



*Environmental*

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## HYDRAULIC BOOM REEL MODEL BR-6-8-HM

The Hydraulic Boom Reel is capable of holding a variety of sizes and styles of containment boom. The reel spool and base are constructed of marine grade aluminum alloy. The hydraulic drive system will accept power from any hydraulic power source with a minimum of 6 GPM @ 2500 PSI (Max).

### Boom Reel

Dry Weight (empty):	750 lbs.
Hydraulic Power Unit:	380 lbs.
Spool:	6' diameter by 8' wide
Dimensions:	9.5' x 6' x 6.8' High
Construction Material:	Marine grade aluminum
Hydraulic requirement:	6 gpm @ 2500 (max) PSI
Hydraulic lines:	1/2" Single Wire (3250 PSI Rating)

### Hydraulic Components

- A) Directional Valve
- B) Flow Control
- C) Hydraulic Motor
- D) Gear Reducer
- E) Counter Balance Valves
- F) Bypass Valve



## SPECIFICATIONS – BR-6-8-HM

Construction – Spool & Base – Marine Grade Aluminum

Reel Spool – 5 diameter, 8’ wide (between side plates)

Reel Spool Bearings – 3” Pillow Block

Gear Reducer – Auburn Wheel Drive, Model 6WA16B190P

Hydraulic Motor – Danfoss, Model 15123114 7.6CIR

Hydraulic Lines – 1/2” pressure and return

Hydraulic Quick Connectors – Aeroquip 5600 Series, male & female with caps & plugs, size 8-10S

Hydraulic Oil Flow’s out of the male fittings.

On the Reel- The male hydraulic quick connector is the return

The female is the pressure.

Controls – Simple block design has clearly labeled controls for

- 1) direction of reel movement
- 2) speed of reel movement
- 3) bypass for turning the reel manually when hydraulic power is not available

Pressure gauge

Safety relief valve

Hydraulic brake

***Power – Hydraulic power is generated by the DHP-10GSM power unit:***

Proper requirement is 0 – 6 gpm @ 2500 (max) PSI.

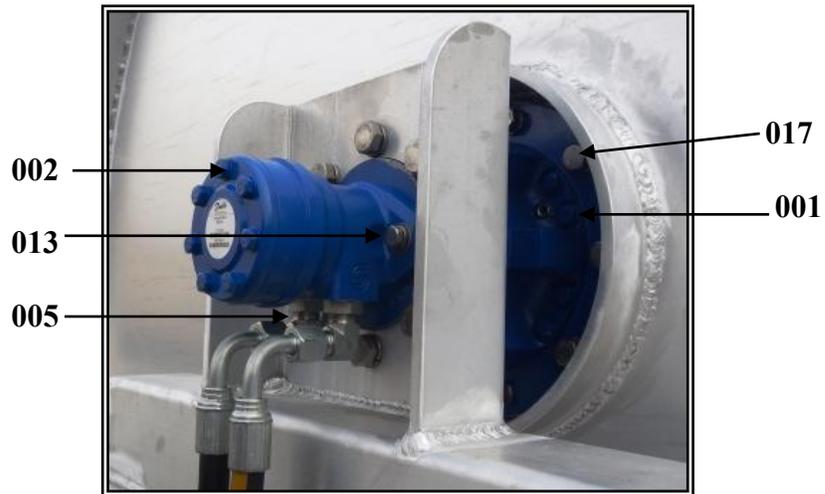
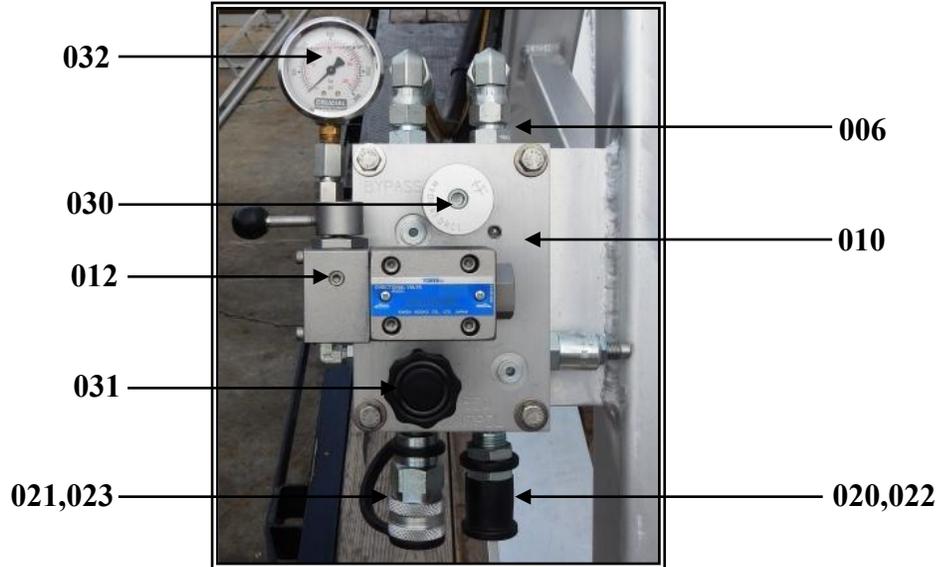
If the DHP-10 is not operable, hydraulic power can be used from any other hydraulic source.

