UNITED TECHNOLOGIES CARRIER — Commercial Division, Carrier Corporation	BULLETIN: CA-SB-19-C-64-18 DATE: 3/25/64 PAGE: 1 OF: 3
SERVICE BULLETIN	SUPERSEDE BULLETIN: DATE: PAGE: OF:
SUBJECT: PURGE PUMP SERVICE GUIDE	

PURPOSE: To forward instructions for servicing the oil-less piston type purge pump.

MACHINES AFFECTED: All 19D and 19C machines using R-11 and R-113.

PROCEDURE: Repairs to the single cylinder piston type purge pump should be limited to replacement of the valves and/or carbon piston ring. If the pump requires major repairs, it will usually be less expensive to replace the entire pump.

Figure 1 shows the major parts of the pump. Exhaust gases enter the inlet, pass through the surge chamber to the intake valve, and are exhausted through the exhaust valve. The cap plug can be removed to pressurize the machine for purge operation number 3 on the purge valve chart.

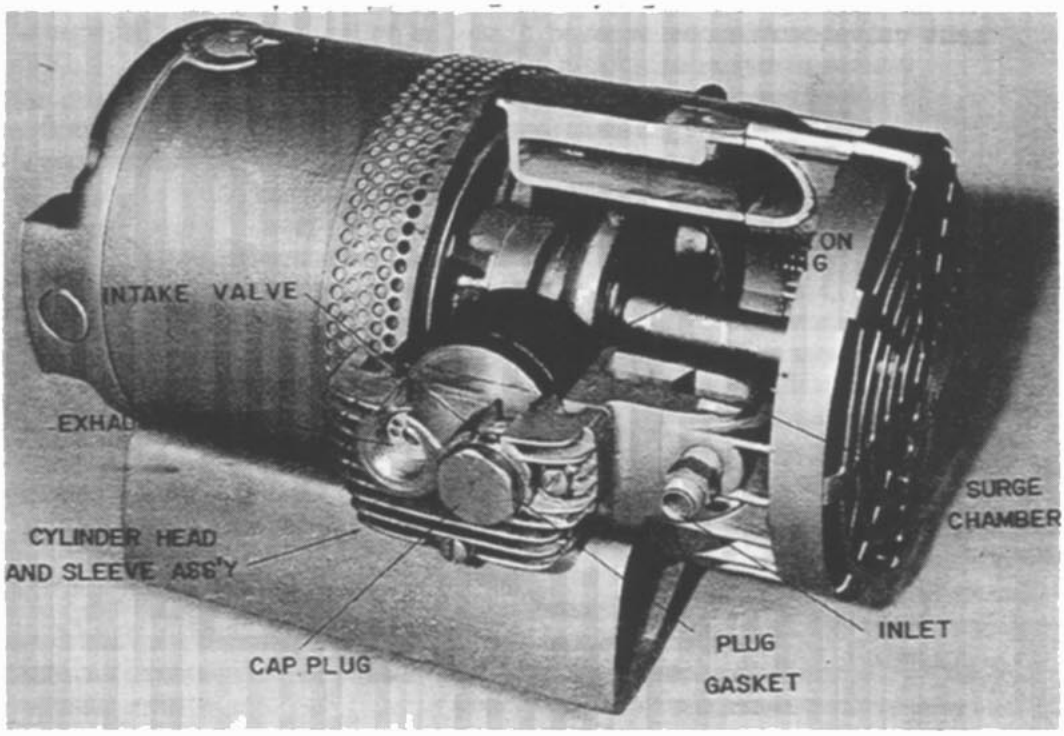


FIGURE 1 - PURGE PUMP

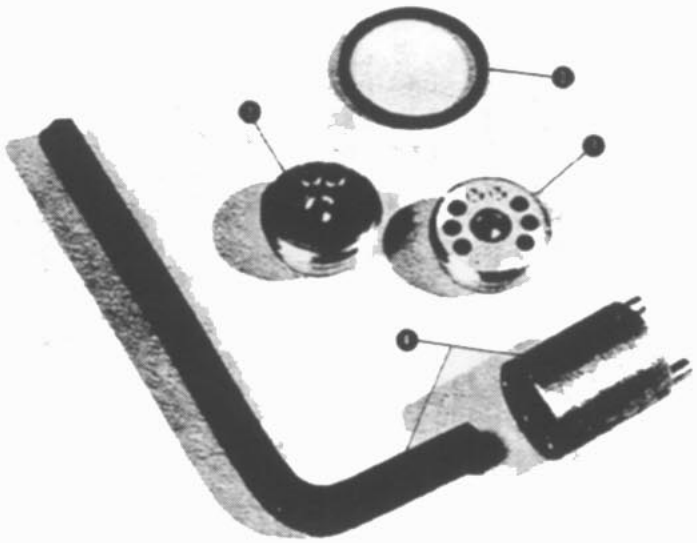
A new pump will normally be able to evacuate 25 - 27 inches mercury vacuum against a "dead leg." If the pump is unable to pull the required vacuum, the cause is probably a broken or contaminated valve or a worn piston ring which will require replacement. Valve and piston ring replacements to the single cylinder pump can be made in place in the console.

