

CONTENTS

SUBJECT	PAGE	SUBJECT	PAGE
GENERAL DESCRIPTION	145	FRAME REPAIR	147
CHECKING FRAME ALIGNMENT	145	General	147
CHECKING FRONT SUSPENSION AND REAR AXLE ALIGNMENT.	146	Straightening the Frame	147
		Replacing Crossmembers	147
		Welding and Riveting.	147

GENERAL DESCRIPTION

The frame in the Henry J is of the channel and box type construction. It consists of two double drop side rails connected together by four major cross members. The fuel tank support and radiator support are also parts of the complete frame assembly. Speed nuts are provided at various locations on the upper surfaces of the frame for body mounting bolts.

The side rails are box type construction between number 1 and 3 crossmembers to provide necessary strength and rigidity with minimum weight.

The number 1 crossmember supports front suspension and engine front mounting brackets. It is welded and riveted to the frame side rails.

The number 2 crossmember supports the rear end of engine. It is attached to the side rails with six cap screws.

The number 3 crossmember is a U-channel that is welded and riveted to the side rails. The rear shock absorber upper support studs are mounted on this crossmember.

The rear (number 4) crossmember is riveted to

the side rails. It supports the rear end of fuel tank and the tail pipe hanger.

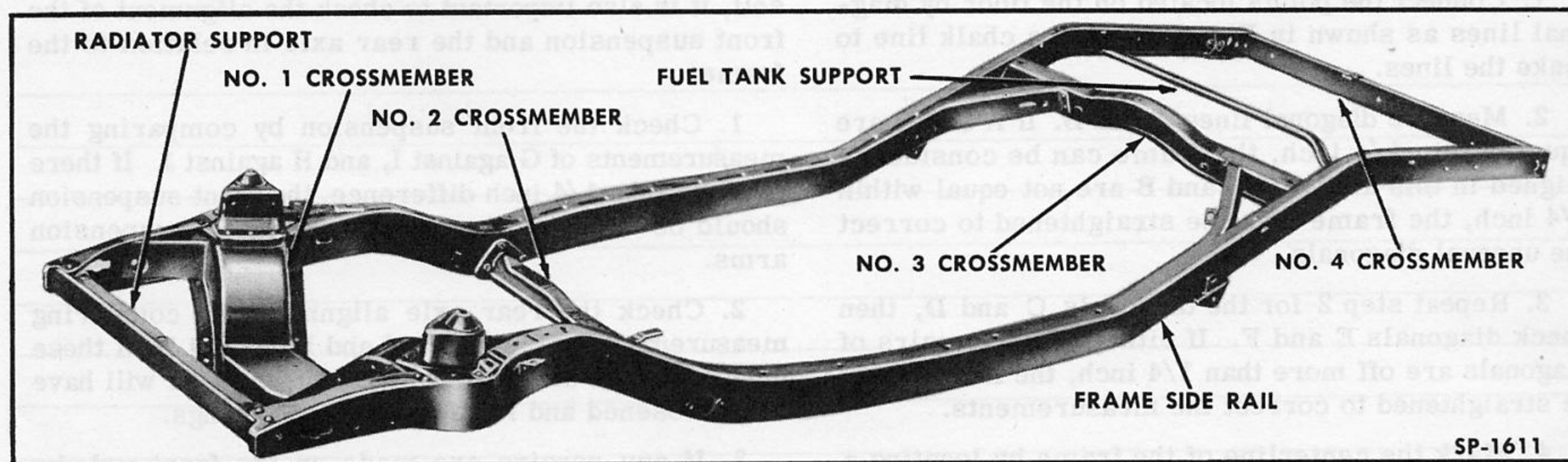
The radiator support is riveted to the side rails in front of the number 1 crossmember. The radiator cradle, front fenders and related parts are supported by this member.

The fuel tank support is riveted to the side rails to support the front end of fuel tank.

CHECKING FRAME ALIGNMENT

Vehicles which have been in a collision, upset, or in an accident of any kind which might result in a twisted or sprung frame should be fully checked for proper frame alignment as well as for alignment of the front suspension and the rear axle. Various diagonal measurements that may be taken to check frame and wheel alignment or squareness are shown in Fig. 223.

