

GROUP 9

FRAME AND BUMPERS

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SERVICE BULLETIN REFERENCE

Bulletin No.	Page No.	SUBJECT

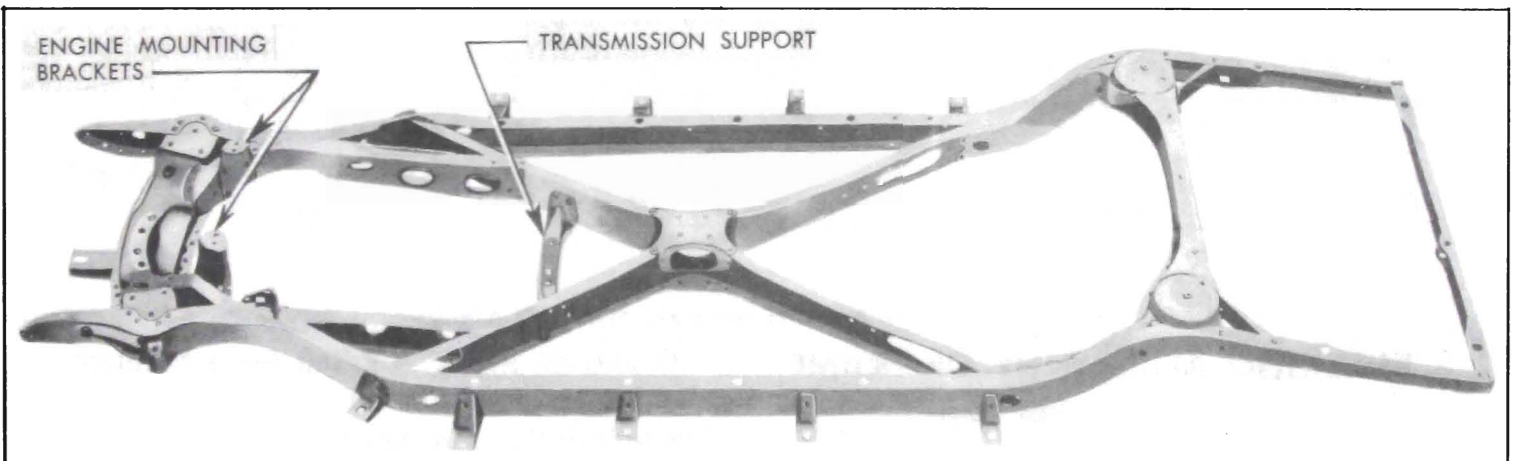


Figure 9-1—Frame—Series 40

9-1 DESCRIPTION OF FRAME

a. Closed Body Frames

All frames have high carbon pressed steel members riveted and welded together to form a rigid assembly. The outer and inner side rails, center diagonal cross members and rear cross members are of channel section. The front cross member is box type to form a strong support for the front suspension members. Upright brackets are bolted to the inner side rails to support the engine. See figure 9-1.

All series frames are very similar in design, relative parts being merely made longer or of thicker gauge, as the need requires, to take care of longer wheelbase. The principal structural difference between series is in the cross mem-

ber at the top of the rear kick-up. On *Series 40* and *1949 Series 50-70*, the chassis spring seats are formed in the cross member, while in the *1948 Series 50 and 70* the spring seats are formed in the reinforcing members located just forward of the cross member.

b. Convertible Coupe and Estate Wagon Frames

Frames for convertible coupes and estate wagons are identical in general design, number of cross members, and arrangement of parts with closed body frames, but additional reinforcement is added to compensate for loss of the inherent rigidity of closed bodies which does not exist in convertible coupe and estate wagon bodies. The front inner side rails, rear

kick-up reinforcements, and top and bottom plates at the junction of the center diagonal cross members are increased in thickness, and the center diagonal cross members are reinforced by four U-shaped reinforcements welded into the channel section near the center. Diagonal reinforcements welded to the side rails and rear cross member provide additional bracing at the rear corners of these frames.

can be clearly marked. *Apply brakes or block wheels so that car cannot move.*

1. Using a plumb bob, extend the following points to the floor and mark where point of plumb touches floor, as shown in figure 9-2.

A and A¹ at point of grease fitting in front ends of control arm shafts.

B and B¹ at point of grease fitting in front ends of lower pivot pins.

