



## **EJ-350 Service Instructions**

### ***I. Introduction***

EJ-350 is a combination axial flow ejector, ambient air stream isolation (mechanical) valve assembly and over-boost protection device. During normal vehicle operation the unit remains fully passive with the ejector dormant, mechanical butterfly valve open and over-boost poppet valve shut.

When a properly configured CAS system is activated the butterfly valve shuts and the ejector discharges high pressure air into the intake tract of the vehicles engine. High ejector nozzle exit pressures and massflow rates result in significant axial thrust being generated by the ejector. The ejector needs to be securely mounted to reduce the likelihood of an intake hose coupling becoming dislodged and/or the ejector assembly becoming disconnected from the engine intake tract.

The ejector nozzle tip or “Motive Nozzle” tip plays an important role in tuning a CAS system to a specific engines’ airflow/power target. An inappropriately sized nozzle may still provide acceptable boost control but, for optimized response and boost level maintenance the proper tip should be employed. Refer to the CAS Bulletin titled “Ejector and Motive Nozzle Selection” for information on correctly selecting units for your application.

The “Pop-off” or relief setting of the over-boost valve is factory set as specified on the Ejectors’ labeling.

Providing reasonable care and cleanliness standards are maintained, the valve should provide many years of trouble free operation.

### ***II. Mechanical Butterfly Assembly Inspection and Repair***

The mechanical butterfly is spring loaded open and driven shut by the actuator ACT-156. Open and shut travel is limited by the adjusting screws located on the Actuator Arm Assembly. Anytime EJ-350 is disassembled, travel of the butterfly should be examined and adjustments to the stop screws performed as necessary prior to reassembly.

1. Disconnect the Actuator from the Butterfly Assembly.
2. Examine the Butterfly assembly for smooth operation. It should rotate smoothly from fully closed to fully open, without any hint of sticking at either limit of travel.

## **II. Mechanical Butterfly Assembly Inspection and Repair Cont'd**

3. If operation is smooth, continue with steps 4 through 8. If binding occurs during rotation, disassemble Butterfly Assembly, clean components with a light solvent such as mineral spirits and examine them for wear, damage or debris and replace components as necessary.

*Note:* The bushings contained in the Ejector Housing are graphite impregnated and do not require lubrication. If bushings are damaged they need to be removed with an arbor press and new units secured in place with adhesive. If you have an Ejector with damaged bushings, it is recommended that you return it to CAS for this service.

4. Loosen the 10-24 set screw and lock nut that limit travel when the Butterfly is shut.
5. Rotate the Butterfly fully shut. Slowly turn-in the 10-24 set screw until the Butterfly begins to lift off of its' fully closed position (about ¼ to ½ turn open).
6. Lock the set screw in place with the lock nut.
7. Reattach the Actuator to the Butterfly Assembly. Looking into the Ejector with the Actuator fully relaxed, the butterfly should be parallel with the airstream. Loosen and adjust the 10-24 set screw that limits the fully open position as necessary.
8. Lock the set screw in place with the lock nut.

## **III. Butterfly Actuator**

Servicing of the Actuator is covered in the Service Bulletin titled "ACT-156 Service Bulletin".

## **IV. Pop-off/Over-boost Protection Valve**

The Over-boost Protection Valve is unlikely to need service unless its' sealing O-ring has become damaged or dislodged or, a change in the pressure relief setting of the valve is desired.

1. Measure and note the position of the 9/16-in nut that holds the relief valve assembly in place. This can be done with the heel of a pair of dial calipers or by merely marking one face of the nut, noting its orientation then counting the number of turns required to remove the nut fully from its' stud.

*Note:* If you desire to re-set the pressure at which an Over-boost valve operates at, each ½ turn of the 9/16-in nut equates to approximately **XX psi**.

#### ***IV. Pop-off/Over-boost Protection Valve Cont'd***

2. Clean components with a light solvent such as mineral spirits and examine them for wear, damage or debris and replace components as necessary.
3. Reinstall Over-boost Protection Valve components.
4. Re-tighten 9/16-in nut to original position to retain original pressure relief setting or, adjust to desired position.

