S.U. HP & AUF 300, 301, 303, 306 ELECTRIC FUEL PUMPS

Triumph Stag
MGB
Jaguar XKE Series 3 V12
Jaguar XJ6

DESCRIPTION

Pumps are a pulsating diaphragm type with contact points and operate on 12 volts. Disc valves are used to control fuel flow direction. HP pumps should pump about one pint of fuel per minute and AUF pumps 2.6 pints per minute.

TROUBLE SHOOTING & DIAGNOSIS

No Pump Operation When Ignition Turned On – When the ignition switch is initially turned ON, one or several pump impulses should occur. If no pump action is noted, proceed to test for current supply at the pump as follows:

1) Remove the feed wire at the pump terminal and check for current availability with a test lamp or voltmeter.

2) If current is available at the pump terminal, remove the pump bakelite cover to make a check for contact point continuity.

3) With the feed wire connected to the pump terminal, short across the points with a jumper lead or suitable conductor. If the pump then makes a stroke, the points are either burned and pitted, dirty, or out of adjustment.

4) Fold a piece of emery paper and slide it back and forth between the points. Follow this operation by sliding a piece of paper between the points to remove any residue left by the emery paper.

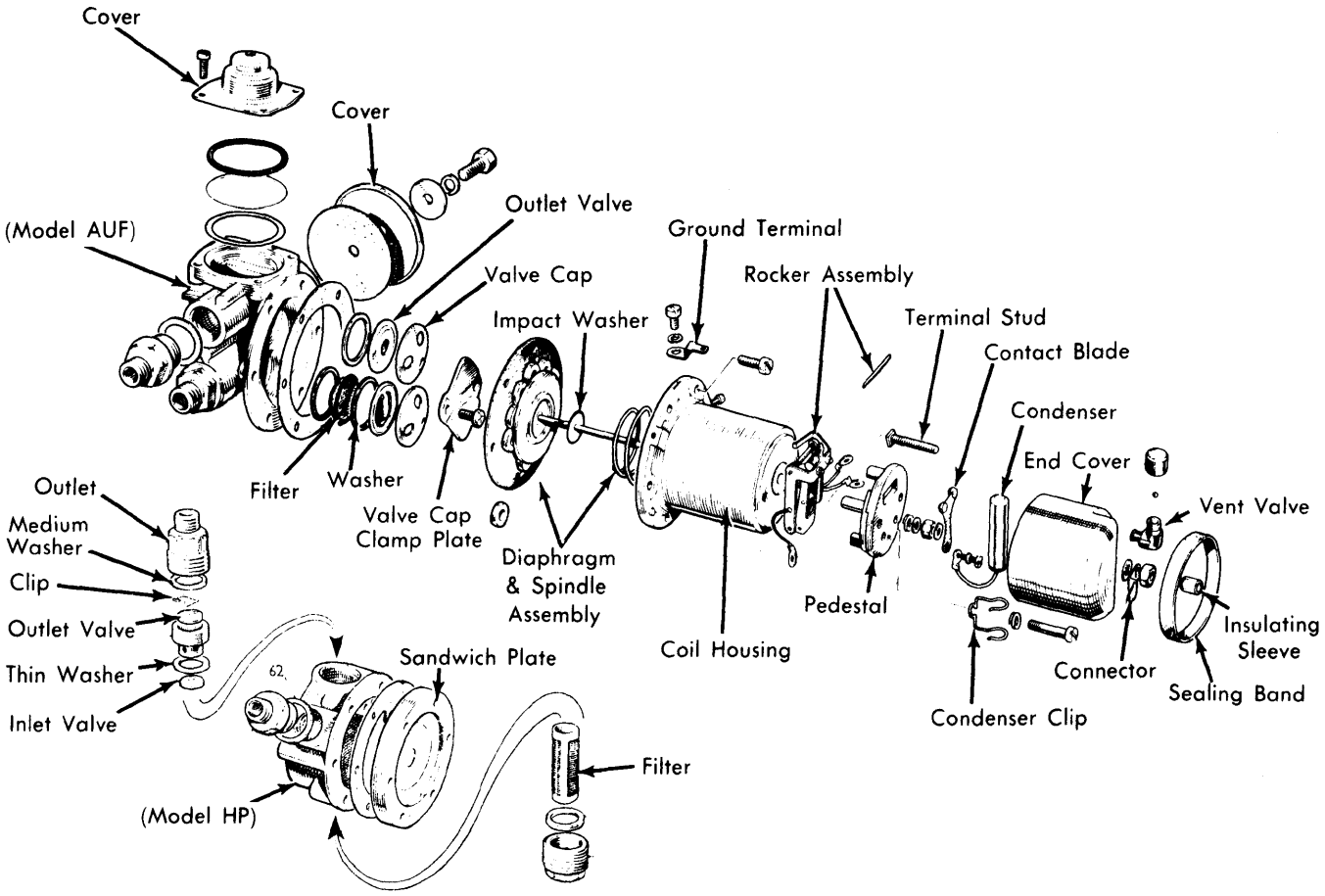
5) If the pump is now operational but the points are burned or pitted, it is recommended that the pump be removed from the vehicle and new points be installed and adjusted.

