

# CARCO®

## WINCH PARTS MANUAL

### MODELS 50B PS AND 70A PS

### STANDARD PTO, LOW PTO

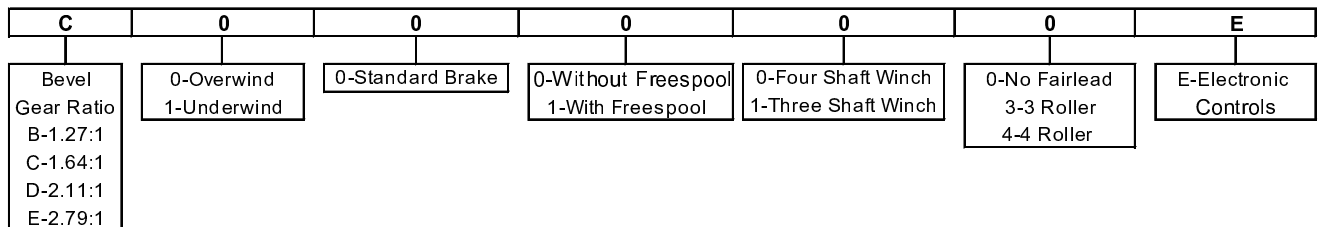
## CABLE AND ELECTRONIC CONTROLS

**NOTE:** This manual covers all common winch parts only. For all other parts, refer to the installation and parts manual for your specific tractor. Because this manual covers several winch configurations, not all parts shown will apply to your winch. Care should be taken to properly identify parts before replacements are ordered.

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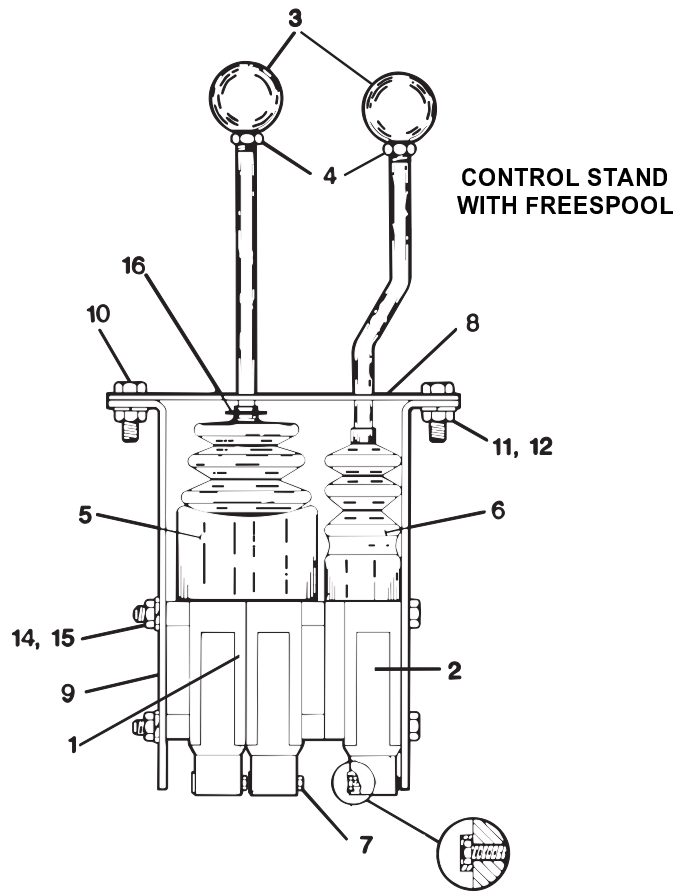
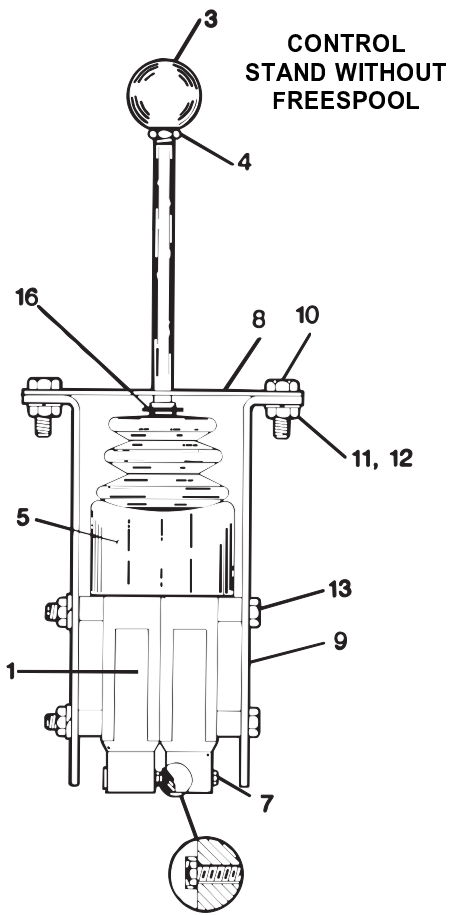
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### MODEL NUMBER DESCRIPTION



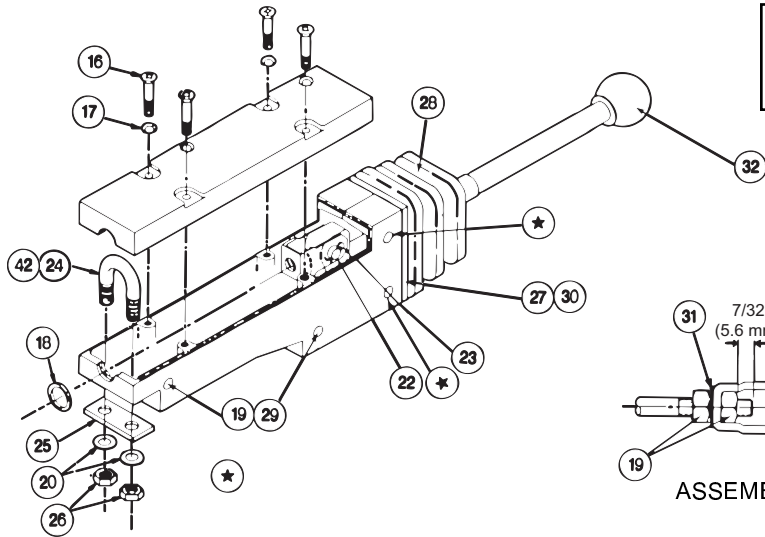
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## CONTROL STAND - MORSE



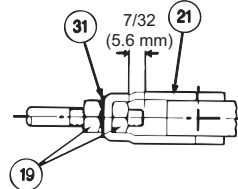
ITEM	PART NO.	DESCRIPTION	QTY.	
			W/FS	W/O FS
	81965	CONTROL STAND KIT WITHOUT FREESPOOL (INCLUDES ALL PARTS SHOWN ABOVE)	-	1
	69667	CONTROL STAND KIT WITH FREESPOOL (INCLUDES ALL PARTS SHOWN ABOVE)	1	-
1	27393	CONTROL ASSEMBLY - POWER SHIFT (INCLUDES CONTROL, PLUS ITEMS 3, 4, 5 & 7)	1	1
2	69444	CONTROL ASSEMBLY - FREESPOOL (INCLUDES CONTROL, PLUS ITEMS 3, 4, 6 & 7)	1	-
3	26696	KNOB	2	1
4	78340	JAM NUT (3/8 - 24)	2	1
5	26697	BOOT, POWER SHIFT (FOR ITEM 1)	1	1
6	26698	BOOT, FREESPOOL (FOR ITEM 2)	1	-
7	---	CAPSCREW, CABLE LOCK (10-32 UNF X 1-3/16 in. LG)	3	2
8	69893	GATE PLATE, WITH FS	1	-
	27865	GATE PLATE, WITHOUT FS	-	1
9	69891	CONTROL STAND BRACKET	2	2
10	69643	CAPSCREW, HEX HEAD (1/4 - 20 X 3/4 G5)	4	4
11	23195	LOCKWASHER (1/4)	4	4
12	69645	NUT, HEX (1/4 - 20)	4	4
13	69642	CAPSCREW, HEX HEAD (5/16 - 18 X 5-1/2 G5)	3	-
	27878	CAPSCREW, HEX HEAD (5/16 - 18 X 4 G5)	-	3
14	69640	LOCKWASHER (5/16)	3	3
15	69644	NUT, HEX (5/16 - 18)	3	3
16	32489	TIE STRAP	1	1

# CONTROL STAND - QUADRATAT



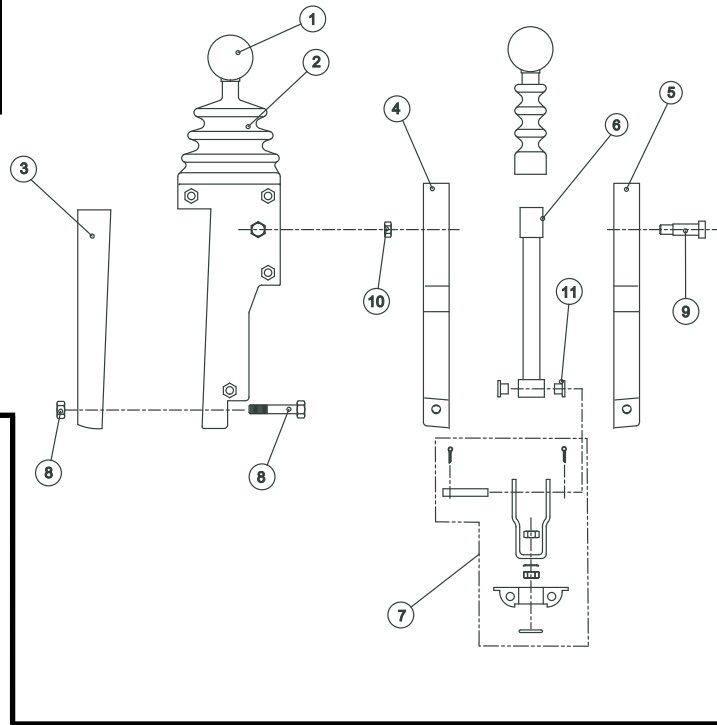
SINGLE AXIS  
FREESPOOL CONTROL  
(THRU MID YEAR 2002)

REMOVE ORIGINAL THROUGH-BOLTS  
AND NUTS (ITEMS 19 & 29). INSTALL  
NEW NUTS (ITEM 5) FOR USE WITH  
CAPSCREWS (ITEM 7)

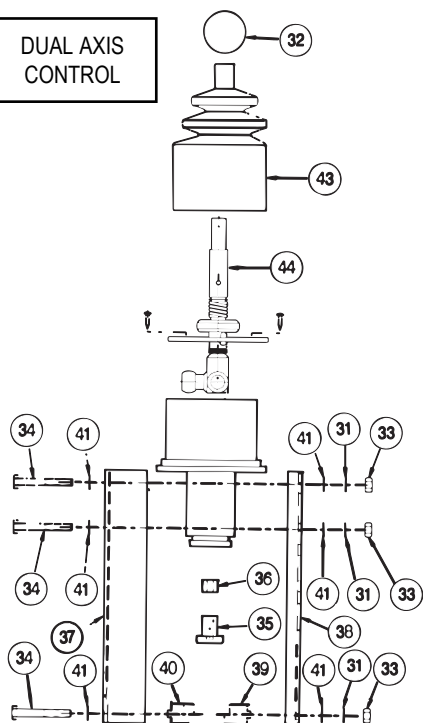


ASSEMBLY DETAIL

SINGLE AXIS  
FREESPOOL CONTROL  
(STARTING MID YEAR 2002)



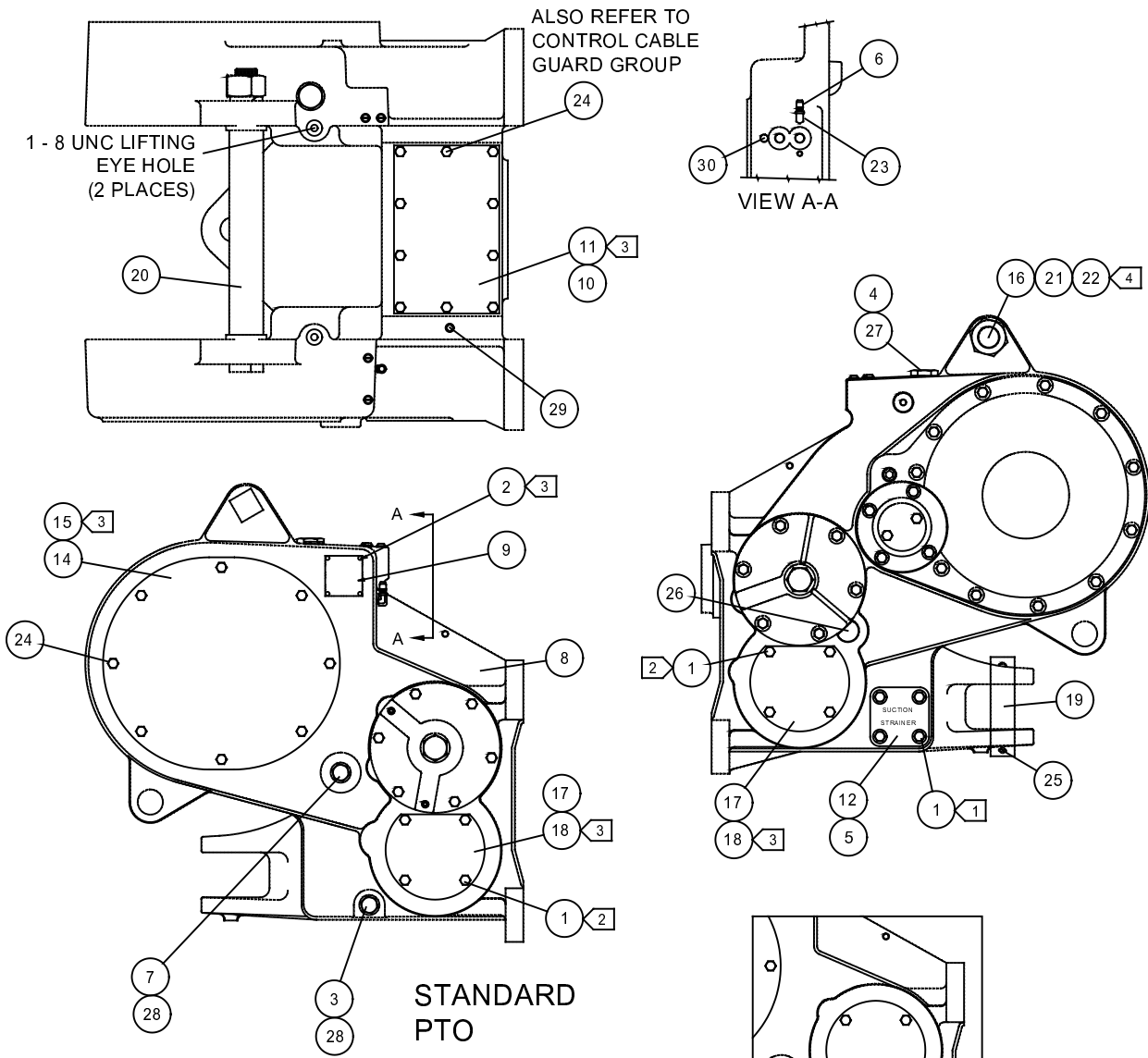
DUAL AXIS  
CONTROL



## CONTROL STAND - QUADRATAT

ITEM	PART NO	DESCRIPTION	QTY.	
			W/ FS	W/O FS
	101850	CONTROL, DUAL AXIS (COMPLETE)	1	1
	100056	CONTROL, SINGLE AXIS (THRU MID-YEAR 2002)	1	-
	104010	CONTROL, SINGLE AXIS (AFTER MID-YEAR 2002)	1	-
1	100240	KNOB	1	-
2	104015	BOOT	1	-
3	104016	COVER	1	-
4	104017	HOUSING, LEFT	1	-
5	104018	HOUSING, RIGHT	1	-
6	104019	LEVER ASSEMBLY	1	-
7	104020	CABLE HARDWARE KIT	1	-
8	104021	COVER HARDWARE KIT	1	-
9	104022	SHOULDER SCREW	1	-
10	23558	NUT, SELF-LOCKING	1	-
11	104023	BUSHING	1	-
16	100218	MACHINE SCREW (8 - 32 UNC X 1 1/4, CSK, OVAL HD)	4	-
17	100215	LOCKWASHER (#8)	4	-
18	12463	O-RING	1	-
19	11044	HEX NUT (1/4 - 28 UNF)	2	-
20	11011	LOCKWASHER, EXT. TOOTH (5/16)	2	-
21	100220	CLEVIS	1	-
22	100222	CLEVIS PIN	1	-
23	13816	COTTER PIN (1/16 X 1/2)	1	-
24	100221	U-BOLT	1	-
25	100223	U-BOLT SPACER	1	-
26	11048	HEX NUT (5/16 - 24 UNF)	2	-
27	100216	MACHINE SCREW (8 - 32 UNC X 1/2, CSK, OVAL HD)	4	-
28	100219	BOOT, FREESPOOL LEVER	1	-
29	100217	MACHINE SCREW (1/4 - 28 UNF X 1 7/16, FLSTR HD)	4	-
30	100224	BOOT RETAINER PLATE	1	-
31	12780	LOCKWASHER, EXT. TOOTH (1/4)	7	-
32	100240	KNOB	2	1
33	69645	NUT 1/4 - 20)	6	6
34	21462	CAPSCREW (1/4 - 20 UNC X 2 in, HX HD, 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, WINCH CONTROL LEVER	1	1
44	62997	BRAKE-OFF DETENT REPAIR KIT	1	1

# WINCH CASE AND COVERS



## NOTES:

- 1 APPLY "FEL-PRO C648F" TO BOLTS TO PREVENT THREAD CORROSION.
- 2 TIGHTEN FASTENERS TO 75 LB•FT (10.4 Kg•M) TORQUE.
- 3 APPLY "RTV 732" SILASTIC SEALANT TO BOTH SIDES OF GASKETS (11, 15 & 18) AND DRIVE SCREWS (2).
- 4 TIGHTEN HEX NUT (22) UNTIL LOCKWASHER (21) IS FLATTENED AND THEN TURN ONE FLAT.