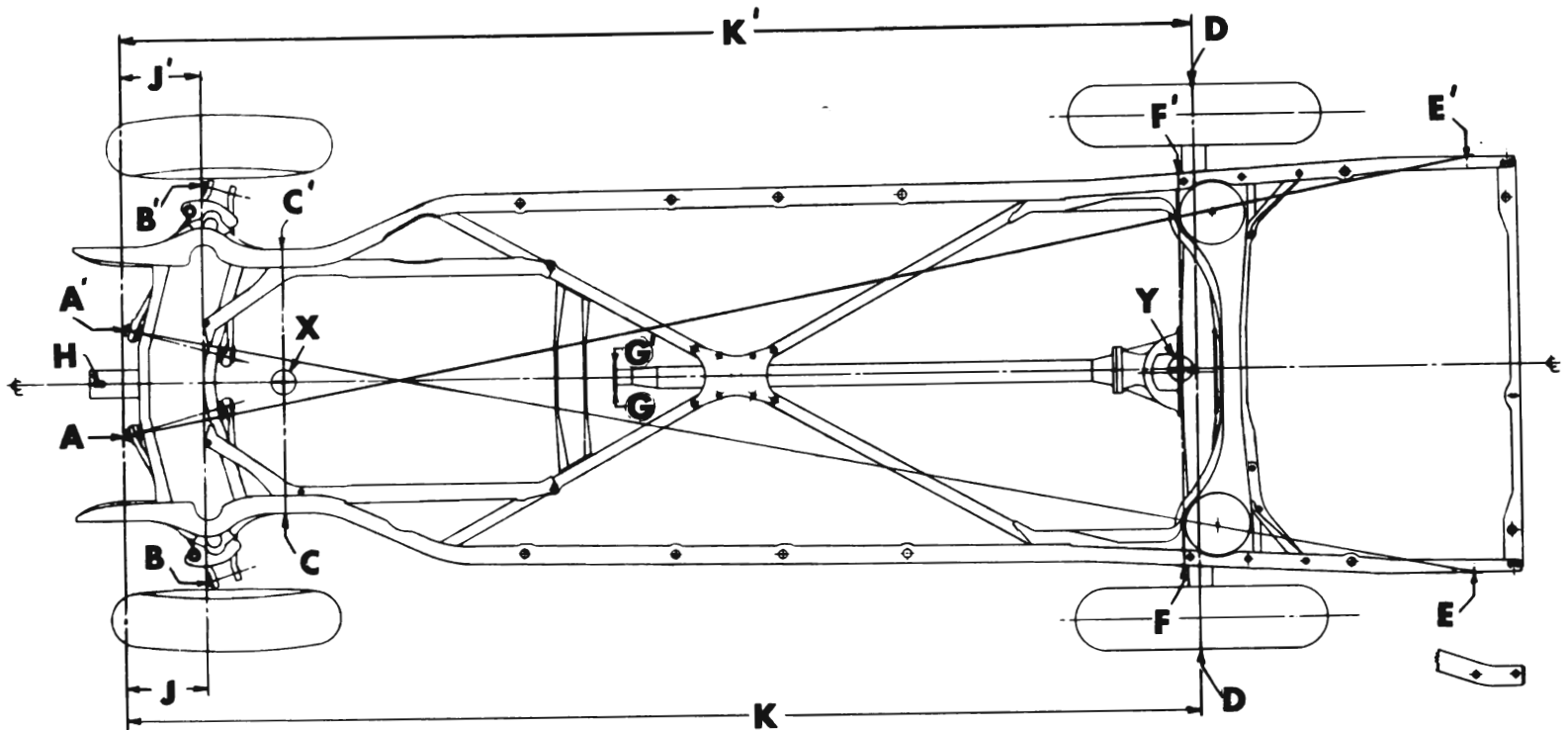


Figure 9-2—Checking Points for Frame and Suspension Alignment

9-2 CHECKING ALIGNMENT OF FRAME AND SUSPENSION MEMBERS

When a frame has been damaged by accident the following procedure may be used to check alignment of the frame, and the alignment of the chassis suspension members with the frame. This procedure should be used to check alignment after repairs to frame have been completed. If body was removed for repairs to frame, check frame as described in paragraph 9-3.

Checks are to be made with frame assembled with power plant, body, etc., and car resting on wheels. The car should be placed on a clean floor that is reasonably level. Both sides of the front ends of the frame must be the same distance from the floor; the same condition must exist at rear end of frame. Where points are to be extended to floor by use of a plumb bob, it is desirable to attach clean pieces of paper to floor with tacks or tape so that the points

C and C¹ at $\frac{5}{8}$ " jiggling holes in side rails about 7" to rear of bumper frame stops, holding plumb line flat against side rails.

D and D¹ at center of rear axle shafts.

E and E¹ at center of forward bolts attaching rear bumper.

F and F¹ on side rails just forward of rear axle rubber bumper, *holding plumb line flat against side rails.*

G and G¹ at each side of torque tube flange.

H at center of slotted hole in radiator mounting bracket.

2. Move car out of the way. Using a chalked line, draw lines on the floor through the following points: A and A¹, B and B¹, C and C¹, D and D¹, F and F¹.

3. Divide the distance between C and C¹ and mark the center point X on line C-C¹. Divide the distance between F and F¹ and mark the center point Y on line F-F¹. Draw frame centerline through points X and Y.

4. Measure diagonal distances A to E¹. If

these diagonals are not equal within $\frac{3}{16}$ " the frame is bent.

5. Measure the distances J and J¹. If these are not equal within $\frac{1}{8}$ " a lower control arm is bent.

6. Measure the distances K and K¹, which will be equal within $\frac{3}{16}$ " if rear axle is properly aligned with frame. Points G and G¹ should be equally distant from vehicle centerline X-Y. If distances K and K¹ are not equal within $\frac{3}{16}$ " and points G and G¹ are equally distant from centerline, a bent rear axle housing or torque tube is indicated. If points G and G¹ are not equally distant from centerline, look for misalignment of engine in the frame.

7. Point H should be on the vehicle centerline X-Y or within $\frac{3}{16}$ ". If it is not, the radiator mounting bracket is bent.

