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# SHAW-BOX®

## AIR HOIST SUPPLEMENT TO 113533-60 (OPERATION, SERVICE & PARTS MANUAL FOR SERIES 700 SHAW-BOX WIRE ROPE ELECTRIC HOISTS) (1 THRU 15 TON RATED LOADS)

SHAW-BOX Series 700 Wire Rope Air Hoists use the same mechanical parts as the Wire Rope Electric Hoists. The electric motor, controls and push button of the electric hoist are replaced by an air motor, control valve and pendant control assembly for the air hoist. A motor brake is also available as an option.

This supplement, which contains instructions and parts lists pertaining to the air motor, control valve and pendant control assembly (and brake if furnished), is to be used in conjunction with the relevant parts of 113533-60 to provide information on the Series 700 Wire Rope Air Hoists.

Maximum working pressure is 120 psi.

A pressure regulator valve, to maintain proper pressure, and a filter lubricator unit **must** be installed, near the hoist-between the air source and the air hose leading to the hoist.

The following table is meant as a guide only. Provide proper fittings to furnish required pressure and volume.

**Never** drive this hoist with combustible gas.

**Note:** When first running the motor some light oil should be injected into the inlet connection to ensure adequate lubrication until the airline lubricator is established.

### MOTOR DATA

<u>Motor Size</u>	<u>Air Inlet Size</u>	<u>Air Consumption (cfm)</u>	<u>Lubricator Drops Per Minute*</u>
RM210	3/4" NPT	150-185	4-5
RM310	1" NPT	260-320	5-6
RM410	1-1/4" NPT	420-460	6-8

\*Double the lubrication drip rate if operation is intermittent.

Three motor sizes are available with the Series 700 Wire Rope Air Hoists; RM210, RM310 and RM410. RM210 is 9-1/8" from mounting plate face to the back end of the air motor. RM310 is 11-1/4" and RM410 is 13-1/2".

The recommended operating air pressure is 90 psi **at the hoist**. If the air pressure source is far enough removed from the hoist to allow a drop in pressure, 90 psi (dynamic) at the hoist must be maintained when the hoist is running.

### INSTALLATION

#### 1. Mounting Position.

The- motor is mounted in a horizontal position with the filler/ breather plug towards the top (Figure 1). As supplied the motors have been filled with oil. It is vital that each motor be checked for the correct oil level. Oil levels are achieved by filling to the plugs marked part number 60.

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To fill motors with oil, remove the combined breather and oil filler plug, part number 46.

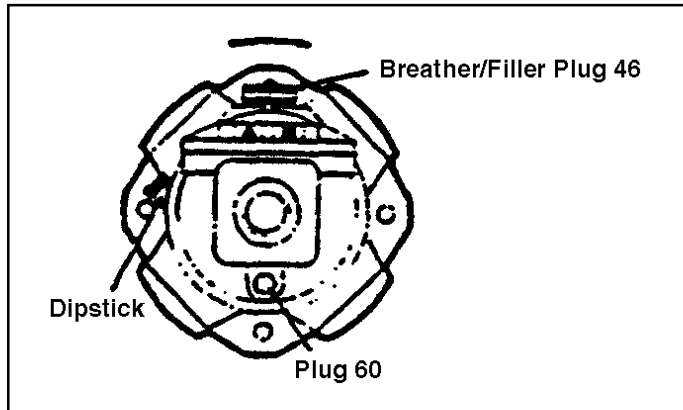


Figure 1.

2. Recommended Lubricants for Normal Ambient Temperature (0-32 Degrees C).

Supplier	Crankcase	Air Line
Shell	TELLUS 100	TELLUS 32
Exxon	NUTO H 100	FANOX N 33
Texaco	REGAL OIL R&O 100	RANDO Oil HD 32
Mobil	D.T.E. EXTRA HEAVY	ALMO 525
Generic	SAE 40	SAE 20

For extremes of ambient temperatures consult the oil manufacturers.

Approximate capacity is 300 ml for RM210, 350 ml for RM310 and 500 ml for RM410.

3. Air Inlet

The motor is supplied with the inlet/exhaust adaptor plate (72). All motors are reversible.

4. Air Supply - Maximum Working Pressure 8 bar - 120 psi.

The air supply must be clean and free from moisture. An air line filter and mist lubricator must be incorporated in the air supply line, located immediately before the motor. If the rated performance of the motor is to be obtained all valves and pipework must be of adequate size. Valves should be sited as close as possible to the motor.

5. Fitting

Mount motor in operating position. Check oil level. Before connecting to the air supply blow out air lines to remove any loose scale, debris or abrasive dust which may be present. Remove the red plastic dust caps and the 'O' ring seal (45).

Check the required direction of rotation and connect the air supply to the appropriate port on the in let/exhaust adaptor

plate (72) leaving the other port open, or exposed to the pipe downwards if atmosphere.

The motor should not be allowed to race.

**MAINTENANCE**

6. Air Supply

The air filter should be drained regularly and examined for clogging of the element. The air line lubricator should be replenished as required and set to give the drip rate specified on page 1.

7. Motor

The oil level in the motor casing must be maintained. The frequency of replenishment will depend upon the application and usage.

The motor case should be drained and refilled after 25 hours of initial running and every 200 hours thereafter or sooner if found necessary (contamination of oil by water from the air line, etc.).

8. Optional Brake

Check the brake after the first 30 days of service and regularly thereafter.

The brakes are adjusted by part numbers 13. The brakes are spring set and the springs are released by applied air pressure. Adjust as required.

9. Servicing

It is recommended that the air motor be taken to an authorized SHAWBOX repair station for repairs.

Lack of lubrication will lead to rapid wear, internal seizure, loss of power or excessive air leakage.

Faults in the air supply system may be due to failure to remove plastic protective dust caps, supply pipe line or valve too small, excessive back pressure due to small bore pipes when exhaust is piped away or clogged air line filter.