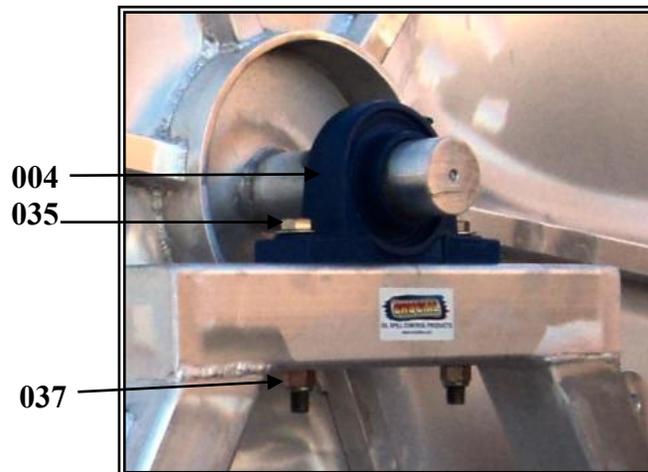
The source can be any “open circuit” unit (gear or piston pump design).

## PARTS LIST

<u>ITEM NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>
1	BR-6-8-HM-001	GEAR REDUCER	1
2	BR-6-8-HM-002	HYD. MOTOR	1
4	BR-6-8-HM-004	BEARINGS 3"	1
5	BR-6-8-HM-005	HYD. MOTOR FITTINGS	2
6	BR-6-8-HM-006	BLOCK FITTINGS	2
7	BR-6-8-HM-007	HYDRAULIC HOSE <i>(not shown)</i>	2
8	BR-6-8-HM-008	HOSE ENDS <i>(not shown)</i>	4
9	BR-6-8-HM-009	BLOCK FITTINGS	2
10	BR-6-8-HM-010	MANIFOLD BLOCK	1
11	BR-6-8-HM-011	COUNTERBALANCE VALVES <i>(not shown)</i>	2
12	BR-6-8-HM-012	DIRECTIONAL VALVE	1
13	BR-6-8-HM-013	HYD. MOTOR MOUNTING BOLTS	2
14	BR-6-8-HM-014	FLAT WASHERS SS	2
15	BR-6-8-HM-015	LOCK WASHERS SS	2
17	BR-6-8-HM-017	GEAR REDUCER TO REEL BOLTS	8
18	BR-6-8-HM-018	LOCK WASHERS	8
19	BR-6-8-HM-019	PRESSURE GAUGE	1
30	BR-6-8-HM-030	NEEDLE VALVE <i>(not shown)</i>	1

**NOTE: THE NUMBERS USED IN THE FOLLOWING PICTURES ARE IDENTIFIED BY THE ITEM NUMBERS THAT CORRESPOND TO THE PARTS LIST.**