9-3 CHECKING ALIGNMENT OF FRAME ONLY

When a frame has been damaged by accident and the power plant, body, etc., are removed, the measurements shown in figure 9-4, 9-5, 9-6, 9-7 or 9-8 may be used to check for alignment of frame members. The procedure should also be used to check alignment after repairs to frame have been completed.

The frame must be solidly supported on suitable stands so that the top of side rails are level. Use a steel tape or adjustable trammel and a steel straight edge to obtain the measurements indicated in the proper series dimensional drawing.

9-4 FRAME REPAIRS

a. Straightening and Welding

In case of frame distortion resulting from an accident it is permissible to straighten or weld the frame if the distortion is not excessive.

Heat can be applied without materially weakening the steel, provided this is kept below 1200°F. This is a deep cherry red when viewed in subdued daylight, as in an average shop. Heat in excess of 1200°F. will weaken the metal structure and lead to eventual failure in service.

b. Replacement of Frame Members

If a frame front cross member is very badly distorted as a result of a front end collision, replacement is advisable because its rigid box construction makes proper straightening very

difficult. Since the front suspension members are mounted on the frame front cross member, front end alignment will be affected if the cross member is not in perfect alignment.

The front and rear cross members, rear spring support cross member, and a number of braces and brackets are available for service replacement. The old members may be removed from the frame, after removing other parts or assemblies to allow working space, by cutting the attaching rivets and welds.

When installing new frame members use hot rivets since they can be properly driven with hand tools. Cold driven rivets are not recommended because they cannot be securely driven with hand riveting tools. In places where hot rivets cannot be installed it is permissible to use finished bolts snugly fitted in reamed holes. Use lockwasher with bolts and draw nuts up tight. Weld a new member to adjacent members in the same manner that the replaced member was welded.

After installation of any new frame member check the frame for proper alignment as described in paragraph 9-2 or 9-3. After any repairs or replacements in front end of frame be sure to check front wheel alignment (par. 6-30).

9-5 CAR BUMPERS

a. 1948 Models

The front bumper on all series and the rear bumper on *Series 50* and *70* has a right and left face plate riveted to a center face plate to form a unit assembly; however, the individual face plates are available for service replacement. Two bumper guards, connected by license plate frame upper and lower rails, are attached to each bumper at the riveted joints. The *Series 40* rear bumper uses a one-piece face plate on which the bumper guards are installed.

The rear bumper on the Model 59 and 79 Estate Wagon is constructed so that the connected bumper guards and license plate frame rails are hinged to swing downward to provide access to the spare tire compartment. The hinged section is locked in upper position by latches mounted in the bumper guards. See figure 9-3.

b. 1949 Models

The 1949 *Series 50-70* front bumper has a one-piece face plate. Two bumper guards are mounted on the face plate and these are con-

nected by a rail above the face plate. The front license plate bracket is attached to the lower flange of face plate.

The 1949 Series 50-70 rear bumper has a one-piece face plate with a large opening

formed in the center. This opening is closed by a center plate which supports the rear license plate and the rear license lamp. The lamp is located in a protected position in the rolled upper edge of face plate above the license plate.

