

# ***ODP60 XS***



The information, specifications, and illustrations in this manual are on the basis of information available at the time it was written. The specifications, torque values, pressures of operation, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service of the given product.

For the complete and most current information, contact:

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P.O. Box 405 / 3800 Eagle Loop  
Odell, OR 97044-0405  
541-354-1001  
541-354-1080 Fax

**For most recent manual  
version please visit:**

**[www.hoggdavis.com](http://www.hoggdavis.com)**

**ODP60 XS**  
**6,000 Lb Drum Puller**

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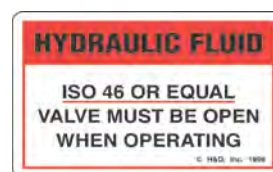
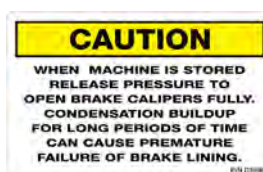
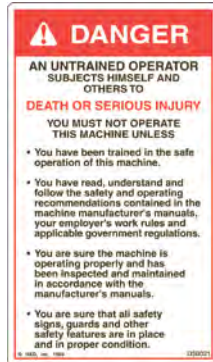
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# ODP60 XS 6,000 Lb Drum Puller

## Product Warnings



# **ODP60 XS 6,000 Lb Drum Puller**

**WARNING**

THE REEL MANDREL PIN AND LOCKING PIN MUST BE INSTALLED PRIOR TO OPERATION. FAILURE TO DO SO MAY ALLOW REEL TO BECOME DISENGAGED DURING OPERATION WHICH COULD CAUSE SERIOUS INJURY OR DEATH.


**REEL LOADING / UNLOADING INSTRUCTIONS**

1. MAKE SURE THAT LIFTING EYES ARE POINTING UP BEFORE REMOVING LOCKING PIN AND MANDREL SHAFT PIN.
2. APPLY OVER SPIN BRAKE.
3. SECURE LOAD WITH LIFTING DEVICE.
4. REMOVE LOCKING PIN AND MANDREL SHAFT PIN.
5. REMOVE REEL MANDREL SHAFT.

**LOADING INSTRUCTIONS**

1. REPLACE REEL AND SHAFT ASSEMBLY.
2. INSTALL MANDREL SHAFT PIN AND LOCKING PIN.
3. RELEASE LOAD FROM LIFTING DEVICE.
4. RELEASE OVER SPIN BRAKE.



P/N D30092 



**DISENGAGE**  
**ENGAGE**

**REEL DRIVE  
DOG**

**CAUTION**

DOG MUST BE  
PINNED IN EITHER  
POSITION

***These warning labels and others like it are placed in critical areas of the machine. The warnings are to be read and fully understood prior to operation of the unit.***



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**ODP60 XS**  
**6,000 Lb Drum Puller**

## ***General Specifications***

This unit is designed to install overhead cable/conductor.

- Single Reel Puller
- 6,000 lbs Maximum Line Pull
- 72" X 54" Maximum Reel Diameter
- 6,000 lb Maximum Reel Capacity
- Manual Jack stands (2) Rear – (1) Tongue
- Hydraulic Jack stands (optional)
- Maximum Line Speed 0-6 mph



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# ODP60 XS 6,000 Lb Drum Puller

## Engine Specifications

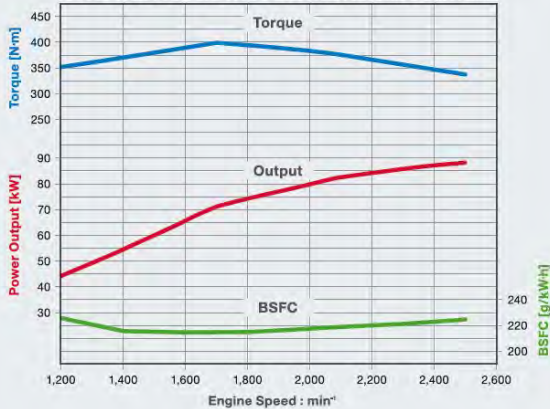
### 4TNV94FHT

Rated Output (Gross)

**69.8-88.4kW**



PERFORMANCE CURVES 4TNV94FHT 88.4kW at 2,500min<sup>-1</sup>

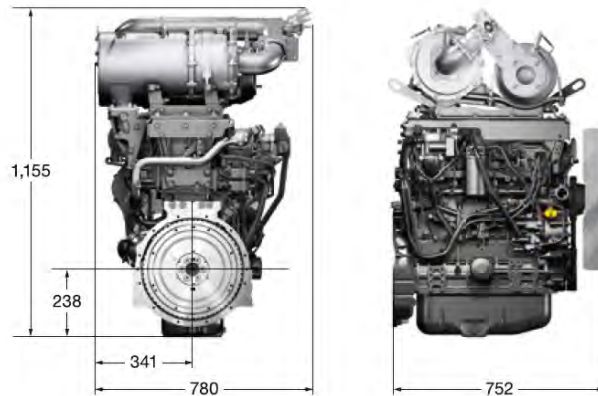


### SPECIFICATION

Engine Model	4TNV94FHT			
Emission Compliance	EPA Final Tier4 / EU StageIV / Switzerland FOEN			
Fuel Injection	Direct Injection (DI)			
Aspiration	T/C with Intercooler			
Fuel Injection System	Common Rail			
Intake Throttle Valve	Standard			
Cooled EGR	Standard			
Aftertreatment	DPF+SCR			
No. of Cylinders	4			
Bore × Stroke	mm	94 × 110		
Displacement	L	3,054		
Rated Output (Gross)	kW/min <sup>-1</sup>	69.8/2,000	77.2/2,200	88.4/2,500
	PS/min <sup>-1</sup>	93.6/2,000	103.5/2,200	118.5/2,500
Max.Torque (Gross)	N·m/min <sup>-1</sup>	378~410/1,450	378~410/1,450	378~410/1,700
Voltage	V	12(24 Option)		
DPF / SCR Layout	Top of the engine			
Overall Length × Width × Height *	mm	752 × 780 × 1,155		
Weight (Dry) *	kg	370		

\* : DPF&SCR Layout is on top of the engine

### DIMENSIONS (mm)

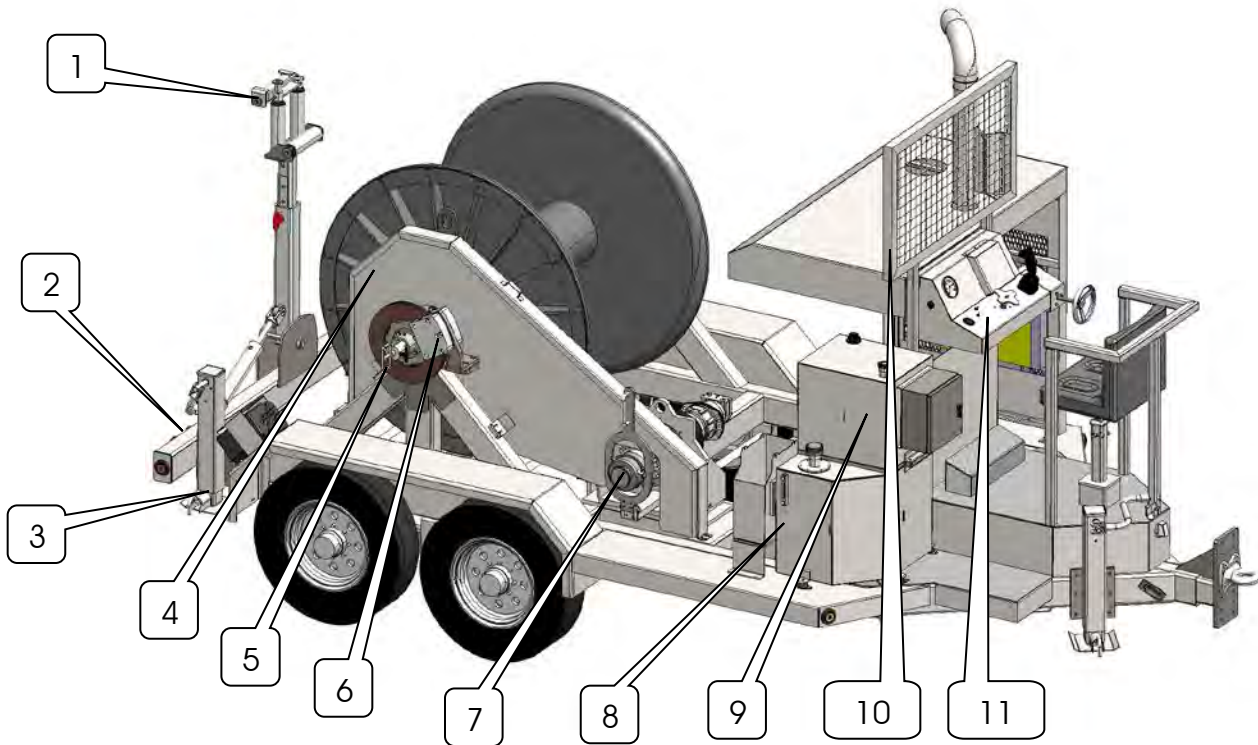


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# **ODP60 XS 6,000 Lb Drum Puller**



## ***Operating Instructions***

All persons operating this machine must read and understand this manual as well as the operating, danger, and warning decals placed on the machine. Failure to read and understand these items subjects the operator and others to **DEATH or SERIOUS INJURY**.

***Operators shall make themselves familiar with the placement of the following operating and safety features of the machine.***



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**ODP60 XS**  
**6,000 Lb Drum Puller**

**Puller - Main Unit**

1. Level Wind. Unit is equipped with a manual level wind system. Operator must actuate the level wind with the switch at the operator's console.
2. Grounding Lugs. There are three lugs located on the unit. Two under the tongue of the trailer and one at the rear.
3. Jack stands. Three manual jack stands for stabilizing and leveling trailer. Two are located at the rear and one on the drawbar.
4. Chain Guard. **DO NOT OPERATE PULLER WHEN THE CHAIN GUARD IS NOT INSTALLED.**
5. Reel Carriage Pin. This pin must be installed during operation. Removing this pin allows for the reel to be removed. **DO NOT OPERATE THE UNIT WITH THE PIN REMOVED AND NO LOCKING PIN. REEL WILL FALL OUT CAUSING DAMAGE AND POSSIBLE INJURY.**
6. Overspin Brake System. This system is used when the reel is disengaged from the primary drive system. **DO NOT EXCEED 600 LBS PRESSURE. DO NOT APPLY BRAKE WHEN OPERATING THE PULLER.**
7. Drive Dog Clutch. This is the primary drive. Engaging the drive allows for pulling and tensioning. Disengaging the drive allows for free wheeling of the reel. **DO NOT OPERATE THE PRIMARY DRIVE WITHOUT THE LOCKING PIN IN PLACE.**
8. Hydraulic Tank: ISO 46 or equivalent.
9. Fuel Tank. Diesel Fuel ONLY
10. Operators Screen.
11. Operators Console.

