

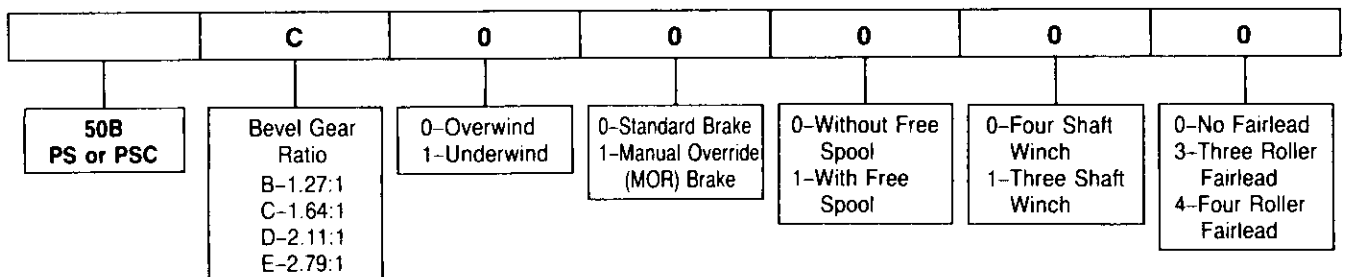
CARCO®

INSTALLATION AND PARTS MANUAL MODEL 50B PS FOR CATERPILLAR D5M & D6M PS TRACTORS

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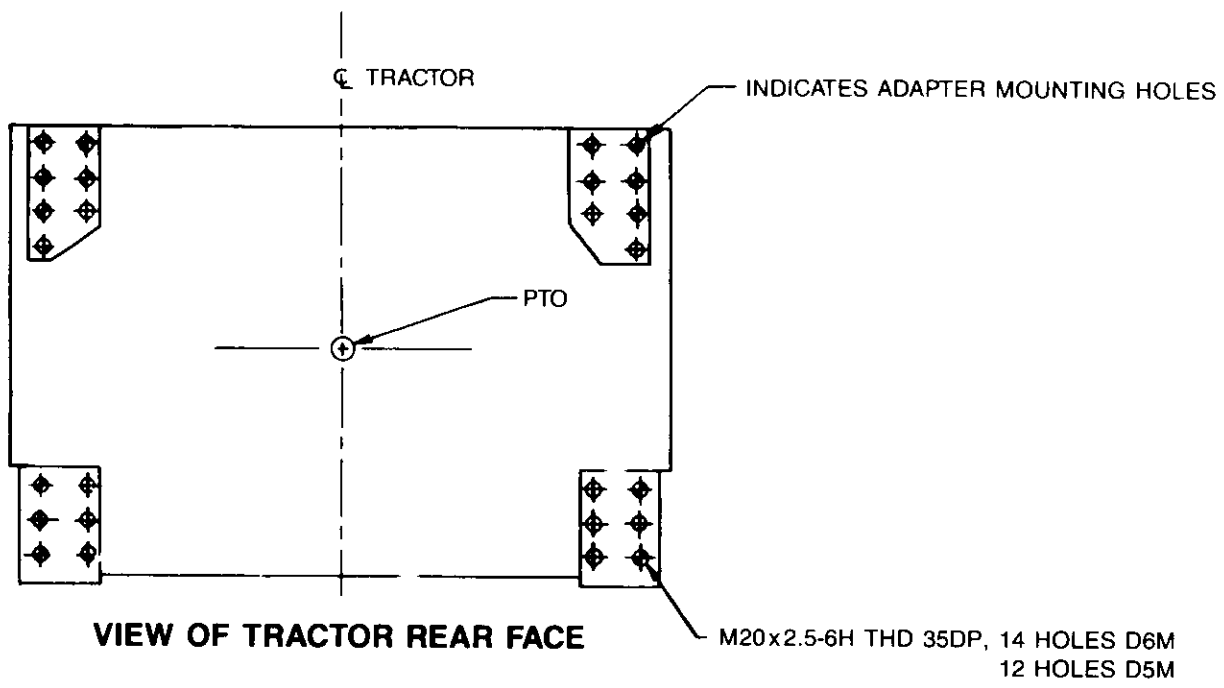
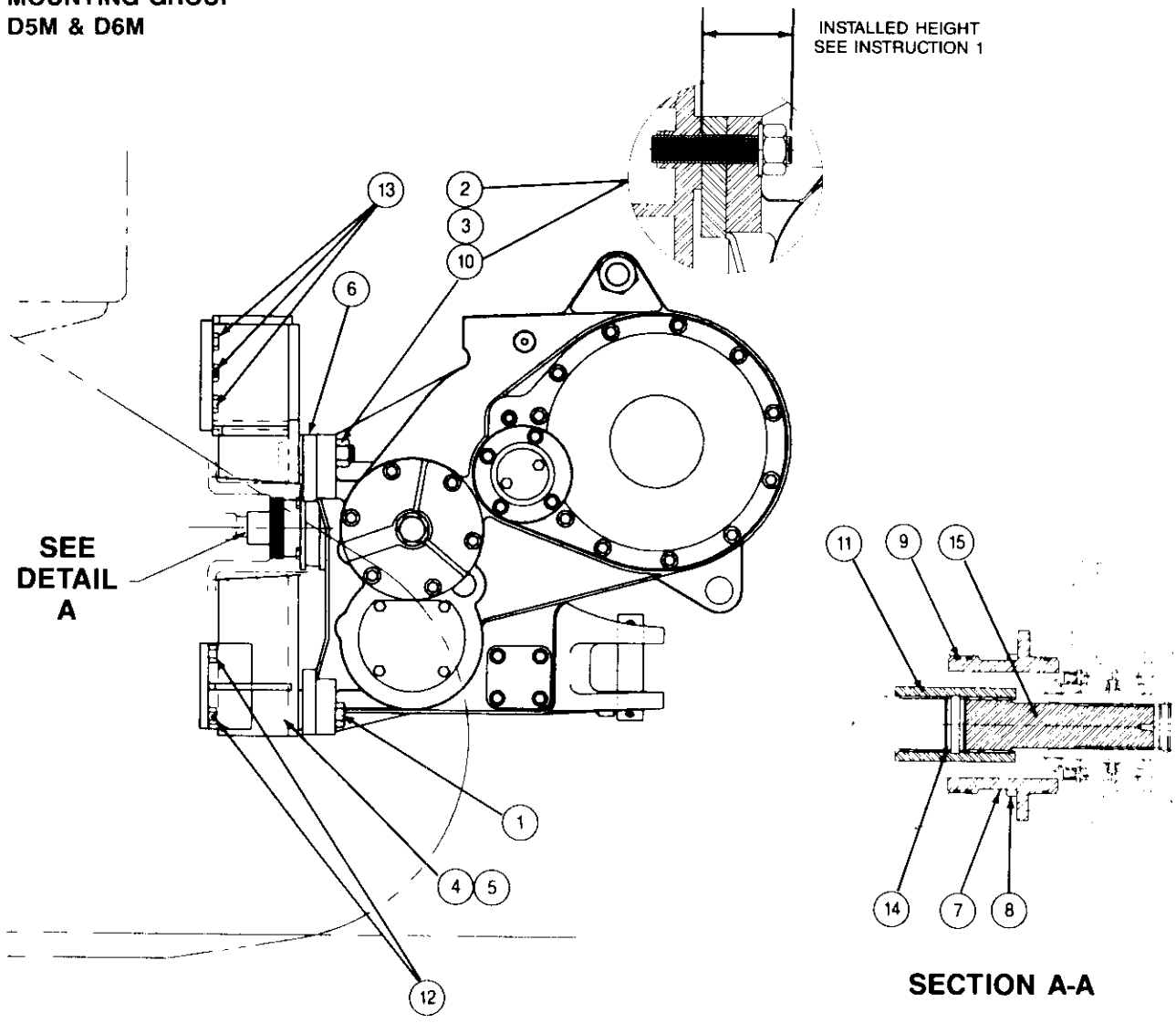
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MODEL



PACCAR WINCH DIVISIONS

**MODEL 50B
MOUNTING GROUP
D5M & D6M**



INSTRUCTIONS

1. Apply Loctite 271 to threads of studs, item 3, and install into winch adapter brackets, items 4 and 5, to a height of 3.68 in. (94 mm).
2. PTO rotation is counterclockwise (CCW) as viewed from rear of tractor.
Remove and discard tractor PTO cover.
3. Remove paint, rust, dirt and grease from mounting surfaces of tractor, winch and winch adapters.
4. Coat splines of PTO shaft, Item 15, with multi-purpose grease and install into bevel pinion gear of winch.
5. Install retaining rings, Item 14, in coupling, Item 11. Place coupling over PTO shaft with beveled end away from winch.
6. Install o-rings, Item 9, onto PTO pilot Item 7. Note: As the same PTO pilot may be used on several adaptations, usually only one o-ring groove will engage and seal in the tractor PTO opening.
7. Remove winch top cover to gain access to the bevel gears.
8. Coat PTO pilot o-rings and splines of tractor PTO with multi-purpose grease and install winch on tractor while moving winch bevel gears to align the splines.
9. Apply Loctite 242 to the clean, dry threads of studs, Item 3 and capscrews, Items 1, 12, & 13 and tighten as follows:
 - A) Method 1 – Tighten nuts to 960 lb.·ft. (1300 N·m).
Method 2 – Tighten nuts to approximately 100 lb.·ft. (136 N·m) then mark the position of the nut and tighten an additional 1 flat for adapters without spacers and 1½ flats for adapters with a spacer.
 - B) Capscrews, Item 1, to be tightened to 680 lb.·ft. (900 N·m) torque.
 - C) Capscrews, Items 12 & 13 to be tightened to 340 lb.·ft. (460 N·m).

⚠ WARNING

Winch weighs approximately 2500 lb (1135 kg). Make certain that lifting equipment has adequate capacity. Attempting to lift the winch with inadequate equipment may result in personal injury or property damage.

⚠ CAUTION

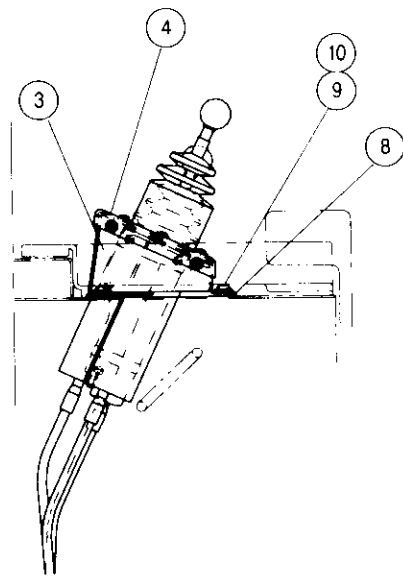
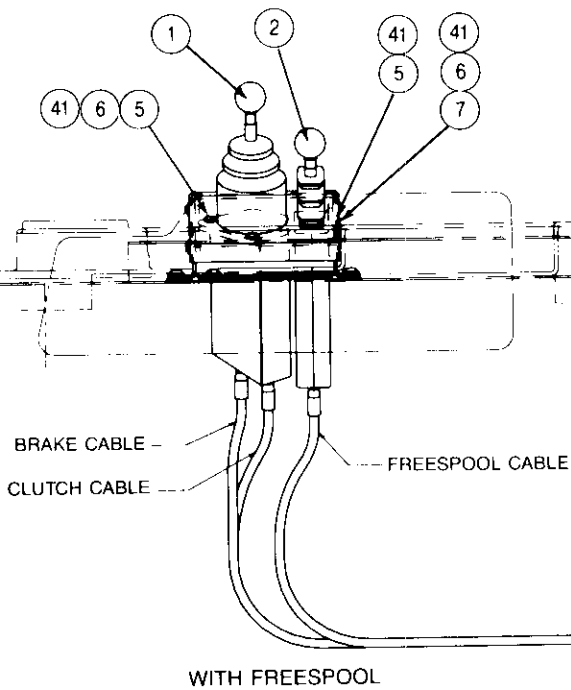
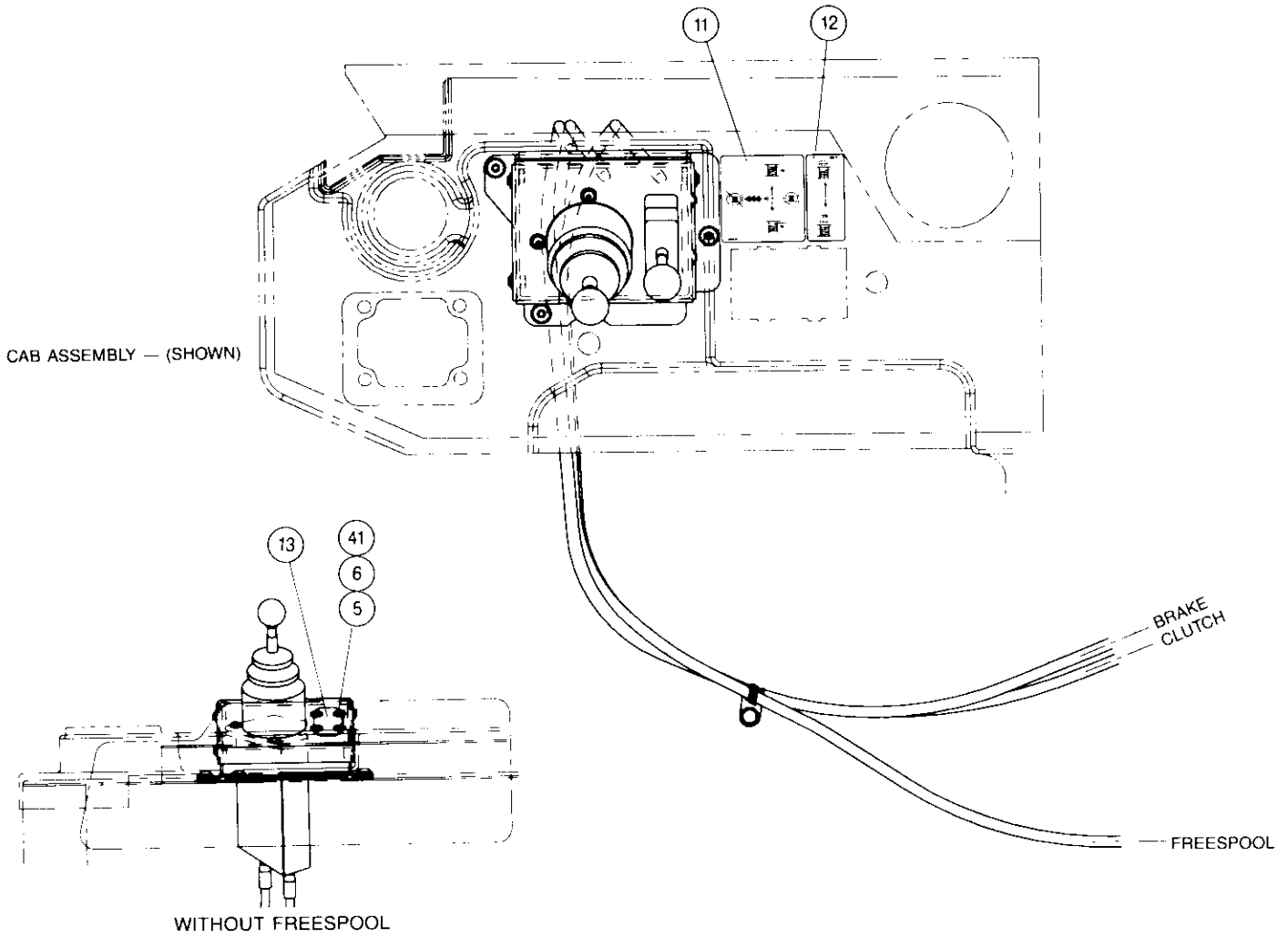
Fill winch to proper level with recommended oil BEFORE starting tractor. Winch bearing and gear damage may result if tractor is run without oil in winch.

