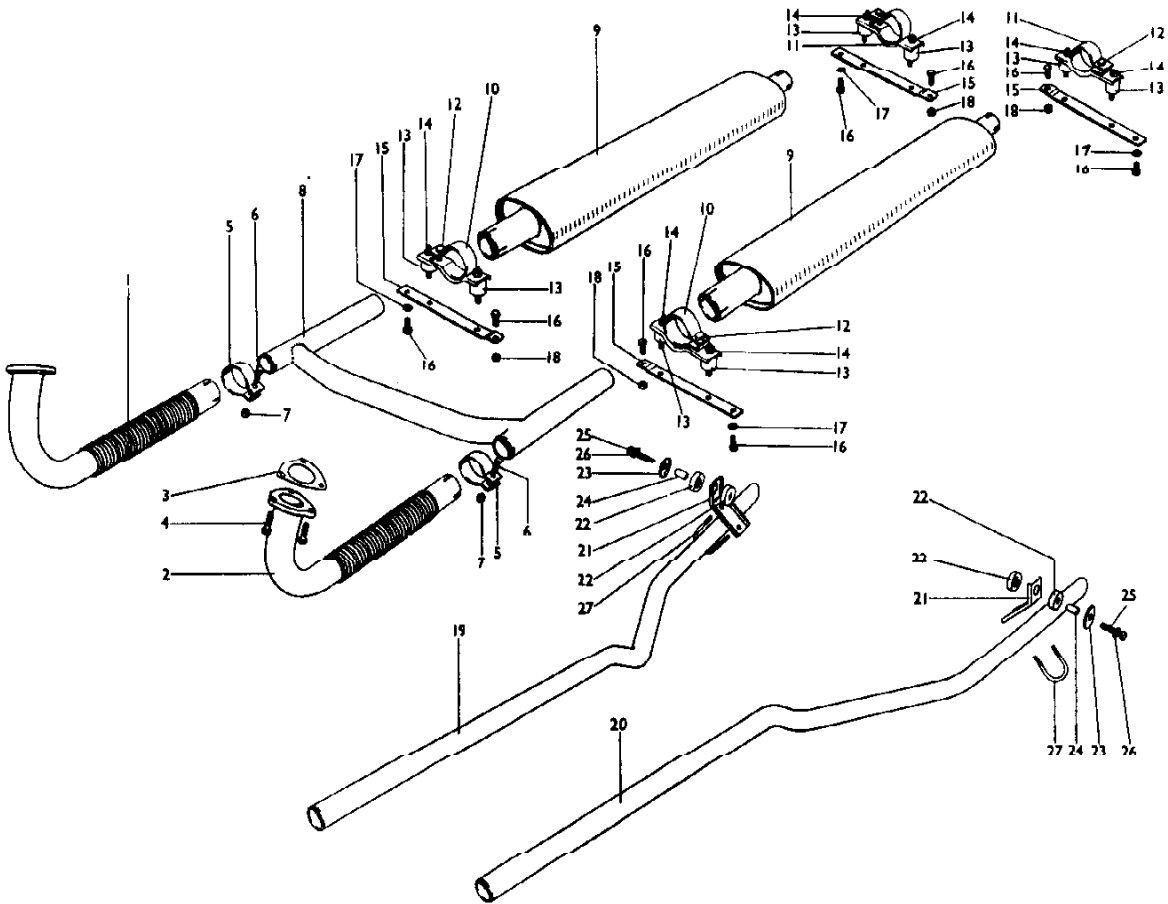


SECTION F  
THE EXHAUST SYSTEM

DESCRIPTION	Page	F1
THE EXHAUST MANIFOLD	Page	F1
Description	Page	F1
Maintenance	Page	F1
Removal and Replacement	Page	F1
THE FRONT EXHAUST PIPE ASSEMBLY	Page	F2
Description	Page	F2
Maintenance	Page	F2
Removal and Replacement	Page	F2
Tightening the pipe clips	Page	F2
THE BALANCE PIPE ASSEMBLY	Page	F2
Description	Page	F2
Removal and Replacement	Page	F3
THE SILENCER UNIT	Page	F3
Description	Page	F3
Removal and Replacement	Page	F3
THE SILENCER MOUNTING BRACKETS	Page	F4
Description	Page	F4
Removal and Replacement	Page	F4
Dismantling and Assembling	Page	F4
THE EXHAUST TAIL PIPE	Page	F5
Description	Page	F5
Removal and Replacement	Page	F5
THE EXHAUST TAIL PIPE HANGER BRACKET	Page	F5
Description	Page	F5
Removal and Replacement	Page	F5



