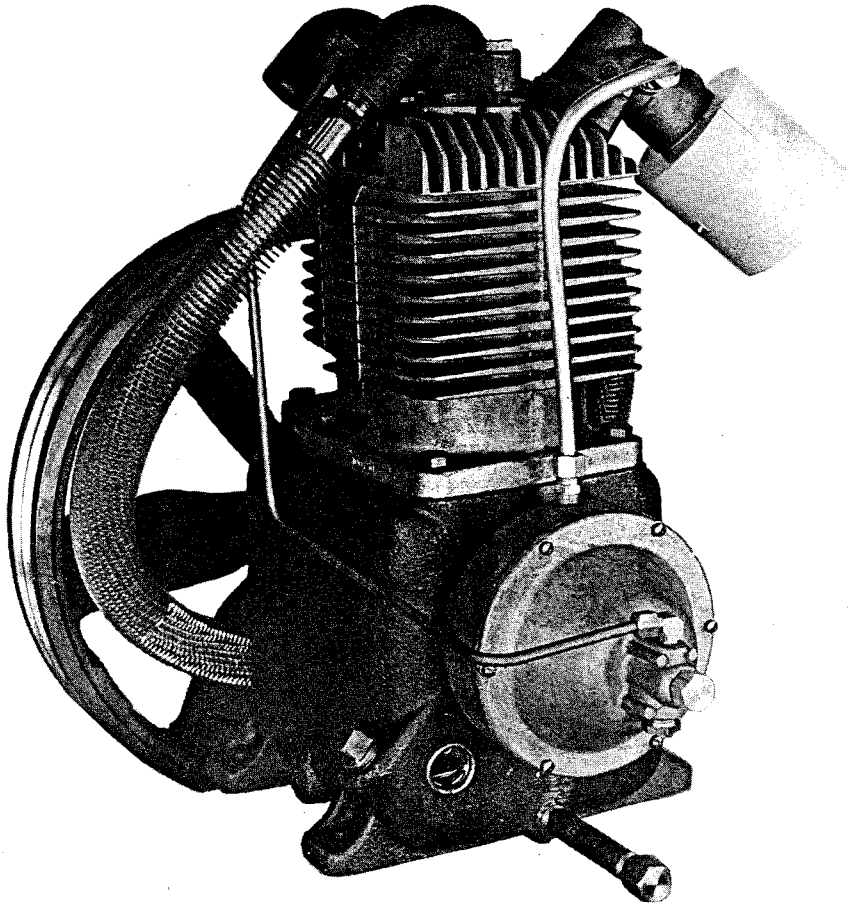
CHAMPION OWNERS GUIDE

TWO STAGE/TWO CYLINDER AIR COMPRESSORS



MODELS R-10C AND R-15A

CHAMPION PNEUMATIC MACHINERY CO., INC.

1301 N. Euclid Ave. • Princeton, Illinois 61356 • (815) 875-3321 • TLX 404471 • Cable: "CHAMPPNEPC"
Manufacturing Plants in Princeton, Illinois • Montgomery, Alabama • Manteca, California
COMPLETE NATION-WIDE ORGANIZATION OF CHAMPION REPRESENTATIVES AT YOUR SERVICE
AN EQUAL OPPORTUNITY EMPLOYER

Form No. 476-3135 Rev. 290

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SAFETY AND OPERATING PRECAUTIONS

Because an air compressor is a piece of machinery with moving and rotating parts, the same precautions should be observed as with any piece of machinery of this type where carelessness in operation or maintenance is hazardous to personnel. In addition to the many obvious safety rules that should be followed with this type of machinery, the additional safety precautions as listed below must be observed:

1. Read all instructions completely before operating air compressor or unit.
2. Pull main disconnect switch and disconnect any separate control lines, if used, before attempting to work or perform maintenance on the air compressor or unit.
3. Do not attempt to remove any compressor parts without first relieving the entire system of pressure.
4. Do not attempt to service any part while machine is in an operational mode.
5. Do not operate the compressor at pressures in excess of its rating.
6. Do not operate compressor at speeds in excess of its rating.
7. Periodically check all safety devices for proper operation. Do not change pressure setting or restrict operation in any way.
8. Be sure no tools, or rags or loose parts are left on the compressor or drive parts.
9. Do not use flammable solvents for cleaning parts.
10. Exercise cleanliness during maintenance and when making repairs. Keep dirt away from parts by covering parts and exposed openings with clean cloth or Kraft paper.
11. Do not operate the compressor without guards, shields and screens in place.
12. Do not install a shut-off valve in the discharge line, unless a safety valve, of proper design and size, is installed in the line between the compressor unit and shut-off valve.
13. Do not operate compressor in areas where there is a possibility of ingesting flammable or toxic fumes.
14. Inspect unit daily to observe and correct any unsafe operating conditions found.
15. Do not "play around" with compressed air because this can cause injury.
16. Compressed air from this machine absolutely must not be used for food processing or breathing air without adequate downstream filters and controls.

The user of any air compressor package manufactured by Champion Pneumatic Machinery Company, Inc. is hereby warned that failure to follow the preceding Safety and Operating Precautions can result in personnel injury or equipment damage. However, Champion Pneumatic Machinery Company, Inc. does not state as fact nor does not mean to imply that the preceding list of Safety and Operating Precautions is all inclusive, and further that the observance of this list will prevent all personnel injury or equipment damage.

EXPLANATION OF SAFETY PRECAUTION SYMBOLS

Indicates immediate hazards which will result in severe personal injury or death.

Indicates hazards or unsafe practice which could result in severe personal injury or death.

Indicates hazards or unsafe practice which could result in damage to the Champion compressor or minor personal injury.

Introduction

Your new CHAMPION reciprocating air compressor is constructed to exacting standards of material and workmanship.

The instructions in this manual have been prepared to ensure that The CHAMPION will give long and satisfactory service.

It is advisable that a copy of this manual be given to the personnel responsible for installing and operating The CHAMPION air compressor or unit.

Although precautions have been taken to prevent damage to your compressor or unit by freight carrier, the unit must be carefully examined and the carrier notified within 24 hours in the event of mishandling.

All requests for information service or spare parts should include machine serial number and be directed to:

CHAMPION PNEUMATIC MACHINERY CO., INC.
Service Department
1301 N. Euclid Avenue
Princeton, Illinois 61356
(815) 875-3321

EXPRESS LIMITED WARRANTY

CHAMPION warrants each new piece of equipment manufactured by **CHAMPION** to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from date of installation or fifteen (15) months from date of shipment by **CHAMPION** or **CHAMPION** distributor, whichever may occur first.

CHAMPION makes no warranty in respect to components and accessories furnished to **CHAMPION** by third parties, such as ELECTRIC MOTORS, GASOLINE ENGINES and CONTROLS, which are warranted only to the extent of the original manufacturer's warranty to **CHAMPION**. To have warranty consideration, electric motors must be equipped with thermal overload protection.

The warranty will apply to ASME air receivers provided they are installed on rubber vibro isolator pads or approved equivalent.

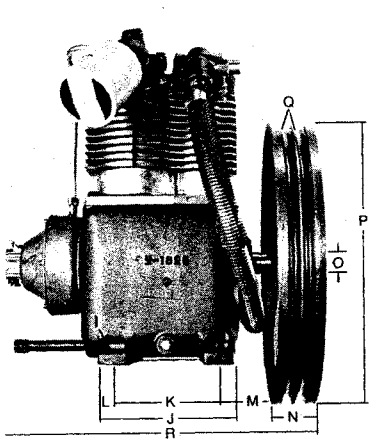
When a compressor pump, or component is changed or replaced during the warranty period, the new/replaced item is warranted for only the remainder of the original warranty period.

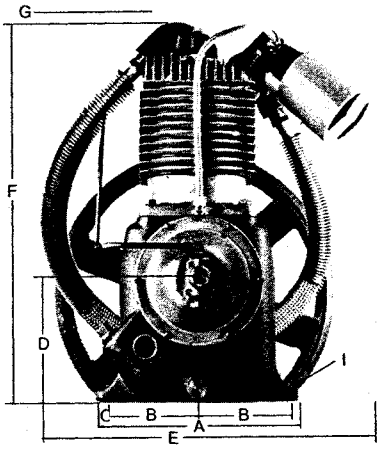
Repair, replacement or refund in the manner and within the time provided shall constitute **CHAMPION'S** sole liability and your exclusive remedy resulting from any nonconformity or defect. **CHAMPION** SHALL NOT IN ANY EVENT BE LIABLE FOR ANY DAMAGES, WHETHER BASED ON CONTRACT, WARRANTY, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES, ARISING WITH RESPECT TO THE EQUIPMENT OR ITS FAILURE TO OPERATE, EVEN IF **CHAMPION** HAS BEEN ADVISED OF THE POSSIBILITY THEREOF.

