INSTALLATION,OPERATION,MAINTENANCE,& PARTS LISTS MANUAL

DURACLASS MODEL 2824DA
ARM TYPE HOIST

WARNING

IF INCORRECTLY USED, THIS EQUIPMENT CAN CAUSE SEVERE INJURY. THOSE WHO USE AND MAINTAIN THE EQUIPMENT SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ ENTIRE MANUAL BEFORE ATTEMPTING TO SET UP, OPERATE, ADJUST OR SERVICE THE EQUIPMENT. KEEP THIS MANUAL FOR FUTURE REFERENCE.

DURACLASS

GENERAL OFFICES: TISHOMINGO, MS

PHONE: CABLE ADDRESS:

TED72648-285

IMPORTANT SAFETY NOTICE

Proper service and repair are important to the safe, reliable operation of DuraClass products. Service procedures recommended by DuraClass are described in this service manual and are effective for performing service operations. Some of these service operations may require the use of tools or blocking devices specially designed for the purpose. Special tools should be used when and as recommended. It is important to note that some warnings against the use of specific methods that can damage the product or render it unsafe are stated in the service manual. It is also important to understand these warnings are not exhaustive. DuraClass could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, DuraClass has not undertaken any such broad evaluations. Accordingly, anyone who uses service procedures or tools which are not recommended by DuraClass must first satisfy himself thoroughly that neither his safety nor the product safety will be jeopardized by the method he selects.

WARRANTY

DuraClass warrants this unit to be free from defects in material and workmanship, under normal use and service, for a period of ninety (90) days, said period to run from the date when first placed into operation.

This warranty is expressly limited to the replacement or repair at its factory in Tishomingo, MS or such other place as DuraClass may designate, of such parts of such products as shall be returned to it with transportation charges prepaid and which shall appear to its satisfaction, upon inspection at such factory or other place designated by it, to have been defective in material or workmanship.

This warranty does not apply to any unit of DuraClass equipment which shall have been repaired or altered outside of DuraClass so as to affect its stability or which has been subject to misuse, negligence or accident or which shall have been installed or operated other than in accordance with the printed instructions of DuraClass.

This warranty does not obligate DuraClass to bear the cost of labor in replacing defective parts. No other obligation is assumed or authorized to be assumed with respect to products of DuraClass other than herein set forth.

DURACLASS DOES NOT ASSUME ANY LIABILITY FOR SECONDARY CHARGES, EXPENSES FOR ERECTING OR DISCONNECTING, OR ANY OTHER CONSEQUENTIAL LOSSES OR DAMAGES.

“WE MAKE NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MAKE NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE.”

DURACLASS
Tishomingo, MS

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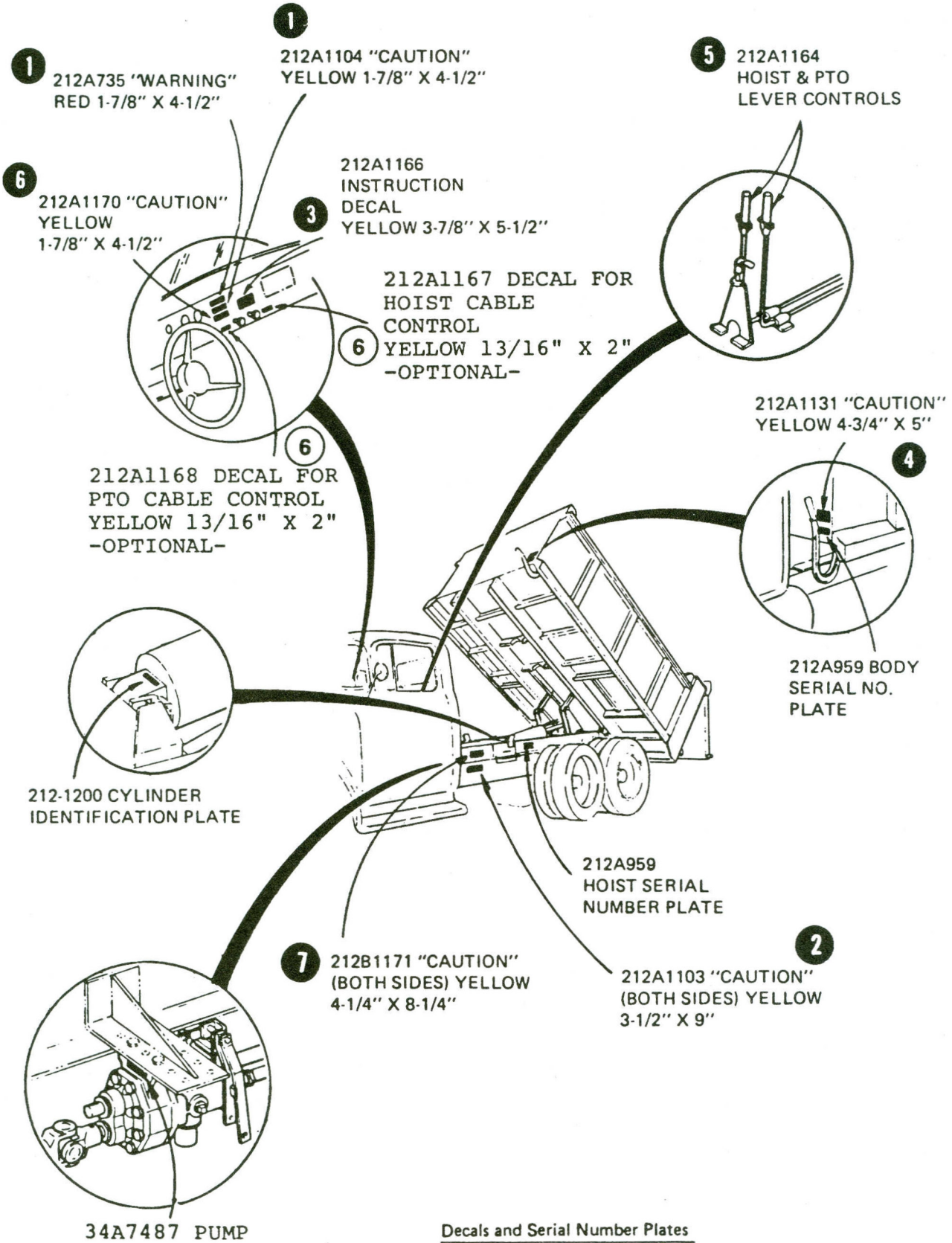
ALL MODELS



Decals and Serial Number Plates

DECALS AND SERIAL NUMBER PLATES

Install decals according to the instructions below. Model and serial numbers are located by manufacture as shown.

1. WARNING DECAL #212A735 IS 1-7/8" X 4-1/2". IT MUST BE PLACED ON THE DASH ABOVE CAUTION DECAL #212A1104 THAT IS 1-7/8" X 4-1/2".

2. CAUTION DECAL #212A1103 IS 3-1/2" X 9". IT MUST BE PLACED ON CHASSIS FRAME AS SHOWN. ONE ON EACH SIDE.

3. INSTRUCTION DECAL #212A1166 MUST BE PLACED ON DASH NEXT TO THE CAUTION AND WARNING DECALS AS SHOWN IN THE SKETCH.

4. CAUTION DECAL #212A1131 IS 4-3/4" X 5". IT MUST BE PLACED ON THE DUMP BODY ABOVE THE SERIAL NUMBER PLATE AS SHOWN IN THE SKETCH.

5. IF INSTALLATION HAS THE LEVER CONTROLS USE DECAL #212A1164. SELECT THE DECAL THAT CORRESPONDS TO THE DIRECTION OF TRAVEL FOR PTO LEVER IN AND OUT FOR HOIST CONTROL UP AND DOWN.

6. CAUTION DECAL #212A1170 IS 1-7/8" X 4-1/2". IT MUST BE PLACED ON DASH BELOW CAUTION DECAL #212A1104.

7. CAUTION DECAL #212B1171 IS 4-1/4" X 8-1/4". IT MUST BE PLACED ON THE HOIST OR CHASSIS FRAME (ONE ON EACH SIDE) NEAR THE BODY PROP, CLEARLY VISIBLE TO THE OPERATOR.

SECTION 1 GENERAL INFORMATION

1.1 INTRODUCTION

This instruction manual has installation, operation, maintenance, and parts information for the DuraClass Model 2824DA twin cylinder, double acting arm type hydraulic hoist.

It's been prepared to acquaint you with the design features of the unit, and to instruct you in its proper operation and maintenance.

All Operator/Service people should review it carefully and become familiar with the contents before it's filed for future use. This manual is as valuable to you as the unit it describes.

1.2 GENERAL INFORMATION

This is a twin cylinder arm type hoist and is designed for use with DuraClass steel dump bodies on tandem axle chassis. Dumping angle is 50°.

1.3 HOIST CAPACITY

Lifting capacity depends on body length and overhang beyond the rear hinge. The capacities for recommended body lengths are charted in Figure 1.

2824DA HOIST LIFTING CAPACITY			
Body Length		Capacity - Body and Payload	
ft	m	tons U.S.	tons metric
12	3.658	29.5	26.7
13	3.962	26.8	24.3
14	4.267	24.4	22.2

Above capacities are based on mounting body with 12 in. (305 mm) overhang from hinge to end of body. Also assumes level loading, with center of gravity at midpoint of body.

Federal regulations prohibit the combined weights of the truck chassis, hoist and platform/body, and payload to exceed the Gross Vehicle Weight Rating (GVWR) or the Gross Axle Weight Rating (GAWK) of the total vehicle.

Figure 1

Refer to mounting drawing 701E4026 and use this procedure:

⚠CAUTION

CHECK MANUAL BEFORE STARTING INSTALLATION. STUDY THE JOB CAREFULLY TO FIND ALL OF THE HAZARDS PRESENT AND MAKE SURE ALL NECESSARY SAFEGUARDS OR SAFETY DEVICES ARE USED TO PROTECT ALL PERSONS AND EQUIPMENT INVOLVED.

2.1 HOIST AND SPACER PADS

Drill holes in spacer pads for rivet clearance and locate on chassis rails.

Cut off front end of hoist frame flush with front of body. Locate hoist assembly so it's square on the chassis and that the hinge centerline is properly located back of the axle. Drill holes in top of chassis rail at rear for a snug fit of bolts, using hole in rear apron of hoist frame as a guide. Locate front and intermediate hold-downs and drill holes in chassis for snug fit of bolts, using holes in hold-down as a guide.

Skip weld spacer pads to hoist frame.

Cut off end of chassis frame.

2.2 POWER TAKE-OFF, PUMP, AND DRIVE LINE

Select the correct power take-off to match truck transmission. The PTO output shaft should run at 45 to 65 percent of engine speed. Mount PTO according to manufacturer's recommendations.

Mount pump in a convenient location in the chassis so that it and connecting hoses are as far away from the muffler and exhaust tube as possible. Make sure the drive line is as short as possible also. In any case, the centerline to centerline of universal joints for a 2-joint, 1-shaft drive is not to exceed 42" (1066 mm) and the centerline of front and rear joints for a 3-joint, 2-shaft drive line is not to exceed 74" (1879 mm).

The pumps for all hoists have a separate mounting bracket. Drill four 41/64" (16 mm) holes in chassis rail to mount bracket, using holes in bracket as a guide. Bolt bracket and pump in place.

Cut drive shaft (s) to the proper length to have maximum engagement in universal joints. Hand grease end of drive shaft and slip joint and install drive line. Maximum angle on drive line shafts not to exceed 10°. See Figure 2 for installation recommendations.