ITEM	PART NO.	DESCRIPTION	QTY.
			D5M & D6M POWERSHIFT
1	31037	CAPSCREW (1 – 8 × 3½ G8) USED WITH SPACER ITEM 6	4
	69970	CAPSCREW (1 – 8 × 2½ G8) USED W/OUT SPACER	4
2	70768	NUT (1½ – 7)	4
3	100655	STUD (1½ – 7 × 5¼ G8) USED WITH SPACER ITEM 6	4
	100654	STUD (1½ – 7 × 4¾ G8) USED WITHOUT SPACER	4
4	101476	ADAPTER, RH, USED WITH SPACER ITEM 6	1
	102238	ADAPTER, RH, USED WITHOUT SPACER ITEM 6	1
5	101477	ADAPTER, LH USED WITH SPACER ITEM 6	1
	102239	ADAPTER, LH USED WITHOUT SPACER ITEM 6	1
6	69053	SPACER, USED WITH ADAPTERS 101476 & 101477	4
7	69089	PILOT, PTO	1
8	22697	CAPSCREW, HEX HEAD (½ – 13 × 1 G5)	4
9	69850	O-RING	3
10	27803	WASHER (1½ HARDENED)	4
11	69056	COUPLING	1
12	100646	CAPSCREW, HEX HEAD (HM20 – 2.5 × 45 mm, G8)	4
13	26648	CAPSCREW, HEX HEAD (HM20 – 2.5 × 50 mm, G8)	10
14	68870	RETAINING RING	2
15	68807	PTO SHAFT	1

NOTE: Mounting adapters, Items 4 and 5, changed in late 1999 to eliminate need for spacers and provide improved access to the transmission test ports.

**MODEL 50B
CONTROL GROUP
D5M & D6M**

D5M

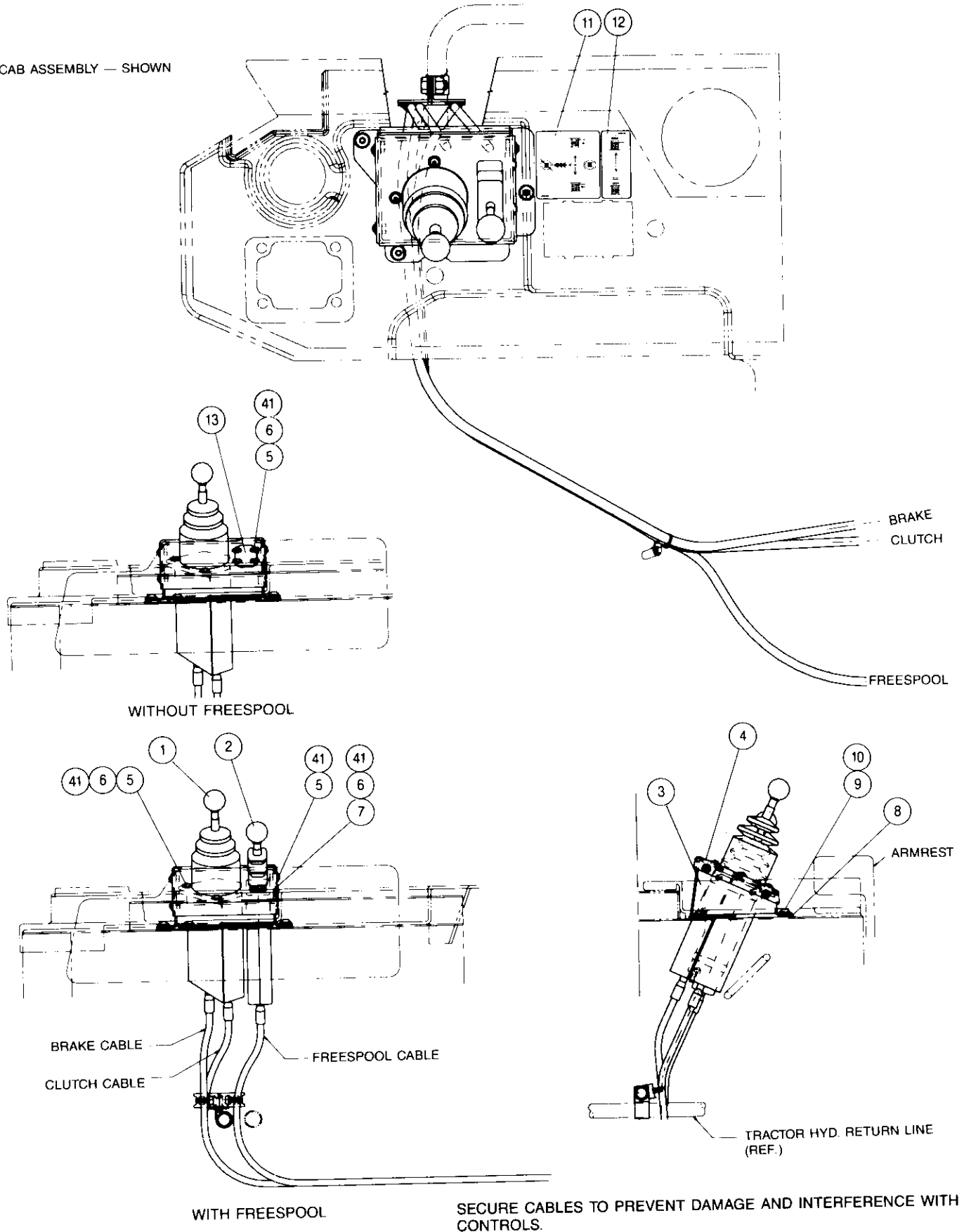


SECURE CABLES TO PREVENT DAMAGE AND INTERFERENCE WITH CONTROLS.

**MODEL 50B
CONTROL GROUP
D5M & D6M**

D6M

CAB ASSEMBLY — SHOWN



SECURE CABLES TO PREVENT DAMAGE AND INTERFERENCE WITH CONTROLS.

**MODEL 50B
CONTROL GROUP
D5M & D6M**

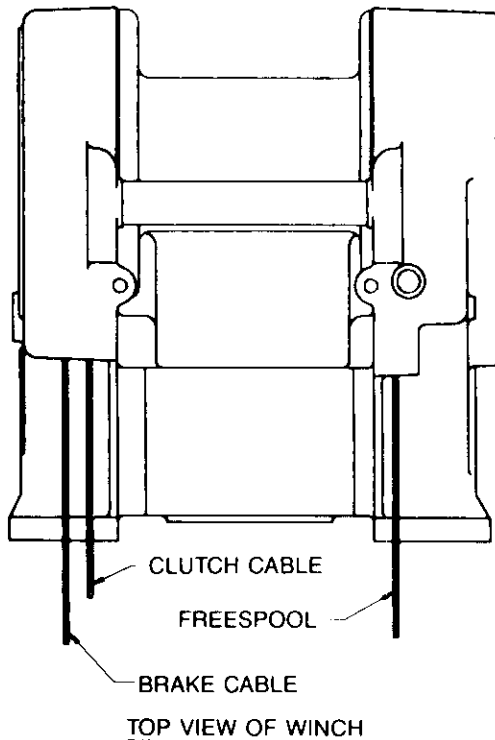
CONTROL INSTALLATION INSTRUCTION

Note: These instructions are provided as a general guide. Tractor options, application requirements or local regulations may require deviation from these recommendations.

1. Install the gasket, item 8, to the bottom of the control bracket, item 3.
2. Install the control bracket onto the right hand console using existing button head capscrews.
3. Carefully route control cables from winch to under-side of right hand console.

CAUTION
Avoid routing cables near moving shafts or linkage which may cause damage to cables or restrict free movement of tractor components.

4. Route the control cables up through the opening of the control bracket and install cables into controllers as follows:



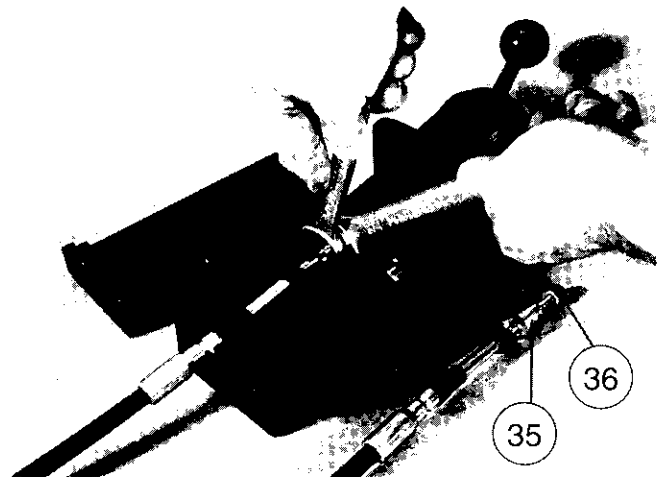
Power Shift Control – Dual Axis

1. Remove the six through-bolts, item 34, from the control stand and separate the two cable support

housings, items 37 & 38. From each plunger, remove the sliding lock screw and threaded bushing, items 35 & 36.

2. Install the sliding lock screw, item 35, onto the control cables. Apply two drops of Loctite 242 to the cable threads and install the threaded bushing, item 36, onto the cable core until the end of the cable core is level with the end of the bushing.
3. Hold the controller in your left hand with the knob end up and the mounting bolts located at 6, 9 and 12 o'clock positions. Mark the plunger closest to the 6 o'clock position as the "clutch" control. Mark the plunger closest to the 12 o'clock position as the "brake" control. The "clipped" corner of the control will be installed toward the rear of the tractor.
4. Install the brake cable to the "brake" control plunger and the clutch cable into "clutch" control plunger. Move the control lever to extend the plungers far enough to expose the wrench flats. With a wrench, hold the plunger as you tighten the sliding lock screw to 50 lb•ft (68 N•m) torque. Photo 1

CAUTION
Tightening the sliding lock screw without holding the plunger with a wrench will result in damage to the control assembly.

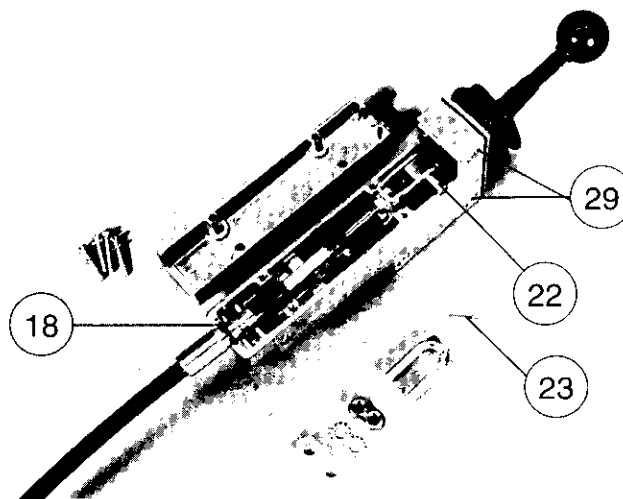


5. Install the cable support housings, items 37 & 38, onto the controller. Place the groove of the control cable housings into the saddle of the cable anchors, items 39 & 40. Install the six through-bolts, washers, lockwashers and nuts, items 31, 33, 34 & 41. Evenly tighten the bolts to 85 lb•in. (10 N•m) torque.

6. Insert the controller/cables sub-assembly from the bottom into the opening of the control bracket cover, item 4, and secure with three button, socket-head capscrews, washers and nuts, items 5, 6 & 41. If the winch is equipped with freespool, install the freespool controller/cable sub-assembly at this time. If not equipped with freespool, install the control bracket cover/controllers sub-assembly onto the control bracket using three button, socket-head capscrews, and washers, items 5 and 41.

Freespool Control Lever

1. Remove the knob, item 32, and the four oval head machine screws and lockwashers, items 16 & 17, from the long lever housing cover and remove the cover.
2. Prepare the control cable for installation by installing the o-ring, item 18, over the control lever end of the cable. The control lever end is identified by the u-bolt groove in the cable housing.
3. Install one nut, item 19, onto the cable core followed by the lockwasher, item 31.
4. Install the clevis, item 21, and one more nut, item 19, onto the cable. The cable core end must extend beyond the nut by $\frac{7}{32}$ in. (5.5 mm). Tighten the first nut to secure the clevis in this position.
5. Slip the clevis over the bellcrank of the lever and install the clevis pin, item 22, and secure in place with cotter pin, item 23. Photo 2



6. Remove the u-bolt, item 24, from the housing.
7. Position the o-ring, item 18, on the control cable housing so that when the cable is lowered into place, the o-ring fits in the groove in the housing.
8. Install the u-bolt, item 24, over the cable and

through the housing. Install the spacer, item 25, over the u-bolt followed by the lockwashers and nuts, items 20 & 26. Tighten the u-bolt nuts to 90 lb·in. (10 N·m) torque.

