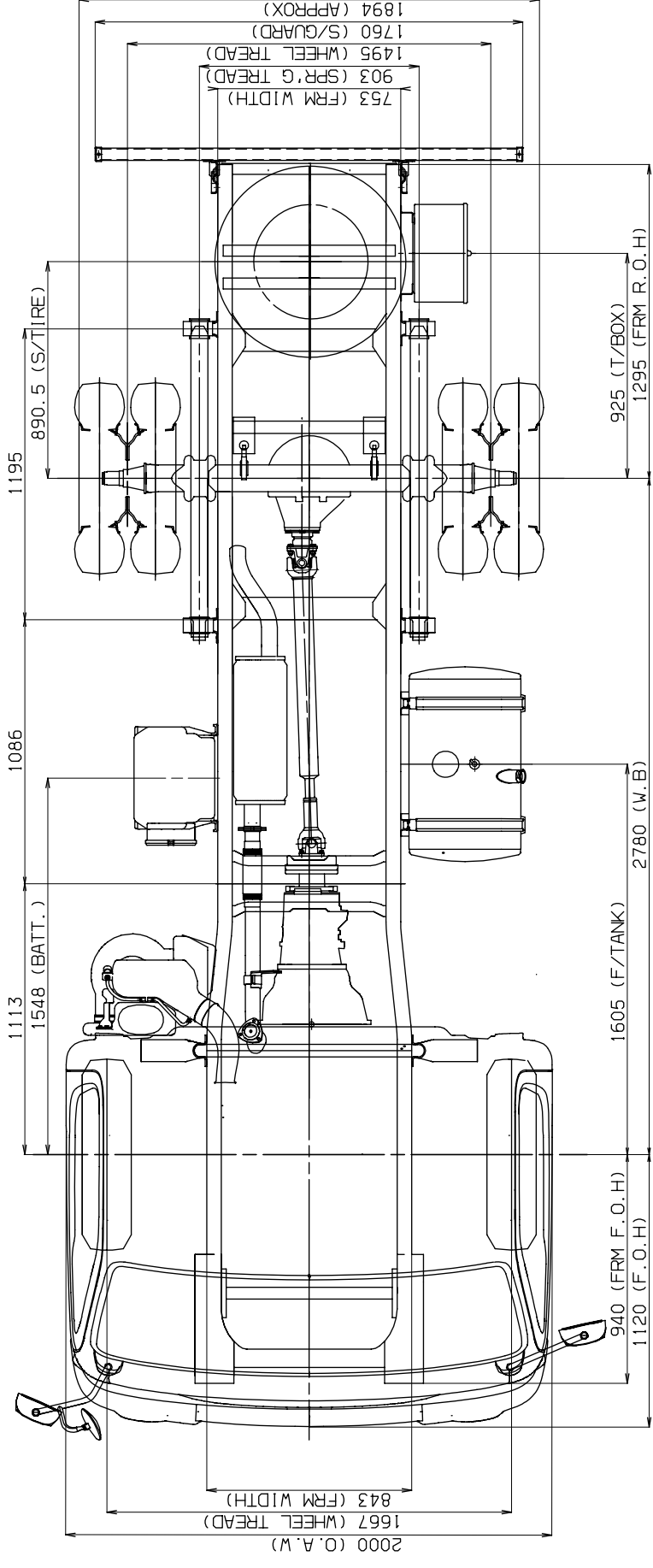




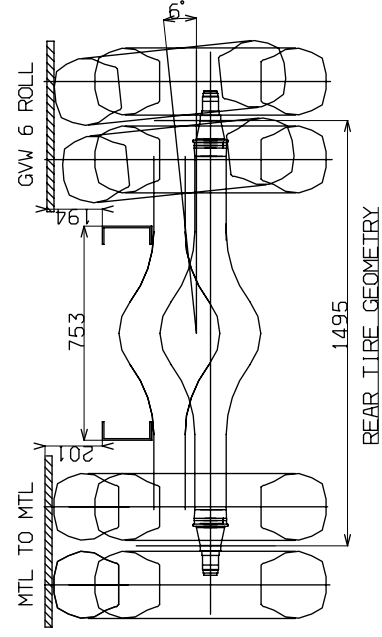
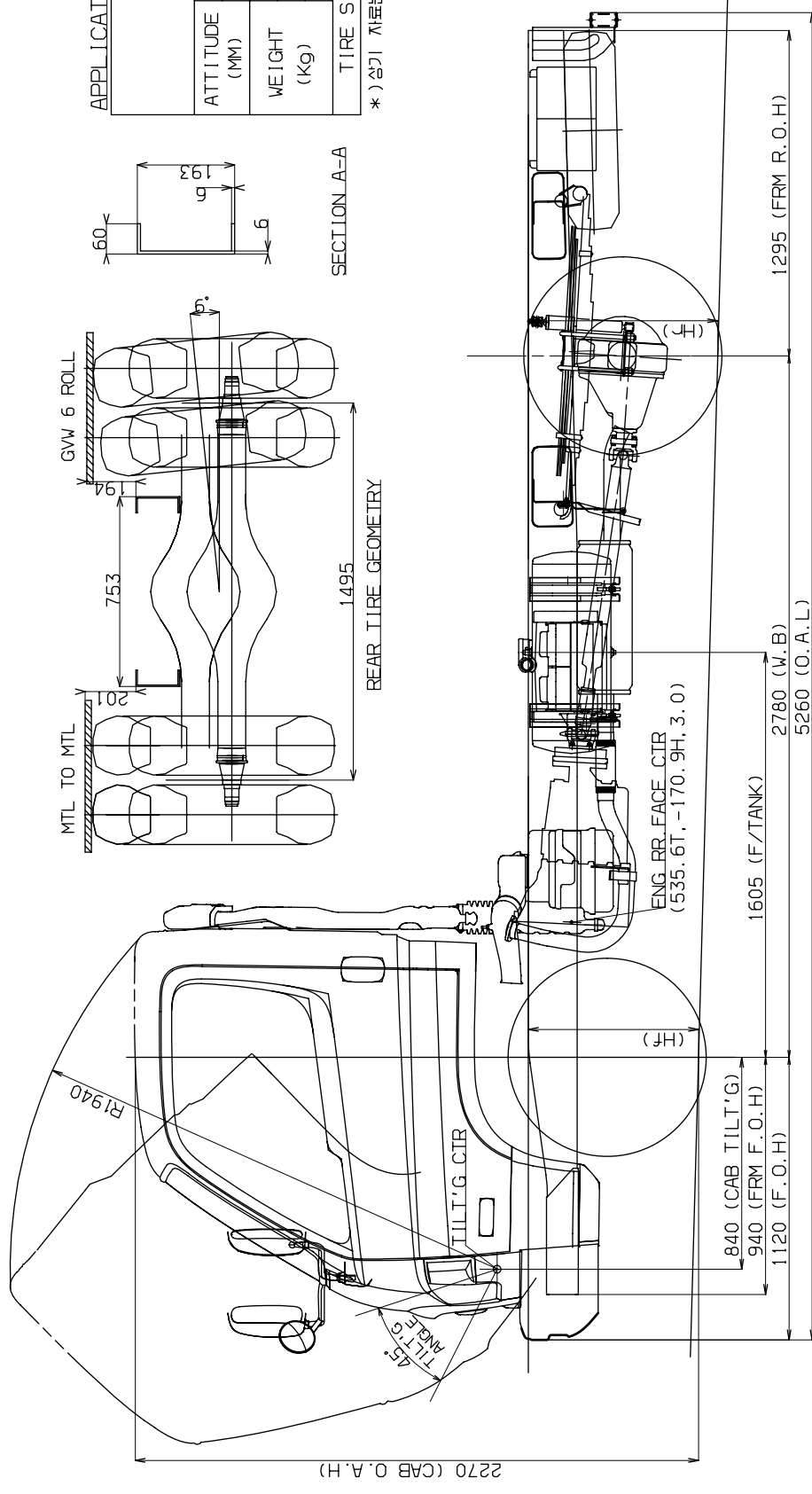
APPLICATION DATA

HD72(SHORT)		MAX G. V. W	
CHASSIS CAB	D4DA/D4DB		
ATTITUDE (MM)	Hf	700	700
	Hr	790	790
WEIGHT (Kg)	FRT	1540	1570
	RR	910	925
	TTL	2450	2495
TIRE SIZE		7.50R16-14PR	

DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04.
DRAWN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	QTY	UNIT(KG)
MACHINING DIM:	SCALE	
CASTING DIM:	APPROVED	PROJECTION
MATERIAL		3RD ANGLE
FINISH		DIMENSION
		MM
PART NAME	HD72CS HIGH DECK SHORT	
	BODY BUILDERS DRAWG	
PART NO.	FORM	SHT



1894 (APPROX)  
1760 (S/GUARD)  
1495 (WHEEL TREAD)  
903 (SPR'G TREAD)  
753 (FRM WIDTH)

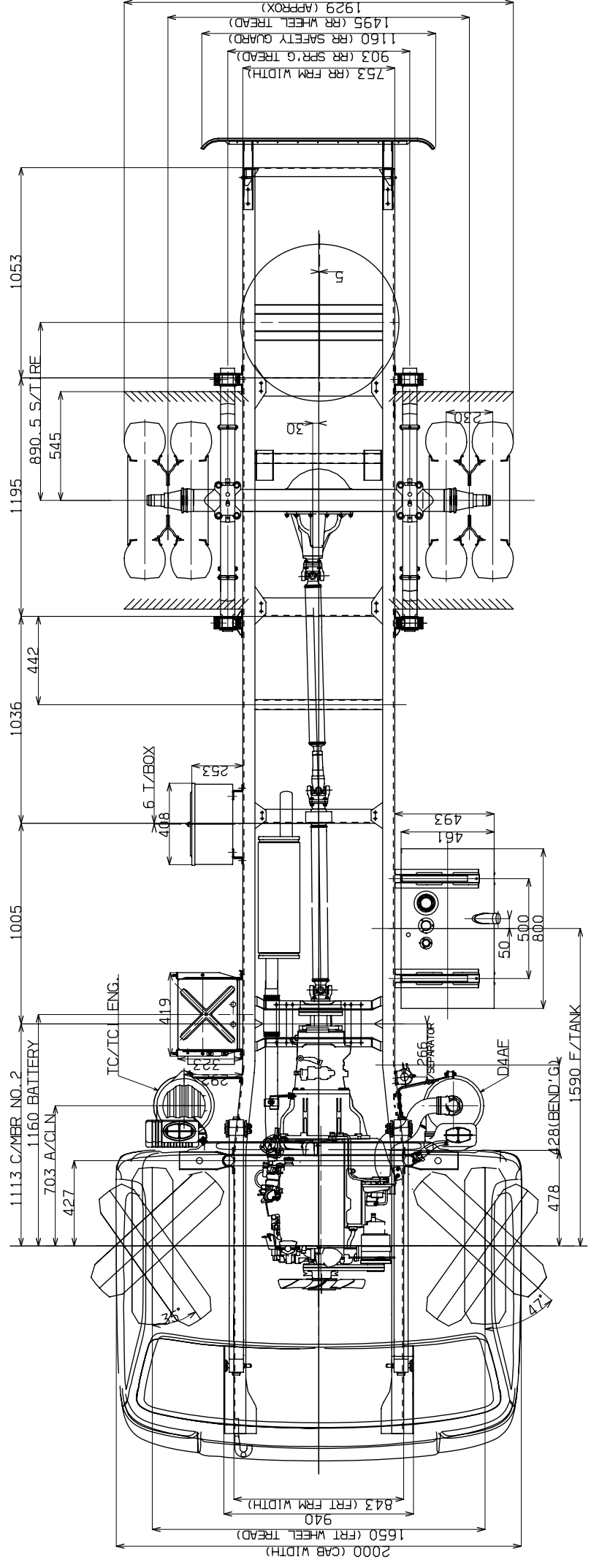


APPLICATION DATA

CHASSIS CAB		HD72(SHORT)	MAX G. V. W
ATTITUDE (MM)	Hf	675	-
	Hr	750	-
WEIGHT (Kg)	FRT	1605	3020
	RR	945	5000
	TTL	2550	8020
TIRE SIZE		7.50R16-14PR	

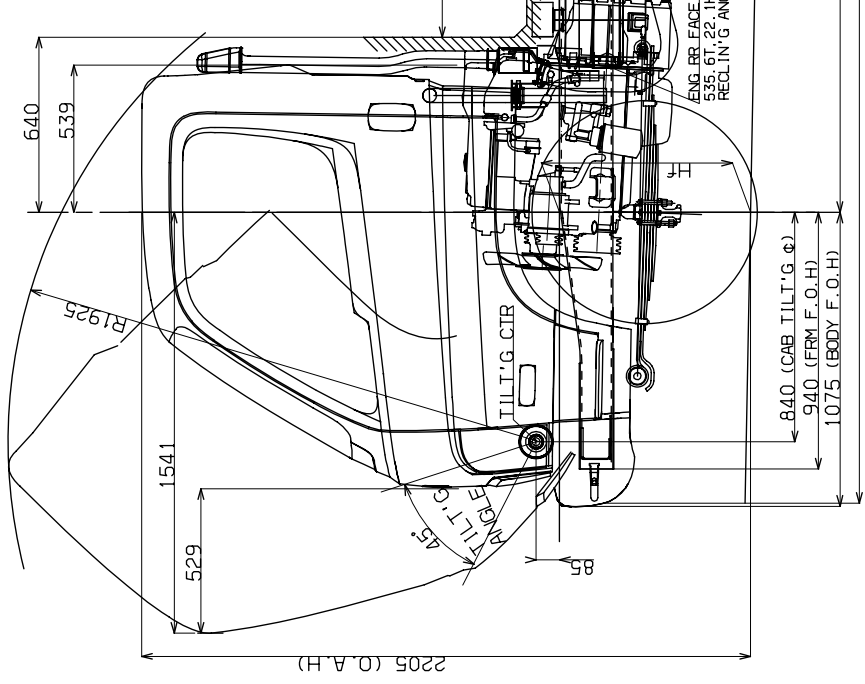
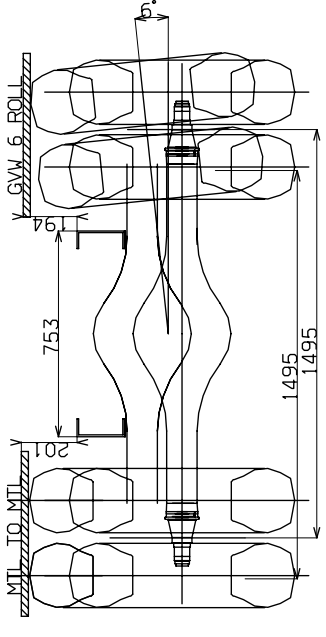
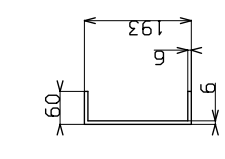
\* ) 상기 치로는 참조용 임.

DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04.
DRAWN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	CITY	UT(M)
GENERAL DIM.	SCALE	
MACHINE DIM.	APPROVED	
CASTING DIM.	REJECTION	
MATERIAL	SIG. ANGLE	
FINISH	DIMENSION	
PART NAME HD72CS HIGH DECK SHORT		
BODY BUILDERS DRWG		
PART NO.	FORM	SHT

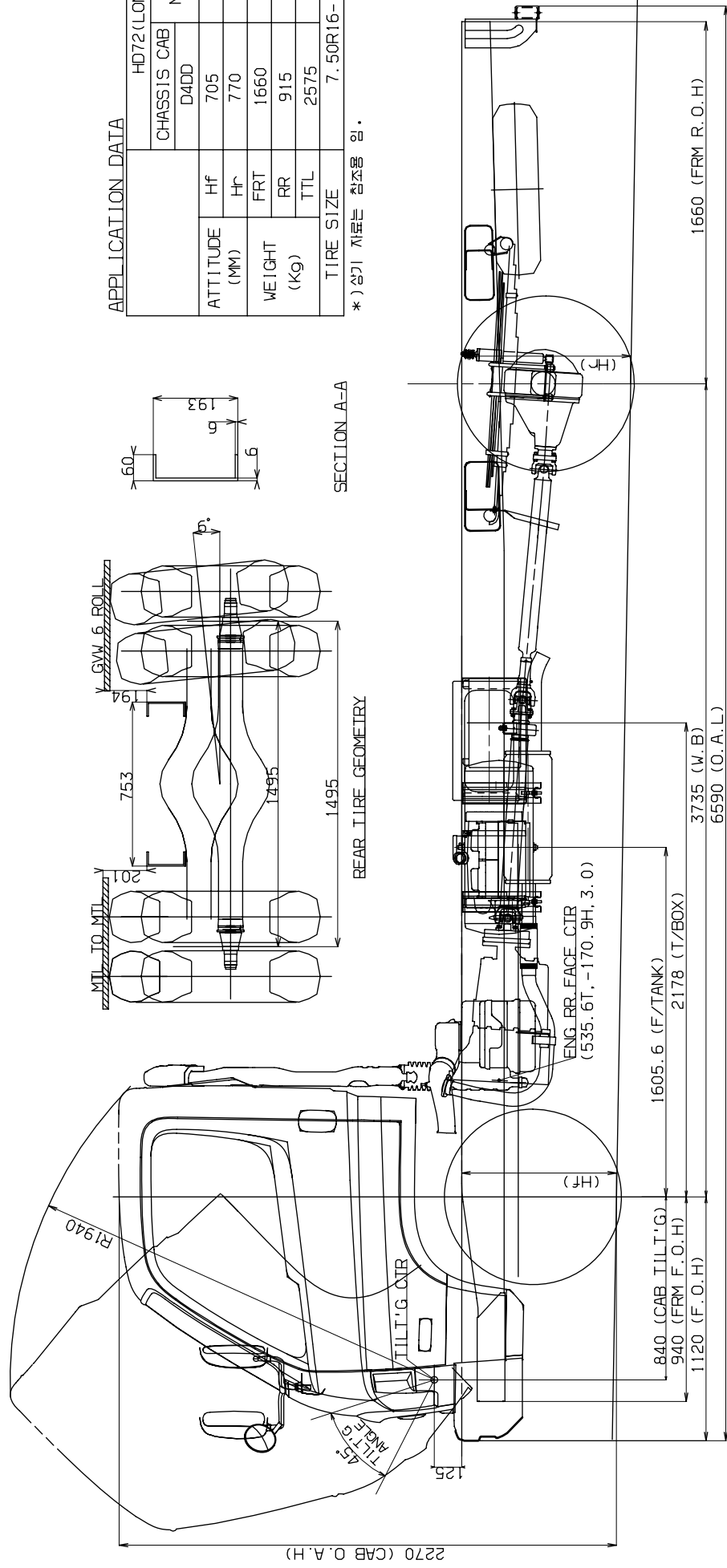
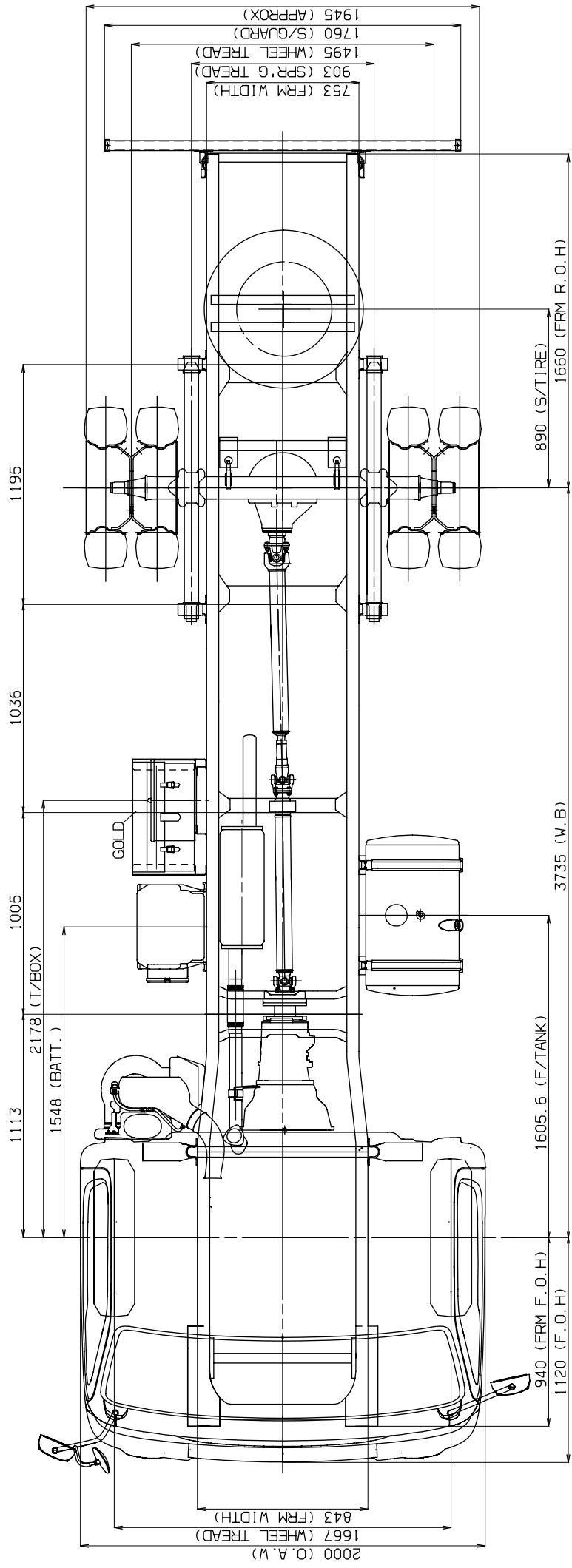


APPLICATION DATA

CHASSIS CAB		HD72 (LONG)	
DIAL/D4DC		D4DA/D4DB	
ATTITUDE (MM)	Hf	700	700
	Hr	790	790
WEIGHT (KG)	FRT	1590	1620
	RR	885	900
TIRE SIZE	TTL	2475	2520
			7.50R16-14PR
MAX G. V. W			-



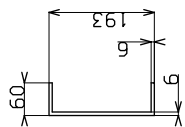
DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2006.04
DRAWN	CHECKED	APPROVED
UNLESS OTHERWISE SPECIFIED		DO NOT SCALE
GENERAL DIM:	SCALE	LT(KG)
CASTING DIM:	APPROVED	PRODUCTION
MATERIAL		3RD ANGLE
FINISH		DIMENSION
PART NAME	HD72CS HIGH DECK LONG	
PART NO.	BODY BUILDERS DRWG	
	FORM	SHT



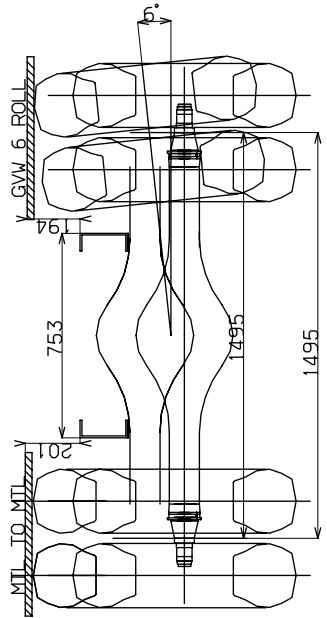
APPLICATION DATA

CHASSIS CAB		HD72(LONG)	MAX G.V.W
D4DD			
ATTITUDE (MM)	Hf	705	-
	Hr	770	-
WEIGHT (KG)	FRT	1660	2880
	RR	915	4700
	TTL	2575	7580
TIRE SIZE		7.50R16-12PR	

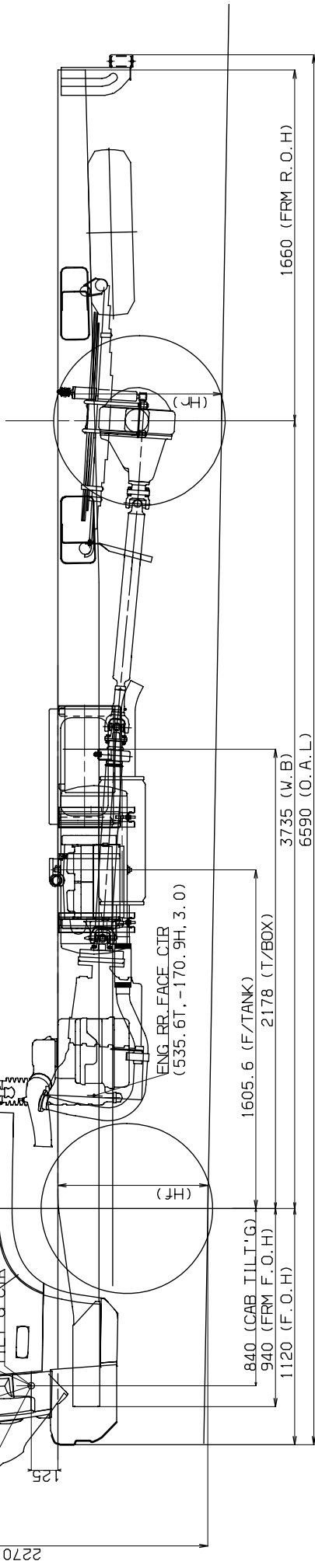
\* ) 상기 제본 참조용임.



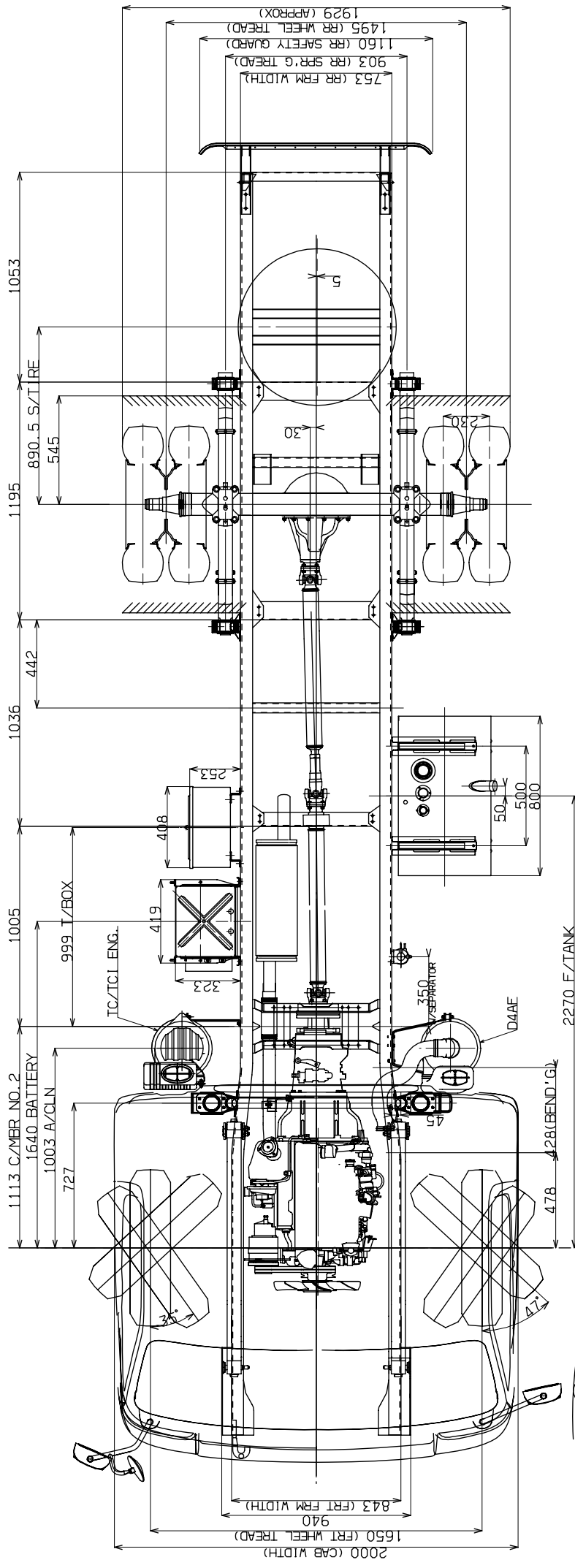
SECTION A-A



REAR TIRE GEOMETRY

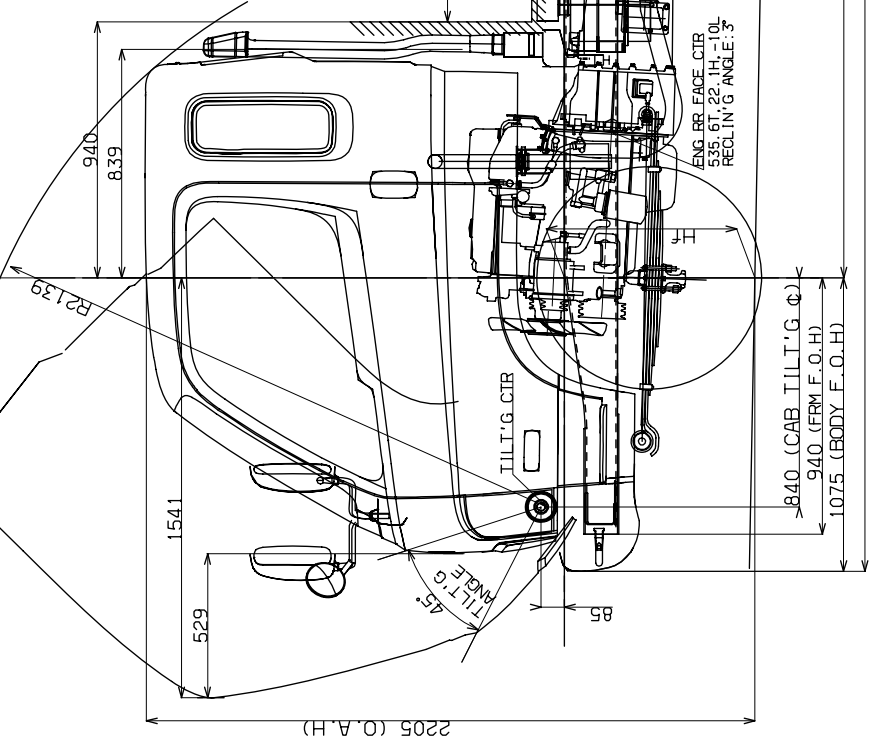
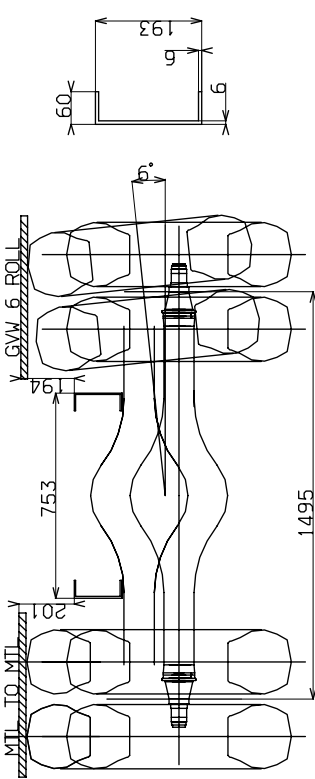


DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04.
DESIGN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	QTY	UNIT(KG)
GENERAL DIM:	SCALE	
CASTING DIM:	APPROVED	
MATERIAL	PROJECTION	90° ANGLE
FINISH	DIMENSION	1/16"
PART NAME HD72CS HIGH DECK LONG		
BODY BUILDERS DRWG		
PART NO.	FORM	SHT

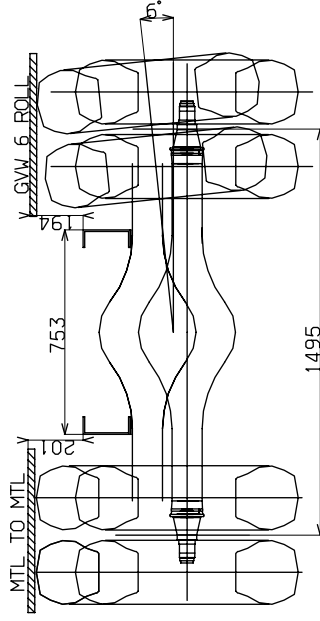
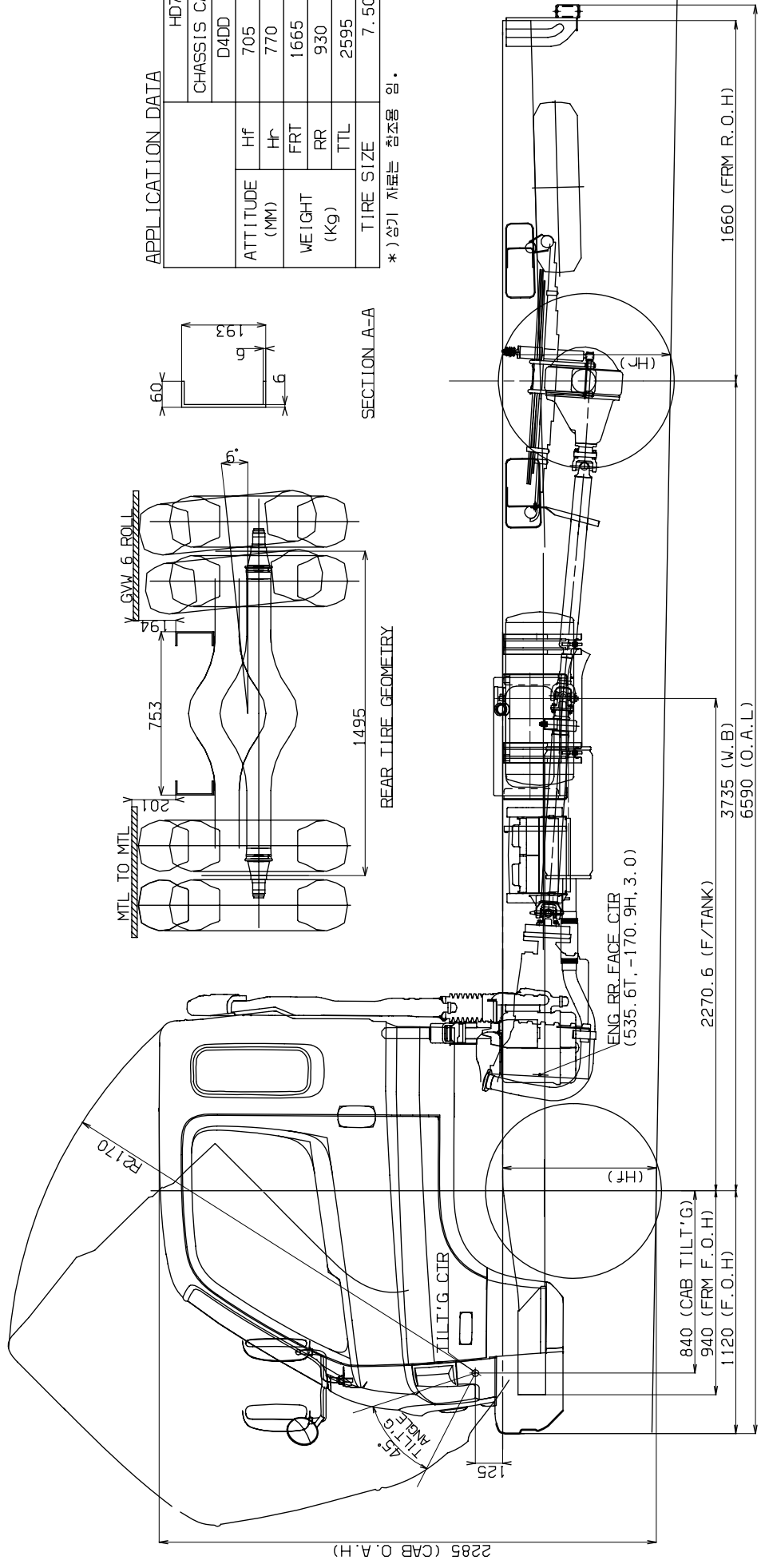
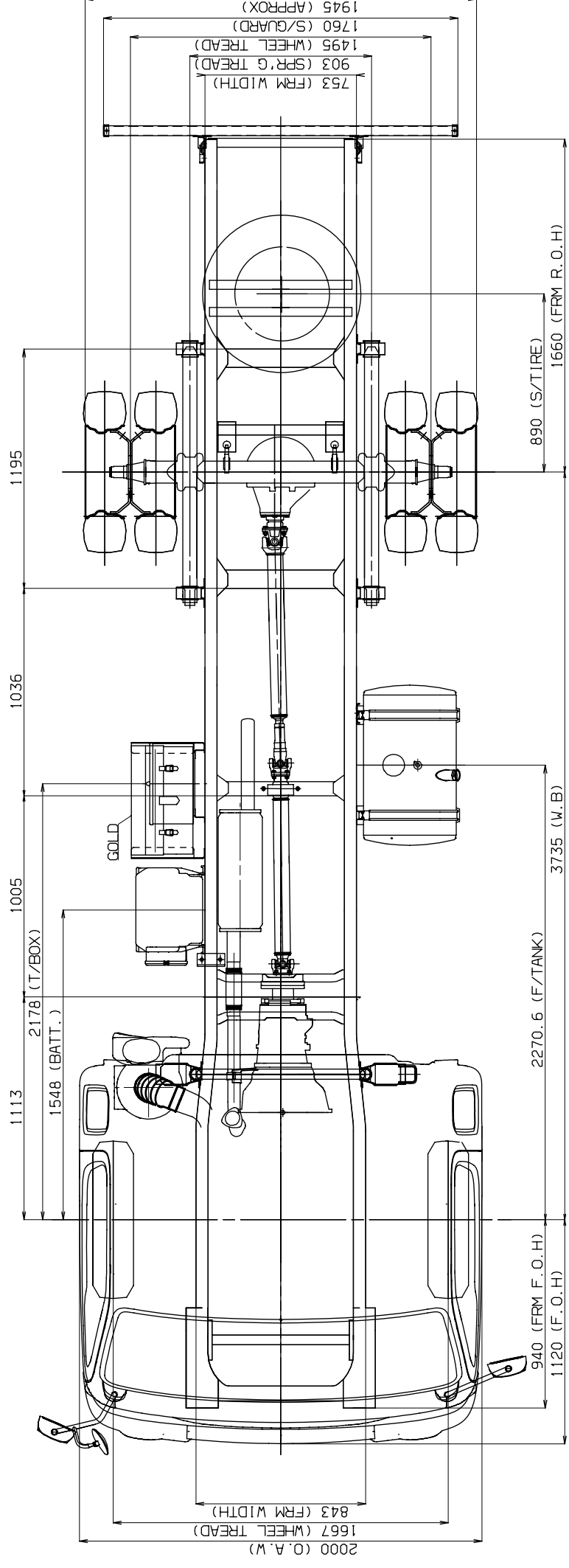


APPLICATION DATA

HD72 (LONG)		CHASSIS CAB		MAX G. V. W	
ATTITUDE	Hf	D4AL/D4DC	D4DA/D4DB		
(MM)	790	700	700	-	-
WEIGHT (Kg)	FRT	1590	1620	2700	
	RR	905	920	4700	
TIRE SIZE	TTL	2495	2540	7400	
		7.50R16-12PR			



DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04
DESIGN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	CITY	WT (kg)
GENERAL DIM:	SCALE	
CASTING DIM:	APPROVED	PROJECTION
MATERIAL		3RD ANGLE
FINISH		DIMENSION
		UNIT
PART NAME	HD72CP HIGH DECK LONG	
PART NO.	BODY BUILDERS DRWG	
	FORM	SHT



APPLICATION DATA

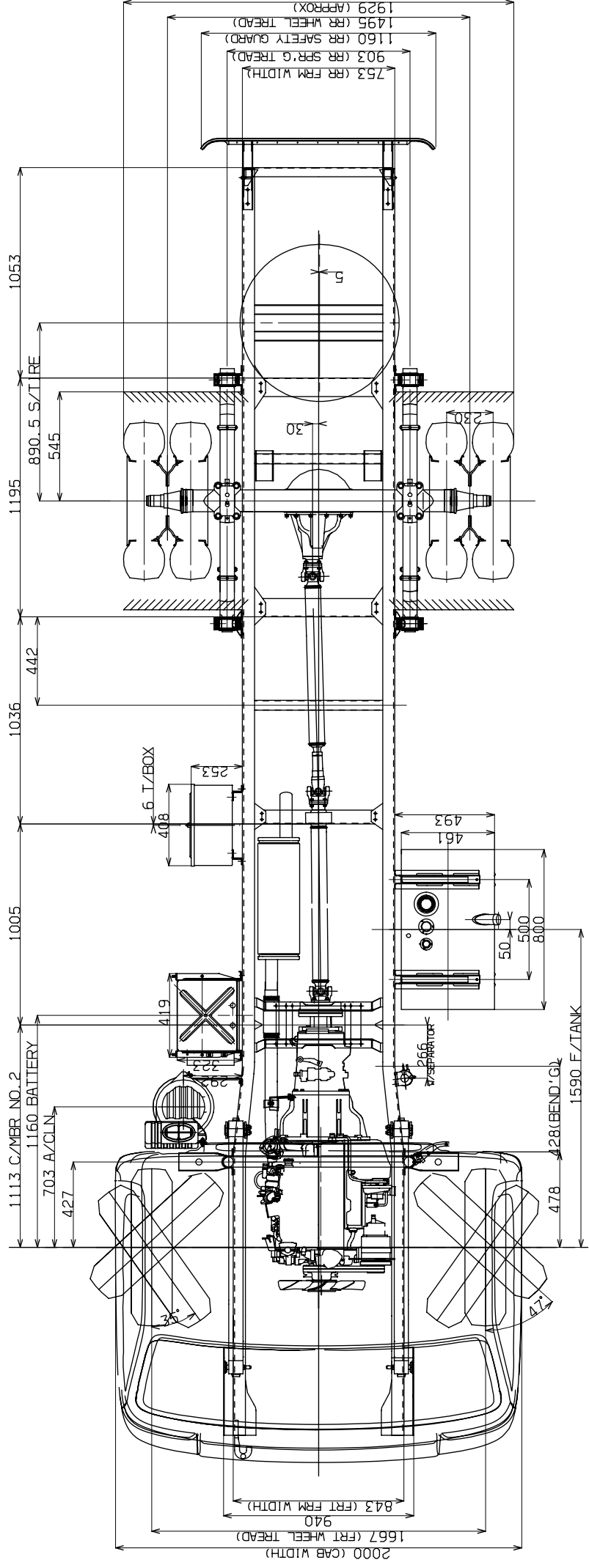
CHASSIS CAB		HD72 (LONG)	
ATTITUDE (MM)	Hf	D4DD	MAX G. V. W
	705		-
	770		-
WEIGHT (KG)	FRT	1665	2880
	RR	930	4700
	TTL	2595	7580
TIRE SIZE		7.50R16-12PR	

\* ) 상기 자료는 참조용 임.

SECTION A-A

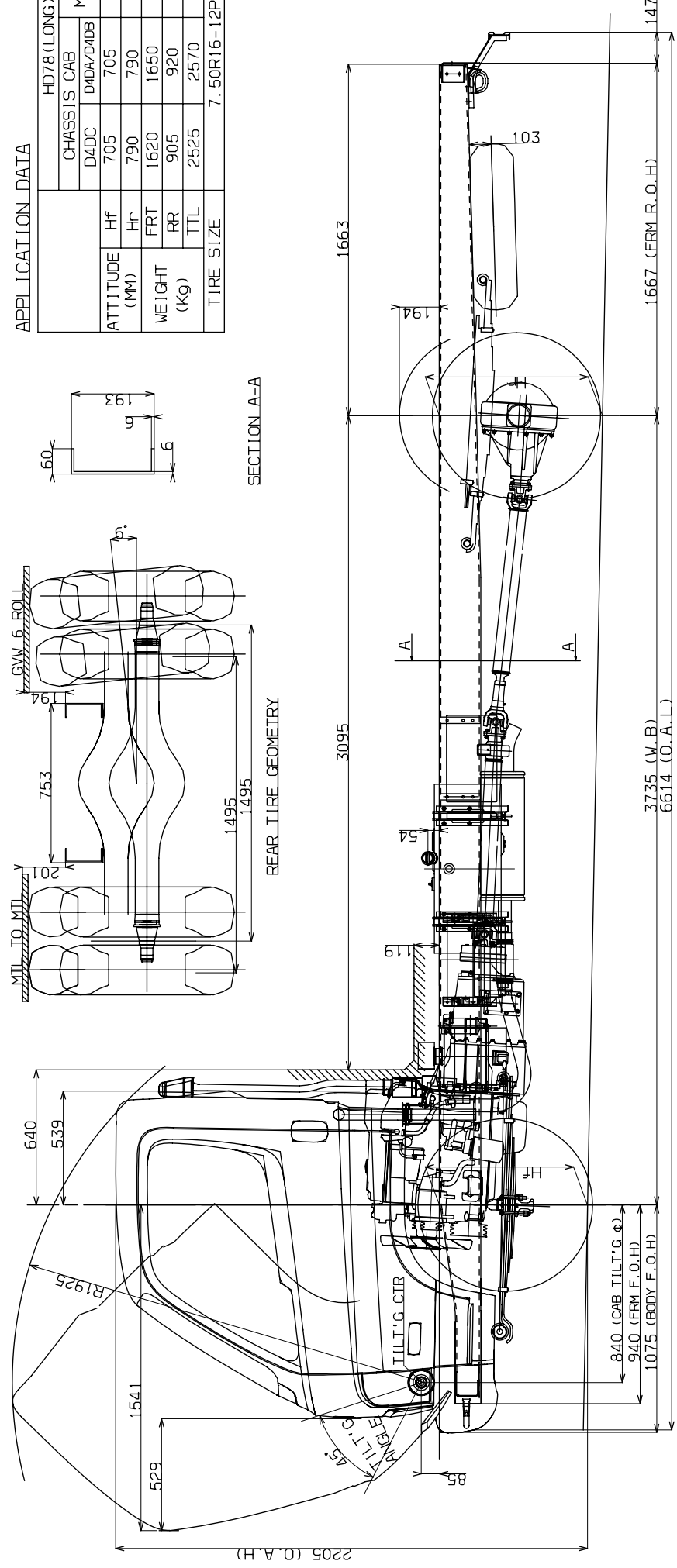
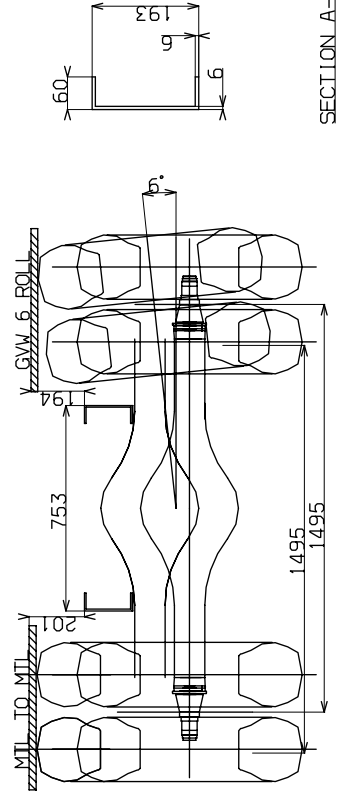
REAR TIRE GEOMETRY

DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.04.
DESIGN	CHECKED	APPROVED
UNLESS OTHERWISE SPECIFIED	DO NOT SCALE	
QUANTITY	SCALE	UNIT (KG)
MATERIAL	APPROVED	
FINISH		
PART NAME HD72QP HIGH DECK LONG		
BODY BUILDERS DRWG		
PART NO.	FORM	SHT



APPLICATION DATA

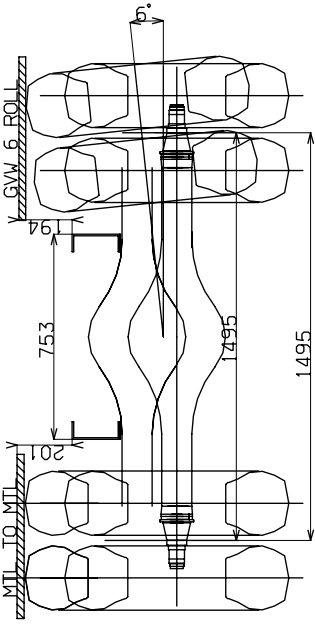
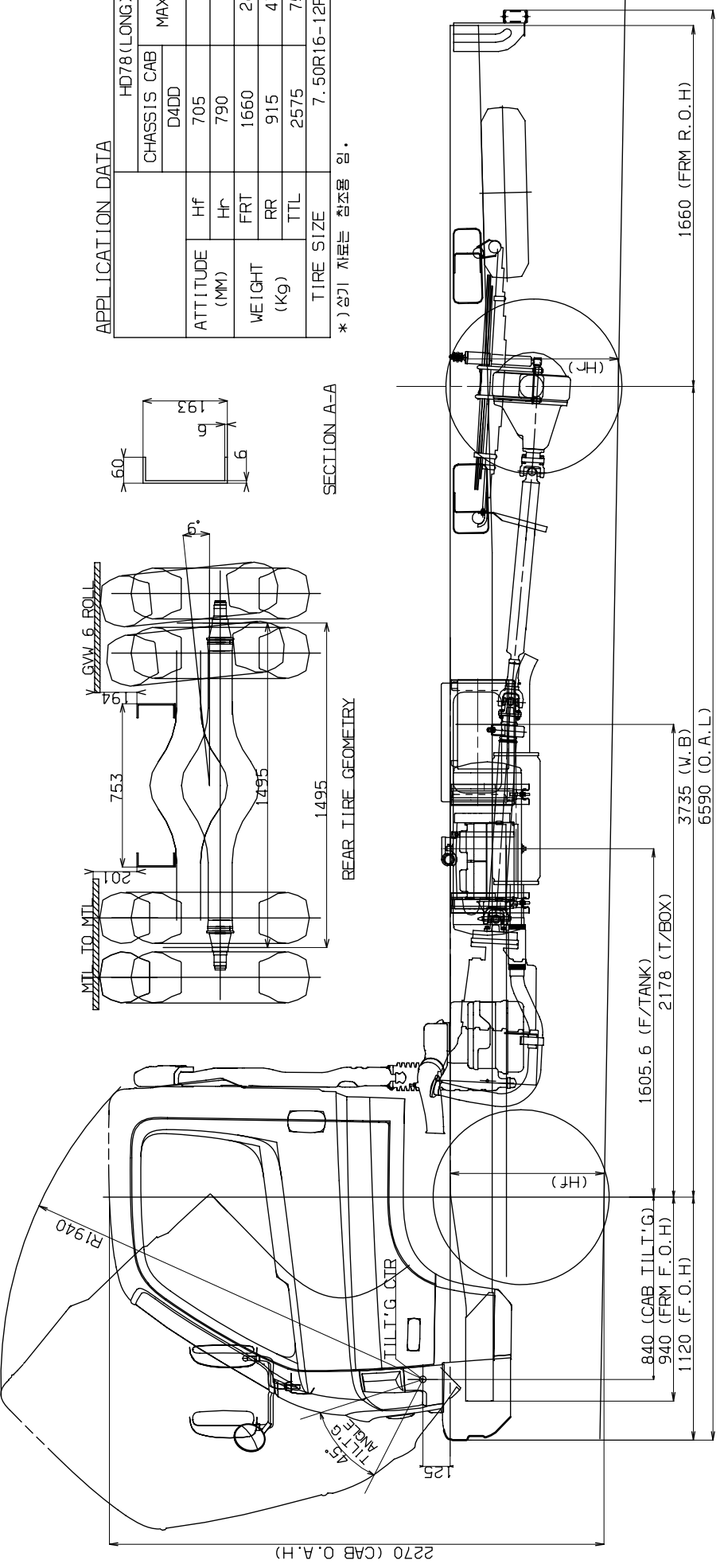
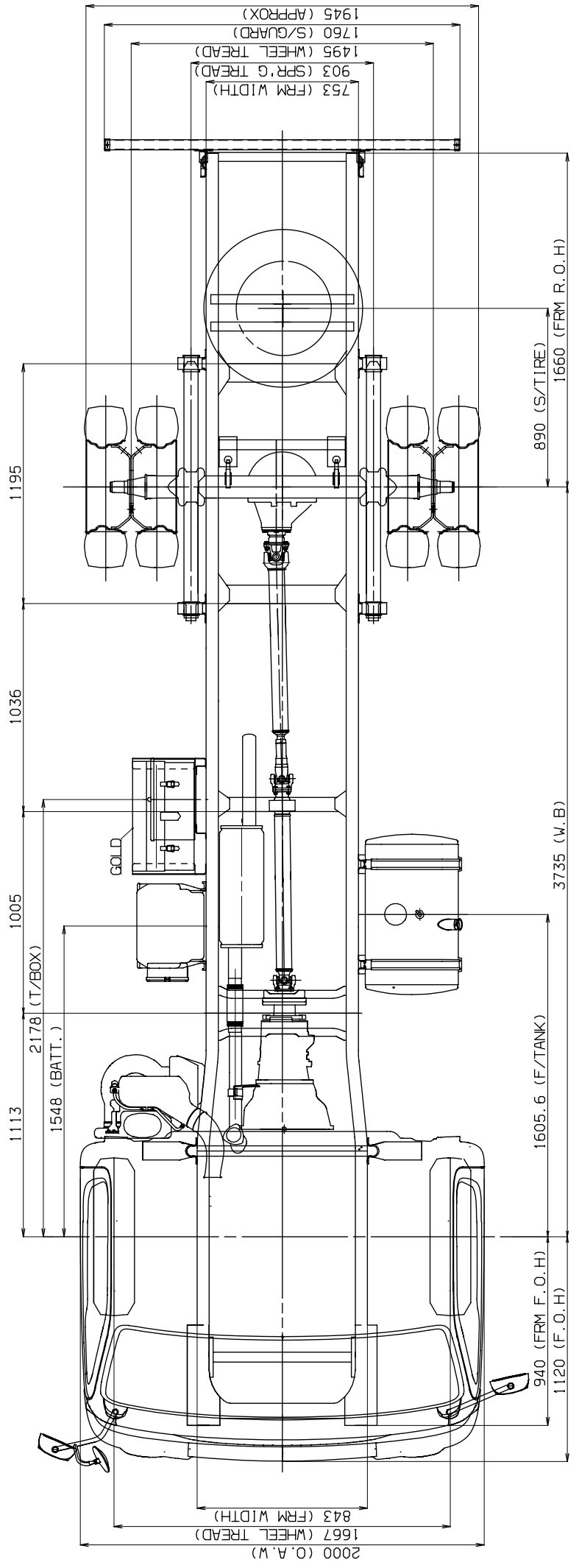
		HD78(LONG)	
		CHASSIS CAB	MAX G. V. W
ATTITUDE (MM)	Hf	D4DC 705	705
	Hr	D4DA/D4DB	-
WEIGHT (Kg)	FRT	790	790
	RR	1620	1650
	TTL	905	920
		2525	2570
TIRE SIZE			7.50R16-12PR



DATE	MODIFICATION ITEM	SIGN
	HYUNDAI MOTOR COMPANY	

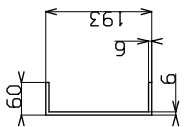
REFERENCE	DATE	DO NOT SCALE	PROJECTION	DIMENSION	SHT
DESIGN	CHECKED	APPROVED	APPROVED	DATE	NO. OF
UNLESS OTHERWISE SPECIFIED		CITY	SCALE	APPROVED	VT(Ng)
GENERAL DIM:					
CASTING DIM:					
MATERIAL					
FINISH					
PART NAME		HD78CS HIGH DECK LONG		---	
PART NO.		BODY BUILDERS DRWG		---	
		FORM		SHT	



APPLICATION DATA

HD78(LONG)		CHASSIS CAB	MAX G. V. W
ATTITUDE (MM)	Hf	D4DD	-
	Hr	705	-
WEIGHT (Kg)	FRT	790	2880
	RR	1660	4700
TIRE SIZE	TTL	915	7580
		2575	7580
		7.50R16-12PR	

\* ) 상기 자료는 참조용 임.



DATE	MODIFICATION ITEM	SIGN

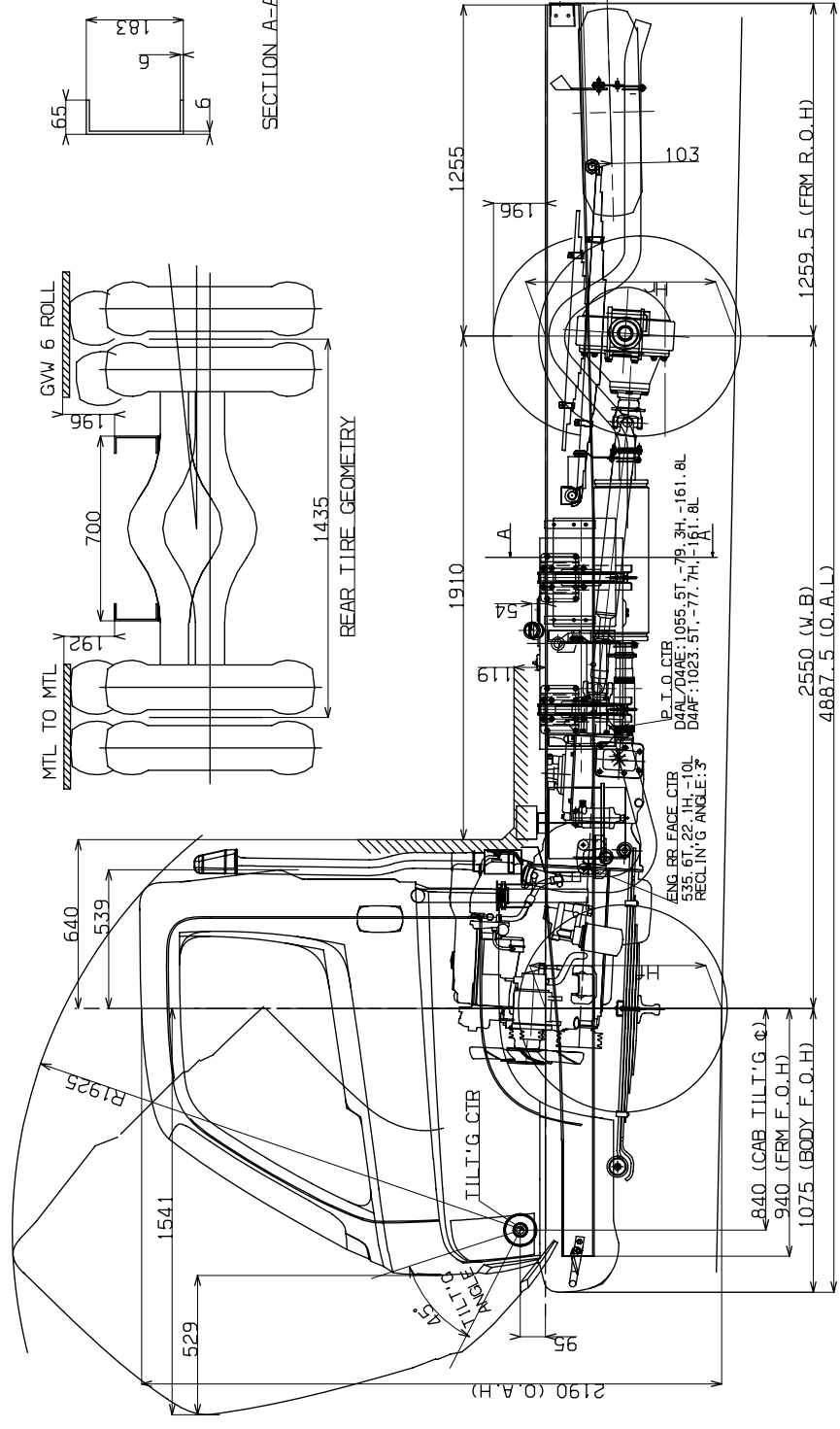
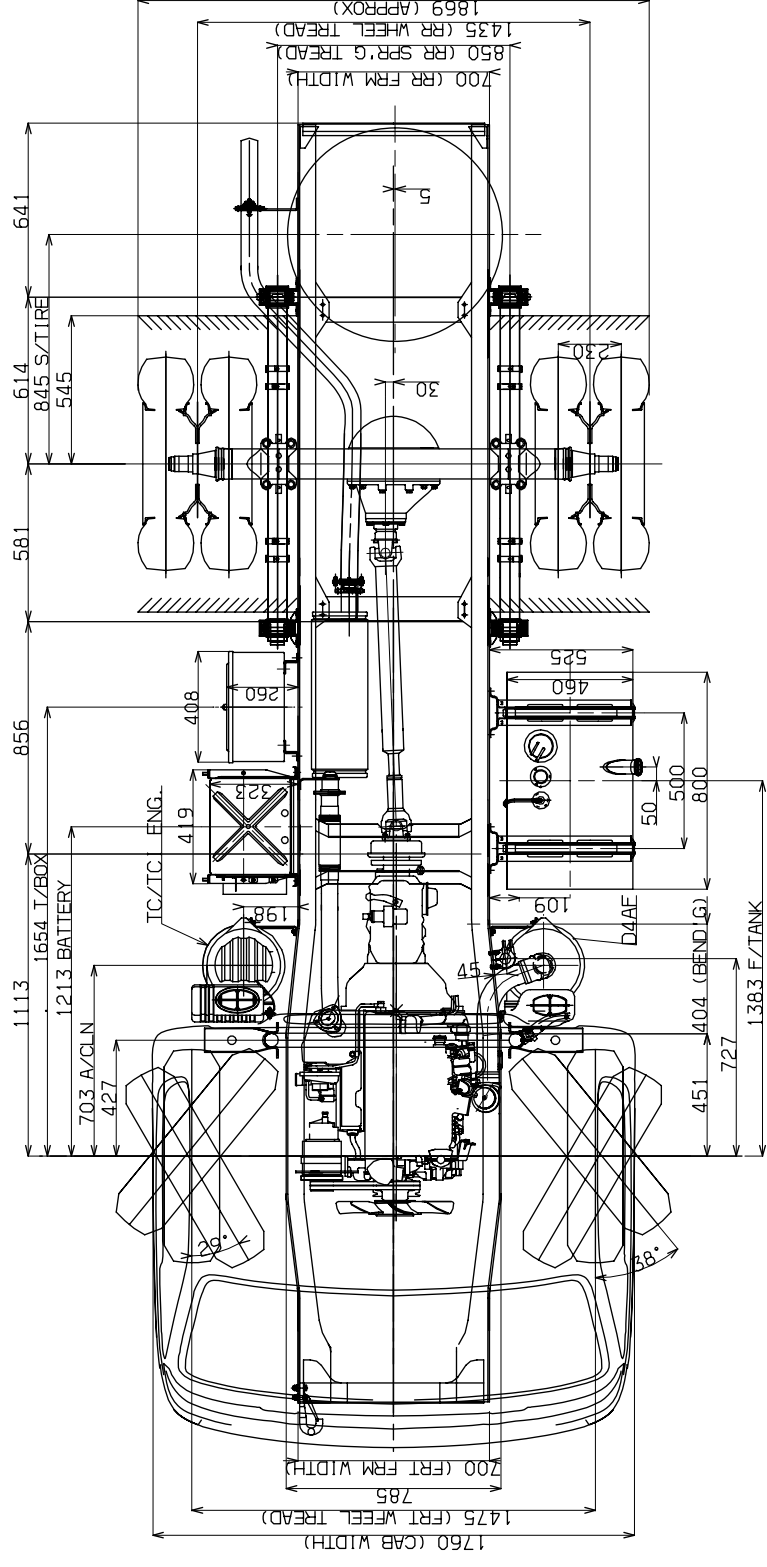
HYUNDAI MOTOR COMPANY

REFERENCE	DATE	2005.04.
DRAWN	CHECKED	APPROVED
UNLESS OTHERWISE SPECIFIED	DO NOT SCALE	WT(Kg)
GENERAL DIM:	QTY	SCALE
DRAWING DIM:	APPROVED	PROJECTION
MATERIAL		3RD ANGLE
FINISH		DIMENSION
		MM

PART NAME: HD78CS HIGH DECK LONG  
BODY BUILDERS DRWG

PART NO. \_\_\_\_\_ FORM \_\_\_\_\_ SHEET \_\_\_\_\_

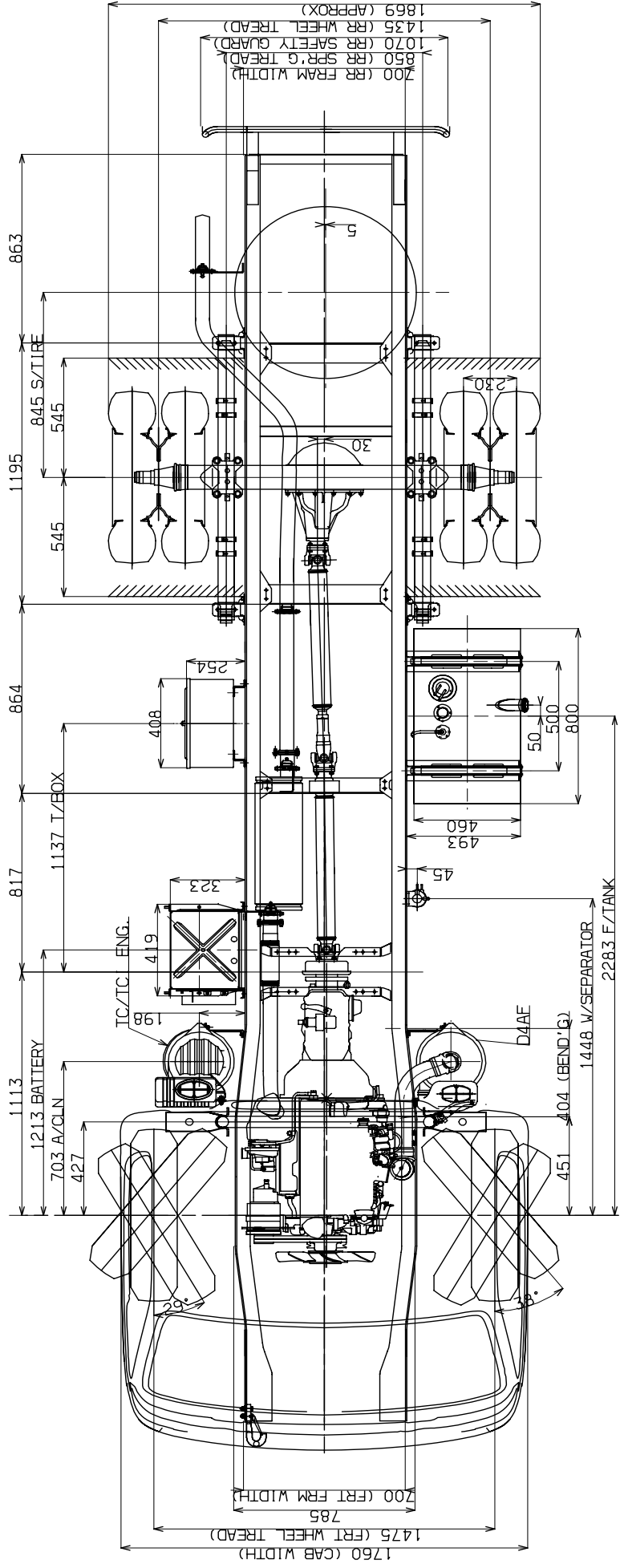




APPLICATION DATA

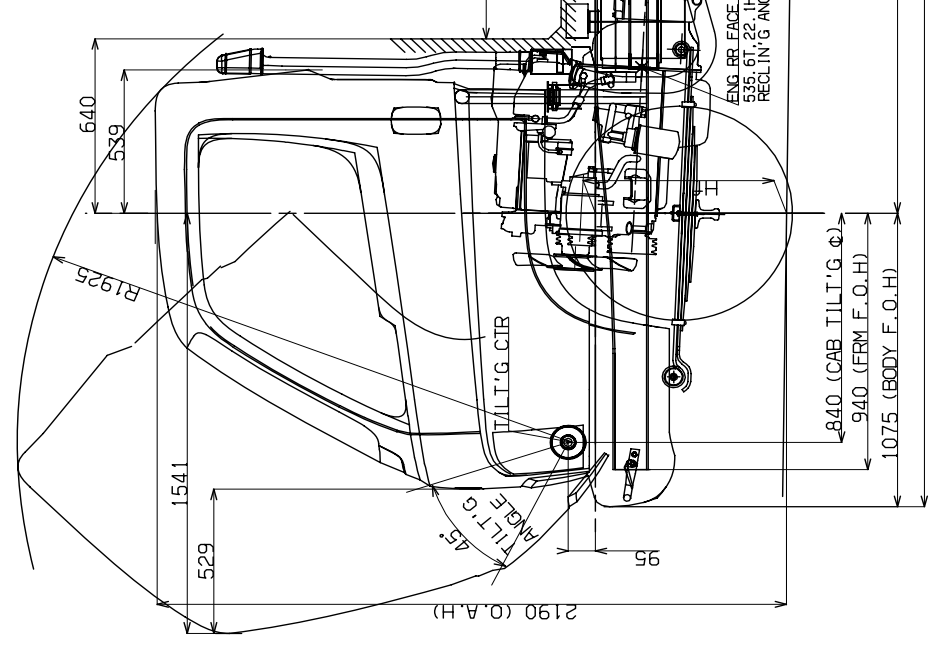
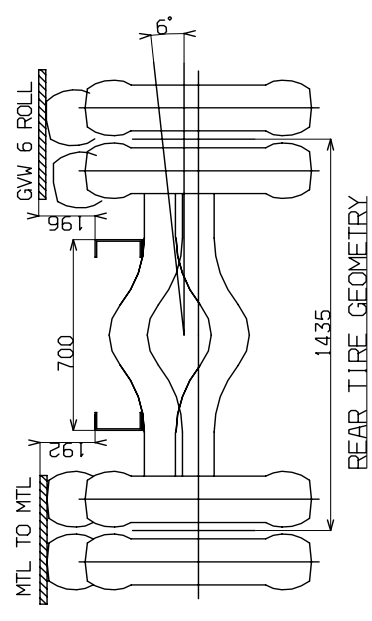
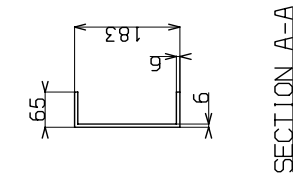
HD65(SHORT)		CHASSIS CAB		MAX G. V. W	
ATTITUDE (NM)	D4AF	D4AL	D4AL		
Hf	665	665	665	-	-
Hc	745	745	745	-	-
FRT	1400	1430	1430	2300	2300
RR	790	800	800	4400	4400
TTL	2190	2230	2230	6700	6700
TIRE SIZE	7.00R16-10PR				

DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	APP. BY
DESIGN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED		
GENERAL DIM:	SCALE	QTY
CASTING DIM:	APPROVED	PRODUCTION
MATERIAL	FINISH	3RD ANGLE
DIMENSION		
MM		
PART NAME	HD65CN HIGH DECK SHORT	
PART NO.	BODY BUILDERS DRWG	
FORM	SHT	SHTS

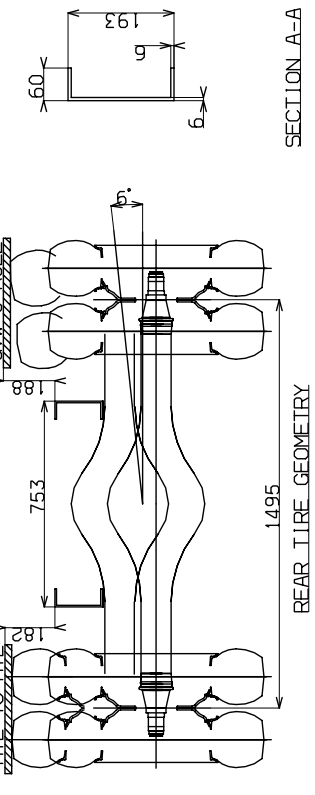
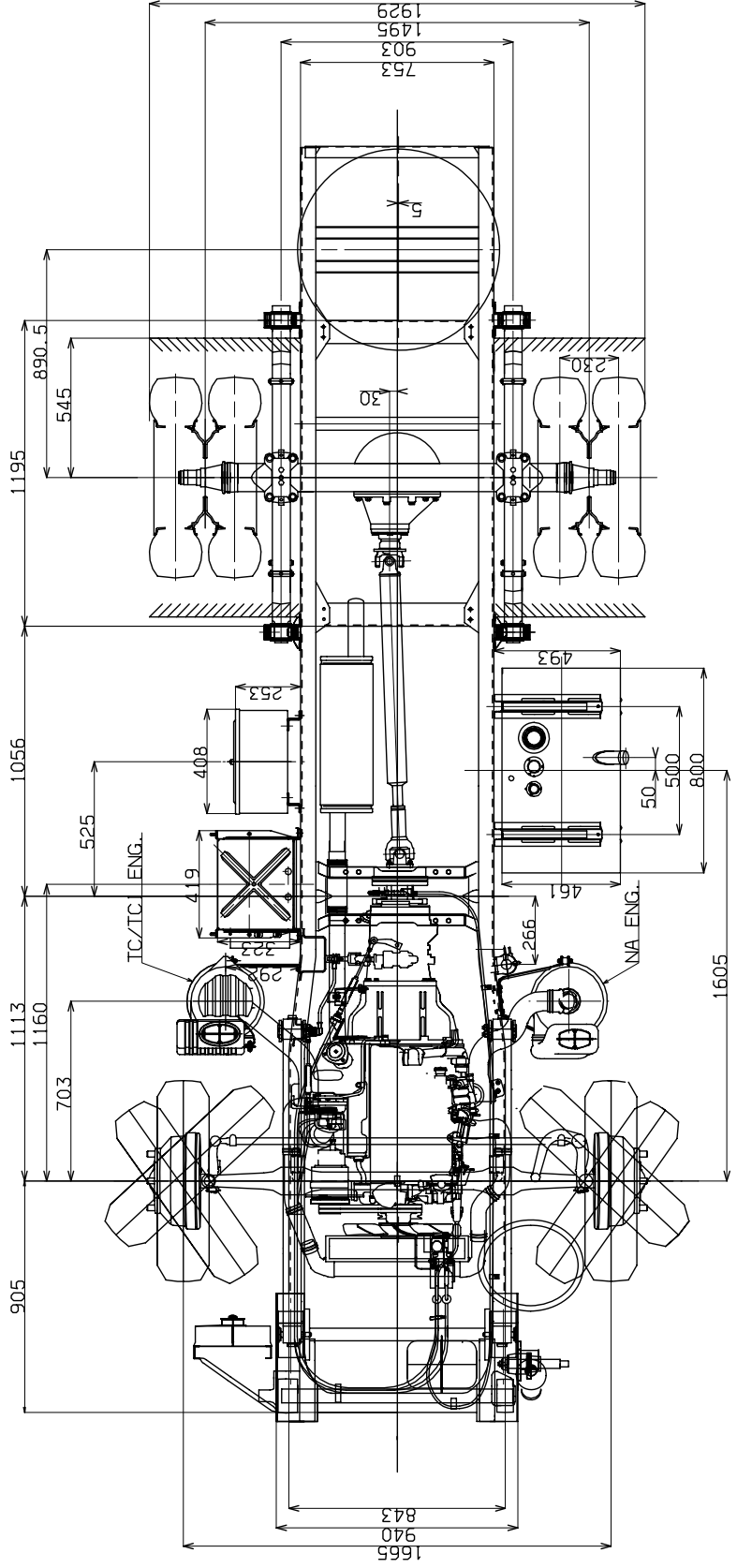


APPLICATION DATA

HD65 (LONG)		CHASSIS CAB		MAX G. V. W
ATTITUDE (MM)	D4AF	D4AL		
Hf	665	665	-	-
Hr	745	745	-	-
FRT	1430	1460	2300	
RR	810	820	4400	
TTL	2240	2280	6700	
TIRE SIZE			7.00R16-10PR	

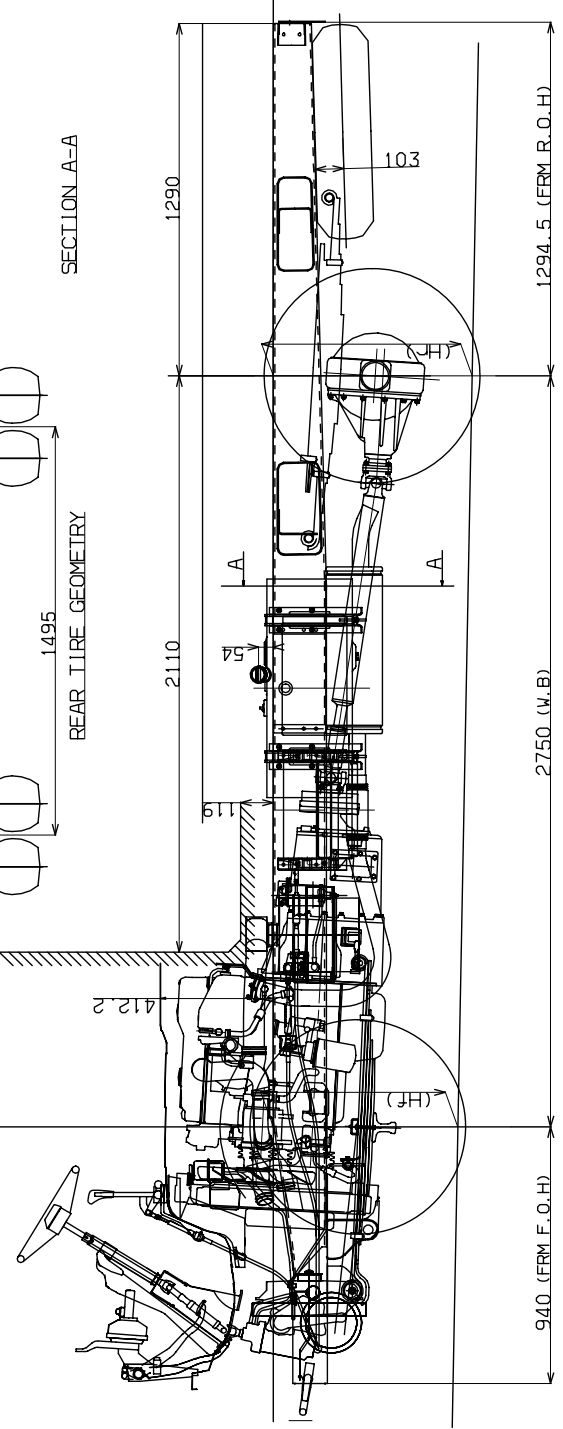


DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2006.04
DRAWN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	QTY	UNIT
GENERAL DIM:	SCALE	
CASTING DIM:	APPROVED	
MATERIAL	PROJECTION	3RD ANGLE
FINISH	DIMENSION	MM
PART NAME	HD65CNC HIGH DECK LONG	
---	BODY BUILDERS' DRWG	
PART NO.	FORM	SHT
		5/15

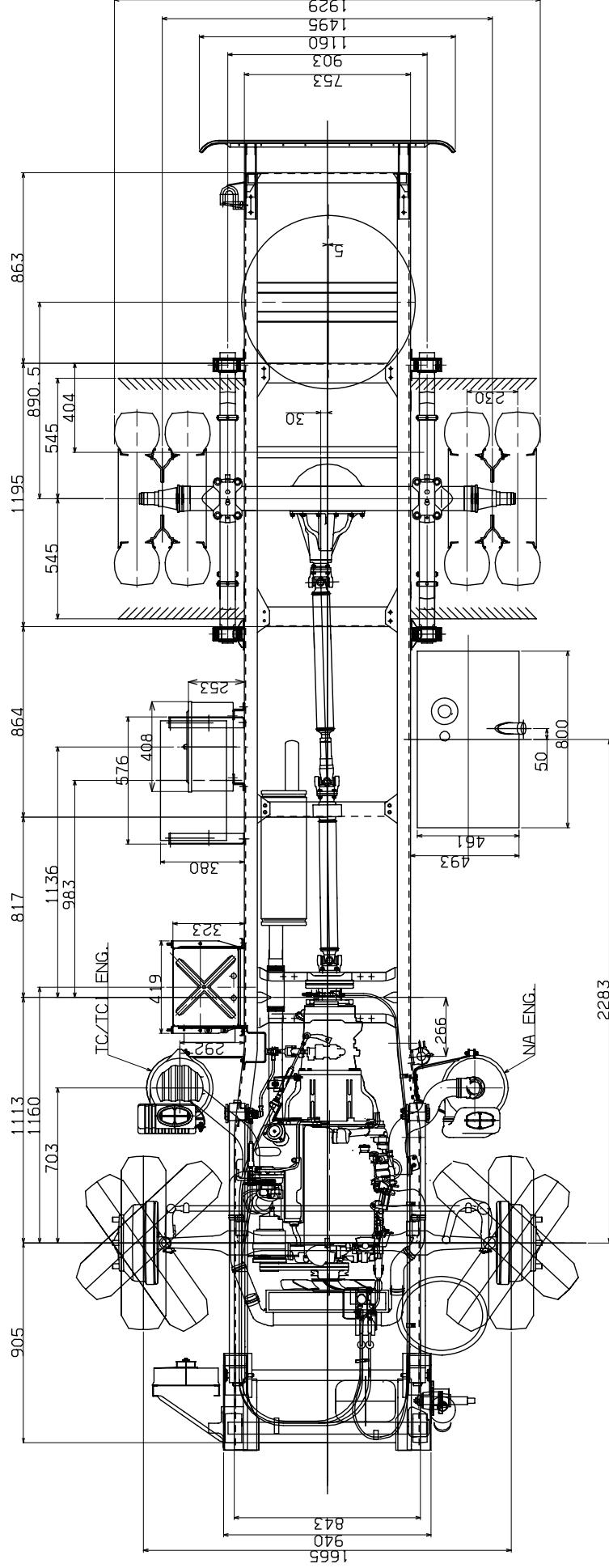


APPLICATION DATA

		2.5TON WIDE STD CHASSIS CAB
		D4DB-d
		MAX G. V. W
ATTITUDE (MM)	Hf	685
	Hr	765
WEIGHT (KG)	FRT	2300
	RR	4400
	TTL	6700
TIRE SIZE		7.00R16-10PR

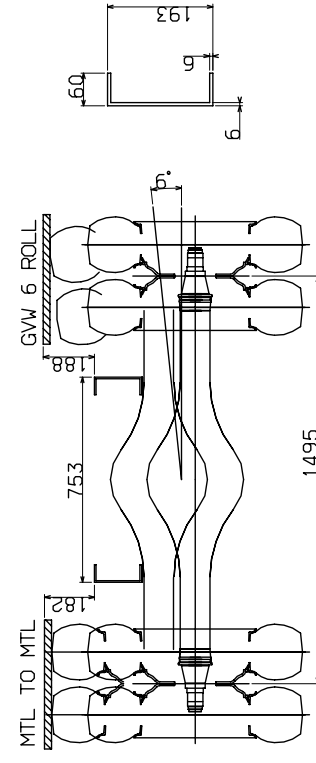


DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	ASS. OR
DESIGN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	CITY	UT(kg)
DRAWING DIM:	SCALE	
CASTING DIM:	APPROVED	PROJECTION 3RD ANGLE
MATERIAL		DIMENSION MM
FINISH		
PART NAME 2.5T BARE CHASSIS(W.B 2750)		
BODY BUILDERS DRWG		
PART NO.	FORM	SHT