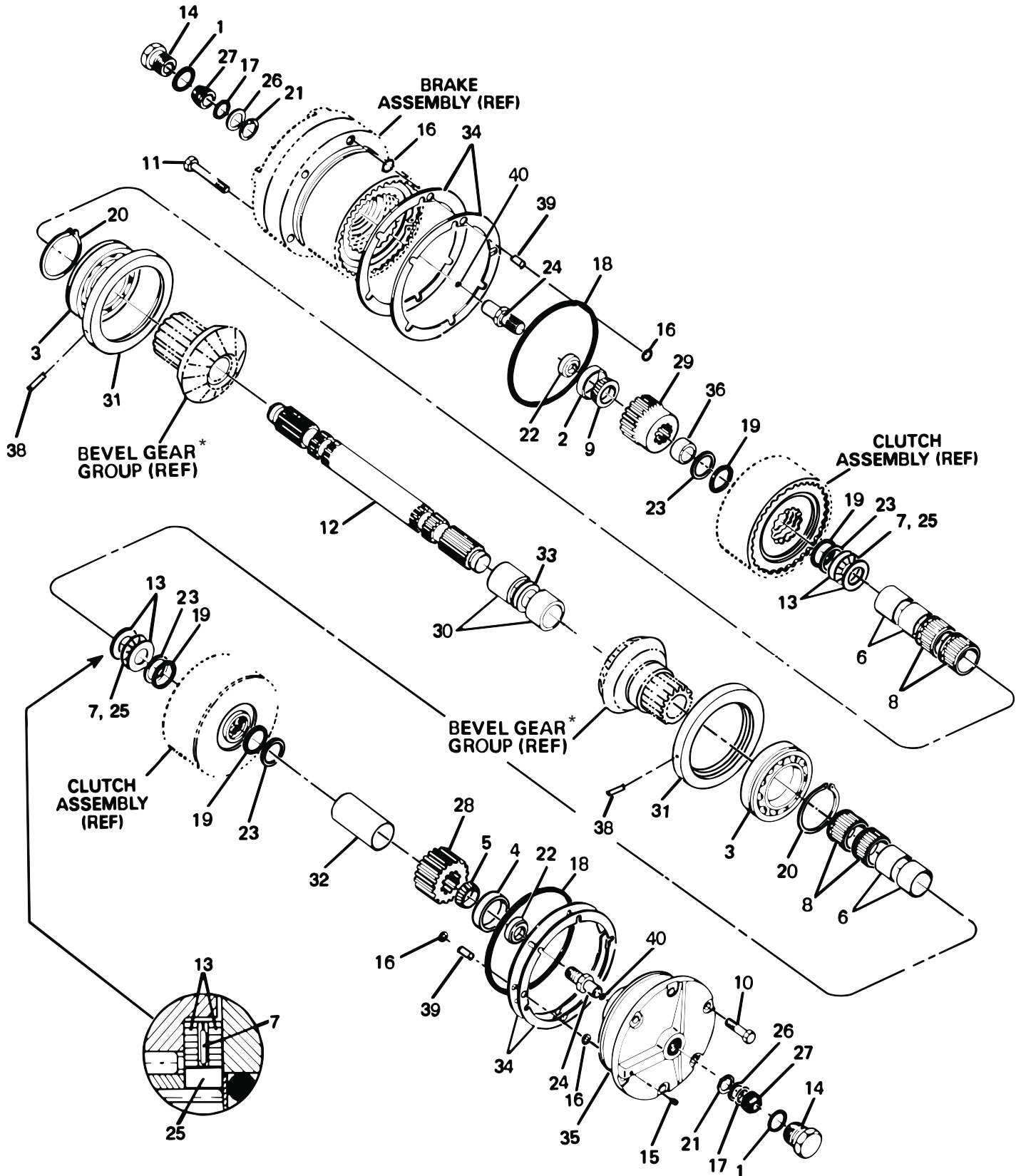
## WINCH CASE AND COVERS

ITEM	PART NO.	DESCRIPTION	QTY.
1	22697	CAPSCREW, HEX HEAD (1/2-13 X 1)	12
2	70053	DRIVE SCREW	4
3	70118	PLUG, DRAIN (MAY BE SUBSTITUTED FOR ITEM 7)	1
4	29825	PLUG, OIL FILL (INCLUDES ITEM 27)	1
5	22586	O-RING **	2
6	11106	VENT PLUG	1
7	70193	SIGHT GAUGE (INCLUDES ITEM 28)	1
8	27752	WINCH CASE - STANDARD PTO	1
	27712	WINCH CASE - LOW PTO	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	2
24	27745	CAPSCREW, HEX HEAD (1/2-13 X 1) SS*	15
25	70148	COTTER PIN (3/8 X 3 IN.)	2
26	70191	EXPANSION PLUG - 3 SHAFT ONLY	1
27	31608	O-RING - FOR OIL FILL PLUG	1
28	31607	O-RING - FOR OIL DRAIN & LEVEL PLUG	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

\*\* = EARLY COVERS USE ONE O-RING, 22586

# CLUTCH SHAFT GROUP



\* Refer to tractor specific installation and parts manual.

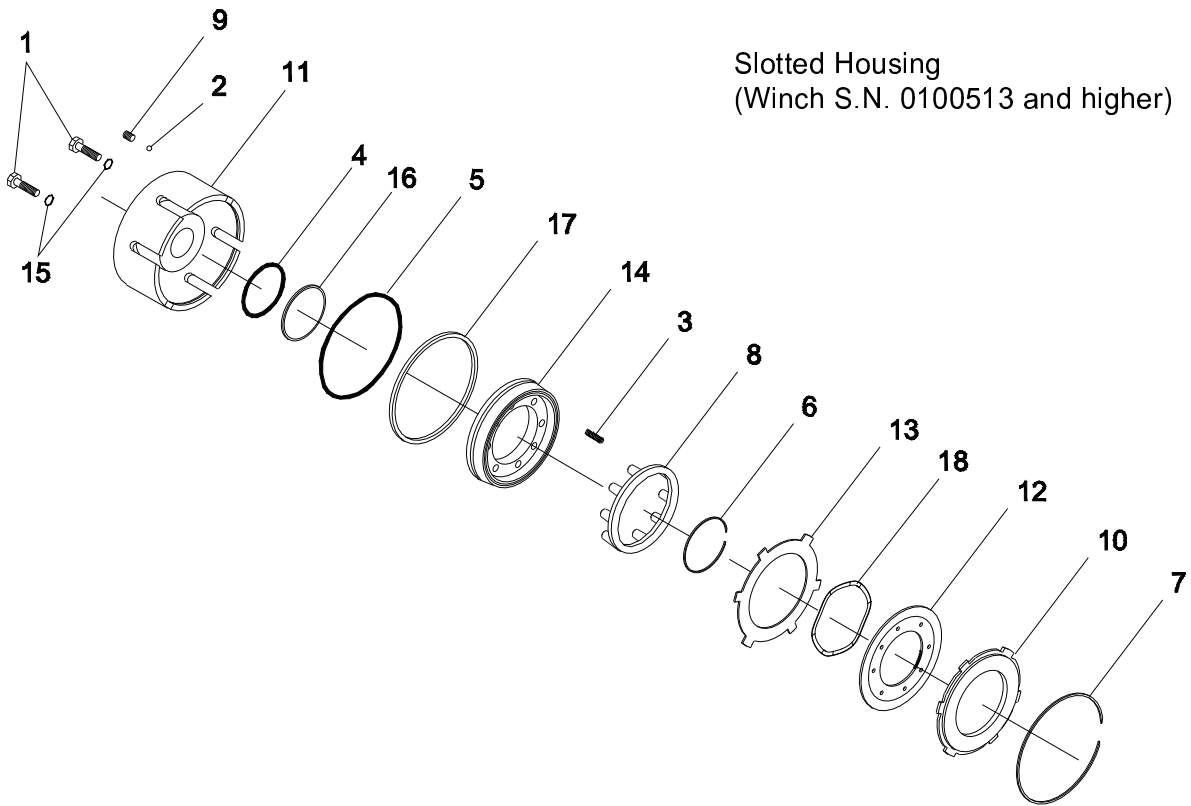


## CLUTCH SHAFT GROUP

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 WINCH CASE	2
	70074	BALL BEARING - SHIELDED, LOW PTO WINCH CASE	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 X 1)	6
11	24710	CAPSCREW, HEX HEAD (1/2 - 13 X 3)	6
12	69997	CLUTCH SHAFT - 4 SHAFT	1
	69597	CLUTCH SHAFT - 3 SHAFT	1
13	11892	THRUST BEARING RACE	4
14	29825	PLUG (CONTAINS ITEM 1)	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	103329	THRUST BEARING SPACER	2
26	70333	BACK-UP WASHER	2
27	70334	ROTARY SEAL	2
28	69991	PINION GEAR - 18 TEETH - 4 SHAFT	1
	70291	PINION GEAR - 15 TEETH - 3 SHAFT	1
29	70292	BRAKE HUB	1
30	69690	BEVEL GEAR SPACER	2
31	70376	BEARING CARRIER	2
32	69983	PINION SPACER - 4 SHAFT	1
	69045	PINION SPACER - 3 SHAFT	1
33	70247	SHIM SET	1
34	27844	SHIM, .005 in. (.13 mm)	2-AR
	27845	SHIM, .007 in. (.18 mm)	2-AR
	27846	SHIM, .020 in. (.51 mm)	2-AR
35	100971	CLUTCH SHAFT BEARING CARRIER - 4 SHAFT	1
	100972	CLUTCH SHAFT BEARING CARRIER - 3 SHAFT	1
36	69045	BRAKE HUB SPACER	1
38	75267	ROLLPIN	2
39	70358	SLEEVE	4
40	100851	ORIFICE PLUG (ELECTRONIC CONTROLS ONLY)	2

AR = AS REQUIRED

## CLUTCH ASSEMBLY (SLOTTED HOUSING)

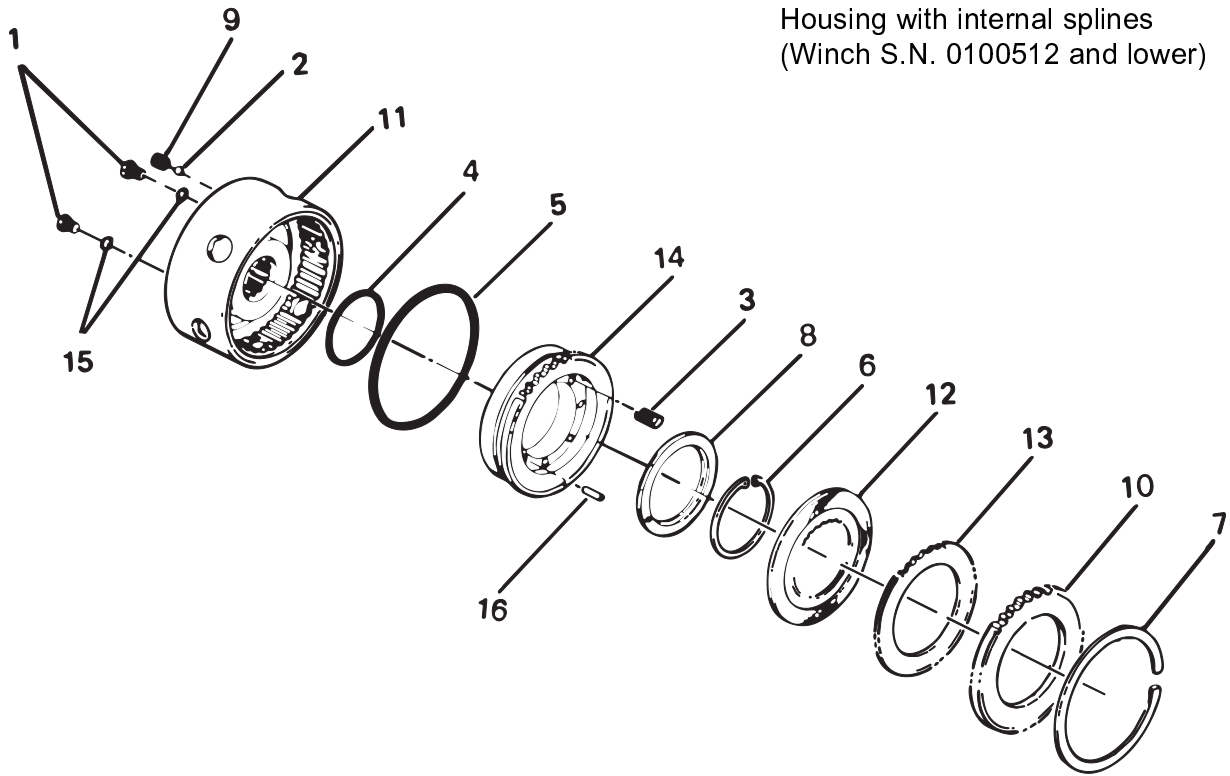


ITEM	PART NO.	DESCRIPTION	QTY.
-	82897	CLUTCH ASSEMBLY - INCLUDES 1 - 18	
1	69325	PLUG (-4 ORB)	2
2	70126	STEEL CHECK BALL (.25 in.)	1
3	103043	SPRING	8
4	21063	O-RING	1
5	24484	O-RING	1
6	70170	RETAINING RING	1
7	103111	RETAINING RING	1
8	106035	SPRING RETAINER	1
9	70241	CHECK VALVE SEAT	1
10	103109	PRESSURE PLATE	1
11	103424	CLUTCH HOUSING *	1
12	101378	DISC - FRICTION	5
13	101377	DISC - STEEL .104 in. (2.64 mm)	5
14	107265	CLUTCH PISTON	1
15	72117	O-RING	2
16	101400	BACKUP RING	1
17	100033	BACKUP RING	1
18	103182	WAVE SPRING	4

\* 103424 includes a basic housing 102932 with two (2) steel balls 70126 driven into cross-drilled passages.

## CLUTCH ASSEMBLY (SPLINED HOUSING)

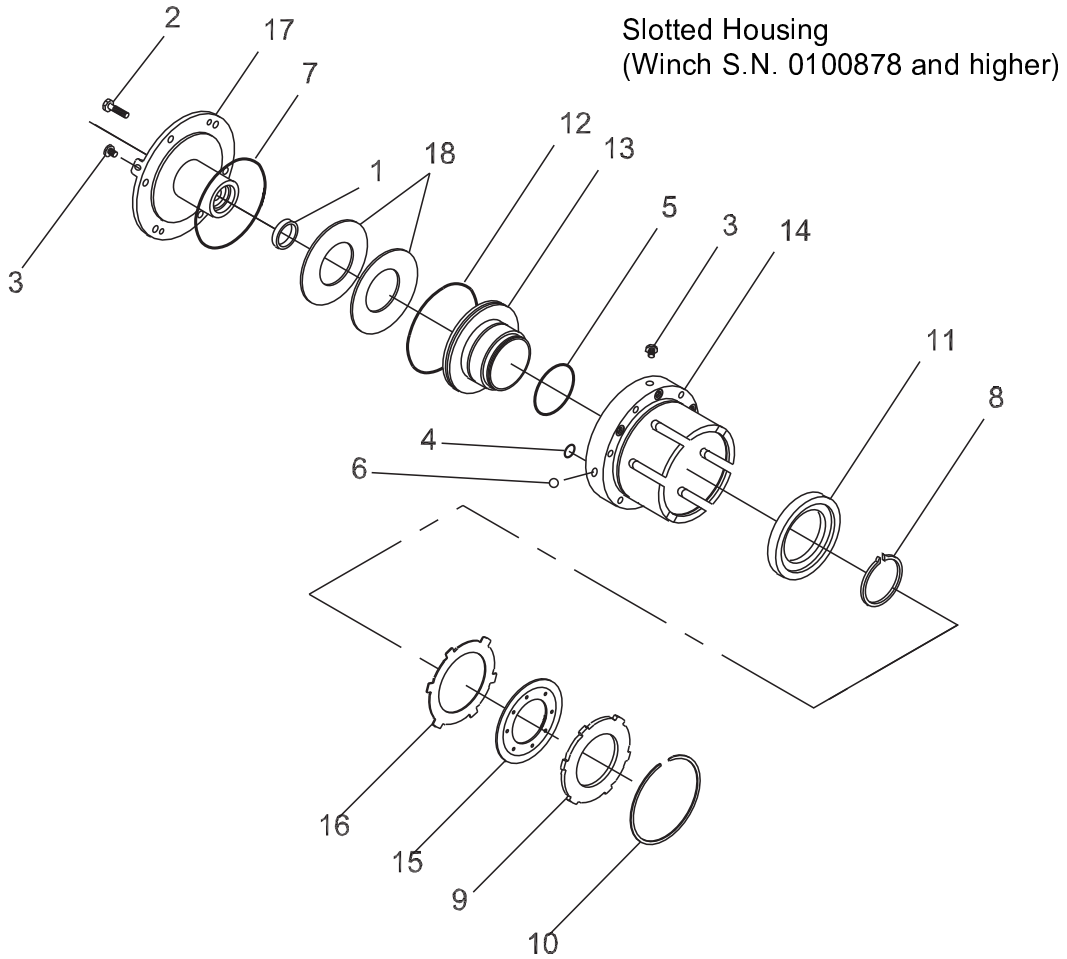
Housing with internal splines  
(Winch S.N. 0100512 and lower)



ITEM	PART NO.	DESCRIPTION	QTY.
-	81968	CLUTCH ASSEMBLY - INCLUDES 1 - 16	
1	70177	PLUG (-3 ORB)	2
2	70126	STEEL CHECK BALL (.25 in.)	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

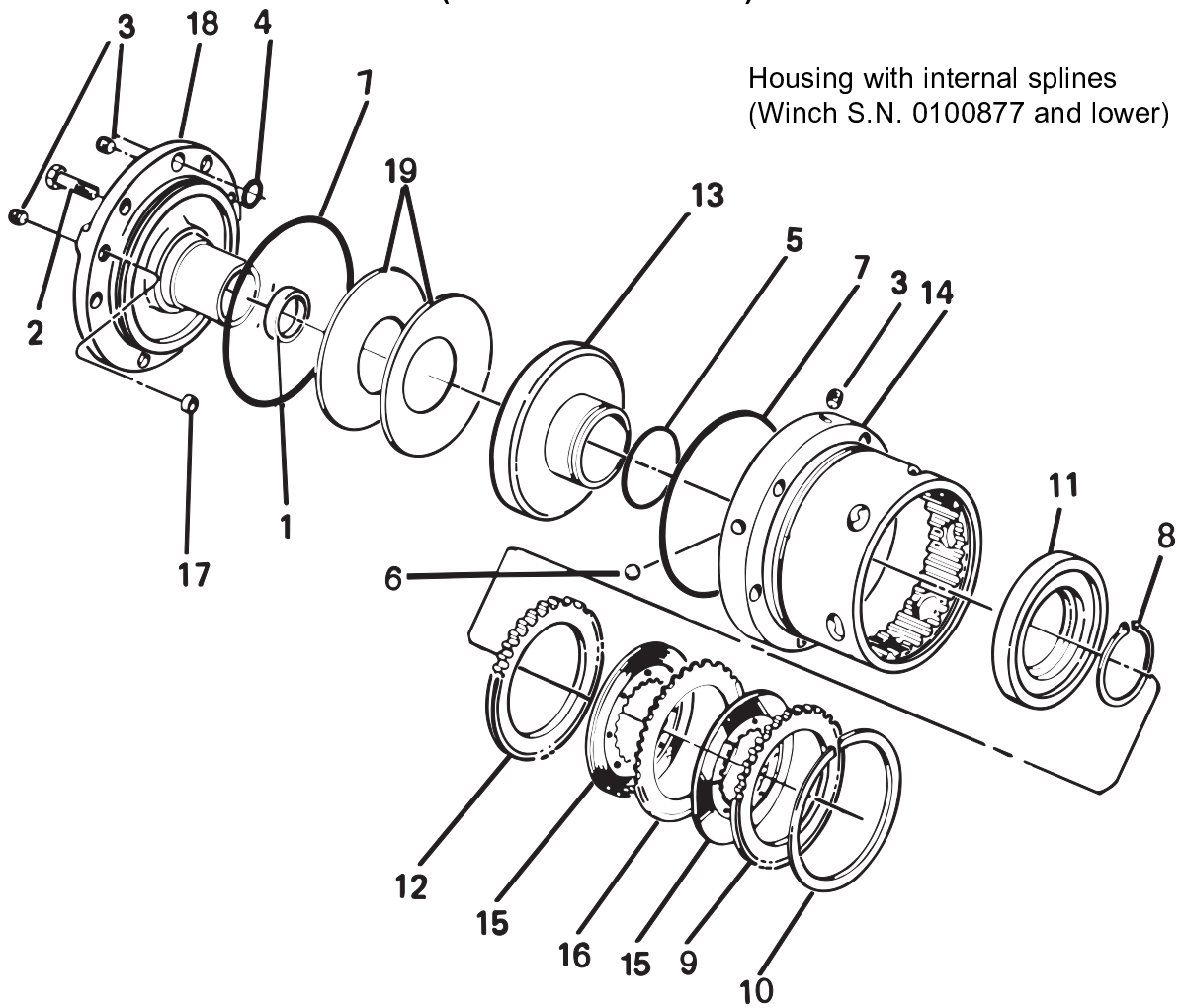
\* 28866 includes a basic housing 70299 with two (2) steel balls 70126 driven into cross-drilled passages.

