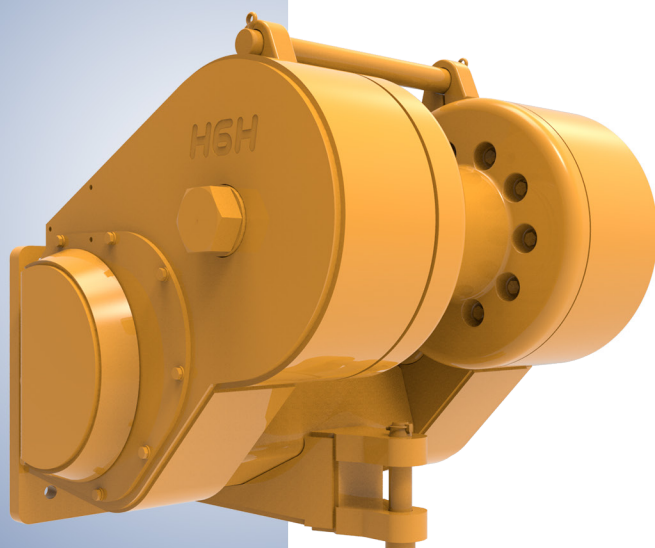




Parts Manual



Allied H6H

Hydraulic Winch

for Case Dozers

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 599039W-CASE

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Safety Precautions

Read, understand and observe the Safety Summary on pages 2 through 4 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 the 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.

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H6H Winch Parts for Case

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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.

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 worksite.

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

Operation, Inspection, and Maintenance Warnings



WARNING

Multiple hazards.

Ignoring safety warnings may cause equipment damage, personal injury or death.

All possible safety hazards cannot be foreseen and included in this manual. The operator must always be alert to possible hazards that could endanger personnel or damage the equipment.

Training

- Do not operate the winch unless you are authorized and trained to do so.
- Read, understand, and follow the operating, inspection, and maintenance instructions in this manual.
- Keep yourself informed of any applicable codes, regulations and standards for the job.

Personnel Safety

- 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.

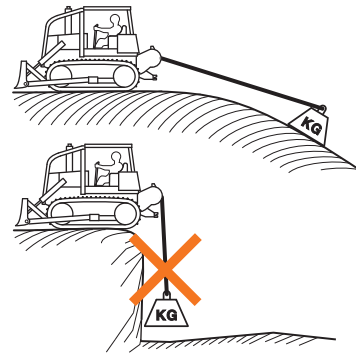


- Make sure ground personnel are in plain view of the operator, and at a distance of at least 1½ times the working length of the wire rope.
- Observe jobsite rules.
- Do not use the control levers for hand holds when entering or leaving the vehicle.
- Be in complete control at all times.
- Do not use 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.

Operation Warnings

- Do not operate the winch unless the vehicle is equipped with a screen to protect the operator if the wire rope breaks.
- Be aware of the ground conditions, and make sure the ground and dozer are stable enough to pull the intended load.
- Do not attempt to pull loads in excess of the rated capacity of the winch.
- 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.
- Your winch may have temperature shut-off system for protection of dozer and winch. Manual override of high temperature shut-off will cause damage to dozer and winch.
- This winch is neither intended, designed, nor rated for any application involved in the lifting or moving of personnel.
- 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. Dozer and skidder mounted winches are designed for towing.



Wire Rope Safety

- 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.

WARNING

Wire rope or tail chain failure may cause serious injury or death.

Inspect rigging before use and obey all safety warnings.

- 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).
- 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 dozer 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.

Maintenance Warnings

- 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.

- Replace any parts only with genuine Allied Winch parts.
- Use only the lubricants listed in the Recommended Oil List. See page 7.
- The hydraulic system must be kept clean and free of contamination at all times.
- Do not weld on any part of the winch. Contact Allied Systems if weld repairs are needed.

Hydraulic Hazards

- Wear personal protective equipment, such as gloves and safety glasses, whenever servicing or checking a hydraulic system.
- 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.

DANGER

Injection hazard.

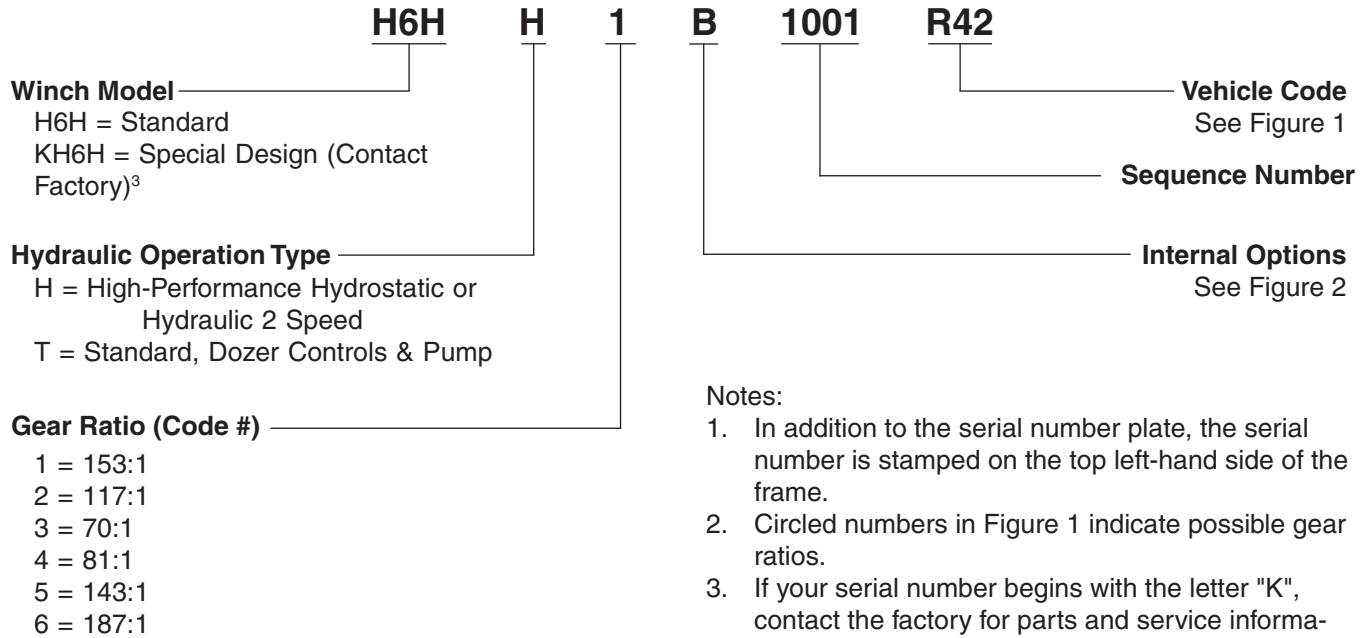
Infection and gangrene will result when hydraulic oil penetrates the skin. See a doctor immediately to prevent loss of limb or death.

Use a piece of cardboard to check for hydraulic leaks.



Unit Identification

Allied Winch Serial Number Nameplate Data For Dozer Mountings



Notes:

1. In addition to the serial number plate, the serial number is stamped on the top left-hand side of the frame.
2. Circled numbers in Figure 1 indicate possible gear ratios.
3. If your serial number begins with the letter "K", contact the factory for parts and service information.
4. If your serial number ends with the letter "M", contact the factory for parts and service information.

C O D E	R Case
39	QuadTrac ⑥
40	1650L ①
42	1650M/2050M ①

Figure 1 - Dozer or Skidder Identification Codes and Available Gear Ratios

Circled numbers in Figure 1 indicate possible gear ratios.

	B	D	E	U	BN	DN	EN	DE	DU
FREESPOOL	X	X	X	X				X	X
BRAKE-OFF	X	X		X	X	X			X
OVERWIND	X	X	X		X	X	X	X	
2-SPEED CONTROL		X				X		X	X

Figure 2 - Internal Options

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. Use the table of contents at the beginning of each chapter to determine the assembly which would normally contain the part required. Proceed then to 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 (which immediately follows the illustrated index).
2. Locate the assembly on which the required part is used, and turn to the page indicated for that assembly. Proceed 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.

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.

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.

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.

Serial numbers are shown to allow for the most current parts information to be incorporated into the parts manual. See page 0-6 for serial number information.

Abbreviations

Abbreviations are used both on the winch and in this manual. for example, a manifold may have a port stamped "FS". That port is related to the "freespool" circuit. this abbreviation is also used on pages in this manual that reference this port, or the ports connected to this port. Figure 3 lists the most common abbreviations used in this manual.

Abbreviation	Full Name
P	Pressure
T	Tank
BO	Brake Off
FA	Filter Outlet
FE	Filter Inlet
FS	Freespool
HS	High Speed
LS	Load Sense
PD	Pilot Drain
PP	Pilot Pressure
PS	Pilot Supply
RI	Reel In
RO	Reel Out
TP	Test Port
TS	Temperature Switch

Figure 3 - Abbreviations

Oil Specifications

Oil Selection

To get the most suitable temperature-viscosity characteristics, choose one of the oils listed below.

Manufacturer	Winch Case (Gear Train)
Exxon-Mobil (standard)	Mobil Trans HD Series
Chevron (optional)	Drive Train Fluids HD
Caterpillar (optional)	TO-4

Figure 4 - Recommended Oil List

Factory fill is Exxon-Mobil Trans HD 30.

Note: This winch uses hydraulic fluid from the dozer. See Figure 4 for recommended gear train fluids. Contact the factory if alternate oils are required.

Use of a non-recommended oil may void the warranty.

Oil Capacity

Oil capacity for the H6H winch is 4 gallons (15 liters).

Viscosity Grade		Oil Operating Temperature Range		Typical Ambient Temperature Range	
ISO	SAE	°F	°C	°F	°C
VG 22	10W	-5 to 140	-20 to 60	-5 to 40	-20 to 4
VG 32	15W	10 to 160	-12 to 71	10 to 55	-20 to 13
VG 46	20	20 to 180	-7 to 82	20 to 70	-7 to 21
VG 68	20	30 to 200	-1 to 93	30 to 90	-1 to 32
VG 100	30	40 to 220	4 to 104	40 to 110	4 to 43

Figure 5 - Viscosity Chart

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:

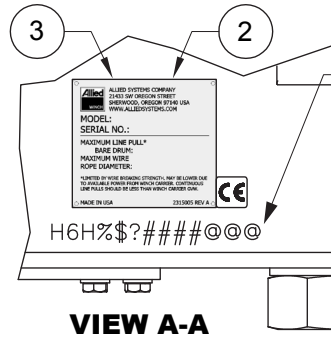
Allied Systems Company
21433 SW Oregon Street
Sherwood, OR 97140 U.S.A.

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

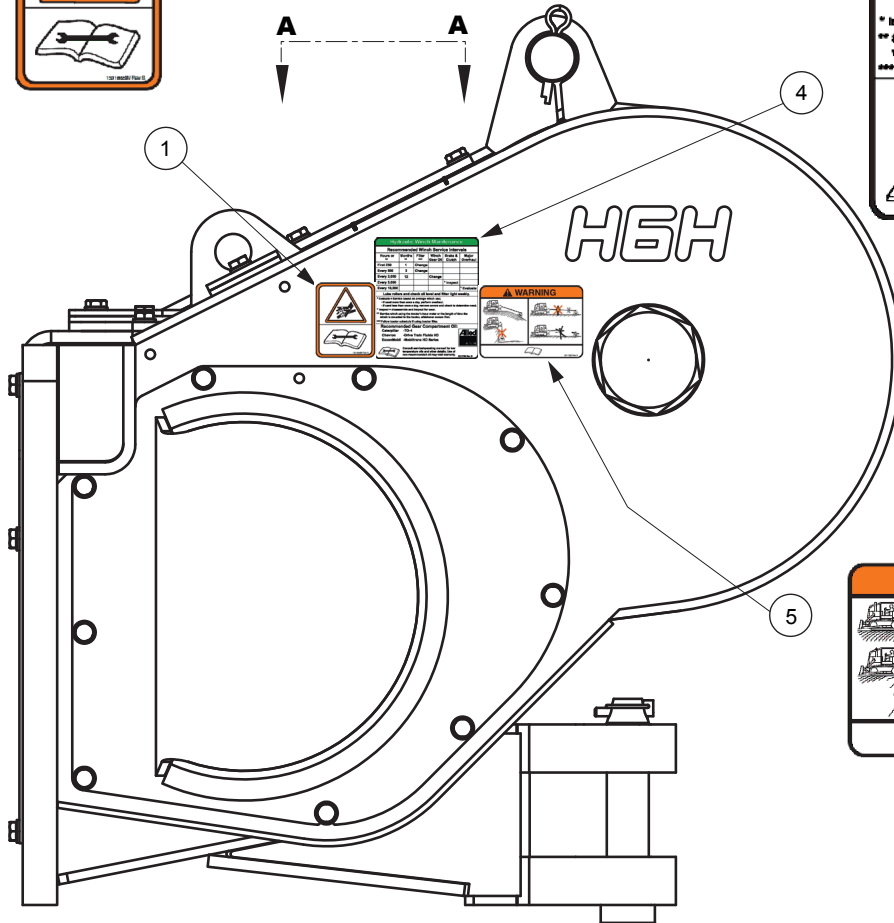
Also see our website, www.alliedsystems.com, where the most current copy of this manual is always available.

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.

Nameplate & Decals



STAMP NAMEPLATE AND FRAME AS SHOWN
 % = H (HI-PERFORMANCE) OR T (STANDARD)
 \$ = GEAR RATIO CODE
 ? = INTERNAL OPTIONS
 ##### = SEQUENCE NUMBER
 @@@ = VEHICLE CODE
 SEE DRAWING 231271



Hydraulic 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 2,000	12		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.

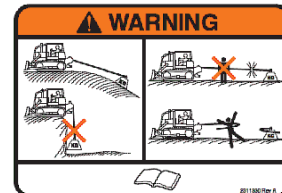
** Service winch using the tractor's hour meter or the length of time the winch is mounted to the tractor, whichever occurs first.

*** Follow tractor schedule if using tractor filter.

Recommended Gear Compartment Oil:
 Caterpillar -TO-4
 Chevron -Drive Train Fluids HD
 ExxonMobil -Mobiltrans HD Series

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

2310796 Rev D



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	1321665W	2	Decal, Warning	4	2310796	1	Decal, Maintenance
2	2315005	1	Nameplate	5	2311330	1	Decal, Load & Wire Rope
3	16602W	4	Screw	40	-----	AR	Label - CE Mark

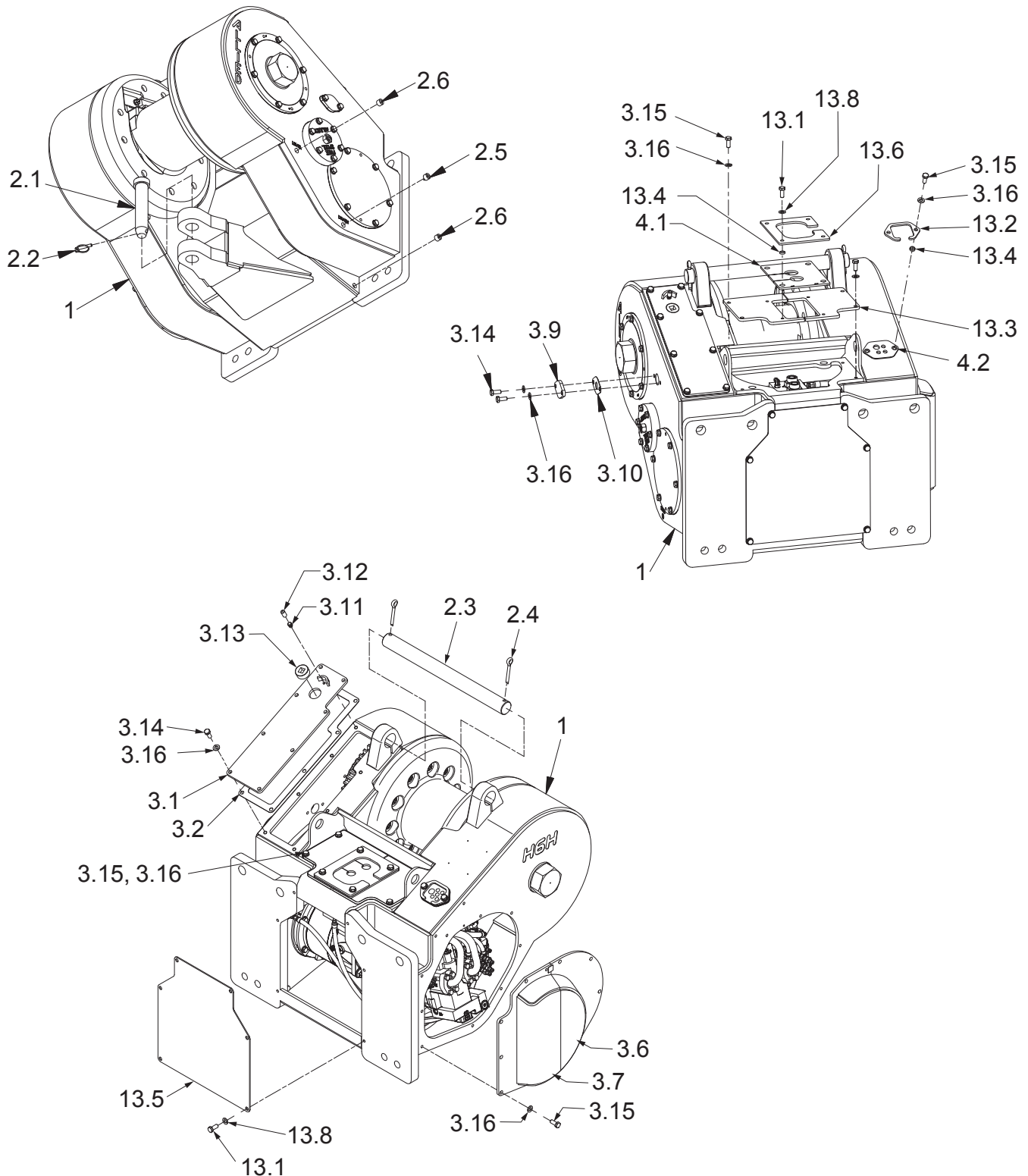
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Section 1
Frames/Covers/Mounting Parts

Frame/Covers

Case Quadtrac (H6HH6BN**R39)

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Frame/Covers

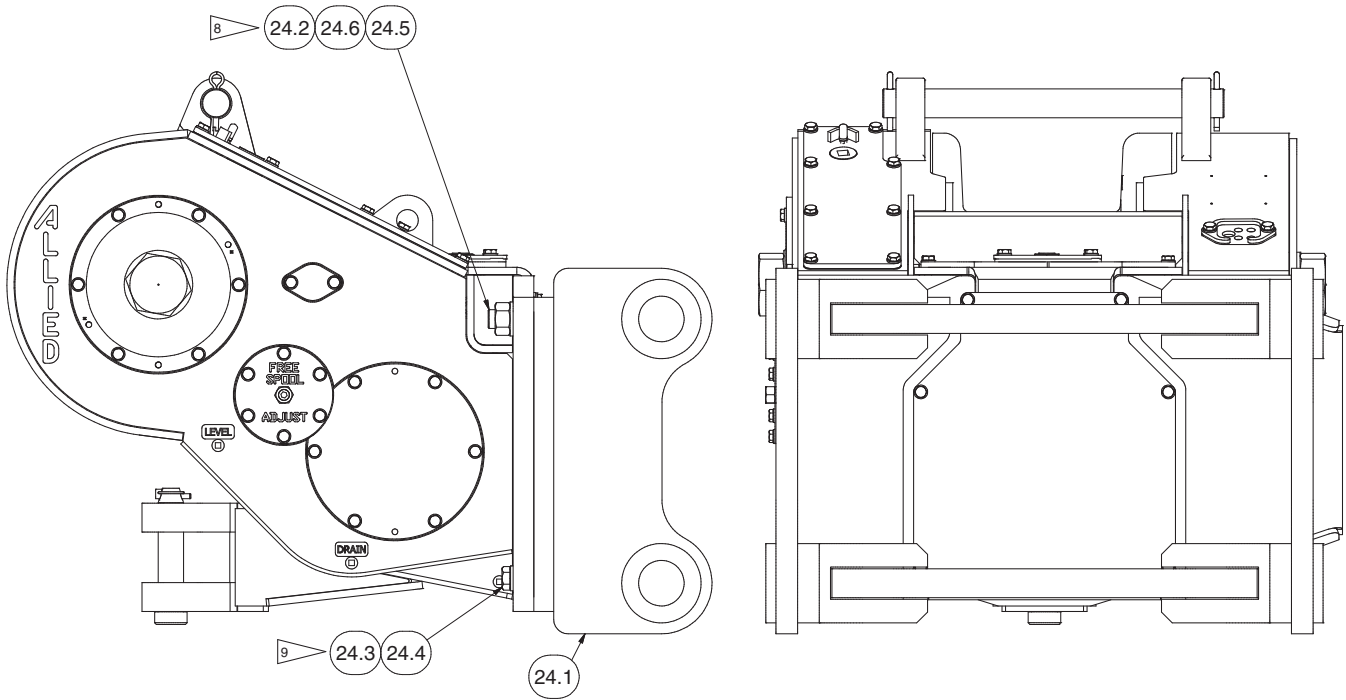
Case Quadtrac (H6HH6BN**R39)

Page 2 of 2

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	-----	1	Frame, H6H	3.12	2300962W	1	Cap, Breather
2.1	95959W	1	Pin, Drawbar	3.13	15319W	1	Fitting
2.2	2303221W	1	Pin, Retaining	3.14	2312486	10	Capscrew
2.3	2312580	1	Rod, Tie	3.15	293645W	15	Capscrew
2.4	15272W	2	Pin	3.16	296422W	25	Washer
2.5	15290W	1	Fitting	4.1	2312008	1	Seal, Top
2.6	15315W	2	Fitting	4.2	2312574	1	Seal, Top LH
3.1	2312048	1	Cover, Top RH	13.1	293645W	10	Capscrew
3.2	2312045	1	Gasket, Top RH	13.2	2312117	1	Cover
3.6	2315198	1	Cover, Rear	13.3	2313380	2	Cover, Top
3.7	2315197	1	Cover, Front	13.4	2312119	6	Spacer
3.9	151589W	1	Cover, Freespool	13.5	2312046	1	Cover, Front
3.10	151646W	1	Gasket, Freespool	13.6	2312006	1	Clamp, Top
3.11	21420W	1	Plug, Breather	13.8	296422W	10	Washer

Mounting Parts

Case Quadtrac (H6HH6BN**R39)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
24.1	2314256-2	1	Bracket - Mounting	24.4	274044W	4	Capscrew
24.2	296440W	4	Hard Washer	24.5	2312090	4	Stud
24.3	296434W	4	Hard Washer	24.6	2312089	4	Nut

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Frame/Covers

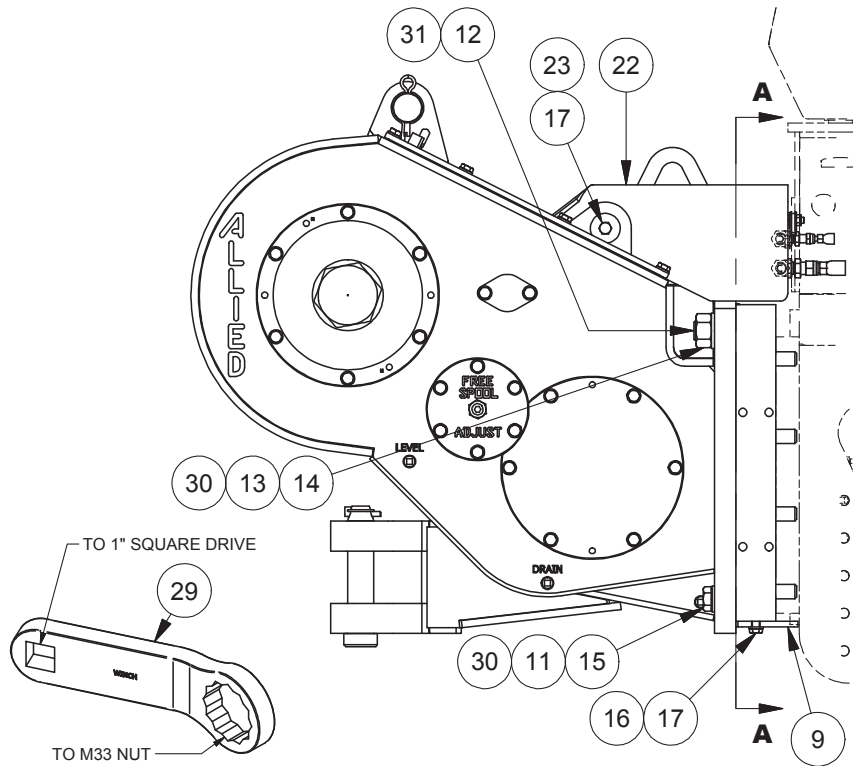
Case 1650L (H6HT1D**R40)

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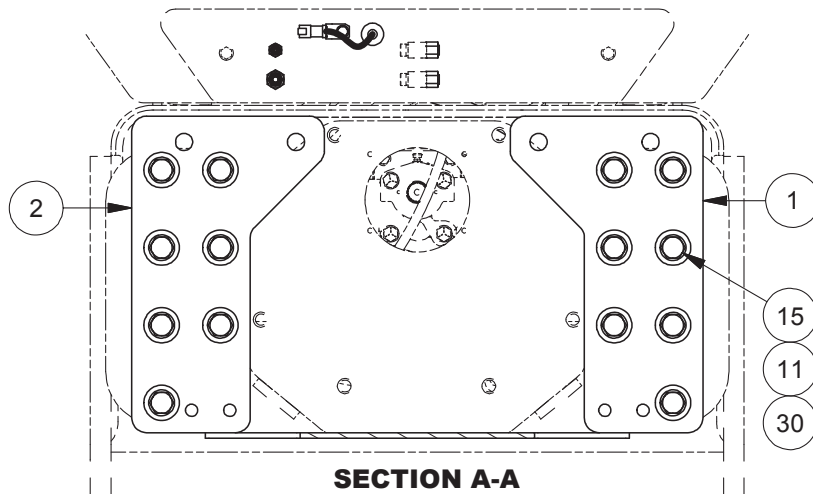
Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	-----	1	Frame, H6H	3.13	15319W	1	Fitting
2.1	95959W	1	Pin, Drawbar	3.14	2312486	10	Capscrew
2.2	2303221W	1	Pin, Retaining	3.15	293645W	15	Capscrew
2.3	2312580	1	Rod, Tie	3.16	296422W	25	Washer
2.4	15272W	2	Pin	5.1	2312009	1	Seal, Top
2.5	15290W	1	Fitting	13.1	293645W	10	Capscrew
2.6	15315W	2	Fitting	13.2	2312117	1	Cover
3.1	2312048	1	Cover, Top RH	13.3	2313380	2	Cover, Top
3.2	2312045	1	Gasket, Top RH	13.4	2312119	6	Spacer
3.6	2316162	1	Cover, LH	13.5	2312046	1	Cover, Front
3.9	151589W	1	Cover, Freespool	13.6	2312006	1	Clamp, Top
3.10	151646W	1	Gasket, Freespool	13.8	296422W	10	Washer
3.11	21420W	1	Plug, Breather	19.1	2313831	1	Seal - Top LH
3.12	2300962W	1	Cap, Breather				

Mounting Parts

Case 1650L (H6HT1D**R40)



TORQUE EXTENDER WRENCH



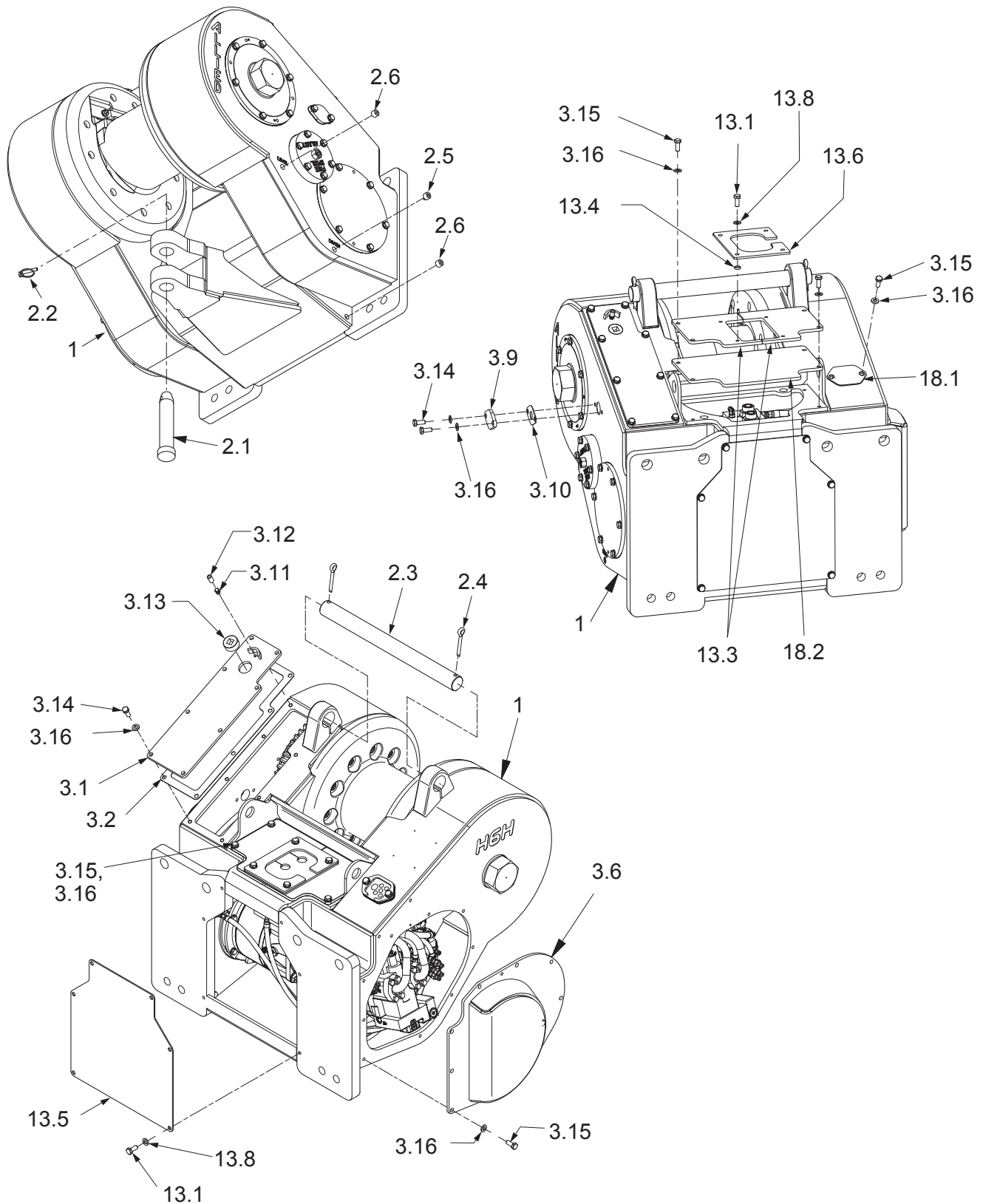
Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	2313214	1	Bracket - Mounting, RH	15	274044W	18	Capscrew
2	2313215	1	Bracket - Mounting, LH	16	296422W	4	Hard Washer
3	234740	1	Frame, Mounting	17	293646W	5	Capscrew
9	2314681	1	Guard - Bottom	22	2314685	1	Guard, Hose
11	296434W	18	Hard Washer	23	2305715W	1	Washer
12	2312090	4	Stud	29	2312331	1	Wrench, Torque Extension
13	296440W	4	Hard Washer	30	318702W	1	Thread Lock
14	2312089	4	Nut	31	230064W	1	Kit, Loctite