CHAMPION MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND, EXCEPT THAT OF TITLE, AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY DISCLAIMED. NO SALESMAN OR OTHER REPRESENTATIVE OF **CHAMPION** HAS AUTHORITY TO MAKE ANY WARRANTIES.

TWO STAGE AIR COMPRESSORS—MODELS R-10C & R-15A

DIMENSIONS





Rotation of Flywheel: Clockwise when viewed from front end, flywheel to rear.

	ITEM	R-10 & R-15
A	Base-Width	10
B	Bold Down-Width	4-3/8
C	Bolt Down to Edge	5/8
D	Base to Crank CTR	5½
E	Over-All Width	18
F	Over-All Height	19
G	Add For Head Unl.	1
I	Bolt Down Hole Dia.	15/32
J	Base-Depth	7½
K	Bolt Down Depth	5¾
L	Bolt Down to Edge	7/8
M	Bolt Hold to Wheel (Max.)	2-5/8
N	Flywheel Width	2½
O	Crank Diameter	1-5/16
P	Flywheel Diameter	16½
Q	Flywheel Grooves	2VB
R	Over-All Depth	20

NOTE: H.P. Exhaust Opening ¾" Tubing.

SPECIFICATIONS

MODEL	BORE & STROKE	NO. CYLS	OIL CAPY.	WT.	MAX. PRES.
R-10C	4-5/8 & 2½×2	2	2 QT.	107	175 PSI
R-15A	4-5/8 & 2½×3	2	2 QT.	109	175 PSI

PERFORMANCE

PUMP	OUTPUT PRESS. PSI	MOTOR H.P.	DISPL. CFM	PUMP RPM	APPROX. PULLEY O.D.
R-10C	125	1½	11.0	570	5.55
	175		10.5	542	5.25
R-10C	125	2	14.8	760	7.35
	175		14.1	725	7.0
R-15A	125	3	14.5	490	4.75
	175		12.8	440	4.31
R-15A	125	5	23.5	800	7.75
	175		20.7	710	7.0

All data is based on 1725 R.P.M. electric motors as a power source.

Min. RPM 400
Max. RPM 1000

TO DETERMINE PULLEY SIZE: Select a compressor which will deliver the required CFM at the desired pressure. Note the speed (RPM) compressor must run at to meet above requirements and the flywheel diameter of compressor. Determine RPM, shaft and keyway size of motor or engine. To determine pulley diameter, use this formula:

$$\text{Pulley Dia. (approx.)} = \frac{\text{Pump RPM} \times \text{Flywheel Dia.}}{\text{Motor or Engine RPM}}$$

INSTALLATION

1. Permanently installed **compressors must be located in a clean, well ventilated dry room so compressor receives adequate supply of fresh, clean, cool and dry air.** It is further recommended that a compressor, used for painting, be located in a separate room from that area wherein body sanding and painting is done. Abrasive particles or paint, found to have clogged the air intake filters and intake valves, shall automatically void warranty.
2. Compressors should never be located so close to a wall or other obstruction that flow of air through the fan bladed flywheel, which cools the compressor, is impeded. **Permanently mounted units should have flywheel at least 12" from wall.**
3. Place stationary compressors on firm level ground or flooring. **Permanent installations seldom require bolting to floor**, however, bolt holes in tank or base feet are provided. Before bolting or lagging down, **shim compressor level. Avoid putting a stress on a tank foot by pulling it down to floor.** This will only result in abnormal vibration, and possible cracking of Air Receiver. Suggest leave unit on shipping skid. As an alternative, install unit on optional vibro-isolator pads. Tanks bolted directly to a concrete floor without padding will not be warranted against cracking.

CAUTION

- **Do not install in an area where ambient temperature is below 32 degrees F or above 100 degrees F.**
- **Do not install unit in an area where air is dirty and/or chemical laden.**
- **Unit is not to be installed outdoors.**

ELECTRIC POWER SUPPLY

It is essential that the power supply and the supply wiring are adequately sized and that the voltage correspond to the unit specifications.

All wiring should be performed by a licensed electrician or electrical contractor. Wiring must meet applicable codes for area of installation.

Recommended electrical wiring specifications are listed on "Specifications" sheet.

If ordered with a mounted starter, compressor unit is pre-wired at factory. It is necessary only to bring lines from properly sized disconnect switch to magnetic starter mounted on compressor, and attach to terminals as indicated on schematic diagram located inside cover of control. **Be sure that power circuit and voltage correspond with the specifications.**

CAUTION

Wiring must be such that when viewing compressor from opposite shaft end, rotation of shaft is clockwise as shown by arrow on guard. Wrong direction rotation for any length of time will result in damage to compressor.

AIR LINE PIPING

Connection to air system should be of the same size, or larger, than discharge pipe out of unit. A union connection to the unit and water drop leg is recommended. Plant air piping should be periodically inspected for leaks using a soap and water solution for detection on all pipe joints. Air leaks waste energy and are expensive.

PREPARATION FOR INITIAL START-UP AND OPERATION

1. Pull main disconnect switch to unit to assure that no power is coming into the unit. Connect power leads to starter.

WARNING

Do not attempt to operate compressor on voltage other than that specified on order or on compressor motor.

2. Check compressor crankcase to make sure oil has been added.
3. Inspect unit for any visible signs of damage that would have occurred in shipment or during installation.
4. Activate main disconnect switch.
5. "Jog" motor and check for proper rotation by direction arrow. If rotation is wrong, reverse input connections on the magnetic starter.
6. Close receiver outlet hand valve and start unit.
7. With receiver hand valve closed, let machine pump up to operating pressure. At this stage the automatic controls will take over. Check for proper cycling operation.
8. Check for proper operation of any options, e.g. losc or head unloaders with pilot valve. Refer to individual option instruction sheet.
9. When the initial run period has shown no operating problems, shut unit down and recheck oil level.
10. Open receiver hand valve. The Champion air compressor unit is now ready for use.

GUIDE TO MAINTENANCE

To obtain reliable and satisfactory service, THE CHAMPION unit requires a consistent preventive maintenance schedule. A maintenance schedule form is included to aid in keeping the proper records.

WARNING

Before performing any maintenance function, switch main disconnect switch to "off" position to assure no power is entering unit. Be sure all air pressure in unit is relieved. Failure to do this may result in personal injury or equipment damage.

DAILY MAINTENANCE

1. **Check oil level of both compressor and engine if so equipped.** Add quality lubricating oil as required. See paragraphs 1 & 2 under lubrication above.
2. **Drain moisture** from tank by opening tank drain cock located in bottom of tank. Do not open drain valve if tank pressure exceeds 40 PSI.
3. Turn off compressor at the end of each day's operation. Turn off power supply at wall switch.

WEEKLY MAINTENANCE

1. **Clean dust and foreign matter** from cylinder head, motor, fan blade, air lines, intercooler and tank.
2. **Remove and clean intake air filters.**

WARNING

Do not exceed 15 psig nozzle pressure when cleaning element parts with compressed air. Do not direct compressed air against human skin. Serious personal injury could result.

3. **Check V-belts for tightness.** The V-belts must be tight enough to transmit the necessary power to the compressor. Adjust the V-belts as follows:

   Remove bolts and guard to access compressor.

   Loosen mounting hardware which secures motor to base. Slide motor within slots of baseplate to desired position.

   Apply pressure with finger to one belt at midpoint span. Tension is correct if top of belt aligns with bottom of adjacent belt. Make further adjustments if necessary.

   Check the alignment of pulleys. Adjust if necessary.

   Tighten mounting hardware to secure motor on base.

   Install guard and secure with bolts.

EVERY 90 DAYS OR 500 HOURS MAINTENANCE

1. **Change crankcase oil.** Use type and grade oil as specified in the section on "Compressor Oil Specifications".
2. **Check entire system** for air leakage around fittings, connections, and gaskets, using soap solution and brush.
3. **Tighten nuts and capscrews as required.**
4. **Check and clean compressor valves,** replace springs, discs, and seats when worn or damaged.

   CAUTION: Valves must be replaced in original positions. Valve gaskets should be replaced each time valves are serviced.

GENERAL MAINTENANCE NOTES

ELECTRIC MOTOR OR GAS ENGINE: For service refer to separate manual or chart attached to equipment.

SAFETY VALVE: The safety valve is an automatic pop valve. Each valve is properly adjusted for the maximum pressure permitted by tank specifications and working pressure of the unit on which it is installed. If it should pop, it will be necessary to drain all the air out of the tank in order to reseat properly. Do not readjust.

