

# CHASSIS ENGINEERING GUIDELINES

(ISSUE A, AUGUST 2018)

## DESIGN GUIDELINES FOR:

### FUSO CANTER 4x2 & 4x4

## MODELS:

FEA21, FEA61, FEB21, FEB51, FEB71, FEB74, FECX1, FGB71, FEB91

## APPLICATIONS - FLAT DECK, CURTAINSIDER, TIPPER

These recommendations have been prepared for design engineers and body builders as a guide to assist when selecting and specifying chassis modification and/or body fitment.

These guidelines should be read in conjunction with the Mitsubishi Fuso Truck and/or Bus Body Equipment Mounting Directives available on the FUSO Body Builder Portal.

### CHASSIS FRAME MATERIAL

Hot Rolled Steel, 440 MPa tensile, 305 MPa yield or 540 MPa tensile. Refer to chassis section modulus drawing for each model.

### LOAD CONSIDERATIONS

#### TIPPER

**AT LIFT OFF** Point when body raised just clear of the chassis thus imposing two point loads on the chassis rails at hinge and hoist mount.

**AT MAX TIP** Point when the body is raised to tip angle of 48°, (tail door closed) so loads act at the hoist mounting and hinge pivot points.

**LOAD CENTRE** Determined as water level load 300mm above chassis.

**SPREADING** Spreading work imposes higher frame loads and may require chassis reinforcement.

#### FLAT DECK

**U.D.L.** Consider as a uniformly distributed load over whole or part of deck length.

**CURTAINSIDER** Consider as a uniformly distributed load over whole or part of deck length in conjunction with point loads imposed by body and taillifts.

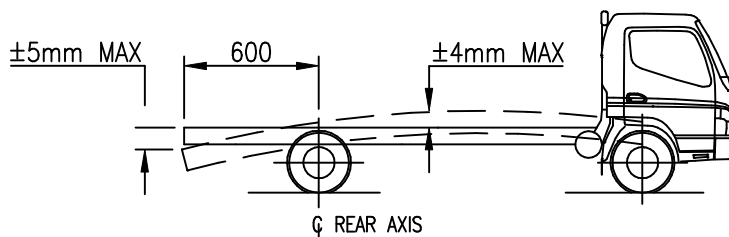
### MAXIMUM DESIGN STRESS

Recommended maximum design stress = 35% of chassis yield stress (108.5 MPa) for sections of frame that are unmodified or do not contain stress raisers. Appropriate allowance should be made for details in the frame that have been modified or contain stress raisers. Refer to the body builders manual for stress levels using static load applications.

### MAXIMUM CHASSIS DEFLECTION

**CASE 1** Between front and rear axis.  
Maximum permissible deflection:  $\pm 4\text{mm}$ .

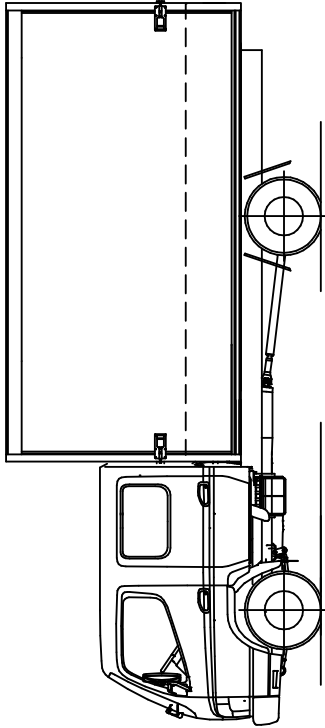
**CASE 2** Rear overhang.  
Maximum permissible deflection: 5mm at 600mm or greater, rear of rear axis.