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Frame/Covers

Case 1650/2050M (H6HT1B**R42, H6HT5B**R42)

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Frame/Covers

Case 1650/2050M (H6HT1B**R42, H6HT5B**R42)

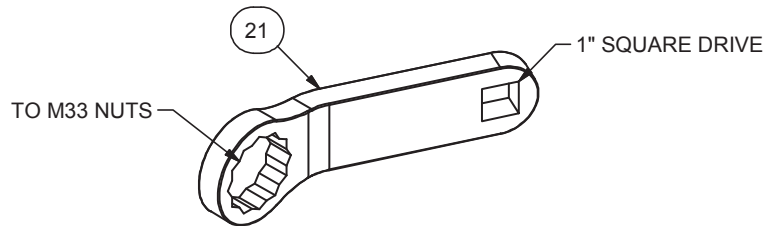
Page 2 of 2

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	-----	1	Frame, H6H	3.13	15319W	1	Fitting
2.1	95959W	1	Pin, Drawbar	3.14	2312486	10	Capscrew
2.2	2303221W	1	Pin, Retaining	3.15	293645W	15	Capscrew
2.3	2312580	1	Rod, Tie	3.16	296422W	25	Washer
2.4	15272W	2	Pin	13.1	293645W	10	Capscrew
2.5	15290W	1	Fitting	13.2	2312117	1	Cover
2.6	15315W	2	Fitting	13.3	2313380	2	Cover, Top
3.1	2312048	1	Cover, Top RH	13.4	2312119	6	Spacer
3.2	2312045	1	Gasket, Top RH	13.5	2312046	1	Cover, Front
3.6	2316162	1	Cover, LH	13.6	2312006	1	Clamp, Top
3.9	151589W	1	Cover, Freespool	13.8	296422W	10	Washer
3.10	151646W	1	Gasket, Freespool	18.1	2312850	1	Cover, Top LH
3.11	21420W	1	Plug, Breather	18.2	2312849	1	Cover, Top
3.12	2300962W	1	Cap, Breather				

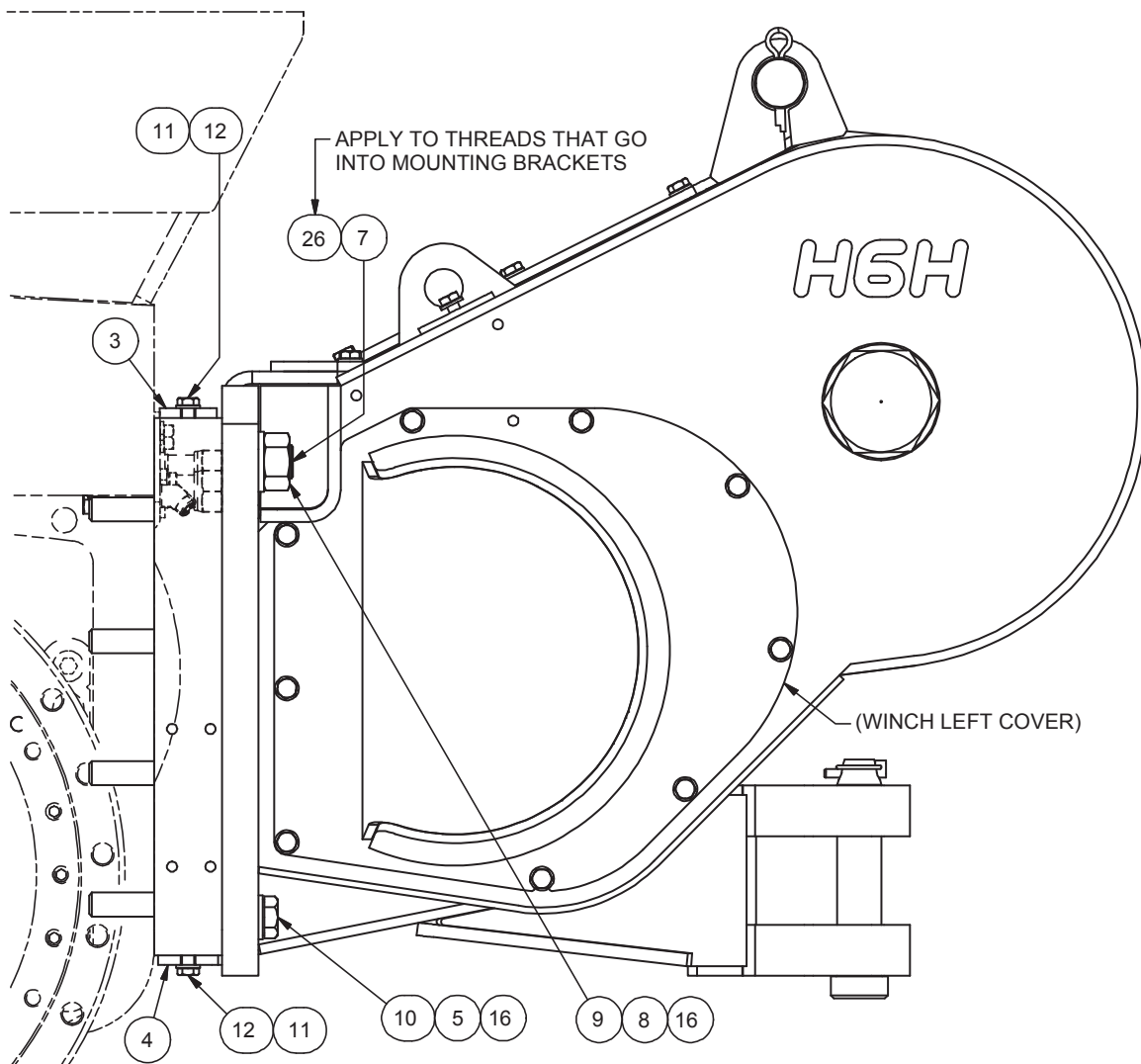
Mounting Parts

Case 1650/2050M (H6HT1B**R42, H6HT5B**R42)

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TORQUE WRENCH EXTENDER

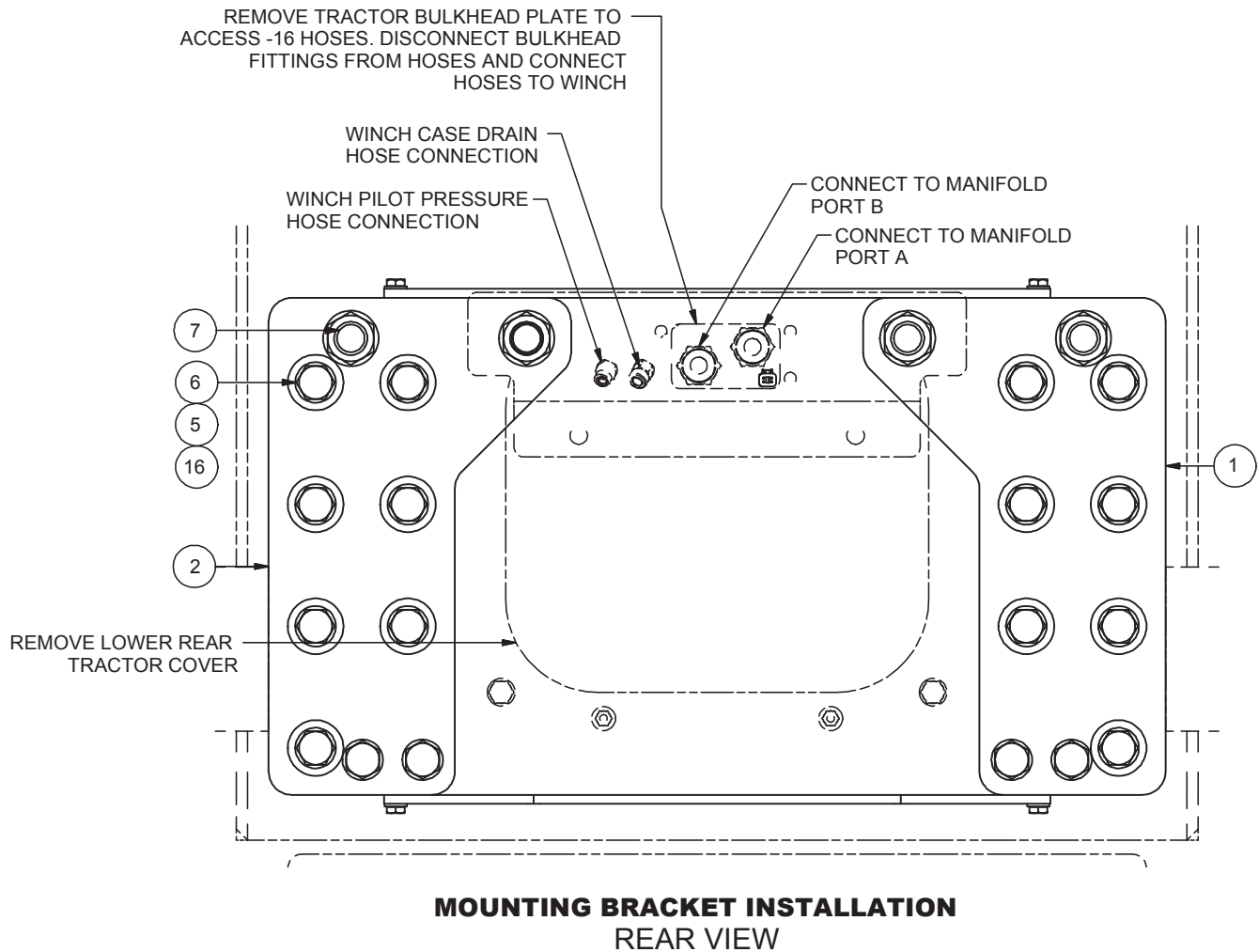


WINCH INSTALLATION LEFT VIEW

Mounting Parts

Case 1650/2050M (H6HT1B**R42, H6HT5B**R42)

Page 2 of 2



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	2313214	1	Bracket, Mounting - RH	9	2312089	4	Nut
2	2313215	1	Bracket, Mounting - LH	10	274044W	4	Capscrew
3	2313284	1	Guard, Top	11	296422W	4	Washer
4	2313285	1	Guard, Bottom	12	293646W	4	Capscrew
5	296434W	18	Washer	16	318702W	10 ML	Thread Lock, Med. Strength
6	293731W	14	Capscrew	21	2312331	1	Wrench, Extension Torque
7	2312090	4	Stud	26	230064W	1	Loctite Kit
8	296440W	4	Washer				

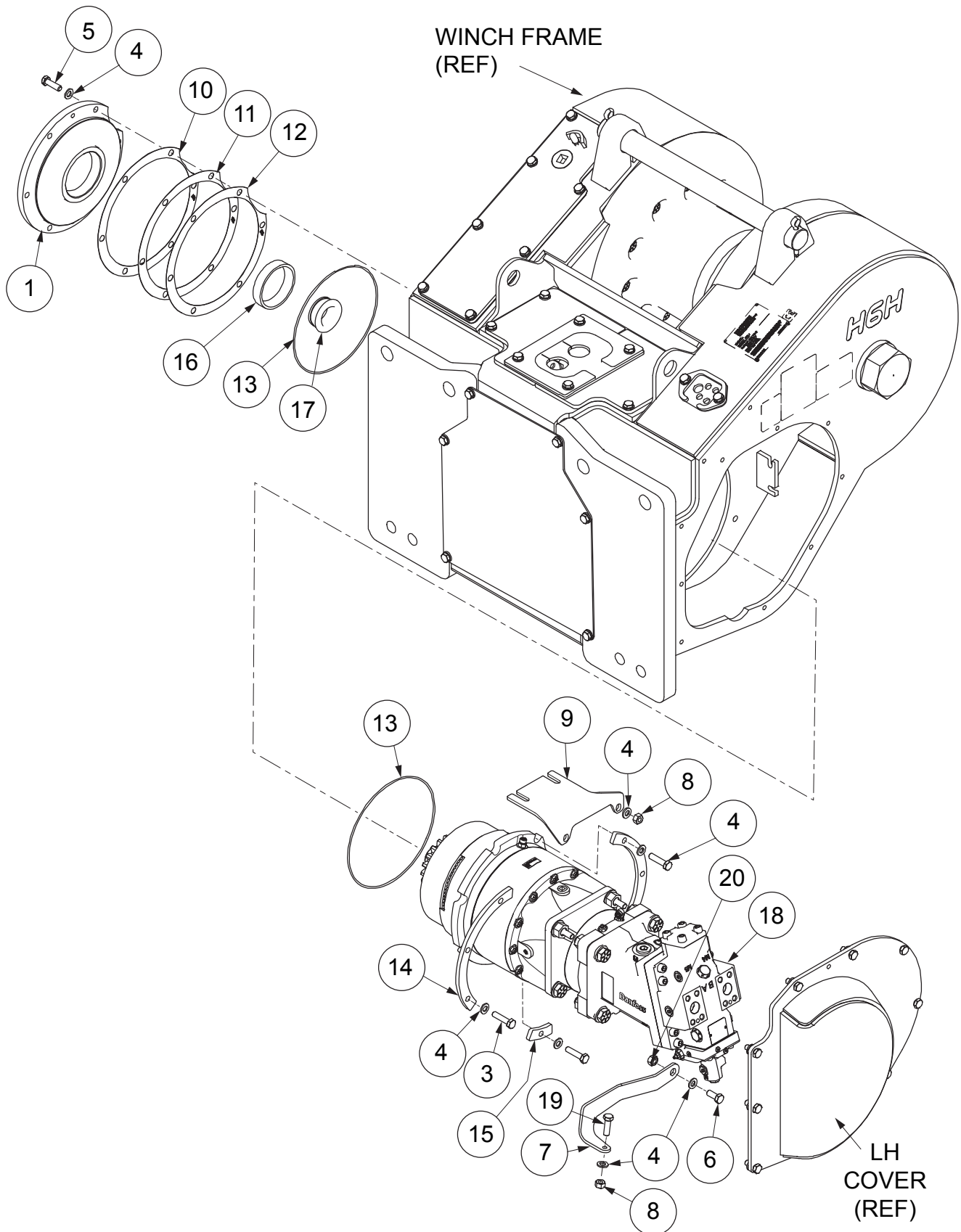
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Section 2

Gear/Shaft Train

Motor Shaft Group

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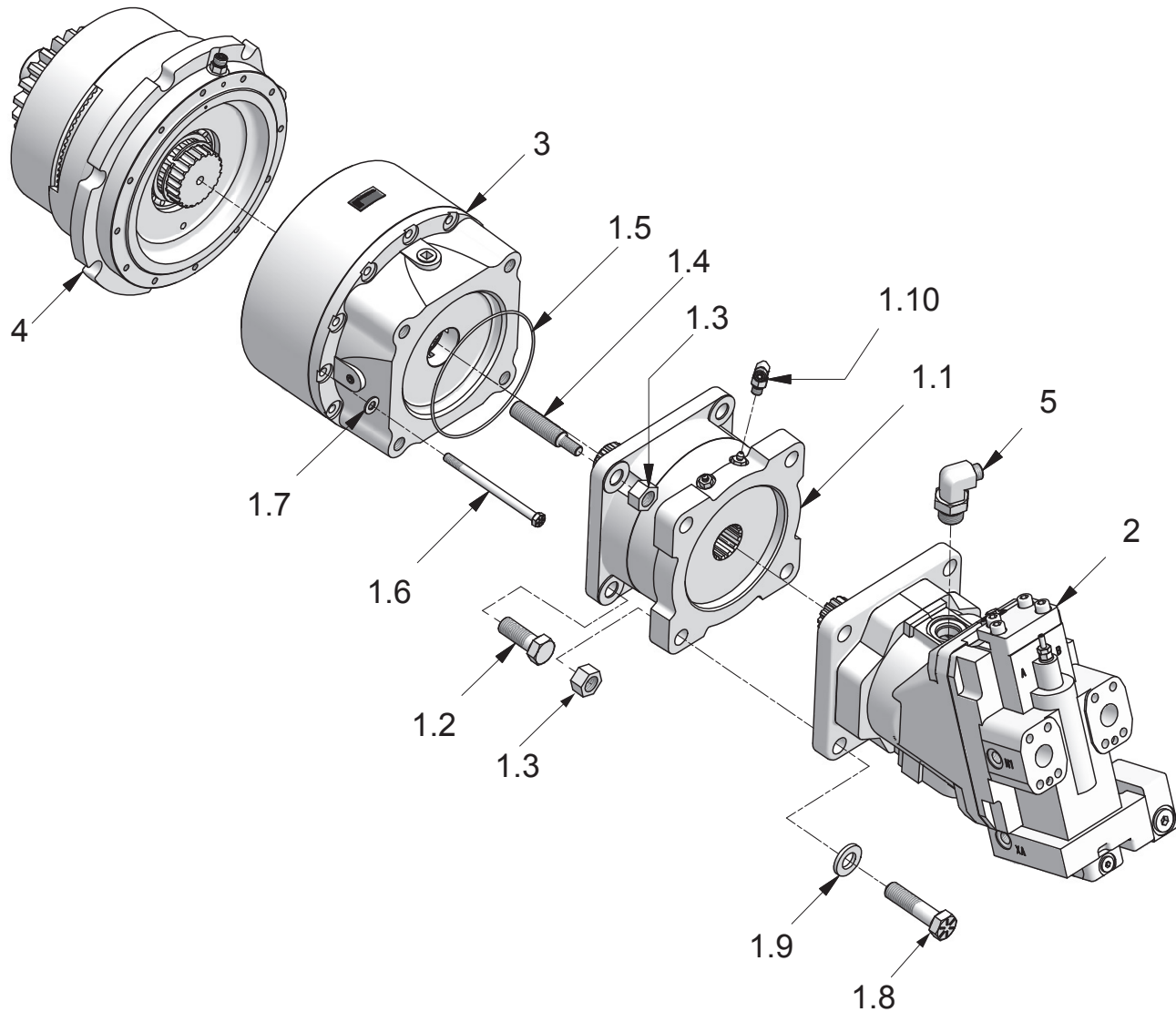
Motor Shaft Group

Page 2 of 2

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2311819		Motor Shaft Group				
1	2311857	1	. Cover, Bearing	14	2311917	2	. Plate, Clamp
3	2312488	7	. Capscrew	15	2311918	1	. Plate, Clamp
4	296422W	19	. Washer	16	*b 2300668W	1	. Cup, Bearing
5	2312487	6	. Capscrew	17	*b 2300669W	1	. Cone, Bearing
6	293645W	1	. Capscrew	18	*e - - - -	1	. Assy, Motor Shaft
7	*c 2316491	1	. Bracket, Motor Support	19	293647W	1	. Capscrew
7	*d 2312036	1	. Bracket, Motor Support	20	2305130W	1	. Nut, Bracket Support
8	292656W	3	. Nut				
9	2312018	1	. Plate, Manifold Bracket				
10	2312061	AR	. Shim .020	*a	Included in Motor, Reducer & Brake Assy		
11	2312059	AR	. Shim .005		Rebuild Kit 2314659		
12	2312060	AR	. Shim .007	*b	Included in Intermediate/Drum Shaft & Brake		
13	*a 203564	2	. O-Ring		Assy Rebuild Kit 2314660		
				*c	First Used S/N 1714		
				*d	Last Used S/N 1713		
				*e	See page 28 for details		

Motor Shaft Assy

Case



Motor Shaft Assy
Case Quadtrac (H6HH6BN**R39)

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2315181		Assy, Motor Shaft				
1.1	*a 2312155	1	. Brake, D Mount Dry Disk	1.9	221777W	4	. Washer
1.2	Y17C-1232	2	. Capscrew	1.10	R833251	1	. Fitting
1.3	221716W	6	. Nut	2	*d 2315182	1	. Motor, Hydraulic
1.4	2312041	2	. Stud	NS	2313890	1	. . O-Ring, Pilot Motor
1.5	*b 237349	1	. O-Ring	NS	2313891	1	. . Kit, Shaft Seal
1.6	R13801826	12	. Capscrew	3	2312554	1	. Reducer, Planetary
1.7	221767W	12	. Washer	4	2312928	1	. Assy, Shaft
1.8	177192W	4	. Capscrew	5	R833260	1	. Fitting, Motor Case Drain

*a See page 37 for details

*b Included in Motor, Reducer & Brake Assy
Rebuild Kit 2314659

*c See Hydraulic Section 3 for Fitting

*d See page 30 for Motor Replacement Kit

NS Not Shown

Motor Shaft Assy

Case 1650L (H6HT1D**R40)

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2314751		Assy, Motor Shaft				
1.1	*a 2312155	1	. Brake, D Mount Dry Disk	1.9	221777W	4	. Washer
1.2	Y17C-1232	2	. Capscrew	1.10	R833251	1	. Fitting
1.3	221716W	6	. Nut	2	*d 2313780	1	. Motor, Hydraulic
1.4	2312041	2	. Stud		NS 2313890	1	. . O-Ring, Pilot Motor
1.5	*b 237349	1	. O-Ring		NS 2313891	1	. . Kit, Shaft Seal
1.6	R13801826	12	. Capscrew	3	2311883	1	. Reducer, Planetary
1.7	221767W	12	. Washer	4	2312928	1	. Assy, Shaft
1.8	177192W	4	. Capscrew	5	*c - - - - -	NA	. Fitting, Motor Case Drain

Motor Shaft Assy

Case 1650/2050M (H6HT5B**R42) Last Used S/N 1713

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2313211		Assy, Motor Shaft				
1.1	*a 2312155	1	. Brake, D Mount Dry Disk	1.9	221777W	4	. Washer
1.2	Y17C-1232	2	. Capscrew	1.10	R833251	1	. Fitting
1.3	221716W	6	. Nut	2	*d 2313410	1	. Motor, Hydraulic
1.4	2312041	2	. Stud		NS 2313890	1	. . O-Ring, Pilot Motor
1.5	*b 237349	1	. O-Ring		NS 2316156	1	. . Kit, Shaft Seal
1.6	R13801826	12	. Capscrew	3	2312554	1	. Reducer, Planetary
1.7	221767W	12	. Washer	4	2313026	1	. Assy, Shaft
1.8	177192W	4	. Capscrew	5	2313039	1	. Fitting, Motor Case Drain

Motor Shaft Assy

Case 1650/2050M (H6HT1B**R42) Last Used S/N 1713

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2314563		Assy, Motor Shaft				
1.1	*a 2312155	1	. Brake, D Mount Dry Disk	1.9	221777W	4	. Washer
1.2	Y17C-1232	2	. Capscrew	1.10	R833251	1	. Fitting
1.3	221716W	6	. Nut	2	*d 2315176	1	. Motor, Hydraulic
1.4	2312041	2	. Stud		NS 2313890	1	. . O-Ring, Pilot Motor
1.5	*b 237349	1	. O-Ring		NS 2316156	1	. . Kit, Shaft Seal
1.6	R13801826	12	. Capscrew	3	2311883	1	. Reducer, Planetary
1.7	221767W	12	. Washer	4	2312928	1	. Assy, Shaft
1.8	177192W	4	. Capscrew	5	R833260	1	. Fitting, Motor Case Drain

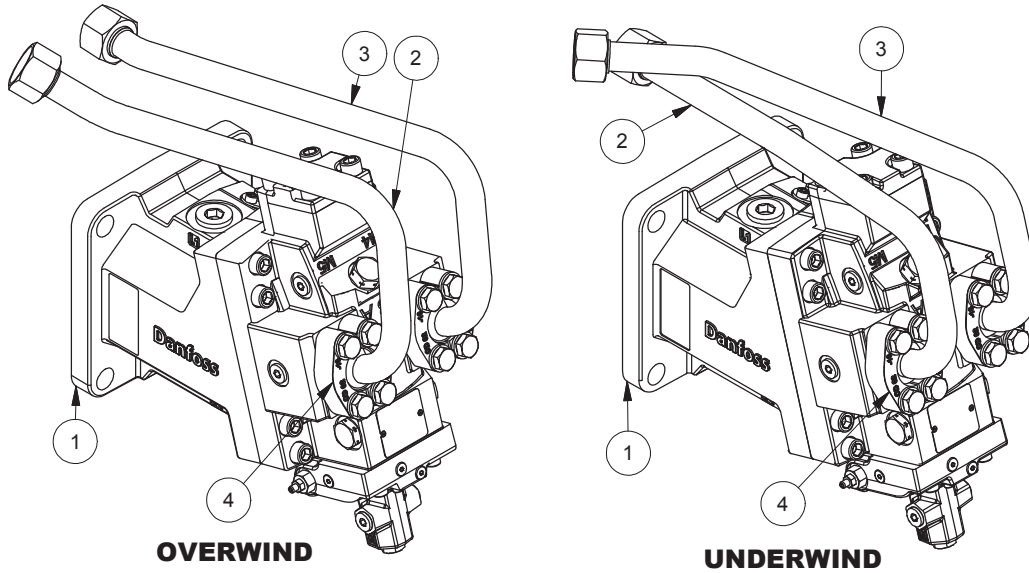
Motor Shaft Assy

Case 1650/2050M (H6HT1B**R42) First Used S/N 1714

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2316148		Assy, Motor Shaft				
1.1	*a 2312155	1	. Brake, D Mount Dry Disk	2	2316127	1	. Motor, Hydraulic
1.2	Y17C-1232	2	. Capscrew		NS 2313890	1	. . O-Ring, Pilot Motor
1.3	221716W	6	. Nut		NS 2316156	1	. . Kit, Shaft Seal
1.4	2312041	2	. Stud	3	2311883	1	. Reducer, Planetary
1.5	*b 237349	1	. O-Ring	4	2312928	1	. Assy, Shaft
1.6	R13801826	12	. Capscrew	5	*c - - - - -	NA	. Fitting, Motor Case Drain
1.7	221767W	12	. Washer				
1.8	177192W	4	. Capscrew	*a	See page 37 for details		
1.9	221777W	4	. Washer	*b	Included in Motor, Reducer & Brake Assy		
1.10	R833251	1	. Fitting		Rebuild Kit 2314659		
				*c	See Hydraulic Section 3 for Fitting		
				*d	See page 30 for Motor Replacement Kit		
				NS	Not Shown		

Motor Replacement Kit

Page 1 of 2



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	*a	-----	1 Motor - Hyd; Danfoss H1B				
2	*a	-----	2 Tube Assy - Motor A				
3	*a	-----	6 Tube Assy - Motor B				
4	592255	2	Kit, Split Flange				

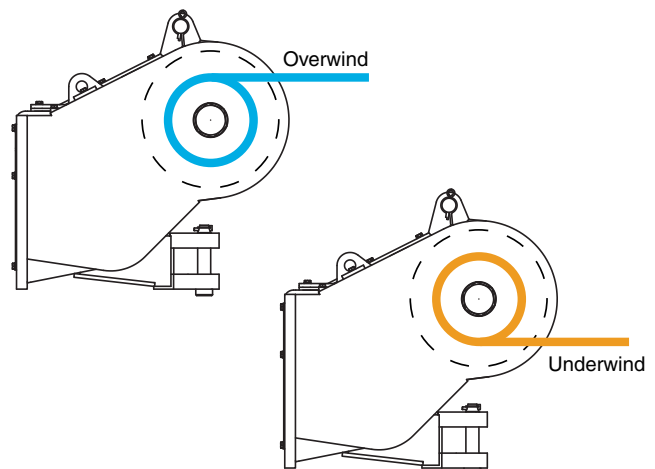
*a Refer to the chart below to determine replacement parts for cancelled motors

Winch Model	Kit Part Number:	Overwind/ Underwind	Cancelled Motor:	Item 1 (Current Motor):	Item 2 (Tube A):	Item 3 (Tube B):
H6HH6B**R39	2316876	O	2315182	2316126	2316108	2316109
	2316877	U	2315182	2316126	2316714	2316715
H6HT1D**R40	2316874	O	2313780	2316125	2316108	2316109
	2316875	U	2313780	2316125	2316714	2316715
H6HT1B**R42	2316878	O	2315176	2316127	2316108	2316109
	2316879	U	2315176	2316127	2316714	2316715

Notes:

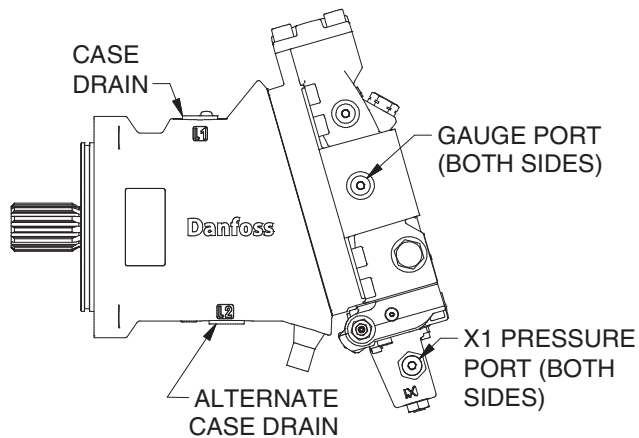
Use this chart to determine which H1B motor replaces the cancelled 51V motor.

Be sure to note whether your motor is overwind or underwind to get the appropriate kit. Each kit contains all the components needed to convert your winch to the current motor.

