

# Chapter 6

## INSTRUCTIONS FOR BUILDING UP OF REAR BODY

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1. MAIN SILL (SUB-FRAME)
2. REAR AXLE
3. REAR BODY LENGTH AND MAIN SILL (SUB-FRAME) DIMENSIONS
4. U-BOLTS
5. MOUNTING OF REAR FENDER AND MUDGUARD

# 1. MAIN SILL (SUB-FRAME)

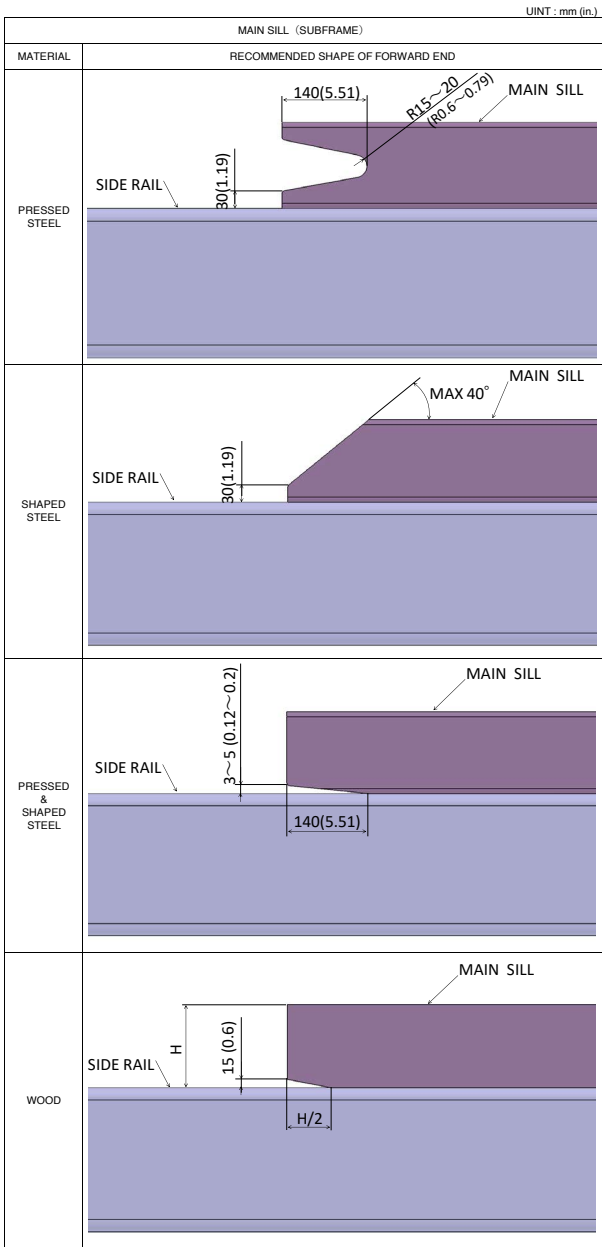
## Shape of front end

The front end of the main sill, which comes into contact with the side rail, should be shaped as illustrated below in order to disperse the concentrated load.

The following illustrations show the shapes of the main sill (or sub-frame) in the case of ordinary cargo body, van body and the like. In case of other special types of trucks, appropriate considerations should be given in reference to these illustrations.

When fixing the main sill to the side rail, no welding and no bolting is recommended even though the sill is made of steel.

[Recommend]