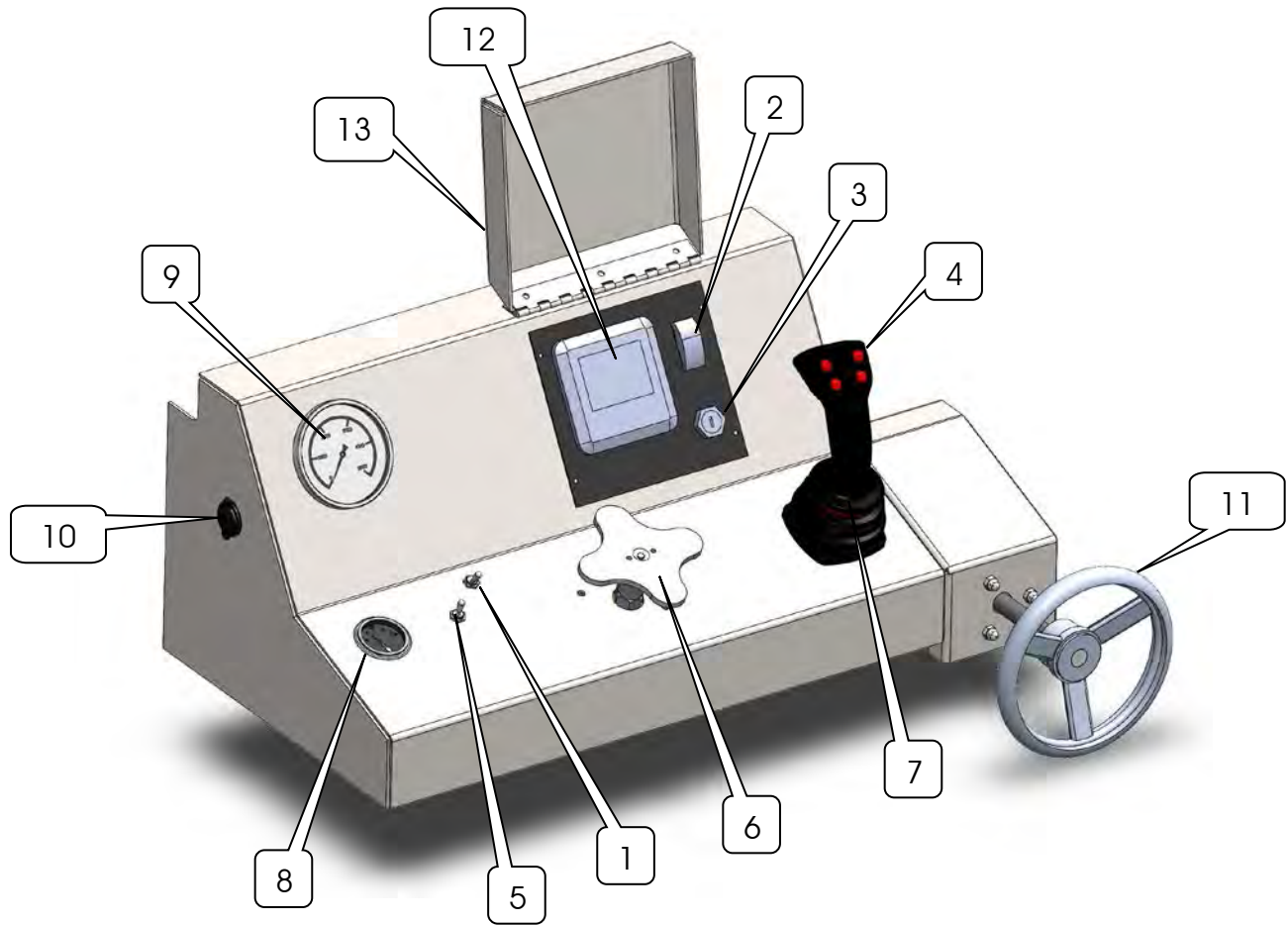


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**6,000 Lb Drum Puller**



***Puller - Operators Console***

1. Holding Brake. This switch is for enabling and disabling the automatic holding brake on the drive motors. It is spring applied / hydraulic release and will engage at loss of system pressure.
2. Throttle. Manual throttle switch. Up to increase or down to decrease.
3. Ignition Switch.
4. Pay out Lockout. This push button interrupts the current from the joystick to prevent the operator from unintentionally paying out. In order to payout with the drive dogs engaged, the operator must hold this switch.



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5. Manual Level wind control.
6. Line Pull Control. This controller allows the operator to set line pull. By adjusting according to the performance graph, this allows operator to set or increase and decrease the amount of pull desired. Clockwise increases the line pull and counterclockwise decreases it.
7. Friction style Joystick with operator presence trigger.
8. Fuel gauge.
9. System Pressure. This gauge displays the system pressure of the pulling unit. It is used in conjunction with the Line Pull/Tension control to set the pressure at which to pull. A performance chart is located on the control panel. **DO NOT EXCEED 3850 PSI.**
10. 12 Volt Receptacle.
11. Overspin brake adjustment.
12. Engine display.
13. Engine display cover. Keep closed when not in use.



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# **ODP60 XS 6,000 Lb Drum Puller**

## ***Set up on the job***

### **Setup of the unit**

Hogg & Davis, Inc. recommends following the methods described in the following publications:

IEEE Std 524-1992

IEEE Guide to the Installation of Overhead Transmission Line Conductors

IEEE Std 542a-1993

IEEE Guide to Grounding During the Installation of Overhead Transmission Line Conductors

### ***Position of unit***

Position the trailer with the centerline of the trailer in line with the pull. Place the unit at a minimum of two times the height of the first block.

### ***Jack Stands / Outriggers***

Actuate the rear outriggers to stabilize the trailer. Attempt to level the trailer as much as possible. The outriggers have the ability to raise the tires from the ground, but as a rule they should be used to stabilize the load across all contact points on the ground, i.e. Jack stands, tires, front tongue jack stand.

### ***Tie Down/ Brake/ Chock***

Chock all wheels and set brakes (if applicable). It should be noted that a fully loaded trailer may exceed the tension desired during the pull. As the pull progresses, the weight of the trailer may increase or decrease, therefore proper securing procedures should be followed during operation. This unit is equipped with tie – down eyes for staking to the ground and it is recommended that the unit stay secured to the tow vehicle whenever possible.



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## ***LOADING INSTRUCTIONS***

1. Position trailer so that a forklift or crane can be easily positioned.
2. Position reel drive pin assembly so that the lifting eye and removable pin are in the top position and **apply brake**.
3. Remove retaining pin from both the reel drive pin assembly and the dumb end of the mandrel shaft pocket.
4. Remove entire shaft and drive pin assembly by lifting up.
5. Remove Nylatron bearing from dumb end of mandrel shaft.
6. Remove locking collar / lifting assembly and centering cone.
7. Insert mandrel shaft in the reel all the way to the drive pin assembly, being careful to insert the pins completely.
8. Install centering cone (if needed) and locking collar / lifting assembly. Be sure to set reel tight against drive pin assembly.
9. Replace Nylatron bearing onto dumb end of mandrel shaft.
10. Lift reel with forklift or crane making sure that the drive pin assembly has the lifting eye on top for proper fit.
11. Insert reel into the stand by indexing drive pin assembly from above and lower into place.
12. Insert retaining pins into both the drive pin assembly and the dumb end of the shaft pocket.



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## ***Rope Payout Procedure (Free Wheel)***

When beginning the rope payout feature, be sure that the engine is turned off. Ensure that all tension is removed from the pulling rope before attempting to remove drive pin.

Adjust reel brake to provide tension to the reel of rope. Disengage the drive dog from the sprocket drive. Begin to pull rope through the blocks while continuing to adjust the over spin brake. When the rope install is completed, engage the drive dog to the sprocket drive. Manual rotation of the rope reel may be needed to properly engage drive dog. Replace retaining pin.

## ***Performance Chart***

Refer to the performance chart for proper hydraulic pressure as it directly relates to conductor tension. ***This chart is located on the control panel of the unit.***



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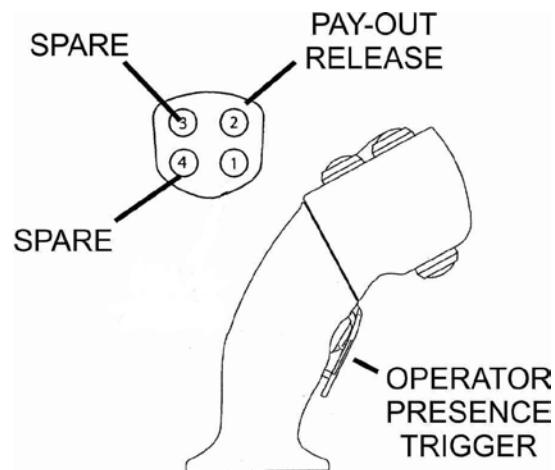
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**6,000 Lb Drum Puller**

## ***Pulling Control***

The following instructions explain how to properly set up the unit when it is to be used as a puller and have a pulling rope with *no tension*.

**DO NOT FOLLOW THESE INSTRUCTIONS WHEN YOU HAVE A ROPE UNDER TENSION!!**

1. Ensure the holding brake switch is on the Disabled position.
2. Turn the Hydraulic Pressure knob CCW to release pressure.
3. Increase to approximately full throttle.
4. Begin to actuate the joystick to take up.
5. Turn the Hydraulic Pressure Control knob and set to 800 psi.
6. Release the joystick into the neutral position.
7. Wait for confirmation from the tension side of the job for readiness.
8. Set holding brake switch to the Automatic position.
9. As the rope reel begins to take up, increase the hydraulic to the maximum line pull desired. As the rope diameter increases on the reel, it might be necessary to adjust the Hydraulic Control Knob to keep the pull moving.
10. Adjust joystick for line speed as also desired.
11. To stop the pull, place control into neutral.



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## **ODP60 XS 6,000 Lb Drum Puller**

### ***Pulling Control***

The following instructions explain how to properly set up the unit when it is to be used as a puller and have a pulling rope UNDER TENSION. Use of these instructions assumes that all controls are at the same setting when the pulled previously stopped.

1. Set holding brake to the Disabled position.
2. Begin to slightly actuate the joystick to take up.
3. Set holding brake switch to the Automatic position.
4. Actuate the joystick to take up as desired. (if reel does not begin to move, slightly increase the Hydraulic Pressure Control until it does.)

### ***Level wind***

This unit is equipped with manual post style level wind. Operator must control during pull as needed for even take up of rope on reel.

**IF MACHINE IS TO BE USED FOR FIBRE OPTIC INSTALLATION, REFER TO THE CABLE MANUFACTURER FOR PROPER TENSIONING TECHNIQUES. FAILURE TO CONSULT MANUFACTURER MAY DAMAGE CABLE AND VOID WARRANTY.**

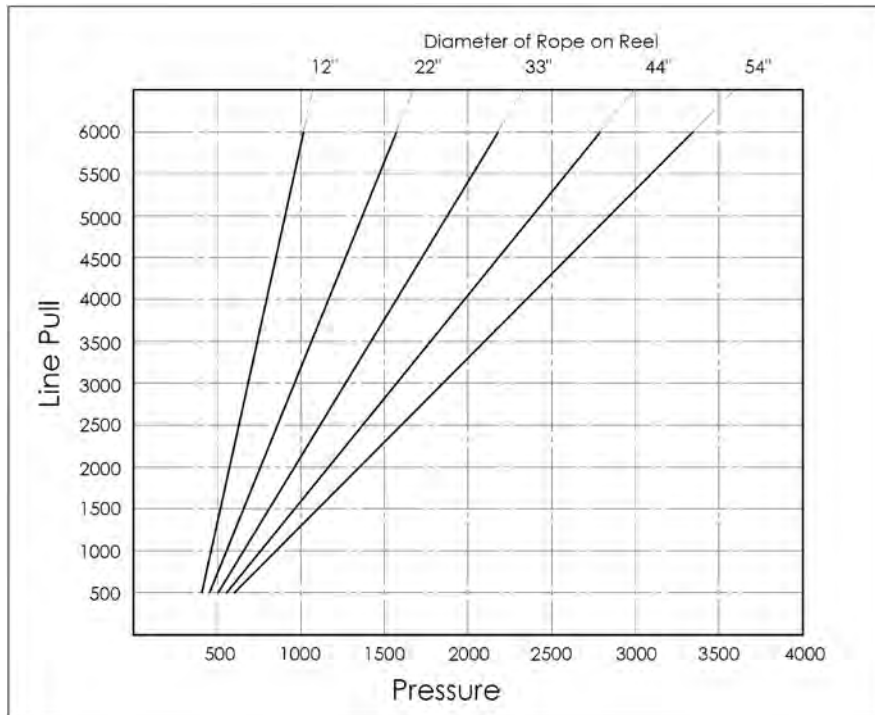


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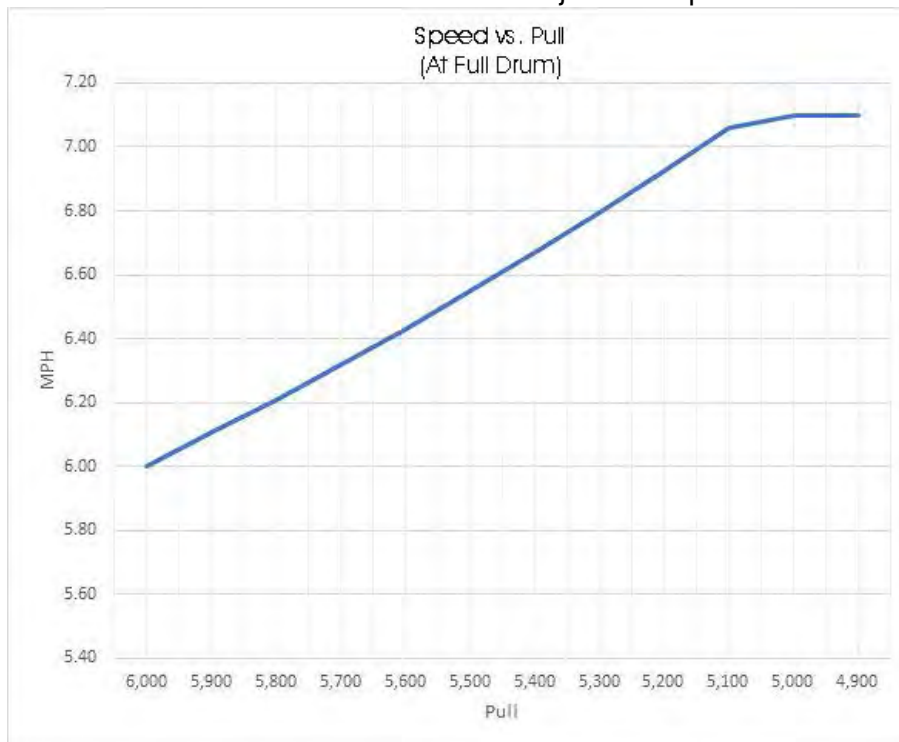


## **ODP60 XS 6,000 Lb Drum Puller**



### ***WARNING***

Failure to understand and follow the line pull graph can result in failure of reels and other major components.