2.3 CONTROLS

Lever controls are standard and should be mounted on the floor of the cab convenient to operator.

2.4 PIPING AND FILLING SYSTEM

Attach valve lever to hoist control valve and attach bearings to valve lever. Weld bearings to hoist frame channel, locating as shown so that slot in lever is centered on valve spool and so that lever moves freely.

Locate stop bar on channel as shown in line with ear on valve lever and weld in place. Attach setscrew and lock nuts to ear on valve lever. Adjust setscrew to limit valve spool movement to control rate of body lowering.

Connect hydraulic lines as shown. See Figure 3 for schematic of hydraulic circuit. Use a thread sealing compound on ends of all pipe threads. Compound not required on tube fitting nuts or 0-ring fittings.

2.5 MOUNTING BODY

Locate body on the hoist frame, attach hoist lifting links to underside of body, and position body to the correct overhang (center of hinge to rear of body floor) for the body used. Shim if necessary, and weld in place, being sure that the hinges are tight against the outer ears on the hoist frame.

WELD NOTE

ALL STRUCTURAL WELDING DONE IN THE MOUNTING OF THE HOIST AND BODY HINGES SHOULD BE PERFORMED USING ONLY THE FOLLOWING RECOMMENDED WELD ELECTRODE AND WIRE.

ELECTRODE - E-7018 (THIS IS A LOW HYDROGEN ROD, AND MANUFACTURER'S RECOMMENDATIONS MUST BE FOLLOWED.)

WIRE - E-70S-3 (WIRE MANUFACTURER'S RECOMMENDATIONS MUST BE FOLLOWED).

⚠CAUTION

WHEN ANY WORK IS TO BE DONE ON BODY OR HOIST AND BODY IS FULLY OR PARTLY RAISED, BODY MUST BE SECURELY BLOCKED SO IT CANNOT FALL. IN ADDITION, PTO MUST BE DISENGAGED AT SUCH TIME.

2.6 VENTING OF SYSTEM

⚠CAUTION

WHEN ANY WORK IS TO BE DONE ON BODY OR HOIST AND BODY IS FULLY OR PARTLY RAISED, IT MUST BE BLOCKED SECURELY SO IT CANNOT FALL. IN ADDITION, DISENGAGE THE PTO AT SUCH TIME.

READ AND STUDY "OPERATION" SECTION OF MANUAL BEFORE PROCEEDING.

Fill oil tank to top (see Section 4.5 for proper type of oil). Open vent valve at top end of cylinders and with the valve control in cab in BODY LOWER position (refer to Section 3 for Operating Instructions) run pump slowly until oil just starts to flow out of the vent valve. Shift valve control in cab to NEUTRAL, and close vent valve. Add oil to tank until it starts to flow out of the oil level hole in front of tank. RAISE and LOWER hoist several times until all air is purged from the system. With cylinders extended, check oil level and add oil if necessary until it justs runs out of oil level plug at front of tank.

Keep dirt out of system.

2.7 DECALS

Place WARNING and CAUTION decals on instrument panel in plain view of operator. Place WARNING and CAUTION decals on body and hoist (See page 4 & 5).

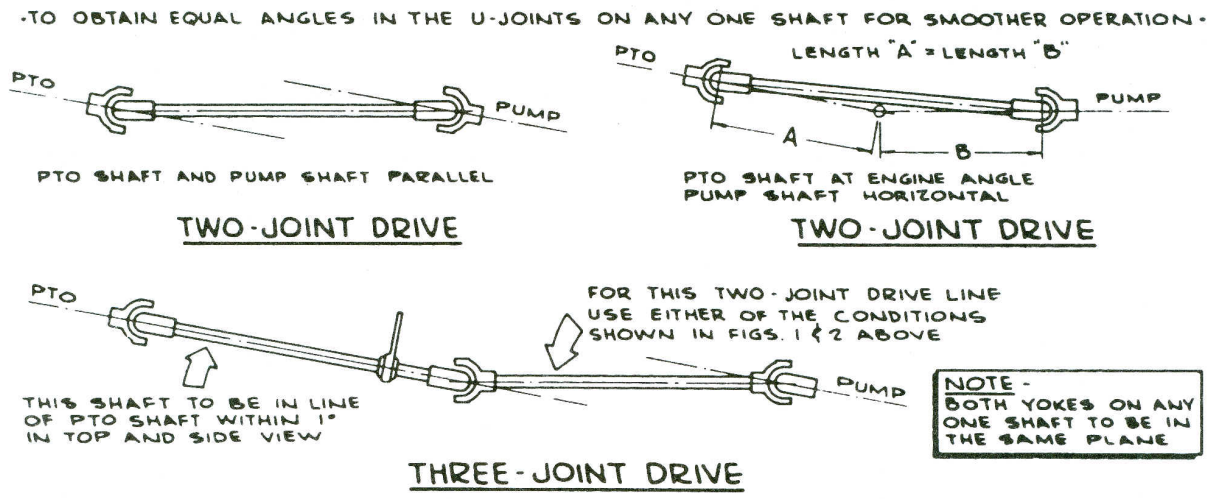


Figure 2. Drive Line Recommendations

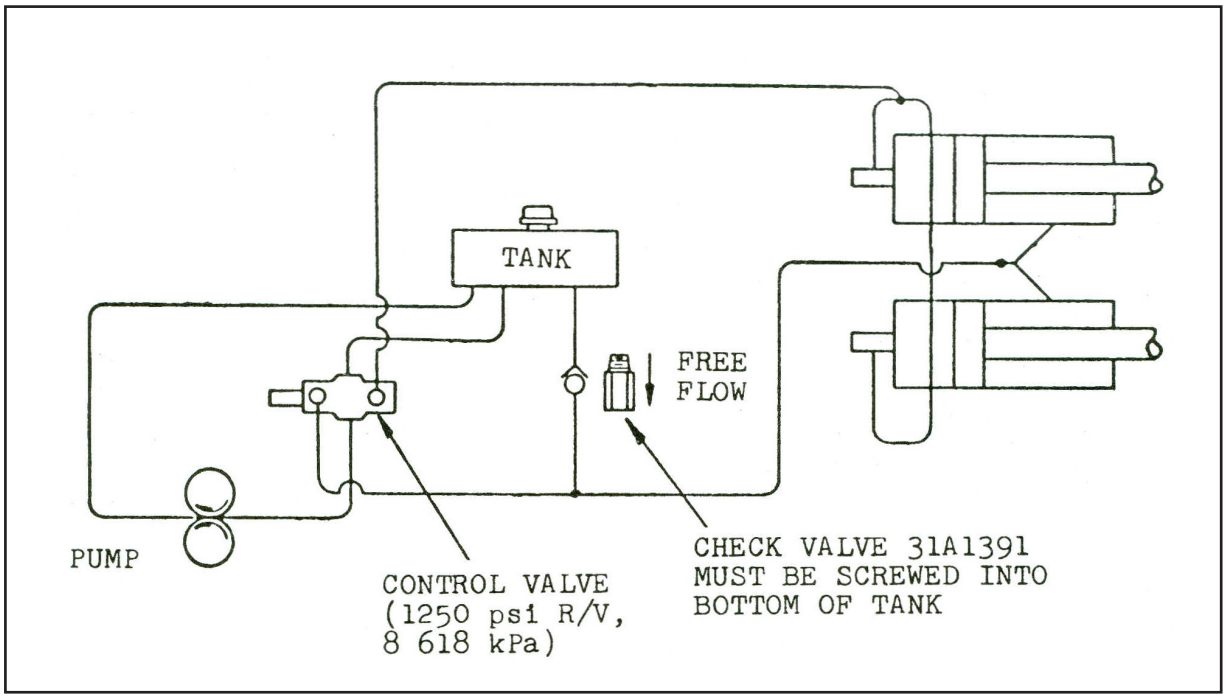


FIGURE 3 - SCHEMATIC OF HYDRAULIC CIRCUIT

SECTION 3 OPERATION

3.1 GENERAL

Before operating this hoist, see capacity chart (Figure 1) and read WARNING and CAUTION decals on instrument panel, body, and hoist. See pages 3 and 4 for decals and placement.

⚠CAUTION

WHEN OPERATING DO NOT STAND IN, MOVE THROUGH, OR ALLOW ANYONE ELSE TO STAND IN OR MOVE THROUGH THE AREA WHERE YOUR HOIST OPERATES AND PASSES THROUGH, OR INTO AN AREA WHERE AN UPSET LOAD MIGHT FALL.

3.2 DEFINITION OF AN OPERATOR

An operator as referred to herein is a competent person who has read and understands the "Operation and Maintenance Manual."

3.3 POWER TAKE-OFF OPERATION

1) Mechanical Transmission

-- To engage PTO, place transmission shift lever in NEUTRAL.
-- Set hand brake.
-- Depress clutch pedal.
-- Shift PTO into gear.
-- Release clutch pedal.
Equipment is now ready to operate.

-- To disengage PTO, depress clutch pedal.
-- Shift PTO out of gear.
-- Release clutch pedal.
Truck is now ready to move.

2) Allison Transmission

-- To engage PTO, stop the truck and set the hand brake.
-- With the Allison transmission in any gear position, engage PTO.

NOTE: If gears do not mesh, it may be necessary to let the truck creep slightly in gear while putting a slight pull on the PTO control.

-- After PTO is engaged, move transmission shift lever to NEUTRAL.
Equipment is now ready to operate.

-- To disengage PTO, move transmission shift lever into any gear position and shift PTO out of gear.
-- Move transmission shift lever to NEUTRAL.
Truck is now ready to move.

⚠CAUTION

DISENGAGE PTO WHEN HOIST IS NOT IN USE OR WHEN TRAVELING ON THE HIGHWAY. DO NOT MOVE TRUCK (LOADED OR UNLOADED) UNLESS THE BODY IS LOWERED AND RESTING ON TRUCK FRAME.

3.4 HOIST OPERATING INSTRUCTIONS

(For schematic of valve positions, see Figure 4.)

To Raise Body -- With PTO engaged (See Section 3.3) and truck engine running at a speed slightly faster than idle, move valve control in cab to RAISE position (rearward).

To Hold Body -- To hold in any position, move valve control in cab to HOLD position. If body will be held in position any length of time, shift PTO out of gear.

To Lower Body -- Disengage PTO (See Section 3.3) and move valve control in cab to LOWER position (forward).

⚠CAUTION

WHEN TRAVELING ON THE HIGHWAY, THE VALVE CONTROL IN CAB MUST BE KEPT IN THE "HOLD" POSITION AT ALL TIMES, AND THE PTO DISENGAGED.

3.5 VEHICLE STORAGE

⚠CAUTION

IN ALL CASES, WHEN TRUCK IS STORED OR NOT IN USE, THE BODY MUST BE IN THE FULL LOWERED POSITION AND RESTING ON THE TRUCK CHASSIS OR HOIST FRAME. KEY SHOULD BE REMOVED FORM IGNITION TO PREVENT TAMPERING BY UNAUTHORIZED PEOPLE.

SECTION 4

MAINTENANCE

4.1 GENERAL

Maintenance people responsible for the upkeep of this equipment should possess a basic understanding of the equipment and normal sequence of operation. Refer to Section 1 and 3 of this manual.

Maintenance discussed in this section is divided into two parts- Preventive Maintenance and Corrective Maintenance (Trouble Shooting).

Preventive Maintenance consists of those routines which keep the equipment in proper working condition. Preventive Maintenance is not only desirable, but is necessary, since routine inspection will ensure continued trouble-free operation of the equipment and prevent, or at least detect at an early stage, mechanical or hydraulic troubles that might otherwise develop into equipment malfunction.