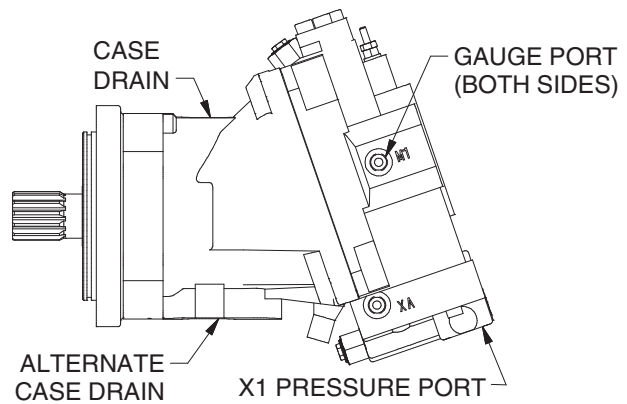


Motor Replacement Kit

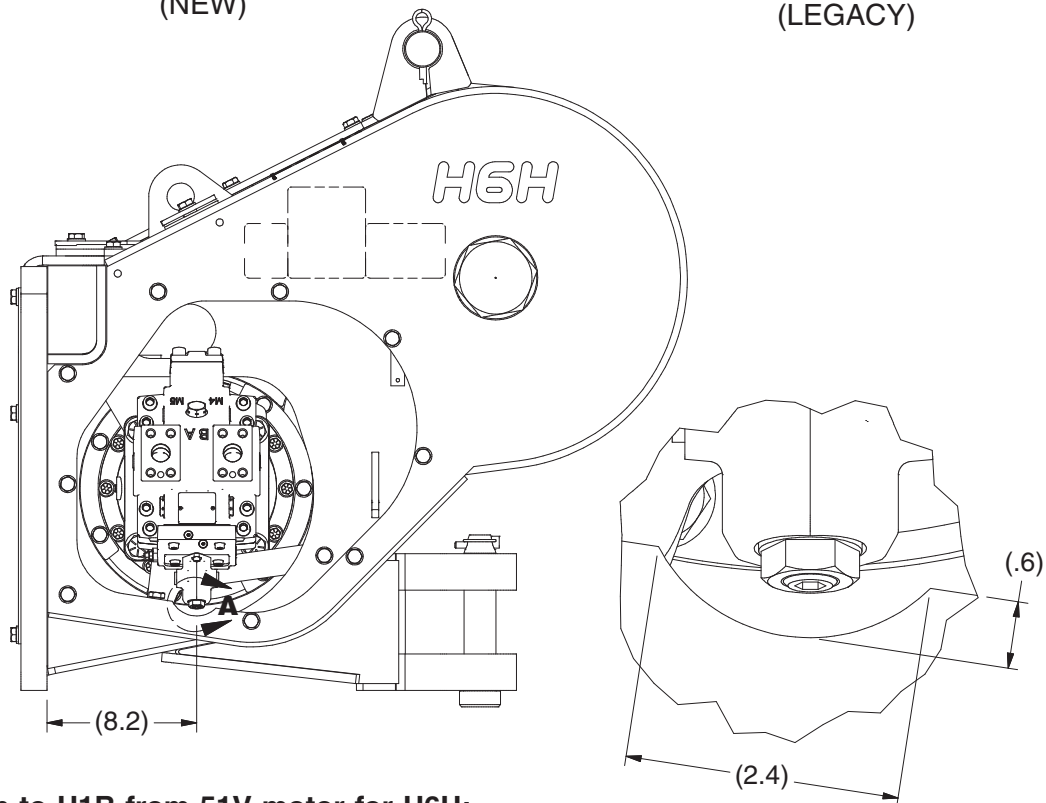
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**H1B MOTOR
(NEW)**



**51V MOTOR
(LEGACY)**

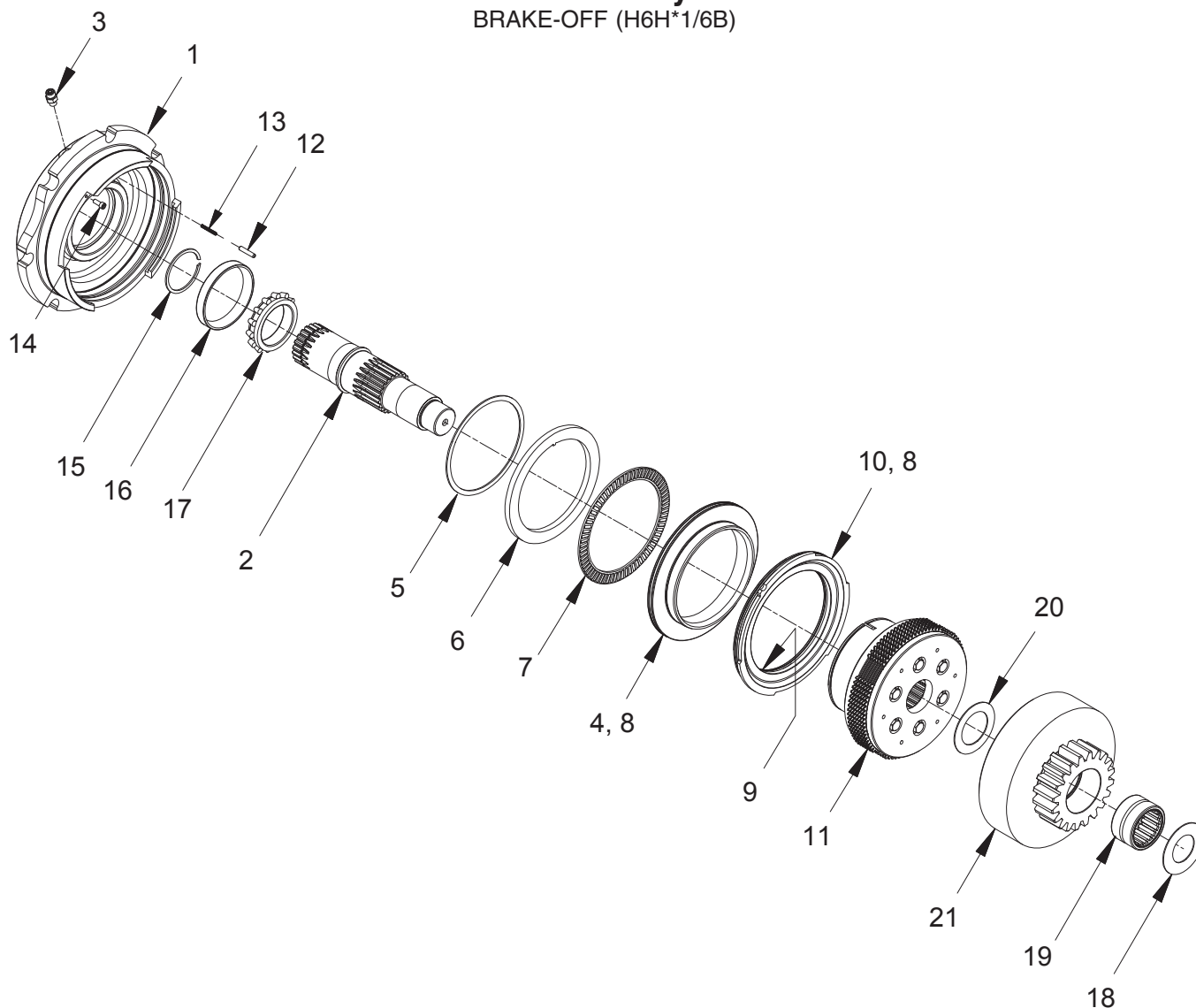


Conversion to H1B from 51V motor for H6H:

1. Remove material from the winch frame as seen in Detail A to allow the new H1B motor to fit. More material may be removed if necessary for fit.
2. Material may be removed from the cover as necessary to allow the new motor to fit.

Shaft Assy

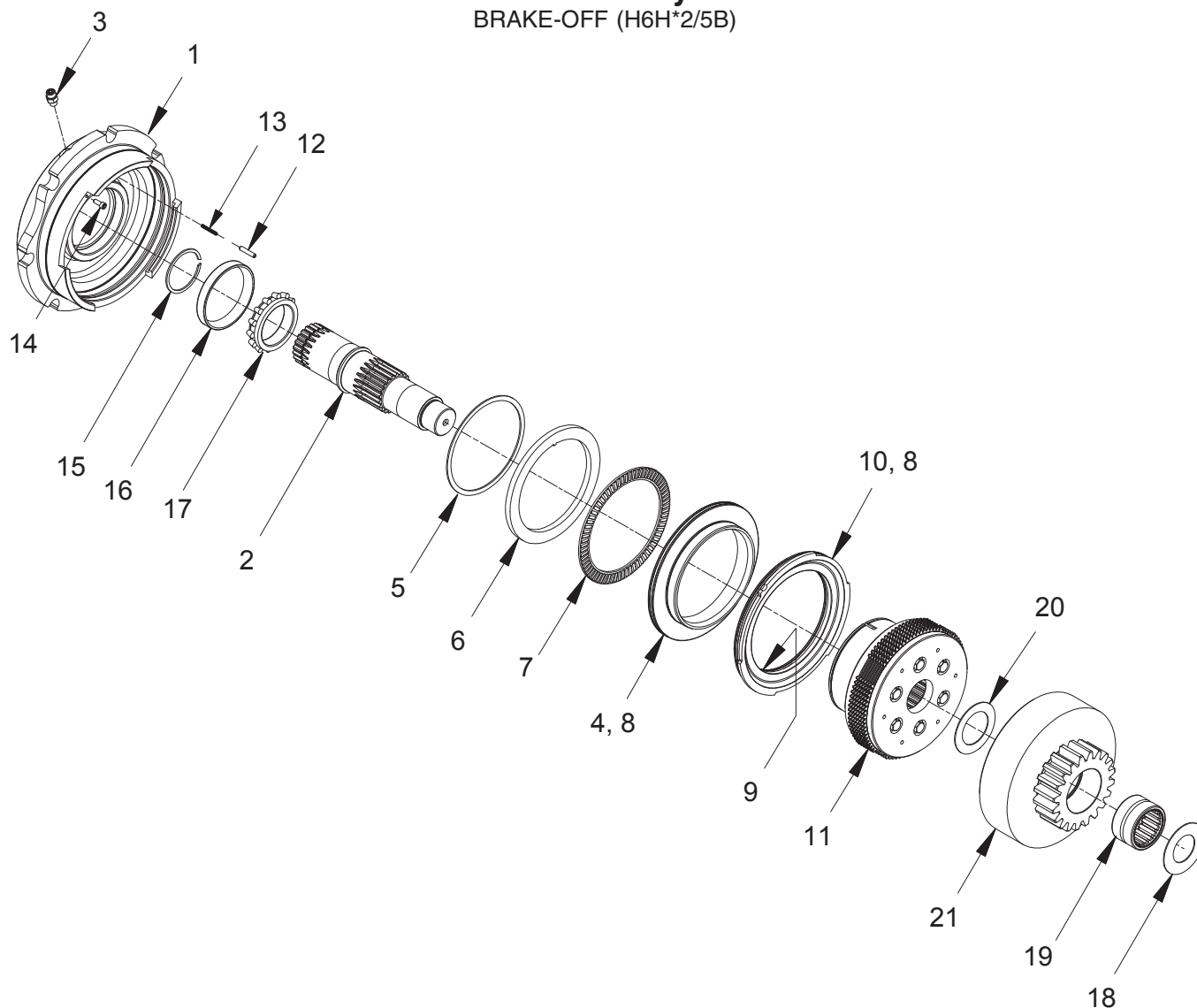
BRAKE-OFF (H6H*1/6B)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2312928		Assy, BRAKE-OFF Shaft				
1	2311855	1	. Housing, Clutch	15	2311684	1	. Ring, Snap
2	2311856	1	. Shaft, Clutch	16	137153W	1	. Cup, Roller Bearing
3	231439	1	. Fitting	17	137155W	1	. Cone, Roller Bearing
4	2312039	1	. Piston, Clutch	18	2311869	1	. Shim .062
5	2311683	1	. Ring, Snap	19	230407W	1	. Bearing
6	2312442	1	. Ring, Thrust	20	2311687	1	. Shim .062
7	2311655	1	. Brg, Thrust Needle Roller	21	*b 2312977	1	. Gear, Spider
8	86585W	2	. O-Ring	21	*c 2311905	1	. Gear, Spider
9	87287W	1	. O-Ring				
10	2311880	1	. Ring, Seal				
11	*a 2311903	1	. Assy, Clutch	*a	See page 34 for details		
12	239147W	1	. Pin	*b	Gear ratios 2 & 5		
13	2303992W	1	. Spring	*c	Gear ratios 1 & 6		
14	R13811617	1	. Capscrew				

Shaft Assy

BRAKE-OFF (H6H*2/5B)



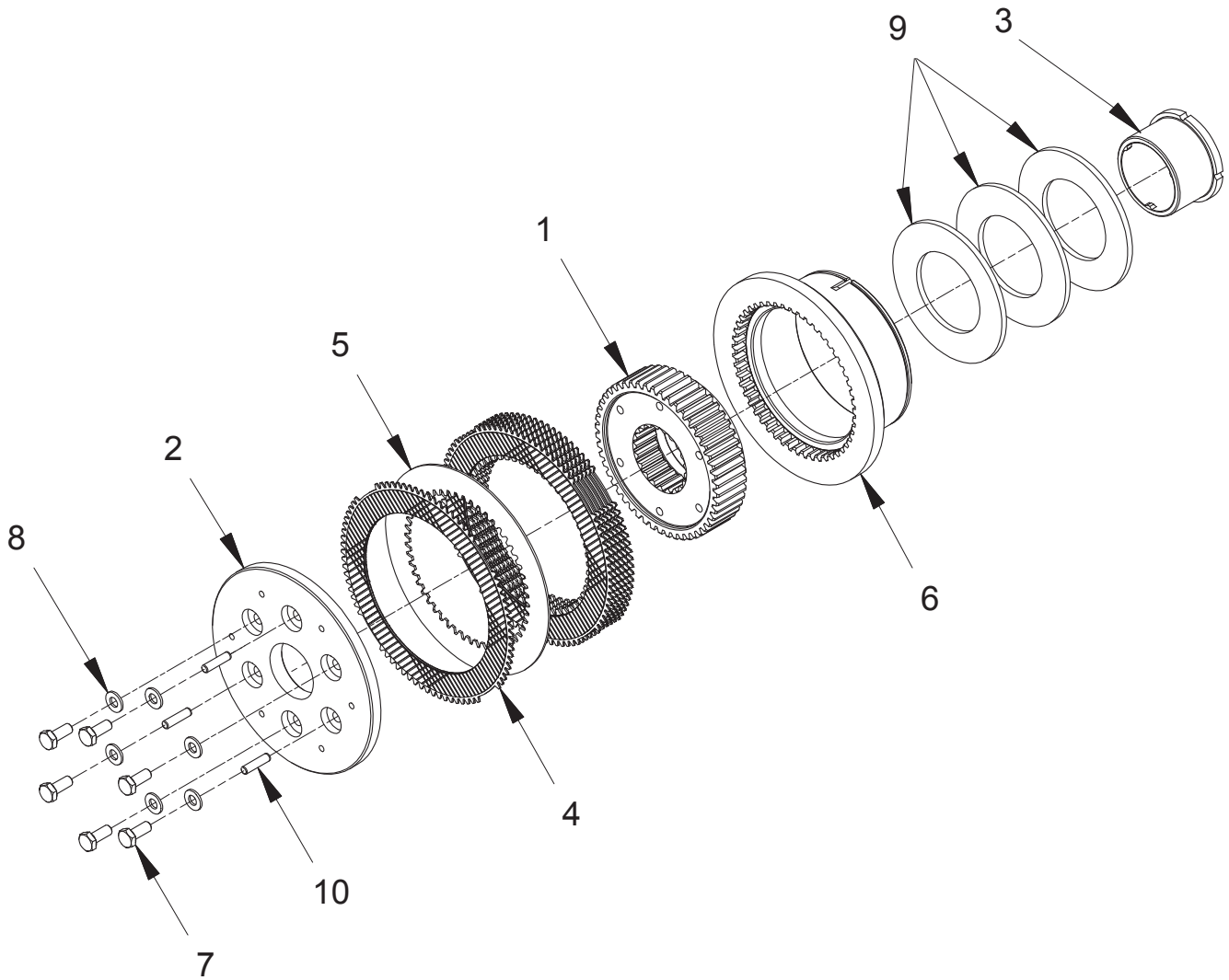
Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2313026		Assy, BRAKE-OFF Shaft				
1	2311855	1	. Housing, Clutch	15	2311684	1	. Ring, Snap
2	2311856	1	. Shaft, Clutch	16	137153W	1	. Cup, Roller Bearing
3	231439	1	. Fitting	17	137155W	1	. Cone, Roller Bearing
4	2312039	1	. Piston, Clutch	18	2311869	1	. Shim .062
5	2311683	1	. Ring, Snap	19	230407W	1	. Bearing
6	2312442	1	. Ring, Thrust	20	2311687	1	. Shim .062
7	2311655	1	. Brg, Thrust Needle Roller	21	*b 2312977	1	. Gear, Spider
8	86585W	2	. O-Ring	21	*c 2311905	1	. Gear, Spider
9	87287W	1	. O-Ring				
10	2311880	1	. Ring, Seal				
11	*a 2311903	1	. Assy, Clutch				
12	239147W	1	. Pin				
13	2303992W	1	. Spring				
14	R13811617	1	. Capscrew				

*a See page 34 for details

*b Gear ratios 2 & 5

*c Gear ratios 1 & 6

Clutch Assy

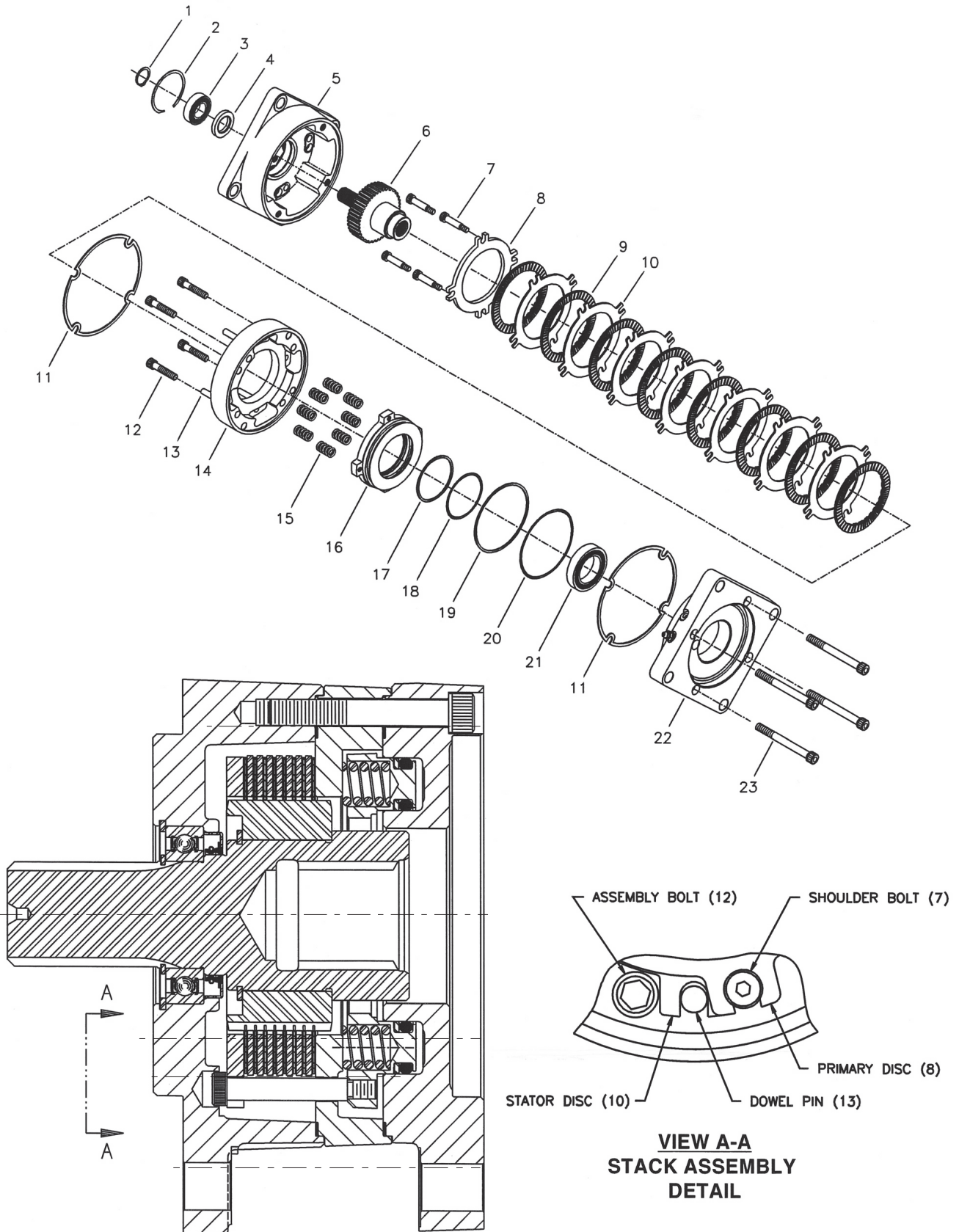


Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2311903		Assy, Clutch	6	2311906	1	. Plate, Pressure
1	2311904	1	. Hub, Clutch	7	296420W	6	. Washer
2	2311907	1	. Plate, Clutch	8	293628W	6	. Capscrew
3	2312029	1	. Retainer, Spring	9	2311251	3	. Spring, Belleville
4	328715W	7	. Disc, Friction	10	222713W	3	. Pin
5	261542W	6	. Plate, Separator				

Intentionally Blank

Dry Disc Brake

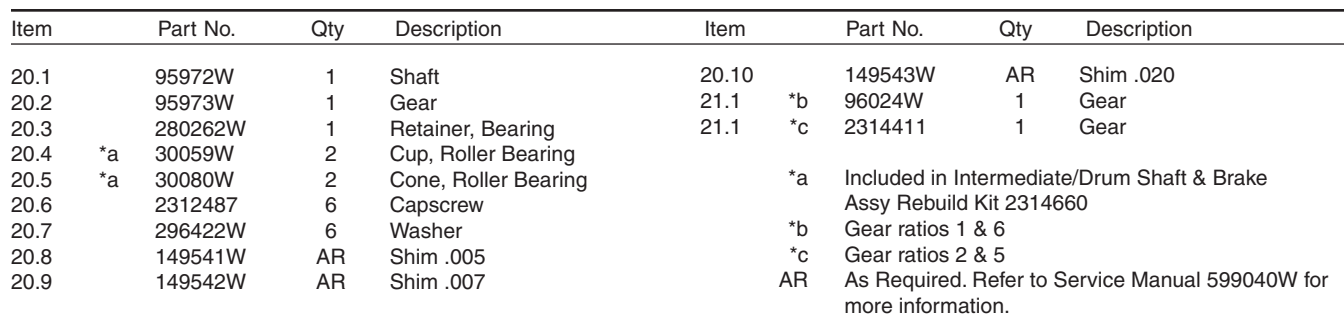
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Dry Disc Brake

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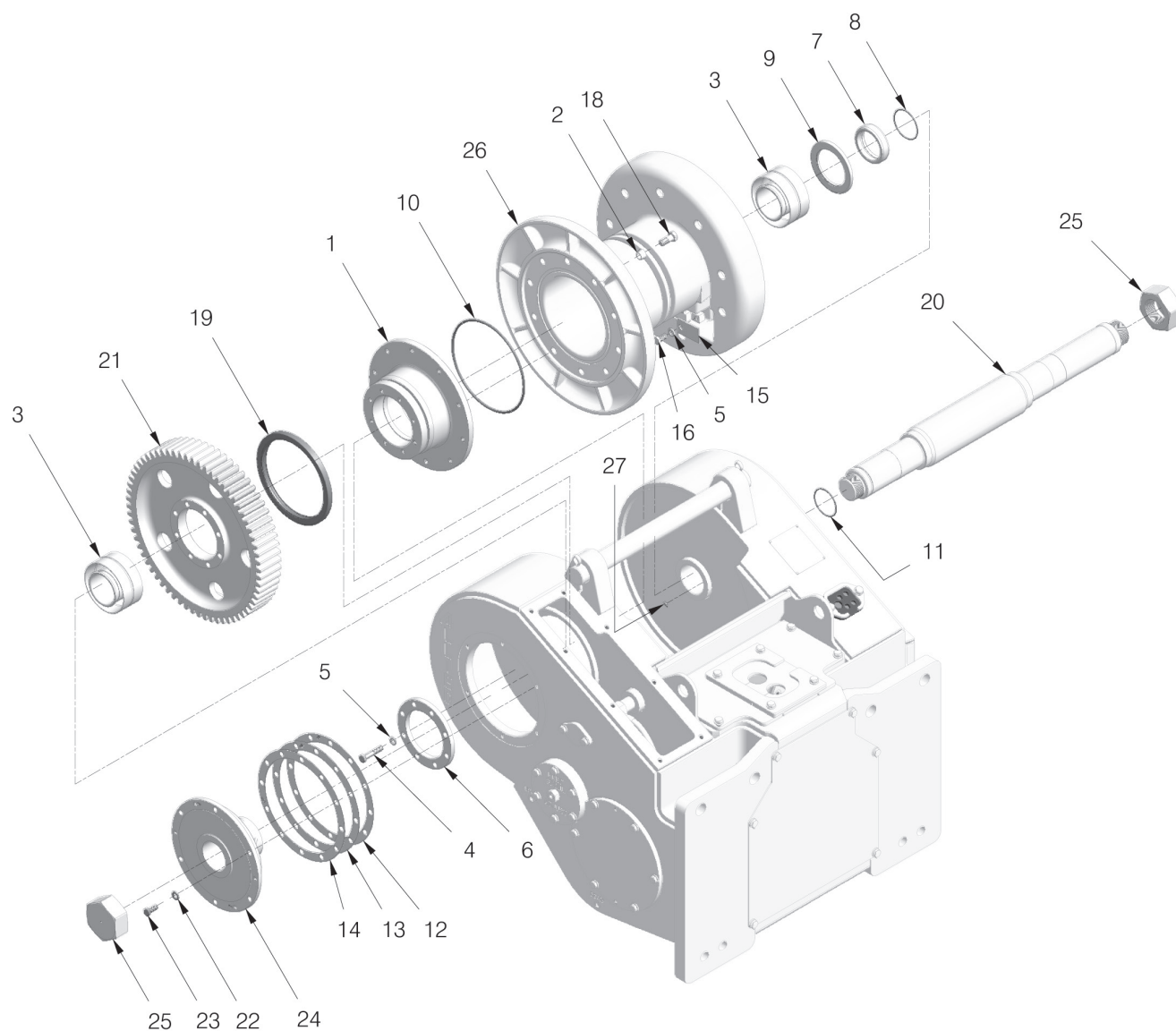
Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2312155		Brake, D Mount Dry Disc				
1	NSS	1	. Retaining Ring	21	*b NSS	1	. Bearing
2	NSS	1	. Retaining Ring	22	NSS	1	. Pressure Plate
3	*b NSS	1	. Bearing	23	NSS	4	. Capscrew
4	*a,*b NSS	1	. Oil Seal				
5	NSS	1	. Cover Plate	*a	Included in O-Ring Repair Kit 2312302		
6	NSS	1	. Spline Shaft Assy		O-Ring Repair Kit 2312302 is included in		
7	NSS	4	. Bolt		Motor, Reducer & Brake Assy Rebuild Kit		
8	*d NSS	1	. Primary Disc		2314659		
9	*d NSS	8	. Rotor Disc	*b	Included in Bearing Repair Kit 2312303		
10	*d NSS	7	. Stator Disc		Bearing Repair Kit 2312303 is included in		
11	*a,*b,*c,*d NSS	2	. Case Gasket		Intermediate/Drum Shaft & Brake Assy		
12	NSS	4	. Capscrew		Rebuild Kit 2314660		
13	NSS	4	. Dowel Pins	*c	Included in Spring Repair Kit 250850		
14	NSS	1	. Spring Plate		Spring Repair Kit 250850 is included in		
15	*c NSS	10	. Spring, Red		Intermediate/Drum Shaft & Brake Assy		
16	NSS	1	. Piston		Rebuild Kit 2314660		
17	*a NSS	1	. Backup Ring	*d	Included in Lining Repair Kit 250847		
18	*a NSS	1	. O-Ring		Lining Repair Kit 250847 is Included in		
19	*a NSS	1	. Backup Ring		Intermediate/Drum Shaft & Brake Assy		
20	*a NSS	1	. O-Ring		Rebuild Kit 2314660		
				NSS	Not Sold Separately		





- *a Apply Threadlock 318702W to threads
- *b Included in Intermediate/Drum Shaft & Brake Assy Rebuild Kit 2314660
- *c Gear ratios 1 & 6
- *d Gear ratios 2 & 5

Drum Shaft



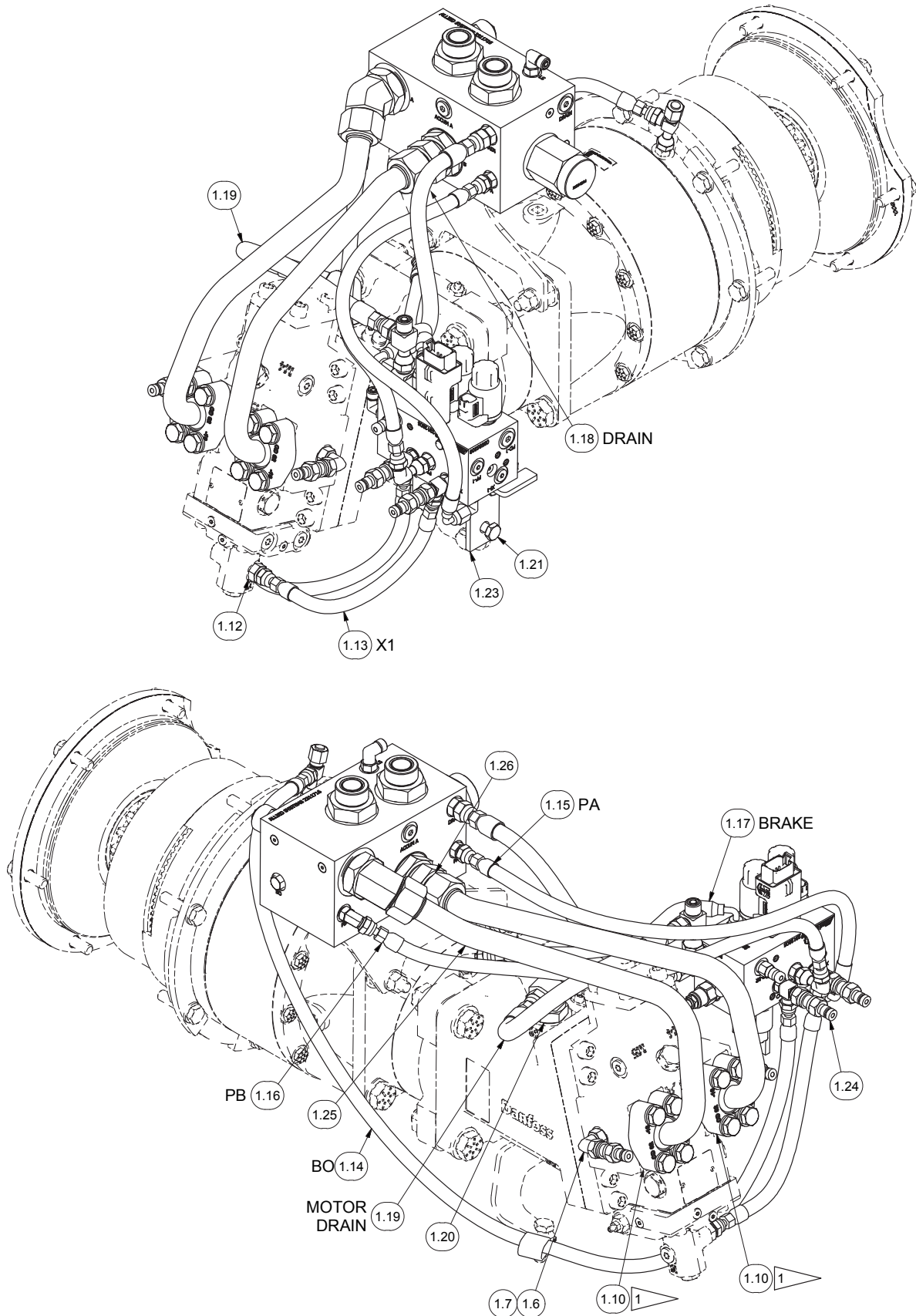
Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	141674W	1	Adapter	17	221771W	8	Hard Washer
2	53559W	10	Thimble, Tapered	18	2310891	10	Capscrew
3	*b 2310093	2	Bearing, Roller	19	141671W	1	Seal, Oil
4	221577W	8	Capscrew	20	2312064	1	Shaft, Drum
5	*b 15158W	9	Washer	21	95977W	1	Gear, Drum
6	95978W	1	Retainer	22	296422W	6	Washer
7	*a 172808W	1	Spacer	23	2312486	6	Capscrew
8	15881W	1	O-Ring	24	172810W	1	Retainer
9	*b 44547W	1	Seal, Oil	25	*a 2312099	2	Nut
10	*b 133927W	1	Ring, Piston Seal	26	2313730	1	Drum, H6H
11	*b 90263W	1	O-Ring	27	Y433070.45	1	Fitting
12	175648W	AR	Shim, .020				
13	175647W	AR	Shim, .007				
14	175646W	AR	Shim, .005				
15	2301783W	1	Keeper, Ferrule				
16	16829W	1	Capscrew				
				*a	Requires Sealant 358674W		
				*b	Included in Intermediate/Drum Shaft & Brake Assy Rebuild Kit 2314660		

Section 3
Hydraulic/Electrical/Controls

Hydraulic Group

Case Quadtrac (H6HH6BN**R39)

