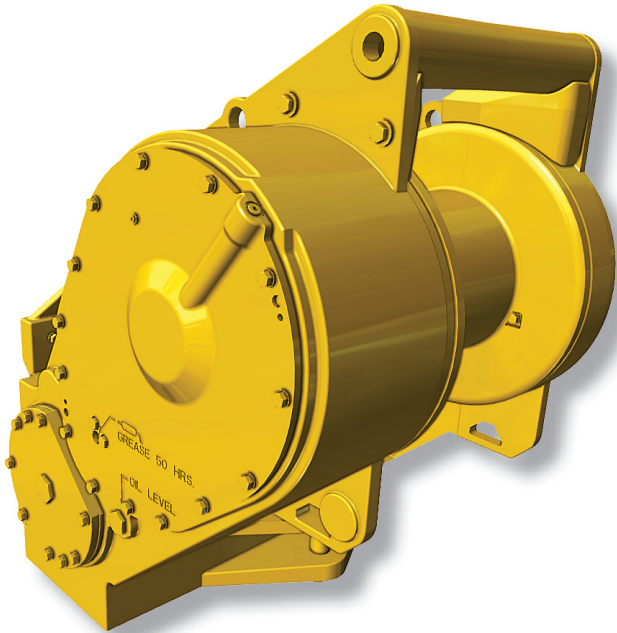


INSTALLATION AND PARTS MANUAL

MODEL PA50VS FOR D6K TRACTORS



WRITE HOIST SERIAL NUMBER BELOW

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

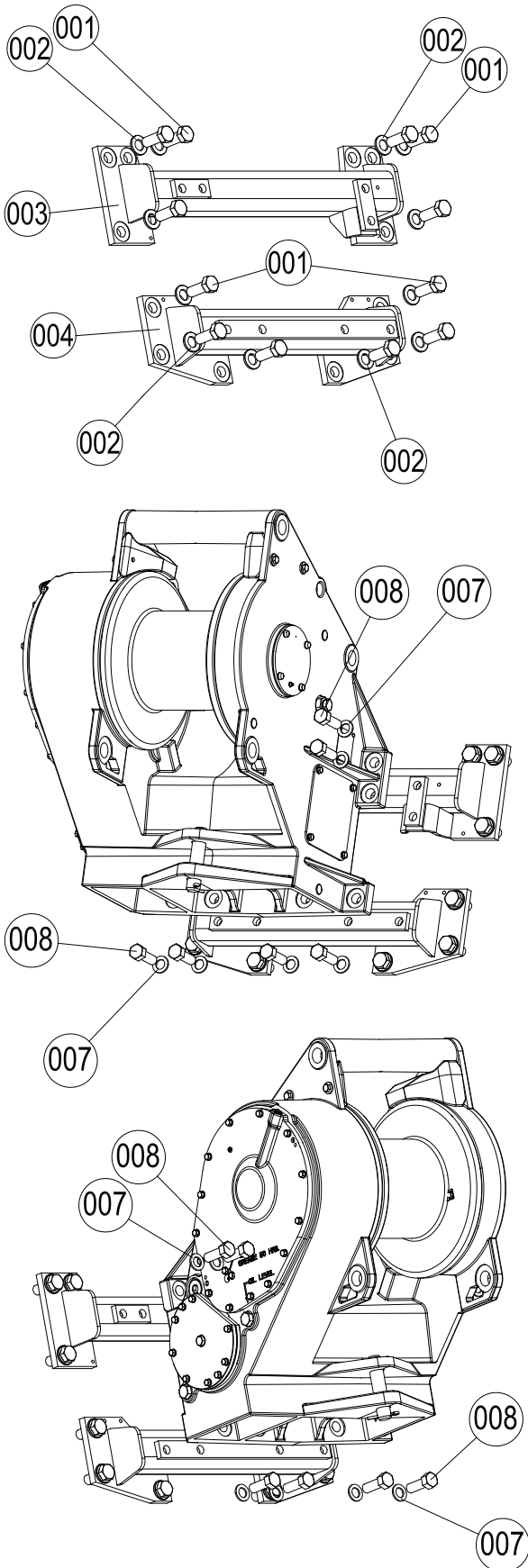


**First 2 numbers indicate
year manufactured**

TABLE OF CONTENTS

MOUNTING GROUP	3
GUARD GROUP	4
FREESPOOL GROUP.....	5
GEAR GROUP	6
CARTRIDGE ASSEMBLY.....	7
PINION & CARRIER GROUP	7
BRAKE CYLINDER CARTRIDGE	8
PLANET CARRIER	8
BRAKE CYLINDER ASSEMBLY	9
DRUM GROUP.....	10
CASE GROUP.....	11
MOTOR GROUP	12-15
VALVE ASSEMBLY & MANIFOLD BLOCK	16
HYDRAULIC SCHEMATIC.....	17
WIRING DIAGRAM	18-19
OPTIONAL FAIRLEAD ASSEMBLY	20-21

PA50VS/D6K MOUNTING GROUP



ITEM	PART #	DESCRIPTION	QTY
1	8T-5379	CAPSCREW	12
2	8T-4167	WASHER	12
3	297-1437	ADAPTER, UPPER	1
4	297-1438	ADAPTER, LOWER	1
7	8T-5361	WASHER	8
8	7X-0405	CAPSCREW	8

MOUNTING GROUP INSTRUCTIONS

⚠ WARNING ⚠

Winch and adapters weigh approximately 1,400 lb (635 kg). Make certain that lifting equipment has adequate capacity. Failure to use adequate lifting equipment may result in property damage, personal injury or death.

1. Remove paint, rust, dirt and grease from mounting surfaces of tractor, winch and winch adapters.
2. Apply Loctite 242 or equivalent to threads of bolts (items 2 & 8.)
3. Install adapter brackets (items 3 & 4) to tractor using adapter mounting capscrews and lockwashers (items 1 & 2). Do not torque bolts at this stage.
4. Support entire winch with a certified lifting sling. Raise winch parallel to brackets (items 3 & 4.)
5. Apply Loctite 242 or equivalent to threads of capscrews, (item 8,) and fasten winch to adapter brackets.
6. Torque adapter mounting bolts (item 2) to *100 FT-LB (135 N.m)
7. Torque winch mounting bolts to (item 8) to *100 FT-LB (135 N.m)
8. All slack should now be removed between mating surfaces. If mounted winch is mis-aligned, loosen fasteners and repeat process.
9. Finally torque bolts to the following spec:
 - A) Capscrew Item 2 to *680 FT-LB (920 N.m)
 - B) Capscrew Item 8 to *680 FT-LB (920 N.m)

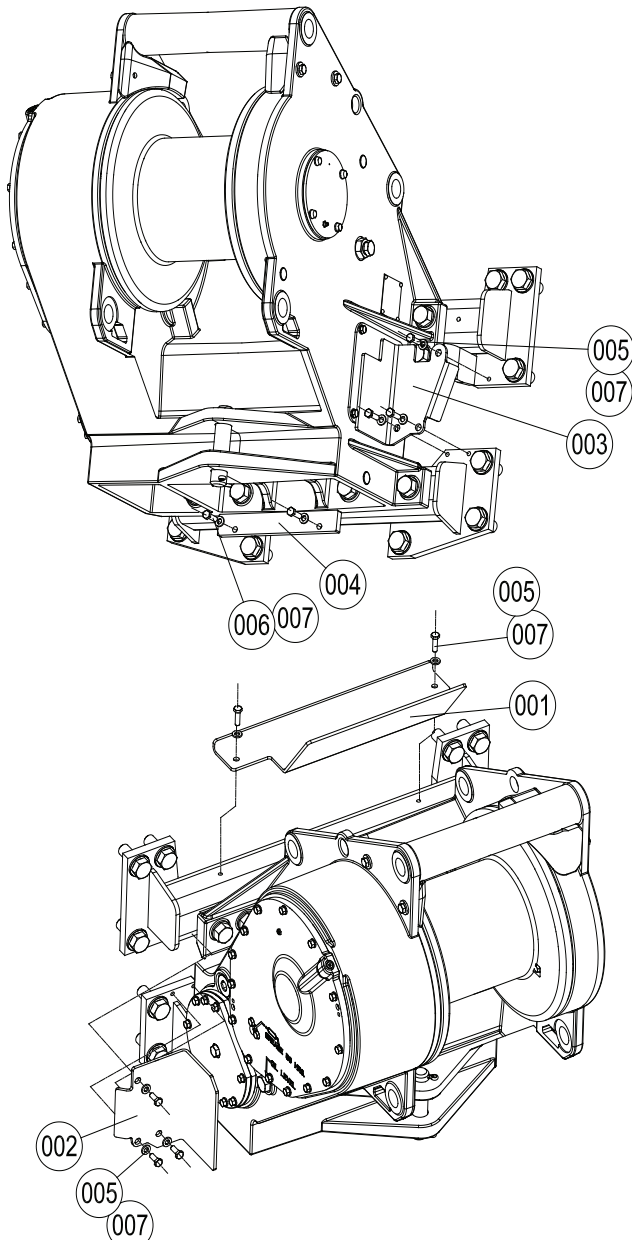
*NOTE: Torque Values are for plated fasteners using Loctite 242 or equivalent.