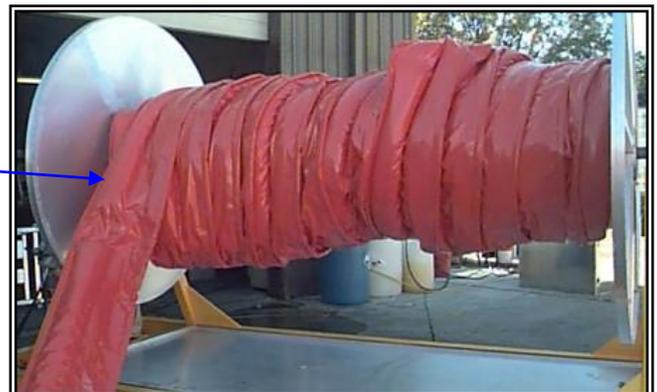


### INSTALLATION

- 1) Boom reel should be placed on a stable surface and secured down. Chain and Binders are highly recommended.
- 2) The boom reel should be positioned so that the oil containment boom is deployed and retrieved off of the top of the reel core. The reel should have a minimum of 6' between the outer edge of the boom reel and the edge of the dock. If the boom will drag on any sharp or rough items, a dock edge roller is recommended to keep the boom clear of these hazards.
- 3) There are 2 hydraulic lines that need to be connected to the hydraulic power pack. (1 line is a pressure line; 1 line is a hydraulic return line). Hydraulic lines must be capable of withstanding working pressures up to 2500 psi.
- 4) The hydraulic power pack should also be secured in a clean well-ventilated area. The pressure was preset at the factory at 2250 psi. This setting should not be changed without contacting a factory representative. The power pack also needs to be secured by chains or straps.