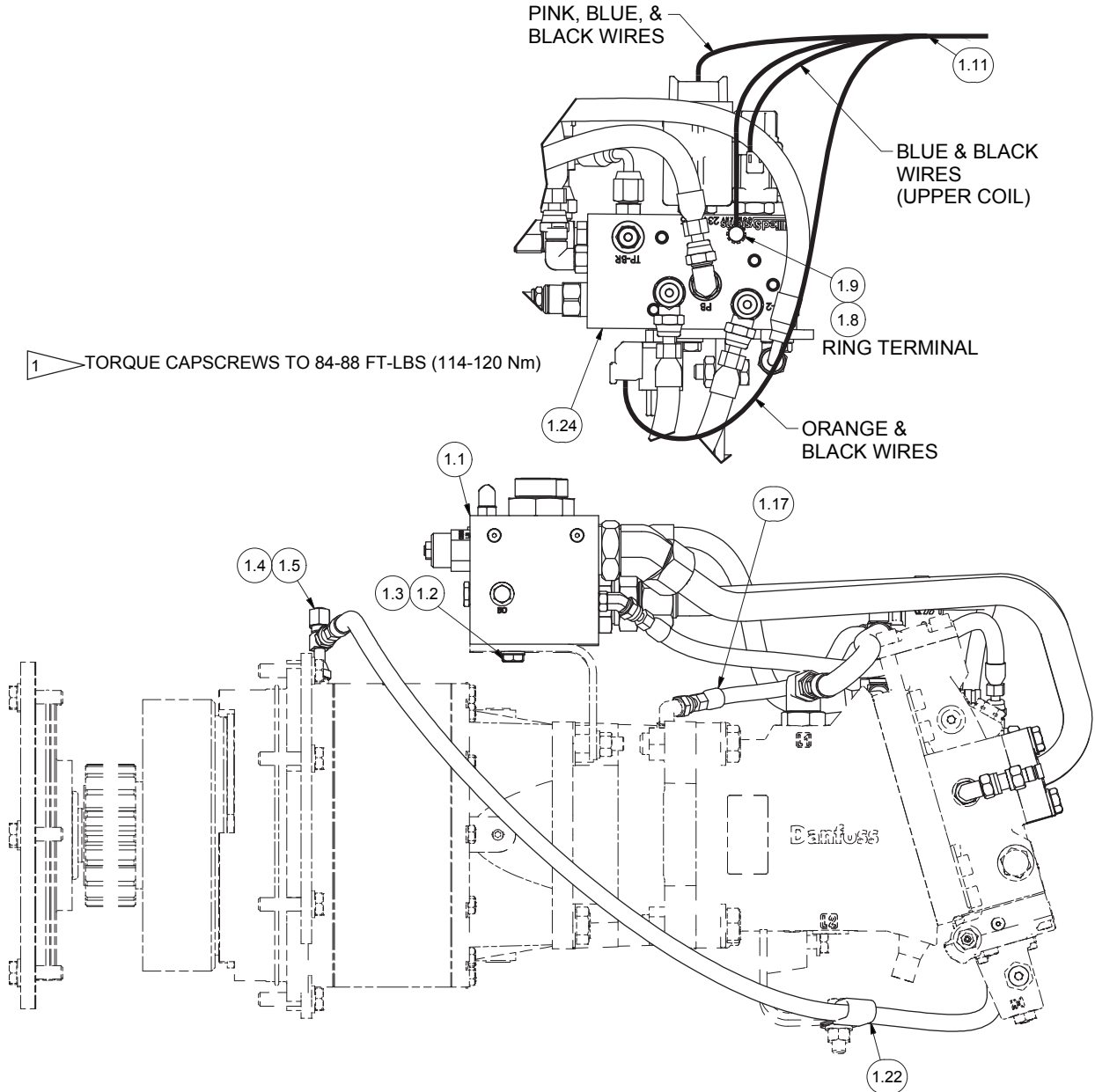
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Hydraulic Group

Case Quadtrac (H6HH6BN**R39)

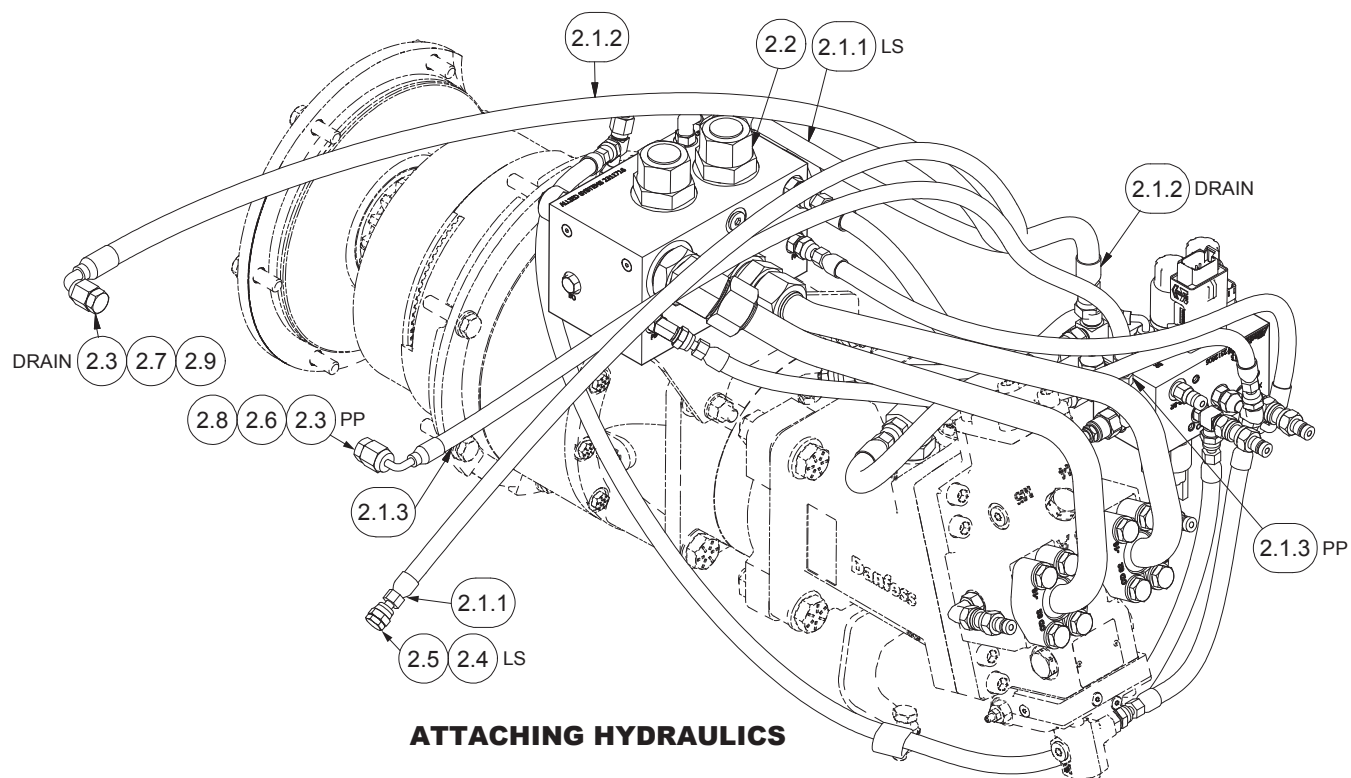
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Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1.1	*a 2314100	1	Manifold Assy	1.16	257331	1	Hose Assy
1.2	Y09C-M1025	4	Capscrew	1.17	249525	1	Hose Assy
1.3	296420W	4	Washer	1.18	237171	1	Hose Assy
1.4	236855	1	Fitting	1.19	2316830	1	Hose Assy
1.5	232984	1	Fitting	1.20	R833260	1	Fitting
1.6	R833253	2	Fitting	1.21	Y09C-M1030	2	Capscrew
1.7	2307625W	2	Fitting	1.22	391484W	1	Clamp - Insulated
1.8	15923W	1	Lockwasher	1.23	2315194	1	Bracket - Manifold Mount
1.9	292501W	1	Capscrew	1.24	*b 2316901	1	Assy - Manifold Control
1.10	592255	2	Kit, Split Flange	1.25	2316108	1	Tube Assy
1.11	2315353	1	Harness - Wire, Internal	1.26	2316109	1	Tube Assy
1.12	R833103	1	Fitting				
1.13	594490	1	Hose Assy				
1.14	2313710	1	Hose Assy				
1.15	242260	1	Hose Assy				
				*a	See page 45 for details		
				*b	See page 47 for details		

Attaching Hydraulics

Case Quadtrac (H6HH6BN**R39)

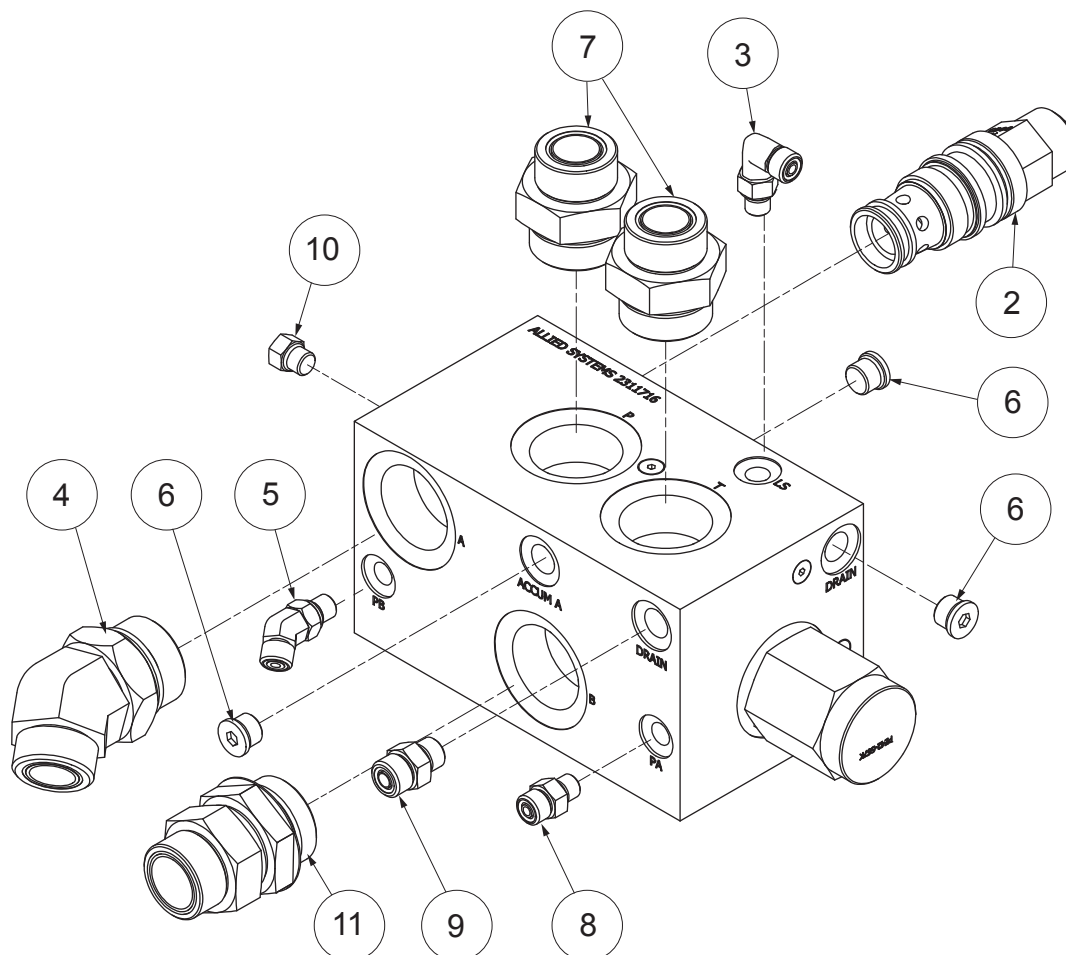


ATTACHING HYDRAULICS

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
2.1	2315295	1	Kit, Hose	2.5	2307240W	1	Label - LS
2.1.1	242503	1	. Hose Assy	2.6	2306152W	1	Label - PS
2.1.2	R12106	1	. Hose Assy	2.7	2306151W	1	Label - T
2.1.3	2315296	1	. Hose Assy	2.8	242598	1	Cable Tie, Green
2.2	231820	2	Fitting	2.9	242599	1	Cable Tie, Blue
	232383	1	. O-Ring				
2.3	R834201	2	Fitting				
2.4	R834200	2	Fitting				

Directional Manifold Assy

Case Quadtrac (H6HH6BN**R39)

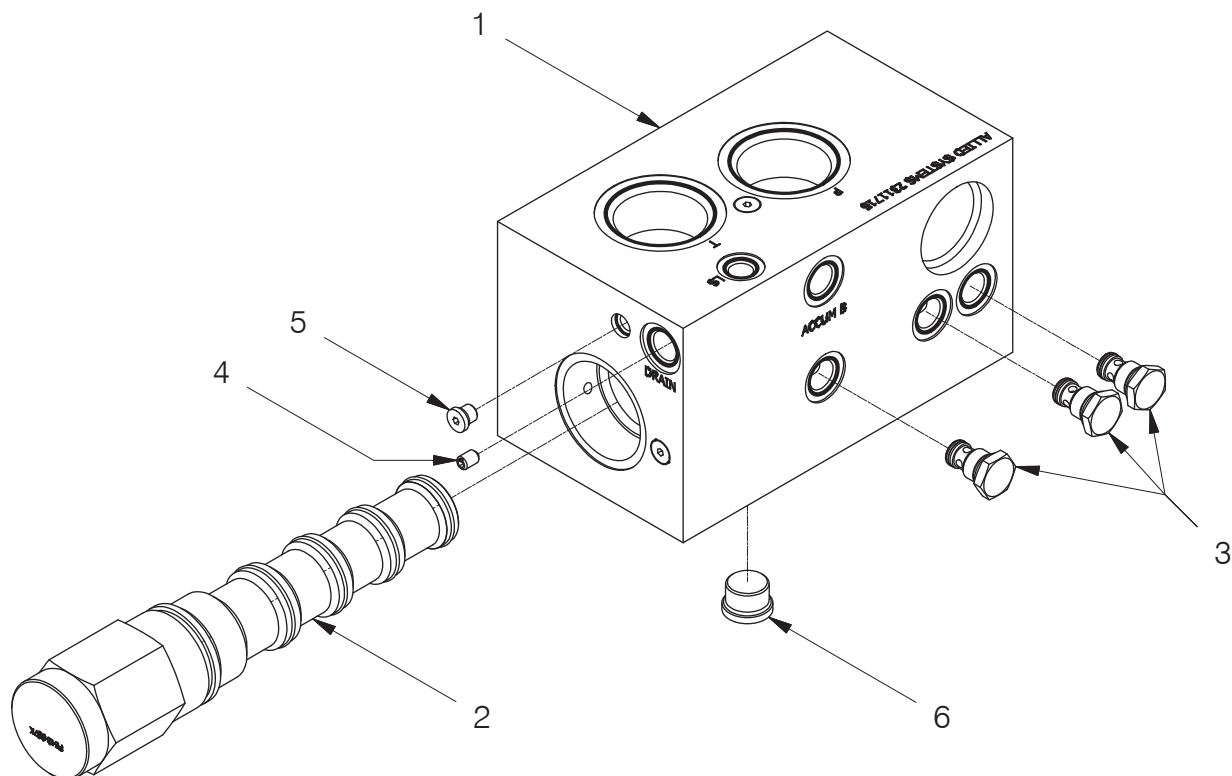


Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2314100		Directional Manifold Assy				
1	*a 2311716	1	. Assy - Manifold, Hi-P Directional	6	229383	3	. Fitting
2	2307265W	1	. Valve, Counterbalance	7	R833133	2	. Fitting
	243815	1	. . Seal Kit	8	231439	1	. Fitting
3	R833251	1	. Fitting	9	231440	1	. Fitting
4	R833218	1	. Fitting	10	209423	1	. Fitting
5	R833200	1	. Fitting	11	2313948	1	. Fitting

*a See page 46 for details

Directional Manifold Assy, High Performance

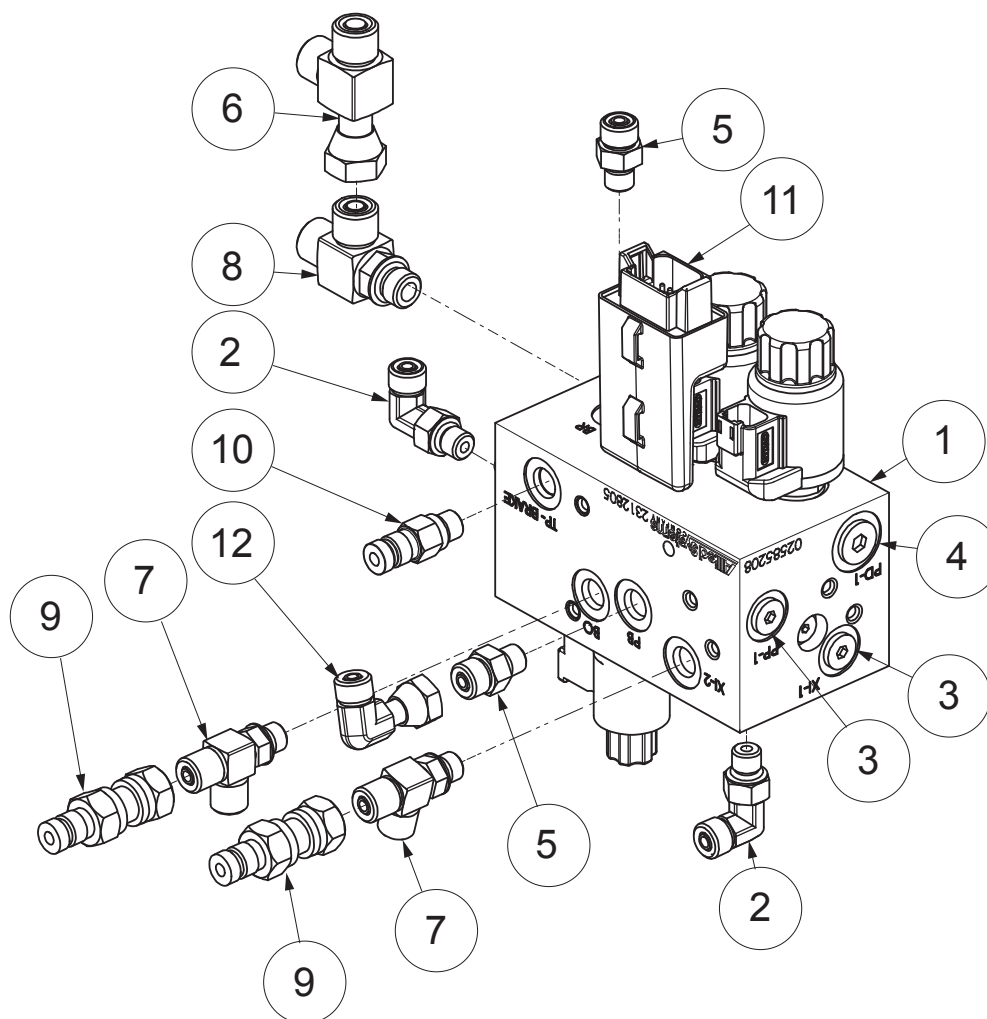
Case Quadtrac (H6HH6BN**R39)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2311716		Assy - Manifold, Hi-P Directional				
1	2311717	1	. Manifold - Body, Hi-P Directional	3	2312103	3	. Check Valve
2	2307024W	1	. Valve, Cartridge		2312114	3	. . Seal Kit
	2307235W	1	. . Seal Kit	4	2312959	1	. Orifice
				5	257557	1	. Setscrew
				6	2313072	1	. Screen

Control Manifold Assy

Case Quadtrac (H6HH6BN**R39)

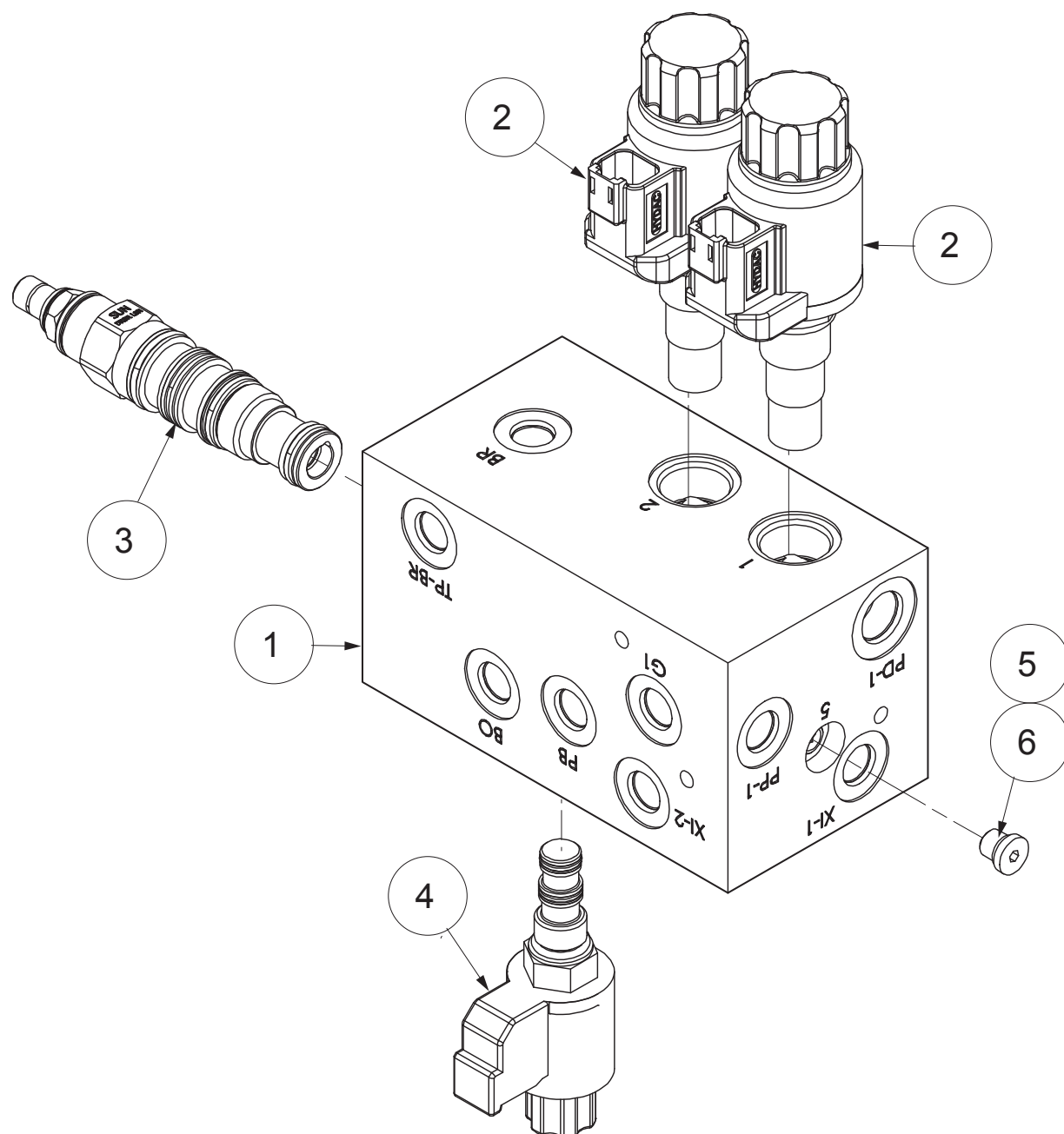


Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	2316901		Assy, Manifold Control				
1	*a 2312805	1	. Assy, Manifold Control	8	231465	1	. Fitting
2	R833251	2	. Fitting	9	2307625W	2	. Fitting
3	235387	2	. Fitting	10	R14040	1	. Coupler, Male
4	229383	1	. Fitting	11	2316564	1	. Control Module
5	231439	2	. Fitting	12	R833800	1	. Fitting
6	231955	1	. Fitting				
7	R833400	2	. Fitting				

*a See page 48 for details

Control Manifold Assy

Case Quadtrac (H6HH6BN**R39)



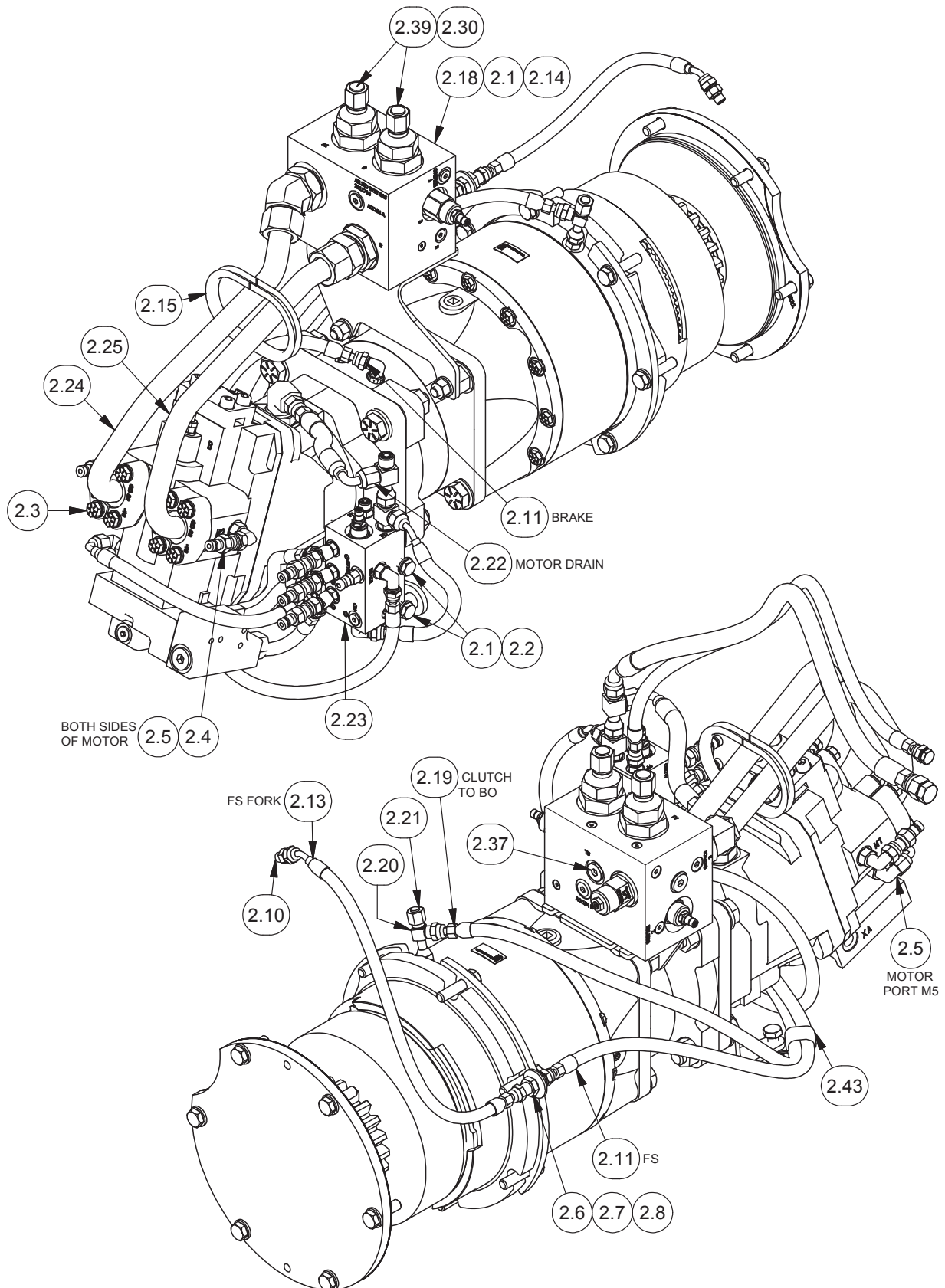
Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2312805		Assy, Control Manifold				
1	2312804	1	. Block - Manifold	4	2312073	1	. Valve, Solenoid
2	2312803	2	. Valve, Pressure Reducing		2312111	1	. . Seal Kit
	2504253	1	. . Seal Kit	5	2312074	1	. Valve, Shuttle
3	2311592	1	. Valve, Brake		2312112	1	. . Seal Kit
	252566	1	. . Seal Kit	6	242230	1	. Fitting

Intentionally Blank

Internal Hydraulic Group

Case 1650L (H6HT1D**R40)

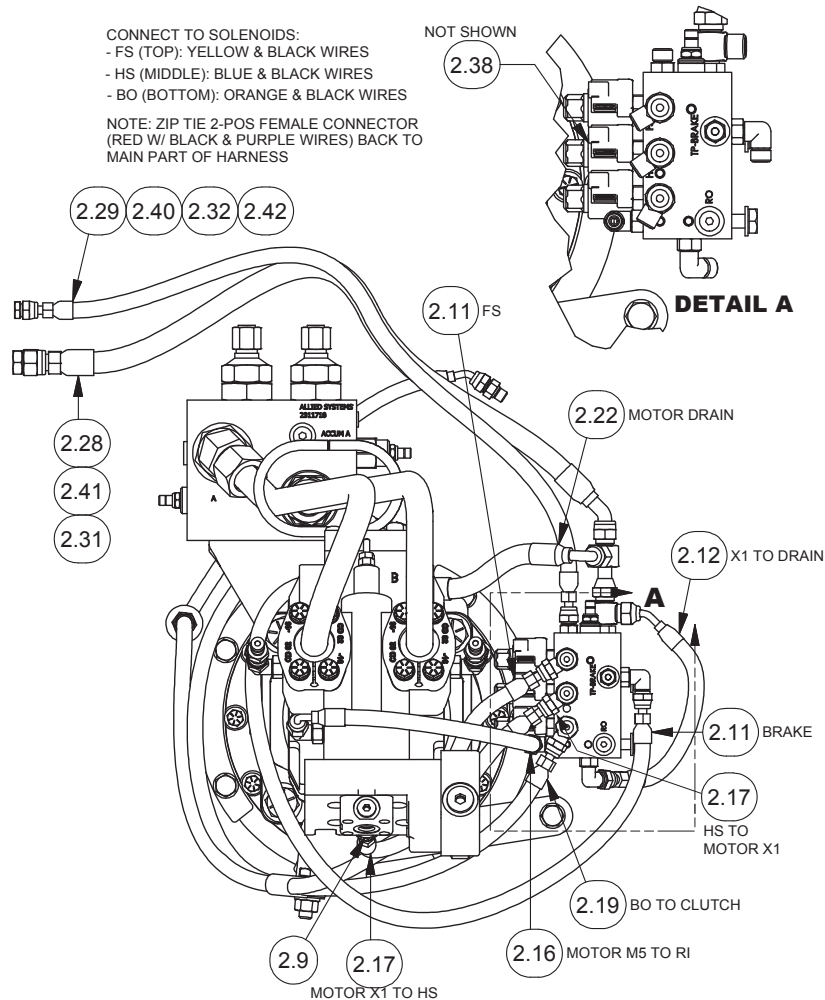
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Internal Hydraulic Group

Case 1650L (H6HT1D**R40)