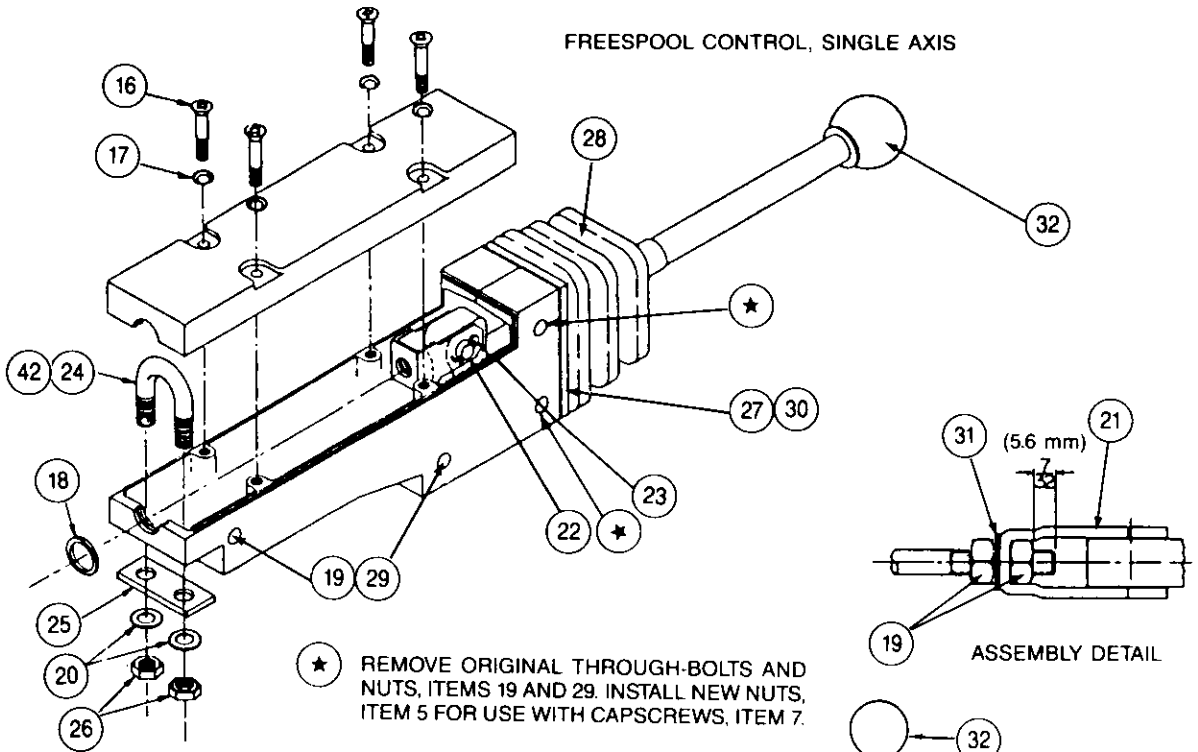
9. Install the cover onto the housing with the four oval head machine screws and lockwashers, items 16 & 17.
10. Remove the two through-bolts and nuts, items 29 and 19, from the top two mounting holes of the lever housing.
11. Secure the lever to the control bracket with capscrews, washers and nuts, items 6, 7 and 41. The long cover of the lever housing must face toward the operator.
12. Install the control bracket cover/controller sub-assembly onto the control bracket base using three button, socket-head capscrews and washers, items 5 and 41. Install the knob, item 32, onto the lever.

General Instructions

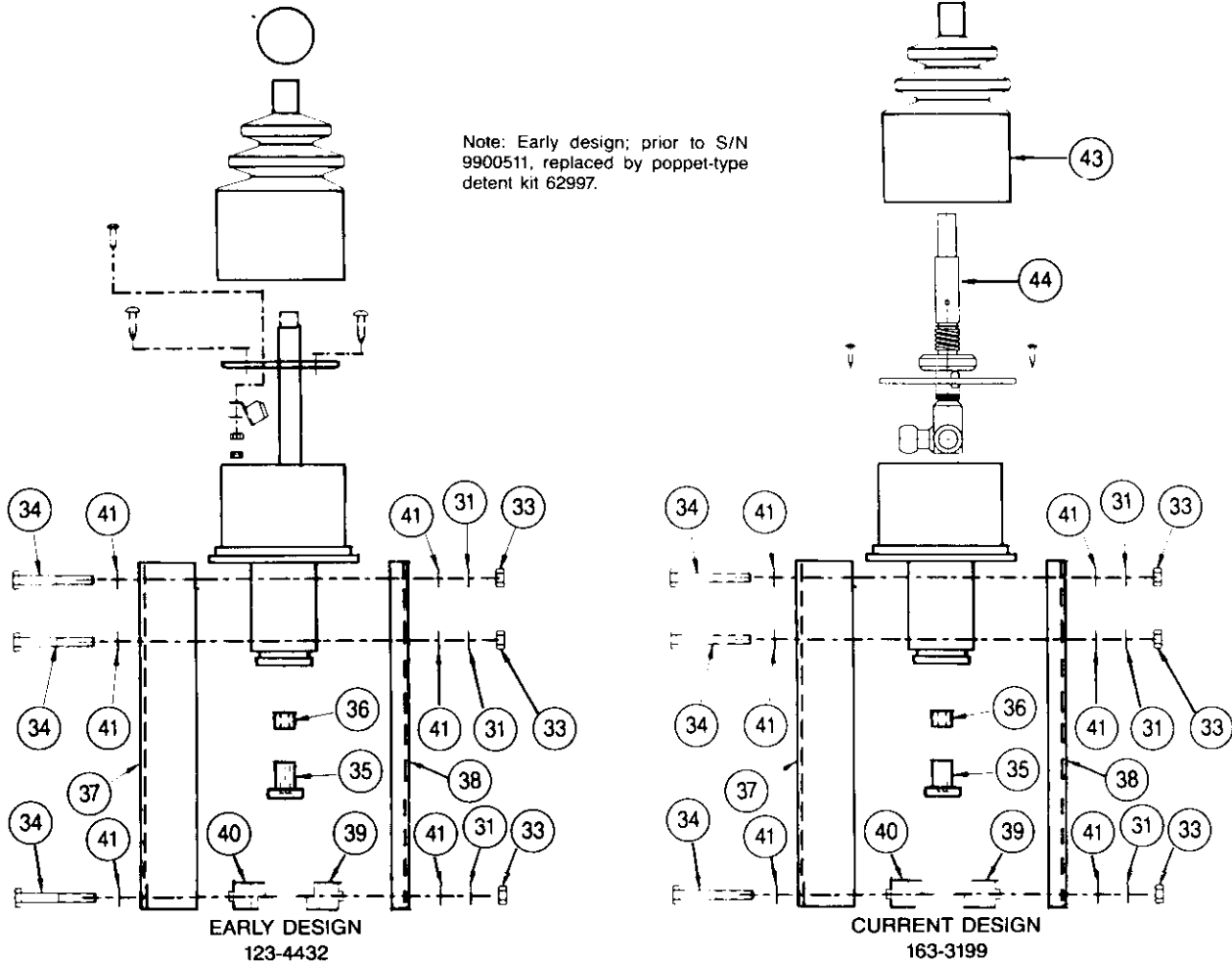
1. Install the control instruction self-adhesive decal(s), items 11 and 12, onto the console cover to the rear of the control bracket.
2. Fill winch to proper level with recommended oil. Refer to oil specifications found in the Operation and Preventive Maintenance Manual, publication PC-104.
3. Verify proper control cable and operating pressure adjustment by following the procedures found in the Operation and Preventive Maintenance Manual, publication PC-104 or the Service Manual, publication PC-137.

**MODEL 50B
CONTROL GROUP
D5M & D6M**

FREESPOOL CONTROL, SINGLE AXIS



Note: Early design; prior to S/N 9900511, replaced by poppet-type detent kit 62997.

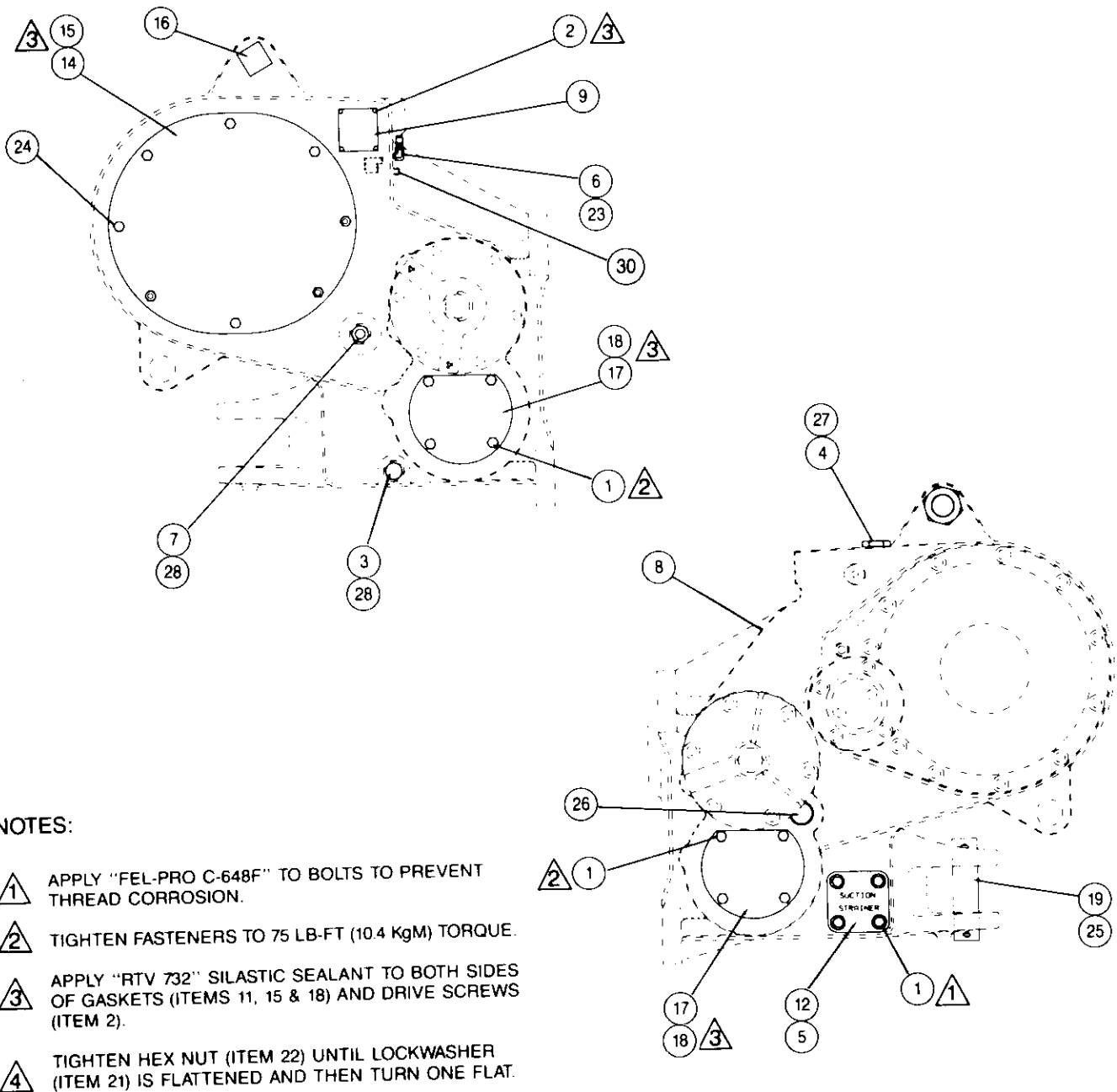
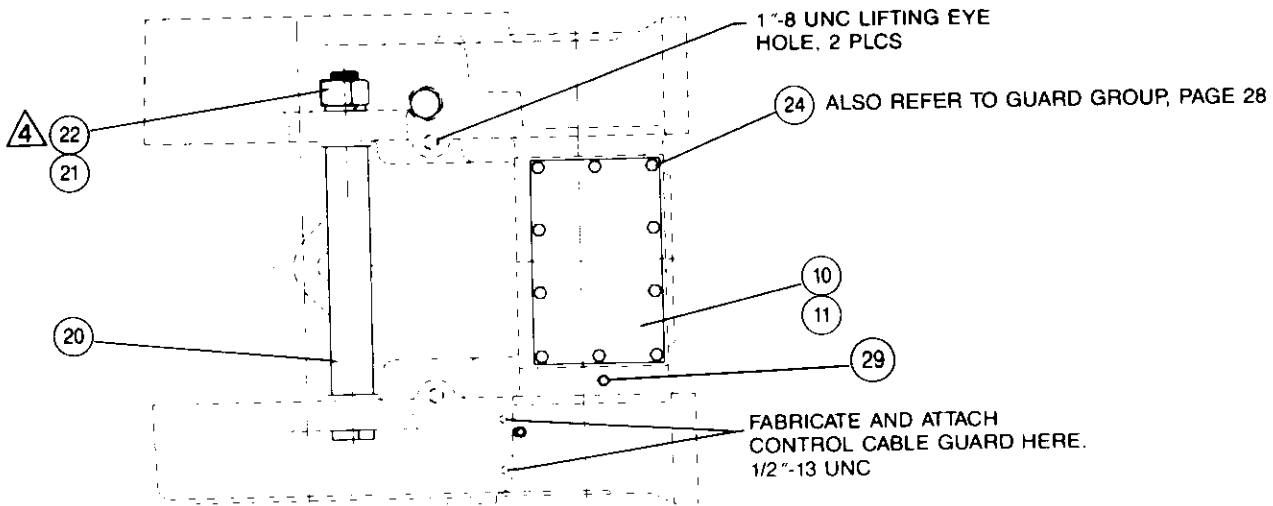


**MODEL 50B
CONTROL GROUP
D5M & D6M**

ITEM	PART NO.	DESCRIPTION	QTY.	
			W/FREESPOOL	W/O FREESPOOL
1	100055	CONTROL DUAL AXIS - EARLY DESIGN	1	1
	101850	CONTROL DUAL AXIS - NEW DESIGN	1	1
2	100056	CONTROL, FREESPOOL, SINGLE AXIS	1	—
3	100773	CONTROL BRACKET BASE	1	1
4	100640	CONTROL BRACKET COVER	1	1
5	100643	CAPSCREW, BUTTON HEAD (M6 - 1.0 × 25 mm)	6	12
6	100645	NUT, HEX (M6 - 1.0)	5	9
7	100969	CAPSCREW, BUTTON HEAD (M6 - 1.0 × 55 mm)	2	—
8	100641	GASKET	1	1
9	100642	CAPSCREW, BUTTON HEAD (M10 - 1.5 × 25 mm)	3	3
10	100652	FLATWASHER (3/8 NARROW)	3	3
11	100107	DECAL, POWERSHIFT CONTROL	1	1
12	100131	DECAL, FREESPOOL	1	—
13	100650	COVER	—	1
15	101204	CONTROL CABLE - 90 in. (2286 mm)	3	2
16	100218	MACHINE SCREW, CSK, OVAL HEAD (8-32 × 1 1/4)	4	—
17	100215	LOCKWASHER, CSK (8)	4	—
18	12463	O-RING	1	—
19	11044	NUT (1/4-28)	6	—
20	11011	LOCKWASHER, EXTERNAL TOOTH (5/16)	2	—
21	100220	CLEVIS	1	—
22	100222	CLEVIS PIN	1	—
23	13816	COTTER PIN (1/16 × 1/2)	1	—
24	100221	U-BOLT	1	—
25	100223	U-BOLT SPACER	1	—
26	11048	NUT (5/16-24)	2	—
27	100216	MACHINE SCREW, CSK, OVAL HEAD (8-32 × 1/2)	4	—
28	100219	BOOT, FREESPOOL LEVER	1	—
29	100217	MACHINE SCREW, FLSTR HEAD (1/4-28 × 1 7/16)	4	—
30	100224	BOOT RETAINER PLATE	1	—
31	12780	LOCKWASHER, EXTERNAL TOOTH (1/4)	7	6
32	100240	KNOB	2	1
33	69645	NUT (1/4-20)	6	6
34	21462	CAPSCREW, HEX HEAD (1/4-20 × 2 G5)	6	6
35	100234	SLIDING LOCKSCREW	2	2
36	100235	CABLE BUSHING	2	2
37	100238	CABLE SUPPORT HOUSING, OUTER	1	1
38	100239	CABLE SUPPORT HOUSING, INNER	1	1
39	100236	CABLE ANCHOR, OUTER	1	1
40	100237	CABLE ANCHOR, INNER	1	1
41	11072	WASHER, FLAT-THIN (1/4)	20	24
42	100225	CABLE CLAMP	1	1
43	102261	BOOT	1	1
44	62997	BRAKE-OFF DETENT KIT*	1	1

*Note: Early design; prior to S/N 9900511, replaced by poppet-type detent kit 62997. Kit replaces early design spring clip design with poppet-type detent mechanism for better retention in BRAKE-OFF position. Kit includes boot, spring, restrictor plate, poppet latch, jam nut screws and washers. Control lever shaft NOT included in kit and NOT available separately.