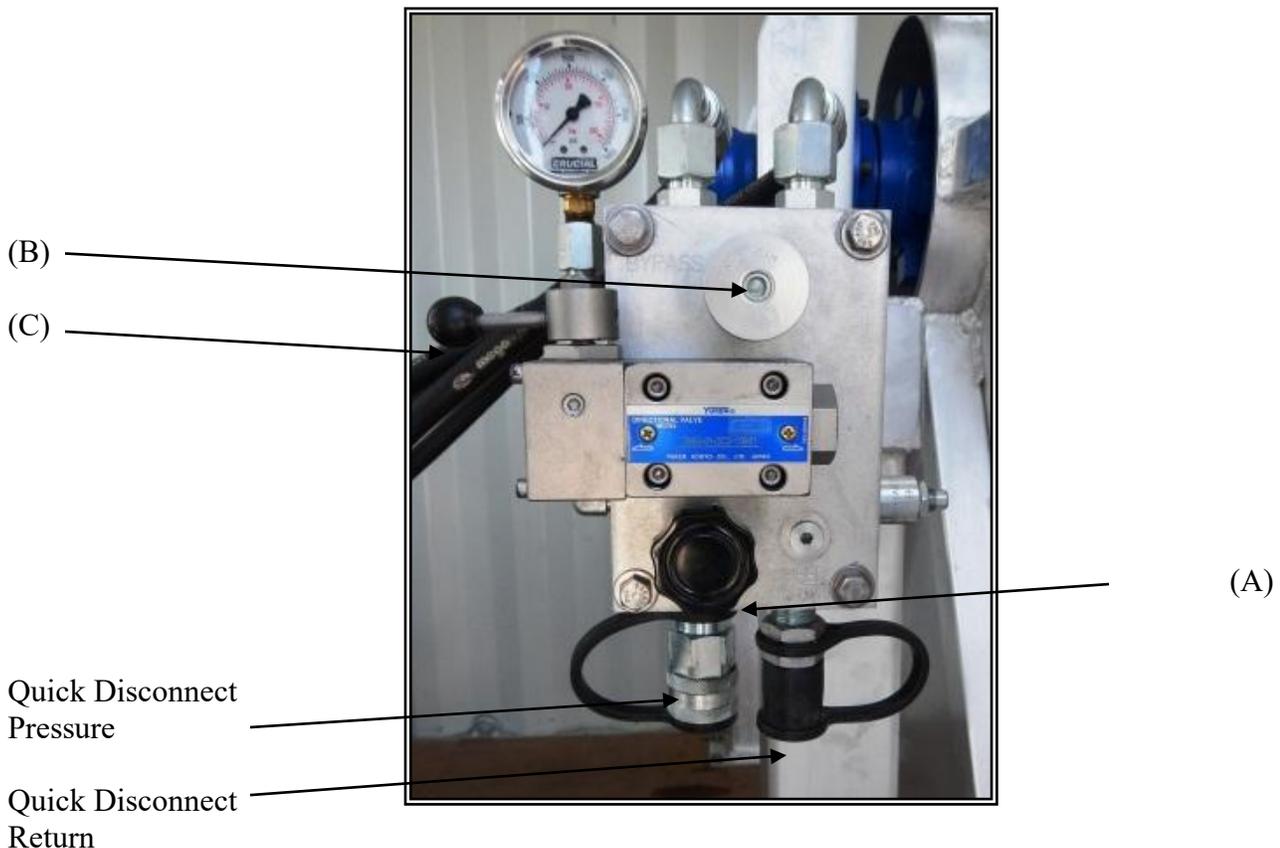
**NOTE:**

Always wind and unwind the containment boom Off of the top of the core pipe. You will damage the boom if you try to roll it up from the under side of the core pipe.



## OPERATION

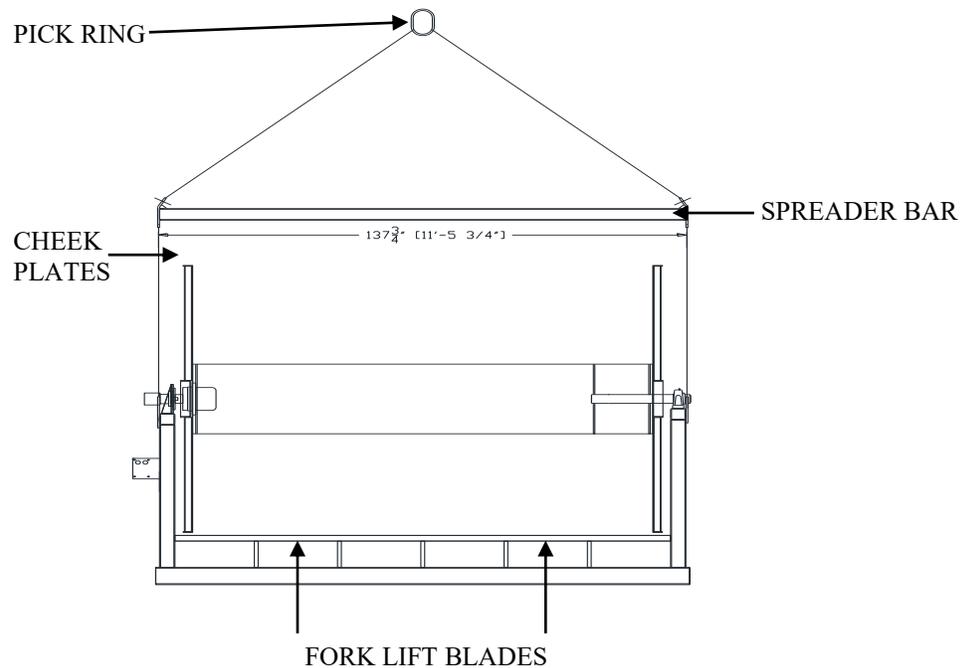
- 1) Connect hydraulic lines.
- 2) Start the hydraulic power pack. Minimal pressure will appear on the pressure gauge (250 psi). Fully open the flow control valve located between the quick connectors on the DHP-10. Knob (A) operates the flow control valve. This valve regulates the speed of the reel. This valve should be set at a position where the reel turns slowly until the operator becomes familiar with the reel's operation and capability.
- 3) Valve knob (B) operates a manual bypass valve. This valve knob should be kept in the inward (closed) position for normal operation. This valve should only be opened when the reel must be turned manually, without hydraulic power. If this valve is left in the open position, the hydraulic controls will not function properly during normal operation.
- 4) Handle (C) operates the directional valve. This valve controls the direction in which the boom reel will turn. Pull the handle to the right and the reel will rotate in the "RETRIEVE" direction. Push the handle to the left and the reel will rotate in the "DEPLOY" DIRECTION. When the handle is released, it will spring back into the neutral position. The valve is spring-loaded, which means someone must stand at the control panel and operate the controls while 1 or 2 others direct the boom onto the reel. This valve should be engaged slowly and also released slowly. Quick and erratic movement will result in unnecessary wear and possible structural damage.



