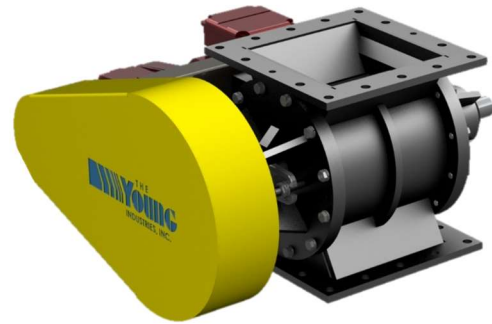


ROTARY VALVES

MODELS: HC, LH, SE & BT Installation, Operation, and Maintenance Manual



HC MODEL



LH MODEL



SE MODEL



BT MODEL



INDUSTRIES, INC.
16 PAINTER STREET
MUNCY, PA 17756

FOREWORD

Young Industries' rotary valves are furnished in many standard sizes with a broad selection of rotors, seals, and materials of construction. Drives are furnished to fulfill the requirements of each individual application. Our rotary valves have earned a reputation for their rugged construction and quality workmanship. Property installed and maintained, they are guaranteed against defects in material and workmanship for a period of one year from date of shipment.

This manual contains instructions for installation, operation, and maintenance of Young Industries' rotary

valves. The care taken during receiving, storage, installation, operation, and continued maintenance will add to the reliable operation and long service life of this equipment.

This manual should be read and understood in its entirety by the operator and the plant safety director prior to performing any work on a rotary valve. Copies of this manual are being supplied with each valve or- der. Contact Young Industries if you require additional copies to insure the valve is operated safely and according to recommended procedures.

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SAFETY

READ AND FULLY UNDERSTAND THIS MANUAL PRIOR TO PERFORMING ANY WORK ON OR OPERATING A YOUNG ROTARY VALVE.

If you have previously received delivery of a Young rotary valve and have just received this latest (updated) manual, insist that the valve operator and the plant safety director read and fully understand this manual prior to continued use of the rotary valve or dismantling the valve for maintenance.

Notify Young Industries if your Young rotary valve does not include safety warning labels or devices recommended within this manual which you believe may be important to improve the safe operation or maintenance of your rotary valve installation. Contact the Engineering Manager at (570) 546-3165 or (800) 546-3165, prior to continued use or maintenance, for assistance.

Notify Young Industries if you have sold, leased, rented, or given any Young rotary valves to another user. Your assistance will allow Young Industries to contact the new user with updated safety and/or operational recommendations.

Safety is a fundamental factor that must be considered at all times in the operation and maintenance of mechanical equipment. Use of proper tools and methods can prevent serious accidents that may result in injury to you and your fellow workers.

A number of safety precautions are listed throughout this manual. Study them carefully and follow them; insist that those working with you do the same. Remember, an accident can easily be caused by someone's carelessness or negligence.

The various precautions and recommendations detailed within this manual **are not necessarily** all inclusive. Young Industries has attempted to provide SAFETY AND OPERATIONAL GUIDANCE relating to typical installations for which we are familiar. We urge you to review your particular rotary valve installation to determine whether there are potential hazards beyond the warnings of this manual.

If you have any safety or operational questions pertaining to the design or application of a Young rotary valve as it relates to your particular installation, contact the Young Industries' Engineering Manager.

Most employers are subject to the Federal Occupational Safety and Health Act of 1970, as amended. This act requires an employer to keep abreast of the regulations which will continue to be issued under its authority.

Failure to observe and follow the safety precautions may result in serious personal injury or property damage. Young Industries looks to our customer to achieve a cooperative effort for the purpose of making our rotary valve installations as safe for the operator as is reasonably possible and to insure proper maintenance and operating procedures are followed. Many times we do not have access to the installation. Therefore your participation in the safe installation operation and maintenance of our rotary valve is critical.

WARNING:
ELECTRICAL GROUNDING AND BONDING IS REQUIRED

Ungrounded machinery presents a potential hazard of fatal electrical shock from electrical power sources. Static electricity may also accumulate on ungrounded/unbonded equipment. Static electricity discharge from ungrounded equipment or between unbonded pieces of equipment may cause explosion or fire if flammable vapor or dust is present.

Electrical equipment must be installed by a certified professional electrician.

SAFETY & SPECIFICATIONS

Before operating the equipment described by this manual or any other equipment in the same processing system, grounding and bonding must be completed in accordance with the National Electrical Code (NFPA 70) published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02269-9101, and any other applicable National, State or Municipal codes. Codes for safe control of static electricity must also be observed, including the National Fire Code "Recommended Practice on Static Electricity" (NFPA n) and any other applicable National, State or Municipal codes.

To avoid hazardous static discharge, mobile, movable or portable equipment which may attach to or come near to other equipment and which is not prohibited by codes from being connected to ground must be safely grounded and bonded before close approach or contact is made. This warning also

applies to movable containers such as drums, totes, boxes and bags.

Sections of pipe, duct and gravity spout must be bonded to adjacent sections of pipe, duct, spout or equipment, and must have a conductive path to electrical ground.