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## ***LUBRICATION AND MAINTENANCE***

This unit has no set PM schedule beyond that of the engine manufacturers suggested maintenance schedule. This unit should be visually inspected prior to each use while repairing all discrepancies prior to use.

### ***Items to be inspected prior to use are:***

- Drive Chains and sprockets for wear and slack
- Pintle eye (excessive wear)
- Safety Chains (wear / damage)
- All welds and seams
- Loose or missing fasteners (bolts, nuts, set screws)
- Loose or leaking hydraulic hoses
- Damaged or worn hydraulic hoses
- Brake calipers (loose fittings, hoses, worn linings)
- Brake Pads
- Brake rotors
- Tires and trailer brakes
- Engine and hydraulic system fluid levels.

### ***Lubrication Schedule***

- Drive chain and sprockets (daily)
- Reel Shaft Bearings (as needed)
- Reel Bearings (as needed)
- Engine oil as per manufacturers recommendation
- Axle Bearings Wheel bearings are of the oil bath style and should be inspected as part of the Drivers Pre-Trip Inspection. 80-90 Gear oil



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***Drawbar inspection***

- Regularly inspect the drawbar for wear and damage. If wear exceeds 1/8", replace the drawbar eye.
- Check all drawbar mounting fasteners for proper torque.
- Do not modify or add to the product.
- Do not weld on this product without written permission from the factory.
- Be sure the drawbar size is compatible with the coupling device on the tow vehicle.
- Do not damage the coupling components. Be particularly careful during coupling and uncoupling.
- Inspect the coupling device on the tow vehicle for proper locking prior to use.
- Consult OSHA and DOT regulations and American Trucking Association guidelines for complete operating procedures.



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## **ODP60 XS 6,000 Lb Drum Puller**

### **15-15 Warranty**

Hogg and Davis, Inc. warrants its trailers against defects in material or workmanship for period of 15 months from the date of shipment from Hogg and Davis, Inc. (see General Conditions & Exceptions). Hogg and Davis, Inc. will replace, free of charge, F.O.B. Hogg and Davis, Inc. factory, such parts or parts thereof, that in their judgement have proven defective. Additionally, Hogg and Davis, Inc. will pay reasonable and customary labor charges when defective part is replaced, installed or repaired by a fully authorized Hogg and Davis, Inc. trailer dealer at his facility.

Warranty credit will be issued only upon receipt and inspection of defective parts of at the Hogg and Davis, Inc. factory.

Hogg and Davis, Inc. warrants its trailer main frame assemblies (except pintle eyes or other towing attachments, spindles and axles) against defects in material or workmanship for a period of **15 years** from the date of shipment from Hogg and Davis, Inc. (see General Conditions & Exceptions). Hogg and Davis, Inc. shall replace or repair, in a manner as it shall determine, free of charge, F.O.B. factory, any parts or parts thereof, that in its judgement have proven defective. Additionally, Hogg and Davis, Inc. will pay reasonable and customary labor charges when defective part is replaces, installed or repaired by a fully authorized Hogg and Davis, Inc. trailer dealer at his facility

#### **General Conditions & Exceptions**

All warranties, options and representations made herein shall apply only provide such equipment shall not have been subject to misuse, negligence or accident and has been operated in accordance with factory approved procedures. This warranty does not obligate Hogg and Davis, Inc. or its authorized dealers to bear the cost of parts obtained from or labor performed by unauthorized sources. Nor does it obligate Hogg and Davis, Inc. **or its** authorized dealers to bear the cost of transportation of parts or equipment for repair or **replacement purposes**. This warranty is in lieu of any other warranty, expressed **or implied**, or any other obligation or liability on the part of Hogg and Davis, Inc and no persons or entity is authorized to make any representation beyond those stated herein.

Hogg and Davis, Inc. shall not be held liable for consequential damage of any kind. Hogg and Davis, Inc. also reserves the right to make changes and improvements in its products without incurring any obligation to install any such changes or improvements upon its products previously manufactured.

The above warranty shall not be misconstrued to mean warranty of tires, clutch, transmission assemblies or customer requested accessory equipment other than the warranty extended by their respective manufactures to Hogg and Davis, Inc. In addition, friction, drive rollers are warranted only to extent of bonding failure. All warranties, options and representations made herein are applicable to the original end-user of the product and are not sellable or transferable in any manner.



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**6,000 Lb Drum Puller**

## **Parts and other manufacturer manuals**

The Following drawings are for part identification only. Please reference the unit V.I.N. number and the corresponding part number when ordering.

The information, specifications, and illustrations in this manual are on the basis of information available at the time it was written. The specifications, torque values, pressures of operation, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service of the given product.

For the complete and most current information, contact:

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[www.hoggdavis.com](http://www.hoggdavis.com)



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## Section 2

# YANMAR WARRANTIES

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## YANMAR LIMITED WARRANTY

### What is Covered by this Warranty?

YANMAR warrants to the original retail purchaser that a new YANMAR TNV series industrial engine will be free from defects in material and/or workmanship for the duration of the warranty period.

*Note: YANMAR engines may be equipped with external components including, but not limited to: wiring harnesses, electrical devices, control panels, radiators, air filters, fuel filters, and/or exhaust systems that are supplied and/or installed by manufacturers other than YANMAR. For warranty information on such external components, please contact the machine or component manufacturer directly or see your authorized YANMAR dealer or distributor.*

This warranty is provided in lieu of all other warranties, express or implied. YANMAR specifically disclaims any implied warranties of merchantability or fitness for a particular purpose, except where such disclaimer is prohibited by law. If such disclaimer is prohibited by law, then implied warranties shall be limited in duration to the life of the express warranty.

### How Long is the Warranty Period?

The YANMAR standard limited warranty period runs for a period of **twenty-four (24) months or two-thousand (2000) engine operation hours**, whichever occurs first. An extended limited warranty of thirty-six (36) months or three thousand (3000) engine operating hours, whichever occurs first, is provided for these specific parts only: the cylinder block, cylinder head, crankshaft forging, connecting rods, flywheel, flywheel housing, camshaft, timing gear, and gear case. The warranty period for both the standard limited warranty and the extended limited warranty (by duration or operation hours) begins on the date of delivery to the original retail purchaser and is valid only until the applicable warranted duration has passed or the operation hours are exceeded, whichever comes first.

### What the Engine Owner must Do:

If you believe your YANMAR engine has experienced a failure due to a defect in material and/or workmanship, you must contact an authorized YANMAR industrial engine dealer or distributor within thirty (30) days of discovering the failure. You must provide proof of ownership of the engine, proof of the date of the engine purchase and delivery, and documentation of the engine operation hours. Acceptable forms of proof of delivery date include, but are not limited to: the original warranty registration or sales receipts or other documents maintained in the ordinary course of business by YANMAR dealers and/or distributors, indicating the date of delivery of the YANMAR product to the original retail purchaser. This information is necessary to establish whether the YANMAR product is still within the warranty period. Thus, YANMAR strongly recommends you register your engine as soon as possible after purchase in order to facilitate any future warranty matters.

You are responsible for the transportation of the engine to and from the repair location as designated by YANMAR.

***YANMAR limited warranty - continued*****To Locate an Authorized YANMAR Industrial Engine Dealer or Distributor:**

You can locate your nearest authorized YANMAR industrial engine dealer or distributor by visiting the YANMAR Co., Ltd. website at:

<http://www.yanmar.co.jp> (The Japanese language page will be displayed.) For English language “click” on “English Page.”)

- “Click” on “Network” in the website heading to view the “Yanmar Worldwide Network.”
- Choose and “Click” on the desired product group.
- “Click” on the Icon closest to your region.
- “Click” on the desired country or associate company to locate your nearest authorized YANMAR industrial engine dealer or distributor.
- You may also contact YANMAR by clicking on “Inquiry” in the website heading and typing in your question or comment.

**What YANMAR will Do:**

YANMAR warrants to the original retail purchaser of a new YANMAR engine that YANMAR will make such repairs and/or replacements at YANMAR’s option, of any part(s) of the YANMAR product covered by this warranty found to be defective in material and/or workmanship. Such repairs and/or replacements will be made at a location designated by YANMAR at no cost to the purchaser for parts or labor.

**What is not Covered by this Warranty?**

This warranty does not cover parts affected by or damaged by any reason other than defective materials or workmanship including, but not limited to, accident, misuse, abuse, “Acts of God,” neglect, improper installation, improper maintenance, improper storage, the use of unsuitable attachments or parts, the use of contaminated fuels, the use of fuels, oils, lubricants, or fluids other than those recommended in your YANMAR Operation Manual, unauthorized alterations or modifications, ordinary wear and tear, and rust or corrosion. This warranty does not cover the cost of parts and/or labor required to perform normal/scheduled maintenance on your YANMAR engine. This warranty does not cover consumable parts such as, but not limited to, filters, belts, hoses, fuel injector nozzles, lubricants and cleaning fluids. This warranty does not cover the cost of shipping the product to or from the warranty repair facility.

*YANMAR limited warranty - continued***Warranty Limitations:**

The foregoing is YANMAR's only obligation to you and your exclusive remedy for breach of **warranty**. Failure to follow the requirements for submitting a claim under this warranty may result in a waiver of all claims for damages and other relief. **In no event shall YANMAR or any authorized industrial engine dealer or distributor be liable for incidental, special or consequential damages.** Such consequential damages may include, but not be limited to, loss of revenue, loan payments, cost of rental of substitute equipment, insurance coverage, storage, lodging, transportation, fuel, mileage, and telephone costs. The limitations in this warranty apply regardless of whether your claims are based on breach of contract, tort (including negligence and strict liability) or any other theory. Any action arising hereunder must be brought within one (1) year after the cause of action accrues or it shall be barred. Some states and countries do not allow certain limitations on warranties or for breach of warranties. **This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and country to country.** Limitations set forth in this paragraph shall not apply to the extent that they are prohibited by law.

**Warranty Modifications:**

Except as modified in writing and signed by the parties, this warranty is and shall remain the complete and exclusive agreement between the parties with respect to warranties, superseding all prior agreements, written and oral, and all other communications between the parties relating to warranties. **No person or entity is authorized to give any other warranty or to assume any other obligation on behalf of YANMAR, either orally or in writing.**

**Questions:**

If you have any questions or concerns regarding this warranty, please call or write to the nearest authorized YANMAR industrial engine dealer or distributor or other authorized facility.

## EMISSION SYSTEM WARRANTY

YANMAR CO., LTD. LIMITED EMISSION CONTROL SYSTEM  
WARRANTY - USA ONLY

## Your Warranty Rights and Obligations:

## ■ California

The California Air Resources Board (CARB), the Environmental Protection Agency (EPA) and YANMAR Co., Ltd. hereafter referred to as YANMAR, are pleased to explain the **emission control system warranty** on your industrial compression-ignition engine. In California, model year 2000 or later off-road compression-ignition engines must be designed, built and equipped to meet the state's stringent anti-smog standards. In all states, 1998 and later non-road compression-ignition engines must be designed, built and equipped to meet the United States EPA emissions standards. YANMAR warrants the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system, Electronic Control Unit, Exhaust Gas Recirculation (EGR) system, after treatment system (DPF) and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, YANMAR will repair your non-road compression-ignition engine at no charge to you including diagnosis, parts and labor.

## Manufacturer's Warranty Period:

The model year 1998 or later certified and labeled non-road compression-ignition engines are warranted for the periods listed below. If any emission-related part on your engine is found to be defective during the applicable warranty period, the part will be replaced by YANMAR.

If your engine is certified as	And its maximum power is	And its rated speed is	Then its warranty period is
Variable speed or constant speed	kW < 19	Any speed	1,500 hours or two (2) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of two (2) years.
Constant speed	19 ≤ kW < 37	3,000 rpm or higher	1,500 hours or two (2) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of two (2) years.
Constant speed	19 ≤ kW < 37	Less than 3,000 rpm	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.
Variable speed	19 ≤ kW < 37	Any speed	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.
Variable speed or constant speed	kW ≥ 37	Any speed	3,000 hours or five (5) years whichever comes first. In the absence of a device to measure the hours of use, the engine has a warranty period of five (5) years.

