

# CITROEN

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## REPAIR MANUAL FOR BODYWORK

### FRONT WHEEL DRIVE MODELS

#### *ENGLISH MODELS*

#### *FRENCH DESIGNATION*

Light Fifteen \_\_\_\_\_ II Legere. BL

Big Fifteen \_\_\_\_\_ II Normale. B

Fifteen Seven-seater \_\_\_\_\_ II Familiale. BF

Six \_\_\_\_\_ 15 Six

TEXT

FOREWORD

The contents of this Repair Manual refer to Citroen cars built in France. British made Citroens incorporate a few dissimilarities from the French models and, except in very few cases, these are not dealt with in this Manual. It must however be noted that the overwhelming majority of the contents of the Manual apply equally to British and French made Citroens.

MODELS

In view of the difference between British and French designations, the table below gives an outline of the equivalent British and French symbols applicable to various models.

FRENCH DESIGNATION	CHARACTERISTICS	BRITISH FACTORY SYMBOL RELATING TO YEAR OF MANUFACTURE	BRITISH COMMERCIAL DESIGNATION	R.A.C. RATING
11 Legere (BL)	Engine 78 x 100, 4 cylinders Track 1.374 metres	11CL6 (1946/48) 11CL8 (1949/51)	"Light Fifteen"	15.08
11 Normale (B)	Engine 78 x 100, 4 cylinders Track 1.494 metres	See note	"Big Fifteen"	15.08
11 Familiale (BF)	Engine 78 x 100, 4 cylinders Track 1.494 metres	See note	"15 Seven-seater"	15.08
15-SIX	Engine 78 x 100, 4 cylinders Track 1.494 metres	15C-9 (1948/51)	"Six"	22.6

NOTE. Although this Manual refers primarily to post-war models the greater part of the information is applicable to Front Wheel Drive Citroens produced from 1934 to 1940. The "Twelve" (French designation "7"), "Big Fifteen" and "15 Seven-seater" referred to in the table have not been manufactured in England from 1940 to date of publication.



## USE OF REPAIR MANUAL

### I SEQUENCE OF OPERATIONS

1. Body Panels (Operation number preceded by letter T).  
The operations described are intended for bodies from which the trimming has been removed. The Manual deals only with standard replacement body panel units as supplied by our Spare Parts Department. For this reason it is important to pay strict regard to the positions indicated in the Manual where the body may be cut. The work involved in removing dents in panelling requires individual treatment according to the extent of the damage. This has not been dealt with.
2. Hardware (Operation number preceded by letter F).  
Only the principal operations requiring special precautions have been described. These for example are correct door hanging, the fit of rear luggage compartment door, or fit of windscreen.
3. Trimming (Operation number preceded by letter S).  
This section is limited to the repair of the "softened" type rear seat cushion and squab. A coach trimmer should be able to carry out the remainder of the repairs without special instruction.
4. Paint. (Operation number preceded by letter P).  
Painting and sound-deadening operations are dealt with in this section.

### II EQUIPMENT

Page 41 shows tools, hammers and dollies that are necessary for panel work. These can be supplied. Operations to the body panelling can only be readily carried out with accuracy by using the body fixture. Although machine precision is not called for, the tolerances of the chassis unit mounting points in the body are rather fine. Only the templates of the body fixture, used during repair, will ensure maintaining of the original body dimensions.

Sheets 40 and 42 show jacks and fittings necessary for use on the body fixture during repairs.

For handling bodies we strongly advise the use of lifting gear catalogued under number 2641-T. This can be supplied.

Open welded joints with a chisel. For cutting through panels we recommend using the special tool catalogued under number 2670-T. This can be supplied. This tool is much better than a hacksaw or circular saw for cutting. Tinning or building up welded seams with solder is facilitated by using a wood spatula, number 2669-T. This can also be supplied.

All enquiries should be made to our Service Department.



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SOME ADVICE ON WELDING

GAS WELDING

We remind you of the blowpipe jet sizes which must be used when welding thin steel sheets.

Sheet thickness: 0.8 mm.	Jet calibration: 40 l.	Welding wire diameter: 1 mm.
1.0 mm.	100 l.	2 mm.
1.5 mm.	150 l.	2 mm.
2.0 mm.	225 l.	3 mm.
2.5 mm.	225 l.	3 mm.

APPLICATION OF TIN OR SOLDER

This is readily applied to obtain a perfectly smooth surface after gas welding or removing panel dents.

Proceed as follows;

1. Clean and rub down the area to be filled with a sander or abrasive disc.
2. Coat the part to be tinned with a tinning paste. Spread the paste with a cloth soaked in tallow.
3. Tin the panel. Use a solder consisting of 27% tin (this melts at 231° C.) and spread it by rubbing hard with a rag.

NOTE: The following method is equally successful.

Make up one litre (1 $\frac{1}{4}$  pints) of mixture with: 250 grammes (9 ounces approx.) of zinc chloride.  
100 grammes (3 $\frac{1}{2}$  ounces approx.) of ammonium chloride.  
200 c.c. (12.2 cu. ins. approx.) of methylated spirit.  
Sufficient water to make up total of one litre (1 $\frac{1}{4}$  pints).

To this add 400 grammes (14 ounces approx.) of pure tin powder.

After rubbing down the panel, brush on a coating of this paste. This mixture cleans and tins the panel at the same time. Heat the area treated with a gas blowpipe and rub hard with a rag.

4. Deposit solder. (Use alloy of 18% tin and 82% lead in stick form. This alloy melts at 280°C.) Heat with a blow pipe fitted with a 75 l. jet. Adjust burner to give a "white" flame, that is to say using a slight excess of acetylene. Spread the solder by using a wood spatula (supplied under number 2669-T).
5. Dress surface with a file of the "SILEXA" type. Finish surface with emery cloth. (Do not use an abrasive discing machine as solder dust is very dangerous to the operator.



NOTE: When handling or lifting the body care must be taken against damage and the tackle used must be perfectly safe for the operation.

- 1 Bring the body near the fixture.
- 2 Place the lifting frame in position (use frame 2641-T, see Drawing 4).
- 3 Bring the body over the fixture (see Operation T02 for placing body in fixture and then checking).

After repair:

- 4 Place the lifting frame in position (use frame 2641-T, see Drawing 4).
- 5 Use block and tackle to lift the body clear of the fixture.
- 6 Place the body on a suitable workshop chariot.
- 7 Remove the lifting frame.



The body is suspended from lifting tackle as indicated in Operation T01.

1 FIX THE BODY ON THE REAR SUPPORTS.

Lower the body to the fixture (use fixture 2600-T, see Drawing 4, fig. 2), letting the rear rest on supports (39 and 40) if the rear crossmember has not been removed (see Drawing 7), or on supports (44) in cases where the crossmember has been removed (see Drawing 8).

NOTE Position the supports (39, 40, 44) on the fixture according to the vehicle type (see Drawing 3).

Fit the plain pins (18) in cases where the rear axle is one of the early type, or the threaded pins if the axle is one of the present type (see Drawing 8).

2 FIX THE BODY ON THE INTERMEDIATE SUPPORTS (see Drawing 11).

Fit brackets (53) to the hull in the position where the front torsion bar crossmember is mounted. Fit pins with offset heads (16) in supports (54) (positioned on fixture according to the vehicle type, see Drawing 6) and in brackets (53).

3 Check the clearance between the front face of the brackets (53) and the rear face of the brackets (54). This clearance must be equal on both right and left hand sides. It must be in the neighbourhood of 5 mm.

4 Take out the lifting frame 2341-T.

5 Offer up the front bracket (45) on the front axle mounting studs. It must be possible to move the bracket freely along the whole length of the studs which must on the other hand lie in the centre of the holes in bracket (45). Check this by placing on each pin bushes (28) for four cylinder models and bushes (28 and 42) for the "SIX". These bushes must fit freely in the holes in the bracket when it is bearing against the forward faces of the hull front ends (see Drawing 11).

6 CHECK THE PERPENDICULARITY OF THE FORWARD FACES OF THE HULL FRONT ENDS (FRONT AXLE CRADLE MOUNTING).

Push the bracket (45) against the forward faces of the hull front ends. In this position the bracket must bear against all four bushes that retain the front axle mounting studs.

7 CHECK THE LENGTH OF THE HULL FRONT ENDS

With bracket (45) bearing against the forward faces of the hull front end, its lower portion, must engage an equal amount with the slides (20 and 21) (see Drawing 9), the blocks (56) being removed.

8 CHECK POSITION OF STEERING BRACKETS ON HULL (see Drawing 11).

Mount supports (6) on the fixture base. (Supports positioned according to vehicle type, see Drawing 6).

Make sure that the lower faces of the steering brackets are parallel to supports (6) and are 14.4 mm. above the support upper faces. Check by using packing block (33).

Check the position of the holes in the steering brackets by means of pins (34) which must locate freely in the holes in the brackets on the hull and in the holes in the supports.



- 9 FIX BODY ON FRONT BRACKET (for carrying out work on body) (see Drawing 9).  
Place the blocks (56) on the fixture. Bring the bracket (45) in contact with the blocks (56). Tighten the bracket (45) by its three bolts.  
Fit in place the four distance pieces (11) on the mounting studs. The distance pieces must drop in without end play.  
Tighten the four nuts (52) for fixing bracket to mounting studs.  
NOTE Two nuts (52) have offset tommy bars to prevent fouling with bars of other two nuts during tightening.
- 10 After carrying out necessary work free bracket (45) from the fixture.  
Make a fresh check of the points indicated in paragraphs 5-6-7-8.
- 11 Remove body from the fixture (use lifting frame 2641-T).