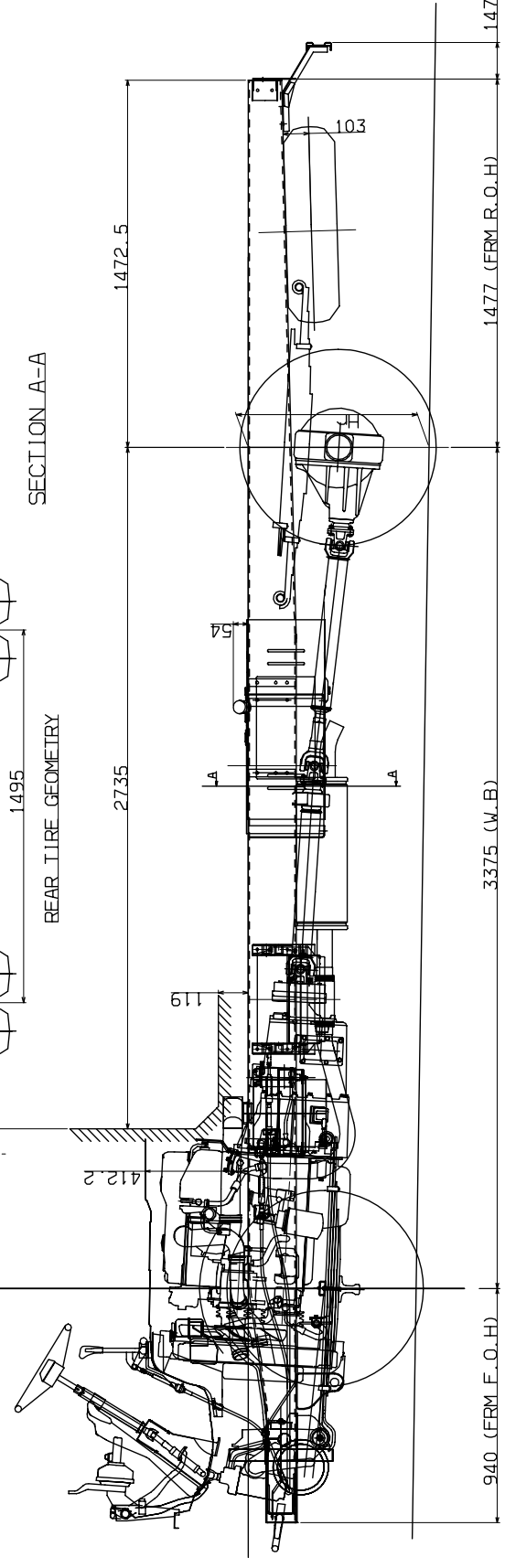


APPLICATION DATA

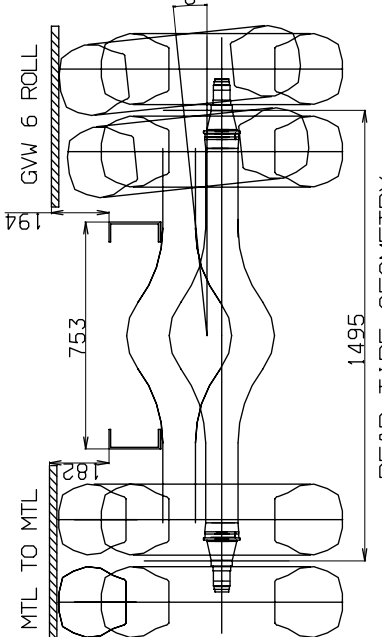
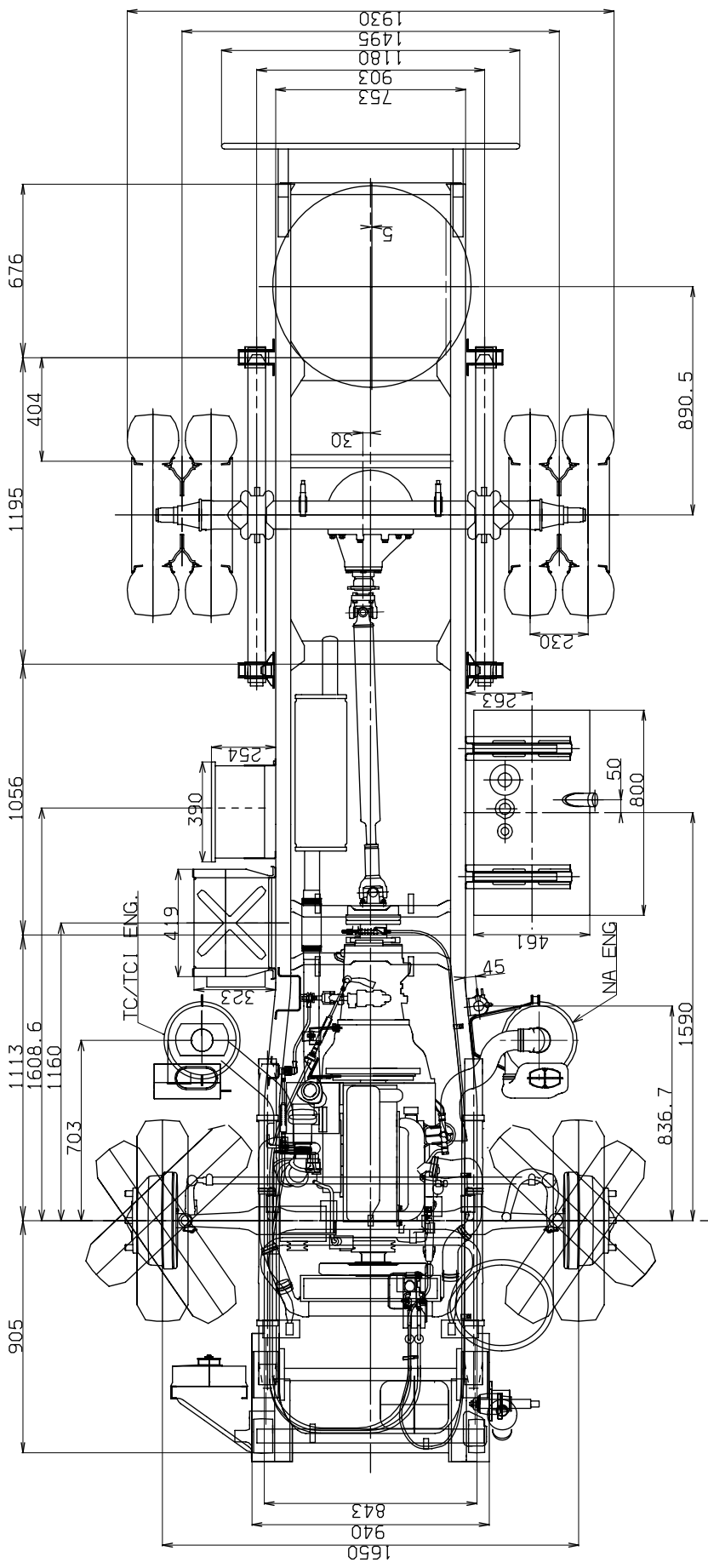
ATTITUDE (MM)	Hf 685	2.5TON WIDE STD CHASSIS CAB D4DB-d	MAX G. V. W
	Hr 765		
WEIGHT (KG)	FRT 1175		
	RR 805		
	TTL 1980		
TIRE SIZE	7.00R16-10PR		



SECTION A-A

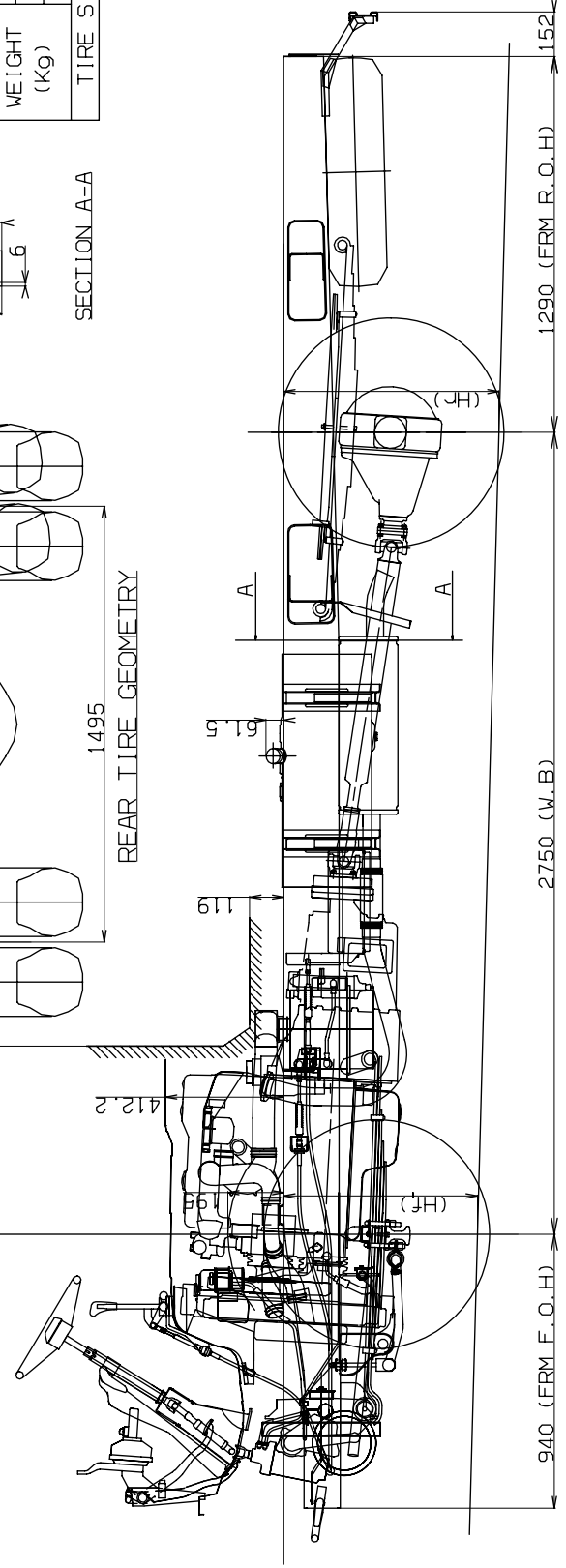


DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	DO NOT SCALE
DRAWN	CHECKED	APPROVED
UNLESS OTHERWISE SPECIFIED	QTY	HT(Kg)
GENERAL DIM:	SCALE	
MACHINE DIM:	APPROVED	
CASTING DIM:		
FINISH		
PART NAME 2.5T BARE CHASSIS(W.B. 3375)		
BODY BUILDERS DRWG		
PART NO.	FORM	SHT

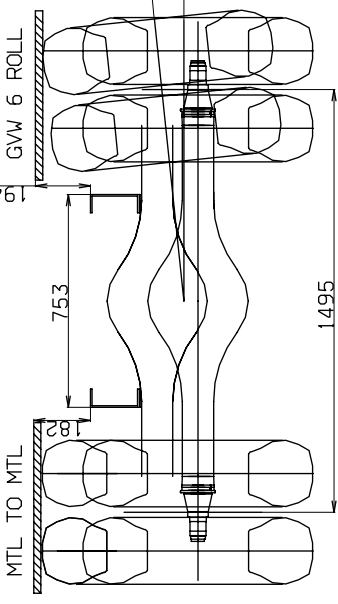
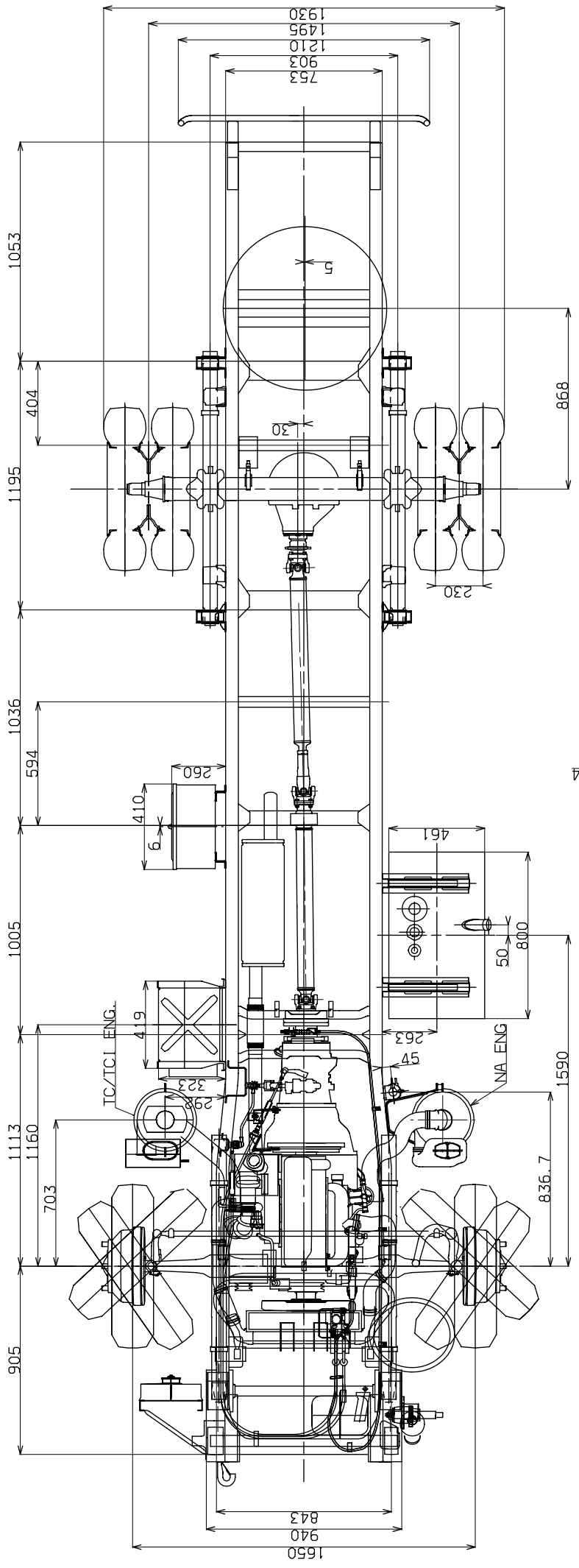


APPLICATION DATA

3.5TON WIDE STD CHASSIS CAB		MAX G.V.W	
ATTITUDE (MM)	Hf	700	—
	Hr	790	—
WEIGHT (KG)	FRT	1170	2700
	RR	885	5000
	TTL	2055	7700
TIRE SIZE		7.50R16-14PR	

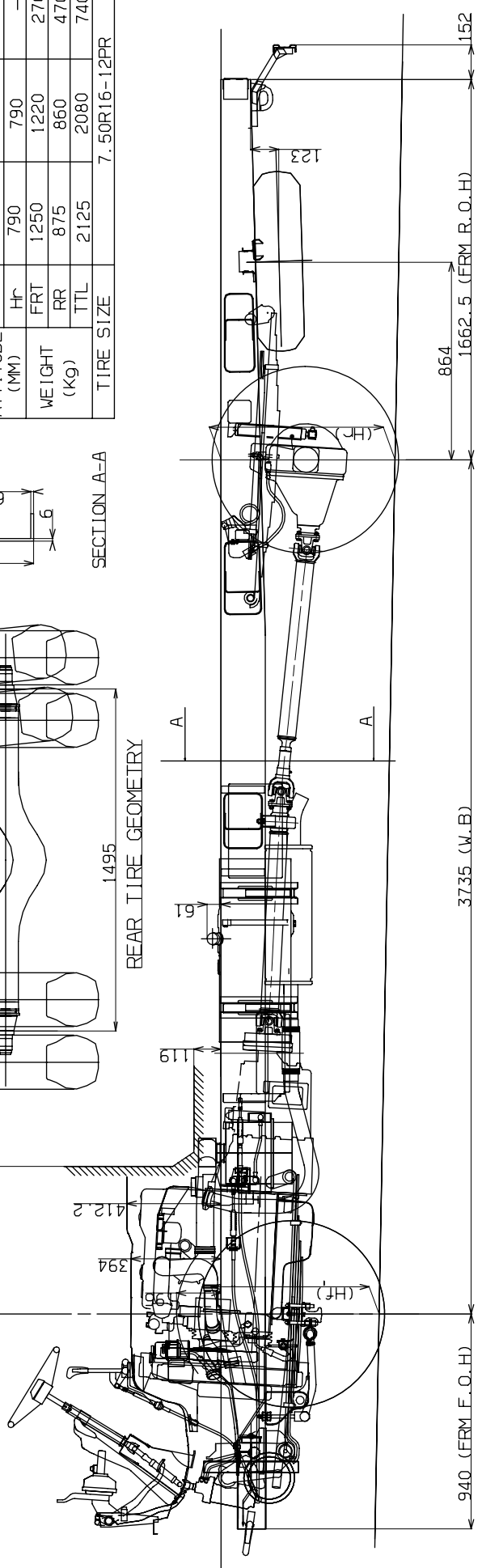
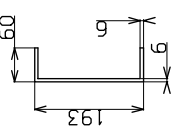


DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.06.
DRAWN	CHECKED	APPROVED
DO NOT SCALE		
UNLESS OTHERWISE SPECIFIED	QTY	UNIT(Mg)
MACHINING DIM:	SCALE	0.1
CASTING DIM:	APPROVED	PROJECTION 3RD ANGLE
MATERIAL:		DIMENSION MM
FINISH		
PART NAME	3.5T BARE CHASSIS(W.B 2750)	
	BODY BUILDERS DRWG	
PART NO.	FORM	SHT
		SITS



APPLICATION DATA

3.5TON WIDE STD		CHASSIS CAB		MAX G. V. W	
		D4DA/D4DB		D4DC	
ATTITUDE	Hf	700	700	790	—
(MM)	H-	790	790	1220	2700
WEIGHT	FRT	1250	1220	860	4700
(K9)	RR	875	860	2080	7400
TIRE SIZE	TTL	2125	2080	7.50R16-12PR	



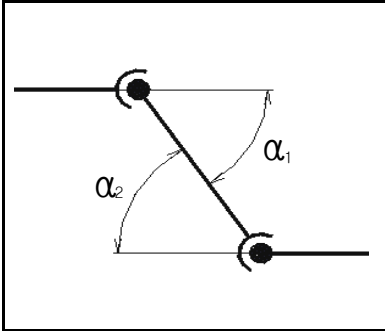
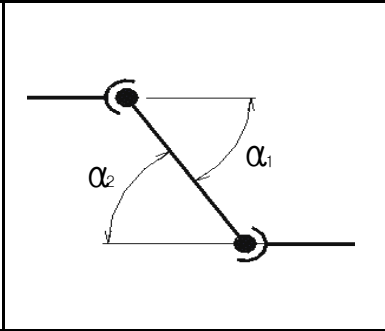
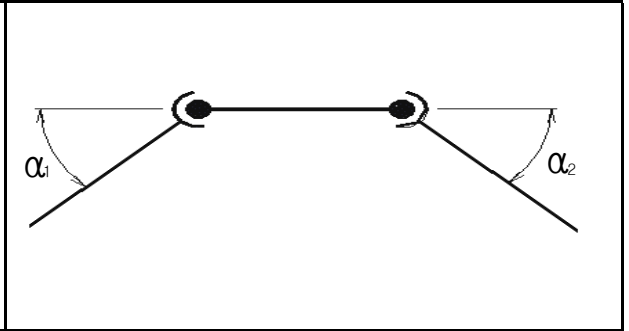
DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	2005.06.
DESIGN	CHECKED	APPROVED
DO NOT SCALE		VT(Kg)
UNLESS OTHERWISE SPECIFIED		QTY
GENERAL DIM:		SCALE 0.1
MATING DIM:		APPROVED
CASTING DIM:		PROJECTION
MATERIAL:		3RD ANGLE
FINISH:		DIMENSION
PART NAME		MM
3.5T BARE CHASSIS(V.B 3735)		
BODY BUILDERS DRWG		
PART NO.	FORM	SHT
		5/25

## 10. CAUTIONS NEEDED FOR THE INSTALLATION OF THE P/SHAFT

## 10. CAUTIONS NEEDED FOR THE INSTALLATION OF THE PROPELLAR SHAFT

Be sure not to modify or alter propellar shaft, as it was designed to suit a vehicle feature. But in an unavoidable case, observe the following items.

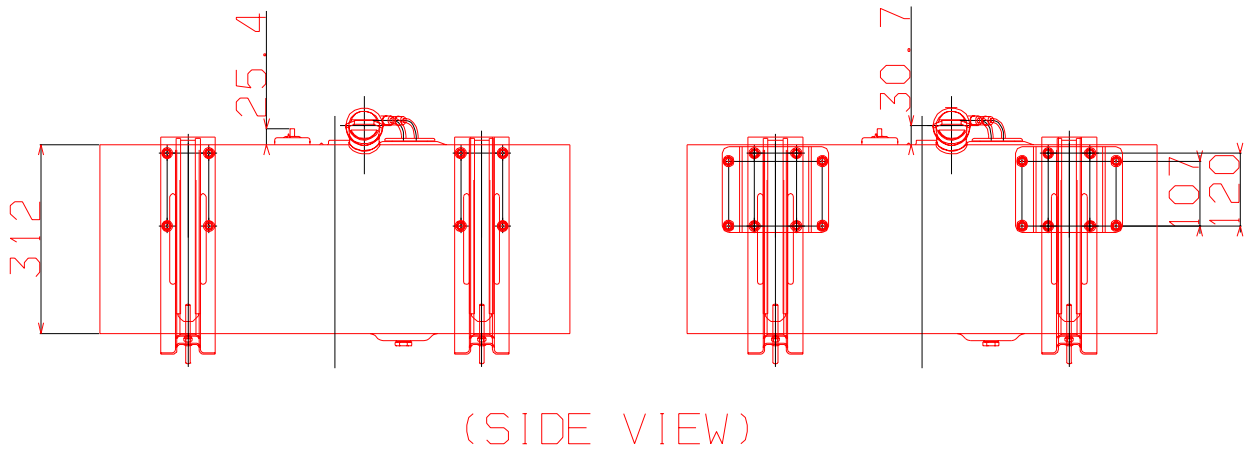
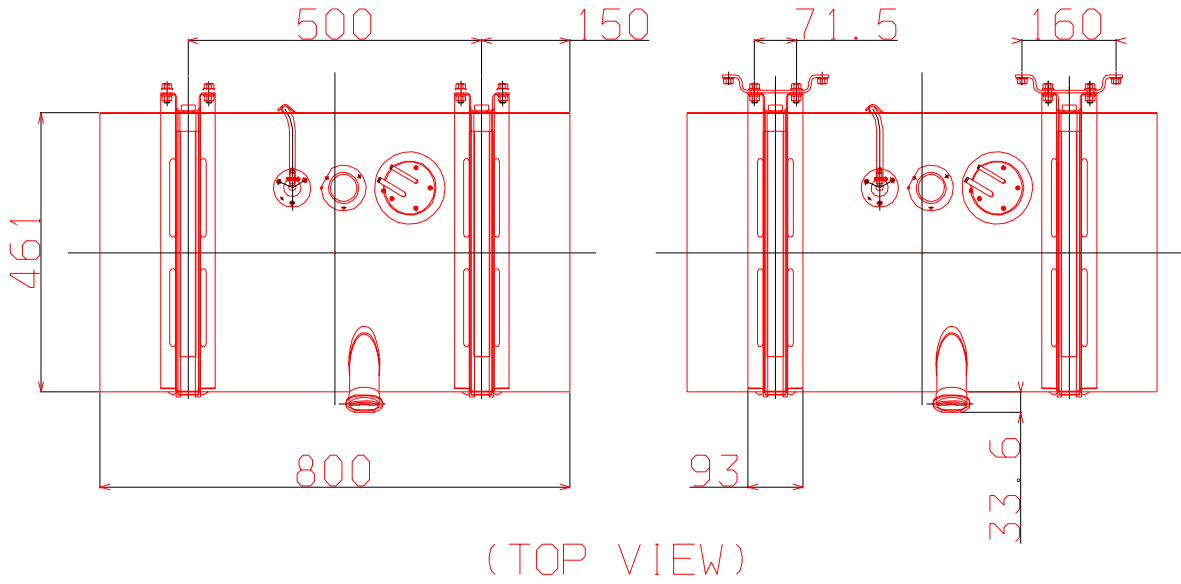
### (1) 2-JOINT

		
0	X	0
$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$	$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$	$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$
$\alpha_1^2 - \alpha_2^2 = -15$	$\alpha_1^2 + \alpha_2^2 = 113$	$\alpha_1^2 - \alpha_2^2 = -15$



## 11. OTHERS

11-1. FUEL TANK



EXCEPT HD65CN-S\*\*

***HYUNDAI TRUCK***  
**BODY BUILDER BOOK**  
(HD120 TRUCK)



2005. 6

**HYUNDAI MOTOR COMPANY**  
**COMMERCIAL VEHICLE ENGINEERING & RESEARCH CENTER**

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## 11. CAUTIONS NEEDED FOR THE INSTALLATION OF THE PROPELLAR SHAFT

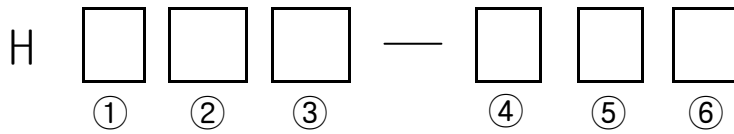
## 12. OTHERS

12-1. Fuel tank

12-2. Rear safety guard

# 1. IDENTIFICATION CODE

# 1. IDENTIFICATION CODE



①	②		③	④	⑤	⑥
DRIVE	PAYLOAD		VEH. TYPE	WHEEL BASE	ENGINE	SERIAL NO.
4X2:F	CARGO	5TON :5	CARGO:C DUMP:D	CARGO - SHORT:S LONG:L EXTRA LONG:E	D6BR:R KK-TCI : L (LOW HORSE) KK-TCI : H (HIGH HORSE)	
	DUMP	5TON :5		DUMP : D		

EX) 5TON LONG CARGO TRUCK (D6BR) : HF5C-LR  
 5TON DUMP TRUCK(KK-TCI, LOW HORSE) : HF5D-DL

## 2. GENERAL SPECIFICATION

## 2. GENERAL SPECIFICATION

			HD120 CARGO					
			SHORT(D6BR) (HF5C-SR)	SHORT(KK-TCI) (HF5C-SL)	LONG(D6BR) (HF5C-LR)	LONG(KK-TCI) (HF5C-LL)	E-LONG(D6BR) (HF5C-ER)	E-LONG(KK-TCI) (HF5C-EL)
O. A. L	mm		6765	←	7465	←	8415	←
O. A. W	mm		2195	←	2195	←	2195	←
O. A. H	mm		2505	←	2505	←	2505	←
BODY INSIDE	LENTH	mm	4600	←	5300	←	6250	←
	WIDTH	mm	2280	←	2280	←	2280	←
	HEIGHT	mm	400	←	400	←	400	←
DECK OFFSET	mm		470	←	585	←	745	←
WHEEL BASE	mm		3795	←	4260	←	4895	←
WHEEL	FRT	mm	1795	←	1795	←	1795	←
TREAD	RR	mm	1660	←	1660	←	1660	←
OVER	FRT	mm	1245	←	1245	←	1245	←
HANG	RR	mm	1725	←	1960	←	2275	←
C/CAB (kg)	FRT	kg	2270	2385	2375	2510	2435	2600
	RR	kg	1300	1430	1340	1470	1325	1470
	TTL	kg	3570	3815	3715	3980	3760	4070
MAX G.V.W (kg)	FRT	kg	3600	3720	3600	3720	3600	3720
	RR	kg	6740	7800	6740	7800	6740	7800
	TTL	kg	10340	11520	10340	11520	10340	11520
ENGINE	MODEL		D6BR	KK-TCI	D6BR	KK-TCI	D6BR	KK-TCI
	ASPIRATION		NA	TCI	NA	TCI	NA	TCI
	DISPLACEMENT	cc	7545	6606	7545	6606	7545	6606
	OUTPUT	ps/rpm	185/2900	196/2500	185/2900	196/2500	185/2900	196/2500
	TORQUE	kgm/rpm	51/1400	58/1700	51/1400	58/1700	51/1400	58/1700
PERFOR- MANCE	MAX.SPD	km/h	124(114)	123	124(114)	123	124(114)	123
	MAX.GRD	tan θ	0.475	0.406	0.457	0.392	0.447	0.42
	T/RAD	m	6.3	←	7.3	←	8.2	←
T / M	MODEL		M6S6	KH-10	M6S6	KH-10	M6S6	KH-10
	GEAR RATIO	1st	6.903	6.967	6.903	6.967	6.903	6.967
		2nd	4.206	4.247	4.206	4.247	4.206	4.247
		3rd	2.320	2.454	2.320	2.454	2.320	2.454
		4th	1.414	1.471	1.414	1.471	1.414	1.471
		5th	1.000	1.000	1.000	1.000	1.000	1.000
		6th	0.747	0.769	0.747	0.769	0.747	0.769
		7th	-	-	-	-	-	-
		8th	-	-	-	-	-	-
REV	6.903	6.492	6.903	6.492	6.903	6.492		
R/AXLE	MODEL		D4H-11	←	D4H-11	←	D4H-11	←
	RATIO		5.428	4.333	5.428	4.333	5.428	4.333
TIRE	FRT		8.25R16-16PR	245/70R19.5-14PR	8.25R16-16PR	245/70R19.5-14PR	8.25R16-16PR	245/70R19.5-14PR
	RR		8.25R16-16PR	245/70R19.5-14PR	8.25R16-16PR	245/70R19.5-14PR	8.25R16-16PR	245/70R19.5-14PR

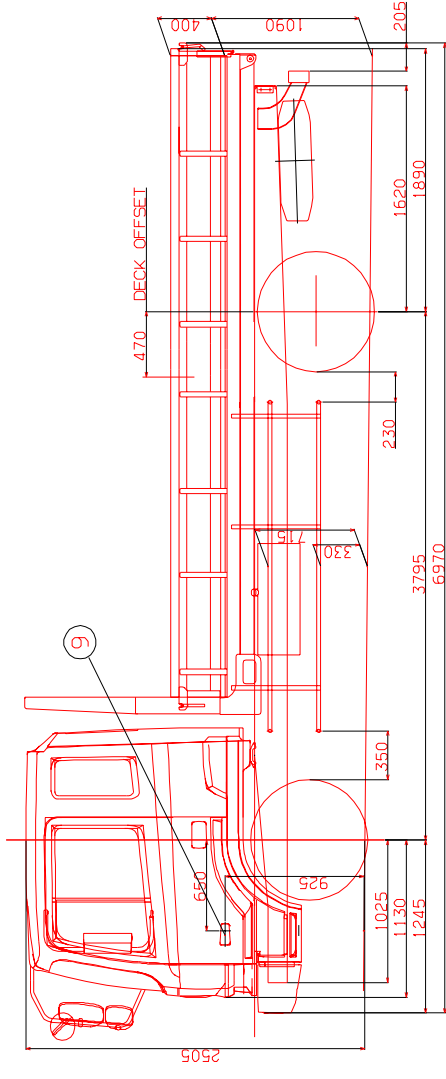
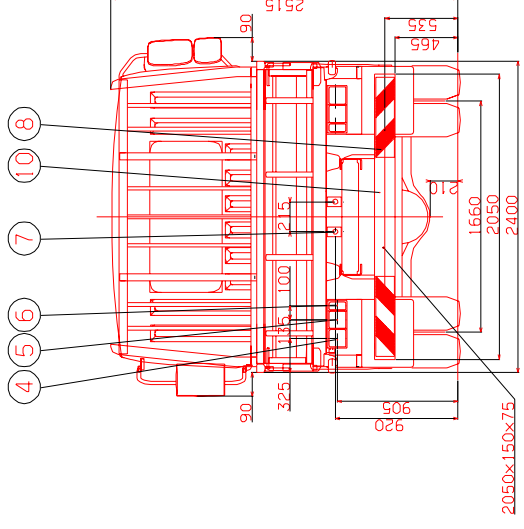
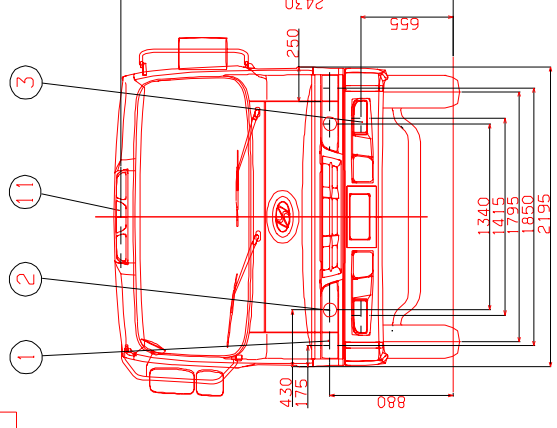
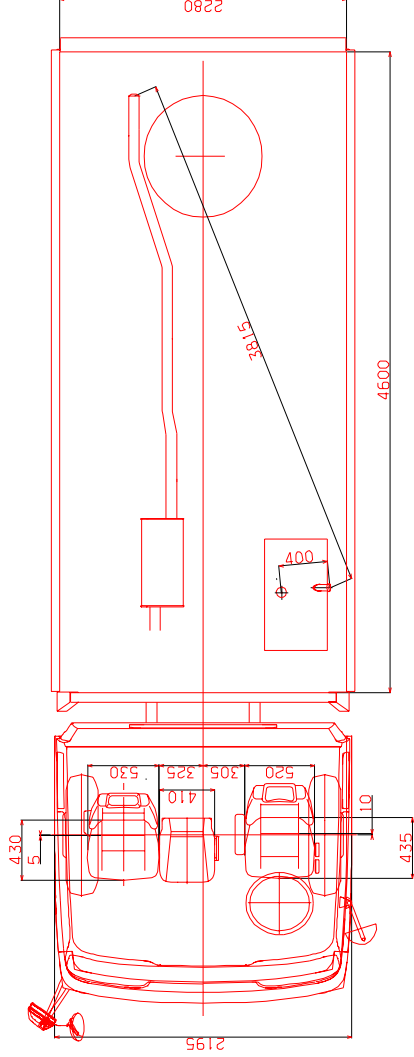


		HD120 DUMP					
		DUMP(D6BR) (HF5D-DR)	DUMP(KK-TCI) (HF5C-DL)				
0. A. L	mm	5752	←				
0. A. W	mm	2195	←				
0. A. H	mm	2510	←				
BODY INSIDE	LENTH	mm	3400	←			
	WIDTH	mm	2060	←			
	HEIGHT	mm	480	←			
DECK OFFSET		mm	450	←			
WHEEL BASE		mm	3300	←			
WHEEL TREAD	FRT	mm	1795	←			
	RR	mm	1660	←			
OVER HANG	FRT	mm	1245	←			
	RR	mm	1207	←			
C/CAB (kg)	FRT	kg	2262	2346			
	RR	kg	1260	1314			
	TTL	kg	3522	3660			
MAX G.V.W (kg)	FRT	kg	3600	3720			
	RR	kg	7160	7800			
	TTL	kg	10760	11520			
ENGINE	MODEL		D6BR	KK-TCI			
	ASPIRATION		NA	TCI			
	DISPLACEMENT	cc	7545	6606			
	OUTPUT	ps/rpm	185/2900	196/2500			
	TORQUE	kgm/rpm	51/1400	58/1700			
PERFOR- MANCE	MAX.SPD	km/h	124(114)	103			
	MAX.GRD	tan θ	0.421	0.434			
	T/RAD	m	5.7	←			
T / M	MODEL		M6S6	KH-10			
	GEAR	1st	6.903	6.967			
		2nd	4.206	4.247			
	RATIO	3rd	2.320	2.454			
		4th	1.414	1.471			
		5th	1.000	1.000			
		6th	0.747	0.769			
		7th	-	-			
	8th	-	-				
REV	6.903	6.492					
R/AXLE	MODEL		D4H-II	←			
	RATIO		5.428	4.875			
TIRE	FRT		8.25R16-18PR	245/70R19.5-14PR			
	RR		8.25R16-18PR	245/70R19.5-14PR			

NOTE : 1) WEIGHT BASED ON THE STANDRD SPECIFICATION  
2) ABOVE DATAS BASED ON THE CHASSIS CAB

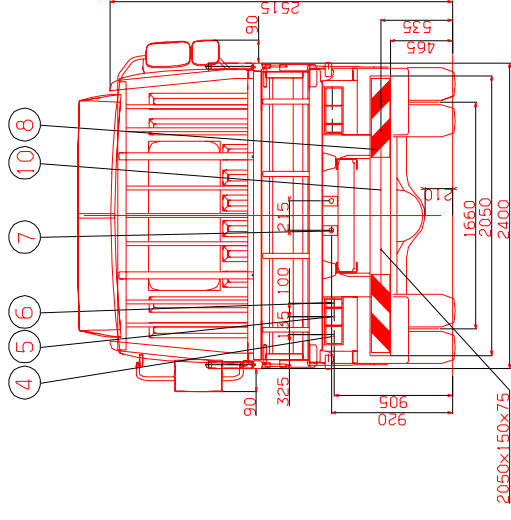
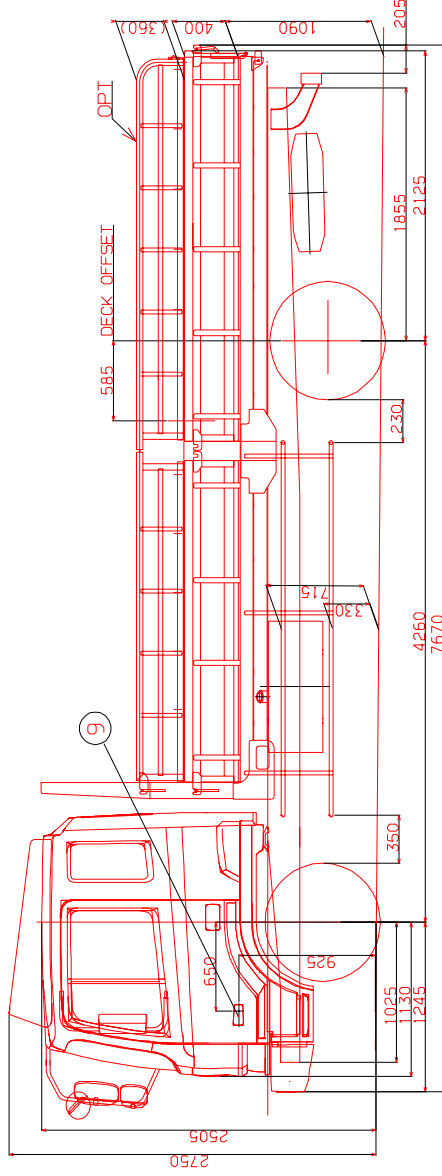
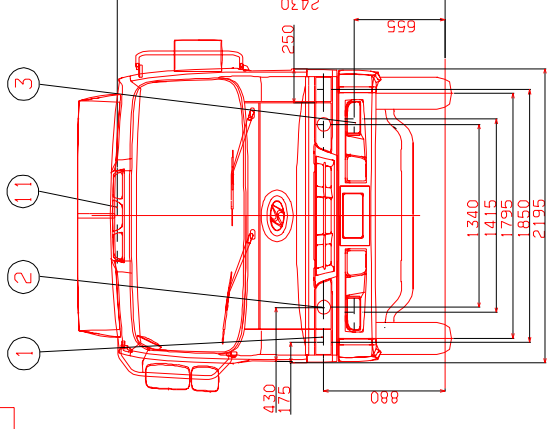
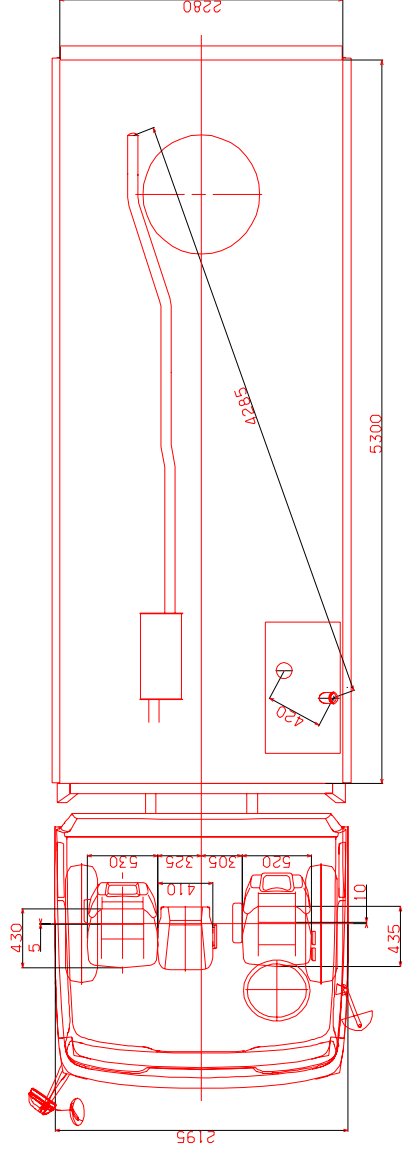
### 3. EXTERIOR DRAWING OF THE COMPLETE VEHICLE

1	TURN SIGNAL LAMP	5	TAIL LAMP, STOP LAMP	10	REAR SAFETY GUARD
	CORNERING LAMP	6	BACK-UP LAMP	11	SPEED INDICATE LAMP
2	HEAD LAMP, PARKING LAMP	7	LICENCE PLATE LAMP		
3	FOG LAMP	8	REFLEX REFLECTOR		
4	TURN SIGNAL LAMP	9	SIDE TURN SIGNAL		



HYUNDAI HD120 (D6BR) CARGO TRUCK (SHORT WHEEL BASE) W.B : 3795mm

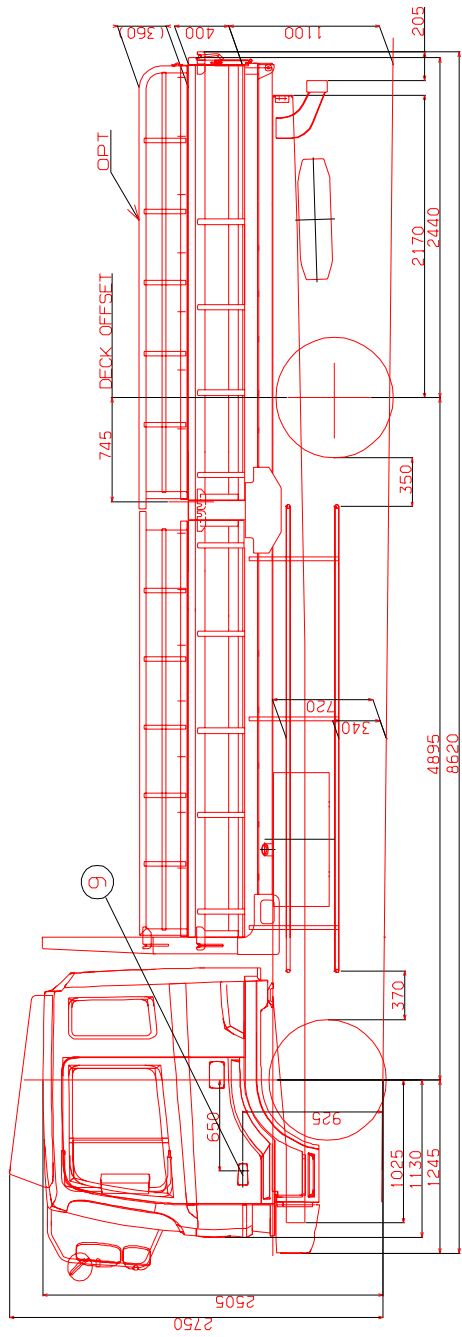
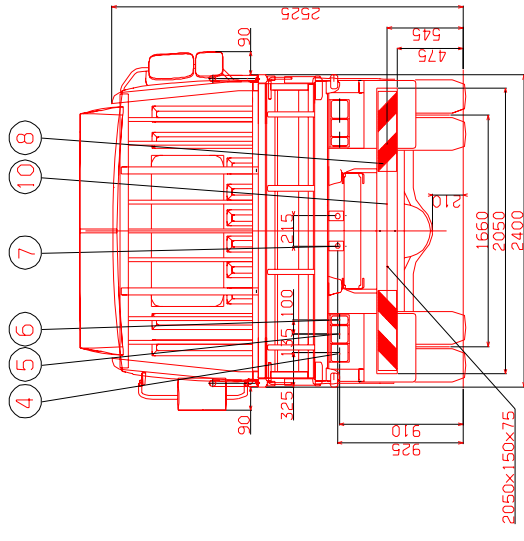
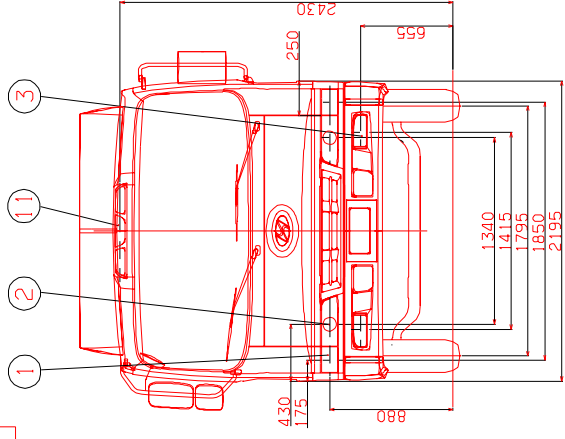
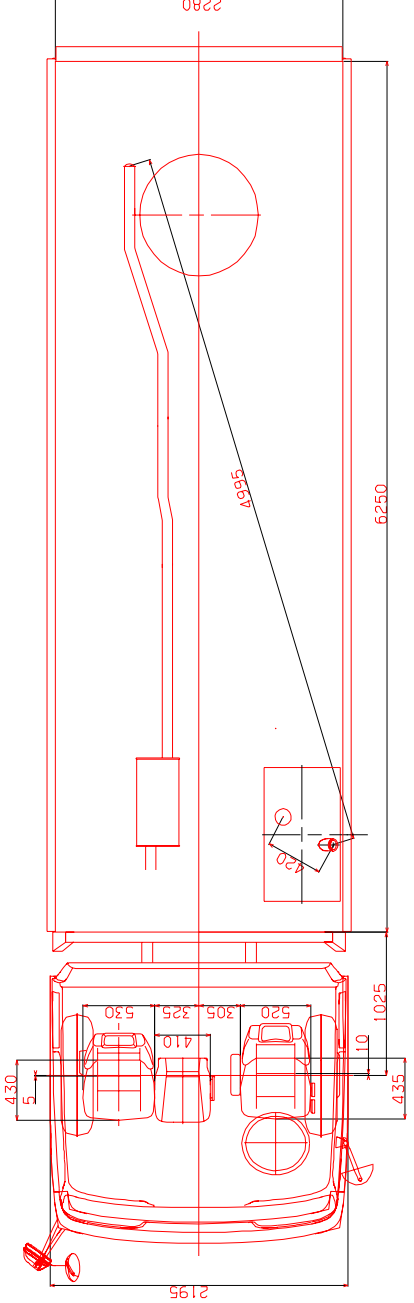
1	TURN SIGNAL LAMP	5	TAIL LAMP, STOP LAMP	10	REAR SAFETY GUARD
2	CORNERING LAMP	6	BACK-UP LAMP	11	SPEED INDICATE LAMP
3	HEAD LAMP, PARKING LAMP	7	LICENCE PLATE LAMP		
4	FOG LAMP	8	REFLEX REFLECTOR		
		9	SIDE TURN SIGNAL		



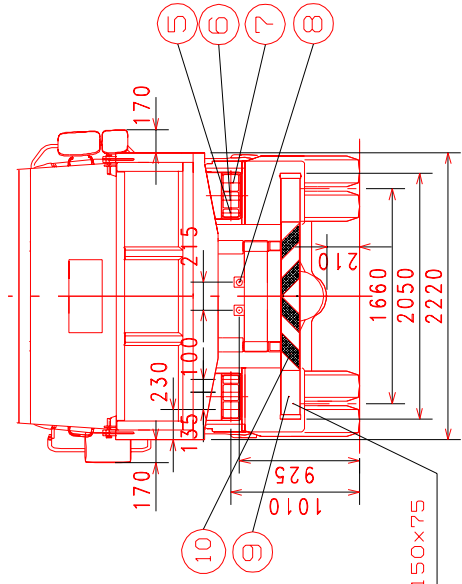
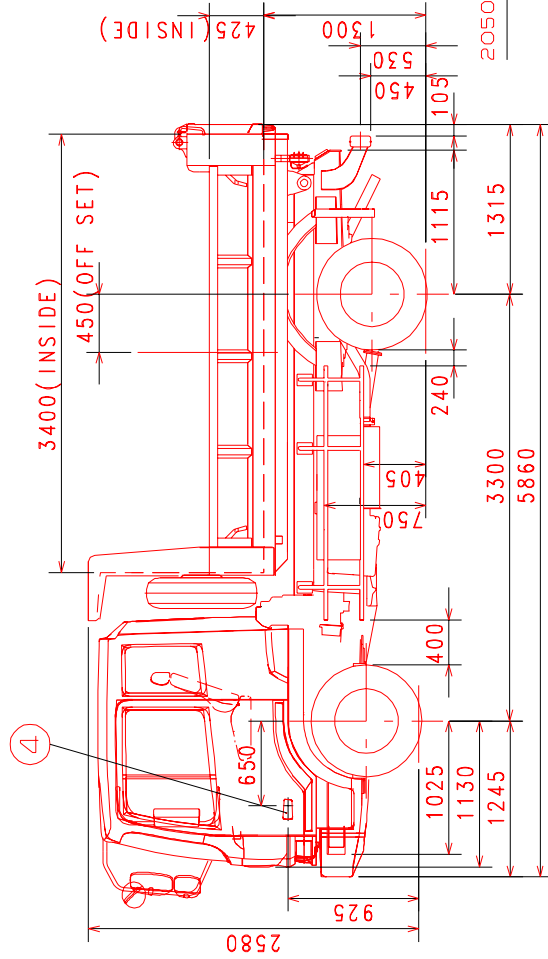
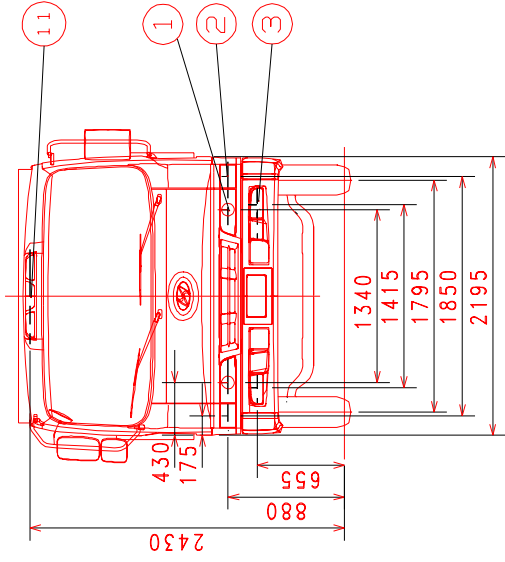
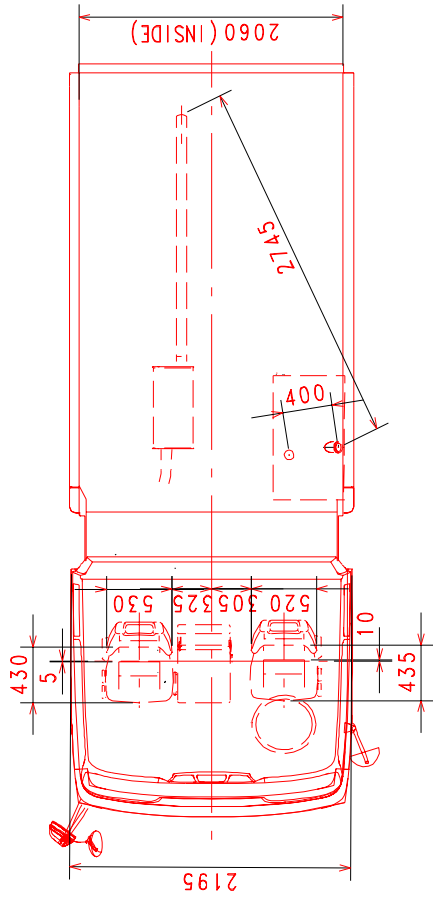
HYUNDAI HD120 (D6BR) CARGO TRUCK (LONG WHEEL BASE)

W.B: 4260mm

1	TURN SIGNAL LAMP	5	TAIL LAMP, STOP LAMP	10	REAR SAFETY GUARD
2	CORNERING LAMP	6	BACK-UP LAMP	11	SPEED INDICATE LAMP
3	HEAD LAMP, PARKING LAMP	7	LICENCE PLATE LAMP		
4	FOG LAMP	8	REFLEX REFLECTOR		
	TURN SIGNAL LAMP	9	SIDE TURN SIGNAL		



HYUNDAI HD120 (D6BR) CARGO TRUCK (EXTRA-LONG WHEEL BASE) W.B: 4895mm



11	SPEED INDICATE LAMP
10	REFLEX REFLECTOR
9	REAR SAFETY GUARD
8	LICENCE PLATE LAMP
7	TURN SIGNAL LAMP
6	TAIL&STOP LAMP
5	BACK-UP LAMP
4	S/TURN SIGNAL LAMP
3	FOG LAMP
2	CORNERING LAMP
1	TURN SIGNAL LAMP
	PARKING LAMP
	HEAD LAMP
NO	NAME

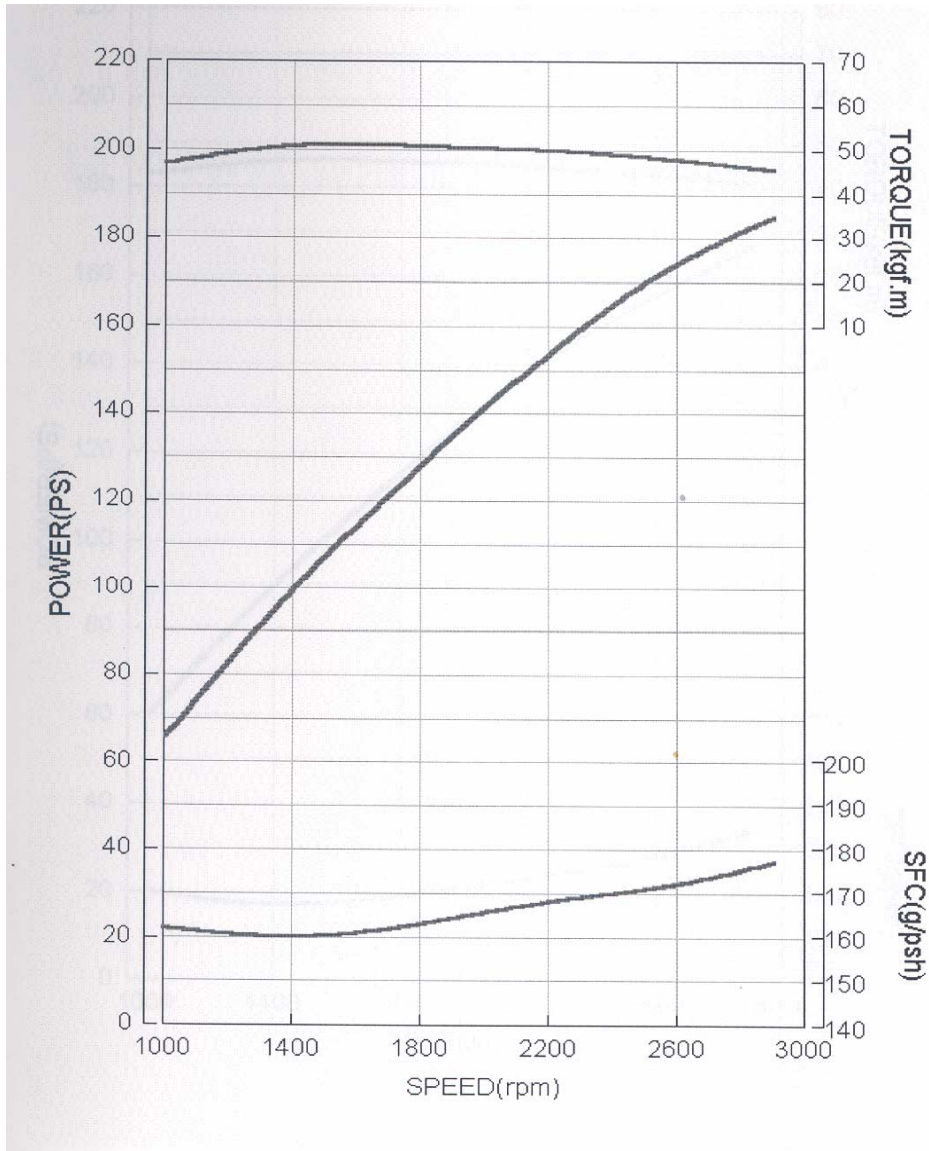
HYUNDAI HD120(D6BR) DUMP TRUCK

W.B: 3300mm

## 4. ENGINE PERFORMANCE CURVE

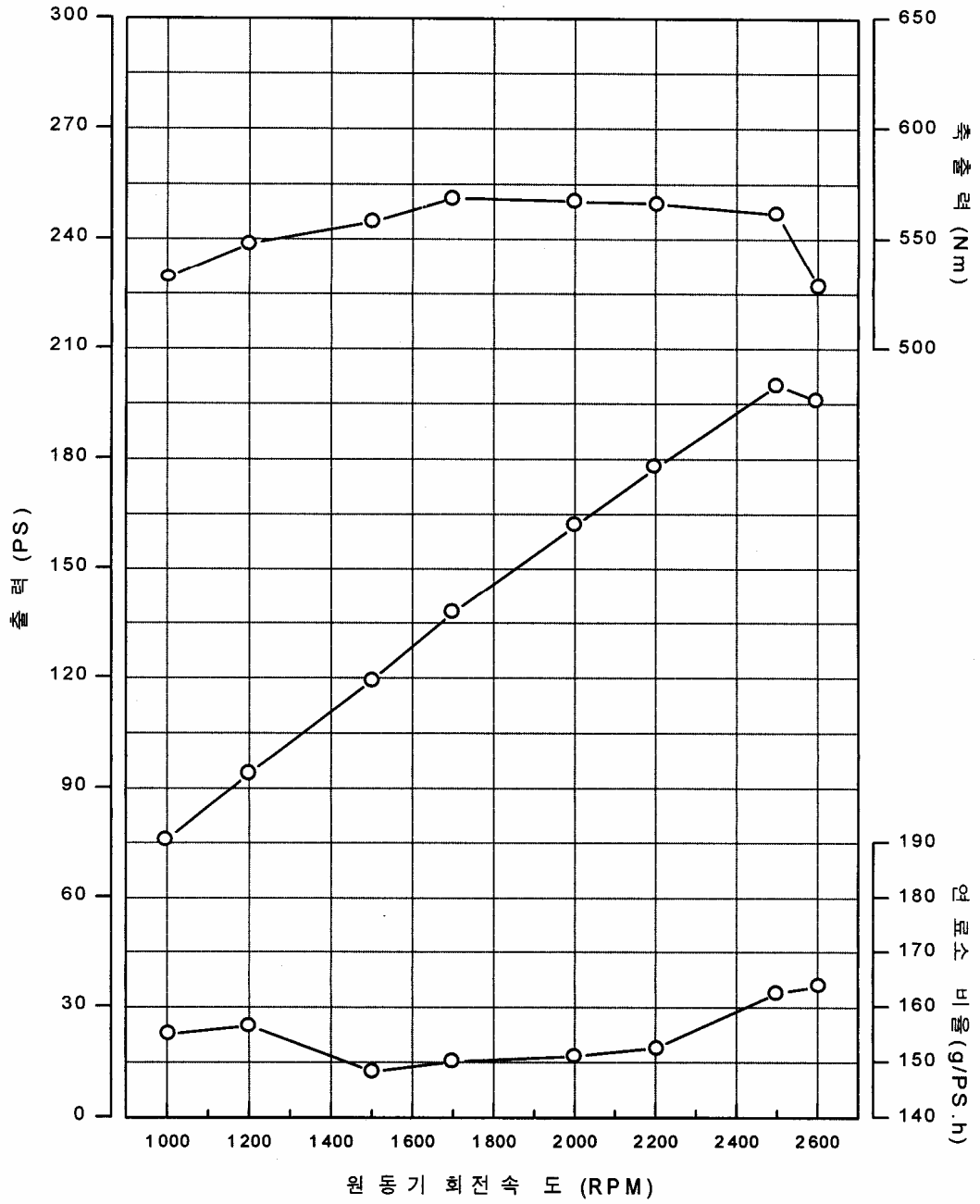
#### 4. ENGINE PERFORMANCE CURVE

(1) D 6 B R

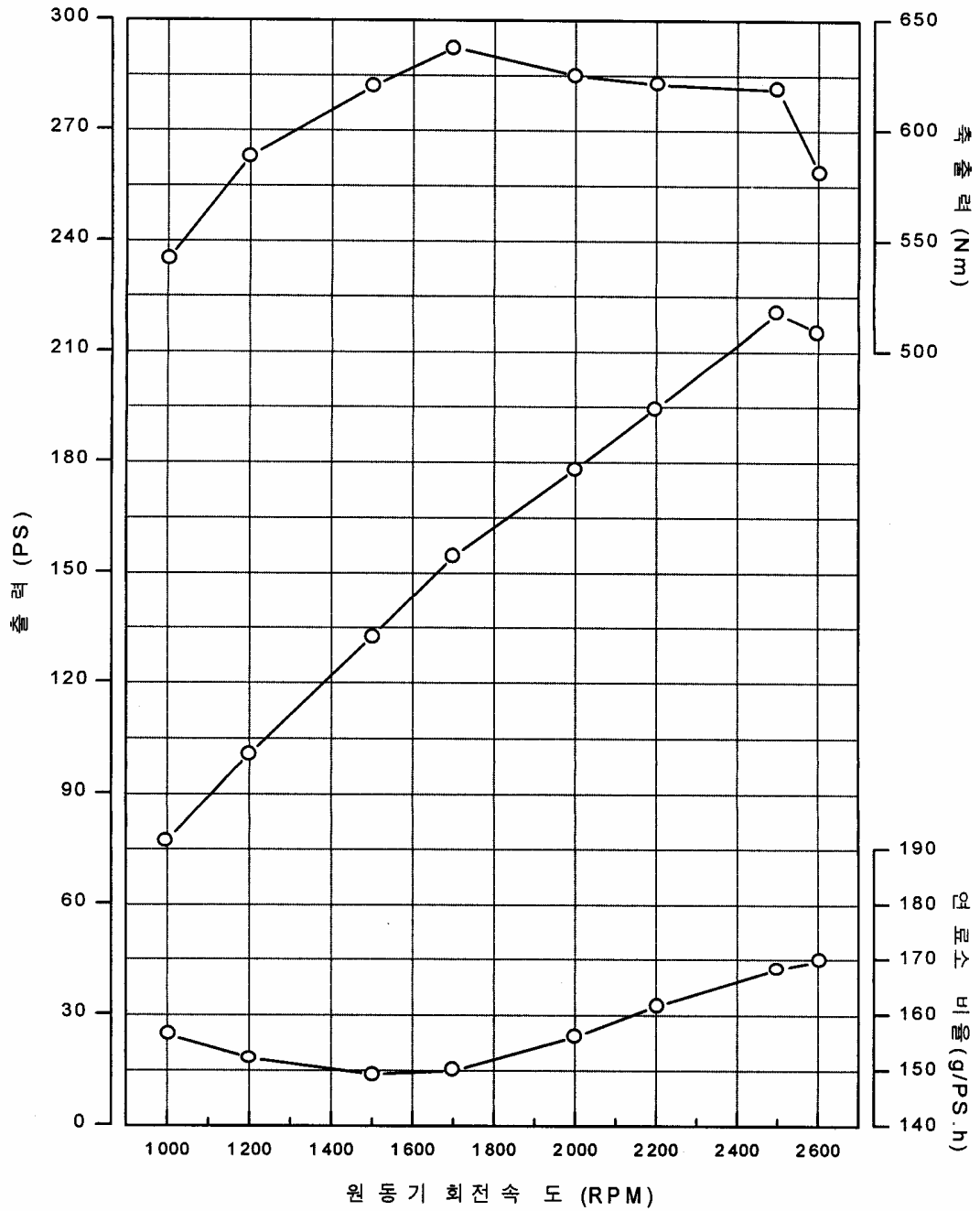




2) KK-TCI (LOW HORSE POWER)



3) KK-TCI (HIGH HORSE POWER)



## 5. CAUTIONS REGARDING INSTALLATION MODIFICATION OR ALTERATION

## 5-1. Cautions needed for the front structure of the rear body

The structure of the front area of the rear body in relation to front wheel tires, exhaust pipe, cab and intake duct should be installed carefully as the followings.

(1) Move of the cab and the intake duct

In case of applying the floating cab mounting, be free from interference with the cab and the intake duct. Make reference to the appendix drawing for the moving range of the cab and the intake duct.

(2) Sub frame

As the forward area of the sub frame is near exhaust pipe, be careful not to take fire by adding a protector to the outside of the sub frame. Also the ground clearance of the rear body floor and the height of fender should be more than 50mm from tires. Make reference to BODY BUILDER DRAWING for a rising quantity of tires. If the height of sub frame is low, as strength drops, use the steel sub frame surely in using the sub frame less than standard height. Make reference to the paragraph 2-2-4, COMMON BOOK of BODY BUILDER BOOK for dimension of the steel frame.

(3) Foremost cross bearer

As it nearby exhaust pipe, use steel instead of wood. Also make sure that there is a space of detaching transmission.

(4) Projecting relation of the upper side of transmission and chassis frame

As harness connector and the sensor of gear shift unit are on the upper side of transmission, be free from ascending the upper side of transmission.



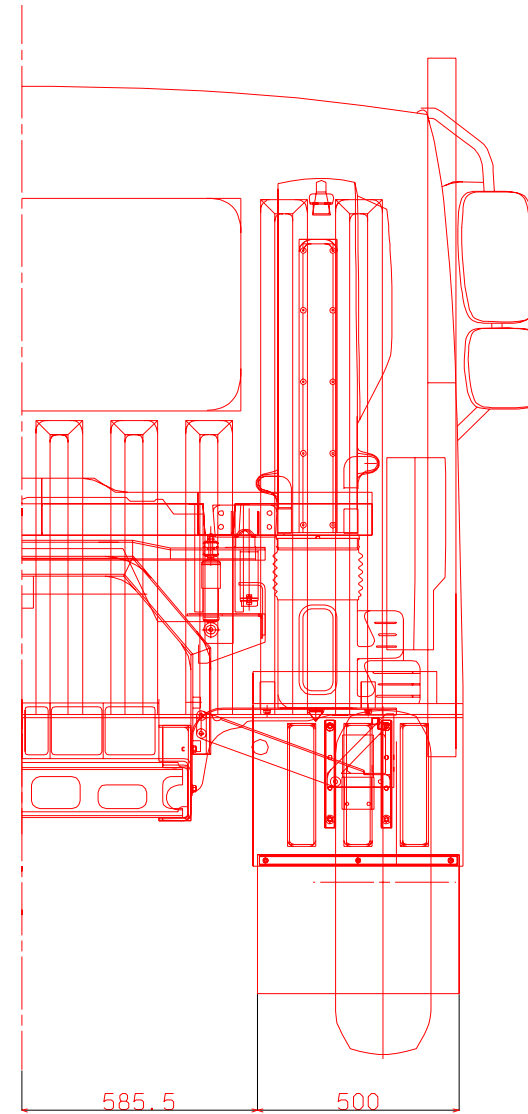
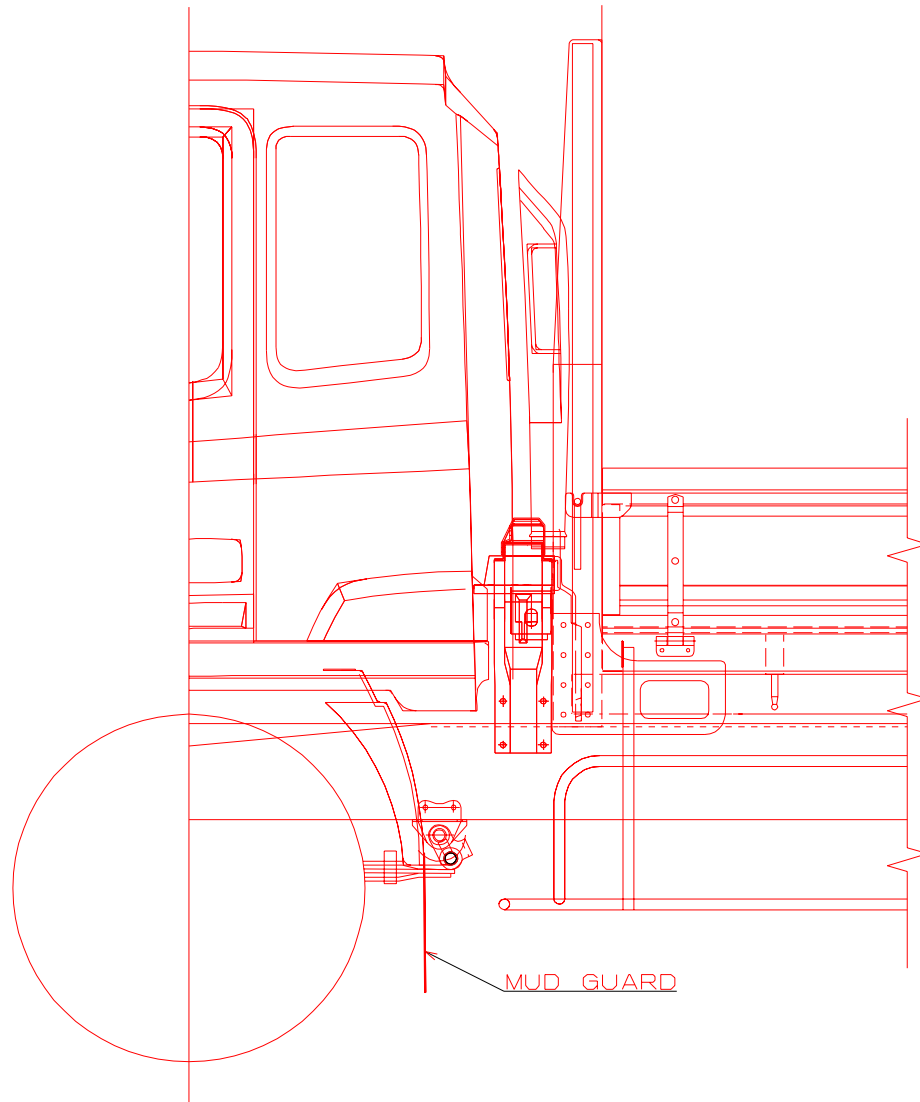
(5) Object for stain prevention between cab and rear body

Install a object for stain prevention between cab and rear body figure to prevent stain by front forward wheels as the appendix drawing.

(6) Front and rear wheel fender

Make reference to the appendix drawing for the height of fender and mudguard. Also make reference to the paragraph 2-2-5, COMMON BOOK of BODY BUILDER BOOK.

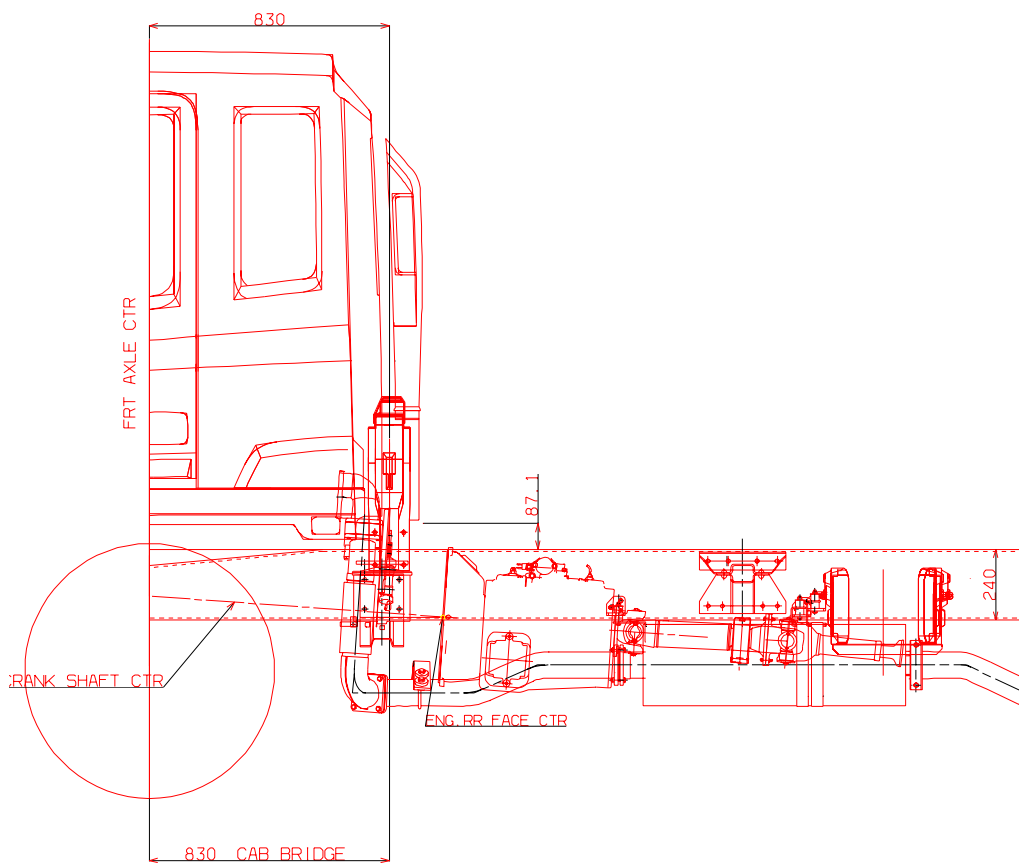
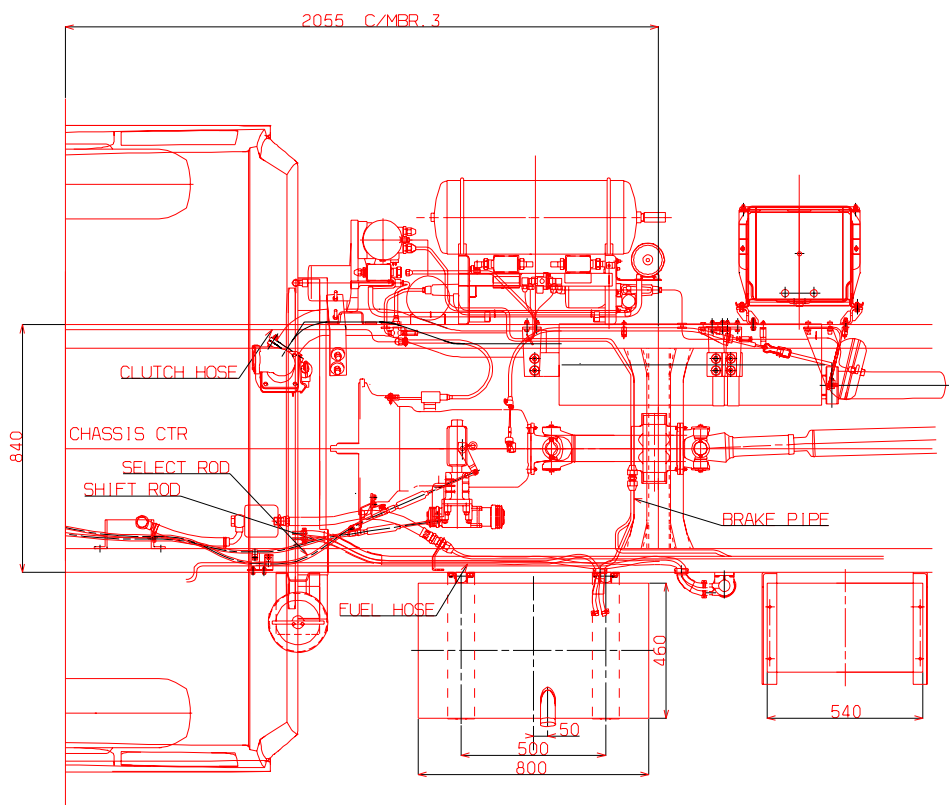
\* ) REFERENCE DRAWING OF MUD GUARD

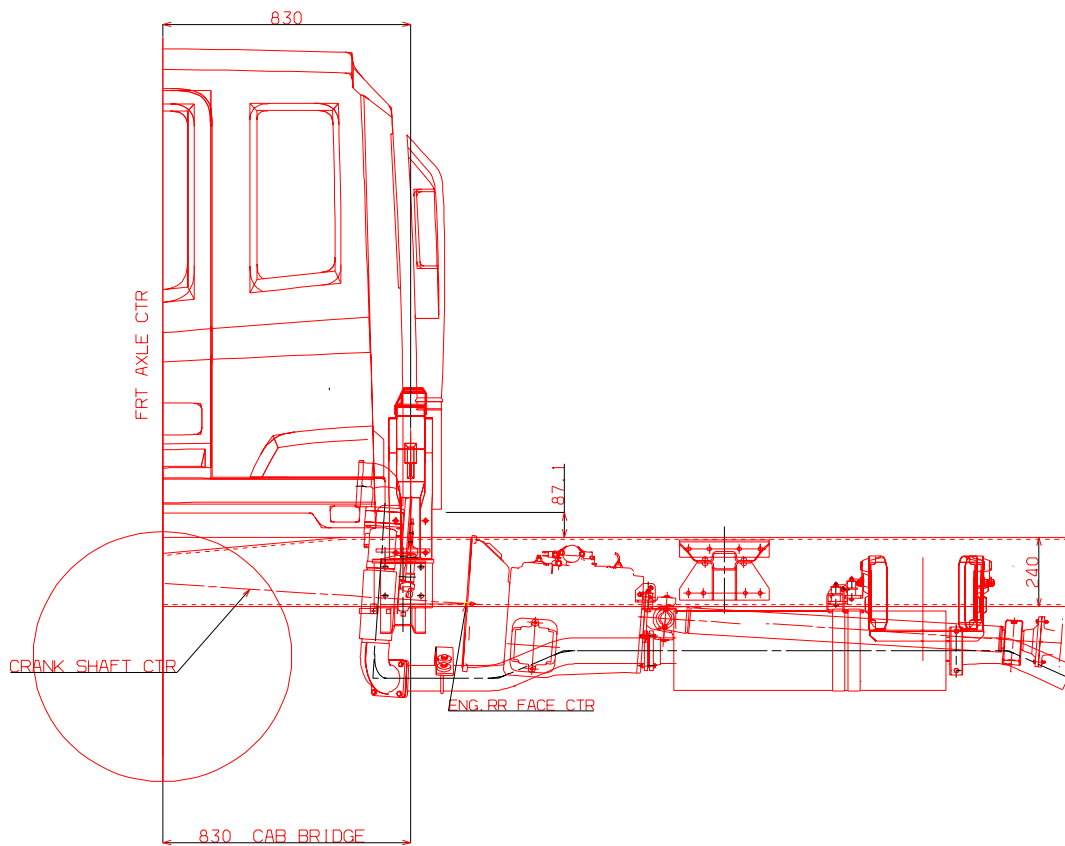
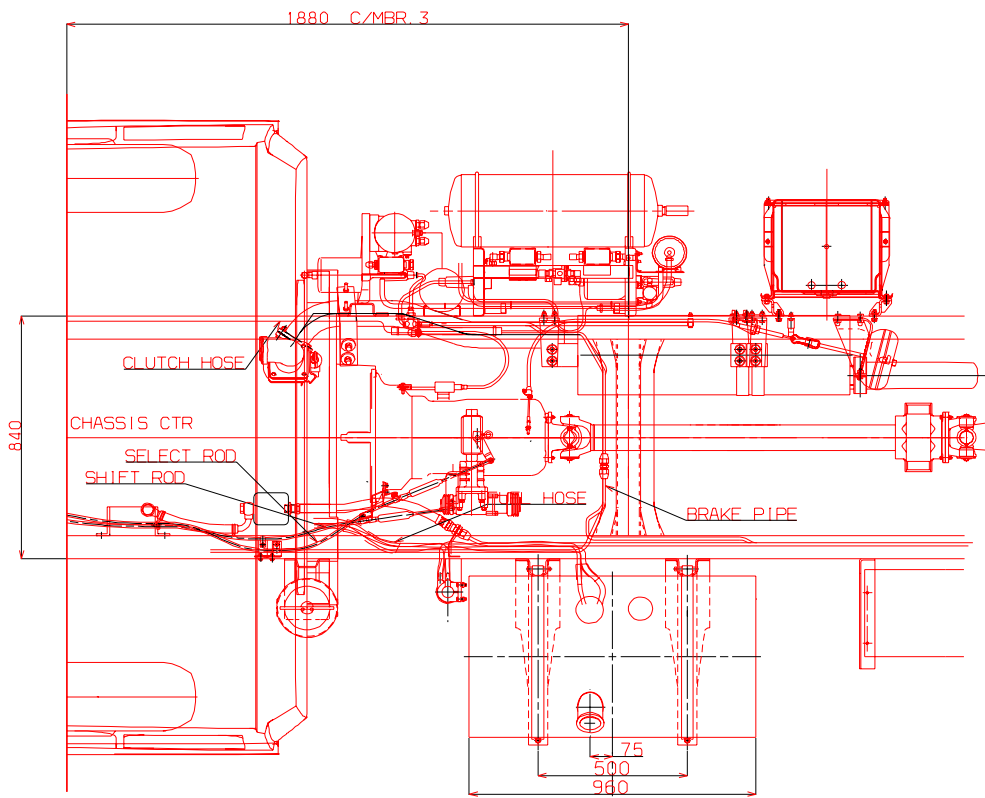


## 5-2. Cautions needed for fastening U-bolt

In case of fastening U-bolt between the cab rear and No.3 cross member, refer to the appendix drawing of U-bolt installation.