**Figure F1**  
Exploded view of exhaust system.

- |  |                                       |
|--|---------------------------------------|
| 1. R. H. front exhaust pipe assembly.    | 15. Support plate.                    |
| 2. L. H. front exhaust pipe assembly.    | 16. Bolt.                             |
| 3. Front exhaust pipe gaskets.           | 17. Spring washer.                    |
| 4. Bolts.                                | 18. Locking nut.                      |
| 5. Front pipe clip.                      | 19. R. H. exhaust tail pipe.          |
| 6. Pipe clip pinch bolt.                 | 20. L. H. exhaust tail pipe.          |
| 7. Locking nut.                          | 21. Tail pipe hanger bracket.         |
| 8. Exhaust system balance pipe assembly. | 22. Hanger bracket rubber bush.       |
| 9. Exhaust silencer.                     | 23. Rubber bush retaining cup washer. |
| 10. Front carrier plate and pipe clip    | 24. Distance piece.                   |
| 11. Rear carrier plate and pipe clip.    | 25. Hanger bracket centre bolt.       |
| 12. Pipe clip pinch bolt.                | 26. Spring washer.                    |
| 13. Metal and rubber bonded bush.        | 27. "U" bolt.                         |
| 14. Locking nut.                         |                                       |

SECTION F.  
THE EXHAUST SYSTEM

DESCRIPTION Fig. F1

The twin exhaust system, one from each cylinder head, is of the balanced type having the connecting pipe from one system to the other at a position just in front of the two silencers. It consists of the following components:

- (i) Two, interchangeable cast iron manifolds.
- (ii) Two, short front pipe assemblies, these include the length of flexible pipe.
- (iii) A balance pipe assembly, the connecting pipe passing under the gearbox unit.
- (iv) Two, interchangeable silencers, resiliently mounted between the transmission and the chassis frame side members.
- (v) Two, tail pipe assemblies passing outward under the rear axle to resiliently mounted hanger brackets on each outside rear corner of the chassis frame.

Exhaust gases are evacuated from the two cylinder heads into the large diameter front flexible and balance pipe assemblies before passing into the baffle type silencers. The gases leave the silencers through slightly smaller diameter tail pipes, the ends of which protrude from beneath the rear of the car.

THE EXHAUST MANIFOLD

DESCRIPTION

The exhaust manifold is manufactured from cast iron and is interchangeable between the two cylinder heads. Each one is attached to the outside face of the cylinder head with an asbestos gasket, eight studs and brass nuts, the latter being locked by "Palnuts". The lower end of the manifold incorporates the fitting face for the top end of the front exhaust pipe assembly.

MAINTENANCE

FIRST 500 MILES (805 kms)

Tighten the exhaust manifold nuts.

REMOVAL AND REPLACEMENT  
EXHAUST MANIFOLD

1. FRONT EXHAUST PIPE ASSEMBLY

Detach the flange of the front exhaust pipe assembly from the lower extremities of the exhaust manifold by withdrawing three nuts and bolts and collecting the copper and asbestos gasket.

2. EXHAUST MANIFOLD

Remove the exhaust manifold from the side face of the cylinder head by removing eight "Palnuts" and eight brass nuts. Remove the asbestos gasket from the eight cylinder head studs.

3. REPLACEMENT

The replacement of the exhaust manifold is the reversal of the removal sequence but particular attention must be given to the following points:-

- (i) That both fitting faces of the cylinder head and exhaust manifold are perfectly clean and flat.
- (ii) That replacement gaskets are fitted to both the cylinder head and front exhaust

pipe fitting faces.

- (iii) That after 500 miles (805 kms) have been covered the nuts of the exhaust manifold and the nuts and bolts of the front exhaust pipe are fully tightened.

### THE FRONT EXHAUST PIPE ASSEMBLY

#### DESCRIPTION

The front exhaust pipe is attached to the lower extremities of the exhaust manifold by a copper and asbestos gasket and three nuts and bolts. Incorporated in its length is a piece of flexible exhaust pipe, this prevents engine vibrations being transmitted to the remainder of the exhaust system. The second end of the front exhaust pipe fits outside the balance pipe assembly and is secured with a pipe clip and a nut and bolt.

#### MAINTENANCE

##### FIRST 500 MILES (805 kms)

Tighten front exhaust pipe to manifold nuts and bolts.

#### REMOVAL AND REPLACEMENT FRONT EXHAUST PIPE ASSEMBLY

##### 1. MANIFOLD END

Detach the manifold end of the exhaust pipe and collect the gasket from the manifold flange by removing three nuts and bolts.

##### 2. BALANCE PIPE END

Withdraw the rear end of the front exhaust pipe from the balance pipe assembly by slackening the nut and bolt in the pipe clip as detailed on page F3.