REMOVING PART (see Drawing 12).

- 1 Cut through the panel on a line 30 mm. below the waist rail (a-b as shown).
- 2 Cut through the door sill (c-d as shown).
- 3 Cut the front of the side panel front extension (e-f as shown).
- 4 Open welded seam (g) along hull closing panels.
- 5 Open welded seam (h) under side panel extension.
- 6 Open welded seam (i) along door pillar.

FITTING PART

- 7 Offer up part, fit it to the hull and along door pillar. Tack weld at a few points to keep part in position.
- 8 Weld across door sill (c-d as shown).
- 9 Weld joint just below waist rail (a-b as shown).
- 10 Weld seam (g) along hull closing panels.
- 11 Weld seam (h) under side panel extension.
- 12 Weld at points (about 40 mm. apart) along door pillar (i as shown).
- 13 Weld at front of side panel front extension (e-f as shown).
- 14 Grind, file, and polish welding carried out according to paragraphs 8 and 9. If necessary finish these surfaces by application of solder.



## REMOVING PART (see Drawing 13).

- 1 Cut through panel across windscreen pillar (a-b as shown).
- 2 Cut through scuttle panel (c-d as shown).
- 3 Cut through panel across door sill (e-f as shown).
- 4 Open welded seam (g) along hull closing panels.
- 5 Open welded seam (h) under side panel extension and along sidepanel.
- 6 Open welded seam (i) around door opening.
- 7 Cut the side panel extension near forward point of the hull front end (j-k as shown).
- 8 Open welded seam along instrument panel (c-l as shown).

## FITTING PART

- 9 Offer up part and fit it to the hull using the door and windscreen to determine the correct position. Fix part by tack welding at a few points.
- 10 Weld part across door sill (e-f as shown), to the scuttle panel (c-d as shown) and across windscreen pillar (a-b as shown).
- 11 Weld edge (g) along hull closing panels, lower edge (h) along side panel side, and edge (i) around door opening.
- 12 Weld front edge of extension to forward point of the hull front end (j-k as shown).
- 13 Weld to instrument panel and windscreen opening corner (c-l as shown).
- 14 Grind, file, and polish the welding carried out under paragraph 10. If necessary finish these surfaces by application of solder.

## REMOVING PART (see Drawing 14)

- 1 Using a blowpipe, remove solder from the front corner seam between roof panel and side panel (a-b as shown).
- 2 Open front corner seam between roof and side panel (a-b as shown).
- 3 Open seam at end of front roof inside panel.
- 4 Open seam of drip moulding (c).
- 5 Cut panel across roof side rail (b-d as shown) and across roof front panel (a-c as shown). Cut across scuttle panel (f-g as shown), side panel across door sill (h-i as shown), and the extension near the forward point of the hull front end (j-k as shown).
- 6 Open seam (l) along hull closing panels, seam (m) under side panel and extension, seam (n) around door opening, and junction point (o) of instrument panel.

## FITTING PART

- 7 Offer up part. Fit door and windscreen in order to determine the correct openings for these items. Position part and secure by tack welding.
- 8 Weld panel across roof side rail (b-d as shown) and across front roof panel (a-e as shown). Weld across door sill (h-i) and across scuttle panel (f-g as shown).
- 9 Weld panel edge (l) to hull closing panels, panel edge (m) under side panel and extension, and the edge (n) around door opening.
- 10 Weld the extension to the forward point of the hull front end (j-k as shown).
- 11 Offer up and weld the front roof inside panel.
- 12 Rivet roof panel to the body between points (a-b.) Use rivets 3 mm. diameter (see Drawing 27, fig. 2).
- 13 Drill holes 6 mm. diameter, and spaced at approximately 40 mm., in the drip moulding. Offer up the moulding (c) and fix by plug-welding in the holes drilled.
- 14 Weld the instrument panel (o as shown).
- 15 Grind, file, and polish the welding carried out according to paragraph 8.



## REMOVING PART (see Drawing 13).

- 1 Cut through panel across windscreen pillar (a-b as shown).
- 2 Cut through scuttle panel (c-d as shown).
- 3 Cut through panel across door sill (e-f as shown).
- 4 Open welded seam (g) along hull closing panels.
- 5 Open welded seam (h) under side panel extension and along side panel.
- 6 Open welded seam (i) around door opening.
- 7 Cut the side panel extension near forward point of the hull front end (j-k as shown).
- 8 Open welded seam along instrument panel (c-l as shown).

## FITTING PART

- 9 Offer up part and fit it to the hull using the door and windscreen to determine the correct position. Fix part by tack welding at a few points.
- 10 Weld part across door sill (e-f as shown), to the scuttle panel (c-d as shown) and across windscreen pillar (a-b as shown).
- 11 Weld edge (g) along hull closing panels, lower edge (h) along side panel side, and edge (i) around door opening.
- 12 Weld front edge of extension to forward point of the hull front end (j-k as shown).
- 13 Weld to instrument panel and windscreen opening corner (c-l as shown).
- 14 Grind, file, and polish the welding carried out under paragraph 10. If necessary finish these surfaces by application of solder.

## REMOVING PART (see Drawing 14)

- 1 Using a blowpipe, remove solder from the front corner seam between roof panel and side panel (a-b as shown).
- 2 Open front corner seam between roof and side panel (a-b as shown).
- 3 Open seam at end of front roof inside panel.
- 4 Open seam of drip moulding (c).
- 5 Cut panel across roof side rail (b-d as shown) and across roof front panel (a-c as shown). Cut across scuttle panel (f-g as shown), side panel across door sill (h-i as shown), and the extension near the forward point of the hull front end (j-k as shown).
- 6 Open seam (l) along hull closing panels, seam (m) under side panel and extension, seam (n) around door opening, and junction point (o) of instrument panel.

## FITTING PART

- 7 Offer up part. Fit door and windscreen in order to determine the correct openings for these items. Position part and secure by tack welding.
- 8 Weld panel across roof side rail (b-d as shown) and across front roof panel (a-e as shown). Weld across door sill (h-i) and across scuttle panel (f-g as shown).
- 9 Weld panel edge (l) to hull closing panels, panel edge (m) under side panel and extension, and the edge (n) around door opening.
- 10 Weld the extension to the forward point of the hull front end (j-k as shown).
- 11 Offer up and weld the front roof inside panel.
- 12 Rivet roof panel to the body between points (a-b.) Use rivets 3 mm. diameter (see Drawing 27, fig. 2).
- 13 Drill holes 6 mm. diameter, and spaced at approximately 40 mm., in the drip moulding. Offer up the moulding (c) and fix by plug-welding in the holes drilled.
- 14 Weld the instrument panel (o as shown).
- 15 Grind, file, and polish the welding carried out according to paragraph 8.



- 16 Solder up the joints between roof panel and body (a-b as shown). Smooth off and polish.

## REMOVING PART (see Drawing 15).

- 1 Using a blow pipe, remove solder from the front corner seam between roof panel and body (a-b as shown). Open the seam in this area.
- 2 Open seam at end of front roof inside panel.
- 3 Open seam of drip moulding (c).
- 4 Cut across front roof panel (a-e as shown). Cut scuttle panel (f-g as shown) and across rear door sill (h-i as shown).
- 5 Cut the side panel extension near the forward point of the hull front end (j-k as shown).
- 6 Open seam (l) along hull closing panels, lower seam (m) under extension and side panel, seam (n) round front and rear door openings, and also seam (o) of instrument panel. Cut panel across roof side rail (b-d as shown).

## FITTING PART

- 7 Offer up part. Fit front and rear doors, and windscreen in order to determine the correct openings for these items. Position part and secure by tack welding.
- 8 Weld panel across roof side rail (b-d as shown), across scuttle panel (f-g as shown), across front roof panel (a-e as shown), and across rear door sill (h-i as shown).
- 9 Weld edge (l) along hull closing panels, lower edge (m) under extension and side panel, edges (n) around front and rear door openings, and instrument panel seam (o). Weld side panel extension at forward point of hull front end (j-k as shown).
- 10 Offer up and weld front roof inside panel.
- 11 Rivet roof panel to body (a-b as shown). Use rivets 3 mm. diameter (see Drawing 27, fig. 2).
- 12 Drill holes 6 mm. diameter, and spaced at approximately 40 mm., in the drip moulding. Offer up moulding (c) and fix by plug-welding in the holes drilled.
- 13 Grind, file, and polish the welding carried out according to paragraph 8. If necessary fill seams by applying solder.
- 14 Solder up joint between roof panel and body (a-b as shown). Smooth off and polish.



## REMOVING PART (see Drawing 16)

NOTE This operation can only be undertaken after either one of the following operations have been carried out. T03, T04, T05, T06, or T29.

- 1 Open seam (a) along hull closing panels and seam (b) between underside of hull front end and floor. Open the seams of the scuttle lining panel or shelf, and hull front end closing panel where these parts are spotwelded to the sidemember.
- 2 Cut the sidemember near the forward point of the hull front end (c-d as shown). Cut across the sidemember under the scuttle panel moulding (e-f as shown). Cut the front sidemember at a point level with the front end of the rear sidemember (g-h as shown).

