S.U. AUF 200 & 406 TYPE ELECTRIC FUEL PUMPS

Jaguar XKE Series 3 V12
MG Midget

DESCRIPTION

Pumps operate on 12 volts and are of the disc valve and diaphragm type. Basic components consists of contact breaker, coil housing and diaphragm, pedestal and rocker, body and valves.

TROUBLE SHOOTING & DIAGNOSIS

INSUFFICIENT FUEL TO CARBURETOR

Disconnect ignition coil. Disconnect fuel line at carburetor, turn ignition switch ON to actuate fuel pump and check fuel flow from fuel line. If apparently normal, make the following checks.

1) Dirt, gum, or obstruction between carburetor fuel inlet fitting and needle valve. Gummed or sticking needle valve.

2) If fuel flow initially normal and first few pump strokes produce adequate fuel flow but volume then diminishes and pump operation becomes slower, check for incorrect fuel tank venting. Remove fuel tank filler cap and recheck pump action and fuel discharge. If fuel flow is now normal, clean vent system in filler cap or replace cap.

3) If fuel flow is reduced after initial normal output and pump impulses are slowed, further check for restriction on the inlet side of the pump. Check for clogged fuel filter or kinked or flattened fuel line from fuel tank to pump.

4) If inadequate fuel flow is accompanied by rapid and fluctuating pump impulses, cause may be an air leak on the suction side of the pump, dirt under the pump valves, or leaking valve sealing washers.

PUMP DOES NOT OPERATE

1) Check for voltage and current availability at pump electrical terminal.

2) If current is available at pump terminal, remove pump bakelite cover and check for contact point continuity. With current supply wire connected to pump terminal, short across points with jumper wire or tool. If pump then produces a stroke, points are not making contact. Draw a piece of clean cardboard through the points several times to clean them. Replace points if they are worn or pitted and burned.

RESTRICTION IN PUMP SUCTION SIDE

1) Remove fuel line at pump, remove fuel tank filler cap. Blow compressed air through line. Observe volume of air discharged into fuel tank. If obstruction was at first present and then cleared up, drain and flush fuel tank. *NOTE – DO NOT apply compressed air to fuel pump inlet fitting. Valves and valve springs will be damaged.*

PUMP IS NOISY WITH INTERMITTENT FUEL DISCHARGE

1) Usually caused by air leaks on suction side of pump. Also, gummy or dirty valves and valve seats in pump.

2) Check for air leaks by discharging fuel from end of a hose submerged in fuel in a suitable container. If bubbles are present in fuel being discharged, an air leak exists on suction side of pump.

OVERHAUL

DISASSEMBLY

Contact Breaker – Remove insulated sleeve, terminal nut, connector and washer. Remove tape seal (if used) and remove end cover. Remove screw holding contact blade to pedestal to allow removal of washer, long coil lead and contact blade.

Coil Housing & Diaphragm – After removing the coil housing screws and the ground terminal screw, remove the housing and proceed as follows:

1) Unscrew diaphragm (turn counterclockwise) until armature spring pushes diaphragm away from housing. Hold housing over bench while removing diaphragm so that the 11 brass rollers are not lost. Diaphragm and spindle are serviced only as a unit.

Pedestal & Rocker – After removing the end-cover seal washer, terminal nut and lead washer, proceed as follows:

1) Remove screws attaching pedestal and remove the ground terminal. Tip the pedestal and remove the terminal stud. Remove pedestal with rocker mechanism attached. Push pin from pedestal and rocker and remove rocker mechanism.

Body & Valves – Unscrew pump inlet union and remove filter. Remove Phillips screw and remove two valve assemblies.

CLEANING & INSPECTION

After cleaning all gum deposits from parts, proceed as follows:

1) Examine the plastic valve assemblies for kinks or damage to the valve plates. Check for valve operation by blowing and then sucking with the mouth.

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

3) Examine valve recesses in the body for damage and corrosion. If corrosion cannot be removed or if seat is pitted, replace the body. Clean the filter with solvent and compressed air.