## BRAKE ASSEMBLY (SLOTTED HOUSING)



ITEM	PART NO.	DESCRIPTION	QTY.
-	82896	BRAKE ASSEMBLY, STD - INCLUDES 1 - 20	
1	18049	BEARING CUP	1
2	21961	CAPSCREW, HEX HEAD (3/8 - 16 X 1)	2
3	26686	PLUG, HEX SOCKET (-6 ORB)	3
4	22454	O-RING	3
5	31579	O-RING	1
6	70126	STEEL BALL (PRESSED INTO HOUSING)	1
7	22358	O-RING	1
8	69807	RETAINING RING	1
9	103108	PRESSURE PLATE	1
10	103111	RETAINING RING	1
11	103000	PRESSURE PLATE	1
12	70140	O-RING	1
13	102999	BRAKE PISTON	1
14	102931	BRAKE HOUSING - CURRENT (REQUIRES 1 OF ITEM 6)	1
15	101378	DISC - FRICTION - BRONZE	8
16	101377	DISC - STEEL - .104 in. (2.64 mm)	8
17	103414	BRAKE CARRIER	1
18	70255	BRAKE SPRING	2

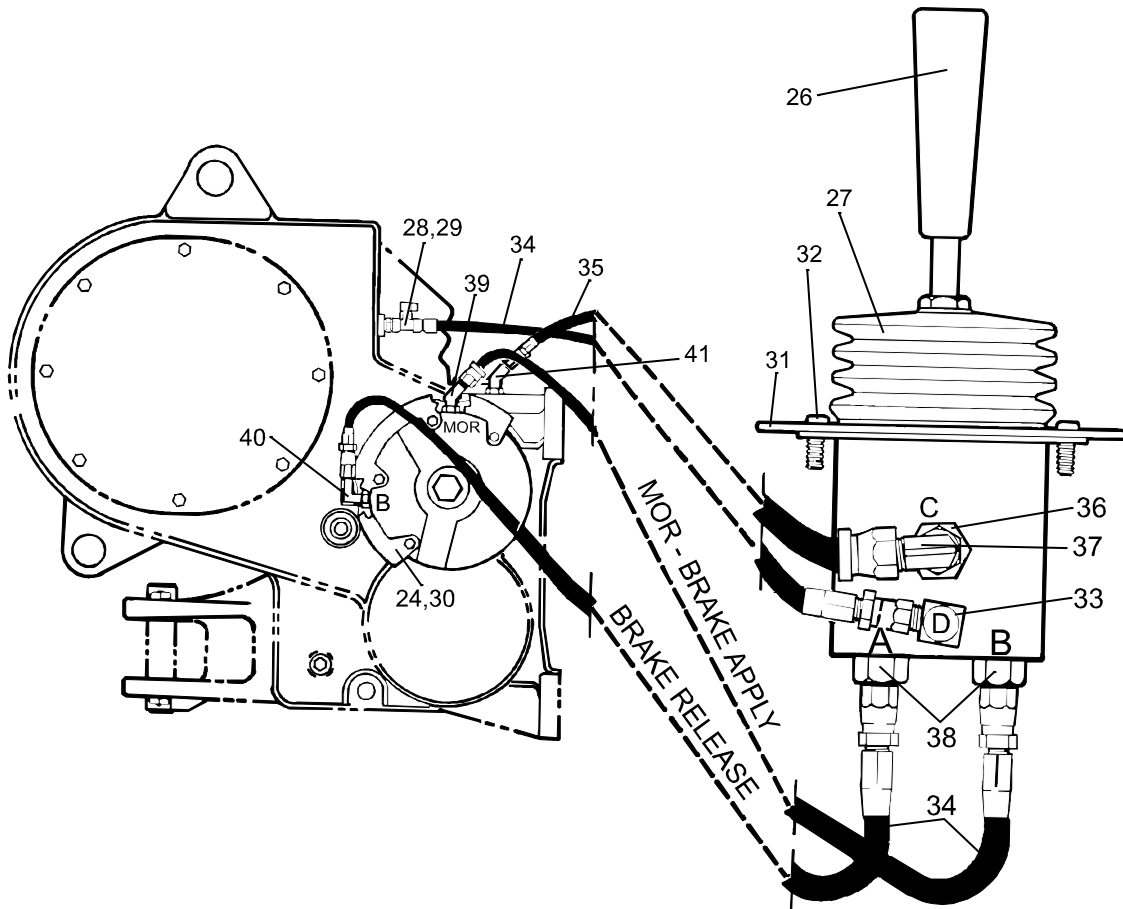
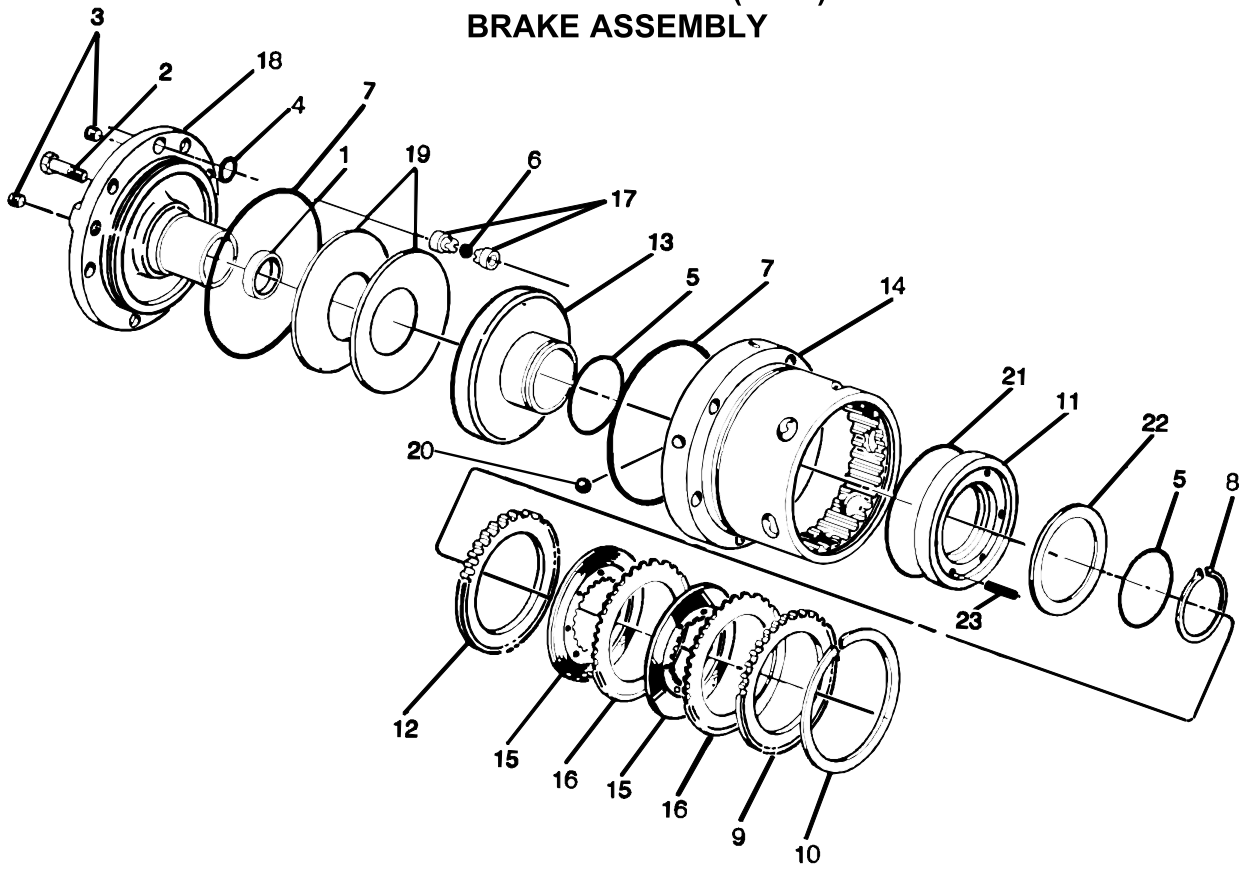
## BRAKE ASSEMBLY (SPLINED HOUSING)



ITEM	PART NO.	DESCRIPTION	QTY.
-	81960	BRAKE ASSEMBLY, STD - INCLUDES 1 - 20	
1	18049	BEARING CUP	1
2	21961	CAPSCREW, HEX HEAD (3/8 - 16 X 1)	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	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 - CURRENT (REQUIRES 1 OF ITEM 6)	1
15	70636	DISC - FRICTION - BRONZE	8
16	27861	DISC - STEEL - .093 lin (2.36 MM)	7
17	27843	INSERT - NOT USED IN CURRENT HOUSING	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 at the "B" brake pressure port. The early design used a hex-socket head, 1/4 NPT plug.

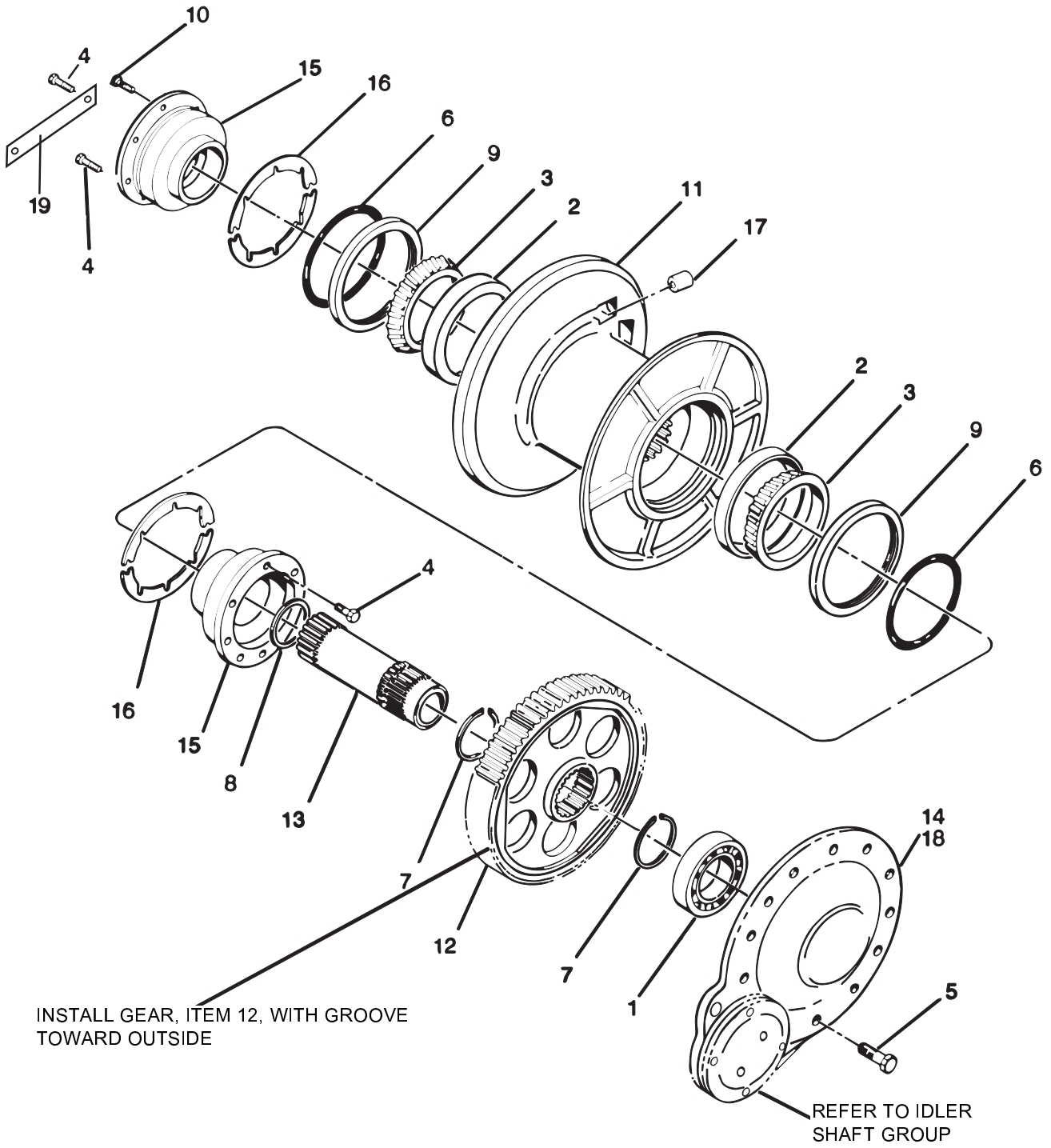
# MANUAL OVERRIDE (MOR) BRAKE ASSEMBLY



**MANUAL OVERRIDE (MOR)  
BRAKE ASSEMBLY**

ITEM	PART NO.	DESCRIPTION	QTY
---	81961	BRAKE ASSEMBLY, MOR - INCLUDES ITEMS 1-23	
1	18049	BEARING CUP	1
2	21961	CAPSCREW, HEX HEAD	2
3	70120	PLUG, HEX SOCKET (1/4 NPT)	3
4	22454	O-RING	3
5	10330	O-RING	2
6	12102	STEEL BALL	1
7	22358	O-RING	2
8	69807	RETAINING RING	1
9	26755	PRESSURE PLATE - OUTER	1
10	26147	RETAINING RING	1
11	69925	OVERRIDE PISTON	1
12	70293	PRESSURE PLATE - INNER	1
13	69921	BRAKE PISTON	1
14	27841	BRAKE HOUSING	1
15	70636	DISC - FRICTION BRONZE	8
16	27861	DISC - STEEL - 0.093 in. (2.36 mm)	7
17	27842	BALL GUIDE	2
18	69994	BEARING CARRIER	1
19	70255	BRAKE SPRING	2
20	70126	STEEL BALL	2
21	10450	O-RING	1
22	69924	SPRING RETAINER	1
23	69627	SPRING	6
24	69317	HOSE GUARD	1
25	69511	CONTROL VALVE (DOES NOT INCLUDE HANDLE)	1
26	26691	HANDLE	1
27	26692	BOOT	1
28	26002	SWIVEL TEE	1
29	70123	UNION, 90° -4	1
30	11073	WASHER	4
31	69513	DATA PLATE	1
32	11047	CAPSCREW, HEX HEAD	2
33	31348	ELBOW, 90° - VALVE "D" PORT	1
34	70194	HOSE ASSEMBLY - PRESSURE	3
35	69499	HOSE ASSEMBLY - DRAIN	1
36	31286	ADAPTER - VALVE "C" PORT	1
37	31426	UNION, 90° MALE - VALVE "C" PORT	1
38	31284	ADAPTER - VALVE "A" & "B" PORTS	2
39	31333	ELBOW, 45° 1/4 NPT -4	1
40	31341	ELBOW, 90° 1/4 NPT -4	1
41	31335	ELBOW, 45° 3/8 NPT -6	1
42	22374	PLUG, HEX SOCKET (1/8 NPT)	2

# CABLE DRUM GROUP



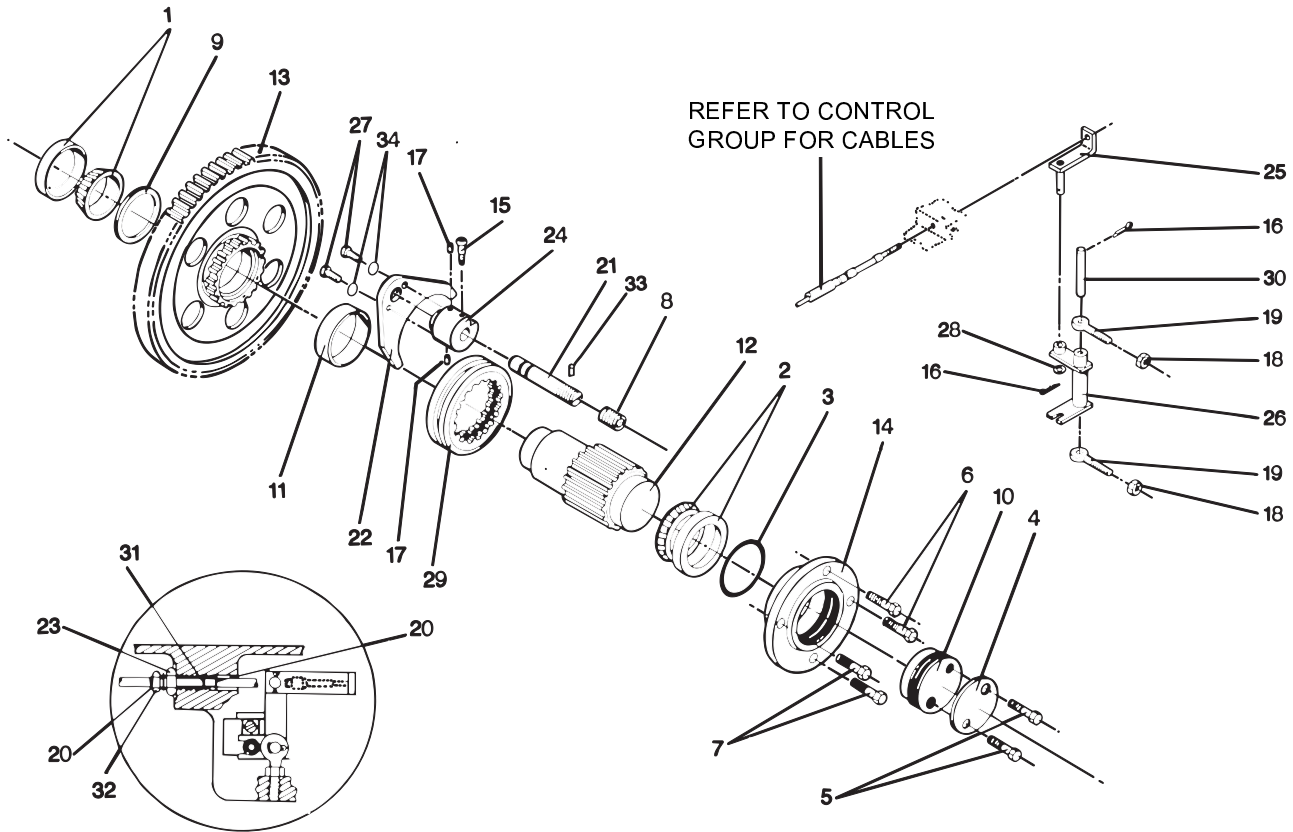


## CABLE DRUM GROUP

ITEM	PART NO.	DESCRIPTION	QTY.	
			CABLE CONTROLS	ELECTRONIC CONTROLS
1	70070	BALL BEARING	1	1
2	70078	BEARING CUP	2	2
3	70079	BEARING CONE	2	2
4	27745	CAPSCREW, HEX HEAD (1/2 - 13 X 1 G5 SS)	10	12
5	13938	CAPSCREW, HEX HEAD (1/2 - 13 X 1 1/4 G5)	11	11
6	70140	O-RING	2	2
7	70513	RETAINING RING, EXTERNAL	2	2
8	70164	RETAINING RING, INTERNAL	1	1
9	70167	OIL SEAL	2	2
10	27743	CAPSCREW, SOCKET HEAD (1/2 - 13 X 1 G8 SS)	1	---
11	69998	CABLE DRUM	1	1
12	68863	SECOND REDUCTION GEAR	1	1
13	69988	SECOND REDUCTION GEAR SHAFT	1	1
14	28954	BEARING CARRIER, COVER	1	1
15	27311	BEARING CARRIER, DRUM	1	1
16	70264	SHIM SET (1 pair each, .005, .007, .020 in. (.13, .18, .51 mm))	1-2 AR	1-2 AR
17	29424	FERRULE - 3/4 IN. (19 mm) WIRE ROPE	1	1
	29425	FERRULE - 7/8 IN. (22 mm) WIRE ROPE	1	1
	29426	FERRULE - 1 IN. (25 mm) WIRE ROPE	1	1
18	-----	NO GASKET, USE DOW® RTV 732 OR EQUIVALENT	--	--
19	100799	VALVE MOUNTING PLATE	--	1
	27744	CAPSCREW, HEX HEAD (1/2 - 13 X 5 G5 - SS)	1	--