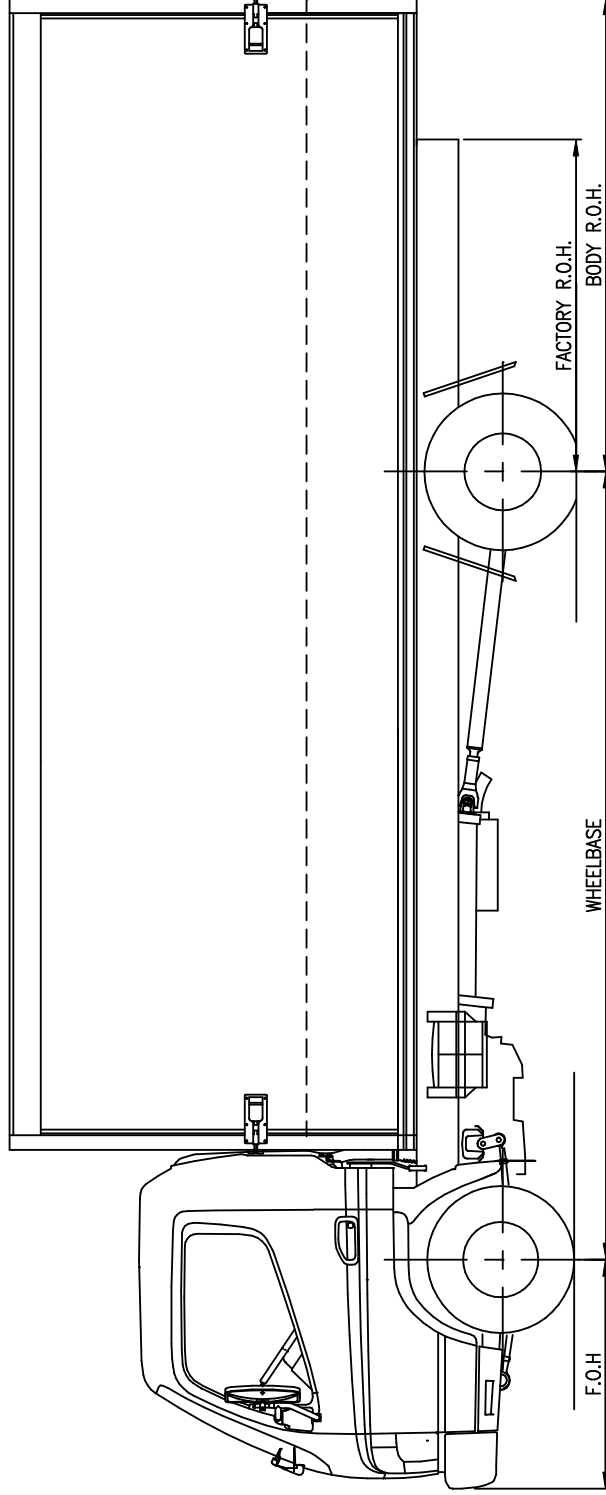
This specification sheet applies to vehicles supplied by Fuso NZ for the New Zealand market. REF: J22974 / CANTERSUA.DWG  
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**NOTES:**

- 01) THIS CHASSIS (WITHOUT A SUBFRAME) IS SUITABLE FOR FITTING A CURTAINSIDER BODY AND LOADS UP TO THE MANUFACTURERS GVM PROVIDING THE BODY/CHASSIS R.O.H. DOES NOT EXCEED THE RELEVANT BODY R.O.H. FIGURE STATED.
- 02) THE FITTING OF A BODY AND ANY WORK ON THE CHASSIS FRAME MUST BE CARRIED OUT IN ACCORDANCE WITH THE FUSO GUIDELINES FOR THIS MODEL AND GOOD INDUSTRY PRACTICE
- 03) IF THE BODY OR CHASSIS REAR OVERHANG EXCEEDS THOSE STATED BELOW, A SUBFRAME OR CHASSIS REINFORCEMENT IS RECOMMENDED, AND THIS REQUIREMENT SHOULD BE DETERMINED BY ENGINEERING CALCULATION AND ASSESSMENT USING THE FUSO GUIDELINES.
- 04) THIS DRAWING IS FOR USE AS A GUIDE ONLY, TO ASSIST WHEN SELECTING AND SPECIFYING CHASSIS MODIFICATION AND/OR BODY FITMENT.
- 05) REGARDLESS OF THE BODY/CHASSIS REAR OVER HANG, FITMENT OF A TAILLIFT MAY REQUIRE A SUBFRAME OR ADDITIONAL CHASSIS REINFORCEMENT, AND THIS REQUIREMENT SHOULD BE DETERMINED BY ENGINEERING CALCULATION AND ASSESSMENT USING THE FUSO GUIDELINES.