TANK DRAIN VALVE: Drain valve is located at bottom of tank. Open drain valve at least once a week or oftener to drain condensation. Do not open drain valve if tank pressure exceeds 40 P.S.I. The automatic tank drain equipped compressor makes this unnecessary.

PRESSURE SWITCH: The pressure switch is automatic and will start compressor at the low pressure and stop when the maximum pressure is reached. It is adjusted to start and stop compressor at the proper pressure for the unit on which it is installed. Do not readjust to pressure higher than indicated on label next to switch.

BELTS: Drive belts must be kept tight enough to prevent slipping. If belts slip or squeak, see V-belt maintenance in preceding section.

CAUTION: If belts are too tight, overload will be put on motor and motor bearings.

COMPRESSOR VALVES: If compressor fails to pump air or seems slow in filling up tank, disconnect unit from power source and remove valves and clean thoroughly, using compressed air or a soft wire brush. After cleaning exceptional care must be taken that all parts are replaced in exactly the same position and all joints must be tight or the compressor will not function properly. When all valves are replaced and connections tight, close globe valve at tank outlet for final test. Valve gaskets should be replaced each time valves are removed from pump.

CENTRIFUGAL UNLOADER AND PRESSURE RELEASE VALVE: The centrifugal unloader is operated by two governor weights. It is totally enclosed and lubricated from the crankcase of the compressor. When compressor starts the governor weights automatically open compressing the main spring, allowing the release valve to close. When the compressor stops, the main spring returns the governor weights to normal position opening the release valve and unloading the compressor. This prevents overloading the motor when starting. If air continues to escape through the governor or pressure release valve while operating this is an indication that the release valve is not closing tightly and may be held open by foreign substance which has lodged on the seat. In order to correct this, remove the governor release valve cap, giving access to release valve spring and ball. Clean thoroughly and return parts in the same order in which they were removed. Loose drive belts can also cause unloader to leak by preventing the compressor from reaching proper speed. (See "BELTS" above.)

CHECK VALVE: The check valve closes when the compressor stops operating, preventing air from flowing out of the tank through the pressure release valve. After the compressor stops operating, if air continues to escape through the release valve it is an indication that the check valve is leaking. This can be corrected by removing check valve and cleaning disc and seat. If check valve disc is worn badly, replace same.

CAUTION: Before opening check valve be sure air is drained out of tank.

LUBRICATION OF COMPRESSOR: Fill crankcase to proper level as indicated by oil sight gauge. Keep crankcase filled as required by usage.

COMPRESSOR OIL SPECIFICATIONS

1. **AIR COMPRESSOR**

   Compressors shipped on units are factory filled with Champion ISO 100 recip oil.

   Compressors shipped as basic (pump only) do not have any oil in the crankcase. Be sure to add oil to these pumps prior to start-up.

   It is recommended that this compressor be maintained using the Champion ISO 100 recip oil for ambient temperatures above 32°F. This is a 30 weight, non-detergent industrial oil with rust and oxidation inhibitors specially formulated for reciprocating compressors. Contact your Champion distributor for information and purchase of this oil. For temperatures below 32°F, use an ISO 68 compressor oil. A separate list of acceptable oils can be obtained from Champion's service department.

   NOTES: 1. Do not mix oil types, weights or brands. Consult factory for the use of synthetic lubricants.
   2. For the first 100 hours of compressor operation, a careful and regular check of the oil level should be made. Maintain oil level at the full line.

2. **ELECTRIC MOTORS**

   Electric motors are equipped with sealed-for-life bearings and require no additional lubrication.

3. **GAS OR DIESEL ENGINES**

   Fill engine crankcase, if so equipped, using the proper spec of Champion engine oil. Contact your Champion distributor for further information and purchase of this oil. As an alternative, consult the engine manual for the engine manufacturer's recommendations.

DANGER

Champion reciprocating compressors must not be used for breathing air. To do so can cause serious bodily injury whether air is supplied direct from the compressor source or to breathing tanks for later use. Any and all liabilities for damage or loss due to personal injuries, death and/or property damage including consequential damages stemming from the use of Champion compressors to supply breathing air will be disclaimed by Champion.

TROUBLE SHOOTING CHART FOR COMPRESSOR

SERVICE PROBLEM

A	Compressor Runs Hot
B	Compressor Pumps Too Slowly
C	Compressor Won't Shut Off
D	Excessive Belt Wear
E	Abnormal Pressure Fluctuation
F	Air Escapes From Unloader Muffler When Running
G	Air Escapes From Unloader Muffler When Stopped
H	Interstage Safety Valve Pops Off Continuously
I	Compressor Cycles (runs) too Often

POSSIBLE CAUSE OF PROBLEM

		I	H	G	F	E	D	C	B	A	
1	Check Points in Pressure Switch							•			1
2	Check Diaphragm in Pressure Switch	•						•			2
3	Drain Water From Air Receiver	•									3
4	Check "V" Belts for Proper Tension						•		•	•	4
5	Check for Proper Flywheel Rotation									•	5
6	Check Compressor Pump Valves		•						•	•	6
7	Check Pipe Lines for Leaks	•				•		•	•		7
8	Check Adjustment of Unloader Valve	•				•		•			8
9	Check Unloader Valve for Leaks	•				•		•	•		9
10	Centrifugal Unloader Valve is Leaking	•			•	•		•	•		10
11	Check Valve is Leaking	•		•							11
12	Check Valve or Line to Tank is Plugged		•			•					12
13	Align Belts						•				13
14	Clean Intake Muffler								•	•	14
15	Check Crankcase Oil Level									•	15
16	Clean Oil Bath Air Cleaner									•	16
		I	H	G	F	E	D	C	B	A	

FOR EXPLANATION SEE NEXT PAGE

EXPLANATION OF CHECK LIST

1. & 2. A pressure switch uses a diaphragm to open and close a set of points. Points may become pitted or dirty thru use. Clean by "touching" up with sandpaper or replace. See instructions in pressure switch cover.

WARNING: Disconnect unit from power source before checking pressure switch.

3. Water in the form of vapor is compressed along with incoming air and condenses in tank. Tank must be drained periodically so that full storage capacity of tank may be used. To drain, open pet cock on end of horizontal tank or side of vertical tank. This is unnecessary if compressor is equipped with automatic tank drain.

4. "V" belts must be tight enough to transmit the necessary power to the compressor. If too tight they will overload the engine or motor. If, by pushing down on one belt, its top lines up with the bottom of the belt next to it the tension is correct. Should it be necessary to change the tension, slide the engine or motor in slots provided in tank baseplate to desired position.

WARNING: Disconnect unit from power source before checking or adjusting belts. Always reinstall belt guard after adjusting belts.

5. The fan blade flywheel must rotate in the direction shown by the arrows.

6. Compressor valves may become fouled by carbon or other foreign matter. To service, remove manifold and extract valve. Remove screw in center of valve and clean all parts. Seat and disc may be lapped in on fine sandpaper if badly carboned. If a smooth finish cannot be obtained, replace with new parts. Reassemble and install, taking caution that all parts are returned to their original position with screw head up.

7. All air lines from compressor to tank and from tank to air operated devices should be tight. A soap solution will show bubbles when put on a leaky joint. At 175 PSI a $^{1}/_{32}$" hole will allow almost 3 cubic feet per minute to escape.

8. The unloader valve has one adjustment which controls cutout pressure. Unload pressure is regulated by piston rod nut tension.

9. Check unloader valve for loose connections.

10. The centrifugal unloader valve may become fouled by foreign matter. To clean, unscrew hex cap on end of unloader, remove spring and ball, to remove ball rock flywheel. Clean and replace. Should ball not be seating properly in body it may be tapped lightly to form a better seat in soft brass body.

11. Before servicing check valve be sure pressure in tank is ZERO. Remove check valve cap and extract disc. Disc should be clean and free from scratches it may be lapped in on fine sandpaper or replaced.

12. Badly worn compressors which are pumping oil may deposit carbon within after-cooler tube and check valve, restricting flow of air and possibly plugging these parts completely. These parts should be cleaned or replaced.

WARNING: Disconnect unit from power source and relieve tank pressure before servicing these components.

13. Engine pulley and flywheel must be in line to prevent wear on sides of belts. If misaligned, move pulley in or out by loosening set screw on key and tapping pulley in appropriate direction. Disconnect power source before adjusting pulley.

14. Intake muffler should be cleaned periodically to allow unrestricted flow of entering air. To service muffler, remove by loosening set screw on side of manifold, disassemble muffler, clean, dry thoroughly and replace in manifold.

