F R A M E

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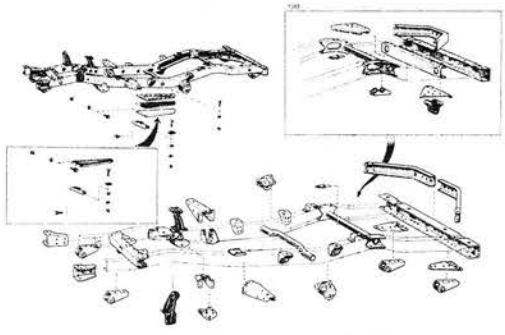
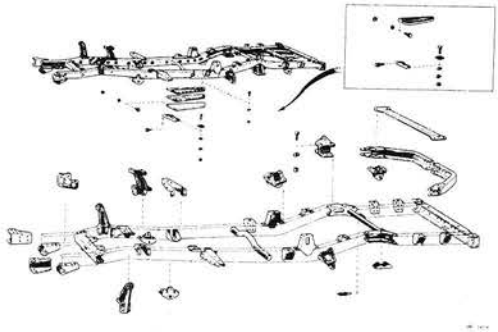
DESCRIPTION

The frames utilized on the FJ series are of the ladder type with box cross sectional side members and cross members to increase the rigidity and durability.
Strong brackets are incorporated to maintain proper longitudinal position of the side members relative to each other and at the same time providing additional resistance to twisting.

FJ40, 43 series



FJ45 series



FJ55 series

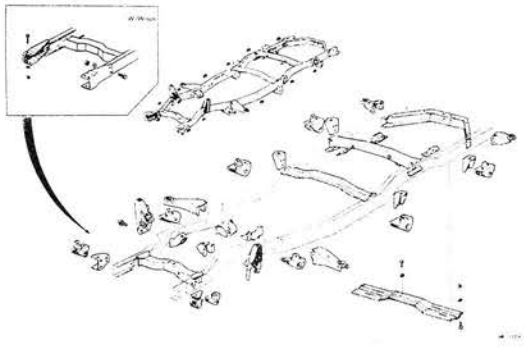


Fig.8-1 Frame Components

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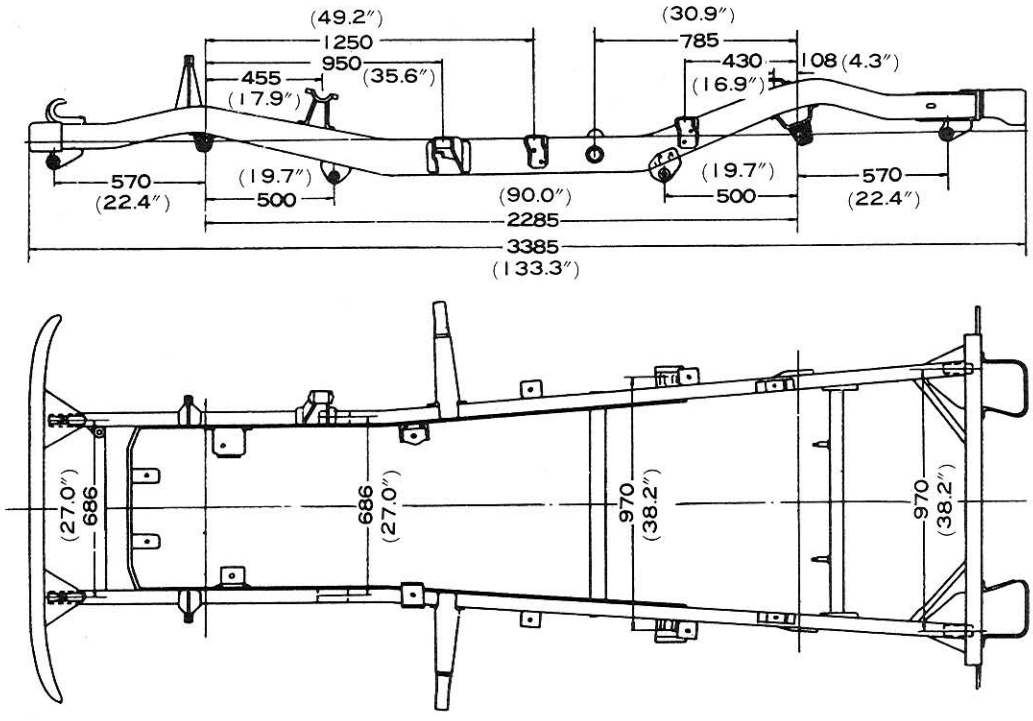