WINCH CASE & COVERS



NOTES:

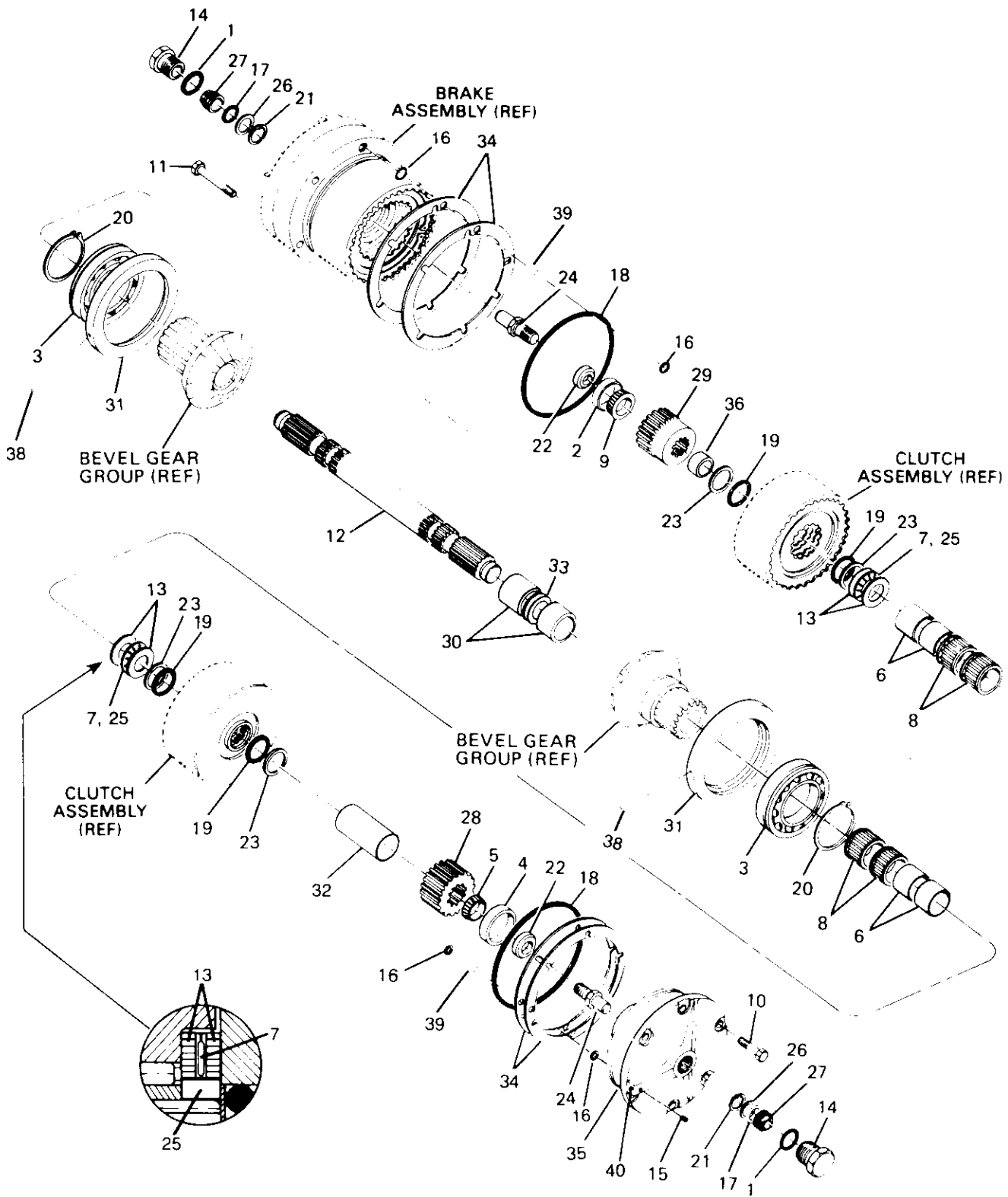
- 1 APPLY "FEL-PRO C-648F" TO BOLTS TO PREVENT THREAD CORROSION.
- 2 TIGHTEN FASTENERS TO 75 LB-FT (10.4 KgM) TORQUE.
- 3 APPLY "RTV 732" SILASTIC SEALANT TO BOTH SIDES OF GASKETS (ITEMS 11, 15 & 18) AND DRIVE SCREWS (ITEM 2).
- 4 TIGHTEN HEX NUT (ITEM 22) UNTIL LOCKWASHER (ITEM 21) IS FLATTENED AND THEN TURN ONE FLAT.

WINCH CASE & COVERS

ITEM	PART NO.	DESCRIPTION	QTY
1	22697	CAPSCREW, HEX HEAD (1/2 - 13 NC x 1 G5)	12
2	70053	DRIVE SCREW	4
3	70118	PLUG, DRAIN (MAY BE SUBSTITUTED FOR ITEM 7)	1
4	70119	PLUG, OIL FILL (INCLUDES ITEM 27)	1
5	22586	O-RING	1
6	11106	VENT PLUG	1
7	70193	SIGHT GAUGE (INCLUDES ITEM 28)	1
8	27752	WINCH CASE - STANDARD PTO - SHOWN	1
9	100268	SERIAL NUMBER DATA PLATE	1
10	27805	COVER, TOP ACCESS	1
11	27806	GASKET	1
12	70305	STRAINER COVER	1
14	69951	COVER, SIDE ACCESS	1
15	69950	GASKET	1
16	28772	TIE BOLT	1
17	27807	COVER, LOWER ACCESS	2
18	27808	GASKET	2
19	36618	DRAW BAR PIN	1
20	27804	SPACER TUBE	1
21	27666	LOCKWASHER, 1 3/4	1
22	27655	NUT, HEX HEAD (1 3/4 NC)	1
23	13708	ELBOW (ONE INSIDE CASE)	2
24	27745	CAPSCREW, HEX HEAD (1/2 - 13 NC x 1 G5 SS)*	11
25	70148	COTTER PIN (3/8 x 3 in.)	2
26	70191	EXPANSION PLUG - 3 SHAFT WINCH ONLY	1
27	31608	O-RING - FOR OIL FILL PLUG	1
28	31607	O-RING - FOR OIL DRAIN & LEVEL PLUG (ITEMS 3 & 7)	2
29	23377	PLUG (3/8 NPT SQ HD)	1
30	18009	PLUG (1/4 NPT SQ HD)	1

*SS -- SELF SEALING MATERIAL PREAPPLIED TO THREADS

CLUTCH SHAFT GROUP

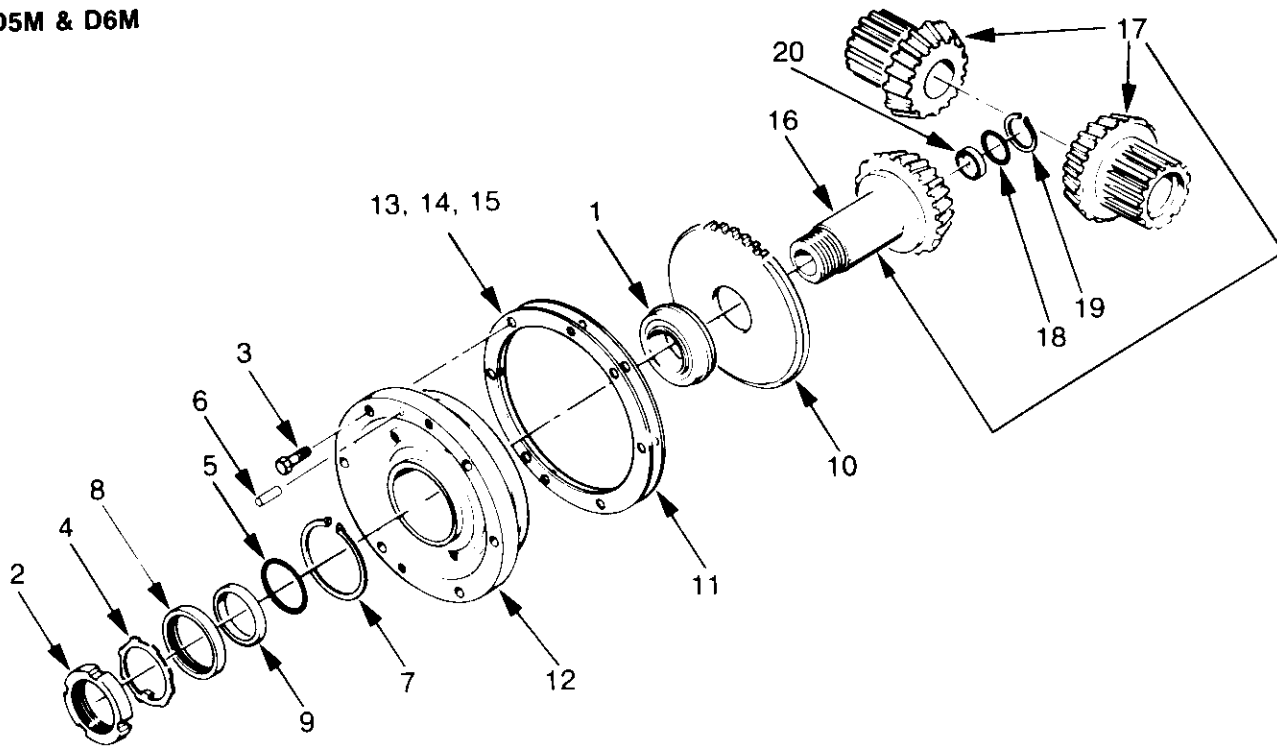


CLUTCH SHAFT GROUP

ITEM	PART NO.	DESCRIPTION	QTY
1	31608	O-RING (PART OF ITEM 14)	2
2	18049	BEARING CUP	1
3	70073	BALL BEARING — STD PTO	2
4	70075	BEARING CUP	1
5	70076	BEARING CONE	1
6	70083	NEEDLE BEARING — INNER RACE	4
7	11891	THRUST BEARING	2
8	70084	NEEDLE BEARING	4
9	18048	BEARING CONE	1
10	22697	CAPSCREW, HEX HEAD (1/2 - 13 NC x 1 G5)	6
11	24710	CAPSCREW, HEX HEAD (1/2 - 13 NC x 3 G5)	6
12	69997	CLUTCH SHAFT — 4 SHAFT WINCH	1
	69597	CLUTCH SHAFT — 3 SHAFT WINCH	1
13	11892	THRUST BEARING RACE	4
14	29825	PLUG (-20 ORB HEX)	2
15	70120	PLUG (1/4 NPT) (EARLY)	1
	26686	PLUG (-6 ORB HEX) (CURRENT)	1
16	72097	O-RING	8
17	18170	O-RING	2
18	21833	O-RING	2
19	25023	O-RING	4
20	70158	RETAINING RING	2
21	70160	RETAINING RING	2
22	70361	BEARING RETAINER	2
23	25024	BACK-UP RING	4
24	101198	ROTARY SEAL SHAFT	2
25	70379	THRUST BEARING SPACER	2
26	70333	BACK-UP WASHER	2
27	70334	ROTARY SEAL	2
28	69991	PINION GEAR — 18 TEETH - 4 SHAFT WINCH	1
	70291	PINION GEAR — 15 TEETH - 3 SHAFT WINCH	1
29	70292	BRAKE HUB	1
30	69690	BEVEL GEAR SPACER	2
31	70376	BEARING CARRIER	2
32	69983	PINION SPACER — 4 SHAFT WINCH	1
	70324	PINION SPACER — 3 SHAFT WINCH	1
33	70247	SHIM SET	1
34	27844	SHIM .005	AR
	27845	SHIM .007	AR
	27846	SHIM .020	AR
35	100971	CLUTCH SHAFT BEARING CAR. — 4 SHAFT WINCH	1
	100972	CLUTCH SHAFT BEARING CAR. — 3 SHAFT WINCH	1
36	69045	BRAKE HUB SPACER	1
38	75267	ROLLPIN	2
39	70358	SLEEVE	4
40	22374	PLUG, HEX SOCKET (1/8 NPT) (EARLY)	1

