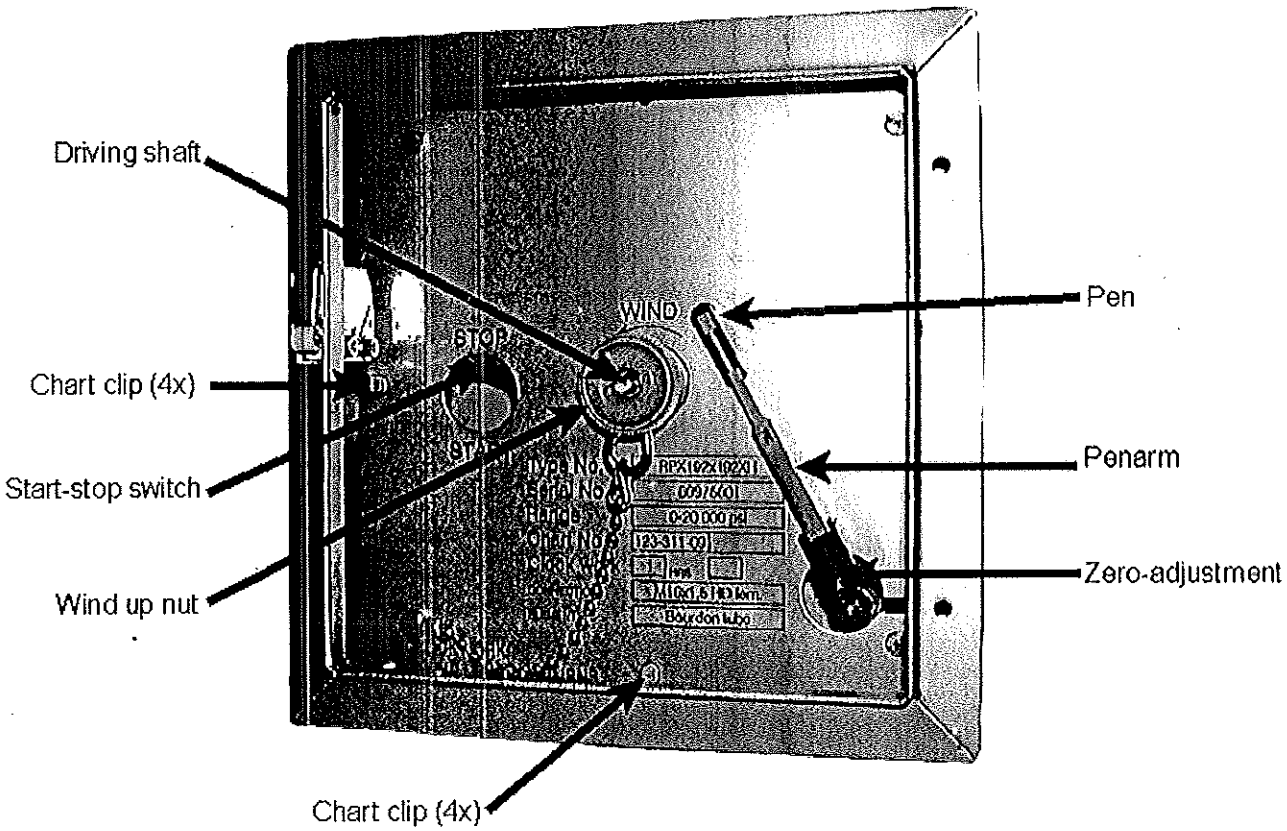
OPERATING MANUAL CHART RECORDERS

A recorder is being used to record the pressure or temperature or a combination of two pressures, two temperatures or one temperature and one pressure in a process over a certain period of time. A mechanical clockwork drives the chart. A disposable felt pen is mounted on the pointer arm. The read pressure is written on the chart.

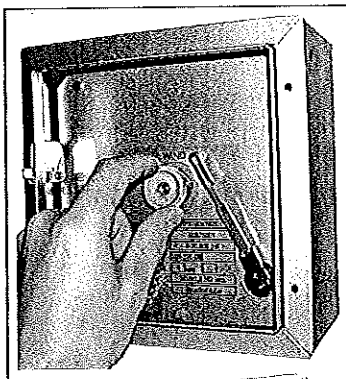
Recorders are available in 192x192mm, 280x280mm and 380x380mm. The available chart diameters are 163mm, 223mm and 300mm.