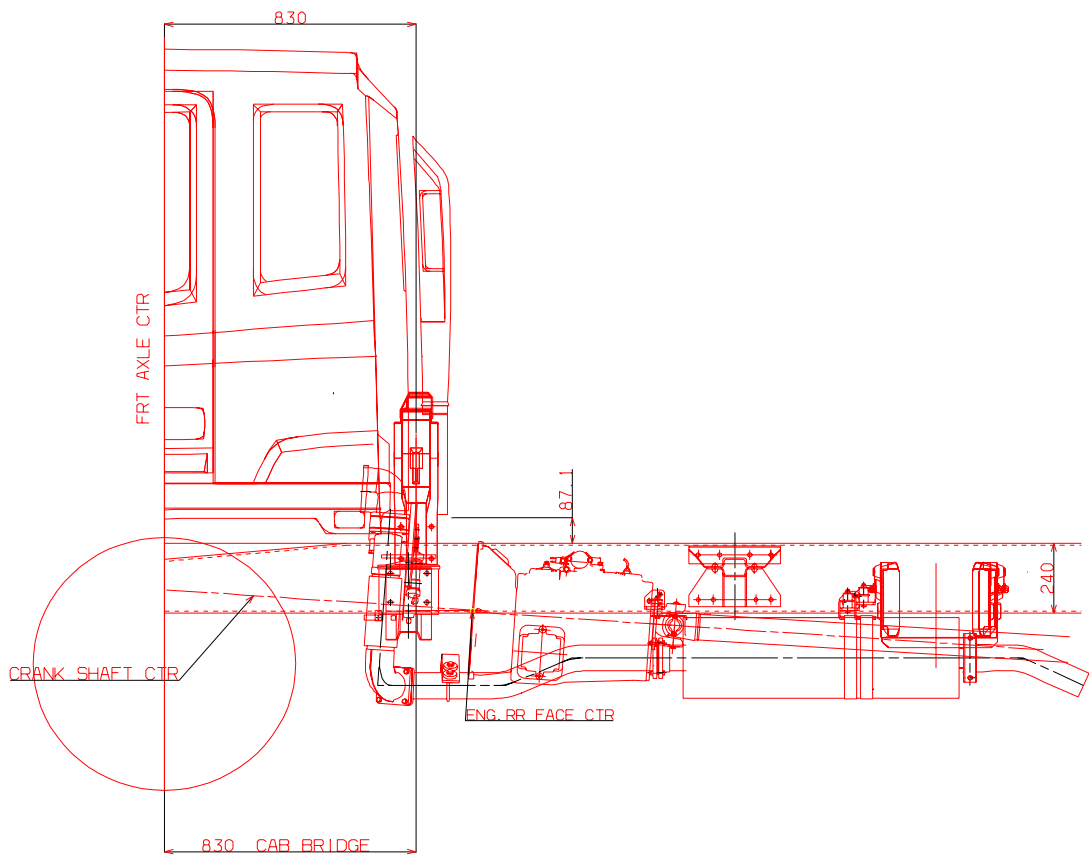
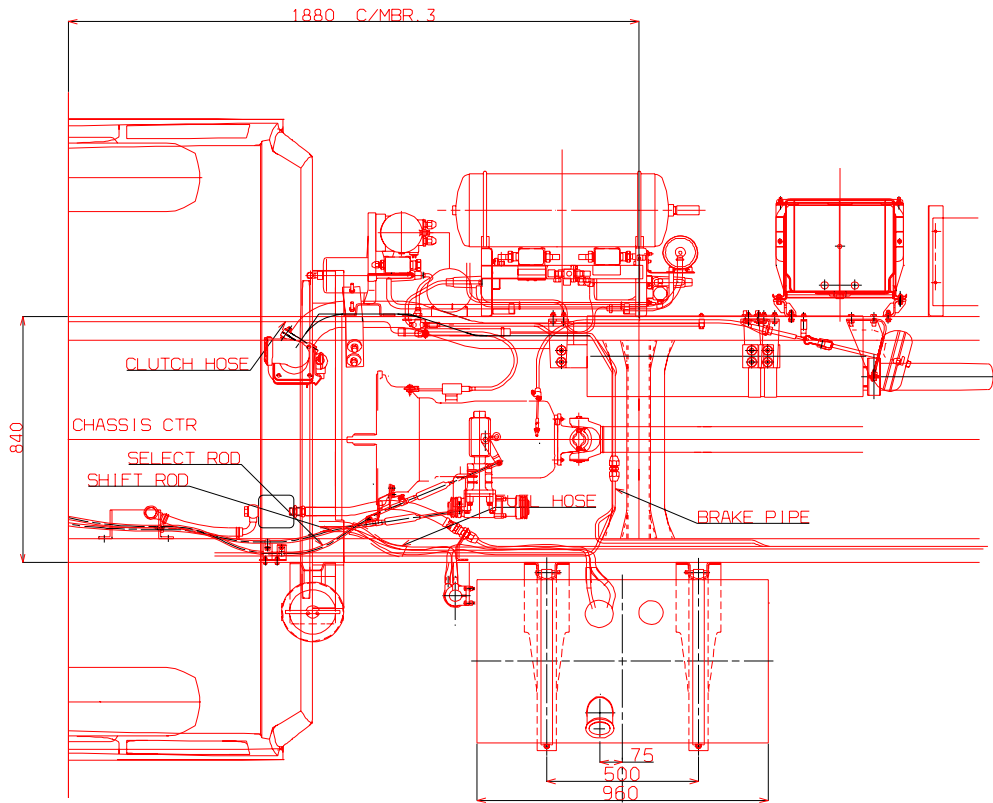
(1) REFERENCE DRAWING OF U-BOLT INSTALLATION



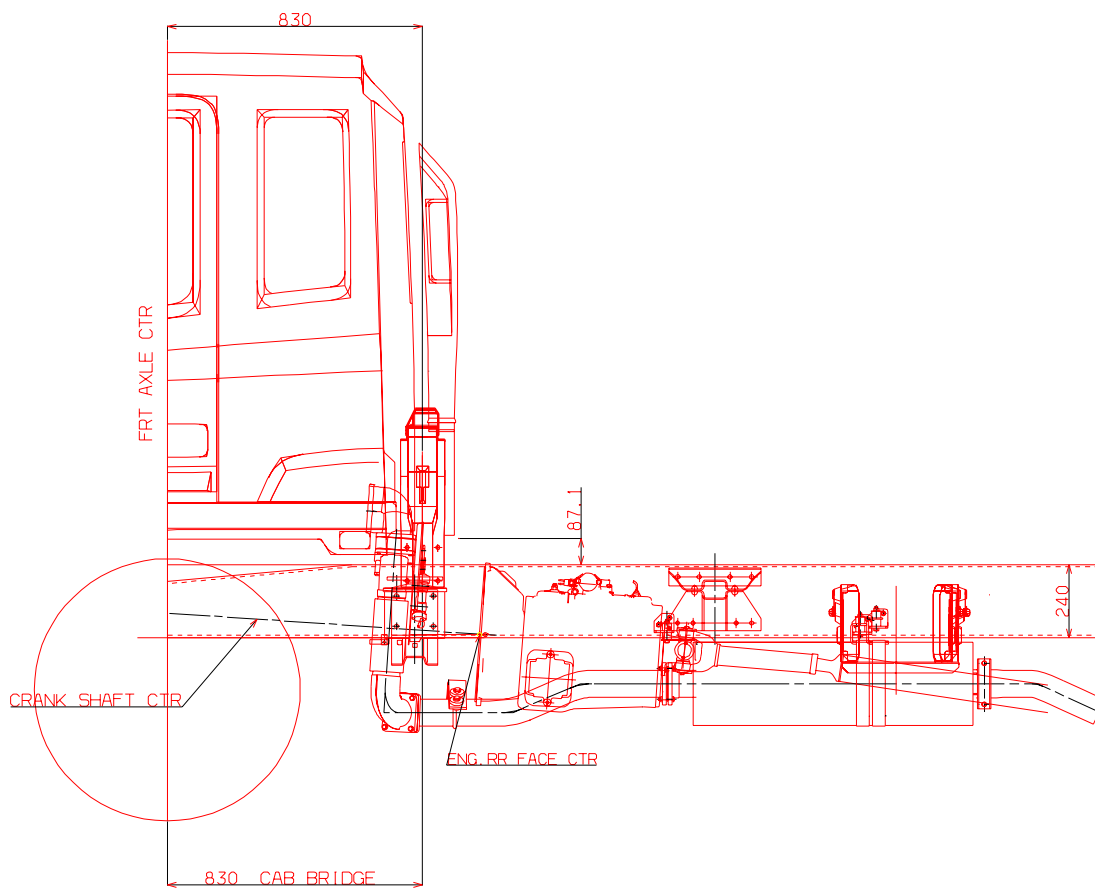
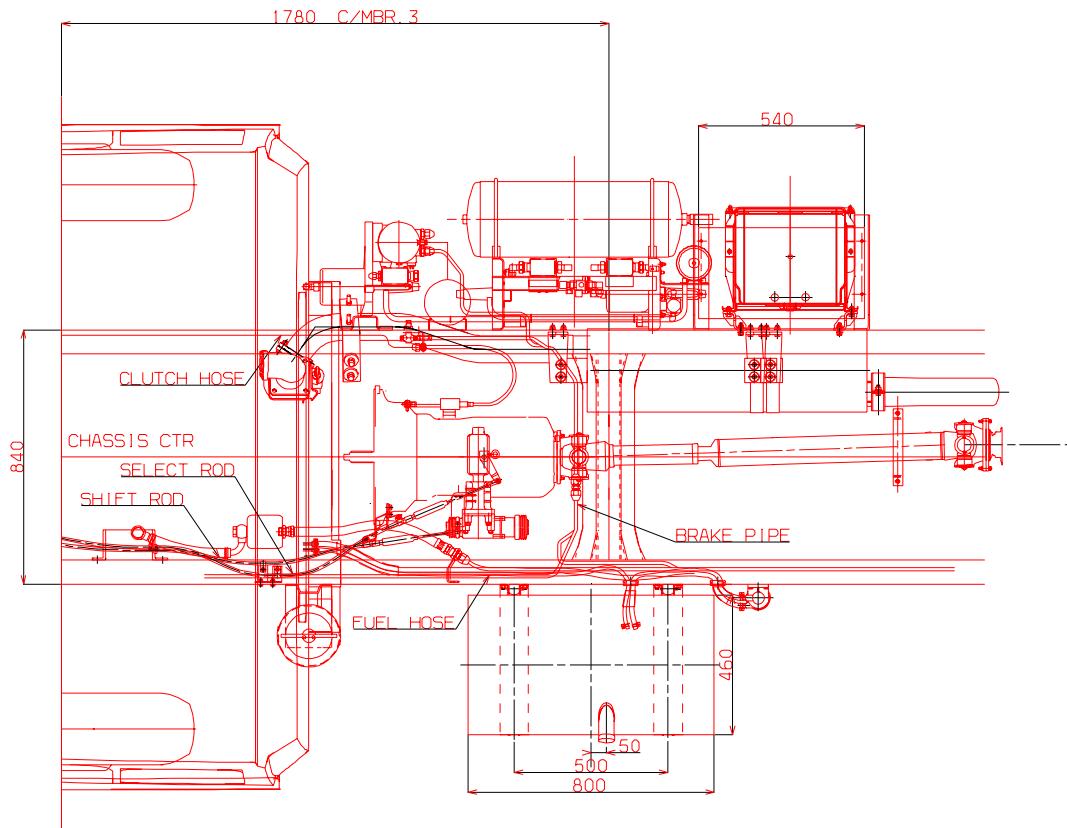


HD120 LONG CARGO





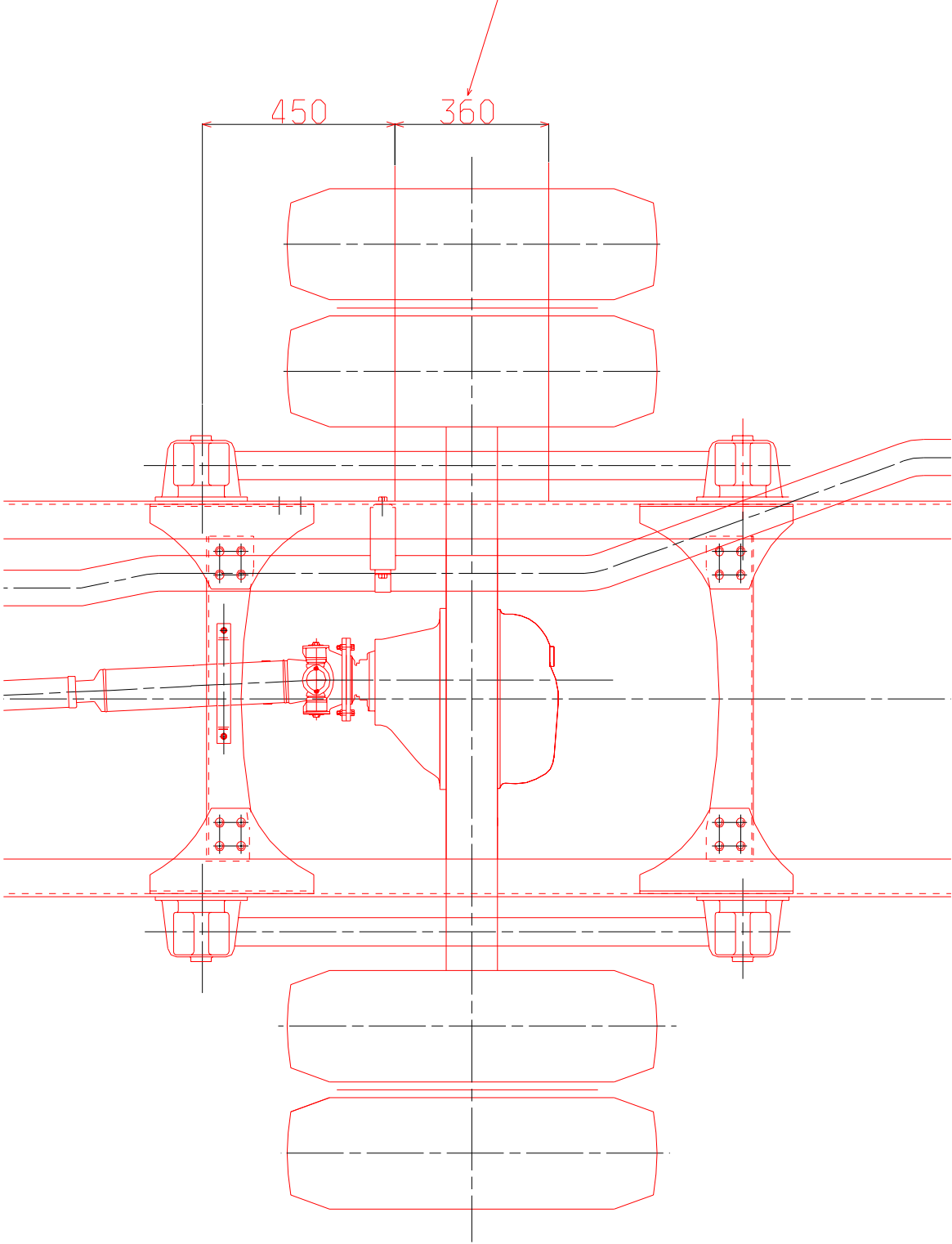
HD120 E-LONG CARGO



HD120 DUMP

(2) REAR AXLE AREA

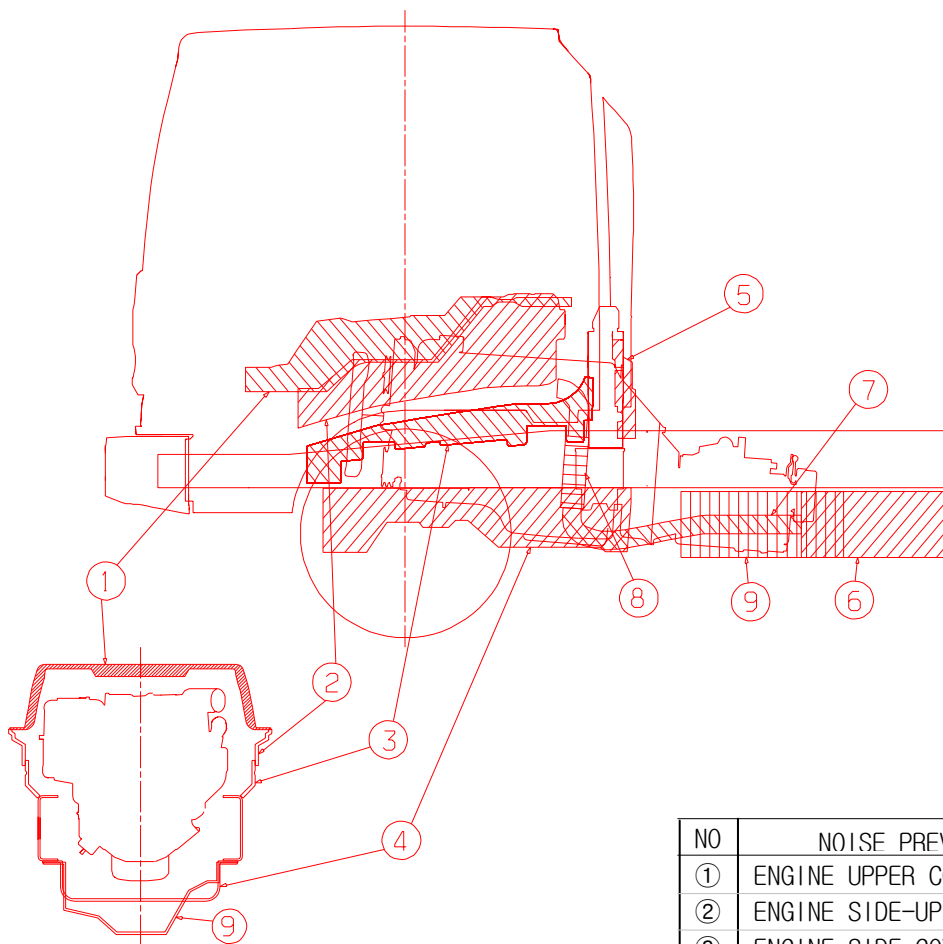
DO NOT INSTALL 'U'-BOLT IN THIS AREA(LH/RH)



### 5-3. Noise prevention parts

Don't modify or alterate noise prevention parts, which conform to the noise regulations. But in an unavoidable case, please contact with HMC. Also in case detaching noise prevention parts when installing or modifying them, be sure to install them as ever again after finishing installation or modification.

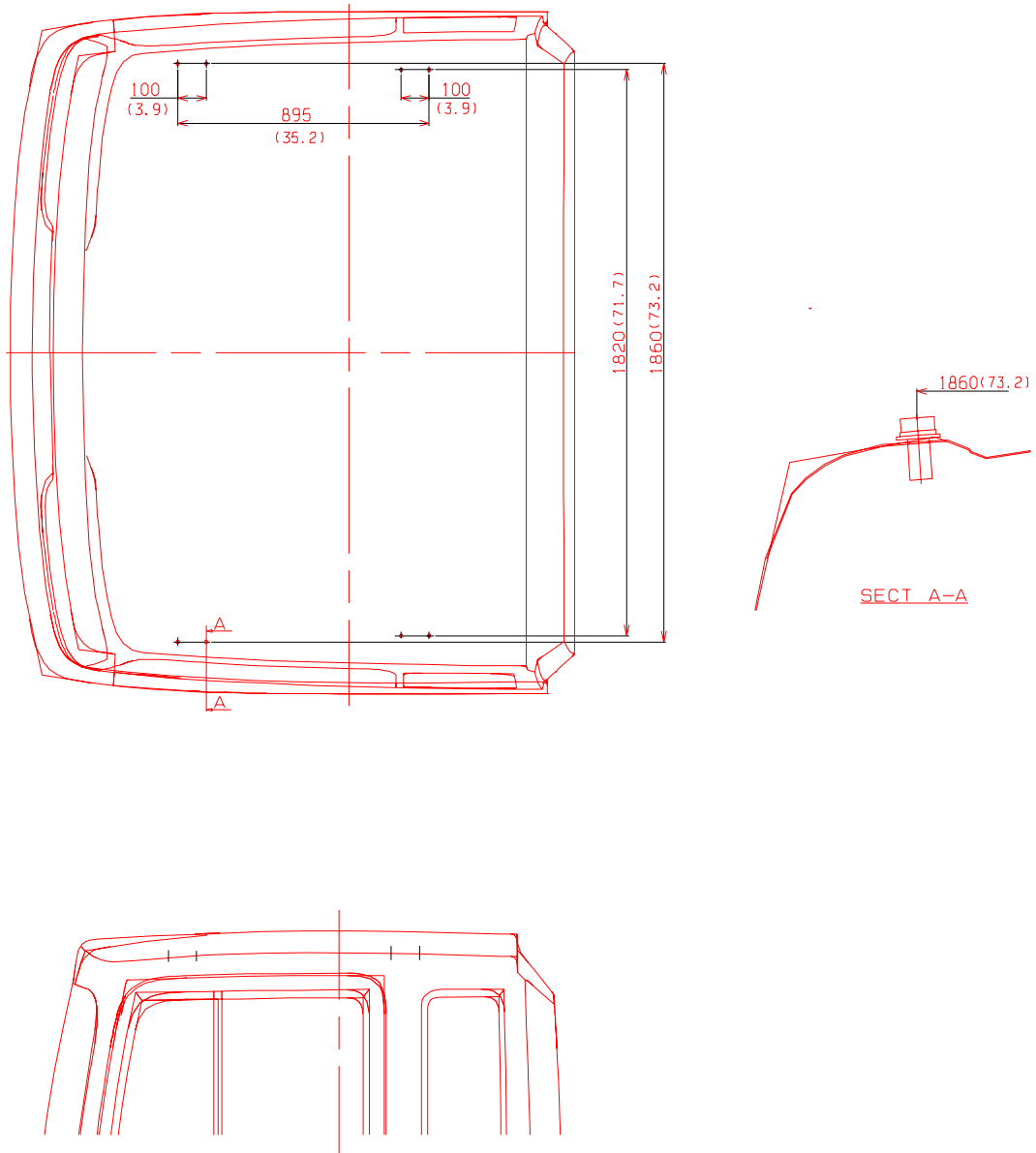
Position describing drawing of noise prevention parts.



NO	NOISE PREVENTION PARTS
①	ENGINE UPPER COVER INSULATOR
②	ENGINE SIDE-UPPER INSULATOR
③	ENGINE SIDE COVER
④	ENGINE UNDER COVER
⑤	ENGINE REAR COVER
⑥	MUFFLER
⑦	MUFFLER PIPE
⑧	FLEXIBLE PIPE
⑨	T/M UNDER COVER

## 5-4. Installation or alteration on the roof

In case of installation or alteration on the roof, make reference to the paragraph 3-2-2, COMMON BOOK of BODY BUILDER BOOK.



## 6.WEIGHT AND FRAME INFORMATION

## 6-1 Permissible weight

### (1) Axle weight

			FRONT(kg)	REAR(kg)
D6BR	CARGO	HF*C-*R*	3,600	8,800
	DUMP	HF5D-*R*	↑	↑
KK-TCI	CARGO	HF*C-*L*	3,720	8,800
	DUMP	HF5D-*L*	↑	↑

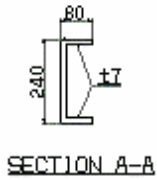
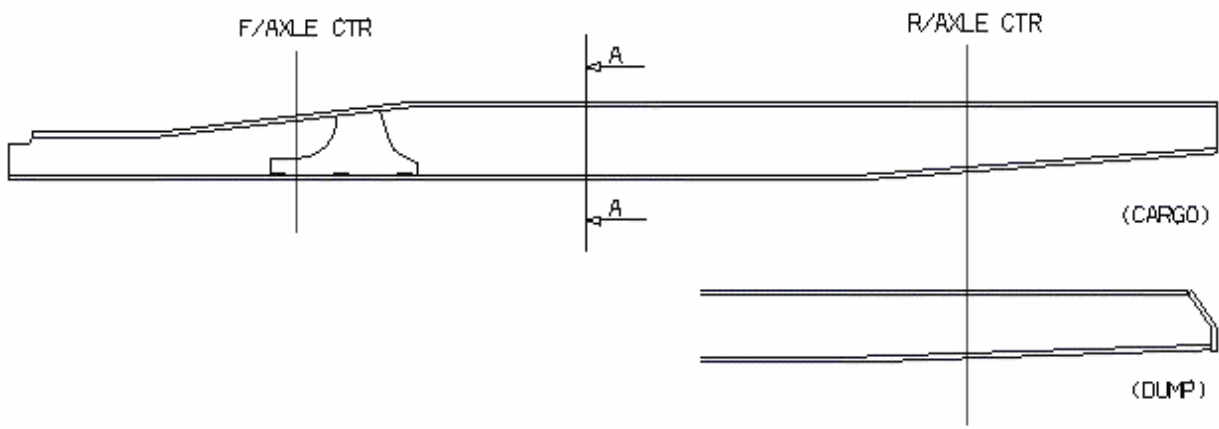
## 6-2 Tire specification

TIRE TYPE	LBS / PSI	PERMISSIBLE WEIGHT (Kg)	AIR PRESSURE (Kg/cm <sup>2</sup> )	EFF. RAD(mm)		OTR DIA.
				STATIC RAD.	DYNAMIC RAD.	
8.25R16-16PR	(S) 4220 / 114	1915	8.0	402	403	853 ~
	(D) 3715 / 114	1685	8.0	403	404	870
8.25R16-18PR	(S) 4320 / 115	1995	8.79	402	403	853 ~
	(D) 3800 / 115	1790	8.79	403	404	870
245/70R19.5-14PR	(S) 4540 / 105	2060	7.4	403	414	848 ~
	(D) 4300 / 105	1950	7.4	404	415	858

(S) : SINGLE, (D) : DOUBLE



# 6-3 FRAME MATERIAL & MAIN SECTION



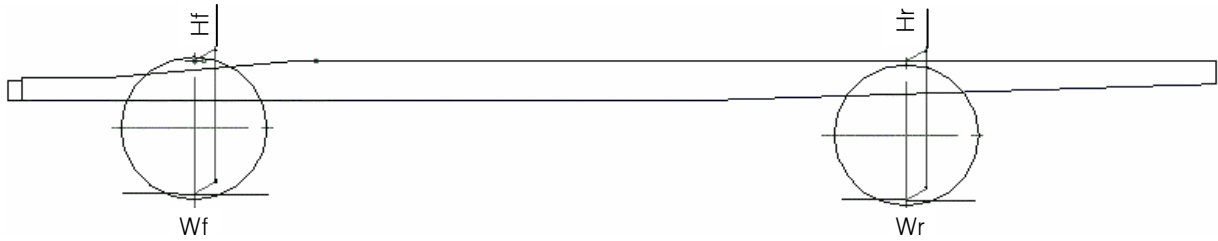
\*NOTE

- 1) FRAME MATERIAL : HIGH TENSILE PLATE  
TENSION STRENGTH : 55kg/mm<sup>2</sup>  
YIELD STRENGTH : 55kg/mm<sup>2</sup>

## 7.SUSPENSION CHARACTERISTICS

## 7. SUSPENSION CHARACTERISTICS

### 7-1 Formula of the frame ground height



MODEL	FRT/RR	TIRE TYPE	FORMULA(Hf/Hr)
HD120 SHORT(D6BR) (HF5C-SR)	FRONT	8.25R16-16PR	$H_f = -0.0284 \cdot W_f + 877 \pm 10$
	REAR	↑	$H_r = -0.0138 \cdot W_r + 873 \pm 25$
HD120 LONG(D6BR) (HF4.5C-LR)	FRONT	↑	$H_f = -0.0283 \cdot W_f + 876 \pm 10$
	REAR	↑	$H_r = -0.0134 \cdot W_r + 871 \pm 25$
HD120 E/LONG(D6BR) (HF5C-ER)	FRONT	↑	$H_f = -0.0283 \cdot W_f + 876 \pm 10$
	REAR	↑	$H_r = -0.0134 \cdot W_r + 884 \pm 25$
HD120 DUMP(D6BR) (HF5D-DR)	FRONT	8.25R16-18PR	$H_f = -0.0277 \cdot W_f + 882 \pm 10$
	REAR	↑	$H_r = -0.0139 \cdot W_r + 881 \pm 25$
HD120 SHORT(KK-TCI) (HF5C-SR)	FRONT	245/70R19.2-14PR	$H_f = -0.0285 \cdot W_f + 880 \pm 10$
	REAR	↑	$H_r = -0.0138 \cdot W_r + 874 \pm 25$
HD120 LONG(KK-TCI) (HF4.5C-LR)	FRONT	↑	$H_f = -0.0285 \cdot W_f + 882 \pm 10$
	REAR	↑	$H_r = -0.0134 \cdot W_r + 874 \pm 25$
HD120 E/LONG(KK-TCI) (HF5C-ER)	FRONT	↑	$H_f = -0.0285 \cdot W_f + 882 \pm 10$
	REAR	↑	$H_r = -0.0134 \cdot W_r + 886 \pm 25$
HD120 DUMP(KK-TCI) (HF5D-DR)	FRONT	↑	$H_f = -0.0264 \cdot W_f + 881 \pm 10$
	REAR	↑	$H_r = -0.0140 \cdot W_r + 882 \pm 25$

## 8. PTO CONTROL

## 8. P.T.O CONTROL

### 8-1. T/M P.T.O

#### (1) Use of genuine parts P.T.O

- 1) Unless otherwise provided for, be sure to use genuine parts.
- 2) Refer to appendix P.T.O ASSY drawing for details in using power.

#### (2) Use P.T.O other than genuine parts

A particular reason, when using P.T.O other than genuine parts, consult with HMC.

#### (3) Cautions regarding the propeller shaft driving P.T.O

- 1) Make sure that an angle of intersection of propeller shaft makes a solid angle be  $15^{\circ}$  MAX, and also the angle of intersection of the both ends of propeller shaft is the same.
- 2) As in driving, there is a displacement of about  $\pm 10$ mm (up and down, left and right) from the position of P.T.O outlet, take notice of an allowable angle of intersection of propeller shaft.
- 3) The direction of P.T.O output shaft is contrary to the direction of engine revolution.

#### (4) T/M P.T.O table

##### - M6S6 TM

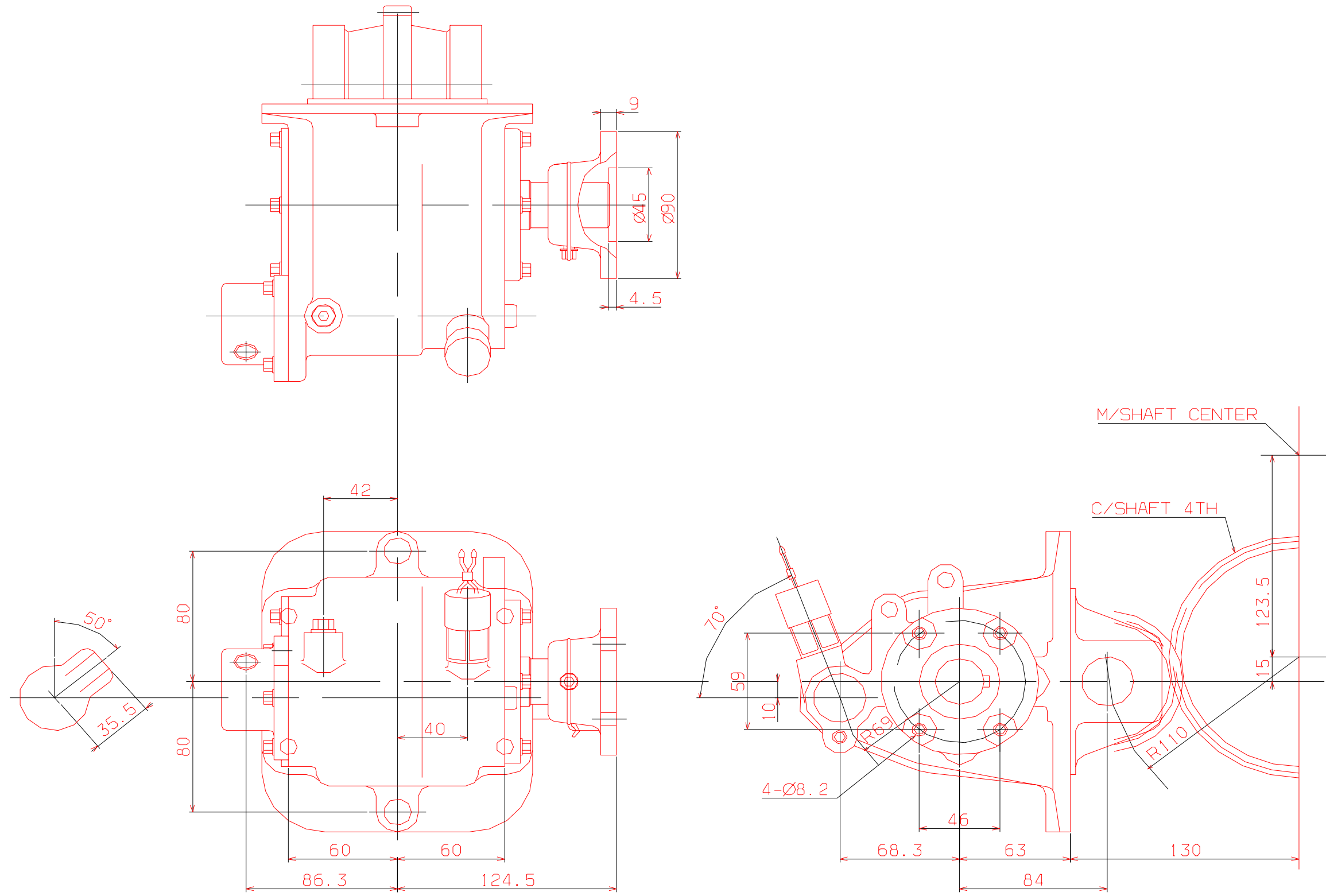
- 1) P.T.O TYPE : 47110-DS052
- 2) TORQUE : 25kg · m/1500rpm
- 3) TM & P.T.O GEAR RATIO : 23/43 X 37/23
- 4) SHIFT STROKE : 11mm
- 5) ALLOWABLE TORQUE : 4.1kg · m

##### - KH-10 TM

- 1) P.T.O TYPE : 47110-6A500
- 2) TORQUE : 25kg · m/1500rpm
- 3) TM & P.T.O GEAR RATIO : 1.046(38/20x18/31x17/18)
- 4) ROTATION : CLOCKWISE FROM REAR VIEW

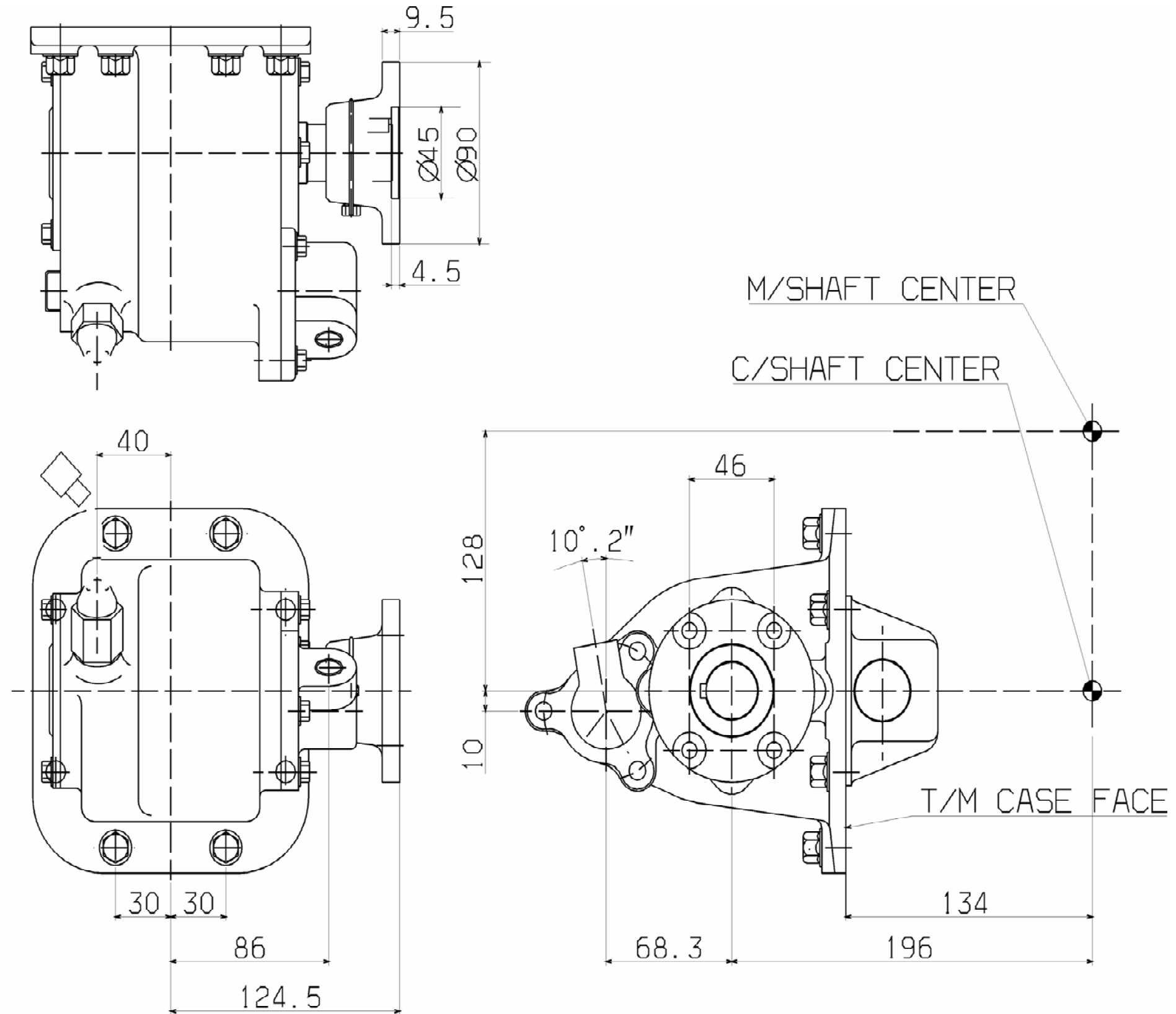
\*TRANSMISSION P.T.0

- P.T.0 TYPE : 47110-DS052



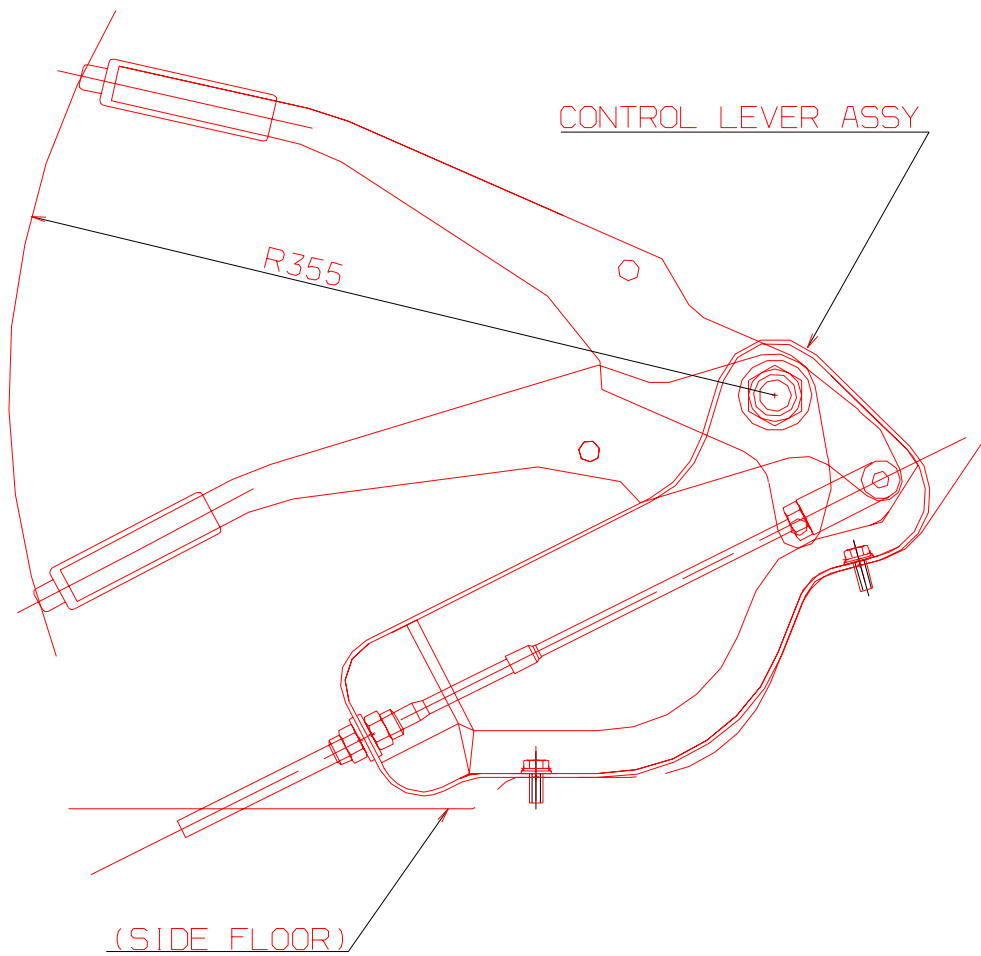
\*TRANSMISSION P.T.0

- P.T.0 TYPE : 47110-6A500



8-2. DUMP CONTROL LEVER

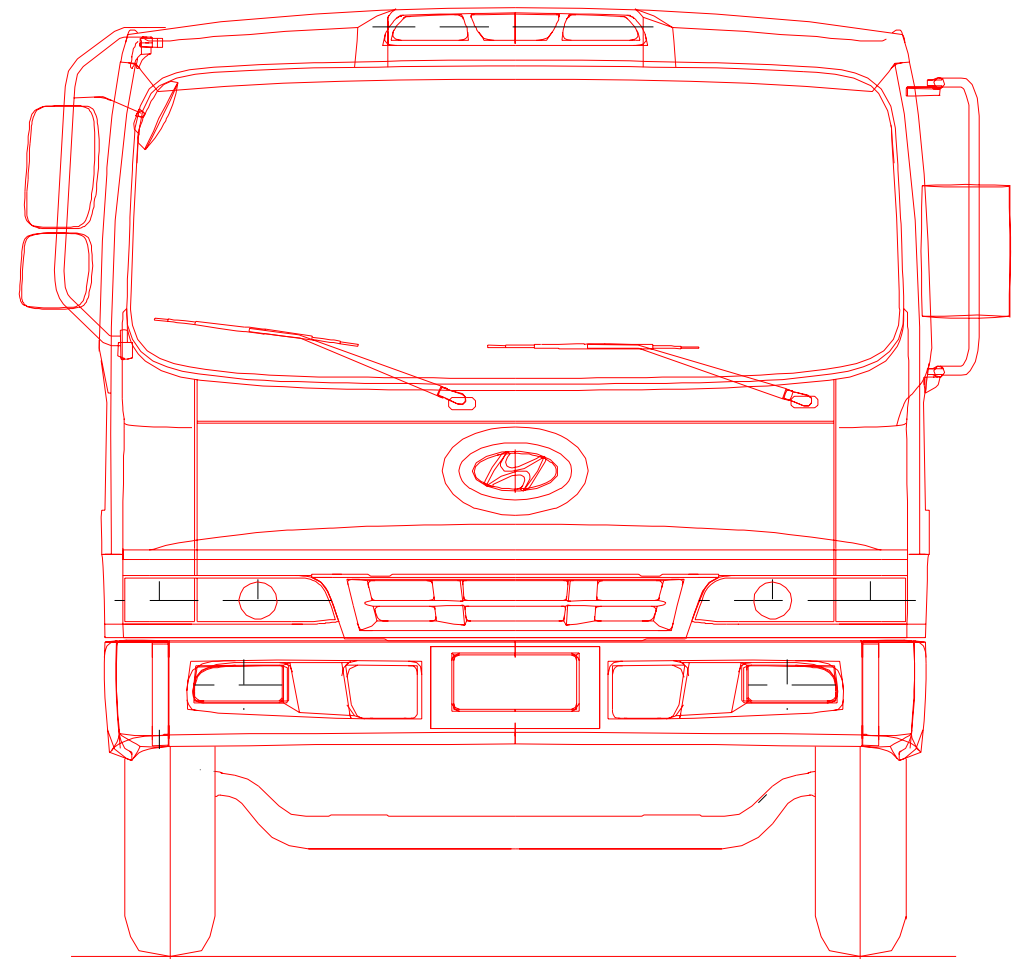
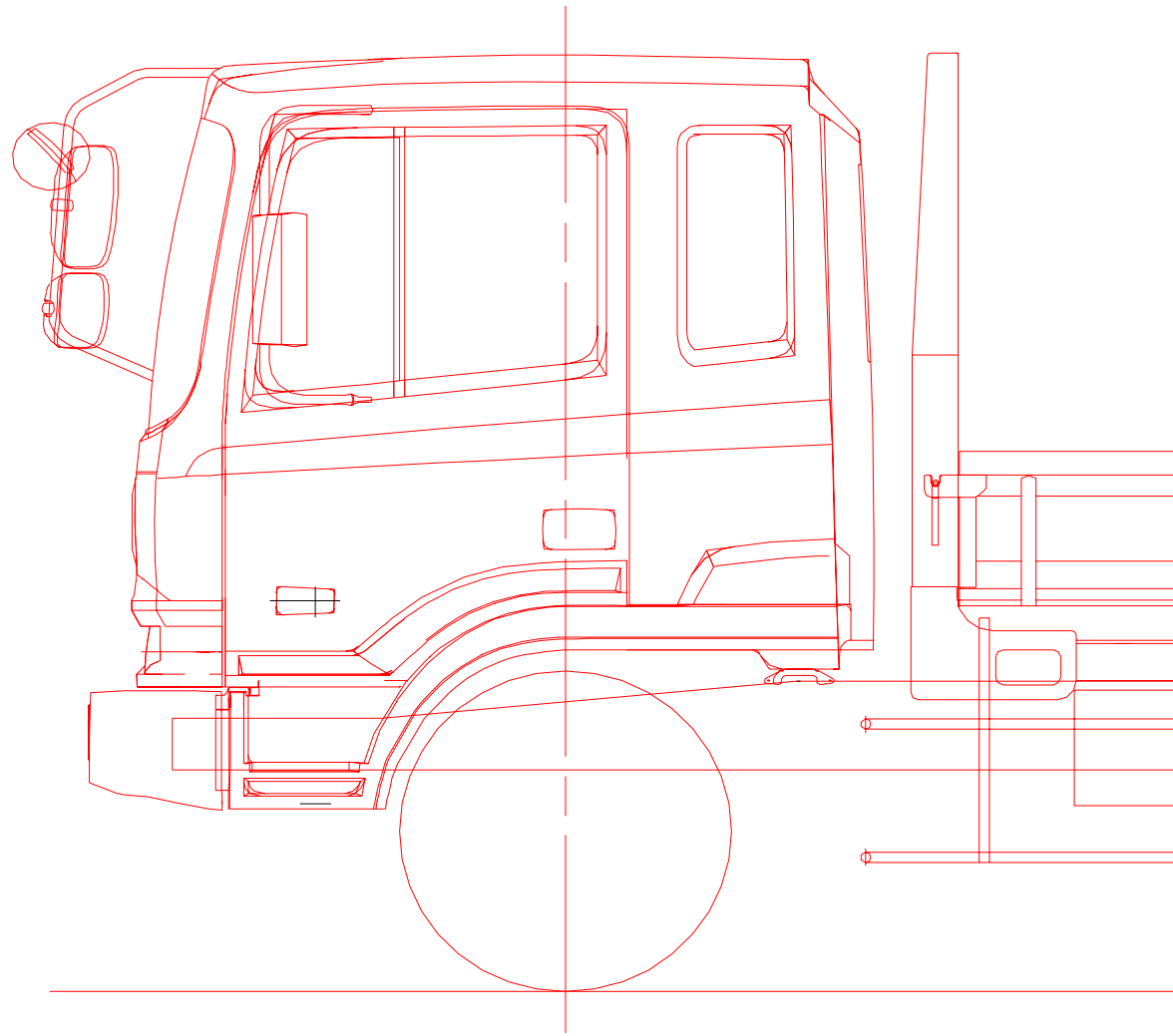
VEHICLE : HD120 DUMP





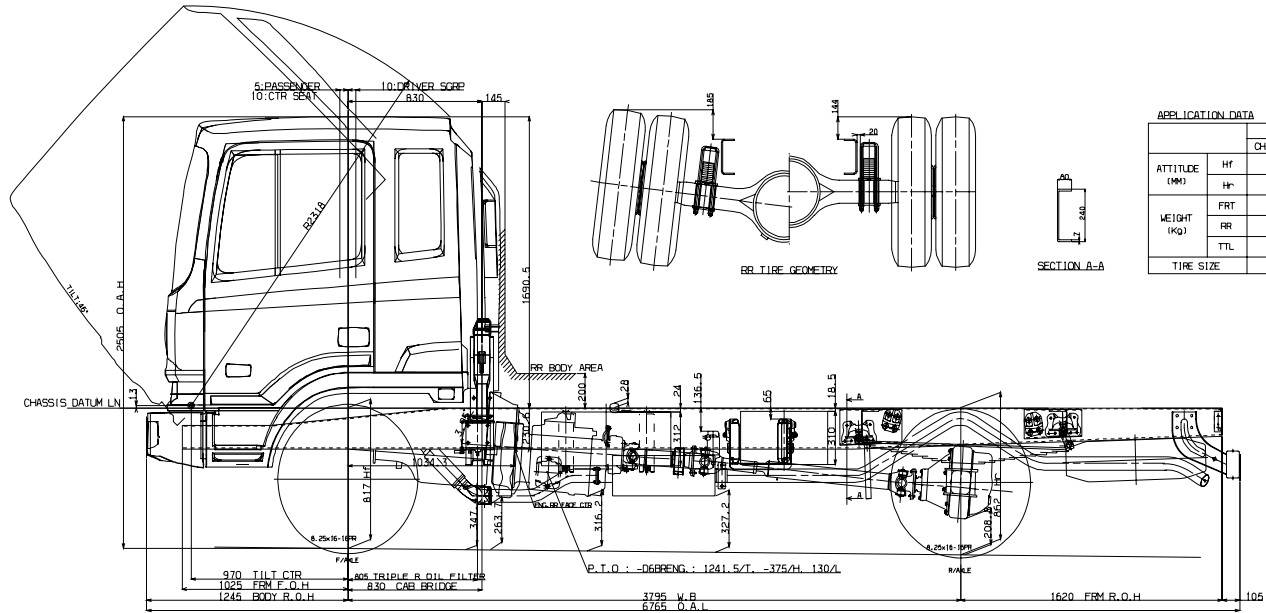
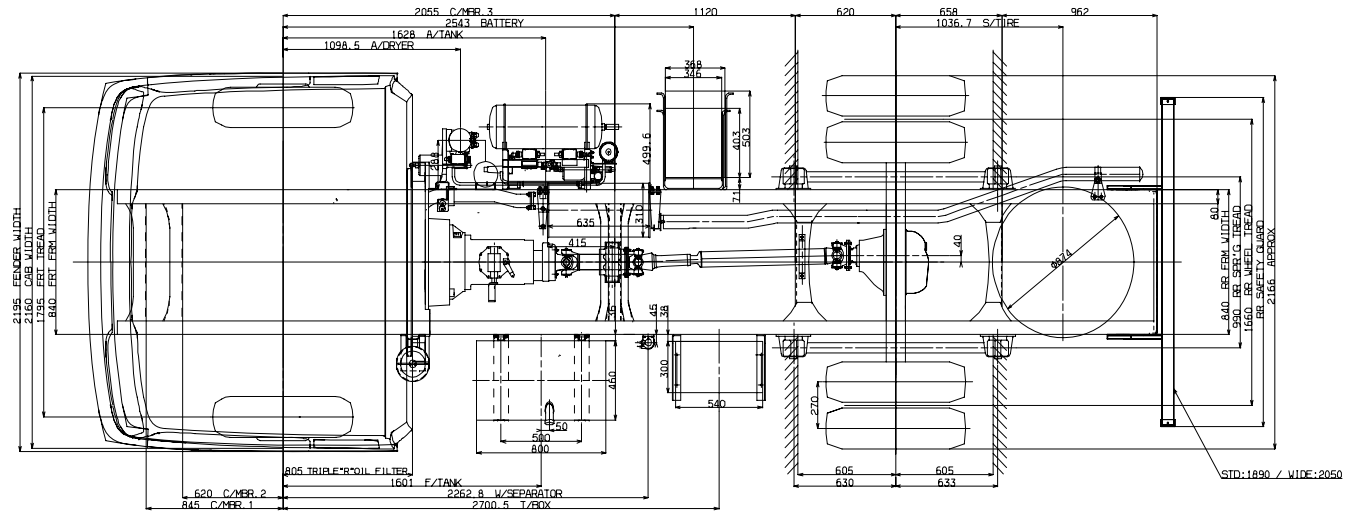
## 9. EXTERIOR DRAWING OF THE CAB

9. EXTERIOR DRAWING OF THE CAB



## 10. CHASSIS FRAME DRAWING

# 10-1. CHASSIS CAB DETAIL DRAWING



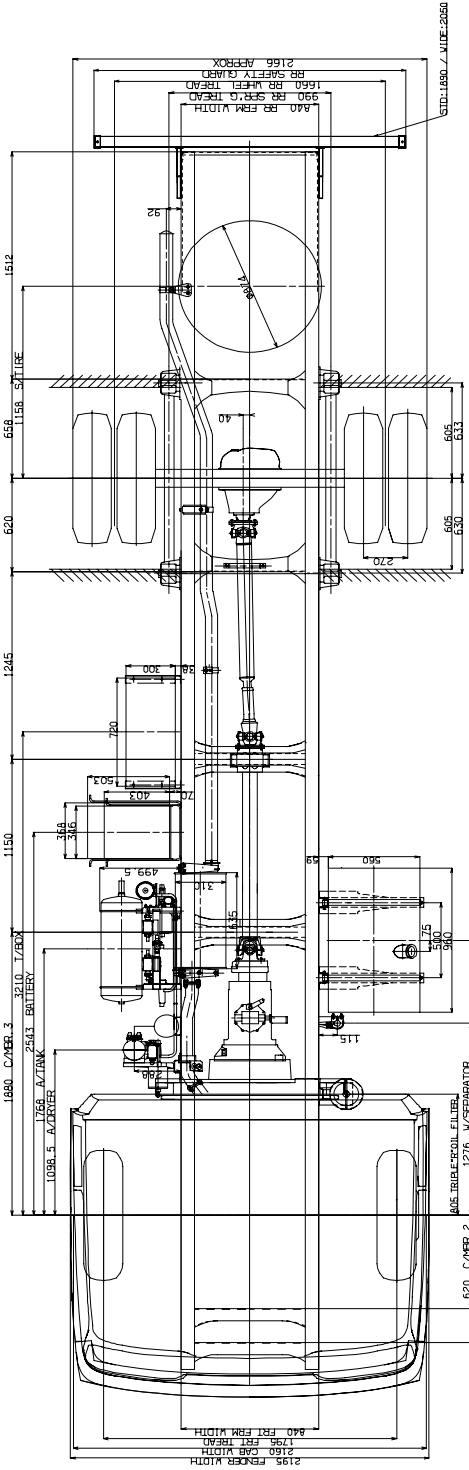
APPLICATION DATA

		DGBR (SHORT)	
		CHASSIS-CAB	MAX G.V.V
ATTITUDE	HF	817	-
	Hh	862	-
WEIGHT (KG)	FRT	2270	3600
	RR	1300	6740
	TTL	3570	10340
TIRE SIZE	8.25R16-16PR		

HYUNDAI MOTOR COMPANY

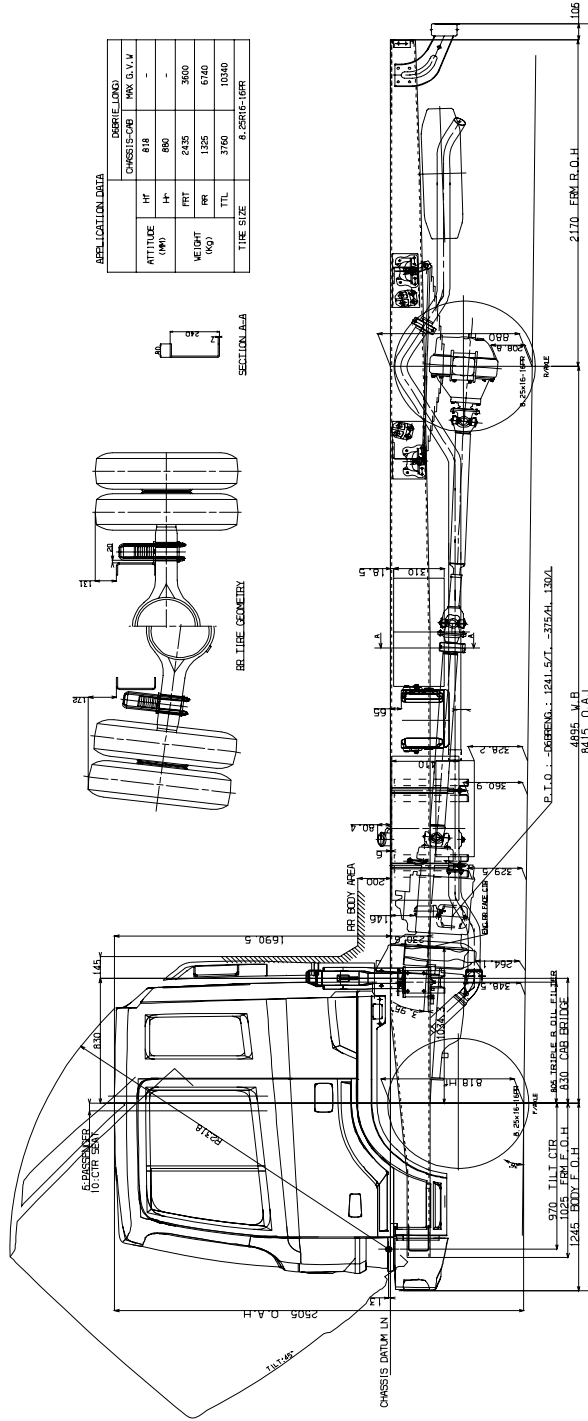
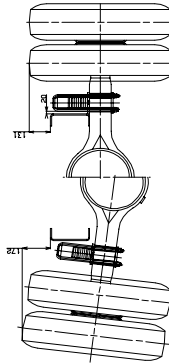
DATE	MODIFICATION ITEM	WORK NO.
REVISED	DATE	DOCS. NO.
DESIGN (DEVELOP) DRAWING APPROVED	BY	NO. REV. SCALE
K.P. KIM (Y.S. BAE) T.S. SHIN		
MEASUREMENT INSTRUMENT	QTY	UNIT
OTHER		
FIG. NO.	DRAWING NO.	REV. NO.
FIG. NO.	REV. NO.	REV. NO.
REV. NO.	EG 4.5/STON (SHORT)	
REV. NO.	BODY BUILDERS DRAW	
REV. NO.		





ABELLICATION DATA

ATTITUDE	HT	W	CHASSIS-OB	MAX G.V.V
4°	4	4	818	-
6740	RR	1325	2425	3600
6740	RR	2760	10340	0.28RC-10RR



REV

REVISIONS

NO.	DATE	BY	CHKD.	DESCRIPTION
1	09/15/2000	J.P.	J.P.	ISSUE FOR FABRICATION

DESIGNED BY: J.P.

CHECKED BY: J.P.

DATE: 09/15/2000

DRAWN BY: J.P.

SCALE: AS SHOWN

TITLE: CHASSIS DRAWING

PROJECT: [unclear]

COMPANY: [unclear]

DIVISION: [unclear]







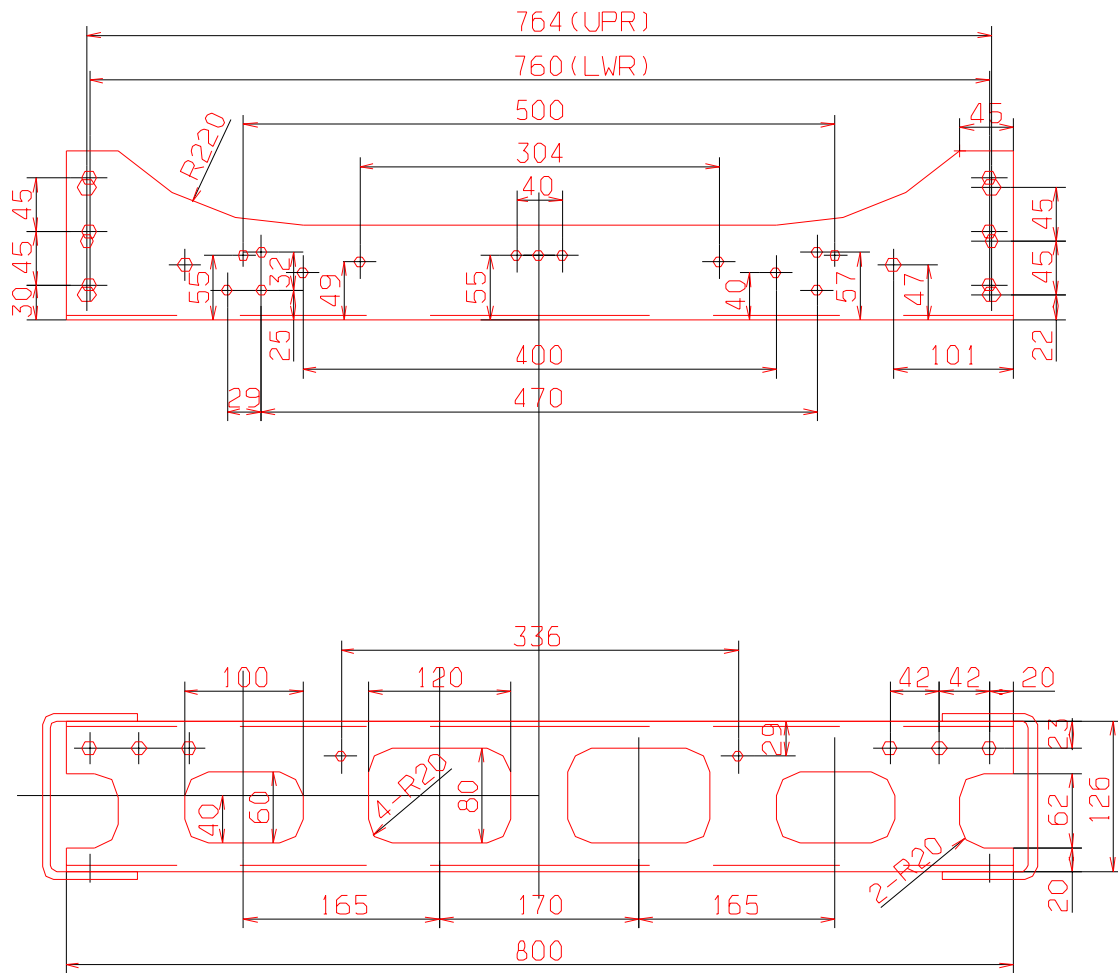






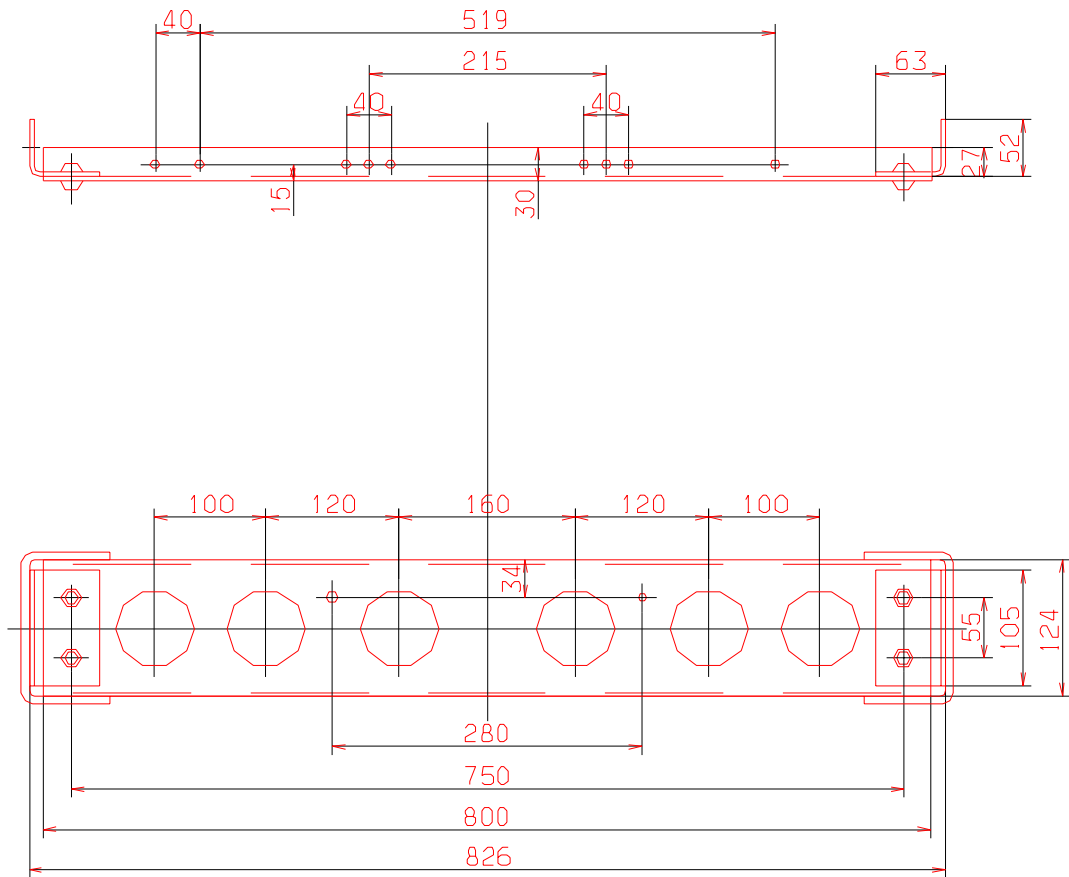
## 10-2. CROSS MEMBER DETAIL DRAWING

### (1) FRONT CROSS MEMBER

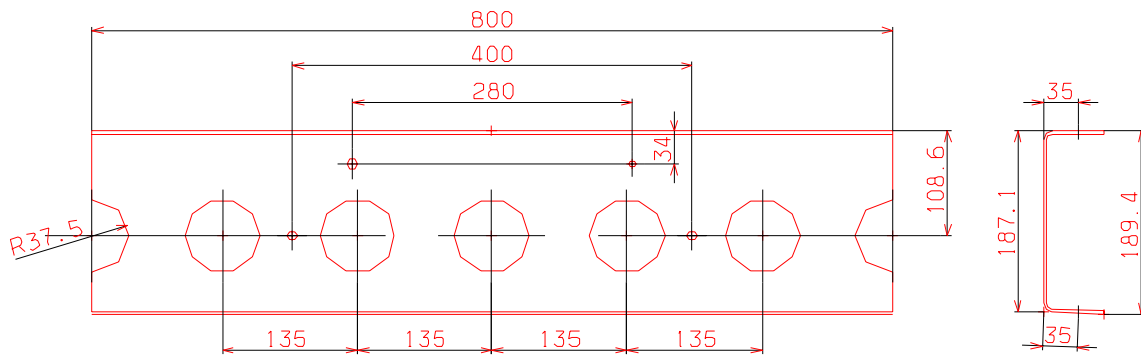
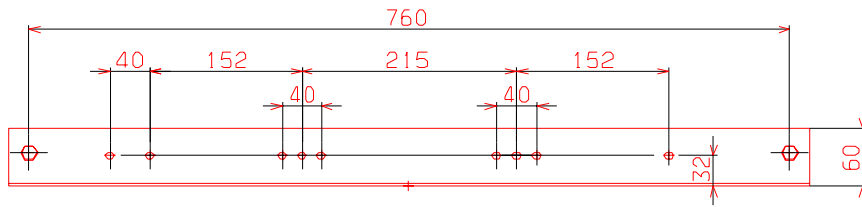


(2) END CROSS MEMBER

- CARGO ALL

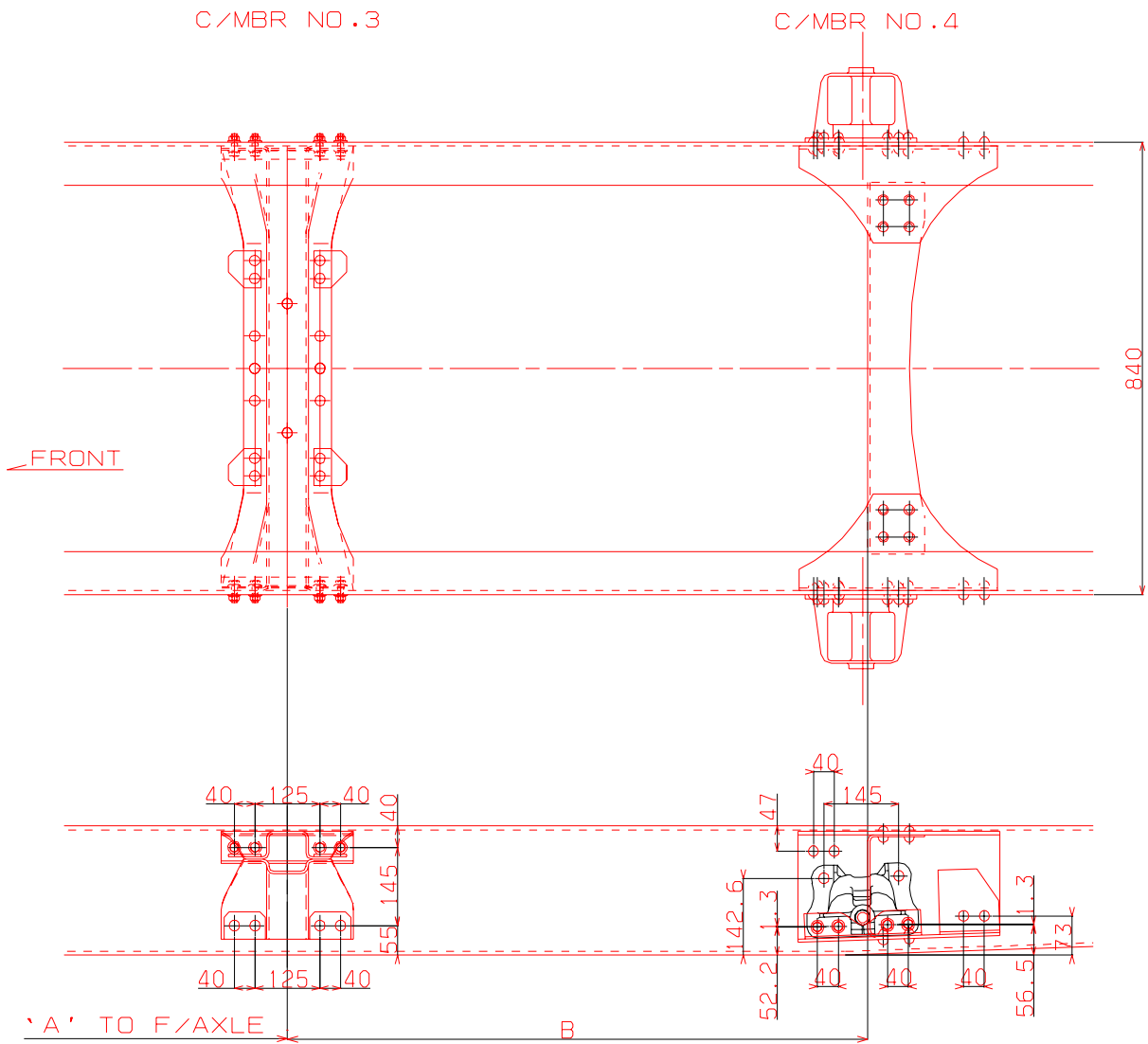


- DUMP



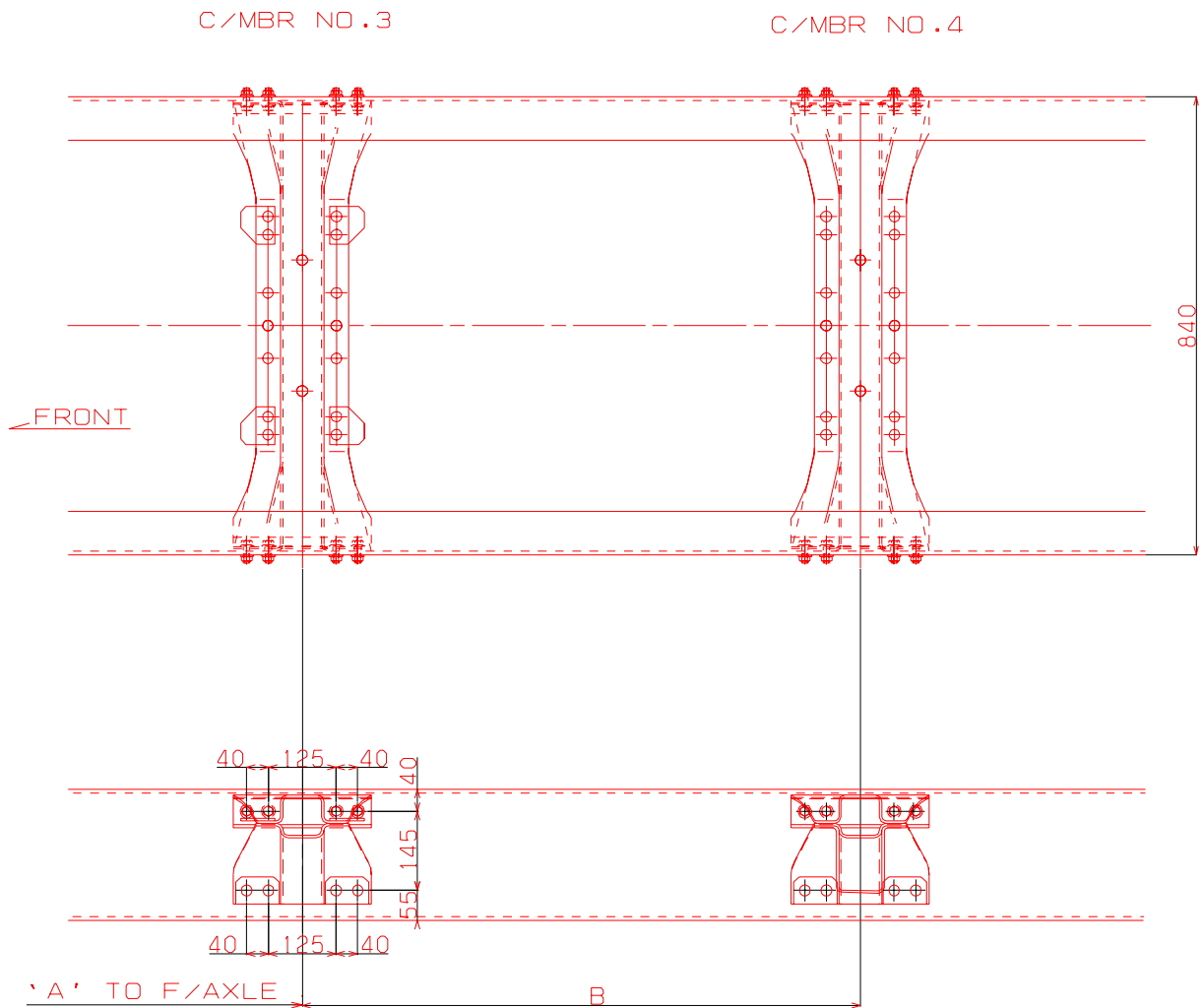
### 10-3. BOLTS NEAR THE NO.2 & NO.3 CROSS MEMBER

(1) SHORT CARGO & DUMP



VEHICLES	A	B
SHORT CARGO	2055	1120
DUMP	1780	900

(2) LONG CARGO, EXTRA LONG CARGO & U-LONG CARGO



VEHICLES	A	B
LONG CARGO	1880	1030
E-LONG CARGO	1880	1150
U-LONG CARGO	1880	820

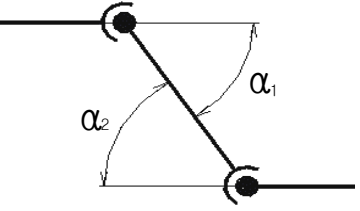
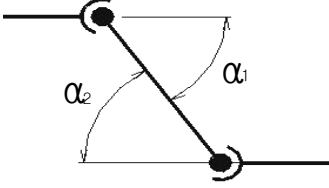
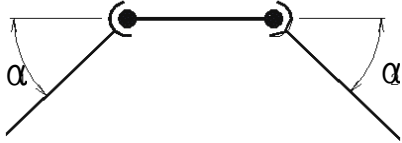


## 11. CAUTIONS NEEDED FOR THE INSTALLATION OF THE P/SHAFT

## 11. CAUTIONS NEEDED FOR THE INSTALLATION OF THE PROPELLAR SHAFT

Be sure not to modify or alter propellar shaft, as it was designed to suit a vehicle feature. But in an unavoidable case, observe the following items.

(1) 2-JOINT

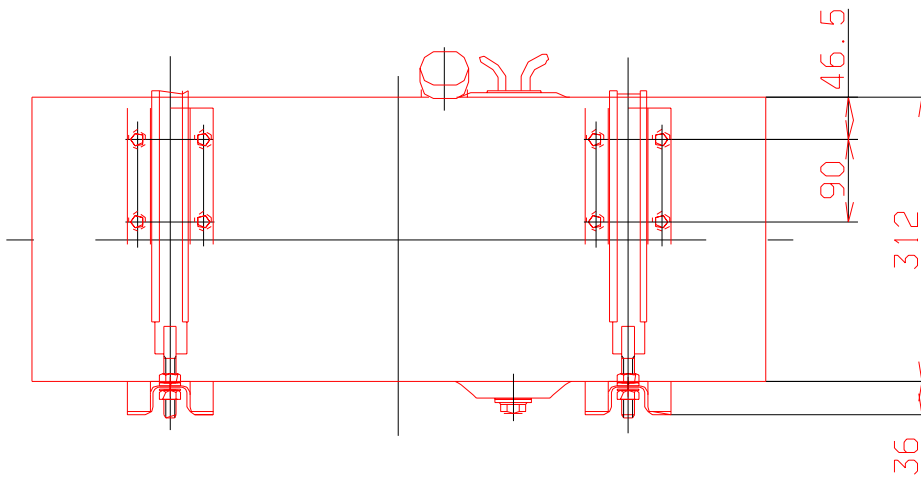
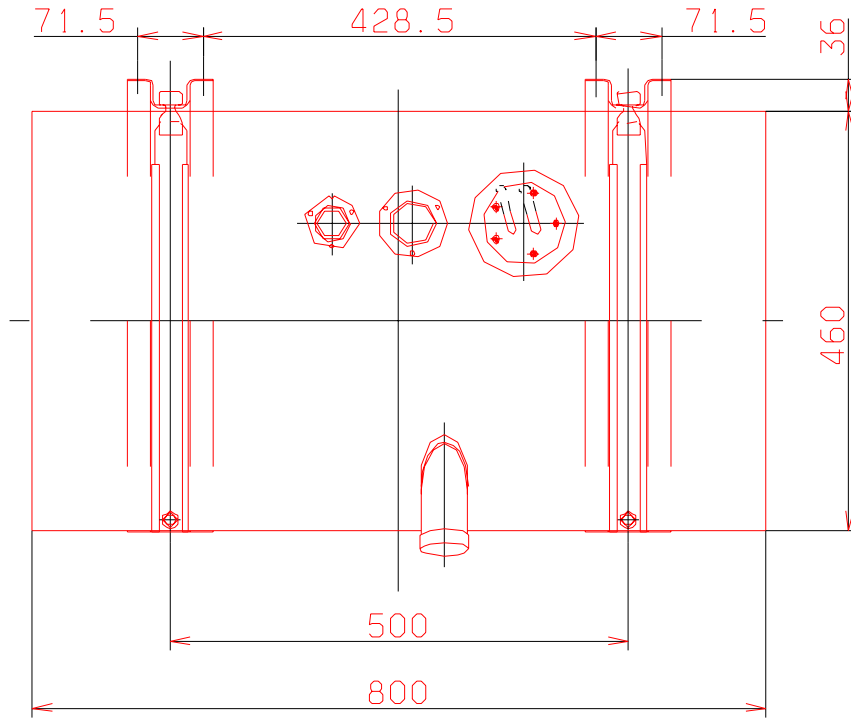
		
0	X	0
$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$	$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$	$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$
$\alpha_1^2 - \alpha_2^2 = -15$	$\alpha_1^2 + \alpha_2^2 = 113$	$\alpha_1^2 - \alpha_2^2 = -15$

## 12. OTHERS

# 12-1. FUEL TANK

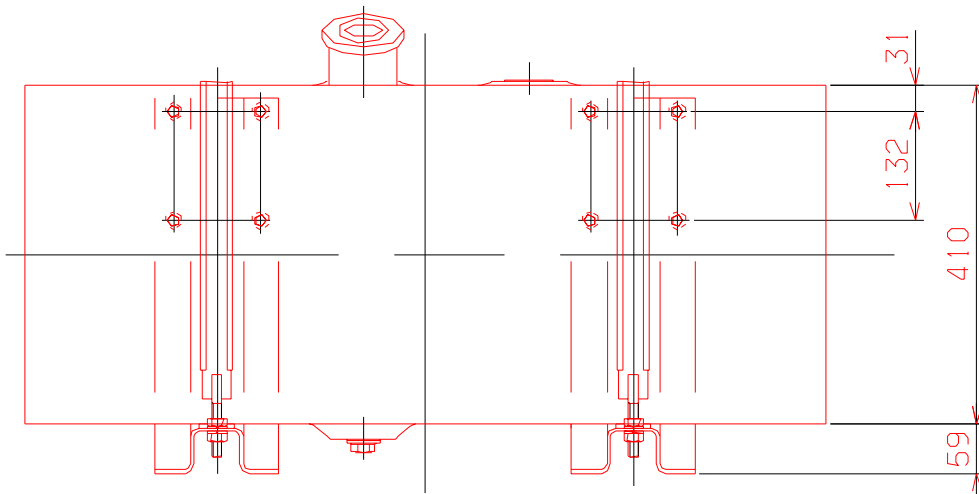
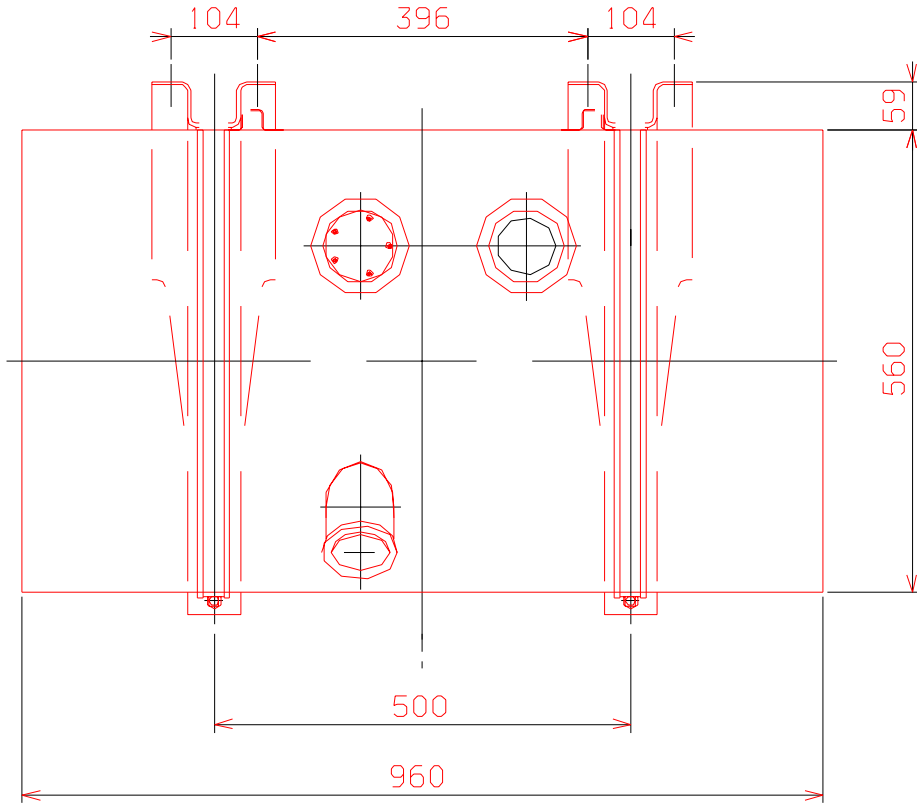
(1) FUEL TANK CAPACITY - 100L

- VEHICLE : HD120 SHORT CARGO  
HD120 DUMP



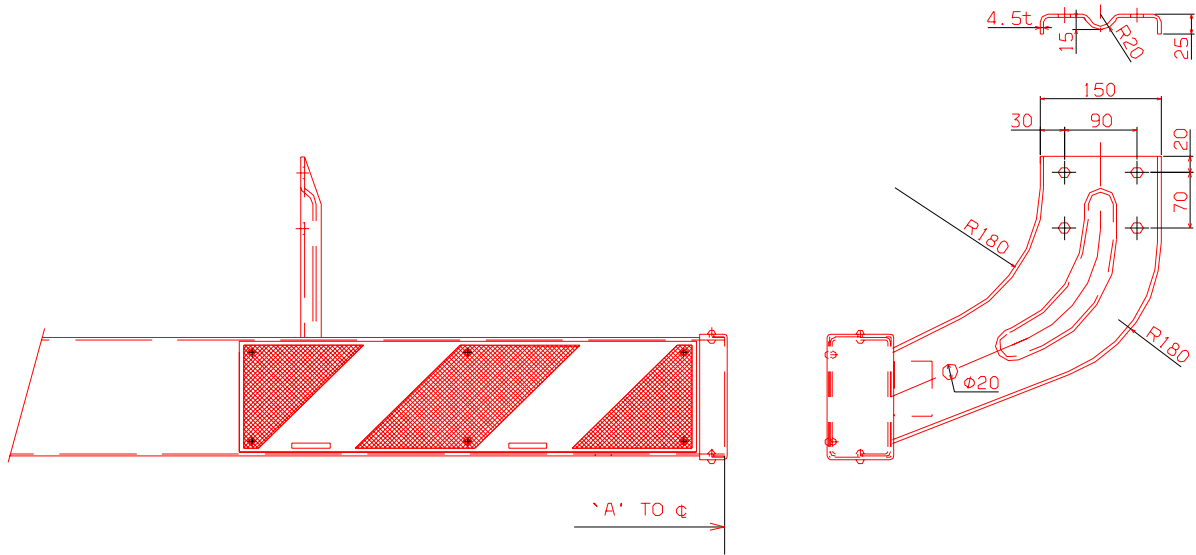
(2) FUEL TANK CAPACITY - 200L

- VEHICLE : HD120 LONG CARGO  
HD120 E-LONG



## 12-2. Rear safety guard

In case of modifying or altering rear safety guard, so care should be taken to conform to the regulations about ground clearance.



DIMENSION 'A' : STANDARD 945mm  
WIDE 1025mm

*HYUNDAI TRUCK*  
BODY BUILDER BOOK

– HEAVY DUTY TRUCK –



2005. 06.

