S E C T I O N 11

C H A S S I S F R A M E R E P A I R

CONTENTS

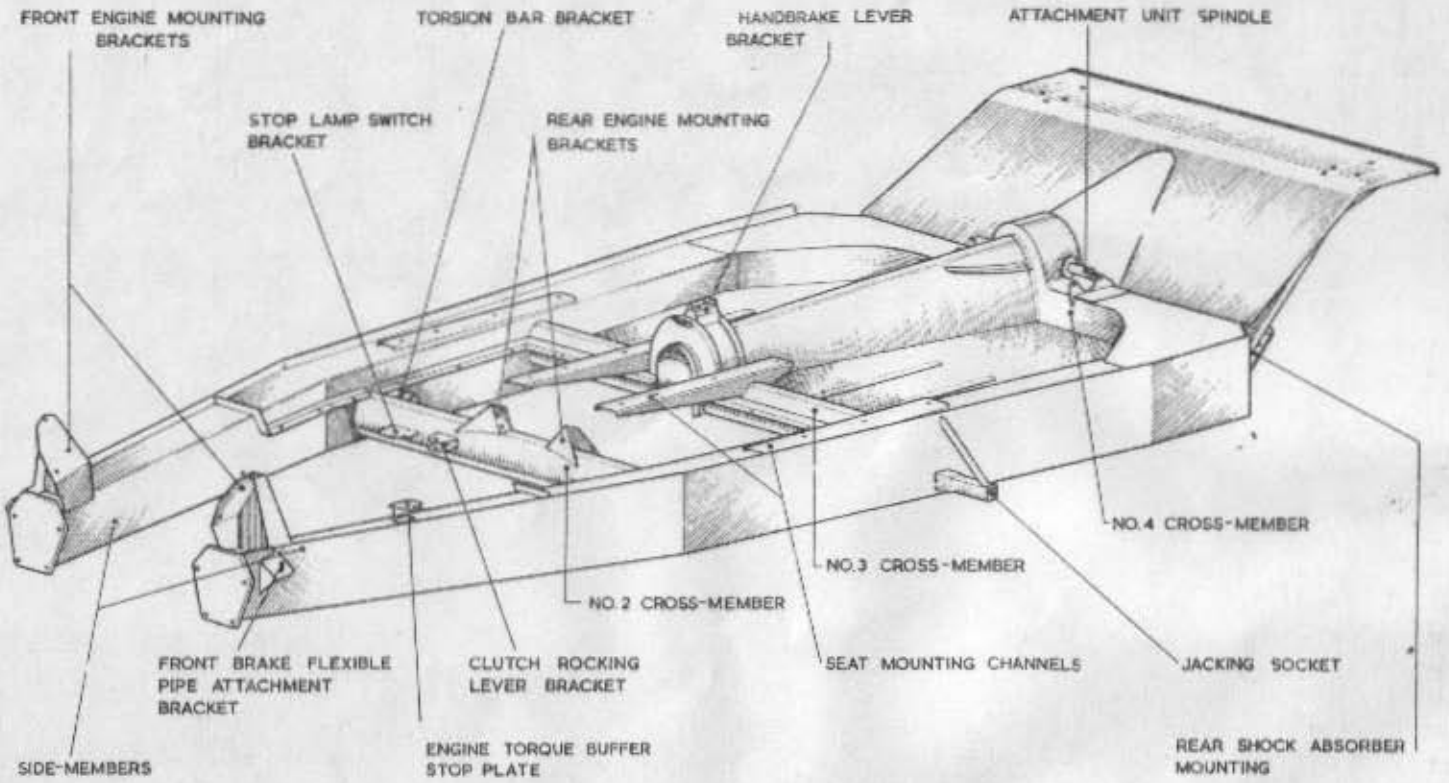

Fig. 1. Type 400 Chassis Frame.

CHASSIS FRAME REPAIR

GENERAL

Chassis frame repair, as covered by the repair scheme detailed subsequently, is confined to the portion of the chassis forward of No. 2 tubular cross-member. Damage to the rear of the car does not usually cause distortion or damage to the chassis frame, the extensions to the rear of the frame being the only parts affected. These parts are readily repairable by normal methods. If damage or distortion to the side of the chassis frame (to the rear of No. 2 cross-member) has occurred, the chassis frame should either be replaced by a new chassis frame or returned to the car manufacturer for possible rectification; it is not recommended that any attempt should be made to correct such damage, as the use of special alignment jigs is necessary to produce a satisfactory repair.