The following parts lists and drawings cover parts not includes in 113533-60.

**The numbers assigned to the parts of our various assemblies in our parts list are not the part numbers used in manufacturing the part. They are identification numbers, that when given with the model number, permit us to identify, select or manufacture and ship the correct part needed.**

Schematics follow the parts list.

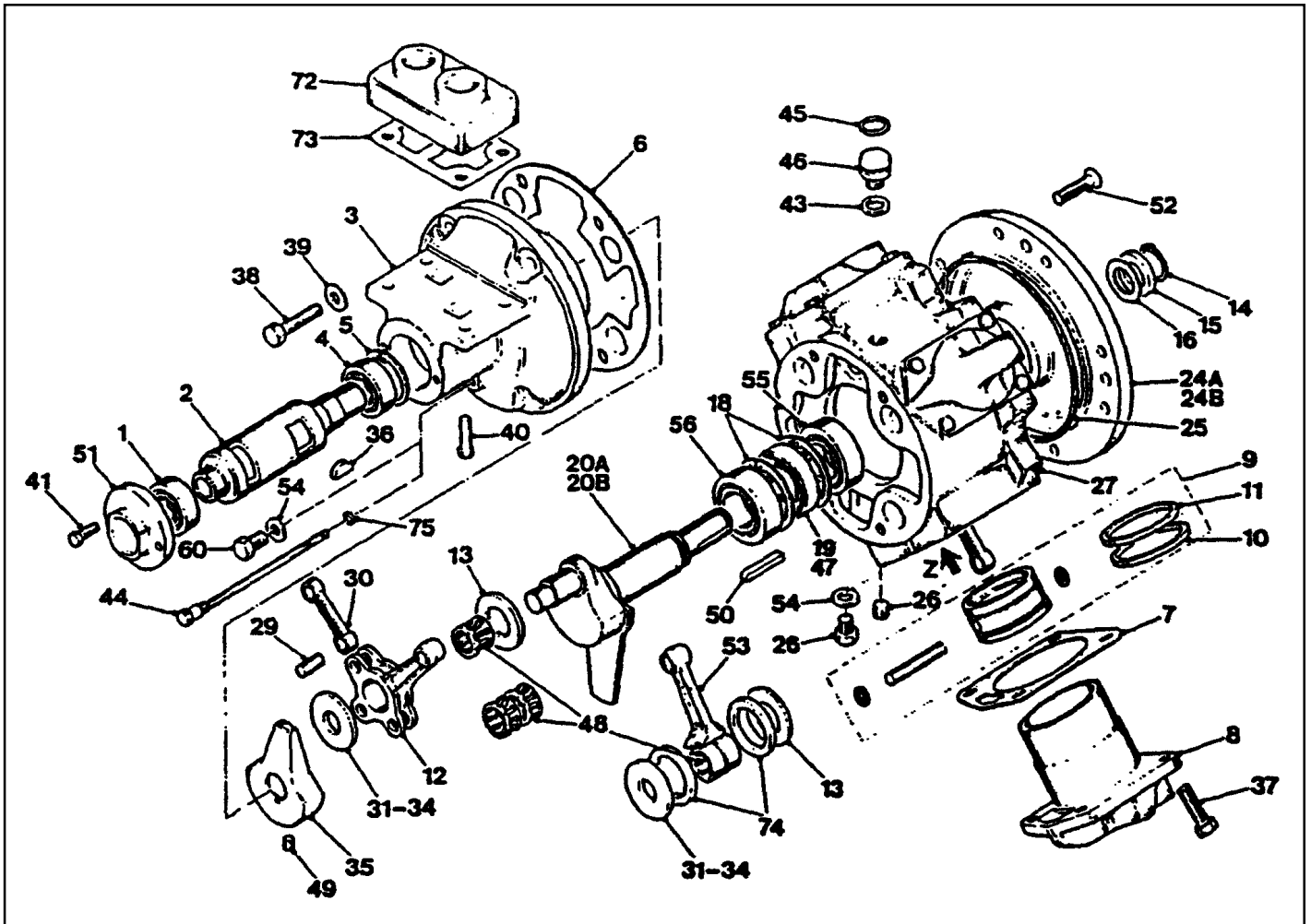


Figure 2. RM210, RM310 & RM410 Motors

Ref. No.	Part Number For			Description	Qty Req'd.
	RM210	RM310	RM410		
	700AH-200	700AH-1200	700AH-2200	Air Motor Assembly	1
1	700AH-201	700AM-1201	700AH-2201	Rotary Valve Bearing (Outer)	1
2	700AH-202	700AH-1202	700AH-2202	Rotary Valve	1
3	700AH-203	700AH-1203	700AH-2203	Rotary Valve Housing	1
4	700AH-204	700AH-1204	700AH-2204	Rotary Valve Bearing (Inner)	1
5	700AH-205	700AH-1205	700AH-2205	Rotary Valve Bearing Circlip	1
6	700AH-206	700AH-1206	700AH-2206	Rotary Valve Housing Gasket	1
7	700AH-207	700AH-1207	700AH-2207	Cylinder Gasket	4
8	700AH-208	700AH-1208	700AH-2208	Cylinder	4
9	700AH-209	700AH-1209	700AH-2209	Piston Assembly	4
10	700AH-210	700AH-1210	700AH-2210	Compression Ring	4
11	700AH-211	700AH-1211	700AH-2211	Oil Control Ring	4
12	700AH-212	700AH-1212	700AH-2212	King Rod	1
13	700AH-213	700AH-1213	700AH-2213	Crankshaft Spacer	1
14	700AH-214	700AH-1214	700AH-2214	Crankshaft Circlip	1
15	700AH-215	700AH-1215	700AH-2215	Crankshaft Spacer	1
16	700AH-216	700AH-1216	700AH-2216	Crankshaft Spacer Shim	5
18	700AH-217	700AH-1217	700AH-2217	Crankshaft Bearing Circlip	2
19	700AH-218	700AH-1218	700AH-2218	Crankshaft Oil Seal	1