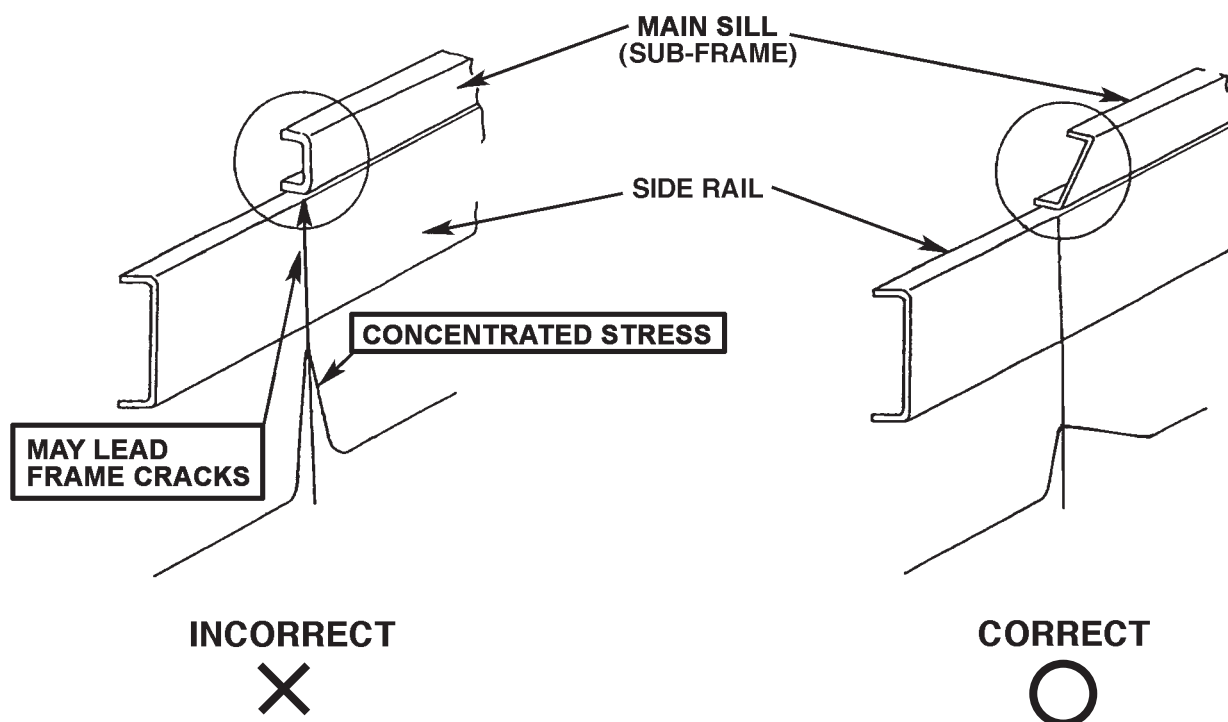


Relation of concentrated stress to forward end shape of main sill.

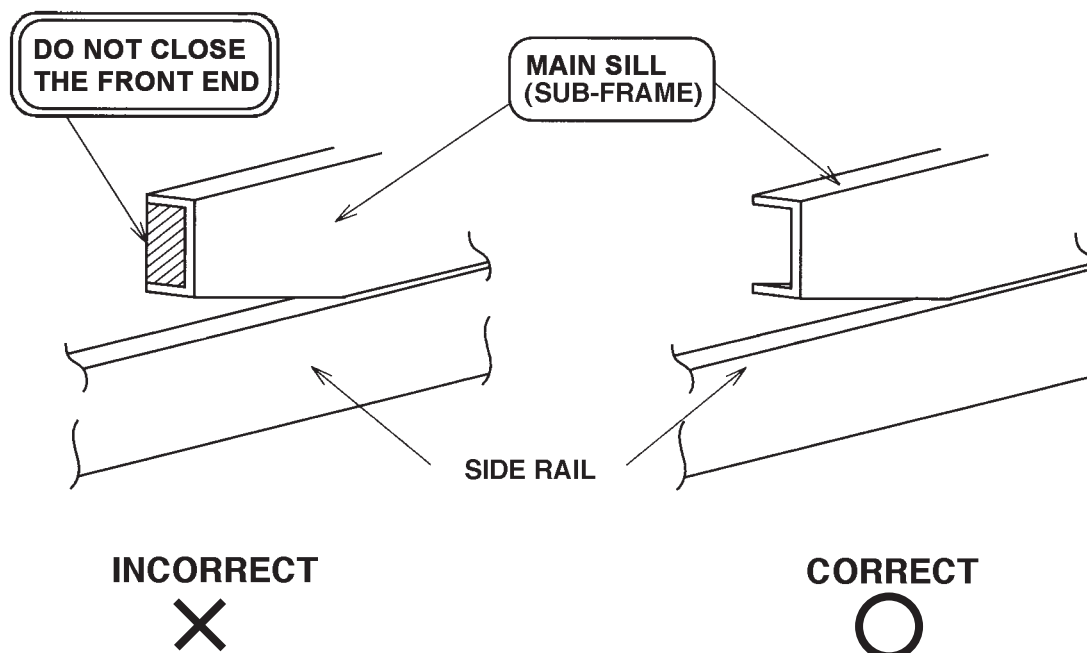
**Preventing concentrated stress around the forward end of the main sill (sub-frame).**

If the section modulus at the forward end of the main sill (sub-frame) changes suddenly, this will place concentrated stress on the side rail and may lead to cracks in the side rail.

When mounting a body, make sure that the section modulus at the forward end of the main sill (sub-frame) does not change suddenly.



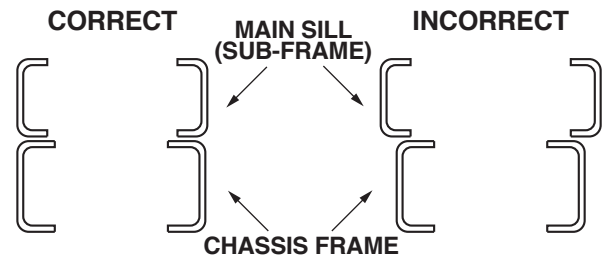
The front end of the main sill (sub-frame), which used pressed or shaped steel material, must not be closed as shown in the figure below to avoid stress concentration.