Recorders are also available with battery driven clockworks, electric clockworks and mechanical operated clockworks with two speeds e.g. 24 hrs/7 days. Depending on the model the recorder can be equipped with a start/stop button to operate the clockwork.

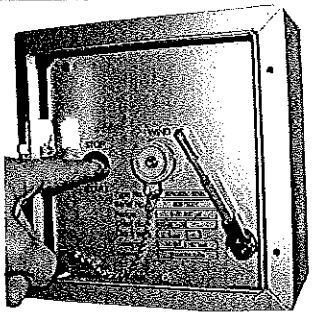


Above is shown the important parts required to operate the recorder properly.
A extra dial with pointer is available as an option. Also other colour fibre pens can be ordered.

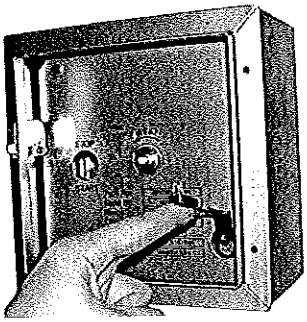
Installing a chart:



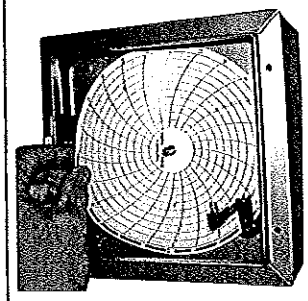
Open the recorder door and remove the knob of the clockwork by turning it clockwise.



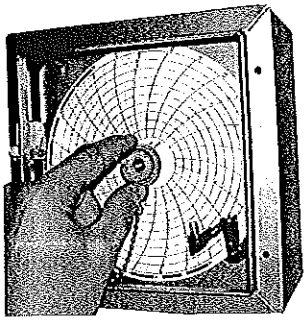
Switch the start/stop button to start.



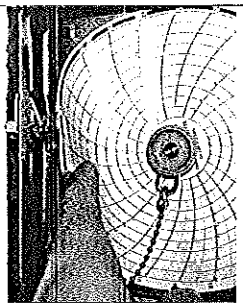
Lift the pen arm gently in a 90 degree angle.



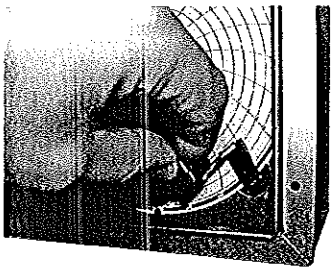
Put the recorder chart in the recorder.



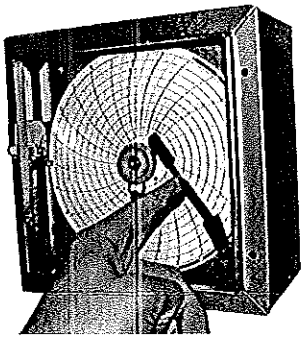
Return the knob of the clockwork by turning it anti-clockwise. **Wind up max. 5 turns!**



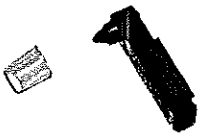
Make sure that the chart is placed under the chart clips
4x for case 192x192 mm
3 x for case 280x280 mm
4 x for case 380x380 mm
on the lower panel.



Remove the protective cover of the recorder pen.

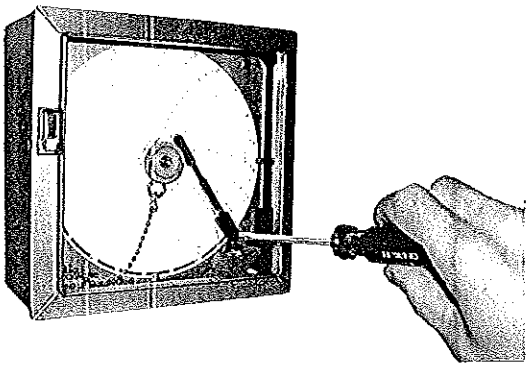


Put the pen arm back on the chart.



Example of disposable felt pen with protective cover

Removing the pen from the pen arm.