*NOTE: Where torque wrench access is limited, tighten all capscrews to remove slack (approx. 100 FT-LB.) Then turn bolt an additional 1/4 turn; this should provide adequate fastener preload.

⚠ WARNING ⚠

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.

PA50VS/D6K GUARD GROUP



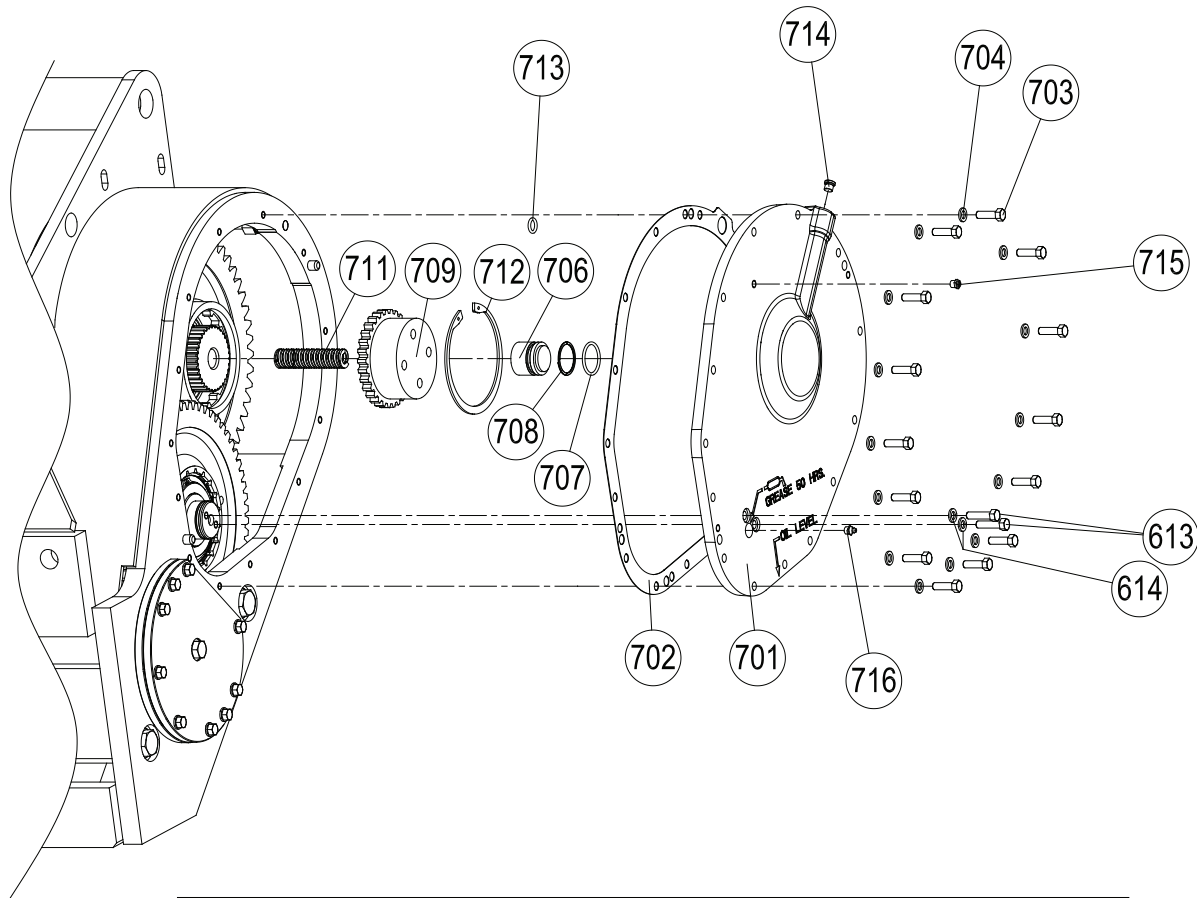
ITEM	PART #	DESCRIPTION	QTY
1	297-1432	UPPER GUARD	1
2	297-1433	LEFT GUARD	1
3	297-1434	RIGHT GUARD	1
4	297-1435	LOWER GUARD	1
5	8T-4136	CAPSCREW	8
6	8T-4196	CAPSCREW	2
7	8T-4121	WASHER	10

GUARD GROUP INSTALLATION INSTRUCTIONS

1. It is advisable to install all guards as a final installation step. Access to winch motor area will need to be open for installation of hydraulic lines and control electronic harness.
2. Apply locktite 242 or equivalent to cap screws, items 5 & 6.
3. Install guards 1, 2, 3, & 4 using cap screws and lockwashers (items 5,6, & 7.)
4. Torque cap screws to *35 FT-LB (47 N.m).

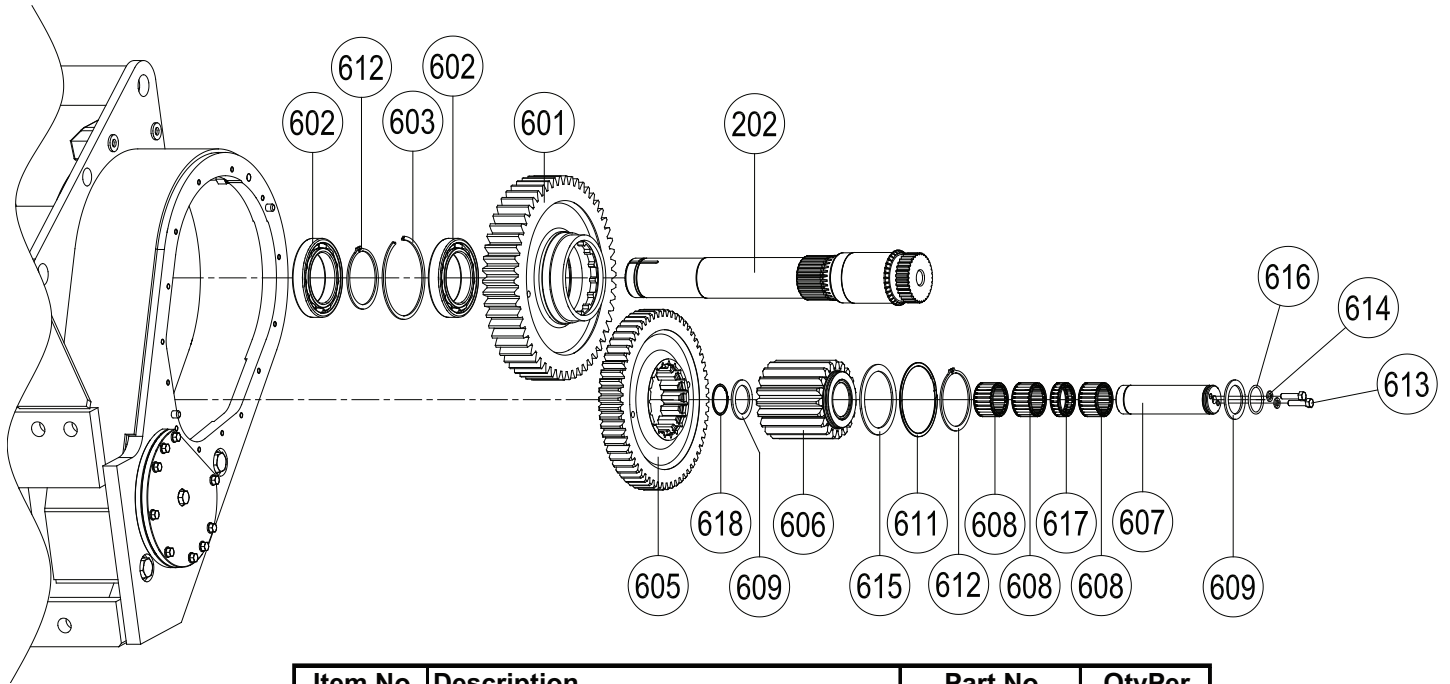
***NOTE:** Torque Values are for plated fasteners using Loctite 242 or equivalent.