PREPARATION FOR, AND ALIGNMENT CHECK

Remove the engine, radiator and gearbox as detailed in Sections 1, 2 and 5, then jack up the car and support it on chassis stands or firm blocks. The remainder of the dismantling necessary is dependant upon the extent of the damage, that is, whether the front only should be dismantled, or the whole of the rear and the interior, thus exposing the whole of the top surface of the chassis frame.

When the required amount of dismantling has been completed, level the chassis frame as accurately as possible by the use of a spirit level and by adjusting the height of the stands or blocks. The most suitable positions at which the spirit level should be used are the top face of the side-members rear of No.2 cross-member (forward of this cross-member the side-member is tapered), and on

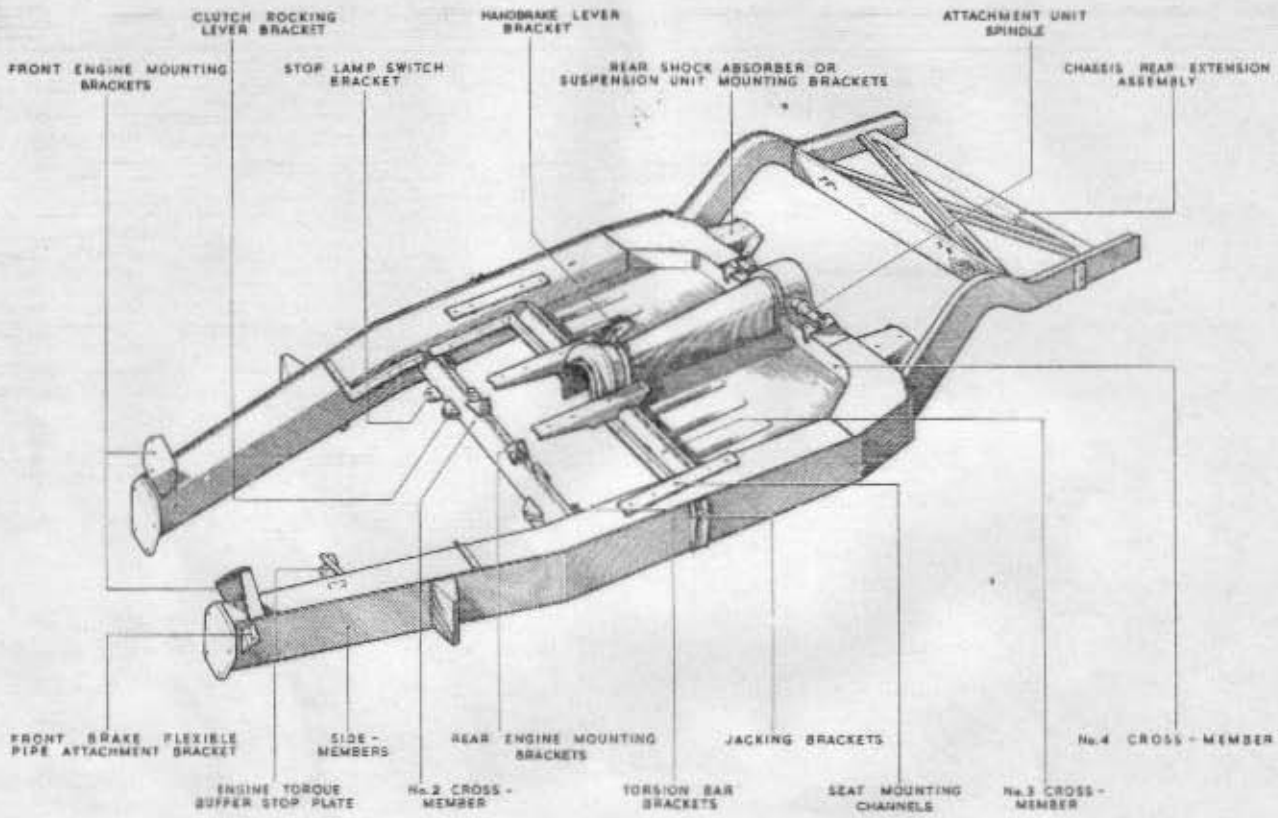

Fig. 2. Type 401 Chassis Frame.