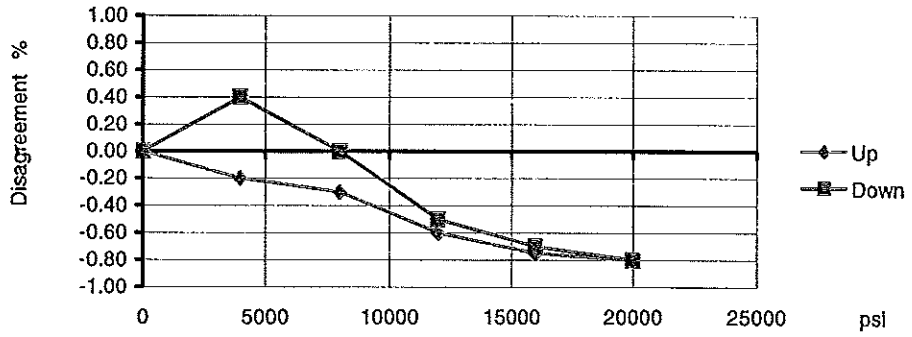


Zero-adjustment: Turn the screw gently.
At normal usage zero-adjustment is not required.

CALIBRATION REPORT

	Input Standard	Instrument
Tag nr.	: 21	
Manufacturer	: Stiko	
Type	: dos-001	RPX192X192XH
Description	: deadweight tester	press. recorder
Serial number	: 98305	164250005
Range Input	: 490 / 15000 psi	0 / 20000 psi
Range output	:	0 / 20000 psi
Accuracy	: 0.01 %R.	1 % of Full scale
Test medium	: oil	
Temperature	: 20°C	
Gravity	: 9,80665 m/s²	
Certificate nr.	: 407042a	

Standard		Instrument			
Input up	Input down	Reading up	Reading down	Disagreement up	Disagreement down
psi	psi	psi	psi	%	%
0	0	0	0	0.00	0.00
4000	4000	3960	4080	-0.20	0.40
8000	8000	7940	8000	-0.30	0.00
12000	12000	11880	11900	-0.60	-0.50
16000	16000	15850	15860	-0.75	-0.70
20000	20000	19840	19840	-0.80	-0.80



Traceable to RVA (www.european-accreditation.org)

Notes :

Our ref. : 29230/65106

Customer name :

Customer ref : AZ4859

Report nr. : 164250005

Cal. date : 25-11-2010

Calibrated by
Peter Hut

Approved by
Wim Goozen

Hi-Force® HYDRAULICS

TDS1147 9712

OPERATING INSTRUCTIONS FOR THE AHP SERIES AIR DRIVEN HIGH PRESSURE HYDRAULIC POWER PACK

Before operating your Hi-Force Hydraulic Power Pack please ensure that the following instructions are carried out.

1. Check that there is sufficient fluid in the reservoir. If not, top up with mains water or suitable hydraulic oil.

2. Check that there is sufficient amount of lubricating oil in the "Air Lubricator". If not, top up.

3. Check that the "Pressure Let Down Valve" is in the open position (Turn anti-clockwise).

4. Close off the "Air Stop Valve". (Turn anti-clockwise).

5. Turn the "Air pressure Regulator" anti-clockwise until the handle becomes free and easy.

6. Connect a suitable air supply to the "Air Supply connection" (3/8" BSP Female).

   Please note that the maximum air pressure supplied to the Power Pack should never exceed 100 PSI.

7. Connect a suitable hydraulic hose (rigid piping with screwed and coned connections in case of very high pressure Power Packs) to the outlet connection. Please note that the hydraulic hose or piping together with adapters and couplings should have a rated working pressure equal to the maximum output pressure of the Power Pack.

Hoses are available from Hi-Force Ltd or your Hi-Force Distributor suitable for working pressures up to 30,000 PSI. Above this pressure, stainless steel piping together with high-pressure fittings should be used. These are also available from Hi-Force.

Once the above instructions have been completed the Power Pack is ready for use and the following operating procedure can be followed.

1. Open the "Air Stop Valve". (Turn clockwise)

2. Turn the "Air Pressure Regulator" slowly clockwise until the pump begins to reciprocate.

The pump should start on 10 to 15 PSI of air under normal conditions.

3. Turn the "Air Pressure Regulator" clockwise further until 25 to 30 PSI is reached on the "Air Pressure Gauge", and then allow the pump to run until all air has been purged from the circuit.

Please note that when pressure testing large vessels and pipes, care should be taken to bleed off any air within the object being tested.