Fig.8-2 Frame Dimension Diagram (FJ40 series)

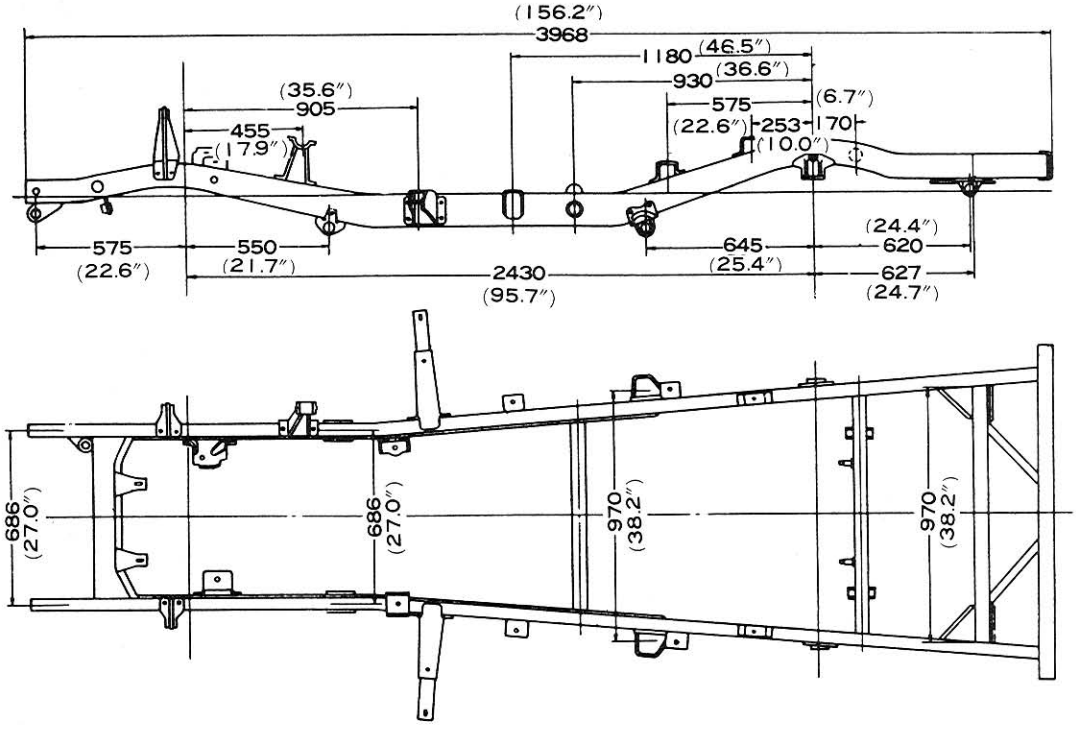

Fig.8-3 Frame Dimension Diagram (FJ43 series)