Corrective Maintenance (Trouble Shooting) is the examination and repair or replacement of the part or parts of the equipment that resulted in equipment malfunction.

4.2 SAFETY PRECAUTIONS

⚠CAUTION WHEN ANY REPAIRS OR ADJUSTMENTS ARE MADE AND BODY IS FULLY OR PARTLY RAISED, BODY MUST BE BLOCKED SECURELY SO IT CANNOT FALL. IN ADDITION, DISENGAGE PTO AT SUCH TIME.

4.3 SUGGESTED PREVENTIVE MAINTENANCE PROGRAM

Suggested preventive maintenance checks are listed below.

Perform These Checks Monthly

1) Check bolts tightness of shear bolt at rear, hinge pin lock bars, rear spacer bar, rear and intermediate hold downs, both ends of lever arm shaft, upper and lower link pins, cylinder rod end, cylinder upper and lower pins, oil tanK, valve, PTO, pump and pump bracket and cab control. Self locking nuts are used throughout unit, and anytime a replacement is needed, it must be replaced with an equal part.

2) Inspect drive line for possible wear and check set screws for tightness and lock wire in position.

3) Check oil level in tank for correct height. See Section 2.5.

4) Check color of oil for possible contamination. If oil appears thick or dirty, drain system and replace. See Section 4.5 for proper type oil.

5) Check for oil leaks in all hydraulic fittings and hoses. Retighten fittings or replace hoses as necessary.

4.4 LUBRICATION (See Chart)

The hoist should be lubricated at least once a week. Use same grease as recommended for chassis.

Use oil on control rod ends, cable, cable levers and link ends. Hand grease spline and sleeve.

4.5 HYDRAULIC OIL

Use a hydraulic oil with an SAE viscosity rating of 10W that contains an antifoamant, rust and oxidation inhibitor, and an antiwear additive. If a hydraulic oil is not available use an API engine oil, designation SE, with an SAE viscosity rating of low.

DO NOT use low viscosity naptha base motor oil, hydraulic brake fluid, or aircraft hydraulic fluid.

4.6 CORRECTIVE MAINTENANCE (TROUBLE SHOOTING)

The operation of any mechanical or hydraulic system depends on the life span of the various parts. Some parts should last indefinitely, others may not. This section is a general guide to the causes of possible equipment malfunction.

Safety

Respect the potential danger of the equipment. Refer to Section 4.2 “Safety Precautions” before starting any repair.

Test Equipment

Use high quality test equipment. Any gage range should be well beyond the expected test value.

Trouble Chart

To aid maintenance personnel in locating and correcting a problem, a trouble chart has been included.

TROUBLE CHART

Trouble	Cause	Remedy
1) Failure to raise load.	1A) Insufficient oil in tank.	1A) With body fully raised, oil should flow out of oil level plug (this leaves 6”(152.4 mm) of oil in tank).
	1B) Air in system.	1B) Vent air from system.
	1C) Pinched hydraulic hose.	1C) Locate and relieve pinching. Relocate or replace hoses as required.
	1D) Control linkage parts worn or missing.	1D) Check linkage for proper connections. Replace worn or missing parts.
	1E) Pump not running.	1E) Check U-Joints at PTO and pump for tightness.
	1F) Control valve not operating.	1F) Check control valve for full throw of spool.
	1G) Restrictor check valve blocked by foreign object, preventing oil from coming out of upper end of cylinder.	1G) Remove Sq. Hd. pipe plug 3/4”(19.05 mm) from manifold block at top end of one cyl. and install 0-3000 psi(20 682 kPa) pressure gage. Raise body observing Warning (Safety Precautions) in Section 4.2 if gage reads 200 to 500 psi (1 378 kPa to 3 447 kPa) circuit is acting normal. If gage reads well over 500 psi (3 447 kPa) check valve could be plugged. Remove valve and clean.

Trouble	Cause	Remedy
	1H) Check ball and spring missing from manifold block at base end of cylinder.	1H) Remove 3/4" counter sunk pipe plug from manifold block. If ball and spring are not in block, replace.
	1A) Relief Valve setting incorrect.	1I) (See Below)
Remedy - Raise body so that front end of body is about 36” (914.4 mm) above the hoist frame. Block body securely, observing WARNING (Safety Precautions) in Section 4.2 when any adjustments are made. Disconnect valve end of hose leading from control valve to lower end of hoist cyl. and cap hose so oil will not leak out. Plug valve part and install a 0-3000 psi (0-20 682 kPa) pressure gage in the pipe tee in the pressure line from the pump to the control valve. Then, with the control in the RAISE position and engine running at about 800 rpm, the pressure gage should read approximately 1500 psi (10 341 kPa) pressure. DO NOT run pump against the relief if necessary. Reconnect hose and fittings.		
	1J) Defect pump.	1J) If troubles are not cured by above remedies, pump may be defective. Replace.
2) Oil foaming.	2A) Insufficient oil in tank.	2A) With body fully raised oil should flow out of oil level plug in tank. Add oil as required.
	2B) Suction line hose fittings loose, allowing air to enter system.	2B) Tighten hose clamps and fittings; vent air form system.
	2C) Oil too heavy.	2C) Install proper oil for expected temperature.
	2D) Pump operated at high speed in cold weather.	2D) Operate pump at slower speed.
3) Body will not come down.	3A) Check valve not seated properly or damaged.	3A) Repalce or repair.
	3A) Check ball and spring missing from manifold block at rod end of cylinder.	3B) Remove 3/4” (19.05 mm) countersunk plug from manifold block. If ball and spring are not in block, replace.

Trouble	Cause	Remedy
4) Body will not stay up.	4A) Control valve not shifting completely, valve spool or housing scored.	4A) Adjust linkage for complete shifting, replace or repair valve spool and housing.
	4B) Cylinder or piston rings scroed causing internal leakage.	4B) Return cylinder to distributor for repair or replacement.
5) Body backtips.	5A) Air in cylinders.	5A) Vent air from system.
	5B) Restrictor check valve damaged or jammed in an open position.	5B) Repair or replace valve.

SECTION 5

REPAIRS

⚠CAUTION WHEN ANY REPAIRS OR ADJUSTMENTS ARE MADE AND BODY IS FULLY OR PARTLY RAISED, BODY MUST BE BLOCKED SECURELY SO IT CANNOT FALL. IN ADDITION, PTO MUST BE DISENGAGED AT SUCH TIME.

5.1 CYLINDER

For any major repair the cylinder should be returned to the DuraClass distributor.

Repairs in the field should be limited to the replacement of rod packing and piston rings. To replace packing raise body, observing WARNING rules above. Remove packing gland, remove present packing and install new packing set. Dip packing in oil before installing.

To replace piston rings remove cylinder from chassis. Loosen packing gland, unscrew cylinder head, and remove this assembly from cylinder. Replace piston rings and replace assembly. Use a new rubber O-ring around cylinder head when reinstalling.

Keep dirt out of system.

5.2 PUMP

Pump should be returned to the DuraClass distributor for any repairs beyond the replacement of seals and O-rings.

PARTS INFORMATION

TO THE OWNER

If you should need information not given in this manual or require the service of a trained mechanic, we urge you to use the extensive facilities offered by the authorized DuraClass Distributor in your locality.

INSTRUCTIONS FOR ORDERING REPLACEMENT PARTS

For ease in ordering of DuraClass parts, a system of part and assembly numbers is used. It's important that these numbers be used whereever and whenever possible.

All parts listed on the drawings, repair parts sheets or exploded views show parts in their proper relationship. Each individual part is identified by name and part number.

Use the following suggestions and you should have little difficulty in getting quick and efficient parts delivery.

IMPORTANT

1) Give Model, Serial, and Identification numbers found on Identification Plate of the unit. Be sure numbers are complete and include the prefix and suffix, if any.

2) Order by Part Number only - Not by Item Number.

3) Check every part number for accuracy. The part numbers, sometimes are very similar and can be easily transposed.

4) Be careful to order correct quantity.

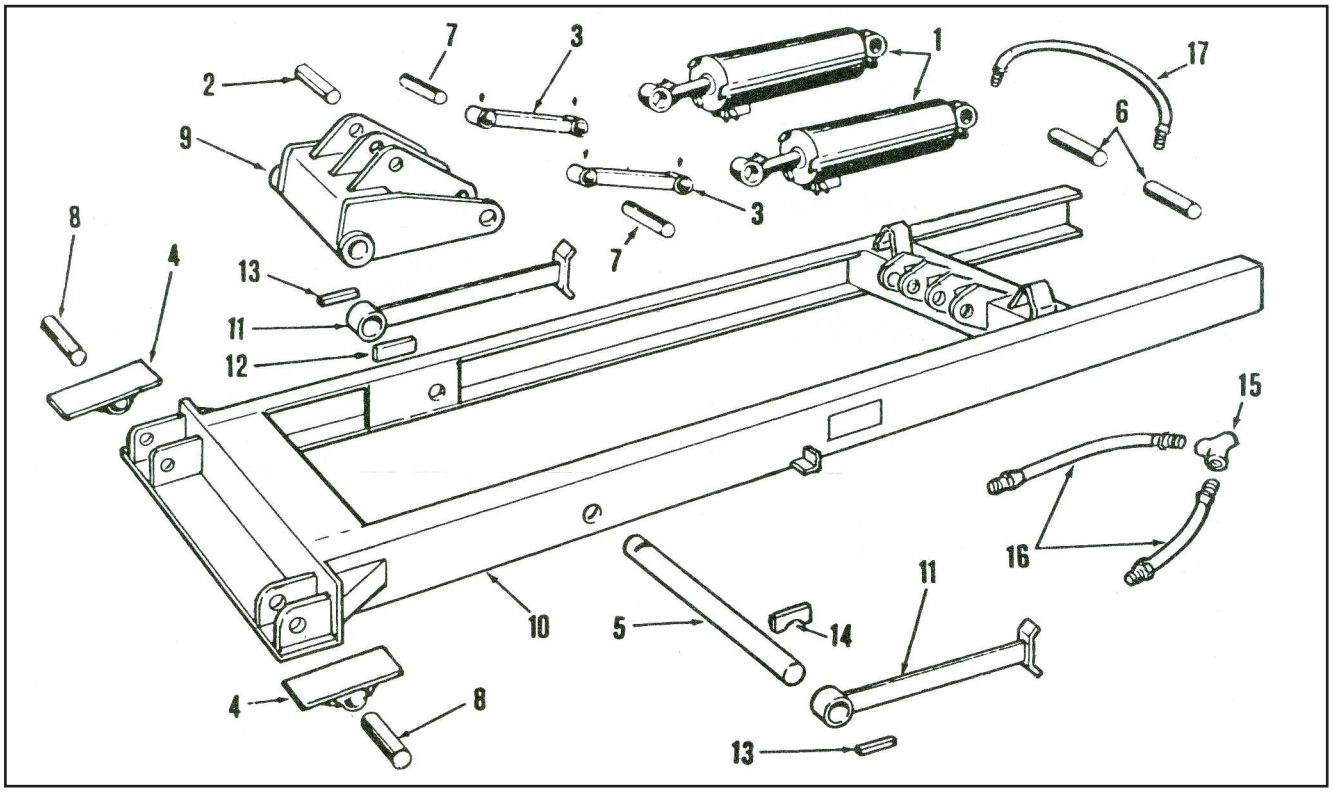
5) When ordering an assembly, make sure all the parts you need are included in the assembly.

6) Common hardware is not listed.

7) Say whether shipment is to be made Express, Parcel Post or Freight. Give Freight shipping point if different from mailing point.