4) Inspect the contact breaker points. If they are pitted and burned, renew the rocker assembly and spring blade.

5) Replace the diaphragm if it shows signs of deterioration. Renew all fibre and cork washers, gaskets and "O" rings. Renew any of the 11 rollers showing signs of wear.

REASSEMBLY

Pedestal & Rocker – Using the special steel pin, make assembly as follows:

1) With the pin pushed through the holes in the rockers and pedestal, 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. The rockers must be free to swing on the pivot pin and the arms must not bind on the pedestal legs.

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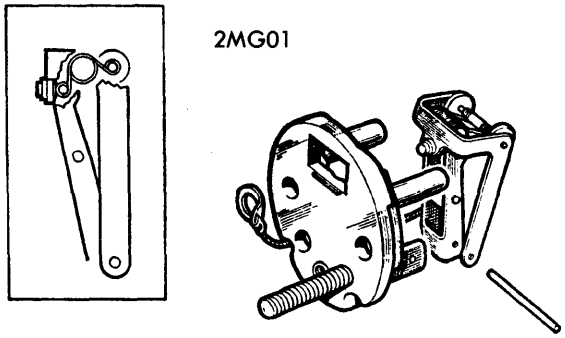
2) Assemble the spring washer, terminal stud, terminal, lead washer and coned nut on the pedestal. After tightening the nut, add the end-cover seal.

3) Fasten the pedestal to the coil housing. The spring washer on the left-hand screw (9 o'clock position) must be between the pedestal and the ground terminal.

4) Carefully tighten attaching screws, taking care to prevent the ground terminal from turning. Do not overtighten screws since the pedestal is easily cracked. Do not fit contact blade at this time.



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CONTACT BREAKER & PLATE ASSEMBLY

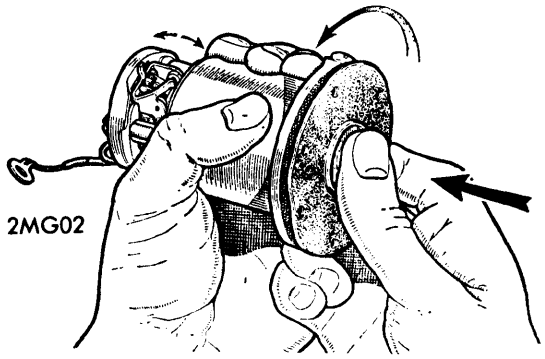
DIAPHRAGM ASSEMBLY

1) Install armature spring into the coil housing with larger diameter towards coil. Make sure the impact washer is fitted in the recess in the armature (this is a small neoprene washer).

2) Install diaphragm by inserting the spindle in the hole in the coil and screwing it into the threaded trunnion in the center of the rocker assembly. Turn the diaphragm in until the rocker will not throw over. Do not jam the armature on the coil housing internal steps.

3) Turn back the diaphragm edge and install the 11 brass rollers. *NOTE - On later type rocker mechanisms with adjustable fingers, fit the contact blade and adjust the finger setting as detailed in a following paragraph. Then remove the contact blade.*

4) With the coil housing held in a horizontal position, push the diaphragm spindle in firmly and unscrew until the rocker just "throws over". Then further unscrew the diaphragm to the nearest screw hole, then unscrew four holes additionally (this will be approximately two-thirds of a complete turn).



