

PARTS BOOK AND INSTRUCTION MANUAL

HYSTER®

D7F TOWING WINCH

D7F POWER CONTROLLED TOWING WINCH

HYSTER COMPANY

TRACTOR EQUIPMENT DIVISION

Portland, Oregon ■ Danville, Illinois ■ Peoria, Illinois
Nijmegen, The Netherlands ■ Soa Paula, Brazil ■ Irvine, Scotland
Kewanee, Illinois ■ Sydney, Australia

FORM 599196

Litho in U.S.A.

599196W

FOR PARTS AND SERVICE CONTACT

Date Purchased _____

Model Number _____

Serial Number _____

LIST OTHER SPECIAL EQUIPMENT

HOW TO USE YOUR PARTS BOOK

This parts book contains a complete listing of all parts used since the first model. When ordering parts give the model number, serial number, catalog form number, quantity and name of part.

To find any part needed for replacement, start with the index shown on the right. Determine which section contains the part desired. By bending the book back slightly to the right, the heavy arrows on the right hand side of the index page will line up with a black tab on the edge of the index page of the section desired. Proceed then to locate the part in this section.

Service, Operating, and Lubrication Instructions will be found in Section "A."

Quantities shown are quantities per assembly unless otherwise stated.

Assembly number at the top of a page contain all of the parts listed on that page; exceptions are noted.

Be sure to read all foot notes at the bottom of any page from which parts are being ordered. Foot notes are indicated by an asterisk or other symbol preceding a part number.

For any further information on parts, service, or ordering, consult your local Hyster dealer.

*We reserve the right to make changes in design or add improvements
without incurring the obligation to make such changes in
Winches previously manufactured.*

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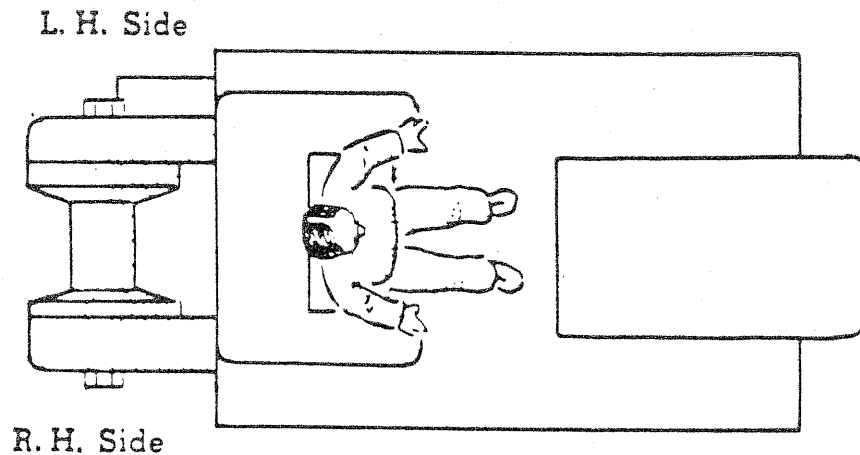


SECTION Q

Numerical Index



Parts Referred to in This Book as Right or Left Hand Parts
Are in Accordance with the Sketch Below



CAUTION!

**Never Attempt to Clean, Oil or Adjust a Machine
While it is in Motion**

Strict Observance of this Rule will Prevent Accidents

NOTE: All Studs and Capscrews used in this Winch
are Heat-treated.

Section A

SERVICE, OPERATION, AND INSTALLATION INSTRUCTIONS

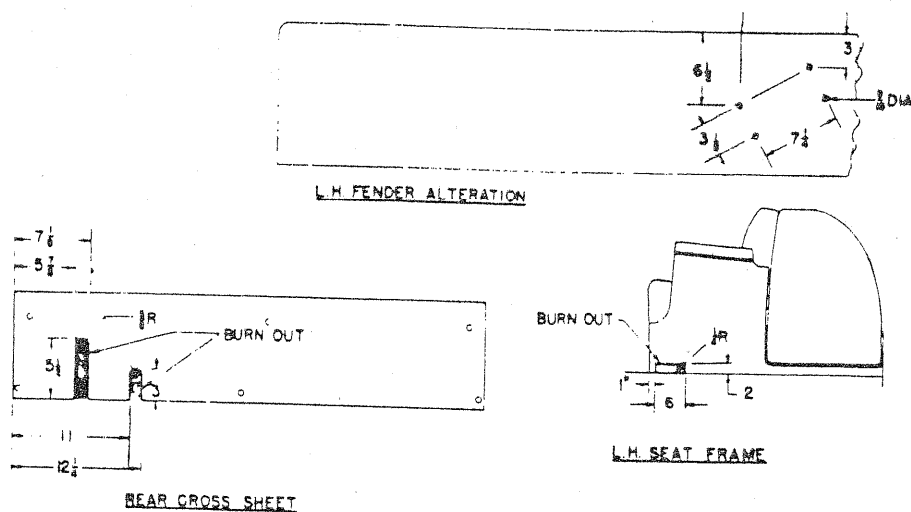
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INSTALLATION INSTRUCTIONS

TRACTOR ALTERATIONS — TRACTORS SERIES 47A & 48A

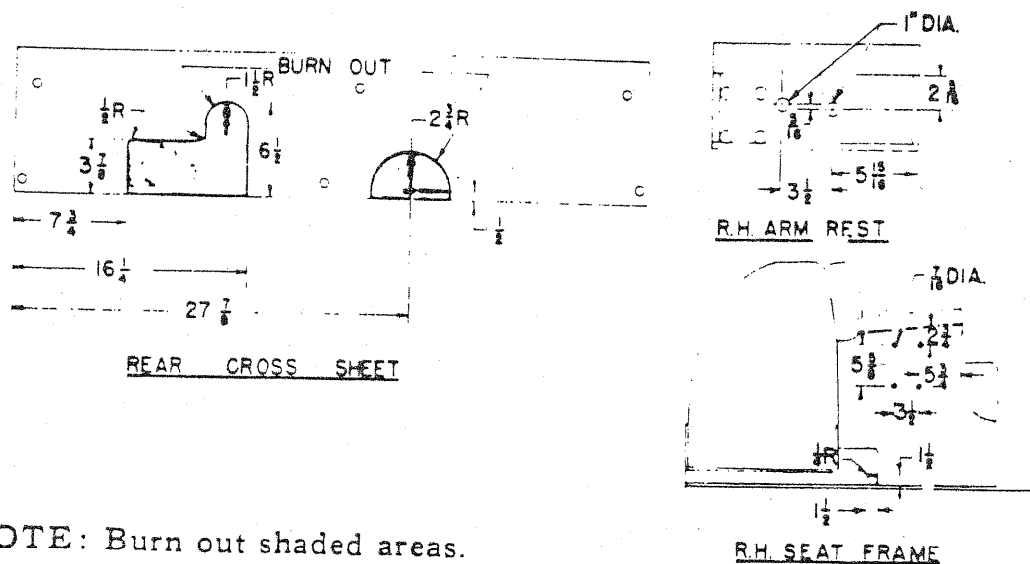
For Direct Drive Winch (Mounts on 47A only)



NOTE: Burn out shaded areas.

1. Remove rear cross sheet and alter as shown.
2. Burn out area shown on seat L.H. side sheet.
3. Drill four 9/16 dia. holes in L.H. fender as shown.

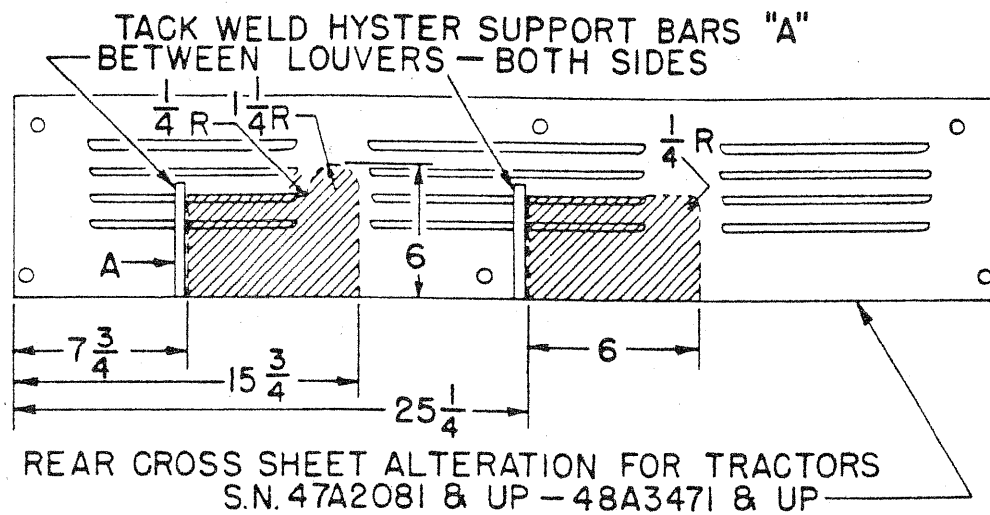
For Power Controlled Winch



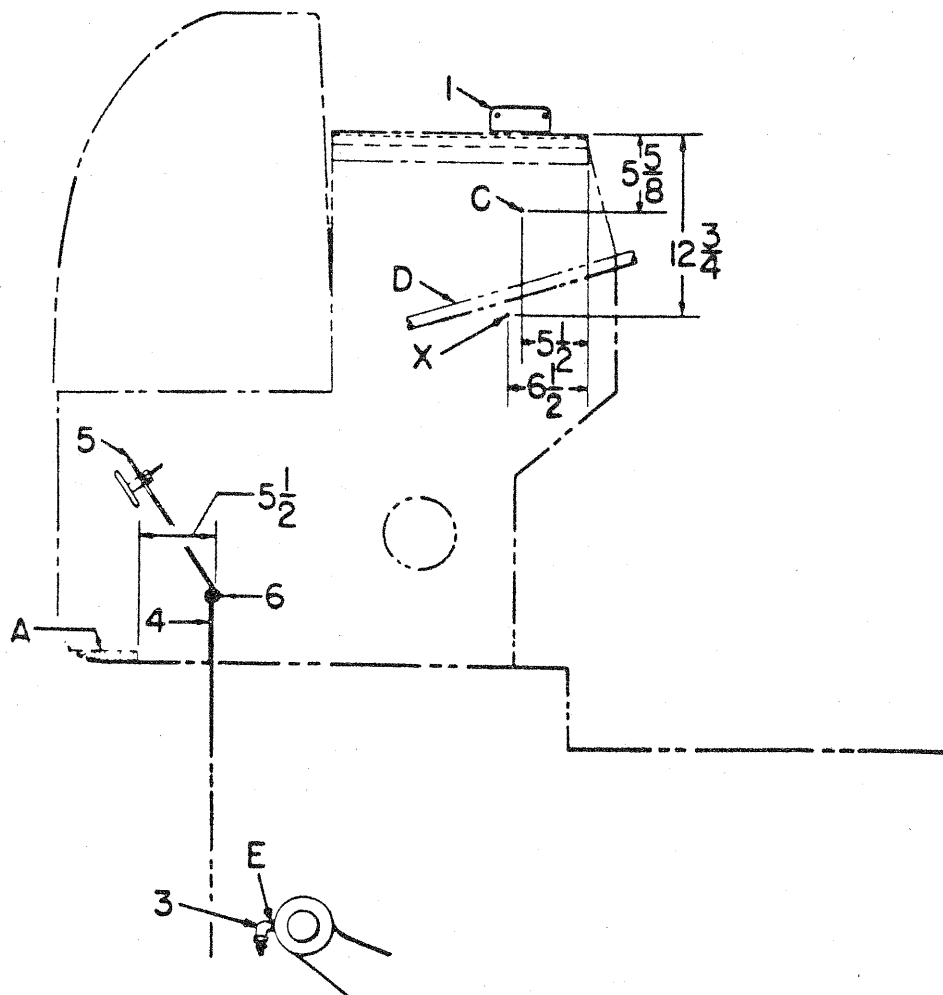
NOTE: Burn out shaded areas.

1. Remove rear cross sheet and alter as shown.
2. Alter seat R.H. side sheet as shown.
3. Remove and alter R.H. side cushion assembly as shown.

INSTALLATION INSTRUCTIONS — Continued



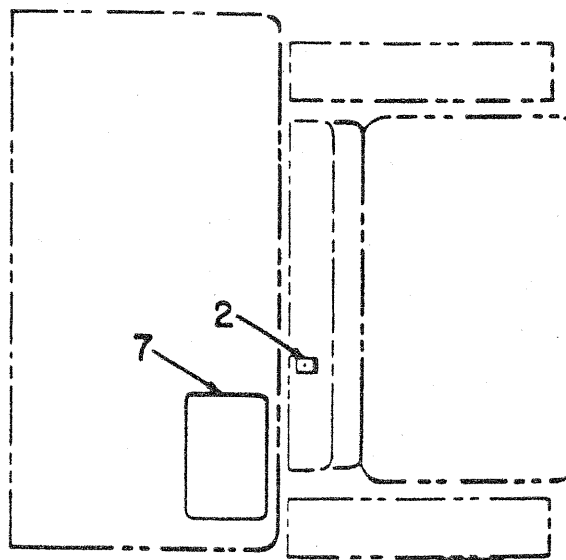
977 Traxcavator Alterations — Serial No. 53A1 and up



INSTALLATION INSTRUCTIONS — Continued

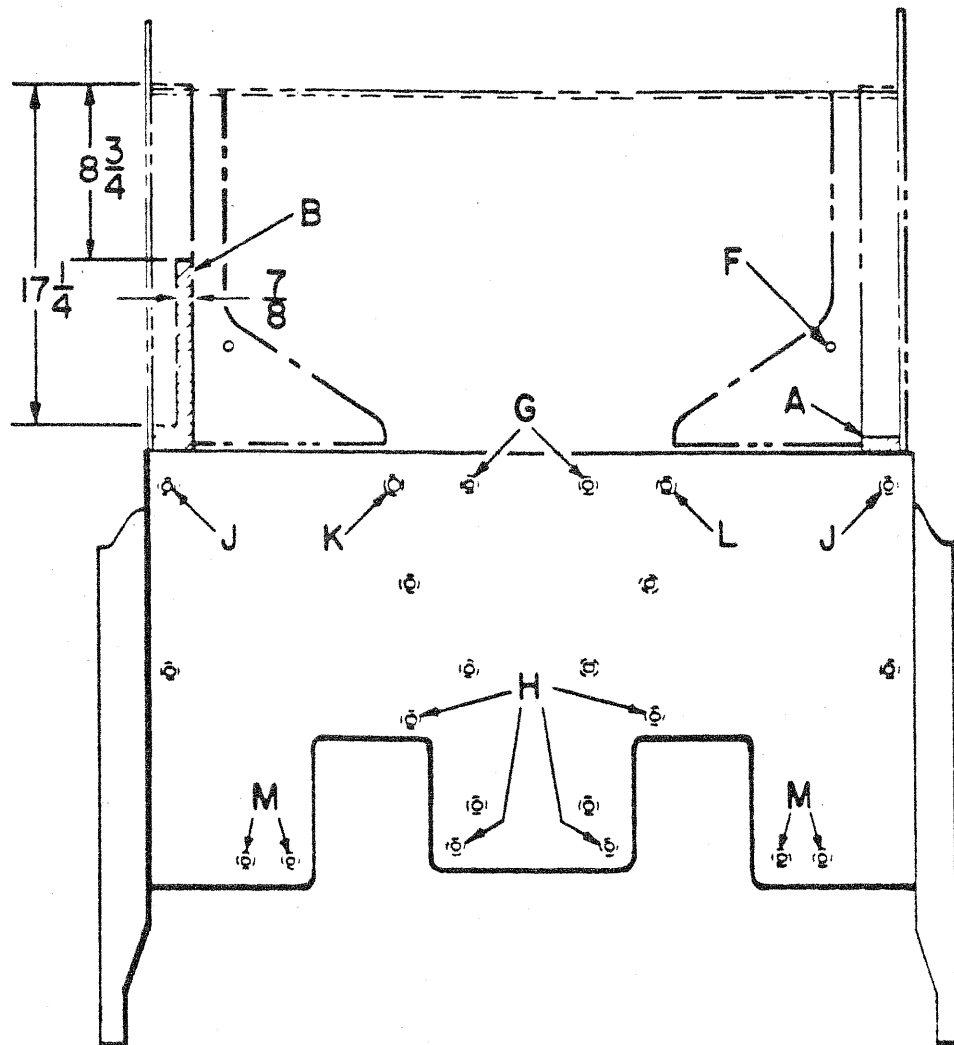
977 Traxcavator Alterations — Serial No. 53A1 and up

1. Remove tool box and cover beneath fuel tank.
2. Burn out shaded areas "A" and "B" of L.H. and R.H. side sheet.
3. Drill one 7/16 diameter hole "C" (for mounting hand lever bracket) in R.H. side seat support and one 5/16 diameter hole "X" for push-pull cable support.
4. Attach Hyster mounting plate (1) to handlever bracket and attach handlever bracket to Traxcavator seat support.
5. Tack weld plate (1) to arm rest channel.
6. Remove handlever bracket and complete welding plate (1) with 1/8" fillet weld all around.
7. Install Hyster bracket (2) for brake return spring in place of similar "Caterpillar" bracket.
8. Rotate "Caterpillar" hoist lever link "D" 180° to provide clearance for routing push-pull cables.
9. Remove Traxcavator fittings from R.H. and L.H. sides at "E," install Hyster street ells (3) and install fittings removed from "E" in street ells (3).
10. Install Hyster rear plate (4) and rear plate assembly (5). Use existing Traxcavator holes "F" and two Hyster capscrews (6) (3/8 UNF x 1 1/4) with nuts and lockwashers.
11. Install Hyster decal (7) in most convenient location on top of fuel tank, near R.H. side of Traxcavator seat.



INSTALLATION INSTRUCTIONS — Continued

977 Traxcavator Alterations — Serial No. 53A1 and up



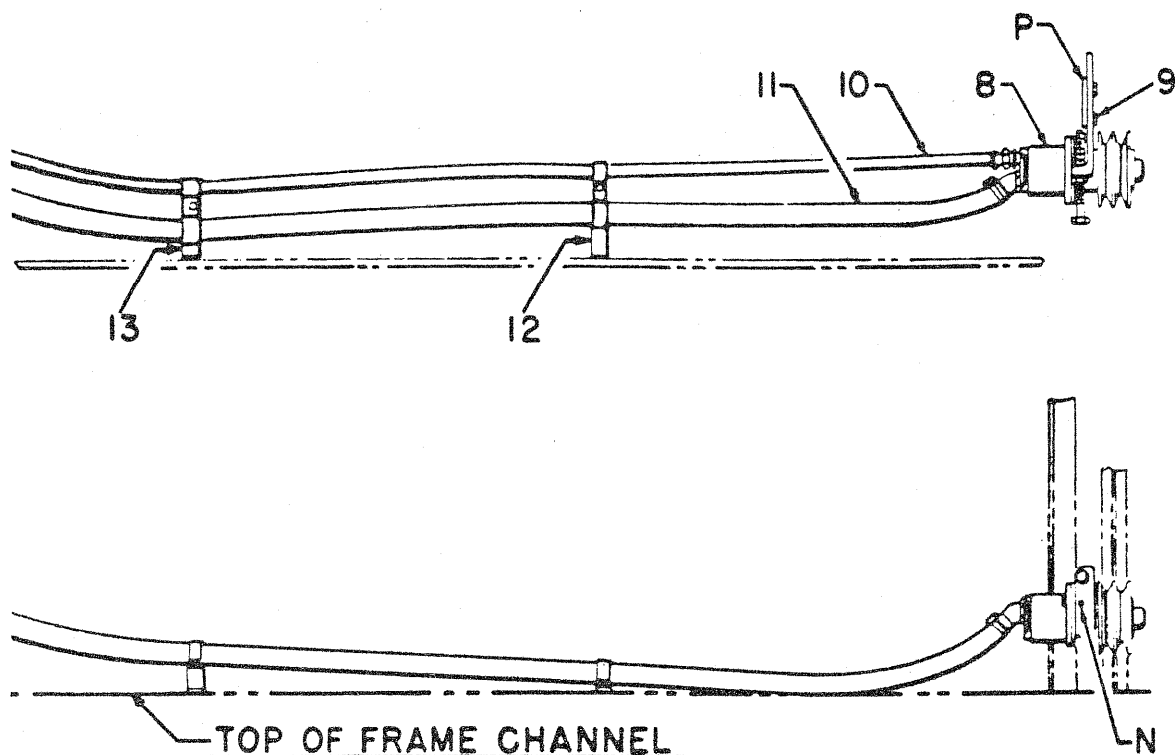
1. Remove P.T.O. cover and plug six holes "G" with corks.
2. Remove drawbar and studs and plug four holes "H" with corks.
3. Remove cork plugs from stud holes at "J," "K," "L" and "M." Clean holes of all foreign matter.
4. Install six Hyster studs (1" x 4) at "J" and "M."
5. Install two Hyster studs (1 1/4 x 4 3/4) at "K" and "L."
6. Install Hyster adapter assembly over studs and install nuts and lock-washers. Torque nuts to 500 ft. lbs. lubed.

Winch Installation

Install winch as directed for Power Controlled Winch.
Torque nuts holding winch to adapter to 500 ft. lbs. lubed.

INSTALLATION INSTRUCTIONS — Continued

Pump Installation for 977 Traxcavators



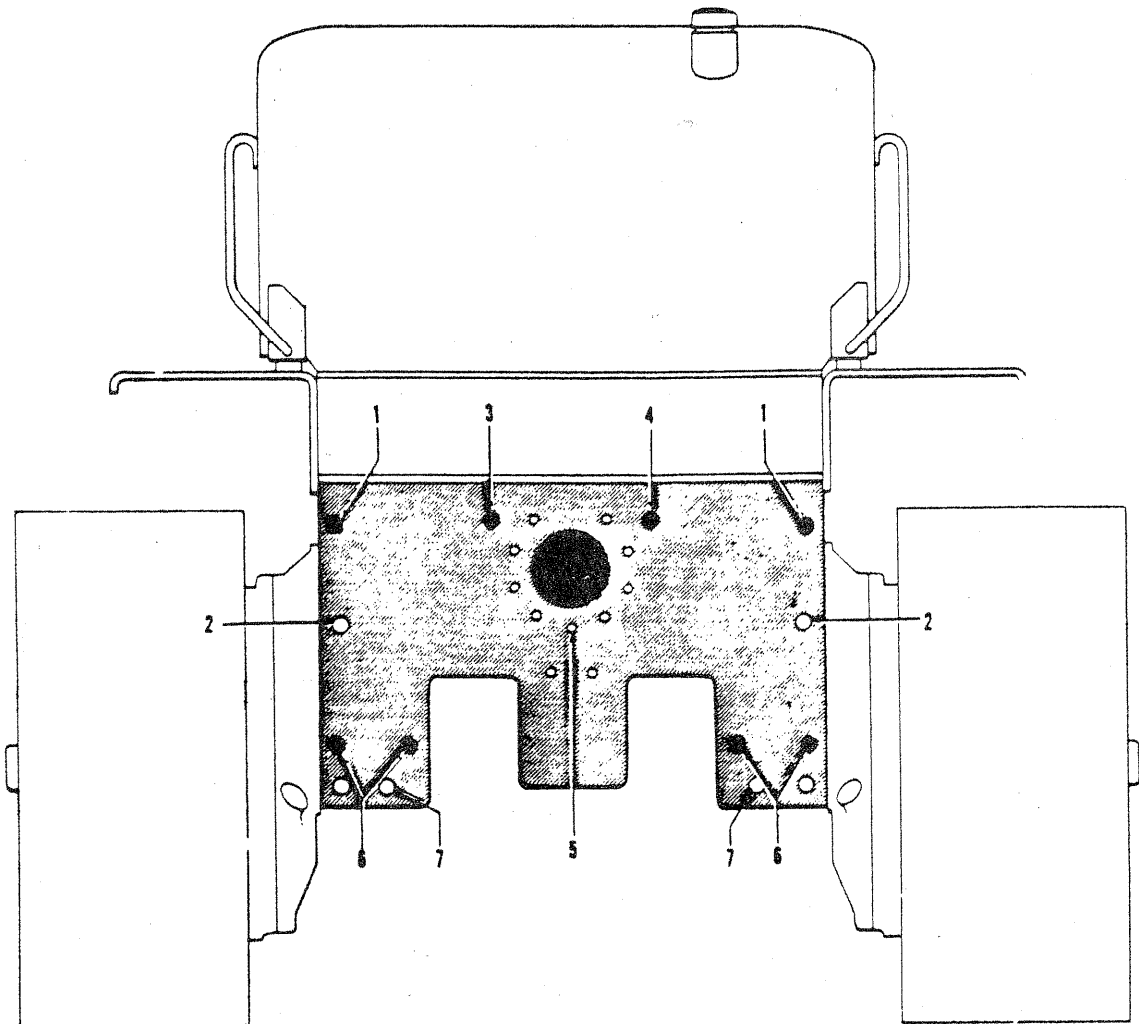
1. Remove $\frac{1}{8}$ pipe plug "N" from pump assembly and check oil level. Add winch transmission oil if required.
2. Remove "Caterpillar" belt tightener group and install Hyster pump assembly (8) to Traxcavator timing gear cover.
3. For 977 Traxcavators Serial No. 53A-2272 and up, and previous series with spring-loaded belt tightener, use three Hyster capscrews (9) ($\frac{1}{2}$ UNC x $1\frac{1}{2}$) with plain washers and lockwashers. For 977 Traxcavators with screw-type belt tightener, use plain washers, lockwashers and "Caterpillar" nuts.
4. If necessary, add shims "P" behind pump mounting bracket to obtain proper V-belt alignment.
5. Tighten belts with adjusting screw.
6. Install hoses (10 and 11) and install hose supports (12 and 13). Use holes in Traxcavator frame and "Caterpillar" capscrews.
7. Connect push-pull cables to the handlever bracket.

Tractor Alterations for Tractors Series 47A and 48A

1. Remove Tractor diagonal brace bearing lube fittings from R.H. and L.H. side.
2. Install Hyster elbow body 13987 in each location and install original fitting in Hyster elbow body.
(See Page A1.1 at "E" for illustration)

INSTALLATION INSTRUCTIONS — Continued

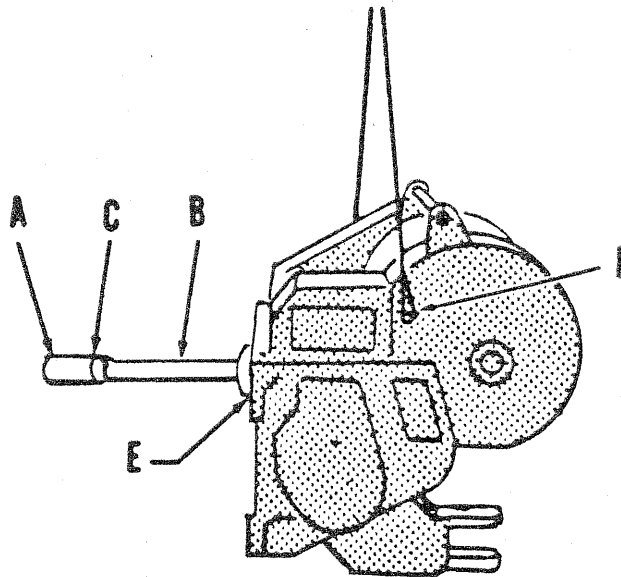
TRACTOR PREPARATION



1. Remove bevel gear compartment P.T.O. cover and plug nine holes at (5) with corks furnished.
2. Smooth out the beveled edge of the P.T.O. bore. Remove all burrs and nicks.
3. Smooth out machining marks on the surface of the bore. Use a round back and emery.
4. Remove drawbar, drawbar brackets and drawbar studs at (2) and (7).
5. Remove cork plugs from stud holes at (1), (3), (4) and (6).
6. Install six taperlock studs $1\frac{1}{4}'' \times 4\text{-}11\frac{1}{16}''$ at (6) and (1). One taperlock stud $1\frac{1}{4}'' \times 3\text{-}13\frac{1}{16}''$ (drilled) at (3) and one taperlock stud $1\frac{1}{4}'' \times 4\text{-}7\frac{1}{16}''$ at (4) and torque them to 170 plus-minus 20 Lb.-Ft. dry.
7. Check rear face of transmission case and remove any high spots, particularly near mounting studs where winch pads are to make contact.

INSTALLATION INSTRUCTIONS — Continued

WINCH INSTALLATION



Direct Drive

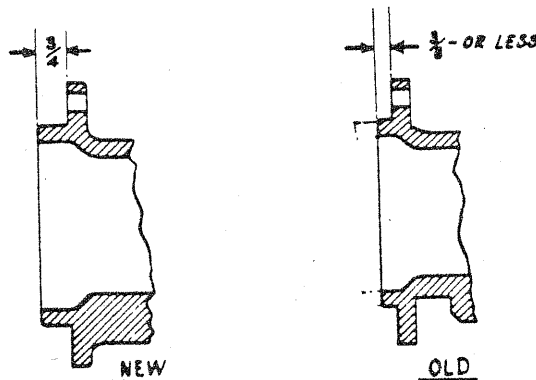
1. Be sure that coupling "A" is secured to shaft "B" at "C" with pin and lock ring.
2. Install P.T.O. shaft assembly (be sure bevel pinion is in place and snap ring is properly installed).
3. Apply a liberal coat of heavy type sealant to "O" ring seal and install on bearing carrier at "E."
4. Install $\frac{7}{8}$ " UNF x $2\frac{1}{2}$ " capscrews in side frames at "D" and attach sling as illustrated.
5. Remove winch transmission cover and remove plugs from winch mounting face.
6. Clean mounting surfaces and be sure that tractor P.T.O. cover bolt holes are plugged.
7. Move winch toward tractor and line up splines on tractor P.T.O. with splines on coupling "A." Route push pull cables as winch moves in.
8. When winch is in place, coat stud inside winch with PERMATEX, PLASTIC LEAD SEAL or comparable sealant and install nuts and lockwashers on the two upper mounting studs first. Install nuts and lockwashers on the remaining mounting studs and tighten all mounting nuts securely. Be sure to install cotter in stud inside winch.
9. Install handlever bracket, cross cables and connect to handlevers (brake cable goes to longer handlever).
10. Check and adjust clutch shifter and brake lining.
11. Replace winch transmission cover.
12. Recheck to see that all fastenings are tight.
13. Replace altered rear cross sheet.

INSTALLATION INSTRUCTIONS — Continued

POWER CONTROLLED WINCH

Hydraulic Pump Installation

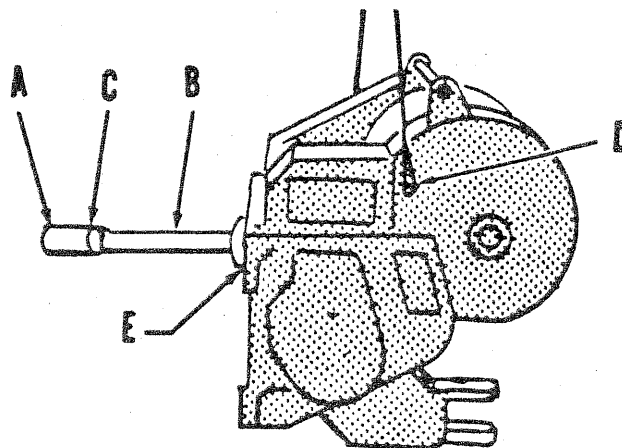
1. Remove floor plates on R.H. side of tractor.
2. Remove cover over auxiliary P.T.O. shaft and install Hyster pump bracket and pump using "CAT" capscrews for pump bracket.
NOTE: When installing Hyster pump bracket to tractor cover assembly, make sure the oil port in cover is blocked (see illustration showing old and new Hyster pump bracket). With old pump bracket ($\frac{3}{8}$ " dimension) be sure sleeve, Hyster No. 98656 ("CAT" No. 9M647) is installed. The new pump bracket ($\frac{3}{4}$ " dimension) does not require this sleeve.



3. Remove four "CAT" capscrews holding "CAT" oil filter and place Hyster filter bracket on top of "CAT" filter and bolt down with Hyster capscrews and lockwashers. Install Hyster in-line filter.
4. Connect short suction line to pump, route and connect it to the in-line filter.
5. Connect long suction line to filter and route to rear of tractor.
6. Connect discharge line to pump and route to rear of tractor.
7. After tractor hydraulic installation is complete, check for clearance between pump fitting and floor plate. If necessary, remove plate, heat and hammer until a suitable clearance is obtained.
8. Replace floor plates and seat side cushion assembly.

INSTALLATION INSTRUCTIONS — Continued

POWER CONTROLLED WINCH INSTALLATION



1. Remove winch transmission case cover.
2. Remove plastic plugs from stud hole, P.T.O. shaft hole, and holes for push-pull cables.
3. Assemble coupling "A," P.T.O. shaft "B," with pin and lock ring at "C."
4. Install P.T.O. shaft assembly "B." (Be sure bevel pinion is in place and snap ring is properly installed.)
5. Apply a liberal coat of heavy type sealant to "O" ring and install in groove in P.T.O. bearing carrier "E."
6. Install two $\frac{7}{8}$ " UNF x $2\frac{1}{2}$ " capscrews in holes "D" at each side of winch for lift lugs.
7. Clean mounting surfaces and be sure that tractor P.T.O. cover bolt holes are plugged.
8. Remove cover and loosen attached block on handling gear control box.
9. Route control cables from rear toward front of tractor.
10. Hoist winch and hold about a foot from tractor.
11. Remove large grommets from push-pull cables, route cables through attached block and winch openings and replace grommets. Install cable ends in valve spools with approximately 5 '16" of thread showing behind locknut. (Do not tighten block capscrews.) Make sure that setscrews in block are in cable grooves and are tight. Replace cover.

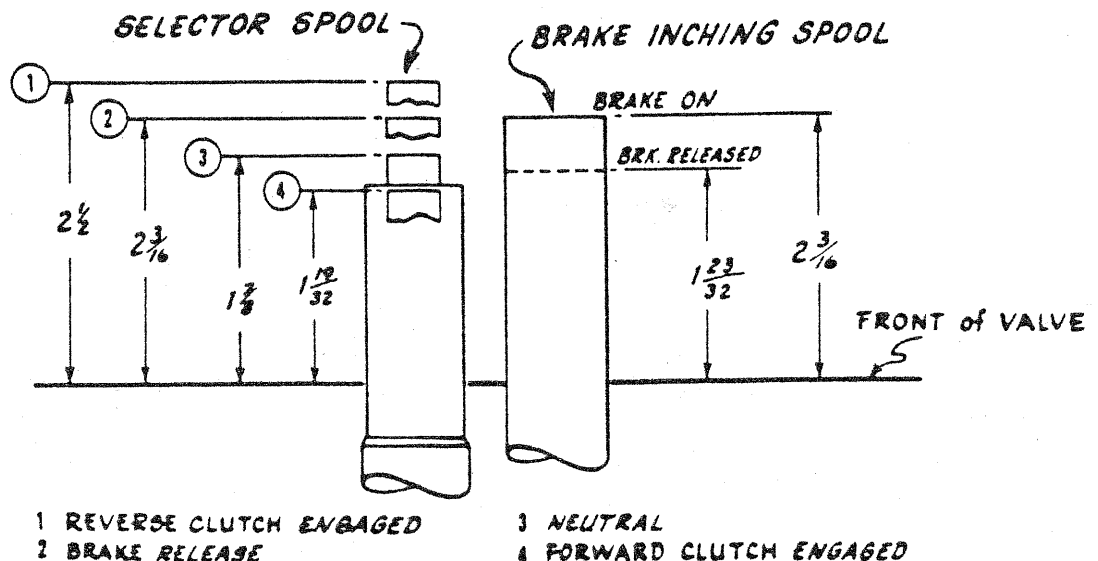
INSTALLATION INSTRUCTIONS — Continued

POWER CONTROLLED WINCH INSTALLATION

12. Move winch toward tractor and line up splines on tractor P.T.O. with splines on coupling "A."
13. When winch is in place, install nuts and lockwashers on the two upper mounting studs first. *NOTE:* Coat the stud that is inside the winch with PERMATEX, PLASTIC LEAD SEAL or comparable sealant. Install nuts and lockwashers on the remaining mounting studs and tighten all mounting nuts securely. Be sure cotter is installed in drilled stud inside winch.
14. Replace transmission case cover.
15. Remove plugs from suction and discharge fittings and connect the lines to their respective fittings in the winch.
16. Install handlevers and bracket. Cross push-pull cables and attach to handlevers. *NOTE:* Remove handlevers from bracket to attach cables, if required. Adjust cable ends so that the handlevers just clear the bottom of the slot in the bracket when the handlevers are pushed all the way away from the operator. Tighten capscrews that hold block to handling gear control box. Check to make sure push-pull cables are not binding.
17. Replace rear cross sheet.
18. Check and adjust brake lining clearance.
19. Check and tighten all bolts, nuts and other connections.

