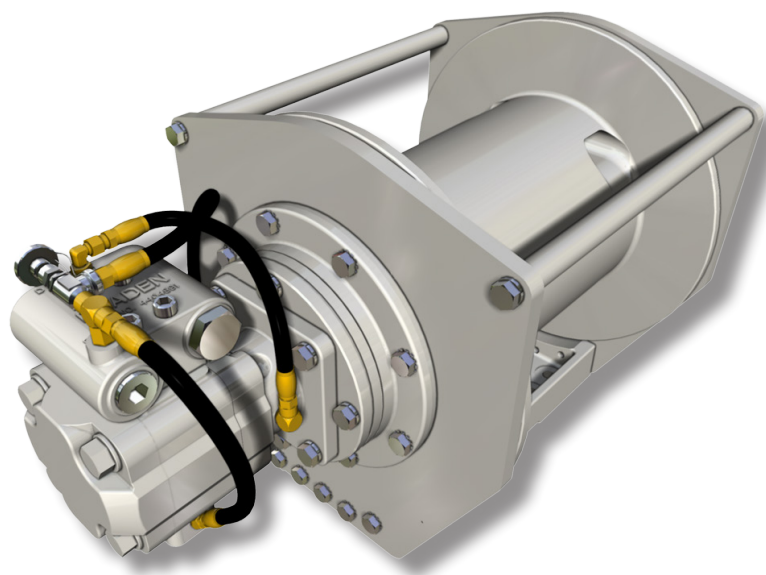


PARTS LIST



WRITE HOIST SERIAL NUMBER BELOW

--	--	--	--	--	--	--	--



**First 2 numbers indicate
year manufactured**

For serial number location see page 3

Visit our Web site at www.paccarwinch.com for the most comprehensive collection of winch, hoist, and drive information on the Internet. Most publications and specification sheets are available for downloading.

TABLE OF CONTENTS

Foreword	2
Model Identification	3
Explanation of Model Number	3
Lubrication	4
Service Kits.....	5
Main Assembly Components	7
Base Configurations	8
Drum Rotation	10
Overrunning Clutch Components	10
Brake Clutch Rotation.....	11
Complete Brake Clutch Assemblies	11
Brake Cylinder Assembly.....	12
Planet Carrier Assemblies	15
Motor Groups.....	16
Brake Valve Assembly	22
Fasteners, Adapters, and Hose Assemblies.....	23
Fittings	24
Recommended Fastener Torque	25
Metric Conversion Chart.....	27

FOREWORD

Read this entire publication and retain it for future reference.

For inquiries regarding your BRADEN PD12C Winch or this publication, please contact the BRADEN Service Department at 918-251-8511, Monday through Friday, 8:00 a.m. to 4:30 p.m. (CST).

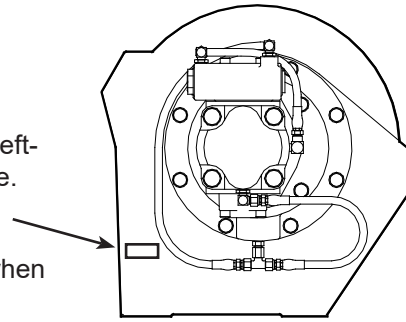
Some illustrations in this manual may show details or attachments different from your winch. Some components have been removed for illustrative purposes. Drawings in this manual represent a typical unit sold through our distribution channels. Some winches, particularly those sold directly to original equipment manufacturers, may differ in appearance and options.

PACCAR Winch
Service Department
800 E. Dallas Street
Broken Arrow, OK 74012 USA
www.paccarwinch.com

MODEL IDENTIFICATION

Model numbers and serial numbers are located to the left-hand side of the hydraulic motor, stamped into the base.

Always refer to the model number and serial number when requesting information or service parts.



EXPLANATION OF MODEL NUMBER

PD	12	C	-	41	-	051	-	04X	-	1
POWER DRUM	MAX RATING	DESIGN MODEL		GEAR RATIO		MOTOR SIZE		DRUM SIZE		OPTION
PD	Power drum									
12	12,000-lbs. first-layer line pull									
C	Model series relating to design changes									
41	Total gear reduction, 41 = 41.62:1									
051	Hydraulic motor displacement in cubic inches/revolution (Decimal point eliminated. Example: 051 = 5.1 cu. in/rev)									
04X	Drum (X options: U = underwind, L = designates left-hand base, P = ratchet and pawl)									
1	Permits testing and inspection per API 2C for offshore cranes									

TO ORDER:

1. List model and serial numbers of the winch.
2. Refer to exploded view and select the component(s) needed and note item number.
3. Find item number on material list, show part number, description and quantity required on your order.
4. Refer to Parts List and show price for each component or assembly.

LUBRICATION

RECOMMENDED PLANETARY GEAR OIL

Field experience, supported by engineering endurance tests, indicates the use of the proper gear oil and a program of regular preventive maintenance will help provide extended gear train life and reliable hoist brake performance. For this reason, BRADEN has published the following specifications to assist in determining which lubricant is best suited to your application.

For simplicity, BRADEN has listed available products in each temperature range that have been tested and found to meet our specifications. This is not to say that other lubricant brands would not perform equally as well.

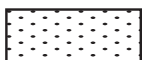
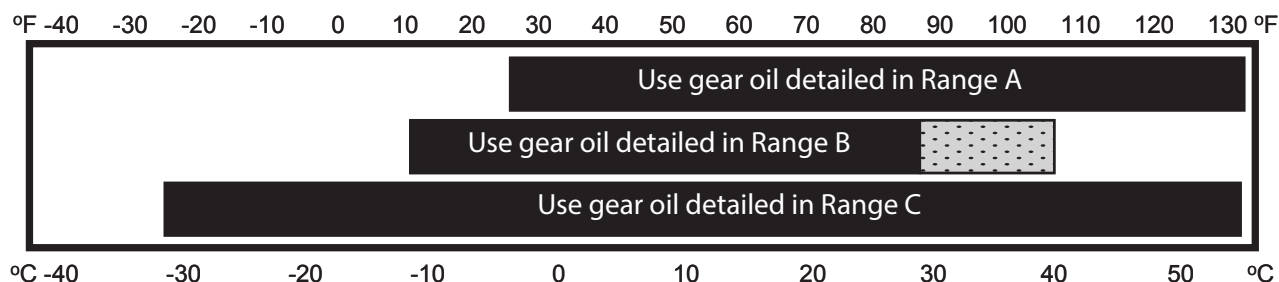
If the following lubricant brands are not available in your area, make certain your lubricant vendor supplies you with oil equivalent to those products listed below.

⚠ WARNING ⚠

Failure to use the proper type and viscosity of planetary gear oil may contribute to intermittent brake clutch slippage, which could result in property damage, severe personal injury, or death. Some gear lubricants contain large amounts of extreme-pressure (EP) and antifriction additives, which may contribute to brake clutch slippage or damage to brake friction discs or seals. **NOTE: DO NOT use oil that is labeled as meeting "API Service GL-5."** Oil viscosity, affected by ambient temperature, is also critical to reliable brake clutch operation. Our tests indicate excessively heavy or thick gear oil may contribute to intermittent brake clutch slippage. Make certain the gear oil viscosity used in your hoist is correct for your prevailing ambient temperature.

RECOMMENDED GEAR OIL

PREVAILING AMBIENT TEMPERATURE



SHADED TEMPERATURE RANGE IN THE CHART ABOVE NOT RECOMMENDED FOR SEVERE APPLICATIONS SUCH AS SUSTAINED FAST DUTY CYCLES OR FREQUENT WINCHING.

Winches are factory filled with Mobilgear 600 XP 150 or equivalent. Consult your oil supplier for other equivalent oils if required.

	Mobil	Shell	Chevron	Texaco
Range A	Mobilgear 600 XP 220	Omala S2 G 220	Gear Compounds EP 220	Meropa 220
Range B	Mobilgear 600 XP 150	Omala S2 G 150	Gear Compounds EP 150	Meropa 150
Range C	Mobilgear SHC 150	Omala S4 GX 150		

⚠ WARNING ⚠

Failure to properly warm up the winch, particularly under low ambient temperature conditions, may result in temporary brake slippage due to high back pressures attempting to release the brake, which could result in property damage, severe personal injury, or death.

If you have any questions regarding your BRADEN planetary winch or this publication, contact the BRADEN Product Support Department at 1-918-251-8511, Monday through Friday, 8 a.m. to 4:30 p.m. (CST).

SERVICE KITS

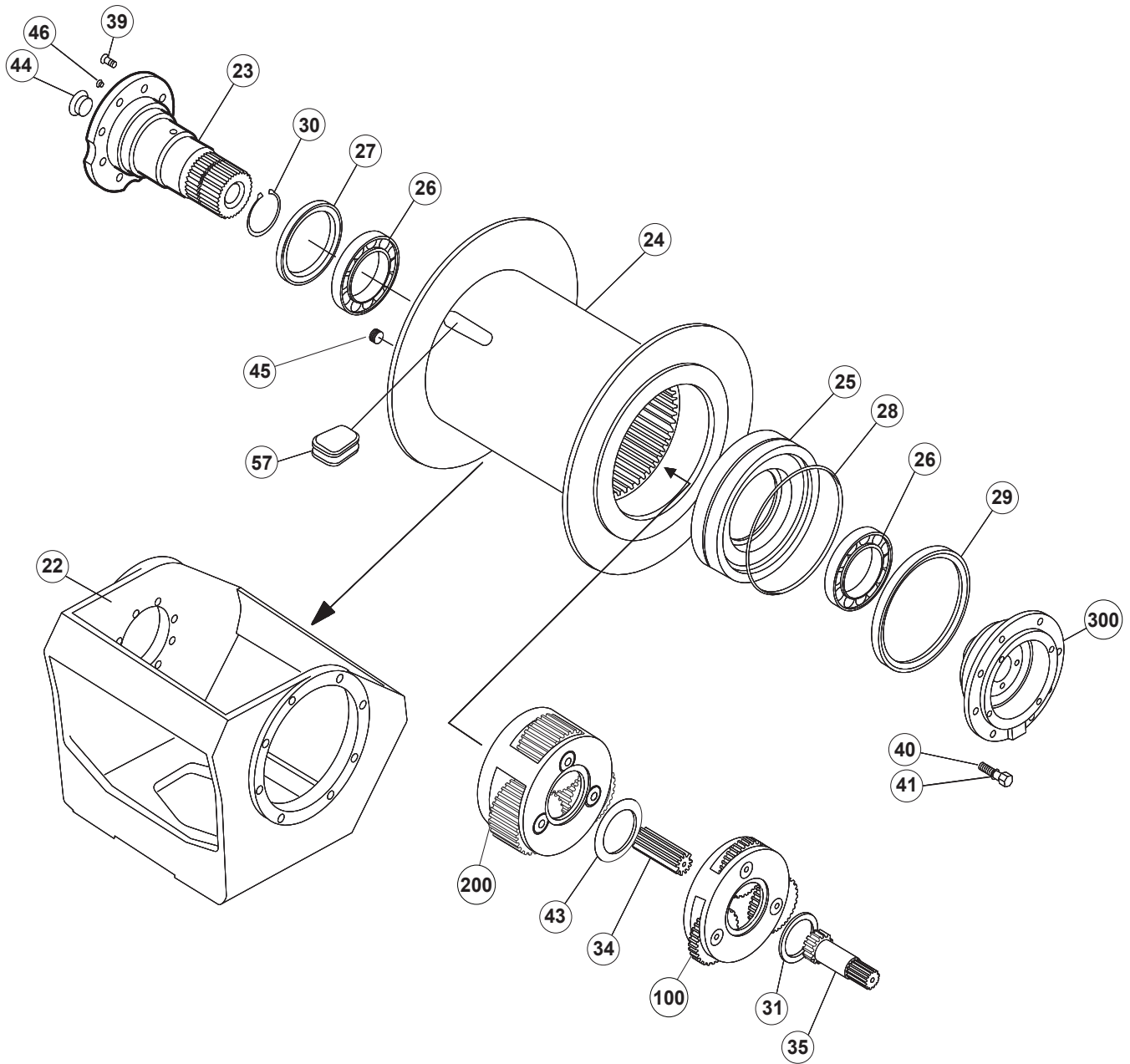
61567 – BRAKE VALVE O-RING KIT		
DESCRIPTION	PART NO.	QTY.
O-RING	24186	1
O-RING	23601	2
O-RING	24193	1
O-RING	24194	1
BACKUP RING	24195	1
BACKUP RING	24196	1
O-RING	21150	2
O-RING	13838	2