8) ORDER PARTS FROM YOUR NEAREST DURACLASS DISTRIBUTOR.

DURACLASS
TISHOMINGO, MS
PHONE:
CABLE ADDRESS:



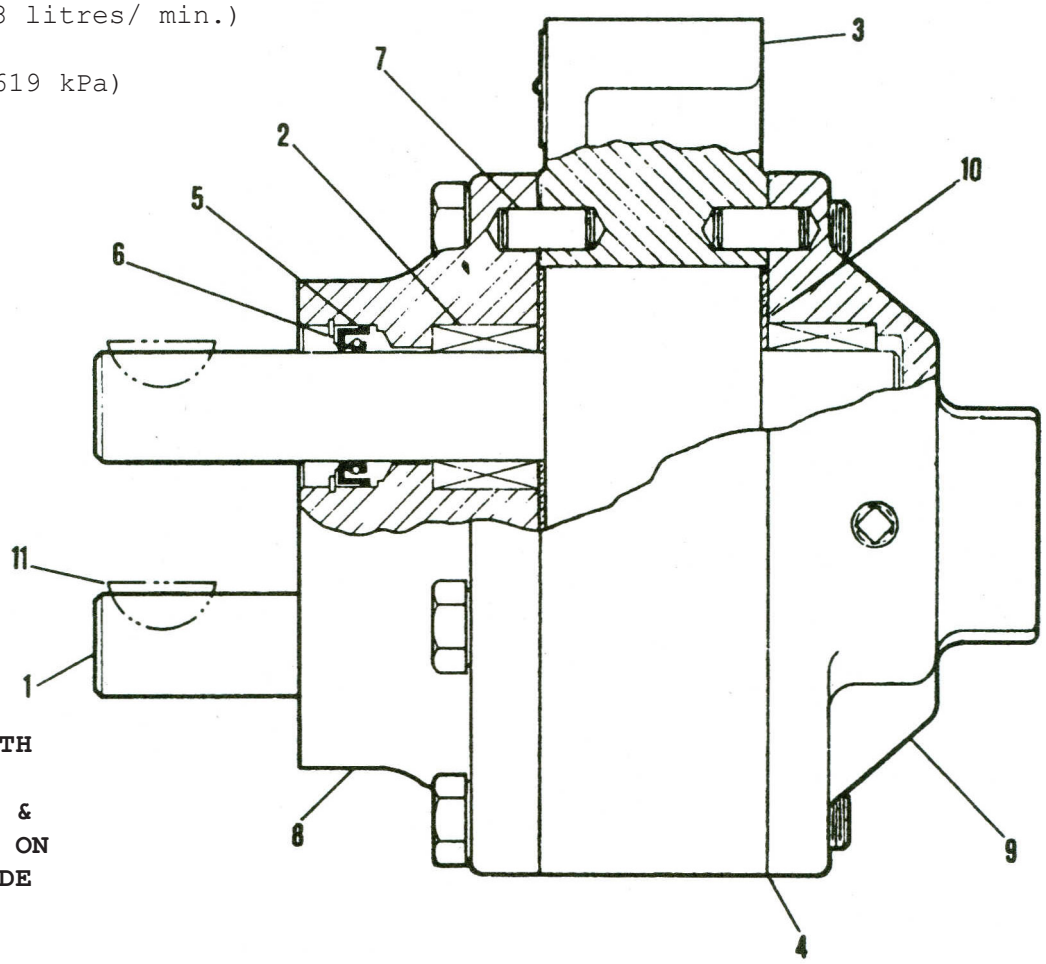
A239C648 HOIST ASSEMBLY

ITEM NO.	DURACLASS PART NO.	DESCRIPTION
1	1-3914	Cylinder Assembly
2	8-5032	Shaft - Wrist Pin
3	4-1557	Link Assembly
4	5-2304	Hinge
5	8-8470	Shaft - Lever Arm
6	48-1610	Pin - Trunnion
7	48-1238	Pin - Link to Arm
8	48-1614	Hinge Pin
9	93-1744	Lift Arm Assembly
10	37-9702	Frame Assembly
11	177-783	Body Prop
12	15-2572	Spacer
13	21-3350	Retaining Bar
14	21-3437	Lock Bar
15	2-566	Fitting - "Y" Manifold
16	57-1422-20	Hose - High Pressure
17	57-1422-39	Hose - High Pressure

ORDER BY PART NUMBER, NOT BY ITEM NUMBER.

A219C1400 HYDRAULIC PUMP

24 gpm (90.8 litres/ min.)
1000 rpm
1250 psi (8619 kPa)



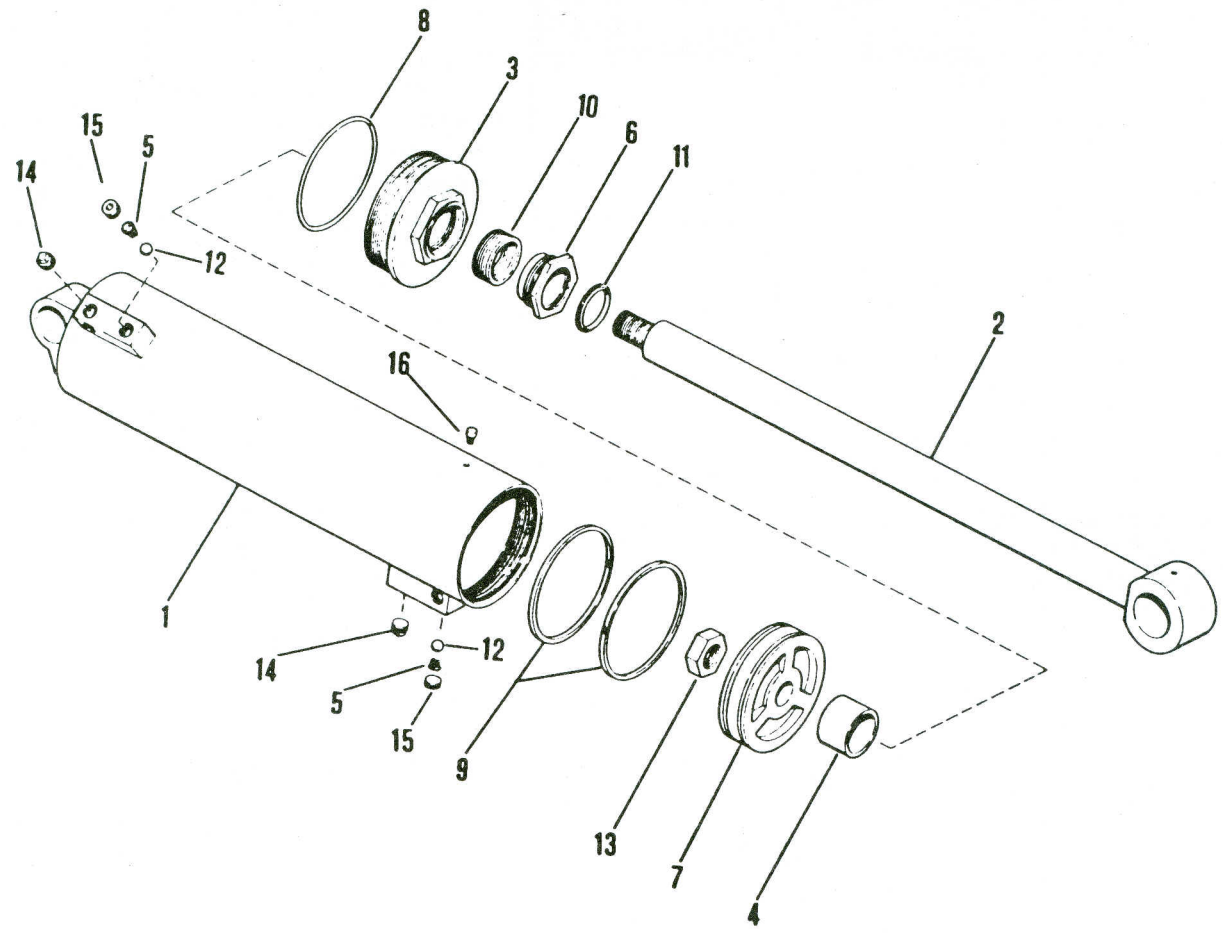
ASSEMBLE WITH BRONZE FACE TOWARD GEAR & RELIEF HOLE ON PRESSURE SIDE

3" GEAR PUMP - ROLLER BEARING - W/O LOAD CHECK VALVE

Item No.	DuraClass Part No.	Description of Part	No. Reqd.
1	A7A1376	Gear Assembly	2
2	3A3243	Bearing	4
3	15C1670	Spacer	1
4	22B1165	Gasket	2
5	22A3368	Seal	2
6	26B2919-28	Retaining ring	2
7	48A1853	Dowel	4
8	112B4562	Cover	1
9	112D3811	Cover - Rear	1
10	134A5999	Wear Plate	2
11	FS570808	#15 Woodruff Key	1

ORDER BY PART NUMBER, NOT BY ITEM NUMBER.

A1C3914 HYDRAULIC CYLINDER



47-11/16" (1211.26mm) - CENTER TO CENTER, CLOSED
72-13/16" (1846.44mm) - CENTER TO CENTER, FULLY EXTENDED
8" (203mm) - BORE (BARREL)