Control Valve Spool Positions

After installation, the control cable adjustment should be checked by measuring the control valve spool positions at each position of the control levers. The spool positions must be equal to the dimensions shown. If the spool positions do not check with these dimensions, the push-pull cables must be readjusted until the spools are in the correct positions as indicated.

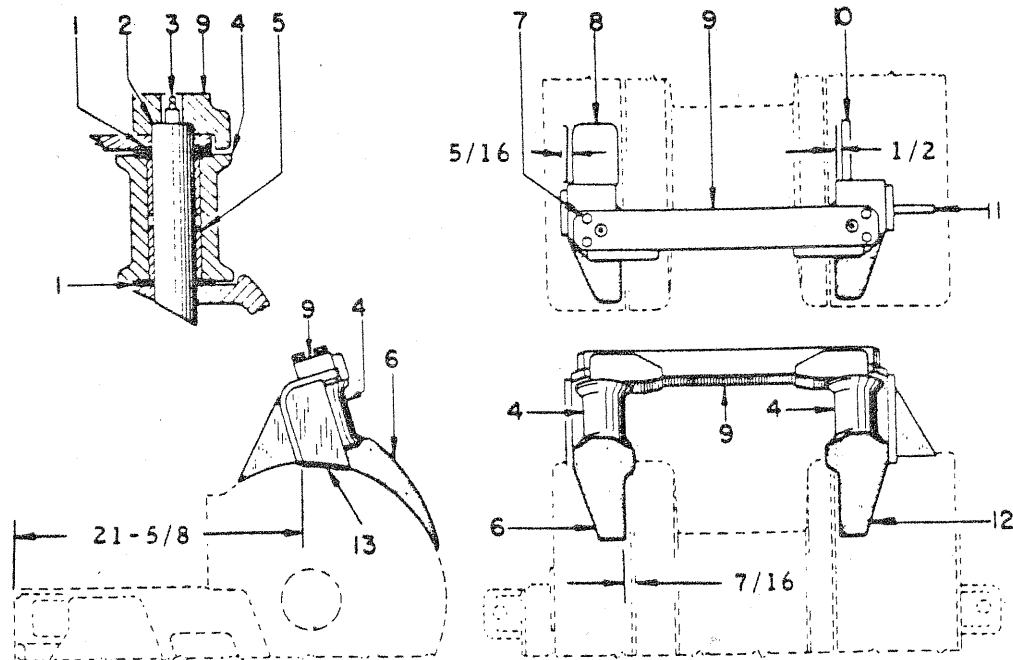


Hose Adjustment

If the hose which leads from the valve to the bevel gear shaft bearing retainer, interferes with spool action, loosen hose fitting to valve, twist the hose so that it lays next to the side of the valve housing cover, and retighten the connection.

INSTALLATION INSTRUCTIONS—Continued

CABLE GUIDE ROLL INSTALLATION

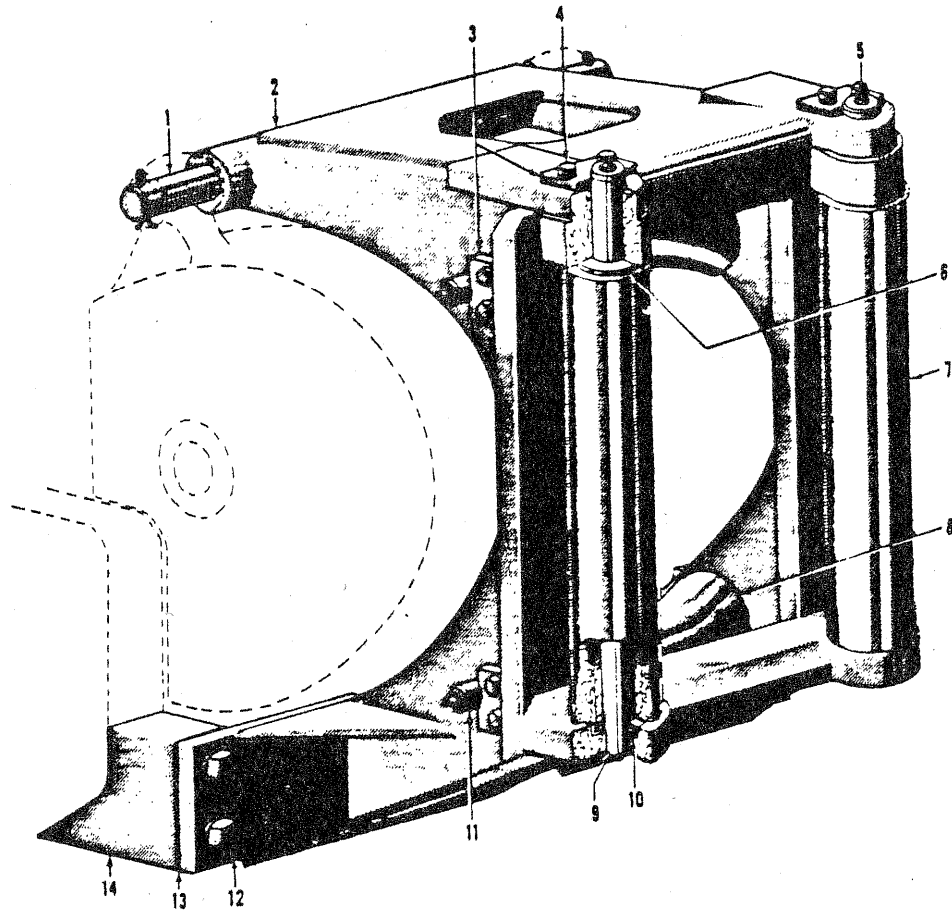


1. Remove tie bar and tie bar ears from winch.
2. Assemble cable guide roll parts, place on winch as shown, and tack weld to winch frame. Tack weld support (8) to bracket (6) and gussets (10 and 11) to bracket (12).
3. Weld securely to winch using intermittent weld to avoid distorting winch side frames. Complete welding support (8) and gussets (10 & 11). Weld filler bar (13) in place.

NOTE: Front part of brackets (6) and (12), where they contact the winch side frames, should be $21\frac{5}{8}$ " from the rear face of the tractor and the inside edge of brackets should be $\frac{7}{16}$ " from edges of winch side frames nearest the drum.

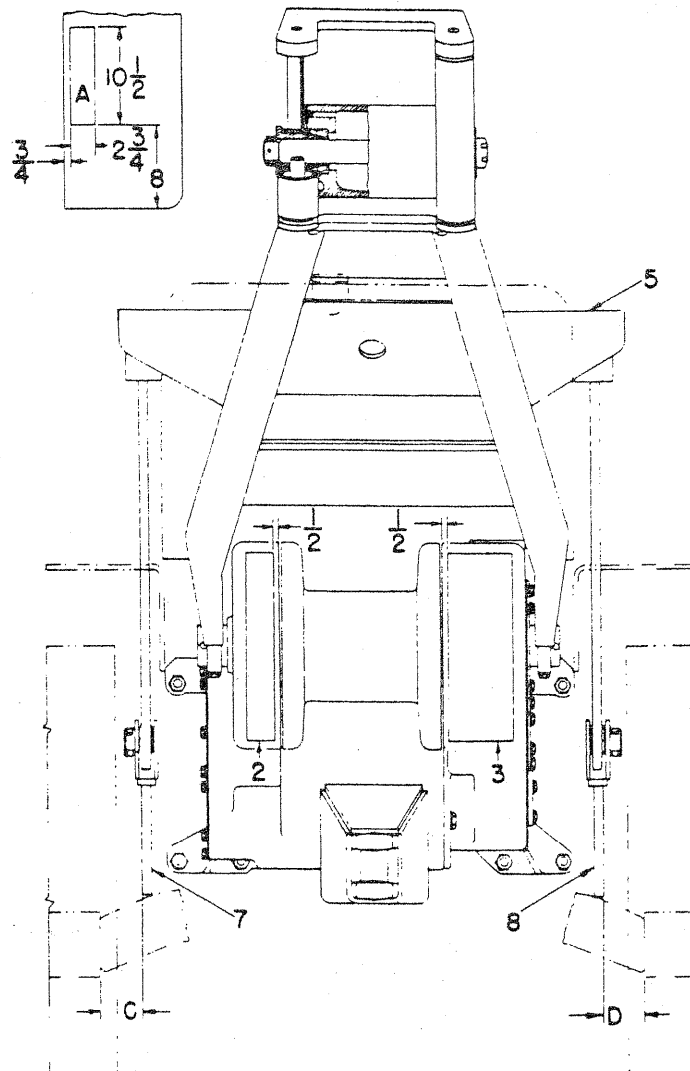
INSTALLATION INSTRUCTIONS — Continued

FAIRLEAD INSTALLATION



1. Remove winch tie rod (1). If bent replace with new rod.
2. With shims (13) in place, fasten R.H. and L.H. mounting plates (14) to frame (2), using four capscrews (12), 1" UNF x 2 $\frac{3}{4}$.
3. Swing frame (2) into position and install winch tie rod (1). Do not allow weight of Fairlead to hang on tie rod (1).
4. Check for clearance around winch drum, adding or removing shims (13) to allow 1/16" minimum clearance.
5. Weld mounting plates (14) securely to winch with $\frac{3}{8}$ " fillet weld.

INSTALLATION INSTRUCTIONS — Continued INTEGRAL ARCH INSTALLATION



For Tractors S.N. 47A1 to 47A635 Inclusive and 48A1 to 48A1158 Inclusive
Alter Fenders as Shown at "A."

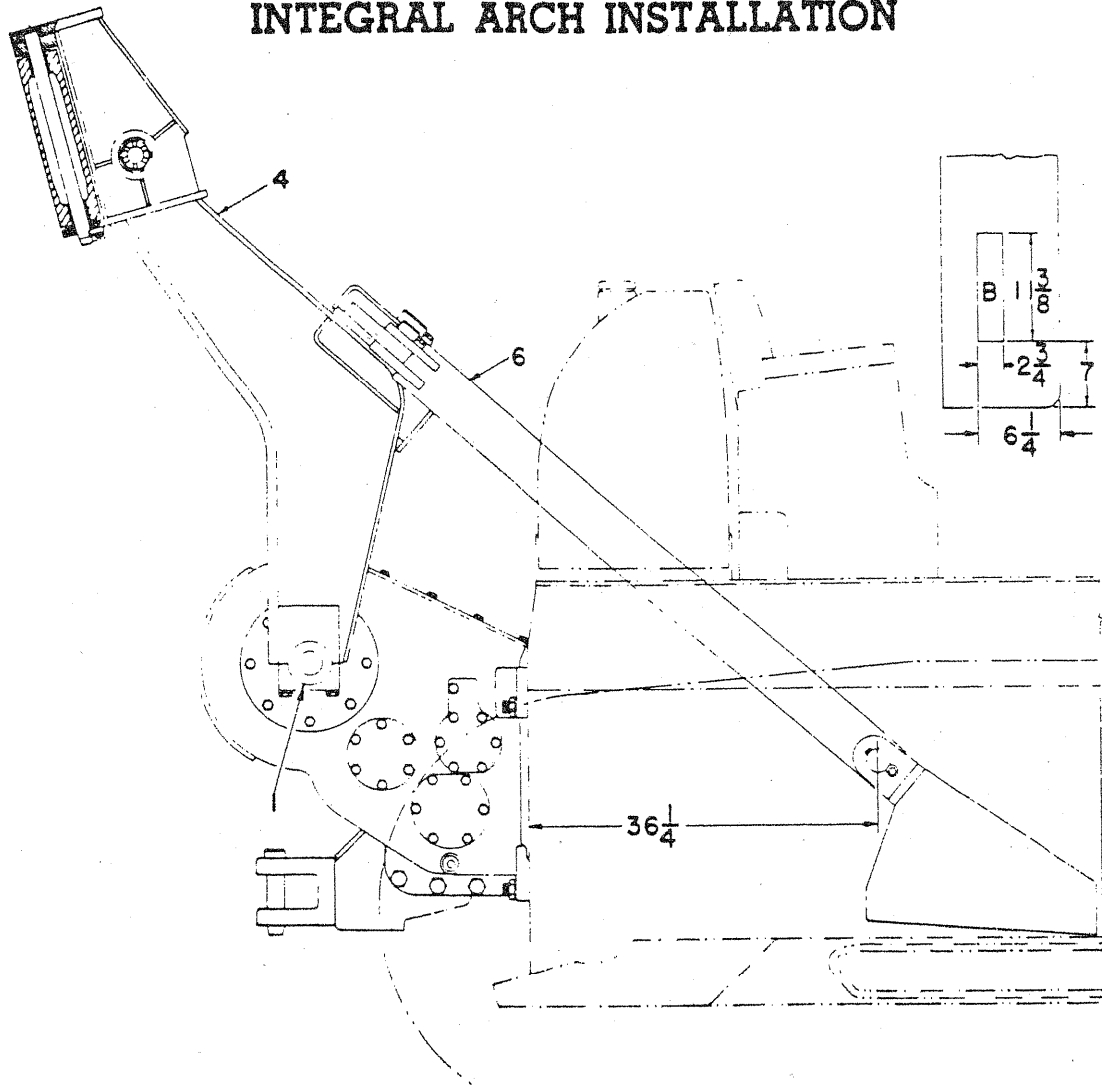
DIMENSION "C" = $4\frac{11}{16}$ — "D" = $4\frac{5}{16}$

For Tractors S.N. 47A636 and up and S.N. 48A1159 and up
Alter Fenders as Shown at "B."

DIMENSION "C" = $4\frac{1}{16}$ — "D" = $4\frac{3}{16}$

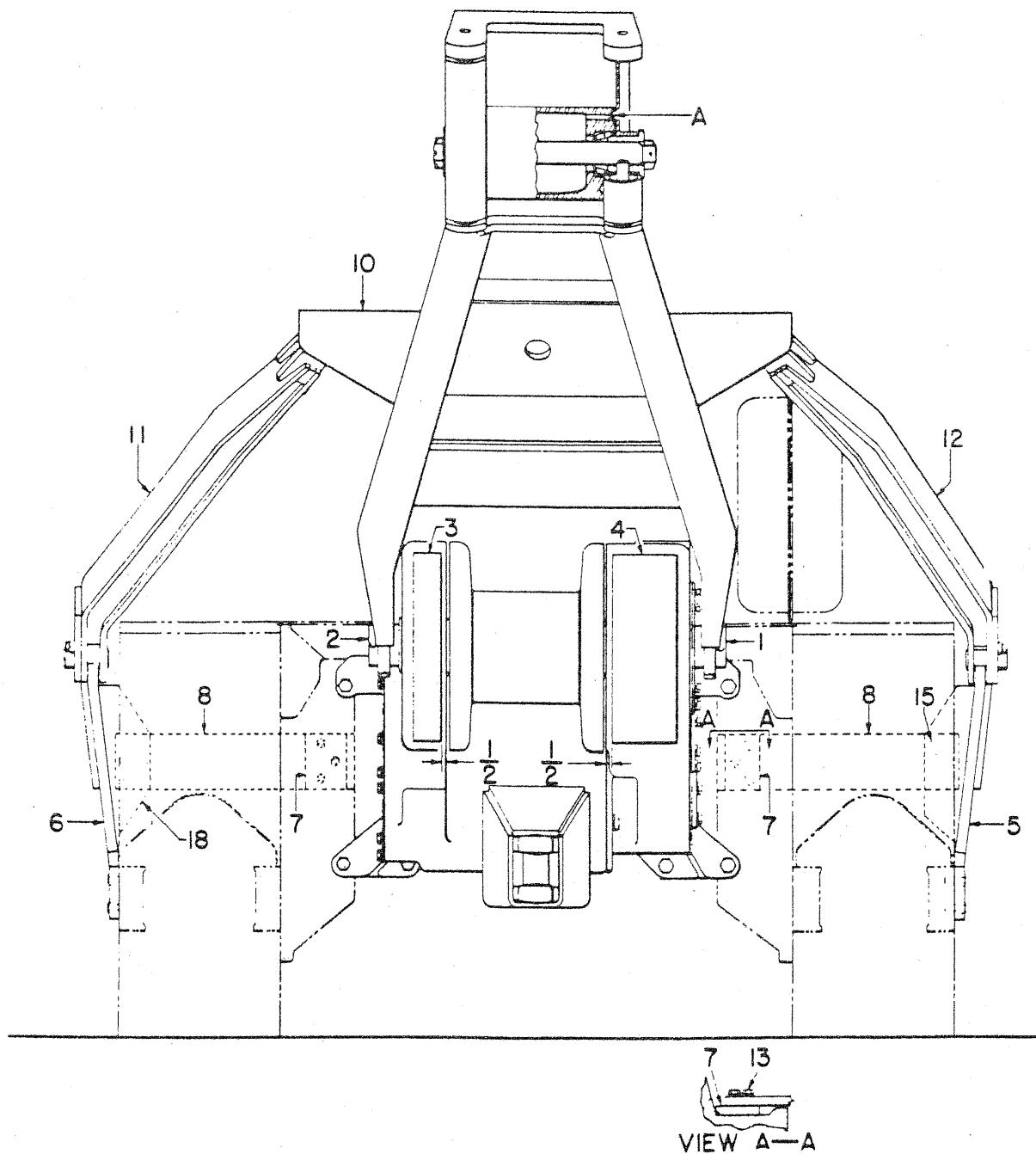
INSTALLATION INSTRUCTIONS — Continued

INTEGRAL ARCH INSTALLATION



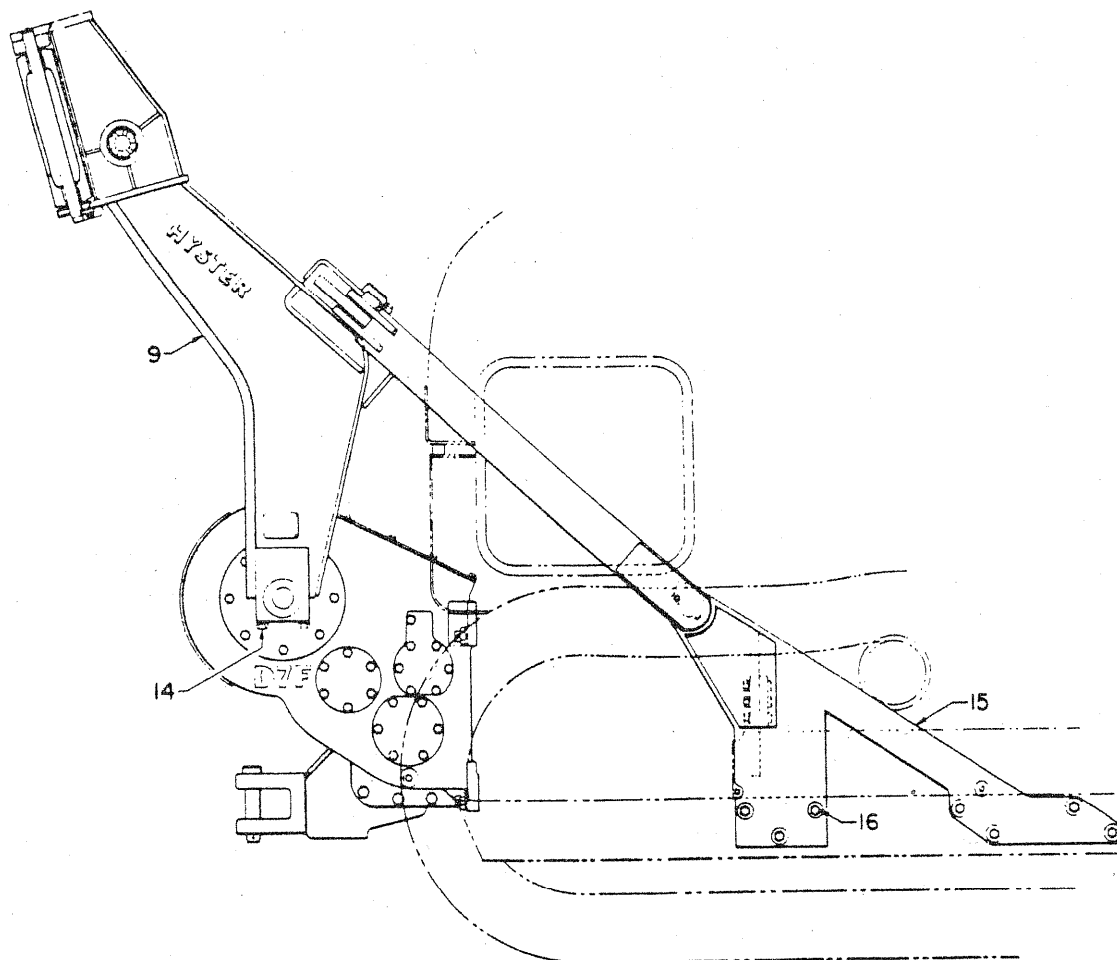
1. Place tractor on level ground.
2. Remove winch drum shaft nuts and replace with special nuts (1).
3. Weld guard plates (2 and 3) to winch as shown.
4. Alter tractor fenders as shown at "A" or "B."
5. Remove winch tie rod and tie rod brackets.
6. Install frame (4), equalizer beam assembly (5), back stay assemblies (6), and track brackets (7 and 8).
7. Tack weld track brackets (7 and 8) to tractor.
8. Check alignment and complete welding with $\frac{1}{2}$ " fillet weld, both sides.

INSTALLATION INSTRUCTIONS — Continued
Integral Arch Installation for 977 Traxcavators (Optional)



INSTALLATION INSTRUCTIONS — Continued

Integral Arch Installation for 977 Traxcavators (Optional)



1. Place Traxcavator on level ground.
2. Remove winch drum shaft nuts and replace with special nuts (1 and 2).
3. Weld guard plates (3 and 4) to winch as shown. Use $\frac{3}{8}$ " fillet weld all around.
4. Burn off step which is located on guard on left side of Traxcavator.
5. Remove winch tie rod and burn off tie rod brackets.
6. Assemble track brackets (5 and 6) and plates (7) and (8) and bolt to Traxcavator track frame.
7. Weld plates (7) to Traxcavator as shown in view A-A. Use $\frac{1}{4}$ " fillet weld all around.
8. Assemble frame (9), equalizer (10) and struts (11 and 12) as shown.
9. Torque capscrews (13) to 275-300 ft. lb. lubed and capscrews (14 and 15) to 200 ft. lb. lubed.
10. Remove pipe plug "A" and add oil if required. Use Traxcavator transmission oil.
11. After machine has been operated for several shifts, retighten taper headed bolts (16) and continue to do so until they become well seated.

OPERATING INSTRUCTIONS

DIRECT DRIVE WINCH

Do Not Operate Winch While Tractor Is In Motion

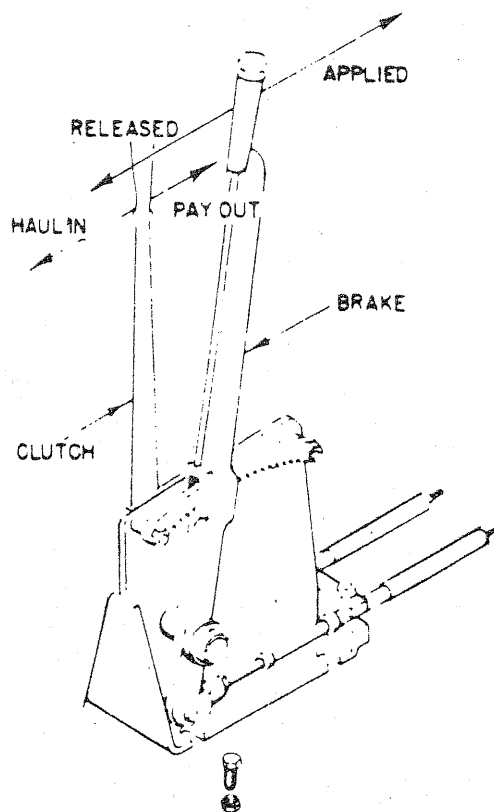
To apply the winch brake pull the handlever back. Push forward to release.

CAUTION: With a standard brake, the brake handlever must be released *before* operating the winch. The tractor master clutch must be disengaged *before* the winch brake is applied to avoid stalling the tractor motor or burning the winch brake lining.

The optional automatic brake should be applied while hauling in a load, but *must* be released to pay out cable.

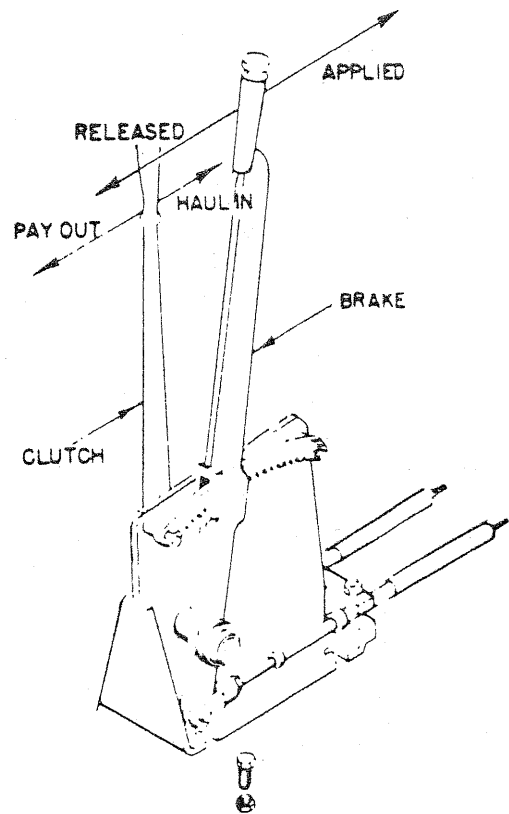
Disengage the tractor master clutch before shifting gears in the winch.

CAUTION: DO NOT APPLY MORE HANDLEVER EFFORT THAN NECESSARY TO OPERATE BRAKE OR SHIFTER



**For Winches Serial Number
C47P-1717 and up:**

To haul in a load push the clutch lever forward. Pull back to pay out cable.



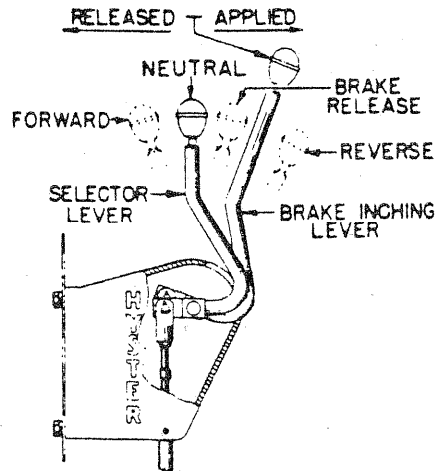
**For Winches Prior to
Serial Number C47P-1717:**

To haul in a load pull the clutch lever back. Push forward to pay out cable.

OPERATING INSTRUCTIONS — Continued

POWER CONTROLLED WINCH

One advantage of the Power Controlled Winch is that the winch may be operated while the tractor is in motion.



For normal operation, only the selector lever is used; push for reverse and pull for forward. The brake is automatically released when the clutches are engaged and applied when the clutches are disengaged. For inching a load pull on the brake lever. It will automatically return to the applied position.

Vary line speed by throttling engine. Low idle is recommended for reverse. Clutch lever must be in neutral for gradual brake-off. R

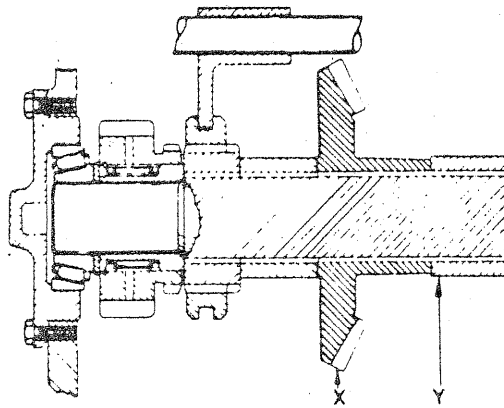
Ease clutch lever into neutral to hold a tight line.

OVERWIND — UNDERWIND

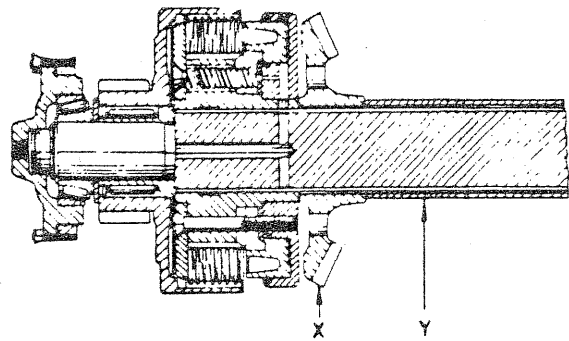
Unless otherwise specified, all winches are set to wind the cable over the top of the drum barrel.

OPERATING INSTRUCTIONS — Continued

BEVEL GEAR OVERWIND TO UNDERWIND CHANGE



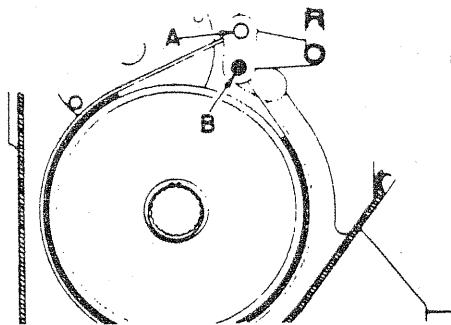
Direct Drive



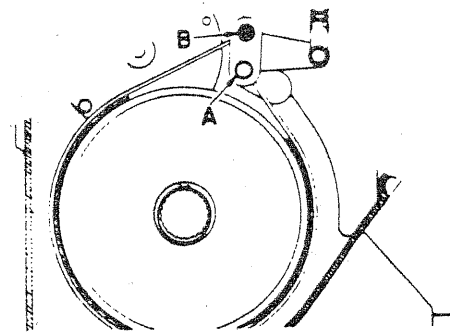
Power Controlled

For underwind operation remove bevel gear "X" and spacer "Y" and replace them as shown.

BRAKE BAND CHANGE FROM OVERWIND TO UNDERWIND



OVERWINDING



UNDERWINDING

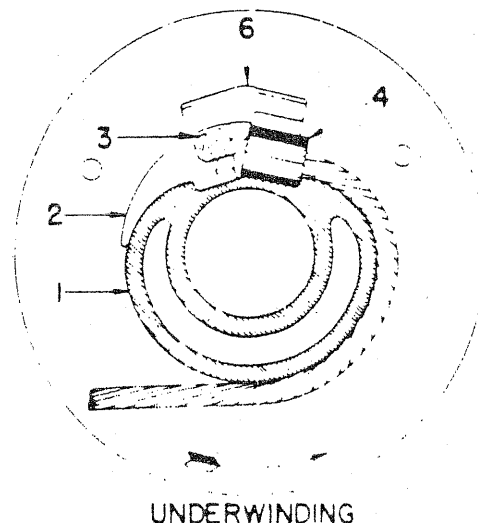
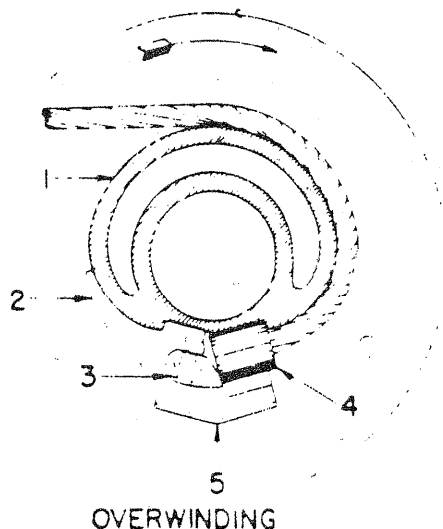
Pin "A," $4\frac{5}{8}$ " long, with cotter hole in center, holds the moveable end of the brake band.

Pin "B," $6\frac{3}{8}$ " long, with tapped hole in end, is the anchor pin.

1. To change from overwind to underwind, remove pins "A" and "B" from positions shown in illustration marked "overwinding" and insert them in positions shown in illustration marked "underwinding."

OPERATING INSTRUCTIONS — Continued

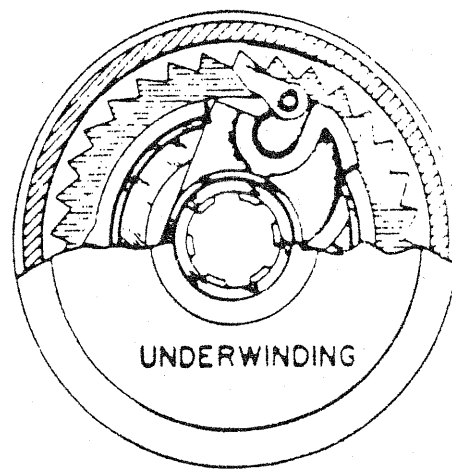
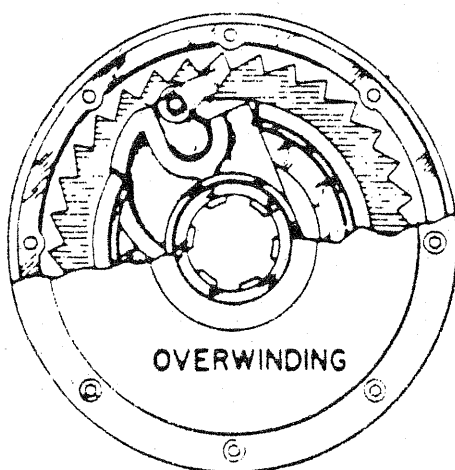
ATTACHING CABLE TO DRUM — OVERWIND OR UNDERWIND



1. Install ferrule (4) and lock in place with filler (2) and ferrule lock (5) for overwind, (6) for underwind, using capscrew (3).
2. To change from overwind to underwind, remove cable groove filler (2) from overwind position, install as shown for underwind and tack weld in place.

AUTOMATIC BRAKE — OPTIONAL

(For Direct Drive Winches Only)



1. To change from overwind to underwind, remove automatic brake and reinstall with word "Underwind" to the outside.

SERVICING INSTRUCTIONS

TROUBLESHOOTING — DIRECT DRIVE WINCH

A. Brake Not Holding

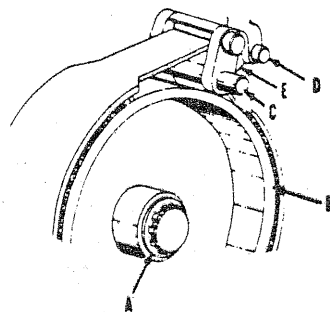
1. Drain water from brake compartment.
2. Check brake lining for oil saturation and wear.
3. Check brake band adjustment.
4. Check push-pull cable for proper adjustment.

B. Hard Shifting

1. Check push-pull cable for freeness.
2. Check clutch handlever for binding due to rust, dirt, etc.
3. Disconnect push-pull cable and check the shifter shaft for binding in the transmission case and R.H. side frame bores.

Brake Band Adjustment

1. Remove both covers on L.H. side of winch.
2. Release brake by moving brake handlever forward on the direct drive winch or moving the selector lever to "Brake Release" on the Power Controlled winch.
3. Loosen the jam nut on the adjusting link assembly.
4. Turn the adjusting link in or out to shorten or lengthen as required.
5. Be sure to allow sufficient clearance (approximately $1/32''$) between the drum and lining to prevent lining "drag."
6. Tighten jam nut on adjusting link.