### Assembly width of main sill

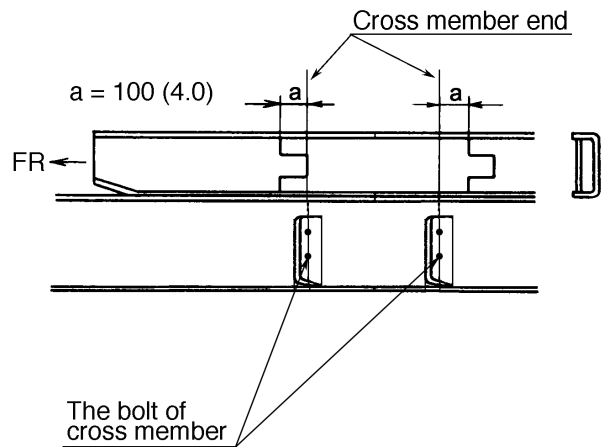
Unit: mm (in.)

Assembly width of main sill (sub-frame) of the mounted body or equipment should be equal to chassis frame, as in the following figure.



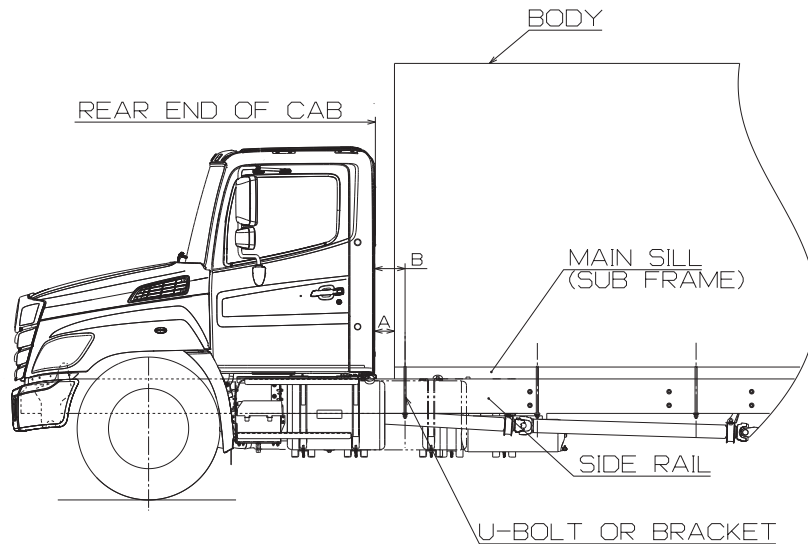
### Reinforcement of main sill

When reinforcing the main sill by steel plate, its end must extend more than 100 mm apart from beyond the bolt of cross member and fitted with main sill.



When the body has a high rigidity as in the case of a van body (particularly refrigerator van body), care must be taken in choosing the vehicle type and in designing the body so that the main sill may be as close to the rear of cab as possible. The body and the main sills should be linked as close as possible by use of stays if there is an excessive gap between the body and the rear of cab.

Pay due attention to the following points in the relations between the rear of cab and the main sill when abnormal vibration will happen on vehicle.

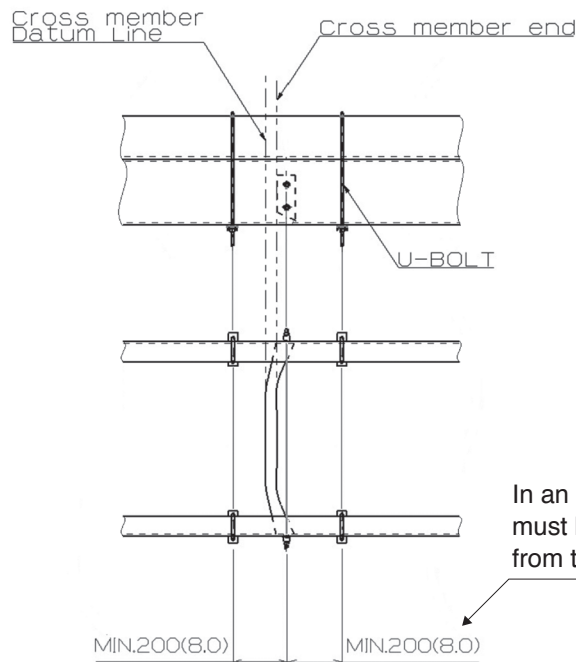


A dimension : more than 50 mm (2.0 in.)  
and as small as possible  
B dimension : as small as possible

This figure shows Day cab.

When body mounting brackets are used instead of U-bolts to mount the body, following points must be observed.

- Body mounting bracket shall be 200 mm (8.0 in.) or more apart from cross member end.



Unit: mm (in.)

- Body mounting brackets must be fitted to the side rail with bolts.  
When drilling holes for brackets, do not damage brake pipes, nylon tubes and harness wires.