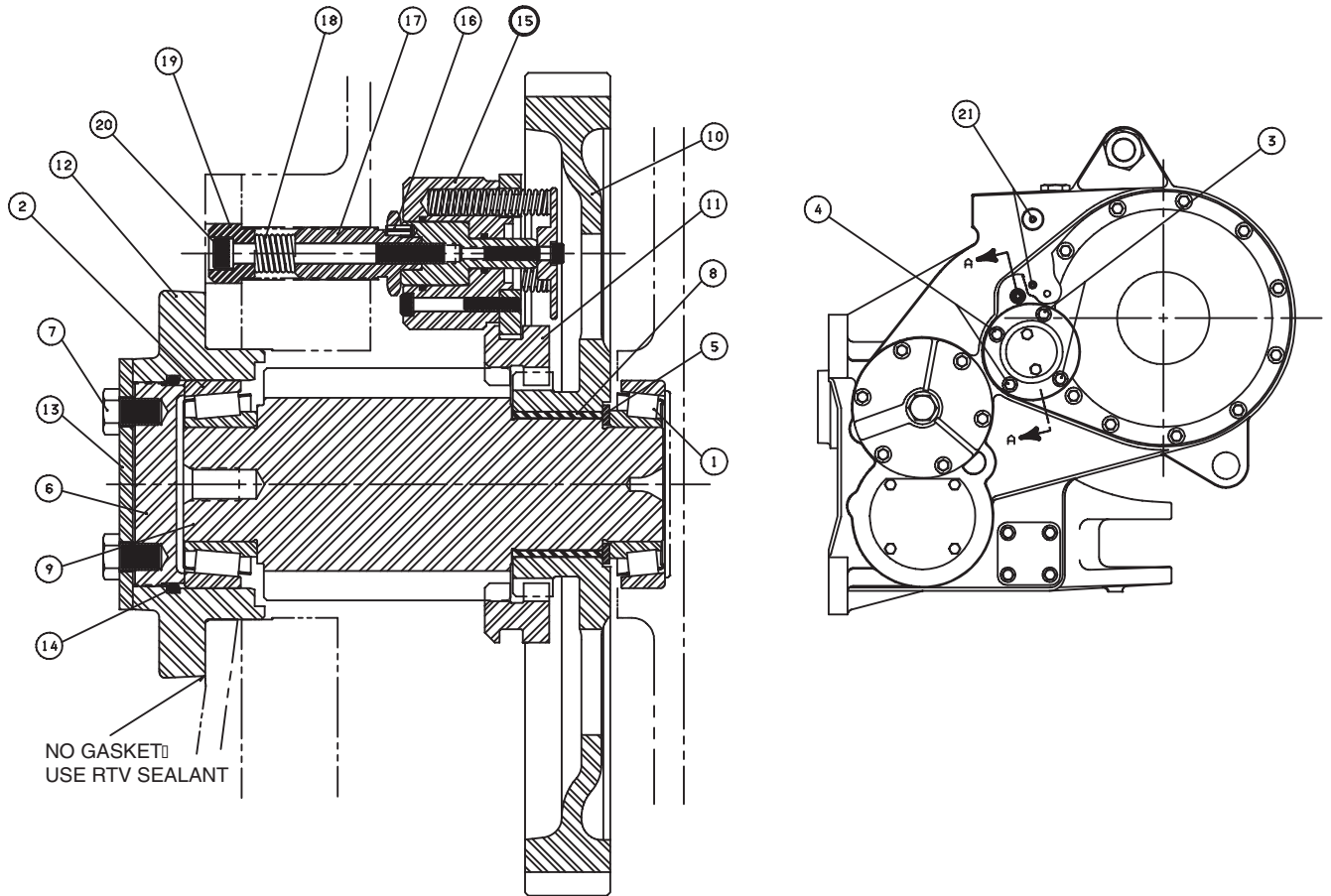
AR - AS REQUIRED  
SS - SELF SEALING

## IDLER SHAFT GROUP WITH FREESPOOL (CABLE CONTROLS)



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	103250	CAPSCREW, HEX HEAD (1/2 - 13 - 3/4 G8 Z)	2
6	104174	CAPSCREW, HEX HEAD (1/2 - 13 - 1 1/4 G8 Z)	2
7	29855	CAPSCREW, HEX HEAD (1/2 - 13 X 2 G8 Z)	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	104309	CAPSCREW, HEX HEAD (3/8 - 16 X 1 G8 Z)	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 PELLETT	1
34	18003	LOCKWASHER (3/8)	2

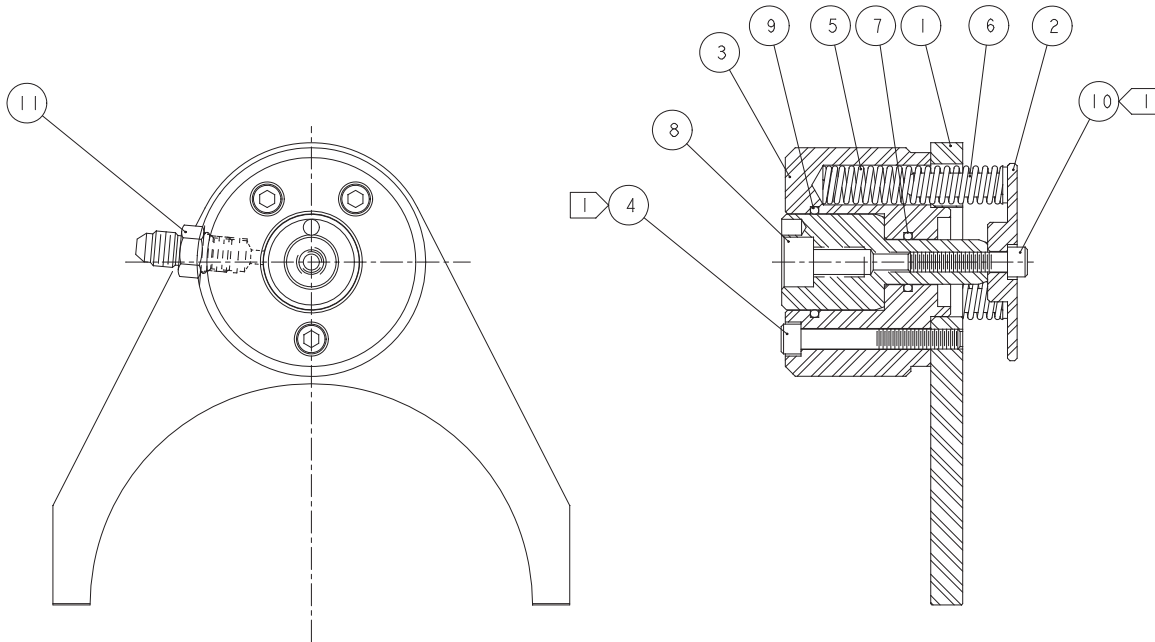
## IDLER SHAFT GROUP WITH FREESPOOL (ELECTRONIC CONTROLS)



ITEM	PART NO.	DESCRIPTION	QTY.
1	69013	BEARING ASSEMBLY	1
2	69014	BEARING ASSEMBLY	1
3	104174	CAPSCREW, HEX HEAD (1/2 - 13 X 1 1/4 G8 Z)	2
4	29855	CAPSCREW, HEX HEAD (1/2 - 13 X 2 G8 Z)	2
5	11892	THRUST WASHER	1
6	69592	ADJUSTER	1
7	103250	CAPSCREW (1/2 -13 X 3/4 G8 Z)	2
8	70349	BUSHING	1
9	69984	SECOND REDUCTION PINION	1
10	101055	FIRST REDUCTION GEAR	1
11	69979	CLUTCH COLLAR	1
12	69974	CARRIER	1
13	69655	LOCK PLATE	1
14	25880	O-RING	1
15	82320	FREESPOOL CYLINDER ASSEMBLY - (REFER TO NEXT PAGE)	1
16	12026	ROLL PIN	1
17	100810	CYLINDER STUD	1
18	24916	SPRING	1
19	100812	BOLT RETAINER	1
20	102309	CAPSCREW, SOC. HEAD (3/8 -16 X 4 1/4)	1
21	25915	SET SCREW, SOC. HEAD (1/2 - 20 X 1)	2

Note: No gasket used under carrier [12]. Use RTV silicone sealant.

## FREESPOOL CYLINDER ASSEMBLY (ELECTRONIC CONTROLS)

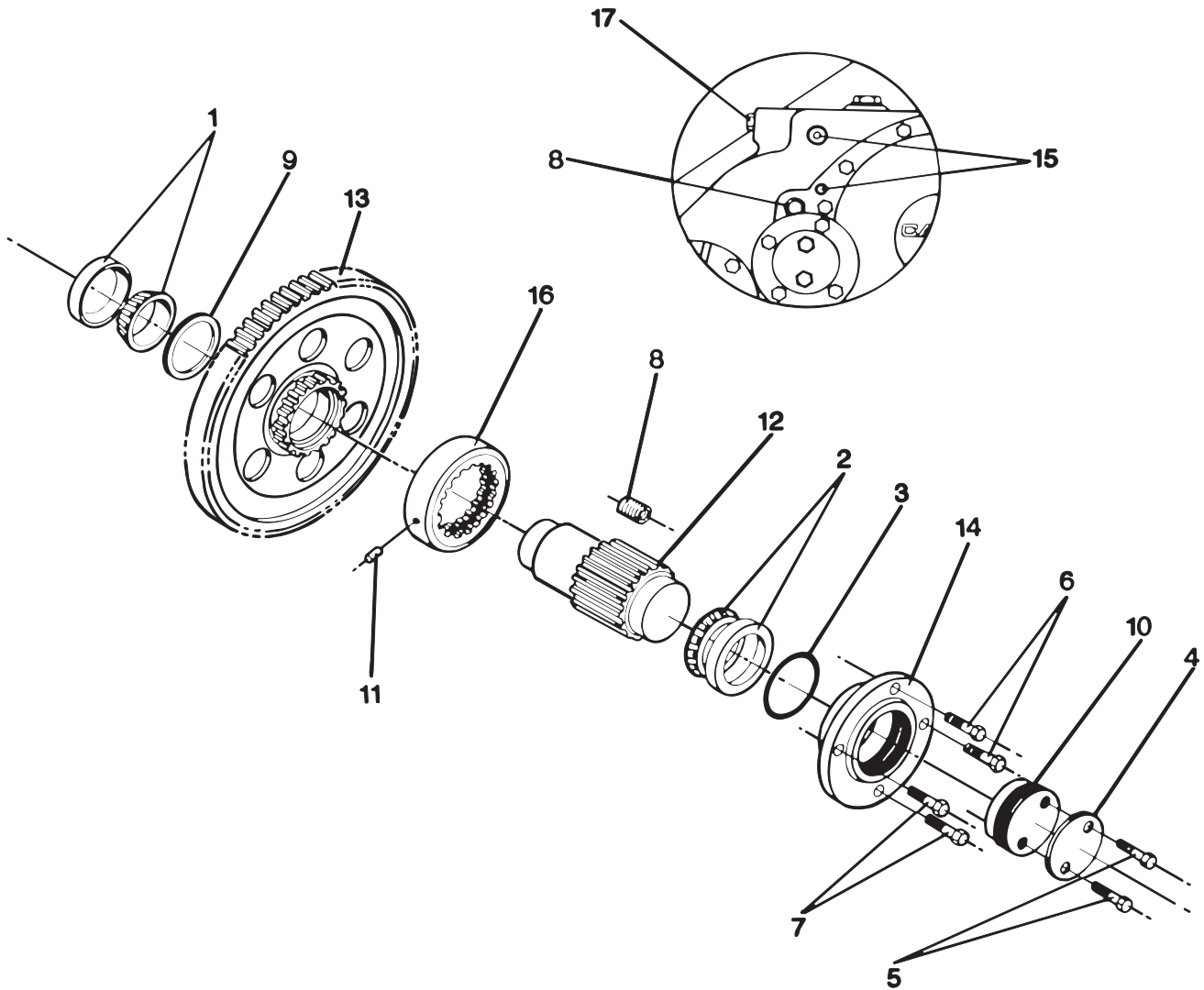


**NOTE:**

- ① APPLY LOCTITE 242 TO CLEAN DRY THREADS OF ITEMS 4 & 10 AND TIGHTEN TO 13 LB•FT (18 N•m)

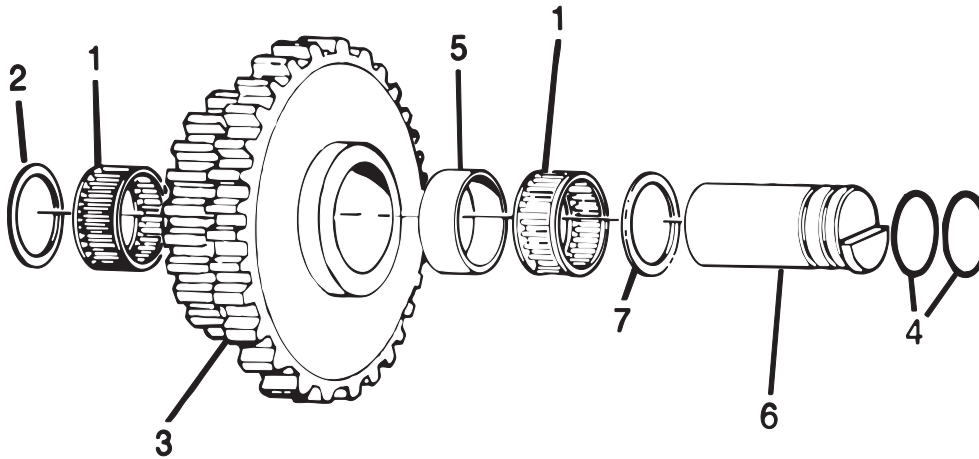
ITEM	PART NO.	DESCRIPTION	QTY.
-	82320	FREESPOOL CYLINDER ASSEMBLY	1
1	100804	YOKE	1
2	100805	CYLINDER RETAINER	1
3	100806	FREESPOOL CYLINDER	1
4	100823	CAPSCREW, SOC. HEAD (1/4 - 20 X 2)	1
5	100807	SPRING	3
6	100808	SPRING GUIDE	3
7	72097	O-RING	1
8	100809	CYLINDER ROD	1
9	23633	O-RING	1
10	101511	CAPSCREW, SOC. HEAD (1/4 - 20 X 1 1/4)	1
11	25864	ADAPTER	1

## IDLER SHAFT GROUP WITHOUT FREESPOOL



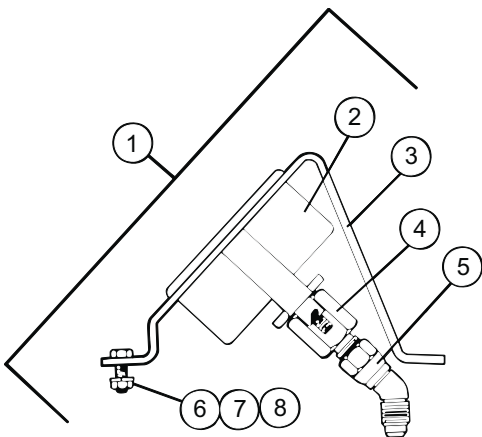
ITEM	PART NO.	DESCRIPTION	QTY
1	69013	BEARING ASSEMBLY - INNER	1
2	69014	BEARING ASSEMBLY - OUTER	1
3	25880	O-RING	1
4	69655	LOCK PLATE	1
5	103250	CAPSCREW, (1/2 - 13 X 3/4 G8 Z)	2
6	104174	CAPSCREW, (1/2 - 13 X 1-1/4 G8 Z)	2
7	29855	CAPSCREW, (1/2 - 13 X 2 G8 Z)	2
8	27216	PLUG, SOCKET HEAD	1
9	11892	THRUST WASHER	1
10	69592	ADJUSTER	1
11	11836	ROLLPIN	1
12	69984	PINION, SECOND REDUCTION	1
13	101055	GEAR, FIRST REDUCTION	1
14	69974	CARRIER, IDLER SHAFT	1
15	25915	SET SCREW, SOC. HEAD (1/2 - 20 X 1)	2
16	69977	COLLAR	1
17	69782	CAPSCREW (3/4 - 16 X 1-1/4 G8 Z)	1

## 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	2
5	28926	SPACER	1
6	69673	COUNTERSHAFT PIN	1
7	28924	THRUST WASHER - .217 in. (5.5 mm)	1

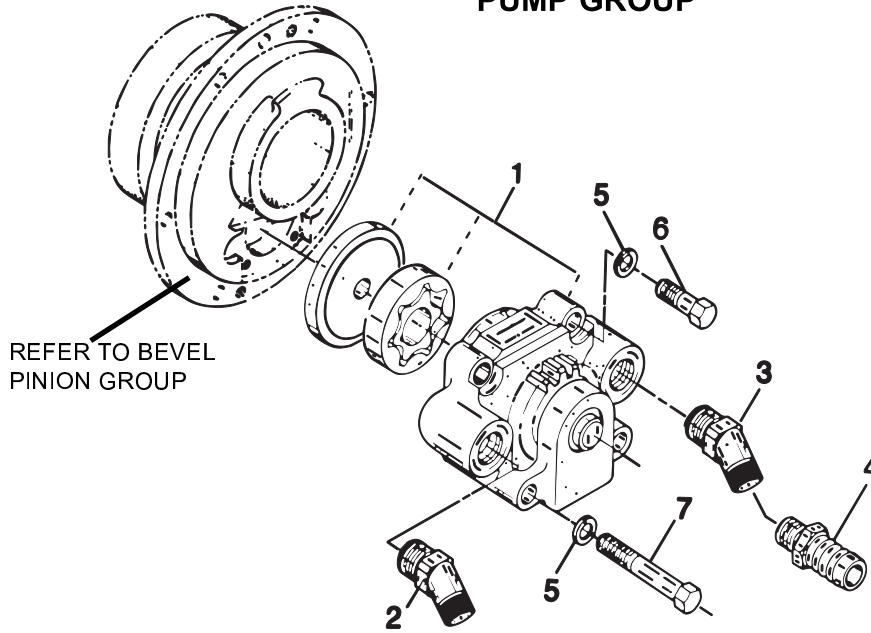
## GAUGE GROUP



NOTE: ITEMS 9 & 10 ARE NOT SHOWN.

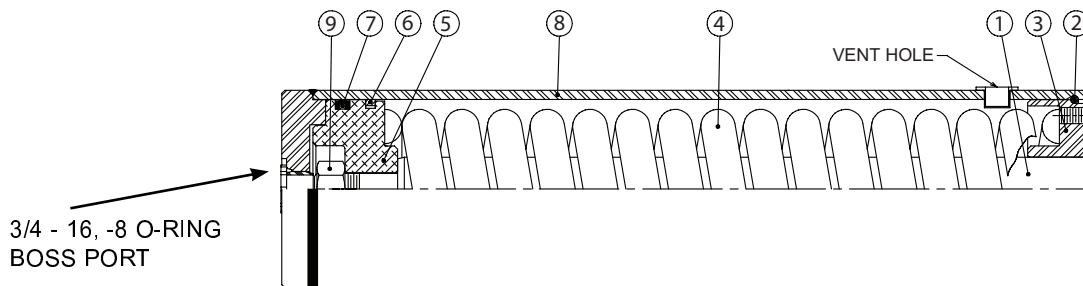
ITEM	PART NO.	DESCRIPTION	QTY
1	62058	PRESSURE GAUGE KIT (INCLUDES ALL ITEMS BELOW)	1
2	27673	PRESSURE GAUGE	1
3	27651	BRACKET	1
4	27652	ADAPTER (1/4 INCH TO -4)	1
5	70122	UNION (45 DEGREE, -4)	1
6	27683	CAPSCREW, HEX HEAD (5/16 - 18 x 1-1/4 G5)	2
7	69640	WASHER (5/16)	2
8	69644	NUT, HEX (5/16)	2
9	34196	HOSE ASSEMBLY (-4 JIC FEMALE SWIVEL, 96 INCHES)	1
10	25864	ADAPTER (-4 TO JIC)	1

## PUMP GROUP



ITEM	PART NO.	DESCRIPTION	QTY	
			STD PTO	LOW PTO
1	68772	PUMP ASSEMBLY	1	1
2	26752	ELBOW, 45° -8 PRESSURE SIDE	1	1
3	69047	STREET ELBOW, 45° SUCTION	-	1
	27991	ELBOW, 45° SUCTION	1	-
4	69048	BARBED HOSE ADAPTER	-	1
5	11015	LOCKWASHER (1/4)	4	4
6	27996	CAPSCREW, HEX HEAD (1/4 - 20 X 1 1/2 G8)	2	2
7	27997	CAPSCREW, HEX HEAD (1/4 - 20 X 3 G8)	2	2