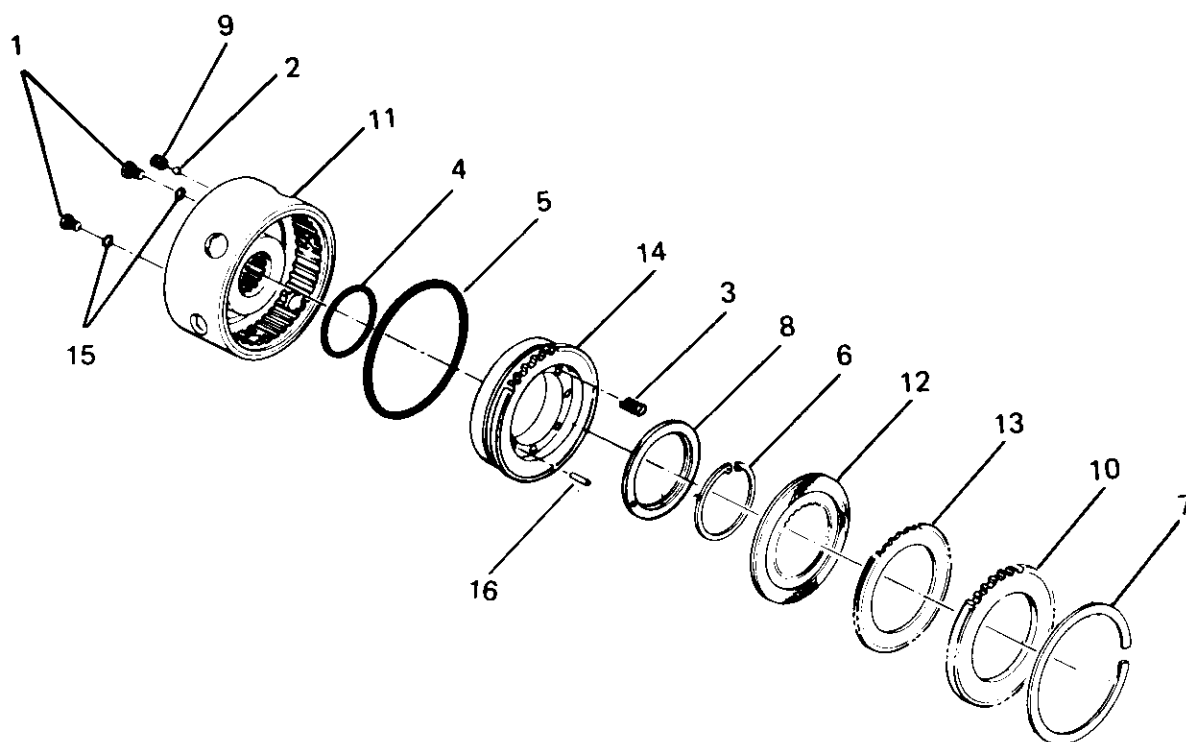
AR — AS REQUIRED

**MODEL 50B
BEVEL GEAR GROUP
D5M & D6M**



ITEM	PART NO.	DESCRIPTION	QTY.
1	70077	BEARING ASSEMBLY	1
2	24816	BEARING, LOCK NUT	1
3	22697	CAPSCREW HEX HEAD	6
4	11418	LOCKWASHER	1
5	74992	O-RING	1
6	10318	DOWEL PIN	1
7	70163	RETAINING RING	1
8	70168	OIL SEAL	1
9	70382	SEAL SPACER	1
10	69947	PUMP DRIVE PINION	1
11	69946	SHIM GASKET	1
12	69961	CARRIER	1
13	69945	SHIM .005 in. (.13 mm)	2-AR
14	69827	SHIM .007 in. (.18 mm)	2-AR
15	69826	SHIM .020 in. (.51 mm)	2-AR
16	70354	BEVEL PINION - 18T STANDARD SPEED - 3 SHAFT PS TRACTORS	1
	70355	BEVEL PINION - 14T SLOW SPEED - 4 SHAFT PS TRACTORS OR STANDARD SPEED 3 SHAFT DD TRACTORS	1
17	29072	BEVEL GEAR SET - 18/38T	1
	29073	BEVEL GEAR SET - 14/39T	1
18	70133	O-RING	1
19	70161	RETAINING RING	1
20	70357	PLUG, BEVEL PINION	1

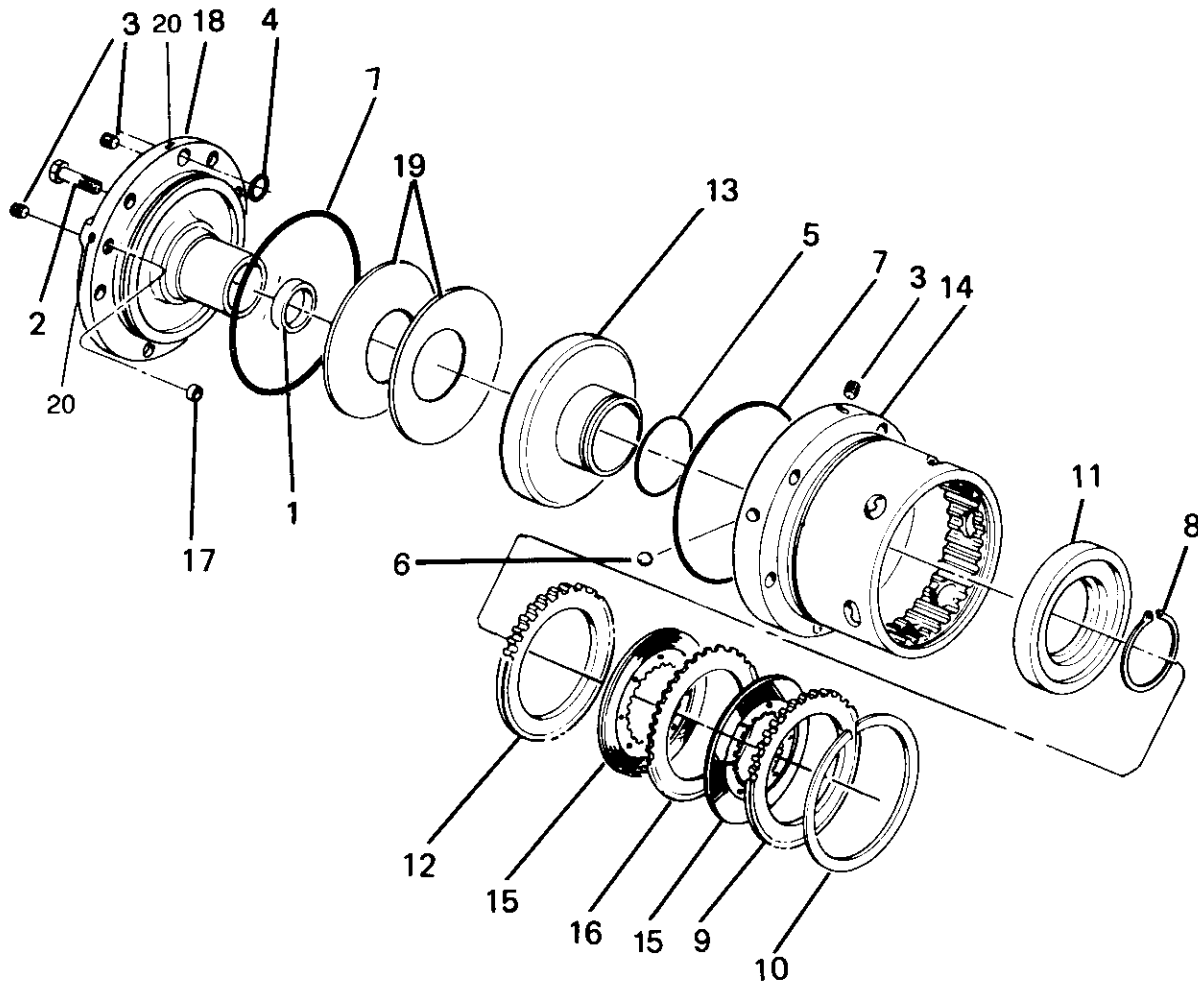
CLUTCH ASSEMBLY



ITEM	PART NO.	DESCRIPTION	QTY
—	81968	CLUTCH ASSEMBLY — INCLUDES ITEMS 1-16	
1	70177	PLUG, O-RING FLUSH — INCLUDES ITEM 15	2
2	70126	STEEL BALL	1
3	70130	SPRING	8
4	77367	O-RING	1
5	22357	O-RING	1
6	70170	RETAINING RING	1
7	26147	RETAINING RING	1
8	70328	SPRING RETAINER	1
9	70241	CHECK VALVE SEAT	1
10	26755	PRESSURE PLATE	1
11	28866*	CLUTCH HOUSING	1
12	70636	DISC — FRICTION, BRONZE	5
13	27861	DISC — STEEL .093 in. (2.36 mm)	4
14	70306	CLUTCH PISTON	1
15	70724	O-RING	2
16	70862	PIN	1

*Part No. 28866 includes Housing 70299 with two (2) steel balls 70126 driven into drilled passages.

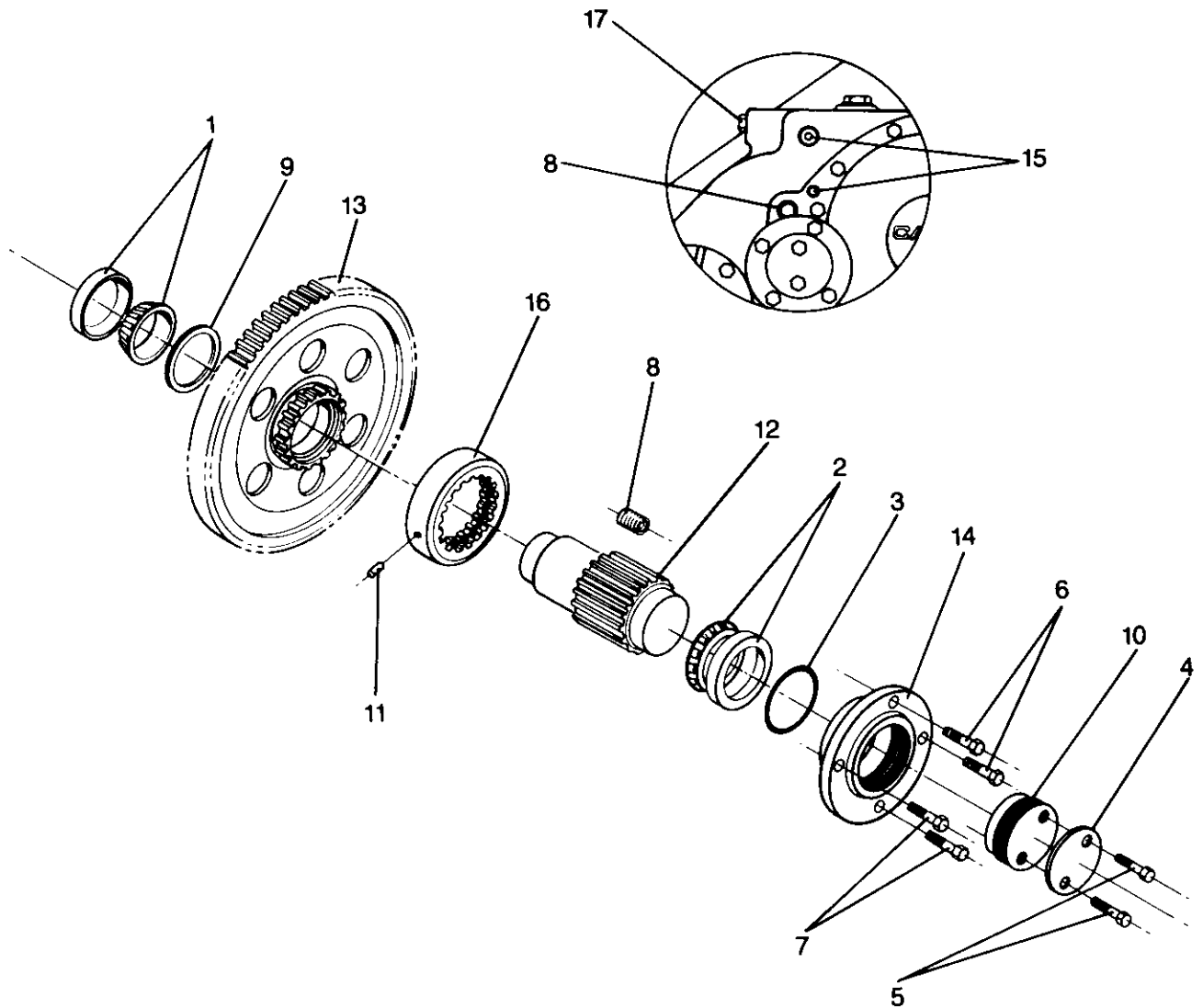
BRAKE ASSEMBLY - STANDARD



ITEM	PART NO.	DESCRIPTION	QTY.
—	81960	BRAKE ASSEMBLY, STD — INCLUDES ITEMS 1-20	
1	18049	BEARING CUP	1
2	21961	CAPSCREW, HEX HEAD (3/8 - 16 NC x 1 G5)	2
3	70120	PLUG, HEX SOCKET (1/4 NPT - EARLY)*	4
	26686	PLUG, HEX HEAD (-6 ORB - CURRENT)*	3
4	22454	O-RING	3
5	10330	O-RING	1
6	70126	STEEL BALL	2
7	22358	O-RING	2
8	69807	RETAINING RING	1
9	26755	PRESSURE PLATE — OUTER	1
10	26147	RETAINING RING	1
11	69976	PISTON RETAINER	1
12	70293	PRESSURE PLATE — INNER	1
13	69921	BRAKE PISTON	1
14	101885	BRAKE HOUSING EARLY (REQUIRES 2 OF ITEM 6)*	1
		BRAKE HOUSING CURRENT (REQUIRES 1 OF ITEM 6)*	1
15	70636	DISC — FRICTION BRONZE	8
16	27861	DISC STEEL — .093 in. (2.36 mm)	7
17	27843	INSERT — NOT USED IN CURRENT HSG.	1
18	100973	BRAKE CARRIER	1
19	70255	BRAKE SPRING	2