15. Cool running and long life can be assured by careful attention to crankcase oil. Check frequently and change as indicated on compressor data sheet.

16. Intake muffler should be cleaned periodically to allow unrestricted flow of entering air. To service muffler, remove from manifold by loosening set screw on side of manifold, disassemble muffler, clean, dry thoroughly and read instructions on filter.

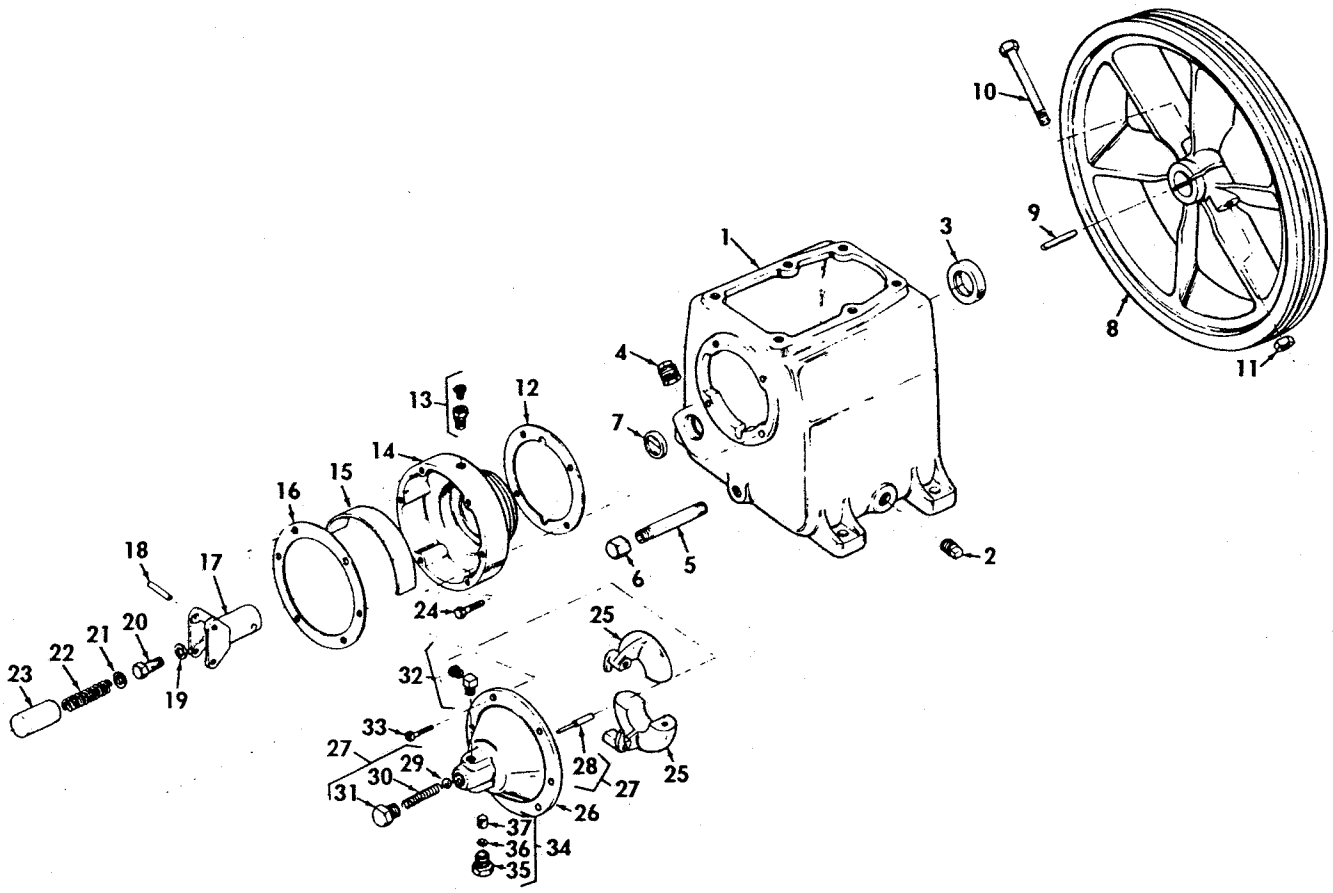
WARNING

Always disconnect unit from power supply and relieve all pressure from air tank before performing any maintenance. Failure to do so may result in equipment damage or personal injury.

Never operate compressor without belt guard in place.

R-10C AND R-15A

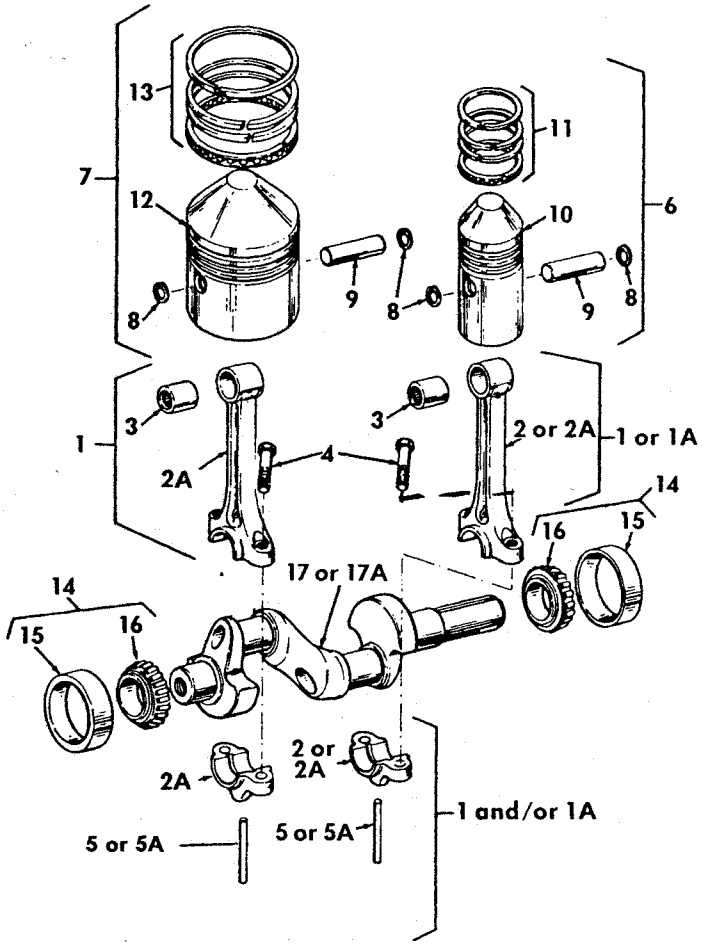
CRANKCASE & UNLOADER ASSEMBLY



ITEM	PART NO.	NAME	REQ.
1	M-1820	Crankcase	1
2	M-504	Plug, Pipe	2
3	OS-N4	Seal, Oil	1
4	M-459	Plug, Pipe	1
5	M-492	Nipple, Pipe	1
6	M-461	Cap, Pipe	1
7	RE-7-14	Gauge, Visible Oil Level	1
8	NR-7A	Flywheel	1
9	SE-5-8	Key, Square Machinery	1
10	M-1915	Cap Screw	1
11	M-465	Nut, Hex Steel	1
12	Z-130	GASKET SET, GOV. HOUSING (Includes Following 4 Items)	
	SE-14-30	Gasket, Gov. Housing (1/32 Thick)	1
	SE-14-30A	Gasket, Gov. Housing (.005 Thick)	1
	SE-14-30B	Gasket, Gov. Housing (.010 Thick)	1
	SE-14-30C	Gasket, Gov. Housing (.015 Thick)	1
13	M-2864	Straight Coupling 3/8" x 1/4"	1
14	NR-80A	Housing, Governor	1
15	NR-104	Plate, Baffle	1

ITEM	PART NO.	NAME	REQ.
16	SE-14-89	Gasket, Governor Cover	1
17	SE-5-83B	Spindle, Gov.	1
18	SE-5-92A	Pin, Spring (Gov. Wt.)	2
19	M-466	Washer, Steel Spring Lock	1
20	RE-14-94	Screw, Hex Steel Cap	1
21	M-912A	Washer, Flat Steel (Spring, Plate)	1
22	SE-5-90	Spring, Gov. Main	1
23	SE-5-87	Sleeve, Spring	1
24	M-472	Screw, Hex Steel Cap	4
25	SE-5-82	Weight, Governor	2
26	RE-10-100A	Cover, Governor Housing	1
27	Z-124-14A	KIT, RELEASE VALVE ASS'Y. (Includes Items 28, 29, 30 & 31)	1
28	SE-5-86B	Plunger, Release Valve	1
29	P-7841A	Ball Release Valve	1
30	SE-5-91	Spring, Release Valve	1
31	NR-101	Body, Release Valve	1
32	M-2868	90° Elbow 1/4" x 1/8"	1
33	M-2400	Screw, Hex Head, Machine	6
34	Z-60A	MUFFLER ASS'Y., UNLOADER (Includes Items 35, 36 & 37)	1
	Z-764	GASKET SET, COMPLETE PUMP	1

R-10C AND R-15 A
CRANKSHAFT, PISTONS, CONNECTING ROD ASS'YS.