IMPORTANT NOTE To prevent weakening of the hull, cuts (e-f) and (g-h) must not be made at points opposite to those in the side panel and extension.

## FITTING PART

- 3 Flatten surfaces of opened spot welded seams.
- 4 Offer up and align sidemember. Fix part by tack welding on seams (a) and (b).
- 5 Weld up rear end of front sidemember (g-h as shown) and joint under scuttle panel moulding (e-f as shown). Weld the scuttle lining panel or shelf and the hull front end closing panel to the sidemember.

NOTE Weld sidemember to hull along line (c-d) after fitting side panel extension.

## REMOVING PART (see Drawing 17)

NOTE This operation can be carried out after operation T07.

- 1 Open seam between hull front end and closing panel (a-b as shown).
- 2 Open vertical seam between hull front end and bulkhead panel (a-c as shown).
- 3 Open seam between hull front end and floor (c-d as shown).
- 4 Remove part.

## FITTING PART

- 5 Trim and line up joint faces of scuttle and floor.
- 6 Offer up front end and fix it in position on front bracket (45) and support (6) of body fixture. Fix bracket (53) on front end and hull. Using pin (16) fix bracket (53) on support (54) (see Drawing 11). Correctly locate part and tack weld in position.
- 7 Weld hull front end to floor (c-d as shown), to bulkhead panel (a-c as shown), and to closing panel (a-b as shown).



## REMOVING A STUD (see Drawing 18).

- 1 Cut the extension (a-b as shown) at a point approximately 300 mm. from forward point (c) of hull front end.
- 2 Cut the extension near the forward point of the hull front end (c-d as shown). Remove part.
- 3 Open top seam (c-a as shown).
- 4 Open lower seam (d-b as shown).
- 5 Open seams and cut sidemember (c-f-e-d-c as shown). Remove part.
- 6 Grind and chisel away welding (g) fixing stud to retaining plate, to distance piece, and to rear closing panel. Knock out the stud.

## FITTING A STUD

- 7 Offer up the stud into hull front end. Fix stud by welding at points (g).
- 8 Trim and line up joint faces on front end and panels.
- 9 Offer up and weld sidemember (c-f, f-e, c-d as shown).
- 10 Offer up, fit and fix extension by tack welding.
- 11 Weld seam (a-b). Weld seams (c-f and d-b as shown) and extension at forward point of hull front end (c-d as shown).
- 12 Grind and finish welded seam (a-b).

## REMOVING PART (see Drawing 19)

- 1 Remove extensions and lower parts of side panels both right and left hand (see Operation T03).
- 2 Remove right and left hand front sidemembers (see Operation T07).
- 3 Open seam (a) of scuttle panel and seam (b) along floor.
- 4 Remove part.

## FITTING PART

- 5 Trim and line up joint seams of scuttle panel and floor.
- 6 Fix brackets (53) to hull front (see Drawing 11). Offer up hull front assembly, fit and fix on front bracket (45) of fixture and on supports (54). Fix assembly to body by tack welds.
- 7 Weld scuttle seam (a) and floor seams (b).
- 8 Offer up and fit right and left hand front sidemembers (see Operation T07).
- 9 Offer up and fit extensions and lower parts of both right and left hand side panels (see Operation T03).



## REMOVING PART (see Drawing 20)

- 1 Cut through windscreen pillars (a-b as shown).
- 2 Cut through side panels across door sills (c-d as shown).
- 3 Cut through sidemembers (e-f as shown). (To do this it is necessary to cut also the side panels (e-f as shown). Remove the side panel portions (e-c-d-f as shown).
- 4 Open the seams (g) between floor and hull front end. Chisel open seams (h) as far as points (f).
- 5 Remove part.

## FITTING PART

- 6 Trim and line up front floor and seams (g).
- 7 Fix brackets (53) on hull front assembly. Fit the front doors and the windscreen. Offer up and fit hull front assembly. Fix assembly on body fixture front bracket (45) and on supports (54) (see Drawing 11). Adjust openings round door and windscreen. Weld part to floor (seams g as shown).
- 8 Offer up and fit right and left hand front sidemembers and fix by tack welds along seams (h). Weld sidemembers (e-f as shown).
- 9 Weld scuttle lining panel and hull front end closing panels (along lines i as shown).
- 10 Offer up, fit and weld right and left hand assemblies of extensions and side panels (see Operation T04, paragraphs 9, 10, 11, 12 and 14).
- 11 Offer up and fit scuttle panel. Fix by means of tack welds. Weld scuttle panel front edge (k-m). (Welds j-k and l-m are made according to operation T04, paragraph 10).
- 12 Offer up and fit instrument panel. Provisionally mount the steering for location of panel. Fix panel by a series of tack welds. Weld scuttle panel rear edge (j-l as shown). Weld ends of instrument panel (seams n as shown).



## REMOVING PART (see Drawing 21)

- 1 By using a blowpipe, remove solder covering joints of roof panel (at b-c-e, and h as shown). Open roof panel seam where it joins the section to be removed (at b-c-e and h as shown).
- 2 Open front roof inside panel seams (c-e, and d-f as shown). Remove right and left hand drip mouldings (i).
- 3 Cut across right and left hand roof rails (a-b, and g, h as shown).
- 4 Open floor seams at hull front end (p and y as shown).
- 5 Cut through side panel door sills (j-k as shown).
- 6 Cut through sidemembers (l-m as shown). To do this it is necessary to cut through the lower part of the side panels at the same points. Remove portions of side panels (l-j-k-m as shown).
- 7 Remove part.

## FITTING PART

- 8 Straighten and trim up front floor and seams (p and y).
- 9 Fix brackets (53) to hull front end. Offer up hull front end, fit and fix it on fixture front bracket (45) and on supports (54) (see Drawing 11). Weld part to floor (seams p as shown).
- 10 Offer up and fit right and left hand sidemembers. Fix by tack welding seams (o-x-y). Weld sidemembers (l-m as shown).
- 11 Weld scuttle lining panel (along lines v as shown) and hull front end closing panels (along lines n as shown).
- 12 Fit the front doors. Offer up and fit the assemblies of extensions and side panel front portions. Fit around door openings. Fix the assemblies by tack welds.
- 13 Weld the roof side rails (a-b and g-h as shown) and weld the reinforcements.
- 14 Weld the side panels across the door sills (j-k as shown).
- 15 Weld the hull front end closing panel seams (o as shown). Weld lower seams under the extensions (x and y as shown). Weld seams around door openings (z as shown).
- 16 Weld front ends of side panel extensions to hull front end (w as shown).



- 17 Offer up and fit scuttle panel. Fix by tack welds. Weld scuttle panel to the side panels (along lines q-r and s-t as shown). Weld front flange of scuttle panel to hull front end (q-t as shown). Place in position and weld gutter protecting battery.
- 18 Offer up and fit front roof panel and fix by tack welds. Weld front roof panel to side panels (c-d and e-f as shown).
- 19 Offer up and fit front roof inside panel. Fit the windscreen and centralize it. Fix the front roof inside panel by means of tack welds. Weld seams where inside panel joins front roof panel (d and f as shown).
- 20 Offer up and fit the instrument panel. Provisionally fit the steering in order to centralize the instrument panel. Fix this by a few tack welds. Weld top flange of instrument panel to rear flange of scuttle panel (seam r-s as shown). Weld ends of instrument panel (along line u as shown).
- 21 Drill holes 6 mm. diameter and spaced at about 40 mm. along inner flange of drip mouldings. Offer up moulding (i) and fix by gas welding in drilled holes.
- 22 Drill and rivet roof panel (use rivets 3 mm. diameter, 10 mm. long) (b-c and e-h as shown) (see Drawing 27, fig.2).
- 23 Fill seams between roof panel and side panels and front roof panel with solder (b-c and e-h as shown). Grind off and polish solder filling.
- 24 Grind, file and polish welding (seams a-b, h-g, c-d, e-f, q-r, s-t and j-k as shown). Finish these seams with an application of solder. If necessary, smooth off and polish.

## REMOVING PART (see Drawing 22).

- 1 Cut through side panel extension (a-b as shown) (point a must be about 300 mm. from point c at forward point of hull front end).
- 2 Cut the extension near the forward point of the hull front end (c-d as shown).
- 3 Open the top seam (c-a as shown).
- 4 Open the lower seam (d-b as shown).
- 5 Straighten the mounting studs and line them up (see Operation T14).

## FITTING PART

- 6 Correct shape of part removed and the seams.
- 7 Offer up and fit part. Fix part by tack welds.
- 8 Weld part (a-b and c-d as shown).
- 9 Weld the top and bottom seams (c-a and d-b as shown).



See Drawing 11

FIRST CASE One of front end lateral assemblies being pushed back 15 mm. maximum. Place body on fixture (see operation T01).

1 Fit brackets (53) to the hull in the position where the front torsion bar crossmember is fitted. With supports (54) positioned on fixture according to the vehicle type (see Drawing 6), endeavour to place in position the pins (16). If it is not possible to fit the pins the front end is distorted.

2 Place front bracket (45) on the fixture. Engage bracket on front axle mounting studs and fix it to the fixture base in the "working position" (see Drawing 9).