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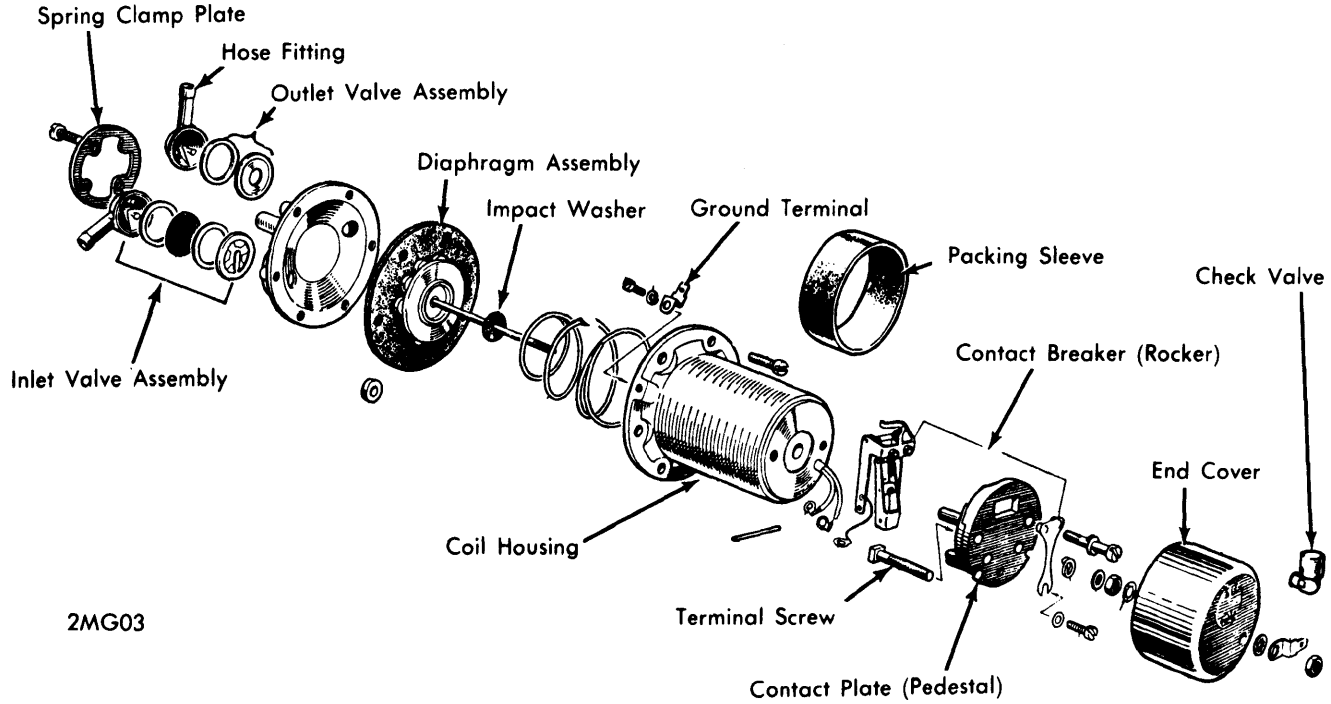
ADJUSTING DIAPHRAGM

5) Press on the center of the armature and install the retaining fork at the back of the rocker assembly. This will prevent the rollers from falling out, but is not intended to stretch the diaphragm before tightening the body screws.



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AUF 200 EXPLODED VIEW

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BODY COMPONENTS

1) Place the outlet valve assembly, tongue side uppermost, in the recess marked "outlet", then install a sealing washer and the outlet nozzle.

2) Install the inlet valve assembly, tongue side downward in the inlet recess. Install a sealing washer, then the filter (dome side upwards), then install another sealing washer and the inlet nozzle.

3) Position the nozzles as required, place the clamp plate on top and attach to the body with the two screws.

PUMP BODY & COIL ASSEMBLY

1) Line up the six holes in the bodies and insert the screws finger tight. Cast lugs on the coil housing must be at the bottom. Install the ground screw and its connector.