Pump Operates With No Fuel Discharge – If pump operates correctly and continuously with no fuel delivery, probable causes may be as follows:

1) Air leak (s) in suction side of pump system. Check for loose or leaking fittings, ruptured fuel line, leaking sealing washers at pump valves.

2) Dirt lodged under one of the valves (particularly the intake valve).

3) Worn, defective, or damaged valves or valve seats. Scrap worn valves. If valve seats are pitted, the cage or pump body must be replaced.



FUEL PUMP COMPONENTS

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Pump Operation Slow – This may be caused by an obstructed fuel supply to the inlet side of the pump. Disconnect the fuel line at the pump inlet. If the pump now operates at normal frequency (or faster), proceed as follows:

1) With fuel line disconnected from pump, remove fuel tank filler cap. Use compressed air at pump end of fuel line. If air flow was poor at first but gradually or suddenly improved, obstruction has been cleared. *CAUTION – Do not apply compressed air to fuel pump. Valves will be damaged.*

OVERHAUL

DISASSEMBLY

Contact Breaker – 1) Remove insulated sleeve or knob, terminal nut and connector. Remove end seal and cover.

2) Remove the screw holding the contact blade to the pedestal and remove the condenser from its clip. Remove the coil lead and contact blade.

Coil Housing & Diaphragm – After removing the six screws from the assembly, remove the coil housing and proceed as follows:

Roller Type – Hold coil housing over bench or receptacle to catch brass rollers as they are released. Turn the diaphragm counterclockwise until armature spring pushes it free of housing.

Guide Plate Type – Turn back the edge of diaphragm and pry out both end lobes of armature plate guide from recess in coil housing. Unscrew diaphragm until the armature spring pushes it from housing. Remove armature guide from diaphragm.

Pedestal & Rocker – 1) Remove end cover seal washer, terminal nut and washers. Remove screws holding pedestal to coil housing. Remove ground wire with condenser clip.

2) Tip pedestal and remove terminal stud from wire terminal. Remove pedestal with rocker mechanism attached.

Pump Body & Valves (Model HP) – Remove inlet and outlet connections, outlet valve cage, and inlet valve disc. Remove base plug and filter.

CLEANING & INSPECTION

General – 1) Clean all parts in contact with fuel. Remove any gum residues. Clean filter with solvent and compressed air.

2) Inspect contact points. If burned or pitted, replace rockers and contact spring blade. Examine the diaphragm for deterioration. Replace if required.

3) Examine the non-return vent valve in the end cover for damage, and ensure that the small ball valve is free.

