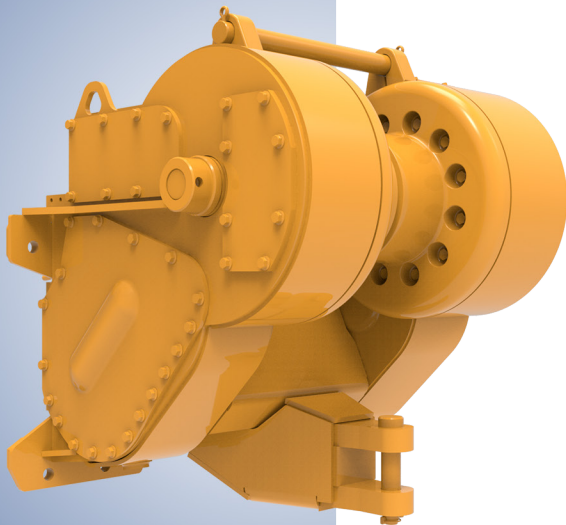




Parts Manual

Allied W8L

Power Controlled & Electronic Controlled Towing Winch



Please check the Allied Systems website
regularly for updates to this manual.
www.alliedsystems.com

CUSTOMER
EDITION

A PRODUCT OF
Allied Systems
COMPANY

SHERWOOD, OREGON USA

P/N 599781W

Printed in U.S.A.

5/07/2018

Safety Precautions

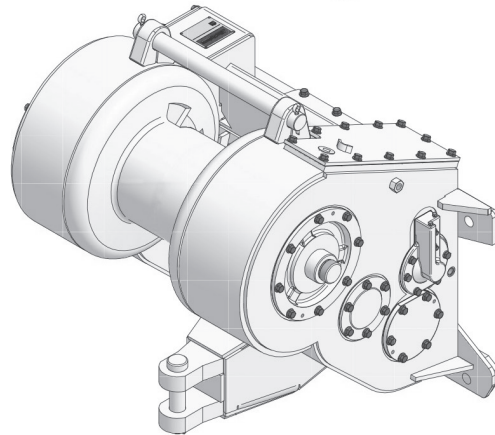
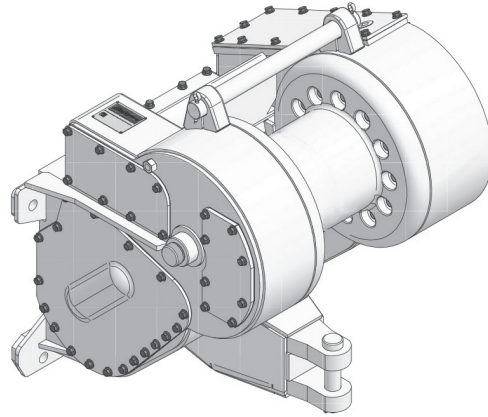
**Read, understand and observe the Safety Summary
on pages 0-3 through 0-5
to prevent injury to personnel and damage to equipment.**

Winch serial number _____

Date put into service _____

**NOTE: This publication may be translated to different languages for sole purpose
of easy reference in non-English speaking locations.
Should there be differences in interpretations to the text,
please refer to the English language edition published by Allied Systems Company
as the controlling document.**

Index - Illustrated



Ref	Item	Page
1	Frame/Covers/Decals/Parts-Mounting	1-1
2	Gear Train/Shaft	2-1
3	Hydraulics/Controls	3-1
4	Optional Equipment	4-1
5	Recommended Service Kits	5-1
6	Suggested Spares Guide	6-1
7	Numerical Index	7-1

Index - Master

<u>Description</u>	<u>Page No.</u>
Brake	2-49
Clutch	2-46
Common Parts, Electronic Controls	2-126
Control Lever Assembly, Electronic Controls	3-128
Control Lever Assembly, Power Controls	3-93
Control Lever Replacement Kit, Electronic Controls	3-132
External Wiring Harness Repair Kits, Electronic Controls	3-112
Fairlead	4-2
Frame/Covers	1-2
Freespool	4-5
Gear Box	2-20
Handling Gear, Electronic Controls	3-113
Handling Gear, Power Controls	3-15
Hydraulic Group, Electronic Controls	3-98
Hydraulic Group, Power Controls	3-2
Hydraulic Pump	3-134
Mounting Parts	1-14
Nameplate & Decals	1-54
Numerical Index	7-1
Recommended Service Kits	5-1
Rollers, Wire Rope Guide	4-6
Shaft, Brake	2-50
Shaft, Drum	2-52
Shaft, Clutch/Bevel Gear	2-40
Shaft, Intermediate Gear	2-54
Shaft, PTO	2-2
Suggested Spares Guide	6-1
Valve, Power Controls	3-12
Valve Manifold Assembly, Electronic Controls	3-108
Wire Rope Assemblies	4-7
Wire Rope Guide Rollers	4-6
Wire Rope Lock	2-55

Safety Summary

General Safety Notices

The following pages contain general safety warnings which supplement specific warnings and cautions appearing elsewhere in this manual. All electrical and hydraulic equipment is dangerous. You must thoroughly review and understand the Safety Summary before attempting to operate, troubleshoot or service this winch.

The following symbols and terms are used to emphasize safety precautions and notices in this manual:

DANGER

The “DANGER” symbol indicates a hazardous situation which, if not avoided, will result in serious injury or death. Carefully read the message that follows to prevent serious injury or death.

WARNING

The “WARNING” symbol appears wherever incorrect operating procedures or practices could cause serious injury or death. Carefully read the message that follows to prevent serious injury or death.

CAUTION

The “CAUTION” symbol appears where a hazardous situation which, if not avoided, could result in minor to moderate injury and equipment damage.

NOTICE

This signal word alerts to a situation that is not related to personal injury but may cause equipment damage.

NOTE: ...

The term “NOTE” highlights operating procedures or practices that may improve equipment reliability and/or personnel performance.

NOTE: All possible safety hazards cannot be foreseen so as to be included in this manual. Therefore, you must always be alert to potential hazards that could endanger personnel and/or damage the equipment.

Safety Regulations

Each country has its own safety legislation. It is in the operator’s own interest to be conversant with these regulations and to comply with them in full. This also applies to local bylaws and regulations in force on a particular work site.

Should the recommendations in this manual deviate from those in the user’ country, the national regulations should be followed.

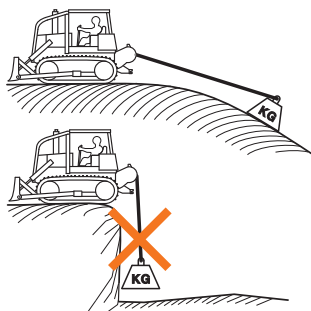
Operation, Inspection, and Maintenance Warnings

WARNING

Obey the following cautions and warnings before using your winch to avoid equipment damage, personal injury or death.

- Do not operate the winch unless your are authorized and trained to do so.
- Do not operate the winch unless the vehicle is equipped with a screen to protect the operator if the wire rope breaks.
- Read, understand, and follow the operating, inspection, and maintenance instructions in this manual.
- Do not use the control levers for hand holds when entering or leaving the vehicle.
- Do not permit other people near the control area when you inspect or repair a machine.
- Never inspect, repair, or perform maintenance on a machine that is in motion.
- Inspect the winch before each use:
 - » Make sure that the controls and instruments operate correctly.
 - » Report the need for repairs immediately.
 - » Do not work with a damaged or worn wire rope.
 - » Do not use a winch that needs repairs.

- » If the wire rope and ferrule must be removed from the drum, make sure the end of the wire rope and ferrule are controlled when the ferrule is released. The end of the wire rope can suddenly move from the drum like a compressed spring when the ferrule is released, and cause an injury.
- Stay in the operator's seat when operating the winch.
- Do not stand on the vehicle when operating the winch.
- Avoid winch operation near people or other machines.
- Never stand nor permit others to stand in the bight (loop) of a wire rope.
- Do not stand nor permit others to be near the winch or wire rope when there is tension on the wire rope.
- Observe job site rules.
- Be in complete control at all times.
- Do not use the control levers as hangers for clothes, water bags, grease guns, lunch pails, etc.
- Do not leave the vehicle when the winch wire rope is under tension.
- Do not permit riders on the vehicle or load.
- Do not use the winch as an anchor for a double or two-part line.
- Do not pull the hook through the throat or over the drum, which will cause damage.
- When the winch is not in use, make sure the control lever is in **BRAKE-ON** position and the winch brake is applied.
- Do not use winch as a hoist. Tractor and skidder mounted winches are designed for towing.



- Always inspect wire rope, tail chain and other rigging components for wear, damage, broken strands or abuse before use.
- Never use wire rope, tail chain or other rigging that is worn-out, damaged or abused.
- Never overload wire rope, tail chain or rigging.
- Wire rope and tail chain will fail if worn-out, overloaded, misused, damaged, improperly maintained or abused. Wire rope or tail chain failure may cause serious injury or death!



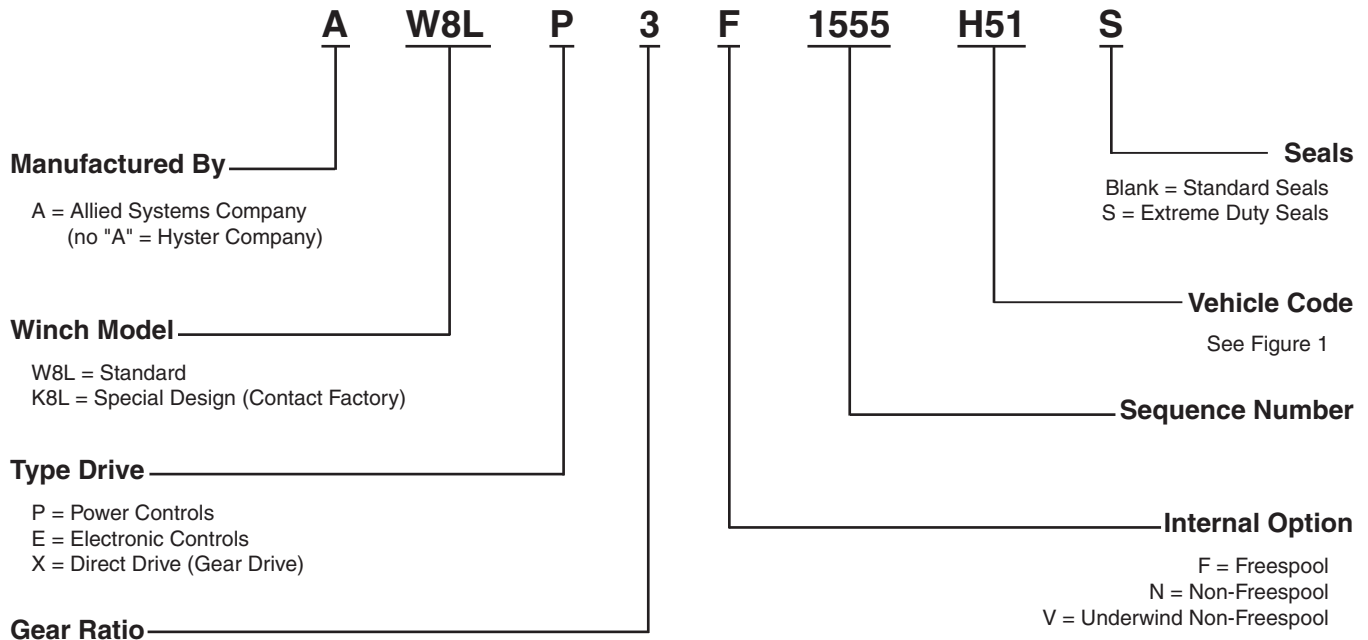
- Do not terminate wire rope to tail chain by the use of a knot.
- Do not handle wire rope if the hook end is not free. A load could break away, suddenly tensioning the wire rope, resulting in serious injury or death.
- Stay clear of wire rope entry areas (fairlead or arch rollers, winch drum etc).
- Make sure ground personnel are in plain view of the operator, and at a distance of at least 1½ times the working length of the wire rope.
- Make sure that any hand signals used by ground personnel are clearly defined and understood by everyone involved.
- Do not attempt to “jerk” or “shock” a load free. Doing so can cause loads in excess of the rated capacity of the wire rope, winch, or mounting hardware.
- Replace any parts only with genuine Allied Winch parts.
- Maintain a **minimum of three (3) complete wraps of wire rope** on the drum for normal operation. It may help to paint the last five wraps of wire rope a contrasting color, to serve as a visual indicator.

- Do not handle wire rope with bare hands. Wear leather gloves at all times.
- Align the tractor with the load to prevent side loading the winch, and to maintain even spooling of the wire rope.
- If applying tension to the wire rope manually during spooling:
 - » ensure that the operator is winching in slowly,
 - » keep your hands and clothing well clear of any rollers or the winch drum,
 - » do not maintain tension by letting the wire rope to slip through your hands,
 - » use a hand-over-hand technique to maintain tension.
- Be aware of the ground conditions, and make sure the ground and tractor are stable enough to pull the intended load.
- Do not attempt to pull loads in excess of the rated capacity of the winch.
- Keep yourself informed of any applicable codes, regulations and standards for the job.
- Your winch may have temperature shut-off system for protection of tractor and winch. Manual override of high temperature shut-off will cause damage to tractor and winch.
- This winch is neither intended, designed, nor rated for any application involved in the lifting or moving of personnel.
- Use only the lubricants listed in the Recommended Oil List. See page 0-11.
- Do not weld on any part of the winch. Contact Allied Systems if weld repairs are needed.
- The hydraulic system must be kept clean and free of contamination at all times.
- Be aware of the hazards of pressurized hydraulics:
 - » Assume that all hydraulic hoses and components are pressurized. Relieve all hydraulic pressure before disconnecting any hydraulic line.
 - » Never try to stop or check for a hydraulic leak with any part of your body; use a piece of cardboard to check for hydraulic leaks.
 - » Small hydraulic hose leaks are extremely dangerous, and can inject hydraulic oil under the skin, even through gloves.
 - » Infection and gangrene are possible when hydraulic oil penetrates the skin. See a doctor immediately to prevent loss of limb or death.



Identification - Unit

Allied Winch S/N Nameplate Data For Tractor Mountings



- Notes:** 1. In Addition to the serial number plate, the serial number is stamped on to the left hand side of the frame
2. Circled numbers in **Figure 1** indicate possible gear ratios.

Figure 1 - Tractor Identification and Gear Ratio_1

Tractor Make Model and Starting Tractor Serial Number Where Applicable							
C O D E	A Fiat-Hitachi/ New Holland	C Caterpillar	G Terex	H Dresser	K Komatsu	M MF	N Zoomlion
48					D68ESS-12 ⑥		
50					D85E/PX-15 ② ③ ⑧ ⑩		
51	16B PS S/N 10301 & UP ① ②	D7F *a, D7G PS Series I ① ② ③ ⑦	D700A, 82-20B, 82-20 ① ② ③	TD20E/G/H PS, TD20M ① ② ③ ⑦	D80A-12 ②	D700C, D700D TEREX ①	
52	16B DD S/N 10301 & UP ②	D7F DD, D7G DD *b ② ③			D85A-12 ① ②		
53	AB/BD 20 PS, 20B FL20 ②	572 *c, 572G ① ② ③ ⑦			D85E-18, D85P-18 ① ② ③ ⑦		

Figure 1 - Tractor Identification and Gear Ratio_2

Tractor Make Model and Starting Tractor Serial Number Where Applicable							
C O D E	A Fiat-Hitachi/ New Holland	C Caterpillar	G Terex	H Dresser	K Komatsu	M MF	N Zoomlion
54	20 DD ②	983 S/N 38K, D7R, D7H PS ① ② ③ ⑦ ⑧ ⑩			D85E-21, D85P-21 ① ② ③ ⑦		
55	FD20/FL20, FP60 ① ② ③ ⑦	D8N *d ③			D83-1, D85E-SS-1 ② ③ ⑦		
56	DX255, FD255, D255 ① ② ③ ⑦	D8N *e, D8R ③ ⑧ ⑨ ⑩			D135A ③		
57		D7R PS ① ② ③ ⑦ ⑧ ⑩			D85E-SS-2 *f ⑤ ⑥ ⑪		ZD220 ③
58		D8R ③ ⑧ ⑩			D87E-2 ① ⑤ ⑥		
59		D8R SERIES II ③ ⑧ ⑨ ⑩			D155AX-5 ① ⑤ ⑥		
60		572R ③ ⑨					
70		572R SERIES II ③ ⑨					
72		D7R SERIES II ① ② ③ ⑦ ⑧ ⑨ ⑩					
74		D8T ③ ⑧ ⑨ ⑩					
83		D7G SERIES II ① ② ③ ⑦					
983		983 Track Loader S/N 38K ① ② ③ ⑦					

*a Caterpillar D7F S/N 94N5660 & UP
 *b Caterpillar D7 DD S/N 91V, 93N, 64V & 45W
 *c Caterpillar 572 S/N 40U, 6J
 *d Caterpillar prior to D8N S/N 5TJ0001, same as C56 for AW8L-2293 & up; D7H not used
 *e Caterpillar D8N S/N 5TJ0001 & UP
 *f Komatsu D85E-SS-2 Gear Ratios 1 & 5 are both 90.1:1.

Figure 2 - List of Installation Drawings

W8L INSTALLATION DRAWINGS BY TRACTOR

Winch Serial Number	Description	Installation Drawing Part Number
Electronic Control		
W8LE**C57	W8L CAT D7R	2310568
W8LE**C58	W8L CAT D8R	2310568
W8LE**C59	W8L CAT D8R SERIES II	2310568
W8LE**C60	W8L CAT 572R	2312113
W8LE**C72	W8L CAT D7R SERIES II	2310568
W8LE*NC74	W8L CAT D8T	2313767
Power Control (push pull cable)		
W8LP**A55	W8L F/H	308424W
W8LP**A56	W8L F/H FD255	2301867W
W8LP**C51	W8L CAT D7F & D7G SERIES 1	256611W
W8LP**C53	W8L CAT 572G	2313220
W8LP**C54	W8L CAT D7H/R	379453W
W8LP**C56	W8L CAT D8N PS	379453W
W8LP**C57	W8L CAT D7R	379453W
W8LP**C58	W8L CAT D8R	379453W
W8LP**C59	W8L CAT D8R SERIES II	379453W
W8LP**C60	W8L CAT 572R	2305491W
W8LP**C72	W8L CAT D7R SERIES II	379453W
W8LP**C74	W8L CAT D8T	2312690
W8LP**C83	W8L CAT D7G SERIES 2	2310921
W8LP**H51	W8L IH & DRESSER TD20E & G	338843W
W8LP**K48	W8L KOM D68ESS-12	2301259W
W8LP**K50	W8L KOM D85EX-15	2305919W
W8LP**K53	W8L KOM D85-18	304385W
W8LP**K54	W8L KOM D85-21	304385W
W8LP**K55	W8L KOM D83	1308404W
W8LP**K56	W8L KOM D135A	1310760W
W8LP**K57	W8L KOM D85ESS-2	2301259W
W8LP**K58	W8L KOMATSU D87	338843W
W8LP**N57	W8L ZOOMLION ZD220	2315560
W8LP6NU57	W8LP ON SHANTUI SD20-5	2313502
W8LP3NC983	W8LP ON CAT TRACK LOADER 983 S/N 38K	2314363

Notes: 1. This list is for operators to keep track of necessary information of their winch installation drawings by tractors.

2. If any of the installation drawings listed above is needed, please contact the Service Department of Allied Systems Company.

How to use the Illustrated Parts manual

5

5-2

Numerical Index

Part No.	Page	Item	Description	Part No.
108877W	2-8	23	O-Ring	1305093W
109453W	1-9	9	O-Ring	1306001W
109453W	2-2	10	O-Ring	1306002W
110322W	3-12	9	Clamp	1306003W
110322W	3-27	11	Shim, .005	1306003W
110931W	2-5	23	Shim, .007	1308400W
110932W	2-5	23	Shim, .020	1308401W
110933W	2-5	23	Clamp, Strap	1308402W
114312W	3-10	24	O-Ring	1308403W
118361W	3-7	13	O-Ring	1308406W
118361W	3-8	16	O-Ring	1308436W
118361W	3-9	21	O-Ring	1308437W
118365W	3-9	26	O-Ring	1308438W
118365W	2-6	17	Seal, Oil	1308439W
119491W	2-5	3	Cap screw	1308440W
12327W	2-11	9	Bearing	1308441W
12447W	2-2	8	Clamp	1308442W
125399W	3-3	8	Clamp	1308443W
127045W	3-5	14	Snap-Ring	1308444W
127045W	2-10	3	Snap-Ring	1311111W

3

0-2

Index-Master

Description	Page No.
Arch	4-3
Box-Gear	2-5 thru 2-7
Brake	2-10
	2-9
	2-9
	1-4
	4-3 & 4-4

9

2-2

Shaft-PTO

Last Used on S/N WBLP-2099 & AW8L-1000

Tractor Model	Shaft-PTO (Item 3)		Bearing Carrier (Item 4)	Pin (Item 5)	Lo Pin (Item 6)
	Gear Ratio	Part No.			
Caterpillar D7DD	49.8:1	132909W	98362W	19929W	96
Caterpillar D7FS	25977W	132909W	98362W	19929W	96
Caterpillar 572	25977W	12920W	98362W	9583W	96
Flat-Allis 16B	25373W		216222W	19929W	96
Flat-Allis 20		132909W	216222W	9583W	96
Dresser TD-20E	25876W		98362W	19929W	96
Komatsu D65A-12E-16	213032W		98362W	213139W	96
Deere D65C-16	258954W	253030W	98362W		96
John Deere D700A					

0-1

Index-Illustrated

Ref	Item	Page
1	Frame/Covers/Decals/Parts-Mounting	1-1
2	Gear Train/Shaft	2-1
3	Hydraulics/Controls	3-1
4	Optional	4-1
5	Numerical Index	5-1

A-49.8:1 Gear Ratio
B-71.6:1 Gear Ratio

Item	Part No.	Description	A	B	Item
1	134078W	Shim, .005	A/R	A/R	11
1	134079W	Shim, .007	A/R	A/R	11
2	79383W	Seal, Oil	1	1	12
3	"a	Shaft, PTO	1	1	13
4	"a	Bearing, Carrier	1	1	14
5	"a	Pin	1	1	15
6	"a	Ring, Lock	1	1	16
7	"a	Coupler	1	1	1
8	36573W	Ring, Snap	1	1	1
9	125399W	Bearing	1	1	1
10	109453W	O-Ring	1	1	1

When the part number and the next higher assembly is not known:

1. Determine the function and application of the part required. Turn to the illustrated index page immediately behind the front cover, and select the most appropriate area.
2. Line up the black arrow containing the appropriate reference number, with the black tab on the division index page with the same reference number. Use the division index to determine the assembly which would normally contain the part required. Locate the part on the assembly breakdown page.

When the part number is not known and the next higher assembly is known:

1. Determine the assembly the required part is used on. Turn to the master index immediately following the illustrated index.
2. Locate the assembly on which the required part is used, and turn to the page indicated for that assembly. Proceed then to locate the part on the assembly breakdown page.

When the part number is known:

Use the numerical index to find the part number. Turn to the page listed and locate the part as indicated by the reference number.

General:

The assembly breakdowns include part numbers, descriptions, quantities required, keys and footnotes to help in selecting the correct parts.

1. Keys are used to show effective serial numbers for two or more similar assemblies, LH and RH assembly parts, etc. Select the appropriate key, "A", "B", "C", or "D" and the corresponding quantity column to find the required parts.
2. Indent dots are used to indicate assemblies and sub-parts of assemblies. No dot indicates the major assembly. Part descriptions which are indented with dots are sub-parts of the major assembly shown above.
3. Quantities shown are for one assembly. Note that when two assemblies are shown, but the quantity of the sub-parts is indicated as three, this means three per assembly - for a total of six. AR means As Required and NSS indicates Not Sold Separately.
4. Serial numbers are shown to allow for the most current parts information to be incorporated into the parts manual. Contact your local winch dealer for serial number information.

Ordering Parts:

When ordering replacement parts, give the unit serial number, part number, name of part and quantity required.

For any further information on parts, service or ordering, consult your local winch dealer, or contact Allied Systems Company:

Allied Systems Company
21433 SW Oregon Street
Sherwood, OR 97140 U.S.A.

Phone: 503-625-2560
Fax: 503-625-5132
E-Mail: parts@alliedsystems.com

Also see our website, www.alliedsystems.com, where the most current copy of this manual is always available.

NOTE: This publication may be translated to different languages for sole purpose of easy reference in non-English speaking locations. Should there be differences in interpretations to the text, please refer to the English language edition published by Allied Systems Company as the controlling document.

Capacities and Specifications

Recommended Oil List

Recommended Oils* - General Conditions			
Manufacturer	Oil Type	Ambient Temperature Range	
		°F	°C
ExxonMobil	Mobil Fluid 424 (Factory fill)	-13 to 104	-25 to 40
John Deere	Hy-Gard™	-13 to 122	-25 to 50
Chevron	1000 THF	-13 to 104	-25 to 40
Caterpillar	Multipurpose Tractor Oil (MTO)	-13 to 104	-25 to 40
Case	Hy-Tran Ultra	-20 to 122	-29 to 50
Recommended Oils* - Low Temperature Conditions			
Manufacturer	Oil Type	Ambient Temperature Range	
		°F	°C
ExxonMobil	Mobil Fluid LT	-40 to 86	-40 to 30
John Deere	Low Viscosity Hy-Gard	-40 to 86	-40 to 30
Chevron	THF W	-40 to 86	-40 to 30

* Note: Use of non-recommended oils may void warranty.

Figure 3 Recommended Oil List

Note: Refer to Winch Maintenance decal on page 1-54 for more information.

Winch Oil Capacity

Winch Model	Oil Capacity
W8L	20.0 Gallon (76 L)

Note: The gear box uses 0.5 gallon oil, and is separate from the winch.

Figure 4 Winch Oil Capacity

Intentionally Blank



Frame/Covers/Decals/Mounting Parts

Frame/Covers1-2 & 1-13
Mounting Parts 1-14 thru 1-53
Nameplate & Decals 1-54 & 1-55

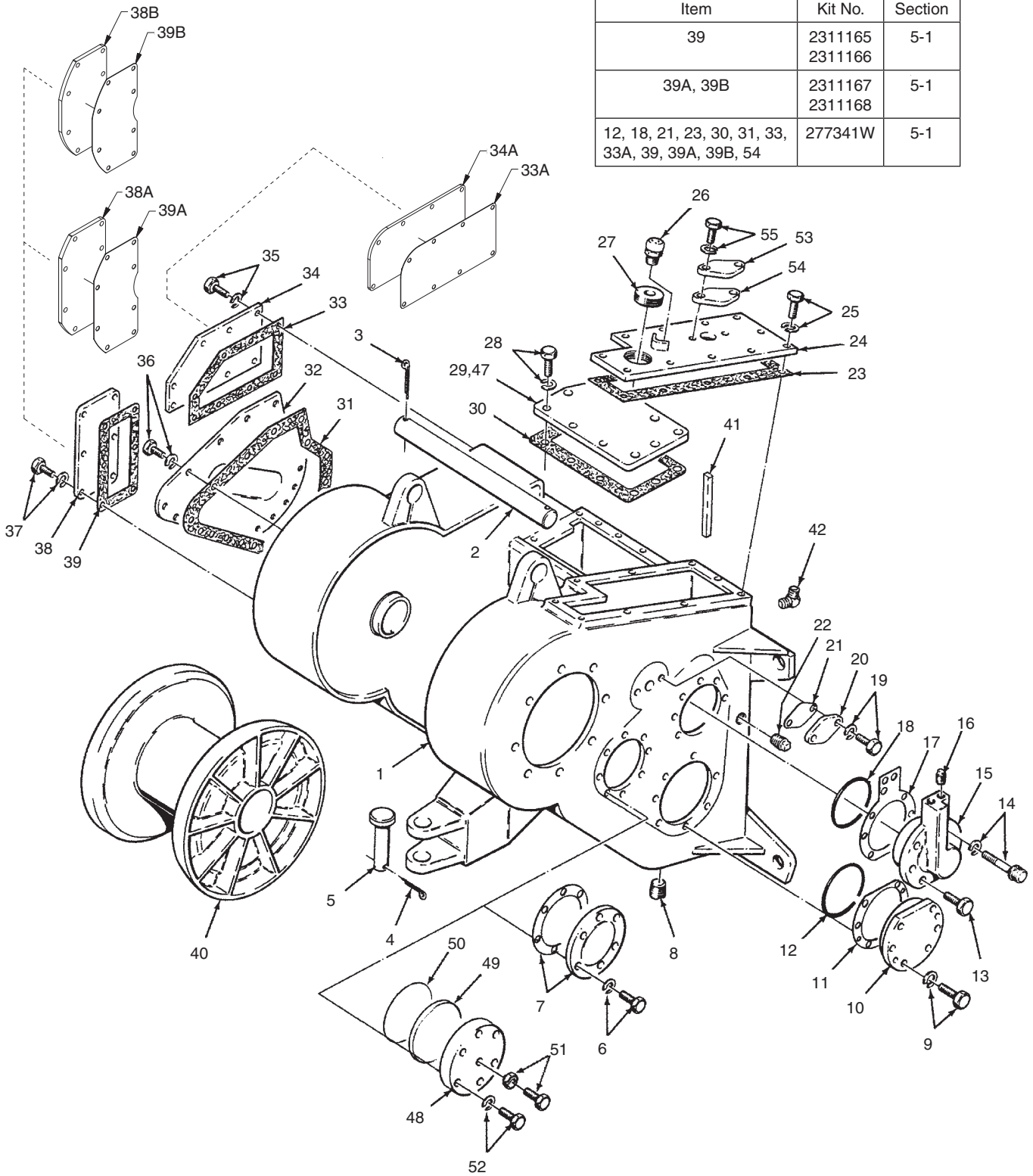
Frame/Covers

With Freespool

Caterpillar D7 (C50, C51, C52, C57, C72, C85)
& 572 (C53, C60, C70)

Page 1 of 2

Recommended Service Kit		
Item	Kit No.	Section
39	2311165 2311166	5-1
39A, 39B	2311167 2311168	5-1
12, 18, 21, 23, 30, 31, 33, 33A, 39, 39A, 39B, 54	277341W	5-1



Frame/Covers

With Freespool

Caterpillar D7 (C50, C51, C52, C57, C72, C85)
& 572 (C53, C60, C70)

Page 2 of 2

Item	Description	Qty	Item	Part No.	Description	Qty
1	-----	1	34	257789W	Cover, Valve	1
2	196279W	1	34A	*j 2305270W	Cover, Valve	1
3	15272W	1	35	194090W	Capscrew	8
4	15273W	1		*j 178402W	Capscrew	8
	*h 2303221W	1		*d 222091W	Washer	8
5	95959W	1		*j 15158W	Washer	8
6	15158W	6	36	*b 222091W	Washer	16
	*f 182209W	6		*c 178402W	Capscrew	19
7	*f 258559W	1		*c 15158W	Lockwasher	19
	134074W	AR	37	178402W	Capscrew	6
	134075W	AR		*j 178402W	Capscrew	8
	134076W	AR		15158W	Lockwasher	6
8	15319W	2		*j 15158W	Washer	8
9	178402W	6	38	186459W	Plate, Cover	1
	*d 222091W	6	38A	*i 2303523W	Plate, Cover	1
	*e 15158W	6	38B	*n 2304708W	Plate, Cover	1
10	96433W	1	39	186460W	Gasket	1
11	134081W	AR	39A	*i 2303524W	Gasket	1
	134082W	AR	39B	*n 2304709W	Gasket	1
	134083W	AR	40	141357W	Drum, Overwind	1
12	60988W	1		2311151	Drum, Underwind	1
13	178402W	1	41	165493W	Strip	2
14	225264W	2	42	13987W	Fitting	2
	15158W	2	47	358674W	Sealant	AR
15	224023W	1	48	*g 2302697W	Housing	1
16	15307W	1	49	*g 2302696W	Piston	1
17	225255W	AR	50	*g 2302695W	O-Ring	1
	225256W	AR	51	*g 221650W	Capscrew	1
	225257W	AR		*g 221717W	Nut	1
18	55289W	1	52	*g 307788W	Capscrew	6
19	178403W	2		*g 15158W	Washer	6
	15158W	2	53	*m 151589W	Plate	1
20	*m 151589W	1	54	*m 151646W	Gasket	1
21	*m 151646W	1	55	178403W	Capscrew	2
22	15304W	1		15158W	Lockwasher	2
	*j 2305101W	1				
	*k 14595W	1		*b	Last Used on S/N W8LP-1892 and AW8L-1000	
23	142761W	1		*c	First Used on S/N W8LP-1893 and AW8L-1001	
24	258573W	1		*d	Last Used on S/N W8LP-1955 and AW8L-1000	
25	178403W	11		*e	First Used on S/N W8LP-1956 and AW8L-1001	
	15158W	11		*f	Last Used on S/N AW8L-1972	
26	21420W	1		*g	With Freespool Adjust, First Used on S/N W8L-1973	
27	15319W	1		*h	First Used on S/N AW8L-2311	
28	182209W	10		*j	First Used on S/N AW8L-2751	
29	253814W	1		*k	First Used on S/N AW8L-2822	
30	253812W	1		*l	Used on S/N AW8L-2422 thru S/N AW8L-2477	
31	286044W	1		*m	Last Used on S/N AW8L-3145	
32	286043W	1		*n	First Used on S/N AW8L-2478	
33	257779W	1				
33A	*j 2305271W	1				

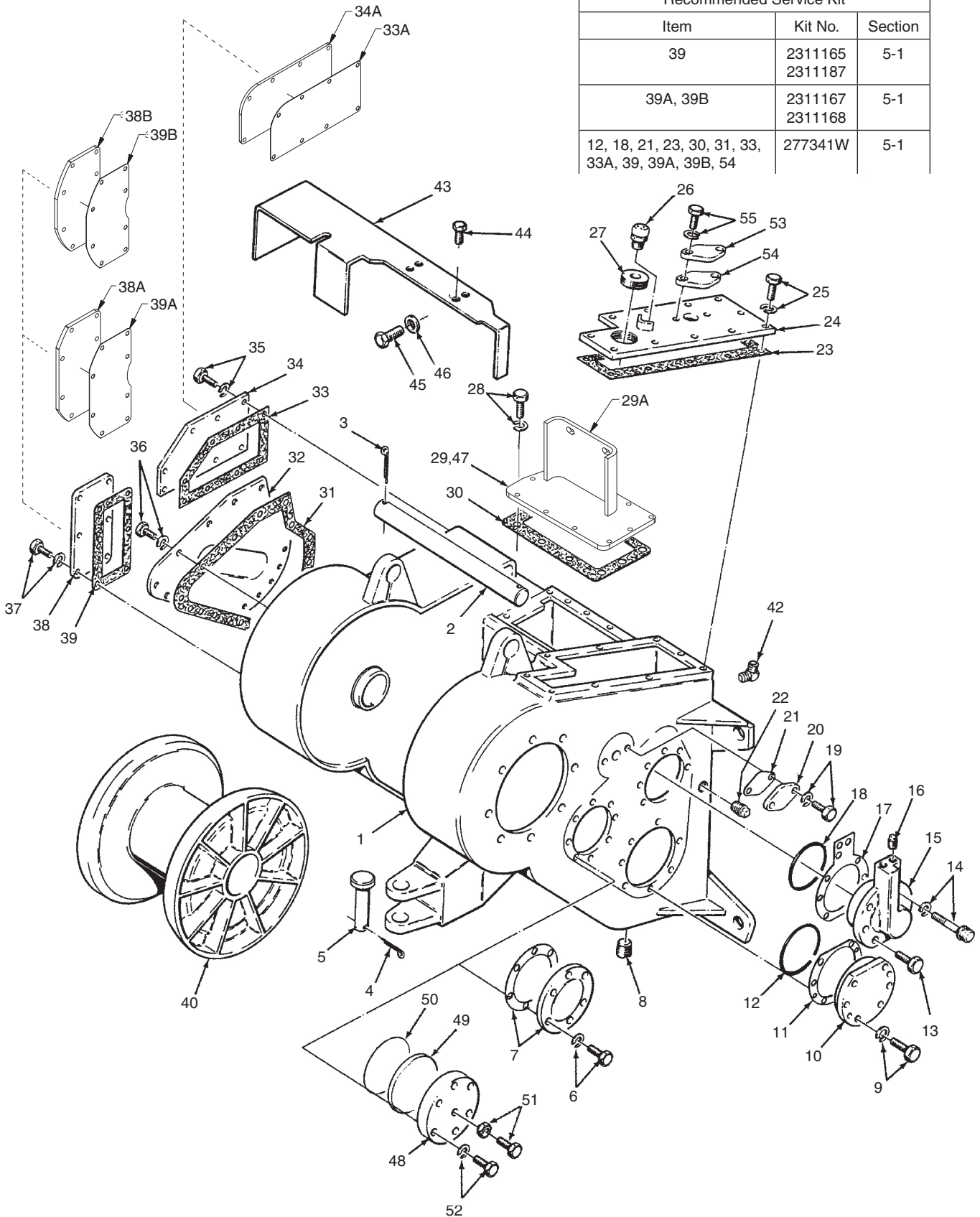
Frame/Covers

With Freespool

Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 1 of 2

Recommended Service Kit		
Item	Kit No.	Section
39	2311165 2311187	5-1
39A, 39B	2311167 2311168	5-1
12, 18, 21, 23, 30, 31, 33, 33A, 39, 39A, 39B, 54	277341W	5-1



Frame/Covers

With Freespool

Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 2 of 2

Item	Description	Qty	Item	Part No.	Description	Qty
1	-----	1	34A	*j 2305270W	Cover, Valve	1
2	196279W	1	35	194090W	Capscrew	8
3	15272W	1		*j 178402W	Capscrew	8
4	15273W	1		*d 222091W	Washer	8
	*h 2303221W	1		*j 15158W	Washer	8
5	95959W	1	36	*b 222091W	Washer	16
6	15158W	6		*c 178402W	Capscrew	19
	*f 182209W	6		*c 15158W	Lockwasher	19
7	*f 258559W	1	37	178402W	Capscrew	6
	134074W	AR		*j 178402W	Capscrew	8
	134075W	AR		15158W	Lockwasher	6
	134076W	AR		*j 15158W	Washer	8
8	15319W	2	38	186459W	Plate, Cover	1
9	178402W	6	38A	*l 2303523W	Plate, Cover	1
	*d 222091W	6	38B	*n 2304708W	Plate, Cover	1
	*e 15158W	6	39	186460W	Gasket	1
10	96433W	1	39A	*l 2303524W	Gasket	1
11	134081W	AR	39B	*n 2304709W	Gasket	1
	134082W	AR	40	141357W	Drum, Overwind	1
	134083W	AR		2311151	Drum, Underwind	1
12	60988W	1	42	13987W	Fitting	2
13	178402W	1	43	1324878W	Cover	1
14	225264W	2	44	18586W	Capscrew	4
	15158W	2	45	221621W	Capscrew, Drop-box/Cover	2
15	224023W	1	46	221775W	Washer, Drop-box/Cover	2
16	15307W	1	47	358674W	Sealant	AR
17	225255W	AR	48	*g 2302697W	Housing	1
	225256W	AR	49	*g 2302696W	Piston	1
	225257W	AR	50	*g 2302695W	O-Ring	1
18	55289W	1	51	*g 221650W	Capscrew	1
19	178403W	2		*g 221717W	Nut	1
	15158W	2	52	*g 307788W	Capscrew	6
20	*m 151589W	1		*g 15158W	Washer	6
21	*m 151646W	1	53	*m 151589W	Plate	1
22	15304W	1	54	*m 151646W	Gasket	1
	*j 2305101W	1	55	178403W	Capscrew	2
	*k 14595W	1		15158W	Lockwasher	2
23	142761W	1				
24	258573W	1		*b	Last Used on S/N W8LP-1892 and AW8L-1000	
25	178403W	11		*c	First Used on S/N W8LP-1893 and AW8L-1001	
	15158W	11		*d	Last Used on S/N W8LP-1955 and AW8L-1000	
26	21420W	1		*e	First Used on S/N W8LP-1956 and AW8L-1001	
27	15319W	1		*f	Last Used on S/N AW8L-1972	
28	182209W	10		*g	With Freespool Adjust, First Used on S/N W8L-1973	
29A	1324875W	1		*h	First Used on S/N AW8L-2311	
29	253814W	1		*j	First Used on S/N AW8L-2751	
30	253812W	1		*k	First Used on S/N AW8L-2822	
31	286044W	1		*l	Used on S/N AW8L-2422 thru S/N AW8L-2477	
32	286043W	1		*m	Last Used on S/N AW8L-3145	
33	257779W	1		*n	First Used on S/N AW8L-2478	
33A	*j 2305271W	1				
34	257789W	1				

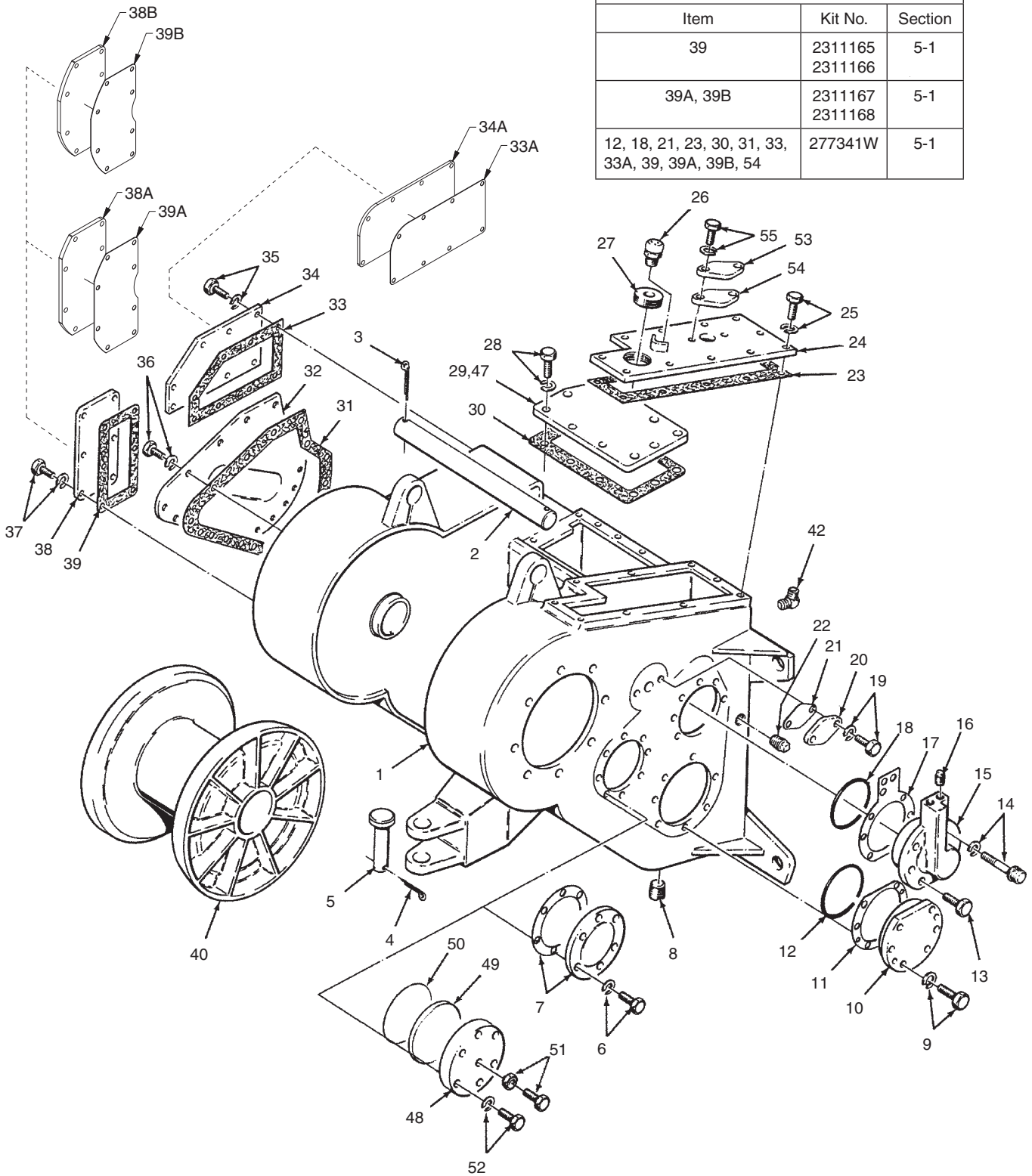
Frame/Covers

With Freespool

All Except Caterpillar D7 (C50, C51, C52, C57, C72, C85) & 572 (C53, C60, C70),
Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 1 of 2

Recommended Service Kit		
Item	Kit No.	Section
39	2311165 2311166	5-1
39A, 39B	2311167 2311168	5-1
12, 18, 21, 23, 30, 31, 33, 33A, 39, 39A, 39B, 54	277341W	5-1



Frame/Covers

With Freespool

All Except Caterpillar D7 (C50, C51, C52, C57, C72, C85) & 572 (C53, C60, C70),
Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 2 of 2

Item	Description	Qty	Item	Part No.	Description	Qty
1	-----	1	33A	*j 2305271W	Gasket	1
2	196279W	1	34	257789W	Cover, Valve	1
3	15272W	1	34A	*j 2305270W	Cover, Valve	1
4	15273W	1	35	194090W	Capscrew	8
*h	2303221W	1		*j 178402W	Capscrew	8
5	95959W	1	*d	222091W	Washer	8
6	15158W	6		*j 15158W	Washer	8
*f	182209W	6	36	*b 222091W	Washer	16
*f	258559W	1		*c 178402W	Capscrew	19
	134074W	AR		*c 15158W	Lockwasher	19
	134075W	AR	37	178402W	Capscrew	6
	134076W	AR		*j 178402W	Capscrew	8
8	15319W	2		15158W	Lockwasher	6
9	178402W	6		*j 15158W	Washer	8
*d	222091W	6	38	186459W	Plate, Cover	1
*e	15158W	6	38A	*i 2303523W	Plate, Cover	1
10	96433W	1	38B	*n 2304708W	Plate, Cover	1
11	134081W	AR	39	186460W	Gasket	1
	134082W	AR	39A	*i 2303524W	Gasket	1
	134083W	AR	39B	*n 2304709W	Gasket	1
12	60988W	1	40	141357W	Drum, Overwind	1
13	178402W	1		2311151	Drum, Underwind	1
14	225264W	2	42	13987W	Fitting	2
	15158W	2	47	358674W	Sealant	AR
15	224023W	1	48	*g 2302697W	Housing	1
16	15307W	1	49	*g 2302696W	Piston	1
17	225255W	AR	50	*g 2302695W	O-Ring	1
	225256W	AR	51	*g 221650W	Capscrew	1
	225257W	AR		*g 221717W	Nut	1
18	55289W	1	52	*g 307788W	Capscrew	6
19	178403W	2		*g 15158W	Washer	6
	15158W	2	53	*m 151589W	Plate	1
*m	151589W	1	54	*m 151646W	Gasket	1
*m	151646W	1	55	178403W	Capscrew	2
22	15304W	1		15158W	Lockwasher	2
*j	2305101W	1				
*k	14595W	1		*b	Last Used on S/N W8LP-1892 and AW8L-1000	
23	142761W	1		*c	First Used on S/N W8LP-1893 and AW8L-1001	
24	258573W	1		*d	Last Used on S/N W8LP-1955 and AW8L-1000	
25	178403W	11		*e	First Used on S/N W8LP-1956 and AW8L-1001	
	15158W	11		*f	Last Used on S/N AW8L-1972	
26	21420W	1		*g	With Freespool Adjust, First Used on S/N W8L-1973	
27	15319W	1				
28	182209W	10		*h	First Used on S/N AW8L-2311	
29	253814W	1		*j	First Used on S/N AW8L-2751	
30	253812W	1		*k	First Used on S/N AW8L-2822	
31	286044W	1		*l	Used on S/N AW8L-2422 thru AW8L-2477	
32	286043W	1		*m	Last Used on S/N AW8L-3145	
33	257779W	1		*n	First Used on S/N AW8L-2478	

Frame/Covers

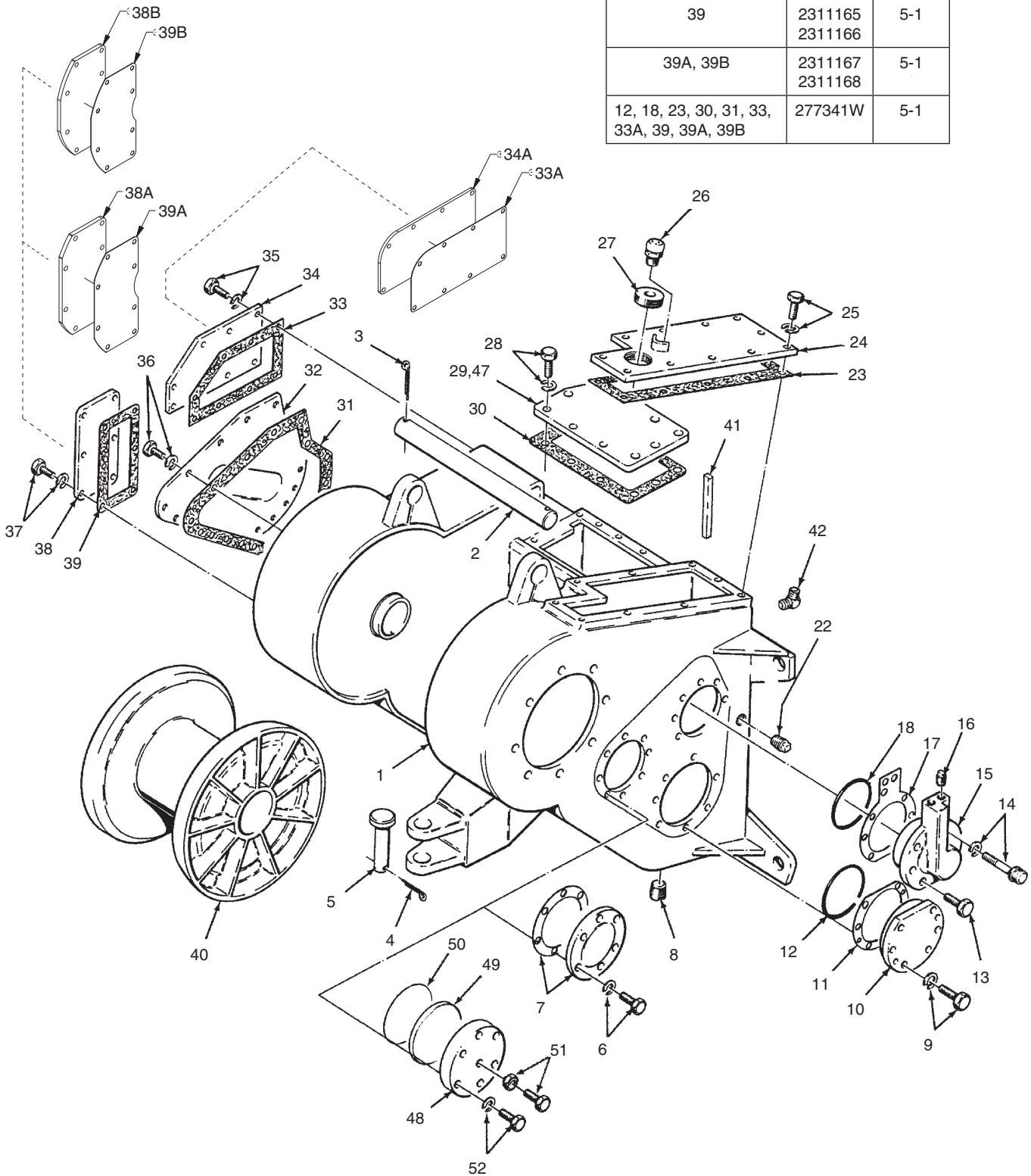
Without Freespool

Caterpillar D7 (C50, C51, C52, C57, C72, C85)

& 572 (C53, C60, C70)

Page 1 of 2

Recommended Service Kit		
Item	Kit No.	Section
39	2311165 2311166	5-1
39A, 39B	2311167 2311168	5-1
12, 18, 23, 30, 31, 33, 33A, 39, 39A, 39B	277341W	5-1



Frame/Covers

Without Freespool

Caterpillar D7 (C50, C51, C52, C57, C72, C85)

& 572 (C53, C60, C70)

Page 2 of 2

Item	Description	Qty	Item	Part No.	Description	Qty
1	-----	1	33A	*h 2305271W	Gasket	1
2	196279W	1	34	257789W	Cover, Valve	1
3	15272W	1	34A	*h 2305270W	Cover, Valve	1
4	15273W	1	35	194090W	Capscrew	8
	*g 2303221W	1		*h 178402W	Capscrew	8
5	95959W	1		*d 222091W	Washer	8
6	178402W	6		*h 15158W	Washer	8
	15158W	6	36	*b 222091W	Washer	16
7	92623W	1		*c 178402W	Capscrew	19
	134074W	AR		*c 15158W	Lockwasher	19
	134075W	AR	37	178402W	Capscrew	6
	134076W	AR		*h 178402W	Capscrew	8
8	15319W	2		15158W	Lockwasher	6
9	178402W	6		*h 15158W	Washer	8
	*d 222091W	6	38	186459W	Plate, Cover	1
	*e 15158W	6	38A	*k 2303523W	Plate, Cover	1
10	96433W	1	38B	*l 2304708W	Plate, Cover	1
11	134081W	AR	39	186460W	Gasket	1
	134082W	AR	39A	*k 2303524W	Gasket	1
	134083W	AR	39B	*l 2304709W	Gasket	1
12	60988W	1	40	141357W	Drum, Overwind	1
13	178402W	1		2311151	Drum, Underwind	1
14	225264W	2	41	165493W	Strip	2
	15158W	2	42	13987W	Fitting	2
15	224023W	1	47	358674W	Sealant	AR
16	15307W	1	48	*f 2302697W	Housing	1
17	225255W	AR	49	*f 2302696W	Piston	1
	225256W	AR	50	*f 2302695W	O-Ring	1
	225257W	AR	51	*f 221650W	Capscrew	1
18	55289W	1		*f 221717W	Nut	1
22	15304W	1	52	*f 307788W	Capscrew	6
	*h 2305101W	1		*f 15158W	Washer	6
	*j 14595W	1				
23	142761W	1		*b	Last Used on S/N W8LP-1892 and AW8L-1000	
24	192956W	1		*c	First Used on S/N W8LP-1893 and AW8L-1001	
25	178403W	11		*d	Last Used on S/N W8LP-1955 and AW8L-1000	
	15158W	11		*e	First Used on S/N W8LP-1956 and AW8L-1001	
26	21420W	1		*f	With Freespool Adjust, First Used on S/N W8L-1973	
27	15319W	1		*g	First Used on S/N AW8L-2311	
28	182209W	10		*h	First Used on S/N AW8L-2751	
29	253814W	1		*j	First Used on S/N AW8L-2822	
30	253812W	1		*k	Used on S/N AW8L-2422 thru S/N AW8L-2477	
31	286044W	1		*l	First Used on S/N AW8L-2478	
32	286043W	1				
33	257779W	1				

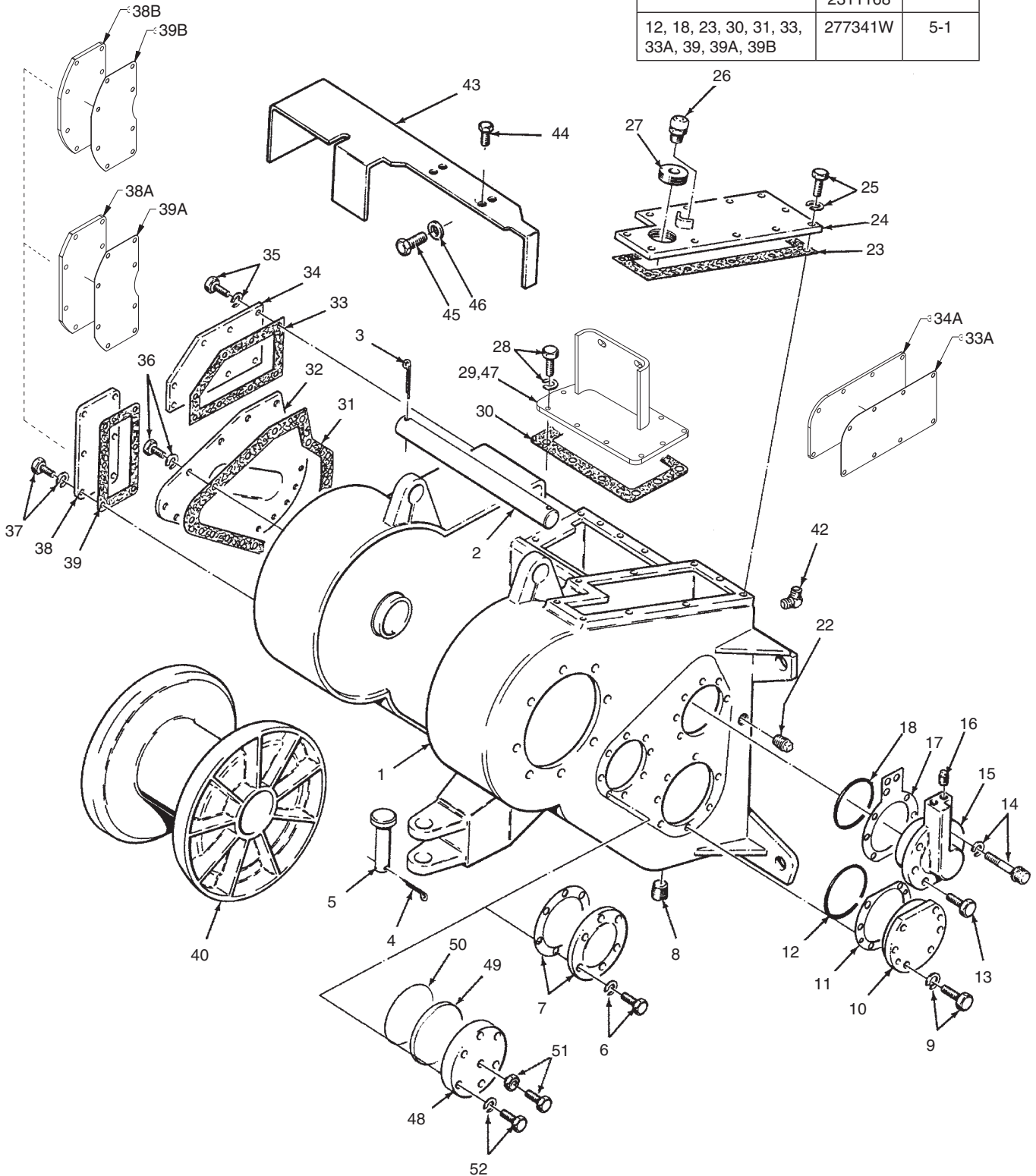
Frame/Covers

Without Freespool

Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 1 of 2

Recommended Service Kit		
Item	Kit No.	Section
39	2311165 2311166	5-1
39A, 39B	2311167 2311168	5-1
12, 18, 23, 30, 31, 33, 33A, 39, 39A, 39B	277341W	5-1



Frame/Covers

Without Freespool

Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 2 of 2

Item	Description	Qty	Item	Part No.	Description	Qty
1	-----	1	34	257789W	Cover, Valve	1
2	196279W	1	34A	*h 2305270W	Cover, Valve	1
3	15272W	1	35	194090W	Capscrew	8
4	15273W	1		*h 178402W	Capscrew	8
	*g 2303221W	1		*d 222091W	Washer	8
5	95959W	1		*h 15158W	Washer	8
6	178402W	6	36	*b 222091W	Washer	16
	15158W	6		*c 178402W	Capscrew	19
7	92623W	1		*c 15158W	Lockwasher	19
	134074W	AR	37	178402W	Capscrew	6
	134075W	AR		*h 178402W	Capscrew	8
	134076W	AR		15158W	Lockwasher	6
8	15319W	2		*h 15158W	Washer	8
9	178402W	6	38	186459W	Plate, Cover	1
	*d 222091W	6	38A	*k 2303523W	Plate, Cover	1
	*e 15158W	6	38B	*l 2304708W	Plate, Cover	1
10	96433W	1	39	186460W	Gasket	1
11	134081W	AR	39A	*k 2303524W	Gasket	1
	134082W	AR	39B	*l 2304709W	Gasket	1
	134083W	AR	40	141357W	Drum, Overwind	1
12	60988W	1		2311151	Drum, Underwind	1
13	178402W	1	42	13987W	Fitting	2
14	225264W	2	43	1324878W	Cover	1
	15158W	2	44	18586W	Capscrew	4
15	224023W	1	45	221621W	Capscrew, Drop-box/Cover	2
16	15307W	1	46	221775W	Washer, Drop-box/Cover	2
17	225255W	AR	47	358674W	Sealant	AR
	225256W	AR	48	*f 2302697W	Housing	1
	225257W	AR	49	*f 2302696W	Piston	1
18	55289W	1	50	*f 2302695W	O-Ring	1
22	15304W	1	51	*f 221650W	Capscrew	1
	*h 2305101W	1		*f 221717W	Nut	1
	*j 14595W	1	52	*f 307788W	Capscrew	6
23	142761W	1		*f 15158W	Washer	6
24	192956W	1				
25	178403W	11		*b	Last Used on S/N W8LP-1892 and AW8L-1000	
	15158W	11		*c	First Used on S/N W8LP-1893 and AW8L-1001	
26	21420W	1		*d	Last Used on S/N W8LP-1955 and AW8L-1000	
27	15319W	1		*e	First Used on S/N W8LP-1956 and AW8L-1001	
28	182209W	10		*f	With Freespool Adjust, First Used on S/N W8L-1973	
29	1324875W	1		*g	First Used on S/N AW8L-2311	
30	253812W	1		*h	First Used on S/N AW8L-2751	
31	286044W	1		*j	First Used on S/N AW8L-2822	
32	286043W	1		*k	Used on S/N AW8L-2422 thru S/N AW8L-2477	
33	257779W	1		*l	First Used on S/N AW8L-2478	
33A	*h 2305271W	1				

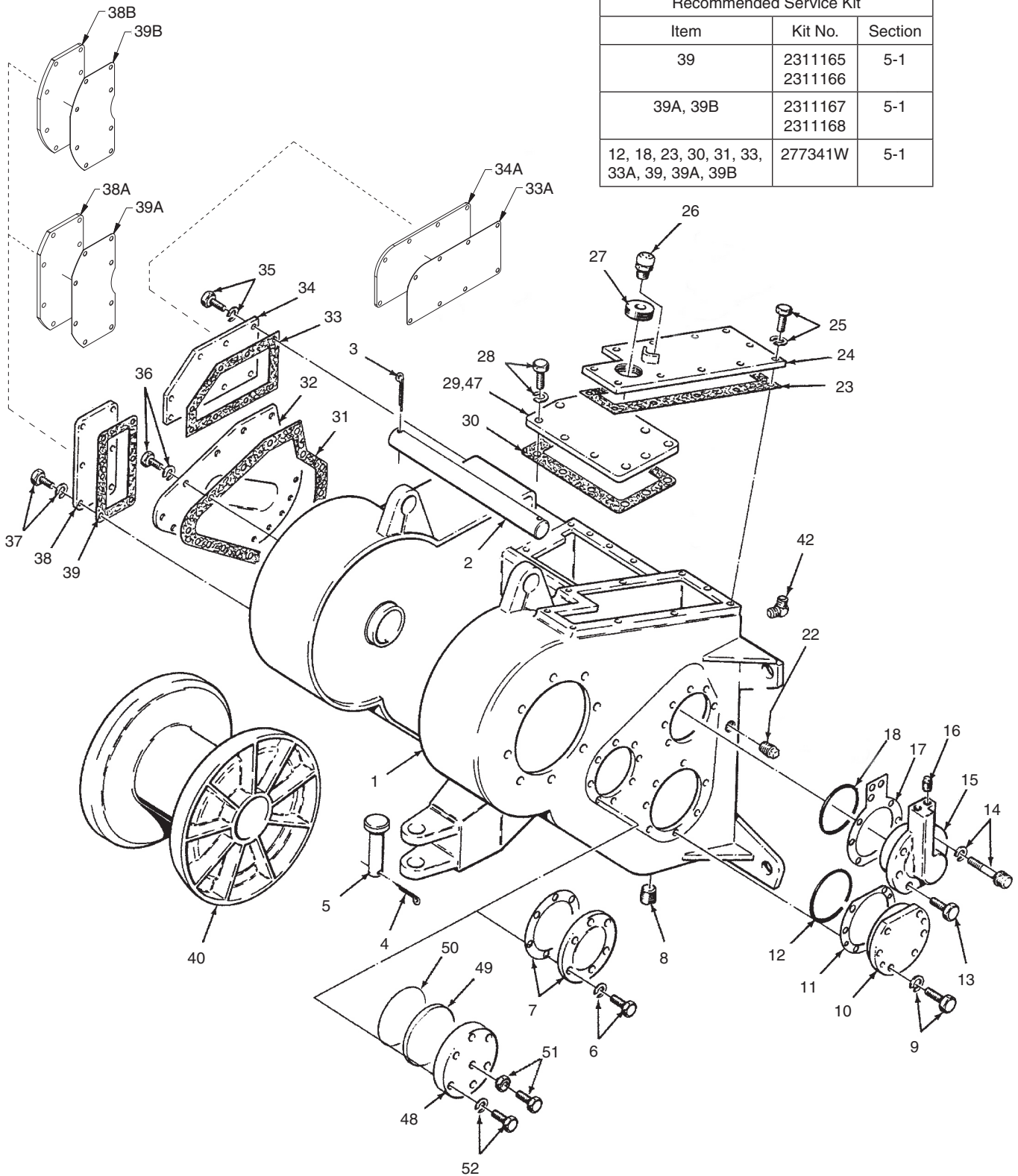
Frame/Covers

Without Freespool

All Except Caterpillar D7 (C50, C51, C52, C57, C72, C85) & 572 (C53, C60, C70),
Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 1 of 2

Recommended Service Kit		
Item	Kit No.	Section
39	2311165 2311166	5-1
39A, 39B	2311167 2311168	5-1
12, 18, 23, 30, 31, 33, 33A, 39, 39A, 39B	277341W	5-1



Frame/Covers

Without Freespool

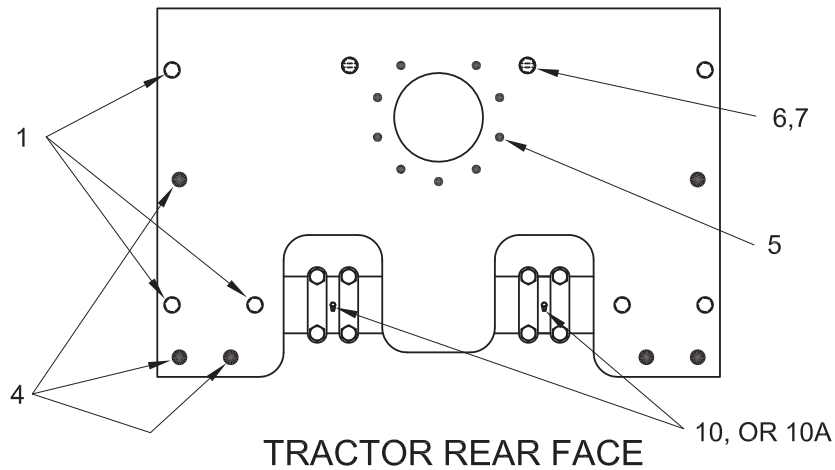
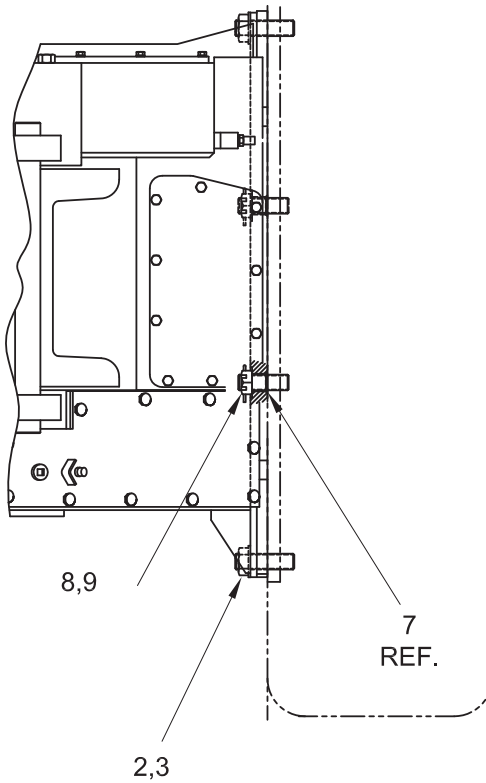
All Except Caterpillar D7 (C50, C51, C52, C57, C72, C85) & 572 (C53, C60, C70),
Komatsu D83-1, D85ESS-1 (K55) & D85EX-15 (K50)

Page 2 of 2

Item	Description	Qty	Item	Part No.	Description	Qty
1	-----	1	33	257779W	Gasket	1
2	196279W	1	33A	*h 2305271W	Gasket	1
3	15272W	1	34	257789W	Cover, Valve	1
4	15273W	1	34A	*h 2305270W	Cover, Valve	1
*g	2303221W	1	35	194090W	Capscrew	8
5	95959W	1	*h	178402W	Capscrew	8
6	178402W	6	*d	222091W	Washer	8
	15158W	6	*h	15158W	Washer	8
7	92623W	1	36	*b 222091W	Washer	16
	134074W	AR	*c	178402W	Capscrew	19
	134075W	AR	*c	15158W	Lockwasher	19
	134076W	AR	37	178402W	Capscrew	6
8	15319W	2	*h	178402W	Capscrew	8
9	178402W	6		15158W	Lockwasher	6
*d	222091W	6	*h	15158W	Washer	8
*e	15158W	6	38	186459W	Plate, Cover	1
10	96433W	1	38A	*k 2303523W	Plate, Cover	1
11	134081W	AR	38B	*l 2304708W	Plate, Cover	1
	134082W	AR	39	186460W	Gasket	1
	134083W	AR	39A	*k 2303524W	Gasket	1
12	60988W	1	39B	*l 2304709W	Gasket	1
13	178402W	1	40	141357W	Drum, Overwind	1
14	225264W	2		2311151	Drum, Underwind	1
	15158W	2	42	13987W	Fitting	2
15	224023W	1	47	358674W	Sealant	AR
16	15307W	1	48	*f 2302697W	Housing	1
17	225255W	AR	49	*f 2302696W	Piston	1
	225256W	AR	50	*f 2302695W	O-Ring	1
	225257W	AR	51	*f 221650W	Capscrew	1
18	55289W	1	*f	221717W	Nut	1
22	15304W	1	52	*f 307788W	Capscrew	6
*h	2305101W	1	*f	15158W	Washer	6
*j	14595W	1				
23	142761W	1	*b	Last Used on S/N W8LP-1892 and AW8L-1000		
24	192956W	1	*c	First Used on S/N W8LP-1893 and AW8L-1001		
25	178403W	11	*d	Last Used on S/N W8LP-1955 and AW8L-1000		
	15158W	11	*e	First Used on S/N W8LP-1956 and AW8L-1001		
26	21420W	1	*f	With Freespool Adjust, First Used on S/N W8L-1973		
27	15319W	1	*g	First Used on S/N AW8L-2311		
28	182209W	10	*h	First Used on S/N AW8L-2751		
29	253814W	1	*j	First Used on S/N AW8L-2822		
30	253812W	1	*k	Used on S/N AW8L-2422 thru S/N AW8L-2477		
31	286044W	1	*l	First Used on S/N AW8L-2478		
32	286043W	1				

Mounting Parts

Caterpillar 572 (C53)

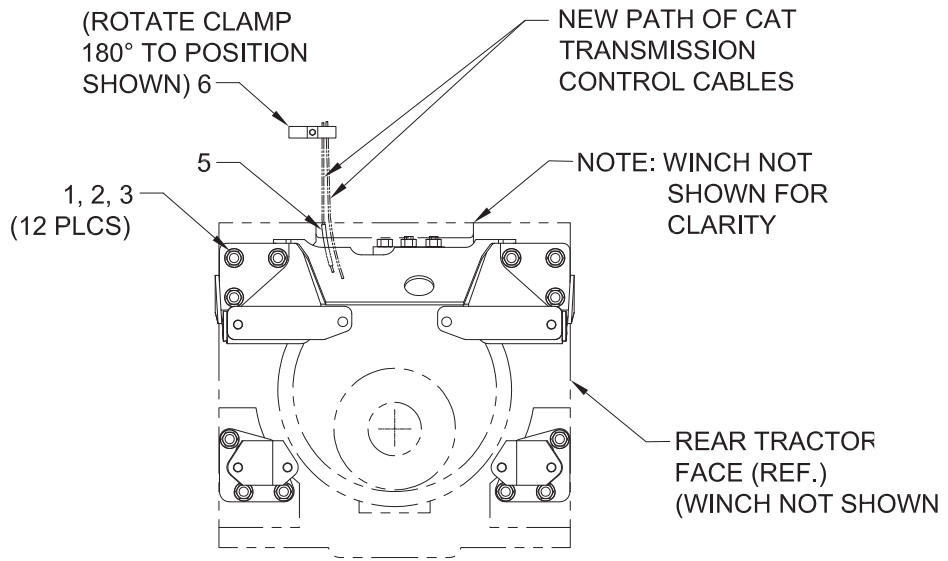
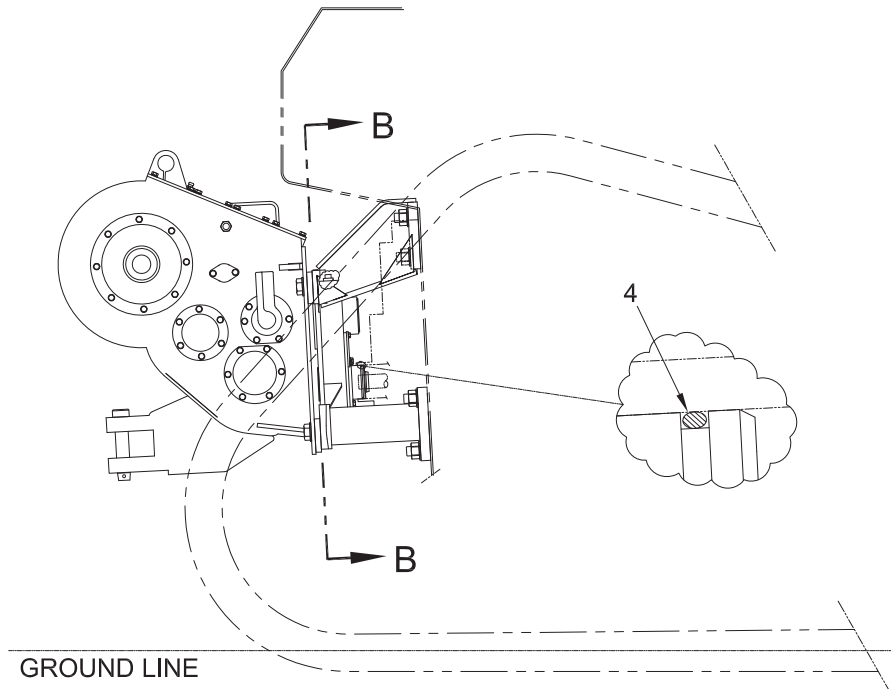


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 95837W	Stud	6	8	134821W	Nut	2
2	15128W	Washer	6	9	15240W	Pin, Cotter	2
3	*b 221725W	Nut	6	10	16046W	Fitting, Lube	2
4	18001W	Plug	6	10A	230067	Fitting, Lube	2
5	18000W	Plug	9				
6	*a 253817W	Stud	2				
7	55434W	O-Ring	2				
				*a		Requires 230064W Locktite Kit	
				*b		Require 245231 Threadlock	

Mounting Parts

Electronic Controls

Caterpillar 572R Series I (C60) and 572R Series II (C70) Pipelayer



SECTION B-B

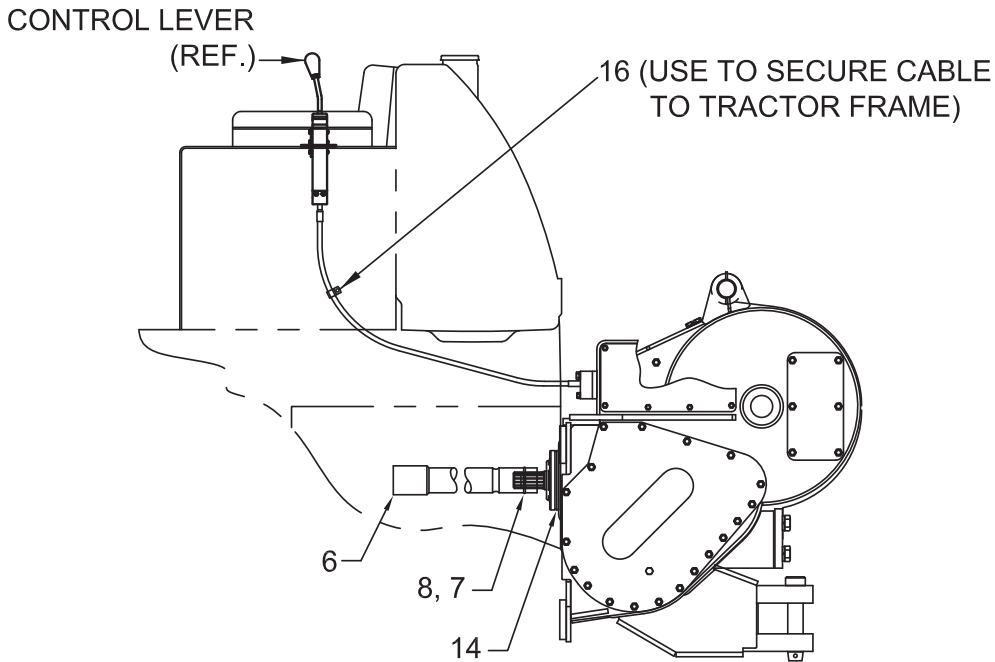
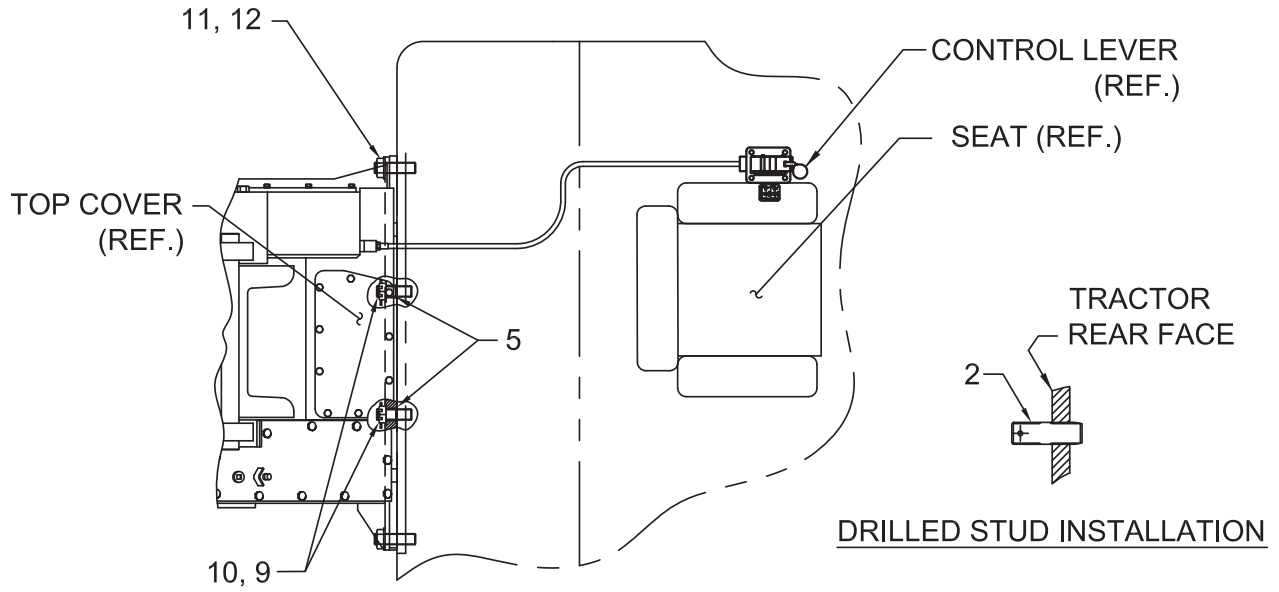
Note: This winch includes a drop box, See drop box page in Section 2 for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a	95837W	Stud - for Series I	12	5	381181W	Guard, Cable
1	*b	2306421W	Stud - for Series II	12	6	129563W	Clamp, Strap
2		15128W	Washer	12			
3		221725W	Nut	12			
4		15887W	O-Ring	1			
					*a	Used on Caterpillar 572R Series I (C60)	
					*b	Used on Caterpillar 572R Series II (C70) Pipelayer	

Mounting Parts

Caterpillar 572G (C53)

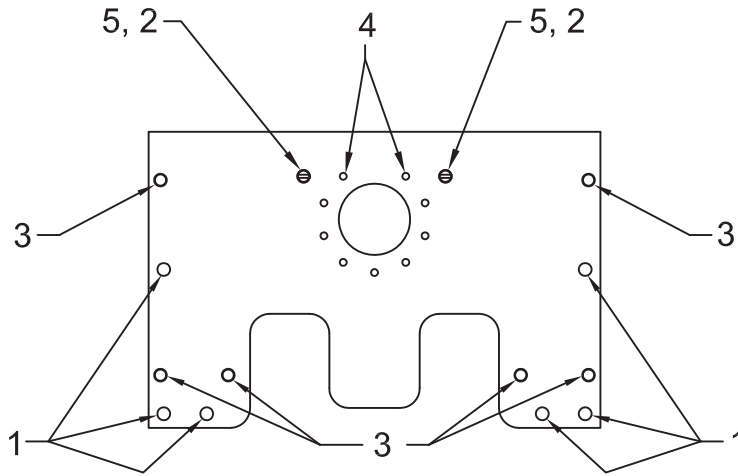
Page 1 of 2



Mounting Parts

Caterpillar 572G (C53)

Page 2 of 2



STUD PATTERN -
TRACTOR REAR FACE

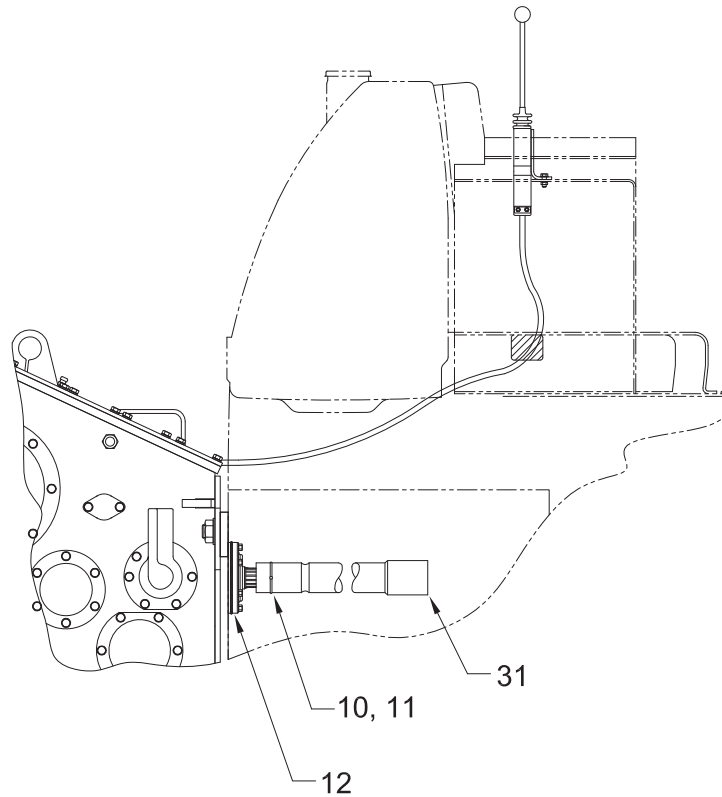
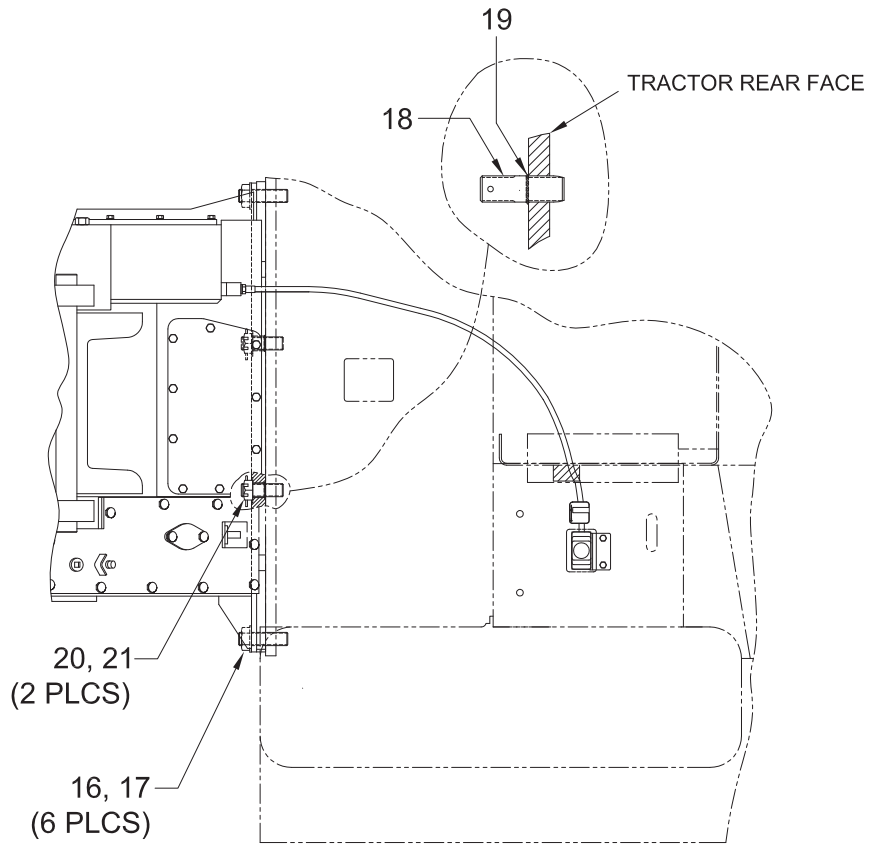
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	18001W	Plug	6	10	15240W	Pin, Cotter	2
2	*a 253817W	Stud	2	11	15128W	Washer	6
3	95837W	Stud	6	12	*a 15018W	Nut	6
4	18000W	Plug	9	13	253812W	Gasket (Not Shown)	1
5	55434W	O-Ring, Stud Sealer	2	14	90937W	O-Ring	1
6	285689W	Shaft, PTO	1	16	130845W	Clamp	1
7	19929W	Pin	1	17	165493W	Strip	2
8	9528W	Ring, Lock	1				
9	134821W	Nut, Slotted	2		*a	Requires 230064W Loctite Kit	

Mounting Parts

Caterpillar 983 Track Loader (C983)

Tractor S/N 38K

Page 1 of 2

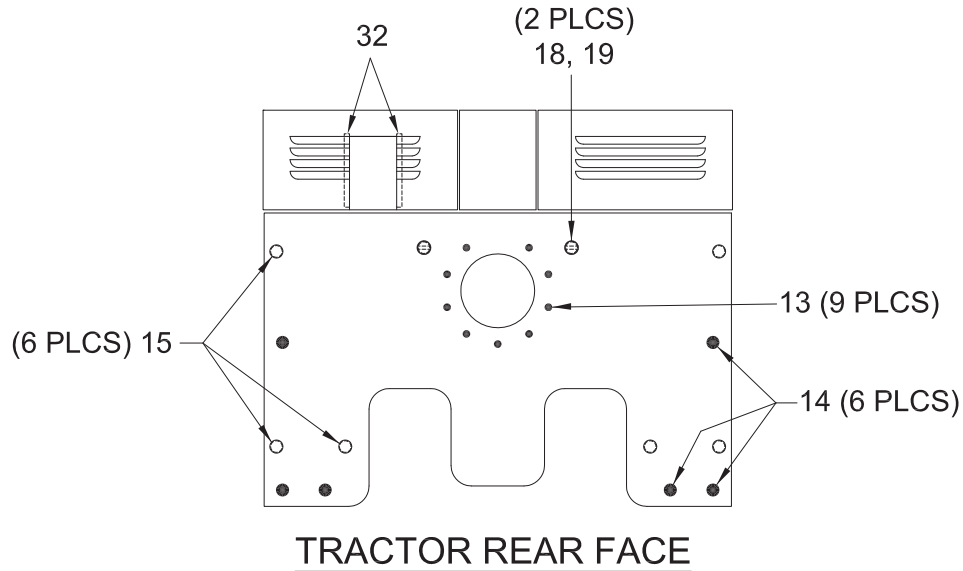


Mounting Parts

Caterpillar 983 Track Loader (C983)

Tractor S/N 38K

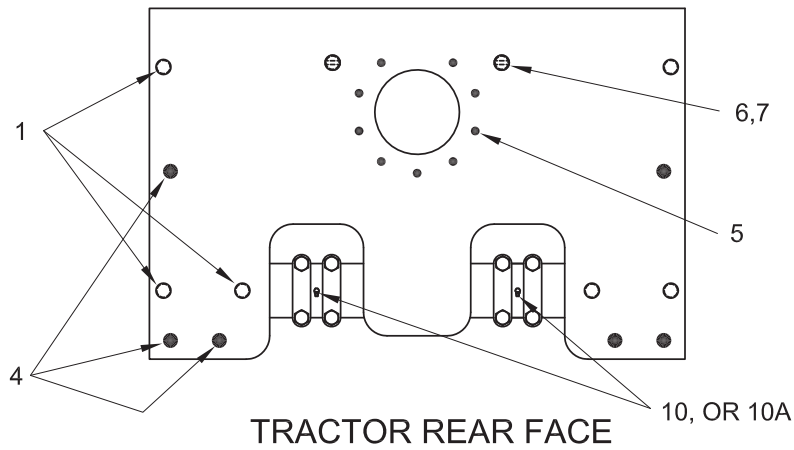
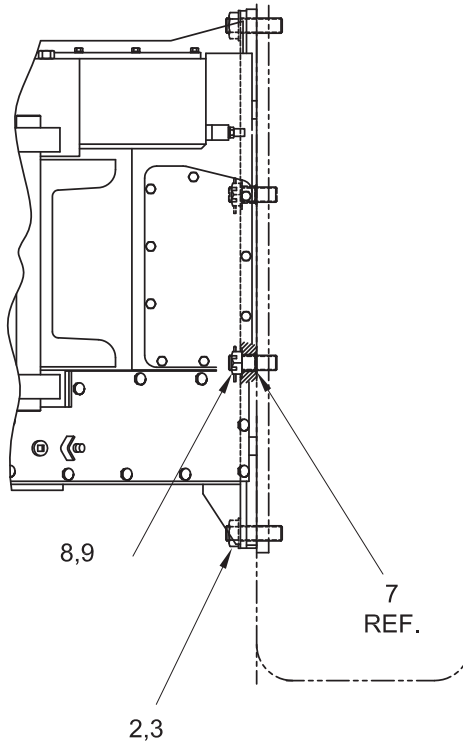
Page 2 of 2



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
10	19929W	Pin	1	19	55434W	O-Ring	2
11	9528W	Ring, Lock	1	20	*a 134821W	Nut	2
12	90937W	O-Ring	1	21	15240W	Pin, Cotter	2
13	18000W	Plug	9	31	285694W	Shaft, PTO	1
14	18001W	Plug	6	32	165493W	Strip	2
15	95837W	Stud	6				
16	15128W	Washer	6				
17	*a 221373W	Nut, Prevailing Torque	6		*a	Requires 318702W Thread Lock	
18	*b 253817W	Stud	2		*b	Requires 230064W Loctite Kit	

Mounting Parts

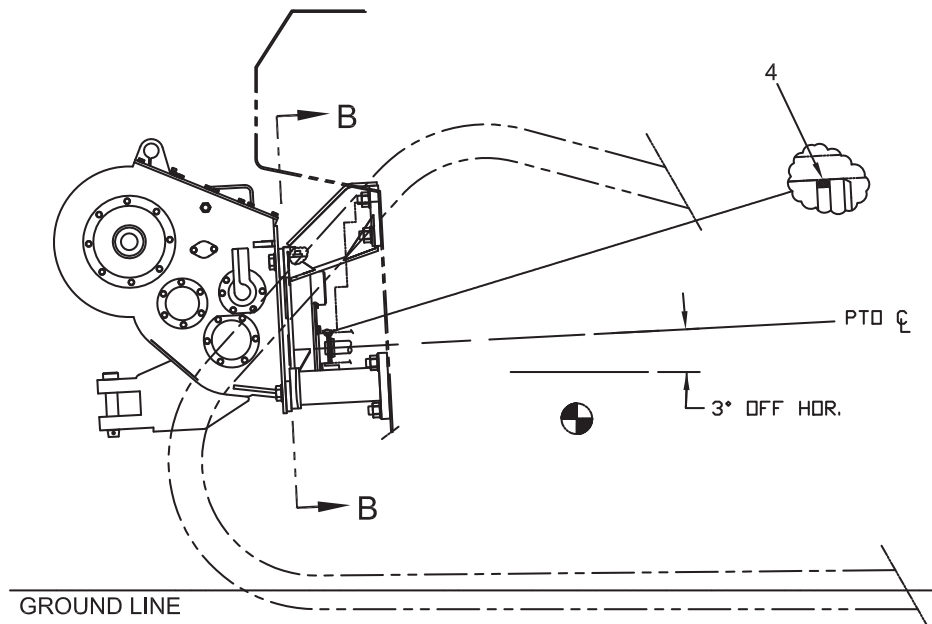
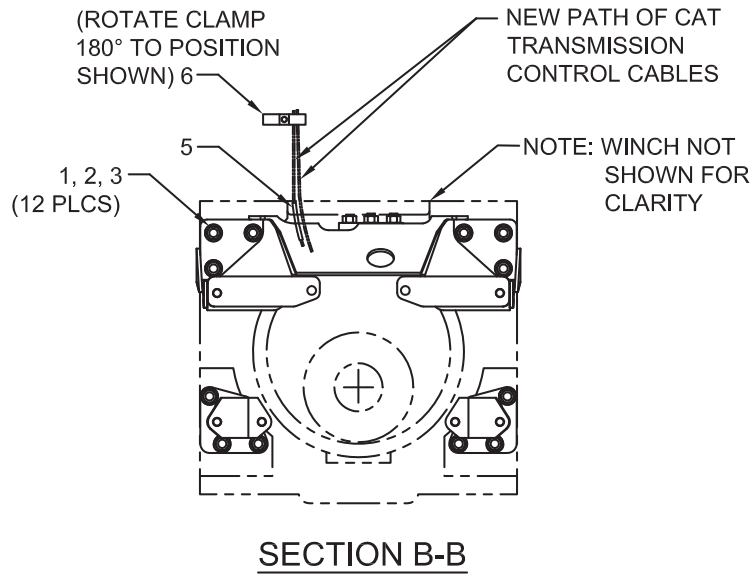
Caterpillar D7G PS (C51, C52), and D7G Series II (C83)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 95837W	Stud	6	8	134821W	Nut	2
2	15128W	Washer	6	9	15240W	Pin, Cotter	2
3	*b 221725W	Nut	6	10	16046W	Fitting, Lube	2
4	18001W	Plug	6	10A	230067	Fitting, Lube	2
5	18000W	Plug	9				
6	*a 253817W	Stud	2				
7	55434W	O-Ring	2				
				*a	Requires 230064W Locktite Kit		
				*b	Require 245231 Thread Lock		

Mounting Parts

Caterpillar D7H RS (C54), and D7R PS (C57)



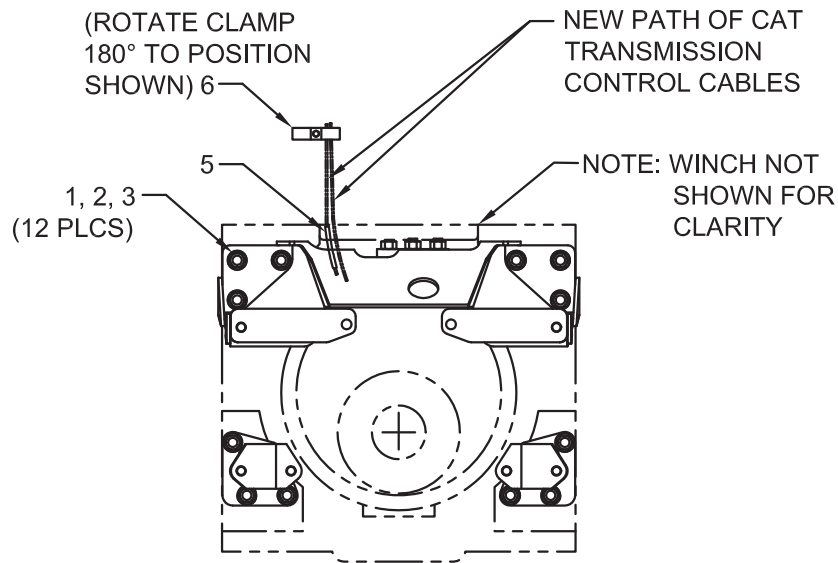
Note: This winch includes a drop box, See drop box page in Section 2 for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	95837W	Stud	12	4	15887W	O-Ring	1
2	15128W	Washer	12	5	381181W	Guard, Cable	1
3	221725W	Nut	12	6	129563W	Clamp, Strap	1

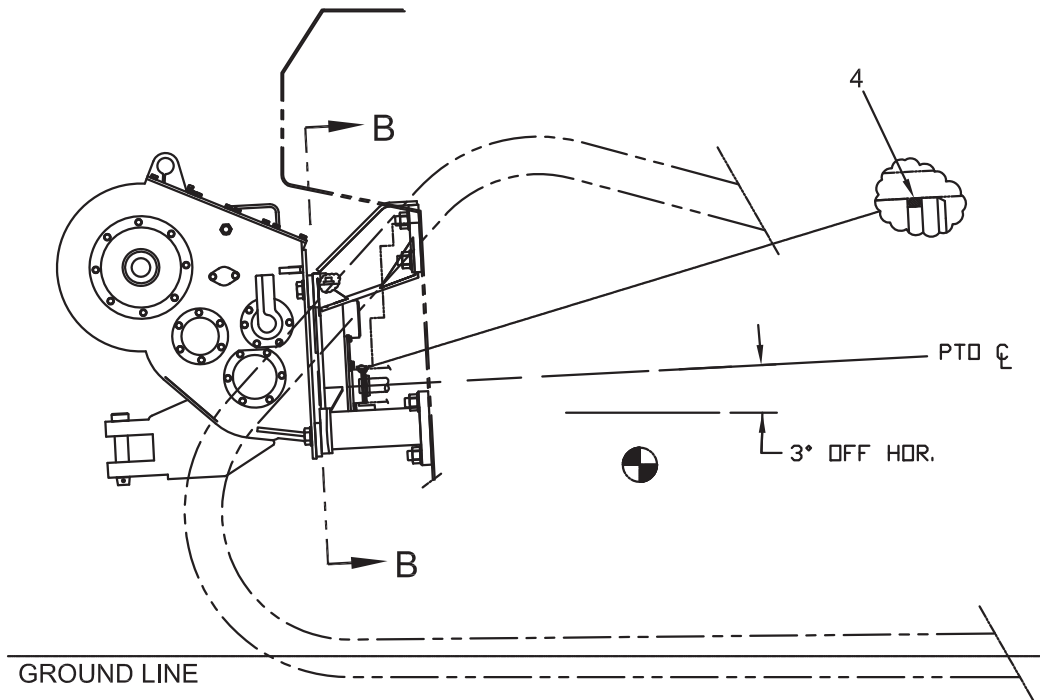
Mounting Parts

Caterpillar D7R (C57)

Caterpillar D8R (C58) / D8R Series II (C59) w/o FREESPOOL



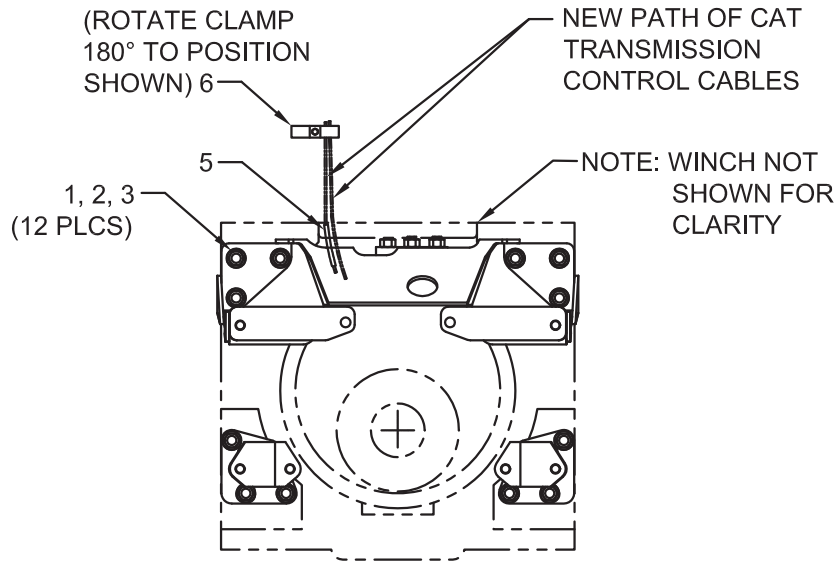
SECTION B-B



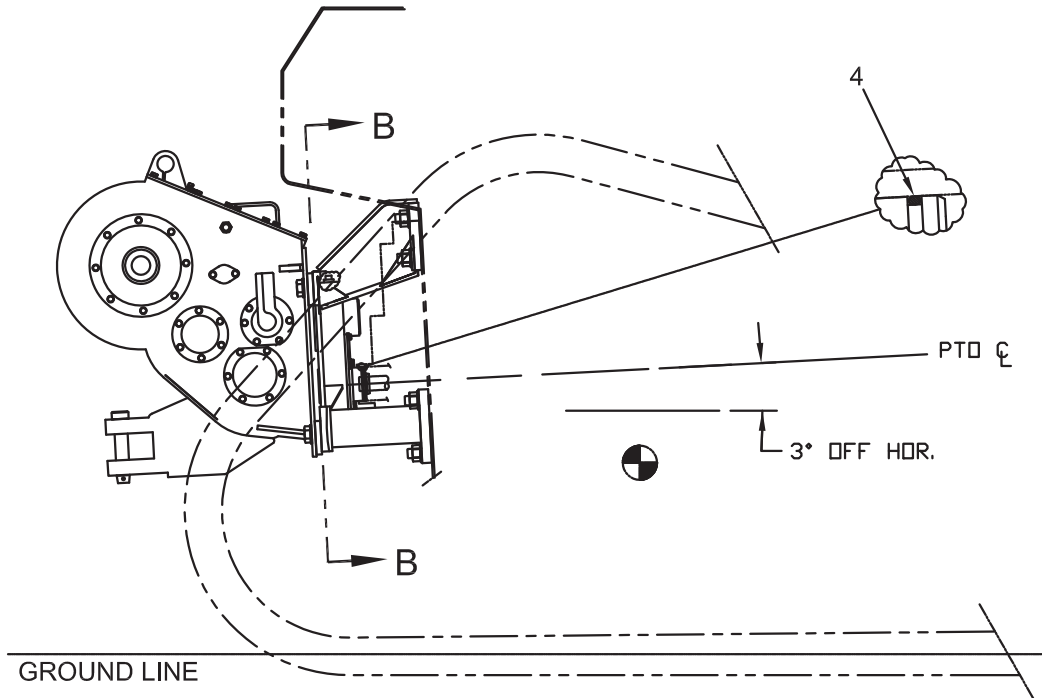
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 2306421W	Stud	12	5	381181W	Guard, Cable	1
1	*b 95837W	Stud		6	129563W	Clamp, Strap	1
2	15128W	Washer	12				
3	221725W	Nut	12				
4	15887W	O-Ring	1				
				*a	Used on D8R Series II (C59)		
				*b	Used on D7R Series I (C57) and D8R Series I (C58)		

Mounting Parts

Caterpillar D7R Series II (C72) w/o FREESPOOL



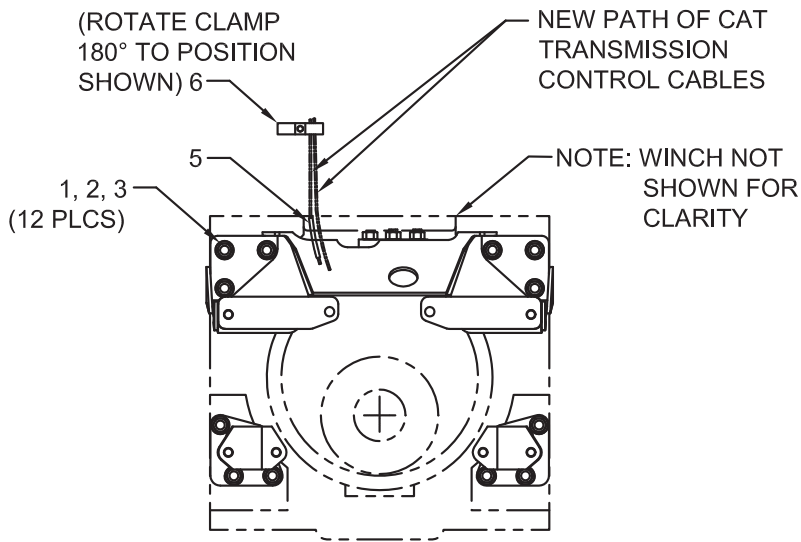
SECTION B-B



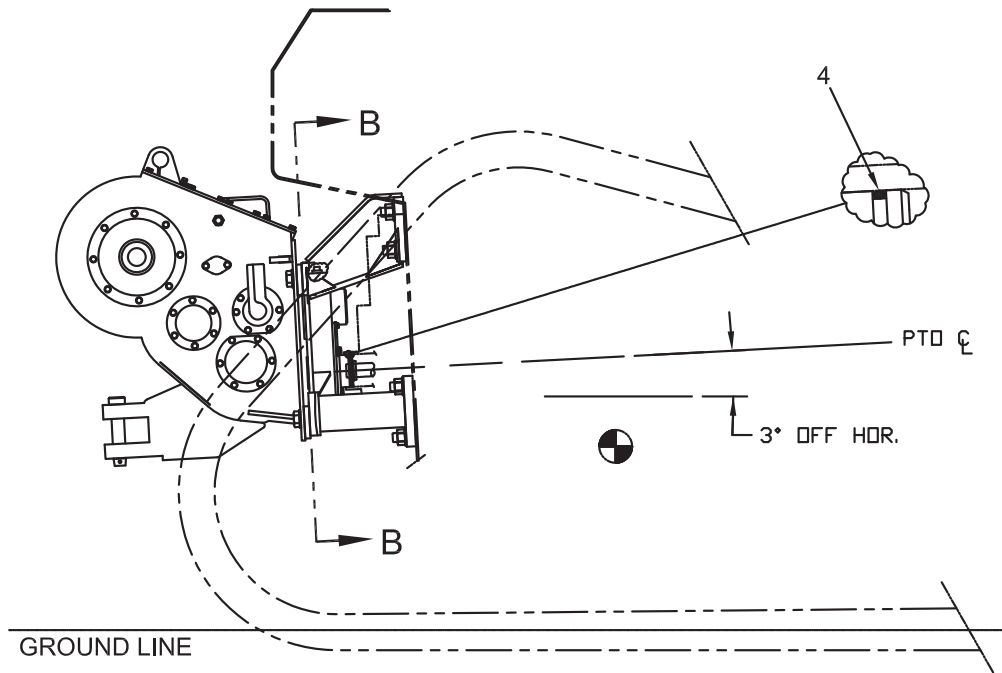
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2315875	Stud	12	4	15887W	O-Ring	1
2	225851	Washer	12	5	381181W	Guard, Cable	1
3	292661W	Nut	12	6	129563W	Clamp, Strap	1

Mounting Parts

Caterpillar D8N (C55), D8R (C56, C58)



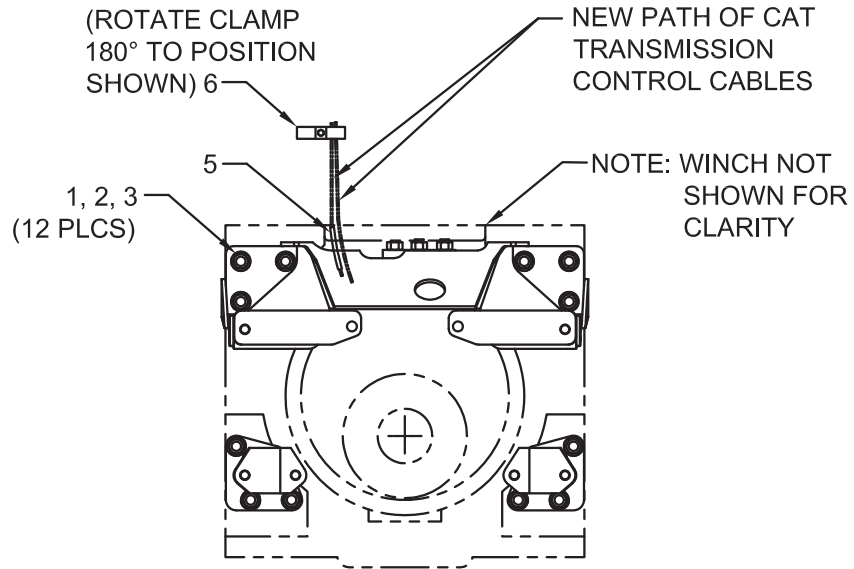
SECTION B-B



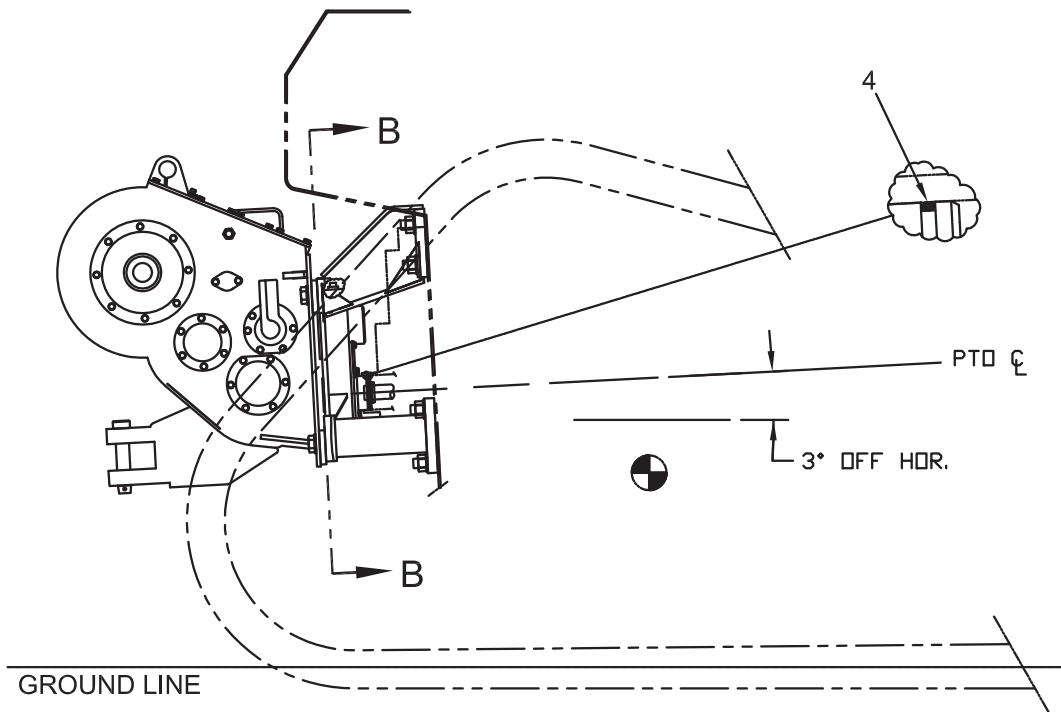
Note: This winch includes a drop box, See drop box page in Section 2 for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	95837W	Stud	12	4	15887W	O-Ring	1
2	15128W	Washer	12	5	381181W	Guard, Cable	1
3	221725W	Nut	12	6	129563W	Clamp, Strap	1

Mounting Parts
Caterpillar D8R Series II (C59)



SECTION B-B

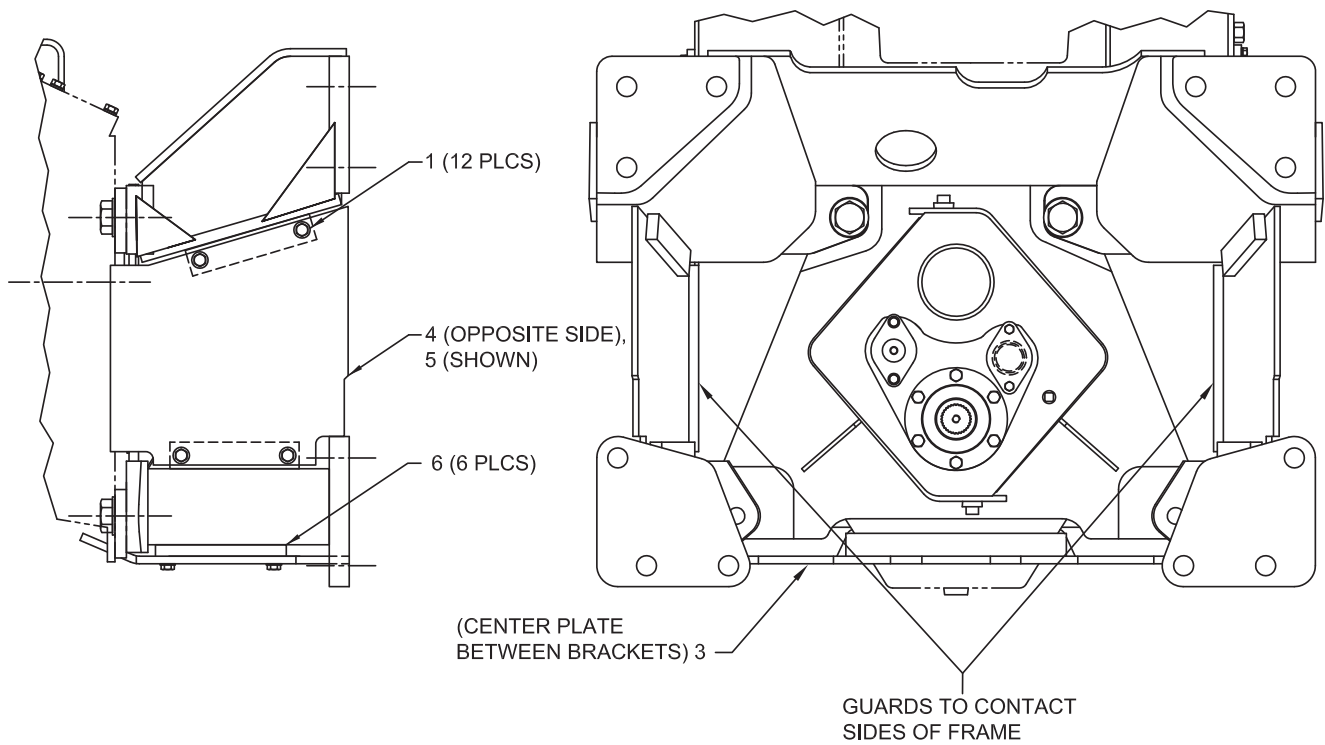


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2306421W	Stud	12	4	15887W	O-Ring	1
2	15128W	Washer	12	5	381181W	Guard, Cable	1
3	221725W	Nut	12	6	129563W	Clamp, Strap	1

Mounting Parts

Guards

Caterpillar D7R, D7H PS (C54), D8N (C55), D8N (C56), D7R PS (C57), D8R (C58),
D8R Series II (C59), 572R (C60), 572R Series II (C70), D7R Series II & D7T (C72)



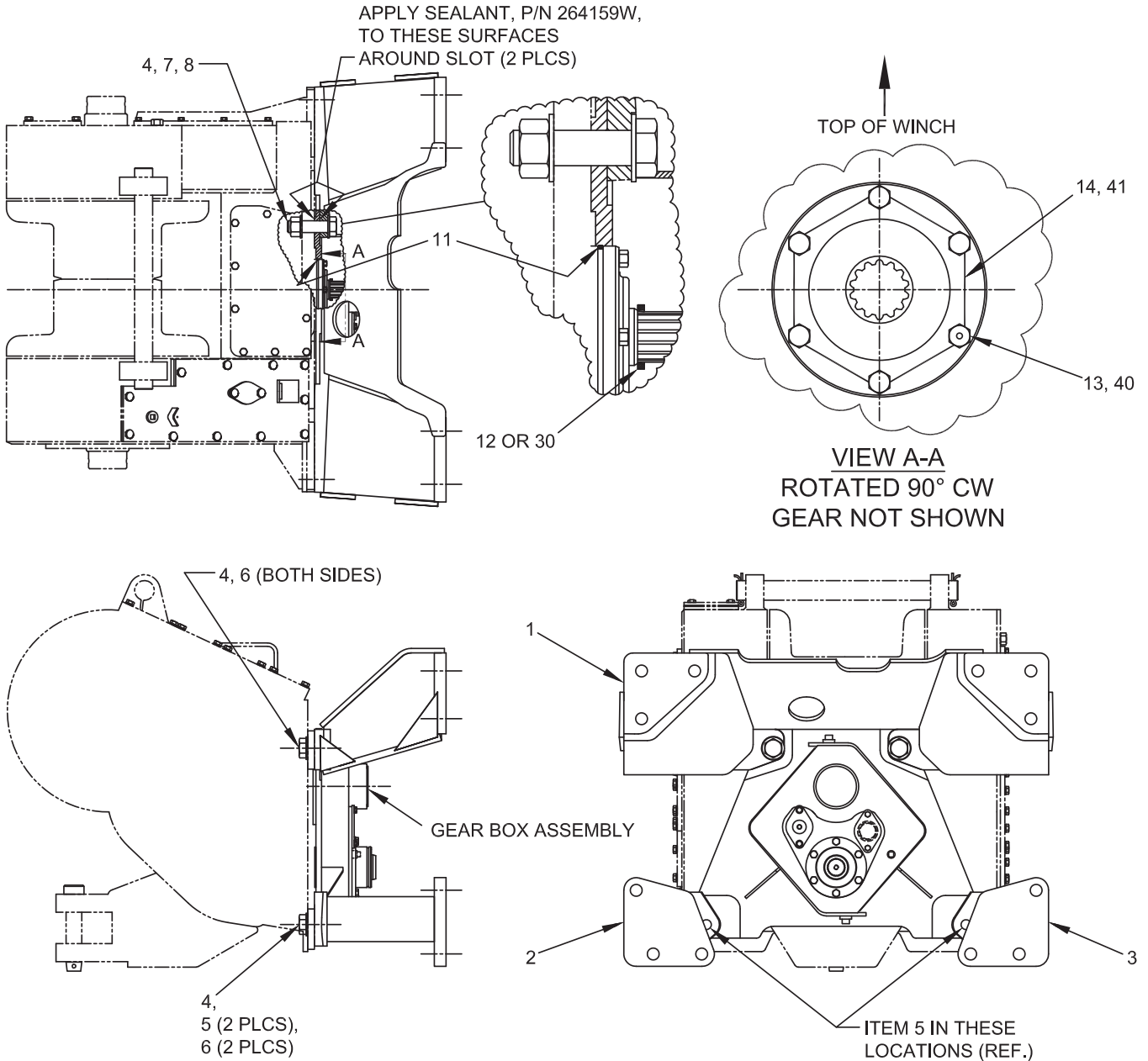
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	398817W	Capscrew	12	5	2303662W	Plate, Right-Hand Guard	1
3	2303660W	Plate, Bottom Guard	1	6	2303664W	Plate, Guards	6
4	2303661W	Plate, Left-Hand Guard	1				

Intentionally Blank

Mounting Parts

Caterpillar D7R, D7H PS (C54); D8N (C55); D8N, D8R (C56); D7R PS (C57);
 D8R (C58); D8R Series II (C59); 572R (C60); D7R Series II, D7T (C72)

Page 1 of 2



Note: This winch includes a drop box,
 See drop box page in Section 2
 for related drop box parts.

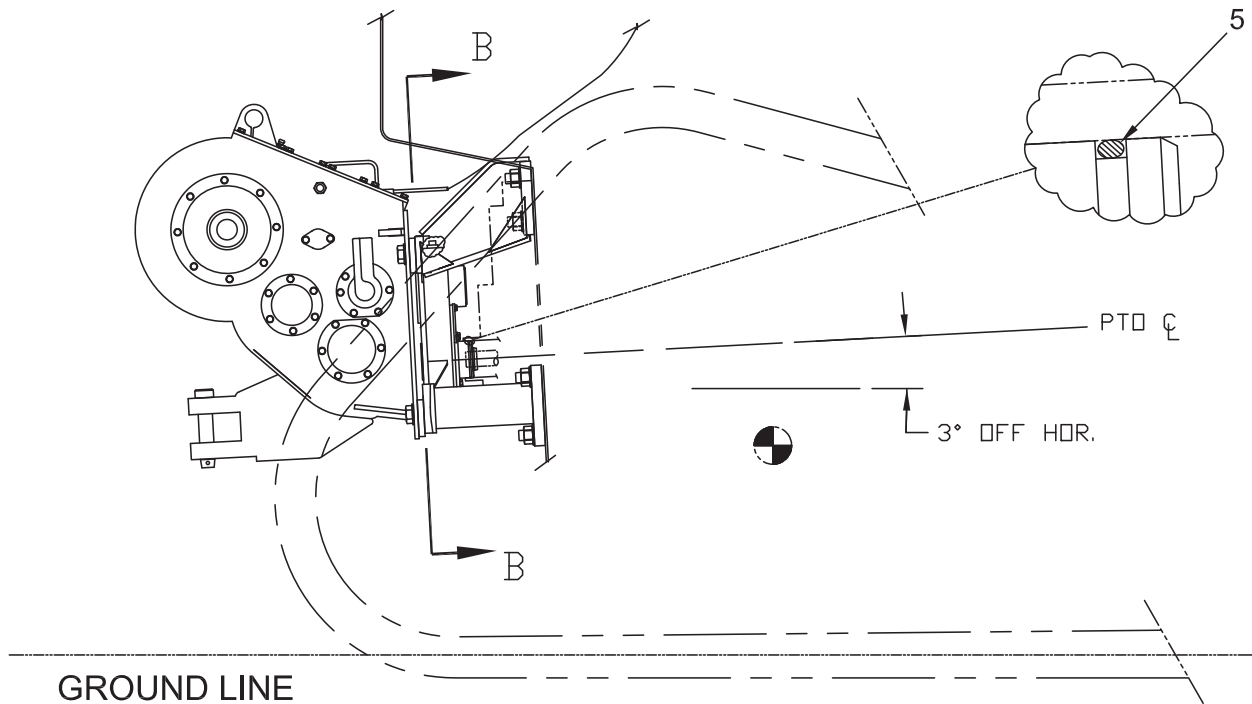
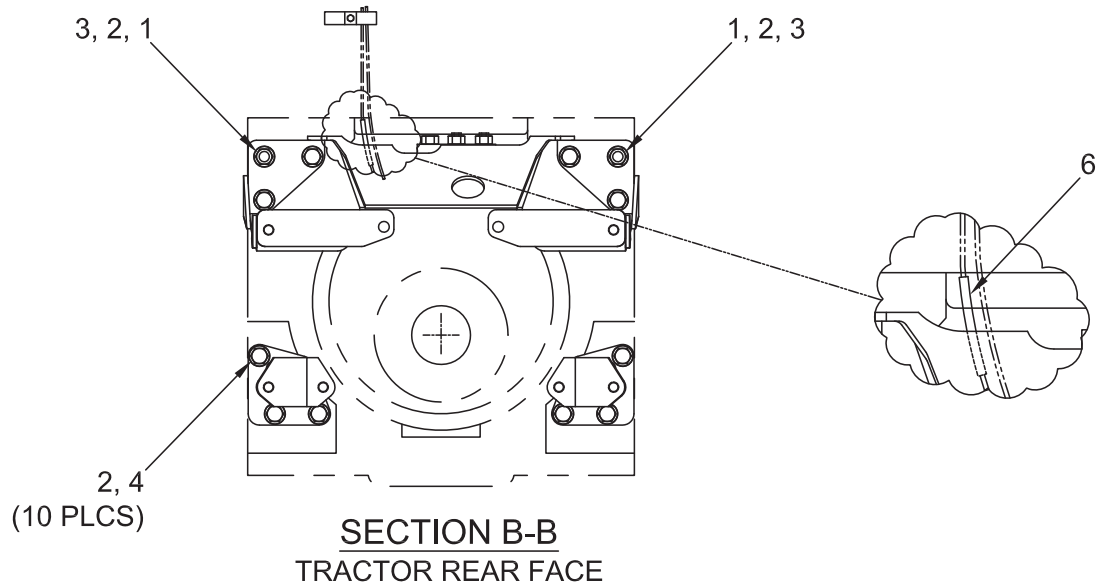
Mounting Parts

Caterpillar D7R, D7H PS (C54); D8N (C55); D8N, D8R (C56); D7R PS (C57);
D8R (C58); D8R Series II (C59); 572R (C60); D7R Series II, D7T (C72)

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	378235W	Bracket, Top Mounting	1	13	388655W	Capscrew	1
2	378237W	Bracket, Right-Hand Side Mounting	1	14	67355W	Lockwire	AR
3	378238W	Bracket, Left-Hand Side Mounting	1	30	*b 378231W	Spacer	1
4	15128W	Washer	10	40	388655W	Capscrew	1
5	166396W	Capscrew	2	41	67355W	Lockwire	AR
6	*a 271744W	Capscrew	4				
7	15070W	Nut	2	*a	Requires 264134W Adhesive Sealant		
8	1310819W	Capscrew	2	*b	Used on CAT D7G to D7H - Hyster Winches, S/N W8LP (N or F) 3191 (C51) & Below - Ratio 49.8/1 Only, or D7R		
11	90937W	O-Ring	1				
12	383158W	Spacer	1				

Mounting Parts

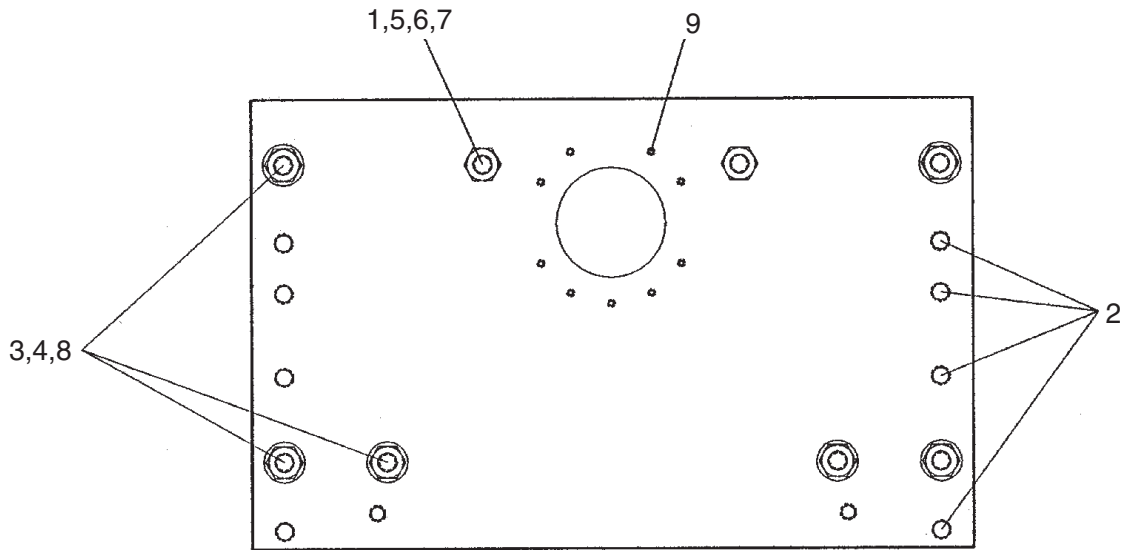
Caterpillar D8T (C74)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 2312691	Stud	2	6	381181W	Guard, Cable	1
2	296438W	Washer	12	7	129563W	Clamp, Strap	1
3	292661W	Nut	2				
4	*b Y19C-M3080	Capscrew	10				
5	15887W	O-Ring	1				
				*a		Requires 230064W Loctite Kit	
				*b		Requires 318702W Thread Lock	

Mounting Parts

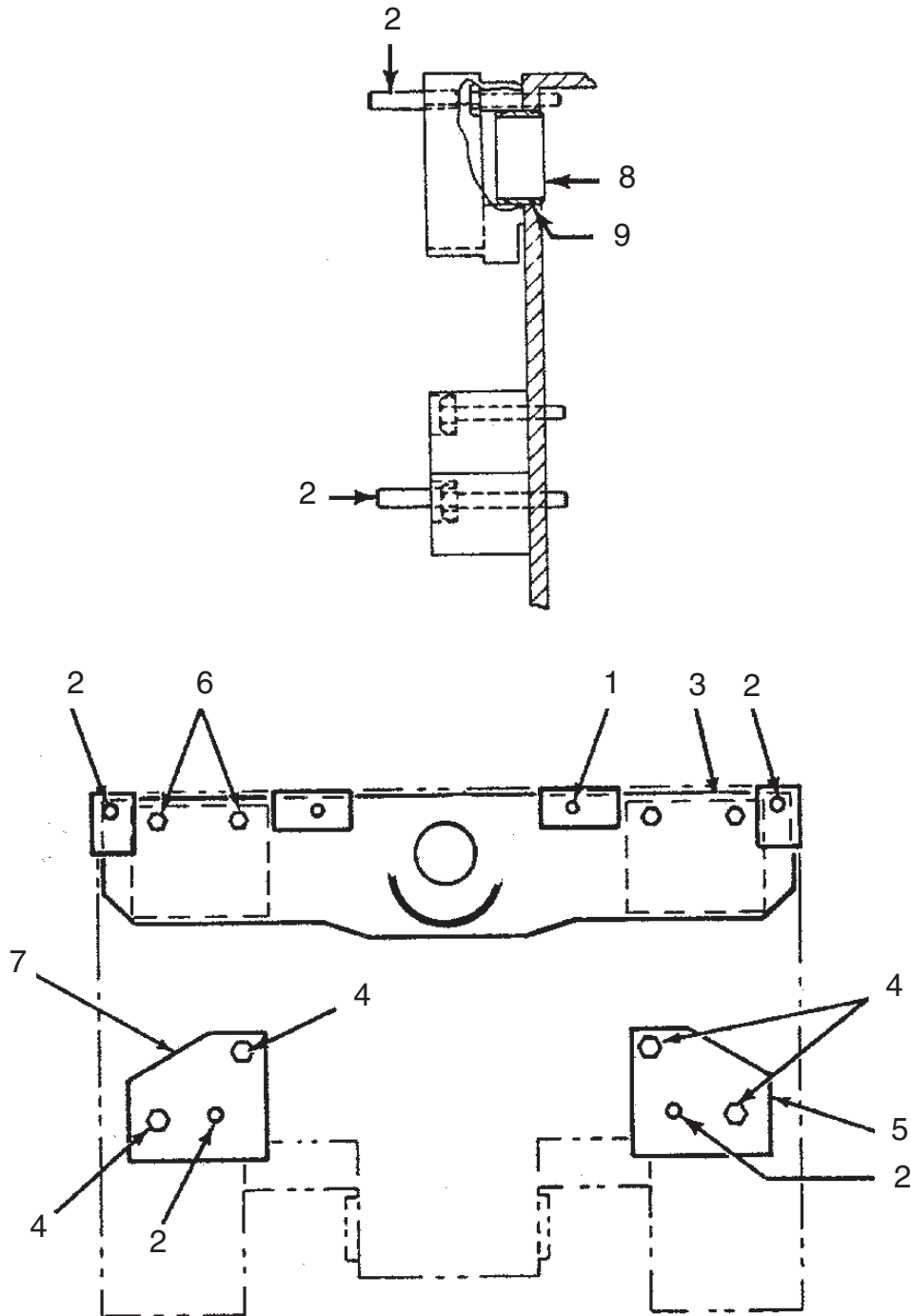
Dresser TD20E & TD20G (H51)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	55434W	O-Ring	2	7	*a 253817W	Stud	2
2	156879W	Plug	8	8	*a 192948W	Stud	6
3	221725W	Nut	6	9	192949W	Plug	9
4	15128W	Lockwasher	6				
5	134821W	Nut	2		*a	Requires 230064W Locktite Kit	
6	15240W	Pin, Cotter	2				

Mounting Parts

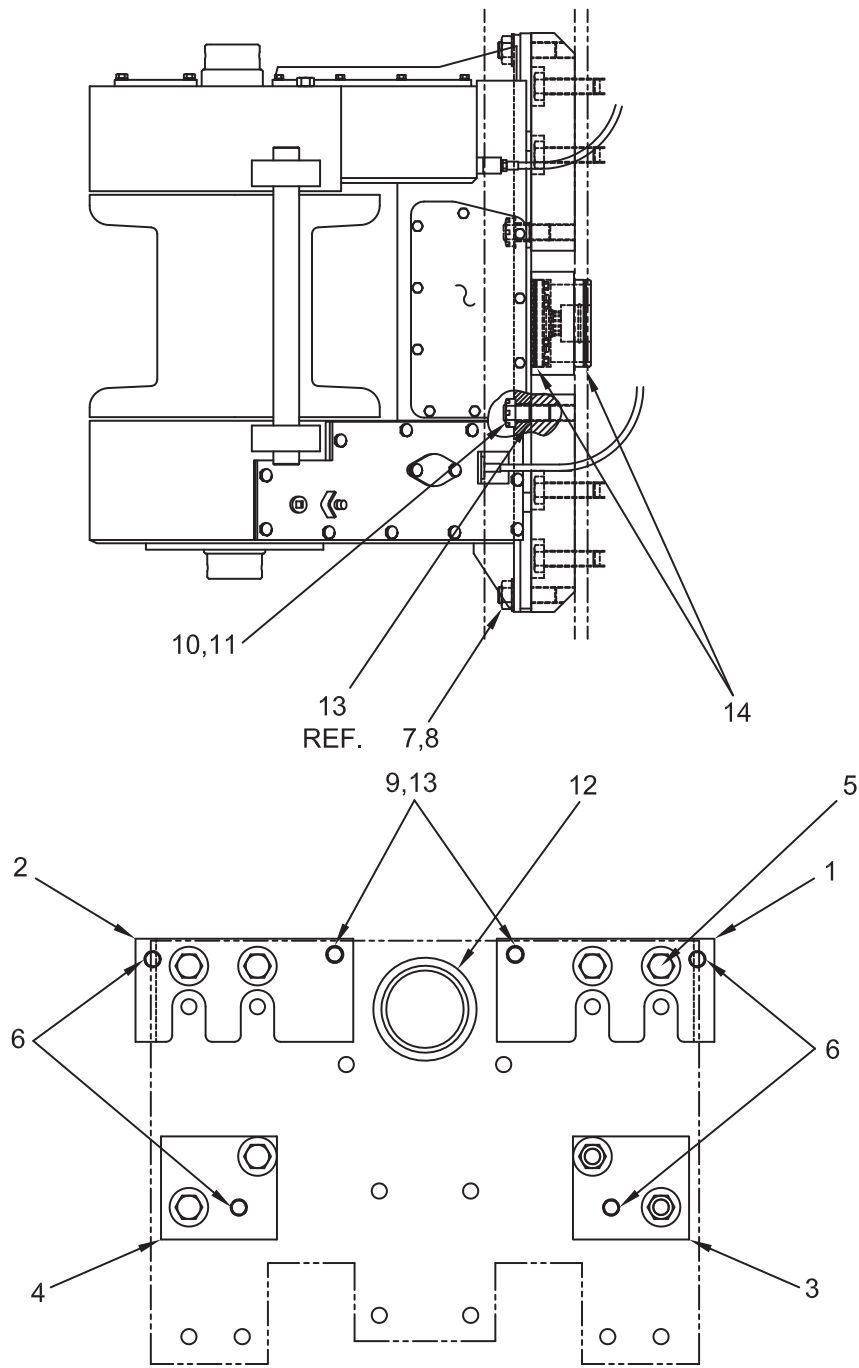
Fiat-Hitachi/New Holland 20 & PL60 (A53, A54, A55)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 253817W	Stud	2	4	255476W	Capscrew	4
	55434W	O-Ring	2	5	259547W	Spacer, RH	1
	15061W	Nut	2	6	2302442W	Capscrew	4
	15240W	Pin, Cotter	2	7	259548W	Spacer, LH	1
2	192948W	Stud	4	8	255094W	Pilot, PTO	1
	15128W	Lockwasher	4	9	133921W	O-Ring	2
	15018W	Nut	4				
3	259545W	Adapter	1				
				*a	Requires 230064W Loctite Kit		

Mounting Parts

Fiat-Hitachi/New Holland 20B, FD/FL20 and FP60 (A53, A54, A55)

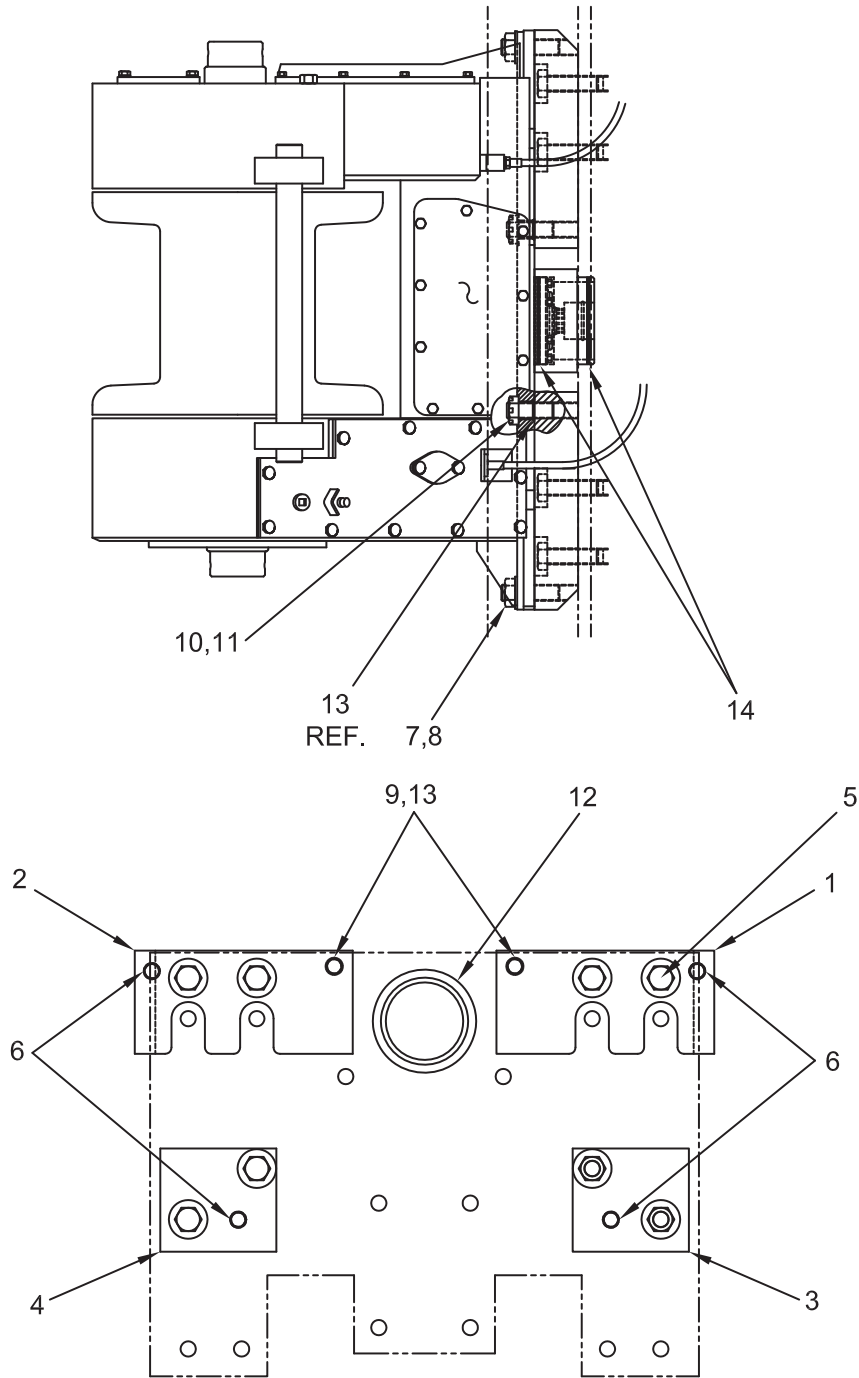


TRACTOR REAR FACE

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	308422W	Spacer, Upper RH	1	9	*a 253817W	Stud	2
2	308423W	Spacer, Upper LH	1	10	134821W	Nut	2
3	308420W	Spacer, Lower RH	1	11	15240W	Pin, Cotter	2
4	308421W	Spacer, Lower LH	1	12	308419W	Adapter	1
5	2302442W	Capscrew	8	13	55434W	O-Ring	2
6	*a 192948W	Stud	4	14	90937W	O-Ring	2
7	15128W	Washer	4				
8	221725W	Nut	4		*a	Requires 230064W Loctite Kit	

Mounting Parts

Fiat-Hitachi/New Holland DX255 and FD255L (A56)

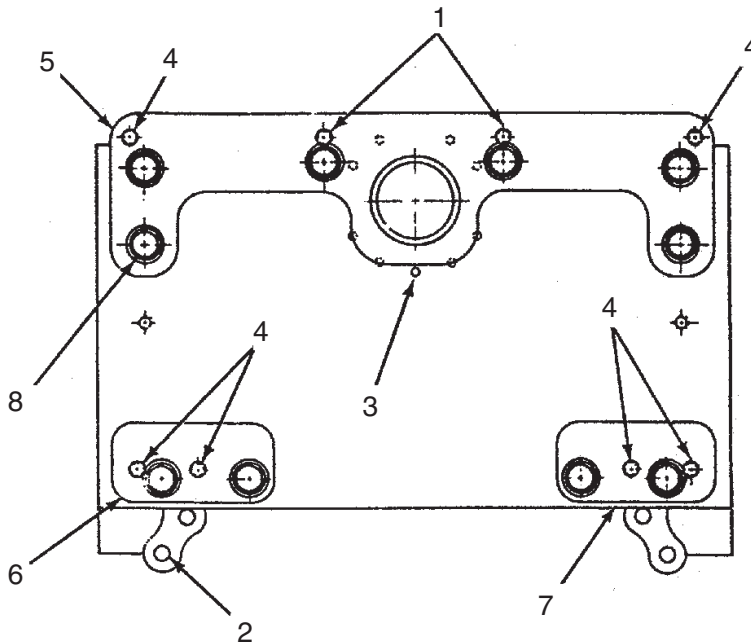


TRACTOR REAR FACE

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	308422W	Spacer, Upper RH	1	9	*a 253817W	Stud	2
2	308423W	Spacer, Upper LH	1	10	134821W	Nut	2
3	308420W	Spacer, Lower RH	1	11	15240W	Pin, Cotter	2
4	308421W	Spacer, Lower LH	1	12	308419W	Adapter	1
5	2302442W	Capscrew	8	13	55434W	O-Ring	2
6	*a 192948W	Stud	4	14	90937W	O-Ring	2
7	15128W	Washer	4				
8	221725W	Nut	4		*a	Requires 230064W Loctite Kit	

Mounting Parts

Fiat-Hitachi/New Holland FD30B (A64)

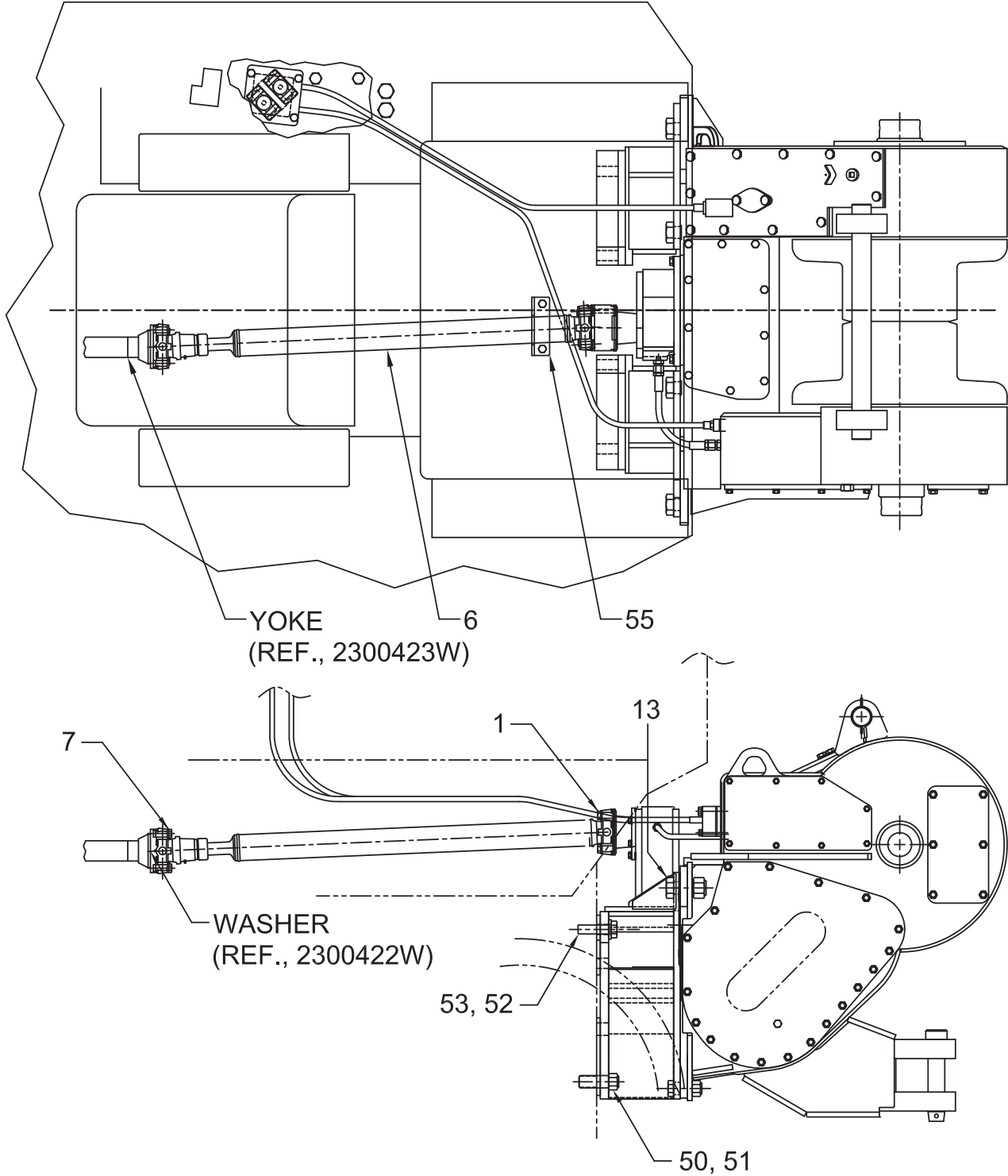


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty	
1	*a	217624W	Stud	2		221725W	Nut	6
		55434W	O-Ring	2	5	383920W	Pad, Mounting	1
		134821W	Nut	2	6	383922W	Pad, LH Mounting	1
		15240W	Pin, Cotter	2	7	383921W	Pad, RH Mounting	1
2		18849W	Plug	4	8	383917W	Capscrew	10
3		192949W	Plug	9	8	15128W	Washer	10
4	*a	216224W	Stud	6				
		15128W	Washer	6				
				*a		Requires 230064W Loctite Kit		

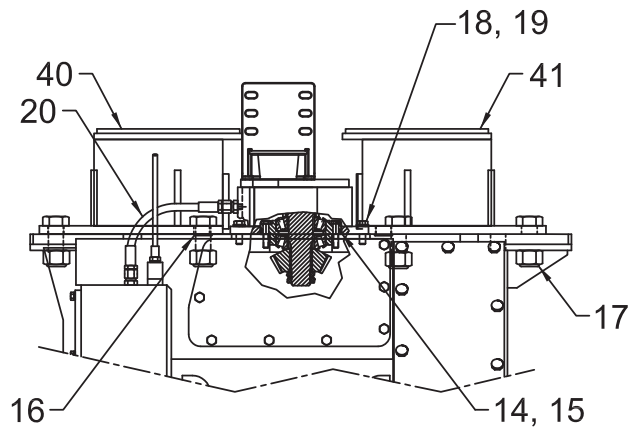
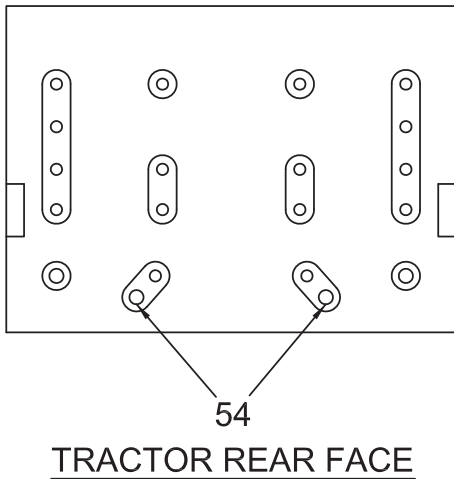
Mounting Parts

Komatsu D68ESS-12 (K48)

Page 1 of 2



Mounting Parts
 Komatsu D68ESS-12 (K48)
 Page 2 of 2



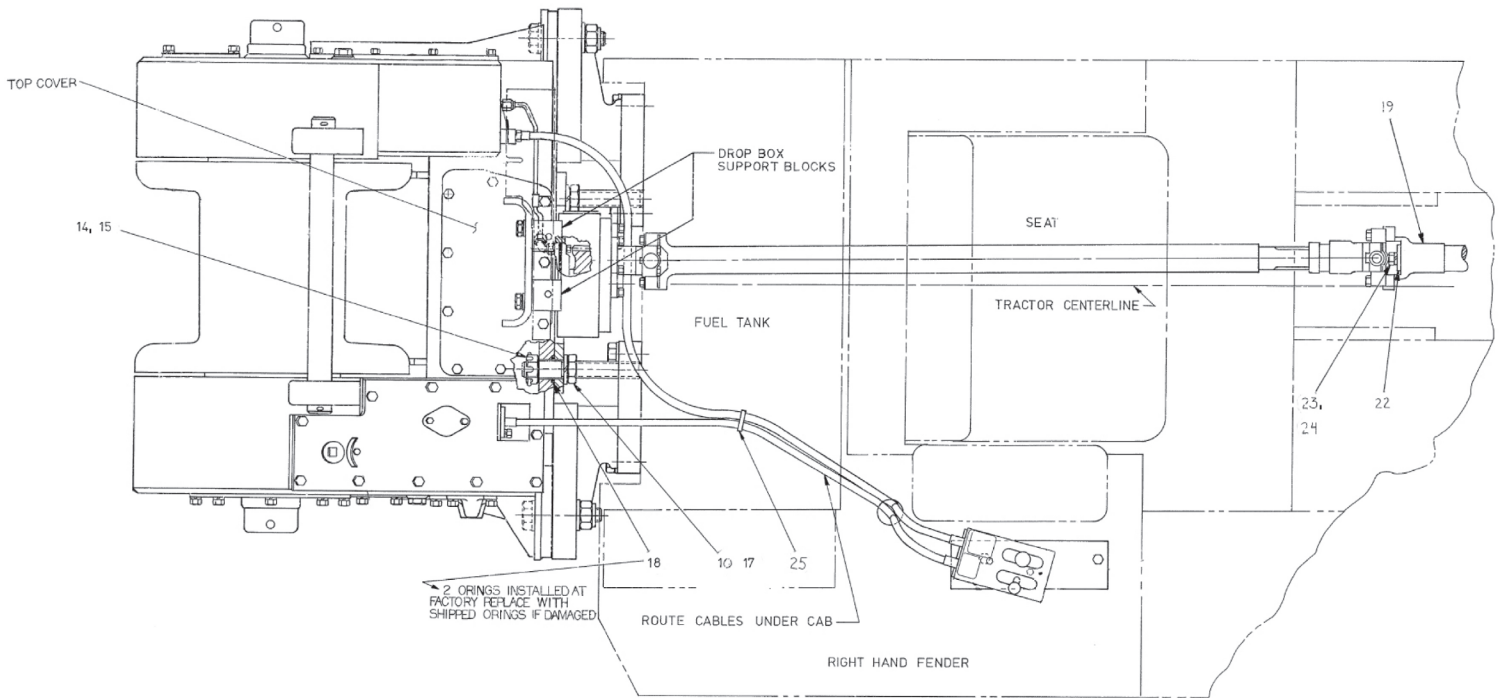
Note: This winch includes a drop box,
 See drop box page in Section 2
 for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 221507W	Capscrew	4	40	2310788	Bracket, LH	1
6	2302056W	Driveshaft	1	41	2310787	Bracket, RH	1
7	*a 293632W	Capscrew	4	50	*a 2310808	Capscrew	2
13	166396W	Capscrew	8	51	296438W	Washer	2
14	134078W	Shim .005	AR	52	*a 274044W	Capscrew	10
15	134079W	Shim .007	AR	53	296434W	Washer	10
16	55434W	O-Ring	2	54	156879W	Plug	2
17	221724W	Nut	8	55	2310795	Plate, Shaft Hanger	1
18	221563W	Capscrew	2				
19	15158W	Washer	2				
20	210849W	Assembly, Hose	1				
				*a	Require 230064W Loctite Kit		