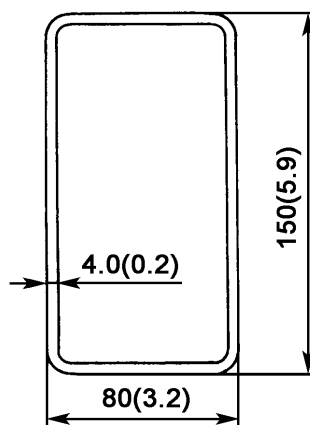
## 2. REAR AXLE

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As the brake hose is fitted over the rear axle, sufficient clearance between the hose and the fittings of body is required so that the hose does not contact with the fittings when the axle contacts with the side rail.

### 3. REAR BODY LENGTH AND MAIN SILL (SUB-FRAME) DIMENSIONS

In the case of a vehicle with a long body, the sectional dimensions of the main sill should be at least as indicated below.



Unit: mm (in.)

If wooden main sills are used for a long flat bed body, the side rail and body may deflect unusually with the result that the side gate of the rear body cannot be opened freely. Therefore, steel sills should be used for the long wheelbase vehicles.

In the case of heavy-load or concentrated load vehicles with the long wheelbase, consider the use of square section steel 200 mm (8.0 in.) high x 80 mm (3.2 in.) wide x 7.6 mm (0.3 in.) thick or equivalents.

When lip shape steel (C-shape) is used for the main or cross sill, provide a drain hole at a place where it will not affect its strength, for accumulation of water inside the steel shape will cause rusting.

## 4. U-BOLTS

The main sill and U-bolt fastening must give sufficient clearance to prevent contact with brake pipes, nylon tube, hoses, cables, and harness wires.

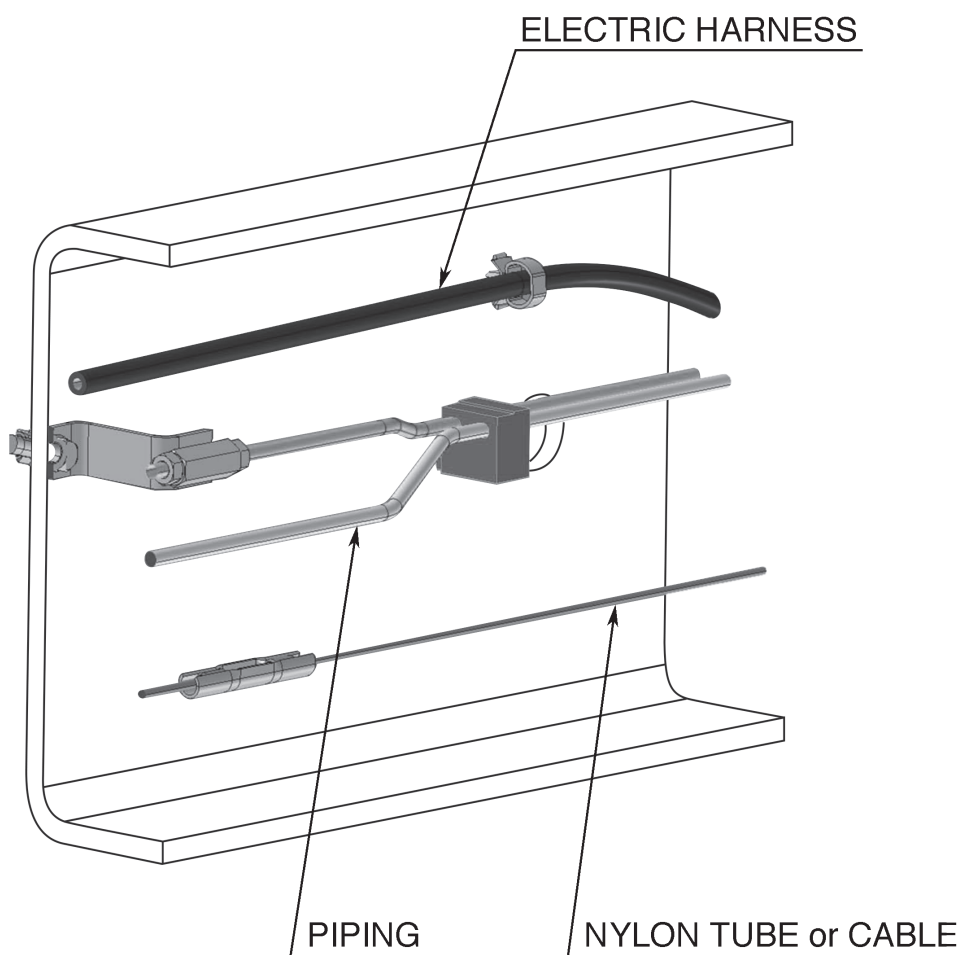
When it is difficult to ensure the required clearance between them and the chassis parts, use flat U-bolts as a remedy.