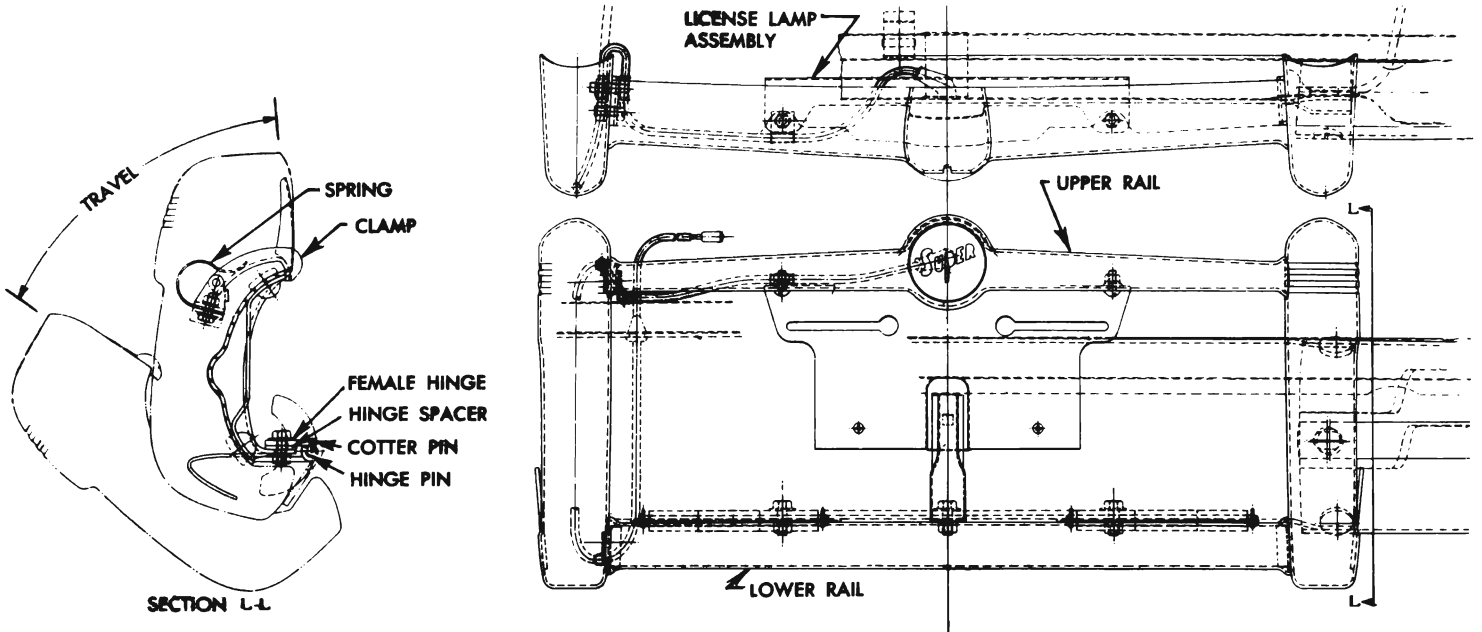


Figure 9-3—Hinged Section of Rear Bumper—1948 Model 59 & 79

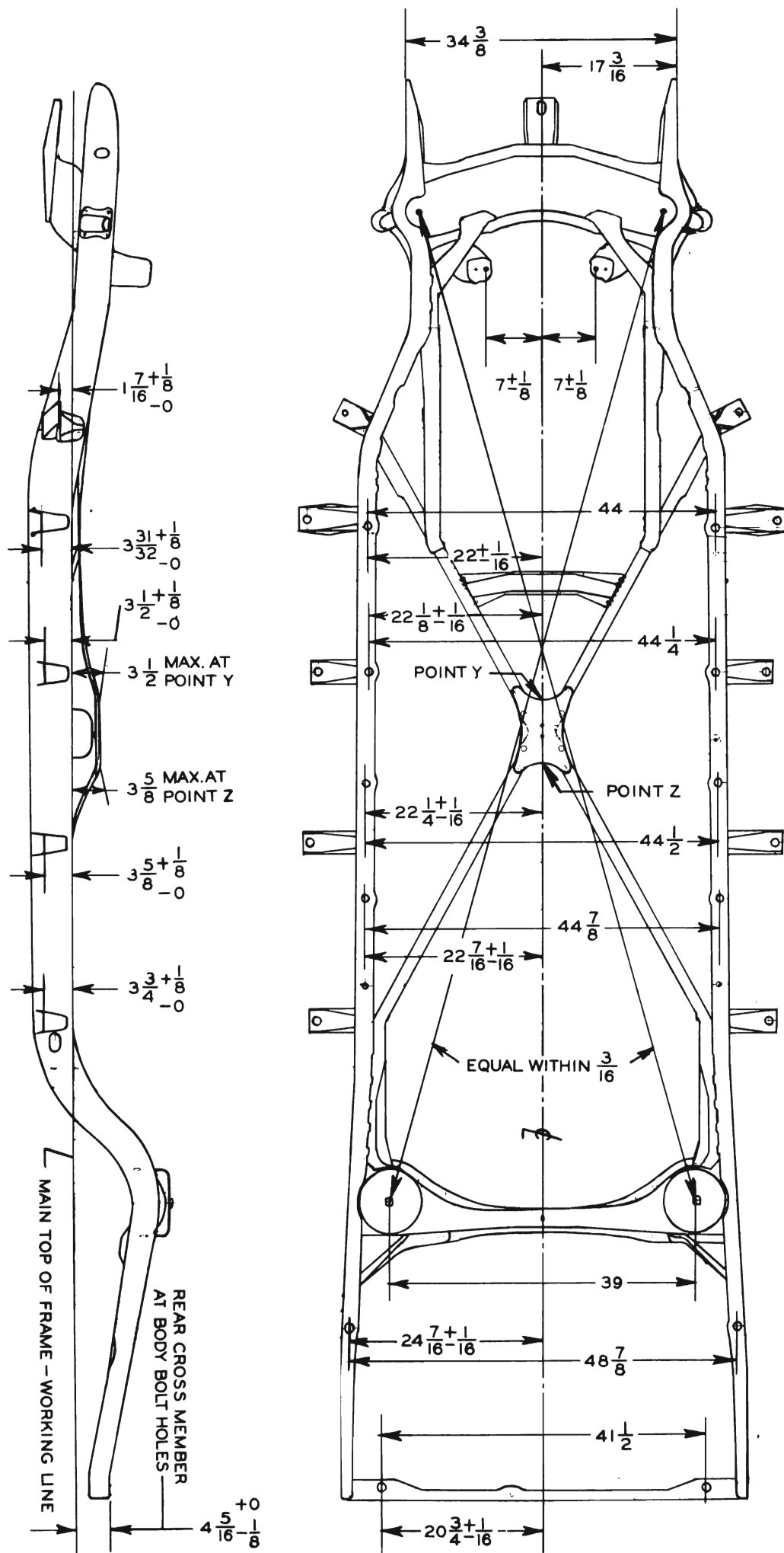