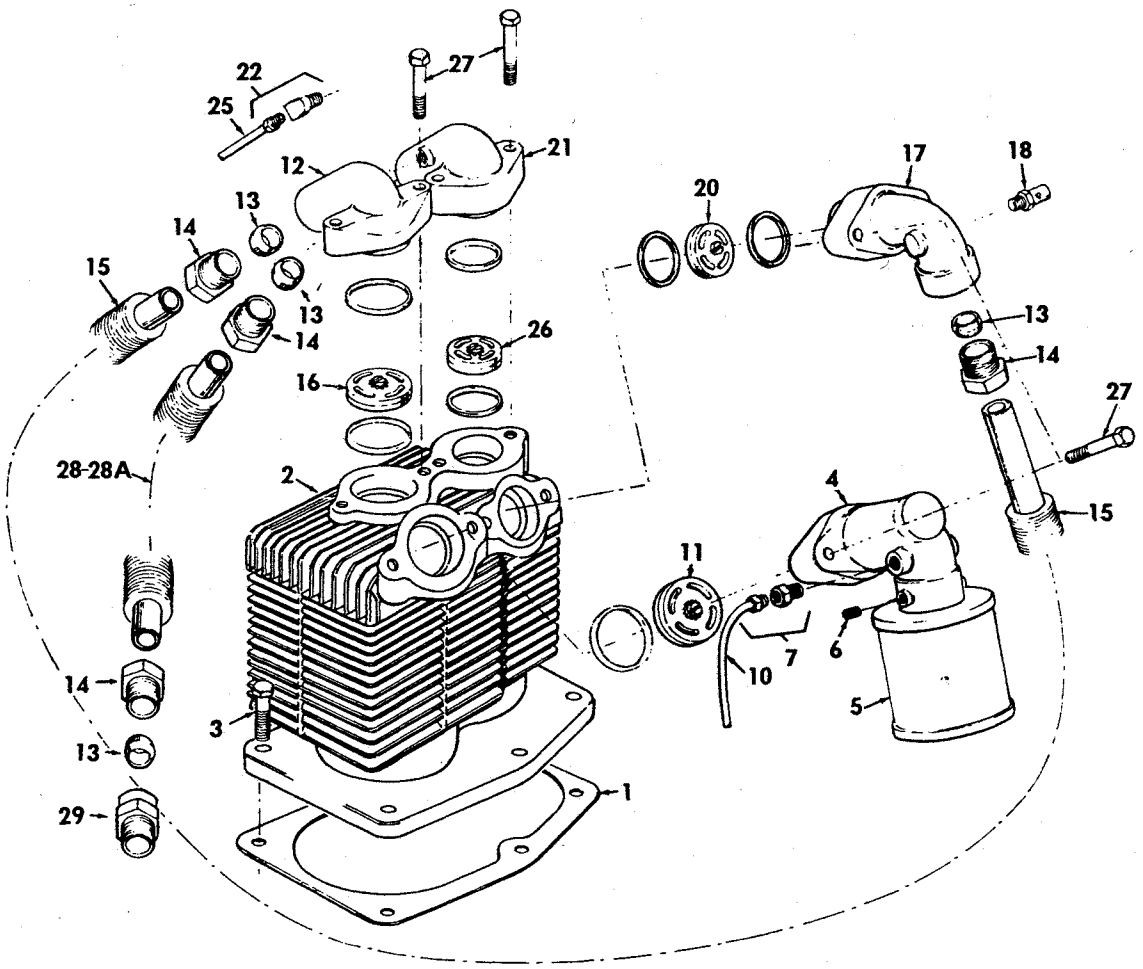
ITEM	PART NO.	NAME	REQ.
1	Z-750	KIT ROD ASS'Y CONNECTING LOW PRESSURE, R-10C, R-15A AND HIGH PRESSURE R-15A (Includes Items 2A, 3, 4, 5A or 5B)	1
1A	Z-752	KIT, ROD ASS'Y CONNECTING HIGH PRESSURE, R-10C ONLY. Includes 2, 3, 4, & 5	1
2		Rod connecting w/Bolt R-10C High Pressure Only (Not Sold Separately)	1
2A		Rod, Connecting w/Bolt R-15A Only (Not Sold Separately)	2
2A		Rod, Connecting w/Bolt R-10C Low Pressure Only (Not Sold Separately)	1
3	R-10-37	Bearing, Piston Pin	2
4	M-1583	Bolt, Connecting Rod	4
5	R-10-24	Dipper, Oil R-10C Only HP & LP	2
5A	R-15-24	Dipper, Oil R-15A LP & HP	2
6	Z-3607	KIT, PISTON ASS'Y H.P. (Includes Items 8, 9, 10, & 11)	1

ITEM	PART NO.	NAME	REQ.
7	Z-3608	KIT, PISTON ASS'Y L.P. (Includes Items 8, 9, 12, & 13)	1
8	R-10-102	Ring, Piston Retaining	4
9	R-10-21	Pin, Piston	2
10	ZR-10-4	Piston, High Pressure w/Pin	1
11	Z-189B	Ring Set, H.P. Piston	1
12	ZR-15-4	Piston, Low Pressure w/Pin	1
13	Z-179C	Ring Set, L.P. Piston	1
14	ZNR-16	ASS'Y, MAIN BEARING (Includes Items 15-16)	2
	ZR-15	Kit, Ring Set, Complete Pump	1
17	R-10-5	Crankshaft (R-10C Only)	1
17A	R-15-5	Crankshaft (R-15A Only)	1

R-10C USES: (1) Z-752 HP ROD ASS'Y.
(1) Z-750 LP ROD ASS'Y.

R-15A USES: (2) Z-750 ROD ASS'Y.

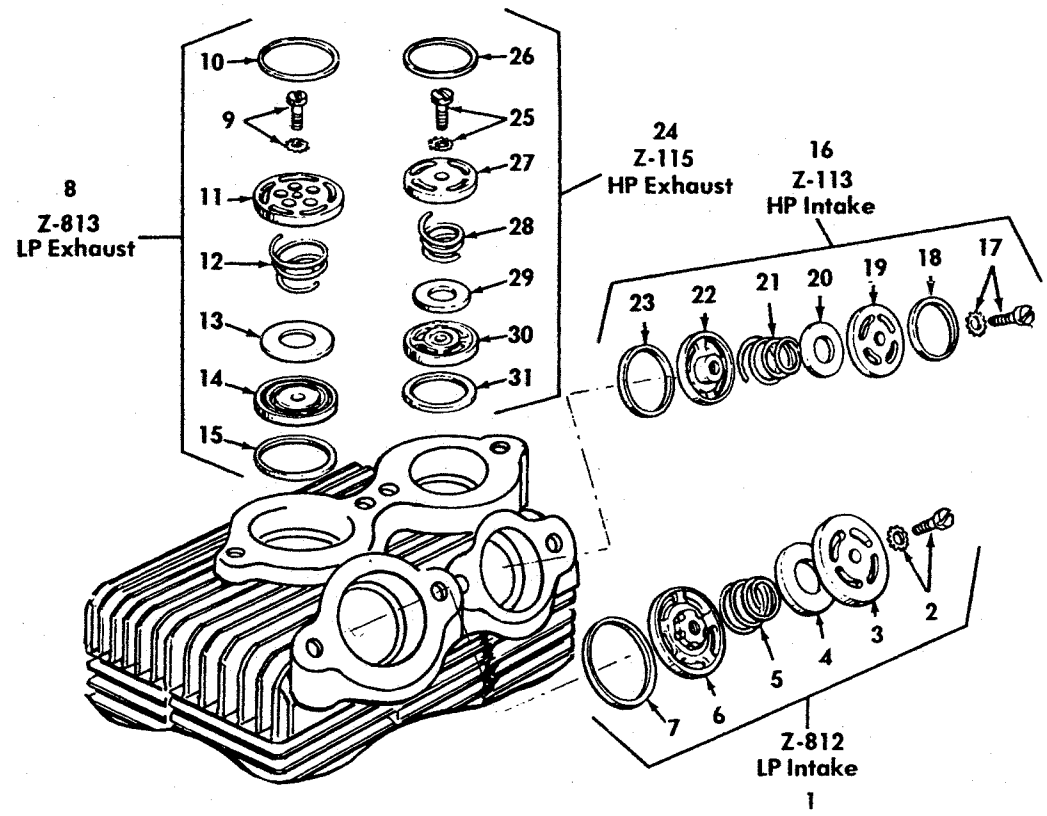
R-10C AND R-15A
CYLINDER, VALVES, MANIFOLD ASS'YS.