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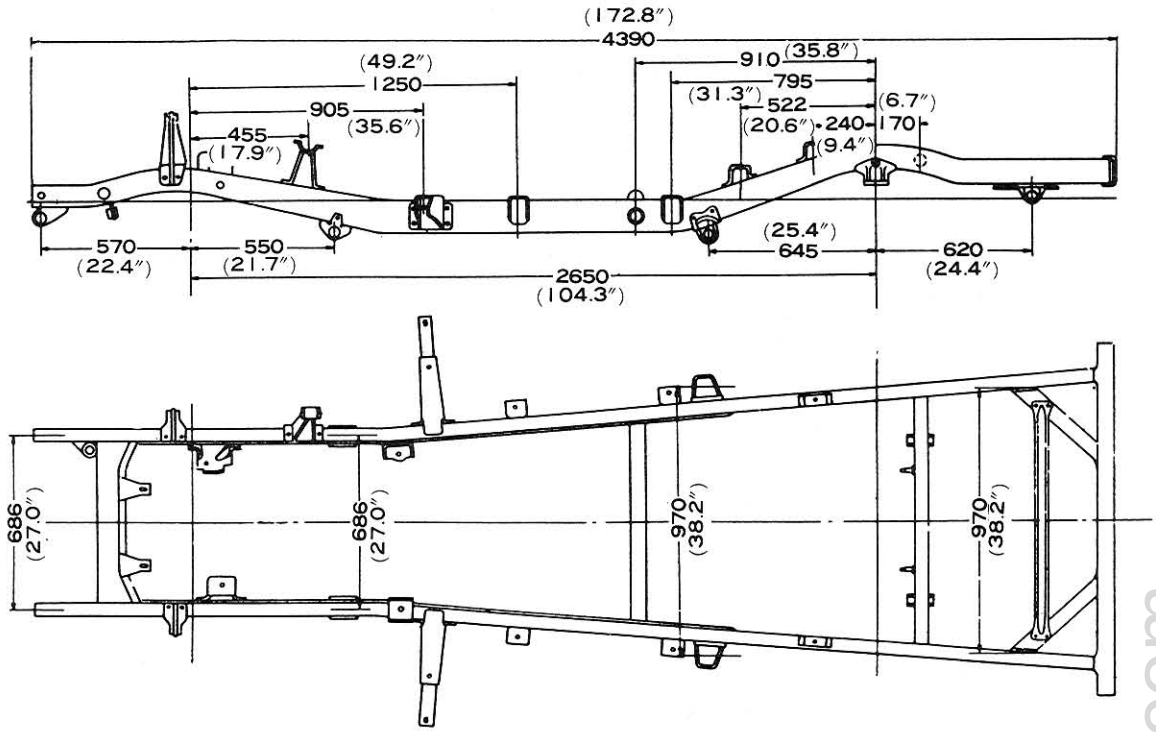

Fig.8-4 Frame Dimension Diagram (FJ45 series)