Other similar measurements not illustrated may also be used but measurements must be carefully taken from corresponding points on frame side rails or crossmembers. Diagonal measuring will determine



SP-1611

Fig. 222—Henry J Frame

HENRY J SHOP MANUAL

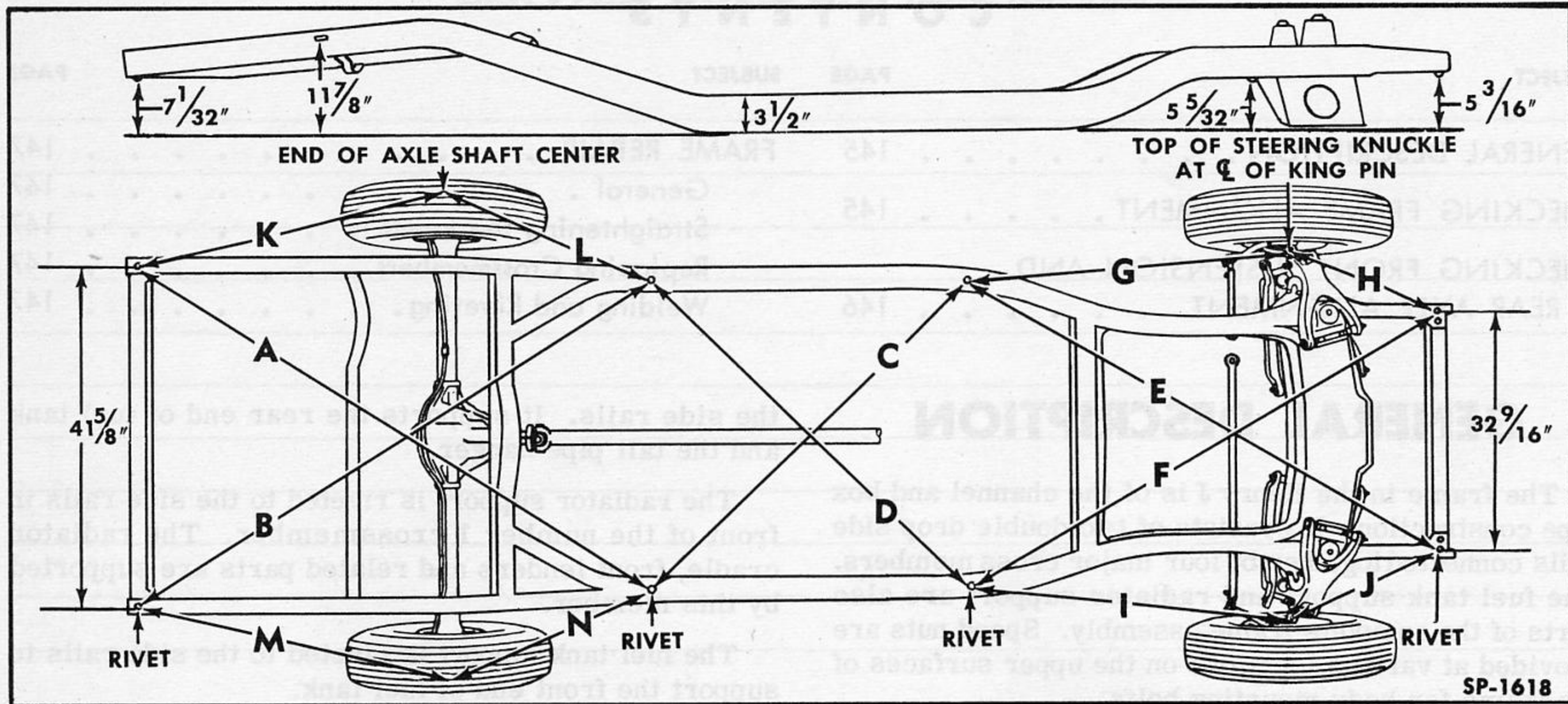


Fig. 223—Frame, Front Suspension and Rear Axle Alignment Diagram

which section, if any, of the frame is bent and where to straighten the frame to correct alignment. If the body has been removed the diagonal measurements can easily be taken with trammels or a steel tape.

Measurements can also be obtained without removing the body from the frame by using a plumb bob and chalk line. Suspend the plumb bob from each point on the frame from which a measurement is to be taken, marking each point on the floor under the point of the plumb bob. Accuracy of the checking depends upon the floor being level and how accurately the marks are located. After the points have been accurately marked on the floor, move the vehicle away from the floor layout and check as follows.