HYUNDAI MOTOR COMPANY

COMMERCIAL VEHICLE ENGINEERING & RESEARCH CENTER

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## 11. CAUTIONS NEEDED FOR THE INSTALLATION OF THE PROPELLAR SHAFT



# 1. IDENTIFICATION CODE

# 1. IDENTIFICATION CODE

	VEHICLE		ENGINE	CODE	REMARK
CARGO	4x2	8T SHORT/LONG	D6BR	HD160	
		8.5T SHORT/LONG	D6AV,Q-dd	HD170	
	6x4	11.5T LONG	D6AC,D6CA	HD250	
		16T SHORT/MIDDLE	D6AC,D6CA	HD260	
		17T MIDDLE	D6CA	HD260	
		19M P/CARGO	D6AC	HD19M	
		19T E-LONG	D6AC,D6CA	HD320	
19.5T SHORT	D6AC,D6CA	HD310			
DUMP	4x2	8T-DUMP	D6BR, D6DA	HD160	
	6x4	15T-DUMP	D6AC	HD270	
	8x4	23T-DUMP	D6CA	HD370	
MIXER	6x4	7m <sup>3</sup> -MIXER	D6CA	HD270	
	8x4	9m <sup>3</sup> -MIXER	D6CA	HD380	
TRACTOR	4x2	4x2 TRACTOR	D6AC,D6CA	HD450/HD500	
	6x4	6x4 TRACTOR	D6AC,D6CA	HD700/HD1000	

## 2. GENERAL SPECIFICATION

# 1. GENERAL SPECIFICATION

			HD160		HD170			
			SHORT(8T)	LONG(8T)	SHORT(8.5T)		LONG(8.5T)	
			D6BR	D6BR	D6AV	Q-dd	D6AV	Q-dd
O.A.L (C/CAB)		mm	7,850	9,525	7,850	←	9,525	←
O.A.W (C/CAB)		mm	2,495	←	←	←	←	←
O.A.H (C/CAB)		mm	2,910	2,915	2920	←	2915	←
BODY INSIDE	LENGTH	mm	5,400	7,300	5,400	←	7,300	←
	WIDTH	mm	2,340	←	←	←	←	←
	HEIGHT	mm	450	←	←	←	←	←
DECK OFFSET		mm	775	1,280	775	←	1,280	←
WHEEL BASE		mm	4,395	5,850	4,395	←	5,850	←
WHEEL TREAD	FRT	mm	2,040	←	←	←	←	←
	RR	mm	1,850	←	←	←	←	←
OVER HANG	FRT(BODY)	mm	1,495	←	←	←	←	←
	RR(RR GUARD)	mm	1,960	2,180	1,960	←	2,180	←
C/CAB	FRT	kg	3,490	3,560	3,850	3,960	3,920	4,030
	RR	kg	2,340	2,380	2,350	2,370	2,390	2,410
	TTL	kg	5,830	5,940	6,200	6,330	6,310	6,440
MAX G.V.W	FRT	kg	6,700	←	6,550	←	←	←
	RR	kg	10,800	←	10,800	←	←	←
	TTL	kg	17,500	←	17,350	←	←	←
ENGINE	MODEL		D6BR	←	D6AV	Q-dd	D6AV	Q-dd
	ASPIRATION		NA	←	←	TCI	←	TCI
	DISPLACEMENT	cc	7,545	←	11,149	←	11,149	←
	OUTPUT	ps/rpm	177/2900	←	235/2200	290/2000	235/2200	290/2000
	TORQUE	kgm/rpm	48/1400	←	82/1400	110/1200	82/1400	110/1200
PERFORMANCE	MAX.SPD	km/h	109	103	99	120	99	-
	MAX.GRD	tan $\theta$	0.193	0.195	0.278	0.341	0.274	-
	MIN. TURNING RAD.	m	7.5	9.9	7.5	←	10.1	←
T / M	MODEL		M8S5(DD)	←	M8S5(OD)	M10S6	M8S5(OD)	M10S6
	GEAR RATIO	1st	6.597 (6.552)	←	5.405 (5.431)	6.552	5.405 (5.431)	6.552
		2nd	4.207 (4.178)	←	3.447 (3.463)	4.382	3.447 (3.463)	4.382
		3rd	2.432 (2.415)	←	1.739 (1.747)	2.415	1.739 (1.747)	2.415
		4th	1.407 (1.397)	←	1.000 (1.000)	1.621	1.000 (1.000)	1.621
		5th	1.000 (1.000)	←	0.738 (0.741)	1	0.738 (0.741)	1
		6th	-	-	-	0.758	-	0.758
		7th	-	-	-	-	-	-
		8th	-	-	-	-	-	-
REV	6.896 (6.849)	←	5.650 (5.677)	6.849	5.650 (5.677)	6.849		
R/AXLE	MODEL		D10H	←	←	D10HT-11	D10H	D10HT-11
	RATIO		6.166	←	←	4.333	6.166	4.333
TIRE	FRT		11.00X20-16PR	←	←	←	←	←
	RR		11.00X20-16PR	←	←	←	←	←

NOTE : 1) WEIGHT BASED ON THE STANDRD SPECIFICATION

2) ABOVE DATAS BASED ON THE CHASSIS CAB

			HD250			HD260		
			LONG(11.5T)			SHORT(16T)		
			D6AC	D6AC(II)	D6CA360-TAIWAN	D6AC	D6AC(II)	D6CA350-TAIWAN
O.A.L (C/CAB)		mm	11,610	←	←	9,635	←	←
O.A.W (C/CAB)		mm	2,495	←	←	←	←	←
O.A.H (C/CAB)		mm	2,920	←	←	2,910	←	←
BODY INSIDE	LENGTH	mm	9,100	←	←	7,080	←	←
	WIDTH	mm	2,340	←	←	←	←	←
	HEIGHT	mm	450	←	←	←	←	←
DECK OFFSET		mm	780	←	←	470	←	←
WHEEL BASE		mm	6,950	←	←	5,650	←	←
WHEEL TREAD	FRT	mm	2,040	←	←	←	←	←
	RR	mm	1,850	←	←	←	←	←
OVER HANG	FRT(BODY)	mm	1,495	←	←	←	←	←
	RR(RR GUARD)	mm	3,165	←	←	2,490	←	←
C/CAB	FRT	kg	4,275	←	4,525	4,190	←	4,405
	RR	kg	4,565	←	4,575	4,160	←	4,290
	TTL	kg	8,840	←	9,100	8,350	←	8,695
MAX G.V.W	FRT	kg	6,700	←	←	6,550	←	←
	RR	kg	21,600	←	←	21,600	←	←
	TTL	kg	28,300	←	←	28,150	←	←
ENGINE	MODEL		D6AC	D6AC(II)	D6CA360	D6AC	D6AC(II)	D6CA350
	ASPIRATION		TCI	←	←	TCI	←	←
	DISPLACEMENT	cc	11,149	←	12,344	11,149	←	12,344
	OUTPUT	ps/rpm	340/2200	←	360/1900	340/2200	←	350/1900
	TORQUE	kgm/rpm	140/1400	148/-	160/1200	140/1400	148/-	148/1200
PERFOR-MANCE	MAX.SPD	km/h	117	-	-	118	-	-
	MAX.GRD	tan θ	0.466	-	-	0.360	-	-
	MIN. TURNING RAD.	m	9.9	←	←	8.1	←	←
T / M	MODEL		M12S6	H160S6	←	M12S6	←	←
	GEAR RATIO	1st	7.213	←	←	←	←	←
		2nd	4.178	←	←	←	←	←
		3rd	2.587	←	←	←	←	←
		4th	1.621	←	←	←	←	←
		5th	1.000	←	←	←	←	←
		6th	0.702	←	←	←	←	←
		7th	-	-	-	-	-	-
		8th	-	-	-	-	-	-
REV	7.081	←	←	←	←	←		
R/AXLE	MODEL		D10HT	←	←	←	T14HT	D10HT-II
	RATIO		5.571	5.143	←	5.571	←	←
TIRE	FRT		11.00X20-16PR	←	←	←	←	←
	RR		11.00X20-16PR	←	←	←	←	←

NOTE : 1) WEIGHT BASED ON THE STANDRD SPECIFICATION

2) ABOVE DATAS BASED ON THE CHASSIS CAB

			HD260				HD19M	
			MIDDLE(16T)			MIDDLE(17T)	19M P/CARGO	
			D6AC	D6AC(II)	D6CA350-TAIWAN	D6CA350-TAIWAN	D6AC	D6AC(II)
O.A.L (C/CAB)		mm	10,310	←	←	←	10,925	←
O.A.W (C/CAB)		mm	2,495	←	←	←	←	←
O.A.H (C/CAB)		mm	2,910	←	←	←	←	←
BODY INSIDE	LENGTH	mm	8,000	←	←	-	8,300	←
	WIDTH	mm	2,340	←	←	-	2,340	←
	HEIGHT	mm	450	←	←	-	450	←
DECK OFFSET		mm	530	←	←	-	610	←
WHEEL BASE		mm	6,100	←	←	←	6,420	←
WHEEL TREAD	FRT	mm	2,040	←	←	2,120	2,040	←
	RR	mm	1,850	←	←	←	1,850	←
OVER HANG	FRT(BODY)	mm	1,495	←	←	←	1,495	←
	RR(RR GUARD)	mm	2,715	←	←	←	3,010	←
C/CAB	FRT	kg	4,230	←	4,445	4,545	4,320	←
	RR	kg	4,220	←	4,350	4,350	4,650	←
	TTL	kg	8,450	←	8,795	8,895	8,970	←
MAX G.V.W	FRT	kg	6,550	←	←	7,950	6,550	←
	RR	kg	21,600	←	←	21,600	21,600	←
	TTL	kg	28,150	←	←	29,550	28,150	←
ENGINE	MODEL		D6AC	D6AC(II)	D6CA350	←	D6AC	D6AC(II)
	ASPIRATION		TCI	←	←	←	TCI	←
	DISPLACEMENT	cc	11,149	←	12,344	←	11,149	←
	OUTPUT	ps/rpm	340/2200	←	350/1900	←	340/2200	←
	TORQUE	kgm/rpm	140/1400	148/-	148/1200	←	140/1400	148/-
PERFORMANCE	MAX.SPD	km/h	100	-	-	-	94	-
	MAX.GRD	tanθ	0.406	-	-	-	0.579	-
	MIN. TURNING RAD.	m	8.8	←	←	←	9.1	←
T / M	MODEL		M12S6	←	←	←	M12S2x5	H160S2x5
	GEAR RATIO	1st	7.213	←	←	←	9.153 (7.145)	←
		2nd	4.178	←	←	←	4.783 (3.733)	←
		3rd	2.587	←	←	←	2.765 (2.158)	←
		4th	1.621	←	←	←	1.666 (1.301)	←
		5th	1.000	←	←	←	1.000 (0.780)	←
		6th	0.702	←	←	←	-	-
		7th	-	-	-	-	-	-
		8th	-	-	-	-	-	-
REV	7.081	←	←	←	8.105 (6.327)	←		
R/AXLE	MODEL		D10HT	T14HT	D10HT-II	←	D10HT	←
	RATIO		5.571	←	←	←	6.166	5.571
TIRE	FRT		11.00X20-16PR	←	←	315/80R22.5-20PR	11.00X20-16PR	←
	RR		11.00X20-16PR	←	←	12R22.6-16PR	11.00X20-16PR	←

NOTE : 1) WEIGHT BASED ON THE STA

2) ABOVE DATAS BASED ON THE CHASSIS CAB

3) 19M P/CARGO'S DATAS NOT INCLUDE TRAILER.

			HD320			HD310		
			E-LONG(19T)			SHORT(19.5T)		
			D6AC	D6AC(11)	L2D-A	D6AC	D6AC(11)	L2D-A
O.A.L (C/CAB)		mm	12,245	←	←	11,395	←	←
O.A.W (C/CAB)		mm	2,495	←	←	2,495	←	←
O.A.H (C/CAB)		mm	2,920	←	←	2,920	←	←
BODY INSIDE	LENGTH	mm	10,100	←	←	9,100	←	←
	WIDTH	mm	2,340	←	←	2,340	←	←
	HEIGHT	mm	450	←	←	450	←	←
DECK OFFSET		mm	1,660	←	←	1,350	←	←
WHEEL BASE		mm	7,850	←	←	7,040	←	←
WHEEL TREAD	FRT	mm	2,040	←	←	2,040	←	←
	RR	mm	1,850	←	←	1,850	←	←
OVER HANG	FRT(BODY)	mm	1,925	←	←	1,925	←	←
	RR(RR GUARD)	mm	2,470	←	←	2,430	←	←
C/CAB	FRT	kg	6,225	←	6475	6,070	←	6320
	RR	kg	3,995	←	4035	3,950	←	3990
	TTL	kg	10,220	←	10510	10,020	←	10310
MAX G.V.W	FRT	kg	13,100	←	←	13,100	←	←
	RR	kg	23,200	←	←	23,200	←	←
	TTL	kg	36,300	←	←	36,300	←	←
ENGINE	MODEL		D6AC	D6AC(11)	D6CA(380)	D6AC	D6AC(11)	D6CA(380)
	ASPIRATION		TCI	←	←	TCI	←	←
	DISPLACEMENT	cc	11,149	←	12,344	11,149	←	12,344
	OUTPUT	ps/rpm	340/2200	←	380/1900	340/2200	←	380/1900
	TORQUE	kgm/rpm	140/1400	148/-	160/1200	140/1400	148/-	160/1200
PERFORMANCE	MAX.SPD	km/h	94	-	-	94	-	-
	MAX.GRD	tan θ	0.643	-	-	0.456	-	-
	MIN. TURNING RAD.	m	11.7	←	←	10.8	←	←
T / M	MODEL		M12S2x5	H160S2x5	←	M12S2x5	H160S2x5	←
	GEAR RATIO	1st	9.153 (7.145)	←	←	9.153 (7.145)	←	←
		2nd	4.783 (3.733)	←	←	4.783 (3.733)	←	←
		3rd	2.765 (2.158)	←	←	2.765 (2.158)	←	←
		4th	1.666 (1.301)	←	←	1.666 (1.301)	←	←
		5th	1.000 (0.780)	←	←	1.000 (0.780)	←	←
		6th	-	←	←	-	←	←
		7th	-	-	-	-	-	-
		8th	-	-	-	-	-	-
REV	8.105 (6.327)	←	←	8.105 (6.327)	←	←		
R/AXLE	MODEL		D12HT	←	D12HT-11	D12HT	←	D12HT-11
	RATIO		6.166	5.571	5.143	6.166	5.571	5.143
TIRE	FRT		11.00X20-16PR	←	←	11.00X20-16PR	←	←
	RR		11.00X20-16PR	←	←	11.00X20-16PR	←	←

NOTE : 1) WEIGHT BASED ON THE STA

2) ABOVE DATAS BASED ON THE CHASSIS CAB

			HD160			HD270		HD370
			4x2(8T)			6x4(15T)		8x4(23T)
			D6BR	D6DA19	D6DA22	D6AC	D6AC(11)	L2D-A
O. A. L	mm	6,520	←	←	7,635	←	9,025	
O. A. W	mm	2,495	←	←	←	←	←	
O. A. H	mm	2,930	←	←	←	←	2,945	
BODY INSIDE	LENGTH	mm	4,000	←	←	4,840	←	5,220
	WIDTH	mm	2,330	←	←	2,300	←	←
	HEIGHT	mm	575	←	←	905	←	1,306
DECK OFFSET		mm	750	←	←	350	←	1,800
WHEEL BASE		mm	3,700	←	←	4,590	←	6,000
WHEEL TREAD	FRT	mm	2,050	←	←	2,040	←	2,098
	RR	mm	1,850	←	←	←	←	1,850
OVER HANG	FRT	mm	1,495	←	←	←	←	1,925
	RR	mm	1,325	←	←	1,550	←	1,100
KERB WT	FRT	kg	-	-	-	-	-	-
	RR	kg	-	-	-	-	-	-
	TTL	kg	-	-	-	-	-	-
G.V.W	FRT	kg	6,550	←	←	6,700	←	18,000
	RR	kg	10,800	←	←	23,600	←	23,600
	TTL	kg	17,350	←	←	30,300	←	41,600
ENGINE	MODEL		D6BR	D6DA19	D6DA22	D6AC	D6AC(11)	D6CA(380)
	ASPIRATION		NA	TCI	←	←	←	←
	DISPLACEMENT	cc	7,545	6,606	←	11,149	←	12,344
	OUTPUT	ps/rpm	177/2900	196/2500	225/2500	340/2200	←	380/1900
	TORQUE	kgm/rpm	48/1400	58/1700	65/1700	140/1400	148/-	160/1200
PERFOR- MANCE	MAX.SPD	km/h	80	-	-	-	-	-
	MAX.GRD	tan θ	0.251	-	-	-	-	-
	MIN. TURNING RAD.	m	6.2	←	←	7.4	←	9.7
T / M	MODEL		M8S5(DD)	←	←	M12S6	H160S6	ZF16S151
	GEAR RATIO	1st	6.597 (6.552)	←	←	7.213	←	13.86 (11.59)
		2nd	4.207 (4.178)	←	←	4.178	←	9.52 (7.96)
		3rd	2.432 (2.415)	←	←	2.587	←	6.56 (5.48)
		4th	1.407 (1.397)	←	←	1.621	←	4.58 (3.83)
		5th	1.000 (1.000)	←	←	1.000	←	3.02 (2.53)
		6th	-	-	-	0.702	←	2.08 (1.74)
		7th	-	-	-	-	-	1.43 (1.20)
		8th	-	-	-	-	-	1 (0.84)
REV	6.896 (6.849)	←	←	7.081	←	12.97 (10.85)		
R/AXLE	MODEL		D10H	←	←	D12HT	←	D12HT-11
	RATIO		6.666	5.571	6.166	6.166	←	4.875
TIRE	FRT	11.00X20-16PR	←	←	←	←	385/65R22.5-20PR	
	RR	11.00X20-16PR	←	←	←	←	12R22.5-16PR	

NOTE : 1) WEIGHT BASED ON THE STANDRD SPECIFICATION

2) ABOVE DATAS BASED ON THE COMPLETED VEHICLE



			HD450/HD500			HD700/HD1000		
			4x2			6x4		
			D6AC	L2D-B(350)	L2D-B(380)	D6AC	D6AC(11)	L1D
O. A. L	mm	5,880	←	←	6,665	←	←	
O. A. W	mm	2,495	←	←	←	←	←	
O. A. H	mm	2,850	←	←	2,895	←	←	
BODY INSIDE	LENGTH	mm	-	-	-	-	-	
	WIDTH	mm	-	-	-	-	-	
	HEIGHT	mm	-	-	-	-	-	
DECK OFFSET		mm	470	←	←	260	←	
WHEEL BASE		mm	3,450	←	←	4,350	←	
WHEEL TREAD	FRT	mm	2,040	←	←	←	←	
	RR	mm	1,850	←	←	←	←	
OVER HANG	FRT	mm	1,495	←	←	←	←	
	RR	mm	935	←	←	820	←	
KERB WT	FRT	kg	4,535	4,735	←	4,400	←	
	RR	kg	2,455	2,475	←	4,480	←	
	TTL	kg	6,990	7,210	←	8,880	←	
G.V.W	FRT	kg	6,550	←	←	6,550	←	
	RR	kg	11,800	←	←	23,600	←	
	TTL	kg	18,350	←	←	30,150	←	
ENGINE	MODEL		D6AC	D6CA350	D6CA380	D6AC	D6AC(11)	L1D
	ASPIRATION		TCI	←	←	←	←	←
	DISPLACEMENT	cc	11,149	12,344	←	11,149	←	12,344
	OUTPUT	ps/rpm	340/2200	350/1900	380/1900	340/2200	←	410/1900
	TORQUE	kgm/rpm	140/1400	148/1200	←	140/1400	148/-	188/1200
PERFORMANCE	MAX.SPD	km/h	-	-	-	-	-	-
	MAX.GRD	tan θ	-	-	-	-	-	-
	MIN. TURNING RAD.	m	6.2	←	←	6.8	←	←
T / M	MODEL		M12S2X5	H160S2X5	←	M12S2X5	ZF16S151	←
	GEAR RATIO	1st	9.153 (7.145)	←	←	9.153 (7.145)	13.86 (11.59)	←
		2nd	4.783 (3.733)	←	←	4.783 (3.733)	9.52 (7.96)	←
		3rd	2.765 (2.158)	←	←	2.765 (2.158)	6.56 (5.48)	←
		4th	1.666 (1.301)	←	←	1.666 (1.301)	4.58 (3.83)	←
		5th	1.000 (0.780)	←	←	1.000 (0.780)	3.02 (2.53)	←
		6th	-	-	-	-	2.08 (1.74)	←
		7th	-	-	-	-	1.43 (1.20)	-
		8th	-	-	-	-	1 (0.84)	-
REV	8.105 (6.327)	←	←	8.105 (6.327)	12.97 (10.85)	←		
R/AXLE	MODEL		D12H	←	←	D12HT	R178HT	D12HT
	RATIO		4.875	←	←	5.571	4.875	3.909
TIRE	FRT		11.00X20-16PR	←	←	11.00X20-16PR	←	←
	RR		11.00X20-16PR	←	←	11.00X20-16PR	←	←

NOTE : 1) WEIGHT BASED ON THE STANDRD SPECIFICATION

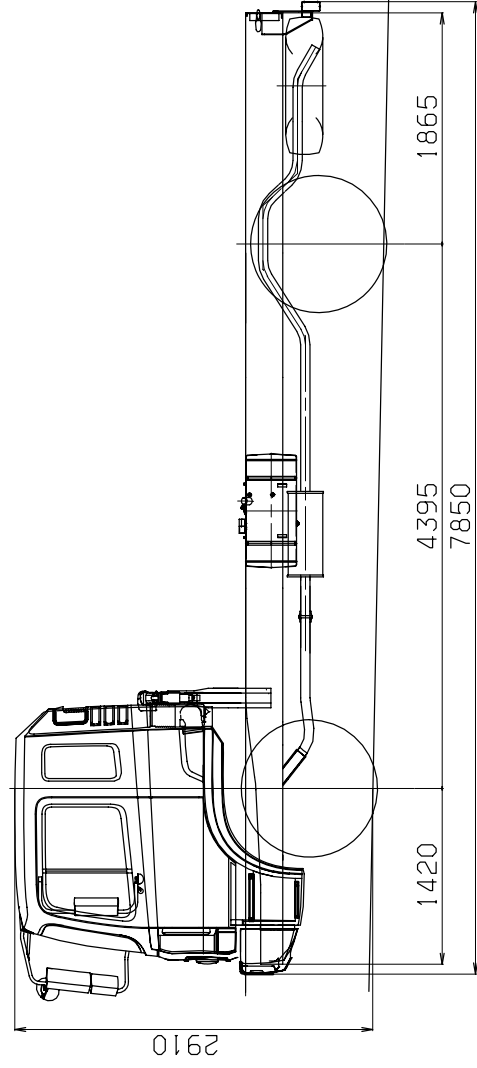
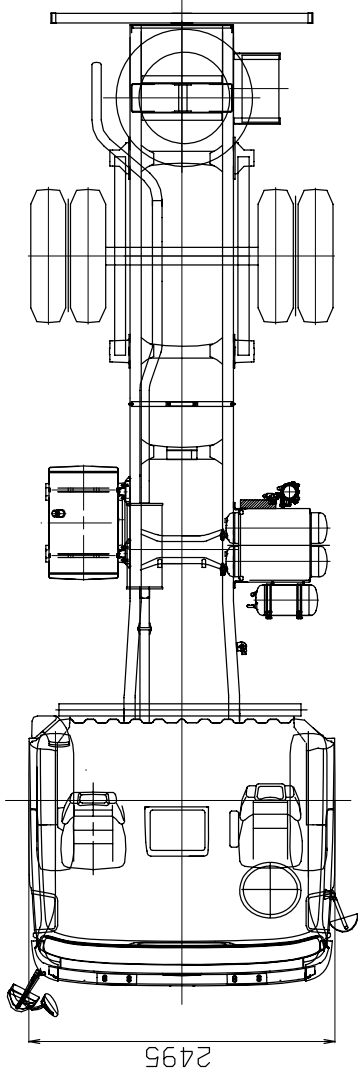
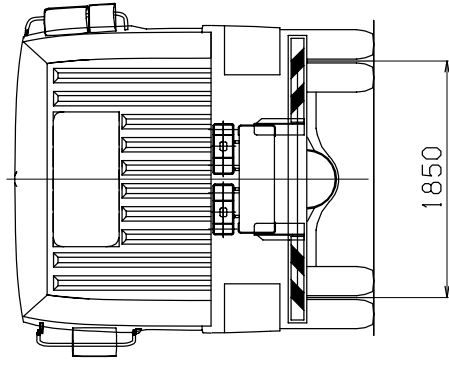
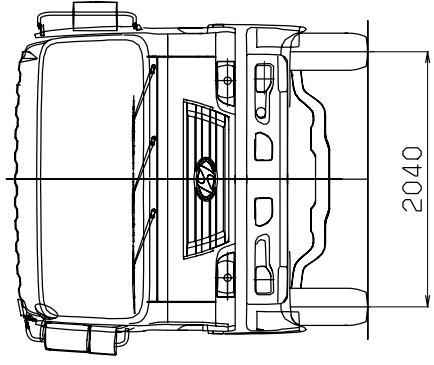
2) ABOVE DATAS BASED ON THE COMPLETED VEHICLE

		HD270					
		7m <sup>3</sup>					
		L2D-B					
O. A. L		mm	8,310				
O. A. W		mm	2495				
O. A. H		mm	3660				
BODY INSIDE	LENGTH	mm	4178.5				
	WIDTH	mm	2100				
	HEIGHT	mm	-				
DECK OFFSET		mm	470				
WHEEL BASE		mm	4,590				
WHEEL TREAD	FRT	mm	2,040				
	RR	mm	1,850				
OVER HANG	FRT	mm	1,495				
	RR	mm	2,225				
KERB WT	FRT	kg	-				
	RR	kg	-				
	TTL	kg	-				
G.V.W	FRT	kg	6,700				
	RR	kg	21,600				
	TTL	kg	28,300				
ENGINE	MODEL		D6CA380B				
	ASPIRATION		TCI				
	DISPLACEMENT	cc	12,344				
	OUTPUT	ps/rpm	380/1900				
	TORQUE	kgm/rpm	148/1200				
PERFOR- MANCE	MAX.SPD	km/h	-				
	MAX.GRD	tan $\Theta$	-				
	MIN. TURNING RAD.	m	7.4				
T / M	MODEL		M12S6				
	GEAR RATIO	1st	7.213				
		2nd	4.178				
		3rd	2.587				
		4th	1.621				
		5th	1.000				
		6th	0.702				
		7th	-				
		8th	-				
REV	7.081						
R/AXLE	MODEL		D10HT-11				
	RATIO		5.571				
TIRE	FRT		11.00X20-16PR				
	RR		11.00X20-16PR				

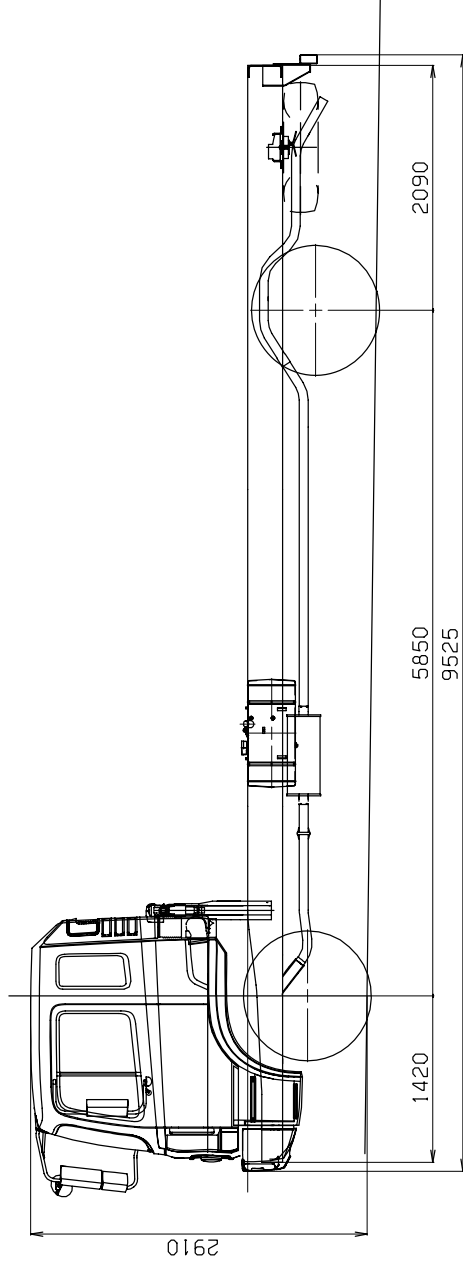
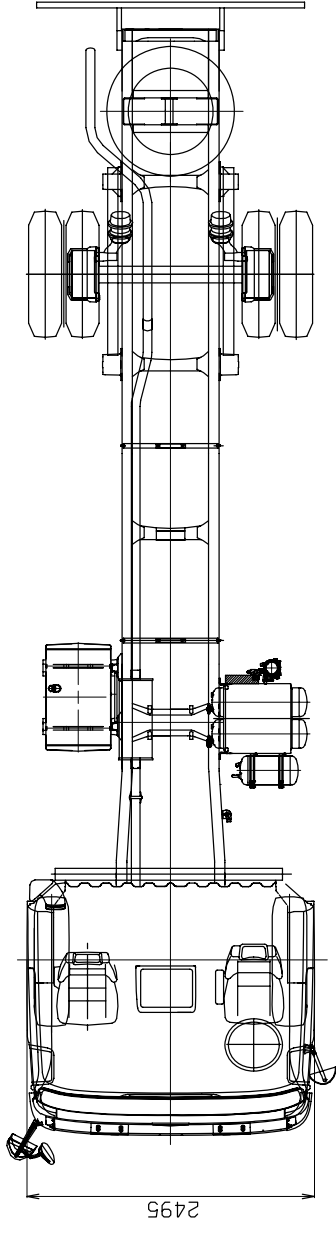
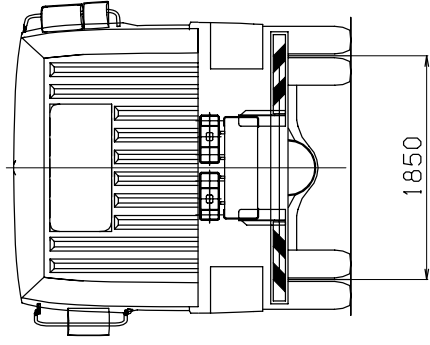
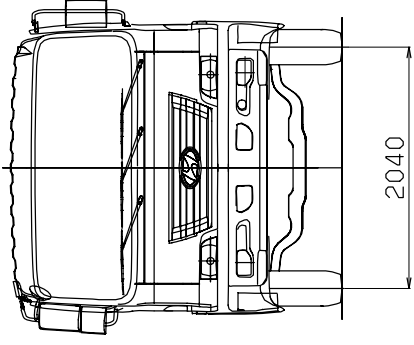
NOTE : 1) WEIGHT BASED ON THE STANDRD SPECIFICATION

2) ABOVE DATAS BASED ON THE COMPLETED VEHICLE

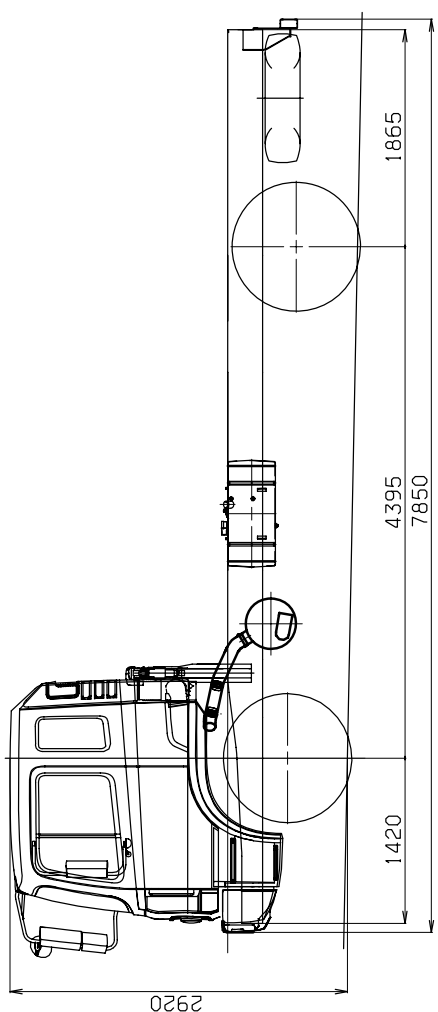
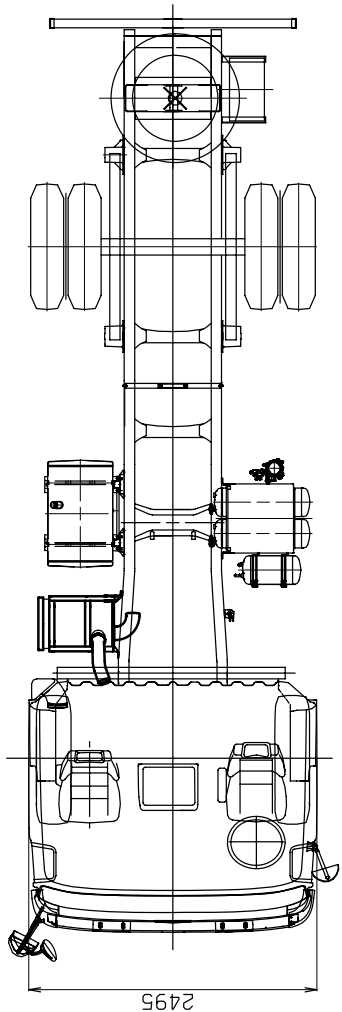
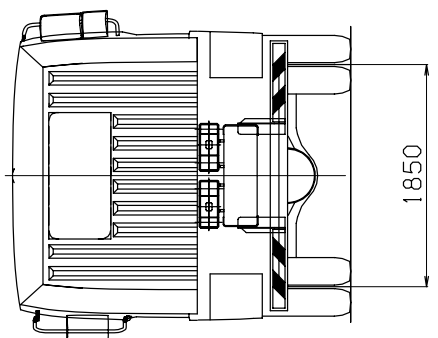
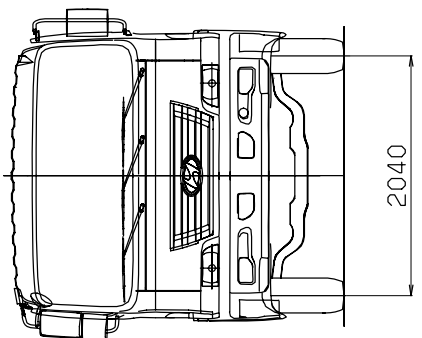
### 3. EXTERIOR DRAWING OF THE COMPLETE VEHICLE



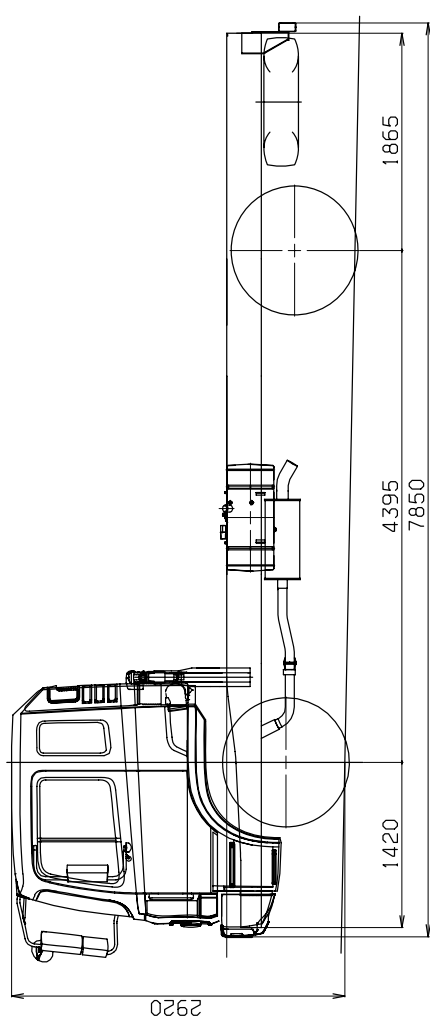
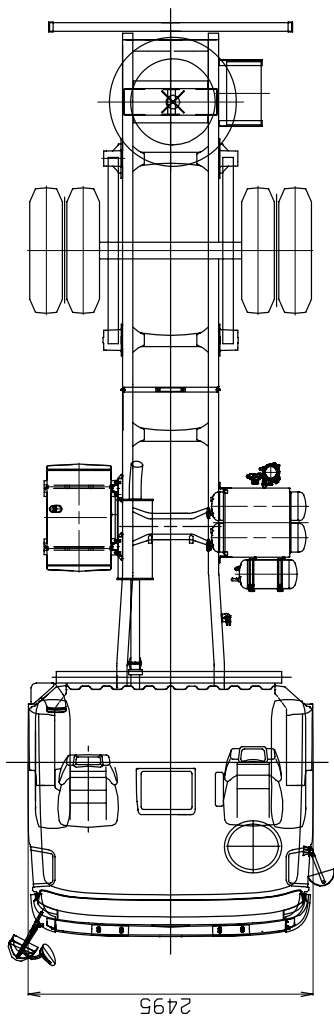
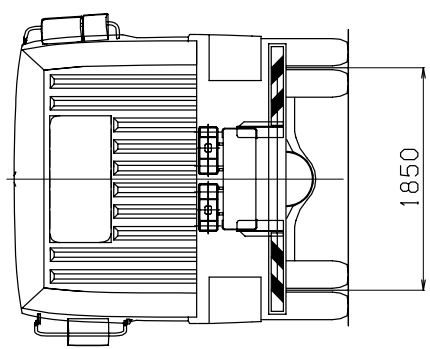
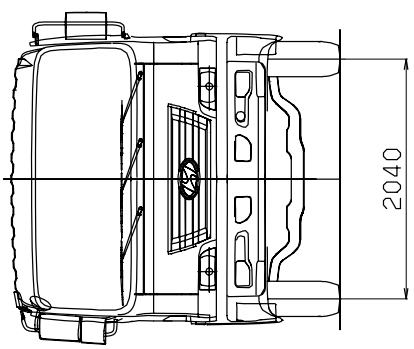
HD160	D6BR
HYUNDAI MOTOR COMPANY	



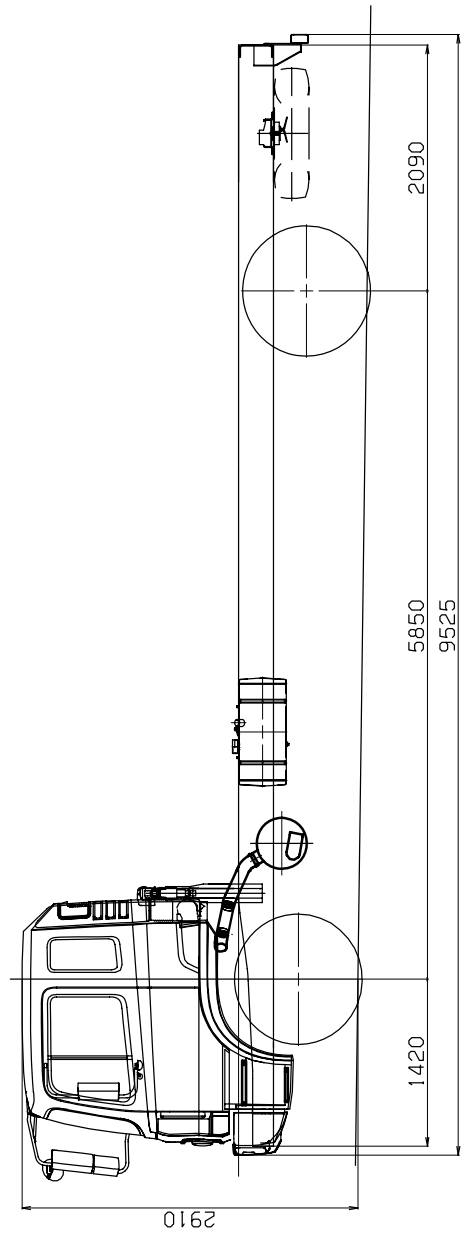
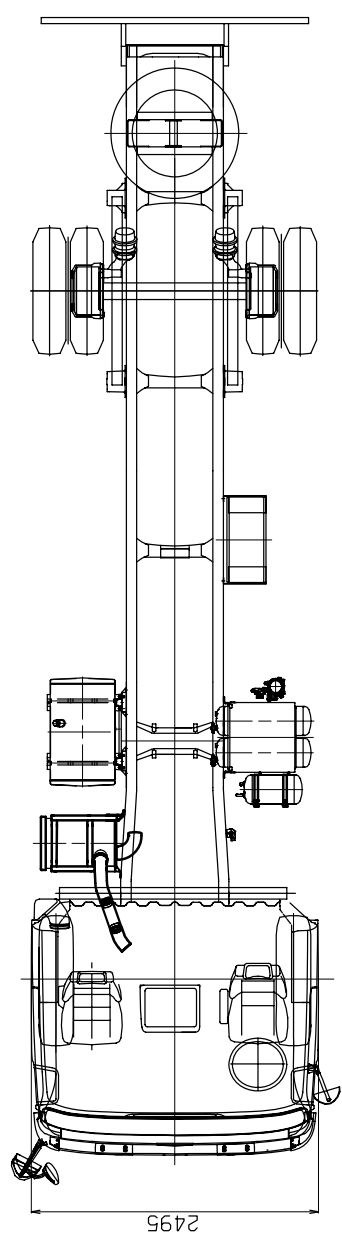
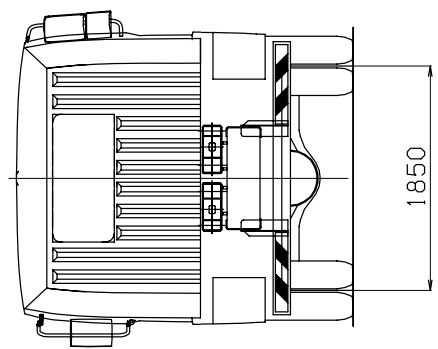
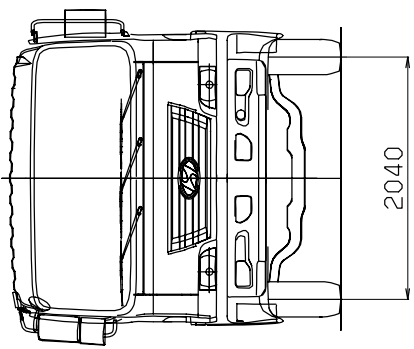
HD160	D6BR
HYUNDAI MOTOR COMPANY	



HD170	D6AB
HYUNDAI MOTOR COMPANY	

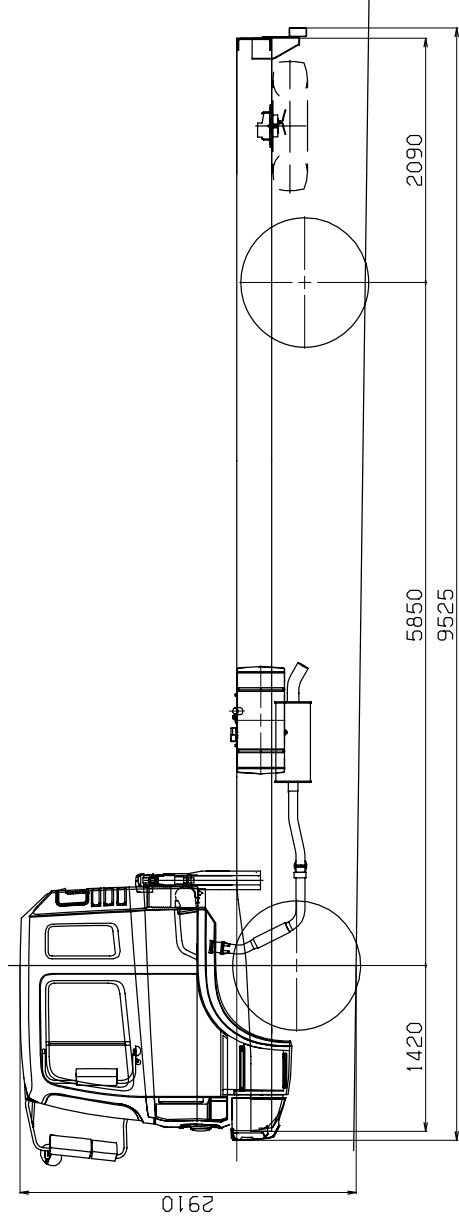
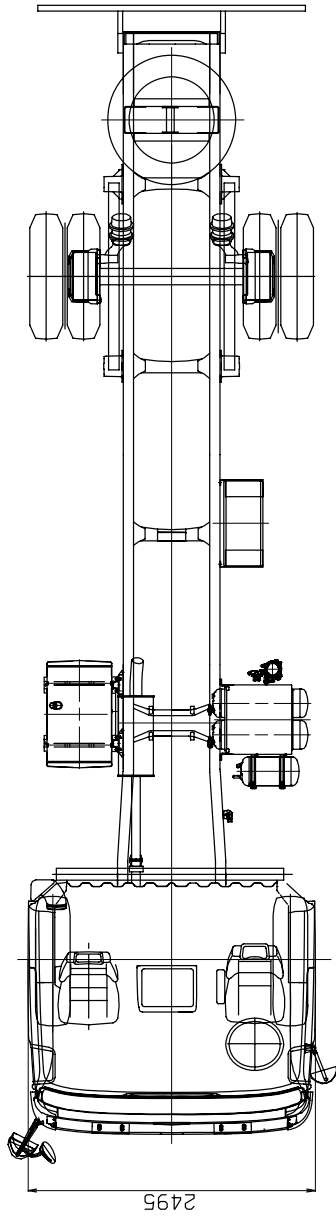
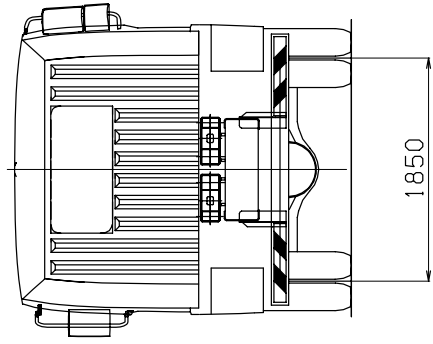
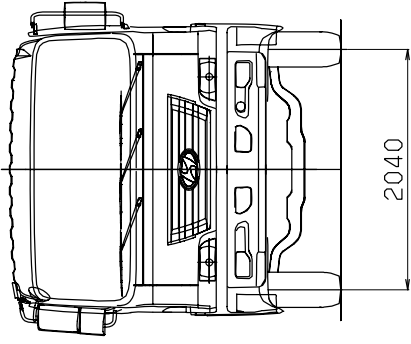


HD170	D6AV
HYUNDAI MOTOR COMPANY	

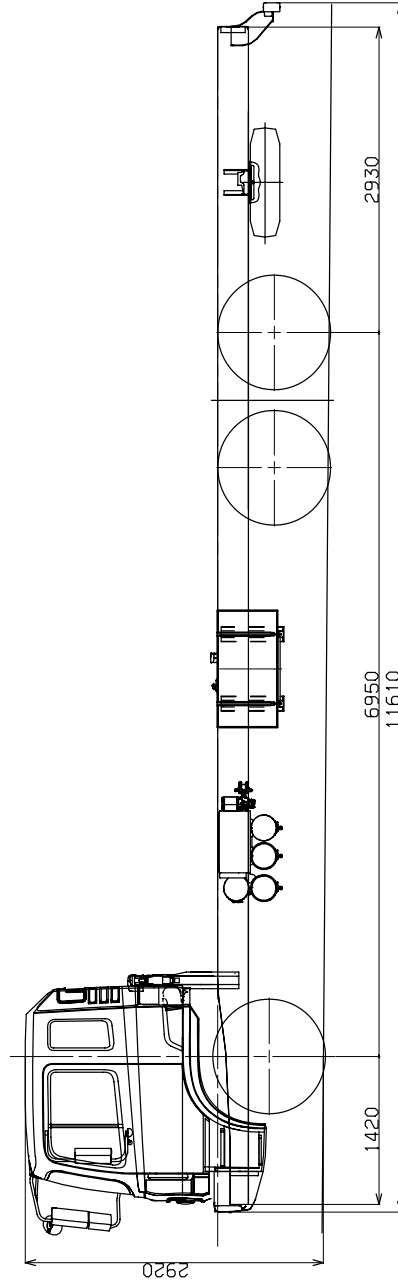
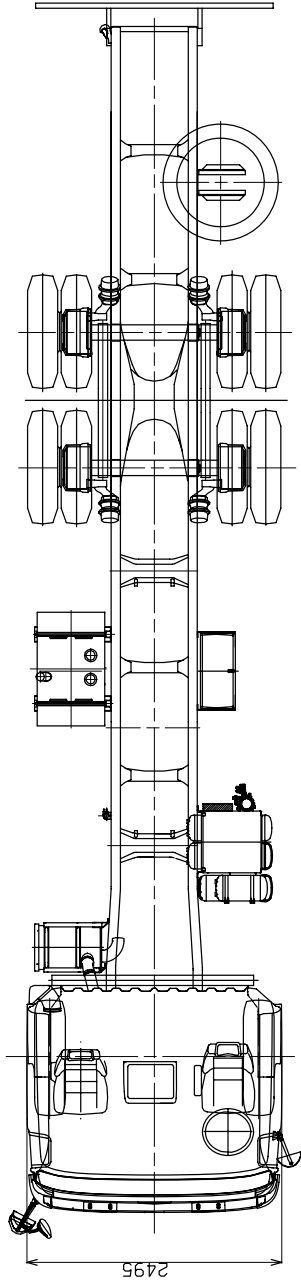
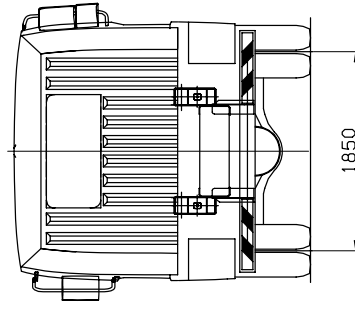
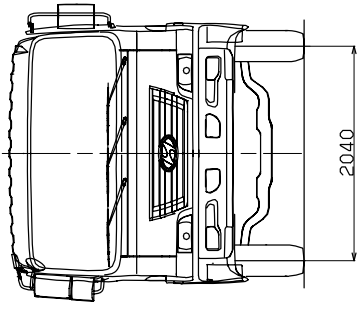


HD170	D6AB
HYUNDAI MOTOR COMPANY	

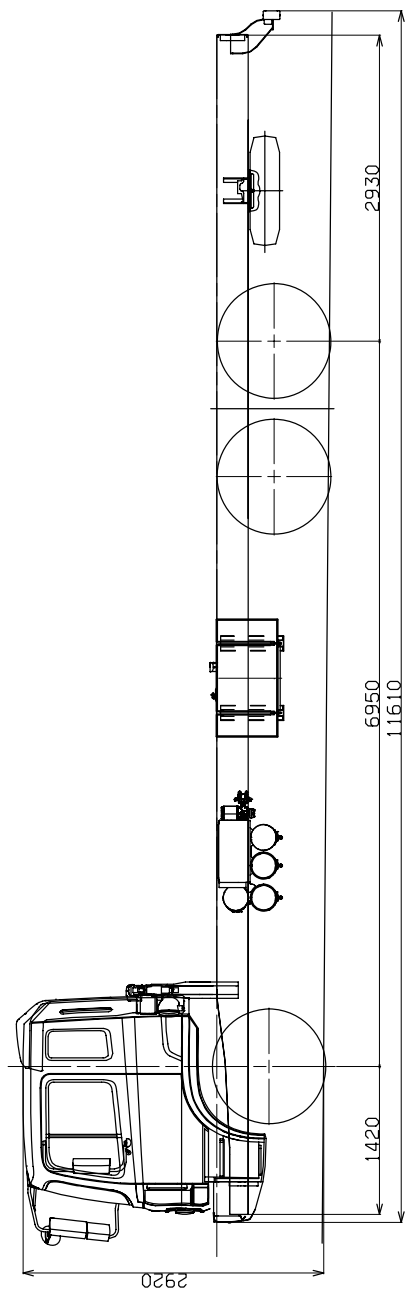
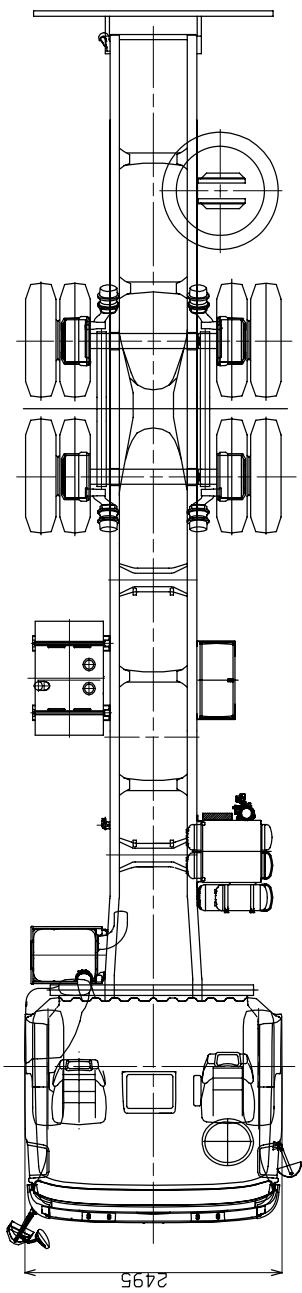
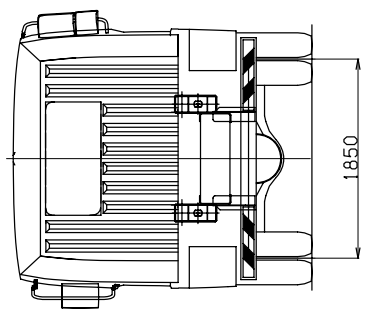
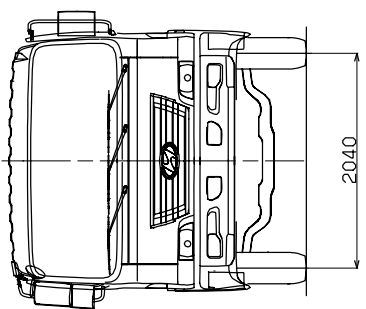




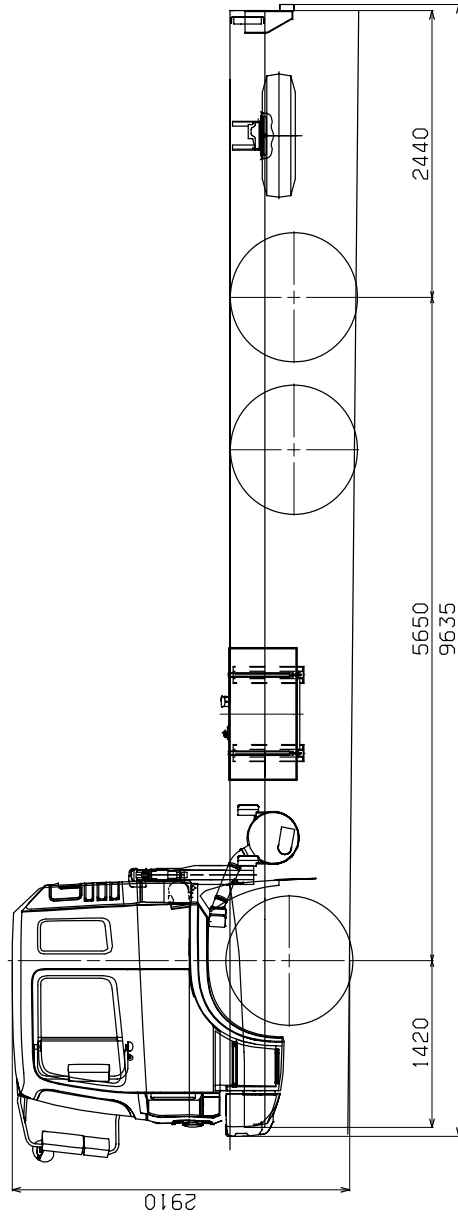
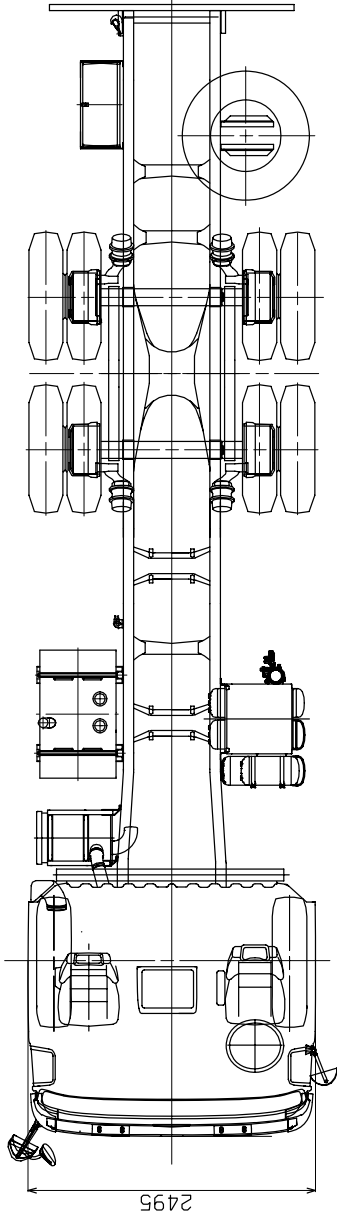
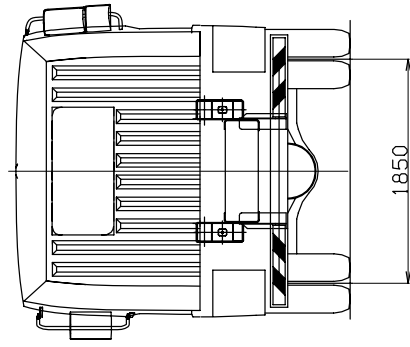
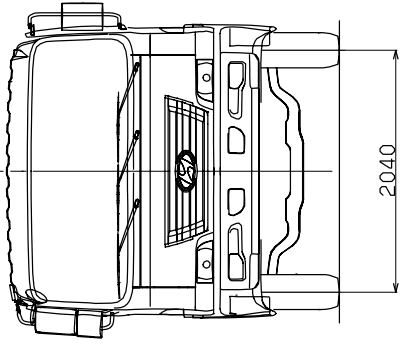
HD170	D6AV
HYUNDAI MOTOR COMPANY	



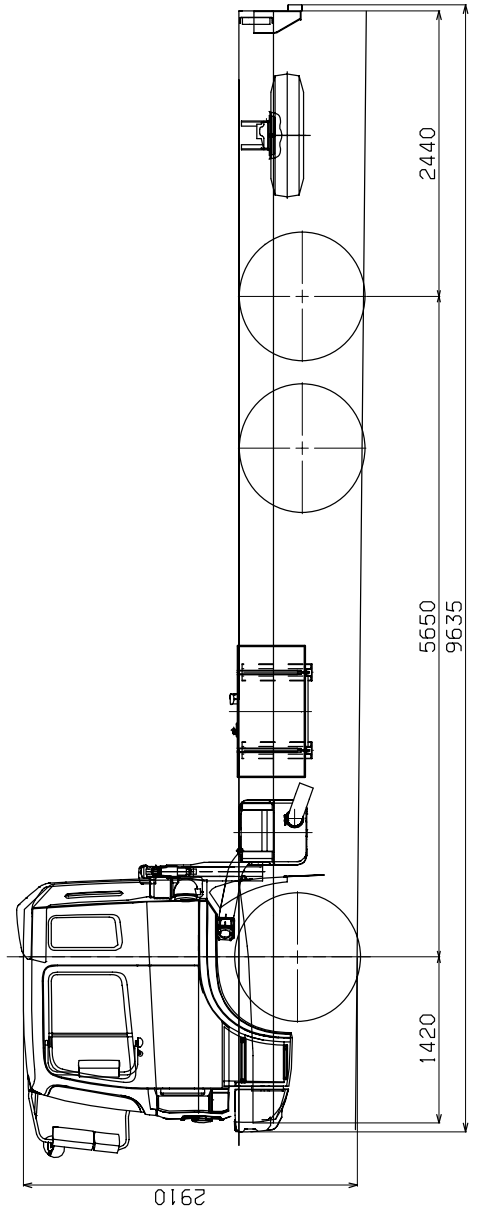
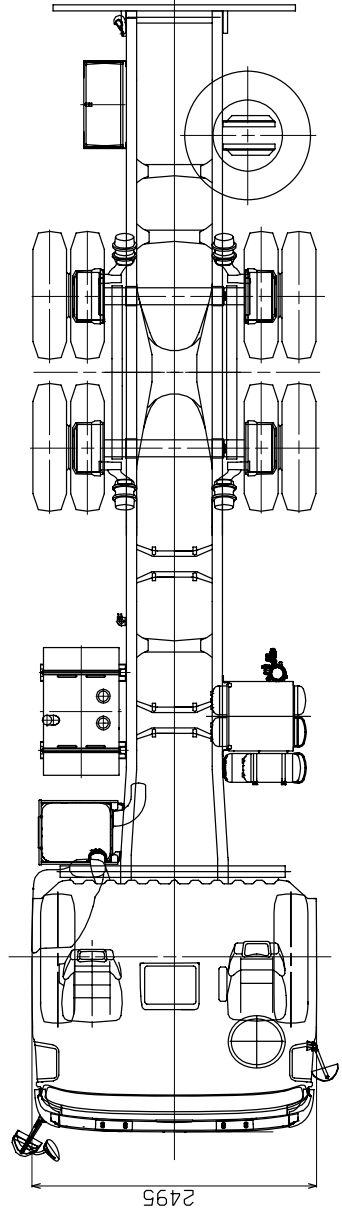
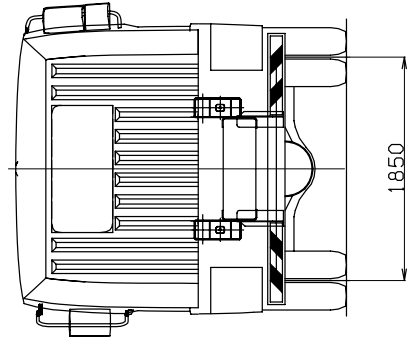
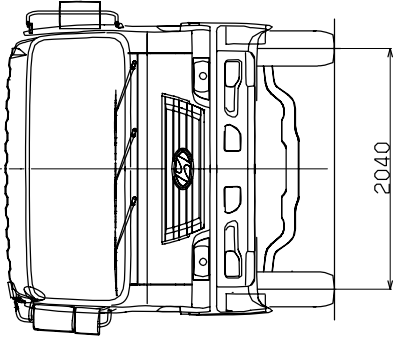
HD250 D6AC  
HYUNDAI MOTOR COMPANY



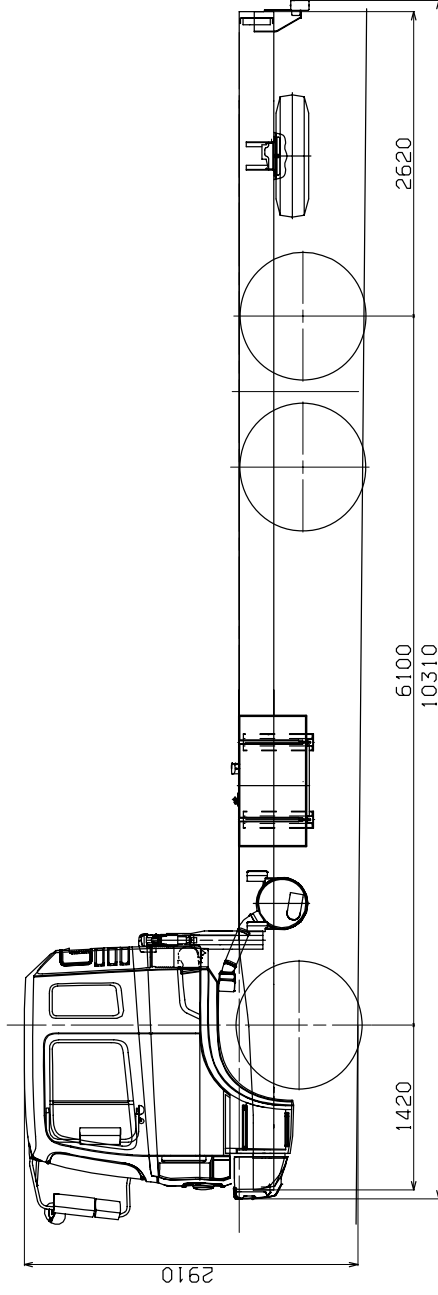
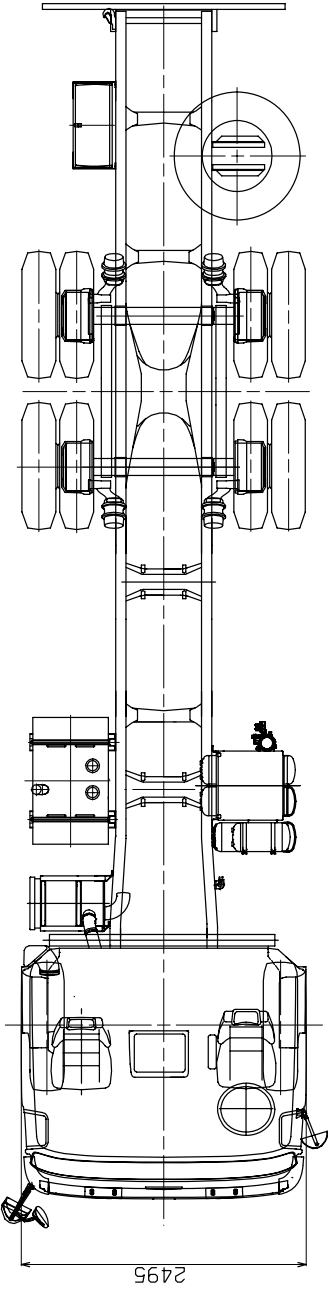
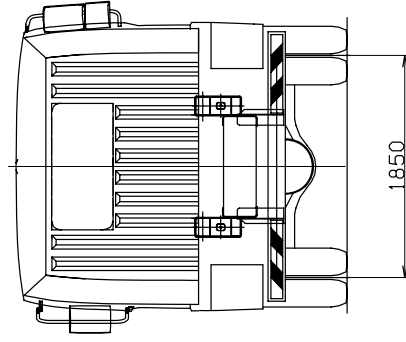
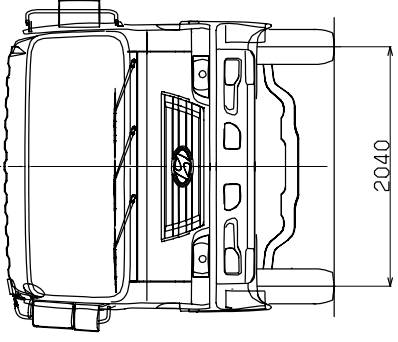
HD250	D6CA
HYUNDAI MOTOR COMPANY	



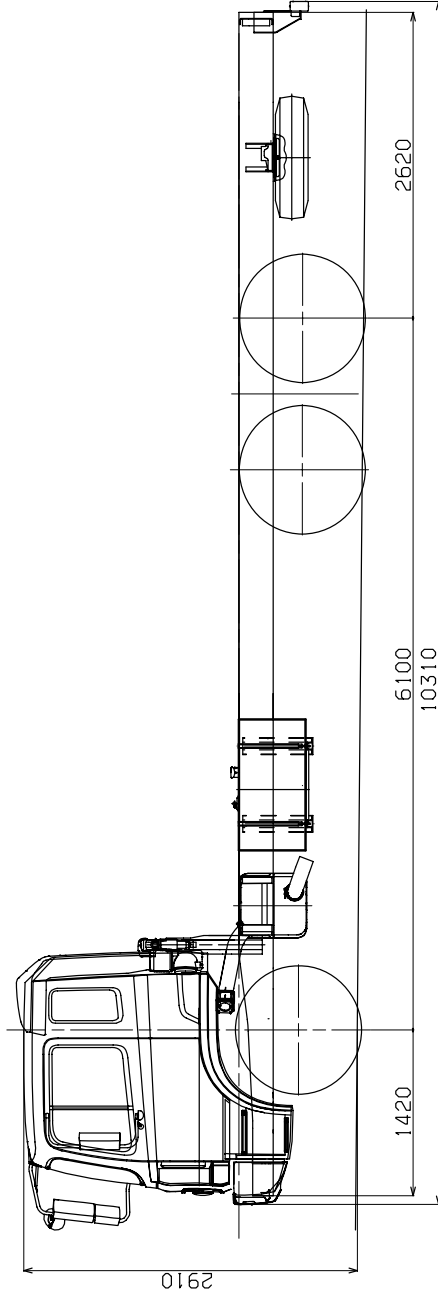
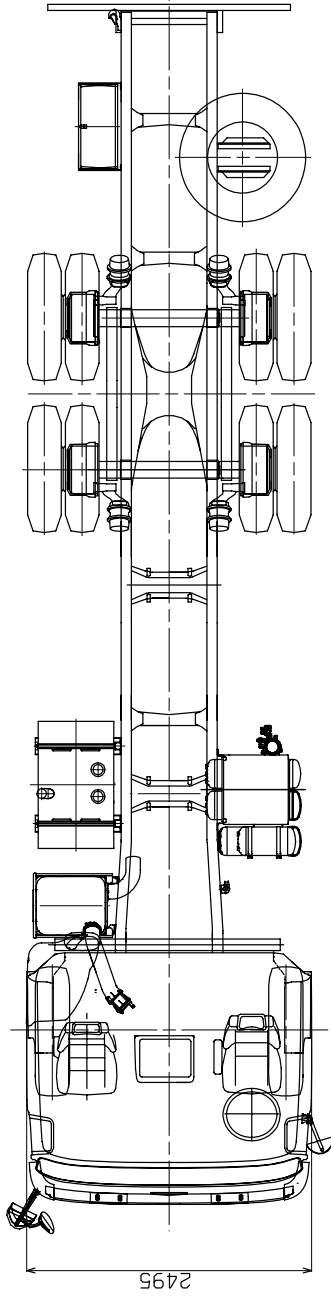
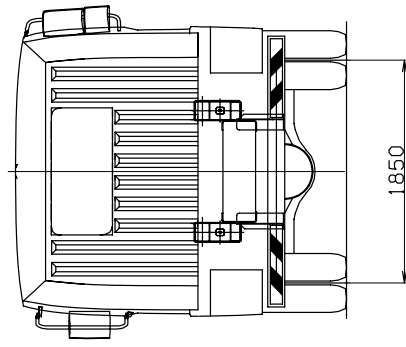
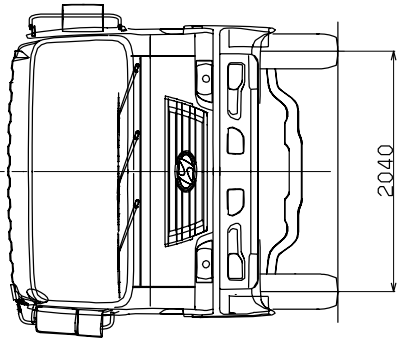
HD260	D6AC
HYUNDAI MOTOR COMPANY	



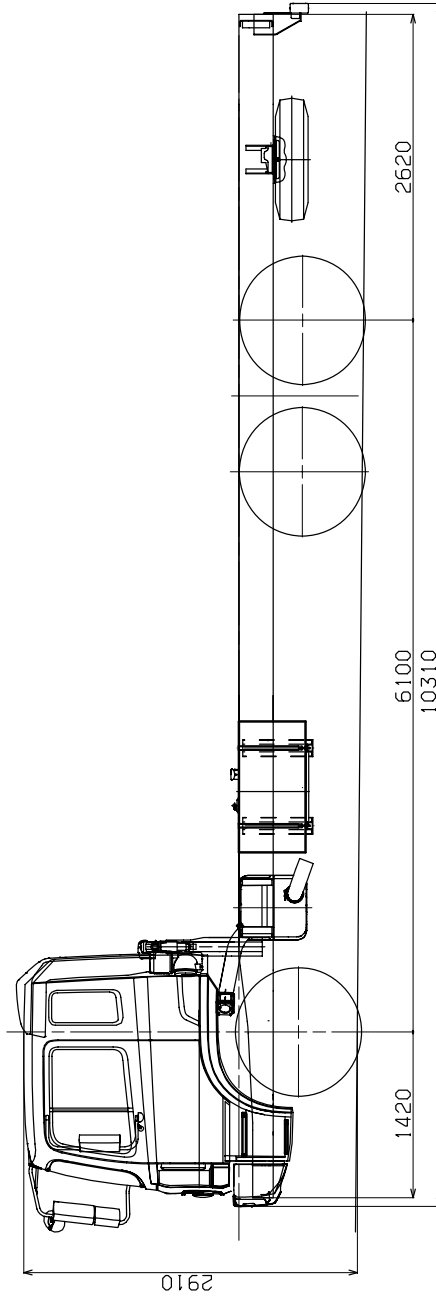
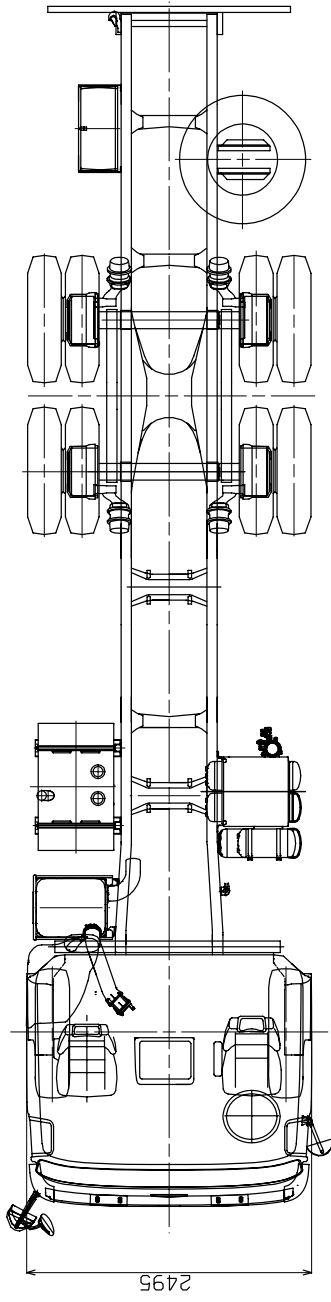
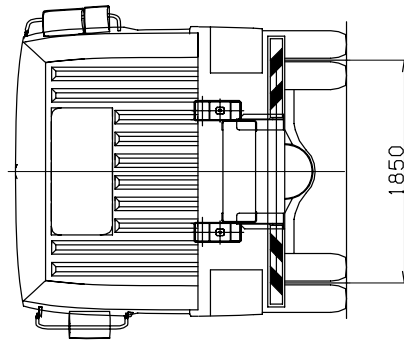
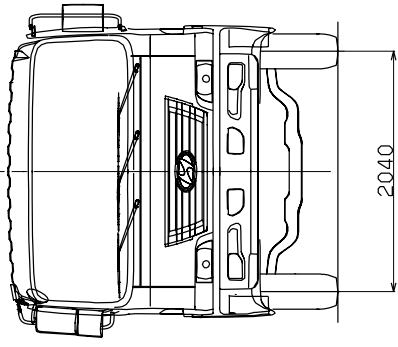
HD260	D6CA
HYUNDAI MOTOR COMPANY	



HD260	D6AC
HYUNDAI MOTOR COMPANY	

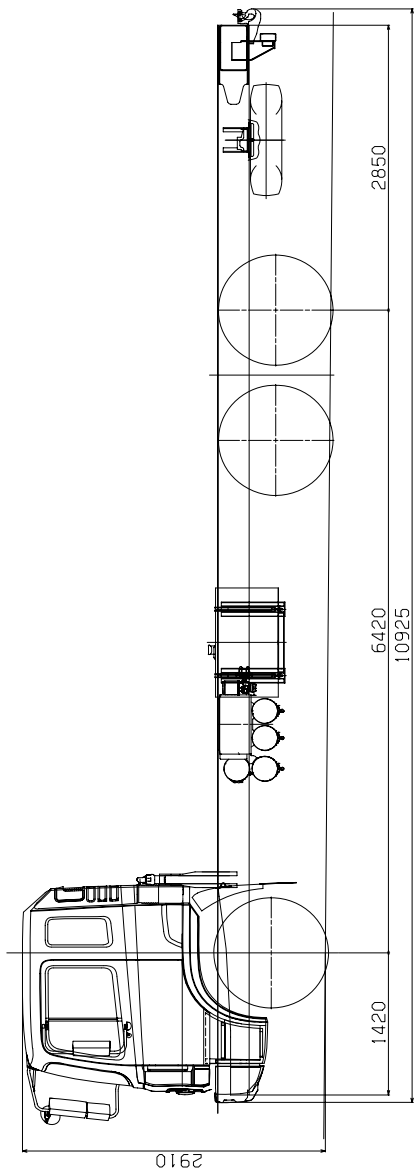
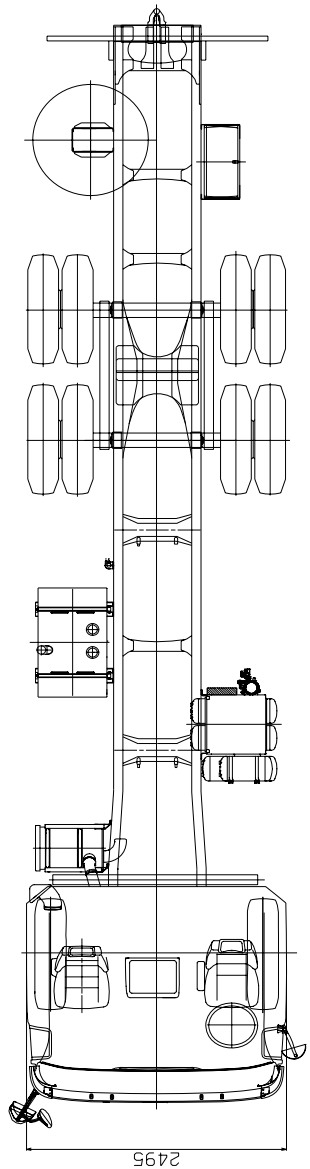
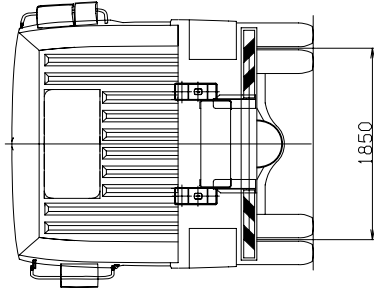
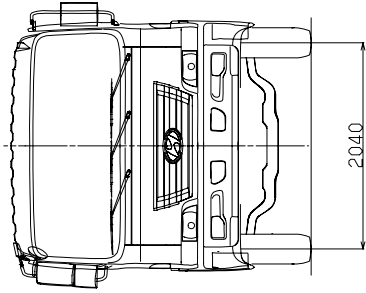


HD260	D6CA
HYUNDAI MOTOR COMPANY	

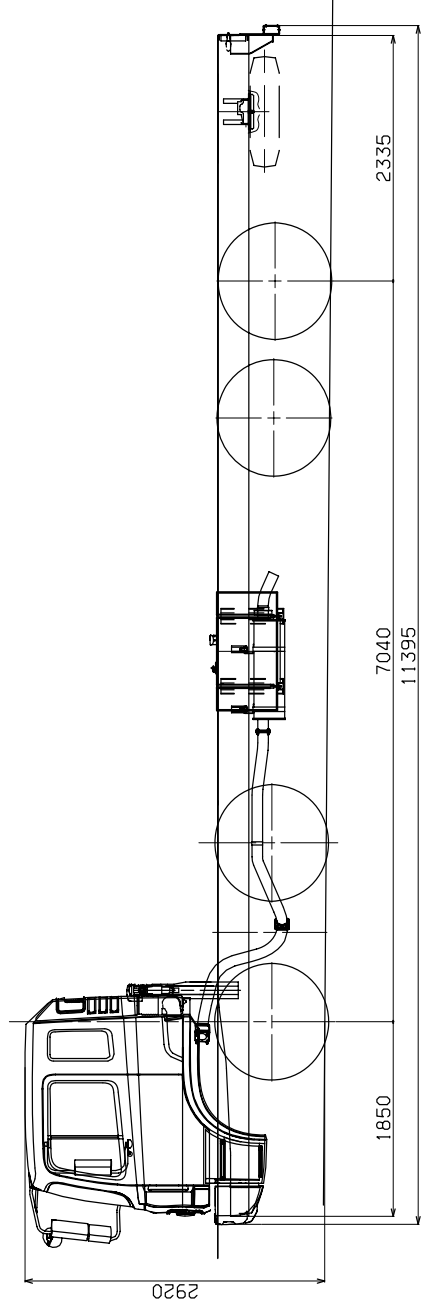
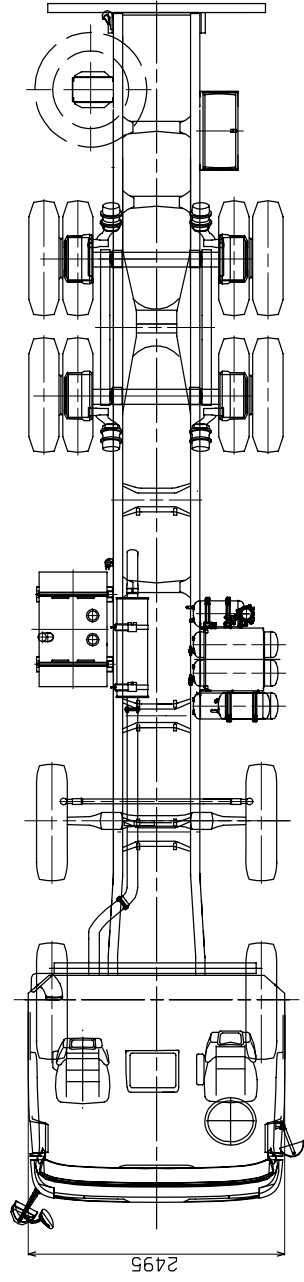
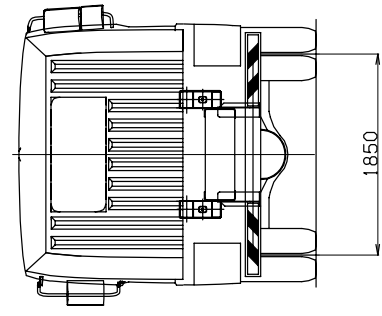
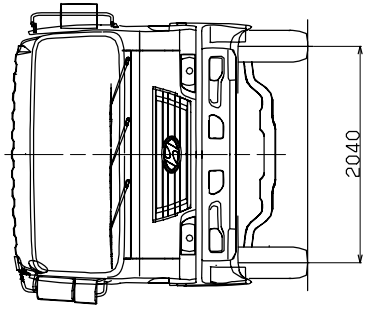


HD260	D6CA
HYUNDAI MOTOR COMPANY	

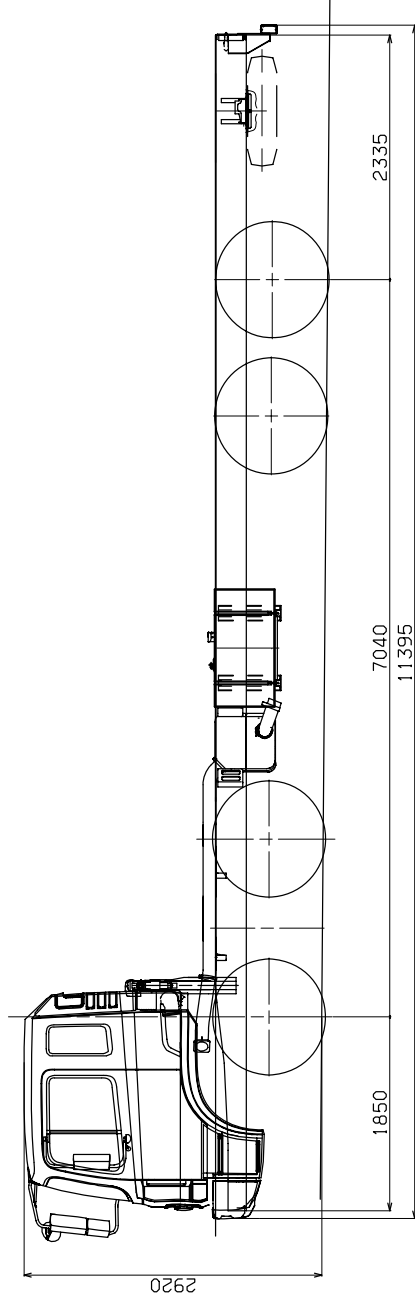
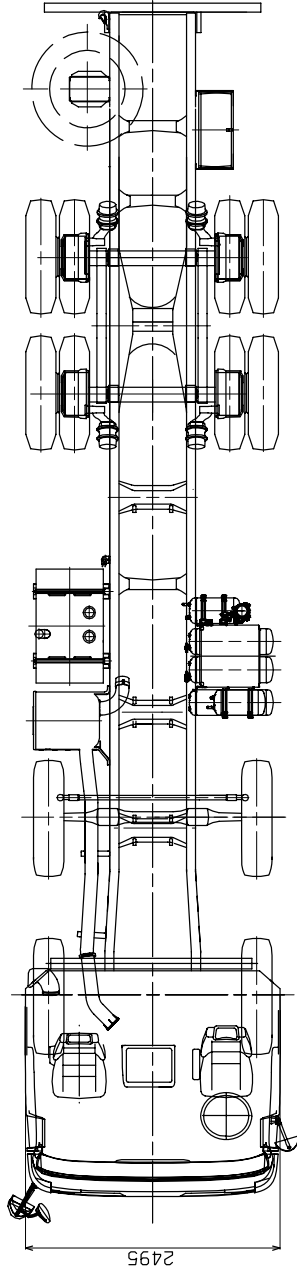
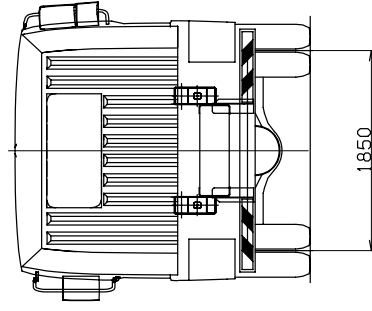
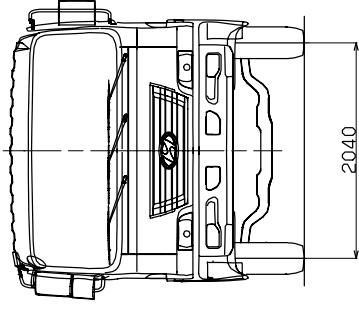




