



HOLLAND EQUIPMENT COMPANY

“WORKING HARDER FOR YOU”

MANUFACTURER AND DISTRIBUTOR OF CONSTRUCTION, MINING, MUNICIPAL,
INDUSTRIAL, COMPOSTING, RECYCLING, TRUCK EQUIPMENT AND SNOW & ICE CONTROL PRODUCTS
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www.hollandeq.com

JENSEN SNOWPLOWS

PARTS MANUAL

FOR

4-46-60-PH CS

SNOWPLOW SAFETY PRECAUTIONS

WARNING: INJURY AND DAMAGE MAY RESULT FROM FAILURE TO FOLLOW SAFETY PRECAUTIONS. WHEN WORKING ON SNOWPLOW, IT IS IMPORTANT TO USE COMMON SENSE AND AVOID HAZARDOUS PRACTICES OR SITUATIONS. SOME OF THESE INCLUDE:

1. Persons who install, mount, operate, or service this equipment must be properly instructed and warned of the hazards associated there with.
2. DO NOT place any part of your body under a raised blade.
3. Read operators manual completely before operating this equipment.
4. If you must raise the blade to work on the plow, block up the blade to keep it from falling.
5. If welding must be performed on the plow, remove the plow from vehicle.
6. Always wear proper eye protection when working on the plow.
7. Avoid pinch points that can cause injury.
8. Adjust flow control valve (if so equipped) only with plow in the down position and after reading owners manual.
9. Inspect daily all plow mechanical and electrical connection points for proper attachment and wear. Check plow to insure that all parts are in place, bolts are tight and fluids are at the proper level.
10. Always plow at a safe speed that is reasonable and prudent

depending on terrain and snow conditions. Plowing abruptly into heavy wet snow can cause loss of vehicle control.

11 .The snowplow has a great deal of power, and accordingly can be hazardous when in operation.

12. The snowplow should not be operated with people standing or working within the area you are to be plowing.

13. The plow is not intended to be used for stacking snow. Damage and injury could result.

14. Use care when mounting or dismounting the snowplow.

15. Failure to follow above precautions and owners manual instructions may cause serious injury and can void warranty.

MAINTENANCE INSTRUCTIONS

During use:

Check daily for loose bolts and nuts, and re-tighten as needed before use.

A pressure relief valve (2000 PSI) MUST remain in the hydraulic reversing circuit.

Check all hydraulic fittings for tightness on a regular basis.

Lubricate all grease fittings every shift in normal use and more often in heavy use.

Hydraulic pressure should NOT exceed 2000 PSI.

Check cutting edge for wear.

Plowing snow can cause damage to your equipment at any time. We would suggest that an inspection and maintenance schedule be implemented.

Out of use:

When disconnecting hydraulic lines take care to do so in a clean environment, keeping foreign material away from all fittings. When disconnected, cap fittings to protect from contamination.

Perform a complete visual check of the plow, look for loose or worn bolts, pins and keepers. Replace prior to storing for the season.

Protect hydraulic cylinders from corrosion and damage.

BOLT TORQUE CHART

SIZE	 GRADE 2	 GRADE 5	 GRADE 8
1/4-20	50 IN-LBS	75 IN-LBS	9 FT-LBS
3/8-16	15 FT-LBS	23 FT-LBS	35 FT-LBS
1/2-13	35 FT-LBS	55 FT-LBS	80 FT-LBS
5/8-11	75 FT-LBS	110 FT-LBS	170 FT-LBS
3/4-10	130 FT-LBS	200 FT-LBS	280 FT-LBS
1-8	190 FT-LBS	480 FT-LBS	680 FT-LBS
1 1/4-7	380 FT-LBS	840 FT-LBS	1360 FT-LBS