64586 – BEARING KIT		
DESCRIPTION	PART NO.	QTY.
BALL BEARING	24110	2
THRUST WASHER	40129	1
THRUST WASHER	40128	1
BEARING RACE	25361	6
ROLLER BEARING	24175	3
SPIROL PIN	24113	3
PRIMARY PLANET GEAR SHAFT	25614	3
THRUST WASHER	24306	6
ROLLER BEARING	25292	6
BEARING SPACER	25443	3
SPIROL PIN	23584	3
PLANET GEAR SHAFT	25613	3

61715 – SEAL KIT		
DESCRIPTION	PART NO.	QTY.
O-RING	13838	1
O-RING	12465	2
O-RING	25366	2
O-RING	78312	2
O-RING	22586	1
O-RING	21150	1
O-RING	21063	1
O-RING	76208	1
O-RING	23950	1
O-RING	24186	1
O-RING	72117	1
SEAL	25642	1
OIL SEAL	24109	1
O-RING	21033	1
SEAL, OIL	22818	1
O-RING	10330	1
O-RING	24981	1
BACKUP RING	25643	1

64335 – BRAKE SERVICE KIT		
DESCRIPTION	PART NO.	QTY.
SEAL	25642	1
DIE SPRING	25644	12
850170 DISC, FRICTION	21036	7
BRAKE DISK	100027	8
O-RING	24981	1
BACKUP RING	25643	1
O-RING	22586	1

BRADEN PD12C MAIN ASSEMBLY CROSS-SECTION



BRADEN PD12C MAIN ASSEMBLY COMPONENTS

ITEM NO.	DESCRIPTION	PART NO.	QTY.
22	BASE CONFIGURATIONS	--	1
24	CABLE DRUM (01 DRUM)	26757	1
	CABLE DRUM (02 DRUM)	25518	1
	CABLE DRUM (04 DRUM) FROM SERIAL NUMBER 9102358	28831	1
	CABLE DRUM (05 DRUM)	25901	1
25	CABLE DRUM CLOSURE (CONSULT FACTORY)	26763	1
	CABLE DRUM CLOSURE (CONSULT FACTORY)	25561	1
26	BALL BEARING	24110	2
27	OIL SEAL (SUPPORT END)	24109	1
28	O-RING	21033	1
29	OIL SEAL (DRUM CLOSURE)	22818	1
31	PRIMARY THRUST RACE	40128	1
34	OUTPUT SUN GEAR		1
35	PRIMARY SUN GEAR		1
40	CAPSCREW (02 AND 05 DRUM), HEX HEAD (1/2-13 X 1-1/2 GRADE 8Z)	104322	8
	CAPSCREW (01 AND 04 DRUM), HEX HEAD (1/2-13 X 1-1/4 GRADE 8Z)	104174	8
41	LOCKWASHER (1/2)	11026	8
43	OUTPUT THRUST RACE	40129	1
45	DRAIN PLUG	32411	1
45A	O-RING	23950	1
57	CABLE WEDGE STANDARD (7/16 – 5/8 IN.)	40130	1
	CABLE WEDGE (3/8 IN. 10 MM)	24494	1
	CABLE WEDGE (3/4 IN. 19 MM)	24492	1
	CABLE WEDGE (POLY ROPE 1 – 1-1/8 IN)	24413	1
100	PRIMARY PLANET CARRIER ASSEMBLY	--	1
200	OUTPUT PLANET CARRIER ASSEMBLY	--	1
300	BRAKE CYLINDER ASSEMBLY	--	1

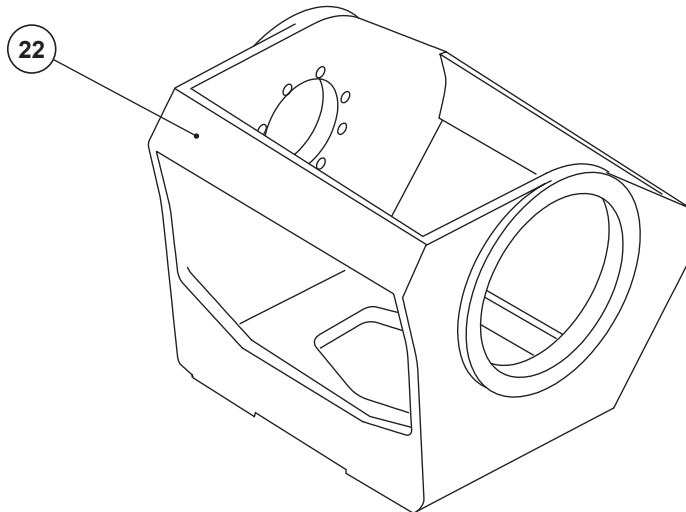
ITEM NO.	DESCRIPTION	PART NO.				QTY.
		GEAR REDUCTION				
	SUN GEARS	21:1	29:1	41:1	59:1	
34	OUTPUT SUN GEAR	25608	25608	25610	25610	1
35	PRIMARY SUN GEAR	25714	25652	25652	25640	1

BASE CONFIGURATIONS

COMMON BASE PARTS

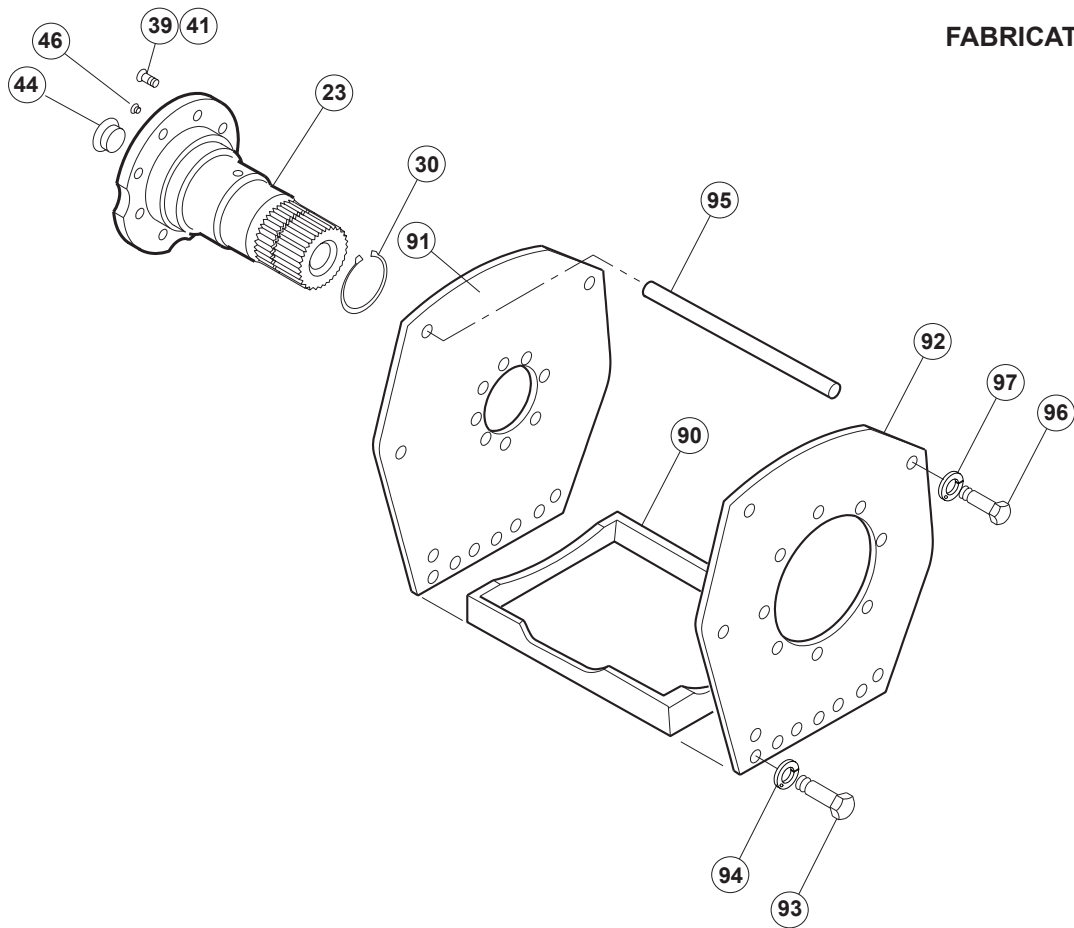
ITEM NO.	DESCRIPTION	PART NO.	QTY.
30	RETAINING RING	70575	1
44	PLUG HEX (STANDARD WINCHES)	31386	1
	PLUG FLUSH	24420	1
	SIGHT GLASS (-1 OPTION)	25958	1
44A	O-RING FOR ITEM 44 PLUGS	24186	1
46	RELIEF VALVE	18062	1

CAST BASE



ITEM NO.	DESCRIPTION	PART NO.	QTY.
22	BASE (RIGHT-HAND)	25615	1
	BASE (LEFT-HAND)	101074	1
23	BEARING SUPPORT (01 DRUM)	106459	1
	BEARING SUPPORT (02 AND 05 DRUM)	101644	1
39	CAPSCREW, HEX HEAD (1/2-13 X 1-1/2 GRADE 8Z)	104322	8
41	LOCKWASHER (05 DRUM)	11026	8