FEA21E, FEB71E/G, FEB91E/G, FECX1G



MODEL	WHEELBASE	F.O.H.	FACTORY R.O.H.	BODY R.O.H.
FEA61B	2500mm	990mm	1015mm	-
FEA21C	2800mm	990mm	1195mm	-
FEB21C	2800mm	1140mm	1195mm	1800mm
FECX1H	4300mm	1140mm	1745mm	-
FEA21E	3400mm	990mm	1395mm	1500mm
FEB51E/FEB74E/ FEB71E/FEB91E	3400mm	1140mm	1395mm	1500mm
FEB21E	3400mm	1140mm	1395mm	1700mm
FEB51G/FEB71G/ FECX1G	3850mm	1140mm	1695mm	2400mm
FEB74G/FECX1G/ FEB71G/FEB91G	3850mm	1140mm	1695mm	2200mm
FECX1K	4750mm	1140mm	1845mm	2600mm

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**CANTER FE 4 x 2**  
**SAMPLE CURTAINSIDER/FLAT DECK LAYOUT**

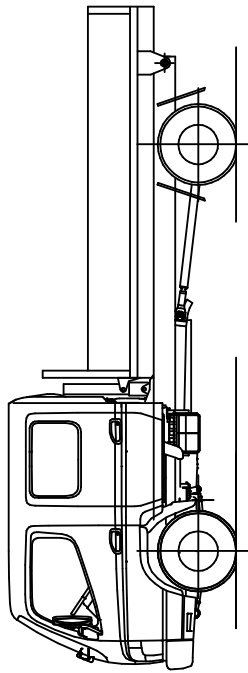


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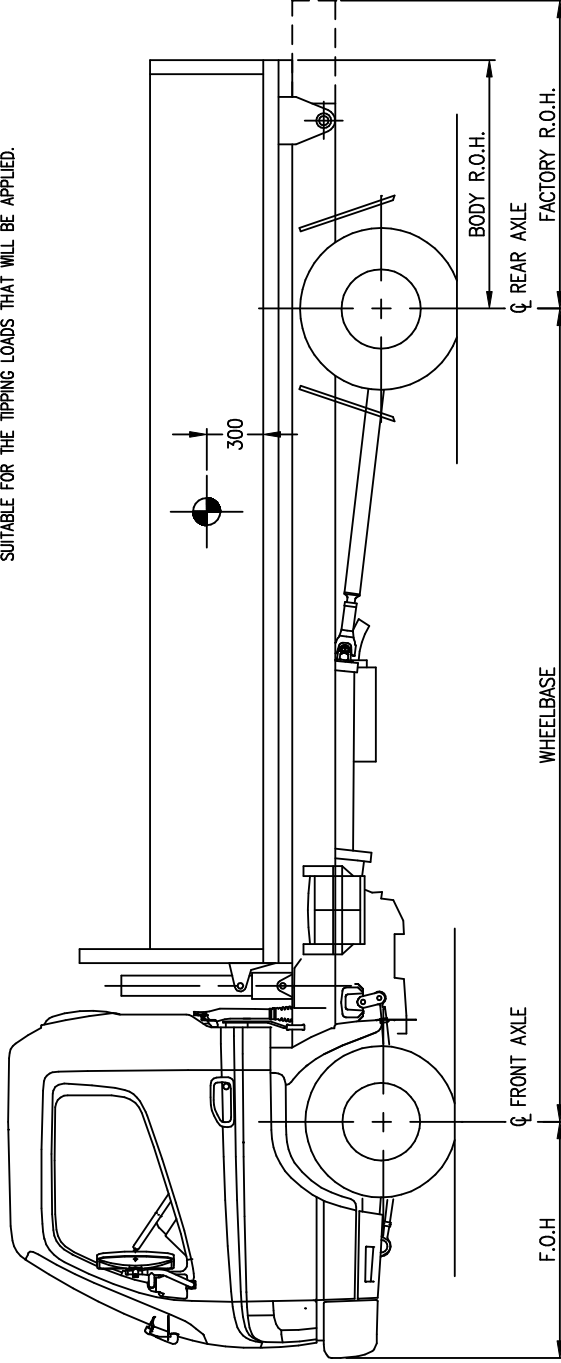
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**NOTES:**