## LIFTING BOOM REEL-

The boom reel has 4 (four) lifting eyes for attachment of lifting slings. A spreader bar **MUST** be use when lifting the unit with a crane. The cheek plates of the reel will be damaged if a adequate lifting bar is not used. Spreader bar should have a minimum width of 138".

The spreader bar is used to not put pressure on the cheek plates of the reel.



If a fork lift is used to move the reel, insert the forks as shown above.

## BOOM REEL MAINTENANCE

1. The reel and base is constructed of marine grade aluminum. After the containment boom has been deployed, the aluminum reel should be washed with a mild soap and water solution and then thoroughly rinsed with fresh water. You won't be able to wash the reel's interior with the boom on it, but rinsing with fresh water is recommended.
2. Grease the 1 ea. grease fitting located on the top of each pillow block bearing.
3. Gear reducer maintenance can be found in the "Gear Reducer" section of this manual.
4. Visually inspect the 2 each hydraulic hoses for cracks and sun damage.
5. Rust should be checked for on the following parts:
  - A) hydraulic motor
  - B) gear reducer
  - C) pillow block bearings

A good coating of grease will protect these components from corrosion.

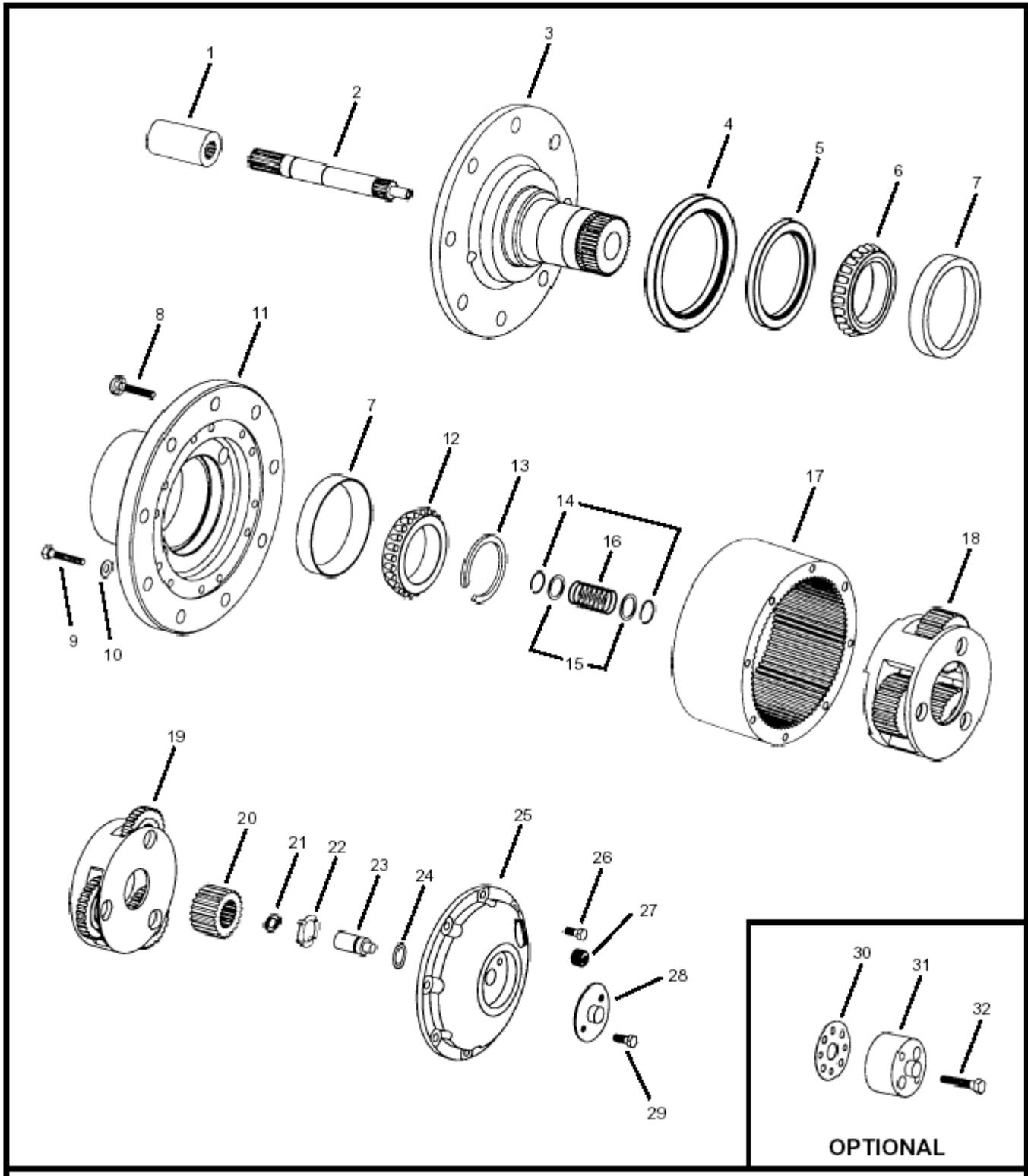
6. The boom reel should be operated by turning several revolutions in each direction monthly.
7. Shackles, hydraulic motor mounting bolts, pillow block bearing mounting bolts and pillow block set screws need to be checked monthly for proper torque.