***Limited emission control system warranty - USA only - continued*****Warranty Coverage:**

This warranty is transferable to each subsequent purchaser for the duration of the warranty period. Repair or replacement of any warranted part will be performed at an authorized YANMAR industrial engine dealer or distributor.

Warranted parts not scheduled for replacement as required maintenance in the operation manual shall be warranted for the warranty period. Warranted parts scheduled for replacement as required maintenance in the operation manual are warranted for the period of time prior to the first scheduled replacement. Any part repaired or replaced under warranty shall be warranted for the remaining warranty period.

During the warranty period, YANMAR is liable for damages to other engine components caused by the failure of any warranted part during the warranty period.

Any replacement part which is functionally identical to the original equipment part in all respects may be used in the maintenance or repair of your engine, and shall not reduce YANMAR's warranty obligations. Add-on or modified parts that are not exempted may not be used. The use of any non-exempted add-on or modified parts shall be grounds for disallowing a warranty.

**Warranted Parts:**

This warranty covers engine components that are a part of the emission control system of the engine as delivered by YANMAR to the original retail purchaser. Such components may include the following:

- Fuel injection system
- Electronic control system
- Cold start enrichment system
- Intake manifold
- Turbocharger systems
- Exhaust manifold
- EGR system
- Positive crankcase ventilation system
- After treatment system (Diesel Particulate Filter)
- Hoses, belts, connectors and assemblies associated with emission control systems

Since emissions-related parts may vary slightly between models, certain models may not contain all of these parts and other models may contain the functional equivalents.

***Limited emission control system warranty - USA only - continued*****Exclusions:**

Failures other than those arising from defects in material and/or workmanship are not covered by this warranty. The warranty does not extend to the following: malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance or use of non-recommended fuels and lubricating oils; accident-caused damage, and replacement of expendable items made in connection with scheduled maintenance. YANMAR disclaims any responsibility for incidental or consequential damages such as loss of time, inconvenience, loss of use of equipment/engine or commercial loss.

**Owner's Warranty Responsibilities:**

**As the engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual.** YANMAR recommends that you retain all documentation, including receipts, covering maintenance on your non-road compression-ignition engine, but YANMAR cannot deny warranty solely for the lack of receipts, or for your failure to ensure the performance of all scheduled maintenance.

YANMAR may deny your warranty coverage of your non-road compression-ignition engine if a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with applicable emissions requirements.

You are responsible for initiating the warranty process. You must present your engine to a YANMAR dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible. If you have any questions regarding your warranty rights and responsibilities, or would like information on the nearest YANMAR dealer or authorized service center, you should contact YANMAR America Corporation.

Website: [www.yanmar.com](http://www.yanmar.com)

E-mail: [CS\\_support@yanmar.com](mailto:CS_support@yanmar.com)

Toll free telephone number: 1-800-872-2867, 1-855-416-7091

# JOHN DEERE NEW OFF-HIGHWAY ENGINE WARRANTY



## **Warranty Duration**

Unless otherwise provided in writing, John Deere\* makes the following warranty to the first retail purchaser and each subsequent purchaser (if purchase is made prior to expiration of applicable warranty) of each John Deere new off-highway engine marketed as part of a product manufactured by a company other than John Deere or its affiliates and on each John Deere engine used in an off-highway repower application:

- 12 months, unlimited hours of use, or
- 24 months and prior to the accumulation of 2000 hours of use

Note: In the absence of a functional hour meter, hours of use will be determined on the basis of 12 hours of use per calendar day.

## **Warranty Coverage**

This warranty applies to the engine and to integral components and accessories sold by John Deere, and delivered to the first retail purchaser on or after 1 May 2010.

All John Deere-warranted parts and components of John Deere engines which, as delivered to the purchaser, are defective in materials and/or workmanship will be repaired or replaced, as John Deere elects, without charge for parts or engine repair labor, including reasonable costs of labor to remove and reinstall non-engine parts or components of the equipment in which the engine is installed, and, when required, reasonable costs of labor for engine removal and reinstallation, if such defect appears within the warranty period as measured from the date of delivery to the first retail purchaser.

## **Emissions Warranty**

Emissions warranties appear in the Operator's Manual, that is furnished with the engine/machine.

## **Obtaining Warranty Service**

Warranty service is to be performed by a local John Deere engine service outlet before the expiration of the warranty. An authorized service outlet is a John Deere engine distributor, a John Deere engine service dealer, or a John Deere equipment dealer selling and servicing equipment with an engine of the type covered by this warranty. Authorized service outlets will use only new or remanufactured parts or components furnished or approved by John Deere.

Authorized service locations can be found by using the dealer locator on [www.johndeere.com](http://www.johndeere.com), or by calling 1-800-JDENGINE (800-533-6446).

At the time of requesting warranty service, the purchaser must be prepared to present evidence of the engine's delivery date.

John Deere reimburses authorized service outlets for limited travel expenses incurred in making warranty service repairs in non-John Deere applications when travel is actually performed. Contact your local authorized service dealer for current travel reimbursement limits. If distances and travel times are greater than reimbursed by John Deere, the service outlet will charge the purchaser for the difference.

## **Purchaser's Responsibilities**

The cost of normal maintenance and depreciation.

Periodic cleaning of the Diesel Exhaust Filter.

Consequences of negligence, misuse, or accident involving the engine, or improper application, installation, or storage of the engine.

Consequences of service performed by someone other than a party authorized to perform warranty service, if such service, in John Deere's judgment, has adversely affected the performance or reliability of the engine.

Consequences of any modification or alteration of the engine not approved by John Deere, including, but not limited to, tampering with fuel and air delivery systems.

Consequences of fuels, lubricants or coolant that fails to meet the specifications and requirements listed in the Operator's Manual.

\* "John Deere" means John Deere Power Systems with respect to users in the United States, John Deere Limited with respect to users in Canada, and Deere & Company or its subsidiary responsible for marketing John Deere equipment in other countries where the user is located.

The effects of cooling system neglect as manifested in cylinder liner or block cavitation ("pitting", "erosion", "electrolysis").

Any premium for overtime labor requested by the purchaser.

Costs of transporting the engine or the equipment in which it is installed to and from the location at which the warranty service is performed, if such costs are in excess of the maximum amount payable to the service location were the warranty service performed at the engine's location.

Costs incurred in gaining access to the engine; i.e., overcoming physical barriers such as walls, fences, floors, decks or similar structures impeding access to the engine, rental of cranes or similar, or construction of ramps or lifts or protective structures for engine removal and reinstallation.

Incidental travel costs including meals, lodging, and similar.

Service outlet costs incurred in solving or attempting to solve non-warrantable problems.

Services performed by a party other than an authorized John Deere engine service dealer, unless required by law.

Charges by dealers for initial engine start-up and inspection, deemed unnecessary by John Deere when operation and maintenance instructions supplied with the engine are followed.

Costs of interpretation or translation services.

Periodic cleaning of the Diesel Exhaust Filter.

John Deere will not be responsible for the cost of Exhaust Filter or Diesel Particulate Filter (DPF) cleaning unless:

- The need for cleaning resulted from the failure of a part that is covered by the engine's Standard Product Warranty or Extended Warranty, or
- The engine is located in California and the need for cleaning was caused by a failure covered under applicable CARB emissions regulations.

### **No Representations or Implied Warranty**

Where permitted by law, neither John Deere nor any company affiliated with it makes any guaranties, warranties, conditions, representations or promises, express or implied, oral or written, as to the nonoccurrence of any defect or the quality or performance of its engines other than those set forth herein, and DOES NOT MAKE ANY IMPLIED WARRANTY OR CONDITIONS OF MERCHANTABILITY OR FITNESS otherwise provided for in the Uniform Commercial Code or required by any Sale of Goods Act or any other statute. This exclusion includes fundamental terms. In no event will a John Deere engine distributor or engine service dealer, John Deere equipment dealer, John Deere or any company affiliated with John Deere be liable for incidental or consequential damages or injuries including, but not limited to, loss of profits, loss of crops, rental of substitute equipment or other commercial loss, damage to the equipment in which the engine is installed or for damage suffered by purchaser as a result of fundamental breaches of contract or breach of fundamental terms, unless such damages or injuries are caused by the gross negligence or intentional acts of the foregoing parties.

### **Remedy Limitation**

The remedies set forth in this warranty are the purchaser's exclusive remedies in connection with the performance of, or any breach of guaranty, condition, or warranty in respect of new John Deere engines. In the event the above warranty fails to correct purchaser's performance problems caused by defects in workmanship and/or materials, purchaser's exclusive remedy shall be limited to payment by John Deere of actual damages in an amount not to exceed the cost of the engine.

### **No Seller's Warranty**

No person or entity, other than John Deere, who sells the engine or product in which the engine has been installed makes any guaranty or warranty of its own on any engine warranted by John Deere unless it delivers to the purchaser a separate written guaranty certificate specifically guaranteeing the engine, in which case John Deere shall have no obligation to the purchaser. Neither original equipment manufacturers, engine or equipment distributors, engine or equipment dealers, nor any other person or entity, has any authority to make any representation or promise on behalf of John Deere or to modify the terms or limitations of this warranty in any way.

### **Additional Information**

For additional information concerning the John Deere New Off-Highway Engine Warranty, see the Operator's Manual

SPN	FMI	TEXT TRANSLATION
28	3	% Accelerator Position #3 (Throttle 2) Voltage Above Normal or Shorted to High Source H
28	4	Percent Accelerator Position #3 (Throttle 2) Voltage Below Normal or Shorted to Low Source
29	3	Percent Accelerator Position #2 (Throttle 1) Voltage Above Normal or Shorted to High Source
29	4	Percent Accelerator Position #2 (Throttle 1) Voltage Below Normal or Shorted to Low Source
91	3	Accelerator Pedal Position (Multi-State Throttle) Voltage Above Normal, or Shorted to High Source
91	4	Accelerator Pedal Position (Multi-State Throttle) Voltage Below Normal or Shorted to Low Source
91	9	Accelerator Pedal Position A valid throttle message is not being received or is late
91	14	Accelerator Pedal Position Throttle signal voltage is or has been out of range
94	1	Fuel Delivery Pressure Pressure Very low
94	3	Fuel Delivery Pressure Fuel Rail Pressure Voltage out of range high
94	4	Fuel Delivery Pressure Fuel Rail Pressure Voltage out of range low
94	10	Fuel Delivery Pressure Pressure dropping too fast
94	13	Fuel Delivery Pressure Out of calibration
94	16	Fuel Delivery Pressure High fuel pressure
94	17	Fuel Delivery Pressure No rail fuel pressure
94	18	Fuel Delivery Pressure Low fuel pressure
97	0	Water In Fuel Indicator Water In Fuel Detected
97	3	Water In Fuel Indicator Water In Fuel Voltage out of range high
97	4	Water In Fuel Indicator Water In Fuel Voltage out of range low
97	16	Water In Fuel Indicator Water In Fuel Detected
97	31	Water In Fuel Indicator Water In Fuel Detected
100	1	Engine Oil Pressure Low oil pressure
100	3	Engine Oil Pressure Voltage Above Normal or Shorted to High Source
100	4	Engine Oil Pressure Voltage Below Normal or Shorted to Low Source
100	16	Engine Oil Pressure Oil pressure reading incorrect
100	18	Engine Oil Pressure Low oil pressure
105	0	Intake Manifold 1 Temperature High manifold air temperature
105	3	Intake Manifold 1 Temperature Voltage Above Normal or Shorted to High Source
105	4	Intake Manifold 1 Temperature Voltage Below Normal or Shorted to Low Source
105	16	Intake Manifold 1 Temperature High manifold air temperature
107	0	Air Filter Differential Pressure Plugged air filter condition detected
107	31	Air Filter Differential Pressure Plugged air filter condition detected
110	0	Engine Coolant Temperature High coolant temperature
110	3	Engine Coolant Temperature Voltage Above Normal or Shorted to High Source
110	4	Engine Coolant Temperature Voltage Below Normal or Shorted to Low Source
110	15	Engine Coolant Temperature High coolant temperature
110	16	Engine Coolant Temperature High coolant temperature
111	1	Coolant Level Low coolant level
158	2	Keyswitch Intermittent
158	17	Keyswitch Circuit problem
174	0	Fuel Temperature High fuel temperature
174	3	Fuel Temperature Voltage Above Normal or Shorted to High Source
174	4	Fuel Temperature Voltage Below Normal or Shorted to Low Source
174	15	Fuel Temperature High fuel temperature
174	16	Fuel Temperature High fuel temperature
174	31	Fuel Temperature Voltage out of range
189	31	Rated Engine Speed Speed Derate Condition Exists due to fault
190	0	Engine Speed Engine overspeed
190	2	Engine Speed Data Erratic, Intermittent or Incorrect
190	3	Engine Speed Voltage Above Normal or Shorted to High Source
190	4	Engine Speed Voltage Below Normal or Shorted to Low Source
190	5	Engine Speed Circuit is open
190	16	Engine Speed Engine overspeed