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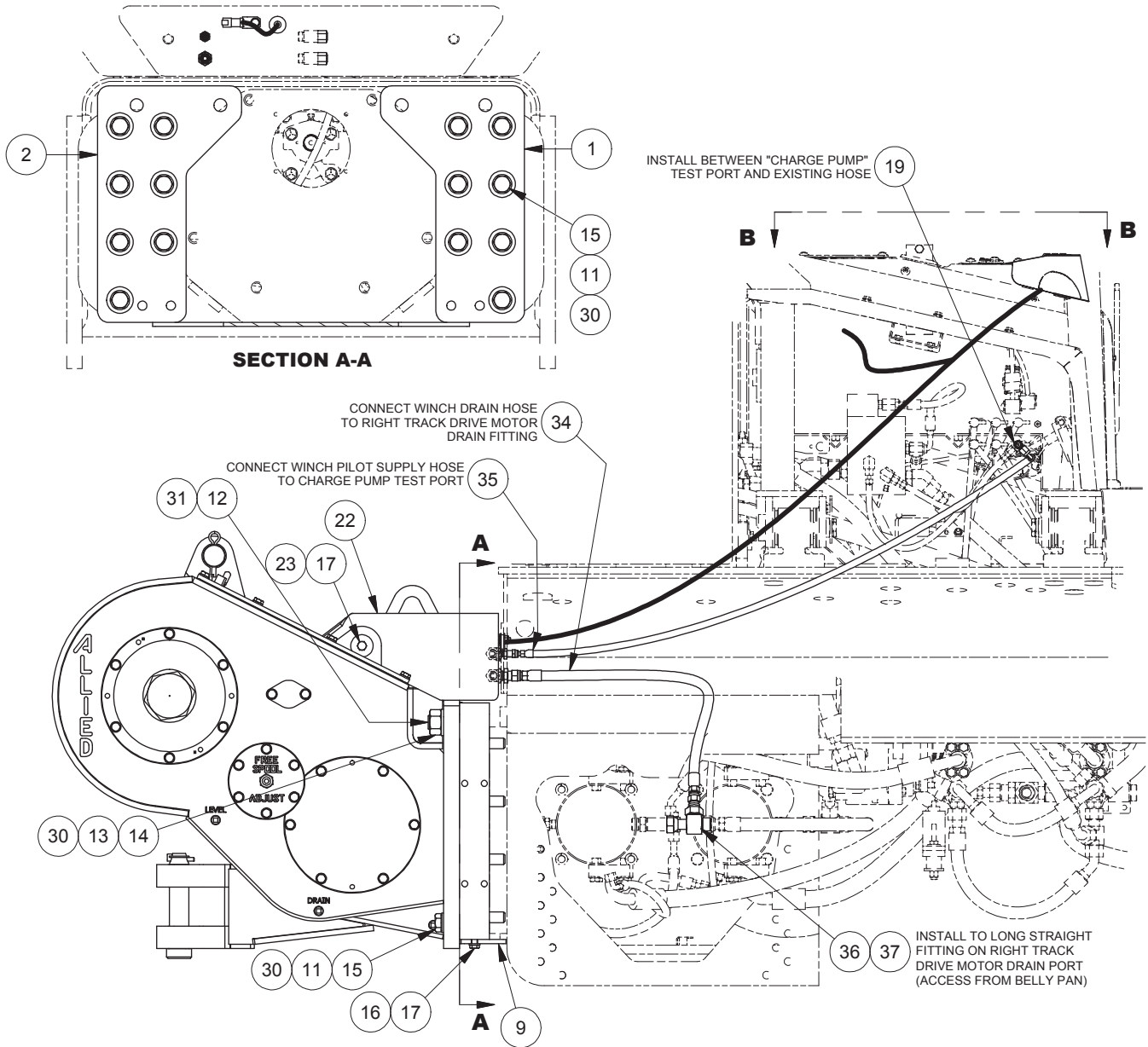


Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
2.1	Y09C-M1025	4	Capscrew	2.21	232984	1	Fitting
2.2	296420W	2	Washer	2.22	*a 2312358	1	Assy, Hose
2.3	229448	2	Kit, Split Flange	2.23	*c 2313960	1	Assy, Control Manifold
2.4	2307625W	2	Coupler, Quick Male	2.24	2314162	1	Assy, Tube - Motor A
2.5	R833253	2	Fitting	2.25	2314690	1	Assy, Tube - Motor B
2.6	R834100	1	Fitting	2.28	*a 2314688	1	Assy, Hose
2.7	15178W	1	Washer	2.29	*a 2314689	1	Assy, Hose
2.8	211564	1	O-Ring	2.30	R833707	2	Fitting
2.9	R833103	1	Fitting	2.31	2306151W	1	Label - T
2.10	231439	1	Fitting	2.32	2307241W	1	Label - Pilot
2.11	*a 2312353	2	Assy, Hose	2.37	229345	1	Fitting
2.12	*a 2313844	1	Assy, Hose	2.38	NS 2313137	1	Harness, Winch Harness
2.13	*a 2312212	1	Assy, Hose	2.39	R834253	2	Fitting
2.14	221767W	2	Washer	2.40	R834200	1	Fitting
2.15	24257	1.08	Trim, Edge	2.41	232960	1	Fitting
2.16	*a 2312843	1	Assy, Hose	2.42	242598	1	Tie, Cable - A (Green)
2.17	*a 239847	1	Assy, Hose	2.43	2312628	1	Clamp, Insulation
2.18	*b 2314727	1	Assy, Counterbalance Relief Manifold	2.44	2313948	1	Fitting
2.19	*a 2312351	1	Assy, Hose				
2.20	236855	1	Fitting				
				*a	Included in Hose Kit 2315049		
				*b	See page 55 for details		
				*c	See page 56 for details		
				NS	Not Shown		

Console/Rear Plate Alteration & Controls Installation

Case 1650L (H6HT1D**R40)

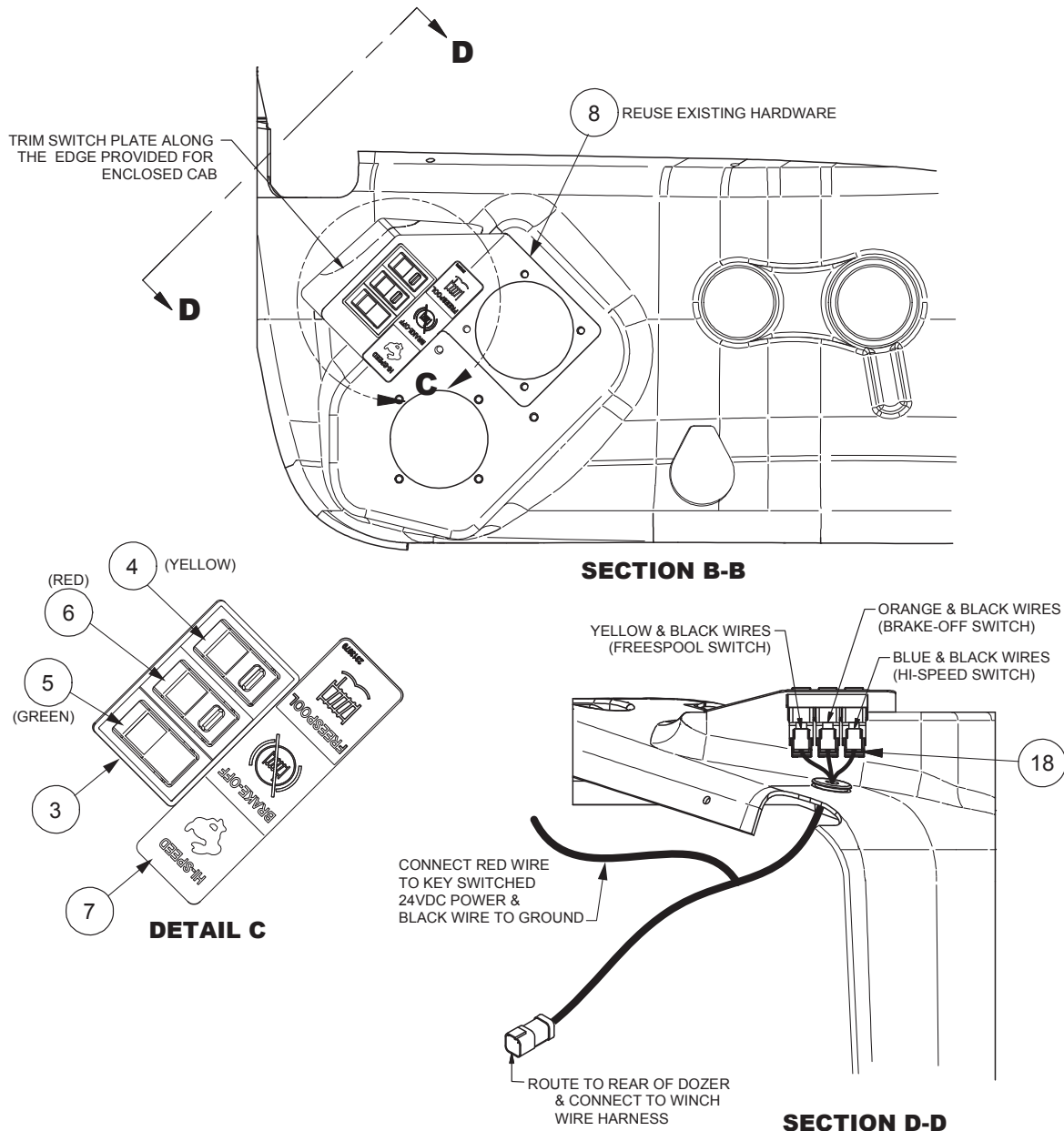
Page 1 of 2



Console/Rear Plate Alteration & Controls Installation

Case 1650L (H6HT1D**R40)

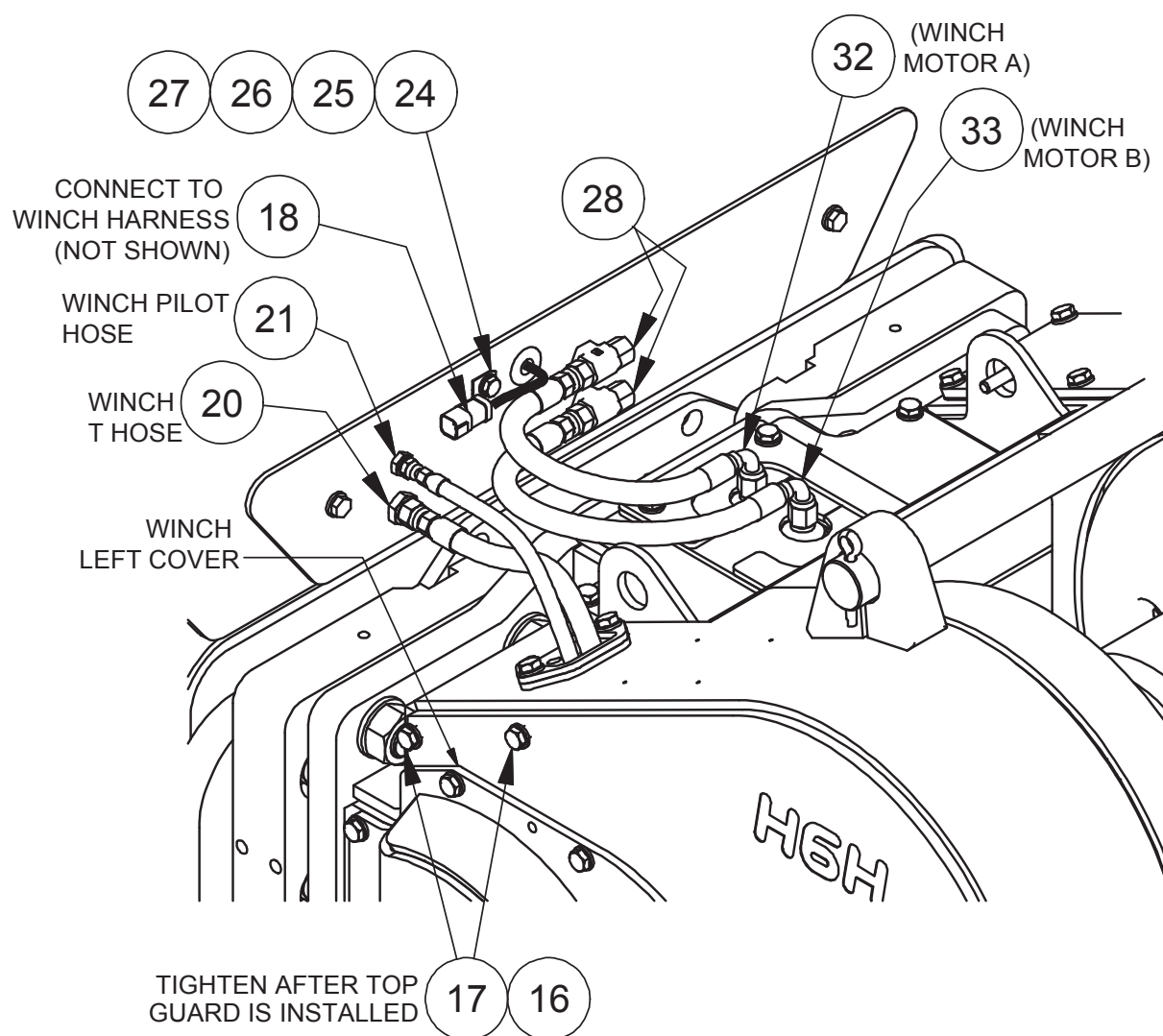
Page 2 of 2



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1	2313214	1	Bracket - Mounting, RH	15	274044W	18	Capscrew
2	2313215	1	Bracket - Mounting, LH	16	296422W	4	Washer
3	234740	1	Frame, Mounting	17	293646W	5	Capscrew
4	2310013	1	Switch Assy, Yellow LED	18	2314728	1	Wire Harness - Console
5	2311072	1	Switch Assy, Green LED	19	236855	1	Fitting
6	2310504	1	Switch Assy, Red LED	22	2314685	1	Weldment - Guard, Hose
7	2313979	1	Decal - Switch Panel	23	2305715W	1	Washer
8	2314651	1	Switch Mounting	30	318702W	1BTL	Threadlock
9	2314681	1	Guard - Bottom	31	230064W	1	Kit, Primer (MSDS Req'd)
11	296434W	18	Washer	34	235527	1	Hose Assembly
12	2312090	4	Stud	35	242254	1	Hose Assembly
13	296440W	4	Washer	36	R834055	1	Fitting
14	2312089	4	Nut	37	2307958W	1	Fitting

Hydraulic Installation

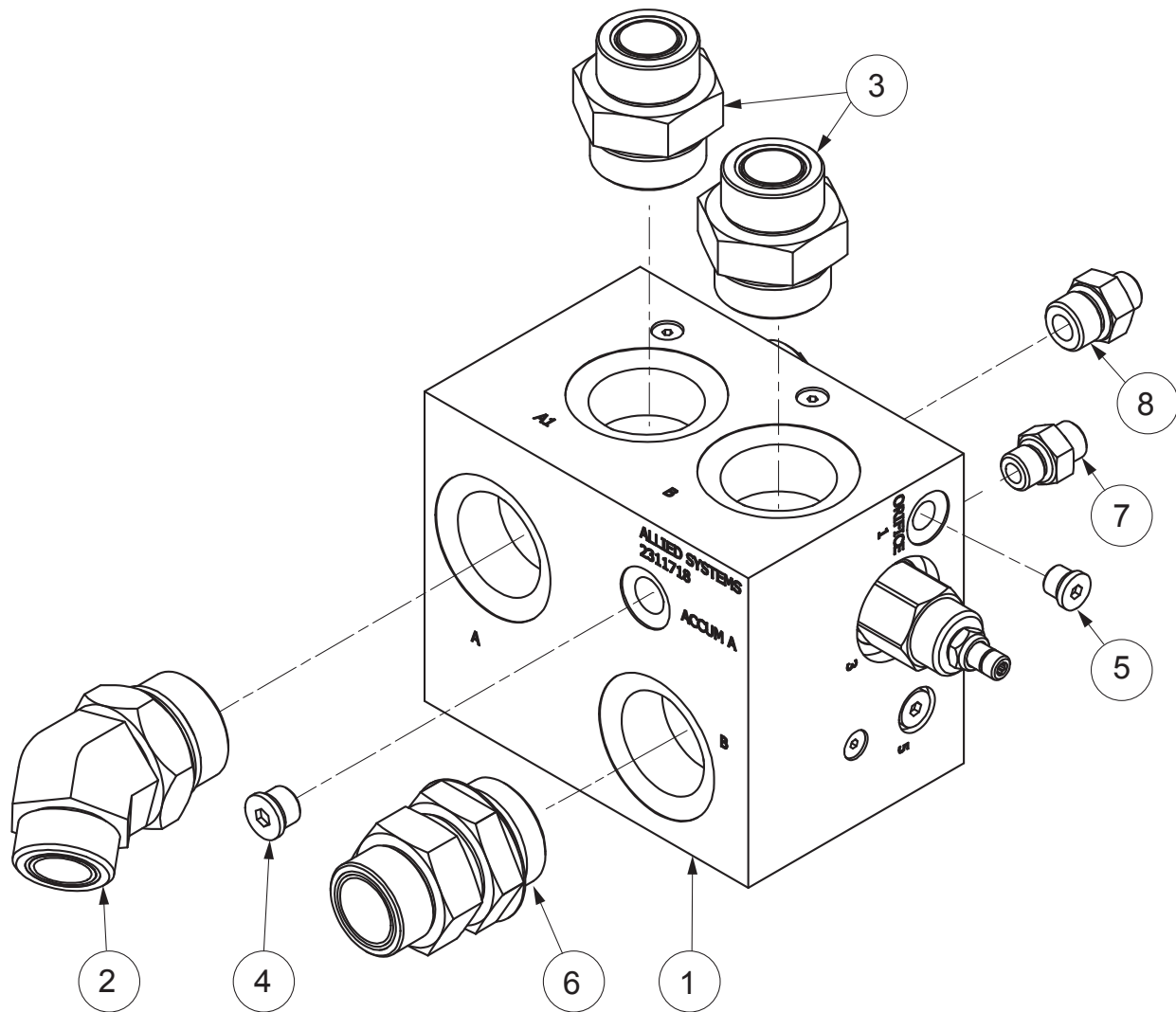
Case 1650L (H6HT1D**R40)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
16	296422W	4	Washer	26	293628W	1	Capscrew
17	293646W	5	Capscrew	27	292655W	1	Nut
18	2314728	1	Harness, Console Wire	28	R384253	2	Fitting
20	R834103	1	Fitting	32	*a	1	Assy, Hose
21	R834100	1	Fitting	33	*a	1	Assy, Hose
24	2311550	1	Clip, Harness Mounting				
25	296420W	2	Washer				
				*a	Included in Hose Kit 2315055		

Counterbalance Relief Manifold Assy

Case 1650L (H6HT**R40)

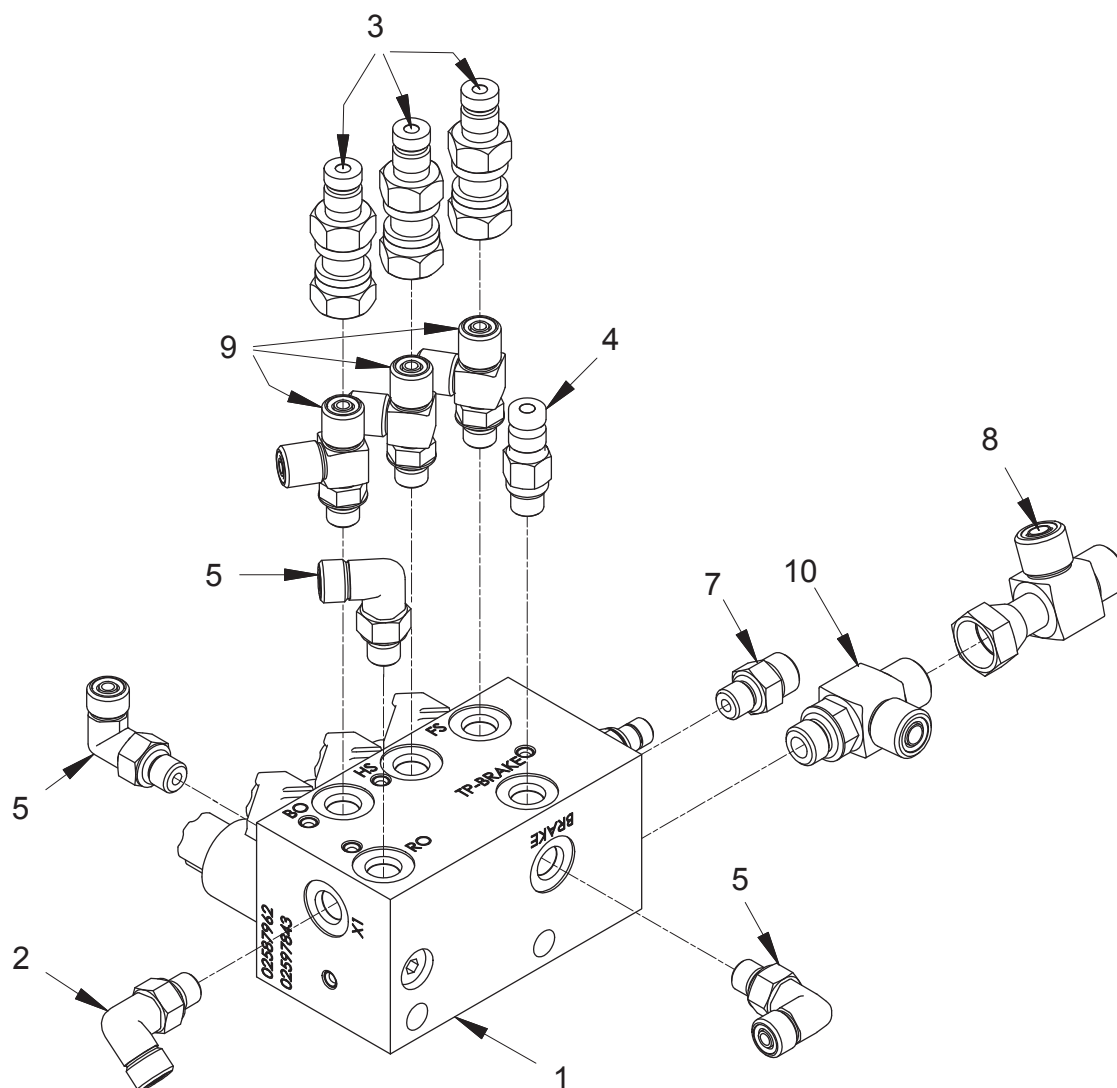


Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2314727	1	Assy, Counterbalance Relief Manifold				
1	*a 2311718	1	. Assy, Counterbalance Relief Manifold	5	235387	1	. Fitting
2	R833218	1	. Fitting	6	2313948	1	. Fitting
3	R833133	2	. Fitting	7	R833103	1	. Fitting
4	229383	1	. Fitting	8	R833104	1	. Fitting

*a See page 55 for details

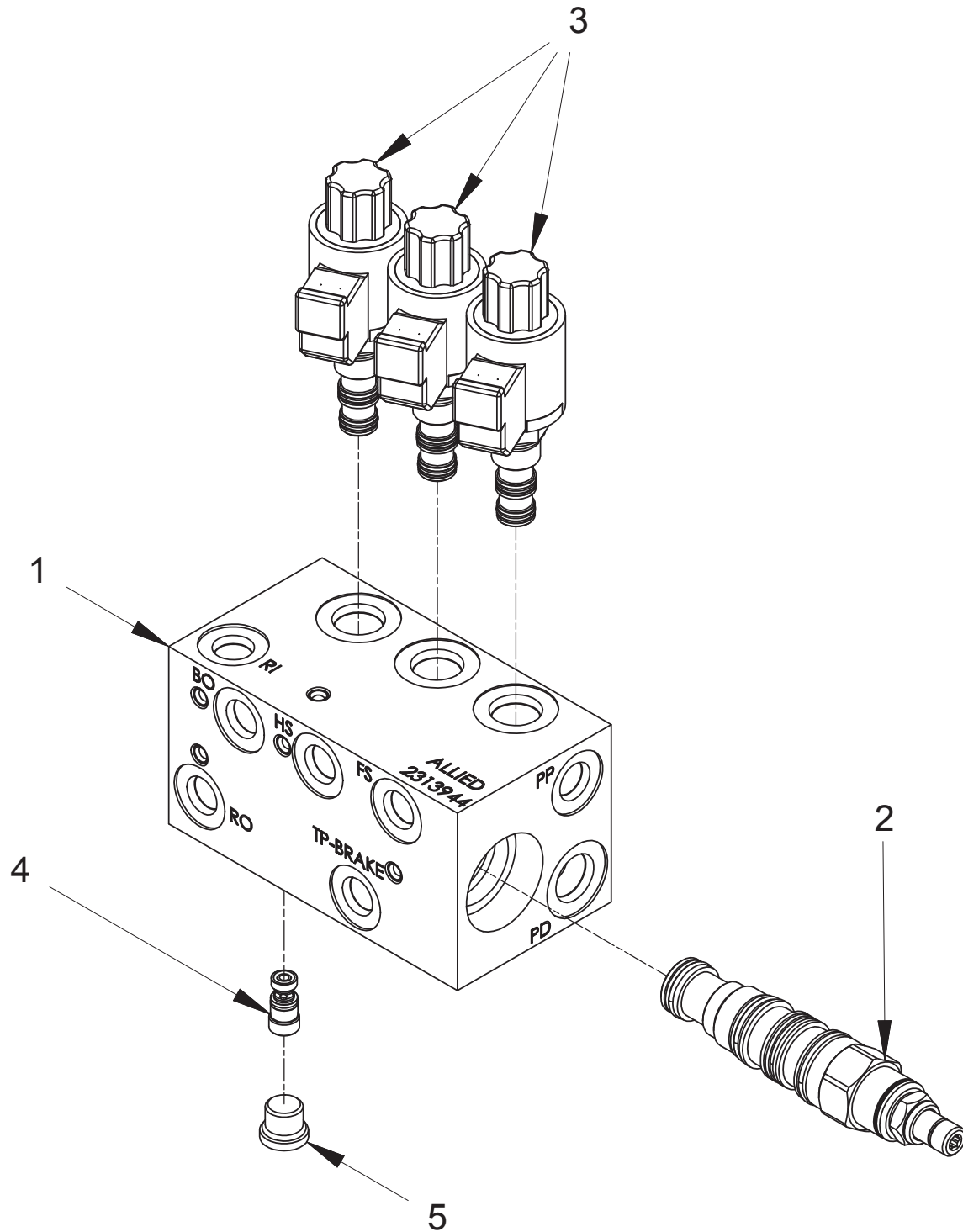
Control Manifold Assy

Case 1650L (H6H*DR40)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2313960	1	Assy, Control Manifold				
1	*a 2313944	1	. Assy, Control Manifold	8	231955	1	. Fitting
2	2311500	1	. Assy, Fitting	9	R833400	3	. Fitting
3	2307625W	3	. Fitting	10	231465	1	. Fitting
4	R14040	3	. Coupler, Quick Male				
5	R833251	3	. Fitting	*a	See page 57 for details		
7	231439	1	. Fitting				

Control Manifold Assy

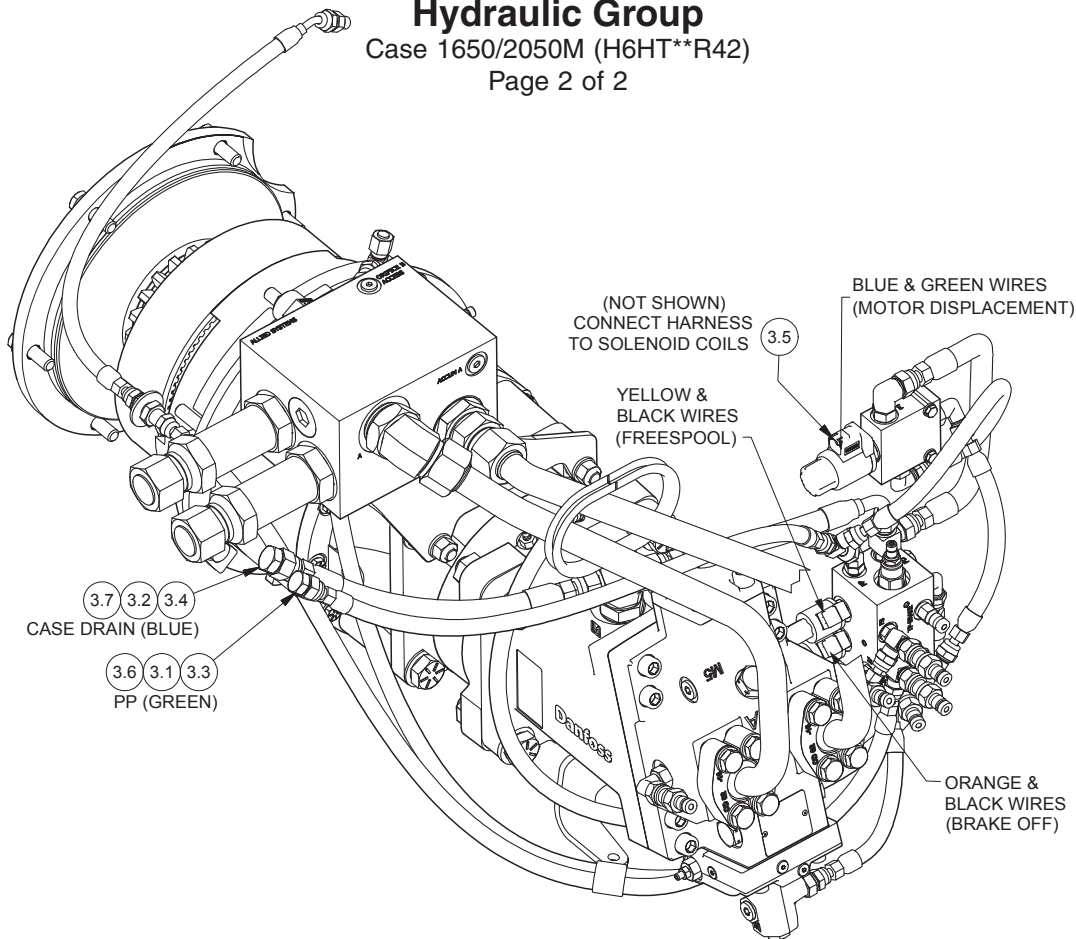


Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2313944	1	Assy, Control Manifold				
1	2313943	1	. Body, Control Manifold	4	2312074	1	. Valve, Shuttle
2	2311592	1	. Valve, Directional		2312112	1	. . Seal, O-Ring
	252566	1	. . Kit, Seal	5	235387	1	. Fitting
3	2312073	3	. Valve, Cartridge				
	2312111	1	. . Kit, Seal				

Hydraulic Group

Case 1650/2050M (H6HT**R42)