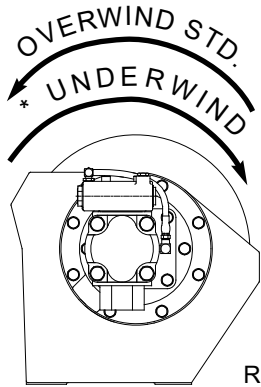
BASE CONFIGURATIONS



FABRICATED BASE

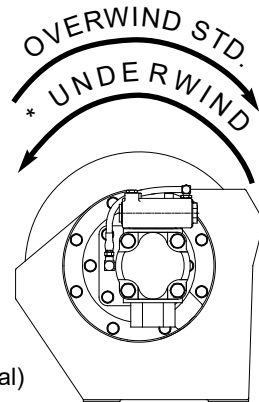
ITEM NO.	DESCRIPTION	DRUM OPTION CODE				QTY.
		-01	-02 / -05	-02 (LH)	-04	
		PART NO.				
23	BEARING SUPPORT	106459	106459	106459	106459	1
39	CAPSCREW, HEX HEAD (1/2-13 X 1-1/4 GRADE 8Z)	104174	104174	104174	104174	8
90	BASE	26344	26344	26344	26344	1
91	SIDE PLATE, BEARING SUPPORT END	26764	106466	106466	27212	1
92	SIDE PLATE, MOTOR END	26765	106465	106537	27213	1
93	CAPSCREW, HEX HEAD (1/2-13 X 1-1/2 GRADE 8Z) (SPECIAL)	103314	103314	103314	103314	16
94	LOCKWASHER 1/2 Z EXTERNAL TOOTH	12781	12781	12781	12781	16
95	TIE BAR	26223	26223	26223	--	1
	TIE BAR	--	--	--	26223	2
96	CAPSCREW, HEX HEAD (1/2-13 X 1-1/4 GRADE 8Z)	104174	104174	104174	--	2
	CAPSCREW, HEX HEAD (1/2-13 X 1-1/4 GRADE 8Z)	--	--	--	104174	4
97	LOCKWASHER (1/2 Z)	11026	11026	11026	--	2
	LOCKWASHER (1/2 Z)	--	--	--	11026	4

DRUM ROTATION TO HOIST (04 AND 05 DRUM/BASE SHOWN)



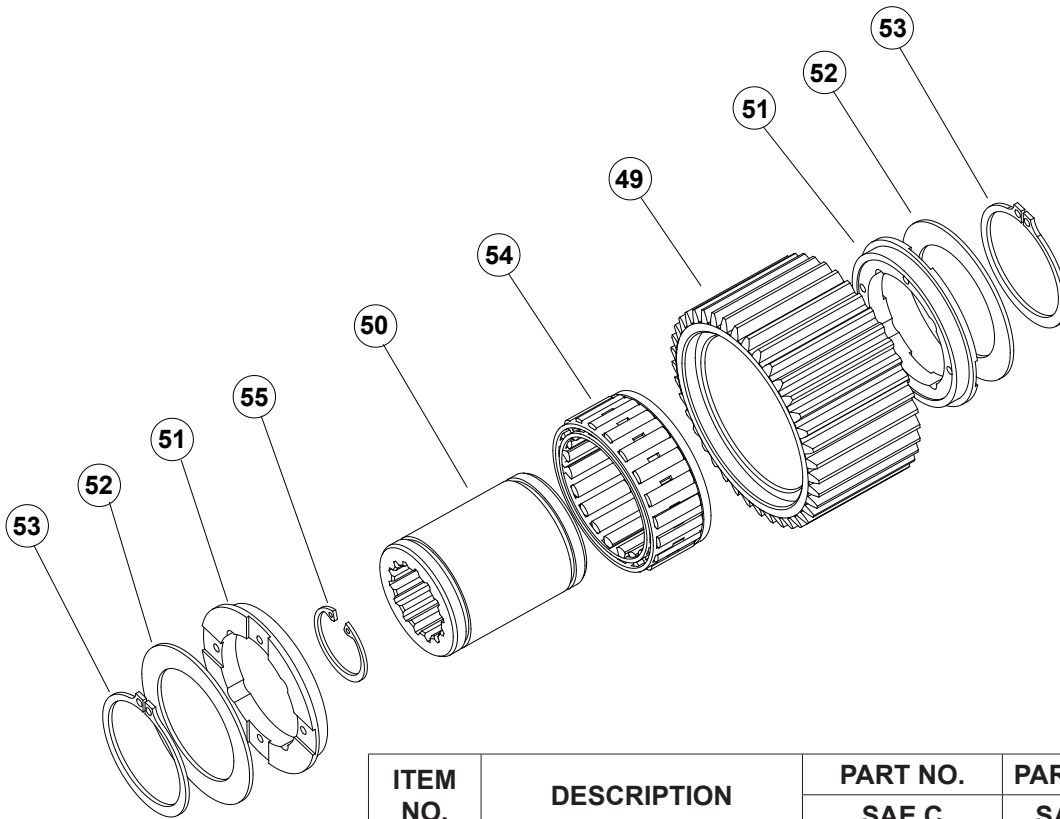
RH BASE (Standard)

UNDERWOUND MODELS
DESIGNATED BY -U
(EXAMPLE: PD12C-41051-04U)



LH BASE (Optional)

OVERRUNNING CLUTCH COMPONENTS



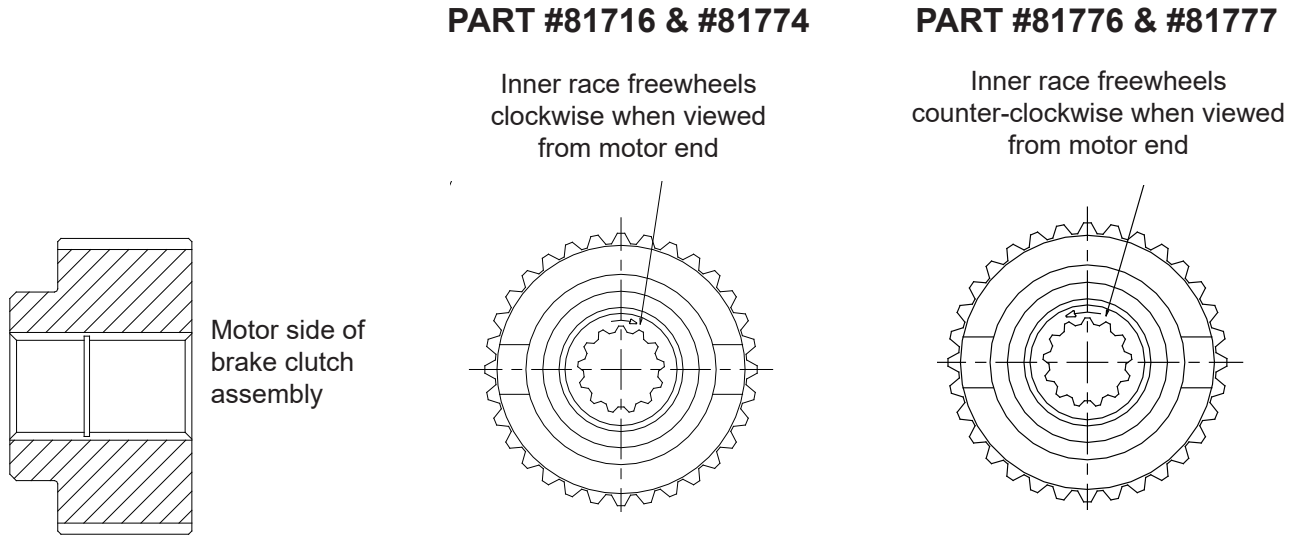
ITEM NO.	DESCRIPTION	PART NO.	PART NO.	QTY.
		SAE C	SAE B	
49	OUTER BRAKE RACE	NSS	NSS	1
50	INNER BRAKE RACE	NSS	NSS	1
51	SPRAG BEARING	27684	27684	2
52	THRUST BEARING	24581	24581	2
53	RETAINING RING	12034	12034	2
54	SPRAG CLUTCH	NSS	NSS	1
55	RETAINING RING	24506	24031	1

NSS – NOT SERVICED SEPARATELY
ORDER ENTIRE BRAKE CLUTCH ASSEMBLY

BRAKE CLUTCH ROTATION

NOTE: Designation of cable drum rotation is determined by viewing winch from hydraulic motor end while hoisting.

On the BRADEN PD12C, the inner race of the brake clutch sprag assembly, when viewed from the motor side, must freewheel in the direction opposite as the cable drum during hoisting.



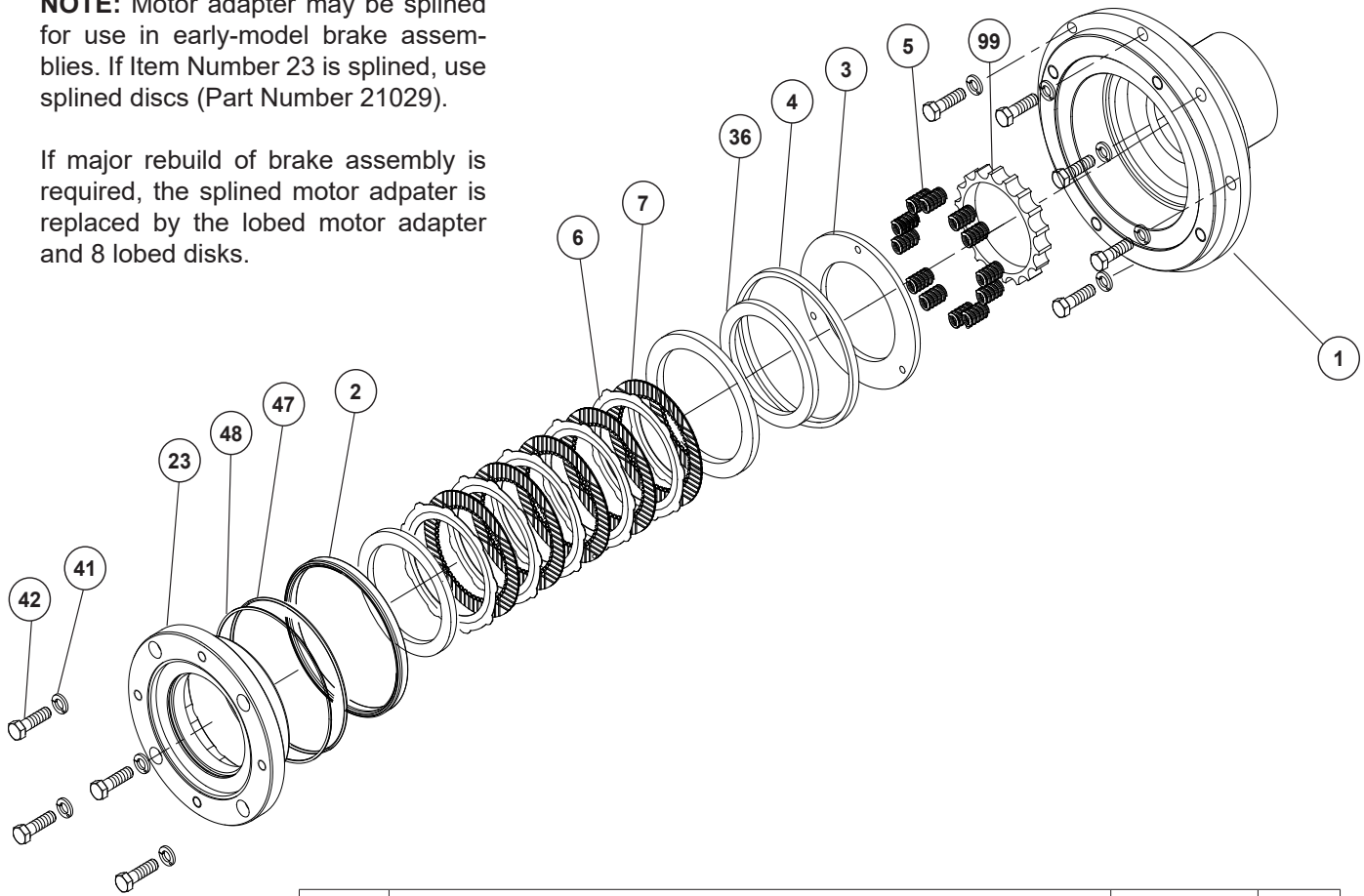
COMPLETE BRAKE CLUTCH ASSEMBLIES

DESCRIPTION	APPLICATION	PART NO.
SAE C 14T	RIGHT-HAND BASE OVERWIND, LEFT-HAND BASE UNDERWIND	81716
	RIGHT-HAND BASE UNDERWIND, LEFT-HAND BASE OVERWIND	81776
SAE B 13T	RIGHT-HAND OVERWIND, LEFT-HAND UNDERWIND	81774
	RIGHT-HAND UNDERWIND, LEFT-HAND OVERWIND	81777