Figure 2. RM210, RM310 & RM410 Motors (Continued)

Ref. No.	Part Number For			Description	Qty Req'd.
	RM210	RM310	RM410		
20A	700AH-219	700AH-1219	700AH-2219	Standard Crankshaft Assembly	1
24A	700AH-220	700AH-1220	700AH-2220	Standard Flange Plate	1
25	700AH-221	700AH-1221	700AH-2221	Flange Plate Seal	1
26	700AH-222	700AH-222	700AH-2222	Plug	1
27	700AH-223	700AH-1223	700AH-2223	Engine Case	1
29	700AH-224	700AH-1224	700AH-2224	Queen Rod Pivot	3
30	700AH-225	700AH-1225	700AH-2225	Queen Rod	3
31	700AH-226	700AH-1226	700AH-2226	Crank Spacer	1
32	--	700AH-1227	700AH-2227	Crank Spacer	1
33	700AH-228	700AH-1228	700AH-2228	Crank Spacer	1
34	700AH-229	--	--	Crank Spacer	1
35	700AH-230	700AH-1230	700AH-2230	Balance Weight	1
36	700AH-231	700AH-231	700AH-2231	Woodruff Key	1
37	700AH-232	700AH-1232	700AH-2232	Cylinder Bolts	16
38	700AH-232	--	700AH-2232	Valve Housing Bolts	4
39	700AH-234	--	--	Washers for Valve Housing Bolts	4
40	700AH-235	700AH-232	700AH-2232	Adapter Plate Bolts	4
41	700AH-236	700AH-232	700AH-232	Exhaust Cover Bolts	2
43	700AH-237	700AH-237	700AH-237	Breather Plug Seal	1
44	700AH-238	700AH-1238	--	Dipstick	1
45	700AH-239	700AH-239	700AH-239	Seal (For Transit Only)	1
46	700AH-240	700AH-240	700AH-240	Breather Plug	1
47	--	--	700AH-2241	Oil Seal Carrier	1
48	700AH-242	700AH-1242	--	Needle Bearing	1
	--	--	700AH-2243	Needle Bearing	2
49	700AH-244	700AH-1244	700AH-2244	Grub Screw	1
50	700AH-245	700AH-1245	700AH-1245	Key	1
51	700AH-246	700AH-1246	700AH-2246	Rotary Valve Exhaust Cover	1
52	700AH-247	700AH-1247	700AH-2247	Countersunk Flange Bolts	4
54	--	--	700AH-2248	Nylon Washer	1
55	700AH-249	700AH-1249	700AH-2249	Output Shaft Bearing (Outer)	1
56	700AH-249	700AH-1249	700AH-2250	Output Shaft Bearing (Inner)	1
60	700AH-251	700AH-251	700AH-251	Oil Level Plug	1
72	700AH-252	700AH-1252	700AH-2252	Inlet Adapter Plate	1
73	700AH-253	700AH-1253	700AH-2253	Inlet Adapter Plate Gasket	1
75	700AH-237	700AH-237	--	Dipstick Seal	1
76	700AH-255	700AH-1255	700AH-2255	Seal Kit (Includes Ref. Nos. 6, 7, 10, 11, 19, 25, 43, 73 and 75)	1