**PA50VS
FREESPOOL GROUP**



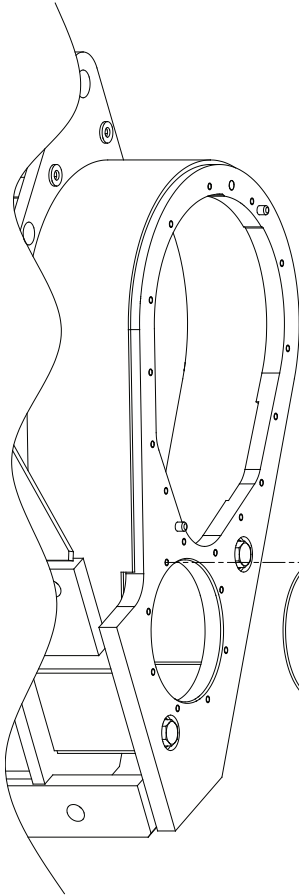
Item No	Description	Part No	QtyPer
613	CAPSCREW 3/8 - 16 X 1" GD8	4L-9337	2
614	HARD WASHER, 3/8 INCH	8T-4896	2
700	FREESPOOL GROUP	208-5552	1
701	GEAR COVER	211-1856	1
702	GEAR COVER GASKET	203-6640	1
703	CAPSCREW 3/8 - 16 X 1 1/4 GD8	9B-7237	14
704	HARD WASHER	8T-4896	14
706	FREESPOOL PISTON ASSEMBLY	172-0307	1
707	O-RING	8M-4986	1
708	BACK-UP RING	162-2766	1
709	FREESPOOL CLUTCH	161-6422	1
711	FREESPOOL SPRING	162-0175	1
712	RETAINING RING	162-0180	1
713	O-RING	3H-3385	1
714	PLUG	9S-8002	1
715	RELIEF VALVE 1-5 PSI	6U-1989	1
716	GREASE FITTING	3B-8489	1

**PA50VS
GEAR GROUP**

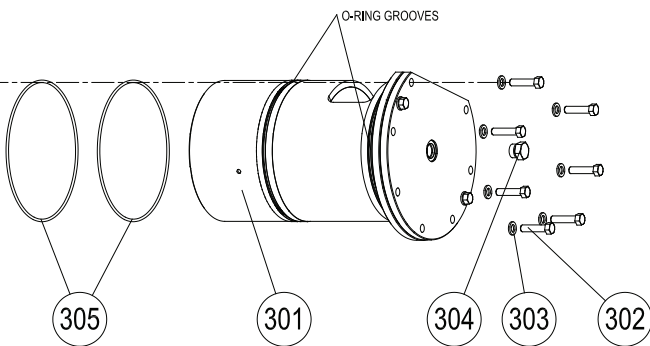


Item No	Description	Part No	QtyPer
600	GEAR GROUP	208-5551	1
601	BULL GEAR	161-6424	1
602	BALL BEARING	162-0178	2
603	SNAP RING	162-0179	1
606	SECOND REDUCTION GEAR	161-6425	1
607	GEAR SHAFT	203-6639	1
608	BEARING	5S-6174	3
609	THRUST RACE	123-4410	2
605	FIRST REDUCTION GEAR	161-6427	1
611	RETAINING RING	162-2772	1
612	RETAINING RING	119-1616	2
613	CAPSCREW 3/8 - 16 X 1" GD8	4L-9337	2
614	HARD WASHER, 3/8 INCH	8T-4896	2
615	WASHER	161-8041	1
616	O-RING	129-7301	1
617	NEEDLE ROLLER BEARING	172-2437	1
618	EXTERNAL RETAINING RING	1M-7914	1

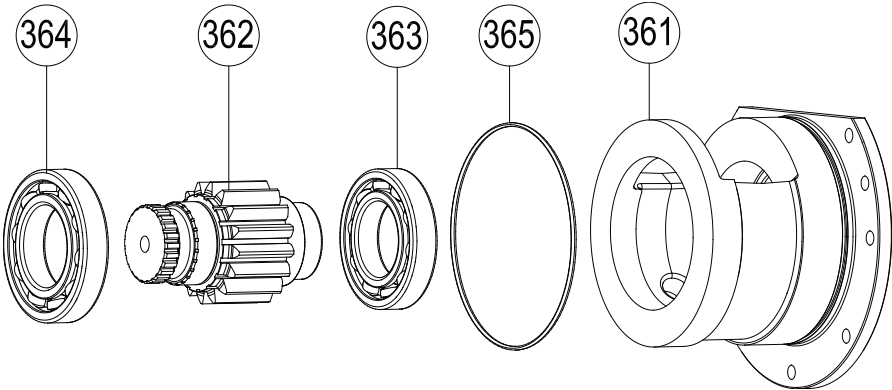
**PA50VS
CARTRIDGE ASSEMBLY**



Item No	Description	Part No	QtyPer
301	CARTRIDGE GROUP (refer to page 7)	211-8166	1
302	CAPSCREW 3/8-16 x 1 5/8 GD8	7X-0288	7
303	WASHER, HARD	8T-4896	7
304	PLUG,O-RING FLUSH	9S-8005	1
305	O-RING	119-1586	2

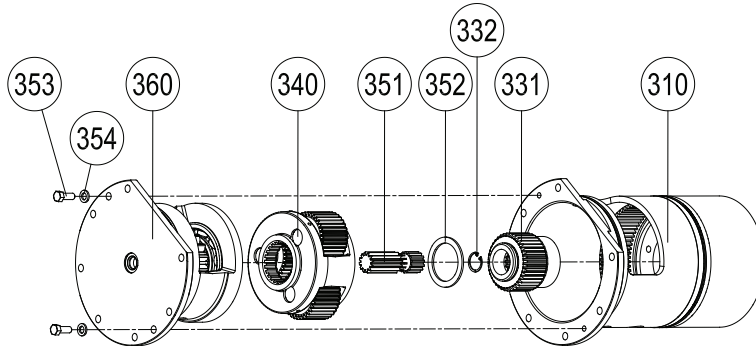


**PA50VS
PINION AND CARRIER GROUP**



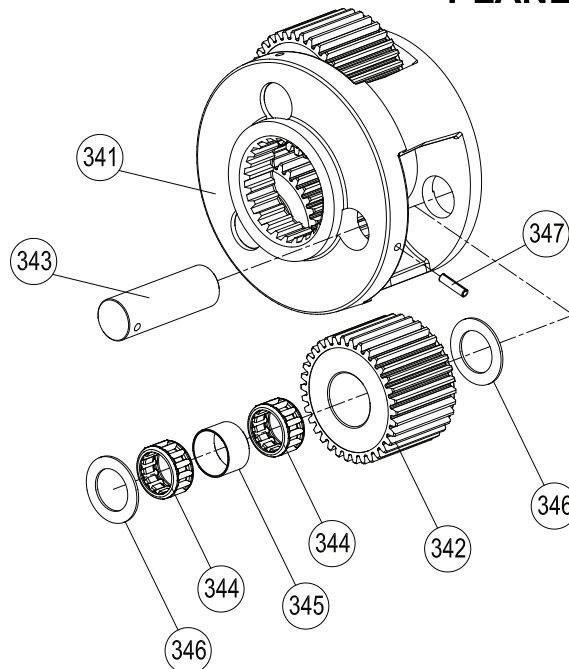
Item No	Description	Part No	QtyPer
361	BEARING CARRIER	203-6632	1
362	PINION	203-6633	1
363	BALL BEARING	1F-2771	1
364	BALL BEARING	1S-3743	1
365	O-RING	9F-1399	1

**PA50VS
CARTRIDGE ASSEMBLY**



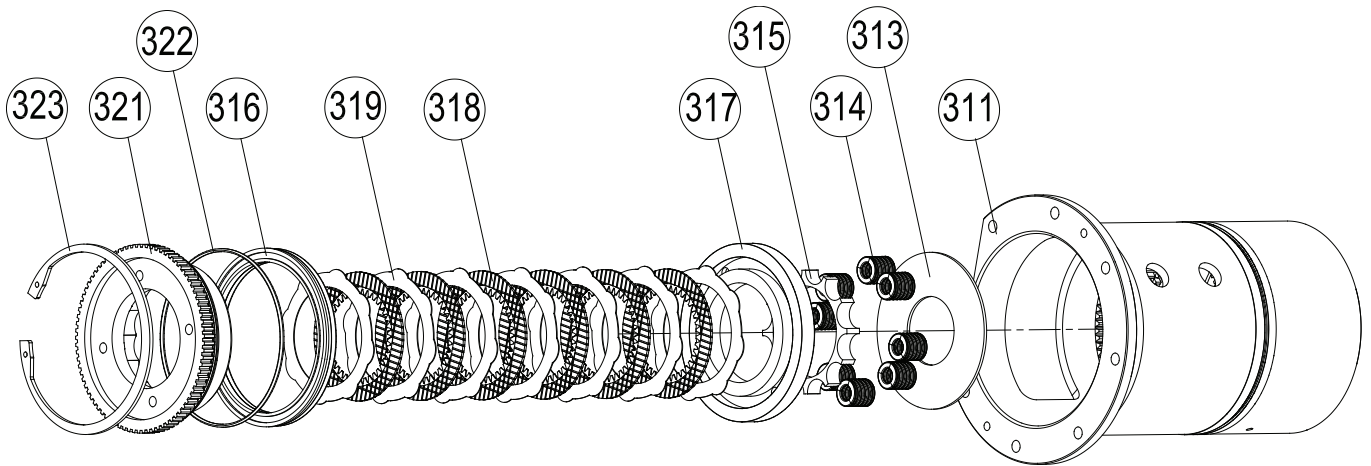
Item No	Description	Part No	QtyPer
310	BRAKE CYLINDER ASSEMBLY (refer to page 8)	211-8168	1
331	MOTOR COUPLING	211-8753	1
332	RETAINING RING	129-7285	1
340	PLANET CARRIER ASSEMBLY (refer below)	211-8169	1
351	SUN GEAR	203-6631	1
352	THRUST RING	211-8754	1
353	CAPSCREW, 3/8-16 X 1 GD8	4L-6454	2
354	WASHER, HARD	8T-4896	2
360	PINION & CARRIER GROUP (refer to page 6)	211-8171	1