Brake Band Removal

1. With brake band in released position, remove snap ring "A."
2. Remove pins "C" and "D" and slide the drum "B" from the shaft with the brake band and crank "E" attached.

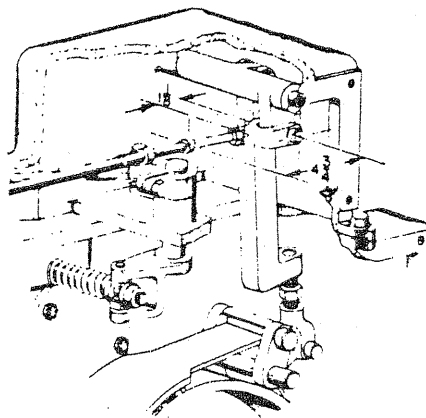
Shifter Clutch

No internal adjustment is required.

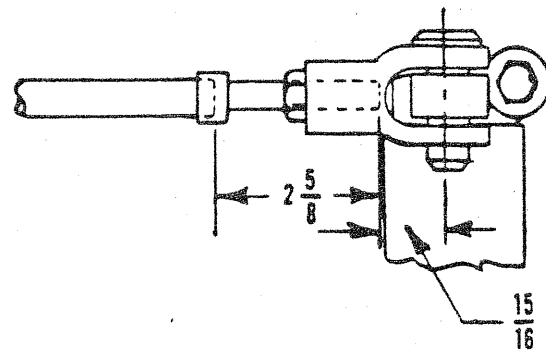
SERVICING INSTRUCTIONS — Continued

DIRECT DRIVE WINCH

PUSH-PULL CABLE ADJUSTMENT



Brake



Shifter

When installing push-pull cables the above dimensions must be maintained. **NOTE:** Remove large grommets from cables to insert in winch openings, then replace grommets.

TROUBLESHOOTING—POWER CONTROLLED WINCH

A. Winch fails to operate or is sluggish in its operation

1. Check filter for leaks or excessively plugged.
2. Check all connections in suction line to see if they are tight.
3. Check winch oil level.
4. Check pump for proper flow output.
5. Check relief valve for proper setting.
6. Check all hoses inside of winch case for leaks.
7. Check push-pull cables for proper adjustment. The push-pull cables should have one inch of travel with the valve spools and handlevers connected to the cables. If the cable does not have the specified travel, adjust valve spool and handlever adjustment until the one inch travel is obtained.

If the trouble is not eliminated with the above check, some internal parts are probably broken. Check the following:

A. Low Operating Pressure—Check Control Valve for

1. Broken relief valve spring.
2. Dirt jammed in relief valve port.
3. Adjusting washers left out by mistake.

B. Brake Not Holding Properly

1. Water in brake compartment.
2. Improper brake band adjustment.

SERVICING INSTRUCTIONS — Continued

POWER CONTROLLED WINCH

3. Oil on brake band.
4. Broken spring.
5. Sticky piston due to dirt, chips or damaged piston.
6. Worn poppet on valve selector spool allowing spool to shift to "Brake Release Position."

C. Low Clutch Pressure

1. Improper stroke adjustment on push-pull cable to selector spool.
2. Broken seal ring on bevel gear shaft.
3. Damaged "O" Ring in clutch pack.
4. Damaged or badly worn pump.
5. Plugged filter.

D. Slow Response

1. Cold temperature operation with warm weather oil.
2. Improper stroke adjustment on push-pull cable to selector spool.
3. Filter plugged.
4. Tractor engine idled too slow.

Brake Adjustment

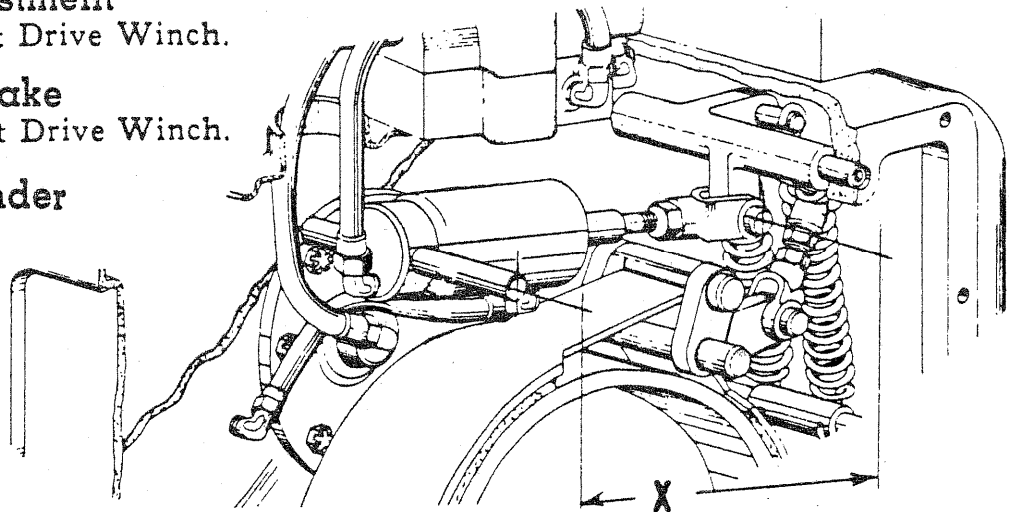
See Direct Drive Winch.

Relining Brake

See Direct Drive Winch.

Brake Cylinder

Adjustment



1. With cylinder fully extended adjust rod end as shown.
2. For S.N. B77P2020 and up, "X" = $10\frac{7}{8}$ ".
For units prior to above S.N., "X" = $10\frac{5}{8}$ ".
3. After adjustment, tighten jam nut.

NOTE: When a new crank 128389 is installed on units prior to S.N. B77P2020, adjust to $10\frac{7}{8}$ " dimension.

Clutch Adjustment

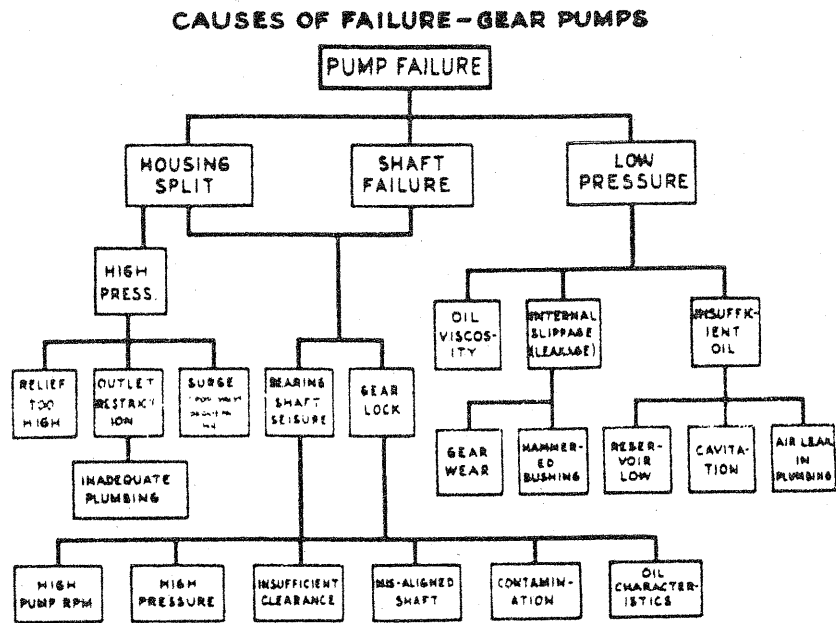
No adjustment of clutches required.

CAUTION: Do not operate winch if clutches slip. Slipping will cause clutch plate failure. If clutches slip, check hydraulic system for: Plugged filter, faulty pump operation, incorrect relief valve setting, leaking lines, etc. If this caution is observed, the clutches will give years of satisfactory operation without overhaul.

SERVICING INSTRUCTIONS — Continued

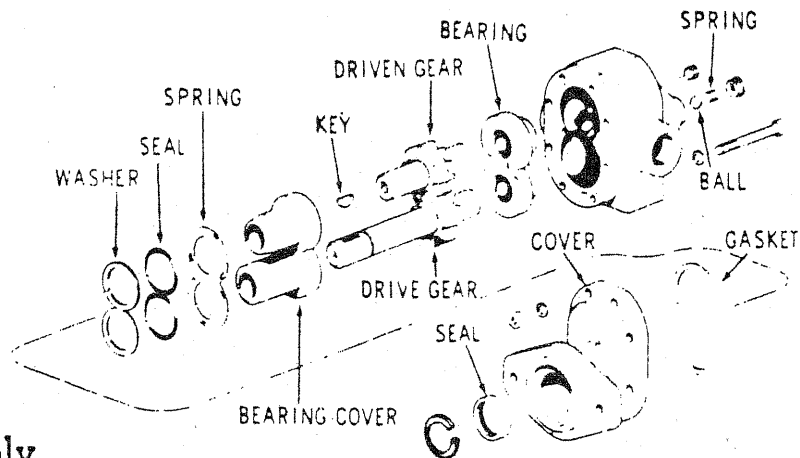
POWER CONTROLLED WINCH

Pump Servicing



The pump contains two steel gears, a drive and driven shaft, and four bearing assemblies. The machined housings support the gear shafts and are provided with oil seal rings.

When servicing the pump, extreme care must be taken to prevent foreign matter from entering the unit and causing damage to the machined surfaces.



Disassembly

- Remove the eight screws and washers and lift cover from body. If cover sticks, tap lightly with raw-hide mallet.
- Cover bearings may remain in either the body or cover, but should be match marked in their respective locations for reassembly.
- Remove relief valve spring and ball from cover.
- Identify gears with match marks for correct reassembly.
- Remove oil seal from body assembly using an arbor press and suitable dowel rod.

SERVICING INSTRUCTIONS — Continued

POWER CONTROLLED WINCH

Cleaning

- a. Wash all parts in a suitable cleaning solvent and dry with filtered compressed air.

Inspection and Repair

- a. Inspect gears for chipping or evidence of wear.
- b. Inspect bearing bore for scoring or wear.
- c. Inspect bearing surfaces for deep grooving or scoring and refinish if necessary. Bearing surfaces may be dressed on a piece of fine abrasive paper held to a true flat surface plate. Do not dress enough to remove oil groove.
- d. Check bearing flats and bearing for wedging in their respective housings. If bearings wedge in the housings or new bearings are installed, proceed as follows: Hold the bearings at extreme ends of a discarded gear shaft from which the teeth have been removed and dress the flats lightly against a piece of fine abrasive paper held to a true flat surface plate. Dress a little at a time and repeat. Check in the housing until the bearings slide into place freely. The clearance between the flats, when assembled in their housing, should not exceed .005 to prevent turning of the bearing, resulting in lowering the pump efficiency.
- e. Inspect relief valve ball and seat in cover for grooving.

Lubrication

- a. Lubricate drive gear journal with SAE No. 10 oil before installing through shaft seal.

Reassembly

- a. Discard all rubber seal rings.
- b. Press a new seal assembly into the body with an arbor press, taking care that seal enters at right angles to the body recess and does not damage the body.
- c. Insert body bearings in their previously match-marked positions.
- d. Insert drive gear into body bearing.
- e. Insert driven gear into body bearing at the same position from which it was removed. (Do not invert driven gear.)
- f. Slide cover bearings on gear journals in their previously match-marked positions.
- g. Insert seal ring in body recess.
- h. Insert relief valve ball and spring into body, tapping lightly to insure seating.
- i. Secure cover to body with the eight screws torqued to 28-32 foot pounds.

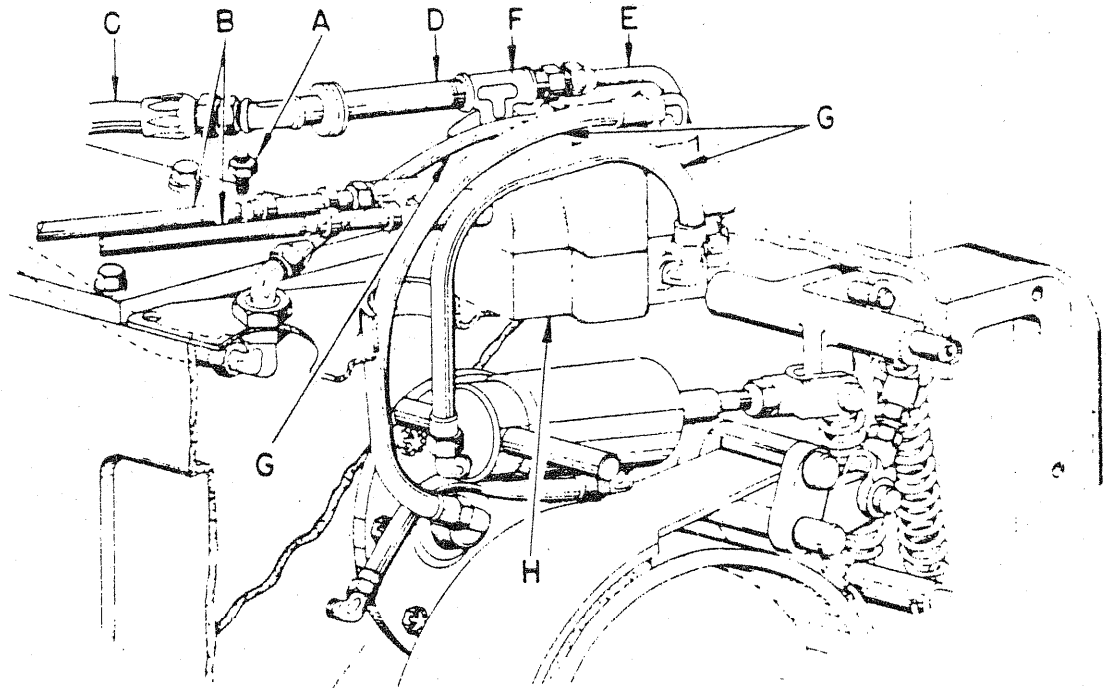
SERVICING INSTRUCTIONS — Continued

POWER CONTROLLED WINCH

Servicing Control Valve

Remove valve for servicing. Clean thoroughly and place on a clean work area. The internal parts of the valve have finely ground finishes and any nicks or scratches may cause irreparable damage.

Removal of Valve From Winch

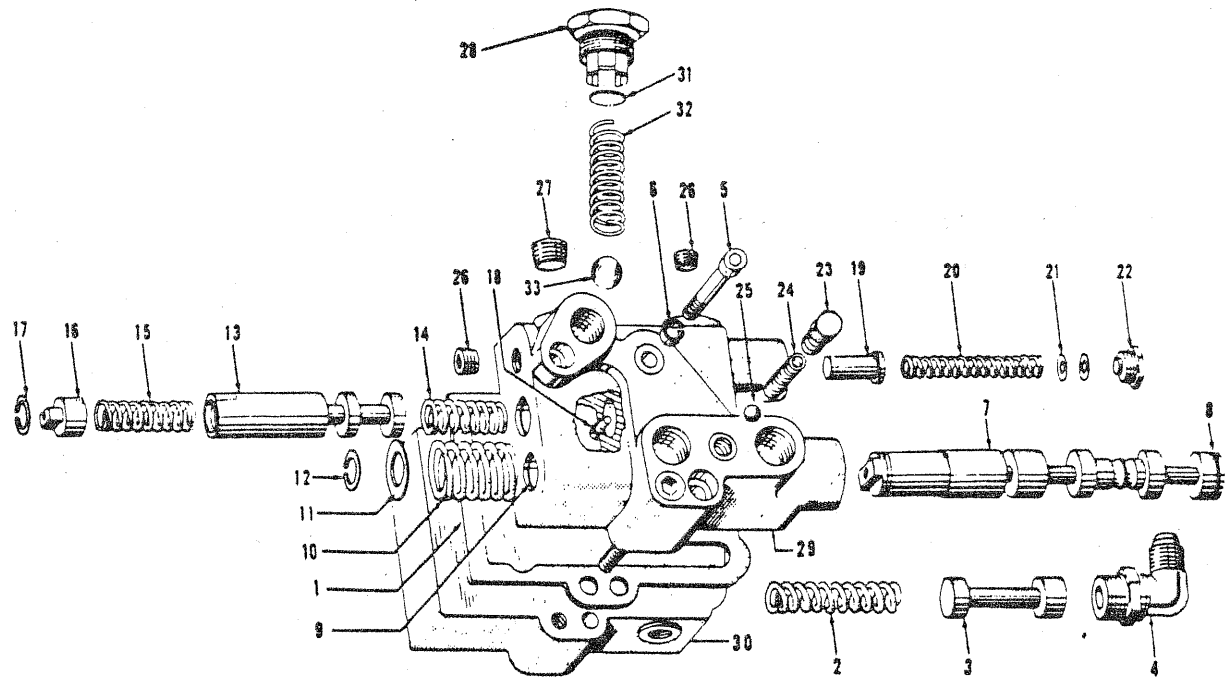


1. Remove valve housing cover set screws "A" and loosen push-pull cable lock nuts on the valve spools.
2. Remove cables from handle lever bracket on tractor and unscrew the cable ends from the valve spools by turning the free ends of the cables "B."
3. Remove the pump supply hose "C" and nipple "D."
4. Remove the valve housing.
5. Detach tube assembly "E" and remove tee "F."
6. Disconnect the clutch and brake hoses "G."
7. Remove socket head capscrews attaching valve "H" to winch.
8. Remove valve "H" from winch. Remove or secure the "O" Ring that seals between the valve and the winch. Be sure "O" Ring is replaced when reinstalling valve on winch to avoid seepage around base of control valve.
9. Reverse above procedure for valve installation and check for proper stroke adjustment between the push-pull cables and spools.

SERVICING INSTRUCTIONS — Continued

POWER CONTROLLED WINCH

Control Valve



Selector Spool Removal

This may be accomplished without removing the valve body (29) from the support (30).

1. Remove the snap ring (12), washer (11), and spring (10).
2. Remove the plug (23), spring (24), and ball (25).
3. Remove the spool (7), by pushing the rod end through the valve body as shown.

CAUTION: Do not pull the rod end of the spool after the ball (25), has been removed or the "O" Ring (8), on the spool will come in contact with a dump port and be damaged.

Selector Spool Inspection and Reinstallation

1. Inspect for nicks on the spool. Light nicks may be removed by lapping but if there are deep nicks spool must be replaced.
2. Replace "O" Rings (8) and (9) with new parts.
3. Use a light oil on all parts before reassembly. Install "O" Ring (9) and install spool in reverse manner from removal. "O" Ring (8) is replaced last and does not pass over port.

CAUTION: Do not pull on spool (7) to get "O" Ring (8) compressed into spool bore. Tap end of spool to accomplish this, and avoid over-travel causing damage to "O" Ring (8) in internal ports.

SERVICING INSTRUCTIONS — Continued

POWER CONTROLLED WINCH

Control Valve—Continued

Brake Inching Spool Removal

1. Plug (16) or spring (15) may be removed without removing the inching spool (13) by removing snap ring (17).
2. To remove spool (13) remove capscrews (5) and detach the valve body (29) from the support (30).
3. Remove the spool stop capscrew (18) on the under side of the valve body while pressing gently on the inching spool to take the load off the stop.
4. Remove the spool and return spring (14).

Inching Spool Inspection and Assembly

1. Check bore and spool (13) for dirt or nicks. Remove light nicks by lapping. Deep nicks necessitate new parts.
2. Oil all parts generously. Place new "O" Ring firmly in groove and install spring (14) and spool. Tap spool gently to pass over "O" Ring. and while holding in position, replace spool stop capscrew (18).
3. Clean out socket for travel spring (15), grease lightly and replace spring and cable plug (16).

Relief Valve and Quick Release Valve

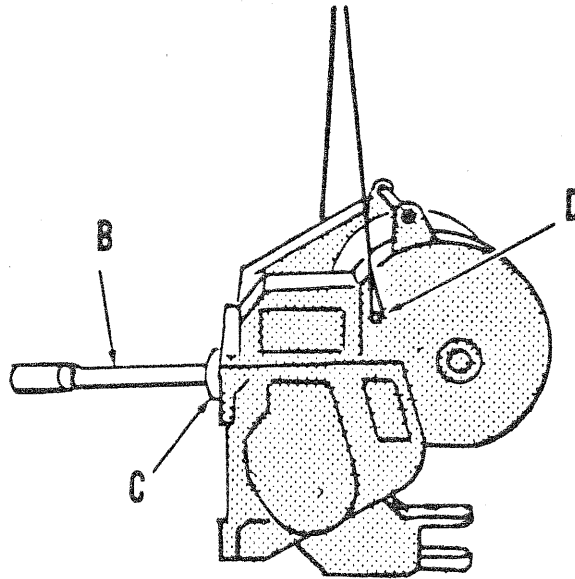
1. Remove retainer (22), washers (21), spring (20) and piston (19). The washers (21) regulate relief valve pressure. Add washers to increase pressure, remove washers to decrease pressure. The relief valve setting is as follows: 225 PSI at 6-1/2 GPM—1,000 RPM—Oil Temperature 70°.
2. To check quick release valve spring (2), remove fitting (4) and piston (3).
3. After checking and cleaning all parts thoroughly, lubricate with SAE No. 10 engine oil and assemble in the reverse order of disassembly. Replace pistons (19) and (3) with new parts if there are deep nicks, and remove light nicks by lapping.

Servicing Filter

After cleaning filter screen, care should be taken when reassembling filter to prevent stripping threads of capscrews holding cap to body. Only slight pressure will give a good oil seal.

SERVICING INSTRUCTIONS — Continued

REMOVAL OF WINCH



1. Disconnect all control linkage.
2. Install two $\frac{7}{8}$ " UNF capscrews in the winch side frames at "D" and mount a sling as shown.
3. Remove transmission cover and remove cotter and nut from mounting stud inside winch.
4. Remove winch and drain oil from both compartments.
5. Remove R.H. side top cover and L.H. side brake compartment covers.

P.T.O. Assembly Removal

Unbolt the P.T.O. bearing carrier and remove the complete P.T.O. assembly. Be careful not to damage shims behind bearing carrier.

Brake Shaft Removal — Direct Drive

1. Remove the brake band and drum as previously instructed.
2. Remove bearing retainers on both ends of brake shaft and remove brake shaft through opening on R.H. side frame.

Brake Shaft Removal — Power Controlled

1. Remove the brake band and drum as previously instructed.
2. To remove brake springs, remove pipe plug from housing and insert an eye bolt as shown in figure 5.

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY

Brake Shaft Removal — Power Controlled

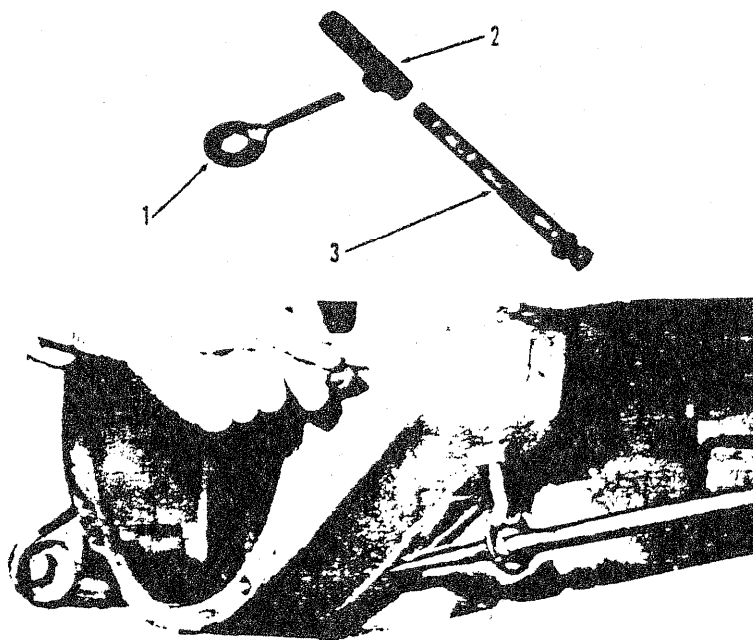
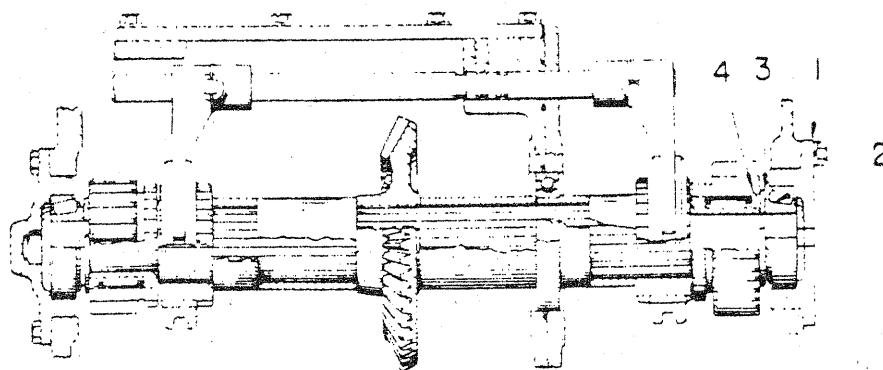


Figure 5

3. Thread eye bolt (1) into spring anchor sleeve (2) and, using a pry bar as shown (to relieve tension on spring), remove anchor pin (3).
NOTE: Eye bolt may be made by welding a cut washer to a $\frac{1}{2}$ UNF x 4" capscrew.
4. Remove bearing retainers from both ends of shaft and remove shaft through opening in R.H. side frame.

Bevel Gear Shaft Removal — Direct Drive



1. Remove brake drum and linkage as instructed.
2. If drum shaft is to be removed, remove the L.H. drum shaft nut.
3. Turn winch so that R.H. side is up.
4. Remove bearing carrier (1), bearing cone (2), washer (3) and snap ring (4).

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY

Bevel Gear Shaft Removal — Power Controlled

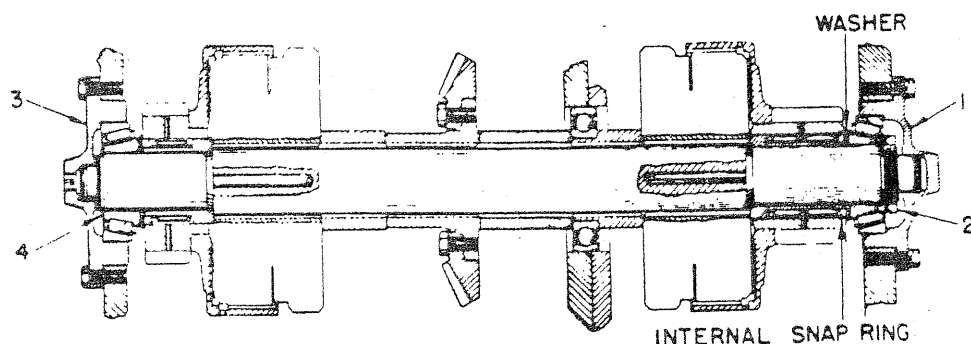


Figure 7

1. Remove brake drum and linkage as instructed.
2. Disconnect the hydraulic line to bearing retainer (3) Figure 7.
3. Remove bearing retainer taking care to protect shims.
4. Remove the R.H. bearing retainer (1) Figure 7.
5. Loosen bearing nut (2) enough to permit removal of snap ring (4)
6. Replace bearing retainer (3), Figure 7, for support. (If drum is to be removed, remove L.H. drum shaft nut.)
7. Turn winch on its left side.

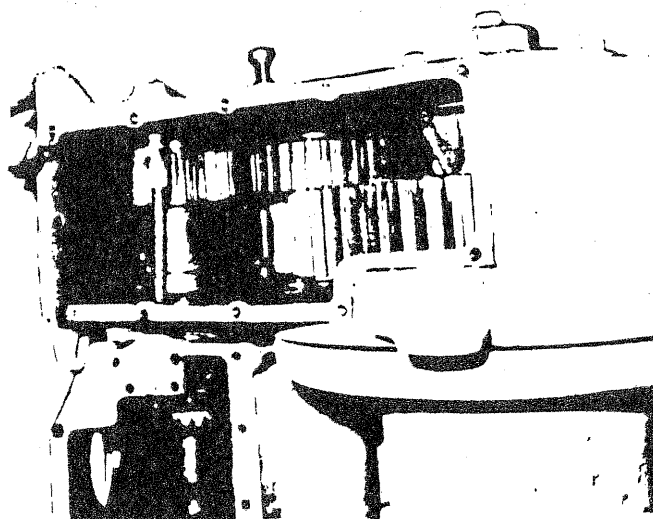


Figure 9

8. Remove the top side frame cover and disconnect the hydraulic line as shown in Figure 9.
9. Remove bearing nut (2), Figure 7.
10. Slide roller bearing and the spacer washer from the shaft.
11. Remove the internal snap ring retaining the bearing and clutch drive gear as shown in Figure 10.

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY

For Direct Drive and Power Controlled Winches

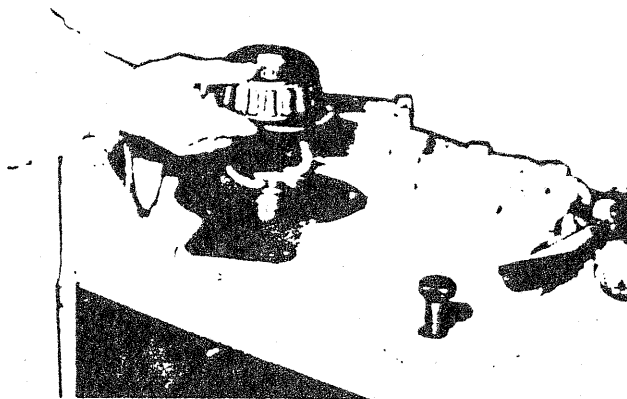


Figure 10

1. Insert a $\frac{5}{8}$ UNF bolt (with a ring or washer welded to it) into the threaded end of the bevel gear shaft.
2. Pull shaft slowly as shown in Figure 12.
3. DO NOT pound or drive on the ends of the bevel gear shaft.
4. Slide the shaft completely away from the unit freeing all component parts on the shaft, Figure 13.

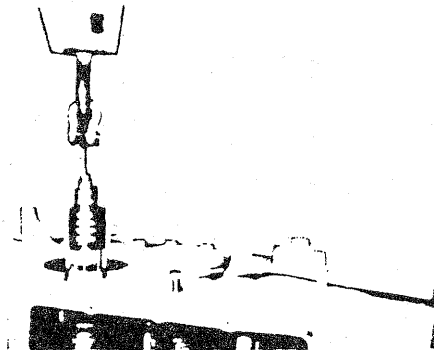


Figure 12

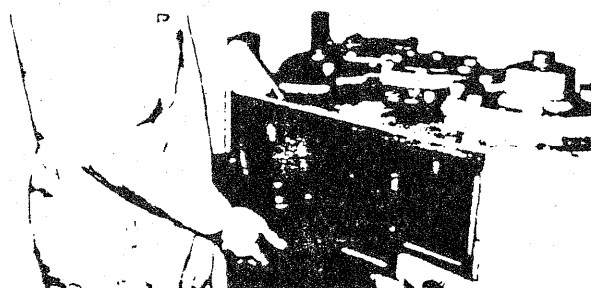


Figure 13

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY

Intermediate Gear Shaft Removal

1. Remove bearing retainer.
2. Insert puller screw in shaft.
3. Pull shaft as shown in Figure 15.
4. Remove intermediate gear and drum pinion as shown in Figure 16.

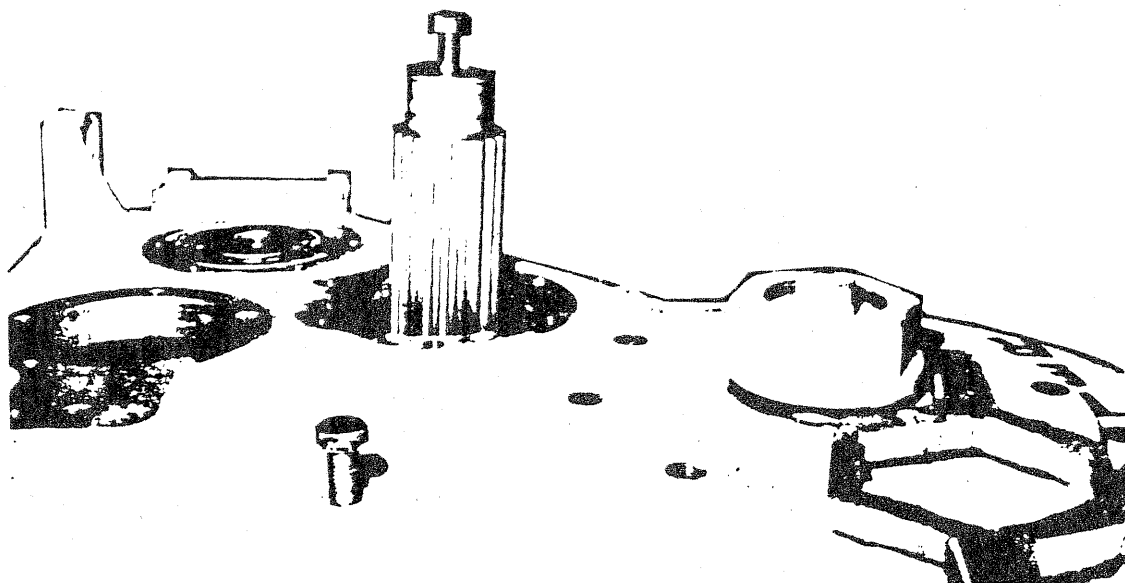


Figure 15

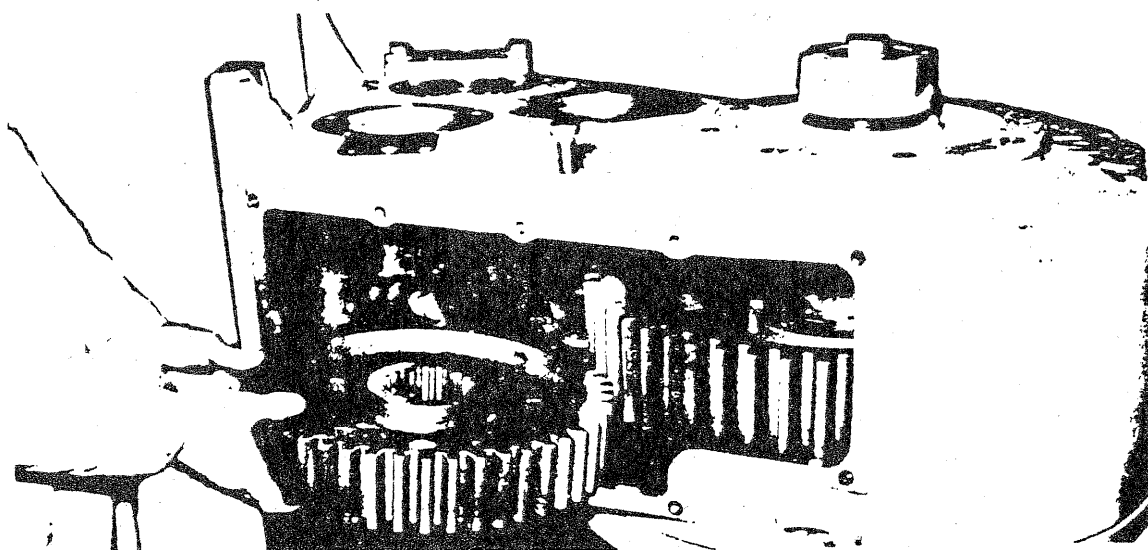


Figure 16

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY

Drum Shaft Removal

1. Unscrew drum shaft nut.
2. Remove bearing retainer as shown in Figure 17.
3. Remove place bolts in drum gear.
4. Rethread nut on shaft.
5. Sling shaft using nut.
6. Pull shaft straight up as shown in Figure 18.

NOTE: Place pan under drum shaft to catch oil that is in the drum. Be sure to add two quarts of oil to drum at reassembly.