Use an appropriate prop to support the side rail to which the U-bolt is hooked so that the lower flange may not be deformed.

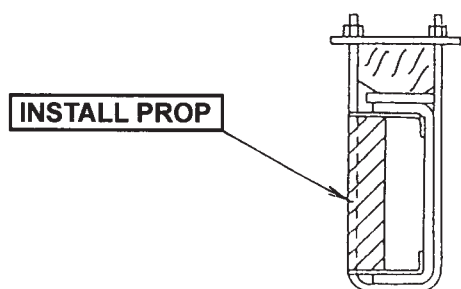
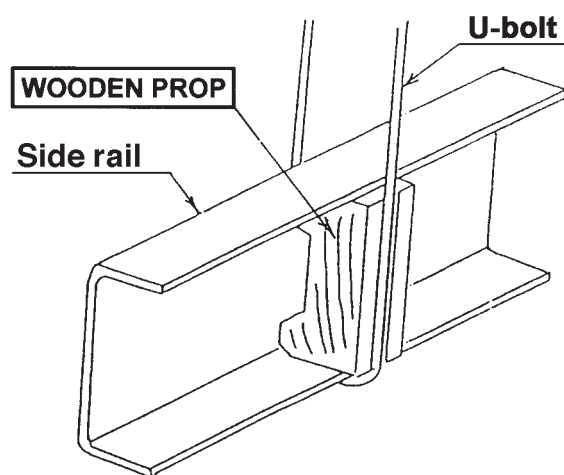
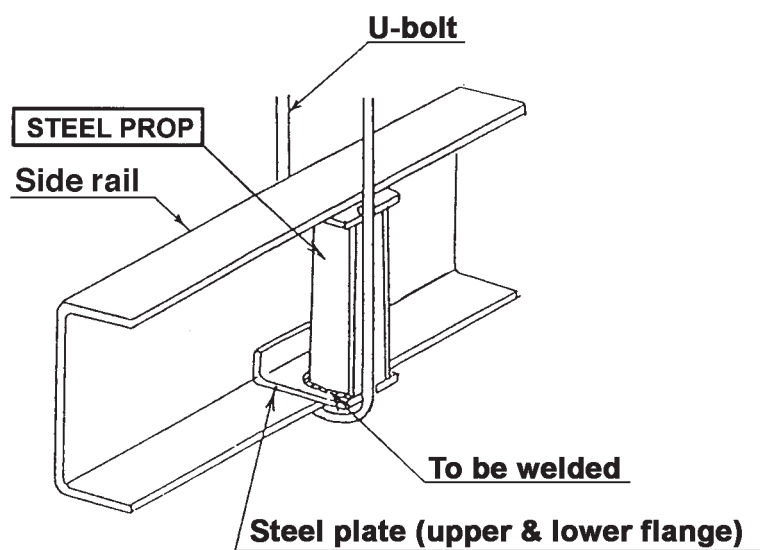
Pay due attention to the clearance between the prop and the brake pipes, nylon tubes, hoses, cables, harness wires etc.

In an area close to the muffler, use a steel prop to prevent burning.

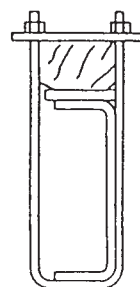
### [INSIDE OF FRAME SIDE RAIL]



