COMMENTS REGARDING SU AUXILIARY ENRICHMENT DEVICES (AED) AND THEIR REPAIR

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Contrary to popular opinion and the statements published in various Jaguar and SU repair manuals, the SU AED can be adjusted, and most of its problems can be fixed by a careful mechanic who has some carburetor experience. A basic rebuild kit can be purchased from at least two sources:

Burlen Fuel Systems, Ltd.
Spitfire House
Castle Road
Salisbury SP1 3SA England

Joe Curto, Inc.
22-09 126th Street
College Point, NY 11356
USA

The kit includes gaskets, main valve diaphragm, needle diaphragm, and float needle. It does not include any of the springs, bi-metals, or bushings. In my experience, these, and other, AED parts are generally not available except by buying a used or rebuilt unit.

The three-part manual, *AUH 300 Range Carburetter Automatic Enrichment Device-(A.E.D.)*, covers the rebuild and adjustment of AEDs quite well, including procedures to set the main valve and jet needle lift. Be aware that the manual is a bit dated, and newer AEDs may have some minor differences from the manual's drawings. The differences are, however, very minor and obvious, such as using separate gaskets for the float chamber lid and valve body instead of one, and they have no effect on the procedure.

The initial needle jet installation procedure shown in part 2, pages 7 - 8, paragraph 10 is crude. Another SU publication has a drawing that gives a measurable dimension that is easier to do and more precise. See Fig. 1 for sketch of that drawing. I purchased a rebuilt AED from Burlen where the measurement was 8.8mm, and it had to be turned 1/4 turn ACW, increasing that somewhat, to get the proper mixture. Since the newer jet needle assemblies are slightly different from the older ones, I think it is best to start with the Fig. 1 measurement, or even a little greater.

Fig. 2 shows a device I made to replace the Part No. 9003 probe, which is unavailable as far as I can tell. It is a little trickier to use, but with care, accurate measurements can be made. Instead of locking a collar and then removing the probe to check the gap with a feeler gage, one must use the feeler gage to measure the gap between the rubber slider and the top of the AED's top cover. When making the device, use rubber that is not very soft and springy. What you want is a slider that moves along the probe without excessive force but does not flex and move around much. I cut mine from a hose, and put the outer, convex side down, facing the AED.

Use the device as follows:

1. Move the slider to about the middle of the probe.

2. Insert the probe into the main valve or jet needle hole, and push down until it stops. This will move the slider up the probe somewhat. With the probe as far down as it will go, twist the probe a little to be sure the slider seats at the right position.

3. Release the pressure on the top of the probe. It will pop back up a little, leaving a gap between the slider and the top cover.

4. Without removing the probe from the AED, measure the gap between the bottom side of the slider and the top cover of the AED. Be sure to keep the feeler gage flat against the top cover surface. The gage should just touch the slider. HINT- Insert the feeler gage slightly to one side, so the device will start to rotate if the gage is too thick.

5. Adjust as required, and repeat steps 1-4.

It is a good idea to repeat each measurement at least twice to ensure accuracy.

The main valve and jet needle measurements are temperature sensitive, and they must be made with the AED between 50 and 80F (10 and 26.5C). See the tables on part 3, pages 3 - 4 of the manual. Be sure that the AED and the thermometer and the AED have been close to each other at least an hour to be sure the AED's internal parts are at the temperature shown on the thermometer. If necessary, interpolate to get measurements for temperatures between those shown in the tables. Do not do these adjustments in the bright sun that could change the temperature during the process without your realizing it.

The most vexing problem for me with the AED has been when it fails to shut off completely as it warms up. In addition to the black smokey exhaust, a test for this is to check the temperature of the T-shaped tube from the AED to the intake manifold. If the AED fails to shut off completely, fuel will drawn into this tube and evaporate, causing it to become cool or cold to the touch. The manual does not address this situation at all. Be sure the brass plug is in place on the SIDE of the top cover facing the engine. I do not know why a hole was put there, but it is supposed to be plugged to prevent air from being sucked in. If the problem persists, I believe there are two possible explanations: 1) The bi-metals have deteriorated and no longer close the main valve and/or needle as they should, and 2) the main valve stem and/or bushing has worn to the point that it will no longer move freely. Since

these parts are not available, I know of nothing to do but replace the AED.

One unusual problem I had was for my AED to become sooted up internally. I finally found that the cause was a leaking exhaust manifold flange gasket. On the Jaguar 4.21 XK engine, the AED's air inlet is very close to the rear flange. It seems that soot from an overly rich exhaust got sucked in. Of course, this hampered the AED's performance, causing even richer running and more exhaust soot, etc., etc. Be sure the exhaust joints are tight.

If you really like to detail your engine bay, note that the filter plug, that large hexagonal nut near the fuel inlet, is plated brass. It is easy to remove the plating with a flat file and some fine emery cloth, and the brass polishes up nicely. Just be careful not to round off the corners of the flats.

FIG. 1

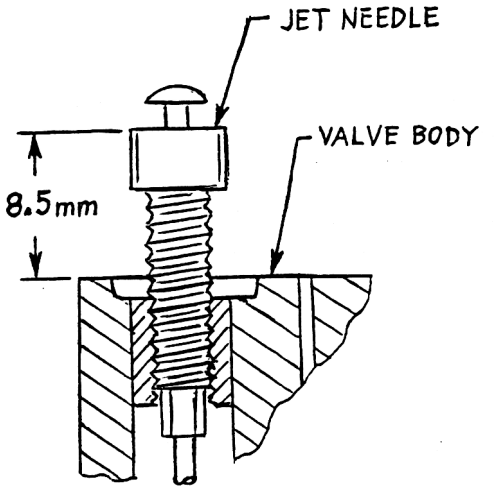
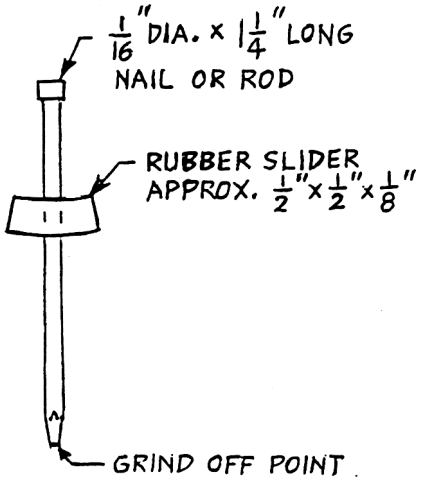
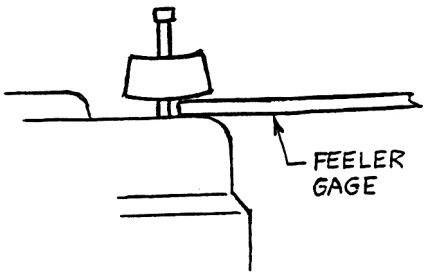


FIG. 2





MEASURING JET NEEDLE LIFT