BRAKE CYLINDER ASSEMBLY

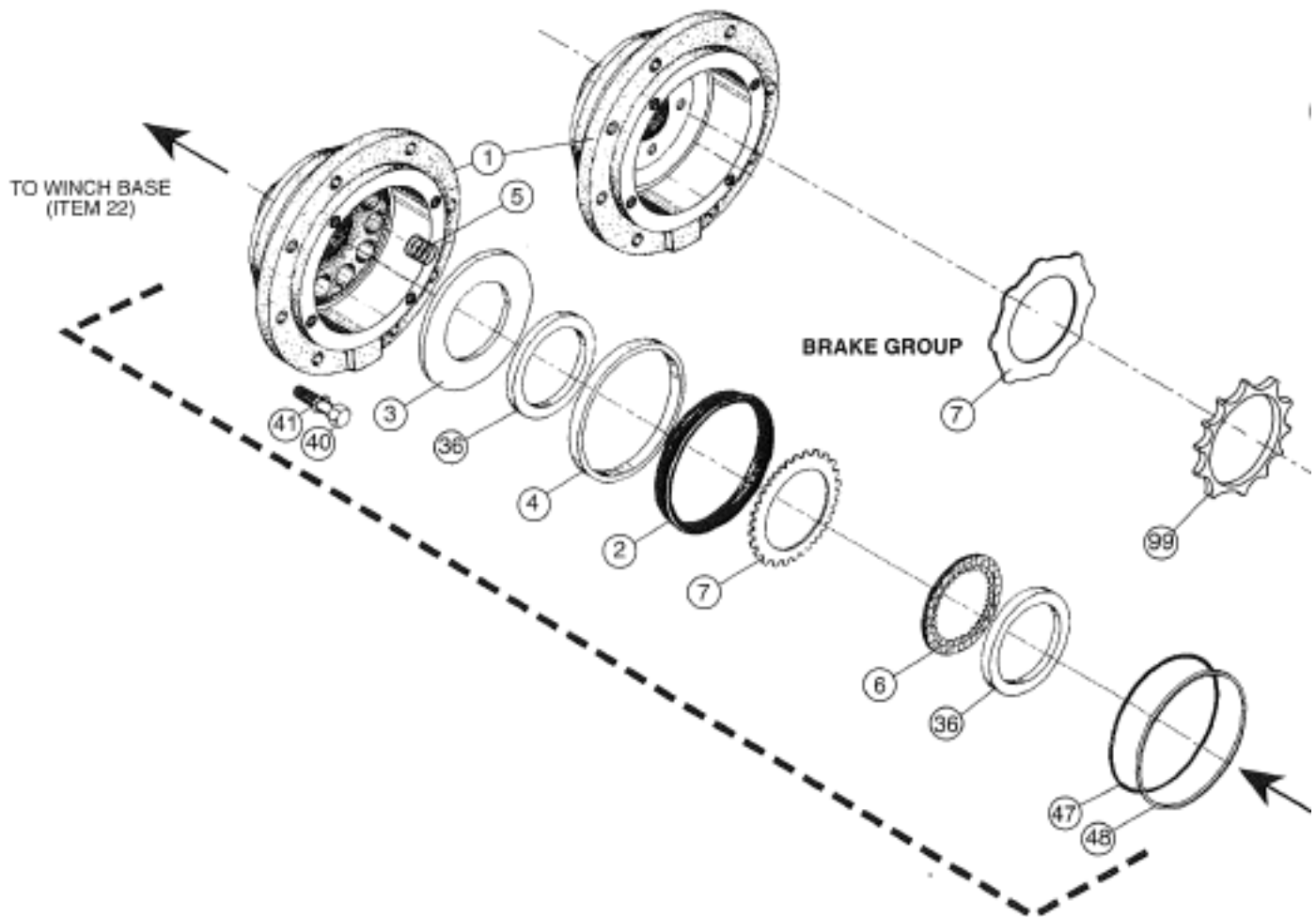
NOTE: Motor adapter may be splined for use in early-model brake assemblies. If Item Number 23 is splined, use splined discs (Part Number 21029).

If major rebuild of brake assembly is required, the splined motor adapter is replaced by the lobed motor adapter and 8 lobed disks.



ITEM	DESCRIPTION	PART NO.	QTY.
1	BRAKE CYLINDER (LOBED DISC)	100035	1
2	BRAKE PISTON SEAL	25642	1
3	PRESSURE PLATE	25635	1
4	PISTON BACKUP RING	25636	1
5	DIE SPRING	25644	12
6	FRICTION DISC	21036	7
7	BRAKE DISC, STEEL, LOBED	100027	8
	BRAKE DISC, STEEL, SPLINED	21029	
23	MOTOR ADAPTER (4 BOLT C) 051, 064, 049/024, 064/032	100028	1
	MOTOR ADAPTER (2 BOLT B) 029, 034, 039	100458	
	MOTOR ADAPTER (2 BOLT A) 080	100097	
36	SPACER	25637	1
41	LOCKWASHER (4 BOLT C, 2 BOLT A)	11026	4
	LOCKWASHER (2 BOLT B)	12781	
42	CAPSCREW, HEX HEAD (1/2-13 X 2 GRADE 8Z)	29855	4
47	O-RING	24981	1
48	BACKUP RING	25643	1
99	SPRING SPACER	100200	1
* ITEMS 1 AND 99 REPLACE PART NUMBER 25564, BRAKE CYLINDER WITH CAST IRON SPRING POCKETS			

BRADEN PD12C COMPONENTS



NOTE: The PD12C uses the same brake as the PD15B. Note the dual spacers (Item Number 36) in drawing above and drawing on opposite page.

Changes to Brake Cylinder Assembly

The PD12C brake cylinder assembly was redesigned in the late 1990s and became effective 9/24/1996. The changes are listed below:

1. The spring pockets were no longer machined in the brake cylinder, and a spring spacer was added.
2. Splines in the motor adapter were replaced by lobes and the brake discs were changed to accommodate this.
3. The spacer (Item Number 36) on the motor side of the motor adapter was no longer used because the clearance turn for the splined brake cylinder was no longer present. Therefore, only one spacer (Item Number 36) is used on the new brake cylinders.

The original splined motor adapter is replaced by the lobed motor adapter plus eight lobed discs (Part Number 100027).

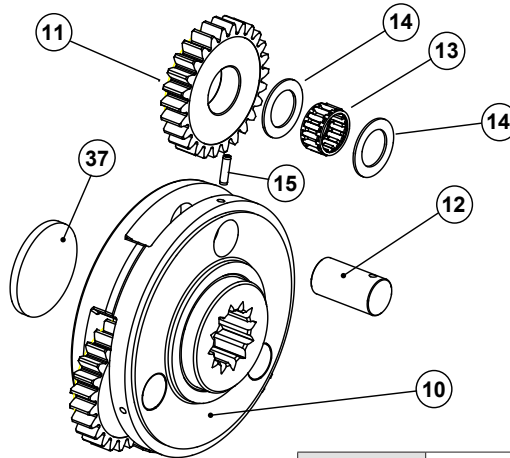
The original brake cylinder with cast spring pockets (Part Number 25564) is replaced with the new brake cylinder (Part Number 100035) and spring spacer (Part Number 100200).

The lobed motor adapter has a machined groove on the outside diameter to indicate the change.

THIS PAGE INTENTIONALLY LEFT BLANK

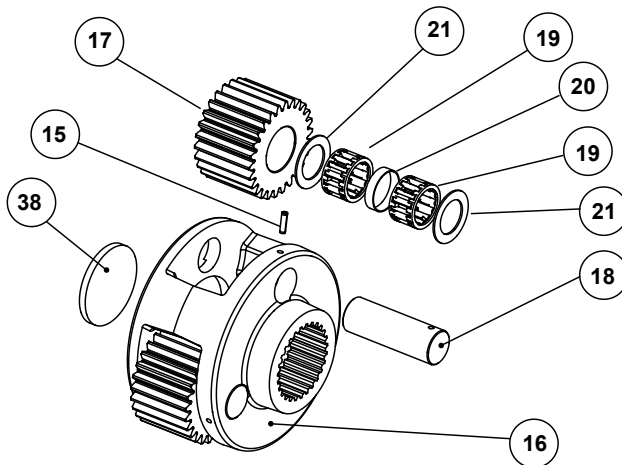
PLANET CARRIER ASSEMBLIES

PRIMARY PLANET CARRIER ASSEMBLY



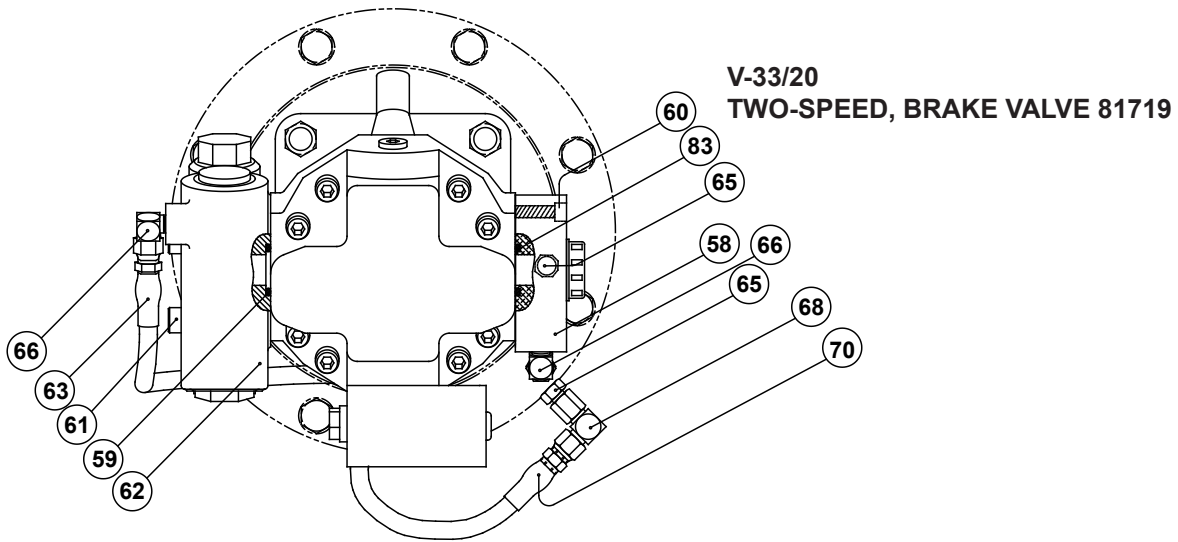
		21:1	29:1	41:1	59:1	
ITEM	DESCRIPTION	PART NO.				QTY.
	PRIMARY PLANET CARRIER ASSEMBLY	81805	81806	81807	81801	1
10	PRIMARY PLANET CARRIER	25715	25730	25606	25604	1
11	PRIMARY PLANET GEAR	26280	26278	26278	26276	3
12	PRIMARY PLANET GEAR SHAFT	25614	25614	25614	25614	3
13	BEARING	24175	24175	24175	24175	3
14	THRUST WASHER	25361	25361	25361	25361	6
15	ROLLPIN (PRIMARY PLANET CARRIER)	24113	24113	24113	24113	3
37	PRIMARY THRUST PLATE	25729	25729	25729	25729	1