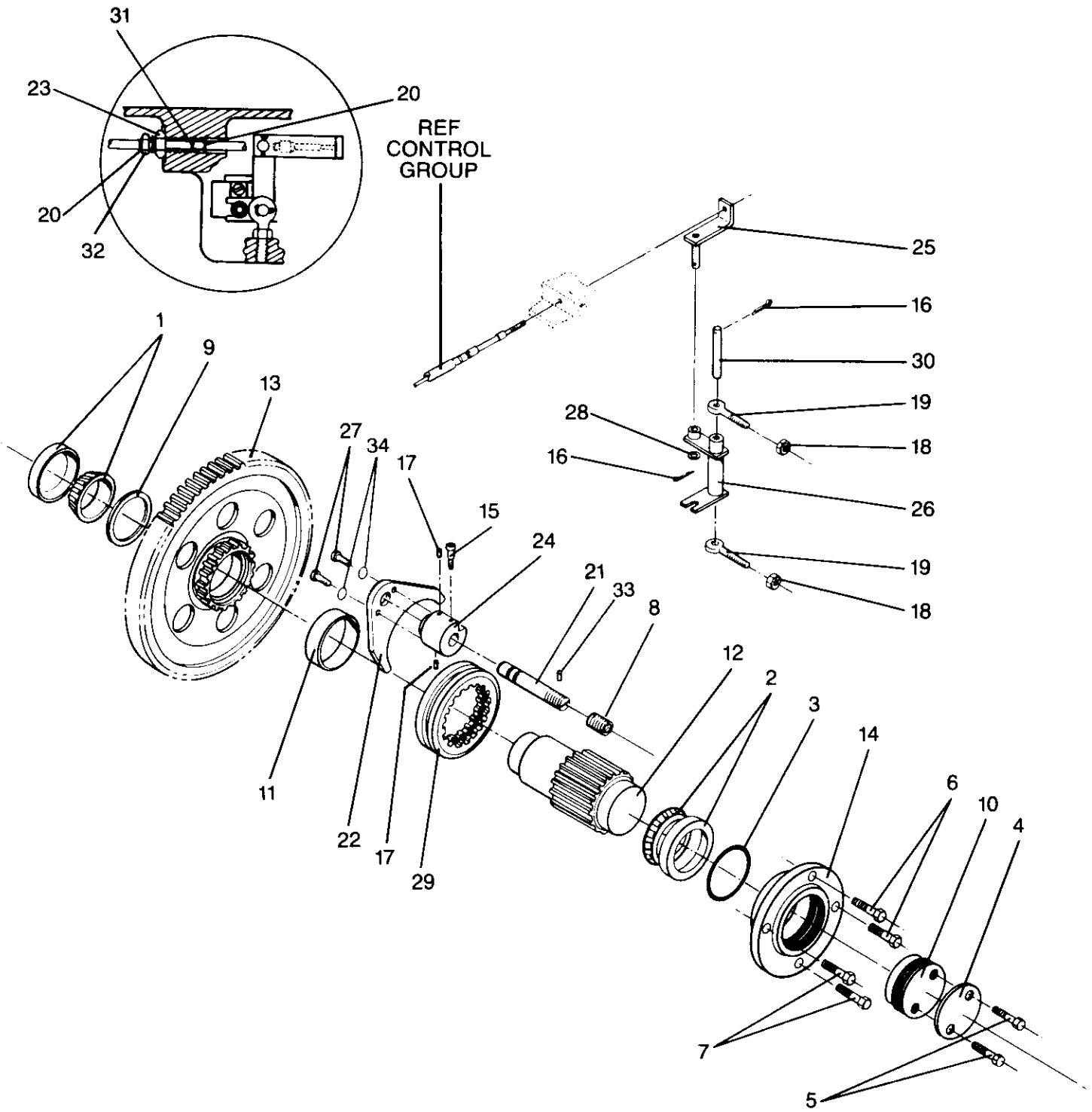
*Current brake housing may be visually distinguished from the early design by locating the -6 ORB plug in the "B" brake pressure port. The early design used a hex-socket head 1/4 NPT plug.

**IDLER SHAFT GROUP
WITHOUT FREESPOOL**



ITEM	PART NO.	DESCRIPTION	QTY.
1	69013	BEARING ASSEMBLY — INNER	1
2	69014	BEARING ASSEMBLY — OUTER	1
3	25880	O-RING	1
4	69655	LOCK PLATE	1
5	22729	CAPSCREW, HEX HEAD (1/2 - 13 x 3/4 G5)	2
6	13938	CAPSCREW, HEX HEAD (1/2 - 13 x 1 1/4 G5)	2
7	13421	CAPSCREW, HEX HEAD (1/2 - 13 x 2 G5)	2
8	27216	PLUG, SOCKET HEAD	1
9	11892	THRUST WASHER	1
10	69592	ADJUSTER	1
11	11836	ROLLPIN	1
12	69984	PINION, SECOND REDUCTION	1
13	27320	GEAR, FIRST REDUCTION	1
14	69974	CARRIER, IDLER SHAFT	1
15	25915	SCREW, SOCKET HEAD	2
16	69977	COLLAR	1
17	69782	CAPSCREW HEX HEAD (3/4 - 16 x 1 1/4 G5)	1

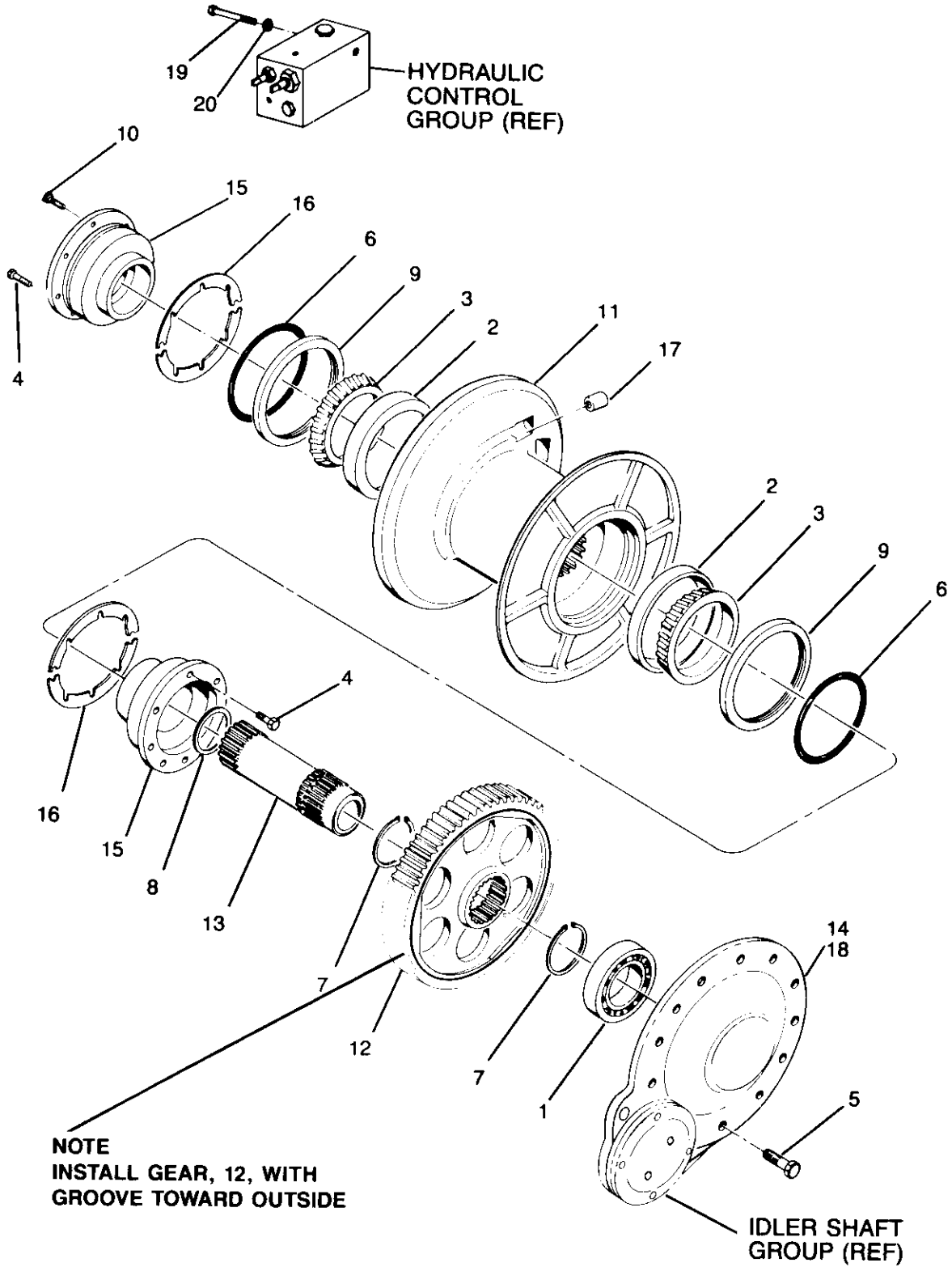
**IDLER SHAFT GROUP
WITH FREESPOOL**



**IDLER SHAFT GROUP
WITH FREESPOOL**

ITEM	PART NO.	DESCRIPTION	QTY.
1	69013	BEARING ASSEMBLY — INNER	1
2	69014	BEARING ASSEMBLY — OUTER	1
3	25880	O-RING	1
4	69655	LOCK PLATE	1
5	22729	CAPSCREW, HEX HEAD (1/2 - 13 x 3/4 G5)	2
6	13938	CAPSCREW, HEX HEAD (1/2 - 13 x 1 1/4 G5)	2
7	13421	CAPSCREW, HEX HEAD (1/2 - 13 x 2 G5)	2
8	27216	PLUG, SOCKET HEAD	1
9	11892	THRUST WASHER	1
10	69592	ADJUSTER	1
11	70349	BUSHING	1
12	69984	PINION, SECOND REDUCTION	1
13	101055	GEAR, FIRST REDUCTION	1
14	69974	CARRIER, IDLER SHAFT	1
15	70166	SHOULDER SCREW	1
16	70861	COTTER PIN	2
17	70136	BALL PLUNGER	2
18	18004	JAM NUT	2
19	70370	ROD END	2
20	69653	RETAINING RING	2
21	81921	SHIFT RAIL, INCLUDES ITEM 33	1
22	70348	YOKE	1
23	11059	JAM NUT	1
24	69263	SHIFT COLLAR	1
25	70652	CABLE CONNECTOR	1
26	69262	BELLCRANK WELDMENT	1
27	21961	CAPSCREW, HEX HEAD (3/8 - 16 x 1 G5)	2
28	11073	WASHER (1/2)	1
29	69979	COLLAR	1
30	69978	PIN	1
31	21119	O-RING	1
32	69963	CONTROL CABLE ADJUSTER	1
33	27475	NYLON PELLET	1
34	18003	LOCKWASHER (3/8)	2

CABLE DRUM GROUP



CABLE DRUM GROUP

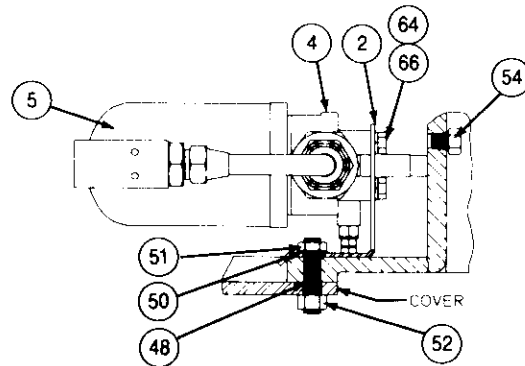
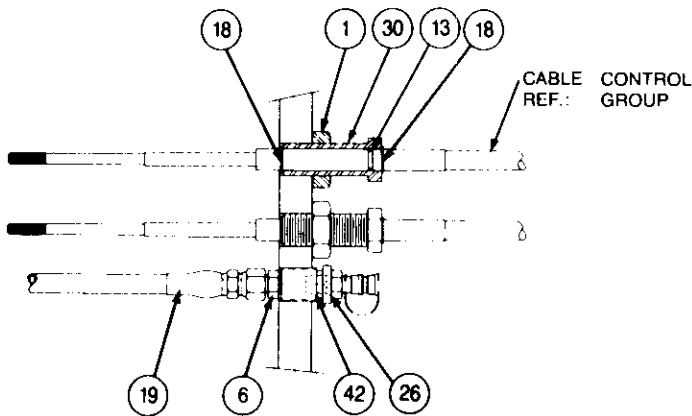
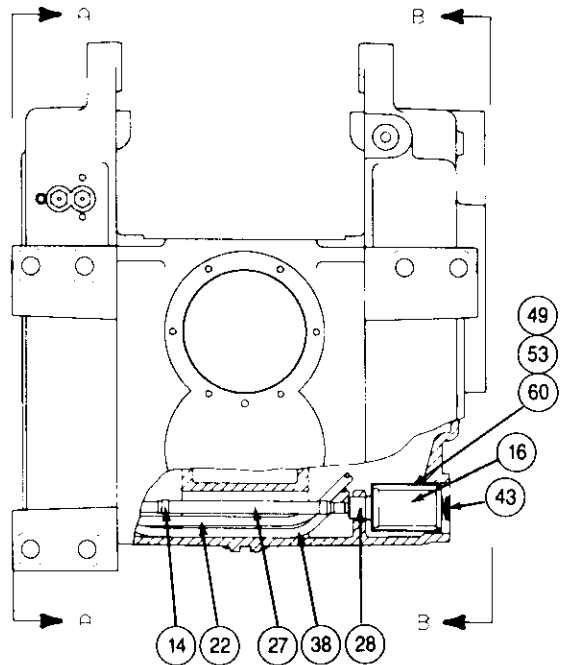
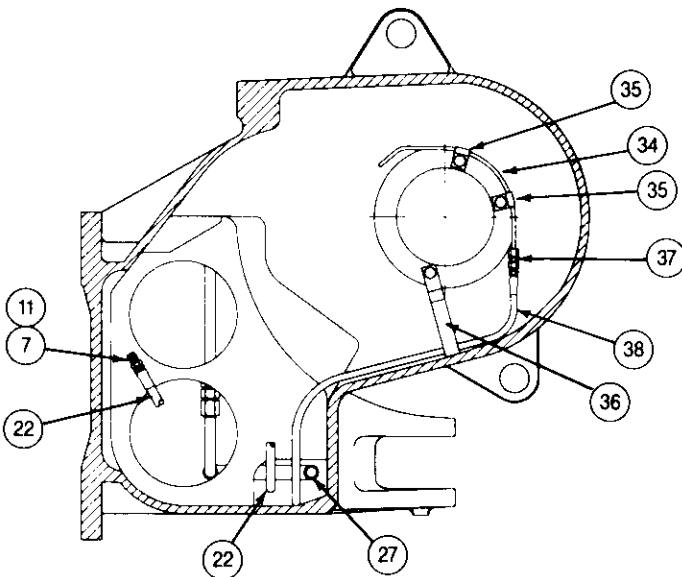
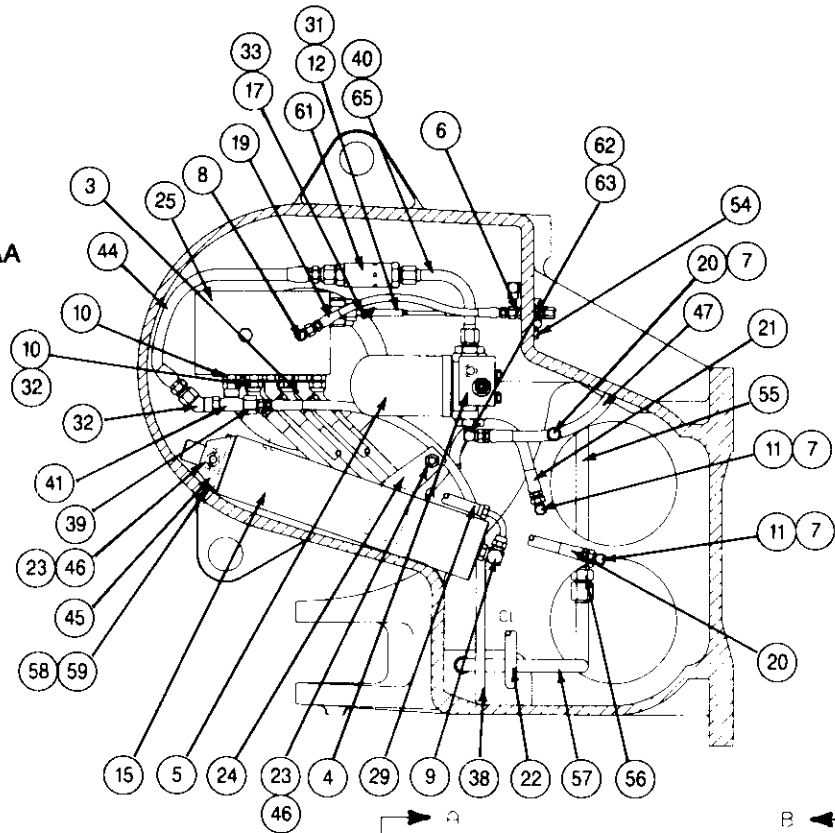
CABLE DRUM GROUP