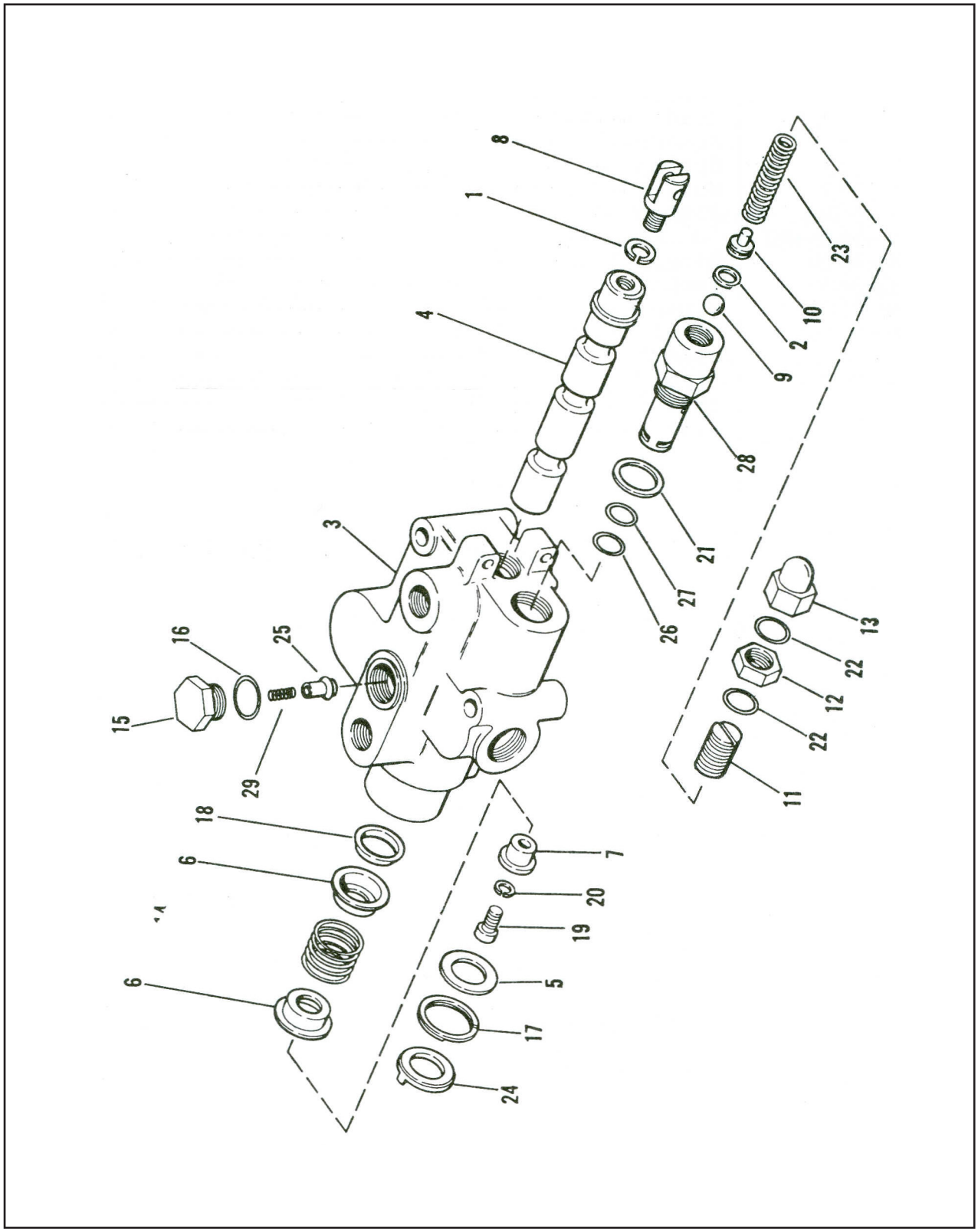
DURACLASS TRUCK EQUIPMENT DIVISION

REPLACEMENT PARTS LIST A1-3914 HYDRAULIC CYLINDER

INDEX NO.	DURACLASS PART NO.	DESCRIPTION OF PART	NO. REQD.
1	A85-42	Barrel	1
2	A27-3797	Rod, Piston	1
3	10-4190	Head, Cylinder	1
4	15-2411	Spacer	1
5	19-589	Spring	2
6	23-529	Nut,Packing	1
7	24-581	Piston	1
8	26-1615-20	"O" Ring	1
9	26-1276	Ring, Piston	2
10	26-3406	Packing	1
11	26-3707-20	Wiper	1
12	FS-011500	Steel Ball, 3/4" Dia.	2
13	FS-302600	Jamnut, 1-3/4”-12	1
14	FS-901500	Pipe Plug, Sq. Hd., 3/4"	8
15	FS-911500	Pipe Plug, Hex. C'tsk Hd., 3/4"	2
*16	31-989	Vent Valve	1

* Not Illustrated

ORDER BY PART NUMBER - NOT BY ITEM NUMBER.

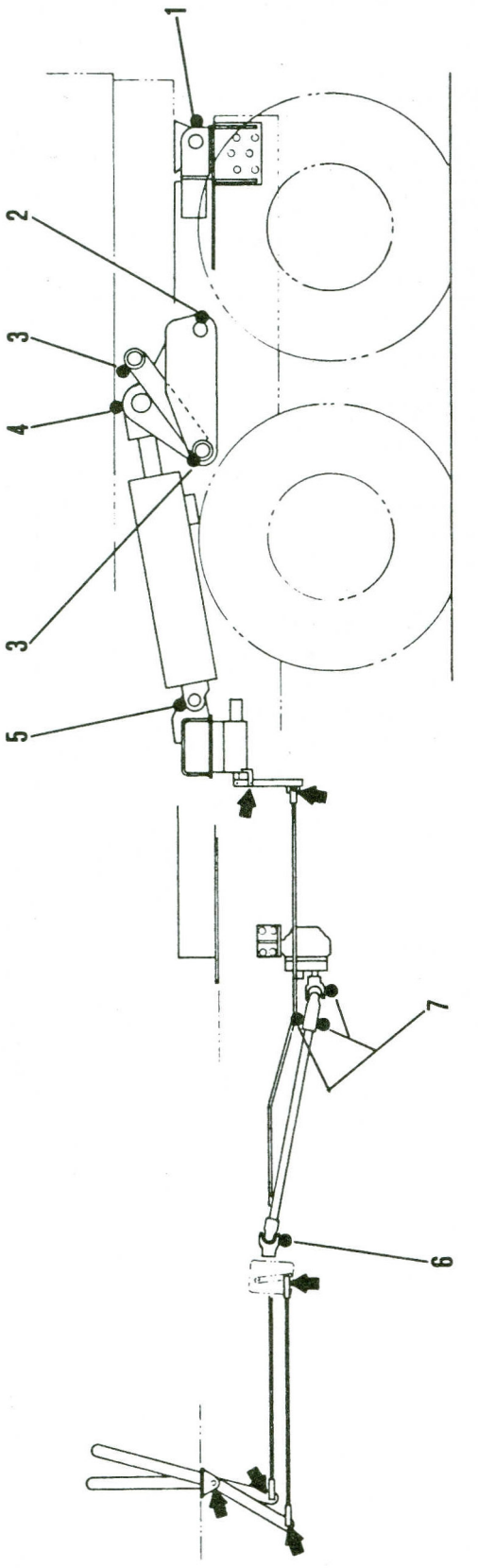


A31A1952 CONTROL VALVE

A31A1952 CONTROL VALVE

Item No.	DuraClass Part No.	Description Of Part	No. Reqd.
1	31A1952-1	Handle Adapter Lockwasher	1
2	31A1952-2	Seal - Ball Guide	1
3	31A1952-3	Housing - Valve	1
4	31A1952-4	Spool - 4 Way	1
5	31A1952-5	Stop Washer	1
6	31A1952-6	Stop Collar	2
7	31A1952-7	Stop Collar	1
8	31A1952-8	Handle Adapter	1
9	31A1952-9	Relief Ball(3/4" Steel)	1
10	31A1952-10	Relief Ball Guide	1
11	31A1952-11	Adjusting Screw	1
12	31A1952-12	Jam Nut	1
13	31A1952-13	Acorn Nut	1
14	31A1952-14	Centering Spring	1
15	31A1952-15	Check Plug	1
16	31A1952-16	Check Plug "O" Ring	1
17	31A1952-17	Bonnet Snap Ring	1
18	31A1952-18	Spool Seal	2
19	31A1952-19	Spool Assy. Screw	1
20	31A1952-20	Spool Assy. Lockwasher	1
21	31A1952-21	Relief Body "O" Ring	1
22	31A1952-22	Screw Seal Washer	2
23	31A1952-23	Relief Spring	1
24	31A1952-24	Bonnet Cap Assy.	1
25	31A1952-25	Check Poppet	1
26	31A1952-26	Relief "O" Ring Seal	1
27	31A1952-27	Relief Backup Washer	1
28	31A1952-28	Relief Body	1
29	31A1952-29	Check Poppet Spring	1

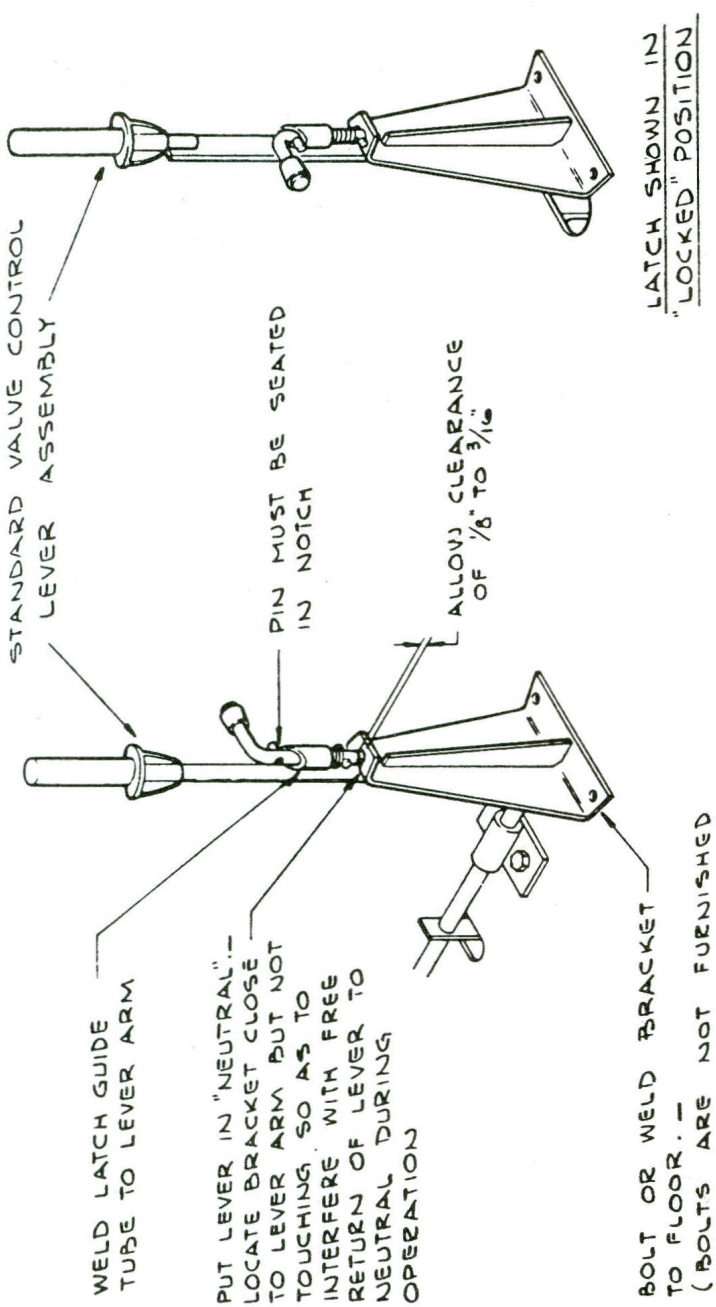
ORDER BY PART NUMBER - NOT BY ITEM NUMBER.



LUBRICATION CHART

1)	Rear Hinges	1 fitting each hinge
2)	Lever Arm	2 fittings
3)	Link	2 fittings each link
4)	Cylinder - Upper End	1 fitting
5)	Cylinder - Lower End	1 fitting
6)	U-Joint - PTO	1 fitting
7)	U-Joint at Pump -(Slip)	3 fittings
▲	Control Linkage Oiling Points	6 locations

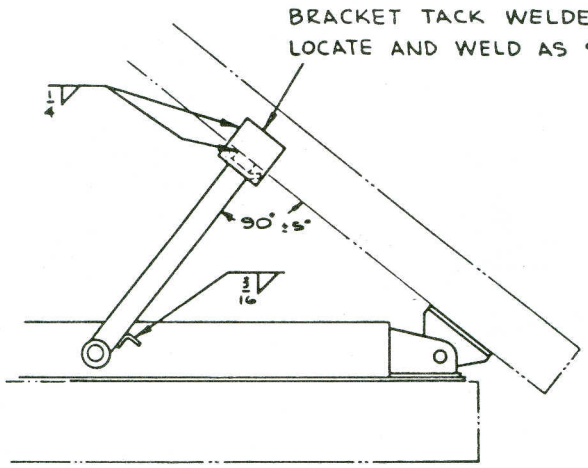
* Use grease recommended by chassis manufacturer.