OUTPUT PLANET CARRIER ASSEMBLY

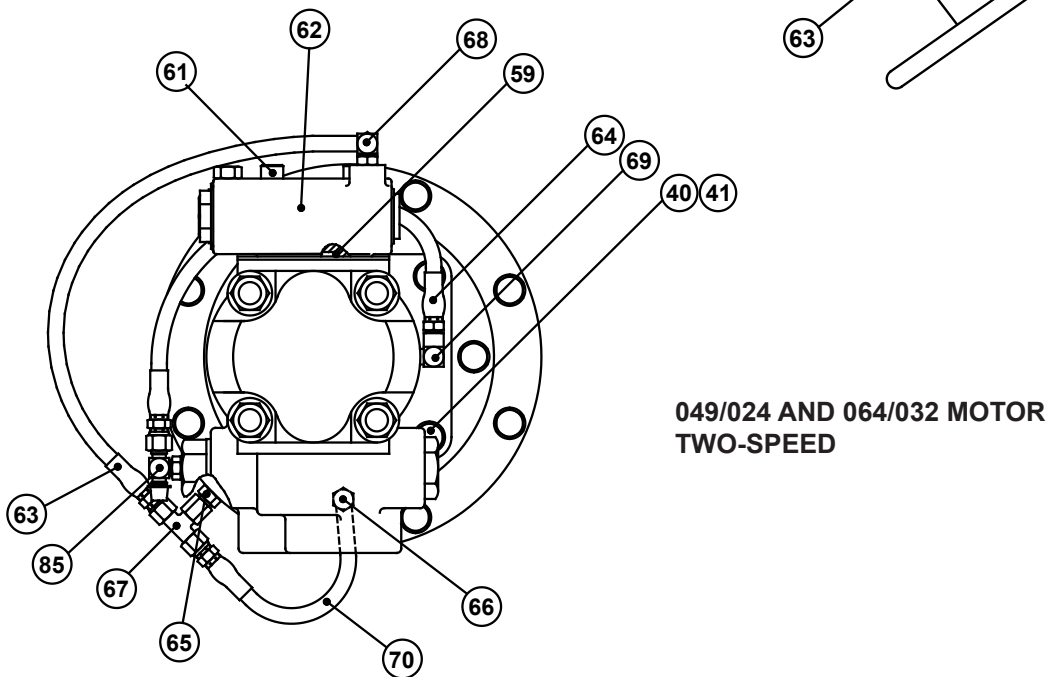
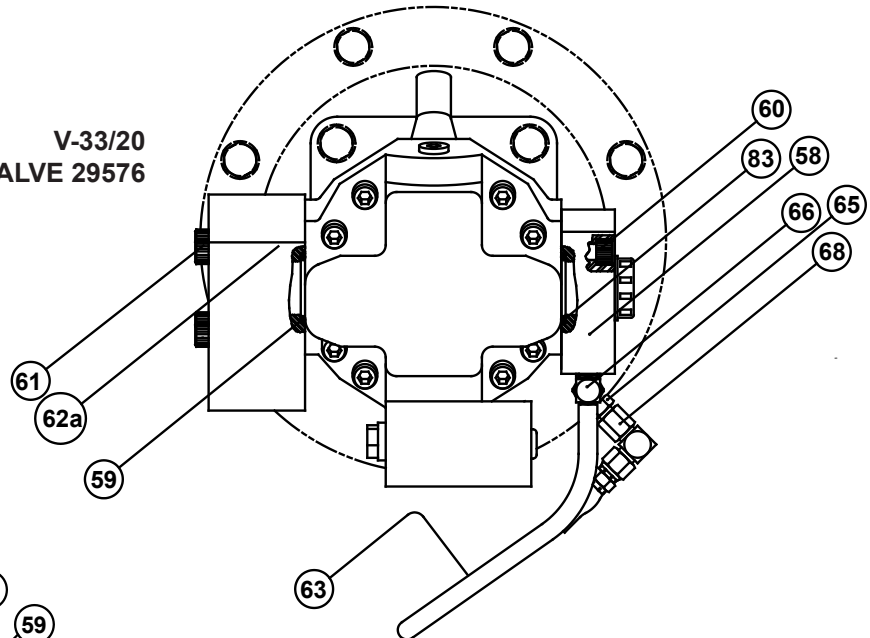


ITEM NO.		21:1	29:1	41:1	59:1	
	DESCRIPTION	PART NO.				QTY.
	OUTPUT CARRIER ASSEMBLY	81804	81804	81802	81802	1
15	ROLL PIN (OUTPUT PLANET CARRIER)	23584	23584	23584	23584	3
16	OUTPUT PLANET CARRIER	25602	25602	25562	25562	1
17	OUTPUT PLANET GEAR	26279	26279	26277	26277	3
18	OUTPUT PLANET GEAR SHAFT	25613	25613	25613	25613	3
19	BEARING	25292	25292	25292	25292	6
20	BEARING SPACER	25443	25443	25443	25443	3
21	THRUST WASHER	24306	24306	24306	24306	6
38	OUTPUT THRUST PLATE	25638	25638	25638	25638	1

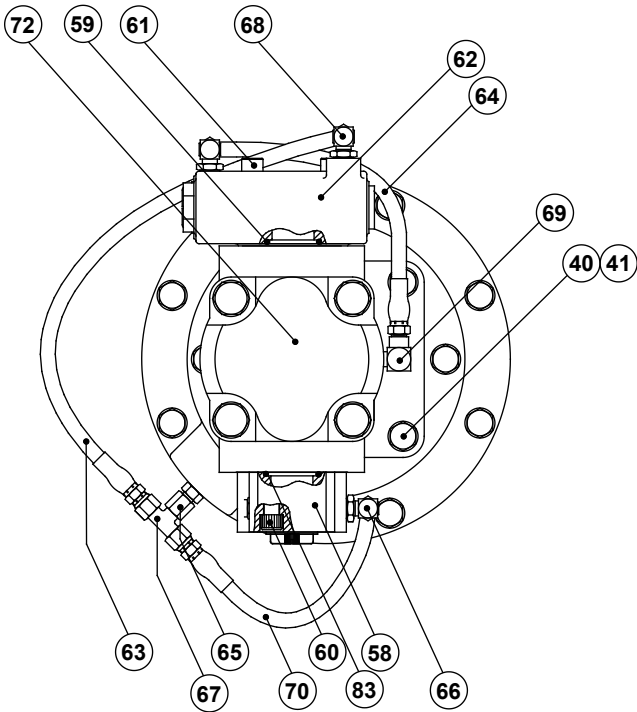
MOTOR GROUPS (STANDARD)



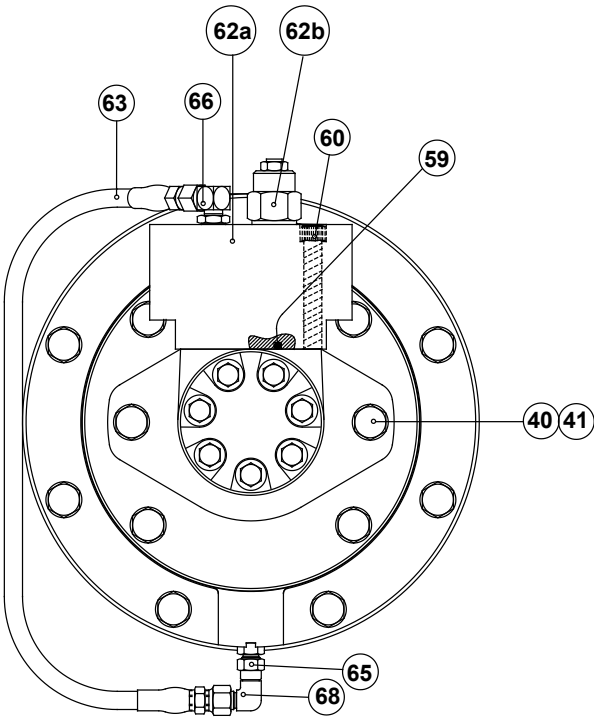
**V-33/20
TWO-SPEED, BRAKE VALVE 29576**



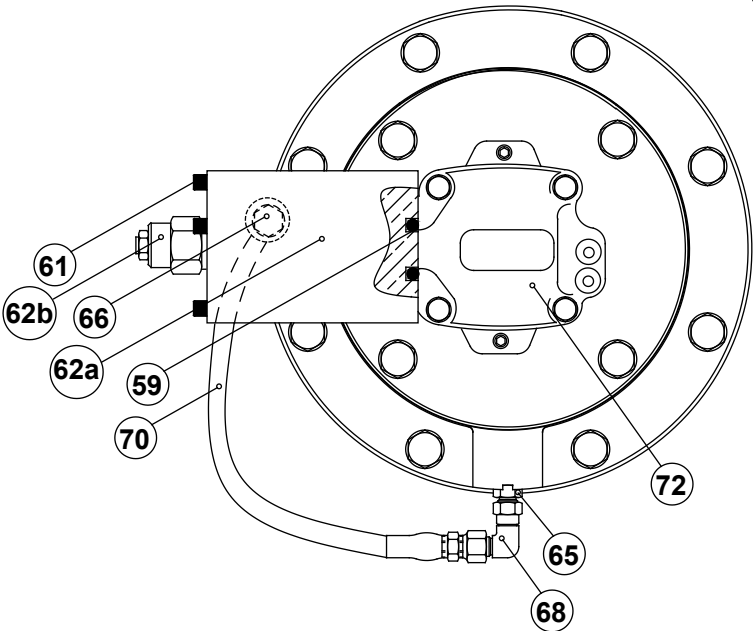
MOTOR GROUPS (STANDARD)



**051 AND 064 MOTOR
SINGLE-SPEED**

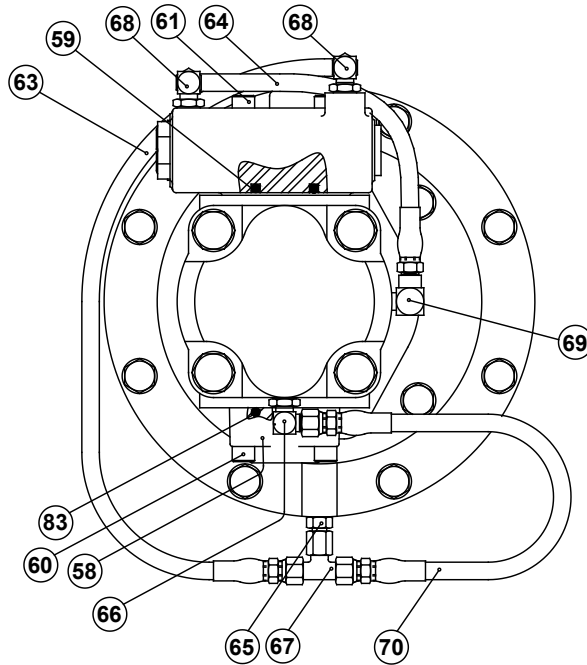


**071 AND 062 MOTOR
SINGLE-SPEED**



**080 MOTOR
SINGLE-SPEED**

MOTOR GROUPS (STANDARD)