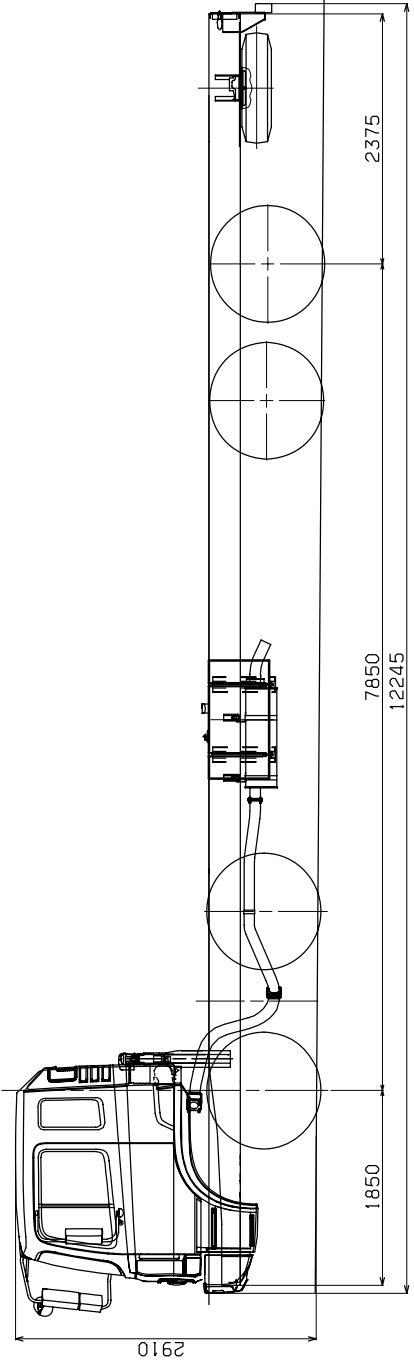
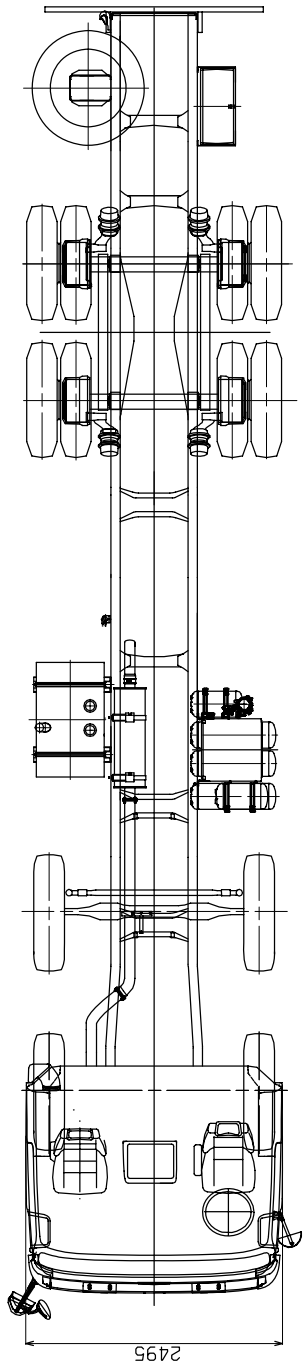
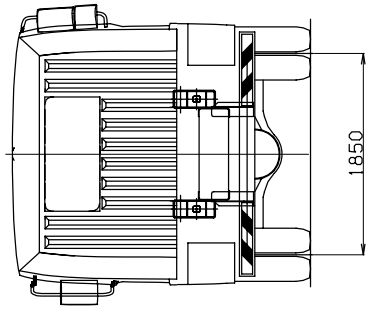
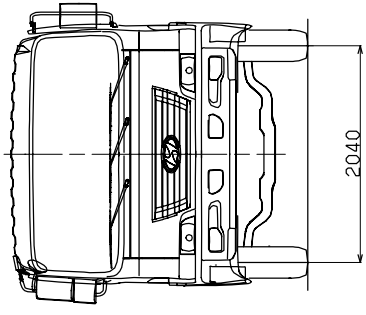
HD19M D6AC  
HYUNDAI MOTOR COMPANY



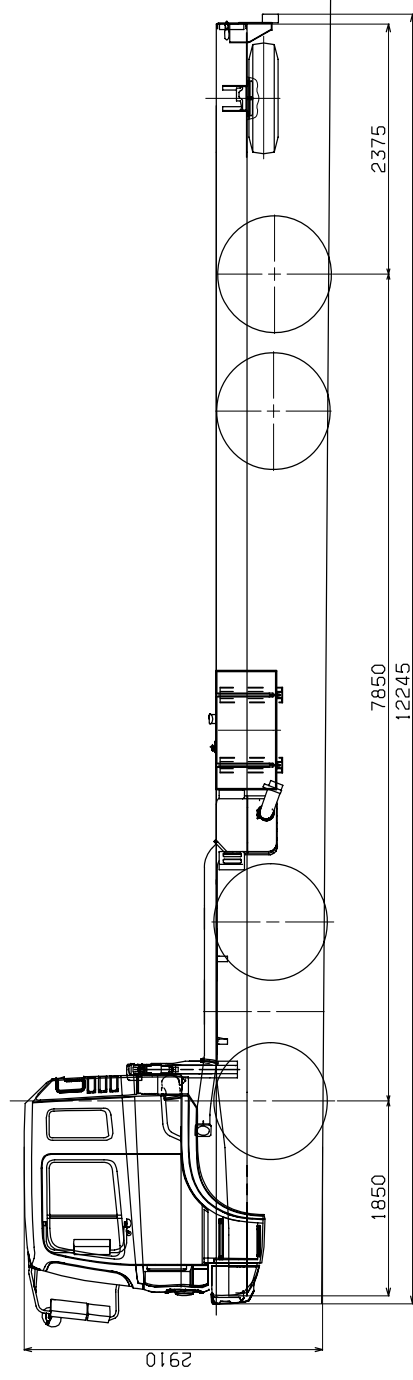
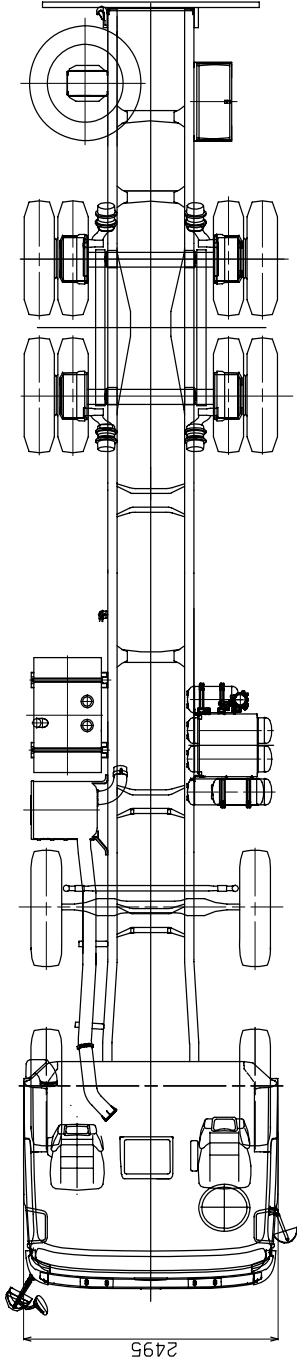
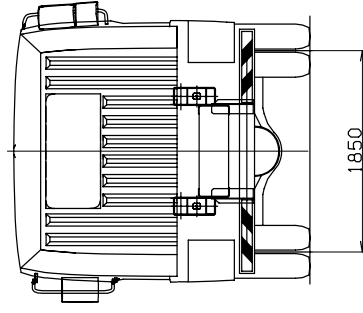
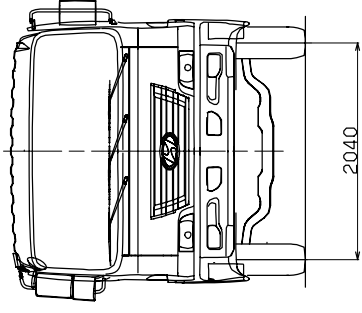
HD310	D6AC
HYUNDAI MOTOR COMPANY	



HD310	D6CA
HYUNDAI MOTOR COMPANY	



HD320	D6AC
HYUNDAI MOTOR COMPANY	

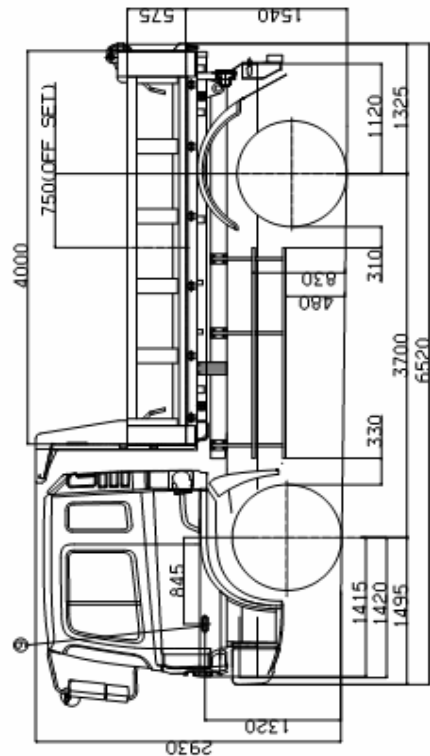
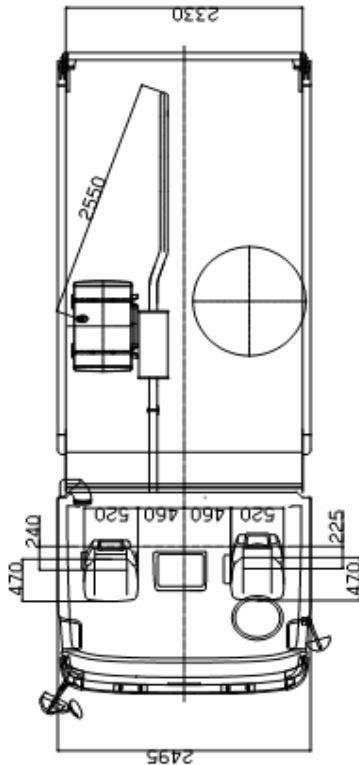
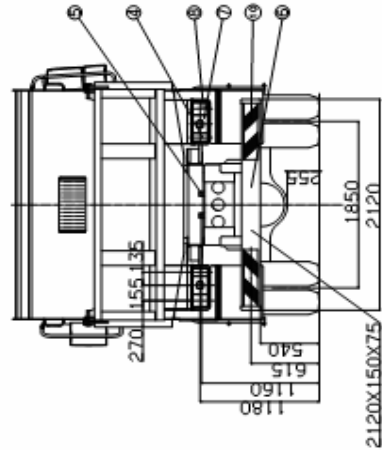
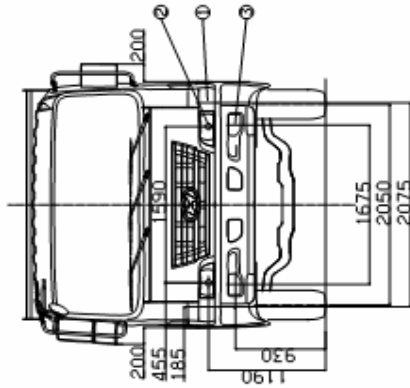


HD320

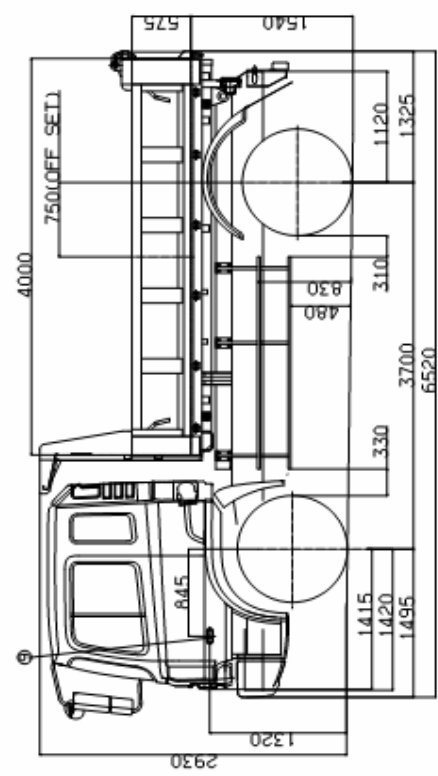
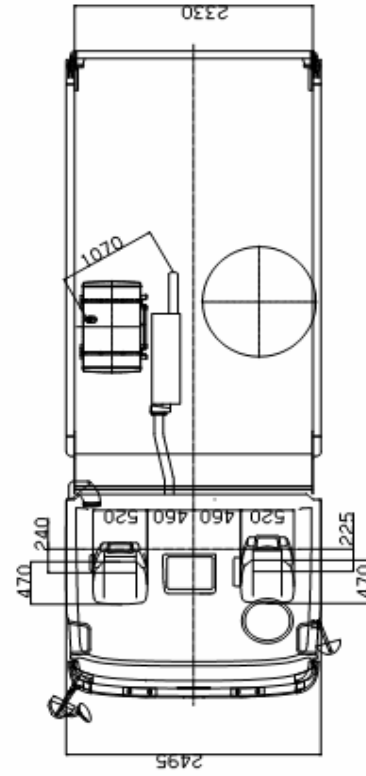
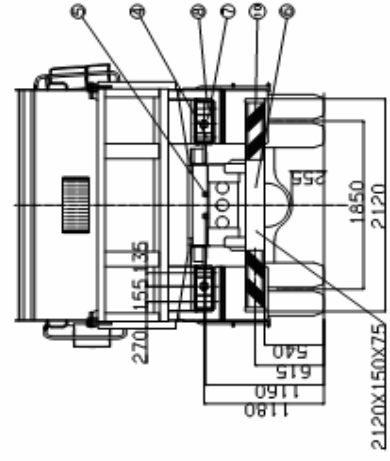
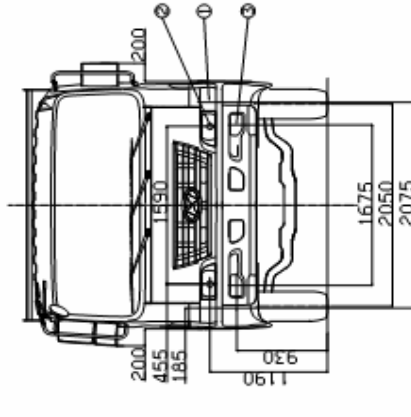
D6CA

HYUNDAI MOTOR COMPANY

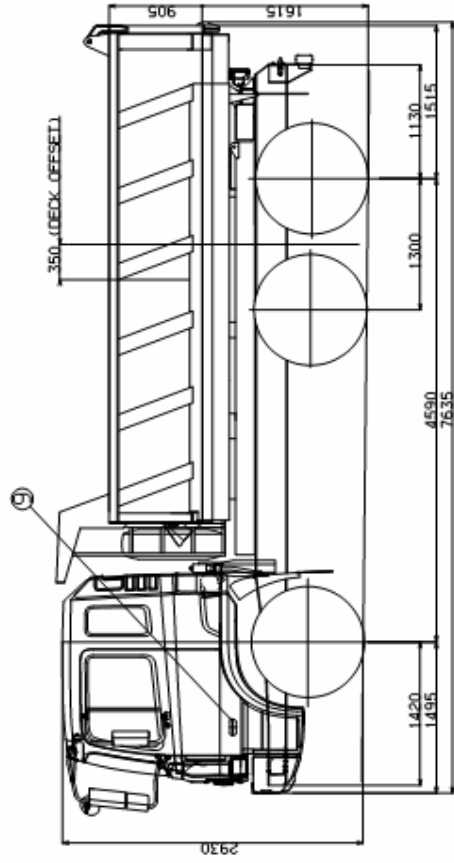
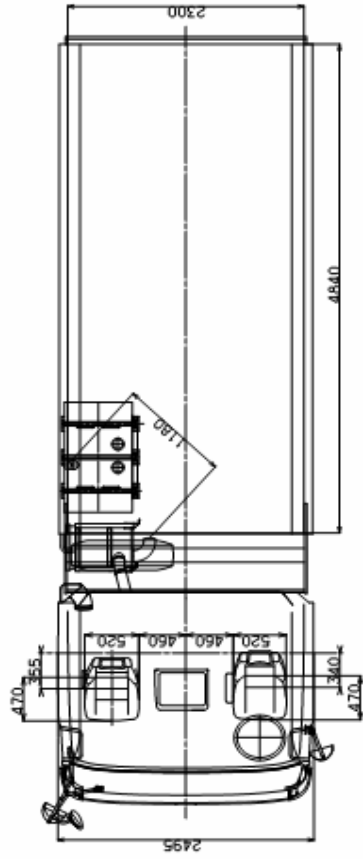
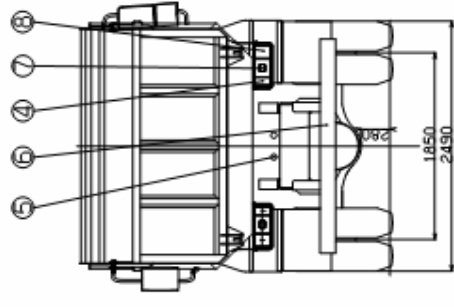
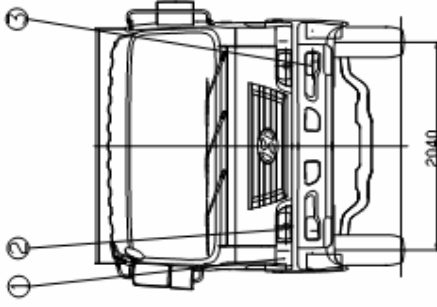
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2	CORNERING LAMP	6	REAR SAFETY GUARD		
3	HEAD LAMP, POSITION LAMP	7	TAIL LAMP, STOP LAMP		
4	FOG LAMP	8	TURN SIGNAL LAMP		
	BACK-UP LAMP	9	SIDE TURN SIGNAL LAMP		



1	TURN SIGNAL LAMP	5	LICENCE PLATE LAMP	10	REFLEX REFLECTOR
	CORNERING LAMP	6	REAR SAFETY GUARD		
2	HEAD LAMP, POSITION LAMP	7	TAIL LAMP, STOP LAMP		
3	FOG LAMP	8	TURN SIGNAL LAMP		
4	BACK-UP LAMP	9	SIDE TURN SIGNAL LAMP		

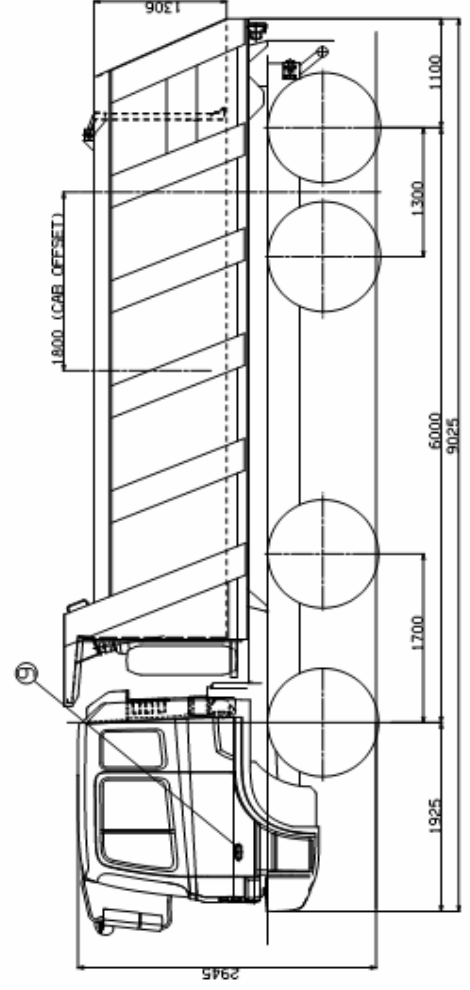
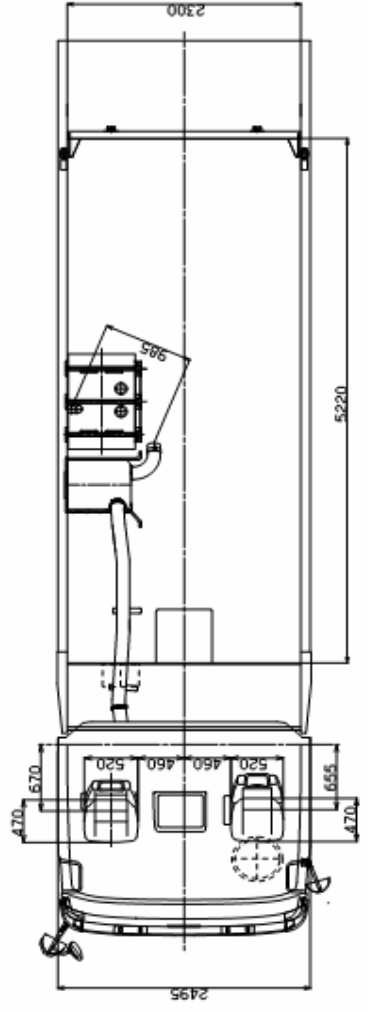
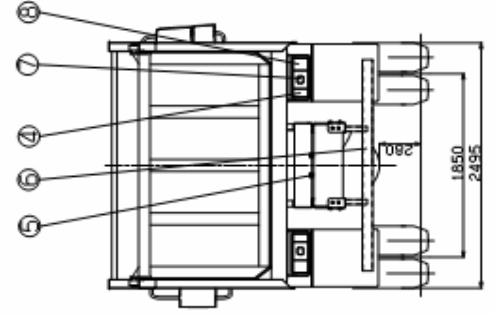
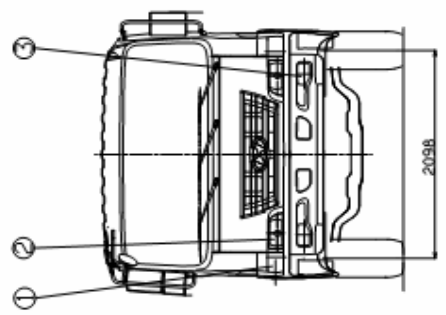


1	TURN SIGNAL LAMP	5	LICENCE PLATE LAMP
2	CORNERING LAMP	6	REAR SAFETY GUARD
3	HEAD LAMP, POSITION LAMP	7	TAIL LAMP, STOP LAMP
4	FOG LAMP	8	TURN SIGNAL LAMP
	BACK-UP LAMP	9	SIDE TURN SIGNAL LAMP

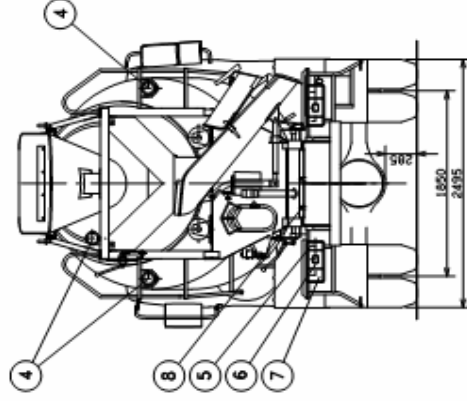
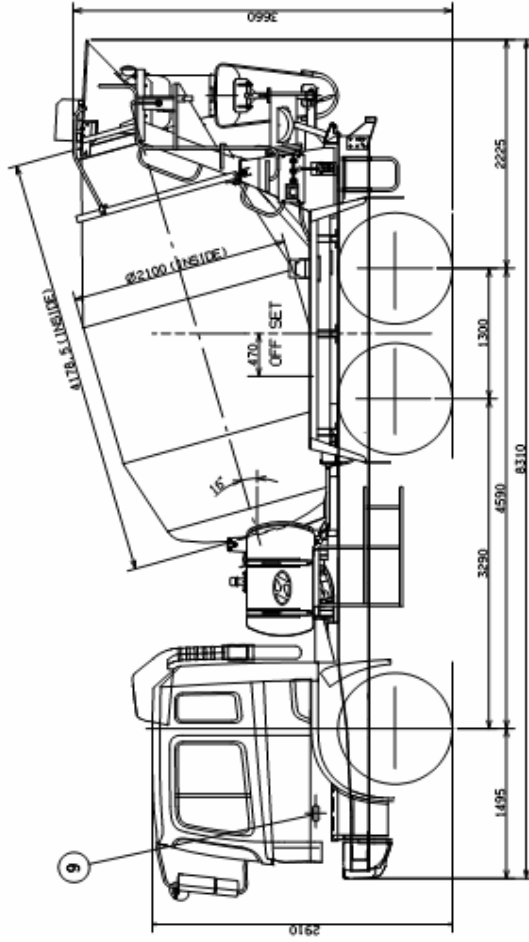
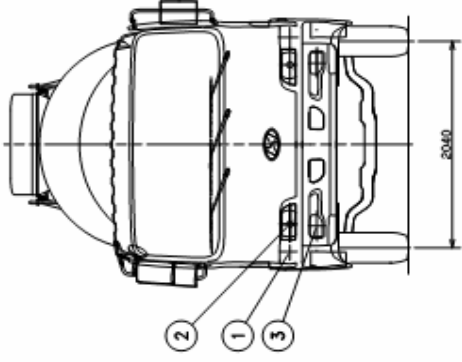
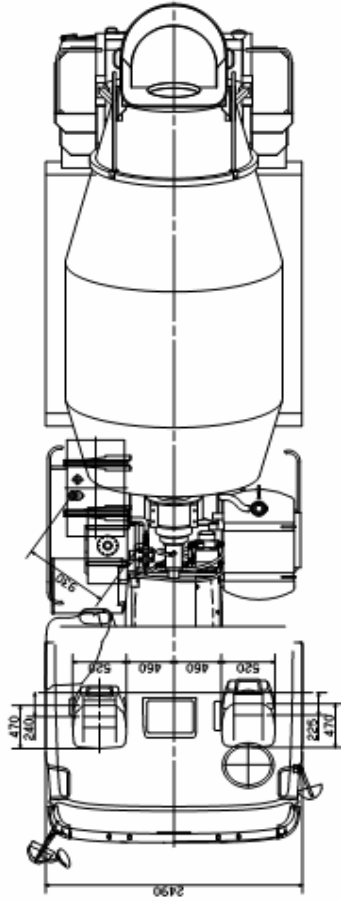




1	TURN SIGNAL LAMP	5	LICENCE PLATE LAMP
	CORNERING LAMP	6	REAR SAFETY GUARD
2	HEAD LAMP, POSITION LAMP	7	TAIL LAMP, STOP LAMP
3	FOG LAMP	8	TURN SIGNAL LAMP
4	BACK-UP LAMP	9	SIDE TURN SIGNAL LAMP

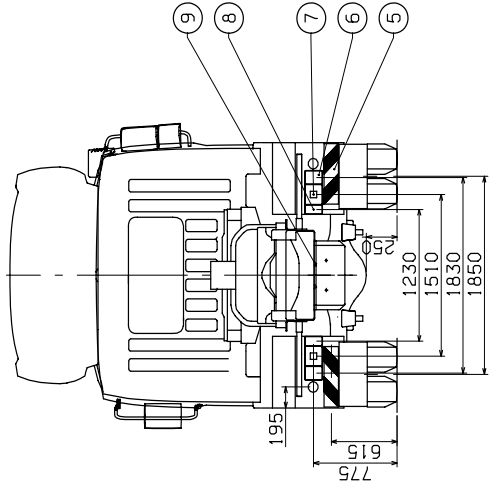
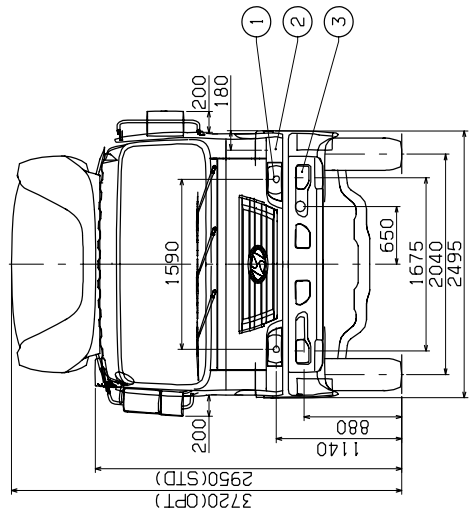
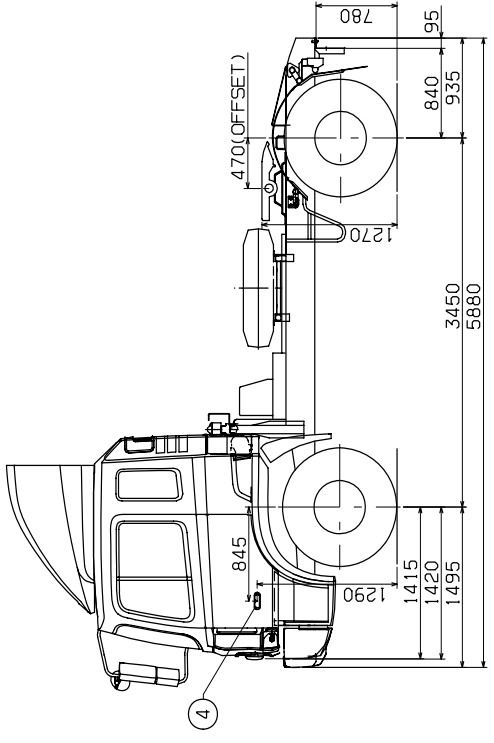
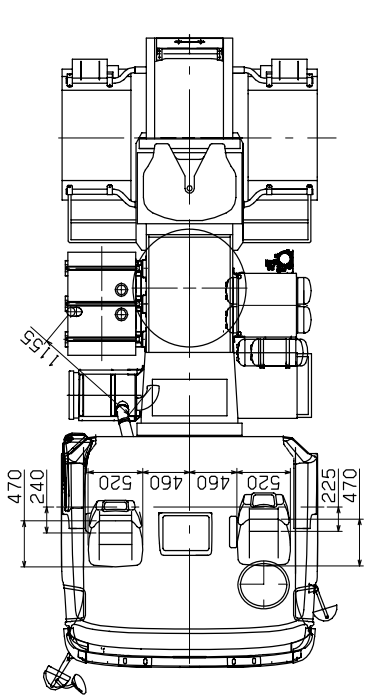


1	TURN SIGNAL LAMP	5	BACK-UP LAMP
2	CORNERING LAMP	6	TAIL LAMP, STOP LAMP
3	HEAD LAMP	7	TURN SIGNAL LAMP
4	FOG LAMP	8	LICENCE PLATE LAMP
9	WORKING LAMP	9	TURN SIGNAL LAMP



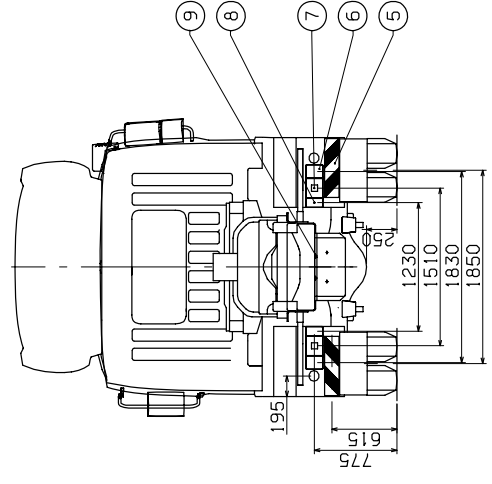
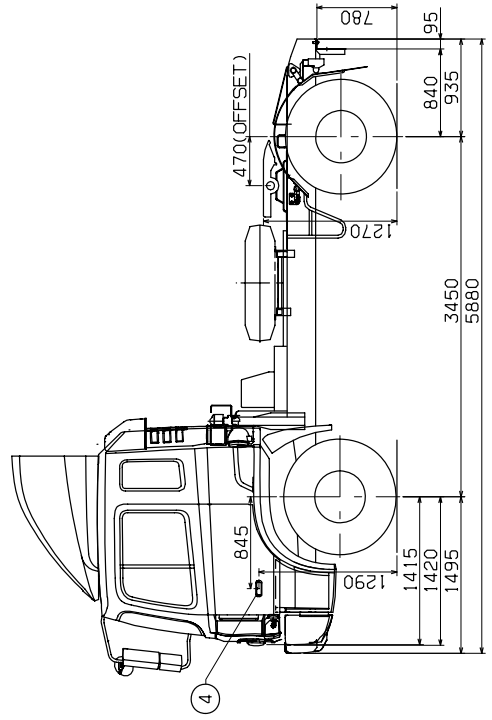
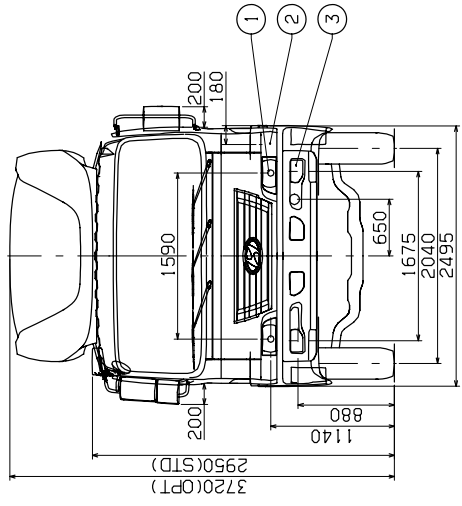
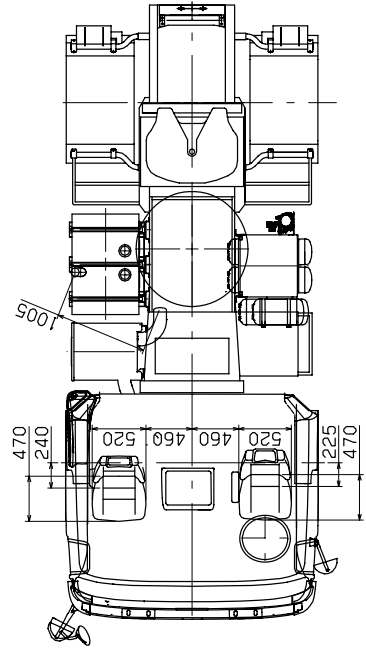
HD270 D6CA  
HYUNDAI MOTOR COMPANY

1 HEAD LAMP	6 TURN SIGNAL LAMP
2 TURN SIGNAL LAMP	7 TAIL LAMP, STOP LAMP
3 FOG LAMP	8 BACK-UP LAMP
4 SIDE TURN SIGNAL LAMP	9 LICENCE PLATE LAMP
5 REFLEX REFLECTOR	

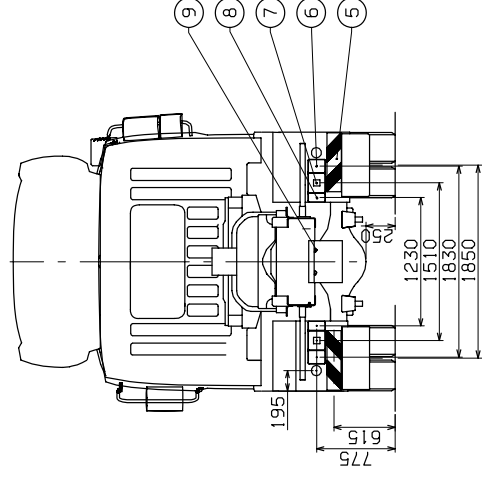
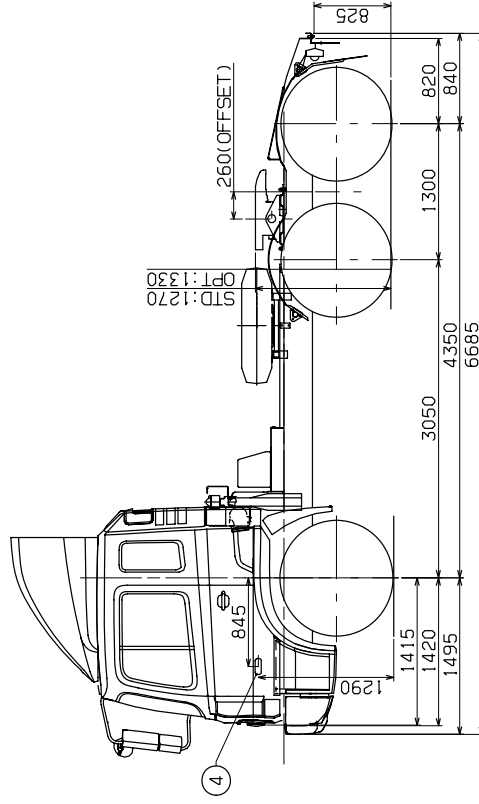
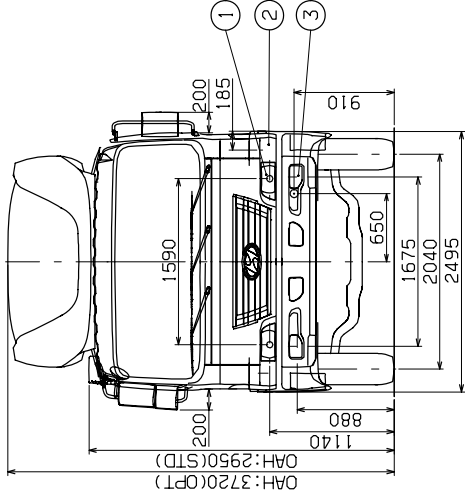
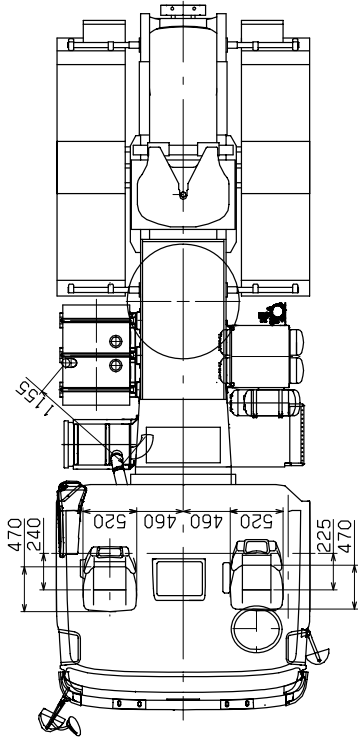


HD450 D6AC  
HYUNDAI MOTOR COMPANY

1	HEAD LAMP	6	TURN SIGNAL LAMP
2	TURN SIGNAL LAMP	7	TAIL LAMP, STOP LAMP
3	FOG LAMP	8	BACK-UP LAMP
4	SIDE TURN SIGNAL LAMP	9	LICENCE PLATE LAMP
5	REFLEX REFLECTOR		

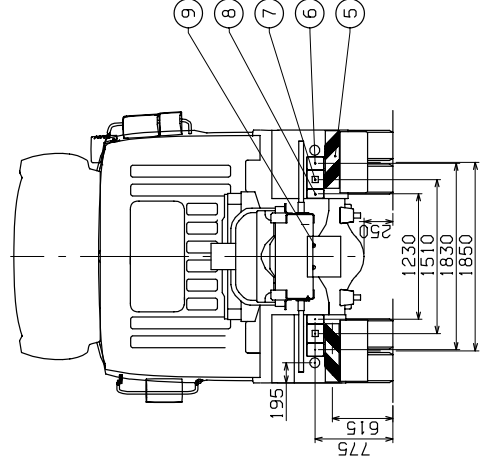
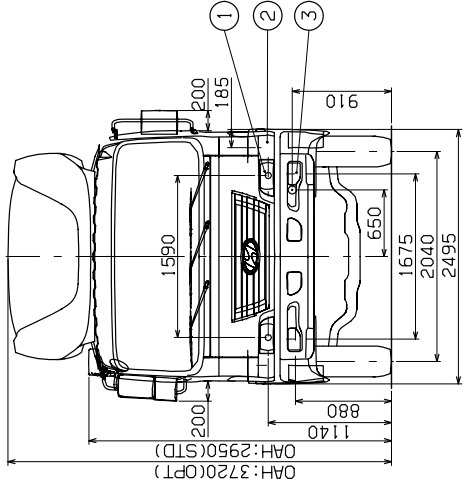
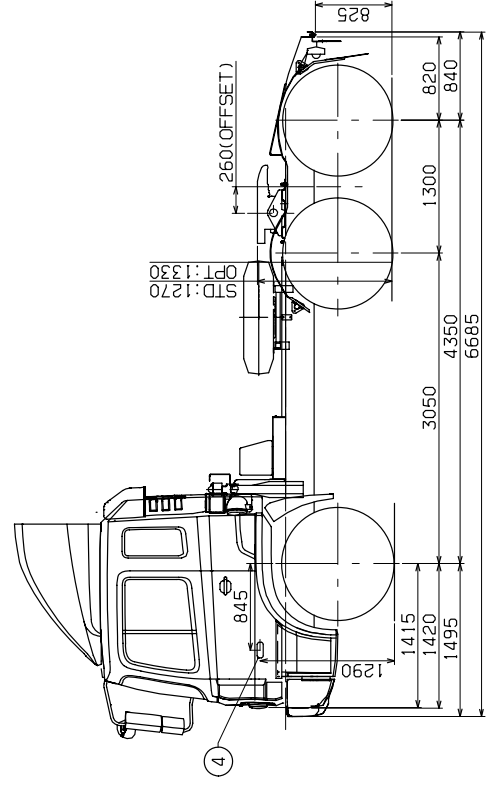
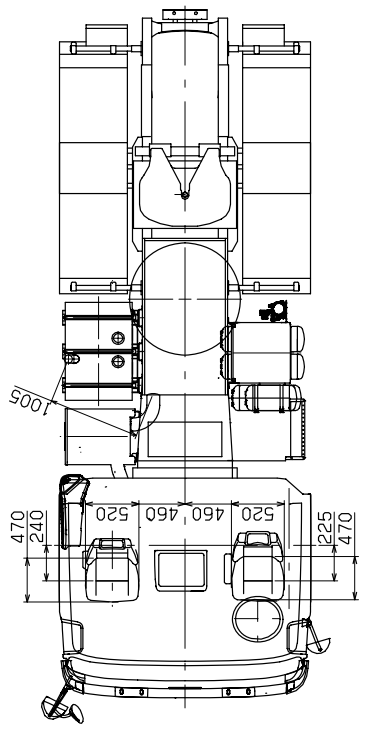


1 HEAD LAMP	6 TURN SIGNAL LAMP
2 TURN SIGNAL LAMP	7 TAIL LAMP, STOP LAMP
3 FOG LAMP	8 BACK-UP LAMP
4 SIDE TURN SIGNAL LAMP	9 LICENCE PLATE LAMP
5 REFLEX REFLECTOR	



HD700 D6AC  
HYUNDAI MOTOR COMPANY

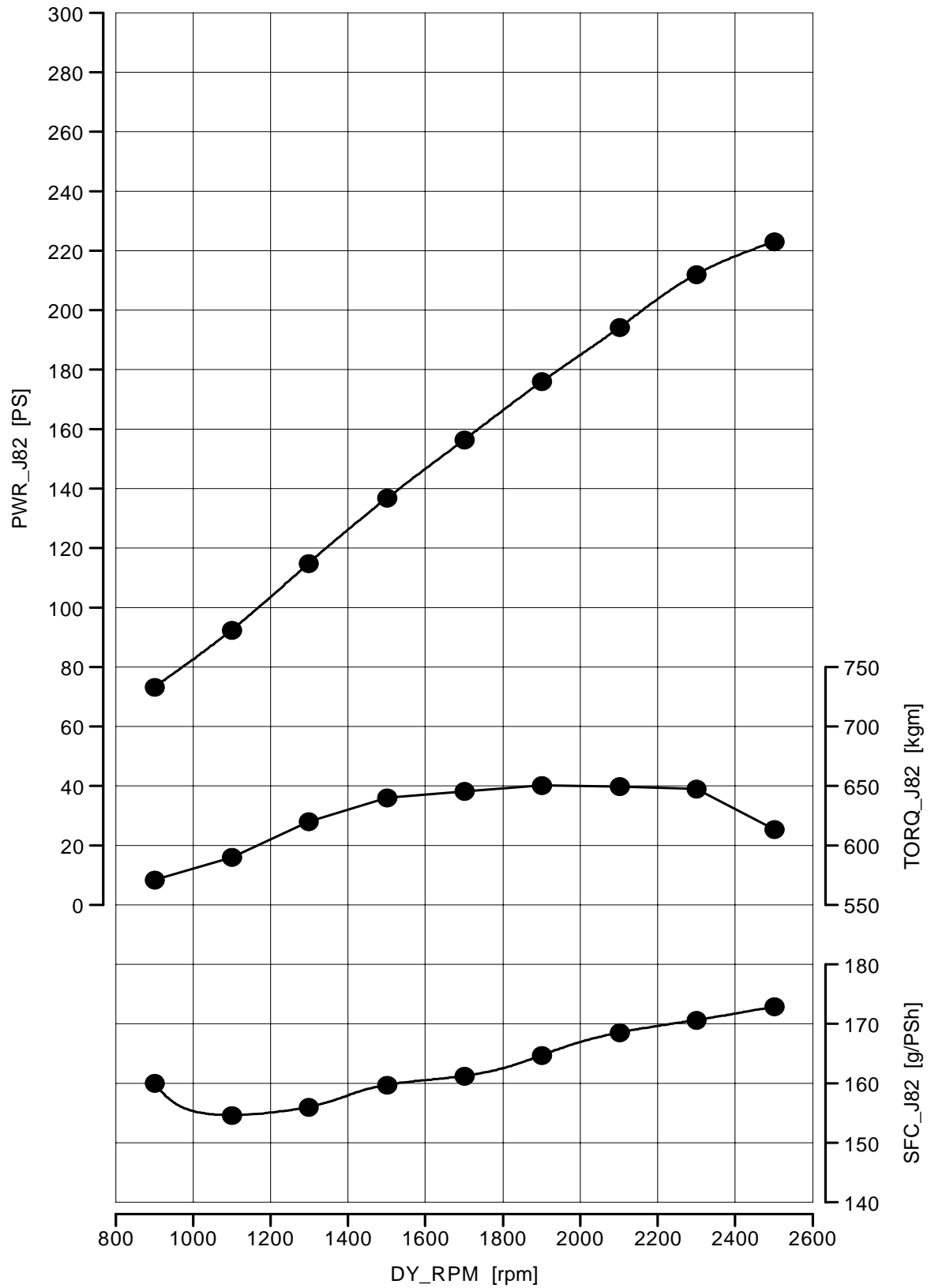
1 HEAD LAMP	6 TURN SIGNAL LAMP
2 TURN SIGNAL LAMP	7 TAIL LAMP, STOP LAMP
3 FOG LAMP	8 BACK-UP LAMP
4 SIDE TURN SIGNAL LAMP	9 LICENCE PLATE LAMP
5 REFLEX REFLECTOR	



## 4. ENGINE PERFORMANCE CURVE

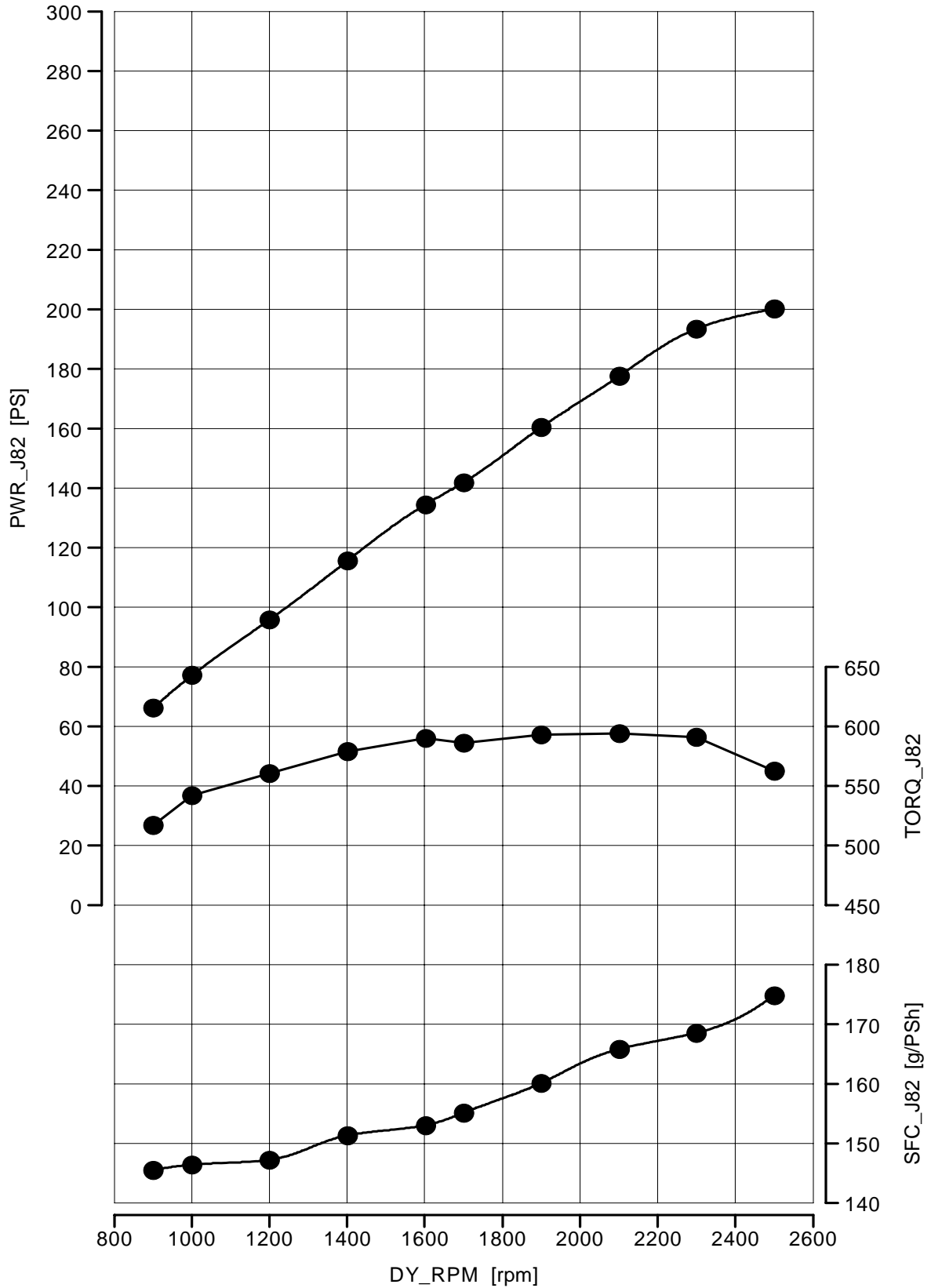
#### 4. ENGINE PERFORMANCE CURVE

##### 1) KK-TCI (HIGH HORSE POWER)

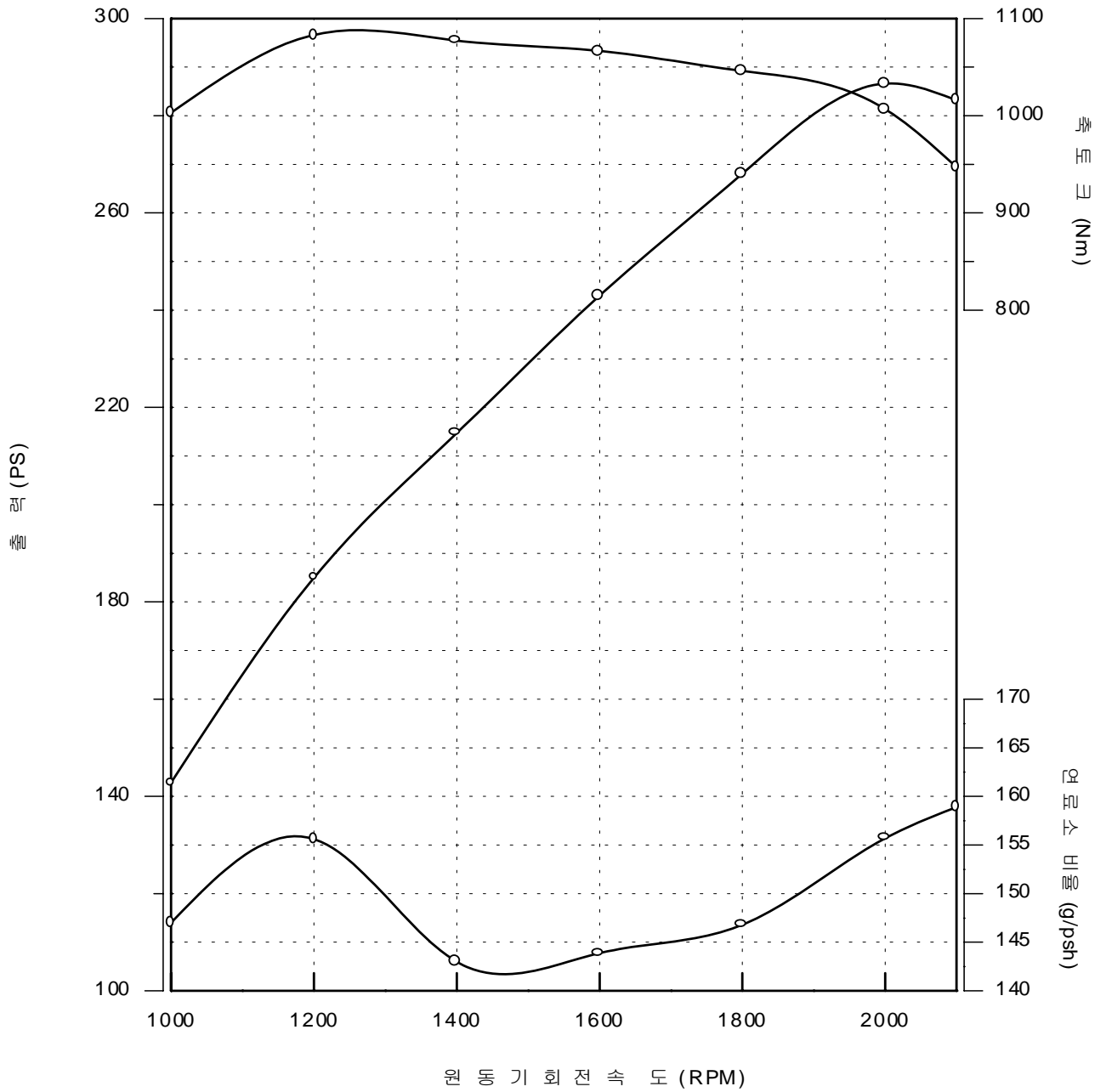




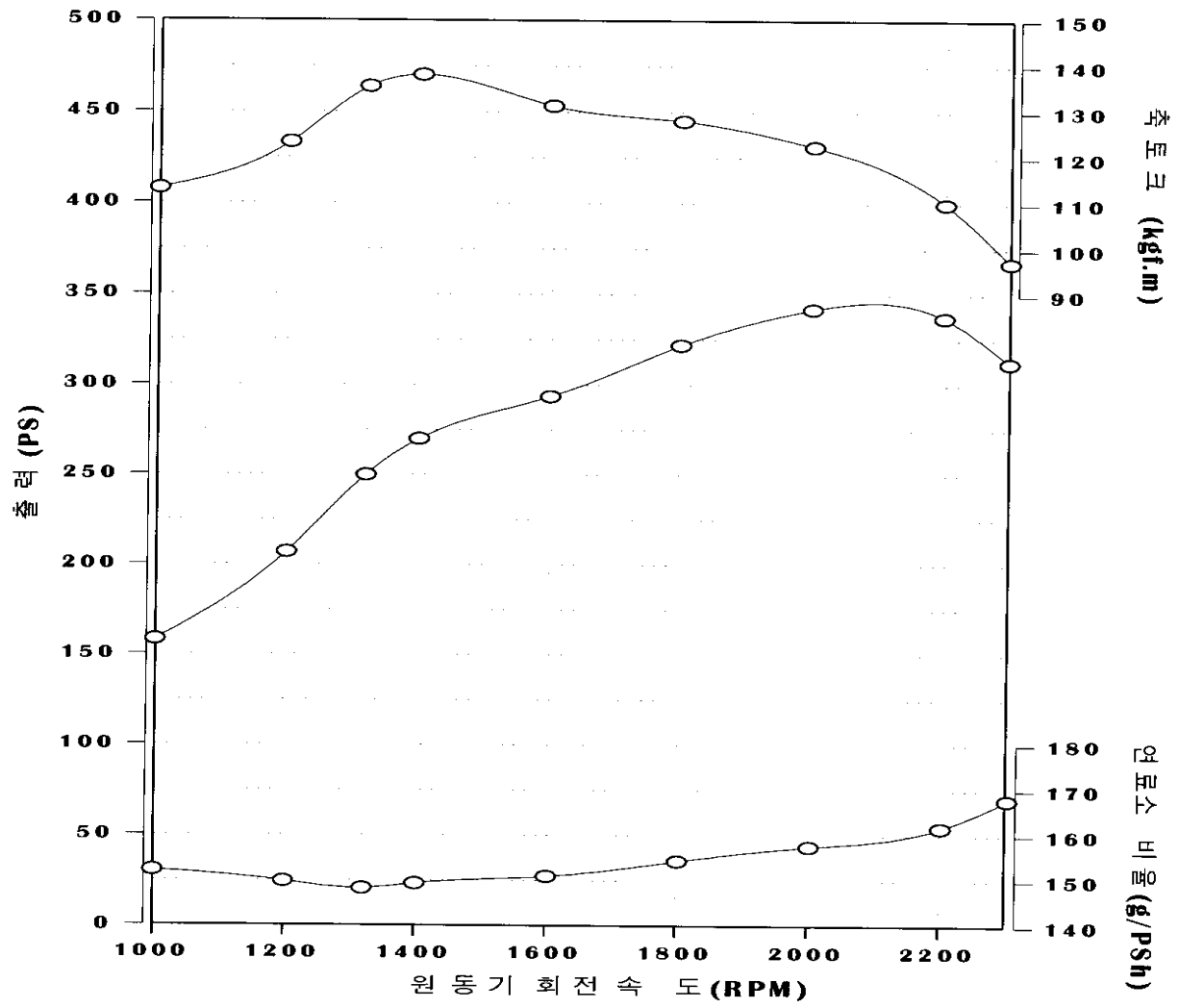
2) KK-TCI (LOW HORSE POWER)



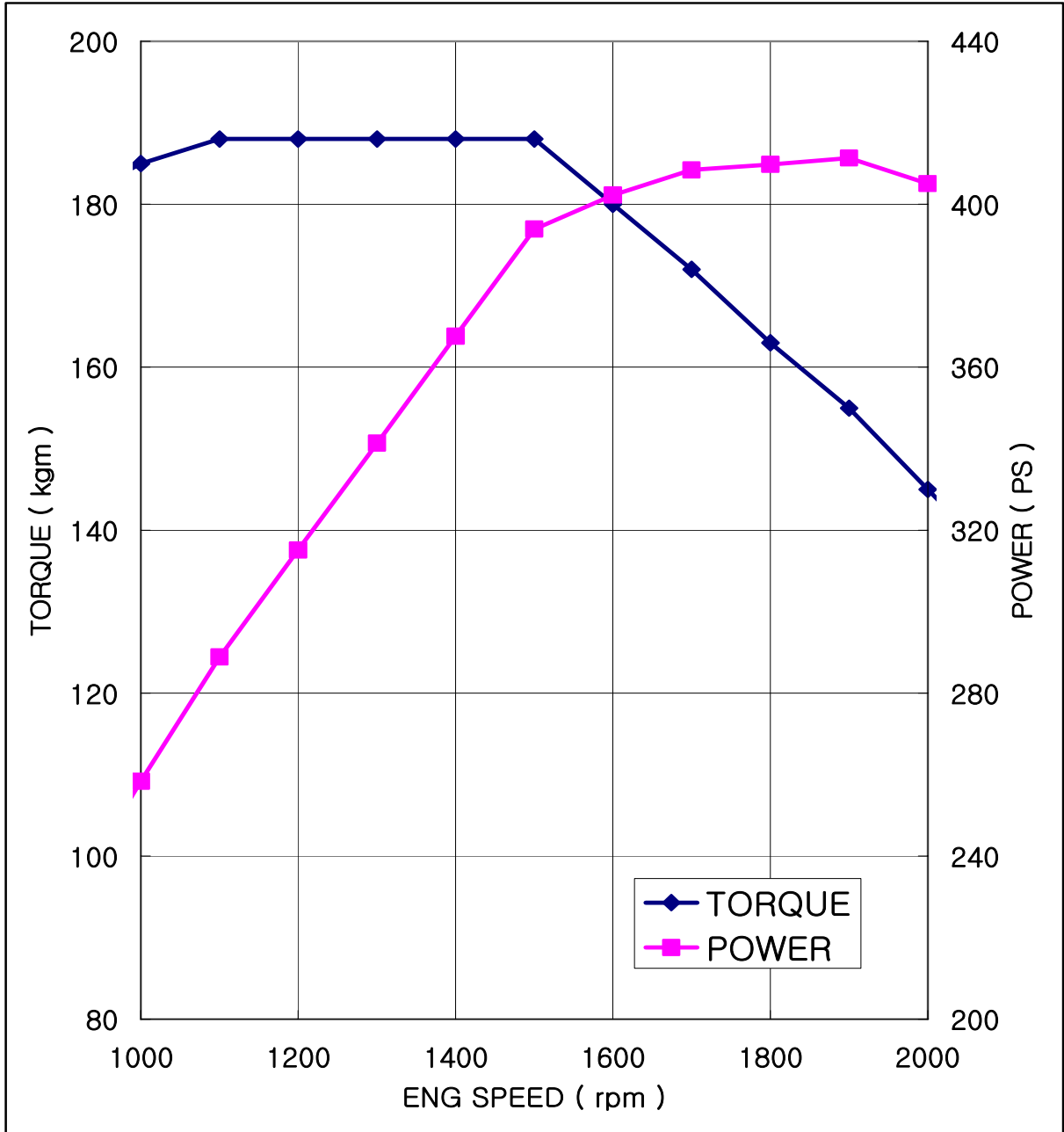
3) Q-dd(D6AB-dd)



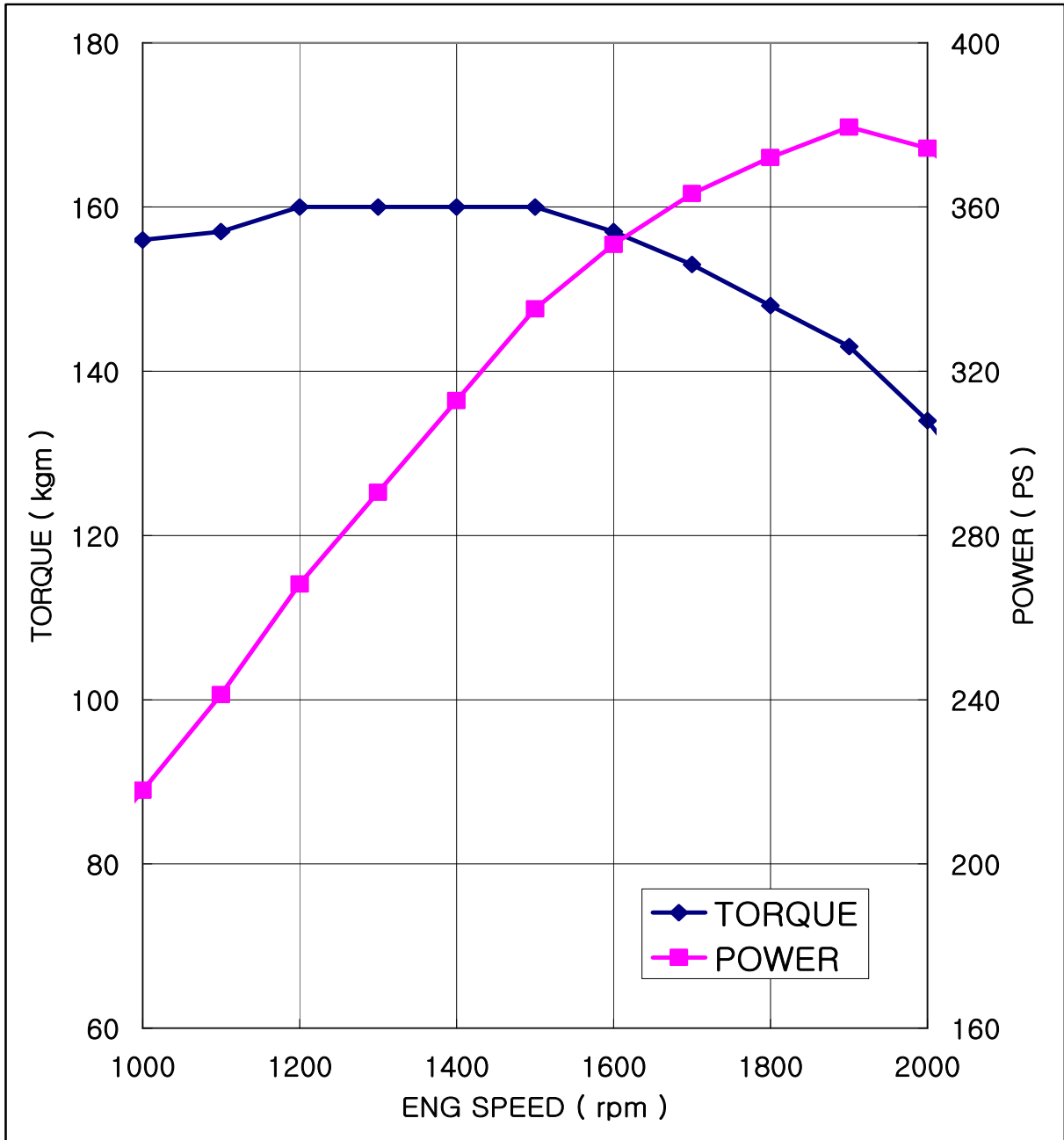
4) D6AC



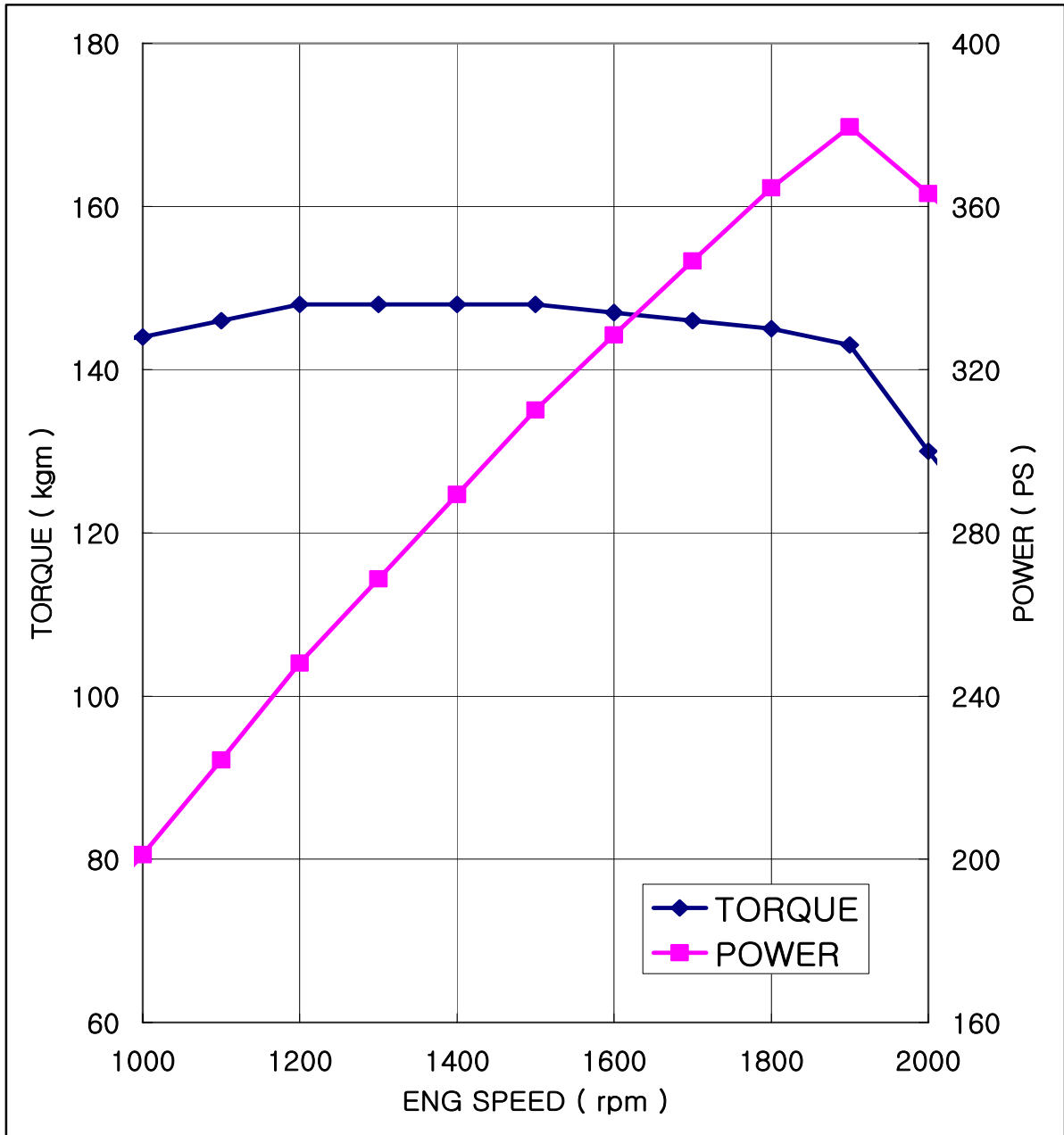
5) L1D



6) L2D - A



7) L2D-B



## 5. CAUTIONS REGARDING INSTALLATION MODIFICATION OR ALTERATION

## 5-1. Cautions needed for the front structure of the rear body

The structure of the front area of the rear body in relation to front wheel tires, exhaust pipe, cab and intake duct should be installed carefully as the followings.

(1) Move of the cab and the intake duct

In case of applying the floating cab mounting, be free from interference with the cab and the intake duct. Make reference to the appendix drawing for the moving range of the cab and the intake duct.

(2) Sub frame

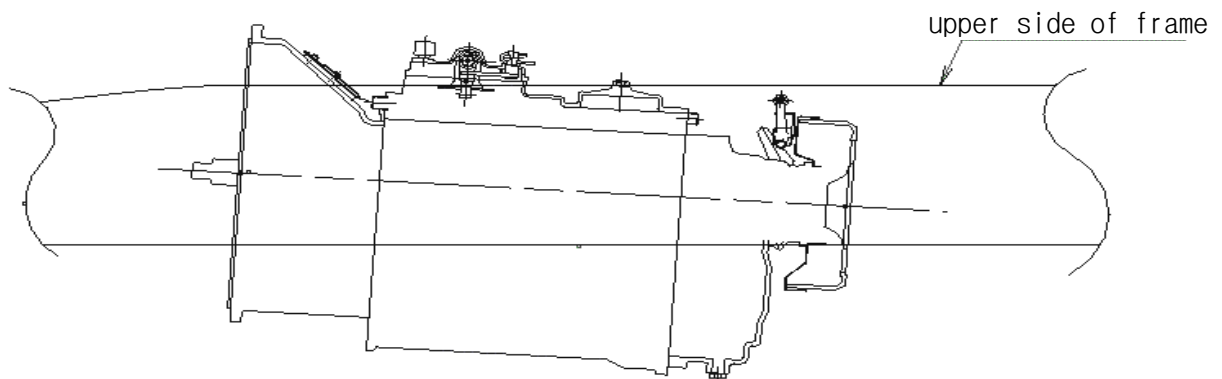
As the forward area of the sub frame is near exhaust pipe, be careful not to take fire by adding a protector to the outside of the sub frame. Also the ground clearance of the rear body floor and the height of fender should be more than 50mm from tires. Make reference to BODY BUILDER DRAWING for a rising quantity of tires. If the height of sub frame is low, as strength drops, use the steel sub frame surely in using the sub frame less than standard height. Make reference to the paragraph 2-2-4, COMMON BOOK of BODY BUILDER BOOK for dimension of the steel frame.

(3) Foremost cross bearer

As it nearby exhaust pipe, use steel instead of wood. Also make sure that there is a space of detaching transmission.

(4) Projecting relation of the upper side of transmission and chassis frame

As harness connector and the sensor of gear shift unit are on the upper side of transmission, be free from ascending the upper side of transmission.



(5) Object for stain prevention between cab and rear body

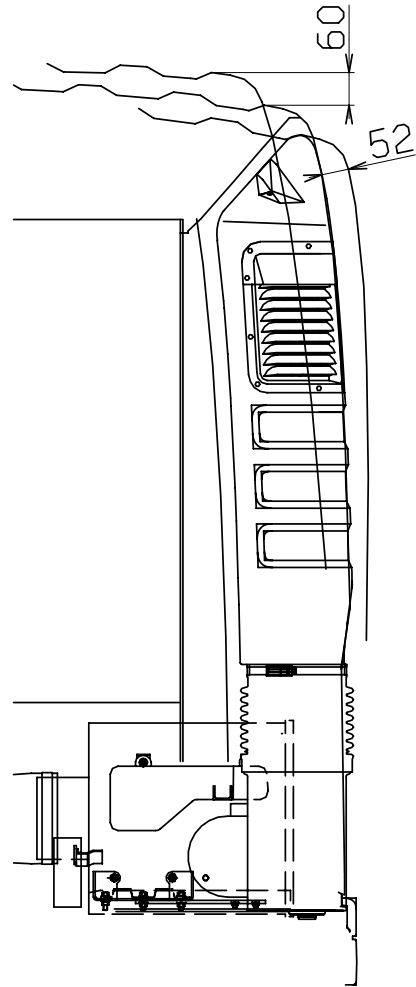
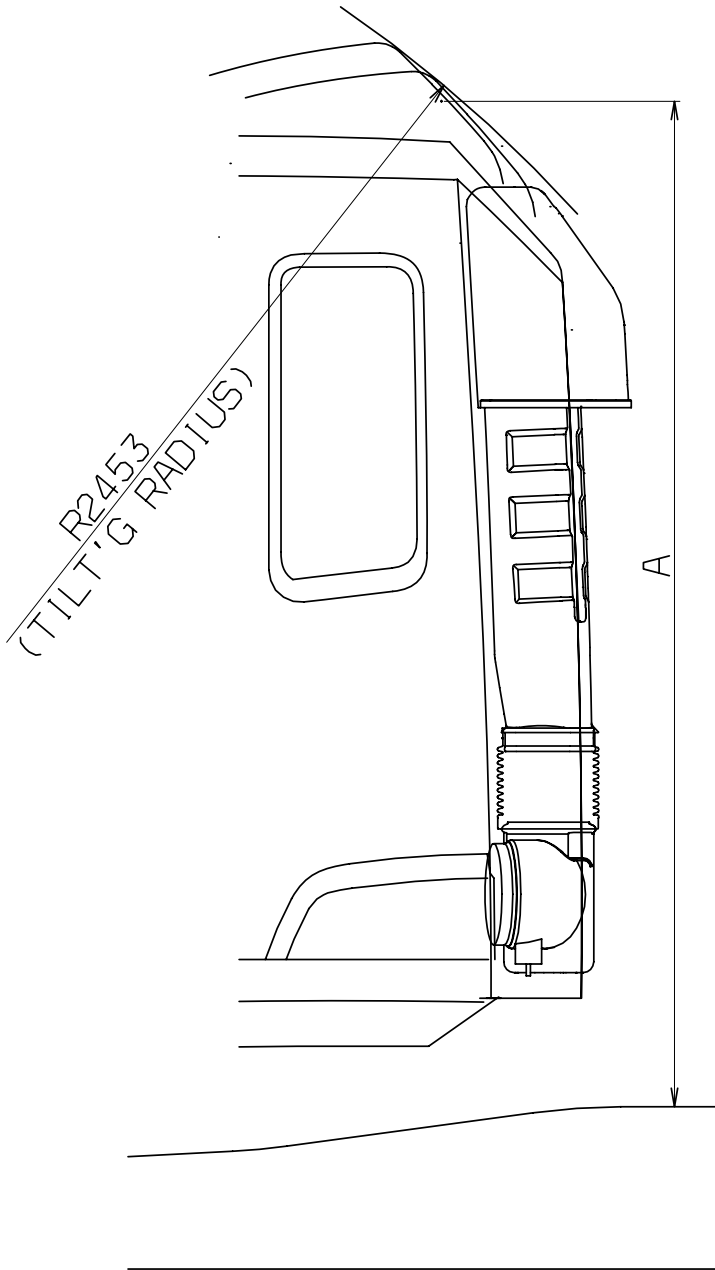
Install a object for stain prevention between cab and rear body figure to prevent stain by front forward wheels as the appendix drawing.

(6) Front and rear wheel fender

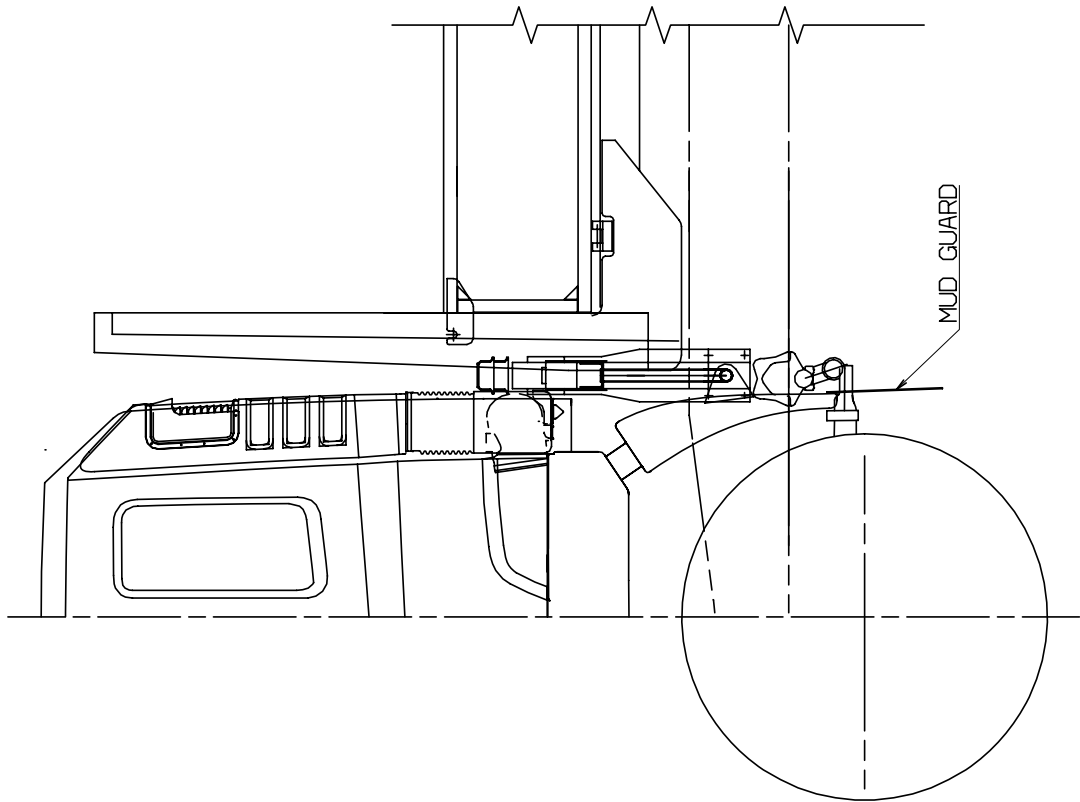
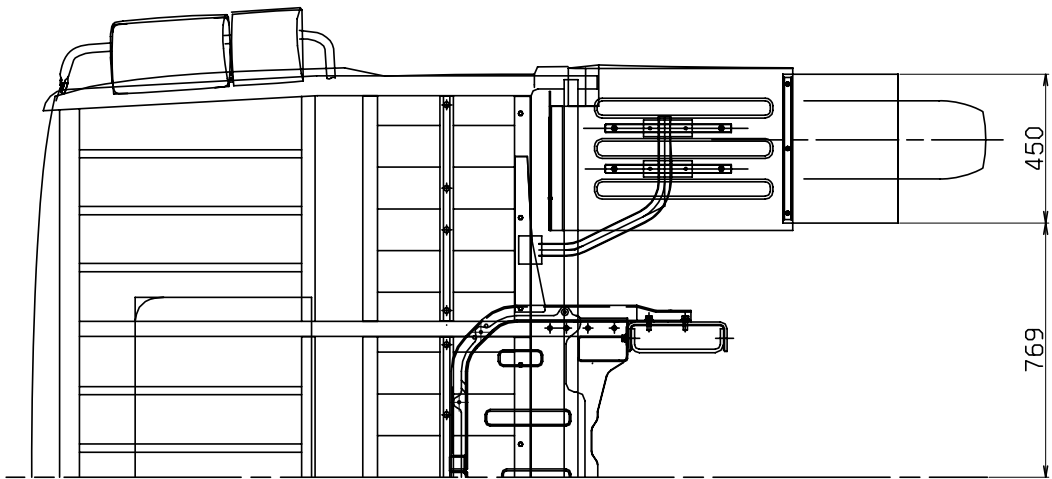
Make reference to the appendix drawing for the height of fender and mudguard. Also make reference to the paragraph 2-2-5, COMMON BOOK of BODY BUILDER BOOK.