#### REPLACEMENT

The replacement of the front exhaust pipe is the reversal of the removal sequence but particular attention must be given to the following points:

- (i) That a replacement gasket is fitted between the exhaust manifold and pipe flanges.
- (ii) That the nut and bolt of the clamp is tightened as detailed below.

#### TIGHTENING THE PIPE CLIPS

One type of pipe clip is used in the exhaust system to secure the various pipes and components together. Two clips are free at the rear end of the front exhaust pipe assembly while the remaining four are welded to the carrier plates of the silencer support brackets. The following instruction, however, is applicable to both types.

The nut of the pinch bolt must always be positioned at the bottom of the clip and they must only be tightened sufficiently for the ear on one leg of the pipe clip to contact the flat inside face of the clip's second leg.

### THE BALANCE PIPE ASSEMBLY

#### DESCRIPTION

The balance pipe assembly is an 'H' shaped pipe assembly of a welded construction and the connecting pipe passes beneath the gearbox unit just aft of the clutch bell housing. The purpose of the balance pipe is to equalise the pressure in each exhaust system and to synchronise the exhaust note.

The rear end of the balance pipe assembly passes through the front two members of the chassis frame cruciform fitting inside the silencer unit and secured by the pipe clip welded to the carrier

plate of the front silencer mounting bracket assembly.

#### REMOVAL AND REPLACEMENT BALANCE PIPE ASSEMBLY

##### 1. FRONT EXHAUST PIPE ASSEMBLY

Remove the two front exhaust pipes from the front end of the balance pipe assembly as detailed on page F2.

##### 2. BALANCE PIPE ASSEMBLY

Withdraw the balance pipe assembly from inside the front end of each silencer by slackening the nut and bolt of the pipe clip. Remove the balance pipe assembly from the front ends of the cruciform chassis members.

##### 3. REPLACEMENT

The replacement of the balance pipe is the reversal of the removal sequence.

#### THE SILENCER UNIT

##### DESCRIPTION

The silencer unit is of the baffle type and oval in section, its larger diameter end tube being the inlet port and both ports having saw cuts to facilitate gripping the rear end of the balance pipe assembly and the front of the tail pipe respectively. It is fitted complete with its two mounting brackets with the large oval section across the car, to a position between the front and rear cruciform members and adjacent to the inside face of the chassis frame side member. Asbestos sheeting is attached to the floor of the car above the silencer unit for insulation purposes.

#### REMOVAL AND REPLACEMENT SILENCER Fig. F2.

##### 1. TAIL PIPE

Remove the tail pipe from the rear end of the silencer as detailed on page F5.

2. Slacken the nut and bolt through the pipe clip situated at the front end of the silencer. Detach the two silencer mountings from the chassis side and cruciform members by removing two bolts and two nuts and bolts respectively. Remove the silencer from the rear end of the balance pipe assembly by withdrawing it rearwards.

##### 3. REPLACEMENT

The replacement of the silencer is the reversal of the removal sequence but particular attention must be given to the following points:-

- (i) That the ends of the silencer are opened slightly to facilitate its travel over the balance pipe assembly and the inward travel of the tail pipe.
- (ii) That the two silencer mounting brackets are fitted on the silencer tubes so that the pipe clip nuts and bolts are nearer to the chassis frame side member and then offered up to the chassis frame as a complete unit.
- (iii) That the tightening of the pipe clip nuts and bolts is delayed until the silencer brackets are secured to the underside of the chassis frame.

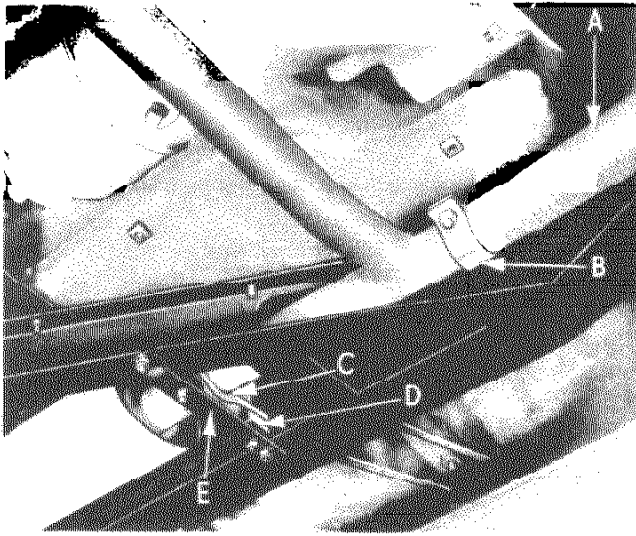


Figure F2.

The balance pipe and front silencer mounting.