	Torque in Ft. Lbs.
a) Shackle Pins	60
b) Hydraulic Motor Mounting Bolts	20
c) Pillow Block Bearing Mounting Bolts	180
d) Pillow Block Bearing Set Screws	13

# Power Wheel® Service Manual

## Model 6 Double Reduction

### Wheel Drives



## IDENTIFICATION

**IMPORTANT:** All Power Wheel units and kits are shipped with a nameplate that includes the Auburn Gear part number and order code as shown.

Example:



In addition to the nameplate, Power Wheel drives are stamped with an identification number which appears on the cover or hub flange as shown.

Example: **6000236-A-4-9**

When ordering parts, the information included on the nameplate or the stamped identification number is necessary to accurately identify the drive and obtain the correct replacement parts. Once this information has been obtained, contact Auburn Gear for the appropriate parts list.

## DISASSEMBLY OF POWER WHEEL

### STEP 1

Slide the coupling (1) from splines on input shaft (2).

### STEP 2

Position the assembly upright on face of spindle (3).

### STEP 3

Remove the disengage cover (28) if necessary.

### STEP 4

Remove bolts (26) and large cover (25). Disengage plunger (23) usually remains with large cover (25). Remove disengage plunger (23) and "O" ring (24) from cover on end of input shaft (2). The thrust washer (22) will usually remain in position on thrust face of large cover (25).

### STEP 5

Remove primary sun gear (20) and thrust washer (21), used in aluminum cover units only, from end of input shaft (2).

### STEP 6

Remove the primary carrier assembly (19).

### STEP 7

Remove the secondary carrier assembly (18). It may be necessary to remove the ring gear (17) first, if difficulty is encountered removing the carrier.

### STEP 8

Remove the input shaft (2) from spindle (3). Remove the retaining rings (14), washers (15), and spring (16) from input shaft (2) only if replacement is required.

### STEP 9

Remove the 6 or 12 bolts (9) and washers (10) from hub (11) and remove ring gear (17). It may be necessary to strike ring gear (17) with a rubber mallet to loosen from hub (11).

### STEP 10

Remove the retaining ring (13) from in front of the bearing cone (12) and lift hub (11) from spindle (3). If bearings are not a loose fit, it may be necessary to press spindle (3) from hub (11). **Note:** Use a retaining ring expander tool to remove retaining ring (13).

### STEP 11

Remove the oil seals (4) and (5) and bearing cones (6 & 12) from hub (11). Inspect bearing cups (7) in position and remove only if replacement is required.

## ASSEMBLY OF POWER WHEEL

### STEP 1

Press new bearing cups (7) in each side of the hub (11). It is recommended that bearing cups (7) and cones (6 & 12) be replaced in sets.

### STEP 2

Assemble bearing cone (6) into cup (7) at seal end of hub (11) and press a new seal (5) into hub (11). Install boot seal (4) on hub (11) if unit is so equipped.

### STEP 3

Position spindle (3) upright on bench. Lubricate lips of seals (4) and (5) and lower hub (11) onto spindle (3). Hub (11) should be centered as it is lowered over spindle (3) to prevent seal damage.