Model AUF 300, 301, 303 & 306 – 1) Examine valve assemblies for kinks or damage to valve plates. Check by blowing or sucking with mouth.

2) Check to see that the narrow tongue on the valve cage has not been distorted, but allows a valve lift of approximately 1/16" (1.6 mm).

Model HP – 1) Remove lock ring in outlet valve cage. Examine inlet and outlet valve discs for signs of wear and remove if worn.

2) Inspect the valve seat in the pump body and outlet valve cage for wear and corrosion. If pitted, renew the pump body or outlet valve cage.

REASSEMBLY

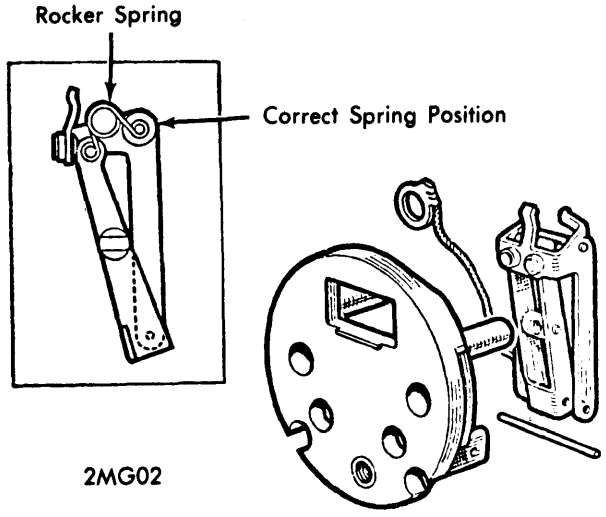
Pedestal & Rocker – *NOTE – The steel pin which secures the rocker assembly to the pedestal is specially hardened. Replace this pin only with a genuine S.U. part.*

1) Fit the rocker assembly to the pedestal and insert the steel pin. Position the center toggle so that with the inner rocker spindle in tension against the rear of the contact point the center toggle spring is above the spindle on which the white rollers run (see illustration).

2) The above positioning is necessary to obtain the correct "throw-over" action of the rocker assembly. The rockers must be perfectly free to swing on the pivot pin and the arms must not bind on the legs of the pedestal. Rockers can be squared up with a pair of thin-nosed pliers.

3) Assemble the terminal stud, washers and coned nut to the pedestal. Finally, add the end cover seal washer.

4) Attach the pedestal to the coil housing with two screws. The condenser wire clip on the left-hand screw goes between the pedestal and ground terminal. A lock washer is not required when a condenser is used. Do not overtighten the screws, since the pedestal may crack. Do not attach the contact blade at this point.



PEDESTAL & ROCKER ASSEMBLY

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Diaphragm Assembly – With the armature spring in the coil housing with its large diameter towards the coil, be sure the impact washer (a small neoprene washer that fits in the armature recess) is in place. Proceed as follows:

1) Insert the spindle in coil and screw it onto the trunnion in the center of the rocker assembly.

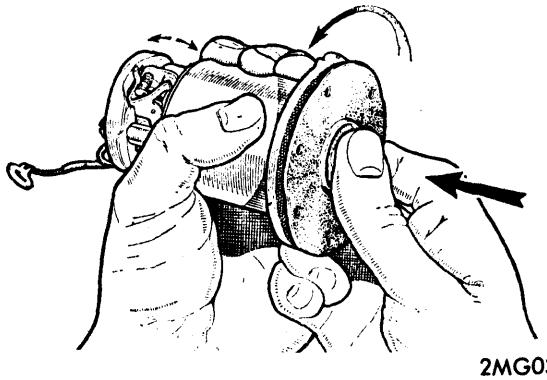
2) Screw the diaphragm in until the rocker will not "throw over". Do not jam the armature on the coil housing internal steps.

3) (Roller type) Hold the pump with the rocker end downwards. Turn back the edge of the diaphragm and place the 11 brass rollers into the recess in the coil housing.