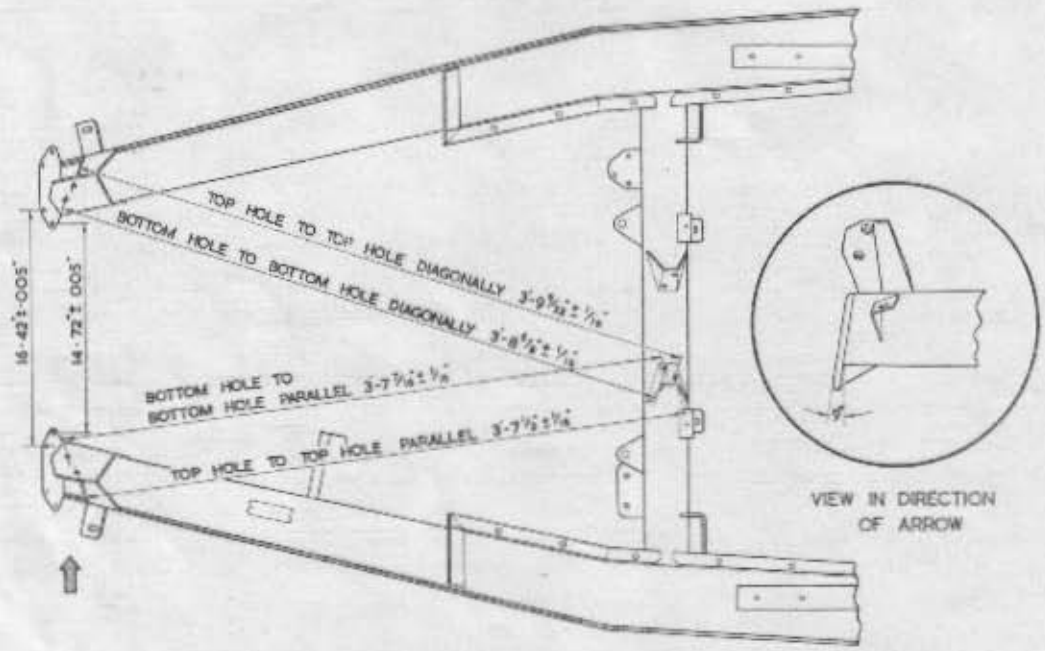

Fig. 3. Chassis alignment checks.

the top faces of the cross-members. If it has been necessary to remove the rear shock absorber or suspension units, a lateral check may be made with a straight-edge and spirit level mounted across the faces of the shock absorber or mounting unit brackets.

When the chassis frame has been "levelled" satisfactorily, the following alignment checks should be made. Using a straight-edge across the faces, check that the No. 1 cross-member attachment plates are in line, then check that each attachment plate is at an angle of 9° to the chassis datum line. Where possible, check the rear engine mounting brackets with the rear shock absorber or suspension brackets, using trammels and the top hole of each part. The distances should be equal on both sides. Finally check the front and rear engine mounting brackets with trammels; the dimensions obtained should be in accordance with those quoted in Fig. 3. A summary of these checks added to the result of a visual examination of the damage will indicate whether the chassis may be repaired in accordance with the repair scheme, i.e. frontal damage and distortion only, or whether replacement or return to the car manufacturers is necessary.

REPAIR SCHEME

The chassis repair scheme is illustrated in Fig. 4. Replacement portions of the side-members can be supplied in 18 inch or 40 inch lengths, each portion being complete with the front attachment plates, engine mounting brackets etc. The only work necessary, therefore, is to cut the part to the exact length required for the repair and weld it into position as described and illustrated.

On all types of cars, accessibility will be improved if the side valance(s) is removed. If the car is a type 401 or 402, it may be necessary to detach the