3 Screw nuts (52) on mounting studs. Place distance pieces (11) on mounting studs (on side not damaged) and tighten the two nuts on the studs on the same side (see Drawing 9).

4 Screw up nuts (52) on mounting studs (on damaged side) to exert a pull. With the mounting studs in tension planish any deformed panels on the hull front end and front floor. (If possible avoid the use of heat). Slacken the nuts (52). Offer up distance pieces (11) to the mounting studs. If the studs have been drawn back to their original position the distance pieces will fit without end play. If end play is apparent carry out the operation again.

5 Remove the nuts (52). Make sure that the mounting studs are centralized with the holes in bracket (45) by placing on each bushes (28) for "light" type bodies and bushes (28 and 42) for "normal" type bodies. These bushes must fit freely in the holes in the bracket.

Check the clearance between the front face of the brackets (53) and the rear face of the supports (54). This clearance must be EQUAL on both sides. It must be in the neighbourhood of 5 mm.

6 Free the front bracket (45) from its fixing on the fixture base and from the mounting studs. Push the bracket (45) right against the hull front end. In this position the bracket must fit correctly on the front end and its lower face must engage an equal amount on both slides (20 and 21).

7 Position, according to the vehicle type, and fit on fixture base, supports (6) (see Drawing 6). Make sure that the lower faces of the steering brackets are parallel to supports (6) and are 14.4 mm. above the support upper faces. Check by using packing block (33) (see Drawing 11).

8 Check the position of holes in the steering brackets by means of pins (34) which must locate freely in the holes in the brackets on the hull and in the holes in the supports.

SECOND CASE One of the front end lateral assemblies being pushed back more than 15 mm. without important distortion but with the mounting studs bent. With the extension and front portion of the side panel removed (see Operation T03) and the front sidemember also (see Operation T07) proceed as follows.



- 9 By means of screw jacks, hooked on fixing plates (41) (see Drawing 8), draw and straighten front hull front end lateral assembly. During the drawing operation, planish the deformed panels of the hull front end and the front floor.
- 10 Fit brackets (53) to hull in the position where the front torsion bar crossmember is fitted. With supports (54) positioned on fixture according to the vehicle type (see Drawing 6), endeavour to place in position the pins (13). These must fit freely. Once fitted leave them in place.  
NOTE A crash involving one of the hull front end lateral assemblies generally causes damage to the mounting studs of the other assembly. Usually this damage is of less significance. Nevertheless it is necessary to open up the side panel extension, as indicated in Operation T13, before attending to the studs on the side not directly involved.
- 11 Place front bracket (45) on the fixture. Engage bracket on front axle mounting studs and fix it to the fixture base in the "working position".
- 12 By means of nuts (52) exert a pull on the mounting studs. Meanwhile rectify the deformed panels of the hull front end and the front floor using a minimum amount of heat. Free the mounting studs by unscrewing the nuts (52). Check the position of the hull front end lateral assemblies by using the distance pieces (11) which must fit without end play between the bracket (45) and the faces of the front end. If necessary, position the front end correctly by drawing the mounting studs a second time. Weld any fractures in the panels after carrying out this work.
- 13 Check the location of the mounting studs and the position of the steering brackets (see paragraphs 5, 6, 7 and 8 of this Operation).



See Drawing 23

- 1 Make up a pair of reinforcements (symmetrically opposite) in mild steel sheet approximately 1 mm. in thickness (No:22 B.G.) according to dimensions given in fig. 1.
- 2 Offer up one reinforcement to the scuttle and scribe lines a-b and c-d on scuttle (see fig. 2). Beat down the scuttle panel along these lines to prevent the reinforcement from standing above the normal panel shape when fitted.
- 3 Weld up any fractures in the scuttle moulding.
- 4 Offer up the reinforcement. Fix the reinforcement by welding round the edges of the holes and then completely fill them by gas welding. Follow this by welding along the edges of the reinforcement.
- 5 Grind, file and polish the welding. If necessary finish off welding by applying solder.

## REMOVING PART (see Drawing 24)

- 1 Open seam between instrument panel and scuttle panel (a-b as shown).
- 2 Open seams at ends of instrument panel (a-c and b-d as shown).
- 3 Take out instrument panel.

## FITTING PART

- 4 Trim and straighten rear flange of scuttle panel.
- 5 Provisionally mount the steering in order to centralize instrument panel.
- 6 Offer up instrument panel and tack weld at a few points to fix it.
- 7 Weld seam between instrument panel and scuttle panel (a-b as shown).
- 8 Weld two end seams of instrument panel (a-c and b-d as shown).



## REMOVING PART (see Drawing 25)

NOTE Cuts through the panel (a-c and b-d as shown) are made during one of the Operations T04, T05, T06 or T29.

- 1 Open seam joining scuttle and instrument panels (a-b as shown).
- 2 Open seam joining scuttle panel to hull front end (c-d as shown).
- 3 Remove part.

## FITTING PART

- 4 Trim and straighten joint flanges (a-b and c-d as shown).
- 5 Offer up and fit scuttle panel. Fix panel by tack welds.
- 6 Weld up seams (a-b and c-d as shown).

## REMOVING PART (see Drawing 26)

- 1 Remove solder covering the roof panel joint (a-b-c-d as shown).
- 2 Open roof panel seam (along a-b-c-d as shown).
- 3 Cut front roof inside panel away from front roof outside panel and side panels.
- 4 Cut across ends of front roof panel (b-c and c-f as shown).
- 5 Remove part.

## FITTING PART

- 6 Trim and straighten roof panel edges.
- 7 Offer up and fit front roof panel. Fix panel by tack welds.
- 8 Weld front roof panel to side panels (along lines b-c and c-f as shown).
- 9 Offer up and fit front roof inside panel. Mount the windscreen and centralize it by adjusting the position of the front roof inside panel which must then be fixed by a few tack welds. Weld inside panel to front roof outside panel along front flanges (e-f as shown).
- 10 Drill and rivet roof panel spacing the holes at approximately 40 mm. Use rivets 3 mm. diameter, 10 mm. long (a-b-c-d as shown) (see Drawing 27, fig. 2).
- 11 Fill roof panel seams with solder (along lines a-b-c-d as shown).
- 12 Dress off and polish solder filling.
- 13 Grind, file and polish welded seams (b-c and c-f). If necessary finish these seams by applying solder.



## REMOVING PART (see Drawing 27)

- 1 Use a blow pipe to remove solder covering roof panel joint.
- 2 Open roof panel seam around contour (a).
- 3 Take out roof panel.

## FITTING PART

- 4 True up the flange around roof opening. Fill any holes made during cutting roof seam by gas welding.
  - 5 Offer up roof panel to flange around roof opening. Drill holes 3.5 mm. diameter, spaced at approximately 40 mm. (as shown in fig. 2) all around roof flange (a).  
Rivet roof panel to opening flange (using rivets 3 mm. diameter, 10 mm. long).
  - 6 Fill panel seam, around contour (a), with solder.  
Dress and polish solder filling.
- NOTE If arc welding equipment is available the roof panel may be fixed by tack welds instead of rivets. These tack welds should be made between the edge of the roof and the upper edge of the roof opening flange and be spaced at approximately 40 mm.

## REMOVING PART (see Drawing 26)

- 1 Cut drip moulding (g) away from side panel.

## FITTING PART

- 2 If necessary clean up surface of side panel where drip moulding fits.
- 3 Drill holes 6 mm. diameter, spaced at approximately 40 mm., in drip moulding flange.
- 4 Offer up moulding to side panel. Weld moulding to side panel by welding round edges of holes drilled in moulding flange. Finish by filling holes by gas welding.
- 5 Grind and smooth off welding.



## REMOVING PART (see Drawing 28)

- 1 Open seam of rear seat package tray (g as shown). Remove package tray.
- 2 Use a blowpipe to remove solder filling roof panel seam (a-b-c-d as shown).
- 3 Open roof panel seam (a-b-c-d as shown) from part to be removed.
- 4 Cut through panel (b-e and c-f as shown). Cut through panel under rear light (e-f as shown).
- 5 Remove part.

## FITTING PART

- 6 Straighten up seam flanges and edges that have been cut.
- 7 Offer up, fit and fix part by tack welds.
- 8 Weld edge cut under rear light (e-f as shown). Weld lateral edges (b-e and c-f as shown).
- 9 Offer up, fit and weld rear seat package tray (g as shown).
- 10 Drill and rivet roof panel in position (use rivets 3 mm. diameter, 10 mm. long) (a-b-c-d as shown) (see Drawing 27, fig. 2 for drilling of holes).
- 11 Fill seams, where roof panel joins rear and side panels, with solder (a-b-c-d as shown). Smooth off and polish.
- 12 Grind, file and polish the welded seams (along lines b-e, c-f, and f-e).
- 13 If necessary finish off welded seams with an application of solder.

REMOVING PART (see Drawing 29).

- 1 Open seam of rear seat package tray (e as shown). Remove package tray.
- 2 Open rear panel lower seam (c-d as shown). Cut away the two brackets for the rear compartment door hinges.
- 3 Cut through panel underneath rear light (a-b as shown).
- 4 Cut through panel vertically at sides (a-c and b-d as shown).
- 5 Remove part.