## [EXAMPLE STRUCTURE OF PROPS]



CORRECT



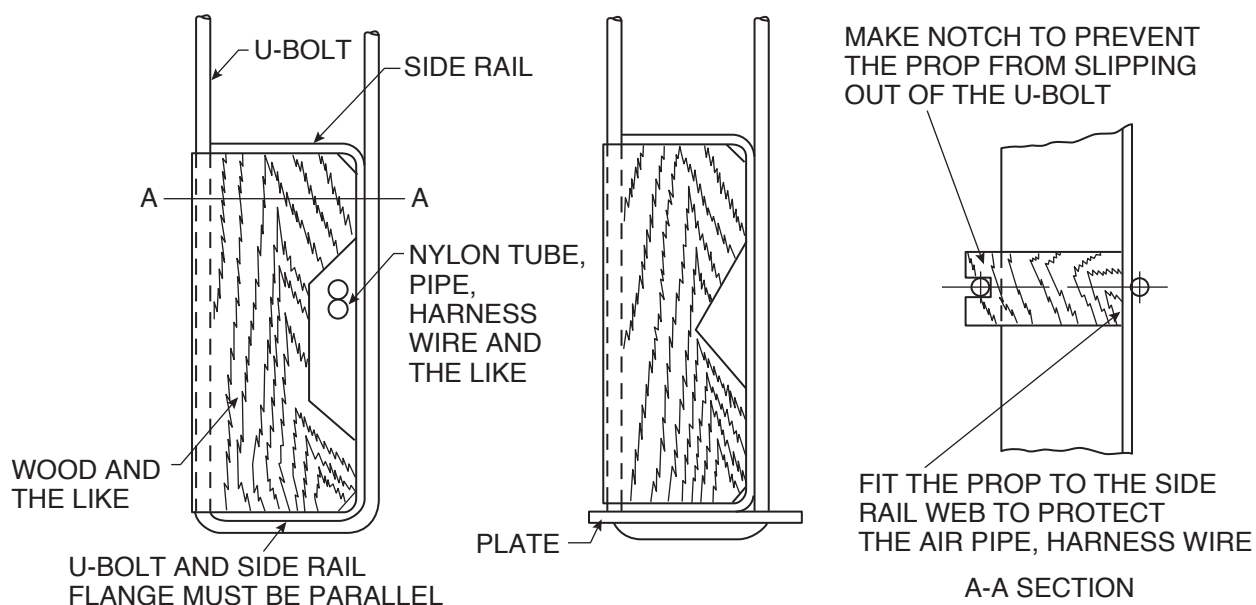
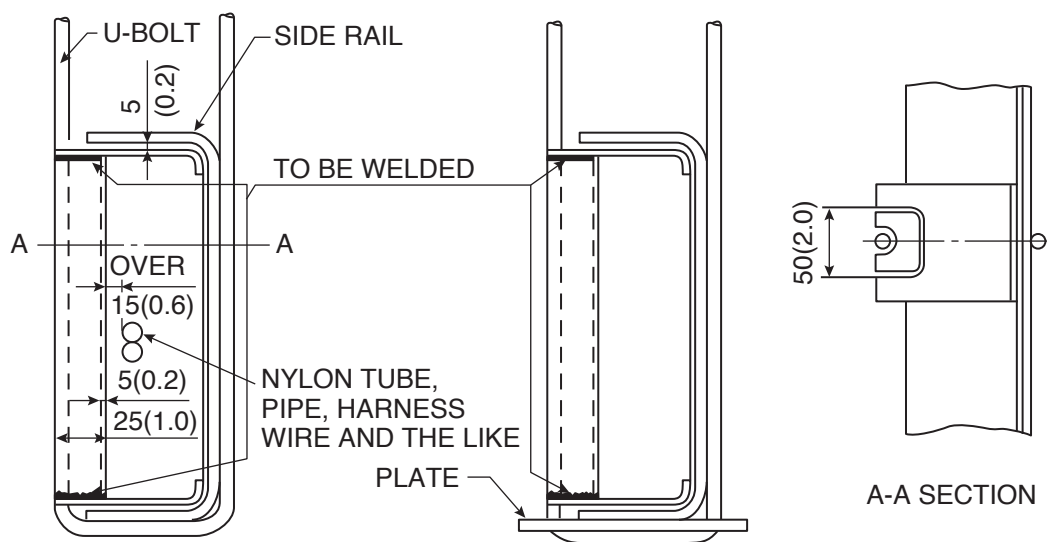
INCORRECT



## [DETAIL OF INSTALLATION METHOD OF THE U-BOLT]

Pay special attention to the plumbing inside the frame rail. As for the rear of the cab and around the rear axles, reference should be made to the instructions for their mounting. Ensure a clearance of 30 mm (1.2 in.) or more between the U-bolts and rubber hose so that they may not interfere with the pipe, nylon tube and valves.

Unit: mm (in.)



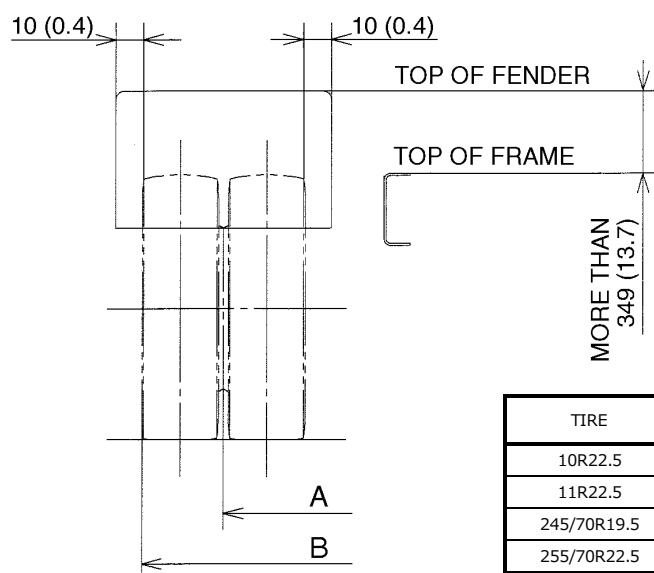
## 5. MOUNTING OF REAR FENDER AND MUDGUARD

### Recommendable Mounting Position of Rear Fender

When mounting of rear fenders, determine dimensions of fenders so as not to interfere with tires, making reference to the following figures.