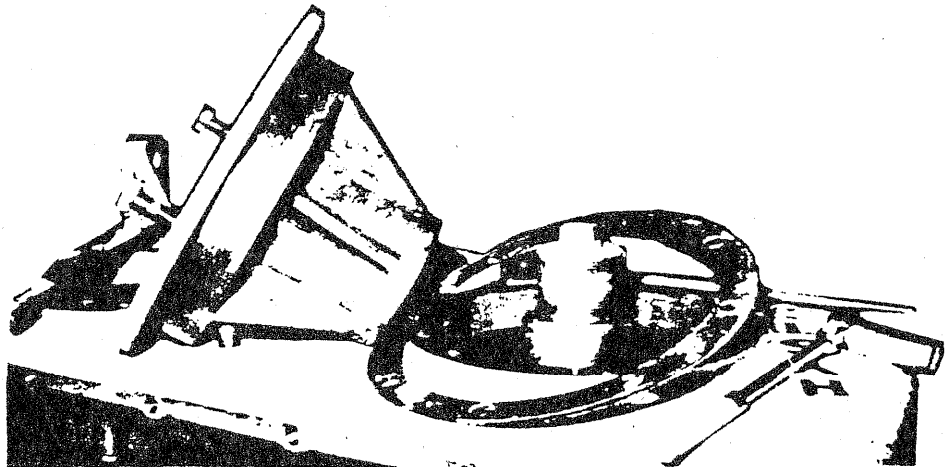


Figure 17

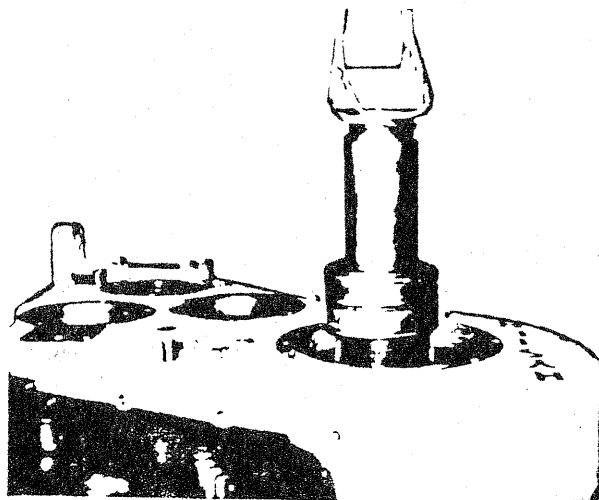


Figure 18

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY

Side Frame Removal

1. Remove securing capscrews as shown in Figure 19.
2. Sling side frame and lift straight up as shown in Figure 20.

CAUTION: Use care when lifting side frame to protect oil seals around drum.

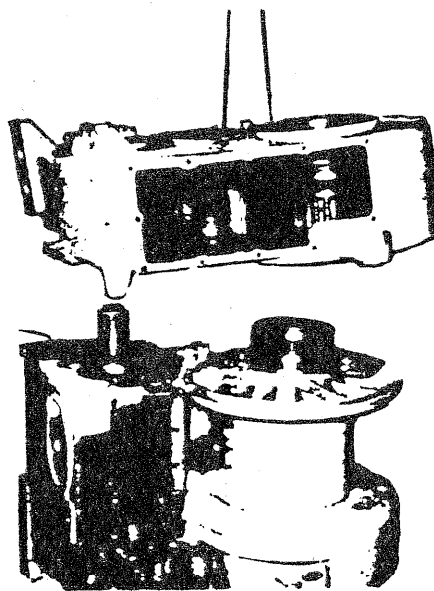
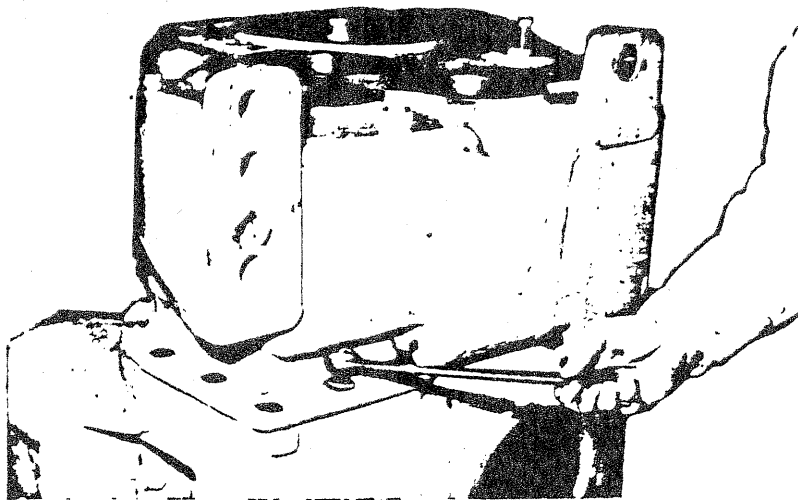


Figure 20

Drum Removal

1. With R.H. side frame removed, simply lift out the drum.

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY — POWER CONTROLLED

Clutch Disassembly

NOTE: It is unlikely that the clutch discs and separator plates will have to be replaced because of wear. Overheating due to slipping or lack of cooling oil will cause most damage to the discs and separator plates. Overheating causes both parts to warp which causes clutch drag. The clutch discs are flat. The separators are hardened steel with a slight dish built into them as shown in Figure 27.

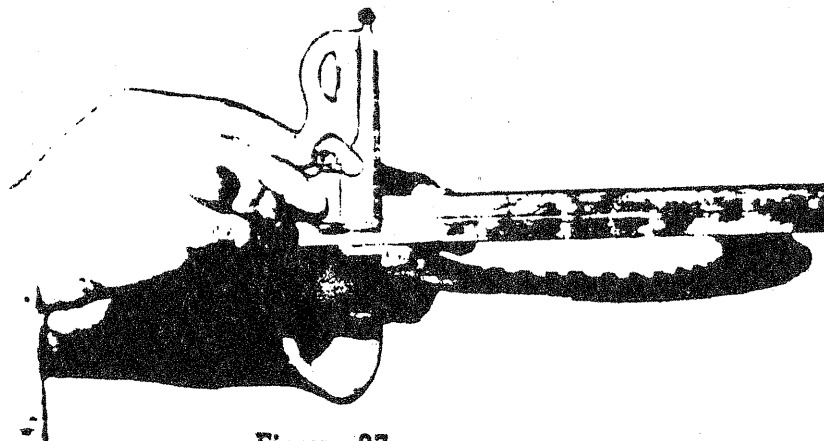


Figure 27

THE HYDRAULIC CLUTCH MUST BE SERVICED IN A CLEAN AREA. The clutch pack contains two parts: The clutch (1), Figure 21, contain friction discs and separator plates, and the clutch spider (2). The two parts are not fastened together and may be separated by sliding them apart as shown. The clutch is held together by six flat head capscrews that are locked on the back side by six allen head setscrews.

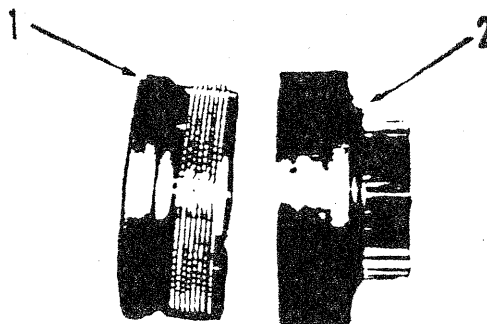


Figure 21

1. Remove the allen head setscrews (17), Figure 23.
2. Turn clutch over and remove flat head capscrews (1), remove end plate (2), Figure 23, exposing the clutch discs (10) and return springs (4).
3. Lift discs (10) and separator plates (11) from the drive hub (3).
4. Lift drive hub (3) and clutch piston (12) from retainer plate (15).

SERVICING INSTRUCTIONS — Continued

WINCH DISASSEMBLY — POWER CONTROLLED

5. The cross drilled stud with three holes is the cooling valve (5). Remove by unscrewing to the left and disassemble for cleaning.

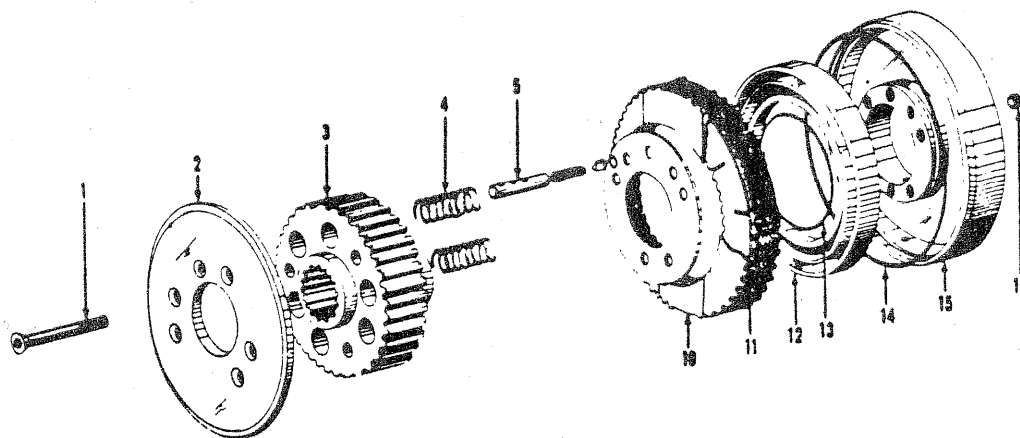


Figure 23

Clutch Reassembly

Reassembly is opposite of disassembly.

Observe the following precautions during reassembly.

1. Dish in separator plate **MUST** all face same way as a unit. The direction of the unit is unimportant.
2. The forward and reverse clutch packs are interchangeable but the spiders are not.
3. **NEVER** assemble a clutch pack dry. Presoak all parts in oil.
4. Small parts and passages must be free of dirt and foreign matter.
5. When sliding the clutch piston into the retainer plate, be certain that the "O" rings (13 and 14) are well lubricated and are seated in their respective grooves.

SERVICING INSTRUCTIONS — Continued

6. When assembled, the holes "A" in the clutch hub will be in line with the oil cooling valve "B" as shown in Figure 28.
7. Blanked out teeth on friction discs (10) must be in line.
8. Assembled clearance to be from ~~.040 to .070~~ ^{.080 to .125}. Use shims as required.
9. Torque capscrews (1) with 70 ft. lbs., setscrews (17) with 40 ft. lbs.

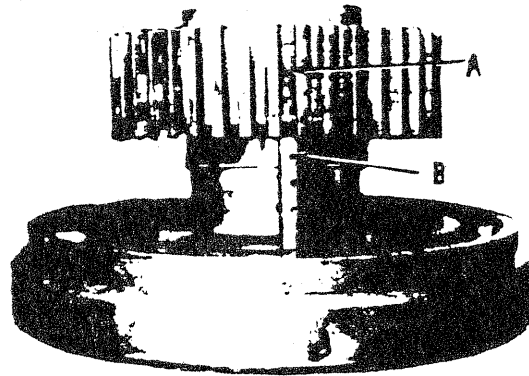


Figure 28

WINCH REASSEMBLY

Assemble winch in reverse order of disassembly.

Drum Shaft Assembly

1. Check all oil seals and install drum and drum shaft.
2. Add two quarts of oil to drum cavity before installing R.H. bearings. (SAE 90 for Direct Drive — SAE 30 Series E for Power Controlled.)
3. Bolt drum gear to drum torquing the bolts to 146 ft. lbs. lubed or 225 ft. lbs. dry.

Intermediate Shaft Assembly

Install intermediate shaft with .004 to .007 end play in bearings.

Bevel Gear Shaft Assembly — Direct Drive

1. Place all of the parts into the winch case in the same manner as they were removed.
2. Lower the bevel gear shaft into the stacked parts. DO NOT use a hammer to drive the shaft down through the component parts. Fix the shaft in place and revolve the winch to an upright position. Bearing adjustment is made by shims under each bearing retainer. Set the bearing end play at .000 to .004.

SERVICING INSTRUCTIONS — Continued

WINCH REASSEMBLY

Bevel Gear Shaft Assembly — Power Controlled

1. Place all parts into winch case in the same order they were removed.
2. Line up the marked pipe plugs in the outer diameter of the retainer plate in the clutch packs, with holes in the bevel gear shaft splines. (Only one of the plugs will be correct as cross hole goes through one major diameter and one minor diameter of spline.)
3. Sling the bevel gear shaft.



Figure 12

4. Lower the shaft through side frame, being certain that the match marks on the shaft line up with the match marks on the clutches. The two holes, "A," in the shaft (for hydraulic oil to the clutches) shown in Figure 12 will then line up with the holes in the clutch retainer plate. DO NOT use a hammer to drive the shaft through the component parts. *NOTE:* Coat side and top of seals (8 and 9, Page D5) with Lubriplate before inserting in shaft.
5. Fix the shaft in place and revolve winch to upright position.
6. Lock the bearings on the end of the shaft that is towards brake compartment with snap rings provided.
7. Install the bearing nut on the opposite end (torque to 200 ft. lbs. \pm 25) and lock it with lockwasher provided. (Always use new lockwasher.) DO NOT install metal seal rings on ends of shaft. R
8. Adjust end play to .000 - .004 by use of shims under each bearing retainer.
9. Remove bearing retainers and install metal seal rings on ends of shafts. Be sure these seal rings are not broken or damaged when reinstalling bearing retainers.

SERVICING INSTRUCTIONS — Continued

WINCH REASSEMBLY

Brake Shaft Assembly — Direct Drive and Power Controlled

1. Install brake shaft with .006 to .009 end play in bearings.
2. Apply Plastic Lead Seal No. 2 or equivalent to threads of capscrews holding oil seal retainer at brake end of shaft.

DIRECT DRIVE AND POWER CONTROLLED

Power Take-off Assembly

1. Install the P.T.O. shaft. Be sure the bevel pinion is in place and snap ring properly installed.
2. Recheck the backlash and gear mesh of the bevel gear set. This is best done by painting the gears with white lead and obtaining a gear pattern as shown in Figure 30.
3. After the correct gear pattern is obtained, move the bevel ring gear away from the pinion to obtain .006 - .014 backlash.

SERVICING INSTRUCTIONS — Continued

WINCH REASSEMBLY

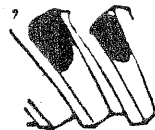
The following diagrams show the results of too little or too much pinion depths as determined from the impression of the tooth bearing on the white lead.



- a. Check adjustment at driveside of bevel gear tooth.



- b. Shows correct tooth contact.



- c. Shows short contact at heel. To correct, move gear toward pinion. Then move pinion away from gear to again secure correct backlash.



- d. Shows short contact at toe. To correct, move gear away from pinion. Then move pinion toward gear to again secure correct backlash.



- e. Shows heavy contact on flank or lower portion of tooth. To correct, move pinion away from gear until contact comes to full working depth of tooth without breaking contact at flank. Then move gear toward pinion to secure correct backlash.



- f. Shows heavy contact on face or upper portion of tooth. To correct, move pinion toward gear until contact covers flank of tooth without breaking contact at face. Then move gear away from pinion to secure correct backlash.

Figure 30

SPECIFICATIONS D7F TOWING WINCH

Drum Size	Standard Speed Winch	Lo-Speed Winch
Barrel Dia.	12	8
Flange Dia.	22½	22½
Barrel Length	12¾	10⅝

CABLE CAPACITY

⅞" Line (Recommended)	382 Ft.	402 Ft.
1" Line	293 Ft.	308 Ft.

(Allow for Loose and Unevenly Spooled Line)

NOTE: IMPORTANT

Available line pulls may be greater than the breaking point of cable used. Line pulls should be limited by winch owner to comply with all safety laws applicable where the equipment is being used.

FERRULE SIZE For ⅞" Line, J7; For 1" Line, J8

HYDRAULIC SYSTEM (For Power Controlled Winch)

Pump	Gear Type, 9.5 GPM at 1450 R.P.M.
Max. Operating Pressure	225 P.S.I.
Valve	Two Spool
Filter	50-Mesh Screen Cartridge

WEIGHT, Approximate (Without Cable) (Power Controlled Winch)

Net †	2,590 lbs.
Without Drawbar	2,495 lbs.

WEIGHT, Approximate (Without Cable) (Direct Drive Winch)

Net †	2,160 lbs.
Without Drawbar	2,065 lbs.

Automatic Brake, Optional (For Direct Drive Winch) 90 lbs.

Fairlead, Optional 725 lbs.

Guide Rolls, Optional 130 lbs.

†NOTE: The Caterpillar drawbar group, weighing approximately 340 pounds, cannot be used with the D7F Towing Winch equipped with built-in drawbar, thus decreasing the Net Applied Weight on the tractor.

SPECIFICATIONS
FOR DIRECT DRIVE WINCH
Standard Speed Winch Performance *

AVAILABLE LINE PULLS*, Lbs.	Forward	Reverse
Bare Drum	51,600	22,300
Full Drum	30,750	13,280

LINE SPEEDS*, F.P.M.

Bare Drum	100	230
Full Drum	167	388

*Specs based on Caterpillar D7 Series E, 160 HP Tractor.
 1200 RPM Engine Speed.

Lo-Speed Winch Performance *

AVAILABLE LINE PULLS*, Lbs.	Forward	Reverse
Bare Drum	69,200	50,100
Full Drum	61,500	26,900

LINE SPEEDS*, F.P.M.

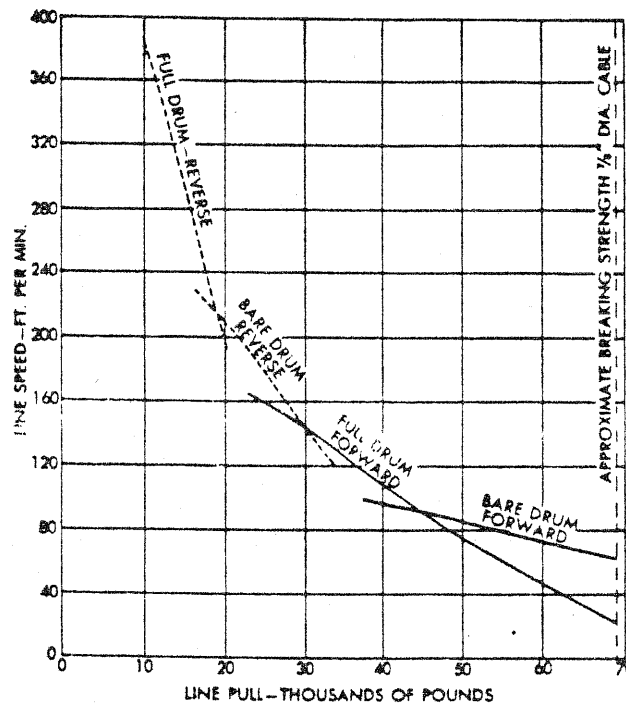
Bare Drum	26	60
Full Drum	64	147

*Specs based on Caterpillar D7 Series E, 160 HP Tractor.
 Max. Engine Torque Speed 800 RPM.

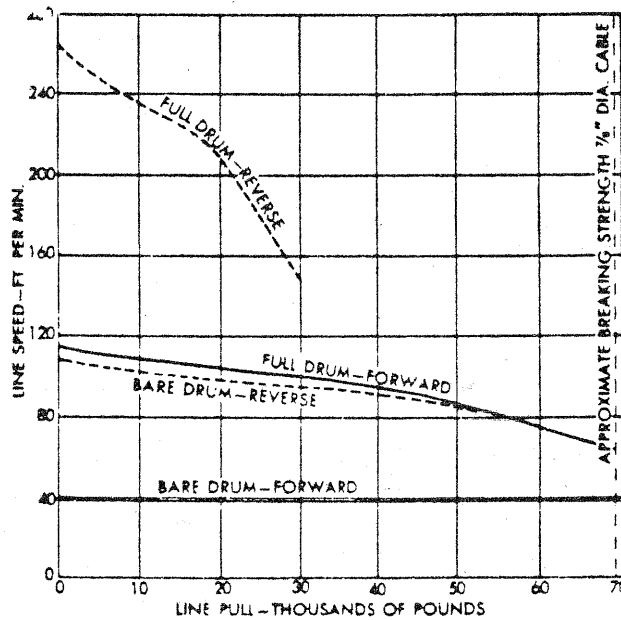
SPECIFICATIONS

FOR POWER CONTROLLED WINCH

Standard Speed Winch Performance *

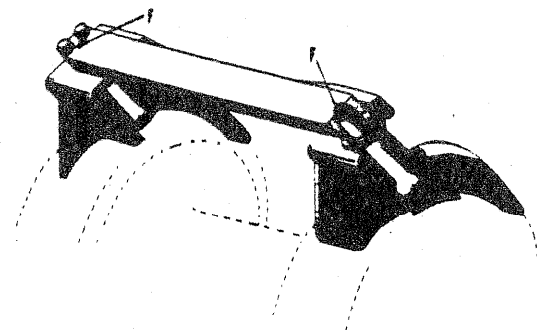
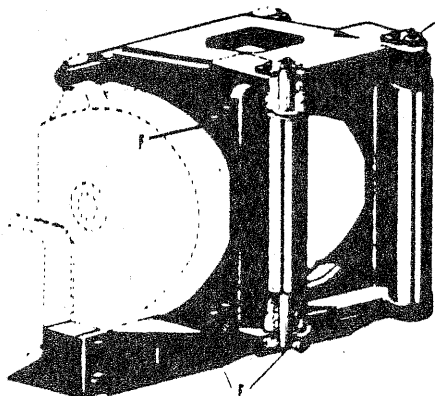
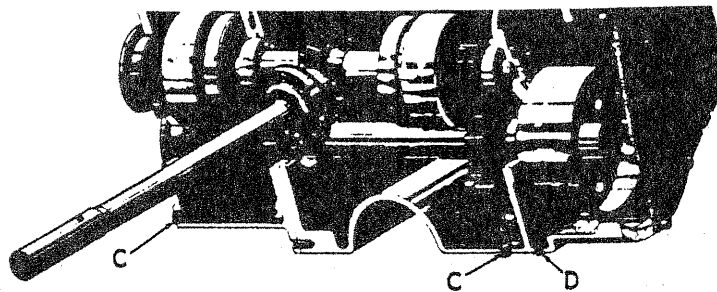
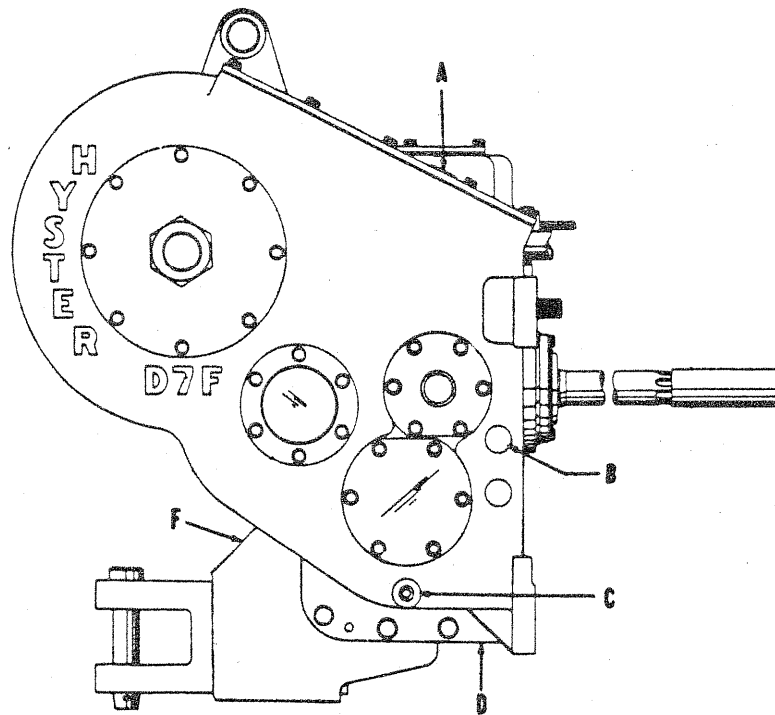


Lo-Speed Winch Performance *



Winch performance* on Caterpillar D7, Series E, Powershift Tractor, 162 HP (at flywheel) using 7/8" cable.

LUBRICATION INSTRUCTIONS



Fairlead Assembly

Cable Guide Rolls

LUBRICATION INSTRUCTIONS — Continued

Every Eight Hours or Daily

Swiveling Drawbar, Fairlead and Cable Guide Rolls (Optional)

Lubricate with pressure gun grease at "F."

Rod End Pins

Rod end pins, shifter rods, lever fulcrums, pin connections and other moving parts should be lubricated with SAE 30 engine oil at the end of each shift.

Every 50 Hours or Weekly

Transmission

Check oil level at plug "B"; add oil if necessary.

If winch is new, drain, flush and refill with new oil.

NOTE: When checking oil level in winches mounted on powershift tractors, stop tractor engine to obtain a correct reading. On winches mounted on direct drive tractors, disengage the tractor master clutch to obtain a correct reading.

Every 200 Hours or Four Weeks

Loosen plugs "C" and drain any accumulation of water in the transmission. Tighten plugs when oil appears, and check oil level.

Remove plug "D" and drain any water which may have accumulated in the brake compartment. Replace plug and tighten securely.

For optional integral arch, remove pipe plug in horizontal roller and add tractor transmission oil as required.

Every 500 Hours

Or When Tractor Engine Oil Filter Is Changed

Power Controlled

Filter—Remove cartridge, clean thoroughly and replace.

Pump Drive (for Traxcavator)—Remove pipe plug and add winch transmission oil as required. R

Every 1000 Hours or Six Months (Under Normal Conditions)

Transmission

Drain, flush and refill with new oil. At the factory the winch is filled to proper level with SAE 90 oil in Direct Drive winch and SAE 30 Series 3 oil in Power Controlled winch.

To simplify maintenance, use of identical oil as used in tractor transmission is recommended for all weather conditions.

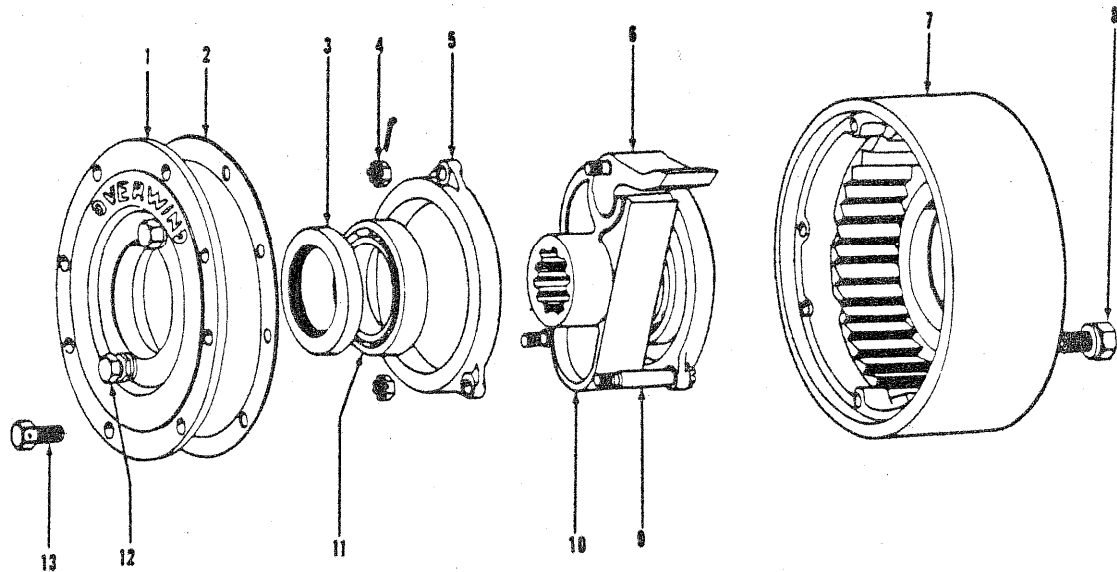
Drain through plugs "C." Refill through plug "A" up to level plug "B."

CAPACITY

Direct Drive	13 Gallons
Power Controlled	9.5 Gallons

LUBRICATION INSTRUCTIONS — Continued

Automatic Brake (Optional)



Every 1000 hours the brake should be cleaned and repacked with a high melting point grease. Proceed as follows:

1. Remove the cover plate on the L.H. side frame brake compartment.
2. Remove pins in the ends of brake band and remove brake band.
3. Remove snap ring from the end of the brake shaft, and pull the brake assembly out.
4. Remove lockwire and the eight drilled head cover capscrews (13).
5. Remove the cover (1) with appropriate puller, being careful not to damage oil seal (3).
6. Pull out hub (10), assembled with pawl (6) and drag rings (5).
7. Clean all parts thoroughly and repack brake with one pound of high melting point heavy wheel bearing grease. Apply carefully to bearings (11) and all wearing surfaces.

Caution! Do not fill brake completely with grease. Item (12) is a vent plug. Do not attempt to grease through this fitting

8. After servicing, replace center assembly removed in Instruction 6.
9. Clean gasket surfaces thoroughly and use new gasket (2). If new oil seals (3) are used, install with lips turned in.
10. Coat both sides of gasket (2) with plastic lead seal No. 2 and assemble cover (1) onto case being careful not to damage oil seal (3).
11. Use a liberal amount of plastic lead seal No. 2 in each cover cap screw hole. Install capscrews (13) and tighten securely. Replace lockwire through cap screw heads.
12. Install assembled brake wheel on shaft with word "overwind" to the outside for overwind operation. Lock in place with snap ring.
13. Install brake band on brake wheel, anchoring with pins removed in Instruction 2.
14. Replace cover removed in Instruction 1.

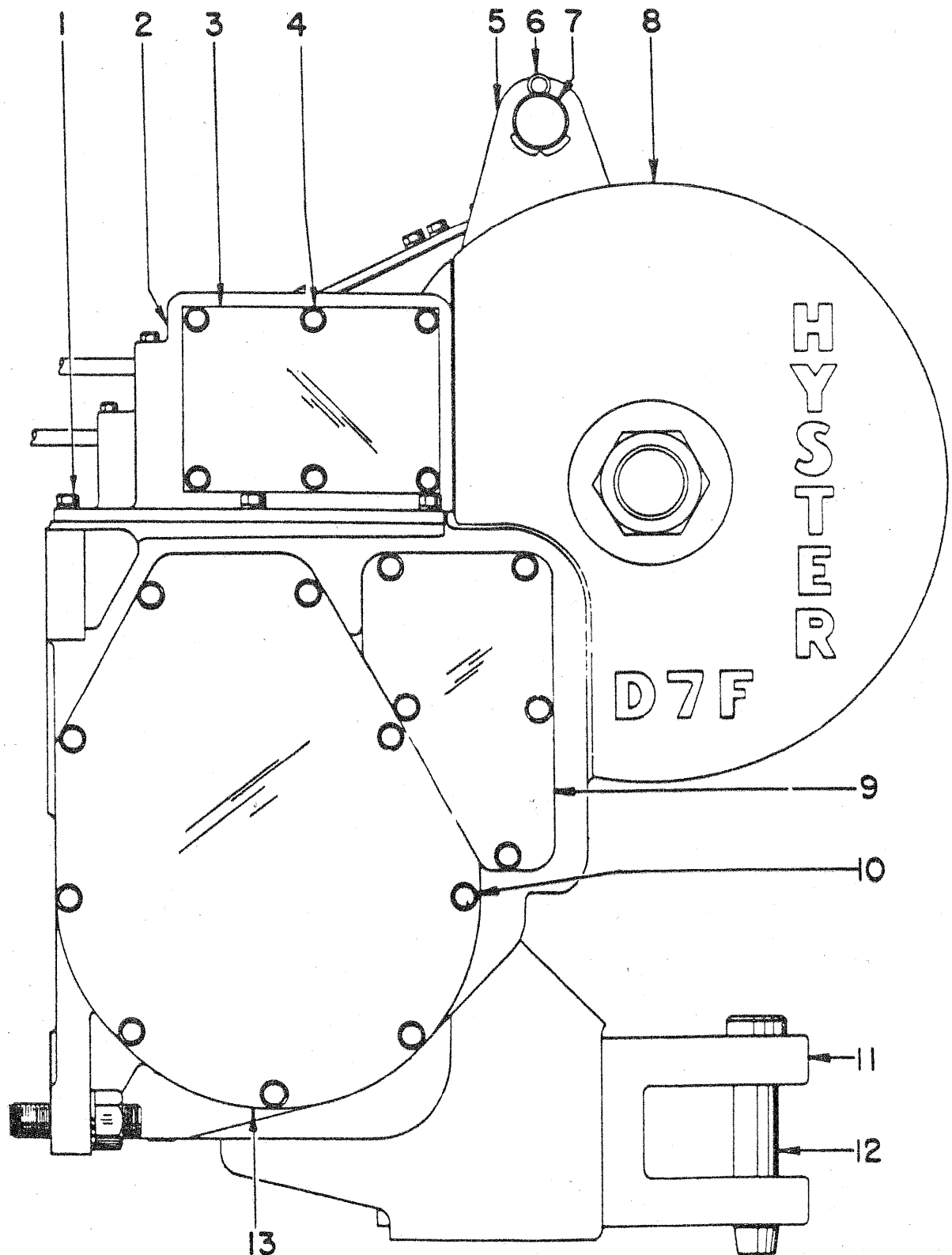
Section B

FRAME AND MOUNTING STUDS

INDEX

MOUNTING STUDS	B7
WINCH—LEFT SIDE (POWER CONTROLLED)	B3
WINCH—LEFT SIDE (DIRECT DRIVE)	B1
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977 TRAXCAVATOR MOUNTING PARTS	B9

WINCH ASSEMBLY — LEFT SIDE
(Direct Drive)



129-01

WINCH ASSEMBLY — LEFT SIDE

(Direct Drive)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	{ 16807	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{2}$	5
	{ 15158	Lockwasher— $\frac{1}{2}$	5
2	{ ‡ 97842	Cover—Transmission	1
	{ 96377	Gasket	1
3	{ 96378	Plate—Cover	1
	{ 96379	Gasket—Cover	1
4	{ 16829	Capscrew— $\frac{1}{2}$ UNC x 1	6
	{ 15158	Lockwasher— $\frac{1}{2}$	6
5	93771	Bracket—Tie Rod (Included with Housing)	2
6	15272	Cotter— $\frac{3}{8}$ x 3	2
7	92606	Rod—Tie	1
8	{ * 96398W	Housing—Transmission	1
	{ ‡ 96535W	Housing—Transmission	1
9	{ 96425	Plate—Cover	1
	{ 96426	Gasket—Cover	1
10	{ 16820	Capscrew— $\frac{1}{2}$ UNF x 1	14
	{ 15158	Lockwasher— $\frac{1}{2}$	14
11	{ * 96391W	Bracket—Drawbar (Included with Housing)	1
	{ ‡ 96402W	Bracket—L.H.	1
12	{ * 94369	Pin—Drawbar	1
	{ * 15273	Cotter— $\frac{3}{8}$ x $2\frac{1}{2}$	1
13	{ 96423	Plate—Cover	1
	{ 96424	Gasket—Cover	1
	78202A	Gasket Set (Not Illustrated)	1
		(Includes one each of all gaskets required)	

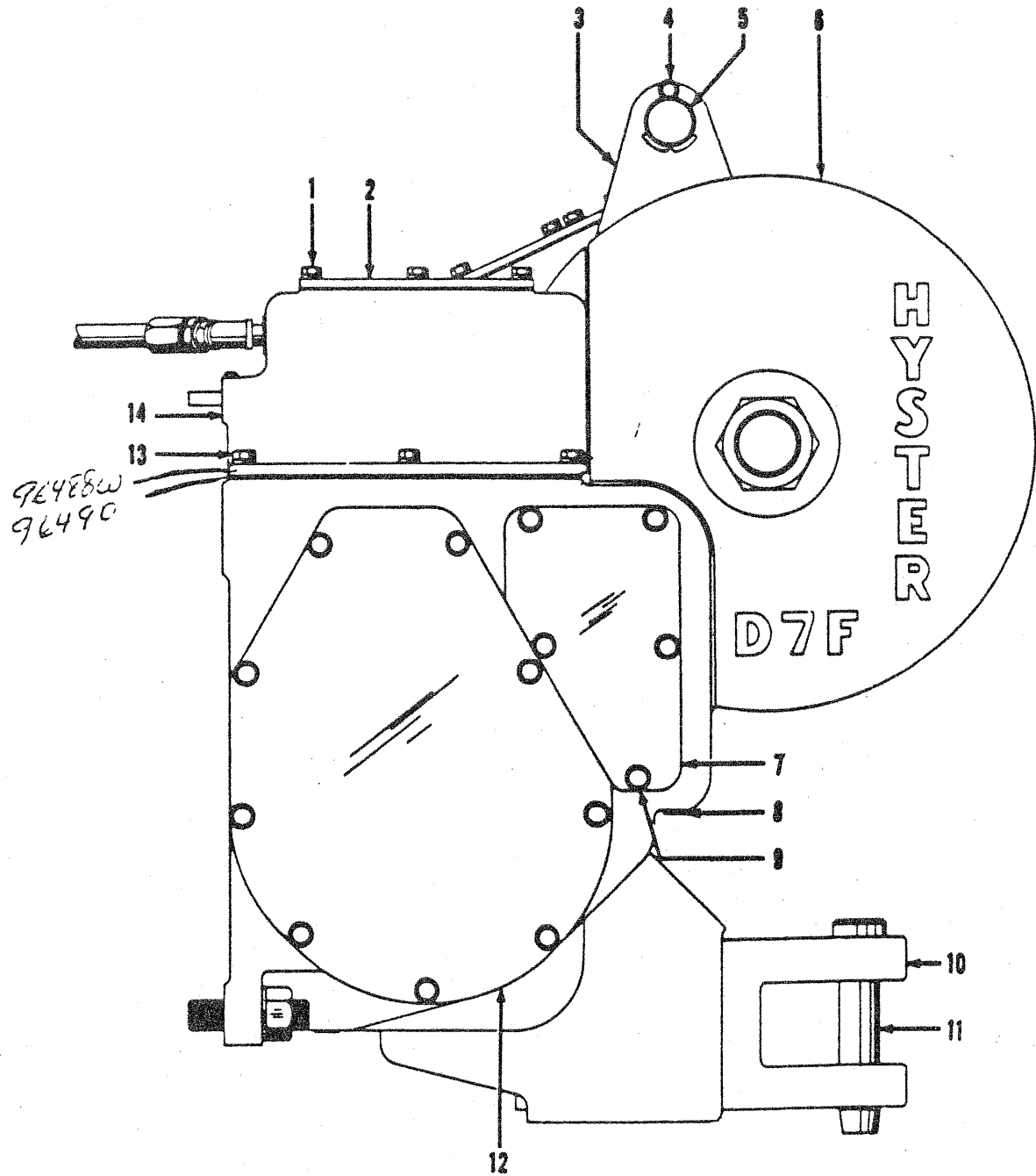
*For D7F Towing Winch with Hyster Drawbar.