FITTING PART

- 6 Straighten edge of lower seam (c-d as shown) and edges previously cut (a-c, a-b and b-d as shown).
- 7 Offer up, fit, and tack weld part in position.
- 8 Weld edge under rear light (a-b as shown). Weld edges cut at sides (a-c and b-d as shown).
- 9 Offer up, fit and weld rear seat package tray (e as shown).
- 10 Weld rear panel lower seam (c-d as shown). Fit and centralize rear compartment door. Weld hinge brackets.
- 11 Grind file and polish welding carried out (a-b, a-c and b-d as shown).
- 12 If necessary, finish off welding with an application of solder.



## REMOVING PART (see Drawing 30)

- 1 Open seam of rear seat package tray (g as shown). Remove package tray.
- 2 Open bottom seam of rear panel (e-f as shown). Cut away the two brackets for the rear compartment door hinges (h as shown).
- 3 Use a blow pipe to remove solder filling roof panel seam (a-b-c-d as shown).
- 4 Open roof panel seam from part to be removed (a-b-c-d as shown).
- 5 Cut through sides of panel (b-e and c-f as shown).
- 6 Open seam where rear panel joins body rear floor (e-f as shown). Remove rear panel.

## FITTING PART

- 7 Straighten up seams and edges previously cut.
- 8 Offer up, fit and fix the panel by tack welds.
- 9 Weld edges previously cut (b-e and c-f as shown). Weld bottom seam (e-f as shown). Weld brackets for rear compartment door hinges (h as shown).
- 10 Offer up, fit and weld rear seat package tray (g as shown).
- 11 Drill and rivet roof panel (using rivets 3 mm. diameter, 10 mm. long) (a-b-c-d as shown) (see Drawing 27, fig. 2).
- 12 Fill seams, where roof panel joins rear and side panels, with solder (a-b-c-d as shown). Smooth off and polish surface of solder.
- 13 Grind, file and polish welded seams (b-e and c-f as shown).
- 14 Where necessary, fill up welded seams with an application of solder.

## REMOVING PART (see Drawing 31).

- 1 Open seams of rear seat package tray (1 as shown).
- 2 Cut through side panel on rear quarter (a-b as shown). Cut through seam joining side panel to rear panel (b-c as shown). Cut through side panel across rear door sill (d-e as shown).
- 3 Open lower seam (c-m as shown). Open seam between floor panels and side panel (f-g-h-i-j-k).
- 4 Remove part.

## FITTING PART

- 5 Straighten seam flanges and edges that have been cut.
- 6 Offer up and fit part. Hang the rear door and adjust door opening. Fix the new panel by means of tack welds.
- 7 Weld seam between side panel and rear panel (b-c as shown). Weld panel edges on rear quarter (a-b as shown). Weld across rear door sill (d-e as shown).
- 8 Weld floor panel seam (f-g-h-i-j-k as shown) and side panel lower seam (e-m as shown).
- 9 Fit and weld rear seat package tray (1 as shown).
- 10 Grind, file and polish welded seams (as shown at a-b, b-c and e-d).
- 11 If necessary finish these seams with an application of solder.



## REMOVING PART (see Drawing 32)

- 1 Open seam where part joins floor panel (a-b as shown).
- 2 Open seams between housing panel and wheel arches (a-d and b-c).
- 3 Open seam joining housing panel to lower edge of rear panel (c-d as shown) and cut through rear compartment door hinge brackets.
- 4 Remove part.

## FITTING PART

- 5 Straighten up panel edges to be welded.
- 6 Offer up, fit and tack weld part in position.
- 7 Weld seams where panels join (a-b, b-c, c-d, d-a as shown).
- 8 Weld rear compartment door hinge brackets.

See Drawing 33

- 1 Clean and scrape the area on the body where the reinforcement is to be fitted.
- 2 Weld up all fractures in the wheel arch panelling and dress off smooth.
- 3 From mild steel sheet, thickness approximately 1.2 mm. to 1.5 mm., make up reinforcement as shown in fig. 2.
- 4 Offer up reinforcement. Heat it to allow forming to shape. Do not beat out any puckers in the material as these give stiffness to the reinforcement.
- 5 Weld the edges of the reinforcement to the wheel arch, sidemember and floor panel.



REMOVING PART (see Drawing 34, figs. 1 and 2).

- 1 Remove solder covering roof panel joint (b-c-d-e as shown).
- 2 Open roof panel seam (b-c-d-e as shown).
- 3 Open seams of rear seat package tray (l as shown). Cut seam fixing drip moulding (m).
- 4 Cut through side panel across roof rail (a-c as shown). Cut through side panel across door sill (h-i as shown).
- 5 Cut the seam joining side panel to rear panel (d-f as shown).
- 6 Open seam along rear door sill (h-n as shown). Open bottom seam along side panel (i-o as shown). Open seam joining rear floor to side panel around wheel arch (f-g as shown).
- 7 Remove part.

FITTING PART

- 8 Straighten panel flanges and edges previously cut.
- 9 Offer up and fit part. Hang the door and line up door opening. Fix new part by a series of tack welds.
- 10 Weld edges previously cut (a-c, d-f, and h-i as shown).
- 11 Weld up seams (h-n, i-o and f-g as shown).
- 12 Offer up, fit and weld rear seat package tray (l as shown).
- 13 Drill and rivet roof panel (using rivets 3 mm. diameter, 10 mm. long) (b-c-d-e as shown) (see Drawing 27, fig. 2).
- 14 Fit the drip moulding (see Operation T20).
- 15 Fill with solder the seam at junction of roof panel with rear and side panels (b-c-d-e as shown). Dress off and polish the solder applied.
- 16 Grind, file and polish welding (a-c-d-f and h-i as shown).
- 17 If necessary, finish off welded seams with an application of solder.



REMOVING PART (see Drawing 35, figs. 1 and 2).

- 1 Run off solder covering seam around roof panel (b-c-d-e as shown).
- 2 Open roof panel seam (b-c-d-e as shown).
- 3 Open seam fixing rear seat package tray (l as shown). Open drip moulding seam (m as shown).
- 4 Cut across side panel roof rail section (a-c as shown). Cut through panel across front door sill (h-i as shown).
- 5 Cut through seam joining side and rear panels (d-f as shown).
- 6 Open seam along door openings (h-n as shown). Open side panel bottom seam (i-o as shown). Open seam joining rear floor to side panel around wheelarch (f-g as shown).
- 7 Remove part.

FITTING PART

- 8 Straighten panel flanges and edges previously cut on the body shell.
- 9 Offer up and fit part. Hang the doors in order to determine door openings. Fix part by a series of tack welds.
- 10 Weld edges of panels previously cut (a-c, d-f, and h-i as shown).
- 11 Weld seams of panel flanges (h-n, i-o, and f-g).
- 12 Offer up, fit and weld rear seat package tray (l as shown).
- 13 Drill and rivet roof panel (b-c-d-e as shown). Use rivets 3 mm. diameter, 10 mm. long (see Drawing 27, fig. 2).
- 14 Fit the drip moulding (see Operation T20).
- 15 Fill with solder the seam at junction of roof panel with side and rear panels (b-c-d-e as shown). Dress off and polish the solder applied.
- 16 Grind, file and polish welded seams (a-c, d-f and h-i as shown).
- 17 If necessary, finish off welded seams with an application of solder.



## REMOVING PART (see Drawing 36)

- 1 Run off solder covering roof panel seam (b-c-d-e as shown).
- 2 Open roof panel seam (b-c-d-e as shown).
- 3 Open seam fixing rear seat package tray (l as shown) (see Drawing 35, fig. 2).
- 4 Cut through front roof panel (a-c as shown). Cut through scuttle panel (p-q as shown). Cut through seam joining side and rear panels (d-f as shown) (see Drawing 35, fig. 2).
- 5 Open seam between scuttle panel reinforcement and instrument panel (q-r as shown). Open seam along hull front end closing panels (p-j as shown).
- 6 Open vertical seam at front edge of side panel extension (i-j as shown). Open bottom seam along side panel (i-o as shown).
- 7 Open seams around door openings where side panel joins the hull (s-h-n as shown). Open seam joining floor panel to side panel round wheel arch (f-g as shown).
- 8 Remove part.

## FITTING PART

- 9 Straighten flanges and edges of panels previously cut.
- 10 Offer up and fit part. Hang the doors in order to adjust openings. Fix part by a series of tack welds.
- 11 Weld edges previously cut (p-q, a-c and d-f as shown).
- 12 Weld seams (i-j-p, q-r, s-h-n, i-o, and g-f as shown).
- 13 Offer up, fit and weld rear seat package tray (l as shown) (see Drawing 35, fig. 2).
- 14 Offer up, fit and weld scuttle panel reinforcement.
- 15 Drill and rivet roof panel (b-c-d-e as shown). Use rivets 3 mm. diameter, 10 mm. long (see Drawing 27, fig. 2).
- 16 Fit a new drip moulding (t as shown) (see Operation T20).

- 17 Use solder to fill seams where roof panel joins front roof panel (b-c as shown), side panel (c-d as shown) and rear panel (d-e as shown). Dress off and polish the solder applied.
- 18 Grind, file and polish welded seams (p-q, a-c and d-f as shown).
- 19 If necessary, finish off welded seams with an application of solder.