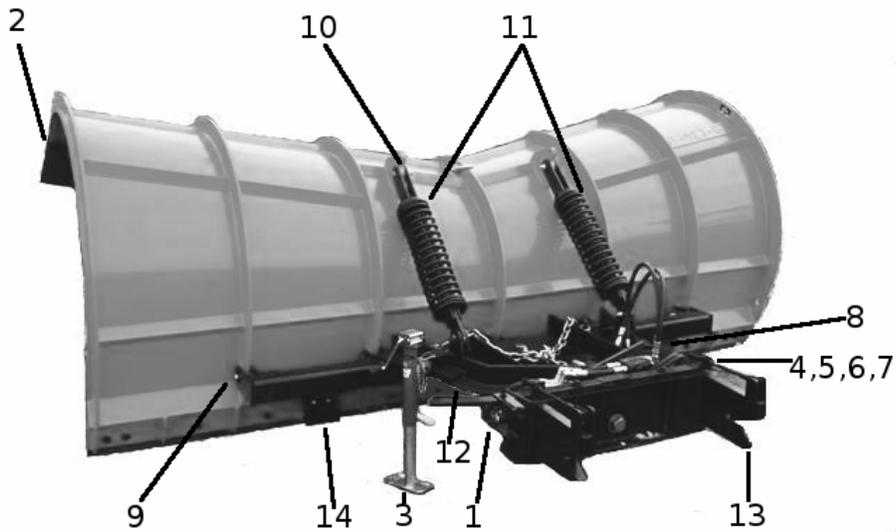
GENERAL INFORMATION

When describing position of the plow, it will be from the operator's seat.

Replacement parts listed in this manual are for the more common parts. If you do not find the part listed that you need, please call Holland Equipment Co.

The Jensen snowplows are designed to operate with the "A" frame assembly in a near level position.

Your level lift system will operate best when the pickup point of the lift arm chain in the vertical position or just beyond.

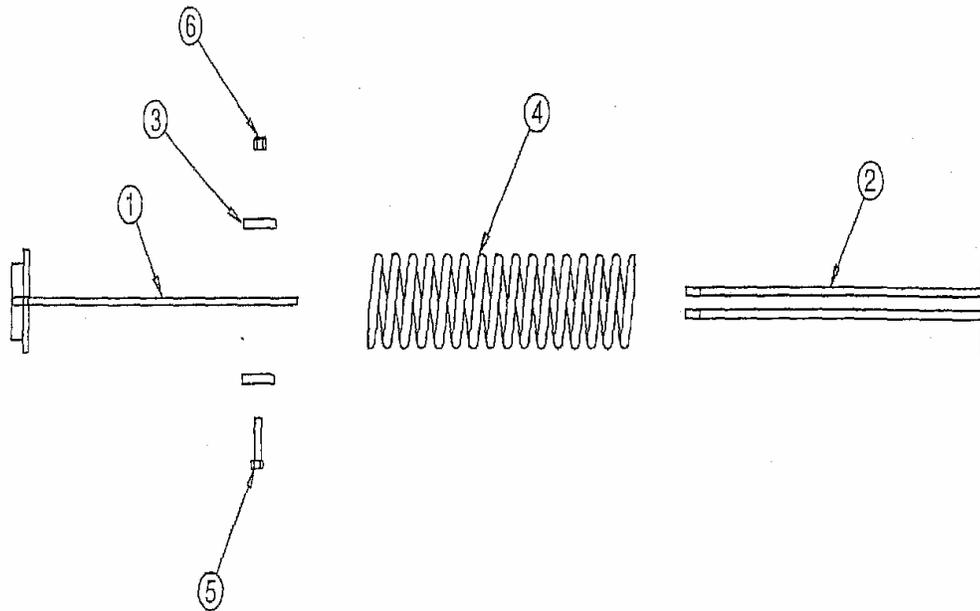


PARTS LIST

Item #	QTY	PART #	DESCRIPTION
1	2	R4504732	REVERSEING RAM
2	2	RB12X12	RUBBER BELTING FOR DEFLECTOR
3	1	18-450	PARKING JACK
4	1	FF5018FP	QUICK DISCONNECT
5	1	FF5028FP	QUICK DISCONNECT
6	1	FR501	DUST COVER
7	1	FR502	DUST COVER
8	1	DRV-4NHNH	DIVERSION VALVE
9	4	14947	1 1/4" X 4" PIN (MOLDBOARD PIVOT)
10	4	14944	1" X 5 1/2" PIN (CYLINDER)
11	2	A-SW1922	COMPRESSION SPRINGS
12	1	A-LPDF	CIRCLE FRAME