Figure 9-4—Frame Checking Dimensions—Series 40

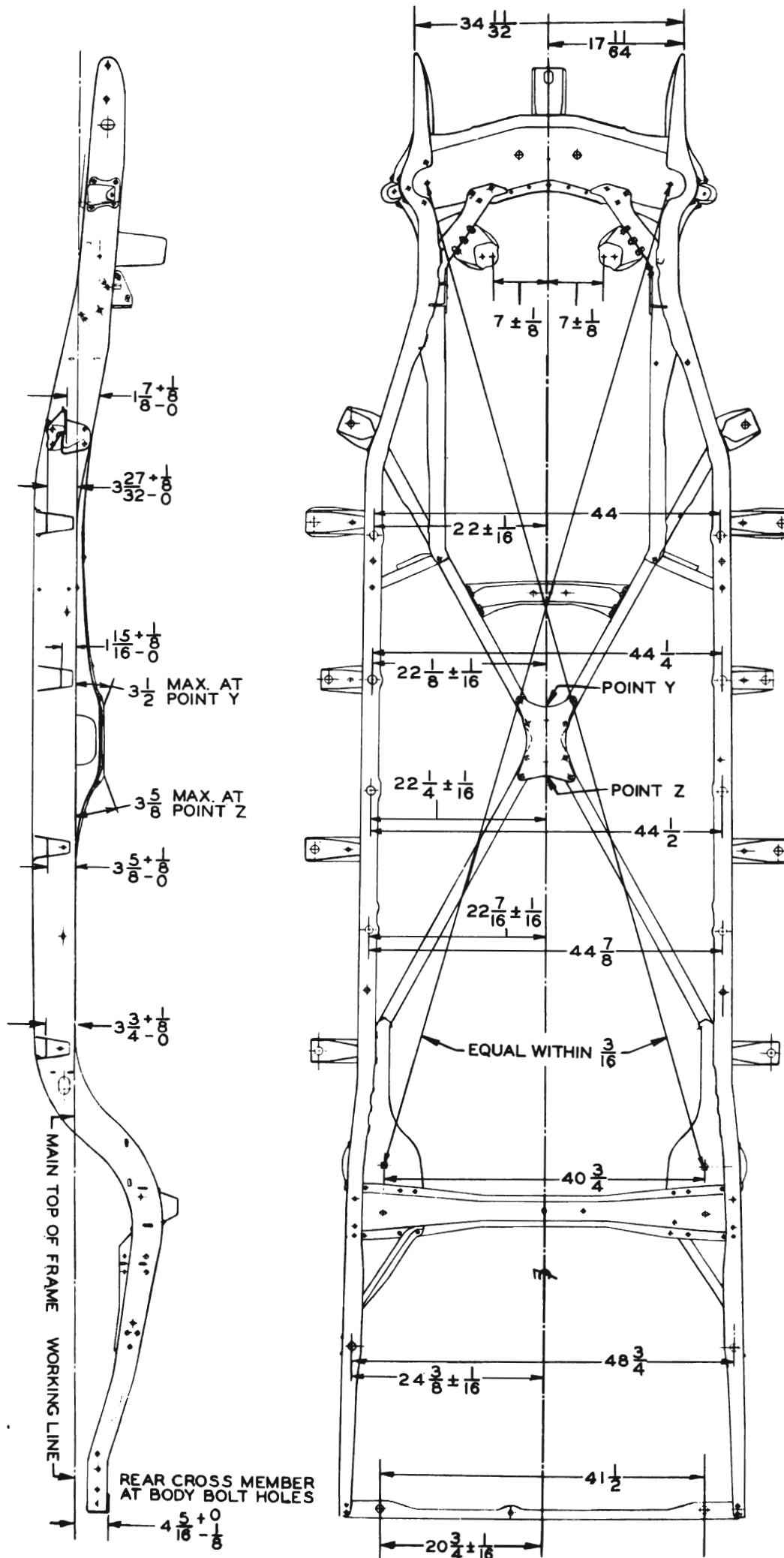


Figure 9-5—Frame Checking Dimensions—1948 Series 50