- 01) THIS CHASSIS (WITHOUT A SUBFRAME) IS SUITABLE FOR FITTING AN F.O.B. (OR B.F.O.B.) HOST AND BODY, AND LOADS UP TO THE MANUFACTURERS G.V.M. PROVIDING THE BODY OR HINGE PIVOT DO NOT EXCEED THE RELEVANT BODY R.O.H. STATED.
- 02) THE FITTING OF A BODY AND ANY WORK ON THE CHASSIS FRAME MUST BE CARRIED OUT IN ACCORDANCE WITH THE FUSO GUIDELINES FOR THIS MODEL AND GOOD INDUSTRY PRACTICE.
- 03) IF THE REAR OVERHANG OR THE HINGE PIVOT EXCEEDS THOSE STATED BELOW, A SUBFRAME OR CHASSIS REINFORCEMENT IS RECOMMENDED, AND THIS REQUIREMENT SHOULD BE DETERMINED BY ENGINEERING CALCULATION AND ASSESSMENT USING THE FUSO GUIDELINES.
- 04) THIS DRAWING IS FOR USE AS A GUIDE ONLY, TO ASSIST WHEN SELECTING AND SPECIFYING CHASSIS MODIFICATION AND/OR BODY FITMENT.
- 05) A SUBSTANTIAL FULL DEPTH REAR CROSSMEMBER IS REQUIRED, WHICH IS SUITABLE FOR THE TIPPING LOADS THAT WILL BE APPLIED.



FEA21E, FEB71E/G, FEB91E/G, FECX1G



MODEL	WHEELBASE	F.O.H.	FACTORY R.O.H.
FEA61B	2500mm	990mm	1015mm
FEA21C	2800mm	990mm	1195mm
FEB21C	2800mm	1140mm	1195mm
FECX1H	4300mm	1140mm	1745mm
FEA21E	3400mm	990mm	1395mm
FEB51E/FEB74E/ FEB71E/FEB91E	3400mm	1140mm	1395mm
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FEB51G/FEB71G/ FECX1G	3850mm	1140mm	1695mm
FEB74G/FECX1G/ FEB71G/FEB91G	3850mm	1140mm	1695mm
FECX1K	4750mm	1140mm	1845mm

MODEL	FACTORY R.O.H.
FEA61B	-
FEA21C	-
FEB21C	1800mm
FECX1H	-
FEA21E	1500mm
FEB51E/FEB74E/ FEB71E/FEB91E	1500mm
FEB21E	1700mm
FEB51G/FEB71G/ FECX1G	2400mm
FEB74G/FECX1G/ FEB71G/FEB91G	2200mm
FECX1K	2600mm



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**CANTER FE 4 x 2**  
**SAMPLE F.O.B. TIPPING LAYOUT**