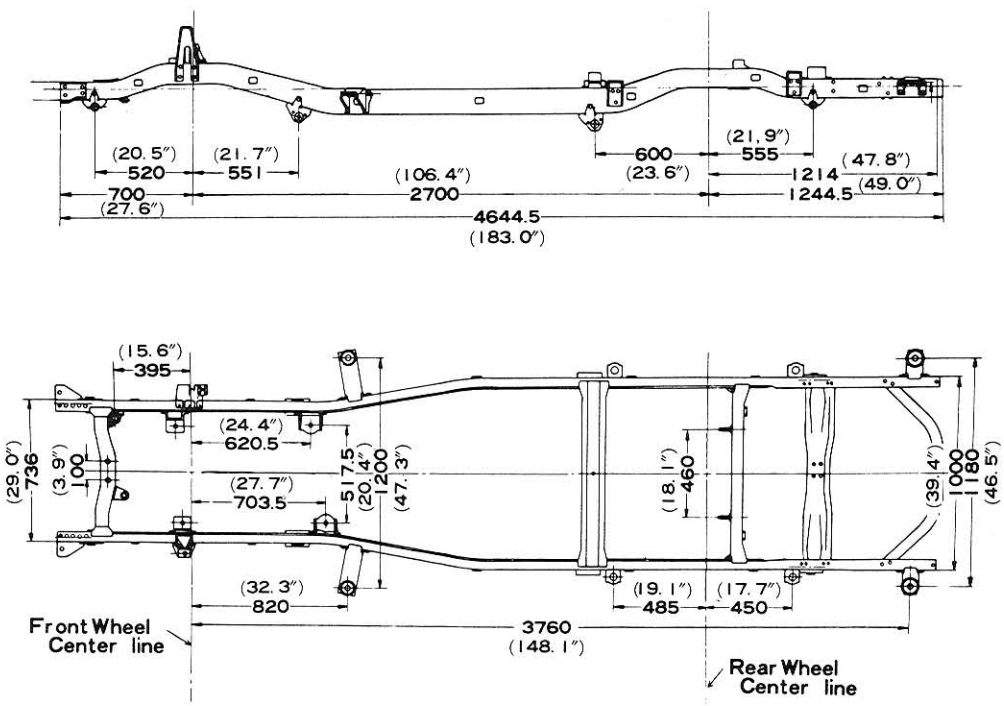

Fig.8-5 Frame Dimension Diagram (FJ55 series)

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Inspection

Vehicles which have been in a collision, upset or accident of any nature which might result in a twisted or sprung frame, should always be carefully checked for proper frame alignment in addition to steering geometry and wheel alignment.

1. Frame damage inspection.

   Before checking frame alignment, inspect the frame for damage and loose parts. Inspect all frame members, for cracks, twist, or bends. Check all welded connections for cracks. Inspect all rivets, bolts, and body support brackets for looseness. Make all necessary repairs or replacement.

2. Frame alignment checking method.

   Frame alignment can be checked without removing the vehicle body from the frame by using "X" checking method which is most efficient.

   a. Place the vehicle on a clean level floor and set the parking brake.

   b. Prepare a piece of cord attached to an ordinary surveyor's plumb bob.

   c. Select several points along one frame side member and very carefully place the free end of the cord on these points allowing the plumb bob to hang on the floor.

   d. Mark the points on the floor just under the tip of the plumb bob as accurately as possible. If desired, paper can be taped on the floor along both sides of the vehicle below the frame.

   e. Locate the corresponding points along the opposite frame side member, and carefully transfer these points to the floor in the same manner.

   f. Move the vehicle aways from the marks on the floor, then measure between diagonal points. Both corresponding measurements should agree within 5 mm (0.197"). Measure diagonally between all points on the floor.

   g. Measure between corresponding points parallel to the frame side members. These measurements should also be within 5 mm (0.197") of each other.

   If the measurements do not agree within the above limit, it means that corrections will have to be made between those measurement points that are not equal.

Repair & Replacement

Frame misalignment can be corrected by straightening the out-of-line parts by replacing the cross members or brackets.

1. Frame straightening.
   Frame straightening should be limited to parts which are not severly bent to prevent internal stresses in the metal. Use of heat is not recommended when straightening frame as heat weakens the structural characteristics of frame members. Therefore, any straightening of frame members should be done cold. Frame members which are bent or buckled sufficiently to show strains or cracks after straightening should be reinforced or replaced.

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2. Frame reinforcing.
If any defects or cracks are found after inspecting the frame member, it should be reinforced or replaced. Reinforcements can be made from channel, angle, or flat stock. The reinforcement stock should be of the same material and the same thickness as the frame member being reinforced. Before the reinforcement is welded to a cracked frame member, the crack should be prepared to insure a good sound repair. To prevent the crack from spreading, drill a 3 ~ 4 mm (0.12 ~ 0.16") hole at the root of the crack. Grind out the crack to form a slot which will allow the weld to pentrate to the surface of the reinforcement. The proper location of the reinforcement depends upon the location of the cracks. If the crack is at the bottom of the channel, the reinforcement should be welded to the channel bottom. If the crack extends along the side of the channel, an additional reinforcement should be welded to the side. All frame welding should be done with electric welding equipment, and the heat should be kept in a small area to prevent affecting the hardness of the metal.

3. Cross member and brackets.
All cross members, brackets or gussets that are damaged or broken may be replaced. Cut off the rivets holding part to be replaced by first drilling the heads and then cuttin them off usin a sharp cold chisel. Care should be exercised to prevent distorting rivet holes. In permanently attaching a new piece, it is recommended that hot rivets be used to secure in place.

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