‡For D7F Towing Winch with Caterpillar Drawbar.

‡Prior to S.N. C47P-1717 include Crank 97843A.

NOTE. This Crank Reverses Clutch Handlever Action.

WINCH ASSEMBLY — LEFT SIDE (Power Controlled)



WINCH ASSEMBLY — LEFT SIDE

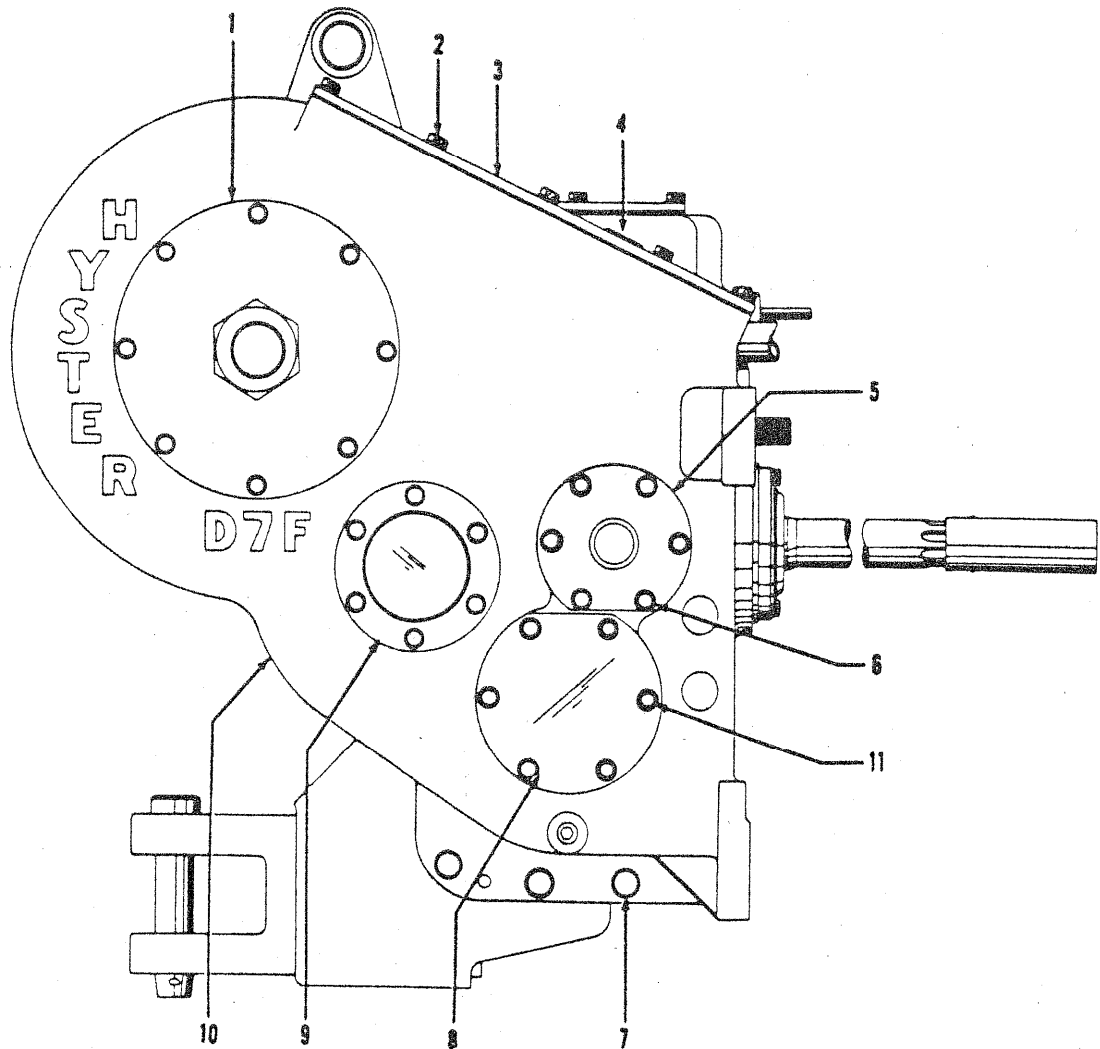
(Power Controlled)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	{ 16829	Capscrew— $\frac{1}{2}$ UNC x 1	6
	{ 15158	Lockwasher— $\frac{1}{2}$	6
2	{ 96491	Cover	1
	{ 96492 +	Gasket	1
3	93771	Bracket—Tie Rod (Included with Housing)	2
4	15272	Cotter— $\frac{3}{8}$ x 3	2
5	92606	Rod—Tie	1
6	{ * 96534W	Housing—Transmission	1
	{ † 96503W	Housing—Transmission	1
7	{ 96425	Plate—Cover	1
	{ 96426 +	Gasket—Cover	1
8	15315	Plug— $\frac{1}{2}$	1
9	{ 16820	Capscrew— $\frac{1}{2}$ UNF x 1	14
	{ 15158	Lockwasher— $\frac{1}{2}$	14
10	{ * 96391W	Bracket—Drawbar (Included with Housing)	1
	{ † 96402W	Bracket—L.H.	1
11	{ * 94369	Pin—Drawbar	1
	{ * 15273	Cotter— $\frac{3}{8}$ x $2\frac{1}{2}$	1
12	{ 96423	Plate—Cover	1
	{ 96424 +	Gasket—Cover	1
13	{ 16807	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{2}$	5
	{ 15158	Lockwasher— $\frac{1}{2}$	5
	{ 96486	Housing—Valve <i>142-133893-132020-132021</i>	1
14	{ 96487 +	Gasket	1
	{ 96488W	Cover	1
	{ 96490 +	Gasket	1
	{ 96624	Block—Push-Pull Cables	1
	{ 16807	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{2}$	2
	{ 15158	Lockwasher— $\frac{1}{2}$	2
	127908 +	Gasket Set (Not Illustrated)	1
		(Includes one each of all Gaskets Required)	

*For D7F Towing Winch with Hyster Drawbar.

†For D7F Towing Winch with Caterpillar Drawbar.

WINCH ASSEMBLY — RIGHT SIDE



WINCH ASSEMBLY — RIGHT SIDE

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	{ 96439W	Retainer—Bearing	1
	{ 92616	Shim Set <i>3-134070, 1-134071, 2-134072</i>	1
2	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	10
	{ 15158	Lockwasher— $\frac{1}{2}$	10
	{ 96427	Cover—Frame, R.H.	1
3	{ 96428 +	Gasket—Cover	1
	{ 21420	Plug—Vent	1
4	15319	Plug—Pipe	1
5	{ 95948	Retainer—Bearing (Direct Drive)	1
	{ 96472	Retainer—Bearing (Power Controlled)	1 R
6	{ 16807	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{2}$	27
	{ 15158	Lockwasher— $\frac{1}{2}$	27
7	{ 16800	Capscrew— $\frac{3}{4}$ UNF x 2	7
	{ 15162	Lockwasher— $\frac{3}{4}$	7
8	{ 96433	Retainer—Bearing	1
	{ 96434	Shim Set <i>2-134051, 2-134052, 2-134053</i>	1
9	{ 92623	Cover	1
	{ 92624	Shim Set <i>4-134074, 1-134075, 1-134076</i>	1
	{ * 96500W	Frame—R.H. (Power Controlled)	1
	{ + 96501W	Frame—R.H. (Power Controlled)	1
10	{ + 96409W	Bracket—R.H. (Power Controlled)	1
	{ * 96399W	Frame—R.H. (Direct Drive)	1
	{ + 96407W	Frame—R.H. (Direct Drive)	1
	{ + 96409W	Bracket—R.H. (Direct Drive)	1
11	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	20
	{ 15158	Lockwasher— $\frac{1}{2}$	20

*For D7F Towing Winch with Hyster Drawbar.

†For D7F Towing Winch with Caterpillar Drawbar

134051 = .005

134052 = .007

134053 = .020

134070 = .005

134071 = .007

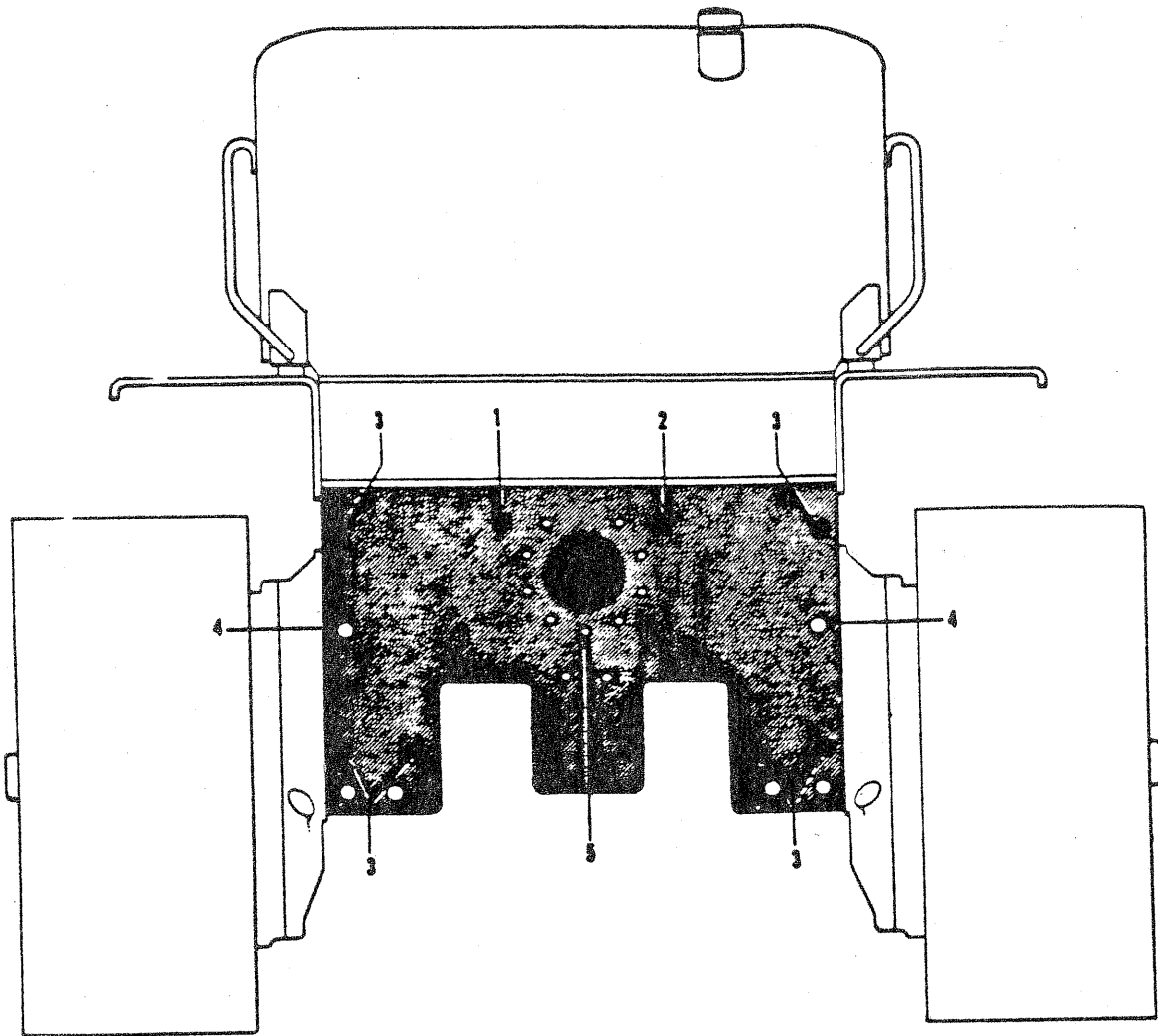
134072 = .020

134074 = .005

134075 = .007

134076 = .020

MOUNTING STUDS

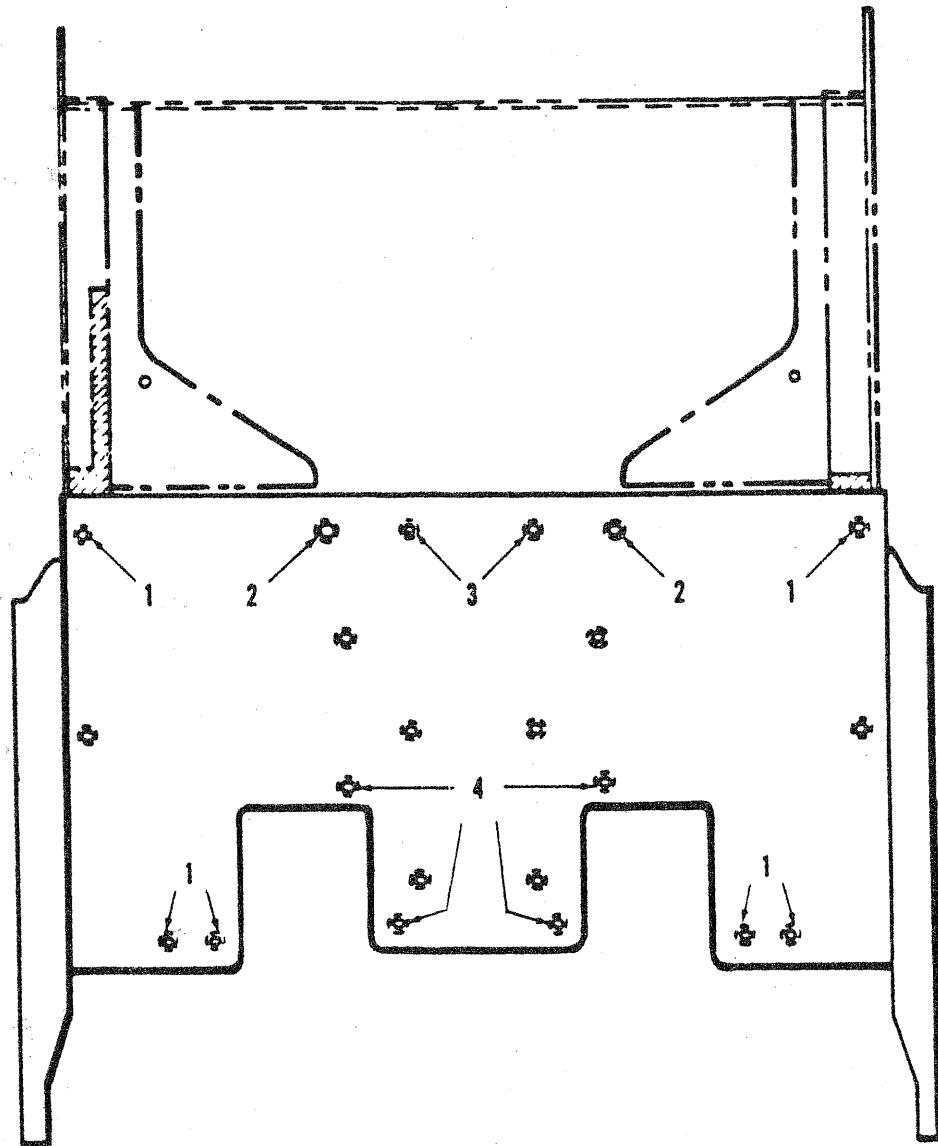


129-18

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	95835	Stud	1
	134821	Nut—Slotted, 1 $\frac{1}{4}$ UNF	1 R
	15240	Cotter—5/32 x 2 $\frac{1}{2}$	1
2	96422	Stud	1
	15018	Nut—1 $\frac{1}{4}$ UNF	1
	15168	Lockwasher—1 $\frac{1}{4}$	1
3	95837	Stud	6
	15018	Nut—1 $\frac{1}{4}$ UNF	6
	15168	Lockwasher—1 $\frac{1}{4}$	6
4	18001	Cork—No. 17	2 R
5	18000	Cork—No. 5	9 R

MOUNTING STUDS

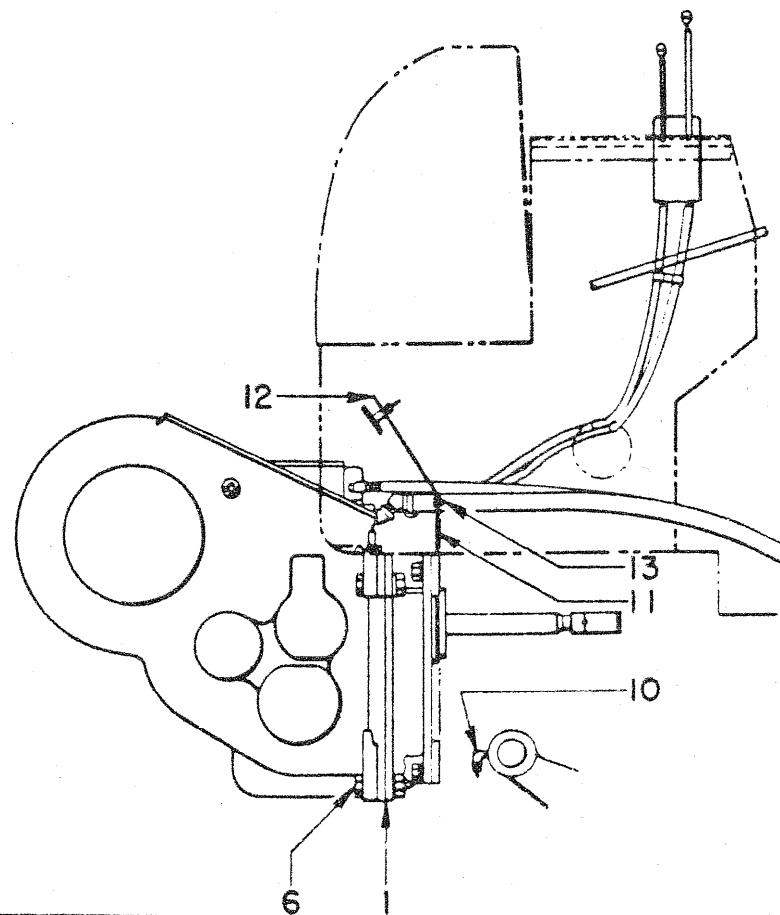
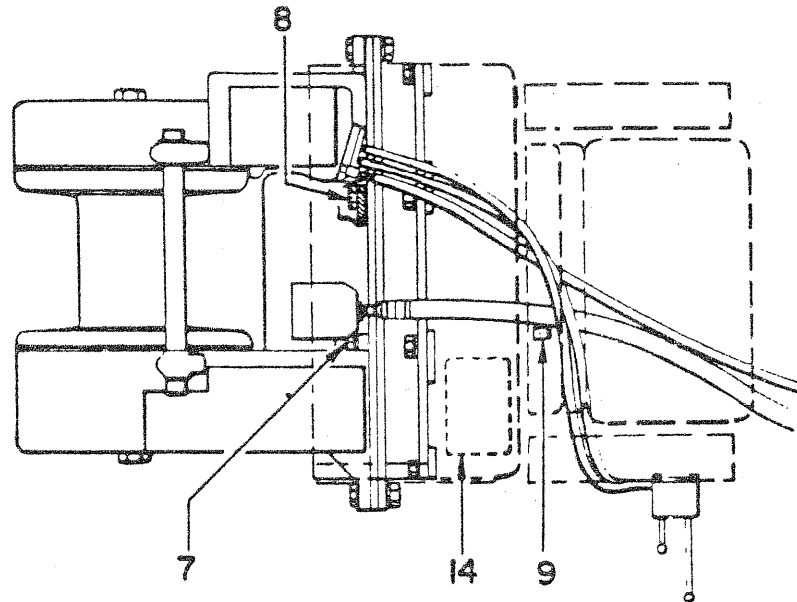
(For 977 Traxcavators Serial No. 53A1 and up)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	133179	Stud—1" x 4	6
	15016	Nut—1" UNF	6
	15166	Lockwasher—1"	6
2	36240	Stud—1¼ x 4¾	2
	15018	Nut—1¼ UNF	2
	15168	Lockwasher—1¼	2
3	18004	Cork—No. 7	6
4	18005	Cork—No. 11	4

MOUNTING PARTS

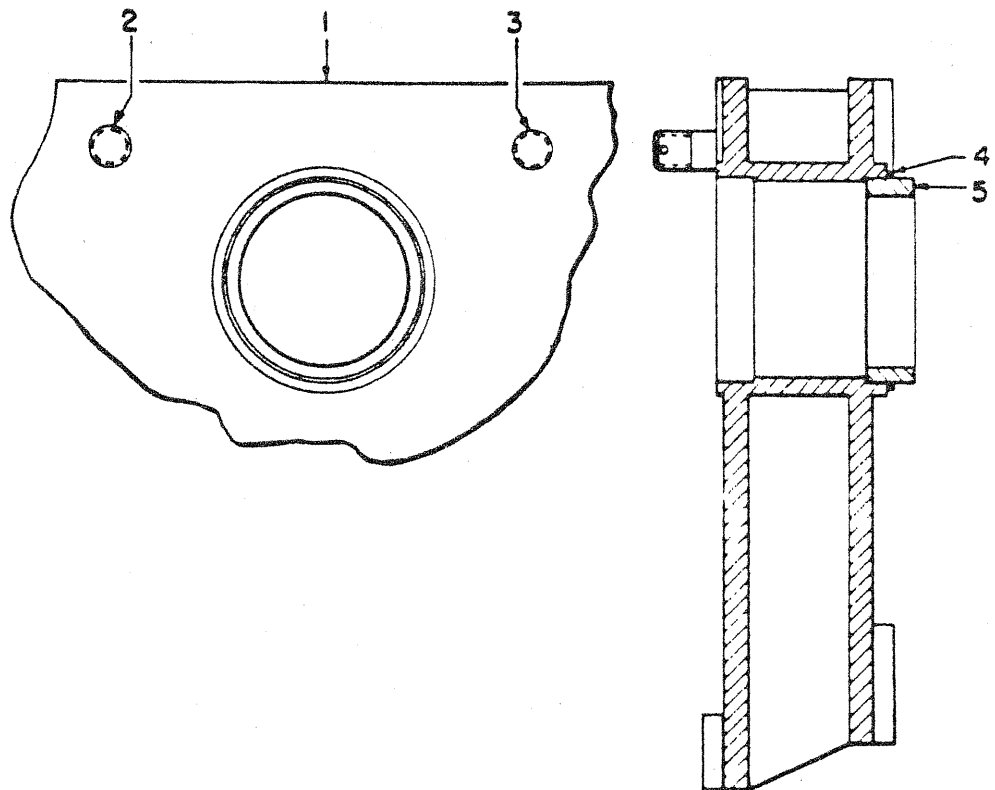
(For 977 Traxcavators Serial No. 53A1 and up)



HYSTER COMPANY
PORTLAND, OREGON

MOUNTING PARTS

(For 977 Traxcavators Serial No. 53A1 and up)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	132911	Adapter Assembly (Includes Items 2 to 5 incl.)	1
2	132922	Stud (Drilled)	1
3	132923	Stud	1
4	134118	"O" Ring	1
5	132921	Ring	1
6	133529	Capscrew— $1\frac{1}{4}$ UNF x $4\frac{1}{2}$	6
	15018	Nut— $1\frac{1}{4}$ UNF	6
	15168	Lockwasher— $1\frac{1}{4}$	6
7	15018	Nut— $1\frac{1}{4}$ UNF	1
	15168	Lockwasher— $1\frac{1}{4}$	1
8	134821	Nut—Slotted Jam, $1\frac{1}{4}$ UNF	1 R
	15240	Cotter— $5/32$ x $2\frac{1}{2}$	1 R
9	132931	Bracket	1
10	15451	Fitting—Street Ell	2
11	132927	Plate	1
12	132924	Plate Assembly—Rear	1
13	18202	Capscrew— $3/8$ UNF x $1\frac{1}{4}$	2
	15006	Nut— $3/8$ UNF	2
	15156	Lockwasher— $3/8$	2
14	129859	Decal—Operation and Lube Instruction	1

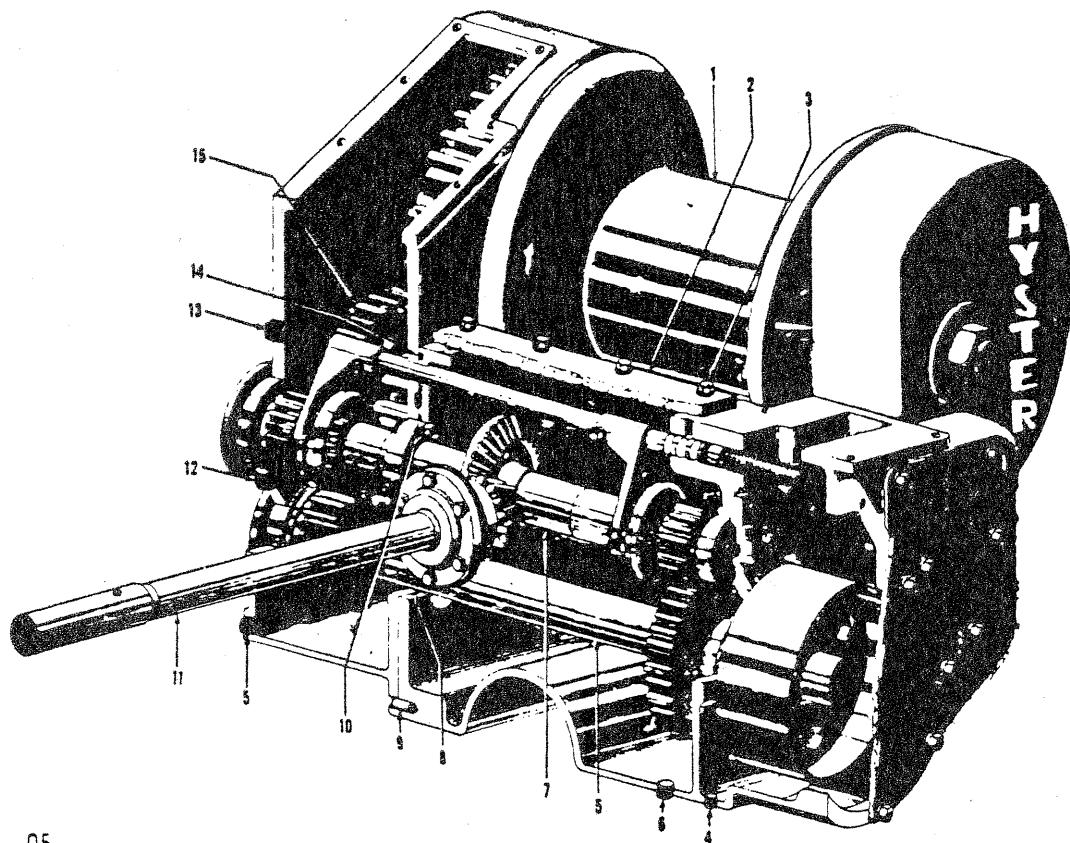
Section D

GEAR TRAIN AND SHAFT ASSEMBLIES

INDEX

BEVEL GEAR SHAFT ASSEMBLY (POWER CONTROLLED)	D5
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WINCH ASSEMBLY (Direct Drive)

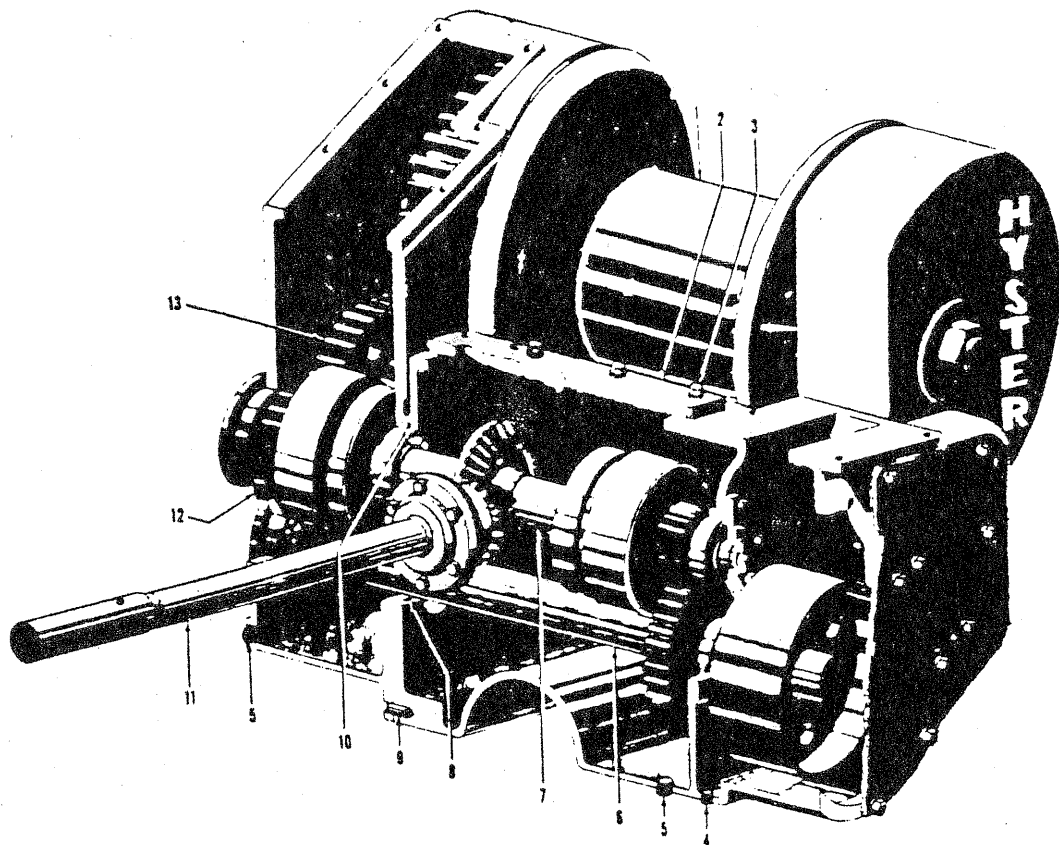


129-05

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	.....	Drum Shaft Assembly (See Page D11)	
2	{ 96369	Cover—Transmission	1
	{ 96370	Gasket—Transmission Cover	1
3	{ 16397	Capscrew— $\frac{1}{2}$ UNF x $1\frac{3}{4}$	9
	{ 15158	Lockwasher— $\frac{1}{2}$	9
4	15315	Plug—Pipe, $\frac{1}{2}$	1
5	10389	Plug—Pipe, Magnetic, $\frac{3}{4}$	2
6	.....	Brake Shaft Assembly (See Page D8)	
7	.....	Bevel Gear Shaft Assembly (See Page D3)	
8	15889	"O" Ring	1
9	95440	Pin—Dowel	1
10	15892	"O" Ring	1
11	.....	Power Take-off Assembly (See Page D9)	
12	15304	Plug—Pipe, $\frac{3}{4}$	1
13	15305	Plug—Pipe, 1"	1
14	55287	"O" Ring	1
15	Intermediate Gear Assembly (See Page D10)	

WINCH ASSEMBLY

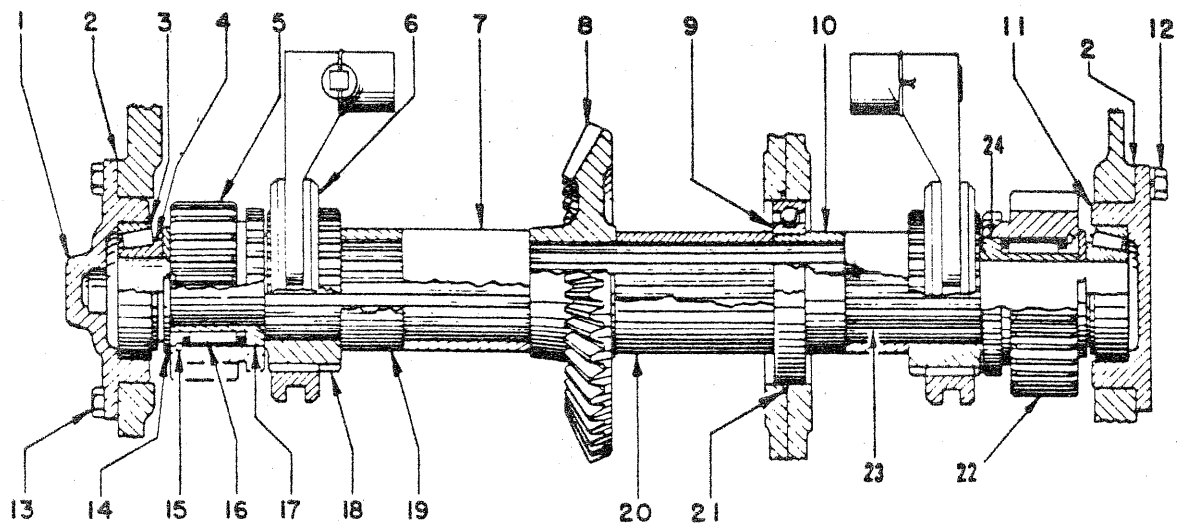
(Power Controlled)



