

HEADLIGHT VACUUM POT

Several Elan owners including this writer have had problems with those mysterious looking black vacuum pots which actuate the pop-up headlights. The most common symptoms seems to be slow response in coming up or "drooping" when at idle. (The drooping also occurs at speed, right gang?) Chances are that leaks somewhere in the lines are the causes here. The long lines that run from the switch on the dash to the pots and back are least suspect but should be checked for abrasion or cracking. The most probable culprit is the rubber couplings between the primary lines and pots or primary line and intake manifold. These couplings seem to be quite resistant to ozone and moisture but will eventually crack and leak. (Remember under vacuum cracks in the couplings will compress so inspection should be by flexing these couplings with the engine off and the system bled). Any suitable inside diameter rubber hose can effect replacement for the coupling but hi-vacuum rubber hose is available through laboratory supply houses. A silicone lubricating grease (for hi-vacuum applications) is also available at lab supply outlets and will provide a positive seal. For a super thorough repair, clamps for these hoses are available as well, but one installation in use seems OK without them.

More serious problems have occurred within the vacuum pot itself seemingly necessitating replacement, but at \$15.00 (Bob Challman) apiece there is enough incentive to rebuild them yourself.

The pot consists of two halves with a rubber diaphragm held between them. The headlamp actuating rod is screwed and bolted to a metal center in the diaphragm. When the dash switch is pulled a vacuum is drawn on the bottom half of the pot pulling the diaphragm and activating rod down thereby pulling the headlamp up. (These English are clever chaps, what?)

The pots are removed from the car simply enough--disconnect vacuum lines, flasher spring and headlamp return spring (one end of which is permanently attached to the top of the pot) and undo two nylock nuts (one from wheel well, other from bottom front of body).

The pot halves are crimped together and are separated by filing (coarse bastard file) or grinding the outer flange (see diagram). Only about 1/32" of material is removed from around the entire flange perimeter (the writer accomplished this with a bastard file in about 20 minutes).

There are several causes of failure of the pot. Leaks could occur in the diaphragm or in the bottom half of the pot. Leaks in the diaphragm could be sealed by fixing a tire patch to the top side of the diaphragm. Leaks in the pot (from rust) could be sealed by brazing or soldering over the corroded area.

This writer's failure was a rusted through activating rod. It seems in some Elans the pots collect water in the top half through the activating rod hole. My pot was almost full of water when the rod broke off. Some owners have poured a silicone lubricant in the pot top hole to inhibit rust and protect the diaphragm. If a broken rod is the problem cut off the remaining stub and file as flush as possible to the metal disc (careful to avoid abrasion on the diaphragm). Drill a 1/8" hole through the center of the disc. A stainless steel rod 1/8" diameter and approximately 13" long is threaded on one end about 3/4" up from the end. A nut is screwed on to act as a stop. The rod is then put through the disc and secured by a second nut at the bottom. Loctite is used to secure the assembly. After smearing a gasket seal material on the bottom flange of the diaphragm and inside flange of the bottom pot half, place the two together. Replace the top pot half and secure with "C" clamps. While clamped in place drill holes at 3, 6, 9 and 12 o'clock through the flange as close to the edge as possible to accept small diameter machined screws with washer and nut (see diagram).

Place the pot back in the car without securing nylocks. Raise the headlamp and secure with masking tape in up position. Push activating rod down so that the diaphragm is at bottom of pot. Mark top of activating rod so that a loop can be bent to secure rod to headlamp. After marking loop remove pot and bend top of rod to closed circle (old rod is suitable template). Now reassemble in car, connect lines and springs and voila! It works!

