

BLAST CLEANING EQUIPMENT

OPERATING AND MAINTENANCE MANUAL

RFE-14 REMOTE CONTROL SYSTEM PNEUMATIC OPERATION TANK EXHAUSTS TO STOP BLASTING

CAUTION - IMPORTANT
IMPROPER USE OF PRESSURE BLAST CLEANING
EQUIPMENT CAN BE EXTREMELY HAZARDOUS. ALL
OPERATING PERSONNEL SHOULD READ THESE
INSTRUCTIONS AND ANY INSTRUCTION LABELS ON
THE EQUIPMENT BEFORE PROCEEDING.

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GENERAL OPERATION

The RFE-14 Remote Control System consists of two pneumatic valves that control the stop/start function of a pressure blast cleaning machine from the abrasive discharge point. A “deadman” control switch must be held continuously engaged for the blast cleaning machine to operate. When blasting is terminated this system exhausts all pressure in the blast tank and simultaneously shuts off the incoming air.

System operation is by means of air actuated, normally open, Part No. 5720 EXHAUST VALVE which maintains or relieves tank pressure as required and an air actuated, normally closed (by spring tension) No. 5720-17 INLET VALVE acting on the inlet air line. These valves are controlled remotely by the operator from the blast nozzle end of the blast hose by the No. 6100 DEADMAN CONTROL SWITCH which must be held in the depressed position to continue blasting.

The RFE-14 remote control system is “Failsafe” in operation since any failure to actuating components will cause the system to shut down the blast machine. The RFE-14 system meets or exceeds all existing Federal regulations for pressure blast cleaning equipment control as of the date of this manual.

SPECIAL NOTE: THE OPERATING RANGE FOR THIS CONTROL IS 60 - 120 P.S.I. YOU MUST STAY WITHIN THIS RANGE FOR SAFE OPERATION. OTHER RANGES ARE AVAILABLE, PLEASE CONTACT FACTORY FOR INFORMATION.

PREPARATION - FACTORY INSTALLED SYSTEM

When the system is installed at the factory it is completely assembled and tested. For shipping purposes it is necessary to disconnect the twin control line hose, with the deadman switch attached, from the connection points on the machine marked Gray and Yellow. When the equipment is received reconnect the twin line hose, tighten securely and proceed to the TEST CYCLE section.

PREPARATION - FIELD INSTALLED SYSTEM - TITAN MACHINE

1. The following items are included with the field installation kit.
 - a. 1 - No. 5720-17 Normally closed AIR INLET VALVE
 - b. 1 - No. 6053 55' Length TWIN CONTROL AIR LINE
 - c. 1 - No. 6100 ULTRASAFE DEADMAN CONTROL SWITCH
 - d. 1 - No. 5720 Normally open EXHAUST VALVE
 - e. 1 - No. 6016 Valve INTERCONNECT HOSE approx. 30" long

The system is assembled as far as practical for shipment. Most of the items on the list above will be connected as they should be when installed.

2. Remove the manual air inlet and exhaust valves from the blast machine.

3. Install the No. 5720-17 AIR INLET VALVE in position as shown in the diagram. Now install the original MANUAL CONTROL INLET VALVE and leave it in the closed position. Although not used in normal operation it provides an excellent safety shutoff valve when leaving the machine unattended or when performing service.
4. Install the No. 5720 AUTOMATIC EXHAUST VALVE at the location where the manual exhaust valve was removed. The flow arrow should point down and away from anything that may be damaged by the exhaust which may contain particles of abrasive.
5. Connect the No. 6016 INTERCONNECT LINE as shown in the diagram.
6. Connect the open female fittings on the 6053 Twin Control line to the corresponding open male threads on the machine. In addition to having different thread sizes the color coding (gray/yellow) is marked at the point of connection. The 6100 deadman switch should be attached at the nozzle end of the blast hose in a comfortable location near the nozzle using the tie wraps provided. Proceed to the TEST CYCLE.