## ACCUMULATOR ASSEMBLY - 81959



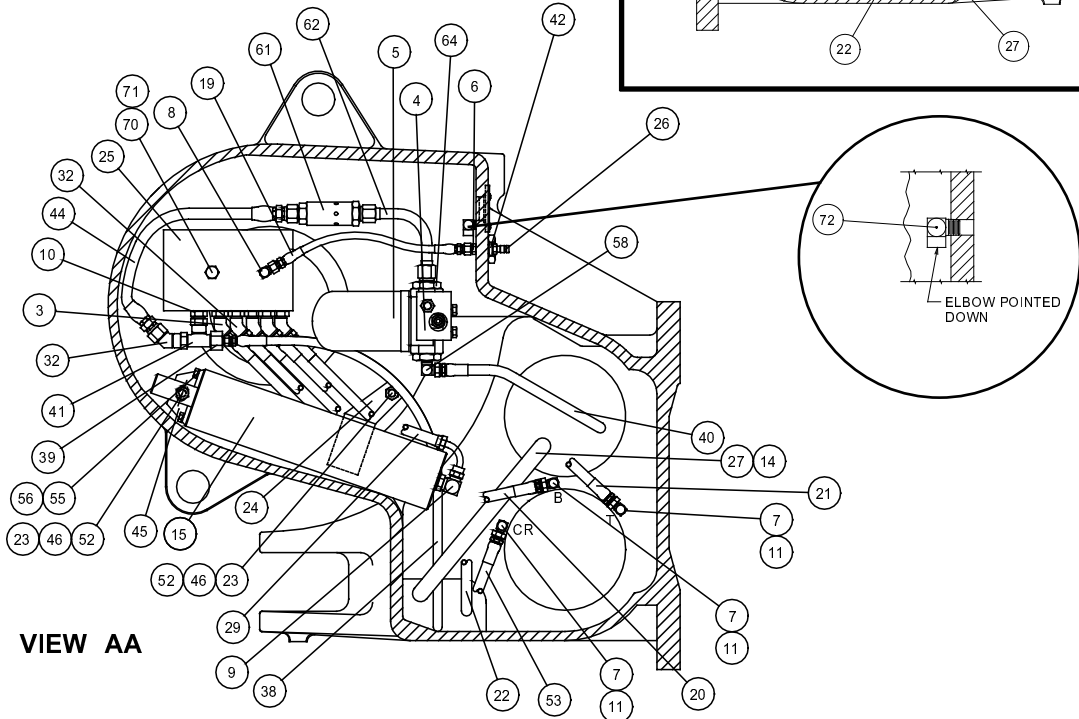
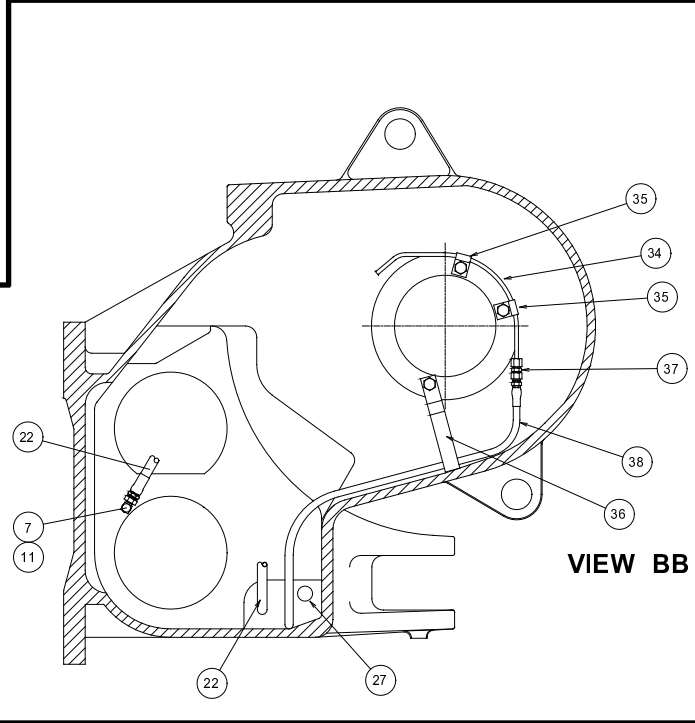
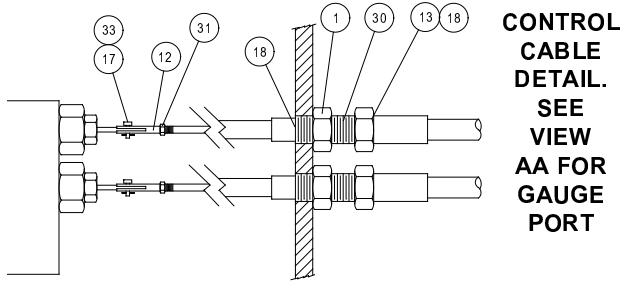
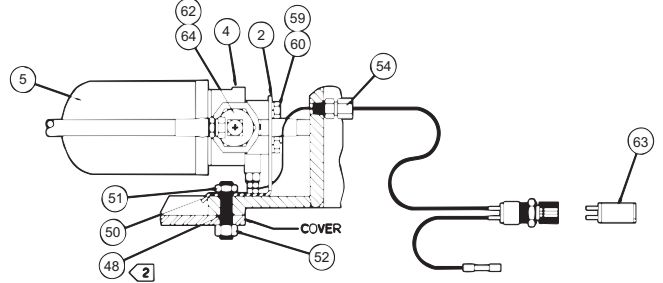
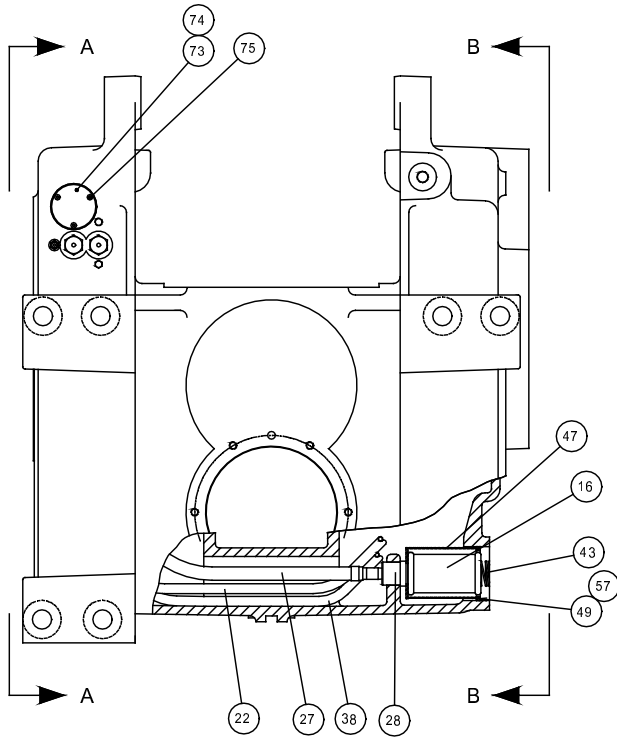
### ⚠ WARNING ⚠

**! DANGER - 2,000 LB (900 KG) SPRING PRELOAD !**  
 USE PRESS FOR DISASSEMBLY PER SERVICE INSTRUCTIONS.  
 SEVERE PERSONAL INJURY OR DEATH MAY RESULT IF ROD  
 GUIDE REMOVAL IS ATTEMPTED WITHOUT A PRESS.

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	107956	SEAL	1
8	NSS	BARREL ASSEMBLY	1
9	22702	NUT	1
-	62131	SEAL KIT (CONTAINS 2, 6 & 7)	

NSS = Not Serviced Separately

# HYDRAULIC CONTROL GROUP - LOW PTO (CABLE CONTROLS)





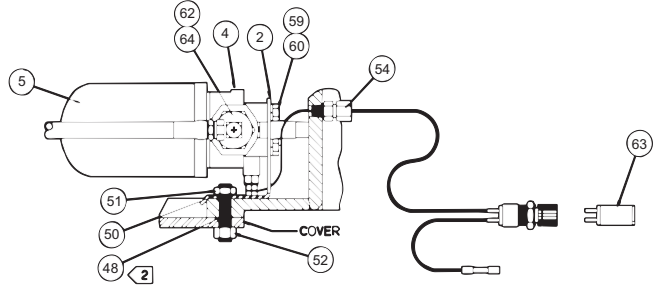
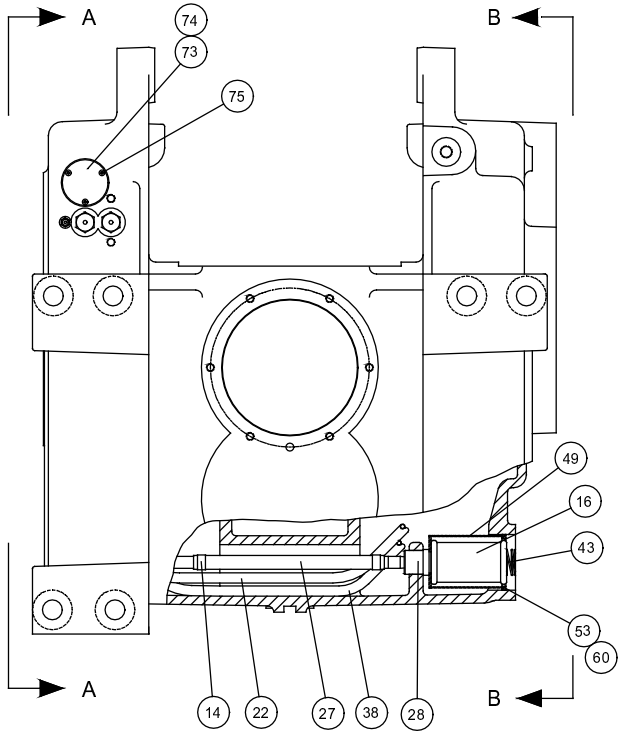
## HYDRAULIC CONTROL GROUP - LOW PTO (CABLE CONTROLS)

ITEM	PART NO.	DESCRIPTION	QTY.
1	11059	JAM NUT	2
2	27741	FILTER BRACKET	1
3	69605	ELBOW - 45° - 8, VALVE PORTS A,B	2
	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° - 8	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 (SEE ACCUMULATOR ASSY.)	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 B	1
21	70273	HOSE - 32 in. (813 mm) VALVE TO T	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 (SEE CONTROL VALVE ASSY.)	1
26	100267	QUICK DISCONNECT	1
27	69046	SUCTION HOSE	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

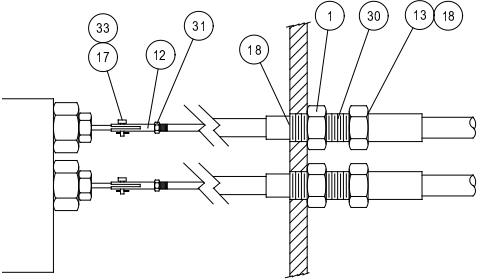
ITEM	PART NO.	DESCRIPTION	QTY.
33	69312	HITCH PIN	2
34	68996	LUBE TUBE	1
35	68994	CLAMP, LUBE TUBE	2
36	68995	CLAMP, LUBE TUBE	1
37	25891	UNION - 4	1
38	25893	HOSE - 60 in. (432 mm) LUBRICATION	1
39	27396	REDUCER - 8 - 4 VALVE PORT P	1
40	27979	HOSE - 17 in. (432 mm) PUMP TO FILTER	1
41	76610	TEE SWIVEL - 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 - 2 3/4)	2
47	29020	SUCTION STRAINER SHIELD	1
48	27081	STUD (1/2 - 13 NC X 2 1/4)	1
49	29021	SEAL RING - .25 in. (6.4 mm) THICK	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	27980	HOSE - 21 in. (533 mm) VALVE TO CR	1
54	61914	WIRING ASSEMBLY	1
55	11766	CAPSCREW (5/16 - 16 X 3/4 G5)	1
56	11024	LOCKWASHER - (5/16)	1
57	29023	SEAL RING - .06 in. (1.5 mm) THICK	1-2
58	100798	ELBOW - 90°	1
59	22693	CAPSCREW, HEX HEAD (3/8 - 16 - 3/4)	2
60	18003	LOCKWASHER (3/8)	2
61	29334	FLOW CONTROL VALVE	1
62	29335	TUBE ASSEMBLY	1
63	27091	INDICATOR LAMP	1
64	29352	ADAPTER, -8	1
70	27444	CAPSCREW, HEX HEAD (1/2 - 13 X 5 G5 SS*)	1
71	11073	WASHER (1/2)	1
72	13708	ELBOW, STREET 90°	1
73	100843	COVER	1
74	13838	O-RING	1
75	100794	CAPSCREW (5/16 - 16 X 3/4 G5)	3

\* SS - SELF SEALING

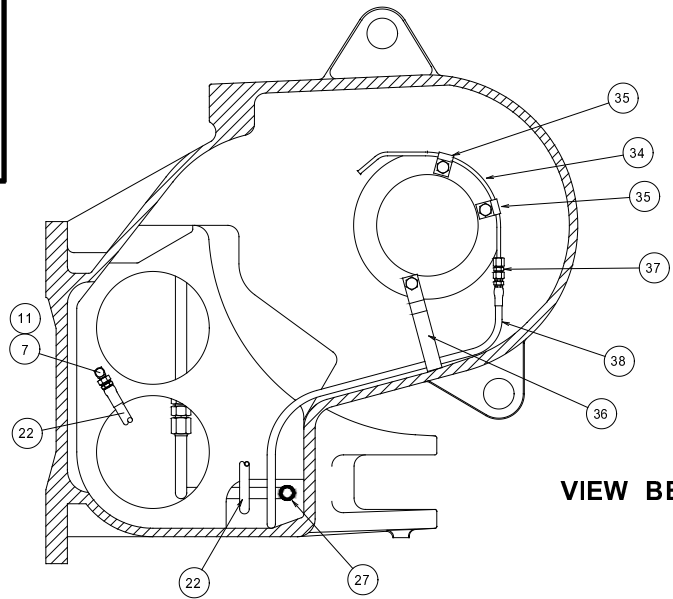
# HYDRAULIC CONTROL GROUP - STANDARD PTO (CABLE CONTROLS) (EARLY)



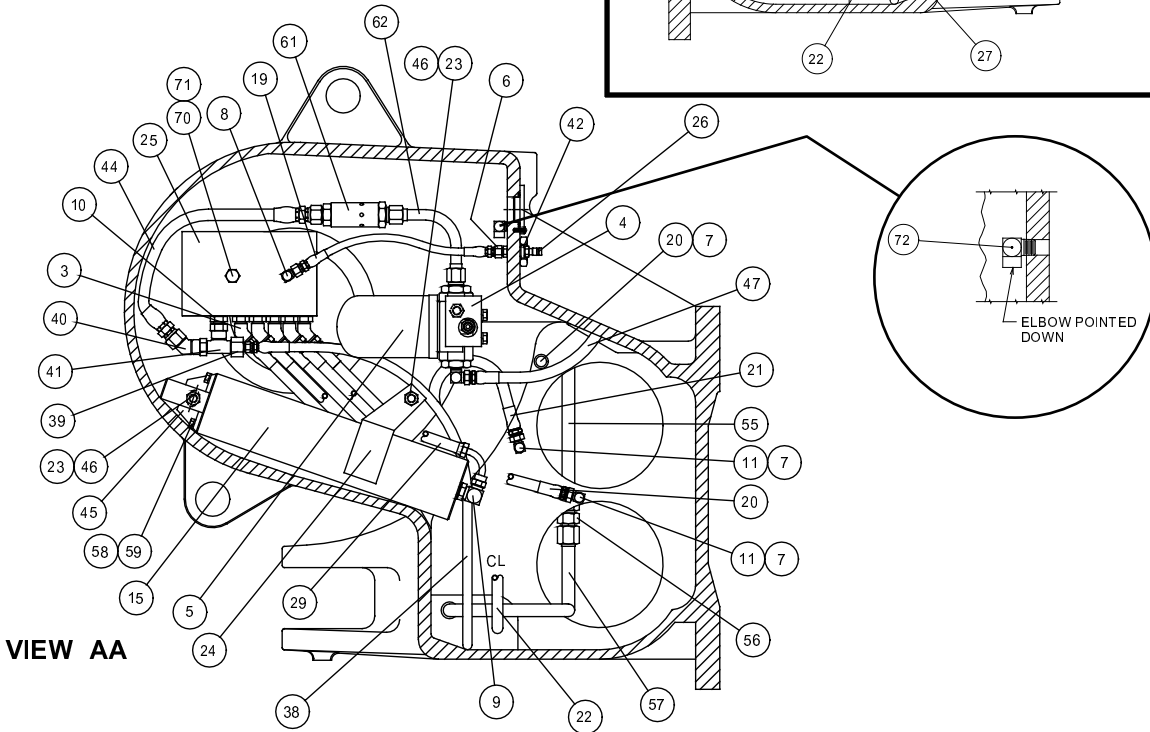
Apply Loctite 242 to clean, dry threads



**CONTROL  
CABLE  
DETAIL.  
SEE  
VIEW  
AA FOR  
GAUGE  
PORT**



**VIEW BB**



**VIEW AA**

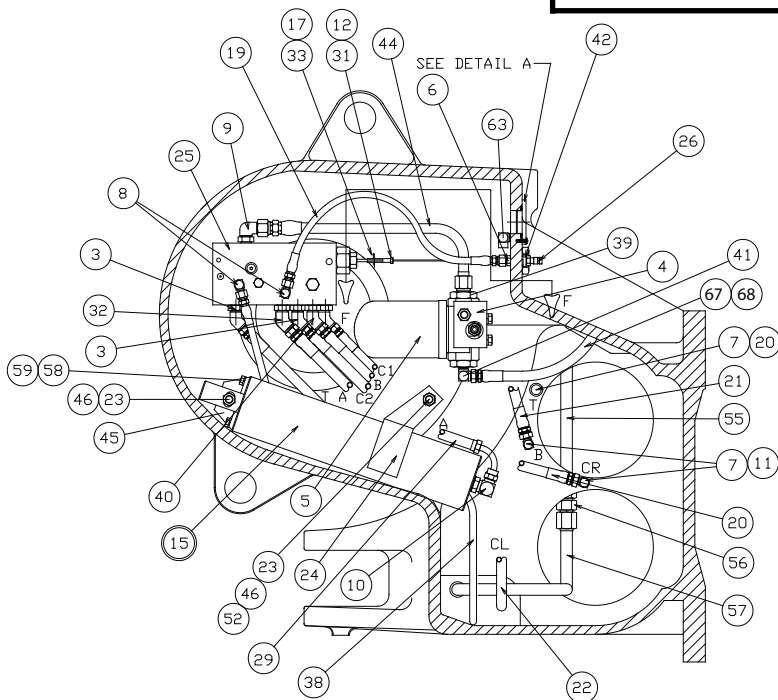
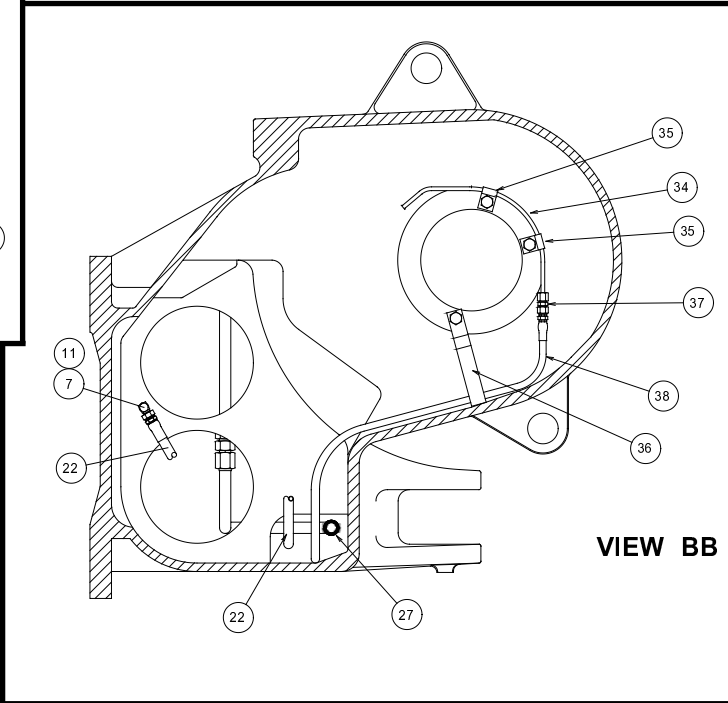
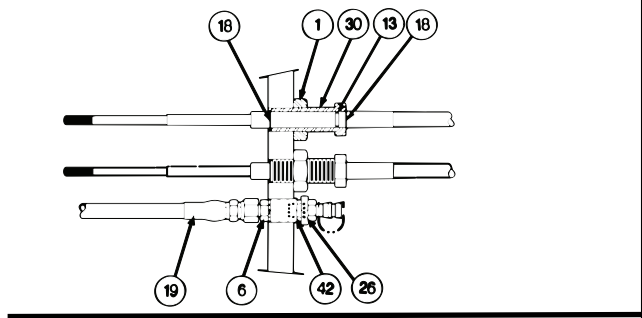
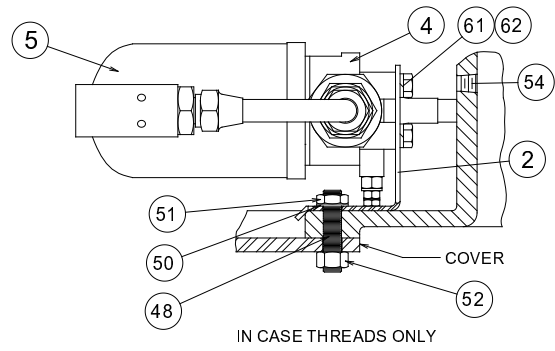
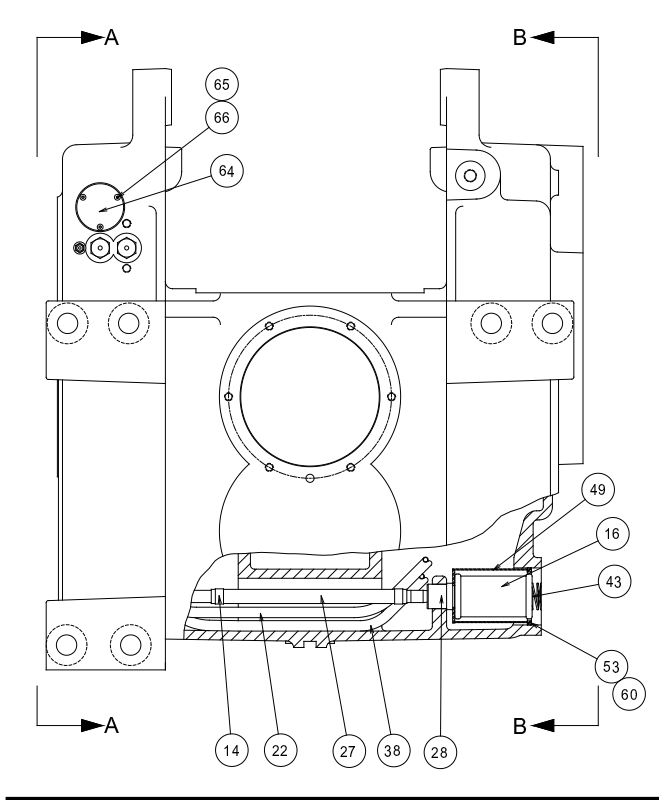
## HYDRAULIC CONTROL GROUP - STANDARD PTO (CABLE CONTROLS) (EARLY)