ITEM	PART NO.	DESCRIPTION	QTY.
1	70070	BALL BEARING	1
2	70078	BEARING CUP	2
3	70079	BEARING CONE	2
4	27745	CAPSCREW, HEX HEAD (1/2 - 13 x 1 G5 - SS)	10
5	13938	CAPSCREW, HEX HEAD (1/2 - 13 x 1 1/4 G5)	11
6	70140	O-RING	2
7	70513	RETAINING RING	2
8	70164	RETAINING RING	1
9	70167	OIL SEAL	2
10	27743	CAPSCREW, SOCKET HEAD (1/2 - 13 x 1 G8 - SS)	1
11	69998	CABLE DRUM	1
12	68863	GEAR, 2ND REDUCTION	1
13	69988	SHAFT, 2ND REDUCTION	1
14	28954	BEARING CARRIER, COVER	1
15	27311	BEARING CARRIER, DRUM	2
16	70264	SHIM SET (1 pair ea., .005 in., .007 in., .020 in., .13 mm, .18 mm, .5 mm)	1-2
17	29424	FERRULE - 3/4 in. (19 mm) WIRE ROPE	1
	29425	FERRULE - 7/8 in. (22 mm) WIRE ROPE	1
18	—	NO GASKET, USE DOW RTV 732 OR EQUIVALENT	—
19	27744	CAPSCREW, HEX HEAD (1/2 - 13 x 5 G5 - SS)	1
20	11073	WASHER (1/2)	1

SS - SELF SEALING

**HYDRAULIC CONTROL GROUP
STANDARD PTO**

SECTION AA

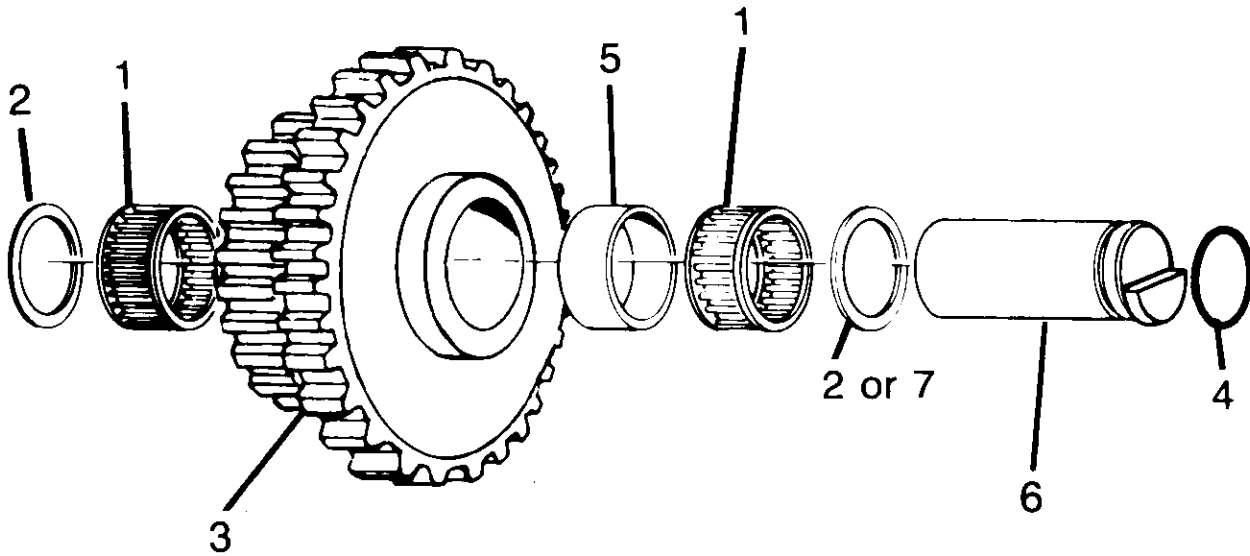


**HYDRAULIC CONTROL GROUP
STANDARD PTO**

ITEM	PART NO.	DESCRIPTION	QTY.
1	11059	JAM NUT	2
2	27741	FILTER BRACKET	1
3	69605	ELBOW - 45° - 8 VALVE PORTS A, B	1
	23950	O-RING FOR ITEM 3	2
4	27390	FILTER HEAD	1
5	27389	FILTER ELEMENT	1
6	21219	ADAPTER 1/8 - NPT - 4	1
7	70106	ADAPTER - 8	4
8	25131	ELBOW - 90° - 4 VALVE PORT G	1
	72760	O-RING FOR ITEM 8	1
9	70109	ELBOW - 90° - B	1
	23950	O-RING FOR ITEM 9	1
10	70100	ADAPTER VALVE PORTS P, T, C1, C2	4
	23950	O-RING FOR ITEM 10	4
11	29046	ADAPTER - 90° - 8	3
12	69771	CLEVIS YOKE	2
13	21119	O-RING	2
14	30997	CLAMP, SUCTION HOSE	1
15	81959	ACCUMULATOR ASSEMBLY - SPRING TYPE (REF. PG. 25)	1
16	70189	SUCTION STRAINER	1
17	69313	CLEVIS PIN	2
18	69653	RETAINING RING	4
19	25750	HOSE - VALVE TO GAUGE PORT	1
20	70272	HOSE - 24 in. (610 mm) VALVE TO T, CR	2
21	69526	HOSE - 18 in. (457 mm) VALVE TO B	1
22	27989	HOSE - 50 in. (1,270 mm) VALVE TO CL	1
23	11026	LOCKWASHER - 1/2	2
24	27848	ACCUMULATOR CLAMP BRACKET	1
25	27689	CONTROL VALVE ASSEMBLY (REF. PG. 26)	1
26	100267	QUICK DISCONNECT	1
27	27981	SUCTION HOSE ASSEMBLY	1
28	69051	CONNECTOR	1
29	27982	HOSE - 16 in. (406 mm) VALVE TO ACCUMULATOR	1
30	69963	ADJUSTER, CONTROL CABLE	2
31	13468	JAM NUT - 1/4 - 28	2
32	69516	ADAPTER - 45° - 8 VALVE PORTS P, T, C1, C2	4
33	69312	HITCH PIN	2

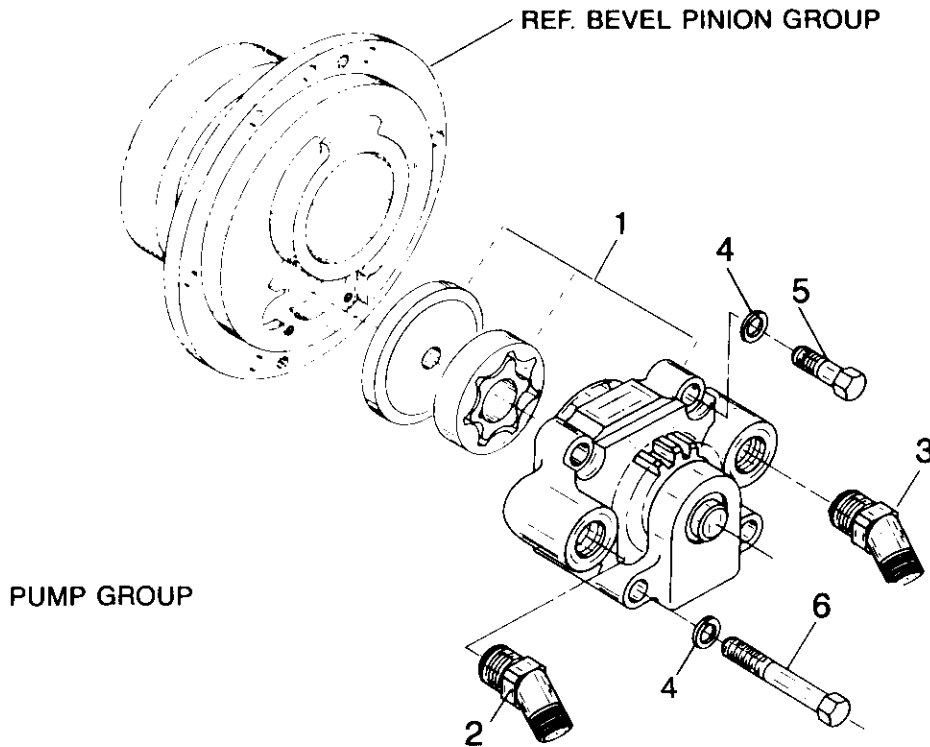
ITEM	PART NO.	DESCRIPTION	QTY.
34	68996	LUBE TUBE	1
35	68994	CLAMP, LUBE TUBE	2
36	68995	CLAMP, LUBE TUBE	1
37	25891	UNION - 4	1
38	25893	HOSE, LUBRICATION	1
39	27396	REDUCER - 8 - 4 VALVE PORT P	1
40	29335	TUBE ASSEMBLY - FLOW CONTROL	1
41	76610	TEE SWIVEL - 8 VALVE PORT P	1
42	100266	SLEEVE	1
43	26005	SPRING	1
44	27979	HOSE - 17 in. (432 mm) FLOW CONTROL TO VALVE	1
45	27847	ACCUMULATOR MOUNTING ANGLE	1
46	27849	STUD (1/2 - 13 x 2 3/4)	2
47	27979	HOSE - 17 in. (432 mm) PUMP TO FILTER	1
48	27081	STUD (1/2 - 13 NC x 2 1/4)	1
49	29020	SUCTION STRAINER SHIELD	1
50	12781	LOCKWASHER, SHAKEPROOF - 1/2	1
51	23583	JAM NUT (1/2 - 13)	1
52	11788	HEX NUT (1/2 - 13)	5
53	29021	SEAL RING .25 in. (6.4 mm) THICK	1
54	18009	PLUG 1/8 NPT	1
55	27977	UPPER SUCTION TUBE	1
56	27990	UNION, TUBING	1
57	27978	LOWER SUCTION TUBE	1
58	11766	CAPSCREW, HEX HEAD (5/16 - 18 x 7/8)	2
59	11024	LOCKWASHER - 5/16	2
60	29023	SEAL RING .06 in. (1.5 mm) THICK	1-2
61	29334	FLOW CONTROL VALVE*	1
62	31347	ELBOW 90° 1/2 NPT - 8	1
63	27397	ADAPTER - 1/2 NPT	1
64	18003	LOCKWASHER 3/8	2
65	29352	ADAPTER - 8	1
66	22693	CAPSCREW, HEX HEAD (3/8 - 16 x 3/4)	2

FOURTH SHAFT GROUP



ITEM	PART NO.	DESCRIPTION	QTY
1	70648	ROLLER BEARING	2
2	24581	THRUST WASHER .062 in. (1.58 mm)	1
3	28925	CLUSTER GEAR 37/17 TEETH	1
4	13838	O-RING	1
5	28926	SPACER	1
6	69673	COUNTERSHAFT PIN	1
7	28924	THRUST WASHER .217 in. (5.5 mm)	1

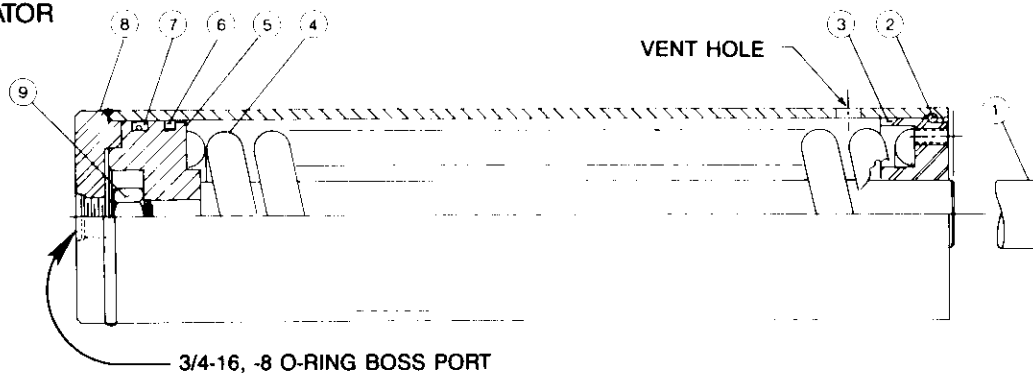
HYDRAULIC COMPONENTS



ITEM	PART NO.	DESCRIPTION	QTY
1	68772	PUMP ASSEMBLY	1
2	26752	ELBOW, 45° — 8 PRESSURE SIDE*	1
3	27991	ELBOW, 45° SUCTION — STD PTO	1
4	11015	LOCKWASHER — 1/4	4
5	27996	CAPSCREW, HEX HEAD 1/4 - 20 x 1 1/2 G8)	2
6	27997	CAPSCREW, HEX HEAD 1/4 - 20 x 3 G8	2

*ITEMS 2 & 3 SHOWN FOR COUNTERCLOCKWISE (CCW) BEVEL PINION ROTATION. REVERSE PORT LOCATION FOR CLOCKWISE (CW) BEVEL PINION ROTATION.