TEST CYCLE

1. Before filling the tank with abrasive the system should be tested for correct operation.
 - a. Hold nozzle end of hose and direct away from personnel and equipment. **DO NOT DEPRESS DEADMAN CONTROL SWITCH!**
 - b. Be certain the manual air inlet valve is closed then turn on the air supply from the source to the blast machine. Now open the manual air inlet valve. **CAUTION!** At this point the blast machine should not begin to pressurize, if it does shut off the incoming air supply immediately. Check the twin line connections or the installation itself if field installed.
 - c. Activate the No. 6100 Deadman Control Switch by first pressing the safety button in, then depressing the handle. The safety button prevents accidental discharge if the hose is dropped or the switch bumped. **CAUTION: THIS WILL PRESSURIZE THE UNIT AND HIGH PRESSURE AIR WILL BE DISCHARGED FROM THE BLAST NOZZLE.**

- d. To stop, release the deadman switch. CAUTION! HIGH PRESSURE AIR WILL BE DISCHARGED FROM THE OPEN PORT ON THE 5720 EXHAUST VALVE AND IT IS POSSIBLE THAT ABRASIVE PARTICLES WILL BE IN THE EXHAUST STREAM. ADVISE ANY PERSONNEL LIKELY TO BE WITHIN 50' OF THE BLAST OPERATION THAT THE MACHINE COULD DISCHARGE AT ANY TIME. WE SUGGEST A WARNING MESSAGE BE STENCILED ON THE TANK AS IS DONE WITH A FACTORY INSTALLATION. Blasting will stop when the air pressure is exhausted from the tank. Increasing the control line length will add approximately 1.5 seconds to the response time for each 50' added. An electric control should be considered if operating over 150' from the blast machine.

OPERATION

1. Fill the machine with dry abrasive. Do not overfill! This results in increased wear on the automatic sealing mechanism.
2. Depress the deadman switch to begin blasting.
3. To stop blasting at any time release the deadman switch handle.

SYSTEM MALFUNCTION

1. With 6100 Deadman Switch depressed, 5720 Exhaust Valve opens and blasting stops - indicates loss of pilot line air pressure. Check the condition of the 6106 Sealing Bumper in the Deadman Switch handle or the 6053 Twin Line Control Hose for kinking or significant leaks.
2. With Deadman Switch depressed blasting stops, Exhaust valve remains closed. Indicates ruptured outer 5712 Diaphragm in 5720-17 Inlet Valve. Exhaust air from machine, close manual air inlet valve and disassemble 5720-17 Valve in accordance with instructions under breakdown diagram. Replace diaphragm.
3. Machine leaks air at the 5720 exhaust valve - No. 5711 Valve Ball and Stem may be worn. Close manual air inlet valve, remove valve cover and inspect. Could also indicate a ruptured 5712 Diaphragm and these should also be examined carefully.
4. Machine will not start. Same as No. 1 & 2 above. Check to see if exhaust valve is closing when Deadman Switch is depressed, if it is use the repair procedure in No. 2.
5. Air leaks air past the 5720-17 when the system is shut down. Indicates a weakening of the Valve Spring or an inlet air pressure in excess of 120 P.S.I. First check the spring preload adjustment, which should be tightened clockwise until it contacts the Valve Cover. If the preload is correct and the pressure is less than 120 P.S.I. the Valve Spring will have to be replaced. See the 5720-17 disassembly procedure under the parts breakdown section.

MAINTENANCE - SCHEDULE BASED ON 20 HOURS PER WEEK USE

DAILY - Check condition of all air pilot lines and fittings.

Check operation of safety button on No. 6100 Deadman Switch.

WEEKLY - Check No. 6106 Sealing Bumper on No. 6100 Deadman Switch for wear.

Replace if necessary.

MONTHLY - Remove cover from the No. 5720 automatic exhaust valve. Check condition of the following part Numbers: 5711 Valve Ball & Stem, 5712 Diaphragms and 5715 Seat. Valve should be thoroughly cleaned before reassembly.

SEMIANNUALLY - Inspect the No. 5720-17 Air Inlet Valve following the procedure for disassembly listed under the parts breakdown. We recommend replacement of the 5720 Diaphragms and the 5780 Valve Spring at this inspection period.