Regular periodic safety inspections of electrical systems and grounding/bonding systems are required.

WARNING:
ILLUSTRATIONS IN THIS MANUAL ARE INTENDED TO BE USED AS PARTS IDENTIFICATION AIDS ONLY. ILLUSTRATIONS CONTAINED IN THIS MANUAL ARE NOT INTENDED TO DEPICT RECOMMENDED INSTALLATION OR OPERATION CONDITIONS OF ANY ROTARY VALVE.

SPECIFICATIONS

(To be filled in by customer)

SIZE _____ MODEL _____ SERIAL NUMBER _____

JOB NUMBER _____ ASSEMBLY DRAWING _____

INLET FLANGE () round () square OUTLET FLANGE () round () square

MAXIMUM ALLOWABLE WORKING CONDITIONS:

INTERNAL PRESSURE _____ TEMPERATURE _____ °F (_____ °C)

MATERIAL OF CONSTRUCTION _____

DRIVE: YES _____ NO _____ HORSEPOWER _____

TYPE OF DRIVE _____

ROTOR RPM _____ ROTATION FACING DRIVE END () CW () CCW

ROTOR TYPE _____ ROTOR CAPACITY (cu. ft./rev.) _____

SPECIAL FEATURES _____

CUSTOMER NAME _____

CUSTOMER NUMBER _____

INSTALLATION

A. RECEIVING AND INSPECTION

1. Upon receipt of equipment and material from Young Industries the following basic steps should be taken:

a. Use the packing list to determine that all the items shipped have been received. Your equipment order was carefully crated or packaged for safe shipment when given to the carrier. Check for damage.

1. Damage in transit is the responsibility of the carrier. Be sure to have the driver sign a copy of the freight bill with a notation about any damage.

2. If a shipment was sent to you by parcel post, have the postmaster complete a damage claim report.

3. Concealed damage: If equipment or goods are discovered to be damaged by shipment at a later date, contact the carrier and Young Industries immediately.

4. If shipped UPS, **DO NOT THROW ORIGINAL CARTON AWAY.** Keep all evidence for the inspector.

5. IN ALL CASES OF DAMAGE IN TRANSIT, CONTACT THE YOUNG INDUSTRIES ENGINEERING MANAGER AT (570) 546-3165 FOR ASSISTANCE IN DETERMINING WHETHER OR NOT THIS DAMAGE MAY IN ANY WAY AFFECT SAFETY OR PROPER OPERATION OF THE TRANSFLOW® EQUIPMENT.

NOTE:

YOUNG INDUSTRIES CANNOT ASSUME ANY LIABILITY FOR SHORTAGES OR DAMAGED GOODS. CLAIMS MUST BE NEGOTIATED WITH THE CARRIER. CONTACT THE YOUNG INDUSTRIES ENGINEERING MANAGER AT (570) 546-3165 OR (800) 546-3165 FOR ASSISTANCE IN RECTIFYING ANY SHORTAGE OR DAMAGE AS IT RELATES TO SAFE AND PROPER ROTARY VALVE OPERATION.

2. Moving the Rotary Valve.

a. Moving and installation should always be performed by trained, experienced personnel, using safe and accepted rigging practices.

b. Care and caution should be exercised to prevent damaging the valve housing, flanges, and drive components.

CAUTION:

WHEN MOVING A ROTARY VALVE OR COMPONENT PARTS, BE SURE THAT MOVING PRACTICES USED ARE SAFE FOR BOTH PERSONNEL AND EQUIPMENT. CONTACT THE YOUNG INDUSTRIES ENGINEERING MANAGER IF THERE ARE ANY QUESTIONS RELATING TO WHAT CONSTITUTES SAFE AND ACCEPTED RIGGING PRACTICES FOR MOVEMENT AND/OR INSTALLATION OF A ROTARY VALVE.

3. Storing the Rotary Valve.

a. If moved to storage, the equipment should be located in a dry area, preferably inside. Outside storage will require adequate protection from the weather.

b. The rotary valve has been shipped with temporary guards or covers for both the inlet and outlet flange. Do not remove these guards or covers while the rotary valve is in storage.

c. Refer to the maintenance section of this manual for specific lubrication recommendations prior to beginning any lubrication and/or servicing in preparation for storage. Contact the Young Industries' Engineering Manager if you are unsure of any detail of lubrication and/or servicing.

d. After prolonged storage and prior to start-up, the rotary valve and drive should be inspected by qualified personnel. Contact the Young Industries' Engineering Manager if assistance is required.

CAUTION:
USE CAUTION TO PROTECT AGAINST OBJECTS OR DEBRIS FROM ENTERING OR DAMAGING THE ROTARY VALVE.

B. SUPPORTS

1. Young Industries rotary valves are designed with close dimensional tolerances between the rotor and the housing. These close tolerances must be maintained to allow the rotary valve to operate properly. The valve housing design does not include any allowance for a weight addition to either the inlet or outlet flanges. When bolting the valve to mating flanges, care must be exercised to avoid placing loads on the valve housing that may affect the valve tolerances. Follow the three recommendations listed below and contact the Young Industries' Engineering Manager if you have further questions on your particular installation.