**PA50VS
PLANET CARRIER ASSEMBLY**



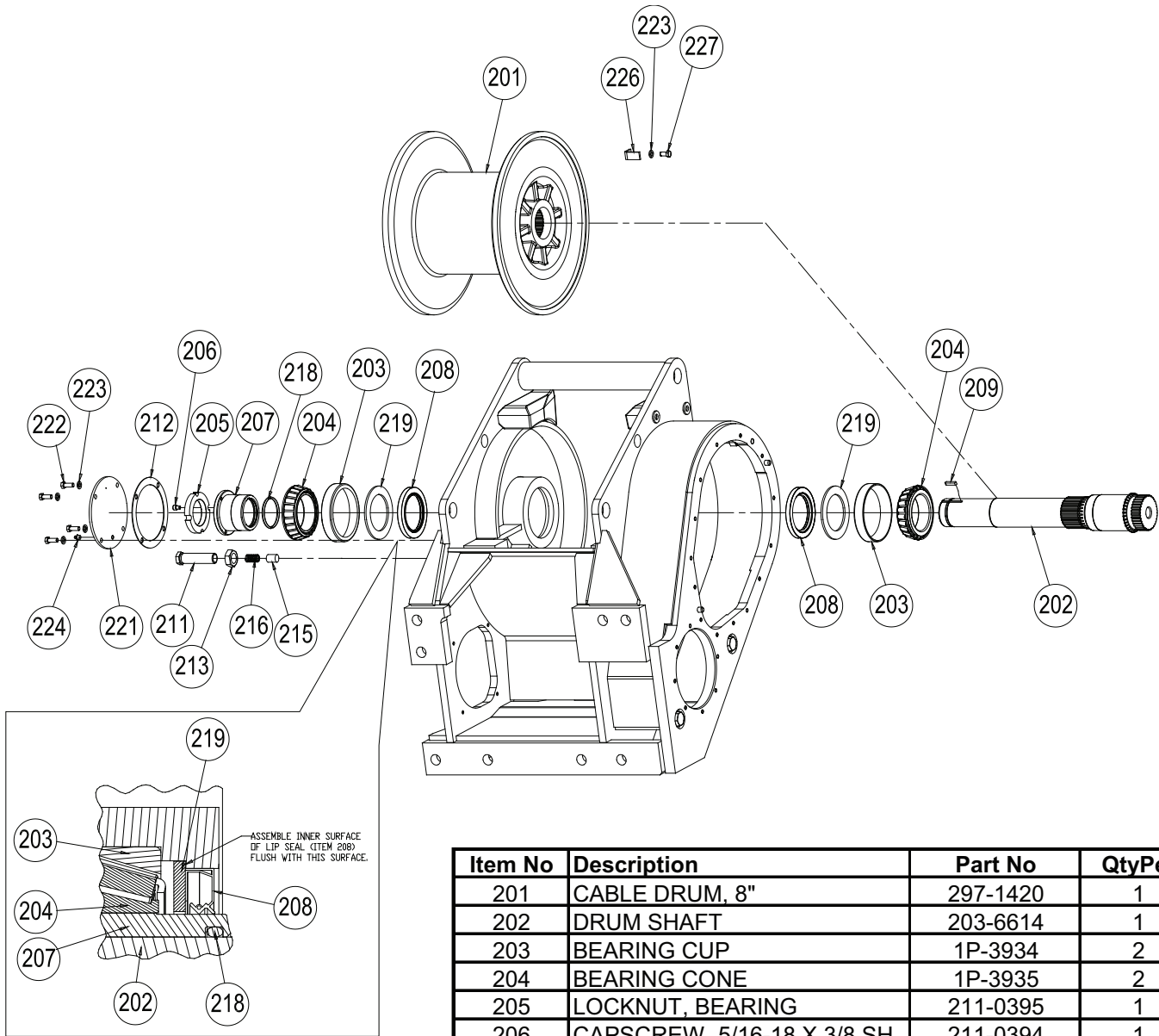
Item No	Description	Part No	QtyPer
340	PLANET CARRIER ASSEMBLY	211-8169	1
341	PLANET CARRIER	203-6629	1
342	PLANET GEAR	203-6630	3
343	PLANET GEAR SHAFT	211-9024	3
344	ROLLER BEARING	129-7286	6
345	BEARING SPACER	211-9023	3
346	BEARING RACE	129-7307	6
347	ROLLPIN	4H-8380	3

**PA50VS
BRAKE CYLINDER ASSEMBLY**



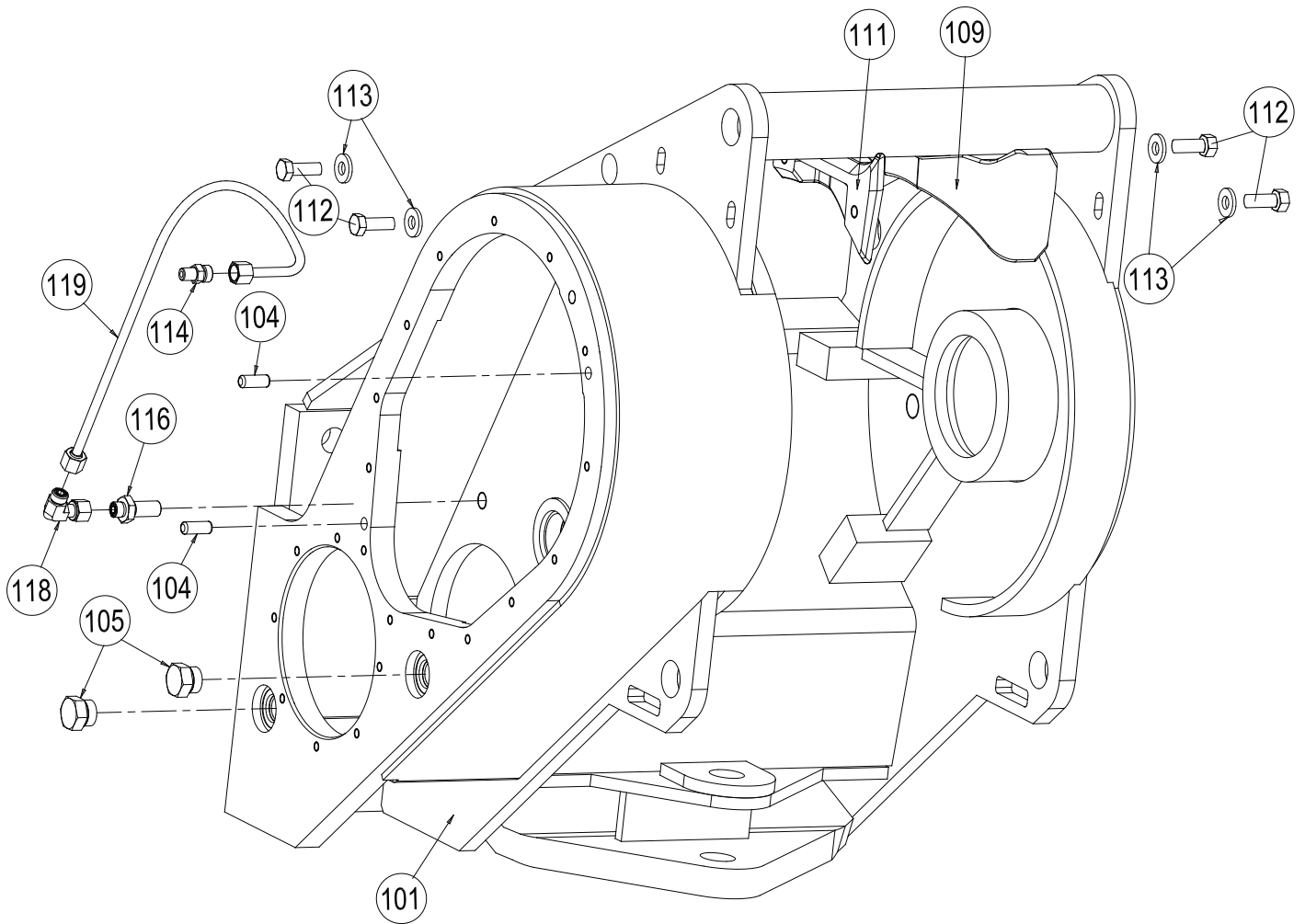
Item No	Description	Part No	QtyPer
311	BRAKE CYLINDER	203-6618	1
313	SPRING BACKUP PLATE	203-6620	1
314	SPRING	211-8215	8
315	SPRING SPACER	211-8216	1
316	SEAL	203-6621	1
317	BRAKE PISTON	211-8217	1
318	DISC-FRICTION	129-7321	6
319	BRAKE DISC	203-6623	7
321	BRAKE RETAINER	203-6626	1
322	O-RING	8M-4704	1
323	RETAINING RING	6V-4495	1