NO. 5720-17 DISASSEMBLY INSTRUCTIONS

1. Backoff the Spring Tensioner (4) to relieve pressure on the spring.
2. Remove the 6 bolts (7) holding the valve assembly together.
3. Separate the Valve Cover (6) from the Outer Diaphragm (11) on the Center Spacer (13). Remove and inspect the Diaphragm for tearing and cracking.
4. Remove the Center Spacer and inspect the inner Diaphragm and the Ball and Stem (20). Inspect Diaphragm for tearing and cracking. The Ball & Stem will have an indentation in the rubber where it contacts the Valve Seat (22), this is normal and it need not be replaced unless the indentation line is broken.
5. On the Center Spacer check the Spacer Piston (15) operation. It should move freely back and forth, if not remove and check the condition of the Piston O-Ring (18). Replace if necessary.
6. Check the Valve Seat for wear. This is unlikely unless some kind of foreign matter has been brought in by the air line.
7. REASSEMBLE in reverse order. Tighten the 6 bolts to 35 ft. lbs. In a cross pattern.
8. Compress the Valve Spring (8) by turning the Spring Tensioner clockwise until it contacts the Valve Cover. THIS SPRING MUST BE PRELOADED AS DESCRIBED FOR THE VALVE TO OPERATE PROPERLY.

NO. 5720 DISASSEMBLY INSTRUCTIONS

1. Remove the air pilot from the Valve Cover (8).
2. Remove the 6 nuts from 3/8" Hex head Bolts (9) that hold the valve cover in place.
3. Using the small hammer LIGHTLY tap around the Outer Spacer Ring (13). This will free up the entire outer assembly for removal. DO NOT use a screwdriver or similar tool to pry off spacer ring and cover. The Valve Cover (8), Ball and Stem (11), Ball Stem Nut (10), Diaphragms (12) and the Outer and Inner Spacer Ring (14) should be removed as one unit. Remove the Hex Head Bolts and separate the Valve Cover from the remaining parts.
4. Inspect Diaphragm (12) for tearing and replace if necessary. It is a good idea to replace the inner diaphragm each time this service is performed.
5. The Ball and Stem (11) should be replaced if any sign of wear is present.
6. The Ball Seat (15) should be replaced when any wear is visible or the Ball and Stem will wear prematurely. A 1-3/4" socket is required to remove the Seat. When installing a new seat coat the threads with pipe joint compound and tighten to 30 ft., lbs. Of torque, DO NOT OVER TIGHTEN.