## REMOVING PART (see Drawing 37).

- 1 Run off solder covering seam joining roof panel to side panel roof rail (a-b-c-d as shown).
- 2 Open roof panel seam (a-b-c-d as shown).
- 3 Remove drip moulding (l as shown).
- 4 Cut through side panel roof rail (b-e and c-f as shown).
- 5 Cut through side panel front and rear door sills (g-i and h-j as shown).
- 6 Open seams joining side panel to hull (g-h and i-j as shown).
- 7 Remove part

## FITTING PART

- 8 Straighten panel flanges and edges previously cut.
- 9 Offer up and fit part. Fit hinges and brackets and hang the doors. Adjust door openings. Fix part by a series of tack welds.
- 10 Weld edges cut across roof rails (b-e and c-f as shown). Weld edges cut across door sills (g-i and h-j as shown).
- 11 Weld seams joining side panel to hull (g-h and i-j as shown).
- 12 Fit drip moulding (see Operation T20).
- 13 Drill and rivet roof panel (a-b-c-d as shown). Use rivets 3 mm. diameter, 10 mm. long (see Drawing 27, fig. 2).
- 14 Fill seam joining roof panel with side panel with solder (a-b-c-d as shown). Dress off and polish the solder applied.
- 15 Grind, file and polish welded seams (b-e, c-f, g-i and h-j as shown).
- 16 If necessary, finish off welded seams with an application of solder.

## REMOVING PART (see Drawing 38).

- 1 Open seams along door openings and at side panel lower flange (a-d and e-f as shown).
- 2 Cut side panel through front and rear door sills (a-e and d-f as shown).
- 3 Cut through centre pillar (b-c as shown).
- 4 Remove part.

## FITTING PART

- 5 Offer up and fit part. Hang doors in order to adjust openings. Fit part by means of tack welds.
- 6 Weld panel across door sills (a-e and d-f as shown).
- 7 Weld centre pillar (b-c as shown).
- 8 Weld seams along door openings and at side panel lower flange (a-d and e-f as shown).
- 9 Grind, file and polish welding (a-e, b-c and d-f as shown).
- 10 If necessary, finish welded seams by applying solder.



REMOVING PART (see Drawing 39).

NOTE:- This operation can only be carried out following either operation T29 or T31.

- 1 Cut through front sidemember (a-b as shown).
- 2 Open seam joining side panel to floor (b-d as shown). Open seam at end of floor centre crossmember (f as shown). Open seam at end of rear seat floorboard (e as shown).
- 3 Remove part.

#### FITTING PART

- 4 Straighten flanges and edges previously cut.
- 5 Offer up the tubular crossmember and fix it on the side opposite the sidemember which is to be replaced. Offer up and fit sidemember. Fix it to the tubular crossmember by means of bolts and to the body hull by a series of tack welds.
- 6 Weld the front sidemember (a-b as shown). Weld sidemember to floor (b-d as shown), to rear seat floorboard (e as shown), and to the floor centre crossmember (f as shown).

## REMOVING PART

- 1 Undo two nuts on front rail of roof frame, two nuts at centre point of roof frame side rails, and also two nuts and bolts at rear end of side rails.
- 2 Remove part

## FITTING PART

- 3 Offer up sliding roof frame and fit loosely the nuts and bolts for fixing the frame.
- 4 Determine the position of the frame by introducing the sliding panel from the top of roof panel opening. Open and close the sliding panel and adjust the position of the frame to obtain proper location of panel.
- 5 Tighten up nuts and bolts fixing frame.
- 6 Take out sliding panel through roof panel opening.



## REMOVING AN OUTSIDE DOOR HANDLE

- 1 Take out two screws fixing handle.
- 2 Hold the lock bolt in the "OPEN" position by means of the interior handle. Pull out the outside handle until it is felt to come to a stop. Next lower the handle about an eighth of a turn and pull it right out.

## FITTING AN OUTSIDE DOOR HANDLE

NOTE:- To enable the handle to be fitted easily it is recommended to chamfer the ends of the spindle.

- 3 Hold the lock bolt in the "OPEN" position by means of the interior handle.
- 4 Make sure that the square hole in the lock bush is in the correct position. If necessary position it with the aid of a screwdriver.
- 5 With the lock bolt in the "OPEN" position, engage the handle spindle in the square hole of the lock bush. Push the handle until the escutcheon fits against the door panel.
- 6 Tighten the screws fixing the handle.



## REMOVING LOCK BARREL (FRENCH type handle)

- 1 Remove the door outside handle (see Operation F33).
- 2 Pull out the pin retaining the cups and spring. Remove the cups, spring and escutcheon from the handle.
- 3 Tap the spindle and lock barrel assembly out through handle.
- 4 Remove lock barrel from spindle after taking out wire circlip retaining the barrel.

## FITTING LOCK BARREL (FRENCH type handle).

- 5 Lightly oil the lock barrel and fit it in the spindle making sure that the peg on the barrel is correctly located in the slot in the spindle bore. Fit wire circlip to retain the barrel.
- 6 Fit the spindle and lock barrel in the handle. Fit in this order; escutcheon, thrust washer, spring and two cups. Fit pin in spindle to retain these parts.
- 7 Fit the handle to the door (see Operation F33)

## REMOVING LOCK BARREL (BRITISH type handle).

- 1 Remove the door outside handle (see Operation F33)
- 2 Remove cups, spring and washers from spindle. To do this, it is necessary either to file off notches on spindle, knock out retaining pin or remove a circlip. The cups, spring and washers are held by one of these three methods. Take off the handle escutcheon plate.
- 3 Remove either a pin or screw used to retain lock barrel in handle boss.

## FITTING LOCK BARREL (BRITISH type handle).

- 4 Lightly oil the lock barrel and fit it in the handle boss making sure that the peg on the barrel locates correctly with the locking tongue. Fit either a pin or screw to retain barrel.
- 5 Fit the escutcheon, washers, spring and cups to the handle. According to the method employed, fit either pin or circlip to retain these items. In cases where the parts were originally retained by notches at the corners of the square spindle use either one of the following methods to retain the parts. Raise a fresh series of notches in the spindle, at a point level



with the original series by using a centre punch or drill a hole in the spindle at the same point, to accommodate a steel pin 1/16 inch diameter. Use a pin 5/8 inch long to retain the cups.

- 6 Fit the handle to the door (see Operation F33).

## REMOVING LOCK

- 1 Remove the door outside handle (see Operation F33, paragraphs 1 and 2).
- 2 Remove the door inside handle and the window winder handle.
- 3 Remove the door glass surround and the lower sealing rubber.
- 4 Use a screwdriver to unclip and remove the door trim panel. Remove the two escutcheon springs. Raise the window glass to its maximum height.
- 5 Remove the screws fixing the door lock and the remote control.
- 6 Take out the assembly of the door lock and remote control through the opening of the door inside panel.

## FITTING LOCK

- 7 The window glass being raised to its maximum height, offer up the door lock and remote control assembly through the opening of the door inside panel. Fit the assembly in position and tighten up the fixing screws.
- 8 Fit the door outside handle (see Operation F33, paragraphs 3, 4 and 5). Check the functioning of the lock. Provisionally fit the door inside handle and check the operation of the remote control. Fit the door outside handle.
- 9 Fit the two escutcheon springs in place. Offer up the trim panel by hooking it on the centre bracket and pushing the panel clips into the door.
- 10 Fit the door lock inside handle and the window winder handle.
- 11 Fit the lower sealing rubber of the glass, offer up and fit the window surround.



## REMOVING LOCK

- 1 Remove the door inside and outside handles, the window winder handle and the door trim panel.
2. Unhook and remove the glass channel.
- 3 Raise the window glass to its maximum height. Tilt the glass towards the inside of the door. Disengage the slides of the glass bottom channel from the rollers on the lifting arms. Take out the glass.
- 4 Wind the lifting mechanism to its lowest point.
- 5 Remove the screws fixing the door lock and remote control. Take out these parts as an assembly through the rear opening in the door inside panel.

## FITTING LOCK

- 6 Engage the door lock and remote control assembly through the rear opening in the door inside panel. Fit the lock and remote control in place and tighten up the fixing screws.
- 7 Raise the lifting mechanism to its highest point. Offer up the glass from inside, engage the rollers of the lifting arms in the slides of the glass bottom channel, the glass meanwhile being tilted inwards. Lower the mechanism approximately 150 mm. (6 inches).
- 8 Offer up the glass channel to the glass and hook it in position round the door window opening. Check the functioning of the lifting mechanism.
- 9 Fit the two escutcheon springs. Offer up the trim panel by hooking it on the centre bracket and push the panel clips into the door.
- 10 Fit the window winder handle and door inside handle.
- 11 Fit the door outside handle (see Operation F35, paragraphs 3 to 5).
- 12 Fit the glass sealing rubber, offer up and fix the window surround.

## REMOVING GLASS

- 1 Remove the window surround and sealing rubber.
- 2 Lower the glass. Unhook and remove the felt channel.
- 3 Raise the glass to its highest position. Tilt the glass towards the inside of the car and disengage the bottom channel from rollers of the lifting arms.

## FITTING GLASS

- 4 Raise the winding mechanism to its highest point.
- 5 Offer up the glass from the inside. With the glass tilted inwards, engage the lifting arm rollers in the slides of the glass bottom channel. Lower the mechanism a little to complete the fitting of the glass.
- 6 Hook the felt channel in position around the door window opening.
- 7 Fit the lower sealing rubber. Offer up and fix the window surround by screws.