\*.) Move of the cab and the intake duct

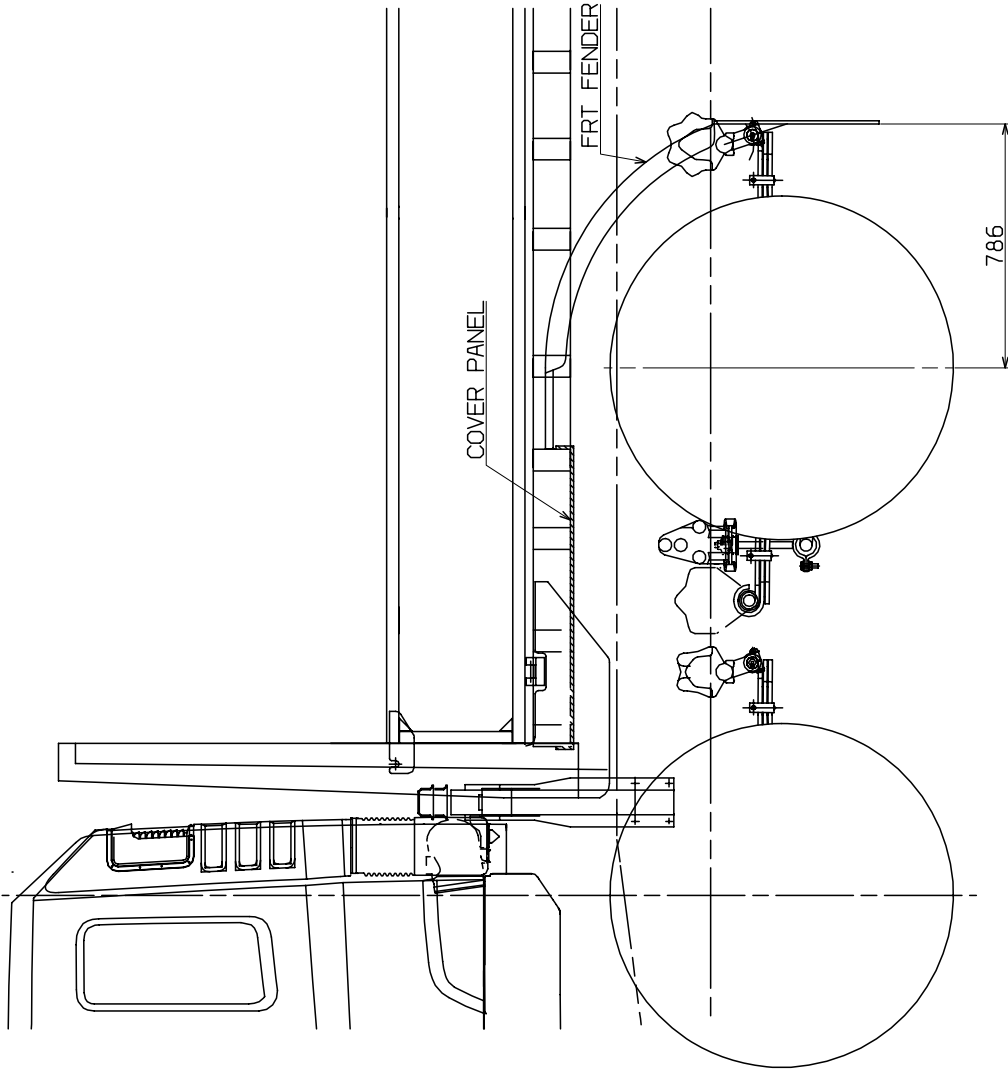
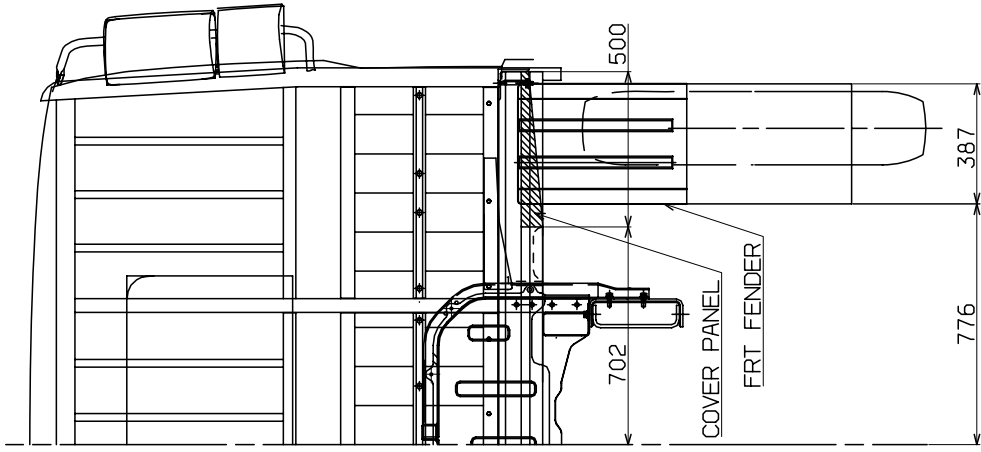


MODEL	A
CARGO, DUMP	1943
TRACTOR	1963



(4X2 CARGO, DUMP, TRT)  
 (6X4 CARGO, DUMP, TRT)

\*) REFERENCE DRAWING OF MUD GUARD

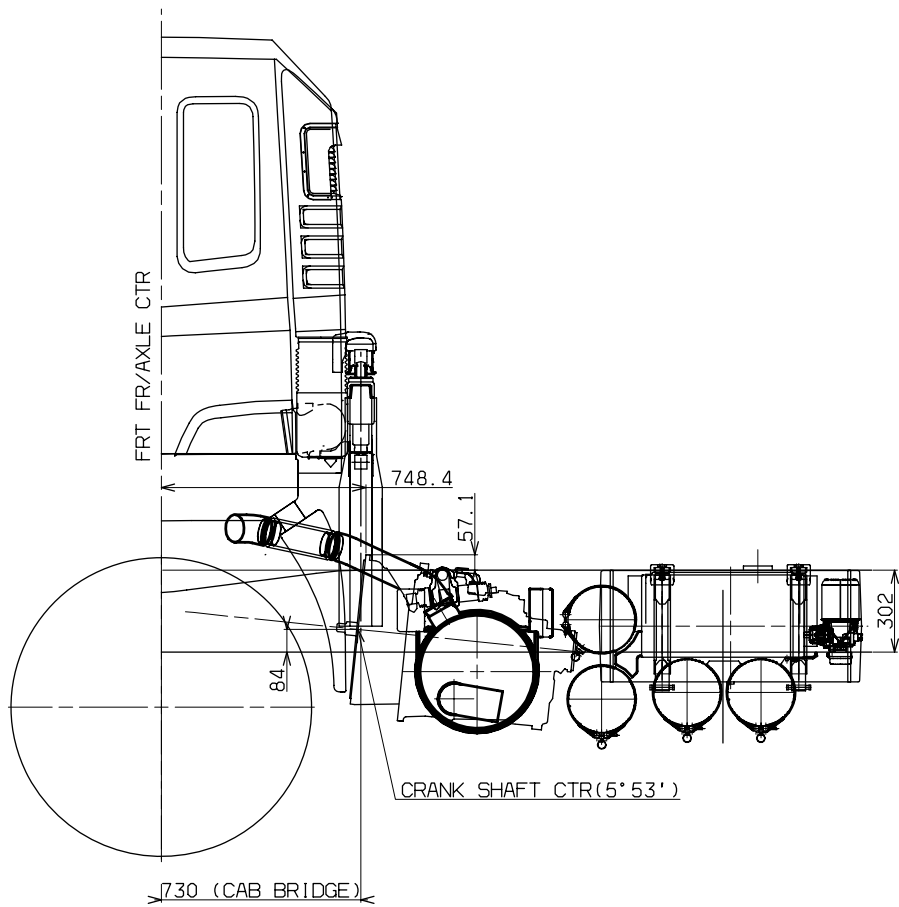
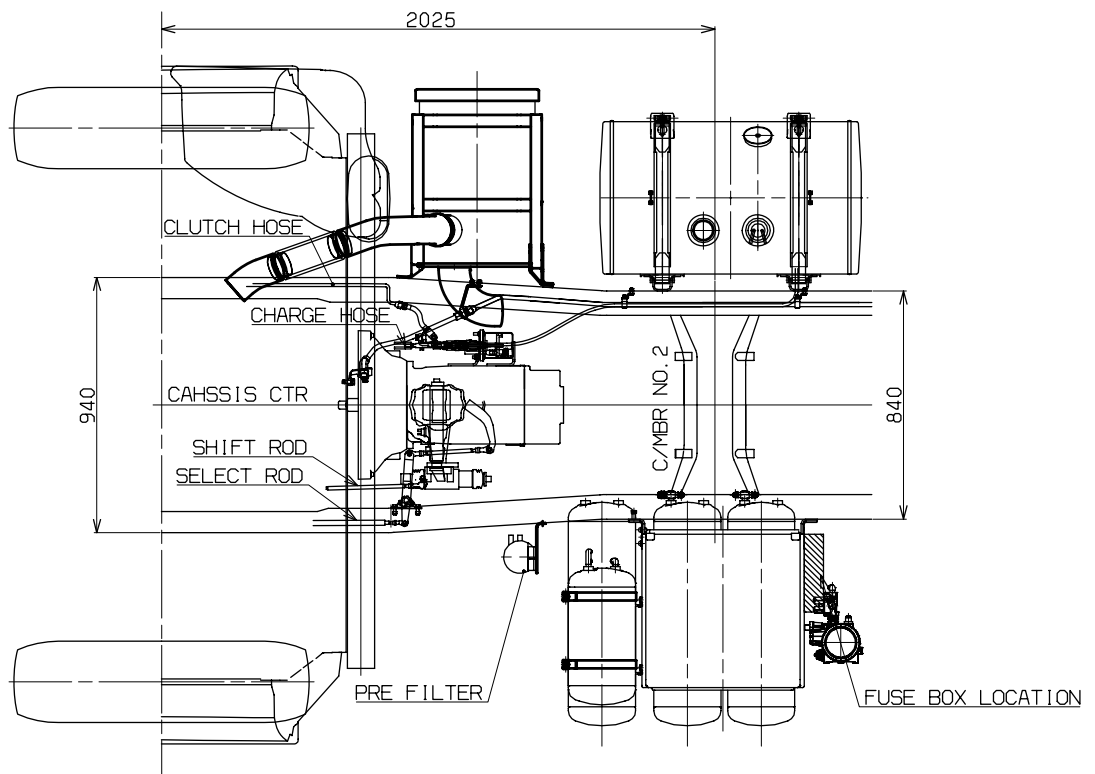


(8X4 CARGO, DUMP)

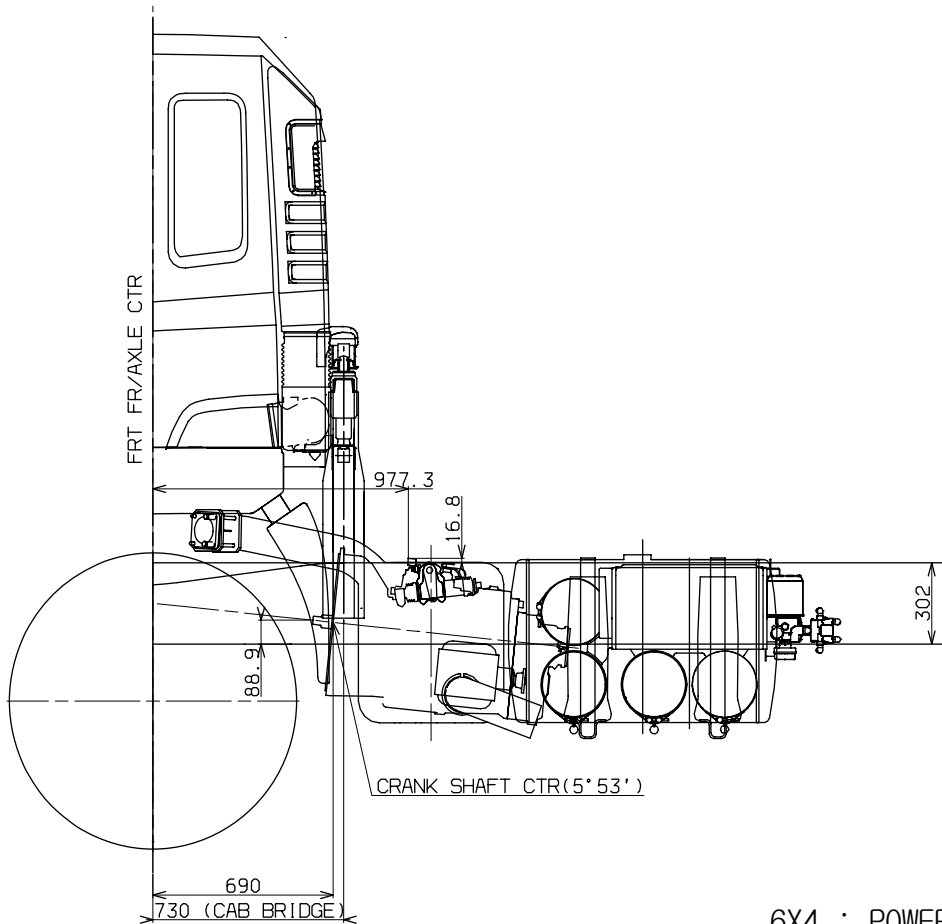
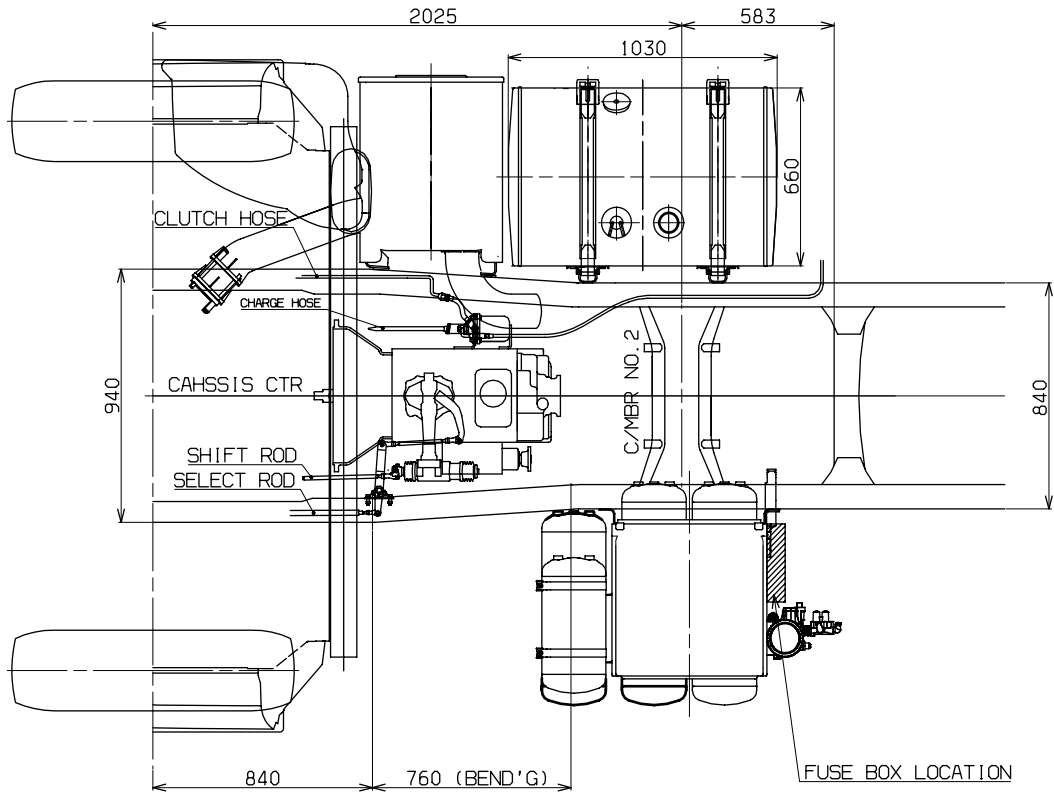
## 5-2. Cautions needed for fastening UPPER BODY MT'G

In case of fastening UPPER BODY MT'G between the cab rear and No.2 cross member, refer to the appendix fastening drawing U-bolt, don't fasten U-bolt to the taper-cut portion frame.

Inevitable, in mounting sub frame and the like on the taper-cut portion of sub frame, make reference to the COMMON BOOK of BODY BUILDER BOOK.



4x2,6X4 : D6AC(Q-dd)

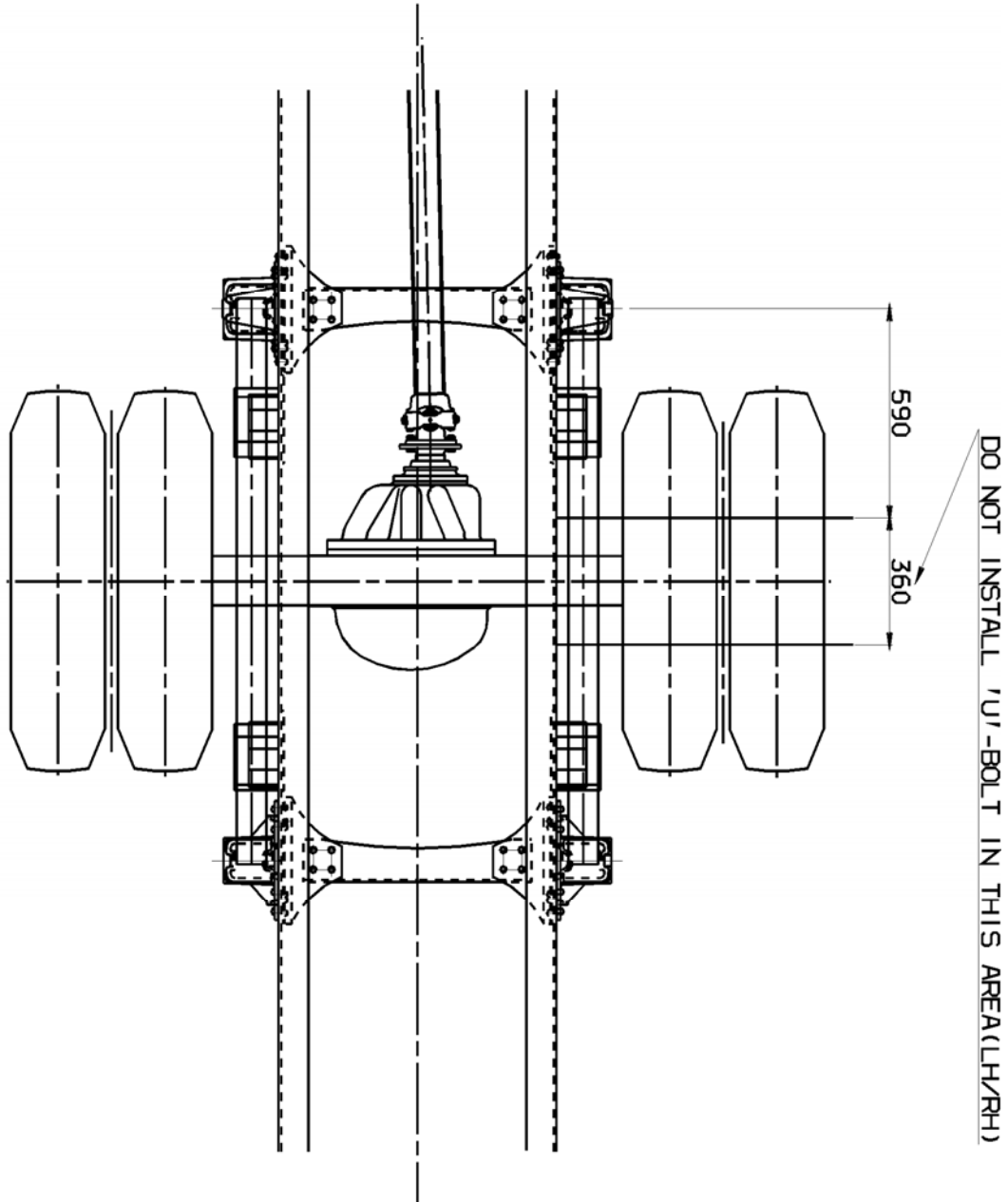


6X4 : POWERTEC

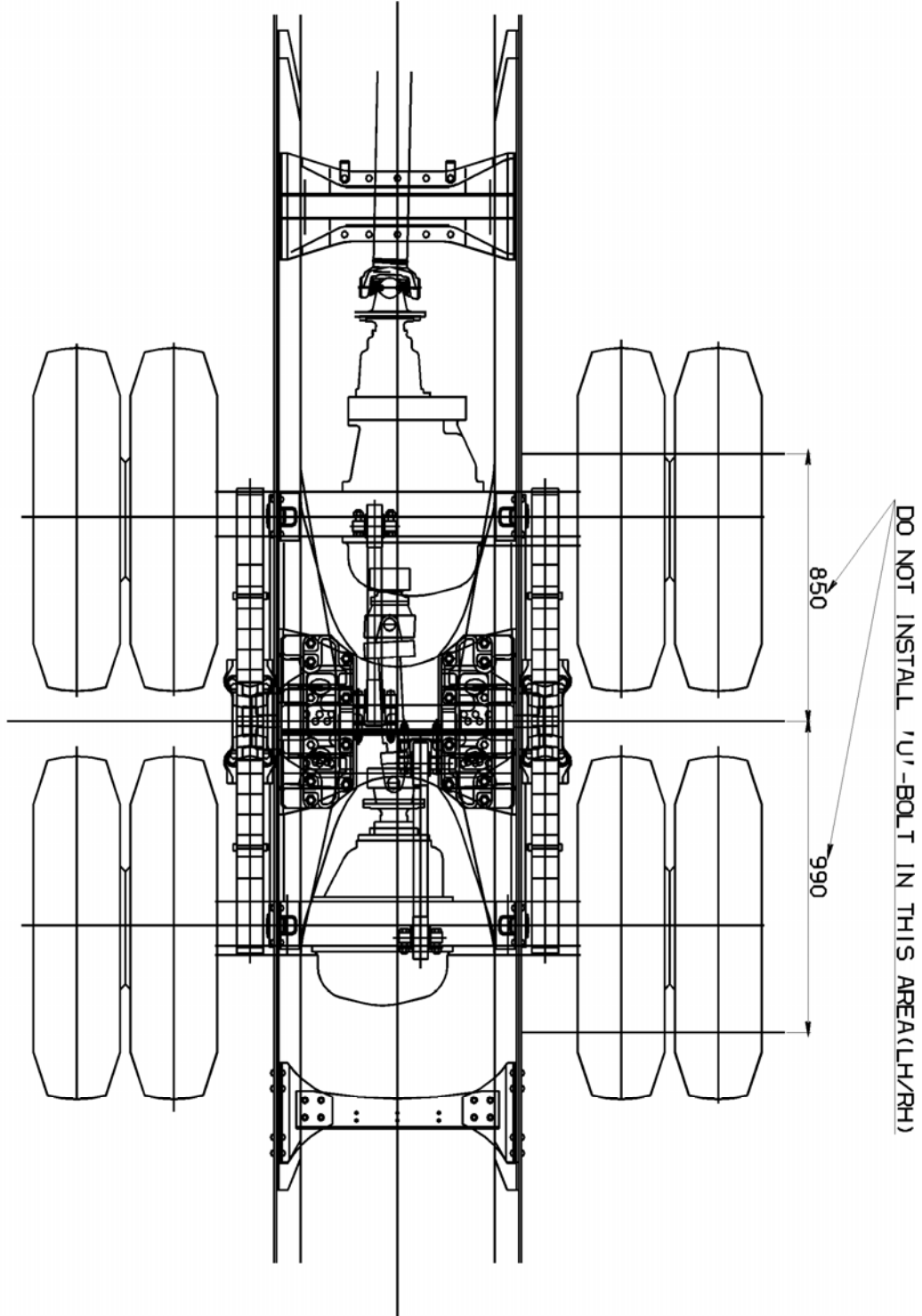
\*.) REAR AXLE AREA

4X2 CARGO

4X2 DUMP

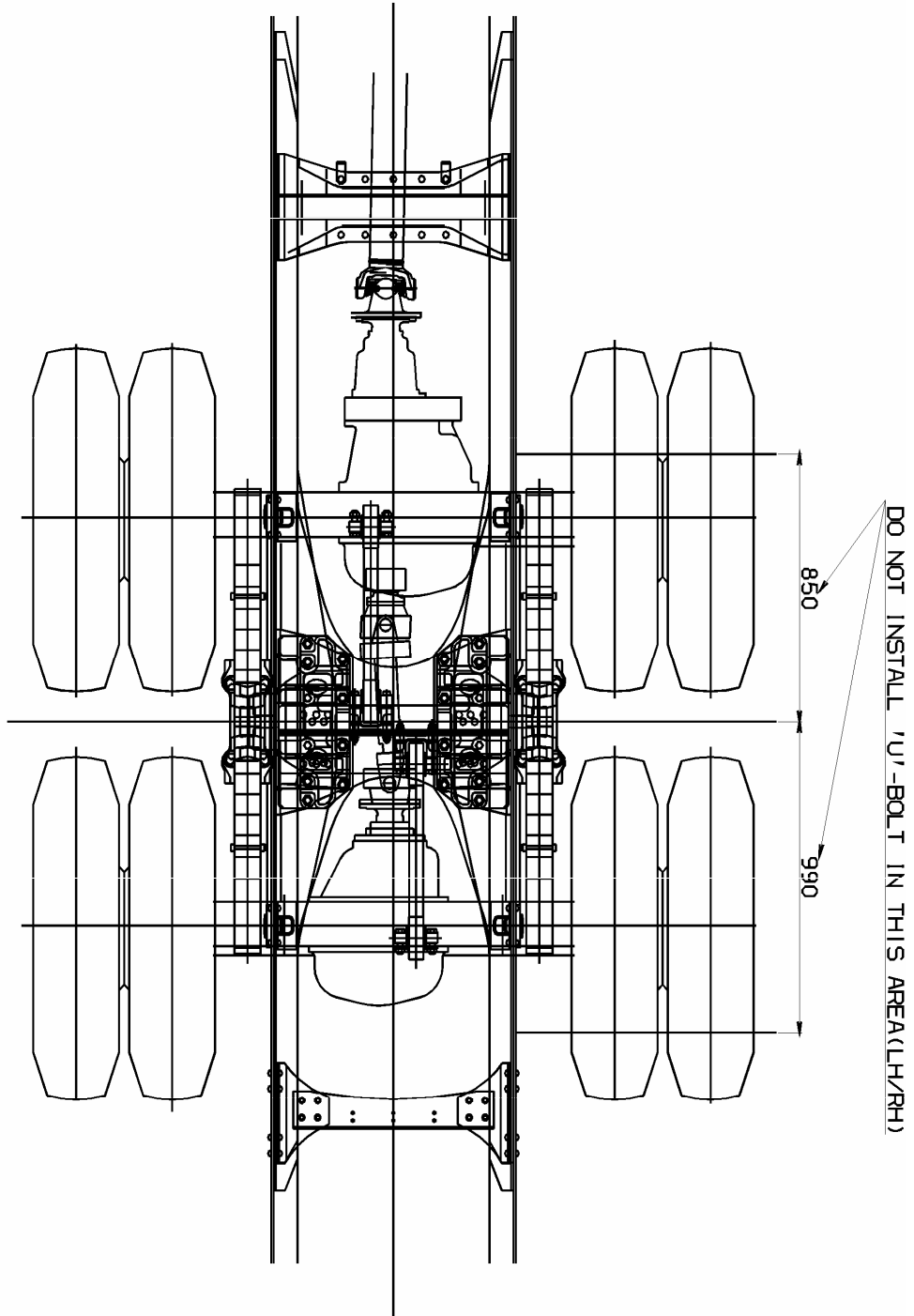


6X4 CARGO  
6X4 DUMP





8X4 CARGO  
8X4 DUMP

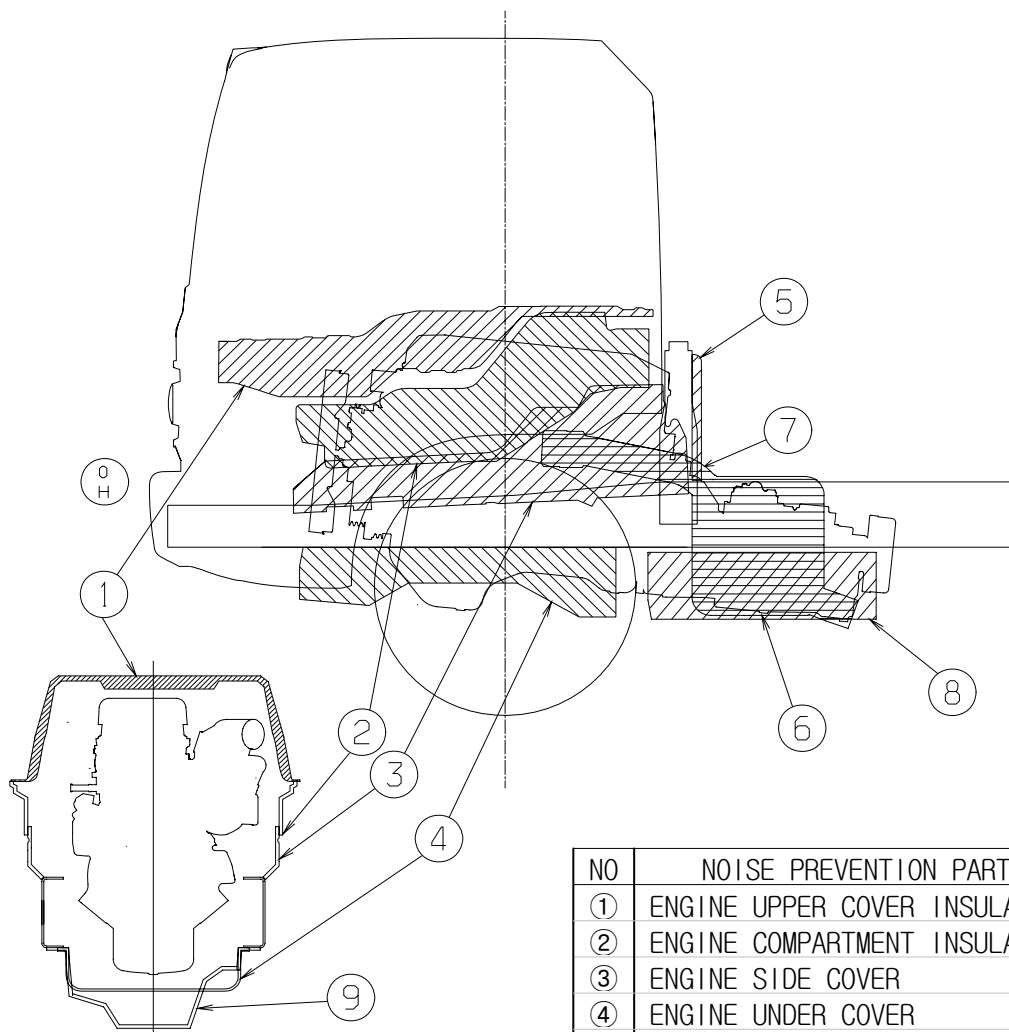


### 5-3. Noise prevention parts

Don't modify or alterate noise prevention parts, which conform to the noise regulations. But in an unavoidable case, please contact with HMC. Also in case detaching noise prevention parts when installing or modifying them, be sure to install them as ever again after finishing installation or modification.

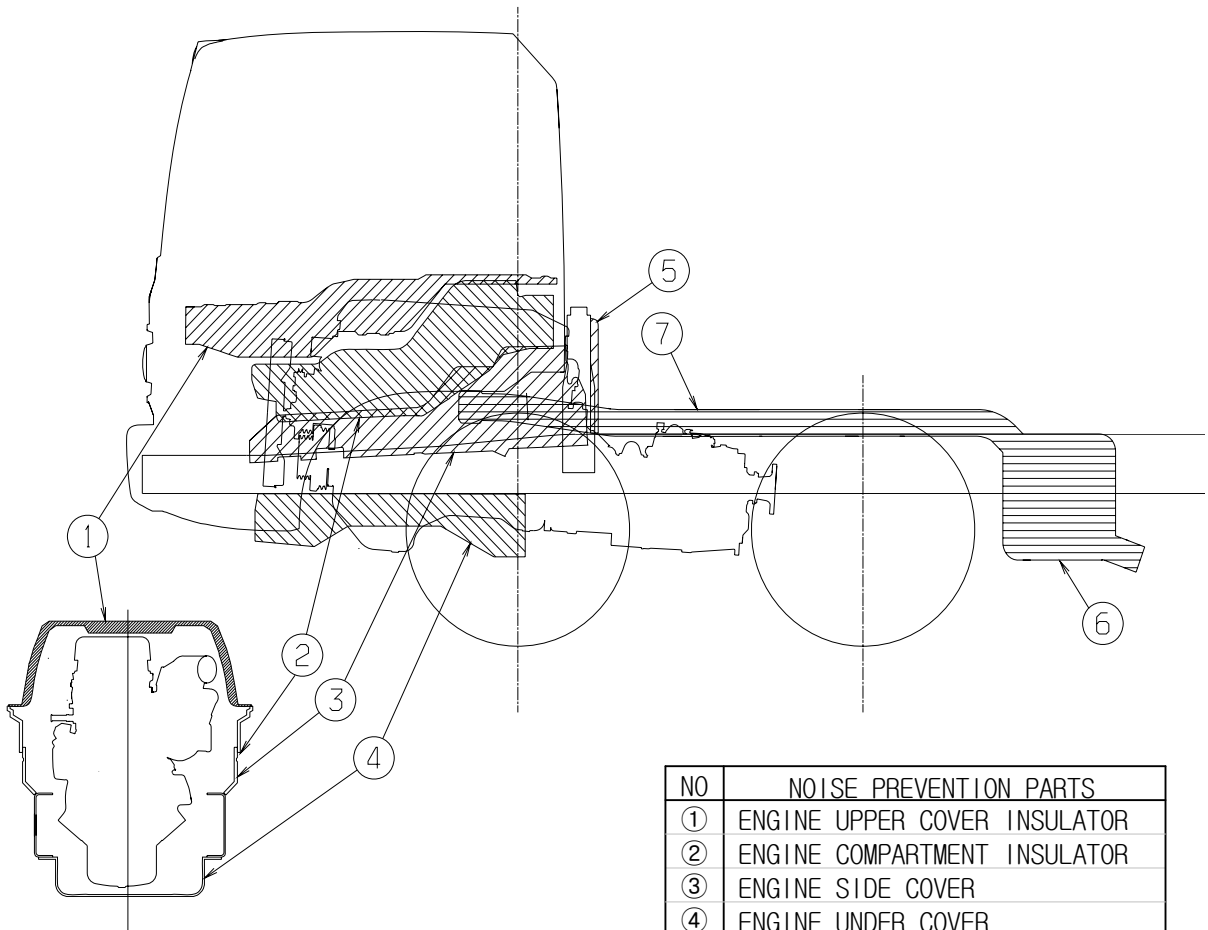
Position describing drawing of noise prevention parts.

- (1) 4X2 CARGO, DUMP, TRACTOR  
6X4 CARGO, DUMP, TRACTOR



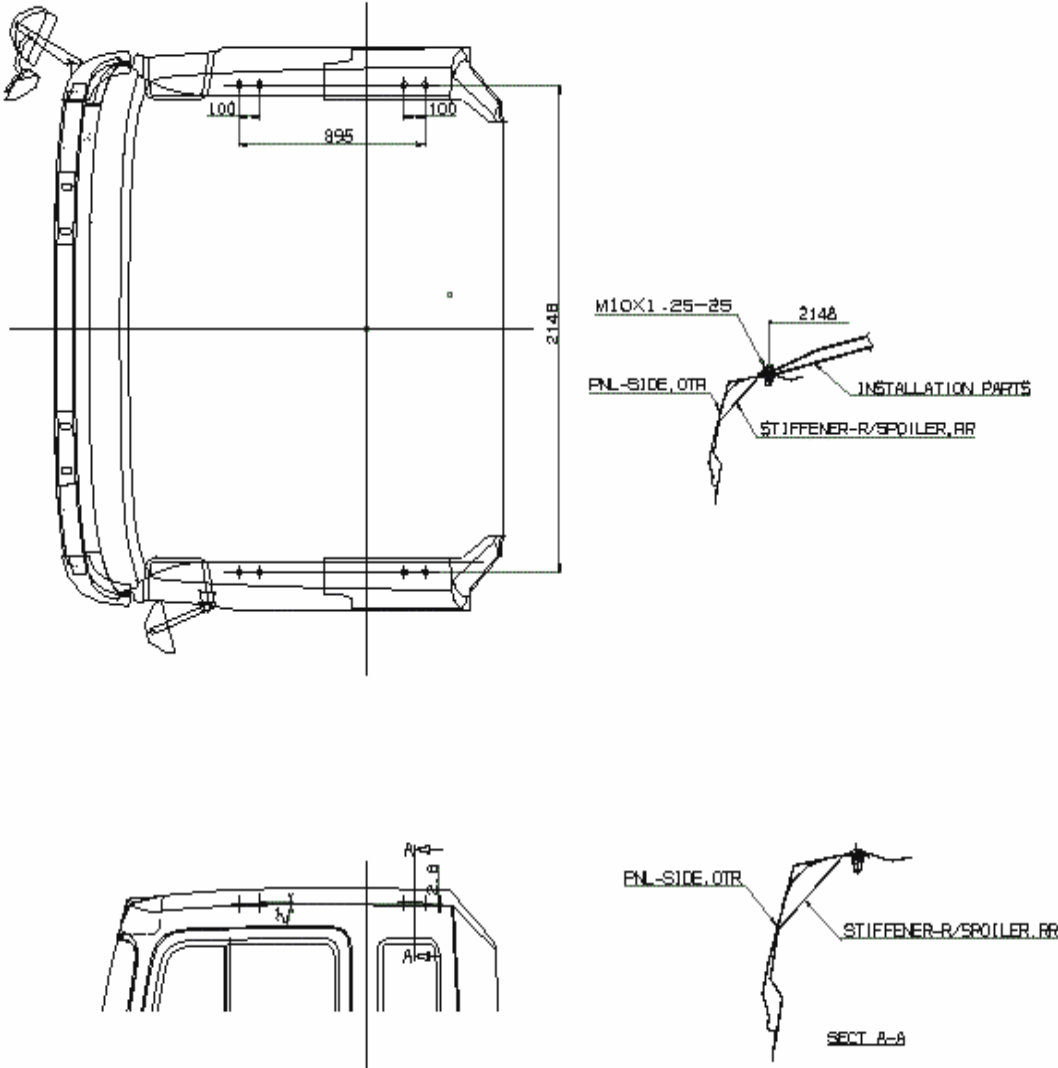
NO	NOISE PREVENTION PARTS
①	ENGINE UPPER COVER INSULATOR
②	ENGINE COMPARTMENT INSULATOR
③	ENGINE SIDE COVER
④	ENGINE UNDER COVER
⑤	ENGINE REAR COVER
⑥	MUFFLER
⑦	MUFFLER PIPE
⑧	T/M UNDER COVER

(2) 8X4 CARGO, DUMP

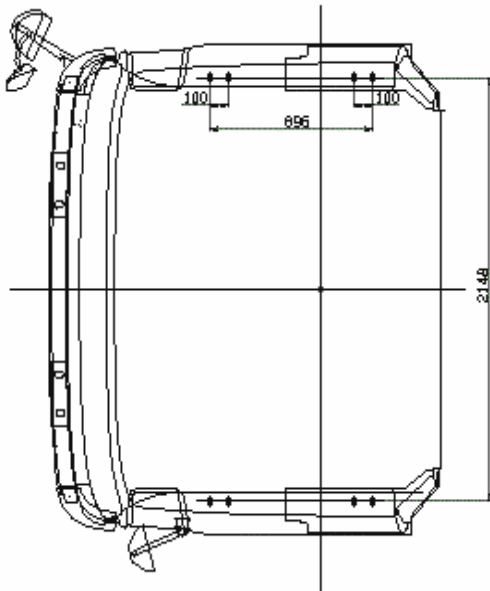


NO	NOISE PREVENTION PARTS
①	ENGINE UPPER COVER INSULATOR
②	ENGINE COMPARTMENT INSULATOR
③	ENGINE SIDE COVER
④	ENGINE UNDER COVER
⑤	ENGINE REAR COVER
⑥	MUFFLER
⑦	MUFFLER PIPE

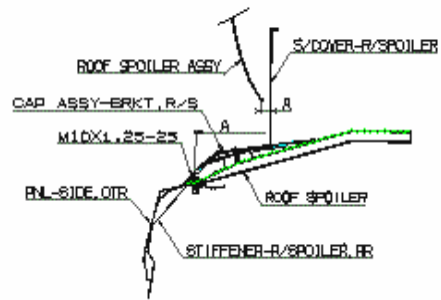
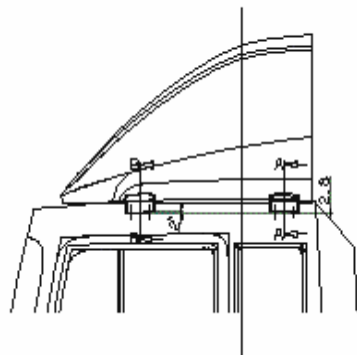
5-4 Installation or alteration on the roof



## 5-5 Installation of the Roof spoiler



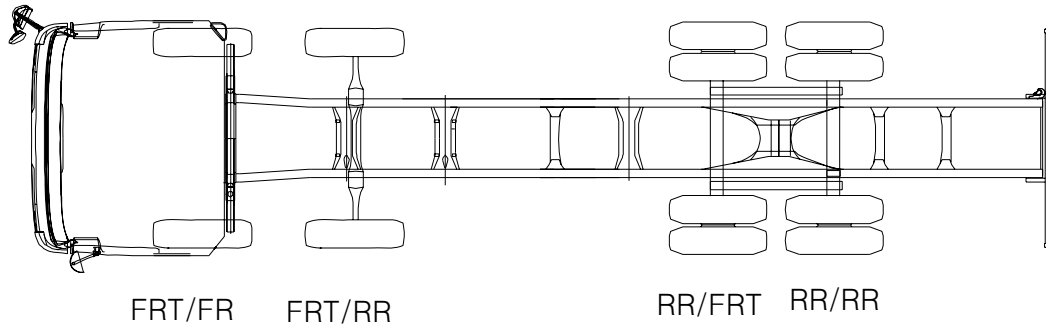
	SECT A	SECT B
A	48	25



## 6.WEIGHT AND FRAME INFORMATION

## 6-1 Permissible weight

### (1) Axle weight



				FRT/FRT (kg)	FRT/RR (kg)	RR/FRT (kg)	RR/RR (kg)	비고
4x2	AXLE	CARGO	HD160	6,700	-	10,800	-	D10H
			HD170	6,550	-	10,800	-	D10H D10H-II
		DUMP	HD160	6,550	-	10,800	-	D12HT
		TRACTOR	HD450/500	6,550	-	11,800	-	D12H
	TIRE	11.00x20-16PR		6,700	-	11,600	-	HANKOOK
		12R22.5-16PR		6,700	-	12,300	-	KUMHO/HANKOOK
6x4	AXLE	CARGO	HD250	6,700	-	10,800	10,800	D10HT
			HD260/HD19M	6,550	-	10,800	10,800	D10HT/T14HT
			HD260	7,950	-	10,800	10,800	D10HT
		DUMP	HD270	6,700	-	11,800	11,800	D12HT
		MIXER	HD270	6,700	-	10,800	10,800	D10HT-II
		TRACTOR	HD700/HD1000	6,550	-	11,800	11,800	D12HT R178HT
	TIRE	11.00x20-16PR		6,700	-	11,600	11,600	HANKOOK
		12R22.5-16PR		6,700	-	12,300	12,300	KUMHO/HANKOOK
315/80R22.5-20PR		8,164	-	-	-			
8x4	AXLE	CARGO	HD310, HD320	6,550	6,550	11,800	11,800	D12HT D12HT-II
		DUMP	HD370	9,000	9,000	11,800	11,800	D12HT-II
		MIXER	HD380	9,000	9,000	11,800	11,800	D12HT-II
	TIRE	11.00x20-16PR		6,700	6,700	11,600	11,600	HANKOOK
		12R22.5-16PR		6,700	6,700	12,300	12,300	KUMHO/HANKOOK
		385/65R22.5-20PR		9,000	9,000	-	-	

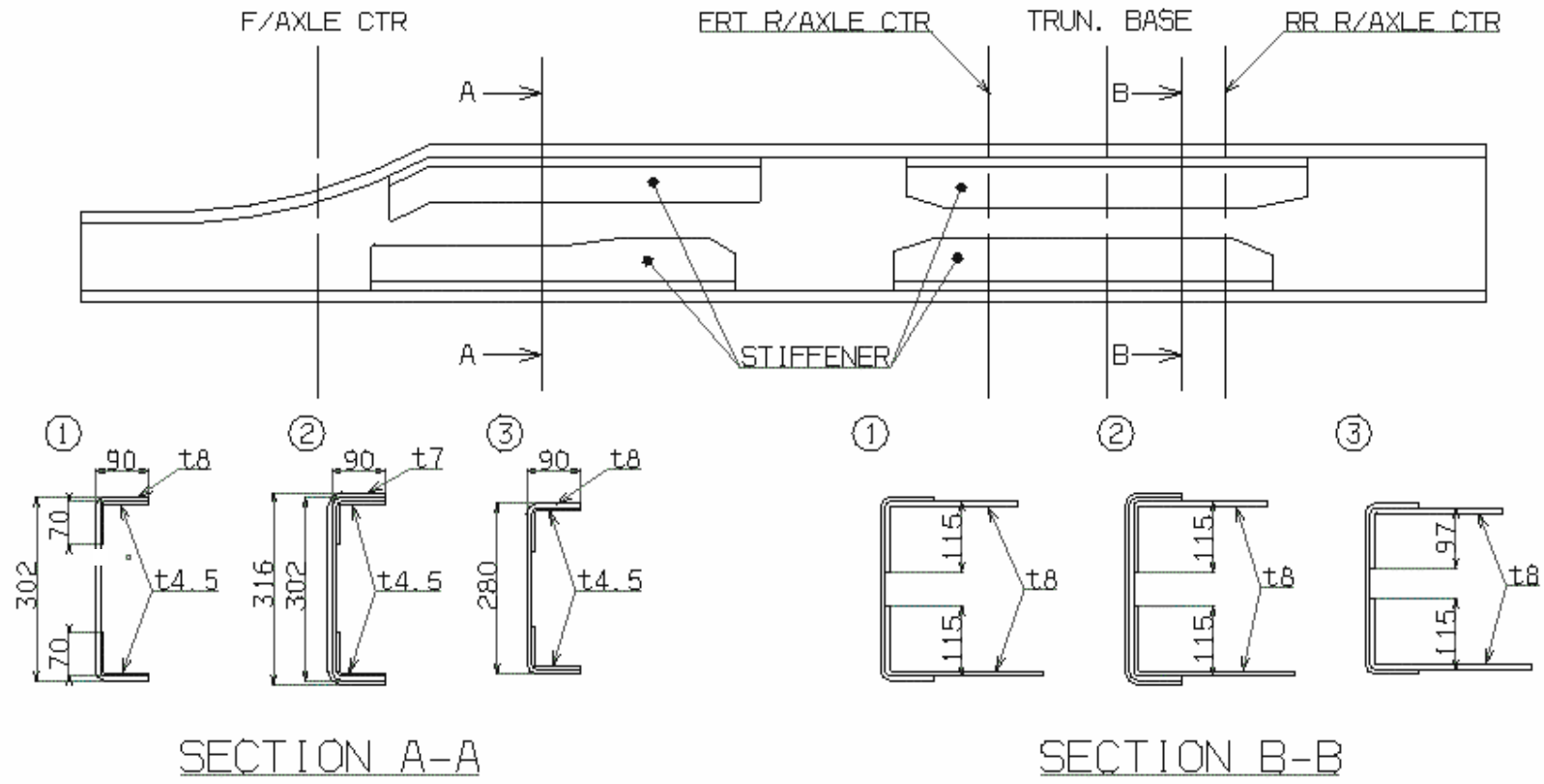
## 6-2. Tire specification

TIRE TYPE	LBS / PSI	Permissible Weight (Kg)	Air Pressure (Kg/cm <sup>2</sup> )	EFF. RAD(mm)		OVER ALL Dia.
				Static Radius	Dynamic Radius	
11.00X20-16PR (HANKOOK)		3350	8.10	510±8	520±8	1090±8
		2900	7.40			
12R22.5-16PR (HANKOOK)		3350	8.40	508±8	527±8	1087±4
		3075	8.40			
315/80R22.5-20PR	(S) 9000/130	4082	9.14			
385/65R22.5-20PR	(S) 9370/120	4500	9.10	497	516	1057 ~ 1087

(S) : SINGLE, (D) : DOUBLE



6-3 FRAME METRIAL AND MAIN SECTION



FRAME	VEHICLES	
	DOMESTIC & EXPORT(W/O CHINA)	
①	HD160/HD170 HD250/HD260/HD310/HD320 CARGO	
②	HD270/HD370 DUMP, HD270/HD380 MIXER	
③	TRACTOR	

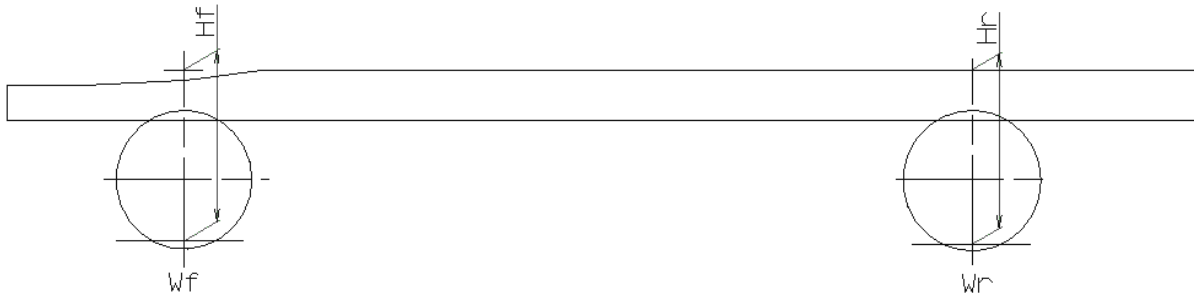
※NOTE 1) FRAME MATERIAL : HIGH TENSILE PLATE  
 TENSION STRENGTH : 55kg/mm<sup>2</sup>  
 YIELD STRENGTH : 55kg/mm<sup>2</sup>  
 2) STIFFENER MATERIAL : SAPH45  
 TENSION STRENGTH : 45kg/mm<sup>2</sup>  
 YIELD STRENGTH : 30kg/mm<sup>2</sup>

## 7. SUSPENSION CHARACTERISTICS

## 7 SUSPENSION CHARACTERISTICS

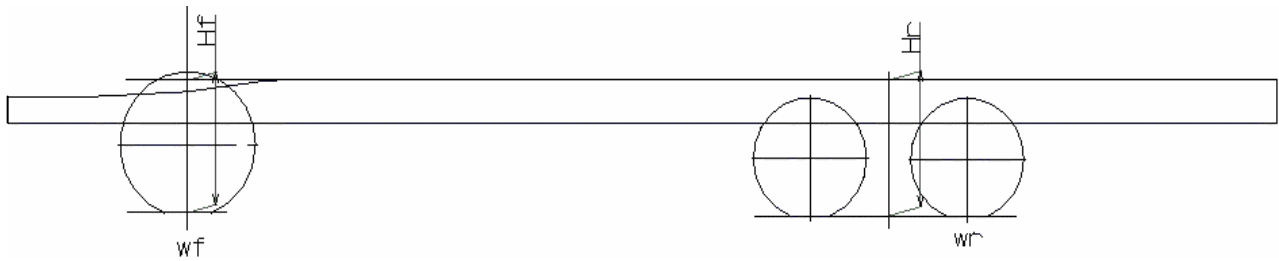
### 7-1 Formula of the frame ground height

(1) 4X2



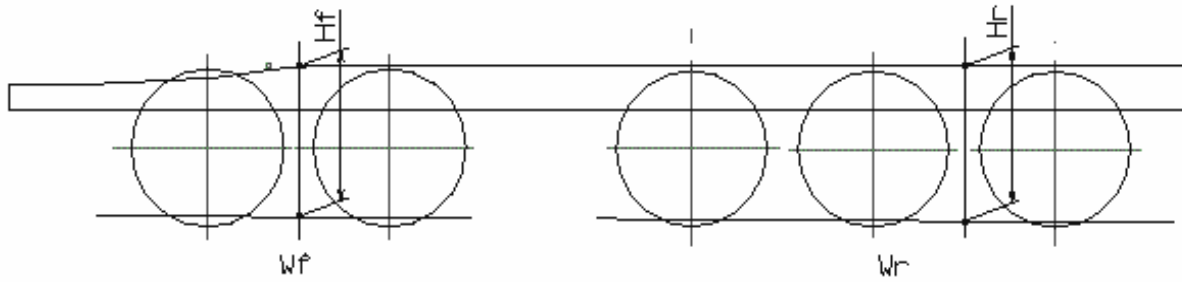
MODEL		TIRE TYPE	FORMULA( $H_f/H_r$ )
HD160 (8T-SHORT)	FRONT	11.00X20-16PR	$H_f = -0.0150 \cdot W_f + 1092 \pm 10$
	REAR	↑	$H_r = -0.0115 \cdot W_r + 1161 \pm 25$
HD160 (8T-LONG)	FRONT	↑	$H_f = -0.0136 \cdot W_f + 1078 \pm 10$
	REAR	↑	$H_r = -0.0126 \cdot W_r + 1149 \pm 25$
HD170 (8.5T-SHORT)	FRONT	↑	$H_f = -0.0149 \cdot W_f + 1094 \pm 10$
	REAR	↑	$H_r = -0.0108 \cdot W_r + 1158 \pm 25$
HD170 (8.5T-LONG)	FRONT	↑	$H_f = -0.0137 \cdot W_f + 1086 \pm 10$
	REAR	↑	$H_r = -0.0127 \cdot W_r + 1151 \pm 25$
HD160 (8T DUMP:D6BR)	FRONT	↑	$H_f = -0.0136 \cdot W_f + 1078 \pm 10$
	REAR	↑	$H_r = -0.0126 \cdot W_r + 1150 \pm 25$
HD160 (8T DUMP:KK-TCI)	FRONT	↑	$H_f = -0.0136 \cdot W_f + 1078 \pm 10$
	REAR	↑	$H_r = -0.0126 \cdot W_r + 1150 \pm 25$
HD450 - D6AC (4x2 TRACTOR)	FRONT	↑	$H_f = -0.0214 \cdot W_f + 1070 \pm 10$
	REAR	↑	$H_r = -0.0105 \cdot W_r + 1157 \pm 25$
HD550 - D6CA (4x2 TRACTOR)	FRONT	↑	$H_f = -0.0215 \cdot W_f + 1074 \pm 10$
	REAR	↑	$H_r = -0.0105 \cdot W_r + 1158 \pm 25$

(2) 6X4



MODEL		TIRE TYPE	FORMULA(Hf/Hr)
HD250 – D6AC (11.5T-LONG)	FRONT	11.00X20-16PR	$H_f = -0.0150 \cdot W_f + 1100 \pm 10$
	REAR	↑	$H_r = -0.0034 \cdot W_r + 1106 \pm 25$
HD250 – D6CA (11.5T-LONG)	FRONT	↑	$H_f = -0.0150 \cdot W_f + 1104 \pm 10$
	REAR	↑	$H_r = -0.0034 \cdot W_r + 1106 \pm 25$
HD260 – D6AC (16T-SHORT)	FRONT	↑	$H_f = -0.0134 \cdot W_f + 1094 \pm 10$
	REAR	↑	$H_r = -0.0028 \cdot W_r + 1100 \pm 25$
HD260 – D6CA (16T-SHORT)	FRONT	↑	$H_f = -0.0134 \cdot W_f + 1097 \pm 10$
	REAR	↑	$H_r = -0.0028 \cdot W_r + 1100 \pm 25$
HD260 – D6AC (16T-MIDDLE)	FRONT	↑	$H_f = -0.0130 \cdot W_f + 1093 \pm 10$
	REAR	↑	$H_r = -0.0029 \cdot W_r + 1101 \pm 25$
HD260 – D6CA (16T-MIDDLE)	FRONT	↑	$H_f = -0.0130 \cdot W_f + 1096 \pm 10$
	REAR	↑	$H_r = -0.0029 \cdot W_r + 1101 \pm 25$
(17T-MIDDLE)	FRONT	315/80R22.5-20PR	$H_f = -0.0129 \cdot W_f + 1108 \pm 10$
	REAR	12R22.5-16PR	$H_r = -0.0028 \cdot W_r + 1100 \pm 25$
HD19M (19M-P/CARGO)	FRONT	11.00X20-16PR	$H_f = -0.0159 \cdot W_f + 1104 \pm 10$
	REAR	↑	$H_r = -0.0036 \cdot W_r + 1108 \pm 25$
HD270 (6x4 DUMP)	FRONT	↑	$H_f = -0.0159 \cdot W_f + 1115 \pm 10$
	REAR	↑	$H_r = -0.0031 \cdot W_r + 1110 \pm 25$
HD270 (6x4 MIXER)	FRONT	↑	$H_f = -0.0132 \cdot W_f + 1095 \pm 10$
	REAR	↑	$H_r = -0.0031 \cdot W_r + 1105 \pm 25$
HD700 (6x4 TRACTOR)	FRONT	↑	$H_f = -0.0184 \cdot W_f + 1097 \pm 10$
	REAR	↑	$H_r = -0.0033 \cdot W_r + 1074 \pm 25$
HD1000 (6x4 TRACTOR)	FRONT	↑	$H_f = -0.0184 \cdot W_f + 1099 \pm 10$
	REAR	↑	$H_r = -0.0033 \cdot W_r + 1081 \pm 25$

(3) 8X4



MODEL		TIRE TYPE	FORMULA(Hf/Hr)
HD310 -D6AC (19.5T-SHORT)	FRONT	11.00X20-16PR	$H_f = -0.0063 \cdot W_f + 1087 \pm 10$
	REAR	↑	$H_r = -0.0028 \cdot W_r + 1109 \pm 25$
HD310 -D6CA (19.5T-SHORT)	FRONT	↑	$H_f = -0.0063 \cdot W_f + 1088 \pm 10$
	REAR	↑	$H_r = -0.0028 \cdot W_r + 1109 \pm 25$
HD320 -D6AC (19T-EXTRA LONG)	FRONT	↑	$H_f = -0.0064 \cdot W_f + 1087 \pm 10$
	REAR	↑	$H_r = -0.0028 \cdot W_r + 1108 \pm 25$
HD320 -D6CA (19T-EXTRA LONG)	FRONT	↑	$H_f = -0.0064 \cdot W_f + 1089 \pm 10$
	REAR	↑	$H_r = -0.0028 \cdot W_r + 1108 \pm 25$
HD370 (23T DUMP)	FRONT	385/65R 22.5-20PR	$H_f = -0.0047 \cdot W_f + 1112 \pm 10$
	REAR	12R22.5-16PR	$H_r = -0.0029 \cdot W_r + 1119 \pm 25$
HD380 (9m³-MIXER)	FRONT	385/65R 22.5-20PR	$H_f = -0.0053 \cdot W_f + 1120 \pm 10$
	REAR	12R22.5-16PR	$H_r = -0.0030 \cdot W_r + 1120 \pm 25$

FORMULA\_4X2

MODEL			HD160, SHORT	HD160, LONG	HD170, SHORT	HD170, LONG	HD160 DUMP		4x2 TRACTOR	
ENGINE			D6BR	D6BR	D6AB-D	D6AB-D	D6BR	D6DA	D6AC	D6CA
WT	KERB	FRT	3,890	3,980	4,250	4,390	3,930	3,980	4,450	4,655
		RR	3,430	3,410	3,390	3,420	3,470	3,475	2,425	2,475
	G.V.W	FRT	5,435	5,865	5,885	6,385	5,720	5,770	5,745	5,950
		RR	10,015	9,655	10,385	10,055	9,810	9,815	9,760	9,810
Hf, Hr	KERB	FRT	1033.6	1023.7	1033.6	1023.7	1024	1024	974	974
		RR	1121.4	1105.5	1121.4	1105.5	1106.3	1106.3	1031.5	1031.5
	G.V.W	FRT	1010.4	997.9	1010.4	997.9	999.6	999.6	946.2	946.2
		RR	1045.2	1026.4	1045.2	1026.4	1026.1	1026.1	954.3	954.3

FRONT	INCLINATION	-0.015016	-0.013687	-0.01419	-0.012932	-0.013631	-0.013631	-0.021467	-0.0215
	CONSTANT	1092	1078	1094	1080	1078	1078	1070	1074
REAR	INCLINATION	-0.011572	-0.012666	-0.010893	-0.011922	-0.01265	-0.01265	-0.010525	-0.0105
	CONSTANT	1161	1149	1158	1146	1150	1150	1057	1058

WT	C/CAB	FRT	5000							
		RR	600							
		Hf	1016.932	1078.1743	1093.9058	1080.4729	1077.5709	1078.2525	1069.529	1073.93
		Hr	1154.1481	1148.6915	1158.3289	1146.272	1150.195	1150.2582	1057.0228	1057.55

FORMULA\_6X4 -(1)

MODEL			HD250, LONG	HD260, SHORT	HD260, MEDIUM		HD260, MEDIUM-TAIWAN	P/CARGO
ENGINE			D6AC	D6AC	D6AC	D6CA	D6CA	D6AC
WT	KERB	FRT	4,500	4,425	4,485	4,700	4,845	4,540
		RR	6,310	5,560	5,770	5,900	5,750	6,510
	G.V.W	FRT	6,060	6,065	6,175	6,390	7,320	5,730
		RR	16,380	20,050	20,210	20,340	20,405	15,450
Hf, Hr	KERB	FRT	1032.5	1035	1035	1035	1045	1032.3
		RR	1084.8	1084	1084	1084	1084	1084.4
	G.V.W	FRT	1009.1	1013	1013	1013	1013	1013.4
		RR	1050.6	1042.7	1042.7	1042.7	1042.7	1052.2

FRONT	INCLINATION	-0.0150000	-0.013415	-0.013018	-0.013018	-0.012929293	-0.015882
	CONSTANT	1100	1094	1093	1096	1108	1104
REAR	INCLINATION	-0.003396226	-0.00285	-0.00286	-0.00286	-0.002818151	-0.003602
	CONSTANT	1106	1100	1101	1101	1100	1108

WT	C/CAB	FRT						
		RR						
		Hf	1100	1094.3598	1093.3846	1096.1834	1107.642424	1104.4059
		Hr	1106.230189	1099.8473	1100.5028	1100.8747	1100.204367	1107.8477

FORMULA\_6X4 -(2)

MODEL			HD270 DUMP	HD270 MIXER	6X4 TRACTOR		
ENGINE			D6AC	D6CA	D6AC	D6CA	
WT	KERB	FRT	4,700	4,520	4,380	4,520	
		RR	6,240	7,120	4,470	4,500	
	G.V.W	FRT	6,165	6,500	5,675	5,815	
		RR	19,905	19,970	19,805	19,835	
Hf, Hr	KERB	FRT	1040.5	1035.1	1016.2	1015.4	
		RR	1091.3	1082.6	1058.8	1066.1	
	G.V.W	FRT	1017.2	1008.8	992.3	991.5	
		RR	1049.6	1042.7	1008	1015.3	
FRONT			INCLINATION	-0.01590444	-0.01328283	-0.018456	-0.018456
			CONSTANT	1115	1095	1097	1099
REAR			INCLINATION	-0.00305159	-0.00310506	-0.003313	-0.003313
			CONSTANT	1110	1105	1074	1081
WT	C/CAB	FRT					
		RR					
		Hf	1115.250853	1095.138384	1097.0355	1098.8193	
		Hr	1110.341932	1104.708016	1073.6077	1081.0071	



FORMULA\_8X4

MODEL			HD320, E/LONG		HD310, SHORT		HD370 DUMP	HD380 MIXER
ENGINE			D6AC	D6CA	D6AC	D6CA	D6CA	D6CA
WT	KERB	FRT	6,580	6,830	6,560	6,810	8,240	8,830
		RR	5,780	5,820	5,290	5,330	6,140	6,530
	G.V.W	FRT	11,705	11,955	11,470	11,720	17,600	17,275
		RR	19,785	19,825	20,010	20,050	19,910	19,815
Hf, Hr	KERB	FRT	1044.8	1044.8	1045.1	1045.1	1072.9	1072.9
		RR	1093	1093	1093.5	1093.5	1100.5	1100.5
	G.V.W	FRT	1012.3	1012.3	1013.7	1013.7	1028.3	1028.3
		RR	1053.7	1053.7	1053	1053	1059.9	1059.9

FRONT	INCLINATION	-0.0063415	-0.0063415	-0.0063951	-0.0063951	-0.00476496	-0.00528123
	CONSTANT	1087	1088	1087	1089	1112	1120
REAR	INCLINATION	-0.0028061	-0.0028061	-0.0027514	-0.0027514	-0.00294844	-0.00305608
	CONSTANT	1109	1109	1108	1108	1119	1120

WT	C/CAB	FRT						
		RR						
		Hf	1086.52683	1088.1122	1087.05193	1088.65071	1112.163248	1119.533274
		Hr	1109.21949	1109.33174	1108.05469	1108.16474	1118.603413	1120.456191

## 8. P.T.O CONTROL

## 8. P.T.O CONTROL

### 8-1 T/M PTO

(1) Use of genuine parts P.T.O

1) Unless otherwise provided for, be sure to use genuine parts.

2) Refer to appendix P.T.O ASSY drawing for details in using power.

(2) Use P.T.O other than genuine parts

A particular reason, when using PTO other than genuine parts, consult with HMC.

(3) Cautions regarding the propellar shaft driving P.T.O

1) Make sure that an angle of intersection of propellar shaft makes a solid angle be 15° MAX, and also the angle of intersection of the both ends of propellar shaft is the same.

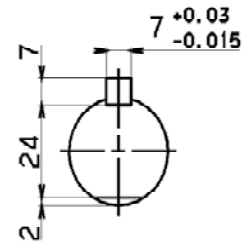
2) As in driving, there is a displacement of about ±10mm (up and down, left and right) from the position of P.T.O outlet, take notice of an allowable angle of intersection of propellar shaft.

3) The direction of P.T.O output shaft is contrary to the direction of engine revolution.

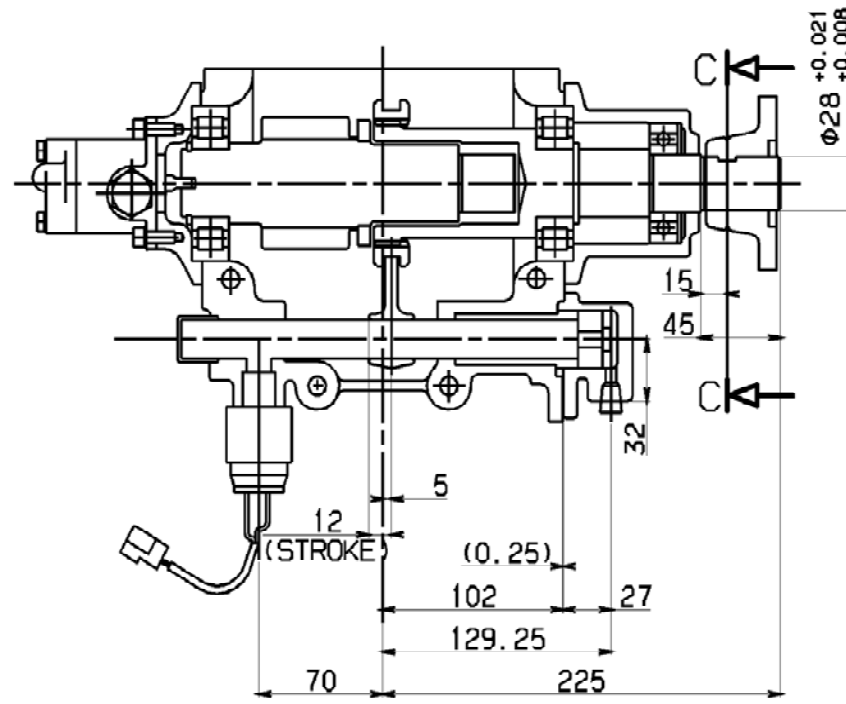
(4) T/M P.T.O table

PTO type	T/M type	ALLOWABLE TORQUE	T/M & PTO GEAR	MODEL
47110 -7F900	H160S2X5 H160S6	50kg · m /1000RPM	$\frac{29}{16} \times \frac{10}{29}$	HD250 CARGO(D6AC, D6CA), HD260 CARGO(D6AC, D6CA), HD390 TRACTOR(D6AC, D6CA), HD270 DUMP(D6AC), HD320 CARGO(D6AC, D6CA), HD310 CARGO(D6AC, D6CA)
47110 -7D900	T15S6	30kg · m /1000RPM	$\frac{28}{15} \times \frac{9}{28}$	HD250 CARGO(D6CA) : OPT HD260 CARGO(D6CA) : OPT

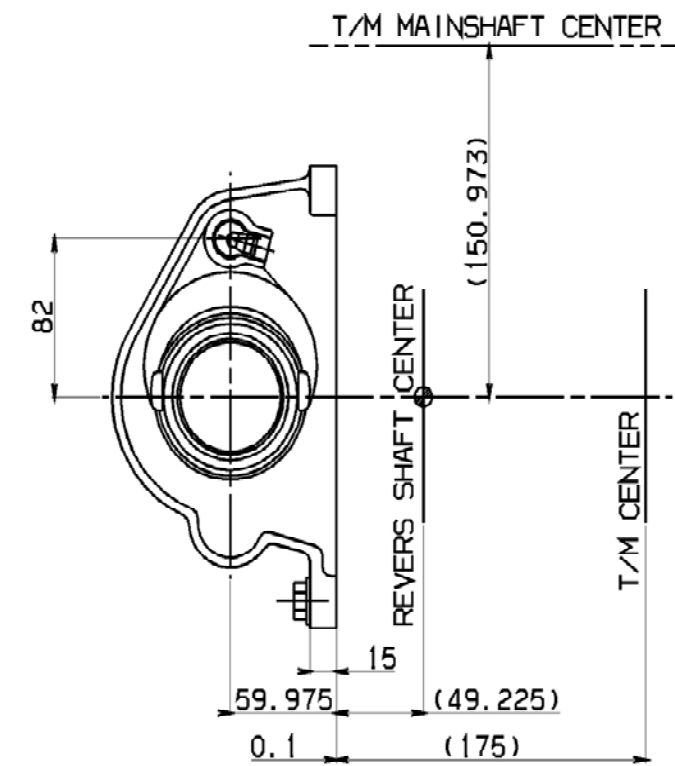
PTO TYPE : 47110-7F000



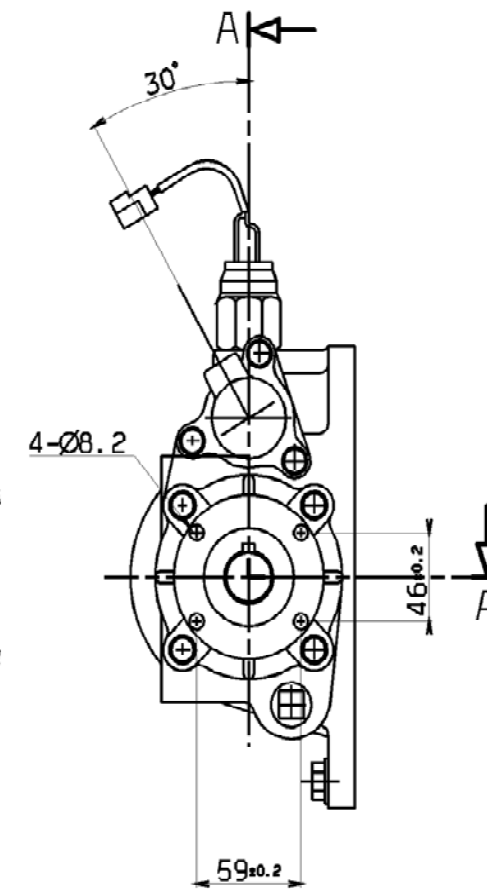
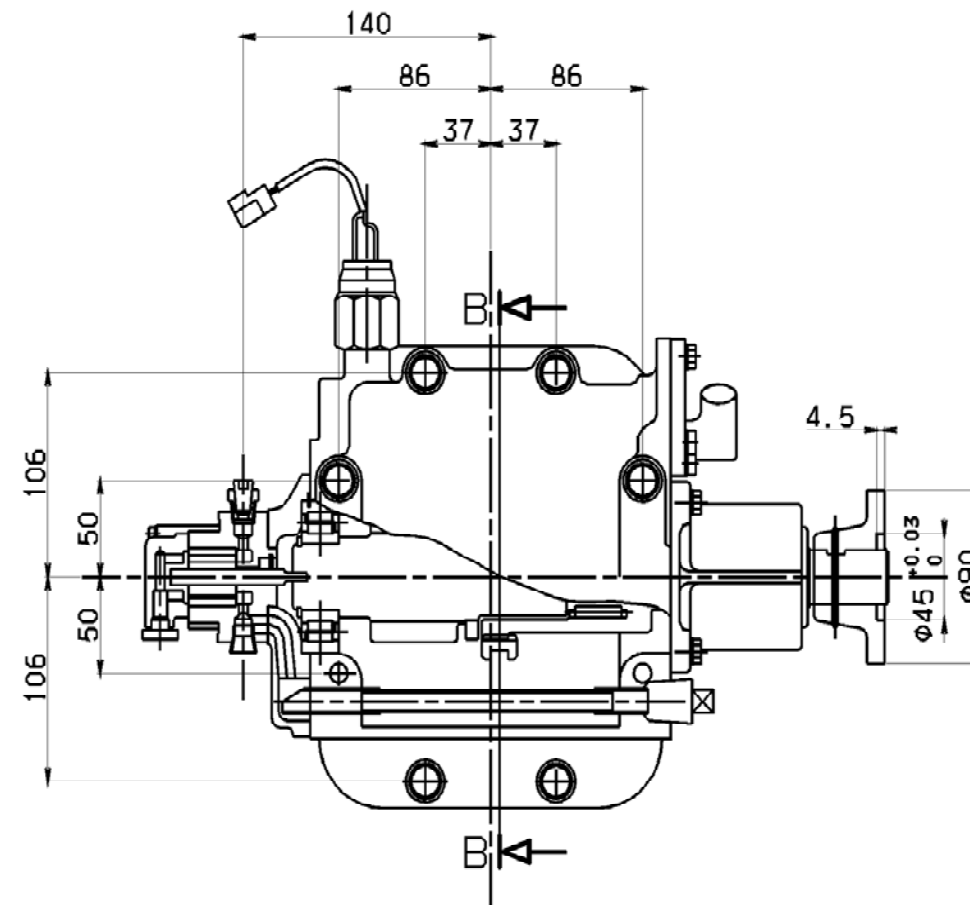
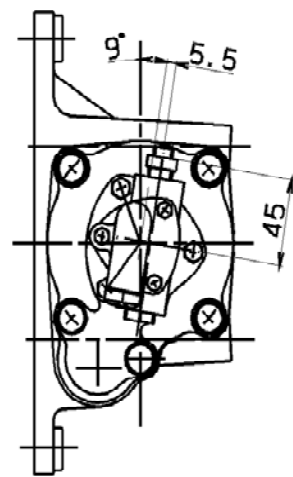
SECTION C-C



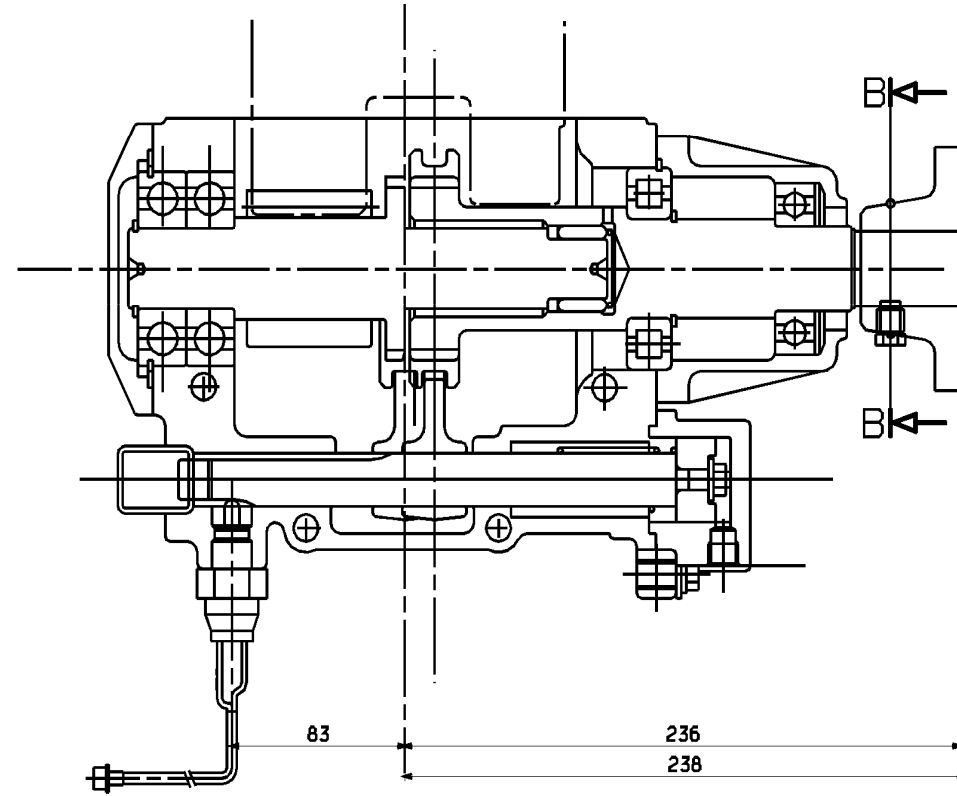
SECTION A-A



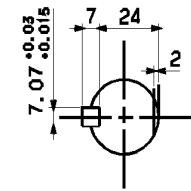
SECTION B-B



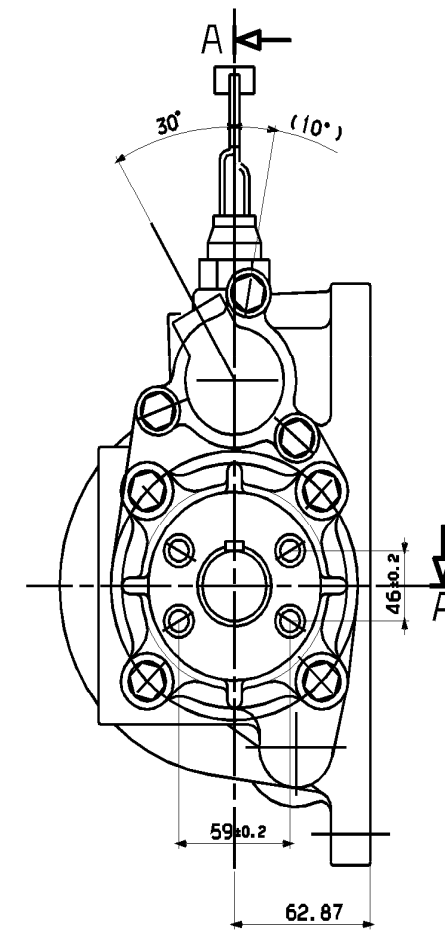
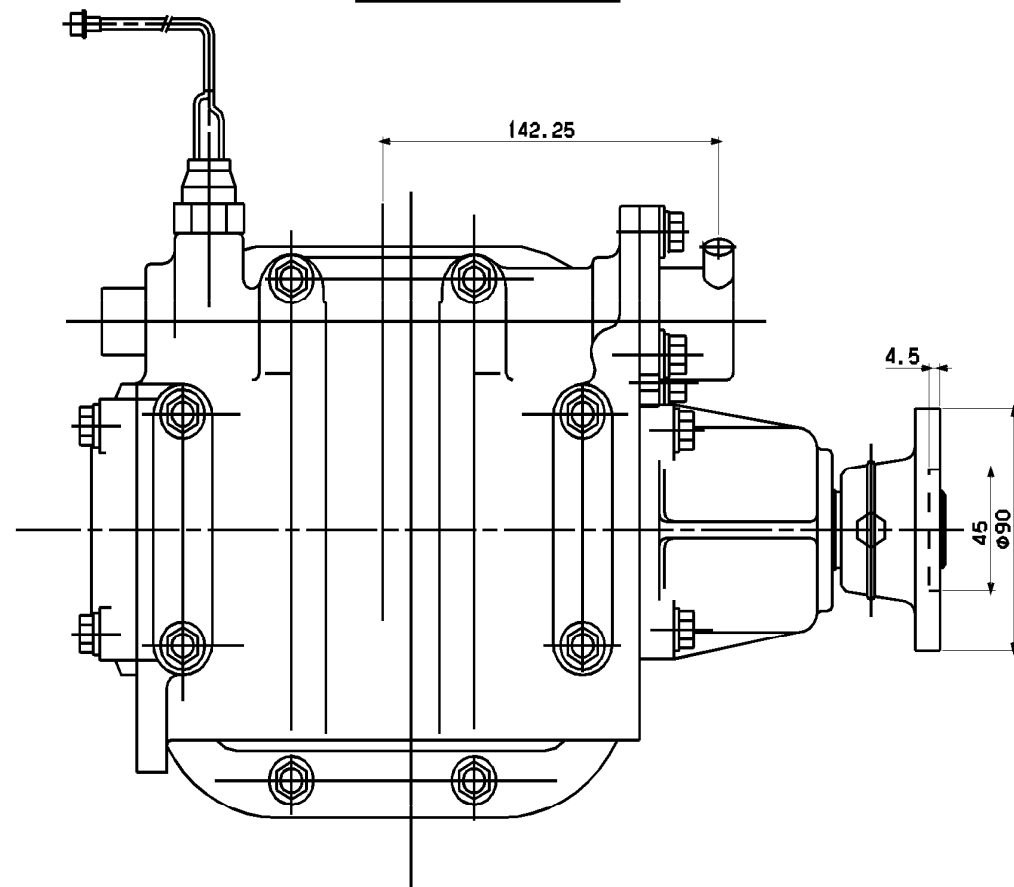
PTO TYPE : 47110-7D900



SECTION A-A



SECTION B-B

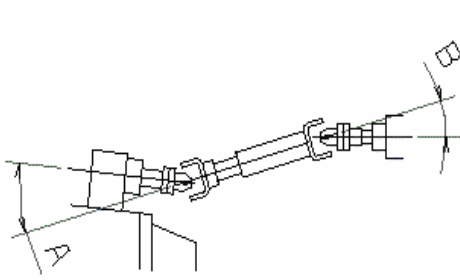


## 8-2 Flywheel PTO

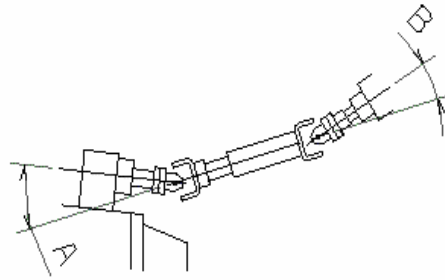
In mixer the flange form PTO is installed on the upper end of flywheel. In case of PTO, refer to the appendix flywheel PTO drawing and chassis cab drawing.

## 8-3 Cautions needed for the p/shaft driven by PTO

- 1) As the length of shaft of the p/shaft for driving to be linked to flywheel PTO is short and an angle of intersection is large, pay full attentions to the arrangement of device, and make A and B, an angle of intersection, small as much as possible, also the difference in an angle of intersection should nearly be "0".



Drive system of A type



Drive system of B type

- 2) In case A and B, an angle of intersection, are large, and also equivalent angle of intersection ( $\sqrt{|A^2 - B^2|}$ ) by the difference in an angle of intersection is large, flywheel PTO, p/shaft and hydraulic pump can break resulting from unreasonable torque in driving system.

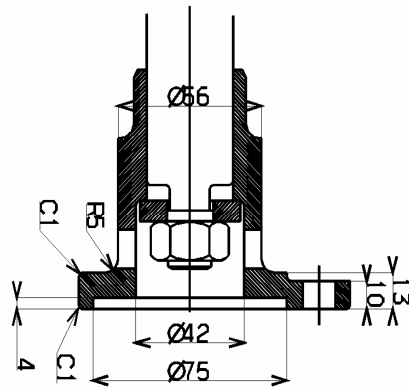
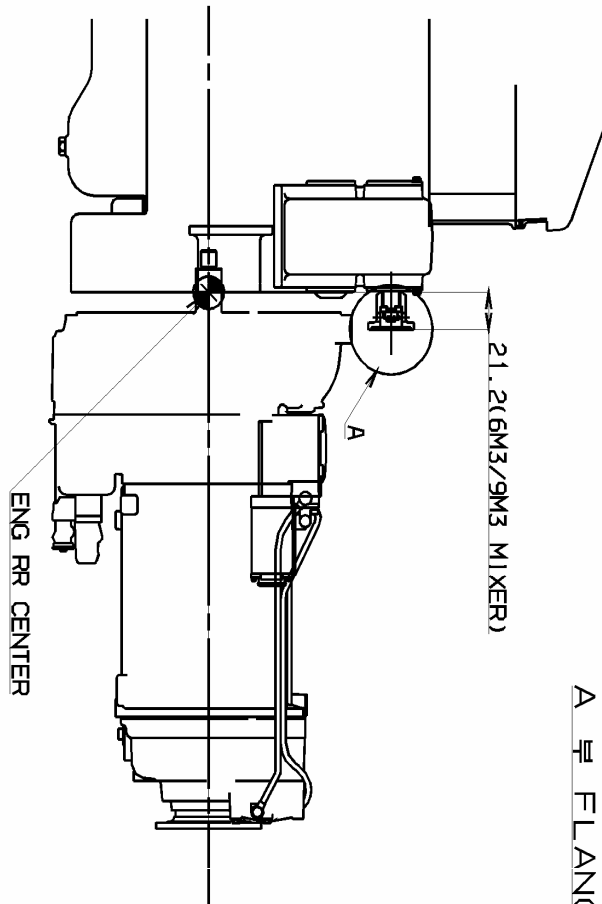
- 3) Regarding the angle of intersection of p/shaft, observe the instructions below, and make sure that the torque of driving system is low as much as possible.

Angle of intersection of p/shaft : a solid angle is to be 12° MAX.

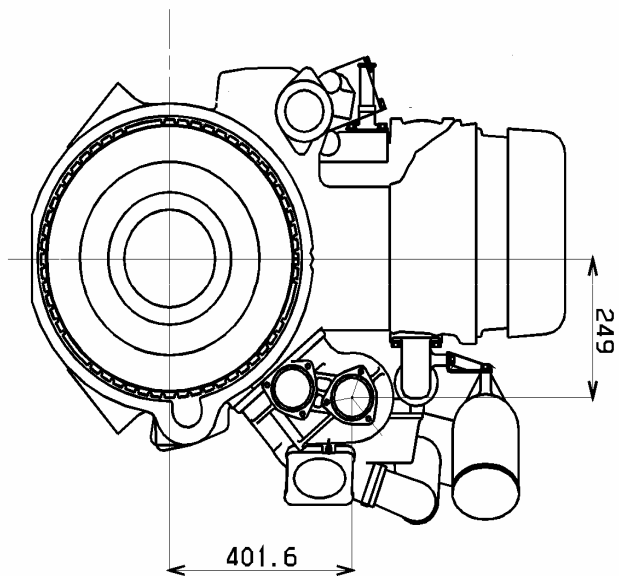
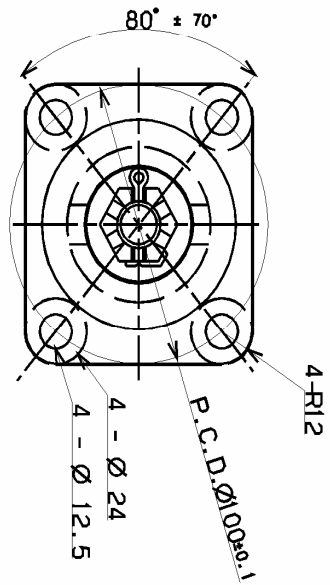
Equivalent angle of intersection by the difference in an angle of intersection :  $A^2 - B^2 \approx 0$

- 4) In case of the drive connecting system of B type as stated above, as the difference in an angle of intersection happens in driving through an angle of intersection(A,B) gets to be "0" in stopping, and an equivalent angle of intersection ( $\sqrt{|A^2 - B^2|}$ ) by the difference in an angle of intersection in driving grows larger in case particularly an angle of intersection (A,B) is large, be sure to set up the angle (A,B) as small as possible by all means.
- 5) When unreasonable torque works upon the driving system, as main parts of the inside of an engine can get damaged, be sure to set up the driving system within 40Kgm.