- a. Rotary valve supports must be structurally adequate to support an operating rotary valve.
- b. The rotary valve should be supported from the bottom flange to prevent housing distortion.
- c. Rotary valves must be installed with the top and bottom flanges parallel to the mating flanges.

C. ASSEMBLY

1. Prior to installing the valve and with the power disconnected and locked out, check internally for cleanliness, rotate the valve by hand using caution to avoid physical harm to personnel and equipment.
2. Add drive components, gear reducer, chain, couplings and accessories. Line up and adjust drive components. Install guards.

CAUTION:
BEFORE TURNING THE ROTOR OR WORKING INTERNALLY ON THE VALVES, DISCONNECT POWER OR DRIVE COMPONENTS. USE SPECIAL CARE TO AVOID THE PINCHING

ACTION THAT MAY OCCUR BETWEEN THE ROTOR AND THE VALVE HOUSING.

3. We recommend that the inlet and outlet flange covers remain in place until the valve is ready to be attached to the mating equipment at both the inlet and outlet flanges.

CAUTION:
NEVER OPERATE A ROTARY VALVE UNLESS THE INLET AND OUTLET OPENINGS ARE COVERED BY TEMPORARY FLANGE COVERS OR BY THE CONNECTING EQUIPMENT.

D. ELECTRICAL INSTALLATION

1. Electrical motors and instruments must be installed in accordance with applicable electrical codes by qualified professional electricians.

DANGER:
DISCONNECT AND LOCK OUT POWER BEFORE SERVICING MOTOR OR DRIVE COMPONENTS.

CAUTION:
EXERCISE SAFETY AND STAY CLEAR OF MOVING PARTS WHEN TESTING.

2. When checking motor rotation, always be sure that electrical installation is complete and that a qualified electrician is available to make wiring corrections, if necessary. Always have drive guards properly in place on the equipment being checked, and be certain that there is no possibility of personnel coming into contact with the moving parts of the rotary valve. The rotary valve must be completely installed in a closed and guarded processing system before any attempt is made to operate it. Correct shaft rotation should be indicated by a direction arrow decal on the rotary valve or on its drive guard.

3. Optional limit switches which may be supplied for inspection doors or for drive guards are for control system component status indication and/or control system interlocking purposes only. **Limit switches provided as optional equipment on inspection doors and on drive guards are not intended to, and must not be used to stop equipment for servicing. Equipment being serviced must have all sources of energy locked out and tagged in full accordance with OSHA requirements. In addition, all hazards associated with the process system into which the equipment being serviced is installed must be safely eliminated before servicing the equipment.** Contact the Young Industries' Engineering Manager (570) 546-3165 or (800) 546-3165 for assistance in reviewing your rotary valve installation. Contact your plant safety director and ask for a safety review of the rotary valve installation.

CAUTION:
NEVER PLACE FINGERS OR HANDS IN A ROTARY VALVE, AS THE ROTOR MAY BE TURNING.

4. Always lock out the power source before working on or around a rotary valve as the drive motor may be remotely controlled.
5. In addition to following the manufacturer's installation instructions, care must be taken to insure compliance with Federal, State, and Local Government requirements.

E. COMPRESSED GAS INSTALLATION

1. The valve rotor may have air or gas connections to the end plate or the shaft seal. These connections allow gas to flow into the seal to purge product.
 - a. Gas seals require a regulated supply pressure slightly higher than in the valve (approximately 1-3 psi differential).
 - b. Gas to the seals must always be flowing when the rotor is turning.

c. Gas must be compatible with product.

2. When a pressure regulator and filter are required, adjust the pressure regulator and check the filter for cleanliness.

CAUTION:
COMPRESSED GAS – SHUT OFF AND BLEED SYSTEM BEFORE SERVICING.

F. PRECOMMISSIONING

1. Lubricate all gear boxes, bearings, and chains.
 - a. Do not overlubricate. Over lubrication can be as harmful to the equipment as no lubrication (see **MAINTENANCE – LUBRICATION**).
2. Determine that all utility lines are properly installed and operative.
3. The rotary valve and all product lines must be clean and operational.
4. Check all limit switches to assure that they are operating properly.
5. Check alignment of drive components. Assure all guards are in position and properly tightened. Start rotary valve and stop immediately if there is any noise or vibration. (See Troubleshooting.)
6. We urge the installation crew to notify the plant safety director and/or the plant engineer when installation is complete and prior to initial operation. Those in your plant responsible for the plant safety should review the rotary valve installation prior to operation for safety in light of the extensive operating recommendations made within this manual. Contact the Engineering Manager at Young Industries, if this review results in additional questions or uncertainty.

OPERATION

A. STARTUP

1. Prior to actual operation, the operator must familiarize himself with the method of starting and stopping the rotary valve, and the status of supporting utilities.
2. The general appearance of the rotary valve and surrounding area must be visually inspected to determine that the valve components and rotor can be operated safely and without damage.