4) On later-type rocker mechanisms with adjustable fingers fit the contact blade at this time and adjust the finger settings as described later. Then remove the contact blade.

5) Slowly unscrew the diaphragm while at the same time actuating it until the rocker just throws over. Unscrew the diaphragm further until the holes are aligned. Then unscrew it a quarter of a turn more.

6) (Roller type) Press in on the center of the armature and place a retaining fork at the back of the rocker assembly.



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ADJUSTING DIAPHRAGM UNTIL ROCKER JUST THROWS OVER

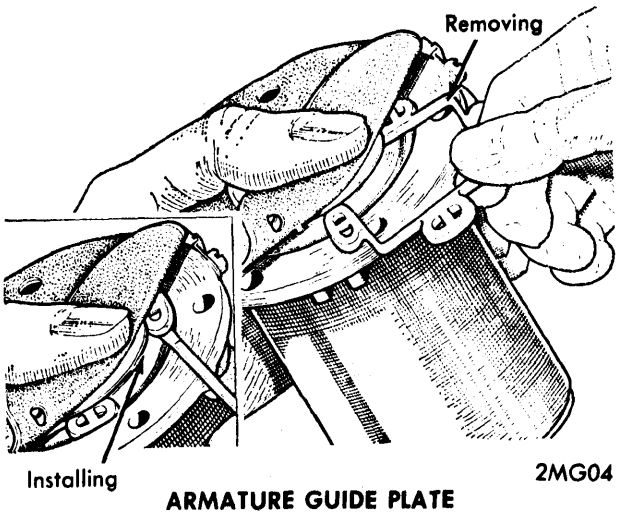
BODY COMPONENTS (MODEL AUF 300, 301, 303 & 306)

1) (Guide plate type) Turn back the edge of the diaphragm and insert one end lobe of the armature guide plate into the recess between the armature and coil housing. Position all four lobes. Commencing in the center and finishing with the two end ones, press the lobes into the recess.

2) Install the inlet and outlet connections with their sealing rings. Assemble outlet valve components in the outlet recess in the following order: A sealing washer, the valve (tongue side downward), then the valve cover.

3) Install the inlet valve in the following order: A sealing washer, fuel filter (domeside downward), another sealing washer, the valve assembly (tongue side uppermost), and the valve cover.

4) Making sure that both valve assemblies are properly positioned, place the clamp plate on top of the valve covers and tighten to the body with the two screws.



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ARMATURE GUIDE PLATE

BODY COMPONENTS (MODEL HP)

1) Position the outlet valve disc in the outlet valve cage. Be sure the smooth face of the disc is against the valve seat. Hold the valve in place and install the lock ring in its groove. The valve must rattle when the cage is shaken.

2) Drop the inlet valve disc, smooth face downward, on the valve seat in the pump. Insert the thin fibre washer, drop the valve cage in position and insert the medium fibre washer. Install the outlet union and tighten. Install the inlet union and filter.

COIL TO BODY REASSEMBLY (MODEL AUF 300, 301, 303 & 306)

1) Position the gasket on the body and carefully place the housing on the gasket and body, lining up the holes.

2) With the cast lugs on the coil housing at the bottom, install the six screws finger tight. Install the ground screw and connector.

3) (Roller type) Remove the retaining fork from the rocker assembly. Be sure the brass rollers are correctly positioned. Tighten the screws in diagonal sequence.

COIL HOUSING TO BODY REASSEMBLY (MODEL HP)

1) Position the sandwich plate joint gasket on the face of the body and line up the holes. Place the sandwich plate on the gasket and again line up the holes.

2) Place the coil housing on the body and sandwich plate with the connections at the top and the filter at the bottom. with the two cast lugs on the coil housing at the bottom, insert the six screws and tighten finger tight. Install the ground screw and connector.