\*) DETAIL DRAWING OF FLYWHEEL PTO

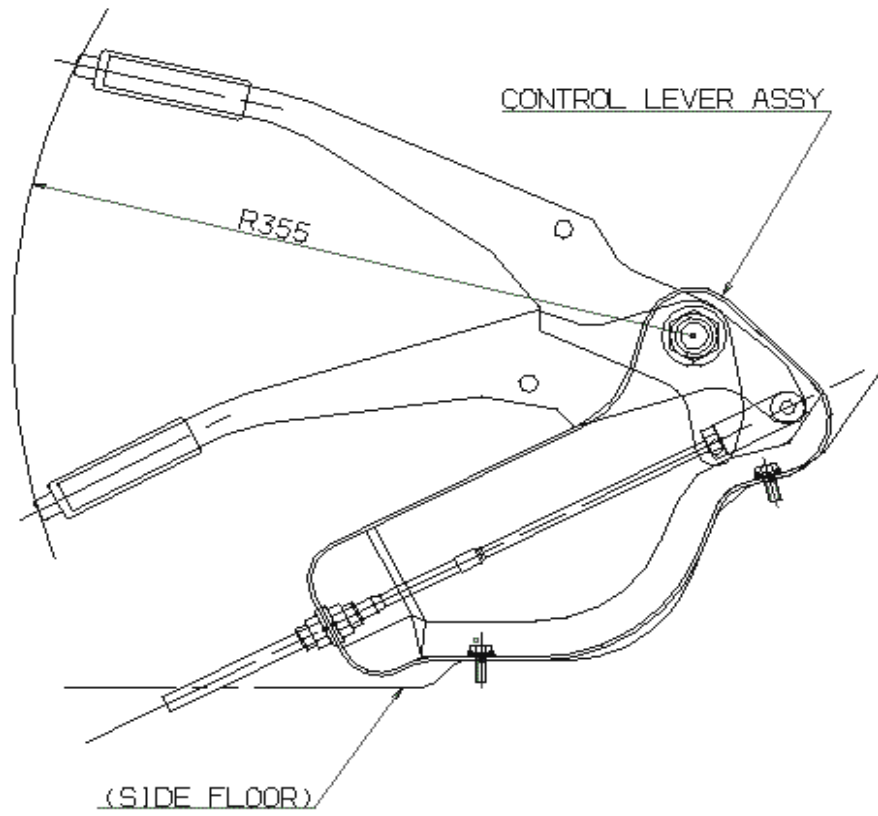


A ≡ FLANGE ≡ M1



8-4 DUMP AND MIXER CONTROL LEVER

VEHICLE : HD270 DUMP ALL  
HD270 MIXER, HD380 MIXER

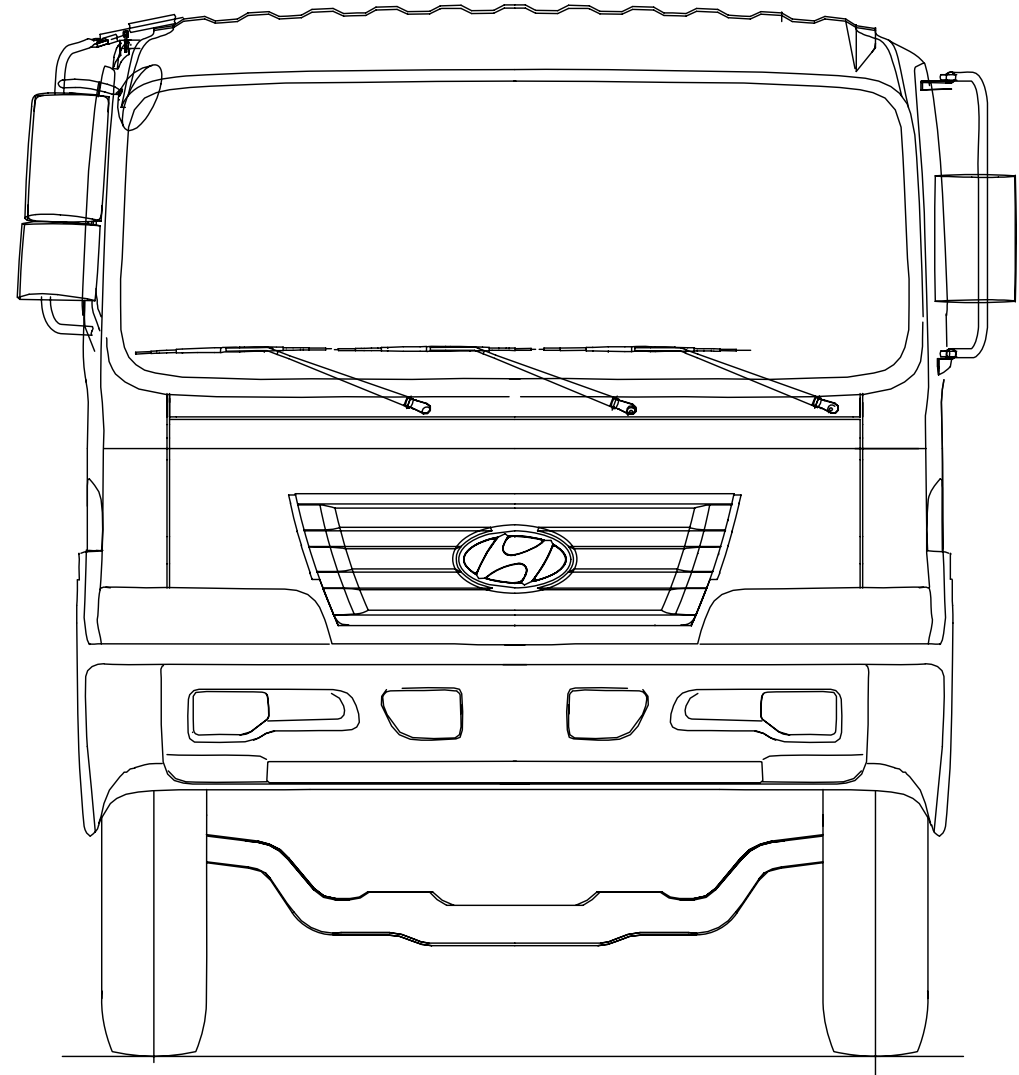
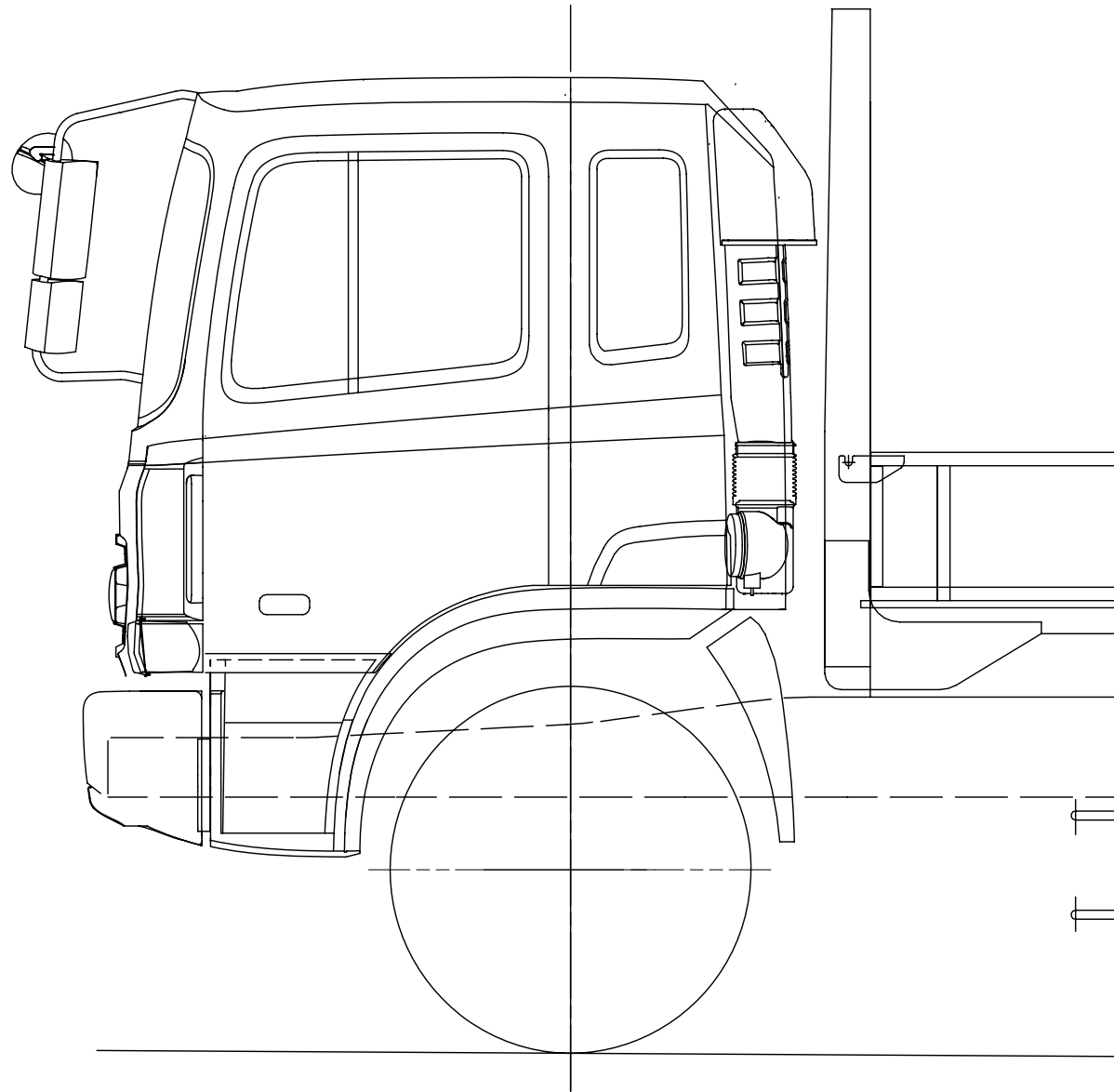




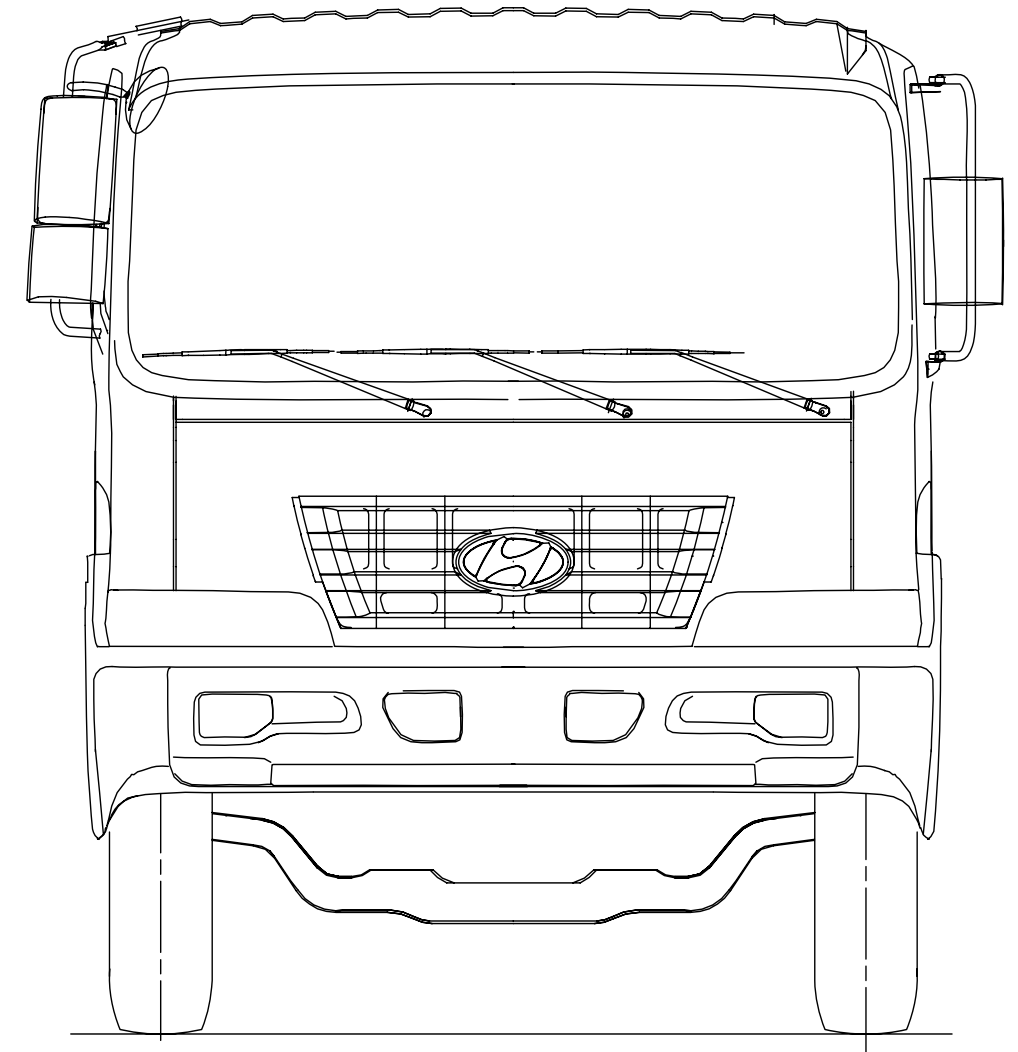
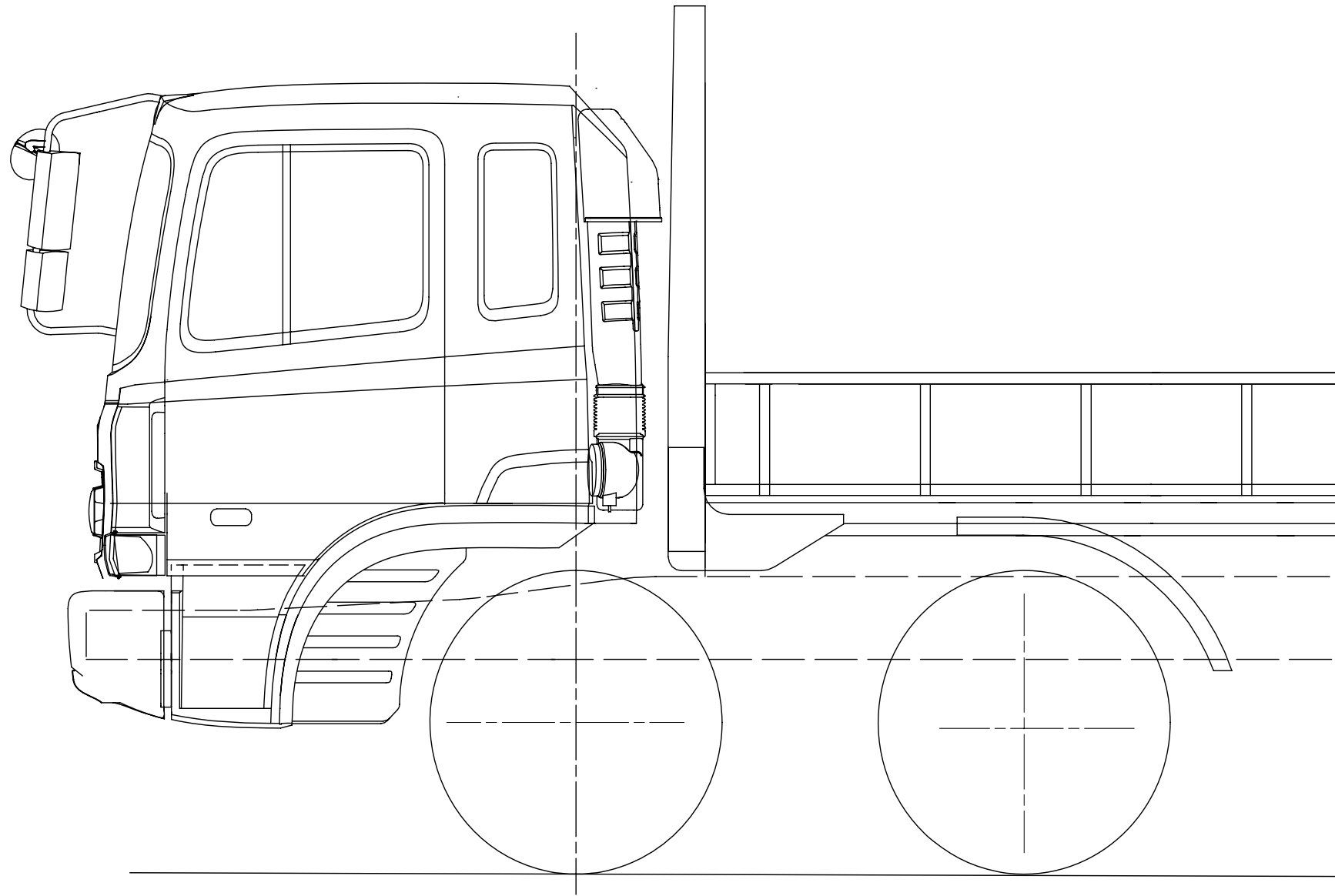
## 9. EXTERIOR DRAWING OF THE CAB

## 9. EXTERIOR DRAWING OF THE CAB

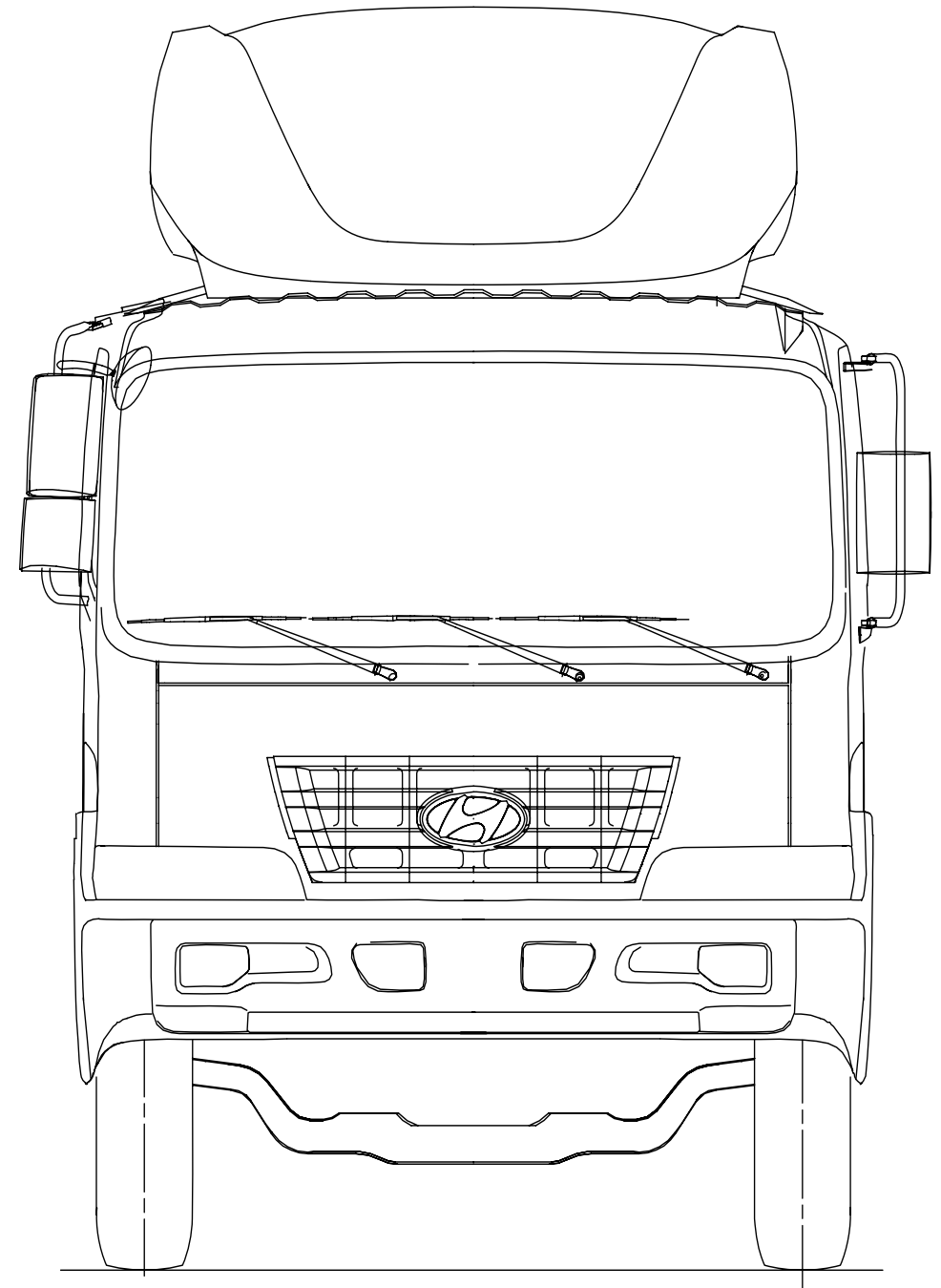
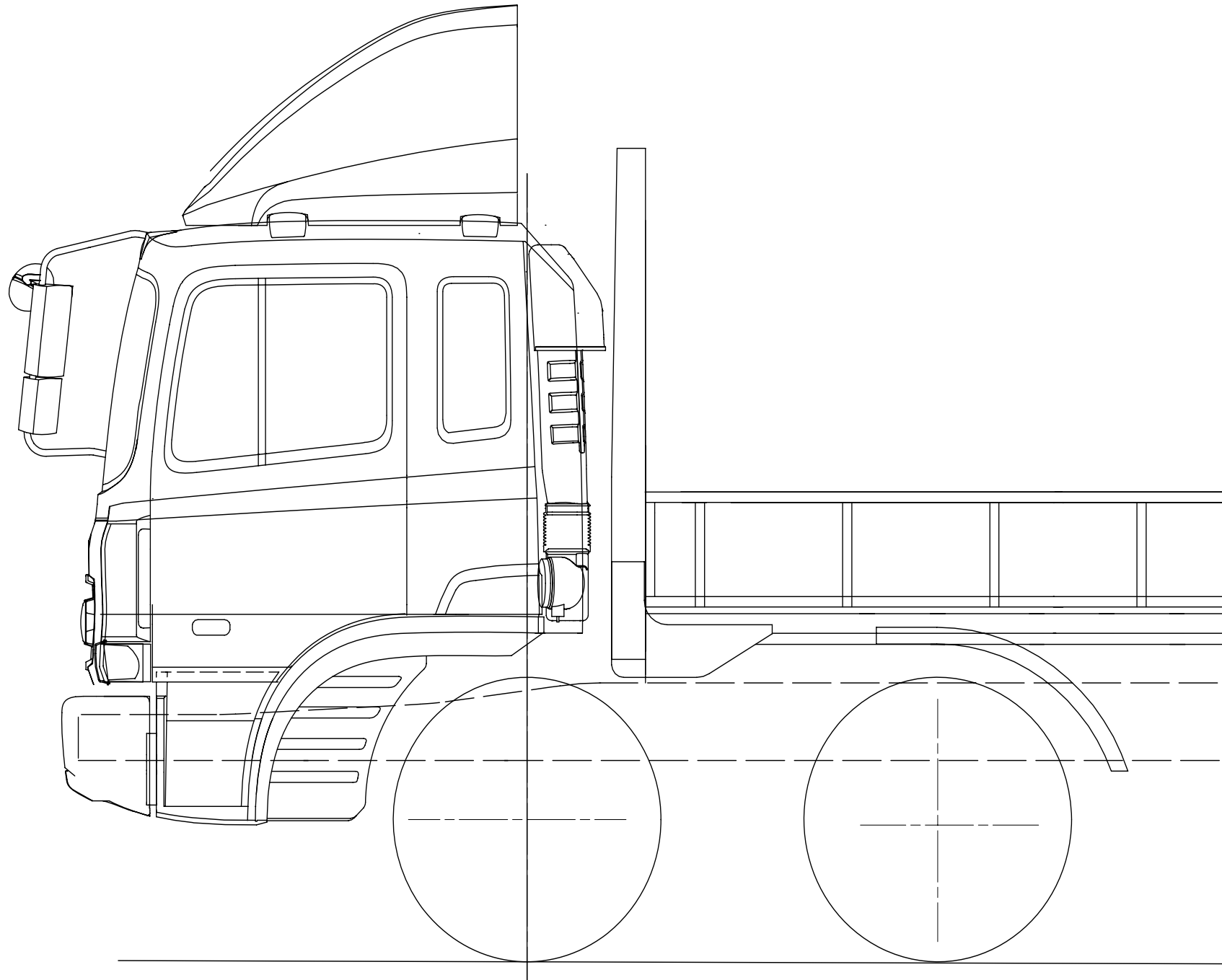
(1) 4x2 / 6x4 ALL  
(SCALE : 1/25 )



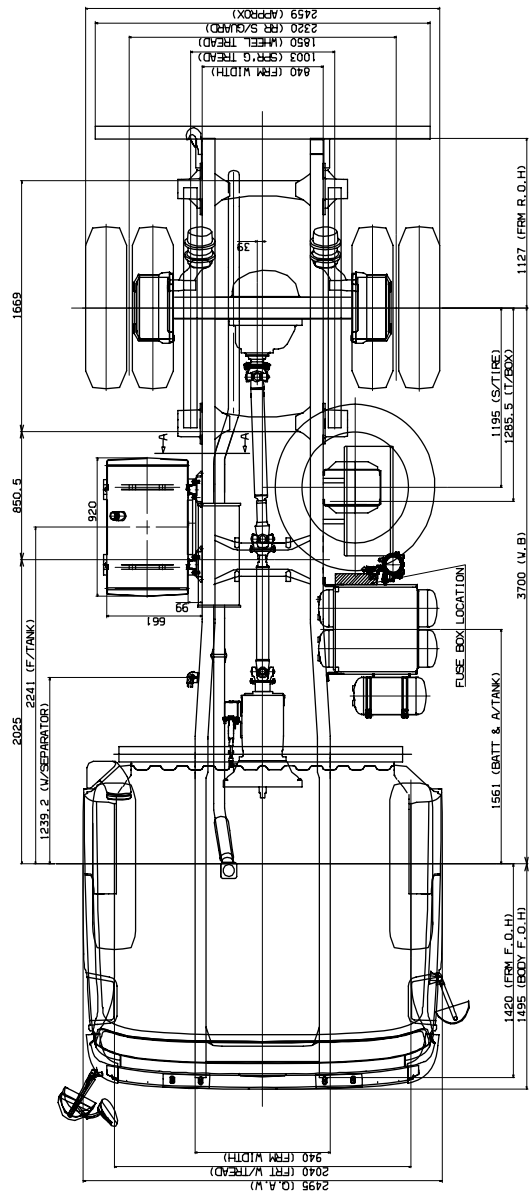
(2) 8x4  
(SCALE : 1/25 )



(3) ROOF SPOILER  
(SCALE : 1/ 25)

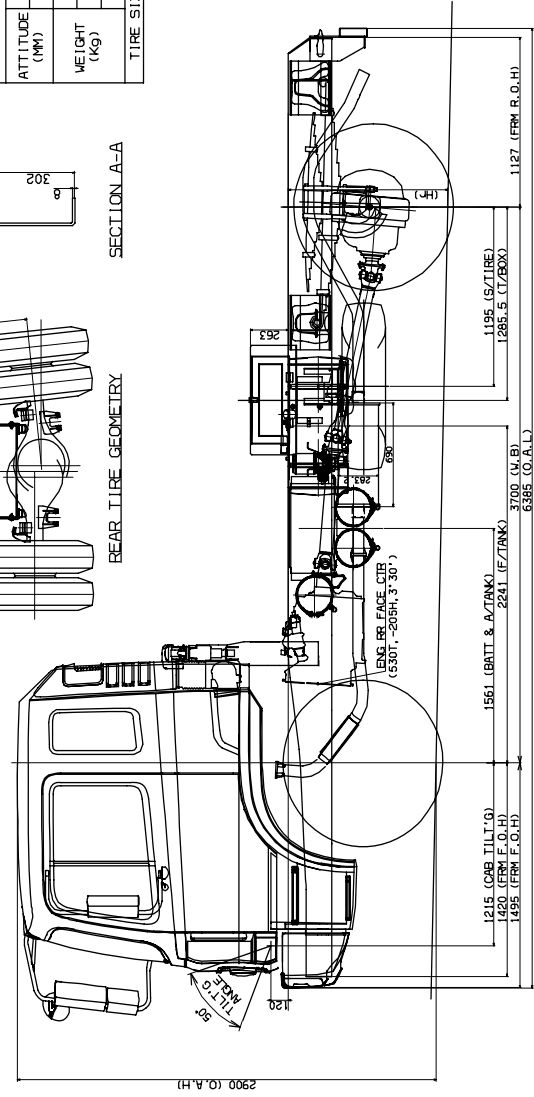
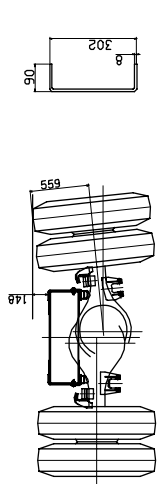


## 10. CHASSIS FRAME DRAWING

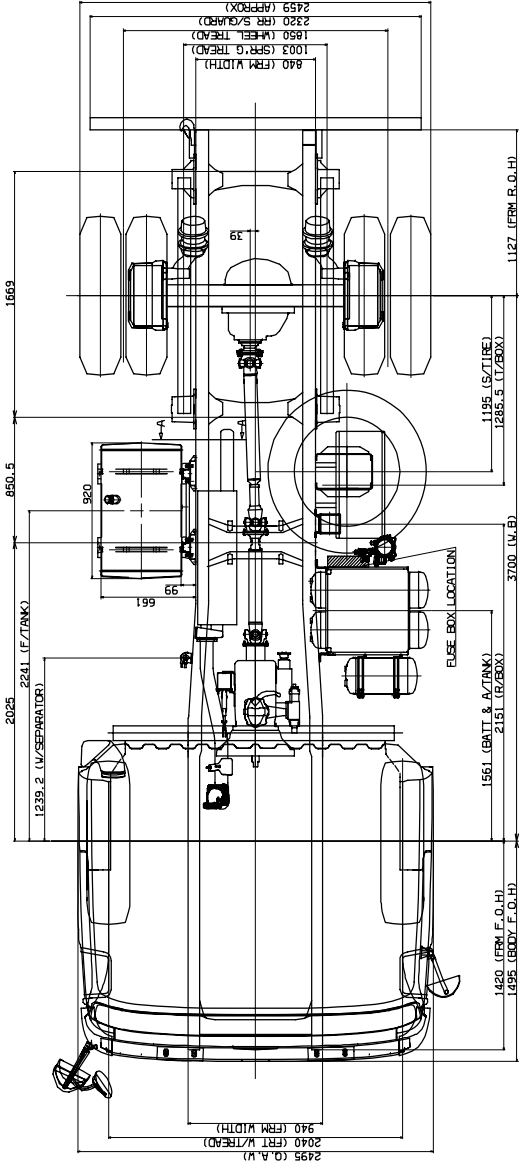


APPLICATION DATA

	8TON DUMP	MAX	G.V.W
C/CAB	1024	-	-
HF	1106	-	-
FRONT	-	6550	-
REAR	-	10800	-
TTL	-	17350	-
TIRE SIZE 11.00x20-16PR			

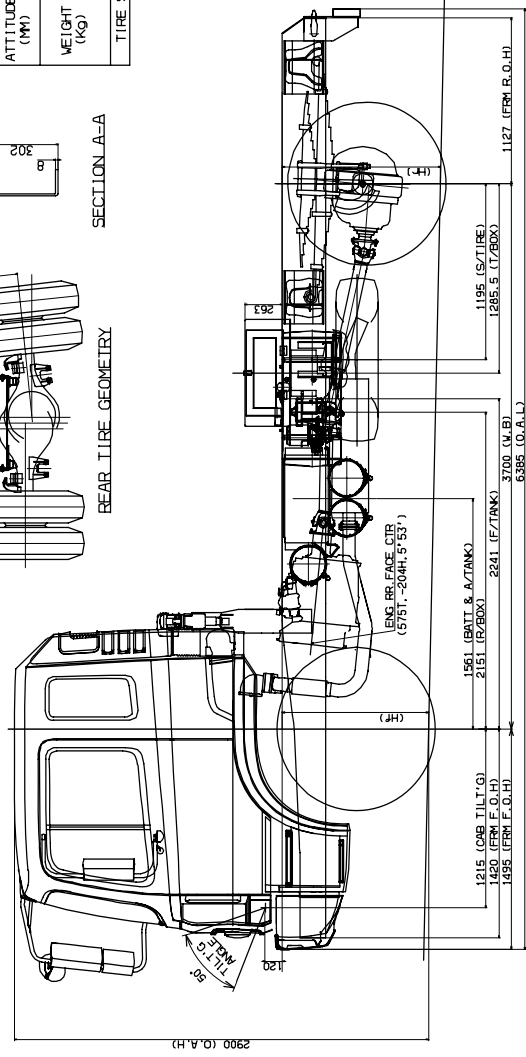
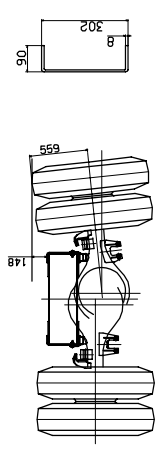


04.09.08	RELEASED				
DATE	MODIFICATION ITEM	SIGN			
HYUNDAI MOTOR COMPANY					
PROJECT	DESIGN	APPROVED	DATE	2004.09.	
J. Y. HONG (D. J. CHOI)	Y. Y. SONG		DR. HEE SOON		
VALUE ENGINEER/REVIEWER	CHKD		DATE		
WORKING DRG	SCALE		REV		
CONTROL DRG	APPROVED		DATE		
PRINT			SCALE		
			DR. HEE SOON		
			DATE		
8TON DUMP (D68R)					
BODY BUILDER '04 F/LIFT					
FIG. NO.	FORM	REV	DATE		



APPLICATION DATA

ATTITUDE (°)	HT	C/CAB	8TON DUMP
	HT	1024	MAX G. V. V
WEIGHT (KG)	FRT	1106	-
	RR	6550	-
	TTL	10800	-
TIRE SIZE		17350	11.00X20-16PR



HYUNDAI MOTOR COMPANY

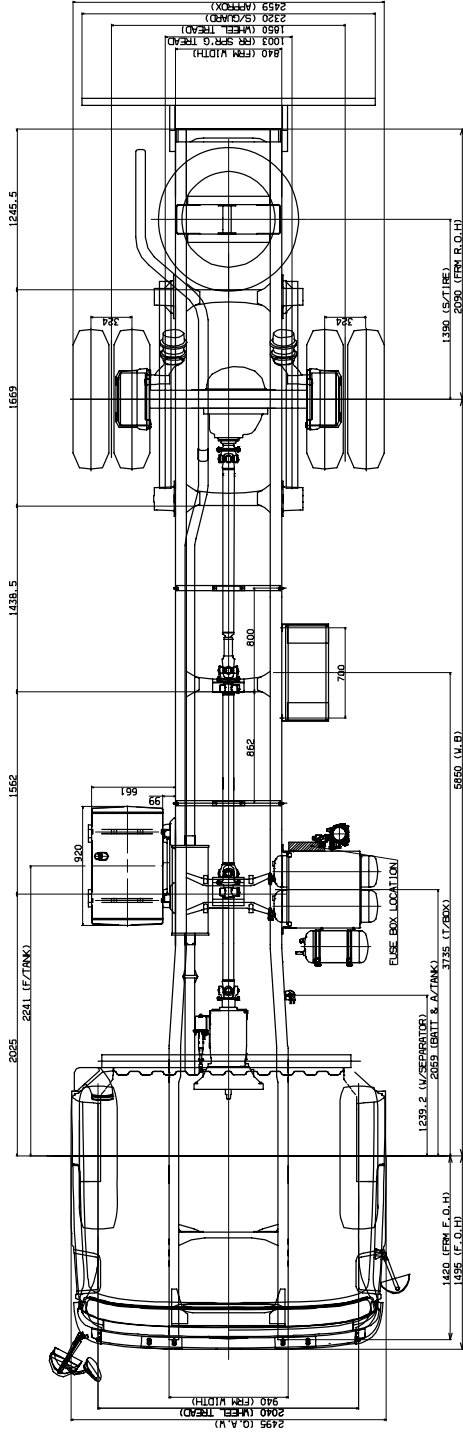
REFERENCE: DATE: 04.09.08  
SCALE: 1:1  
FOR NEW MODEL: J.Y.HONG (L.J.OAO) Y.Y.SUNG  
VALUES ORIGINAL DESCRIBED: QTY: 1/1  
MARKING DIM: 1/1  
CAPTION DIM: 1/1  
MATERIAL: 1/1  
FINISH: 1/1  
NO. OF PARTS: 1/1  
DRAWING NO.: 1/1  
REV: 1/1

RELEASED: 04.09.08  
MODIFICATION ITEM: SIGN

8TON DUMP (KK-TC1)  
BODY BUILDER '04 F/LIFT

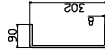




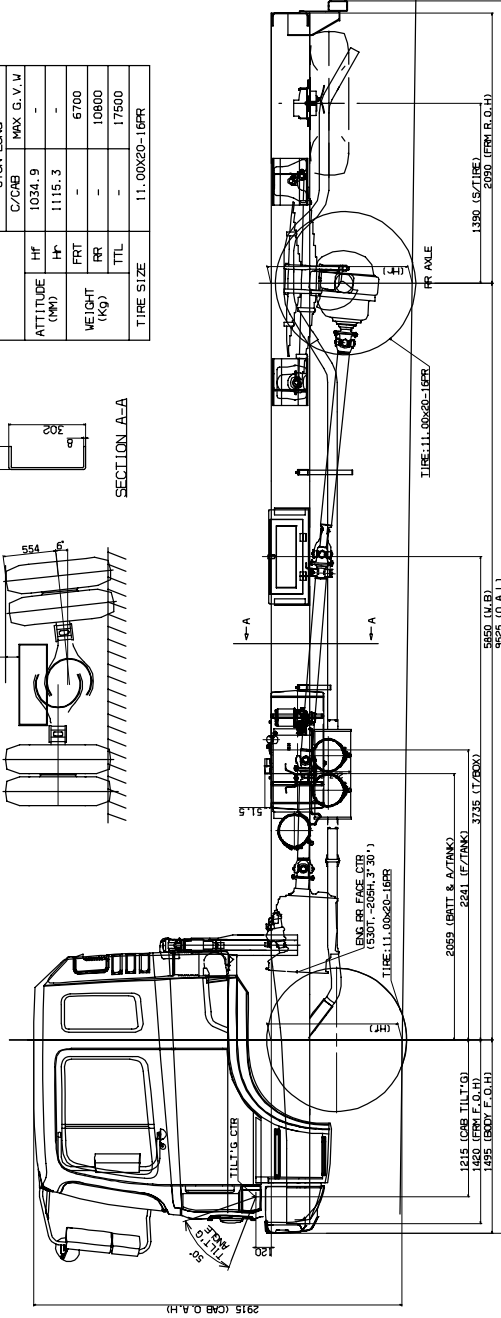
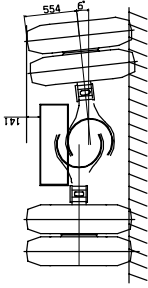


APPLICATION DATA

8TON LONG		C/CAB	MAX G.V.W
ATTITUDE (MM)	HF	1034.9	-
WEIGHT (KG)	FRT	1115.3	-
	RRT	6700	-
	TTL	10800	-
TIRE SIZE	11.00X20-16FR		

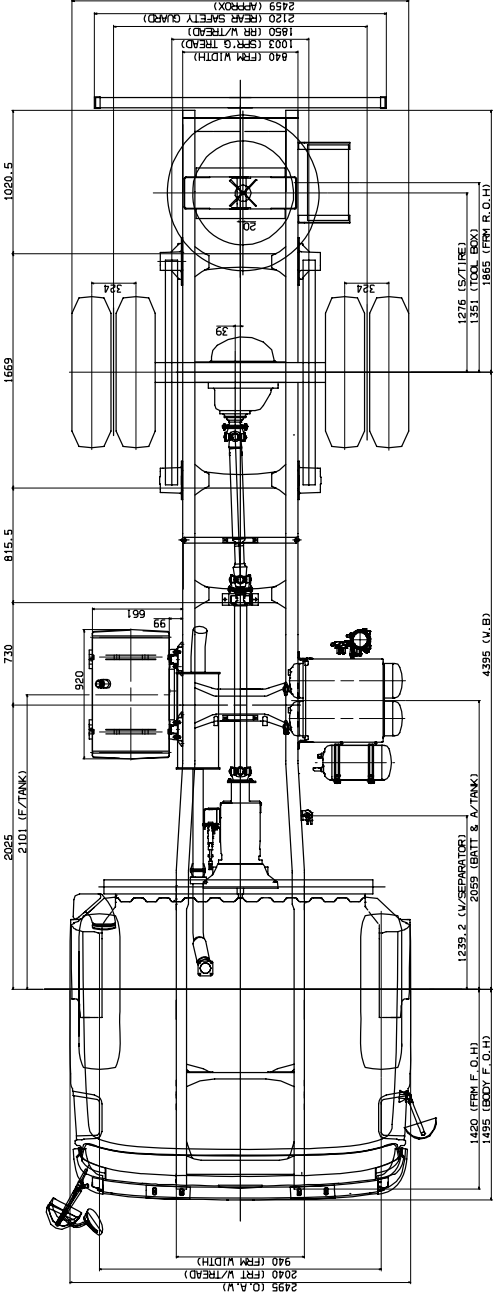


SECTION A-A



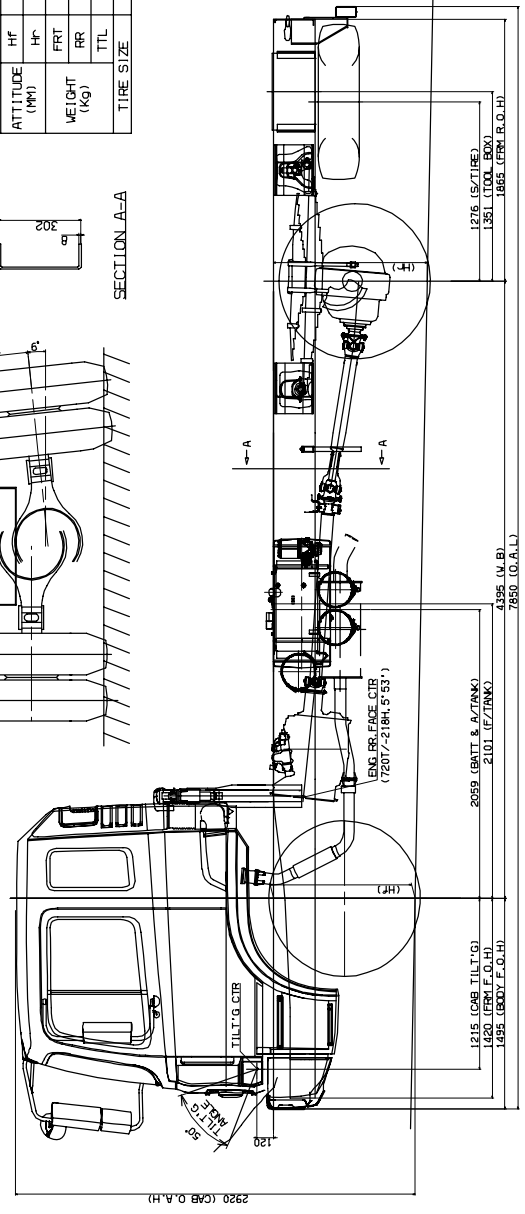
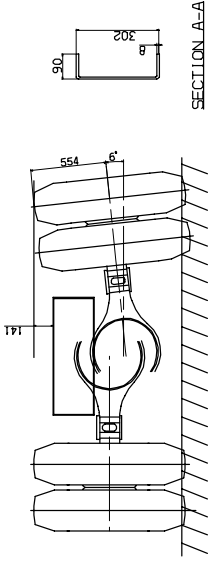
DATE	14.09.01	RELEASED	SIGN
MODIFICATION ITEM	HYUNDAI MOTOR COMPANY		
REFERENCE	DATE: 03/04/00 DRAWN BY: J.Y. HONG (J.O.C) / Y.Y. SANG CHECKED BY: [blank] DATE: [blank] SCALE: [blank] APP'D BY: [blank] DATE: [blank] DATE: [blank] DATE: [blank] DATE: [blank]		
HYUNDAI MOTOR COMPANY	8TON LONG (06BR) BODY BUILDERS '04 F/LIFT		



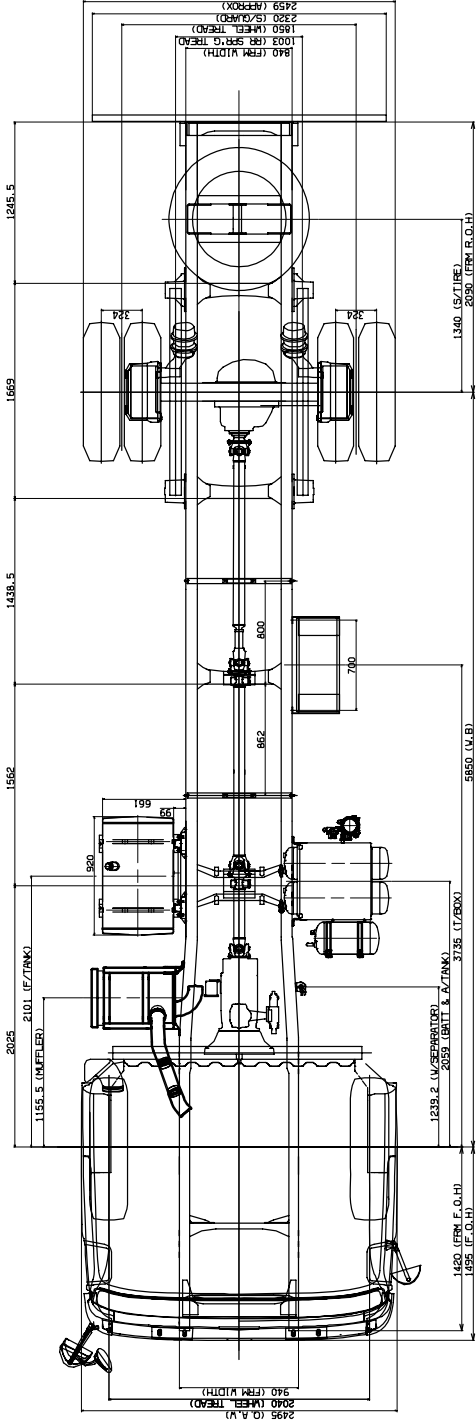


APPLICATION DATA

ATTITUDE (MM)	HF	HF	FRT	RR	TTL	WEIGHT (KG)	TIRE SIZE
8. STONISHORT	C/CAB	1033.6	1121.4	-	-	6550	11.00x20-16PR
						10800	
						17350	

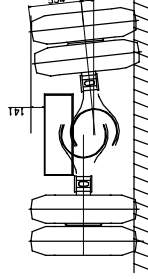
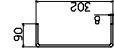


DATE	04.09.07	RELEASED		STUN
MODIFICATION ITEM				
HYUNDAI MOTOR COMPANY				
REFERENCE	DATE	2004.02.		
DESIGNER	DESIGNED	APPROVED	DATE	
J. Y. HONG	G. J. CHOI	Y. SONG	04.09.07	
SCALE	SCALE	SCALE	SCALE	
1:1	1:1	1:1	1:1	
DATE	DATE	DATE	DATE	
04.09.07	04.09.07	04.09.07	04.09.07	
BY	BY	BY	BY	
J. Y. HONG	G. J. CHOI	Y. SONG		
CHKD	CHKD	CHKD	CHKD	
DATE	DATE	DATE	DATE	
04.09.07	04.09.07	04.09.07	04.09.07	
BY	BY	BY	BY	
DATE	DATE	DATE	DATE	
04.09.07	04.09.07	04.09.07	04.09.07	
BY	BY	BY	BY	
DATE	DATE	DATE	DATE	
04.09.07	04.09.07	04.09.07	04.09.07	
BY	BY	BY	BY	

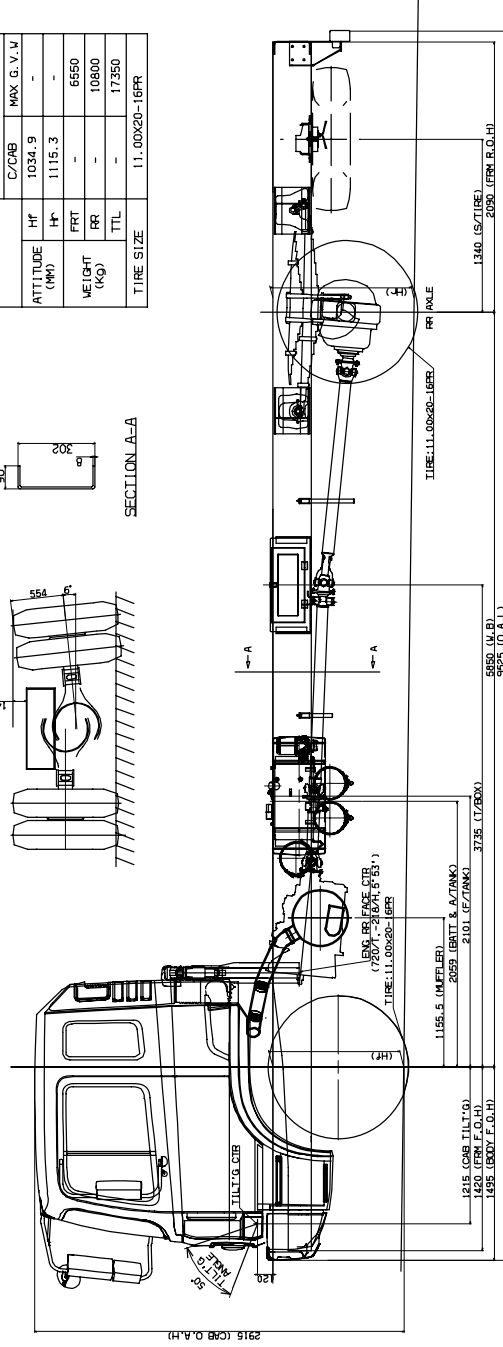


APPLICATION DATA

8-5TON LONG	
C/CMB	MAX G.V.V
ATTITUDE (MM)	HF
WEIGHT (KG)	FRT
	RR
TIRE SIZE	TTL



SECTION A-A



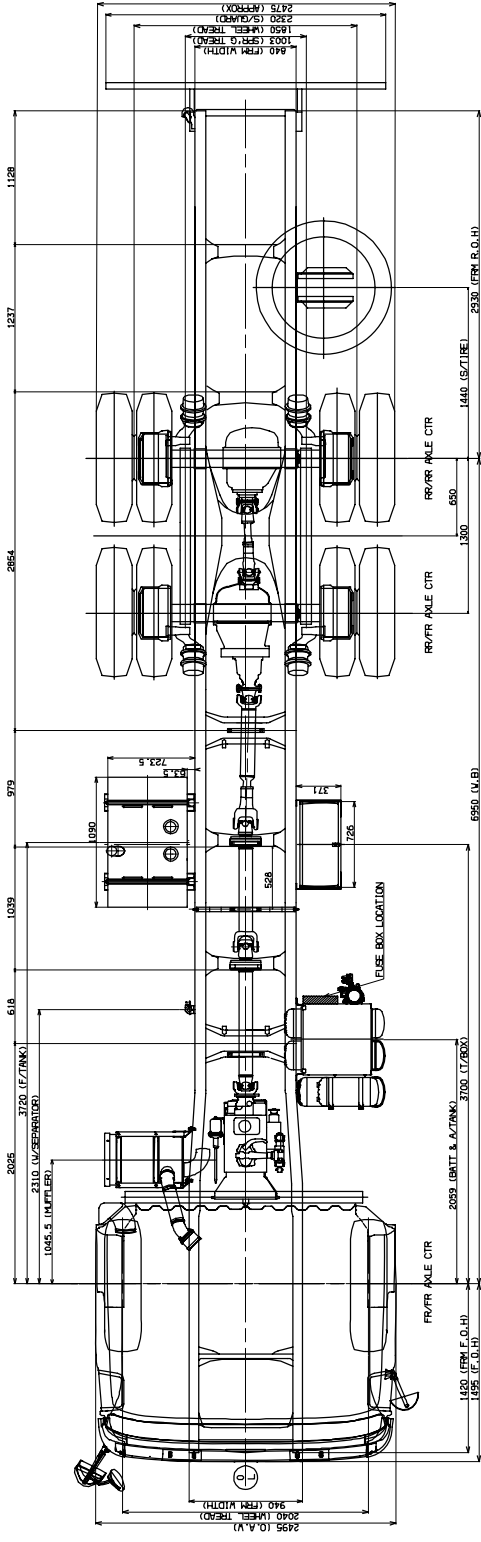
DATE	RELEASED	MODIFICATION ITEM	SION
HYUNDAI MOTOR COMPANY			

DATE	BY	REASON

NO.	DATE	BY	REASON

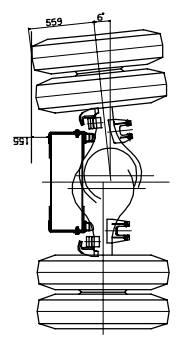
8-5TON LONG (05AB)  
BODY BUILDERS 04 F.A.L.I.F.T.



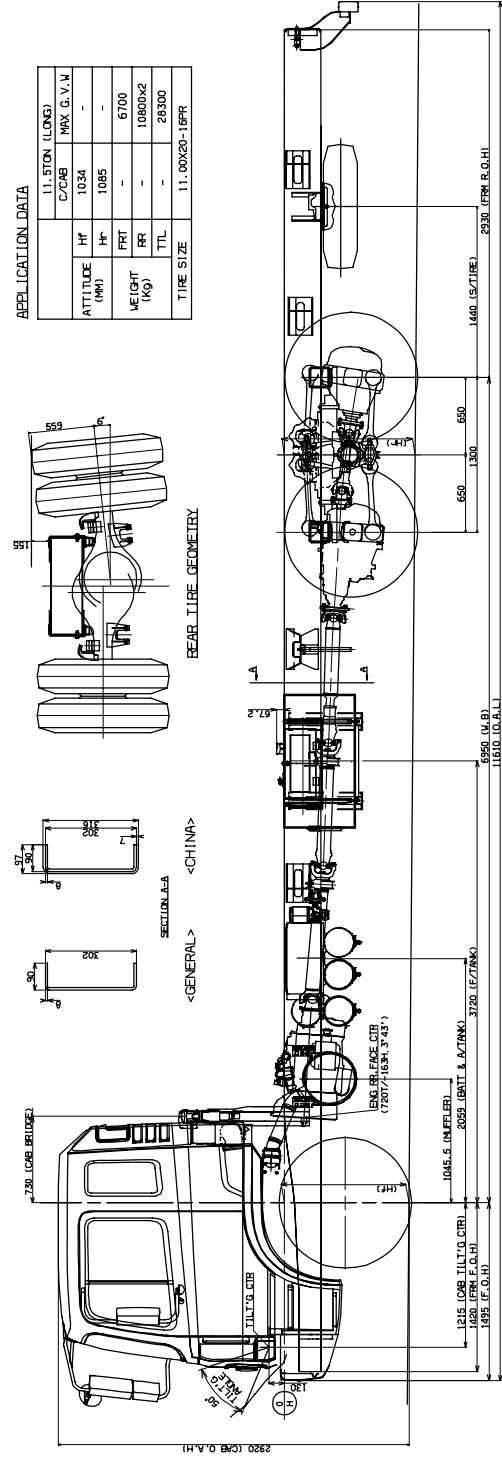


APPLICATION DATA

ATTITUDE (MM)	HF	MAX. G. V. H
	1034	-
WEIGHT (KG)	FRT	RR
	6700	10800x2
TIRE SIZE	11.00x20-16PR	



<GENERAL>  
<CHINA>



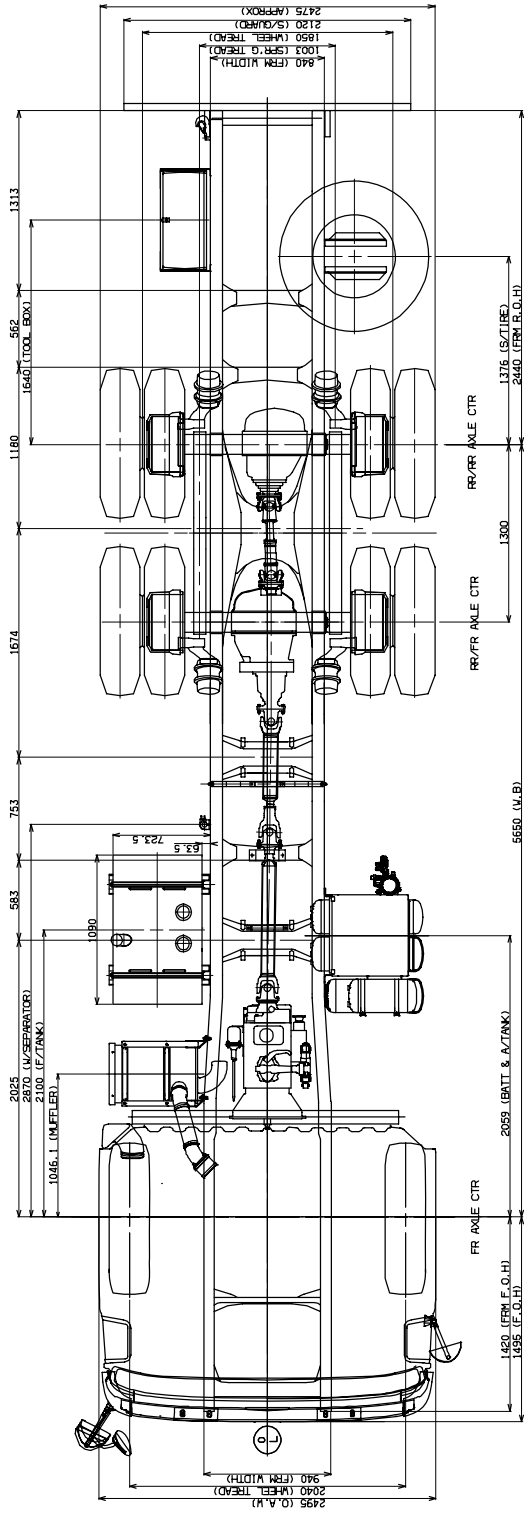
DATE	RELEASED	SIGN
11.09.07		
DATE	MODIFICATION ITEM	SIGN
HYUNDAI MOTOR COMPANY		
DATE	APPROVED	DATE
11.09.07		
U.V. HOD (E.L.O.D)	V.V. SHOH	DATE
APPROVED	APPROVED	DATE
DATE	APPROVED	DATE
11.09.07		
DATE	APPROVED	DATE
11.09.07		
DATE	APPROVED	DATE
11.09.07		
DATE	APPROVED	DATE
11.09.07		

11. STON LONG (O6AC)  
BODY BUILDERS

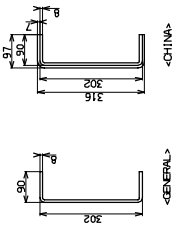




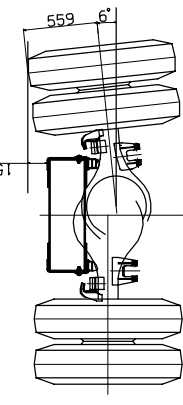




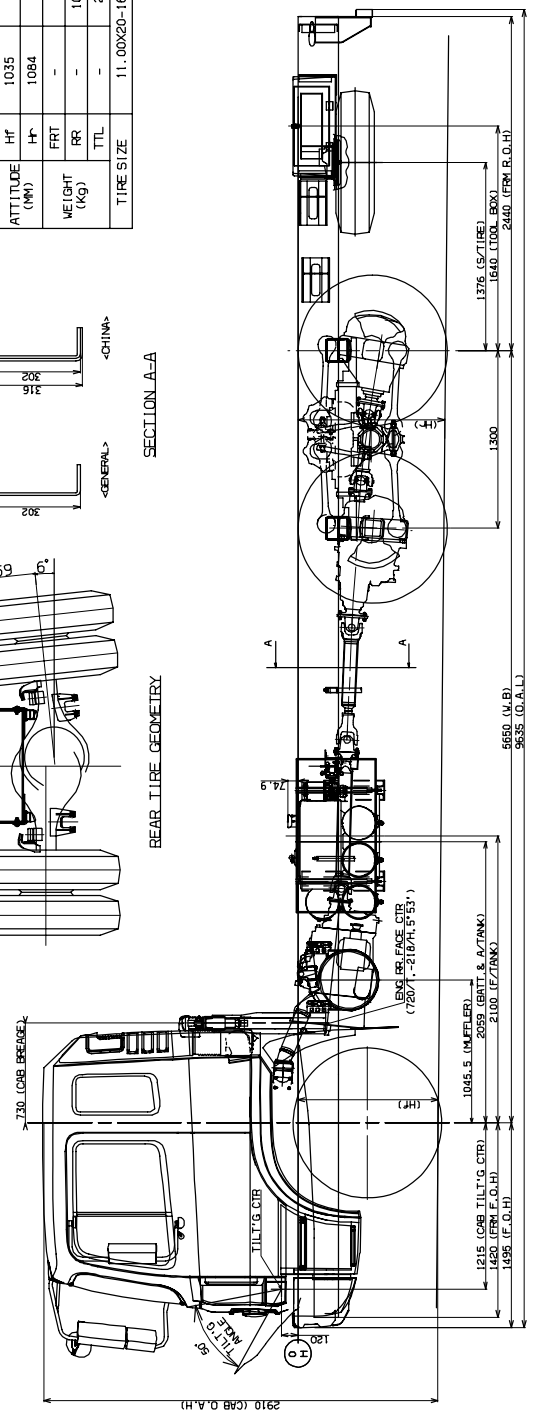
APPLICATION DATA	
16TON SHORT	
C/CAB	MAX G.V.V.W
HF	1035
HF	1084
FRT	6550
RR	10800x2
TTL	28150
TIRE SIZE	11.00x20-16PR



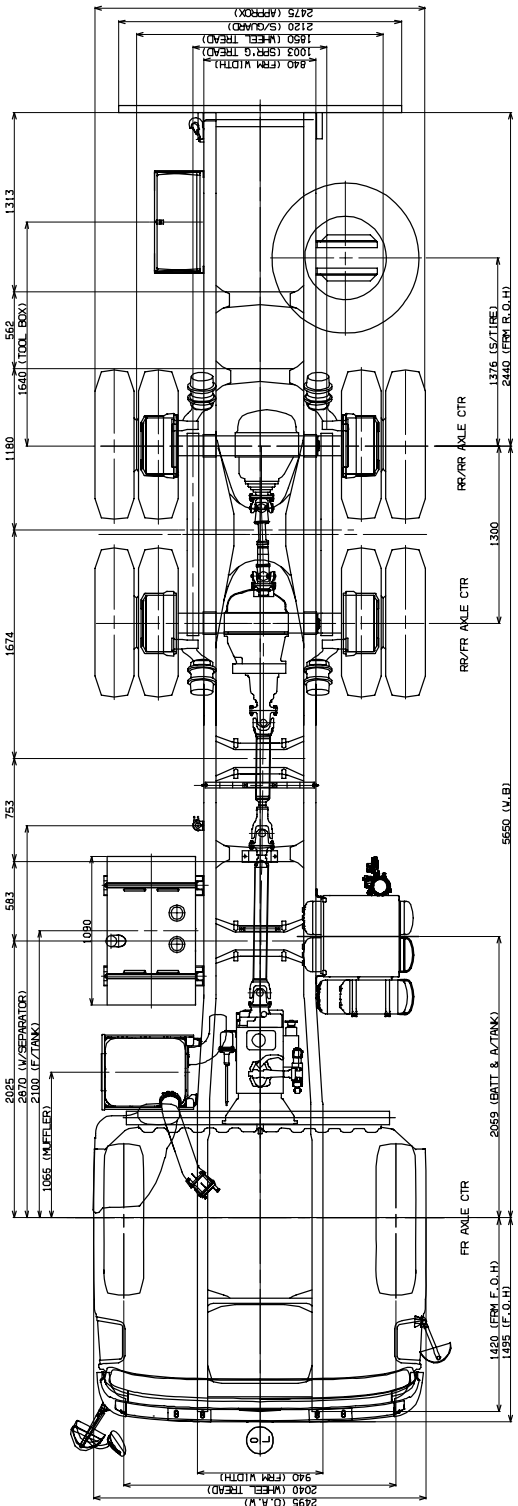
SECTION A-A



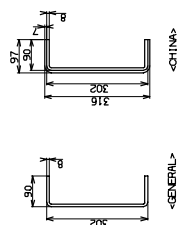
REAR TIRE GEOMETRY



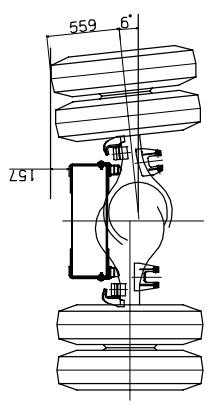
DATE	RELEASED	SIGN
04.09.07		
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	REVISION
J.Y. HONG (S.J.DKH) (S.Y.SXC)		
DATE	REVISION	BY
DESCRIPTION	APPROVED	DATE
16TON SHORT (06AC)		
BODY BUILDER: 04.FA.FT		



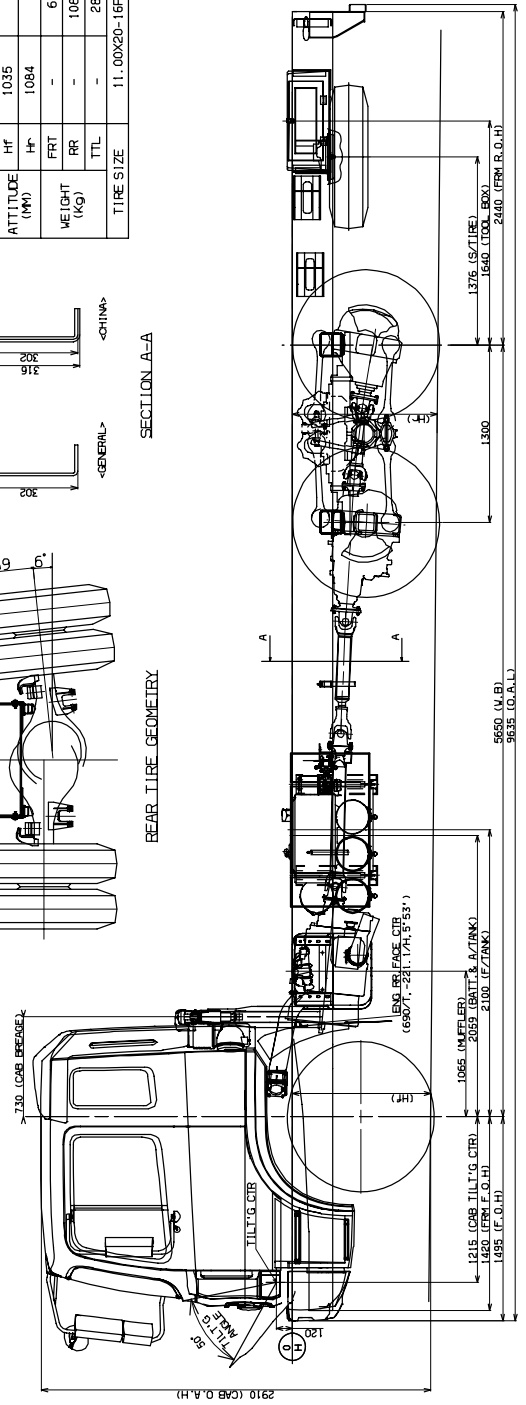
16TON SHORT	
C/CAB	1035
ATTITUDE (MM)	1084
FRT	6550
RR	10800x2
TTL	28150
TIRE SIZE	11.00X20-16PR



SECTION A-A

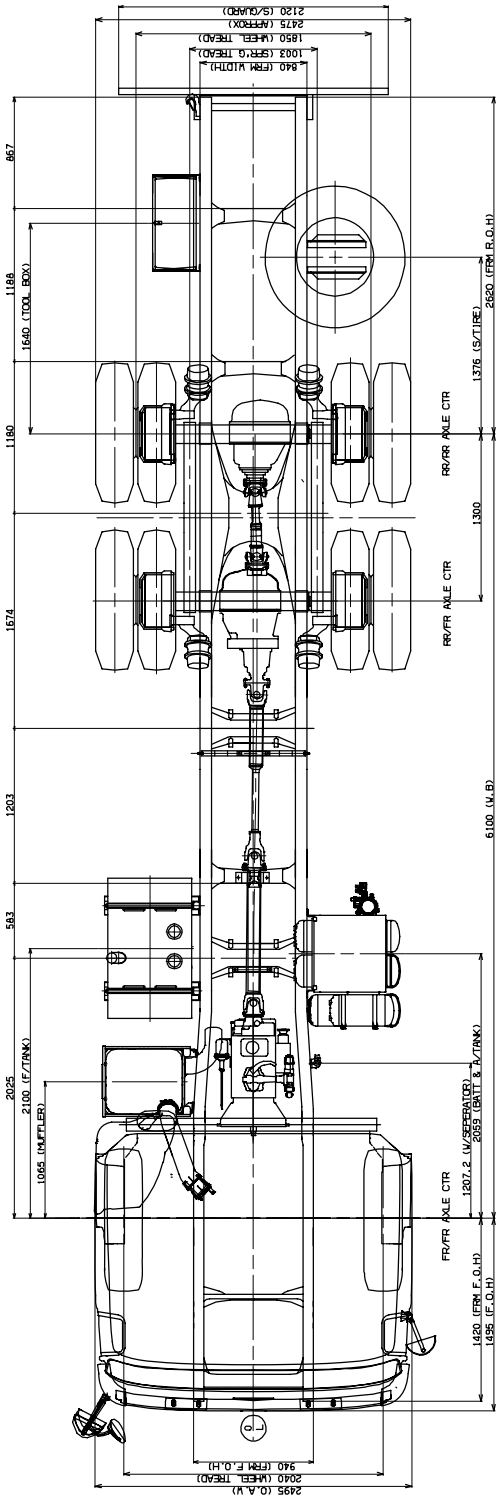


REAR TIRE GEOMETRY



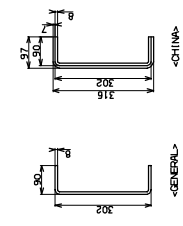
DATE	04.09.07	RELEASED		SIGN	
DATE		MODIFICATION	ITEM		
HYUNDAI MOTOR COMPANY					
REFERENCE		DATE		SCALE	
NO.		NO.		NO.	
BY		BY		BY	
CHECKED		CHECKED		CHECKED	
APPROVED		APPROVED		APPROVED	
DESIGNED		DESIGNED		DESIGNED	
DRAWN		DRAWN		DRAWN	
OPERATOR		OPERATOR		OPERATOR	
NO.		NO.		NO.	
REV.		REV.		REV.	
16TON SHORT (D6CA)					
BODY BUILDER '04 F/LIFT					



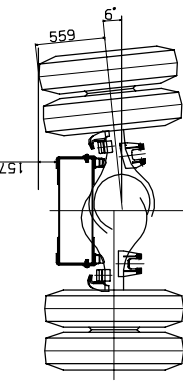


APPLICATION DATA

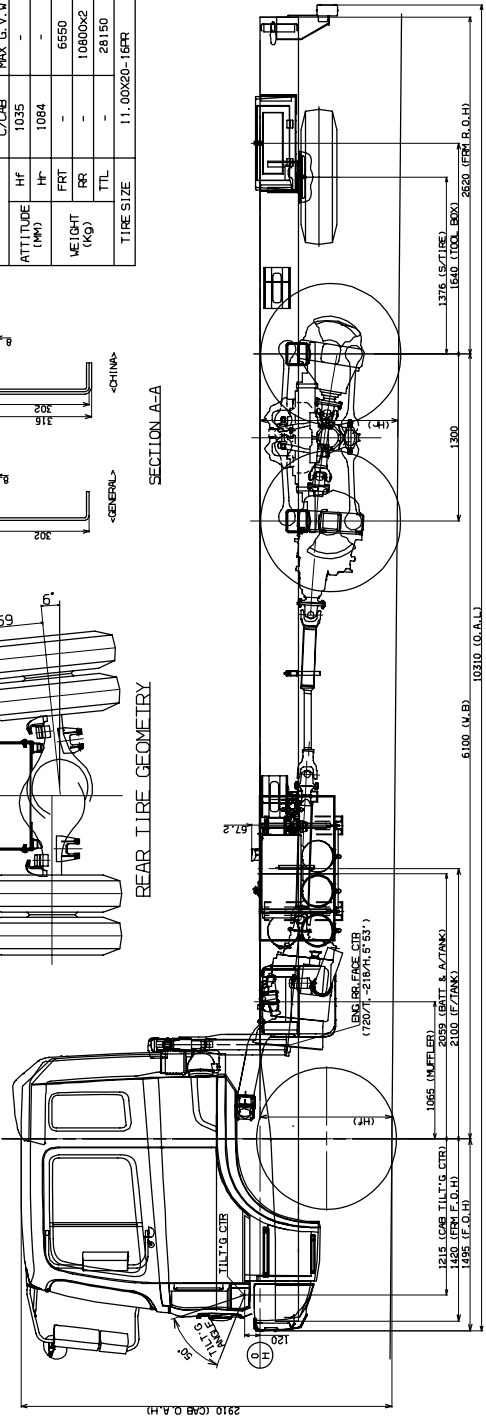
CLASS	16TON MEDIUM
C/TYPE	PMX G. V. V
ATTITUDE (MM)	1035
H°	1084
FRONT WEIGHT (kg)	6650
RR	10800x2
TTL	28150
TIRE SIZE	11.00X20-16FR



SECTION A-A



REAR TIRE GEOMETRY



DATE	2004.04.
RELEASED	
MODIFICATION ITEM	
SIGN	

HYUNDAI MOTOR COMPANY

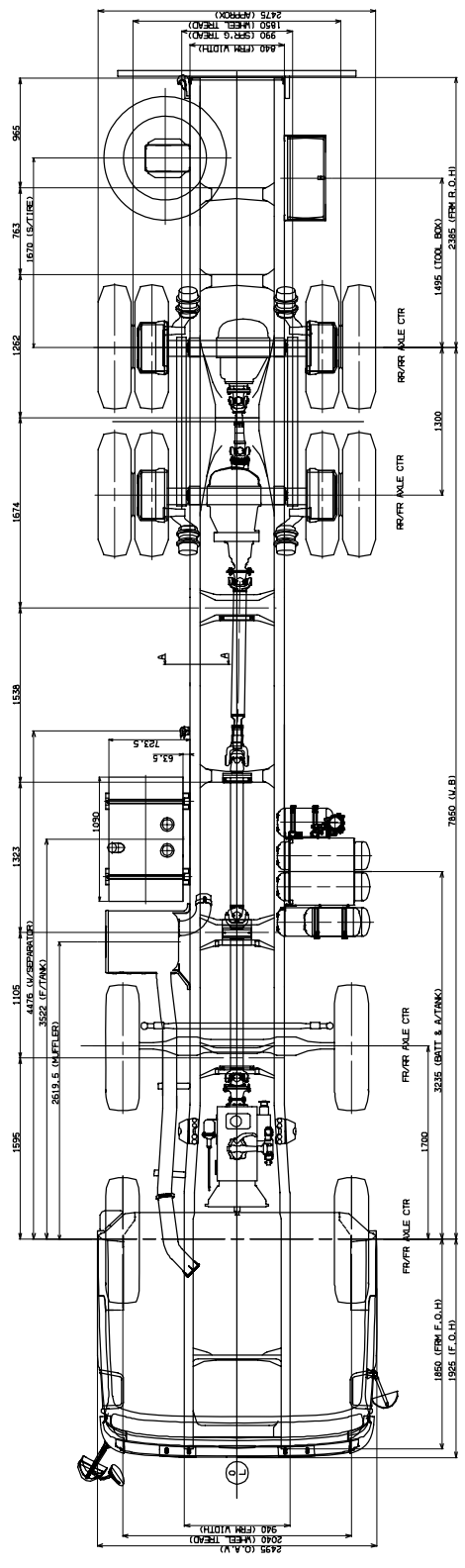
DATE	2004.04.
DESIGN	200404
REVISION	
BY	J. Y. HONG (S. J. OH) (Y. Y. SHIN)
CHK	
DATE	
BY	
CHK	
DATE	
BY	
CHK	
DATE	
BY	
CHK	

16TON MEDIUM(D6CA)  
BODY BUILDER '04 F/L/FT



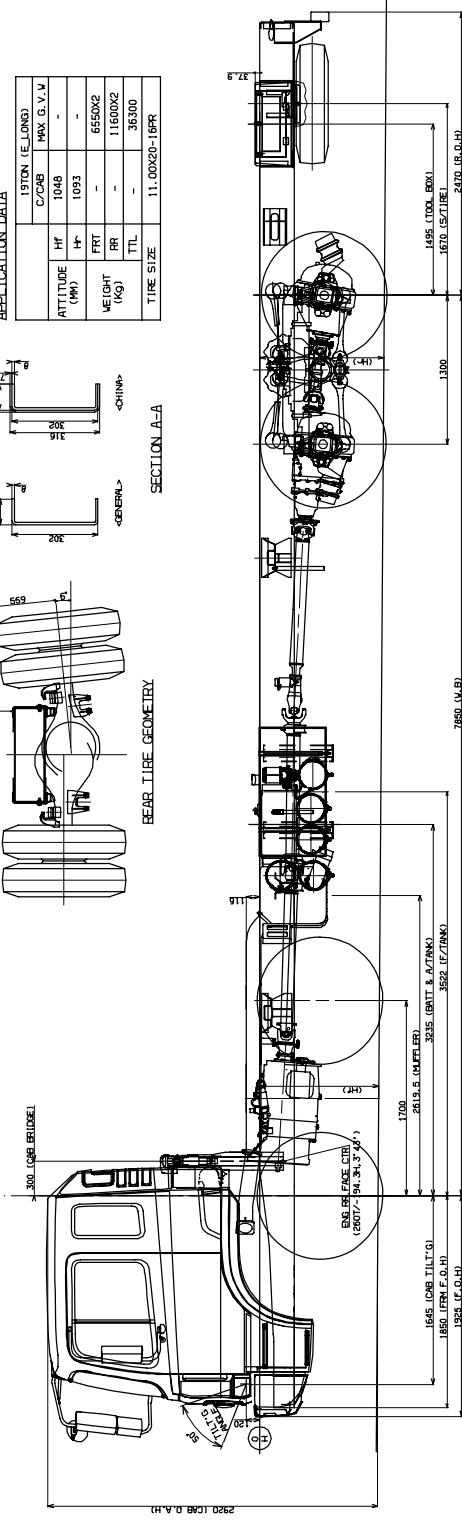
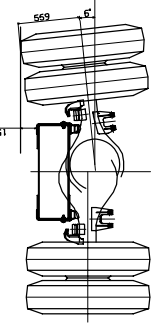
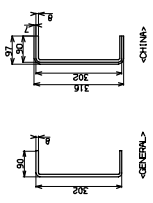


DATE	RELEASED	BY	SIGN
DATE	MODIFICATION	BY	SIGN
HYUNDAI MOTOR COMPANY			
REFERENCE	DATE	BY	SIGN
1. V. (FORM I) (REV. 11/1/70)			
HYUNDAI MOTOR COMPANY			
1970N ELONG (D6CA)			
BODY BUILDERS - 04 FA LEFT			
DATE	BY	BY	BY

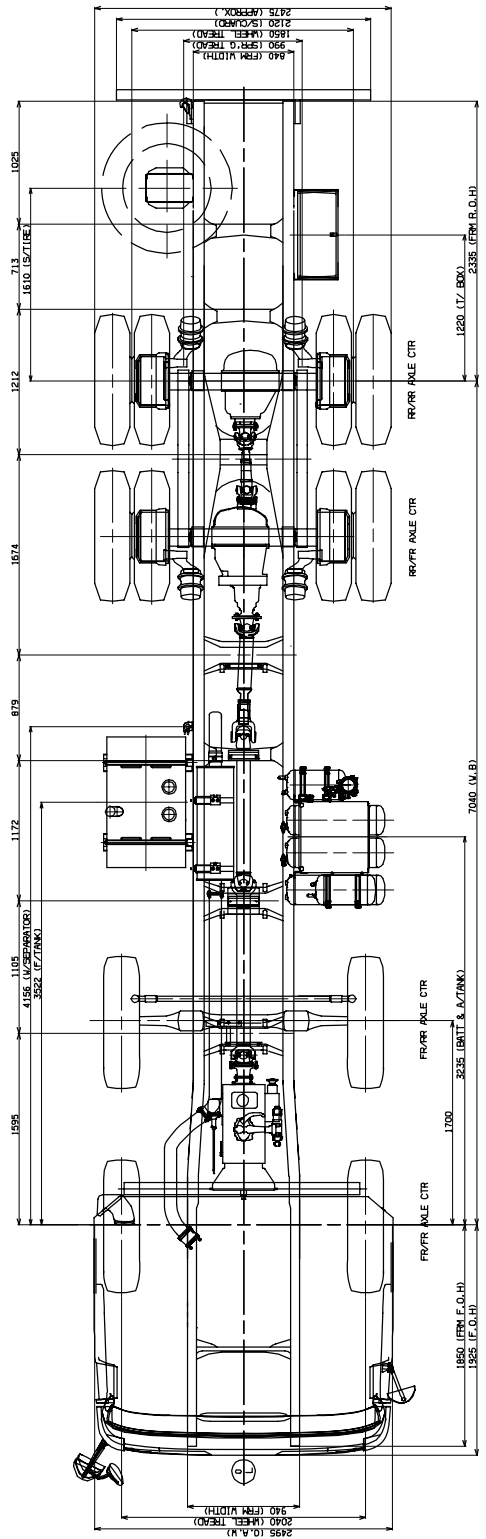


APPLICATION DATA

1970N (E LONG)	TRK G. V.V.
C/CAB	1048
ATTITUDE (MM)	1093
FRONT	6550X2
REAR	11600X2
TIRE	36300
TIRE SIZE	11.00X20-16PR

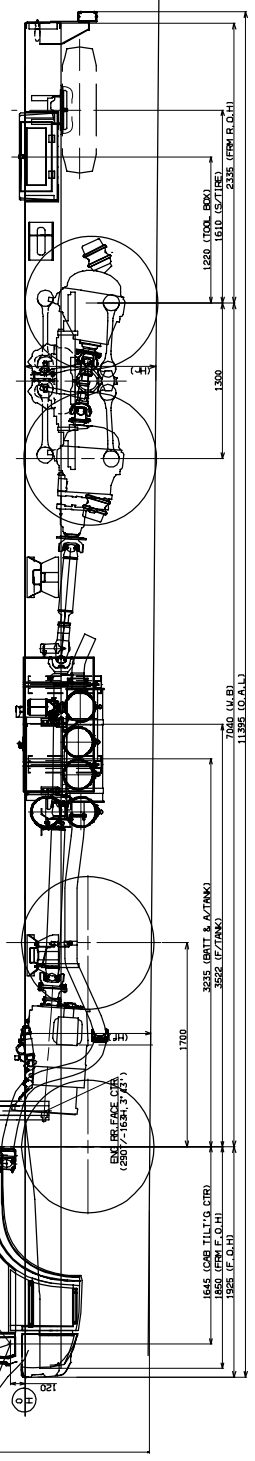
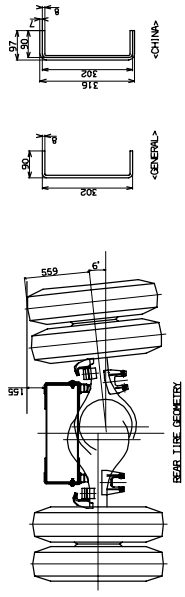


DATE	BY	BY	BY



APPLICATION DATA

19.5TON (SHORT)		
ATTITUDE (M)	HF	MAX G. V. V
1048	1094	-
FRONT (FRT)	-	6550X2
REAR (RR)	-	1160X2
TOTAL (TTL)	-	35300
TIRE SIZE 11.00X20-16FR		



