

# Expello Valve Operation

## EXPELLO VALVE SERVICE

The Thermo-Expello valve is unique because it has an optional built-in heater which is automatically turned on when the temperature approaches freezing and it automatically turns off when the temperature of the valve has warmed to approximately 100 degrees. The heater automatically thaws out the valve if frozen and keeps the valve operating under adverse weather conditions when air systems are prone to freezing.

### AUTOMATIC VALVE OPERATION CHECKS:

1. Start engine and build air pressure.
2. Check for air leaks by running fingers over all valves, valve ports, tubing, and connections.

NOTE: Valve should eject when compressor cuts out at full pressure, or, when compressor cuts in at low pressure.

### MANUAL CONTROL OPERATION CHECKS:

NOTE: Compressor must be "cut-in" to permit manual control. Procedure is as follows:

1. Reduce air tank pressure to point where compressor cuts in.
2. Turn manual drain control clockwise to drain position. Air and condensate will then expel from tank.

IMPORTANT: Return manual drain to original automatic position.

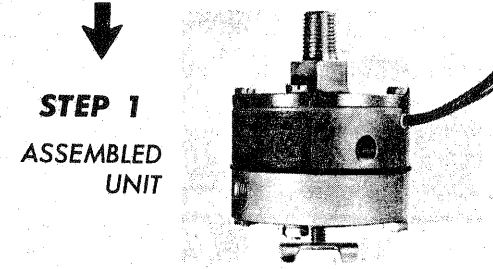
### ACTUATOR OPERATION CHECK:

The Expello valve should eject ONCE as air pressure rises; and ONCE as air pressure falls. If actuator hunts and/or chatters, raise the compressor governor pressure setting approximately 5 psi.

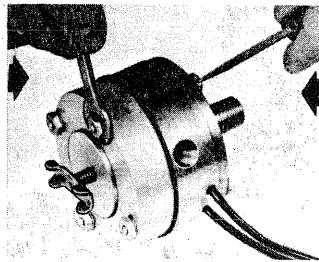
Page 2 illustrates Dissassemble or Assemble procedures.

# STEPS TO DISASSEMBLE – OR ASSEMBLE EXPELLO VALVE

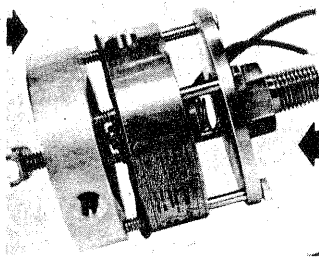
TO DISASSEMBLE  
READ DOWN STARTING AT TOP LEFT



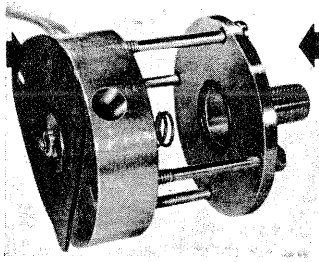
**STEP 1**  
ASSEMBLED  
UNIT



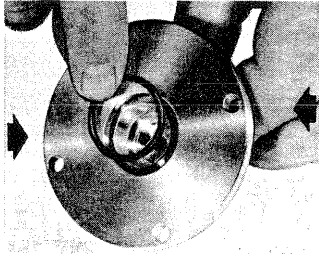
**STEP 2**  
REMOVE  
4 NUTS



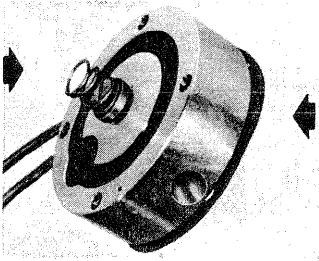
**STEP 3**  
SEPARATE  
3 SECTIONS  
AND  
REMOVE  
LOWER BODY



**STEP 4**  
REMOVE  
COVER  
FROM UPPER  
BODY



**STEP 5**  
REMOVE  
"O" RING



**STEP 6**  
REMOVE  
SPRING  
FROM  
VALVE STEM

**STEP 12**  
CHECK FOR  
LEAKS AND  
OPERATION

**STEP 11**  
TIGHTEN  
SCREWS

**STEP 10**  
LINE UP  
SCREWS  
THRU LOWER  
BODY  
ACTUATING  
INLET 90°  
FROM OUTLET  
PORTS

**STEP 9**  
LINE UP  
SCREWS  
THRU COVER  
AND UPPER  
BODY

**STEP 8**  
INSTALL  
"O" RING

**STEP 7**  
PLACE  
SPRING ON  
VALVE STEM

↑  
ASSEMBLY  
CONT.