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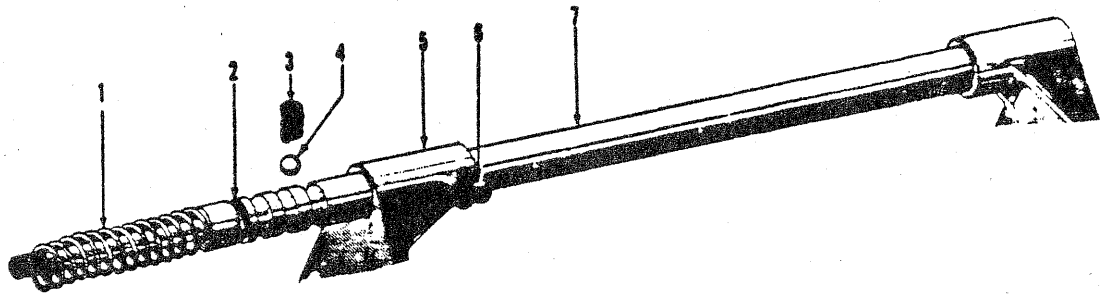
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	Drum Shaft Assembly (See Page D11)	
2	{ 96453	Cover—Transmission	1
	{ 96370	Gasket	1
3	{ 16397	Capscrew— $\frac{1}{2}$ UNF x $1\frac{3}{4}$	7
	{ 15158	Lockwasher— $\frac{1}{2}$	7
4	15315	Plug—Pipe, $\frac{1}{2}$	1
5	10389	Plug—Pipe, Magnetic, $\frac{3}{4}$	2
6	.....	Brake Shaft Assembly (See Page D8)	
7	.....	Bevel Gear Shaft Assembly (See Page D5)	
8	15889	"O" Ring	1
9	95440	Pin Dowel	1
10	15892	"O" Ring	1
11	.....	Power Take-off Assembly (See Page D9)	
12	15304	Plug—Pipe, $\frac{3}{4}$	1
13	.....	Intermediate Gear Assembly (See Page D10)	
	{ 16800	Capscrew— $\frac{3}{4}$ UNF x 2, Trans. to Frame	7
	{ 15162	Lockwasher— $\frac{3}{4}$ (Not Illustrated)	7

BEVEL GEAR SHAFT ASSEMBLY (For Direct Drive Winch)



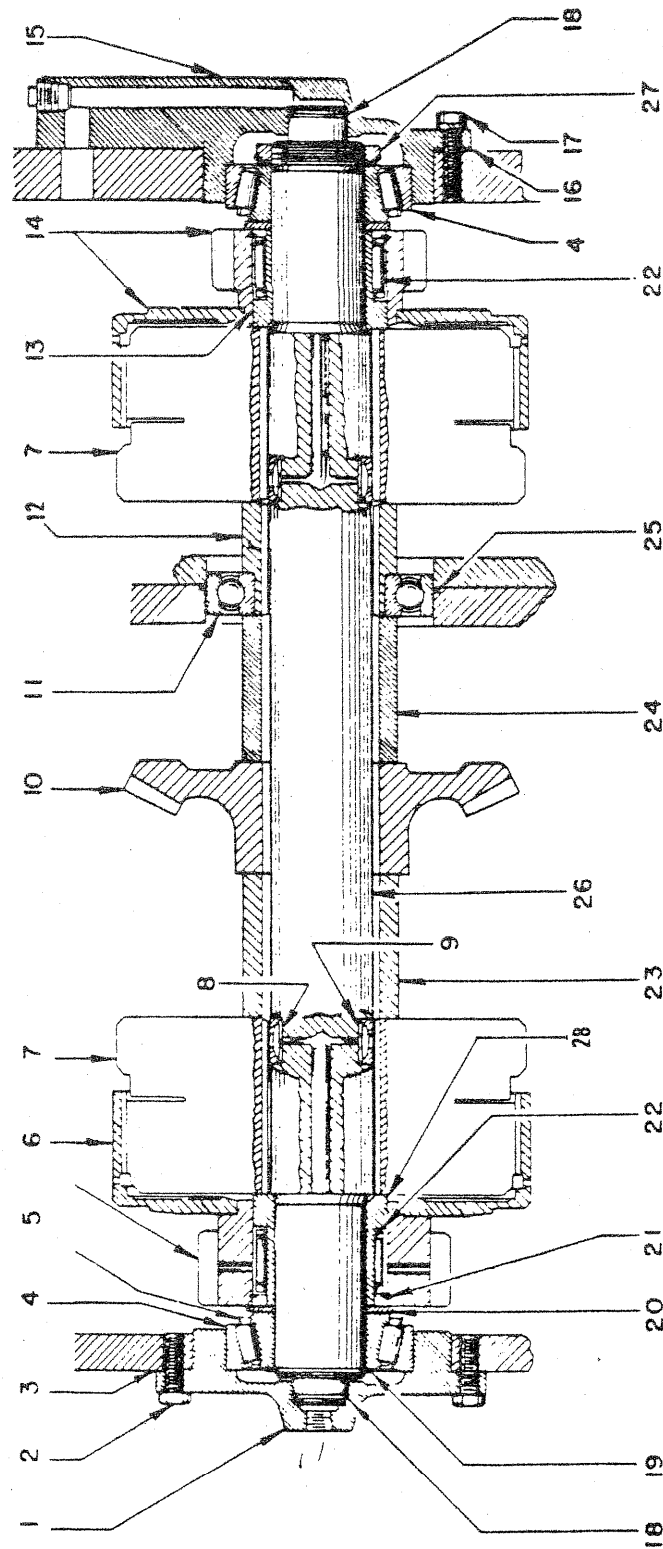
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	95942	Carrier—Bearing	1
2	110934	Shim—.005	4
	110935	Shim—.007	8
	110936	Shim—.020	2
3	230351	Bearing Cup	2
4	230405	Bearing Cone	2
5	95944	Gear—(22 teeth)	1
6	95946	Clutch—Dental	2
7	95963	Spacer	1
8	96021	Gear—Bevel (45 teeth), Standard Speed	1
	96028	Gear—Bevel (45 teeth), Lo-Speed	1
9	44316	Bearing	1
10	96430	Carrier—Bearing	1
11	95948	Retainer—Bearing	1
12	16807	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{2}$	6
	15158	Lockwasher— $\frac{1}{2}$	6
13	37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	6
	15158	Lockwasher	6
14	95962	Washer	2
15	58938	Snap Ring	2
16	230407	Roller Bearing	2
17	95961	Carrier—Bearing	2
18	95945	Hub—Dental Clutch	2
19	96372	Spacer	2
20	95964	Spacer	1
21	15892	“O” Ring	1
22	96413	Gear—Standard Speed	1
	96416	Gear—Lo-Speed	1
23	96371	Shaft	1
24	96431	Carrier—Bearing	1

SHIFTER SHAFT (For Direct Drive Winch)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	94655	Spring	1
2	61142	"O" Ring	1
3	96375	Spring	1
4	6348	Ball	1
5	95951	Fork—Shifter	2
6	27936	Lockscrew	2
		Lockwire	2
7	96373	Shaft—Shifter	1

BEVEL GEAR SHAFT ASSEMBLY (For Power Controlled Winch)



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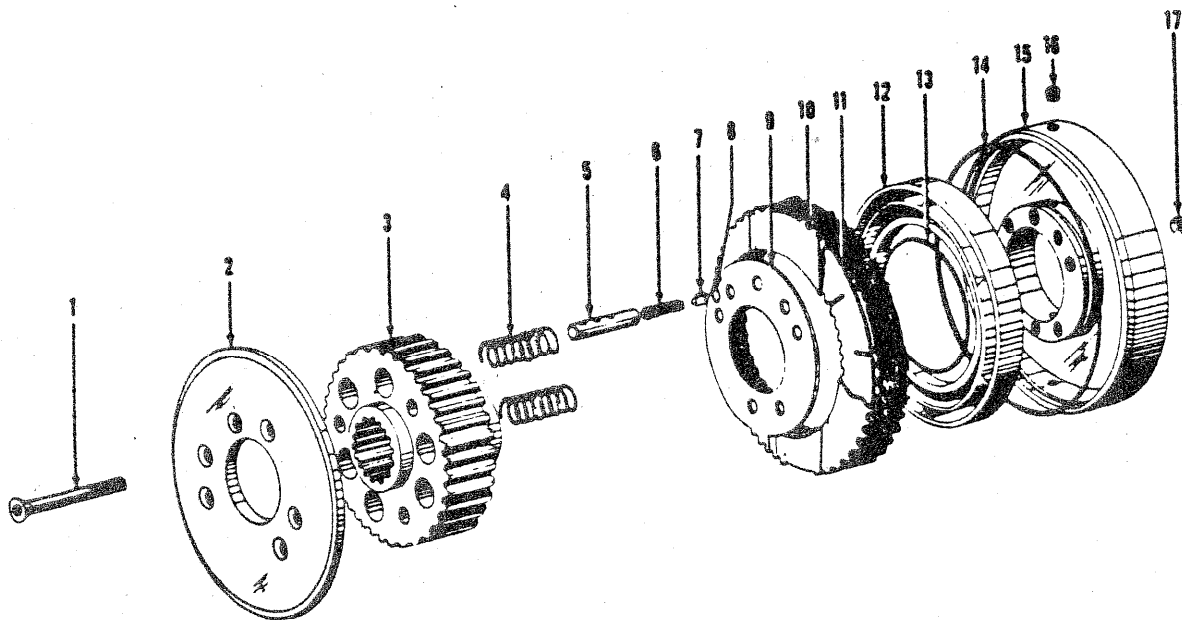
BEVEL GEAR SHAFT ASSEMBLY

(For Power Controlled Winch)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	95966	Retainer—Bearing <i>CRing 55289</i>	1
2	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	6
	{ 15158	Lockwasher— $\frac{1}{2}$	6
	{ 110934	Shim—.005	3
3	{ 110935	Shim—.007	4
	{ 110936	Shim—.020	1
4	230351	Cup—Bearing	2
5	230405	Cone—Bearing	2
6	96469W	Spider—Second Reduction <i>287942</i>	1
7	89773A	Clutch Assembly	2
8	96783	Seal (three teeth)	2
9	96784	Seal (two teeth)	2
10	{ 96021	Gear—Bevel, Standard Speed	1
	{ 96028	Gear—Bevel, Lo-Speed <i>45</i>	1
11	44316	Bearing—Ball	1
12	96430	Carrier—Bearing	1
3	96431	Carrier—Bearing	1
14	{ 96495W	Spider—Reverse, Standard Speed	1
	{ 96497W	Spider—Reverse, Lo-Speed <i>287939</i>	1
15	{ 96472	Retainer—Bearing	1
	{ 15302	Fitting—Pipe Plug, $\frac{3}{8}$	1
	{ 134107	Shim—.005	3 R
16	{ 134108	Shim—.007	3 R
	{ 134109	Shim—.020	1 R
17	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	7
	{ 15158	Lockwasher— $\frac{1}{2}$	7
18	95581	Ring—Seal	2
19	12916	Snap Ring	1
20	95962	Washer <i>171551</i>	2
21	58938	Snap Ring	2
22	230407	Bearing—Roller	2
23	95963	Spacer <i>196376</i>	1
24	95964	Spacer <i>196377</i>	1
25	15892	"O" Ring	1
26	96458	Shaft—Clutch	1
27	{ 21013	Lockwasher <i>174561</i>	1
	{ 21014	Locknut	1
28	95961	Carrier—Bearing	1

CLUTCH ASSEMBLY — 89773A

(For Power Controlled Winch)

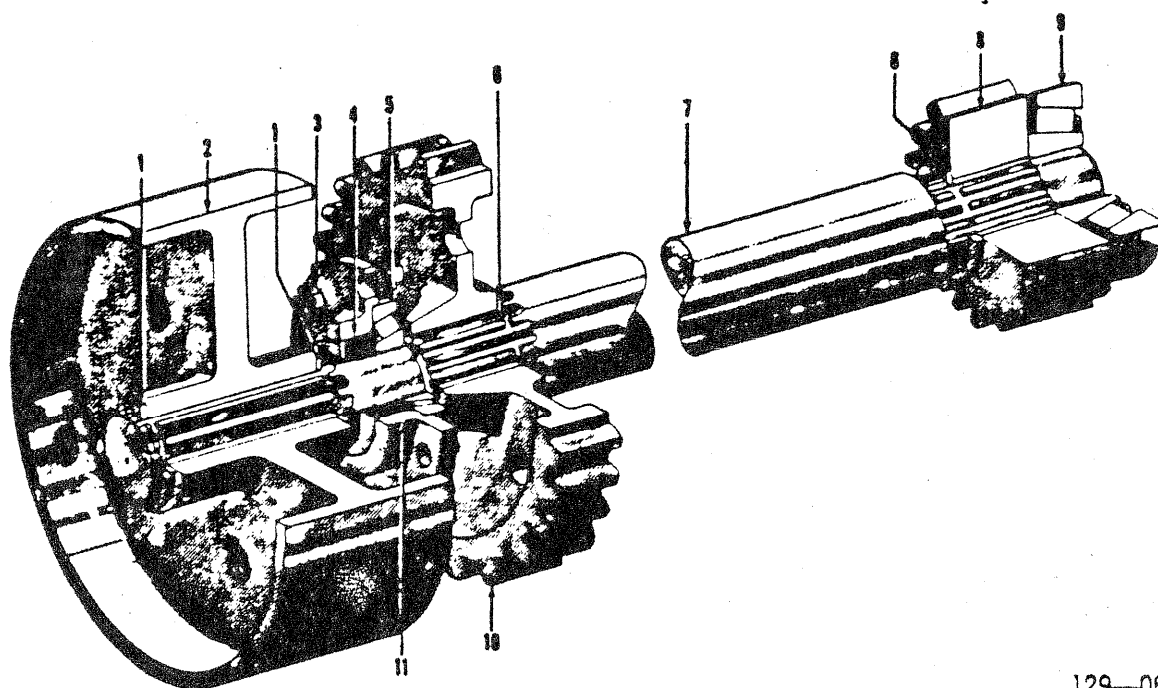


129—21

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	96468	Capscrew—Special	6
2	96467	Plate	1
3	96460	Hub	1
4	96466	Spring	6
5	* 89772	Body—Valve	1
6	95833	Spring	1
7	* 89771	Plunger	1
8	* 89770	Snap Ring	1
9	96461	Retainer—Spring	1
10	133917	Friction Disc	8
11	96464	Plate—Separator	8
12	96462	Piston—Clutch	1
13	89777	“O” Ring	1
14	79972	“O” Ring	1
15	96463	Plate—Retainer	1
16	15961	Plug	2
17	17118	Setscrew— $\frac{1}{2}$ UNF x $\frac{1}{2}$	6
	96785	Shim (Not Illustrated)	4

**First used on S.N. B77P-1777. Prior to this S.N. replace item 5, 7 or 8 with all three items.*

BRAKE SHAFT ASSEMBLY

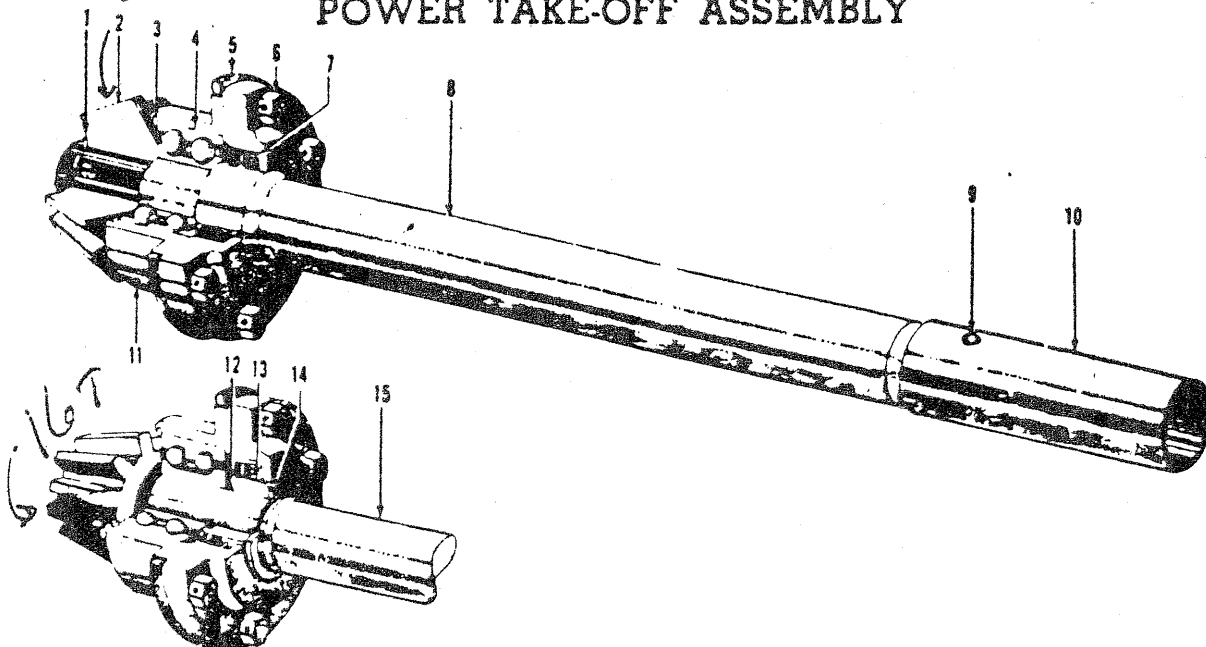


129-06

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	12940	Snap Ring	2
2	92652	Wheel—Brake (Standard)	1
3	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	6
	{ 15158	Lockwasher— $\frac{1}{2}$	6
4	87656	Oil Seal	1
5	{ 230311	Cup—Bearing	1
	{ 230310	Cone—Bearing	1
6	12915	Snap Ring	2
7	96432	Shaft—Brake	1
8	{ 96414	Gear—Intermediate Pinion ²²	1
	{ * 96417	Gear—Intermediate Pinion ¹⁹	1
9	{ 30059	Cup—Bearing	1
	{ 30080	Cone—Bearing	1
10	95969	Gear—Second Reduction	1
11	{ 89727	Retainer—Oil Seal	1
	{ 92649	Gasket	1

*For Lo-Speed Winch only.

POWER TAKE-OFF ASSEMBLY



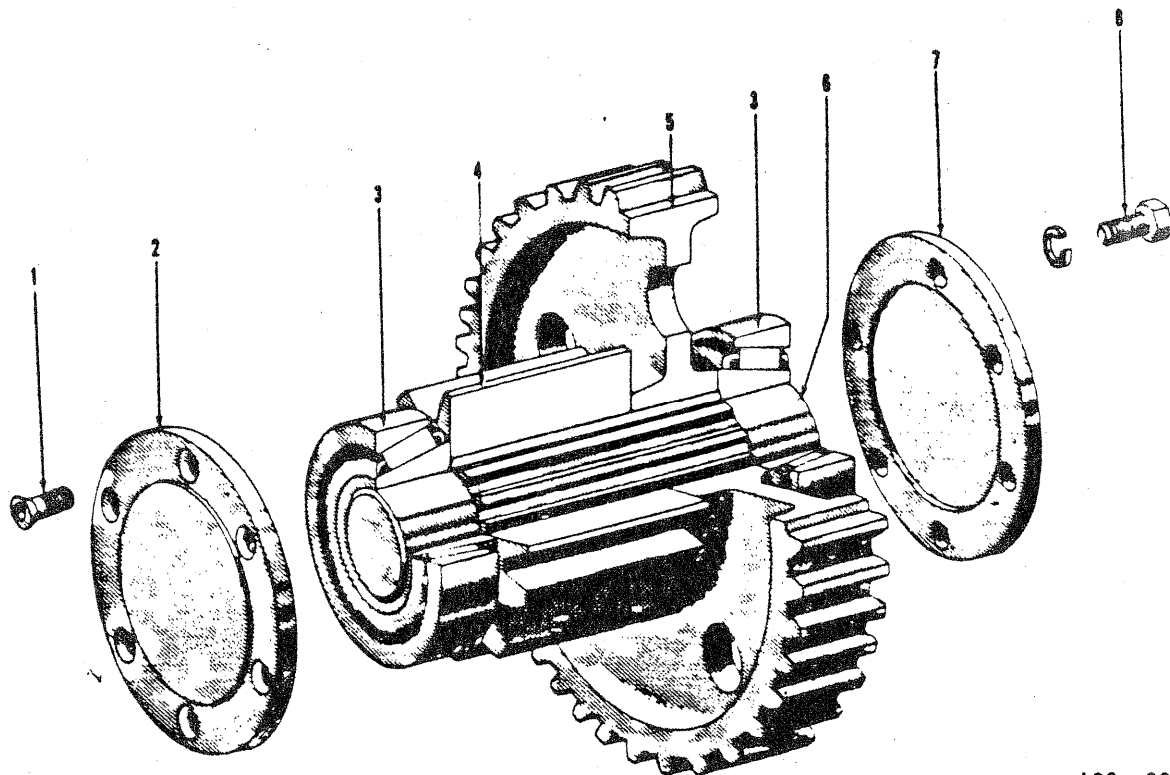
129-08

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	12916	Snap Ring	1
2	96020	Gear—Bevel	1
3	35573	Snap Ring	1
4	125399	Bearing	1
5	{ 90937	"O" Ring	1
	{ 46389	"O" Ring (Last used on S.N. B77P-1760)	1
6	{ 26379	Capscrew—7 16 UNF x 1 5/8	6 [R]
	{	Lockwire	1
7	79389	Oil Seal	1
8	{ 96367	Shaft—P.T.O. (For Series 47A Tractor)	1
	{ 96451	Shaft—P.T.O. (For Series 48A Tractor)	1
	{ 132908	Shaft—P.T.O. (For 977 Traxcavator Series 53A)	1
9	{ 33786	Pin (Caterpillar No. 1A-4653)	1
	{ 9528	Ring—Lock (Caterpillar No. 1A-5803)	1
	{ 9563	Pin { For 977 Traxcavator	1 [R]
	{ 9554	Ring—Lock { Series 53A	1 [R]
10	{ 33785	Coupling (Caterpillar No. 7B-2719)	1
	{ 97553	Coupling (For 977 Traxcavator Series 53A)	1
11	{ 98362	Carrier—Bearing	1
	{ 92667	Shim Set	1
12	* 96525	"O" Ring <i>39389</i>	1
13	* 96524	Spacer	1
14	* 12944	Snap Ring	1
15	{ * 96368	Shaft—P.T.O. (For Series 47A Tractor)	1
	{ * 96452	Shaft—P.T.O. (For Series 48A Tractor)	1
	{ * 132909	Shaft—P.T.O. (For 977 Traxcavator Series 53A)	1

*For Lo-Speed Winch only.

†First used on S.N. B77P-1761. Prior to this S.N. include one "O" Ring, 90937, with Bearing Carrier, 98362.

INTERMEDIATE GEAR ASSEMBLY



129-09

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	16352	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	6
	15929	Lockwasher— $\frac{1}{2}$	6
2	92619	Cover	1
	92618	Gasket	1
3	30091	Cup—Bearing	2
	230309	Cone—Bearing	2
4	92621	Gear—Drum Pinion	1
5	96415	Gear—Intermediate	1
	* 96418	Gear—Intermediate	1
6	92620	Shaft—Intermediate	1
7	92623	Cover	1
	92624	Shim Set <i>1-134074, 1-134075, 1-134076</i>	1
8	37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	6
	15158	Lockwasher— $\frac{1}{2}$	6

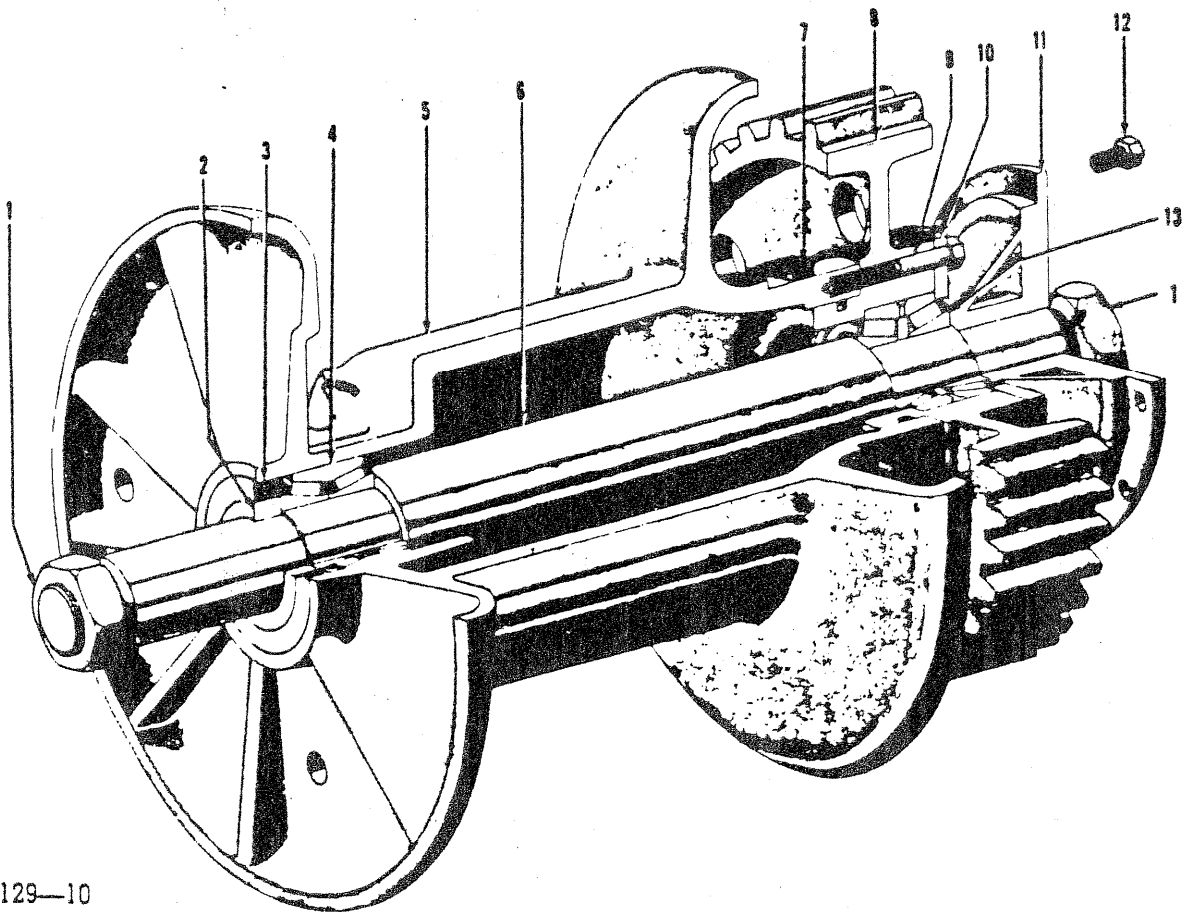
*For Lo-Speed Winch only.

134074 = .005

134075 = .007

134076 = .020

DRUM SHAFT ASSEMBLY

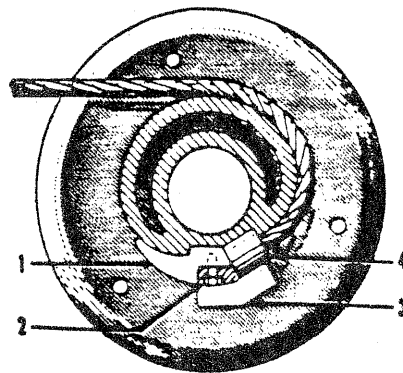


129-10

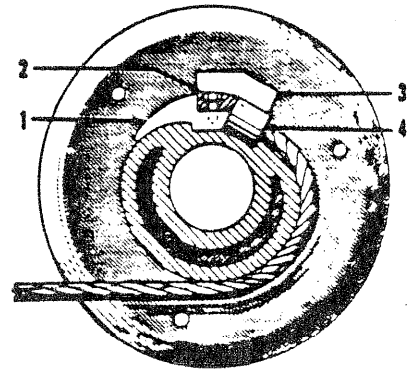
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	6607	Nut	2
2	92608	Spacer	1
3	44484	Oil Seal	1
4	78022	Bearing Assembly <i>L.H.</i>	1
5	{ 92617	Drum—12"	1
	{ * 96526	Drum—8"	1
6	96435	Shaft—Drum	1
7	35030	Oil Seal	1
8	96436	Gear—Drum	1
9	18863	Place Bolt— $\frac{5}{8}$ UNF x 4	8
10	96438	Plate—Retainer	1
11	{ 96439W	Retainer—Bearing	1
	{ 92616	Shim Set <i>3-134679, 1-134671, 2-134672</i>	1
12	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	8
	{ 15158	Lockwasher— $\frac{1}{2}$	8
13	96437A	Bearing Assembly <i>R.H.</i>	1

*For Lo-Speed Winch only.

CABLE LOCK ASSEMBLY (For Standard 12" Drum)



OVERWIND

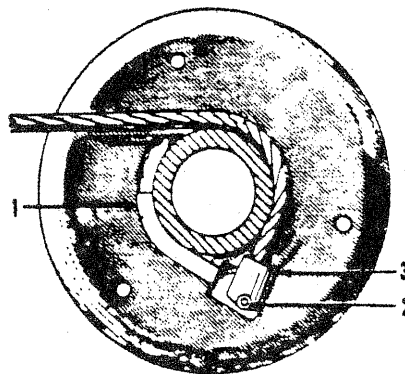


UNDERWIND

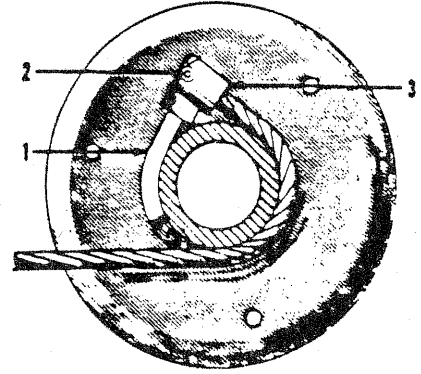
129-11

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	92712A	Filler—Cable Groove	1
2	{ 15500	Capscrew— $\frac{5}{8}$ UNF x $1\frac{1}{2}$	1
	{ 15160	Lockwasher— $\frac{5}{8}$	1
3	{ 92713	Lock—Ferrule (Overwind)	1
	{ 92714	Lock—Ferrule (Underwind)	1
4	6697	Ferrule	1

CABLE LOCK ASSEMBLY (For Lo-Speed 8" Drum)



OVERWIND



UNDERWIND

129-12

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	96420	Filler—Cable Groove	1
2	{ 18850	Capscrew— $\frac{1}{2}$ UNF x 3	1
	{ 15158B	Lockwasher—H.C., $\frac{1}{2}$	1
3	{ 6697	Ferrule	1
	{ 95499	Lock—Ferrule	1

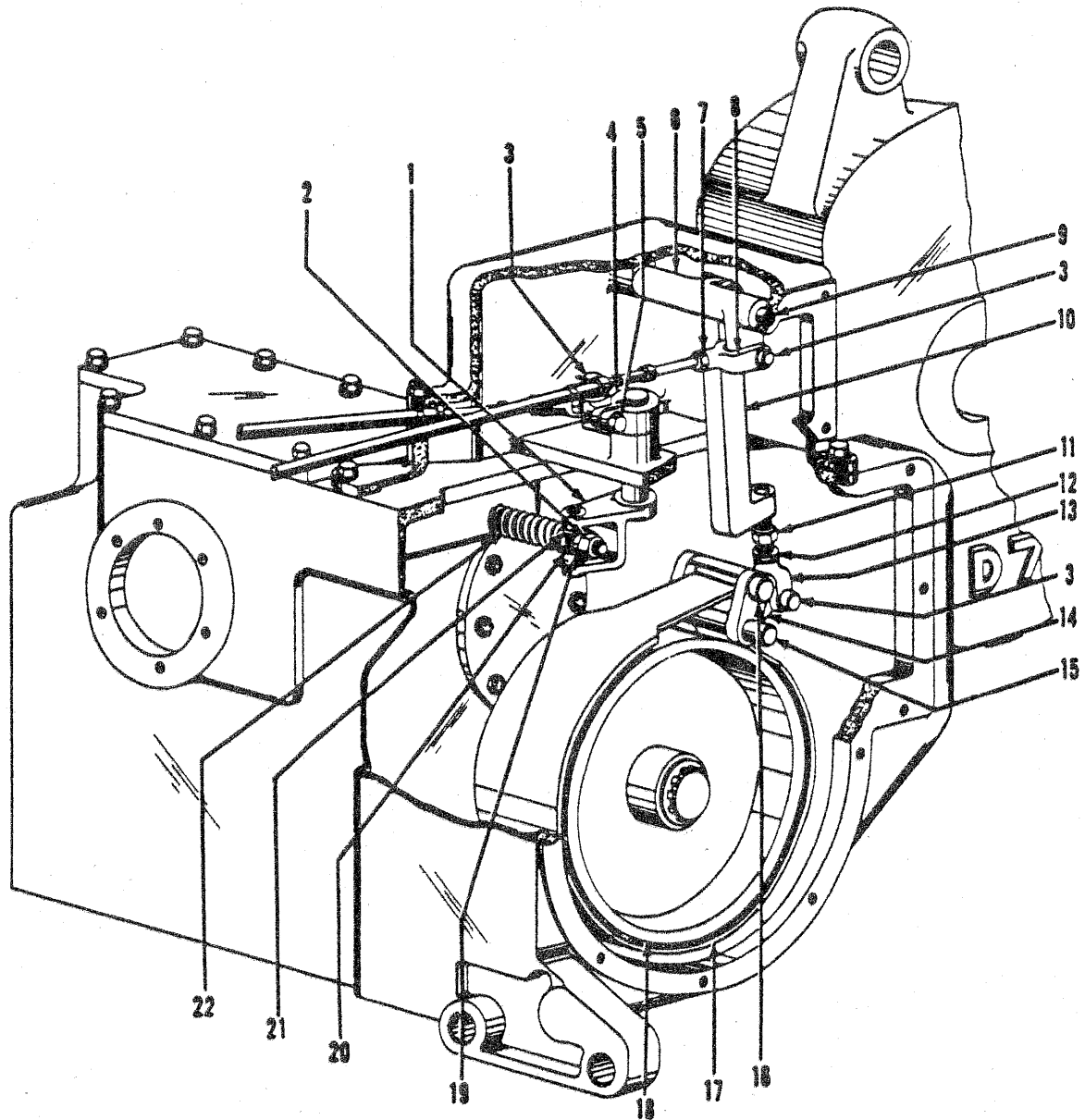
Section E

BRAKE AND SHIFTER MECHANISM

INDEX

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FILTER ASSEMBLY (POWER CONTROLLED)	E10
HANDLING GEAR ASSEMBLY (POWER CONTROLLED)	E9
HANDLING GEAR ASSEMBLY (DIRECT DRIVE)	E8
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PUMP ASSEMBLY (POWER CONTROLLED)	E13
VALVE ASSEMBLY (POWER CONTROLLED)	E11

BRAKE AND SHIFTER MECHANISM (For Direct Drive Winch)



BRAKE AND SHIFTER MECHANISM

(For Direct Drive Winch)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	{ 95636W	Crank Assembly	1
	{ 95615	Bushing	2
2	63085	Locknut— $\frac{5}{8}$ UNF	1
3	{ 159	Pin—Rod End	4
	{ 15223	Cotter— $\frac{1}{8}$ x 1	4
4	{ * 97843A	Crank Assembly (Incl. Item 5)	1
	{ 95987A	Crank Assembly (Incl. item 5)	1
	{ 15527	Capscrew— $\frac{5}{8}$ UNF x $1\frac{3}{4}$	1
5	{ 15006	Nut— $\frac{3}{8}$ UNF	1
	{ 15156	Lockwasher— $\frac{3}{8}$	1
6	{ 76699A	Crank Assembly (Incl. Bushings)	1
	{ 92705	Bushing	2
7	15026	Nut—Jam, $\frac{3}{8}$ UNF	2
8	92683	Rod End	2
9	96382	Pin—Brake	1
10	76697	Link—Brake	1
11	76696	Link—Adjusting	1
12	15030	Nut—Jam, $\frac{5}{8}$ UNF	1
13	91629	Rod End—R.H.	1
	{ 76695A	Lever Assembly (Incl. Bushings)	1
14	{ 104607	Bushing	4
	{ 15226	Cotter— $\frac{1}{8}$ x $1\frac{3}{4}$	1
15	128383	Pin—Brake	1
16	96725	Pin	1
17	{ 128391	Brake Band Assembly	1
	{ 59802AB	Lining Set—Brake	1
18	92652	Wheel—Brake	1
19	33682	Washer	2
20	96374	Spacer	1
21	33717	Shoe—Shifter	2
22	94655	Spring	1

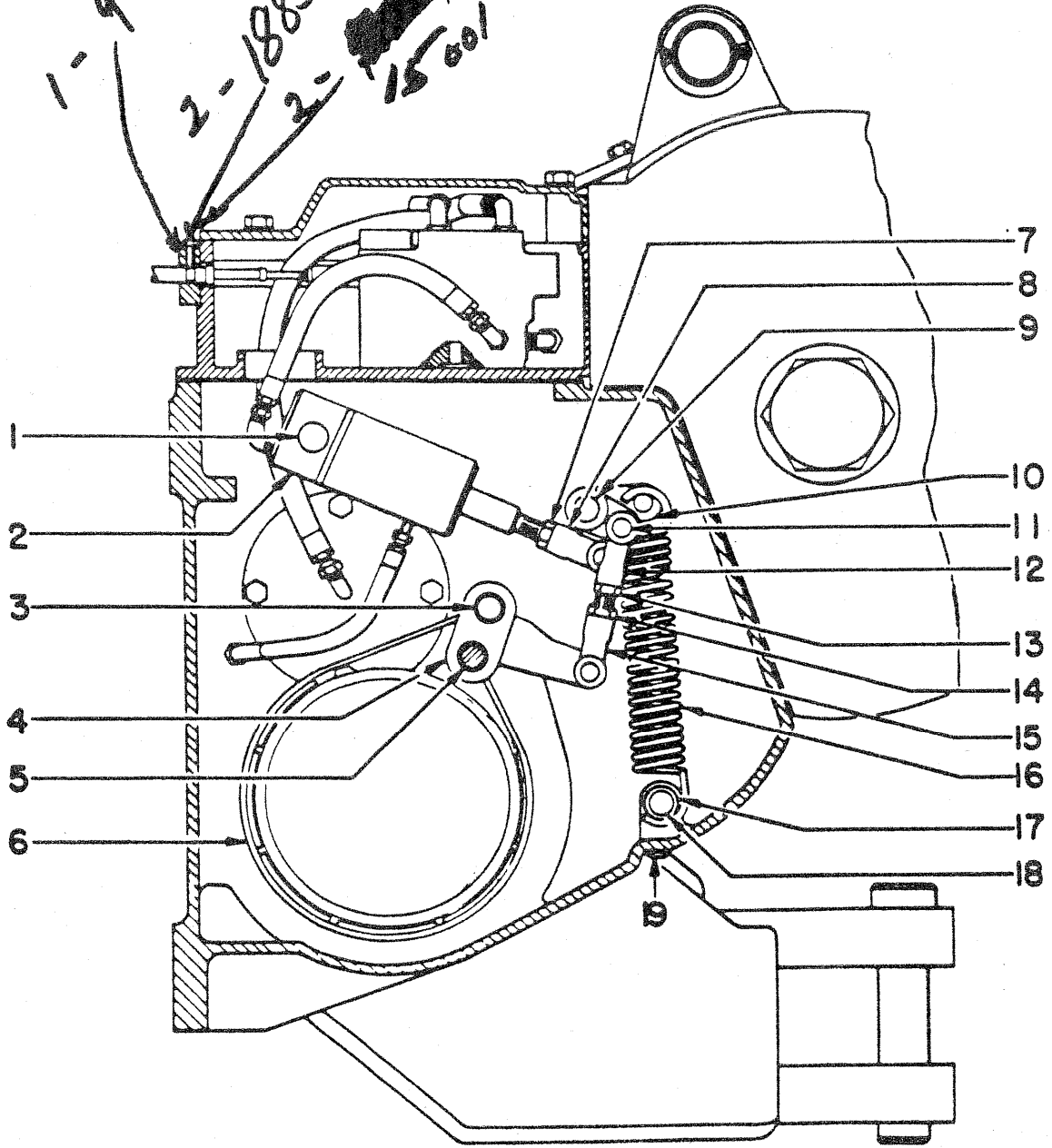
*First used on S.N. C47P-1717.