4. Turn the "Air Pressure Regulator" anti-clockwise until zero pressure is reached on the "Air Pressure Gauge".

5. Close the "Pressure Let Down Valve". (Turn clockwise).

6. Close any further "Air Vent" valves, external to the Power Pack once all air has been purged from the total system.

7. Turn the "Air Pressure Regulator" slowly clockwise until the desired hydraulic pressure is reached on the "High Pressure Gauge".

Note

If the object being tested is large it will take a while before the pressure builds up in the system and registers on the high pressure gauge. Care should be taken not to set the air driving pressure too high whilst being unattended as this may lead to the object under test being over pressurised.

Approximate output pressures generated by various driving air pressures are given on the attached data sheet. This will allow the operator to pre-set the output pressure prior to pressure being applied to the hydraulic circuit.

The air drive pressure can be pre-set if desired by closing off the air stop valve prior to use and winding the air pressure regulating valve clockwise until the required air pressure is registered on the air pressure gauge.

The air pressure should ideally be set slightly below that desired so that it can be raised to the correct amount once the output pressure has built up and the pump has stalled out.

The pump can then be started and stopped by using the air stop valve only if preferred.

Once set the pump will maintain the set pressure indefinitely and make up any fluid losses within the hydraulic system automatically.

TO LET DOWN PRESSURE

1. Close off the "Air Stop Valve" (Turn anti-clockwise).
2. Turn the "Air Pressure Regulator" anti-clockwise until the "Air Pressure Gauge" is reading zero pressure.
3. Open slowly the "Pressure Let Down Valve". (Turn anti-clockwise) until the high-pressure gauge reads zero.
4. Disconnect the hydraulic hose from the high-pressure outlet connection.
5. Disconnect the air supply from the "Air Supply Connection".

SERVICING INSTRUCTIONS FOR PUMP MODEL AHP

PUMP NOT RUNNING PROPERLY. Check to be sure air pressure is reaching the pump. Check to be sure air filter is not clogged: clean or replace as required. Check to be sure fluid filter is not clogged: clean or replace as required.

If there actions do not remedy operations a general maintenance repair may be required.

A COMPLETE SEAL KIT (OR INDIVIDUAL AIR SIDE AND HYDRAULIC SEAL KITS) TOGETHER WITH INLET CHECK VALVE SPARES KIT AND OUTLET CHECK VALVE SPARES KIT ARE AVAILABLE

GERNERAL NOTE: For ease of installation of new parts, all "O" Rings, seals, and bumpers should be lubricated with silicone grease, vaseline or other suitable lubricant compatible with nitrile "O" Rings.

TO REPLACE THE PACKINGS IN THE HYDRAULIC CYLINDER, it is not necessary to dismantle the Air Motor. Proceed as follows:

Disconnect the air supply line.

Using an 1/8" Allen wrench, loosed the set screw in the Air Cylinder End, (P-1-7),. remove the air muffler if necessary.

Unscrew the Air Motor from the Hydraulic Cylinder, (P-1-11***), the Hydraulic Piston, (P-1-10-***), will be removed with the Air Motor.

The packing, consisting of 1 each main seal "O" Ring and the 2 each main seal. Teflon backup Rings, can now be replaced.

When replacing the Air Motor, install a new Gasket, (P-1-28), if necessary.

Tighten the Air Motor securely to proper position, tighten set screw.

TO DISASSEMBLE THE AIR MOTER, refer to Parts List, proceed as follows:

Disconnect the air supply line.

Remove the eight (8) 5/16" bolts around the outside diameter.

To remove the Hydraulic Piston, (P-1-10-***), from the Air Piston, (P-1-48), remove the Retaining Ring, (RRT-200).

The Pilot Valve Assembly, (P-1-60), may then be pushed out through the bottom of the Air Piston, (P-1-48).

Remove the Retaining Ring, (RRT-262), from the Head Assembly and remove the Bearing Assembly, (P-1-47), by lifting or prying it out with a hammer handle or similar tool. (The Bearing Assembly has a moulded rubber seat on one side, if the rubber is damaged, a new Bearing Assembly should be installed).

The Valve, (P-1-3), can now be removed. Remove the Spring, (P-1-5). The Head Casting, (P-1-1), has a rubber bumper, (P-1-57), inserted in the upper portion of the body. This bumper acts as a seal and cushion for the Valve and should be replaced it worn or damaged.