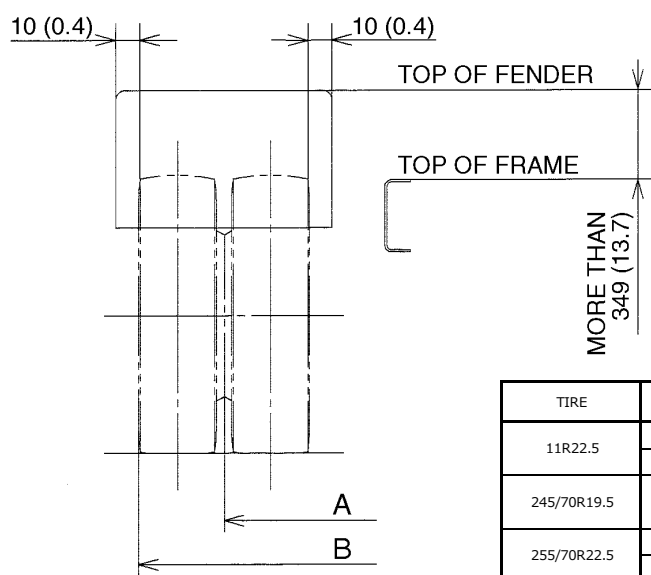
#### MODEL : NE(L6+Hydraulic)

Unit: mm (in.)



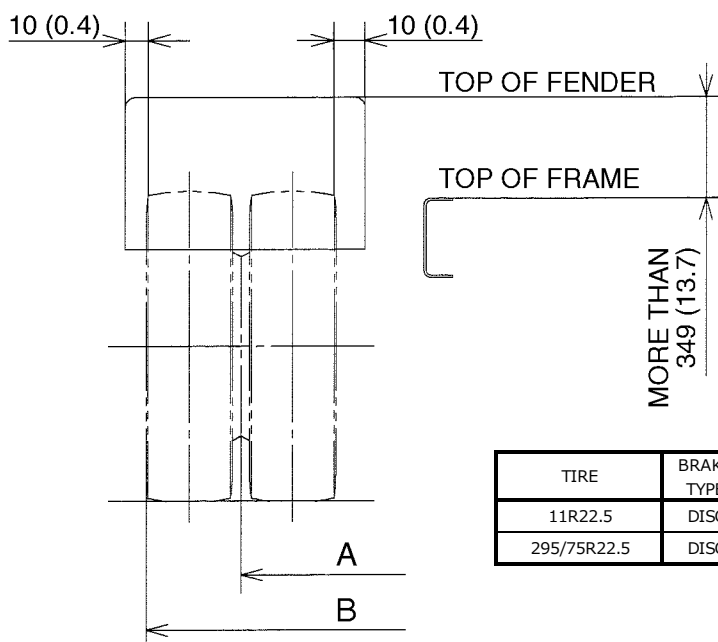
TIRE	BRAKE TYPE	A (REAR TIRE TRADE)	B (OVERALL WIDTH BY TIRE)
10R22.5	DISC	1830 (72.0)	2425 (95.5)
11R22.5	DISC	1830 (72.0)	2445 (96.3)
245/70R19.5	DISC	1840 (72.4)	2360 (92.9)
255/70R22.5	DISC	1830 (72.0)	2430 (95.7)
295/75R22.5	DISC	1830 (72.0)	2455 (96.7)