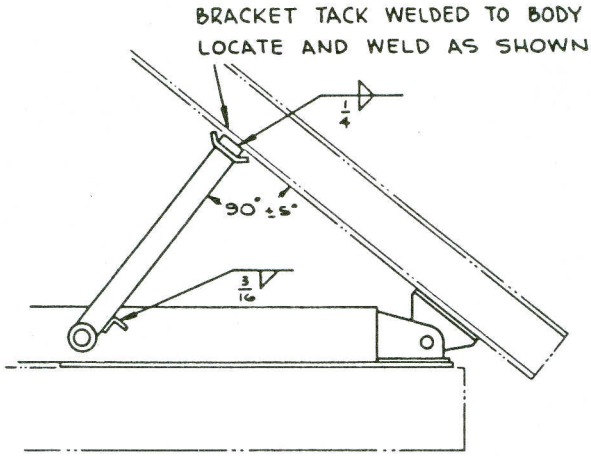
PARTS LIST

A53A1379 Latch Assembly Consits of:	
1- 19A1243 ----	Spring
1- 48A3900 ----	Lock Pin
2- 48A3282-53--	Pin
1- 64A2635 ----	Guide
1- 70A1158 ----	Handle Grip
1- A111B8339 --	Bracket

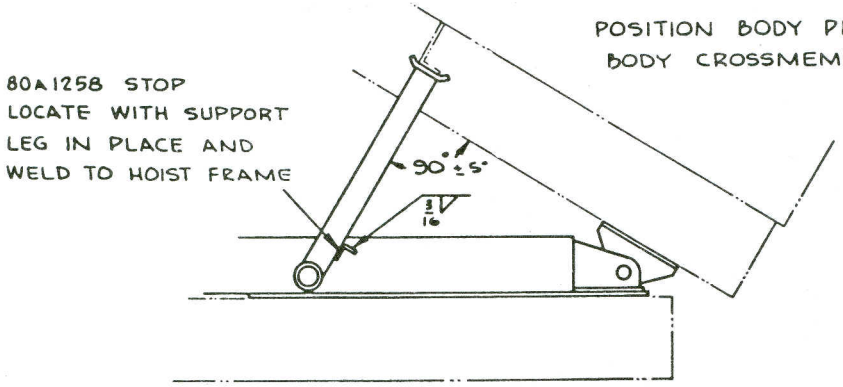
INSTALLATION INSTRUCTIONS - VALVE CONTROL SAFETY LOCK -- KIT NO. K252-8643



FOR LH BODY



FOR HH BODY



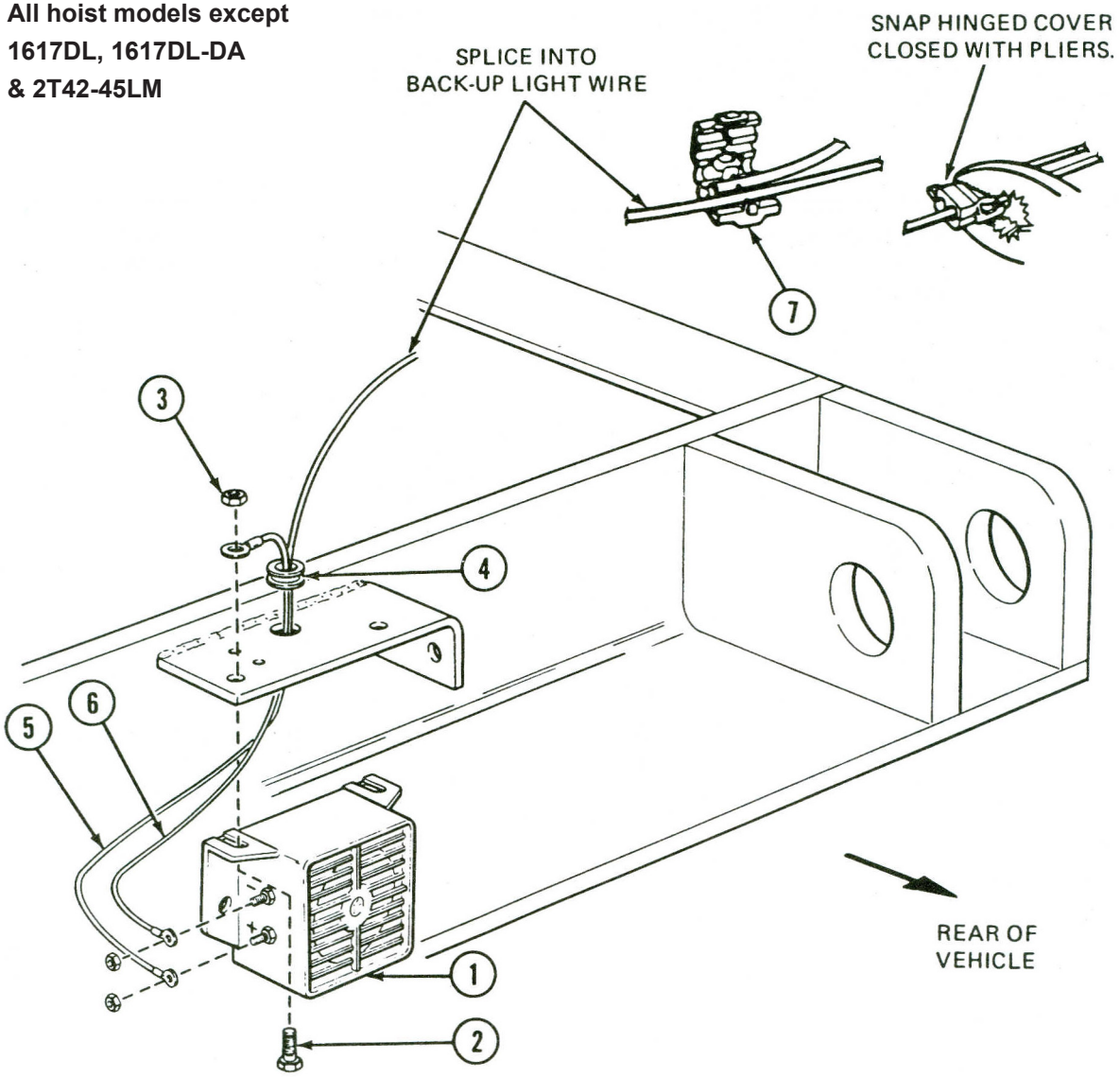
FOR SL BODY

BODY PROP INSTALLATION

BACK-UP ALARM INSTALLATION

Mount back-up alarm as shown below using existing holes in bracket on rear hinge frame.

All hoist models except 1617DL, 1617DL-DA & 2T42-45LM



ITEM	PART NO.	DESCRIPTION	QTY.
1.	108-3991	BACK-UP ALARM	(1)
2.		CAPSCREW 1/4”-20 NC x 3/4”	(2)
3.		LOCK NUT 1/4"-20 NC	(2)
4.	272-2362	GROMMET	(1)
5.		WIRE-RED (36" LG.)	(1)
6.		WIRE-BLACK (6" LG.)	(1)
7.		WIRE CONNECTOR	(1)

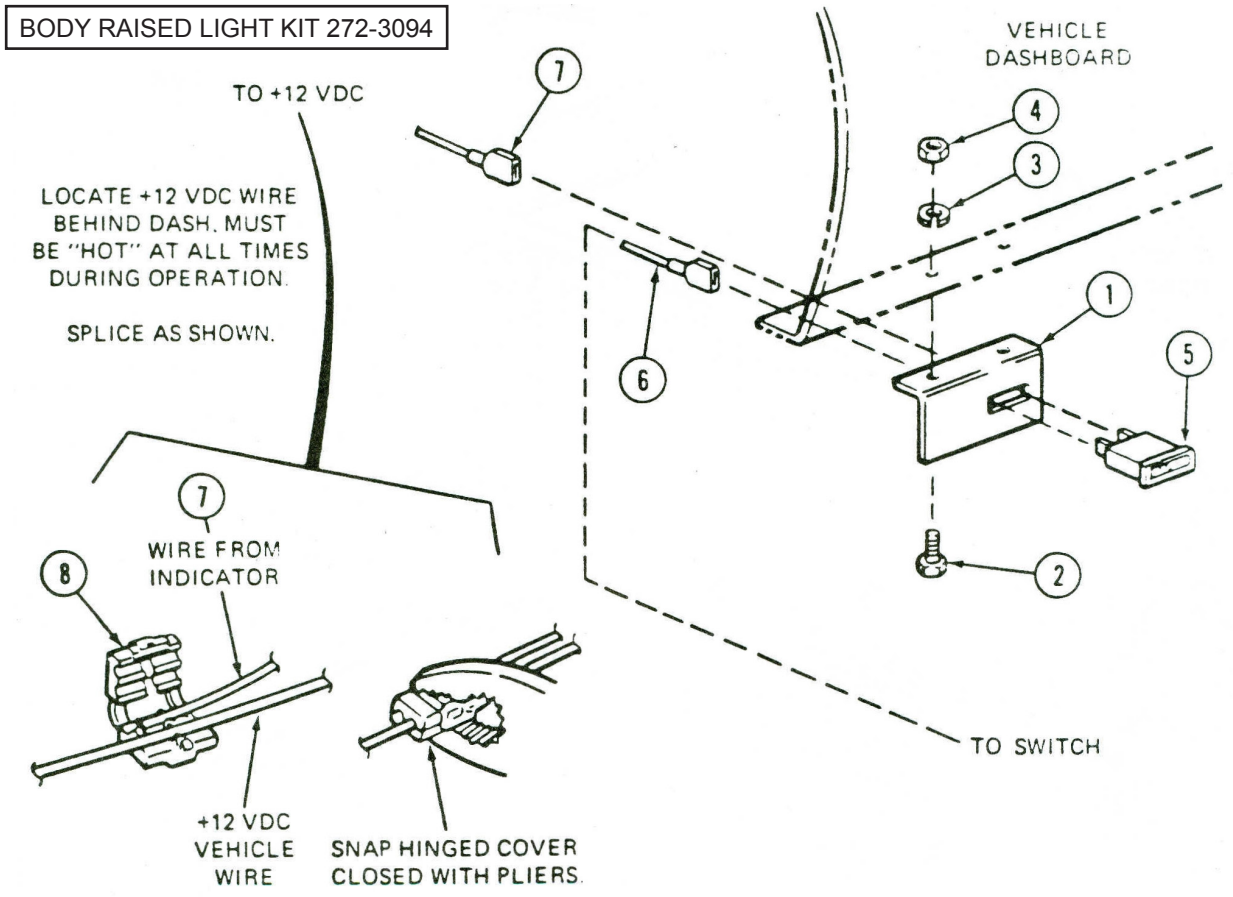
Figure 4. Back—up Alarm

TED 73993-682

BODY RAISED INDICATOR KIT

Position body raised switch on the left side on the front of the hoist frame or to the chassis frame. If attached to the hoist frame, the bracket may be welded or bolted in place. If mounted to the chassis frame, use the bracket as a template and drill two holes for 3/8” bolts. See Figure 6