CAUTION:
ROTATING MACHINERY – DO NOT OPERATE WITH GUARD OR COVER REMOVED.

B. LOADING

1. Ingredients must be added to and discharged from the rotary valve through an enclosed spout or an opening that is protected by an approved safety guard, such as a fixed grate.
2. If your particular installation does not include these safeguards, you may have an unsafe installation. STOP OPERATION of the rotary valve and immediately notify the Young Industries' Engineering Manager at (570) 546-3165 or (800) 546-3165. The Young Industries' Engineering Manager can assist in speeding the return of your rotary valve to a recommended operating condition.

C. CONTINUOUS OPERATION

1. During valve operation the operator should recognize and report any unusual noise or vibration. Look for any excessive bearing temperatures and/or wear to the shaft seals. Worn seals need to be replaced. Notify your maintenance personnel or Young Industries for assistance or additional guidance in defining these conditions. Refer also to the maintenance section of this manual.

2. Guards and valve inspection doors must be in place and closed tightly whenever the rotor is turning.

CAUTION:
ROTATING MACHINERY - KEEP HANDS CLEAR. DO NOT OPEN WHILE MACHINE IS IN MOTION.

3. The rotary valve is designed and selected to meet specific operating conditions. Care must be exercised to assure that the valve is operated within safe limits. The valve must be used only for the purpose for which it is designed. (See Specification Sheet, page 4). Refer to Young Industries Quotation to determine the application for which this rotary valve was intended. Contact the Engineering Manager at Young Industries, Painter St., Muncy, PA 17756, if you need assistance in determining the proper application of this Young Industries' rotary valve.

CAUTION:
CONSULT THE YOUNG INDUSTRIES' ENGINEERING DEPARTMENT BEFORE CHANGING ROTOR SPEED, MOTOR HORSEPOWER, OR MATERIAL BEING HANDLED.

D. SHUT-DOWN

1. When shutting down the rotary valve, shut off supporting utilities in accordance with plant operating procedures.
2. When cleaning or servicing is required on the valve, proper lock out of electrical, compressed gas and mechanical equipment must be completed before any work is started.

DANGER:
DISCONNECT POWER BEFORE SERVICING.

CAUTION:
ROTATING MACHINERY – DO NOT OPERATE WITH GUARD OR COVER REMOVED.

MAINTENANCE

A. LUBRICATION

1. During the first few months of operation the lubrication of the following items should be observed frequently to assure proper operation. (See TABLE ONE - TYPICAL LUBRICATION GUIDE for Lubrication Instructions.)

2. After the initial operating period, we recommend that your plant engineering and maintenance personnel continue preventative maintenance and lubrication on a regular schedule. Contact the Young Industries' Engineering Manager if you need additional assistance to set up an ongoing lubrication and preventative maintenance schedule.

DANGER:
DISCONNECT AND LOCK OUT POWER BEFORE SERVICING.

- a. Motor bearings should be checked for over- heating. Hot bearings indicate lack of lubrication, a worn bearing, a damaged bearing, or possible over-lubrication. Lubrication will vary depending on motor size, speed, duty and environment.
- b. Reduction Gears – Check for proper lubrication, excessive heat, vibration or unusual noise which may indicate a problem with the reduction gears.
- c. Roller Chains – When chain drives are used, check roller chains for proper lubrication. Couplings, when used, may require lubrication.
- d. Valve Bearings – Check for proper lubrication. A hot bearing may indicate lack of lubrication, over-lubrication or possible mechanical problems.

B. DRIVES

1. Drives must be inspected and maintained on a regular basis, using accepted practices for industrial equipment. Maintenance schedules will

depend on operating requirements and conditions.

CAUTION:
ROTATING MACHINERY IS NOT TO BE OPERATED WITH GUARDS REMOVED. LOCK OUT POWER BEFORE SERVICING.

- a. Roller Chains – Check for lubrication, sprocket alignment and roller chain adjustment.
- b. Gear Reducers – Check for proper lubrication. Visually check hold-down bolts and reducer alignment.
- c. Couplings – Some types of couplings may require lubrication. Visually check coupling alignment and determine that coupling is properly secured to shaft.

C. BEARINGS AND SEALS

1. Bearings

a. Rotary valve bearings should be routinely checked for proper lubrication. Excessive heat, vibration, or unusual noise may indicate a potential bearing problem.

2. Seals

a. Visually inspect the shaft seals and packing for leaks. The packing should be only as tight as necessary to affect a seal. When gas purge seals are specified, check for gas or product leaks.

b. With packing gland tight, if product continues to leak, the purging gas may be increased slightly (average purge pressure is approximately 1-3 psi differential). If leaking persists, seal or packing replacement must be made to avoid damage to the rotor shaft.

3. Installation of Packing Rings

WARNING:
SERIOUS PERMANENT DISABLING INJURY OR DEATH IS POSSIBLE.

Safe "Lock out/Tag out" procedures must be followed before servicing any machine.