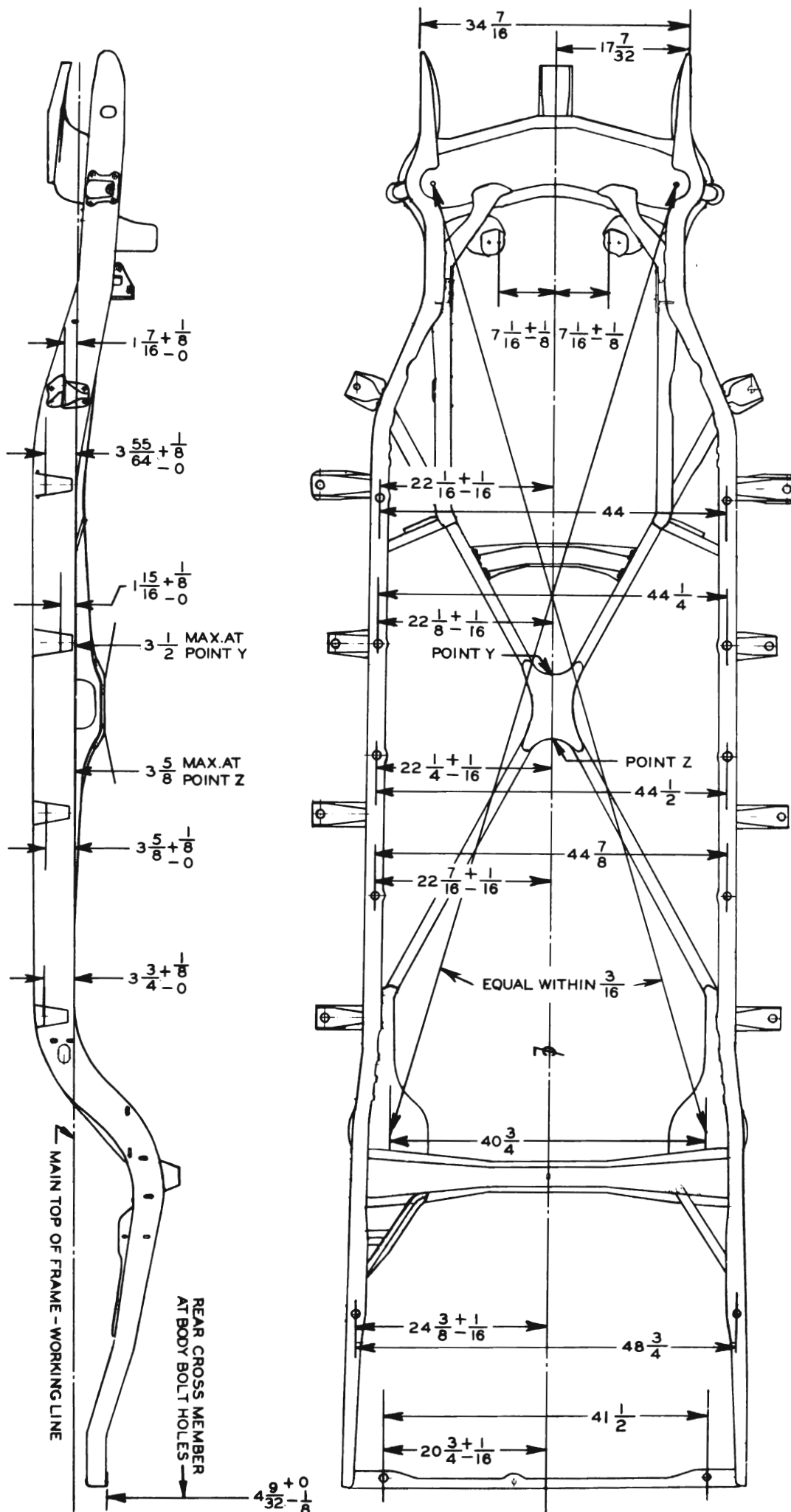


Figure 9-6—Frame Checking Dimensions—1948 Series 70

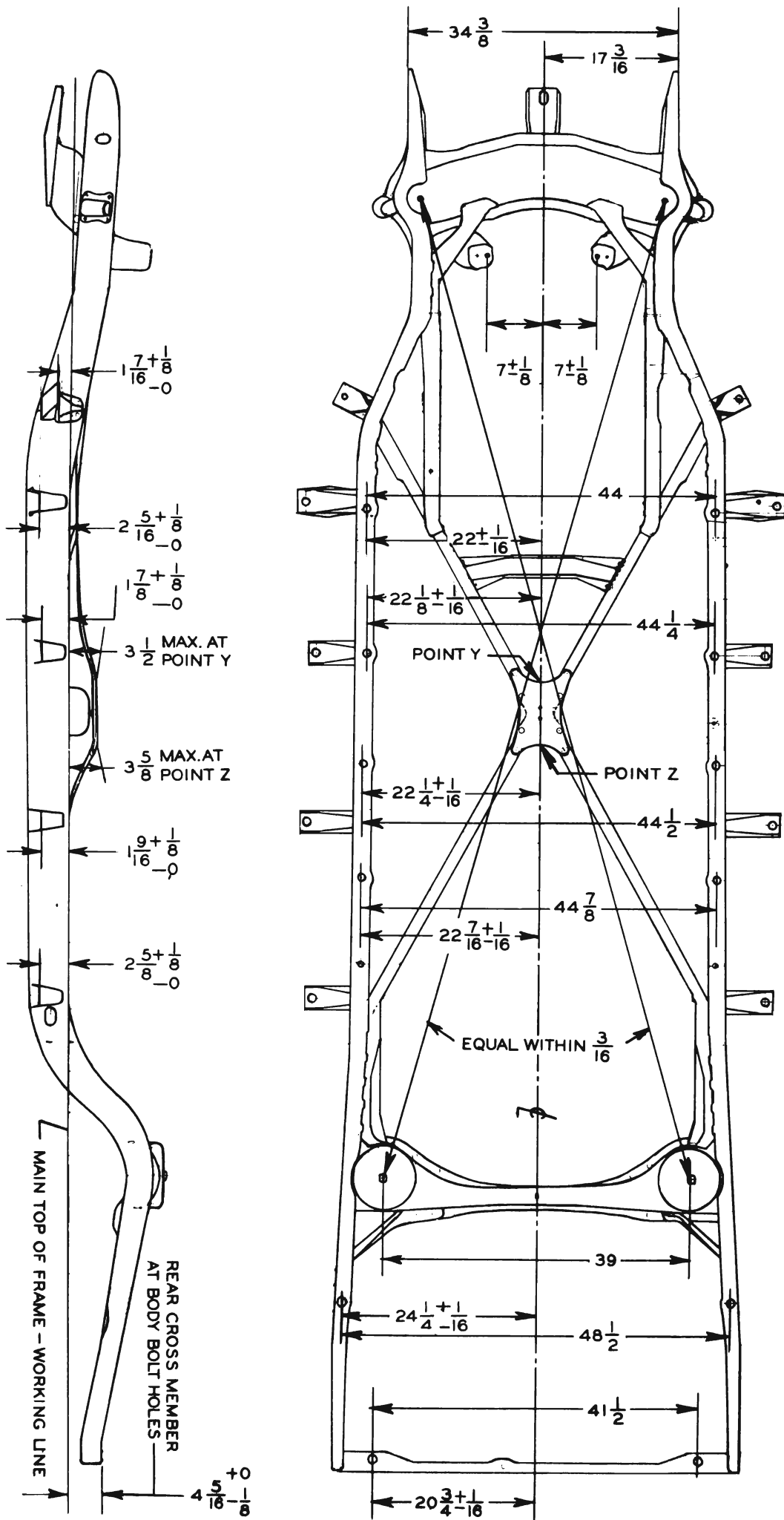