PA50VS DRUM GROUP



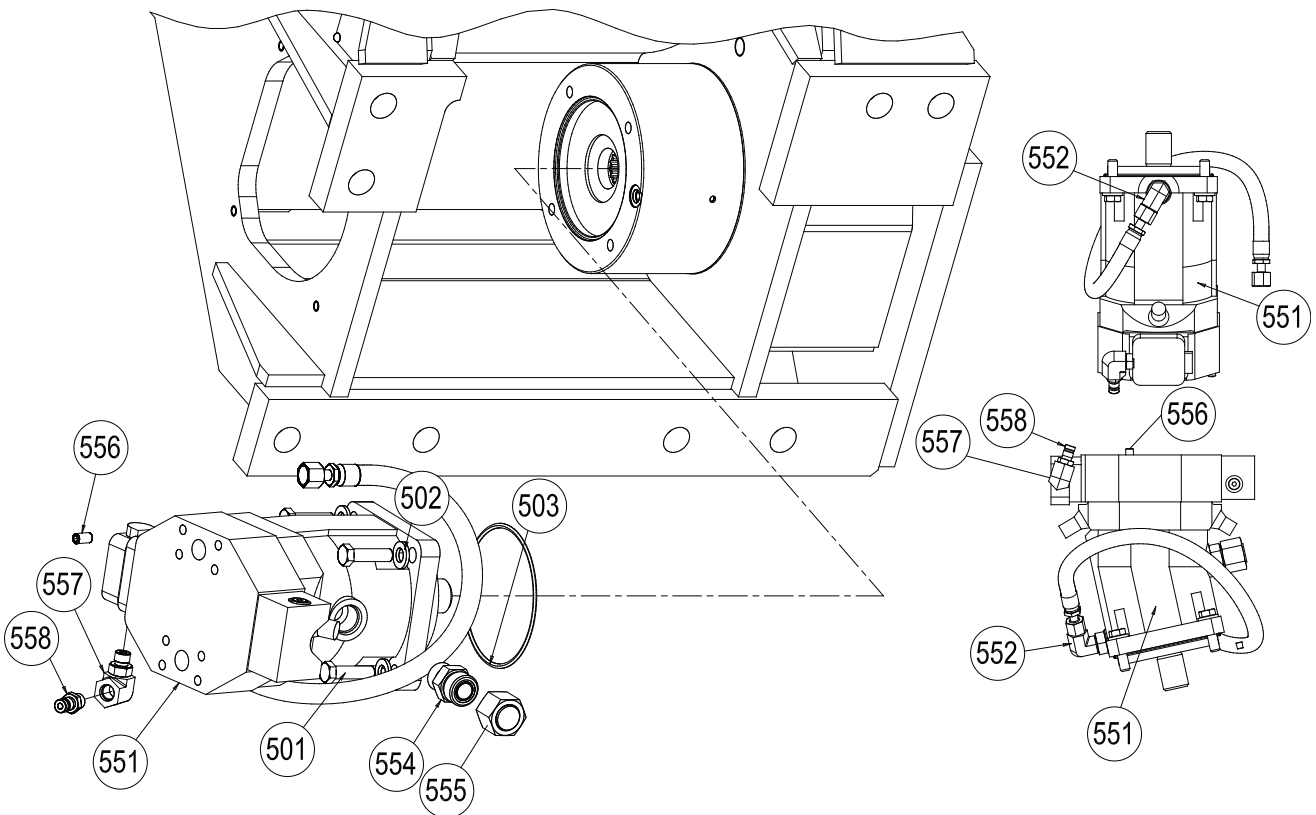
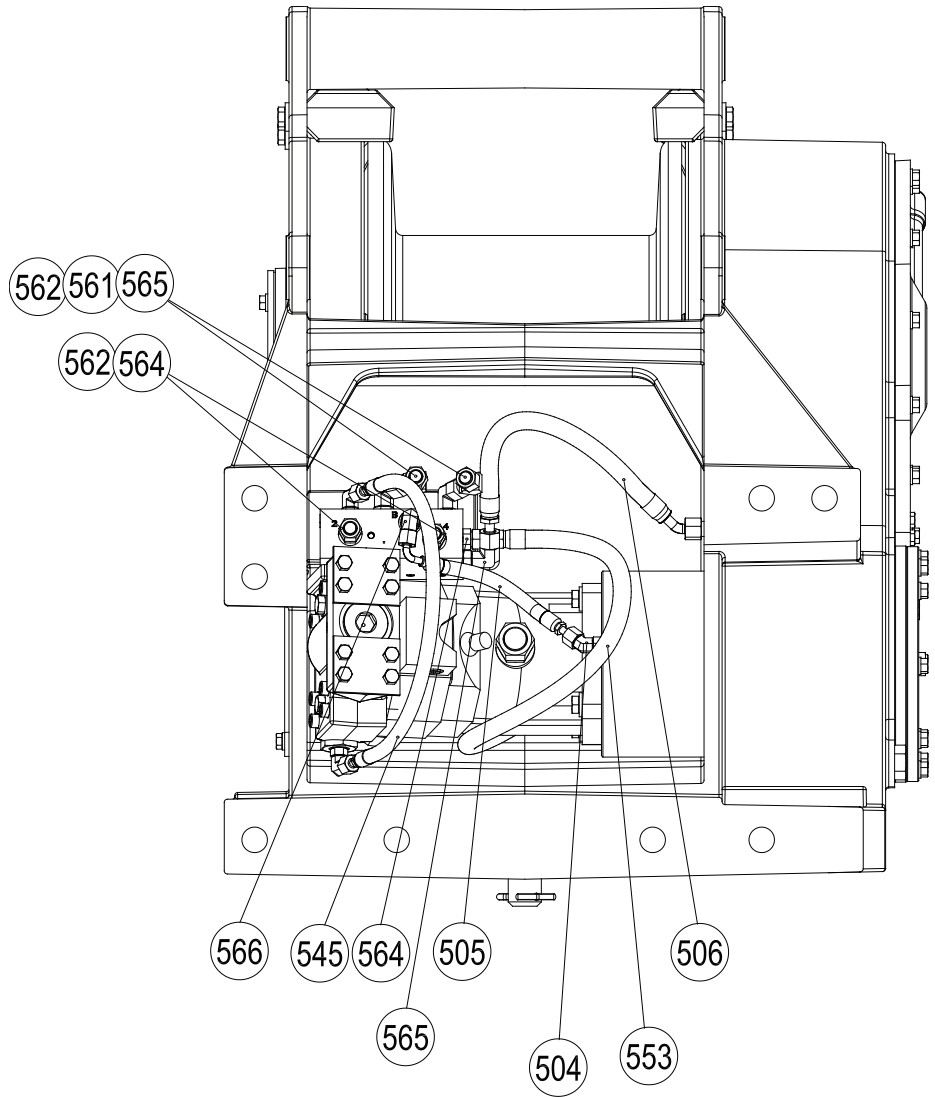
Item No	Description	Part No	QtyPer
201	CABLE DRUM, 8"	297-1420	1
202	DRUM SHAFT	203-6614	1
203	BEARING CUP	1P-3934	2
204	BEARING CONE	1P-3935	2
205	LOCKNUT, BEARING	211-0395	1
206	CAPSCREW, 5/16-18 X 3/8 SH	211-0394	1
207	BEARING SLEEVE	203-6612	1
208	LIP SEAL	1J-4034	2
209	KEY	211-0397	1
211	SPRING HOUSING	203-6637	1
213	NUT	2H-3786	1
215	DRAG BRAKE DISC	161-6417	1
216	SPRING	203-6641	1
218	O-RING	7F-2122	1
219	WASHER	211-0396	2
221	COVER, BEARING	211-0388	1
222	CAPSCREW	4L-6454	4
223	WASHER, HARD	8T-4896	5
224	GREASE FITTING	3B-8489	1
225	GASKET	203-6615	1
226	CABLE ANCHOR STRAP	219-7935	1
227	CAPSCREW 3/8-16 X 3/4" GD8	5M-3062	1

**PA50VS
CASE GROUP**



Item No	Description	Part No	QtyPer
52	HITCH PIN (PACCAR Part No 102704)		2
53	COTTER PIN (PACCAR Part No 102901)		2
101	MACHINED CASE	293-0778	1
102	PLUG (PACCAR Part No 27217)		1
104	DOWEL PIN	053-1578	2
105	PLUG	5P-9436	2
109	KICKER BLOCK, RH	203-6608	1
111	KICKER BLOCK, LH	203-6609	1
112	CAPSCREW 1/2-13 X 1 3/4" GD8	8T-8919	4
113	WASHER, HARD 1/2"	5P-1076	4
114	ADAPTER, ORFS/PIPE	8C-6868	1
116	UNION, BULKHEAD, -6 ORFS	6V-8994	1
118	ELBOW, 90 ORS	6V-9850	1
119	TUBE ASSEMBLY	203-6611	1