Mounting Parts

Komatsu D83-1 (K55)

Page 1 of 2



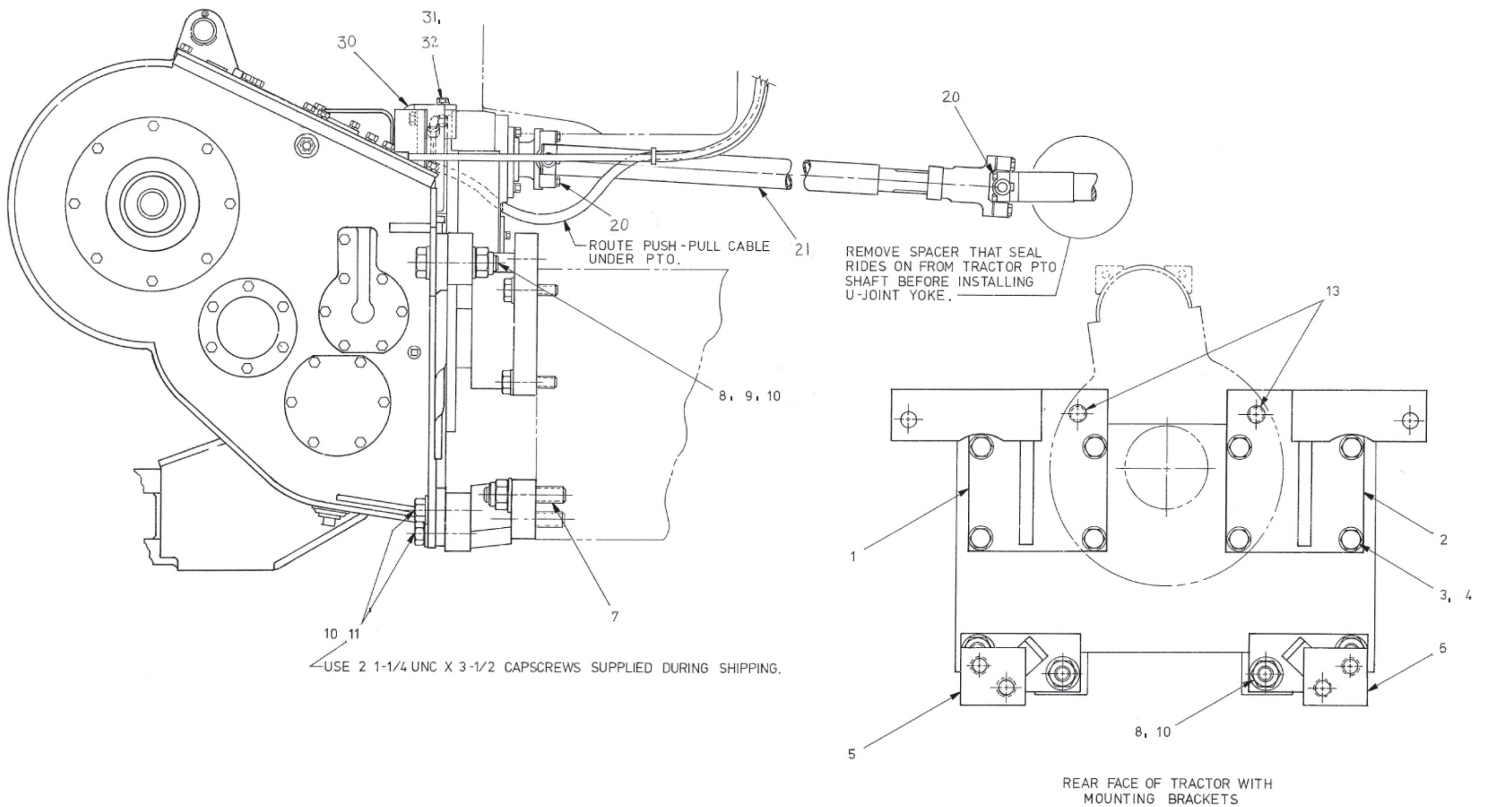
Note: This winch includes a drop box, See drop box page in Section 2 for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1303524W	Bracket, LH	1	10	15128W	Washer	14
2	1305075W	Bracket, RH	1	11	*b 166396W	Capscrew	2
3	*b 274044W	Capscrew	8	13	*a 1308402W	Stud	2
4	296434W	Washer	8	14	15061W	Nut	2
5	1303518W	Bracket, LH	1	15	15240W	Pin, Cotter	2
6	1308400W	Bracket, RH	1	17	15023W	Nut, Jam	2
7	*a 1308401W	Stud	4	18	55434W	O-Ring	2
8	*b 221724W	Locknut	4	19	254375W	Yoke, Splined	1
9	1308403W	Capscrew	2	20	*a 221507W	Capscrew	8

Mounting Parts

Komatsu D83-1 (K55)

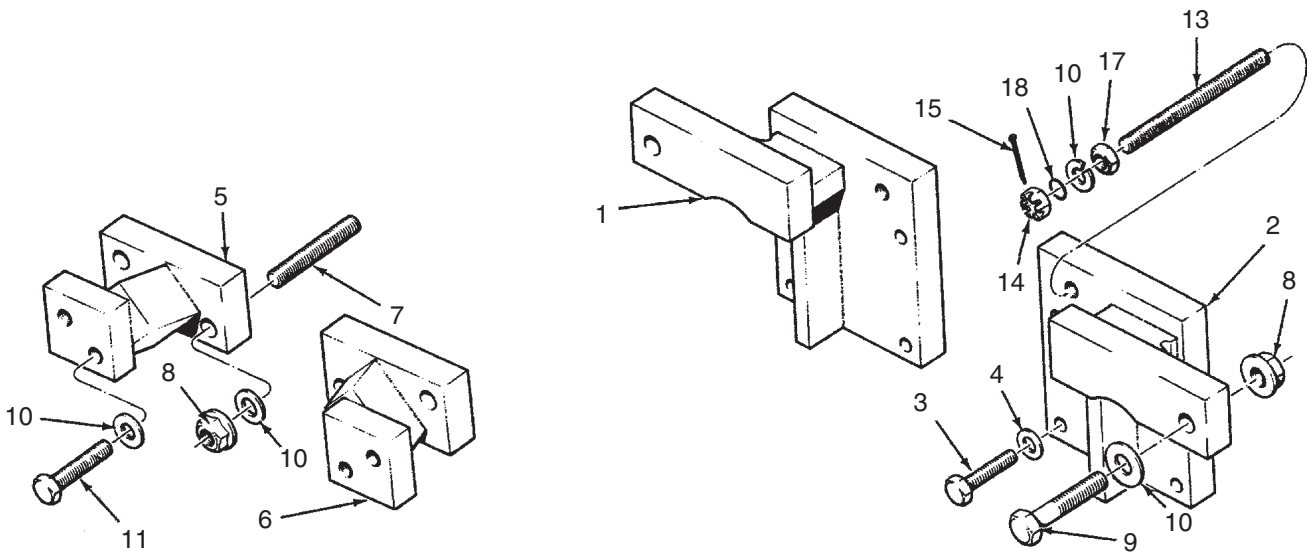
Page 2 of 2



Note: This winch includes a drop box, See drop box page in Section 2 for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
21	2300015W	Shaft	1	30	1324878W	Cover	1
22	226459W	Washer	1	31	18586W	Capscrew	2
23	226458W	Capscrew	1	32	15135W	Washer	2
24	15160W	Washer	1				
25	114312W	Clamp, Strap	2	*a		Requires 230064W Locktite Kit	
27	16597W	Capscrew	4	*b		Requires 245231 Thread Lock	
28	15156W	Washer	4				

Mounting Parts
Komatsu D85ESS-1 (K55)

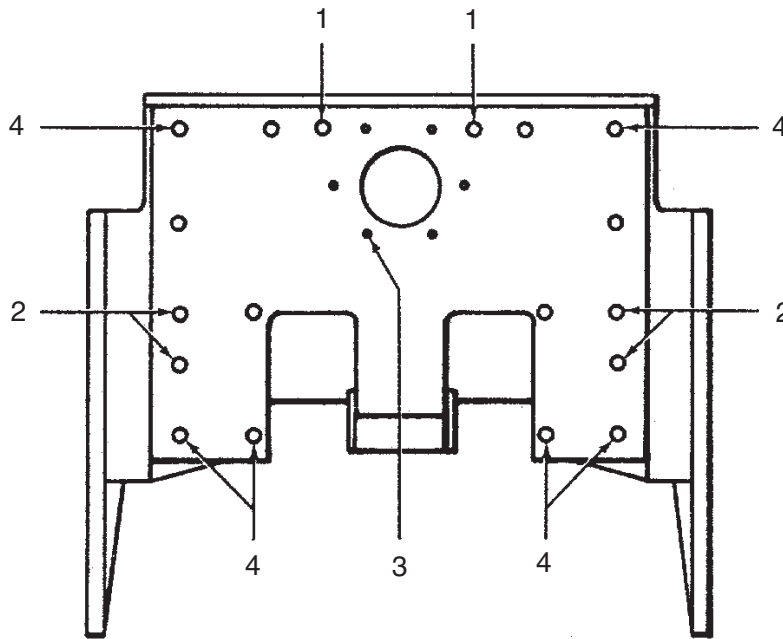


Note: Each of these winches includes a drop box, See drop box pages in Section 2 for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1303524W	Bracket, LH	1	10	15128W	Washer	14
2	1305075W	Bracket, RH	1	11	*a 166396W	Capscrew	2
3	*a 274044W	Capscrew	8	13	*a 1308402W	Stud	2
4	296434W	Washer	8	14	15061W	Nut	2
5	1303518W	Bracket, LH	1	15	15240W	Pin, Cotter	2
6	1308400W	Bracket, RH	1	17	15023W	Nut	2
7	*a 1308401W	Stud	4	18	55434W	O-Ring	2
8	221372W	Locknut	4				
9	1308403W	Capscrew	2		*a	Requires 230064W Loctite Kit	

Mounting Parts

Komatsu D85A-12 (K52), D85E-18 (K53), D85E-21 (K54)



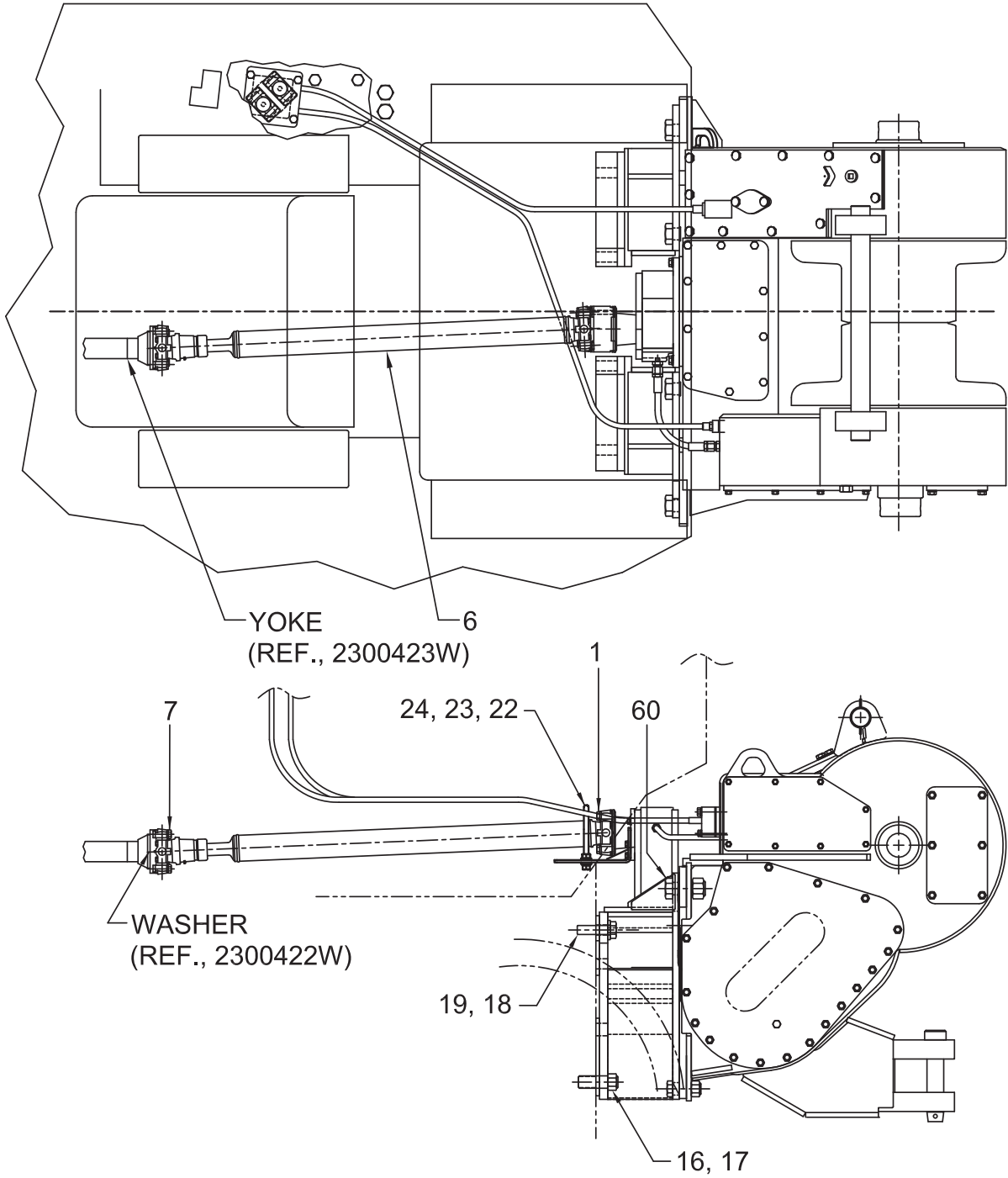
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 213034W	Stud	2	4	*a 213035W	Stud	6
	15240W	Pin, Cotter	2		15111W	Locknut	6
	55434W	O-Ring	2		15185W	Washer	6
	15061W	Nut	2				
2	156879W	Plug	4		*a	Requires 230064W Locktite Kit	
3	18004W	Plug	6				

Mounting Parts

Komatsu D85ESS-2 (K57)

Ratio 6

Page 1 of 2

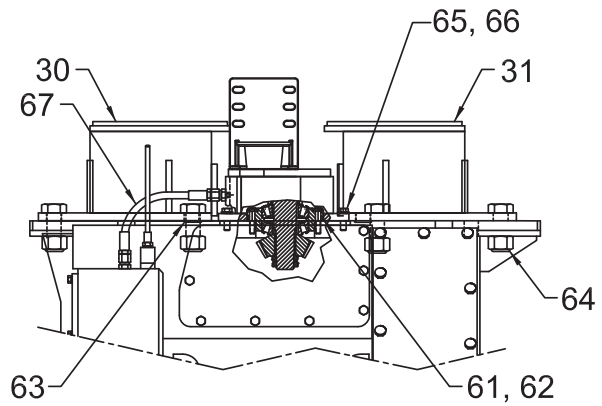
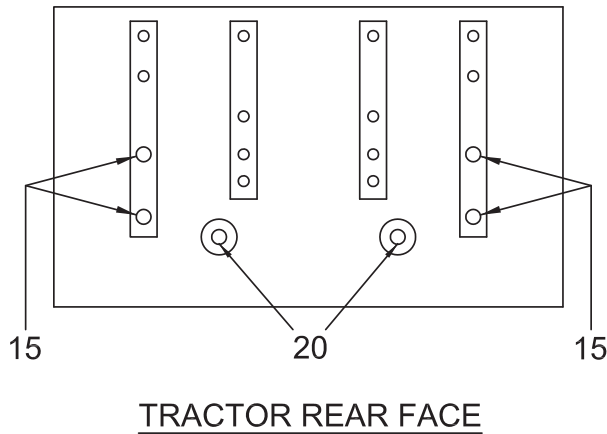


Mounting Parts

Komatsu D85ESS-2 (K57)

Ratio 6

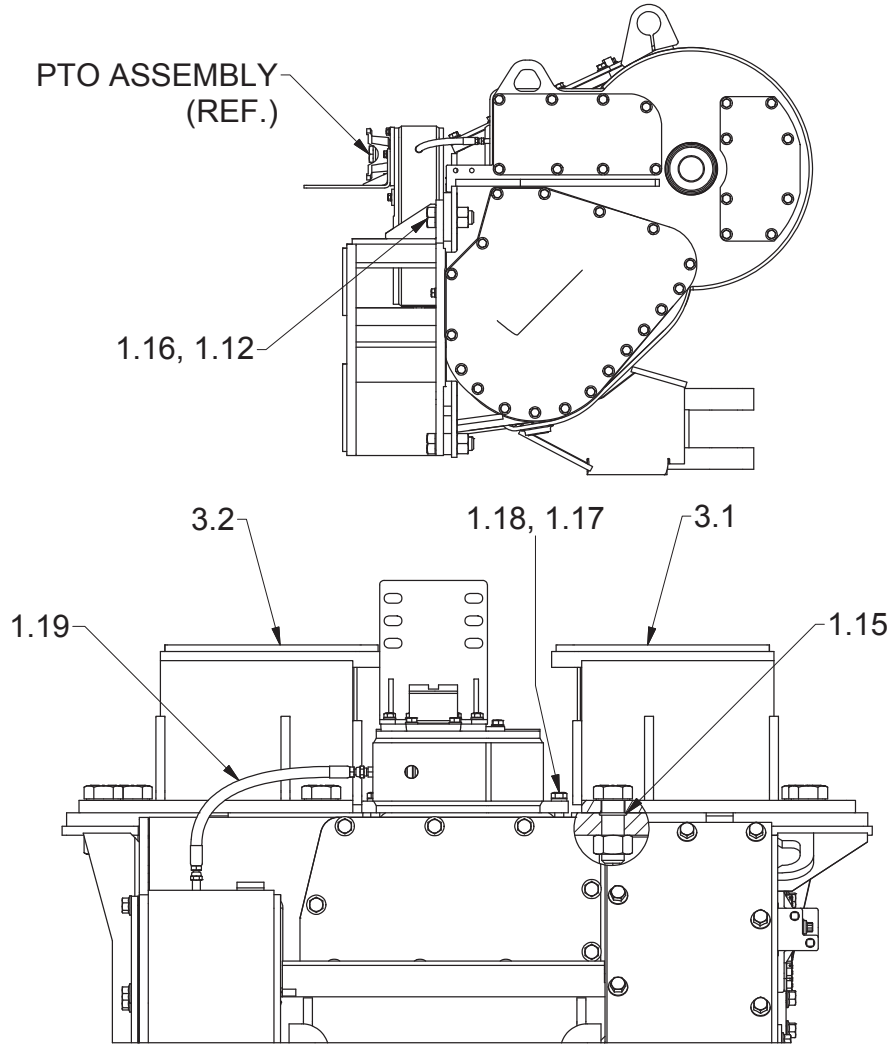
Page 2 of 2



Note: This winch includes a drop box,
See drop box page in Section 2
for related drop box parts.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 221507W	Capscrew	4	31	2313773	Bracket, RH	1
6	2302056W	Driveshaft	1	60	166396W	Capscrew	8
7	*a 293632W	Capscrew	4	61	134078W	Shim .005	AR
15	*a 213035W	Stud	4	62	134079W	Shim .007	AR
16	15128W	Washer	4	63	55434W	O-Ring	2
17	*b 221725W	Nut	4	64	221724W	Nut	8
18	*a 274044W	Capscrew	6	65	221563W	Capscrew	2
19	296434W	Washer	6	66	15158W	Washer	2
20	18001W	Plug	2	67	210849W	Assembly, Hose	1
22	2304350W	Assembly, U-Bolt	1				
23	221771W	Washer	4				
24	15158W	Washer	2				
30	2313772	Bracket, LH	1				
				*a		Require 230064W Loctite Kit	
				*b		Require 245231 Thread Lock	

Mounting Parts
 Komatsu D85ESS-2 (K57)
 Ratio 11

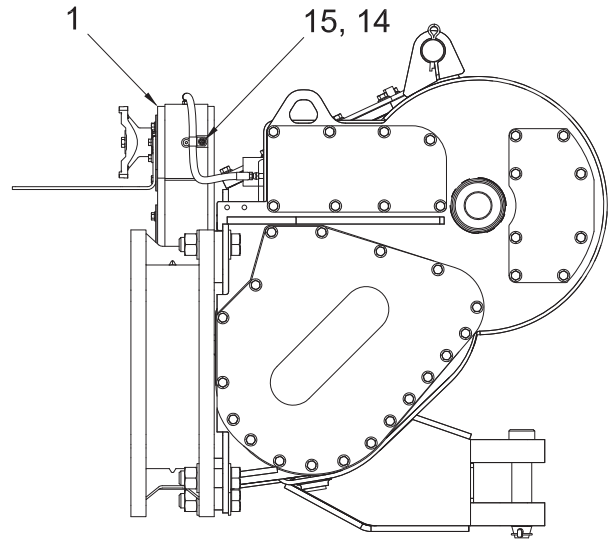
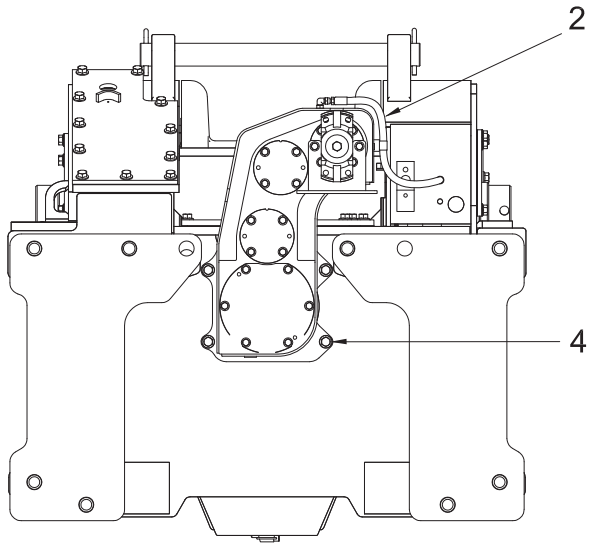
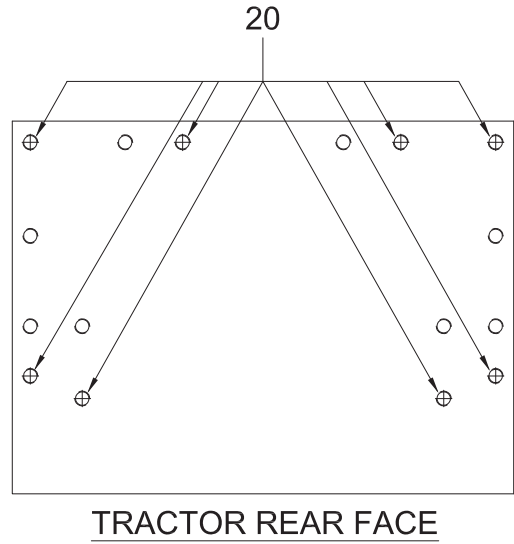
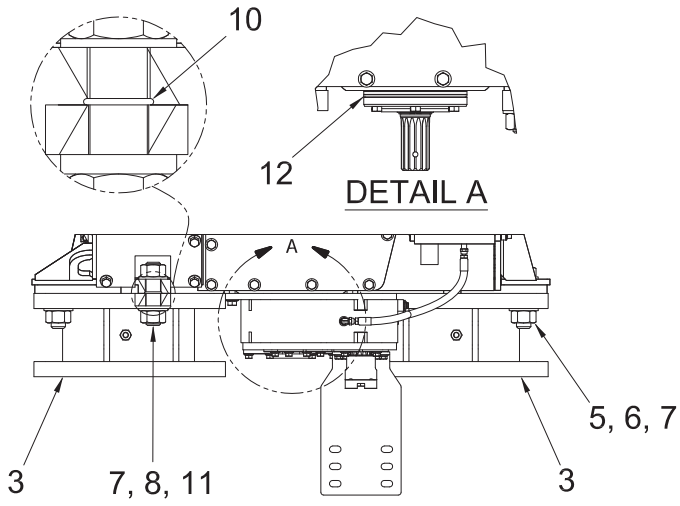


Note: This winch includes a drop box,
 See drop box page in Section 2
 for related drop box parts.

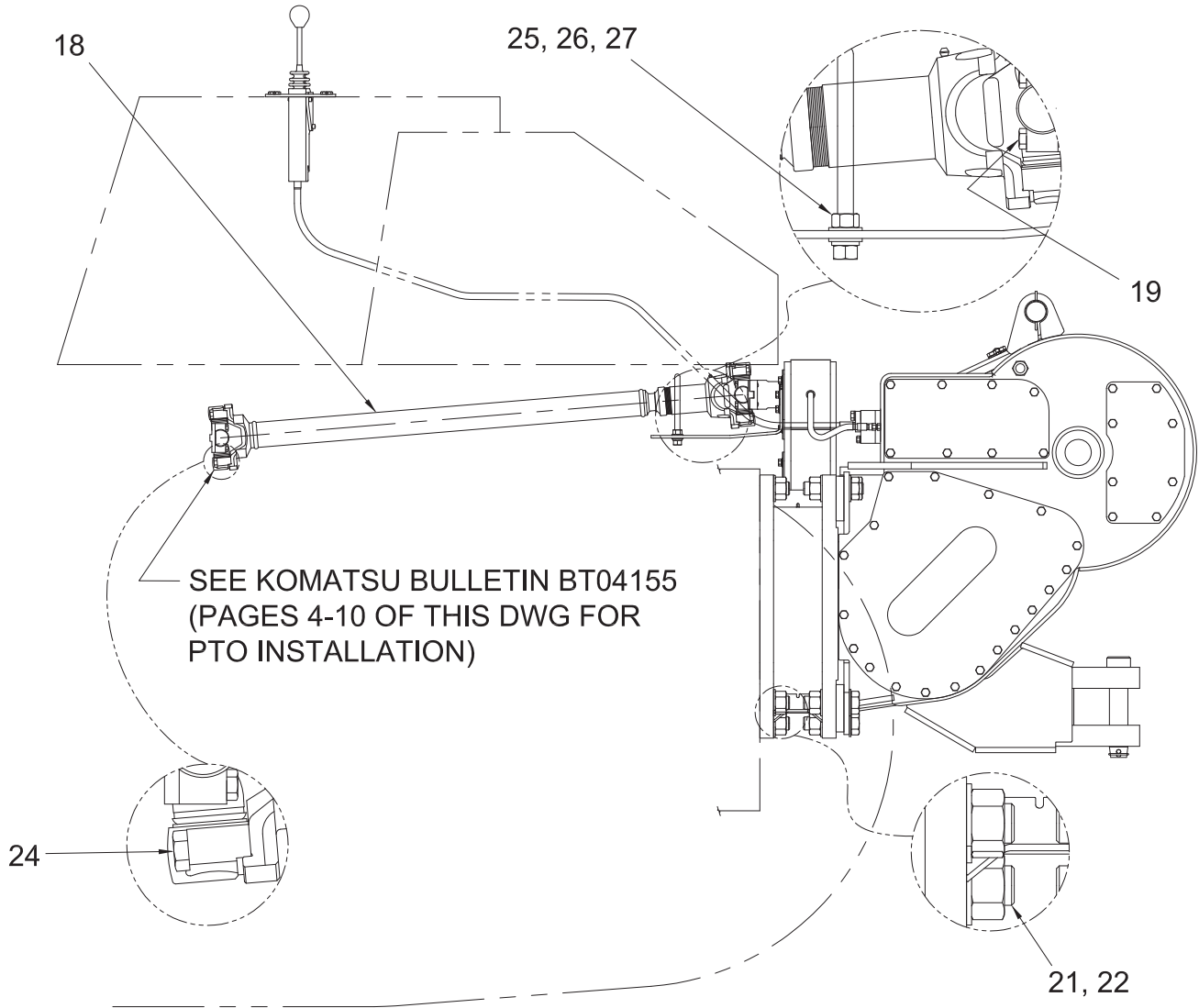
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1.12	166396W	Capscrew	8	1.18	15158W	Washer	2
1.15	55434W	O-Ring	2	1.19	210849W	Assembly, Hose	1
1.16	221724W	Nut	8	3.1	2313772	Bracket, RH	1
1.17	221563W	Capscrew	2	3.2	2313773	Bracket, LH	1

Intentionally Blank

Mounting Parts
Komatsu D85EX-15 (K50)
Page 1 of 2



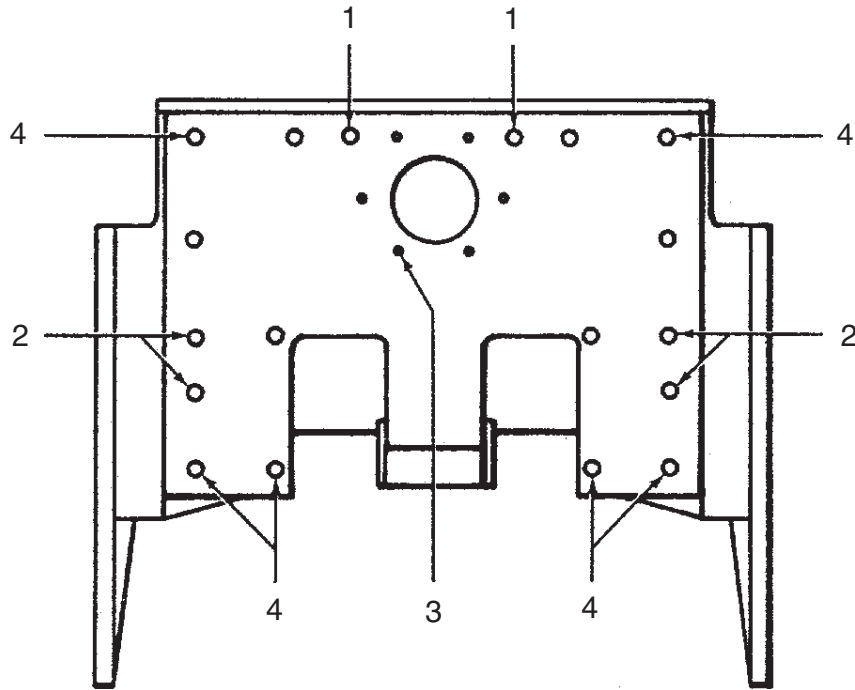
Mounting Parts
 Komatsu D85EX-15 (K50)
 Page 2 of 2



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2305698W	Assembly, Gearbox	1	17	236308	Slicone (Not Shown)	AR
2	12839	Assembly, Hose	1	18	2305699W	Driveshaft - 7C	1
3	2305706W	Bracket, Mounting	2	19	185813W	Capscrew	4
4	398820W	Screw, Flange	4	20	*b 2301638W	Stud	8
5	*a 1310819W	Capscrew	6	21	15128W	Washer	8
6	221724W	Nut	6	22	221724W	Nut	8
7	225841	Washer	16	24	2305920W	Capscrew	4
8	*a 216224W	Stud	2	25	2304350W	Assembly, U-Bolt	1
10	55434W	O-Ring	2	26	15158W	Washer	2
11	221725W	Nut	4	27	15135W	Washer	4
12	90937W	O-Ring	1				
13	R13803030	Clip, Insulation (Not Shown)	1	*a	Requires 383789W Adhesive Sealant		
14	221763W	Washer	1	*b	Requires 230064W Loctite Kit		
15	R13810989	Capscrew	1				

Mounting Parts

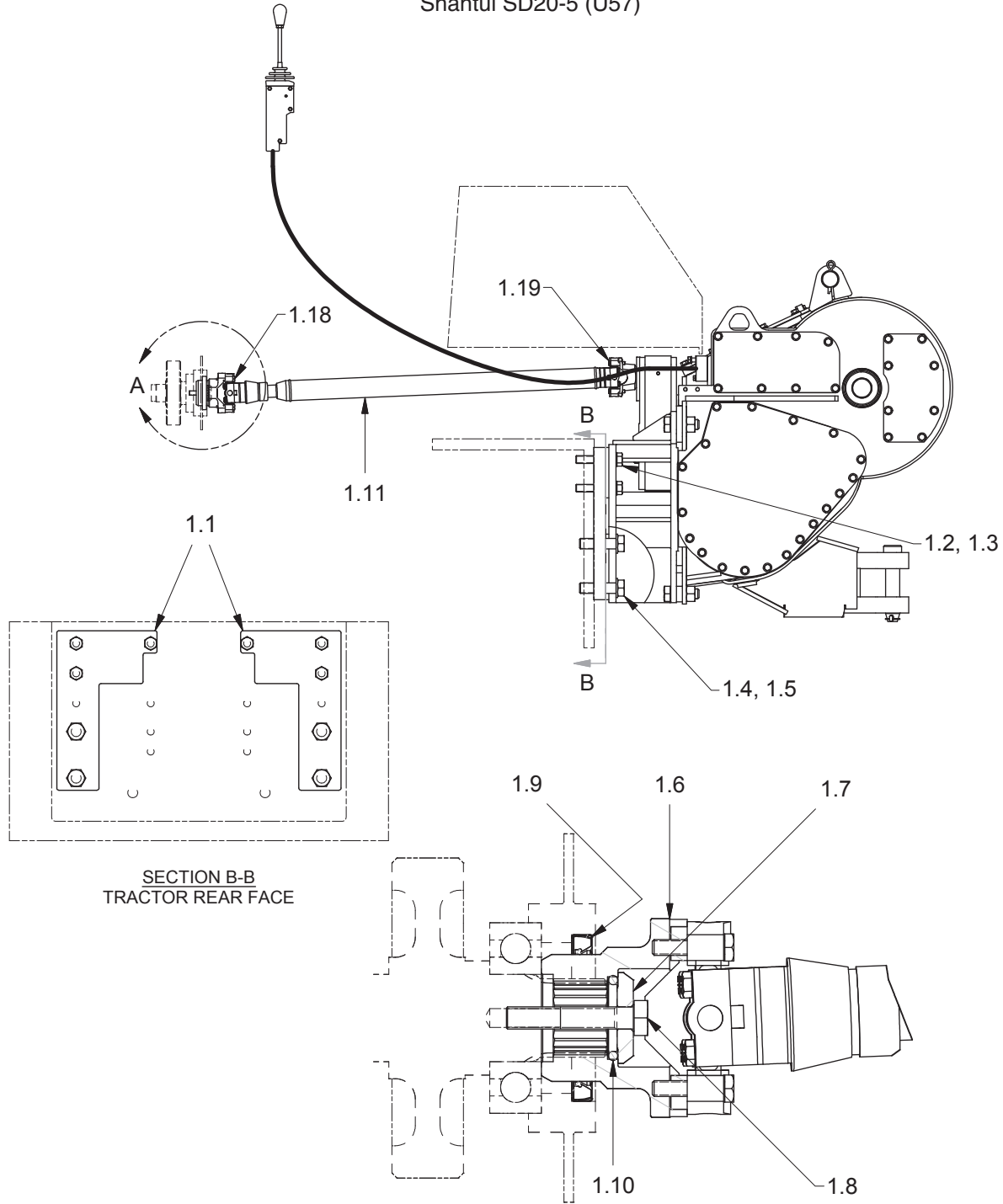
Komatsu D135A (K56)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 213034W	Stud	2	4	*a 213035W	Stud	6
	15240W	Pin, Cotter	2		15111W	Locknut	6
	55434W	O-Ring	2		15185W	Washer	6
	15061W	Nut	2				
	2	156879W	Plug	4	*a	Requires 230064W Locktite Kit	
3	18004W	Plug	6				

Mounting Parts

Shantui SD20-5 (U57)



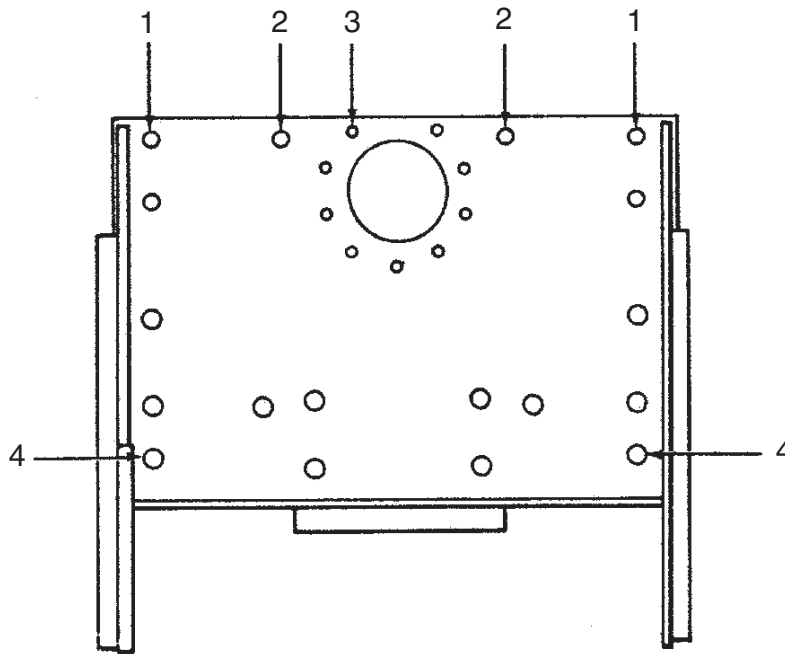
SECTION B-B
TRACTOR REAR FACE

DETAIL A
YOKE INSTALLATION

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1.1	2313501	Plate, Spacer	2	1.9	*a 2313550	Seal, Oil	1
1.2	*b 293732W	Capscrew	6	1.10	2301641W	O-Ring	1
1.3	296434W	Washer	6	1.11	2303674W	Driveshaft	1
1.4	*a Y19C-M33120	Capscrew	4	1.18	*a 293632W	Capscrew	4
1.5	296440W	Washer	4	1.19	*a 221507W	Capscrew	4
1.6	2313543	Yoke, 5C	1				
1.7	2300422W	Washer	1		*a	Requires 318702W Thread Lock	
1.8	*a Y09C-M1480	Capscrew	1		*b	Requires 230064W Locktite Kit	

Mounting Parts

Terex D700A (G51)



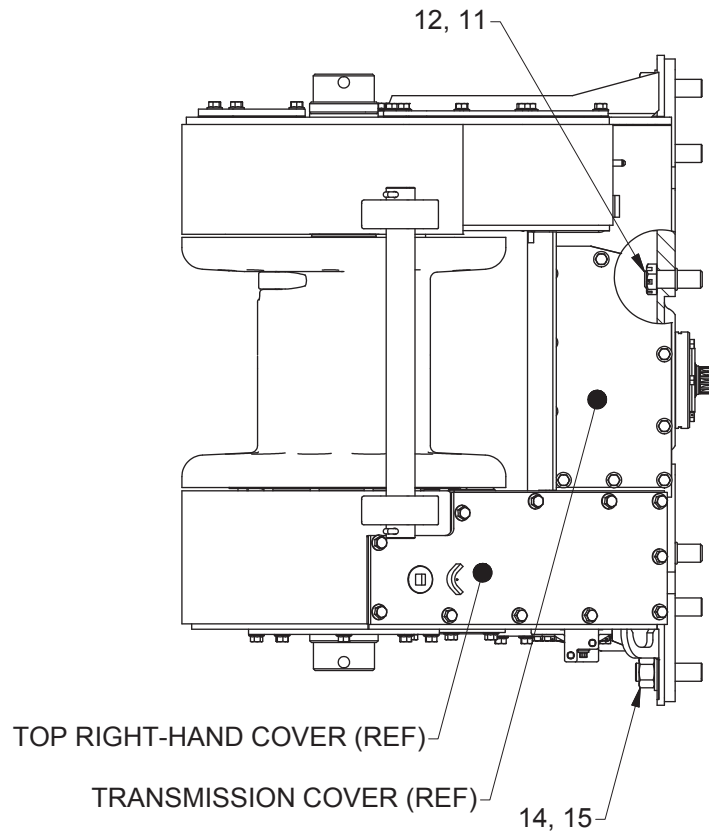
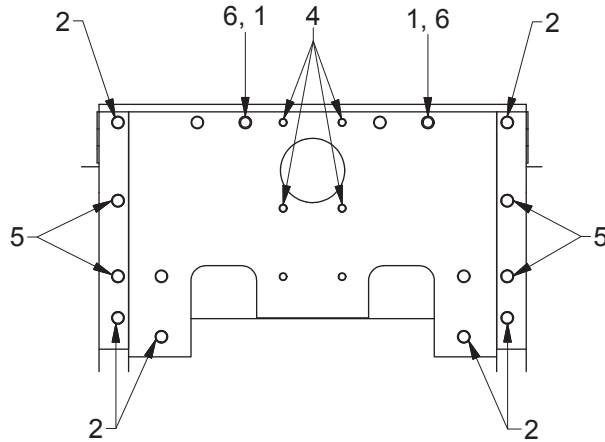
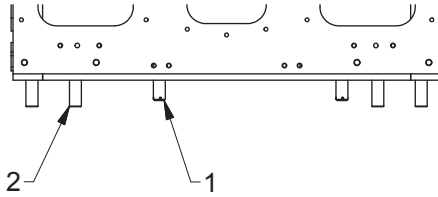
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 253031W	Stud	1	3	18000W	Plug	9
	221373W	Locknut	1	4	280263W	Capscrew	2
2	*a 198929W	Stud	2		15170W	Lockwasher	2
	55434W	O-Ring	2				
	15061W	Nut, Slotted	2				
	15240W	Pin, Cotter	2				
				*a	Requires 230064W Locktite Kit		

Intentionally Blank

Mounting Parts

Zoomlion ZD220 (N57)

Page 1 of 2

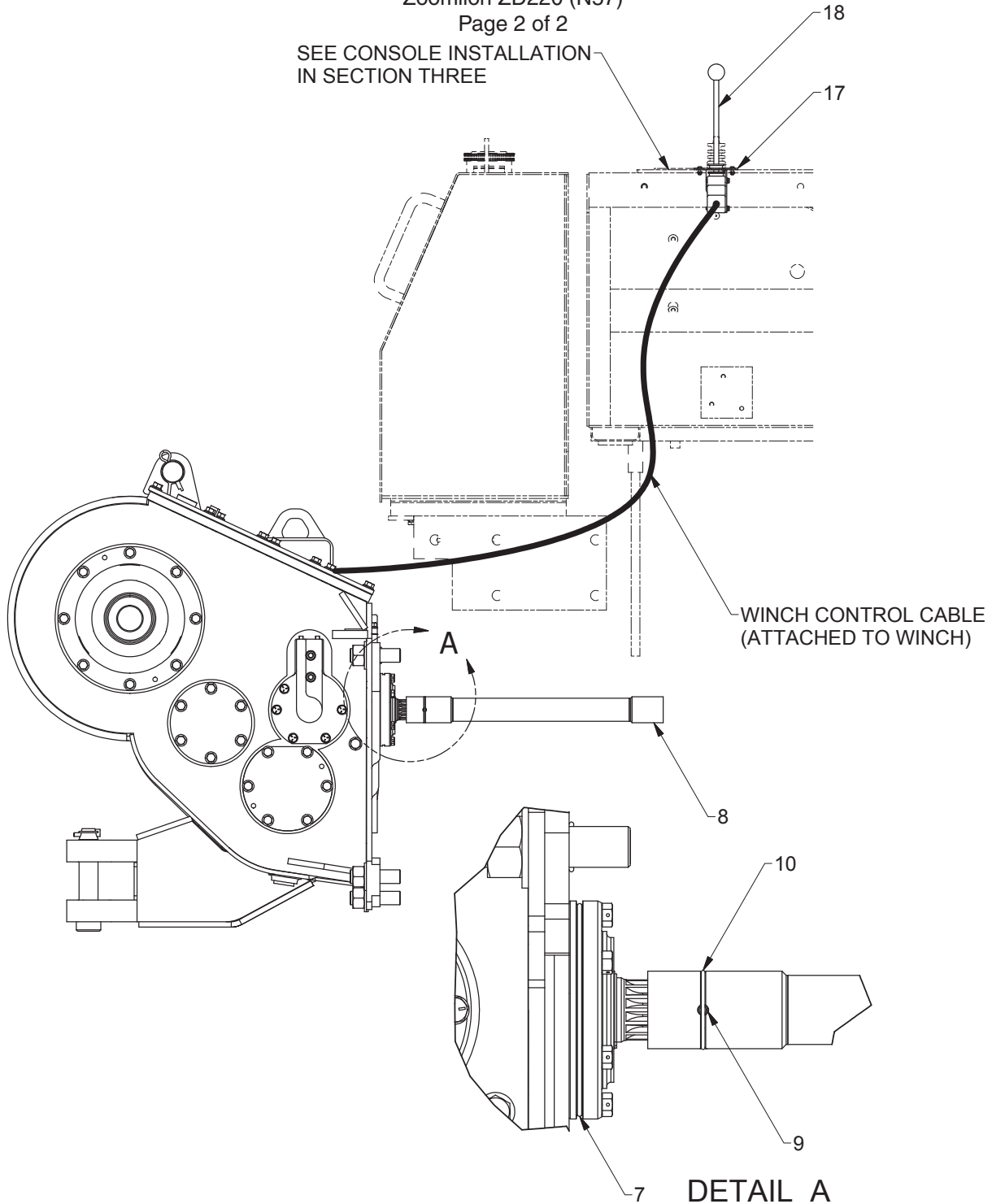


Mounting Parts

Zoomlion ZD220 (N57)

Page 2 of 2

SEE CONSOLE INSTALLATION
IN SECTION THREE



DETAIL A

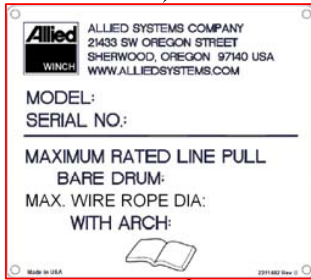
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 213034W	Stud	2	11	*b 134821W	Nut, Slotted	2
2	*a 213035W	Stud	6	12	15240W	Pin	2
4	18004W	Plug	4	14	*b 221725W	Nut	6
5	156879W	Plug	4	15	225851	Washer	6
6	55434W	O-Ring	2	17	2315535	Bracket, Control Lever	1
7	203550	O-Ring	1	18	2303985W	Lever, Control	1
8	285690W	Shaft, PTO	1				
9	19929W	Pin	1				
10	9528W	Ring, Retainer Pin	1				
				*a	Requires 230064W Loctite Kit		
				*b	Requires 318702W Thread Lock		

Nameplate & Decals

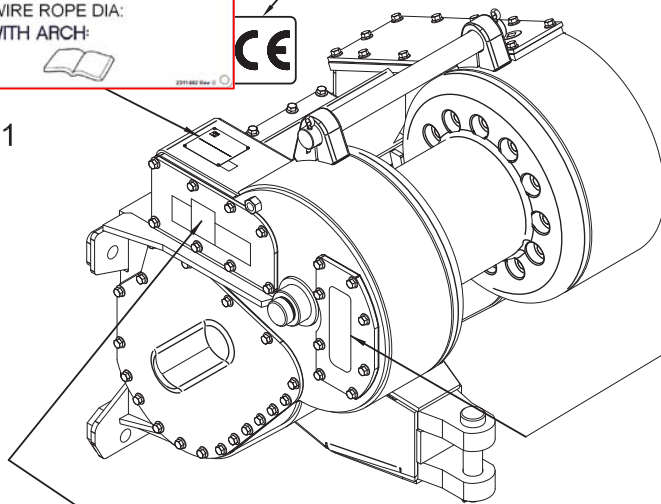
Page 1 of 2

Contact Allied Systems Winch Department if the Nameplate Is Broken.

Contact Allied Systems Winch Department if the CE Mark Label Is Needed.



11



5



2

PTO Winch Maintenance

Recommended Winch Service Intervals

Hours or **	Months **	Filter ***	Winch Gear Oil	Brake & Clutch	Major Overhaul
First 250	1	Change			
Every 500	3	Change			
Every 1,000	6		Change		
Every 5,000				* Inspect	
Every 10,000					* Evaluate

Lube rollers and check oil level and filter light weekly.

* Evaluate = Service based on average winch use;
 - if used more than once a day, perform overhaul.
 - if used less than once a day, remove covers and check to determine need.
 ** Inspect = Disassemble and inspect for wear.
 ** Service winch using the tractor's hour meter or the length of time the winch is mounted to the tractor, whichever occurs first.
 *** Follow tractor schedule if using tractor filter.

IMPORTANT - For best Load Control
 Use only the following oils:

Caterpillar - Multipurpose Tractor Oil (MTO)
 John Deere - Hy-Gard
 ExxonMobil - Mobil Fluid 424 (Factory Fill)
 Chevron - 1000 THF

Consult service/operating manual for low temperature oils and other details. Use of non-approved oil may void warranty.

Allied
 WINCH
 2311481 Rev C

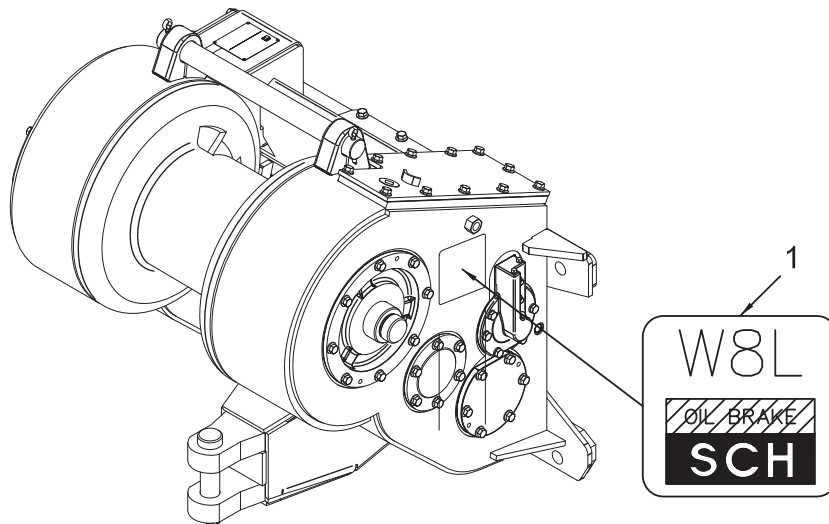
3



4

Nameplate & Decals

Page 2 of 2



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2300008W	Decal, RH	1	5	2300512W	Decal, LH	1
2	1321665W	Decal, Warning	1	11	16602W	Screw	4
3	*a 2311481	Decal, PTO Winch Maintenance	1		*a	Reference Parts Marketing bulletin PMB0801	
4	2311330	Decal, Load & Wire Rope Safety	1				

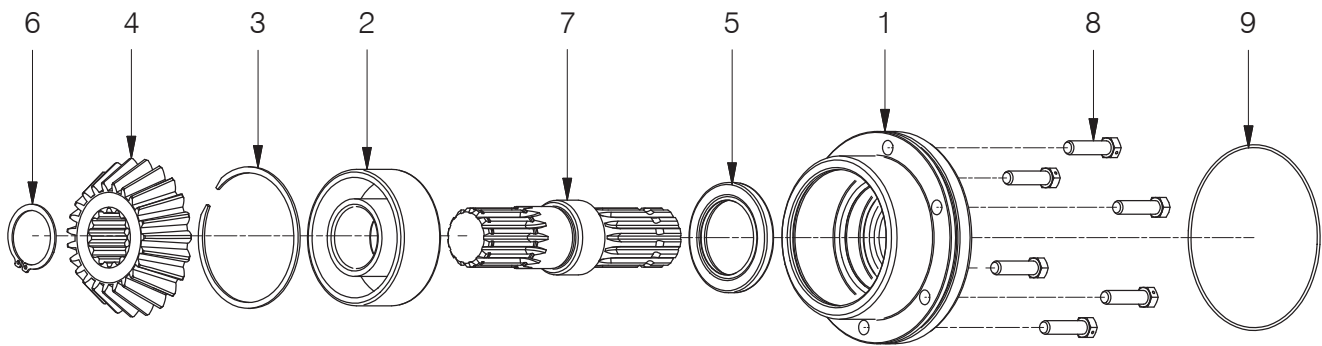
Intentionally Blank

Gear Train/Shaft

Brake	2-49
Brake Shaft	2-50 & 2-51
Clutch	2-46 thru 2-48
Clutch/Bevel Gear Shaft	2-40 thru 2-45
Drum Shaft Group	2-52 & 2-55
Gear Box	2-20 thru 2-39
Intermediate Gear Shaft	2-56
PTO Shaft	2-2 thru 2-18
Wire Rope Lock	2-57

PTO Shaft

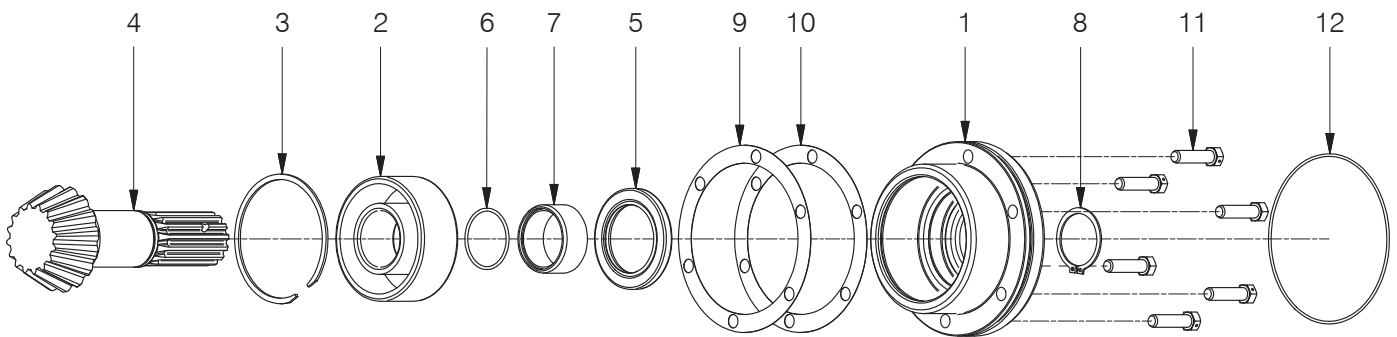
All Except Komatsu D68E-SS-12 (K48), D83E-1 (K55), D85EX-15 (K50) and D85E-SS-2 (K57)
 Gear Ratios #1 (49.8/19.9), #6 (68.8/19.9)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	98362W	Carrier	1	6	12916W	Ring, Snap	1
2	45310W	Bearing	1	7	381190W	Shaft	1
3	35573W	Ring, Snap	1	8	169671W	Capscrew	6
4	96020W	Gear, Bevel	1	9	67355W	Lockwire	AR
5	79389W	Seal	1				

PTO Shaft

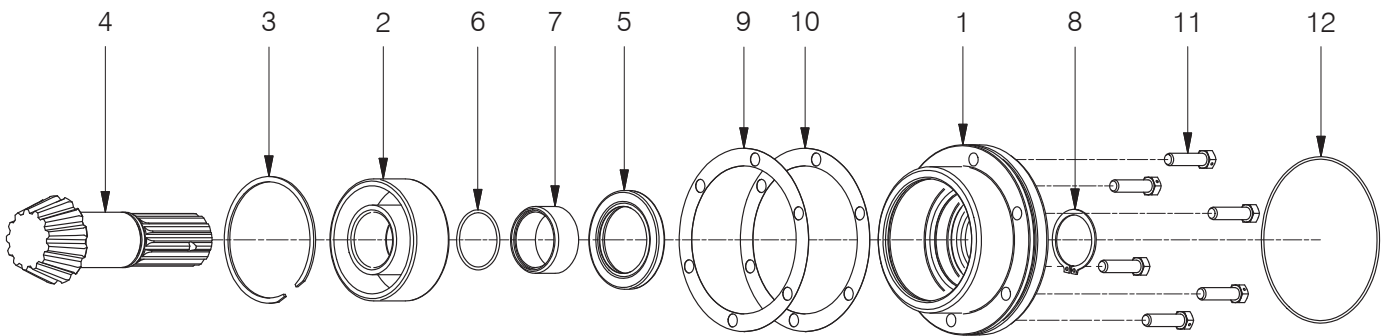
All Except Komatsu D68E-SS-12 (K48), D83E-1 (K55), D85EX-15 (K50) and D85E-SS-2 (K57)
 Gear Ratios #2 (71.6/38.6) & #7 (47.1/31.1)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	98362W	Carrier	1	7	96524W	Spacer	1
2	45310W	Bearing	1	8	12944W	Ring, Snap	1
3	35573W	Ring, Snap	1	9	134078W	Shim .005	AR
4	285277W	Shaft, PTO	1	10	134079W	Shim .007	AR
5	79389W	Seal	1	11	169671W	Capscrew	6
6	133898W	O-Ring	1	12	67355W	Lockwire	AR

PTO Shaft

All Except Komatsu D68E-SS-12 (K48), D83E-1 (K55), D85EX-15 (K50) and D85E-SS-2 (K57)
 Gear Ratios #3 (94/37.6), #8 (125/190), #9 (94/102) & #10 (125/136)



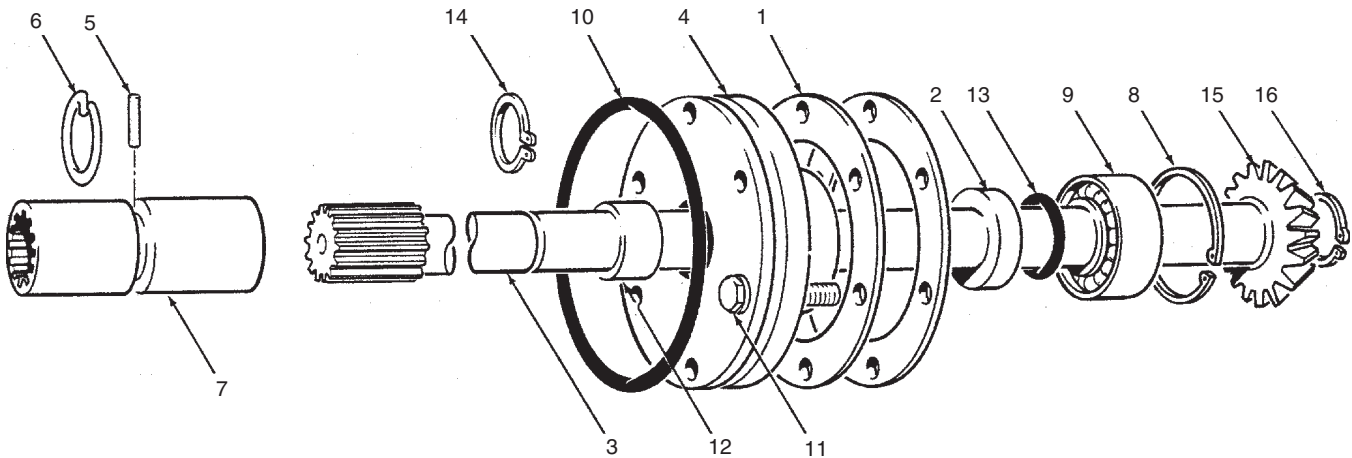
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	98362W	Carrier	1	7	96524W	Spacer	1
	45310W	Bearing	1	8	12944W	Ring, Snap	1
3	35573W	Ring, Snap	1	9	134078W	Shim .005	AR
4	313884W	Shaft, PTO	1	10	134079W	Shim .007	AR
5	79389W	Seal	1	11	169671W	Capscrew	6
6	133898W	O-Ring	1	12	67355W	Lockwire	AR

PTO Shaft

Caterpillar

Last Used on S/N W8LP-2099 & AW8L-1000

Tractor Model (Code)	Shaft-PTO (Item 3)		Bearing Carrier (Item 4)	Pin (Item 5)	Lock Ring (Item 6)	Coupler (Item 7)	Capscrew (Item 11)
	Gear Ratio						
	49.8:1	71.6:1					
Caterpillar D7 DD (C52)		132909W	98362W	19929W	9528W	33785W 16 Splines 7.00 in 122.80 mm	169671W
Caterpillar D7G PS (C51)	259770W	132909W	98362W	19929W	9554W	97553W 16 Splines 4.63 in 117.60 mm	169671W
Caterpillar 572 (C53)	259770W	132909W	98362W	9563W	9554W	97553W 16 Splines 4.63 in 117.60 mm	169671W



Parts Service Gram	
Item	Gram
3	Contact your dealer

A - 49.8:1 Gear Ratio
B - 71.6:1 Gear Ratio

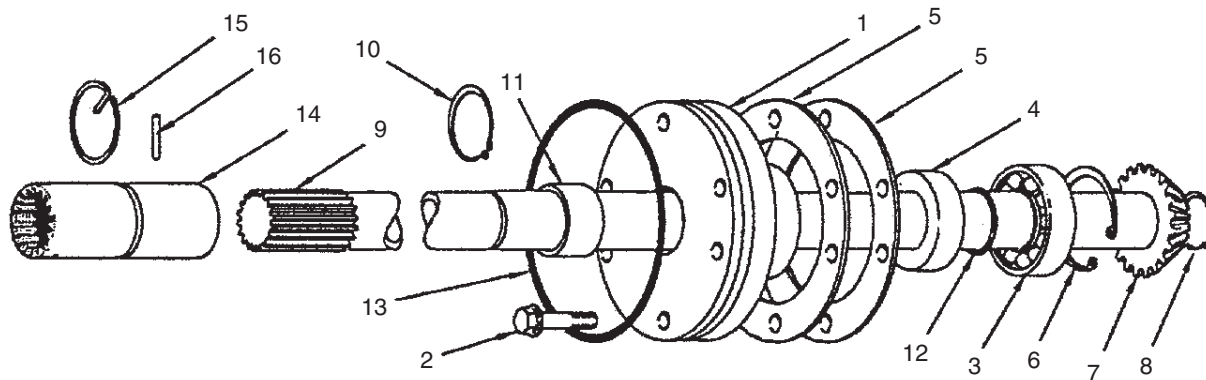
Item	Part No.	Description	Qty		Item	Part No.	Description	Qty		
			A	B				A	B	
1	134078W	Shim .005	AR	AR	10	109453W	O-Ring	1	1	
	134079W	Shim .007	AR	AR		11	*a	-----	Capscrew	6
2	79389W	Seal, Oil	1	1			67355W	Wire	AR	AR
3	*a	-----	Shaft, PTO	1	1	12	96524W	Spacer	--	1
4	*a	-----	Carrier, Bearing	1	1	13	133898W	O-Ring	--	1
5	*a	-----	Pin	1	1	14	12944W	Ring, Snap	--	1
6	*a	-----	Ring, Lock	1	1	15	96020W	Gear, Bevel	1	--
7	*a	-----	Coupler	1	1	16	12916W	Ring, Snap	1	--
8	35573W	Ring, Snap	1	1						
9	125399W	Bearing	1	1		*a	See Chart			

PTO Shaft

Caterpillar

First Used on S/N W8LP-2100 & AW8L-1001

Tractor Model (Code)	Shaft-PTO (Item 9)				Pin (Item 16)	Lock Ring (Item 15)	Coupler (Item 14)	Capscrew (Item 2)
	Gear Ratio							
	47.1:1	49.8:1	71.6:1	94.1:1				
Caterpillar D7 DD (C52)		285278W	285277W	313884W	19929W	9528W	285694W 16 Splines 22.83 in 579.88 mm	169671W
Caterpillar D7G PS, Series II (C51, C83)	285277W *d 313884W	285278W *c 381190W	285277W	313884W	19929W	9528W	285689W 16 Splines 22.77 in 578.36 mm	169671W
Caterpillar 572 (C53)		285278W *c 381190W	285277W	313884W	19929W	9528W	285689W 16 Splines 22.77 in 578.36 mm	169671W



A - 49.8:1 Gear Ratio

B - 47.1:1, 71.6:1 & 94.1:1 Gear Ratio

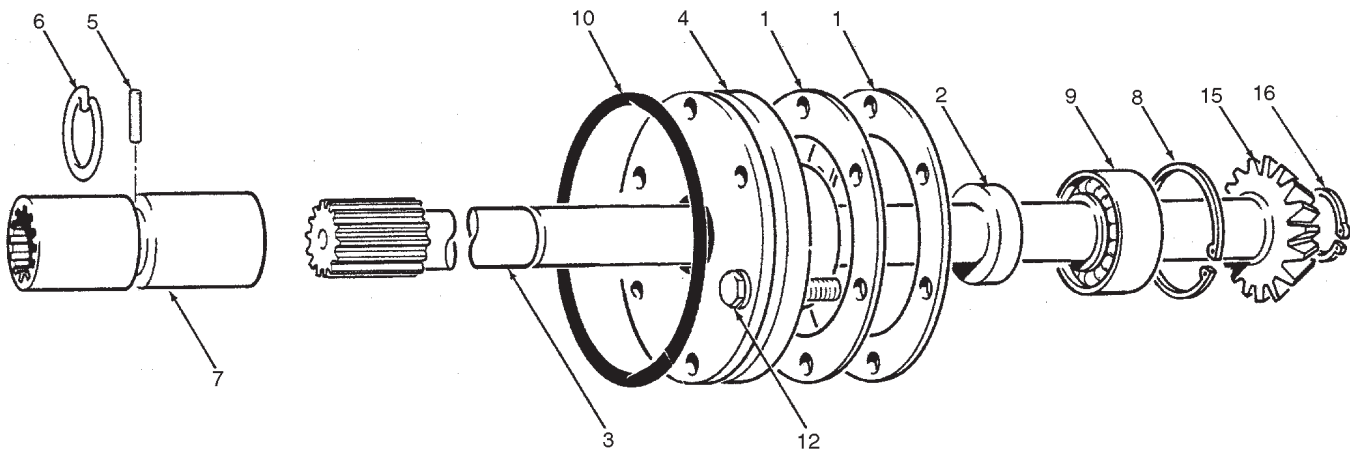
Item	Part No.	Description	Qty		Item	Part No.	Description	Qty	
			A	B				A	B
1	98362W	Carrier, Bearing	1	1	11	1321673W	Spacer	1	1
2	*a,*b	----- Capscrew	6	6	12	133898W	O-Ring	--	1
		67355W	AR	AR	13	90937W	O-Ring	1	1
3	45310W	Bearing	1	1	14	*a	----- Coupler	1	1
4	79389W	Seal, Oil	1	1	15	*a	----- Ring, Lock	1	1
5	134078W	Shim .005	AR	AR	16	*a	----- Pin	1	1
	134079W	Shim .007	AR	AR					
6	35573W	Ring, Snap	1	1		*a	See Chart		
7	96020W	Gear, Bevel	1	--		*b	Requires 230064W Loctite Kit		
8	12916W	Ring, Snap	1	--		*c	First Used on S/N W8L-3191 & AW8L-1001		
9	*a	----- Shaft, PTO	1	--		*d	Caterpillar D7H/R PS Only		
10	12944W	Ring, Snap	--	1					

PTO Shaft

Dresser

Last Used on S/N W8LP-2099 & AW8L-1000

Tractor Model (Code)	Shaft-PTO (Item 3)		Bearing Carrier (Item 4)	Pin (Item 5)	Lock Ring (Item 6)	Coupler (Item 7)	Capscrew (Item 11)
	Gear Ratio						
	49.8:1	71.6:1					
Dresser TD-20E (H51)	259768W		98362W	19929W	9528W	138994W 15 Splines 5.38 in 136.65 mm	169671W



Parts Service Gram	
Item	Gram
3	Contact your dealer

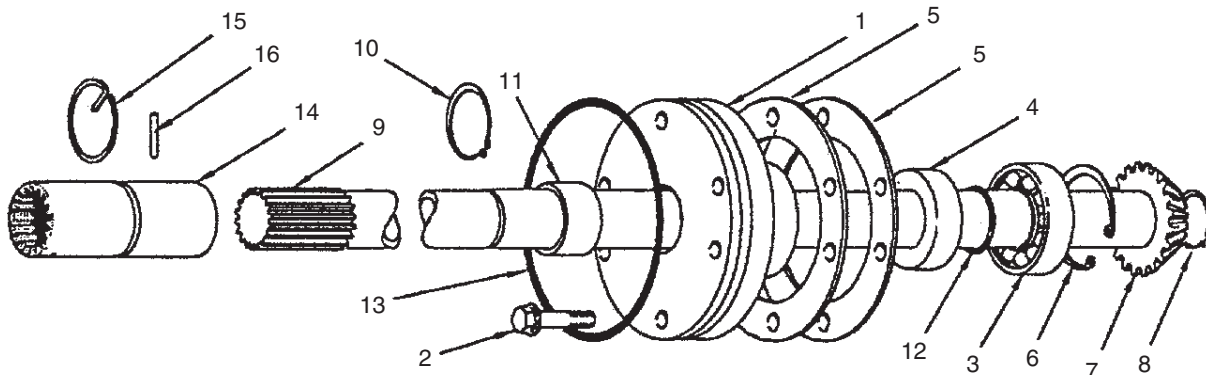
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	134078W	Shim .005	AR	9	125399W	Bearing	1
	134079W	Shim .007	AR	10	109453W	O-Ring	1
2	79389W	Seal, Oil	1	12	*a	Cap screw	6
3	-----	Shaft, PTO	1		67355W	Wire	AR
4	*a	Carrier, Bearing	1	15	96020W	Gear, Bevel	1
5	*a	Pin	1	16	12916W	Ring, Snap	1
6	*a	Ring, Lock	1		*a	See Chart	
7	*a	Coupler	1				
8	35573W	Ring, Snap	1				

PTO Shaft

Dresser

First Used on S/N W8LP-2100 & AW8L-1001

Tractor Model (Code)	Shaft-PTO (Item 9)				Pin (Item 16)	Lock Ring (Item 15)	Coupler (Item 14)	Capscrew (Item 2)
	Gear Ratio							
	47.1:1	49.8:1	71.6:1	94.1:1				
Dresser TD-20E/G/H, TD20M (H51)	285277W	285278W *c 381190W	285277W	313884W	19929W	9528W	285675W 16 Splines 36.28 in 921.51 mm	169671W



A - 49.8:1 Gear Ratio

B - 47.1:1, 71.6:1 & 94.1:1 Gear Ratio

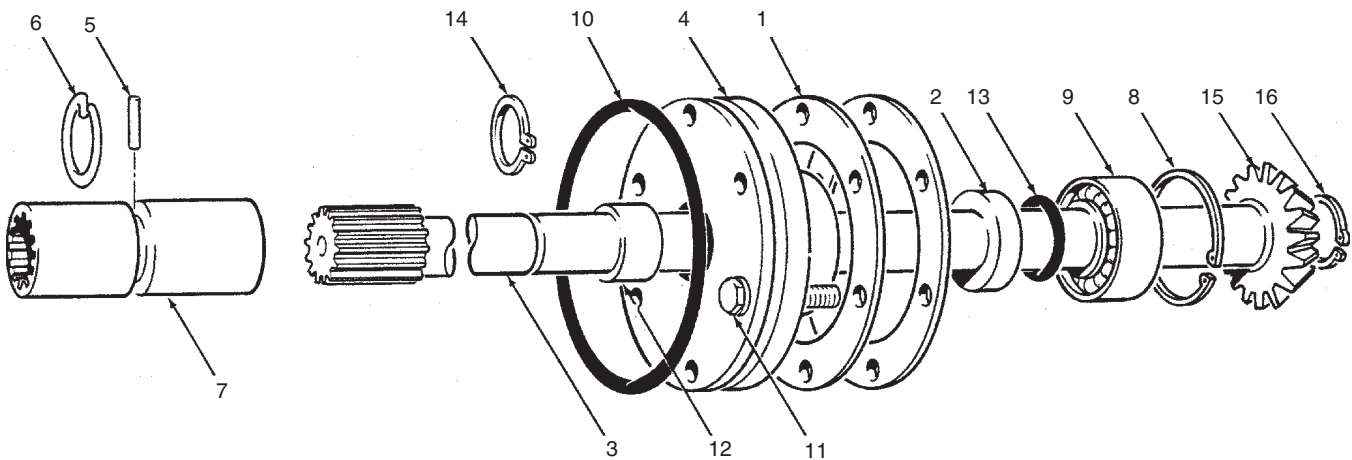
Item	Part No.	Description	Qty		Item	Part No.	Description	Qty	
			A	B				A	B
1	98362W	Carrier, Bearing	1	1	10	12944W	Ring, Snap	--	1
2	*a, *b	----- Capscrew	6	6	11	1321673W	Spacer	1	1
	67355W	Wire	AR	AR	12	133898W	O-Ring	--	1
3	45310W	Bearing	1	1	13	90937W	O-Ring	1	1
4	79389W	Seal, Oil	1	1	14	*a	----- Coupler	1	1
5	134078W	Shim .005	AR	AR	15	*a	----- Ring, Lock	1	1
	134079W	Shim .007	AR	AR	16	*a	----- Pin	1	1
6	35573W	Ring, Snap	1	1		*a	See Chart		
7	96020W	Gear, Bevel	1	--		*b	Requires 230064W Loctite Kit		
8	12916W	Ring, Snap	1	--		*c	First Used on S/N W8L-3191 & AW8L-1001		
9	*a	----- Shaft, PTO	1	--					

PTO Shaft

Fiat-Allis

Last Used on S/N W8LP-2099 & AW8L-1000

Tractor Model (Code)	Shaft-PTO (Item 3)		Bearing Carrier (Item 4)	Pin (Item 5)	Lock Ring (Item 6)	Coupler (Item 7)	Capscrew (Item 11)
	Gear Ratio						
	49.8:1	71.6:1					
Fiat-Allis 16B (A51, A52)	253797W		216222W	19929W	9528W	138994W 15 Splines 5.38 in 136.65 mm	216542W
Fiat-Allis 20 (A53, A54, A55)		132909W	216222W	9563W	9554W	260676W 21 Splines 9.20 in 233.68 mm	216542W



Parts Service Gram	
Item	Gram
3	Contact your dealer

A - 49.8:1 Gear Ratio
B - 71.6:1 Gear Ratio

Item	Part No.	Description	Qty		Item	Part No.	Description	Qty	
			A	B				A	B
1	134078W	Shim .005	AR	AR	10	109453W	O-Ring	1	1
	134079W	Shim .007	AR	AR		11	*a	-----	Capscrew
2	79389W	Seal, Oil	1	1			67355W	Wire	AR
3	*a	-----	1	1	12	96524W	Spacer	--	1
4	*a	-----	1	1	13	133898W	O-Ring	--	1
5	*a	-----	1	1	14	12944W	Ring, Snap	--	1
6	*a	-----	1	1	15	96020W	Gear, Bevel	1	--
7	*a	-----	1	1	16	12916W	Ring, Snap	1	--
8	35573W	Ring, Snap	1	1		*a	See Chart		
9	125399W	Bearing	1	1					

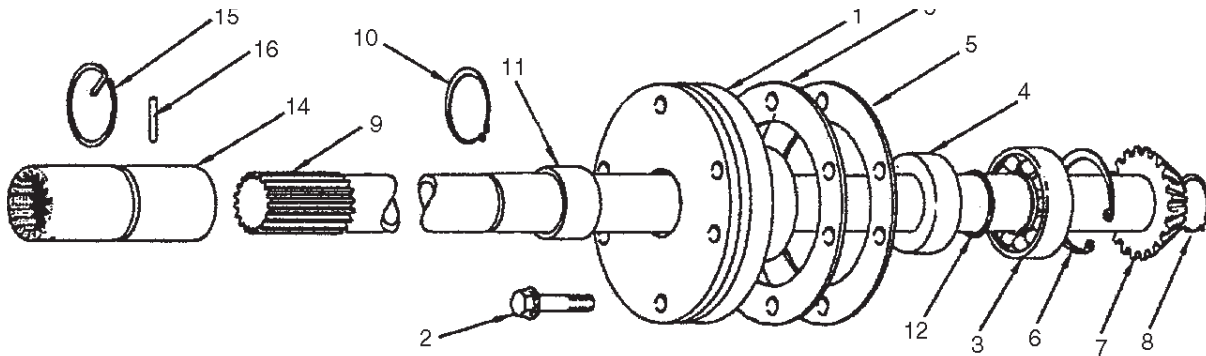
2-10

PTO Shaft

Fiat-Hitachi

First Used on S/N W8LP-2100 & AW8L-1001

Tractor Model (Code)	Shaft-PTO (Item 9)				Pin (Item 16)	Lock Ring (Item 15)	Coupler (Item 14)	Capscrew (Item 2)
	Gear Ratio							
	47.1:1	49.8:1	71.6:1	94.1:1				
Fiat-Hitachi 16B (A51, A52)		253797W		313884W	19929W	9528W	138994W 15 Splines 5.38 in 136.65 mm	216542W 169671W
Fiat-Hitachi PL60,20 (A53, A54, A55)			132909W	313884W	9563W	9554W	260676W 21 Splines 9.20 in 670.56 mm	216542W 169671W
Fiat-Hitachi 20B,FD/FL20, FP60,DX/FD255L (A55, A56)	285277W	285278W *c 381190W	285277W	313884W	19929W	9528W	308418W 24 Splines 26.40 in 670.56 mm	169671W



A - 49.8:1 Gear Ratio

B - 47.1:1, 71.6:1 & 94.1:1 Gear Ratio

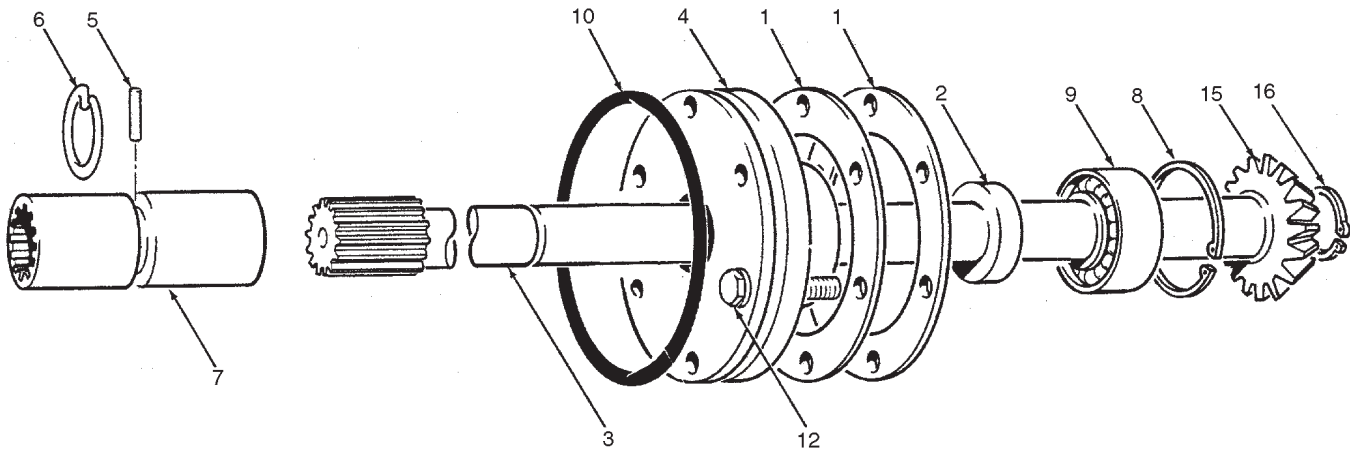
Item	Part No.	Description	Qty		Item	Part No.	Description	Qty	
			A	B				A	B
1	98362W	Carrier, Bearing	1	1	10	12944W	Ring, Snap	--	1
2	*a,*b	----- Capscrew	6	6	11	1321673W	Spacer	1	1
3	67355W	Wire	AR	AR	12	133898W	O-Ring	--	1
4	45310W	Bearing	1	1	14	*a	----- Coupler	1	1
5	79389W	Seal, Oil	1	1	15	*a	----- Ring, Lock	1	1
6	134078W	Shim .005	AR	AR	16	*a	----- Pin	1	1
7	134079W	Shim .007	AR	AR					
8	35573W	Ring, Snap	1	1		*a	See Chart		
9	96020W	Gear, Bevel	1	--		*b	Requires 230064W Loctite Kit		
	12916W	Ring, Snap	1	--		*c	First Used on S/N W8L-3191 & AW8L-1001		
	*a	----- Shaft, PTO	1	--					

PTO Shaft

Komatsu

Last Used on S/N W8LP-2099 & AW8L-1000

Tractor Model (Code)	Shaft-PTO (Item 3)		Bearing Carrier (Item 4)	Pin (Item 5)	Lock Ring (Item 6)	Coupler (Item 7)	Capscrew (Item 11)
	Gear Ratio						
	49.8:1	71.6:1					
Komatsu D85A-12, D85E-18, (K52, K53)	213032W		98362W	213139W	54112W	213138W 16 Splines 3.15 in 80.01 mm	169671W



Parts Service Gram	
Item	Gram
3	Contact your dealer

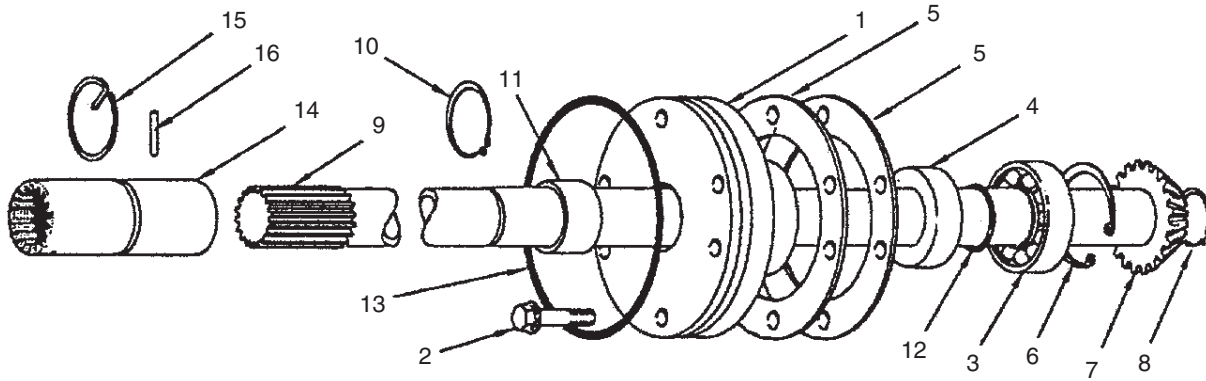
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	134078W	Shim .005	AR	9	125399W	Bearing	1
	134079W	Shim .007	AR	10	109453W	O-Ring	1
2	79389W	Seal, Oil	1	11	*a	-----	6
3	*a	-----	1		67355W	Wire	AR
4	*a	-----	1	15	96020W	Gear, Bevel	1
5	*a	-----	1	16	12916W	Ring, Snap	1
6	*a	-----	1		*a	See Chart	
7	*a	-----	1				
8	35573W	Ring, Snap	1				

PTO Shaft

Komatsu

First Used on S/N W8LP-2100 & AW8L-1001

Tractor Model (Code)	Shaft-PTO (Item 9)				Pin (Item 16)	Lock Ring (Item 15)	Coupler (Item 14)	Capscrew (Item 2)
	Gear Ratio							
	47.1:1	49.8:1	71.6:1	94.1:1				
Komatsu D85A-12, D85E-18, D135A (K52, K53, K56)	285277W	285278W *d 381190W	285277W	313884W	19929W	9528W	285690W 16 Splines 23.64 in 600.46 mm	169671W

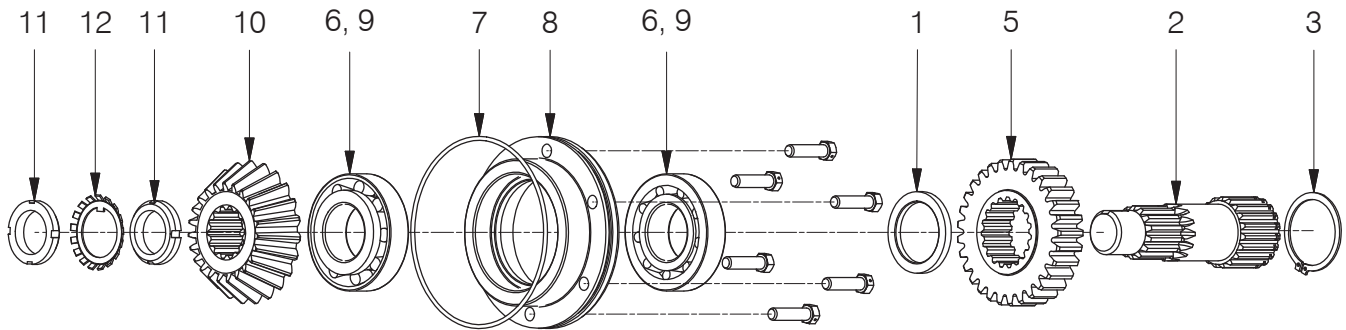


A - 49.8:1 Gear Ratio
 B - 47.1:1, 71.6:1 & 94.1:1 Gear Ratio

Item	Part No.	Description	Qty		Item	Part No.	Description	Qty		
			A	B				A	B	
1	98362W	Carrier, Bearing	1	1	10	12944W	Ring, Snap	--	1	
2	*a, *b	-----	6	6	11	1321673W	Spacer	1	1	
		67355W	Wire	AR	AR	12	133898W	O-Ring	--	1
3	45310W	Bearing	1	1	13	90937W	O-Ring	1	1	
4	79389W	Seal, Oil	1	1	14	*a	-----	Coupler	1	1
	134078W	Shim .005	AR	AR	15	*a	-----	Ring, Lock	1	1
5	134079W	Shim .007	AR	AR	16	*a	-----	Pin	1	1
	35573W	Ring, Snap	1	1						
6	96020W	Gear, Bevel	1	--		*a	See Chart			
7	12916W	Ring, Snap	1	--		*b	Requires 230064W Loctite Kit			
8										
9	*a	-----	1	--						
		Shaft, PTO								

PTO Shaft

Komatsu D68E-SS-12 (K48) & D85E-SS-2 (K57)
Gear Ratio 6

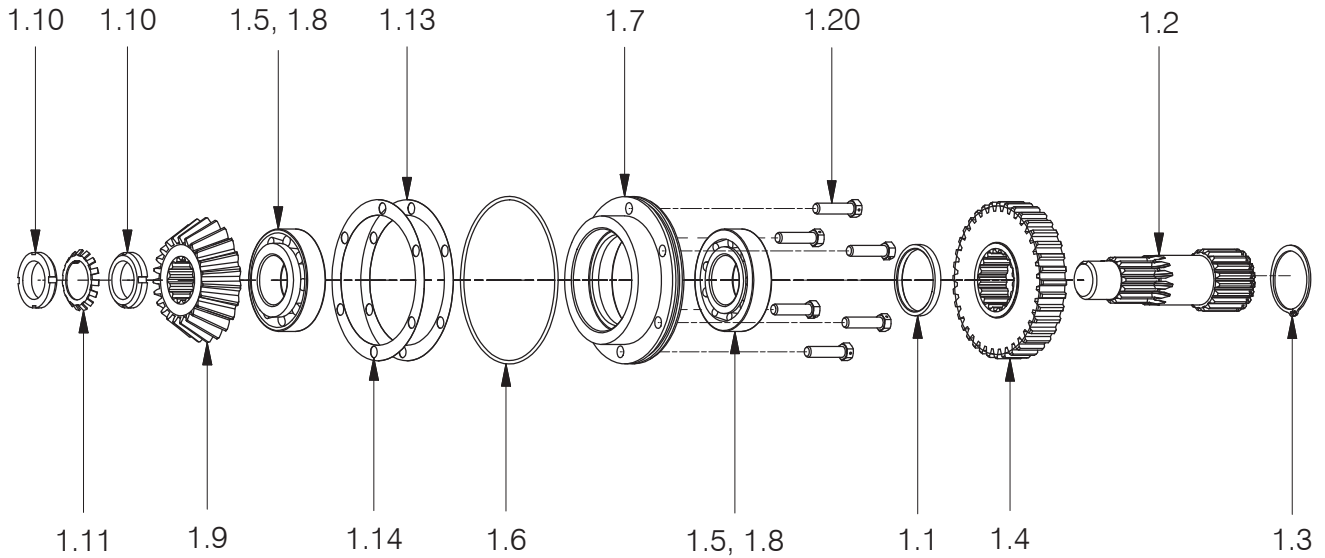


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2302452W	Spacer	1	8	2301250W	Carrier	1
2	250379W	Shaft	1	9	30068W	Cup, Roller Bearing	2
3	12940W	Ring, Snap	1	10	96020W	Gear	1
5	2302450W	Gear	1	11	21043W	Locknut, Bearing	2
6	30145W	Cone, Roller Bearing	2	12	21042W	Lockwasher, Bearing	1
7	90937W	O-Ring	1	13	169671W	Capscrew	6

PTO Shaft

Komatsu D85E-SS-2 (K57)

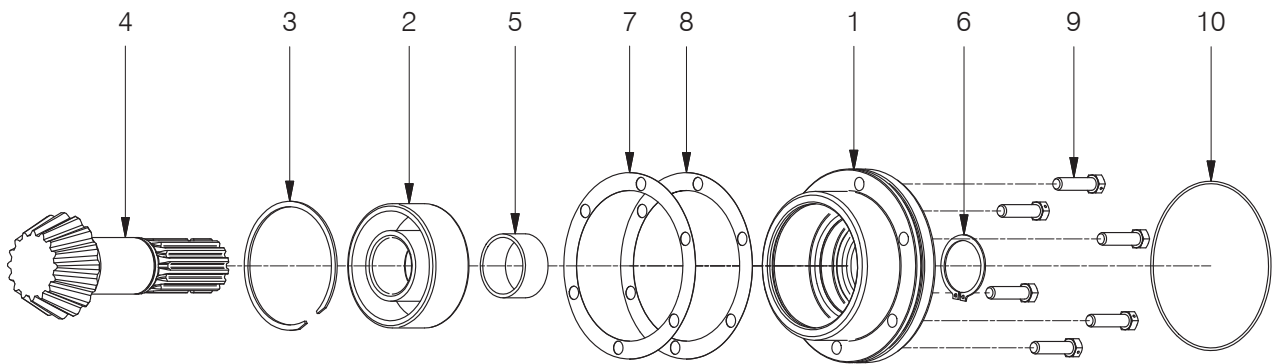
Gear Ratio 11



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1.1	2302452W	Spacer	1	1.8	30068W	Cup, Roller Bearing	2
1.2	250379W	Shaft	1	1.9	96020W	Gear	1
1.3	12940W	Ring, Snap	1	1.10	21043W	Nut, Bearing Lock	2
1.4	2315013	Gear	1	1.11	21042W	Lockwasher, Bearing	1
1.5	30145W	Cone, Roller Bearing	2	1.13	134078W	Shim .005	AR
1.6	90937W	O-Ring	1	1.14	134079W	Shim .007	AR
1.7	2301250W	Carrier	1	1.20	169671W	Capscrew	6

PTO Shaft

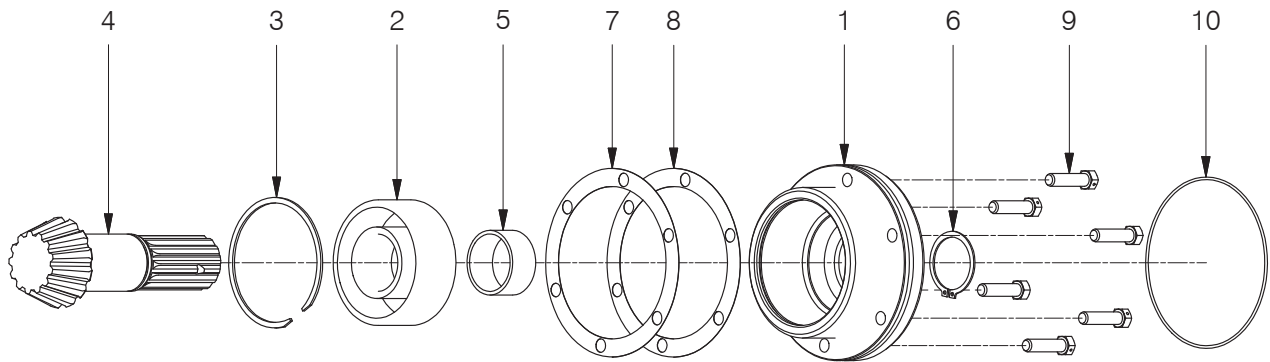
Komatsu D83E-1 (K55), D85ESS-1 (K55) & D85EX-15 (K50)
 Gear Ratios #2 (71.6/38.6), & #7 (47.1/31/1)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	98362W	Carrier	1	6	12944W	Ring, Snap	1
2	45310W	Bearing	1	7	134078W	Shim .005	AR
3	35573W	Ring, Snap	1	8	134079W	Shim .007	AR
4	285277W	Shaft, PTO	1	9	169671W	Capscrew	6
5	1321673W	Spacer	1	10	67355W	Lockwire	AR

PTO Shaft

Komatsu D83E-1 (K55), D85ESS-1 (K55) & D85EX-15 (K50)
 Gear Ratios #3 (94/37.6), #8 (125/190), & #10 (125/136)



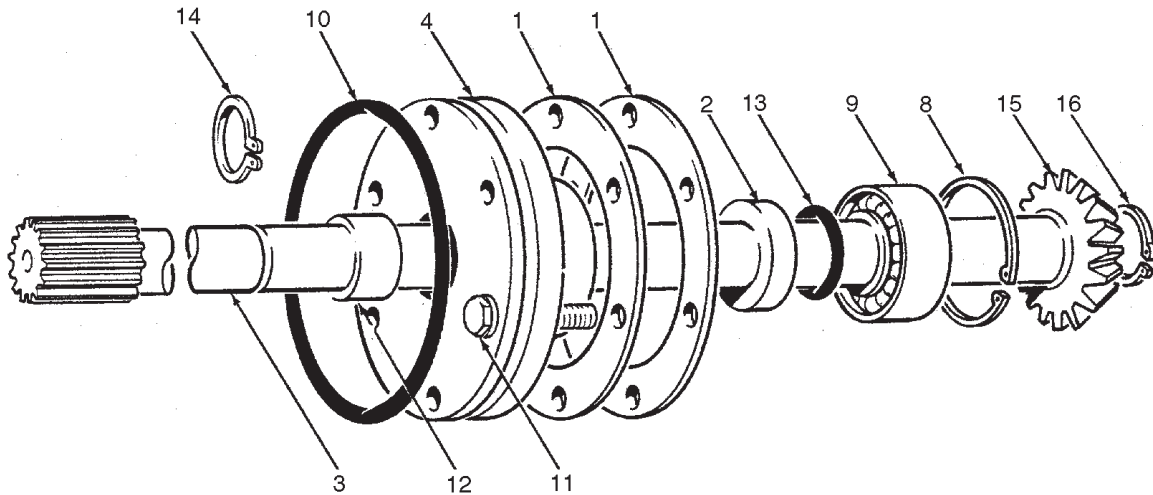
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	98362W	Carrier	1	6	12944W	Ring, Snap	1
2	45310W	Bearing	1	7	134078W	Shim .005	AR
3	35573W	Ring, Snap	1	8	134079W	Shim .007	AR
4	313884W	Shaft, PTO	1	9	169671W	Capscrew	6
5	1321673W	Spacer	1	10	67355W	Lockwire	AR

PTO Shaft

Terex

Last Used on S/N W8LP-2099 & AW8L-1000

Tractor Model (Code)	Shaft-PTO (Item 3)		Bearing Carrier (Item 4)	Pin (Item 5)	Lock Ring (Item 6)	Coupler (Item 7)	Capscrew (Item 11)
	Gear Ratio						
	49.8:1	71.6:1					
Terex D700A (G51)	259854W	253030W	98362W				169671W



Parts Service Gram	
Item	Gram
3	Contact your dealer

A - 49.8:1 Gear Ratio
B - 71.6:1 Gear Ratio

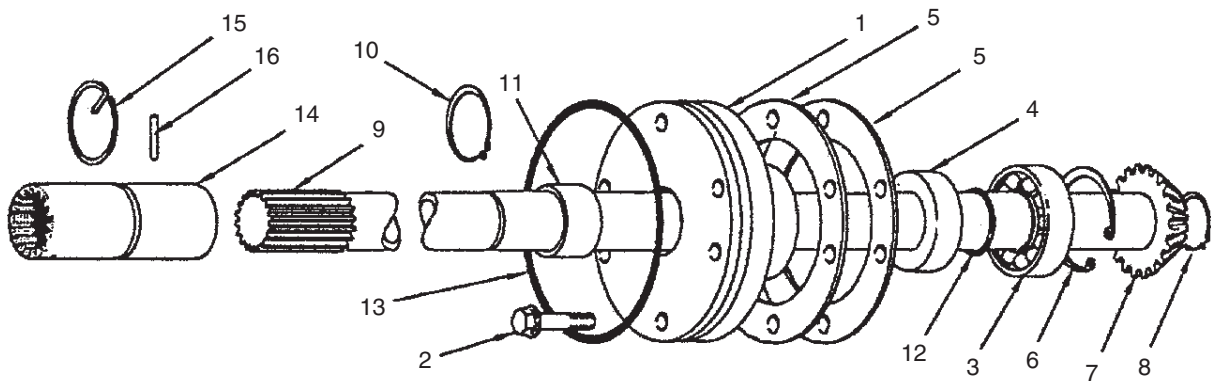
Item	Part No.	Description	Qty		Item	Part No.	Description	Qty	
			A	B				A	B
1	134078W	Shim .005	AR	AR	11	67355W	Wire	AR	AR
	134079W	Shim .007	AR	AR		12	96524W	Spacer	--
2	79389W	Seal, Oil	1	1	13		133898W	O-Ring	--
3	*a	Shaft, PTO	1	1		14	12944W	Ring, Snap	--
4	*a	Carrier, Bearing	1	1	15		96020W	Gear, Bevel	1
8	35573W	Ring, Snap	1	1		16	12916W	Ring, Snap	1
9	125399W	Bearing	1	1					
10	109453W	O-Ring	1	1					
11	*a	Capscrew	6	6					
					*a	See Chart			

PTO Shaft

Terex

First Used on S/N W8LP-2100 & AW8L-1001

Tractor Model (Code)	Shaft-PTO (Item 9)				Pin (Item 16)	Lock Ring (Item 15)	Coupler (Item 14)	Capscrew (Item 2)
	Gear Ratio							
	47.1:1	49.8:1	71.6:1	94.1:1				
Terex D700A (G51)		285278W *c 381190W	285277W	313884W	19929W	9528W	285287W 23 Splines 36.59 in 929.39 mm	169671W



A - 49.8:1 Gear Ratio
B - 71.6:1 & 94.1:1 Gear Ratio

Item	Part No.	Description	Qty		Item	Part No.	Description	Qty	
			A	B				A	B
1	98362W	Carrier, Bearing	1	1	10	12944W	Ring, Snap	--	1
2	*a, *b	Capscrow	6	6	11	1321673W	Spacer	1	1
	67355W	Wire	AR	AR	12	133898W	O-Ring	--	1
3	45310W	Bearing	1	1	13	90937W	O-Ring	1	1
4	79389W	Seal, Oil	1	1	14	*a	Coupler	1	1
5	134078W	Shim .005	AR	AR	15	*a	Ring, Lock	1	1
	134079W	Shim .007	AR	AR	16	*a	Pin	1	1
6	35573W	Ring, Snap	1	1		*a	See Chart		
7	96020W	Gear, Bevel	1	--		*b	Requires 230064W Loctite Kit		
8	12916W	Ring, Snap	1	--		*c	First Used on S/N W8L-3191 & S/N AW8L-1001		
9	*a	Shaft, PTO	1	--					

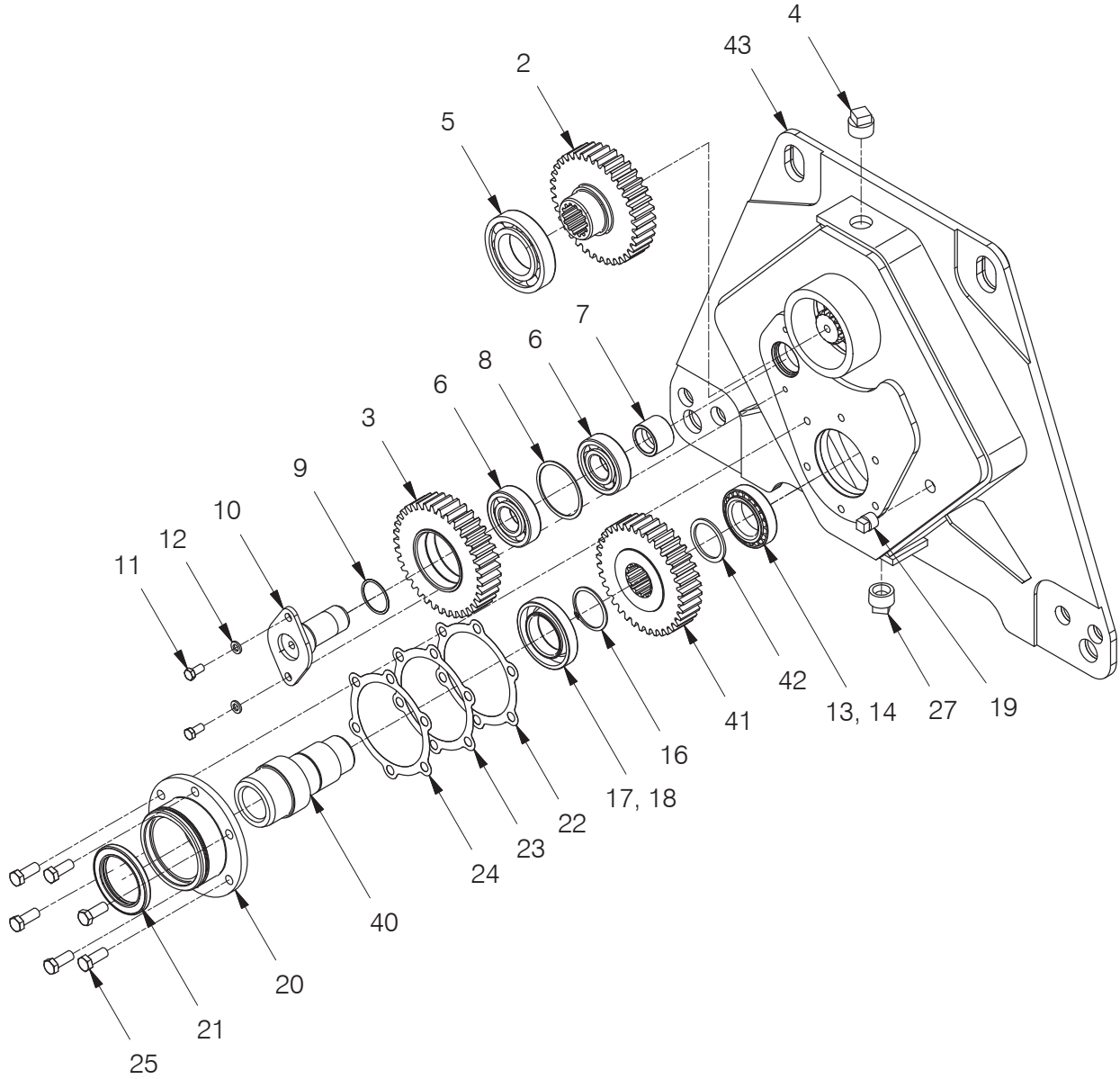
Intentionally Blank

Gear Box Assembly

Caterpillar D7R, D7H PS (C54); D8N (C55); D8N, D8R (C56); D7R PS (C57);
D8R (C58); D8R Series II (C59); 572R (C60); D7R Series II, D7T (C72)

Used for Gear Ratios 1, 2, 3, 7, & 9

Page 1 of 2



Gear Box Assembly

Caterpillar D7R, D7H PS (C54); D8N (C55); D8N, D8R (C56); D7R PS (C57);
D8R (C58); D8R Series II (C59); 572R (C60); D7R Series II, D7T (C72)

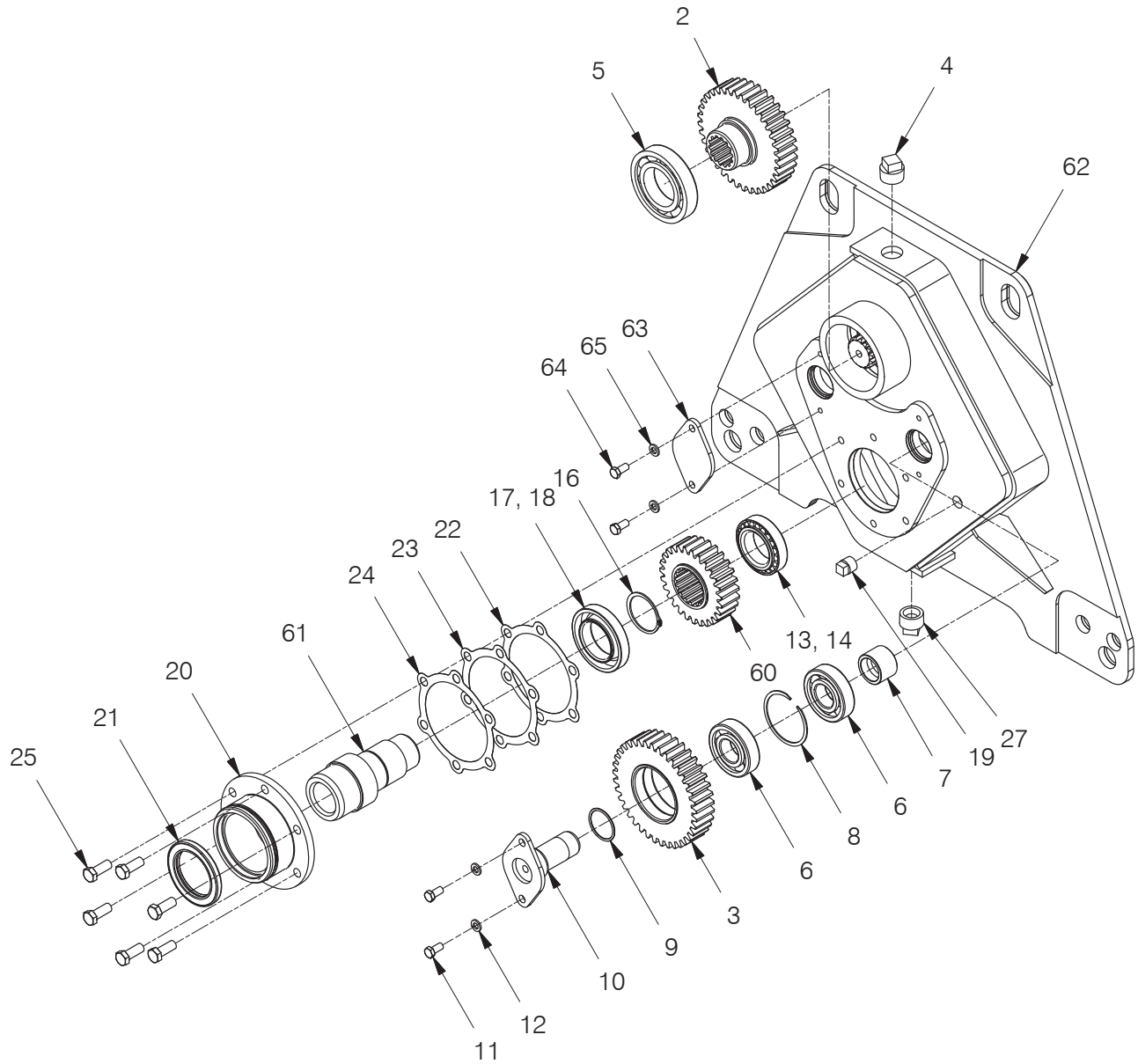
Used for Gear Ratios 1, 2, 3, 7, & 9

Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	1308406W	Assembly, Gear Box	1				
2	383156W	. Gear, Top 36T	1	18	45733W	. Cup, Bearing	1
3	388640W	. Gear, Idler 37T	1	19	15303W	. Fitting	1
4	15305W	. Plug	1	20	383167W	. Carrier	1
5	41212W	. Bearing	1	21	123270W	. Seal	1
6	43307W	. Bearing	2	22	*a 110931W	. Shim .005	AR
7	388646W	. Race, Inner	1	23	*a 110932W	. Shim .007	AR
8	58947W	. Ring, Snap	1	24	*a 110933W	. Shim .020	AR
9	16984W	. O-Ring	1	25	178402W	. Capscrew	6
10	388642W	. Pin	1	27	35504W	. Fitting	1
11	194090W	. Capscrew, Sealing	2	40	374807W	. Shaft, Input	1
12	15156W	. Washer	2	41	374795W	. Gear, Input 36T	1
13	374803W	. Cup, Bearing	1	42	374805W	. Washer, Support	1
14	374804W	. Cone, Bearing	1	43	383178W	. Gearbox	1
16	12963W	. Ring, Snap	1				
17	29758W	. Cone, Bearing	1		*a	Requires 264159W Sealant	

Gear Box Assembly

Caterpillar D6/D7H (C54), D7R (C54, C57); D7R Series II, D7T (C72);
 D8N PS (C56); D8R (C56, C58); D8R Series II (C59);
 Used for Gear Ratios 8, & 10
 Page 1 of 2



Gear Box Assembly

Caterpillar D6/D7H (C54), D7R (C54, C57); D7R Series II, D7T (C72);
D8N PS (C56); D8R (C56, C58); D8R Series II (C59);

Used for Gear Ratios 8, & 10

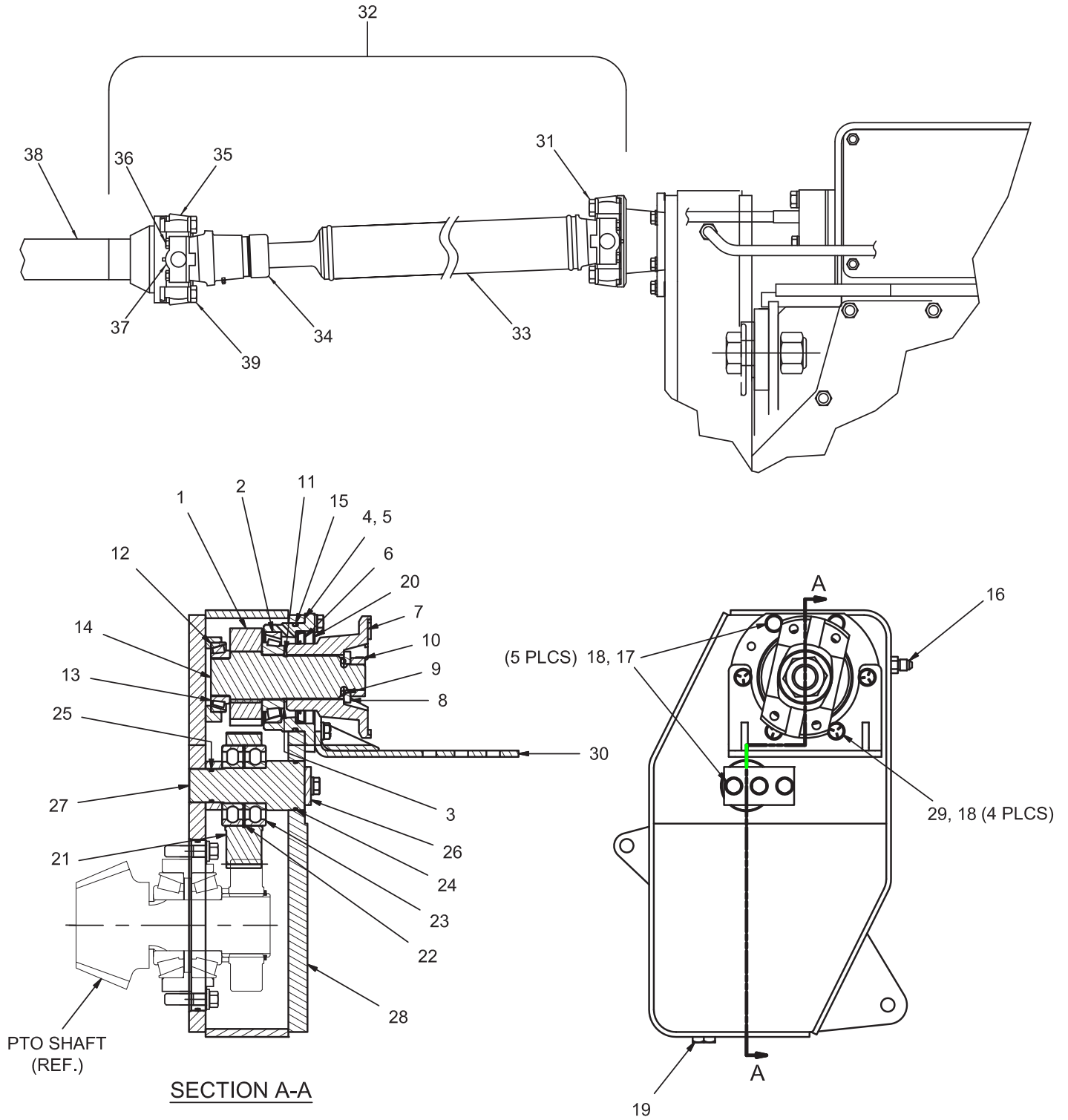
Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303671W	Assembly, Gear Box	1				
2	383156W	. Gear, Top 36T	1	19	15303W	. Fitting	1
3	388640W	. Gear, Idler 37T	1	20	383167W	. Carrier	1
4	15305W	. Plug	1	21	123270W	. Seal	1
5	41212W	. Bearing	1	22	*a 110931W	. Shim .005	AR
6	43307W	. Bearing	2	23	*a 110932W	. Shim .007	AR
7	388646W	. Race, Inner	1	24	*a 110933W	. Shim .020	AR
8	58947W	. Ring, Snap	1	25	178402W	. Capscrew	6
9	16984W	. O-Ring	1	27	35504W	. Fitting	1
10	388642W	. Pin	1	60	2303536W	. Shaft, Input 27T	1
11	194090W	. Capscrew, Sealing	2	61	374807W	. Shaft, Input	1
12	15156W	. Washer	2	62	2303974W	. Gearbox	1
13	374803W	. Cup, Bearing	1	63	2303535W	. Plate, Cover	1
14	374804W	. Cone, Bearing	1	64	194090W	. Capscrew	2
16	12963W	. Ring, Snap	1	65	15156W	. Washer	2
17	29758W	. Cone, Bearing	1				
18	45733W	. Cup, Bearing	1		*a	Requires 264159W Sealant	

Gear Box Assembly

Komatsu D68E-SS-12 (K48)

Page 1 of 2



Gear Box Assembly

Komatsu D68E-SS-12 (K48)

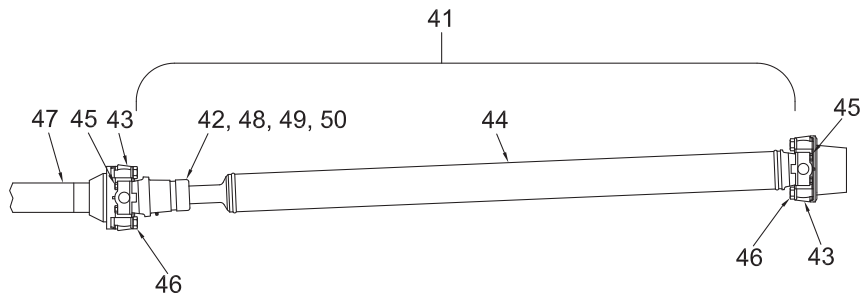
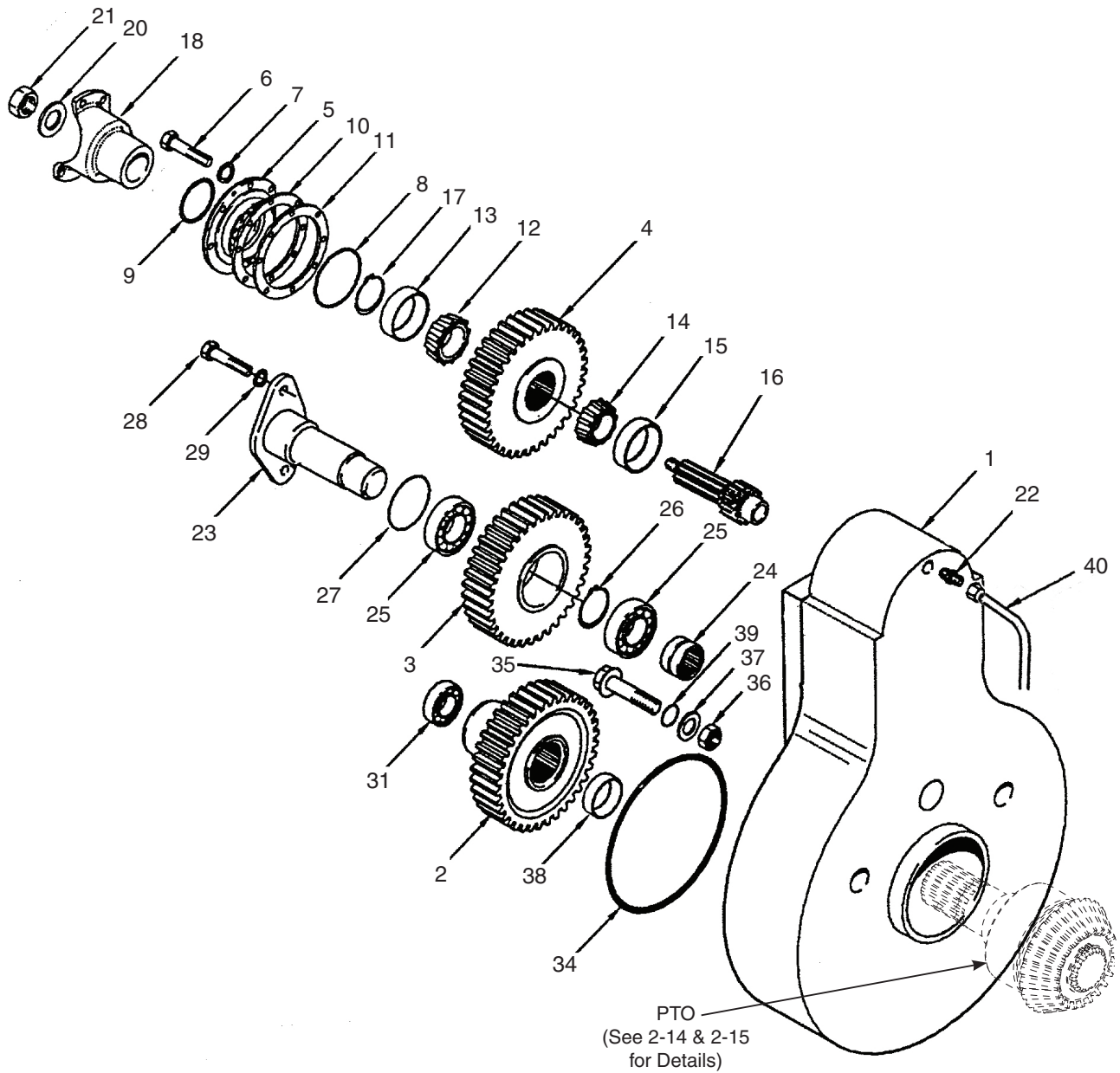
Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2302461W	Assembly, Gear Box	1				
1	240175W	. Pinion, 21 Tooth	1	22	58947W	. Ring, Snap	1
2	30055W	. Cup, Bearing	1	23	43307W	. Bearing, Ball	2
3	30279W	. Cone, Bearing	1	24	39384W	. O-Ring	1
4	242825W	. Shim .005	AR	25	39376W	. O-Ring	1
5	242826W	. Shim .007	AR	26	2301341W	. Keeper	1
6	156223W	. Seal, Oil	1	27	2302451W	. Shaft	1
7	159906W	. Yoke	1	28	2302453W	. Gearbox	1
8	332225W	. Washer	1	29	252928W	. Capscrew	4
9	331774W	. O-Ring	1	30	2313946	. Guard, Driveline	1
10	222679W	. Nut	1	31	221507W	Capscrew	4
11	35575W	. Ring, Snap	1	32	2302056W	Driveshaft	1
12	230426W	. Cup, Bearing	1	33	2302627W	. Driveshaft	1
13	230427W	. Cone, Bearing	1	34	2302628W	. Assembly, Slip Yoke	1
14	332231W	. Shaft	1	35	2301006W	. Assembly, Spider & Bearing	2
15	203533	. O-Ring	1	36	221507W	. . Capscrew	8
16	225094W	. Fitting	1	37	2300422W	Washer	1
17	179443W	. Sealing, Capscrew	5	38	2300423W	Yoke	1
18	15156W	. Washer	9	39	*a 293632W	Capscrew	4
19	14387W	. Fitting	1				
20	241442W	. Carrier, Bearing	1		*a Requires 230064W Loctite Kit		
21	388640W	. Gear, Idler - 37 Tooth	1				

Gear Box Assembly

Komatsu D83-1 (K55), D85ESS-1 (K55)

Page 1 of 2



Gear Box Assembly

Komatsu D83-1 (K55), D85ESS-1 (K55)
Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	1305092W	Assembly, Gear Box	1				
1	1305091W	. Gearbox	1	31	41212W	. Bearing	1
2	383156W	. Gear, Input	1	34	90937W	O-Ring	1
3	388640W	. Gear, Idler	1	35	166396W	Capscrew	2
4	1305093W	. Gear	1	36	15123W	Locknut	2
5	241442W	. Carrier, Bearing	1	37	15128W	Washer	2
6	16828W	. Capscrew	1	38	383158W	Spacer	1
7	15156W	. Lockwasher	6	39	55434W	O-Ring	2
8	15885W	. O-Ring	6	40	388667W	Tube	1
9	156223W	. Seal, Oil	1	41	*a 250490W	Shaft	1
10	242826W	. Shim .007	AR	42	261676W	. Yoke, Slip	1
11	242825W	. Shim .005	AR	43	261677W	. Bearing, Spider	2
12	30279W	. Cone, Bearing	1	44	261675W	. Shaft, Prop	1
13	30055W	. Cup, Bearing	1	45	53038W	. Capscrew	8
14	230427W	. Cone, Bearing	1	41	*b 2300015W	Shaft	1
15	230426W	. Cup, Bearing	1	42	2301008W	. Yoke, Slip	1
16	332231W	. Shaft	1	43	2301006W	. Bearing, Spider	2
17	36150W	. Ring, Snap	1	44	2301007W	. Shaft, Prop	1
18	159906W	. Yoke	1	45	221507W	. Capscrew	8
20	*c 332225W	. Washer	1	46	221507W	Capscrew	8
21	*c 222679W	. Locknut	1	47	254375W	Yoke, Spline	1
22	225094W	. Fitting	1	48	226459W	Washer	1
23	388642W	. Pin	1	49	226458W	Capscrew	1
24	388646W	. Bearing	1	50	15160W	Lockwasher	1
25	43307W	. Bearing	2				
26	58947W	. Ring, Snap	1	*a	Last Used on S/N AW8L1016		
27	16984W	. O-Ring	1	*b	First Used on S/N AW8L-1017		
28	*d 16597W	. Capscrew	2	*c	Requires 358674W Sealant		
29	15134W	. Washer	2	*d	Requires 230064W Loctite Kit		

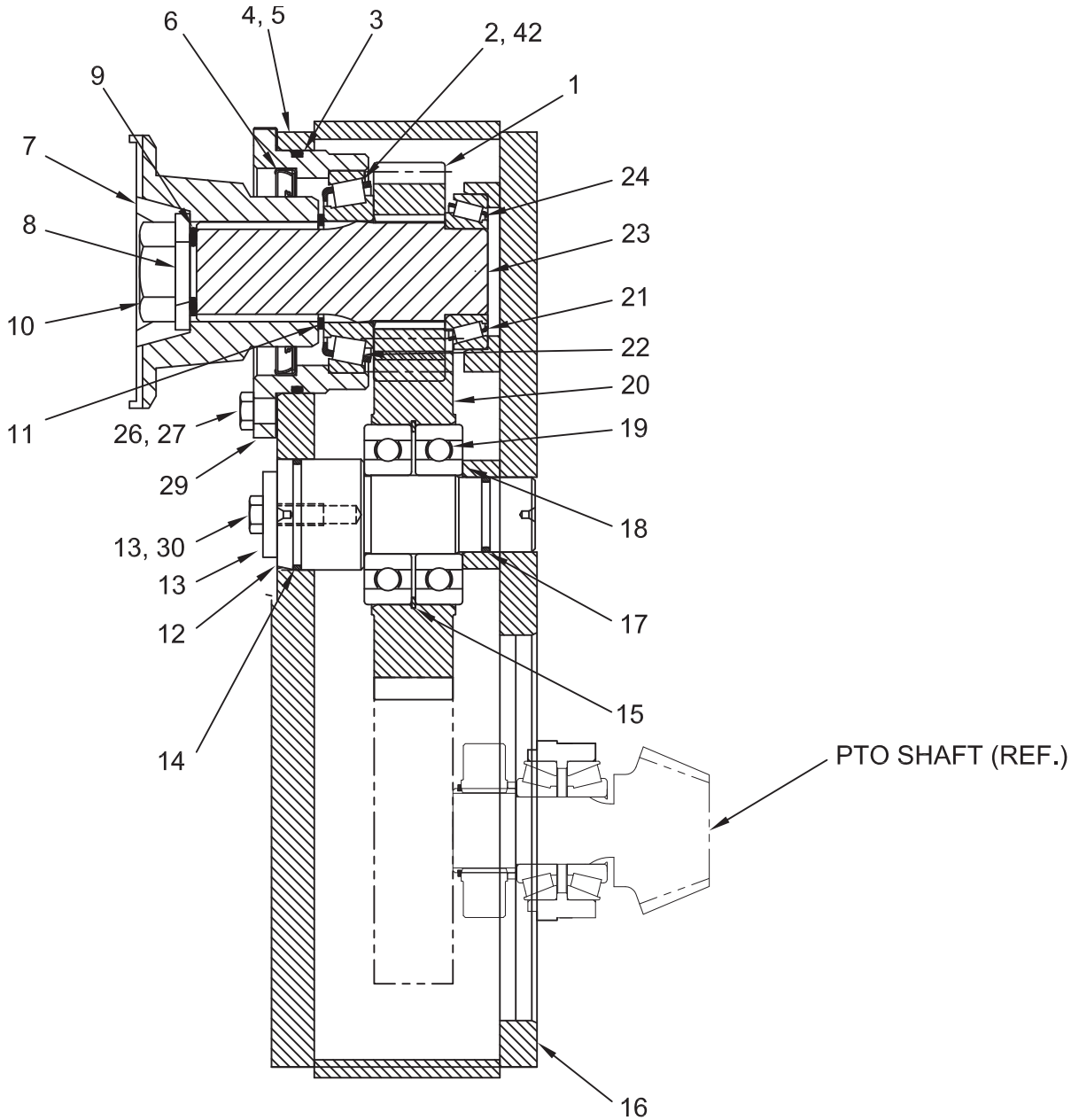
Gear Box Assembly

Komatsu D85E-SS-2 (K57)

Ratio 5 (90.1:1/36.0:1)

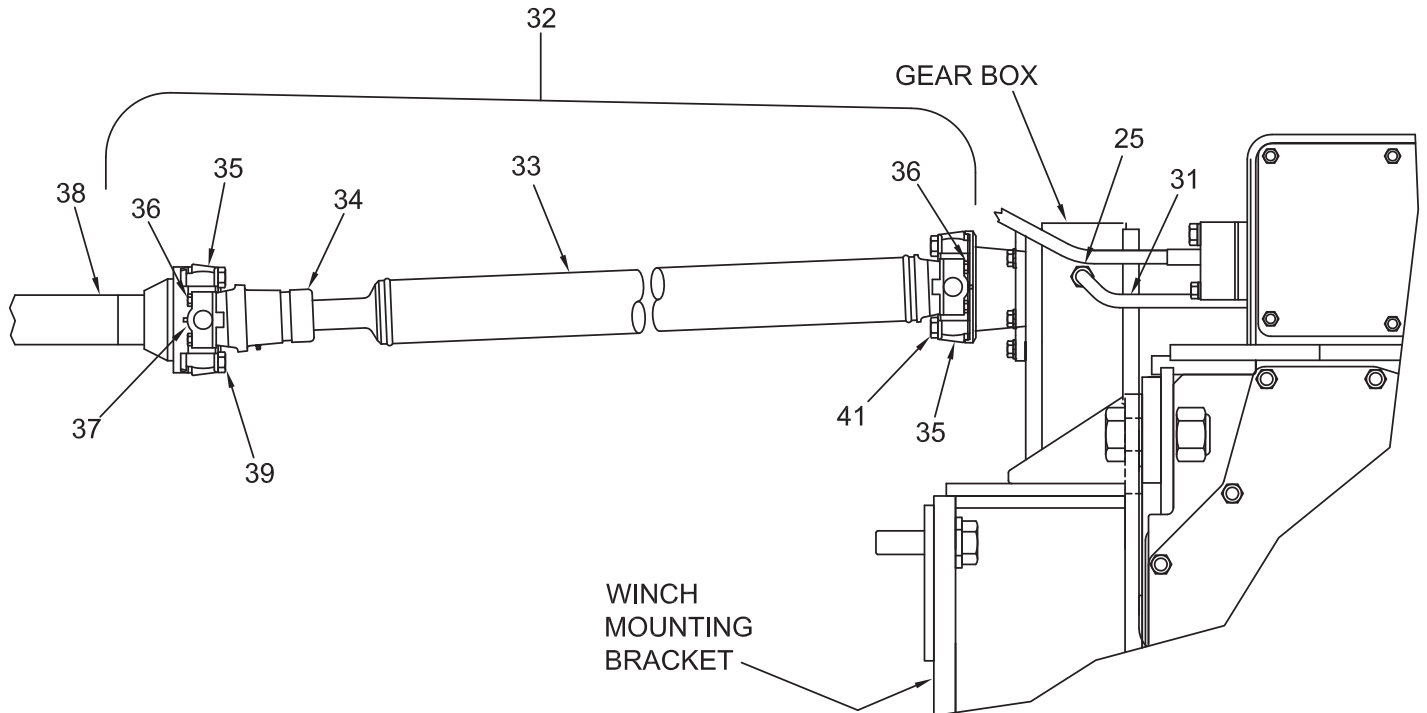
Last Used on S/N AW8L-1736

Page 1 of 2



Gear Box Assembly

Komatsu D85E-SS-2 (K57)
 Ratio 5 (90.1:1/36.0:1)
 Last Used on S/N AW8L-1736
 Page 2 of 2



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2301476W	Assembly, Gear Box	1				
1	240175W	. Pinion	1	22	230427W	. Cone, Bearing	1
2	30055W	. Cup, Roller Bearing	1	23	332231W	. Shaft	1
3	15885W	. O-Ring	1	24	230427W	. Cone, Bearing	1
4	242825W	. Shim .005	AR	25	225094W	Fitting	1
5	242826W	. Shim .007	AR	26	179443W	Capscrew	6
6	156223W	. Seal, Oil	1	27	15156W	Washer	6
7	159906W	. Yoke	1	29	241442W	Carrier, Bearing	1
8	332225W	. Washer	1	30	295752W	Capscrew	3
9	331774W	. O-Ring	1	31	210849W	Assembly, Hose	1
10	222679W	. Nut	1	32	2302056W	Assembly, Driveshaft	1
11	36150W	. Ring, Snap	1	33	2302627W	. Propshaft	1
12	2300567W	. Shaft	1	34	2302628W	. Assembly, Slip Yoke	1
13	294938W	. Keeper	1	35	2301006W	. U-Joint	2
14	39387W	. O-Ring	1	36	*a 221507W	. . Capscrew	8
15	57542W	. Ring, Snap	1	37	2300422W	Washer	1
16	2300554W	. Housing, Gear	1	38	2300423W	Yoke	1
17	119491W	. O-Ring	1	39	*a 293632W	Capscrew	4
18	58939W	. Ring, Snap	1	41	221507W	Capscrew	4
19	295754W	. Bearing	1	42	30279W	Cone, Bearing	1
20	308404W	. Gear, Idler	1				
21	230426W	. Cup, Bearing	1				
				*a	Requires 230064W Loctite Kit		

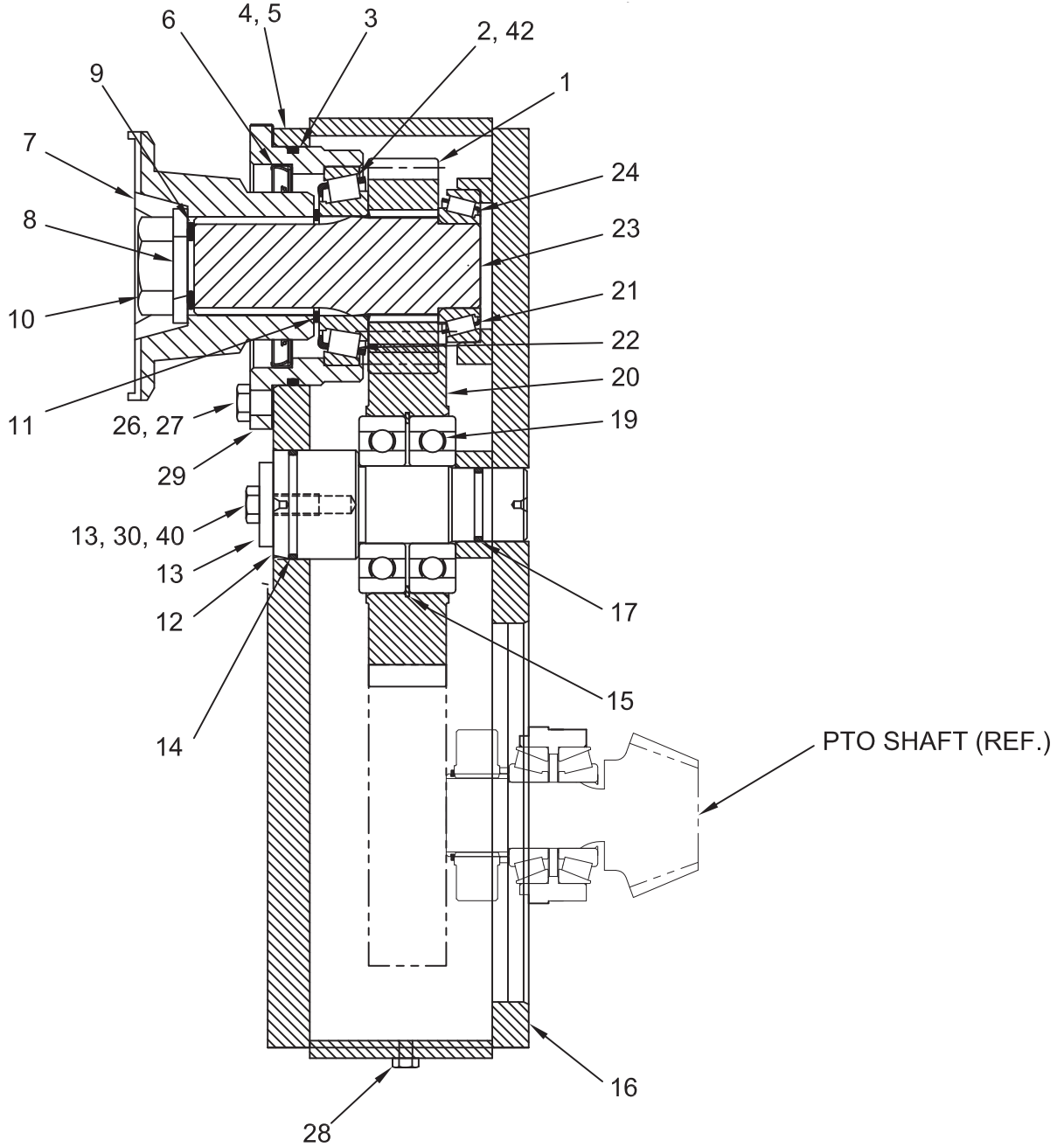
Gear Box Assembly

Komatsu D85E-SS-2 (K57)

Ratio 6 (68.8:1/27.5:1)

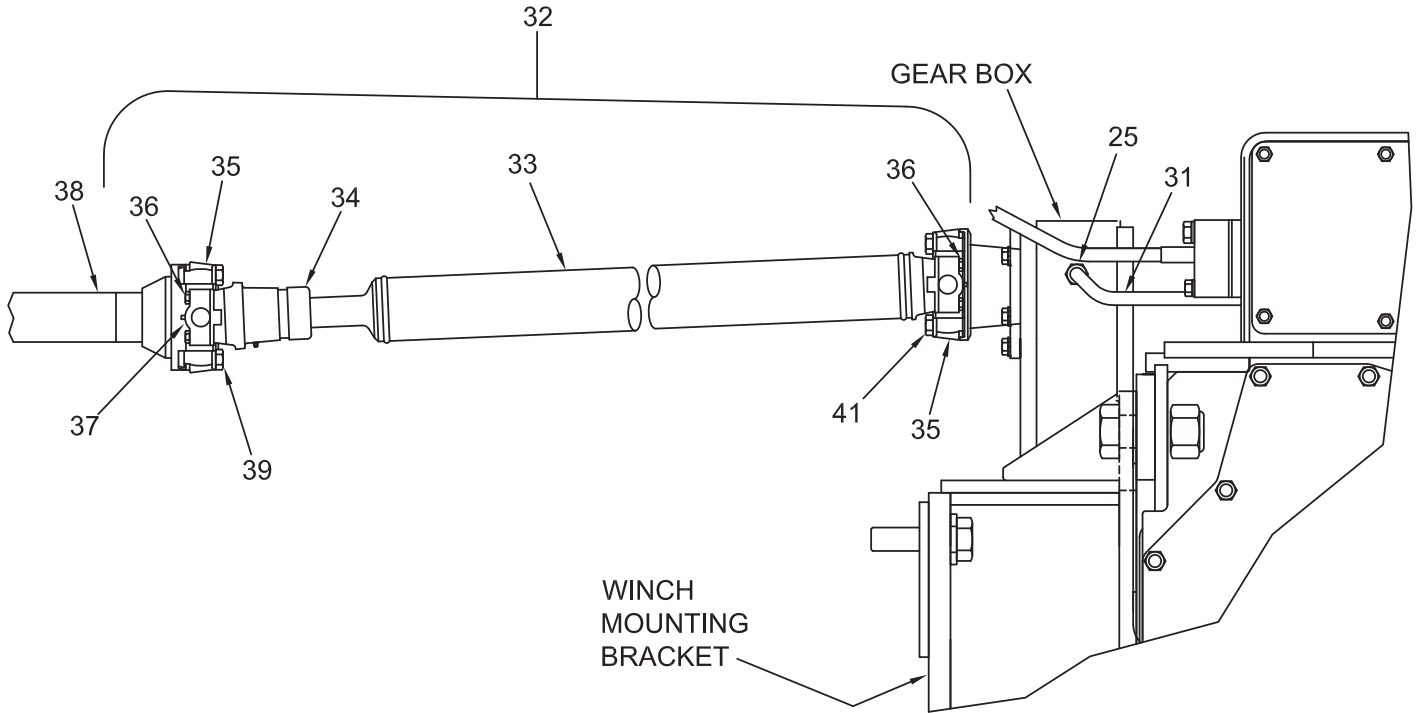
Last Used on S/N AW8L-1736

Page 1 of 2



Gear Box Assembly

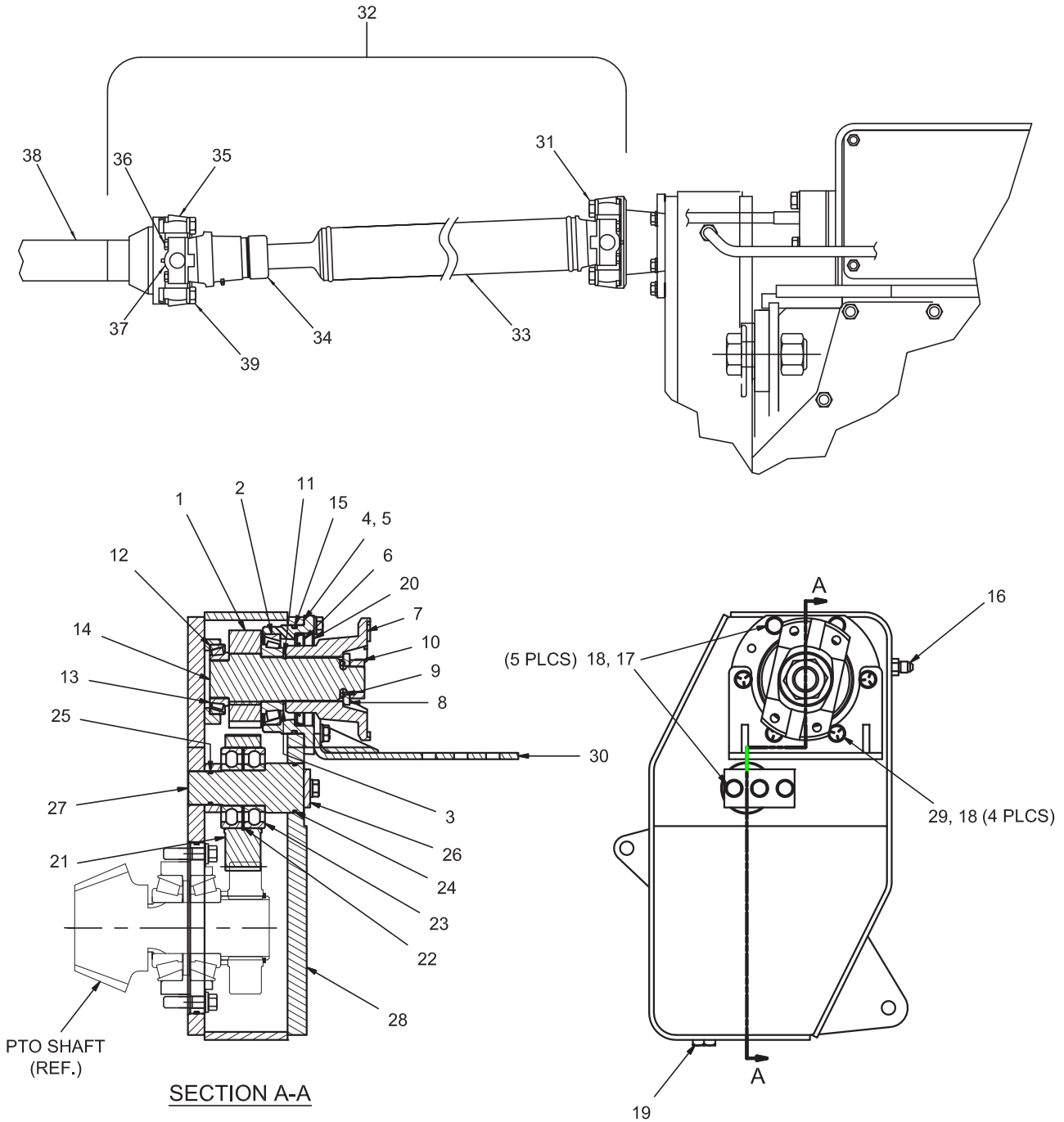
Komatsu D85E-SS-2 (K57)
 Ratio 6 (68.8:1/27.5:1)
 Last Used on S/N AW8L-1736
 Page 2 of 2



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	240175W	Pinion	1	24	230427W	Cone, Bearing	1
2	30055W	Cup, Roller Bearing	1	25	225094W	Fitting	1
3	15885W	O-Ring	1	26	179443W	Capscrew	6
4	242825W	Shim .005	AR	27	15156W	Washer	6
5	242826W	Shim .007	AR	28	14387W	Plug	1
6	156223W	Seal, Oil	1	29	241442W	Carrier, Bearing	1
7	159906W	Yoke	1	30	179443W	Capscrew	3
8	332225W	Washer	1	31	210849W	Assembly, Hose	1
9	331774W	O-Ring	1	32	2302056W	Assembly, Driveshaft	1
10	222679W	Nut	1	33	2302627W	. Propshaft	1
11	36150W	Ring, Snap	1	34	2302628W	. Assembly, Slip Yoke	1
12	2302451W	Shaft	1	35	2301006W	. U-Joint	2
13	2301341W	Keeper	1	36	*a 221507W	. . Capscrew	8
14	39384W	O-Ring	1	37	2300422W	Washer	1
15	58947W	Ring, Snap	1	38	2300423W	Yoke	1
16	2302453W	Housing, Gear	1	39	*a 293632W	Capscrew	4
17	39376W	O-Ring	1	40	15156W	Washer	3
19	43307W	Bearing	2	41	221507W	Capscrew	4
20	388640W	Gear, Idler	1	42	30279W	Cone, Bearing	1
21	230426W	Cup, Bearing	1				
22	230427W	Cone, Bearing	1				
23	332231W	Shaft	1				
				*a	Requires 230064W Loctite Kit		

Gear Box Assembly

Komatsu D85E-SS-2 (K57)
 Ratio 6 (68.8:1/27.5:1)
 First Used on S/N AW8L-1737
 Page 1 of 2



Gear Box Assembly

Komatsu D85E-SS-2 (K57)

Ratio 6 (68.8:1/27.5:1)

First Used on S/N AW8L-1737

Page 2 of 2

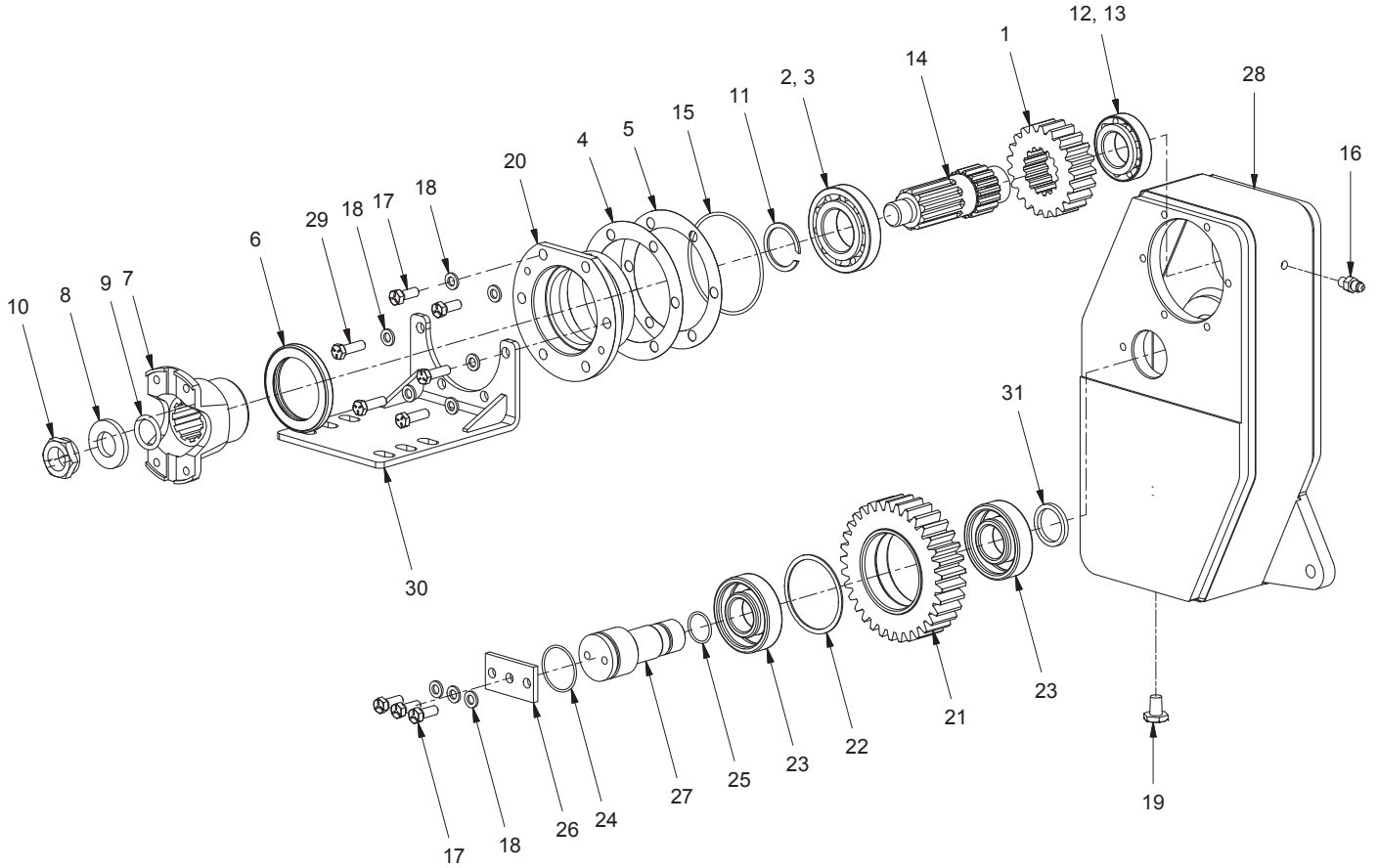
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2302461W	Assembly, Gearbox	1				
1	240175W	. Pinion, 21 Tooth	1	22	58947W	. Ring, Snap	1
2	30055W	. Cup, Bearing	1	23	43307W	. Bearing, Ball	2
3	30279W	. Cone, Bearing	1	24	39384W	. O-Ring	1
4	242825W	. Shim .005	AR	25	39376W	. O-Ring	1
5	242826W	. Shim .007	AR	26	2301341W	. Keeper	1
6	156223W	. Seal, Oil	1	27	2302451W	. Shaft	1
7	159906W	. Yoke	1	28	2302453W	. Gearbox	1
8	332225W	. Washer	1	29	252928W	. Capscrew	4
9	331774W	. O-Ring	1	30	2313946	. Guard, Driveline	1
10	222679W	. Nut	1	31	221507W	Capscrew	4
11	35575W	. Ring, Snap	1	32	2302056W	Driveshaft	1
12	230426W	. Cup, Bearing	1	33	2302627W	. Driveshaft	1
13	230427W	. Cone, Bearing	1	34	2302628W	. Assembly, Slip Yoke	1
14	332231W	. Shaft	1	35	2301006W	. Assembly, Spider & Bearing	2
15	203533	. O-Ring	1	36	221507W	. . Capscrew	8
16	225094W	. Fitting	1	37	2300422W	Washer	1
17	179443W	. Sealing, Capscrew	5	38	2300423W	Yoke	1
18	15156W	. Washer	9	39	*a 293632W	Capscrew	4
19	14387W	. Fitting	1				
20	241442W	. Carrier, Bearing	1		*a Requires 230064W Loctite Kit		
21	388640W	. Gear, Idler - 37 Tooth	1				

Gear Box Assembly

Komatsu D85E-SS-2 (K57)

Ratio 11 (85.4:1/34.1:1)

Page 1 of 2



Gear Box Assembly

Komatsu D85E-SS-2 (K57)

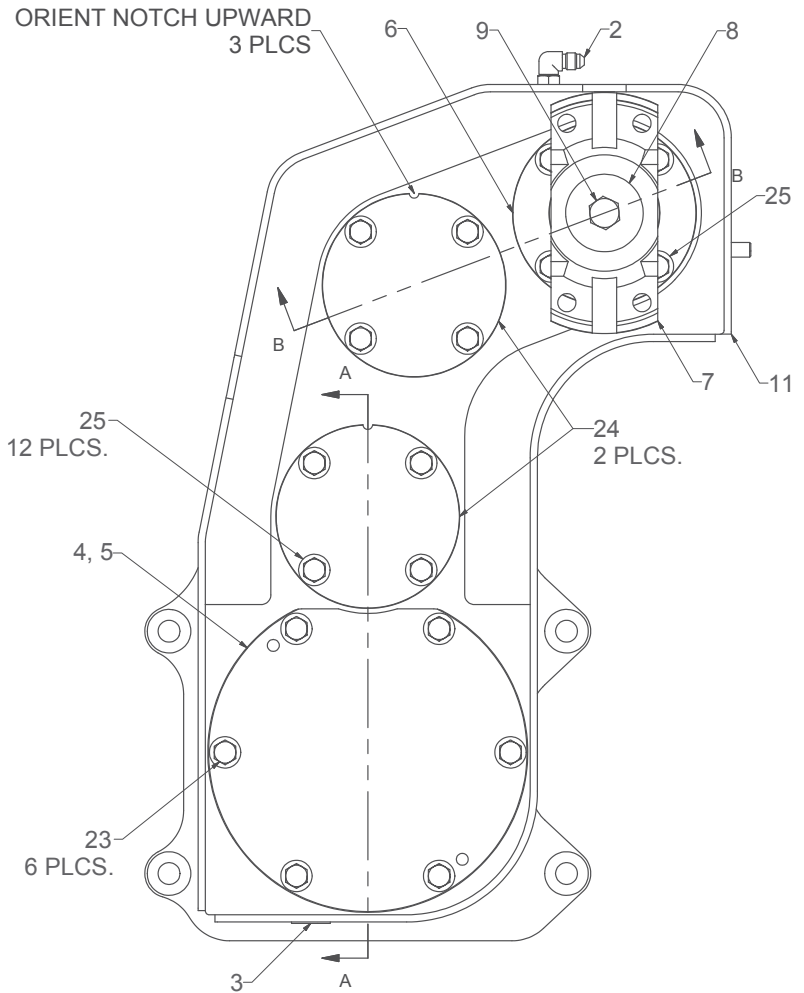
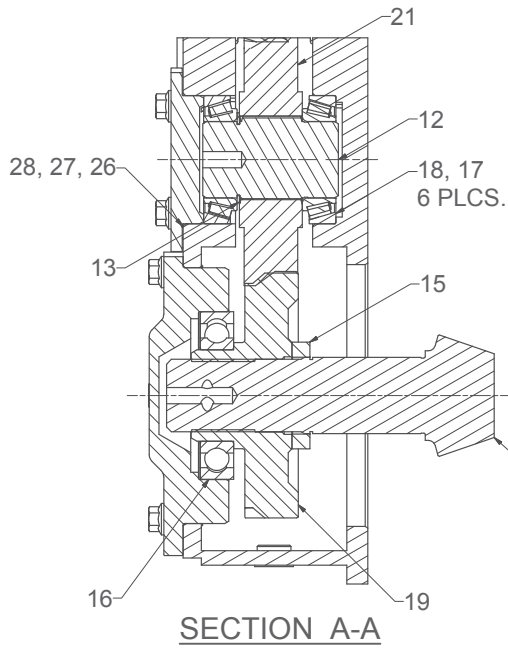
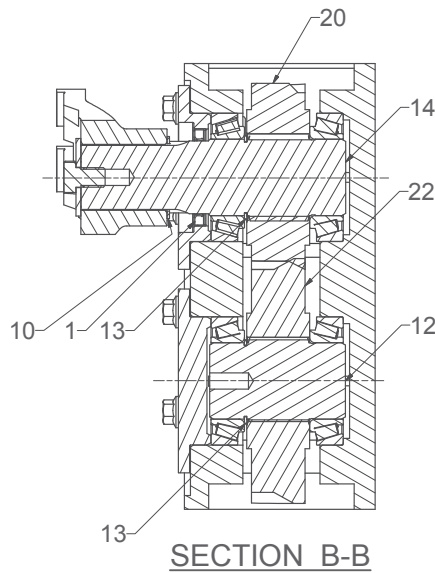
Ratio 11 (85.4:1/34.1:1)