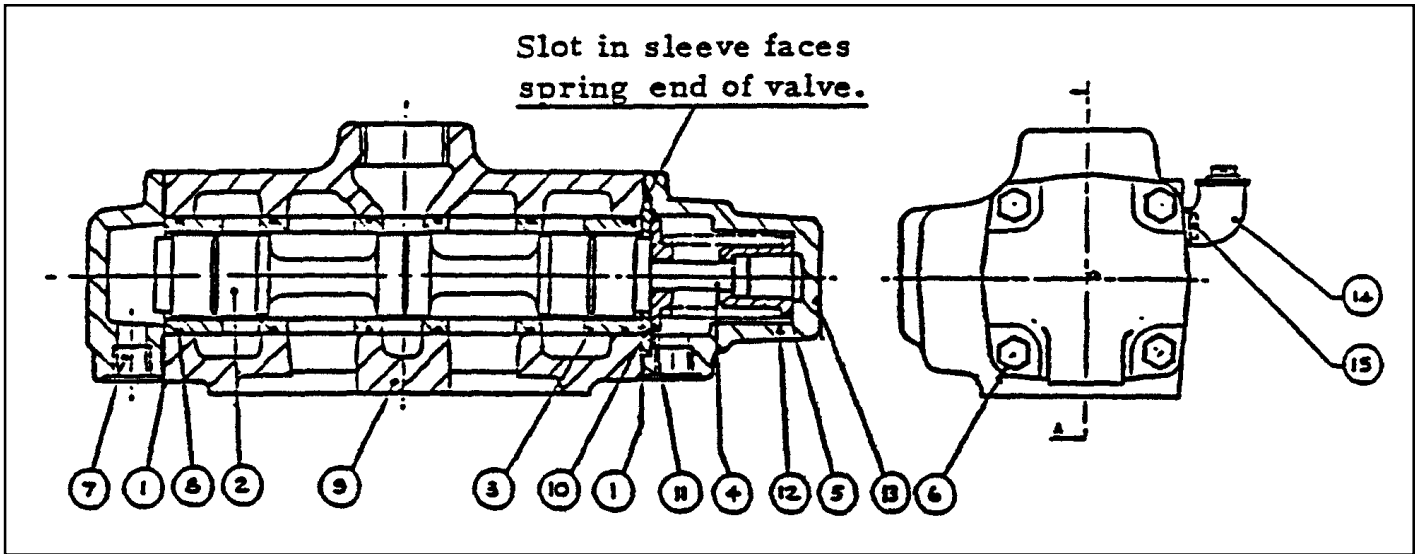


Figure 3. RVC Control Valve

Ref. No.	Part Number For			Description	Qty Req'd.
	RM210	RM310	RM410		
	700AH-301	700AH-321	700AH-341	Control Valve	1
1	700AH-302	700AH-322	700AH-322	End Cap Gasket	2
2	700AH-303	700AH-323	700AH-323	Valve Spool	1
3	700AH-304	700AH-324	700AH-342	Valve Sleeve	1
4	700AH-305	700AH-325	700AH-325	Shoulder Screw	1
5	700AH-306	700AH-326	700AH-326	Shaft Guide	1
6	700AH-307	700AH-327	700AH-327	Hex Head Bolt	8
7	700AH-308	700AH-328	700AH-328	End Cap	1
8	700AH-309	700AH-329	700AH-329	"O" Ring	6
9	700AH-310	700AH-330	700AH-343	Valve Body	1
10	700AH-311	700AH-331	700AH-331	Spacer	1
11	700AH-312	700AH-332	700AH-332	Washer	1
12	700AH-313	700AH-333	700AH-333	Spring	1
13	700AH-314	700AH-334	700AH-334	End Cap	1
14	700AH-315	700AH-335	700AH-335	Elbow	1
15	700AH-316	700AH-336	700AH-336	Plug	3

### Notes

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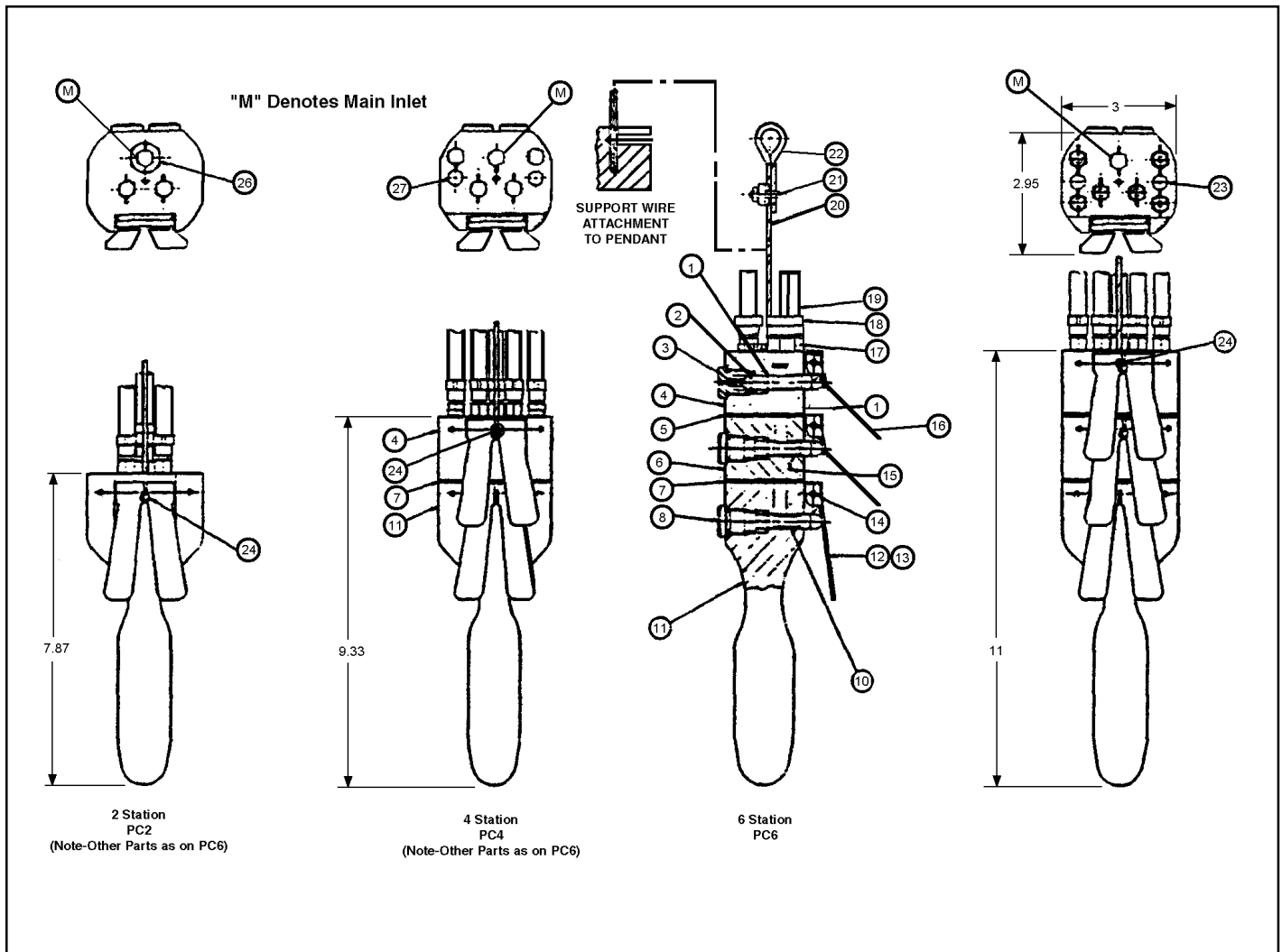


Figure 4. Pendant Control Assemblies PC2, PC4 & PC6

Ref. No.	Part Number	Description	Quantity Required		
			2 Station	4 Station	6 Station
	700AH-401	Pendant Control Station			
	700AH-402	2 Station	1	--	--
	700AH-403	4 Station	--	1	--
	700AH-404	6 Station	--	--	1
1	700AH-404	"O" Ring	2	6	10
2	700AH-405	"O" Ring	2	4	6
3	700AH-406	Compression Spring	2	4	6
4	700AH-407	Top Body	--	1	1
5	700AH-408	Gasket	--	--	1
6	700AH-409	Intermediate Body	--	--	1
7	700AH-410	Gasket	--	1	1
8	700AH-411	Valve Plug	2	4	6
10	700AH-412	Plunger	2	2	2
11	700AH-413	Handle	1	1	1
12	700AH-414	'Raise' Lever	1	1	1
13	700AH-415	'Lower' Lever	1	1	1
14	700AH-416	Lever Pivot Pin	1	1	1
15	700AH-417	Plunger	--	2	4