## REMOVING WINDOW WINDER

- 1 Remove the window surround and sealing rubber.
- 2 Lower the glass, unhook and remove the felt channel.
- 3 Raise the glass to its highest point, tilt it towards the inside of the car and disengage the bottom channel from the lifting arm rollers.
- 4 Remove the door lock inside handle and the window winder handle.
- 5 Unclip the door trim panel with the aid of a screwdriver. Remove the two escutcheon springs.
- 6 Remove the screws fixing the winding mechanism. Take out the mechanism through the opening in the door inside panel.

## FITTING WINDOW WINDER

- 7 Set the lifting arms to the "GLASS CLOSED" position. Engage the mechanism in the door through opening in the inside panel. Tighten up the fixing screws.
- 8 Offer up the glass from the inside of the door. Tilt it inwards and engage the lifting arm rollers with the slides on the bottom channel. Lower the winding mechanism to complete the fitting of the glass.
- 9 Hook the felt channel in position around the window opening and check the functioning of the lifting mechanism.
- 10 Fit the two escutcheon springs. Offer up the trim panel by hooking it on the centre bracket and push the panel clips into the door.
- 11 Fit the window winder handle and door lock inside handle.
- 12 Fit the glass sealing rubber, offer up and fix the window surround by screws.



The windscreen can be removed in two different ways according to requirements.

1 REMOVING WINDSCREEN WITHOUT REMOVING HINGES (when windscreen is a good fit in the body opening).

It is sufficient to disconnect the central control from the windscreen by taking out the two fixing screws. Open the windscreen enough to give access to the screws fixing the hinges. Remove these screws and take out the windscreen.

2 REMOVING WINDSCREEN WITH THE HINGES

To obtain access to the screws fixing the windscreen to the body it is necessary to remove the trim panel carrying the windscreen wiper. To do this proceed as follows:-

Take off the wiper blade and unscrew the two nuts of the windscreen wiper guide. Remove the five screws fixing the windscreen opening surround along the top edge only. Remove the screws fixing the panel and then take the panel out. Disconnect the central control from the windscreen and next the windscreen hinges from the body. Take out the windscreen.

3 FITTING WINDSCREEN

No particular difficulty should be encountered when fitting the windscreen. (For making the windscreen water-tight, replacing the windscreen glass and adjusting the fit of the windscreen in the body, see Operation F.41).



The operation of reglazing the windscreen requires some precautions to be taken to prevent breaking the glass or damaging the frame.

The two halves of the frame being separated, slacken the screws fixing the frame joint tapping blocks a few turns. Chamfer the ends of the tapping blocks that are exposed to permit their easy entry into the other half of the frame when assembling.

Drill two holes approximately 4 mm. diameter in the outside face of the lower half of the frame at the bottom corners. These holes will permit any water penetrating at the frame joints to drain away.

Place the glazing rubber around the windscreen glass making sure that it extends an equal amount on both faces. Coat the two faces of the rubber and the ends of the joint tapping blocks lightly with Lockheed fluid so that parts may be easily assembled.

Fit one half of the frame on the glass fitted with the glazing rubber and fully engage glass into the frame channel section by using a joiner's press or cramp. After fitting remove the cramp.

Offer up the second half of the frame and clamp both halves together using once again the joiner's press or cramp. Fit and tighten the assembly screws into the joint tapping blocks.

NOTE:- On no account must the frame be assembled by the use of a hammer or mallet as this method is likely to cause breaking of the glass and distortion of the frame.

The water-tightness of the windscreen can only be assured if it is correctly positioned in the body opening and if the rubber weatherstrips are in good condition.

The weatherstrips must be flexible and have no "splits". If they are not up to standard they must be replaced.

The windscreen is fixed to the body by two hinges having slotted holes for the fixing screws. These slots permit the hinges to be adjusted vertically.

On the front roof inside panel are brackets for the hinges. These brackets also have slotted holes which allow for horizontal adjustment.

It is therefore possible to locate the windscreen correctly in the body opening by moving it both laterally and vertically.

Water-tightness of the windscreen along its top edge can only be obtained if the weatherstrip fits correctly to the top edge of the body opening. However, the rubber must not fit so tightly that force is required to open the windscreen.

Obtain correct fitting by adjusting the windscreen by its hinges or hinge brackets.

Watch to see that the flange of the weatherstrip does not roll up towards the inside of the body opening.

This adjusting operation necessitates the removal of the panel carrying the windscreen wiper so that access to the screws fixing the hinges to the brackets can be obtained. It is equally necessary to free the central control from its fixing on the body.



## MAKING DOOR WATER-TIGHT

In order to exclude draught and water the weatherstrip around the top of the door must be in good condition. It must not be hard or split.

When it is not up to standard it must be replaced. To do this proceed as follows:

Remove the two dove-tail blocks.

With the aid of a rather strong screwdriver open the steel section retaining the weatherstrip and remove the latter.

Fit a new weatherstrip and carefully tap the steel retaining section back to its normal position by using a mallet. Fit the two dove-tail blocks (for their adjustment see the following chapter.)

## DOOR SHUT ADJUSTMENT

If the doors rattle when the vehicle is in motion it may be due to one of the four following causes.

1. Wear on hinge pins or hinge pin holes.
2. Door touching body opening at one or more points.
3. Door lock bolt or striking plate out of adjustment.
4. Dove-tail blocks worn or door buffers worn or missing.

In all cases it is necessary to first put the hinges in good order, either by replacing the hinge pins or the hinges themselves. It is essential for the door to fit the body opening without touching at any point.

Arrive at this condition by adjusting the position of the hinges.

The door can be moved vertically by virtue of the fact that the holes in the door pillars for the hinge fixing screws are oversize. This feature permits a limited movement of the tapping plates retained in the pillars. If the door requires lateral adjustment a packing piece of the thickness necessary to give correct adjustment should be fitted between the hinge plate and the door pillar.

If with the above adjustments the door still touches the body opening give a few blows with a mallet to either the door or door opening shut faces at a point where the fouling occurs.

Fit the door dove-tail blocks. These blocks can be adjusted up or down on account of the oversize holes for the fixing screws. To hold the door tight when the vehicle is in motion the upper dove-tail block must be adjusted so that its upper face bears against the upper face of the upper dove-tail housing fixed to the body. It is equally important for the lower face of the lower dove-tail block to bear against the lower face of the lower dove-tail housing.

If the dove-tail blocks do not fit completely in the housings, millboard or linoleum packing pieces, of sufficient thickness to take up the gap, must be fitted between the blocks and the door.

Make sure that the door closes properly. The lock bolt must fit behind the striking plate catch without play. If necessary adjust the striking plate laterally. After adjustment, TIGHTEN UP HARD, the striking plate fixing screws.

Fit in place the four rubber buffers in the holes provided in the top flange of the door opening on the body and along the lower edge of the door itself.



## SEALING SCUTTLE VENTILATOR

If water penetrates by the scuttle ventilator only the rubber joint can be at fault. It will be necessary to replace this joint follows:

Disconnect the ventilator panel from its hinge by removing the three fixing screws visible when the ventilator is opened and the taken out of the control rod.

Take out the rubber joint from its channel. Scrape out and carefully brush the channel and the flange of the ventilator panel. the channel with adhesive.<sup>(1)</sup>

Fit the joint in place and fit the ventilator panel. Keep the panel in the closed position in order to press the joint firmly in position.

Leave the ventilator closed for twenty hours so that the adhesive can dry.

## SEALING REAR LUGGAGE COMPARTMENT DOOR

The replacement of the rubber joint is made in a similar method to the scuttle ventilator joint.

However, to obtain a good seal around the door it is necessary for the latter to locate correctly in the joint channel.

Locate the door panel correctly by setting the door hinges in the direction necessary.

Make sure that the drain holes in the luggage compartment floor are not clogged so that any water that may leak through the lower joint of the door can escape.

<sup>(1)</sup> The adhesive used at Slough for this purpose is: "BOSTIK GRADE C", supplied by B.B. Chemicals Ltd., Ulverscroft Road, Leices England.



See Drawing 43

NOTE:- The rear seat cushion and squab are fitted with an inner air tight bag. Because of a valve arrangement air escapes freely from the cushion under pressure, but enters again only slowly through the seams in the material. This retards the action of the springs on rebound.

THIS ARRANGEMENT IS EFFECTIVE ONLY IF THE BAG IS AIRTIGHT.

1 CHECKING EFFICIENCY

Press hard on the cushion with both hands. Quickly relax the pressure. The cushion should return to its original shape only slowly. If it does not, there is leakage in the bag.

2 RECONDITIONING

If there are no tears in the outer cover it will be difficult to locate the position of the leak.

(a) Check the millboard panel in the cushion frame. If a large rent is present the panel must be changed.

If there is only a small hole cover it with a piece of millboard stuck on like an inner tube patch (use glue similar to Seccotine).

(b) Check the bag for leaks. Remove trimming around the cushion border and check the condition of the material of the bag as well as its fixing to the cushion frame. If necessary remove the trimming completely. Patch any holes with air tight material. Coat both bag and patch with upholstery solution. Leave to dry and then assemble with the bag under pressure.

(c) The buttons which decorate the cushions are fixed to the upper part of the cover as indicated by fig. 4. To sew them on it is necessary to pass the thread through holes existing in the rubber patches.