Page 2 of 2

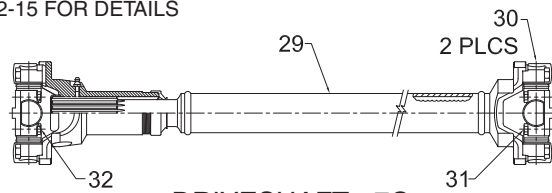
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2315020	Assembly, Gearbox	1				
1	240175W	. Gear, Pinion	1	17	179443W	. Capscrew	5
2	30055W	. Cup, Bearing	1	18	15156W	. Washer	9
3	30279W	. Cone, Bearing	1	19	14387W	. Fitting	1
4	242825W	. Shim .005	AR	20	241442W	. Carrier, Bearing	1
5	242826W	. Shim .007	AR	21	2315019	. Gear, Idler - 33 Tooth	1
6	156223W	. Seal, Oil	1	22	58947W	. Ring, Snap	1
7	159906W	. Yoke	1	23	43307W	. Bearing, Ball	2
8	332225W	. Washer	1	24	39384W	. O-Ring	1
9	331774W	. O-Ring	1	25	39376W	. O-Ring	1
10	222679W	. Nut	1	26	2301341W	. Keeper	1
11	35575W	. Ring, Snap	1	27	2302451W	. Shaft, Idler	1
12	230426W	. Cup, Bearing	1	28	2315015	. Gearbox	1
13	230427W	. Cone, Bearing	1	29	252928W	. Capscrew	4
14	332231W	. Shaft	1	30	2313946	. Guard, Driveline	1
15	203533	. O-Ring	1	31	2315017	. Spacer, Idler	1
16	225094W	. Fitting	1				

Gear Box Assembly

Komatsu D85EX-15 (K50)
Last Used on S/N AW8L-2732
Page 1 of 2



REFERENCE PTO SHAFT GROUP
ON PAGE 2-14, 2-15 FOR DETAILS



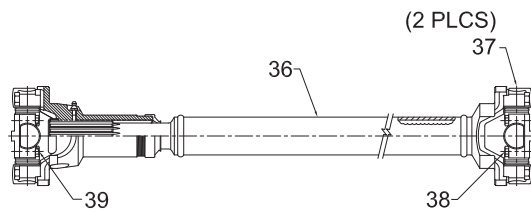
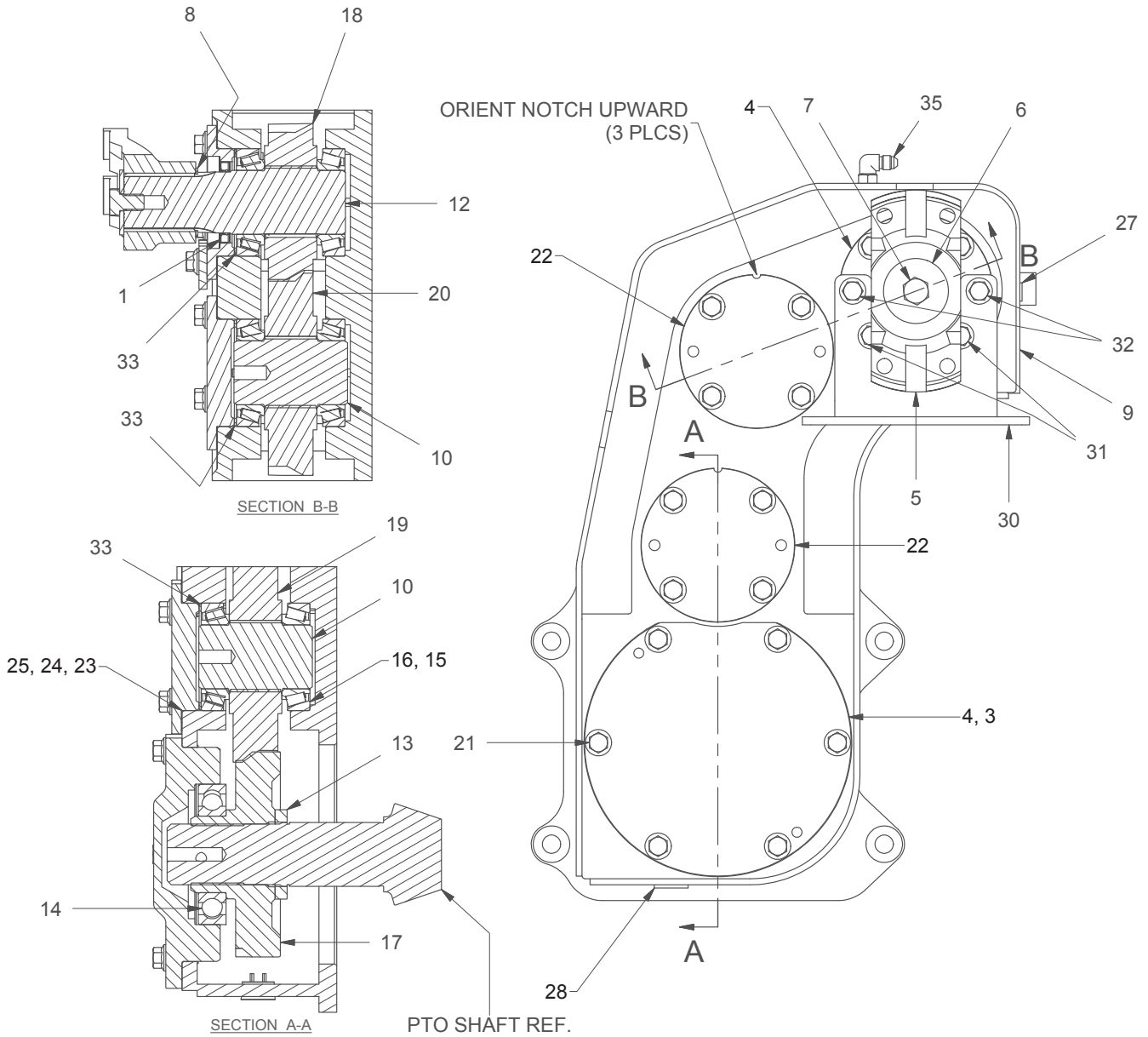
Gear Box Assembly

Komatsu D85EX-15 (K50)
 Last Used on S/N AW8L-2732
 Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2305698W	Assembly, Gearbox		18	374803W	. Cup, Roller Bearing	6
1	2305697W	. Seal, Lip	1	19	2304662W	. Gear-36T, LH	1
2	209486	. Fitting	1	20	2304700W	. Gear-27T, RH	1
3	*b 228773	. Fitting	1	21	2304661W	. Gear-37T, RH	1
4	2305694W	. Carrier, Bearing	1	22	2304660W	. Gear-36T, LH	1
5	264159W	. Adhesive	AR	23	2303897W	. Screw, Flange	6
6	*a 2305696W	. Cover, Bearing-Input	1	24	*a 2305695W	. Cover, Bearing	2
7	2305691W	. Yoke, 7C	1	25	398567W	. Screw, Flange	12
8	2305715W	. Washer, Fender	1	26	2305914W	. Shim .005	AR
9	18585W	. Capscrew	1	27	2305916W	. Shim .007	AR
10	12916W	. Ring, Snap	1	28	2305917W	. Shim .020	AR
11	2305688W	. Gearbox, Machined	1	29	2305699W	Driveshaft	1
12	2305687W	. Shaft, Idler - 17T	2	30	R12968397	. Assembly, Cross	2
13	12944W	. Ring, Snap	3	31	185813W	Capscrew	4
14	2305689W	. Shaft, Input	1	32	2305920W	Capscrew	4
15	2305690W	. Spacer	1				
16	41212W	. Bearing, Ball	1		*a	Requires 236308W Ultra Blue Sealant	
17	374804W	. Cone, Roller Bearing	6		*b	Requires 246108W Pipe Thread Sealant	

Gear Box Assembly

Komatsu D85EX-15 (K50)
 First Used on S/N AW8L-2733
 Page 1 of 2



DRIVESHAFT - 7C
 SEE PAGE 2-15, 2-16 FOR DETAILS

Gear Box Assembly

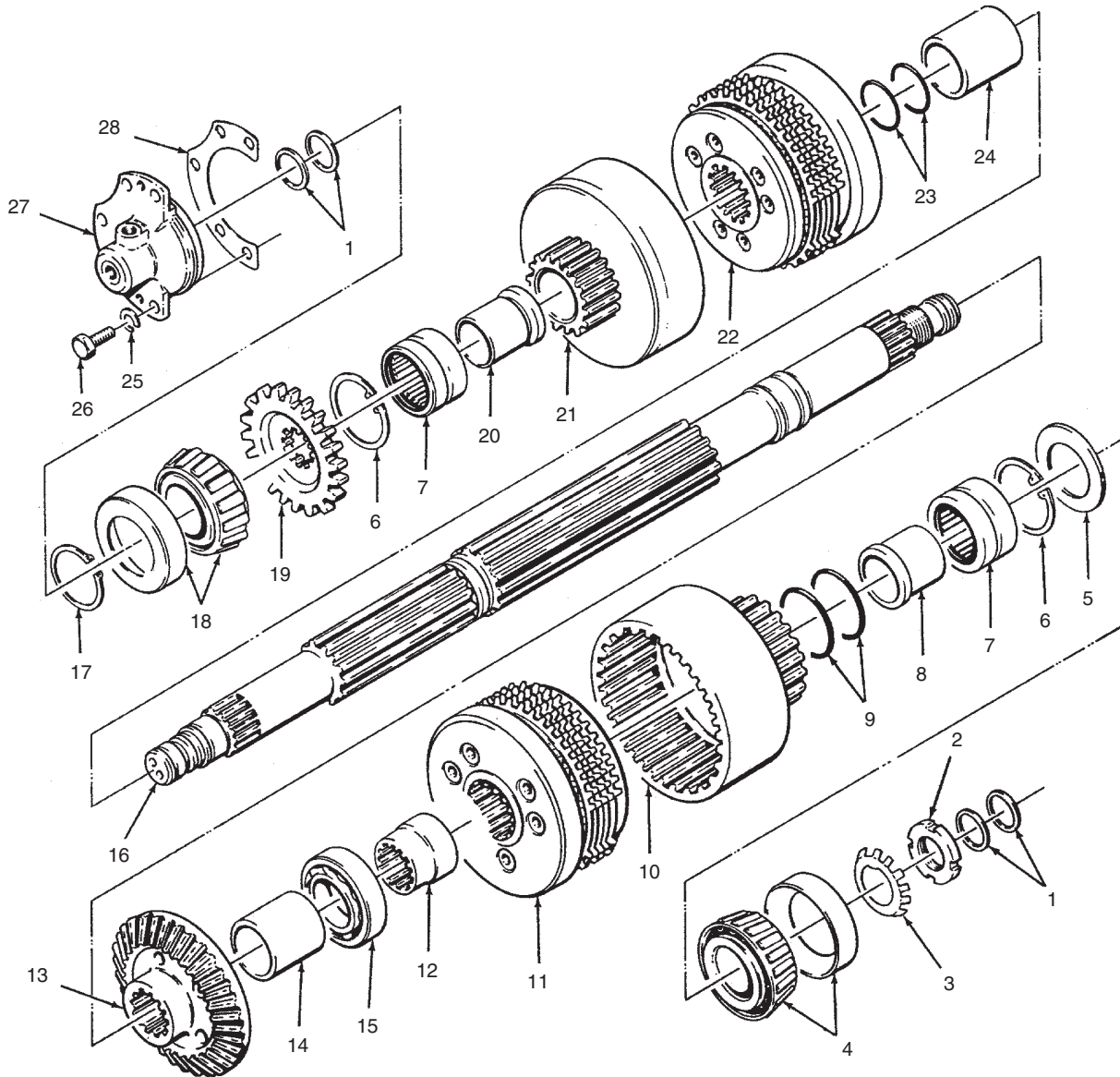
Komatsu D85EX-15 (K50)
 First Used on S/N AW8L-2733
 Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2305698W	Assembly, Gearbox	1	21	2303897W	. Screw, Flange	16
1	2316304	. Seal, Lip	1	22	*a 2305695W	. Cover, Bearing	2
2	2305694W	. Carrier, Bearing	1	23	2305914W	. Shim .005	AR
3	264159W	. Adhesive	AR	24	2305916W	. Shim .007	AR
4	*a 2305696W	. Cover, Bearing-Input	1	25	2305917W	. Shim .020	AR
5	2305691W	. Yoke, 7C	1	27	235387	. Fitting	1
6	2305715W	. Washer, Fender	1	28	*b 10389W	. Fitting, Pipe	1
7	18585W	. Capscrew	1	30	2314056	. Bracket, Guard	1
8	12916W	. Ring, Snap	1	31	398599W	. Screw, Flange	2
9	2305688W	. Gearbox, Machined	1	32	397161W	. Screw, Flange	2
10	2315711	. Shaft, Idler - 17T	2	33	2315706	. Spacer, Bearing	3
12	2315710	. Shaft, Input	1	35	209486	. Fitting	1
13	2305690W	. Spacer	1	36	2305699W	Driveshaft	1
14	41212W	. Bearing, Ball	1	37	R12968397	. Assembly, Cross	2
15	374804W	. Cone, Roller Bearing	6	38	185813W	Capscrew	4
16	374803W	. Cup, Roller Bearing	6	39	2305920W	Capscrew	4
17	2304662W	. Gear-36T, LH	1				
18	2304700W	. Gear-27T, RH	1		*a	Requires 236308W Ultra Blue Sealant	
19	2304661W	. Gear-37T, RH	1		*b	Requires 246108W Pipe Thread Sealant	
20	2304660W	. Gear-36T, LH	1				

Clutch/Bevel Gear Shaft

Gear Ratios #1 (49.8:1), #2 (71.6:1), #3 (94.0:1), #4 (84.0:1), #5 (90.1:1), #6 (68.8:1)

Page 1 of 2



Recommended Service Kit		
Item	Kit No.	Section
1, 2, 3, 6, 9, 17, 23	2311156	5-1
4, 7, 15, 18	2311161 2311162	5-1

Clutch/Bevel Gear Shaft

Gear Ratios #1 (49.8:1), #2 (71.6:1), #3 (94.0:1), #4 (84.0:1), #5 (90.1:1), #6 (68.8:1)

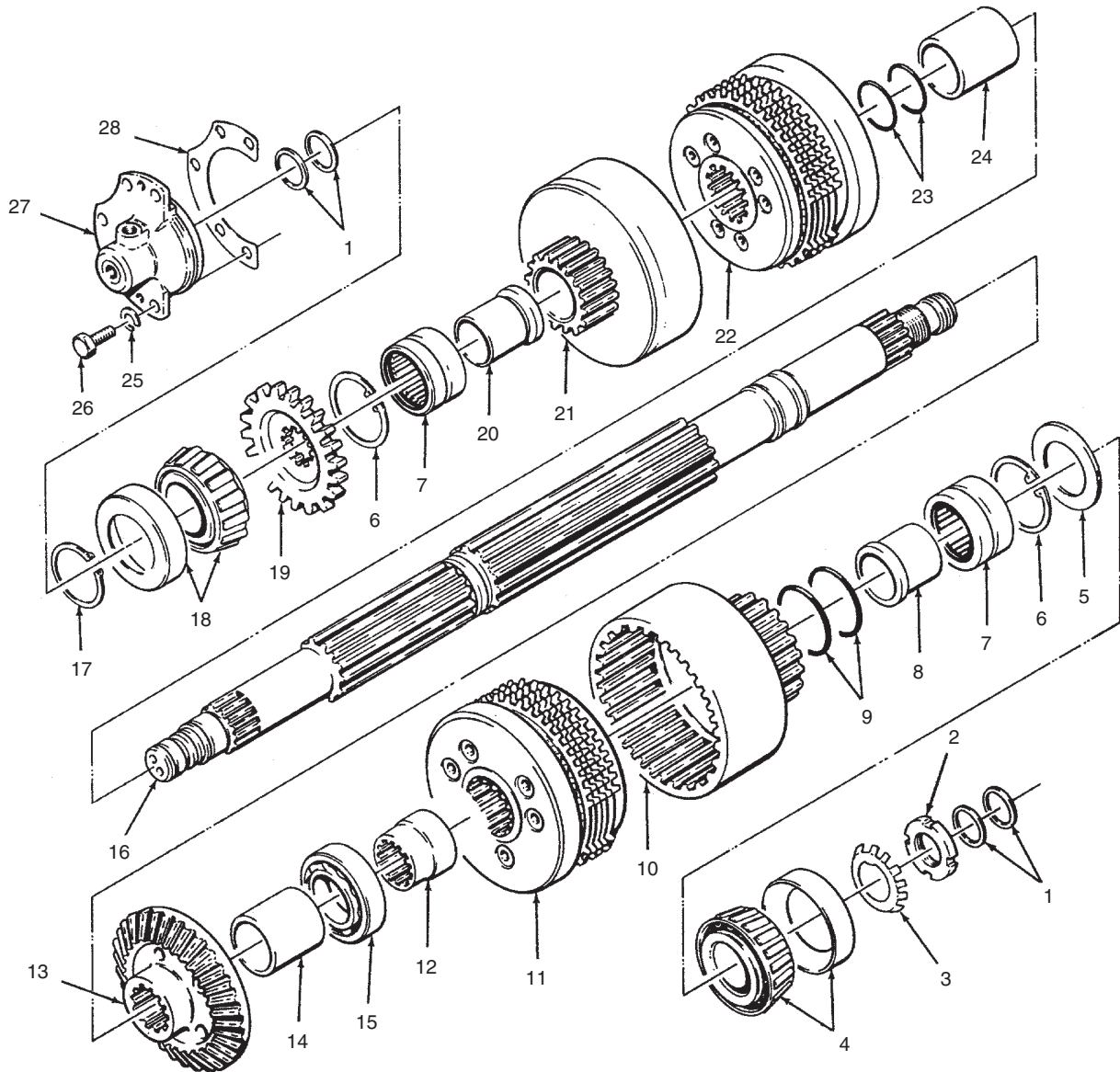
Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	95581W	Ring, Seal	4	17	35575W	Ring, Snap	1
2	21014W	Nut	1	18	230351W	Cup, Bearing	1
3	174561W	Lockwasher	1		225262W	Cone, Bearing	1
4	230405W	Cone, Bearing	1	19	2302938W	Gear, Pump-Drive	1
	230351W	Cup, Bearing	1	20	224791W	Carrier	1
5	174559W	Washer	1	21	287942W	Gear, Forward	1
6	58938W	Ring, Snap	2	22	256608W	Clutch, Forward (See 2-38)	1
7	230407W	Bearing, Roller	2	23	108877W	O-Ring	2
8	96431W	Carrier	1	24	196376W	Spacer	1
9	39674W	O-Ring	2	25	15158W	Lockwasher	12
10	287939W	Gear, Reverse	1	26	178402W	Capscrew	10
11	256609W	Clutch, Reverse (See 2-39)	1	27	224024W	Retainer, Bearing	1
12	196379W	Carrier	1	28	225259W	Shim .005	AR
	*c 2310715	Carrier	1		225260W	Shim .007	AR
13	*a 96021W	Gear, Bevel	1		225261W	Shim .020	AR
	*b 96028W	Gear, Bevel	1				
	*d 313883W	Gear, Bevel	1	*a	49.8:1, 68.8:1, 90.1:1 Gear Ratios		
14	251733W	Spacer	1	*b	71.6:1 Gear Ratio		
15	44316W	Bearing, Ball	1	*c	First Used on S/N AW8L-3495		
	*c 41216W	Bearing, Ball	1	*d	94.0:1		
16	314848W	Shaft, Clutch	1				

Clutch/Bevel Gear Shaft

Gear Ratio #7 (47.1:1)

Page 1 of 2



Recommended Service Kit		
Item	Kit No.	Section
1, 2, 3, 6, 9, 17, 23	2311156	5-1
4, 7, 15, 18	2311161 2311162	5-1

Clutch/Bevel Gear Shaft

Gear Ratio #7 (47.1:1)

Page 2 of 2

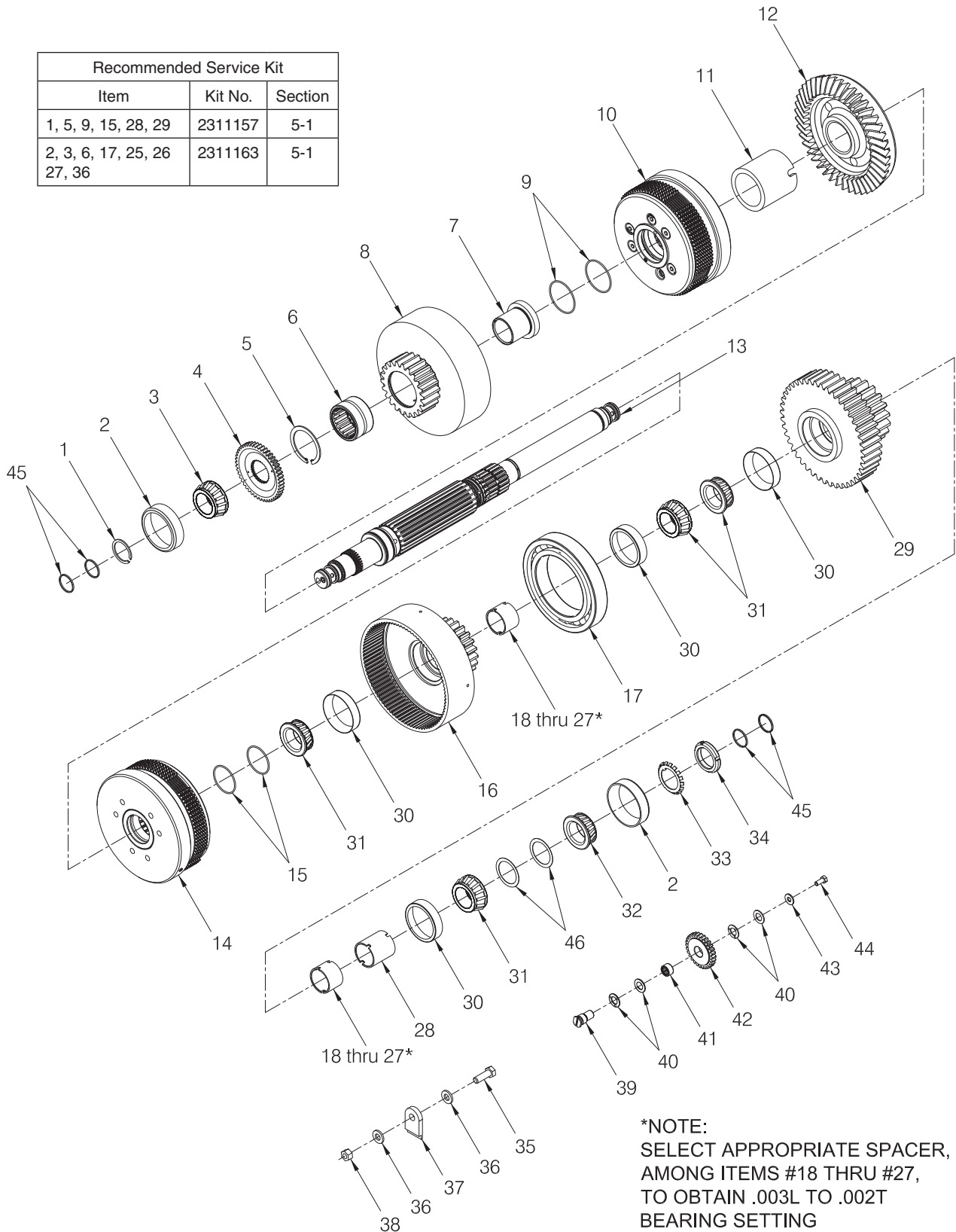
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	95581W	Ring, Seal	4	17	35575W	Ring, Snap	1
2	21014W	Nut	1	18	230351W	Cup, Bearing	1
3	174561W	Lockwasher	1		225262W	Cone, Bearing	1
4	230405W	Cone, Bearing	1	19	2302938W	Gear, Pump-Drive	1
	230351W	Cup, Bearing	1	20	224791W	Carrier	1
5	174559W	Washer	1	21	2302623W	Gear, Forward	1
6	58938W	Ring, Snap	2	22	256608W	Clutch, Forward (See 2-38)	1
7	230407W	Bearing, Roller	2	23	108877W	O-Ring	2
8	96431W	Carrier	1	24	196376W	Spacer	1
9	39674W	O-Ring	2	25	15158W	Lockwasher	12
10	287939W	Gear, Reverse	1	26	178402W	Capscrew	10
11	256609W	Clutch, Reverse (See 2-39)	1	27	224024W	Retainer, Bearing	1
12	196379W	Carrier	1	28	225259W	Shim .005	AR
	*c 2310715	Carrier	1		225260W	Shim .007	AR
13	*a 96028W	Gear, Bevel	1		225261W	Shim .020	AR
	*b 313883W	Gear, Bevel	1				
14	251733W	Spacer	1	*a	Except Caterpillar D7H/R		
15	2310924	Bearing, Ball	1	*b	Caterpillar D7H/R Only		
	*c 41216W	Bearing, Ball	1	*c	First Used on S/N AW8L-3470		
16	314848W	Shaft, Clutch	1				

Clutch/Bevel Gear Shaft

Gear Ratios #8 (125/190:1), #9 (94/102:1), #10 (125/136:1)

Page 1 of 2

Recommended Service Kit		
Item	Kit No.	Section
1, 5, 9, 15, 28, 29	2311157	5-1
2, 3, 6, 17, 25, 26 27, 36	2311163	5-1



***NOTE:**
 SELECT APPROPRIATE SPACER,
 AMONG ITEMS #18 THRU #27,
 TO OBTAIN .003L TO .002T
 BEARING SETTING

Clutch/Bevel Gear Shaft

Gear Ratios #8 (125/190:1), #9 (94/102:1), #10 (125/136:1)

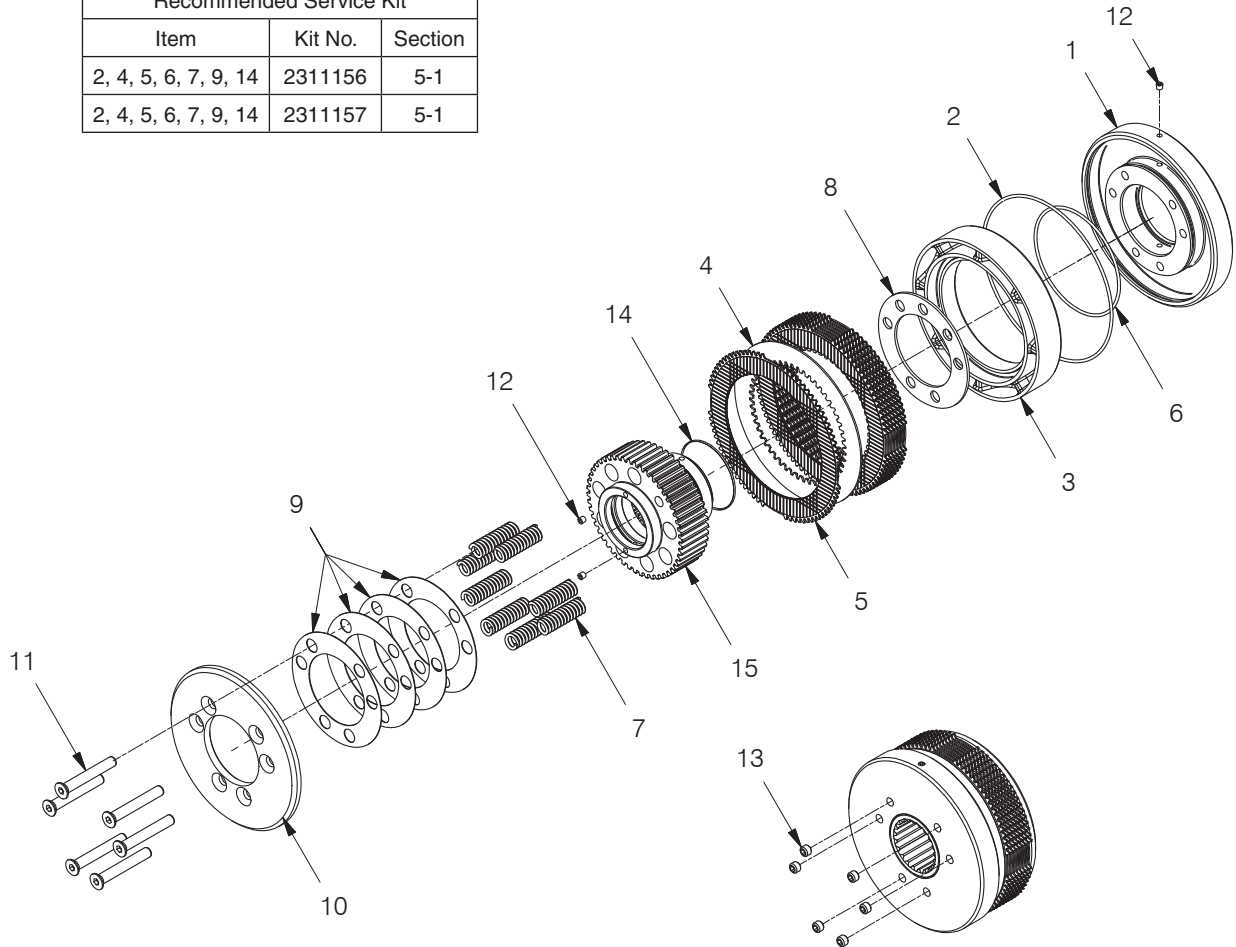
Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	35575W	Ring, Snap	1	26	2310544	Spacer, 1.470"	AR
2	230351W	Cup, Bearing	2	27	2310545	Spacer, 1.475"	AR
3	225262W	Cone, Bearing	1	28	2303565W	Spacer, 2.272"	1
4	2303542W	Gear, Pump - Clutch Shaft	1	29	2303550W	Gear (Ratio #8 only)	1
5	58938W	Ring, Snap	1	29	2305276W	Gear (Ratios #9 and #10)	1
6	230407W	Bearing, Needle	1	30	2303554W	Cup, Bearing	4
7	224791W	Carrier, Bearing	1	31	2303555W	Cone, Bearing	4
8	287942W	Housing, Gear / Clutch	1	32	2303556W	Cone, Bearing	1
9	39674W	O-Ring	2	33	174561W	Washer, Lock	1
10	256609W	Assembly, Forward Clutch (2-47)	1	34	21014W	Nut, Lock	1
11	196376W	Spacer, Clutch Shaft	1	35	200454W	Capscrew	1
12	313883W	Gear, Bevel	1	36	221771W	Washer	2
13	2303547W	Shaft, Clutch	1	37	2303612W	Plate	1
14	2303574W	Assembly, Reverse Clutch (2-48)	1	38	221711W	Nut	1
15	108877W	O-Ring	2	39	2303545W	Shaft, Idler	1
16	2303548W	Gear, Spider	1	40	2303651W	Washer, Thrust	4
17	44326W	Bearing, Ball	1	41	2303650W	Bearing, Needle	1
18	2303564W	Spacer, 1.440"	AR	42	2303543W	Gear, Pump - Idler Shaft	1
19	2303635W	Spacer, 1.445"	AR	43	15175W	Washer	1
20	2303636W	Spacer, 1.450"	AR	44	*a 214495W	Capscrew	1
21	2303562W	Spacer, 1.430"	AR	45	95581W	Ring, Seal	4
22	2303563W	Spacer, 1.435"	AR	46	1314435W	Shim .025	2
23	2306041W	Spacer, 1.455"	AR				
24	2306029W	Spacer, 1.460"	AR		*a Use 383789W	Adhesive Sealant	AR
25	2306030W	Spacer, 1.465"	AR				

Clutch

Gear Ratios #1 (49.8:1), #2 (71.6:1), #3 (94.1:1), #5 (90.1:1), #6 (68.8:1), #7 (47.1:1)

Recommended Service Kit		
Item	Kit No.	Section
2, 4, 5, 6, 7, 9, 14	2311156	5-1
2, 4, 5, 6, 7, 9, 14	2311157	5-1

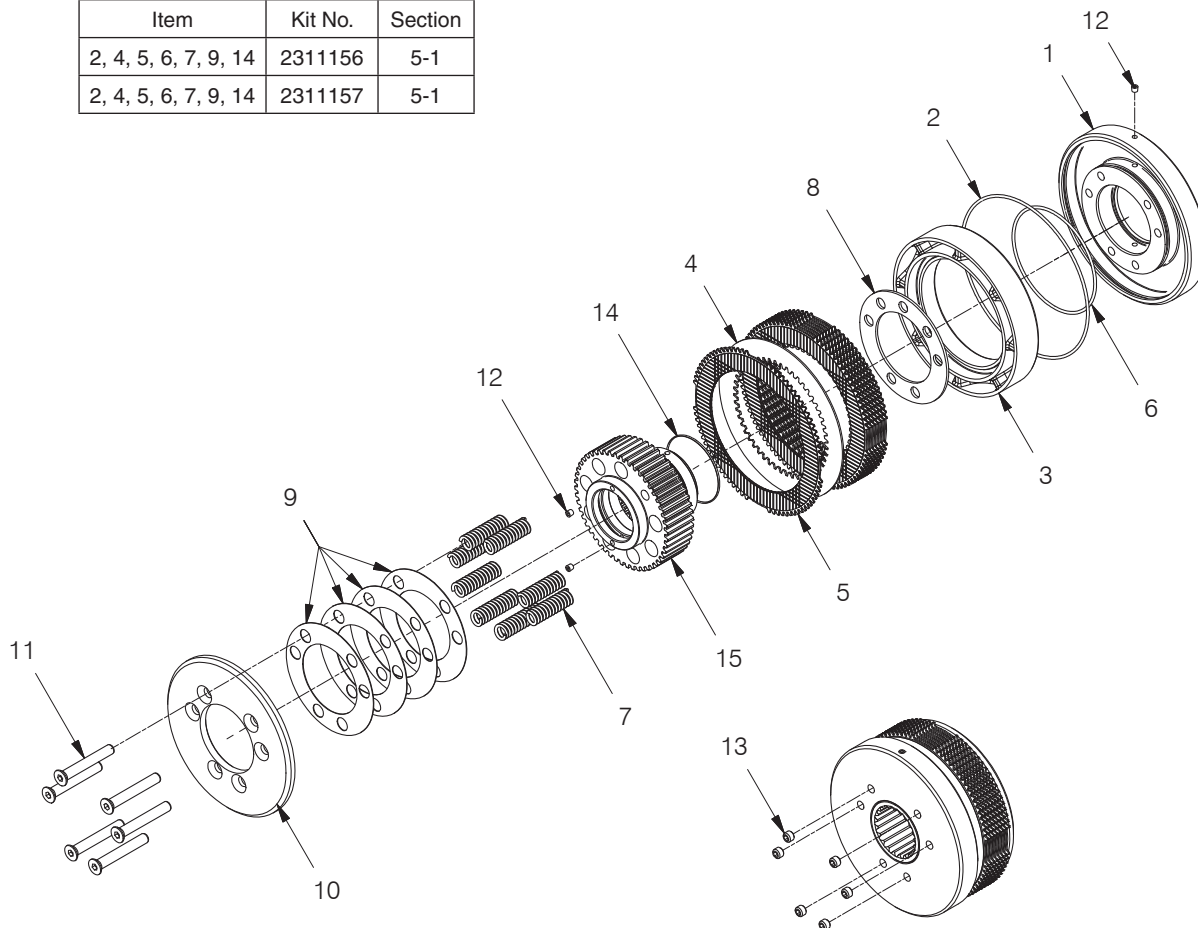


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	256608W	Assembly, Forward Clutch					
1	224790W	. Plate, Retainer	1	11	96468W	. Capscrew	6
2	*a 79972W	. O-Ring	1	12	141348W	. Plug	3
3	96462W	. Piston	1	13	196435W	. Set Screw	6
4	*a 261542W	. Plate, Separator	8	14	*a 39370W	. O-Ring	1
5	*a 328715W	. Disc, Friction	8	15	267505W	. Hub, Forward Clutch	1
6	*a 89777W	. O-Ring	1	15	19901W	. Pin, Slotted	1
7	*a 267499W	. Spring	8				
8	96461W	. Retainer, Spring	1		*a	Included in Service Kit 2310570.	
9	*a 224793W	. Shim .031	4			Qty 2 of 2310570 Included in Service Kit 2311156	
10	224794W	. Plate, Clutch	1			Qty 1 of 2310570 Included in Service Kit 2311157	

Clutch

Gear Ratios #1 (49.8:1), #2 (71.6:1), #3 (94.1:1), #5 (90.1:1), #6 (68.8:1), #7 (47.1:1)
 #8 (125/190:1), #9 (94/102:1), #10 (125/136:1)

Recommended Service Kit		
Item	Kit No.	Section
2, 4, 5, 6, 7, 9, 14	2311156	5-1
2, 4, 5, 6, 7, 9, 14	2311157	5-1

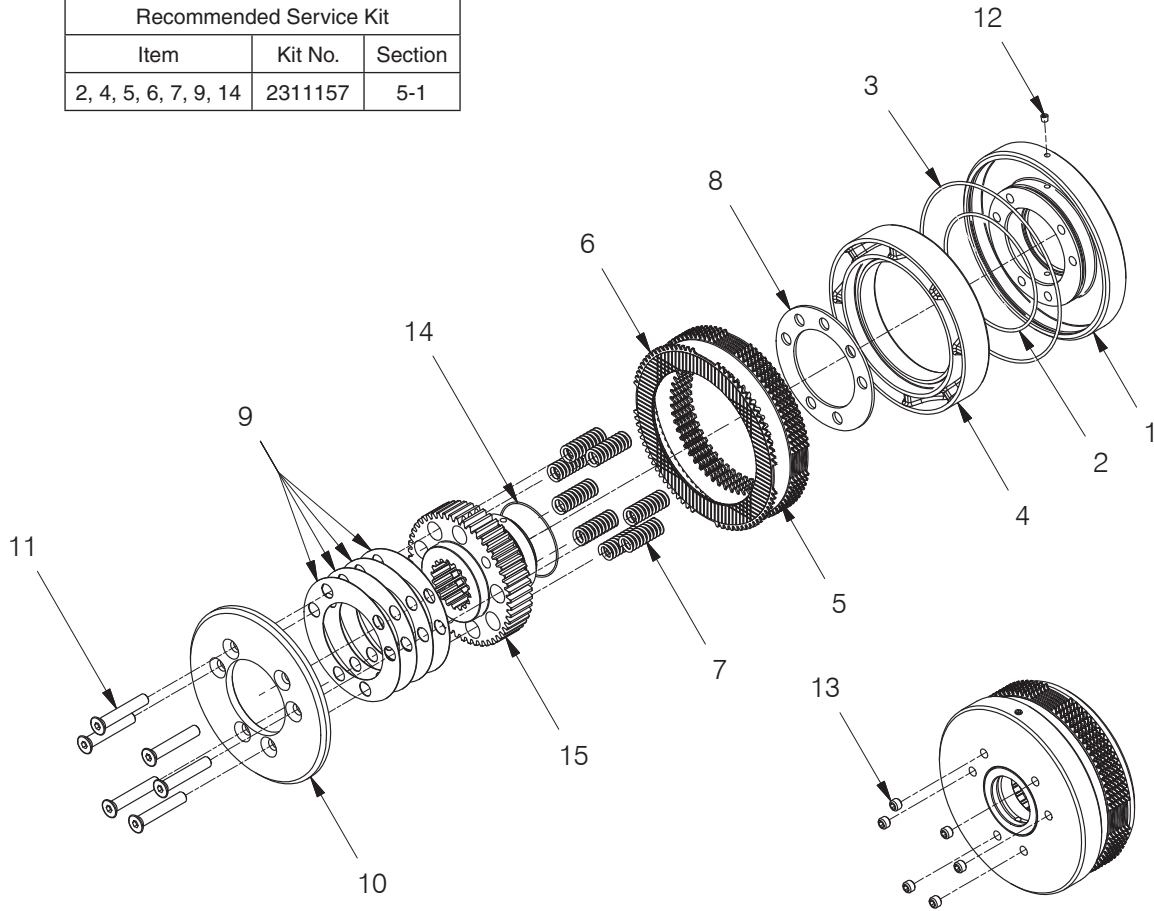


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	256609W	Assembly, Clutch					
1	224790W	. Plate, Retainer	1	11	96468W	. Capscrew	6
2	*a 79972W	. O-Ring	1	12	141348W	. Plug	3
3	96462W	. Piston	1	13	196435W	. Screw, Set	6
4	*a 261542W	. Plate, Separator	8	14	*a 39370W	. O-Ring	1
5	*a 328715W	. Disc, Friction	8	15	257791W	. Hub, Forward Clutch	1
6	*a 89777W	. O-Ring	1				
7	*a 267499W	. Spring	8		*a	Included in Service Kit 2310570.	
8	96461W	. Retainer, Spring	1			Qty 2 of 2310570 Included in Service Kit 2311156	
9	*a 224793W	. Shim .031	4			Qty 1 of 2310570 Included in Service Kit 2311157	
10	224794W	. Plate, Clutch	1				

Clutch

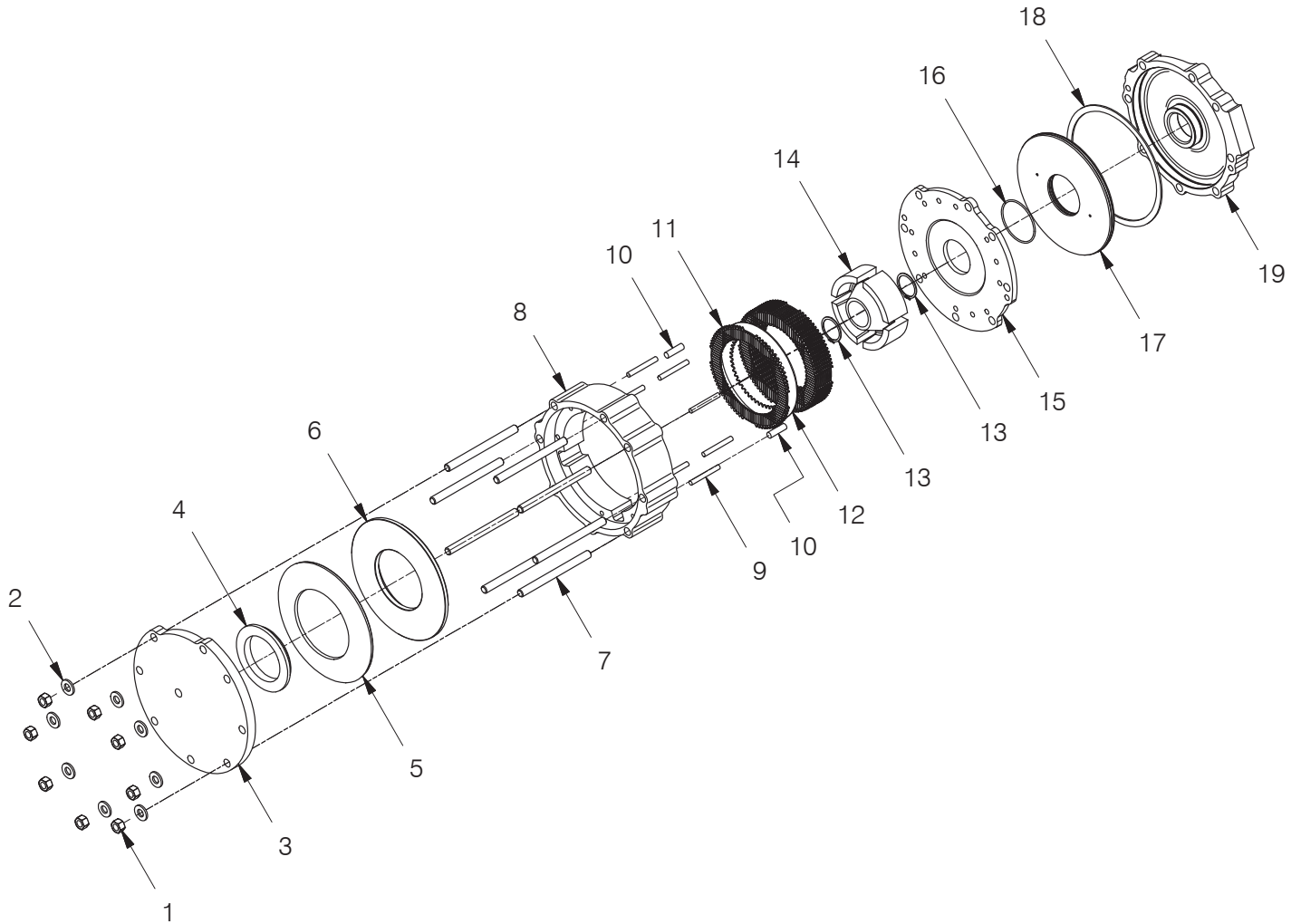
Gear Ratios #8 (125/190:1), #9 (94/102:1), #10 (125/136:1)

Recommended Service Kit		
Item	Kit No.	Section
2, 4, 5, 6, 7, 9, 14	2311157	5-1



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303574W	Clutch Assembly, Reverse; Mining Special Clutch					
1	224790W	. Plate, Retainer	1	10	224794W	. Plate, Clutch	1
2	*a 89777W	. O-Ring	1	11	16373W	. Capscrew	6
3	*a 79972W	. O-Ring	1	12	141348W	. Fitting, Pipe	1
4	96462W	. Piston, Clutch	1	13	196435W	. Screw, Set - Special	6
5	*a 261542W	. Plate, Separator	6	14	*a 39370W	. O-Ring	1
6	*a 328715W	. Disc, Friction	6	15	2303573W	. Hub, Clutch	1
7	*a 265407W	. Spring	8				
8	96461W	. Retainer, Spring	1				
9	*a 224793W	. Shim .031	AR				
					*a	Included in Service Kit 2300544W Qty 1 of 2300544W Included in Service Kit 2311157	

Brake

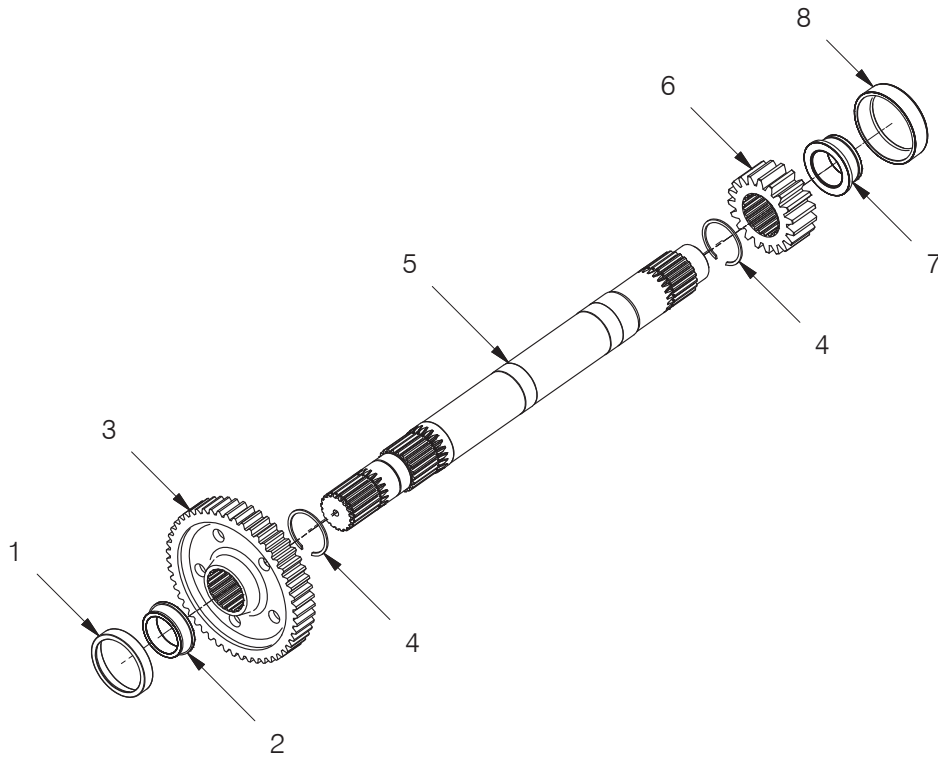


Recommended Service Kit		
Item	Kit No.	Section
11, 12, 13, 16, 18,	2311155	5-1

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	199594W	Nut	8	12	261542W	Plate, Separator	9
2	221775W	Washer	8	13	12940W	Ring, Snap	2
3	196026W	Plate, Cover	1	14	265403W	Hub	1
4	*a 2310475	Limiters, Stroke	1	15	252114W	Plate, Pressure	1
5	193912W	Spring	1	16	79979W	O-Ring	1
6	265401W	Ring	1	17	133926W	Piston	1
7	140184W	Stud	8	18	133927W	Ring, Piston Seal	1
8	265402W	Cage	1	19	196025W	Housing, Piston	1
9	267522W	Pin, Thrust	8				
10	92867W	Pin, Dowel	2				
11	328715W	Disc, Friction	10				
				*a	First Used on S/N AW8L-3332		

Brake Shaft

Gear Ratios #1 (49.8/19.9:1), #2 (71.6/38.6:1), #3 (94.0/37.6:1), #4 (84.0/33.6:1), #5 (90.1/36.0:1), #6 (68.8/27.5:1), and #7 (47.1/31.1:1)

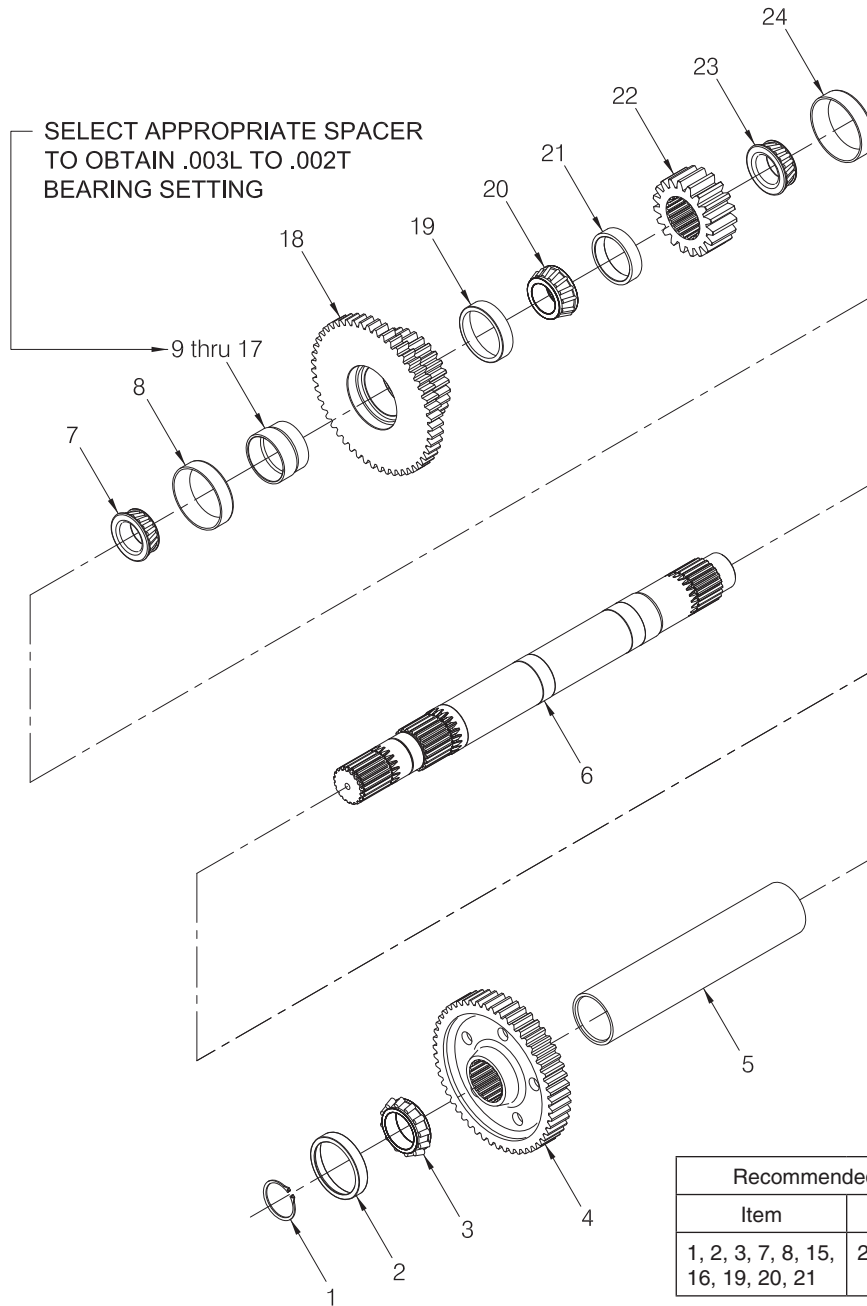


Recommended Service Kit		
Item	Kit No.	Section
1, 2, 7, 8	2311158	5-1

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230311W	Cup, Bearing	1	6	96417W	Gear	1
2	230310W	Cone, Bearing	1	7	30080W	Cone, Bearing	1
3	95969W	Gear	1	8	30059W	Cup, Bearing	1
3	*a 2302622W	Gear	1				
4	12915W	Ring, Snap	2		*a	Gear Ratio #7 Only	
5	133918W	Shaft, Brake	1				

Brake Shaft

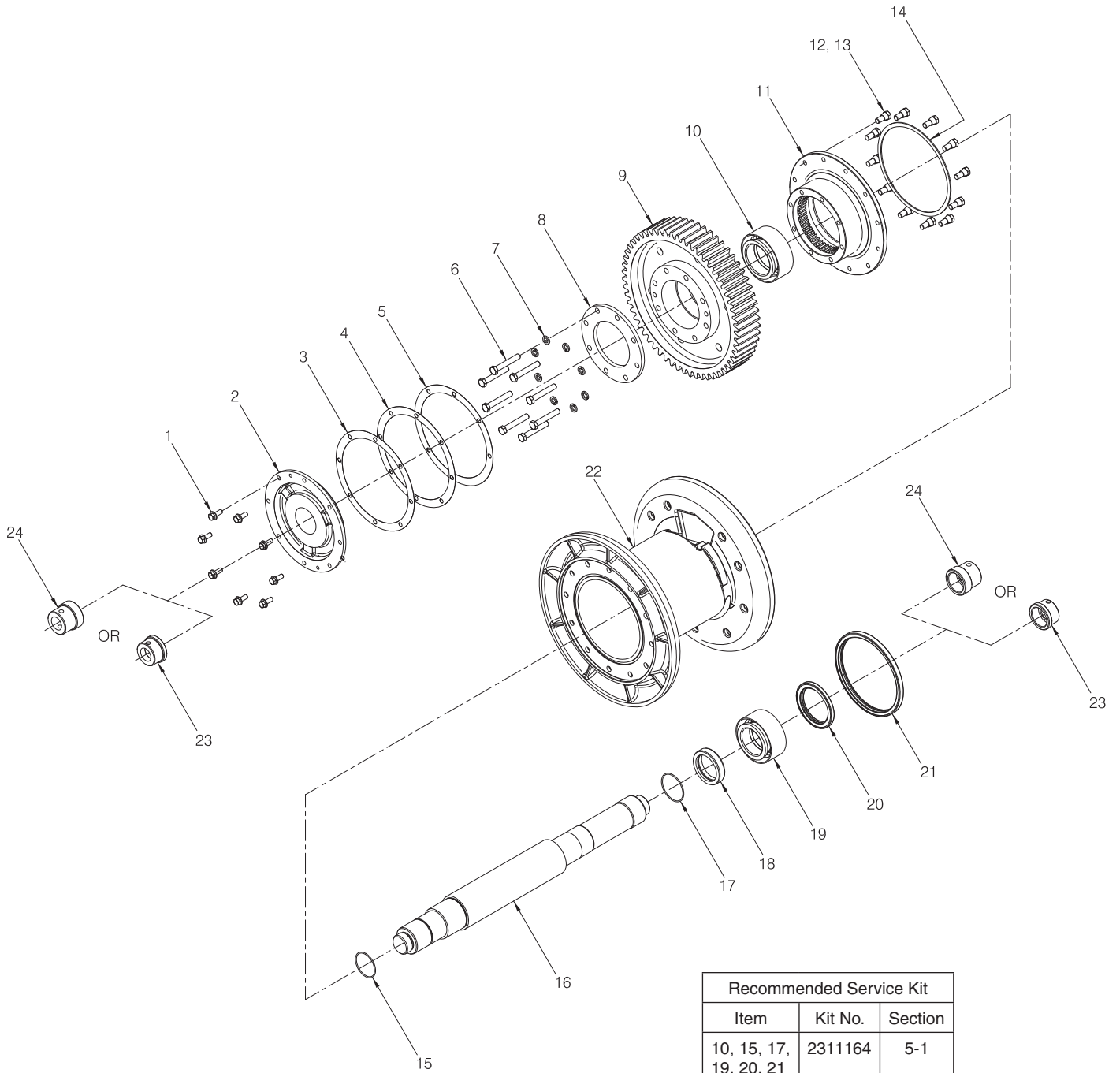
Gear Ratios #8 (125/190:1), #9 (94/102:1), #10 (125/136:0)



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	12940W	Ring, Snap	1	14	2310546	Spacer, 2.178"	AR
2	230310W	Cone, Bearing	1	15	2310547	Spacer, 2.183"	AR
3	230311W	Cup, Bearing	1	16	2310605	Spacer, 2.188"	AR
4	95969W	Gear	1	17	2310606	Spacer, 2.193"	AR
5	2303553W	Spacer, Long	1	18	2303549W	Gear (Ratio #8 only)	1
6	2303551W	Shaft, Brake	1	18	2305277W	Gear (Ratios #9 and #10)	1
7	2303572W	Cone, Bearing	1	19	2303557W	Cup, Bearing	1
8	2303571W	Cup, Bearing	1	20	2303558W	Cone, Bearing	1
9	2303569W	Spacer, 2.163"	AR	21	2303552W	Spacer, Short	1
10	2303637W	Spacer, 2.168"	AR	22	96417W	Gear	1
11	2303638W	Spacer, 2.173"	AR	23	30080W	Cone, Bearing	1
12	2303567W	Spacer, 2.153"	AR	24	30059W	Cup, Bearing	1
13	2303568W	Spacer, 2.158"	AR				

Drum Shaft Group

Page 1 of 2



Recommended Service Kit		
Item	Kit No.	Section
10, 15, 17, 19, 20, 21	2311164	5-1

Drum Shaft Group

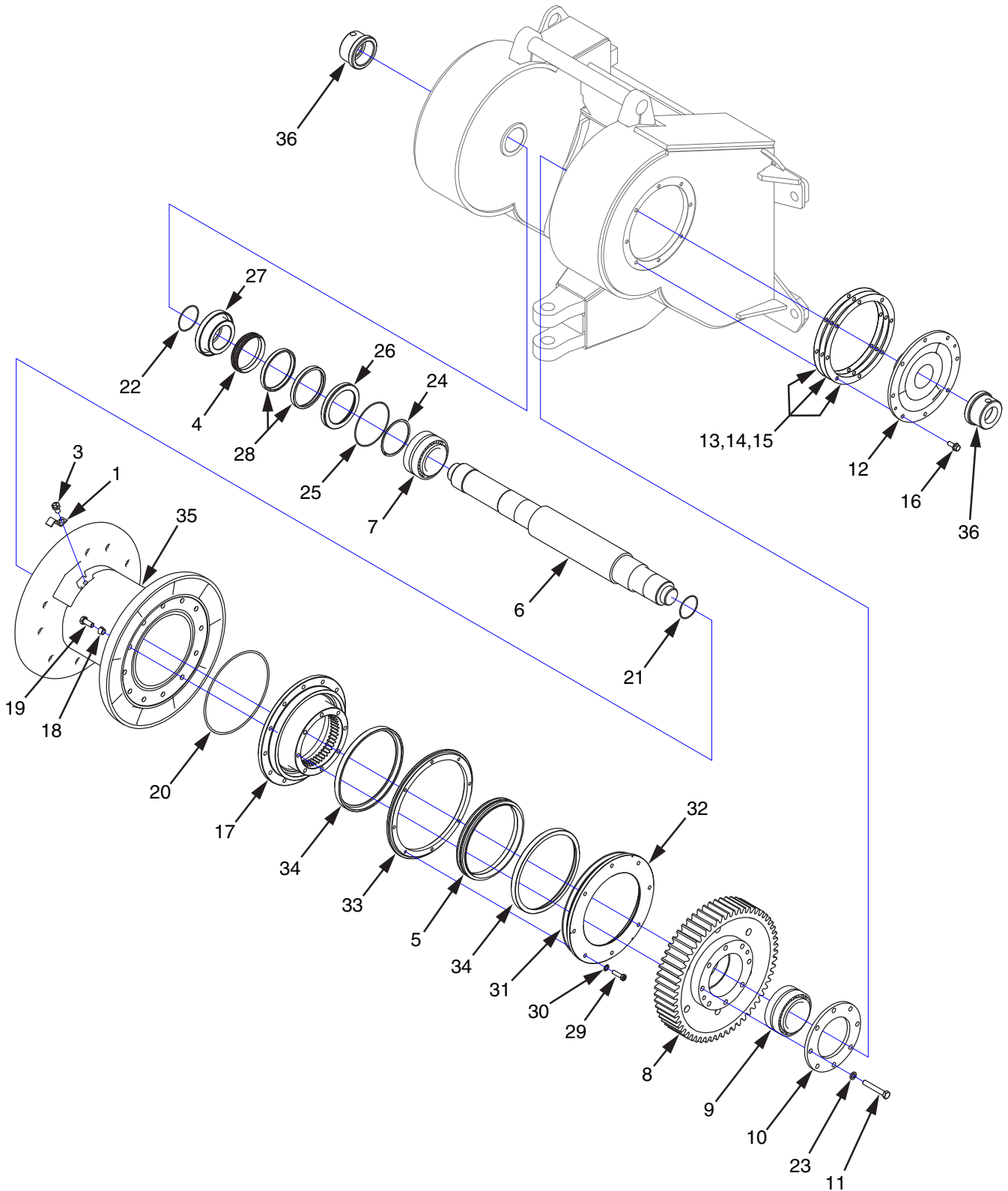
Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2303848W	Capscrew	8	16	*a 242839W	Shaft, Drum	1
2	173606W	Retainer	1	17	46629W	O-Ring	1
3	134070W	Shim .005	AR	18	173604W	Spacer	1
4	134071W	Shim .007	AR	19	78022W	Bearing	1
5	134072W	Shim .020	AR	20	44484W	Seal, Oil	1
6	221641W	Capscrew	8	21	141149W	Seal, Oil	1
7	15160W	Washer	9	22	*c 141357W	Drum, Overwind (F) or (N)	1
8	96438W	Plate, Retainer	1	22	*c 2311151	Drum, Underwind (V)	1
9	96436W	Gear, Drum	1	23	242832W	Nut, Drum Shaft - Narrow/Std.	2
10	96437W	Bearing	1	24	2303654W	Nut, Drum Shaft - Wide	2
11	141325W	Adapter	1				
12	53559W	Thimble, Tapered	12		*a	Requires Adhesive/Sealant P/N 1324880W	
13	141675W	Capscrew	12		*b	First Used on S/N AW8L-3486	
13	*b 2310891	Capscrew	12		*c	(F), (N) or (V) Indicate Winch Internal Option Codes.	
14	131982W	Ring	1			See Page 0-3 for Details.	
15	15881W	O-Ring	1				

Drum Shaft Group

Page 1 of 2

Extreme-Duty Seals, W8L *****S



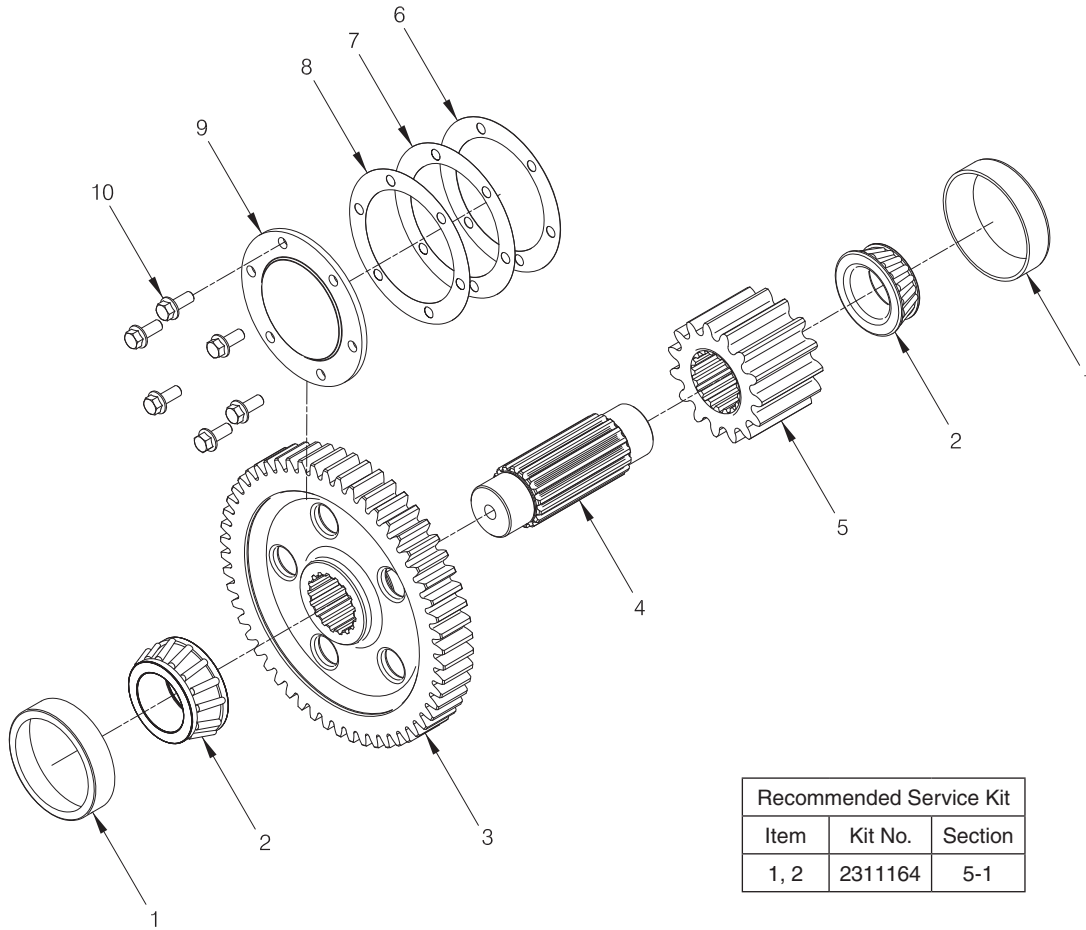
Drum Shaft Group

Page 2 of 2

Extreme-Duty Seals, W8L *****S

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2316089	Drum Shaft Assembly					
1	274464W	. Keeper, Ferrule	1	23	15160W	. Washer	9
3	12447W	. Capscrew	1	24	2302363W	. Snap Ring	1
4	2315083	. Seal, Duo Cone	1	25	203550	. O-Ring	1
5	2315084	. Seal, Duo Cone	1	26	2316095	. Retainer - LH Inner	1
6	2316090	. Shaft, Drum	1	27	2316096	. Retainer - LH Outer	1
7	78022W	. Bearing	1	28	2315081	. Adapter, Ring	2
8	96436W	. Gear, Drum	1	29	*a 221569W	. Capscrew	8
9	96437W	. Bearing	1	30	207563	. Stat-O-Seal	8
10	96438W	. Plate - Retainer	1	31	39765W	. O-Ring	1
11	221641W	. Capscrew	8	32	*b 2315067	. Retainer - RH Outer	1
12	*a 173606W	. Retainer	1	33	2315080	. Ring, Backing	1
13	134070W	. Shim .005	AR	34	2315082	. Adapter, Ring	2
14	134071W	. Shim .007	AR	35	2316093	Drum	1
15	134072W	. Shim .020	AR	36	*a 242832W	Nut, Drum Shaft	2
16	2303848W	. Screw, Flange	8				
17	2316099	. Adapter	1	*a	Apply 1324880W RTV Adhesive/Sealant prior to assembly.		
18	53559W	. Thimble, Tapered	12	*b	Apply a bead of 313022W anaerobic sealant (Loctite 515 or equivalent) to frame prior to installation.		
19	2310891	. Capscrew	12				
20	131982W	. Ring	1				
21	15881W	. O-Ring	1				
22	46629W	. O-Ring	1				

Intermediate Gear Shaft

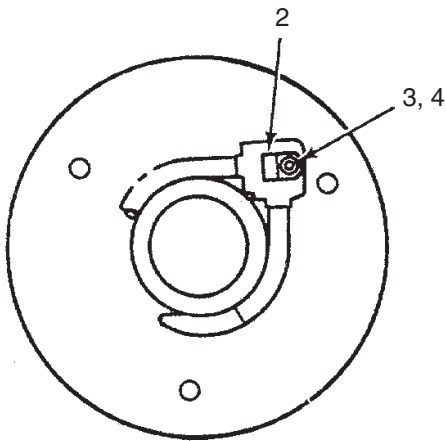


Recommended Service Kit		
Item	Kit No.	Section
1, 2	2311164	5-1

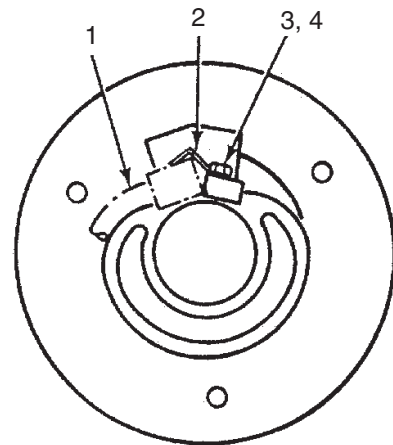
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	30091W	Cup, Bearing	2	6	134074W	Shim .005	AR
2	230309W	Cone, Bearing	2	7	134075W	Shim .007	AR
3	96418W	Gear, 54T	1	8	134076	Shim .020	AR
4	92620W	Shaft	1	9	92623W	Cover	1
5	92621W	Gear, Drum Pinion	1	10	2303848W	Capscrew	6

Wire Rope Lock

8 Inch



12 Inch



A - 12 inch Drum (Standard)
 B - 8 inch Drum

Item	Part No.	Description	Qty		Item	Part No.	Description	Qty	
			A	B				A	B
1	344837W	Cable, Filler	1	--	3	16336W	Capscrew	--	1
2	274464W	Keeper, Ferrule	1	--	4	15160W	Lockwasher	1	--
2	274908W	Keeper, Ferrule	--	1	4	177949W	Lockwasher	--	1
3	12447W	Capscrew	1	--					

Intentionally Blank

Hydraulics/Controls

Power Controls

Hydraulic Group.....	3-2 thru 3-11
Valve.....	3-12 thru 3-14
Handling Gear.....	3-15 thru 3-92
• Freespool.....	3-15 thru 3-55
•• Caterpillar.....	3-15 thru 3-36
•• Dresser.....	3-37 thru 3-39
•• Fiat-Hitachi.....	3-40 thru 3-44
•• Komatsu.....	3-45 thru 3-54
•• Terex.....	3-55
• Non-Freespool.....	3-56 thru 3-92
•• Caterpillar.....	3-56 thru 3-73
•• Dresser.....	3-74 thru 3-76
•• Fiat-Hitachi.....	3-77 thru 3-80
•• Komatsu.....	3-81 thru 3-89
•• Shantui.....	3-90
•• Terex.....	3-91
•• Zoomlion.....	3-92
Control Lever Assembly.....	3-93 thru 3-96

Electronic Controls

Hydraulic Group.....	3-98 thru 3-107
Valve Manifold Assembly.....	3-108 thru 3-111
External Wiring Harness Repair Kit.....	3-112
Handling Gear.....	3-113 thru 3-125
• Non-Freespool.....	3-113 thru 3-125
•• Caterpillar.....	3-113 thru 3-125
Common Parts.....	3-126 & 3-127
Control Lever.....	3-128 thru 3-131
Control Lever Replacement Kit.....	3-132 & 3-133

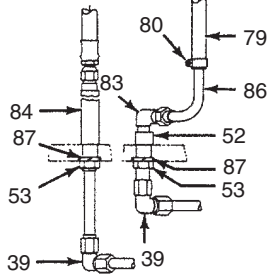
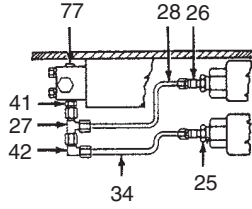
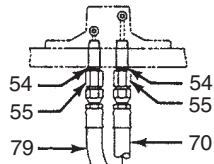
Common Parts

Hydraulic Pump.....	3-134 thru 3-137
---------------------	------------------

Hydraulic Group - Power Controls

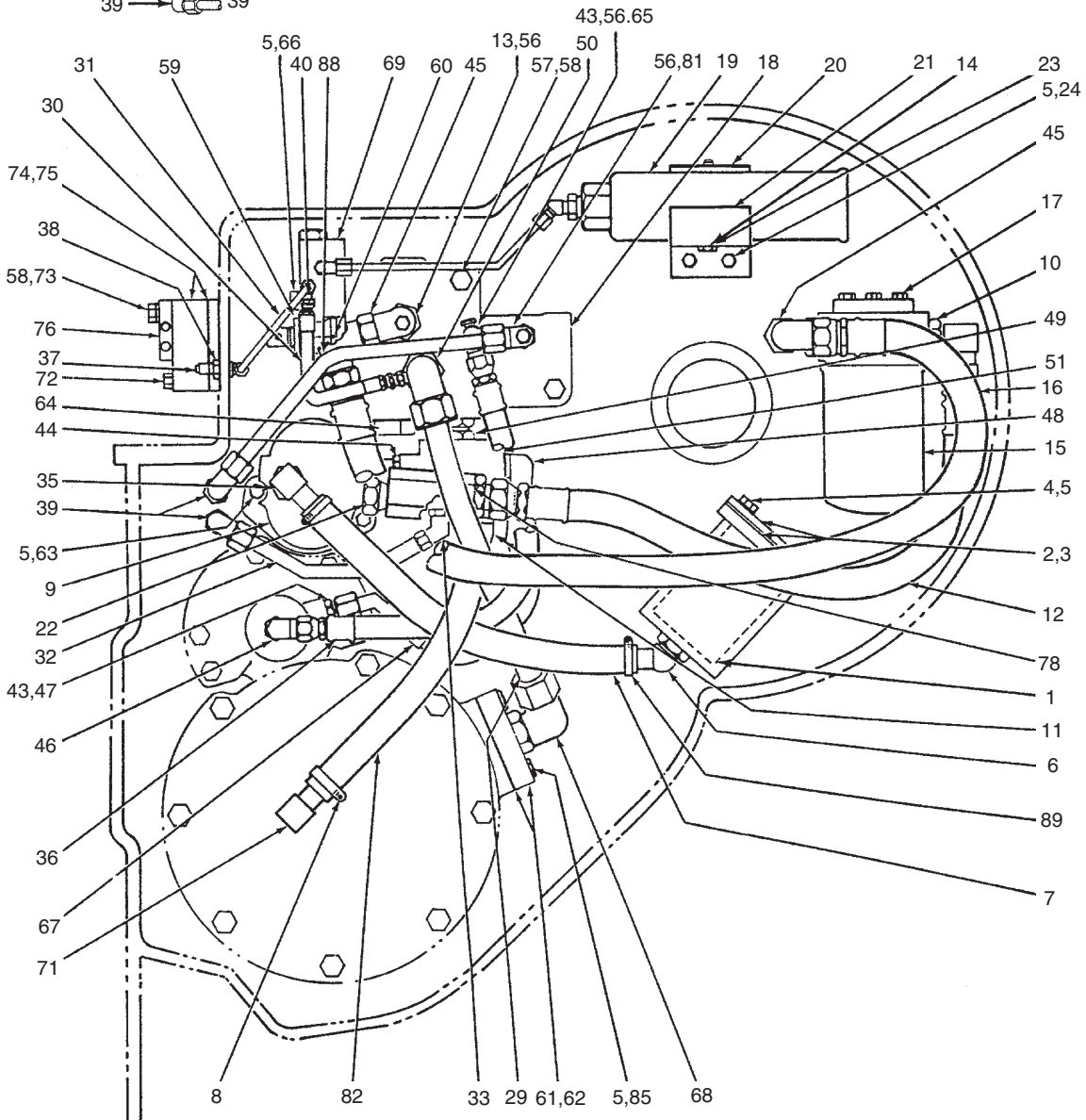
Last Used on S/N W8LP-1599 & S/N AW8L-1000

Page 1 of 2



Routine Maintenance Kit		
Item	Kit No.	Section
3, 15 (277490W), 70	2311165	5-1
3, 62, 74	277341W	5-1

Parts Service Gram	
Item	Gram
15	Contact your dealer
19	Contact your dealer



Hydraulic Group - Power Controls

Last Used on S/N W8LP-1599 & S/N AW8L-1000

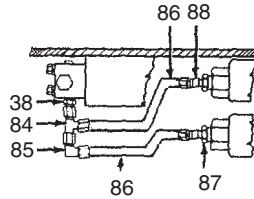
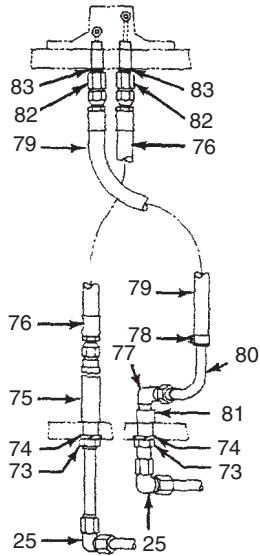
Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	219172W	Strainer	1	44	14595W	Fitting	1
	156689W	. O-Ring	1		16484W	. O-Ring	1
2	265331W	Cover, Filter	1	45	83857W	Fitting	1
3	265332W	Gasket (Part of Gasket Kit)	1	46	16559W	Fitting	2
4	16597W	Capscrew	4		16484W	. O-Ring	1
5	15156W	Lockwasher	13	47	17038W	Fitting	1
6	276090W	Fitting	1	48	15963W	Fitting	1
	16486W	. O-Ring	1	49	225232W	Fitting	1
7	276092W	Hose	1	50	225712W	Fitting	1
8	127045W	Clamp	2		16982W	. O-Ring	1
9	-----	Pump, Hydraulic (see 3-130 thru 133)	1	51	225701W	Manifold	1
10	16561W	Fitting	2	52	255433W	Connector	1
11	222505W	Fitting	1	53	14761W	Nut	2
12	274038W	Hose	1	54	19581W	Fitting	2
13	164703W	Fitting	1	55	14723W	Fitting	2
	16486W	. O-Ring	1	56	14349W	Fitting	3
14	267489W	Spacer	1	57	198385W	Capscrew	3
15	354125W	Filter	1	58	15158W	Lockwasher	4
	277490W	. Element	1	59	279397W	Cam	1
16	165489W	Hose	1	60	68370W	Pin, Slotted	1
17	18498W	Capscrew	3	61	279392W	Block	1
	15155W	Lockwasher	3	62	196022W	Gasket	1
18	-----	Valve, Control (see 3-12 thru 14)	1	63	16828W	Capscrew	2
19	327610W	Accumulator	2	64	226450W	Valve	1
	327611W	Fitting	2	65	225711W	Fitting	1
20	267487W	Bracket	1	66	241778W	Screw	2
21	267488W	Plate	1	67	276094W	Horse	1
22	89669W	Fitting	1	68	16948W	Fitting	1
	16485W	. O-Ring	1		16982W	. O-Ring	1
23	16741W	Capscrew	1	69	267018W	Valve	1
24	194090W	Capscrew	2	70	276087W	Hose	1
25	69815W	Fitting	2	71	201800W	Fitting	1
26	14539W	Fitting	2	72	16379W	Capscrew	1
27	17059W	Fitting	1	73	18591W	Capscrew	1
28	383892W	Hose	1	74	226359W	Gasket	1
29	383892W	Hose	1	75	226360W	Block	1
30	140288W	Hose	1	76	236417W	Bracket, Cable	1
31	277663W	Tube	1		62499W	Pin, Slotted	2
32	276095W	Tube	1	77	15483W	Fitting	2
33	16568W	Fitting	1	78	271729W	Valve, Check	1
	16484W	. O-Ring	1	79	276097W	Hose	1
34	259456W	Tube	1	80	130845W	Clamp	1
35	276091W	Fitting	1	81	198063W	Fitting	1
	16487W	. O-Ring	1		16484W	. O-Ring	1
36	88297W	Hose	1	82	277339W	Hose	1
37	16455W	Fitting	1	83	17309W	Fitting	1
38	14758W	Adapter	1	84	225233W	Connector	1
39	16989W	Fitting	2	85	16805W	Capscrew	2
40	14581W	Fitting	1	86	255434W	Tube	1
41	14668W	Fitting	2	87	177951W	Lockwasher	2
42	16987W	Fitting	1	88	259463W	Tube	1
43	16541W	Fitting	3	89	209639W	Clamp	2
	16484W	. O-Ring	1				

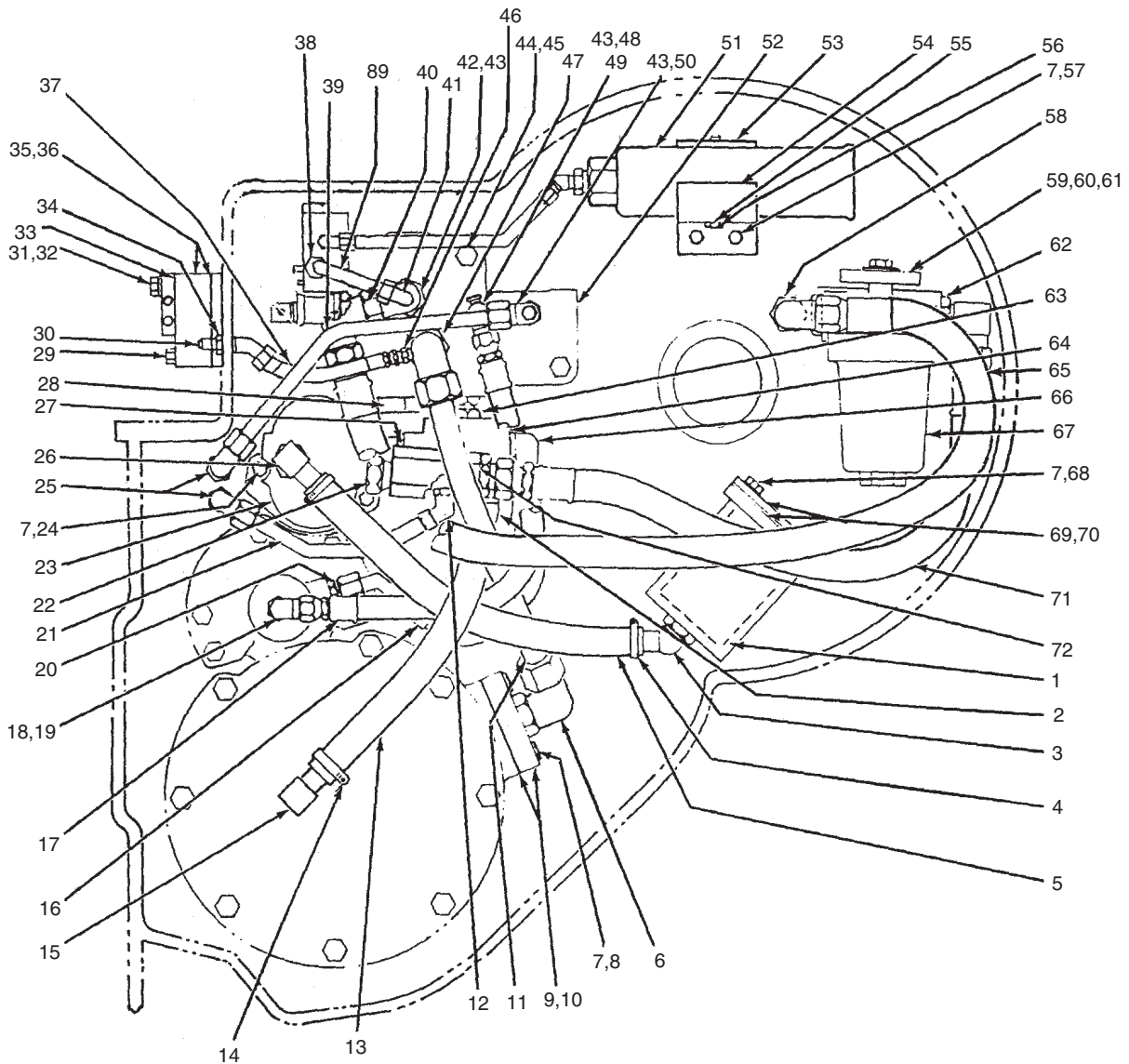
Hydraulic Group - Power Controls

First Used on S/N W8LP-1600; Used on S/N AW8L-1001 thru AW8L-2477

Page 1 of 2



Routine Maintenance Kit		
Item	Kit No.	Section
67 (280591W, 3001363W), 70	2311166, 2311167	5-1
9, 35, 70	277341W	5-1



Hydraulic Group - Power Controls

First Used on S/N W8LP-1600; Used on S/N AW8L-1001 thru AW8L-2477

Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty	
1	219172W	Strainer	1	51	*b, *d	327610W	Accumulator	1
	156689W	. O-Ring	1		*c	327610W	Accumulator	2
2	222505W	Fitting	1	52	-----	Valve, Control (See 3-12 thru 14)	1	
3	276090W	Fitting	1	53		267487W	Bracket	1
4	209639W	Clamp	2	54		267488W	Plate	1
5	276092W	Hose	1	55	*b	267489W	Spacer	1
6	16948W	Fitting	1		*c	344839W	Spacer	1
	16982W	. O-Ring	1	56	*b	16741W	Capscrew	1
7	15156W	Lockwasher	12		*c	18542W	Capscrew	1
8	16805W	Capscrew	2	57		194090W	Capscrew	2
9	196022W	Gasket	1	58		83857W	Fitting	2
10	279392W	Block	1	59		18588W	Capscrew	2
11	259456W	Tube	1		*e	16598W	Capscrew	2
12	16568W	Fitting	1	60		15158W	Lockwasher	2
13	277339W	Hose	1		*e	15156W	Lockwasher	2
14	127045W	Clamp	2	61		15178W	Flatwasher	2
15	201800W	Fitting	1		*e	15176W	Flatwasher	2
16	276094W	Hose	1	62		16561W	Fitting	2
17	88297W	Hose	1	63		225232W	Fitting	1
18	17038W	Fitting	1	64		225701W	Manifold	1
19	16559W	Fitting	1	65		165489W	Hose	1
20	16541W	Fitting	3	66		17300W	Fitting	1
21	276095W	Tube	1	67		279388W	Filter	1
22	89669W	Fitting	1			280591W	. Element / O-Ring	1
23	-----	Pump, Hydraulic (see 3-130 thru 133)	1			55468W	. . O-Ring	1
24	16828W	Capscrew	2	*e	2300183W	Filter	1	
25	16989W	Fitting	2		3001363W	. Element / O-Ring	1	
26	314834W	Fitting	1		55468W	. . O-Ring	1	
27	14595W	Fitting	1	68		16805W	Capscrew	4
28	226450W	Assembly, Valve	1	69		265331W	Cover, Strainer	1
	226449W	. Body, Valve	1		*f	2300936W	Cover, Strainer	1
	226448W	. Poppet	1	70	*a	265332W	Gasket	1
	226447W	. Spring	1		*f	2300935W	Gasket	1
	226446W	. Cap	2	71		274038W	Hose	1
29	16379W	Capscrew	1	72		271729W	Valve, Check	1
30	16463W	Fitting	1	73		14761W	Nut	2
31	15158W	Lockwasher	4	74		177951W	Lockwasher	2
32	18591W	Capscrew	1	75		225233W	Connector	1
33	303946W	Gasket	1	76		276087W	Hose	1
34	14758W	Adapter	1	77		17309W	Fitting	1
35	226359W	Gasket	1	78		130845W	Clamp	1
36	226360W	Block	1	79		276097W	Hose	1
37	140288W	Hose	1	80		255434W	Tube	1
38	14668W	Fitting	2	81		255433W	Connector	1
39	259463W	Tube	1	82		14723W	Fitting	2
40	83857W	Fitting	2	83		19581W	Fitting	2
41	14500W	Fitting	1	84		17059W	Fitting	1
42	164703W	Fitting	1	85		16987W	Fitting	1
	16484W	. O-Ring	1	86		383892W	Hose	2
43	14349W	Fitting	3	87	*b	69815W	Fitting	2
44	198385W	Capscrew	3		*c	327611W	Fitting	2
45	15158W	Lockwasher	4	88		14539W	Fitting	2
46	16987W	Fitting	1	89		140288W	Hose	1
47	225712W	Fitting	1		*b	Last Used on S/N W8LP-2976 & AW8L-1000		
48	83857W	Fitting	2		*c	First Used on S/N W8LP-2977 & AW8L-1001		
49	225711W	Fitting	1		*d	Use 327610W Accumulator & 327611W Fitting		
50	322697W	Fitting	1		*e	First Used on S/N AW8L-1491		
	16550W	Fitting	1		*f	First Used on S/N AW8L-1605		
	16486W	. O-Ring	1					

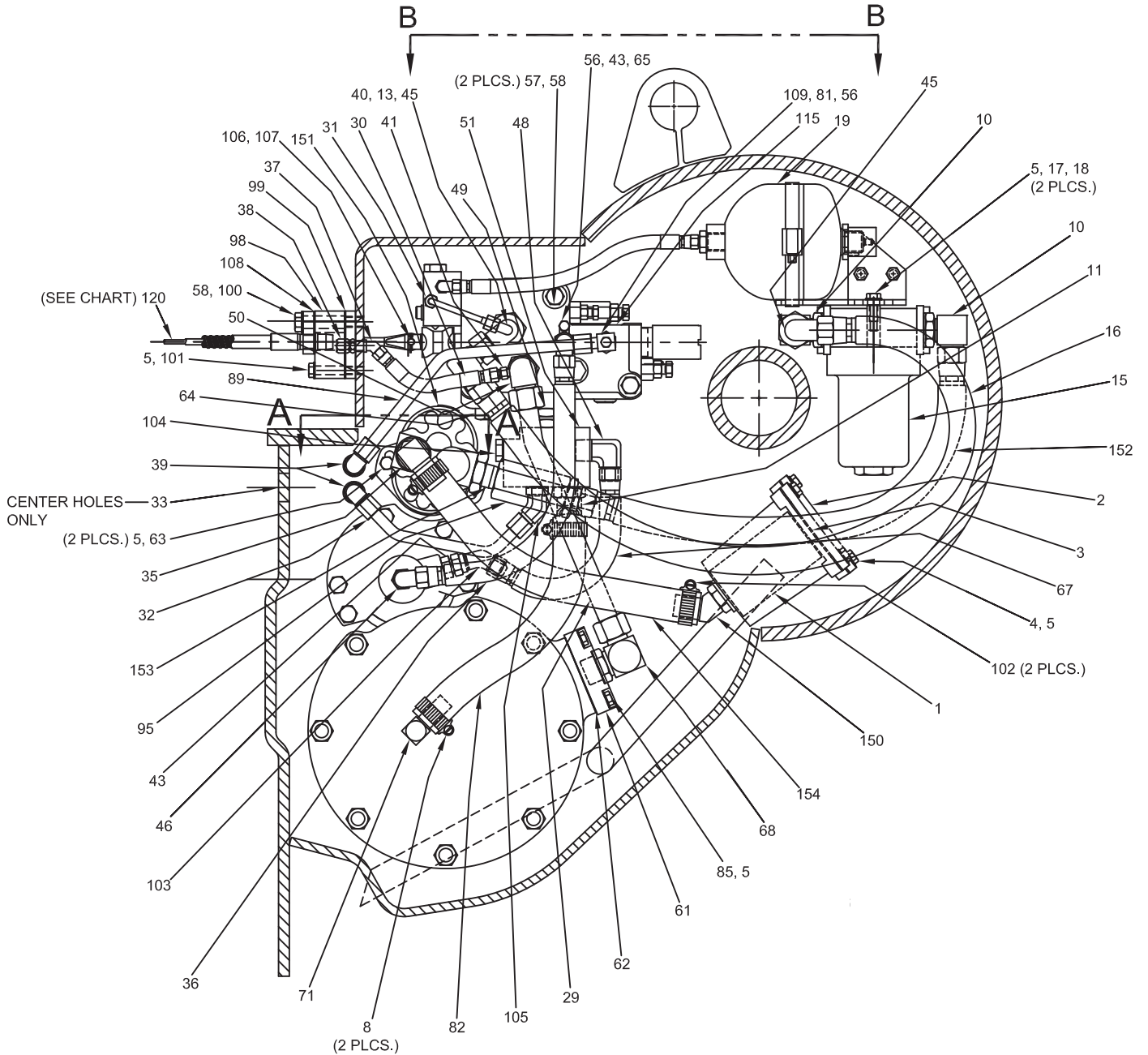
Hydraulic Group - Power Controls

Used on S/N AW8L-2478 thru AW8L-3470

HYDRAULIC ARRANGEMENT-HIGH SPEED REVERSE

Gear Ratios #1(49.8:1/19.9:1), #2 (71.6:1/38.6:1), #3 (94.0:1/37.6:1), #4 (84.0:1/33.6:1),
#5 (90.1:1/36.0:1), #6 (68.8:1/27.5:1), #7 (47.1:1/31.1:1)

Page 1 of 4



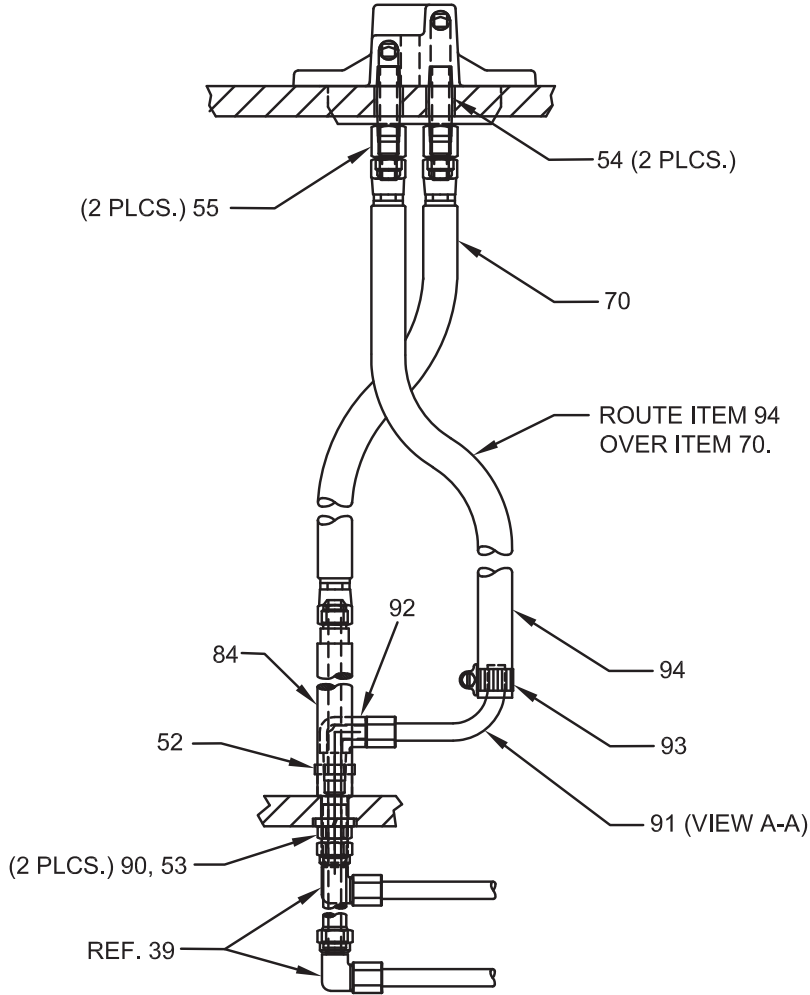
Hydraulic Group - Power Controls

Used on S/N AW8L-2478 thru AW8L-3470

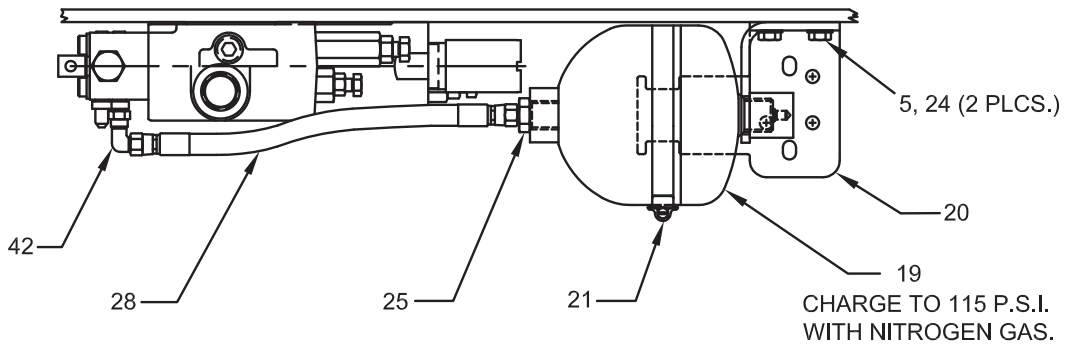
HYDRAULIC ARRANGEMENT-HIGH SPEED REVERSE

Gear Ratios #1(49.8:1/19.9:1), #2 (71.6:1/38.6:1), #3 (94.0:1/37.6:1), #4 (84.0:1/33.6:1),
 #5 (90.1:1/36.0:1), #6 (68.8:1/27.5:1), #7 (47.1:1/31.1:1)

Page 2 of 4



VIEW A-A



VIEW B-B

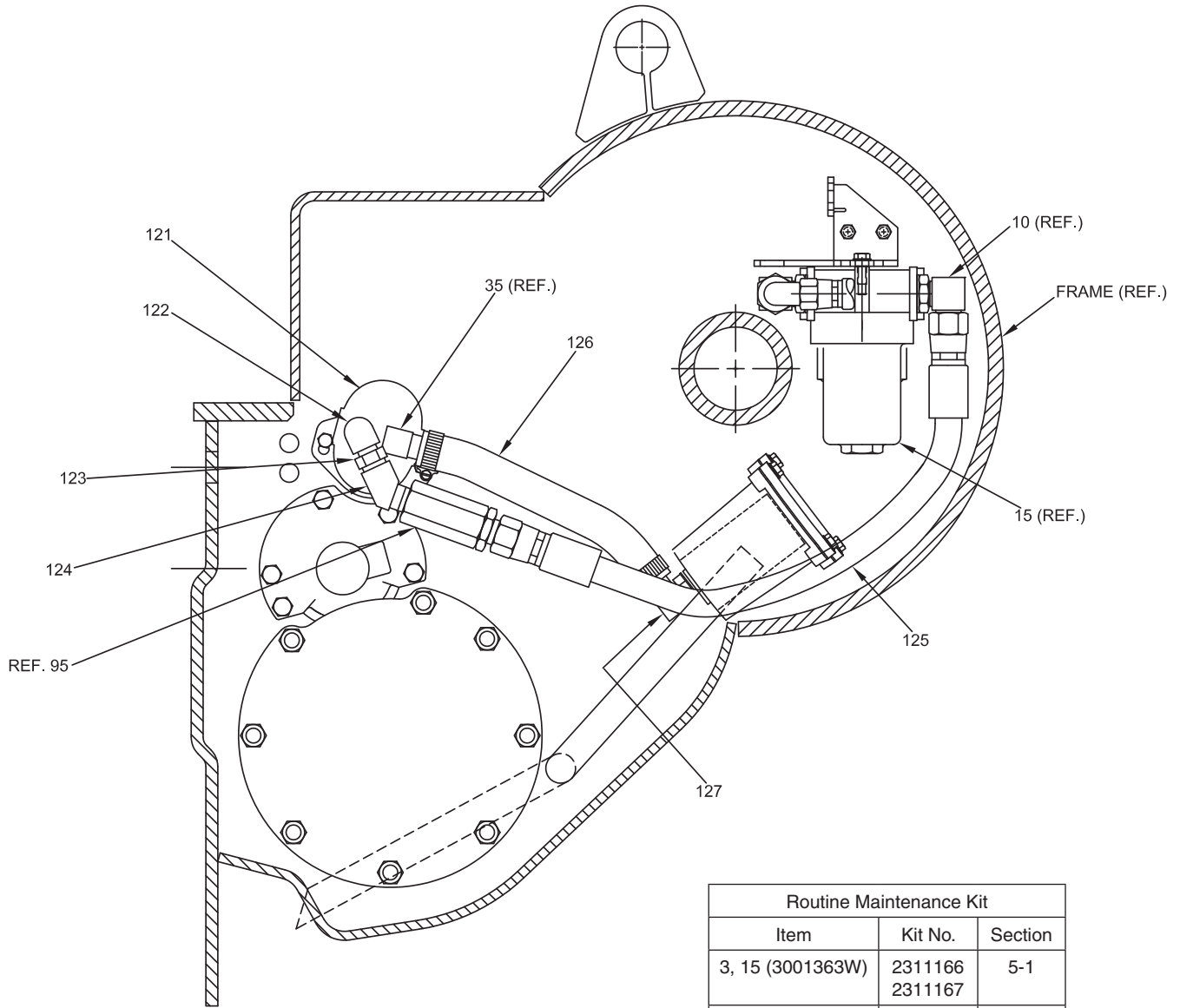
Hydraulic Group - Power Controls

Used on S/N AW8L-2478 thru AW8L-3470 (continued)

HYDRAULIC ARRANGEMENT - LOW SPEED REVERSE

Gear Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1)

Page 3 of 4



Routine Maintenance Kit		
Item	Kit No.	Section
3, 15 (3001363W)	2311166 2311167	5-1
3, 62, 99	277341W	5-1

Hydraulic Group - Power Controls

Used on S/N AW8L-2478 thru AW8L-3470

HYDRAULIC ARRANGEMENT-HIGH SPEED REVERSE

Gear Ratios #1(49.8:1/19.9:1), #2 (71.6:1/38.6:1), #3 (94.0:1/37.6:1), #4 (84.0:1/33.6:1), #5 (90.1:1/36.0:1), #6 (68.8:1/27.5:1), #7 (47.1:1/31.1:1)

Page 4 of 4

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	219172W	Strainer	1	65	225711W	Fitting	1
2	2300936W	Cover	1	67	276094W	Hose Assembly	1
3	2300935W	Gasket (Part of Gasket Kit)	1	68	16948W	Fitting, O-ring	1
4	16805W	Capscrew	4	70	276087W	Hose Assembly	1
5	15156W	Washer	11	71	201800W	Nipple Hose Fitting	1
8	127045W	Clamp	2	81	322679W	Fitting, Specail	1
9	2302963W	Pump (See 3-19)	1	82	277339W	Hose	1
10	16561W	Fitting, O-Ring	2	84	225233W	Connector, Special	1
11	222505W	Fitting, Hose Nip	1	85	16805W	Capscrew	2
13	164703W	Fitting, Special	1	89	259463W	Tube Assembly	1
15	2300183W	Filter Assembly	1	90	177951W	Washer	2
15	3001363W	. Element / O-Ring	1	91	225434W	Tube Assembly	1
	55468W	. . O-Ring	1	92	17309W	Fitting	1
16	165489W	Hose Assembly	1	93	130845W	Clamp, Hose	1
17	16598W	Capscrew	2	94	276097W	Hose Assembly	1
18	15176W	Washer	2	95	271729W	Check Valve	1
19	R16271	Accumulator	1	98	226360W	Block	1
20	2304352W	Bracket	1	99	226359W	Gasket	1
21	2302109W	Clamp	1	100	18591W	Capscrew	1
24	194090W	Capscrew, Sealing	2	101	16379W	Capscrew	1
25	222381W	O-Ring to Pipe Adapter	1	102	209639W	Clamp	2
28	2304360W	Hose Assembly	1	103	17038W	Fitting	1
29	259456W	Tube Assembly	1	104	14595W	O-Ring	1
30	140288W	Hose	1	105	16568W	O-Ring	1
31	277663W	Tube Assembly	1	106	139W	Pin, Rod End	1
32	276095W	Tube Assembly	1	107	15216W	Pin, Cotter	1
33	18001W	Plug	2	108	303946W	Gasket	1
35	2303677W	Fitting	1	109	16550W	Fitting, O-Ring	1
36	88297W	Hose Assembly	1	115	2300301W	Valve, Control (See 3-14)	1
37	16463W	Fitting	1	120	See Chart Below	Cable, Push-Pull	1
38	16923W	Fitting	1	121	2302989W	Pump (See 3-133)	1
39	16989W	Fitting	2	122	2304327W	Fitting	1
40	14500W	Fitting	1	123	16074W	Fitting, Pipe	1
41	14668W	Fitting	1	124	12825W	Fitting	1
42	16987W	Fitting	1	125	124538W	Hose Assembly	1
43	16541W	Fitting, O-ring	2	126	2304359W	Hose Assembly	1
45	83857W	Fitting	2	127	2304358W	Fitting, Special	1
46	16559W	Fitting, O-ring	1	150	276090W	Fitting, Hose	1
48	17300W	Fitting	1	151	2302963W	Pump (See 3-132)	1
49	225232W	Union, Adapter	1	152	274038W	Hose Assembly	1
50	225712W	Fitting	1	153	89669W	Fitting, Tube	1
51	225701W	Manifold, Cooling	1	154	276092W	Hose Assembly	1
52	255433W	Connector	1				
53	14761W	Nut, Fitting	2				
54	19581W	Fitting	2				
55	14723W	Fitting	2				
56	14349W	Fitting	2				
57	198385W	Seal, Capscrew	3				
58	15158W	Washer	4				
61	279392W	Block	1				
62	196022W	Gasket	1				
63	16828W	Capscrew	2				
64	226450W	Valve Assembly	1				

Part No.	Length	Tractor
303939W	64"	CAT D7G
303942W	82"	CAT D7H/D7R & D8H/D8R
303943W	91"	DR TD20E S/N 32501 and up, and TD 20G
303944W	96"	KOM D85E-18 & 21, D83-1 & D135A, D68ESS-12, D85E-SS-2
303945W	120"	FIAT HITACHI FD255

Hydraulic Group - Power Controls

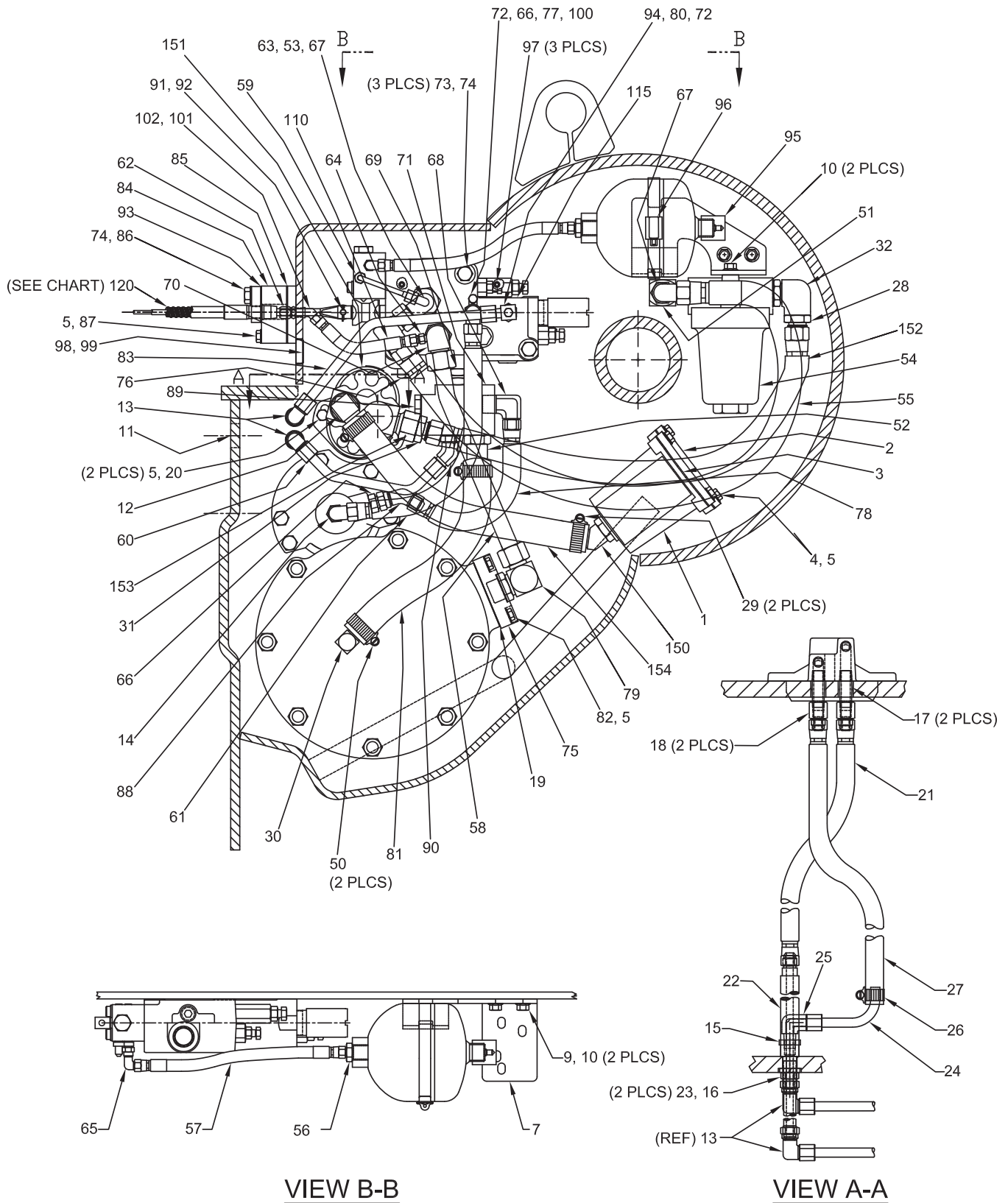
First Used on S/N AW8L-3471

(Overwind Ratios Shown)

Gear Ratios #1(49.8:1/19.9:1), #2 (71.6:1/38.6:1), #3 (94.0:1/37.6:1), #4 (84.0:1/33.6:1),

#5 (90.1:1/36.0:1), #6 (68.8:1/27.5:1), #7 (47.1:1/31.1:1)

Page 1 of 2



Hydraulic Group - Power Controls

First Used on S/N AW8L-3471

(Overwind Ratios Shown)

Gear Ratios #1(49.8:1/19.9:1), #2 (71.6:1/38.6:1), #3 (94.0:1/37.6:1), #4 (84.0:1/33.6:1), #5 (90.1:1/36.0:1), #6 (68.8:1/27.5:1), #7 (47.1:1/31.1:1)

Page 2 of 2

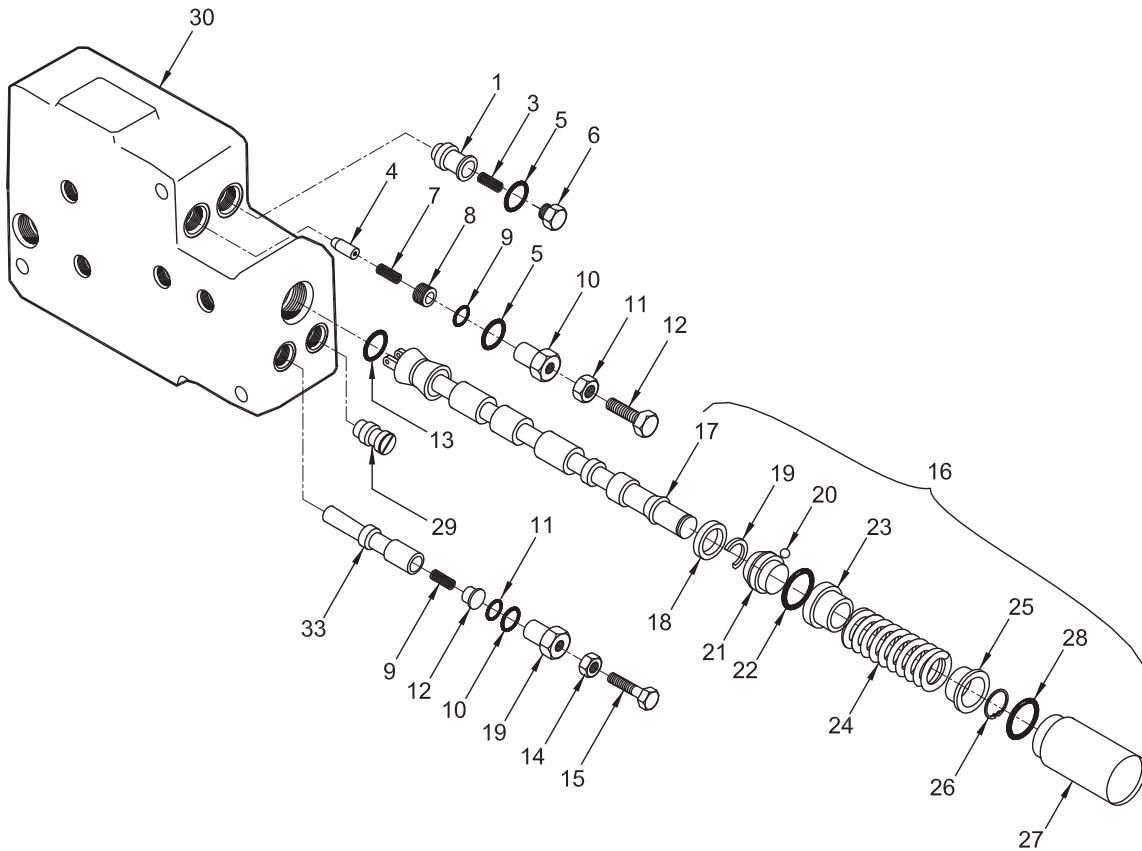
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	219172W	Strainer	1	71	225701W	Manifold, Cooling	1
2	2300936W	Cover	1	72	14349W	Fitting, Pipe	2
3	2300935W	Gasket (Part of Gasket Kit)	1	73	198385W	Capscrew, Seal	3
4	16805W	Capscrew	4	74	15158W	Washer	4
5	15156W	Washer	11	75	279392W	Block	1
7	2305114W	Mounting Bracket	1	76	226450W	Valve Assembly	1
9	246108W	Pipe Thread Sealant	AR	77	225711W	Fitting, Special	1
10	1300780W	Screw, Flanged	4	78	276094W	Hose Assembly	1
11	18001W	Plug	2	79	16948W	Fitting, O-Ring	1
12	2303677W	Fitting, Hose Special	1	80	322679W	Fitting, Special	1
13	16989W	Fitting	2	81	277339W	Hose	1
14	16559W	Fitting, O-Ring	1	82	16828W	Capscrew	2
15	255433W	Connector	1	83	259463W	Tube Assembly	1
16	14761W	Nut, Fitting	2	84	226360W	Block	1
17	19581W	Fitting, Pipe	2	85	226359W	Gasket	1
18	14723W	Fitting	2	86	18591W	Capscrew	1
19	196022W	Gasket	1	87	16379W	Capscrew	1
20	16828W	Capscrew	2	88	17038W	Fitting	1
21	276087W	Hose Assembly	1	89	14595W	O-Ring	1
22	225233W	Connector, Special	1	90	16568W	O-Ring	1
23	177951W	Washer	2	91	139W	Pin, Rod End	1
24	255434W	Tube Assembly	1	92	15216W	Pin, Cotter	1
25	17309W	Fitting	1	93	303946W	Gasket	1
26	130845W	Clamp, Hose	1	94	16550W	Fitting, O-Ring	1
27	276097W	Hose Assembly	1	95	R16271	Accumulator	1
28	2310015	Check Valve	1	96	2302109W	Clamp	1
29	209639W	Clamp, Heavy Duty	2	97	2305986W	Setscrew	2
30	201800W	Fitting, Nipple Hose	1	98	2304823W	Plug	1
31	16543W	Fitting, O-Ring	1	99	257291W	Adhesive	AR
32	2307740W	Fitting	1	100	16151W	Fitting, Pipe	1
50	127045W	Clamp, Hose	2	101	16463W	Fitting	1
51	16561W	Fitting, O-Ring	1	102	236308	Loctite Ultra Blue Sealant	AR
52	222505W	Fitting, Nipple Hose	1	110	140288W	Hose Assembly	1
53	164703W	Fitting, Special	1	115	2300301W	Control Valve (See 3-14)	1
54	2300183W	Filter Assembly	1	120	See Chart Below	Cable, Push-Pull	1
	3001363W	. Element/O-Ring	1	150	276090W	Fitting, Hose	1
	55468W	. . O-Ring	1	151	2302963W	Pump (See 3-132)	1
55	165489W	Hose Assembly	1	152	2307715W	Hose Assembly	1
56	222381W	Fitting, O-Ring	1	153	220153	Fitting	1
57	2304360W	Hose Assembly	1	154	276092W	Hose Assembly	1
58	259456W	Tube Assembly	1				
59	277663W	Tube Assembly	1				
60	276095W	Tube Assembly	1				
61	88297W	Hose Assembly	1				
62	16923W	Fitting	1				
63	14500W	Fitting	1				
64	14668W	Fitting	1				
65	16987W	Fitting	1				
66	16541W	Fitting, O-Ring	2				
67	83857W	Fitting	2				
68	17300W	Fitting, Pipe	1				
69	225232W	Adaptor Union	1				
70	225712W	Fitting, Special	1				

Part No.	Length	Tractor
303939W	64"	CAT D7G Series I
303942W	82"	CAT D7H; D7R Series I/II & D8N; D8R Series I/II
303943W	91"	DR TD20E S/N 32501 and up, and TD 20G; CAT D7G Series II
303944W	96"	KOM D85E-18 & 21; D83-1; D135A; D85ESS-2, D85EX-15; Zoomlion ZD220
303945W	120"	FIAT HITACHI FD255

Routine Maintenance Kit		
Item	Kit No.	Section
3, 54 (3001363W)	2311166 2311167	5-1
3, 19, 85	277341W	5-1

Valve - Power Controls

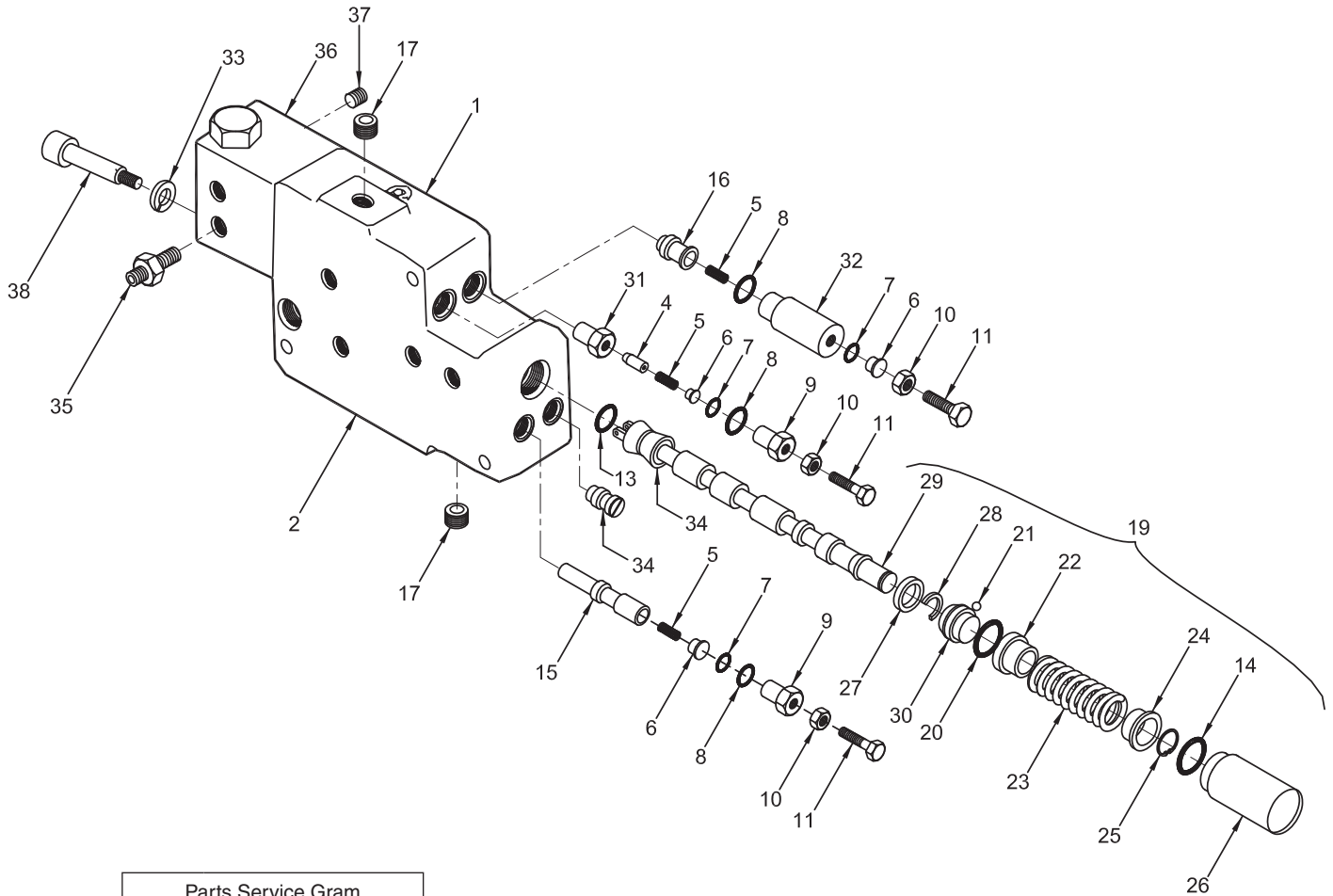
Last Used on S/N W8LP-1599 & S/N AW8L-1000



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	276098W	Valve, Control	1	17	258217W	.. Spool	1
1	196006W	. Spool, Forward Mod.	1	18	258220W	.. Ring	1
3	275508W	. Spring	1	19	196000W	.. Ring	1
4	195991W	. Plunger, Relief	1	20	170987W	.. Ball	8
5	16484W	. O-Ring	3	21	195997W	.. Retainer, Detent	1
6	275507W	. Fitting	1	22	118365W	.. O-Ring	1
7	195992W	. Spring, Relief	2	23	238992W	.. Spacer	1
8	195993W	. Plug	2	24	166911W	.. Spring, Spool	1
9	15860W	. O-Ring	2	25	166905W	.. Retainer, Spring	1
10	196004W	. Fitting	2	26	196002W	.. Ring, Snap	1
11	15027W	. Nut, Jam	2	27	196009W	.. Cap, Spool	1
12	195995W	. Capscrew	2	28	39376W	.. O-Ring	1
13	118361W	. O-Ring	1	29	15314W	. Fitting	1
15	196003W	. Spool, Reverse Mod.	1	30	262080W	. Body, Valve	1
16	262088W	. Spool, PFR	1				

Valve - Power Controls

First Used on S/N W8LP-1600 & Up;
Used on S/N AW8L-1001 thru S/N AW8L-1377

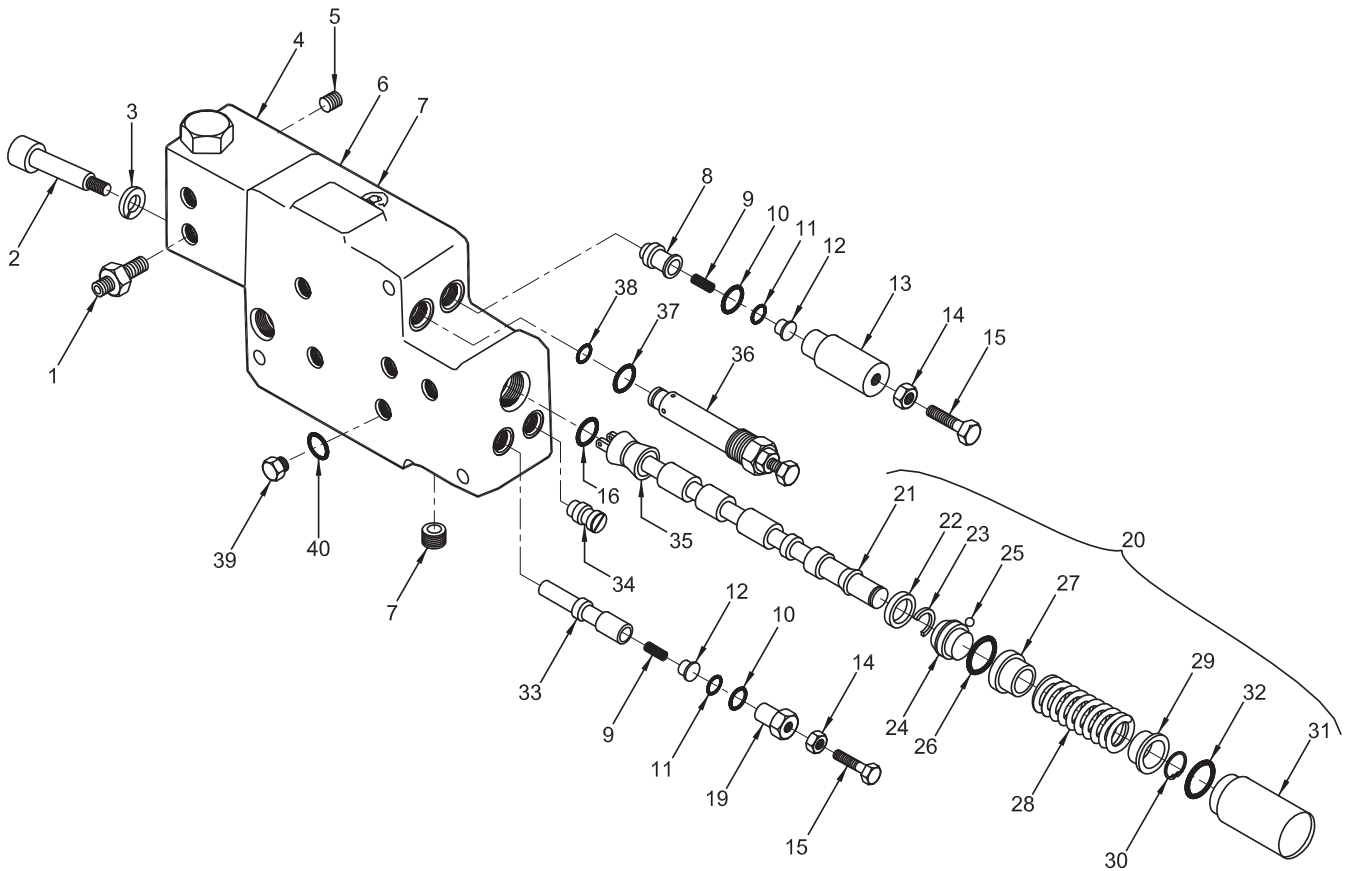


Parts Service Gram	
Item	Gram
34	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	279394W	Valve, Control	1	21	170987W	... Ball	8
1	276098W	. Valve, Control	1	22	238992W	... Spacer	1
2	262080W	.. Body, Valve	1	23	166911W	... Spring, Spool	1
4	195991W	.. Plunger, Relief	1	24	166905W	... Retainer, Spring	1
5	195992W	.. Spring, Relief	2	25	196002W	... Ring, Snap	1
6	195993W	.. Plug	3	26	196009W	... Cap, Spool	1
7	15860W	.. O-Ring	3	27	258220W	... Ring	1
8	16484W	.. O-Ring	3	28	196000W	... Ring	1
9	196004W	.. Fitting	3	29	258217W	... Spool	1
10	15027W	.. Nut, Jam	3	30	195997W	... Retainer, Detent	1
11	195995W	.. Capscrew	2	31	195990W	.. Seat, Relief	1
13	118361W	.. O-Ring	1	32	226445W	.. Fitting	1
14	39376W	.. O-Ring	1	33	15156W	. Lockwasher	1
15	196003W	.. Spool, Reverse Mod.	1	34	68370W	. Pin, Slotted	1
16	196006W	.. Spool, Forward Mod.	1	34	279397W	. Cam	1
17	15962W	.. Fitting	2	35	14668W	. Fitting	2
18	15314W	.. Fitting	1	36	267018W	. Valve	1
19	262088W	.. Spool, PFR	1	37	15483W	. Fitting	2
20	118365W	... O-Ring	1				

Valve - Power Controls

First Used on S/N AW8L-1378



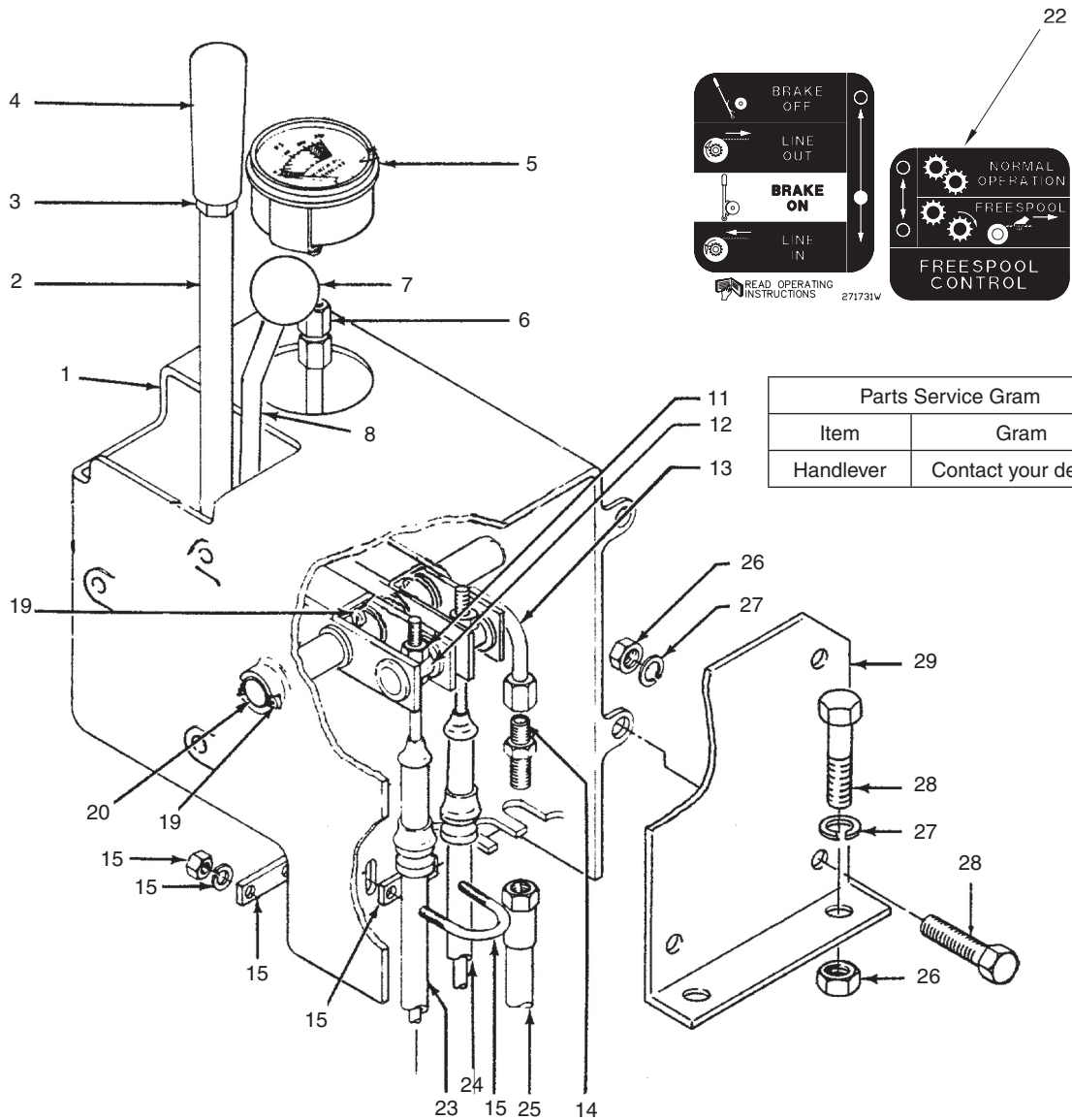
Parts Service Gram	
Item	Gram
35	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2300301W	Valve, Control	1	22	258220W	.. Ring	1
1	14668W	. Fitting	2	23	196000W	.. Ring	1
2	241778W	. Screw	2	24	195997W	.. Retainer, Detent	1
3	15156W	. Lockwasher	2	25	170987W	.. Ball	8
4	267018W	. Valve	1	26	118365W	.. O-Ring	1
5	15483W	. Fitting	2	27	238992W	.. Spacer	1
6	262080W	. Body, Valve	1	28	166911W	.. Spring, Spool	1
7	15962W	. Fitting	2	29	166905W	.. Retainer, Spring	1
8	196006W	. Spool, Forward Mod.	1	30	196002W	.. Ring, Snap	1
9	195992W	. Spring, Relief	2	31	196009W	.. Cap, Spool	1
10	16484W	. O-Ring	2	32	39376W	.. O-Ring	1
11	15860W	. O-Ring	2	33	196003W	. Spool, Reverse Mod.	1
12	195993W	. Plug	2	34	15314W	. Fitting	1
13	226445W	. Fitting	1	35	279397W	. Cam	1
14	15027W	. Nut, Jam	2	35	68370W	. Pin, Slotted	1
15	195995W	. Capscrew	2	36	2300308W	. Relief	1
16	118361W	. O-Ring	1	37	16484W	.. O-Ring	1
19	196004W	. Fitting	1	38	265787W	.. O-Ring	1
20	262088W	. Spool, PFR	1	39	14595W	. Fitting	1
21	258217W	.. Spool	1	40	209744	.. O-Ring	1

Handling Gear - Power Controls

Caterpillar 572 (C60) w/ FREESPOOL

Last Used During 1993

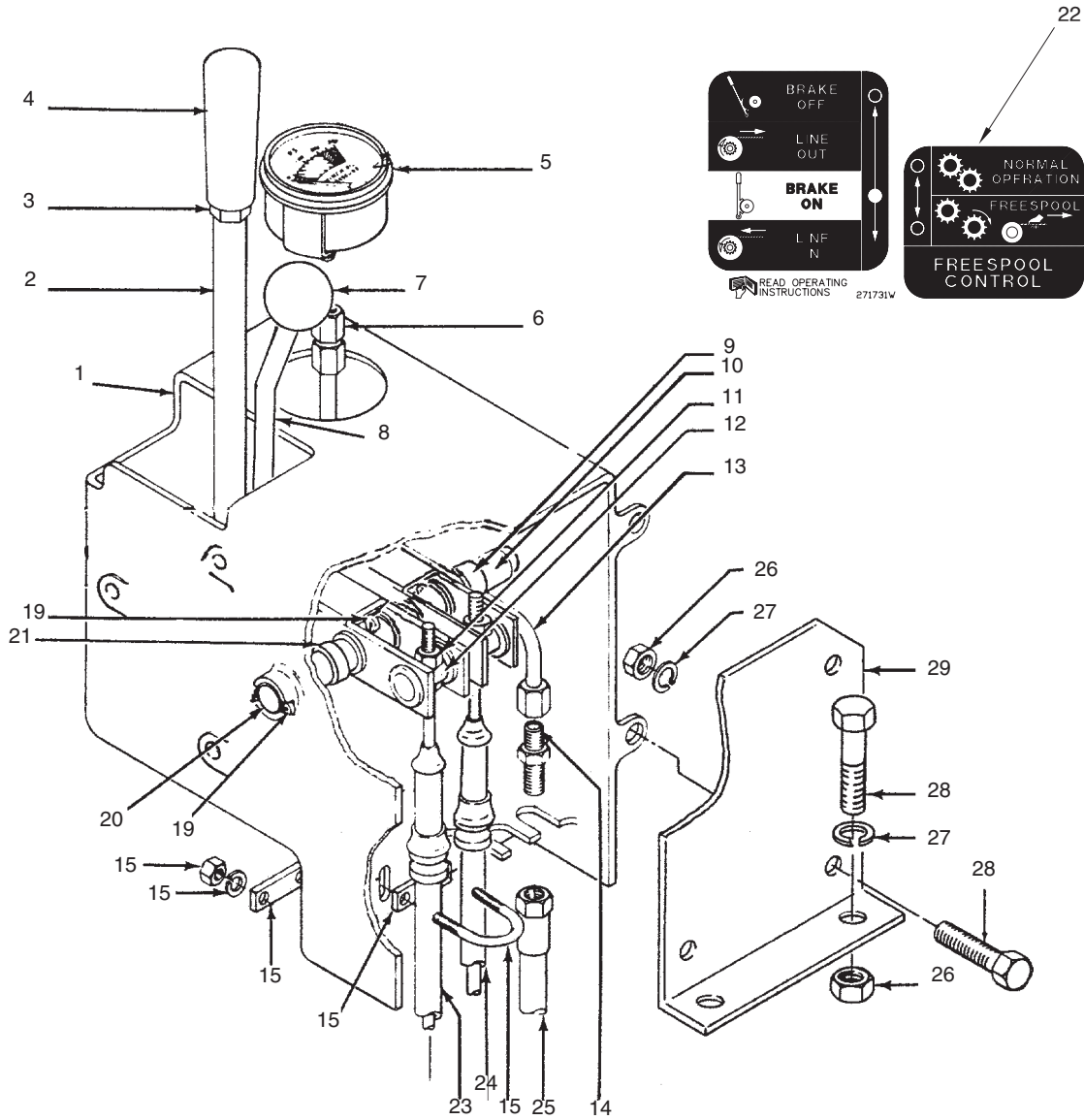


Parts Service Gram	
Item	Gram
Handler	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	15	2300995W	. U-Bolt Kit	2
2	196465W	. Lever	1		NSS	. Cup Plate	1
	196144W	. Bushing	4		NSS	. Plate	1
3	15030W	. Nut	1		NSS	. Star Washer	2
4	2303105W	. Knob	1		NSS	. Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	22	271731W	. Decal	1
8	243188W	. Lever	1	23	303939W	Cable, Control	1
	196144W	. Bushing	4	24	303939W	Cable, Freespool	1
11	18425W	. Lockwasher	2	25	165504W	Hose	1
	15106W	. Locknut	2	26	15056W	Nut	2
12	196128W	. Pin	2	27	15156W	Lockwasher	2
13	196134W	. Tube	1	28	16805W	Capscrew	2
14	16445W	. Fitting	1	29	NSS	Bracket	1

Handling Gear - Power Controls

Caterpillar 572 (C60) w/ FREESPOOL
 First Used on S/N W8LP-1578 and S/N AW8L-1001

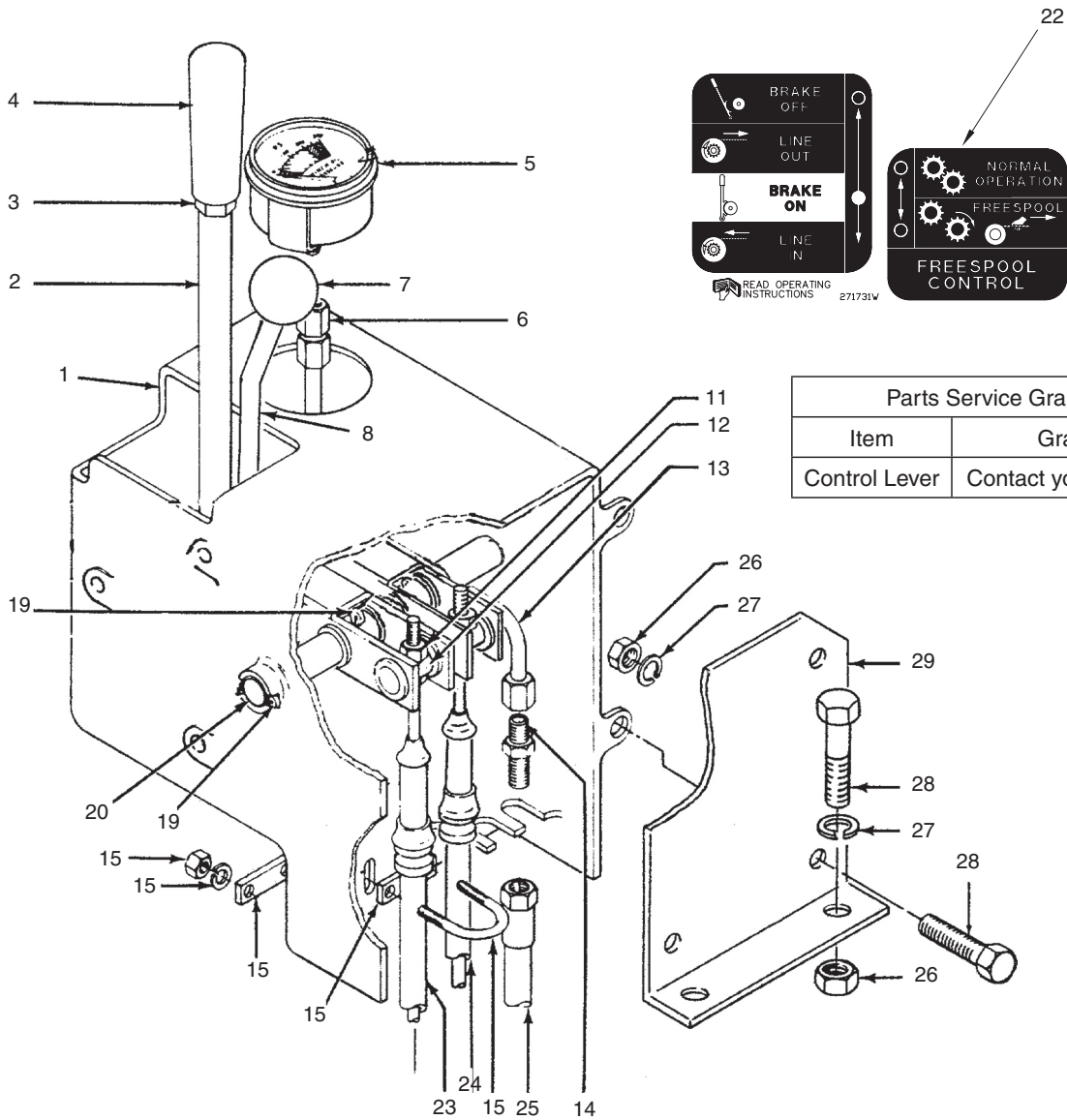


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	14	16445W	. Fitting	1
2	276031W	. Lever	1	15	2300995W	. U-Bolt Kit	2
	196144W	.. Bushing	2		NSS	.. Cup Plate	1
	276043W	.. Bushing	1		NSS	.. Plate	1
3	15030W	. Nut	1		NSS	.. Star Washer	2
4	2303105W	. Knob	1		NSS	.. Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	21	15135W	. Washer	3
8	276032W	. Lever	1	22	271731W	. Decal	1
	196144W	.. Bushing	2	23	303939W	Cable, Control	1
	276043W	.. Bushing	1	24	303939W	Cable, Freespool	1
9	391016W	. Washer	1	25	165504W	Hose	1
10	271746W	. Spacer	1	26	15056W	Nut	2
11	18425W	. Lockwasher	2	27	15156W	Lockwasher	2
	15106W	. Locknut	2	28	16805W	Capscrew	2
12	196128W	. Pin	2	29	NSS	Bracket	1
13	196134W	. Tube	1				

Handling Gear - Power Controls

Caterpillar D7G (C51) w/ FREESPOOL

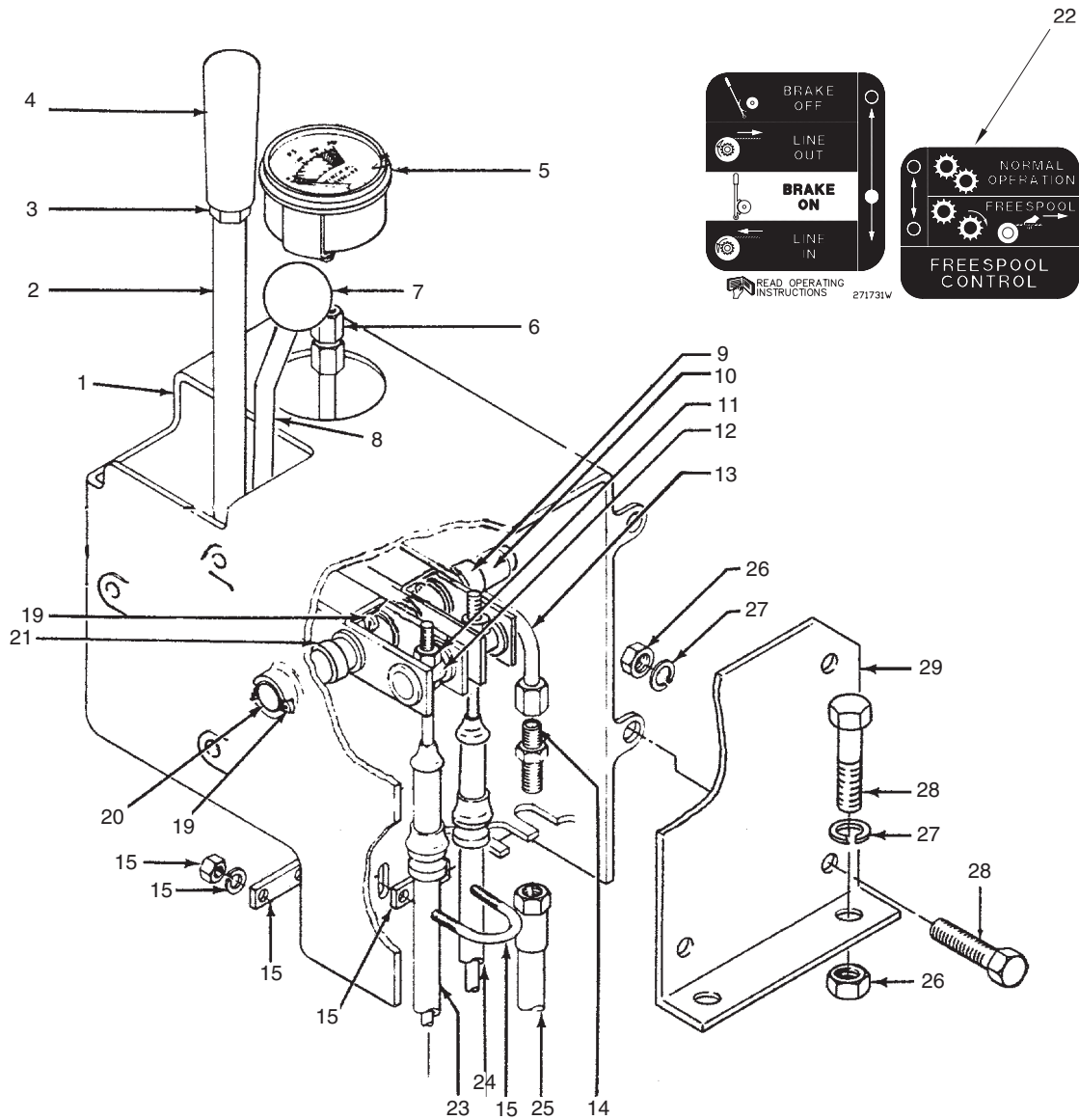
Last Used During 1993



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	15	2300995W	. U-Bolt Kit	2
2	196465W	. Lever	1		NSS	. . Cup Plate	1
	196144W	. . Bushing	4		NSS	. . Plate	1
3	15030W	. Nut	1		NSS	. . Star Washer	2
4	2303105W	. Knob	1		NSS	. . Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	22	271731W	. Decal	1
8	243188W	. Lever	1	23	303939W	Cable, Control	1
	196144W	. . Bushing	4	24	303939W	Cable, Freespool	1
11	18425W	. Lockwasher	2	25	165504W	Hose	1
	15106W	. Locknut	2	26	15056W	Nut	2
12	196128W	. Pin	2	27	15156W	Lockwasher	2
13	196134W	. Tube	1	28	16805W	Capscrew	2
14	16445W	. Fitting	1	29	NSS	Bracket	1

Handling Gear - Power Controls

Caterpillar D7G (C51) w/ FREESPOOL
 First Used on S/N W8LP-1578 and S/N AW8L-1001



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	14	16445W	. Fitting	1
2	276031W	. Lever	1	15	2300995W	. U-Bolt Kit	2
	196144W	.. Bushing	2		NSS	.. Cup Plate	1
	276043W	.. Bushing	1		NSS	.. Plate	1
3	15030W	. Nut	1		NSS	.. Star Washer	2
4	2303105W	. Knob	1		NSS	.. Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	21	15135W	. Washer	3
8	276032W	. Lever	1	22	271731W	. Decal	1
	196144W	.. Bushing	2	23	303939W	Cable, Control	1
	276043W	.. Bushing	1	24	303939W	Cable, Freespool	1
9	391016W	. Washer	1	25	165504W	Hose	1
10	271746W	. Spacer	1	26	15056W	Nut	2
11	18425W	. Lockwasher	2	27	15156W	Lockwasher	2
	15106W	. Locknut	2	28	16805W	Cap screw	2
12	196128W	. Pin	2	29	NSS	Bracket	1
13	196134W	. Tube	1				