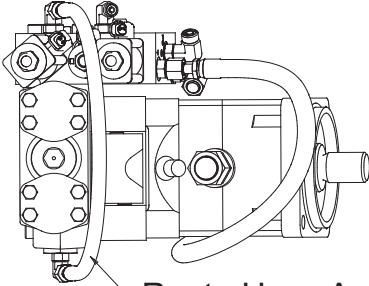
**PA50VS
MOTOR GROUP**



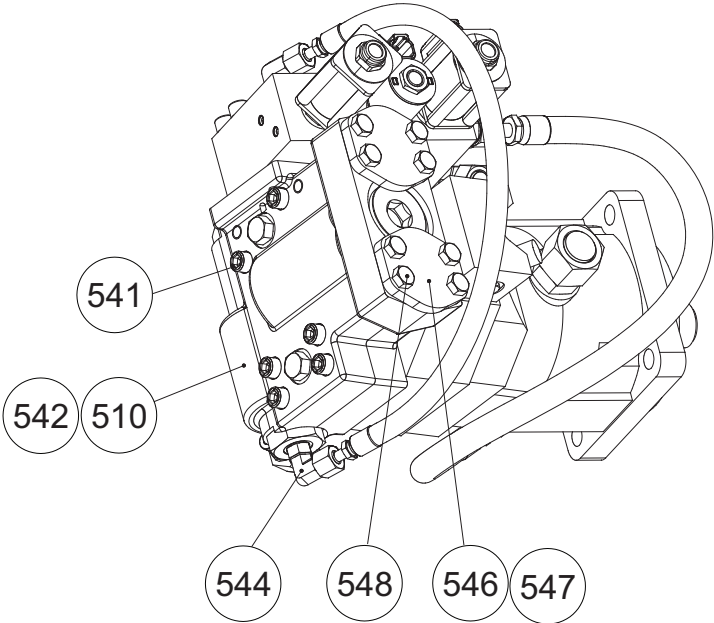
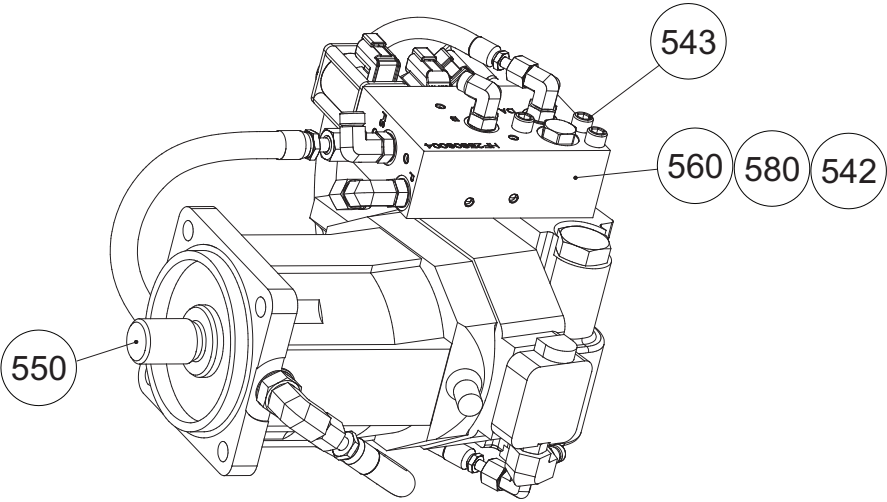
**PA50VS
MOTOR GROUP**

ITEM	DESCRIPTION	PART #	QTY
501	CAPSCREW , 1/2-13 X 1 3/4 GD8	8T-8919	4
502	WASHER , 1/2 INCH HARDENED	8T-4223	4
503	O-RING	4S-5898	1
504	ELBOW 45°	148-8385	1
505	HOSE -4 X 14	152-8368	1
506	HOSE ASSY - 6ORFSX15.0,STR,	212-6989	1
545	HOSE ASSEMBLY	152-8369	1
551	MOTOR	200-1729	1
552	ELBOW 90°	9X-2134	1
553	HOSE ASSEMBLY, 27-INCH	152-9105	1
554	ADAPTER	6V-8637	1
555	CAP	6V-9832	1
556	SET SCREW	3H-8430	1
557	ELBOW	150-3065	1
558	ADAPTER, QUICK DISCONNECT	164-5567	1
561	CARTRIDGE VALVE (PACCAR 106909)		1
562	CAP	6V-9829	2
564	ADAPTER	148-8336	2
565	ELBOW 45	148-8378	2
566	ELBOW 90°	6V-8627	2