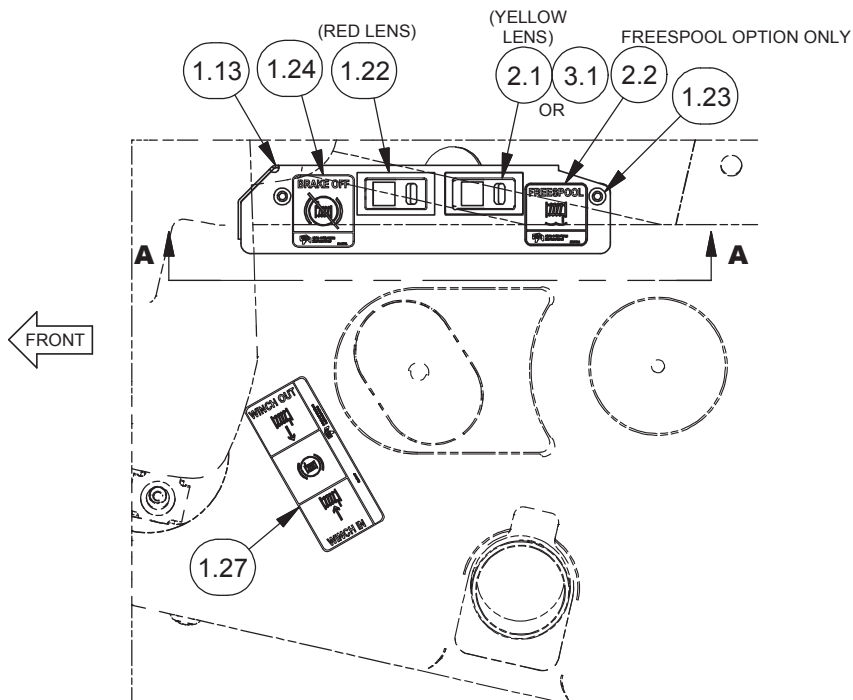
Page 2 of 2



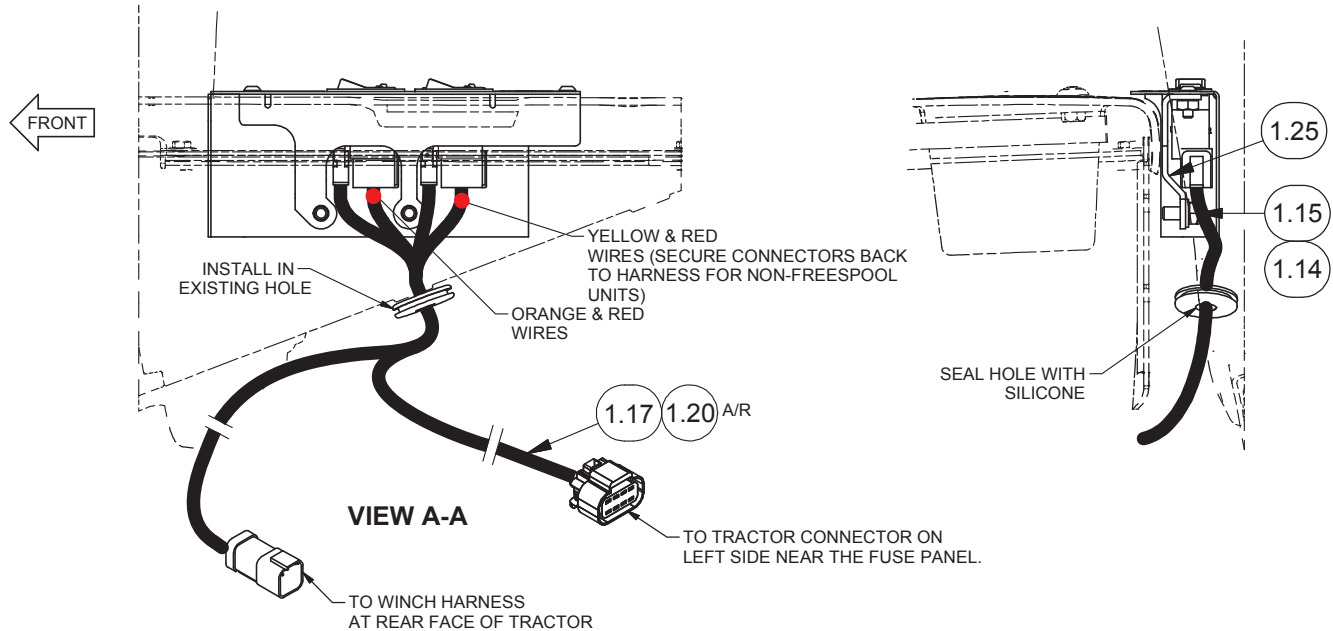
Item		Part No.	Qty	Description	Item		Part No.	Qty	Description
2.1	*f	2313318	1	Manifold Assy, Control	2.25		2307625W	2	Fitting
2.2		236855	2	Fitting	2.26		R833253	2	Fitting
2.3	*a	2312941	1	Assy - Manifold,	2.27		R834100	1	Fitting
				Counterbalance Relief	2.28		15178W	1	Washer
2.4	*b	R833133	1	Fitting	2.29		211564	1	O-Ring
	*c	2313948	1	Fitting	2.30		R833103	1	Fitting
2.5		R833218	1	Fitting	2.31		231439	1	Fitting
2.6		232984	1	Fitting	2.32		2312353	1	Hose Assy
2.7		2312351	1	Hose Assy	2.33		2312350	1	Hose Assy
2.8		235387	1	Fitting	2.34	*d	2312878	1	Hose Assy
2.9		229383	2	Fitting		*e	2313639	1	Hose Assy
2.10	*b	2312069	1	Tube Assy - Motor A	2.35		2312212	1	Hose Assy
	*c*d	2314162	1	Tube Assy - Motor A	2.36		15176W	2	Washer
	*e	2316108	1	Tube Assy - Motor A	2.37		24257	1'	Trim, Edge
2.11	*b	2312095	1	Tube Assy - Motor B	2.38		2312628	1	Clamp
	*c*d	2314690	1	Tube Assy - Motor B	2.39		2313039	1	Fitting
	*e	2316109	1	Tube Assy - Motor B	3.1		2313389	1	Assy, Hose
2.12		2313452	2	Fitting	3.2		2313390	1	Assy, Hose
2.13		244959	2	Fitting	3.3		R834201	1	Fitting
2.14		231820	2	Fitting	3.4		232960	1	Fitting
		232383	1	. O-Ring	3.5		2313496	1	Harness, Winch Wire
2.15	*g	2313492	1	Assy - Body, Line	3.6		242598	1	Tie, Cable - Green
2.16		2313314	1	Hose Assy	3.7		242599	1	Tie, Cable - Blue
2.17		2313388	1	Hose Assy					
2.18		239847	1	Hose Assy	*a		See page 64 for details		
2.19		2316490	1	Hose Assy	*b		Last Used on S/N 1496		
2.20		296417W	2	Hard Washer	*c		First Used on S/N 1497		
2.21		Y09C-M0640	2	Capscrew	*d		Last Used on S/N 1713		
2.22		Y09C-M1025	4	Capscrew	*e		First Used on S/N 1714		
2.23		296420W	2	Hard Washer	*f		See page 62 for details		
2.24	*d	229448	2	Kit, Split Flange	*g		See page 65 for details		
	*e	592255	2	Kit, Split Flange					

Controls Installation

Case 1650/2050M (H6HT**R42)



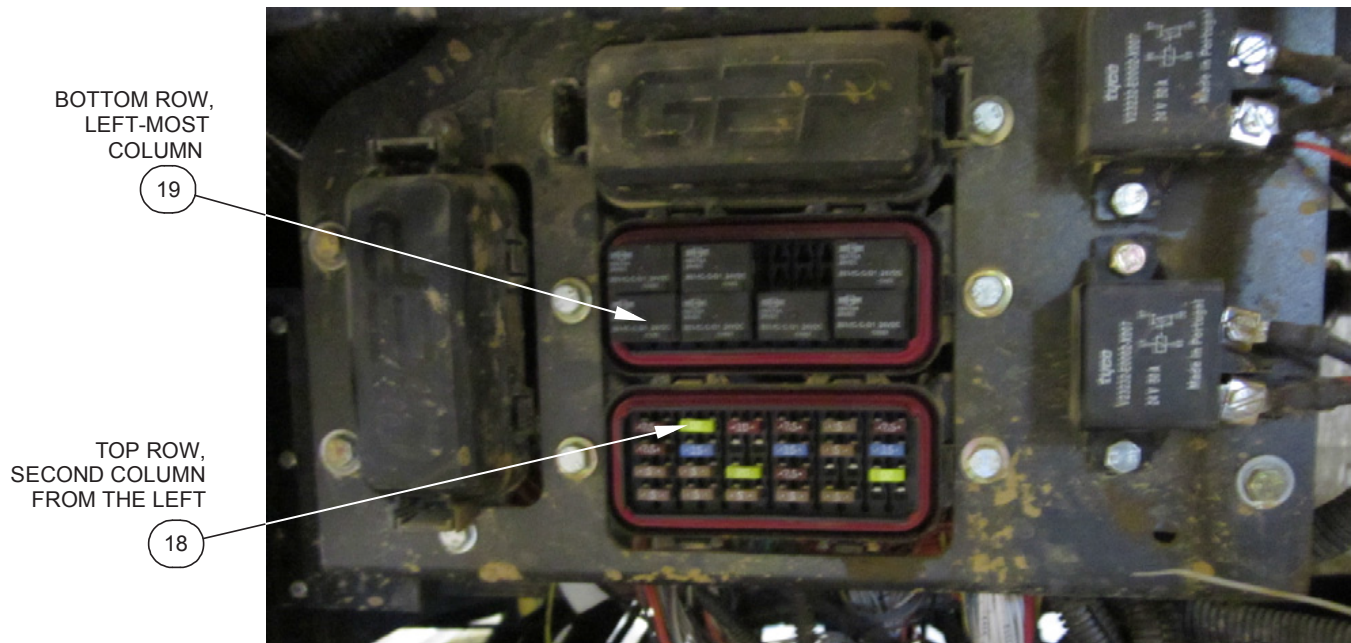
CONTROLS INSTALLATION
TOP VIEW (FREESPOOL OPTION SHOWN)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
1.13	2313993	1	Plate - Switch Mounting	1.25	2314082	1	Switch Bracket
1.14	296418W	2	Hard Washer	1.27	2312177	1	Decal, Winch In, Winch Out
1.15	Y09C-M0816	2	Capscrew	2.1	*a 2310013	1	Assy, Switch (Yellow LED)
1.17	2313400	1	Harness - Wire	2.2	2313992	1	Decal
1.20	137852W	10	Cable Tie	3.1	*a 234509	1	Cover, Blank
1.22	2310504	1	Assy - Switch; W/Lock, 24V, Red LED				*a Item 3.1 Used When Item 2.1 Not Used
1.23	296159W	2	Capscrew				
1.24	2313991	1	Decal, Switch Panel-BRAKE				

Electrical Installation

Case 1650/2050M (H6HT**R42)

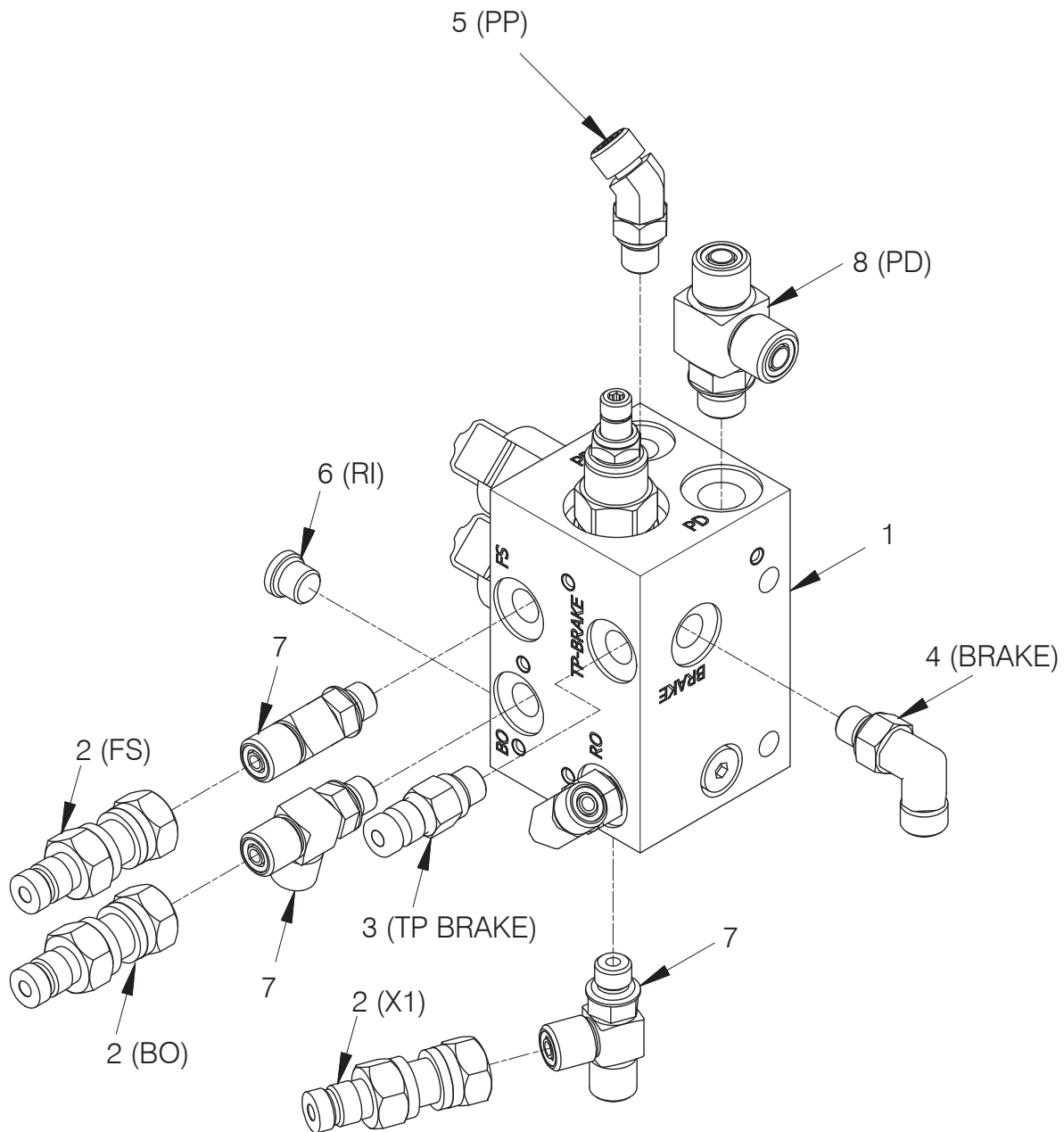


ELECTRICAL PANEL
LEFT SIDE ACCESS PANEL

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
18	2313417	1	Fuse				
19	2313418	1	Relay				

Control Manifold Assy

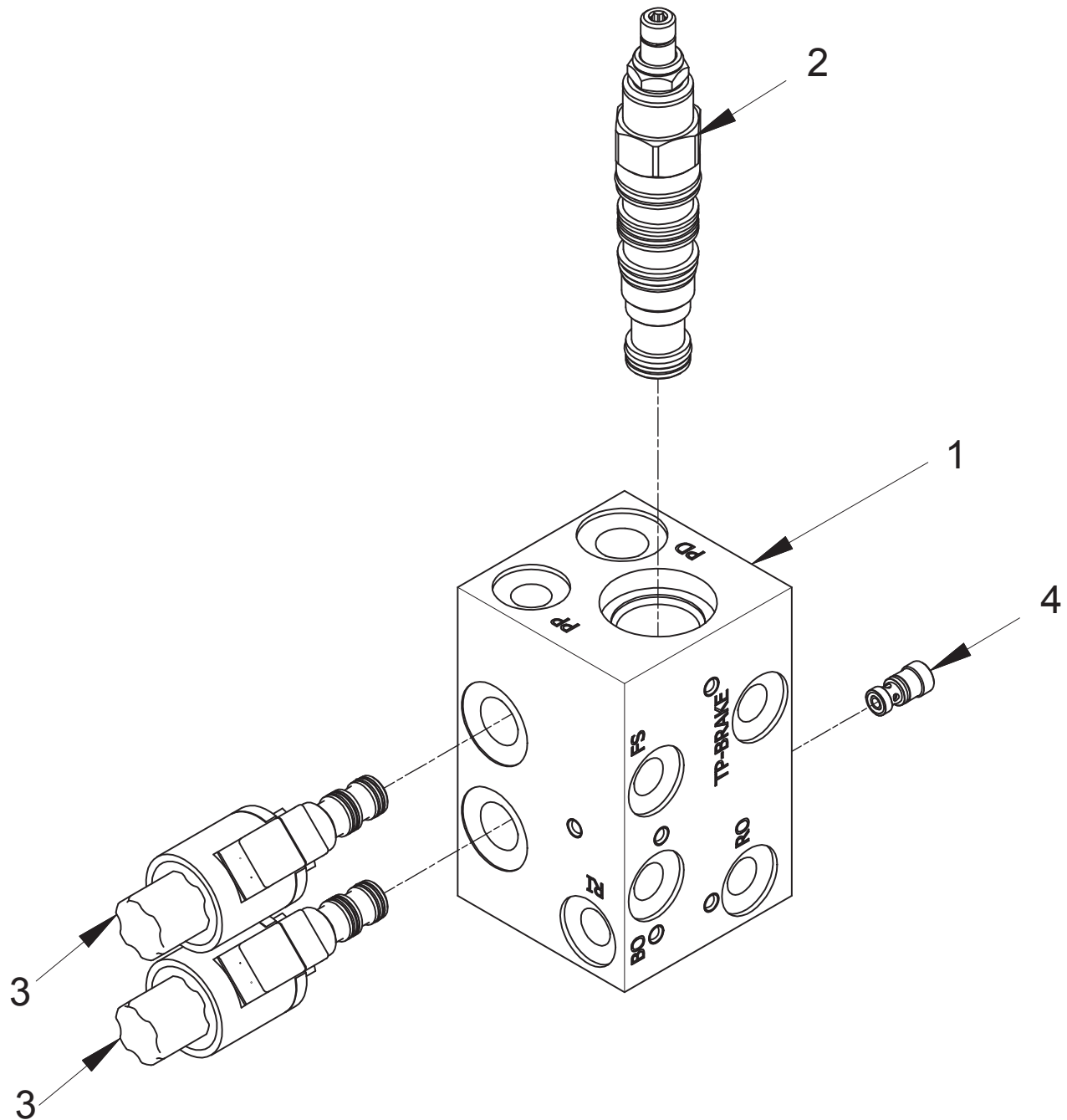
Case 1650/2050M (H6HT1B**R42)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2313318	1	Assy, Control Manifold				
1	*a 2311770	1	. Assy, Control Manifold	6	235387	1	. Fitting
2	2307625W	3	. Coupler	7	R833400	3	. Fitting
3	R14040	1	. Coupler	8	231465	1	. Fitting
4	R833251	2	. Fitting				
5	R833200	1	. Fitting				

*a See page 63 for details

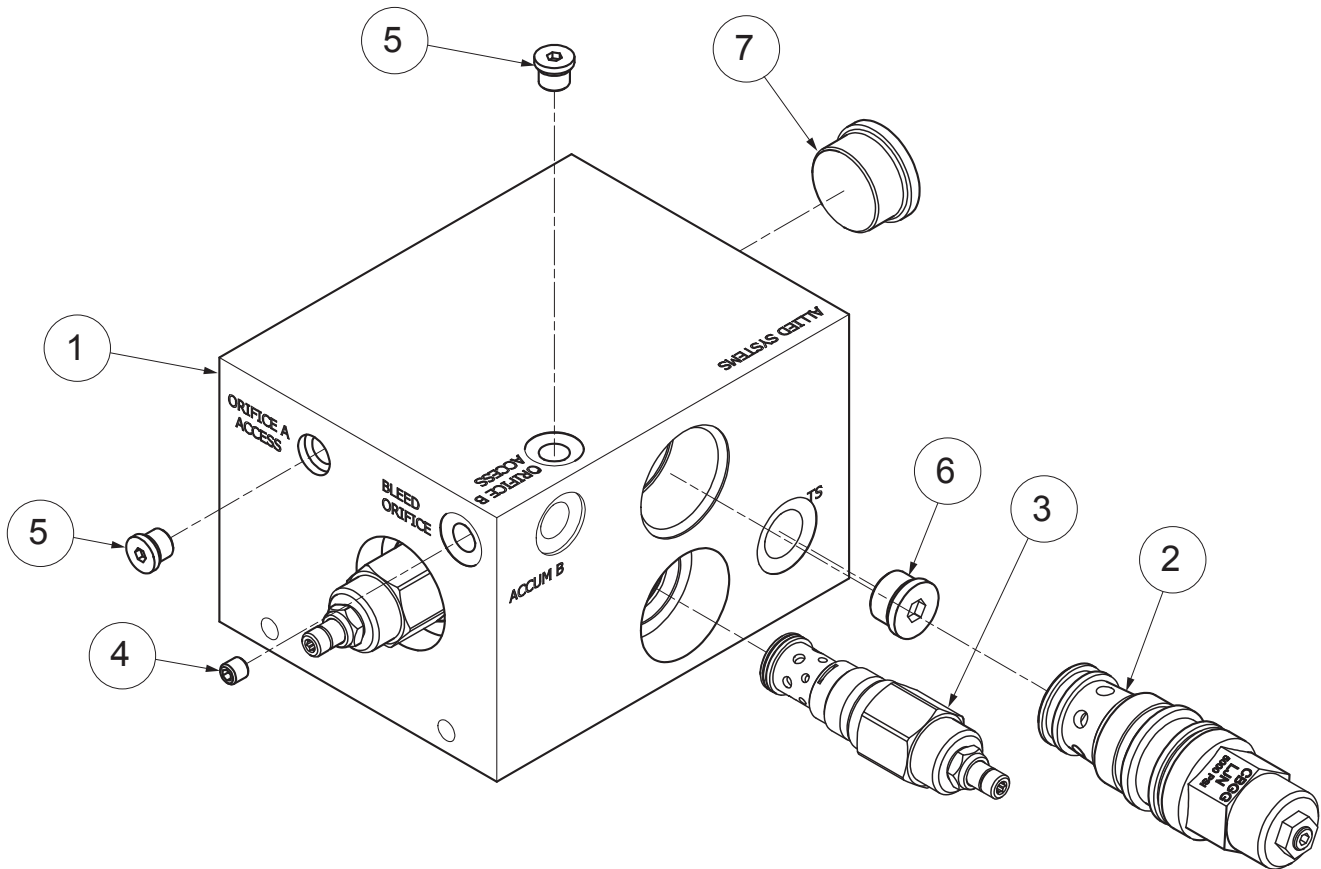
Control Manifold Assy



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2311770	1	Assy, Control Manifold				
1	2311771	1	. Body, Control Manifold	4	2312074	1	. Valve, Shuttle
2	2311592	1	. Valve, Directional		2312112	1	. . Seals, O-Ring
	252566	1	. . Kit, Seal				
3	2312073	2	. Valve, Cartridge				
	2314106	1	. . Base, Valve Cartridge				
	2313984	1	. . Coil				
	2312111	1	. . Kit, Seal				

Counterbalance Relief Manifold Assy

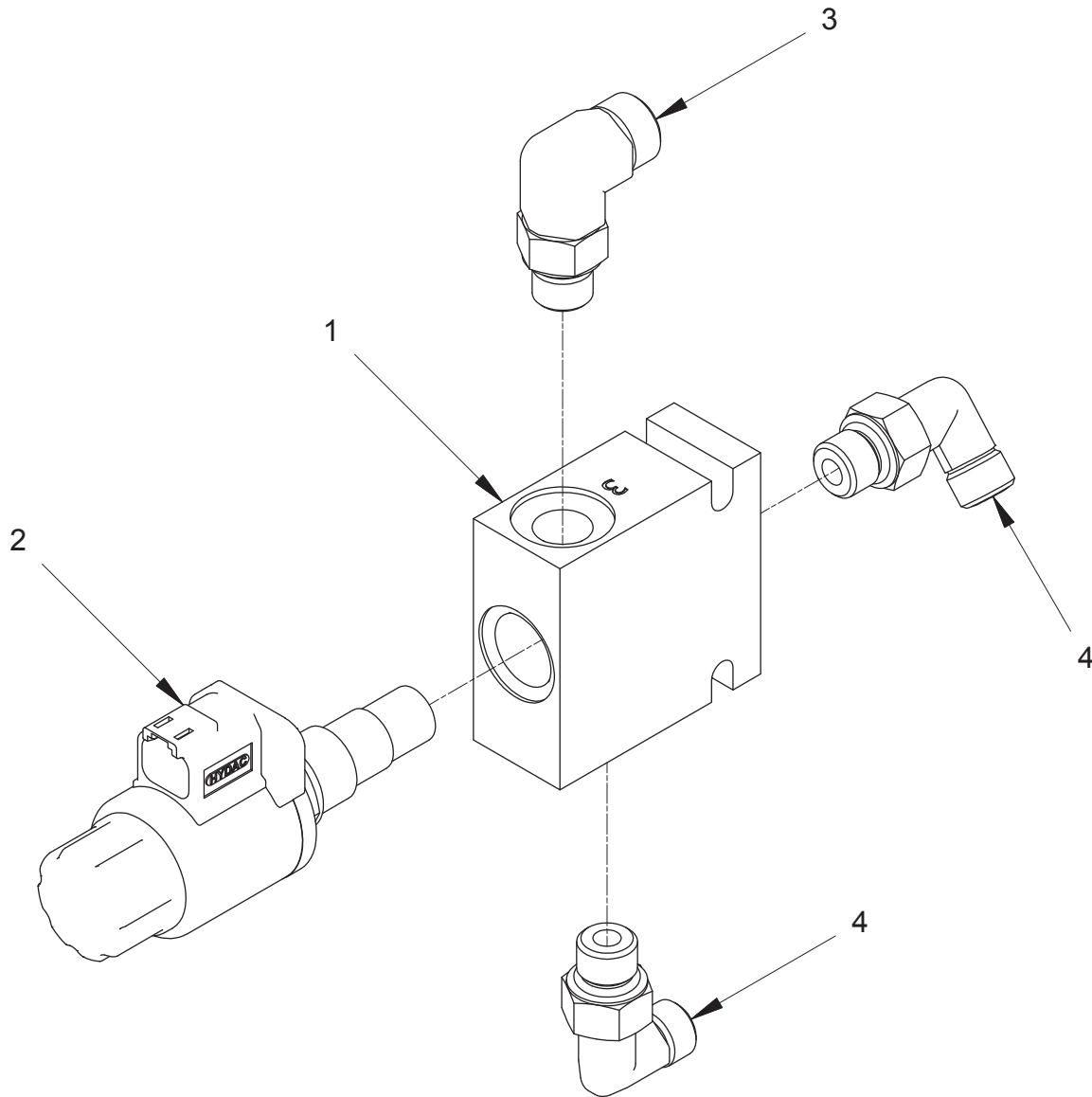
Case 1650L (H6HT**R42)



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2312941		Assy - Manifold, Counterbalance Relief				
1	2312940	1	. Manifold - Body, Counterbalance Relief	4	2310181	1	. Plug
2	2312068	1	. Valve, Counterbalance	5	235387	3	. Fitting
	243815	1	. . Seal Kit	6	229345	1	. Fitting
3	2307438W	2	. Relief Valve	7	227949	1	. Fitting
	259258	1	. . Seal Kit				

Line Body Assy

Case 1650/2050M (H6HT1B**R42)

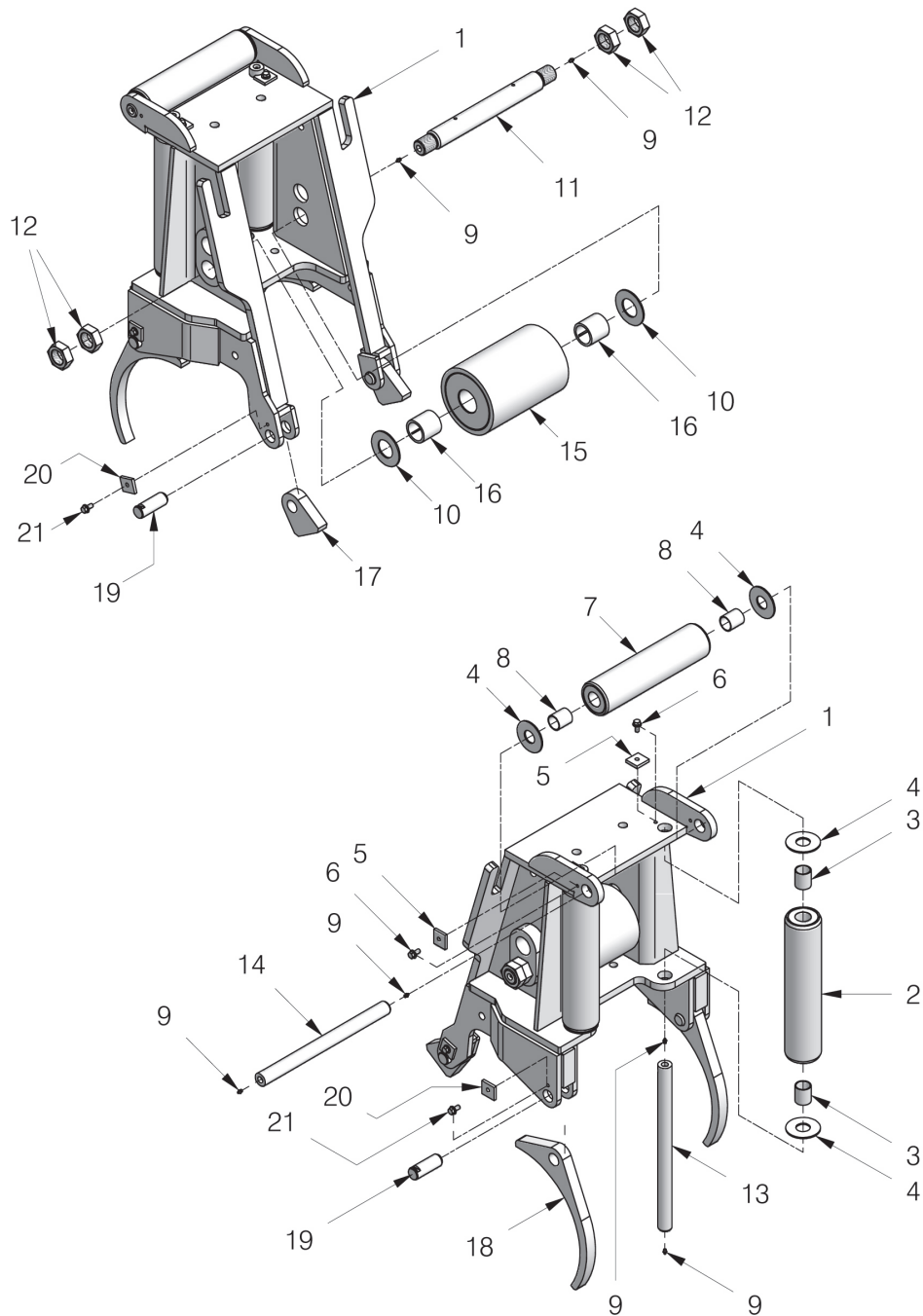


Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2313492	1	Assy, Line Body				
1	2313489	1	. Body, Line	3	R833257	1	. Fitting
2	2312803	1	. Valve, Pressure; Reduce	4	R833253	2	. Fitting
	2504253	1	. . Kit, Seal				
	2314104	1	. . Coil, 24VDC				
	2314107	1	. . Base, Valve Cartridge				