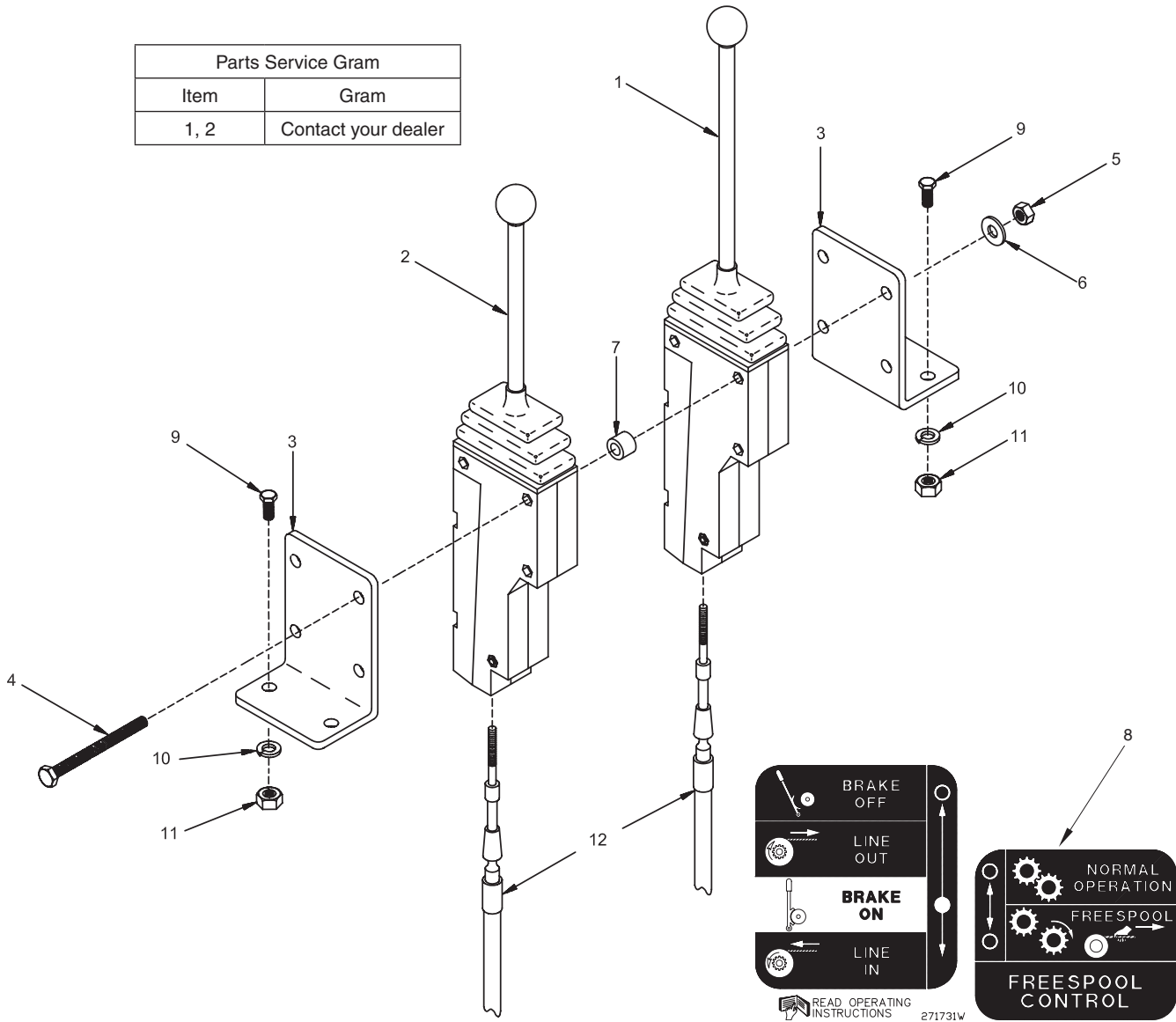
Handling Gear - Power Controls

Caterpillar D7G (C51) w/ FREESPOOL

First Used During 1993

Last Used on S/N AW8L-2292

Parts Service Gram	
Item	Gram
1, 2	Contact your dealer

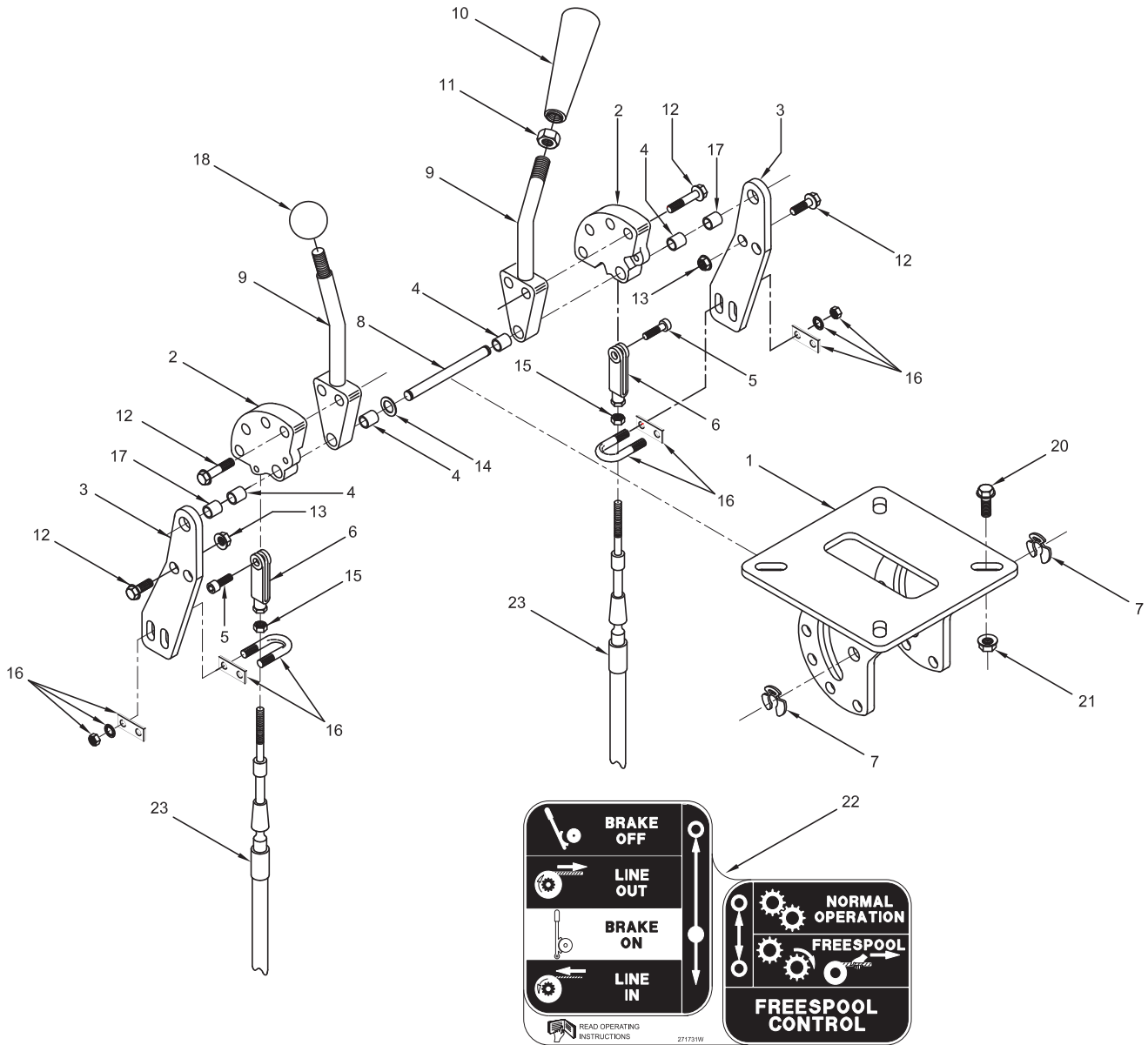


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1300785W	Lever, Control (see 3-94)	1	7	16168W	Fitting	3
2	383880W	Control Lever, Freespool (see 3-93)	1	8	271731W	Decal	1
3	2300377W	Bracket	2	9	16805W	Capscrew	4
4	18530W	Capscrew	3	10	15156W	Lockwasher	4
5	191941W	Nut	3	11	15056W	Nut	4
6	18515W	Washer	3	12	303939W	Cable	1

Handling Gear - Power Controls

Caterpillar D7G (C51, C52) w/ FREESPOOL

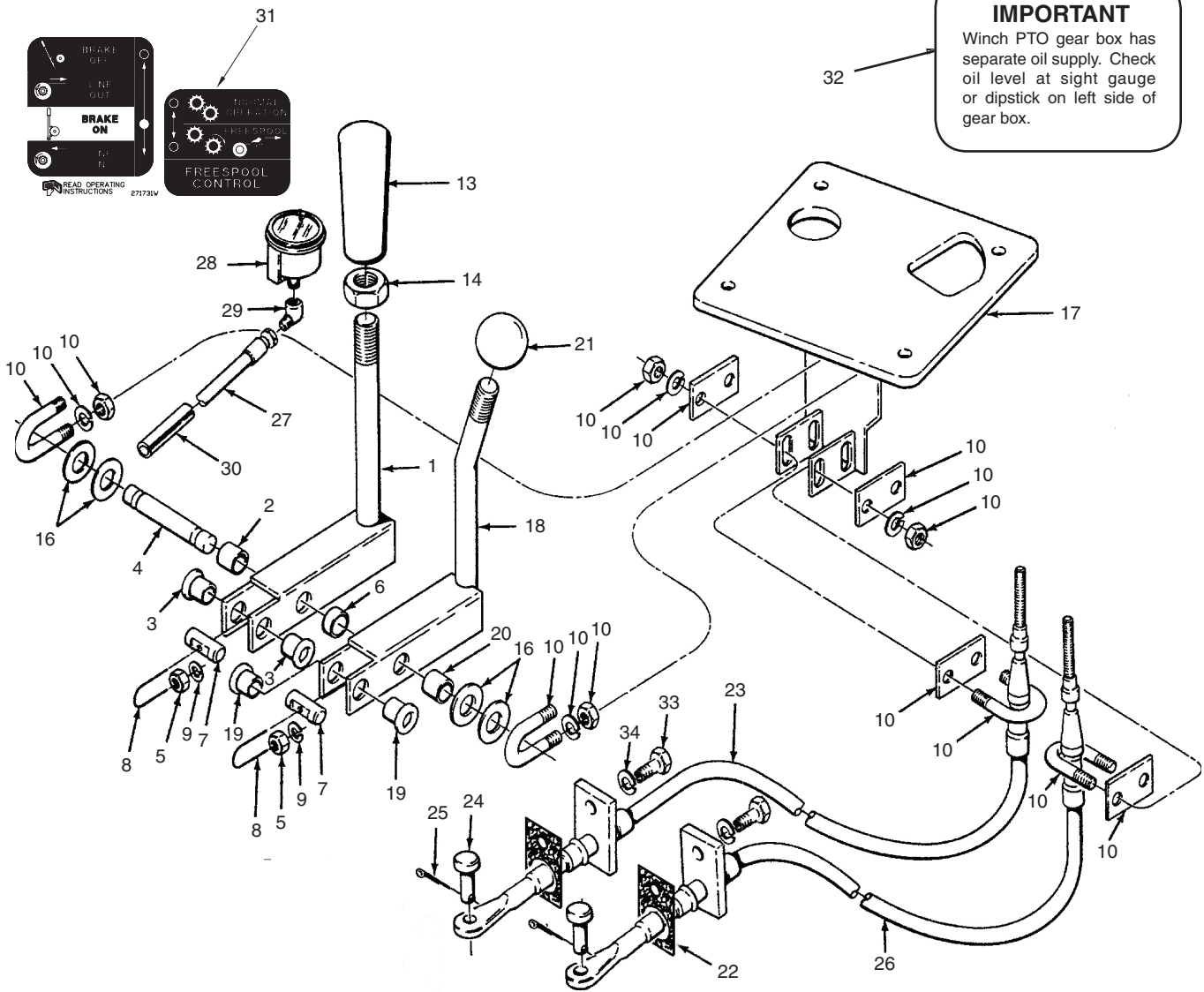
First Used on S/N AW8L-2293



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303167W	Assembly, Control Lever	1				
1	2303169W	. Bracket, Control Lever	1	14	2303222W	. Shim	AR
2	2303172W	. Plate, Pivot	2	15	15024W	. Nut, Jam	2
3	2303173W	. Plate, Angle Adjust	2	16	2300995W	. U-Bolt Kit	2
4	2303174W	. Bushing	4		NSS	. . Cup Plate	1
5	2303175W	. Capscrew	2		NSS	. . Plate	1
6	2303176W	. End, Rod	2		NSS	. . Star Washer	2
7	2303177W	. Clip, Ring	2		NSS	. . Nut	2
8	2303178W	. Pin	1	17	2303223W	. Spacer	2
9	2303180W	. Lever, Control	2	18	243189W	. Round Knob	1
10	2303181W	. Knob	1	20	134803W	Screw, Flange	4
11	15011W	. Nut, Jam	1	21	156133W	Nut, Flange	4
12	174413W	. Screw, Flange	4	22	271731W	Decal	1
13	156133W	. Nut, Flange	2	23	303939W	Cable	2

Handling Gear - Power Controls

Caterpillar D7H (C54) Prior to SN 5TJ0001 w/ FREESPOOL
Used on S/N W8L-3191 & AW8L-1001 thru AW8L-2292

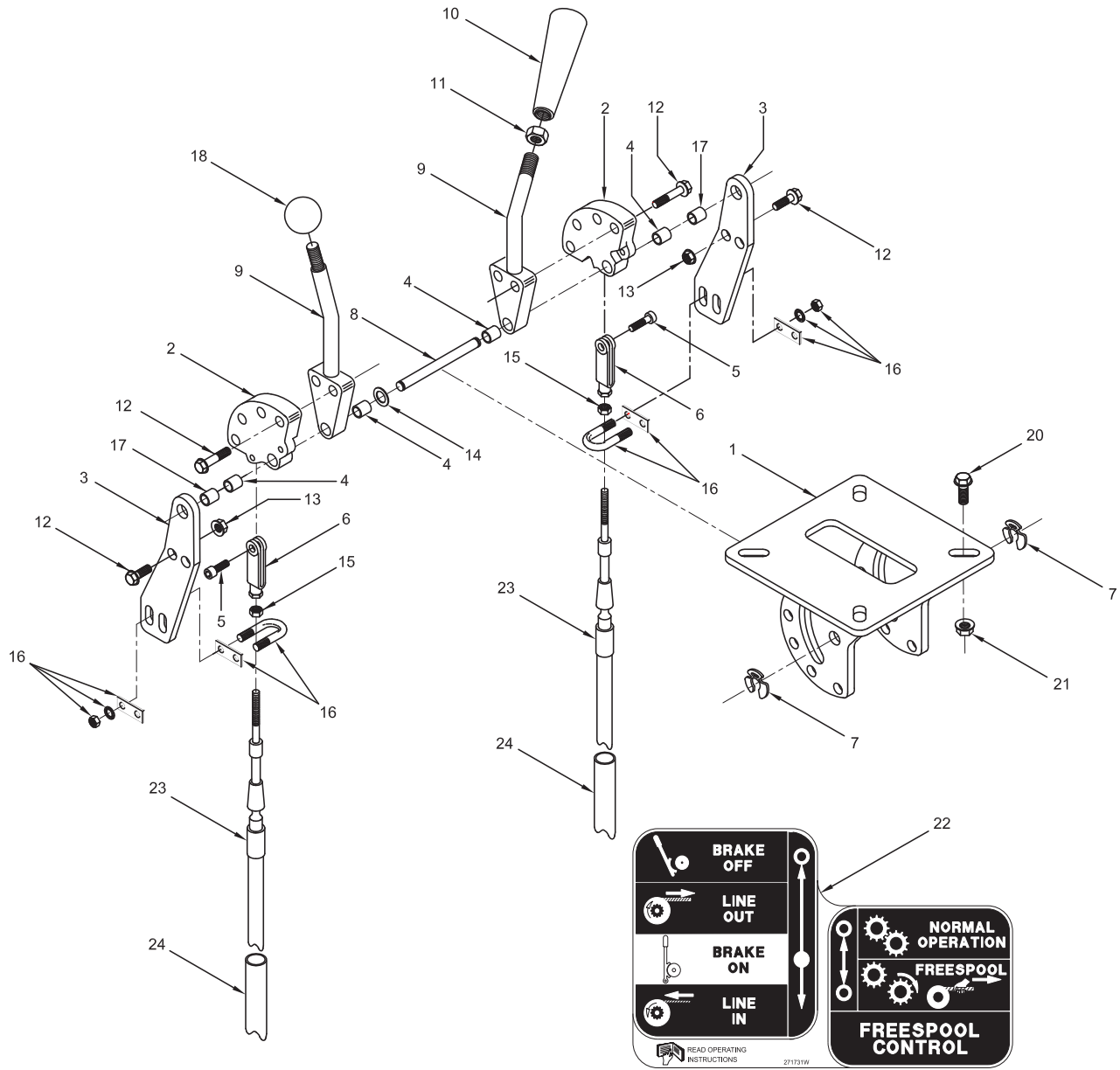


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	276031W	Lever	1	19	196144W	. Bushing	2
2	276043W	. Bushing	1	20	276043W	. Bushing	1
3	196144W	. Bushing	2	21	243189W	Knob	1
4	276081W	Pin	1	22	303946W	Gasket	2
5	15106W	Locknut	2	23	303942W	Cable, Control	1
6	77418W	Block, Round	1	24	139W	Pin	2
7	196128W	Pin	2	25	15212W	Pin, Cotter	2
8	67355W	Wire	AR	26	303939W	Cable, Freespool	1
9	18425W	Lockwasher	2	27	*a 205006W	Hose	1
10	2300995W	U-Bolt Kit	4	28	*a 192407W	Gauge, Oil Press	1
	NSS	. Cup Plate	1	29	*a 381166W	Fitting	1
	NSS	. Plate	1	30	*a 381181W	Guard	1
	NSS	. Star Washer	2	31	271731W	Decal	1
	NSS	. Nut	2	32	*a 379491W	Decal	1
13	2303105W	Knob	1	33	18591W	Capscrew	2
14	15030W	Nut, Jam	1	34	15158W	Washer	2
16	15135W	Flatwasher,	4				
17	379460W	Bracket	1				
18	276032W	Lever	1				
				*a	Last Used on S/N AW8L-1001		

Handling Gear - Power Controls

Caterpillar D7H (C54) w/ FREESPOOL

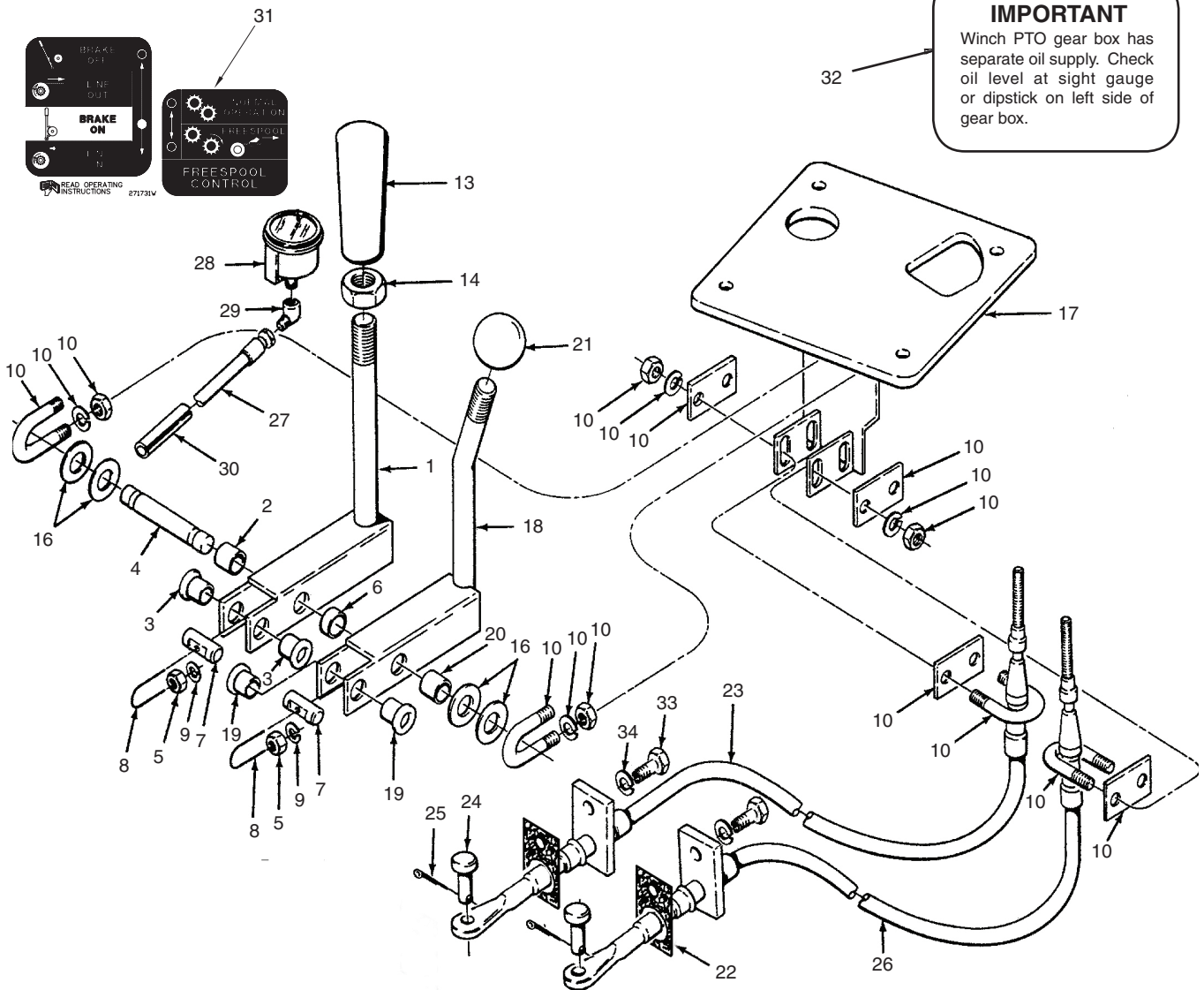
First Used on S/N AW8L-2293



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303167W	Assembly, Control Lever	1				
1	2303169W	. Bracket, Control Lever	1	15	15024W	. Nut, Jam	2
2	2303172W	. Plate, Pivot	2	16	2300995W	. U-Bolt Kit	2
3	2303173W	. Plate, Angle Adjust	2		NSS	. Cup Plate	1
4	2303174W	. Bushing	4		NSS	. Plate	1
5	2303175W	. Capscrew	2		NSS	. Star Washer	2
6	2303176W	. End, Rod	2		NSS	. Nut	2
7	2303177W	. Clip, Ring	2	17	2303223W	. Spacer	2
8	2303178W	. Pin	1	18	243189W	. Round Knob	1
9	2303180W	. Lever, Control	2	20	174413W	Screw, Flange	4
10	2303181W	. Knob	1	21	156133W	Nut, Flange	4
11	15011W	. Nut, Jam	1	22	271731W	Decal	1
12	174413W	. Screw, Flange	4	23	303942W	Cable	2
13	156133W	. Nut, Flange	2	24	381181W	Guard, Cable	2
14	2303222W	. Shim	AR				

Handling Gear - Power Controls

Caterpillar D7R PS (C57) Prior to SN 5TJ0001 w/ FREESPOOL
Used on S/N W8L-3191 & AW8L-1001 thru S/N AW8L-2292

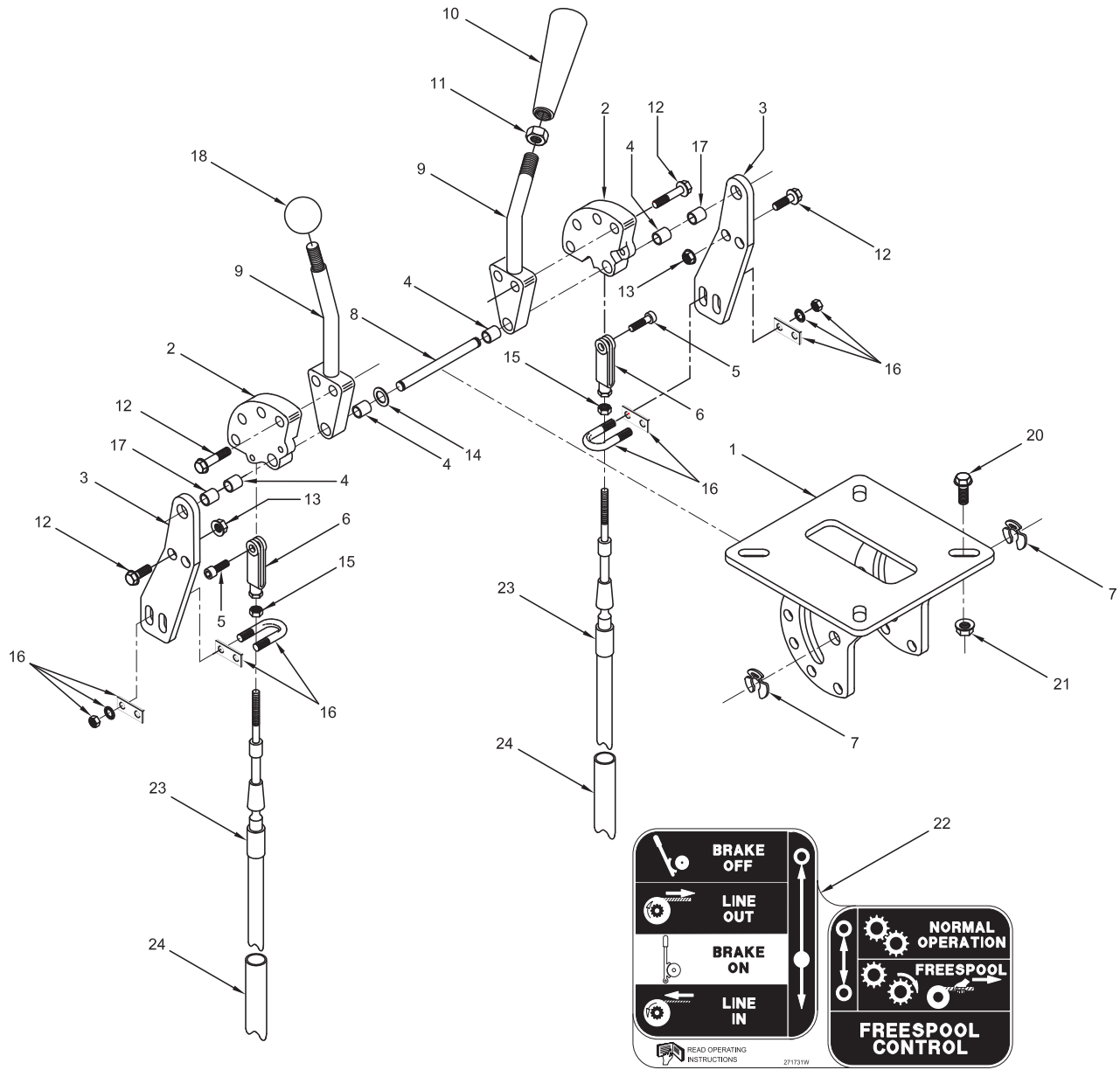


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	276031W	Lever	1	19	196144W	. Bushing	2
2	276043W	. Bushing	1	20	276043W	. Bushing	1
3	196144W	. Bushing	2	21	243189W	Knob	1
4	276081W	Pin	1	22	303946W	Gasket	2
5	15106W	Locknut	2	23	303942W	Cable, Control	1
6	77418W	Block, Round	1	24	139W	Pin	2
7	196128W	Pin	2	25	15212W	Pin, Cotter	2
8	67355W	Wire	AR	26	303939W	Cable, Freespool	1
9	18425W	Lockwasher	2	27	*a 205006W	Hose	1
10	2300995W	U-Bolt Kit	4	28	*a 192407W	Gauge, Oil Press	1
	NSS	. Cup Plate	1	29	*a 381166W	Fitting	1
	NSS	. Plate	1	30	*a 381181W	Guard	1
	NSS	. Star Washer	2	31	271731W	Decal	1
	NSS	. Nut	2	32	*a 379491W	Decal	1
13	2303105W	Knob	1	33	18591W	Capscrew	2
14	15030W	Nut, Jam	1	34	15158W	Washer	2
16	15135W	Washer	4				
17	379460W	Bracket	1				
18	276032W	Lever	1				
				*a	Last Used on S/N AW8L-1001		

Handling Gear - Power Controls

Caterpillar D7H (C54) w/ FREESPOOL

First Used on S/N AW8L-2293



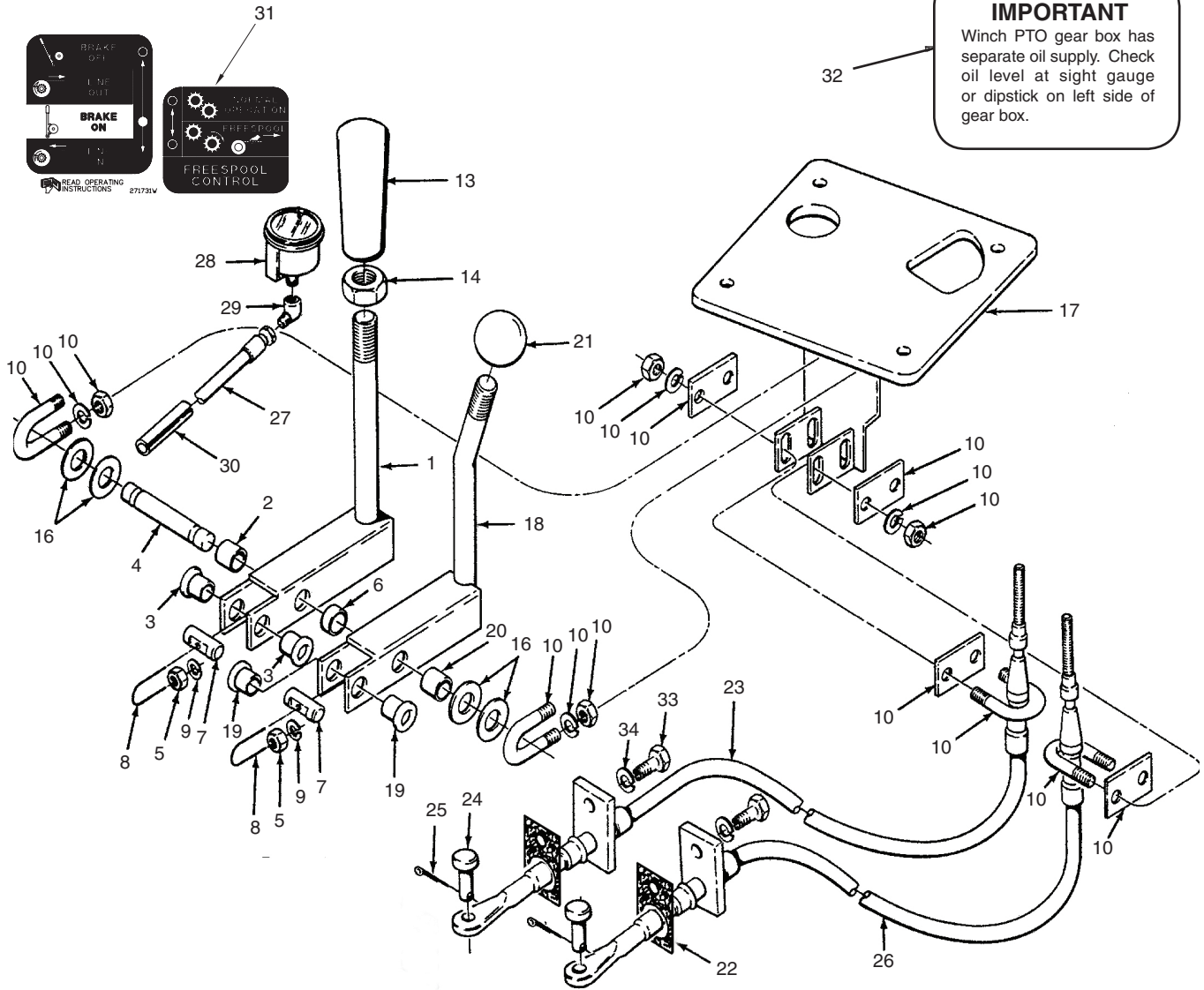
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303167W	Assembly, Control Lever	1				
1	2303169W	. Bracket, Control Lever	1	15	15024W	. Nut, Jam	2
2	2303172W	. Plate, Pivot	2	16	2300995W	. U-Bolt Kit	2
3	2303173W	. Plate, Angle Adjust	2		NSS	. Cup Plate	1
4	2303174W	. Bushing	4		NSS	. Plate	1
5	2303175W	. Capscrew	2		NSS	. Star Washer	2
6	2303176W	. End, Rod	2		NSS	. Nut	2
7	2303177W	. Clip, Ring	2	17	2303223W	. Spacer	2
8	2303178W	. Pin	1	18	243189W	. Round Knob	1
9	2303180W	. Lever, Control	1	20	174413W	Screw, Flange	4
10	2303181W	. Knob	2	21	156133W	Nut, Flange	4
11	15011W	. Nut, Jam	1	22	271731W	Decal	1
12	174413W	. Screw, Flange	4	23	303942W	Cable	2
13	156133W	. Nut, Flange	2	24	381181W	Guard, Cable	2
14	2303222W	. Shim	AR				

Handling Gear - Power Controls

Caterpillar D7R PS (C57) Prior to SN 5TJ0001 w/ FREESPOOL

Used on S/N W8L-3191 & AW8L-1001 thru AW8L-2292

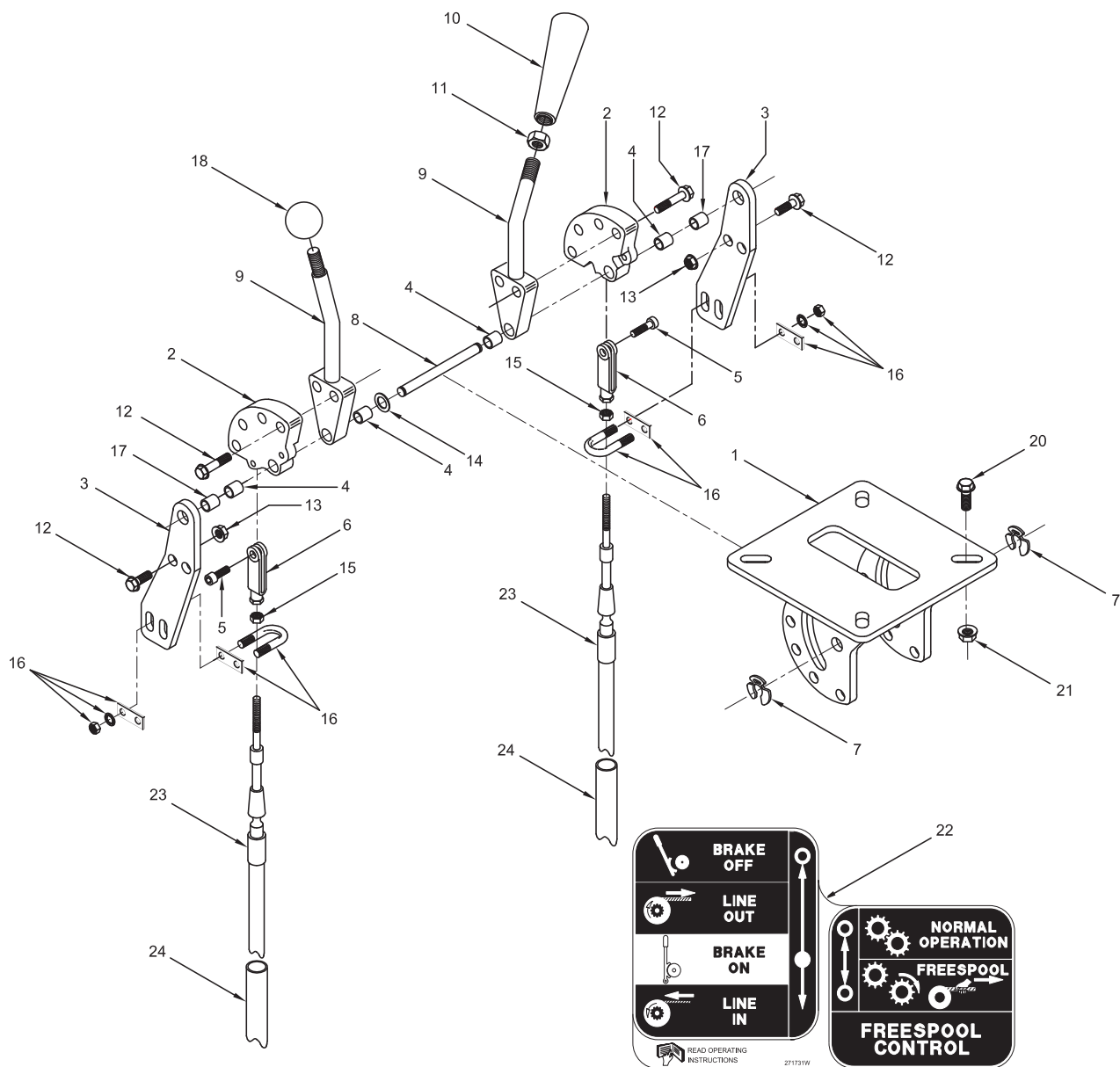
IMPORTANT
Winch PTO gear box has separate oil supply. Check oil level at sight gauge or dipstick on left side of gear box.



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	276031W	Lever	1	19	196144W	. Bushing	2
2	276043W	. Bushing	1	20	276043W	. Bushing	1
3	196144W	. Bushing	2	21	243189W	Knob	1
4	276081W	Pin	1	22	303946W	Gasket	2
5	15106W	Locknut	2	23	303942W	Cable, Control	1
6	77418W	Block, Round	1	24	139W	Pin	2
7	196128W	Pin	2	25	15212W	Pin, Cotter	2
8	67355W	Wire	AR	26	303939W	Cable, Freespool	1
9	18425W	Lockwasher	2	27	*a 205006W	Hose	1
10	2300995W	U-Bolt Kit	4	28	*a 192407W	Gauge, Oil Press	1
	NSS	. Cup Plate	1	29	*a 381166W	Fitting	1
	NSS	. Plate	1	30	*a 381181W	Guard	1
	NSS	. Star Washer	2	31	271731W	Decal	1
	NSS	. Nut	2	32	*a 379491W	Decal	1
13	2303105W	Knob	1	33	18591W	Capscrew	2
14	15030W	Nut, Jam	1	34	15158W	Washer	2
16	15135W	Washer,	4				
17	379460W	Bracket	1				
18	276032W	Lever	1				
				*a	Last Used on S/N AW8L-1001		

Handling Gear - Power Controls

Caterpillar D7R PS (C57) w/ FREESPOOL
Used on S/N AW8L-2293 thru S/N AW8L-2488

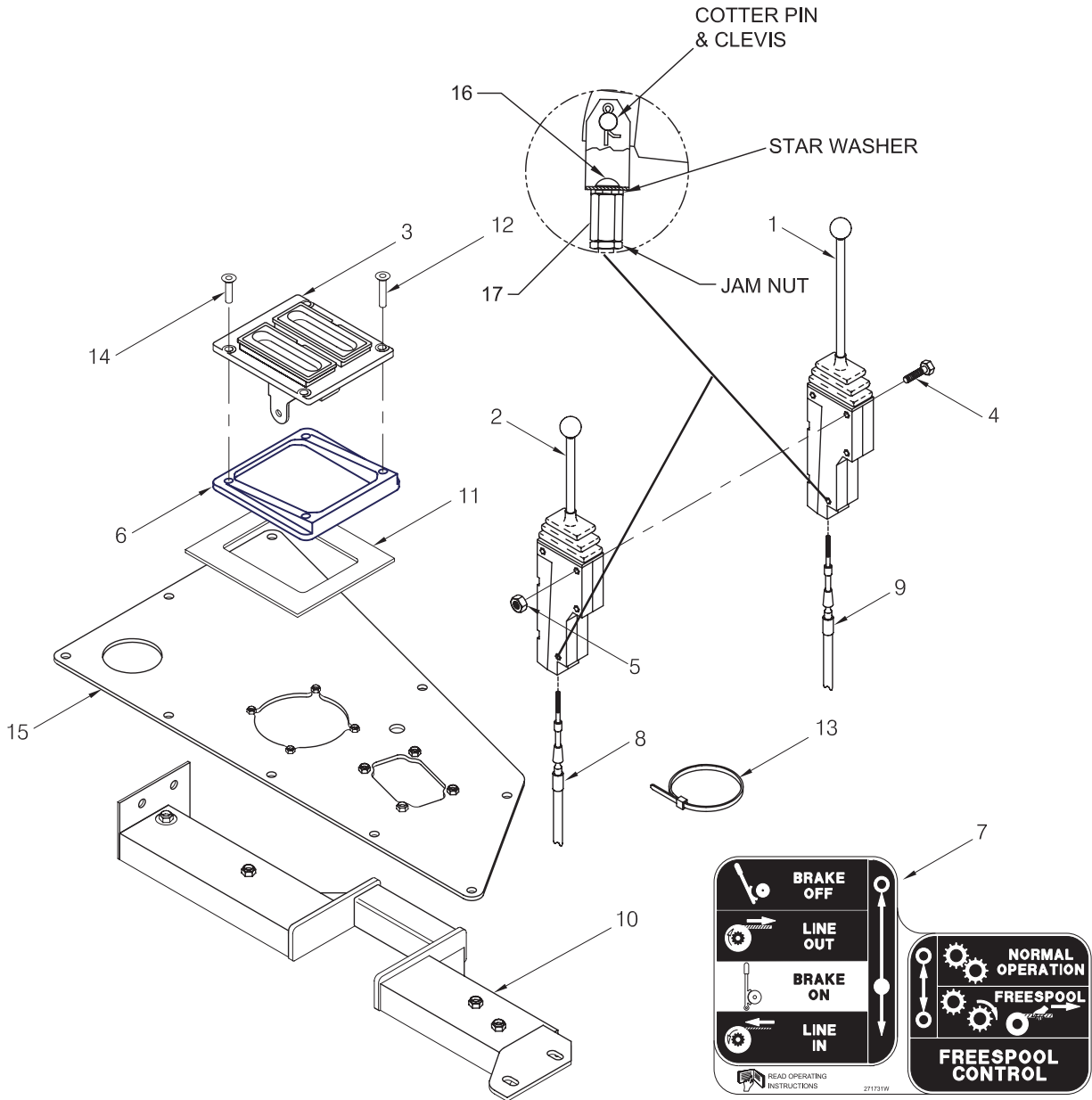


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303167W	Assembly, Control Lever	1				
1	2303169W	. Bracket, Control Lever	1	15	15024W	. Nut, Jam	2
2	2303172W	. Plate, Pivot	2	16	2300995W	. U-Bolt Kit	2
3	2303173W	. Plate, Angle Adjust	2		NSS	. Cup Plate	1
4	2303174W	. Bushing	4		NSS	. Plate	1
5	2303175W	. Capscrew	2		NSS	. Star Washer	2
6	2303176W	. End, Rod	2		NSS	. Nut	2
7	2303177W	. Clip, Ring	2	17	2303223W	. Spacer	2
8	2303178W	. Pin	1	18	243189W	. Round Knob	1
9	2303180W	. Lever, Control	2	20	174413W	Screw, Flange	4
10	2303181W	. Knob	1	21	156133W	Nut, Flange	4
11	15011W	. Nut, Jam	1	22	271731W	Decal	1
12	174413W	. Screw, Flange	4	23	303942W	Cable	2
13	156133W	. Nut, Flange	2	24	381181W	Guard, Cable	2
14	2303222W	. Shim	AR				

Handling Gear - Power Controls

Caterpillar D7R (C54) w/ FREESPOOL

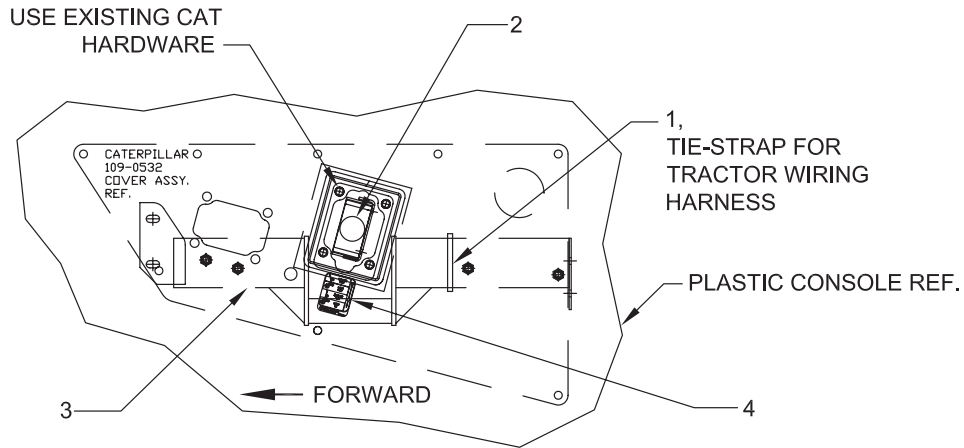
First Used on S/N AW8L-2489



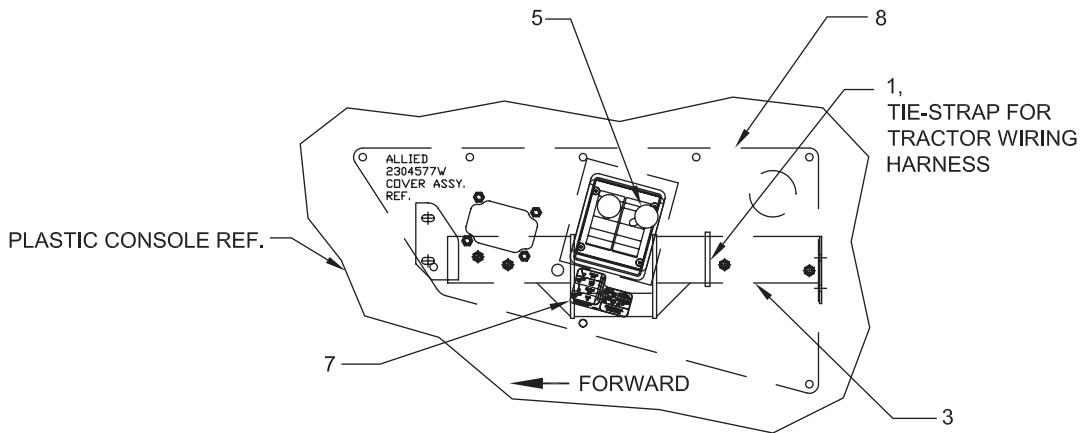
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2304899W	Assembly, Control Lever	1				
1	2303982W	. Lever, Control (See 3-95)	1	10	2304571W	Assembly, Channel	1
2	2303986W	. Control Lever, FS (See 3-95)	1	11	2304569W	Gasket	1
3	2304898W	. Bracket, Control Lever - w/ FS	1	12	2304881W	Capscrew	2
4	2304878W	. Capscrew	3	13	129563W	Clamp, Strap	1
5	15113W	. Nut	3	14	18723W	Capscrew	2
6	2304879W	Spacer - w /FS	1	15	2304577W	Assembly, Cover	1
7	271731W	Decal - w/ FS	1	16	18717W	Capscrew	2
8	303942W	Cable, Freespool	1	17	383881W	Nut, Tall	2
9	303944W	Cable, Control	1	18	2301055W	Trim, Vinyl (Not Shown)	2ft

Handling Gear - Power Controls

Caterpillar D7R (C54) w/ and w/o FREESPOOL



D7R
HANDLEVER ASSY. INSTALLATION W/O FS
 (WITH CAB TRACTOR SHOWN)

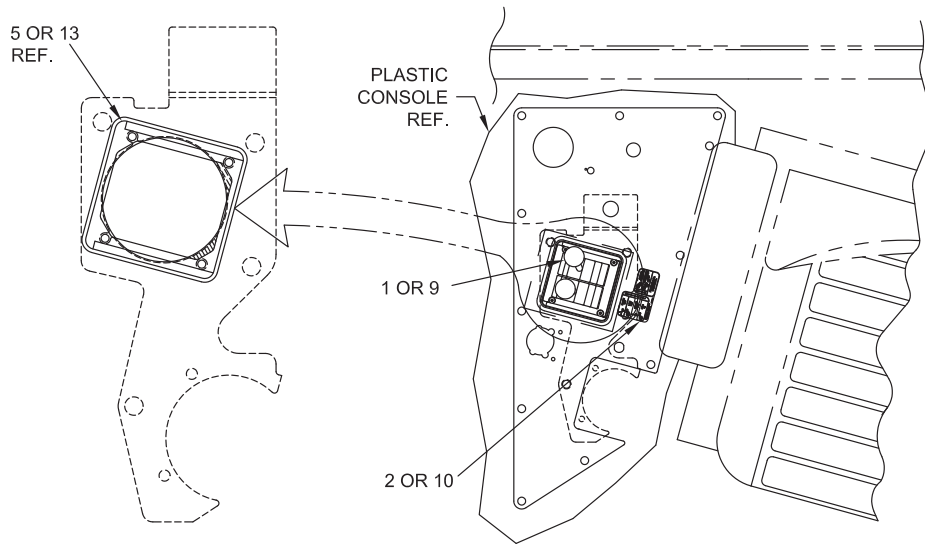


D7R
HANDLEVER ASSY. INSTALLATION W/ FS
 (WITH CAB TRACTOR SHOWN)

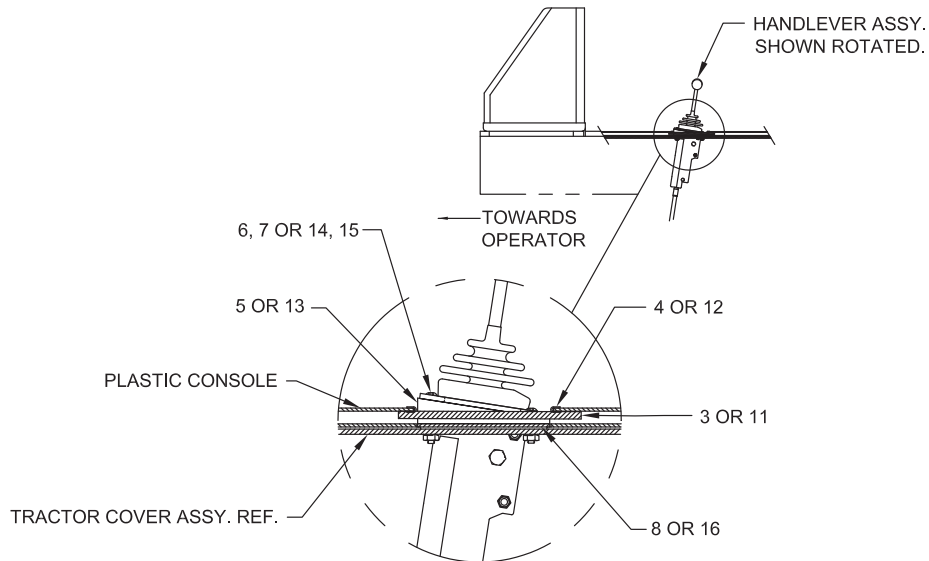
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	129563W	Clamp, Strap	2	5	2304899W	Assembly, Control Lever, w/ FS (See 3-34)	1
2	2304557W	Assembly, Control Lever, w/o FS (See 3-95)	1	6	271731W	Decal, w/ FS	1
3	2304571W	Assembly, Channel	2	7	2304577W	Assembly, Cover	1
4	277276W	Decal, w/o FS	1				

Handling Gear - Power Controls

Caterpillar D7R Series II (C72) w/ and w/o FREESPOOL



**D7R SERIES II
HANDLEVER ASSY. INSTALLATION W/ FS
(MANUAL CONTROLS)**

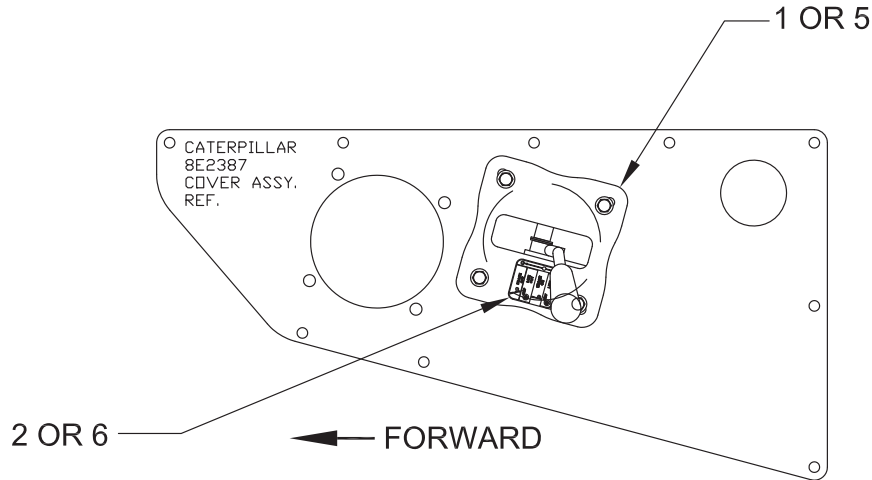


CAT D7R SERIES II w/o FREESPOOL

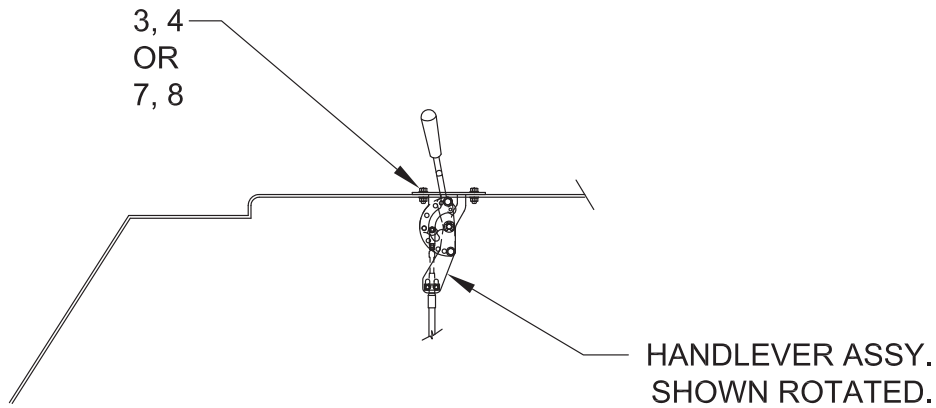
CAT D7R SERIES II w/ FREESPOOL

Item	Part No.	Description	Qty		Item	Part No.	Description	Qty
1	2305202W	Assembly, Control Lever, w/o FS (See 3-95)	1		9	2304899W	Assembly, Control Lever, w/ FS (See 3-344)	1
2	277276W	Decal, w/o FS	1		10	271731W	Decal, w/ FS	1
3	2304569W	Gasket	1		11	2304569W	Gasket	1
4	2301055W	Trim, Vinyl Protective	1.75 ft.		12	2301055W	Trim, Vinyl Protective	1.75 ft.
5	2304879W	Spacer	1		13	2304879W	Spacer	1
6	296162W	Capscrew	2		14	296162W	Capscrew	2
7	2305199W	Capscrew	2		15	2305199W	Capscrew	2
8	2305203W	Gasket	1		16	2305203W	Gasket	1

Handling Gear - Power Controls
 Caterpillar D8N (C55, C56) w/ and w/o FREESPOOL



D8N
HANDLEVER ASSY. INSTALLATION W/O FS SHOWN
 (WITH AND WITHOUT CAB TRACTOR)



HANDLEVER, w/o FREESPOOL - CAT D8N

Item	Part No.	Description	Qty
1	2303168W	Assembly, Control Lever, w/o FS (See 3-64)	1
2	277276W	Decal, w/o FS	1
3	174413W	Screw, Flange	4
4	156133W	Nut, Flange	4

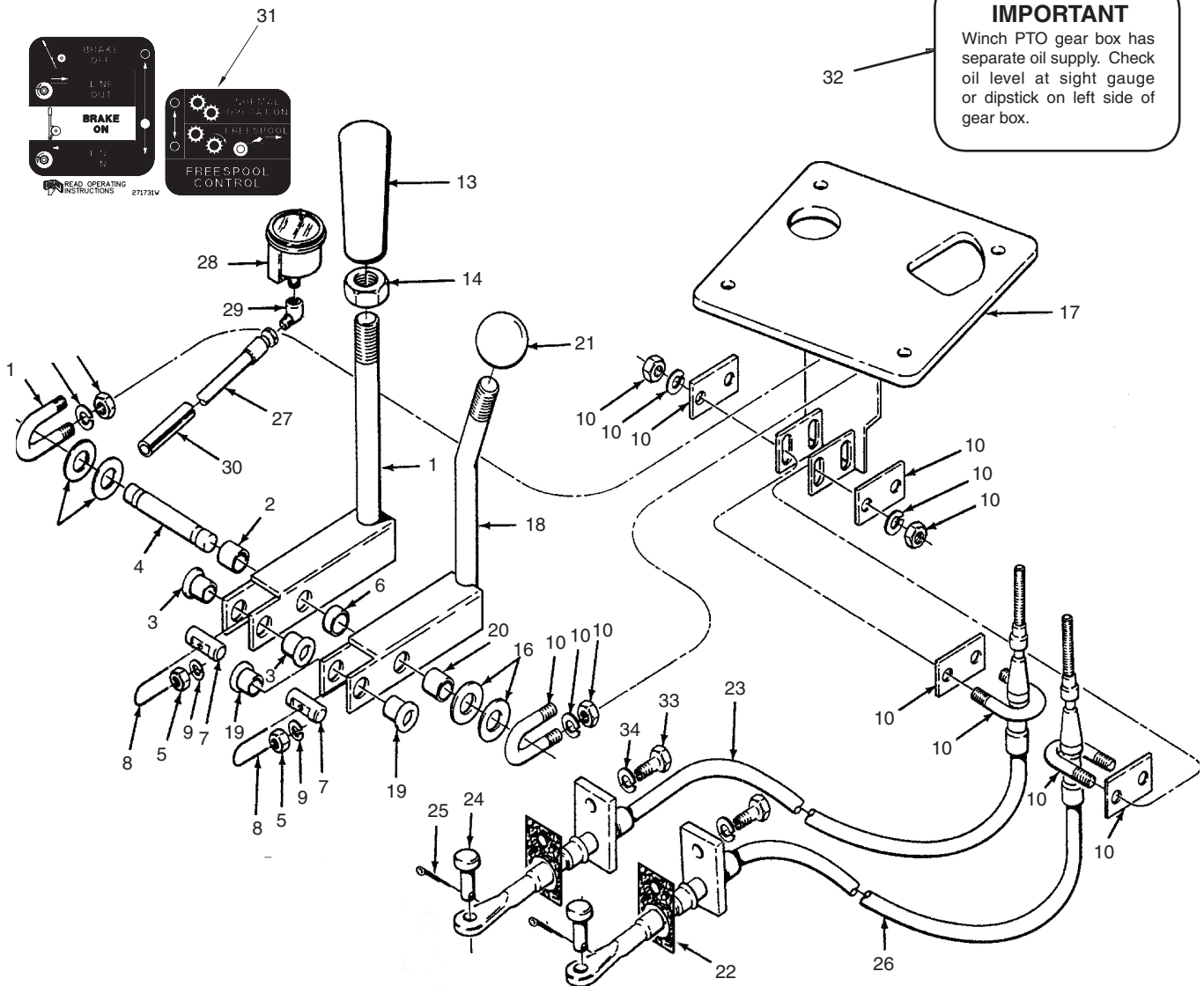
HANDLEVER, w/ FREESPOOL

Item	Part No.	Description	Qty
5	2303167W	Assembly, Control Lever, w/ FS (See 3-20)	1
6	271731W	Decal, w/ FS	1
7	174413W	Screw, Flange	4
8	156133W	Nut, Flange	4

Handling Gear - Power Controls

Caterpillar D8N (C55, C56) Prior to SN 5TJ0001 w/ FREESPOOL
 Used on S/N W8L-3191 & AW8L-1001 thru AW8L-2292

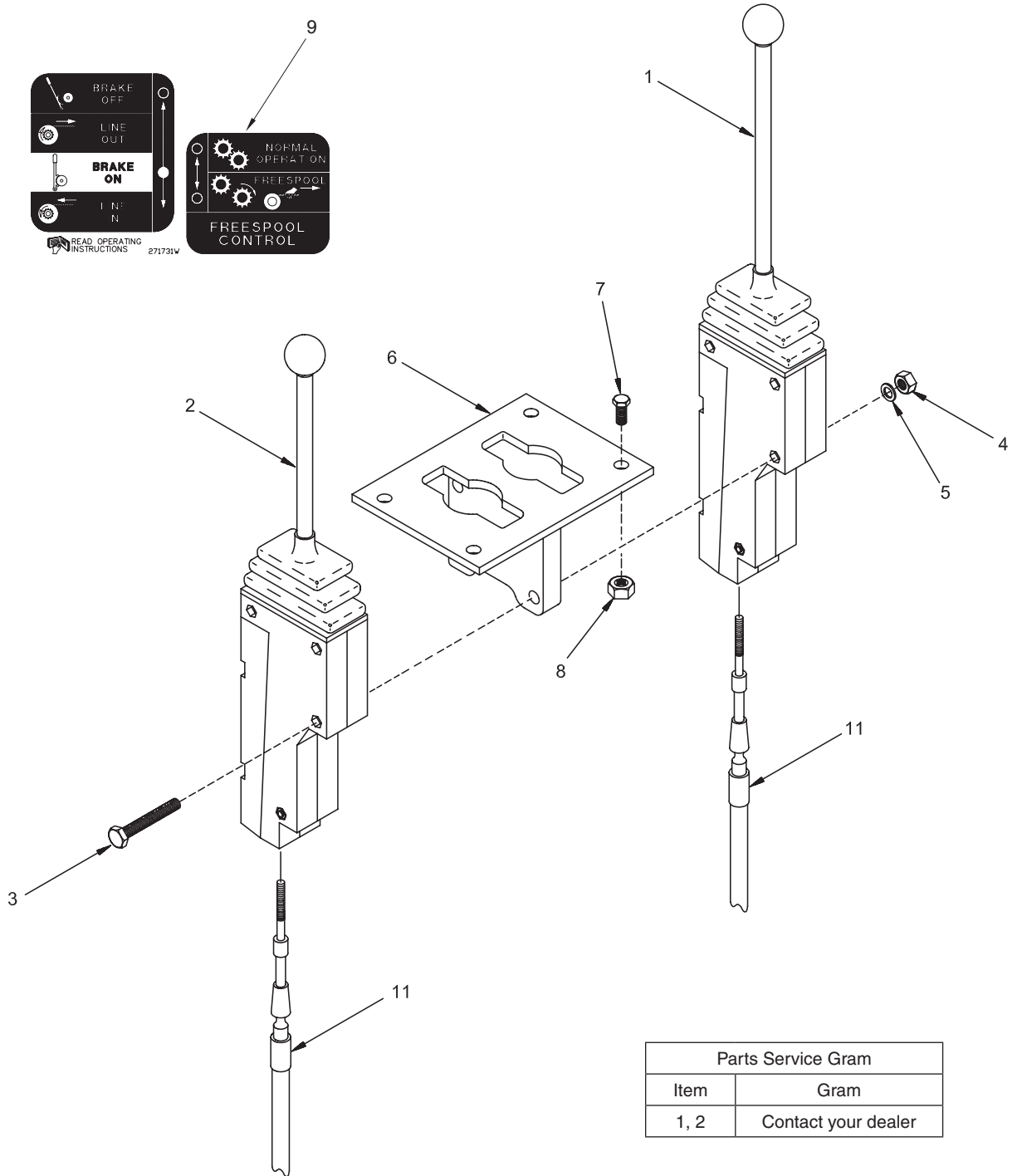
IMPORTANT
 Winch PTO gear box has separate oil supply. Check oil level at sight gauge or dipstick on left side of gear box.



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	276031W	Lever	1	19	196144W	. Bushing	2
2	276043W	. Bushing	1	20	276043W	. Bushing	1
3	196144W	. Bushing	2	21	243189W	Knob	1
4	276081W	Pin	1	22	303946W	Gasket	2
5	15106W	Locknut	2	23	303942W	Cable, Control	1
6	77418W	Block, Round	1	24	139W	Pin	2
7	196128W	Pin	2	25	15212W	Pin, Cotter	2
8	67355W	Wire	AR	26	303939W	Cable, Freespool	1
9	18425W	Lockwasher	2	27	*a 205006W	Hose	1
10	2300995W	U-Bolt Kit	4	28	*a 192407W	Gauge, Oil Press	1
	NSS	. Cup Plate	1	29	*a 381166W	Fitting	1
	NSS	. Plate	1	30	*a 381181W	Guard	1
	NSS	. Star Washer	2	31	271731W	Decal	1
	NSS	. Nut	2	32	*a 379491W	Decal	1
13	2303105W	Knob	1	33	18591W	Capscrew	2
14	15030W	Nut, Jam	1	34	15158W	Washer	2
16	15135W	Flatwasher,	4				
17	379460W	Bracket	1				
18	276032W	Lever	1				
				*a	Last Used on S/N AW8L-1001		

Handling Gear - Power Controls

Caterpillar D8N (C55, C56) S/N 5TJ0001 & Up & D8R w/ FREESPOOL
 Last Used on S/N AW8L-2292



Parts Service Gram	
Item	Gram
1, 2	Contact your dealer

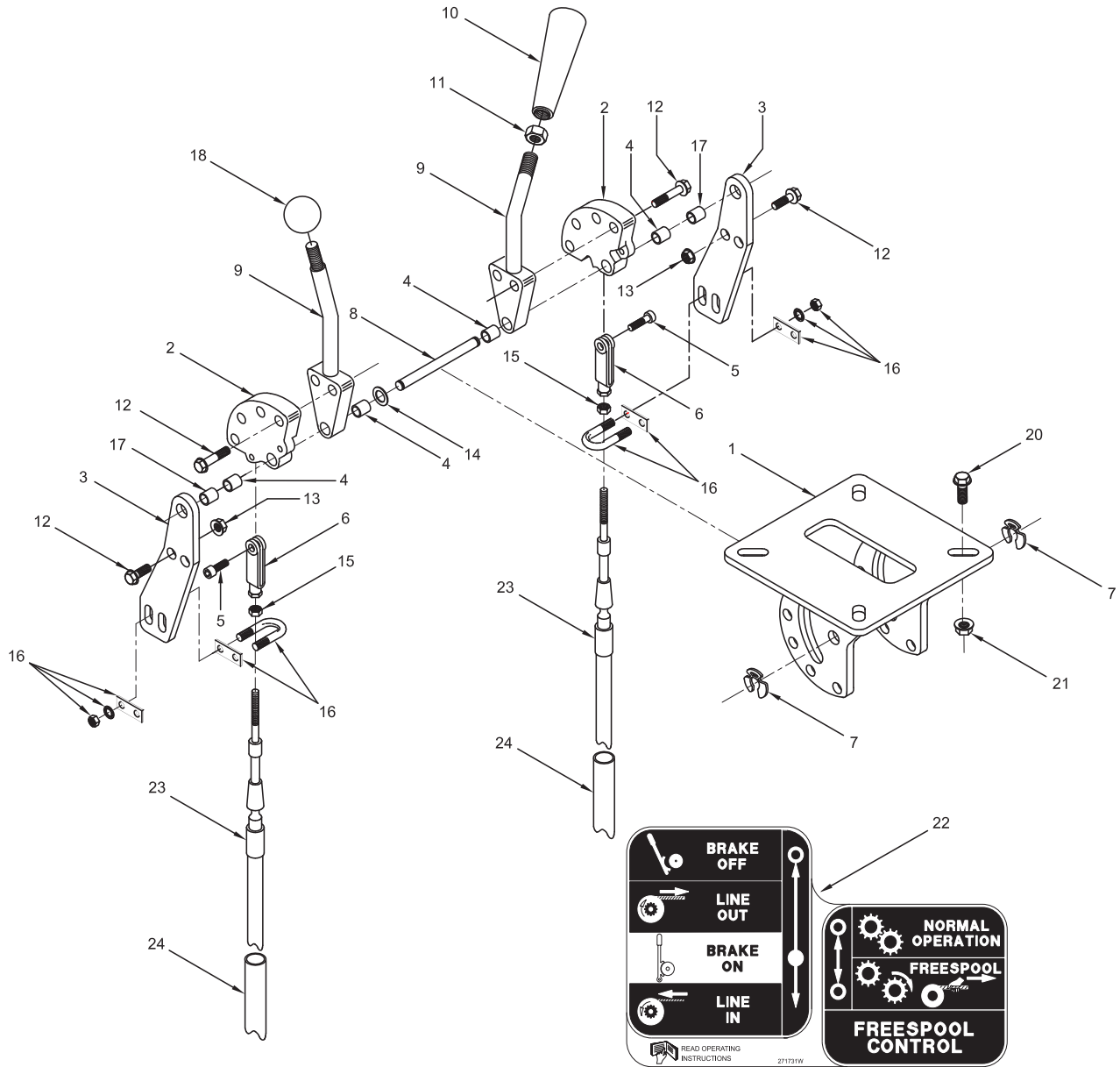
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1300785W	Assembly, Control Lever (See 3-94)	1	6	2302103W	Bracket	1
2	383880W	Assembly, Control Lever, FS (See 3-93)	1	7	174413W	Capscrow	4
3	18528W	Capscrow	3	8	156133W	Nut	4
4	191534W	Nut	3	9	271731W	Decal	1
5	18515W	Flatwasher	3	10	381181W	Guard, Cable (Not Illustrated)	1
				11	303939W	Cable, Control	2

Handling Gear - Power Controls

Caterpillar D8N (C55, C56) /D8R (C56, C58) w/ FREESPOOL

First Used on S/N AW8L-2293

Last Used on D8R on S/N AW8L-2488

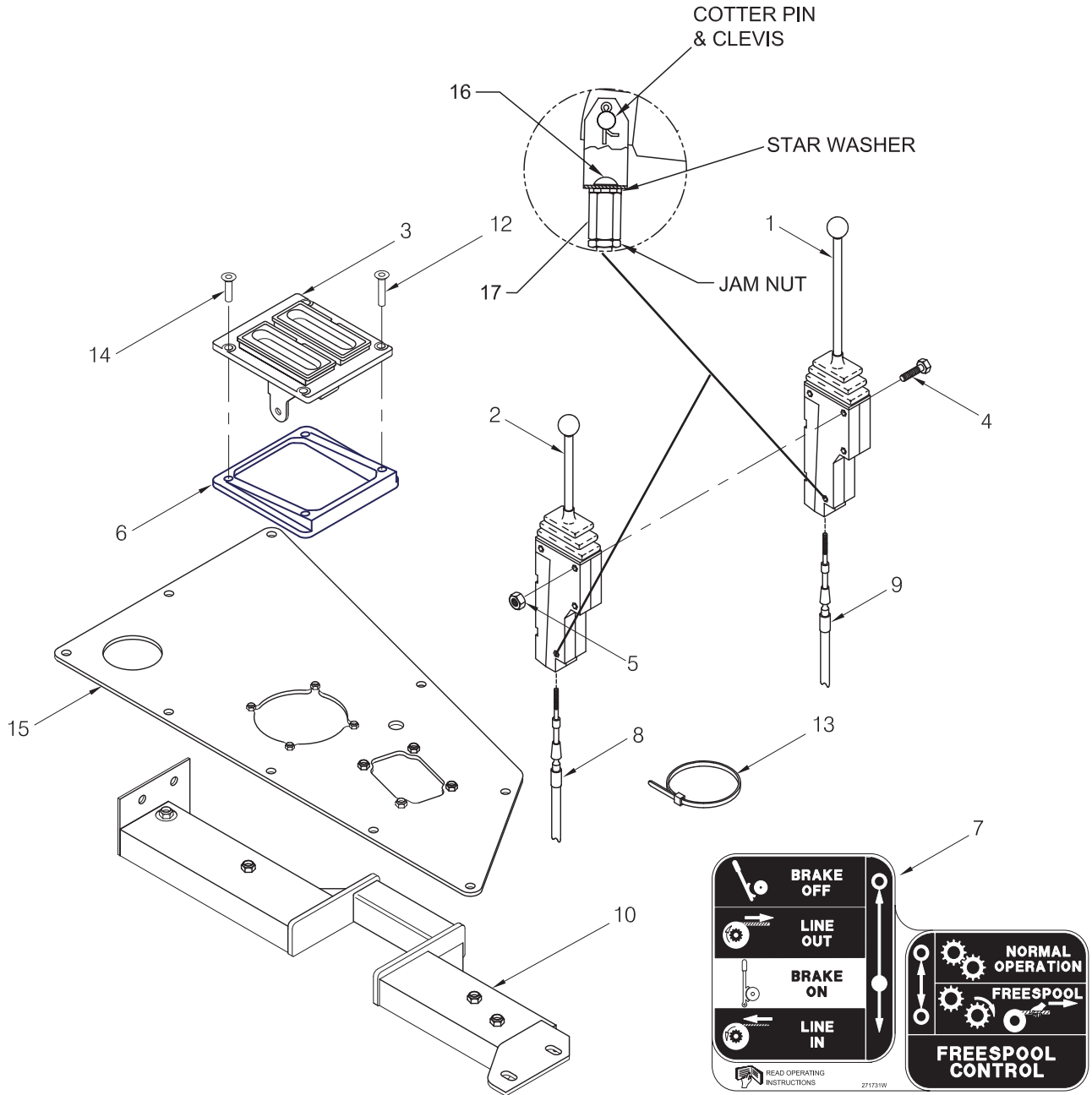


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303167W	Assembly, Control Lever	1				
1	2303169W	. Bracket, Control Lever	1	15	15024W	. Nut, Jam	2
2	2303172W	. Plate, Pivot	2	16	2300995W	. U-Bolt	2
3	2303173W	. Plate, Angle Adjust	2		NSS	. . Plate, Cup	1
4	2303174W	. Bushing	4		NSS	. . Plate	1
5	2303175W	. Capscrew	2		NSS	. . Washer, Star	2
6	2303176W	. End, Rod	2		NSS	. . Nut	2
7	2303177W	. Clip, Ring	2	17	2303223W	. Spacer	2
8	2303178W	. Pin	1	18	243189W	. Knob	1
9	2303180W	. Lever, Control	2	20	174413W	Screw, Flange	4
10	2303181W	. Knob	1	21	156133W	Nut, Flange	4
11	15011W	. Nut, Jam	1	22	271731W	Decal	1
12	174413W	. Screw, Flange	4	23	303942W	Cable, Control	2
13	156133W	. Nut, Flange	2	24	381181W	Guard, Cable	2
14	2303222W	. Shim	AR				

Handling Gear - Power Controls

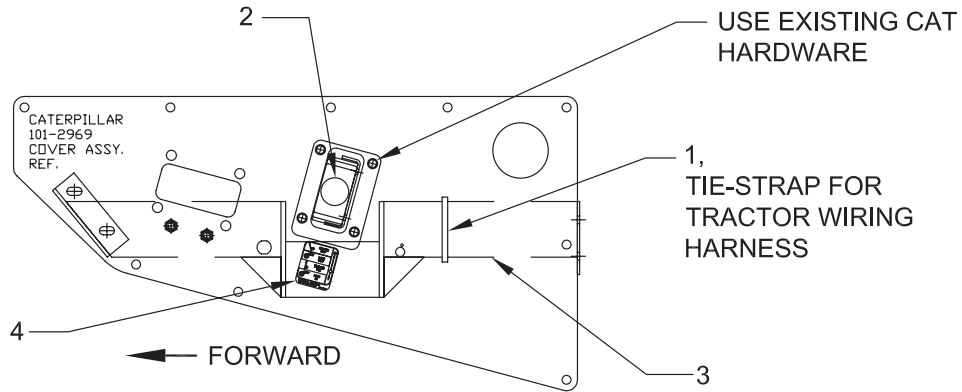
Caterpillar D8R (C56, C58) w/ FREESPOOL

First Used on S/N AW8L-2489

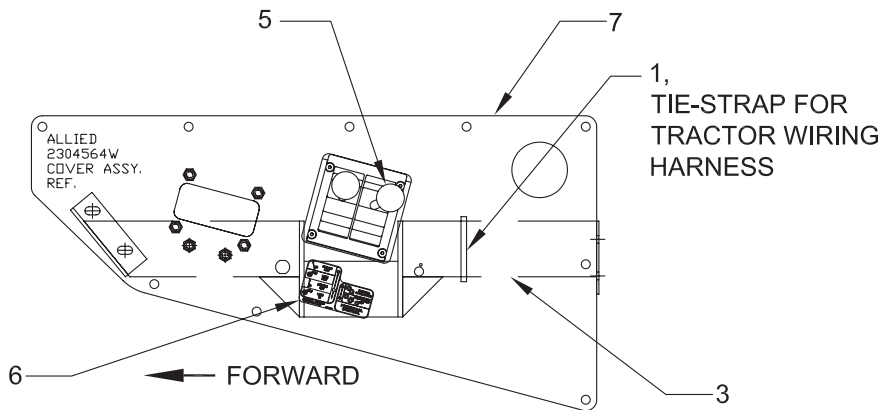


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2304899W	Assembly, Control Lever	1				
1	2303982W	. Lever, Control (See 3-95)	1	9	303944W	Cable, Control	1
2	2303986W	. Lever, Control, FS (See 3-95)	1	10	2304544W	Assembly, Channel	1
3	2304898W	. Bracket, Control Lever - w/ FS	1	12	2304881W	Capscrew	2
4	2304878W	. Capscrew	3	13	129563W	Clamp, Strap	1
5	15113W	. Nut	3	14	18723W	Capscrew	2
6	2304879W	Spacer - w /FS	1	15	2304564W	Assembly, Cover	1
7	271731W	Decal - w/ FS	1	16	18717W	Capscrew	2
8	303942W	Cable, Freespool	1	17	383881W	Nut, Tall	2

Handling Gear - Power Controls
Caterpillar D8R (C56, C58) w/ and w/o FREESPOOL



D8R
HANDLEVER ASSY. INSTALLATION W/O FS
(WITH AND WITHOUT CAB TRACTOR)

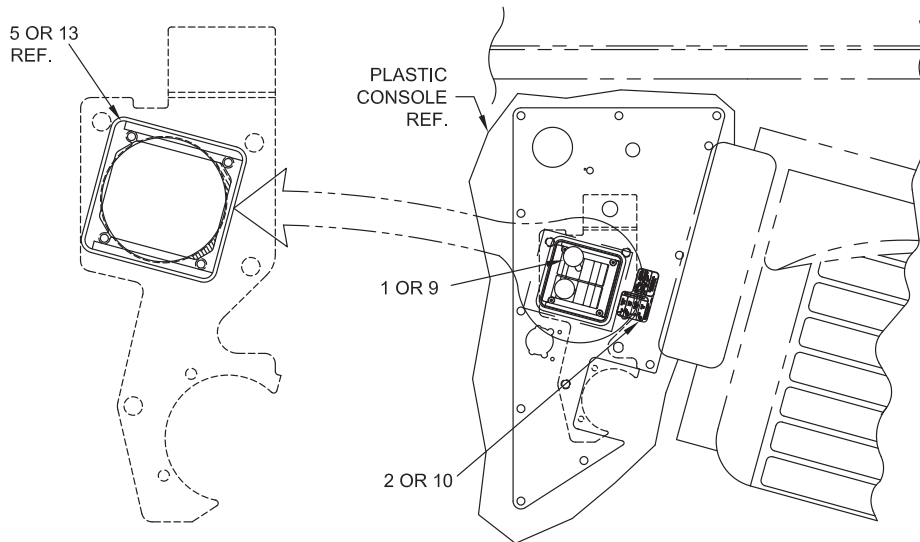


D8R
HANDLEVER ASSY. INSTALLATION W/ FS
(WITH AND WITHOUT CAB TRACTOR)

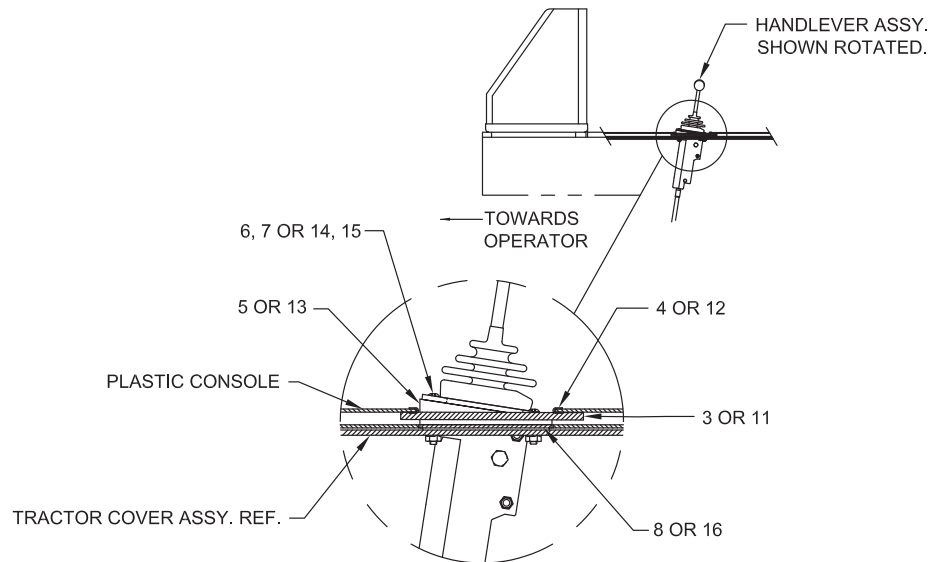
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	129563W	Clamp, Strap	2	5	2304899W	Assembly, Control Lever - w/ FS (See 3-34)	1
2	2304557W	Assembly, Control Lever - w/o FS (See 3-95)	1	6	271731W	Decal, w/ FS	1
3	2304544W	Assembly, Channel	2	7	2304564W	Assembly, Cover	1
4	277276W	Decal, w/o FS	1				

Handling Gear - Power Controls

Caterpillar D8R Series II (C59) w/ and w/o FREESPOOL



**D8R SERIES II
HANDLEVER ASSY. INSTALLATION W/ FS
(MANUAL CONTROLS)**



CAT D8R SERIES II W/O FREESPOOL

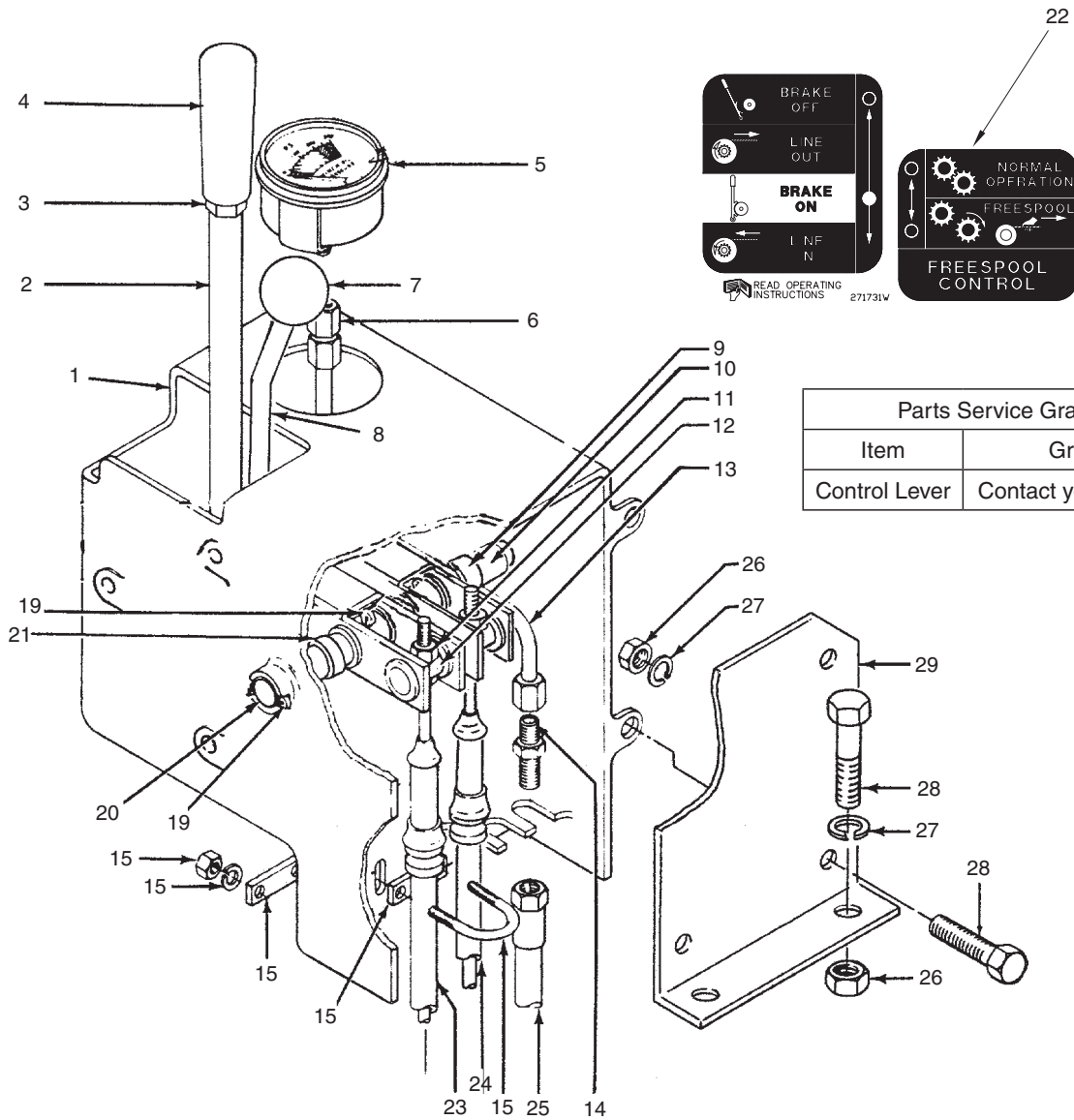
CAT D8R SERIES II W/ FREESPOOL

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2305202W	Assembly, Control Lever, w/o FS (See 3-95)	1	9	2304899W	Assembly, Control Lever, w/ FS (See 3-34)	1
2	277276W	Decal, w/o FS	1	10	271731W	Decal, w/ FS	1
3	2304569W	Gasket	1	11	2304569W	Gasket	1
4	2301055W	Trim, Vinyl Protective	2 ft.	12	2301055W	Trim, Vinyl Protective	2 ft.
5	2304879W	Spacer	1	13	2304879W	Spacer	1
6	296162W	Capscrew	2	14	296162W	Capscrew	2
7	2305199W	Capscrew	2	15	2305199W	Capscrew	2
8	2305203W	Gasket	1	16	2305203W	Gasket	1

Handling Gear - Power Controls

Dresser TD20E/TD20G (H51) w/ FREESPOOL

First Used on S/N W8LP-1578 and AW8L-1001



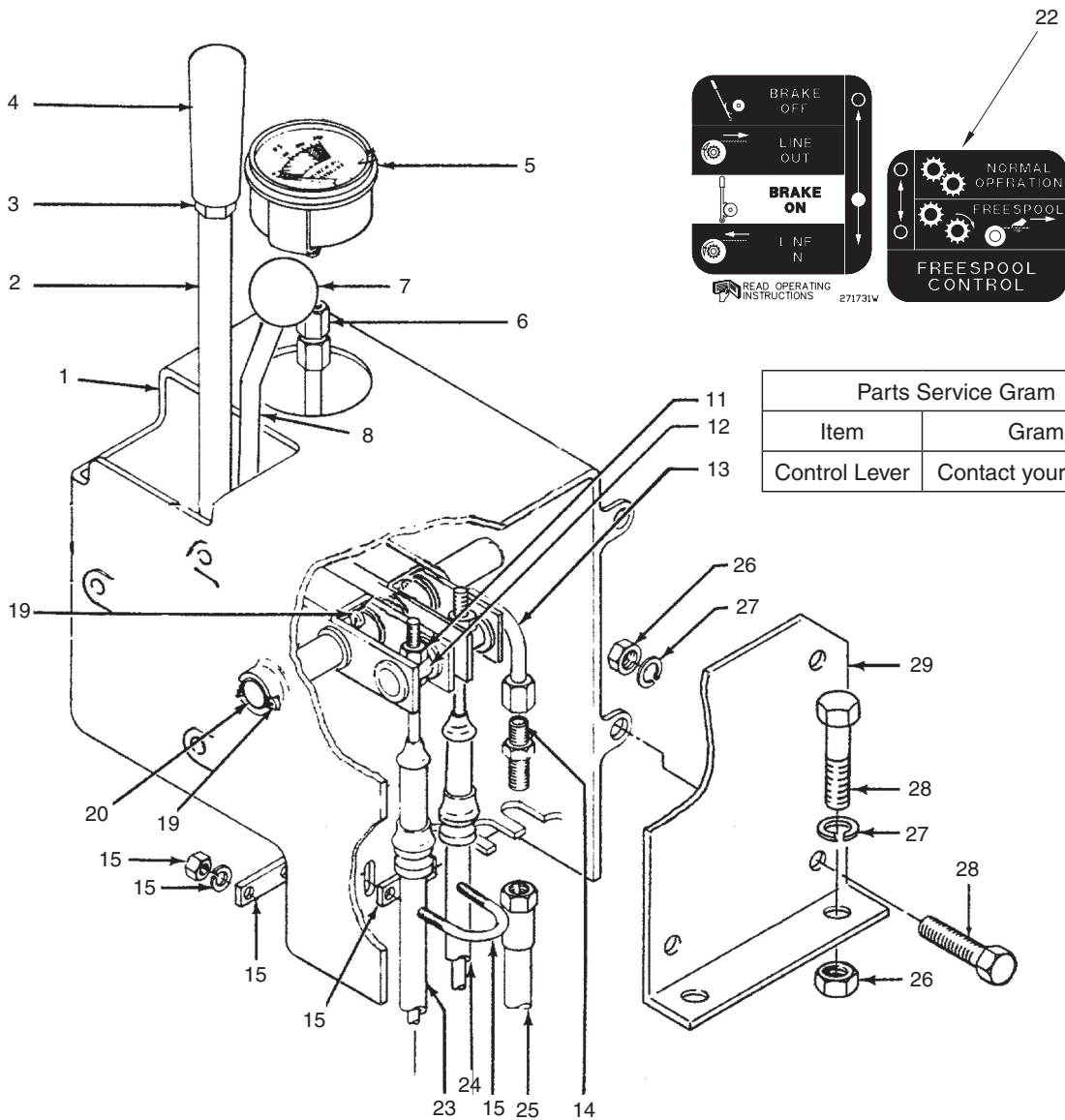
Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	14	16445W	. Fitting	1
2	276031W	. Lever	1	15	2300995W	. U-Bolt Kit	2
	196144W	.. Bushing	2		NSS	.. Cup Plate	1
	276043W	.. Bushing	1		NSS	.. Plate	1
3	15030W	. Nut	1		NSS	.. Washer, Star	2
4	2303105W	. Knob	1		NSS	.. Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	21	15135W	. Washer	3
8	276032W	. Lever	1	22	271731W	. Decal	1
	196144W	.. Bushing	2	23	303943W	Cable, Control	1
	276043W	.. Bushing	1	24	303943W	Cable, Freespool	1
9	391016W	. Washer	1	25	265325W	Hose	1
10	271746W	. Spacer	1	26	15056W	Nut	2
11	18425W	. Lockwasher	2	27	15156W	Lockwasher	2
	15106W	. Locknut	2	28	16805W	Cap screw	2
12	196128W	. Pin	2	29	NSS	Bracket	1
13	196134W	. Tube	1				

Handling Gear - Power Controls

Dresser TD20E/TD20G (H51) w/ FREESPOOL

Last Used During 1993



Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

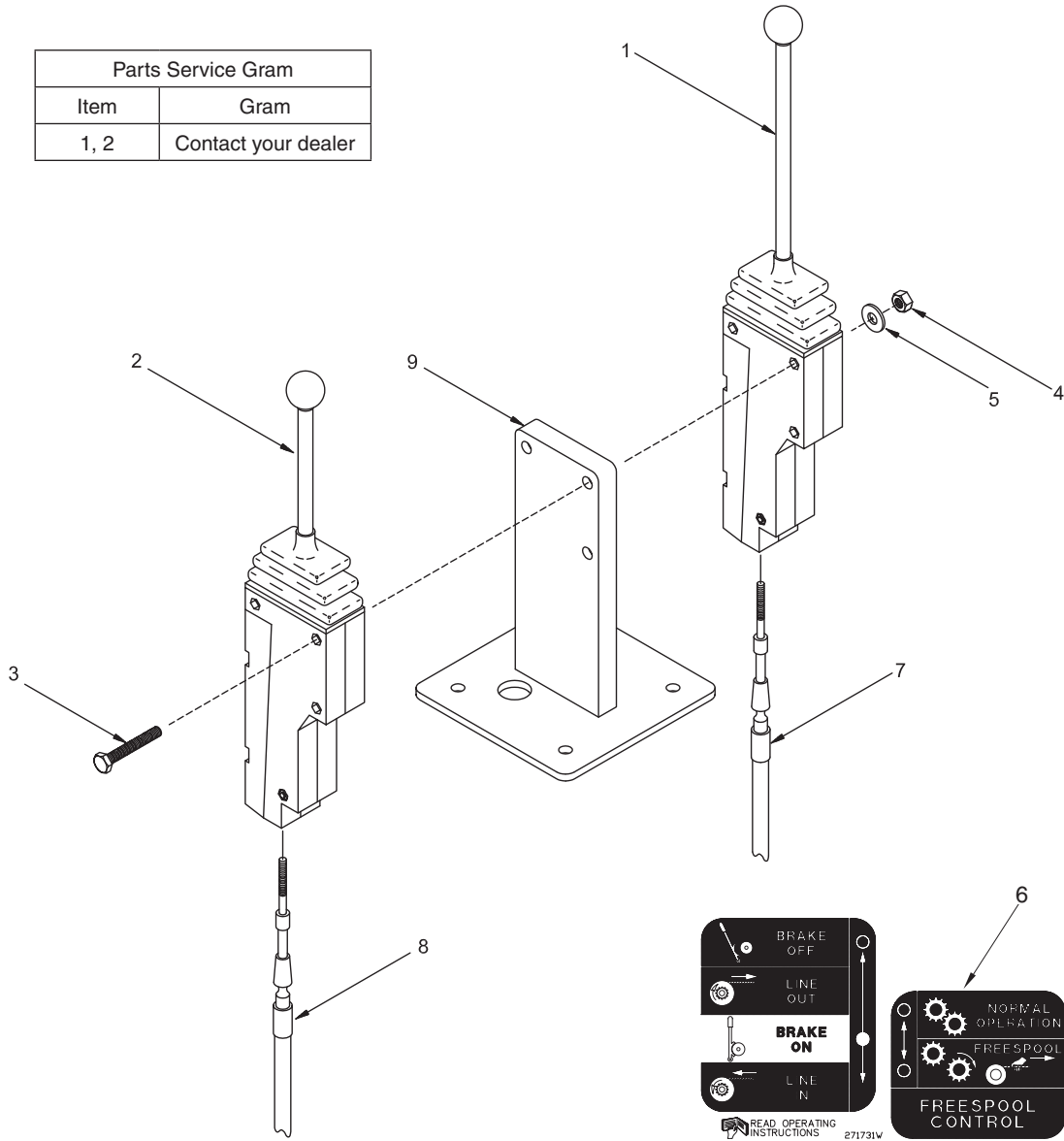
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	15	2300995W	. U-Bolt Kit	2
2	196465W	. Lever	1		NSS	. . Cup Plate	1
	196144W	. . Bushing	4		NSS	. . Plate	1
3	15030W	. Nut	1		NSS	. . Star Washer	2
4	2303105W	. Knob	1		NSS	. . Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	22	271731W	. Decal	1
8	243188W	. Lever	1	23	303943W	Cable, Control	1
8	196144W	. . Bushing	4	24	303943W	Cable, Freespool	1
11	18425W	. Lockwasher	2	25	265325W	Hose	1
	15106W	. Locknut	2	26	15056W	Nut	2
12	196128W	. Pin	2	27	15156W	Lockwasher	2
13	196134W	. Tube	1	28	16805W	CapscREW	2
14	16445W	. Fitting	1	29	NSS	Bracket	1

Handling Gear - Power Controls

Dresser TD20E/TD20G (H51) w/ FREESPOOL

First Used During 1993

Parts Service Gram	
Item	Gram
1, 2	Contact your dealer

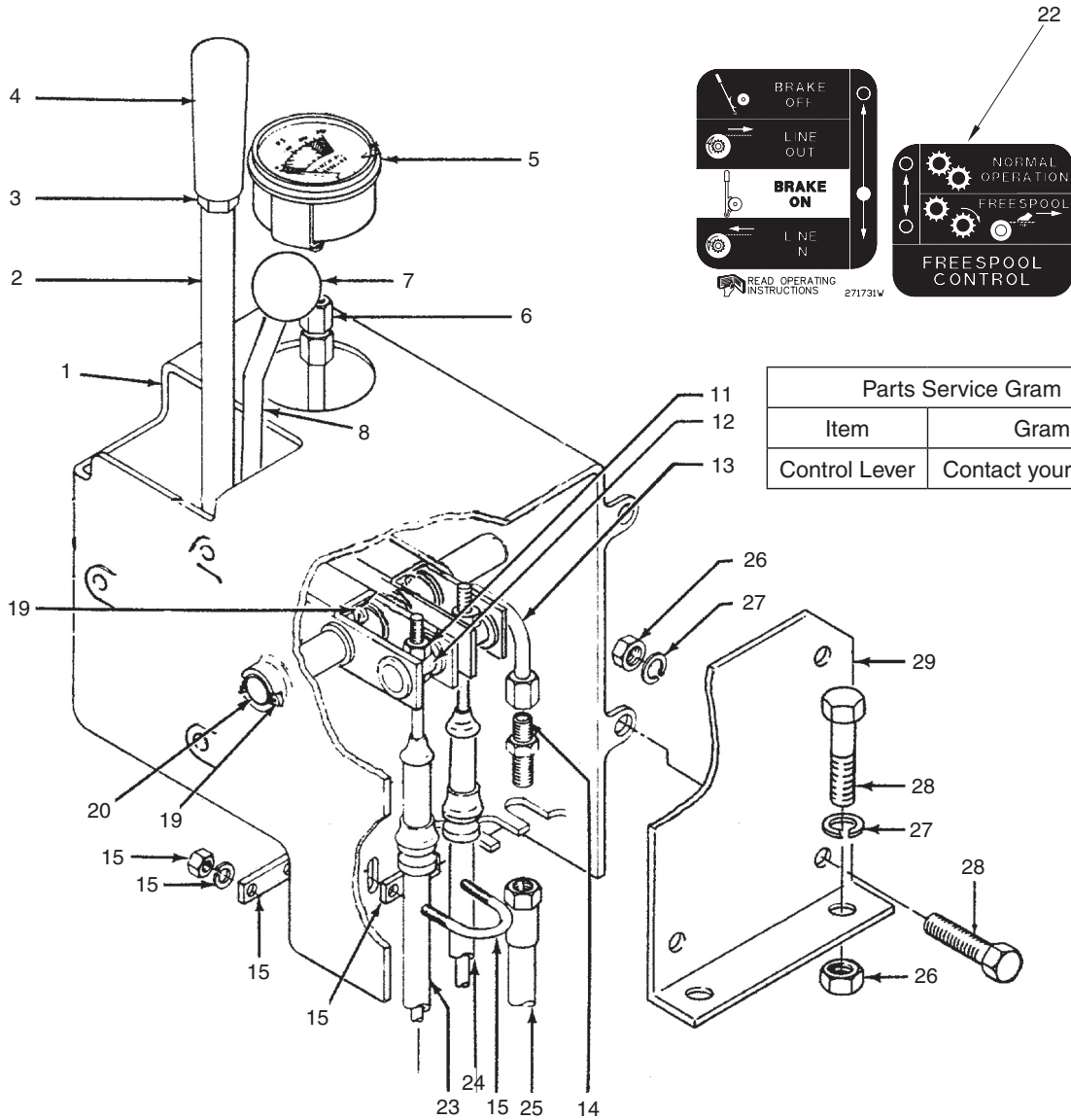


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1300785W	Assembly, Control Lever (See 3-94)	1	5	18515W	Washer	3
2	383880W	Assembly, Control Lever, FS (See 3-93)	1	6	271731W	Decal	1
3	18528W	Cap screw	3	7	303943W	Cable, Control	1
4	194534W	Nut	3	8	303942W	Cable, Freespool	1
				9	2300369W	Bracket	1

Handling Gear - Power Controls

Fiat-Hitachi/New Holland 20/PL60 (A55) w/ FREESPOOL

Last Used During 1993



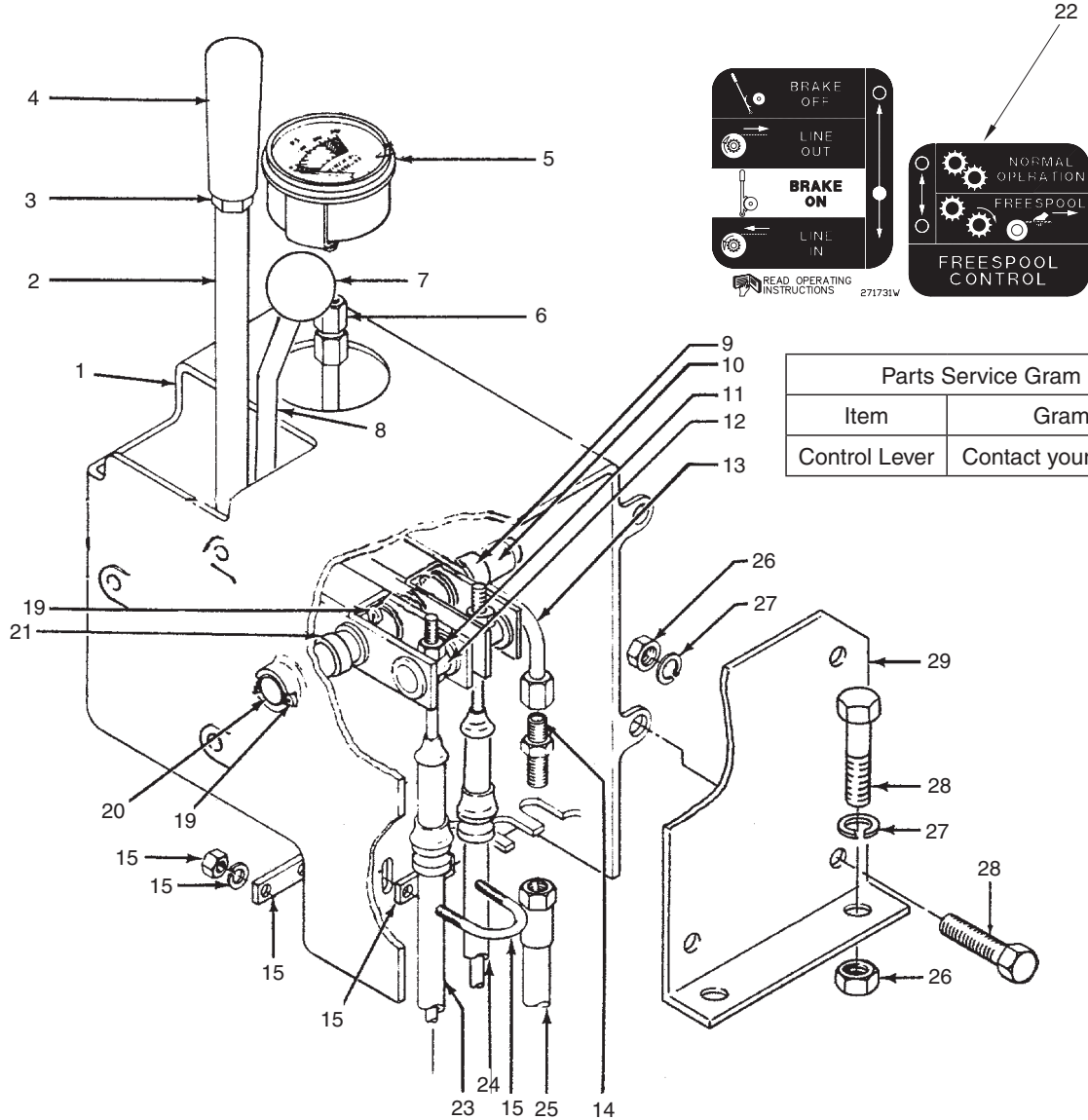
Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	15	2300995W	. U-Bolt Kit	2
2	196465W	. Lever	1		NSS	. Cup Plate	1
	196144W	. Bushing	4		NSS	. Plate	1
3	15030W	. Nut	1		NSS	. Star Washer	2
4	2303105W	. Knob	1		NSS	. Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	22	271731W	. Decal	1
8	243188W	. Lever	1	23	303945W	Cable, Control	1
	196144W	. Bushing	4	24	303941W	Cable, Freespool	1
11	18425W	. Lockwasher	2	25	265325W	Hose	1
	15106W	. Locknut	2	26	15056W	Nut	2
12	196128W	. Pin	2	27	15156W	Lockwasher	2
13	196134W	. Tube	1	28	16805W	Cap screw	2
14	16445W	. Fitting	1	29	NSS	Bracket	1

Handling Gear - Power Controls

Fiat-Hitachi/New Holland 20/PL60 (A55) w/ FREESPOOL

First Used on S/N W8LP-1578 and AW8L-1001

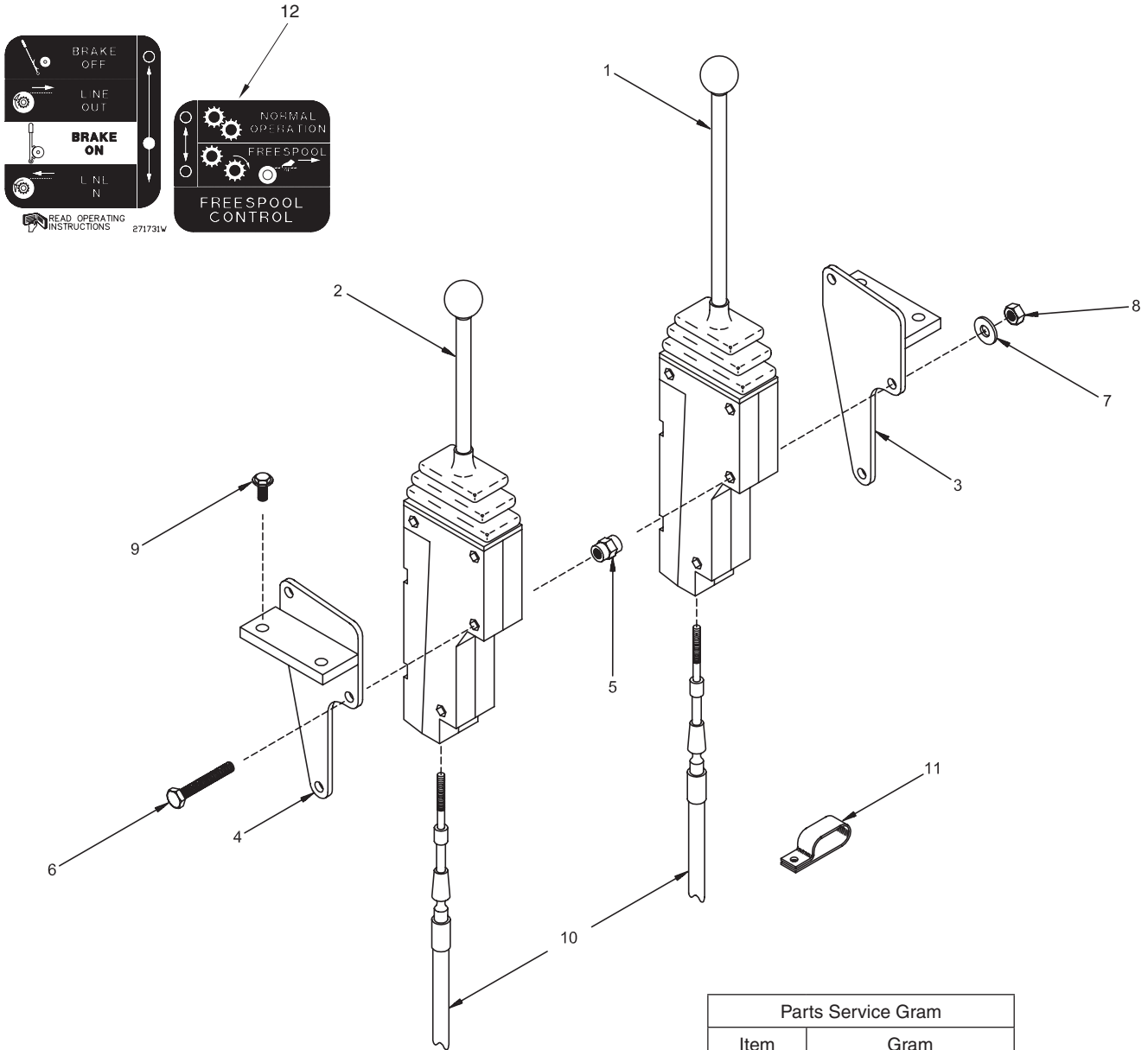


Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	14	16445W	. Fitting	1
2	276031W	. Lever	1	15	2300995W	. U-Bolt Kit	2
	196144W	.. Bushing	2		NSS	.. Cup Plate	1
	276043W	.. Bushing	1		NSS	.. Plate	1
3	15030W	. Nut	1		NSS	.. Star Washer	2
4	2303105W	. Knob	1		NSS	.. Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	21	15135W	. Washer	3
8	276032W	. Lever	1	22	271731W	. Decal	1
	196144W	.. Bushing	2	23	303945W	Cable, Control	1
	276043W	.. Bushing	1	24	303941W	Cable, Freespool	1
9	391016W	. Washer	1	25	265325W	Hose	1
10	271746W	. Spacer	1	26	15056W	Nut	2
11	18425W	. Lockwasher	2	27	15156W	Lockwasher	2
	15106W	. Locknut	2	28	16805W	Capcrew	2
12	196128W	. Pin	2	29	NSS	Bracket	1
13	196134W	. Tube	1				

Handling Gear - Power Controls

Fiat-Hitachi/New Holland DX/FD 255L (A56) w/ FREESPOOL
Last Used on S/N AW8L-2249

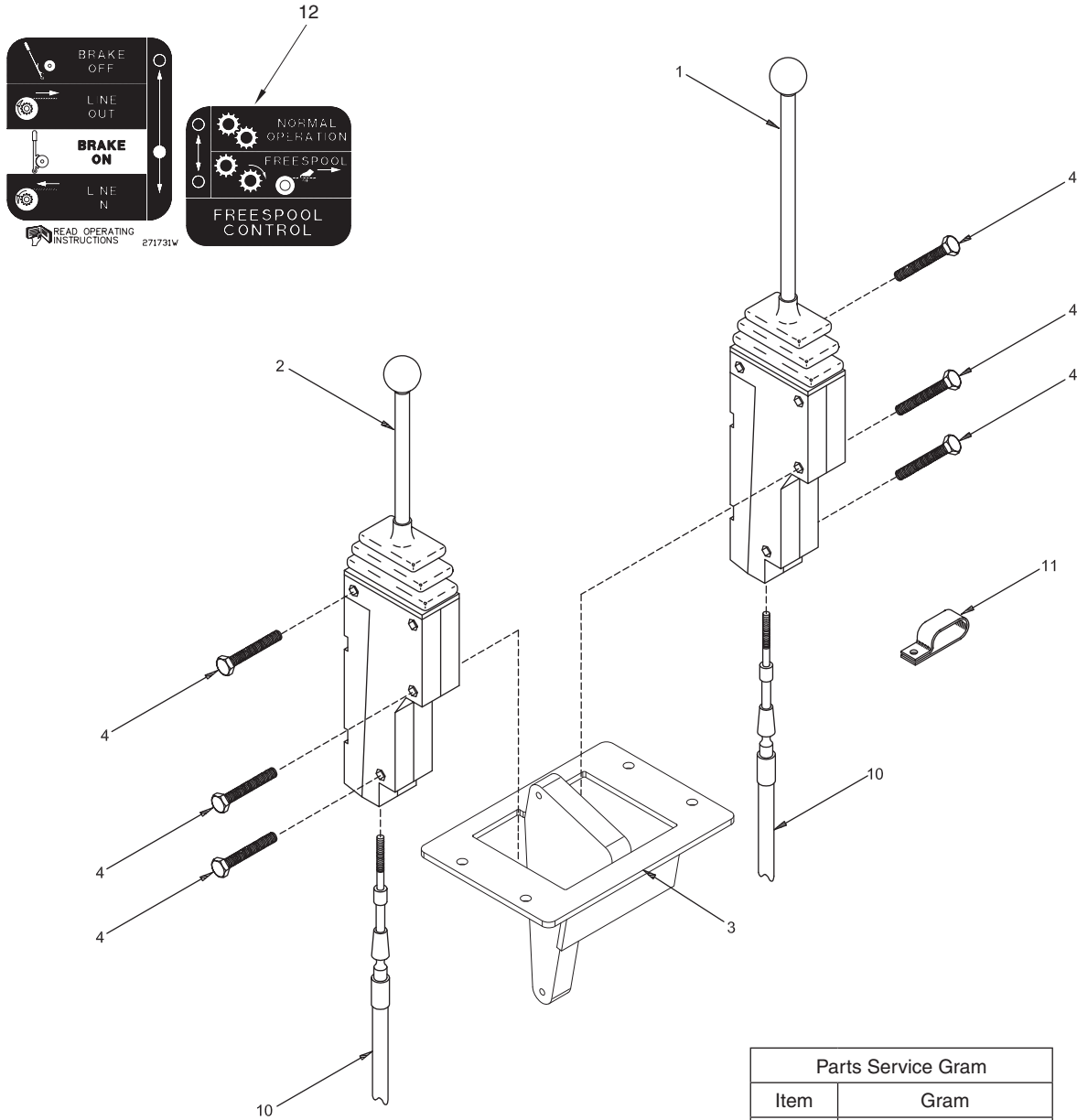


Parts Service Gram	
Item	Gram
1, 2	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	1321651W	Assembly, Control Lever	1				
1	1300785W	. Lever, Control (See 3-94)	1	7	15155W	. Washer	3
2	383880W	. Lever, Control, FS (See 3-93)	1	8	15055W	. Nut	3
3	1308437W	. Bracket, RH	1	9	397161W	Capscrew	4
4	1308436W	. Bracket, LH	1	10	303945W	Cable	2
5	16168W	. Spacer	3	11	110322W	Clamp	2
6	18530W	. Capscrew	3	12	271731W	Decal	1

Handling Gear - Power Controls

Fiat-Hitachi/New Holland DX/FD 255L (A56) w/ FREESPOOL
 First Used on S/N AW8L-2250

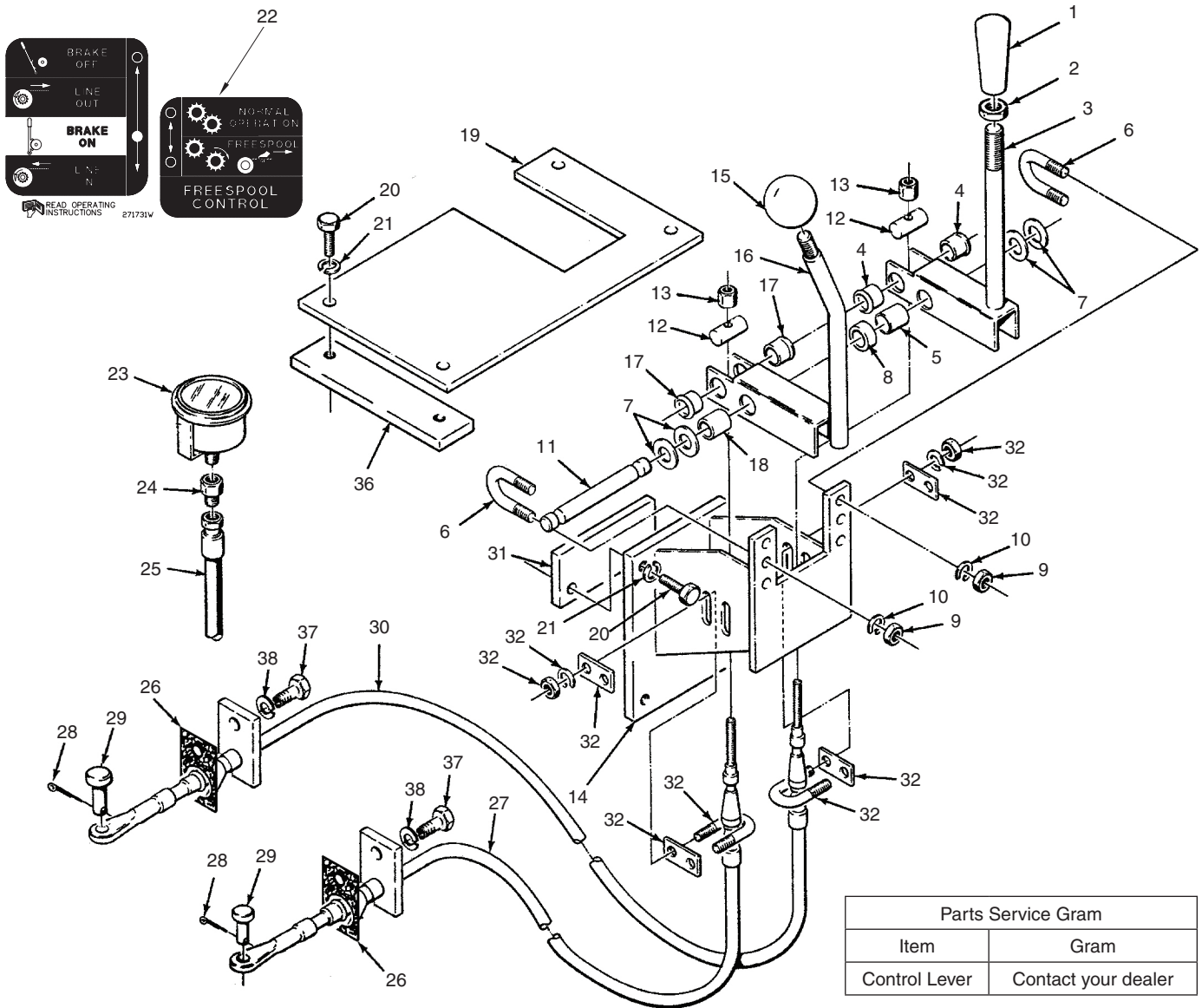


Parts Service Gram	
Item	Gram
1	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2304329W	Assembly, Control Lever	1	9	397161W	Capscrew	4
1	2303984W	. Lever, Control (See 3-95)	1	10	303945W	Cable	2
2	2303982W	. Lever, Control, FS (See 3-95)	1	11	110322W	Clamp	2
3	2304394W	. Mounting, Control Lever	1	12	271731W	Decal	1
4	2304380W	. Capscrew	6				

Handling Gear - Power Controls

Fiat-Hitachi/New Holland FD20B & FL20 (A53) w/ FREESPOOL



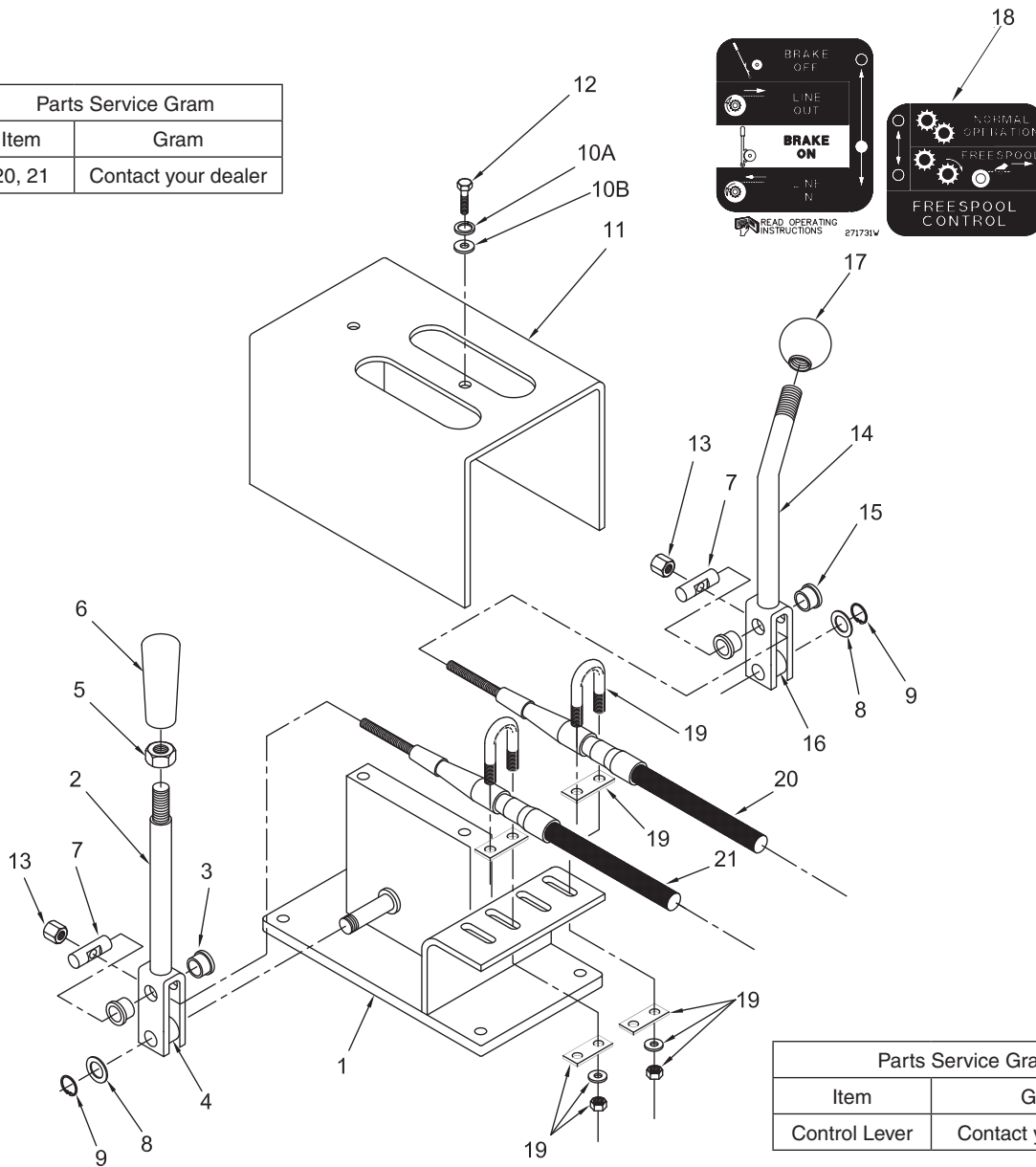
Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	287027W	Assembly, Control Lever	1	20	16805W	Capscrew	8
1	2303105W	. Knob	1	21	15156W	Lockwasher	8
2	15030W	. Nut	1	22	271731W	Decal	1
3	276031W	. Lever	1	23	192407W	Gauge, Oil Pressure	1
4	196144W	.. Bushing	2	24	14712W	Fitting	1
5	276043W	.. Bushing	1	25	265325W	Hose	1
6	196129W	. U-Bolt	2	26	303946W	Gasket	2
7	15135W	. Flatwasher	4	27	303941W	Cable	1
8	77418W	. Block, Round	1	28	15212W	Pin, Cotter	2
9	15055W	. Nut	4	29	139W	Pin	2
10	15155W	. Lockwasher	4	30	303943W	Cable, Push-Pull	1
11	276081W	. Pin	1	31	287029W	Plate	2
12	196128W	. Pin	2	32	2300995W	U-Bolt Kit	2
13	2301487W	. Nut	2		NSS	. Cup Plate	1
14	283431W	. Bracket, Control Lever	1		NSS	. Plate	1
15	243189W	. Knob	1		NSS	. Washer	2
16	276032W	. Lever	1		NSS	. Nut	2
17	196144W	.. Bushing	2	36	283430W	Plate	1
18	276043W	.. Bushing	1	37	18591W	Capscrew	2
19	287028W	Cover	1	38	15158W	Washer	2

Handling Gear - Power Controls

Komatsu D83-1 (K55) w/ FREESPOOL

Parts Service Gram	
Item	Gram
20, 21	Contact your dealer



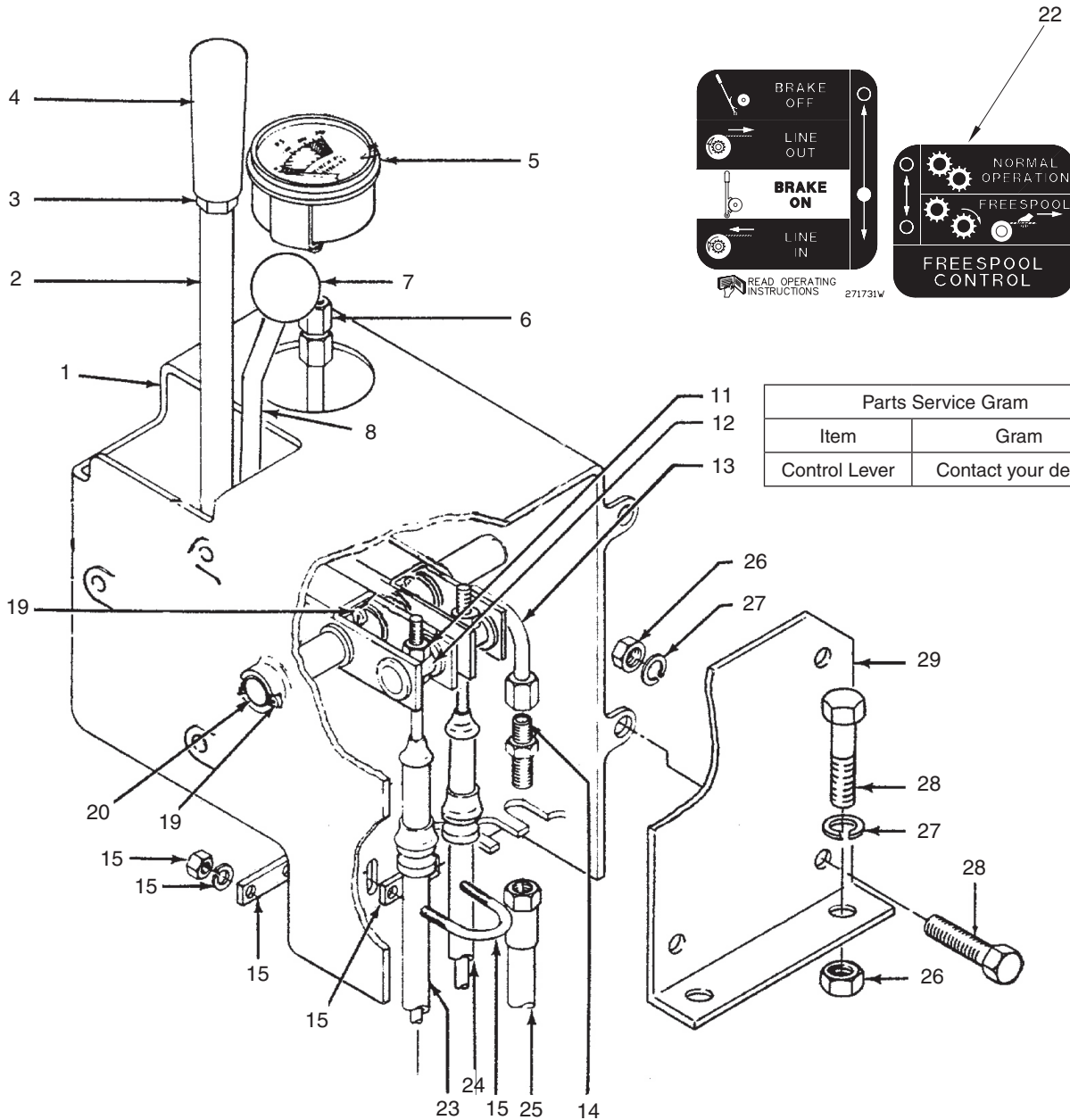
Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	332821W	Assembly, Control Lever	1				
1	332823W	. Bracket	1	14	260619W	. Lever	1
2	260618	. Lever	1		*a 276037W	. Lever	1
3	*a 276036W	. Assembly, Lever	1	15	196144W	. Bushing, Nylon	1
	196144W	. Bushing, Nylon	2		*a 196144W	. Bushing, Nylon	2
4	*a 196144W	. Bushing, Nylon	1	16	*a 276043W	. Bushing, Brass	1
	*a 276043W	. Bushing, Brass	1	17	243189W	. Knob	1
5	15030W	. Nut	1	18	271731W	Decal	1
6	2303105W	. Knob	1	19	2300995W	U-Bolt Kit	2
7	196128W	. Pin	2		NSS	. Cup Plate	1
8	15135W	. Washer	2		NSS	. Plate	1
9	190930W	. Ring, Snap	2		NSS	. Washer	2
10A	15155W	. Lockwasher	2		NSS	. Nut	2
10B	18515W	. Washer	2	20	303941W	Cable, Freespool	1
11	332822W	. Cover	1	21	303944W	Cable, Control	1
12	16836W	. Capscrew	2				
13	2301487W	. Nut, Tall	2		*a	First Used on S/N W8L-1578 and AW8L-1001	

Handling Gear - Power Controls

Komatsu D85A-12 (K52), D85E-18 (K53), D85E-21 (K54) w/ FREESPOOL

Last Used During 1993

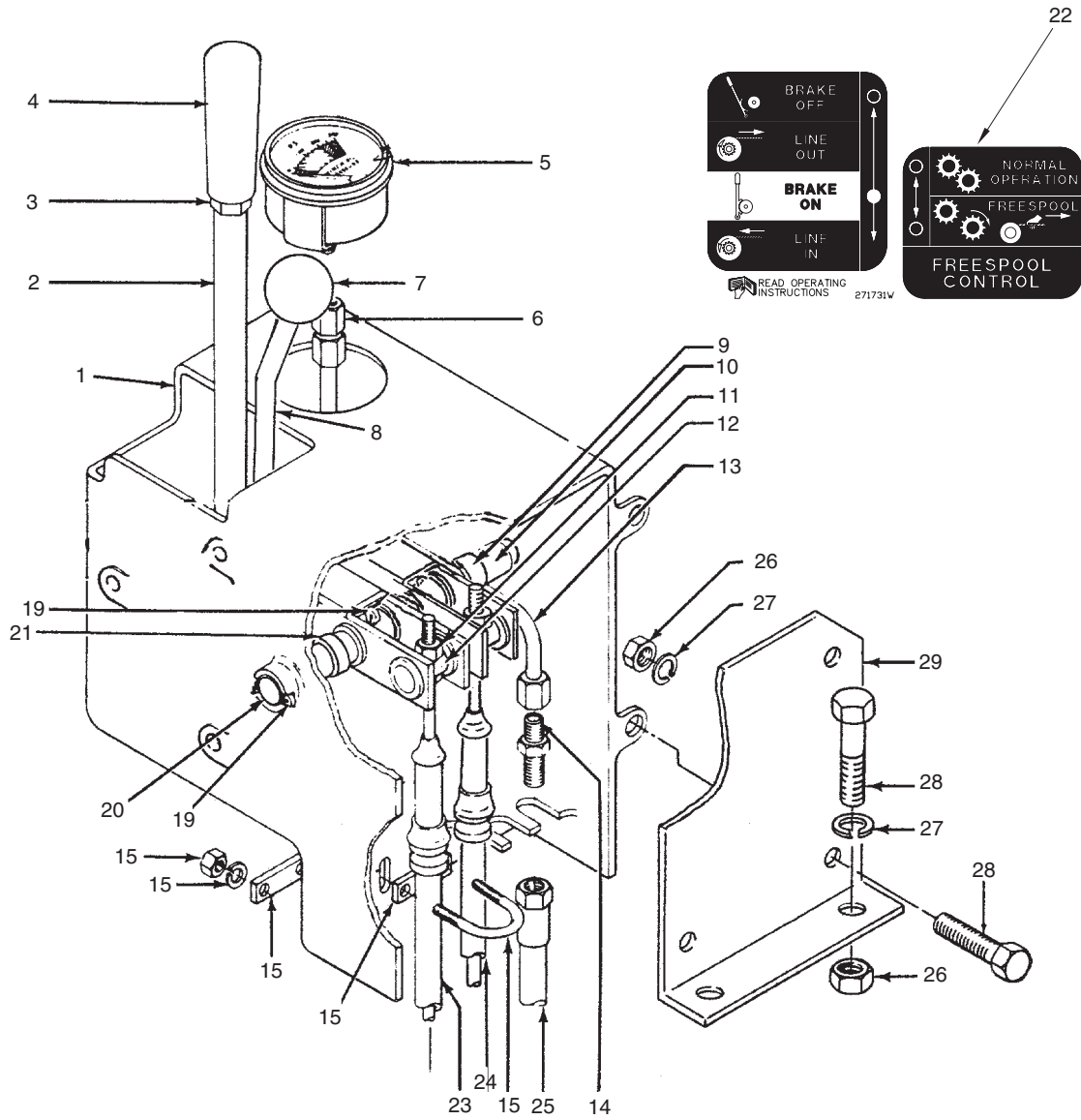


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	15	2300995W	. U-Bolt Kit	2
2	196465W	. Lever	1		NSS	. . Cup Plate	1
	196144W	. . Bushing	4		NSS	. . Plate	1
3	15030W	. Nut	1		NSS	. . Washer	2
4	2303105W	. Knob	1		NSS	. . Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	22	271731W	. Decal	1
8	243188W	. Lever	1	23	303944W	Cable, Control	1
	196144W	. . Bushing	4	24	303944W	Cable, Freespool	1
11	18425W	. Lockwasher	2	25	265325W	Hose	1
	15106W	. Locknut	2	26	15056W	Nut	2
12	196128W	. Pin	2	27	15156W	Lockwasher	2
13	196134W	. Tube	1	28	16805W	Cap screw	2
14	16445W	. Fitting	1	29	NSS	Bracket	1

Handling Gear - Power Controls

Komatsu D85A-12 (K52), D85E-18 (K53), D85E-21 (K54) w/ FREESPOOL

First Used on S/N W8LP-1578 and AW8L-1001

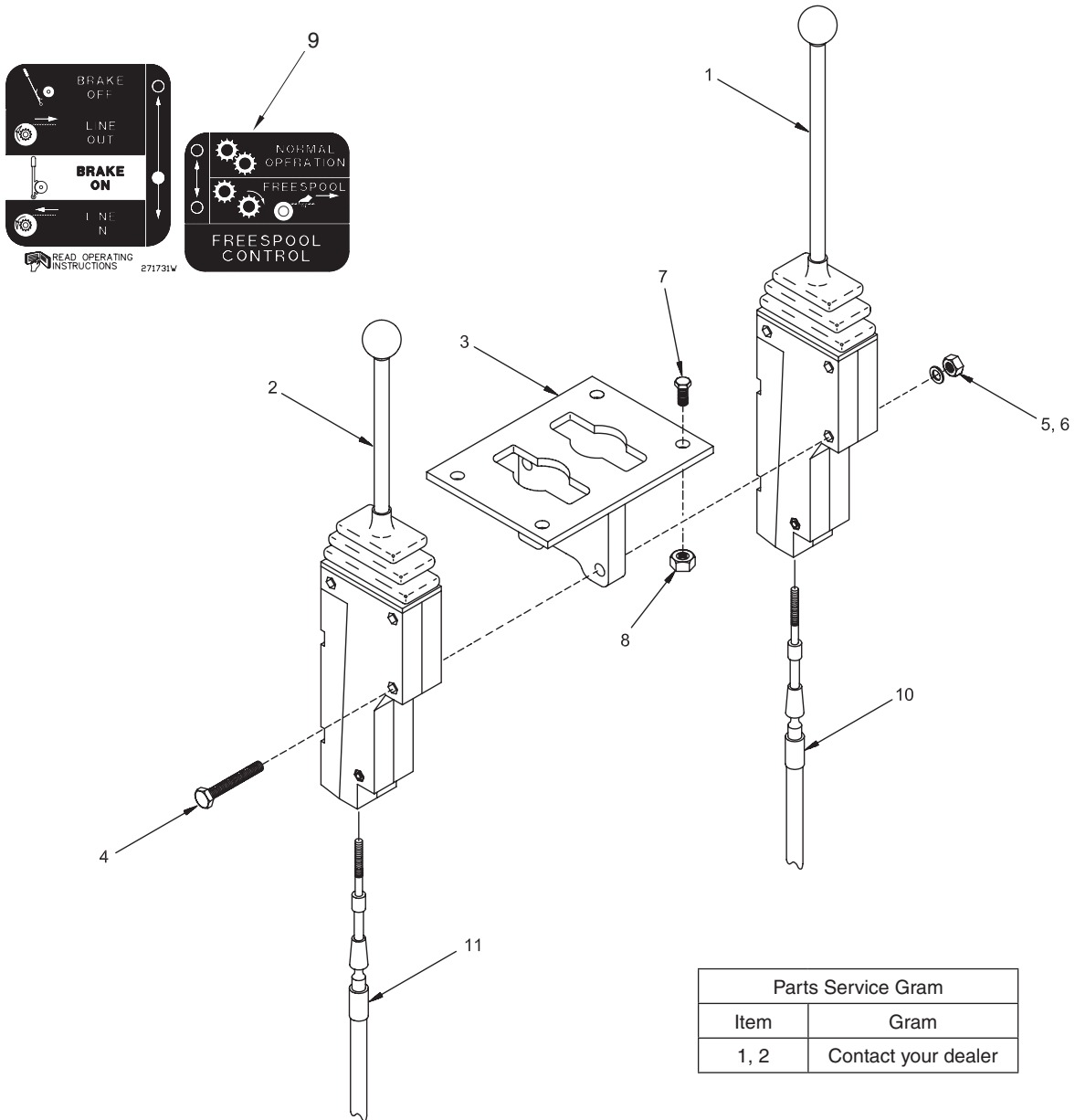


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	227468W	Assembly, Control Lever	1				
1	196114W	. Housing	1	14	16445W	. Fitting	1
2	276031W	. Lever	1	15	2300995W	. U-Bolt Kit	2
	196144W	.. Bushing	2		NSS	.. Cup Plate	1
	276043W	.. Bushing	1		NSS	.. Plate	1
3	15030W	. Nut	1		NSS	.. Washer	2
4	2303105W	. Knob	1		NSS	.. Nut	2
5	192407W	. Gauge, Oil Pressure	1	19	15225W	. Pin, Cotter	2
6	14712W	. Fitting	1	20	276041W	. Pin	1
7	243189W	. Knob	1	21	15135W	. Washer	3
8	276032W	. Lever	1	22	271731W	. Decal	1
	196144W	.. Bushing	2	23	303944W	Cable, Control	1
	276043W	.. Bushing	1	24	303944W	Cable, Freespool	1
9	391016W	. Washer	1	25	265325W	Hose	1
10	271746W	. Spacer	1	26	15056W	Nut	2
11	18425W	. Lockwasher	2	27	15156W	Lockwasher	2
	15106W	. Locknut	2	28	16805W	Capscrew	2
12	196128W	. Pin	2	29	NSS	Bracket	1
13	196134W	. Tube	1				

Handling Gear - Power Controls

Komatsu D85E (K53) w/ FREESPOOL

First Used During 1993



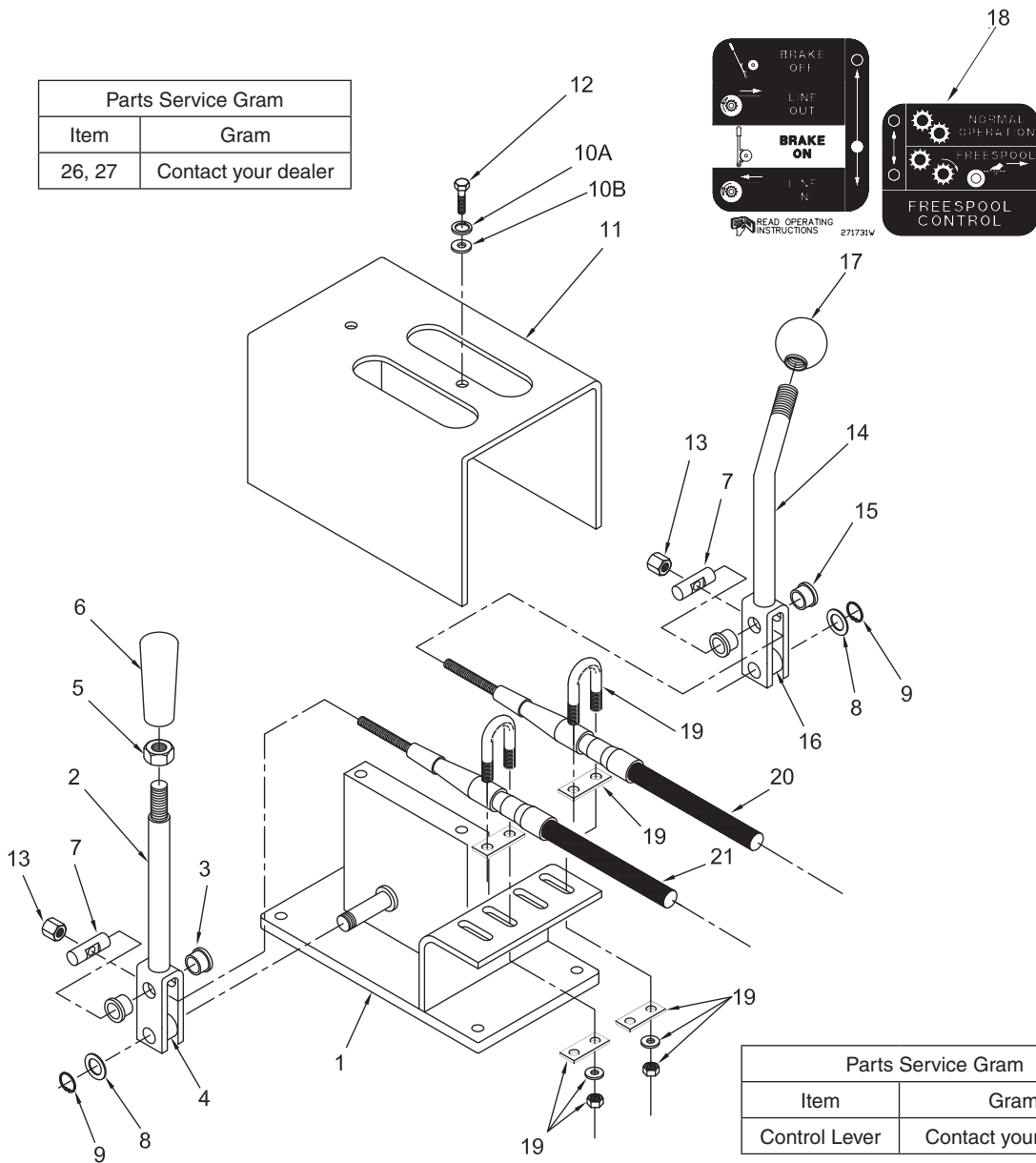
Parts Service Gram	
Item	Gram
1, 2	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	388658W	Assembly, Control Lever	1				
1	1300785W	. Lever, Control (see 3-94)	1	7	174413W	Cap screw	4
2	383880W	. Lever, Control, FS (see 3-93)	1	8	156133W	Nut	4
3	388659W	. Bracket	1	9	271731W	Decal	1
4	18528W	. Cap screw	3	10	303944W	Cable, Control	1
5	191534W	. Nut	3	11	303943W	Cable, Freespool	1
6	18515W	. Washer	3				

Handling Gear - Power Controls

Komatsu D85ESS-1 (K55) w/ FREESPOOL

Parts Service Gram	
Item	Gram
26, 27	Contact your dealer



Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	332821W	Assembly, Control Lever	1				
1	332823W	. Bracket	1	14	260619W	. Lever	1
2	260618	. Lever	1		*a 276037W	. Lever	1
	*a 276036W	. Assembly, Lever	1	15	196144W	. Bushing, Nylon	2
3	196144W	. Bushing, Nylon	2	16	*a 276043W	. Bushing, Brass	1
	*a 196144W	. Bushing, Nylon	1	17	243189W	. Knob	1
4	*a 276043W	. Bushing, Brass	1	18	271731W	Decal	1
5	15030W	. Nut	1	19	2300995W	U-Bolt Kit	2
6	2303105W	. Knob	1		NSS	. Cup Plate	1
7	196128W	. Pin	2		NSS	. Plate	1
8	15135W	. Washer	2		NSS	. Washer	2
9	190930W	. Ring, Snap	2		NSS	. Nut	2
10A	15155W	. Lockwasher	2	20	303941W	Cable, Freespool	1
10B	18515W	. Washer	2	21	303944W	Cable, Control	1
11	332822W	. Cover	1				
12	16836W	. Capscrew	2		*a	First Used on S/N W8L-1578 and AW8L-1001	
13	2301487W	. Nut, Tall	2				

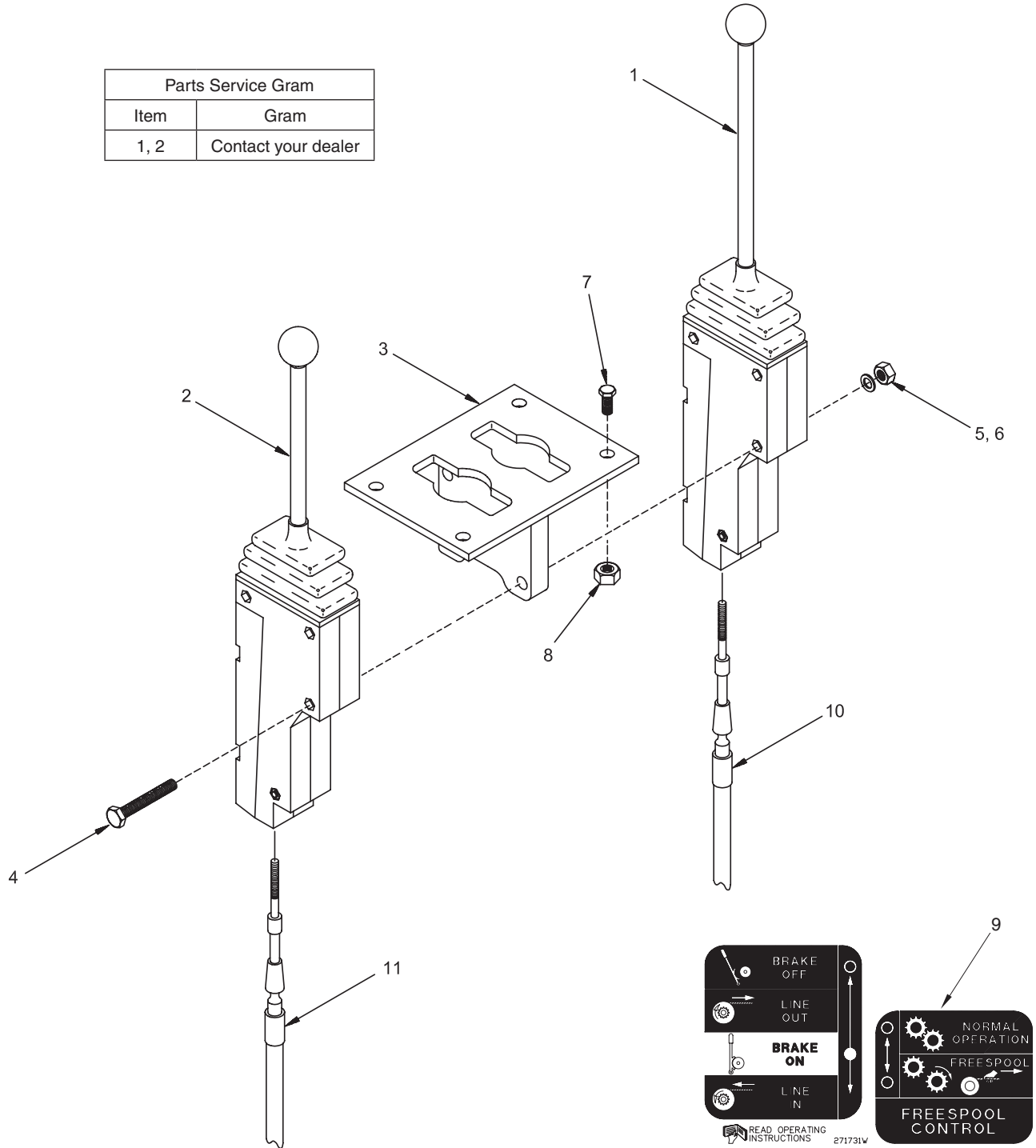
Handling Gear - Power Controls

Komatsu D85ESS-2 (K57) w/ FREESPOOL

First Used During 1993

Last Used on S/N AW8L-1736

Parts Service Gram	
Item	Gram
1, 2	Contact your dealer

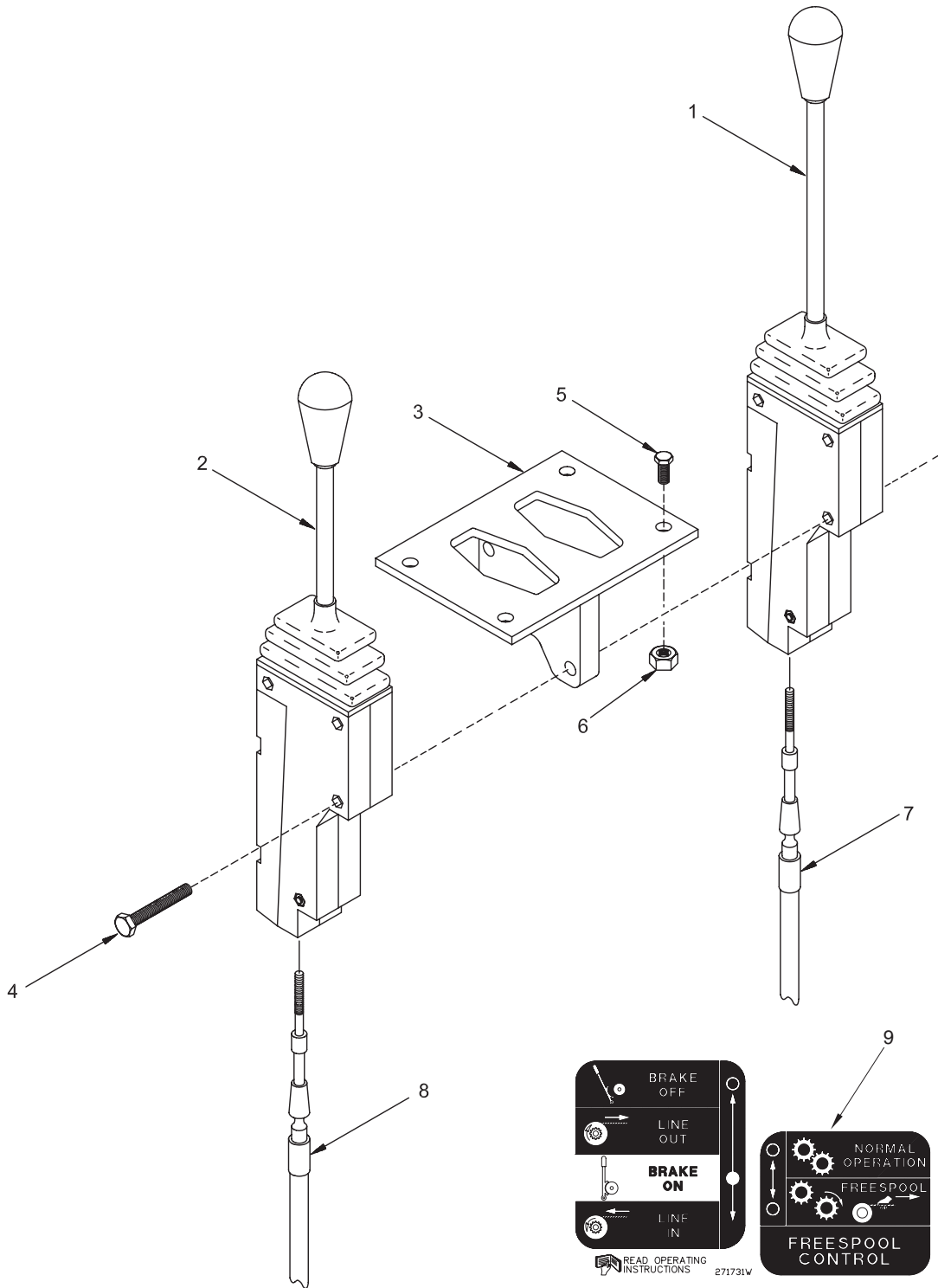


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1300785W	Lever, Control (See 3-94)	1	7	18717W	Capscrew	2
2	383880W	Lever, Control, FS (See 3-93)	1	8	383881W	Nut	2
3	2301030W	Bracket	1	9	271731W	Decal	1
4	2301054W	Capscrew	3	10	303944W	Cable, Control	1
5	221703W	Nut	3	11	303943W	Cable, Freespool	1
6	15127W	Washer	3				

Handling Gear - Power Controls

Komatsu D85ESS-2 (K57) w/ FREESPOOL

Used on S/N AW8L-1737 thru AW8L-2945



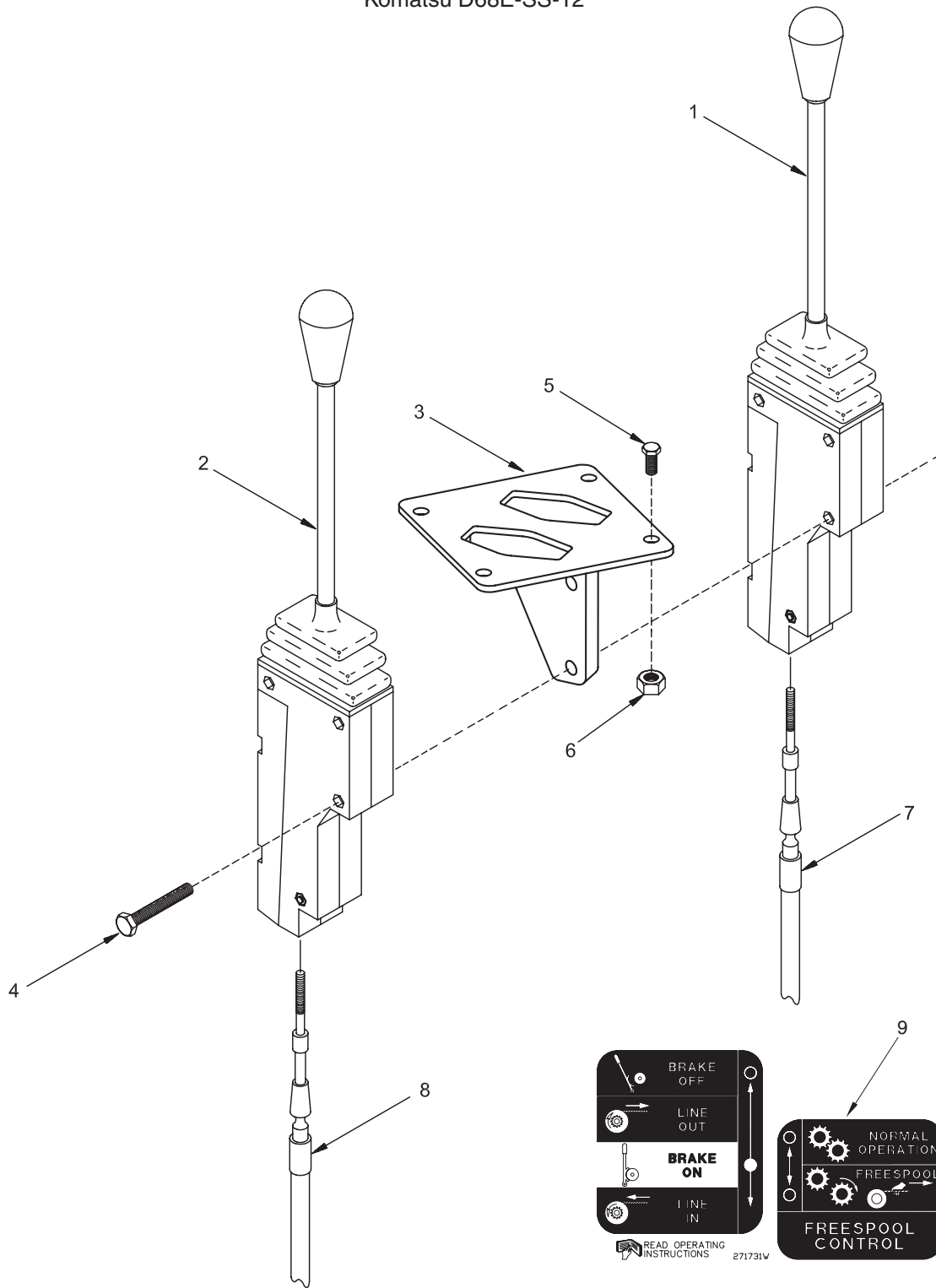
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2303984W	Lever, Control (see 3-95)	1	6	383881W	Nut	2
2	2303982W	Lever, Control, FS (see 3-95)	1	7	303944W	Cable, Control	1
3	2304304W	Bracket	1	8	303943W	Cable, Freespool	1
4	2304380W	Capscrew	6	9	271731W	Decal	1
5	18717W	Capscrew	2				

Handling Gear - Power Controls

Komatsu D85ESS-2 (K57) w/ FREESPOOL

First Used on AW8L-2946.