VALVE REPLACEMENT

To replace the pump valves, first isolate the pump by closing purge valves #1 and #2, and setting the solenoid valve switch to the "OFF" position.

Remove the half union elbow and reducer bushing from the exhaust valve port and the cap plug from the inlet valve port. (Note that the reducer bushing is several threads shorter than a standard bushing. This prevents interference with the exhaust valve.) The valve can now be removed with a 5/32" Allen wrench, or by using the special valve wrench shown in Figure 2 consisting of a spanner wrench and a 9/32" Allen wrench. It will be necessary to break off the stainless steel "reed" on the exhaust valve before the spanner wrench can be used.

Due to the heat generated by the pump during operation, the valve seat may bind to the valve port. To loosen, tap the Allen wrench handle lightly and screw the valve out of valve port. The replacement valve can now be screwed into the valve port and tightened.



ITEM	DESCRIPTION	BELL & GOSSETT PART NUMBER
1	Intake Valve Assembly	SYCZ-178
2	Exhaust Valve Assembly	SYC-1Z-178
3	Plug Gasket	SYC4-154
4	Wrench	SYC27-1196

FIGURE 2 - VALVE REPAIR PACKAGE

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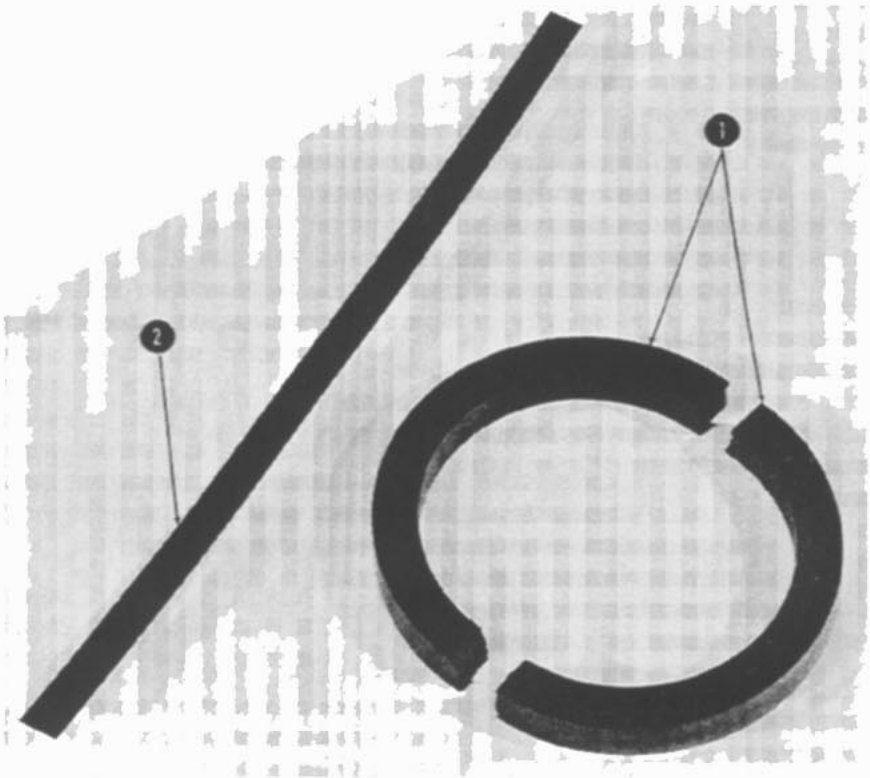
PISTON RING REPLACEMENT

To replace a worn piston ring, isolate the pump as described under Valve Replacement and remove the cylinder head and sleeve assembly. Exercise caution in removing the cylinder sleeve from the last 1/4" of the piston. The carbon ring, when it is manufactured, is broken into two 180° segments (See Figure 3) and will spring apart when it is clear of the cylinder sleeve.

To install the new ring, wrap the spring around the piston in the piston ring groove. Place the ring segments over the spring so that the spring ends are 90° from the ring ends. Be sure that the two ring segments are properly matched at their split lines.

Before replacing the cylinder head, check the ring to make sure it is free in the piston ring groove so that the piston ring spring is able to keep the ring tight against the cylinder wall.



ITEM	DESCRIPTION	BELL & GOSSETT PART NUMBER
1	Piston Ring	SYC-1143
2	Piston Ring Spring	SYC-1179

FIGURE 3 - PISTON RING PACKAGE