HYUNDAI MOTOR COMPANY

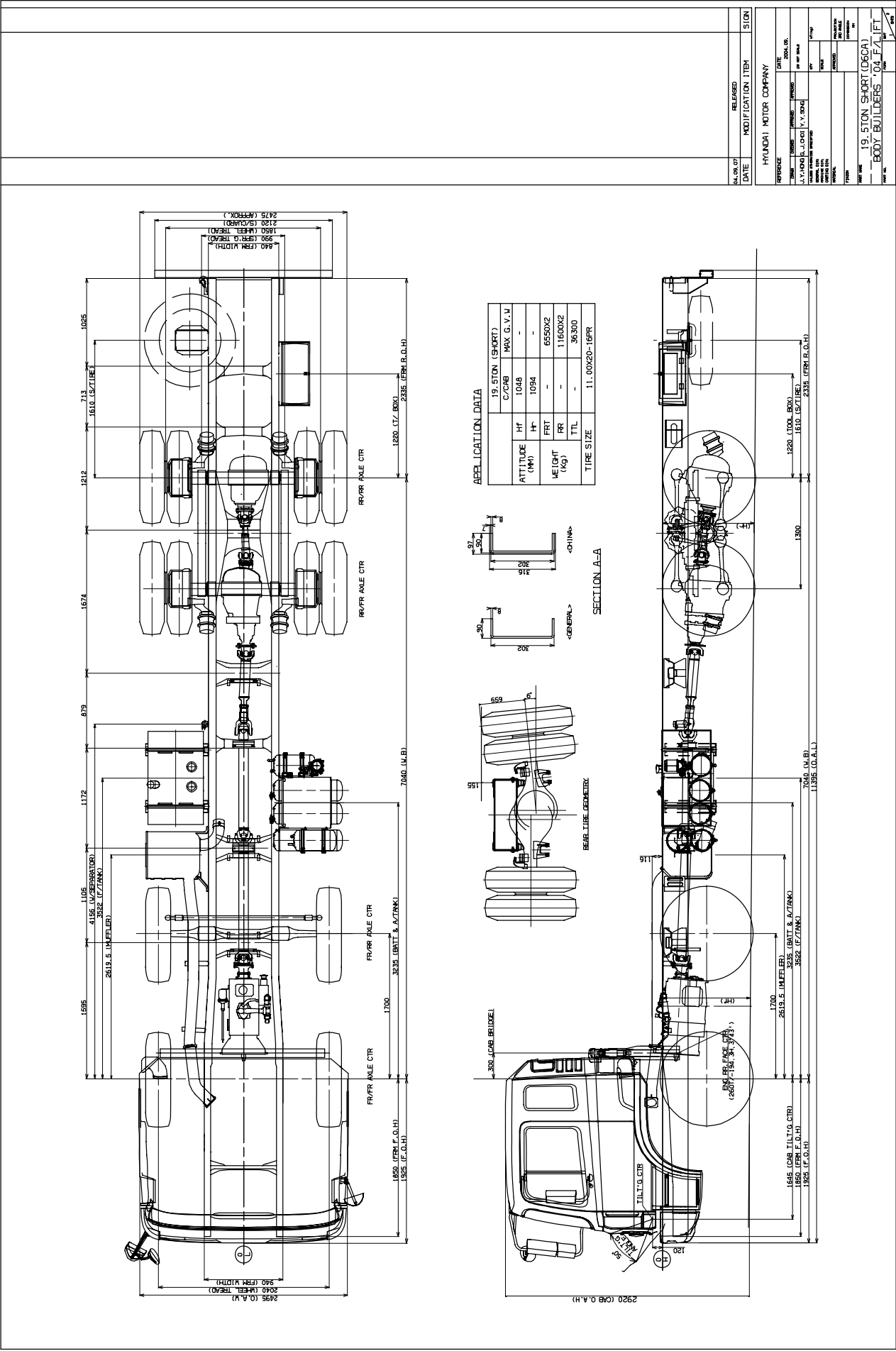
DATE	RELEASED	ITEM	SIGN
04.09.07			

REFERENCE: HYUNDAI MOTOR COMPANY

DATE	DATE	3001 CH
04.09.07		

19.5TON SHORT (D64C)  
BODY BUILDERS -04 F/1T





APPLICATION DATA

19.5-TON (SHORT)	C/CAB	MAX G.V.W.
ATTITUDE (MM)	1048	-
HF	1094	-
FRT	6550X2	-
RR	11600X2	-
TTL	-	36300
TIRE SIZE 11.00X20-16PR		

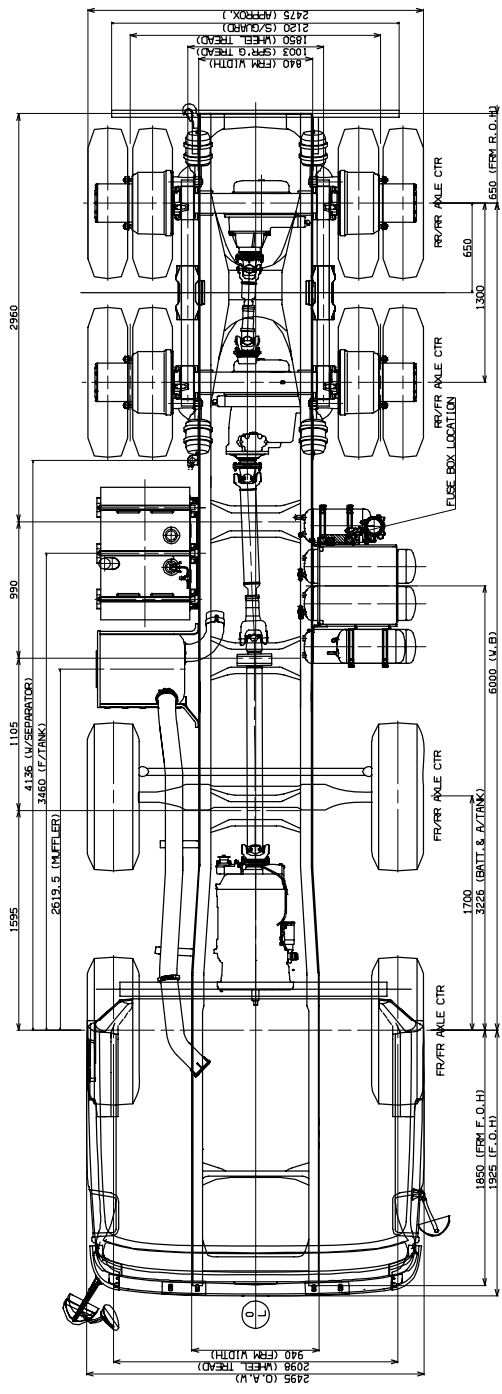
DATE	RELEASED	MODIFICATION ITEM	SIGN

HYUNDAI MOTOR COMPANY

REFERENCE	DATE

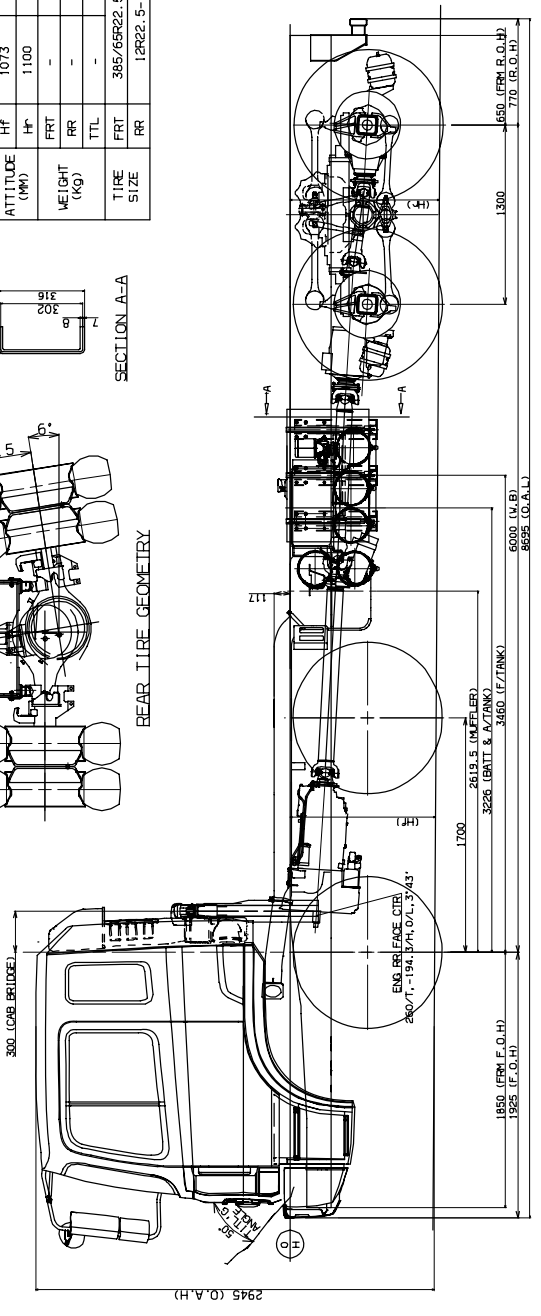
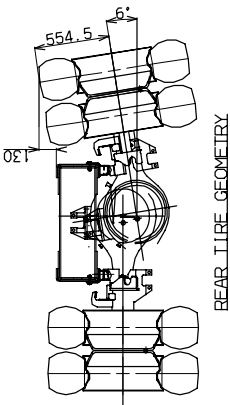
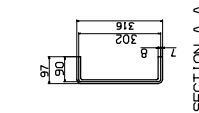
DATE	BY	CHKD	APP'D	REV

19.5-TON SHORT (D6CA)  
BODY BUILDERS '04 F/LIFT



APPLICATION DATA

23TON DUMP	
C/CAB	MAX. G. V. H
HF 1073	-
HF 1100	-
FRT -	9000X2
RR -	11800X2
TTL -	41600
FRT	385/65R22.5-20PR
RR	12R22.5-16PR



DATE	2004.09.
RELEASED	
DATE	2004.09.
MODIFICATION	
ITEM	
SIGN	

HYUNDAI MOTOR COMPANY

DATE	2004.09.
RELEASED	
DATE	2004.09.
MODIFICATION	
ITEM	
SIGN	

HYUNDAI MOTOR COMPANY

DATE	2004.09.
RELEASED	
DATE	2004.09.
MODIFICATION	
ITEM	
SIGN	

HYUNDAI MOTOR COMPANY

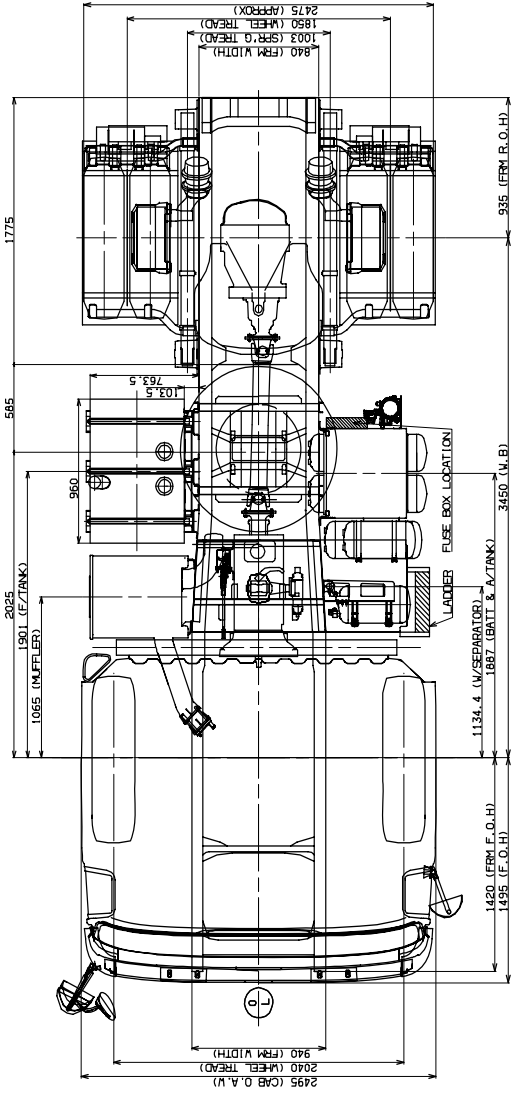
23TON DUMP

BODY BUILDERS 104 F/LIFT

REF NO. 1

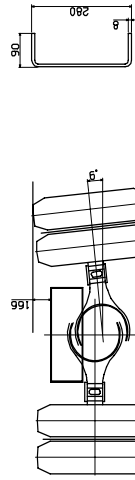




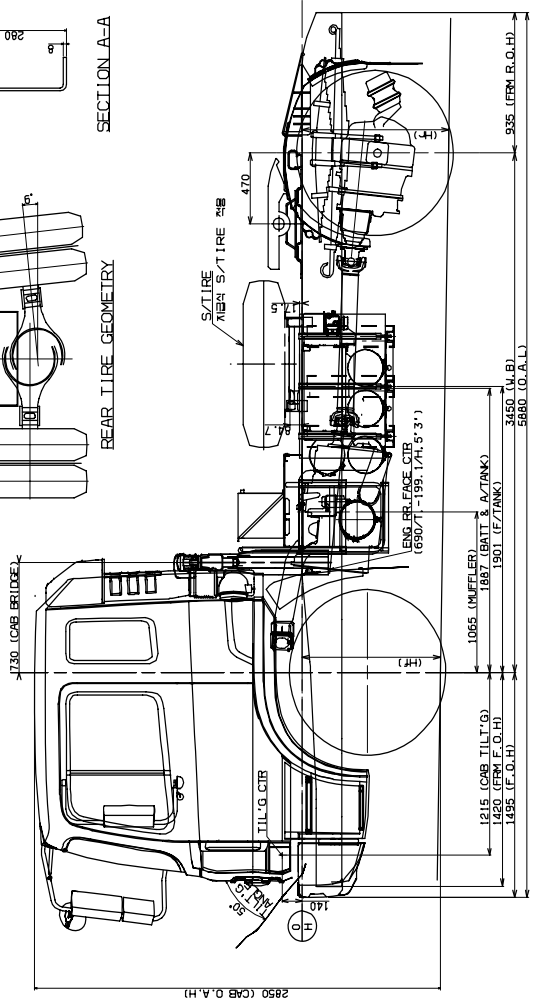


### APPLICATION DATA

4X2 TRACTOR		C/CAB	MAX. G.V.W.
ATTITUDE (MM)	HF	974	-
	HC	1031.5	-
WEIGHT (KG)	FRT	-	6550
	RR	-	11800
	TTL	-	18350
TIRE SIZE			12R22.5-16PR



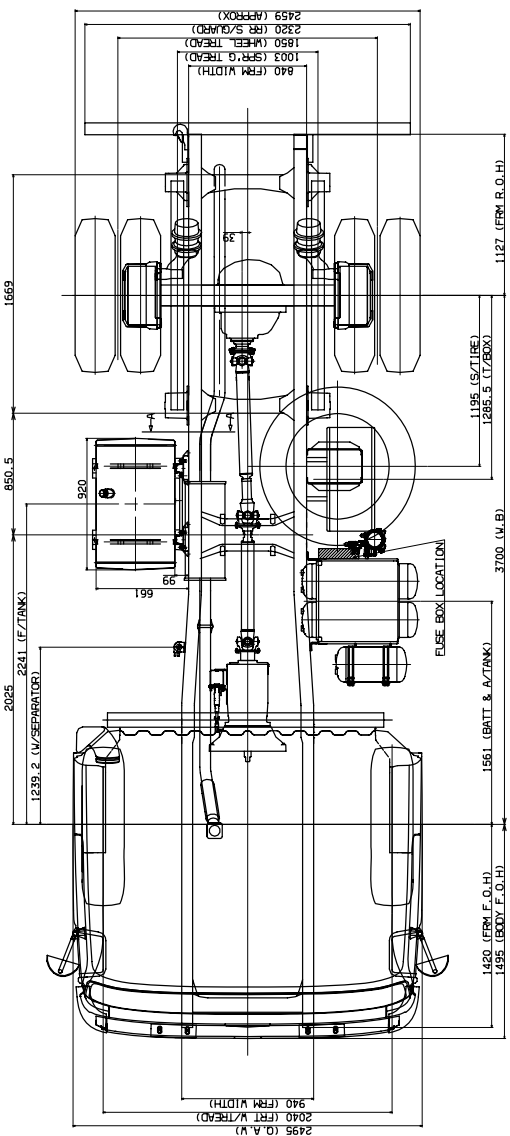
### SECTION A-A



DATE	04.09.08	RELEASED		SIGN	
HYUNDAI MOTOR COMPANY					
REFERENCE	2004.09.				
DESIGN	DESIGNED	APPROVED	DATE	2004.09.	
	J.-Y. HONG (J.-Y. HONG)	J.-Y. HONG	DR. FOR SCALE		
	UNDER PERMISSION SHEET/FIG		BY		
	WORKING COPY		SCALE		
	DRAWING DATE		APPROVED		
	DESIGNER		REVISION		
	PART NO.		NO. PART		
	PART NAME		QUANTITY		
	4X2 TRACTOR (D6CA)		NUMBER		
	BODY BUILDERS		04.F/LIFT		
	FORM NO.				

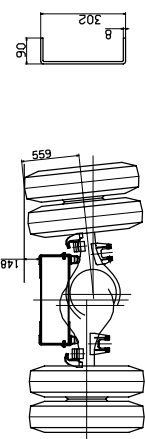




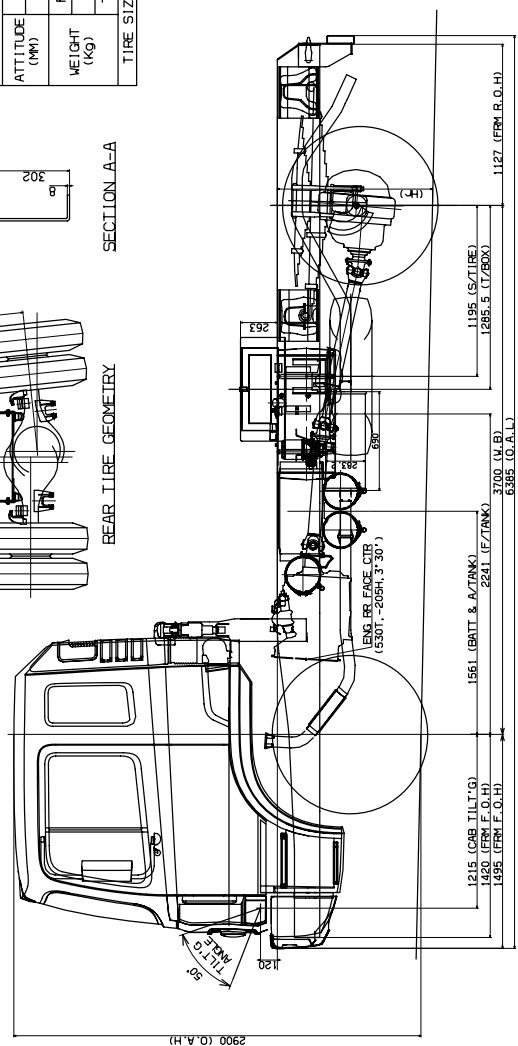


APPLICATION DATA

C/CAB	1024	8 TON DUMP
MAX ATTITUDE (MM)	1106	MAX G. V. W
FRONT WEIGHT (KG)	6550	
RR WEIGHT (KG)	10800	
TTL WEIGHT (KG)	17350	
TIRE SIZE	11.00x20-16FR	

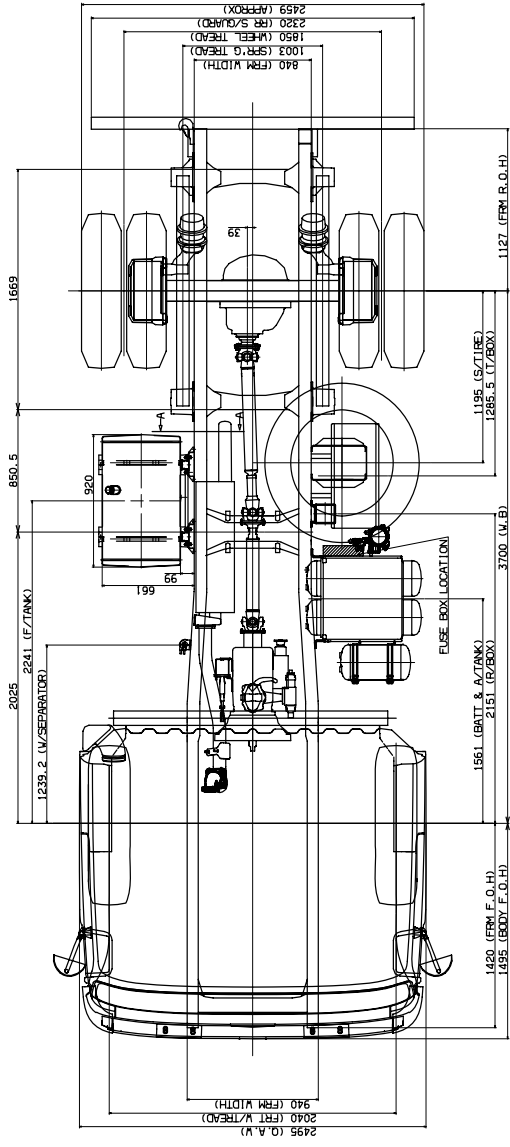


SECTION A-A



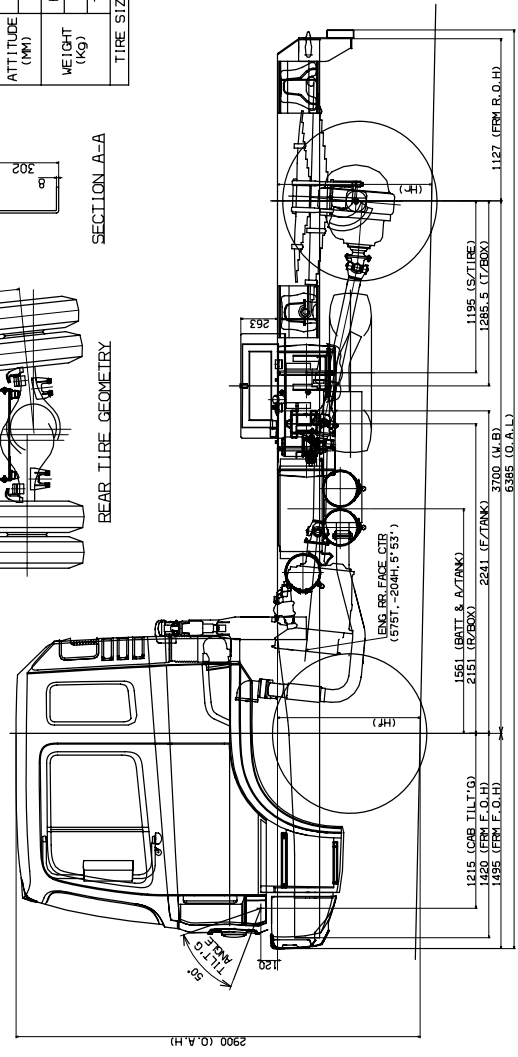
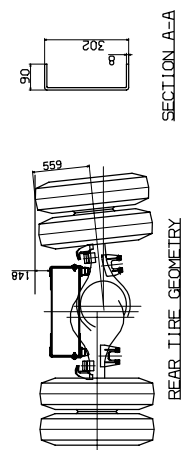
DATE	08.01.07	RELEASED		MODIFICATION ITEM		SIGN	
HYUNDAI MOTOR COMPANY							
DATE	DOE. 01.						
DOE. 01.	DOE. 01.	DOE. 01.	DOE. 01.	DOE. 01.	DOE. 01.	DOE. 01.	DOE. 01.
J. Y. HONG	J. Y. HONG	J. Y. HONG	J. Y. HONG	J. Y. HONG	J. Y. HONG	J. Y. HONG	J. Y. HONG
DESIGNED BY	CHECKED BY	APPROVED BY	DATE	SCALE	PROJECT NO.	REV.	DATE
8 TON DUMP (D66R)							
BODY BUILDER 04 F/LFT							
DATE							





APPLICATION DATA

ATTITUDE (MM)	HF	1024	8TON DUMP
WEIGHT (KG)	FRT	6550	C/CAB
	RR	10800	MAX G. V. W
TIRE SIZE	TTL	17350	
			11.00x20-16PR



DATE	05.01.07	RELEASED		SIGN	
DATE		MODIFICATION ITEM			
HYUNDAI MOTOR COMPANY					
REFERENCE					
DATE	0205.01.	REVISED			
BY	J.Y.HONG (S.J.CHI)	BY			
NAME	ORIGINEE SPECIFIED	SCALE			
DATE		APPROVED			
FUNCTION		DESIGNER			
DEPARTMENT					
8TON DUMP (KK TC1)					
BODY BUILDER 04 FZLFT					

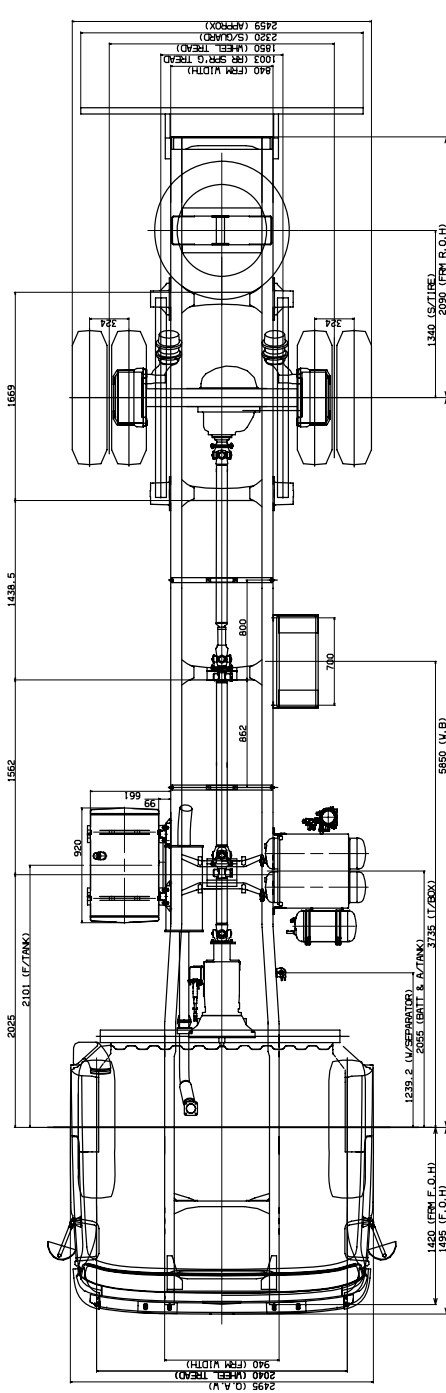






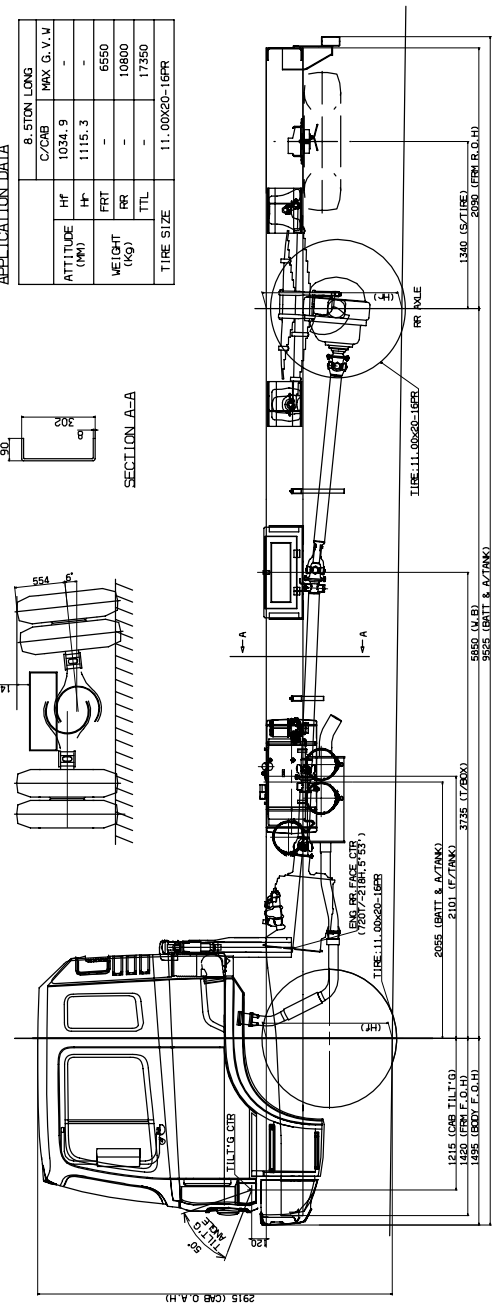
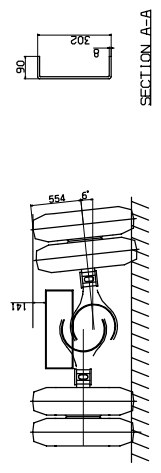






APPLICATION DATA

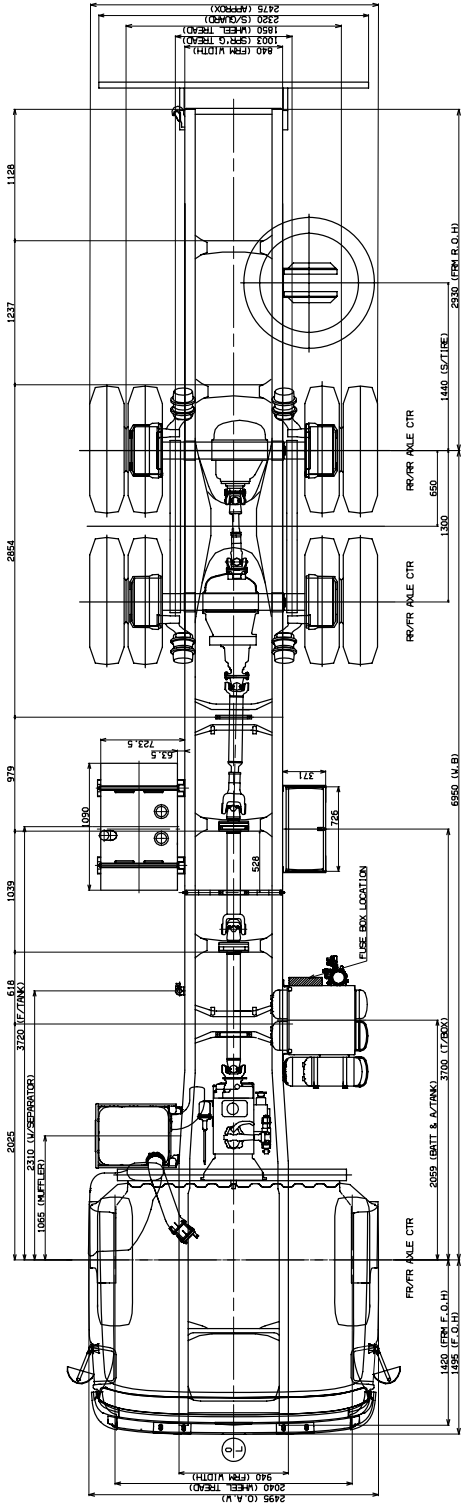
8-STON LONG	
C/CAB	MAX G.V.W
ATTITUDE (°)	Hf 1034.9
	Hr 1115.3
WEIGHT (KG)	FRT 6550
	RR 10800
TIRE SIZE	TTL 11.00x20-16FR



DATE	95.01.07	RELEASED		SIGN	
MODIFICATION		ITEM			
HYUNDAI MOTOR COMPANY					
REFERENCE	DATE	2005.01			
DESIGNER	APPROVED	DATE	DR BY	SCALE	UNIT
J. Y. HONG (S. J. 04)	V. Y. SHUK				
DATE	2005.01				
PROJECT	NO.				
FORM					
8-STON LONG (D6AV)					
BODY BUILDERS '04 F/LIFT					

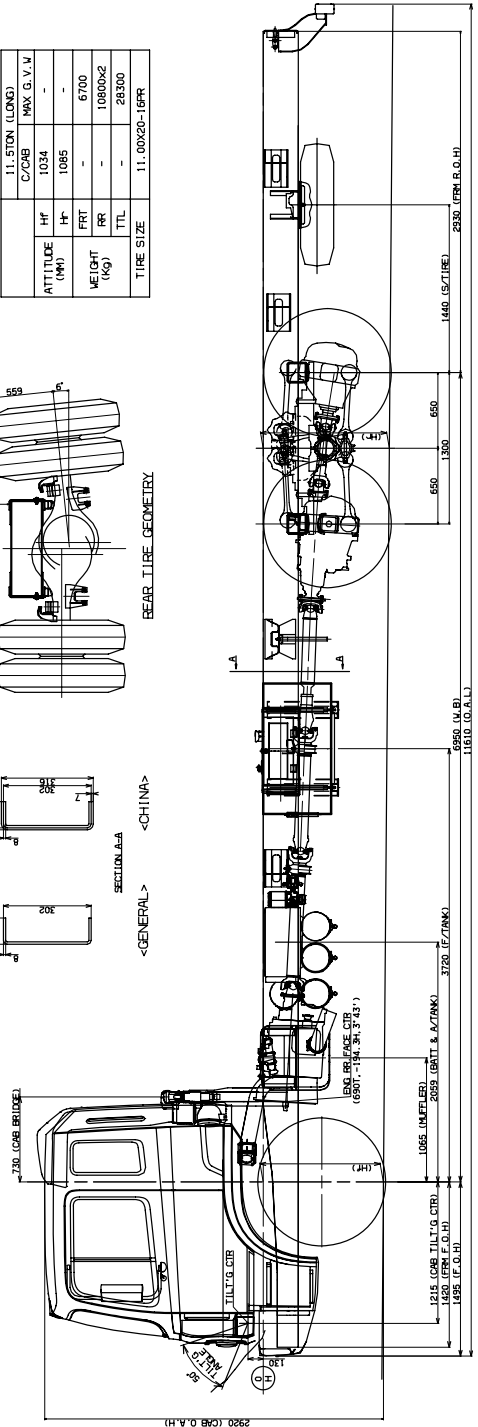
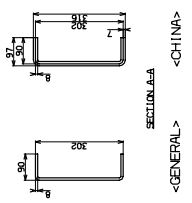
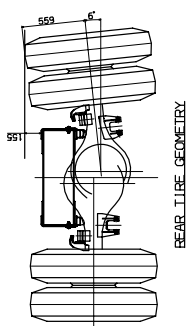






APPLICATION DATA

11. STON (LONG)	C/COR	MAX. G. V. V.
HF	1034	-
FRT	1085	-
RR	-	6700
TTL	-	10800x2
TIRE SIZE		11.00X20-16PR



REV. NO.	DATE	RELEASED	MODIFICATION ITEM	SIGN

PRONDAI MOTOR COMPANY

REFERENCE: DWG. NO. 01

DATE: 11/04/04

BY: [Signature]

CHECKED: [Signature]

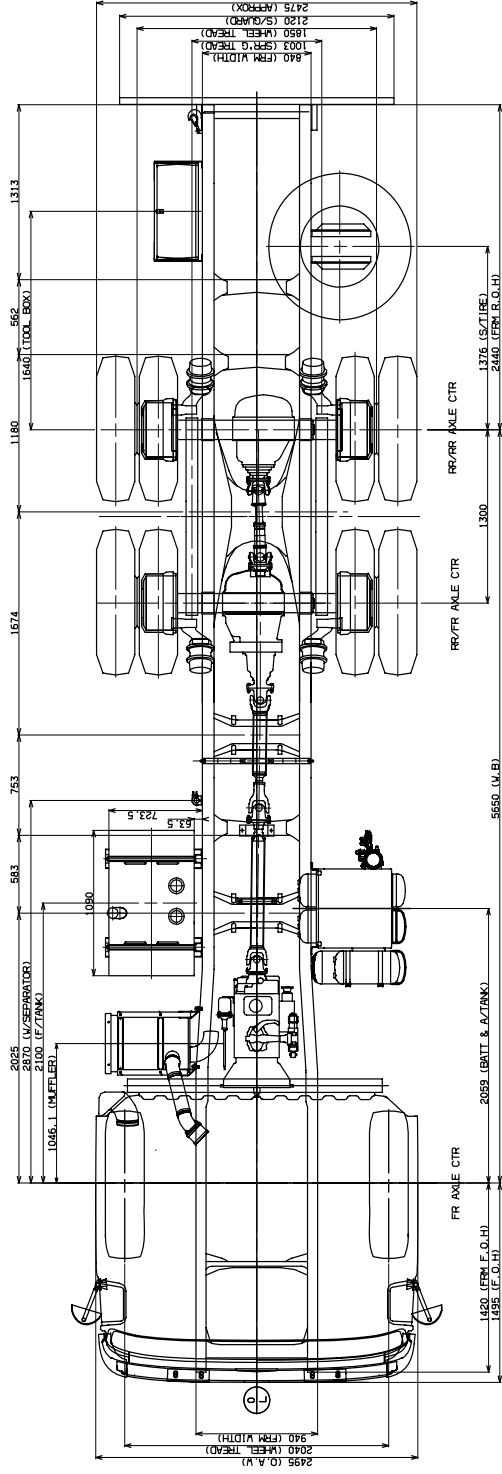
APPROVED: [Signature]

PROJECT: 11. STON LONG (06CA)

DESCRIPTION: BODY BUILDERS '04 F/LIFT

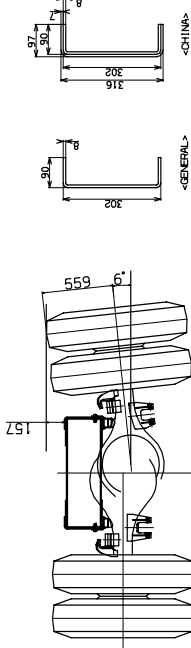
SCALE: 1:1





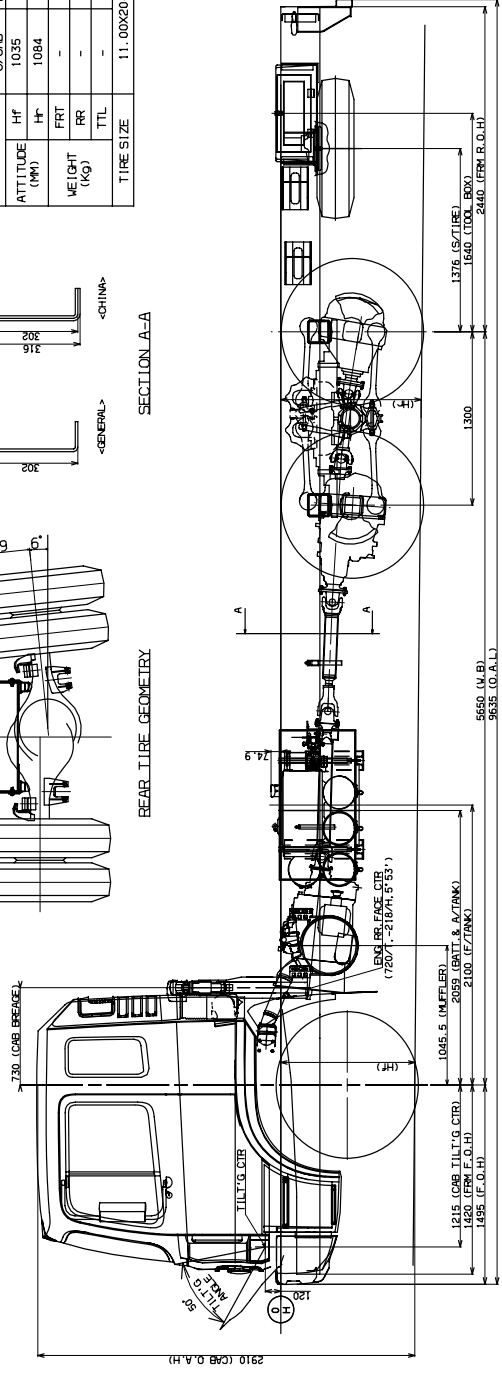
APPLICATION DATA

ATTITUDE (MM)	Hf	MAX G.V.V
1084	1035	-
FRONT	FRONT	6500
RR	RR	10800x2
TTL	TTL	28150
TIRE SIZE 11.00X20-16FR		



REAR TIRE GEOMETRY

SECTION A-A



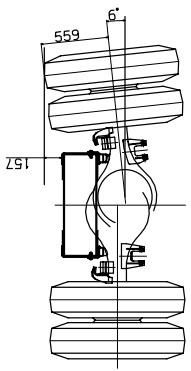
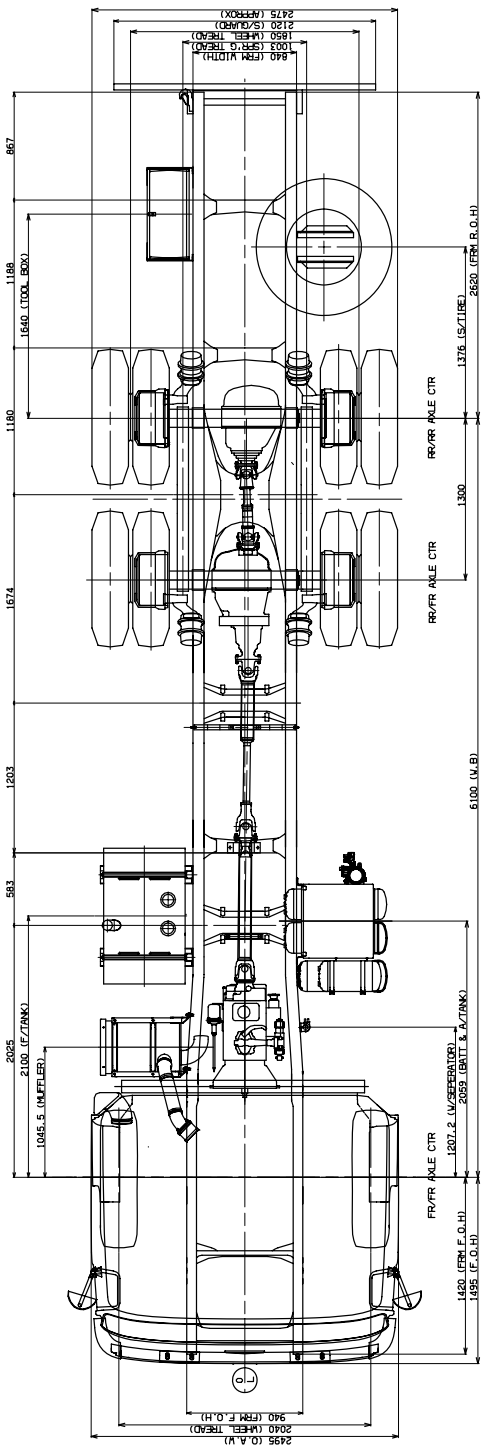
DATE	RELEASED	ITEM	SIGN
05.01.07			

HYUNDAI MOTOR COMPANY

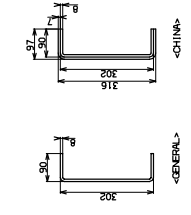
REFERENCE	DATE	2005.01.
BY	DESIGNED	APPROVED
J. Y. PARK (E.O.H.)	J. Y. SHIN	
DATE	BY	DATE
05.01.07		
DATE	BY	DATE
05.01.07		
DATE	BY	DATE
05.01.07		
DATE	BY	DATE
05.01.07		

16TON SHORT (06AC)  
BODY BUILDER: 04.F7.IFT



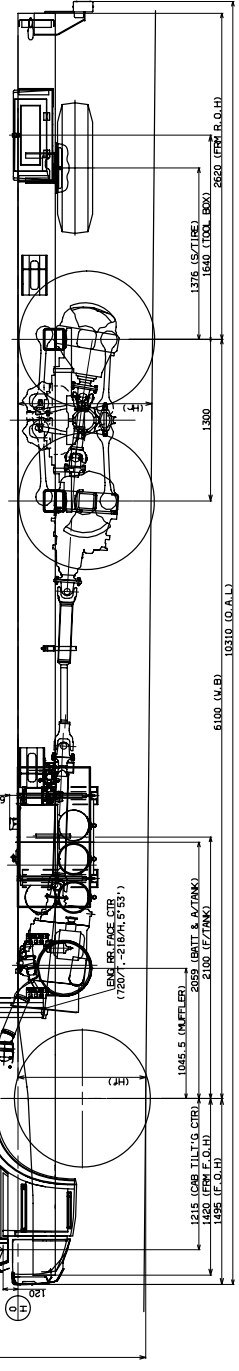


REAR TIRE GEOMETRY



SECTION A-A

16TON MEDIUM C/CAB		MAX G.V.W	
ATTITUDE (MM)	HF	1035	-
	H*	1084	-
WEIGHT (kg)	FRT	6550	-
	RR	10800x2	-
	TTL	-	28150
TIRE SIZE		11.00X20-16PR	



REV	DATE	RELEASED	MODIFICATION ITEM	SIGN

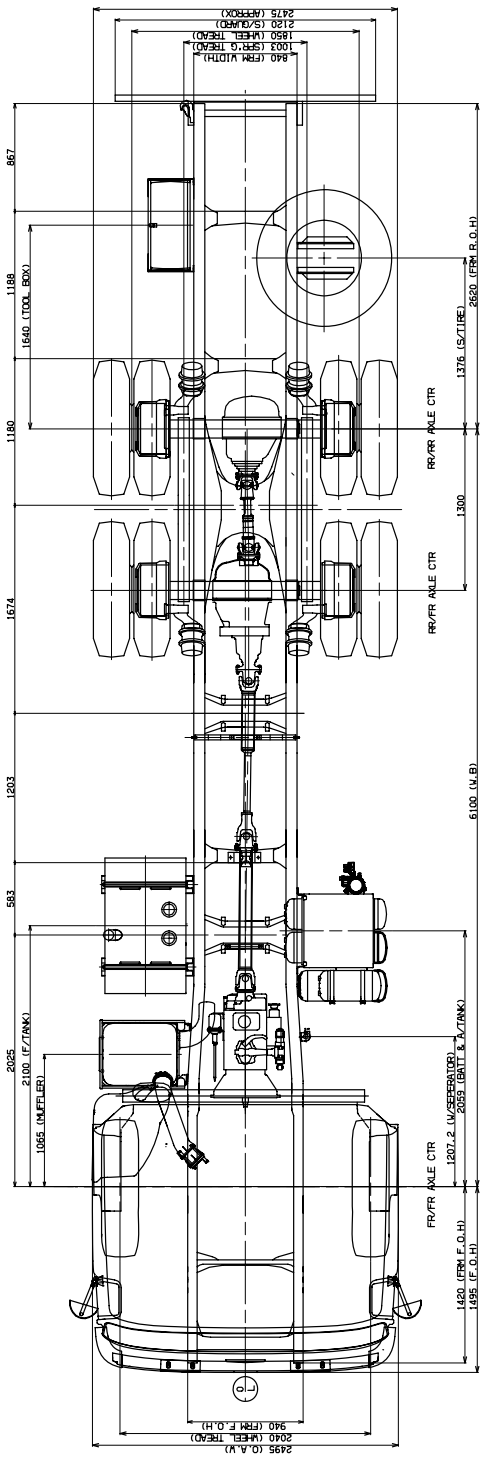
HYUNDAI MOTOR COMPANY

REFERENCE	DATE	0005.01

NO	DESCRIPTION	NO	DESCRIPTION

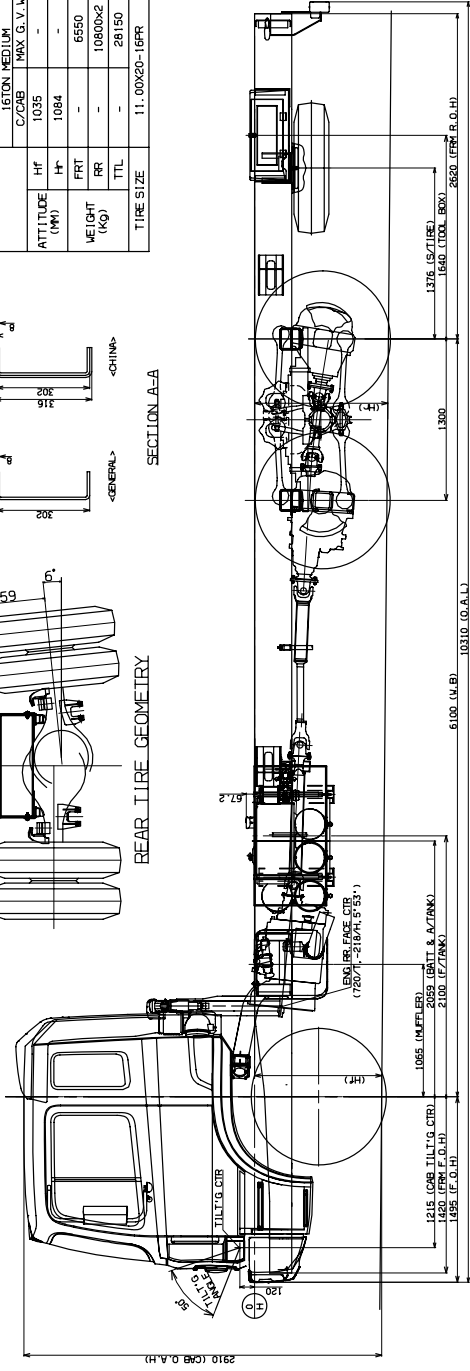
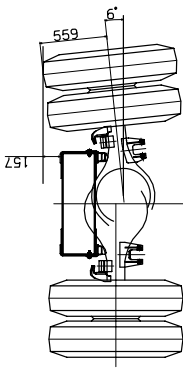
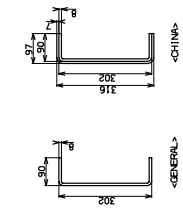
16TON MEDIUM(C/CAB)  
BODY BUILDER 007/1/F

DATE	26.01.07	RELEASED	SIGN
MODIFICATION ITEM			
REFERENCE	HYUNDAI MOTOR COMPANY		
NAME	PROJECT	MODEL	DOOR D.L.
J.Y. HONG (J.P01)			DO NOT SCALE
DATE OF DRAWING	26.01.07	BY	J.P01
SCALE	1:1	TYPE	2D
DATE OF ISSUE		REVISION	
ISSUED BY		APPROVED BY	
DATE OF APPROVAL		DATE	
PROJECT	16TON MEDIUM (D6CA)		
ISSUED BY	BODY BUILDER '04 FLIFT		
DATE		BY	

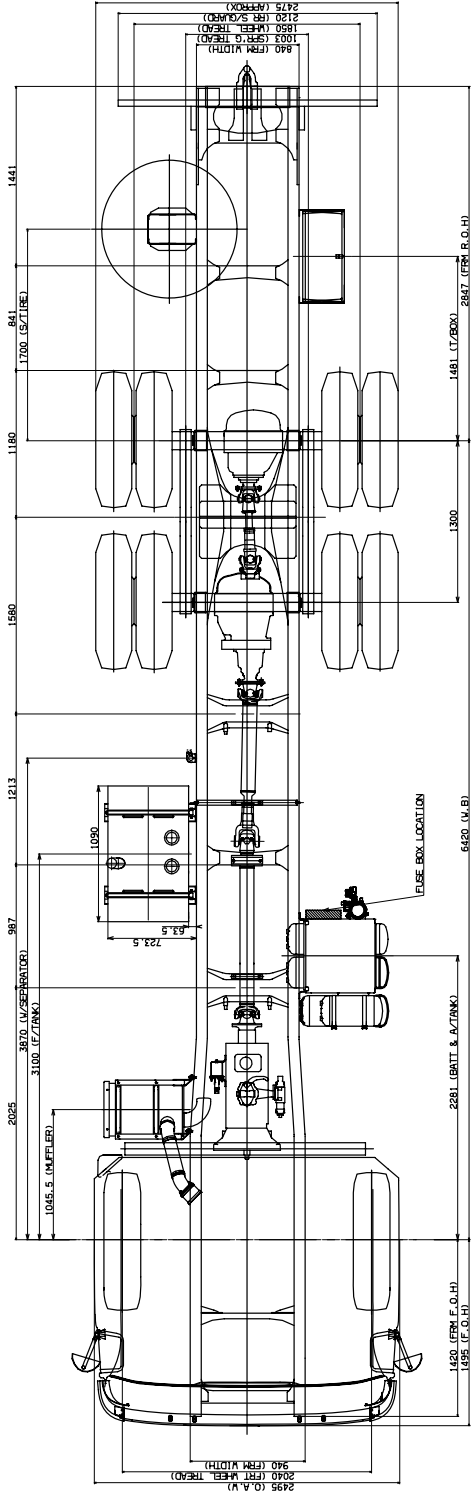


APPLICATION DATA

16TON MEDIUM	
C/CAB	MAX G.V.W
HF	1035
FRT	1084
RR	6550
TTL	10800x2
TIRE SIZE	11.00x20-16FR

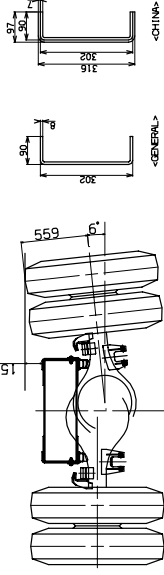


DATE	RELEASED	MODIFICATION ITEM	SIGN
25.01.07			
HYUNDAI MOTOR COMPANY			
REFERENCE DATE 2008.01.			
DESIGNER	DESIGNED	DRAWN	BY OUR WORK
U.Y. HONG (U.Y. HONG)	U.Y. HONG	Y.S. CHUNG	
CHECKER	CHECKED	APPROVED	
HONG (U.Y. HONG)	HONG	CHUNG (Y.S. CHUNG)	
DATE	DATE	DATE	
2007.09.24	2007.10.01	2007.10.01	
PROJECT NO. 19M.P_CARGO(054C)			
DRAWING NO. BODY BUILDER 04_F4/F1			
DATE	DATE	DATE	
2008.01.01	2008.01.01	2008.01.01	

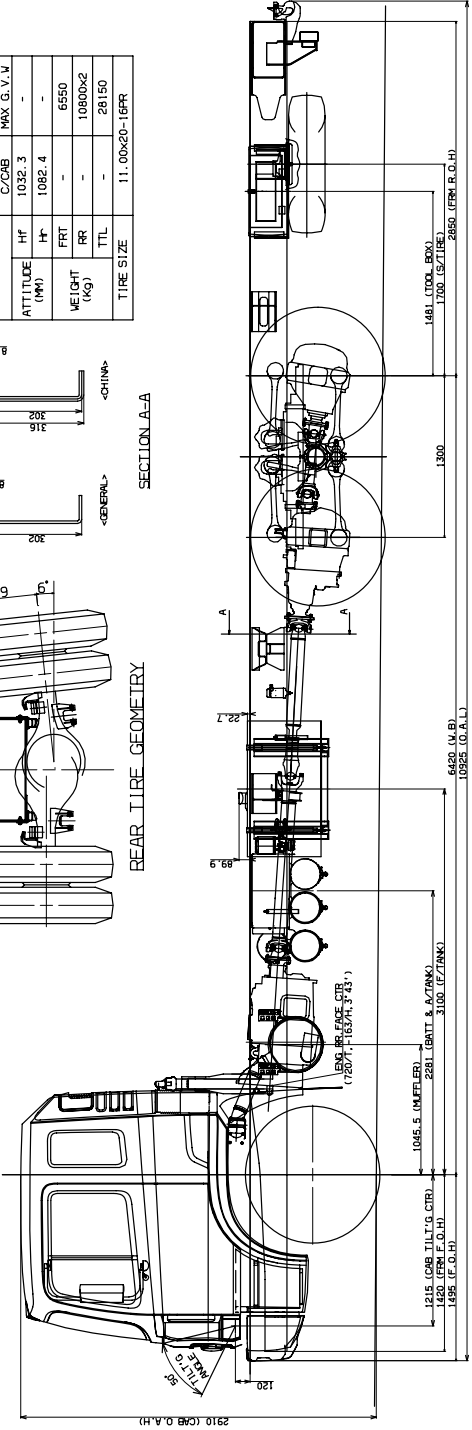


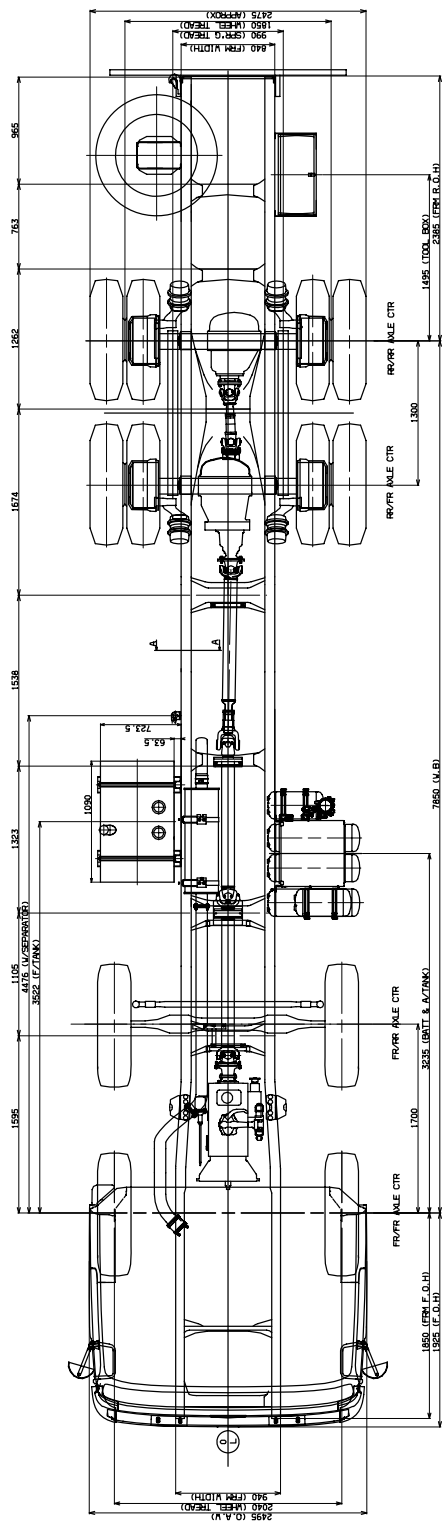
APPLICATION DATA

ATTITUDE (MM)	HF	1032.3			
FRONT	FR	1082.4			
REAR	RR	6550			
TIRE	TTL	1080X2			
TIRE SIZE		11.00X20-16PR			
19M.P. CARGO	C/CWB	MAX G.V.W			



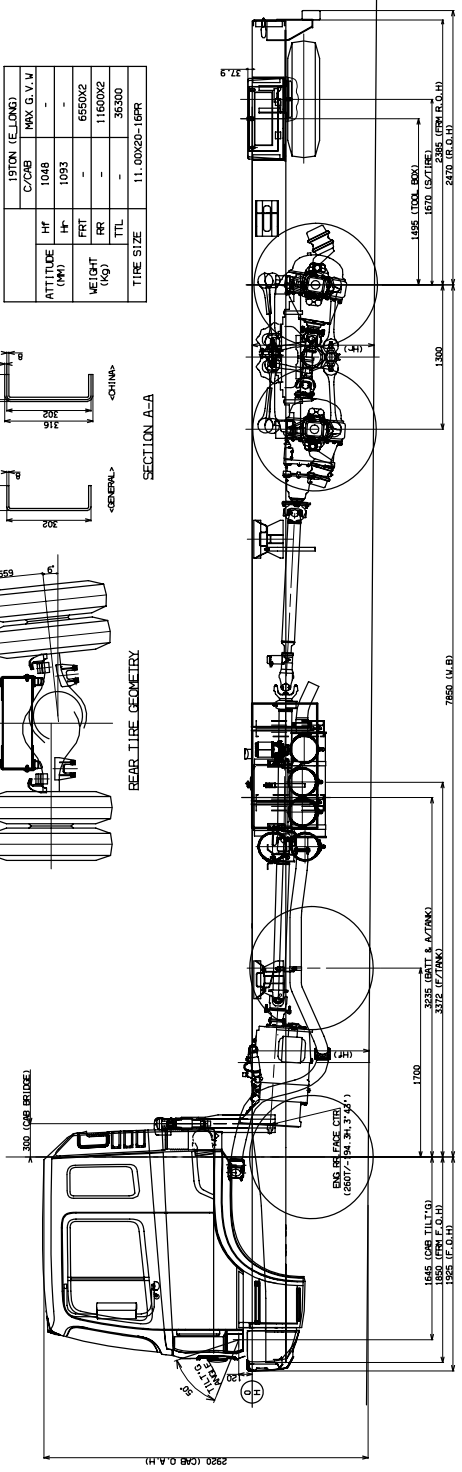
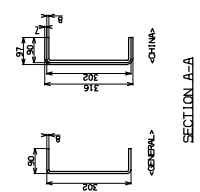
SECTION A-A





APPLICATION DATA

1970N (EJONG)	
C/CMB	1048
ATTITUDE (MM)	1093
FRONT	6550X2
REAR	1160X2
TILT	35300
TIRE SIZE	11.00X20-16PR



DATE: 1970.10.10

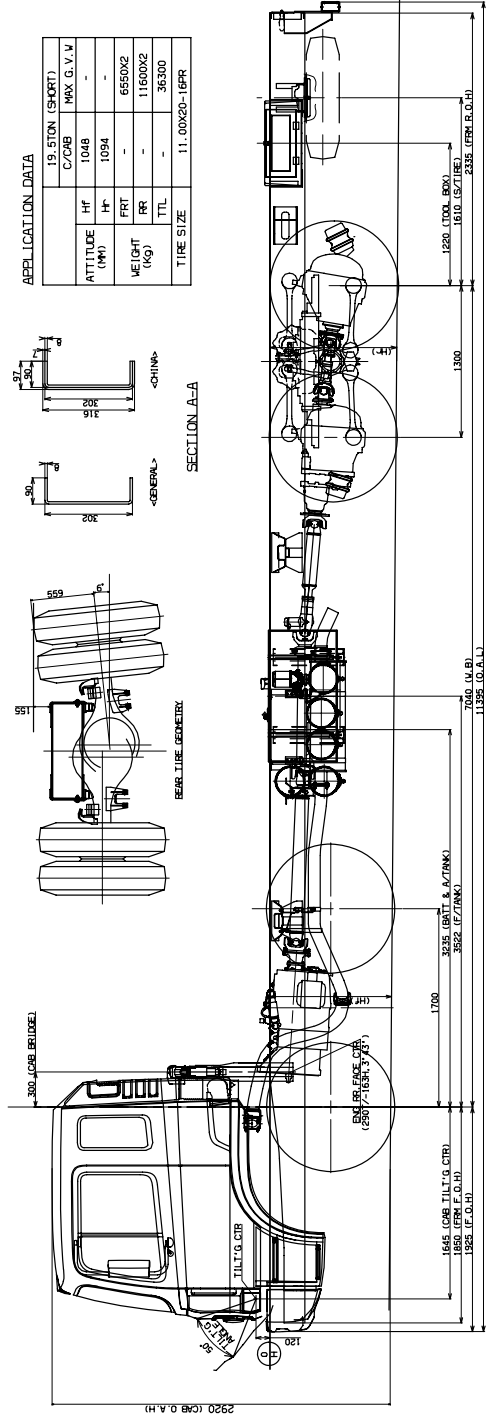
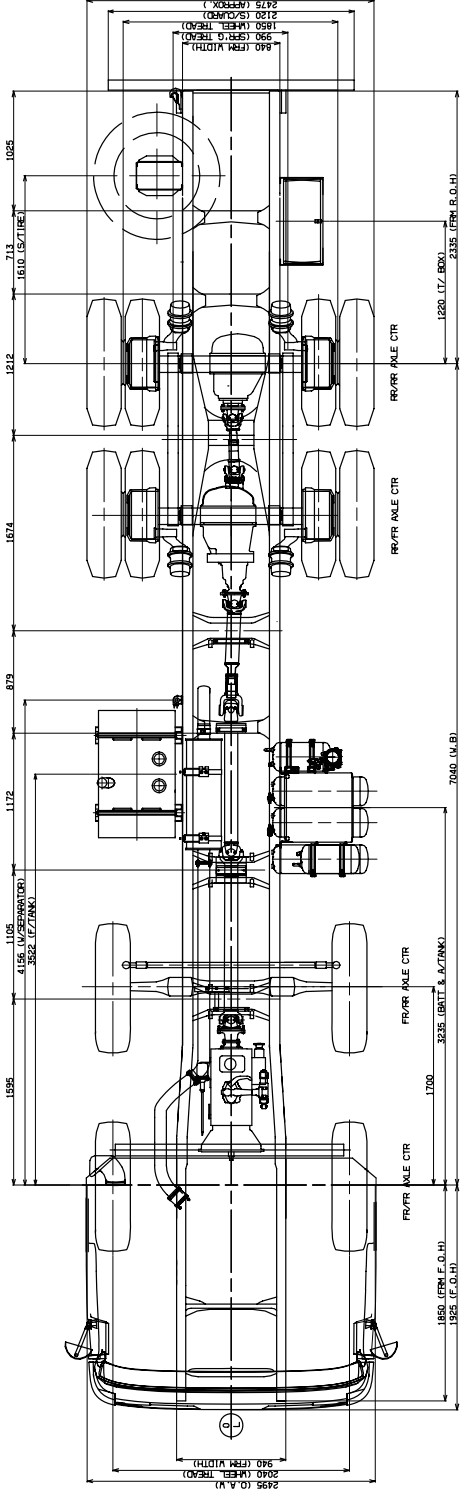
HYUNDAI MOTOR COMPANY

1970N E-LONG (0560)

BODY BUILDERS

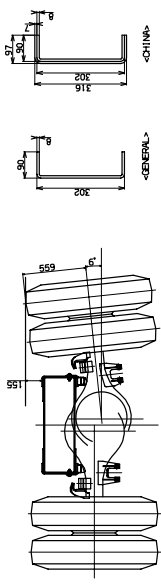






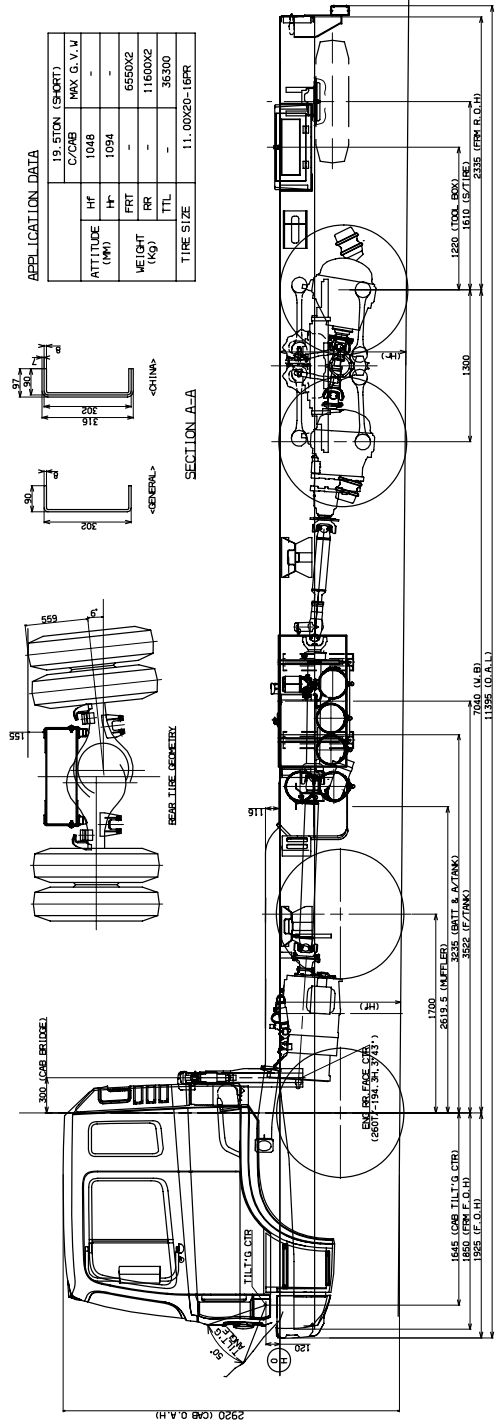
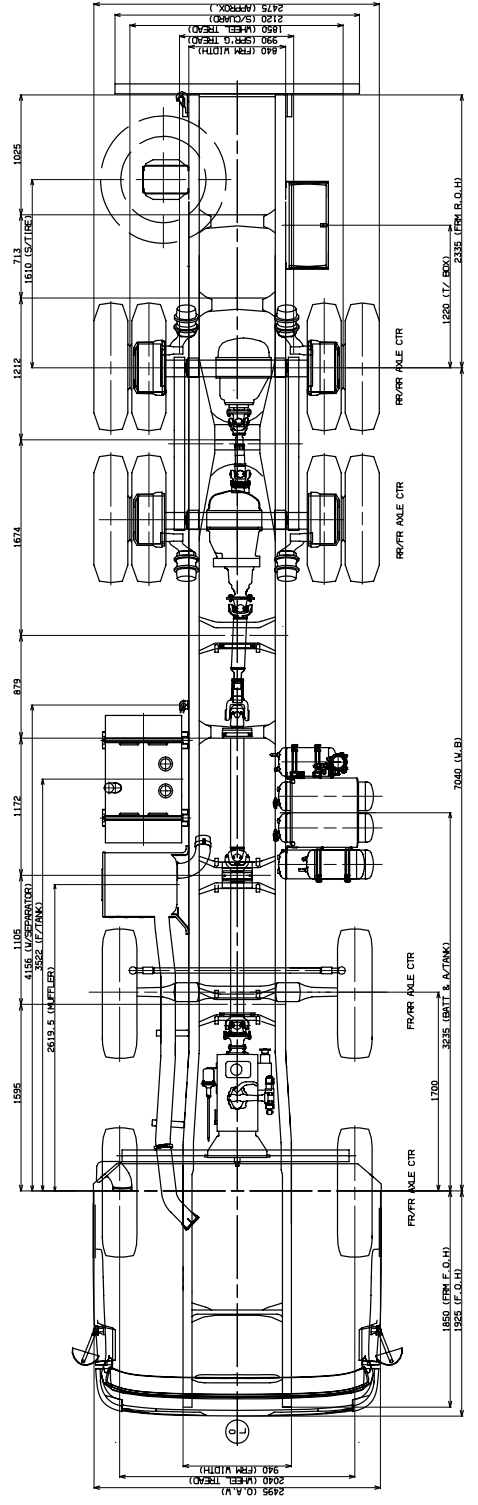
APPLICATION DATA

19.5TON (SHORT)	C/CWB	MAX G.V.W
ATTITUDE (MM)	HF	1048
	FR	1094
	RR	6550X2
WEIGHT (KG)	TTL	11600X2
		36300
TIRE SIZE		11.00X20-16PR



SECTION A-A

REV. OF	RELEASED	SIGN
DATE	MODIFICATION ITEM	
HYUNDAI MOTOR COMPANY		
REFERENCE	DATE	
J. S. HAN (S. HAN)	11.1.2004	
DESIGNED BY	CHECKED	
DRAWN BY	APPROVED	
DATE		
HYUNDAI MOTOR COMPANY		
19.5TON SHORT (0.6AC)		
BODY BUILDERS '04 F/LIFT		
REV. NO.	DATE	



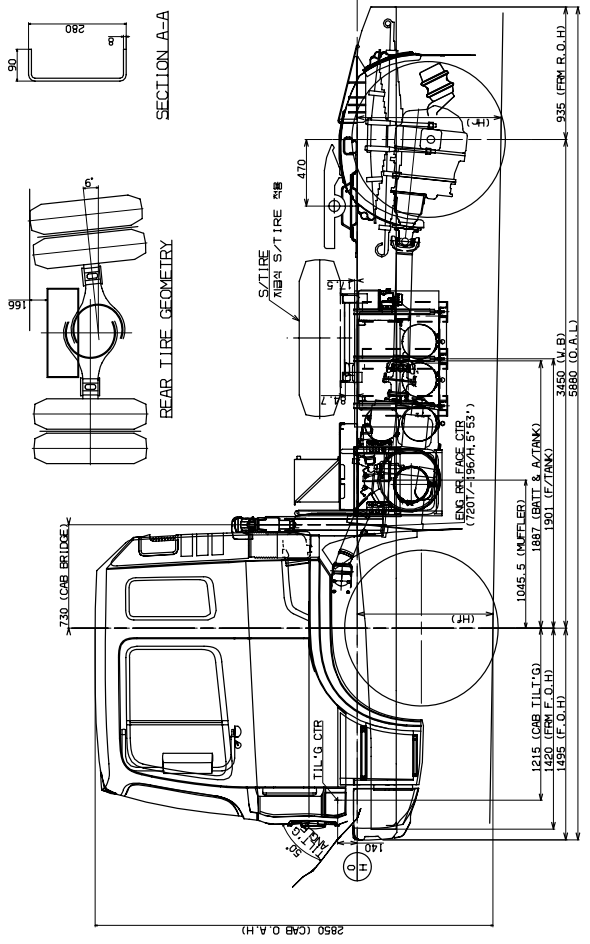
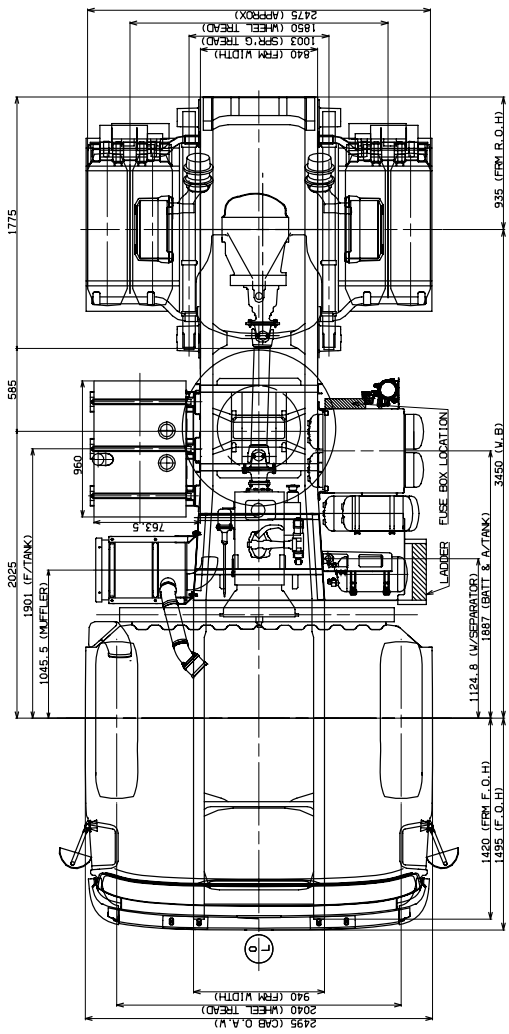
APPLICATION DATA

ATTITUDE (°H)	HF	1048	19 FTON (SHORT)	MAX. G.V.V	-
WEIGHT (KG)	FRT	6550X2			
	RR	11600X2			
TIRE SIZE	TTL	36300			
					11.00X20-16PR

DATE	26.01.07	RELEASED		SIGN	
DATE		MODIFICATION ITEM			
HYUNDAI MOTOR COMPANY					
REFERENCE		DATE			
MARK		REVISION			
J.Y. (O.C.G.)	(O.C.G.)	(Y.Y. SIGN)			
NAME		DESIGNER			
DATE		CHECKER			
DATE		APPROVED			
19-STON SHORT (DCCA)					
BODY BUILDERS (M.F.F.)					







APPLICATION DATA

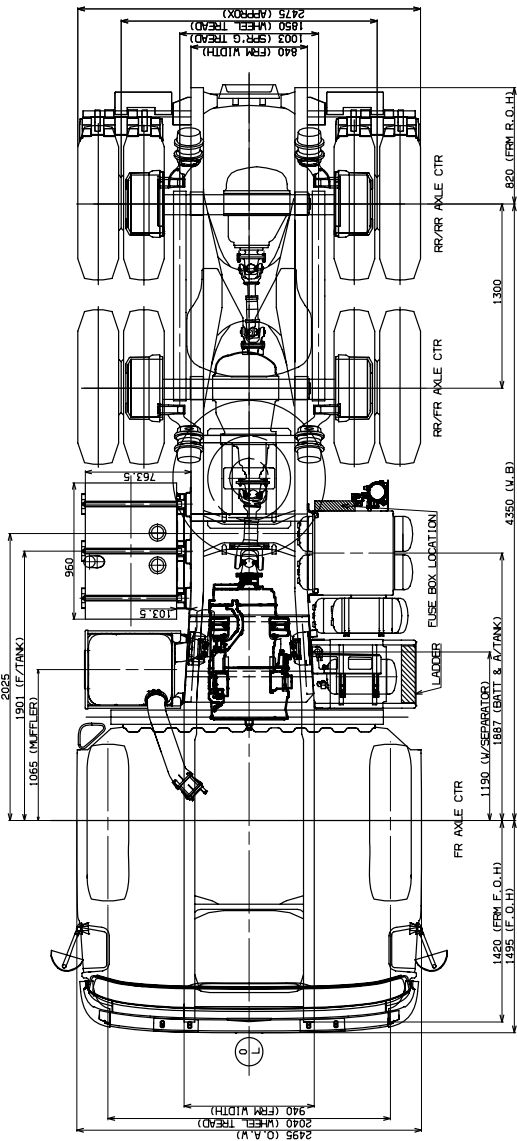
4X2 TRACTOR		
C/CAB	974	MAX G. V. W
ATTITUDE (MM)	1031.5	-
HF	-	-
FRT	6550	
RR	11800	
TTL	18350	
TIRE SIZE		12R22.5-16FR

95.01.07	RELEASED	DATE	2005.01.
	MODIFICATION ITEM	DATE	2005.01.
SIGNATURE			
HYUNDAI MOTOR COMPANY			
DESIGN	DRAWN	APPROVED	DATE
J.Y. HONG (E.J.O.C)	N.Y. SHIN		20.01.04
NAME OF THE PROJECT			
4X2 TRACTOR (D6AC)			
DRAWING NO.			
HYUNDAI			
SCALE			
SHEET NO.			
SHEET TOTAL			
PROJECT NO.			
4X2 TRACTOR (D6AC)			
DRAWN BY			
BODY BUILDERS 04 FLIFT			
DRAWN BY			
DRAWN BY			



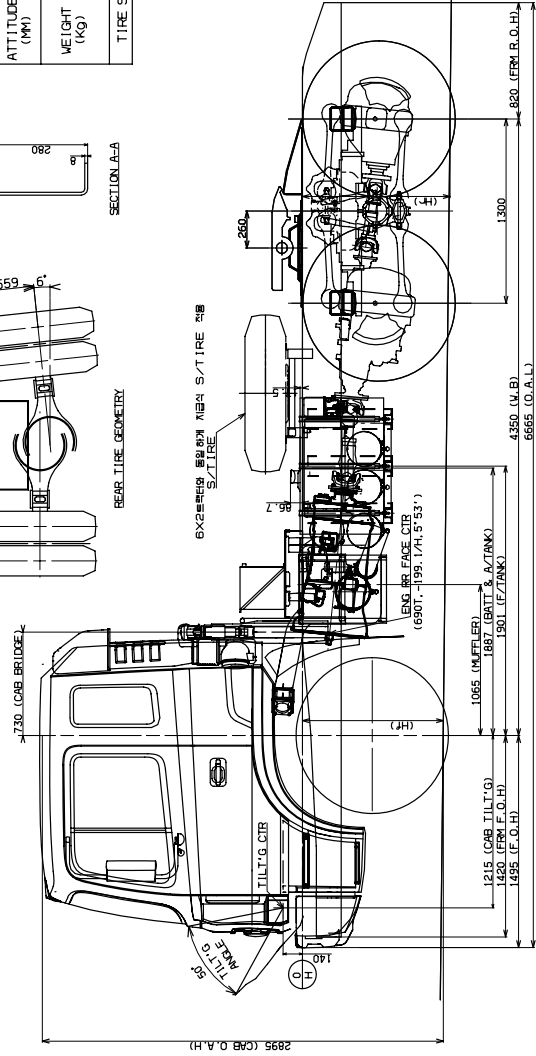
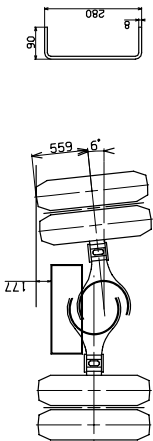






APPLICATION DATA

6X4 TRACTOR	
C/CAB	MAX G.V.W
HF	1017
HC	1066
FRT	6550
RR	11800X2
TTL	30150
TIRE SIZE 12R22.5-16PR	



DATE	RELEASED	MODIFICATION	ITEM	SIGN
05.01.07				

HYUNDAI MOTOR COMPANY	
DATE	2006.01.
DO NOT SCALE	
BY	YTNH
CHECK	
APPROVED	
MANUFACTURE	
BY PLACE	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	

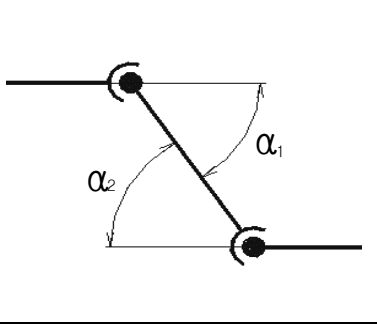
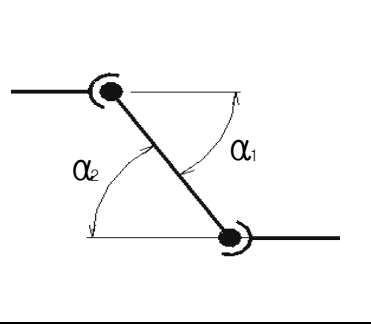
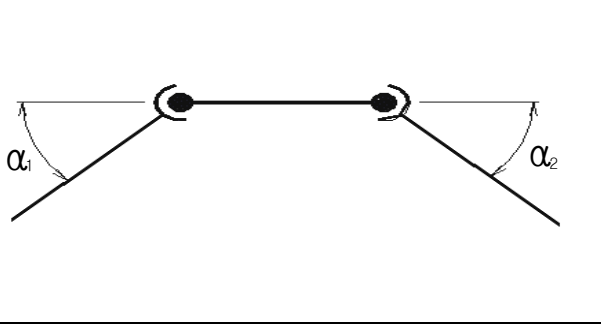
TYPE NAME	6X4 TRACTOR(D6CA)
TYPE NO.	BODY BUILDERS '04 F/L/F

## 11. CAUTIONS NEEDED FOR THE INSTALLATION OF THE P/SHAFT

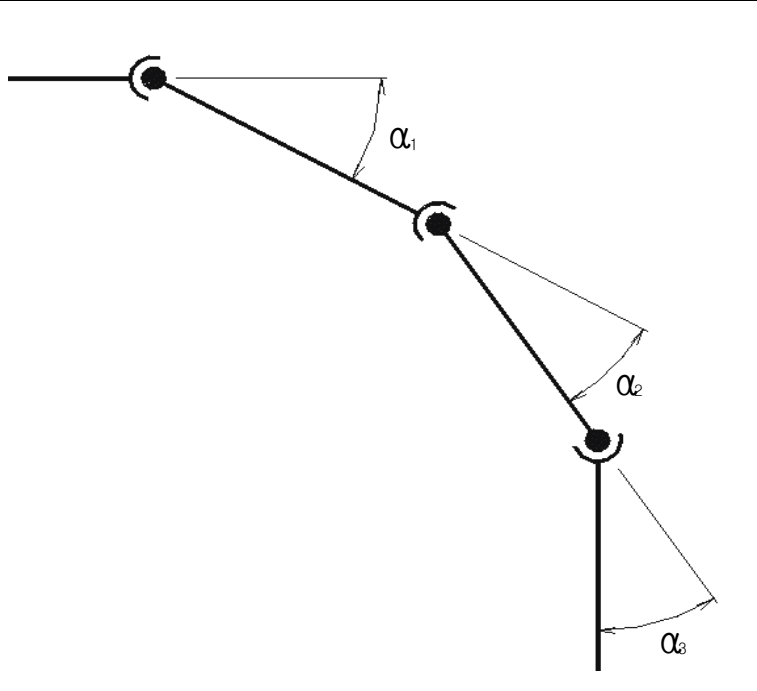
## 11. CAUTIONS NEEDED FOR THE INSTALLATION OF THE PROPELLAR SHAFT

Be sure not to modify or alter propellar shaft, as it was designed to suit a vehicle feature. But in an unavoidable case, observe the following items.

### (1) 2-JOINT

		
0	X	0
$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$	$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$	$\alpha_1 = 7^\circ$ , $\alpha_2 = 8^\circ$
$\alpha_1^2 - \alpha_2^2 = -15$	$\alpha_1^2 + \alpha_2^2 = 113$	$\alpha_1^2 - \alpha_2^2 = -15$

### (2) 3-POINT


0
$\alpha_1 = 3^\circ$ , $\alpha_2 = 4^\circ$ , $\alpha_3 = 5^\circ$
$\alpha_1^2 + \alpha_2^2 - \alpha_3^2 = 0$

\* Allowable specification

$$\alpha_1, \alpha_2 \leq 9$$

$$|\alpha_1^2 \pm \alpha_2^2 \pm \alpha_3^2| \leq 25$$