Section 4

Optional Equipment

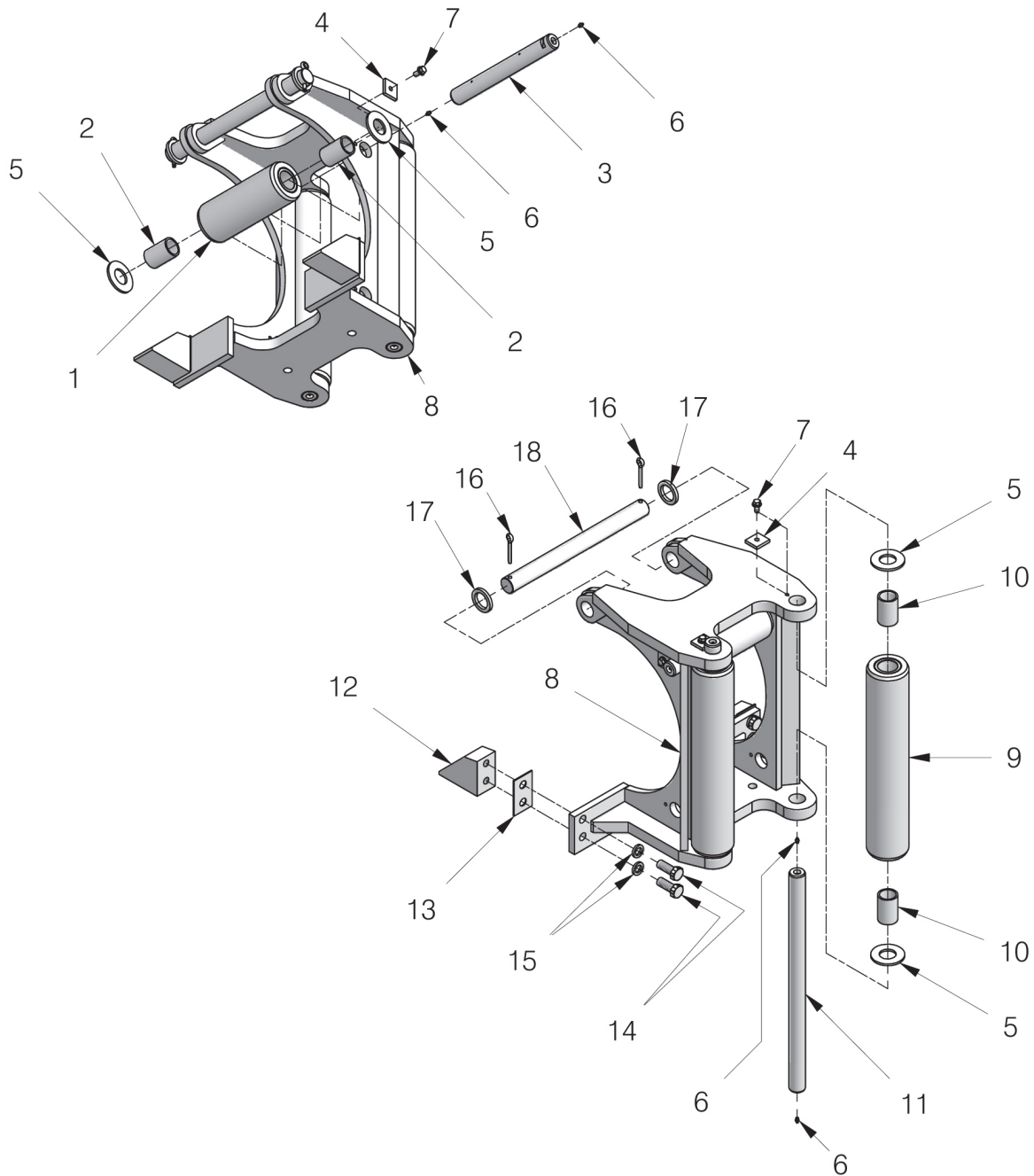
Arch



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2301748W	1	Arch Assy				
1	2301749W	1	. Arch	12	221336W	4	. Nut
2	2301907W	2	. Roller	13	2301920W	2	. Shaft
3	35135W	2	. . Bushing	14	2301919W	1	. Shaft
4	331767W	6	. Washer	15	2301925W	1	. Roller
5	2301706W	3	. Keeper	16	2817W	2	. . Bushing
6	398817W	3	. Flange, Screw	17	2310726	2	Ear, Arch
7	2301910W	1	. Roller	18	2312168	2	Lug, Wrapped
8	35135W	2	. . Bushing	19	2301924W	4	Pin
9	16001W	8	. Fitting, Grease	20	2301706W	4	Keeper
10	2821W	2	. Washer	21	398817W	4	Flange Screw
11	2302120W	1	. Shaft				

Fairlead

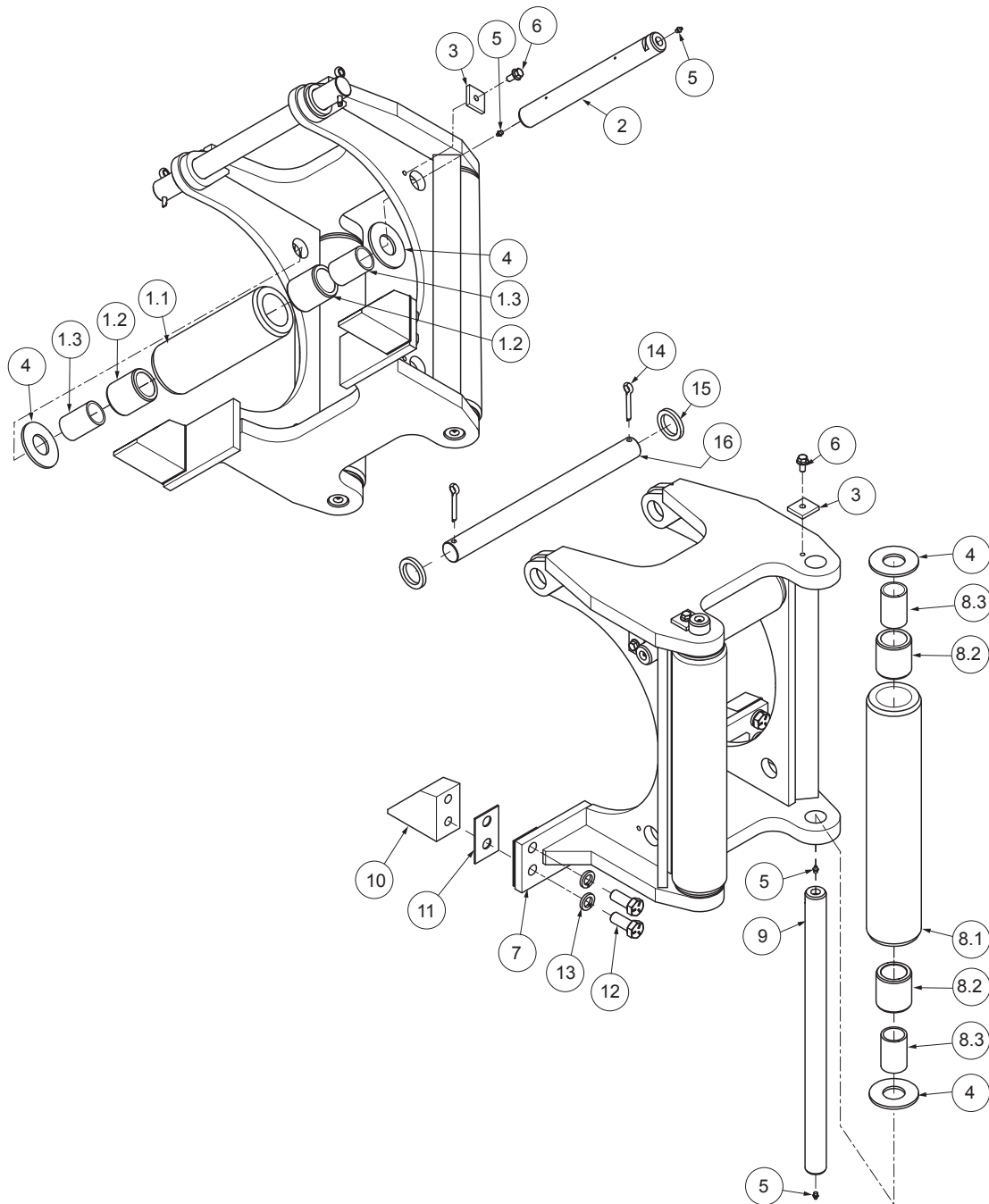
3-Roller, Last Used S/N1609



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2301731W		Fairlead Assy, 3-Roller				
1	2301727W	1	. Roller	10	2570W	4	. . Bushing
2	2570W	2	. . Bushing	11	2301721W	2	. Shaft
3	2301722W	1	. Shaft	12	226374W	2	Bracket
4	2301706W	3	. Keeper	13	93878W	AR	Shim
5	33394W	6	. Washer	14	18669W	4	Capscrew
6	16001W	6	. Fitting, Grease	15	15166W	4	Washer
7	398817W	3	. Screw, Flange	16	15272W	2	Pin, Cotter
8	2301718W	1	. Fairlead	17	2312437	2	Spacer
9	2301726W	2	. Roller	18	2312580	1	Bar, Tie

Fairlead

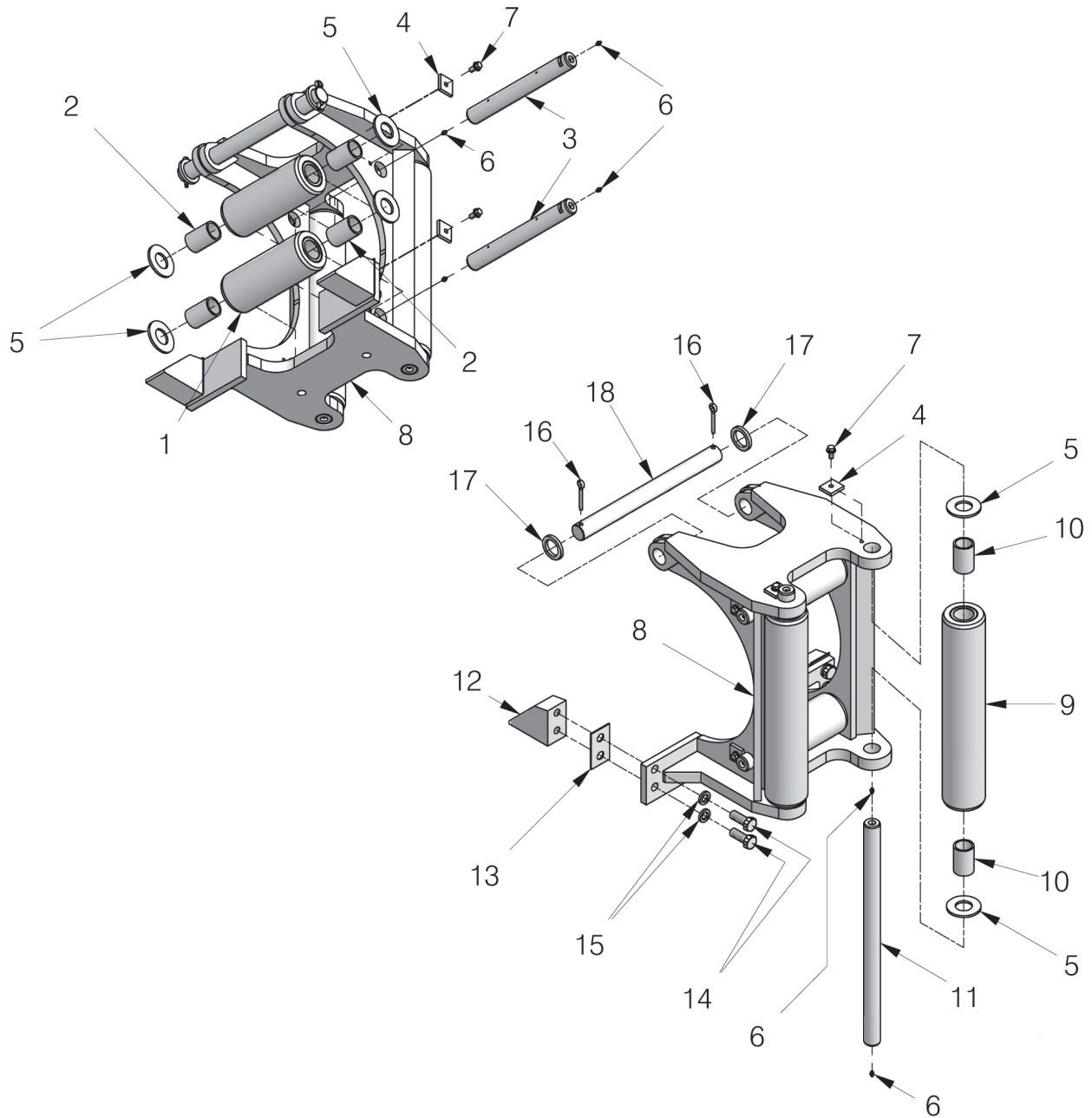
3-Roller, First Used S/N1610



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2315548		Fairlead Assy, 3-Roller				
1	2315545	1	Roller Assy	8.1	2301724W	1	. Tube
1.1	2315544	1	. Tube	8.2	2301961W	2	. Spacer
1.2	2301961W	2	. Spacer	8.3	2570W	2	. Bushing
1.3	2570W	2	. Bushing	9	2301721W	2	Shaft, Vertical
2	2315546	1	Shaft	10	226374W	2	Bracket - Fairlead
3	2301706W	3	Keeper	11	93878W	8	Shim
4	2314097	6	Washer	12	18668W	4	Capscrew
5	16001W	6	Fitting, Lube	13	15166W	4	Washer
6	398817W	3	Screw, Flange	14	15272W	2	Cotter Pin
7	2315555	1	Frame, Fairlead	15	173607W	2	Spacer
8	2301726W	2	Roller Assy	16	2312580	1	Rod - Tie

Fairlead

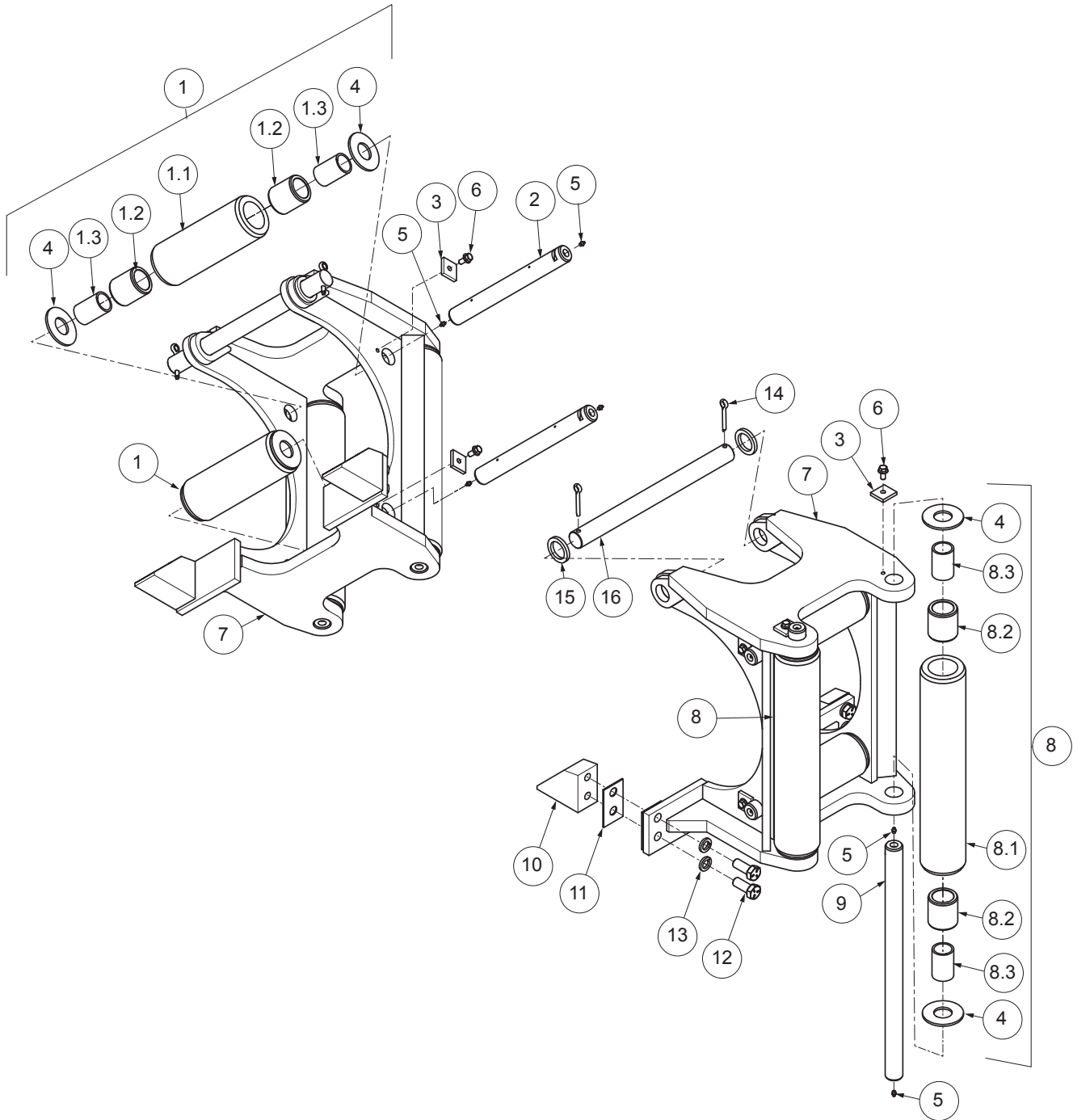
4-Roller, Last Used S/N1609



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2301732W		Fairlead Ass'y, 4-Roller				
1	2301727W	2	. Roller	10	2570W	4	. . Bushing
2	2570W	4	. . Bushing	11	2301721W	2	. Shaft
3	2301722W	2	. Shaft	12	226374W	2	Bracket
4	2301706W	4	. Keeper	13	93878W	AR	Shim
5	33394W	8	. Washer	14	18668W	4	Capscrew
6	16001W	8	. Fitting, Grease	15	15166W	4	Washer
7	398817W	4	. Screw, Flange	16	15272W	2	Pin, Cotter
8	2301718W	1	. Fairlead	17	2312437	2	Spacer
9	2301726W	2	. Roller	18	2312580	1	Bar, Tie

Fairlead

4-Roller, Wide, First Used S/N1610



Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2315549		Fairlead Assy, 4-Roller				
1	2315545	2	Assy, Roller	8.1	2315544	1	. Tube
1.1	2315544	1	. Tube	8.2	2301961W	2	. Spacer
1.2	2301961W	2	. Spacer	8.3	2570W	2	. Bushing
1.3	2570W	2	. Bushing	9	2301721W	2	Shaft, Vertical
2	2315546	2	Shaft	10	226374W	2	Bracket, Fairlead
3	2301706W	4	Keeper	11	93878W	8	Shim
4	2314097	8	Washer	12	18668W	4	Capscrew
5	16001W	8	Fitting, Lube	13	15166W	4	Washer
6	398817W	4	Screw, Flange	14	15272W	2	Cotter Pin
7	2315555	1	Frame, Fairlead	15	173607W	2	Spacer
8	2301726W	2	Assy, Roller	16	2312580	1	Bar, Tie

Wire Rope Assemblies

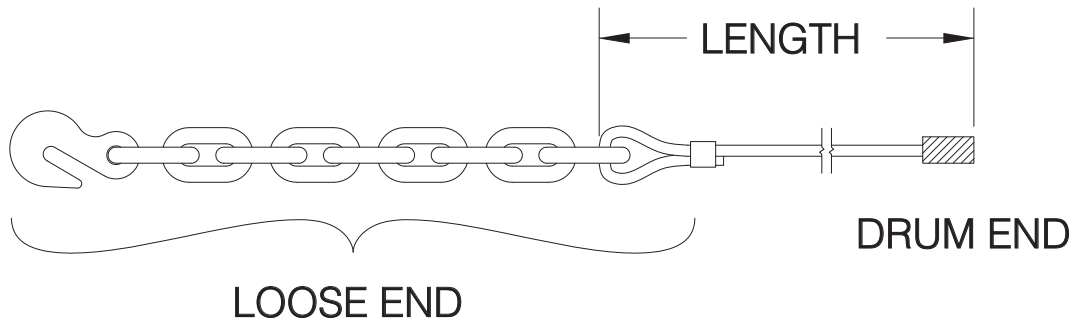


Figure A

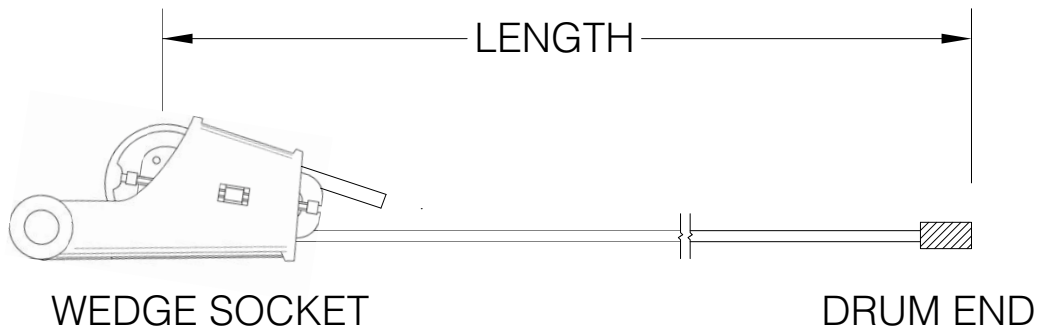


Figure B

Part No.	Wire Diameter	Length Ft (M)	Part No.	Wire Diameter	Length Ft (M)
WR6-275L *a	3/4"	275 (84) *c	WR8-154L *a	1"	154 (47) *c
WR6-413L *a	3/4"	413 (126) *d	WR8-230L *a	1"	230 (70) *d
YS6-275LWS *b	3/4"	275 (84) *c	YS8-154LWS *b	1"	154 (47) *c
YS6-413LWS *b	3/4"	413 (126) *d	YS8-230LWS *b	1"	230 (70) *d
WR7-198L *a	7/8"	198 (60) *c			
WR7-297L *a	7/8"	297 (91) *d			
YS7-198LWS *b	7/8"	198 (60) *c			
YS7-297LWS *b	7/8"	297 (91) *d			

*a WR Series Wire Rope (Illustrated in Figure A)
 *b YS Series Wire Rope (Illustrated in Figure B)
 *c Length to fill drum to 2/3 capacity (recommended)
 *d Length to fill drum to full capacity

Intentionally Blank

Section 5

Recommended Winch Service Intervals and Kits

Recommended Winch Service Intervals and Kits

Following the service schedule recommended here to help keep dozer winch downtime to a minimum, optimize winch operation, and extend the life of your investment.

See Table 1 for recommended service intervals, and Table 2 for recommended service kits.

Hydraulic 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 2,000	12		Change		
Every 5,000				*Inspect	
Every 10,000					*Evaluate
Lube rollers and check oil level and filter light every week.					
* Evaluate = Service based on average winch use; If used more than once a day, perform an 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 dozer's hour meter or the length of time the winch is mounted to the dozer, whichever occurs first. *** Follow dozer schedule if using dozer filter.					
Recommended Gear Compartment Oil					
Chevron	Drive Train Fluids HD	Consult service/operating manual for low temperature oils and other details. Use of non-recommended oil may void the warranty.			
ExxonMobil	Mobiltrans HD Series				

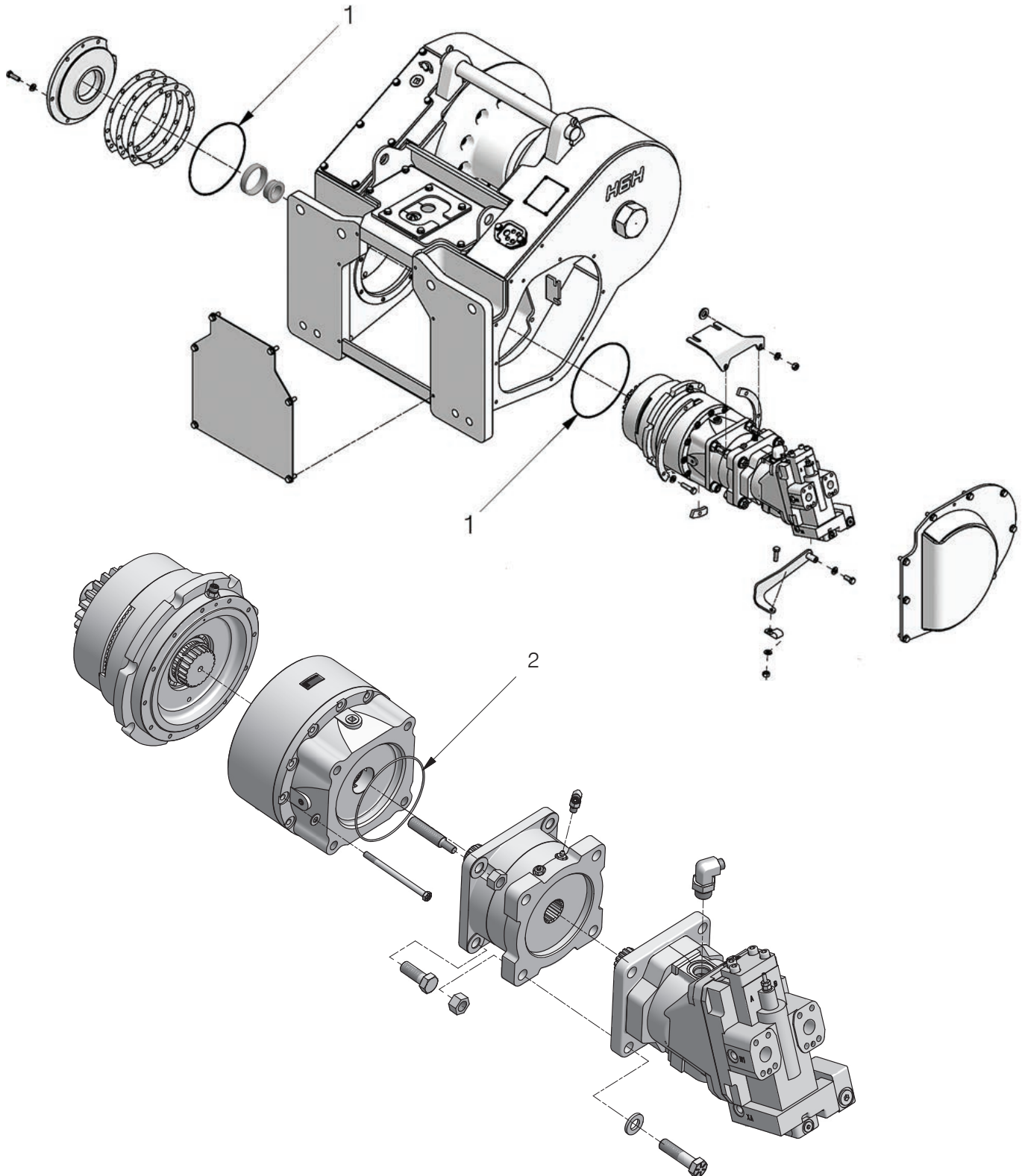
Table 1 Recommended Winch Service Intervals

Service Kits for H6H Winches				
Service Description	Kit Description	Winch Serial Number	Kit Part# for Hi-Performance (H) Winches	Kit Part# for Standard (T) Winches
Filter change	Filter kit	All	Refer to dozer operator and service manuals	
Complete oil change (every 1,000 hours)	N/A	All	Check our website for current operator's and service manuals for appropriate oils	
Clutch and brake overhaul (every 5,000 hours)	Motor, reducer & brake Assy rebuild kit	All	2314659	
Major overhaul (every 10,000 hours)	Intermediate/drum shaft & brake Assy rebuild kit	All	2314660	

Table 2 Routine Maintenance Kits

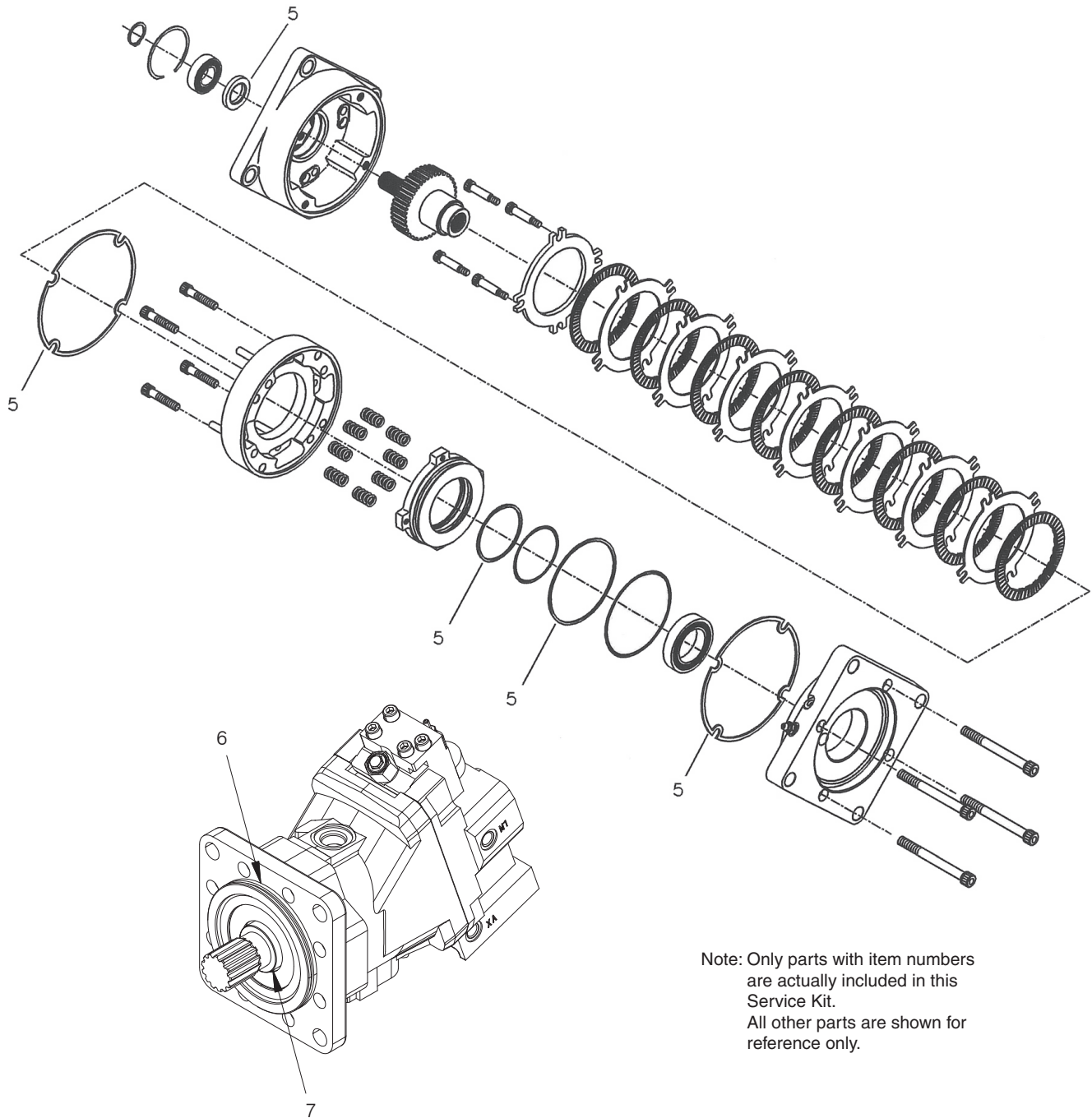
Motor, Reducer & Brake Assy Rebuild Kit: 2314659

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Motor, Reducer & Brake Assy Rebuild Kit: 2314659

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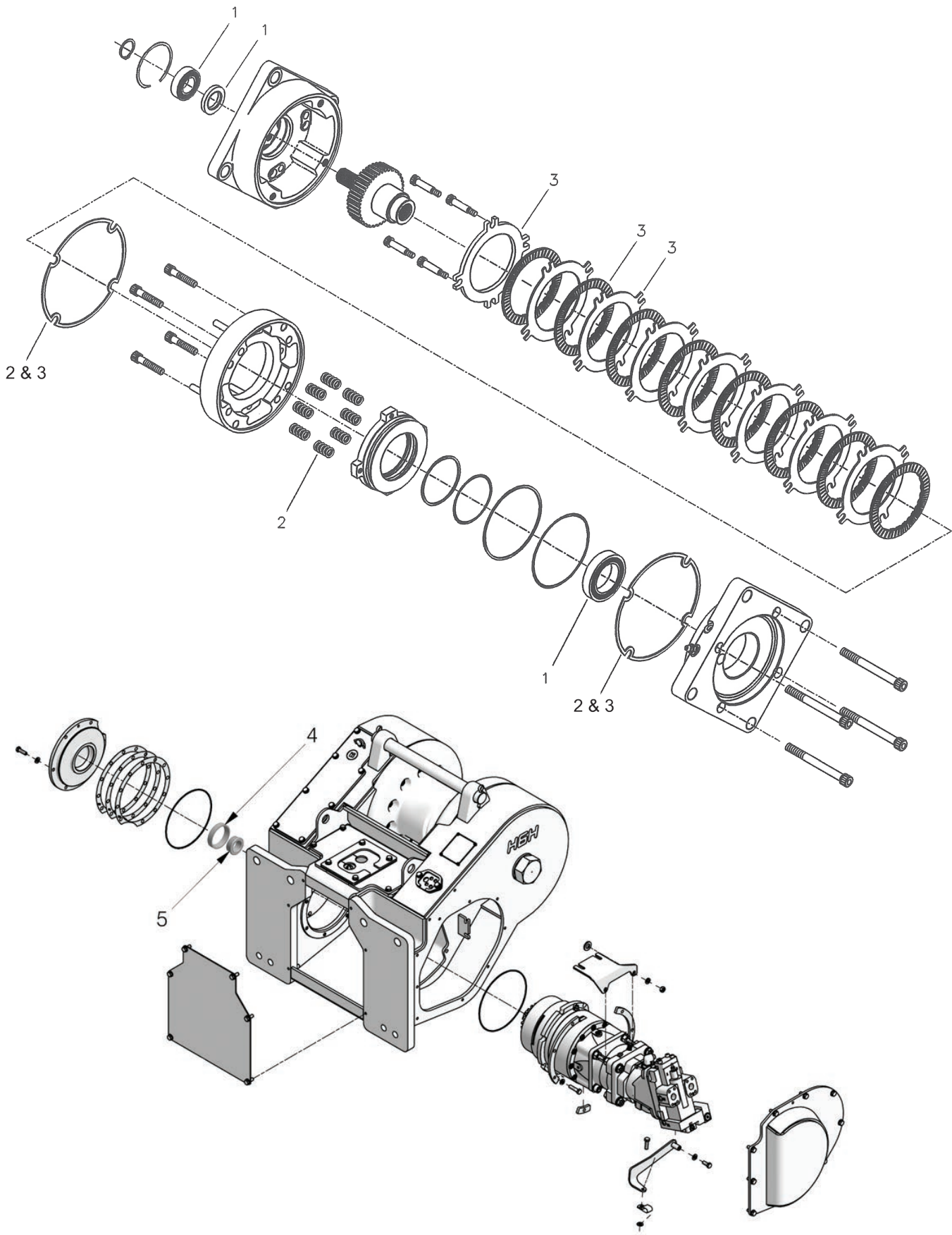


Note: Only parts with item numbers are actually included in this Service Kit.
All other parts are shown for reference only.