SPN	FMI	TEXT TRANSLATION
611	3	Injector Wiring Shorted to battery
611	4	Injector Wiring Shorted to ground
620	3	Sensor Supply Voltage 1 (+5V DC) Voltage Above Normal or Shorted to High Source
620	4	Sensor Supply Voltage 1 (+5V DC) Voltage Below Normal or Shorted to Low Source
627	1	Power Supply Low voltage to injectors
627	4	Power Supply Power interruption
629	13	Reprogram Controller ECU problem
629	19	ECU to Pump Communications Error ECU not receiving messages from Pump
632	2	Fuel Shutoff Valve Fuel Shutoff Error Detected
632	5	Fuel Shutoff Valve Fuel Shutoff Non-Functional
632	11	Fuel Shutoff Valve Fuel Shutoff Solenoid circuit is open or shorted
636	2	Engine Position Sensor Timing signal error
636	8	Engine Position Sensor Timing signal error
636	10	Engine Position Sensor Timing signal error
637	2	Timing (Crank) Sensor Timing signal error
637	7	Timing (Crank) Sensor Timing signal error
637	8	Timing (Crank) Sensor Timing signal error
637	10	Timing (Crank) Sensor Timing signal error
639	13	CAN Bus The CAN bus failure
651	5	Injector Cylinder #1 The current to the injector is less than expected
651	6	Injector Cylinder #1 The current to the injector increases too rapidly
651	7	Injector Cylinder #1 The injector fuel flow is lower than expected
652	5	Injector Cylinder #2 The current to the injector is less than expected
652	6	Injector Cylinder #2 The current to the injector increases too rapidly
652	7	Injector Cylinder #2 The injector fuel flow is lower than expected
653	5	Injector Cylinder #3 The current to the injector is less than expected
653	6	Injector Cylinder #3 The current to the injector increases too rapidly
653	7	Injector Cylinder #3 The injector fuel flow is lower than expected
654	5	Injector Cylinder #4 The current to the injector is less than expected
654	6	Injector Cylinder #4 The current to the injector increases too rapidly
654	7	Injector Cylinder #4 The injector fuel flow is lower than expected
655	5	Injector Cylinder #5 The current to the injector is less than expected
655	6	Injector Cylinder #5 The current to the injector increases too rapidly
655	7	Injector Cylinder #5 The injector fuel flow is lower than expected
656	5	Injector Cylinder #6 The current to the injector is less than expected
656	6	Injector Cylinder #6 The current to the injector increases too rapidly
656	7	Injector Cylinder #6 The injector fuel flow is lower than expected
729	3	Inlet Air Heater Driver #1 Inlet air heater stuck on
729	5	Inlet Air Heater Driver #1 Inlet air heater will not turn on
833	2	Rack Position Sensor Error
833	3	Rack Position Sensor Rack Position Voltage above normal
833	4	Rack Position Sensor Rack Position Voltage below normal
834	2	Rack Actuator Rack Error
834	3	Rack Actuator Rack Actuator Circuit voltage above normal
834	5	Rack Actuator Rack Actuator Circuit open
834	6	Rack Actuator Rack Actuator Circuit grounded
834	7	Rack Actuator Rack Position Error
970	2	Auxiliary Engine Shutdown Switch External Engine Shutdown Switch intermittent
970	11	External Engine Protection Shutdown External Engine Protection Shutdown active
970	31	Auxiliary Engine Shutdown Switch External Engine Protection Shutdown active
971	31	Engine Derate Switch External Derate input has been activated
1041	2	Start Signal Indicator Start Signal Missing
1041	3	Start Signal Indicator Start Signal Always Active

SPN	FMI	TEXT TRANSLATION
1076	0	Fuel Injection Pump Fuel Control Valve Error
1076	1	Fuel Injection Pump Fuel Control Valve Error
1076	2	Fuel Injection Pump Fuel Control Valve Error
1076	3	Fuel Injection Pump Fuel Control Valve Error
1076	5	Fuel Injection Pump Fuel Control Valve Error
1076	6	Fuel Injection Pump Fuel Control Valve Error
1076	7	Fuel Injection Pump Fuel Control Valve Error
1076	10	Fuel Injection Pump Fuel Control Valve Error
1076	13	Fuel Injection Pump Fuel Control Valve Error
1077	7	Fuel Injection Pump Controller
1077	11	Fuel Injection Pump Controller
1077	12	Fuel Injection Pump Controller
1077	19	Fuel Injection Pump Controller
1077	31	Fuel Injection Pump Controller Power derated
1078	7	Fuel Injection Pump Speed/Position Sensor Error
1078	11	Fuel Injection Pump Speed/Position Sensor Error
1078	31	Fuel Injection Pump Speed/Position Sensor VP44 Unable to Achieve Desired Timing
1079	3	Sensor Supply Voltage 1 (+5V DC) Voltage Above Normal or Shorted to High Source
1079	4	Sensor Supply Voltage 1 (+5V DC) Voltage Below Normal or Shorted to Low Source
1080	3	Sensor Supply Voltage 2 (+5V DC) Voltage Above Normal or Shorted to High Source
1080	4	Sensor Supply Voltage 2 (+5V DC) Voltage Below Normal or Shorted to Low Source
1109	31	Engine Protection System Approaching Shutdown Approaching Shutdown
1110	31	Engine Protection System Engine has been shutdown
1347	5	Fuel Pump Assembly #1 The circuit is open, shorted to ground, or overloaded
1347	7	Fuel Pump Assembly #1 Rail pressure control mismatch
1347	10	Fuel Pump Assembly #1 Low fuel flow
1348	5	Fuel Pump Assembly #2 The circuit is open, shorted to ground, or overloaded
1348	10	Fuel Pump Assembly #2 Low fuel flow
1485	2	ECU Main Relay Pump power relay fault
1569	31	Engine Protection Torque Derate Fuel derate limit condition exists
2000	6	Fuel Injection Pump Fuel Control Valve Error
2000	13	Security Violation The proper controller has not been installed

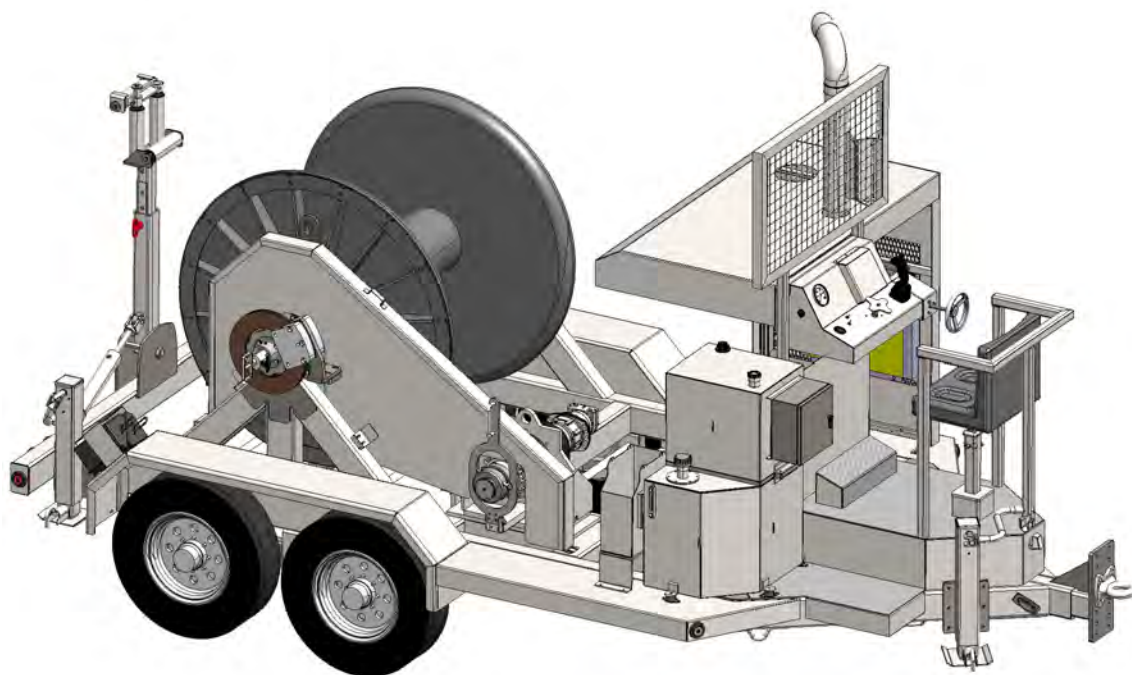
## 2G-ECO Governor Controller DTC Table

Ver. 3.8.1 2007/5/18

Remark	DTC			Description	J1939 Lamp Status			
	SPN (Hex)	SPN (DEC)	FMI		MIL	RSL	AWL	PL
	4BA	1210	4	Engine Fuel Rack Position Sensor : Shorted to low source			X	
			3	Engine Fuel Rack Position Sensor : Shorted to high source		X (Engine drive)	X (E-ECU start)	
	5B	91	4	Accelerator Pedal Position Sensor "A" : Shorted to low source			X	
			3	Accelerator Pedal Position Sensor "A" : Shorted to high source			X	
			2	Accelerator Pedal Position Sensor "A" : Intermittent fault				
			1	Accelerator Pedal Position Sensor "A" : Below normal operational range (SAE J1843)			X	
			0	Accelerator Pedal Position Sensor "A" : Above normal operational range (SAE J1843)			X	
			15	Accelerator Pedal Position Sensor "A" : Not available (SAE J1843)			X	
	1D	29	4	Accelerator Pedal Position Sensor "B" : Shorted to low source			X	
			3	Accelerator Pedal Position Sensor "B" : Shorted to high source			X	
			2	Accelerator Pedal Position Sensor "B" : Intermittent fault				
			1	Accelerator Pedal Position Sensor "B" : Below normal operational range (SAE J1843)			X	
			0	Accelerator Pedal Position Sensor "B" : Above normal operational range (SAE J1843)			X	
			8	Accelerator Pedal Position Sensor "B" : Communication fault			X	
			15	Accelerator Pedal Position Sensor "B" : Not available (SAE J1843)			X	
	6C	108	4	Barometric Pressure Sensor : Shorted to low source	X			
			3	Barometric Pressure Sensor : Shorted to high source	X			
			2	Barometric Pressure Sensor : Intermittent fault				
	470	1136	4	E-ECU Internal Temperature Sensor : Shorted to low source			X	
			3	E-ECU Internal Temperature Sensor : Shorted to high source			X	
			2	E-ECU Internal Temperature Sensor : Intermittent fault				
			0	E-ECU Internal Temperature : Too High				X
	6E	110	4	Engine Coolant Temperature Sensor : Shorted to low source			X	
			3	Engine Coolant Temperature Sensor : Shorted to high source			X	
			2	Engine Coolant Temperature Sensor : Intermittent fault				
			0	Engine Coolant Temperature : Too High				X
	437	1079	4	Sensor 5V : Shorted to low source			X	
			3	Sensor 5V : Shorted to high source (FUEL INJ PUMP SPEED SENSOR)				X
			2	Sensor 5V : Intermittent fault				
	9E	158	1	System Voltage : Too Low				X
			0	System Voltage : Too High				X
	436	1078	4	Engine Fuel Injection Pump Speed Sensor : Shorted to low source		X (Both)	X (Ether)	
*	7F8A2	522402	4	Auxiliary Speed Sensor : Shorted to low source				
			4	Engine Fuel Rack Actuator Relay : Circuit fault A		X		
			3	Engine Fuel Rack Actuator Relay : Circuit fault B		X		
			7	(Reserved)				
			2	Engine Fuel Rack Actuator Relay : Intermittent fault				
*	7F803	522243	4	Air Heater Relay : Circuit fault A	X			
			3	Air Heater Relay : Circuit fault B	X			
			2	Air Heater Relay : Intermittent fault				
*	7F802	522242	4	Cold Start Device : Circuit fault A	X			
			3	Cold Start Device : Circuit fault B	X			
			2	Cold Start Device : Intermittent fault				
*	7F80B	522251	4	EGR Stepping Motor "A" : Circuit fault A	X			
			3	EGR Stepping Motor "A" : Circuit fault B	X			
*	7F80C	522252	4	EGR Stepping Motor "B" : Circuit fault A	X			
			3	EGR Stepping Motor "B" : Circuit fault B	X			
*	7F80D	522253	4	EGR Stepping Motor "C" : Circuit fault A	X			
			3	EGR Stepping Motor "C" : Circuit fault B	X			
*	7F80E	522254	4	EGR Stepping Motor "D" : Circuit fault A	X			
			3	EGR Stepping Motor "D" : Circuit fault B	X			
	64	100	4	Oil Pressure Switch : Shorted to low source			X	
			1	Oil Pressure : Too Low				X
	A7	167	4	Battery Charge Switch : Shorted to low source			X	
			1	Charge warning				X
*	7F84A	522314	0	Engine Coolant Temperature : Abnormal temperature				X
*	7F853	522323	0	Air Cleaner : Mechanical Malfunction				X
*	7F859	522329	0	Oily Water Separator : Mechanical Malfunction				X
	BE	190	0	Engine speed : Over speed Condition		X		
			4	Engine Fuel Rack Actuator : Shorted to low source		X		
			3	Engine Fuel Rack Actuator : Shorted to high source		X		
			7	Engine Fuel Rack Actuator : Mechanical Malfunction		X		
			2	Engine : Malfunction		X		
	27F	639	12	High Speed CAN Communication : Communication fault			X	
			2	E-ECU internal fault : EEPROM Check Sum Error (Data Set 2)		X		
	276	630	12	E-ECU internal fault : EEPROM ReadWrite fault			X	
			12	E-ECU internal fault : FlashROM Check Sum Error (Main Software)		X		
			2	E-ECU internal fault : FlashROM Check Sum Error (Data Set 1)		X		
			2	E-ECU internal fault : FlashROM Check Sum Error (Data Set 2)		X		
	5CD	1485	4	E-ECU Main Relay : Shorted to low source			X	
			12	E-ECU internal fault : Sub-CPU Error A			X	
*	7F9E7	522727	12	E-ECU internal fault : Sub-CPU Error B			X	
			12	E-ECU internal fault : Sub-CPU Error C			X	
*	7F9E8	522728	12	E-ECU internal fault : Engine Map Data Version Error		X		
*	7F9EA	522730	12	Immobilizer : CAN Communication fault			X	
			8	Immobilizer : Pulse Communication fault			X	
	4B2	1202	2	Immobilizer : System fault			X	