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° - 8	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 (SEE ACCUMULATOR ASSY.)	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. (357 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 (SEE CONTROL VALVE ASSY.)	1
26	100267	QUICK DISCONNECT	1
27	27981	SUCTION HOSE	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

ITEM	PART NO.	DESCRIPTION	QTY.
33	69312	HITCH PIN	2
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 - 60 in. (432 mm) LUBRICATION	1
39	27396	REDUCER - 8 - 4 VALVE PORT P	1
40	69516	UNION - 45° MALE	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 - 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	61914	WIRING ASSEMBLY	1
55	27977	TUBE, UPPER SUCTION	1
56	27990	UNION	1
57	27978	TUBE, LOWER SUCTION	1
58	11766	CAPSCREW (5/16 - 16 X 3/4 G5)	2
59	11024	LOCKWASHER (5/16)	2
60	29023	SEAL RING - .06 in. (1.5 mm) THICK	4
61	29334	FLOW CONTROL VALVE	1
62	29335	TUBE ASSEMBLY	1
63	27091	INDICATOR LAMP	1
64	29352	ADAPTER, -8	1
70	27444	CAPSCREW, HEX HEAD (1/2 - 13 X 5 G5 SS*)	1
71	11073	WASHER (1/2)	1
72	13708	ELBOW, STREET 90°	1
73	100843	COVER	1
74	13838	O-RING	1
75	100794	CAPSCREW (5/16 - 16 X 3/4 G5)	3

\* SS - SELF SEALING

# HYDRAULIC CONTROL GROUP - STANDARD PTO (CURRENT)



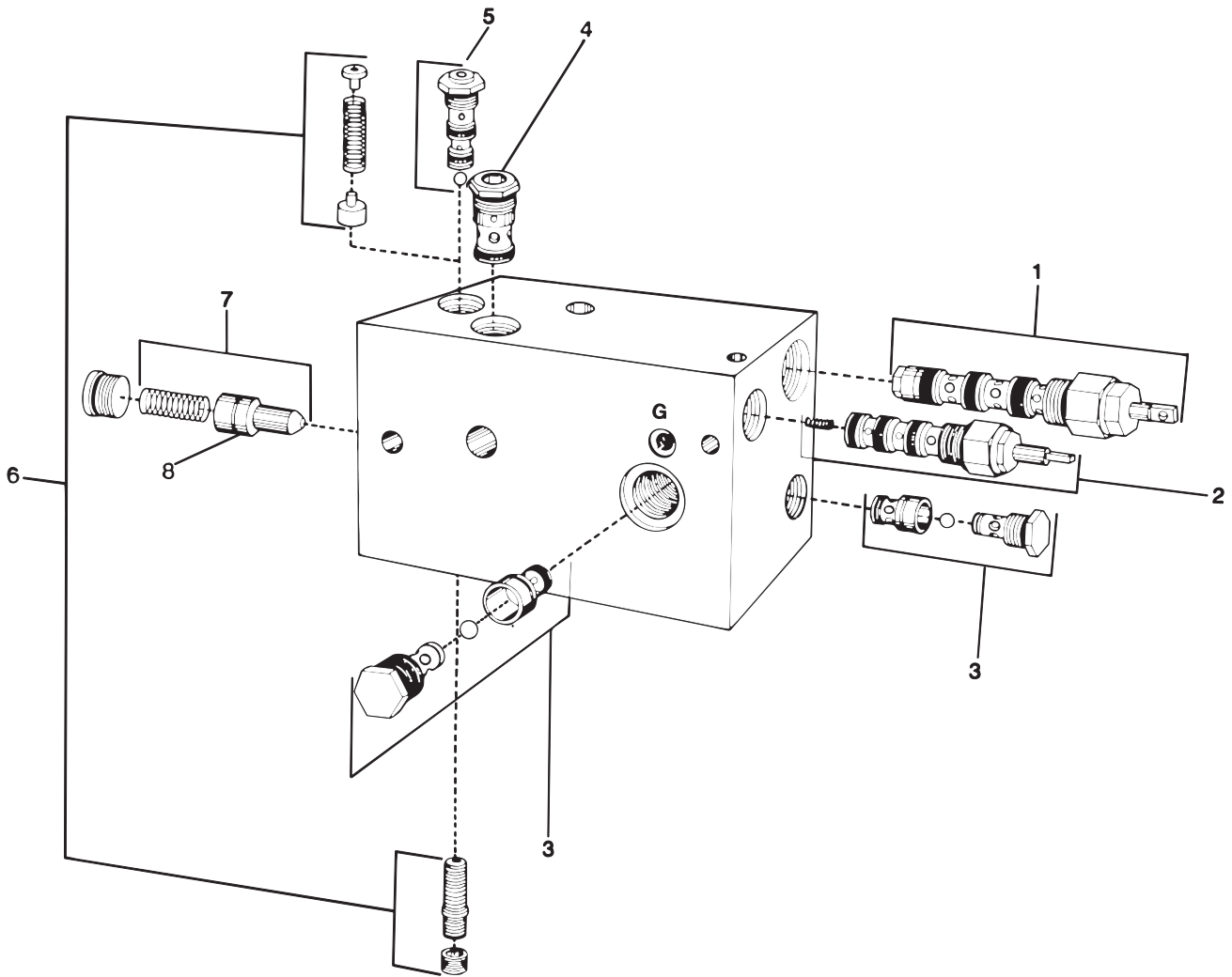
## HYDRAULIC CONTROL GROUP - STANDARD PTO (CURRENT)

ITEM	PART NO.	DESCRIPTION	QTY.
1	11059	NUT, JAM (3/4 - 10)	2
2	27741	FILTER BRACKET	1
3	69605	ELBOW - 45° - 8 ORB/-8JIC PORT C1,C2,T	3
4	27390	FILTER HEAD	1
5	27389	FILTER ELEMENT	1
6	21219	ADAPTER - 1/8 NPT / - 8	1
7	70106	ADAPTER - 1/4 NPT / - 8	4
8	25131	ELBOW - 90° - 4 ORB/-4JIC PORT L,G	2
9	70109	ELBOW - 90° - 8 ORB/-8JIC, PORT P	1
10	105050	ELBOW - 90° - 8 ORB/-10JIC, ACCUMULATOR	1
11	29046	ELBOW - 90° - 8 JIC UNION	3
12	69771	YOKE	2
13	21119	O-RING	2
14	30997	CLAMP	1
15	81959	ACCUMULATOR	1
16	70189	STRAINER	1
17	69313	CLEVIS PIN	2
18	69653	RETAINING RING	4
19	25750	HOSE, 17 in. (432 mm) VALVE TO GAUGE PORT	1
20	70272	HOSE, 24 in. (610 mm) VALVE TO T, CR	2
21	27979	HOSE, 17 in. (432 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	104003	CONTROL VALVE ASSEMBLY (See Pg. 27)	1
26	100267	QUICK DISCONNECT, GAUGE PORT	1
27	27981	SUCTION HOSE	1
28	69051	CONNECTOR	1
29	105055	HOSE - VALVE TO ACCUMULATOR	1
30	69963	ADJUSTER	2
31	13468	NUT, HEX (1/4 - 28)	2
32	105054	ELBOW 45° - 10 ORB/-10 JIC PORT A	1
33	69312	HITCH PIN	2
34	100803	LUBE TUBE	1

ITEM	PART NO.	DESCRIPTION	QTY.
35	68994	CLAMP	2
36	68995	CLAMP	1
37	25891	UNION - 4	1
38	25893	HOSE, LUBE	1
39	100796	ADAPTER, -16 ORB /-8 JIC	1
40	69516	UNION - 45° - 8/-8	1
41	100798	ELBOW 90°, -16 ORB/-8 JIC	1
42	100266	SLEEVE, GAUGE PORT	1
43	26005	SPRING, SUCTION STRAINER	1
44	27979	HOSE - 17 in. (432 mm) FILTER TO VALVE	1
45	27847	ACCUMULATOR MOUNTING ANGLE	1
46	27849	STUD - 1/2 - 13 X 2 3/4	2
48	27081	STUD - 1/2 - 13 X 2 1/4	1
49	29020	STRAINER SHIELD	1
50	12781	LOCKWASHER, 1/2 SHAKEPROOF	1
51	23583	NUT, JAM 1/2	1
52	101439	NUT, 1/2	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	1
57	27978	LOWER SUCTION TUBE	1
58	11766	CAPSCREW, HEX HD (5/16 - 18 X 7/8 GD 8 Z)	2
59	11024	LOCKWASHER (5/16)	2
60	29023	SEAL RING .06 in. (1.5 mm) THICK	1-2
61	104135	CAPSCREW, HEX HD (3/8 - 16 X 3/4 GD 8 Z)	2
62	27152	LOCKWASHER, 3/8	2
63	13708	ELBOW, 90° 1/8 NPT	1
64	100843	COVER	1
65	100794	CAPSCREW, BUTTON HEAD 3/16 - X 5/8 SS	3
66	13838	O-RING	1
67	29676	HOSE-14 in. (356 mm) PUMP TO FILTER	1
68	69516	ELBOW, 45° - 8 JIC	1

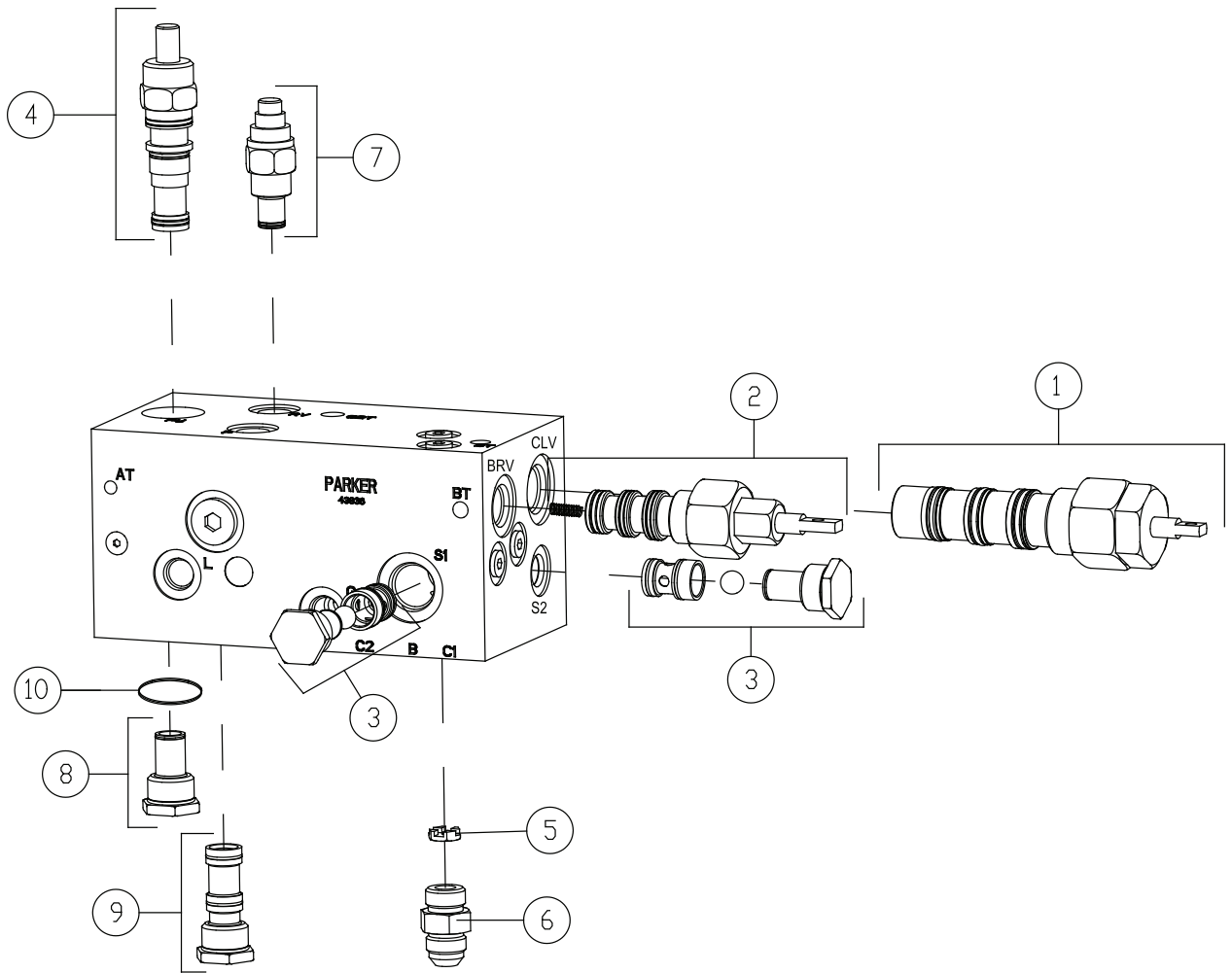
\* SS - SELF SEALING

## CONTROL VALVE ASSEMBLY (CABLE CONTROLS - EARLY)



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

## CONTROL VALVE ASSEMBLY (CABLE CONTROLS - CURRENT)



ITEM	PART	DESCRIPTION	QTY
1	26712	CLUTCH CONTROL VALVE CARTRIDGE (CLV)	1
*	61838	SEAL KIT FOR ITEM #1	1
2	26713	BRAKE CONTROL CARTRIDGE (BRV)	1
*	61839	SEAL KIT FOR ITEM #2	1
3	26715	SHUTTLE VALVE (S1, S2)	2
*	61841	SEAL KIT FOR ITEM #3	2
4	40166	DIFFERENTIAL PRESSURE UNLOADING CARTRIDGE	1
*	29874	SEAL KIT FOR ITEM #4	1
5	105094	ORIFICE DISC .095	1
6	70100	ADAPTER -8 ORB -8 JIC -BRAKE PORT	1
7	105629	RELIEF VALVE CARTRIDGE (RV)	1
*	63616	SEAL KIT FOR ITEM #7	1
8	105631	CHECK VALVE (CV)	1
*	63617	SEAL KIT FOR ITEM #8	1
9	105630	LOGIC CONTROL CARTRIDGE (LC)	1
*	63618	SEAL KIT FOR ITEM #9	1
10	106929	ORIFICE DISC	1







## HYDRAULIC CONTROL GROUP - STANDARD PTO (ELECTRONIC CONTROLS)

ITEM	PART NO.	DESCRIPTION	QTY.
1	82564	CONTROL VALVE ** (REFER TO CONTROL VALVE ASSEMBLY	1
2	100466	FILTER ELEMENT	1
3	81959	ACCUMULATOR (REFER TO ACCUMULATOR ASSEMBLY)	1
4	82505	WIRING HARNESS *	1
5	70189	STRAINER	1
6	69051	CONNECTOR	1
7	26005	COMPRESSION SPRING	1
8	29020	STRAINER SHIELD	1
9	29021	SEAL RING, .25 in. (6.4 mm)	1
10	29023	SEAL RING, .06 in. (1.5 mm)	1-2 AR
11	13838	O-RING	1
12	100784	RETAINER FLANGE	1
13	100794	CAPSCREW (#10 x 3/4 MACHINE SCREW)	3
14	104177	CAPSCREW (3/8 - 16 x 4-1/2 GD 8 Z)	2
15	69605	ELBOW, 45° ORB -8	5
16	27990	UNION, SUCTION TUBE	1
17	25749	HOSE, -4, 22.5 in. (572 mm) F/S	1
18	70106	ADAPTER 1/4 NPT -8	4
19	27989	HOSE, -8, 50 in. (1270 mm) CL	1
20	27979	HOSE, -8, 17 in. (432 mm) PUMP TO FILTER	1
21	40242	HOSE, -4, 36 in. (914 mm) GAUGE	1
22	26140	ELBOW, 90° -4, GAUGE PORT	1
23	21219	ADAPTER, -4	1
24	100265	ELBOW, 45° -4	1
25	100077	HOSE, -4, 26 in. (660 mm) F/S	1
27	27980	HOSE, -8, 21 in. (533 mm) A, CR, B, PUMP-FILTER	2
28	70109	ELBOW, 90° ORB -8 A	1
29	29046	ELBOW, 90° -8 CR, CL	3
30	25893	HOSE, -4, 60 in. (1524 mm) LUBRICATION	1
31	25891	UNION, -4	2
32	100803	TUBE ASSEMBLY, LUBRICATION	1
33	68994	CLAMP	2
34	68995	CLAMP	1
35	69782	CAPSCREW, HEX HEAD (3/4 - 16 X 1-1/4 GD 8 Z)	3
36	100814	HOSE CLAMP	1
37	11780	NUT, HEX (3/8 - 16)	3
38	13929	WASHER (3/8)	3
39	PA4K-8864	HOSE CLAMP	1
40	27152	LOCKWASHER (3/8)	2
41	27981	SUCTION HOSE	1
42	30997	CLAMP	1
43	100267	QUICK DISCONNECT, GAUGE PORT	1
44	100266	SLEEVE, GAUGE PORT	1
45	13708	ELBOW, 90° (1/8 NPT) VENT PORT	1
46	27848	ACCUMULATOR BRACKET	1
47	27847	MOUNTING ANGLE	1
48	27849	STUD (1/2 -13 X 2 3/4)	2
49	101439	NUT, HEX (1/2 - 13 GD 8 Z)	2
50	11026	LOCKWASHER (1/2)	2
51	11766	CAPSCREW, HEX HEAD (3/8 - 16 X 7/8 GD 8 Z)	2
52	11024	LOCKWASHER (3/8)	2
53	13544	CAPSCREW, SOC. HEAD (3/8 - 16 X 1 1/2)	1
54	22727	CAPSCREW, HEX HEAD (1/4 - 20 X 1/2 GD 8 Z)	1
55	11015	LOCKWASHER (1/4)	1
56	100967	SHIPPING PLUG	1
57	27978	SUCTION TUBE, LOWER	1
58	27977	SUCTION TUBE, UPPER	1
67	29817	LONG TUBE ELBOW	1
68	70272	HOSE, -8, 24 in. (610 mm) B, F, CR	2