ITEM	PART NO.	NAME	REQ.
1	NR-29A	Gasket, Cylinder Flange	1
2	NR-14-6B	Cylinder	1
3	M-2345	Screw, Hex Steel Cap	6
4	R-10-B-2	Manifold, L.P. Intake	1
5	Z-828	Muffler Ass'y., Intake	1
6	M-432	Screw, Slotted Set	1
7	M-2864	STRAIGHT COUPLING, 3/8 × ¼	
10	ZUB-375	Tube, Breather	1
11	Z-812	VALVE ASS'Y L.P. INTAKE	1
		(See Valve Ass'y Sheet Item 1)	
12	RE-10-2E	Manifold, L.P. Exhaust	1
13	SE-5-42	Ferrule, Tube	4
14	SE-5-41	Nut, Compression	4
15	ZRE-4-12A	Tube, Intercooler	1
16	Z-813	VALVE ASS'Y, L.P. EXHAUST	1
		(See Valve Ass'y Sheet, Item 8)	
17	P-8534B	Manifold, H.P. Intake	1
18	P-3592A	Valve Ass'y, Interstage Safety	1

ITEM	PART NO.	NAME	REQ.
20	Z-113	VALVE ASS'Y H.P. INTAKE	
		(See Valve Ass'y Sheet Item 16)	1
21	NR-2B	Manifold H.P. Exhaust	1
22	M-2868	90° Elbow, ¼ × 1/8	1
25	ZSB-250-A	Tube, Unloading	1
26	Z-115	VALVE ASS'Y, H.P. EXHAUST	
		(See Valve Ass'y Sheet, Item 24)	1
27	P-5005	Screw, Hex Steel Cap	
		(All Manifolds)	8
28	ZM-2474-24	Tube, Aftercooler-Use with	
		Horizontal Tank-(Optional)	1
28A	ZM-2474-31	Tube, Aftercooler-Use with	
		Vertical Tank-(Optional)	1
29	RE-10-99	Compression Body (Optional)	
		For Base Mounted (Not Shown)	1
	Z-837	Filter Element Kit (Not Shown)	1

R-10C AND R-15A
VALVE ASSEMBLIES



ITEM	PART NO.	NAME	REQ.
1	Z-812	VALVE ASS'Y, LOW PRESS. INTAKE (Icludes Items 2-3-4-5-6-7)	1
2	P-4544A	Screw, Fillister Head, Steel Mach. w/Washer	1
3	RE-14-71A	Seat, Intake Valve	1
4	RE-14-70	Disc, Valve	1
5	RE-14-58	Spring, Valve	1
6	M-2098	Cage, Intake Valve	1
7	P-4134A	Gasket, Valve	1
8	Z-813	VALVE ASS'Y, L.P. EXHAUST (Includes Items 9-10-11-12-13-14-15)	1
9	P-4543A	Screw, Fillister Head, Steel Mach. w/Washer	1
10	P-4135A	Gasket, Valve	1
11	M-2099	Cage, Exhaust Valve	1
12	RE-10-59	Spring, Valve	1
13	RE-10-61	Disc, Valve	1
14	M-2097	Seat, Exhaust Valve	1
15	P-4135A	Gasket, Valve	1
16	Z-113	VALVE ASS'Y, H.P. INTAKE (Includes Items 17-18-19-20-21-22-23)	1

ITEM	PART NO.	NAME	REQ.
17	RE-7-81	Screw, Fillister Head, Steel Mach. w/Washer	1
18	P-4137A	Gasket, Valve	1
19	RE-7-56A	Seat, Intake Valve	1
20	RE-10-62	Disc, Valve	1
21	RE-7-60	Spring, Valve	1
22	M-2101	Cage, Intake Valve	1
23	P-4136A	Gasket, Valve	1
24	Z-115	VALVE ASS'Y, H.P. EXHAUST (Includes Items 25-26-27-28-29-30-31)	1
25	RE-7-81	Screw, Fillister Head, Steel Mach. w/Washer	1
26	P-4137A	Gasket, Valve	1
27	M-2100	Cage, Exhaust Valve	1
28	RE-7-60	Spring, Valve	1
29	RE-10-62	Disc, Valve	1
30	RE-7-57A	Seat, Exhaust Valve	1
31	P-4136A	Gasket, Valve	1
	Z-102	KIT, COMPLETE VALVE SET w/Gaskets	1
	Z-102G	KIT, COMPLETE VALVE GASKET SET	1

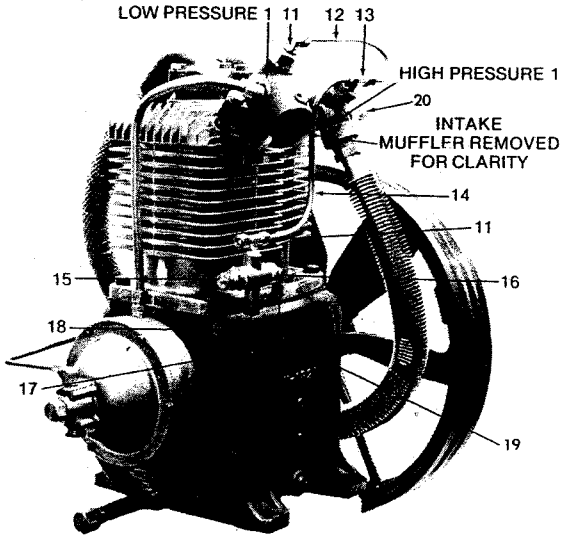
CONSTANT SPEED HEAD UNLOADER KIT HUK-402
For Air Compressor Pump Models R-10C and R-15A

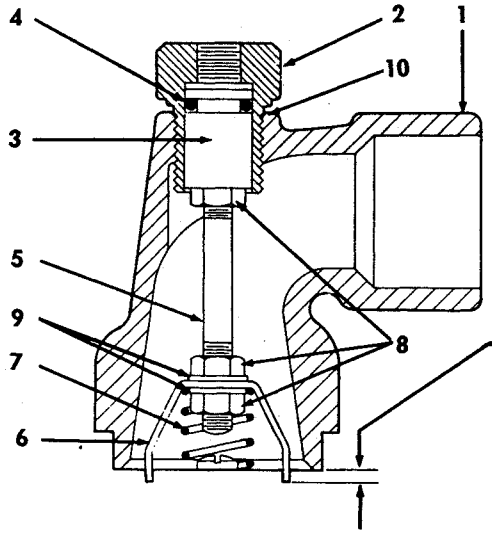
NOTE: This is optional equipment and may not be included on your unit.

The purpose of constant speed unloading is to provide a means of stopping or starting the compression of air by the compressor without stopping or starting the electric motor or gasoline engine after each cycle.

To accomplish this, an air pilot valve is used to replace the pressure switch used for stop-start operation. The pilot valve senses storage tank pressure, and when the pressure is raised to a predetermined setting, this air is released to an intake valve hold-open mechanism. The compressor stops compressing air and runs free until the pilot valve senses that the pressure in the tank has dropped to the predetermined setting. At this time the air is released from the intake valve hold-open mechanism, and the compressor starts compressing air again.

The parts called out below replace or are substituted for those found in the regular parts list of the Owner's Guide for this compressor.