Figure 9-7—Frame Checking Dimensions—1949 Series 50

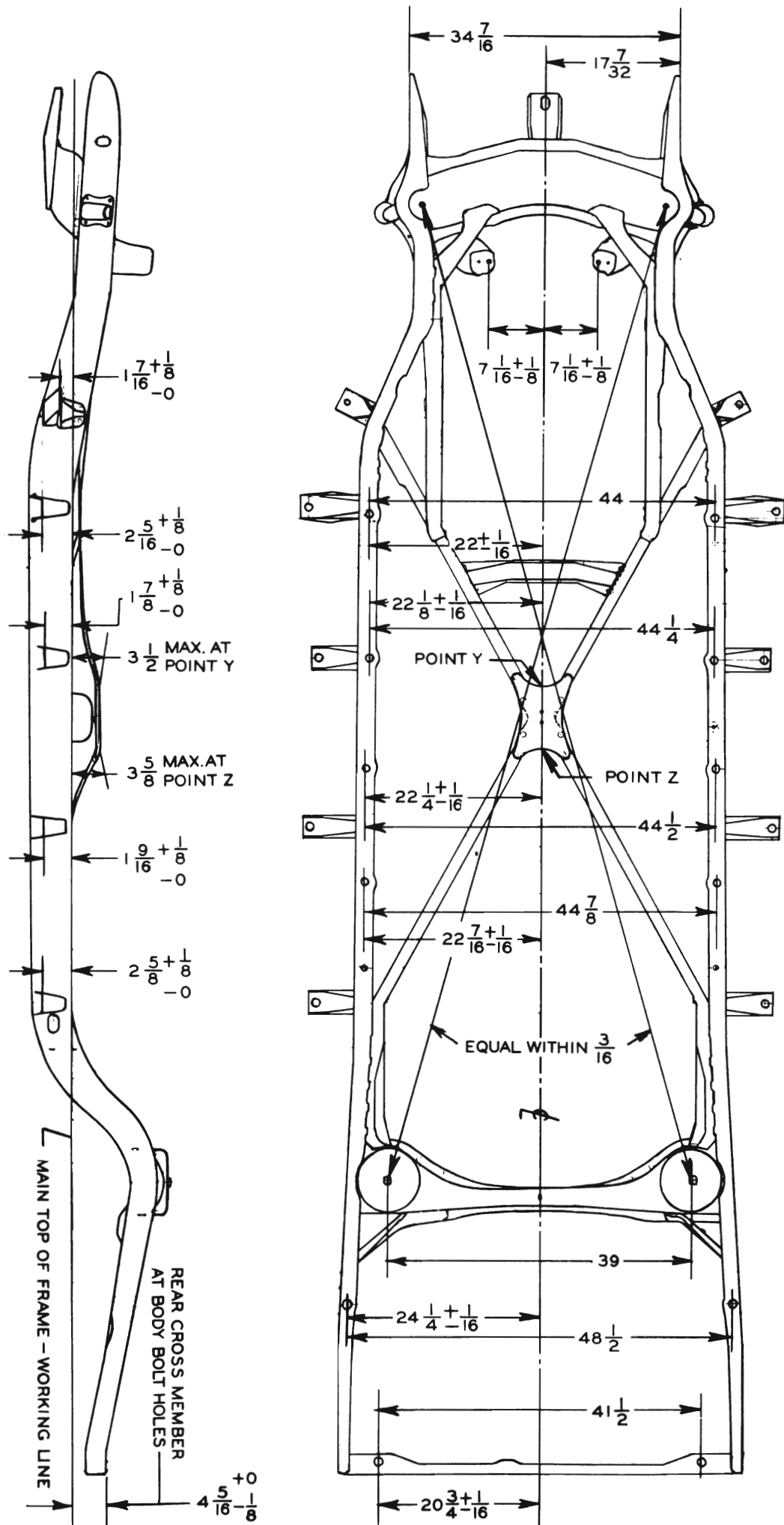
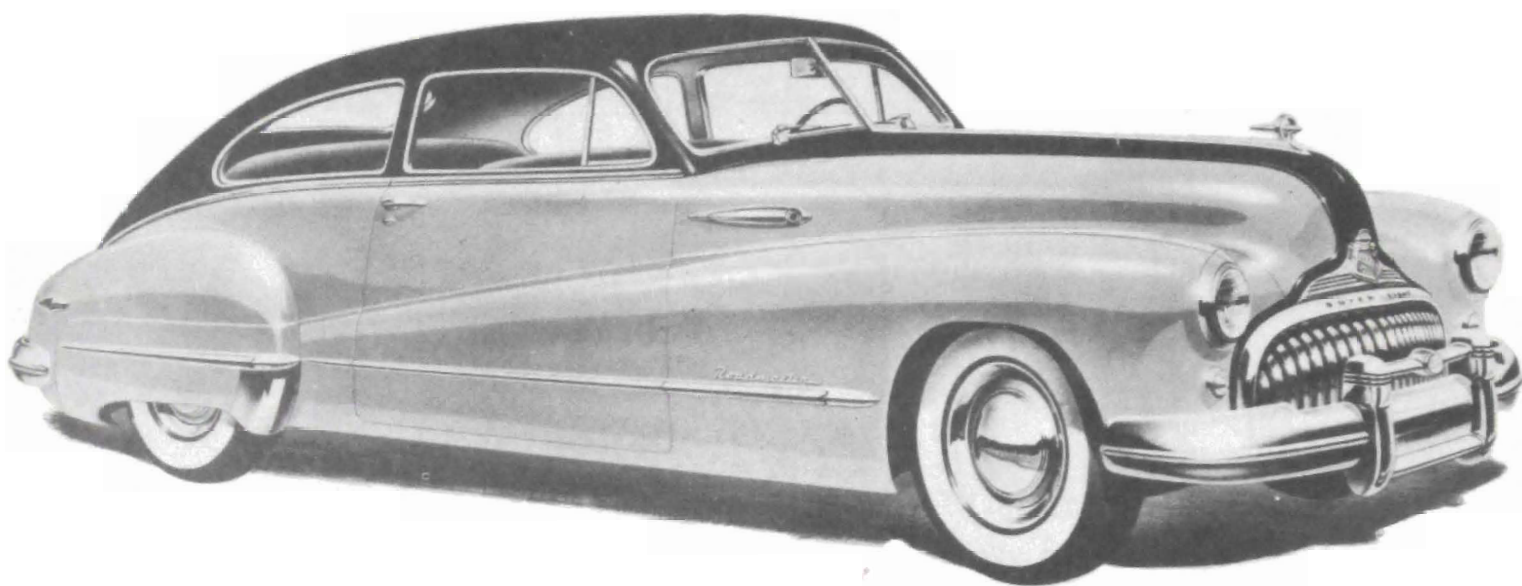