**029, 034, AND 039 MOTOR
SINGLE-SPEED**

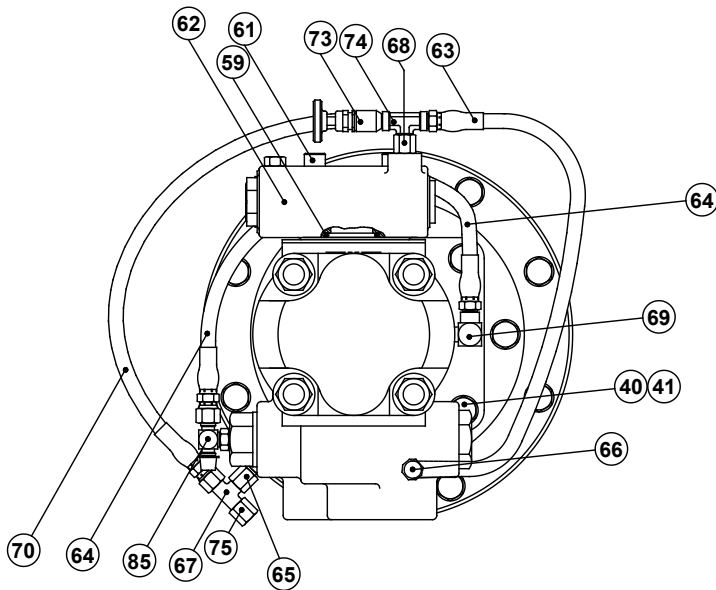
ITEM	DESCRIPTION	PART NO.	QTY.	PILOT O-RING
5	029 (2 BOLT B)	25385	1	21063
	034 (2 BOLT B)	25912	1	21063
	034 (2 BOLT B) UNDERWOUND	103887	1	21063
	039 (2 BOLT B)	25515	1	21063
	039 (4 BOLT C) CT WINCHES	25896	1	10330
	051 (4 BOLT C)	25897	1	10330
	064 (4 BOLT C)	25777	1	10330
	049/024 (4 BOLT C)	26182	1	10330
	V33/20 (4 BOLT C)	100714	1	10330
	064/032 (4 BOLT C)	28956	1	10330
	071 REPLACED BY 062 (2 BOLT B)	106079	1	21063
	080 (2 BOLT A)	26124	1	22586

NOTE: These drawings are standard configurations. Verify hoses, fittings, and capscrews using tables found in later sections of this manual.

MOTOR GROUPS (STANDARD)

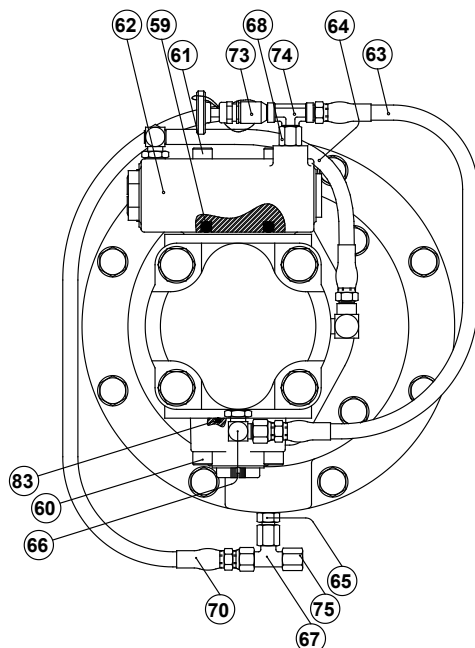
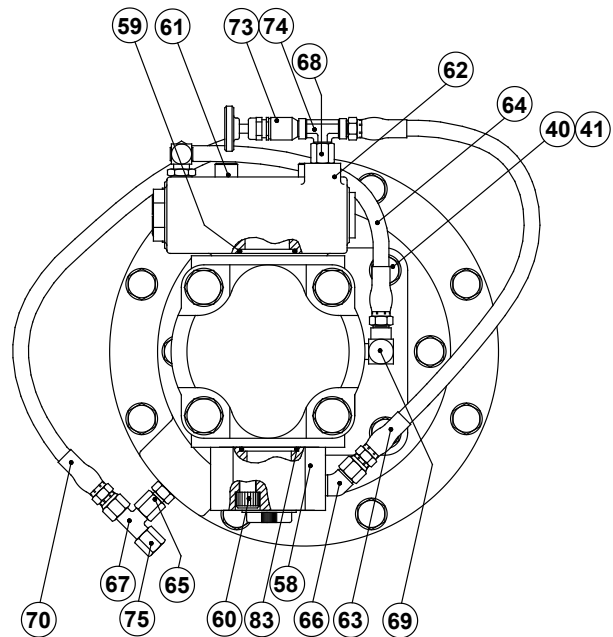
			039, 051, 064	049/024 064/032	029, 034, 039	080	071/062	V33/20
			4 BOLT -C	4 BOLT -C	2 BOLT -B	2 BOLT -A	2 BOLT -B	4 BOLT -C
ITEM	QTY.	DESCRIPTION	PART NO.					
40	4	CAPSCREW 1/2-13 X 1-1/2 GRADE 8Z HEX HEAD	104322	104322	104322		104322	104322
		CAPSCREW 1/2-13 X 1-1/2 ASTM A574 SOCKET HEAD	--	--	--	21908	--	--
41	4	LOCKWASHER (1/2 Z)	11026	11026	11026	11026	11026	11026
58	1	MANIFOLD	24779	--	25539	--	--	25664
59	1	O-RING	13838	13838	25366	78312	12273	12465
60	4	CAPSCREW 7/16-14 X 2 ASTM A574 SOCKET HEAD	21144	--	--	--	29631	--
	4	CAPSCREW (EARLY) 3/8-16 X 1-1/2 ASTM A574 SOCKET HEAD			13544			13544
	4	CAPSCREW (CURRENT) 3/8-16 X 1-1/4 ASTM A574 SOCKET HEAD	--	--	13827	--	--	13827
61	4	CAPSCREW 7/16-14 X 3 ASTM A574 Z SOCKET HEAD	21134	21134			--	--
		CAPSCREW 3/8-16 X 2-3/4 ASTM A574 SOCKET HEAD	--	--	25622	--	--	--
		CAPSCREW 3/8-16 X 4 ASTM A574 SOCKET HEAD	--	--	--	29630	--	--
		CAPSCREW 3/8-16 X 3 ASTM A574 SOCKET HEAD						13587
62	1	BRAKE VALVE ASSEMBLY	81712	81984	81715		--	81719
62A	1	BRAKE VALVE BLOCK	--	--	--	26125	27403	29576
62B	1	BRAKE VALVE CARTRIDGE	--	--	--	26126	27258	29598
63	1	HOSE ASSEMBLY	25749	25749	25749	--	25952	25952
64	1	HOSE ASSEMBLY	13704	13707	13704	--	--	--
65	1	ADAPTER	25864	25864	25864	25864	25864	25864
66	1	FITTING	21163	25864	25131	31284	25302	25302
67	1	SWIVEL TEE	25748	25748	25748	--	--	--
68	1	CONNECTOR	25302	25302	25302	26140	26140	26140
69	1	REDUCER ELBOW	24236	24236	24236	--	--	--
70	1	HOSE ASSEMBLY	25750	25750	25750	25750	--	25952
72	1	HYDRAULIC. MOTOR	--	--	--	--	--	--
73	1	NEEDLE VALVE	--	--	--	--	--	--
74	1	TEE, MALE BRANCH	--	--	--	--	--	--
75	1	CAP NUT	--	--	--	--	--	--
76	1	WARNING TAG	--	--	--	--	--	--
83	1	O-RING	21150	--	25366	--	--	12465
85	1	TEE, -4 ORB	--	29078	--	--	--	--

MOTOR GROUPS (– 1 OPTION, PERSONNEL HANDLING)



**049/024 AND 064/032 MOTOR
TWO-SPEED PERSONNEL HANDLING**

**051 AND 064 MOTOR
TWO-SPEED PERSONNEL HANDLING**



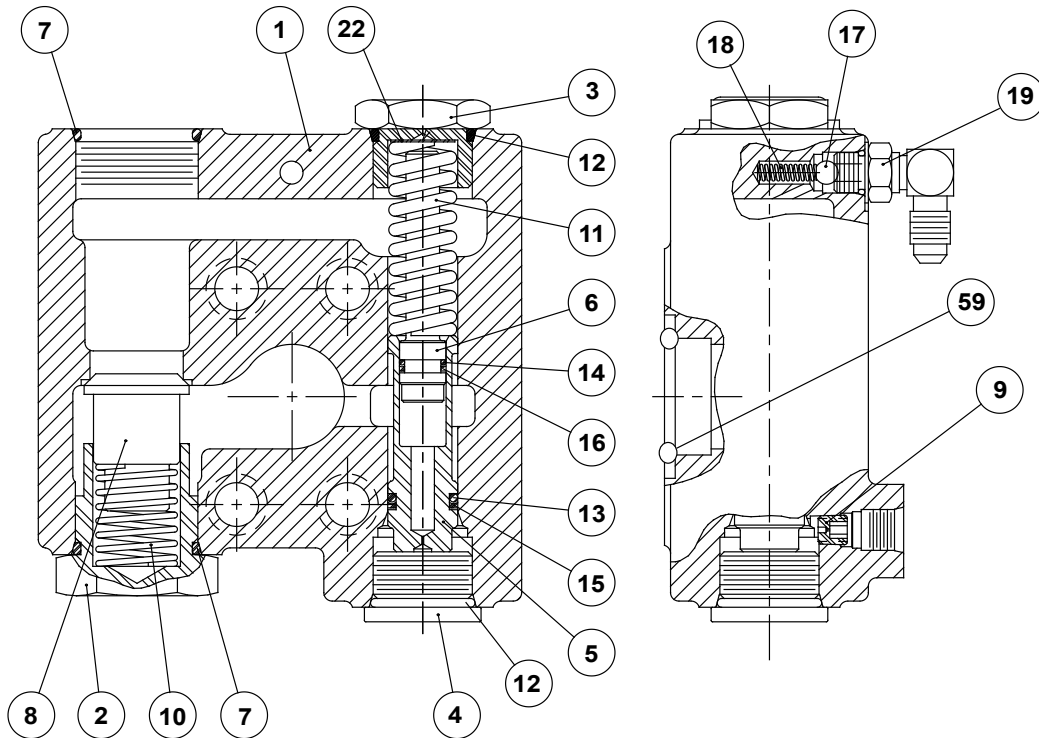
**029, 034 AND 039 MOTOR
SINGLE-SPEED PERSONNEL HANDLING**

NOTE: These drawings are standard configurations. Verify hoses, fittings, and capscrews using tables found in later sections of this manual.