NOTE: When worn or damaged, the Valve, (P-1-3), and the Sleeve, (P-1-2), in which the Valve operates, can be replaced with a Valve Assembly, (P-1-111). If installing a new Valve Assembly, install a new set of "O" Rings, (28775-144), 4 are required and included with the Valve Assembly when ordered.

CAUTION: DO NOT REMOVE THE SLEEVE, (P-1-2), unless a replacement Valve Assembly is being installed. The Valve and Sleeve are ground and honed to a very close tolerance and the Sleeve may be damaged when removed from the Head Casting.

TO REPAIR THE PILOT VALVE ASSEMBLY, (P-1-60):

Remove the Ring, (RRT-93).

Using a spanner wrench or needle-nose pliers, remove the Seat, (P-1-A-24).

The Air Check Assembly, (P-1-A-32), and the Spring, (P-1-16), will then drop out and may be inspected for wear or damage.

Replace worn or damaged parts and reassemble.

TO REPAIR THE HYDRAULIC CHECK VALVES, refer to the Parts List:

INLET VALVE ASSEMBLY, (P-1- VARIES FROM PUMP TO PUMP):**
Remove the Retaining Ring (if applicable)
Remove the internal parts, inspect and replace as required:

Remove the "O" Ring, (6227-* 90 Shore), inspect the ball seat in the Check Valve Body, (P-1-**). If worn or damaged a new body should be used.

Install a new "O" Ring (6227-* 90 Shore), replace internal parts and secure the assembly (WITH THE RETAINING RING IF APPLICABLE) by installing on Hydraulic Cylinder, (P1-11-***).