**PA50VS
MOTOR GROUP**



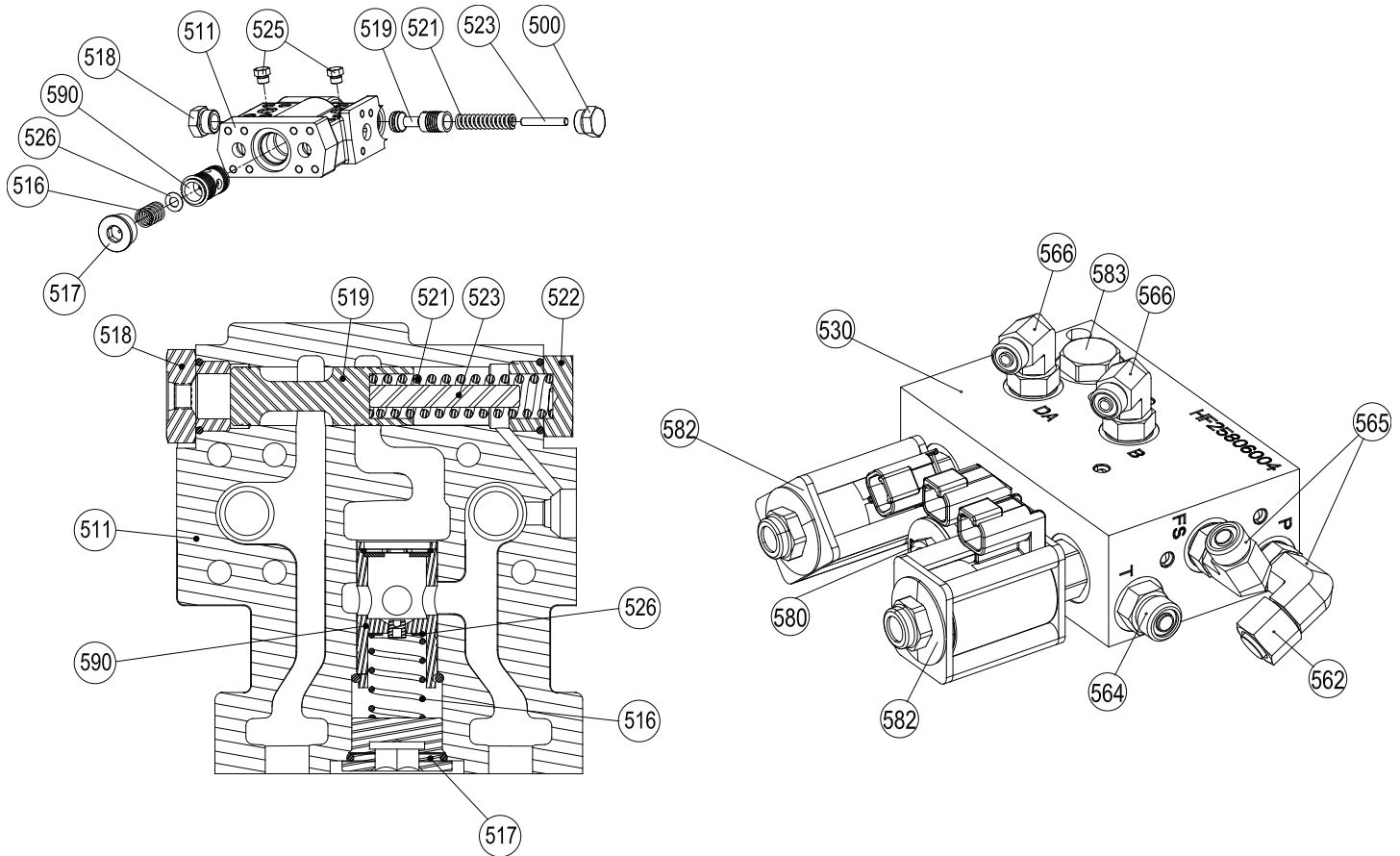
Route Hose As Shown



**PA50VS
MOTOR GROUP**

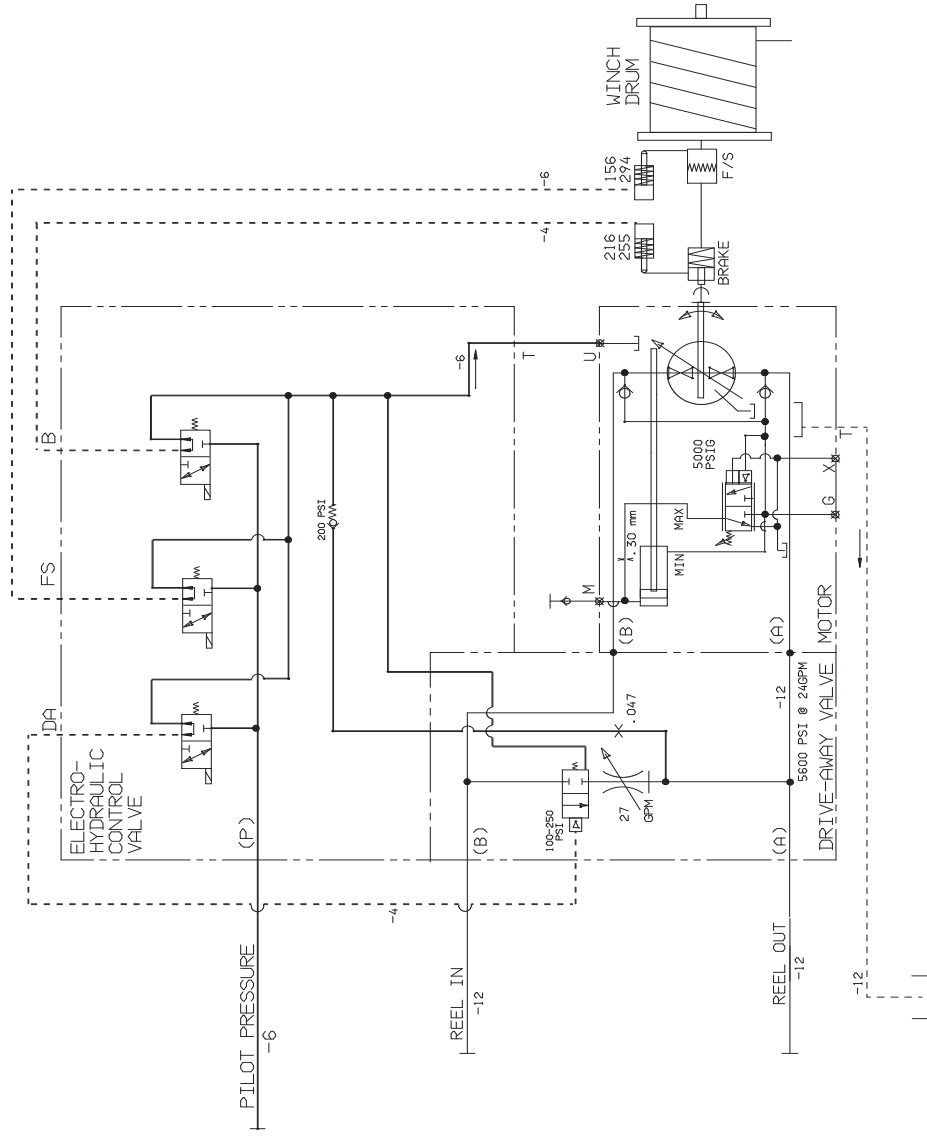
ITEM	DESCRIPTION	PART #	QTY
550	MOTOR SUB-ASSEMBLY (PACCAR 83094)		1
510	VALVE ASSEMBLY	200-1311	1
541	CAPSCREW (Socket Hd 3/8 -16 x 3 GD8)	4S-9002	6
542	O-RING (NS)	5F-1678	3
543	CAPSCREW (Socket Hd 3/8 -16 x 2-1/2 GD8)	1Y-7574	3
544	ADAPTER, 90 ELBOW ORS/ORB	148-8369	1
546	SHIPPING PLATE (PACCAR 105764)		2
547	O-RING (NS)	5F-1678	2
548	METRIC SCREW	8T-4137	8
560	MANIFOLD & FITTINGS (PACCAR 83426)		1
580	FLUSH FITTING ASSEMBLY (NS) (PACCAR 83030)		1

PA50VS VALVE ASSEMBLY MANIFOLD BLOCK

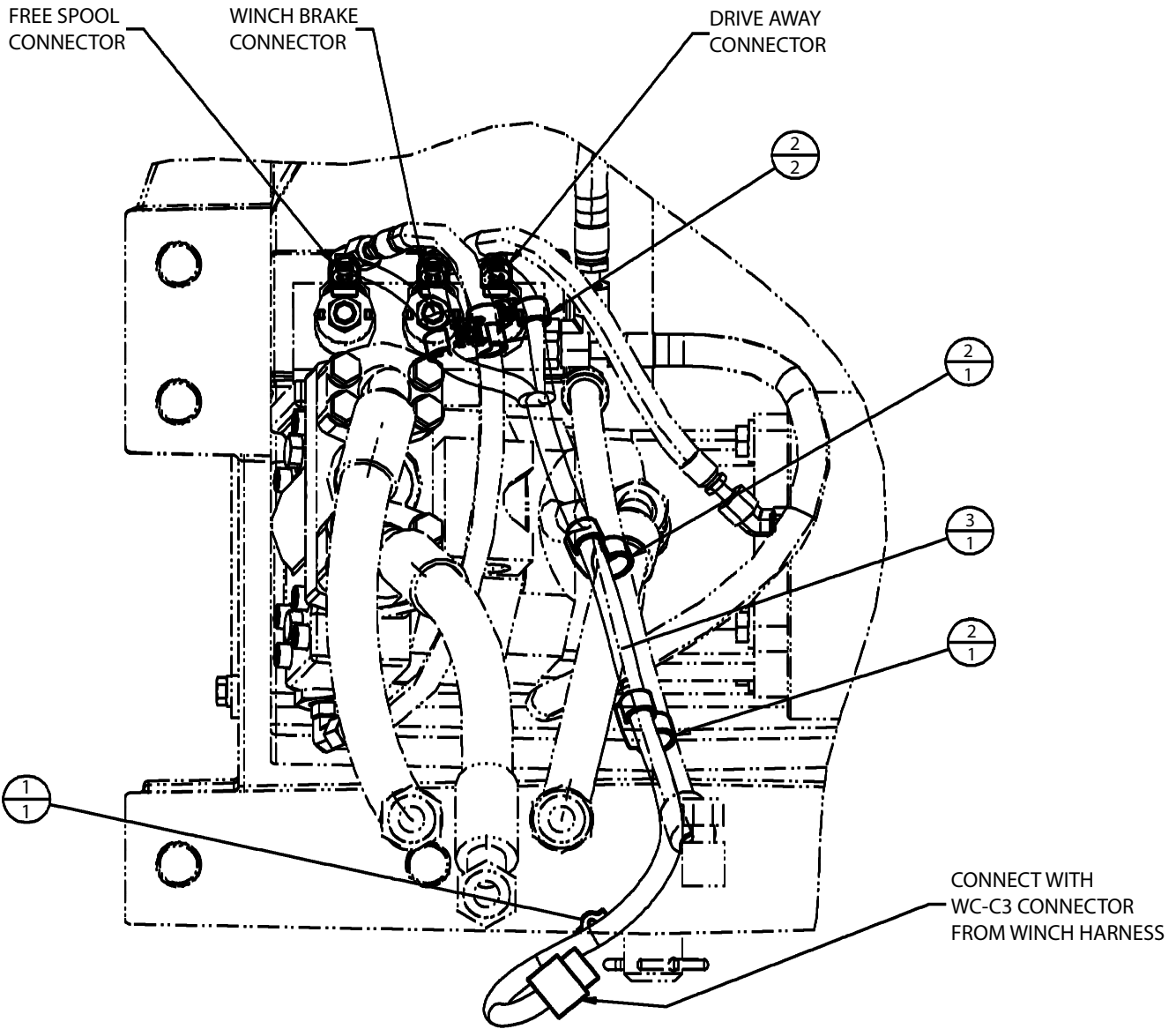


ITEM	DESCRIPTION	PART #	QTY
518	REDUCER - 14/-4 ORB (PACCAR 102577)		1
523	PIN, STOP	NSS	1
521	SPRING (PACCAR 102579)		1
519	SPOOL, 2-WAY	NSS	1
525	PLUG	148-8407	2
511	VALVE BODY	NSS	1
590	SPOOL ASSEMBLY	NSS	1
526	SHIM	NSS	3
516	SPRING (PACCAR 102576)		1
517	PLUG	183-7262	1
530	MANIFOLD VALVE, EH 24V	297-1425	1
566	ELBOW 90°	6V-8627	2
565	ELBOW 90°	148-8378	2
562	CAP	6V-9829	2
564	ADAPTER	148-8336	1
580	CARTRIDGE VALVE (PACCAR 106377)		1
580A	COIL, 24 VDC (FOR ITEM 580) (PACCAR 106378)		1
580B	SEAL KIT (FOR ITEM 580)	127-1955	1
582	CARTRIDGE VALVE	279-6529	2
583	CHECK VALVE (PACCAR 103820)		1
583A	SEAL KIT (FOR ITEM 583) (PACCAR 63858)		1