BRAKE MECHANISM (For Power Controlled Winch)

See Pg B3
B4
1-96624 Block

2-18853
2-15001

See
Nut



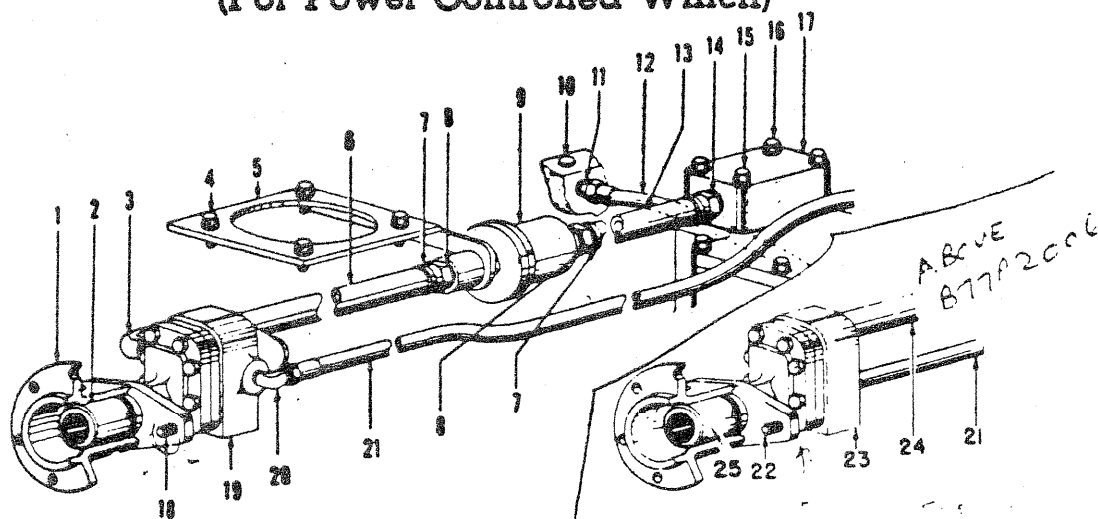
BRAKE MECHANISM

(For Power Controlled Winch)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	128383	Pin	1
2	97978A	Cylinder—Brake	1
3	96725	Pin	1
4	{ 96780A	Lever Assembly (Includes Bushings)	1
	{ 104607	Bushing	4
	{ 15226	Cotter— $\frac{1}{8}$ x $1\frac{3}{4}$	1
5	128383	Pin	1
6	{ 128391	Band Assembly (Includes Lining Set)	1
	{ 59802AB	Lining Set with Rivets (Drill at Assembly)	1
7	15030	Nut—Jam, $\frac{5}{8}$ UNF	1
8	{ 92689	Rod End	1
	{ 159	Pin—Rod End	1
	{ 15223	Cotter— $\frac{3}{8}$ x 1	1
9	95989	Pin	1
10	{ 128389	Crank Assembly (Includes Bushings)	1
	{ 92705	Bushing	2
11	{ * 159	Pin—Rod End	2
	{ * 15223	Cotter— $\frac{3}{8}$ x 1	2
12	* 92689	Rod End—R.H.	1
13	* 15030	Nut—Jam, $\frac{5}{8}$ UNF	1
14	* 95629	Link—Adjusting	1
15	* 92688	Rod End—L.H.	1
16	96001	Spring ... USE 151452	2
17	95996W	Spacer	1
18	95989	Pin	1
19	15315	Fitting—Pipe Plug, $\frac{1}{2}$	1

**Included in Link Assembly 95628A.*

HYDRAULIC SYSTEM (For Power Controlled Winch)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	* 79688	Bracket—Pump	1
	95486	Gasket	1
	+ 98656	Sleeve (Non-Current)	1
2	95701	Coupling—Pump <i>3/4" I.D.</i>	1
	16200	Setscrew— $\frac{3}{8}$ UNC x $\frac{3}{8}$	2
	54112	Snap Ring	1
3	17121	Nipple—Hose, 90°	1
4	16816	Capscrew— $\frac{3}{8}$ UNC x $1\frac{3}{4}$	4
	15156	Lockwasher— $\frac{3}{8}$	4
5	96482W	Bracket—Filter	1
6	96485	Hose (Filter to Pump) <i>1 1/4" I.D. X 6.5'</i>	1
7	89781	Clamp—Hose	4
8	17247	Nipple—Hose	2
9	95752A	Filter <i>see PG E10</i>	1
10	19567	Nipple—Close	1
	96472	Retainer—Bearing	1
11	15302	Plug—Pipe, $\frac{3}{8}$	1
	17315	Male Connector	1
12	96480	Hose (Valve to Clutch)	1
13	115659	Hose (Intake Block to Filter) <i>4 1/2'</i>	1
14	17241	Nipple—Hose Fitting	1
15	16809	Capscrew— $\frac{1}{2}$ UNF x $4\frac{1}{2}$	2
16	15158	Lockwasher— $\frac{1}{2}$	2
	17148	Capscrew— $\frac{1}{2}$ UNF x $3\frac{3}{4}$	2
17	15158	Lockwasher— $\frac{1}{2}$	2
	96454W	Block—Intake	1
18	96457 +	Gasket	1
	16805	Capscrew— $\frac{3}{8}$ UNC x 1	2
19	15156	Lockwasher— $\frac{3}{8}$	2
	110171AB	Pump—Hydraulic	1
20	95710	Gasket	1
	14509	Elbow—Male	1
21	95578	Hose (Valve to Pump)	1
22	+ 16543	Male Connector	1
	+ 18549	Capscrew— $\frac{3}{8}$ UNC x 5	2
23	+ 128550	Pump Hydraulic	1
24	95710	Gasket	1
	+ 130620	Hose (Filter to Pump) <i>1 1/4" I.D. X 15 1/4'</i>	1
25	+ 128547	Nipple	1
	+ 128548	Coupling—Pump	1
	136391	Setscrew— $\frac{3}{8}$ UNC x $\frac{1}{4}$	2

* Pump Bracket Mounting Studs, Nuts and Lockwashers furnished with tractor.
 † See Pump Bracket Installation Instructions for tractors requiring this sleeve.
 ‡ First used on S.N. B77P-2006.

HYDRAULIC SYSTEM — Continued

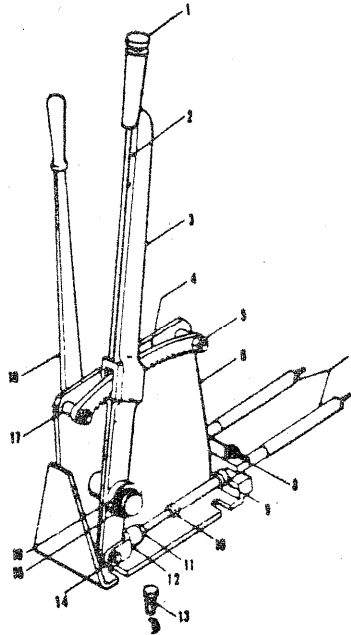
(For Power Controlled Winch)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
30	17309	Fitting—Male Elbow	3
31	17315	Fitting—Male Connector	1
32	96480	Hose—(Valve to Clutch)	1
33	17344	Fitting—Male Elbow	1
34	95583	Fitting—Special	1
35	61056	"O" Ring	1
36	{ 96521	Fitting—Special (Includes "O" Ring)	1
	{ 16483	"O" Ring	1
37	61142	"O" Ring	1
38	89764A	Valve Assembly	1
39	78509	Hose—(Valve to Brake Cylinder) <i>use 132005</i>	1
40	17309	Fitting—Male Elbow	1
41	97978A	Cylinder Assembly—Brake	1
42	96477	Hose—Brake Cylinder to Frame	1
43	128002	Fitting—Ball Check Connector	2
	{ 17315	Fitting—Male Connector	1
44	{ 19535	Fitting—Tee	1
	{ 12877	Fitting—Plug	1
45	14500	Fitting—Male Elbow	1
46	16186	Fitting—Tee	1
47	{ 15455	Fitting—Tee	1
	{ 15334	Fitting—Close Nipple	1
48	17302	Fitting—Male Connector	1

146288

HANDLING GEAR ASSEMBLY — 96360A (For Direct Drive Winch)

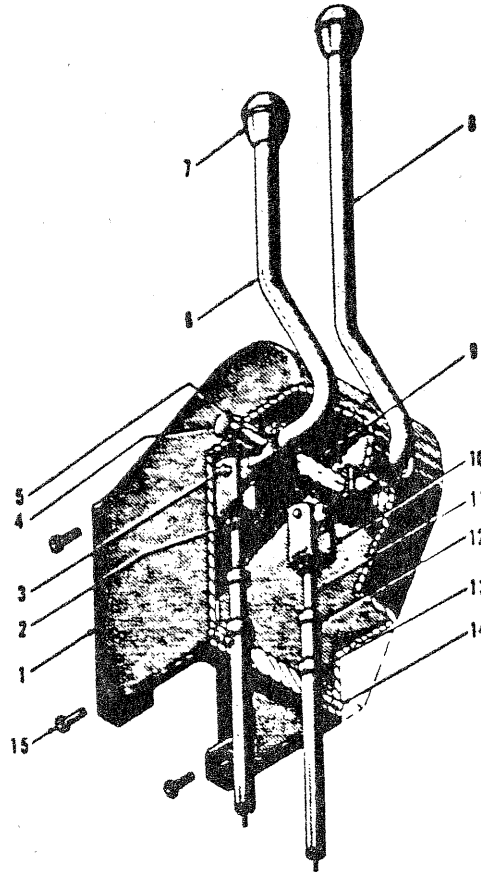
3- 79415 Lever
79416 Pawl & Rod
79417 Spring
79418 Button



129-23

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	{ 79418	Button	1
	{ 79417	Spring	1
2	79416	Pawl and Rod	1
3	77187A	Handlever Assembly (Includes items 1 and 2)	1
4	77188	Bar—Quadrant	1
	{ 18451	Capscrew— $\frac{3}{8}$ UNF x 2	2
5	{ 15156	Lockwasher— $\frac{3}{8}$	2
	{ 15006	Nut— $\frac{3}{8}$ UNF	2
6	76706W	Bracket	1
7	95751	Cable—Control (Includes Grommets) 69"	2
8	{ 16212	Setscrew— $\frac{3}{8}$ UNC x $1\frac{1}{4}$	4
	{ 15086	Nut—Jam, $\frac{3}{8}$ UNC	4
9	94381	Grommet—Large	4
10	95905	Grommet—Small	4
11	15026	Nut—Jam, $\frac{3}{8}$ UNF	2
12	92683	Rod End	2
	{ 16807	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{2}$	4
13	{ 15158	Lockwasher— $\frac{1}{2}$	4
	{ 15008	Nut— $\frac{1}{2}$ UNF	4
14	{ 159	Pin—Rod End	2
	{ 15223	Cotter— $\frac{1}{8}$ x 1	2
15	58907	Snap Ring	2
16	90267	Washer	2
17	94891	Spacer	2
18	95750	Handlever—Clutch	1

HANDLING GEAR ASSEMBLY — 95703A (For Power Controlled Winch)



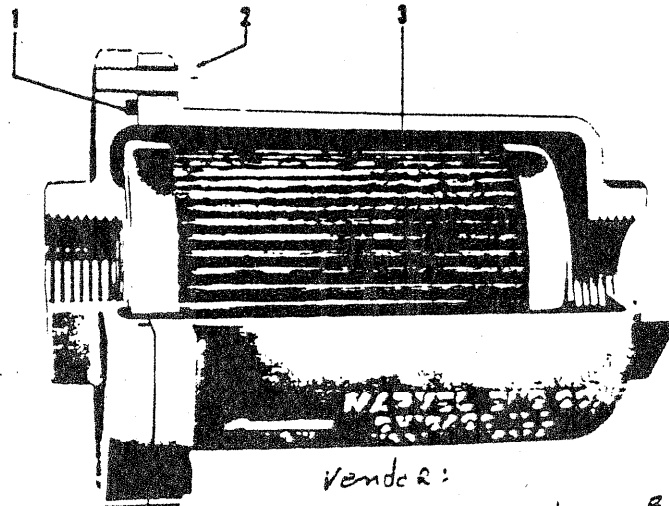
129—24

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	95704	Bracket	1
2	* 15025	Nut—Jam, 5/16 UNF	2
3	{ * 142	Pin—Rod End	2
	{ * 15212	Cotter—3/32 x 3/4	2
4	95708	Pin	1
5	58951	Snap Ring	2
6	95706	Lever—Selector	1
7	66716	Knob	2
8	95705	Lever—Brake	1
9	95707	Spacer	1
10	* 95709	Rod End	2
11	* 95491	Cable—Control (Includes Grommets) <i>use 164655</i>	<i>2 64"</i>
12	* 95876	Grommet—Small	4
13	* 94380	Grommet—Large	4
14	16202	Setscrew—5/16 UNC x 3/8	4
15	{ * 16597	Capscrew—3/8 UNC x 3/4	4
	{ * 15156	Lockwasher—3/8	4

*Not Included in Handlever Assembly 95703A.

FILTER ASSEMBLY — 95752A (For Power Controlled Winch)

Ver. 306
Model M-2032-B-50
Magnetic Screen Filter
Hydraulic Valve
Solenoid at 570
5.5 P.S.I.



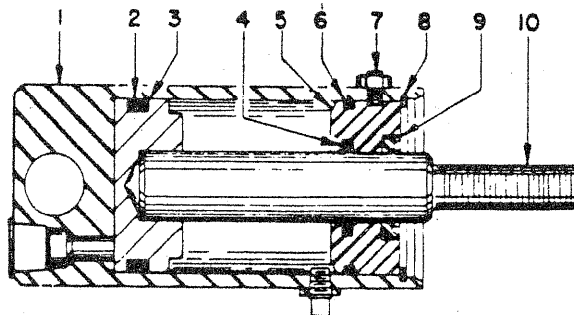
129-26

Vendor:
HYDR. Components - Bellevue, Wash.
206-747-0727

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	15881	"O" Ring	1
2	18810	Place Bolt— $\frac{1}{4}$ UNC x $\frac{3}{4}$	4
3	95892	Cartridge <i>use 160387</i>	1

CYLINDER ASSEMBLY — ~~97978A~~ (For Power Controlled Winch)

use 165200 (DCE cylinder)
(First used on S.N. B77P-1789) (Replace All Prior Cylinders with 97978A)



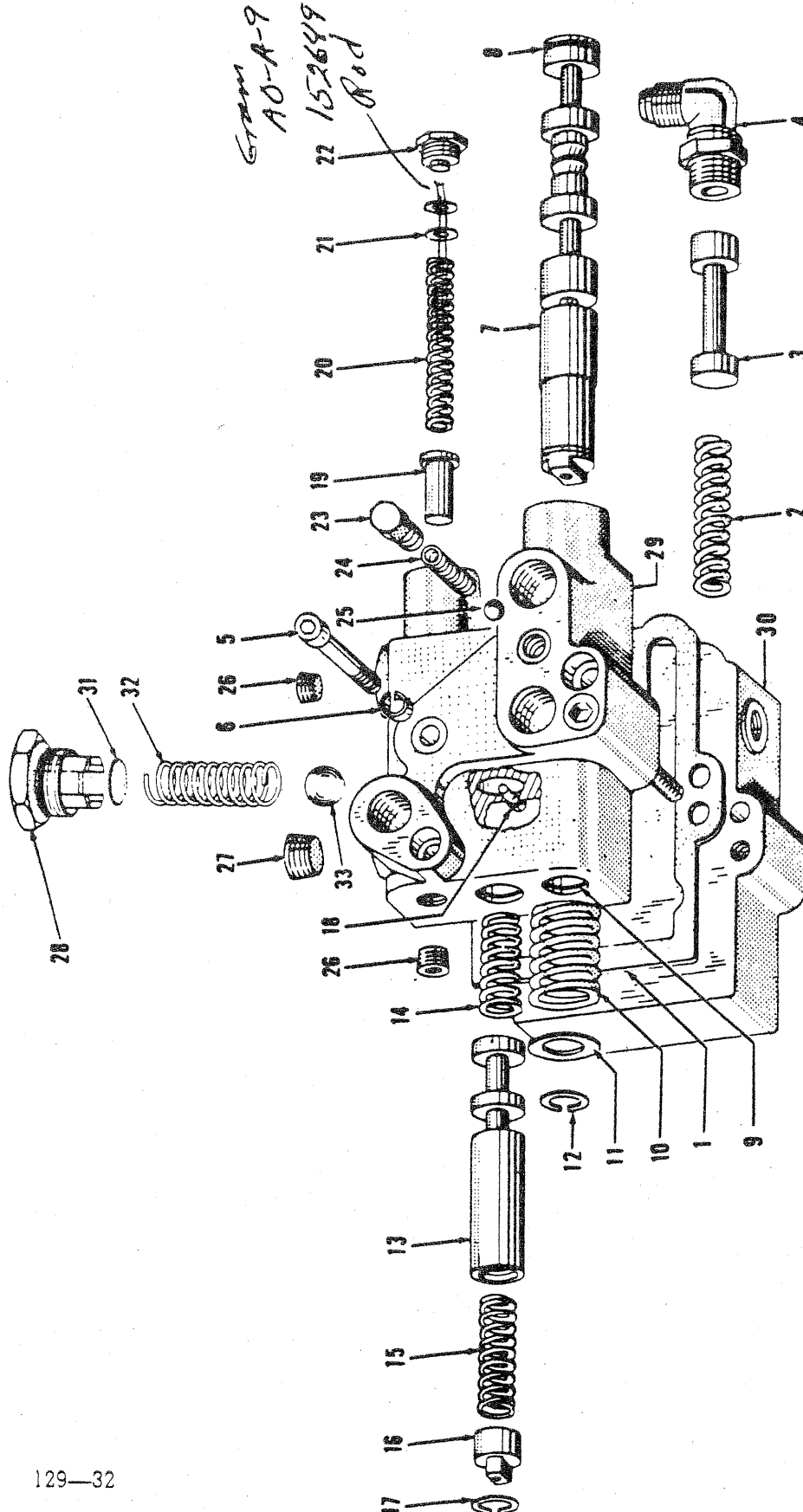
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	76982	Tube and Head Assembly <i>use 165200</i>	1
2	63655	"O" Ring	1
3	63654	Back-up Ring	1
4	61056	"O" Ring	1
5	98359A	Guide Assembly <i>use 165200</i>	1
6	57664	"O" Ring	1
7	16246	Setscrew— $\frac{1}{4}$ UNC x $\frac{1}{2}$	1
	15000	Nut—Jam, $\frac{1}{4}$ UNC	1
8	54129	Snap Ring <i>use 156193</i>	1
9	44573	Oil Seal <i>use 44550</i>	1
10	76984	Rod Assembly <i>use 165200</i>	1

*Included in Guide Assembly 98359A.

†Prior to S.N. B77P-1789, include "O" Ring (Item 4).

HYSTER COMPANY
PORTLAND, OREGON

VALVE ASSEMBLY (For Power Controlled Winch)



VALVE ASSEMBLY — 89764A* R

(For Power Controlled Winch)

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	95725	Gasket	1
2	95675	Spring	1
3	129198	Piston	1
4	16559	Elbow—Male (Includes "O" Ring and Locknut)	1
	16484	"O" Ring	1
	16586	Locknut	1
5	17138	Capscrew—S.H., $\frac{3}{8}$ UNC x 3	2
6	15156B	Lockwasher— $\frac{3}{8}$	2
7	77975	Spool	1
8	95721	"O" Ring	1
9	95716	"O" Ring	2
10	95612	Spring	1
11	95676	Washer	1
12	58950	Snap Ring	1
13	95718	Spool	1
14	95717	Spring (2-3/32" Long)	1
15	95719	Spring	1
16	95720	Plug	1
17	12992	Snap Ring	1
18	133469	Capscrew— $\frac{1}{4}$ UNC x $\frac{1}{2}$	1
	15154	Lockwasher— $\frac{1}{4}$	1
19	95714	Piston	1
20	95715	Spring	1
21	108408	Washer	As Required
22	108407	Retainer—Spring	1
	29582	Gasket—Copper	1
23	77736	Plug—Special	1
	16482	"O" Ring	1
24	† 96234	Spring	1
25	† 55280	Ball—5/16	1
26	15347	Plug—Pipe, $\frac{1}{4}$ NPT	2
27	15315	Plug—Pipe, $\frac{1}{2}$ NPT	1
28	89766	Fitting—Special	1
	16982	"O" Ring	1
29	89778	Body—Valve	1
30	89765	Support—Valve	1 R
31	89768	Shim	As Required
32	89767	Spring (1-29/32" Long)	1
33	89769	Ball—Steel, 13/16 Diameter	1

†First used on S.N. B77P-1570. To replace Spring or Poppet on Prior Units, Include Both Spring 96234 and Steel Ball 55280.

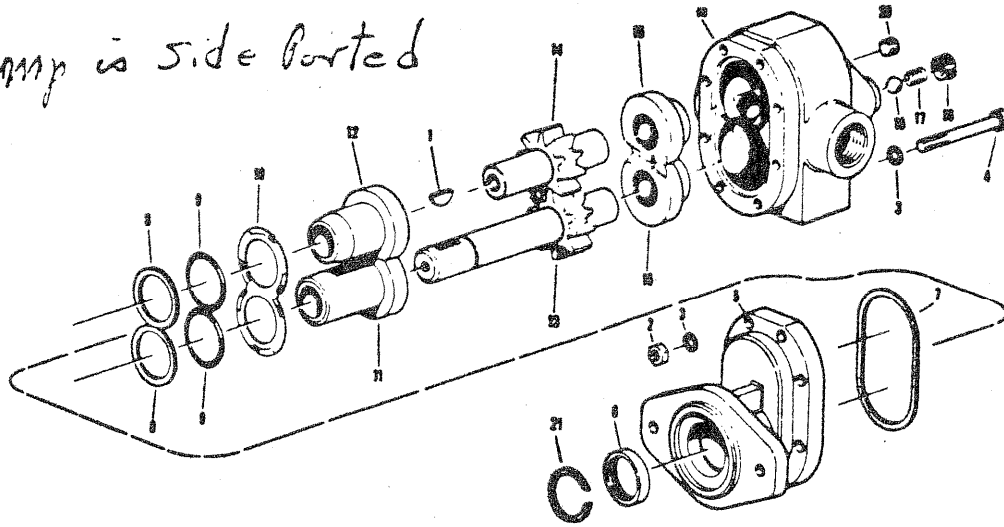
*First used on S.N. B77P-1807. For Prior Units Use Valve Assembly 89780A.

CAUTION: Do not interchange springs 14 and 32.

PUMP ASSEMBLY — 110171AB

(For Power Controlled Winch)

(Last used on S.N. B77P-2005)

Pump is side ported

510—89

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	†	Key	1
2	†	Nut— $\frac{3}{8}$ UNF	8
3	†	Washer	6
4	†	Screw	8
5	202789	Cover	1
6	‡232569	Seal—Shaft	1
7	‡	Seal—Gasket	1
8	‡	Washer—Back-up	2
9	‡	Seal Ring	2
10	†	Spring	1
11	†	Bearing—Cover	1
12	†	Bearing—Cover	1
13	*	Gear—Drive	1
14	*	Gear—Driven	1
15	†	Bearing—Body	2
16	232579	Pipe Plug—Retainer	1
17	†	Spring	1
18	†	Ball	1
19	232582	Body	1
20	14349	Pipe Plug— $\frac{1}{8}$	1
21	‡	Snap Ring	1

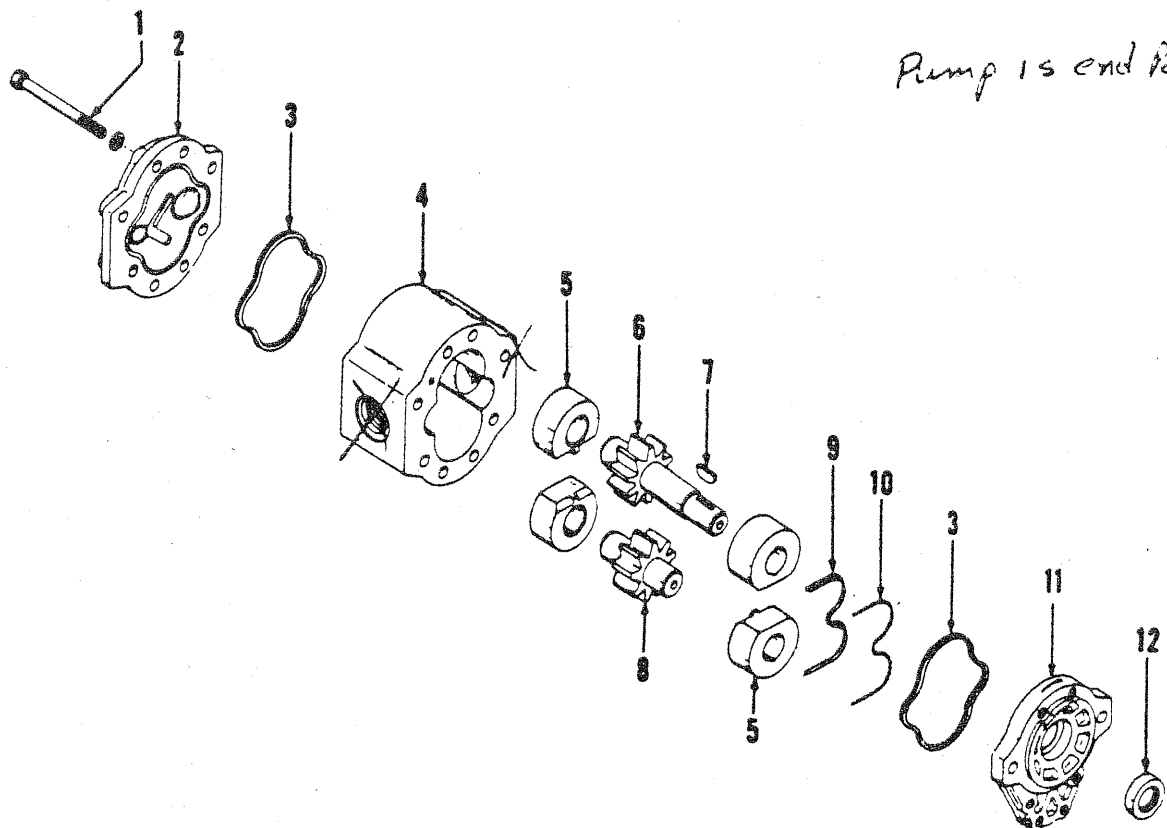
*Included in Gear Repair Kit 233795.

‡Included in Minor Repair Kit 233793.

†Included in Major Repair Kit 233794.

NOTE: Major Repair includes Minor Repair Kit.

PUMP ASSEMBLY — 128550
(For Power Controlled Winch)
(First used on S.N. B77P-2006)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	*129446	Capscrew	6
	*129447	Washer	6
2	129443	Cover—Rear	1
3	†*	Seal	2
4		Body (N.S.S.)	1
5	*	Bearing	4
6	‡	Gear	1
7	206	Key	1
8	‡	Gear	1
9	†*	Gasket	1
10	†*	Spacer	1
11	127657	Cover—Front	1
12	†*235933	Seal—Shaft	1

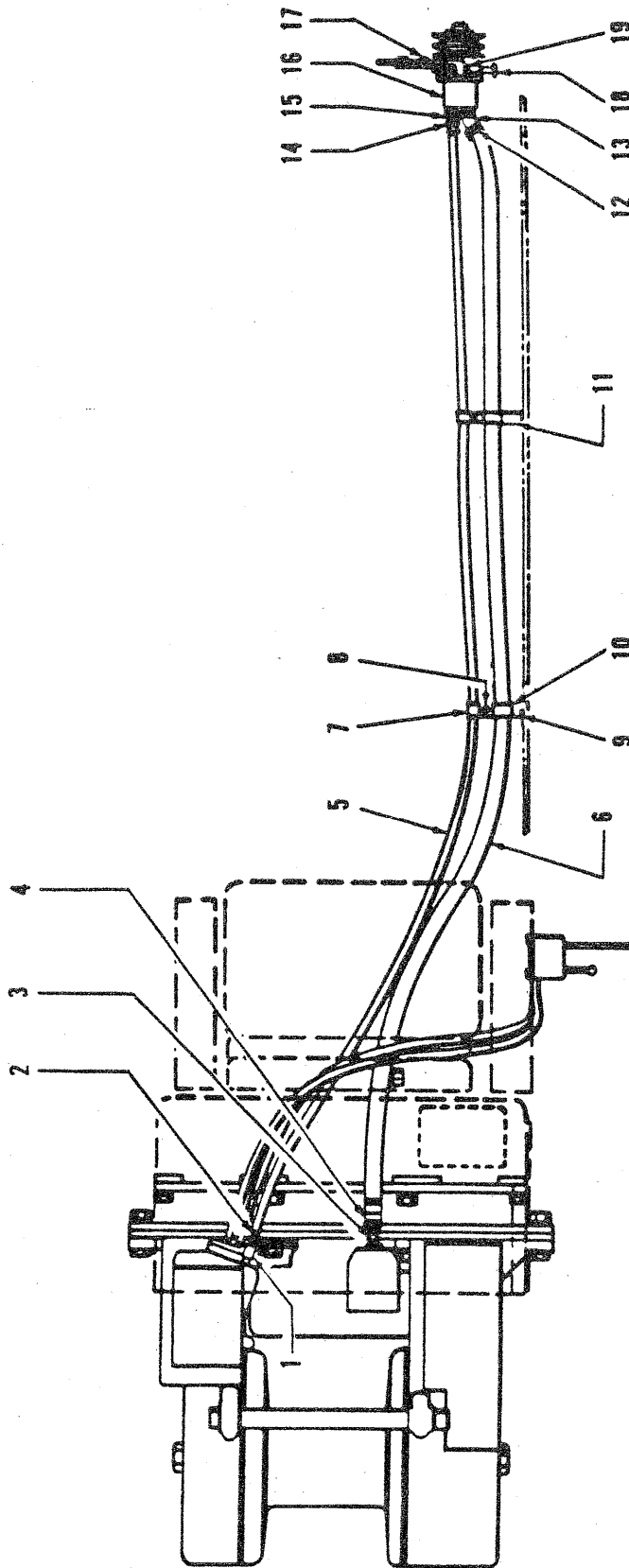
*Included in Major Kit 129445.

†Included in Minor Kit ~~129443~~ 158913

‡Included in Gear Kit 129444.