(d) The hook plates for the rear squab pass through the cushion frame. The holes made for these hooks must be closed except for an opening sufficient for the hooks to pass through. To do this stick on an air tight material (see figs. 2 and 3).



## BODY REQUIRING COMPLETE STRIPPING

- 1 Strip off the paint completely, using paint stripper and a scraper. After this operation, carefully wipe off the stripper.
- 2 Clean the body with petrol.
- 3 Rub down any patches of rust with No:80 abrasive paper.
- 4 Clean off with petrol. Wipe dry after cleaning.
- 5 Mask the glass and chromium plating. To save time use steel templates cut the shape of the different openings. In the absence of templates use sheets of paper stuck on with adhesive tape.
- 6 Spray on a coat of cellulose primer diluted in the proportion of approximately 100/100.
- 7 Spray on two coats of cellulose filler diluted in the proportion of approximately 100/100.
- 8 Apply mastic cellulose stopper with a knife. Leave to dry for approximately thirty minutes at a temperature of 18 to 20 degrees Centigrade.
- 9 Spray on a further coat of cellulose filler diluted as before.
- 10 Rub down body with No: 220 or 180 abrasive paper used with water.
- 11 Dry by applying compressed air over entire body surface. Wipe over with a soft cloth.
- 12 Spray on a coat of cellulose lacquer diluted in the proportion of about 100/100 (the actual proportion depending on the products used).
- 13 Touch up again with stopper applied with a knife.
- 14 Rub down the stopper with No: 220 abrasive paper used with water.
- 15 Dry by applying compressed air and wipe with a soft cloth.
- 16 Correct any defective areas in the stopping or lacquer with a coat of lacquer applied only where necessary.
- 17 Spray on three coats of cellulose lacquer, diluted to about 100/100 (according to the products), with an interval of five minutes between each application.
- 18 Leave to dry for five hours at a temperature of 20 degrees Centigrade.



- 19 Check the surface.
- 20 Polish the lacquer with No: 320 abrasive paper used with water and common soap. STRONG CAUSTIC SOAP MUST NOT BE USED.
- 21 Remove the wheels, clean and paint them.
- 22 After cleaning, paint underneath the wings and hull. Use black paint AC.120 or a synthetic paint.
- 23 Fit the wheels.
- 24 Wash the body with clean water, dry with compressed air, and wipe over with a soft cloth.
- 25 If necessary touch up any areas where lacquer has been removed by polishing.
- 26 Apply a mist coat (mixed in the proportion of 30/70 of concentrated lacquer and thinners).
- 27 Leave to dry for five hours at a temperature of 18 to 20 degrees Centigrade.
- 28 Polish with paste applied with a cotton wool pad.
- 29 Clean the glass, chromium plating, and the inside of the body.
- 30 Use water to wash off polishing paste and cotton wool.
- 31 Give a final polish with paste.
- 32 Touch up panel edges with a small brush.
- 33 Fit the outside handles to the doors (including rear luggage compartment door).
- 34 Fit check straps to doors (including rear luggage compartment door).
- 35 Fit the bonnet.

## BODY NOT REQUIRING COMPLETE STRIPPING

- 1 Partially strip the body by using a scraper.
- 2 Using No: 80 abrasive paper dry rub down the areas scraped and any rusty parts to bare metal.



- 3 Remove grease with alcohol or petrol.
- 4 Polish with No: 280 abrasive paper used with soap and water.
- 5 Spray on a coat of cellulose primer (diluted in the proportion of about 100/100) on the areas stripped.
- 6 Spray on two coats of cellulose filler (diluted in the proportion of about 100/100) to the areas previously primed.
- 7 Apply mastic cellulose stopper, where necessary, with a knife. Leave to dry for thirty minutes at a temperature of 18 to 20 degrees Centigrade.
- 8 Spray on a third coat of filler (diluted as before).
- 9 Rub down filler and stopping with No: 180 or 200 abrasive paper used with water.
- 10 Rinse with water, dry with compressed air and wipe with a soft cloth.
- 11 Spray on a coat of cellulose lacquer (diluted in the proportion of about 100/100 according to the type of product).
- 12 Touch up again with mastic cellulose the areas previously stopped.
- 13 Rub down stopping with No: 280 abrasive paper used with water.
- 14 Dry off with compressed air and wipe over with a soft cloth.
- 15 Touch up any defects in the stopping or paint by applying a coat of cellulose lacquer only on the areas affected.
- 16 Spray on three coats of lacquer (diluted in the proportion of about 100/100 according to the type of product), with an interval of about five minutes between each coat, over the whole body surface.
- 17 Leave to dry for five hours at a temperature of 20 degrees Centigrade.
- 18 Check the surface painted.
- 19 Polish the lacquer with No: 320 abrasive paper used with water and common soap. **STRONG CAUSTIC SOAP MUST NOT BE USED.**
- 20 Remove the wheels, clean and paint them.
- 21 After cleaning, paint underneath the wings and hull. Use black paint AC.120 or a synthetic paint.
- 22 Fit the wheels.



- 23 Wash the body with clean water, dry with compressed air, and wipe over with a soft cloth.
- 24 If necessary, touch up any areas where lacquer has been removed by polishing.
- 25 Apply a mist coat (mixed in the proportion of 30/70 of concentrated lacquer and thinners).
- 26 Leave to dry for five hours at a temperature of 18 to 20 degrees Centigrade.
- 27 Polish with paste applied with a cotton wool pad.
- 28 Clean the glass, chromium plating and the inside of the body.
- 29 Use water to wash off polishing paste and cotton wool.
- 30 Give a final polish with paste.
- 31 Touch up panel edges with a small brush.
- 32 Fit the outside handles to the doors (including rear luggage compartment door).
- 33 Fit check straps to doors (including rear luggage compartment door).
- 34 Fit the bonnet.

IMPORTANT NOTE:- These two operations apply to vehicles already painted with cellulose lacquer. If the vehicle is painted with synthetic or oil paint, for repainting, the body must be completely stripped.

MATERIALS REQUIRED FOR PAINTING A VEHICLE COMPLETELY STRIPPED DOWN.

Stripper	20	litres ( $4\frac{1}{2}$ gallons)	Black varnish for underneath hull	1.5 litres ( $2\frac{5}{8}$ pints)
Petrol	1	litre ( $1\frac{1}{4}$ pints)	No:80 abrasive disc	1 disc
Cellulose primer	0.6	litres (1 pint)	No:180 or 220, 280 and 320 abrasive paper	22 sheets
Cellulose filler	6	litres ( $1\frac{1}{4}$ gallons)	Common white soap	0.050 kgs. ( $1\frac{1}{4}$ ozs.)
Mastic cellulose stopper	1.500	kgs. ( $3\frac{1}{2}$ lbs.)	Abel No:3 polishing paste	0.800 kgs. ( $1\frac{3}{4}$ lbs.)
Cellulose lacquer (colour)	6	litres ( $1\frac{1}{4}$ gallons)	Abel No: 4 polishing paste	0.100 kgs. ( $\frac{1}{4}$ lb.)
Thinners	12	litres ( $2\frac{1}{2}$ gallons)		

VARIOUS ITEMS - Soft cloths (mutton cloth), cotton wool, sponge, chamois leather, small brush (lining brush), polishing mops.



## LACQUERS TO USE

The qualities used on vehicles of French manufacture are as follows:-

VEHICLES PAINTED GREEN: Green cellulose AC.500.  
VEHICLES PAINTED BLACK: Black cellulose AC.201.

These lacquers are sold by all suppliers (Glasso, Nitrolac, Lefranc, Valentine, etc.)

VEHICLES PAINTED LIGHT METALLIC GREY: Metallic grey cellulose AC.105.  
VEHICLES PAINTED DEEP METALLIC GREY: Metallic grey cellulose AC.106.  
VEHICLES PAINTED DARK GREY: Grey cellulose AC.111

These lacquers are sold only by Nitrolac.

For retouching vehicles painted glossy black it is necessary to use black cellulose lacquer exclusive for Citroen finishing. This lacquer is sold by Pyrolac or Nitrolac.

## WHEELS

Wheels of four cylinder models are painted in grey cellulose AC.112.  
Wheels of six cylinder models are painted in cellulose AC.101.  
These lacquers are sold only by Pyrolac.

## UNDERNEATH WINGS AND HULL

Synthetic paint or black AC.120.



See Drawing 44

Different parts of the vehicles are covered with a substance meant to deaden noises in the body assembly. When washing the vehicle it is necessary to take care not to scrape the underside of the wings and thereby remove any of the sound deadening material.

Sound deadening material used on French built vehicles is "Bituplastic 4B" sold by the "Societe Francaise Bituplastic, 39 rue de Colfste, Paris", and "Alphonex" sold by "Silenco, 5 rue de Belfort, Maisons-Alfort (Seine)". These products, of a bitumen and asbestos base are in the form of a paste and can be used as received. However, should they be too thick they can be diluted with a little water.

These materials must be applied with a putty knife or a brush to thickness varying from 1 mm. to 2 mm. The amount necessary for one vehicle is approximately 12 kg. (27 lbs.) The coating will dry in air in ten to twelve hours. These materials will burn in contact with a flame but combustion ceases directly the flame is removed.

Drawing 44 shows the various areas where either one of these sound deadening materials must be applied.