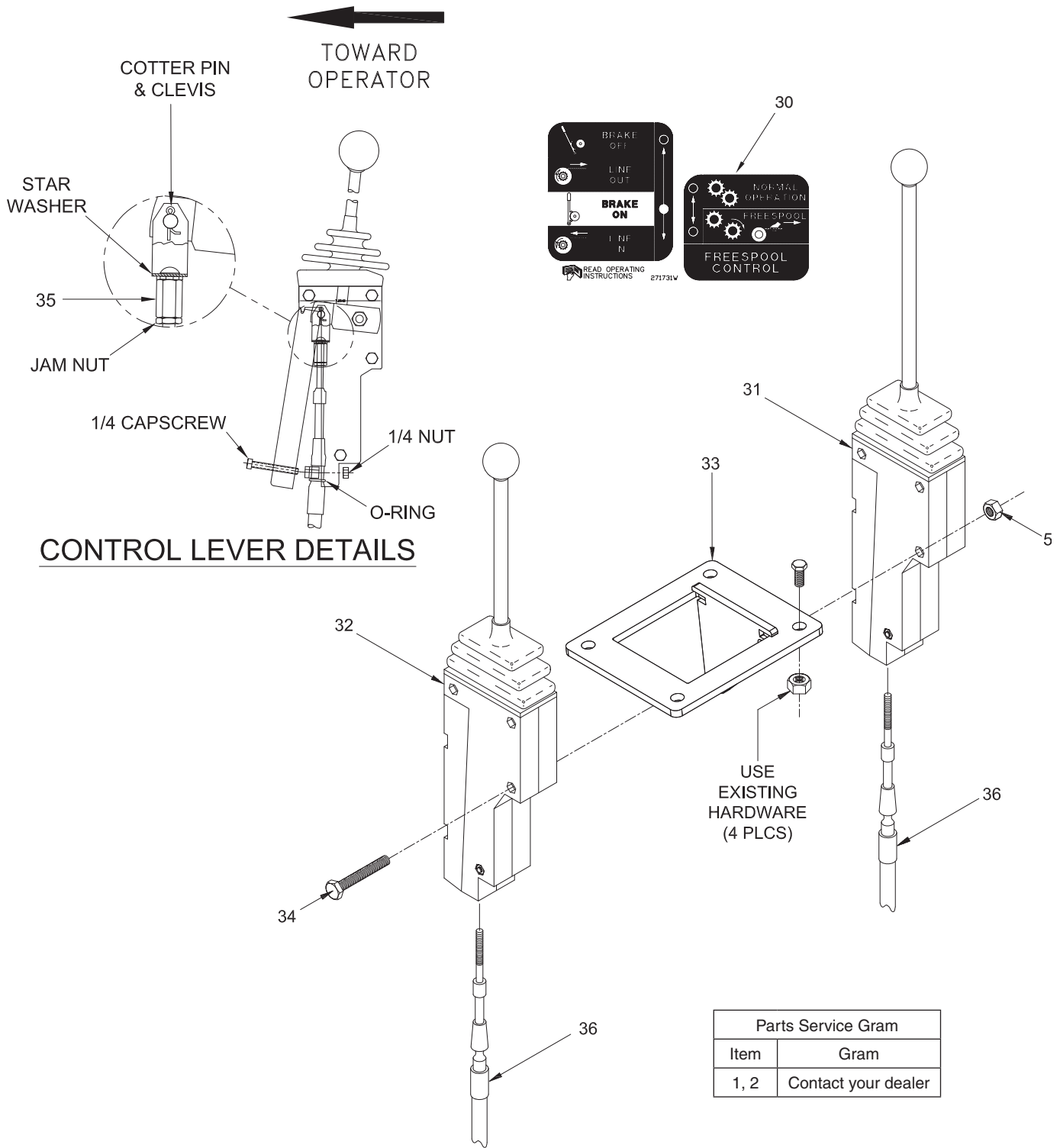
Komatsu D68E-SS-12



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2303984W	Lever, Control (See 3-95)	1	6	383881W	Nut	2
2	2303982W	Lever, Control, FS (See 3-95)	1	7	303944W	Cable, Control	1
3	2306932W	Bracket	1	8	303943W	Cable, Freespool	1
4	2304380W	Capscrew	6	9	271731W	Decal	1
5	18717W	Capscrew	2				

Handling Gear - Power Controls

Komatsu D85EX-15 (C50) w/ FREESPOOL

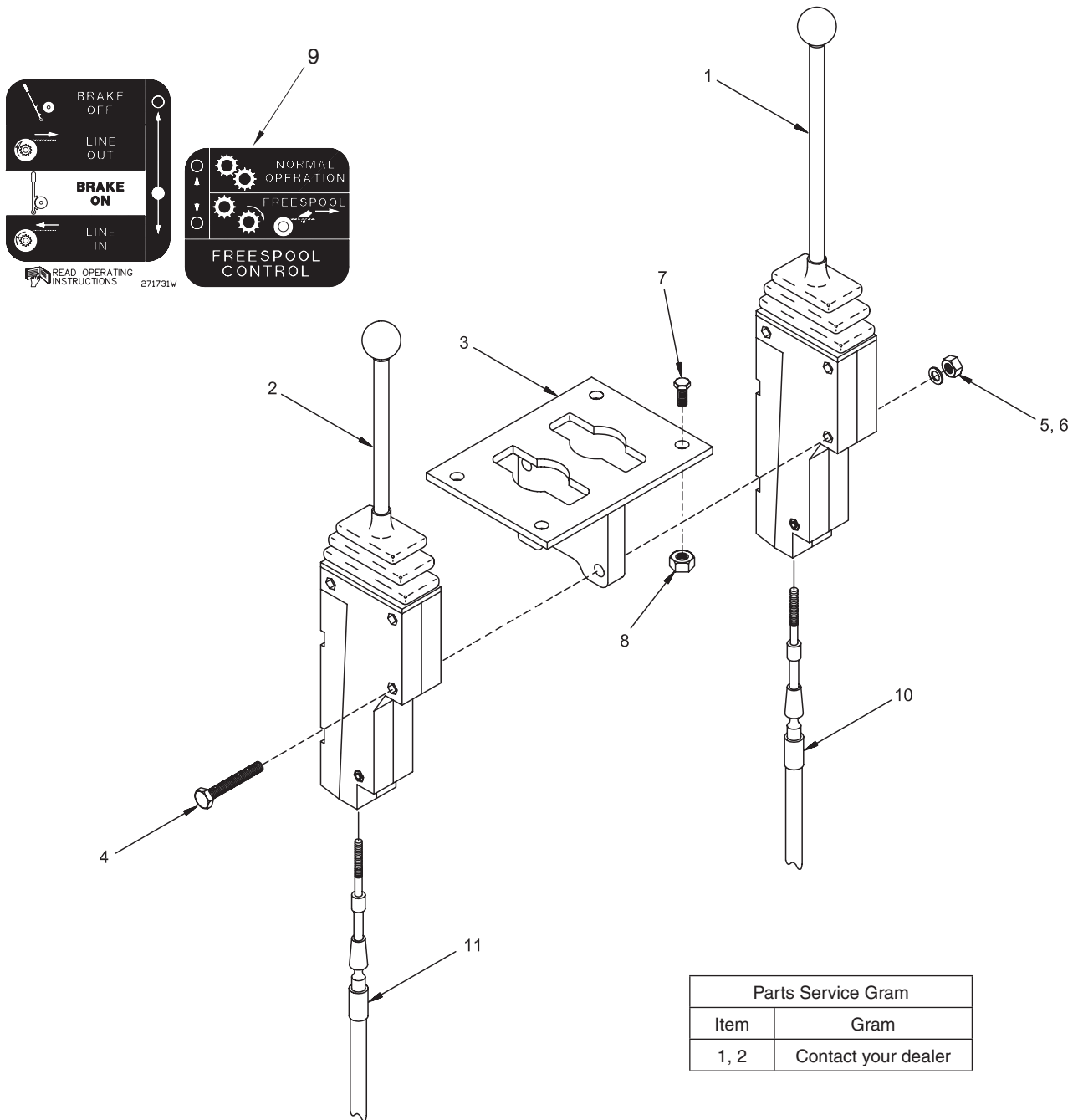


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
5	15154W	Nut	2	33	2306095W	Bracket	1
20	271731W	Decal	1	34	2301054W	CapscREW	2
31	2303982W	Lever, Control (3-95)	1	35	383881W	Nut, Tall	2
32	2303986W	Lever, Control (3-95)	1	36	303944W	Cable, Control/Freespool	2

Handling Gear - Power Controls

Komatsu D135A (K56) w/ FREESPOOL

First Used During 1993



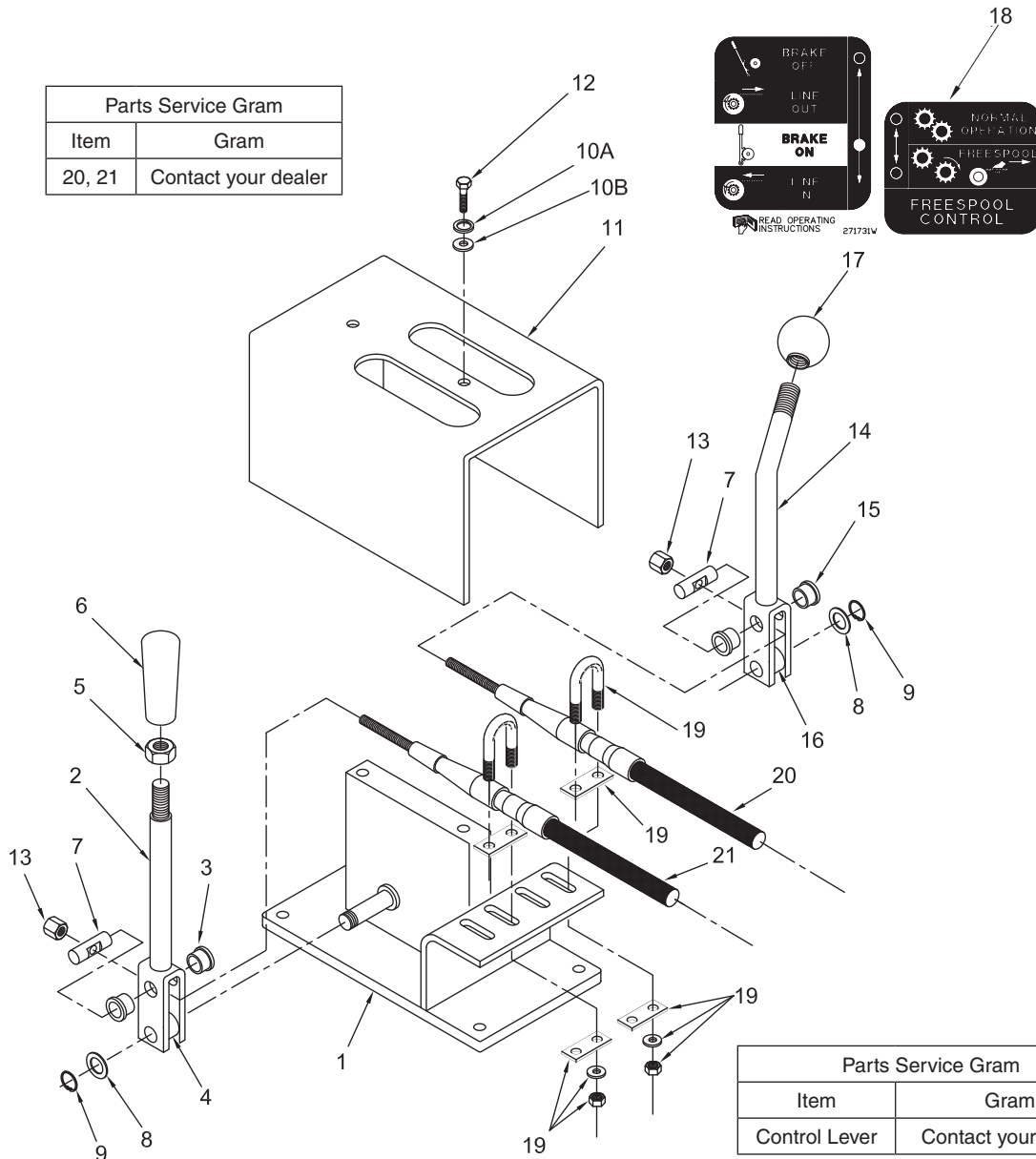
Parts Service Gram	
Item	Gram
1, 2	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	388658W	Assembly, Control Lever	1				
1	1300785W	. Lever, Control (See 3-94)	1	7	174413W	Capscrew	4
2	383880W	. Lever, Control, FS (See 3-93)	1	8	156133W	Nut	4
3	388659W	. Bracket	1	9	271731W	Decal	1
4	18528W	. Capscrew	3	10	303944W	Cable, Control	1
5	191534W	. Nut	3	11	303943W	Cable, Freespool	1
6	18515W	. Washer	3				

Handling Gear - Power Controls

Terex D700A (G51) w/ FREESPOOL

Parts Service Gram	
Item	Gram
20, 21	Contact your dealer



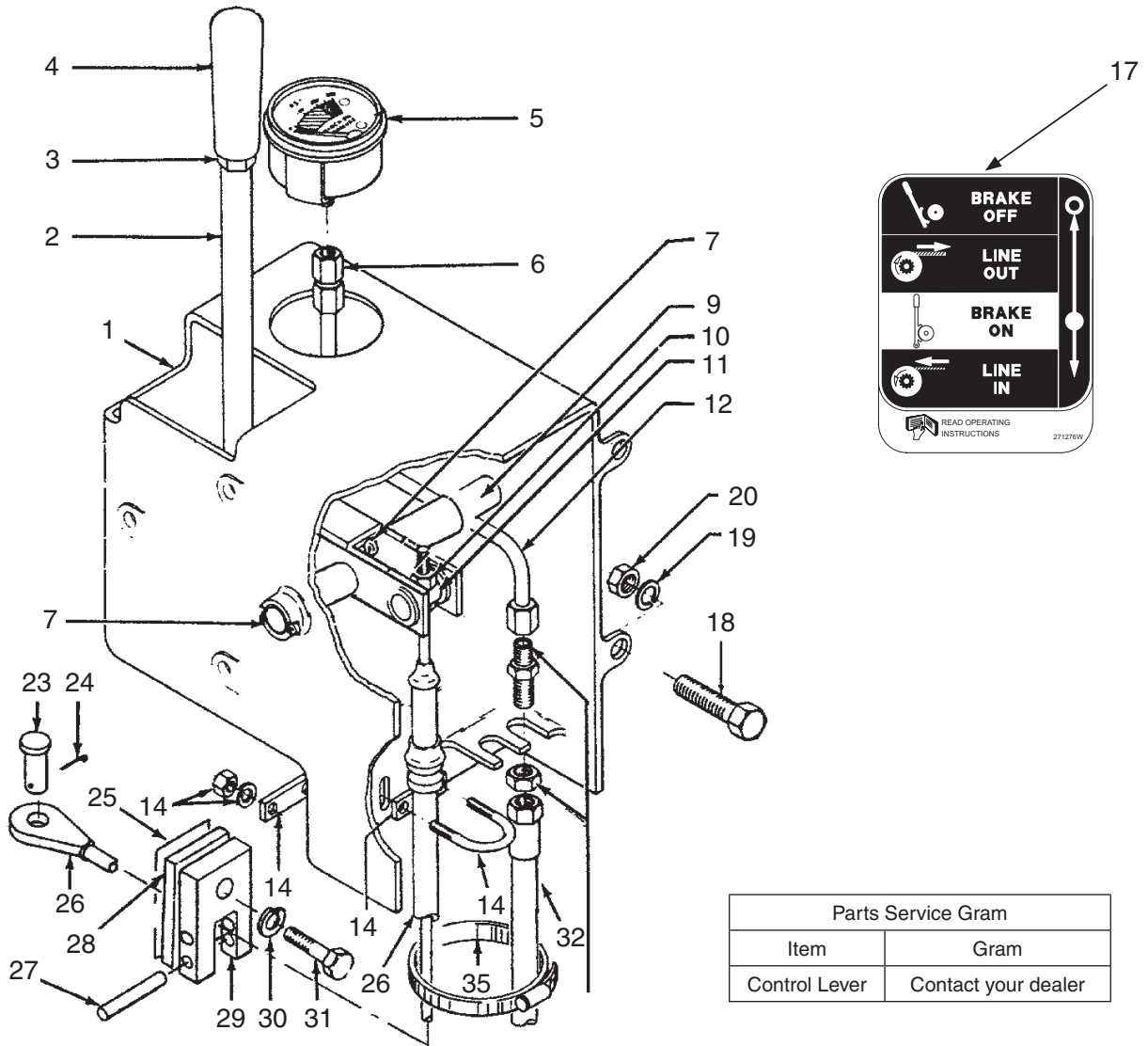
Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	332821W	Assembly, Control Lever	1	14	260619W	. Lever	1
	332823W	. Bracket	1		*a 276037W	. Lever	1
2	260618W	. Assembly, Lever	1	15	196144W	. Bushing, Nylon	1
	*a 276036W	. Assembly, Lever	1		*a 196144W	. Bushing, Nylon	2
3	196144W	. Bushing, Nylon	2	16	*a 276043W	. Bushing, Brass	1
	*a 196144W	. Bushing, Nylon	1	17	243189W	. Knob	1
4	*a 276043W	. Bushing, Brass	1	18	271731W	Decal	1
5	15030W	. Nut	1	19	2300995W	. U-Bolt Kit	2
6	2303105W	. Knob	1		NSS	. Cup Plate	1
7	196128W	. Pin	2		NSS	. Plate	1
8	15135W	. Washer	2		NSS	. Washer	2
9	190930W	. Ring, Snap	2		NSS	. Nut	2
10A	15155W	. Lockwasher	2	20	303941W	Cable, Freespool	1
10B	18515W	. Washer	2	21	303944W	Cable, Control	1
11	332822W	. Cover	1				
12	16836W	. Capscrew	2				
13	2301487W	. Nut, Tall	2				
					*a	First Used on S/N W8L-1578 and AW8L-1001	

Handling Gear - Power Controls

Caterpillar 572 (C60) w/o FREESPOOL

Last Used During 1993

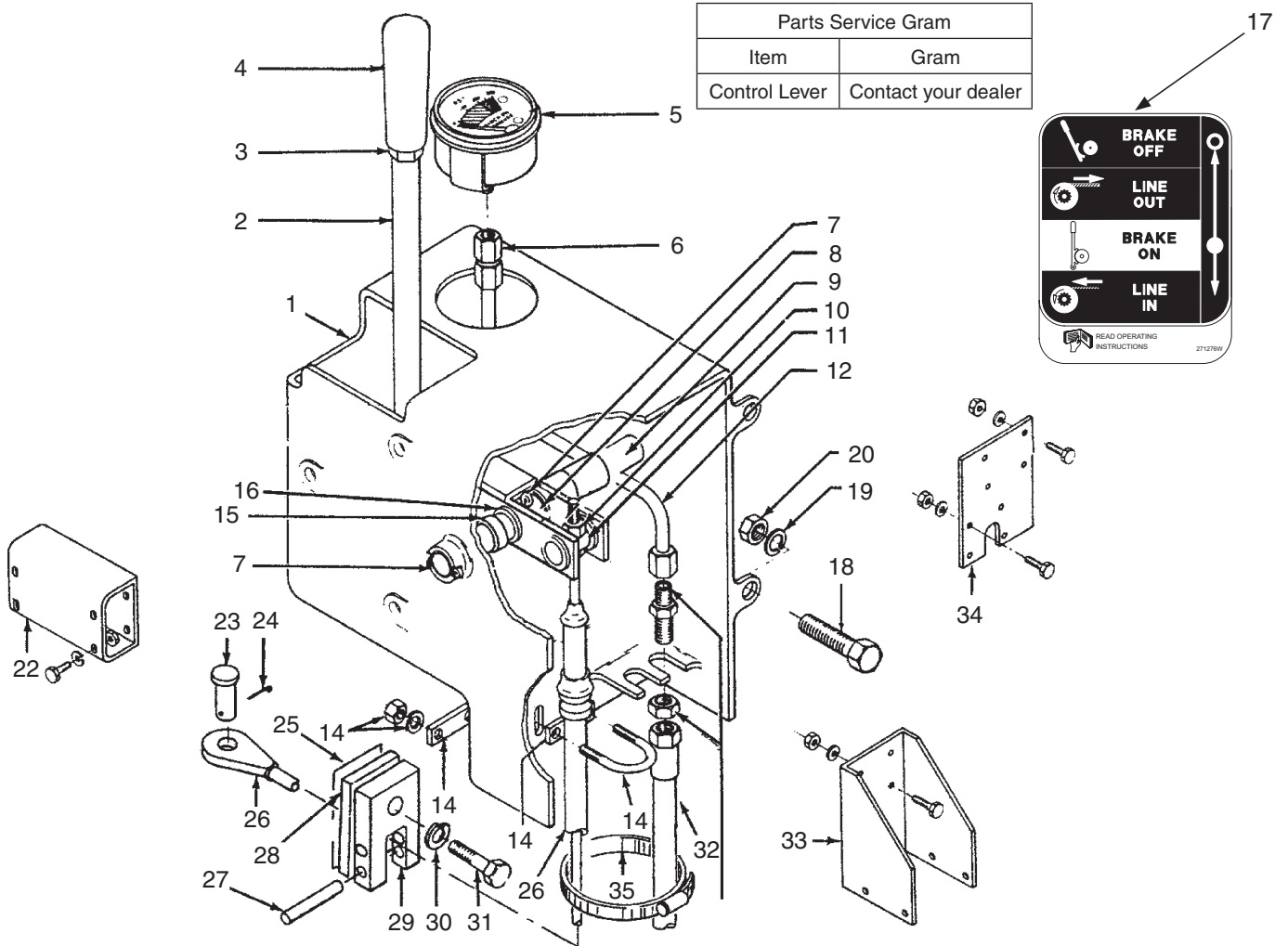


Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1				
1	196114W	. Housing	1	17	277276W	Decal	1
2	276031W	. Lever	1	18	16805W	CapscREW	4
	196144W	.. Bushing	2	19	15156W	Lockwasher	4
	276043W	.. Bushing	1	20	15056W	Nut	4
3	15030W	. Nut, Jam	1	23	139W	Pin	2
4	2303105W	. Knob	1	24	15212W	Pin, Cotter	1
5	192407W	. Gauge, Oil Press	1	25	303946W	Gasket	1
6	14712W	. Fitting	1	26	*a 303939W	Cable, Control	1
7	15225W	. Pin, Cotter	2	27	62499W	Pin, Slotted	2
9	276041W	. Pin	1	28	226360W	Block	1
10	15106W	. Locknut	1	28	*c 226359W	Gasket	1
	18425W	. Lockwasher	1	29	236417W	Bracket, Cable	1
	67355W	. Wire	AR	30	15158W	Lockwasher	1
11	196128W	. Pin	1	31	18591W	CapscREW	1
12	196134W	. Tube	1	32	*b 165504W	Hose	1
13	16445W	. Fitting	1	32	265325W	Hose	1
14	2300995W	. U-Bolt Kit	2	35	130845W	Clamp	1
	NSS	.. Cup Plate	1				
	NSS	.. Plate	1	*a	Caterpillar D7 and 572		
	NSS	.. Washer	2	*b	Caterpillar D7G 91V 92V and up, and 572		
	NSS	.. Nut	2	*c	Included in Gasket Kit 277341W		

Handling Gear - Power Controls

Caterpillar 572 (C60) w/o FREESPOOL
 First Used on S/N W8LP-1578 and AW8L-1001

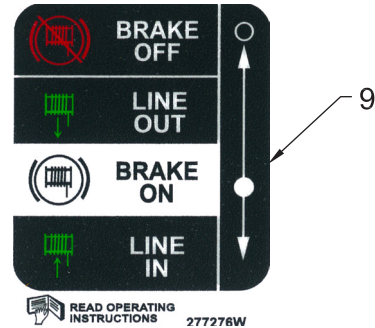
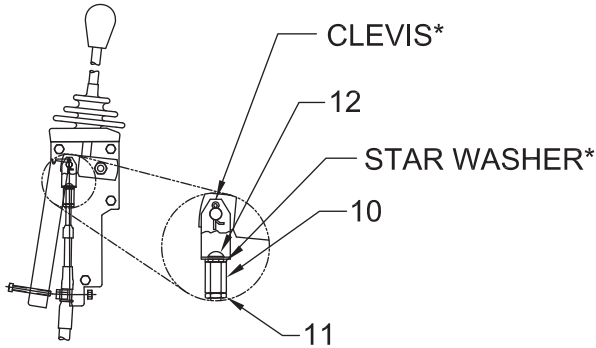


Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1				
1	196114W	. Housing	1	16	391016W	. Washer	1
2	276031W	. Lever	1	17	277276W	Decal	1
	196144W	. Bushing	2	18	16805W	Capscrew	4
	276043W	. Bushing	1	19	15156W	Lockwasher	4
3	15030W	. Nut, Jam	1	20	15056W	Nut	4
4	2303105W	. Knob	1	23	139W	Pin	2
5	192407W	. Gauge, Oil Press	1	24	15212W	Pin, Cotter	1
6	14712W	. Fitting	1	25	303946W	Gasket	1
7	15225W	. Pin, Cotter	2	26	*a 303939W	Cable, Control	1
8	271748W	. Spacer	1	27	62499W	Pin, Slotted	2
9	276041W	. Pin	1	28	226360W	Block	1
10	15106W	. Locknut	1	28	*c 226359W	Gasket	1
	18425W	. Lockwasher	1	29	236417W	Bracket, Cable	1
	67355W	. Wire	AR	30	15158W	Lockwasher	1
11	196128W	. Pin	1	31	18591W	Capscrew	1
12	196134W	. Tube	1	32	*b 165504W	Hose	1
13	16445W	. Fitting	1	32	265325W	Hose	1
14	2300995W	. U-Bolt Kit	2	35	130845W	Clamp	1
	NSS	. Cup Plate	1				
	NSS	. Plate	1				
	NSS	. Washer	2				
	NSS	. Nut	2				
15	15135W	. Flatwasher	3				
				*a	Caterpillar D7 and 572		
				*b	Caterpillar D7G 91V 92V and up, and 572		
				*c	Included in Gasket Kit 277341W		

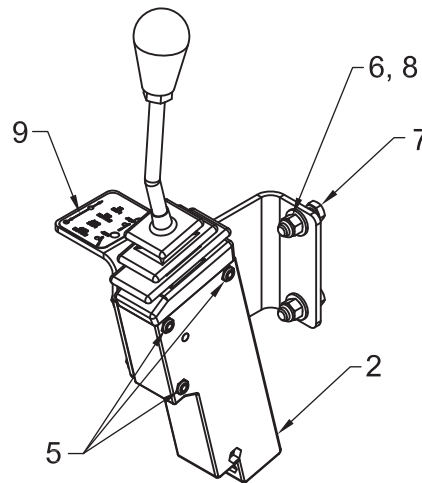
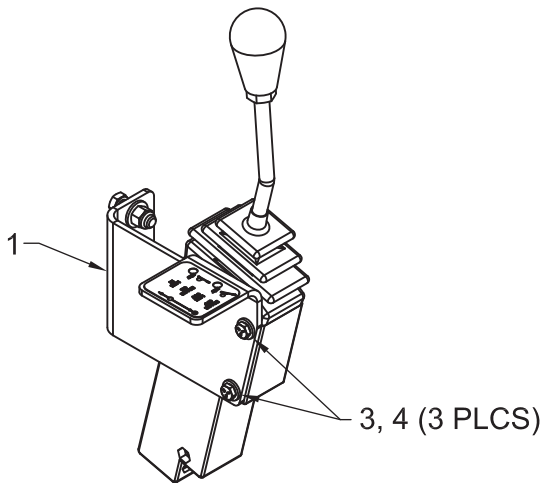
Handling Gear - Power Controls

Caterpillar 572G (C53) w/o FREESPOOL



CONTROL LEVER CABLE CONNECTION

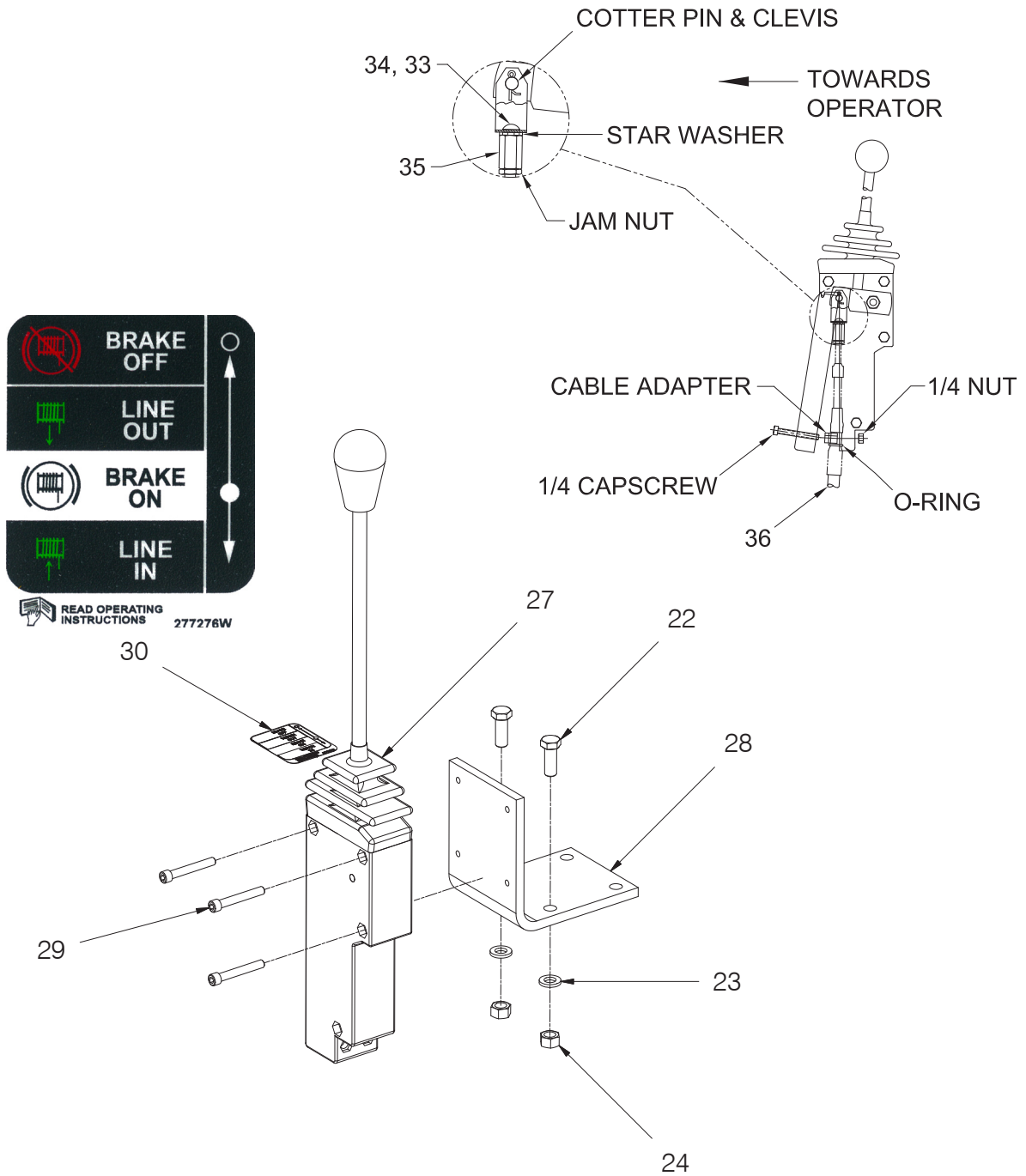
*CLEVIS PIN, COTTER STAR WASHER & JAM NUT ARE SUPPLIED IN BAG WITH CONTROL LEVER



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2313208	Assembly, Control Lever	1				
1	2313206	. Plate, Control Lever Mounting	1	7	16828W	. Capscrew	2
2	2307354W	. Lever, Control (See 3-95)	1	8	221767W	. Washer	2
3	221763W	. Washer	3	9	277276W	. Decal, Control Lever, w/o FS	1
4	Y01C-0432	. Capscrew	3	10	383881W	. Nut, Tall	1
5	R13811189	. Nut, Lock	3	11	15024W	. Nut	1
6	R13811191	. Nut, Lock	2	12	18717W	. Capscrew	1

Handling Gear - Power Controls

Caterpillar 983 Track Loader, Tractor S/N 18K (C983)
w/o FREESPOOL

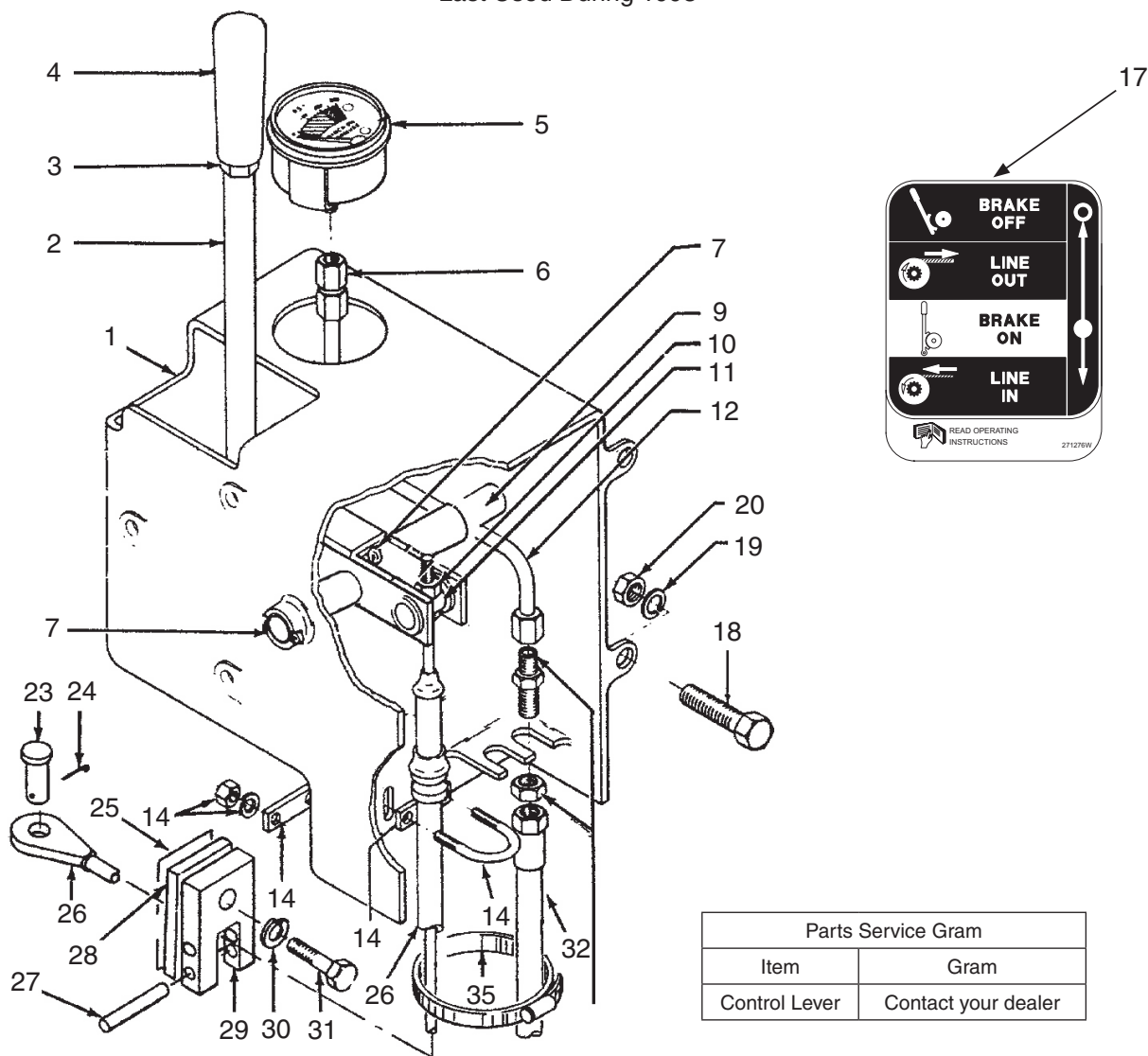


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
22	16805W	Capscrew	2	30	277276W	Decal, Control Lever - w/o FS	1
23	15156W	Washer, Lock	2	33	18717W	Capscrew	1
24	15056W	Nut	2	34	156133W	Nut, Serrated Flange	1
27	2303984W	Lever, Control (See 3-95)	1	35	383881W	Nut, Tall	1
28	2304386W	Bracket, Control Lever	1	36	303944W	Cable, Control	1
29	2304380W	Capscrew	3				

Handling Gear - Power Controls

Caterpillar D7G (C51, C52) w/o FREESPOOL

Last Used During 1993



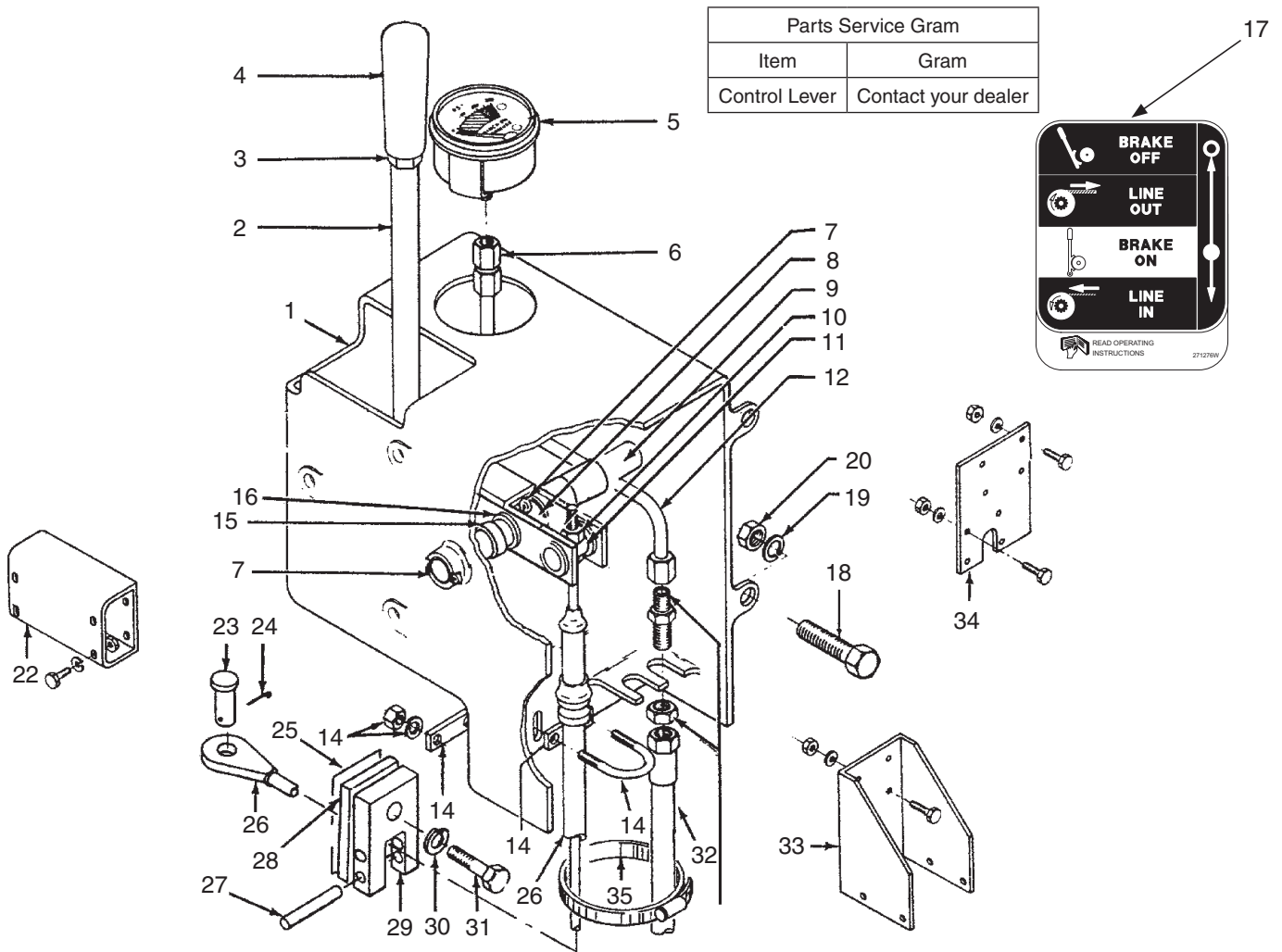
Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1				
1	196114W	. Housing	1	17	277276W	Decal	1
2	276031W	. Lever	1	18	16805W	Capscrew	4
	196144W	. Bushing	2	19	15156W	Lockwasher	4
	276043W	. Bushing	1	20	15056W	Nut	4
3	15030W	. Nut, Jam	1	23	139W	Pin	2
4	2303105W	. Knob	1	24	15212W	Pin, Cotter	1
5	192407W	. Gauge, Oil Press	1	25	303946W	Gasket	1
6	14712W	. Fitting	1	26	303939W	Cable	1
7	15225W	. Pin, Cotter	2	27	62499W	Pin, Slotted	2
9	276041W	. Pin	1	28	226360W	Block	1
10	15106W	. Locknut	1	28	*c 226359W	Gasket	1
	18425W	. Lockwasher	1	29	236417W	Bracket, Cable	1
	67355W	. Wire	AR	30	15158W	Lockwasher	1
11	196128W	. Pin	1	31	18591W	Capscrew	1
12	196134W	. Tube	1	32	*a 165504W	Hose	1
13	16445W	. Fitting	1	32	265325W	Hose	1
14	2300995W	. U-Bolt Kit	1	35	*b 130845W	Clamp	1
	NSS	. Cup Plate	2				
	NSS	. Plate	1				
	NSS	. Washer	2				
	NSS	. Nut	2				
				*c	Caterpillar D7G 91V 92V and up, and 572		
				*d	Caterpillar D7G DD 91V		
				*c	Included in Gasket Kit 277341W		

Handling Gear - Power Controls

Caterpillar D7G (C51, C52) w/o FREESPOOL

First Used on S/N W8LP-1578 and AW8L-1001



Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

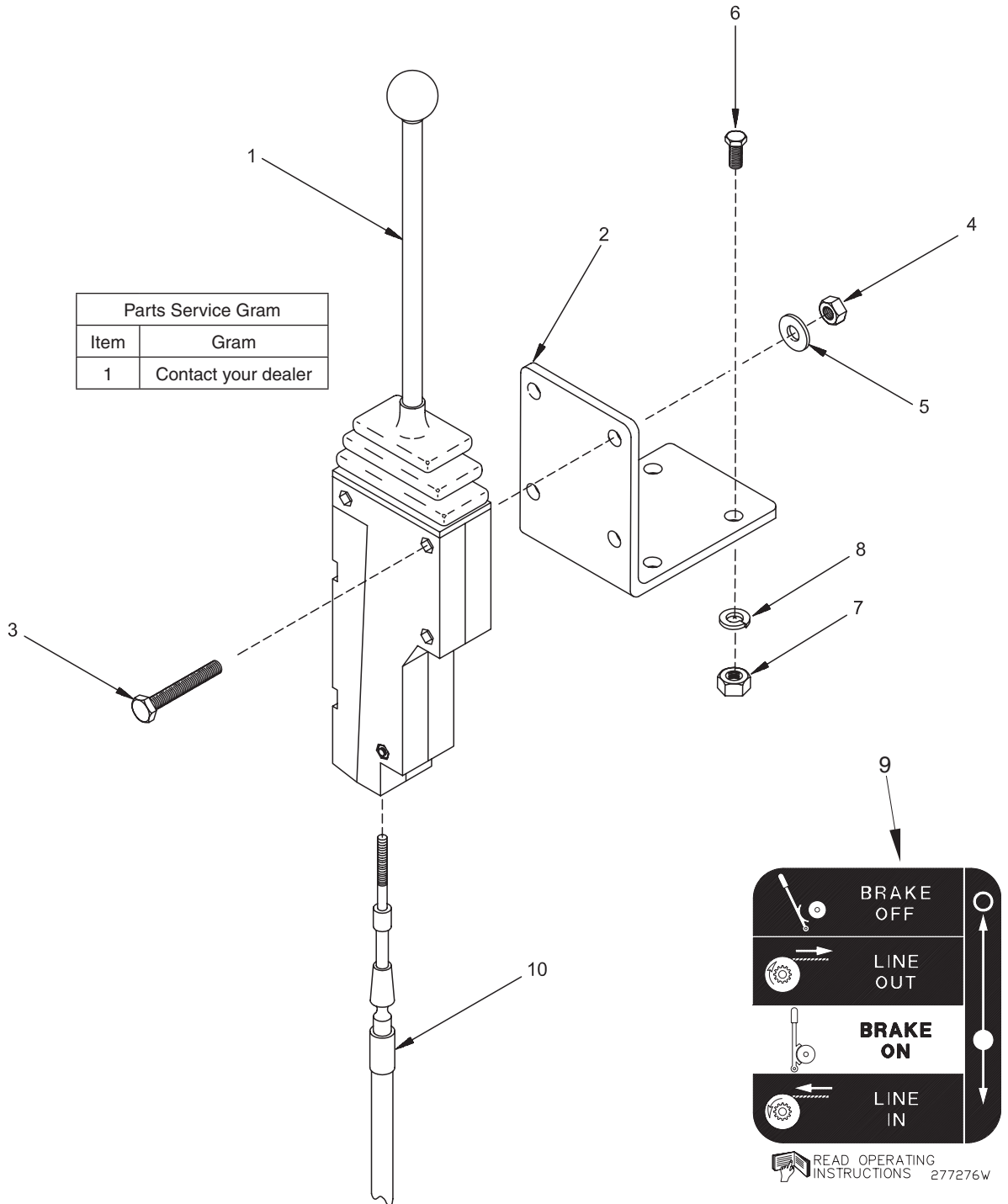
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1				
1	196114W	. Housing	1	16	391016W	. Washer	1
2	276031W	. Lever	1	17	277276W	Decal	1
	196144W	.. Bushing	2	18	16805W	Capscrew	4
	276043W	.. Bushing	1	19	15156W	Lockwasher	4
3	15030W	. Nut, Jam	1	20	15056W	Nut	4
4	2303105W	. Knob	1	23	139W	Pin	2
5	192407W	. Gauge, Oil Press	1	24	15212W	Pin, Cotter	1
6	14712W	. Fitting	1	25	303946W	Gasket	1
7	15225W	. Pin, Cotter	2	26	303939W	Cable, Control	1
8	271748W	. Spacer	1	27	62499W	Pin, Slotted	2
9	276041W	. Pin	1	28	226360W	Block	1
10	15106W	. Locknut	1	28	*e 226359W	Gasket	1
	18425W	. Lockwasher	1	29	236417W	Bracket, Cable	1
	67355W	. Wire	AR	30	15158W	Lockwasher	1
11	196128W	. Pin	1	31	18591W	Capscrew	1
12	196134W	. Tube	1	32	*c 165504W	Hose	1
13	16445W	. Fitting	1	32	265325W	Hose	1
14	2300995W	. U-Bolt Kit	2	35	*d 130845W	Clamp	1
	NSS	.. Cup Plate	1				
	NSS	.. Plate	1				
	NSS	.. Washer	2				
	NSS	.. Nut	2				
15	15135W	. Flatwasher	3				
				*c	Caterpillar D7G 91V 92V and up, and 572		
				*d	Caterpillar D7G DD 91V		
				*e	Included in Gasket Kit 277341W		

Handling Gear - Power Controls

Caterpillar D7G (C51, C52) w/o FREESPOOL

First Used During 1993

Last Used on S/N AW8L-1683



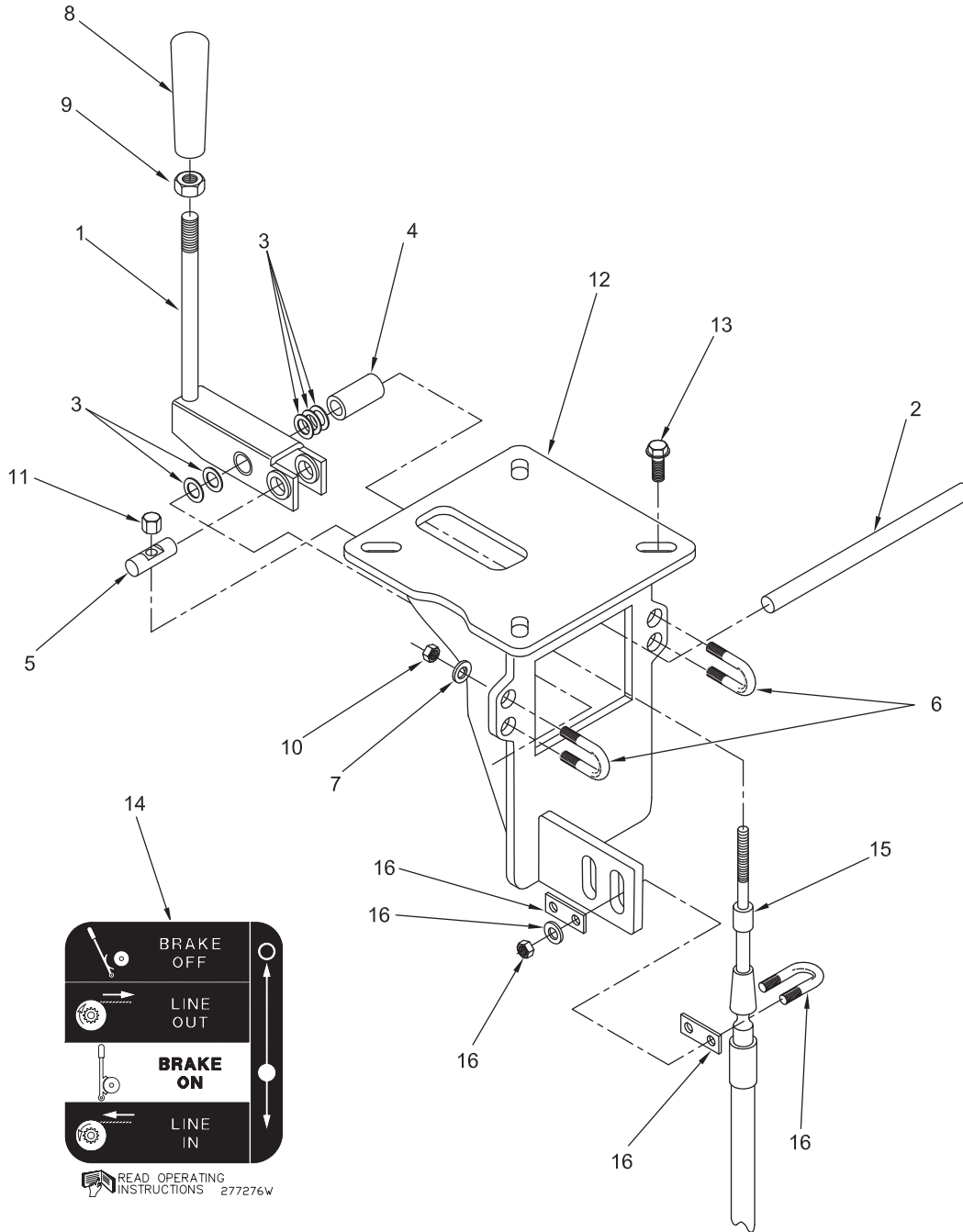
Parts Service Gram	
Item	Gram
1	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1300785W	Assembly, Control Lever (See 3-94)	1	6	16805W	Capscrew	4
2	2300202W	Bracket	1	7	15056W	Nut	4
3	3003079W	Capscrew	3	8	15156W	Washer	4
4	191941W	Nut	3	9	277276W	Decal	1
5	18515W	Washer	3	10	303939W	Cable, Control	1

Handling Gear - Power Controls

Caterpillar D7G (C51, C52) w/o FREESPOOL

Used on S/N AW8L-1684 thru AW8L-2292



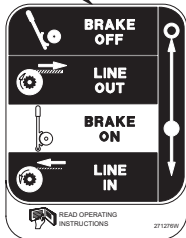
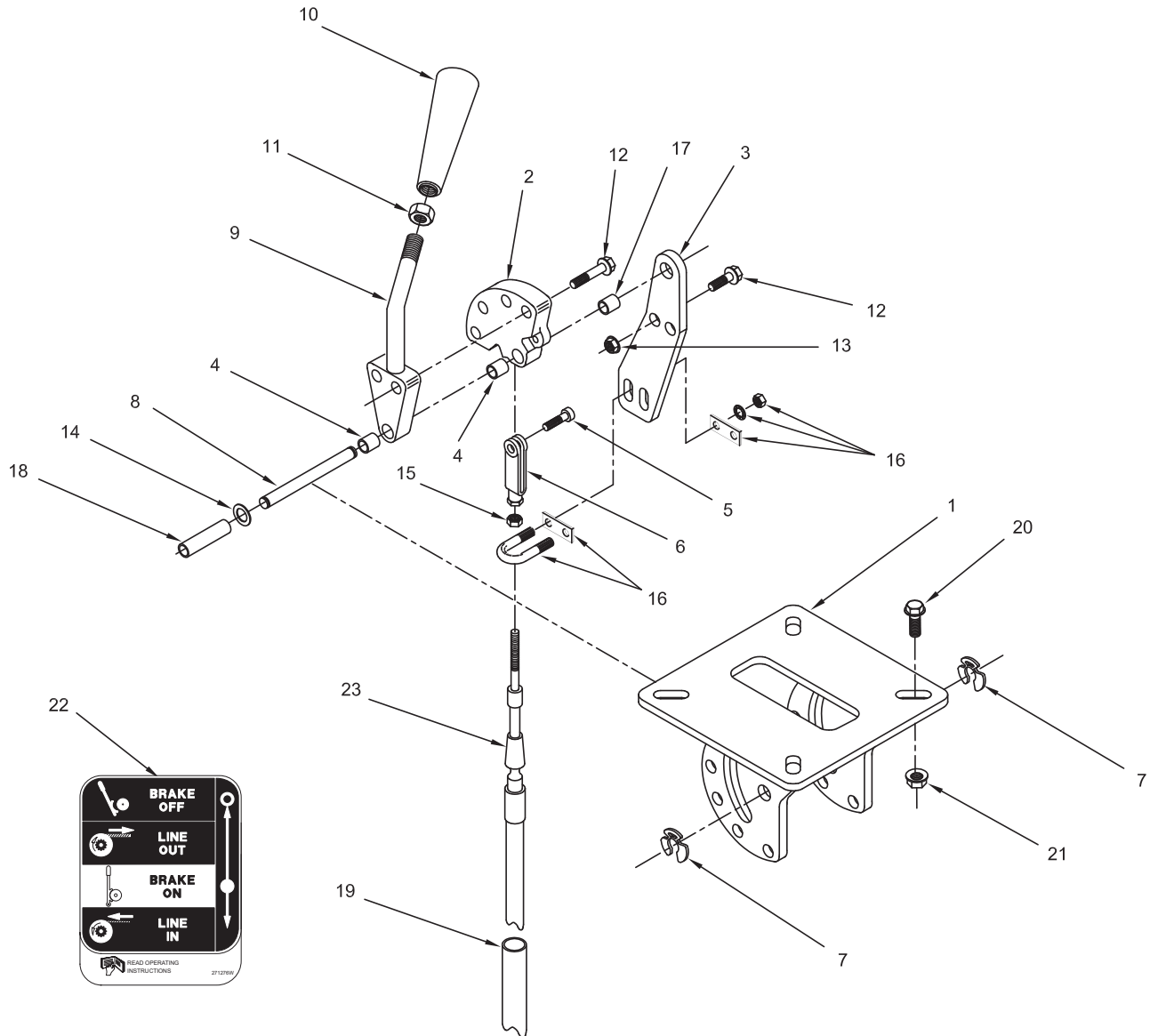
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2301976W	Assembly, Control Lever	1				
1	276031W	. Assembly, Lever	1	11	2301487W	. Nut	1
2	276081W	. Pin	1	12	2301975W	. Bracket	1
3	15135W	. Washer	5	13	134803W	Screw, Flange	4
4	271747W	. Spacer	1	14	277276W	Decal	1
5	196128W	. Pin	1	15	303939W	Cable	1
6	196129W	. U-Bolt	2	16	2300995W	Kit, U-Bolt	1
7	15155W	. Washer	4		NSS	. Cup Plate	1
8	2303105W	. Knob	1		NSS	. Plate	1
9	15030W	. Nut	1		NSS	. Washer	2
10	15055W	. Nut	4		NSS	. Nut	2

Handling Gear - Power Controls

Caterpillar D7G (C51, C52) /D7H (C54) /D7R PS (C57) w/o FREESPOOL

First Used on S/N AW8L-2293

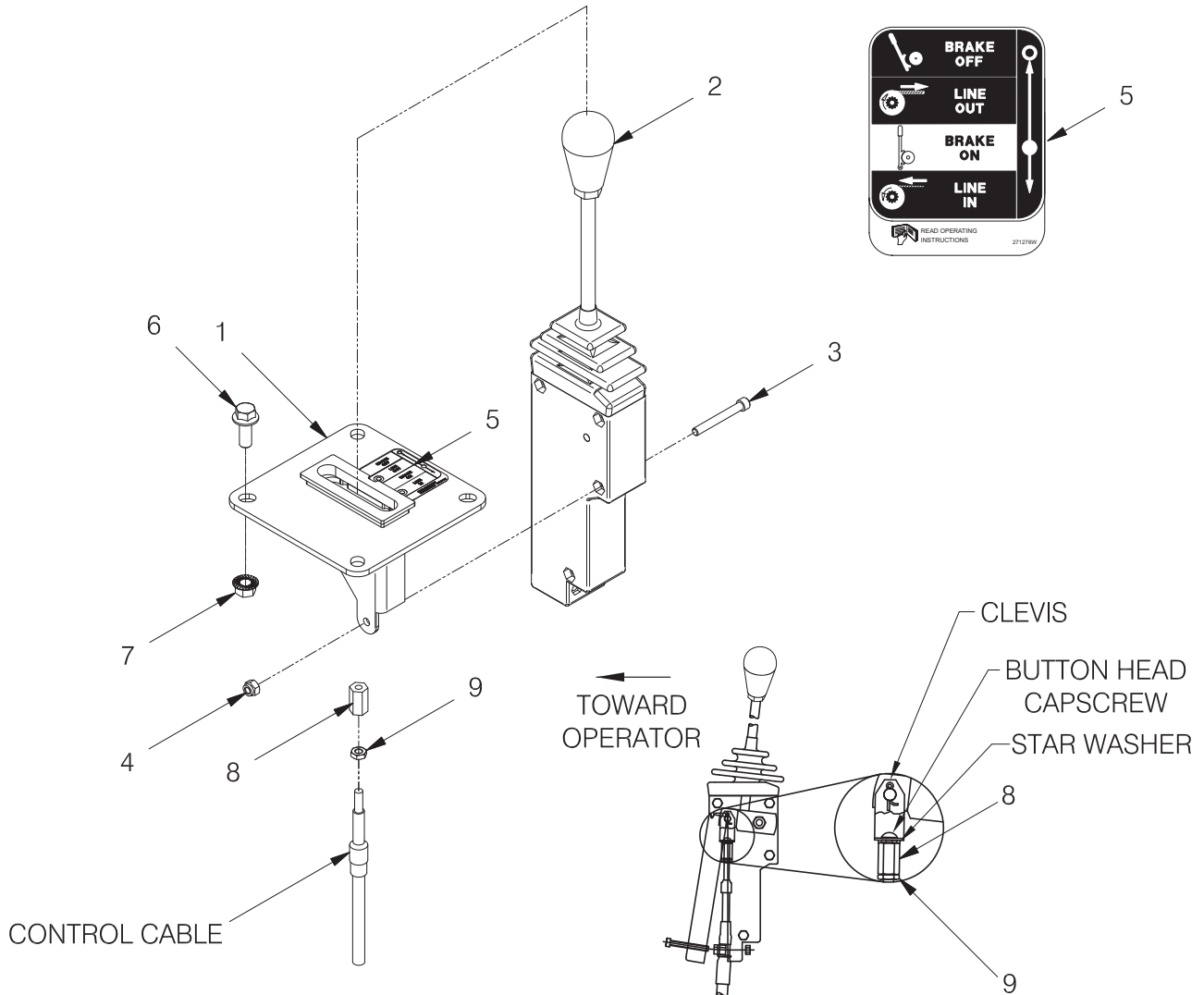
Last Used on D7R on S/N AW8L-2488



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2303168W	Assembly, Control Lever	1				
	2303169W	. Bracket, Control Lever	1		NSS	. . Cup Plate	1
2	2303172W	. Plate, Pivot	1		NSS	. . Plate	1
3	2303173W	. Plate, Angle Adjust	1		NSS	. . Washer	2
4	2303174W	. Bushing	2		NSS	. . Nut	2
5	2303175W	. Capscrew	1	17	2303223W	. Spacer	1
6	2303176W	. End, Rod	1	18	271747W	. Spacer	1
7	2303177W	. Clip, Ring	2	19	*b 381181W	Guard, Cable	1
8	2303178W	. Pin	1	20	*a 134803W	Screw, Flange	4
9	2303180W	. Control Lever	1		*b 174413W	Screw, Flange	4
10	2303181W	. Knob	1	21	*b 156133W	Nut, Flange	4
11	15011W	. Nut, Jam	1	22	277276W	Decal	1
12	174413W	. Screw, Flange	2	23	*a 303939W	Cable, Control	1
13	156133W	. Nut, Flange	1		*b 303942W	Cable, Control	1
14	2303222W	. Shim	AR				
15	15024W	. Nut, Jam	1		*a	For Caterpillar D7G	
16	2300995W	. Kit, U-Bolt	2		*b	For Caterpillar D7H/D7R	

Handling Gear - Power Controls

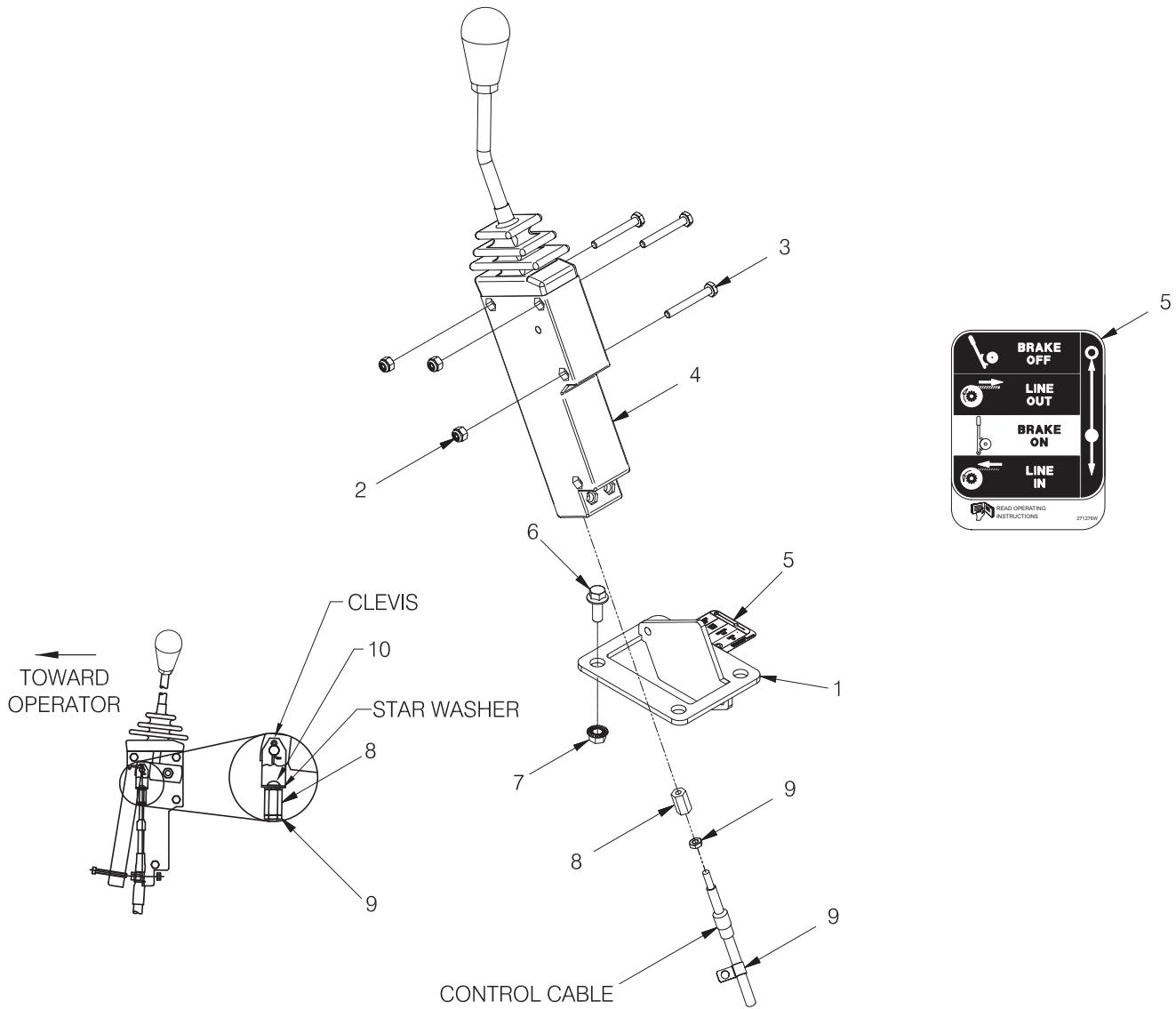
Caterpillar D7G Series II (C83) w/o FREESPOOL
Last Used on S/N AW8L-3573



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2310887	Assembly, Control Lever	1				
1	2310885	. Bracket, Control Lever	1	6	174413W	Screw, Flange	4
2	2303982W	. Lever, Control (See 3-95)	1	7	156133W	Nut, Flange	4
3	18127W	. Capscrew	3	8	383881W	Nut, Tall	1
4	15113W	. Nut	3	9	15024W	Nut, Jam	1
5	277276W	Decal	1				

Handling Gear - Power Controls

Caterpillar D7G Series II (C83) w/o FREESPOOL
First Used on S/N AW8L-3574

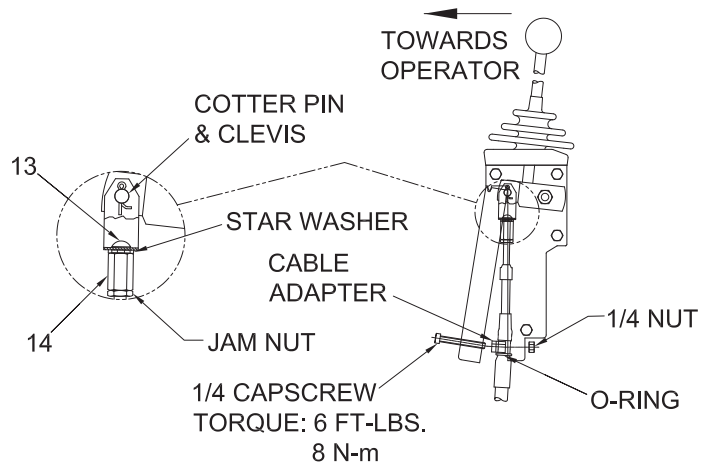


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2312589	Assembly, Control Lever	1				
1	2312588	. Mount, Lever	1	7	156133W	Nut, Flange	4
2	R13811189	. Nut, Lock	3	8	383881W	Nut, Tall	1
3	Y01C-0432	. Capscrew	3	9	15024W	Nut, Jam	1
4	2305979W	. Lever, Control (See 3-95)	4	10	18717W	Capscrew	1
5	277276W	Decal	1	11	387316W	Clamp	1
6	174413W	Screw, Flange	4				

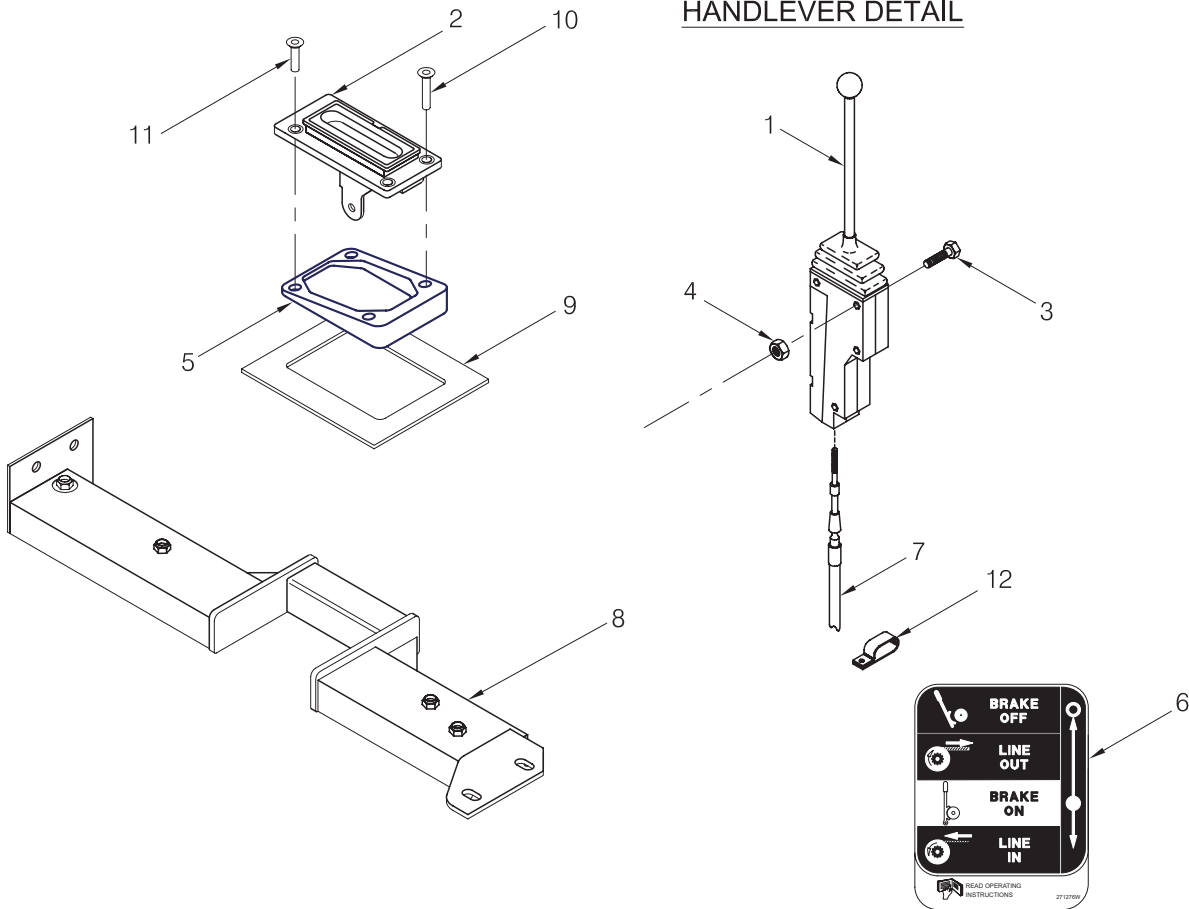
Handling Gear - Power Controls

Caterpillar D7R (C54) w/o FREESPOOL

First Used on S/N AW8L-2489



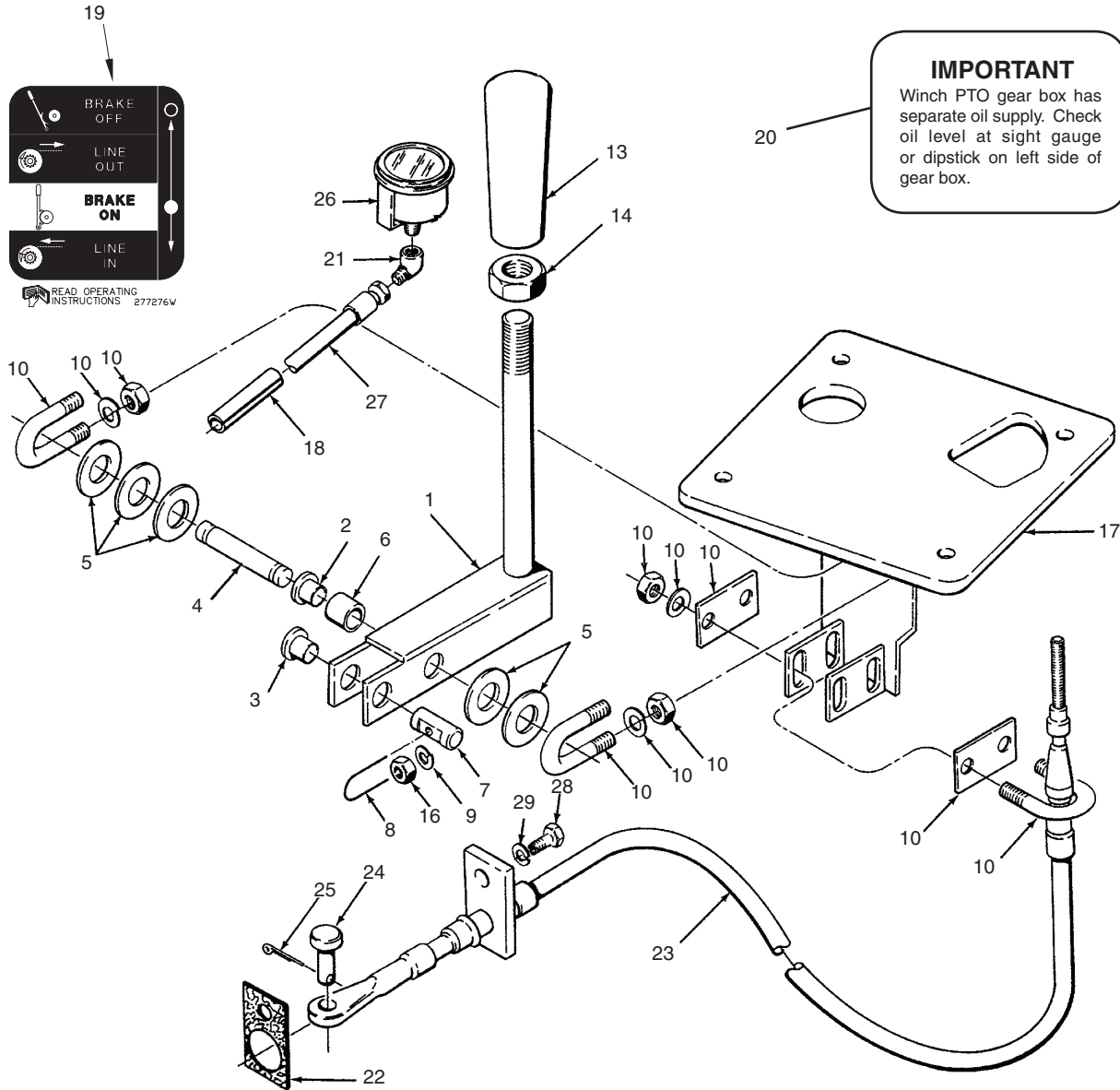
HANDLEVER DETAIL



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2304557W	Assembly, Control Lever	1				
1	2303982W	. Lever, Control (See 3-95)	1	9	2304569W	Gasket	1
2	2304552W	. Bracket	1	10	2304868W	Capscrew	2
3	18127W	. Capscrew	3	11	18738W	Capscrew	2
4	15113W	. Nut	3	12	129563W	Clamp, Strap	1
5	2304867W	Spacer	1	13	18717W	Capscrew	1
6	277276W	Decal, Control Lever	1	14	383881W	Nut, Tall	1
7	303941W	Cable, Control	1	15	2301055W	Trim, Vinyl (Not Shown)	2ft
8	2304571W	Assembly, Channel	1				

Handling Gear - Power Controls

Caterpillar D7R (C54) /D7H PS (C54) Prior to S/N 5TJ0001 w/o FREESPOOL
 First Used on S/N W8L-3191 & AW8L-1001

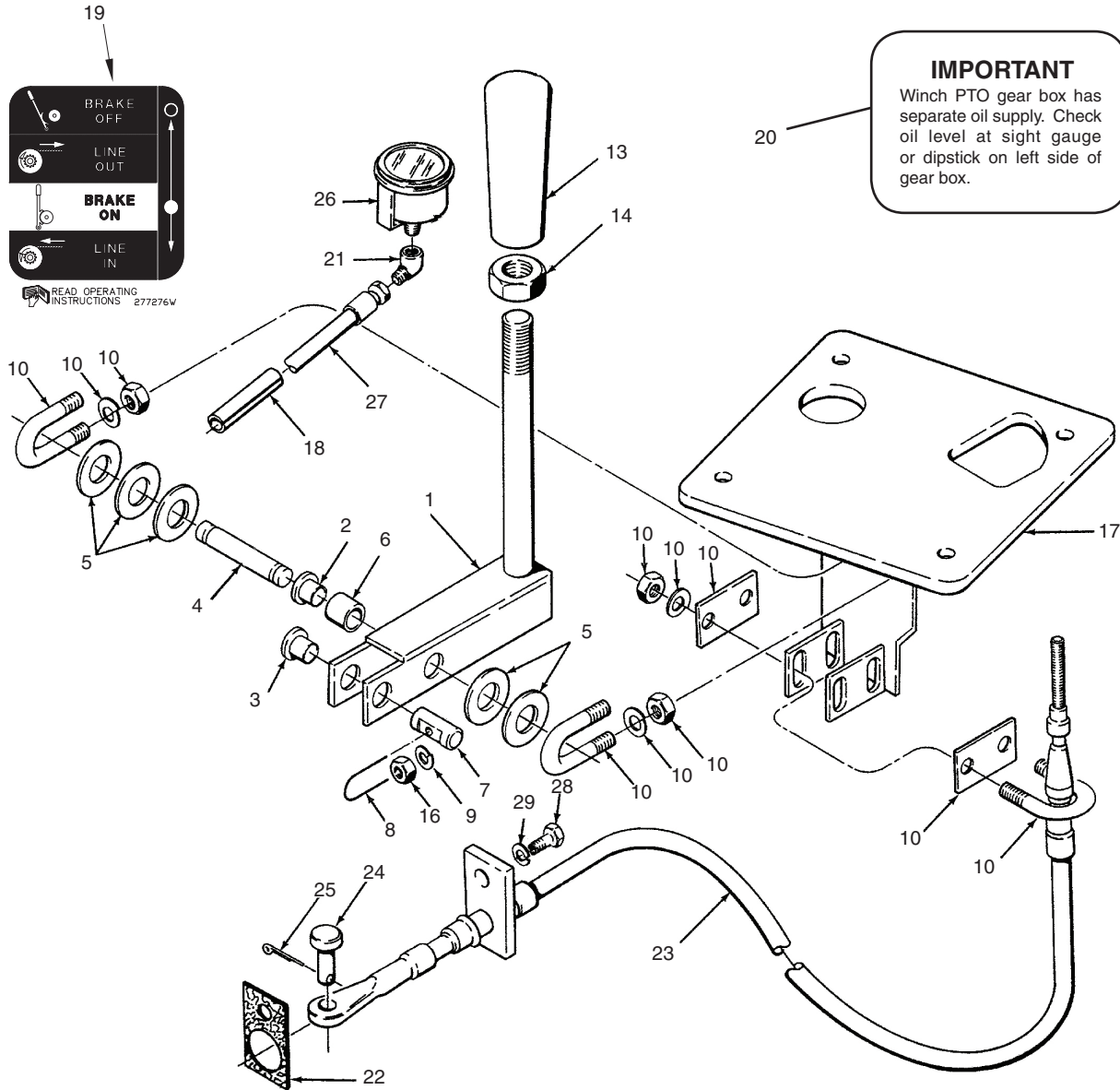


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	276031W	Lever	1	16	15106W	Locknut	1
2	276043W	. Bushing	1	17	379460W	Bracket	1
3	196144W	. Bushing	2	18	*a 381181W	Guard	1
4	276081W	Pin	1	19	277276W	Decal	1
5	15135W	Washer	5	20	*a 379491W	Decal	1
6	271747W	Spacer	1	21	*a 381166W	Fitting	1
7	196128W	Pin	1	22	303946W	Gasket	1
8	67355W	Wire	AR	23	303942W	Cable, Control	1
9	18425W	Lockwasher	1	24	139W	Pin	1
10	2300995W	Kit, U-Bolt	2	25	15212W	Pin, Cotter	1
	NSS	. Cup Plate	1	26	*a 192407W	Gauge, Oil Press	1
	NSS	. Plate	1	27	*a 205006W	Assembly, Hose	1
	NSS	. Washer	2	28	18591W	Capscrew	1
	NSS	. Nut	2	29	15158W	Washer	1
13	196469W	Knob	1				
14	15030W	Nut	1				
				*a	Last Used on S/N AW8L-1001		

Handling Gear - Power Controls

Caterpillar D8N (C55, C56) Prior to S/N 5TJ0001 w/o FREESPOOL

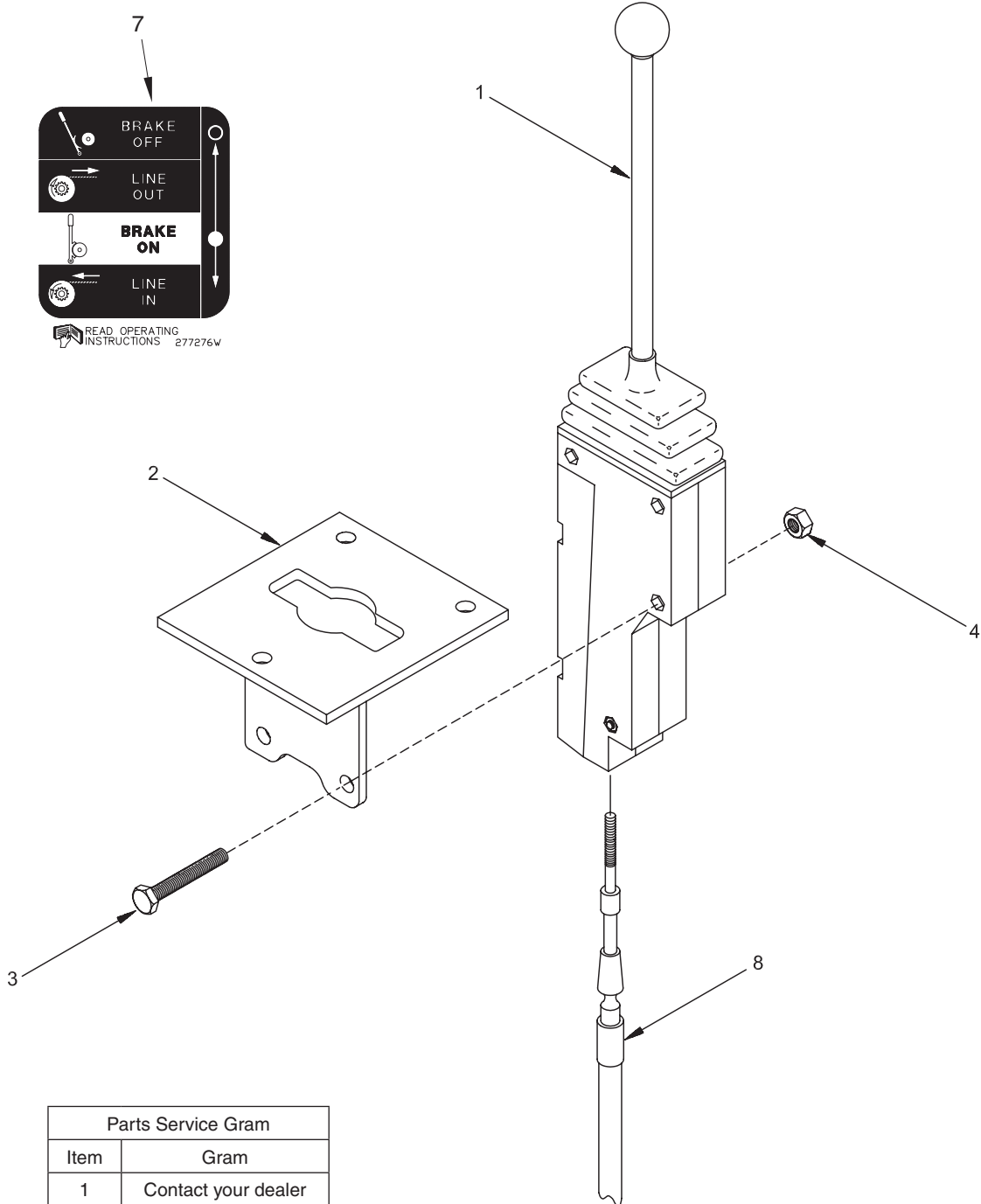
First Used on S/N W8L-3191 & AW8L-1001



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	276031W	Lever	1	16	15106W	Locknut	1
2	276043W	. Bushing	1	17	379460W	Bracket	1
3	196144W	. Bushing	2	18	*a 381181W	Guard	1
4	276081W	Pin	1	19	277276W	Decal	1
5	15135W	Washer	5	20	*a 379491W	Decal	1
6	271747W	Spacer	1	21	*a 381166W	Fitting	1
7	196128W	Pin	1	22	303946W	Gasket	1
8	67355W	Wire	AR	23	303942W	Cable, Control	1
9	18425W	Lockwasher	1	24	139W	Pin	1
10	2300995W	Kit, U-Bolt	2	25	15212W	Pin, Cotter	1
	NSS	. Cup Plate	1	26	*a 192407W	Gauge, Oil Press	1
	NSS	. Plate	1	27	*a 205006W	Hose	1
	NSS	. Washer	2	28	18591W	Capscrew	1
	NSS	. Nut	2	29	15158W	Washer	1
13	196469W	Knob	1				
14	15030W	Nut	1				
				*a	Last Used on S/N AW8L-1001		

Handling Gear - Power Controls

Caterpillar D8N (C55, C56) /D8R (C56, C58) w/o FREESPOOL



Parts Service Gram	
Item	Gram
1	Contact your dealer

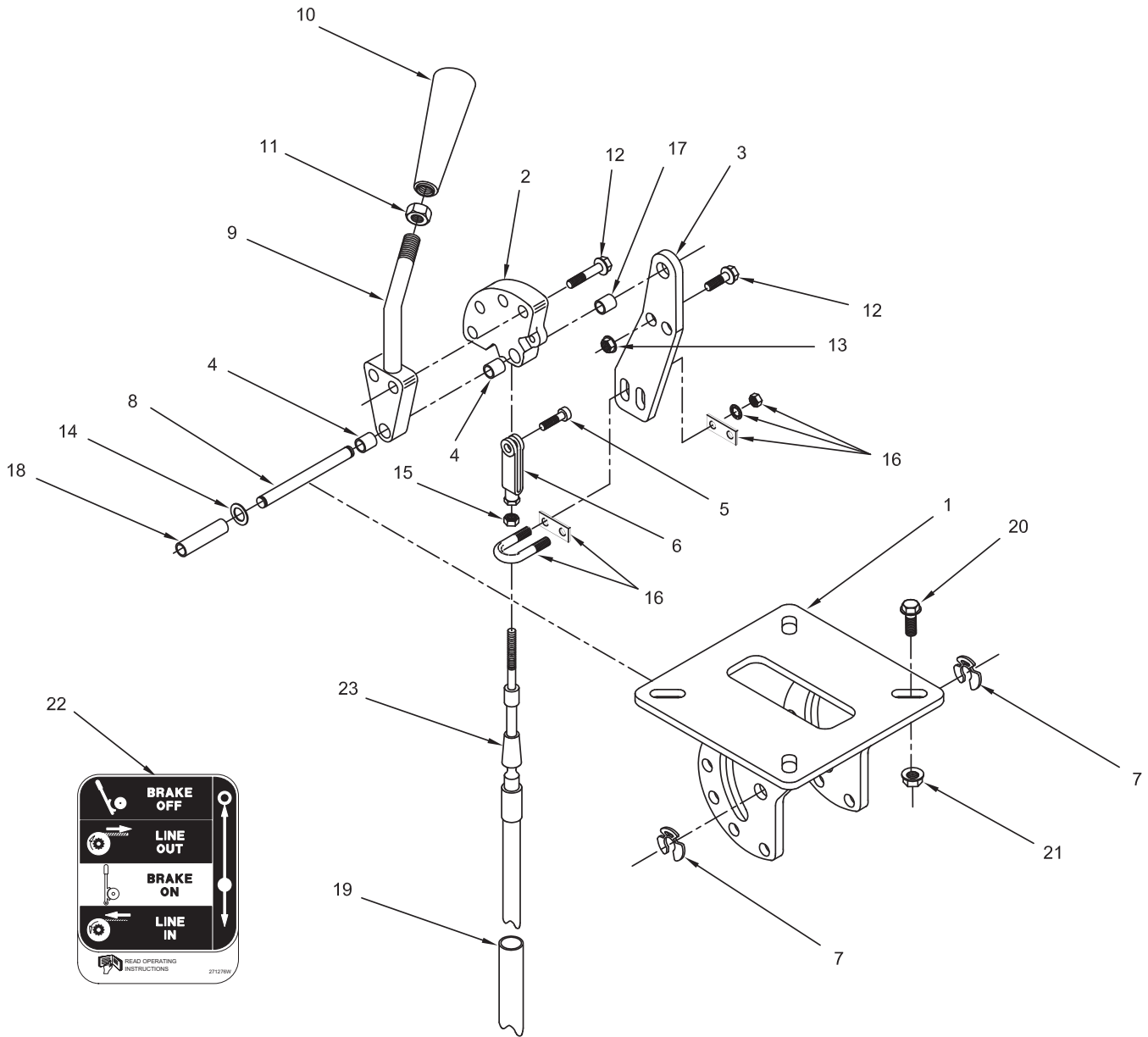
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1300785W	Lever, Control (See 3-94)	1	4	191941W	Nut	3
2	2301871W	Bracket	1	7	277276W	Decal	1
3	3003079W	Capscrew	3	8	303939W	Cable, Control	1

Handling Gear - Power Controls

Caterpillar D8N (C55, C56) /D8R (C56, C58) w/o FREESPOOL

First Used on S/N AW8L-2293

Last Used on D8R on S/N AW8L-2488

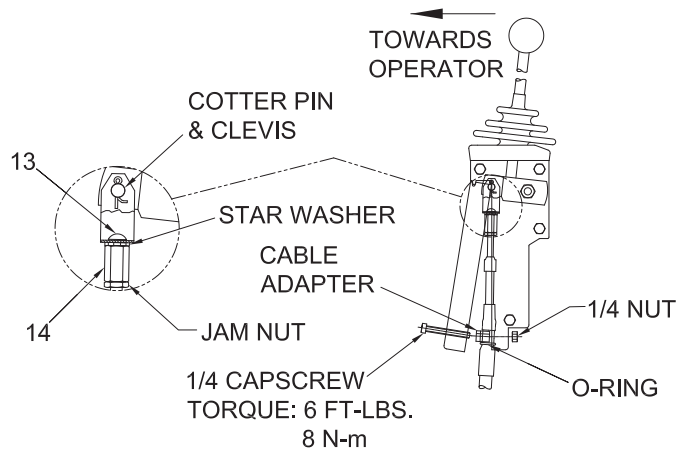


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303168W	Assembly, Control Lever	1				
1	2303169W	. Bracket, Control Lever	1	15	15024W	. Nut, Jam	1
2	2303172W	. Plate, Pivot	1	16	2300995W	. Kit, U-Bolt	2
3	2303173W	. Plate, Angle Adjust	1		NSS	. . Cup Plate	1
4	2303174W	. Bushing	2		NSS	. . Plate	1
5	2303175W	. Capscrew	1		NSS	. . Washer	2
6	2303176W	. End, Rod	1		NSS	. . Nut	2
7	2303177W	. Clip, Ring	2	17	2303223W	. Spacer	1
8	2303178W	. Pin	1	18	271747W	. Spacer	1
9	2303180W	. Lever, Control	1	19	381181W	Guard, Cable	1
10	2303181W	. Knob	1	20	174413W	Screw, Flange	4
11	15011W	. Nut, Jam	1	21	156133W	Nut, Flange	4
12	174413W	. Screw, Flange	2	22	277276W	Decal	1
13	156133W	. Nut, Flange	1	23	303942W	Cable, Control	1
14	2303222W	. Shim	AR				

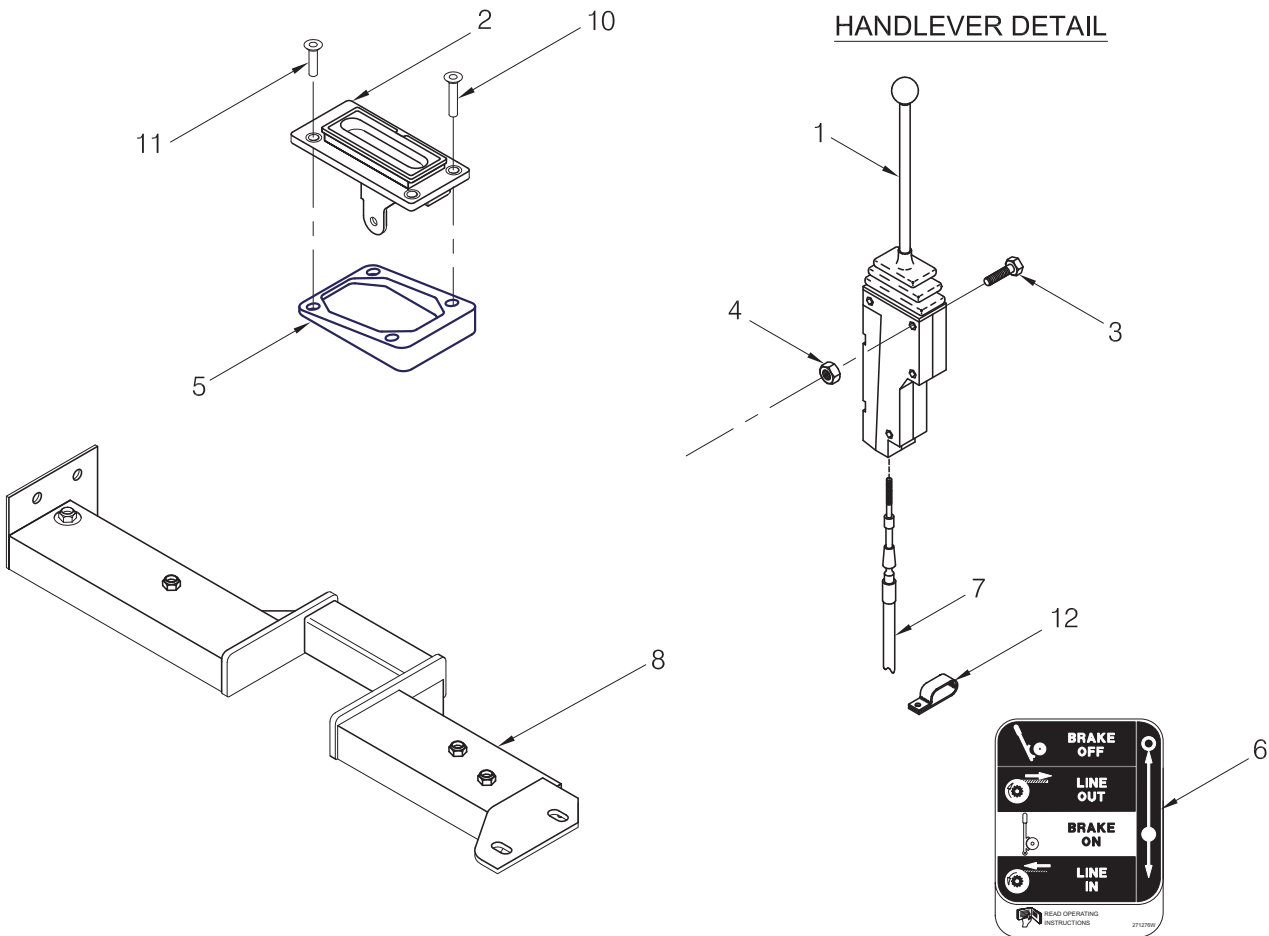
Handling Gear - Power Controls

Caterpillar D8R (C56, C58) w/o FREESPOOL

First Used on S/N AW8L-2489



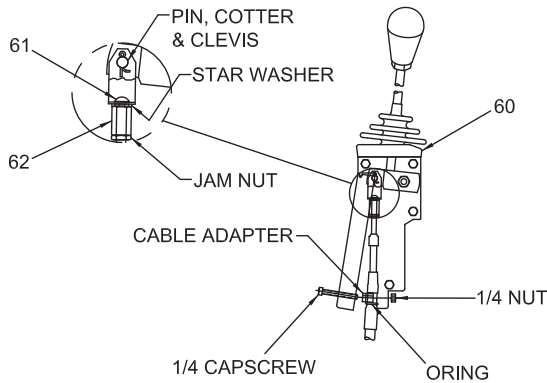
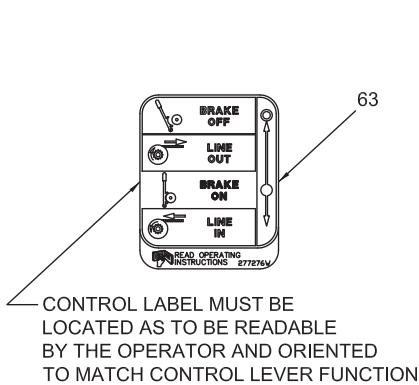
HANDLER DETAIL



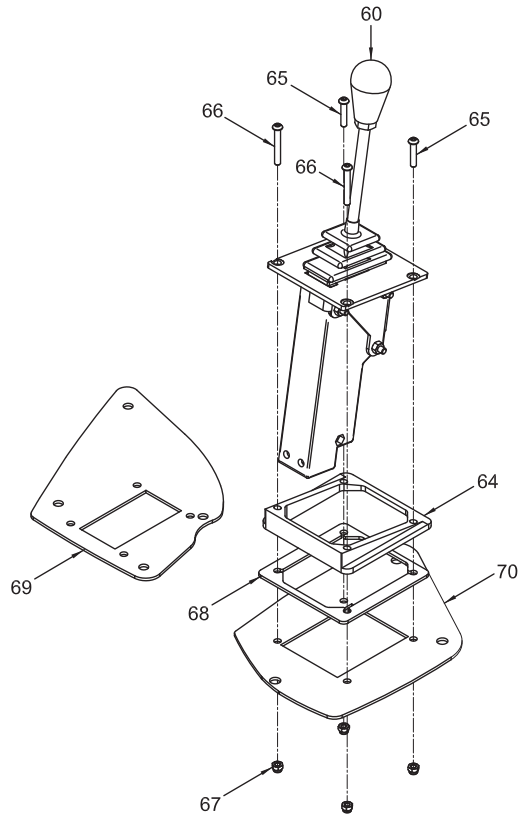
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2304557W	Assembly, Control Lever	1				
1	2303982W	. Lever, Control (See 3-95)	1	8	2304544W	Assembly, Channel	1
2	2304552W	. Bracket	1	10	2304868W	Capscrew	2
3	18127W	. Capscrew	3	11	18738W	Capscrew	2
4	15113W	. Nut	3	12	129563W	Clamp, Strap	1
5	2304867W	Spacer	1	13	18717W	Capscrew	1
6	277276W	Decal, Control Lever	1	14	383881W	Nut, Tall	1
7	303941W	Cable, Control	1				

Handling Gear - Power Controls

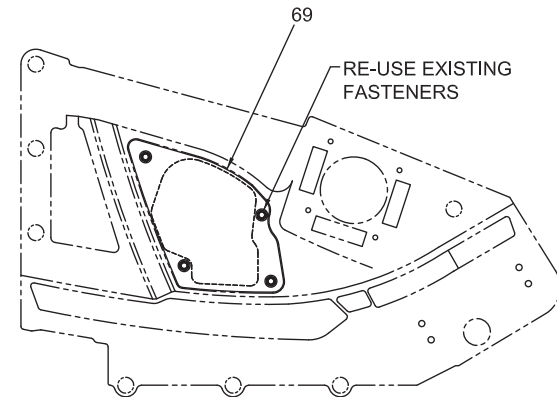
Caterpillar D8T (C74) w/o FREESPOOL



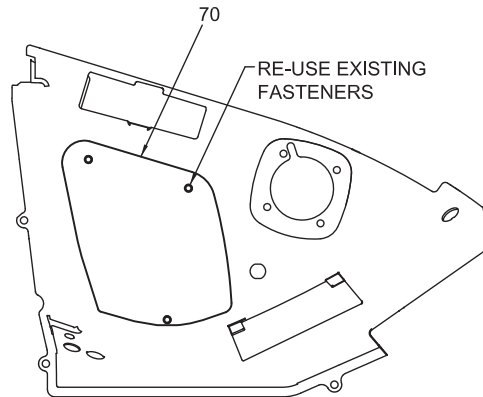
CONTROL CABLE INSTALLATION DETAIL



CONTROL LEVER INSTALLATION DETAIL



CAT D8T RH CONSOLE PRIOR TO TIER 4i



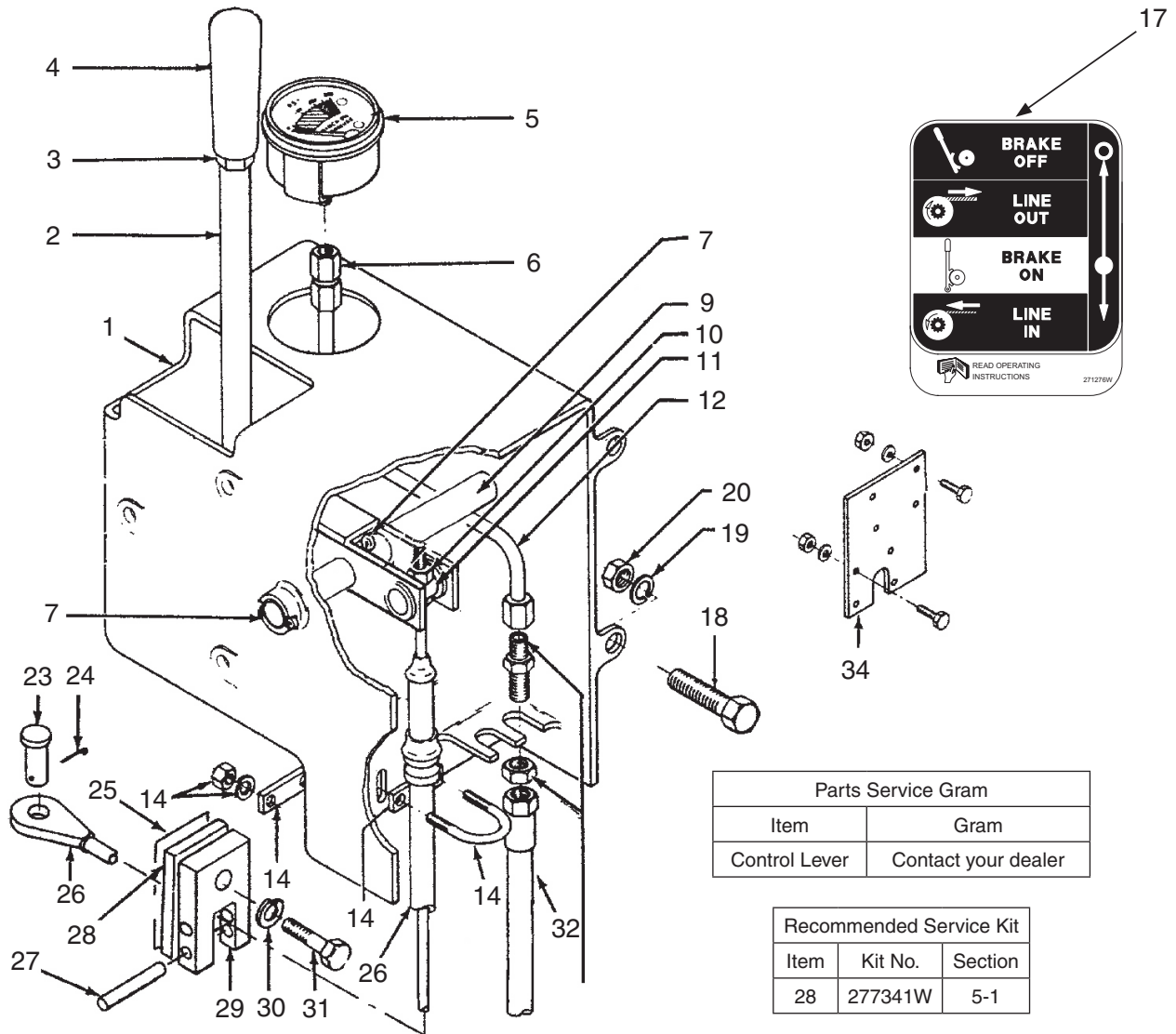
CAT D8T TIER 4i RH CONSOLE

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
60	2305202W	Assembly, Control Lever, w/o FS (See 3-95)	1	65	296162W	Capcrew	2
61	18717W	Capcrew	1	66	2305199W	Capcrew	2
62	383881W	Nut, Tall	1	67	302399W	Nut	4
63	277276W	Decal, w/o FS	1	68	2305203W	Gasket	1
64	2304879W	Spacer	1	69	2312692W	Plate, Console	1
				70	2314154	Plate, Console	1

Handling Gear - Power Controls

Dresser TD20E/TD20G (H51) w/o FREESPOOL

Last Used During 1993

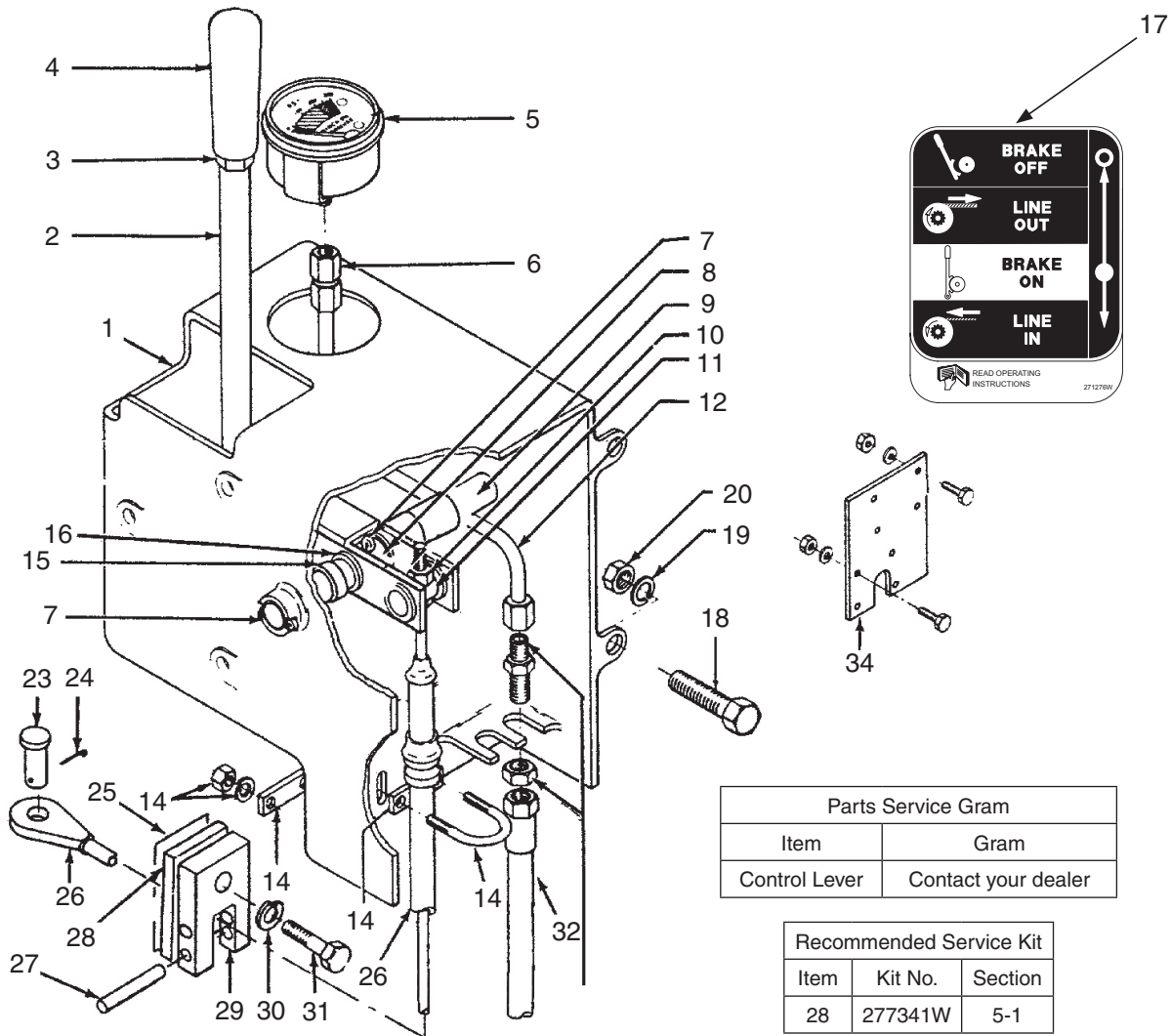


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1		NSS	.. Nut	2
1	196114W	.. Housing	1	17	277276W	Decal	1
2	276031W	.. Lever	1	18	16805W	Capscrew	4
	196144W	.. Bushing	2	19	15156W	Lockwasher	4
	276043W	.. Bushing	1	20	15056W	Nut	4
3	15030W	.. Nut, Jam	1	23	139W	Pin	2
	2303105W	.. Knob	1	24	15212W	Pin, Cotter	1
5	192407W	.. Gauge, Oil Press	1	25	303946W	Gasket	1
6	14712W	.. Fitting	1	26	*a 303943W	Cable, Control	1
7	15225W	.. Pin, Cotter	2	27	62499W	Pin, Slotted	2
9	276041W	.. Pin	1	28	226360W	Block	1
10	15106W	.. Locknut	1	28	226359W	Gasket	1
	18425W	.. Lockwasher	1	29	236417W	Bracket, Cable	1
	67355W	.. Wire	AR	30	15158W	Lockwasher	1
11	196128W	.. Pin	1	31	18591W	Capscrew	1
12	196134W	.. Tube	1	32	*a 205004W	Assembly, Hose	1
13	16445W	.. Fitting	1	32	265325W	Assembly, Hose	1
14	2300995W	.. Kit, U-Bolt	2	34	*a 279378W	Bracket	1
	NSS	.. Cup Plate	1				
	NSS	.. Plate	1				
	NSS	.. Washer	2				
				*a		Used on Dresser TD20E	

Handling Gear - Power Controls

Dresser TD20E/TD20G (H51) w/o FREESPOOL

First Used on S/N W8LP-1578 and AW8L-1001



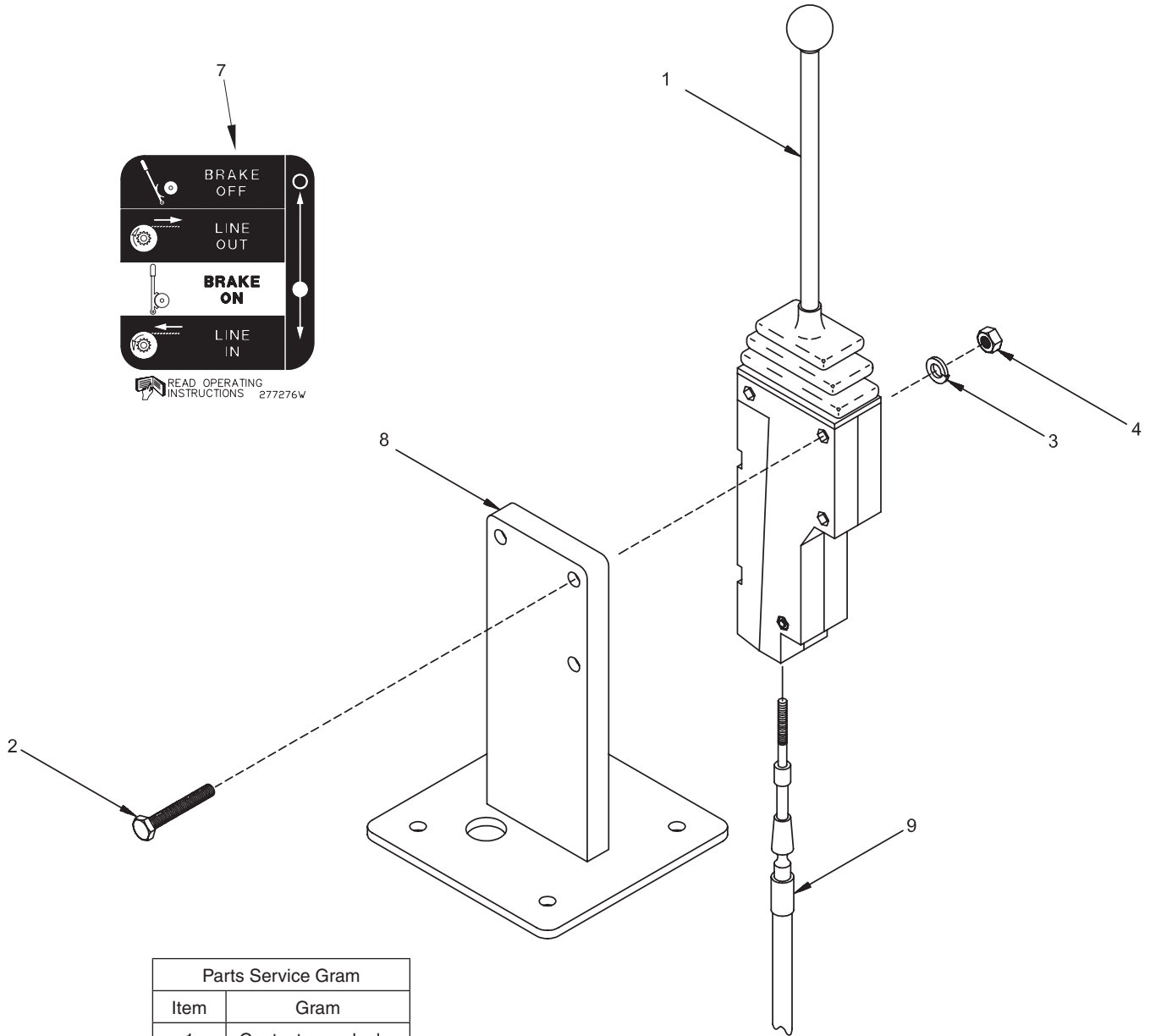
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1				
1	196114W	. Housing	1	15	15135W	. Flatwasher	3
2	276031W	. Lever	1	16	391016W	. Washer	1
	196144W	.. Bushing	2	17	277276W	Decal	1
	276043W	.. Bushing	1	18	16805W	Capscrew	4
3	15030W	. Nut, Jam	1	19	15156W	Lockwasher	4
4	2303105W	. Knob	1	20	15056W	Nut	4
5	192407W	. Gauge, Oil Press	1	23	139W	Pin	2
6	14712W	. Fitting	1	24	15212W	Pin, Cotter	1
7	15225W	. Pin, Cotter	2	25	303946W	Gasket	1
8	271748W	. Spacer	1	26	*a 303943W	Cable, Control	1
9	276041W	. Pin	1	27	62499W	Pin, Slotted	2
10	15106W	. Locknut	1	28	226360W	Block	1
	18425W	. Lockwasher	1	28	226359W	Gasket	1
	67355W	. Wire	AR	29	236417W	Bracket, Cable	1
11	196128W	. Pin	1	30	15158W	Lockwasher	1
12	196134W	. Tube	1	31	18591W	Capscrew	1
13	16445W	. Fitting	1	32	*a 205004W	Hose	1
14	2300995W	. U-Bolt Kit	2	32	265325W	Hose	1
	NSS	.. Cup Plate	1	34	*a 279378W	Bracket	1
	NSS	.. Plate	1				
	NSS	.. Star Washer	2				
	NSS	.. Nut	2				
				*a	Dresser TD20E		

Handling Gear - Power Controls

Dresser TD20E/TD20G (H51) w/o FREESPOOL

First Used During 1993

Last Used on S/N AW8L-2261



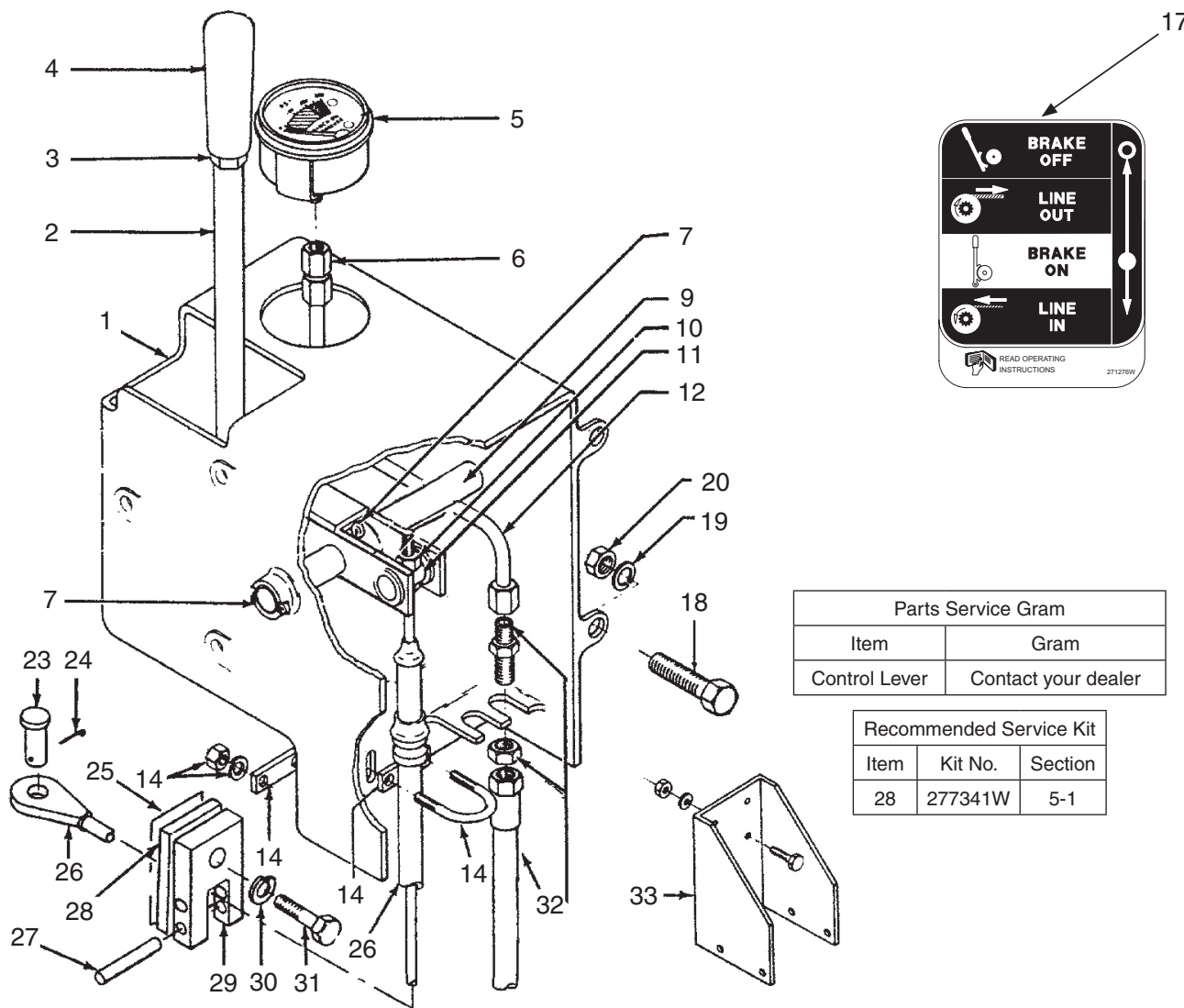
Parts Service Gram	
Item	Gram
1	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	1300785W	Assembly, Control Lever (See 3-94)	1	7	277276W	Decal	1
2	18518W	Capscrew	3	8	2300369W	Bracket	1
3	18515W	Washer	3	9	303943W	Cable, Control	1
4	191534W	Nut, Flange	3				

Handling Gear - Power Controls

Fiat-Hitachi/New Holland 20/PL60 (A55) w/o FREESPOOL

Last Used During 1993



Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

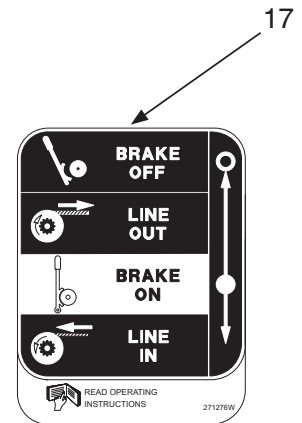
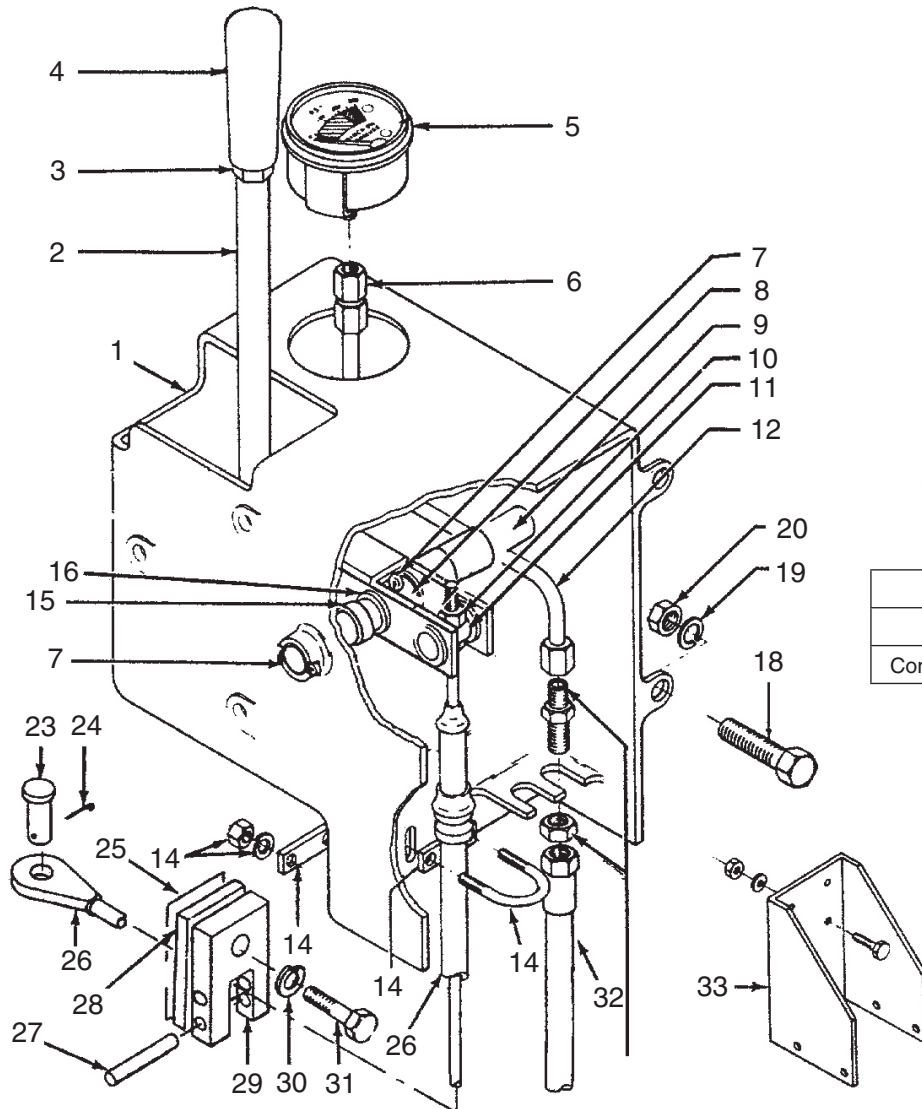
Recommended Service Kit		
Item	Kit No.	Section
28	277341W	5-1

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1				
1	196114W	. Housing	1		NSS	.. Washer	2
2	276031W	. Lever	1		NSS	.. Nut	2
	196144W	.. Bushing	2	17	277276W	Decal	1
	276043W	.. Bushing	1	18	16805W	Capscrew	4
3	15030W	. Nut, Jam	1	19	15156W	Lockwasher	4
4	2303105W	. Knob	1	20	15056W	Nut	4
5	192407W	. Gauge, Oil Press	1	23	139W	Pin	2
6	14712W	. Fitting	1	24	15212W	Pin, Cotter	1
7	15225W	. Pin, Cotter	2	25	303946W	Gasket	1
9	276041W	. Pin	1	26	303941W	Cable	1
10	15106W	. Locknut	1	27	62499W	Pin, Slotted	2
	18425W	. Lockwasher	1	28	226360W	Block	1
	67355W	. Wire	AR	28	226359W	Gasket	1
11	196128W	. Pin	1	29	236417W	Bracket, Cable	1
12	196134W	. Tube	1	30	15158W	Lockwasher	1
13	16445W	. Fitting	1	31	18591W	Capscrew	1
14	2300995W	. Kit, U-Bolt	2	32	165504W	Assembly, Hose	1
	NSS	.. Cup Plate	1	33	260677W	Bracket	1
	NSS	.. Plate	1				

Handling Gear - Power Controls

Fiat-Hitachi/New Holland 20/PL60 (A55) w/o FREESPOOL

First Used on S/N W8LP-1578 and AW8L-1001



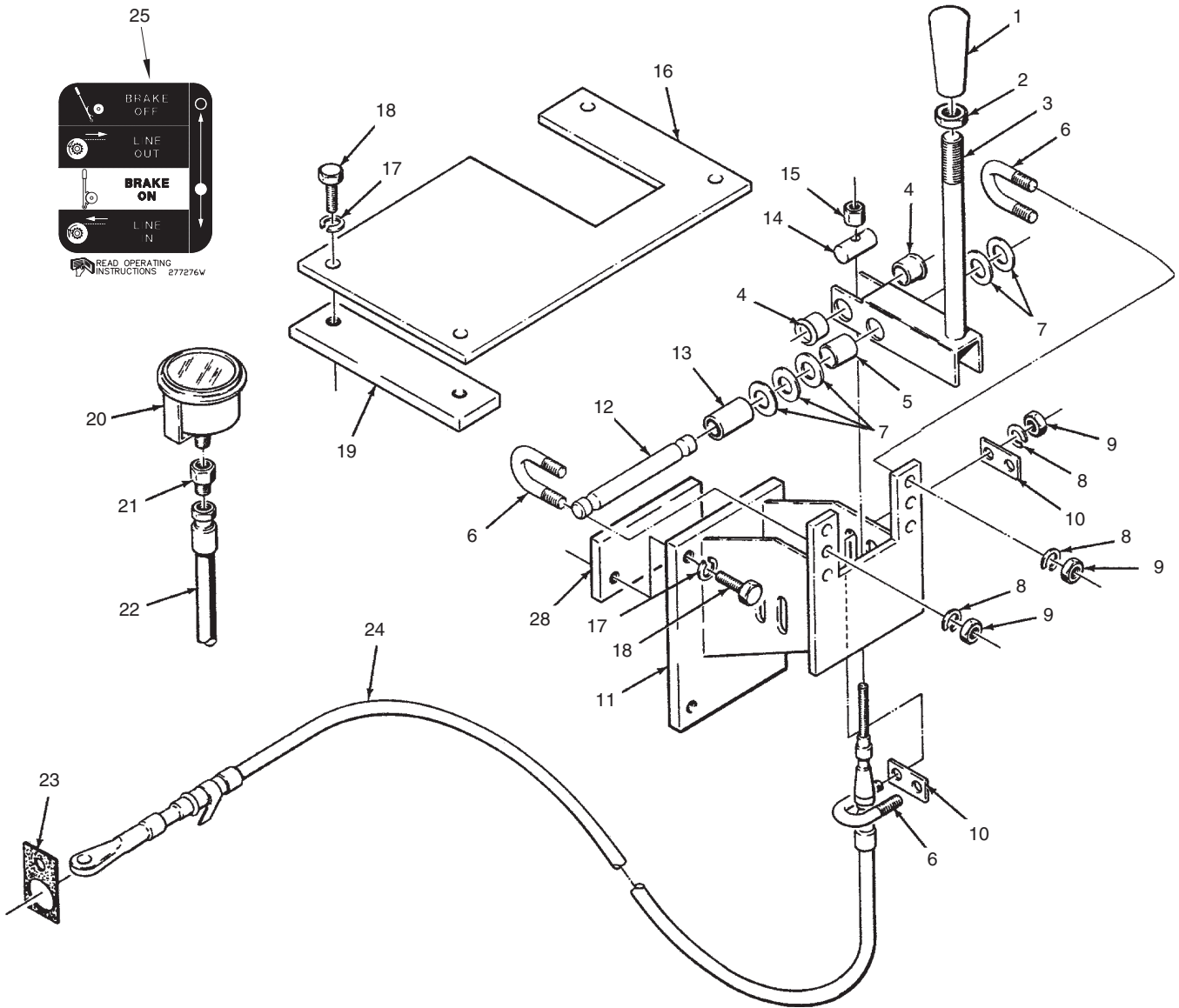
Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Recommended Service Kit		
Item	Kit No.	Section
28	277341W	5-1

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1		NSS	.. Washer	2
1	196114W	.. Housing	1		NSS	.. Nut	2
2	276031W	.. Lever	1	15	15135W	.. Flatwasher	3
	196144W	.. Bushing	2	16	391016W	.. Washer	1
	276043W	.. Bushing	1	17	277276W	Decal	1
3	15030W	.. Nut, Jam	1	18	16805W	Capscrew	4
4	2303105W	.. Knob	1	19	15156W	Lockwasher	4
5	192407W	.. Gauge, Oil Press	1	20	15056W	Nut	4
6	14712W	.. Fitting	1	23	139W	Pin	2
7	15225W	.. Pin, Cotter	2	24	15212W	Pin, Cotter	1
8	271748W	.. Spacer	1	25	303946W	Gasket	1
9	276041W	.. Pin	1	26	303941W	Cable	1
10	15106W	.. Locknut	1	27	62499W	Pin, Slotted	2
	18425W	.. Lockwasher	1	28	226360W	Block	1
	67355W	.. Wire	AR	28	226359W	Gasket	1
11	196128W	.. Pin	1	29	236417W	Bracket, Cable	1
12	196134W	.. Tube	1	30	15158W	Lockwasher	1
13	16445W	.. Fitting	1	31	18591W	Capscrew	1
14	2300995W	.. Kit, U-Bolt	2	32	165504W	Assembly, Hose	1
	NSS	.. Plate, Cup	1	33	260677W	Bracket	1
	NSS	.. Plate	1				

Handling Gear - Power Controls

Fiat-Hitachi/New Holland 20B (A53), FD/FL20 (A55) & FP60 (A55) w/o FREESPOOL

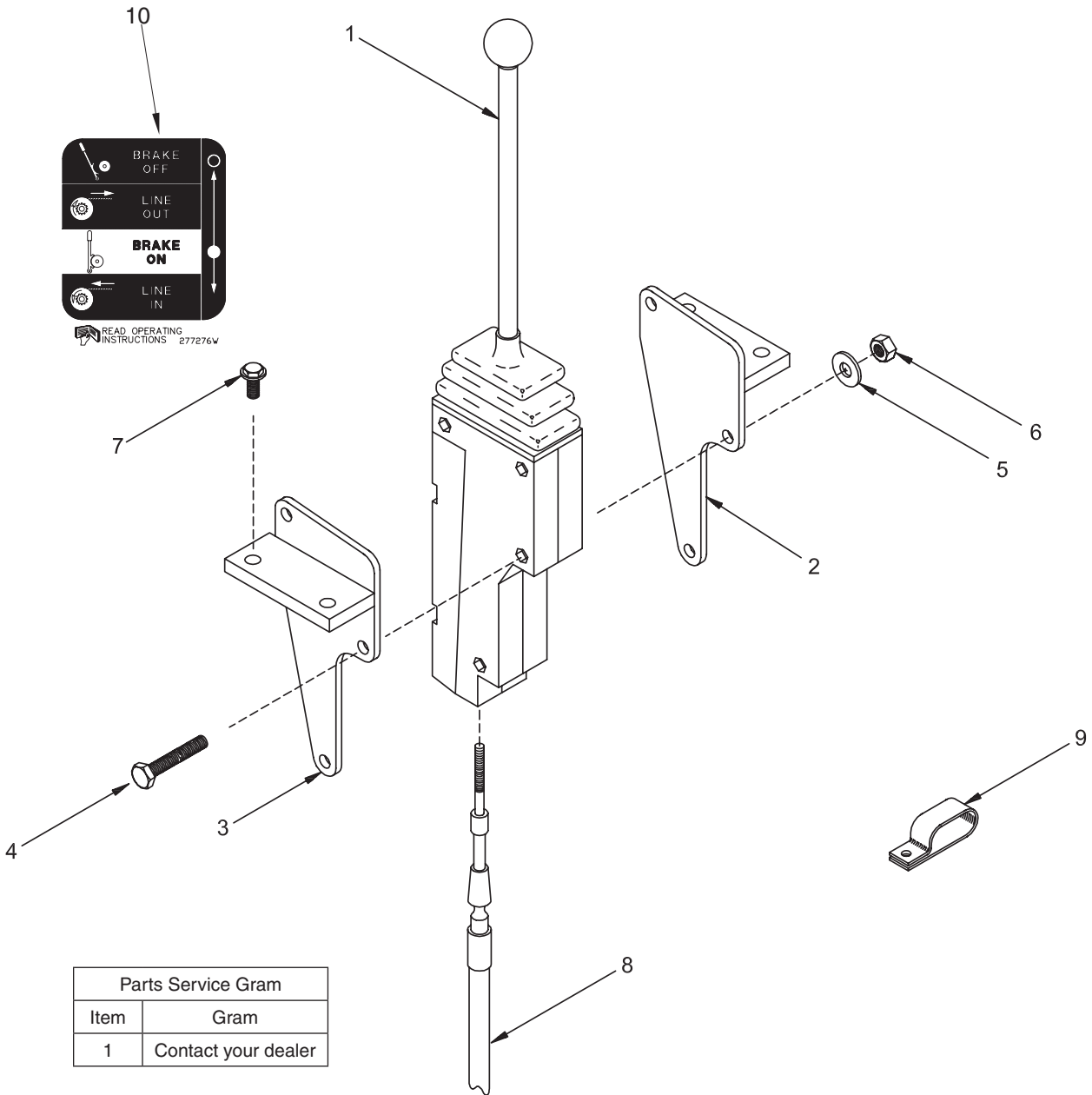


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	287026W	Assembly, Control Lever	1				
1	196469W	. Knob	1	14	196128W	. Pin	1
2	15030W	. Nut, Jam	1	15	2301487W	. Nut, Tall	1
3	276031W	. Lever	1	16	287028W	Cover	1
4	196144W	. Bushing	2	17	15156W	Lockwasher	8
5	276043W	. Bushing	1	18	16805W	Capscrew	8
6	196129W	. U-Bolt	3	19	287029W	Plate	1
7	15135W	. Flatwasher	5	20	192407W	Gauge, Oil Press	1
8	15155W	. Lockwasher	6	21	14712W	Fitting	1
9	15055W	. Nut	6	22	265325W	Assembly, Hose	1
10	196130W	. Spacer	6	23	303946W	Gasket	1
11	283431W	. Bracket	1	24	303943W	Cable	1
12	276081W	. Pin	1	25	277276W	Decal	1
13	271747W	. Spacer	1	26	283430W	Plate	1

Handling Gear - Power Controls

Fiat-Hitachi/New Holland DX/FD 255L (A56) w/o FREESPOOL

Last Used on S/N AW8L-2249



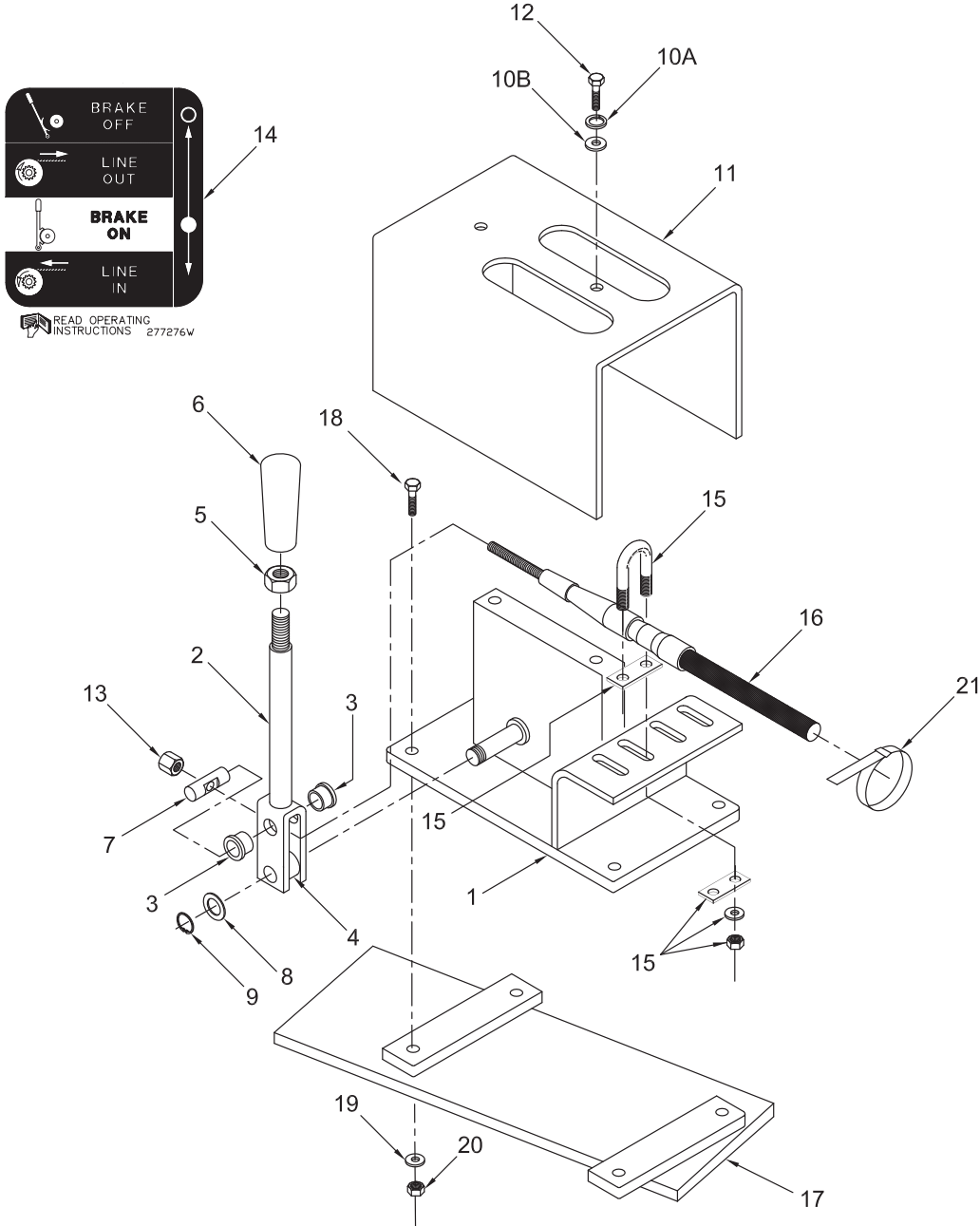
Parts Service Gram	
Item	Gram
1	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2301271W	Assembly, Control Lever	1				
1	1300785W	. Lever, Control (See 3-94)	1	6	15055W	. Nut	3
2	1308437W	. Bracket, RH	1	7	397161W	CapscREW	4
3	1308436W	. Bracket, LH	1	8	303945W	Cable, Control	1
4	18513W	. CapscREW	3	9	110322W	Clamp	2
5	15155W	. Washer	3	10	277276W	Decal	1

Handling Gear - Power Controls

Komatsu D83-1 and D85ESS-1 (K55) w/o FREESPOOL

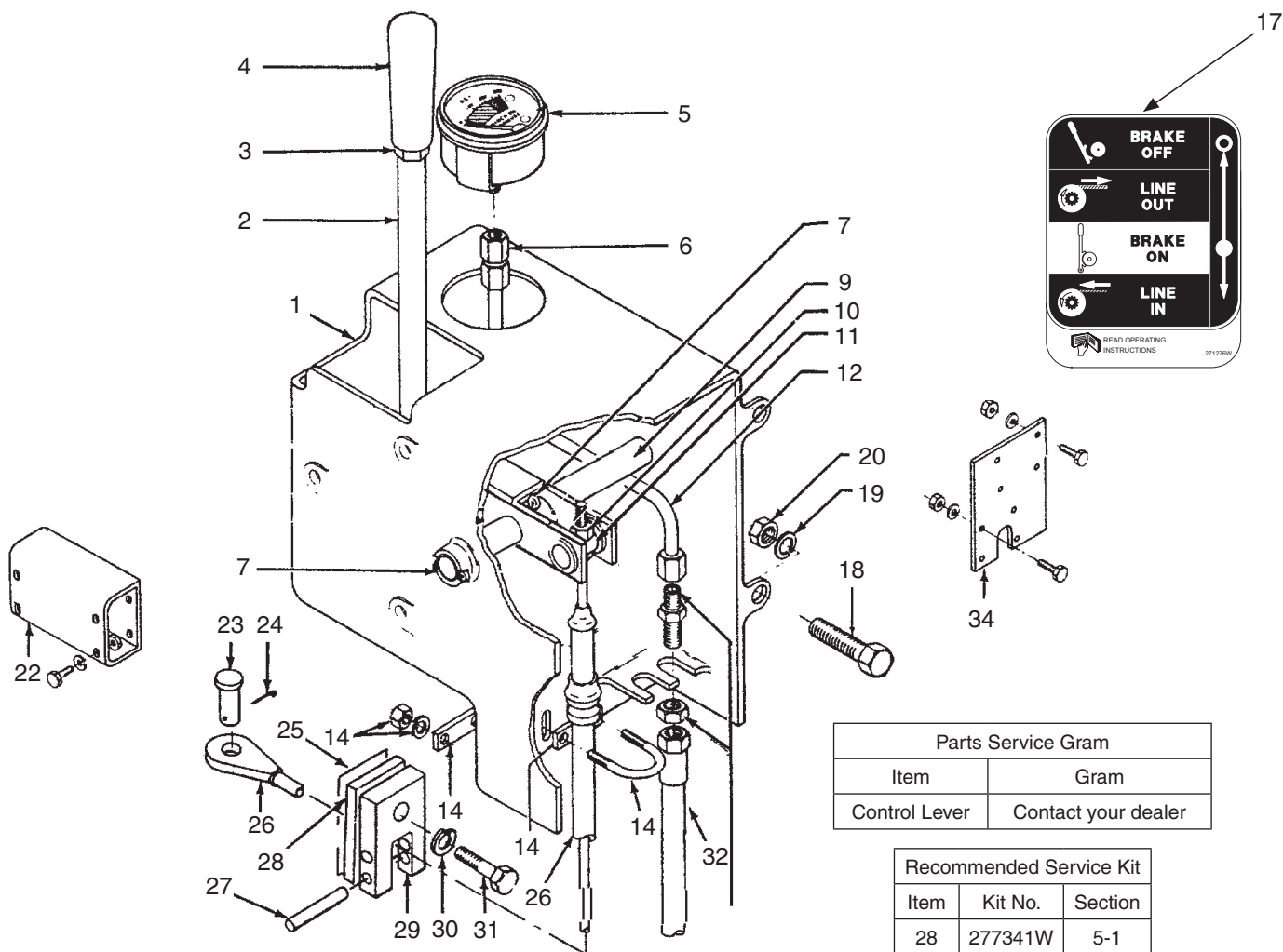
Last Used on S/N AW8L-1736



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	332820W	Assembly, Control Lever	1				
1	332823W	. Bracket	1	13	2301487W	. Nut, Tall	1
2	276036W	. Assembly, Lever	1	14	277276W	Decal	1
3	196144W	. Bushing, Nylon	2	15	2300995W	Kit, U-Bolt	2
4	276043W	. Bushing, Brass	1		NSS	. Plate, Cup	1
5	15030W	. Nut	1		NSS	. Plate	1
6	2303105W	. Knob	1		NSS	. Washer	2
7	196128W	. Pin	1		NSS	. Nut	2
8	15135W	. Washer	1	16	303944W	Cable, Control	1
9	190930W	. Ring, Snap	1	17	346523W	Bracket	1
10A	15155W	. Lockwasher	2	18	16597W	Capscrew	4
10B	18515W	. Washer	2	19	15156W	Lockwasher	4
11	332822W	. Cover	1	20	15056W	Nut	4
12	16836W	. Capscrew	2	21	114312W	Strap, Clamp	1

Handling Gear - Power Controls

Komatsu D85A-12 (K51), D85E-18 (K53), D85E-21 (K54) w/o FREESPOOL
Last Used During 1993



Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

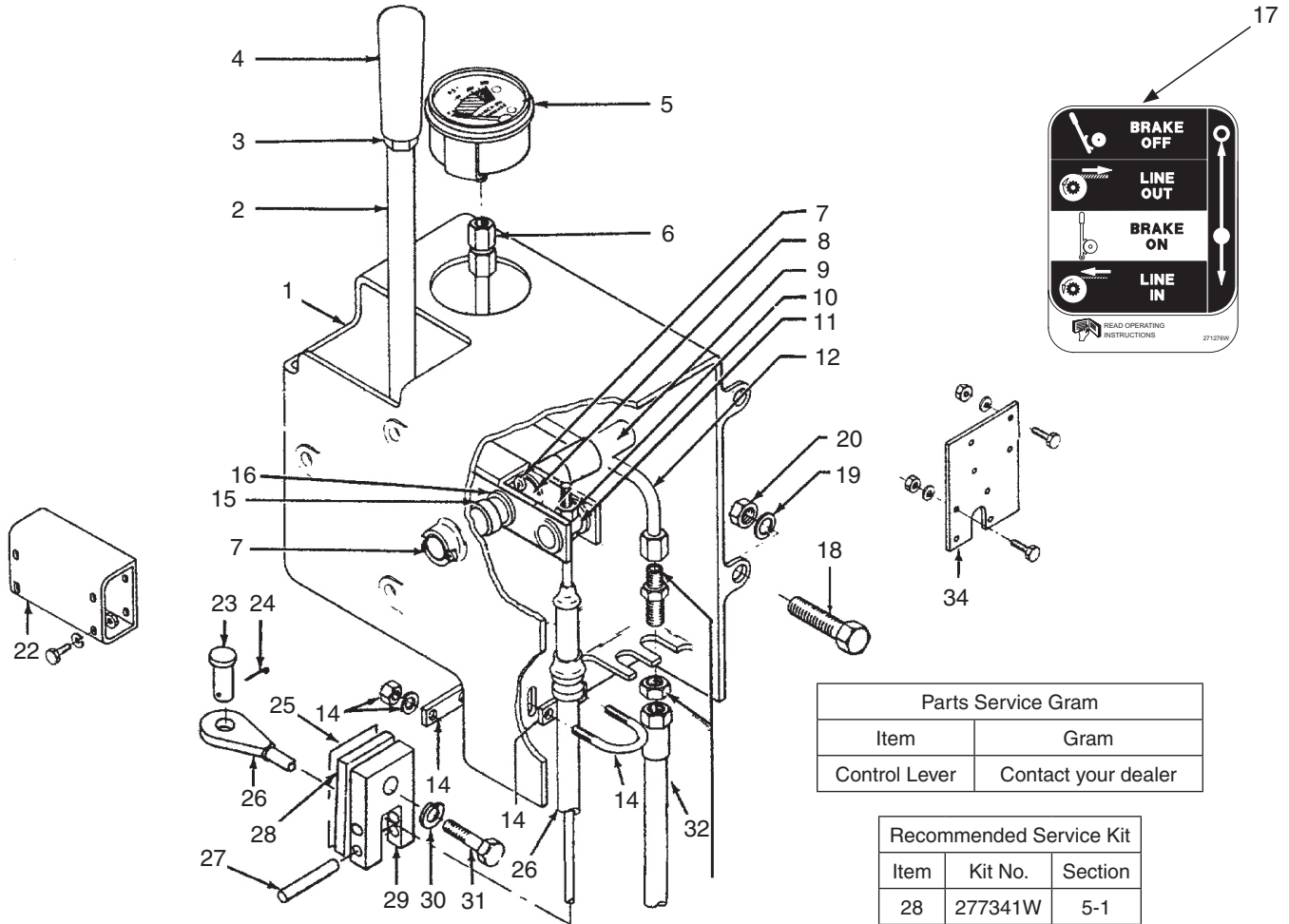
Recommended Service Kit		
Item	Kit No.	Section
28	277341W	5-1

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1		NSS	.. Washer	2
1	196114W	.. Housing	1		NSS	.. Nut	2
2	276031W	.. Lever	1	17	277276W	Decal	1
	196144W	.. Bushing	2	18	16805W	Capscrew	4
	276043W	.. Bushing	1	19	15156W	Lockwasher	4
3	15030W	.. Nut, Jam	1	20	15056W	Nut	4
4	2303105W	.. Knob	1	22	NSS	Bracket	1
5	192407W	.. Gauge, Oil Press	1	23	139W	Pin	2
6	14712W	.. Fitting	1	24	15212W	Pin, Cotter	1
7	15225W	.. Pin, Cotter	2	25	303946W	Gasket	1
9	276041W	.. Pin	1	26	303944W	Cable, Control	1
10	15106W	.. Locknut	1	27	62499W	Pin, Slotted	2
	18425W	.. Lockwasher	1	28	226360W	Block	1
	67355W	.. Wire	AR	28	226359W	Gasket	1
11	196128W	.. Pin	1	29	236417W	Bracket, Cable	1
12	196134W	.. Tube	1	30	15158W	Lockwasher	1
13	16445W	.. Fitting	1	31	18591W	Capscrew	1
14	2300995W	.. Kit, U-Bolt	2	32	165504W	Assembly, Hose	1
	NSS	.. Plate, Cup	1				
	NSS	.. Plate	1				

Handling Gear - Power Controls

Komatsu D85A-12 (K51), D85E-18 (K53), D85E-21 (K54) w/o FREESPOOL

First Used on S/N W8LP-1578 and AW8L-1001



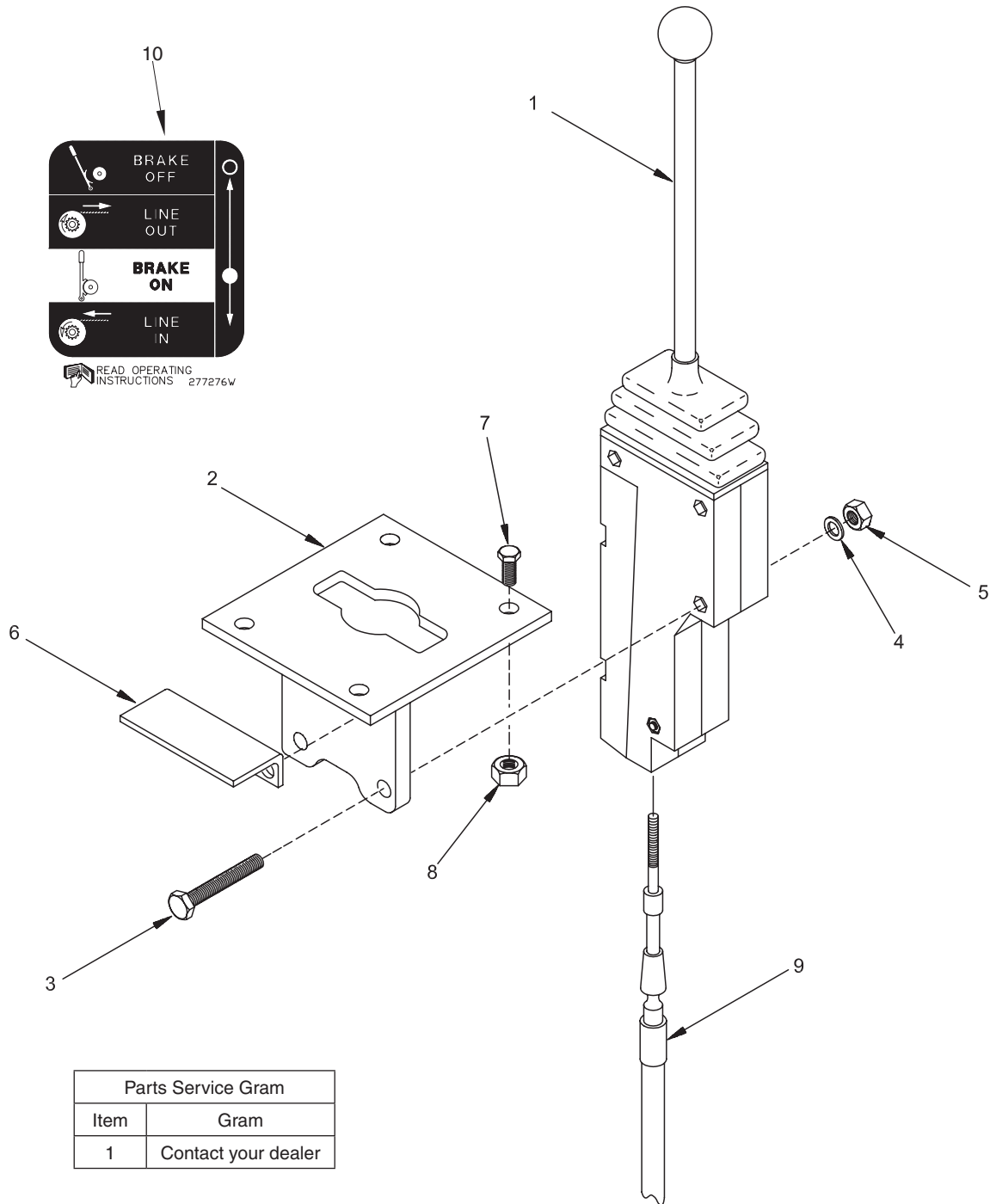
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	196462W	Assembly, Control Lever	1				
1	196114W	. Housing	1		NSS	. Washer	2
2	276031W	. Lever	1		NSS	. Nut	2
	196144W	. Bushing	2	15	15135W	. Flatwasher	3
	276043W	. Bushing	1	16	391016W	. Washer	1
3	15030W	. Nut, Jam	1	17	277276W	Decal	1
4	2303105W	. Knob	1	18	16805W	Capscrew	4
5	192407W	. Gauge, Oil Press	1	19	15156W	Lockwasher	4
6	14712W	. Fitting	1	20	15056W	Nut	4
7	15225W	. Pin, Cotter	2	22	NSS	Bracket	1
8	271748W	. Spacer	1	23	139W	Pin	2
9	276041W	. Pin	1	24	15212W	Pin, Cotter	1
10	15106W	. Locknut	1	25	303946W	Gasket	1
	18425W	. Lockwasher	1	26	303944W	Cable, Control	1
	67355W	. Wire	AR	27	62499W	Pin, Slotted	2
11	196128W	. Pin	1	28	226360W	Block	1
12	196134W	. Tube	1	28	226359W	Gasket	1
13	16445W	. Fitting	1	29	236417W	Bracket, Cable	1
14	2300995W	. U-Bolt Kit	2	30	15158W	Lockwasher	1
	NSS	. Cup Plate	1	31	18591W	Capscrew	1
	NSS	. Plate	1	32	165504W	Assembly, Hose	1

Handling Gear - Power Controls

Komatsu D85E-18 (K53), D85E-21 (K54) w/o FREESPOOL

First Used During 1993

Last Used on S/N AW8L-1736



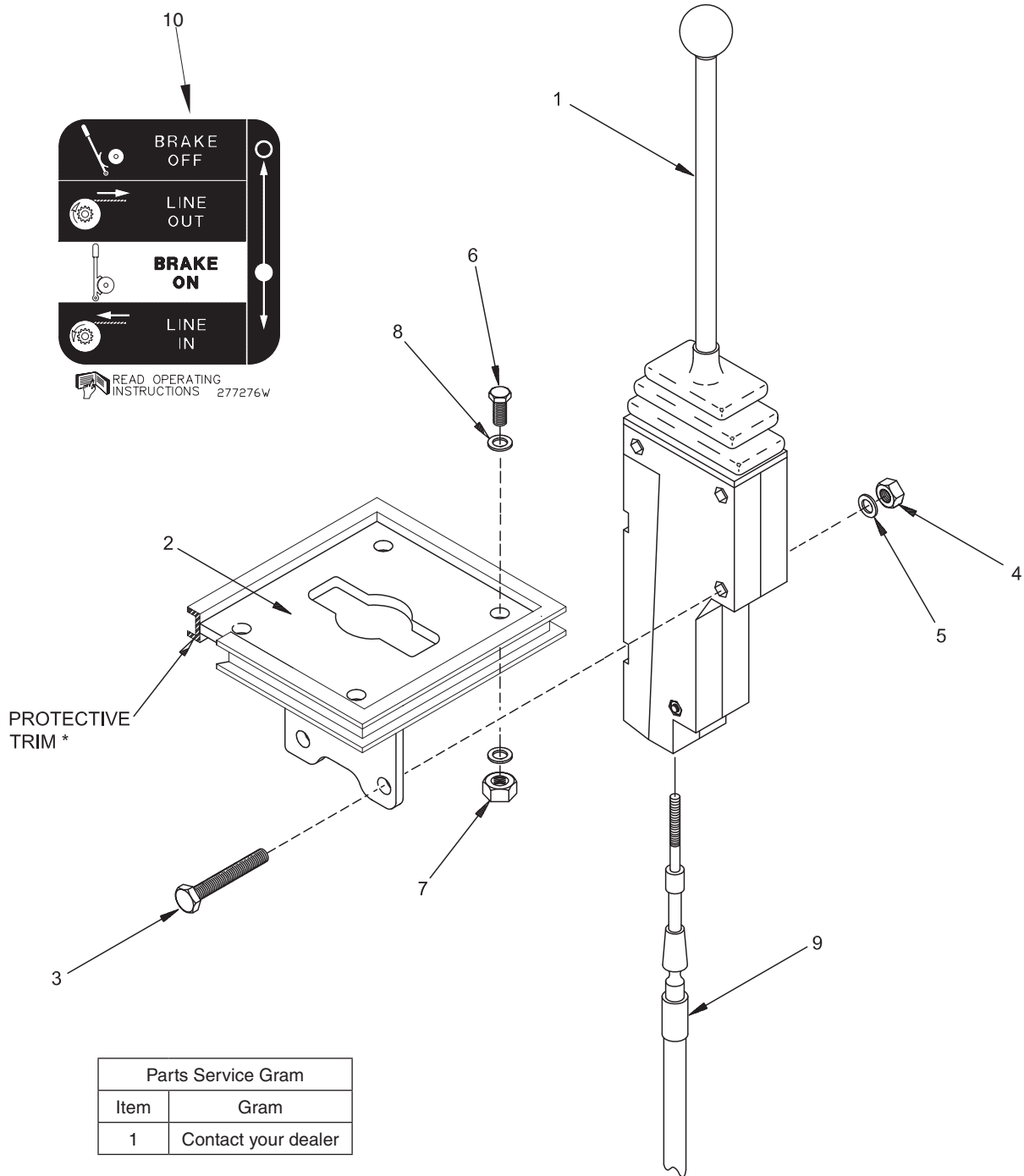
Parts Service Gram	
Item	Gram
1	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	1310764W	Assembly, Control Lever	1				
1	1300785W	. Lever, Control (See 3-94)	1	6	2300076W	. Plate	1
2	388659W	. Bracket	1	7	174413W	Cap screw	4
3	18518W	. Cap screw	3	8	156133W	Nut	4
4	18515W	. Washer	3	9	303944W	Cable, Control	1
5	191534W	. Locknut	3	10	277276W	Decal	1

Handling Gear - Power Controls

Komatsu D85ESS-2 (K57) w/o FREESPOOL

Last Used on S/N AW8L-1736



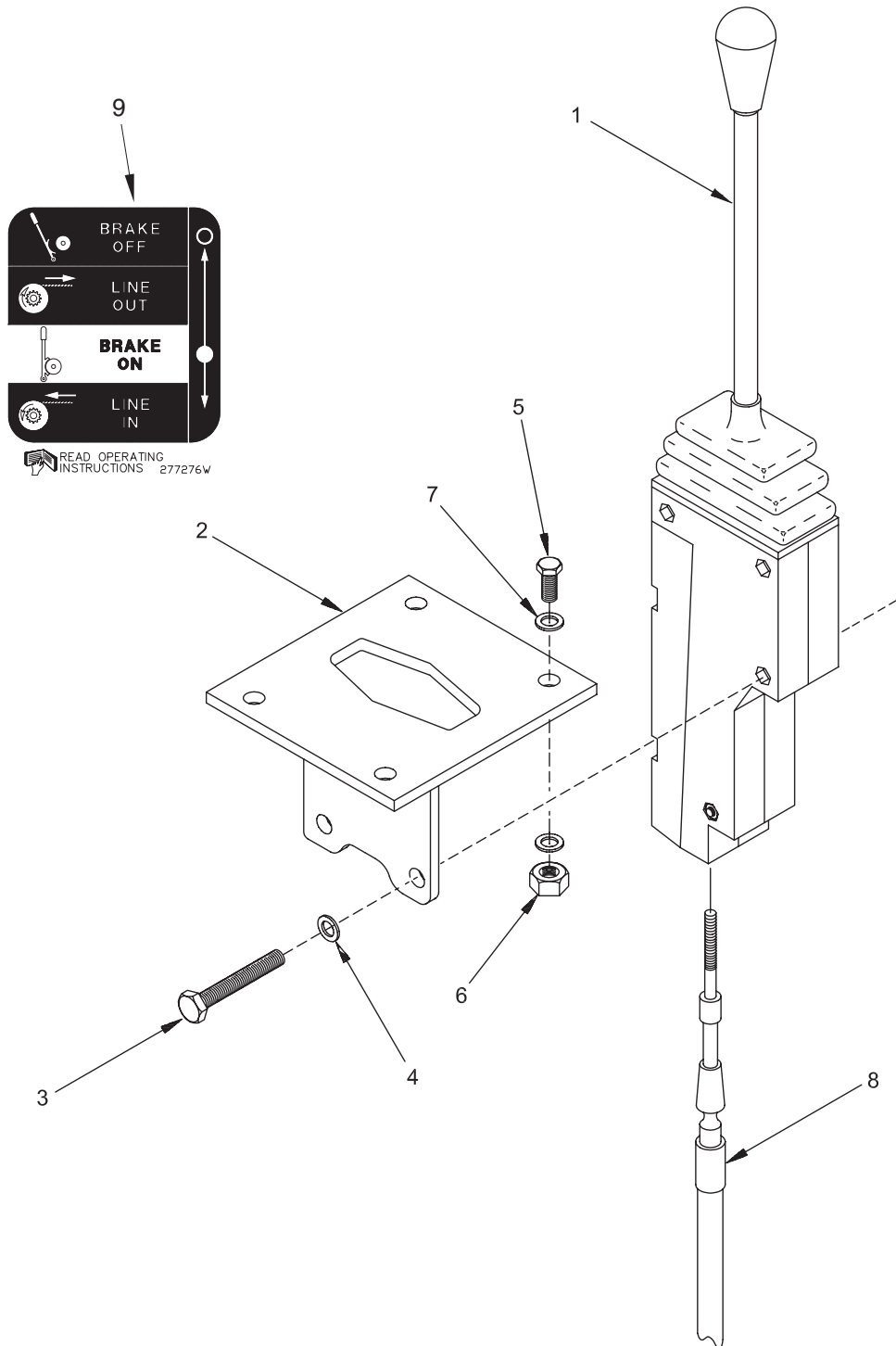
Parts Service Gram	
Item	Gram
1	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	*a 1300785W	Lever, Control (See 3-94)	1	7	221707W	Nut	4
2	2301260W	Bracket	1	8	15134W	Washer	8
3	3003079W	Capscrew	3	9	303944W	Cable, Control	1
4	191941W	Locknut	3	10	277276W	Decal	1
5	18515W	Washer	3				
6	16828W	Capscrew	4				
				*a		Protective Trim P/N 2301055W added	

Handling Gear - Power Controls

Komatsu D85ESS-2 (K57) w/o FREESPOOL

Used on S/N AW8L-1737 thru AW8L-2945



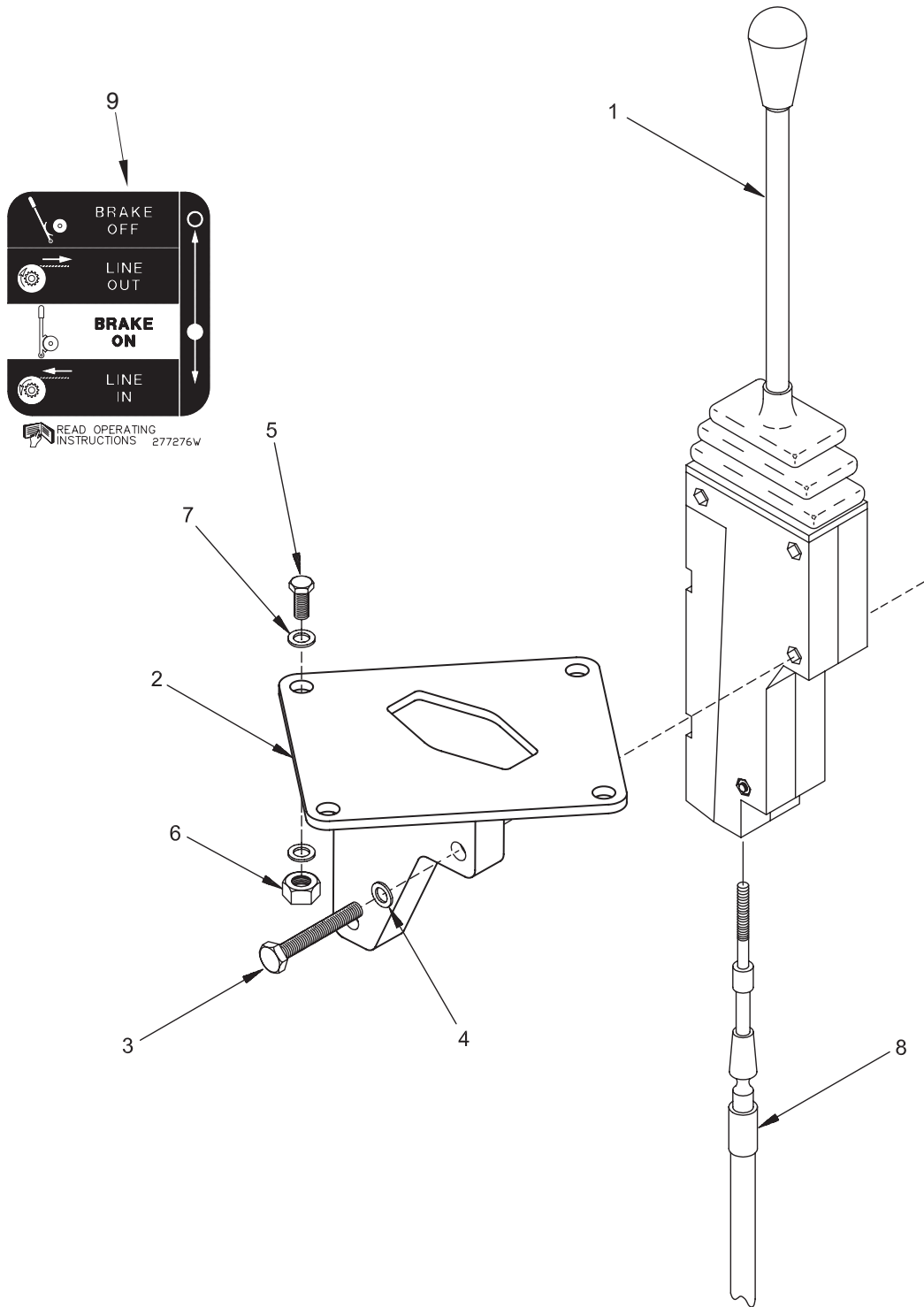
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2303984W	Lever, Control (See 3-95)	1	6	221707W	Nut	4
2	2304361W	Bracket	1	7	15134W	Washer	8
3	2304380W	Cap screw	3	8	303944W	Cable, Control	1
4	18515W	Washer	3	9	277276W	Decal	1
5	16828W	Cap screw	4				

Handling Gear - Power Controls

Komatsu D85ESS-2 (K57) w/o FREESPOOL

First Used on S/N AW8L-2946.