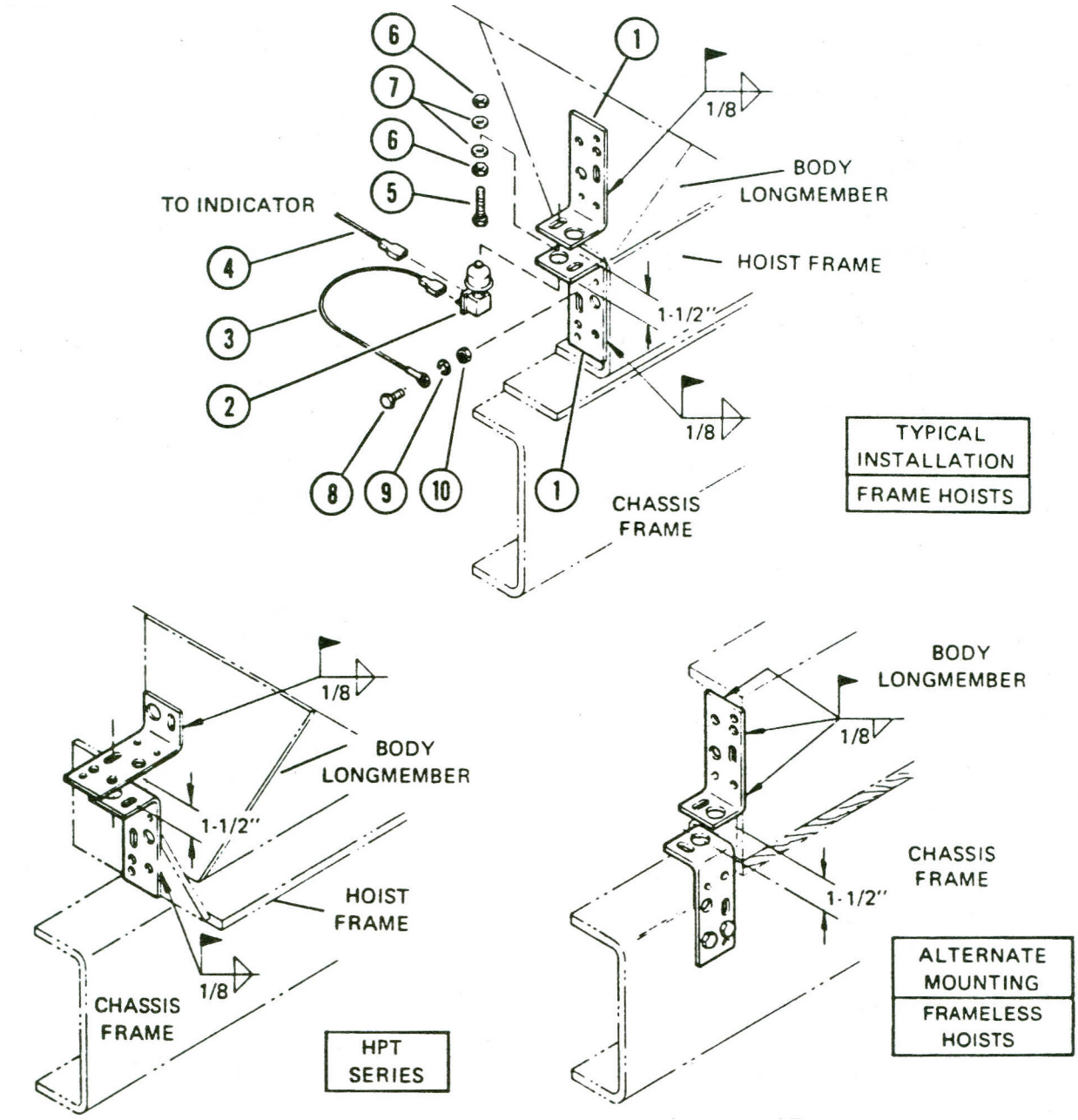
Adjust the activating screw so that switch button is depressed about 3/16” and test for proper operation.



ITEM	PART NO.	DESCRIPTION	QTY.
1.	211-2191	BRACKET	(1)
2.	FS-079-415	HEX HD CAPSCREW 10-24 x 3/4”	(2)
3.	FS-550-400	LOCKWASHER NO. 10	(2)
4.	FS-280-400	HEX NUT 10-24	(2)
5.	115-784	INDICATOR	(1)
* 6.	263-66-144	WIRE	(1)
7.	263-64-60	WIRE	(1)
8.	108-1180	CONNECTOR	(1)

*Also shown in Figure 24

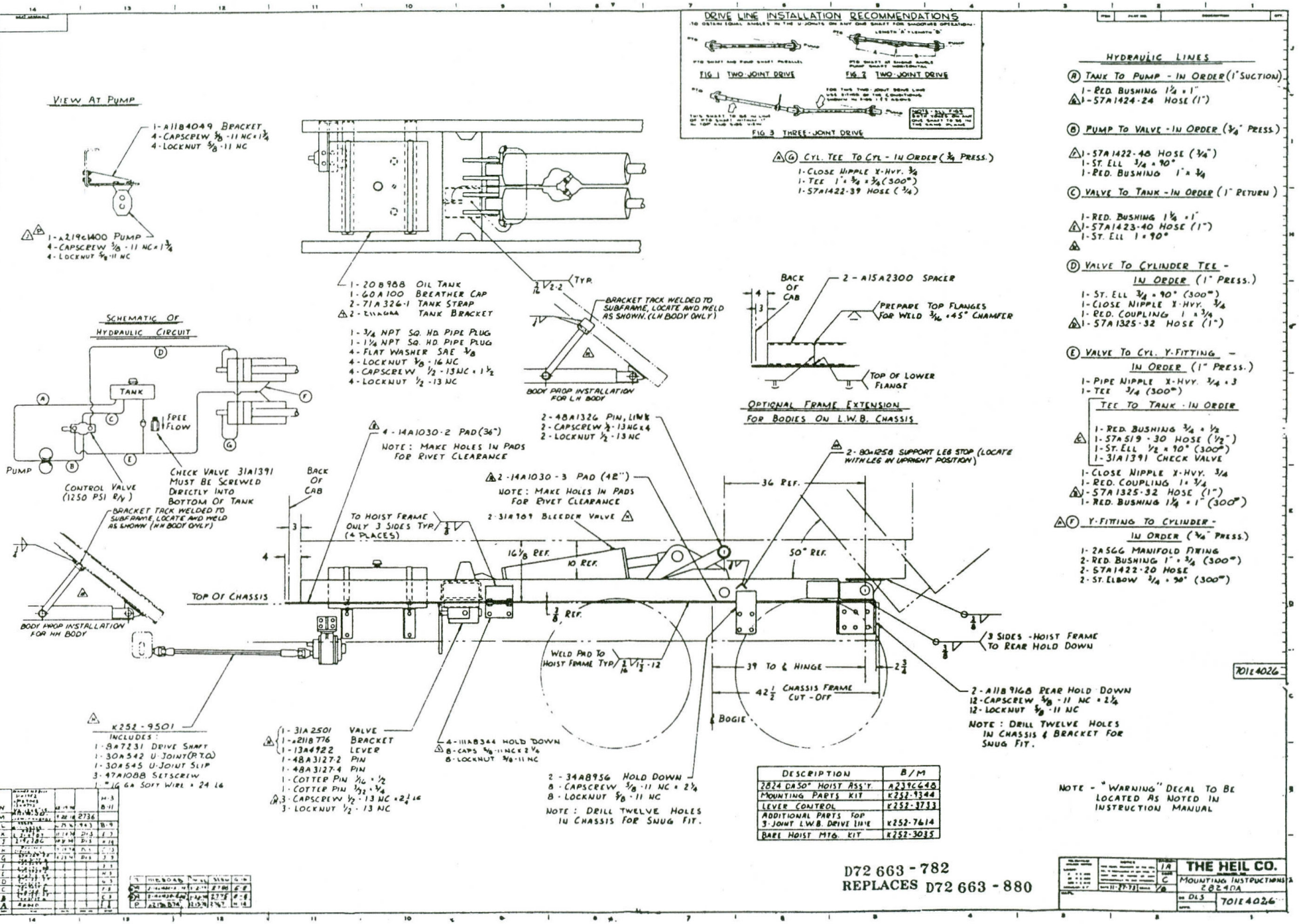
Figure 5. Body Raised Switch



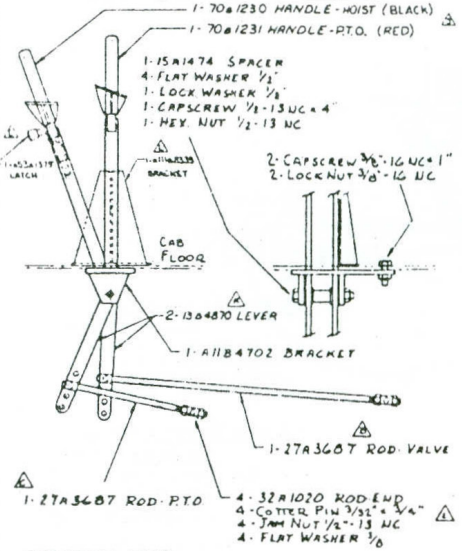
ITEM	PART NO.	DESCRIPTION	QTY.
1.	211-3184	BRACKET	(2)
2.	254-3481	SWITCH	(1)
3.	363-67-6	WIRE	(1)
4.	263-66-144	WIRE	(1)
5.	FS-070-722	HEX HD CAPSCREW 1/4”-20 NC x 1.1/4” NC	(1)
6.	FS-280-700	HEX NUT 1/4"-20 NC	(2)
7.	FS-510-700	FLAT WASHER 1/4"	(2)
8.	FS-079-415	HEX HD CAPSCREW 10-24NC x 3/4”	(1)
9.	FS-550-400	LOCKWASHER NO. 10	(1)
10.	FS-280-400	HEX NUT 10-24NC	(1)