Remark : Yanmar original DTC

## **Parts Manual**



The information, specifications, and illustrations in this manual are on the basis of information available at the time it was written. The specifications, torque values, pressures of operation, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service of the given product.

For the complete and most current information, contact:

Hogg & Davis, Inc  
P.O. Box 405 / 3800 Eagle Loop  
Odell, OR 97044-0405  
541-354-1001  
541-354-1080 Fax

For most recent manual  
version please visit:  
[www.hoggdavis.com](http://www.hoggdavis.com)



*"Rugged Dependability."*

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**ver. 1.0**

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<b>Reel Assembly</b>	<b>4</b>
<b>HD Brake Assembly</b>	<b>5</b>
<b>HD Brake Shims</b>	<b>6</b>
<b>Levelwind Assembly</b>	<b>7</b>
<b>Planetary Assembly</b>	<b>8</b>
<b>Hydraulic Pumps</b>	<b>9</b>
<b>Operator Controls</b>	<b>10</b>
<b>HD Brake Cylinder</b>	<b>11</b>
<b>Hyd/Fuel Tanks</b>	<b>12</b>
<b>Operator Seat</b>	<b>13</b>
<b>Jackstands</b>	<b>14</b>
<b>Hydraulic Outriggers</b>	<b>15</b>
<b>LED Trailer Lights</b>	<b>16</b>
<b>Standard Trailer Lights</b>	<b>17</b>
<b>Electrical Hood</b>	<b>18</b>
<b>Wiring Schematics</b>	<b>19-20</b>
<b>Hydraulic Schematic</b>	<b>21</b>
<b>Wheel Torque Requirements</b>	<b>22-23</b>
<b>Brake Bleeding Inst.</b>	<b>24</b>
<b>Decal Locations</b>	<b>25</b>

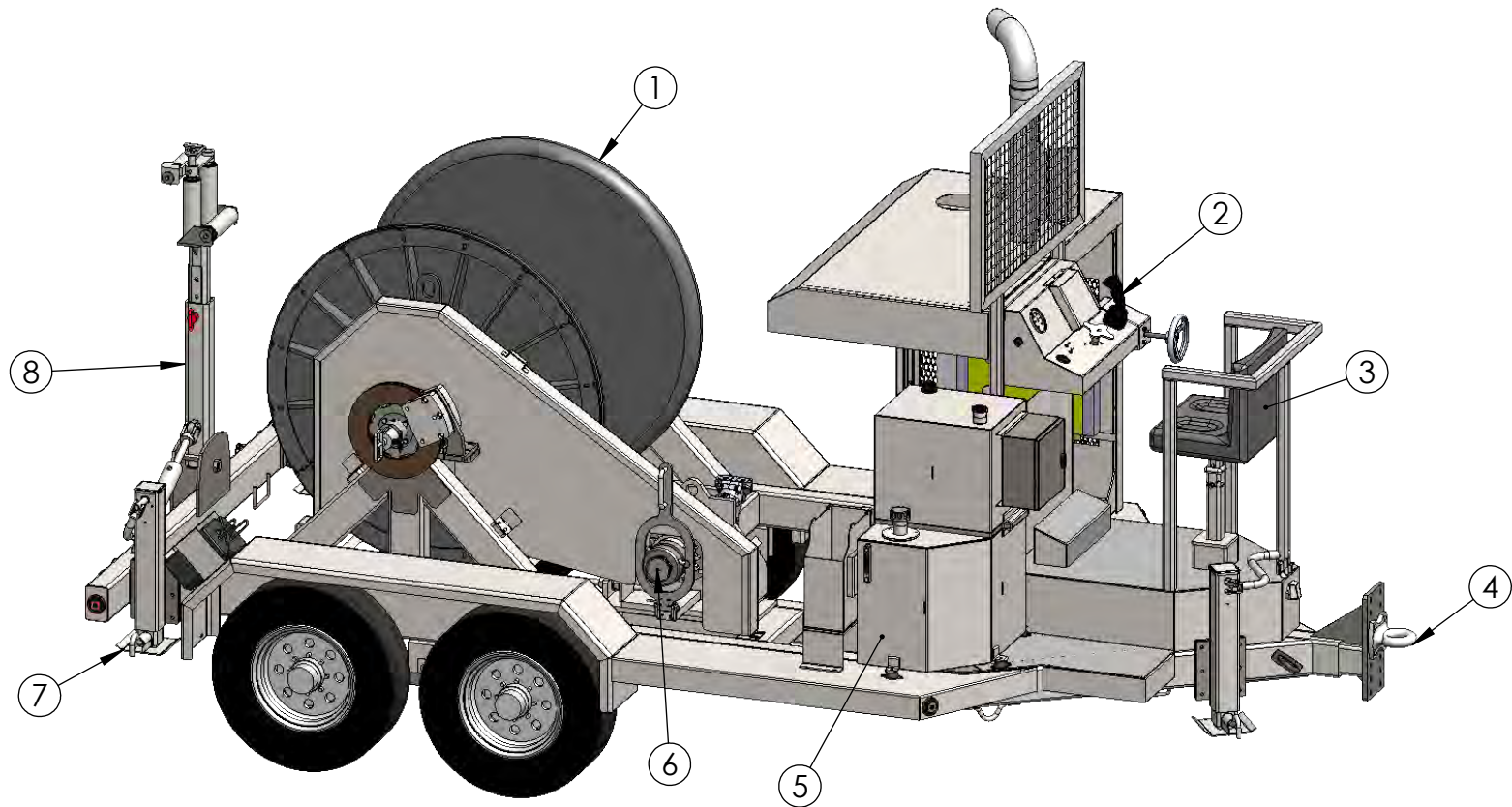
**If items look different from the parts breakdown please call for assistance. (541)354-1001**