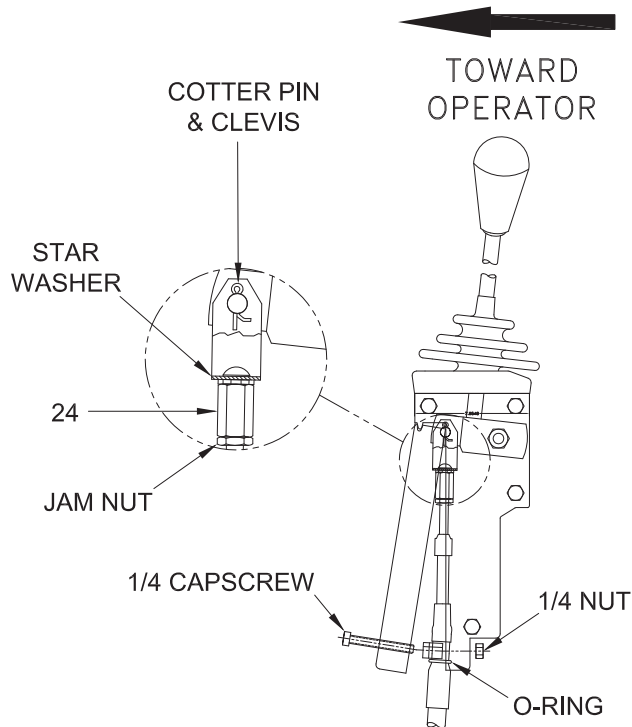
Komatsu D68E-SS-12 (K48)



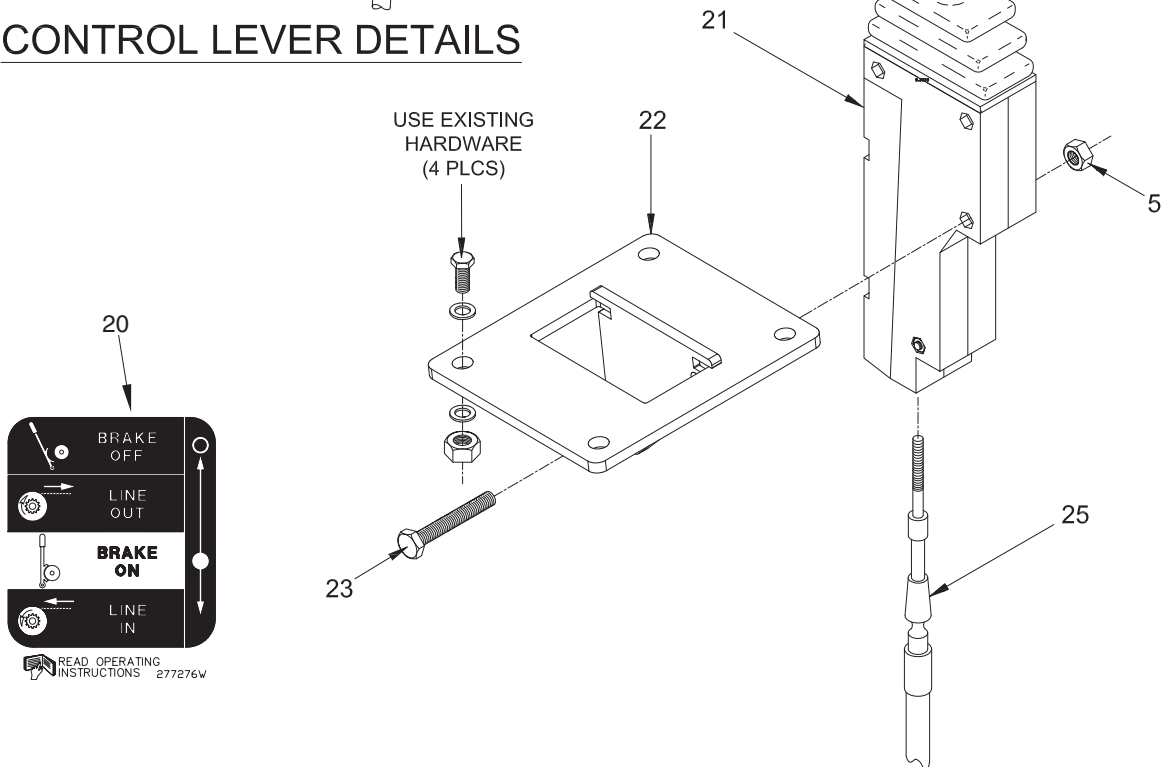
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2303984W	Lever, Control (See 3-95)	1	6	221707W	Nut	4
2	2306930W	Bracket	1	7	15134W	Washer	8
3	2304380W	Capscrew	3	8	303944W	Cable, Control	1
4	18515W	Washer	3	9	277276W	Decal	1
5	16828W	Capscrew	4				

Handling Gear - Power Controls

Komatsu D85EX-15 (K50) w/o FREESPOOL



CONTROL LEVER DETAILS



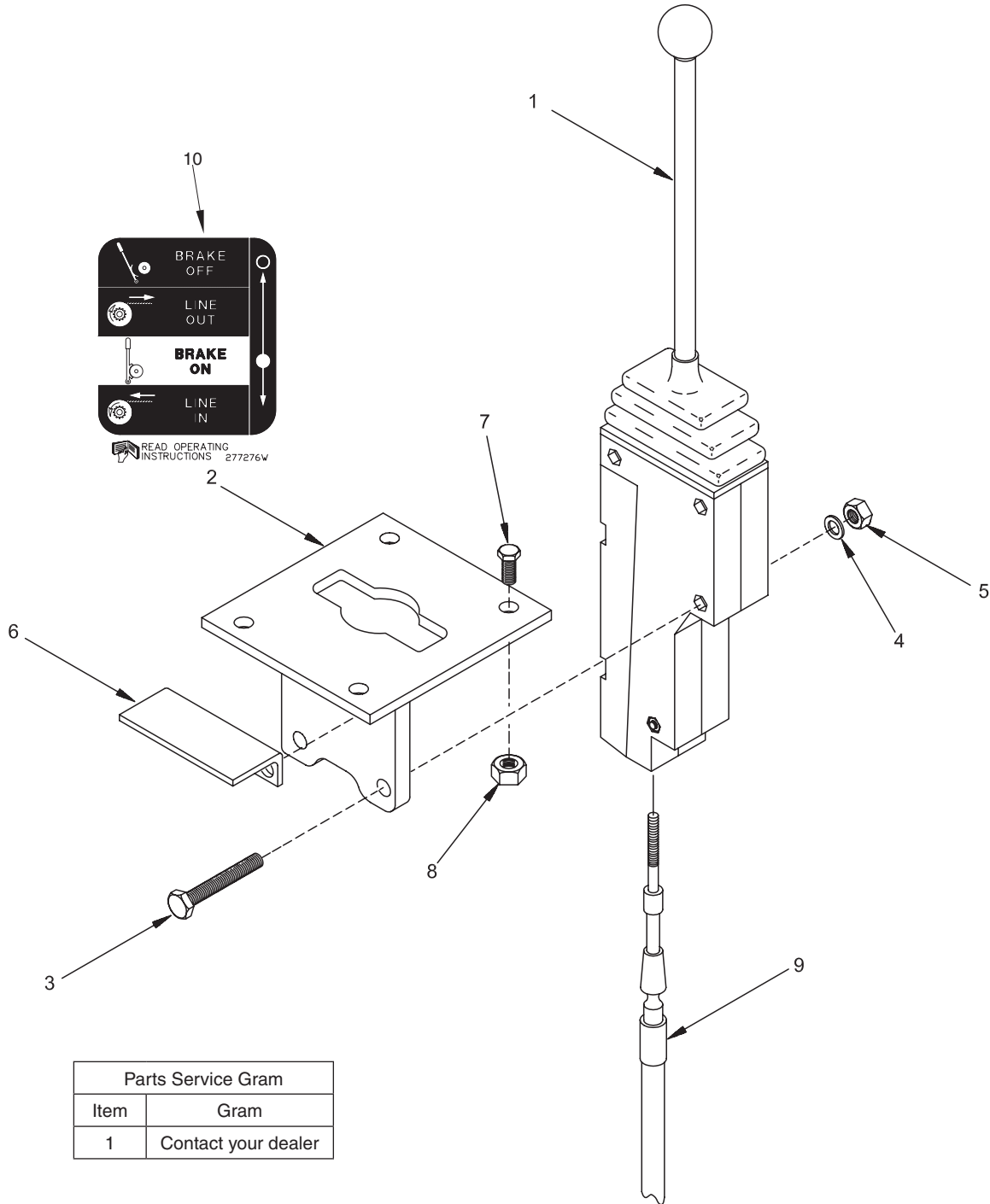
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
5	15154W	Nut	2	23	18127W	Capscrew	2
20	277276W	Decal	1	24	383881W	Nut, Tall	1
21	2303982W	Lever, Control (3-95)	1	25	303944W	Cable, Control	1
22	2305774W	Bracket	1				

Handling Gear - Power Controls

Komatsu D135A (K56) w/o FREESPOOL

First Used During 1993

Last Used on S/N AW8L-1736

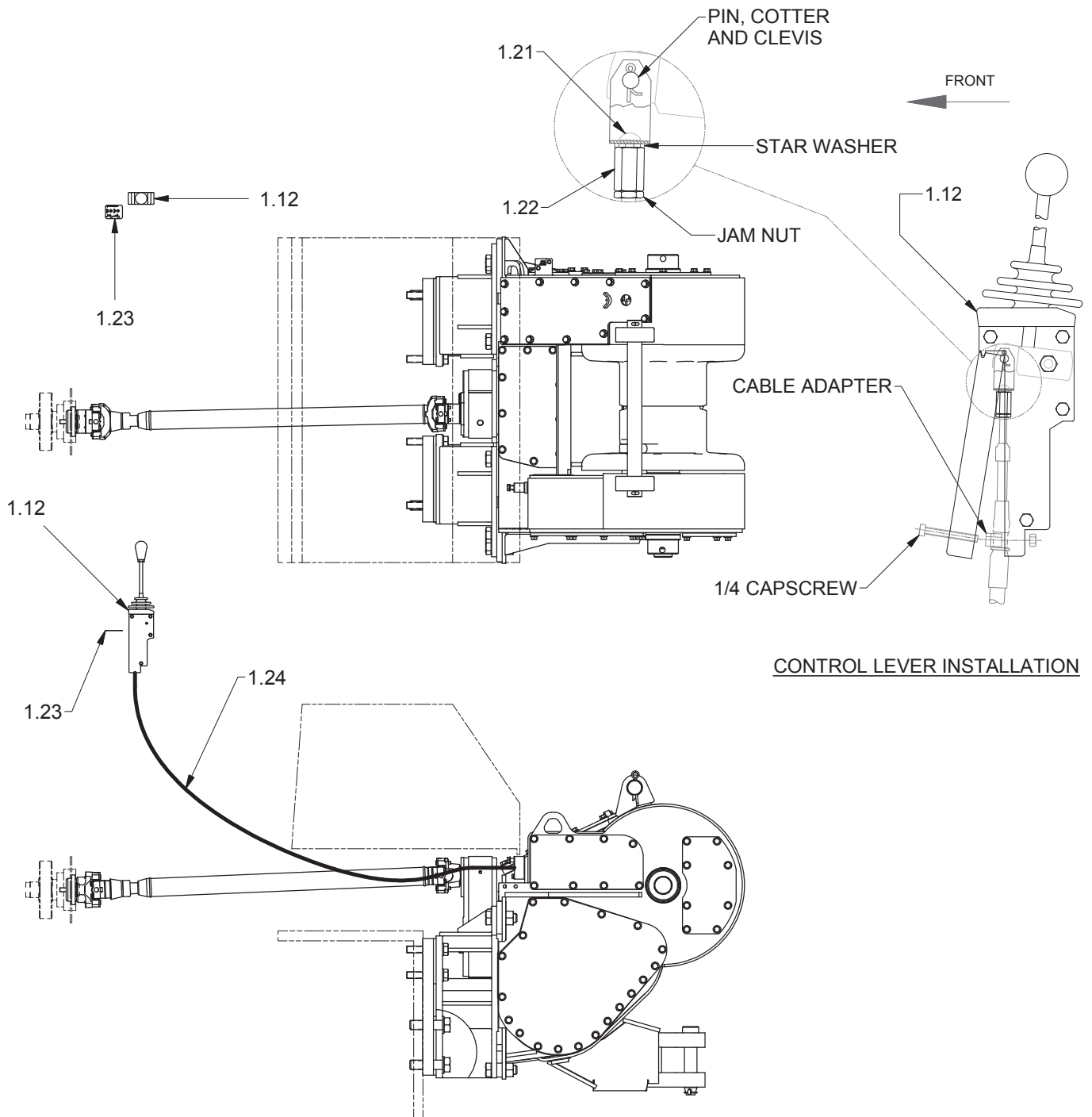


Parts Service Gram	
Item	Gram
1	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	1310764W	Assembly, Control Lever	1				
1	1300785W	. Lever, Control (See 3-94)	1	6	2300076W	. Plate	1
2	388659W	. Bracket	1	7	174413W	Cap screw	4
3	18518W	. Cap screw	3	8	156133W	Nut	4
4	18515W	. Washer	3	9	303944W	Cable, Control	1
5	191534W	. Locknut	3	10	277276W	Decal	1

Handling Gear - Power Controls

Shantui SD20-5 (U57)

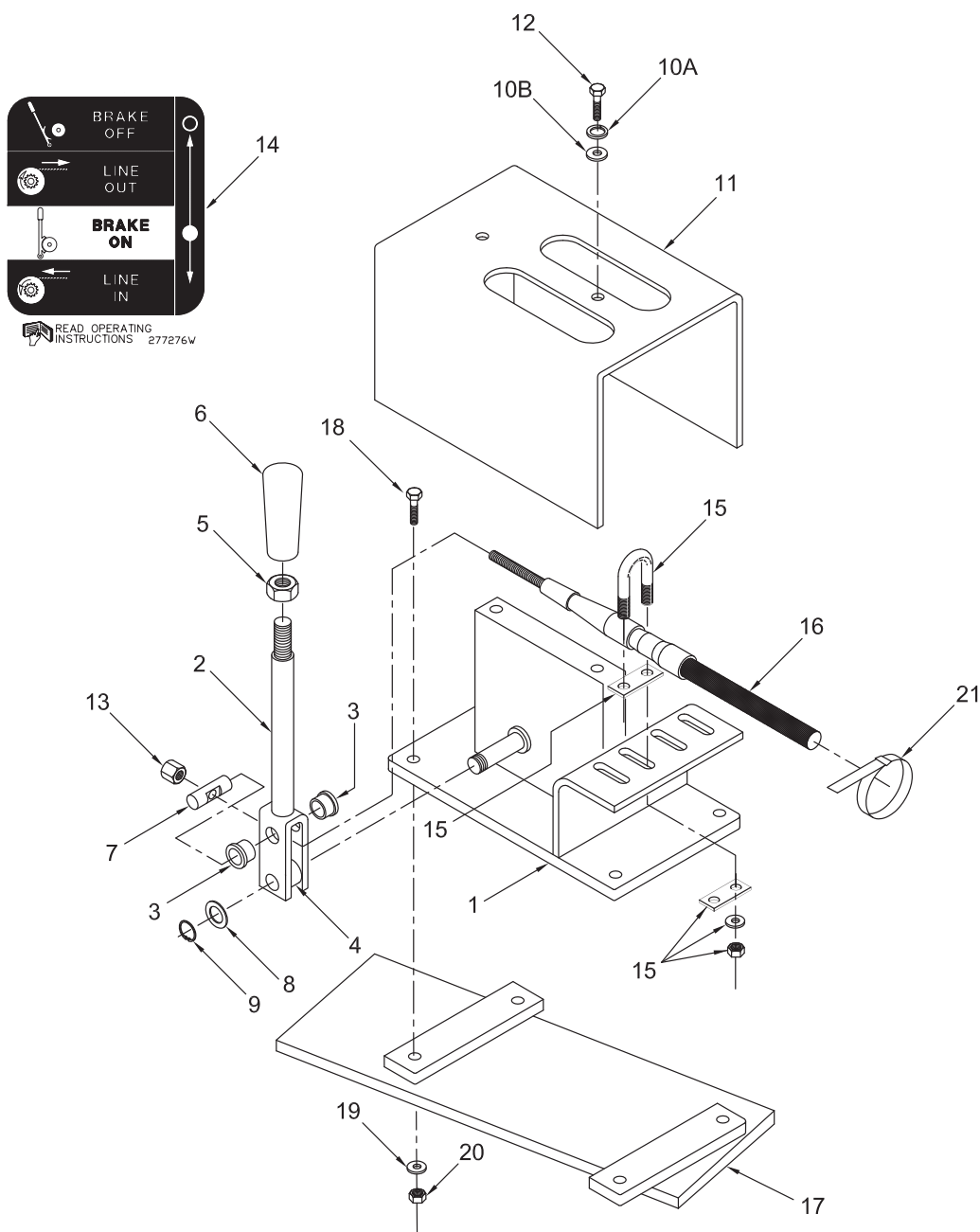


CONTROL LEVER INSTALLATION

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1.12	2303982W	Lever, Control (3-95)	1	1.22	383881W	Nut, Tall	1
1.20	2301055W	Trim, Protective Vinyl (Not Shown)	1	1.23	277276W	Decal	1
1.21	18717W	Capscrew	1	1.24	303944W	Cable, Control	1

Handling Gear - Power Controls

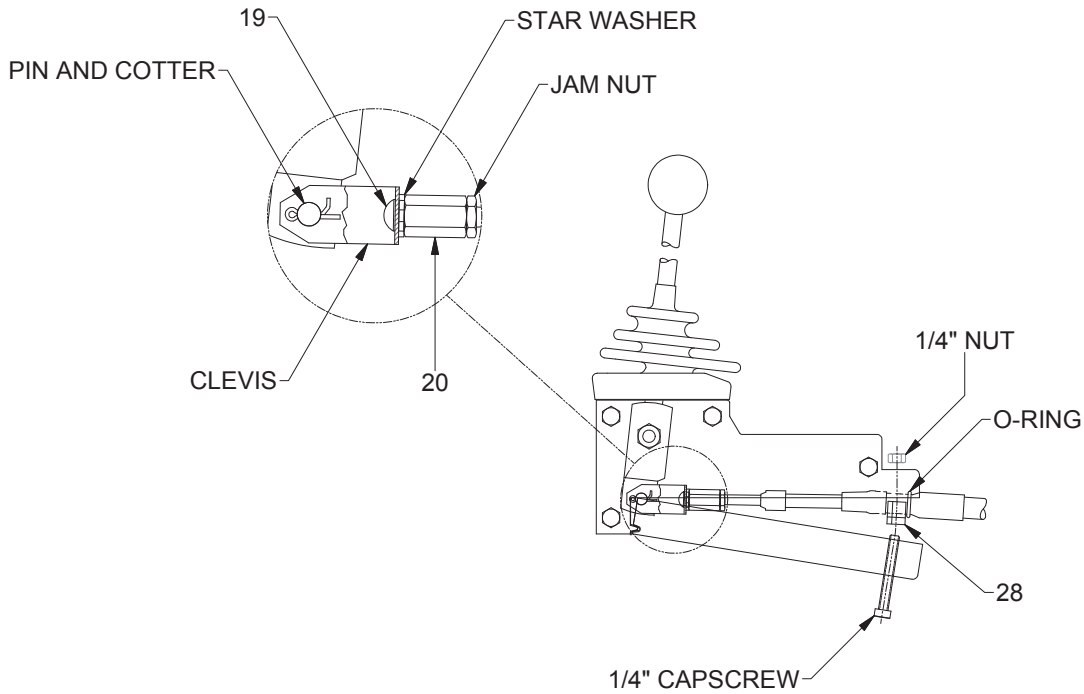
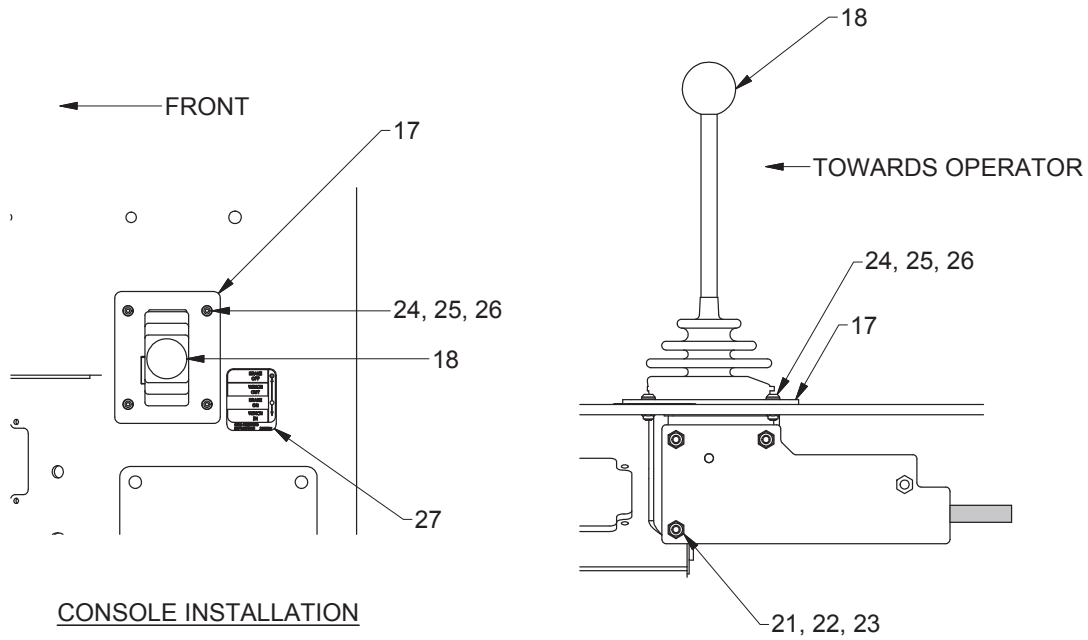
Terex D700A (G51) w/o FREESPOOL



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	332820W	Assembly, Control Lever	1				
1	332823W	. Bracket	1	13	2301487W	. Nut, Tall	1
2	276036W	. Assembly, Lever	1	14	277276W	Decal	1
3	196144W	. Bushing, Nylon	2	15	2300995W	Kit, U-Bolt	2
4	276043W	. Bushing, Brass	1		NSS	. Plate, Cup	1
5	15030W	. Nut	1		NSS	. Plate	1
6	2303105W	. Knob	1		NSS	. Washer	2
7	196128W	. Pin	1		NSS	. Nut	2
8	15135W	. Washer	1	16	303944W	Cable, Control	1
9	190930W	. Ring, Snap	1	17	346523W	Bracket	1
10A	15155W	. Lockwasher	2	18	16597W	Capscrew	4
10B	18515W	. Washer	2	19	15156W	Lockwasher	4
11	332822W	. Cover	1	20	15056W	Nut	4
12	16836W	. Capscrew	2	21	114312W	Strap, Clamp	1

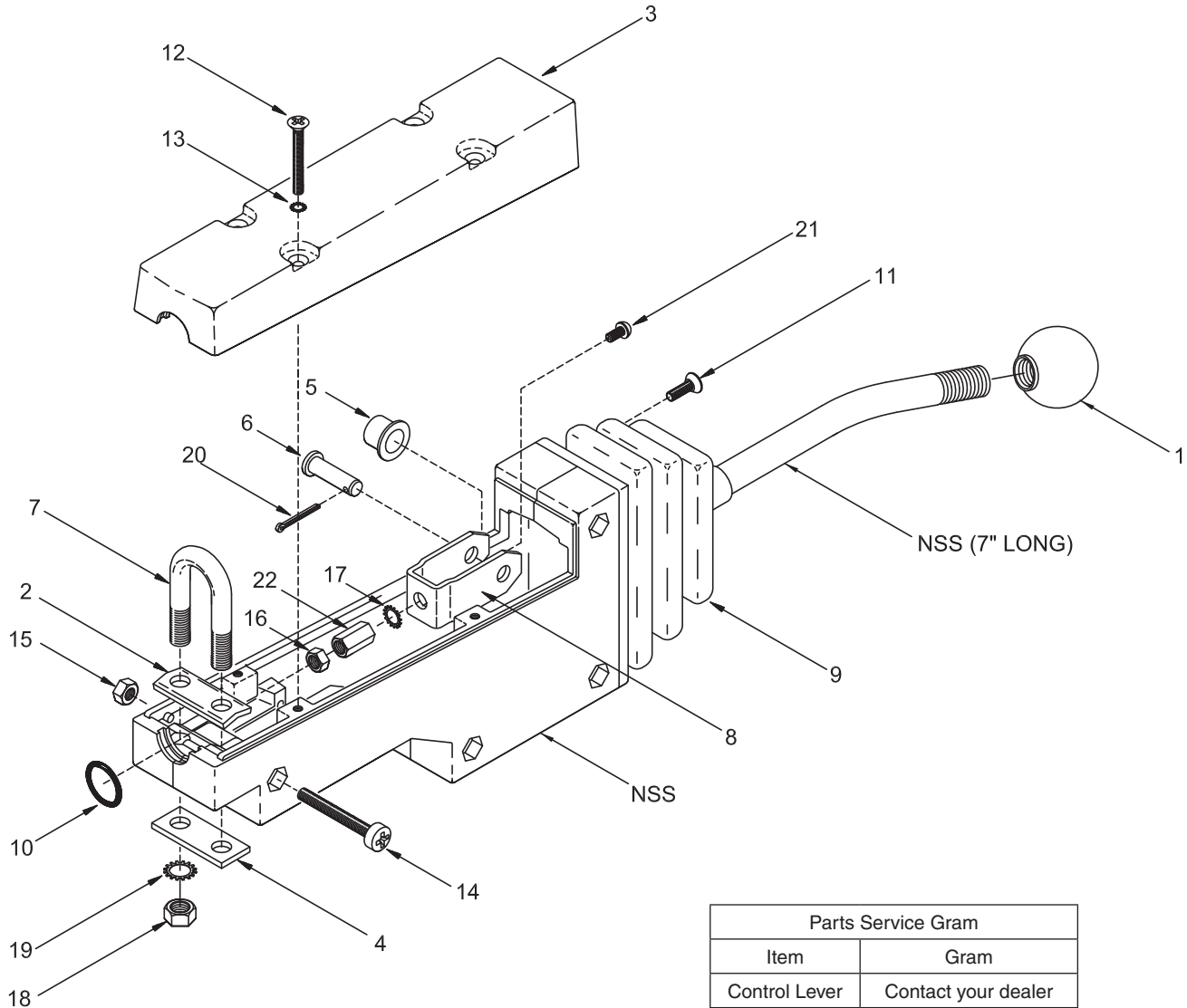
Handling Gear - Power Controls

Zoomlion ZD220 (N57) w/o FREESPOOL



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
17	2315535	Bracket, Control Lever	1	23	302399W	Nut	3
18	2303985W	Lever, Control (3-96)	1	24	296416W	Washer	8
19	18717W	Capscrew	1	25	296153W	Capscrew	4
20	383881W	Nut, Tall	1	26	302398W	Nut, Lock	4
21	Y09C-M0650	Capscrew	3	27	277276W	Decal, Control Lever - PFR W/O FS	1
22	296417W	Washer	3	28	2305023W	Kit, Cable	1

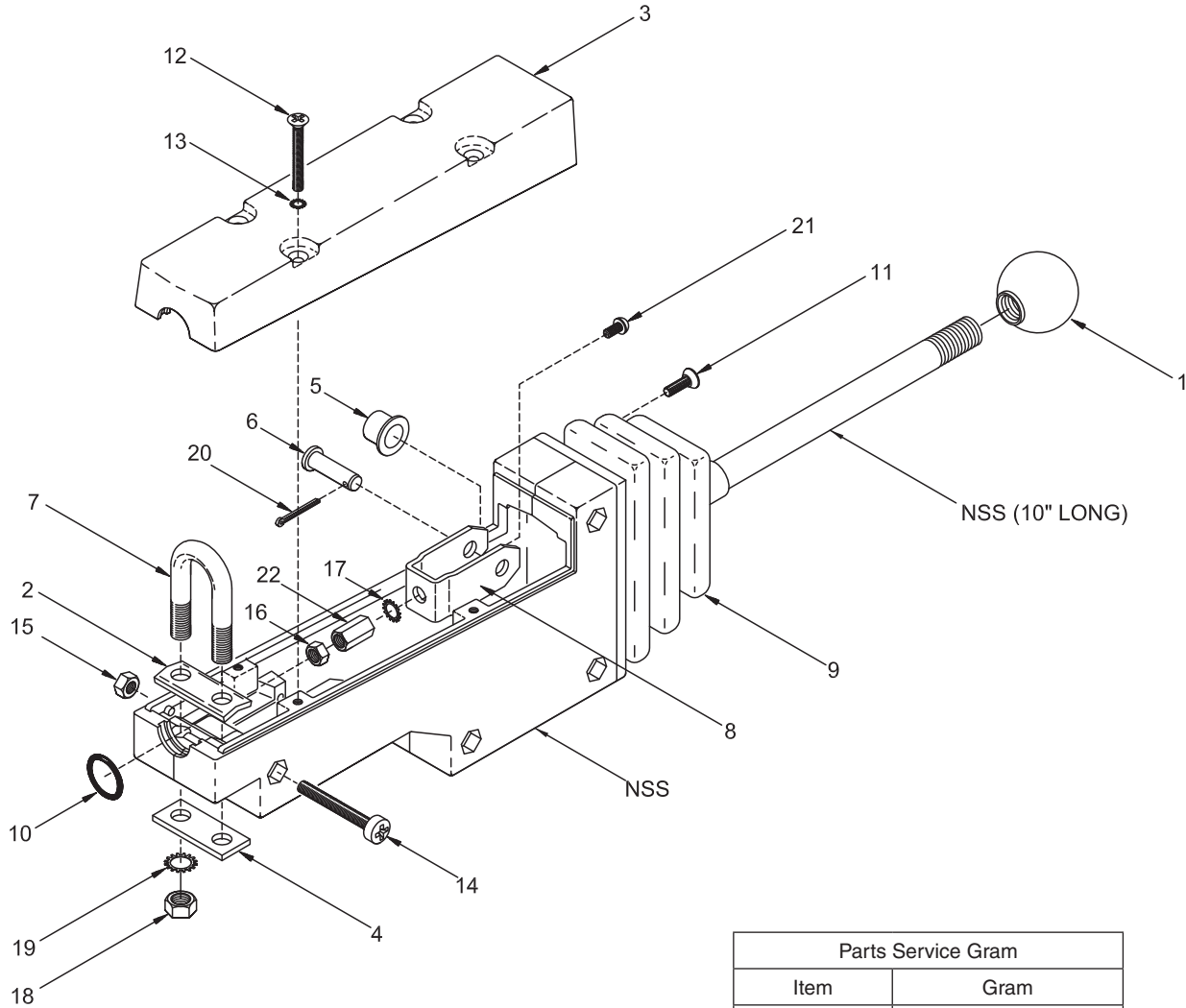
Control Lever Assembly - Power Controls



Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	383880W	Assembly, Control Lever	1				
1	1302049W	. Knob	1	12	1306002W	. Screw	4
2	1302048W	. Clamp, Cable	1	13	221867W	. Lockwasher	4
3	1302047W	. Cover	1	14	1306001W	. Screw	1
4	1302046W	. Clamp, Base	1	15	15024W	. Nut	1
5	1302045W	. Bearing	2	16	15004W	. Nut	1
6	1302044W	. Pin, Clevis	1	17	15923W	. Washer	1
7	1302043W	. U-Bolt	1	18	15005W	. Nut	2
8	1302042W	. Clevis	1	19	15932W	. Lockwasher	2
9	1302041W	. Boot	1	20	1302039W	. Pin	1
10	1302040W	. O-Ring	1	21	18717W	Cap screw	1
11	1306003W	. Screw	4	22	383881W	Nut, Tall	1

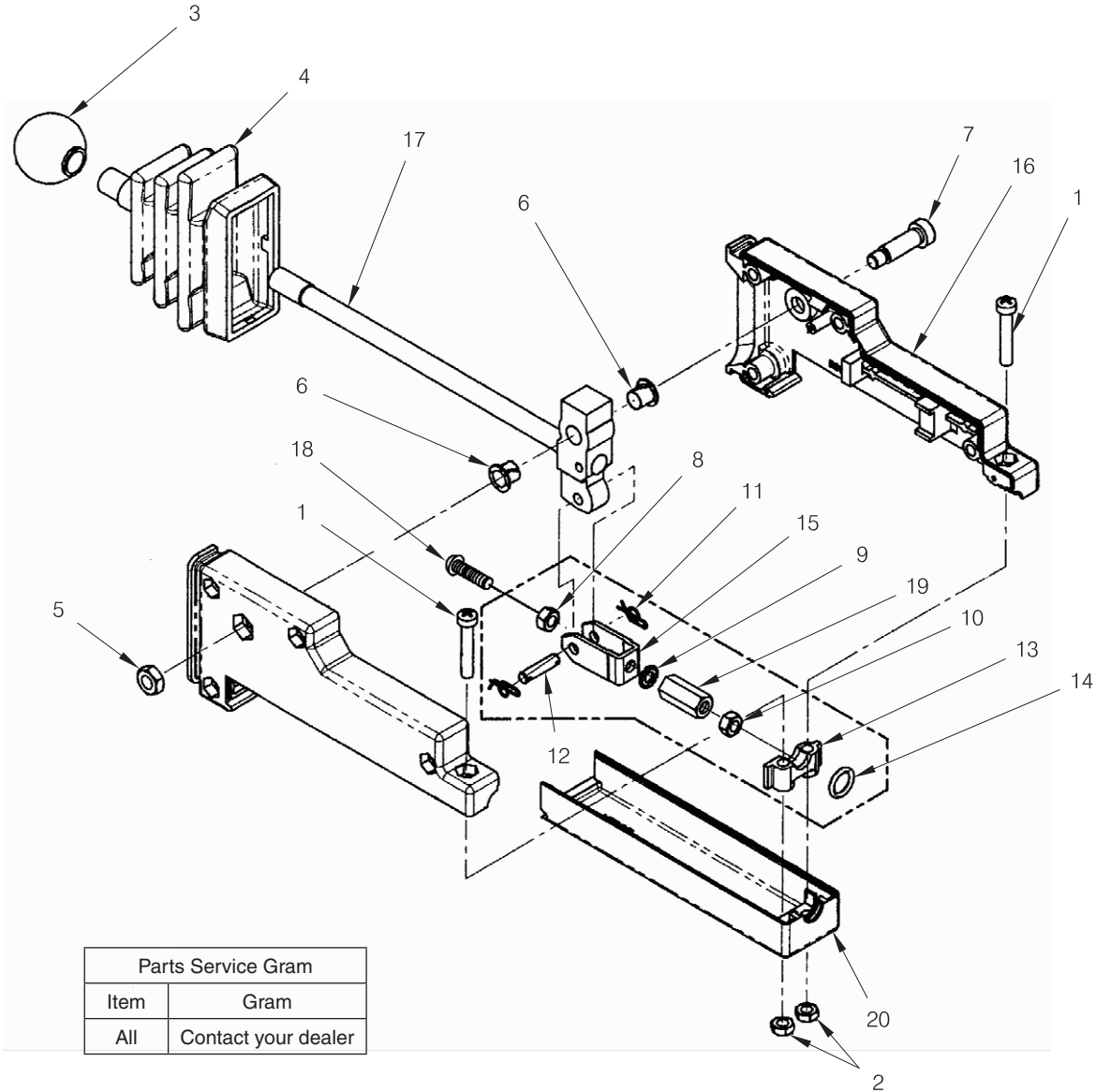
Control Lever Assembly - Power Controls



Parts Service Gram	
Item	Gram
Control Lever	Contact your dealer

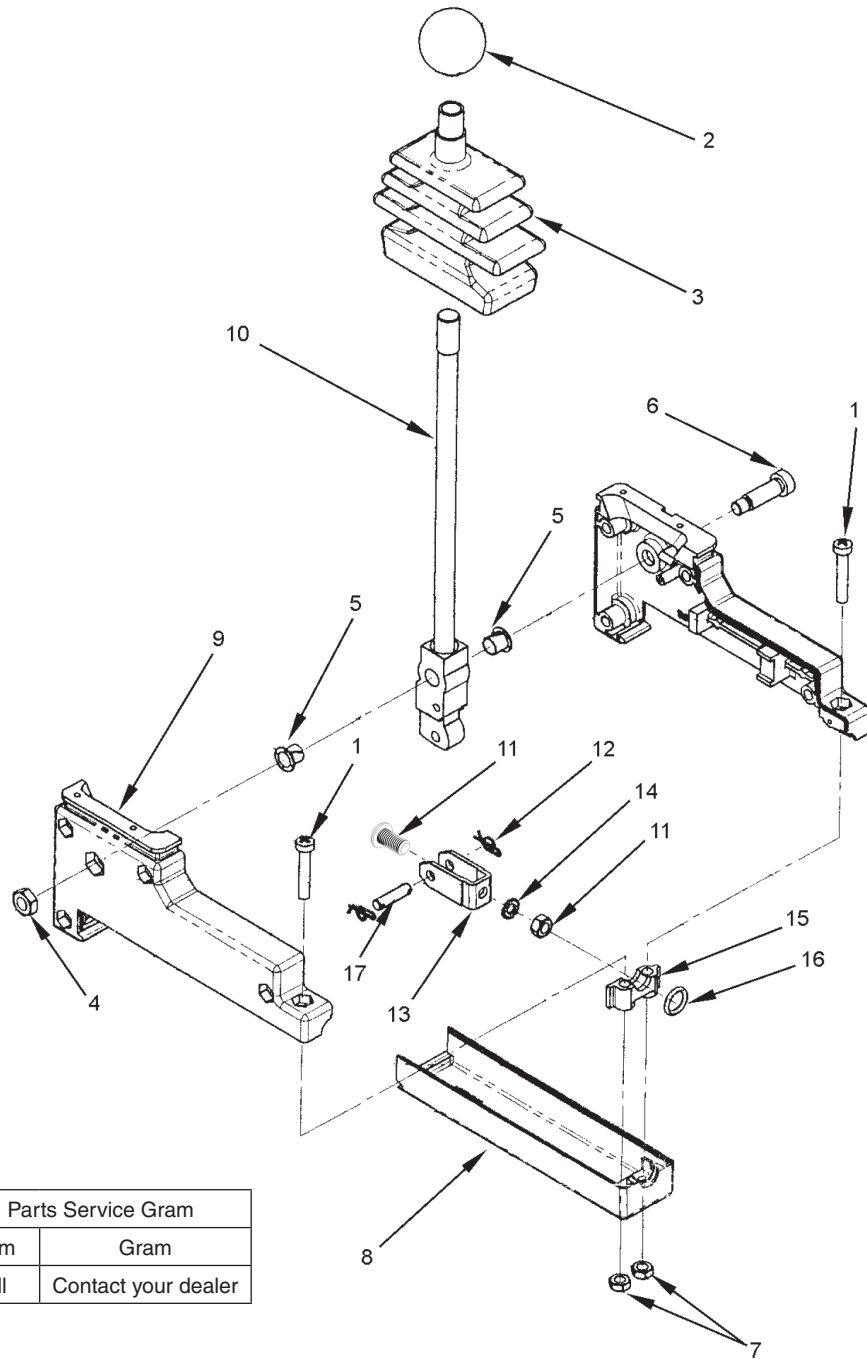
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	1300785W	Assembly, Control Lever	1				
1	1302049W	. Knob	1	12	1306002W	. Screw	4
2	1302048W	. Clamp, Cable	1	13	221867W	. Lockwasher	4
3	1302047W	. Cover	1	14	1306001W	. Screw	1
4	1302046W	. Clamp, Base	1	15	15024W	. Nut	1
5	1302045W	. Bearing	2	16	15004W	. Nut	1
6	1302044W	. Pin, Clevis	1	17	15923W	. Washer	1
7	1302043W	. U-Bolt	1	18	15005W	. Nut	2
8	1302042W	. Clevis	1	19	15932W	. Lockwasher	2
9	1302041W	. Boot	1	20	1302039W	. Pin	1
10	1302040W	. O-Ring	1	21	18717W	Cap screw	1
11	1306003W	. Screw	4	22	383881W	Nut, Tall	1

Control Lever Assembly - Power Controls



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303982W	Assembly, Control Lever	1				
	2303984W	Assembly, Control Lever	1				
	2303986W	Assembly, Control Lever	1				
	2304330W	Assembly, Control Lever	1				
	2304557W	Assembly, Control Lever	1				
	2304820W	Assembly, Control Lever	1				
	2305202W	Assembly, Control Lever	1				
	2305978W	Assembly, Control Lever	1				
	2305979W	Assembly, Control Lever	1				
	2307354W	Assembly, Control Lever	1				
1	*a	-----	2	13	*b	-----	1
2	*a	-----	2	14	*b	-----	1
3		2304339W	1	15	*b	-----	1
4		2304340W	1	16		NSS	1
5		2304341W	1	17		NSS	1
6		2304342W	2	18	*c	18717W	1
7		2304343W	1	19		383881W	1
8	*b	-----	1	20		2304604W	1
9	*b	-----	1				
10	*b	-----	1		*a	Included in 2304338W Cover Attaching Hardware Kit	
11	*b	-----	2		*b	Included in 2305023W Cable Attaching Hardware Kit	
12	*b	-----	1		*c	Use 318702W Thread Lock	
						. Adapter, Cable	
						. O-Ring	
						. Clevis	
						. Cover	
						. Lever	
						CapscREW	
						Nut, Tall	
						Cover	

Control Lever Assembly - Power Controls



Parts Service Gram	
Item	Gram
All	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303985W	Assembly, Control Lever	1				
1	*a -----	. Screw	2	11	*b -----	. Nut	2
2	2304339W	. Knob	1	12	*b -----	. Pin, Cotter	2
3	2304340W	. Boot	1	13	*b -----	. Clevis	1
4	2304341W	. Nut	1	14	*b -----	. Washer	1
5	2304342W	. Bearing, Plastic	2	15	*b -----	. Adapter, Cable	1
6	2304343W	. Screw	2	16	*b -----	. O-Ring	1
7	*b -----	. Nut	1	17	*b -----	. Pin	1
8	2304604W	. Cover	1				
9	NSS	. Housing	1		*a	Included in 2304338W Cover Attaching Hardware Kit	
10	NSS	. Lever	1		*b	Included in 2305023W Cable Attaching Hardware Kit	

Intentionally Blank

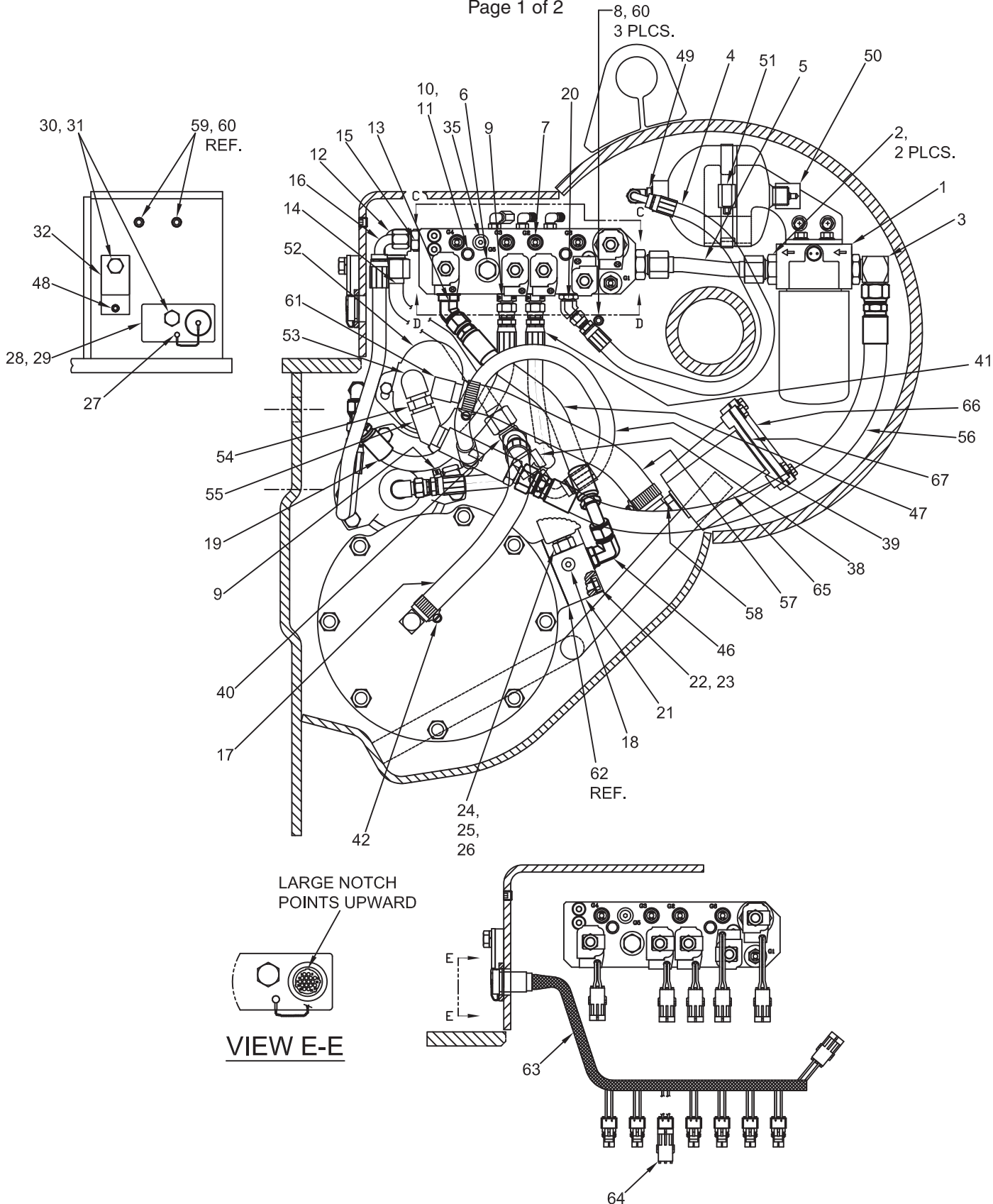
Hydraulic Group - Electronic Controls

Low Speed Reverse

Used on S/N AW8L-2623 thru AW8L-3129

Gear Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1)

Page 1 of 2



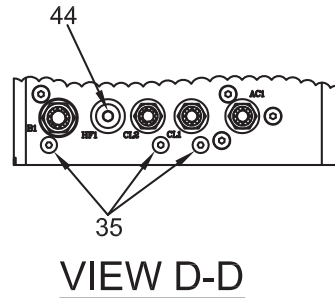
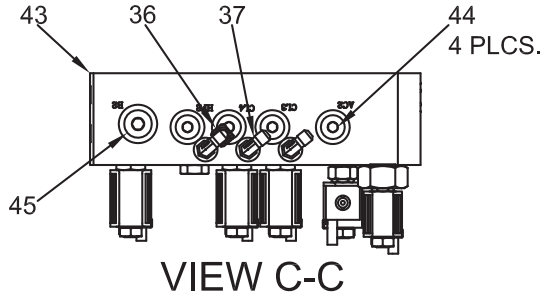
Hydraulic Group - Electronic Controls

Low Speed Reverse

Used on S/N AW8L-2623 thru AW8L-3129

Gear Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1)

Page 2 of 2



Routine Maintenance Kit		
Item	Kit No.	Section
1 (2304112W), 67	2311168	5-1
62, 67	277341W	5-1

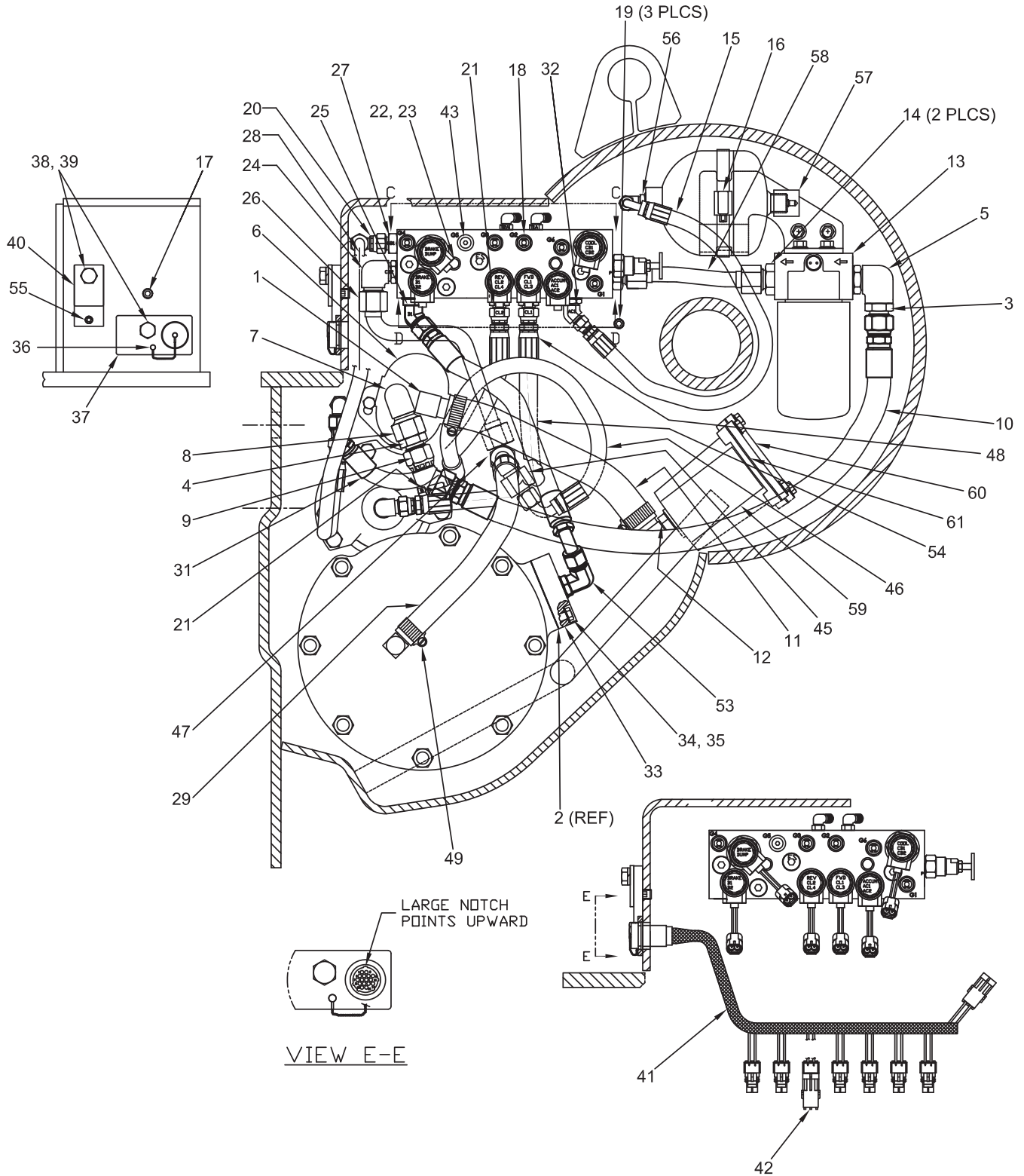
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2304111W	Assembly, Filter	1	34	2304877W	Plug, 2 Term	1
	2304112W	. Element, Filter	1	35	222442W	Fitting	1
	2304862W	. Switch, Pressure	1	36	2305049W	Cap, Orifice	1
	2305132W	. Head, Filter	1	37	16556W	Fitting	3
2	16543W	Fitting	2	38	14066W	Fitting	1
3	16561W	Fitting	1	39	2305408W	Assembly, Hose	1
4	2305407W	Assembly, Hose	1	40	14563W	Fitting	1
5	2305269W	Assembly, Tube - Inlet	1	41	2304606W	Assembly, Hose	1
6	2304824W	Plug, Cavity	1	42	127045W	Clamp	1
7	2304825W	Fitting, QC Test	5	43	2303889W	Assembly, Valve Manifold (See 3-108)	1
8	222648W	Setscrew	3	44	235691W	Fitting	5
9	16541W	Fitting	3	45	233693W	Fitting	1
10	18524W	Capscrew	2	46	16560W	Fitting	1
11	18515W	Washer	2	47	2304858W	Assembly, Hose	1
12	111331W	Fitting	1	48	220984W	Screw	1
13	16569W	Fitting	1	49	110174W	Fitting	1
14	2304860W	Assembly, Tube	1	50	2305418W	Accumulator	1
15	16909W	Fitting	1	51	2305504W	Clamp	1
16	2304855W	Assembly, Hose	1	52	2302989W	Pump (See 3-137)	1
17	2305409W	Assembly, Hose	1	53	2304327W	Fitting	1
18	222443W	Fitting	1	54	16074W	Fitting, Pipe	1
19	2304853W	Assembly, Hose	1	55	12825W	Fitting	1
20	17196W	Fitting	1	56	124588W	Assembly, Hose	1
21	2305056W	Manifold, Dump Valve	1	57	225704W	Assembly, Hose	1
22	16379W	Capscrew	2	58	2304358W	Fitting, Special	1
23	15134W	Washer	2	59	222648W	Setscrew	2
24	R15005	Coil, 24V	1	60	246108W	Sealant, Pipe Thread	AR
25	2305260W	Valve, Spool - 2 Way	1	61	2303677W	Fitting, Hose Special	1
26	2304845W	Washer, Tab	1	62	196022W	Gasket	1
27	16602W	Screw	1	63	2303901W	Harness, Internal	1
28	2304503W	Retainer, Connector	1	64	2304877W	Plug, 2 Term.	1
29	236308W	Sealant, Loctite Ultra Blue	AR	65	219172W	Strainer	1
30	178403W	Capscrew	2	66	2300936W	Cover	1
31	15158W	Washer	2	67	2300935W	Gasket	1
32	2304366W	Plate, Cover	1				
33	2303901W	Harness, Internal	1				

Hydraulic Group - Electronic Controls

Used on AW8L-3130 thru AW8L-3778

Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1)
 Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),
 #4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1)

Page 1 of 2

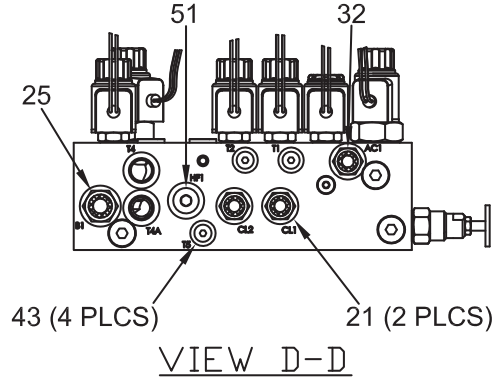
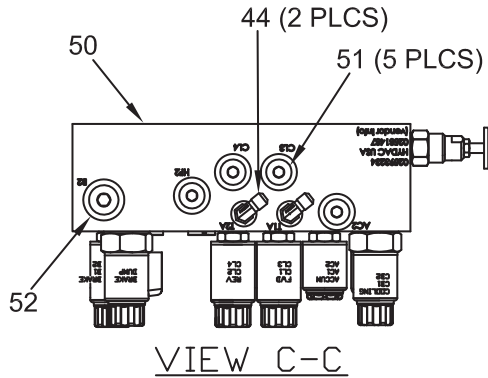


Hydraulic Group - Electronic Controls

Used on AW8L-3130 thru AW8L-3778

Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1)
 Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),
 #4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1)

Page 2 of 2



Routine Maintenance Kit		
Item	Kit No.	Section
13 (2304112W), 61	2311168	5-1
2, 61	277341W	5-1

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2303677W	Fitting, Hose Special	1	32	17196W	Fitting	1
2	196022W	Gasket	1	33	279392W	Block	1
3	2310015	Valve, Check	1	34	16805W	Capscrew	2
4	16543W	Fitting	1	35	15134W	Washer	2
5	2307740W	Fitting	1	36	16602W	Screw	1
6	2302989W	Assembly, Gear Pump (See 3-137)	1	37	*a 2304503W	Retainer, Connector	1
7	2307730W	Fitting	1	38	178403W	Capscrew	2
8	220153	Fitting	1	39	15158W	Washer	2
9	17040W	Fitting	1	40	2304366W	Plate, Cover	1
10	2307715W	Assembly, Hose	1	41	2303901W	Harness, Internal	1
11	225704W	Assembly, Hose	1	42	2304877W	Plug, 2 Term.	1
12	2304358W	Fitting, Special	1	43	222442W	Fitting	4
13	2304111W	Assembly, Filter	1	44	16556W	Fitting	2
	2304112W	. Element, Filter	1	45	14066	Fitting	1
	2304862W	. Switch, Pressure	1	46	2305408W	Assembly, Hose	1
	2305132W	. Head, Filter	1	47	14563W	Fitting	1
14	16543W	Fitting	2	48	2304854W	Assembly, Hose	1
15	2305407W	Assembly, Hose	1	49	127045W	Clamp	1
16	2307758W	Assembly, Tube - Inlet	1	50	2306547W	Assembly, Valve Manifold (See 3-109)	1
17	2305988W	Setscrew	1	51	235691W	Fitting	5
18	2304825W	Fitting, QC Test	5	52	233693W	Fitting	1
19	2305987W	Setscrew	3	53	222402W	Fitting	1
20	16989W	Fitting	1	54	2310120	Assembly, Hose	1
21	16541W	Fitting	3	55	2305990W	Setscrew	1
22	18526W	Capscrew	2	56	110174W	Fitting	1
23	18515W	Washer	2	57	2305418W	Accumulator	1
24	111331W	Fitting	1	58	2305504W	Clamp	1
25	16569W	Fitting	1	59	219172W	Strainer	1
26	2307757W	Assembly, Tube	1	60	2300936W	Cover	1
27	16909W	Fitting	1	61	2300935W	Gasket	1
28	2304855W	Assembly, Hose	1				
29	2310633	Assembly, Hose	1				
31	2304853W	Assembly, Hose	1				

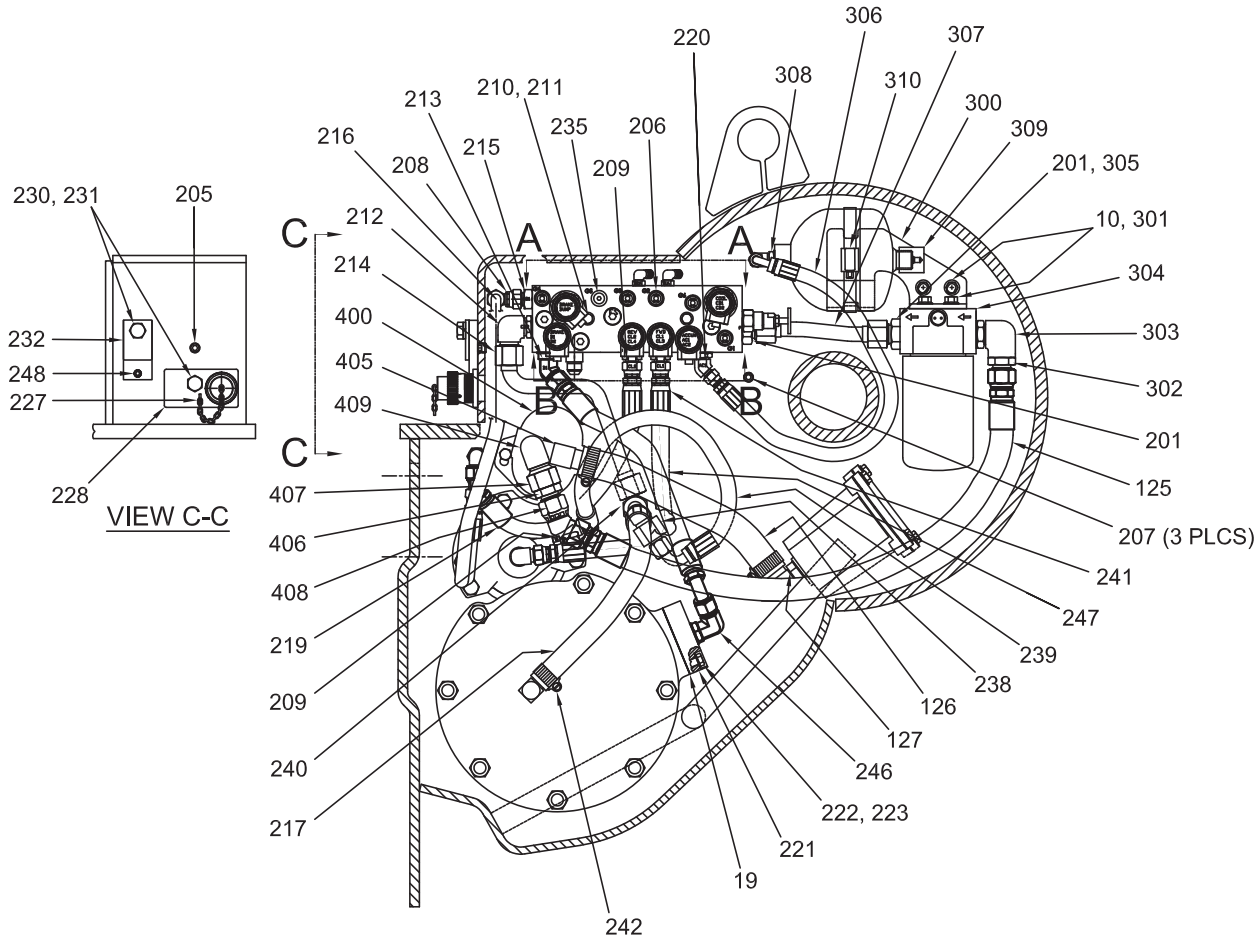
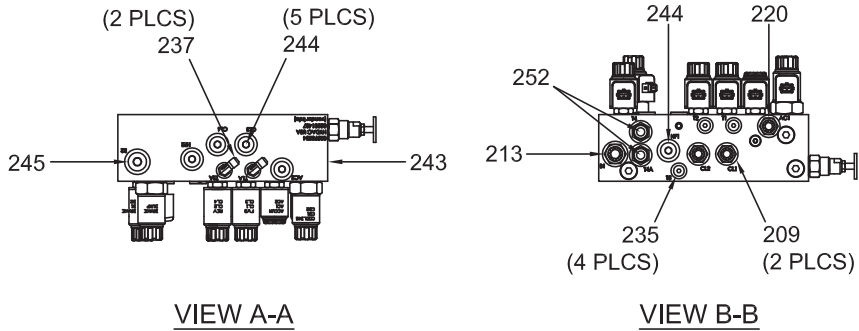
*a Use 236308W Loctite Ultra Blue Sealant

Hydraulic Group - Electronic Controls

Used on S/N AW8L-3779 thru S/N AW8L-3863

Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1)
 Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),
 #4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1)

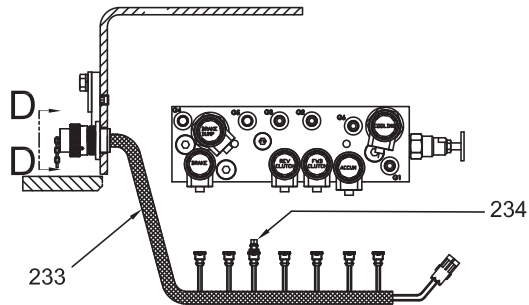
Page 1 of 2



LARGE NOTCH
POINTS OUTWARD



VIEW D-D



Hydraulic Group - Electronic Controls

Used on S/N AW8L-3779 thru S/N AW8L-3863

Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1)
 Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),
 #4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1)

Page 2 of 2

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
10	1300780W	Screw, Flange	2	237	16556W	Fitting	2
19	196022W	Gasket	1	238	14066	Fitting	1
125	2307715W	Assembly, Hose	1	239	2305408W	Assembly, Hose	1
126	225704W	Assembly, Hose	1	240	14563W	Fitting	1
127	2304358W	Fitting	1	241	2304854W	Assembly, Hose	1
201	16543W	Fitting	2	242	127045W	Clamp	1
205	2305988W	Setscrew	1	243	2311887	Assembly, Valve Manifold (See 3-110)	1
206	2304825W	Fitting, QC Test	5	244	235691W	Fitting	5
207	2305987W	Setscrew	3	245	233693W	Fitting	1
208	16989W	Fitting	1	246	222402W	Fitting	1
209	16541W	Fitting	3	247	2310120	Assembly, Hose	1
210	18526W	Capscrew	2	248	2305990W	Setscrew	1
211	18515W	Washer	2	252	2313404	Valve, Check	2
212	111331W	Fitting	1	300	2305114W	Bracket, Mounting	1
213	16569W	Fitting	1	301	1300780W	Screw, Flange	2
214	2307757W	Assembly, Tube	1	302	2310015	Valve, Check	1
215	16909W	Fitting	1	303	2307740W	Fitting	1
216	2304855W	Assembly, Hose	1	304	2304111W	Assembly, Filter	1
217	2310633	Assembly, Hose	1		2304112W	. Element, Filter	1
219	2304853W	Assembly, Hose	1		2304862W	. Switch, Pressure	1
220	17196W	Fitting	1		2305132W	. Head, Filter	1
221	279392W	Block	1	305	16543W	Fitting	2
222	16805W	Capscrew	2	306	2305407W	Assembly, Hose	1
223	15134W	Washer	2	307	2307758W	Assembly, Tube - Inlet	1
227	16602W	Screw	1	308	110174W	Fitting	1
228	*a 2311807	Retainer, Connector	1	309	2305418W	Accumulator	1
230	178403W	Capscrew	2	310	2305504W	Clamp	1
231	15158W	Washer	2	400 - 409	----	Assembly, Pump (See Chart)	
232	2304366W	Plate, Cover	1				
233	2311443	Harness, Internal	1				
234	2312259	Plug, Counter	1				
235	222442W	Fitting	4				

*a Use 236308W Loctite Ultra Blue Sealant

PUMP ASSEMBLY CHART									
DESCRIPTION		RATIOS 1-7 OVERWIND		RATIO 1-7 UNDERWIND		RATIO 8-10 UNDERWIND		RATIO 8-10 OVERWIND	
ASSEMBLY PART NUMBER & REVISION		2312810	A	2312811	A	2312812	A	2312813	A
ITEM #	ITEM DESCRIPTION	P/N	QTY	P/N	QTY	P/N	QTY	P/N	QTY
400	ASSEMBLY, GEAR PUMP*	2302963W	1	2302989W	1	2302963W	1	2302989W	1
401	PINION, PUMP	224796W	1	224796W	1	2303541W	1	2303541W	1
402	NUT	138750W	1	138750W	1	138750W	1	138750W	1
405	FITTING, SPECIAL HOSE	2303677W	1	2303677W	1	2303677W	1	2303677W	1
406	FITTING, O-RING	16543W	1	16543W	1	16543W	1	16543W	1
407	FITTING	220153	1	220153	1	220153	1	220153	1
408	FITTING			17040W	1			17040W	1
409	FITTING			2307730W	1			2307730W	1

* See pages 3-132 & 3-133 for pump details.

Hydraulic Group - Electronic Controls

First Used on S/N AW8L-3864

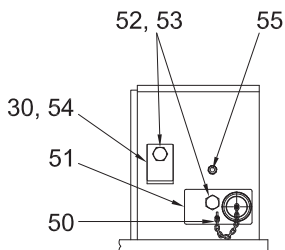
Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1), #11 (85.4/34.1:1)

Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),

#4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1), #11 (85.4/34.1:1)

Page 1 of 4

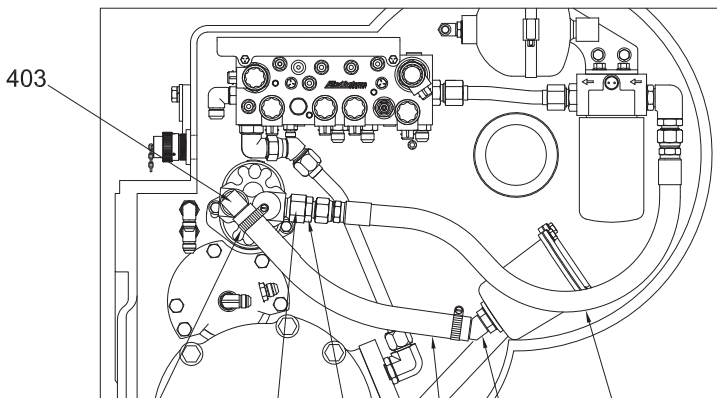
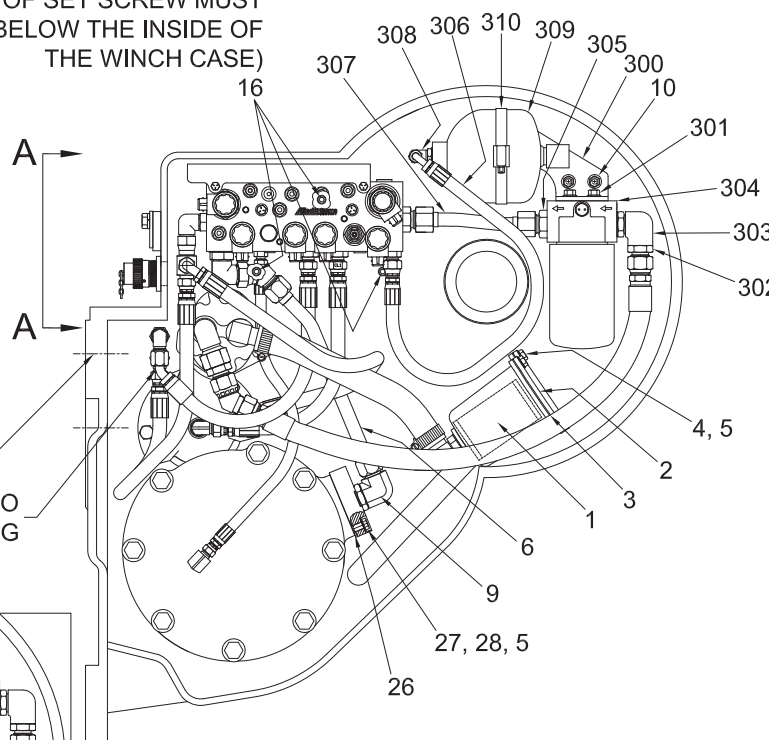
(FACE OF SET SCREW MUST BE BELOW THE INSIDE OF THE WINCH CASE)



VIEW A-A

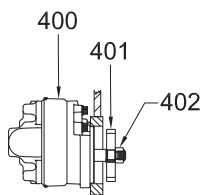
(CENTER HOLES ONLY) 36

CONNECTIONS TO TRANSMISSION CASE PLUMBING

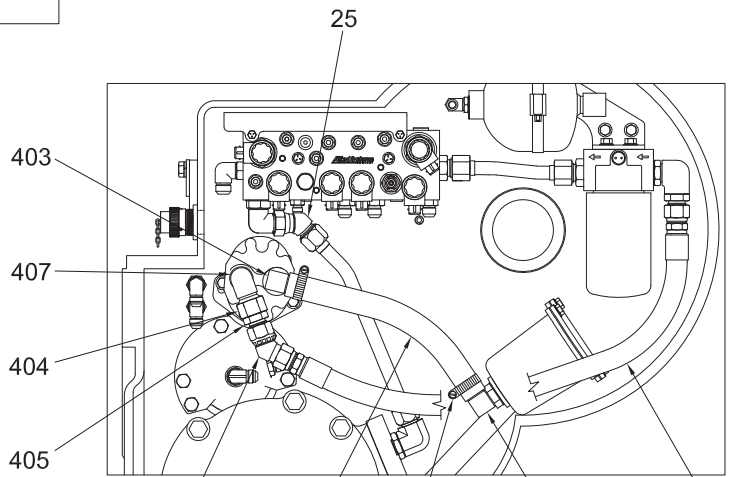


(BOTH ENDS)

2312810, 2312812 AND 2315553



PUMP SIDE VIEW



(BOTH ENDS)

2312811 AND 2312813

Hydraulic Group - Electronic Controls

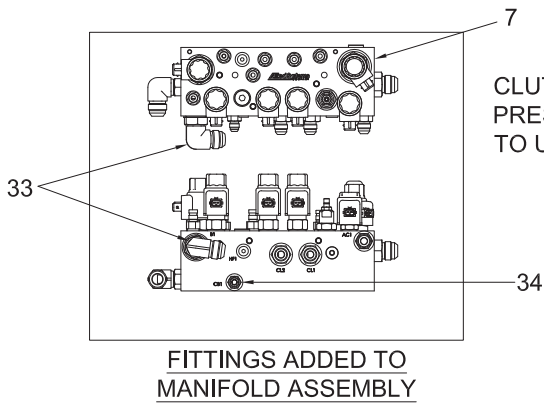
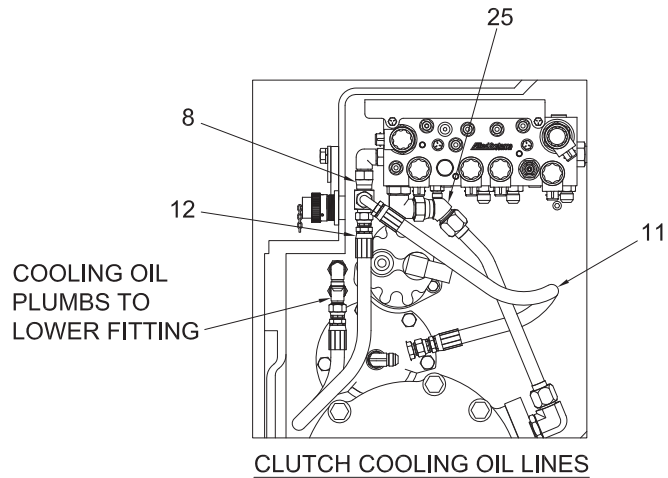
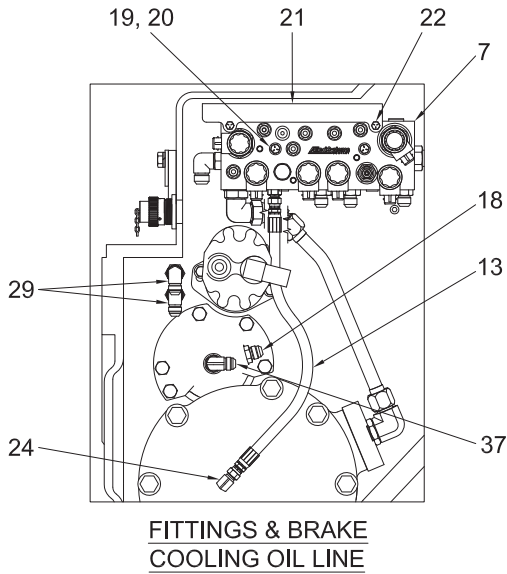
First Used on S/N AW8L-3864

Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1), #11 (85.4/34.1:1)

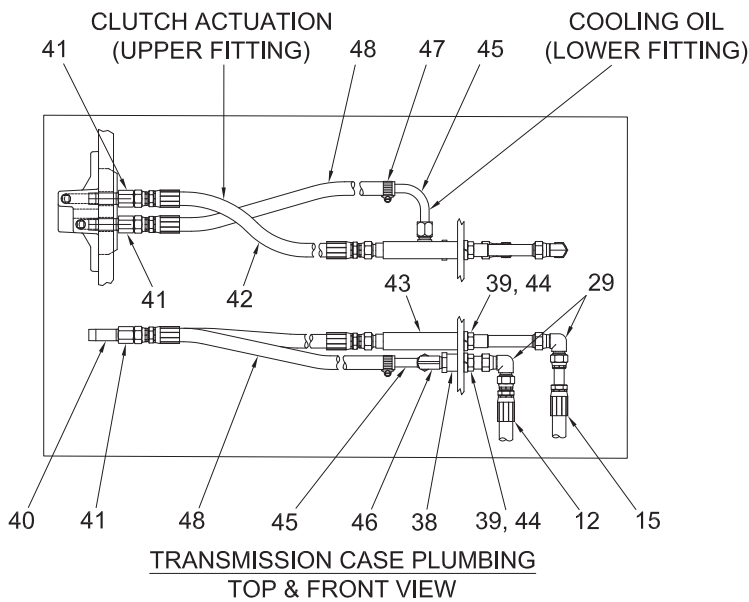
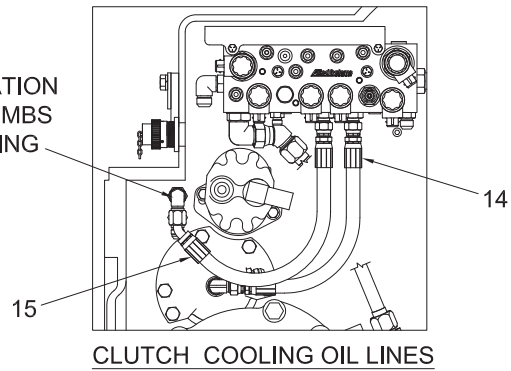
Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),

#4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1), #11 (85.4/34.1:1)

Page 2 of 4



CLUTCH ACTUATION PRESSURE PLUMBS TO UPPER FITTING

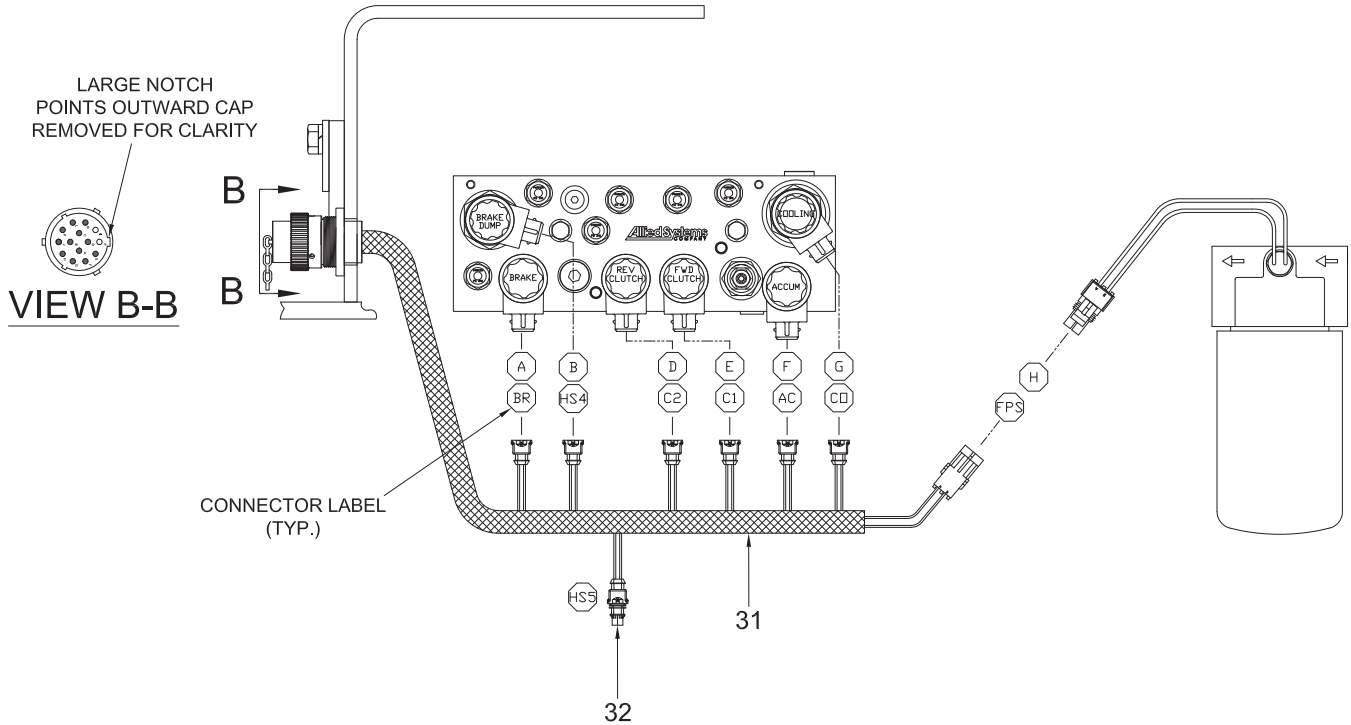


Hydraulic Group - Electronic Controls

First Used on S/N AW8L-3864

Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1), #11 (85.4/34.1:1)
 Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),
 #4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1), #11 (85.4/34.1:1)

Page 3 of 4



WINCH CONNECTION	HARNESS CONNECTOR	WIRE PAIR COLORS	FUNCTION
A	BR	TAN & PUR	BRAKE
B	HS4	BLK & GRAY	BRAKE DUMP
PLUGGED	HS5	ORG & BLK	NOT USED
D	C2	BRN & YEL	REVERSE
E	C1	YEL & DKBLU	FORWARD
F	AC	PINK & BLK	ACCUMULATOR
G	CD	BLK & GRAY	COOLING
H	FPS	WHI & LTGRN	PR. SWITCH

ELECTRICAL CONNECTIONS

Hydraulic Group - Electronic Controls

First Used on S/N AW8L-3864

Overwind Ratios #8(125/190:1), #9 (94/102:1), #10 (125/136:1), #11 (85.4/34.1:1)

Underwind Ratios #1(49.8/19.9:1), #2(71.6/38.6:1), #3(94.0/37.6:1),

#4(84.0/33.6:1), #5(90.1/36.0:1), #6(68.8/27.5:1), #7(47.1/31.1:1), #11 (85.4/34.1:1)

Page 4 of 4

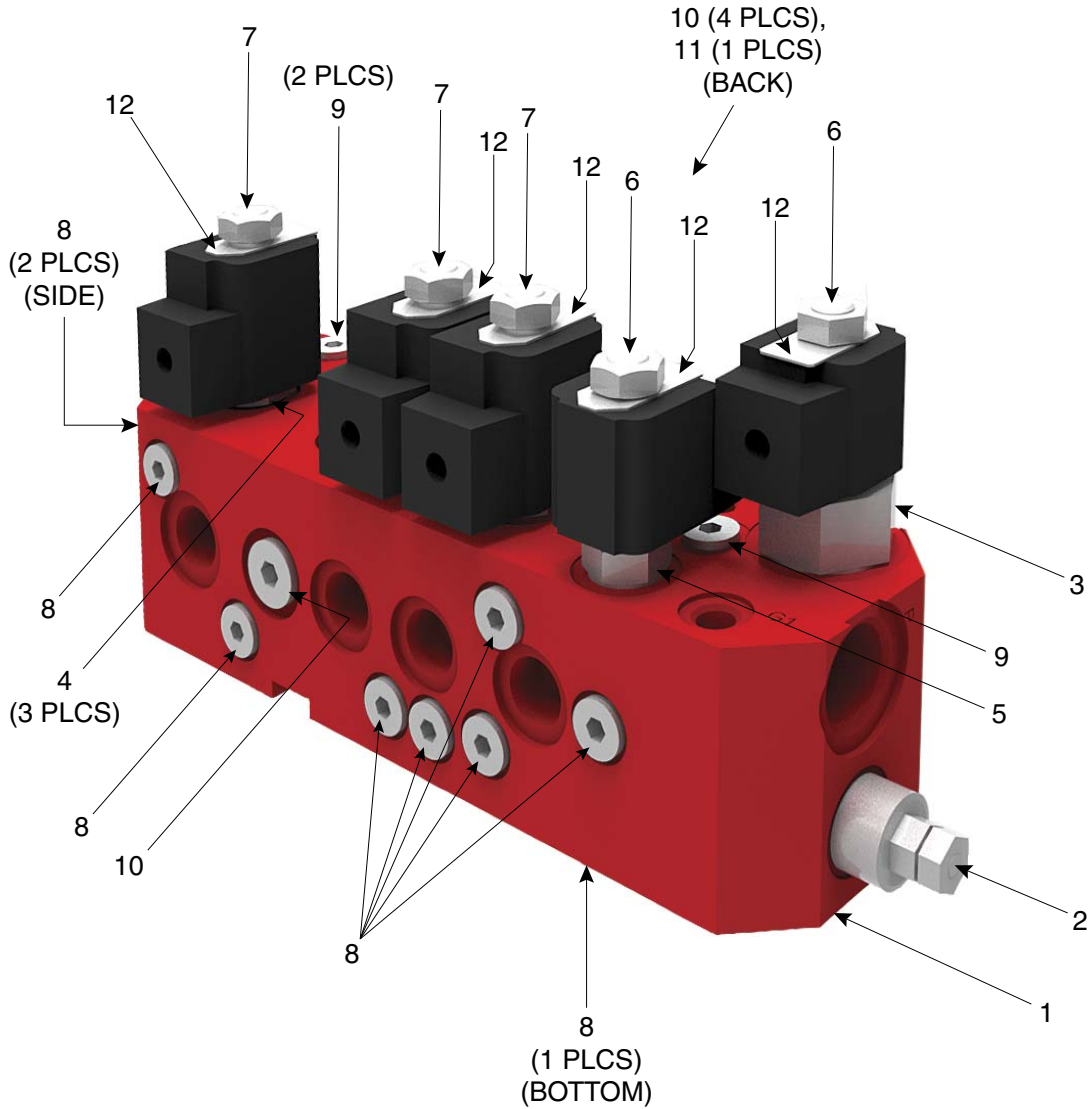
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	219172W	Stainer	1	41	*a 14723W	Fitting	2
2	2300936W	Cover	1	42	276087W	Assembly, Hose	1
3	2300935W	Gasket	1	43	225233W	Connector, Special	1
4	*c 16805W	Capscrew	4	44	177951W	Washer	2
5	R13812514	Washer	6	45	255434W	Assembly, Tube	1
6	2316175	Tube, Brake	1	46	*a 17309W	Fitting	1
7	2315717	Assembly, E-Control Manifold (3-111)	1	47	130845W	Clamp, Hose	1
8	17063W	Fitting	1	48	276097W	Assembly, Hose	1
9	222402W	Fitting	1	49	209639W	Clamp	2
10	*a 1300780W	Screw, Flange	2	50	16602W	Screw	1
11	2315762	Assembly, Hose	1	51	*b 2311807	Connector, Retainer	1
12	2316436	Assembly, Hose	1	52	*a 178403W	Capscrew	2
13	187878W	Assembly, Hose	1	53	15158W	Washer	2
14	2304854W	Assembly, Hose	1	54	2304366W	Plate, Cover	1
15	2315760	Assembly, Hose	1	55	*a 2305988W	Setscrew	1
16	*a 2305987W	Setscrew	3	125	2307715W	Assembly, Hose	1
17	2312809	Assembly, Filter & Accumulator	1	126	225704W	Assembly, Hose	1
18	16541W	Fitting	1	127	2304358W	Fitting	1
19	*a 18526W	Capscrew	2	150	276090W	Fitting	1
20	18515W	Washer	2	151	2307715W	Assembly, Hose	1
21	2315822	Guard, Splash	1	152	276092W	Assembly, Hose	1
22	*c 133469W	Capscrew	2	300	2305114W	Bracket, Mounting	1
23	137852W	Tie, Cable - Black	2	301	*c 1300780W	Screw, Flange	2
24	209412	Fitting	1	302	2310015	Valve, Check	1
25	214219	Fitting	1	303	2307740W	Fitting	1
26	196022W	Gasket	1	304	2304111W	Assembly, Filter	1
27	279392W	Block	1		2304112W	. Element, Filter	1
28	*c 16828W	Capscrew	2		2304862W	. Switch, Pressure	1
29	16989W	Fitting	2		2305132W	. Head, Filter	1
30	303946W	Gasket	1	305	16543W	Fitting	2
31	2311443	Harness, Internal	1	306	2305407W	Assembly, Hose	1
32	2312259	Plug, Counter	1	307	2307758W	Assembly, Tube - Inlet	1
33	16561W	Fitting	1	308	110174W	Fitting	1
34	211560	Fitting	1	309	2305418W	Accumulator	1
35	129563W	Tie, Cable - Black	1	310	2305504W	Clamp	1
36	18001W	Plug	2	400 - 407	- - - -	Assembly, Pump (See Chart Below)	
37	16559W	Fitting	1				
38	255433W	Connector	1		*a Use 226203W Pipe Thread Sealant		
39	14716W	Nut	2		*b Use 222761W RTV Sealant Prior to Assembly		
40	*a 19581W	Fitting	2		*c Use 318702W Thread Locker at Assembly		

PUMP ASSEMBLY CHART											
DESCRIPTION		RATIOS 1-7 & 11 OVERWIND (Ex. N57)		RATIOS 1-7 & 11 UNDERWIND		RATIOS 8-10 UNDERWIND		RATIOS 8-10 OVERWIND		RATIO 3 OVERWIND (N57)	
		P/N	QTY	P/N	QTY	P/N	QTY	P/N	QTY	P/N	QTY
ASSEMBLY PART NUMBER & REVISION		2312810	A	2312811	A	2312812	A	2312813	A	2315553	-
ITEM #	ITEM DESCRIPTION	P/N	QTY	P/N	QTY	P/N	QTY	P/N	QTY	P/N	QTY
400	ASSEMBLY, GEAR PUMP*	2302963W	1	2302989W	1	2302963W	1	2302989W	1	2302963W	1
401	PINION, PUMP	224796W	1	224796W	1	2303541W	1	2303541W	1	2304597W	1
402	NUT	138750W	1	138750W	1	138750W	1	138750W	1	138750W	1
403	FITTING, SPECIAL HOSE	2303677W	1	2303677W	1	2303677W	1	2303677W	1	2303677W	1
404	FITTING, O-RING	16543W	1	16543W	1	16543W	1	16543W	1	16543W	1
405	FITTING	220153	1	220153	1	220153	1	220153	1	220153	1
406	FITTING			17040W	1			17040W	1		
407	FITTING			2307730W	1			2307730W	1		

* See pages 3-134 thru 3-137 for pump details.

Valve Manifold Assembly - Electronic Controls

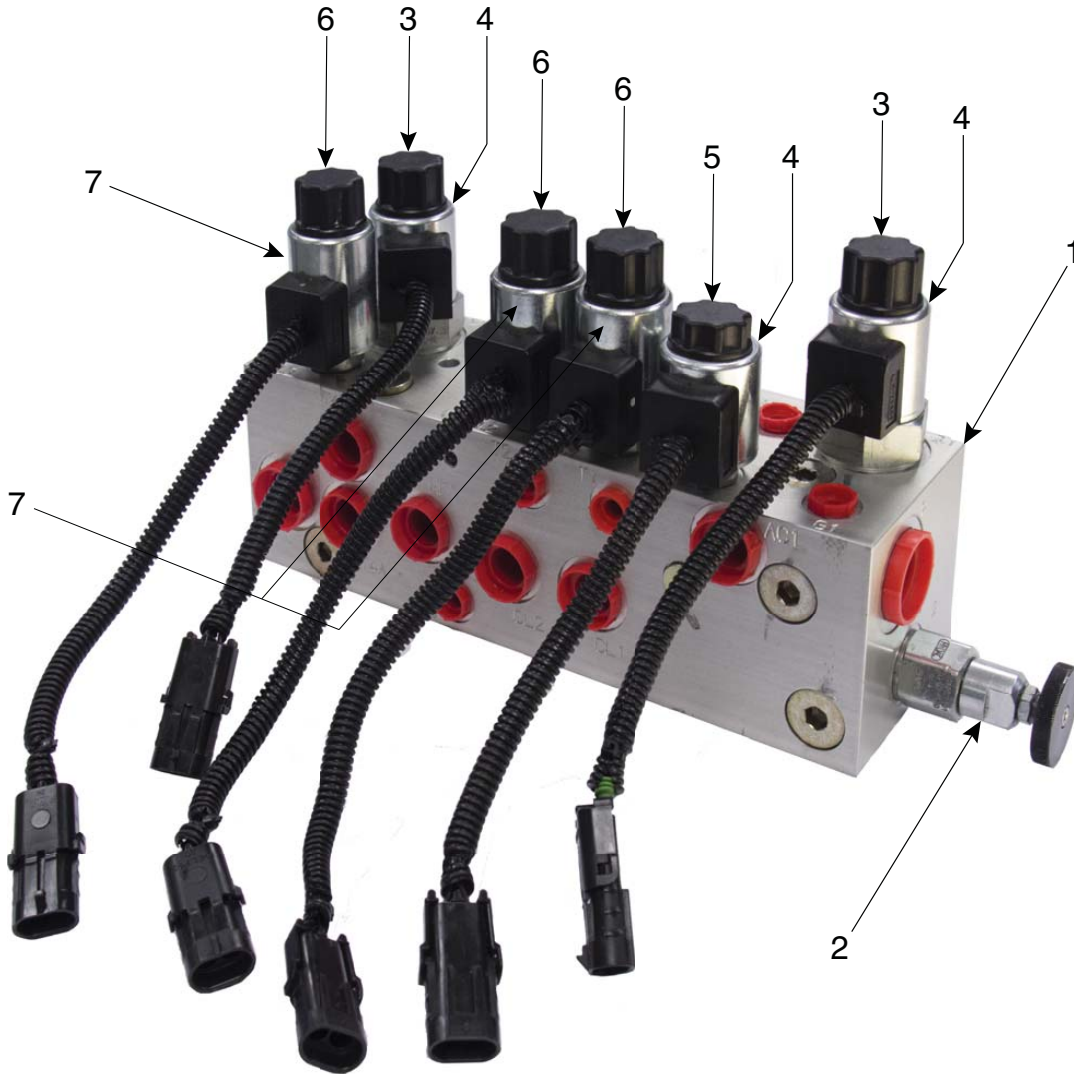
Last Used on S/N AW8L-3129



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2303889W	Assembly, Valve Manifold	1				
1	NSS	. Block (Red Color)	1	5	2304842W	. Valve, Solenoid	1
2	2300308W	. Valve, Relief	1		R15012	. . Kit, Seal	1
	16484W	. . O-Ring	1	6	R15006	. Coil, 24V DC	2
	15860W	. . O-Ring	1	7	R15005	. Coil, 24V DC	3
	Y098629-012	. . O-Ring	1	8	222442W	. Plug	10
3	2304840W	. Valve, Solenoid	1	9	222443W	. Plug	3
	2304971W	. . Kit, Seal	1	10	235691W	. Plug	5
4	2304841W	. Valve, Proportional	3	11	233693W	. Plug	1
	R15015	. . Kit, Seal	1	12	2304845W	. Washer, Tab	5

Valve Manifold Assembly - Electronic Controls

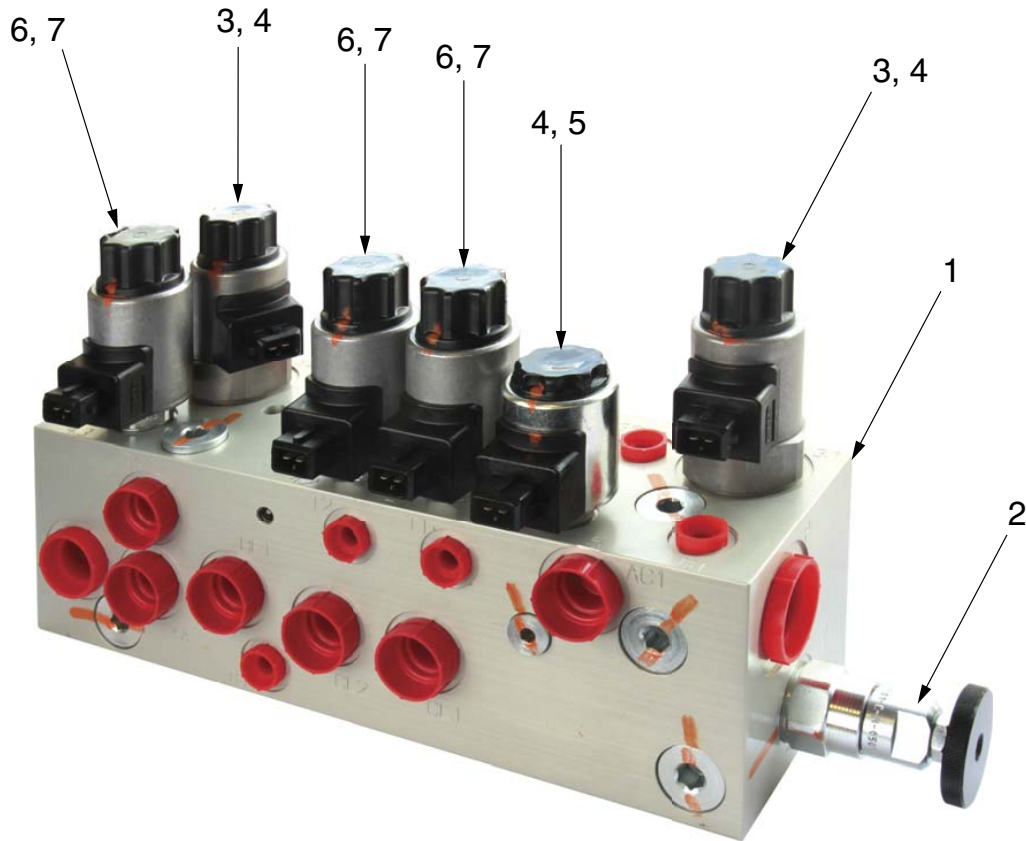
Used on S/N AW8L-3130 thru AW8L-3778



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2306547W	Assembly, Valve Manifold	1				
1	NSS	. Block (Silver Color)	1	5	2310253	. Valve, Cartridge	1
2	2310255	. Valve, Relief	1		2310259	. . Kit, Seal	1
	2310260	. . Kit, Seal	1	6	2310254	. Valve, Proportional Valve	3
3	2310252	. Valve, Cartridge	2		2310261	. . Kit, Seal	1
	2310258	. . Kit, Seal	1	7	2310256	. Coil, Proportional Valve - 24 VDC	3
4	2307770W	. Coil, Valve - 24 VDC	3				
	2310259	. . Kit, Seal	1				

Valve Manifold Assembly - Electronic Controls

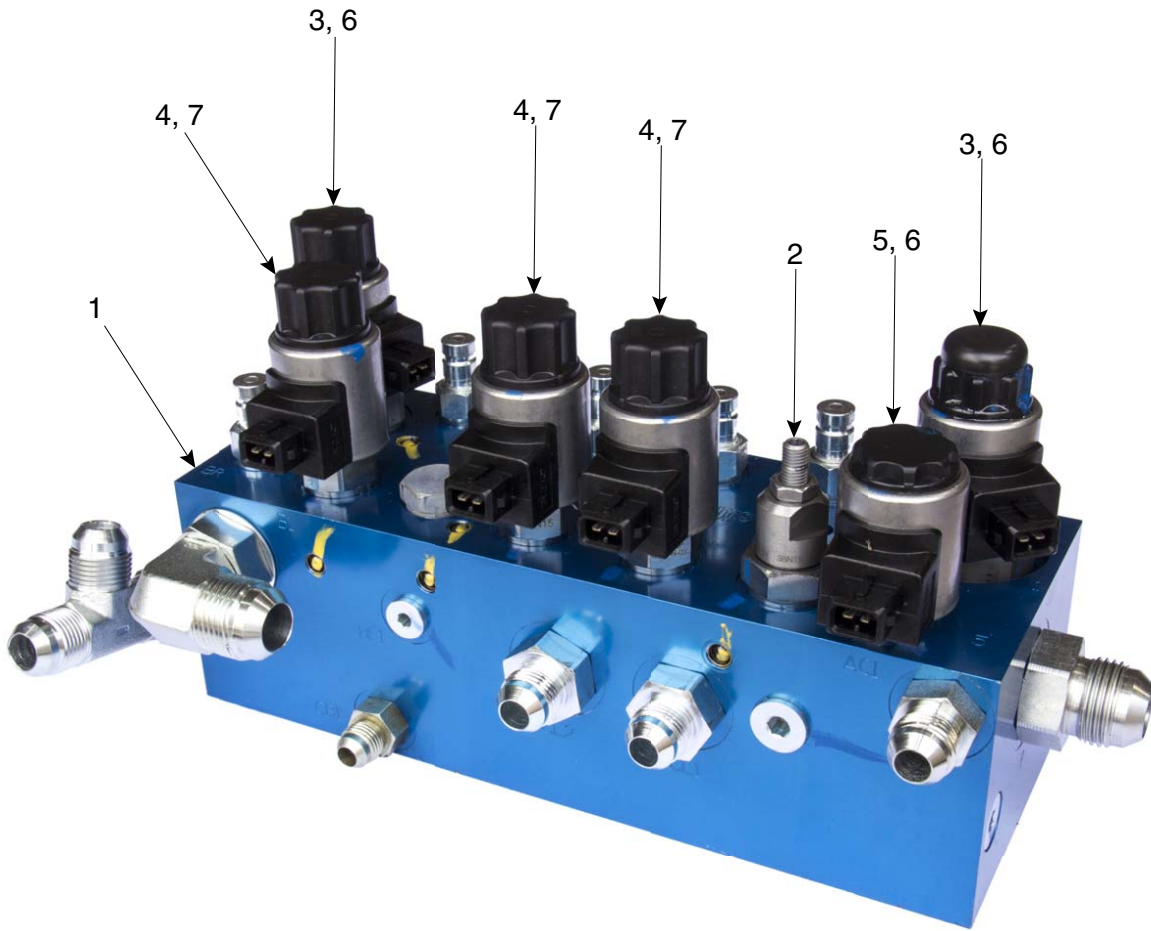
Used on S/N AW8L-3779 through AW8L-3851



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2311887	Assembly, Valve Manifold	1				
1	NSS	. Block (Silver Color)	1	5	2310253	. Valve, Cartridge	1
2	2310255	. Valve, Relief	1		254400	. . Kit, Seal	1
	2310260	. . Kit, Seal	1	6	2310254	. Valve, Proportional	3
3	2310252	. Valve, Cartridge	2		2504253	. . Kit, Seal	1
	2310258	. . Kit, Seal	1	7	2314908	. Coil, Proportional Valve, 24 VDC	3
4	2311558	. Coil, Valve, 24 VDC	3				

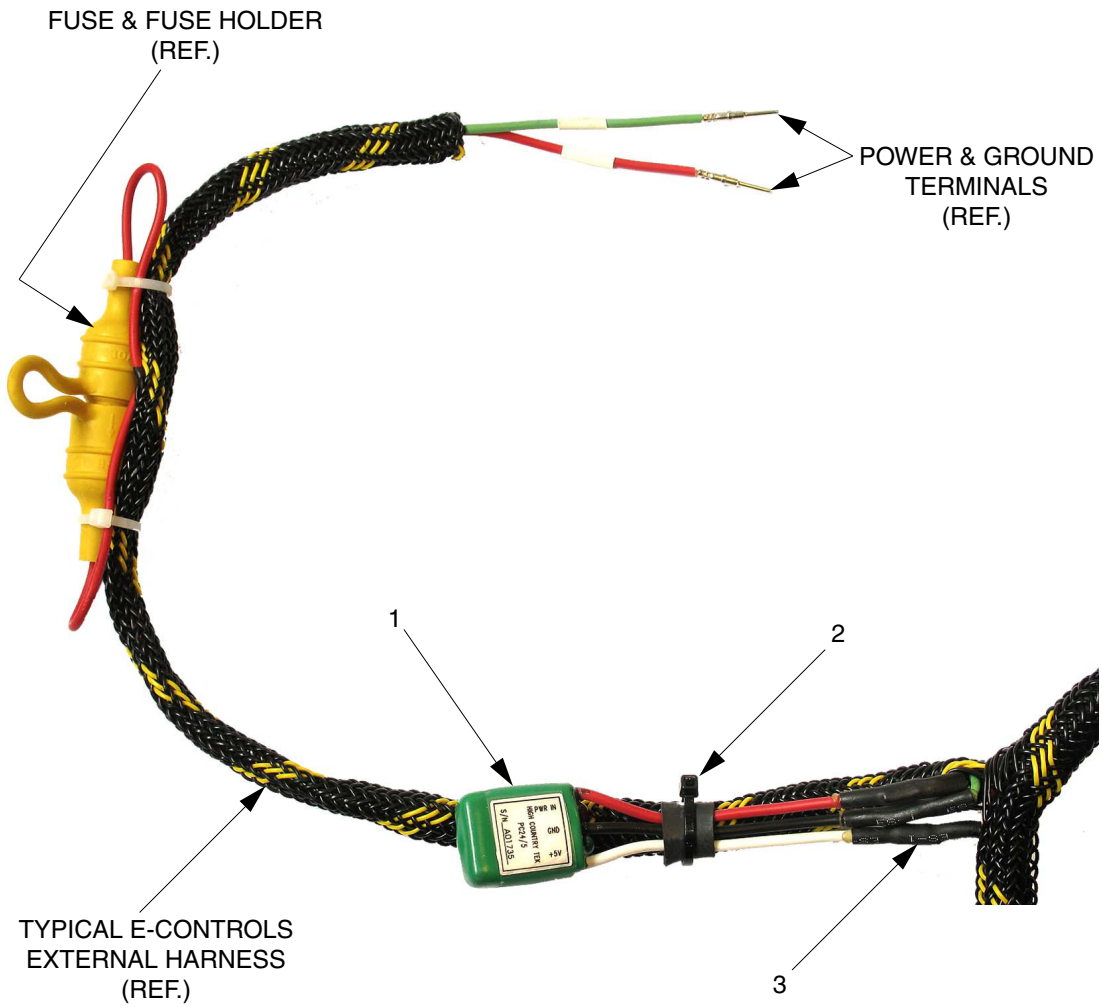
Valve Manifold Assembly - Electronic Controls

First Used on S/N AW8L-3852



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2315717	Assembly, Valve Manifold	1				
1	NSS	. Block (Blue Color)	1	5	2310253	. Valve, Cartridge	1
2	2315807	. Valve, Relief	1		254400	. . Kit, Seal	1
	2310260	. . Kit, Seal	1	6	2311558	. Coil, 24 VDC Valve	3
3	2310252	. Valve, Cartridge	2	7	2315811	. Coil, 24 VDC Proportional Valve	3
	2310258	. . Kit, Seal	1				
4	2315808	. Valve, Proportional	3				
	254396	. . Kit, Seal	1				

External Wiring Harness Repair Kit - Electronic Controls

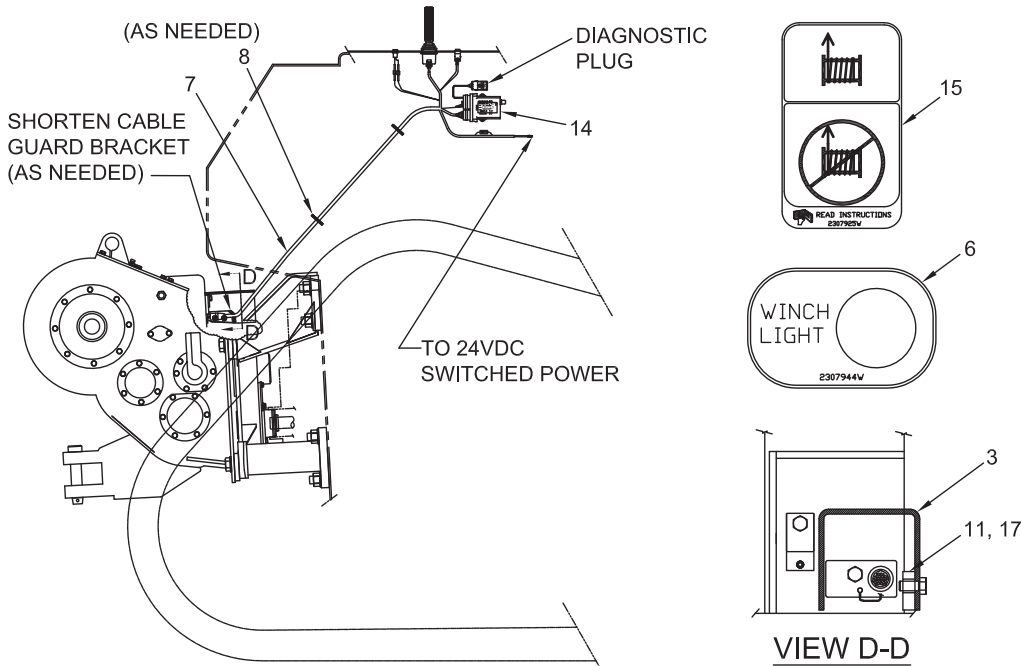
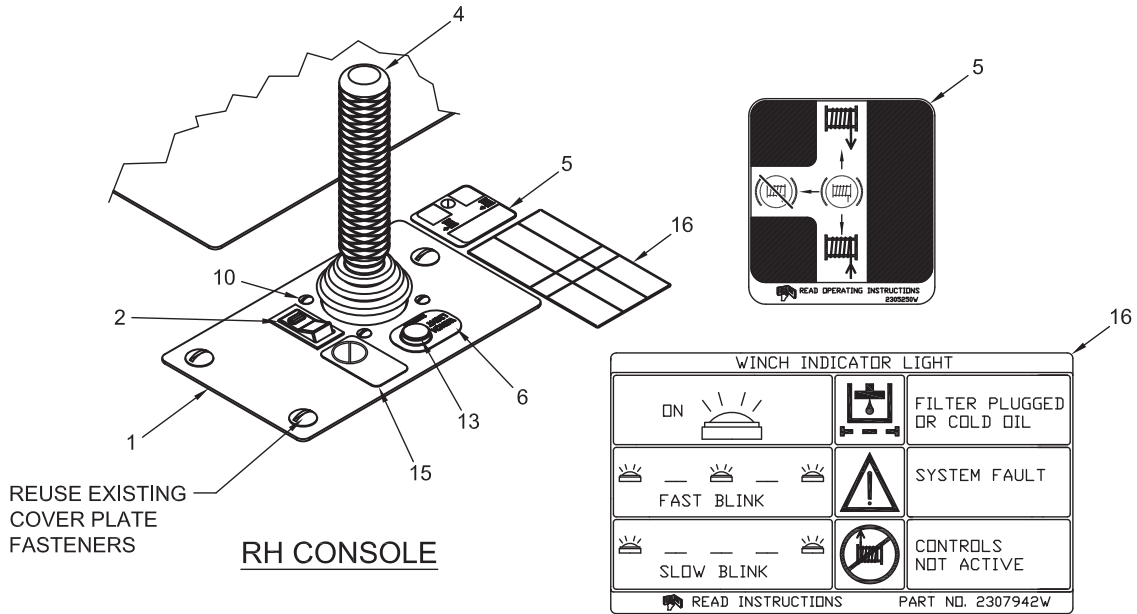


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2313717	Repair Kit, eControls Harness					
		Voltage Converter	1	4	*a 2313699	. Instructions, Installation	1
1	2304349W	. Converter, 24-5DC	1		*a Not Shown		
2	242601	. Tie, Cable	1				
3	236713	. Tube, Heat-Shrink	6 in.				

Handling Gear, Electronic Controls

Caterpillar 572R (C60) w/o FREESPOOL

Last Used on S/N AW8L-3851

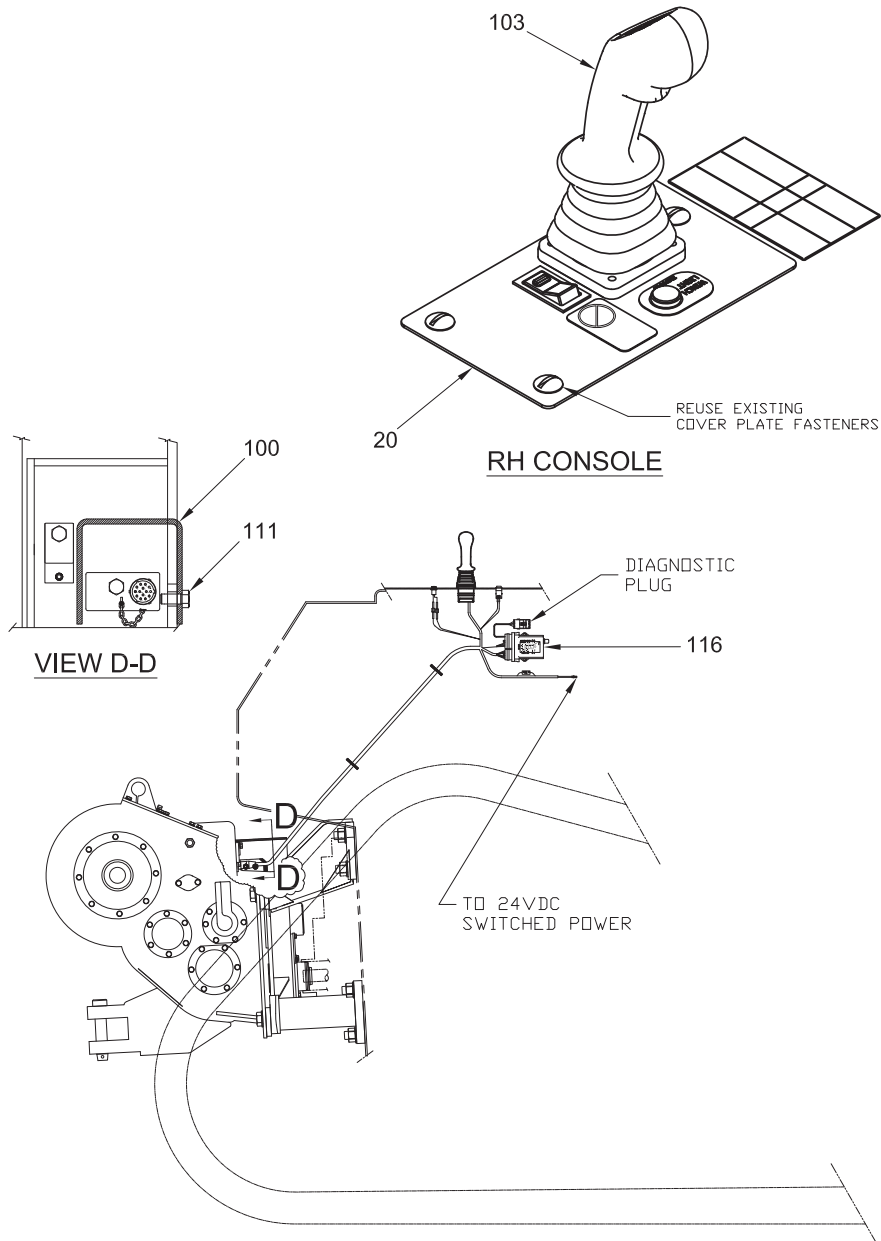


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2312121	Plate, Cover	1	10	*a 18695W	Capscrew	4
2	2307849W	Assembly, Rocker Switch - w/Lock	1	11	398817W	Screw, Flange	2
3	2307919W	Guard, Cable	1	13	2303912W	Assembly, Bypass LED	1
4	2310552	Lever, Control - w/o Freespool (See 3-131)	1	14	2310135	Module, Programmed E-Controls	1
5	2305250W	Decal, Control Lever w/o Freespool	1	15	2307925W	Decal, Activation Switch	1
6	2307944W	Decal, Winch Light	1	16	2307942W	Decal, Winch Indicator Light	1
7	2310079	Harness, Wiring - EXT	1	17	2307920W	Bracket, Cable Guard	1
8	137852W	Clamp, Strap	6				
9	2304112W	Element, Filter (Not Shown)	1				

*a Use 318702W Thread Lock

Handling Gear, Electronic Controls

Caterpillar 572R Series I (C60) and 572R Series II (C70) w/o FREESPOOL
 First Used on S/N AW8L-3852



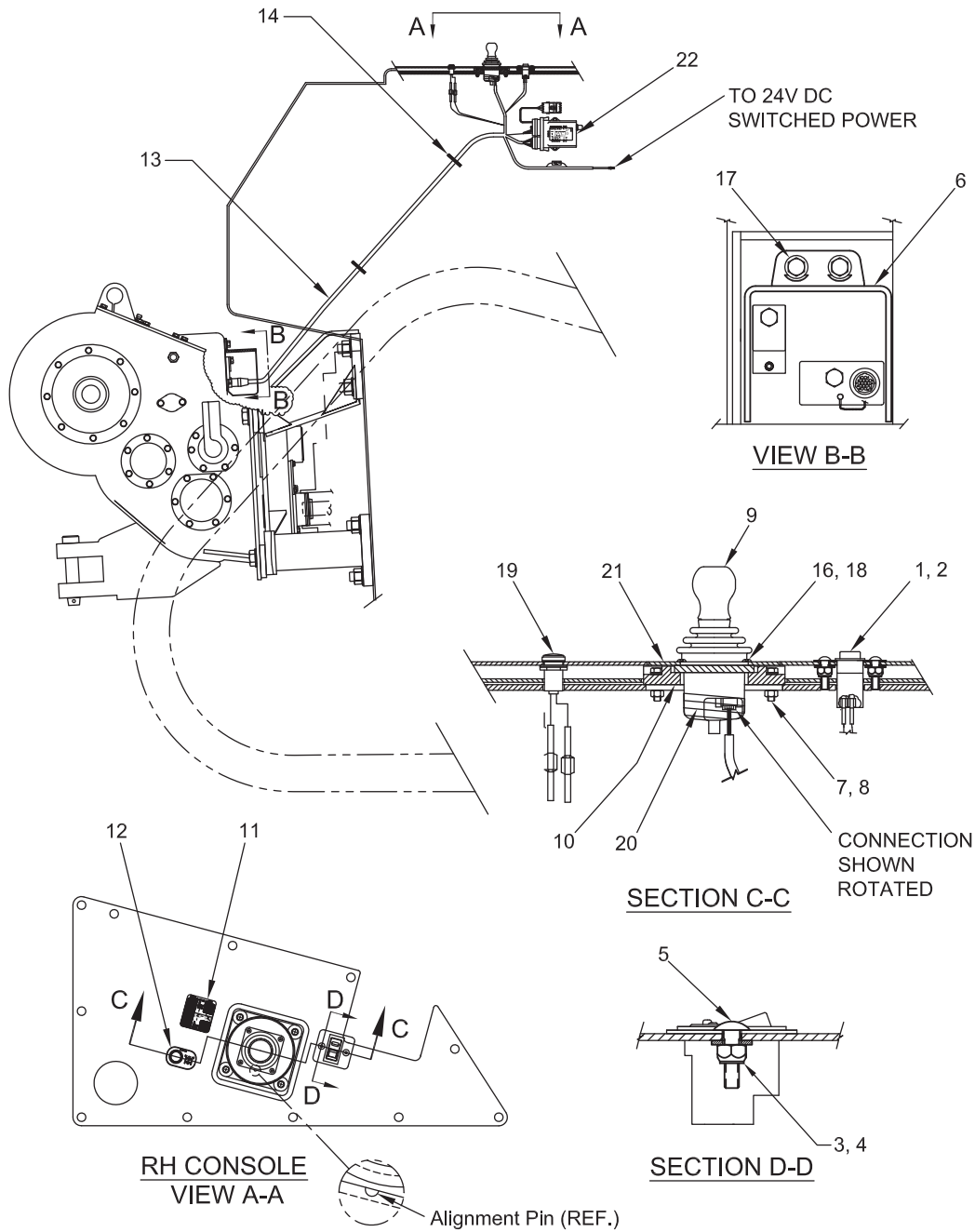
Note: See E-Controls Common Parts Pages for More Related Installation Information.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
20	2312121	Plate, Cover	1	111	*a 398817W	Screw, Flange	2
100	2307919W	Guard, Cable	1	116	2312261	Module, Programmed E-Controls	1
103	2314999	Kit, E-Control Lever Replacement (See 3-132 & 3-133)	1		*a	Use 318702W Thread Lock	

Handling Gear, Electronic Controls

Caterpillar D7R Series II (C72) w/o FREESPOOL

Last Use on AW8L-3259

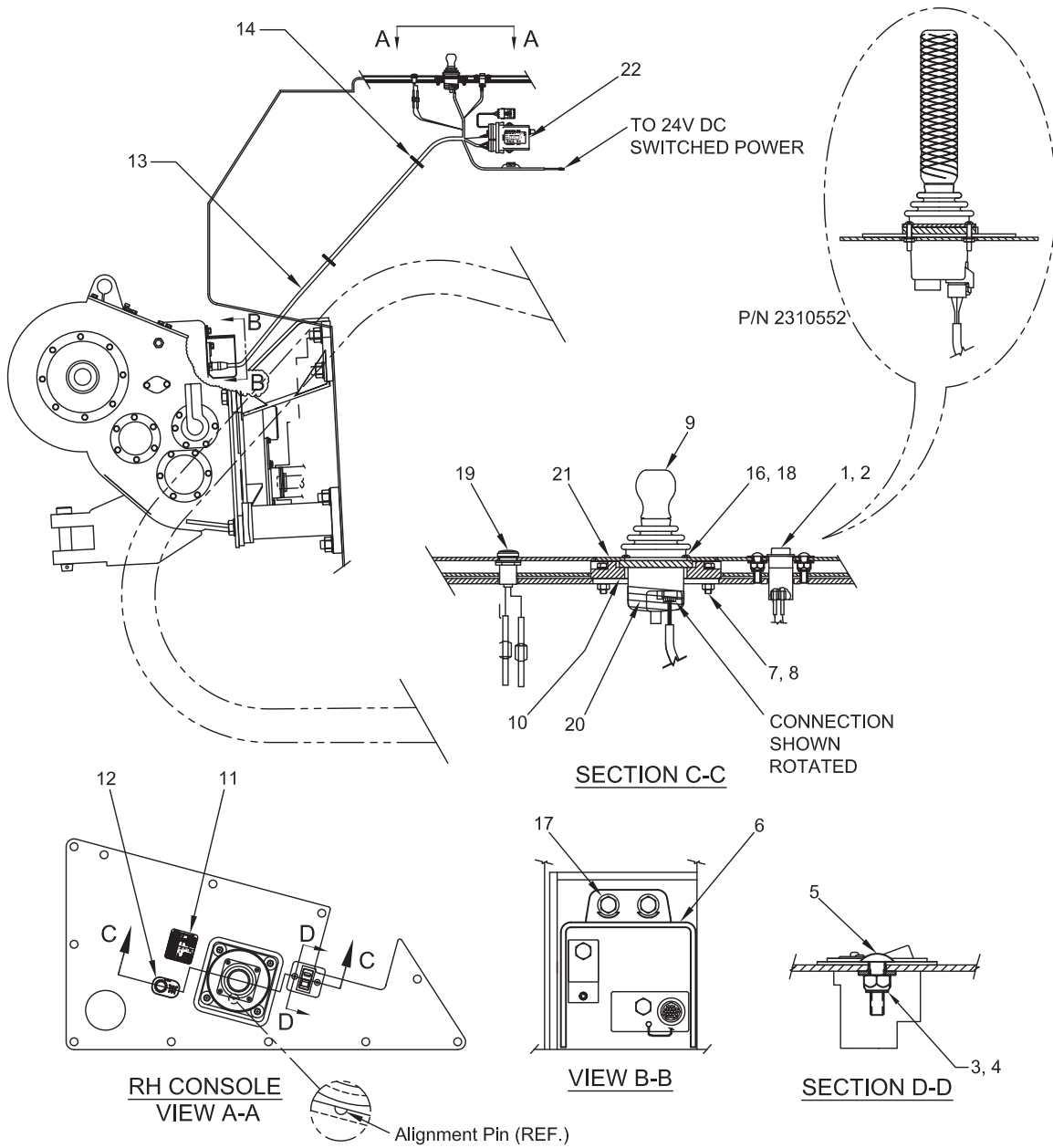


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2307849W	Assembly, Rocker Switch - w/Lock	1	12	2304504W	Decal, Filter LED	1
2	2307643W	Plate, Switch Mounting	1	13	2307576W	Harness, Wiring - External	1
3	15127W	Washer	2	14	137852W	Clamp, Strap	6
4	15113W	Nut	2	16	18695W	Capscrew	4
5	Y25G-0416	Capscrew	2	17	398817W	Screw, Flange	2
6	2305468W	Guard, Cable	1	18	318702W	Locker, Thread	1
7	292680W	Washer	4	19	2303912W	Assembly, Bypass LED	1
8	287816W	Capscrew	4	20	2304796W	Tape, Self-Fusing	1
9	2304780W	Lever, Control - w/o FS (See 3-128)	1	21	2305412W	Plate, Control Lever Cover	1
10	2305411W	Plate, Control Lever Mounting	1	22	2307855W	Module, Programmed E-Controls	1
11	2305250W	Decal, Control Lever w/o FS	1				

Handling Gear, Electronic Controls

Caterpillar D7R Series II (C72) w/o FREESPOOL

Use on S/N AW8L-3260 thru AW8L-3386

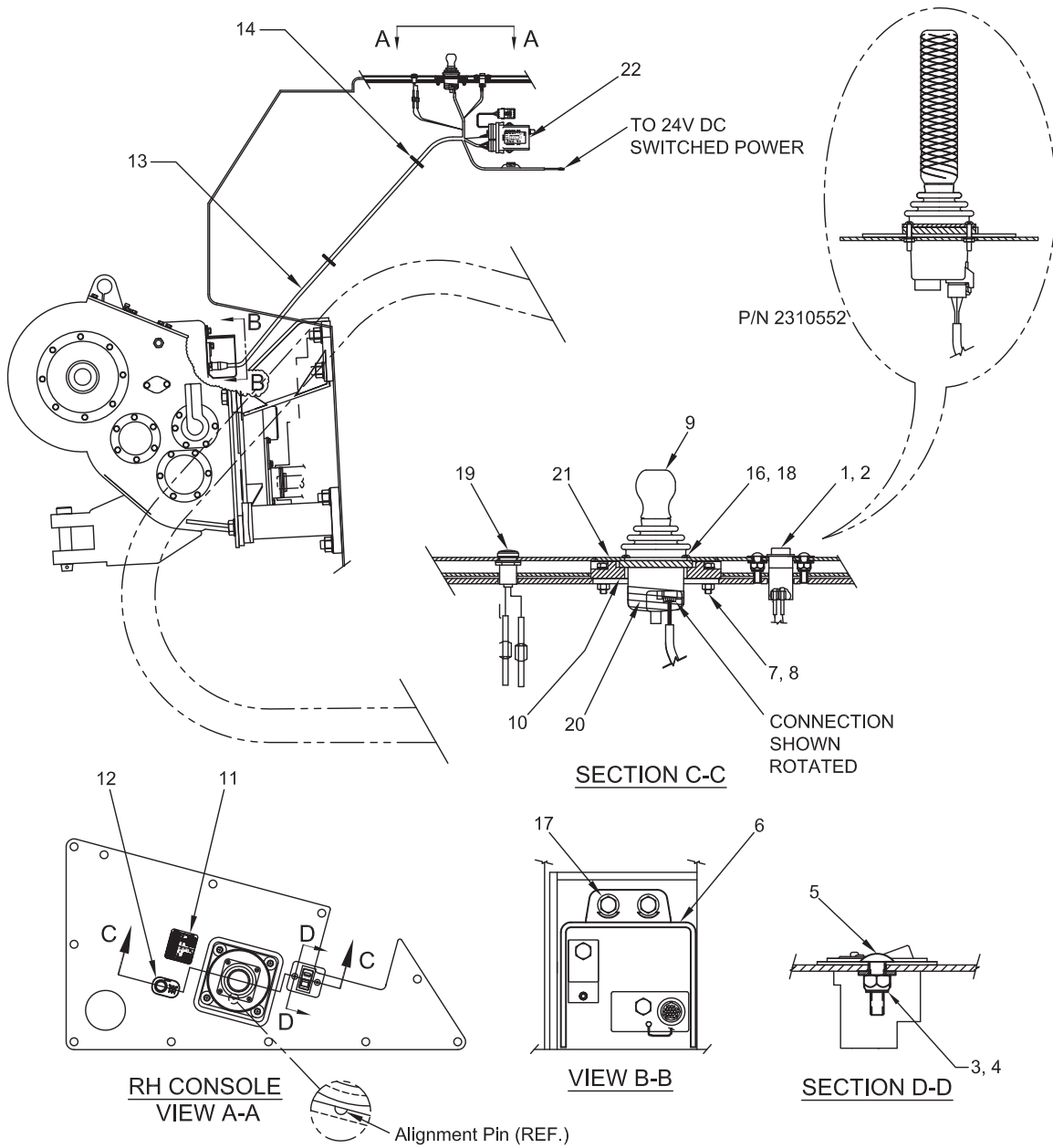


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2307849W	Assembly, Rocker Switch - w/Lock	1	12	2304504W	Decal, Filter LED	1
2	2307643W	Plate, Switch Mounting	1	13	2307576W	Harness, Wiring - External	1
3	15127W	Washer	2		2310076	Adaptor	1
4	15113W	Nut	2	14	137852W	Clamp, Strap	6
5	Y25G-0416	Capscrew	2	16	18695W	Capscrew	4
6	2305468W	Guard, Cable	1	17	398817W	Screw, Flange	2
7	292680W	Washer	4	18	318702W	Locker, Thread	1
8	287816W	Capscrew	4	19	2303912W	Assembly, Bypass LED	1
9	2307886W	Lever, Control - w/o FS (See 3-130)	1	20	2304796W	Tape, Self-Fusing	1
	2310552	Lever, Control - w/o FS (See 3-131)	1	21	2305412W	Plate, Control Lever Cover	1
10	2305411W	Plate, Control Lever Mounting	1	22	2307855W	Module, Programmed E-Controls	1
11	2305250W	Decal, Control Lever w/o FS	1				

Handling Gear, Electronic Controls

Caterpillar D7R Series II (C72) w/o FREESPOOL

Use on S/N AW8L-3387 thru AW8L-3851

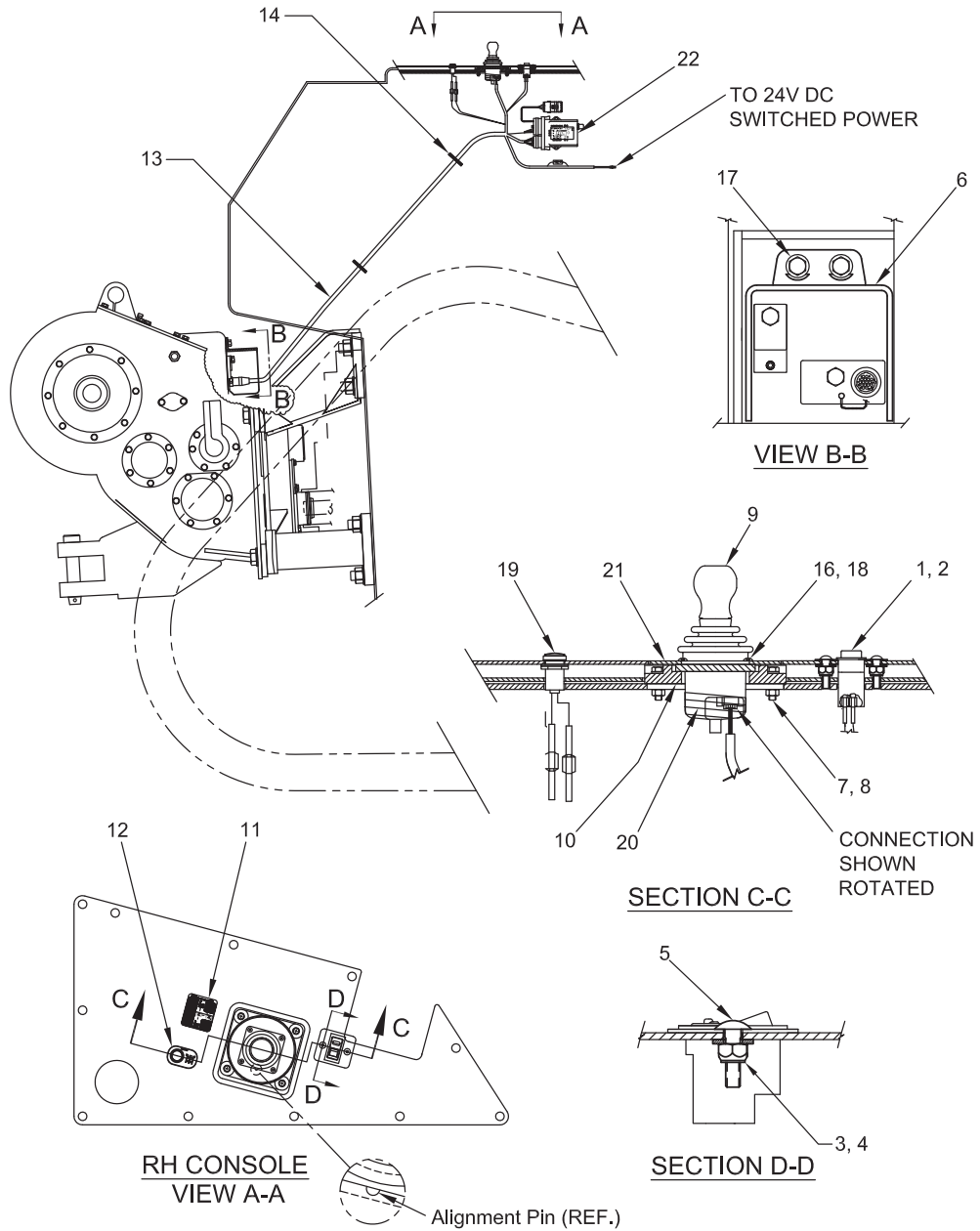


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2307849W	Assembly, Rocker Switch - w/Lock	1	11	2305250W	Decal, Control Lever w/o FS	1
2	2307643W	Plate, Switch Mounting	1	12	2304504W	Decal, Filter LED	1
3	15127W	Washer	2	13	2310079	Harness, Wiring - External	1
4	15113W	Nut	2	14	137852W	Clamp, Strap	6
5	Y25G-0416	Capscrew	2	16	18695W	Capscrew	4
6	2305468W	Guard, Cable	1	17	398817W	Screw, Flange	2
7	292680W	Washer	4	18	318702W	Locker, Thread	1
8	287816W	Capscrew	4	19	2303912W	Assembly, Bypass LED	1
9	2307886W	Lever, Control - w/o FS (See 3-130)	1	20	2304796W	Tape, Self-Fusing	1
	2310552	Lever, Control - w/o FS (See 3-131)	1	21	2305412W	Plate, Control Lever Cover	1
10	2305411W	Plate, Control Lever Mounting	1	22	2307855W	Module, Programmed E-Controls	1

Handling Gear, Electronic Controls

Caterpillar D8R (C58) / D8R Series II (C59) w/o FREESPOOL

Use on S/N AW8L-3058 thru AW8L-3259

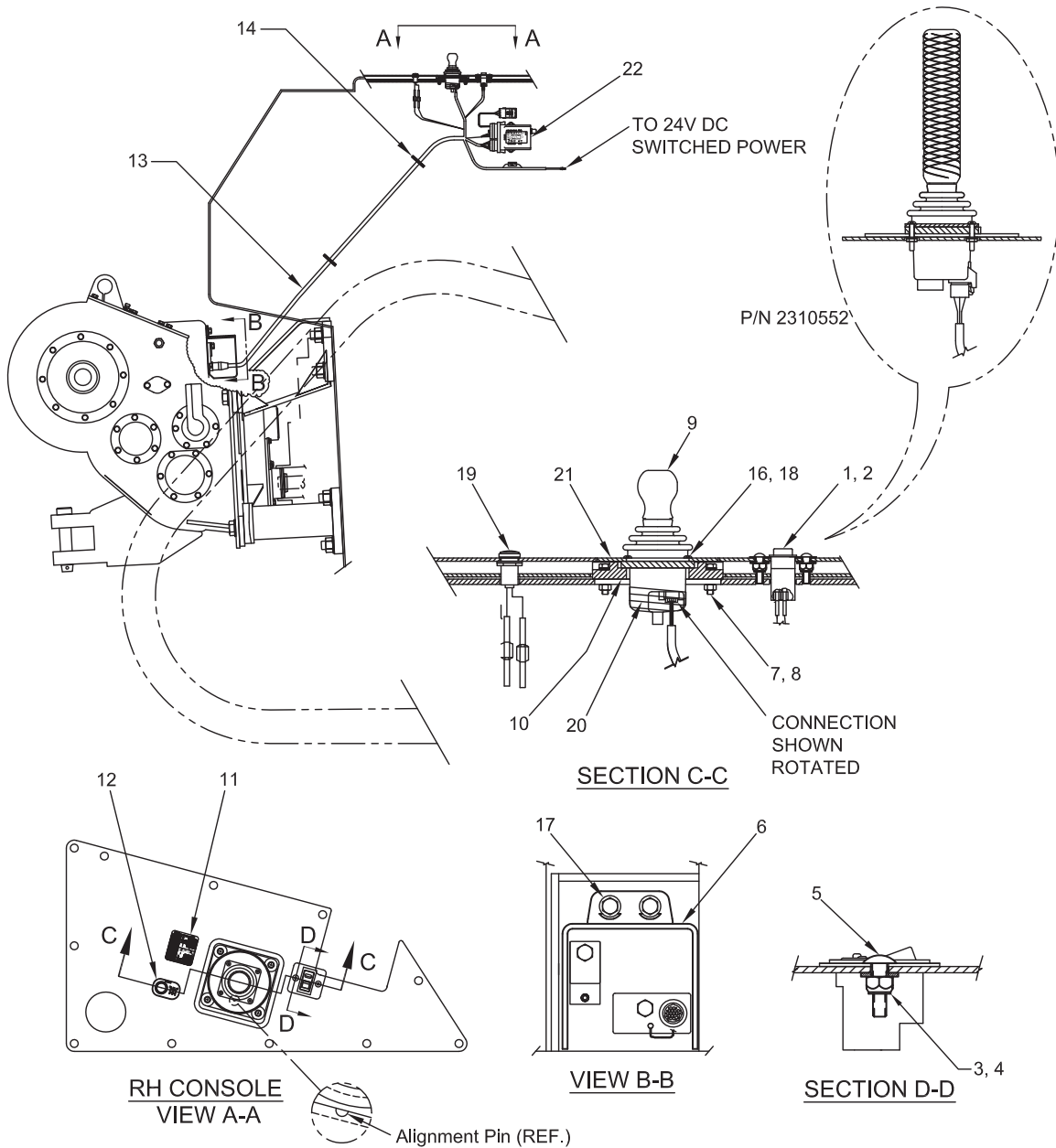


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2307849W	Assembly, Rocker Switch - w/Lock	1	12	2304504W	Decal, Filter LED	1
2	2307643W	Plate, Switch Mounting	1	13	2307576W	Harness, Wiring - External	1
3	15127W	Washer	2	14	137852W	Clamp, Strap	6
4	15113W	Nut	2	16	18695W	Capscrew	4
5	Y25G-0416	Capscrew	2	17	398817W	Screw, Flange	2
6	2305468W	Guard, Cable	1	18	318702W	Locker, Thread	1
7	292680W	Washer	4	19	2303912W	Assembly, Bypass LED	1
8	287816W	Capscrew	4	20	2304796W	Tape, Self-Fusing	1
9	2304780W	Lever, Control - w/o FS (See 3-128)	1	21	2305412W	Plate, Control Lever Cover	1
10	2305411W	Plate, Control Lever Mounting	1	22	2307855W	Module, Programmed E-Controls	1
11	2305250W	Decal, Control Lever w/o FS	1				

Handling Gear, Electronic Controls

Caterpillar D8R (C58) / D8R Series II (C59) w/o FREESPOOL

Use on S/N AW8L-3260 thru AW8L-3386

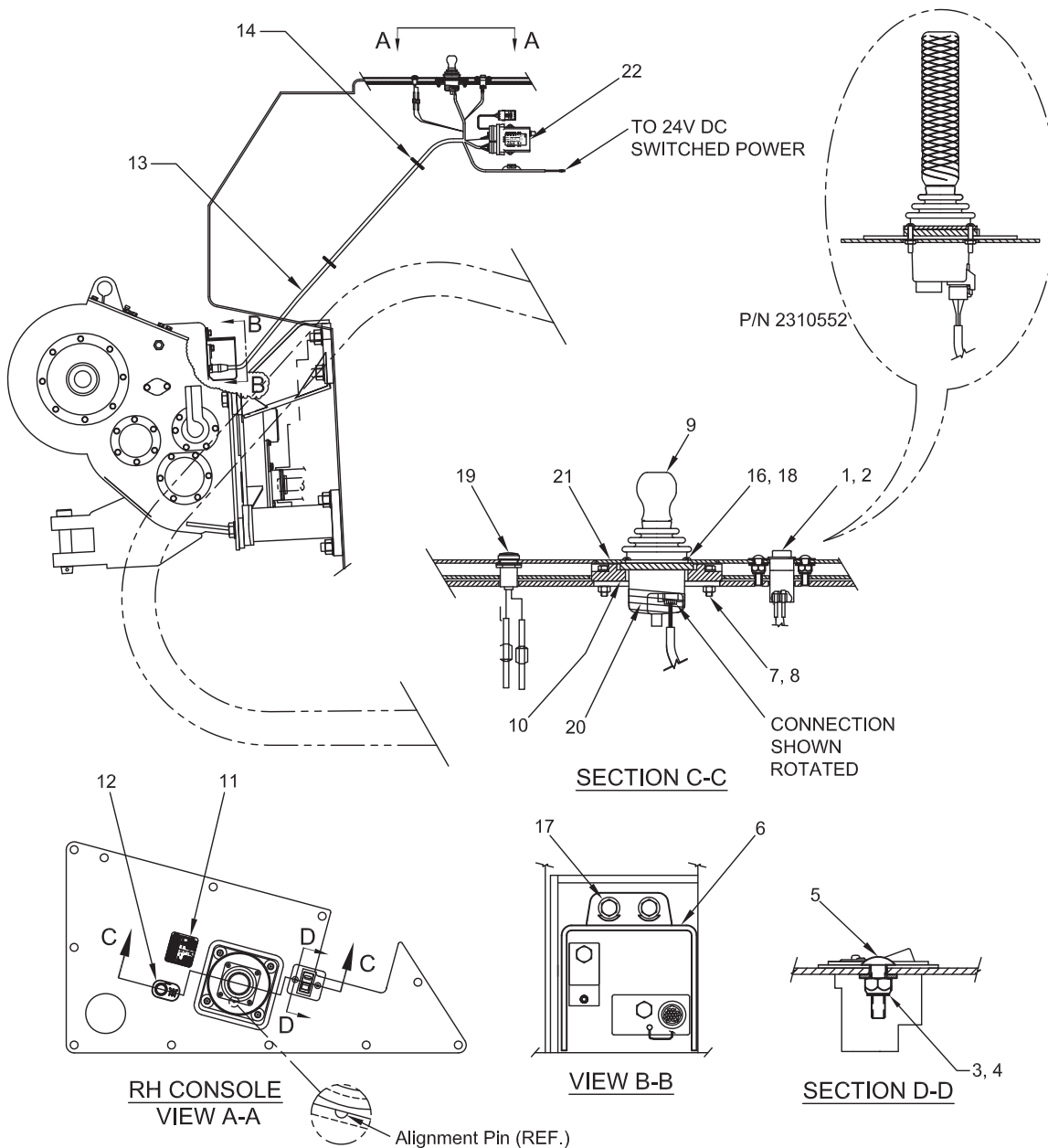


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2307849W	Assembly, Rocker Switch - w/Lock	1	12	2304504W	Decal, Filter LED	1
2	2307643W	Plate, Switch Mounting	1	13	2307576W	Harness, Wiring - External	1
3	15127W	Washer	2	13	2310076	Adaptor	1
4	15113W	Nut	2	14	137852W	Clamp, Strap	6
5	Y25G-0416	Capscrew	2	16	18695W	Capscrew	4
6	2305468W	Guard, Cable	1	17	398817W	Screw, Flange	2
7	292680W	Washer	4	18	318702W	Locker, Thread	1
8	287816W	Capscrew	4	19	2303912W	Assembly, Bypass LED	1
9	2307886W	Lever, Control - w/o FS (See 3-130)	1	20	2304796W	Tape, Self-Fusing	1
	2310552	Lever, Control - w/o FS (See 3-131)	1	21	2305412W	Plate, Control Lever Cover	1
10	2305411W	Plate, Control Lever Mounting	1	22	2307855W	Module, Programmed E-Controls	1
11	2305250W	Decal, Control Lever w/o FS	1				

Handling Gear, Electronic Controls

Caterpillar D8R (C58) / D8R Series II (C59) w/o FREESPOOL

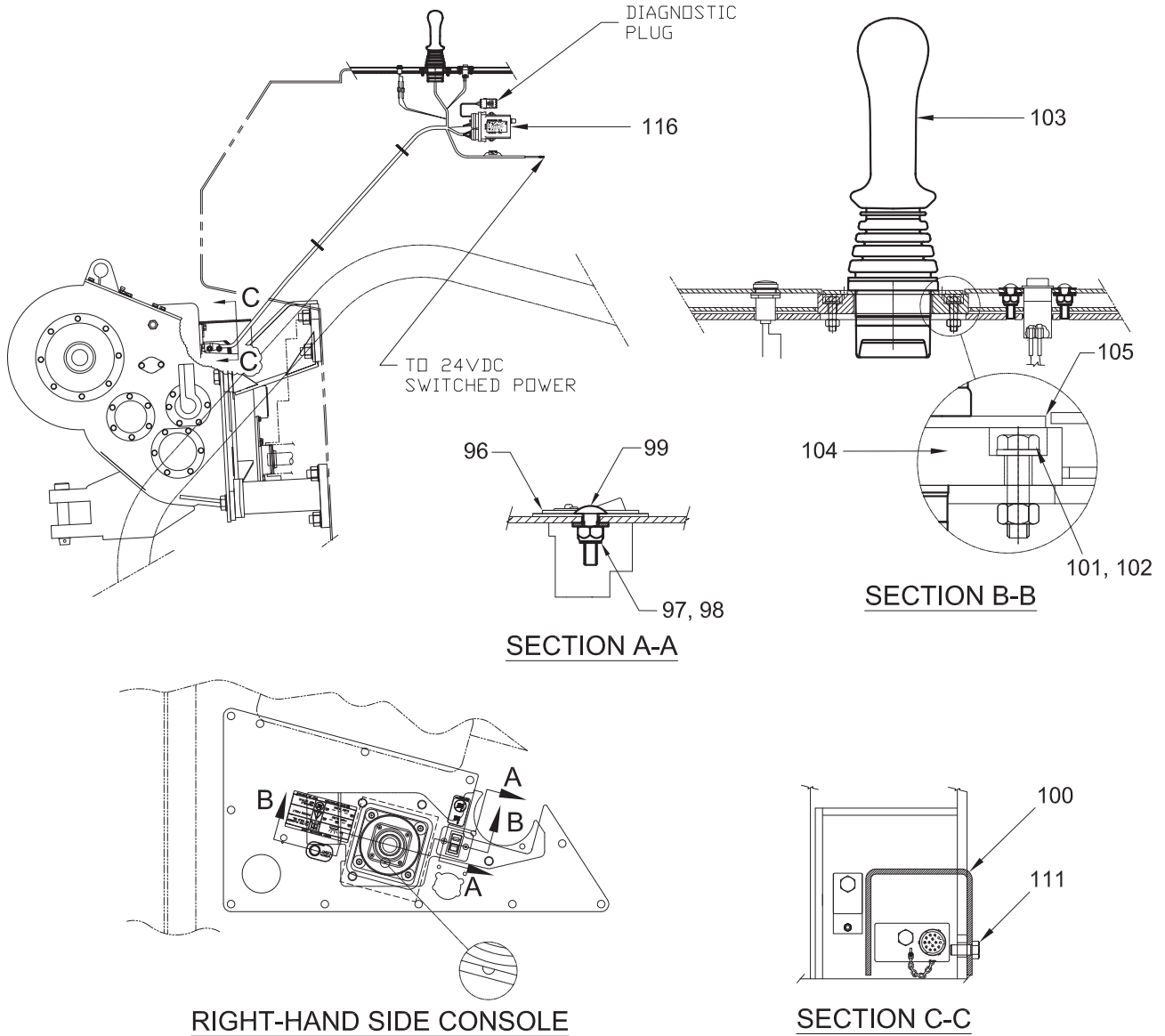
Use on S/N AW8L-3387 thru AW8L-3851



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2307849W	Assembly, Rocker Switch - w/Lock	1	11	2305250W	Decal, Control Lever w/o FS	1
2	2307643W	Plate, Switch Mounting	1	12	2304504W	Decal, Filter LED	1
3	15127W	Washer	2	13	2310079	Harness, Wiring - External	1
4	15113W	Nut	2	14	137852W	Clamp, Strap	6
5	Y25G-0416	Capscrew	2	16	18695W	Capscrew	4
6	2305468W	Guard, Cable	1	17	398817W	Screw, Flange	2
7	292680W	Washer	4	18	318702W	Locker, Thread	1
8	287816W	Capscrew	4	19	2303912W	Assembly, Bypass LED	1
9	2307886W	Lever, Control - w/o FS (See 3-130)	1	20	2304796W	Tape, Self-Fusing	1
	2310552	Lever, Control - w/o FS (See 3-131)	1	21	2305412W	Plate, Control Lever Cover	1
10	2305411W	Plate, Control Lever Mounting	1	22	2307855W	Module, Programmed E-Controls	1

Handling Gear, Electronic Controls

Caterpillar D7R (C57) / D7R Series II (C72) w/o FREESPOOL
 Caterpillar D8R (C58) / D8R Series II (C59) w/o FREESPOOL
 First Use on S/N AW8L-3852



Note: See E-Controls Common Parts Pages for More Related Installation Information.