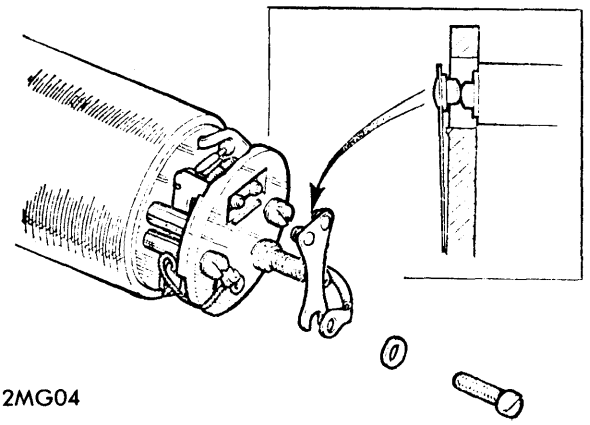
2) Remove the roller-retaining fork. Make sure the rollers remain in position. It is not necessary to stretch the diaphragm before tightening the screws. Tighten the screws in sequence as they become diametrically opposite each other.

CONTACT BLADE

Attach the contact blade and coil lead to the pedestal and proceed to adjust as follows:

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

2) When the contacts make or break, one pair of points should wipe over the center-line of the other. A slot in the contact blade permits adjustment.



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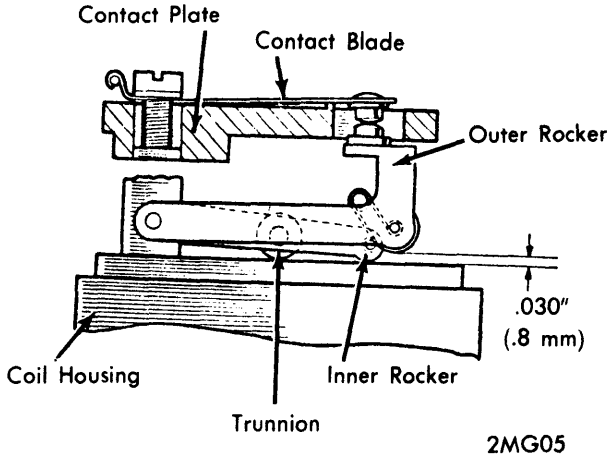
RELATIVE POSITION OF CONTACT POINTS

CONTACT GAP SETTING

Before adjusting contact gap, press the outer rocker to the coil housing. The contact blade should rest on the rib or ridge which projects slightly above the main face of the pedestal. If it does not, bend the contact blade downwards as required. Over tensioning of the blade will restrict the rocker travel.

Early-Type Adjustment – Check the gap between the points by holding the contact blade against the rib on the pedestal without pressing on the tip (see illustration). A .030" (.76 mm) feeler gauge should pass between the fibre rollers and the face of the coil housing. If necessary, the tip of the blade can be set to correct the gap.



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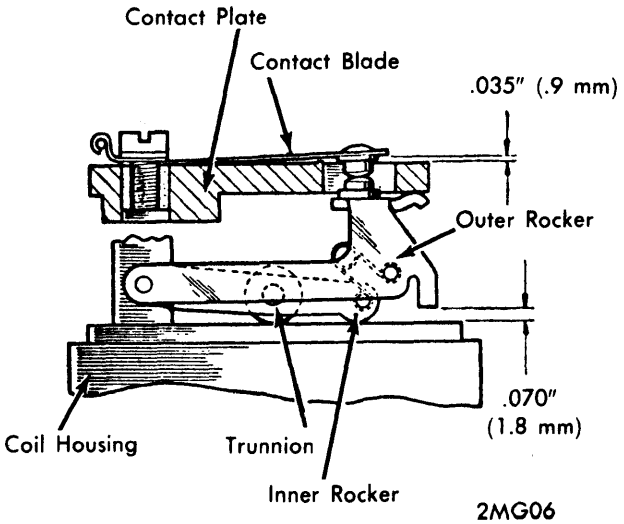
EARLY-TYPE CONTACT ASSEMBLY

Modified-Type Adjustment – Check the lift of the contact blade tip above the top of the pedestal with a feeler gauge. Bend the stop finger beneath the pedestal to obtain a lift of .035±.005" (.89±.13 mm).

Check the gap between rocker finger and coil housing. Bend the stop finger to obtain a gap of .070" (1.8 mm) (see illustration).