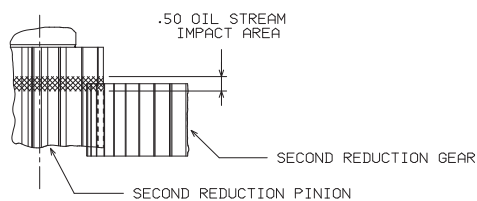
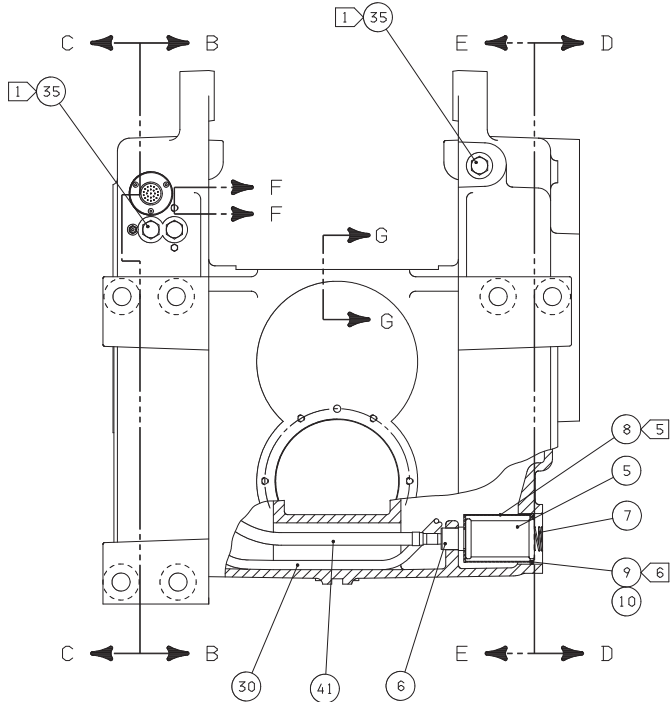
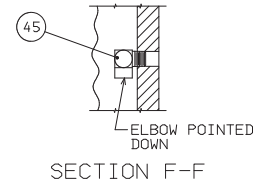
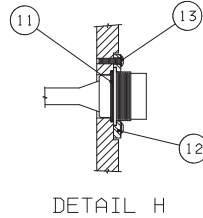
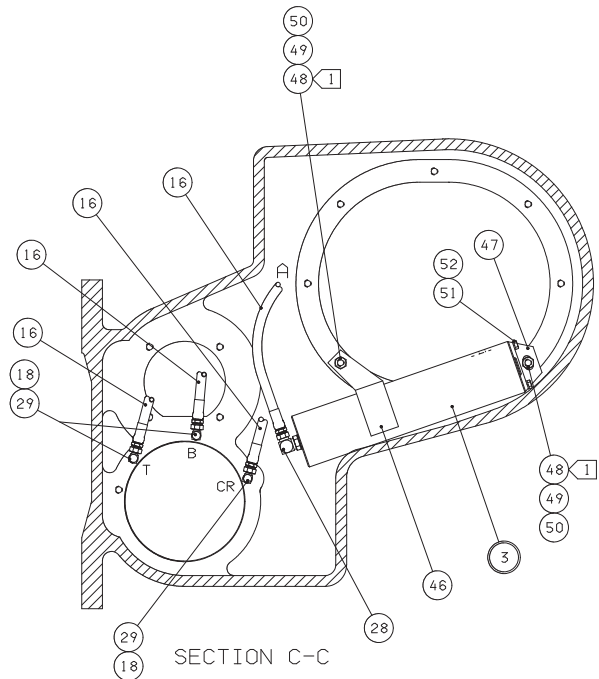
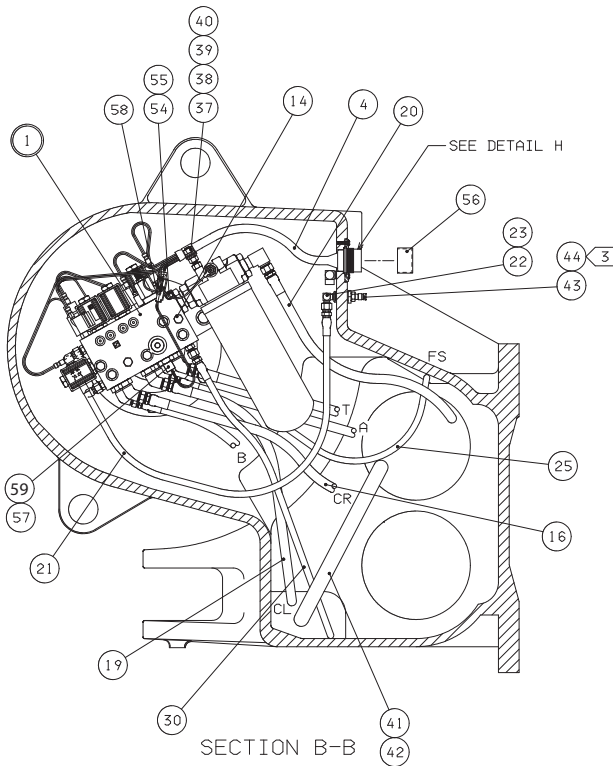
AR - AS REQUIRED

\* 82505 has blue and black wires to attach to accumulator isolator solenoid on valve 82506. These two wires are not used on earlier valve 82236 without the accumulator isolator solenoid.

\*\* If replacing early control valve 82236 that does not have the accumulator isolator solenoid, you must order new harness 82505 that has the additional blue and black wires for the new valve, 82506.

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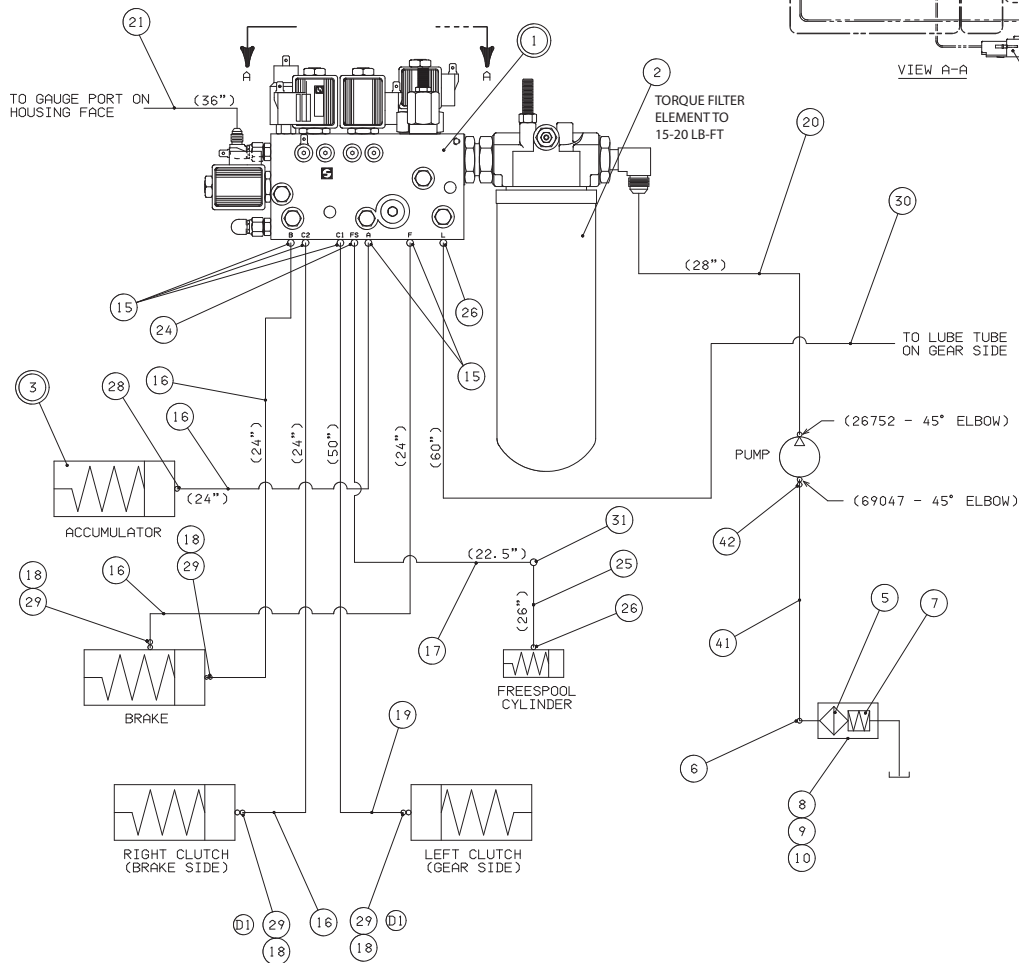
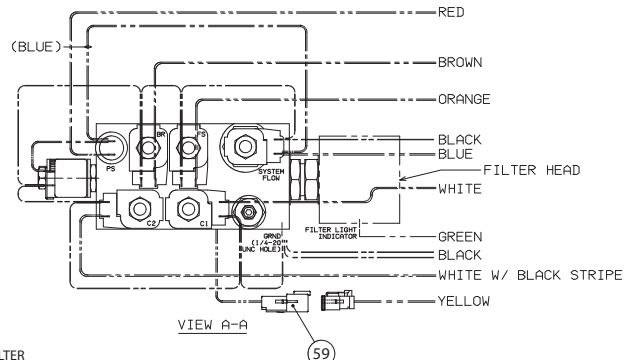
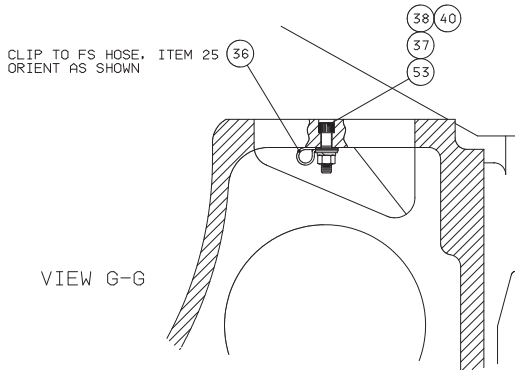
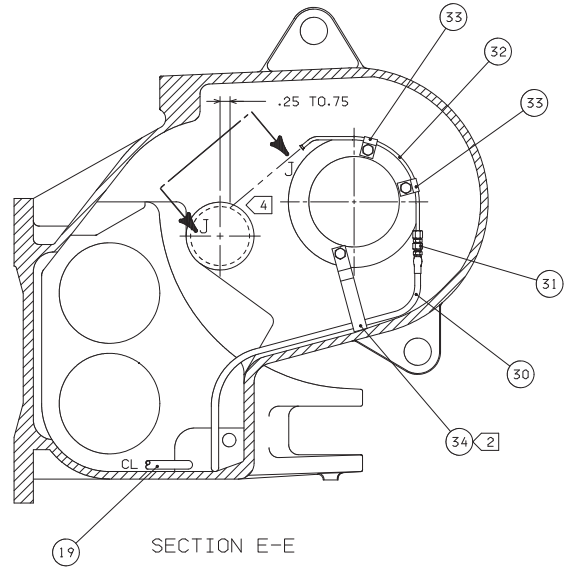
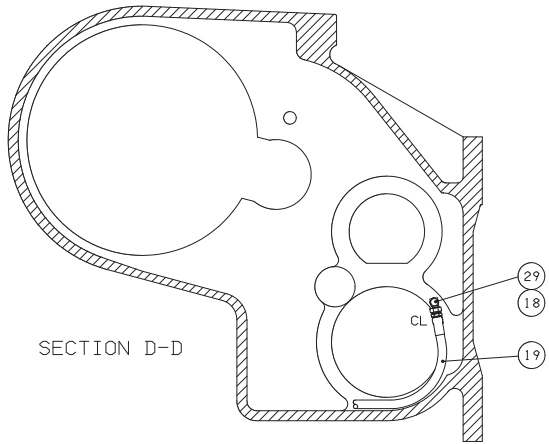
# HYDRAULIC CONTROL GROUP - LOW PTO (ELECTRONIC CONTROLS)



## NOTES:

- 1 Apply "Loctite 242" to clean dry threads.
- 2 Trim clamp end a minimum amount to clear bottom of case wall so clamp cannot rotate out of position.
- 3 Apply "Loctite 609" to external threads.
- 4 Bend lubrication tube (item 34) as required to direct oil stream as indicated in section D-D and view E-E.
- 5 Install strainer shield (item 49) with open side facing downward.
- 6 Measure distance from shield to strainer cover mounting surface. If distance is .720 in. - .783 in. (18.3 - 19.9 mm), add one seal (item 57) outboard of seal (item 49). If distance is greater than .783 in. (19.9 mm), add two seals (item 57).
- 7 Torque filter element (item 2) to 15 - 20 ft-lbs (20 - 27 N•m).

# HYDRAULIC CONTROL GROUP - LOW PTO (ELECTRONIC CONTROLS)



## HYDRAULIC CONTROL GROUP - LOW PTO (ELECTRONIC CONTROLS)

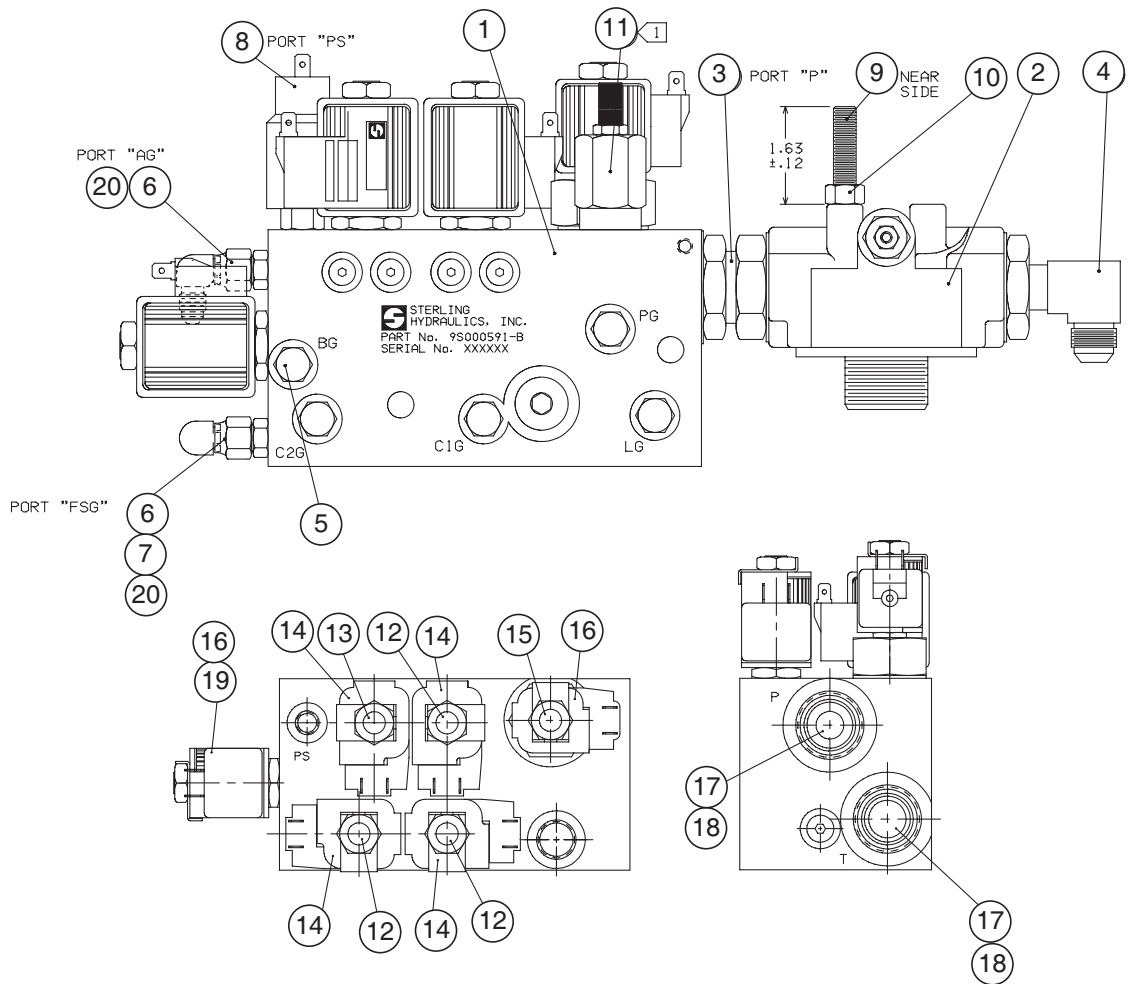
ITEM	PART NO.	DESCRIPTION	QTY.
1	82564	CONTROL VALVE ** (REFER TO CONTROL VALVE ASSEMBLY)	1
2	100466	FILTER ELEMENT	1
3	81959	ACCUMULATOR (REFER TO ACCUMULATOR ASSEMBLY)	1
4	82505	WIRING HARNESS *	1
	83663	WINCH, HARNESS ASSEMBLY (CAT D6R ONLY)	1
5	70189	STRAINER	1
6	69051	CONNECTOR	1
7	26005	COMPRESSION SPRING	1
8	29020	STRAINER SHIELD	1
9	29021	SEAL RING, .25 in. (6.4 mm)	1
10	29023	SEAL RING, .06 in. (1.5 mm)	1-2 AR
11	13838	O-RING	1
12	100784	FLANGE	1
13	100794	CAPSCREW, BUTTON SOC. HEAD (#10 - 3/4)	3
14	104177	CAPSCREW, HEX HEAD (3/8 - 16 X 4 1/2 G8 Z)	2
15	69605	ELBOW, 45° ORB -8	5
16	70272	HOSE, -8, 24 in. (610 mm) B, F, CR	3
17	25749	HOSE, -4, 22.5 in. (572 mm) F/S	1
18	70106	ADAPTER 1/4 NPT -8	4
19	27989	HOSE, -8, 50 in. (1270 mm) CL	1
20	100802	HOSE, -8, 29 in. (737 mm) PUMP TO FILTER	1
21	40242	HOSE, -4, 36 in. (914 mm) GAUGE	1
22	26140	ELBOW, 90° -4, GAUGE PORT	1
23	21219	ADAPTER, -4	1
24	100265	ELBOW, 45° -4	1
25	100077	HOSE, -4, 26 in. (660 mm) F/S	1
26	25864	ADAPTER, ORB -4	2
28	70109	ELBOW, 90° ORB -8	1
29	29046	ELBOW, 90° -8	4
30	25893	HOSE ASSEMBLY, -4, 60 in. (1524 mm)	1
31	25891	UNION, -4	2
32	100803	TUBE ASSEMBLY	1
33	68994	CLAMP	2
34	68995	CLAMP	1
35	69782	CAPSCREW, HEX HEAD (3/4 - 16 X 1 1/4 G8 Z)	3
36	100814	HOSE CLAMP	1
37	11780	NUT, HEX (3/8 - 16)	3
38	13929	WASHER (3/8)	3
39	PA4K8864	HOSE CLAMP	1
40	27152	LOCKWASHER (3/8)	2
41	69046	SUCTION HOSE	1
42	30997	CLAMP	2
43	100267	QUICK DISCONNECT, GAUGE PORT	1
44	100266	SLEEVE, GAUGE PORT	1
45	13708	ELBOW, 90° (1/8 NPT) VENT PORT, INSIDE	1
46	27848	ACCUMULATOR BRACKET	1
47	27847	MOUNTING ANGLE	1
48	27849	STUD (1/2 -13 X 2 3/4)	2
49	101439	NUT, HEX (1/2 - 13)	2
50	11026	LOCKWASHER (1/2)	2
51	11766	CAPSCREW, HEX HEAD (5/16 - 18 X 7/8 G8 Z)	2
52	11024	LOCKWASHER (5/16)	2
53	13544	CAPSCREW, SOC. HEAD (3/8 - 16 X 1 1/2)	1
54	22727	CAPSCREW, HEX HEAD (1/4 - 20 X 1/2 G8 Z)	1
55	11015	LOCKWASHER (1/4)	1
56	100967	SHIPPING PLUG	1
57	23950	O-RING	1
58	32489	BLACK STRAP	1
59	107717	SWITCH ASSEMBLY	1

AR - AS REQUIRED

\* 82505 has blue and black wires to attach to accumulator isolator solenoid on valve 82506. These two wires not used on earlier valve 82236 without the accumulator isolator solenoid.