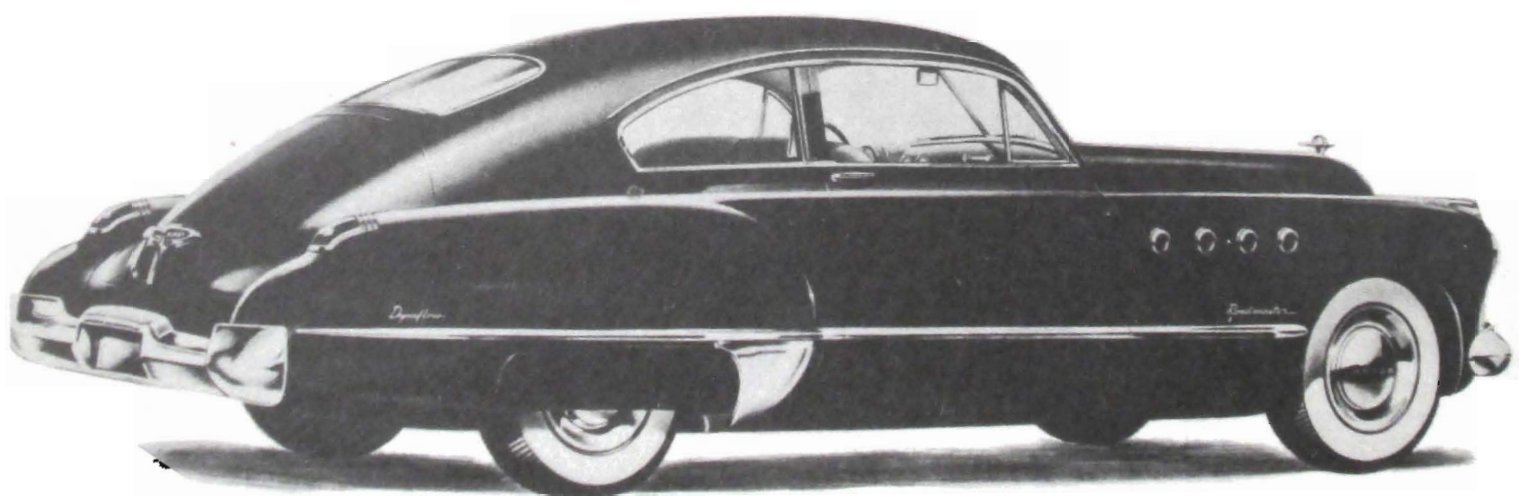


Figure 9-8—Frame Checking Dimensions—1949 Series 70



1948 Model 76-S



1949 Model 76-S