Figure 6. Body Raised Indicator

NOTES

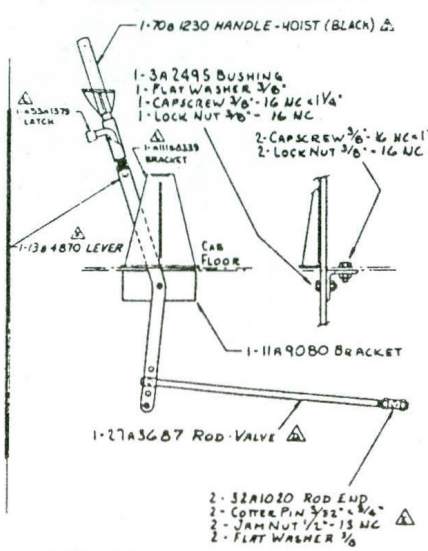

DRIVE LINE INSTALLATION RECOMMENDATIONS
FIG 1 TWO-JOINT DRIVE
FIG 2 TWO-JOINT DRIVE
FIG 3 THREE-JOINT DRIVE
VIEW AT PUMP
1 - A1184049 BRACKET
4 - CAPSCREW 5/8 - 11 NC x 1 3/4
4 - LOCKNUT 5/8 - 11 NC
1 - A219C1400 PUMP
4 - CAPSCREW 5/8 - 11 NC x 1 3/4
4 - LOCKNUT 5/8 - 11 NC
1 - 20B988 OIL TANK
1 - 60A100 BREATHER CAP
2 - 71A326-1 TANK STRAP
2 - TANK BRACKET
1 - 3/4 NPT SQ. HD PIPE PLUG
1 - 1 1/4 NPT SQ. HD PIPE PLUG
4 - FLAT WASHER SAE 3/8
4 - LOCKNUT 3/8 - 16 NC
4 - CAPSCREW 1/2 - 13 NC x 1 1/2
4 - LOCKNUT 1/2 - 13 NC
TYP.
BRACKET TACK WELDED TO SUBFRAME, LOCATE AND WELD AS SHOWN. (LH BODY ONLY)
BODY PROP INSTALLATION FOR LH BODY
SCHEMATIC OF HYDRAULIC CIRCUIT
TANK
FREE FLOW
PUMP
CONTROL VALVE (1250 PSI R/V)
CHECK VALVE 31A1391 MUST BE SCREWED DIRECTLY INTO BOTTOM OF TANK
BRACKET TACK WELDED TO SUBFRAME, LOCATE AND WELD AS SHOWN (RH BODY ONLY)
BODY PROP INSTALLATION FOR RH BODY
BACK OF CAB
TOP OF CHASSIS
TO HOIST FRAME ONLY 3 SIDES TYP. (4 PLACES)
4 - 14A1030-2 PAD (36")
NOTE: MAKE HOLES IN PADS FOR RIVET CLEARANCE
2 - 14A1030-3 PAD (42")
NOTE: MAKE HOLES IN PADS FOR RIVET CLEARANCE
2 - 31A769 BLEEDER VALVE
2 - 48A1326 PIN, LINK
2 - CAPSCREW 1/2 - 13 NC x 4
2 - LOCKNUT 1/2 - 13 NC
2 - 80A1258 SUPPORT LEG STOP (LOCATE WITH LEG IN UPRIGHT POSITION)
36 REF.
16 1/8 REF.
10 REF.
50" REF.
3/8 REF.
WELD PAD TO HOIST FRAME TYP.
39 TO ℄ HINGE
42 1/2 CHASSIS FRAME CUT-OFF
℄ BOGIE
2 3/4
3 SIDES - HOIST FRAME TO REAR HOLD DOWN
2 - A118 9168 REAR HOLD DOWN
12 - CAPSCREW 5/8 - 11 NC x 2 1/4
12 - LOCKNUT 5/8 - 11 NC
NOTE: DRILL TWELVE HOLES IN CHASSIS & BRACKET FOR SNUG FIT.
K252-9501
INCLUDES:
1 - 8A7231 DRIVE SHAFT
1 - 30A542 U-JOINT (R.T.O.)
1 - 30A545 U-JOINT SLIP
3 - 47A1088 SETSCREW
1 - 16 GA SOFT WIRE x 24 LG
1 - 31A2501 VALVE
1 - A2118776 BRACKET
1 - 13A4922 LEVER
1 - 48A3127-2 PIN
1 - 48A3127-4 PIN
1 - COTTER PIN 1/16 x 1/2
1 - COTTER PIN 1/32 x 1/4
3 - CAPSCREW 1/2 - 13 NC x 2 1/4 LG
3 - LOCKNUT 1/2 - 13 NC
4 - 111A8344 HOLD DOWN
8 - CAPS 5/8 - 11 NC x 2 1/4
8 - LOCKNUT 5/8 - 11 NC
2 - 34A8956 HOLD DOWN
8 - CAPSCREW 5/8 - 11 NC x 2 1/4
8 - LOCKNUT 5/8 - 11 NC
NOTE: DRILL TWELVE HOLES IN CHASSIS FOR SNUG FIT.
OPTIONAL FRAME EXTENSION FOR BODIES ON L.W.B. CHASSIS
BACK OF CAB
2 - A15A2300 SPACER
PREPARE TOP FLANGES FOR WELD 3/16 x 45° CHAMFER
TOP OF LOWER FLANGE
HYDRAULIC LINES
(A) TANK TO PUMP - IN ORDER (1" SUCTION)
1 - RED. BUSHING 1 1/4 x 1"
1 - 57A1424-24 HOSE (1")
(B) PUMP TO VALVE - IN ORDER (3/4" PRESS.)
1 - 57A1422-48 HOSE (3/4")
1 - ST. ELL 3/4 x 90°
1 - RED. BUSHING 1" x 3/4
(C) VALVE TO TANK - IN ORDER (1" RETURN)
1 - RED. BUSHING 1 1/4 x 1"
1 - 57A1423-40 HOSE (1")
1 - ST. ELL 1 x 90°
(D) VALVE TO CYLINDER TEE - IN ORDER (1" PRESS.)
1 - ST. ELL 3/4 x 90° (300#)
1 - CLOSE NIPPLE X-HVY. 3/4
1 - RED. COUPLING 1 x 3/4
1 - 57A1325-32 HOSE (1")
(E) VALVE TO CYL. Y-FITTING - IN ORDER (1" PRESS.)
1 - PIPE NIPPLE X-HVY. 3/4 x 3
1 - TEE 3/4 (300#)
TEE TO TANK - IN ORDER
1 - RED. BUSHING 3/4 x 1/2
1 - 57A519-30 HOSE (1/2")
1 - ST. ELL 1/2 x 90° (300#)
1 - 31A1391 CHECK VALVE
1 - CLOSE NIPPLE X-HVY. 3/4
1 - RED. COUPLING 1 x 3/4
1 - 57A1325-32 HOSE (1")
1 - RED. BUSHING 1 1/4 x 1" (300#)
(F) Y-FITTING TO CYLINDER - IN ORDER (3/4" PRESS.)
1 - 2A566 MANIFOLD FITTING
2 - RED. BUSHING 1" x 3/4 (300#)
2 - 57A1422-20 HOSE
2 - ST. ELBOW 3/4 x 90° (300#)
(G) CYL. TEE TO CYL. - IN ORDER (3/4" PRESS.)
1 - CLOSE NIPPLE X-HVY. 3/4
1 - TEE 1" x 3/4 x 3/4 (300#)
1 - 57A1422-39 HOSE (3/4")
DESCRIPTION | B/M
2824 DA50" HOIST ASS'Y. | A237C648
MOUNTING PARTS KIT | K252-9344
LEVER CONTROL | K252-3733
ADDITIONAL PARTS FOR 3-JOINT LWB. DRIVE LINE | K252-7614
BARE HOIST MTG. KIT | K252-3035
NOTE - "WARNING" DECAL TO BE LOCATED AS NOTED IN INSTRUCTION MANUAL
701E4026
D72 663 - 782
REPLACES D72 663 - 880
THE HEIL CO.
MOUNTING INSTRUCTIONS
28240A
DLS
701E4026

K252-9407 TWO LEVER CONTROL



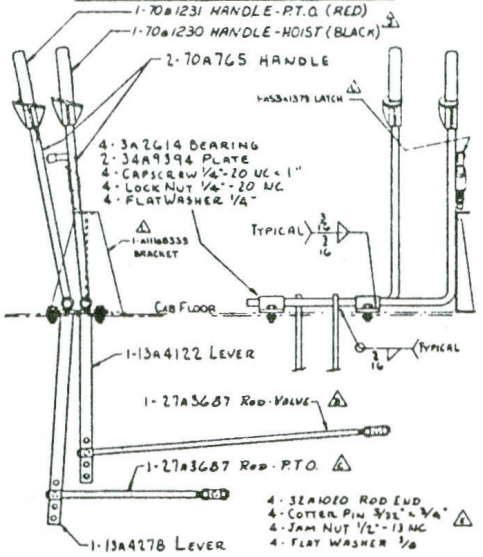
SEE DECAL NOTE

K254-710 SINGLE LEVER CONTROL



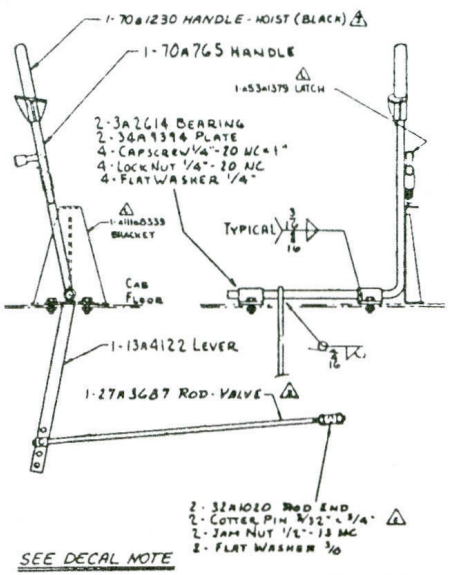
SEE DECAL NOTE

K252-3733 TWO LEVER CONTROL



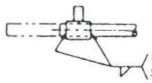
SEE DECAL NOTE

K254-1118 SINGLE LEVER CONTROL



SEE DECAL NOTE

MOVE ROD END TO DESIRED LOCATION AND WELD TO CONTROL ROD. CUT-OFF EXCESS ROD.

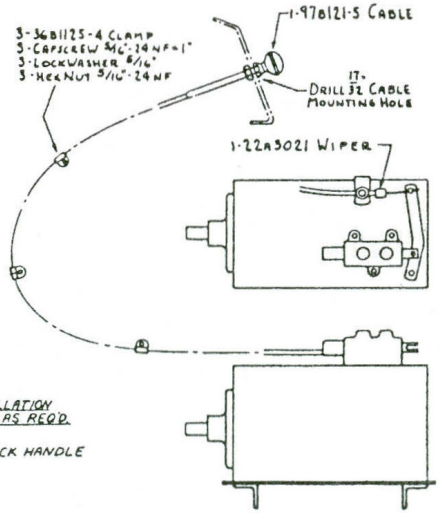


TO LENGTHEN CONTROL ROD, WELD ADDITIONAL 1/2 DIA. ROD AS SHOWN BELOW.

K252-6992 CABLE CONTROL

(TO VALVE ON PVT UNIT)

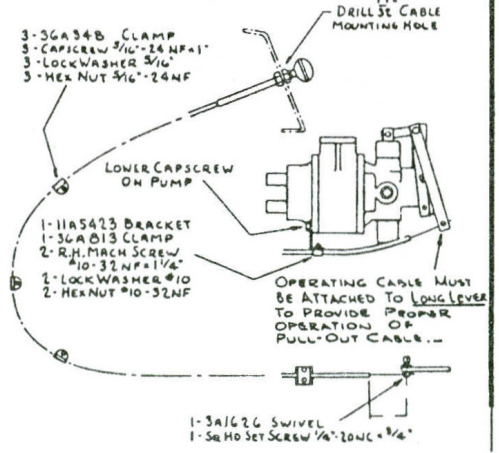
FOR: HP1618F AND HP1618FDA HOISTS



K252-9424

CABLE CONTROL TO VALVE ON HEIL STANDARD PUMP

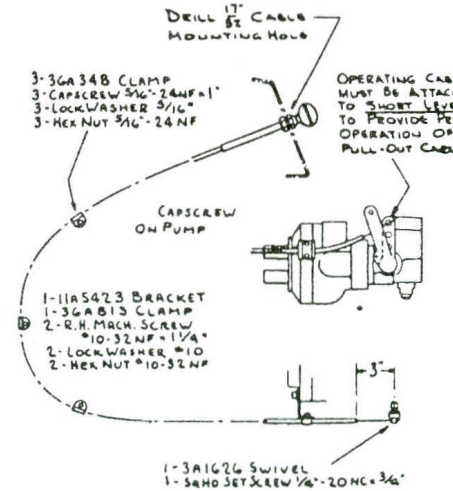
FOR: 1617DL, 1618F, 1715, 1715PL, 1715F, 1721, 1721PL, 1821, 1824HD, 2724, 2824, 2824DA50, 2824DA50HD, 2T42-46, 2T52-56, 2T53-80, 2T53-92, UT53-105, UT53-105-40 HOISTS



K252-9424

CABLE CONTROL TO VALVE ON

FOR: 2TM 68-88, 2TM 53-102, 2TM 84-116 HOISTS



K		2338		
J	13B4870-1	2705		
H		2706		
G				
F				
E		1114		
D				
C				
B				
A				

DECAL NOTE:

FOR EACH LEVER CONTROL INSTALLATION USE PROPER DECAL FROM 212A1164 AS REQ'D.

"UP-DOWN-HOLD" / "DOWN-UP-HOLD" } VALVE CONTROL BLACK HANDLE

"IN-OUT" / "OUT-IN" } PTO CONTROL RED HANDLE

R71497-978

~~Replaces R71497-277~~

1	5-28-71	C	THE HEIL CO.
	1/4" = 1"		INSTALLATION INSTRUCTIONS STANDARD CONTROLS
			701E5029