Disconnect, lock out and tag the power source of the drive motor of the equipment to be serviced and of other equipment which may cause a safety hazard if operated during maintenance of the equipment to be serviced.

If the equipment to be serviced is equipped with control voltage powered devices such as limit switches, solenoids, solenoid-operated control valves, motion switches or other devices, the source of power to these devices must be disconnected and locked out as well.

Equipment purged by compressed air or having cylinders or actuators powered by compressed air or a hydraulic system must have the source of pressure shut off or valved out and locked out and be safely bled to zero pressure before servicing is begun.

The process in which the equipment to be serviced is installed must be shut down or safely isolated from the equipment to be serviced. The individuals performing the maintenance work must be protected from toxic or suffocating process gases or vapors and other hazardous process materials which may be present during servicing.

- a. Observe safety procedures outlined above and any other precautions required by the specific installation situation of the equipment.
- b. Remove the fasteners holding the packing gland follower and pull the gland follower from the stuffing box.
- c. Remove old packing and lantern rings from the stuffing box. Clean the shaft and the stuffing box cavity to remove all residue of the old packing and of the process material. If the stuffing box is purged, check the purge ports and the supply piping to be certain that they

are not obstructed.

d. If replacement packing is pre-cut, proceed to Step e. When cutting packing from a spool or coil of packing material, the packing must be wrapped around a round mandrel of the same diameter as the shaft passing through the stuffing box. This ensures that the ends of the cut packing material butt properly when installed. Do not cut packing laid out straight on a flat surface. Do not attempt to make a diagonal cut on the ends of the packing - a square cut works as well and is easier to make accurately. See illustrations.

e. If the stuffing box contains a lantern ring, be aware of the proper position of the installed ring relative to the packing rings, and be certain to install the packing rings and lantern ring in the correct sequence.

f. The first ring of packing (closest to the bottom) installed in a stuffing box is the most critical. Form the packing gently around the shaft and push the butted, cut ends first into the stuffing box. Push the first ring forward carefully, keeping it square with the shaft. The packing gland follower or a split bushing made for the purpose may be used. This first ring of packing must be seated firmly against the bottom of the stuffing box and the butted ends of the ring must be touching before additional rings of packing are installed.

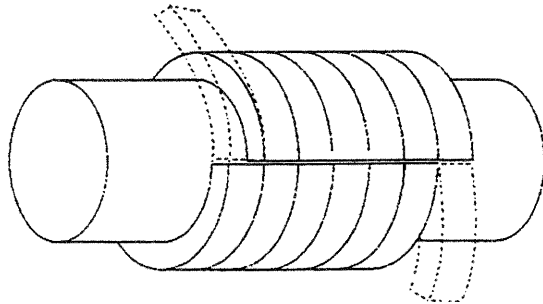
g. Insert added rings using the same method of insertion and seating as in Step f. Each ring must be firmly seated against the previous ring before proceeding to the next ring. The joints of the rings must be staggered in the stuffing box to prevent leakage. The joints should be offset from each other by 90 to 120 degrees of angle.

h. Position the lantern ring (if present) in the gland. (See figure 2 on page 12.)

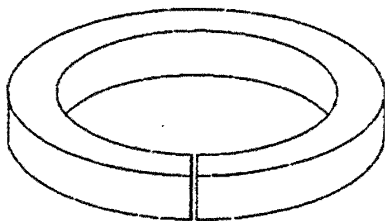
i. Insert the remaining rings. Use only the number of rings indicated as required by the equipment manufacturer. Too few or too many packing rings may degrade the performance of the seal.

j. Install the gland follower. Tighten the gland follower screws until the shaft of the machine becomes difficult to turn by hand. The stuffing box shaft seal is now ready for initial operation. Replace all guards securely before operating the rotary valve.

k. After 30 to 60 minutes of operating time, the equipment should be shut down using safe lock-out procedures and the gland follower screws should be retightened until the shaft is difficult to turn by hand. This completes the installation of the new packing.



Cut packing on a mandrel



Finished packing ring

DANGER:
DISCONNECT AND LOCK OUT POWER
BEFORE SERVICING.

CAUTION:
ROTATING MACHINERY - DO NOT OPERATE
WITH GUARDS OR COVER REMOVED.

D. INSPECTION DOORS

1. On valve models which include an inspection door, leakage of air or product may indicate the presence of foreign material under the door or a damaged seal. Shut down and lock out the power supply to the rotary valve

and safely stop the processing system in which the valve is installed before attempting to correct leakage. Keep all bolts and clamps tightened while the rotary valve is operating.

CAUTION:
ROTATING MACHINERY - KEEP HANDS
CLEAR. DO NOT OPEN WHILE MACHINE IS IN
MOTION.

2. Limit switches provided as optional equipment on inspection doors and on drive guards are not intended to, and must not be used to stop equipment for servicing. Equipment being serviced must have all sources of energy locked out and tagged in full accordance with OSHA requirements. In addition, all hazards associated with the process system into which the equipment being serviced must be safely eliminated before servicing the equipment. Contact the Young Industries' Engineering Manager [tel. (570) 546-3165 or (800) 546-3165] for assistance in reviewing your rotary valve installation. Contact your plant safety director and ask for a safety review of the rotary valve installation.