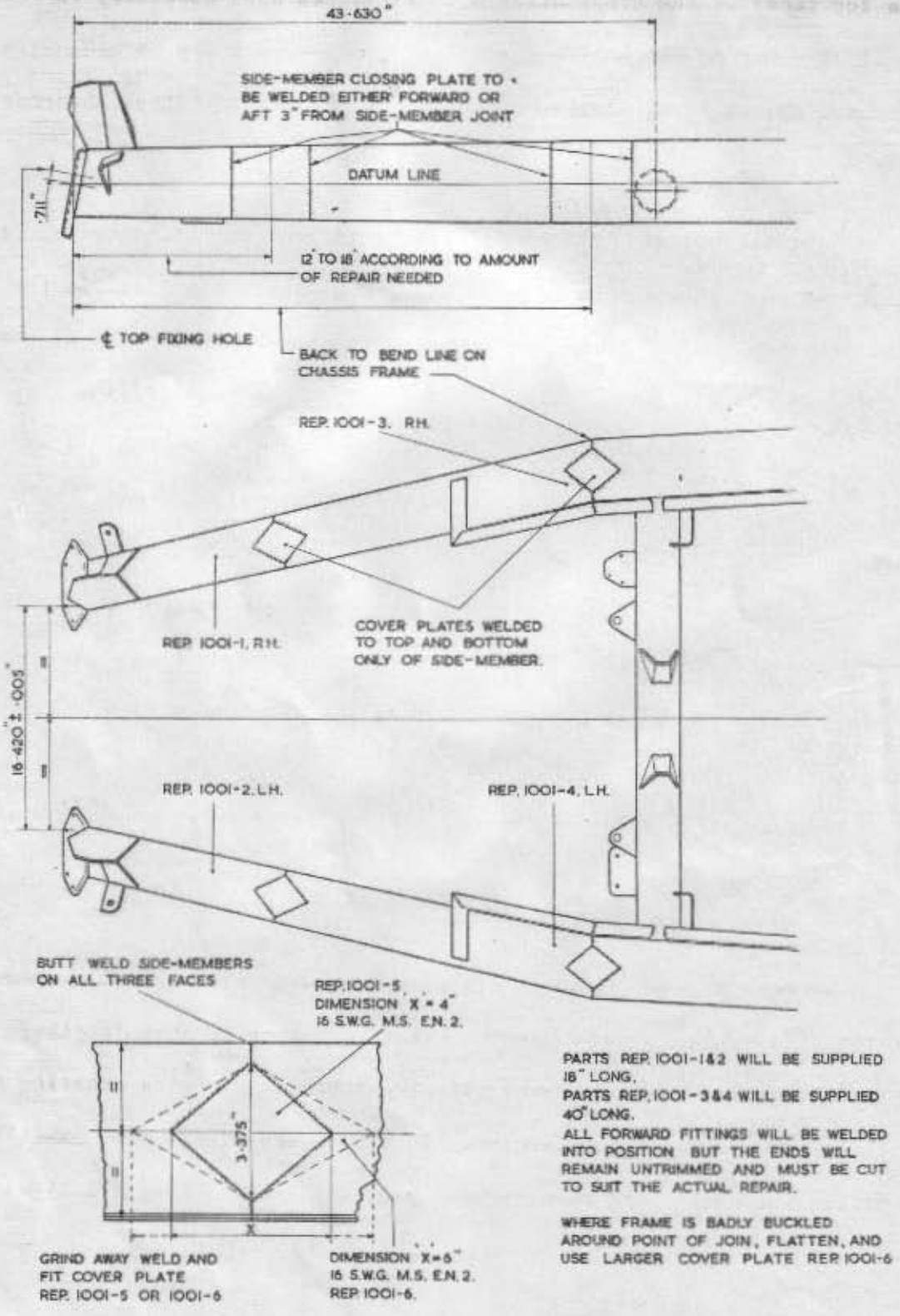

Fig. 4. Chassis repair scheme.

bumper support tubes and scuttle support outriggers.

Examine the chassis side-member at the point at which the joint is to be made and, if necessary, flatten any buckling which may have taken place. If buckling has occurred, the cover plates which are to be welded to the upper and lower surfaces of the joint must be large enough to exceed the buckled area by at least one inch; the cover plate REP.1001-6 will be large enough in most instances but, if necessary, a larger plate should be made. The side-member closing plate should be cut, either to permit a 3 inch extension of the plate into the new part of the side-member, or to allow a similar extension of the new part into the old part of the chassis side-member.

Cut the replacement portion(s) to the required length, leaving this slightly full to allow for final trimming after preliminary checks have been made. The portion(s) must next be secured to the No. 1 cross-member to control the front faces and attachment points. If one side only is being repaired, the cross-member should be secured to the existing (serviceable) side-member and to the replacement portion, but if both sides are being repaired, then both portions must be secured to the cross-member and then offered up to the chassis.

With the new parts supported in a suitable manner, carry out the alignment checks etc. illustrated in Fig. 3. When all dimensions and the 9° angle of the front attachment plates are satisfactory, secure the new portion(s) to the existing side-members with a few tack-welds at the joints. Repeat the alignment checks after the tack-welding and, if satisfactory, butt-weld the parts on the three sides of the side-member channel-section.

Warning :- Only arc welding may be used on the chassis frame; the use of a welding flame will cause distortion.

The side-member closing plate should next be welded to the side-member, the joint being positioned 3 inches forward or to the rear of the main joint. Mark out the position on the joint to be occupied by the two cover plates and grind away all excess weld metal inside the markings to produce a flat surface to receive the plates; weld the cover plates into position.

Remove the No.1 cross-member, then repeat the alignment and 9° angle checks; slight springing of the side-members may occur when the cross-member is removed, but this may be accepted if not excessive. Where necessary on type 401 and 402 cars, re-weld the bumper support tubes and scuttle support outriggers in position on the side-members, then treat the repaired portion of the chassis with chassis black paint.