#### MODEL : NJ(L6+Air)

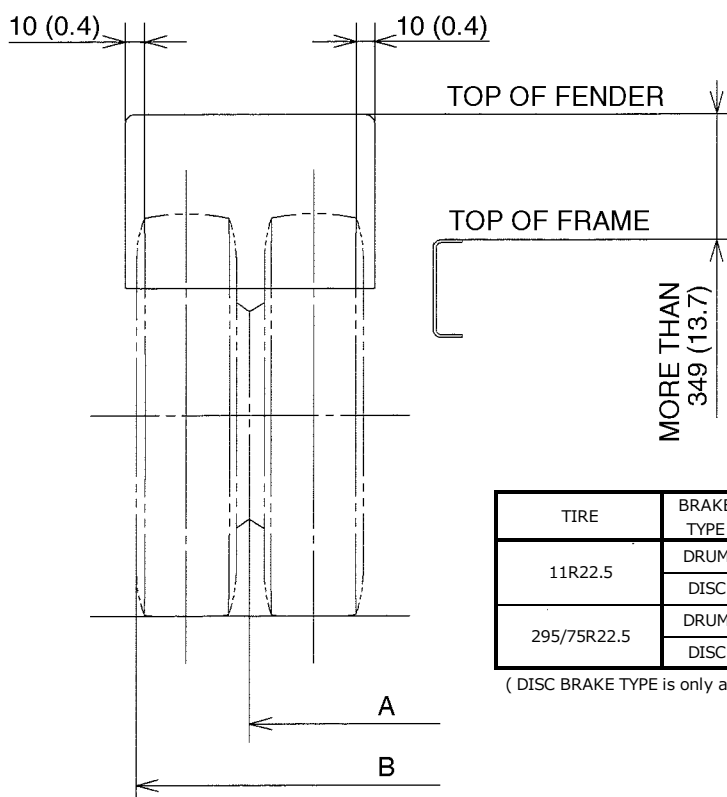


TIRE	BRAKE TYPE	REAR AXLE	A (REAR TIRE TRADE)	B (OVERALL WIDTH BY TIRE)
11R22.5	DRUM	-	1835 (72.2)	2450 (96.5)
	DISC	-	1840 (72.4)	2455 (96.7)
245/70R19.5	DRUM	MS17-13X	1840 (72.4)	2410 (94.9)
		MS17-14X	1835 (72.2)	
255/70R22.5	DRUM	-	1835 (72.2)	2435 (95.9)
	DISC	-	1840 (72.4)	2440 (96.1)
295/75R22.5	DRUM	-	1835 (72.2)	2460 (96.9)
	DISC	-	1840 (72.4)	2465 (97.0)

Unit: mm (in.)

**MODEL : NF(L7)**

TIRE	BRAKE TYPE	A (REAR TIRE TRADE)	B (OVERALL WIDTH BY TIRE)
11R22.5	DISC	1870 (73.6)	2485 (97.8)
295/75R22.5	DISC	1870 (73.6)	2495 (98.2)

**MODEL : NV(L7+Air) & NH(L8+Air)**

TIRE	BRAKE TYPE	A (REAR TIRE TRADE)	B (OVERALL WIDTH BY TIRE)
11R22.5	DRUM	1835 (72.2)	2450 (96.5)
	DISC	1840 (72.4)	2455 (96.7)
295/75R22.5	DRUM	1835 (72.2)	2460 (96.9)
	DISC	1840 (72.4)	2465 (97.0)

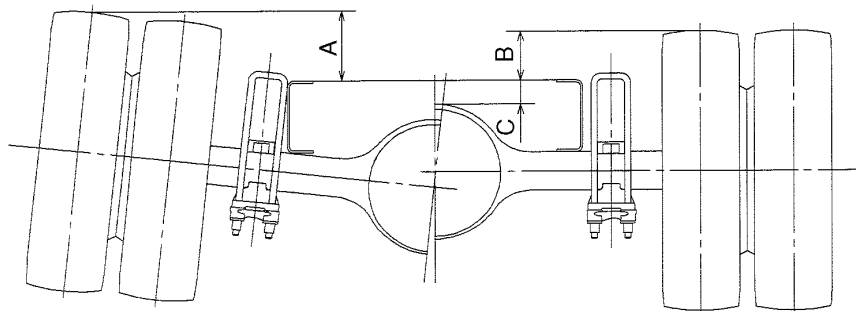
( DISC BRAKE TYPE is only available in NV(L7) )

## Deflection of Rear Tires

Measurements for the maximum deflection for one side tire and for simultaneous left and right deflection are shown below.

The fender position is "A" + 30mm (1.2 in.).

### DEFLECTION OF REAR TIRES



A : MAXIMUM DEFLECTION FOR  
ONE SIDE WHEELS

B,C : MAXIMUM SIMULTANEOUS DEFLECTION  
RIGHT AND LEFT WHEELS

Unit : mm (in.)

MODEL	TIRE SIZE	A	B	C
NE(L6)	10R22.5	265 (10)	180 (7.1)	85 (3.3)
	11R22.5	285 (11.2)	200 (7.9)	85 (3.3)
	245 / 70R19.5	175 (6.9)	90 (3.5)	85 (3.3)
	255 / 70R22.5	220 (8.7)	130 (5.1)	85 (3.3)
	295 / 75R22.5	270 (10.6)	185 (7.3)	85 (3.3)
NF(L7)	11R22.5	285 (11.2)	180 (7.1)	85 (3.3)
	295 / 75R22.5	270 (10.6)	200 (7.9)	85 (3.3)
NJ(L6)	11R22.5	285 (11.2)	200 (7.9)	85 (3.3)
	245 / 70R19.5	175 (6.9)	90 (3.5)	85 (3.3)
	255 / 70R22.5	220 (8.7)	130 (5.1)	85 (3.3)
	295 / 75R22.5	270 (10.6)	185 (7.3)	85 (3.3)
NV(L7)&NH(L8)	11R22.5	285 (11.2)	195 (7.7)	85 (3.3)
	295 / 75R22.5	270 (10.6)	175 (6.9)	85 (3.3)

#### [NOTE]

- When tire chain to be equipped, dimensions A and B are to add 63.5mm (2.5 in.).

## Installing Mudguard for Rear Wheel

The installation of the mudguard for the rear wheel can vary by each State's law. Since contents of the obligation differ by each State, observe each State's law.