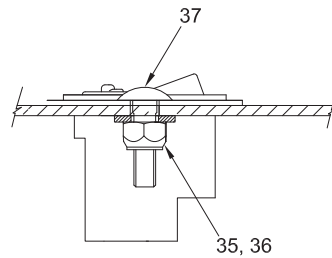
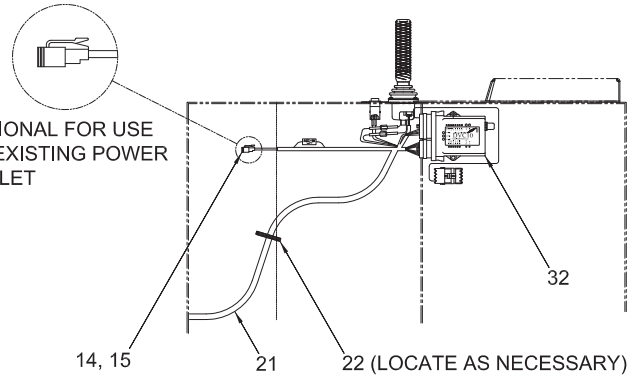
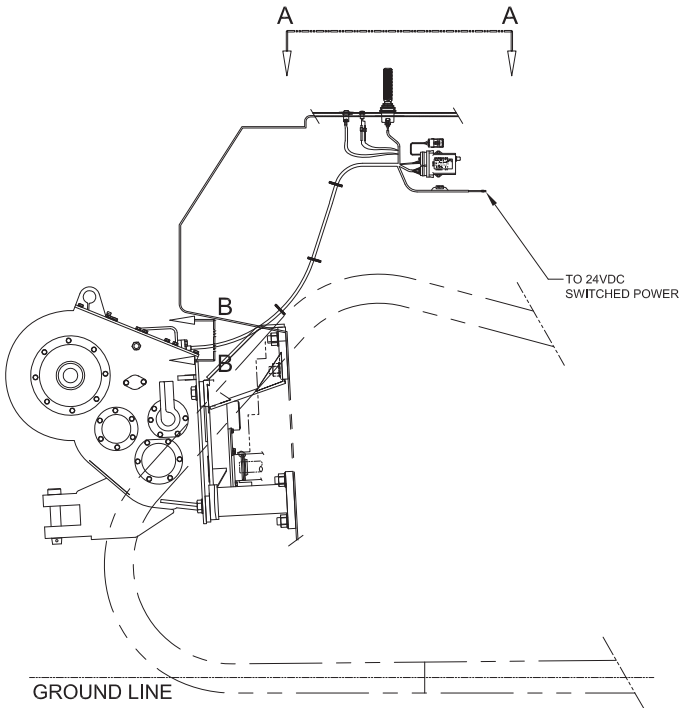
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
96	2307643W	Plate, Switch Mounting	1	104	2315078	Plate, Control Lever Mounting	1
97	15127W	Washer	2	105	2305412W	Plate, Control Lever Cover	1
98	15113W	Nut	2	111	*a 398817W	Screw, Flange	2
99	Y25G-0416	Capscrew	2	116	2312261	Module, Programmed E-Controls	1
100	2307919W	Guard, Cable	1				
101	292680W	Washer	4				
102	287816W	Capscrew	4				
103	2314999	Kit, E-Control Lever Replacement (See 3-132 & 3-133)	1				
					*a	Use 318702W Thread Lock	

Handling Gear, Electronic Controls

Caterpillar D8T (C74) w/o FREESPOOL

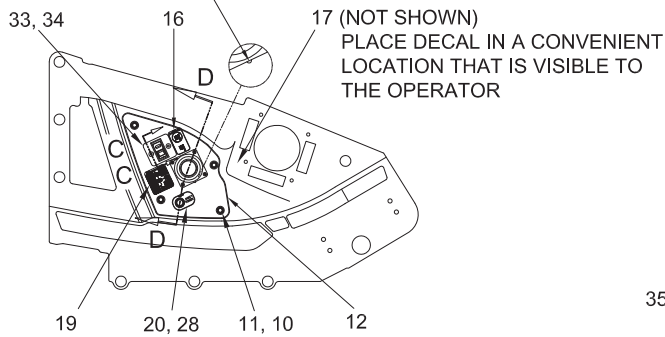
Last Used on S/N AW8L-3851

Page 1 of 2

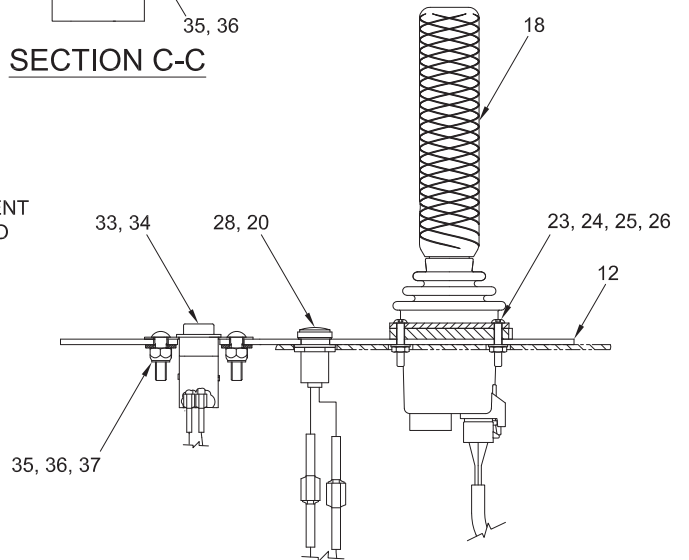


SECTION C-C

NUB ON JOYSTICK BASE



CAT D8T RH CONSOLE PRIOR TO TIER 4i
VIEW A-A



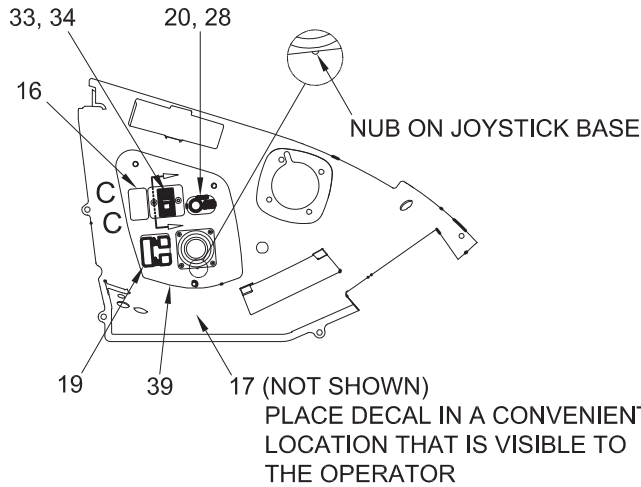
SECTION D-D

Handling Gear, Electronic Controls

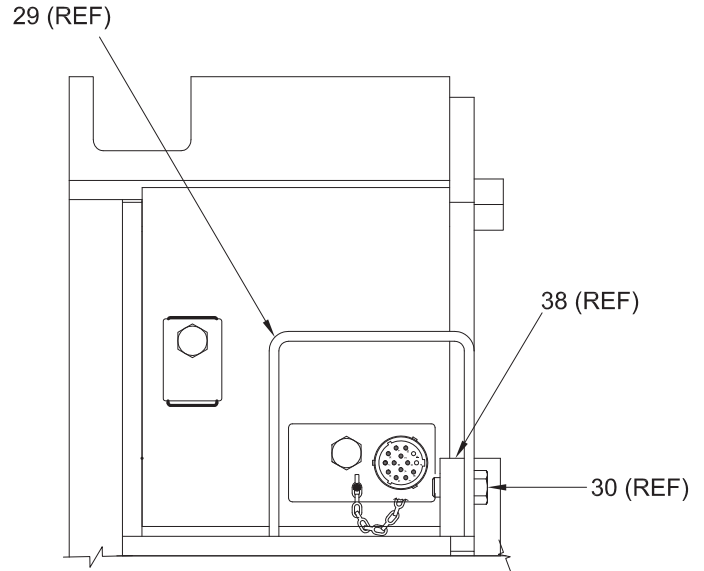
Caterpillar D8T (C74) w/o FREESPOOL

Last Used on S/N AW8L-3851

Page 2 of 2



CAT D8T TIER 4i RH CONSOLE
VIEW A-A



VIEW B-B

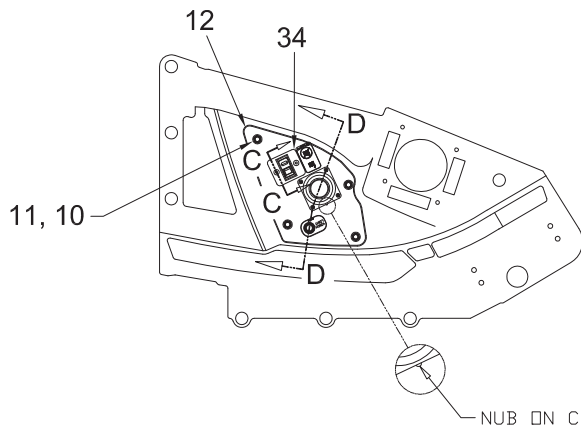
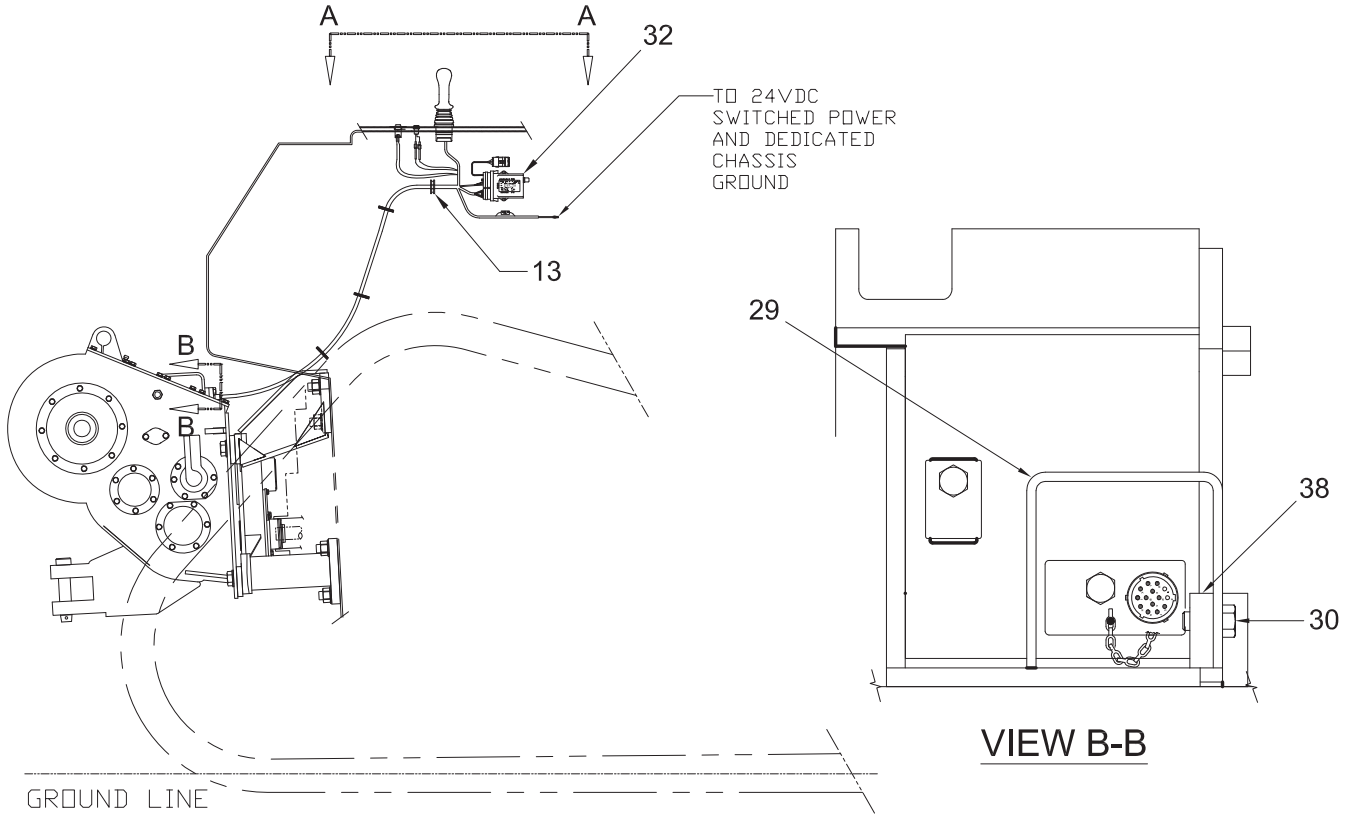
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
10	134803W	Screw, Flange	4	26	197066W	Washer	4
11	156133W	Nut	4	28	2303912W	Assembly, bypass LED	1
12	2307841W	Plate, Control Lever	1	29	2307919W	Guard, Cable	1
13	2307343W	Grommet (Not Shown)	1	30	*a 398817W	Screw, Flange	2
14	249955	Receptacle	1	31	2304112W	Element, Filter (Not Shown)	1
15	249956	Lock	1	32	2310135	Module, Programmed E- Controls	1
16	2307925W	Decal, Activation Switch	1	33	2307849W	Assembly, Rocker Switch - w/Lock	1
17	2307942W	Decal, Winch Indicator Light	1	34	2307643W	Plate, Switch Mounting	1
18	2310552	Lever, Control - w/o FS (3-131)	1	35	15127W	Washer	2
19	2305250W	Decal, Control - w/o FS	1	36	15113W	Nut	2
20	2307944W	Decal, Winch Light	1	37	Y25G-0416	Capscrew	2
21	2311444	Harness, Wiring - External	1	38	2307920W	Bracket, Cable Guard	1
22	137852W	Clamp, Strap	6	39	2314134	Plate, Control Lever	1
23	2304779W	Collar, Control Lever Mounting	1				
24	*a 2304892W	Capscrew	4				
25	15039W	Nut	4				
				*a	Use 318702W Thread Lock		

Handling Gear, Electronic Controls

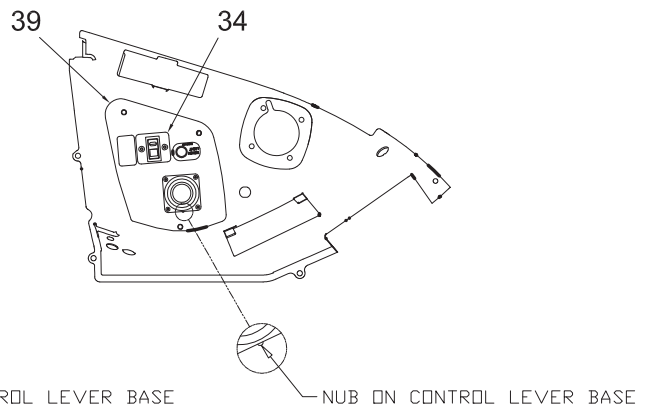
Caterpillar D8T (C74) w/o FREESPOOL

First Used on S/N AW8L-3852

Page 1 of 2



CAT D8T RH CONSOLE



CAT D8T TIER 4i RH CONSOLE

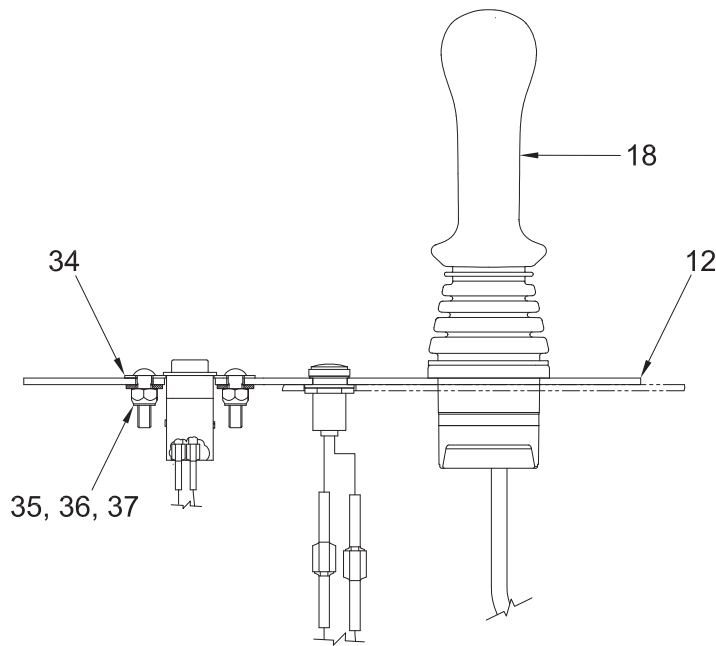
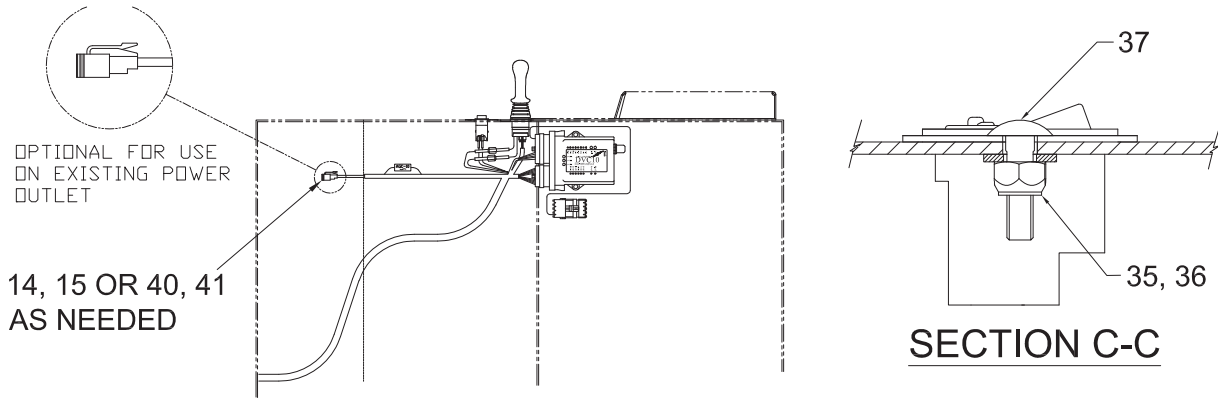
VIEW A-A

Handling Gear, Electronic Controls

Caterpillar D8T (C74) w/o FREESPOOL

First Used on S/N AW8L-3852

Page 2 of 2



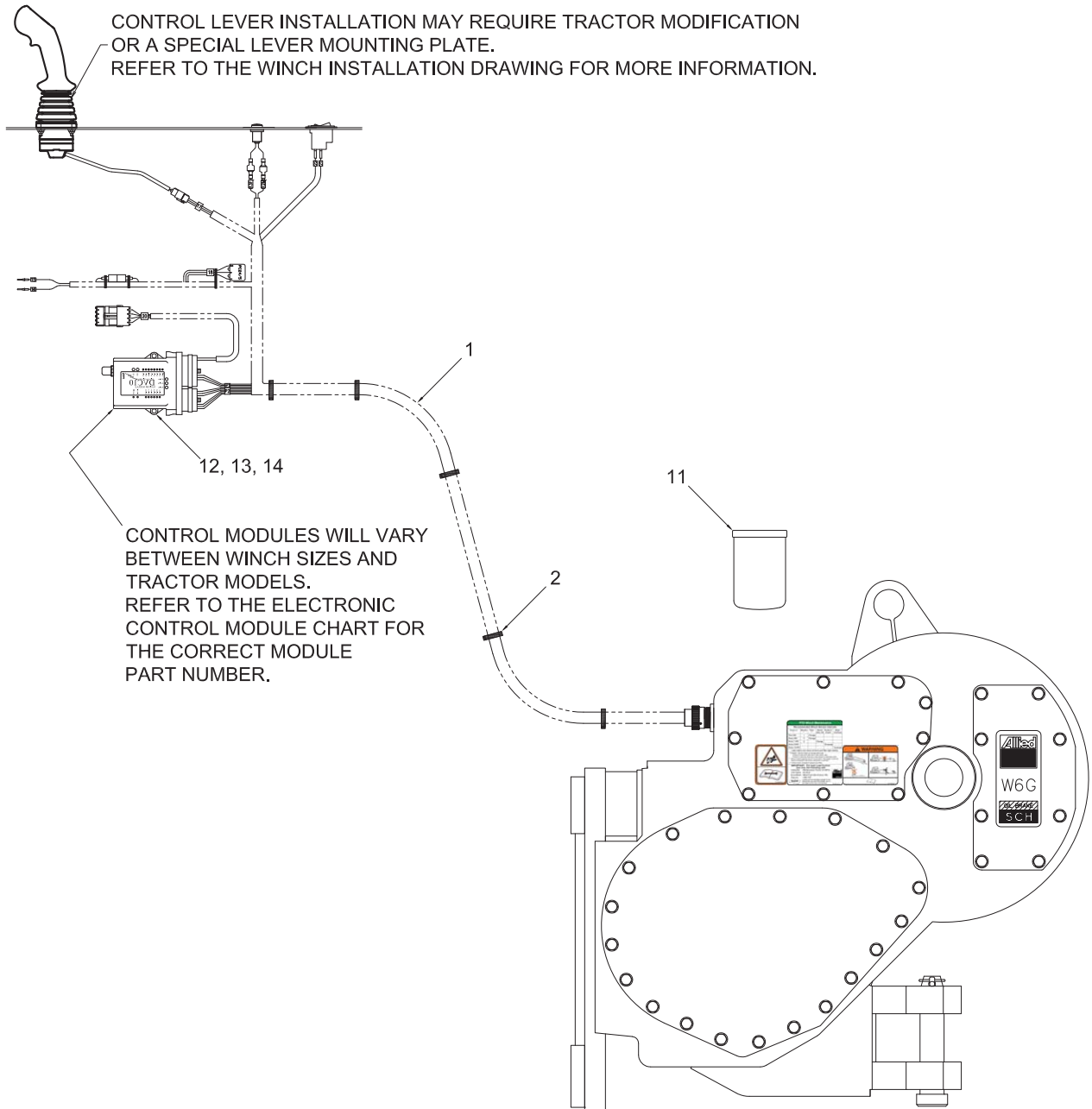
Note: See E-Controls Common Parts Pages for More Related Installation Information.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
10	134803W	Screw, Flange	4	34	2307643W	Plate, Switch Mounting	1
11	156133W	Nut	4	35	15127W	Washer	2
12	2307841W	Plate, Control Lever	1	36	15113W	Nut	2
13	2314668	Gromme	1	37	Y25G-0416	Capscrew	2
14	249955	Receptacle - DT04-6P	1	38	2307920W	Bracket, Cable Guard	1
15	249956	Wedglock	1	39	2314134	Plate, Control Lever	1
18	2314999	Lever, Control - w/o FS (3-132/3-133)	1	40	906122	Receptacle - DT04-08PA	1
29	2307919W	Guard, Cable	1	41	246806	Wedglock	1
30	*a 398817W	Screw, Flange	2				
32	2310135	Module, Programmed E-Controls	1	*a	Use 318702W Thread Lock		

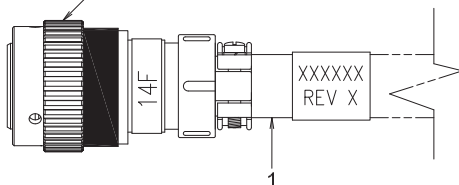
Common Parts - Electronic Controls

First Used on S/N AW6G-1537

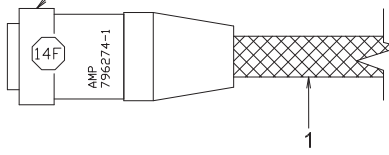
Page 1 of 2



METAL PLUG WITH CABLE CLAMP (DEUTSCH) OF EXTERNAL WIRING HARNESS, P/N 2311444



PLASTIC PLUG WITH SOCKET TERMINAL & CABLE CLAMP (AMP) OF EXTERNAL WIRING HARNESS, P/N 2310079



WIRING HARNESS PLUG IDENTIFICATION

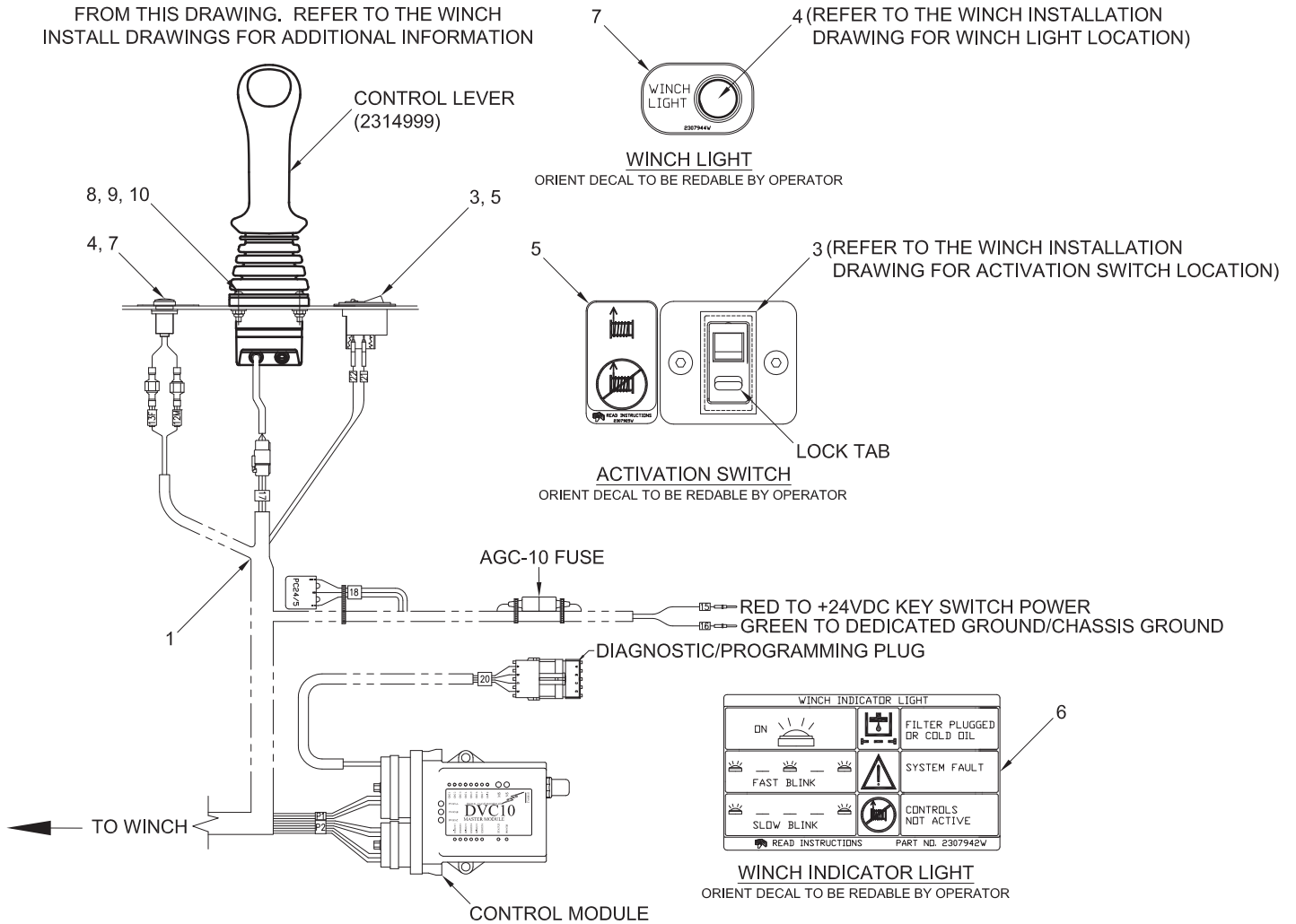
(ORDER DEFERENT HARNESS OR KIT BASED ON THE DEFFERENT PLUG)

Common Parts - Electronic Controls

First Used on S/N AW6G-1537

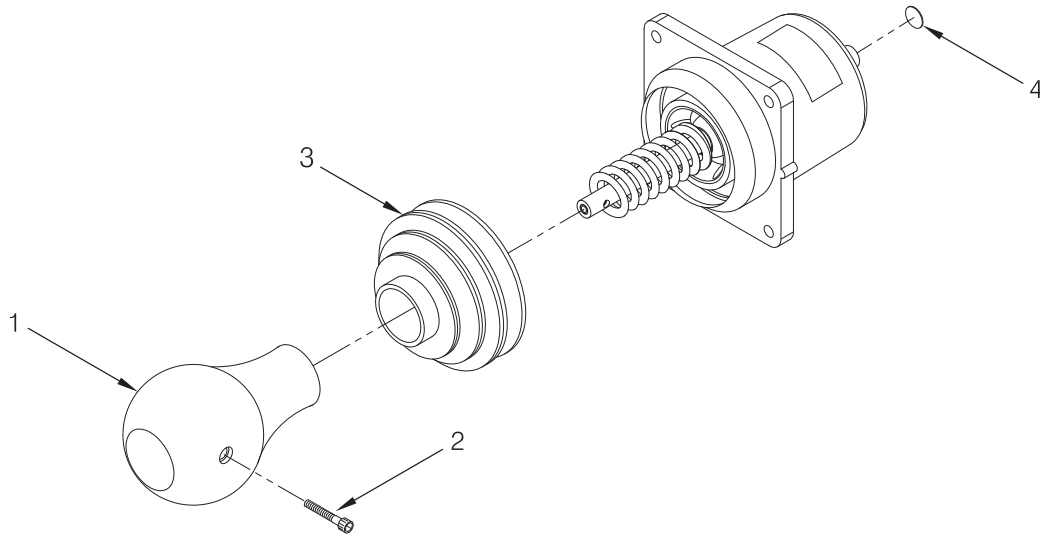
Page 2 of 2

SOME LEVER INSTALLATIONS WILL DIFFER FROM THIS DRAWING. REFER TO THE WINCH INSTALL DRAWINGS FOR ADDITIONAL INFORMATION



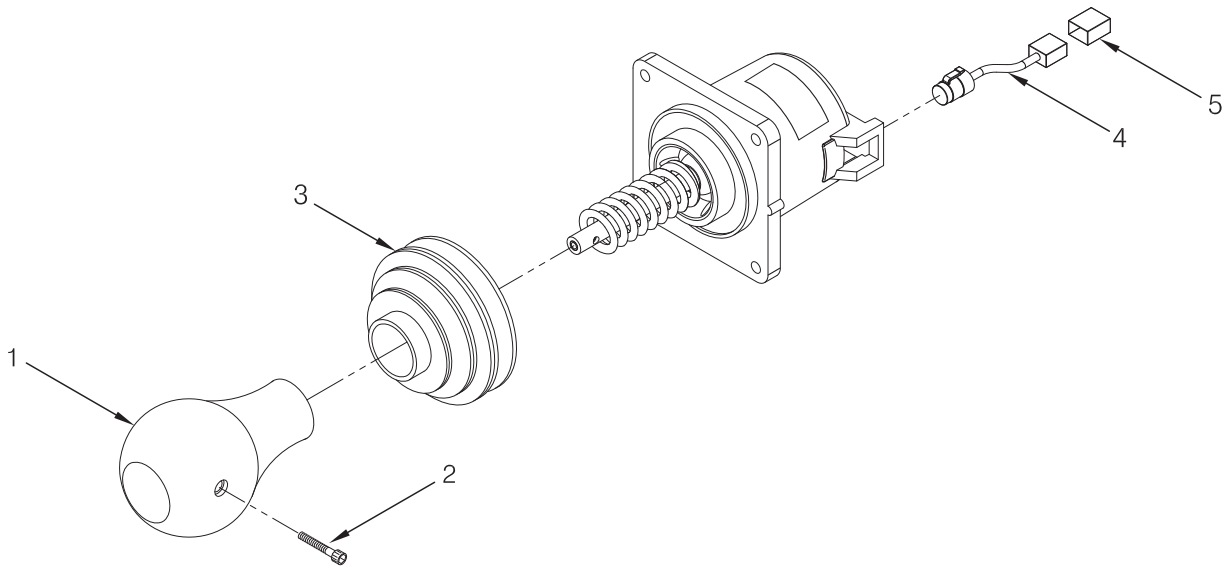
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty	
1	*a	2311444	Harness, Wiring - EXT.	1	8	Y25G-(1024)16	Capscrew	4
	*b	2312313	Kit, External Harness Replacement	1	9	Y35E-#10	Washer	4
		2310079	.Harness, Wiring - External	1	10	224191	Nut	4
		2312150	.Adapter	1	11	2304112W	Element, Filter	1
		2304796W	.Tape, Self Fusing	1	12	221763W	Washer	4
2		137852W	Tie, Cable - Black	10	13	15113W	Nut	2
3		2307849W	Assembly, Rocker Switch	1	14	R13801782	Capscrew	2
4		2303912W	Assembly, Bypass LED	1				
5		2307925W	Decal, Switch Activation	1	*a	Metal Deutsch Connector Sealing Plug		
6		2307942W	Decal, Winch Light Indicator	1	*b	Plastic AMP Plug		
7		2307944W	Decal, Winch Light	1				

Control Lever Assembly - Electronic Controls



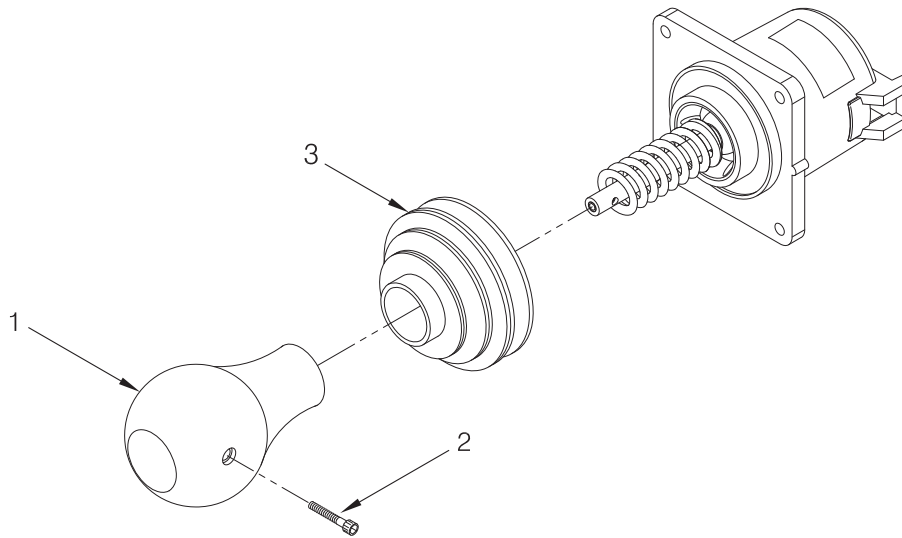
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2304780W	Assembly, Control Lever - w/o FS	1				
1	*b 2304835W	. Knob	1				
2	*b 2304834W	. Screw	1	*a	Use 219941 Contact Adhesive		
3	*a, *b 2304833W	. Boot	1	*b	Included in 2305048W Service Kit		
4	2305428W	Disc, Adhesive	1				

Control Lever Assembly - Electronic Controls
Replacement Kits



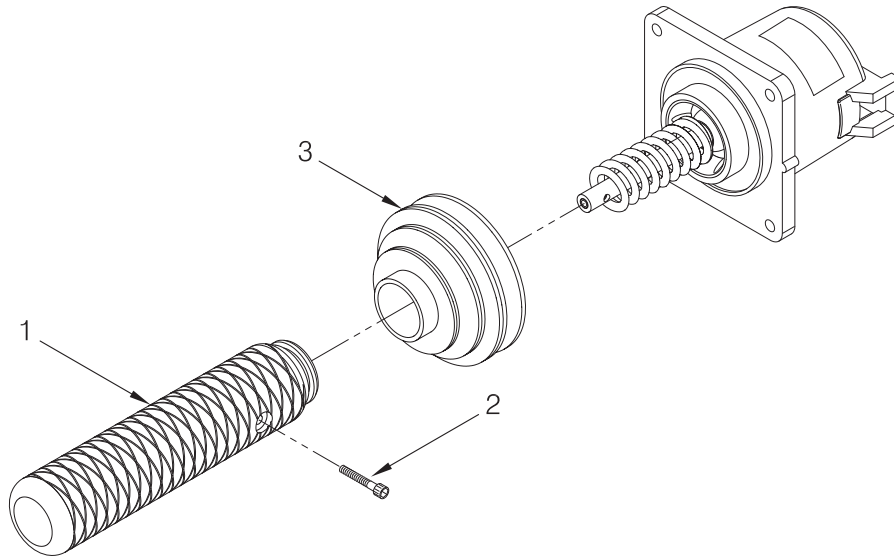
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2310214	Replacement Kit	1				
1	2307886W	. Assembly, Control Lever - w/o FS	1	5	232619	. Tube, Heat Shrink	1
1	*b 2304835W	.. Knob	1		*a	Use 219941 Contact Adhesive	
2	*b 2304834W	.. Screw	1		*b	Included in 2305048W Service Kit	
3	*a, *b 2304833W	.. Boot	1				
4	2310257	. Assembly, Adapter	1				

Control Lever Assembly - Electronic Controls



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	*c	2307886W	Assembly, Control Lever - w/o FS	1			
1	*b	2304835W	. Knob	1	*a	Use 219941 Contact Adhesive	
2	*b	2304834W	. Screw	1	*b	Included in 2305048W Service Kit	
3	*a, *b	2304833W	. Boot	1	*c	First Used on S/N AW6-3260	

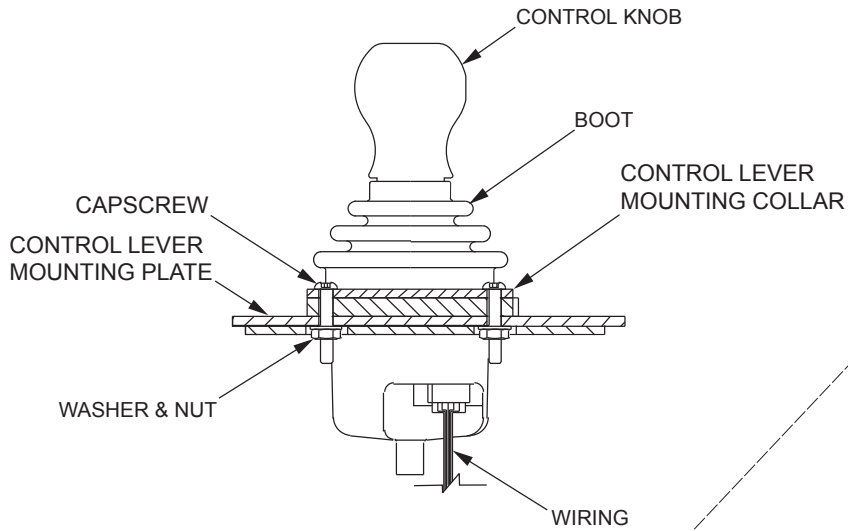
Control Lever Assembly - Electronic Controls



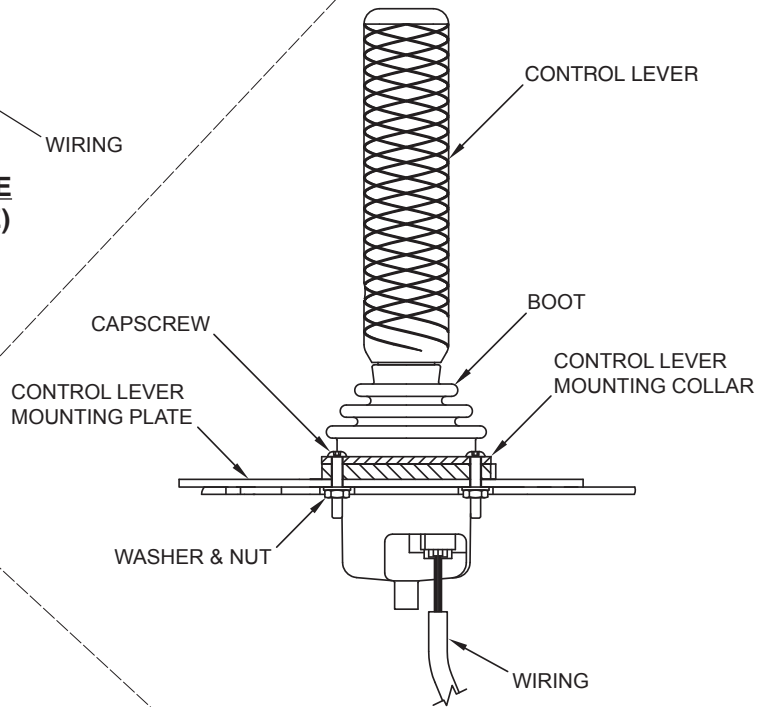
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2310552	Assembly, Control Lever - w/o FS	1				
1	2310585	. Assembly, Handle	1	3	2304833W	. Boot	1
2	2304834W	. Screw	1				

Control Lever Replacement Kit - Electronic Controls

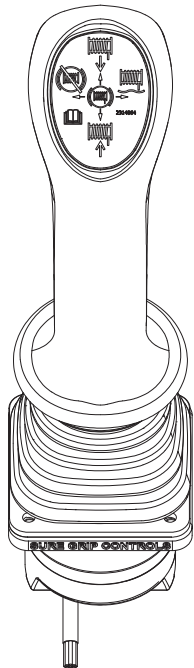
Page 1 of 2



**OLDER TYPE
(OBSOLETE)**



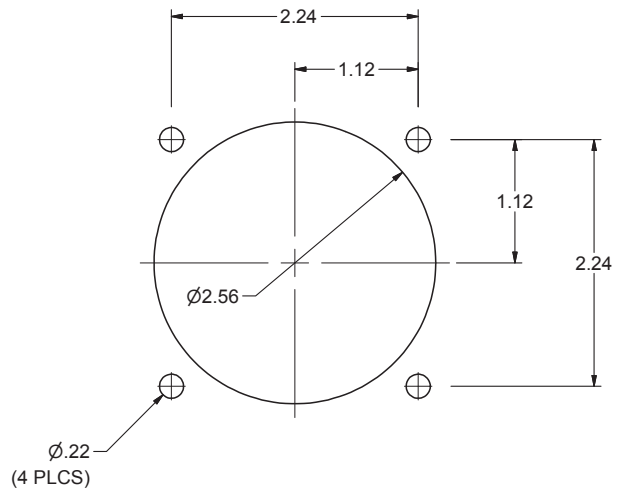
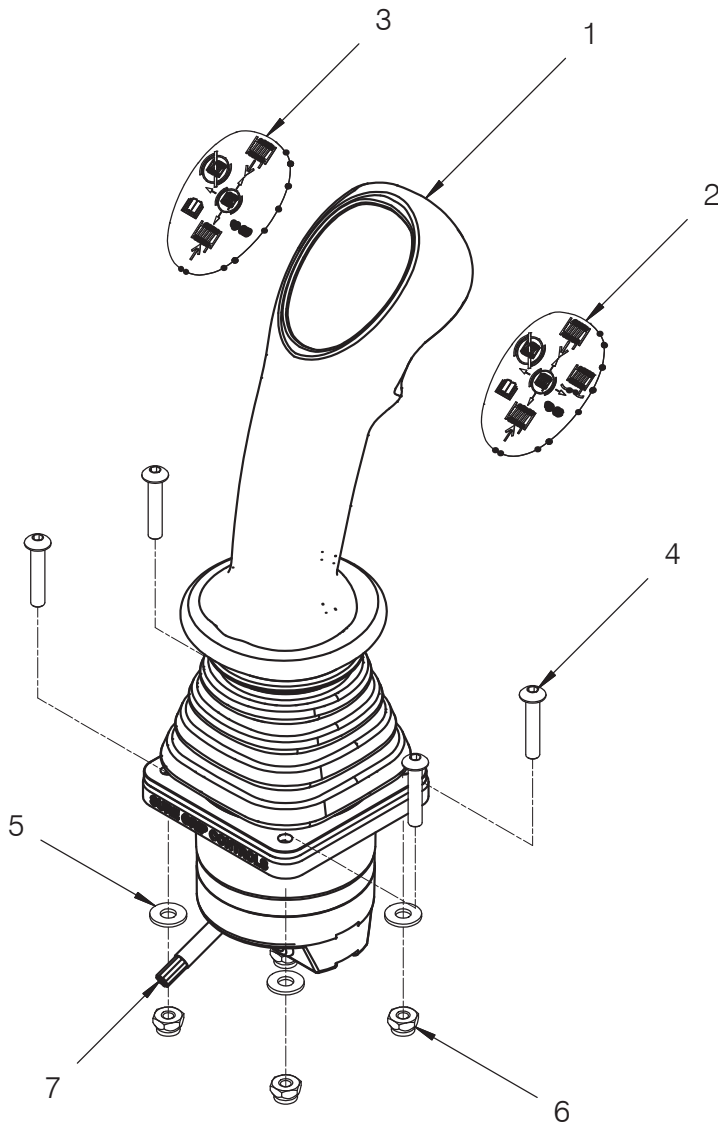
**OLD TYPE
(OBSOLETE)**



**NEW TYPE
(CURRENT)**

← **USE THIS CONTROL LEVER FOR ALL
ELECTRONIC CONTROLS APPLICATIONS.
(SEE NEXT PAGE FOR DETAILS.)**

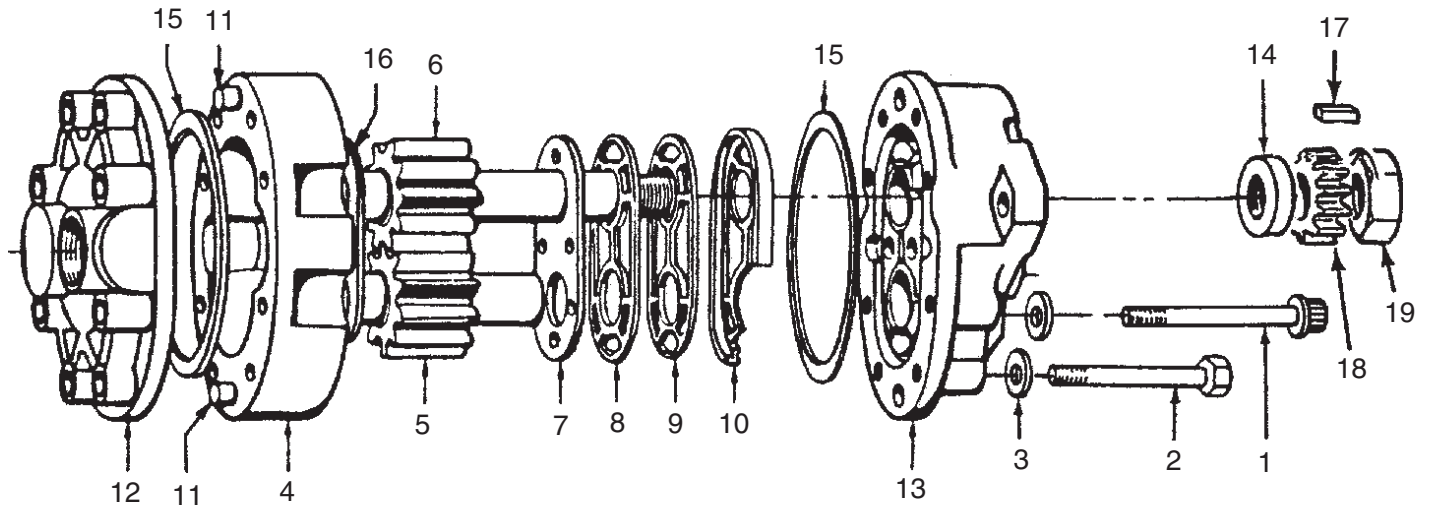
Control Lever Replacement Kit - Electronic Controls



TYPICAL DASHBOARD CUTOUT

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2314999	Kit, E-Control Lever Replacement	1				
1	2314854	. Lever, Control	1	5	Y35E-#10	. Washer	4
2	2314864	. Decal, Control Lever - W/ FS	1	6	224191	. Nut	4
3	2314863	. Decal, Control Lever - W/O FS	1	7	2310076	. Adapter, Electrical	1
4	Y25G-(1024)16	. Capscrew	4				

Pump - Hydraulic
Last Used on S/N W8LP-2607 & AW8L-1000



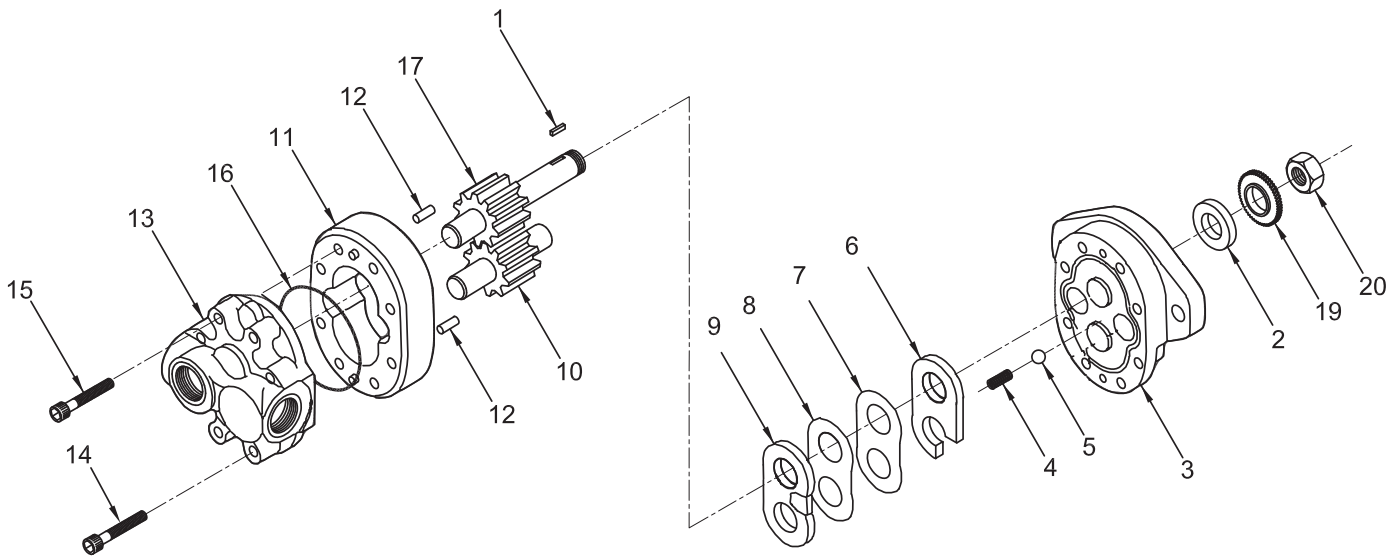
Parts Service Gram	
Item	Gram
Pump	Contact your dealer

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	225235W	Pump, Hydraulic	1				
1	18180W	. Capscrew	2	10	*a NSS	. V-Seal	1
2	18520W	. Capscrew	6	11	257333W	. Pin, Dowel	2
3	280292W	. Flatwasher	8	12	NSS	. Cover, Back	1
4	NSS	. Section, Center	1	13	NSS	. Cover, Front	1
5	NSS	. Gear	1	14	*a NSS	. Seal	1
6	NSS	. Gear, Drive	1	15	*a NSS	. O-Ring	2
	NSS	. Gear	1	16	*a NSS	. Plate, Thust	1
	NSS	. Shaft	1	17	257341W	. Key	1
	NSS	. Key	1	18	224796W	. Pinion, Pump	1
	NSS	. Ring, Retainer	2	19	138750W	. Locknut	1
7	*a NSS	. Plate, Wear	1				
8	*a NSS	. Shield, Heat	1		*a	Included in Repair Kit 301978W	
9	*a NSS	. Gasket	1				

3-135

Pump - Hydraulic

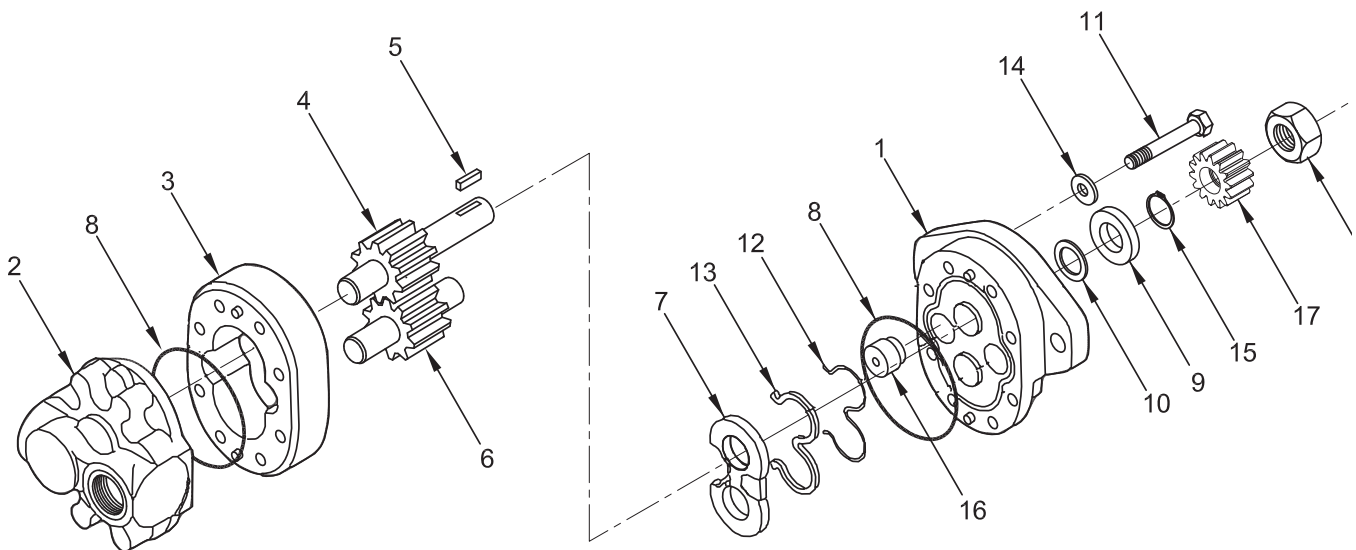
Used on S/N W8LP-2608 & AW8L-1001 thru 2304



Parts Service Gram	
Item	Gram
Pump	Contact your dealer

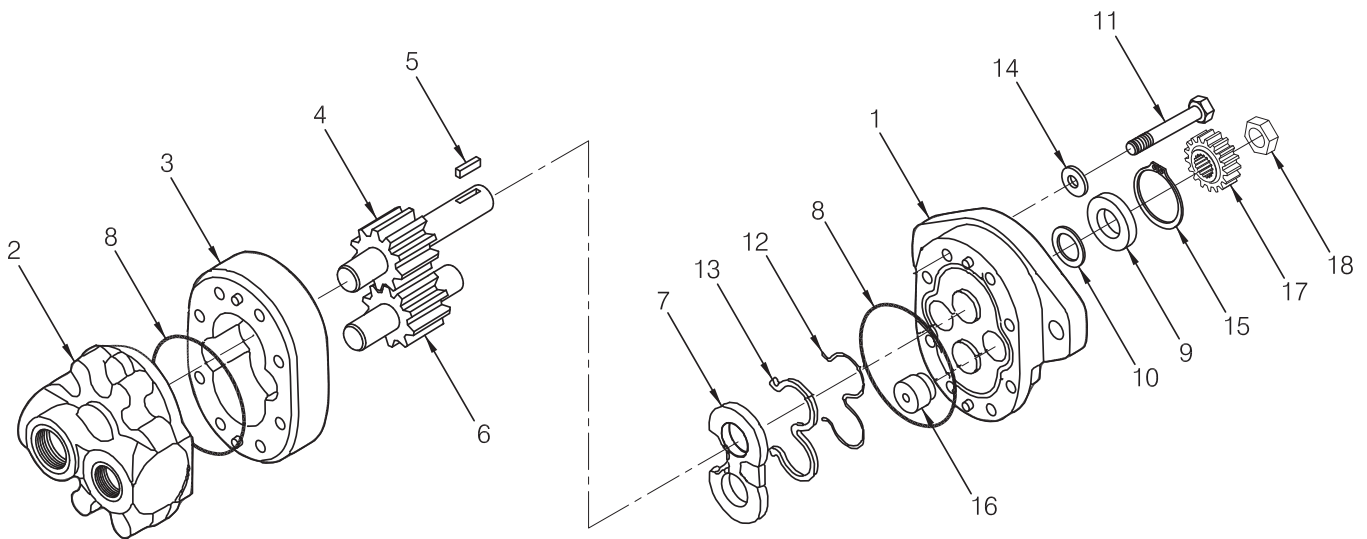
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	314833W	Pump, Hydraulic	1				
1	316823W	. Key	1	12	NSS	. Pin, Dowel	2
2	*a NSS	. Seal	1	13	NSS	. Plate, Back	1
3	316821W	. Plate, Front	1	14	199040W	. Capscrew	4
4	*a NSS	. Spring	2	15	160758W	. Capscrew	4
5	*a NSS	. Ball	2	16	*a NSS	. O-Ring	1
6	*a NSS	. Seal, Diaphragm	1	17	NSS	. Gear, Drive	1
7	*a NSS	. Gasket	1	19	224796W	Pinion, Pump	1
8	*a NSS	. Gasket, Backup	1	20	138750W	Locknut	1
9	*a NSS	. Diaphragm	1				
10	NSS	. Gear, Idler	1		*a	Included in Repair Kit 171252W	
11	NSS	. Body	1				

Pump - Hydraulic
 First Used on S/N AW8L-2305
 For Ratios #1 thru #7



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2302963W	Pump, Hydraulic	1				
1	NSS	. Plate, Front	1	11	NSS	. Capscrew	4
2	NSS	. Plate, Back	1	12	*a	NSS	. Gasket
3	NSS	. Body	1	13	*a	NSS	. Seal
4	NSS	. Gear, Drive	1	14	NSS	. Washer	4
5	316823W	. Key	1	15	NSS	. Ring, Retaining	1
6	NSS	. Gear, Idler	1	16	NSS	. Plug	1
7	*a	NSS	1	17	224796W	. Gear, Pump	1
8	*a	NSS	1	18	138750W	. Nut	1
9	*a	NSS	1				
10	*a	NSS	1		*a	Included in Repair Kit 2302937W	

Pump - Hydraulic
For Ratios #8, #9 and #10



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty	
	2302989W	Pump, Hydraulic	1					
1	NSS	. Plate, Front	1	11	NSS	. Capscrew	4	
2	NSS	. Plate, Back	1	12	*a	NSS	. Gasket	1
3	NSS	. Body	1	13	*a	NSS	. Seal	1
4	NSS	. Gear, Drive	1	14		NSS	. Washer	4
5	316823W	. Key	1	15		NSS	. Ring, Retaining	1
6	NSS	. Gear, Idler	1	16		NSS	. Plug	1
7	*a	NSS	1	17	2303541W	. Gear, Pump	1	
8	*a	NSS	1	18	138750W	. Nut	1	
9	*a	NSS	1					
10	*a	NSS	1		*a	Included in Repair Kit 2302937W		

Intentionally Blank

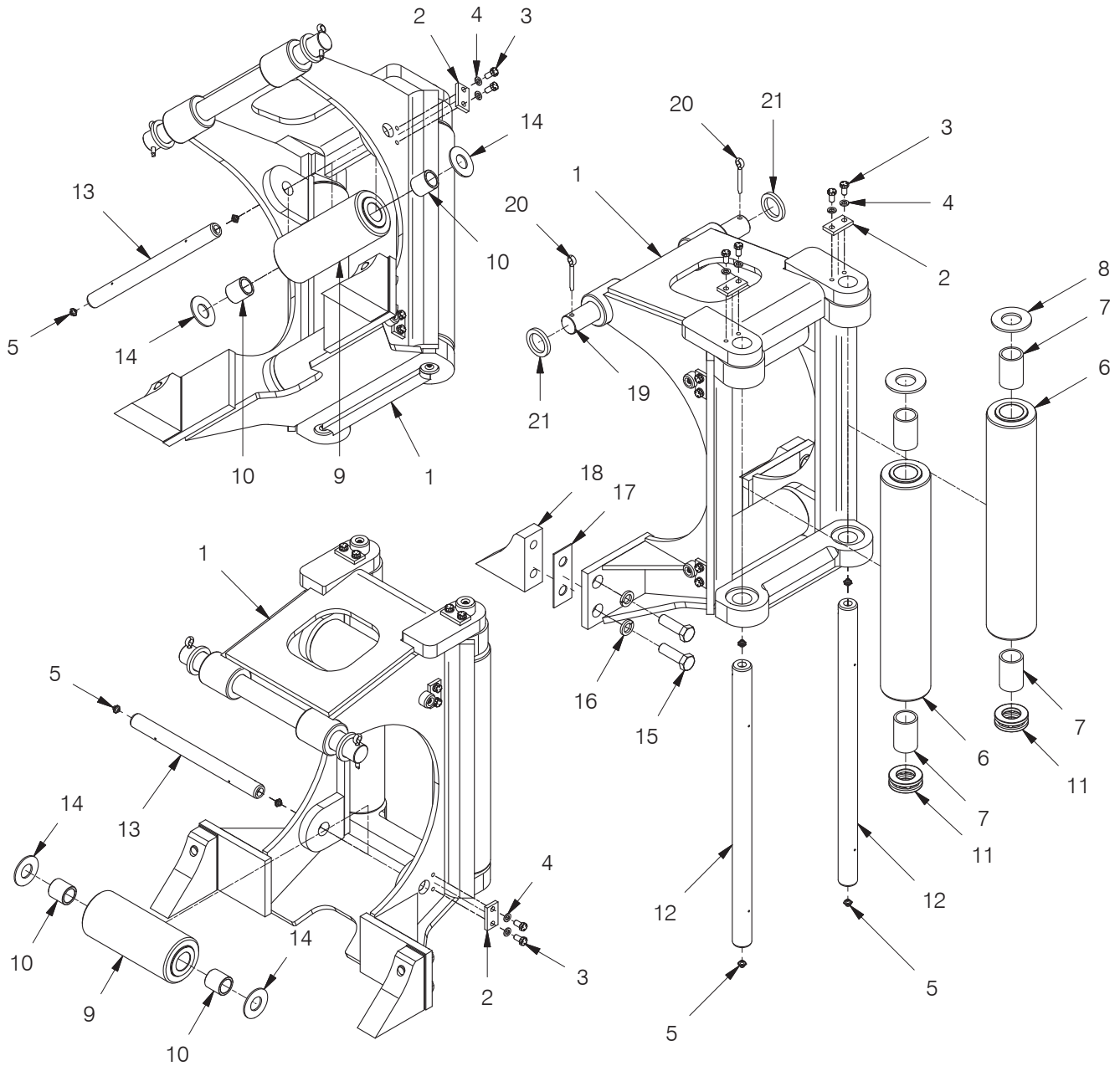
Optional Equipment

Fairlead	4-2 thru 4-4
Freespool	4-5
Wire Rope Guide Rollers	4-6
Wire Rope Assemblies	4-7



Fairlead

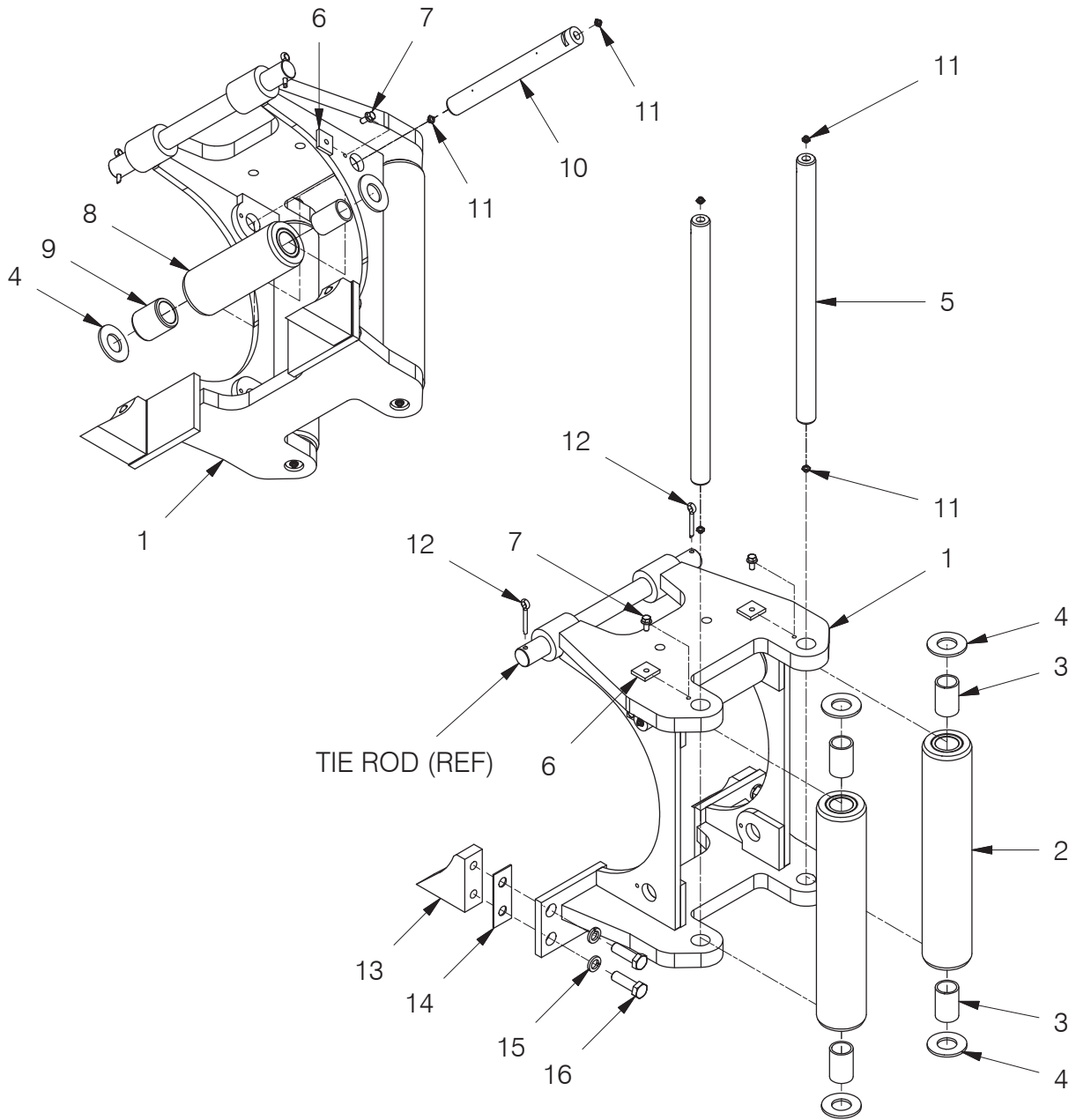
Last Used on S/N AW8L-1896



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	95784W	Fairlead					
1	95785W	. Frame	1	12	93657W	. Shaft	2
2	93166W	. Keeper	4	13	93658W	. Shaft	2
3	37562W	. Capscrew	8	14	92720W	. Washer	4
4	15158W	. Lockwasher	8	15	18671W	Capscrew	4
5	16001W	. Fitting, Grease	8	16	15166W	Lockwasher	4
6	36206W	. Roller, Vertical	2	17	93985W	Shim .134	AR
7	2570W	. Bushing	2	18	142809W	Bracket	2
8	33394W	. Washer	2	19	196279W	Rod, Tie	1
9	92212W	. Roller	2	20	15272W	Pin, Cotter	2
10	59419W	. Bushing	2	21	173607W	Spacer	2
11	230336W	. Bearing, Thrust	2				

Fairlead

First Used on S/N AW8L-1897
3-Roller Fairlead

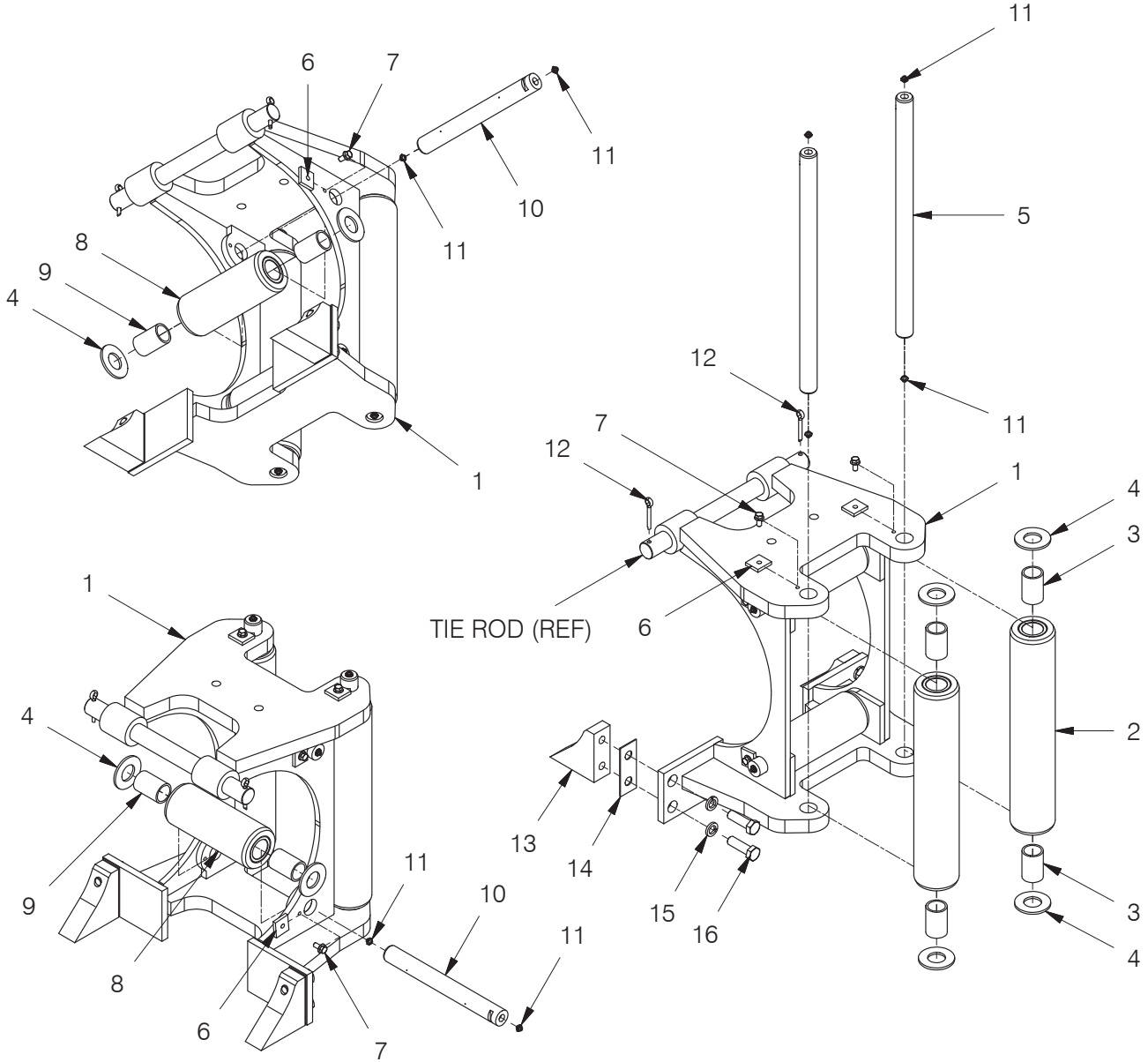


Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2301944W	3-Roller Fairlead	1	9	2570W	. . Bushing	2
1	2301934W	. Frame	1	10	2301942W	. Shaft	1
2	2301726W	. Roller	2	11	16001W	. Fitting, Lube	6
3	2570W	. . Bushing	4	12	15272W	Pin	2
4	33394W	. Washer	8	13	142809W	Bracket	2
5	2301943W	. Shaft	2	14	93985W	Shim .134	AR
6	2301706W	. Keeper	3	15	15166W	Washer	4
7	398817W	. Capscrew	3	16	18671W	Capscrew	4
8	2301727W	. Roller	1				

Fairlead

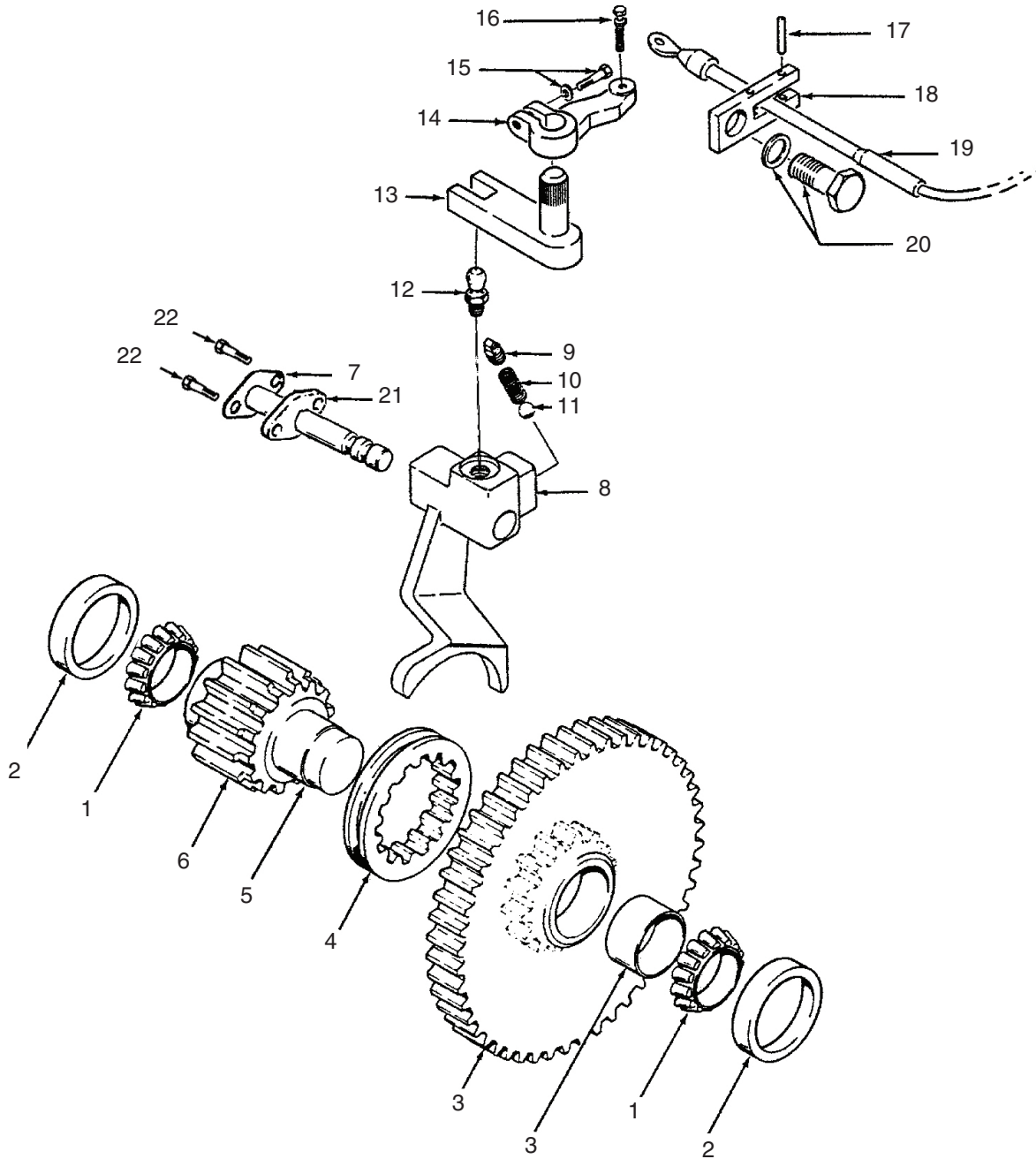
First Used on S/N AW8L-1897

4-Roller Fairlead



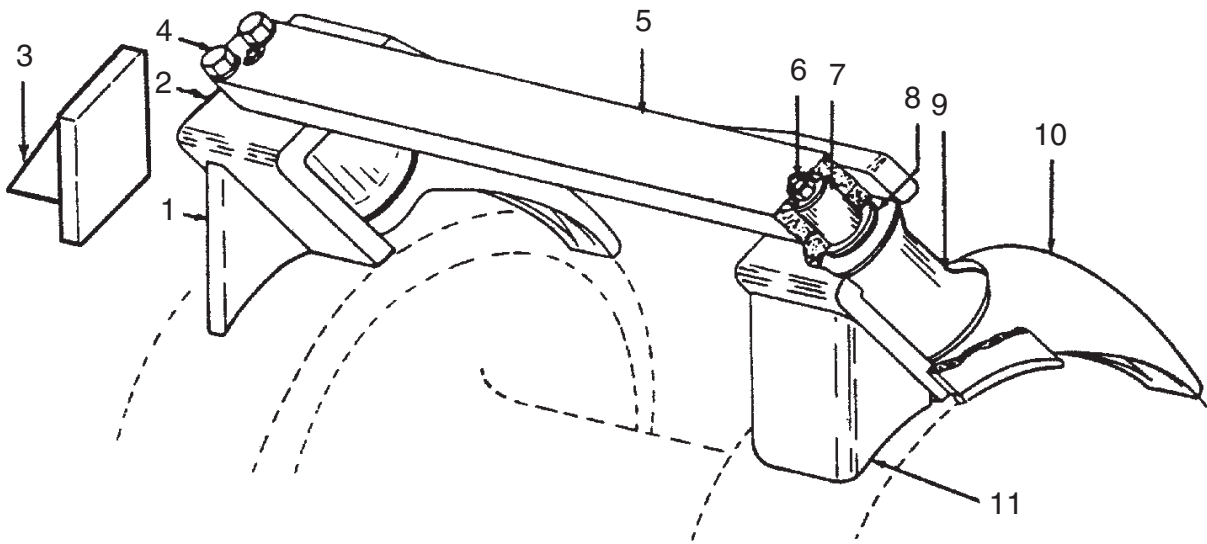
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	2301945W	4-Roller Fairlead	1	9	2570W	. . Bushing	2
1	2301934W	. Frame	1	10	2301942W	. Shaft	2
2	2301726W	. Roller	2	11	16001W	. Fitting, Lube	8
3	2570W	. . Bushing	2	12	15272W	Pin	2
4	33394W	. Washer	10	13	142809W	Bracket	2
5	2301943W	. Shaft	2	14	93985W	Shim .134	AR
6	2301706W	. Keeper	4	15	15166W	Washer	4
7	398817W	. Capscrew	4	16	18671W	Capscrew	4
8	2301727W	. Roller	2				

Freespool



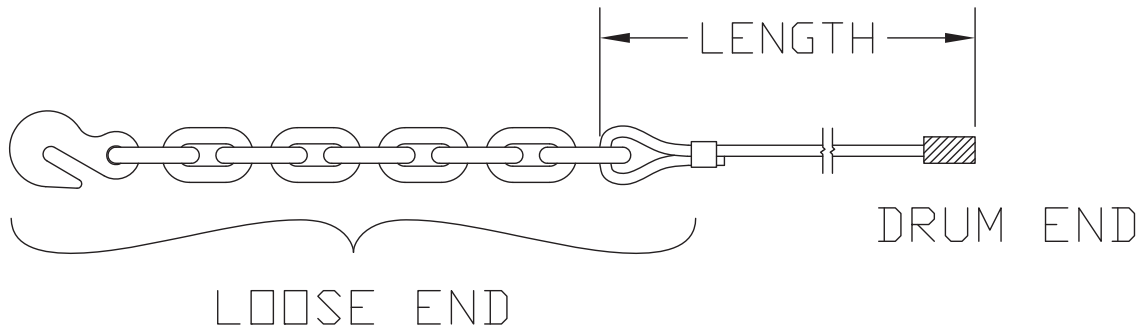
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230309W	Cone, Bearing	2	13	151584W	Shaft	1
2	30091W	Cup, Bearing	2	14	203239W	Crank	1
3	259459W	Gear w/ Bushing	1	15	18588W	Capscrew	1
3	259460W	Bushing	1		15158W	Lockwasher	1
4	258565W	Clutch, Dental	1	16	85749W	Bolt	1
5	258560W	Shaft, Inter	1	17	*a	Pin, Slotted	2
6	258566W	Gear, Pinion	1	18	*a	Bracket, Cable	1
7	274921W	Shaft	1	19	*a	Cable	1
8	258562W	Shifter, Fork	1	20	*a	Capscrew	1
9	46578W	Plug, Pipe	1	20	*a	Lockwasher	1
	67355W	Wire	1	21	*a	Gasket	1
10	280985W	Spring	1	22	178403W	Capscrew	2
11	6348W	Ball	1				
12	151583W	Stud, Ball	1				
	15906W	Lockwasher	1				
				*a		Refer to specific Handling Gear in Section 3	

Wire Rope Guide Rollers



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
	-----	Rollers, Wire Rope Guide					
1	95892W	. Gusset	1	7	95669W	. Pin, Roller	2
2	95883W	. Bracket, RH	1	8	95668W	. Washer	6
3	95891W	. Gusset	1	9	95666W	. Roller	2
4	16645W	. Capscrew	4		-----	. Roller	2
	15160W	. Lockwasher	4		35135W	. Bushing	4
5	95888W	. Guard, Tie	1	10	95879W	. Bracket, LH	1
6	16006W	. Fitting, Grease	2	11	95890W	. Gusset	1

Wire Rope Assemblies



Wire Rope Diameter Dia (in)	Breaking Strength New (lbs)
7/8	79,600
1	103,400
1 1/8	130,000

Part No.	Wire Rope Diameter	Length Ft (M)	Part No.	Wire Rope Diameter	Length Ft (M)
WR7-234J	7/8"	234 (71) *	WR9-176J	1 1/8"	176 (57) **
WR7-354J	7/8"	354 (108) **	WR9-220J	1 1/8"	220 (67) **
WR8-182J	1"	182 (55) *			
WR8-275J	1"	275 (84) **			
WR9-145J	1 1/8"	145 (44) *			

* Length to fill drum up to 2/3 capacity (recommended)
 ** Length to fill drum to full capacity

Intentionally Blank

Recommended Service Kits

Recommended Winch Service Intervals	5-2
Recommended Service Kits	5-3
• Filter Kit - 2311165	5-4
• Filter Kit - 2311166	5-5
• Filter Kit - 2311167	5-6
• Filter Kit - 2311168	5-7
• Gasket Kit - 277341W	5-8
• Clutch Shaft Kit - 2311156	5-10
• Clutch Shaft Kit - 2311157	5-11
• Brake Assembly Kit - 2311155	5-12
• Brake Shaft Bearing Kit - 2311158	5-13
• Brake Shaft Bearing Kit - 2311159	5-14
• Clutch Shaft Bearing Kit - 2311160	5-15
• Clutch Shaft Bearing Kit -2311162	5-16
• Clutch Shaft Bearing Kit -2311161	5-17
• Clutch Shaft Bearing Kit -2311162	5-18
• Clutch Shaft Bearing Kit -2311163	5-19
• Drum & Intermediate Shaft Bearing and Seal Kit -2311164 .	5-20

Recommended Winch Service Intervals

Allied Systems Company is pleased to announce an additional tool to keep your customer's winch serviced and functioning properly. Following this recommended service schedule will help keep tractor winch downtime

to a minimum, optimize winch operation, and extend the life of your investment. See Table 1 on this page for recommended service intervals, and Table 2 on the next page for recommended service kits.

PTO Winch Maintenance

Recommended Winch Service Intervals

Hours or **	Months **	Filter ***	Winch Gear Oil	Brake & Clutch	Major Overhaul
First 250	1	Change			
Every 500	3	Change			
Every 1,000	6		Change		
Every 5,000				* Inspect	
Every 10,000					* Evaluate

Lube rollers and check oil level and filter light weekly.

* Evaluate = Service based on average winch use;
 - if used more than once a day, perform overhaul.
 - if used less than once a day, remove covers and check to determine need.
 * Inspect = Disassemble and inspect for wear.
 ** Service winch using the tractor's hour meter or the length of time the winch is mounted to the tractor, whichever occurs first.
 *** Follow tractor schedule if using tractor filter.

IMPORTANT - For best Load Control
Use only the following oils:

Caterpillar -Multipurpose Tractor Oil (MTO)
 John Deere -Hy-Gard
 ExxonMobil -Mobil Fluid 424 (Factory Fill)
 Chevron -1000 THF

Consult service/operating manual for low temperature oils and other details. Use of non-approved oil may void warranty.





2311481 Rev C

Table 1 Recommended Winch Service Intervals

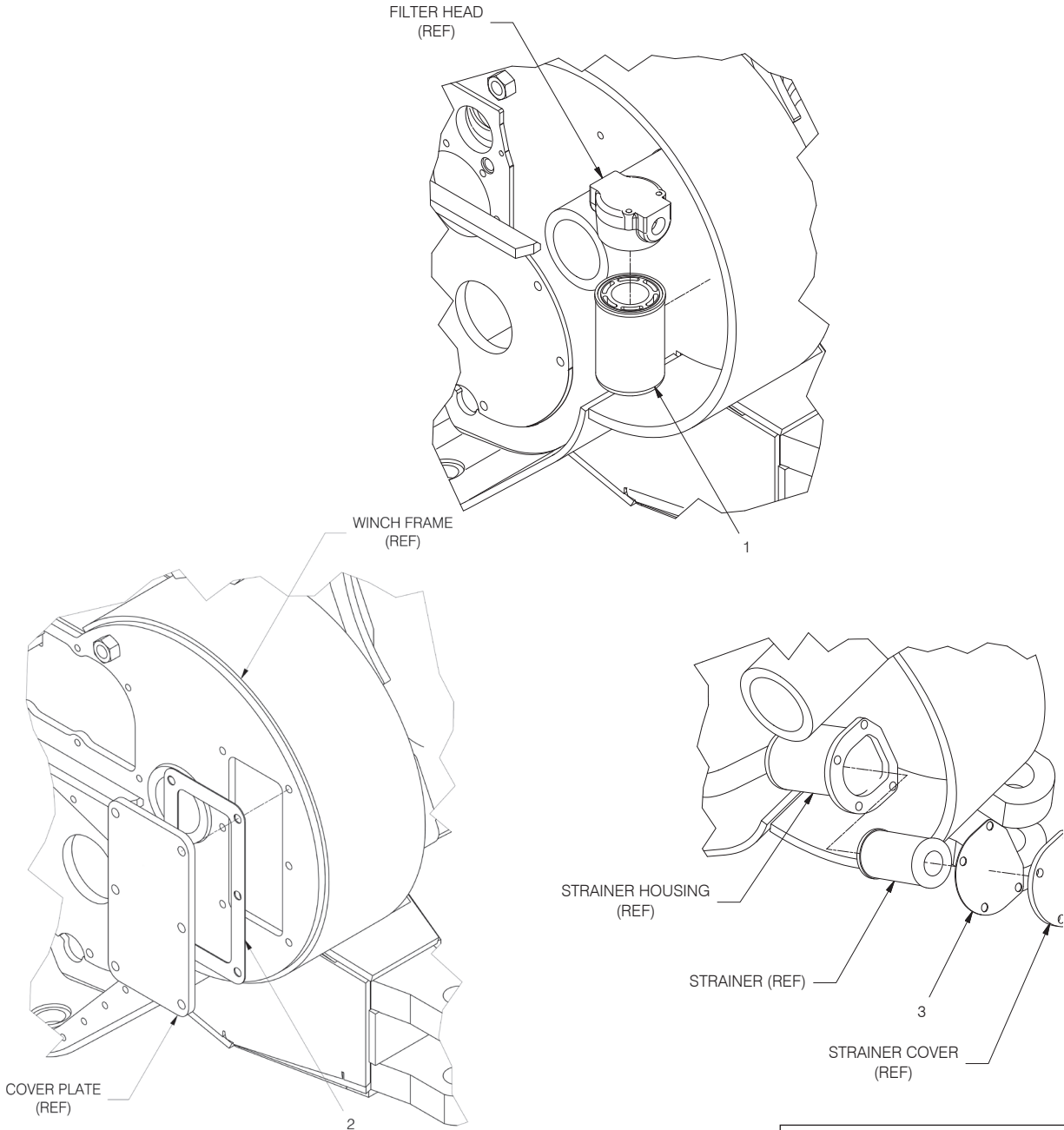
Recommended Service Kits

SERVICE KITS FOR W8L WINCHES					
Service Description	Kit Description	Winch Serial Number	Kit Part No. for Winches with Power Controls (P)	Kit Part No. for Winches with Electronic Controls (E)	
Filter Change (First 250, then every 500 Hours)	Filter Kit	Last used W8L-1599	2311165	-N/A-	
		First used on Hyster W8L-1600; AW8L-1001 thru AW8L-2421	2311166	2311168	
		First Used AW8L-2422	2311167		
Complete Oil Change (Every 1000 hours)	-N/A-	ALL	Check our Website for Current Operator's and Service Manuals for Appropriate Oils		
Clutch and Brake Overhaul (Every 5000 hours)	Gasket Kit	ALL	277341W		
	Clutch Shaft Kit*	Gear ratios 1-7	2311156		
		Gear ratios 8-10	2311157		
	Brake Assembly Kit	ALL	2311155		
	Pump Assembly	Gear Ratios 1 - 7	Last used AW8L-2304	Order quantity 1 of each of the following: 2302963W 2303677W 88297W 271729W	
			First used AW8L-2305	2302963W	
	Gear Ratios 8 - 10	First used AW8L-2305	2302989W		
Major Overhaul (Every 10000 hours)	Brake Shaft Bearing Kit (Gear ratios 1-7)	ALL	2311158		
	Brake Shaft Bearing Kit (Gear ratios 8-10)	ALL	2311159		
	Clutch Shaft Bearing Kit (Gear ratios 1-6)	Last used AW8L-3494	2311160		
		First used AW8L-3495	2311162		
	Clutch Shaft Bearing Kit (Gear ratio 7)	Last used AW8L-3469	2311161		
		First used AW8L-3470	2311162		
	Clutch Shaft Bearing Kit (Gear ratios 8-10)	ALL	2311163		
Drum & Intermediate Shaft Bearing and Seal Kit	ALL	2311164			

* Services both clutches. Includes all parts necessary on the clutch shaft; dropbox and PTO bearings and seals must be ordered separately.

Table 2 Routine Maintenance Kits

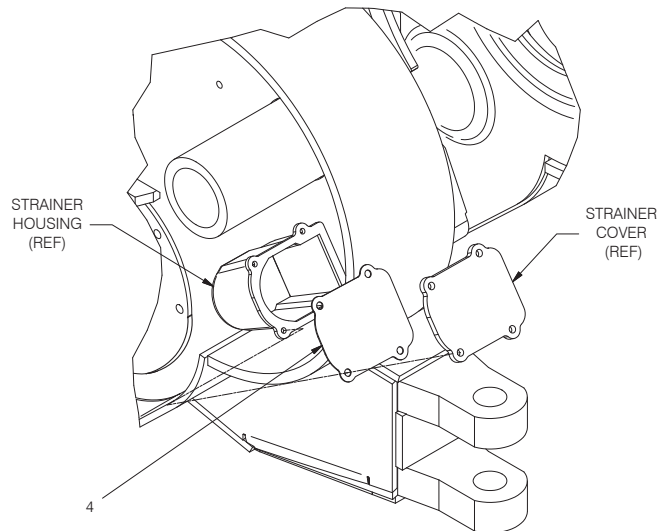
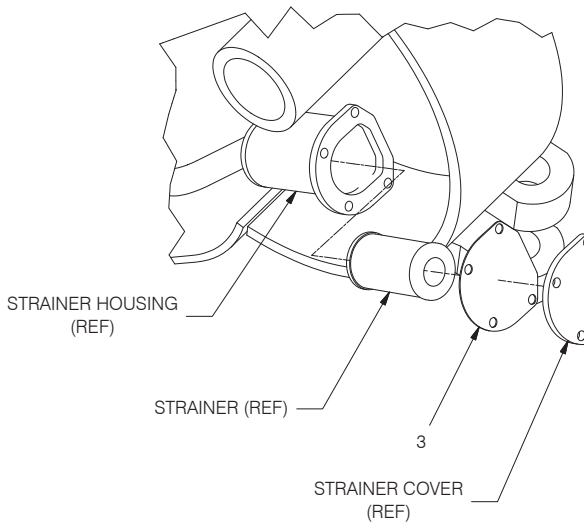
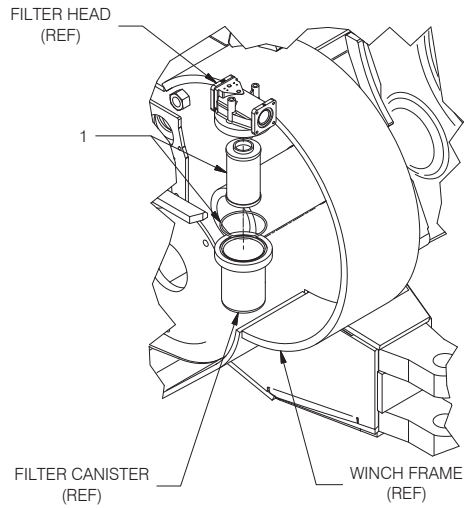
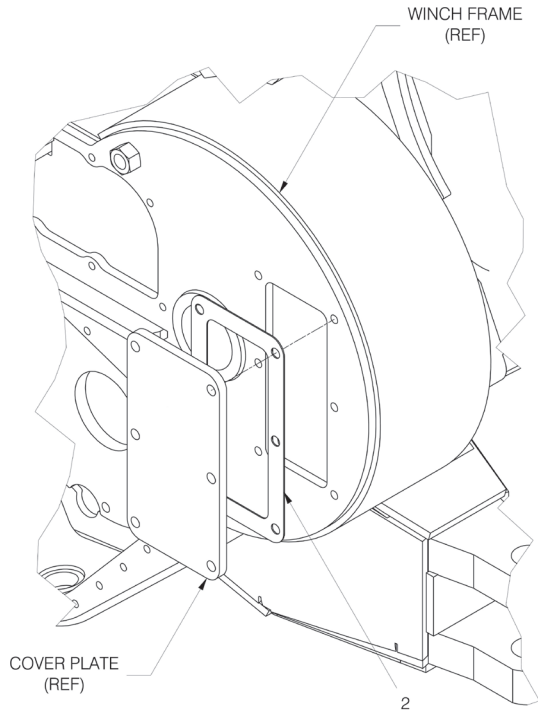
Filter Kit: 2311165
 For Winches with Power Controls
 Last Used on S/N W8L-1599



Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	277490W	Element, Filter	1	3	265332W	Gasket	1
2	186460W	Gasket	1				

Filter Kit: 2311166
 For Winches with Power Controls
 Used on S/N AW8L-1001 thru AW8L-2421

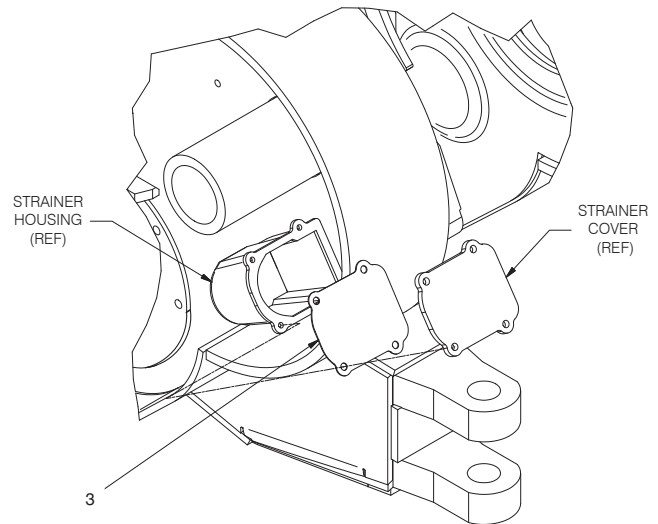
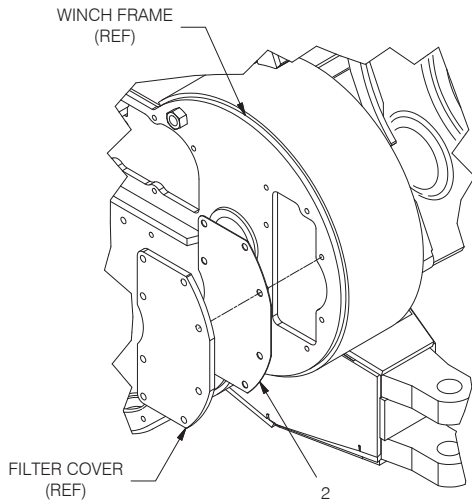
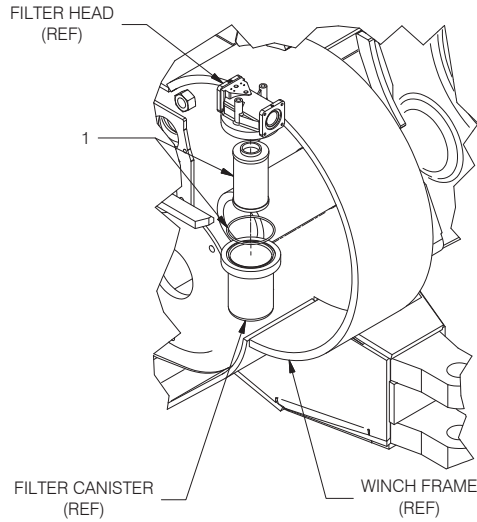


Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	**	3001363W	Element, Filter	1			
2		186460W	Gasket	1			
3	*	265332W	Gasket	1			
4	*	2300935W	Gasket	1			

* Note: Only one of these two gaskets will actually be used.
 ** Note: Filter, P/N 3001363W, has replaced Filter, P/N 280591W.

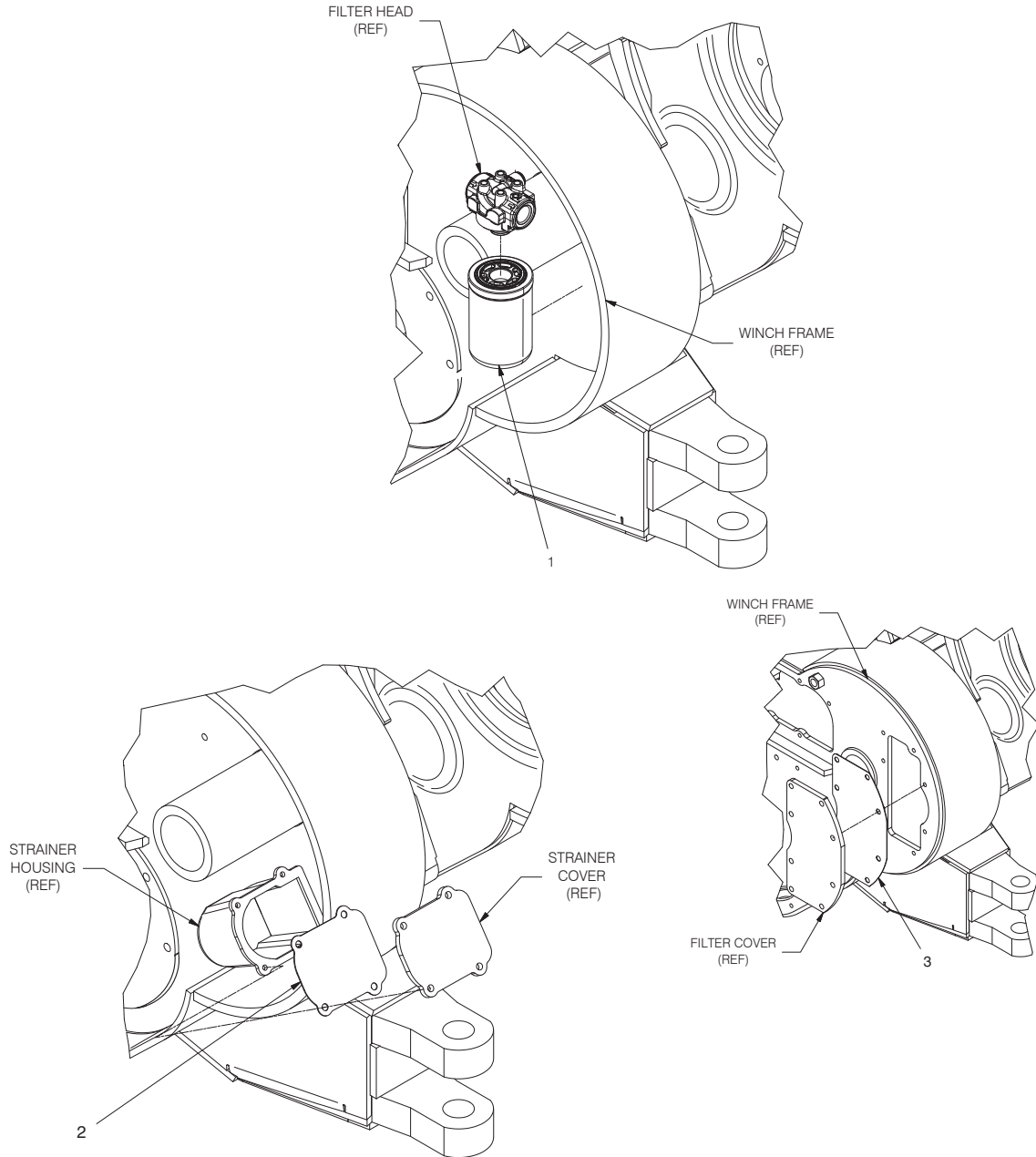
Filter Kit: 2311167
 For Winches with Power Controls
 First Used on S/N AW8L-2422



Note: Only parts with item numbers are actually included in this Service Kit.
 All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	3001363W	Element, Filter	1	*	2304709W	Gasket, P/N 2304709W, has replaced Gasket, P/N 2303534W	1
2	2304709W	Gasket, Filter Cover	1				
3	2300935W	Gasket	1				

Filter Kit: 2311168W
For Winches with Electronic Controls

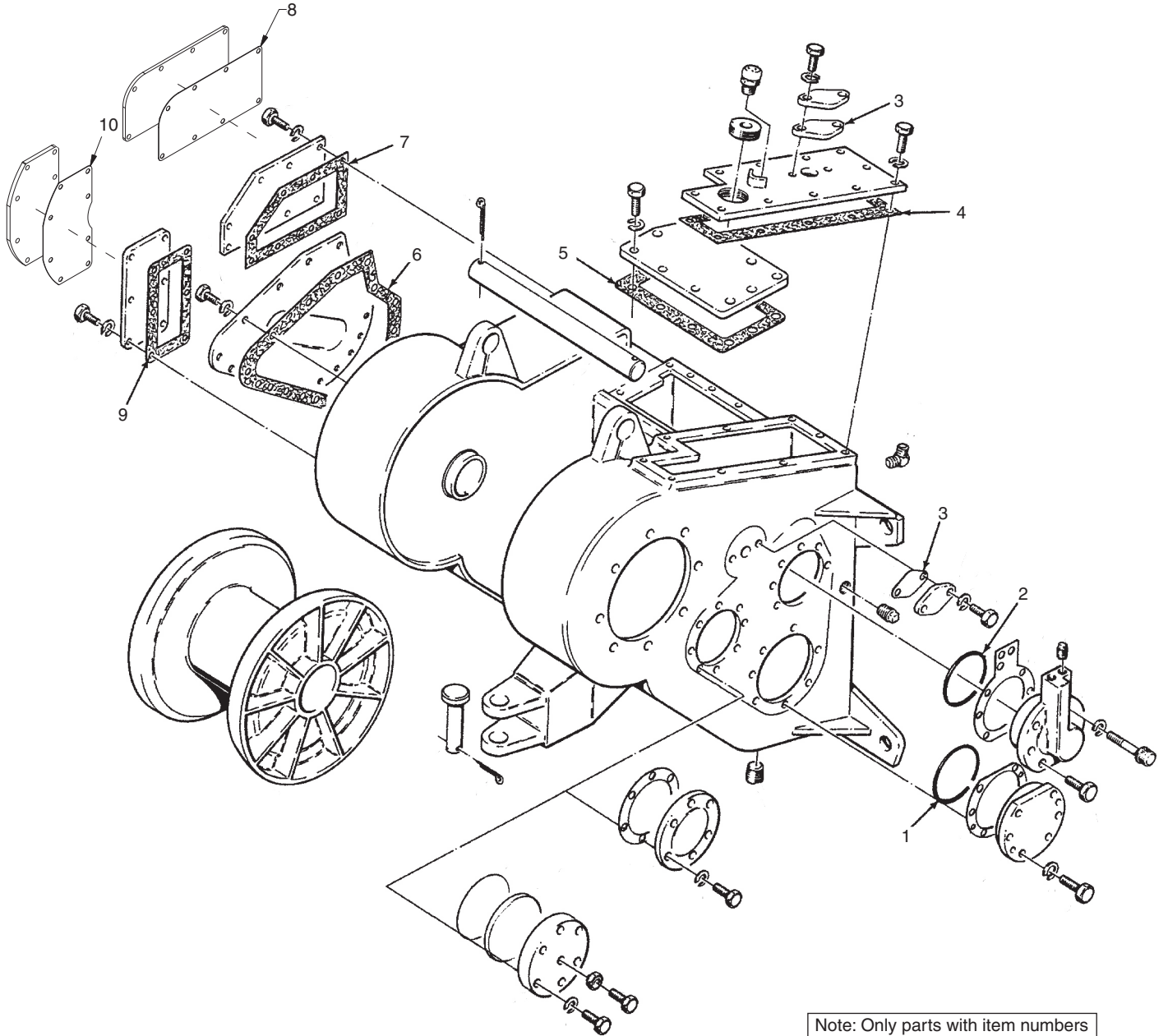


Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2304112W	Filter, Element	1	3	2304709W	Gasket	1
2	2300935W	Gasket	1				

Gasket Kit: 277341W

For Winches with Power Controls and Electronic Controls
(Page 1 of 2)



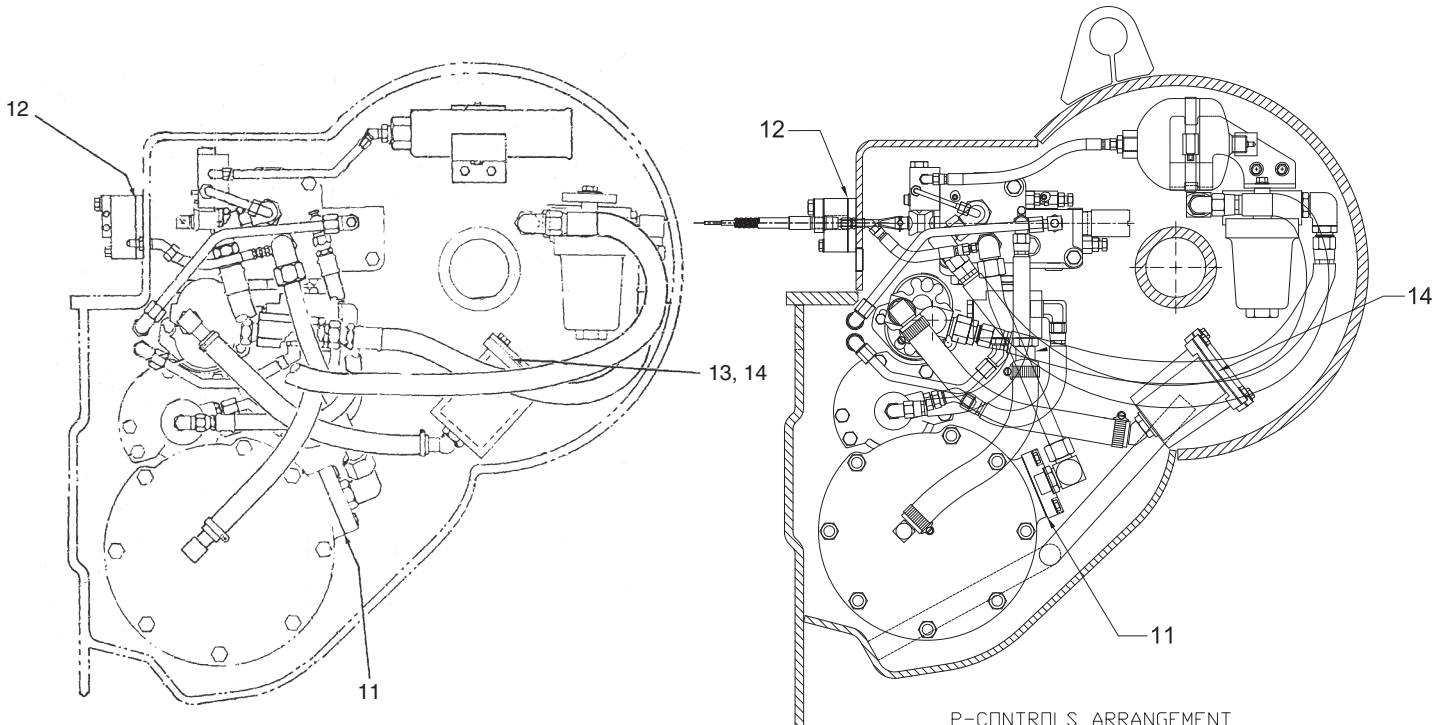
Note: Only parts with item numbers are actually included in this Service Kit.
All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	60988W	O-Ring	1	6	286044W	Gasket	1
2	55289W	O-Ring	1	7	257779W	Gasket	1
3	151646W	Gasket	2	8	2305271W	Gasket	1
4	142761W	Gasket	1	9	186460W	Gasket	1
5	253812W	Gasket	1	10	* 2304709W	Gasket	1

(continued on next page)

Gasket Kit: 277341W

For Winches with Power Controls and Electronic Controls
(Page 2 of 2)



P-CONTROLS ARRANGEMENT
OVERWIND RATIOS 1, 2, 3, 4, 5, 6 & 7

ECONTROLS ARRANGEMENT
OVERWIND RATIOS 8, 9 & 10
UNDERWIND RATIOS 1, 2, 3, 4, 5, 6 & 7

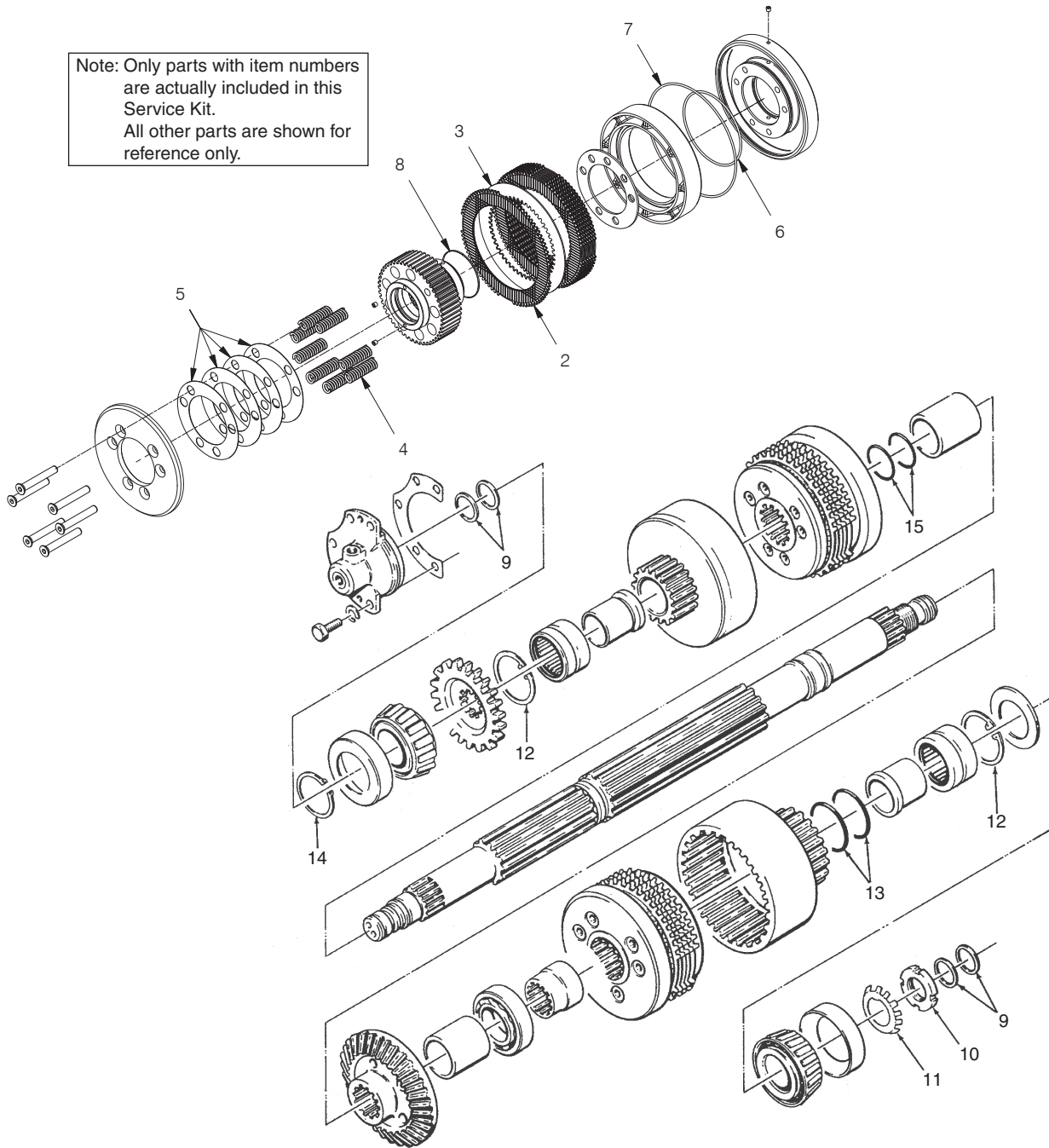
Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
11	196022W	Gasket	1				
12	226359W	Gasket	1	*	Gasket, P/N 2304709W, has replaced Gasket, P/N 2303524W.		
13	265332W	Gasket	2				
14	2300935W	Gasket	1				

Clutch Shaft Kit: 2311156

For Winches with Power Controls and Electronic Controls
Gear Ratios #1 thru #7

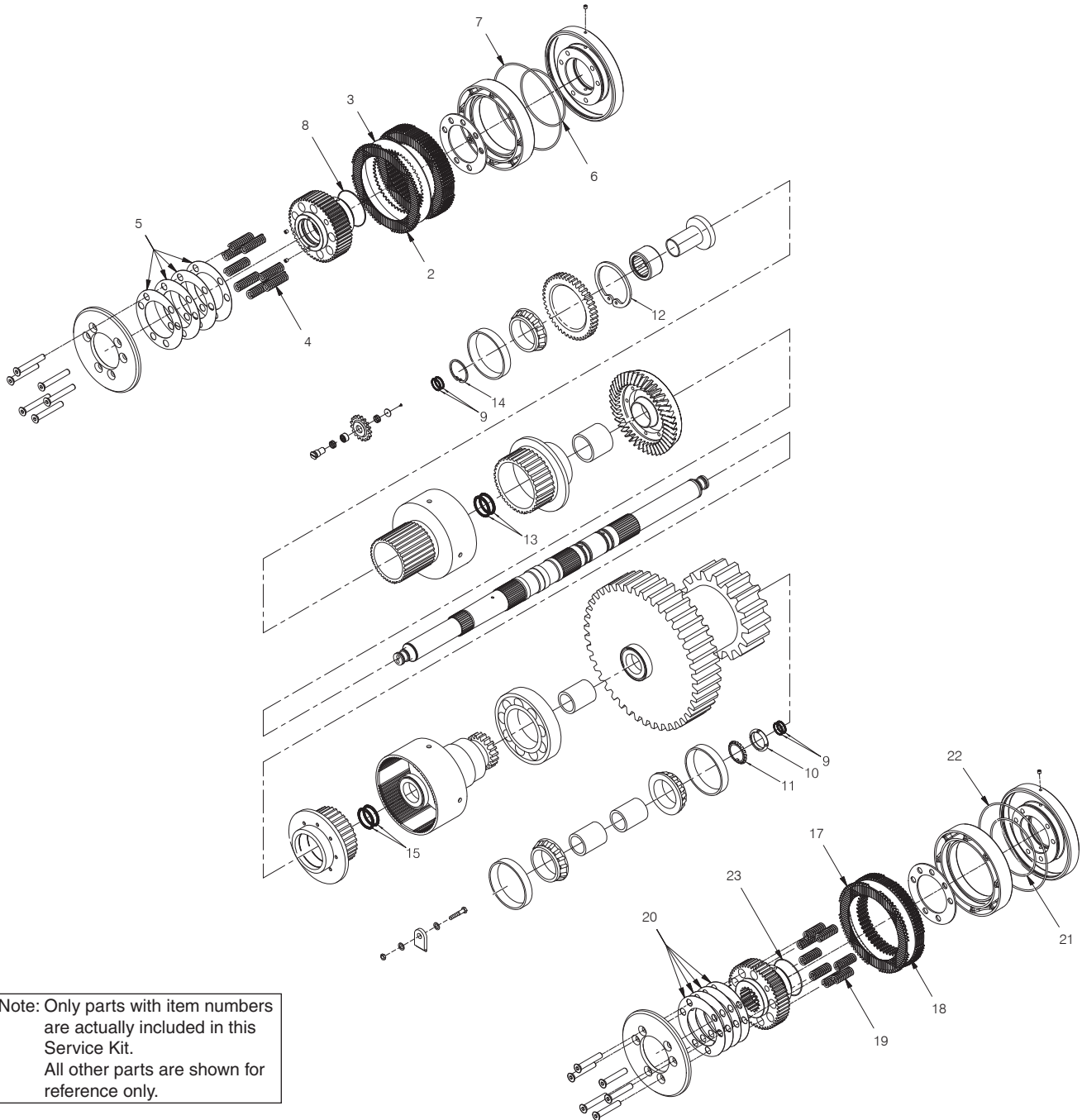
Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.



Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2310570	Kit, Clutch Service	2	9	95581W	Ring, Seal	4
2	328715W	. Disc, Friction	8	10	21014W	Nut, Lock	1
3	261542W	. Plate, Separator	8	11	174561W	Lockwasher	1
4	267499W	. Spring	8	12	58938W	Ring, Snap	2
5	224793W	. Shim .031	4	13	39674W	O-Ring	2
6	89777W	. O-Ring	1	14	35575W	Ring, Snap	1
7	79972W	. O-Ring	1	15	108877W	O-Ring	2
8	39370W	. O-Ring	1				

Clutch Shaft Kit: 2311157

For Winches with Power Controls and Electronic Controls
Gear Ratios #8, #9 & #10

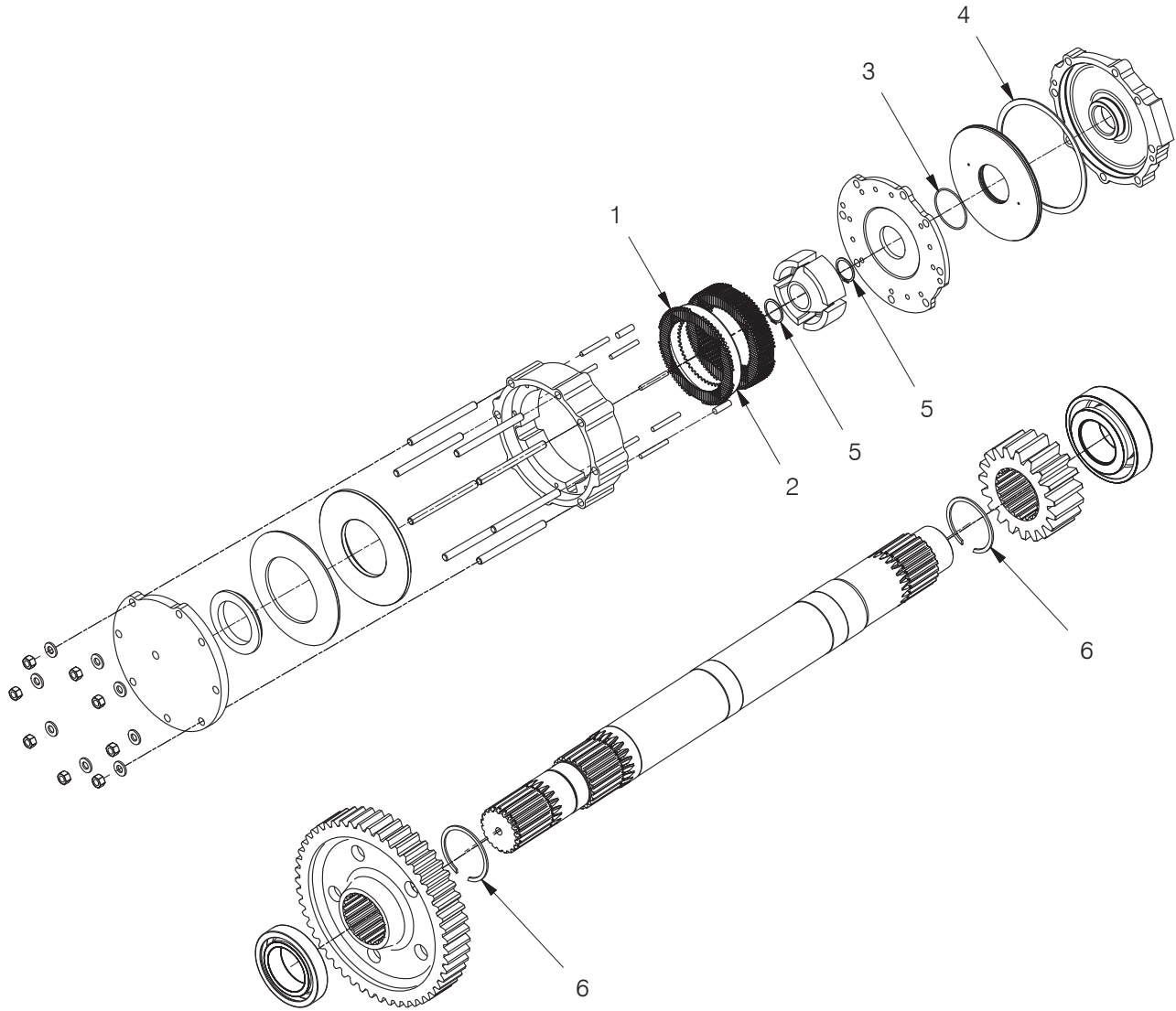


Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	2310570	Kit, Clutch Service	1	13	39674W	O-Ring	2
2	328715W	. Disc, Friction	8	14	35575W	Ring, Snap	1
3	261542W	. Plate, Separator	8	15	108877W	O-Ring	2
4	267499W	. Spring	8	16	2300544W	Kit, Clutch Service	1
5	224793W	. Shim .031	4	17	328715W	. Disc, Friction	6
6	89777W	. O-Ring	1	18	261542W	. Plate, Separator	6
7	79972W	. O-Ring	1	19	265407W	. Spring	8
8	39370W	. O-Ring	1	20	224793W	. Shim .031	4
9	95581W	Ring, Seal	4	21	89777W	. O-Ring	1
10	21014W	Nut, Lock	1	22	79972W	. O-Ring	1
11	174561W	Lockwasher	1	23	39370W	. O-Ring	1
12	58938W	Ring, Snap	2				

Brake Assembly Kit: 2311155

For Winches with Power Controls and Electronic Controls

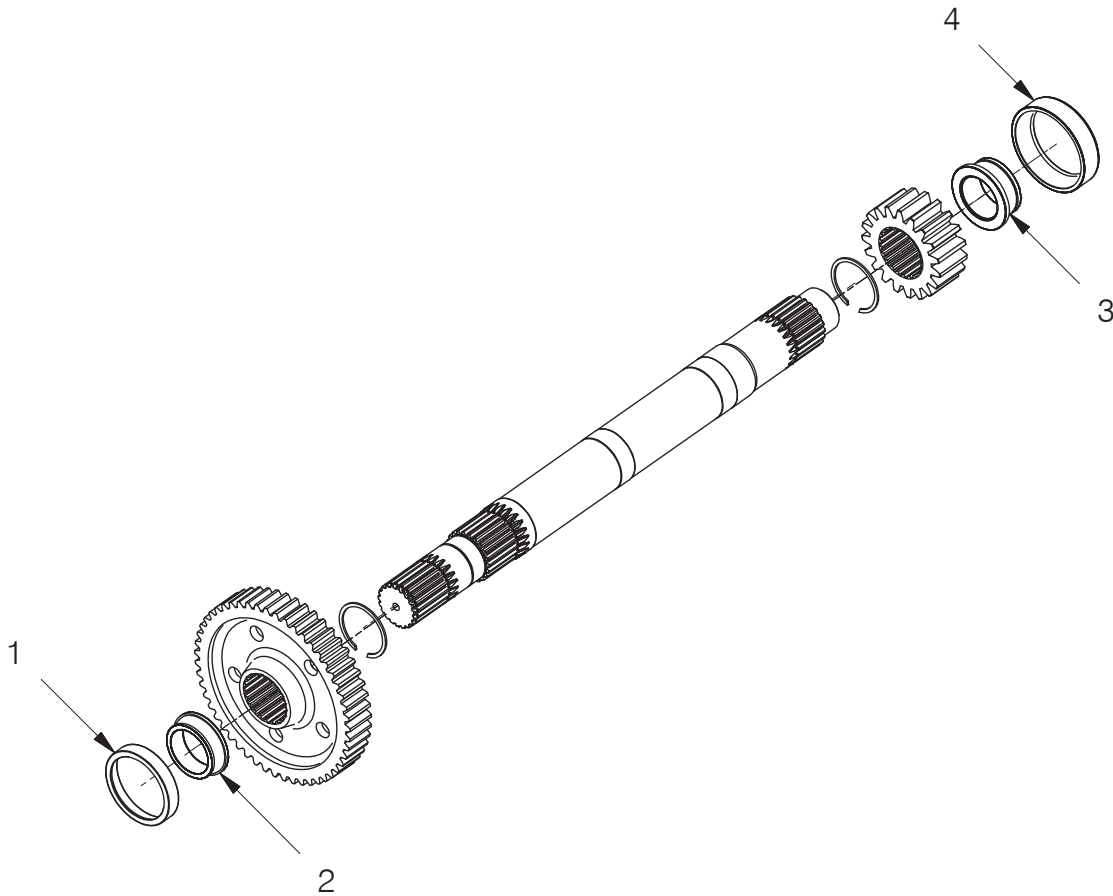


Note: Only parts with item numbers are actually included in this Service Kit.
All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	328715W	Disc, Friction	10	4	133927W	Ring, Piston Seal	1
2	261542W	Plate, Separator	9	5	12940W	Snap Ring	2
3	79979W	O-Ring	1	6	12915W	Snap Ring	2

Brake Shaft Bearing Kit: 2311158

For Winches with Power Controls and Electronic Controls
 Gear Ratios #1, #3, #5, #6 & #7

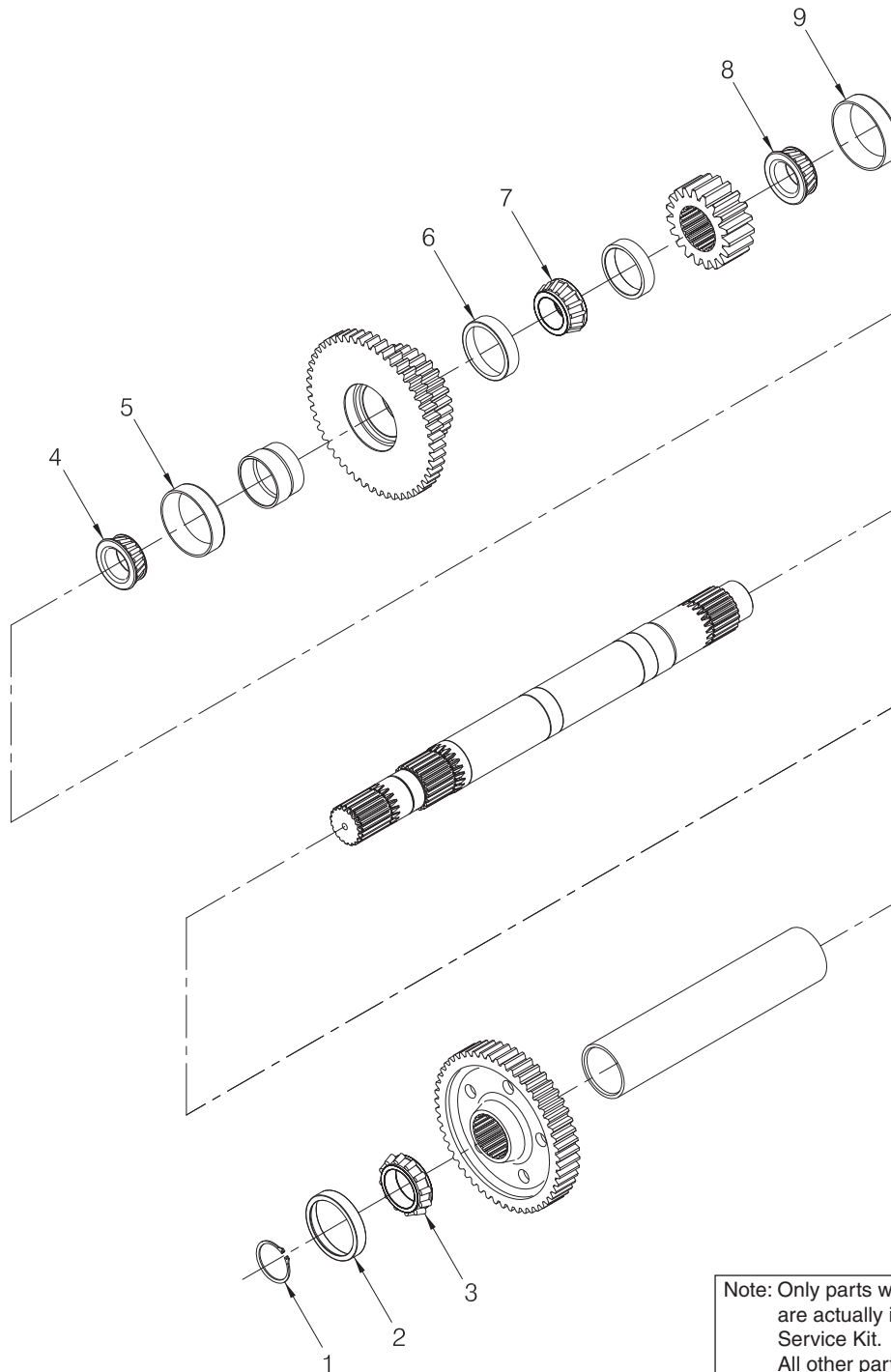


Note: Only parts with item numbers are actually included in this Service Kit.
 All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230311W	Cup, Bearing	1	3	30080W	Cone, Bearing	1
2	230310W	Cone, Bearing	1	4	30059W	Cup, Bearing	1

Brake Shaft Bearing Kit: 2311159

For Winches with Power Controls and Electronic Controls
Gear Ratios #8, #9 & #10



Note: Only parts with item numbers are actually included in this Service Kit.
All other parts are shown for reference only.