13	1	A-LPQH	HITCH
14	2	RSUDOTO1	RUBBER STOPS

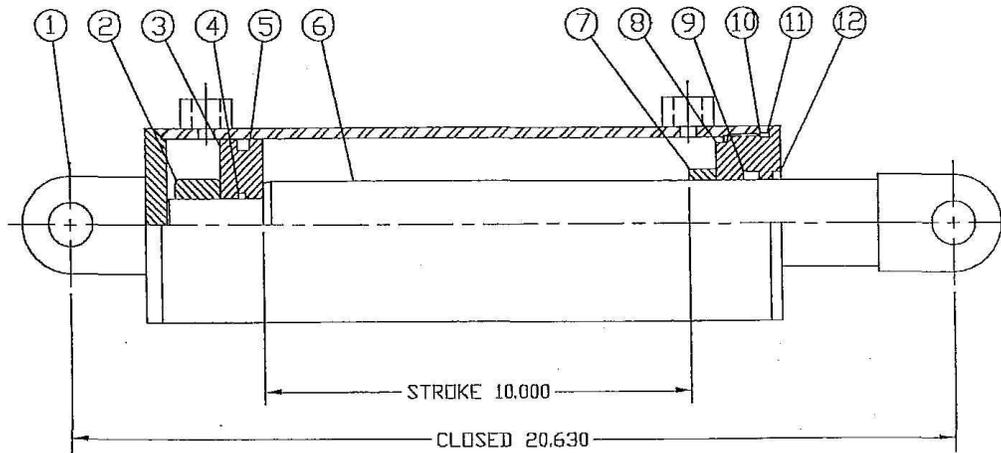
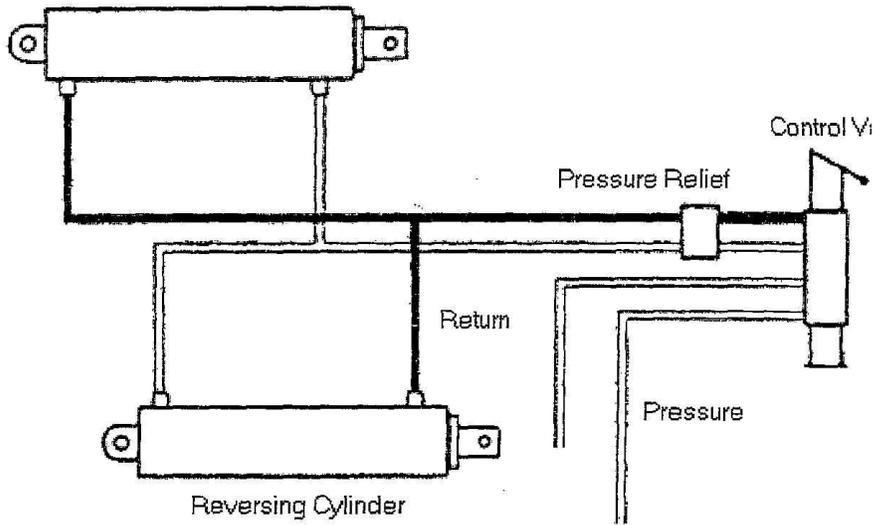
Compression Spring Diagram



ITEM	QTY	PART #	DESCRIPTION
1	1	4930USB	UPPER SPRING BRACKET
2	1	4930LSB	LOWER SPRING BRACKET
3	2	4930S	SPACER
4.	1	SW1922	COMPRESSION SPRING
5	1	58212GR8	$\frac{5}{8}$ "X 2 $\frac{1}{2}$ " GRADE 8 BOLT
6	1	58NT	$\frac{5}{8}$ " STOVER NUT

HYDRAULIC DIAGRAMS

Diagram for the Hydraulic Reversing Cylinders



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
8	R4704732	GLAND	1	16			
7	R4804732	STOP TUBE	1	15			
6	R4204732	SHAFT SUB ASSEMBLY	1	14			
5	R3505019	PISTON (D) SEAL	1	13	R3604732	COMPLETE SEAL KIT	1
4	R3503218	PISTON (S) SEAL	1	12	R3506024	WIPER	1
3	R4604732	PISTON	1	11	R3508241	GLAND BACK-UP	1
2	R3005009	ROD NUT	1	10	R3503241	GLAND SEAL	1
1	R5504732	BARREL SUB ASSEMBLY	1	9	R3501023	SHAFT SEAL	1

RAM INDUSTRIES
YORKTON, SASKATCHEWAN, CANADA

DRAWN BY TGV
DESIGNED BY TGV
CHECKED BY DAC
DATE 02/25/99
SCALE 1"=3"

DESCRIPTION
#4.00 X 10.000 STROKE
LUG MOUNT HYD. CYL.