E. GENERAL INSPECTION

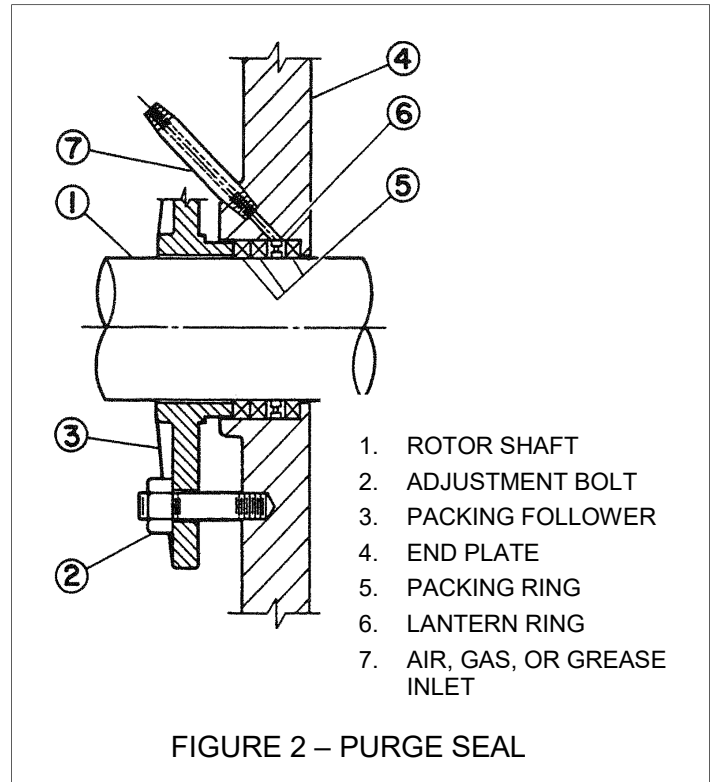
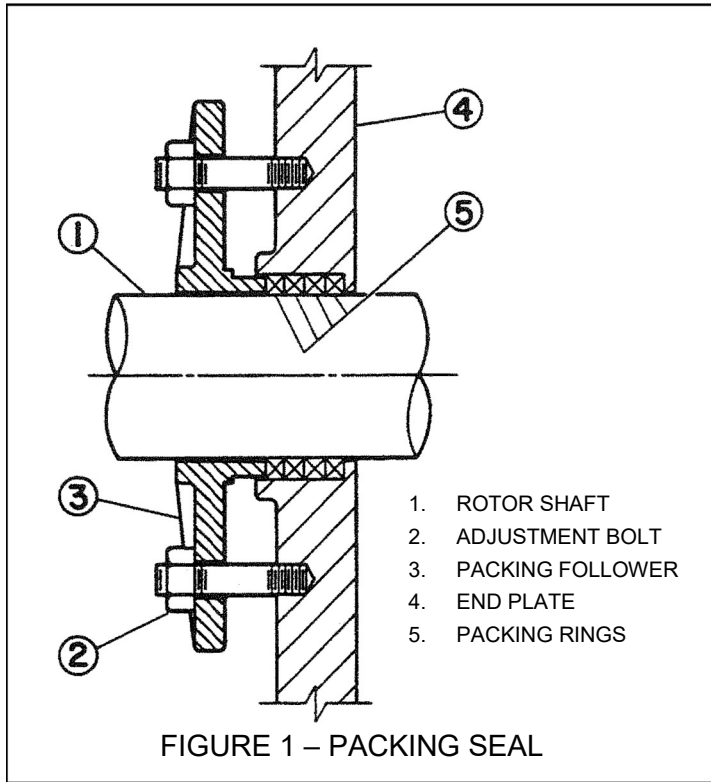
1. Observe equipment for any unusual vibration or noise.
2. Check valve connections and drive hold-down bolts for tightness.
3. Look for oil leaks on machinery and on the floor and surrounding areas.
4. When required, check oil sight lubricators for oil level.
5. Inspect inlet and outlet fittings, flanges and ducts for leaks. Check utility service piping and associated valves and gauges attached to the rotary valve.

MAINTENANCE

6. Check all accessories for proper operation. Check limit switches (if supplied) for adjustment, and operating mechanism for alignment.

DANGER:
DISCONNECT POWER BEFORE SERVICING.

CAUTION:
COMPRESSED GAS - SHUT OFF AND BLEED



SYSTEM BEFORE SERVICING.

F. TROUBLESHOOTING

1. The rotary valve should be properly installed, operated, and maintained. Table Two "Troubleshooting Rotary Valves" gives symptoms, causes, and remedies for most problems that may be encountered.