PUMP AND HOSES

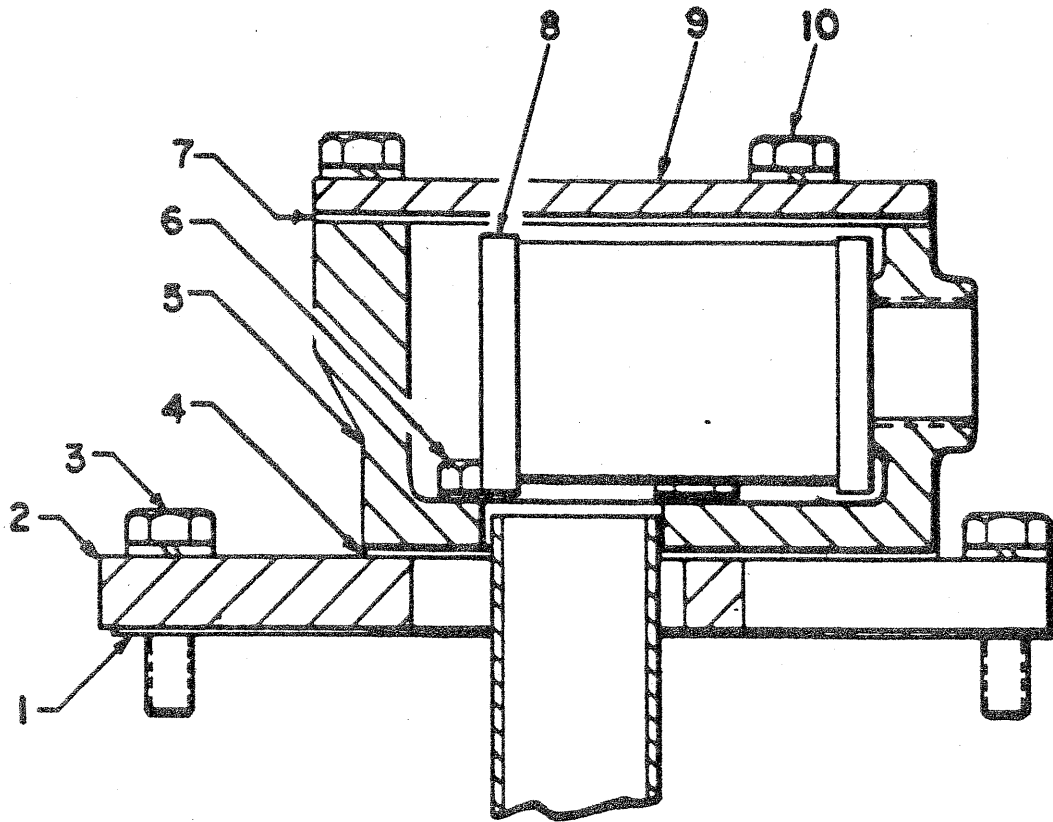
(For 977 Traxcavator Serial No. 53A1 and up)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	15327	Fitting—Coupling	1
2	17302	Fitting—Male Connector	1
3	15476	Fitting—45° Street Ell	1
4	111330	Fitting—45° Nipple	1
5	116047	Hose	1
6	97963	Hose	1
7	60016	Clamp	2
8	18467	Capscrew— $\frac{1}{4}$ UNF x $1\frac{1}{4}$	2
	15004	Nut— $\frac{1}{4}$ UNF	2
	15154	Lockwasher— $\frac{1}{4}$	2
9	132930	Support—Clamp	1
10	15978	Clamp	2
11	132929	Support—Clamp	1
12	89781	Clamp—Hose	2
13	97961	Fitting—Special	1
14	17038	Fitting—45° Elbow	1
15	16541	Fitting—Male Connector	1
16	97950A	Pump Assembly	1
	18588	Capscrew— $\frac{1}{2}$ UNC x $1\frac{1}{2}$	3
17	15158	Lockwasher— $\frac{1}{2}$	3
	15135	Washer— $\frac{1}{2}$	3
18	97964	Bolt—Adjusting	1
19	15015	Nut—Jam, $\frac{5}{8}$ UNC	1

COVER AND FILTER ASSEMBLY

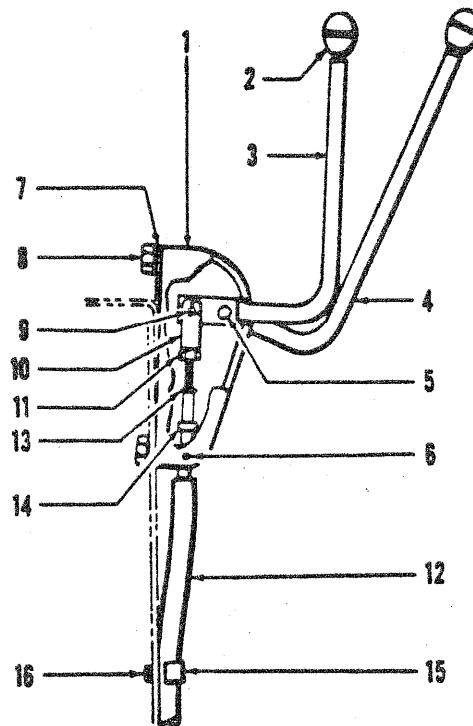
(For 977 Traxcavator Serial No. 53A1 and up)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	96370	Gasket—Transmission Cover	1
2	132935	Cover—Transmission	1
3	{ 16807	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{2}$	9
	{ 15158	Lockwasher— $\frac{1}{2}$	9
4	132939	Gasket—Bottom	1
5	132936	Manifold—Intake	1
6	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	3
	{ 86229	Washer—Seal	3
7	89023	Gasket—Top	1
8	95893	Cartridge—Filter	1
9	89025	Cover	1
10	{ 37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	5
	{ 15158	Lockwasher— $\frac{1}{2}$	5

HANDLING GEAR ASSEMBLY

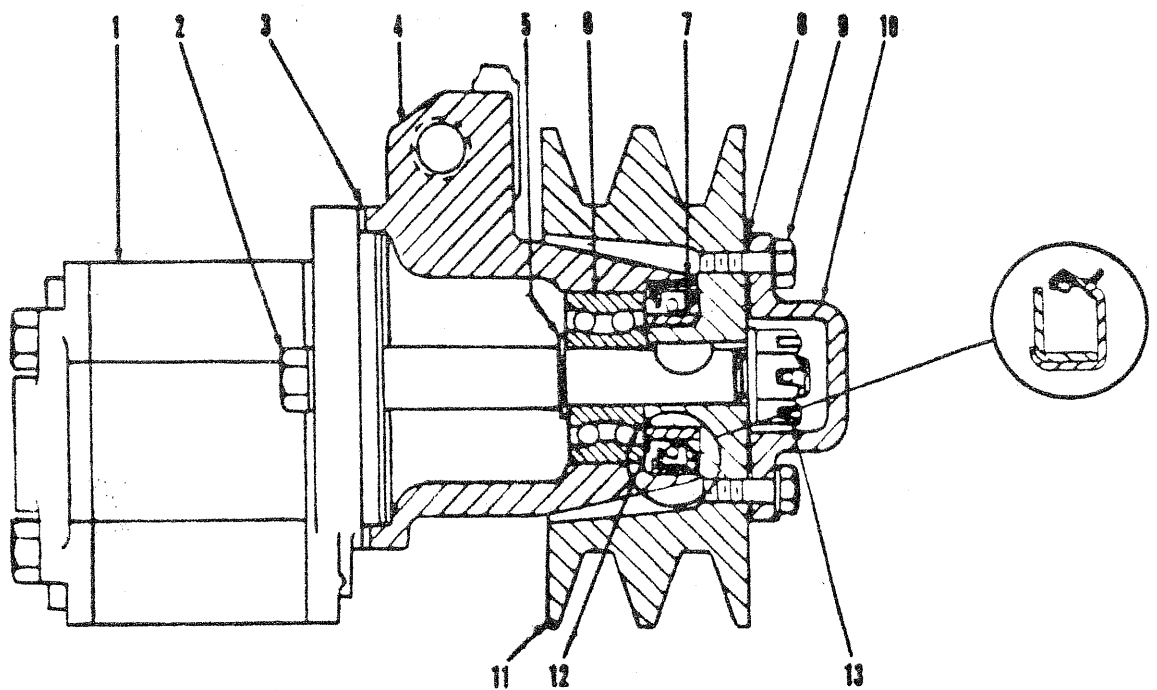
(For Power Controlled Winch on 977 Traxcavator)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	123279	Handlever Bracket Assembly	1
2	66716	Knob	2
3	123277	Lever—Selector	1
4	123276	Lever—Brake	1
5	95708	Pin	1
	58951	Snap Ring	2
	95707	Spacer	1
6	16202	Setscrew—5/16 UNC x 3/8	2
7	132932	Plate	1
8	16597	Capscrew—3/8 UNC x 3/4	3
	15156	Lockwasher—3/8	3
9	142	Pin—Rod End	2
	15212	Cotter—3/32 x 3/4	2
10	95709	Rod End	2
11	15025	Nut—Jam, 5/16 UNF	2
12	96474	Cable—Push-Pull (Includes items 13 and 14)	2
13	95876	Grommet—Small	4
14	94380	Grommet—Large	4
15	132933	Clamp	1
16	18461	Capscrew—1/4 UNF x 3/4	1
	15004	Nut—1/4 UNF	1
	15154	Lockwasher—1/4	1

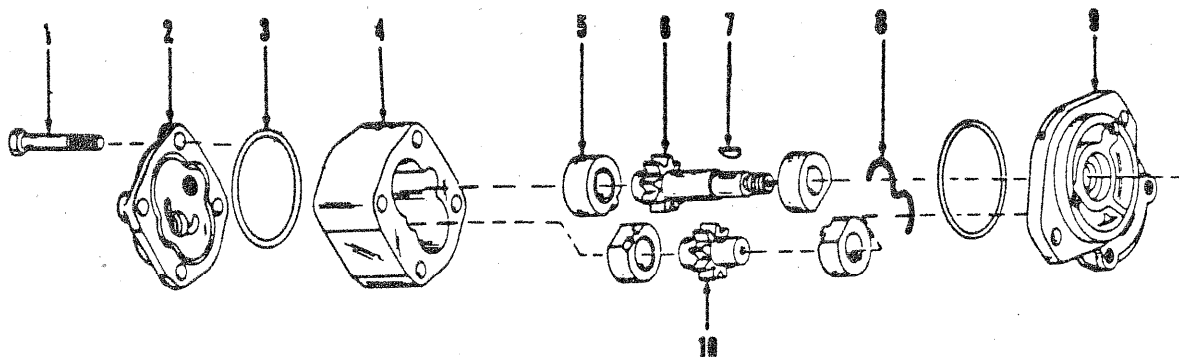
PUMP AND PULLEY ASSEMBLY — 97950A

For 977 Traxcavators Serial No. 53A1 & up



Rel. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	97951A	Pump—Hydraulic	1
2	{ 16634	Capscrew— $\frac{3}{8}$ UNF x 1	2
	{ 15156	Lockwasher— $\frac{3}{8}$	2
3	97952	Gasket	1
4	97953	Bracket—Pump Drive	1
5	97954	Washer—Special	1
6	45303	Bearing—Ball	1
7	97955	Oil Seal	1
8	97959	Gasket	1
9	{ 18460	Capscrew— $\frac{1}{4}$ UNC x $\frac{3}{4}$	4
	{ 15154	Lockwasher— $\frac{1}{4}$	4
10	97960	Cover—Pulley	1
11	97956A	Pulley Assembly (Includes Item 12)	1
12	97958	Sleeve—Wear	1
	{ 15135	Washer— $\frac{1}{2}$	1
13	{ 15078	Nut— $\frac{1}{2}$ UNF	1
	{ 15213	Cotter— $\frac{3}{32}$ x 1	1
		(Not Illustrated)	
	15306	Fitting—Pipe Plug, $\frac{1}{8}$	1

PUMP ASSEMBLY — 97951A
For 977 Traxcavators Serial No. 53A1 & up



Rel. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	*124247	Capscrew	4
2	124241	Cover—Rear	1
3	†*	Seal	2
4	.....	Body (N.S.S.)	1
5	*	Bearing	4
6	‡	Gear	1
7	*124248	Key	1
8	†*	Gasket	1
9	124240	Cover—Front	1
10	‡	Gear	1

*Included in Major Kit 124245.

†Included in Minor Kit 124249.

‡Included in Gear Kit 124242.

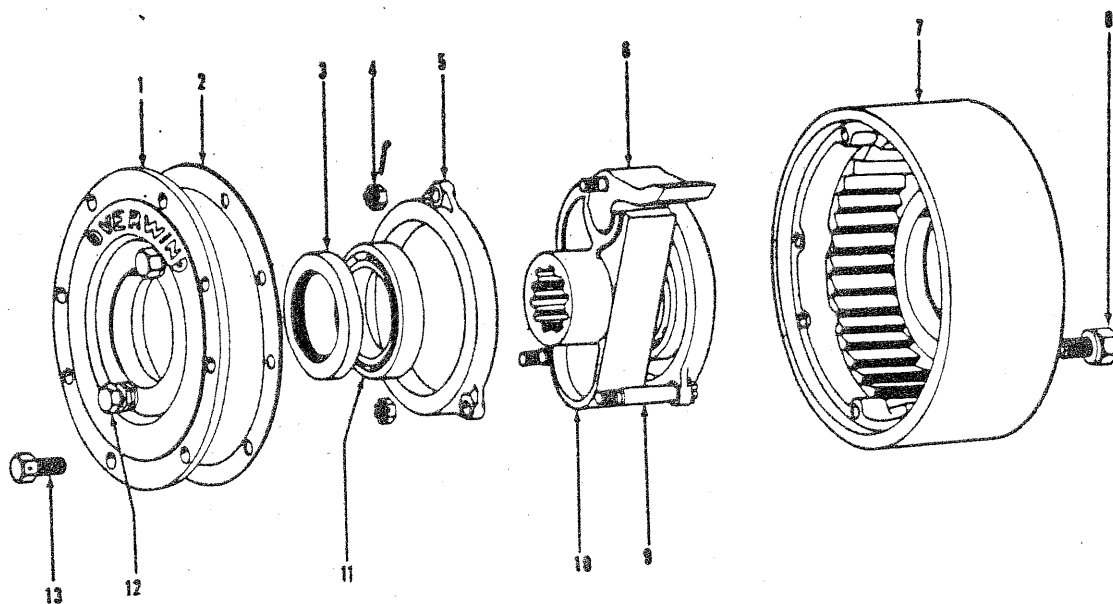
Section G

OPTIONAL EQUIPMENT

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AUTOMATIC BRAKE ASSEMBLY	G1
CABLE GUIDE ROLL ASSEMBLY	G2
DRAWBAR ASSEMBLY—SWIVELING	G4
FAIRLEAD ASSEMBLY	G3
INTEGRAL ARCH	G5

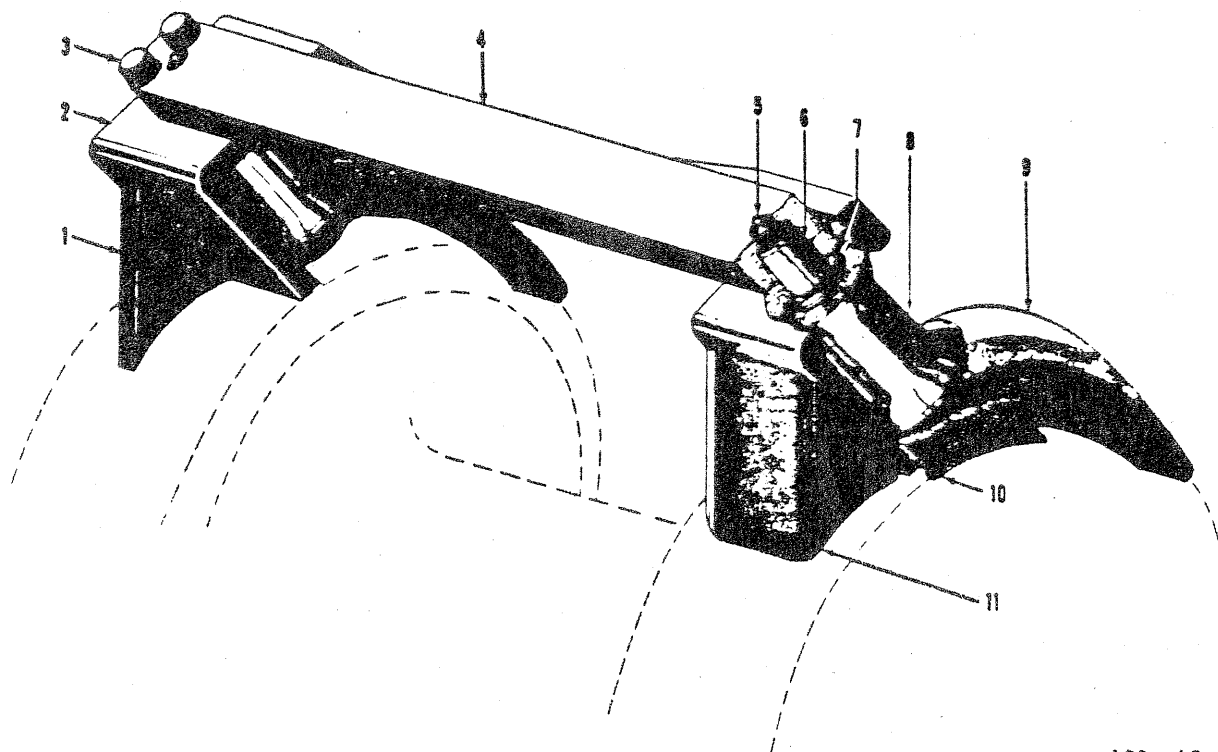
AUTOMATIC BRAKE ASSEMBLY — 92716A



129—15

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	59397	Cover—Side	1
2	59432	Gasket—Cover	1
3	33783	Oil Seal	2
4	{ 15079	Nut—Slotted, $\frac{3}{8}$ UNF	6 [®]
	{ 15212	Cotter— $\frac{3}{32}$ x $\frac{3}{4}$	6
5	36006	Ring—Drag	2
6	36007	Pawl	1
7	59425A	Wheel—Brake	1
8	{ 15515	Capscrew— $\frac{1}{2}$ UNF x $\frac{3}{4}$	3
	{ 35159	Gasket—Copper	3
9	94601	Link—Shoulder	3
10	92684	Hub	1
11	36000	Bearing—Ball	2
12	{ 59370	Plug—Vent	1
	{ 35159	Gasket—Copper	1
13	{ 59927	Capscrew— $\frac{7}{16}$ UNF x 1	8
	{	Lockwire	1

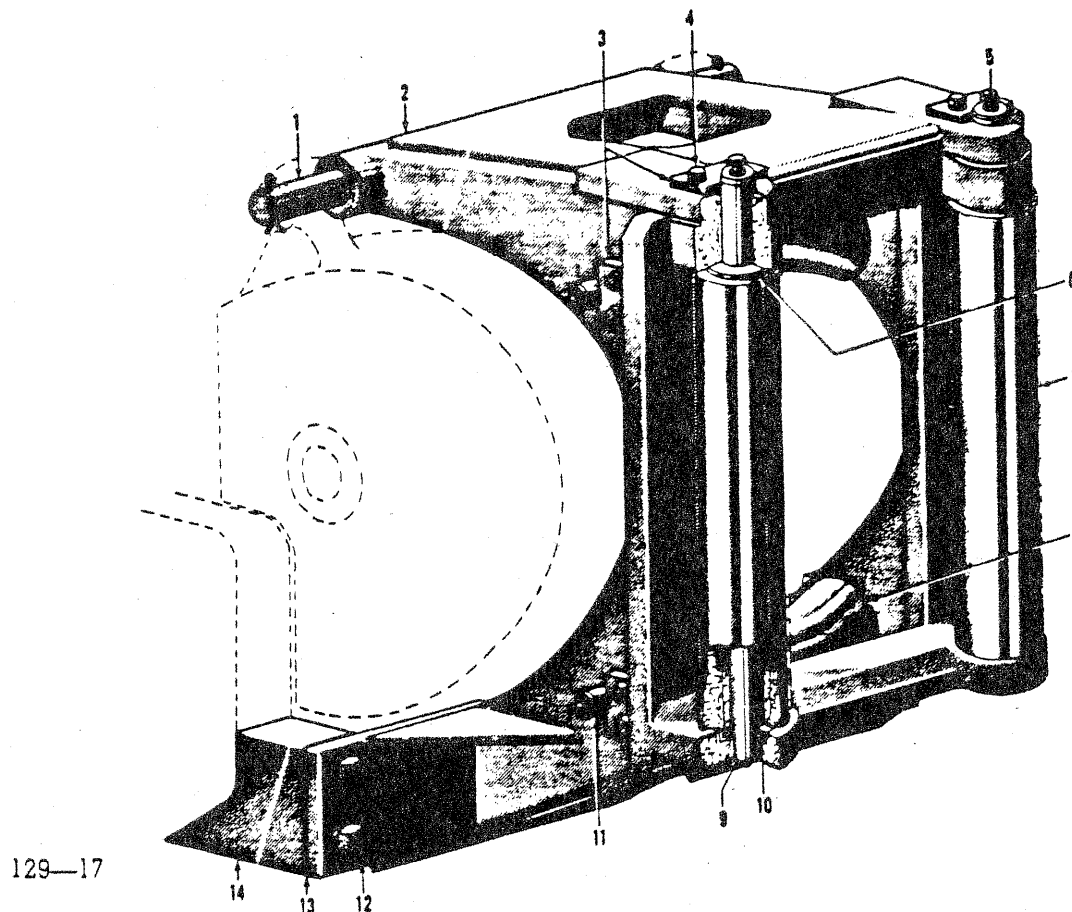
CABLE GUIDE ROLL ASSEMBLY — 95877A



129—16

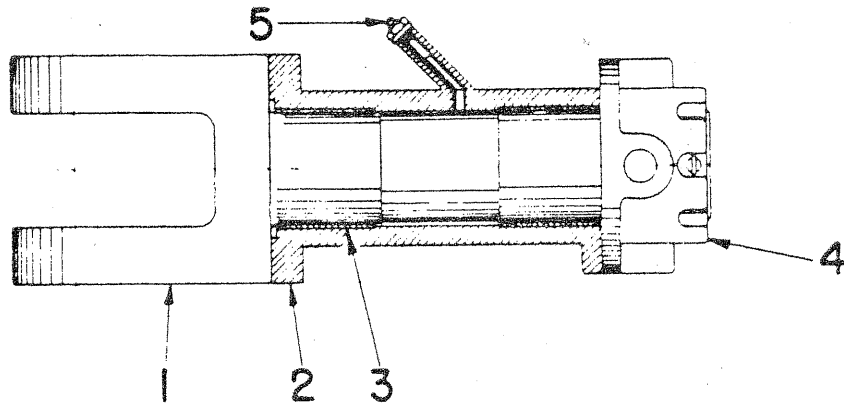
Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	95892	Gusset	1
2	{ 95883W	Bracket—R.H.	1
	{ 95891	Gusset	1
3	{ 16645	Capscrew— $\frac{5}{8}$ UNF x $2\frac{1}{4}$	4
	{ 15160	Lockwasher— $\frac{5}{8}$	4
4	95888W	Guard—Cable	1
5	16006	Grease Fitting	2
6	95669	Pin—Roller	2
7	95668	Washer	6
8	{ 95666A	Roller Assembly (Includes Bushings)	2
	{ 35135	Bushing	4
9	95879W	Bracket—L.H.	1
10	95889	Bar—Filler	1
11	95890	Gusset	1

FAIRLEAD ASSEMBLY — 95894A



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	{ 92606	Rod—Tie	1
	{ 15272	Cotter— $\frac{3}{8}$ x 3	2
2	95785W	Frame	1
3	93166	Keeper	4
4	{ 15514	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	8
	{ 15158	Lockwasher— $\frac{1}{2}$	8
5	16001	Grease Fitting	8
6	33394	Washer	2
7	{ 36206A	Roller Assembly (Includes Bushing)	2
	{ 2570	Bushing	4
	{ 92212A	Roller Assembly (Includes Bushing)	2
8	{ 59419	Bushing	4
	{ 92720	Washer	4
9	93657	Shaft—Vertical	2
10	230336	Thrust Bearing	2
11	93658	Shaft—Horizontal	2
12	{ 15571	Capscrew—1" UNF x $2\frac{3}{4}$	4
	{ 15166	Lockwasher—1"	4
13	93985	Shim	6
14	{ 95793	Plate—Mounting, L.H.	1
	{ 95792	Plate—Mounting, R.H.	1

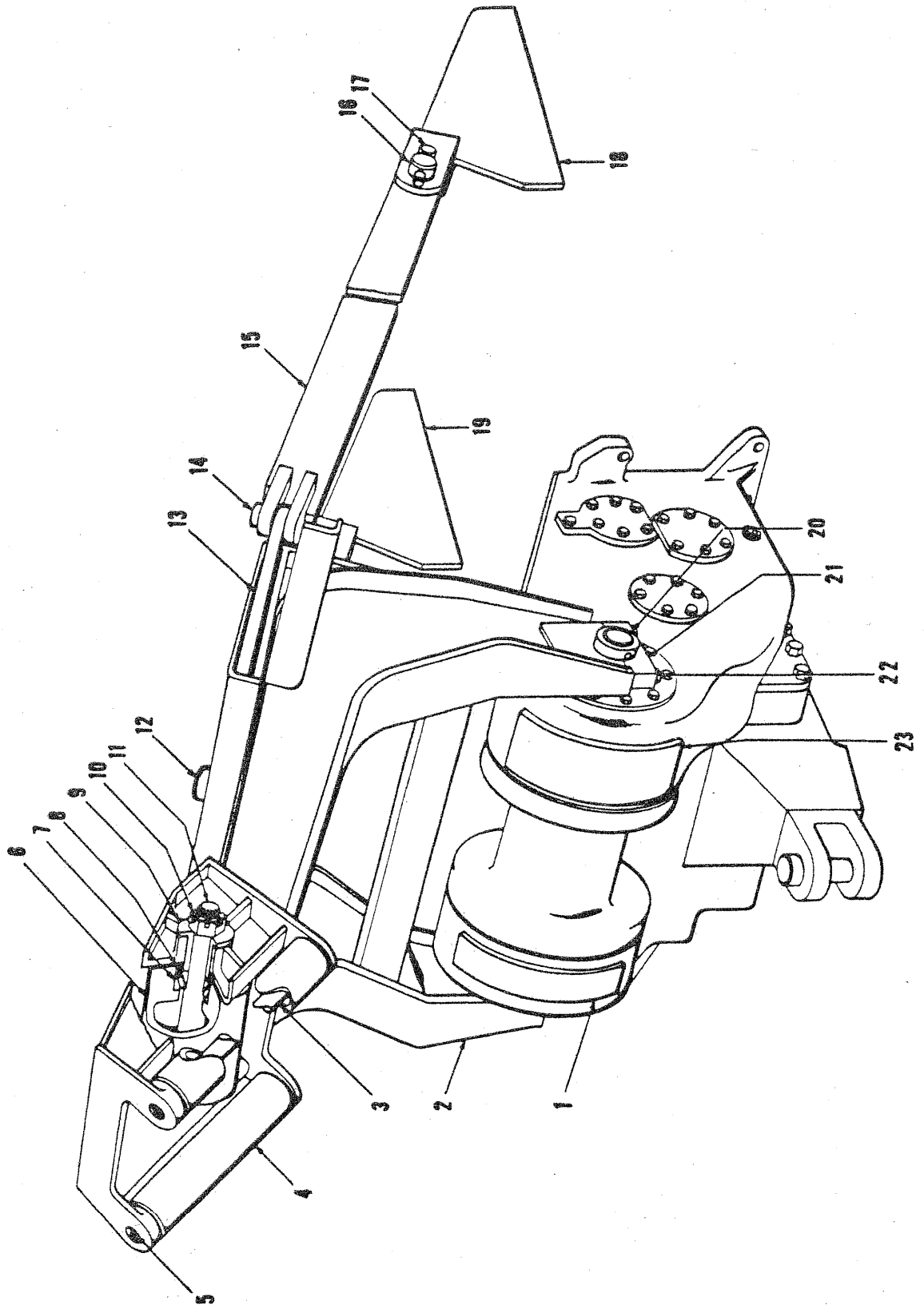
SWIVELING DRAWBAR ASSEMBLY — 96309A



129—28

Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req
1	33787	Drawbar	1
2	96318A	Adapter Assembly (Includes Item 3)	1
3	92671	Bushing	2
4	33618	Nut	1
	15295	Cotter— $\frac{1}{2}$ x 5	1
5	16002	Grease Fitting	1

INTEGRAL ARCH ASSEMBLY



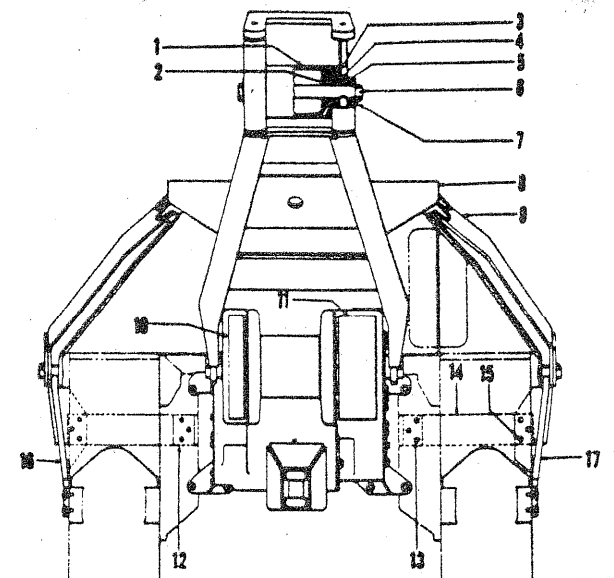
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INTEGRAL ARCH ASSEMBLY

Rel. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	84923	Plate—Guard, L.H.	1
2	84872W	Frame—Arch	1
3	59743	Pin	2
	35749	Keeper	2
	37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	2
4	35728A	Roller Assembly (Includes Bushing)	2
	35726	Bushing	2
	37546	Washer	2
5	16001	Grease Fitting	2
6	35725	Roller—Horizontal	1
	15347	Plug—Pipe	1
7	30059	Cup—Bearing	2
	30084	Cone—Bearing	2
8	35738	Oil Seal	2
9	35739	Bushing	2
	35740	Shim	1
10	32282	Nut—Slot	2
	15257	Cotter— $\frac{1}{4}$ x $2\frac{1}{2}$	2
11	35743	Shaft—Horizontal Roller	1
12	84907	Pin	1
	80926	Anchor	1
	16823	Capscrew— $\frac{5}{8}$ UNF x $1\frac{1}{2}$	1
	15160	Lockwasher— $\frac{5}{8}$	1
	84901A	Equalizer Beam Assembly (Includes Bushings)	1
13	84905	Bushing	1
	84906	Bushing	2
	84913	Pin	2
14	80926	Anchor	2
	16823	Capscrew— $\frac{5}{8}$ UNF x $1\frac{1}{2}$	2
	15160	Lockwasher— $\frac{5}{8}$	2
15	84908A	Backstay Assembly	2
	84906	Bushing	2
16	84912	Pin	2
	80926	Anchor	2
17	16823	Capscrew— $\frac{5}{8}$ UNF x $1\frac{1}{2}$	2
	15160	Lockwasher— $\frac{5}{8}$	2
18	77859W	Bracket—Track (R.H.)	1
19	77861W	Bracket—Track (L.H.)	1
20	84921	Nut—Special, R.H.	1
	77855	Nut—Special, L.H.	1
21	84830A	Block Assembly—R.H. } Includes	1
	97791A	Block Assembly—L.H. } Capscrews	1
22	18630	Capscrew— $\frac{3}{4}$ UNF x $3\frac{3}{4}$ } For R.H.	2
	15162	Lockwasher— $\frac{3}{4}$ } Block	2
	98611	Capscrew— $3\frac{3}{4}$ Long } For	1
	97800	Capscrew— $3\frac{1}{4}$ Long } L.H.	1
	15162	Lockwasher— $\frac{3}{4}$ } Block	1
23	84922	Plate—Guard, R.H.	1

INTEGRAL ARCH ASSEMBLY

(For 977 Traxcavator Serial No. 53A1 and up)

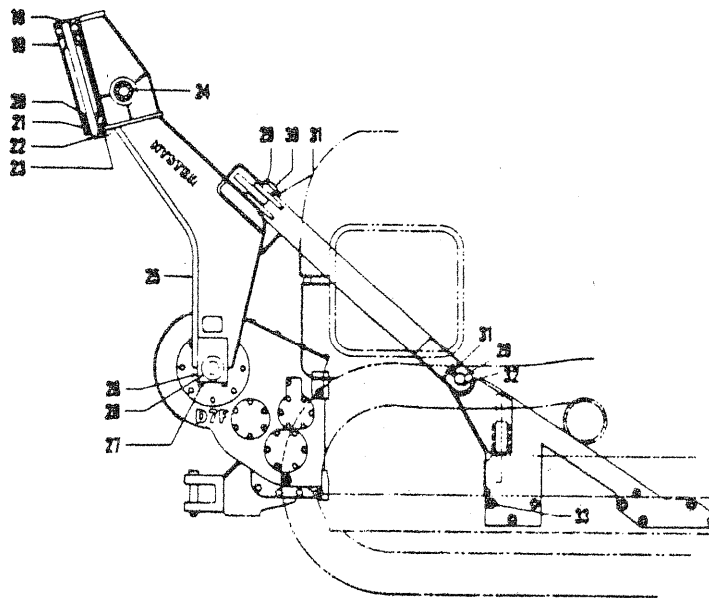


Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
1	35725B	Roller—Horizontal	1
2	{ 30059	Cup—Bearing	2
	{ 30084	Cone—Bearing	2
3	15347	Fitting—Pipe Plug	1
4	35738	Oil Seal	2
5	35740	Shim	1
6	35743	Shaft—Horizontal Roller	1
7	35739	Bushing	2
8	{ 84901A	Equalizer Beam Assembly (Includes Bushings)	1
	{ 84905	Bushing	1
	{ 84906	Bushing	2
9	134157	Strut—Backstay	2
10	84923	Plate—Guard, L.H.	1
11	84922	Plate—Guard, R.H.	1
12	134156	Plate	2
13	{ 16800	Capscrew— $\frac{3}{4}$ UNF x 2	6
	{ 15162	Lockwasher— $\frac{3}{4}$	6
14	134155	Plate	2
15	{ 16052	Capscrew— $\frac{3}{4}$ UNF x 3	6
	{ 17162	Nut— $\frac{3}{4}$ UNF	6
	{ 15162	Lockwasher— $\frac{3}{4}$	6
16	134150	Bracket—Track, L.H.	1
17	134145	Bracket—Track, R.H.	1

NOTE: At reassembly, fill horizontal roller (1) with Traxcavator transmission oil through opening at pipe plug (3).

INTEGRAL ARCH ASSEMBLY

(For 977 Traxcavator Serial No. 53A1 and up)



Ref. No.	Hyster Part No.	NAME OF PART	Qty. Req.
18	16001	Fitting—Lubrication	2
19	35728A	Roller Assembly—Vertical (Includes Bushings)	2
20	35726	Bushing	4
21	35746	Washer	2
22	59743	Pin	2
23	35749	Keeper	2
	37562	Capscrew— $\frac{1}{2}$ UNF x $1\frac{1}{4}$	2
	15158	Lockwasher— $\frac{1}{2}$	2
24	32282	Nut—Slotted	2
	15257	Cotter— $\frac{1}{4}$ x $2\frac{1}{2}$	2
25	84872W	Frame—Arch (Includes Blocks 26)	1
26	84830A	Block Assembly—R.H. (Includes Capscrews)	1
	97791A	Block Assembly—L.H.	1
27	18630	Capscrew— $\frac{3}{4}$ UNF x $3\frac{3}{4}$ } For R.H.	2
	15162	Lockwasher— $\frac{3}{4}$ } Block	2
	98611	Capscrew— $3\frac{3}{4}$ " Long } For	1
	97800	Capscrew— $3\frac{1}{4}$ " Long } L.H.	1
	15162	Lockwasher— $\frac{3}{4}$ } Block	1
	.....	Lockwire }	1
28	84921	Nut—Special, R.H.	1
	77855	Nut—Special, L.H.	1
29	84913	Pin—Strut	4
30	84907	Pin—Equalizer	1
31	16823	Capscrew— $\frac{5}{8}$ UNF x $1\frac{1}{2}$	5
	15160	Lockwasher— $\frac{5}{8}$	5
32	80926	Anchor	5
33	58294	Bolt—Special	14

Section Q

NUMERICAL

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NUMERICAL INDEX

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6607	D11	15367	E6	17344	E7	37562	G8
6697	D12	15451	B10	18001	B7	44316	D6
9528	D9	15455	E7	18004	B8	44484	D11
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12877	E7	15500	D12	18202	B10	45303	E18
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12940	D8	15527	E2	18461	E17	54129	E13
12944	D9	15551	E12	18467	E15	55280	E12
12992	E12	15571	G3	18549	E5	55287	D1
14349	E13	15850	D12	18588	E15	57664	E13
14500	E7	15881	E13	18630	G8	58294	G8
14509	E5	15889	D1	18789	E6	58907	E8
14538	E7	15892	D6	18810	E13	58938	D6
14668	E7	15929	D10	18850	D12	58950	E12
14683	E6	15936	E6	18863	D11	58951	E17
15000	E13	15961	D7	18889	E6	59370	G1
15004	E17	15978	E15	19512	E6	59397	G1
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15016	B8	16052	G7	21014	D6	59743	G8
15018	B10	16186	E7	21420	B6	59802AB	E4
15025	E17	16200	E5	26379	D9	59927	G1
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