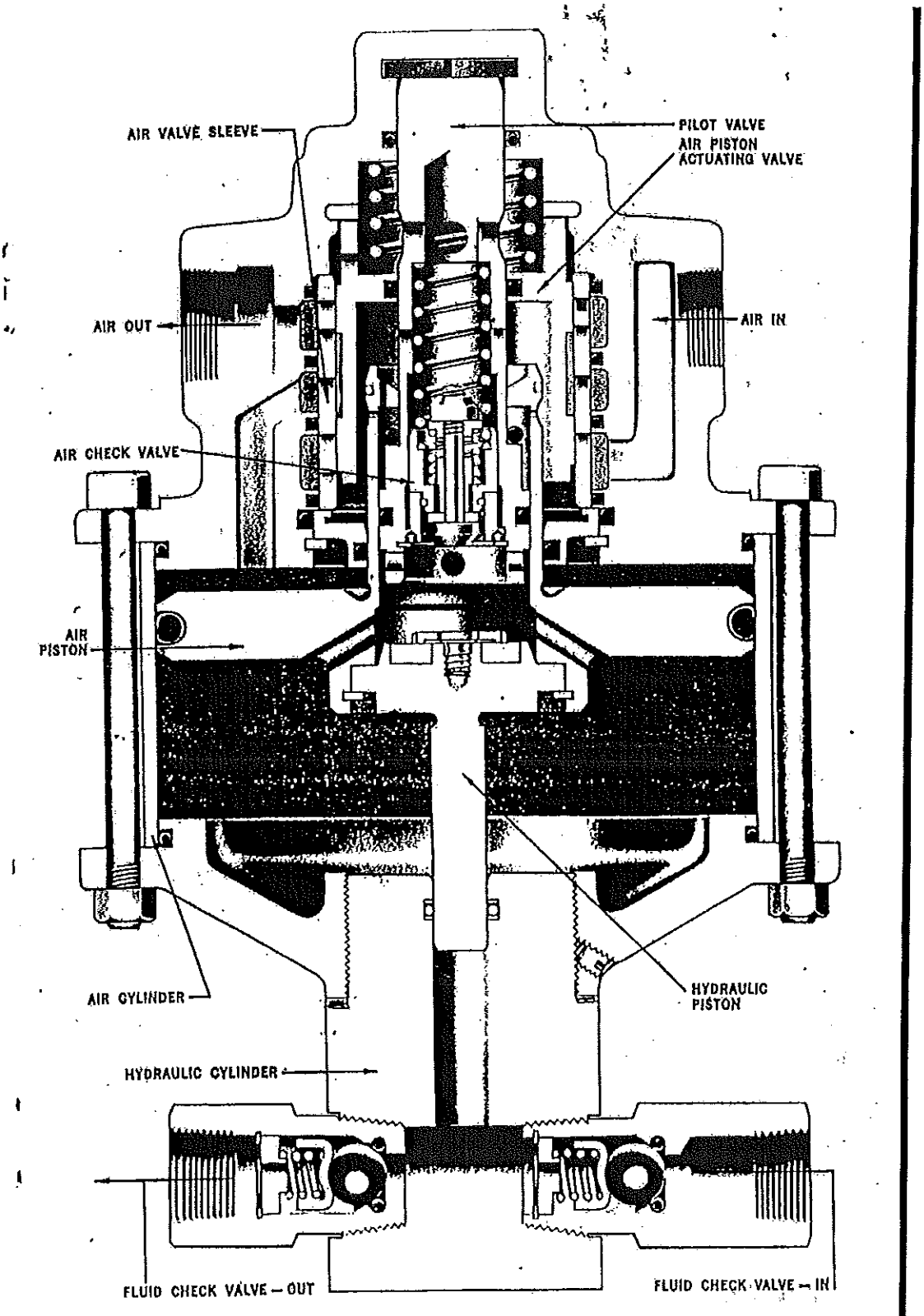
OUTLET VALVE ASSEMBLY, (P-1- VARIES FROM PUMP TO PUMP)**

If applicable remove the Retaining Ring, (RRT-**), the remaining internal parts may then be removed. Inspect and replace as required.

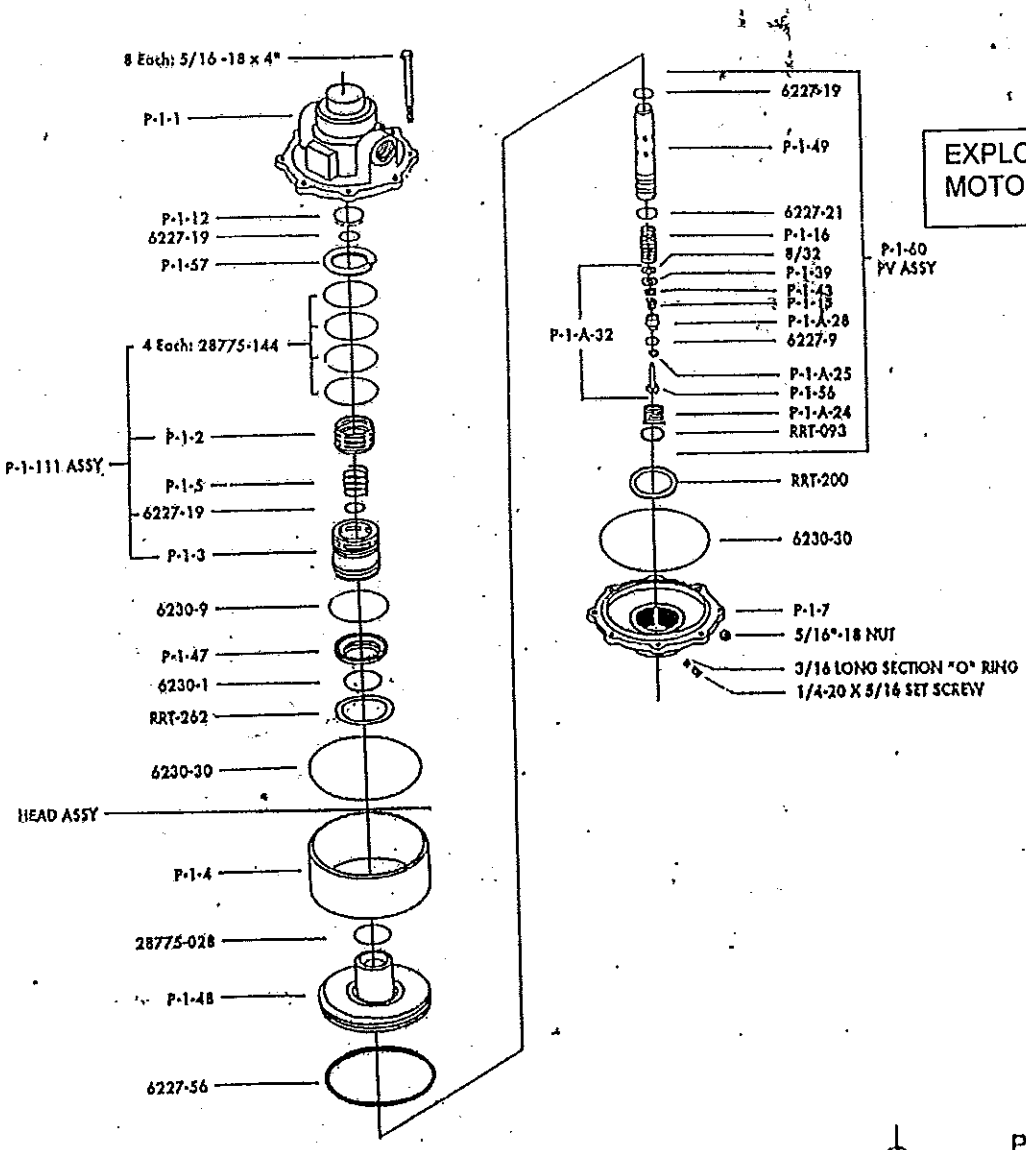
Remove the "O" Ring, (6227-* 90 Shore), inspect the ball seat in the Check Valve Body, (P-1-**). If worn or damaged a new body should be used.