- A. Flexible section of front exhaust pipe assembly.
- B. Front exhaust and balance pipe clip.
- C. Front carrier plate and clip assembly.
- D. Metal and rubber bonded pad.
- E. Silencer mounting support plate.

### THE SILENCER MOUNTING BRACKET

#### DESCRIPTION

The two front silencer mounting brackets are identical but are offered up to the silencer so that the nut and bolt of the pipe clip is toward the chassis frame side member. They consist of a pipe clip welded to a carrier plate and then mounted on a support plate with two metal and rubber bonded pads, secured by nuts interposed between. The silencer bracket is mounted between the chassis frame side and cruciform members by the support plate and a bolt and nut and bolt respectively.

The two rear silencer mounting brackets are very similar to those at the front but the pipe clip is welded to the carrier plate with a distance piece positioned between. They are fitted in an identical manner.

#### REMOVAL AND REPLACEMENT SILENCER MOUNTING BRACKETS

##### 1. REMOVAL

Remove the silencer from the chassis frame as detailed in page F3. Withdraw the nut and bolt passing through the pipe clip, spread the ends of the clip, and slide the mounting brackets from the end pipes of the silencer.

##### 2. REPLACEMENT

The replacement of the silencer mounting brackets is the reversal of the removal sequence but particular attention must be given to the following points:

- (i) That the silencer mounting brackets having the distance piece welded between the underside of the pipe clip and the carrier plate is selected as the rear silencer mounting bracket.
- (ii) That the mounting brackets are offered up to the silencer so that the nut and bolt passing through the clip has its nut on the underside and it is positioned toward the chassis frame side member in each instance.

#### DISMANTLING AND ASSEMBLING SILENCER MOUNTING BRACKET

##### 1. DISMANTLING

Remove the support plate from the bottom of the mounting bracket assembly by detaching

two nuts. Remove the two metal and rubber bonded rubber pads from the carrier plate by detaching two nuts. Withdraw the nut and bolt from the pipe clip.

## 2. ASSEMBLING

The assembling of the silencer mounting is the reversal of the dismantling sequence but particular attention must be given to the following points:-

- (i) That the nut and bolt in the pipe clip is fitted with the nut downward.
- (ii) That the carrier plate assembly having the distance piece welded between the clip and the carrier plate is selected as those for the rear mounting bracket.
- (iii) That the carrier plate assembly with the metal and rubber bonded pads attached are secured to the support plate so that the bolt in the clip is toward the flat side of the support plate.

### THE EXHAUST TAIL PIPE

#### DESCRIPTION

The tail pipe is slightly less in diameter than the balance pipe assembly but fits into the rear port of the silencer in a similar manner. The pipe passes rearward under the rear axle and chassis frame to a resiliently mounted hanger bracket on the rear outside corner of the chassis frame to which it is attached by a "U" bolt.

#### REMOVAL AND REPLACEMENT EXHAUST TAIL PIPE

##### 1. REMOVAL

Slacken the nut and bolt of the pipe clip situated at the rear end of the silencer and detach the tail pipe end from the hanger bracket by removing the two nuts from the "U" bolt. Withdraw the tail pipe rearward from the end of the silencer.

##### 2. REPLACEMENT

The replacement of the tail pipe is the reversal of the remove sequence but particular attention must be given to the following points:-

- (i) That the tail pipe is fitted to the bottom face of the hanger bracket.
- (ii) That the "U" bolt through the hanger bracket is tightened sufficiently to grip the tail pipe but without destroying its section.

### THE TAIL PIPE HANGER BRACKET

#### DESCRIPTION

A pressed steel tail pipe hanger bracket is attached between spigotted rubber bushes to the rear outside corner of the chassis frame. A steel distance piece is fitted inside the rubber bushes to permit the required degree of resilience in the mounting and prevent them being tightened to destruction.

The exhaust tail pipe is attached to its bottom face by a "U" bolt.

#### REMOVAL AND REPLACEMENT TAIL PIPE HANGER BRACKET

##### 1. REMOVAL

Detach the tail pipe from the hanger bracket by removing the two nuts of the "U" bolt. Remove the hanger bracket from the outside of the chassis frame by withdrawing the centre bolt, cup washer, two rubber bushes and distance tube.

## 2. REPLACEMENT

The replacement of the hanger bracket is the reversal of the removal sequence but particular attention must be given to the following points.

- (i) That the hanger bracket points toward the ground beneath the car and the rubber bushes are located each side of the hanger bracket, spigot face inward with a distance tube through their centre and secured by the bolt, and cup washer fed in from the outside. This bolt is tightened to grip the distance piece between the cup washer and chassis frame.
- (ii) That the "U" bolt through the corner chassis bracket is tightened sufficiently to grip the tail pipe but without destroying its shape.