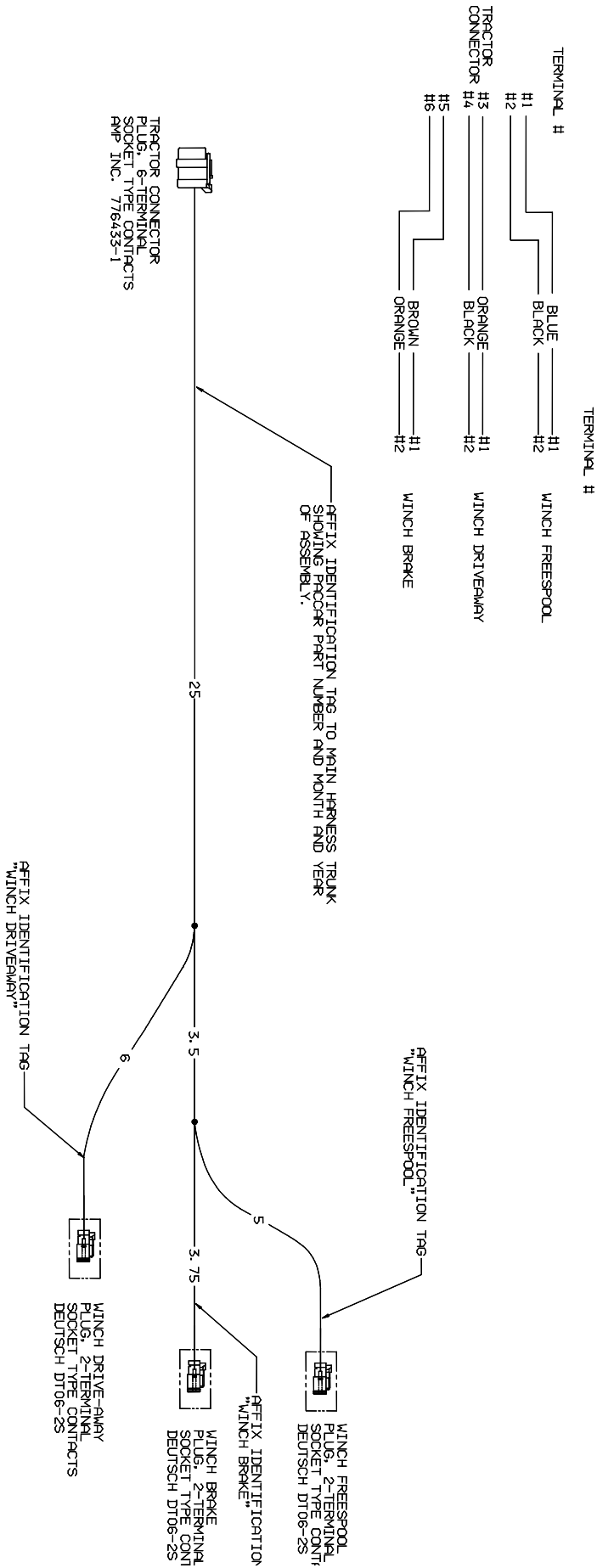
Consult CATERPILLAR for Tractor Hydraulic Schematic



PA50VS WIRING GROUP



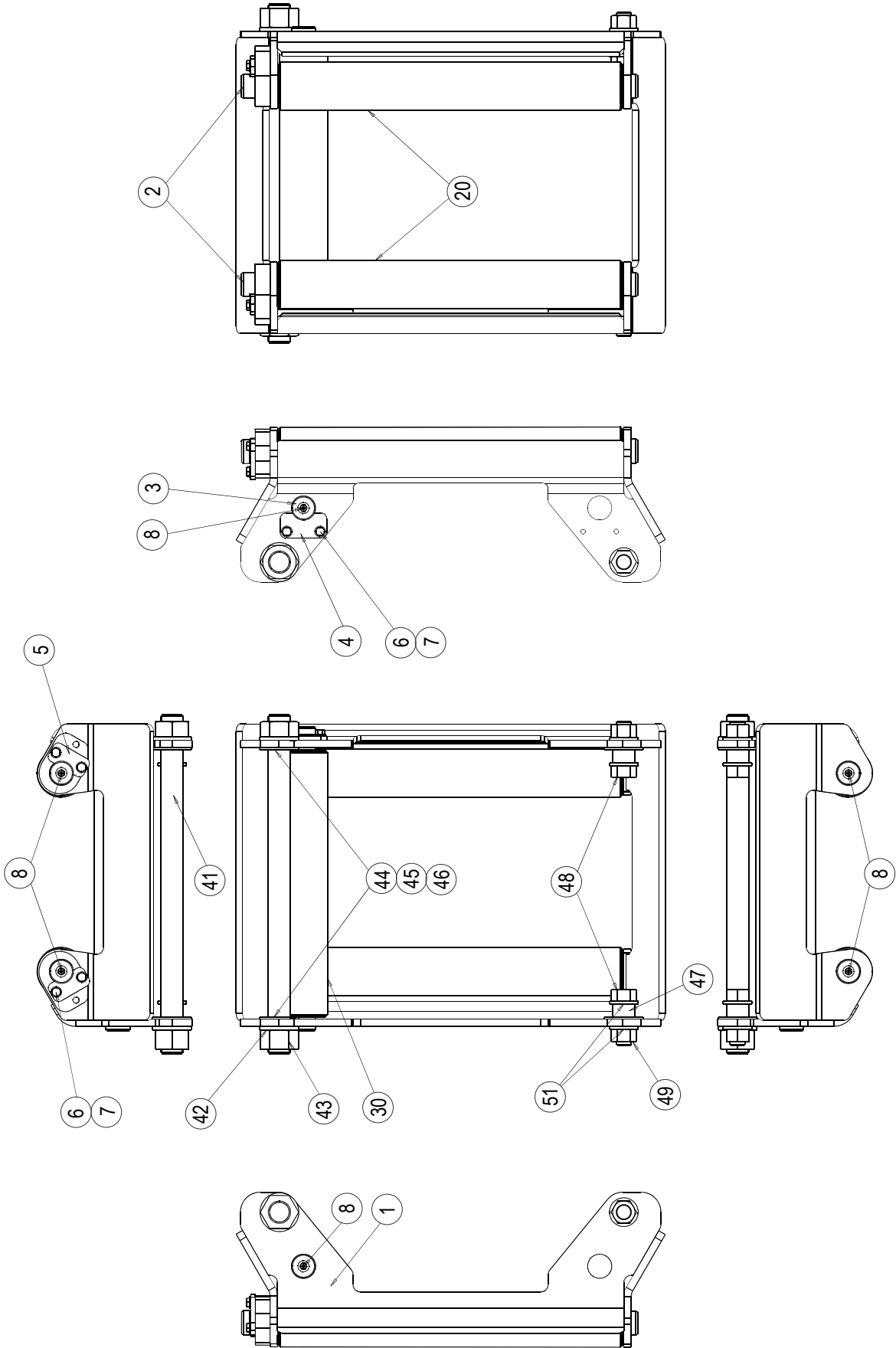
PA50VS WIRING HARNESS SCHEMATIC



PA50VS
OPTIONAL FAIRLEAD ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY
1	103488	FAIRLEAD FRAME	1
2	103485	VERTICAL SHAFT FAIRLEAD	2
3	103508	HORIZONTAL SHAFT FAIRLEAD	1
4	103490	SIDE KEEPER	1
5	103568	TOP KEEPER	2
6	103749	CAPSCREW (3/8 - 16 X 7/8 G8 Z)	6
7	101440	WASHER (HARD 3/8)	6
8	18047	GREASE FITTING	6
20	83007	VERTICAL ROLLER ASSEMBLY	2
30	83006	HORIZONTAL ROLLER ASSEMBLY	1
41	102735	DRAW BOLT	1
42	102886	WASHER C150 HARD Z	2
43	103439	NUT S150PZ GD8	2
44	11894	THRUST RACE	6
45	24307	THRUST RACE	6
46	24427	THRUST RACE	6
47	102878	FAIRLEAD MOUNTING BUSHING	2
48	102597	CAPSCREW (1 - 8 X 3 G8 Z)	2
49	PA6V8190	HEX HD NUT	2
51	101205	WASHER (HARD 1 INCH)	4
--	63145	4th ROLLER KIT (INCLUDES ITEMS 3,4,6,7,8,30)	OPT.

PA50VS
OPTIONAL FAIRLEAD ASSEMBLY



METRIC CONVERSION TABLE

English to Metric

Metric to English

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)	centimeters ³ (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)	meters ³ (m ³)	X 35.315	= feet ³ (cu.ft.)
fluid ounce (fl.oz.)	X 29.57	= milliliters (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/cm ²)	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

BRADEN
CARCO
Gearmatic

PACCAR WINCH
800 East Dallas Street
Broken Arrow, OK 74012
www.paccarwinch.com