TABLE 1 – TYPICAL LUBRICATION GUIDE

EQUIPMENT OR PART LUBRICATED	METHOD OF LUBRICATION	LUBRICANT
DRIVE MOTOR	Pressure Gun	See Manufacturer's Recommendation
REDUCTION GEARS	Hand Fill	See Manufacturer's Recommendation
BEARINGS: STANDARD	Pressure Gun	NLG # 2 Silicon Grease
HIGH TEMP.		DC Moly Kate 41
COUPLINGS (when applicable)	Pressure Gun	EP-1 Grease
ROLLER CHAIN	Hand Fill or Brush	SAE 30 Oil

NOTE: EQUIPMENT THAT IS OUT OF SERVICE FOR EXTENDED PERIODS OF TIME (30 DAYS OR LONGER), OR EQUIPMENT THAT IS PLACED IN STORAGE (INSIDE OR OUTSIDE), SHOULD HAVE ALL UNPAINTED CARBON STEEL SURFACES COATED WITH A RUST PREVENTATIVE (Gulf No-Rust C, or equivalent).

TABLE 2 – TROUBLE SHOOTING ROTARY VALVES

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
VALVE WILL NOT START	<p>Power Source Not Furnishing Power</p> <p>Overload Protection Not Reset</p> <p>Control Circuit Interlocks Not Satisfied</p> <p>Motor Burned Out</p> <p>Drive Train Not Moving</p> <p>Rotor Jammed Or Overloaded</p>	<p>Have Power Source Checked - Turn On Power</p> <p>Reset Overload Switch. If Overload Switch Needs Resetting A Second Time, Determine Cause Of Overload And Correct.</p> <p>Check Interlocking Equipment And Circuits</p> <p>Repair Or Replace Motor</p> <p>Identify Problem And Correct</p> <p>Eliminate Overload Condition</p>
DRIVE NOISY	<p>Gear Box Not Lubricated</p> <p>Drive Out Of Alignment</p> <p>Drive Components Loose On Shaft</p> <p>Foreign Object In Drive</p> <p>Drive Chain Rubbing Guard</p> <p>Worn Components</p> <p>Chain Jumping On Sprocket</p>	<p>Lubricate Gear Box (See Lubrication Chart)</p> <p>Align and Tighten</p> <p>Tighten Components</p> <p>Remove Foreign Object</p> <p>Check Drive Clearances; Realign Sprockets or Guard</p> <p>Replace Worn Components</p> <p>Tighten and Lubricate Chain</p>
VALVE NOISY	<p>Rotor Rubbing On Housing</p> <p>Product Build-Up On Housing Or</p> <p>Rotor Bent Shaft</p>	<p>Check For External Loads On Inlet and Outlet Flanges</p> <p>Remove Product Build-Up</p> <p>Contact Young Industries? Engineering Department For Instructions</p>
PACKING SEALS LEAKING	<p>Packing Follower Needs Tightening</p> <p>Worn Or Damaged Seal</p> <p>Worn or Damaged Shaft</p>	<p>Tighten Follower Adjustment Bolts Evenly</p> <p>Remove and Replace Packing (See instructions.)</p> <p>Stagger Joints Of Individual Packing Rings</p> <p>Repair Shaft to Obtain a Smooth Concentric Surface Under Packing</p>

TABLE 2 – TROUBLESHOOTING ROTARY VALVES (continued)

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
BEARINGS NOISY OR OVERHEATED	No Lubrication Improper Lubrication Over-Lubrication	Lubricate Bearing Remove Lubrication and Install Proper Lubricant Remove Lubricant To Proper Level
BEARING FAILURE	Dirty Bearing	Remove Bearing, Thoroughly Remove Lubricant. Inspect and Replace Bearing If Necessary. Reassemble Bearing and Lubricate. (See Lubricating Instructions.)
GAS PURGE SEALS LEAKING	Low Gas Pressure	Check Line Filter – Check Gas Purge Lines Leading To Seals – Increase Pressure To 1-3 P.S.I. Differential Over Process Pressure Note: Leaking Seals Should Be Corrected As Soon As Possible To Avoid Damage To Shaft And To Bearings
END PLATE OR INSPECTION DOOR LEAKING	Damaged Seal Loose End Plate Or Inspection Door Door Not Seated	Replace Seal Check Hold-Down Bolts, Latches and Clamps Check For Material Build-Up Under Flange
PRODUCT WILL NOT DISCHARGE	Rotor Pockets Plugged Valve Leaking From Worn Rotor or Housing	Clear Plug From Pockets Repair or Replace Worn Rotor and Housing If Rotor Tips are Adjustable, Adjust or Repair Tips

DANGER:
DISCONNECT AND LOCK OUT POWER BEFORE SERVICING.

CAUTION:
COMPRESSED GAS - SHUT OFF, LOCK OUT AND BLEED SYSTEM BEFORE SERVICING.

DO NOT OPERATE WITH GUARDS OR DOOR REMOVED.