### STEP 4

Assemble bearing cone (12) over spindle (3) and into bearing cup (7). If bearings (6, 7, & 12), hub (11) or spindle (3) is replaced, a new retaining ring (13) is required for proper bearing setting. Do not re-use snap ring after it has been installed and removed from unit. Select the thickest retaining ring (13) that can be assembled into the ring groove of the splined end of spindle (3) above bearing cone (12). Bearing should have from .000 – .006 inches (.00 – .15mm) of end play when proper retaining ring (13) is installed.

### STEP 5

Assemble a retaining ring (14) in groove opposite pilot end of input shaft (2). Assemble a washer (15), spring (16), a second washer (15), and a second retaining ring (14) in the middle grooves of input shaft (2). Some shafts have a shoulder and require only one retaining ring (14).

### STEP 6

Assemble the splined end of the input shaft (2) down into spindle (3).

### STEP 7

Assemble the secondary carrier assembly (18) to spindle (3) at splines.

### STEP 8

Clean mating surfaces and apply a bead of silicone sealant to face of hub (11) that mates with ring gear (17). (See instructions on sealant package). Hub (11) is attached to ring gear (17) with 6 or 12 3/8-24 grade 8 hex head cap screws (9) and flat washers (10). Torque cap screws to 52 – 60 lb. ft. (70 – 81 Nm).

### STEP 9

Assemble the primary carrier assembly (19) into the ring gear (17). It will be necessary to rotate carrier to align secondary sun gear (part of primary carrier assembly (19)) with planet gear teeth in secondary carrier assembly (18). Assemble primary sun gear (20) over input shaft (2). Rotate primary sun gear (20) to align input shaft (2) to gear splines and gear teeth in primary carrier assembly (19).

### STEP 10

For units with the aluminum cover (25) assemble the small thrust washer (21) over input shaft (2) and against shoulder of input shaft (2).

### STEP 11

For units with the aluminum cover (25), lubricate "O" ring (24) and assemble in groove of the disengage plunger (23). Assemble disengage plunger (23) over end of input shaft (2) and against thrust washer (21). For units with cast iron cover (25), lubricate "O" ring (24) and assemble in groove inside cover hole, push plunger (23) into cover with pointed end facing inside of unit.

#### STEP 12

Assemble the thrust washer (22) with tangs engaged with cover (25). Note: A small amount of grease applied to the back side of thrust washer (22) will hold washer in place. Apply a bead of silicone sealant to end face of ring gear (17). Assemble cover (25) aligning holes of cover and ring gear. Assemble the eight 5/16-18 x 1 inch hex head bolts (26). Torque bolts to 20 – 25 lb. ft. (27 – 34 Nm).

#### STEP 13

Assemble the disengage cover (28) with dimpled center protruding out if wheel is to be used to drive the vehicle. Assemble and torque the two 5/16-18 bolts (29). Torque bolts to 10 – 20 lb. ft. (13 – 27 Nm).

#### STEP 14

Invert the Power Wheel assembly and assemble the coupling (1) with counterbore out to the input shaft (2).

#### STEP 15

After motor is assembled to drive or drive is sealed at spindle, fill with lubricant to proper level and replace all plugs.

Note: When installing a hydraulic motor to the Power Wheel drive it is necessary to place an "O" ring or gasket (not supplied by Auburn Gear) between the motor and the planetary drive. "O" ring sizes: SAE A 2-042, SAE B 2-155, SAE C 2-159.

### CARRIER ASSEMBLIES

It is recommended that the primary and secondary carrier assemblies (18 & 19) be serviced in their entirety to protect the integrity of the Power Wheel drive.

### LUBRICATION RECOMMENDATIONS

**IMPORTANT:** POWER WHEEL PLANETARY DRIVES ARE SHIPPED WITHOUT LUBRICANT AND MUST BE FILLED TO THE PROPER LEVEL PRIOR TO START UP.

Observe lubrication recommendations given by the original equipment manufacturer. When specific recommendations are not available, use mild extreme pressure lubricant API-GL-5, No. 80 or 90 when filling the Power Wheel under normal temperature ranges between 0 - 120°F (-18 to 49°C). Power Wheel is to be half full of oil when unit is mounted level and horizontal. Use drain and fill plugs located in cover and ring gear. Oil is to be changed after first 50 hours of operation with subsequent changes every 1000 hours or yearly, whichever ever comes first. If unit is to be operated vertically, if ambient conditions are outside the specified range, or if the oil temperature exceeds 200°F (93°C) contact Auburn Gear for oil and level recommendations.