MOTOR GROUPS (– 1 OPTION, PERSONNEL HANDLING)

		051 AND 64	064/032 049/024	029/034/039	
ITEM	DESCRIPTION	PART NO.			QTY.
40	CAPSCREW 1/2-13 X 1-1/2 GRADE 8Z HEX HEAD	104322	104322	104322	4
41	LOCKWASHER 1/2 Z	11026	11026	11026	4
58	MANIFOLD	24779	--	25539	1
59	O-RING	13838	13838	25366	1
60	CAPSCREW 7/16-14 X 2 GRADE 5 SOCKET HEAD ASTM A574 Z	21144	--	--	4
	CAPSCREW 3/8-16 X 1-1/2 ASTM A574 SOCKET HEAD (EARLY)	--	--	13544	
	CAPSCREW 3/8-16 X 1-1/4 ASTM A574 SOCKET HEAD (CURRENT)	--	--	13827	
61	CAPSCREW 7/16-14 X 3 ASTM A574 Z SOCKET HEAD	21134	21134	--	4
	CAPSCREW 3/8-16 X 2-3/4 ASTM A574 SOCKET HEAD	--	--	25622	
62	BRAKE VALVE ASSEMBLY	81712	81984	81715	1
62A	BRAKE VALVE BLOCK	--	--	--	1
62B	BRAKE VALVE CARTRIDGE	--	--	--	1
63	HOSE ASSEMBLY	13707	13707	13707	1
64	HOSE ASSEMBLY	13704	13704	13704	1
65	ADAPTER	25864	25864	25864	1
66	FITTING	21165	25302	25131	1
67	SWIVEL TEE	25748	25748	25748	1
68	CONNECTOR	24784	24784	24784	1
69	REDUCER ELBOW	24236	24236	24236	1
70	HOSE ASSEMBLY	13731	13731	13731	1
72	HYDRAULIC MOTOR	--	--	--	1
73	NEEDLE VALVE	25258	25258	25258	1
74	TEE, MALE BRANCH	22934	22934	22934	1
75	CAP NUT -4	70182	70182	70182	1
76	WARNING TAG	25257	25257	25257	1
83	O-RING	21150	--	25366	1
85	TEE, -4 ORB	--	29078	--	1

BRAKE VALVE ASSEMBLY



ITEM	DESCRIPTION	PART NO.	QTY.
1	BRAKE VALVE HOUSING	NSS	1
2	VALVE SPRING RETAINER	24424	1
	RELIEF RETAINER (81719 VALVE)	29609	1
3	SPRING RETAINER	24183	1
4	PLUG	22450	1
5	SPOOL	NSS	1
6	DAMPER PISTON	NSS	1
7	O-RING	24186	2
8	CHECK VALVE POPPET	24423	1
	RELIEF ASSEMBLY (81719 VALVE)	82132	1
9	PILOT ORIFICE	24200	1
10	CHECK VALVE SPRING	24190	1
11	SPOOL SPRING	24192	1
12	O-RING	23601	2
13	O-RING	24193	1
14	O-RING	24194	1
15	BACKUP RING	24195	1
16	BACKUP RING	24196	1
17	BALL, STEEL	21158	1
18	COMPRESSION SPRING	25480	1
19	ELBOW FITTING	25302	1
19	PLUG, -4 ORB (81984 AND 81719)	25663	1
22	SHIM, VALVE SPRING	25661	--
59	O-RING	13838	1

BRAKE VALVES	
FLANGE	PART NO.
1-1/4 IN. CODE 61	81712
1 IN. CODE 61	81715
3/4 IN. CODE 62	81719
1-1/4 IN. CODE 61	81984
SEAL KIT	61567

FASTENERS, ADAPTERS, AND HOSE ASSEMBLIES

CAPSCREWS AND LOCKWASHERS

PART NO.	DESCRIPTION
29631	5/16 NC X 3 GRADE 8, SOCKET HEAD
21654	3/8 NC X 3-1/2 GRADE 8, SOCKET HEAD
25622	3/8 NC X 2-3/4 GRADE 8, SOCKET HEAD
29630	3/8 NC X 4 GRADE 8, SOCKET HEAD
13587	3/8 NC X 3 GRADE 8, SOCKET HEAD
13544	3/8 NC X 1-1/2 GRADE 8, SOCKET HEAD (EARLY)
13827	3/8 NC X 1-1/4 GRADE 8, SOCKET HEAD (CURRENT)
21135	7/16 NC X 1-1/2 GRADE 8Z SOCKET HEAD
104318	7/16 NC X 1-3/4 GRADE 8Z HEX HEAD
21144	7/16 NC X 2 GRADE 8Z SOCKET HEAD
21134	7/16 NC X 3 GRADE 8Z SOCKET HEAD
101150	7/16 NC X 3-3/4 GRADE 8Z SOCKET HEAD
104174	1/2 NC X 1-1/4 GRADE 8Z HEX HEAD
104322	1/2 NC X 1-1/2 GRADE 8Z HEX HEAD
21908	1/2 NC X 1-1/2 GRADE 8Z SOCKET HEAD
29855	1/2 NC X 2 GRADE 8Z HEX HEAD
103249	5/8 NC X 1-3/4 GRADE 8Z HEX HEAD
11026	LOCKWASHER 1/2 SPLIT, Z
102423	LOCKWASHER 5/8 SPLIT, Z

NSS – NOT SERVICED SEPARATELY

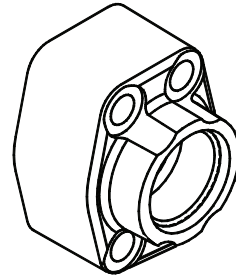
* = INCLUDED IN BRAKE O-RING KIT #61567

HOSE ASSEMBLIES

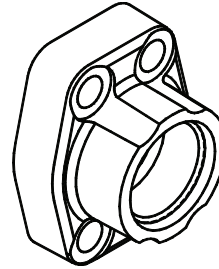
PART NO.	LENGTH	
13710	8 IN.	NPT -2 TO JIC -4
13711	10 IN.	NPT -2 TO JIC -4
13704	12 IN.	NPT -2 TO JIC -4
13706	16 IN.	NPT -2 TO JIC -4
13707	17 IN.	NPT -2 TO JIC -4
13731	22 IN.	NPT -2 TO JIC -4
24948	30 IN.	NPT -2 TO JIC -4
25750	17 IN.	JIC -4 BOTH ENDS
25952	20 IN.	JIC -4 BOTH ENDS
25749	22.5 IN.	JIC -4 BOTH ENDS
106269	14 IN.	ORFS SWIVEL -8
106270	17 IN.	ORFS SWIVEL -8

SPLIT FLANGE ADAPTER

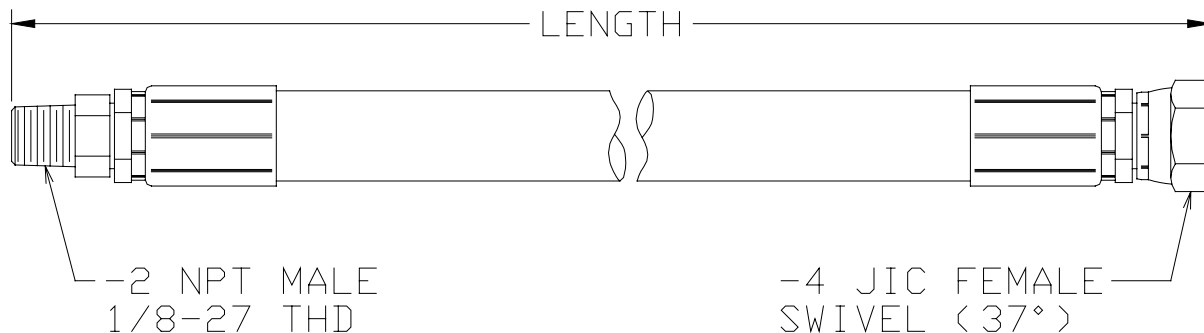
PART NO.	DESCRIPTION
25539	SPLIT FLANGE ADAPTER



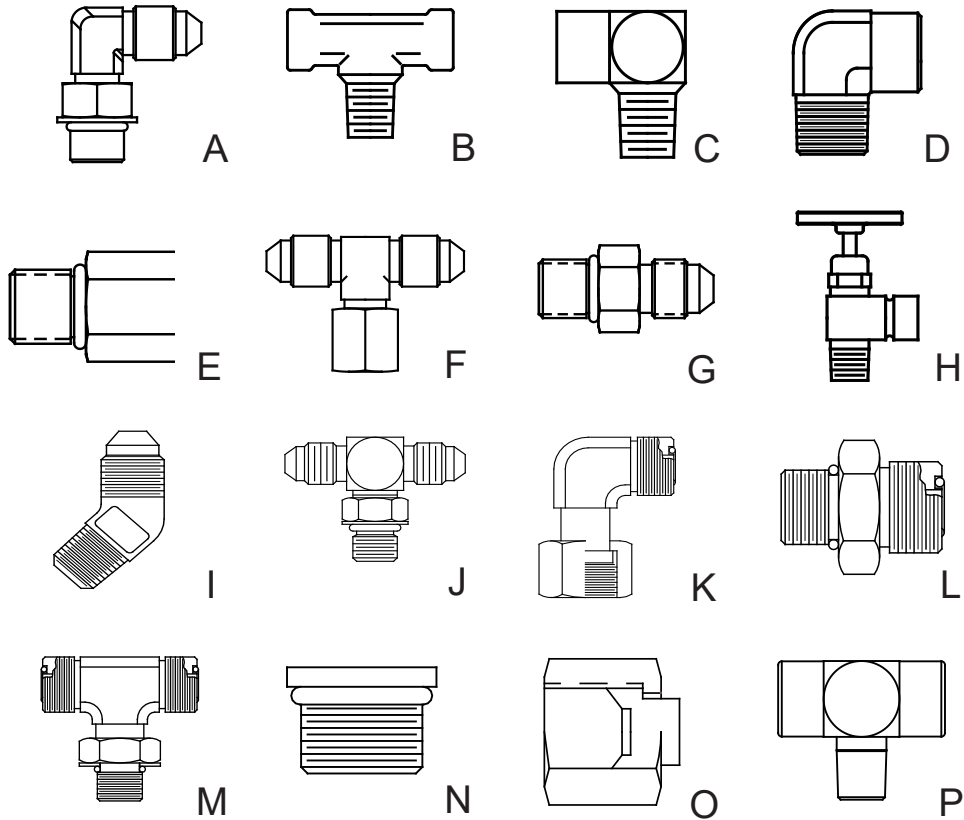
EARLY – Use socket head capscrews 13544.



CURRENT – Use socket head capscrews 13827.