REASSEMBLY

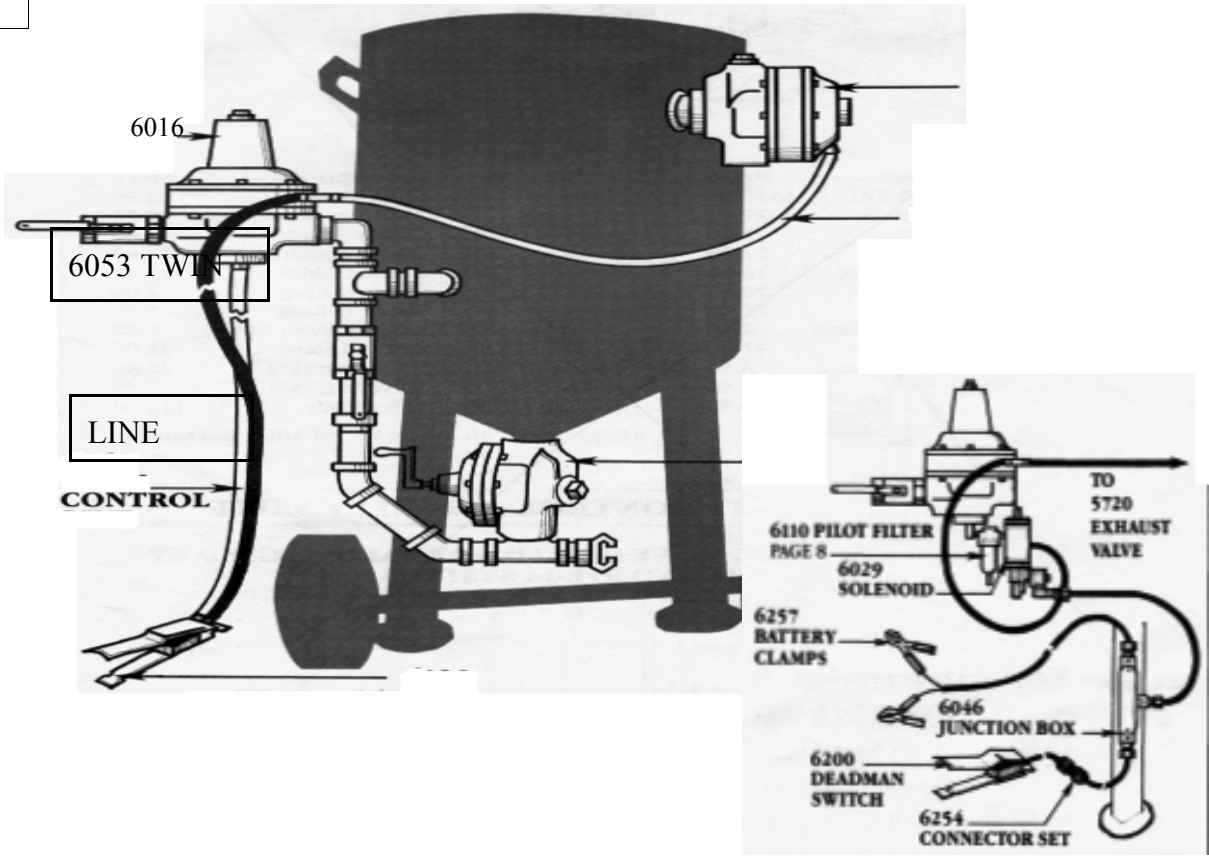
1. Assemble the Inner Spacer Ring (14), Outer Spacer Ring (13), Diaphragms (12), Ball and Stem (11) and the Ball Stem Nut (10) into a single unit. Tighten the Ball Stem Nut hand tight after replacing. Make certain that the spacer rings are installed with the taper in the direction shown, this is crucial to the operation of the valve. Locate the 1/8" hole in the Outer Spacer ring. When the assembly is installed in the Valve body (17) this hole must be located facing the ground when the blast machine is in operation.
2. Insert the 6 - 3/8" Hex Head Bolts (9) through the Valve Cover and install the spacer/diaphragm assembly on the main body. Install the nuts on the Hex Head Bolts and torque to 35 ft. lbs. In two stages using a cross pattern.
3. Install air pilot line on the Valve Cover.

PARTS BREAKDOWN REMOTE CONTROL SYSTEMS

COMPONENTS USED ON RFE-14 TANK EXHAUST REMOTE CONTROL SYSTEM

PNEUMATIC ACTUATION - SPRING TENSION
HOLDS INLET VALVE CLOSED UNTIL DEADMAN
SWITCH IS ACTIVATED. Tank exhaust

5720-17
AIR
INLET



RECOMMENDED SPARE PARTS FOR TITAN ULTRABLAST MACHINES

Blast Machine

- (2) 1613 6 X 8 door gasket
- (2) SG-1 o-ring

RFS - Remote Control System

- (1) 6016 1' interconnect line
- (1) 6053 55' twin control line

Air Inlet Valve and Abrasive Regulator - RFS System

- (4) 5791 valve ball & stem
- (2) 5788 guide o-ring
- (4) 5712 diaphragm
- (2) 5789 piston o-ring
- (2) 5755 valve seat

(1) 6100 Deadman Switch

- (6) 6106 sealing bumper spring
- (2) 6112 safety
- (1) 6104 handle
- (2) 6105 operating spring
- (2) 6107 fitting 1/8"
- (2) 6114 plunger spring

(1) 6103	plunger	(1) 6115	set,
	base screws		
(2) 6109	o-ring	(1) 6116	set,
	handle screws		

Air Exhaust Valve - RFE System

(4) 5711	valve ball & stem
(8) 5712	diaphragm
(2) 5715	ball seat

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