### TOWING VEHICLE

**CAUTION:** The Power Wheel will not normally be damaged by towing; however, the hydraulic drive components may be damaged unless the Power Wheel is disengaged from the drive motor. Road speeds in excess of 25 MPH should be avoided unless clearly specified to be permissible by the equipment manufacturer.

### TO DISENGAGE POWER WHEEL

**CAUTION:** For units equipped with the standard spring disconnect, assemble the disengage cover (28) with the dimpled center protruding inward. For units equipped with the optional quick disconnect, push in center plunger of disconnect.

### STORAGE

A protective film is applied to the Power Wheel at the factory to prevent rust during shipment. Additional protection may be required if the Power Wheel is to be stored for an extended period of time.

### SEALING COMPOUND

Silastic RTV732 sealer and General Electric Silimate RTV No. 1473 or RTV No. 1503 are currently recommended for sealing gasket surfaces. Sealant should be applied in a continuous bead, which should be centered on the surface to be sealed but should move to the inside of the hole at each bolt hole location. For service requirements order Auburn Gear part number 604101.

### SPECIFICATIONS

Maximum intermittent output torque .....	50,000 lb. in. (5,650 Nm)
Maximum input speed .....	5,000 RPM
Oil capacity .....	30 oz (885 ml)

ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.	ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.
1	Coupling	1	18	Secondary Carrier Assembly	1
2	Input Shaft	1	19	Primary Carrier Assembly	1
3	Spindle	1	20	Sun Gear	1
4	Boot Seal 604401	1	21	Thrust Washer	1
5	Oil Seal 14-00-044-010	1	22	Thrust Washer	1
6	Bearing Cone 04-01-101-35	1	23	Disengage Plunger 610801	1
7	Bearing Cup 04-01-102-12	2	24	"O" Ring	1
8	Wheel Bolt	9		Cast Iron Cover 614101	
9	Hex Head Bolt (Grade 8)	6-12		Aluminum Cover 10-00-141-113	
10	Flat Washer	6-12	25	Large Cover	1
11	Hub	1	26	Hex Head Bolt	8
12	Bearing Cone 04-01-101-17	1	27	Magnetic Plug 14-00-052-002	1
13	Retaining Ring Kit 14-02-410-003	1	28	Disengage Cover 14-02-039-005	1
14	Retaining Ring	2	29	Hex Head Bolt	2
15	Washer	2	30	Quick Disconnect Gasket	1
16	Disengage Spring	1	31	Quick Disconnect Assembly	1
17	Ring Gear	1	32	Hex Head Bolt	2

\* Contact Auburn Gear with part number and order code of drive to obtain the appropriate parts list. Refer to parts list for the specific part numbers and quantities.

### Model 6 Power Wheel® Service Kits

Part No.	Description	Included Items
14-02-410-003	Retaining Ring Kit	13 (7 Retaining Rings)
641008**	Bearing and Seal Kit	5, 6, 7, 12, 13, and 24
641017**	Seal Kit	5, 13 and 24

\*\* Indicates kit also includes a tube of sealant, part number 604101.

## DH – DS ORBITAL MOTORS

Orbital motors vary in size (rated displacement) from 8 cc/rev (0.5 cu-in/rev) to 800 cc/rev (49 cu-in/rev) per revolution. Speeds range from a top speed of approximately 2500 rpm for the smallest type and up to approximately 600 rpm for the largest type. Maximum operating torques vary from 13 Nm (115 lbf-in) to 2700 Nm (24000 lbf-in) (peak) and maximum outputs are from 2 kW (2.7 hp) to 70 kW (95hp).

- High efficiency
- Smooth running over entire speed range
- Constant operating torque
- High starting torque
- High return pressure without the use of a drain line (high pressure shaft seal)
- Long life under extreme operating conditions
- Robust and compact design
- High radial and axial bearing capacity
- Corrosion-resistant parts
- For applications in both open and closed loop hydraulic systems
- Suitable for a wide variety of hydraulic fluids