TYPICAL MANIFOLD ASSEMBLY

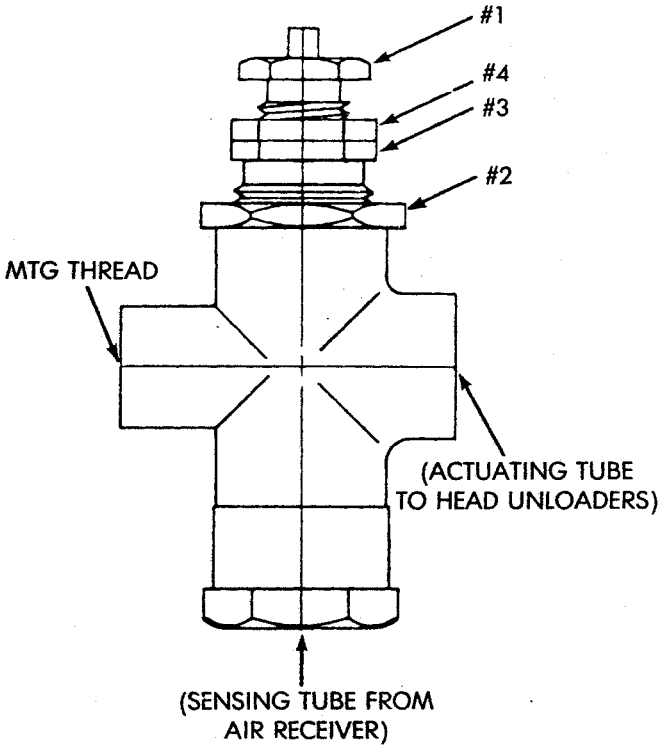
HUK-402

FIG. REF. NO.	TOTAL REQ'D.	PART NO.	NAME
	1	P-2750A	LP Intake Manifold
1			(Replaces R-10B-2)
	1	P-2281B	HP Intake Manifold
			(Replaces SE-5-2B)
2	2	P-2306B	Cylinder
3	2	P-2287A	Piston
4	2	P-2547A	O-Ring
5	2	P-2286A	Piston Rod
6	1	P-2308B	Claw (LP Only)
	1	P-2307A	Claw (HP Only)
7	2	P-1882A	Spring
8	6	M-926-A	Nut, Hex ¼—28
9	4	M-919A	Lockwasher ¼"
10	1	P-746A	Gasket (HP Only)
11	1	M-2868	Compression Fitting ¼"×1/8"×90°
12	1	M-705	Manifold Tube
13	2	M-2909	Compression Tee ¼"×¼"×1/8"
14	1	M-801	Actuating Tube
15	1	M-2853	Pilot Valve Ass'y.
16	1	M-2881	Compression Fitting ¼"×¼"×90°
17	1	M-695	Cap Screw 3/8—16×¾"
18	1	M-807	Mounting Bracket
19	1	—	Sensing Tube—¼" OD—To suit Installation
20	1	P-3592A	Interstage Safety Valve
2-9		Z-596	L.P. Head Unloader Ass'y.
2-10		Z-597	H.P. Head Unloader Ass'y.

3/32'WHEN PISTON IS UP.

CAUTION — WHEN INSTALLING HEAD UNLOADER MANIFOLD ASSEMBLY, BE CERTAIN THAT THE ACUATING CLAW (#6) PROTRUDES 3/32" BELOW THE BOTTOM OF THE MANIFOLD (#1) AS SHOWN. CLAW MUST BE POSITIONED SO THAT IT WILL ENTER TWO SLOTS IN THE COMPRESSOR VALVE. FAILURE TO FOLLOW THIS PROCEDURE WILL RESULT IN AN INOPERATIVE HEAD UNLOADER.

OPERATION AND ADJUSTMENT OF PILOT VALVES



PILOT VALVES

ASSEMBLY PART NO.	PRESSURE RANGE
M-2855	80 - 100
M-2854	120 - 140
M-2853	140 - 170

The Pilot Valve is designed to act as an automatic "on" and "off" switch. When in the "on" position it allows air to flow from the tank thru the valve to some device such as a compressor head unloader mechanism, thus actuating it. In the "off" position this valve stops the flow of air thru the valve and releases the pressure in the line to the device.

The Pilot Valve works as follows: Tank air pressure acts on the bottom of the valve. When pressure is great enough to overcome spring force holding valve down on lower seat, it lifts off seat and allows air to flow around valve and out through side opening in Pilot Valve. When valve lifts off lower seat it moves up and seats on upper seat where it is held by tank air pressure. When pressure in tank and on valve drops, spring forces valve back down on lower seat. Air in line to device being actuated can then escape through upper seat and out vent hole. The pressure at which the Pilot Valve is "on" or "off" is controlled by the spring which has been installed at the factory. A small adjustment can be made in the field by changing the spring force by compressing the spring more or less with the adjusting screw provided on the Pilot Valve.

COMPRESSOR PILOT VALVE PRESSURE ADJUSTMENT

Proceed with the following instructions while compressor is running.

1. Loosen locknut 4 and back off several turns. Do not turn differential adjuster 3.
2. Check reading on the tank pressure gauge. Set the compressor maximum pressure at 170 psig. Turn threaded cap 1 clockwise to increase pressure or counterclockwise to decrease pressure.
3. After pressure is set, tighten locknut 4. Be careful not to move the threaded cap 1.

COMPRESSOR PILOT VALVE DIFFERENTIAL PRESSURE ADJUSTMENT

Proceed with the following instructions while compressor is running.

1. Loosen locknut 2 and back off several turns.
2. Check reading on the tank pressure gauge. Set the pressure to 30 psig differential (unload at 170 psig, reload at 130 psig). Turn nut 3 clockwise to increase differential pressure or counterclockwise to decrease differential pressure.
3. After pressure is set, tighten locknut 2. Be careful not to move nut 3.

RECORD OF MAINTENANCE SERVICE

WEEKLY CLEAN FILTER CLEAN COMPRESSOR TEST SAFETY VALVE						MONTHLY INSPECT AIR SYSTEM INSPECT OIL CHECK BELTS		EVERY 3 MONTHS CHANGE OIL INSPECT VALVE ASSEMBLY

RECORD OF MAINTENANCE SERVICE

WEEKLY CLEAN FILTER CLEAN COMPRESSOR TEST SAFETY VALVE						MONTHLY INSPECT AIR SYSTEM INSPECT OIL CHECK BELTS		EVERY 3 MONTHS CHANGE OIL INSPECT VALVE ASSEMBLY

RECORD OF MAINTENANCE SERVICE

WEEKLY CLEAN FILTER CLEAN COMPRESSOR TEST SAFETY VALVE						MONTHLY INSPECT AIR SYSTEM INSPECT OIL CHECK BELTS		EVERY 3 MONTHS CHANGE OIL INSPECT VALVE ASSEMBLY

AUTHORIZED REGIONAL PARTS DEPOTS

ORDER DIRECTLY FROM THE FOLLOWING PARTS DEPOTS:

NORTHEAST

1) Massachusetts

Leominster, MA 01453
PRESTON AIR DIV. OF AIR COMPRESSOR REBUILDERS
488 Main Street
Phone: (617) 537-6064

South Easton, MA 02375
ABLE AIR EQUIPMENT
290 Turnpike St., Box 36
Phone: (617) 238-6981

Needham Heights, MA 02194
WILLIAMSON ELECTRICAL CO.
43 Fremont Street
Phone: (617) 444-6800

2) New Jersey

East Rutherford, NJ 07073
METROPOLITAN AIR COMPRESSOR CO., INC.
160 Paterson Avenue
Phone: (201) 939-3355

Middlesex, NJ 08846
WHITEMARSH CORPORATION
80 Bakeland Avenue, Box 187
Phone: (201) 356-7070

3) New York

Albany, NY 12206
TRI-CITY JACK & LUBE SERVICE
506 Third Avenue
Phone: (518) 465-4998

Buffalo, NY 14217
ROCKELMAN & HENN PUMP CO., INC.
1333 Military Road
Phone: (716) 877-2006

Buffalo, NY 14227
GLAUBER EQUIPMENT
3940 Broadway
Phone: (716) 681-1234

E. Syracuse, NY 13057
N. E. COMPRESSOR WHSE.
3570 Burnett Ave.
Phone: (315) 437-6238

4) Vermont

Winooski, VT 05401
JOBBERS WAREHOUSE
Gero, Ind. Park
Phone: (802) 655-2093

MID-ATLANTIC

5) Maryland

Capitol Heights, MD 20743
CAPITAL COMPRESSOR
9110 Edgeworth Drive
Phone: (301) 336-3712

6) No. Carolina

Charlotte, NC 28130
TRACY HOPPER CO., INC.
6055 Brookshire Blvd., Box 73
Phone: (704) 392-8111

7) Eastern Penna.