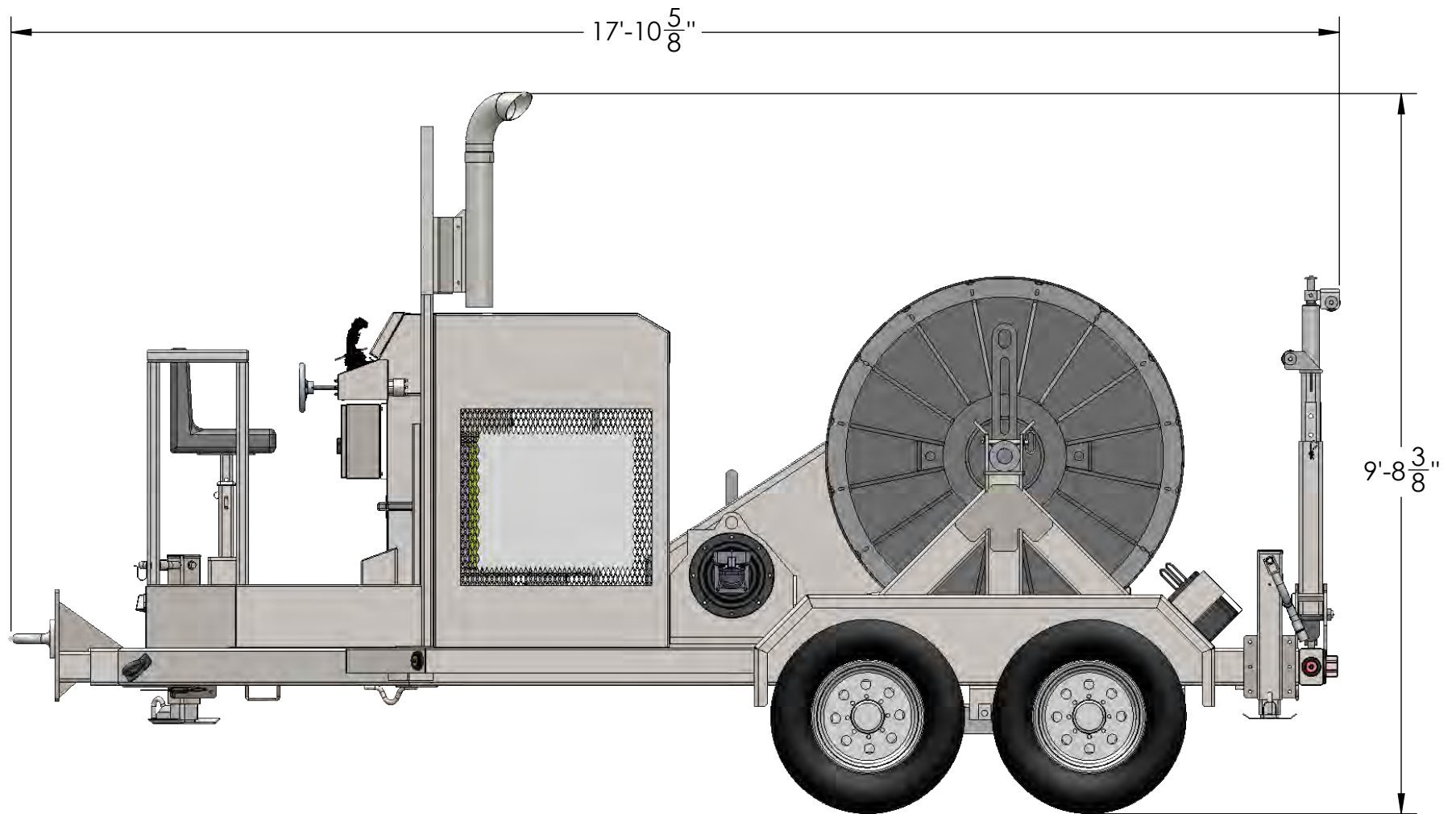
*"Rugged Dependability."*

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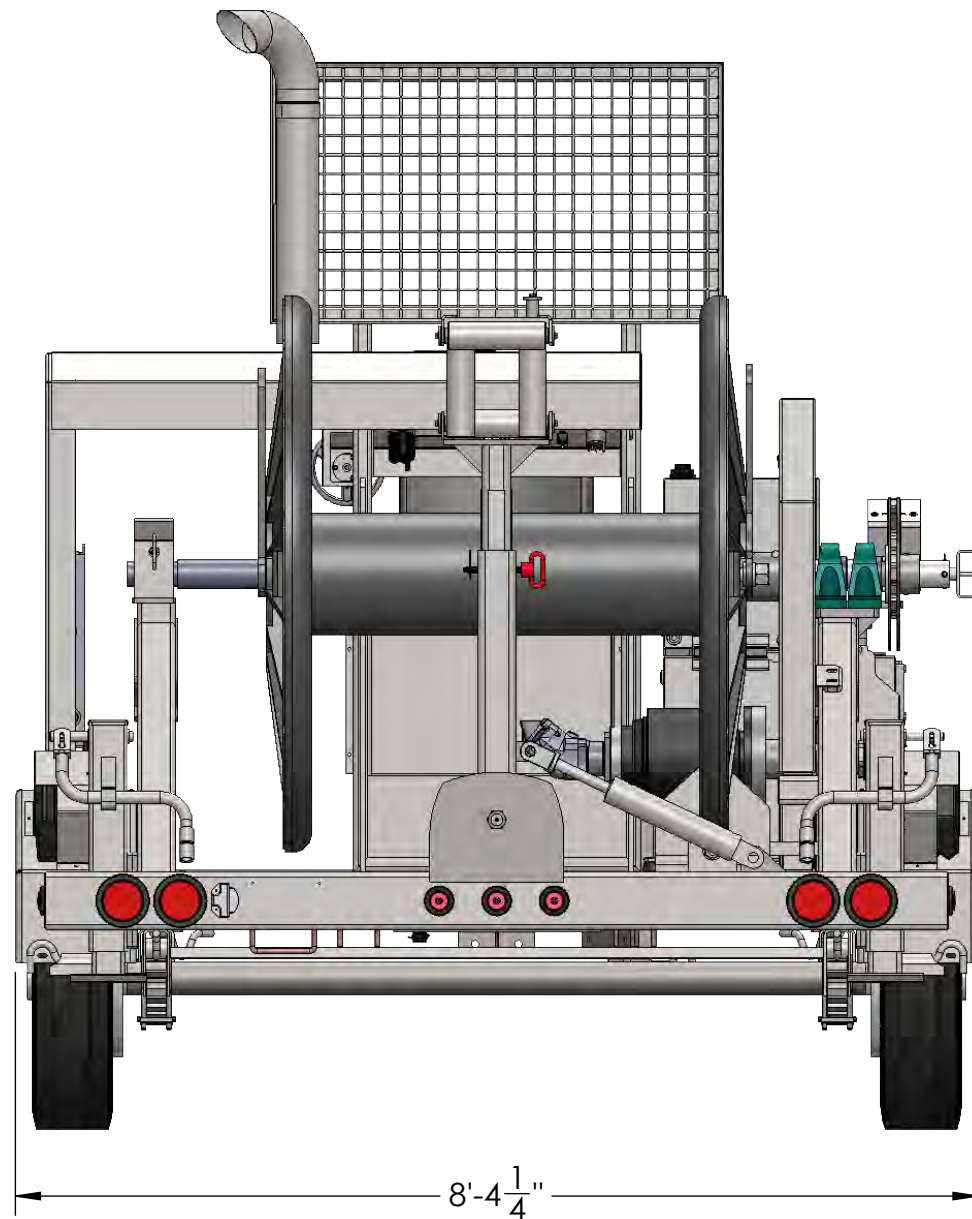




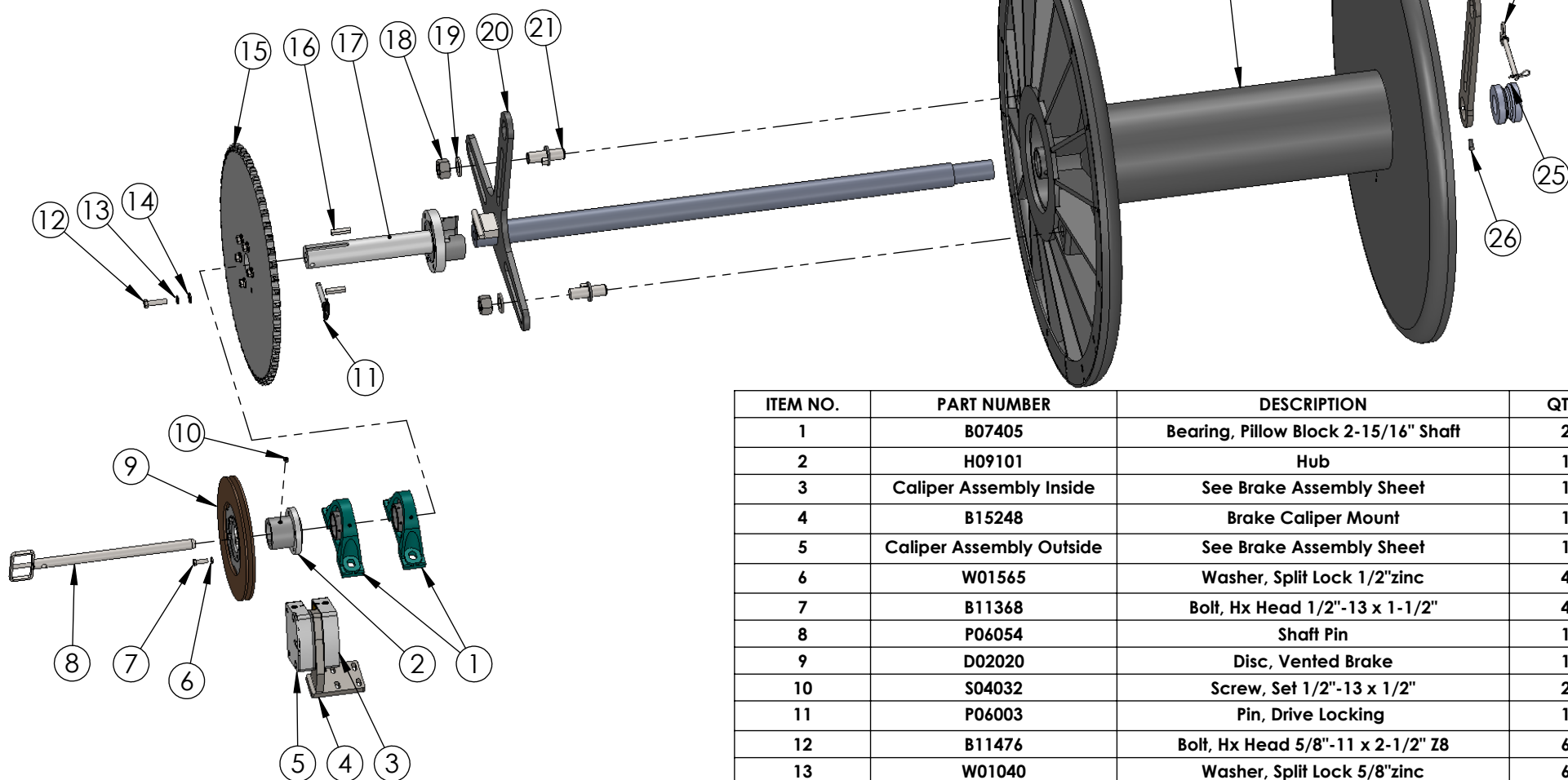
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	ODP60 XS Reel	See Reel Assy	1
2	ODP60 XS Controls	See Controls	1
3	ODP60 XS Seat	See Seat	1
4	E04017	Eye, Pintle	1
5	ODP60 XS Tanks	See Tank Assy	1
6	ODP60 XS Drive	Planetary Assembly	1
7	ODP60 XS Jacks	See Jackstands	1
8	ODP60 XS Levelwind	See Levelwind	1