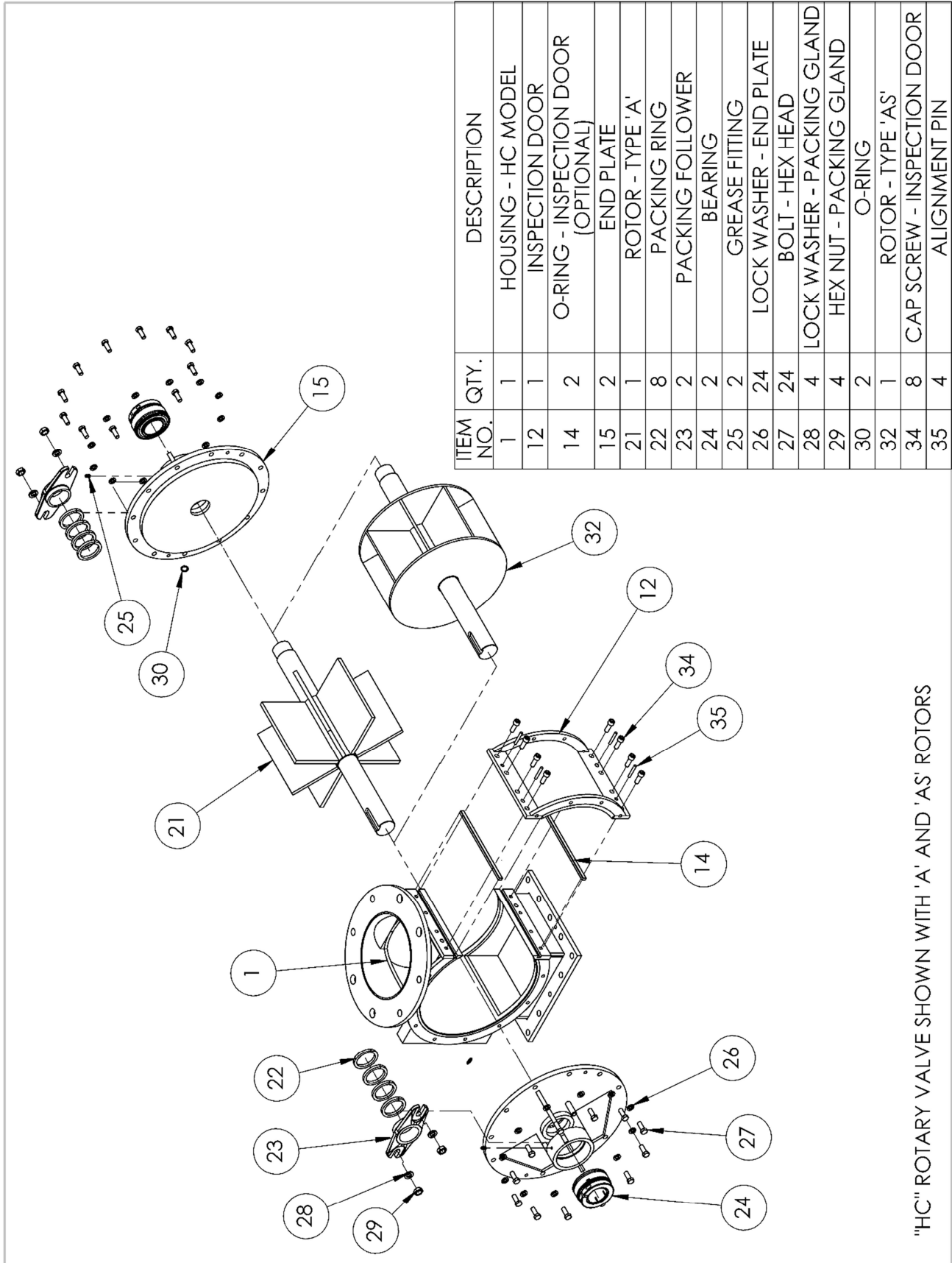
CAUTION:
DO NOT EXTEND HANDS OR HAND-HELD OBJECTS INTO ROTARY VALVE.

SPARE PARTS INFORMATION

A nameplate is furnished with each rotary valve. The necessary information for ordering spare parts is found on this nameplate. When ordering, please provide:

- (A) SHOP NUMBER (B) SERIAL NUMBER

FIGURE 1 - EXPLODED VIEW



ITEM NO.	QTY.	DESCRIPTION
1	1	HOUSING - HC MODEL
12	1	INSPECTION DOOR
14	2	O-RING - INSPECTION DOOR (OPTIONAL)
15	2	END PLATE
21	1	ROTOR - TYPE 'A'
22	8	PACKING RING
23	2	PACKING FOLLOWER
24	2	BEARING
25	2	GREASE FITTING
26	24	LOCK WASHER - END PLATE
27	24	BOLT - HEX HEAD
28	4	LOCK WASHER - PACKING GLAND
29	4	HEX NUT - PACKING GLAND
30	2	O-RING
32	1	ROTOR - TYPE 'AS'
34	8	CAP SCREW - INSPECTION DOOR
35	4	ALIGNMENT PIN

"HC" ROTARY VALVE SHOWN WITH 'A' AND 'AS' ROTORS