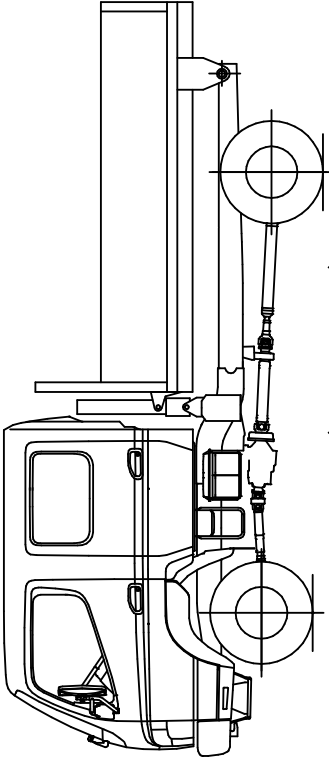


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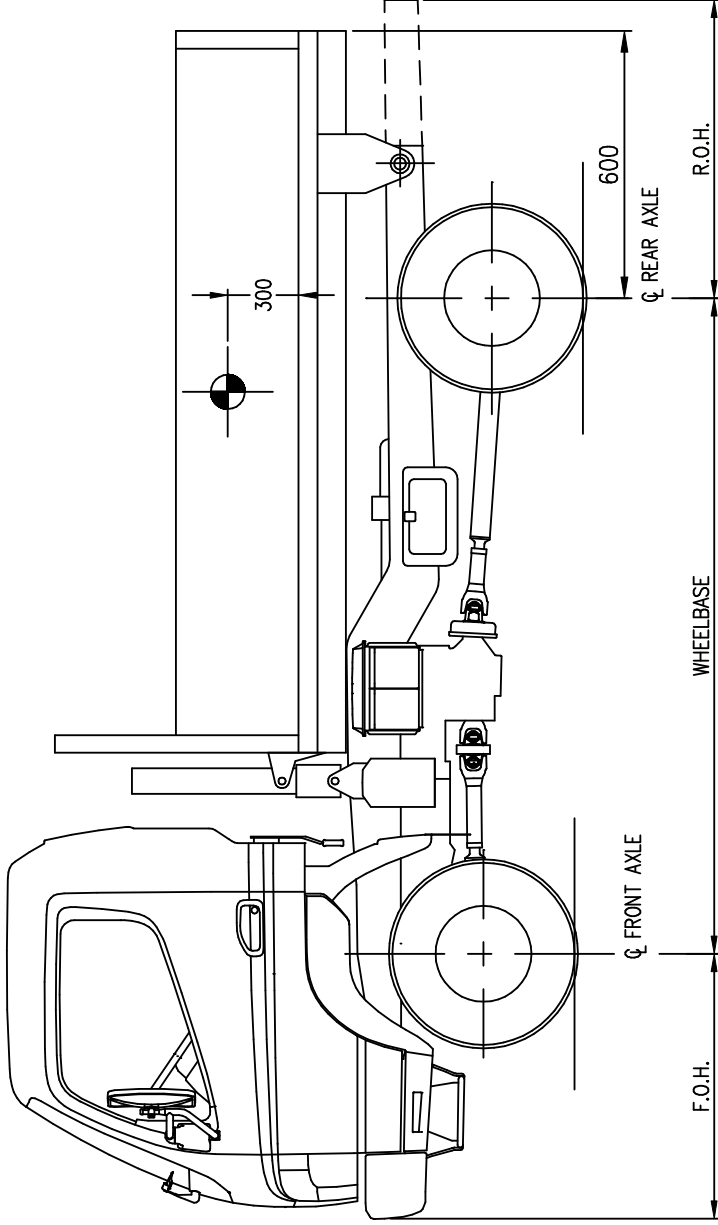
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**NOTES:**

- 01) THIS CHASSIS (WITHOUT A SUBFRAME) IS SUITABLE FOR FITTING AN F.O.B. (OR B.F.O.B.) HOIST AND BODY, AND LOADS UP TO THE MANUFACTURERS G.V.M. PROVIDING THE BODY OR HINGE PIVOT DO NOT EXCEED THE RELEVANT BODY R.O.H. STATED.
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- 03) IF THE REAR OVERHANG OR THE HINGE PIVOT EXCEEDS 600mm, A SUBFRAME OR CHASSIS REINFORCEMENT IS RECOMMENDED, AND THIS REQUIREMENT SHOULD BE DETERMINED BY ENGINEERING CALCULATION AND ASSESSMENT USING THE FUSO GUIDELINES.
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FGB71E (CrewCab Version)



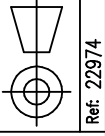
MODEL	WHEELBASE	F.O.H.	R.O.H.
FGB71C	2815mm	1125mm	1195mm
FGB71E	3415mm	1125mm	1395mm

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B			
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**CANTER FG 4 x 4**  
**SAMPLE F.O.B. TIPPER LAYOUT**



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