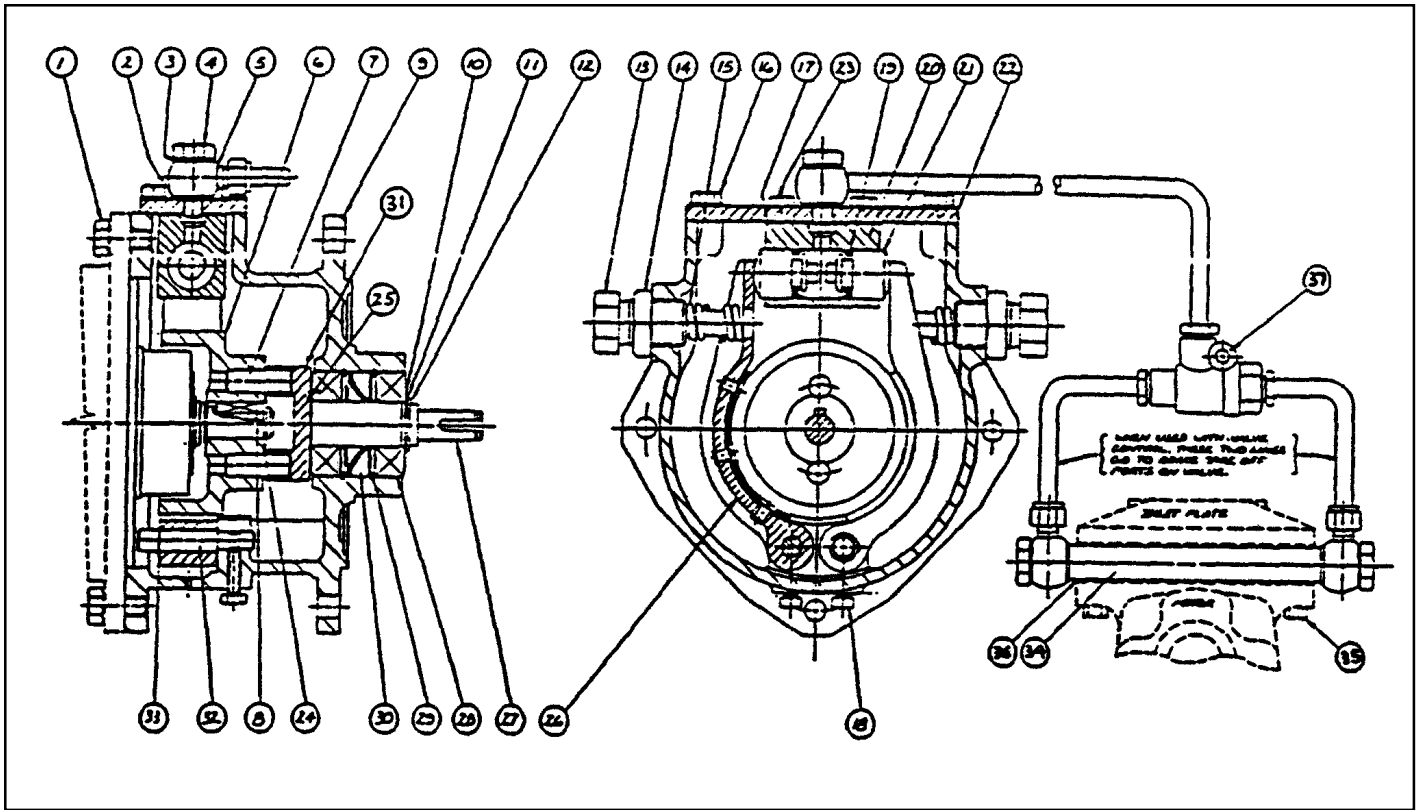
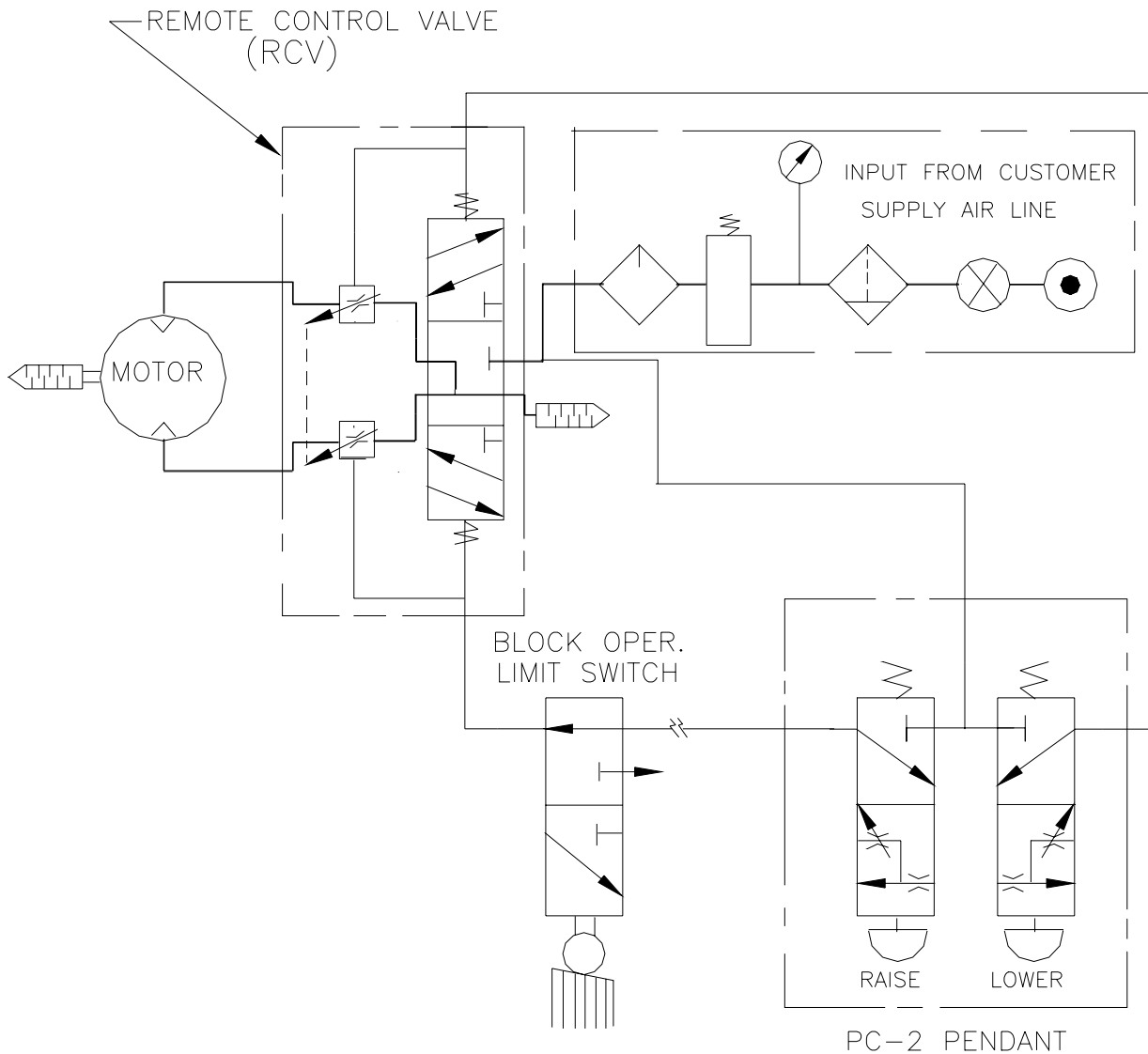