\*\* If replacing early control valve 82236 that does not have the accumulator isolator solenoid, you must order new harness 82505 that has the additional blue and black wires for the new valve, 82506.

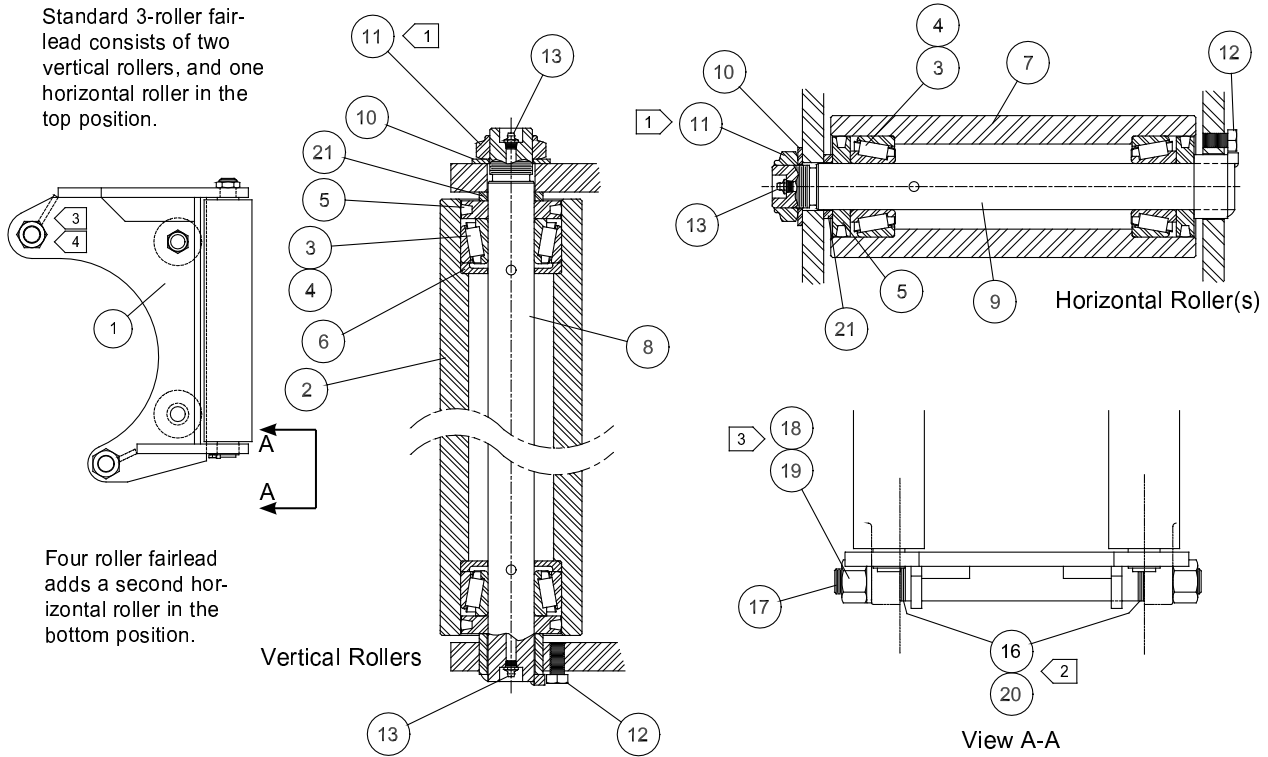
# CONTROL VALVE ASSEMBLY



ITEM	PART NO	DESCRIPTION	QTY
1	82506	CONTROL VALVE - INCLUDES 12-19 & HOUSING	1
2	27390	FILTER HEAD	1
3	100797	UNION	1
4	100798	ELBOW, 90° -8	1
5	25663	HEX HEAD PLUG (-4 ORB)	5
6	25864	ADAPTER, -4 ORB	2
7	70182	CAP, -4	1
8	107275	PRESSURE SWITCH	1
9	100815	STUD (3/8 - 16 X 2)	1
10	11780	NUT-HEX (3/8)	2
11	100763	RELIEF VALVE	1
	63895	SEAL KIT	1
12	100757	SOLENOID VALVE, CLUTCH & F/S - W/O COIL	3
	63894	SEAL KIT	1
13	100759	PROPORTIONAL BRAKE SOLENOID VALVE - W/O COIL	1
	82297	SEAL KIT	1
14	100760	COIL FOR 12 & 13	4
15	100761	MAIN PRES. SOLENOID VALVE - W/O COIL	1
	82298	SEAL KIT	1
16	100762	COIL FOR 15 & 19	2
17	100765	CHECK VALVE	2
	82300	SEAL KIT	2
18	100766	CHECK VALVE RETAINER	2
19	101582	SOLENOID VALVE, ACCUMULATOR, ISOLATOR - W/O COIL	1
	64014	SEAL KIT FOR 19	1
20	26140	ELBOW, 90° -4	2
21	82564	CONTROL VALVE ASSEMBLY - ALL ITEMS ABOVE	1

## FAIRLEAD ASSEMBLY

Standard 3-roller fairlead consists of two vertical rollers, and one horizontal roller in the top position.



### NOTES:

- ① WHILE TURNING ROLLER, TIGHTEN NUT. WHEN ROLLER WILL NO LONGER TURN, BACK OFF NUT 1/8 TURN.
- ② SHIM BOTH SIDES AS REQUIRED TO REDUCE END PLAY TO LESS THAN 0.030 in. (0.8 mm).
- ③ TIGHTEN NUT TO 200 - 300 LB•FT (271 - 407 N•m) TORQUE.
- ④ WHEN INSTALLING FAIRLEAD ON WINCH IN FIELD, REMOVE ORIGINAL CABLE GUARD SPACER TUBE AND RE-USE UPPER TIE BOLT (28772), LOCKWASHER (27666) AND NUT (27655).

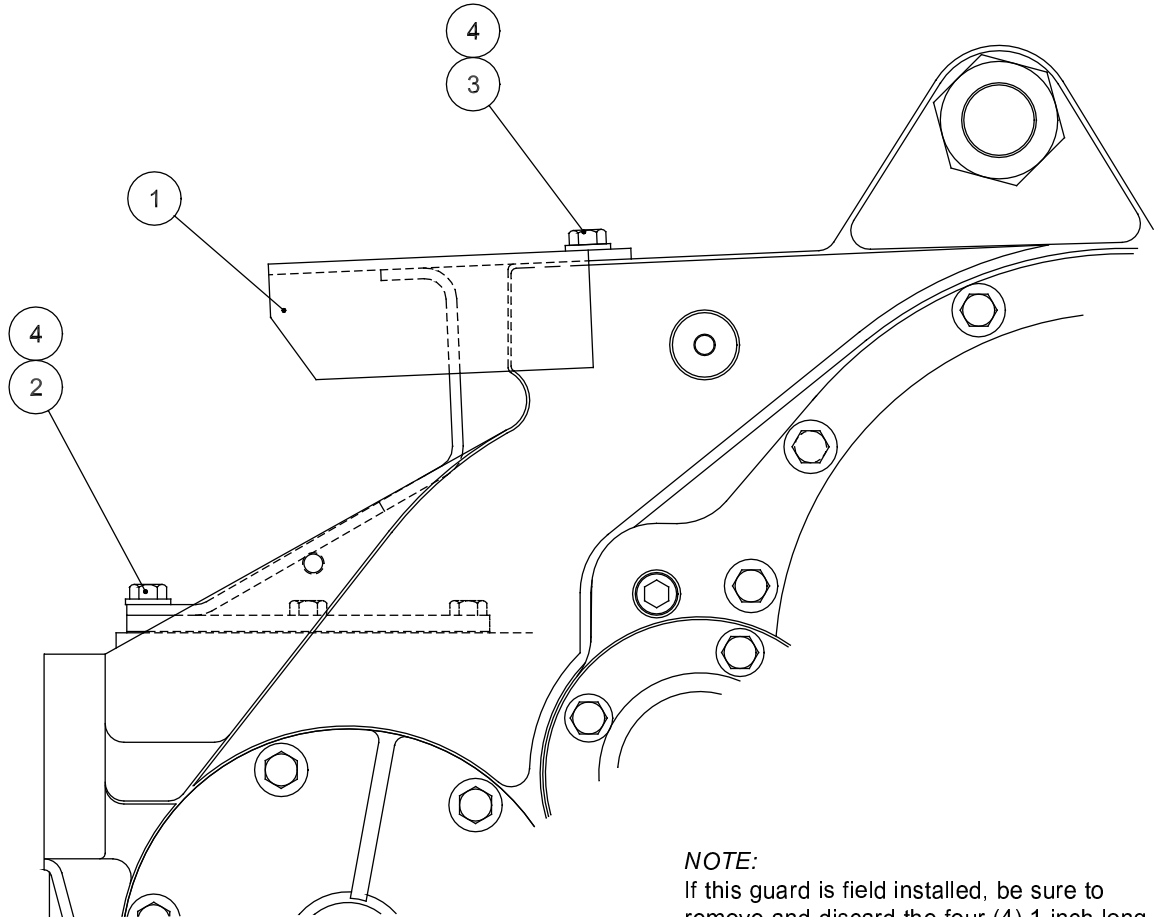
THOROUGHLY PACK ALL FAIRLEAD BEARINGS WITH MULTI-PURPOSE GREASE ON ASSEMBLY.

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, HEX HEAD (1/2 - 13 X 3/4)	3	4
13	18047	GREASE FITTING	5	6
16	24912	WASHER - .030 in. (.8 mm)	5	6
17	28772	TIE BOLT	1	1
18	27666	LOCK WASHER (1-3/4)	1	1
19	27655	NUT, HEX (1 1/4 - 5)	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



## CONTROL CABLE GUARD GROUP



**NOTE:**

If this guard is field installed, be sure to remove and discard the four (4) 1 inch long cap screws in the top cover, and replace them with the four (4) 1-1/4 inch cap screws shown below (item 2).

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

\* SS - SELF SEALING MATERIAL PREAPPLIED TO THREADS

# CONTROL CABLE GUARD GROUP

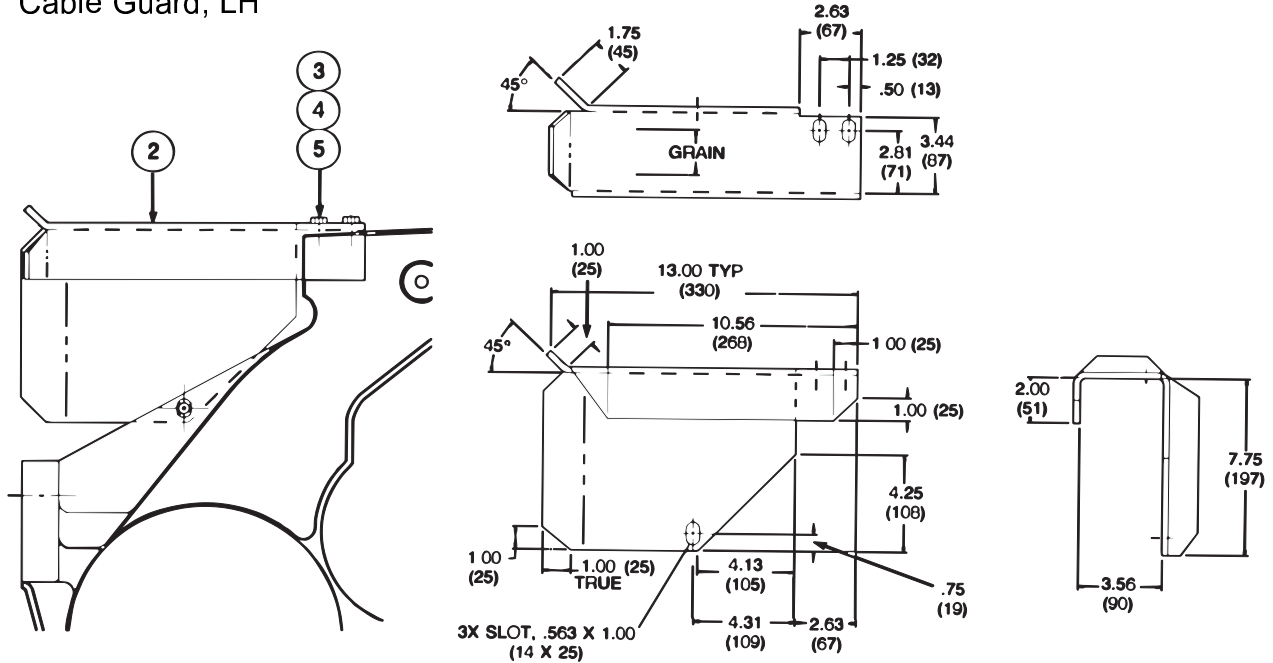
**Material:**

0.25 in. (6 mm) thick, hot rolled, descaled plate. ASTM A36 or AISI 1015.

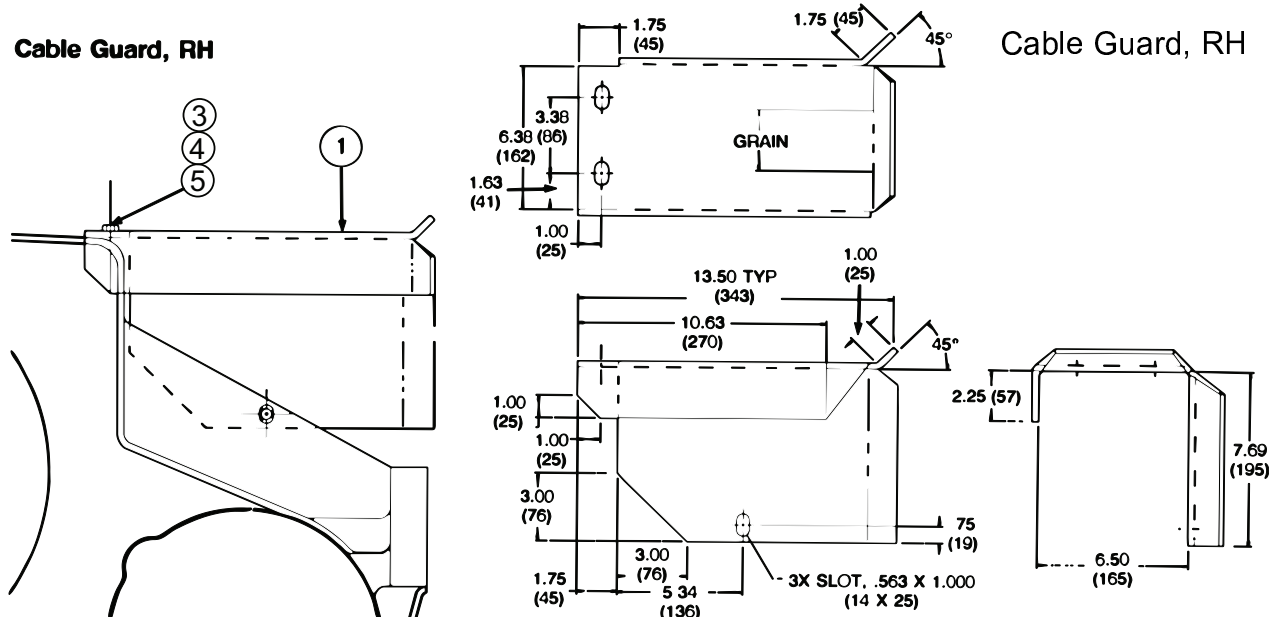
**Bend Radii:**

0.25 in. (6 mm) minimum, corner notches at bend lines to be 60° to 90°.

## Cable Guard, LH



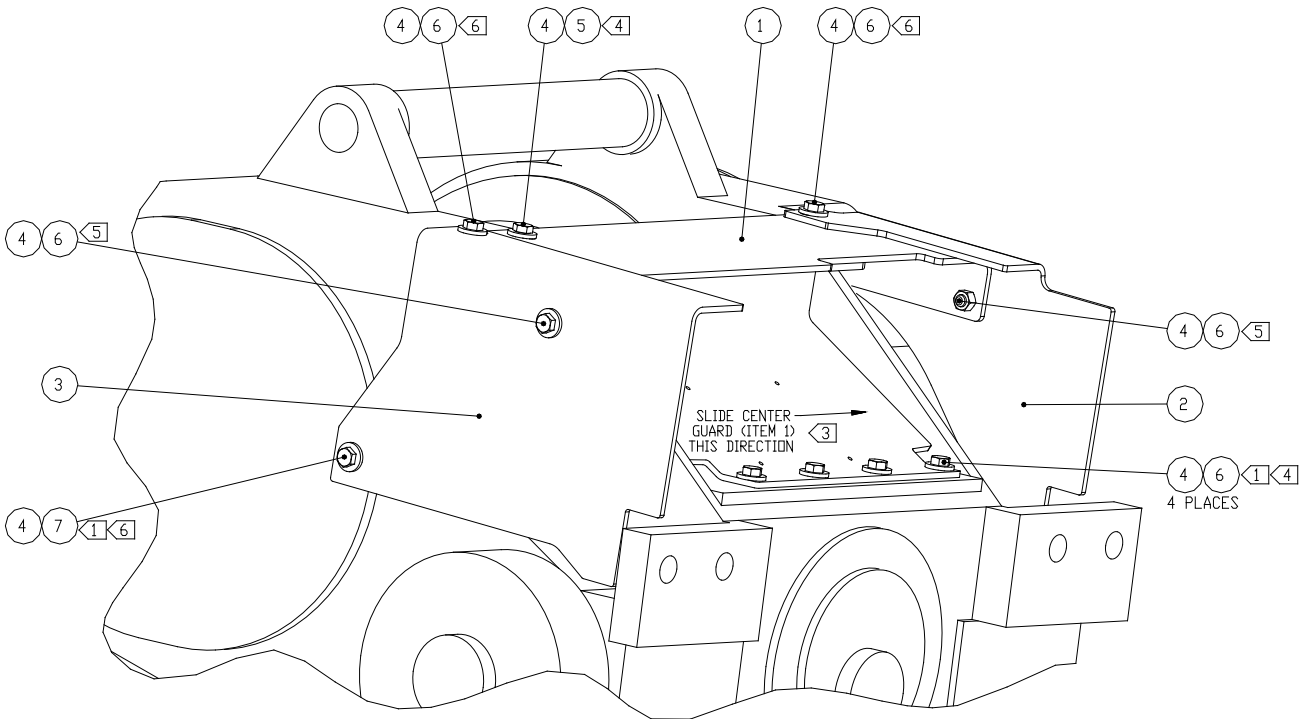
## Cable Guard, RH



ITEM	PART NO.	DESCRIPTION	QTY.
1	100173	CABLE GUARD, RH	1
2	100174	CABLE GUARD, LH	1
3	104320	CAPSCREW, HEX HEAD (1/2 - 13 X 1 G8)	6
4	11026	LOCKWASHER (1/2)	6
5	11073	WASHER (1/2)	6

Cable Guard Kit 62564 contains items 1 - 5 above.

## GUARD GROUP (ELECTRONIC CONTROLS)



### INSTALLATION INSTRUCTIONS:

1. Remove existing capscrews in locations marked with Note Designator "1".
2. Install guards (items 1, 2 and 3) using new capscrews (items 5, 6 and 7) and washers (item 4). Leave all capscrews several turns loose.
3. Slide center guard (item 1) as far to the left of the winch as it will go within the slack of the mounting holes.
4. Tighten capscrews that secure center guard only to the winch case as marked with Note Designator "4".
5. Tighten capscrews that secure side guards to center guard only as marked with Note Designator "5". (Same on both sides.)
6. Tighten remaining capscrews.

ITEM	PART NO.	DESCRIPTION	QTY.
1	104844	GUARD, CENTER	1
2	104845	GUARD, LH	1
3	104846	GUARD, RH	1
4	102987	WASHER, HARD, 1/2 Z	10
5	104320	CAPSCREW, HEX HEAD 1/2 - 13 x 1 GD 8 Z	1
6	104174	CAPSCREW, HEX HEAD 1/2 - 13 x 1-1/4 GD 8 Z	8
7	104322	CAPSCREW, HEX HEAD 1/2 - 13 x 1-1/2 GD 8 Z	1