PARTS BREAKDOWN

PART # 45U4732 MODEL # R7-40HEN-10

Ram Industries Inc.
CYLINDER TROUBLESHOOTING

1. PROBLEM: Cylinder misalignment

SOLUTION: Side load is a common problem that occurs when the cylinder application does not allow the piston rod to work in line during the 'extend' and 'retract' motions of the cylinder. Evidence of this is excessive seal failure, bushing wear, or galling of the piston rod. Often bending of the piston rod or complete failure (breakage) of the rod occurs.

2. PROBLEM: External leakage

SOLUTION: If leakage occurs between the end cap and barrel check the tie rod torque. If the torque is correct then replace the barrel seal. When leakage occurs in the rod bushing area the rod seals should be replaced.

3. PROBLEM: Internal leakage

SOLUTION: Inside the cylinder leakage past the piston seals can cause sluggish movement or settling of the cylinder under load conditions. This occurs due to leakage of worn piston seals or rings.

4. PROBLEM: Bad mountings

SOLUTION: Due to wear of pivot pins or mounting bolts working loose in a cylinder may have side load even though the rod was in line when the cylinder was first installed. All cylinder mountings should be checked periodically.

5. PROBLEM: Creeping cylinder

SOLUTION: When a cylinder is stopped in mid-stroke and it creeps, check for internal leakage. A worn control valve can also cause creeping.

6. PROBLEM: Cylinder sticking or binding

SOLUTION: Check for dirt or gummy deposits or air leaks. Check for misalignment, worn parts or defective packing.

7. PROBLEM: Sluggish operation during warm up period

SOLUTION: Viscosity of oil too high or pour point too high at starting temperature. Change to oil with lower viscosity or better

viscosity index and lower pour point, An immersion heater placed in the oil may help under severe cold conditions.

8. PROBLEM: Pilot control pressure too low

SOLUTION: Control line may be too small or metering choke valve not working properly.

9. PROBLEM: Internal leakage in cylinder

SOLUTION: Repair or replace worn parts and loose packing. Check oil to see that viscosity is not too low. Check for excessive contamination or wear.

10. PROBLEM: Air in system

SOLUTION: Bleed air and check for leaks. Check to see that oil intake is well below surface of oil in reservoir. Check pump, packing and line connections on intake side by pouring hydraulic oil over suspected leak. If noise stops, the leak has been located. Tighten joints or change packing or gaskets where necessary.

11. PROBLEM: Repeated seal failure

SOLUTION: Check for contaminants in oil and cylinder, scored barrel, or damaged shaft.

12. PROBLEM: Rod seal failure

SOLUTION: Check cylinder alignment and check for bent rod.

13. PROBLEM: Cylinder creeps overnight

SOLUTION: Carry out **rod measurements test** (see *Synchronizing Series Testing*). Replace piston seal and check for damaged components.

14. PROBLEM: Tractor valve leaking

SOLUTION: Fit lockout valve or have tractor hydraulics checked.

15. PROBLEM: Uneven working depth on synchronizing cylinders

SOLUTION: Re-phase and purge system of air. Identify where the problem is by **rod measurements test** (see *Synchronizing Series Testing*). Replace seal and check for component damage.

Any technical advice and/or information provided is given free of charge. Ram Industries Inc. assumes no obligation or liability for the advice and/or information given to the results obtained. All advice is being given and accepted at user's risk.

MAINTENANCE

STORAGE

Oftentimes cylinders are delivered before and must be stored for a period of time. When storage is required, the following procedure should be employed:

1. Select an area indoors for storage, which has a dry and non-corrosive atmosphere. Take caution to protect the cylinder external corrosion.
2. Cylinders to be stored should be kept in a retracted, vertical position (piston rod up) whenever possible.
3. Port protector plugs should be kept in the cylinder ports until the time of installation.