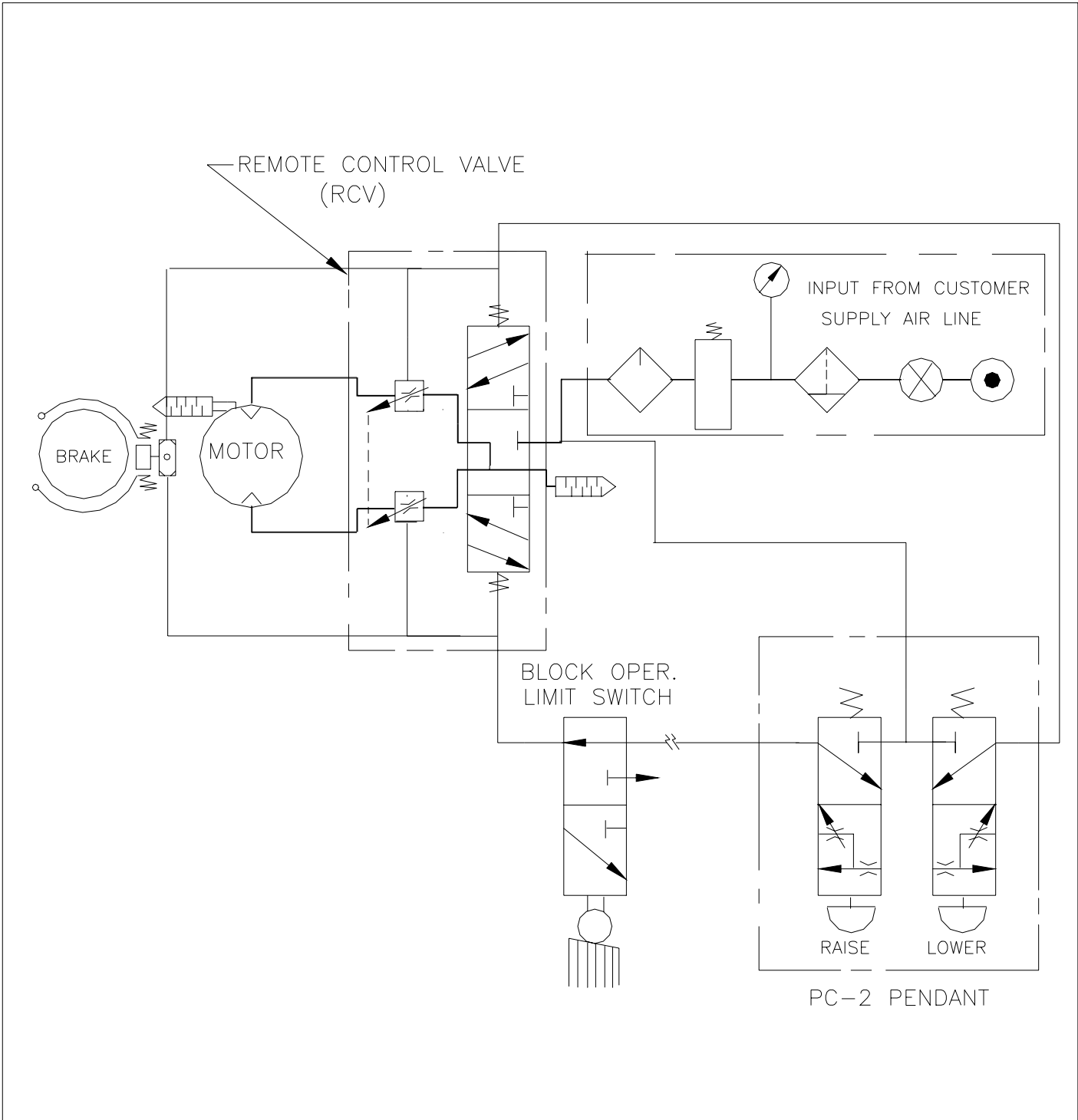
Figure 5. Brake Parts


Ref. No.	Part Number For			Description	Qty Req'd.
	RM210	RM310	RM410		
1	700AH-500	700AH-1500	700AH-2500	Brake Assembly	1
2	700AH-501	700AH-1501	700AH-1501	Hex Head Bolt	4
3	700AH-502	700AH-502	700AH-503	Banjo Washer	1
4	700AH-503	700AH-503	--	Banjo Washer	1
5	700AH-504	700AH-504	700AH-2504	Banjo Bolt	1
6	700AH-505	700AH-505	700AH-505	Banjo Body	1
7	700AH-506	700AH-1506	700AH-2506	Brake Wheel	1
8	700AH-507	700AH-1507	700AH-1507	Dowel Pin	2
9	700AH-508	700AH-1508	--	Key	1
10	700AH-509	700AH-1509	700AH-2509	Brake Housing	1
11	700AH-510	700AH-1510	700AH-2510	Output Shaft Shims	As Req'd.
12	700AH-511	700AH-1511	--	Output Shaft Spacer	1
13	--	--	700AH-2511	Output Shaft Spacer	2
14	700AH-512	700AH-1512	700AH-2512	External Circlip	1
15	700AH-513	700AH-513	700AH-2513	Spring Adjuster	2
16	700AH-514	700AH-514	700AH-2514	Backnut	2
17	700AH-515	700AH-1515	700AH-2515	Compression Spring	2
18	700AH-516	700AH-1516	--	Hex Head Bolt	4
19	--	--	700AH-1516	Hex Head Bolt	8
20	700AH-517	700AH-1517	700AH-2517	Piston Block Gasket	1
21	700AH-518	700AH-1518	--	Hex Head Bolt	2
22	700AH-519	700AH-1519	700AH-2519	U Packing	2
23	700AH-520	700AH-1520	700AH-2520	Piston Block	1
24	700AH-521	700AH-1521	700AH-2521	Piston	2
25	700AH-522	700AH-1522	700AH-2522	Block Support Plate	1
26	700AH-523	700AH-523	--	Hex Head Bolt	2
27	700AH-524	700AH-1524	700AH-2524	External Circlip	1
28	--	--	700AH-2525	Key (Not Shown)	1