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2314659		Rebuild Kit, Motor, Reducer & Brake Assy				
1	203564	2	. O-Ring	4	230064W	1	. Adhesive (Not Shown)
2	237349	1	. O-Ring	5	2312302	1	. Kit, O-Ring
3	313022W	1	. Adhesive (Not Shown)	6	2313890	1	. O-Ring
				7	2313891	1	. Kit, Shaft Seal

Intermediate/Drum Shaft & Brake Assy Rebuild Kit: 2314660

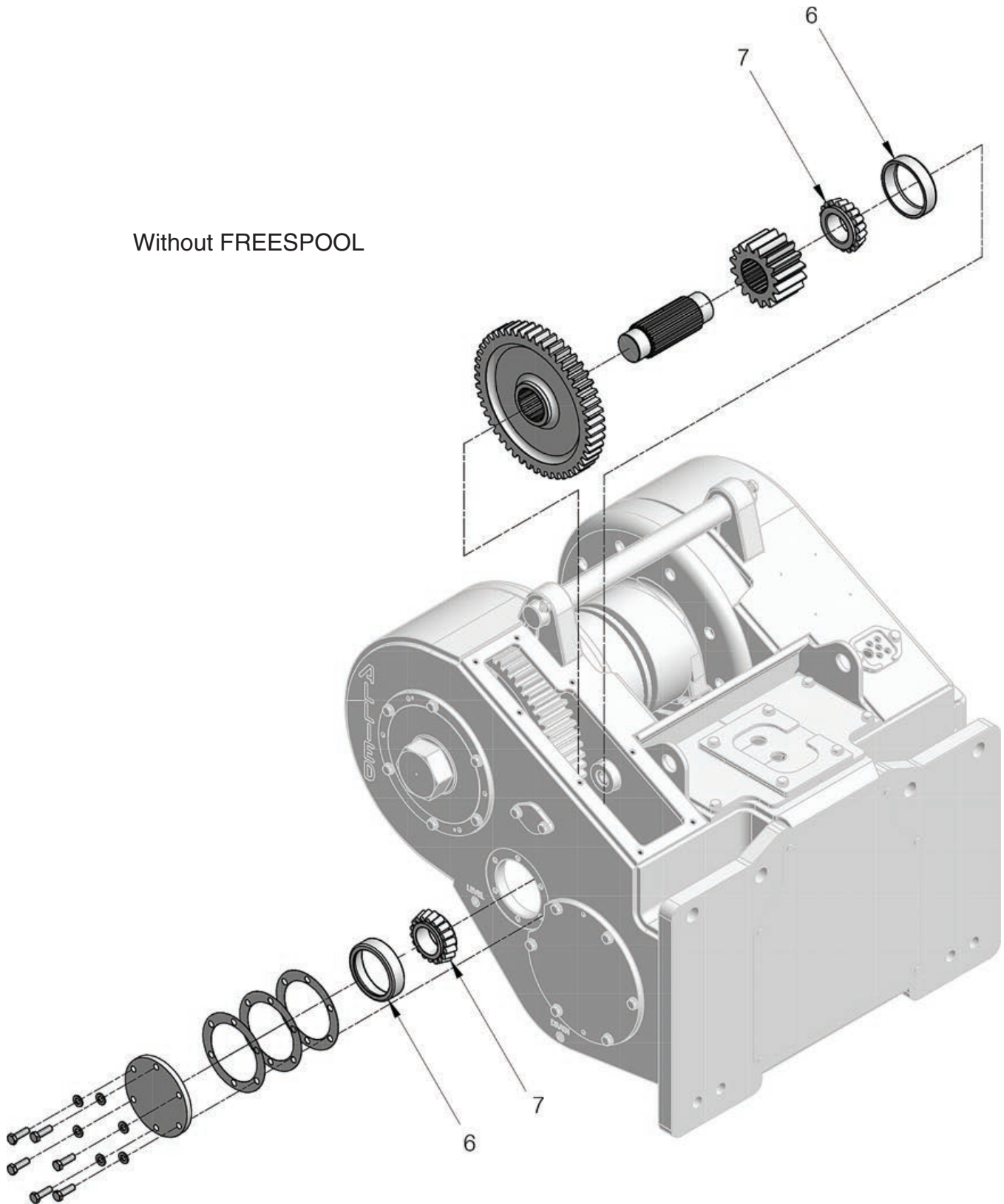
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Intermediate/Drum Shaft & Brake Assy Rebuild Kit: 2314660

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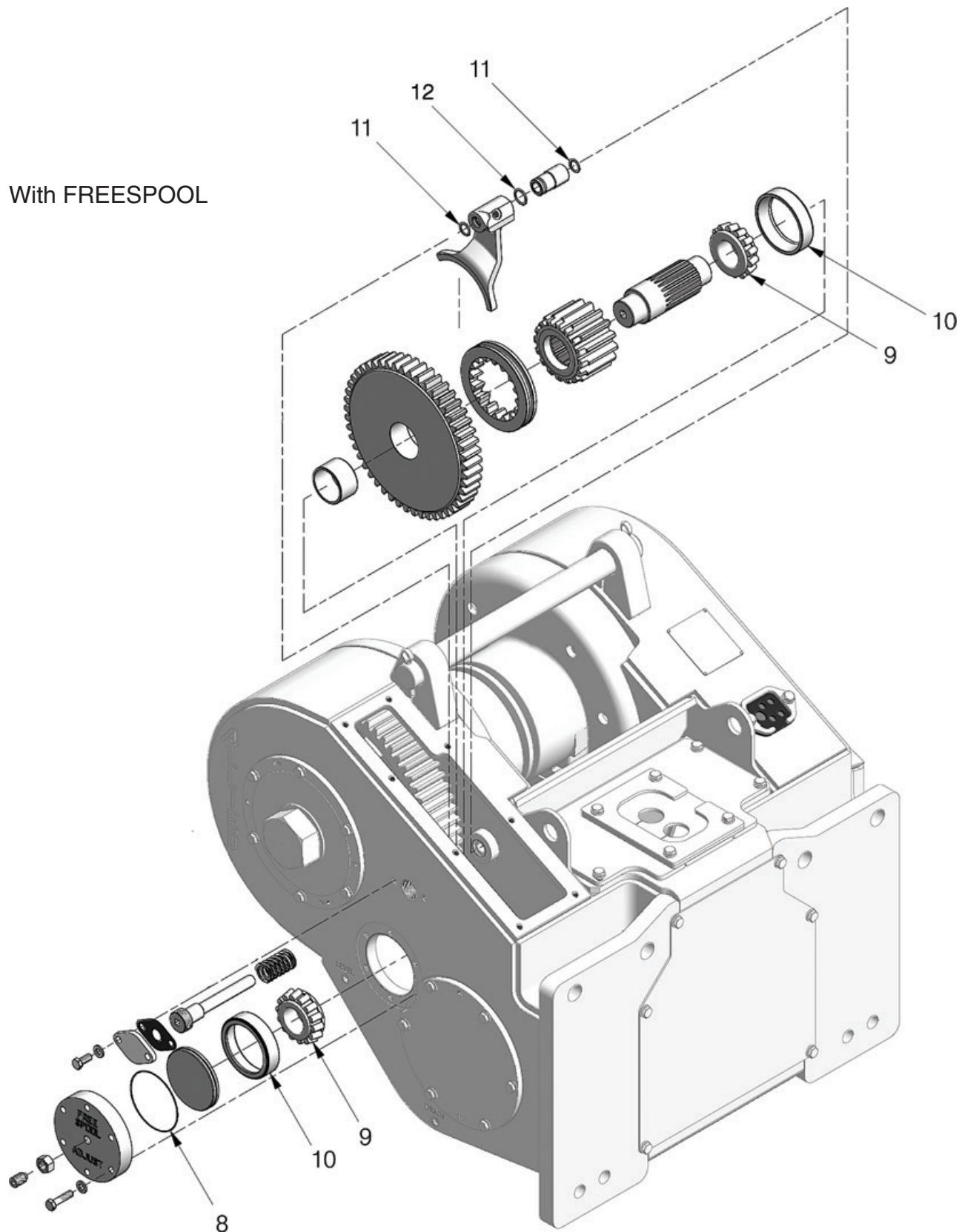
Without FREESPOOL



Intermediate/Drum Shaft & Brake Assy Rebuild Kit: 2314660

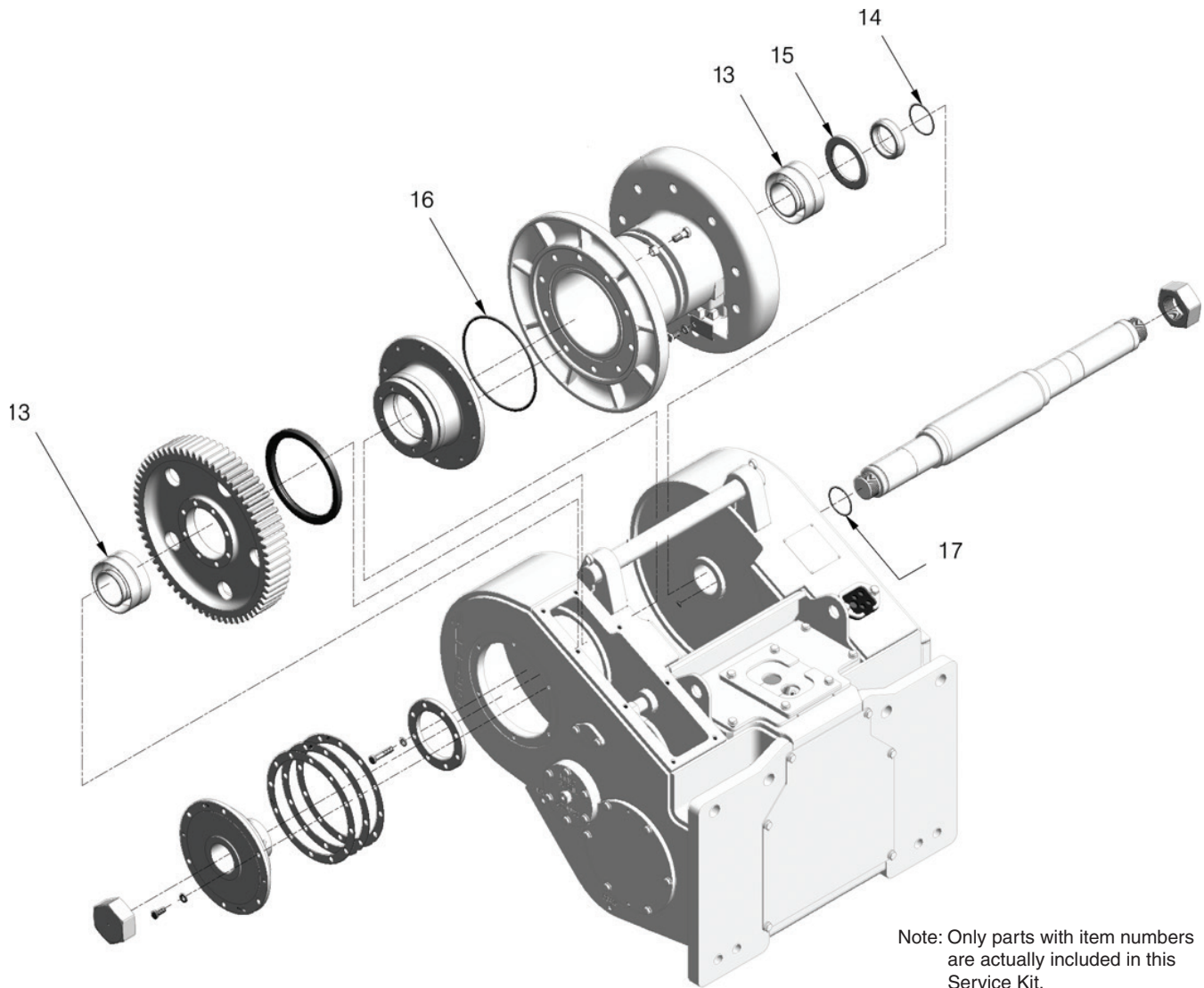
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With FREESPOOL



Intermediate/Drum Shaft & Brake Assy Rebuild Kit: 2314660

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

Item	Part No.	Qty	Description	Item	Part No.	Qty	Description
	2314660		Rebuild Kit, Intermediate/Drum Shaft & Brake Assy				
1	2312303	1	. Repair Kit, Bearing	10	30059W	2	. Cup, Bearing
2	250850	1	. Repair Kit, Spring	11	15862W	2	. O-Ring
3	250847	1	. Repair Kit, Lining	12	212380	1	. O-Ring
4	2300668W	1	. Cup, Bearing	13	230406W	2	. Bearing, Roller
5	2300669W	1	. Cone, Bearing	14	15881W	1	. O-Ring
6	30059W	2	. Cup, Bearing	15	44547W	1	. Seal, Oil
7	30080W	2	. Cone, Bearing	16	133927W	1	. Ring, Piston Seal
8	159940W	1	. O-Ring	17	90263W	1	. O-Ring
9	2302311W	2	. Cone, Bearing				

Section 6

Recommended Service Parts

Recommended Service Parts

The following pages list some of the service parts and kits that are available for your Allied H6H Winch.

Page 84 includes a list of gaskets and seals. Keep these parts in stock at all times for regular maintenance. Order parts from the table based on your winch.

Page 85 lists kits for 5,000 hour and 10,000 hour scheduled maintenance. Order these kits in preparation for these intervals. Each kit includes all parts listed in the table. Order parts from the table based on your winch.

Page 86 contains lists of operator controls components, and hose kits. Order parts or kits as required and as relevant for your installation.

Page 86 also contains a list of wire rope assemblies. Order parts as required and as relevant for your installation.

Page 87 contains a list of spare parts. Order parts or kits as required and as relevant for your installation.

Page 88 contains lists of tool kits and diagnostic tools, which are useful when you install, maintain and service your winches.

**Note: Allied Winch Parts Manuals are available for no charge download at
<http://www.alliedsystems.com/pubs/pubs.htm>.**

Gaskets & Seals				Order as Required
Applies to: H6H Standard Winch mounted on Case QuadTrac (R39)				
Allied P/N	Description	Qty on Winch	See Parts Manual Page	Order Qty
2312045	Gasket, Top Right-Hand	1	Frames/Covers	
2312574	Gasket, Top Left-Hand	1	Frames/Covers	
151646W	Gasket, Freespool	1	Frames/Covers	
2312008	Seal, Top	1	Frames/Covers	
2307235W	Seal Kit, Directional Valve (P/N 2307024W)	1	Control Manifold Assy	
2312114	Seal Kit, Check Valve (P/N 2312103)	3	Control Manifold Assy	
243815	Seal Kit, Counterbalance Valve (P/N 2307265W)	1	Control Manifold Assy	
2312112	Seal Kit, Shuttle Valve (P/N 2312074)	1	Control Manifold Assy	
2504253	Seal Kit, Pressure Red. Valve (P/N 2312803)	2	CBR Manifold Assy	
252566	Seal Kit, Counterbalance Valve (P/N 2311592)	1	CBR Manifold Assy	
Applies to: H6H Standard Winch mounted on Case 1650L (R40)				
Allied P/N	Description	Qty on Winch	See Parts Manual Page	Order Qty
2312045	Gasket, Top Right-Hand	1	Frames/Covers	
151646W	Gasket, Freespool	1	Frames/Covers	
2312009	Seal, Top	1	Frames/Covers	
2313831	Gasket, Hose Seal	1	Frames/Covers	
252566	Seal Kit, Directional Valve (P/N 2311592)	1	Control Manifold Assy	
2312111	Seal Kit, Cartridge Valve (P/N 2312073)	1	Control Manifold Assy	
2312112	Seal Kit, Shuttle Valve (P/N 2312074)	1	Control Manifold Assy	
259258	Seal Kit (Buna), Relief Valve (P/N 2307438W)	2	CBR Manifold Assy	
243815	Seal Kit, Counterbalance Valve (P/N 2312068)	1	CBR Manifold Assy	
Applies to: H6H Standard Winch mounted on Case 1650M/2050M (R42)				
Allied P/N	Description	Qty on Winch	See Parts Manual Page	Order Qty
2312045	Gasket, Top Right-Hand	1	Frames/Covers	
151646W	Gasket, Freespool	1	Frames/Covers	
252566	Seal Kit, Directional Valve (P/N 2311592)	1	Control Manifold Assy	
2312111	Seal Kit, Cartridge Valve (P/N 2312073)	1	Control Manifold Assy	
2312112	Seal Kit, Shuttle Valve (P/N 2312074)	1	Control Manifold Assy	
243815	Seal Kit, Counterbalance Valve (P/N 2312068)	1	Control Manifold Assy	
259258	Seal Kit (Buna), Relief Valve (P/N 2307438W)	2	CBR Manifold Assy	
2504253	Seal Kit, Pressure Reduce Valve (2312803)	1	Line Body Assy	

Motor, Reducer & Brake Assy Rebuild Kit, P/N: 2314659**Applies to: All****Service Interval: Every 5,000 Hours**

Allied P/N	Description	Qty in Kit	See Parts Manual Page	Order Qty
2314659	Rebuild Kit, Motor, Reducer & Brake Assy			
203564	. O-Ring	2	Motor Shaft Group	
237349	. O-Ring	1	Motor Shaft Assy	
313022W	. Adhesive	1	Motor Shaft Assy	
230064W	. Adhesive	1	Motor Shaft Assy	
2312302	. Kit, O-Ring	1	Brake, Dry Disc	
2313890	. O-Ring	1	Hydraulic Motor	
2313891	. Kit, Shaft Seal	1	Hydraulic Motor	

Intermediate/Drum Shaft, and Brake Assy Rebuild Kit, P/N: 2314660**Applies to: All****Service Interval: Every 10,000 hours**

Allied P/N	Description	Qty in Kit	See Parts Manual Page	Order Qty
2314660	Rebuild Kit, Intermed./Drum Shaft, & Brake Assy			
2312303	. Repair Kit, Bearing	1	Brake, Dry Disc	
250850	. Repair Kit, Spring	1	Brake, Dry Disc	
250847	. Repair Kit, Lining	1	Brake, Dry Disc	
2300668W	. Cup, Bearing	1	Motor Shaft Group	
2300669W	. Cone, Bearing	1	Motor Shaft Group	
30059W	. Cup, Bearing	1	Shaft, Intermediate Gear	
30080W	. Cone, Bearing	1	Shaft, Intermediate Gear	
159940W	. O-Ring	1	Shaft, Intermediate Gear	
2302311	. Cone, Bearing	2	Shaft, Intermediate Gear	
30059W	. Cup, Bearing	2	Shaft, Intermediate Gear	
15862W	. O-Ring	2	Shaft, Intermediate Gear	
212380	. O-Ring	1	Shaft, Intermediate Gear	
230406W	. Bearing, Roller	2	Shaft, Drum	
15881W	. O-Ring	1	Shaft, Drum	
44547W	. Seal, Oil	1	Shaft, Drum	
133927W	. Ring, Piston Seal	1	Shaft, Drum	
90263W	. O-Ring	1	Shaft, Drum	

Wire Rope Assemblies				Order as Required
Applies to: All				
Allied P/N	Description	Length	Will Fill Drum To:	Order Qty
WR6-275L	Wire Rope Assy, 3/4"	275 FT (84 M)	2/3 Capacity (Recommended)	
WR6-413L	Wire Rope Assy, 3/4"	413 FT (126 M)	Full Capacity	
WR7-198L	Wire Rope Assy, 7/8"	198 FT (60 M)	2/3 Capacity (Recommended)	
WR7-297L	Wire Rope Assy, 7/8"	297 FT (91 M)	Full Capacity	
WR8-154L	Wire Rope Assy, 1"	154 FT (47 M)	2/3 Capacity (Recommended)	
WR8-230L	Wire Rope Assy, 1"	230 FT (70 M)	Full Capacity	
YS6-275LWS	Wire Rope Assy, 3/4"	275 FT (84 M)	2/3 Capacity (Recommended)	
YS6-413LWS	Wire Rope Assy, 3/4"	413 FT (126 M)	Full Capacity	
YS7-198LWS	Wire Rope Assy, 7/8"	198 FT (60 M)	2/3 Capacity (Recommended)	
YS7-297LWS	Wire Rope Assy, 7/8"	297 FT (91 M)	Full Capacity	
YS8-154LWS	Wire Rope Assy, 1"	154 FT (47 M)	2/3 Capacity (Recommended)	
YS8-230LWS	Wire Rope Assy, 1"	230 FT (70 M)	Full Capacity	

Operator Controls Components				Order as Required
Applies to: All				
Allied P/N	Description	Qty on Winch	Order Qty	
2310013	Assy, Switch (Yellow LED)	1		
2310504	Assy, Switch (Red LED)	1		
2310506	Assy, Switch (Red LED), Momentary	1		
2311072	Assy, Switch (Green LED)	1		

Hose Kits				Order as Required
Applies to: See "Relevant for Installation" Column				
Allied P/N	Description	Qty on Winch	Relevant for Installation	Order Qty
2315049	Hose Kit, Winch Hydraulics	1	Case 1650L (R40), Standard	
2315050	Hose Kit, Winch Hydraulics	1	Case 1650-1850M (R42), Standard	
2315055	Hose Kit, Winch Hydraulics	1	Case 1650L (R40), Standard	

Spare Parts					Order as Required
Applies to: See "Relevant for Installation" Column					
Allied P/N	Description	Qty on Winch	Relevant for Installation	See Parts Manual Page	Order Qty
2315182	Motor, Hydraulic	1	Case Quadtrac (H6HH6B**R39)	Motor Shaft Group	
2313780	Motor, Hydraulic	1	Case 1650L (H6HT1D**R40)	Motor Shaft Group	
2316127 *a 2315176 *b	Motor, Hydraulic	1	Case 1650/2050M (H6HT1B**R42)	Motor Shaft Group	
2311883	Assy, Reducer	1	Case 1650L (H6HT1D**R40)	Motor Shaft Assy	
2312554	Assy, Reducer	1	Case Quadtrac (H6HH6B**R39)	Motor Shaft Assy	
2312155	Assy, Brake	1	All	Motor Shaft Assy	
21420W	Plug, Breather	1	All	Frame/Covers	
2300962W	Cap, Breather	1	All	Frame/Covers	
95959W	Pin, Drawbar	1	All	Frame/Covers	
2303221W	Pin, Retaining	1	All	Frame/Covers	
2312099	Nut, Blind	2	All	Shaft, Drum	
2301783W	Keeper, Ferrule	1	All	Shaft, Drum	
328715W	Disc, Friction	7	All	Clutch Assy	
283434W	Assy, Gear	1	All	Shaft, Intermediate Gear	
2570W	Bushing	6	All	Fairlead, 3-Roller	
2570W	Bushing	8	All	Fairlead, 4-Roller	

*a First used with S/N 1714

*b Last used with S/N 1713

Tool Kits

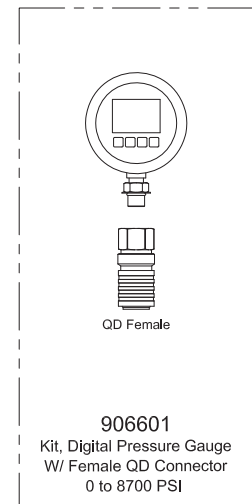
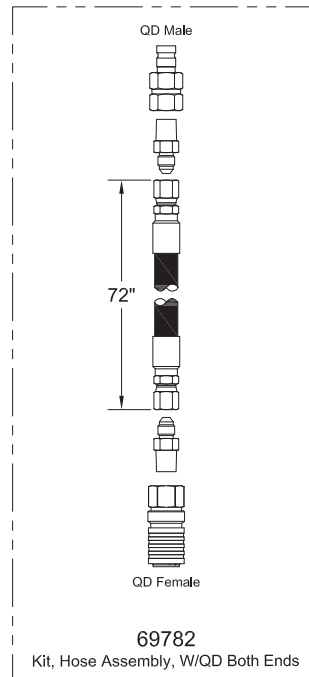
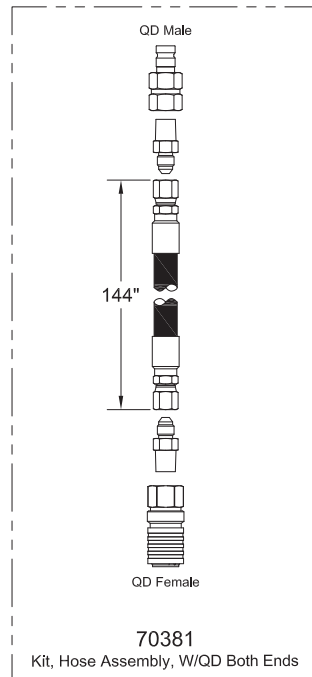
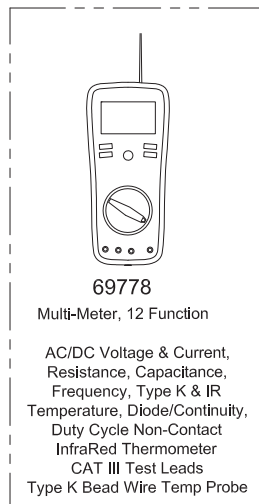
Order these tool kits as required for installation, maintenance and service of your winch(es).

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	

Diagnostic Tools Order as Required

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 Assy W/QD Connectors Both Ends	
70381	144" Hose Assy W/QD Connectors Both Ends	
69778	Multi-Meter, 12 Function	



Section 7

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212380	39	5	236855	51	2.2	2311251	34	9
212380	81	12	236855	53	19	2311330	9	5
227949	64	7	236855	59	2.2	2311500	56	2
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229383	59	2.9	239847	51	2.17	2311655	33	7
229448	51	2.3	239847	59	2.18	2311683	32	5
229448	59	2.24	242230	48	6	2311683	33	5
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231439	59	2.31	242599	44	2.9	2311717	46	1
231440	45	9	242599	59	3.7	2311718	55	1
231465	47	8	243815	45		2311770	62	1
231465	56	10	243815	64		2311770	63	
231465	62	8	244959	59	2.13	2311771	63	1
231820	44	2.2	249525	43	1.17	2311819	27	
231820	59	2.14	250847	81	3	2311855	32	1
231955	47	6	250850	81	2	2311855	33	1
231955	56	8	252566	48		2311856	32	2
232383	44		252566	57		2311856	33	2
232383	59		252566	63		2311857	27	1
232960	51	2.41	257331	43	1.16	2311869	32	18
232960	59	3.4	257557	46	5	2311869	33	18
232984	43	1.5	259258	64		2311880	32	10
232984	51	2.21	592255	43	1.1	2311880	33	10
232984	59	2.6	592255	59		2311883	29	3
234509	60	3.1	594490	43	1.13	2311894	39	1
234740	18	3	2303036	39	8	2311903	32	11
234740	53	3	2310013	53	4	2311903	33	11
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2312036	27	7	2312117	17	13.2	2312580	71	16
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2312039	33	4	2312119	13	13.4	2312628	59	2.38
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2312046	13	13.5	2312168	67	18	2312843	51	2.16
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2312048	17	3.1	2312269	39	14	2312928	28	4
2312048	21	3.1	2312280	39	13	2312928	29	4
2312059	27	11	2312302	77	5	2312928	32	
2312060	27	12	2312303	81	1	2312940	64	1
2312061	27	10	2312331	18	29	2312941	59	2.3
2312064	40	20	2312331	23	21	2312941	64	
2312068	64	2	2312350	59	2.33	2312959	46	4
2312069	59	2.1	2312351	51	2.19	2312977	32	21
2312073	48	4	2312351	59	2.7	2312977	33	21
2312073	57	3	2312353	51	2.11	2313026	33	
2312073	63	3	2312353	59	2.32	2313039	29	5
2312074	48	5	2312358	51	2.22	2313039	59	2.39
2312074	57	4	2312437	68	17	2313072	46	6
2312074	63	4	2312437	70	17	2313137	51	2.38
2312089	14	24.6	2312442	32	6	2313211	29	
2312089	18	14	2312442	33	6	2313214	18	1
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2313417	61	18	2314651	53	8	2316162	21	3.6
2313418	61	19	2314659	77		2316490	59	2.19
2313452	59	2.12	2314660	81		2316491	27	7
2313489	65	1	2314681	18	9	2316564	47	11
2313492	59	2.15	2314681	53	9	2316830	43	1.19
2313492	65		2314685	18	22	2316901	43	1.24
2313496	59	3.5	2314685	53	22	2316901	47	
2313639	59		2314688	51	2.28	2504253	48	
2313710	43	1.14	2314689	51	2.29	2504253	65	
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2313780	29	2	2314690	59		133927W	40	10
2313831	17	19.1	2314727	51	2.18	133927W	81	16
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2313890	28		2314728	53	18	137153W	33	16
2313890	29		2314728	54	18	137155W	32	17
2313890	77	6	2314751	29		137155W	33	17
2313891	28		2315005	9	2	137852W	60	1.2
2313891	29		2315176	29	2	141671W	40	19
2313891	77	7	2315181	28		141674W	40	1
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2313948	51	2.44	2315295	44	2.1	151589W	17	3.9
2313948	55	6	2315296	44	2.1.3	151589W	21	3.9
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2313960	56		2315544	71	1.1	151646W	17	3.1
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15862W	39	4	226374W	71	10	2301961W	69	8.2
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