3) Remove the roller retaining fork. Check to see that the rollers are retained in position. Tighten the screws in sequence as they are diametrically opposite each other.

Contact Blade – Install the contact blade and coil lead on the pedestal. Place the condenser terminal beneath the coil lead terminal. Proceed as follows:

1) Adjust the contact blade so that the points on it are a little above the contact points on the rocker when the points are closed (see illustration).

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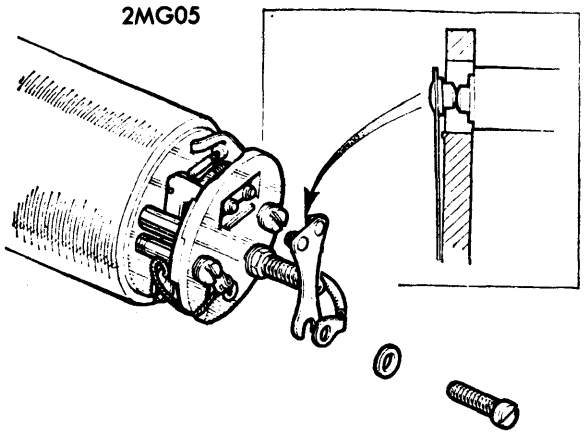
2) Further adjust the points so that when they make or break, one pair of points wipes over the center line of the other in a symmetrical manner.

3) A slot in the contact blades allows this degree of adjustment. Tighten the screw when adjustment is obtained.



CORRECT CONTACT POINT ALIGNMENT

ADJUSTMENT

GENERAL

Check to see if when the outer rocker is pressed on to the coil housing the contact blade rests on the narrow rib which projects above the main face of the pedestal. If it does not, slacken the contact blade screw, swing the blade clear of the pedestal and bend it downwards to obtain this condition.

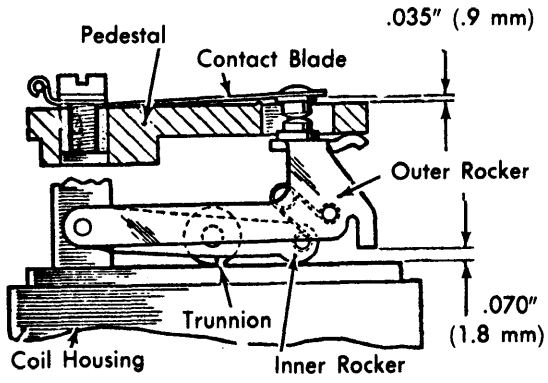
CONTACT GAP SETTING

Modified Rocker – 1) Check lift of contact blade above top of pedestal (see illustration). To adjust, bend stop finger beneath pedestal to obtain correct lift.

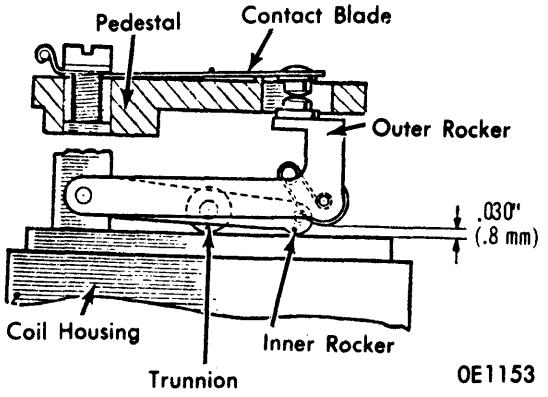
2) Check gap between rocker finger and coil housing (see illustration). If gap is not correct, bend stop finger to adjust.

Early-Type Rocker – 1) Hold contact blade against rib on pedestal without pressing tip of blade (see illustration). A .030" (.8 mm) feeler gauge should pass between fibre rollers and face of coil housing.

2) If necessary, bend tip of blade to obtain correct clearance.



CONTACT GAP SETTING – MODIFIED TYPE



CONTACT GAP SETTING – EARLY TYPE