



(FAA D.O. AUTHORIZATION SW-1 APPROVED)

TO: Distributors, Dealers, and Service Centers
FROM: Customer Service
SUBJECT: Trouble Shooting Procedures - M20 E, Bendix Fuel Injector, RSA-5AD1
MODELS AFFECTED: M20E
SERIAL NUMBERS AFFECTED: 101 and on

INTRODUCTION: A careful study of these procedures will aid in isolating any problem and in corrective maintenance for the RSA-5AD1 Bendix Fuel injector system as installed on Mooney M20E aircraft.

1. General

A. Problem:

1. Original idle setting good, then with time, idle appears to be going progressively rich.
2. Unable to lean idle properly with idle adjustment screw.
3. Unable to run engine smoothly under 1,000 RPM.
4. Abnormal lean-out using mixture control without obtaining correct Exhaust Gas Temperature.

B. Probable Cause:

1. Injector has internal fuel leak.
2. Plugged nozzle or nozzle line.

2. Trouble Shooting Procedure:

- A. To check injector for internal fuel leakage, cap off the fuel line from the injector to the flow divider; open mixture and throttle controls wide open; turn on boost pump for one (1) minute. Observe if raw fuel is leaking out of venturi annulus or impact tubes by opening the ram air door. If leakage is observed, remove unit and send to overhaul shop for repair. If no leakage is observed, reinstall fuel line.
- B. To check flow divider: Operate engine at idle for two or three minutes; with engine running, check cylinders to see if one or more are cool. If a cool one is found, it is possible that a nozzle is dirty or the flow divider port is plugged. Clean all nozzles by soaking them in Acetone or MEK -- DO NOT DISASSEMBLE! With nozzle lines raised up, mixture control closed, throttle control opened, turn on boost pump and very slightly open mixture control until fuel begins to drip out each nozzle line -- this drippage should be equal. Should fuel not drip out one line, either the line or flow divider port could be plugged. Remove line from flow divider and go through same procedure at fittings on flow divider. This will indicate the line or the divider as the offender.
- C. If this indication shows the divider is plugged, follow this procedure: Loosen four screws from top of flow divider, rap top cover with a plastic hammer to disengage cover and remove screws being careful not to lose the spring from between the cover and diaphragm.

- D. Remove spring, cover, and diaphragm which will include the valve. Use air pressure to reverse flush the nozzle lines and flow divider ports. Now turn on boost pump pressure and open mixture valve to allow fuel to run out of the flow divider, after which time re-install the cap and associated parts.
- E. Install the nozzles on the lines without installing them in the cylinder ports. With the nozzles horizontal, turn on boost pump, throttle open, and gently open mixture control. The flow divider will begin to emit fuel in a slow drippage with each nozzle drippage equal. As mixture control is opened further, fuel will squirt out the end of the nozzle in a forced stream.
- F. Place a finger over the outlet end of each nozzle; fuel will then come out from under the screen shield on the nozzle indicating the air bleed port is open. Reinstall the nozzles in their ports. They can be mixed up - they need not be installed in the port from which they came.
- G. Install the nozzles so the bleed port is up as much as possible and toward the rear of the engine. The air bleed port will be indicated as on the side of the wrench flat that is opposite the letter "A" stamped on the wrench flat.
- H. Review all Bendix RS Fuel Injection Service Bulletins and Mooney Service Instruction M20-13, and comply as necessary.

NOTE: All modifications and recalibration should be done by a Bendix Approved overhaul facility. Further information concerning both names and address of Bendix facilities, as well as Bendix overhaul and parts can be obtained from - The Bendix Corporation, Bendix Products Aerospace Division, South Bend 20, Indiana.

Please consult recent release of Bendix RS Fuel Injection Service Bulletin No. 18 Revision 2 for information concerning applicability. Parts and bench labor is presently being furnished for the Bendix Bulletin No. 18 Revision 2 compliance and the warranty and work should be applied for through the authorized Bendix Service Station. Warranty claims will not be honored after September 30, 1966.