Lansdale, PA 19446
TOOL SALES & SERVICE, INC.
5th & Mitchell Streets
Phone: (215) 368-1433

Palmer, PA 18043
ACTIONAIRE CORPORATION
Danforth Drive.
Palmer Industrial Park, Box 3549
Phone: (215) 258-5500

Philadelphia, PA 19130
EMCO SERVICE INC.
1508 Fairmount Avenue
Phone: (215) 763-8540

8) So. Carolina

Florence, SC 29503
MECO, INC.
904 S. Church St.
Phone: (803) 775-2679

Travelers Rest, SC 29690
H & W MAINTENANCE CTR.
P.O. Box 487
Phone: (803) 834-4661

9) Virginia

Chesapeake, VA 23320
HOFFMAN INDUSTRIES INC
2113 Smith Ave., Box 1666
(804) 424-7655

Roanoke, VA 24014
STULTZ MACHINERY & MFG.
1546 Brownlee Avenue, SE
Phone: (703) 981-9359

CENTRAL-MIDWEST

10) Illinois

Broadview, IL 60153
THE COMPRESSED AIR CO.
2401 Gardner Road
Phone: (312) 344-4110

Chicago, IL 60636
PHILLIPS AIR COMPRESSOR SERVICE
5946 S. Western Avenue
Phone: (312) 778-1100

Moline, IL 61265
J-O COMPRESSOR & PUMP SERVICE
406 7th St., Box 11170
Phone: (309) 764-7065

Princeton, IL 61356
BOBBY'S OF WEST PRINCETON
Hwy. 6 West, Box 102
Phone: (815) 875-4433

11) Indiana

Seymour, IN 47274
HOOSIER PARTS
100 Ewing St.
Phone: (812) 522-2273

12) Iowa

Des Moines, IA 50317
AIR MACH. DIVISION
2345 Deleware
Phone: (515) 282-5291

Laporte City, IA 50651
COMPRESSED AIR & EQUIPMENT
Route 1, Box 190
Phone: (319) 342-2440

13) Kentucky

Louisville, KY 40219
COMTECH
1002 Ulrich Ave.
Phone: (502) 968-5355

14) Michigan

Livonia, MI 48150
ARO EQUIPMENT CORPORATION
31181 Schoolcraft Road
Phone: (313) 525-6330

Wayne, MI 48184
AIR COMPRESSOR SALES & SERVICE
3441 Filbert
Phone: (313) 565-4801

15) Minnesota

St. Paul, MN 55113
AIR COMPRESSOR EQUIPMENT
2968 North Rice Street
Phone: (612) 483-2500

16) Missouri

Earth City, MO 63045
THE COMPRESSED AIR COMPANY OF MISSOURI
4167 Shoreline Drive
Phone: (314) 298-0027

Kansas City, MO 64108
MYERS BROTHERS OF KANSAS CITY
1210 West 28th Street
Phone: (816) 931-5501

17) Ohio

Cincinnati, OH 45215
THE HIGHWAY RENTAL COMPANY
9709 Reading Road
Phone: (513) 686-1000

Cleveland, OH 44114
B & M AIR COMPRESSOR
1310 East 49th St.
Phone: (216) 881-9494

Norwalk, OH 44857
PHIL LEAK CO.
105 So. Old State Rd , Box 379
Phone: (419) 668-3266

18) Western Penna.

Erie, PA 16511
EARL E. KNOX COMPANY
1111 Bacon Street
Phone: (814) 459-2754

Hanover, PA 17331
C. H. REED, INC.
129 Broadway
Phone: (717) 632-4261

Pittsburgh, PA 15201
KRUMAN EQUIPMENT COMPANY
3002 Penn Avenue, Box 4038
Phone: (412) 261-4847

19) Wisconsin

Milwaukee, WI 53210
THE WISCONSIN COMPRESSED AIR CORP.
3056 W. Meinecke Ave.
Phone: (414) 442-0280

SOUTH

20) Florida

Jacksonville, FL 32207
GULF ATLANTIC EQUIPT.
2936 Down Rd., Box 10758
Phone: (904) 636-8555

Miami, FL 33138
PHILLIPS AIR COMPRESSOR, INC.
271 NE 69th Street
Phone: (305) 751-6586

21) Georgia

Albany, GA 31702
KEENAN AUTO PARTS CO.
108 North Front Street, Box 347
Phone: (912) 435-1734

Atlanta, GA 30318
STOVALL & COMPANY, INC.
1198 Howell Mill Road
Phone: (404) 352-1555

Augusta, GA 30913
MECO INC. OF N. AUGUSTA
512 Skyview Drive, Box 696
Phone: (404) 724-7603

Macon, GA 31203
AIR COMPRESSOR SALES, INC.
5490 Thomaston Road, Box 2444
Phone: (912) 474-8460

Smyrna, GA 30081
A & I EQUIPMENT ENGINEERS
5550 South Cobb Drive, Box 2397
Phone: (404) 799-7212

22) Louisiana

Baton Rouge, LA 70898
AIR COMPRESSOR ENERGY SYSTEMS
10151 So. Perdue, Box 80048
Phone: (817) 723-4181

Marrero, LA 70072
AIR COMPRESSOR ENERGY SYSTEMS
710 Barataria Blvd.
Phone: (504) 348-2214

23) Mississippi

Jackson, MS 39205
SOUTHERN SALES COMPANY, INC.
761 Harris Street, Box 1052
Phone: (601) 355-0384

Tupelo, MS 38803
TUPELO INDUSTRIAL AIR CO.
600 Daybrite Road, Box 2964
Phone: (601) 842-0970

24) Oklahoma

Oklahoma City, OK 73116
GENERAL AIR COMPRESSOR
7205 North Robinson
Phone: (405) 842-3091

25) Tennessee

Memphis, TN 38126
AIR COMPRESSOR SALES & SERVICE
234 East Butler St.
Phone: (901) 522-1916

26) Texas

Dallas, TX 75220
VSA, INC.
10550 Shady Trail
Phone: (214) 353-0765

Grand Prairie, TX 75050
ALLIED AIR COMPANY
814 Shady Grove
Phone: (214) 986-5551

Houston, TX 77022
P.M.E. EQUIPMENT INC.
1383 East 44th, Box 16308
Phone: (713) 691-3081

San Antonio, TX 78217
ACTION AIR
10548 Sentinel Dr., Box 790943
Phone: (512) 657-5913

Wichita Falls, TX 76304
WESBROOKS INC.
2012 Shepherd Access Rd., Box 534
Phone: (817) 723-4181

MOUNTAIN

27) Arizona

Phoenix, AZ 85019
ARIZONA AIR COMPRESSOR
3520 West Osborne
Phone: (602) 233-2434

Tucson, AZ 85713
FLUID AIR
2227 So. Mission Road
Phone: (602) 623-9942

28) Colorado

Denver, CO 80204
J-B EQUIPMENT & SERVICE
1305 Osage Street, Box 4402
Phone: (303) 629-6881

Arvada, Co. 80030
BLACKHAWK EQUIPMENT
9146 Marshall Place
Phone: (303) 421-3000

29) Nevada

Reno, NV 89506
VALLEY COMPRESSOR SERVICE
115750 Overland, Box 60127
Phone: (702) 972-5271

30) Utah

Midvale, UT 84047
ROSS EQUIPMENT COMPANY
440 North Main Street
Phone: (801) 566-1261

WEST COAST

31) California

City of Industry, CA 91764
ROTARY AIR COMPRESSOR COMPANY
13419 Valley Blvd.
Phone: (818) 961-1536

Dinuba, CA 93618
SMITH AUTO PARTS
153 South K Street
Phone: (209) 591-3000

El Cajon, CA 92020
D & L EQUIPMENT WORKS
1685 No. Marshall Ave.
Phone: (619) 562-3373

Fresno, CA 93745
ASSOCIATED COMPRESSOR
4651 East Date Ave., Box 2716
Phone: (209) 485-3184

Paramount, CA 90723
VSS COMPRESSOR SALES
16220 Garfield Ave.
Phone: (213) 630-0606

Placentia, CA 92670
GENERAL AIR COMPRESSORS
151 W. Orangethorpe
Phone: (714) 996-7660

Lodi, CA 95240
AIR PACIFIC
826 N. Sacramento St.
Phone: (209) 334-4340

San Jose, CA 95161
UNIV-AIR EQUIPMENT COMPANY
42 Bonaventura Drive, Box 610056
Phone: (408) 432-9420

32) Oregon

Eugene, OR 97402
C & K PETROLEUM EQUIPMENT
1501 West 2nd Street
Phone: (503) 344-3476

33) Washington

Seattle, WA 98107
DICKINSON EQUIPMENT COMPANY
120 NW 36th Street
Phone (206) 632-1707

CANADA

34) Ontario

Toronto, Ont. M8Z 5K7
CAMERON COMPRESSOR LTD.
105 Shorncliffe Road
Phone: (416) 239-8153

HAWAII

35) Hawaii

Honolulu, HI 96819
A. L. KILGO CO. INC.
180 Sand Island Road
Phone: (808) 832-2200

WHEN ORDERING PARTS: Give complete part number, model number, and serial number of your CHAMPION EQUIPMENT.