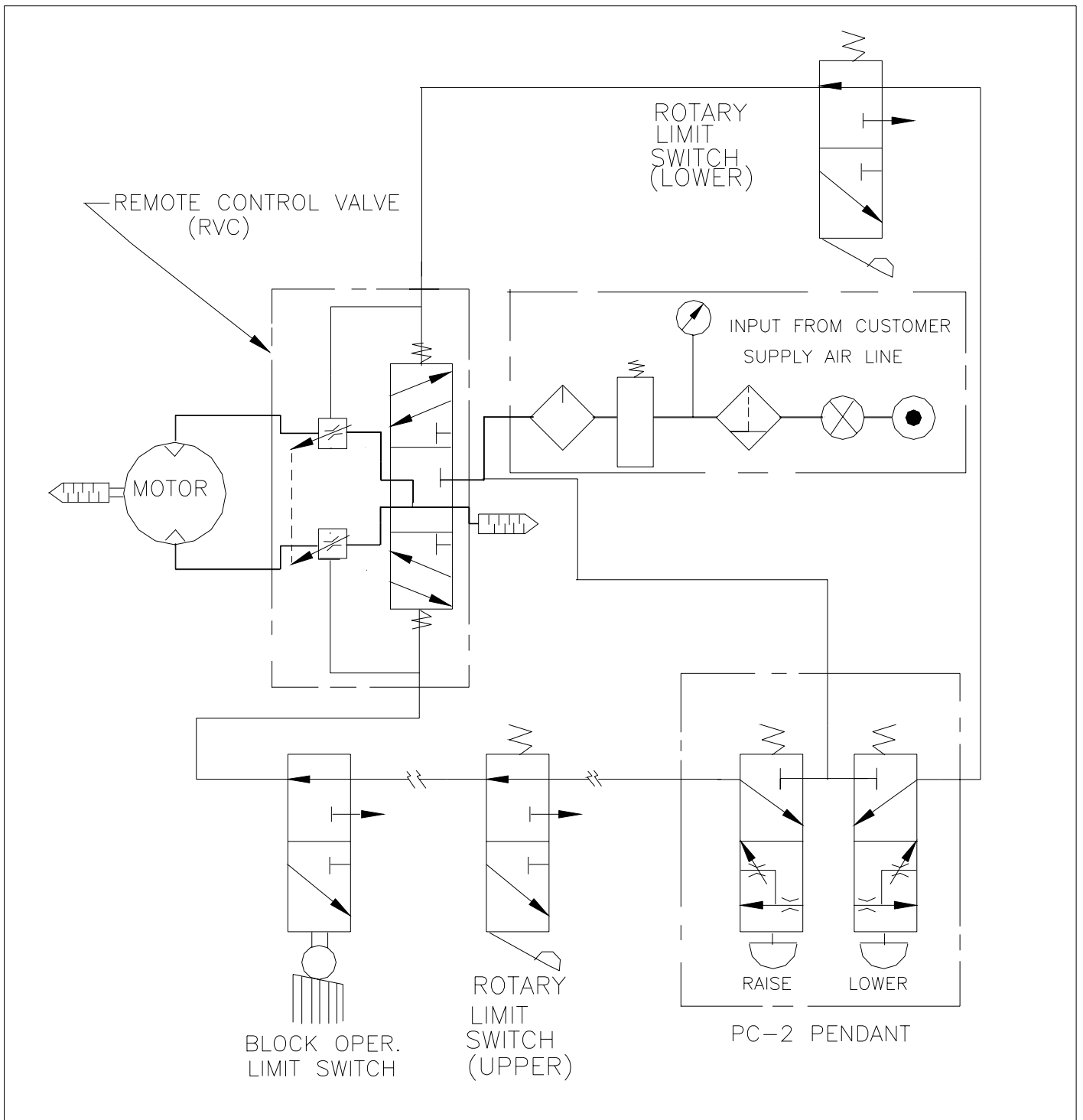





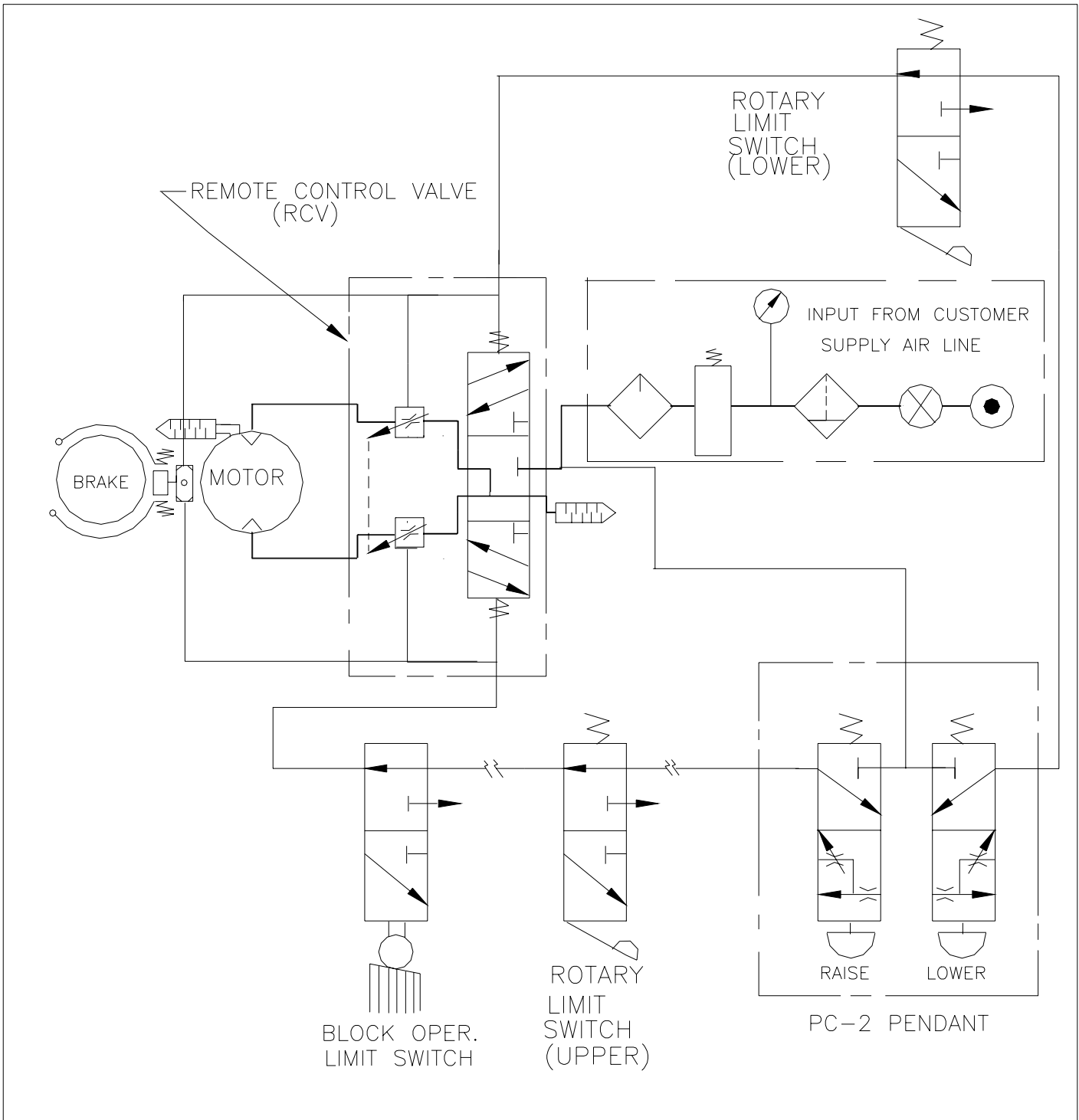
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			DA. 10/16/90		
			DR.	SHEET 2 OF 2 SHEETS	
			CK.	116115	
			AP.		




NO.	CHANGE	DATE	ITL.	--- SCHEMATIC ---
				AIR CONTROL
				"700" SERIES HOISTS
				WITH AIR MOTOR BRAKE
			SC. ---	 LIFT-TECH INTERNATIONAL, division of COLUMBUS MCKINNON CORPORATION MUSKEGON, MICHIGAN 49443-0769
			DA. 10/16/90	
			DR.	SHEET 2 OF 2 SHEETS
			CK.	116116
			AP.	



NO.	CHANGE	DATE	ITL.	-- SCHEMATIC --	
				AIR CONTROL	
				"700" SERIES HOISTS	
				WITH ROTARY LIMIT SWITCH	
			SC. — — —	 LIFT-TECH INTERNATIONAL, division of COLUMBUS MCKINNON CORPORATION MUSKEGON, MICHIGAN 49443-0769	
			DA. 10/16/90		
			DR.	SHEET 2 OF 2 SHEETS	
			CK.	116117	
			AP.		



NO.	CHANGE	DATE	ITL.	-- SCHEMATIC --	
				AIR CONTROL	
				"700" SERIES HOISTS	
				WITH ROTARY LIMIT SWITCH	
				AND WITH AIR MOTOR BRAKE	
			SC. — — —	 LIFT-TECH INTERNATIONAL, division of COLUMBUS MCKINNON CORPORATION MUSKEGON, MICHIGAN 49443-0769	
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