INSTALLATION

General Information

1. Cleanliness - the most important consideration when installing the cylinder. When cylinders are shipped from RAM the ports are securely plugged with plastic plugs, which should not be removed until the piping is to be installed. All piping should be thoroughly clean to include the removal of all threading and flaring burrs or chips before making the connection to the cylinder ports. One chip can cause premature failure of the cylinder or other hydraulic system components.
2. Alignment - Improper alignment will result in excessive cylinder wear. Check to assure rod alignment between the cylinder and its mating component on your machine in both the extended and retracted positions.
3. Environment - cylinders operating in areas where there is weld splatter, fast drying chemicals, paint, excessive heat or other hazardous conditions, should have covers or shields to prevent damage to the rod and rod seals.

CYLINDER MAINTENANCE

Rod Seal Replacement

When changing rod seals extend the piston rod 3” or more if possible being sure to support the rod at all times. Remove the retainer plate screws (if tie rod nuts have to be removed refer to the nut torque specification on this page when reassembling the cylinder), retainer plate and outer bushing. Using an eye hook or thin screw driver pry the V’s from the end cap cavity (if low pressure air is applied to the rod end port this will help to force the V’s from the cavity). The new set of V’s should be assembled into the cavity separately and lubed with the soft “V” in the center. Replace the rod wiper in the bushing and reassemble the cylinder.

Piston Seal Replacement

When changing piston seals extend the piston rod 3" or more if possible, being sure to support the piston rod and the piston at all times.* Remove the tie rod nuts, blind end cap, the barrel and then the piston seals. A light grease, compatible with the system fluid, should be used on the rings and block "V" seals for smooth assembly. Install the block "V" piston seals, scarf cutting only the back-up washers. Then install the wear ring. To reassemble, start the piston into the tube. When the piston block "V" seal is to the edge of the barrel, use a thin rounded blade to start the lip of the block "V", making sure the entire lip is started before moving the piston further into the tube.

*NQTE: When the cylinder has been disassembled this far the barrel seals should at least be inspected if not replaced.

Barrel Seal Replacement

When replacing barrel seals use the same method of disassembling the cylinder as used when replacing piston seals. The barrel seal is a gasket which is laid into the end cap tube groove first. Then position the end caps squarely on the tube (check to make sure port location is correct) and firmly force or tap the end cap over the tube until it bottoms. Check to make sure the gasket did not move and then finish assembling the cylinder.

WARRANTY

Holland Equipment Co. warrants all new *JENSEN* SNOWPLOWS manufactured by the company according to the terms as set out below. EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, and there are no warranties that extend beyond the description on the face of this warranty.

Should any *JENSEN* product prove defective in material or workmanship, under normal service and use, within a period of one year from date of shipping to the original purchaser, Holland Equipment Co., shall, if the equipment was properly set up, adjusted, used and operated by a competent person, replace those parts at Salt Lake City, Utah, which on inspection by the company appear to have be defective in workmanship or material.

Freight or other transportation costs to and from the factory authorized service center to be paid by the purchaser.

Holland Equipment Co. will not assume any charges for repairs made by anyone other than Holland Equipment Co. or its authorized service center. This warranty will be effective only if Holland Equipment Co. received written notice of the equipment's defect or failure to perform within thirty (30) days of the expiration of the one (1) year warranty period. This warranty does not cover parts or accessory sold by Holland Equipment Co. but produced by other manufacturers: Such merchandise being guaranteed solely by the manufacturers of such parts or accessories.

This Warranty shall be void where equipment has been subject to misuse, neglect, alteration or accident, or where repair parts other than genuine Holland Equipment Co. repair parts have been used.

Holland Equipment Co. obligations under this warranty shall be suspended during any period in which it is prevented from fulfilling its obligations by forces beyond its control such as lack of supply, labor disputes, "Acts of God" and transportation inadequacies. Damage for breach of this Warranty shall be limited to replacement of the defective parts as set out herein and shall not include consequential damages for injuries to persons or property or loss of profits occasioned by such defects. No representative or other person is authorized or permitted to make any warranty or assume for Holland Equipment Co. any liability not strictly according to the foregoing.

This Warranty shall extend only to the original purchaser of the equipment from Holland Equipment Co. or its authorized distributor.