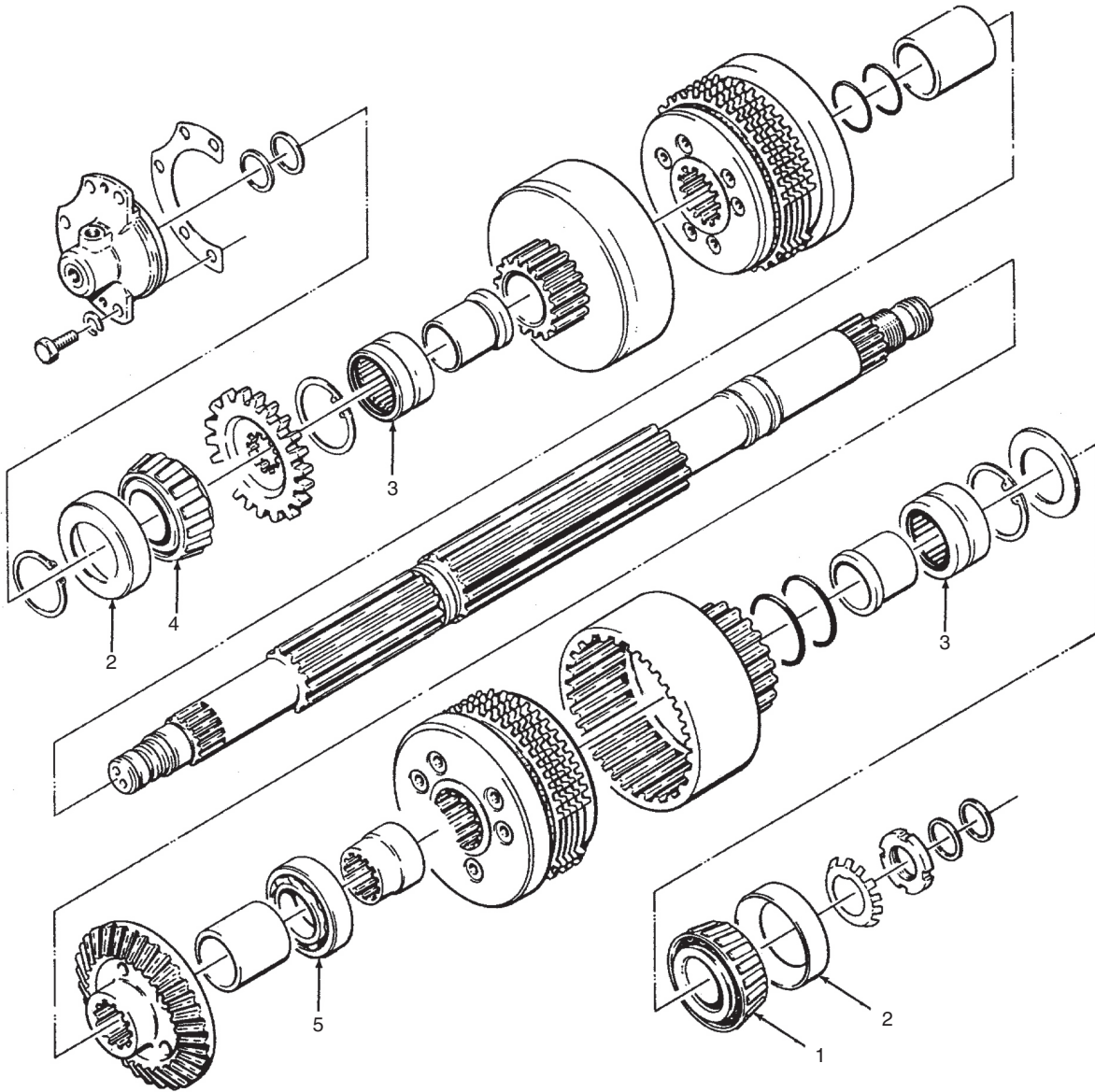
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	12940W	Snap Ring	1	6	2303557W	Cup, Bearing	1
2	230310W	Cone, Bearing	1	7	2303558W	Cone, Bearing	1
3	230311W	Cup, Bearing	1	8	30080W	Cone, Bearing	1
4	2303572W	Cone, Bearing	1	9	30059W	Cup, Bearing	1
5	2303571W	Cup, Bearing	1				

Clutch Shaft Bearing Kit: 2311160

For Winches with Power Controls and Electronic Controls

Gear Ratios #1 thru #6

Last Used on S/N AW8L-3494

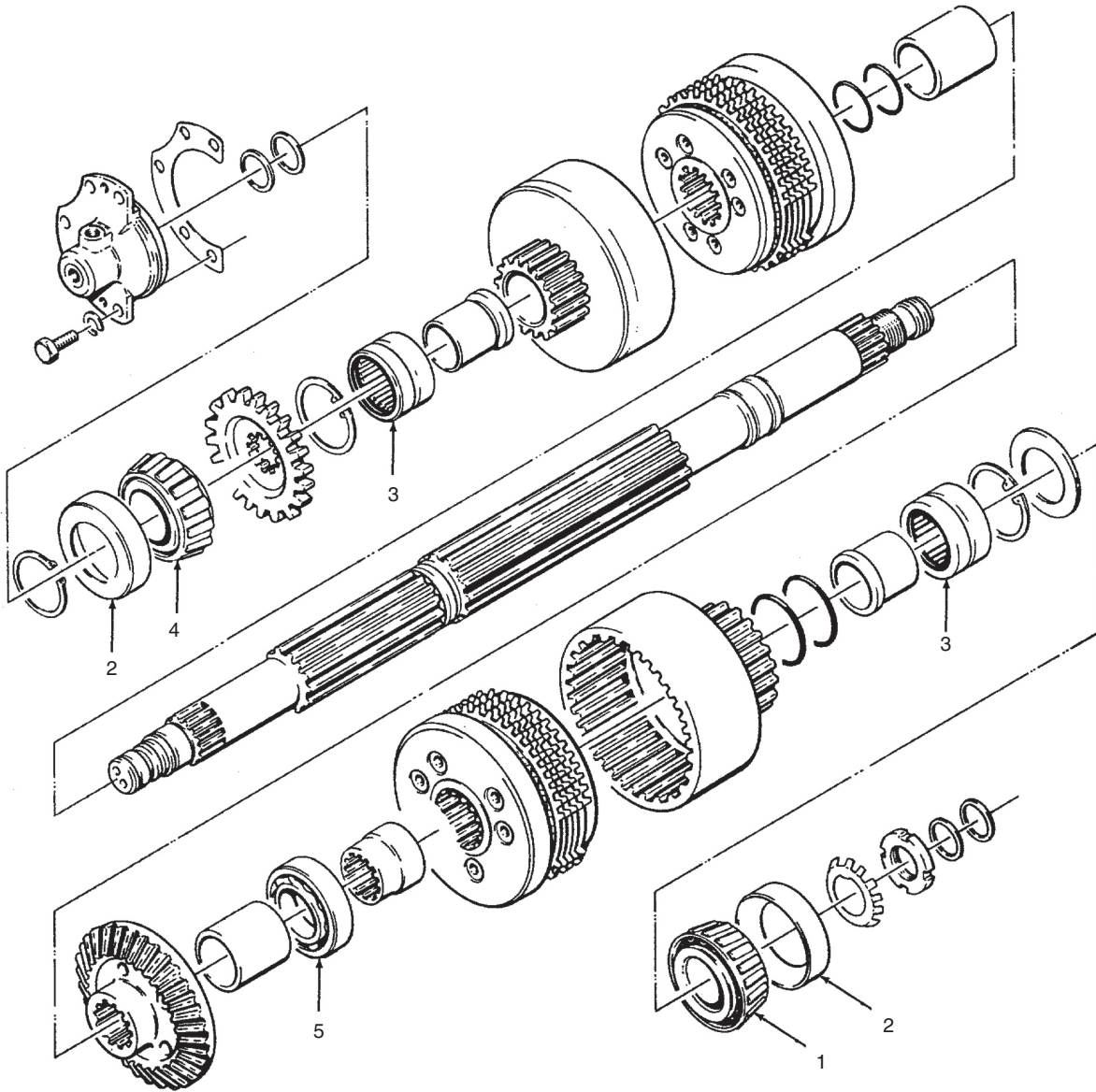


Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230405W	Cone, Bearing	1	4	225262W	Cone, Bearing	1
2	230351W	Cup, Bearing	2	5	44316W	Bearing - Ball	1
3	230407W	Bearing	2				

Clutch Shaft Bearing Kit: 2311162

For Winches with Power Controls and Electronic Controls
 Gear Ratios #1 thru #6
 First Used on S/N AW8L-3495



Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

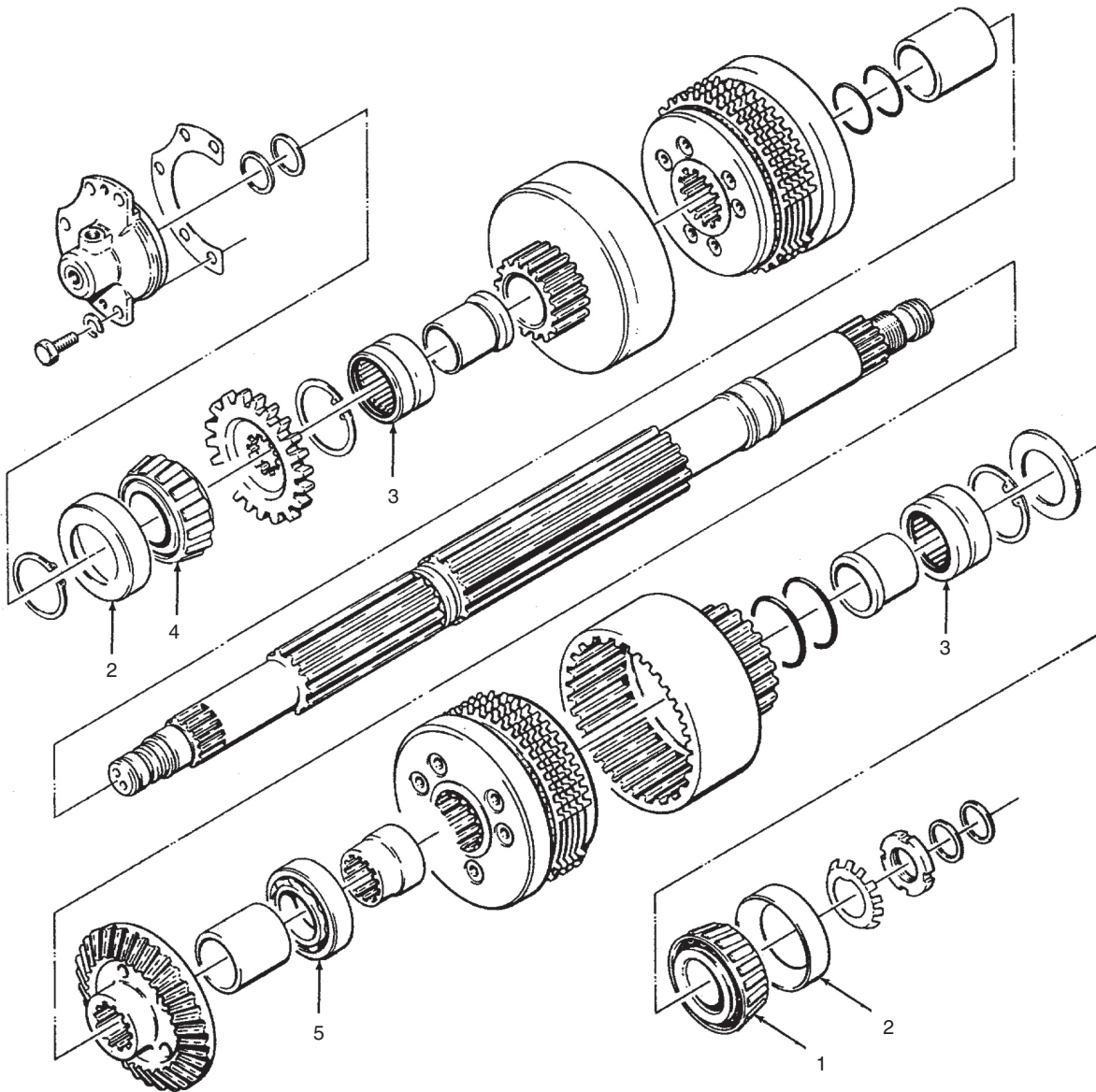
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230405W	Cone, Bearing	1	4	225262W	Cone, Bearing	1
2	230351W	Cup, Bearing	2	5	41216W	Bearing, Ball	1
3	230407W	Bearing	2				

Clutch Shaft Bearing Kit: 2311161

For Winches with Power Controls and Electronic Controls

Gear Ratios #7

Last Used on S/N AW8L-3469



Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

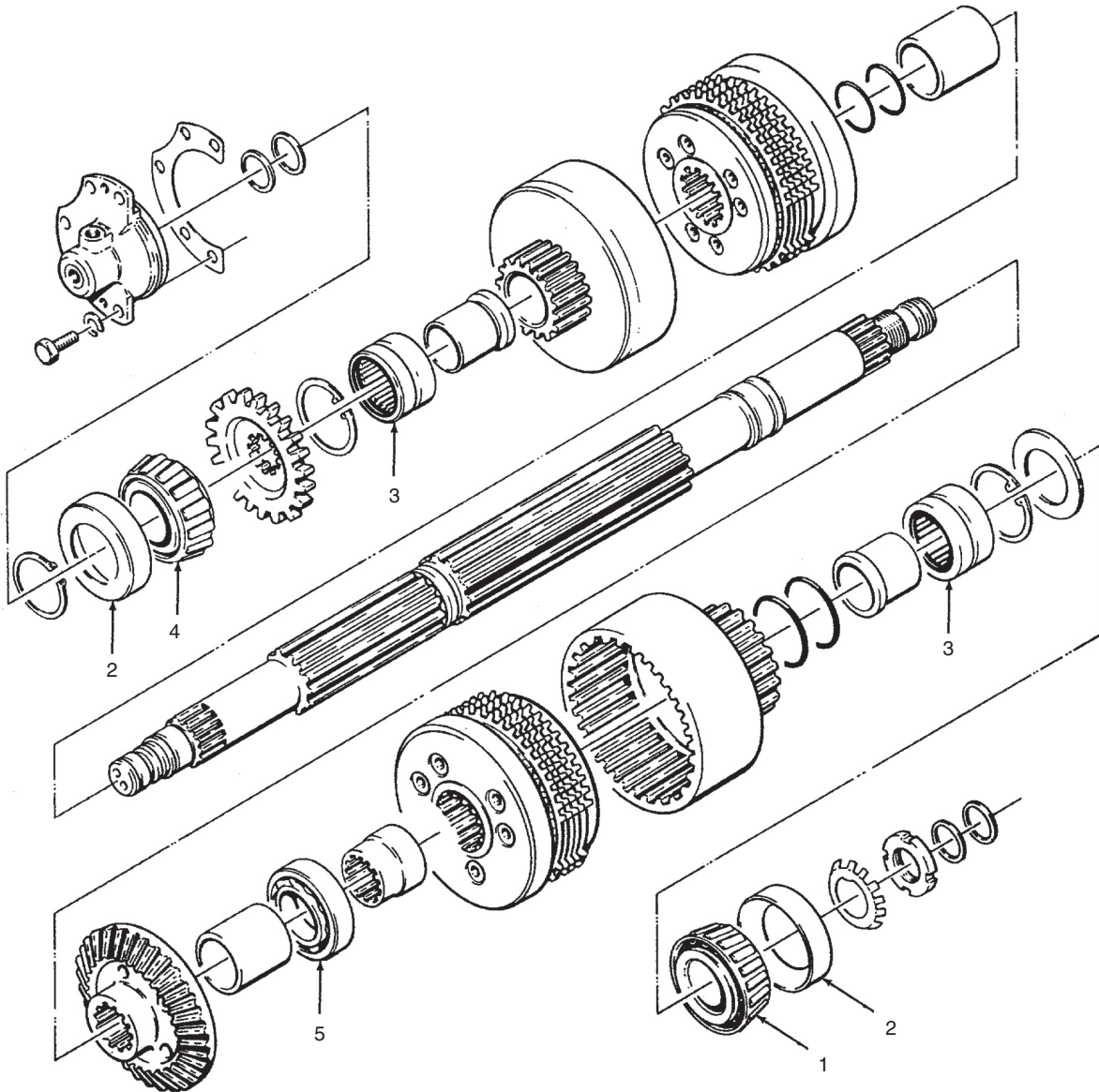
Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230405W	Cone, Bearing	1	4	225262W	Cone, Bearing	1
2	230351W	Cup, Bearing	2	5	2310924	Bearing, Ball	1
3	230407W	Bearing	2				

Clutch Shaft Bearing Kit: 2311162

For Winches with Power Controls and Electronic Controls

Gear Ratios #7

First Used on S/N AW8L-3470

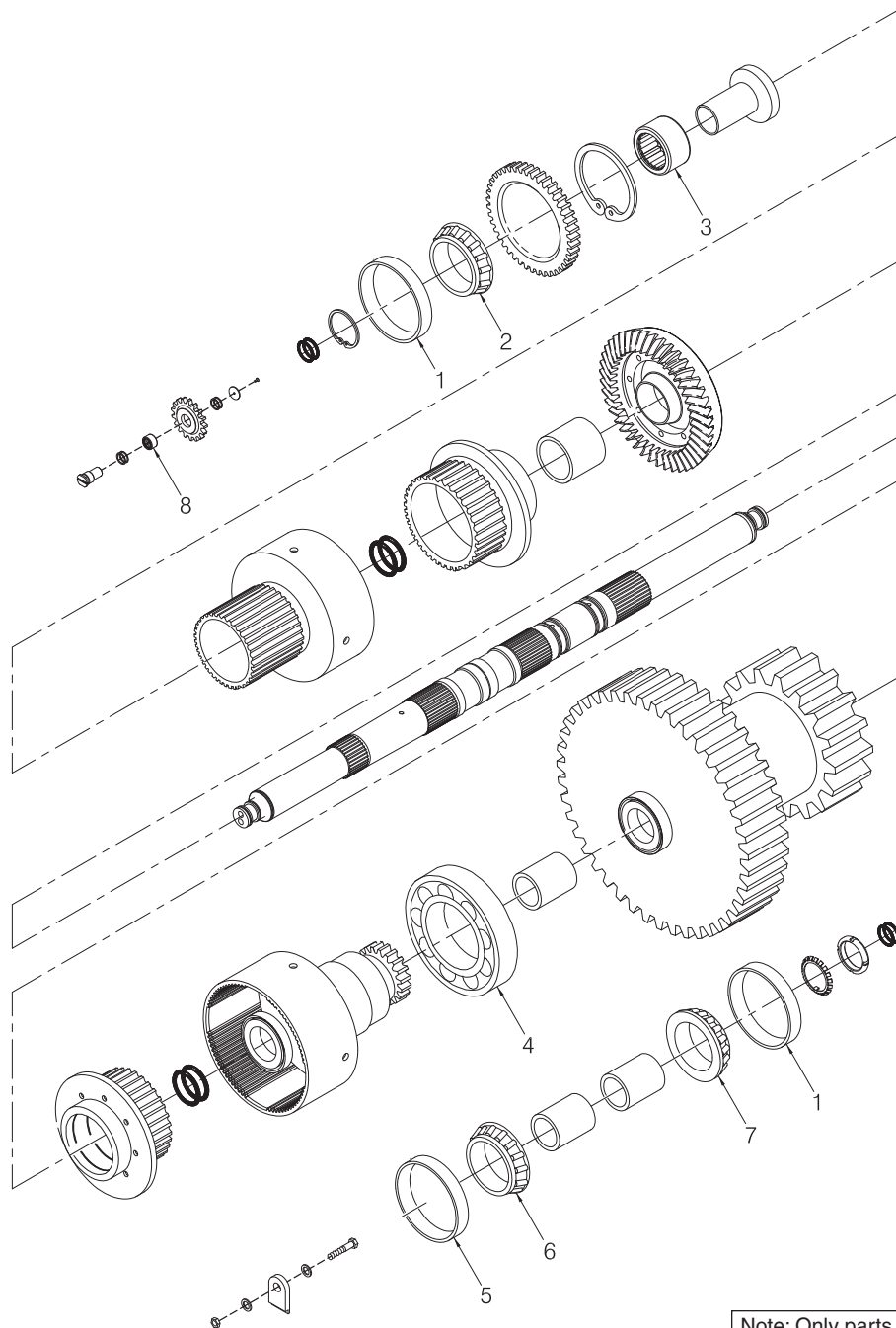


Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230405W	Cone, Bearing	1	4	225262W	Cone, Bearing	1
2	230351W	Cup, Bearing	2	5	41216W	Bearing, Ball	1
3	230407W	Bearing	2				

Clutch Shaft Bearing Kit: 2311163

For Winches with Power Controls and Electronic Controls
Gear Ratios #8, #9, & #10

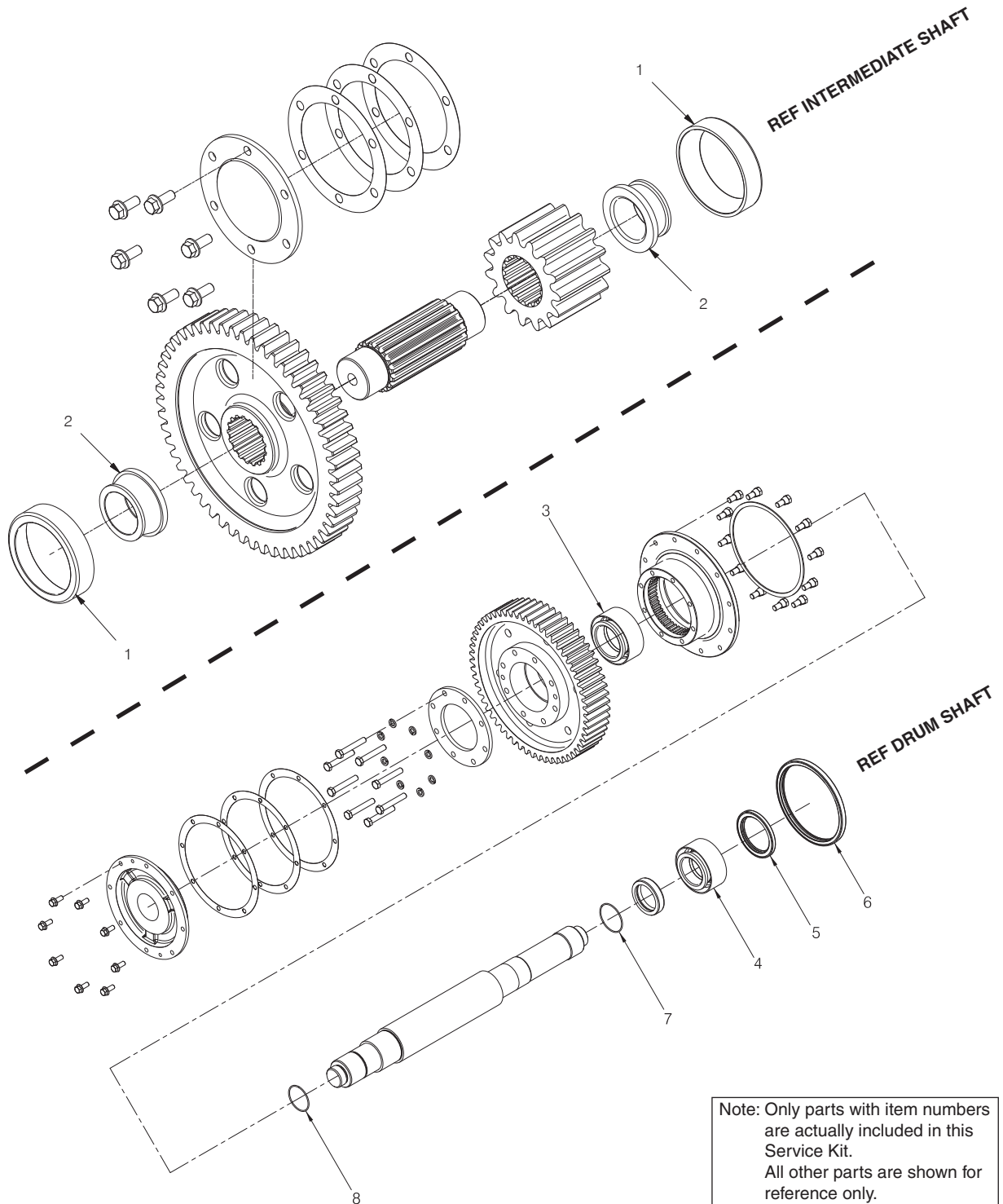


Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	230351W	Cup, Bearing	2	5	2303554W	Cup, Bearing	4
2	225262W	Cone, Bearing	1	6	2303555W	Cone, Bearing	4
3	230407W	Bearing	1	7	2303556W	Cone, Bearing	1
4	44326W	Bearing, Ball	1	8	2303650W	Bearing, Needle	1

Drum & Intermediate Shaft Bearing and Seal Kit: 2311164

For Winches with Power Controls and Electronic Controls



Note: Only parts with item numbers are actually included in this Service Kit. All other parts are shown for reference only.

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	30091W	Cup, Bearing	2	5	44484W	Seal, Oil	1
2	230309W	Cone, Bearing	2	6	141149W	Seal, Oil	1
3	96437W	Bearing, Roller	1	7	46629W	O-Ring	1
4	78022W	Bearing, Roller	1	8	15881W	O-Ring	1

Suggested Spares Guide

Recommended Service Kits	6-2
• Filter Kit, P/N 2311165.....	6-2
• Filter Kit, P/N 2311166.....	6-2
• Filter Kit, P/N 2311167.....	6-3
• Filter Kit, P/N 2311168.....	6-3
• Gasket Kit, P/N 277341W.....	6-3
• Brake Assembly Kit, P/N 2311155.....	6-4
• Clutch Shaft Kit, P/N 2311156	6-4
• Clutch Shaft Kit, P/N 2311157	6-5
• Brake Shaft Bearing Kit, P/N 2311158.....	6-5
• Brake Shaft Bearing Kit, P/N 2311159.....	6-6
• Clutch Shaft Bearing Kit, P/N 2311160.....	6-6
• Clutch Shaft Bearing Kit, P/N 2311162.....	6-6
• Clutch Shaft Bearing Kit, P/N 2311161.....	6-7
• Clutch Shaft Bearing Kit, P/N 2311162.....	6-7
• Clutch Shaft Bearing Kit, P/N 2311163.....	6-7
• Drum & Intermediate Shaft Bearing and Seal Kit, 2311164	6-8
• Miscellaneous Parts.....	6-9
• Additional Tractor Type Specific Parts - For Winches Mounted on Caterpillar D7G Series II.....	6-9
• Additional Tractor Type Specific Parts - For Winches Mounted on Komatsu D85ESS-2.....	6-10
• Tool Kits	6-10
• Specialized Tools	6-10
• Diagnostic Tools	6-10



Suggested Spares Guide

W8L Towing Winch

Mounted on Caterpillar D7G Series II, and Komatsu D85ESS-2

Recommended Service Kits

The following pages list the service kits that are available for your Allied W8L Winch. Each kit includes all parts listed in the table.

Pages 6-2 and 6-3 include Filter Kits. These kits contain all parts necessary to replace the filter element. Select the kit number relevant for your winch, and order a quantity of kits necessary. The filter element should be changed after the first 250 hours, then every 500 hours thereafter. Keep these kits in stock at all times for regular maintenance.

Pages 6-3, 6-4 and 6-5 contain a Gasket Kit, a Brake Assembly Kit, and two Clutch Shaft Kits. Order these kits in preparation for the 5,000 hour scheduled maintenance.

Pages 6-5, 6-6, 6-7 and 6-8 contain the Brake Shaft and Clutch Shaft Bearing Kits, and a Drum & Intermediate Shaft Bearing and Seal Kit. Order the kits relevant for your winch in preparation for the 10,000 hour scheduled maintenance.

Pages 6-9 and 6-10 contain a list of Miscellaneous Parts, two lists of Additional Tractor Type Specific Parts. These parts will vary from installation to installation, but we recommend keeping these parts on hand. Refer to your parts manual for specific part numbers. Page 6-10 also contains a list of tool kits and a list of specialized tools, which will help you install and maintain your winch(es).

Page 6-11 contains a list of diagnostic tools, which will also help you install and maintain your winch(es).

Note: Allied winch parts manuals are available for no charge download at <http://www.alliedsystems.com/pubs/pubs.htm#>.

Filter Kit, P/N: 2311165

Applies to: Winches with Power Controls, Last Used on S/N AW8L-1599

Service Interval: First 250, then every 500 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311165	Filter Kit		
227490W	. Element, Filter	1	
186460W	. Gasket	1	
265332W	. Gasket	1	

Filter Kit, P/N: 2311166

Applies to: Winches with Power Controls, Used on S/N AW8L-1001 through AW8L-2421

Service Interval: First 250, then every 500 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311166	Filter Kit		
3001363W	. Element, Filter	1	
186460W	. Gasket	1	
265332W	. Gasket	1	
2300935W	. Gasket	1	



Suggested Spares Guide

Filter Kit, P/N: 2311167

Applies to: Winches with Power Controls, First Used on S/N AW8L-2422

Service Interval: First 250, then every 500 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311167	Filter Kit		
3001363W	. Element, Filter	1	
2304709W	. Gasket	1	
2300935W	. Gasket	1	

Filter Kit, P/N: 2311168

Applies to: Winches with Electronic Controls

Service Interval: First 250, then every 500 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311168	Filter Kit		
2304112W	. Element, Filter	1	
2300935W	. Gasket	1	
2304709W	. Gasket	1	

Gasket Kit, P/N: 277341W

Applies to: All

Service Interval: Every 5,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
277341W	Gasket Kit		
60988W	. O-Ring	1	
55289W	. O-Ring	1	
151646W	. Gasket	2	
142716W	. Gasket	1	
253812W	. Gasket	1	
286044W	. Gasket	1	
257779W	. Gasket	1	
2305271W	. Gasket	1	
186460W	. Gasket	1	
2304709W	. Gasket	1	
196022W	. Gasket	1	
226359W	. Gasket	1	
265332W	. Gasket	2	
2300935W	. Gasket	1	



Suggested Spares Guide

Brake Assembly Kit, P/N: 2311155

Applies to: All

Service Interval: Every 5,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311155	Brake Assembly Kit		
328715W	. Disc, Friction	10	
261542W	. Plate, Separator	9	
79979W	. O-Ring	1	
133927W	. Ring, Piston Seal	1	
12940W	. Ring, Snap	2	
12915W	. Ring, Snap	2	

Clutch Shaft Kit, P/N: 2311156

Applies to: All, Gear Ratios 1-7

Service Interval: Every 5,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311156	Clutch Shaft Kit		
2310570	. Service Kit, W8L Clutch	2	
328715W	.. Disc, Friction	8	
261542W	.. Plate, Separator	8	
267499W	.. Spring	8	
224793W	.. Shim .031	4	
89777W	.. O-Ring	1	
79972W	.. O-Ring	1	
39370W	.. O-Ring	1	
95581W	. Ring, Seal	4	
21014W	. Nut, Lock	1	
174561W	. Lockwasher	1	
58938W	. Ring, Snap	2	
39674W	. O-Ring	2	
35575W	. Ring, Snap	1	
108877W	. O-Ring	2	
15885W	. O-Ring	1	



Suggested Spares Guide

Clutch Shaft Kit, P/N: 2311157			
Applies to: All, Gear Ratios 8-10			
Service Interval: Every 5,000 hours		See Section 5 in Parts Manual	
Allied P/N	Description	Quantity in Kit	Order Quantity
2311157	Clutch Shaft Kit		
2310570	. Service Kit, W8L Clutch	1	
328715W	.. Disc, Friction	8	
261542W	.. Plate, Separator	8	
267499W	.. Spring	8	
224793W	.. Shim .031	4	
89777W	.. O-Ring	1	
79972W	.. O-Ring	1	
39370W	.. O-Ring	1	
95581W	. Ring, Seal	4	
21014W	. Nut, Lock	1	
174561W	. Lockwasher	1	
58938W	. Ring, Snap	2	
39674W	. O-Ring	2	
35575W	. Ring, Snap	1	
108877W	. O-Ring	2	
2300544W	. Service Kit, Clutch	1	
328715W	.. Disc, Friction	6	
261542W	.. Plate, Separator	6	
265407W	.. Spring	8	
224793W	.. Shim .031	4	
89777W	.. O-Ring	1	
79972W	.. O-Ring	1	
39370W	.. O-Ring	1	

Note: Inspect all hydraulic hoses during the 5,000 hour overhaul. Replace hoses as required.

Download Allied winch parts manuals at <http://www.alliedsystems.com/pubs/pubs.htm>.

Brake Shaft Bearing Kit, P/N: 2311158			
Applies to: All, Gear Ratios: 1, 3, 5, 6 and 7			
Service Interval: Every 10,000 hours		See Section 5 in Parts Manual	
Allied P/N	Description	Quantity in Kit	Order Quantity
2311168	Brake Shaft Bearing Kit		
230311W	. Cup, Bearing	1	
230310W	. Cone, Bearing	1	
30080W	. Cone, Bearing	1	
30059W	. Cup, Bearing	1	



Suggested Spares Guide

Brake Shaft Bearing Kit, P/N: 2311159

Applies to: All, Gear Ratios: 8, 9 and 10

Service Interval: Every 10,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311159	Brake Shaft Bearing Kit		
12940W	. Ring, Snap	1	
230310W	. Cone, Bearing	1	
230311W	. Cup, Bearing	1	
2303572W	. Cone, Bearing	1	
2303571W	. Cup, Bearing	1	
2303557W	. Cup, Bearing	1	
2303558W	. Cone, Bearing	1	
30080W	. Cone, Bearing	1	
30059W	. Cup, Bearing	1	
2303570W	. Washer	1	

Clutch Shaft Bearing Kit, P/N: 2311160

Applies to: All, Gear Ratios: 1-6,
Last Used on S/N AW8L-3494

Service Interval: Every 10,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311160	Clutch Shaft Bearing Kit		
230405W	. Cone, Bearing	1	
230351W	. Cup, Bearing	2	
230407W	. Bearing	2	
225262W	. Cone, Bearing	1	
44316W	. Bearing	1	

Clutch Shaft Bearing Kit, P/N: 2311162

Applies to: All Gear Ratios: 1-6,
First Used on S/N AW8L-3495

Service Interval: Every 10,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311162	Clutch Shaft Bearing Kit		
230405W	. Cone, Bearing	1	
230351W	. Cup, Bearing	2	
230407W	. Bearing	2	
225262W	. Cone, Bearing	1	
41216W	. Bearing	1	



Suggested Spares Guide

Clutch Shaft Bearing Kit, P/N: 2311161

Applies to: All, Gear Ratio: 7,
Last Used on S/N AW8L-3469

Service Interval: Every 10,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311161	Clutch Shaft Bearing Kit		
230405W	. Cone, Bearing	1	
230351W	. Cup, Bearing	2	
230407W	. Bearing	2	
225262W	. Cone, Bearing	1	
2310924	. Bearing	1	

Clutch Shaft Bearing Kit, P/N: 2311162

Applies to: All, Gear Ratio: 7,
First Used on S/N AW8L-3470

Service Interval: Every 10,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311162	Clutch Shaft Bearing Kit		
230405W	. Cone, Bearing	1	
230351W	. Cup, Bearing	2	
230407W	. Bearing	2	
225262W	. Cone, Bearing	1	
41216W	. Bearing	1	

Clutch Shaft Bearing Kit, P/N: 2311163

Applies to: All, Gear Ratios: 8, 9 and 10.

Service Interval: Every 10,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311163	Clutch Shaft Bearing Kit		
230351W	. Cup, Bearing	2	
225262W	. Cone, Bearing	1	
230407W	. Bearing	1	
44326W	. Bearing	1	
2303554W	. Cup, Bearing	4	
2303555W	. Cone, Bearing	4	
2303556W	. Cone, Bearing	1	
2303650W	. Bearing	1	



Suggested Spares Guide

Drum & Intermediate Shaft Bearing and Seal Kit, P/N: 2311164

Applies to: All

Service Interval: Every 10,000 hours

See Section 5 in
Parts Manual

Allied P/N	Description	Quantity in Kit	Order Quantity
2311164	Drum & Intermediate Shaft Bearing and Seal Kit		
30091W	. Cup, Bearing	2	
230309W	. Cone, Bearing	2	
96437W	. Bearing	1	
78022W	. Bearing	1	
44484W	. Seal, Oil	1	
141149W	. Seal, Oil	1	
46629W	. O-Ring	1	
15881W	. O-Ring	1	



Suggested Spares Guide

Miscellaneous Parts

In addition to the kits listed on the previous pages, Allied Systems Company recommends that you stock the following items.

Allied P/N	Description	Quantity	Order Quantity
2302963W	Assembly, Gear Pump - Ratios 1-7 (Overwind) / Ratios 8-10 (Underwind)	1	
2302989W	Assembly, Gear Pump - Ratios 8-10 (Overwind) / Rotios 1-7 (Underwind)	1	
2310255	Valve, Relief	1	
2310260	. Kit, Seal	1	
2310252	Valve, Cartridge	2	
2310258	. Kit, Seal	1	
2310253	Valve, Cartridge	1	
2310259	. Kit, Seal	1	
2310254	Valve, Proportional	3	
2310261	. Kit, Seal	1	
2307769W	Valve, Cartridge (When Freespool Cartridge Valve is Used)	1	
2310261	. Kit, Seal	1	
2307770W	Coil, Valve - 24VDC (Used on S/N AW8L-3130 thru -3778)	3	
2310259	. Kit, Seal	1	
2310256	Coil, Proportional Valve - 24VDC (Used on S/N AW8L-3130 thru -3778)	3	
2311558	Coil, Valve - 24VDC (First Used on S/N AW8L-3779)	3	
2310259	. Kit, Seal	1	
2311559	Coil, Proportional - 24VDC, (First Used on S/N AW8L-3779)	3	
WR7-234J	Assembly, Wire Rope - 7/8" Diameter	Length: 234 Ft (71 M)	
WR7-354J	Assembly, Wire Rope - 7/8" Diameter	Length: 354 Ft (108 M)	
WR8-182J	Assembly, Wire Rope - 1" Diameter	Length: 182 Ft (55 M)	
WR8-275J	Assembly, Wire Rope - 1" Diameter	Length: 275 Ft (84 M)	
WR9-145J	Assembly, Wire Rope - 1 1/8" Diameter	Length: 145 Ft (44 M)	
WR9-220J	Assembly, Wire Rope - 1 1/8" Diameter	Length: 220 Ft (67 M)	
95959W	Pin, Drawbar	1	
2303221W	Pin, Retaining	1	

Additional Tractor Type Specific Parts - For Winches Mounted on Caterpillar D7G Series II

In addition to the kits listed on the previous pages, Allied Systems Company recommends that you stock the following items as applicable to your winch.

Allied P/N	Description	Quantity	Order Quantity
303943W	Cable, Push/Pull Control	1	
2305979W	Handlever, Push/Pull Control	1	
79389W	Seal, Oil	1	
45310W	Bearing, Ball	1	



Suggested Spares Guide

Additional Tractor Type Specific Parts - For Winches Mounted on Komatsu D85ESS-2

In addition to the kits listed on the previous pages, Allied Systems Company recommends that you stock the following items as applicable to your winch.

Allied P/N	Description	Quantity	Order Quantity
303944W	Cable, Push/Pull Control	1	
2303984W	Handlever, Push/Pull Control	1	
2302056W	Assembly, Driveshaft	1	
2302627W	. Driveshaft	1	
2302628W	. Assembly, Slip Yoke	1	
2301006W	. Assembly, Spider & Bearing	2	
90937W	O-Ring	1	
30145W	Cone, Roller Bearing	2	
30068W	Cup, Roller Bearing	2	
2300423W	Yoke, PTO	1	

Tool Kits

Order these Tool Kits as required for installation, maintenance and service of your winch(es).

Allied P/N	Description	Order Quantity
588466	Socket Set, 3/8DR 3/8" to 7/8" STD/Deep, 22 PC	
588467	Socket Set, 1/2DR 3/8" to 1-1/4" STD/Deep, 30 PC	
588468	Socket Set, 3/4DR 7/8" to 2-3/8" STD, 29 PC	
588469	Wrench Set, 5/16" to 2-1/2", 31 PC	
588527	Hex Key Sets, .025" to 5/8", 18 PC	
588530	Socket Sets, 3/8DR 6mm-19mm 12 Point	
588529	Socket Sets, 1/2DR 10mm-26mm 12 Point	
588528	Wrench Sets, 7mm-24mm, 18 PC	
588526	Hex Key Sets, .07mm-17mm, 15 PC	

Specialized Tools

Order these specialized tools for installation, maintenance and service of your winch(es).

Allied P/N	Description	Order Quantity
X-201962	Lifting Device	
X-203345	Clutch Shaft Locknut Socket	
X-203346	Clutch Shaft Driver	
X-203348	Lifting Eye	



Suggested Spares Guide

Diagnostic Tools

Order these Tools as required for maintenance and service of your winch(es).

Allied P/N	Description	Order Quantity
906601	0 to 8700 PSI Digital Pressure Gauge W/Female QD Connector	
69782	72" Hose Assembly W/QD Connectors Both Ends	
70381	144" Hose Assembly W/QD Connectors Both Ends	
69778	Multi-Meter, 12 Function	

69778
Multi-Meter, 12 Function

AC/DC Voltage & Current,
Resistance, Capacitance,
Frequency, Type K & IR
Temperature, Diode/Continuity,
Duty Cycle Non-Contact
InfraRed Thermometer
CAT III Test Leads
Type K Bead Wire Temp Probe

QD Male

144"

QD Female

70381
Kit, Hose Assembly, W/QD Both Ends

QD Male

72"

QD Female

69782
Kit, Hose Assembly, W/QD Both Ends

QD Female

906601
Kit, Digital Pressure Gauge
W/ Female QD Connector
0 to 8700 PSI

Intentionally Blank

Numerical Index

12839 - 110174W	7-2
110174W - 134081W	7-3
134082W - 15106W	7-4
15106W - 15212W	7-5
15212W - 16559W	7-6
16559W - 18004W	7-7
18127W - 196114W	7-8
196114W - 221717W	7-9
221717W - 2300936W	7-10
2300936W - 2303180W	7-11
2303180W - 2304557W	7-12
2304557W - 2307643W	7-13
2307643W - 262088W	7-14
264159W - 277276W	7-15
277276W - 303944W	7-16
303944W - 388640W	7-17
388640W - 89669W	7-18
89777W - Y35E-#10	7-19

7-2

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
12839	1-47	2	2310135	3-113	14	2311151	1-11	40	2313772	1-44	3.1
14066	3-101	45	2310135	3-123	32	2311151	1-13	40	2313773	1-43	31
14066	3-103	238	2310135	3-125	32	2311151	1-3	40	2313773	1-44	3.2
69778	6-11		2310214	3-129		2311151	1-5	40	2313946	2-25	30
69782	6-11		2310252	3-109	3	2311151	1-7	40	2313946	2-33	30
70381	6-11		2310252	3-110	3	2311151	1-9	40	2313946	2-35	30
134076	2-56	8	2310252	3-111	3	2311151	2-53	22	2314056	2-39	30
203533	2-25	15	2310252	6-9		2311155	5-12		2314134	3-123	39
203533	2-33	15	2310253	3-109	5	2311155	6-4		2314134	3-125	39
203533	2-35	15	2310253	3-110	5	2311156	5-10		2314154	3-73	70
203550	1-53	7	2310253	3-111	5	2311156	6-4		2314668	3-125	13
203550	2-55	25	2310253	6-9		2311157	5-11		2314854	3-133	1
207563	2-55	30	2310254	3-109	6	2311157	6-5		2314863	3-133	3
209412	3-107	24	2310254	3-110	6	2311158	5-13		2314864	3-133	2
209486	2-37	2	2310254	6-9		2311159	5-14		2314908	3-110	7
209486	2-39	35	2310255	3-109	2	2311159	6-6		2314999	3-114	103
209744	3-14	40	2310255	3-110	2	2311160	5-15		2314999	3-121	103
211560	3-107	34	2310255	6-9		2311160	6-6		2314999	3-125	18
214219	3-107	25	2310256	3-109	7	2311161	5-17		2314999	3-133	
220153	3-101	8	2310256	6-9		2311161	6-7		2315013	2-14	1.4
220153	3-103	407	2310257	3-129	4	2311162	5-16		2315015	2-35	28
220153	3-107	405	2310258	3-109	3	2311162	5-18		2315017	2-35	31
220153	3-11	153	2310258	3-110	3	2311162	6-6		2315019	2-35	21
224191	3-127	10	2310258	3-111	3	2311162	6-7		2315020	2-35	
224191	3-133	6	2310258	6-9		2311163	5-19		2315067	2-55	32
225841	1-47	7	2310259	3-109	4	2311163	6-7		2315078	3-121	104
225851	1-23	2	2310259	3-109	5	2311164	5-20		2315080	2-55	33
225851	1-53	15	2310259	6-9		2311164	6-8		2315081	2-55	28
228773	2-37	3	2310259	6-9		2311165	5-4		2315082	2-55	34
230067	1-14	10A	2310259	6-9		2311165	6-2		2315083	2-55	4
230067	1-20	10A	2310260	3-109	2	2311166	5-5		2315084	2-55	5
232619	3-129	5	2310260	3-110	2	2311166	6-2		2315535	1-53	17
235387	2-39	27	2310260	3-111	2	2311167	5-6		2315535	3-92	17
236308	1-47	17	2310260	6-9		2311167	6-3		2315706	2-39	33
236308	3-11	102	2310261	3-109	6	2311168	6-3		2315710	2-39	12
236713	3-112	3	2310261	6-9		2311168	6-5		2315711	2-39	10
242601	3-112	2	2310261	6-9		2311330	1-55	4	2315717	3-107	7
246806	3-125	41	2310475	2-49	4	2311443	3-103	233	2315717	3-111	
249955	3-123	14	2310544	2-45	26	2311443	3-107	31	2315760	3-107	15
249955	3-125	14	2310545	2-45	27	2311444	3-123	21	2315762	3-107	11
249956	3-123	15	2310546	2-51	14	2311444	3-127	1	2315807	3-111	2
249956	3-125	15	2310547	2-51	15	2311481	1-55	3	2315808	3-111	4
254396	3-111	4	2310552	3-113	4	2311558	3-110	4	2315811	3-111	7
254400	3-110	5	2310552	3-116	9	2311558	3-111	6	2315822	3-107	21
254400	3-111	5	2310552	3-117	9	2311558	6-9		2315875	1-23	1
260618	3-45	2	2310552	3-119	9	2311559	6-9		2316089	2-55	
260618	3-49	2	2310552	3-120	9	2311807	3-103	228	2316090	2-55	6
588466	6-10		2310552	3-123	18	2311807	3-107	51	2316093	2-55	35
588467	6-10		2310552	3-131		2311887	3-103	243	2316095	2-55	26
588468	6-10		2310570	5-10	1	2311887	3-110		2316096	2-55	27
588469	6-10		2310570	5-11	1	2312121	3-113	1	2316099	2-55	17
588526	6-10		2310570	6-4		2312121	3-114	20	2316175	3-107	6
588527	6-10		2310570	6-5		2312150	3-127	1	2316304	2-39	1
588528	6-10		2310585	3-131	1	2312259	3-103	234	2316436	3-107	12
588529	6-10		2310605	2-51	16	2312259	3-107	32	2504253	3-110	6
588530	6-10		2310606	2-51	17	2312261	3-114	116	10389W	2-39	28
906122	3-125	40	2310633	3-101	29	2312261	3-121	116	108877W	2-41	23
906601	6-11		2310633	3-103	217	2312313	3-127	1	108877W	2-43	23
2310015	3-101	3	2310715	2-41	12	2312588	3-66	1	108877W	2-45	15
2310015	3-103	302	2310715	2-43	12	2312589	3-66		108877W	5-10	15
2310015	3-107	302	2310787	1-37	41	2312691	1-30	1	108877W	5-11	15
2310015	3-11	28	2310788	1-37	40	2312809	3-107	17	108877W	6-4	
2310076	3-116	13	2310795	1-37	55	2313206	3-58	1	108877W	6-5	
2310076	3-119	13	2310808	1-37	50	2313208	3-58		109453W	2-11	10
2310076	3-133	7	2310885	3-65	1	2313404	3-103	252	109453W	2-17	10
2310079	3-113	7	2310887	3-65		2313501	1-49	1.1	109453W	2-5	10
2310079	3-117	13	2310891	2-53	13	2313543	1-49	1.6	109453W	2-7	10
2310079	3-120	13	2310891	2-55	19	2313550	1-49	1.9	109453W	2-9	10
2310079	3-127	1	2310924	2-43	15	2313699	3-112	4	110174W	3-101	56
2310120	3-101	54	2310924	5-17	5	2313717	3-112		110174W	3-103	308
2310120	3-103	247	2310924	6-7		2313772	1-43	30	110174W	3-107	308

7-3

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
110174W	3-99	49	12944W	2-17	14	1305075W	1-38	2	133921W	1-32	9
110322W	3-42	11	12944W	2-18	10	1305075W	1-40	2	133926W	2-49	17
110322W	3-43	11	12944W	2-3	8	1305091W	2-27	1	133927W	2-49	18
110322W	3-80	9	12944W	2-37	13	1305092W	2-27		133927W	5-12	4
110931W	2-21	22	12944W	2-4	8	1305093W	2-27	4	133927W	6-4	
110931W	2-23	22	12944W	2-5	14	1306001W	3-93	14	134070W	2-53	3
110932W	2-21	23	12944W	2-6	10	1306001W	3-94	14	134070W	2-55	13
110932W	2-23	23	12944W	2-8	10	1306002W	3-93	12	134071W	2-53	4
110933W	2-21	24	12944W	2-9	14	1306002W	3-94	12	134071W	2-55	14
110933W	2-23	24	129563W	1-15	6	1306003W	3-93	11	134072W	2-53	5
111331W	3-101	24	129563W	1-21	6	1306003W	3-94	11	134072W	2-55	15
111331W	3-103	212	129563W	1-22	6	1308400W	1-38	6	134074W	1-11	7
111331W	3-99	12	129563W	1-23	6	1308400W	1-40	6	134074W	1-13	7
114312W	1-39	25	129563W	1-24	6	1308401W	1-38	7	134074W	1-3	7
114312W	3-81	21	129563W	1-25	6	1308401W	1-40	7	134074W	1-5	7
114312W	3-91	21	129563W	1-30	7	1308402W	1-38	13	134074W	1-7	7
118361W	3-12	13	129563W	3-107	35	1308402W	1-40	13	134074W	1-9	7
118361W	3-13	13	129563W	3-27	13	1308403W	1-38	9	134074W	2-56	6
118361W	3-14	16	129563W	3-28	1	1308403W	1-40	9	134075W	1-11	7
118365W	3-12	22	129563W	3-34	13	1308406W	2-21		134075W	1-13	7
118365W	3-13	20	129563W	3-35	1	1308436W	3-42	4	134075W	1-3	7
118365W	3-14	26	129563W	3-67	12	1308436W	3-80	3	134075W	1-5	7
119491W	2-29	17	129563W	3-72	12	1308437W	3-42	3	134075W	1-7	7
123270W	2-21	21	12963W	2-21	16	1308437W	3-80	2	134075W	1-9	7
123270W	2-23	21	12963W	2-23	16	130845W	1-17	16	134075W	2-56	7
12447W	2-57	3	1300780W	3-103	10	130845W	3-107	47	134076W	1-11	7
12447W	2-55	3	1300780W	3-103	301	130845W	3-11	26	134076W	1-13	7
124538W	3-9	125	1300780W	3-107	10	130845W	3-3	80	134076W	1-3	7
124588W	3-99	56	1300780W	3-107	301	130845W	3-5	78	134076W	1-5	7
125399W	2-11	9	1300780W	3-11	10	130845W	3-56	35	134076W	1-7	7
125399W	2-17	9	1300785W	3-19	1	130845W	3-57	35	134076W	1-9	7
125399W	2-5	9	1300785W	3-32	1	130845W	3-60	35	134078W	1-37	14
125399W	2-7	9	1300785W	3-39	1	130845W	3-61	35	134078W	1-43	61
125399W	2-9	9	1300785W	3-42	1	130845W	3-9	93	134078W	2-10	5
127045W	3-101	49	1300785W	3-48	1	1310764W	3-84		134078W	2-11	1
127045W	3-103	242	1300785W	3-50	1	1310764W	3-89		134078W	2-12	5
127045W	3-11	50	1300785W	3-54	1	1310819W	1-29	8	134078W	2-14	1.13
127045W	3-3	8	1300785W	3-62	1	1310819W	1-47	5	134078W	2-15	7
127045W	3-5	14	1300785W	3-70	1	1314435W	2-45	46	134078W	2-16	7
127045W	3-9	8	1300785W	3-76	1	131982W	2-53	14	134078W	2-17	1
127045W	3-99	42	1300785W	3-80	1	131982W	2-55	20	134078W	2-18	5
12825W	3-9	124	1300785W	3-84	1	1321651W	3-42		134078W	2-3	9
12825W	3-99	55	1300785W	3-85	1	1321665W	1-55	2	134078W	2-4	9
12915W	2-50	4	1300785W	3-89	1	1321673W	2-10	11	134078W	2-5	1
12915W	5-12	6	1300785W	3-94		1321673W	2-12	11	134078W	2-6	5
12915W	6-4		1302039W	3-93	20	1321673W	2-15	5	134078W	2-7	1
12916W	2-10	8	1302039W	3-94	20	1321673W	2-16	5	134078W	2-8	5
12916W	2-11	16	1302040W	3-93	10	1321673W	2-18	11	134078W	2-9	1
12916W	2-12	8	1302040W	3-94	10	1321673W	2-6	11	134079W	1-37	15
12916W	2-17	16	1302041W	3-93	9	1321673W	2-8	11	134079W	1-43	62
12916W	2-18	8	1302041W	3-94	9	1324875W	1-11	29	134079W	2-10	5
12916W	2-2	6	1302042W	3-93	8	1324875W	1-5	29A	134079W	2-11	1
12916W	2-37	10	1302042W	3-94	8	1324878W	1-11	43	134079W	2-12	5
12916W	2-39	8	1302043W	3-93	7	1324878W	1-39	30	134079W	2-14	1.14
12916W	2-5	16	1302043W	3-94	7	1324878W	1-5	43	134079W	2-15	8
12916W	2-6	8	1302044W	3-93	6	1324880W	2-55		134079W	2-16	8
12916W	2-7	16	1302044W	3-94	6	132909W	2-10	9	134079W	2-17	1
12916W	2-8	8	1302045W	3-93	5	132909W	2-5	3	134079W	2-18	5
12916W	2-9	16	1302045W	3-94	5	132909W	2-9	3	134079W	2-3	10
12940W	2-13	3	1302046W	3-93	4	133469W	3-107	22	134079W	2-4	10
12940W	2-14	1.3	1302046W	3-94	4	133898W	2-10	12	134079W	2-5	1
12940W	2-49	13	1302047W	3-93	3	133898W	2-12	12	134079W	2-6	5
12940W	2-51	1	1302047W	3-94	3	133898W	2-17	13	134079W	2-7	1
12940W	5-12	5	1302048W	3-93	2	133898W	2-18	12	134079W	2-8	5
12940W	5-14	1	1302048W	3-94	2	133898W	2-3	6	134079W	2-9	1
12940W	6-4		1302049W	3-93	1	133898W	2-4	6	134081W	1-11	11
12940W	6-6		1302049W	3-94	1	133898W	2-5	13	134081W	1-13	11
12944W	2-10	10	1303518W	1-38	5	133898W	2-6	12	134081W	1-3	11
12944W	2-12	10	1303518W	1-40	5	133898W	2-8	12	134081W	1-5	11
12944W	2-15	6	1303524W	1-38	1	133898W	2-9	13	134081W	1-7	11
12944W	2-16	6	1303524W	1-40	1	133918W	2-50	5	134081W	1-9	11

7-4

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
134082W	1-11	11	140288W	3-11	110	14712W	3-38	6	15030W	3-44	2
134082W	1-13	11	140288W	3-3	30	14712W	3-40	6	15030W	3-45	5
134082W	1-3	11	140288W	3-5	37	14712W	3-41	6	15030W	3-46	3
134082W	1-5	11	140288W	3-5	89	14712W	3-44	24	15030W	3-47	3
134082W	1-7	11	140288W	3-9	30	14712W	3-46	6	15030W	3-49	5
134082W	1-9	11	14066W	3-99	38	14712W	3-47	6	15030W	3-55	5
134083W	1-11	11	141149W	2-53	21	14712W	3-56	6	15030W	3-56	3
134083W	1-13	11	141149W	5-20	6	14712W	3-57	6	15030W	3-57	3
134083W	1-3	11	141149W	6-8		14712W	3-60	6	15030W	3-60	3
134083W	1-5	11	141325W	2-53	11	14712W	3-61	6	15030W	3-61	3
134083W	1-7	11	141348W	2-46	12	14712W	3-74	6	15030W	3-63	9
134083W	1-9	11	141348W	2-47	12	14712W	3-75	6	15030W	3-68	14
134803W	3-123	10	141348W	2-48	12	14712W	3-77	6	15030W	3-69	14
134803W	3-125	10	141357W	1-11	40	14712W	3-78	6	15030W	3-74	3
134803W	3-20	20	141357W	1-13	40	14712W	3-79	21	15030W	3-75	3
134803W	3-63	13	141357W	1-3	40	14712W	3-82	6	15030W	3-77	3
134803W	3-64	20	141357W	1-5	40	14712W	3-83	6	15030W	3-78	3
134821W	1-14	8	141357W	1-7	40	14716W	3-107	39	15030W	3-79	2
134821W	1-17	9	141357W	1-9	40	14723W	3-107	41	15030W	3-81	5
134821W	1-19	20	141357W	2-53	22	14723W	3-11	18	15030W	3-82	3
134821W	1-20	8	141675W	2-53	13	14723W	3-3	55	15030W	3-83	3
134821W	1-31	5	142716W	6-3		14723W	3-5	82	15030W	3-91	5
134821W	1-33	10	142761W	1-11	23	14723W	3-9	55	15039W	3-123	25
134821W	1-34	10	142761W	1-13	23	14758W	3-3	38	15055W	3-42	8
134821W	1-35	1	142761W	1-3	23	14758W	3-5	34	15055W	3-44	9
134821W	1-53	11	142761W	1-5	23	14761W	3-11	16	15055W	3-63	10
137852W	3-107	23	142761W	1-7	23	14761W	3-3	53	15055W	3-79	9
137852W	3-113	8	142761W	1-9	23	14761W	3-5	73	15055W	3-80	6
137852W	3-115	14	142761W	5-8	4	14761W	3-9	53	15056W	3-15	26
137852W	3-116	14	142809W	4-2	18	15004W	3-93	16	15056W	3-16	26
137852W	3-117	14	142809W	4-3	13	15004W	3-94	16	15056W	3-17	26
137852W	3-118	14	142809W	4-4	13	15005W	3-93	18	15056W	3-18	26
137852W	3-119	14	14349W	3-11	72	15005W	3-94	18	15056W	3-19	11
137852W	3-120	14	14349W	3-3	56	15011W	3-20	11	15056W	3-37	26
137852W	3-123	22	14349W	3-5	43	15011W	3-22	11	15056W	3-38	26
137852W	3-127	2	14349W	3-9	56	15011W	3-24	11	15056W	3-40	26
138750W	3-103	402	14387W	2-25	19	15011W	3-26	11	15056W	3-41	26
138750W	3-107	402	14387W	2-31	28	15011W	3-33	11	15056W	3-46	26
138750W	3-134	19	14387W	2-33	19	15011W	3-64	11	15056W	3-47	26
138750W	3-135	20	14387W	2-35	19	15011W	3-71	11	15056W	3-56	20
138750W	3-136	18	14500W	3-11	63	15018W	1-17	12	15056W	3-57	20
138750W	3-137	18	14500W	3-5	41	15018W	1-32	2	15056W	3-59	24
138994W	2-10	14	14500W	3-9	40	15023W	1-38	17	15056W	3-60	20
138994W	2-7	7	14539W	3-3	26	15023W	1-40	17	15056W	3-61	20
138994W	2-9	7	14539W	3-5	88	15024W	3-20	15	15056W	3-62	7
13987W	1-11	42	14563W	3-101	47	15024W	3-22	15	15056W	3-74	20
13987W	1-13	42	14563W	3-103	240	15024W	3-24	15	15056W	3-75	20
13987W	1-3	42	14563W	3-99	40	15024W	3-26	15	15056W	3-77	20
13987W	1-5	42	14581W	3-3	40	15024W	3-33	15	15056W	3-78	20
13987W	1-7	42	14595W	1-11	22	15024W	3-58	11	15056W	3-81	20
13987W	1-9	42	14595W	1-13	22	15024W	3-64	15	15056W	3-82	20
139W3-11	91		14595W	1-3	22	15024W	3-65	9	15056W	3-83	20
139W3-21	24		14595W	1-5	22	15024W	3-66	9	15056W	3-91	20
139W3-23	24		14595W	1-7	22	15024W	3-71	15	15061W	1-32	1
139W3-25	24		14595W	1-9	22	15024W	3-93	15	15061W	1-38	14
139W3-31	24		14595W	3-11	89	15024W	3-94	15	15061W	1-40	14
139W3-44	29		14595W	3-14	39	15027W	3-12	11	15061W	1-41	1
139W3-56	23		14595W	3-3	44	15027W	3-13	10	15061W	1-48	1
139W3-57	23		14595W	3-5	27	15027W	3-14	14	15061W	1-50	2
139W3-60	23		14595W	3-9	104	15030W	3-15	3	15070W	1-29	7
139W3-61	23		14668W	3-11	64	15030W	3-16	3	15106W	3-15	11
139W3-68	24		14668W	3-13	35	15030W	3-17	3	15106W	3-16	11
139W3-69	24		14668W	3-14	1	15030W	3-18	3	15106W	3-17	11
139W3-74	23		14668W	3-3	41	15030W	3-21	14	15106W	3-18	11
139W3-75	23		14668W	3-5	38	15030W	3-23	14	15106W	3-21	5
139W3-77	23		14668W	3-9	41	15030W	3-25	14	15106W	3-23	5
139W3-78	23		14712W	3-15	6	15030W	3-31	14	15106W	3-25	5
139W3-82	23		14712W	3-16	6	15030W	3-37	3	15106W	3-31	5
139W3-83	23		14712W	3-17	6	15030W	3-38	3	15106W	3-37	11
139W3-9	106		14712W	3-18	6	15030W	3-40	3	15106W	3-38	11
140184W	2-49	7	14712W	3-37	6	15030W	3-41	3	15106W	3-40	11

7-5

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
15106W	3-41	11	15135W	1-39	32	15156W	3-60	19	15158W	1-7	35
15106W	3-46	11	15135W	1-47	27	15156W	3-61	19	15158W	1-7	36
15106W	3-47	11	15135W	3-16	21	15156W	3-62	8	15158W	1-7	37
15106W	3-56	10	15135W	3-18	21	15156W	3-74	19	15158W	1-7	37
15106W	3-57	10	15135W	3-21	16	15156W	3-75	19	15158W	1-7	52
15106W	3-60	10	15135W	3-23	16	15156W	3-77	19	15158W	1-7	55
15106W	3-61	10	15135W	3-25	16	15156W	3-78	19	15158W	1-9	6
15106W	3-68	16	15135W	3-31	16	15156W	3-79	17	15158W	1-9	9
15106W	3-69	16	15135W	3-37	21	15156W	3-81	19	15158W	1-9	14
15106W	3-74	10	15135W	3-41	21	15156W	3-82	19	15158W	1-9	25
15106W	3-75	10	15135W	3-44	7	15156W	3-83	19	15158W	1-9	35
15106W	3-77	10	15135W	3-45	8	15156W	3-9	5	15158W	1-9	36
15106W	3-78	10	15135W	3-47	21	15156W	3-91	19	15158W	1-9	37
15106W	3-82	10	15135W	3-49	8	151583W	4-5	12	15158W	1-9	37
15106W	3-83	10	15135W	3-55	8	151584W	4-5	13	15158W	1-9	52
15111W	1-41	4	15135W	3-57	15	151589W	1-3	20	15158W	2-41	25
15111W	1-48	4	15135W	3-61	15	151589W	1-3	53	15158W	2-43	25
15113W	3-115	4	15135W	3-63	3	151589W	1-5	20	15158W	3-101	39
15113W	3-116	4	15135W	3-68	5	151589W	1-5	53	15158W	3-103	231
15113W	3-117	4	15135W	3-69	5	151589W	1-7	20	15158W	3-107	53
15113W	3-118	4	15135W	3-75	15	151589W	1-7	53	15158W	3-11	74
15113W	3-119	4	15135W	3-78	15	15158W	1-11	6	15158W	3-21	34
15113W	3-120	4	15135W	3-79	7	15158W	1-11	9	15158W	3-23	34
15113W	3-121	98	15135W	3-81	8	15158W	1-11	14	15158W	3-25	34
15113W	3-123	36	15135W	3-83	15	15158W	1-11	25	15158W	3-3	58
15113W	3-125	36	15135W	3-91	8	15158W	1-11	35	15158W	3-31	34
15113W	3-127	13	15154W	3-53	5	15158W	1-11	36	15158W	3-44	38
15113W	3-27	5	15154W	3-88	5	15158W	1-11	37	15158W	3-5	31
15113W	3-34	5	15155W	3-3	17	15158W	1-11	37	15158W	3-5	45
15113W	3-65	4	15155W	3-42	7	15158W	1-11	52	15158W	3-5	60
15113W	3-67	4	15155W	3-44	10	15158W	1-13	6	15158W	3-56	30
15113W	3-72	4	15155W	3-45	10A	15158W	1-13	9	15158W	3-57	30
15123W	2-27	36	15155W	3-49	10A	15158W	1-13	14	15158W	3-60	30
15127W	3-115	3	15155W	3-55	10A	15158W	1-13	25	15158W	3-61	30
15127W	3-116	3	15155W	3-63	7	15158W	1-13	35	15158W	3-68	29
15127W	3-117	3	15155W	3-79	8	15158W	1-13	36	15158W	3-69	29
15127W	3-118	3	15155W	3-80	5	15158W	1-13	37	15158W	3-74	30
15127W	3-119	3	15155W	3-81	10A	15158W	1-13	37	15158W	3-75	30
15127W	3-120	3	15155W	3-91	10A	15158W	1-13	52	15158W	3-77	30
15127W	3-121	97	15156W	1-39	28	15158W	1-3	6	15158W	3-78	30
15127W	3-123	35	15156W	2-21	12	15158W	1-3	9	15158W	3-82	30
15127W	3-125	35	15156W	2-23	12	15158W	1-3	14	15158W	3-83	30
15127W	3-50	6	15156W	2-23	65	15158W	1-3	19	15158W	3-9	58
15128W	1-14	2	15156W	2-25	18	15158W	1-3	25	15158W	3-99	31
15128W	1-15	2	15156W	2-27	7	15158W	1-3	35	15158W	4-2	4
15128W	1-17	11	15156W	2-29	27	15158W	1-3	36	15158W	4-5	15
15128W	1-19	16	15156W	2-31	27	15158W	1-3	37	15160W	1-39	24
15128W	1-20	2	15156W	2-31	40	15158W	1-3	37	15160W	2-27	50
15128W	1-21	2	15156W	2-33	18	15158W	1-3	52	15160W	2-53	7
15128W	1-22	2	15156W	2-35	18	15158W	1-3	55	15160W	2-57	4
15128W	1-24	2	15156W	3-11	5	15158W	1-37	19	15160W	4-6	4
15128W	1-25	2	15156W	3-13	33	15158W	1-43	24	15160W	2-55	23
15128W	1-29	4	15156W	3-14	3	15158W	1-43	66	151646W	1-3	21
15128W	1-31	4	15156W	3-15	27	15158W	1-44	1.18	151646W	1-3	54
15128W	1-32	2	15156W	3-16	27	15158W	1-47	26	151646W	1-5	21
15128W	1-33	7	15156W	3-17	27	15158W	1-5	6	151646W	1-5	54
15128W	1-34	7	15156W	3-18	27	15158W	1-5	9	151646W	1-7	21
15128W	1-35	4	15156W	3-19	10	15158W	1-5	14	151646W	1-7	54
15128W	1-35	8	15156W	3-3	5	15158W	1-5	19	151646W	5-8	3
15128W	1-38	10	15156W	3-37	27	15158W	1-5	25	151646W	6-3	
15128W	1-40	10	15156W	3-38	27	15158W	1-5	35	15166W	4-2	16
15128W	1-43	16	15156W	3-40	27	15158W	1-5	36	15166W	4-3	15
15128W	1-47	21	15156W	3-41	27	15158W	1-5	37	15166W	4-4	15
15128W	2-27	37	15156W	3-44	21	15158W	1-5	37	15170W	1-50	4
15134W	2-27	29	15156W	3-46	27	15158W	1-5	52	15175W	2-45	43
15134W	3-101	35	15156W	3-47	27	15158W	1-5	55	15176W	3-5	61
15134W	3-103	223	15156W	3-5	7	15158W	1-7	6	15176W	3-9	18
15134W	3-85	8	15156W	3-5	60	15158W	1-7	9	15178W	3-5	61
15134W	3-86	7	15156W	3-56	19	15158W	1-7	14	15185W	1-41	4
15134W	3-87	7	15156W	3-57	19	15158W	1-7	19	15185W	1-48	4
15134W	3-99	23	15156W	3-59	23	15158W	1-7	25	15212W	3-21	25

7-6

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
15212W	3-23	25	15304W	1-13	22	15860W	3-12	9	16455W	3-3	37
15212W	3-25	25	15304W	1-3	22	15860W	3-13	7	16463W	3-11	101
15212W	3-31	25	15304W	1-5	22	15860W	3-14	11	16463W	3-5	30
15212W	3-44	28	15304W	1-7	22	15881W	2-53	15	16463W	3-9	37
15212W	3-56	24	15304W	1-9	22	15881W	5-20	8	164703W	3-11	53
15212W	3-57	24	15305W	2-21	4	15881W	6-8		164703W	3-3	13
15212W	3-60	24	15305W	2-23	4	15881W	2-55	21	164703W	3-5	42
15212W	3-61	24	15307W	1-11	16	15885W	2-27	8	164703W	3-9	13
15212W	3-68	25	15307W	1-13	16	15885W	2-29	3	16484W	3-108	2
15212W	3-69	25	15307W	1-3	16	15885W	2-31	3	16484W	3-12	5
15212W	3-74	24	15307W	1-5	16	15885W	6-4		16484W	3-13	8
15212W	3-75	24	15307W	1-7	16	15887W	1-15	4	16484W	3-14	10
15212W	3-77	24	15307W	1-9	16	15887W	1-21	4	16484W	3-14	37
15212W	3-78	24	15314W	3-12	29	15887W	1-22	4	16484W	3-3	33
15212W	3-82	24	15314W	3-13	18	15887W	1-23	4	16484W	3-3	43
15212W	3-83	24	15314W	3-14	34	15887W	1-24	4	16484W	3-3	44
15216W	3-11	92	15319W	1-11	8	15887W	1-25	4	16484W	3-3	46
15216W	3-9	107	15319W	1-11	27	15887W	1-30	5	16484W	3-3	81
15225W	3-15	19	15319W	1-13	8	15906W	4-5	12	16484W	3-5	42
15225W	3-16	19	15319W	1-13	27	15923W	3-93	17	16485W	3-3	22
15225W	3-17	19	15319W	1-3	8	15923W	3-94	17	16486W	3-3	6
15225W	3-18	19	15319W	1-3	27	15932W	3-93	19	16486W	3-3	13
15225W	3-37	19	15319W	1-5	8	15932W	3-94	19	16486W	3-5	50
15225W	3-38	19	15319W	1-5	27	15962W	3-13	17	16487W	3-3	35
15225W	3-40	19	15319W	1-7	8	15962W	3-14	7	16541W	3-101	21
15225W	3-41	19	15319W	1-7	27	15963W	3-3	48	16541W	3-103	209
15225W	3-46	19	15319W	1-9	8	159906W	2-25	7	16541W	3-107	18
15225W	3-47	19	15319W	1-9	27	159906W	2-27	18	16541W	3-11	66
15225W	3-56	7	15483W	3-13	37	159906W	2-29	7	16541W	3-3	43
15225W	3-57	7	15483W	3-14	5	159906W	2-31	7	16541W	3-5	20
15225W	3-60	7	15483W	3-3	77	159906W	2-33	7	16541W	3-9	43
15225W	3-61	7	156133W	3-123	11	159906W	2-35	7	16541W	3-99	9
15225W	3-74	7	156133W	3-125	11	16001W	4-2	5	16543W	3-101	4
15225W	3-75	7	156133W	3-20	13	16001W	4-3	11	16543W	3-101	14
15225W	3-77	7	156133W	3-20	21	16001W	4-4	11	16543W	3-103	201
15225W	3-78	7	156133W	3-22	13	16006W	4-6	6	16543W	3-103	305
15225W	3-82	7	156133W	3-22	21	16046W	1-14	10	16543W	3-103	406
15225W	3-83	7	156133W	3-24	13	16046W	1-20	10	16543W	3-107	305
15240W	1-14	9	156133W	3-24	21	16074W	3-9	123	16543W	3-107	404
15240W	1-17	10	156133W	3-26	13	16074W	3-99	54	16543W	3-11	31
15240W	1-19	21	156133W	3-26	21	160758W	3-135	15	16543W	3-99	2
15240W	1-20	9	156133W	3-30	4	16151W	3-11	100	165489W	3-11	55
15240W	1-31	6	156133W	3-30	8	16168W	3-19	7	165489W	3-3	16
15240W	1-32	1	156133W	3-32	8	16168W	3-42	5	165489W	3-5	65
15240W	1-33	11	156133W	3-33	13	16336W	2-57	3	165489W	3-9	16
15240W	1-34	11	156133W	3-33	21	16373W	2-48	11	165493W	1-17	17
15240W	1-35	1	156133W	3-48	8	16379W	3-11	87	165493W	1-19	32
15240W	1-38	15	156133W	3-54	8	16379W	3-3	72	165493W	1-3	41
15240W	1-40	15	156133W	3-59	34	16379W	3-5	29	165493W	1-9	41
15240W	1-41	1	156133W	3-64	13	16379W	3-9	101	165504W	3-15	25
15240W	1-48	1	156133W	3-64	21	16379W	3-99	22	165504W	3-16	25
15240W	1-50	2	156133W	3-65	7	16445W	3-15	14	165504W	3-17	25
15240W	1-53	12	156133W	3-66	7	16445W	3-16	14	165504W	3-18	25
15272W	1-11	3	156133W	3-71	13	16445W	3-17	14	165504W	3-56	32
15272W	1-13	3	156133W	3-71	21	16445W	3-18	14	165504W	3-57	32
15272W	1-3	3	156133W	3-84	8	16445W	3-37	14	165504W	3-60	32
15272W	1-5	3	156133W	3-89	8	16445W	3-38	14	165504W	3-61	32
15272W	1-7	3	156223W	2-25	6	16445W	3-40	14	165504W	3-77	32
15272W	1-9	3	156223W	2-27	9	16445W	3-41	14	165504W	3-78	32
15272W	4-2	20	156223W	2-29	6	16445W	3-46	14	165504W	3-82	32
15272W	4-3	12	156223W	2-31	6	16445W	3-47	14	165504W	3-83	32
15272W	4-4	12	156223W	2-33	6	16445W	3-56	13	16550W	3-11	94
15273W	1-11	4	156223W	2-35	6	16445W	3-57	13	16550W	3-5	50
15273W	1-13	4	156689W	3-3		16445W	3-60	13	16550W	3-9	109
15273W	1-3	4	156689W	3-5	1	16445W	3-61	13	16556W	3-101	44
15273W	1-5	4	156879W	1-31	2	16445W	3-74	13	16556W	3-103	237
15273W	1-7	4	156879W	1-37	54	16445W	3-75	13	16556W	3-99	37
15273W	1-9	4	156879W	1-41	2	16445W	3-77	13	16559W	3-107	37
15303W	2-21	19	156879W	1-48	2	16445W	3-78	13	16559W	3-11	14
15303W	2-23	19	156879W	1-53	5	16445W	3-82	13	16559W	3-3	46
15304W	1-11	22	15860W	3-108	2	16445W	3-83	13	16559W	3-5	19

7-7

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
16559W	3-9	46	16805W	3-78	18	17040W	3-103	408	178402W	1-13	36
16560W	3-99	46	16805W	3-79	18	17040W	3-107	406	178402W	1-13	37
16561W	3-107	33	16805W	3-82	18	17059W	3-3	27	178402W	1-13	37
16561W	3-11	51	16805W	3-83	18	17059W	3-5	84	178402W	1-3	9
16561W	3-3	10	16805W	3-9	4	17063W	3-107	8	178402W	1-3	13
16561W	3-5	62	16805W	3-9	85	170987W	3-12	20	178402W	1-3	35
16561W	3-9	10	16828W	2-27	6	170987W	3-13	21	178402W	1-3	36
16561W	3-99	3	16828W	3-107	28	170987W	3-14	25	178402W	1-3	37
16568W	3-11	90	16828W	3-11	20	17196W	3-101	32	178402W	1-3	37
16568W	3-3	33	16828W	3-11	82	17196W	3-103	220	178402W	1-5	9
16568W	3-5	12	16828W	3-3	63	17196W	3-99	20	178402W	1-5	13
16568W	3-9	105	16828W	3-5	24	17300W	3-11	68	178402W	1-5	35
16569W	3-101	25	16828W	3-58	7	17300W	3-5	66	178402W	1-5	36
16569W	3-103	213	16828W	3-85	6	17300W	3-9	48	178402W	1-5	37
16569W	3-99	13	16828W	3-86	5	17309W	3-107	46	178402W	1-5	37
16597W	1-39	27	16828W	3-87	5	17309W	3-11	25	178402W	1-7	9
16597W	2-27	28	16828W	3-9	63	17309W	3-3	83	178402W	1-7	13
16597W	3-3	4	16836W	3-45	12	17309W	3-5	77	178402W	1-7	35
16597W	3-81	18	16836W	3-49	12	17309W	3-9	92	178402W	1-7	36
16597W	3-91	18	16836W	3-55	12	173604W	2-53	18	178402W	1-7	37
16598W	3-5	59	16836W	3-81	12	173606W	2-53	2	178402W	1-7	37
16598W	3-9	17	16836W	3-91	12	173606W	2-55	12	178402W	1-9	6
16602W	1-55	11	16909W	3-101	27	173607W	4-2	21	178402W	1-9	9
16602W	3-101	36	16909W	3-103	215	174413W	3-20	12	178402W	1-9	13
16602W	3-103	227	16909W	3-99	15	174413W	3-22	12	178402W	1-9	35
16602W	3-107	50	16923W	3-11	62	174413W	3-22	20	178402W	1-9	36
16602W	3-99	27	16923W	3-9	38	174413W	3-24	12	178402W	1-9	37
166396W	1-29	5	16948W	3-11	79	174413W	3-24	20	178402W	1-9	37
166396W	1-37	13	16948W	3-3	68	174413W	3-26	12	178402W	2-21	25
166396W	1-38	11	16948W	3-5	6	174413W	3-26	20	178402W	2-23	25
166396W	1-40	11	16948W	3-9	68	174413W	3-30	3	178402W	2-41	26
166396W	1-43	60	169671W	2-10	2	174413W	3-30	7	178402W	2-43	26
166396W	1-44	1.12	169671W	2-11	11	174413W	3-32	7	178403W	1-11	25
166396W	2-27	35	169671W	2-12	2	174413W	3-33	12	178403W	1-13	25
16645W	4-6	4	169671W	2-13	13	174413W	3-33	20	178403W	1-3	19
166905W	3-12	25	169671W	2-14	1.2	174413W	3-48	7	178403W	1-3	25
166905W	3-13	24	169671W	2-15	9	174413W	3-54	7	178403W	1-3	55
166905W	3-14	29	169671W	2-16	9	174413W	3-64	12	178403W	1-5	19
166911W	3-12	24	169671W	2-17	11	174413W	3-64	20	178403W	1-5	25
166911W	3-13	23	169671W	2-18	2	174413W	3-65	6	178403W	1-5	55
166911W	3-14	28	169671W	2-2	8	174413W	3-66	6	178403W	1-7	19
16741W	3-3	23	169671W	2-3	11	174413W	3-71	12	178403W	1-7	25
16741W	3-5	56	169671W	2-4	11	174413W	3-71	20	178403W	1-7	55
16805W	3-101	34	169671W	2-5	11	174413W	3-84	7	178403W	1-9	25
16805W	3-103	222	169671W	2-6	2	174413W	3-89	7	178403W	3-101	38
16805W	3-107	4	169671W	2-7	11	174559W	2-41	5	178403W	3-103	230
16805W	3-11	4	169671W	2-8	2	174559W	2-43	5	178403W	3-107	52
16805W	3-15	28	16982W	3-3	50	174561W	2-41	3	178403W	3-99	30
16805W	3-16	28	16982W	3-3	68	174561W	2-43	3	178403W	4-5	22
16805W	3-17	28	16982W	3-5	6	174561W	2-45	33	179443W	2-25	17
16805W	3-18	28	16982W	3-5	47	174561W	5-10	11	179443W	2-29	26
16805W	3-19	9	16984W	2-21	9	174561W	5-11	11	179443W	2-31	26
16805W	3-3	85	16984W	2-23	9	174561W	6-4		179443W	2-31	30
16805W	3-37	28	16984W	2-27	27	174561W	6-5		179443W	2-33	17
16805W	3-38	28	16987W	3-11	65	177949W	2-57	4	179443W	2-35	17
16805W	3-40	28	16987W	3-3	42	177951W	3-107	44	18000W	1-14	5
16805W	3-41	28	16987W	3-5	46	177951W	3-11	23	18000W	1-17	4
16805W	3-44	20	16987W	3-5	85	177951W	3-3	87	18000W	1-19	13
16805W	3-46	28	16987W	3-9	42	177951W	3-5	74	18000W	1-20	5
16805W	3-47	28	16989W	3-101	20	177951W	3-9	90	18000W	1-50	3
16805W	3-5	8	16989W	3-103	208	178402W	1-11	6	18001W	1-14	4
16805W	3-5	68	16989W	3-107	29	178402W	1-11	9	18001W	1-17	1
16805W	3-56	18	16989W	3-11	13	178402W	1-11	13	18001W	1-19	14
16805W	3-57	18	16989W	3-3	39	178402W	1-11	35	18001W	1-20	4
16805W	3-59	22	16989W	3-5	25	178402W	1-11	36	18001W	1-43	20
16805W	3-60	18	16989W	3-9	39	178402W	1-11	37	18001W	3-107	36
16805W	3-61	18	17038W	3-11	88	178402W	1-11	37	18001W	3-11	11
16805W	3-62	6	17038W	3-3	47	178402W	1-13	6	18001W	3-9	33
16805W	3-74	18	17038W	3-5	18	178402W	1-13	9	18004W	1-41	3
16805W	3-75	18	17038W	3-9	103	178402W	1-13	13	18004W	1-48	3
16805W	3-77	18	17040W	3-101	9	178402W	1-13	35	18004W	1-53	4

7-8

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
18127W	3-65	3	18528W	3-32	3	18717W	3-58	12	194090W	1-13	35
18127W	3-67	3	18528W	3-39	3	18717W	3-59	33	194090W	1-3	35
18127W	3-72	3	18528W	3-48	4	18717W	3-66	10	194090W	1-5	35
18127W	3-88	23	18528W	3-54	4	18717W	3-67	13	194090W	1-7	35
18180W	3-134	1	18530W	3-19	4	18717W	3-72	13	194090W	1-9	35
182209W	1-11	28	18530W	3-42	6	18717W	3-73	61	194090W	2-21	11
182209W	1-13	28	18542W	3-5	56	18717W	3-90	1.21	194090W	2-23	11
182209W	1-3	6	185813W	1-47	19	18717W	3-92	19	194090W	2-23	64
182209W	1-3	28	185813W	2-37	31	18717W	3-93	21	194090W	3-3	24
182209W	1-5	6	185813W	2-39	38	18717W	3-94	21	194090W	3-5	57
182209W	1-5	28	18585W	2-37	9	18717W	3-95	18	194090W	3-9	24
182209W	1-7	6	18585W	2-39	7	18723W	3-27	14	194534W	3-39	4
182209W	1-7	28	18586W	1-11	44	18723W	3-34	14	19581W	3-107	40
182209W	1-9	28	18586W	1-39	31	18738W	3-67	11	19581W	3-11	17
18425W	3-15	11	18586W	1-5	44	18738W	3-72	11	19581W	3-3	54
18425W	3-16	11	18588W	3-5	59	187878W	3-107	13	19581W	3-5	83
18425W	3-17	11	18588W	4-5	15	18849W	1-35	2	19581W	3-9	54
18425W	3-18	11	18591W	3-11	86	190930W	3-45	9	195990W	3-13	31
18425W	3-21	9	18591W	3-21	33	190930W	3-49	9	195991W	3-12	4
18425W	3-23	9	18591W	3-23	33	190930W	3-55	9	195991W	3-13	4
18425W	3-25	9	18591W	3-25	33	190930W	3-81	9	195992W	3-12	7
18425W	3-31	9	18591W	3-3	73	190930W	3-91	9	195992W	3-13	5
18425W	3-37	11	18591W	3-31	33	191534W	3-32	4	195992W	3-14	9
18425W	3-38	11	18591W	3-44	37	191534W	3-48	5	195993W	3-12	8
18425W	3-40	11	18591W	3-5	32	191534W	3-54	5	195993W	3-13	6
18425W	3-41	11	18591W	3-56	31	191534W	3-76	4	195993W	3-14	12
18425W	3-46	11	18591W	3-57	31	191534W	3-84	5	195995W	3-12	12
18425W	3-47	11	18591W	3-60	31	191534W	3-89	5	195995W	3-13	11
18425W	3-56	10	18591W	3-61	31	191941W	3-19	5	195995W	3-14	15
18425W	3-57	10	18591W	3-68	28	191941W	3-62	4	195997W	3-12	21
18425W	3-60	10	18591W	3-69	28	191941W	3-70	4	195997W	3-13	30
18425W	3-61	10	18591W	3-74	31	191941W	3-85	4	195997W	3-14	24
18425W	3-68	9	18591W	3-75	31	192407W	3-15	5	196000W	3-12	19
18425W	3-69	9	18591W	3-77	31	192407W	3-16	5	196000W	3-13	28
18425W	3-74	10	18591W	3-78	31	192407W	3-17	5	196000W	3-14	23
18425W	3-75	10	18591W	3-82	31	192407W	3-18	5	196002W	3-12	26
18425W	3-77	10	18591W	3-83	31	192407W	3-21	28	196002W	3-13	25
18425W	3-78	10	18591W	3-9	100	192407W	3-23	28	196002W	3-14	30
18425W	3-82	10	186459W	1-11	38	192407W	3-25	28	196003W	3-12	15
18425W	3-83	10	186459W	1-13	38	192407W	3-31	28	196003W	3-13	15
18498W	3-3	17	186459W	1-3	38	192407W	3-37	5	196003W	3-14	33
18513W	3-80	4	186459W	1-5	38	192407W	3-38	5	196004W	3-12	10
18515W	3-101	23	186459W	1-7	38	192407W	3-40	5	196004W	3-13	9
18515W	3-103	211	186459W	1-9	38	192407W	3-41	5	196004W	3-14	19
18515W	3-107	20	186460W	1-11	39	192407W	3-44	23	196006W	3-12	1
18515W	3-19	6	186460W	1-13	39	192407W	3-46	5	196006W	3-13	16
18515W	3-32	5	186460W	1-3	39	192407W	3-47	5	196006W	3-14	8
18515W	3-39	5	186460W	1-5	39	192407W	3-56	5	196009W	3-12	27
18515W	3-45	10B	186460W	1-7	39	192407W	3-57	5	196009W	3-13	26
18515W	3-48	6	186460W	1-9	39	192407W	3-60	5	196009W	3-14	31
18515W	3-49	10B	186460W	5-4	2	192407W	3-61	5	196022W	3-101	2
18515W	3-54	6	186460W	5-5	2	192407W	3-68	26	196022W	3-103	19
18515W	3-55	10B	186460W	5-8	9	192407W	3-69	26	196022W	3-107	26
18515W	3-62	5	186460W	6-2		192407W	3-74	5	196022W	3-11	19
18515W	3-76	3	186460W	6-2		192407W	3-75	5	196022W	3-3	62
18515W	3-81	10B	186460W	6-3		192407W	3-77	5	196022W	3-5	9
18515W	3-84	4	18671W	4-2	15	192407W	3-78	5	196022W	3-9	62
18515W	3-85	5	18671W	4-3	16	192407W	3-79	20	196022W	3-99	62
18515W	3-86	4	18671W	4-4	16	192407W	3-82	5	196022W	5-9	11
18515W	3-87	4	18695W	3-113	10	192407W	3-83	5	196022W	6-3	
18515W	3-89	4	18695W	3-115	16	192948W	1-31	8	196025W	2-49	19
18515W	3-91	10B	18695W	3-116	16	192948W	1-32	2	196026W	2-49	3
18515W	3-99	11	18695W	3-117	16	192948W	1-33	6	196114W	3-15	1
18518W	3-76	2	18695W	3-118	16	192948W	1-34	6	196114W	3-16	1
18518W	3-84	3	18695W	3-119	16	192949W	1-31	9	196114W	3-17	1
18518W	3-89	3	18695W	3-120	16	192949W	1-35	3	196114W	3-18	1
18520W	3-134	2	18717W	3-27	16	192956W	1-11	24	196114W	3-37	1
18524W	3-99	10	18717W	3-34	16	192956W	1-13	24	196114W	3-38	1
18526W	3-101	22	18717W	3-50	7	192956W	1-9	24	196114W	3-40	1
18526W	3-103	210	18717W	3-51	5	193912W	2-49	5	196114W	3-41	1
18526W	3-107	19	18717W	3-52	5	194090W	1-11	35	196114W	3-46	1

7-9

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
196114W	3-47	1	196144W	3-16	2	196462W	3-60		210849W	2-31	31
196114W	3-56	1	196144W	3-16	8	196462W	3-61		213032W	2-11	3
196114W	3-57	1	196144W	3-17	2	196462W	3-74		213034W	1-41	1
196114W	3-60	1	196144W	3-17	8	196462W	3-75		213034W	1-48	1
196114W	3-61	1	196144W	3-18	2	196462W	3-77		213034W	1-53	1
196114W	3-74	1	196144W	3-18	8	196462W	3-78		213035W	1-41	4
196114W	3-75	1	196144W	3-21	3	196462W	3-82		213035W	1-43	15
196114W	3-77	1	196144W	3-21	19	196462W	3-83		213035W	1-48	4
196114W	3-78	1	196144W	3-23	3	196465W	3-15	2	213035W	1-53	2
196114W	3-82	1	196144W	3-23	19	196465W	3-17	2	213138W	2-11	7
196114W	3-83	1	196144W	3-25	3	196465W	3-38	2	213139W	2-11	5
196128W	3-15	12	196144W	3-25	19	196465W	3-40	2	21420W	1-11	26
196128W	3-16	12	196144W	3-31	3	196465W	3-46	2	21420W	1-13	26
196128W	3-17	12	196144W	3-31	19	196469W	3-68	13	21420W	1-3	26
196128W	3-18	12	196144W	3-37	2	196469W	3-69	13	21420W	1-5	26
196128W	3-21	7	196144W	3-37	8	196469W	3-79	1	21420W	1-7	26
196128W	3-23	7	196144W	3-38	2	197066W	3-123	26	21420W	1-9	26
196128W	3-25	7	196144W	3-38	8	198063W	3-3	81	214495W	2-45	44
196128W	3-31	7	196144W	3-40	2	198385W	3-11	73	216222W	2-9	4
196128W	3-37	12	196144W	3-40	8	198385W	3-3	57	216224W	1-35	4
196128W	3-38	12	196144W	3-41	2	198385W	3-5	44	216224W	1-47	8
196128W	3-40	12	196144W	3-41	8	198385W	3-9	57	216542W	2-10	2
196128W	3-41	12	196144W	3-44	4	198929W	1-50	2	216542W	2-9	11
196128W	3-44	12	196144W	3-44	17	19901W	2-46	15	217624W	1-35	1
196128W	3-45	7	196144W	3-45	3	199040W	3-135	14	219172W	3-101	59
196128W	3-46	12	196144W	3-45	3	19929W	1-17	7	219172W	3-107	1
196128W	3-47	12	196144W	3-45	15	19929W	1-19	10	219172W	3-11	1
196128W	3-49	7	196144W	3-45	15	19929W	1-53	9	219172W	3-3	1
196128W	3-55	7	196144W	3-46	2	19929W	2-10	16	219172W	3-5	1
196128W	3-56	11	196144W	3-46	8	19929W	2-12	16	219172W	3-9	1
196128W	3-57	11	196144W	3-47	2	19929W	2-18	16	219172W	3-99	65
196128W	3-60	11	196144W	3-47	8	19929W	2-5	5	220984W	3-99	48
196128W	3-61	11	196144W	3-49	3	19929W	2-6	16	221372W	1-40	8
196128W	3-63	5	196144W	3-49	3	19929W	2-7	5	221373W	1-19	17
196128W	3-68	7	196144W	3-49	15	19929W	2-8	16	221373W	1-50	1
196128W	3-69	7	196144W	3-55	3	19929W	2-9	5	221507W	1-37	1
196128W	3-74	11	196144W	3-55	3	199594W	2-49	1	221507W	1-38	20
196128W	3-75	11	196144W	3-55	15	200454W	2-45	35	221507W	1-43	1
196128W	3-77	11	196144W	3-55	15	201800W	3-11	30	221507W	1-49	1.19
196128W	3-78	11	196144W	3-56	2	201800W	3-3	71	221507W	2-25	31
196128W	3-79	14	196144W	3-57	2	201800W	3-5	15	221507W	2-25	36
196128W	3-81	7	196144W	3-60	2	201800W	3-9	71	221507W	2-27	45
196128W	3-82	11	196144W	3-61	2	203239W	4-5	14	221507W	2-27	46
196128W	3-83	11	196144W	3-68	3	205004W	3-74	32	221507W	2-29	36
196128W	3-91	7	196144W	3-69	3	205004W	3-75	32	221507W	2-29	41
196129W	3-44	6	196144W	3-74	2	205006W	3-21	27	221507W	2-31	36
196129W	3-63	6	196144W	3-75	2	205006W	3-23	27	221507W	2-31	41
196129W	3-79	6	196144W	3-77	2	205006W	3-25	27	221507W	2-33	31
196130W	3-79	10	196144W	3-78	2	205006W	3-31	27	221507W	2-33	36
196134W	3-15	13	196144W	3-79	4	205006W	3-68	27	221563W	1-37	18
196134W	3-16	13	196144W	3-81	3	205006W	3-69	27	221563W	1-43	65
196134W	3-17	13	196144W	3-82	2	209639W	3-107	49	221563W	1-44	1.17
196134W	3-18	13	196144W	3-83	2	209639W	3-11	29	221569W	2-55	29
196134W	3-37	13	196144W	3-91	3	209639W	3-3	89	221621W	1-11	45
196134W	3-38	13	196279W	1-11	2	209639W	3-5	4	221621W	1-5	45
196134W	3-40	13	196279W	1-13	2	209639W	3-9	102	221641W	2-53	6
196134W	3-41	13	196279W	1-3	2	21014W	2-41	2	221641W	2-55	11
196134W	3-46	13	196279W	1-5	2	21014W	2-43	2	221650W	1-11	51
196134W	3-47	13	196279W	1-7	2	21014W	2-45	34	221650W	1-13	51
196134W	3-56	12	196279W	1-9	2	21014W	5-10	10	221650W	1-3	51
196134W	3-57	12	196279W	4-2	19	21014W	5-11	10	221650W	1-5	51
196134W	3-60	12	196376W	2-41	24	21014W	6-4		221650W	1-7	51
196134W	3-61	12	196376W	2-43	24	21014W	6-5		221650W	1-9	51
196134W	3-74	12	196376W	2-45	11	21042W	2-13	12	221703W	3-50	5
196134W	3-75	12	196379W	2-41	12	21042W	2-14	1.11	221707W	3-85	7
196134W	3-77	12	196379W	2-43	12	21043W	2-13	11	221707W	3-86	6
196134W	3-78	12	196435W	2-46	13	21043W	2-14	1.1	221707W	3-87	6
196134W	3-82	12	196435W	2-47	13	210849W	1-37	20	221711W	2-45	38
196134W	3-83	12	196435W	2-48	13	210849W	1-43	67	221717W	1-11	51
196144W	3-15	2	196462W	3-56		210849W	1-44	1.19	221717W	1-13	51
196144W	3-15	8	196462W	3-57		210849W	2-29	31	221717W	1-3	51

7-10

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
221717W	1-5	51	222679W	2-29	10	225260W	2-41	28	226445W	3-14	13
221717W	1-7	51	222679W	2-31	10	225260W	2-43	28	226446W	3-5	28
221717W	1-9	51	222679W	2-33	10	225261W	2-41	28	226447W	3-5	28
221724W	1-37	17	222679W	2-35	10	225261W	2-43	28	226448W	3-5	28
221724W	1-38	8	224023W	1-11	15	225262W	2-41	18	226449W	3-5	28
221724W	1-43	64	224023W	1-13	15	225262W	2-43	18	226450W	3-11	76
221724W	1-44	1.16	224023W	1-3	15	225262W	2-45	3	226450W	3-3	64
221724W	1-47	6	224023W	1-5	15	225262W	5-15	4	226450W	3-5	28
221724W	1-47	22	224023W	1-7	15	225262W	5-16	4	226450W	3-9	64
221725W	1-14	3	224023W	1-9	15	225262W	5-17	4	226458W	1-39	23
221725W	1-15	3	224024W	2-41	27	225262W	5-18	4	226458W	2-27	49
221725W	1-20	3	224024W	2-43	27	225262W	5-19	2	226459W	1-39	22
221725W	1-21	3	224790W	2-46	1	225262W	6-6	6	226459W	2-27	48
221725W	1-22	3	224790W	2-47	1	225262W	6-6	6	227468W	3-15	64
221725W	1-24	3	224790W	2-48	1	225262W	6-7	6	227468W	3-16	64
221725W	1-25	3	224791W	2-41	20	225262W	6-7	6	227468W	3-17	64
221725W	1-31	3	224791W	2-43	20	225262W	6-7	6	227468W	3-18	64
221725W	1-33	8	224791W	2-45	7	225264W	1-11	14	227468W	3-18	64
221725W	1-34	8	224793W	2-46	9	225264W	1-13	14	227468W	3-17	64
221725W	1-35	4	224793W	2-47	9	225264W	1-3	14	227468W	3-16	64
221725W	1-43	17	224793W	2-48	9	225264W	1-5	14	227468W	3-15	64
221725W	1-47	11	224793W	5-10	5	225264W	1-7	14	227468W	3-14	64
221725W	1-53	14	224793W	5-11	5	225264W	1-9	14	227468W	3-13	64
221763W	1-47	14	224793W	5-11	20	225434W	3-9	91	227490W	6-2	64
221763W	3-127	12	224793W	6-4	10	225701W	3-11	71	2300008W	1-55	1
221763W	3-58	3	224793W	6-5	10	225701W	3-3	51	2300015W	1-39	21
221767W	3-58	8	224793W	6-5	10	225701W	3-5	64	2300015W	2-27	41
221771W	1-43	23	224794W	2-46	10	225701W	3-9	51	2300076W	3-84	6
221771W	2-45	36	224794W	2-47	10	225704W	3-101	11	2300076W	3-89	6
221775W	1-11	46	224794W	2-48	10	225704W	3-103	126	2300183W	3-11	54
221775W	1-5	46	224796W	3-103	401	225704W	3-107	126	2300183W	3-5	67
221775W	2-49	2	224796W	3-107	401	225704W	3-99	57	2300183W	3-9	15
221867W	3-93	13	224796W	3-134	18	225711W	3-11	77	2300202W	3-62	2
221867W	3-94	13	224796W	3-135	19	225711W	3-3	65	2300301W	3-11	115
222091W	1-11	9	224796W	3-136	17	225711W	3-5	49	2300301W	3-14	115
222091W	1-11	35	225094W	2-25	16	225711W	3-9	65	2300301W	3-9	115
222091W	1-11	36	225094W	2-27	22	225712W	3-11	70	2300308W	3-108	2
222091W	1-13	9	225094W	2-29	25	225712W	3-3	50	2300308W	3-14	36
222091W	1-13	35	225094W	2-31	25	225712W	3-5	47	2300369W	3-39	9
222091W	1-13	36	225094W	2-33	16	225712W	3-9	50	2300369W	3-76	8
222091W	1-3	9	225094W	2-35	16	226359W	3-11	85	2300377W	3-19	3
222091W	1-3	35	225232W	3-11	69	226359W	3-3	74	2300422W	1-49	1.7
222091W	1-3	36	225232W	3-3	49	226359W	3-5	35	2300422W	2-25	37
222091W	1-5	9	225232W	3-5	63	226359W	3-56	28	2300422W	2-29	37
222091W	1-5	35	225232W	3-9	49	226359W	3-57	28	2300422W	2-31	37
222091W	1-5	36	225233W	3-107	43	226359W	3-60	28	2300422W	2-33	37
222091W	1-7	9	225233W	3-11	22	226359W	3-61	28	2300423W	2-25	38
222091W	1-7	35	225233W	3-3	84	226359W	3-74	28	2300423W	2-29	38
222091W	1-7	36	225233W	3-5	75	226359W	3-75	28	2300423W	2-31	38
222091W	1-9	9	225233W	3-9	84	226359W	3-77	28	2300423W	2-33	38
222091W	1-9	35	225235W	3-134	17	226359W	3-78	28	2300423W	6-10	38
222091W	1-9	36	225255W	1-11	17	226359W	3-82	28	2300512W	1-55	5
222381W	3-11	56	225255W	1-13	17	226359W	3-83	28	2300544W	5-11	16
222381W	3-9	25	225255W	1-3	17	226359W	3-9	99	2300544W	6-5	16
222402W	3-101	53	225255W	1-5	17	226359W	5-9	12	2300554W	2-29	16
222402W	3-103	246	225255W	1-7	17	226359W	6-3	12	2300567W	2-29	12
222402W	3-107	9	225255W	1-9	17	226360W	3-11	84	2300935W	3-101	61
222442W	3-101	43	225256W	1-11	17	226360W	3-3	75	2300935W	3-107	3
222442W	3-103	235	225256W	1-13	17	226360W	3-5	36	2300935W	3-11	3
222442W	3-108	8	225256W	1-3	17	226360W	3-56	28	2300935W	3-5	70
222442W	3-99	35	225256W	1-5	17	226360W	3-57	28	2300935W	3-9	3
222443W	3-108	9	225256W	1-7	17	226360W	3-60	28	2300935W	3-99	67
222443W	3-99	18	225256W	1-9	17	226360W	3-61	28	2300935W	5-5	4
222505W	3-11	52	225257W	1-11	17	226360W	3-74	28	2300935W	5-6	3
222505W	3-3	11	225257W	1-13	17	226360W	3-75	28	2300935W	5-7	2
222505W	3-5	2	225257W	1-3	17	226360W	3-77	28	2300935W	5-9	14
222505W	3-9	11	225257W	1-5	17	226360W	3-78	28	2300935W	6-2	14
222648W	3-99	8	225257W	1-7	17	226360W	3-82	28	2300935W	6-3	14
222648W	3-99	59	225257W	1-9	17	226360W	3-83	28	2300935W	6-3	14
222679W	2-25	10	225259W	2-41	28	226360W	3-9	98	2300935W	6-3	14
222679W	2-27	21	225259W	2-43	28	226445W	3-13	32	2300936W	3-101	60

7-11

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
2300936W	3-107	2	2301476W	2-29		2302695W	1-9	50	230311W	2-51	3
2300936W	3-11	2	2301487W	3-44	13	2302696W	1-11	49	230311W	5-13	1
2300936W	3-5	69	2301487W	3-45	13	2302696W	1-13	49	230311W	5-14	3
2300936W	3-9	2	2301487W	3-49	13	2302696W	1-3	49	230311W	6-5	
2300936W	3-99	66	2301487W	3-55	13	2302696W	1-5	49	230311W	6-6	
2300995W	3-15	15	2301487W	3-63	11	2302696W	1-7	49	2303167W	3-20	
2300995W	3-16	15	2301487W	3-79	15	2302696W	1-9	49	2303167W	3-22	
2300995W	3-17	15	2301487W	3-81	13	2302697W	1-11	48	2303167W	3-24	
2300995W	3-18	15	2301487W	3-91	13	2302697W	1-13	48	2303167W	3-26	
2300995W	3-20	16	2301638W	1-47	20	2302697W	1-3	48	2303167W	3-30	5
2300995W	3-21	10	2301641W	1-49	1.1	2302697W	1-5	48	2303167W	3-33	
2300995W	3-22	16	2301706W	4-3	6	2302697W	1-7	48	2303168W	3-30	1
2300995W	3-23	10	2301706W	4-4	6	2302697W	1-9	48	2303168W	3-64	
2300995W	3-24	16	2301726W	4-3	2	2302938W	2-41	19	2303168W	3-71	
2300995W	3-25	10	2301726W	4-4	2	2302938W	2-43	19	2303169W	3-20	1
2300995W	3-26	16	2301727W	4-3	8	2302963W	3-103	400	2303169W	3-22	1
2300995W	3-31	10	2301727W	4-4	8	2302963W	3-107	400	2303169W	3-24	1
2300995W	3-33	16	2301871W	3-70	2	2302963W	3-11	151	2303169W	3-26	1
2300995W	3-37	15	2301934W	4-3	1	2302963W	3-136		2303169W	3-33	1
2300995W	3-38	15	2301934W	4-4	1	2302963W	3-9	9	2303169W	3-64	1
2300995W	3-40	15	2301942W	4-3	10	2302963W	3-9	151	2303169W	3-71	1
2300995W	3-41	15	2301942W	4-4	10	2302963W	6-9		2303172W	3-20	2
2300995W	3-44	32	2301943W	4-3	5	2302989W	3-101	6	2303172W	3-22	2
2300995W	3-45	19	2301943W	4-4	5	2302989W	3-103	400	2303172W	3-24	2
2300995W	3-46	15	2301944W	4-3		2302989W	3-107	400	2303172W	3-26	2
2300995W	3-47	15	2301945W	4-4		2302989W	3-137		2303172W	3-33	2
2300995W	3-49	19	2301975W	3-63	12	2302989W	3-9	121	2303172W	3-64	2
2300995W	3-55	19	2301976W	3-63		2302989W	3-99	52	2303172W	3-71	2
2300995W	3-56	14	2302056W	1-37	6	2302989W	6-9		2303173W	3-20	3
2300995W	3-57	14	2302056W	1-43	6	230309W	2-56	2	2303173W	3-22	3
2300995W	3-60	14	2302056W	2-25	32	230309W	4-5	1	2303173W	3-24	3
2300995W	3-61	14	2302056W	2-29	32	230309W	5-20	2	2303173W	3-26	3
2300995W	3-63	16	2302056W	2-31	32	230309W	6-8		2303173W	3-33	3
2300995W	3-64	16	2302056W	2-33	32	2303105W	3-15	4	2303173W	3-64	3
2300995W	3-68	10	2302056W	6-10		2303105W	3-16	4	2303173W	3-71	3
2300995W	3-69	10	2302103W	3-32	6	2303105W	3-17	4	2303174W	3-20	4
2300995W	3-71	16	2302109W	3-11	96	2303105W	3-18	4	2303174W	3-22	4
2300995W	3-74	14	2302109W	3-9	21	2303105W	3-21	13	2303174W	3-24	4
2300995W	3-75	14	2302363W	2-55	24	2303105W	3-23	13	2303174W	3-26	4
2300995W	3-77	14	2302442W	1-32	6	2303105W	3-25	13	2303174W	3-33	4
2300995W	3-78	14	2302442W	1-33	5	2303105W	3-31	13	2303174W	3-64	4
2300995W	3-81	15	2302442W	1-34	5	2303105W	3-37	4	2303174W	3-71	4
2300995W	3-82	14	2302450W	2-13	5	2303105W	3-38	4	2303175W	3-20	5
2300995W	3-83	14	2302451W	2-25	27	2303105W	3-40	4	2303175W	3-22	5
2300995W	3-91	15	2302451W	2-31	12	2303105W	3-41	4	2303175W	3-24	5
2301006W	2-25	35	2302451W	2-33	27	2303105W	3-44	1	2303175W	3-26	5
2301006W	2-27	43	2302451W	2-35	27	2303105W	3-45	6	2303175W	3-33	5
2301006W	2-29	35	2302452W	2-13	1	2303105W	3-46	4	2303175W	3-64	5
2301006W	2-31	35	2302452W	2-14	1.1	2303105W	3-47	4	2303175W	3-71	5
2301006W	2-33	35	2302453W	2-25	28	2303105W	3-49	6	2303176W	3-20	6
2301006W	6-10		2302453W	2-31	16	2303105W	3-55	6	2303176W	3-22	6
2301007W	2-27	44	2302453W	2-33	28	2303105W	3-56	4	2303176W	3-24	6
2301008W	2-27	42	2302461W	2-25		2303105W	3-57	4	2303176W	3-26	6
2301030W	3-50	3	2302461W	2-33		2303105W	3-60	4	2303176W	3-33	6
2301054W	3-50	4	2302622W	2-50	3	2303105W	3-61	4	2303176W	3-64	6
2301054W	3-53	34	2302623W	2-43	21	2303105W	3-63	8	2303176W	3-71	6
2301055W	3-27	18	2302627W	2-25	33	2303105W	3-74	4	2303177W	3-20	7
2301055W	3-29	4	2302627W	2-29	33	2303105W	3-75	4	2303177W	3-22	7
2301055W	3-29	12	2302627W	2-31	33	2303105W	3-77	4	2303177W	3-24	7
2301055W	3-36	4	2302627W	2-33	33	2303105W	3-78	4	2303177W	3-26	7
2301055W	3-36	12	2302627W	6-10		2303105W	3-81	6	2303177W	3-33	7
2301055W	3-67	15	2302628W	2-25	34	2303105W	3-82	4	2303177W	3-64	7
2301055W	3-90	1.20	2302628W	2-29	34	2303105W	3-83	4	2303177W	3-71	7
2301250W	2-13	8	2302628W	2-31	34	2303105W	3-91	6	2303178W	3-20	8
2301250W	2-14	1.7	2302628W	2-33	34	230310W	2-50	2	2303178W	3-22	8
2301260W	3-85	2	2302628W	6-10		230310W	2-51	2	2303178W	3-24	8
2301271W	3-80		2302695W	1-11	50	230310W	5-13	2	2303178W	3-26	8
2301341W	2-25	26	2302695W	1-13	50	230310W	5-14	2	2303178W	3-33	8
2301341W	2-31	13	2302695W	1-3	50	230310W	6-5		2303178W	3-64	8
2301341W	2-33	26	2302695W	1-5	50	230310W	6-6		2303178W	3-71	8
2301341W	2-35	26	2302695W	1-7	50	230311W	2-50	1	2303180W	3-20	9

7-12

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
2303180W	3-22	9	2303548W	2-45	16	2303912W	3-115	19	2304112W	6-3	
2303180W	3-24	9	2303549W	2-51	18	2303912W	3-116	19	230426W	2-25	12
2303180W	3-26	9	2303550W	2-45	29	2303912W	3-117	19	230426W	2-27	15
2303180W	3-33	9	2303551W	2-51	6	2303912W	3-118	19	230426W	2-29	21
2303180W	3-64	9	2303552W	2-51	21	2303912W	3-119	19	230426W	2-31	21
2303180W	3-71	9	2303553W	2-51	5	2303912W	3-120	19	230426W	2-33	12
2303181W	3-20	10	2303554W	2-45	30	2303912W	3-123	28	230426W	2-35	12
2303181W	3-22	10	2303554W	5-19	5	2303912W	3-127	4	230427W	2-25	13
2303181W	3-24	10	2303554W	6-7		2303974W	2-23	62	230427W	2-27	14
2303181W	3-26	10	2303555W	2-45	31	2303982W	3-27	1	230427W	2-29	22
2303181W	3-33	10	2303555W	5-19	6	2303982W	3-34	1	230427W	2-29	24
2303181W	3-64	10	2303555W	6-7		2303982W	3-43	2	230427W	2-31	22
2303181W	3-71	10	2303556W	2-45	32	2303982W	3-51	2	230427W	2-31	24
2303221W	1-11	4	2303556W	5-19	7	2303982W	3-52	2	230427W	2-33	13
2303221W	1-13	4	2303556W	6-7		2303982W	3-53	31	230427W	2-35	13
2303221W	1-3	4	2303557W	2-51	19	2303982W	3-65	2	2304304W	3-51	3
2303221W	1-5	4	2303557W	5-14	6	2303982W	3-67	1	2304327W	3-9	122
2303221W	1-7	4	2303557W	6-6		2303982W	3-72	1	2304327W	3-99	53
2303221W	1-9	4	2303558W	2-51	20	2303982W	3-88	21	2304329W	3-43	
2303221W	6-9		2303558W	5-14	7	2303982W	3-90	1.12	2304330W	3-95	
2303222W	3-20	14	2303558W	6-6		2303982W	3-95		2304339W	3-95	3
2303222W	3-22	14	2303562W	2-45	21	2303984W	3-43	1	2304339W	3-96	2
2303222W	3-24	14	2303563W	2-45	22	2303984W	3-51	1	2304340W	3-95	4
2303222W	3-26	14	2303564W	2-45	18	2303984W	3-52	1	2304340W	3-96	3
2303222W	3-33	14	2303565W	2-45	28	2303984W	3-59	27	2304341W	3-95	5
2303222W	3-64	14	2303567W	2-51	12	2303984W	3-86	1	2304341W	3-96	4
2303222W	3-71	14	2303568W	2-51	13	2303984W	3-87	1	2304342W	3-95	6
2303223W	3-20	17	2303569W	2-51	9	2303984W	3-95		2304342W	3-96	5
2303223W	3-22	17	2303570W	6-6		2303984W	6-10		2304343W	3-95	7
2303223W	3-24	17	2303571W	2-51	8	2303985W	1-53	18	2304343W	3-96	6
2303223W	3-26	17	2303571W	5-14	5	2303985W	3-92	18	2304349W	3-112	1
2303223W	3-33	17	2303571W	6-6		2303985W	3-96		2304350W	1-43	22
2303223W	3-64	17	2303572W	2-51	7	2303986W	3-27	2	2304350W	1-47	25
2303223W	3-71	17	2303572W	5-14	4	2303986W	3-34	2	2304352W	3-9	20
230336W	4-2	11	2303572W	6-6		2303986W	3-53	32	2304358W	3-101	12
230351W	2-41	4	2303573W	2-48	15	2303986W	3-95		2304358W	3-103	127
230351W	2-41	18	2303574W	2-45	14	230405W	2-41	4	2304358W	3-107	127
230351W	2-43	4	2303574W	2-48		230405W	2-43	4	2304358W	3-9	127
230351W	2-43	18	2303612W	2-45	37	230405W	5-15	1	2304358W	3-99	58
230351W	2-45	2	2303635W	2-45	19	230405W	5-16	1	2304359W	3-9	126
230351W	5-15	2	2303636W	2-45	20	230405W	5-17	1	2304360W	3-11	57
230351W	5-16	2	2303637W	2-51	10	230405W	5-18	1	2304360W	3-9	28
230351W	5-17	2	2303638W	2-51	11	230405W	6-6		2304361W	3-86	2
230351W	5-18	2	2303650W	2-45	41	230405W	6-6		2304366W	3-101	40
230351W	5-19	1	2303650W	5-19	8	230405W	6-7		2304366W	3-103	232
230351W	6-6		2303650W	6-7		230405W	6-7		2304366W	3-107	54
230351W	6-6		2303651W	2-45	40	230407W	2-41	7	2304366W	3-99	32
230351W	6-7		2303654W	2-53	24	230407W	2-43	7	2304380W	3-43	4
230351W	6-7		2303660W	1-26	3	230407W	2-45	6	2304380W	3-51	4
230351W	6-7		2303661W	1-26	4	230407W	5-15	3	2304380W	3-52	4
2303523W	1-11	38A	2303662W	1-26	5	230407W	5-16	3	2304380W	3-59	29
2303523W	1-13	38A	2303664W	1-26	6	230407W	5-17	3	2304380W	3-86	3
2303523W	1-3	38A	2303671W	2-23		230407W	5-18	3	2304380W	3-87	3
2303523W	1-5	38A	2303674W	1-49	1.11	230407W	5-19	3	2304386W	3-59	28
2303523W	1-7	38A	2303677W	3-101	1	230407W	6-6		2304394W	3-43	3
2303523W	1-9	38A	2303677W	3-103	405	230407W	6-6		2304503W	3-101	37
2303524W	1-11	39A	2303677W	3-107	403	230407W	6-7		2304503W	3-99	28
2303524W	1-13	39A	2303677W	3-11	12	230407W	6-7		2304504W	3-115	12
2303524W	1-3	39A	2303677W	3-9	35	230407W	6-7		2304504W	3-116	12
2303524W	1-5	39A	2303677W	3-99	61	2304111W	3-101	13	2304504W	3-117	12
2303524W	1-7	39A	2303848W	2-53	1	2304111W	3-103	304	2304504W	3-118	12
2303524W	1-9	39A	2303848W	2-56	10	2304111W	3-107	304	2304504W	3-119	12
2303535W	2-23	63	2303848W	2-55	16	2304111W	3-99	1	2304504W	3-120	12
2303536W	2-23	60	2303889W	3-108		2304112W	3-101	13	2304544W	3-34	10
2303541W	3-103	401	2303889W	3-99	43	2304112W	3-103	304	2304544W	3-35	3
2303541W	3-107	401	2303897W	2-37	23	2304112W	3-107	304	2304544W	3-72	8
2303541W	3-137	17	2303897W	2-39	21	2304112W	3-113	9	2304552W	3-67	2
2303542W	2-45	4	2303901W	3-101	41	2304112W	3-123	31	2304552W	3-72	2
2303543W	2-45	42	2303901W	3-99	33	2304112W	3-127	11	2304557W	3-28	2
2303545W	2-45	39	2303901W	3-99	63	2304112W	3-99	1	2304557W	3-35	2
2303547W	2-45	13	2303912W	3-113	13	2304112W	5-7	1	2304557W	3-67	

7-13

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
2304557W	3-72		2304835W	3-129	1	2305202W	3-29	1	2305687W	2-37	12
2304557W	3-95		2304835W	3-130	1	2305202W	3-36	1	2305688W	2-37	11
2304564W	3-34	15	2304840W	3-108	3	2305202W	3-73	60	2305688W	2-39	9
2304564W	3-35	7	2304841W	3-108	4	2305202W	3-95	5	2305689W	2-37	14
2304569W	3-27	11	2304842W	3-108	5	2305203W	3-29	8	2305690W	2-37	15
2304569W	3-29	3	2304845W	3-108	12	2305203W	3-29	16	2305690W	2-39	13
2304569W	3-29	11	2304845W	3-99	26	2305203W	3-36	8	2305691W	2-37	7
2304569W	3-36	3	2304853W	3-101	31	2305203W	3-36	16	2305691W	2-39	5
2304569W	3-36	11	2304853W	3-103	219	2305203W	3-73	68	2305694W	2-37	4
2304569W	3-67	9	2304853W	3-99	19	2305250W	3-113	5	2305694W	2-39	2
2304571W	3-27	10	2304854W	3-101	48	2305250W	3-115	11	2305695W	2-37	24
2304571W	3-28	3	2304854W	3-103	241	2305250W	3-116	11	2305695W	2-39	22
2304571W	3-67	8	2304854W	3-107	14	2305250W	3-117	11	2305696W	2-37	6
2304577W	3-27	15	2304855W	3-101	28	2305250W	3-118	11	2305696W	2-39	4
2304577W	3-28	7	2304855W	3-103	216	2305250W	3-119	11	2305697W	2-37	1
2304597W	3-107	401	2304855W	3-99	16	2305250W	3-120	11	2305698W	1-47	1
2304604W	3-95	20	2304858W	3-99	47	2305250W	3-123	19	2305698W	2-37	
2304604W	3-96	8	2304860W	3-99	14	2305260W	3-99	25	2305698W	2-39	
2304606W	3-99	41	2304862W	3-101	13	2305269W	3-99	5	2305699W	1-47	18
2304660W	2-37	22	2304862W	3-103	304	2305270W	1-11	34A	2305699W	2-37	29
2304660W	2-39	20	2304862W	3-107	304	2305270W	1-13	34A	2305699W	2-39	36
2304661W	2-37	21	2304862W	3-99	1	2305270W	1-3	34A	2305706W	1-47	3
2304661W	2-39	19	2304867W	3-67	5	2305270W	1-5	34A	2305715W	2-37	8
2304662W	2-37	19	2304867W	3-72	5	2305270W	1-7	34A	2305715W	2-39	6
2304662W	2-39	17	2304868W	3-67	10	2305270W	1-9	34A	2305774W	3-88	22
2304700W	2-37	20	2304868W	3-72	10	2305271W	1-11	33A	2305914W	2-37	26
2304700W	2-39	18	2304877W	3-101	42	2305271W	1-13	33A	2305914W	2-39	23
2304708W	1-11	38B	2304877W	3-99	34	2305271W	1-3	33A	2305916W	2-37	27
2304708W	1-13	38B	2304877W	3-99	64	2305271W	1-5	33A	2305916W	2-39	24
2304708W	1-3	38B	2304878W	3-27	4	2305271W	1-7	33A	2305917W	2-37	28
2304708W	1-5	38B	2304878W	3-34	4	2305271W	1-9	33A	2305917W	2-39	25
2304708W	1-7	38B	2304879W	3-27	6	2305271W	5-8	8	2305920W	1-47	24
2304708W	1-9	38B	2304879W	3-29	5	2305271W	6-3		2305920W	2-37	32
2304709W	1-11	39B	2304879W	3-29	13	2305276W	2-45	29	2305920W	2-39	39
2304709W	1-13	39B	2304879W	3-34	6	2305277W	2-51	18	2305978W	3-95	
2304709W	1-3	39B	2304879W	3-36	5	2305407W	3-101	15	2305979W	3-66	4
2304709W	1-5	39B	2304879W	3-36	13	2305407W	3-103	306	2305979W	3-95	
2304709W	1-7	39B	2304879W	3-73	64	2305407W	3-107	306	2305979W	6-9	
2304709W	1-9	39B	2304881W	3-27	12	2305407W	3-99	4	2305986W	3-11	97
2304709W	5-6	2	2304881W	3-34	12	2305408W	3-101	46	2305987W	3-101	19
2304709W	5-7	3	2304892W	3-123	24	2305408W	3-103	239	2305987W	3-103	207
2304709W	5-8	10	2304898W	3-27	3	2305408W	3-99	39	2305987W	3-107	16
2304709W	6-3		2304898W	3-34	3	2305409W	3-99	17	2305988W	3-101	17
2304709W	6-3		2304899W	3-27		2305411W	3-115	10	2305988W	3-103	205
2304709W	6-3		2304899W	3-28	5	2305411W	3-116	10	2305988W	3-107	55
2304779W	3-123	23	2304899W	3-29	9	2305411W	3-117	10	2305990W	3-101	55
2304780W	3-115	9	2304899W	3-34		2305411W	3-118	10	2305990W	3-103	248
2304780W	3-118	9	2304899W	3-35	5	2305411W	3-119	10	2306029W	2-45	24
2304780W	3-128		2304899W	3-36	9	2305411W	3-120	10	2306030W	2-45	25
2304796W	3-115	20	2304971W	3-108	3	2305412W	3-115	21	2306041W	2-45	23
2304796W	3-116	20	2305023W	3-92	28	2305412W	3-116	21	2306095W	3-53	33
2304796W	3-117	20	2305049W	3-99	36	2305412W	3-117	21	2306421W	1-15	1
2304796W	3-118	20	2305056W	3-99	21	2305412W	3-118	21	2306421W	1-22	1
2304796W	3-119	20	2305101W	1-11	22	2305412W	3-119	21	2306421W	1-25	1
2304796W	3-120	20	2305101W	1-13	22	2305412W	3-120	21	2306547W	3-101	50
2304796W	3-127	1	2305101W	1-3	22	2305412W	3-121	105	2306547W	3-109	
2304820W	3-95		2305101W	1-5	22	2305418W	3-101	57	2306930W	3-87	2
2304823W	3-11	98	2305101W	1-7	22	2305418W	3-103	309	2306932W	3-52	3
2304824W	3-99	6	2305101W	1-9	22	2305418W	3-107	309	2307343W	3-123	13
2304825W	3-101	18	2305114W	3-103	300	2305418W	3-99	50	2307354W	3-58	2
2304825W	3-103	206	2305114W	3-107	300	2305428W	3-128	4	2307354W	3-95	
2304825W	3-99	7	2305114W	3-11	7	2305468W	3-115	6	2307576W	3-115	13
2304833W	3-128	3	2305132W	3-101	13	2305468W	3-116	6	2307576W	3-116	13
2304833W	3-129	3	2305132W	3-103	304	2305468W	3-117	6	2307576W	3-118	13
2304833W	3-130	3	2305132W	3-107	304	2305468W	3-118	6	2307576W	3-119	13
2304833W	3-131	3	2305132W	3-99	1	2305468W	3-119	6	2307643W	3-115	2
2304834W	3-128	2	2305199W	3-29	7	2305468W	3-120	6	2307643W	3-116	2
2304834W	3-129	2	2305199W	3-29	15	2305504W	3-101	58	2307643W	3-117	2
2304834W	3-130	2	2305199W	3-36	7	2305504W	3-103	310	2307643W	3-118	2
2304834W	3-131	2	2305199W	3-36	15	2305504W	3-107	310	2307643W	3-119	2
2304835W	3-128	1	2305199W	3-73	66	2305504W	3-99	51	2307643W	3-120	2

7-14

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
2307643W	3-121	96	235691W	3-108	10	243189W	3-49	17	257779W	1-9	33
2307643W	3-123	34	235691W	3-99	44	243189W	3-55	17	257779W	5-8	7
2307643W	3-125	34	236308W	3-99	29	246108W	3-11	9	257779W	6-3	
2307715W	3-101	10	236417W	3-3	76	246108W	3-99	60	257789W	1-11	34
2307715W	3-103	125	236417W	3-56	29	250379W	2-13	2	257789W	1-13	34
2307715W	3-107	125	236417W	3-57	29	250379W	2-14	1.2	257789W	1-3	34
2307715W	3-107	151	236417W	3-60	29	250490W	2-27	41	257789W	1-5	34
2307715W	3-11	152	236417W	3-61	29	251733W	2-41	14	257789W	1-7	34
2307730W	3-101	7	236417W	3-74	29	251733W	2-43	14	257789W	1-9	34
2307730W	3-103	409	236417W	3-75	29	252114W	2-49	15	257791W	2-47	15
2307730W	3-107	407	236417W	3-77	29	252928W	2-25	29	258217W	3-12	17
2307740W	3-101	5	236417W	3-78	29	252928W	2-33	29	258217W	3-13	29
2307740W	3-103	303	236417W	3-82	29	252928W	2-35	29	258217W	3-14	21
2307740W	3-107	303	236417W	3-83	29	253030W	2-17	3	258220W	3-12	18
2307740W	3-11	32	238992W	3-12	23	253031W	1-50	1	258220W	3-13	27
2307757W	3-101	26	238992W	3-13	22	253797W	2-9	3	258220W	3-14	22
2307757W	3-103	214	238992W	3-14	27	253812W	1-11	30	258559W	1-3	7
2307758W	3-101	16	240175W	2-25	1	253812W	1-13	30	258559W	1-5	7
2307758W	3-103	307	240175W	2-29	1	253812W	1-17	13	258559W	1-7	7
2307758W	3-107	307	240175W	2-31	1	253812W	1-3	30	258560W	4-5	5
2307769W	6-9		240175W	2-33	1	253812W	1-5	30	258562W	4-5	8
2307770W	3-109	4	240175W	2-35	1	253812W	1-7	30	258565W	4-5	4
2307770W	6-9		241442W	2-25	20	253812W	1-9	30	258566W	4-5	6
2307841W	3-123	12	241442W	2-27	5	253812W	5-8	5	258573W	1-3	24
2307841W	3-125	12	241442W	2-29	29	253812W	6-3		258573W	1-5	24
2307849W	3-113	2	241442W	2-31	29	253814W	1-13	29	258573W	1-7	24
2307849W	3-115	1	241442W	2-33	20	253814W	1-3	29	259456W	3-11	58
2307849W	3-116	1	241442W	2-35	20	253814W	1-5	29	259456W	3-3	34
2307849W	3-117	1	241778W	3-14	2	253814W	1-7	29	259456W	3-5	11
2307849W	3-118	1	241778W	3-3	66	253814W	1-9	29	259456W	3-9	29
2307849W	3-119	1	242825W	2-25	4	253817W	1-14	6	259459W	4-5	3
2307849W	3-120	1	242825W	2-27	11	253817W	1-17	2	259460W	4-5	3
2307849W	3-123	33	242825W	2-29	4	253817W	1-19	18	259463W	3-11	83
2307849W	3-127	3	242825W	2-31	4	253817W	1-20	6	259463W	3-3	88
2307855W	3-115	22	242825W	2-33	4	253817W	1-31	7	259463W	3-5	39
2307855W	3-116	22	242825W	2-35	4	253817W	1-32	1	259463W	3-9	89
2307855W	3-117	22	242826W	2-25	5	253817W	1-33	9	259545W	1-32	3
2307855W	3-118	22	242826W	2-27	10	253817W	1-34	9	259547W	1-32	5
2307855W	3-119	22	242826W	2-29	5	254375W	1-38	19	259548W	1-32	7
2307855W	3-120	22	242826W	2-31	5	254375W	2-27	47	259768W	2-7	3
2307886W	3-116	9	242826W	2-33	5	255094W	1-32	8	259770W	2-5	3
2307886W	3-117	9	242826W	2-35	5	255433W	3-107	38	259854W	2-17	3
2307886W	3-119	9	242832W	2-53	23	255433W	3-11	15	260618W	3-55	2
2307886W	3-120	9	242832W	2-55	36	255433W	3-3	52	260619W	3-45	14
2307886W	3-129	1	242839W	2-53	16	255433W	3-5	81	260619W	3-49	14
2307886W	3-130		243188W	3-15	8	255433W	3-9	52	260619W	3-55	14
2307919W	3-113	3	243188W	3-17	8	255434W	3-107	45	260676W	2-10	14
2307919W	3-114	100	243188W	3-38	8	255434W	3-11	24	260676W	2-9	7
2307919W	3-121	100	243188W	3-40	8	255434W	3-3	86	260677W	3-77	33
2307919W	3-123	29	243188W	3-46	8	255434W	3-5	80	260677W	3-78	33
2307919W	3-125	29	243189W	3-15	7	255476W	1-32	4	261542W	2-46	4
2307920W	3-113	17	243189W	3-16	7	256608W	2-41	22	261542W	2-47	4
2307920W	3-123	38	243189W	3-17	7	256608W	2-43	22	261542W	2-48	5
2307920W	3-125	38	243189W	3-18	7	256608W	2-46		261542W	2-49	12
2307925W	3-113	15	243189W	3-20	18	256609W	2-41	11	261542W	5-10	3
2307925W	3-123	16	243189W	3-21	21	256609W	2-43	11	261542W	5-11	3
2307925W	3-127	5	243189W	3-22	18	256609W	2-45	10	261542W	5-11	18
2307942W	3-113	16	243189W	3-23	21	256609W	2-47		261542W	5-12	2
2307942W	3-123	17	243189W	3-24	18	2570W	4-2	7	261542W	6-4	
2307942W	3-127	6	243189W	3-25	21	2570W	4-3	3	261542W	6-4	
2307944W	3-113	6	243189W	3-26	18	2570W	4-3	9	261542W	6-5	
2307944W	3-123	20	243189W	3-31	21	2570W	4-4	3	261542W	6-5	
2307944W	3-127	7	243189W	3-33	18	2570W	4-4	9	261675W	2-27	44
2311168W	5-7		243189W	3-37	7	257291W	3-11	99	261676W	2-27	42
2312692W	3-73	69	243189W	3-38	7	257333W	3-134	11	261677W	2-27	43
233693W	3-101	52	243189W	3-40	7	257341W	3-134	17	262080W	3-12	30
233693W	3-103	245	243189W	3-41	7	257779W	1-11	33	262080W	3-13	2
233693W	3-108	11	243189W	3-44	15	257779W	1-13	33	262080W	3-14	6
233693W	3-99	45	243189W	3-45	17	257779W	1-3	33	262088W	3-12	16
235691W	3-101	51	243189W	3-46	7	257779W	1-5	33	262088W	3-13	19
235691W	3-103	244	243189W	3-47	7	257779W	1-7	33	262088W	3-14	20

7-15

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
264159W	2-37	5	271731W	3-33	22	276031W	3-75	2	276043W	3-57	2
264159W	2-39	3	271731W	3-34	7	276031W	3-77	2	276043W	3-60	2
265325W	3-37	25	271731W	3-35	6	276031W	3-78	2	276043W	3-61	2
265325W	3-38	25	271731W	3-36	10	276031W	3-79	3	276043W	3-68	2
265325W	3-40	25	271731W	3-37	22	276031W	3-82	2	276043W	3-69	2
265325W	3-41	25	271731W	3-38	22	276031W	3-83	2	276043W	3-74	2
265325W	3-44	25	271731W	3-39	6	276032W	3-16	8	276043W	3-75	2
265325W	3-46	25	271731W	3-40	22	276032W	3-18	8	276043W	3-77	2
265325W	3-47	25	271731W	3-41	22	276032W	3-21	18	276043W	3-78	2
265325W	3-56	32	271731W	3-42	12	276032W	3-23	18	276043W	3-79	5
265325W	3-57	32	271731W	3-43	12	276032W	3-25	18	276043W	3-81	4
265325W	3-60	32	271731W	3-44	22	276032W	3-31	18	276043W	3-82	2
265325W	3-61	32	271731W	3-45	18	276032W	3-37	8	276043W	3-83	2
265325W	3-74	32	271731W	3-46	22	276032W	3-41	8	276043W	3-91	4
265325W	3-75	32	271731W	3-47	22	276032W	3-44	16	276081W	3-21	4
265325W	3-79	22	271731W	3-48	9	276032W	3-47	8	276081W	3-23	4
265331W	3-3	2	271731W	3-49	18	276036W	3-45	2	276081W	3-25	4
265331W	3-5	69	271731W	3-50	9	276036W	3-49	2	276081W	3-31	4
265332W	3-3	3	271731W	3-51	9	276036W	3-55	2	276081W	3-44	11
265332W	3-5	70	271731W	3-52	9	276036W	3-81	2	276081W	3-63	2
265332W	5-4	3	271731W	3-53	20	276036W	3-91	2	276081W	3-68	4
265332W	5-5	3	271731W	3-54	9	276037W	3-45	14	276081W	3-69	4
265332W	5-9	13	271731W	3-55	18	276037W	3-49	14	276081W	3-79	12
265332W	6-2		271744W	1-29	6	276037W	3-55	14	276087W	3-107	42
265332W	6-2		271746W	3-16	10	276041W	3-15	20	276087W	3-11	21
265332W	6-3		271746W	3-18	10	276041W	3-16	20	276087W	3-3	70
265401W	2-49	6	271746W	3-37	10	276041W	3-17	20	276087W	3-5	76
265402W	2-49	8	271746W	3-41	10	276041W	3-18	20	276087W	3-9	70
265403W	2-49	14	271746W	3-47	10	276041W	3-37	20	276090W	3-107	150
265407W	2-48	7	271747W	3-63	4	276041W	3-38	20	276090W	3-11	150
265407W	5-11	19	271747W	3-64	18	276041W	3-40	20	276090W	3-3	6
265407W	6-5		271747W	3-68	6	276041W	3-41	20	276090W	3-5	3
265787W	3-14	38	271747W	3-69	6	276041W	3-46	20	276090W	3-9	150
267018W	3-13	36	271747W	3-71	18	276041W	3-47	20	276091W	3-3	35
267018W	3-14	4	271747W	3-79	13	276041W	3-56	9	276092W	3-107	152
267018W	3-3	69	271748W	3-57	8	276041W	3-57	9	276092W	3-11	154
267487W	3-3	20	271748W	3-61	8	276041W	3-60	9	276092W	3-3	7
267487W	3-5	53	271748W	3-75	8	276041W	3-61	9	276092W	3-5	5
267488W	3-3	21	271748W	3-78	8	276041W	3-74	9	276092W	3-9	154
267488W	3-5	54	271748W	3-83	8	276041W	3-75	9	276094W	3-11	78
267489W	3-3	14	274038W	3-3	12	276041W	3-77	9	276094W	3-3	67
267489W	3-5	55	274038W	3-5	71	276041W	3-78	9	276094W	3-5	16
267499W	2-46	7	274038W	3-9	152	276041W	3-82	9	276094W	3-9	67
267499W	2-47	7	274044W	1-37	52	276041W	3-83	9	276095W	3-11	60
267499W	5-10	4	274044W	1-38	3	276043W	3-16	2	276095W	3-3	32
267499W	5-11	4	274044W	1-40	3	276043W	3-16	8	276095W	3-5	21
267499W	6-4		274044W	1-43	18	276043W	3-18	2	276095W	3-9	32
267499W	6-5		274464W	2-57	2	276043W	3-18	8	276097W	3-107	48
267505W	2-46	15	274464W	2-55	1	276043W	3-21	2	276097W	3-11	27
267522W	2-49	9	274908W	2-57	2	276043W	3-21	20	276097W	3-3	79
271729W	3-3	78	274921W	4-5	7	276043W	3-23	2	276097W	3-5	79
271729W	3-5	72	275507W	3-12	6	276043W	3-23	20	276097W	3-9	94
271729W	3-9	95	275508W	3-12	3	276043W	3-25	2	276098W	3-12	
271731W	3-15	22	276031W	3-16	2	276043W	3-25	20	276098W	3-13	1
271731W	3-16	22	276031W	3-18	2	276043W	3-31	2	277276W	3-28	4
271731W	3-17	22	276031W	3-21	1	276043W	3-31	20	277276W	3-29	2
271731W	3-18	22	276031W	3-23	1	276043W	3-37	2	277276W	3-30	2
271731W	3-19	8	276031W	3-25	1	276043W	3-37	8	277276W	3-35	4
271731W	3-20	22	276031W	3-31	1	276043W	3-41	2	277276W	3-36	2
271731W	3-21	31	276031W	3-37	2	276043W	3-41	8	277276W	3-56	17
271731W	3-22	22	276031W	3-41	2	276043W	3-44	5	277276W	3-57	17
271731W	3-23	31	276031W	3-44	3	276043W	3-44	18	277276W	3-58	9
271731W	3-24	22	276031W	3-47	2	276043W	3-45	4	277276W	3-59	30
271731W	3-25	31	276031W	3-56	2	276043W	3-45	16	277276W	3-60	17
271731W	3-26	22	276031W	3-57	2	276043W	3-47	2	277276W	3-61	17
271731W	3-27	7	276031W	3-60	2	276043W	3-47	8	277276W	3-62	9
271731W	3-28	6	276031W	3-61	2	276043W	3-49	4	277276W	3-63	14
271731W	3-29	10	276031W	3-63	1	276043W	3-49	16	277276W	3-64	22
271731W	3-30	6	276031W	3-68	1	276043W	3-55	4	277276W	3-65	5
271731W	3-31	31	276031W	3-69	1	276043W	3-55	16	277276W	3-66	5
271731W	3-32	9	276031W	3-74	2	276043W	3-56	2	277276W	3-67	6

7-16

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
277276W	3-68	19	285675W	2-8	14	296438W	1-30	2	303939W	3-61	26
277276W	3-69	19	285689W	1-17	6	296438W	1-37	51	303939W	3-62	10
277276W	3-70	7	285689W	2-6	14	296440W	1-49	1.5	303939W	3-63	15
277276W	3-71	22	285690W	1-53	8	29758W	2-21	17	303939W	3-64	23
277276W	3-72	6	285690W	2-12	14	29758W	2-23	17	303939W	3-70	8
277276W	3-73	63	285694W	1-19	31	3001363W	3-11	54	303939W	3-9	120
277276W	3-74	17	285694W	2-6	14	3001363W	3-5	67	303941W	3-40	24
277276W	3-75	17	286043W	1-11	32	3001363W	3-9	15	303941W	3-41	24
277276W	3-76	7	286043W	1-13	32	3001363W	5-5	1	303941W	3-44	27
277276W	3-77	17	286043W	1-3	32	3001363W	5-6	1	303941W	3-45	20
277276W	3-78	17	286043W	1-5	32	3001363W	6-2		303941W	3-49	20
277276W	3-79	25	286043W	1-7	32	3001363W	6-3		303941W	3-55	20
277276W	3-80	10	286043W	1-9	32	3003079W	3-62	3	303941W	3-67	7
277276W	3-81	14	286044W	1-11	31	3003079W	3-70	3	303941W	3-72	7
277276W	3-82	17	286044W	1-13	31	3003079W	3-85	3	303941W	3-77	26
277276W	3-83	17	286044W	1-3	31	30055W	2-25	2	303941W	3-78	26
277276W	3-84	10	286044W	1-5	31	30055W	2-27	13	303942W	3-11	120
277276W	3-85	10	286044W	1-7	31	30055W	2-29	2	303942W	3-21	23
277276W	3-86	9	286044W	1-9	31	30055W	2-31	2	303942W	3-22	23
277276W	3-87	9	286044W	5-8	6	30055W	2-33	2	303942W	3-23	23
277276W	3-88	20	286044W	6-3		30055W	2-35	2	303942W	3-24	23
277276W	3-89	10	287026W	3-79		30059W	2-50	8	303942W	3-25	23
277276W	3-90	1.23	287027W	3-44		30059W	2-51	24	303942W	3-26	23
277276W	3-91	14	287028W	3-44	19	30059W	5-13	4	303942W	3-27	8
277276W	3-92	27	287028W	3-79	16	30059W	5-14	9	303942W	3-31	23
277339W	3-11	81	287029W	3-44	31	30059W	6-5		303942W	3-33	23
277339W	3-3	82	287029W	3-79	19	30059W	6-6		303942W	3-34	8
277339W	3-5	13	287816W	3-115	8	30068W	2-13	9	303942W	3-39	8
277339W	3-9	82	287816W	3-116	8	30068W	2-14	1.8	303942W	3-64	23
277341W	5-8		287816W	3-117	8	30068W	6-10		303942W	3-68	23
277341W	6-3		287816W	3-118	8	30080W	2-50	7	303942W	3-69	23
277490W	3-3	15	287816W	3-119	8	30080W	2-51	23	303942W	3-71	23
277490W	5-4	1	287816W	3-120	8	30080W	5-13	3	303942W	3-9	120
277663W	3-11	59	287816W	3-121	102	30080W	5-14	8	303943W	3-11	120
277663W	3-3	31	287939W	2-41	10	30080W	6-5		303943W	3-37	23
277663W	3-9	31	287939W	2-43	10	30080W	6-6		303943W	3-37	24
279378W	3-74	34	287942W	2-41	21	30091W	2-56	1	303943W	3-38	23
279378W	3-75	34	287942W	2-45	8	30091W	4-5	2	303943W	3-38	24
279388W	3-5	67	292661W	1-23	3	30091W	5-20	1	303943W	3-39	7
279392W	3-101	33	292661W	1-30	3	30091W	6-8		303943W	3-44	30
279392W	3-103	221	292680W	3-115	7	30145W	2-13	6	303943W	3-48	11
279392W	3-107	27	292680W	3-116	7	30145W	2-14	1.5	303943W	3-50	11
279392W	3-11	75	292680W	3-117	7	30145W	6-10		303943W	3-51	8
279392W	3-3	61	292680W	3-118	7	302398W	3-92	26	303943W	3-52	8
279392W	3-5	10	292680W	3-119	7	302399W	3-73	67	303943W	3-54	11
279392W	3-9	61	292680W	3-120	7	302399W	3-92	23	303943W	3-74	26
279394W	3-13		292680W	3-121	101	30279W	2-25	3	303943W	3-75	26
279397W	3-13	34	293632W	1-37	7	30279W	2-27	12	303943W	3-76	9
279397W	3-14	35	293632W	1-43	7	30279W	2-29	42	303943W	3-79	24
279397W	3-3	59	293632W	1-49	1.18	30279W	2-31	42	303943W	3-9	120
280263W	1-50	4	293632W	2-25	39	30279W	2-33	3	303943W	6-9	
280292W	3-134	3	293632W	2-29	39	30279W	2-35	3	303944W	3-11	120
280591W	3-5	67	293632W	2-31	39	303939W	3-11	120	303944W	3-27	9
280985W	4-5	10	293632W	2-33	39	303939W	3-15	23	303944W	3-34	9
283430W	3-44	36	293732W	1-49	1.2	303939W	3-15	24	303944W	3-45	21
283430W	3-79	26	294938W	2-29	13	303939W	3-16	23	303944W	3-46	23
283431W	3-44	14	295752W	2-29	30	303939W	3-16	24	303944W	3-46	24
283431W	3-79	11	295754W	2-29	19	303939W	3-17	23	303944W	3-47	23
285277W	2-10	9	296153W	3-92	25	303939W	3-17	24	303944W	3-47	24
285277W	2-12	9	296162W	3-29	6	303939W	3-18	23	303944W	3-48	10
285277W	2-15	4	296162W	3-29	14	303939W	3-18	24	303944W	3-49	21
285277W	2-18	9	296162W	3-36	6	303939W	3-19	12	303944W	3-50	10
285277W	2-3	4	296162W	3-36	14	303939W	3-20	23	303944W	3-51	7
285277W	2-6	9	296162W	3-73	65	303939W	3-21	26	303944W	3-52	7
285277W	2-8	9	296416W	3-92	24	303939W	3-23	26	303944W	3-53	36
285278W	2-10	9	296417W	3-92	22	303939W	3-25	26	303944W	3-54	10
285278W	2-12	9	296434W	1-37	53	303939W	3-31	26	303944W	3-55	21
285278W	2-18	9	296434W	1-38	4	303939W	3-32	11	303944W	3-59	36
285278W	2-6	9	296434W	1-40	4	303939W	3-56	26	303944W	3-81	16
285278W	2-8	9	296434W	1-43	19	303939W	3-57	26	303944W	3-82	26
285287W	2-18	14	296434W	1-49	1.3	303939W	3-60	26	303944W	3-83	26

7-17

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
303944W	3-84	9	314848W	2-43	16	35135W	4-6	9	381166W	3-31	29
303944W	3-85	9	316821W	3-135	3	354125W	3-3	15	381166W	3-68	21
303944W	3-86	8	316823W	3-135	1	35504W	2-21	27	381166W	3-69	21
303944W	3-87	8	316823W	3-136	5	35504W	2-23	27	381181W	1-15	5
303944W	3-88	25	316823W	3-137	5	35573W	2-10	6	381181W	1-21	5
303944W	3-89	9	318702W	3-115	18	35573W	2-11	8	381181W	1-22	5
303944W	3-9	120	318702W	3-116	18	35573W	2-12	6	381181W	1-23	5
303944W	3-90	1.24	318702W	3-117	18	35573W	2-15	3	381181W	1-24	5
303944W	3-91	16	318702W	3-118	18	35573W	2-16	3	381181W	1-25	5
303944W	6-10		318702W	3-119	18	35573W	2-17	8	381181W	1-30	6
303945W	3-11	120	318702W	3-120	18	35573W	2-18	6	381181W	3-21	30
303945W	3-40	23	322679W	3-11	80	35573W	2-2	3	381181W	3-22	24
303945W	3-41	23	322679W	3-9	81	35573W	2-3	3	381181W	3-23	30
303945W	3-42	10	322697W	3-5	50	35573W	2-4	3	381181W	3-24	24
303945W	3-43	10	327610W	3-3	19	35573W	2-5	8	381181W	3-25	30
303945W	3-80	8	327610W	3-5	51	35573W	2-6	6	381181W	3-26	24
303945W	3-9	120	327610W	3-5	51	35573W	2-7	8	381181W	3-31	30
303946W	3-107	30	327611W	3-3	19	35573W	2-8	6	381181W	3-32	10
303946W	3-11	93	327611W	3-5	87	35573W	2-9	8	381181W	3-33	24
303946W	3-21	22	328715W	2-46	5	35575W	2-25	11	381181W	3-64	19
303946W	3-23	22	328715W	2-47	5	35575W	2-33	11	381181W	3-68	18
303946W	3-25	22	328715W	2-48	6	35575W	2-35	11	381181W	3-69	18
303946W	3-31	22	328715W	2-49	11	35575W	2-41	17	381181W	3-71	19
303946W	3-44	26	328715W	5-10	2	35575W	2-43	17	381190W	2-12	9
303946W	3-5	33	328715W	5-11	2	35575W	2-45	1	381190W	2-2	7
303946W	3-56	25	328715W	5-11	17	35575W	5-10	14	383156W	2-21	2
303946W	3-57	25	328715W	5-12	1	35575W	5-11	14	383156W	2-23	2
303946W	3-60	25	328715W	6-4		35575W	6-4		383156W	2-27	2
303946W	3-61	25	328715W	6-4		35575W	6-5		383158W	1-29	12
303946W	3-68	22	328715W	6-5		358674W	1-11	47	383158W	2-27	38
303946W	3-69	22	328715W	6-5		358674W	1-13	47	383167W	2-21	20
303946W	3-74	25	331774W	2-25	9	358674W	1-3	47	383167W	2-23	20
303946W	3-75	25	331774W	2-29	9	358674W	1-5	47	383178W	2-21	43
303946W	3-77	25	331774W	2-31	9	358674W	1-7	47	383880W	3-19	2
303946W	3-78	25	331774W	2-33	9	358674W	1-9	47	383880W	3-32	2
303946W	3-79	23	331774W	2-35	9	36150W	2-27	17	383880W	3-39	2
303946W	3-82	25	332225W	2-25	8	36150W	2-29	11	383880W	3-42	2
303946W	3-83	25	332225W	2-27	20	36150W	2-31	11	383880W	3-48	2
303946W	3-9	108	332225W	2-29	8	36206W	4-2	6	383880W	3-50	2
307788W	1-11	52	332225W	2-31	8	374795W	2-21	41	383880W	3-54	2
307788W	1-13	52	332225W	2-33	8	374803W	2-21	13	383880W	3-93	
307788W	1-3	52	332225W	2-35	8	374803W	2-23	13	383881W	3-27	17
307788W	1-5	52	332231W	2-25	14	374803W	2-37	18	383881W	3-34	17
307788W	1-7	52	332231W	2-27	16	374803W	2-39	16	383881W	3-50	8
307788W	1-9	52	332231W	2-29	23	374804W	2-21	14	383881W	3-51	6
308404W	2-29	20	332231W	2-31	23	374804W	2-23	14	383881W	3-52	6
308418W	2-10	14	332231W	2-33	14	374804W	2-37	17	383881W	3-53	35
308419W	1-33	12	332231W	2-35	14	374804W	2-39	15	383881W	3-58	10
308419W	1-34	12	332820W	3-81		374805W	2-21	42	383881W	3-59	35
308420W	1-33	3	332820W	3-91		374807W	2-21	40	383881W	3-65	8
308420W	1-34	3	332821W	3-45		374807W	2-23	61	383881W	3-66	8
308421W	1-33	4	332821W	3-49		37562W	4-2	3	383881W	3-67	14
308421W	1-34	4	332821W	3-55		378231W	1-29	30	383881W	3-72	14
308422W	1-33	1	332822W	3-45	11	378235W	1-29	1	383881W	3-73	62
308422W	1-34	1	332822W	3-49	11	378237W	1-29	2	383881W	3-88	24
308423W	1-33	2	332822W	3-55	11	378238W	1-29	3	383881W	3-90	1.22
308423W	1-34	2	332822W	3-81	11	379460W	3-21	17	383881W	3-92	20
313022W	2-55		332822W	3-91	11	379460W	3-23	17	383881W	3-93	22
313883W	2-41	13	332823W	3-45	1	379460W	3-25	17	383881W	3-94	22
313883W	2-43	13	332823W	3-49	1	379460W	3-31	17	383881W	3-95	19
313883W	2-45	12	332823W	3-55	1	379460W	3-68	17	383892W	3-3	28
313884W	2-10	9	332823W	3-81	1	379460W	3-69	17	383892W	3-3	29
313884W	2-12	9	332823W	3-91	1	379491W	3-21	32	383892W	3-5	86
313884W	2-16	4	33394W	4-2	8	379491W	3-23	32	383917W	1-35	8
313884W	2-18	9	33394W	4-3	4	379491W	3-25	32	383920W	1-35	5
313884W	2-4	4	33394W	4-4	4	379491W	3-31	32	383921W	1-35	7
313884W	2-6	9	33785W	2-5	7	379491W	3-68	20	383922W	1-35	6
313884W	2-8	9	344837W	2-57	1	379491W	3-69	20	387316W	3-66	11
314833W	3-135		344839W	3-5	55	381166W	3-21	29	388640W	2-21	3
314834W	3-5	26	346523W	3-81	17	381166W	3-23	29	388640W	2-23	3
314848W	2-41	16	346523W	3-91	17	381166W	3-25	29	388640W	2-25	21

7-18

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
388640W	2-27	3	398817W	3-120	17	55434W	1-34	13	67355W	3-21	8
388640W	2-31	20	398817W	3-121	111	55434W	1-35	1	67355W	3-23	8
388640W	2-33	21	398817W	3-123	30	55434W	1-37	16	67355W	3-25	8
388642W	2-21	10	398817W	3-125	30	55434W	1-38	18	67355W	3-31	8
388642W	2-23	10	398817W	4-3	7	55434W	1-40	18	67355W	3-56	10
388642W	2-27	23	398817W	4-4	7	55434W	1-41	1	67355W	3-57	10
388646W	2-21	7	398820W	1-47	4	55434W	1-43	63	67355W	3-60	10
388646W	2-23	7	41212W	2-21	5	55434W	1-44	1.15	67355W	3-61	10
388646W	2-27	24	41212W	2-23	5	55434W	1-47	10	67355W	3-68	8
388655W	1-29	13	41212W	2-27	31	55434W	1-48	1	67355W	3-69	8
388655W	1-29	40	41212W	2-37	16	55434W	1-50	2	67355W	3-74	10
388658W	3-48		41212W	2-39	14	55434W	1-53	6	67355W	3-75	10
388658W	3-54		41216W	2-41	15	55434W	2-27	39	67355W	3-77	10
388659W	3-48	3	41216W	2-43	15	55468W	3-11	54	67355W	3-78	10
388659W	3-54	3	41216W	5-16	5	55468W	3-5	67	67355W	3-82	10
388659W	3-84	2	41216W	5-18	5	55468W	3-5	67	67355W	3-83	10
388659W	3-89	2	41216W	6-6		55468W	3-9	15	67355W	4-5	9
388667W	2-27	40	41216W	6-7		57542W	2-29	15	68370W	3-13	34
391016W	3-16	9	43307W	2-21	6	58938W	2-41	6	68370W	3-14	35
391016W	3-18	9	43307W	2-23	6	58938W	2-43	6	68370W	3-3	60
391016W	3-37	9	43307W	2-25	23	58938W	2-45	5	69815W	3-3	25
391016W	3-41	9	43307W	2-27	25	58938W	5-10	12	69815W	3-5	87
391016W	3-47	9	43307W	2-31	19	58938W	5-11	12	77418W	3-21	6
391016W	3-57	16	43307W	2-33	23	58938W	6-4		77418W	3-23	6
391016W	3-61	16	43307W	2-35	23	58938W	6-5		77418W	3-25	6
391016W	3-75	16	44316W	2-41	15	58939W	2-29	18	77418W	3-31	6
391016W	3-78	16	44316W	5-15	5	58947W	2-21	8	77418W	3-44	8
391016W	3-83	16	44316W	6-6		58947W	2-23	8	78022W	2-53	19
39370W	2-46	14	44326W	2-45	17	58947W	2-25	22	78022W	5-20	4
39370W	2-47	14	44326W	5-19	4	58947W	2-27	26	78022W	6-8	
39370W	2-48	14	44326W	6-7		58947W	2-31	15	78022W	2-55	7
39370W	5-10	8	44484W	2-53	20	58947W	2-33	22	79389W	2-10	4
39370W	5-11	8	44484W	5-20	5	58947W	2-35	22	79389W	2-11	2
39370W	5-11	23	44484W	6-8		59419W	4-2	10	79389W	2-12	4
39370W	6-4		45310W	2-10	3	60988W	1-11	12	79389W	2-17	2
39370W	6-5		45310W	2-12	3	60988W	1-13	12	79389W	2-18	4
39370W	6-5		45310W	2-15	2	60988W	1-3	12	79389W	2-2	5
39376W	2-25	25	45310W	2-16	2	60988W	1-5	12	79389W	2-3	5
39376W	2-31	17	45310W	2-18	3	60988W	1-7	12	79389W	2-4	5
39376W	2-33	25	45310W	2-2	2	60988W	1-9	12	79389W	2-5	2
39376W	2-35	25	45310W	2-3	2	60988W	5-8	1	79389W	2-6	4
39376W	3-12	28	45310W	2-4	2	60988W	6-3		79389W	2-7	2
39376W	3-13	14	45310W	2-6	3	62499W	3-3	76	79389W	2-8	4
39376W	3-14	32	45310W	2-8	3	62499W	3-56	27	79389W	2-9	2
39384W	2-25	24	45310W	6-9		62499W	3-57	27	79389W	6-9	
39384W	2-31	14	45733W	2-21	18	62499W	3-60	27	79972W	2-46	2
39384W	2-33	24	45733W	2-23	18	62499W	3-61	27	79972W	2-47	2
39384W	2-35	24	46578W	4-5	9	62499W	3-74	27	79972W	2-48	3
39387W	2-29	14	46629W	2-53	17	62499W	3-75	27	79972W	5-10	7
39674W	2-41	9	46629W	5-20	7	62499W	3-77	27	79972W	5-11	7
39674W	2-43	9	46629W	6-8		62499W	3-78	27	79972W	5-11	22
39674W	2-45	9	46629W	2-55	22	62499W	3-82	27	79972W	6-4	
39674W	5-10	13	53038W	2-27	45	62499W	3-83	27	79972W	6-5	
39674W	5-11	13	53559W	2-53	12	6348W	4-5	11	79972W	6-5	
39674W	6-4		53559W	2-55	18	67355W	1-29	14	79979W	2-49	16
39674W	6-5		54112W	2-11	6	67355W	1-29	41	79979W	5-12	3
397161W	2-39	32	55289W	1-11	18	67355W	2-10	2	79979W	6-4	
397161W	3-42	9	55289W	1-13	18	67355W	2-11	11	83857W	3-11	67
397161W	3-43	9	55289W	1-3	18	67355W	2-12	2	83857W	3-3	45
397161W	3-80	7	55289W	1-5	18	67355W	2-15	10	83857W	3-5	40
39765W	2-55	31	55289W	1-7	18	67355W	2-16	10	83857W	3-5	48
398567W	2-37	25	55289W	1-9	18	67355W	2-17	11	83857W	3-5	58
398599W	2-39	31	55289W	5-8	2	67355W	2-18	2	83857W	3-9	45
398817W	1-26	1	55289W	6-3		67355W	2-2	9	85749W	4-5	16
398817W	3-113	11	55434W	1-14	7	67355W	2-3	12	88297W	3-11	61
398817W	3-114	111	55434W	1-17	5	67355W	2-4	12	88297W	3-3	36
398817W	3-115	17	55434W	1-19	19	67355W	2-5	11	88297W	3-5	17
398817W	3-116	17	55434W	1-20	7	67355W	2-6	2	88297W	3-9	36
398817W	3-117	17	55434W	1-31	1	67355W	2-7	12	89669W	3-3	22
398817W	3-118	17	55434W	1-32	1	67355W	2-8	2	89669W	3-5	22
398817W	3-119	17	55434W	1-33	13	67355W	2-9	11	89669W	3-9	153

7-19

Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item	Part No.	Page No.	Item
89777W	2-46	6	95837W	1-22	1	98362W	2-16	1			
89777W	2-47	6	95837W	1-24	1	98362W	2-17	4			
89777W	2-48	2	95879W	4-6	10	98362W	2-18	1			
89777W	5-10	6	95883W	4-6	2	98362W	2-2	1			
89777W	5-11	6	95888W	4-6	5	98362W	2-3	1			
89777W	5-11	21	95890W	4-6	11	98362W	2-4	1			
89777W	6-4		95891W	4-6	3	98362W	2-5	4			
89777W	6-5		95892W	4-6	1	98362W	2-6	1			
89777W	6-5		95959W	1-11	5	98362W	2-7	4			
90937W	1-17	14	95959W	1-13	5	98362W	2-8	1			
90937W	1-19	12	95959W	1-3	5	R12968397	2-37	30			
90937W	1-29	11	95959W	1-5	5	R12968397	2-39	37			
90937W	1-33	14	95959W	1-7	5	R13801782	3-127	14			
90937W	1-34	14	95959W	1-9	5	R13803030	1-47	13			
90937W	1-47	12	95959W	6-9		R13810989	1-47	15			
90937W	2-12	13	95969W	2-50	3	R13811189	3-58	5			
90937W	2-13	7	95969W	2-51	4	R13811189	3-66	2			
90937W	2-14	1.6	96020W	2-10	7	R13811191	3-58	6			
90937W	2-18	13	96020W	2-11	15	R13812514	3-107	5			
90937W	2-27	34	96020W	2-12	7	R15005	3-108	7			
90937W	2-6	13	96020W	2-13	10	R15005	3-99	24			
90937W	2-8	13	96020W	2-14	1.9	R15006	3-108	6			
90937W	6-10		96020W	2-17	15	R15012	3-108	5			
92212W	4-2	9	96020W	2-18	7	R15015	3-108	4			
92620W	2-56	4	96020W	2-2	4	R16271	3-11	95			
92621W	2-56	5	96020W	2-5	15	R16271	3-9	19			
92623W	1-11	7	96020W	2-6	7	WR7-234J	4-7				
92623W	1-13	7	96020W	2-7	15	WR7-234J	6-9				
92623W	1-9	7	96020W	2-8	7	WR7-354J	4-7				
92623W	2-56	9	96020W	2-9	15	WR7-354J	6-9				
92720W	4-2	14	96021W	2-41	13	WR8-182J	4-7				
92867W	2-49	10	96028W	2-41	13	WR8-182J	6-9				
93166W	4-2	2	96028W	2-43	13	WR8-275J	4-7				
93657W	4-2	12	96417W	2-50	6	WR8-275J	6-9				
93658W	4-2	13	96417W	2-51	22	WR9-145J	4-7				
93985W	4-2	17	96418W	2-56	3	WR9-145J	6-9				
93985W	4-3	14	96431W	2-41	8	WR9-176J	4-7				
93985W	4-4	14	96431W	2-43	8	WR9-220J	4-7				
9528W	1-17	8	96433W	1-11	10	WR9-220J	6-9				
9528W	1-19	11	96433W	1-13	10	X-201962	6-10				
9528W	1-53	10	96433W	1-3	10	X-203345	6-10				
9528W	2-10	15	96433W	1-5	10	X-203346	6-10				
9528W	2-12	15	96433W	1-7	10	X-203348	6-10				
9528W	2-18	15	96433W	1-9	10	Y01C-0432	3-58	4			
9528W	2-5	6	96436W	2-53	9	Y01C-0432	3-66	3			
9528W	2-6	15	96436W	2-55	8	Y098629-012	3-108	2			
9528W	2-7	6	96437W	2-53	10	Y09C-M0650	3-92	21			
9528W	2-8	15	96437W	5-20	3	Y09C-M1480	1-49	1.8			
9554W	2-10	15	96437W	6-8		Y19C-M3080	1-30	4			
9554W	2-5	6	96437W	2-55	9	Y19C-M33120	1-49	1.4			
9554W	2-9	6	96438W	2-53	8	Y25G-(1024)16	3-127	8			
95581W	2-41	1	96438W	2-55	10	Y25G-(1024)16	3-133	4			
95581W	2-43	1	96461W	2-46	8	Y25G-0416	3-115	5			
95581W	2-45	45	96461W	2-47	8	Y25G-0416	3-116	5			
95581W	5-10	9	96461W	2-48	8	Y25G-0416	3-117	5			
95581W	5-11	9	96462W	2-46	3	Y25G-0416	3-118	5			
95581W	6-4		96462W	2-47	3	Y25G-0416	3-119	5			
95581W	6-5		96462W	2-48	4	Y25G-0416	3-120	5			
9563W	2-10	16	96468W	2-46	11	Y25G-0416	3-121	99			
9563W	2-9	5	96468W	2-47	11	Y25G-0416	3-123	37			
95666W	4-6	9	96524W	2-17	12	Y25G-0416	3-125	37			
95668W	4-6	8	96524W	2-3	7	Y35E-#10	3-127	9			
95669W	4-6	7	96524W	2-4	7	Y35E-#10	3-133	5			
95784W	4-2		96524W	2-5	12						
95785W	4-2	1	96524W	2-9	12						
95837W	1-14	1	9728W	2-9	6						
95837W	1-15	1	97553W	2-5	7						
95837W	1-17	3	98362W	2-10	1						
95837W	1-19	15	98362W	2-11	4						
95837W	1-20	1	98362W	2-12	1						
95837W	1-21	1	98362W	2-15	1						

Intentionally Blank



To find a dealer in your area,
Call: (503) 625-2560,
Fax: (503) 625-7269 , or
Email: marketing@alliedsystems.com, or
Visit our website: <http://www.alliedsystems.com>

Allied Systems
COMPANY

599781W 5/07/2018 Printed in U.S.A.