Install a "O" Ring, (6227-* 90 Shore), replace internal parts and secure assembly with the Retaining Ring, (RRT**) IF APPLICABLE.

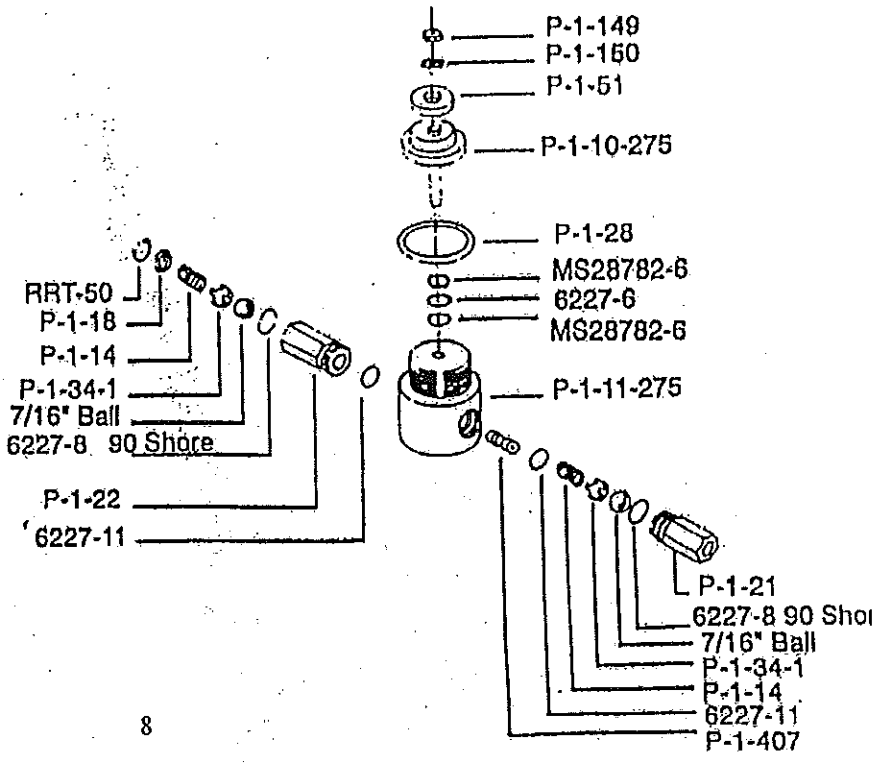
TO REASSEMBLE THE PUMP, it is IMPORTANT when reassembling the Air Motor Assembly to be sure that the Air Cylinder, (P-1-4), is in proper position against the flanges on the Pump Head, (P-1-1), and that the Air Cylinder End, (P-1-7), **BEFORE** tightening the blots that clamp the Air Motor Assembly together. Use a soft hammer to position the flanges tightly against the Air Cylinder, (P-1-4). Bolts should be secured **LIGHTLY** at first, then drawn up in sequence until uniform torque has been applied to all eight bolts. (10-12 foot lbs.)



AHP PUMP SECTIONAL VIEW



EXPLODED VIEW OF AIR MOTOR



EXPLODED VIEW OF HYDRAULIC ASSY