ACCUMULATOR ASSEMBLY



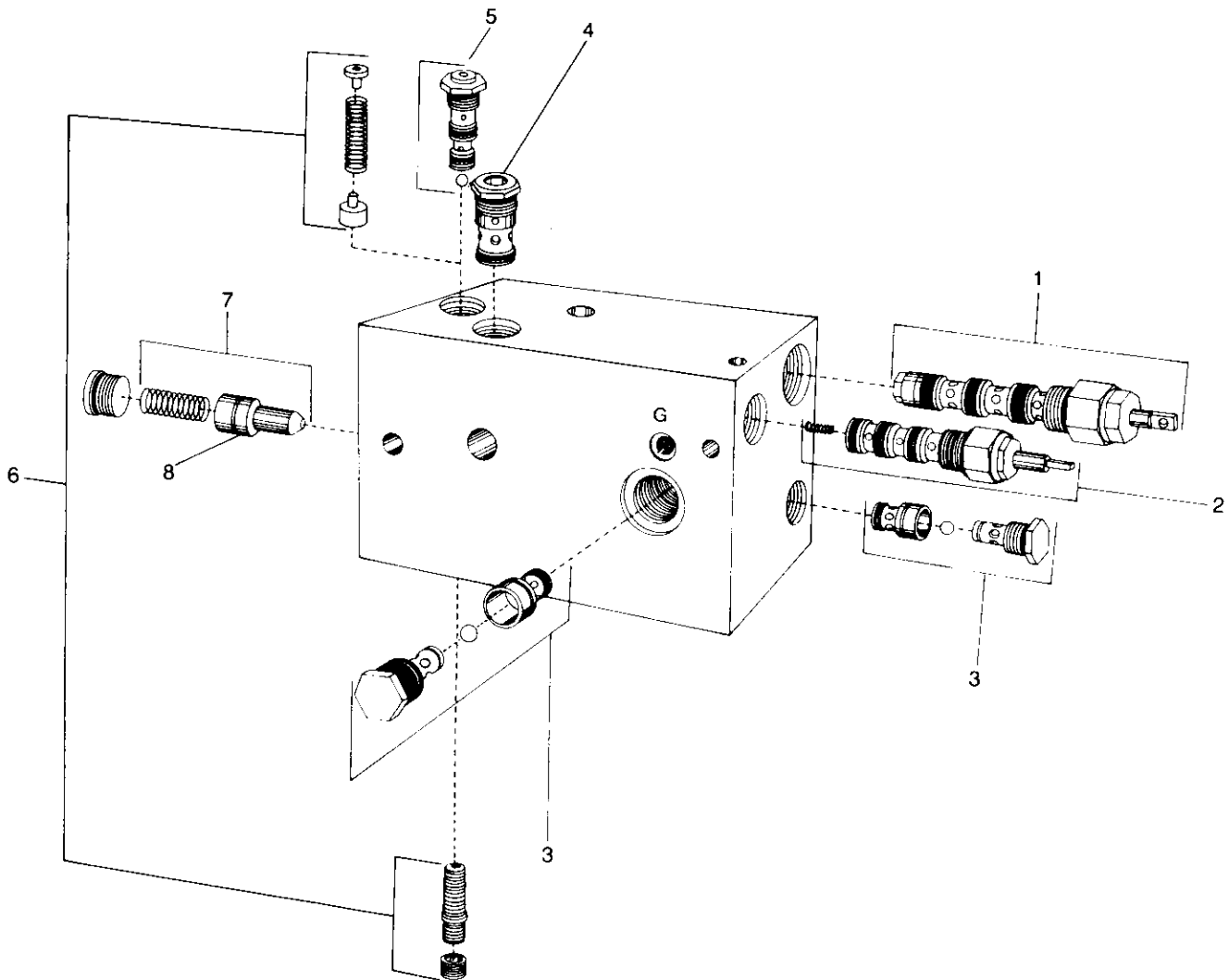
ITEM	PART NO.	DESCRIPTION	QTY
1	NSS	ROD	1
2	27836	RETAINING RING	1
3	NSS	ROD GUIDE	1
4	NSS	SPRING	1
5	NSS	PISTON	1
6	27833	CAST IRON PISTON RING	1
7	27832	SEAL ASSEMBLY	1
8	NSS	TUBE ASSEMBLY	1
9	NSS	NUT	1
—	62131	SEAL KIT (CONTAINS ITEMS 2, 6 & 7)	

NSS — Not Serviced Separately.

⚠ DANGER

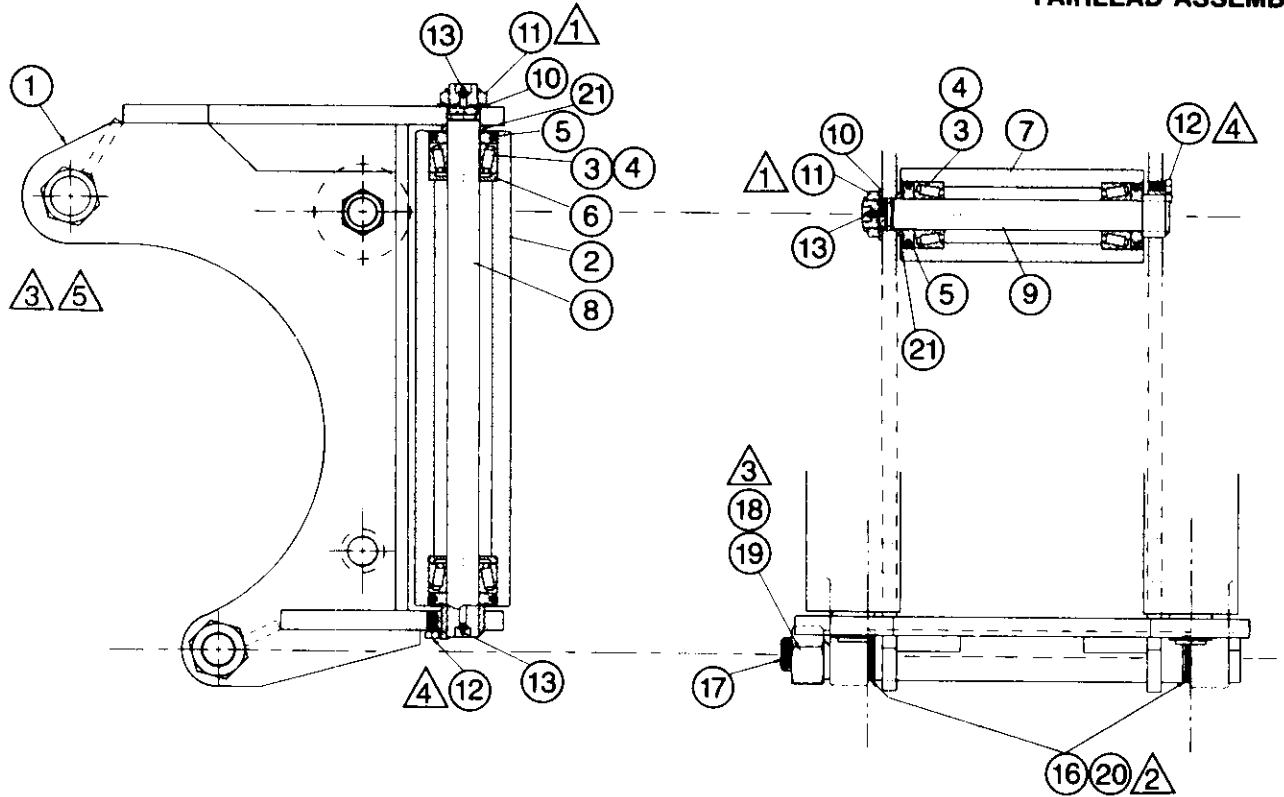
2,000 LB. (900 Kg) SPRING PRELOAD — USE PRESS FOR DISASSEMBLY PER SERVICE INSTRUCTIONS IN SERVICE BULLETIN 95. PROPERTY DAMAGE, SEVERE PERSONAL INJURY OR DEATH MAY RESULT IF ROD GUIDE REMOVAL IS ATTEMPTED WITHOUT A PRESS.

CONTROL VALVE ASSEMBLY
27689



ITEM	PART NO.	DESCRIPTION	QTY.
1	26712	DIRECTIONAL CONTROL CARTRIDGE	1
	61838	SEAL KIT FOR ITEM 1	1
2	26713	BRAKE CONTROL CARTRIDGE	1
	61839	SEAL KIT FOR ITEM 2	1
3	26715	SHUTTLE VALVE ASSEMBLY	2
	61841	SEAL KIT FOR ITEM 3	2
4	27672	CHECK VALVE CARTRIDGE	1
	61840	SEAL KIT FOR ITEM 4	1
5	26716	DIFFERENTIAL UNLOADING PILOT VALVE CARTRIDGE	1
	61842	SEAL KIT FOR ITEM 5	1
6	62063	DIF. UNLOADING VALVE REPAIR KIT, INCLUDES ITEM 5	5
7	62062	UNLOADING POPPET ASSEMBLY	1
8	22454	O-RING	1

FAIRLEAD ASSEMBLY



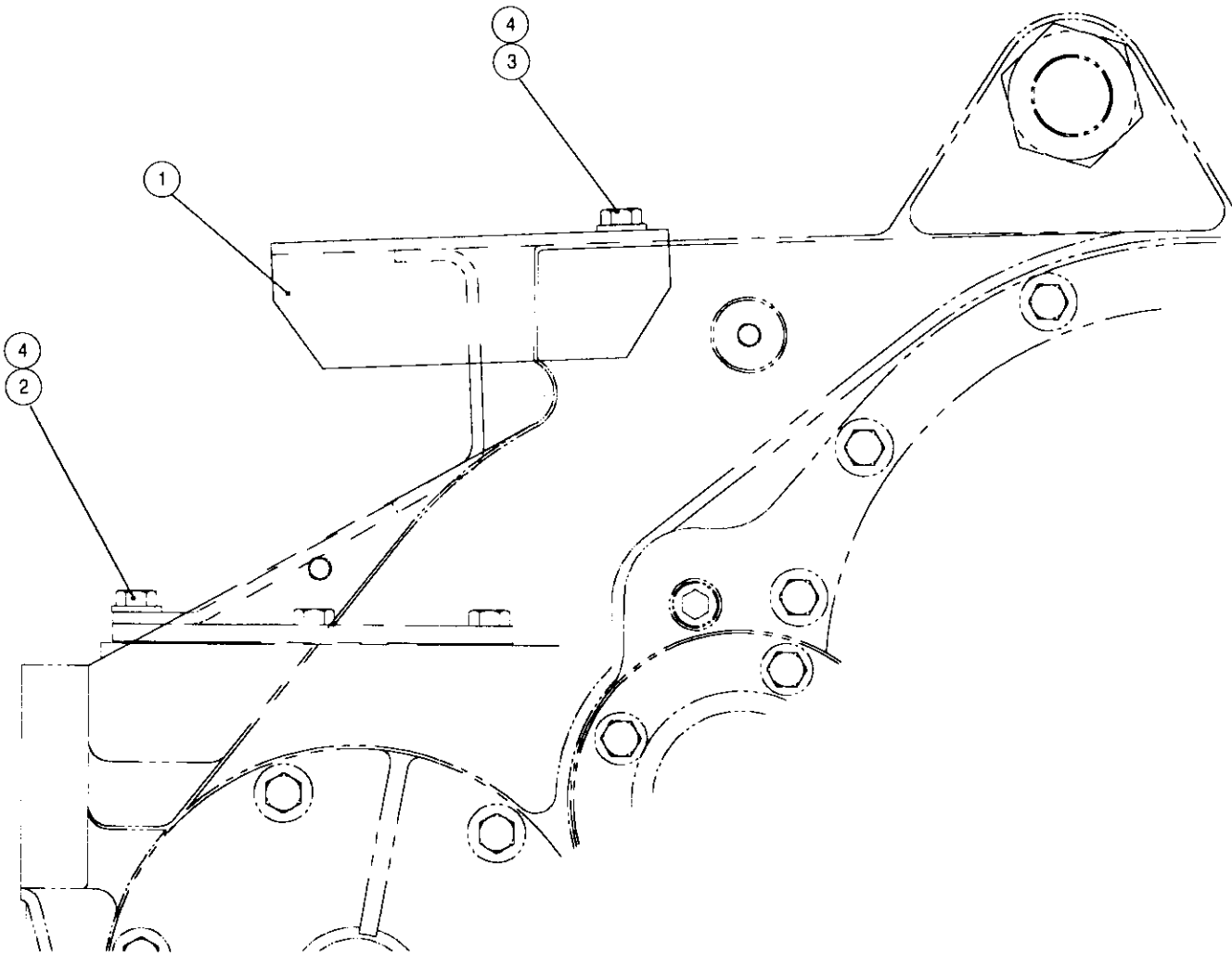
NOTES:

- ⚠ WHILE TURNING ROLLER, TIGHTEN NUT WHEN ROLLER WILL TURN NO LONGER, BACK NUT OFF 1/4 TURN.
- ⚠ SHIM BOTH SIDES AS REQUIRED TO REDUCE END PLAY TO LESS THAN .030 in. (.8 mm).
- ⚠ TIGHTEN UNTIL WASHER IS FLATTENED THEN TURN 1 FLAT.
- ⚠ APPLY "LOCTITE 242" AND INSTALL WITH FLAT TANGENT TO HOLE PRIOR TO INSTALLATION OF SHAFT.
- ⚠ WHEN INSTALLING FAIRLEAD ON WINCH IN FIELD, REMOVE ORIGINAL CABLE GUARD SPACER TUBE AND REUSE UPPER TIE BOLT 28772, LOCKWASHER 27666 AND NUT 27655.

ITEM	PART NO.	DESCRIPTION	QUANTITY	
			3 ROLLER	4 ROLLER
	81970	3 ROLLER FAIRLEAD ASSEMBLY		
	81971	4 ROLLER FAIRLEAD ASSEMBLY		
1	27817	FAIRLEAD FRAME	1	1
2	36788	ROLLER — VERTICAL	2	2
3	70833	BEARING CONE	6	8
4	70834	BEARING CUP	6	8
5	70864	DUST GUARD ASSEMBLY	6	8
6	70865	GREASE RETAINER	4	4
7	27886	ROLLER — HORIZONTAL	1	2
8	36797	SHAFT — VERTICAL	2	2
9	27901	SHAFT — HORIZONTAL	1	2
10	70850	WASHER	3	4
11	70863	LOCK NUT	3	4
12	22729	CAPSCREW, HEXHEAD (1/2 NC x 3/4 GD5)	3	4
13	18047	GREASE FITTING	5	6
16	24912	SHIM .030 in. (.8 mm)	4-AR	4-AR
17	28772	TIE BOLT	1	1
18	27666	LOCK WASHER	1	1
19	27655	NUT, HEX HEAD	1	1
20	25590	SHIM .125 in. (3.18 mm)	6-AR	6-AR
21	70880	SPACER	3	4
	82751	4TH ROLLER KIT, CONTAINS ONE EACH 7, 9, 10, 11, 12, 13, 21 AND TWO EACH 3, 4 & 5	1	—

AR — AS REQUIRED

**MODEL 50B
CONTROL CABLE
GUARD GROUP
D5M & D6M**



ITEM	PART NO.	DESCRIPTION	QTY.
1	100774	CABLE GUARD	1
2	100783	CAPSCREW, HEX HEAD (1/2 - 13 x 1 1/4 G5 SS*)	4
3	22697	CAPSCREW, HEX HEAD (1/2 - 13 x 1 G5)	3
4	27248	WASHER, HARDENED (1/2)	7

*SS - SELF SEALING MATERIAL PREAPPLIED TO THREADS