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MODIFIED-TYPE ROCKER ASSEMBLY

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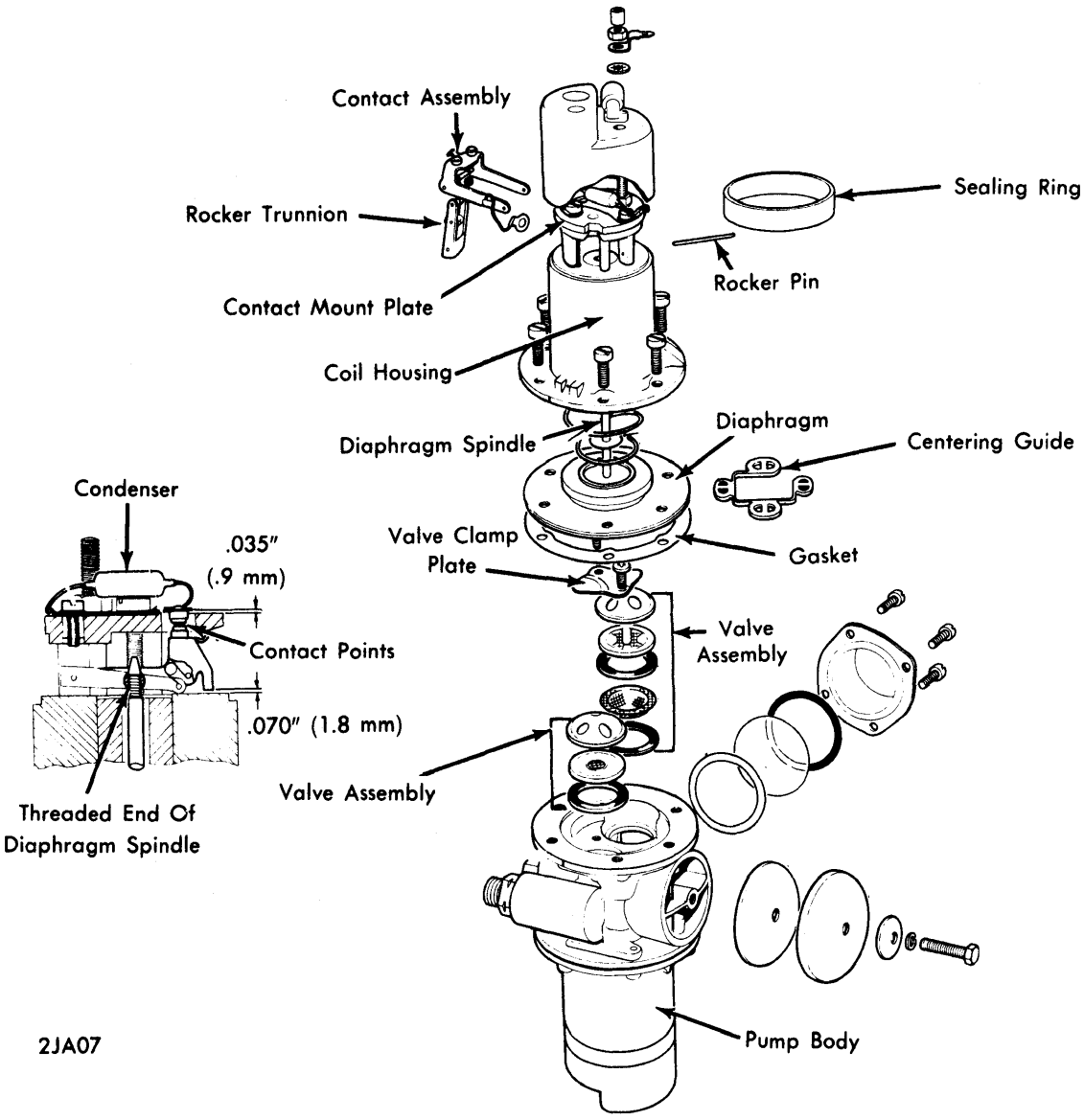

AUF 406 EXPLODED VIEW