DISASSEMBLY  
CONT. ↓

**STEP 7**  
REMOVE  
VALVE STEM  
ASSEMBLY  
SELF-LOCKING  
NUT

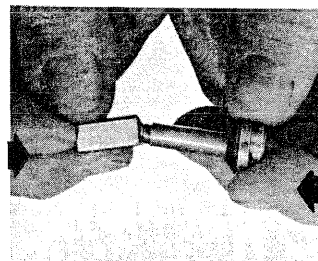
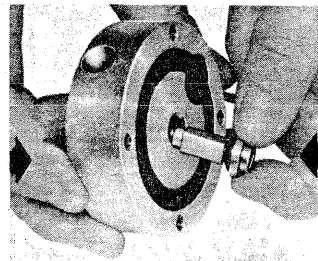
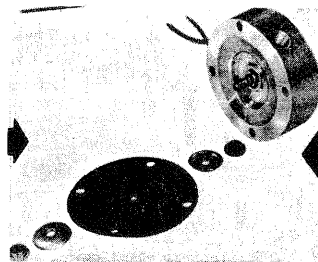
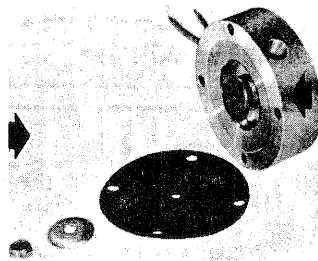
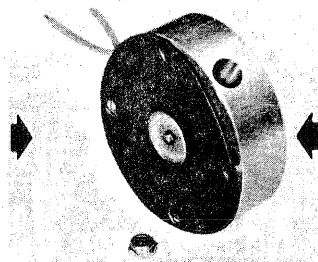
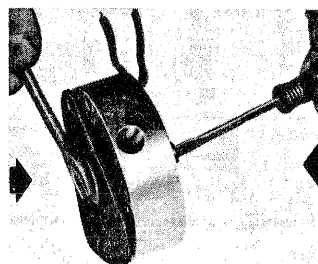
**STEP 8**  
DISASSEMBLE  
SELF-LOCKING  
NUT AND  
WASHER

**STEP 9**  
DISASSEMBLE  
DIAPHRAGM  
AND VALVE  
STEM

**STEP 10**  
DISASSEMBLE  
LOWER BIB  
FROM VALVE  
STEM

**STEP 11**  
REMOVE  
VALVE STEM  
AND SPACER

**STEP 12**  
DISASSEMBLE  
SPACER FROM  
VALVE STEM



**STEP 6**  
TIGHTEN  
VALVE STEM  
ASSEMBLY

**STEP 5**  
PLACE  
DIAPHRAGM  
AND LOWER  
WASHER  
OUTSIDE  
EDGE AWAY  
FROM  
DIAPHRAGM

**STEP 4**  
PLACE UPPER  
WASHER  
OUTSIDE  
EDGE  
TOWARD  
LOWER BIB

**STEP 3**  
PLACE  
LOWER BIB  
SMALLER  
END TO  
SPACER

**STEP 2**  
INSERT  
VALVE STEM  
AND SPACER

**STEP 1**  
PLACE  
SPACER ON  
VALVE STEM  
WITH BIB  
IN PLACE

↑  
TO ASSEMBLE  
READ UP STARTING AT BOTTOM RIGHT

PROBLEM	SOLUTION
<p>Expello does not operate.</p> <p>Air leaks out condensate outlet when compressor cuts out.</p> <p>Expello valve is continuously exhausting air when compressor tries to unload.</p> <p>Erratic compressor cut-in and cut-out.</p>	<p>Improper connection of actuating line at governor.</p> <p>Improper actuating line connection at Expello.</p> <p>Alcohol injector check valve installed backwards, venting actuation line back into compressor line. To correct, reverse check valve connections.</p> <p>Sensing line from reservoir (air tank) to governor leaks.</p>
<b>GOVERNOR MALFUNCTION... SYMPTOMS &amp; SOLUTIONS</b>	
<p>Governor may be worn internally and leaking through its unloader port.</p> <p>A. Compressor cuts out at regulated setting, but Expello continually exhausts it.</p> <p>B. Compressor continually pumps air and the Expello continually exhausts it.</p> <p>C. Compressor appears to cut-out at regulated pressure but Expello does not operate.</p>	<p>First check by installing a gauge on actuating line at Expello to observe pressure.</p> <p>When compressor is cut-in (pumping air) the pressure should be zero.</p> <p>When the compressor is cut-out (idling) the pressure should be at reservoir pressure.</p> <p>If the pressure does not quickly change from zero to reservoir pressure, or if the gauge shows pressure during the charge cycle, repair or replace the governor.</p> <p>NOTE: A governor can often be rejuvenated by freeing-up the adjusting screws enough to blow out foreign objects; then resetting the screws as instructed.</p>
<b>FAULTY EJECTION</b>	
<p>Passage or upper valve seat clogged with debris.</p> <p>Air leak at manual drain.</p> <p>Air leak at other points or settings.</p>	<p>Attempt to dislodge particles by briefly opening manual valve. If this fails, remove valve and clean it. Be sure to clean out tank before re-installing valve; then check for leaks.</p> <p>Turn manual drain clockwise and then back out to seat. Valve should seat with normal hand pressure. Do not use pliers. If leakage can't be stopped, remove lower body and check for small chip under valve seat or defective "O" ring.</p> <p>Remove valve, disassemble, clean, and repair. Replace diaphragm when needed.</p>
<p>When valve is closed, actuation pressure should equal reservoir pressure. Lower line pressure indicates a faulty governor or slow line leak.</p>	