1. Connect the points located on the floor by diagonal lines as shown in Fig. 223. Use a chalk line to make the lines.

2. Measure diagonal lines A and B. If A and B are equal within 1/4 inch, the frame can be considered aligned in this area. If A and B are not equal within 1/4 inch, the frame must be straightened to correct the unequal diagonals.

3. Repeat step 2 for the diagonals C and D, then check diagonals E and F. If either of these pairs of diagonals are off more than 1/4 inch, the frame must be straightened to correct the measurements.

4. Mark the centerline of the frame by locating a chalk line across the intersection points of the diagonals. When the frame is aligned properly, all three

of the intersection points will be within 1/4 inch of the centerline.

Usually any damage to the frame, sufficient to buckle the side rails up or down, will be evident by visual inspection and it will not be necessary to check by measurements. If the side rails are buckled, the frame can be aligned by using the dimensions shown on the side view of the frame in Fig. 223.

CHECKING FRONT SUSPENSION AND REAR AXLE ALIGNMENT

In addition to checking alignment of the frame itself, it is also important to check the alignment of the front suspension and the rear axle in relation to the frame.

1. Check the front suspension by comparing the measurements of G against I, and H against J. If there is more than 1/4 inch difference, the front suspension should be further checked for damaged suspension arms.

2. Check the rear axle alignment by comparing measurements of K against M and L against N. If these measurements are over 1/4 inch off, the axle will have to be loosened and realigned on the springs.

3. If any repairs are made on the front end, be sure to check front wheel alignment as outlined in detail in Section 8, "Chassis Suspension."

FRAME REPAIR

GENERAL

When a vehicle has been in a collision where bending, twisting, or other distortion of the frame is severe, replacement of the complete frame assembly is recommended. This is, of course, a major operation requiring experienced shop personnel and adequate shop equipment. Replacement procedure will vary considerably depending on facilities and is, therefore, not given in detail in this manual. Where damage to the frame is less severe, straightening may be practical and is permissible. Damaged crossmembers can either be straightened or replaced as separate parts.

STRAIGHTENING THE FRAME

Use of heat is not recommended when straightening frames. Heat may weaken the structural characteristics of the metal; therefore, all straightening should be done cold. Frame members which show strains or cracks after straightening should be replaced or reinforced.

No established rules can be made on the necessity for, or the type and size of reinforcements to install on frame members. Replacement is usually more practical and satisfactory when damage is sufficient to require reinforcement of a part of the frame. Reinforcement is often impractical because of the position of existing crossmembers or units attached to the frame; therefore, it is necessary that the repairman use his best judgment to decide what should be done in each specific case. When reinforcing a member, reinforcement material should not exceed in thickness the part to be reinforced and should be of comparable strength.

REPLACING CROSSMEMBERS

Crossmembers which are bolted to frame side rails offer no replacement problem. Remove bolts and damaged crossmember and install the new one, bolting it in place.

Crossmembers welded and riveted to frame side rails are more difficult to replace. Welds must be cut loose using a chisel. Do not use a torch as the heat may weaken the frame side rail. Drill heads of rivets and then cut them off using a chisel. Drive out rivets after removing the heads. Drilling the heads of rivets first will facilitate their removal without distorting the holes in the frame.

Install new crossmember using hot rivets. In places where hot rivets cannot be installed, it is permissible to ream out the hole and install snug fitting finished bolts, nuts and flat washers. Draw up nuts tight and tack weld or peen the threads to prevent loosening. Weld crossmember to frame if original member was welded. Use only the shielded-arc welding method, welding the new member to the frame side rails as close to the manner in which the original crossmember was welded as possible.

WELDING AND RIVETING

The shielded-arc method of welding is recommended for all frame welding. Heat generated during welding is localized and burning of material is held to a minimum with this method. Also the finished weld can be ground, filed or drilled if necessary. Standard mild steel welding rod should be used.

When replacing crossmembers, use rivets the same size as those removed and install them in original holes. Round head rivets should be long enough to protrude twice the diameter of the rivet before riveting. Rivets should be installed hot.

SERVICE BULLETIN REFERENCE