FITTINGS



PART NO.	DESCRIPTION	ID
25302	ELBOW -4 JIC TO -4 ORB	A
25131	ELBOW -4 JIC TO -6 ORB	A
22934	TEE, 1/8-27 NPT-F RUN TO 1/8-27 NPT-M BRANCH	B
24236	STREET ELBOW, REDUCER, 1/4-18 M TO 1/8-27F	C
13708	STREET ELBOW, 1/8-27	D
24784	ADAPTER, -4 ORB TO -2 NPT-F	E
25748	SWIVEL TEE, -4 JIC M RUN X -4 JIC F SWIVEL BRANCH	F
25864	ADAPTER, -4 JIC TO -4 ORB	G
31284	ADAPTER, -4 JIC TO -6 ORB	G
25258	NEEDLE VALVE	H
21165	ELBOW (45°) -2 NPT TO -4 JIC	I
21163	ELBOW (90°) -2 NPT TO -4 JIC	I
29078	TEE, -4 ORB TO -4 JIC	J
100945	ELBOW, ORFS SWIVEL	K
100946	ADAPTER, -4 ORB TO -6 ORFS	L
102632	TEE, -4 ORFS TO -6 ORB	M
69325	PLUG, -4 ORB	N
70182	CAP, -4 JIC	O
22934	TEE, FEMALE PIPE TO MALE PIPE -2	P
23508	REDUCER PIPE -4 TO -2	-
26140	ELBOW JIC SWIVEL -4/4	-

RECOMMENDED FASTENER TORQUE

Bolt Diam. Inches	Thread per inch	Torque LB-FT (N.m)			
		Grade 5		Grade 8	
		Dry	Lubed	Dry	Lubed
1/4	20 28	8 (11)	6 (8)	12 (16)	9 (12)
5/16	18 24	17 (23)	13 (17)	24 (33)	18 (24)
3/8	16 24	31 (42)	23 (31)	45 (61)	35 (47)
7/16	14 20	50 (68)	35 (47)	70 (95)	50 (68)
1/2	13 20	75 (102)	55 (75)	110 (149)	80 (108)
9/16	12 18	110 (149)	80 (108)	150 (203)	110 (149)
5/8	11 18	150 (203)	115 (156)	210 (285)	160 (217)

Bolt Diam. Inches	Thread per inch	Torque LB-FT (N.m)			
		Grade 5		Grade 8	
		Dry	Lubed	Dry	Lubed
3/4	10 16	265 (359)	200 (271)	380 (515)	280 (380)
7/8	9 14	420 (569)	325 (441)	600 (813)	450 (610)
1	8 14	640 (868)	485 (658)	910 (1234)	680 (922)
1 1/8	7 12	790 (1071)	590 (800)	1290 (1749)	970 (1315)
1 1/4	7 12	1120 (1518)	835 (1132)	1820 (2468)	1360 (1817)
1 3/8	6 12	1460 (1979)	1095 (1485)	2385 (3234)	1790 (2427)
1 1/2	6 12	1940 (2360)	1460 (1979)	3160 (4284)	2370 (3214)

To convert LB-FT to Kg-m, multiply LB-FT value by 0.1383

8-2008

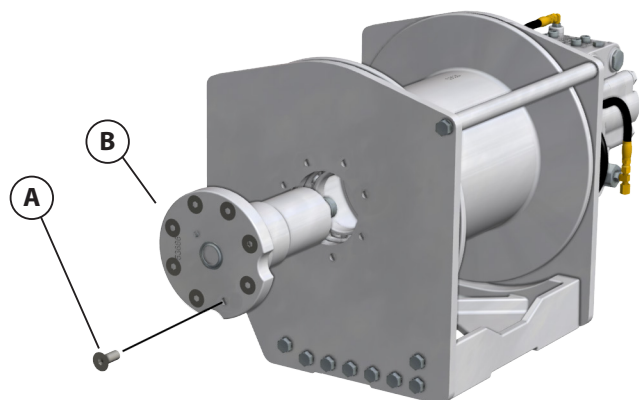
Product: PD12C/PD15B with the 01- and 04-style drum
Title: PD12C/PD15B Bearing Support Product Improvement
Purpose: Product Improvement

If drum bearing support (Part Number 101645) requires replacement in PD12C and PD15B model hoists with the 01- and 04-style drum, an upgraded bearing support must be purchased. The upgraded bearing support uses hex head capscrews (Part Number 11174) and lockwashers (Part Number 12781) to provide easier servicing. The previous designs using flathead capscrews (Part Number 25096) and bearing support (Part Number 101645) were sometimes difficult to remove from the hoist when servicing.

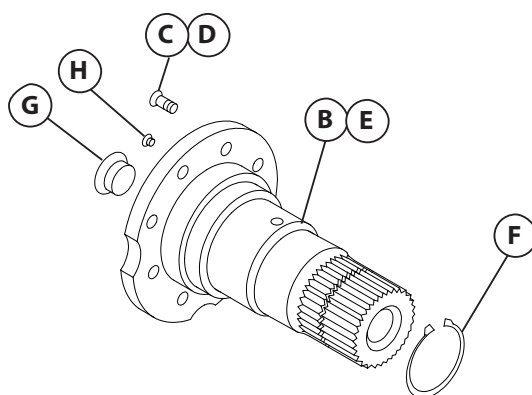
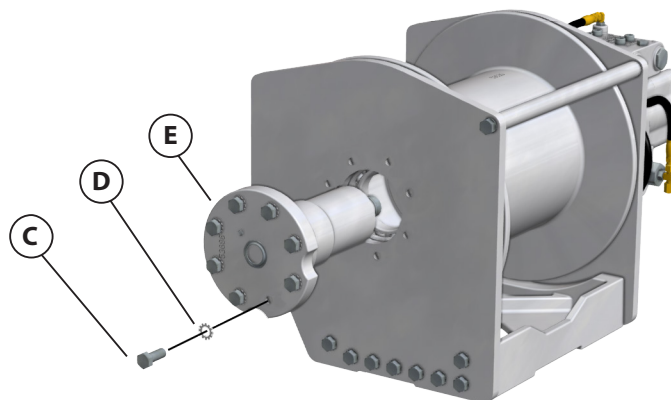
NOTE: Refer to Service Manual LIT2103 for instructions on how to disassemble hoist and LIT2601 for complete instructions.

	DESCRIPTION	PART NO.	QTY.
A	PREVIOUS FLATHEAD CAPSCREWS	25096	8
B	PREVIOUS BEARING SUPPORT	101645	1
C	NEW HEX HEAD CAPSCREWS	104174	8
D	NEW LOCKWASHERS	12781	8
E	NEW BEARING SUPPORT	106459	1
F	RETAINING RING	70575	1
G	PLUG HEX (STANDARD WINCHES)	31386	1
	PLUG FLUSH	24420	1
	SIGHT GLASS (-1 OPTION)	25958	1
G1	O-RING FOR ITEM 44 PLUGS	24186	1
H	RELIEF VALVE	18062	1

PREVIOUS DESIGN



UPDATED DESIGN



METRIC CONVERSION TABLE

English to Metric			Metric to English		
LINEAR					
inches (in.)	X 25.4	= millimeters (mm)	millimeters (mm)	X 0.03937	= inches (in.)
feet (ft.)	X 0.3048	= meters (m)	meters (m)	X 3.281	= feet (ft.)
miles (mi.)	X 1.6093	= kilometers (km)	kilometers (km)	X 0.6214	= miles (mi.)
AREA					
inches ² (sq.in.)	X 645.15	= millimeters ² (mm ²)	millimeters ² (mm ²)	X 0.000155	= inches ² (sq.in.)
feet ² (sq.ft.)	X 0.0929	= meters ² (m ²)	meters ² (m ²)	X 10.764	= feet ² (sq.ft.)
VOLUME					
inches ³ (cu.in.)	X 0.01639	= liters (l)	liters (l)	X 61.024	= inches ³ (cu.in.)
quarts (qts.)	X 0.94635	= liters (l)	liters (l)	X 1.0567	= quarts (qts.)
gallons (gal.)	X 3.7854	= liters (l)	liters (l)	X 0.2642	= gallon (gal.)
inches ³ (cu.in.)	X 16.39	= centimeters ³ (cc)	centimeters3 (cc)	X 0.06102	= inches ³ (cu.in.)
feet ³ (cu.ft.)	X 28.317	= liters (l)	liters (l)	X 0.03531	= feet ³ (cu.ft.)
feet ³ (cu.ft.)	X 0.02832	= meters ³ (m ³)	meters3 (m3)	X 35.315	= feet ³ (cu.ft.)
fluid ounce (fl.oz.)	X 29.57	= millileters (ml)	milliliters (ml)	X 0.03381	= fluid ounce (fl.oz.)
MASS					
ounces (oz.)	X 28.35	= grams (g)	grams (g)	X 0.03527	= ounces (oz.)
pounds (lbs.)	X 0.4536	= kilograms (kg)	kilograms (kg)	X 2.2046	= pounds (lbs.)
tons (2000 lbs.)	X 907.18	= kilograms (kg)	kilograms (kg)	X 0.001102	= tons (2000 lbs.)
tons (2000 lbs.)	X 0.90718	= metric tons (t)	metric tons (t)	X 1.1023	= tons (2000 lbs.)
tons (long) (2240 lbs.)	X 1013.05	= kilograms (kg)	kilograms (kg)	X 0.000984	= tons (long) (2240 lbs.)
PRESSURE					
inches Hg (60°F)	X 3600	= kilopascals (kPa)	kilopascals (kPa)	X 0.2961	= inches Hg (60°F)
pounds/sq.in. (PSI)	X 6.895	= kilopascals (kPa)	kilopascals (kPa)	X 0.145	= pounds/sq.in. (PSI)
pounds/sq.in. (PSI)	X 0.0703	= kilograms/sq.cm. (kg/cm ²)	kilograms/sq.cm. (kg/cm2)	X 14.22	= pounds/sq.in. (PSI)
pounds/sq.in. (PSI)	X 0.069	= bars	bars	X 14.5	= pounds/sq.in. (PSI)
inches H ₂ O (60°F)	X 0.2488	= kilopascals (kPa)	kilopascals (kPa)	X 4.0193	= inches H ₂ O (60°F)
bars	X 100	= kilopascals (kPa)	kilopascals (kPa)	X 0.01	= bars
POWER					
horsepower (hp)	X 0.746	= kilowatts (kW)	kilowatts (kW)	X 1.34	= horsepower (hp)
ft.-lbs./min.	X 0.0226	= watts (W)	watts (W)	X 44.25	= ft.-lbs./min.
TORQUE					
pound-inches (in.-lbs.)	X 0.11298	= newton-meters (N-m)	newton-meters (N-m)	X 8.851	= pound-inches (in.-lbs.)
pound-feet (ft.-lbs.)	X 1.3558	= newton-meters (N-m)	newton-meters (N-m)	X 0.7376	= pound-feet (ft.-lbs.)
pound-feet (ft.-lbs.)	X .1383	= kilograms/meter (kg-m)	kilogram/meter (kg-m)	X 7.233	= pound-feet (ft.-lbs.)
VELOCITY					
miles/hour (m/h)	X 0.11298	= kilometers/hour (km/hr)	kilometers/hour (km/hr)	X 0.6214	= miles/hour (m/h)
feet/second (ft./sec.)	X 0.3048	= meter/second (m/s)	meters/second (m/s)	X 3.281	= feet/second (ft./sec.)
feet/minute (ft./min.)	X 0.3048	= meter/minute (m/min)	meters/minute (m/min)	X 3.281	= feet/minute (ft./min.)
TEMPERATURE					
°Celsius = 0.556 (°F - 32)			°Fahrenheit = (1.8°C) + 32		
COMMON METRIC PREFIXES					
mega	(M)	= 1,000,000 or 10 ⁶	deci	(d)	= 0.1 or 10 ⁻¹
kilo	(k)	= 1,000 or 10 ³	centi	(c)	= 0.01 or 10 ⁻²
hecto	(h)	= 100 or 10 ²	milli	(m)	= 0.001 or 10 ⁻³
deka	(da)	= 10 or 10 ¹	micro	(μ)	= 0.000.001 or 10 ⁻⁶