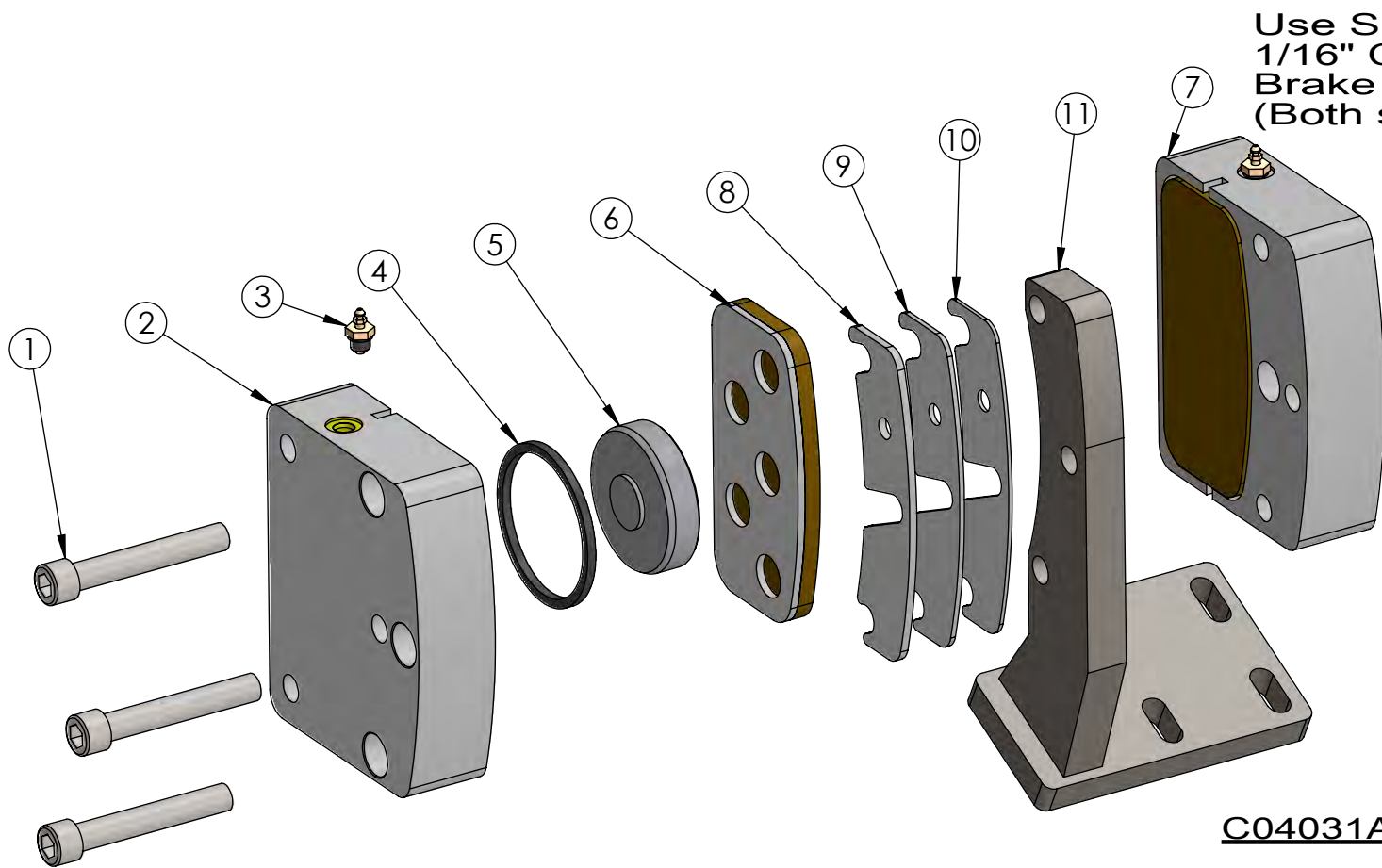
**ODP60 XS**



**ODP60 XS**



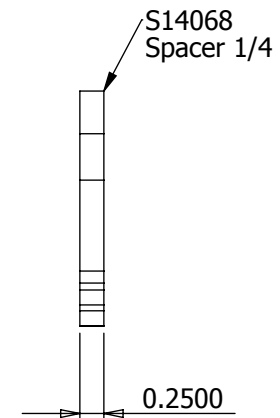
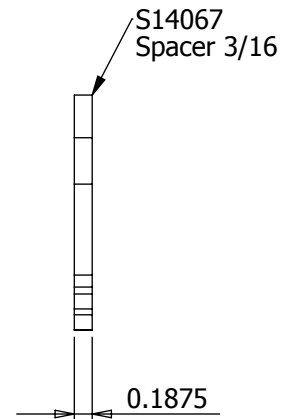
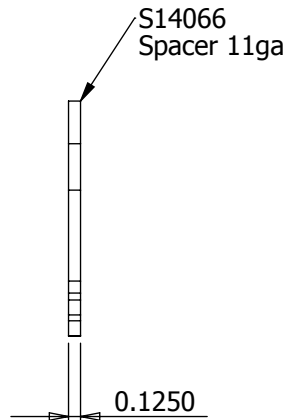
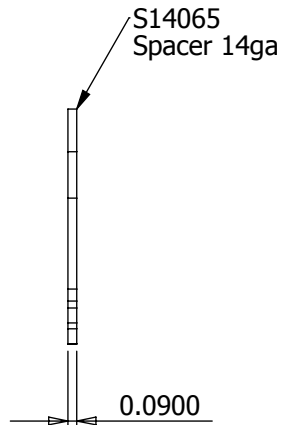
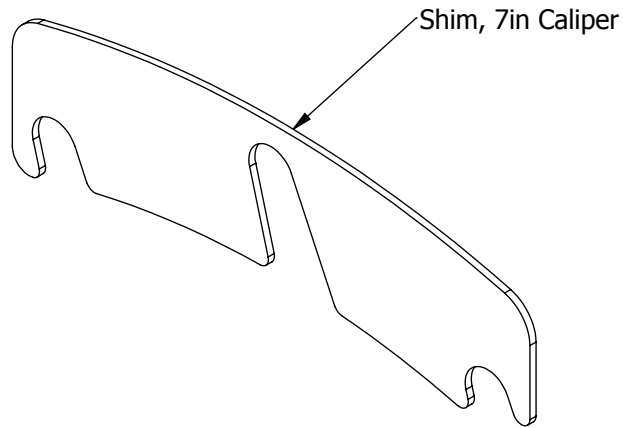
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	B07405	Bearing, Pillow Block 2-15/16" Shaft	2
2	H09101	Hub	1
3	Caliper Assembly Inside	See Brake Assembly Sheet	1
4	B15248	Brake Caliper Mount	1
5	Caliper Assembly Outside	See Brake Assembly Sheet	1
6	W01565	Washer, Split Lock 1/2"zinc	4
7	B11368	Bolt, Hx Head 1/2"-13 x 1-1/2"	4
8	P06054	Shaft Pin	1
9	D02020	Disc, Vented Brake	1
10	S04032	Screw, Set 1/2"-13 x 1/2"	2
11	P06003	Pin, Drive Locking	1
12	B11476	Bolt, Hx Head 5/8"-11 x 2-1/2" Z8	6
13	W01040	Washer, Split Lock 5/8"zinc	6
14	W01053	Washer, Flat SAE 5/8"zinc	6
15	S29020	Sprocket, Drive	1
16	K01010	Key, 1/2 x 1/2 x 2-1/2	3
17	S43041	Bearing Shaft w/ Seat	1
18	N04380	Nut, Hex 1-3/8 -6	2
19	W01595	Washer, Reel Pin	2
20	S43033	Shaft, Reel 3" dia.	1
21	P06062	Reel Pin, 1-3/8"	2
22	R07014	Reel, 58" ODP60	1
23	E04003	Lifting Eye	1
24	P06056	Pin, 5/8 x 6"	1
25	B07077	Shaft, Bearing- Nylatron	1
26	S04475	Screw, Set Sq Head 1/2" x 1"	1

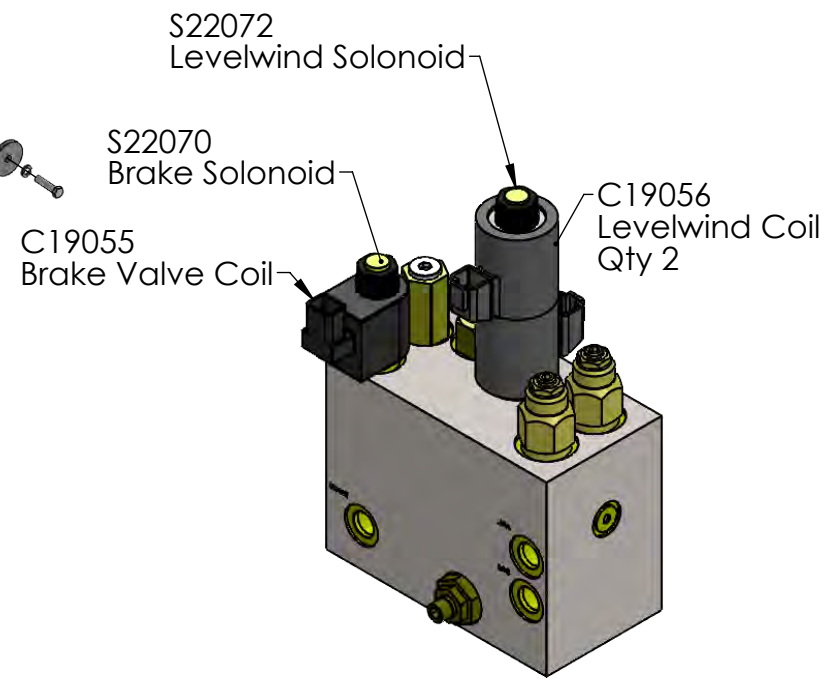
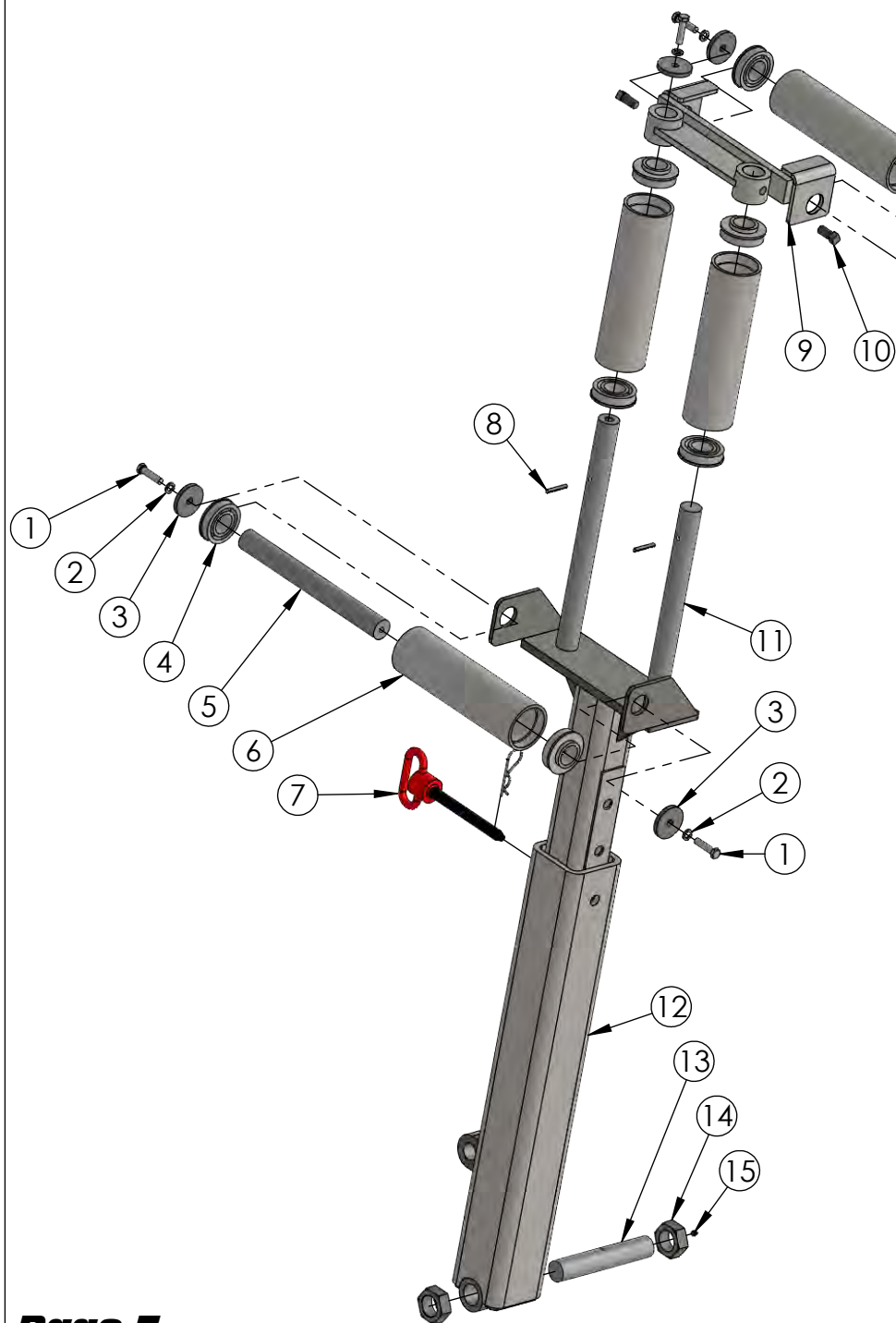


Use Spacers to get Approx.  
1/16" Clearance Between  
Brake Pads and Brake Rotor  
(Both sides)

C04031A-- Complete Assembly  
Contains Items 1-7

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	S04141	Screw, SHCS 5/8"-18 x 4" Z	3
2	C04037	Caliper Half, Countersink	1
3	B18005	Bleeder, -4 o-ring	2
4	O01225	O-Ring, Piston	2
5	P08004	Piston	2
6	P01012	Pad, 7" HD brake caliper	2
7	C04038	Caliper Half, Threaded	1
8	S14067	Spacer 3/16	1
9	S14066	Spacer 11ga	1
10	S14065	Spacer 14ga	1
11	B15247	Bracket, Caliper Mount 7"HD	1

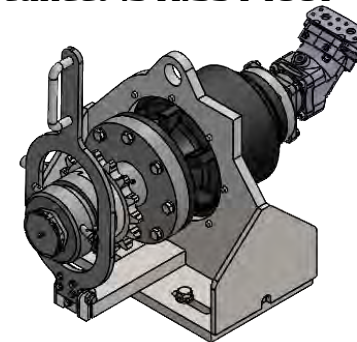
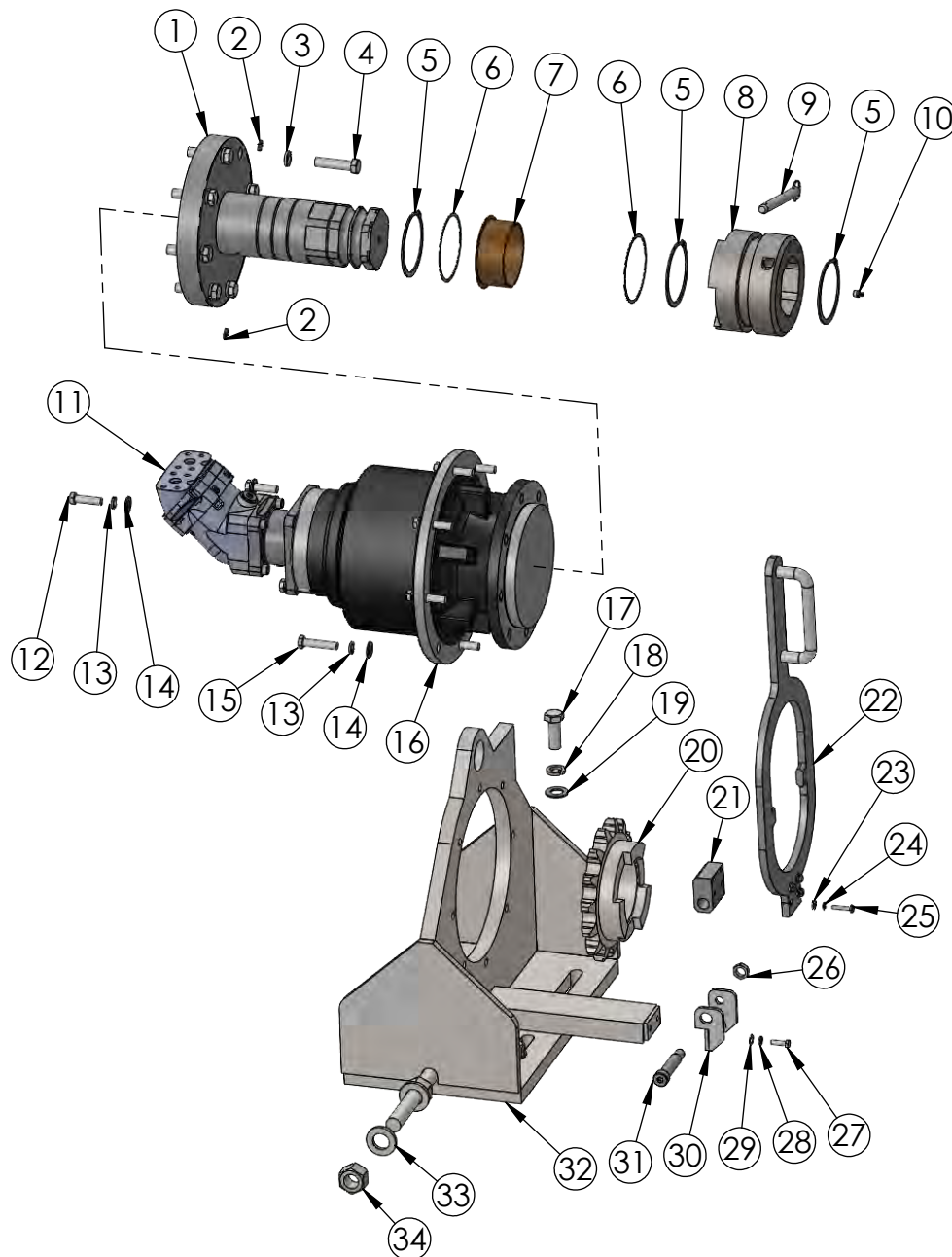




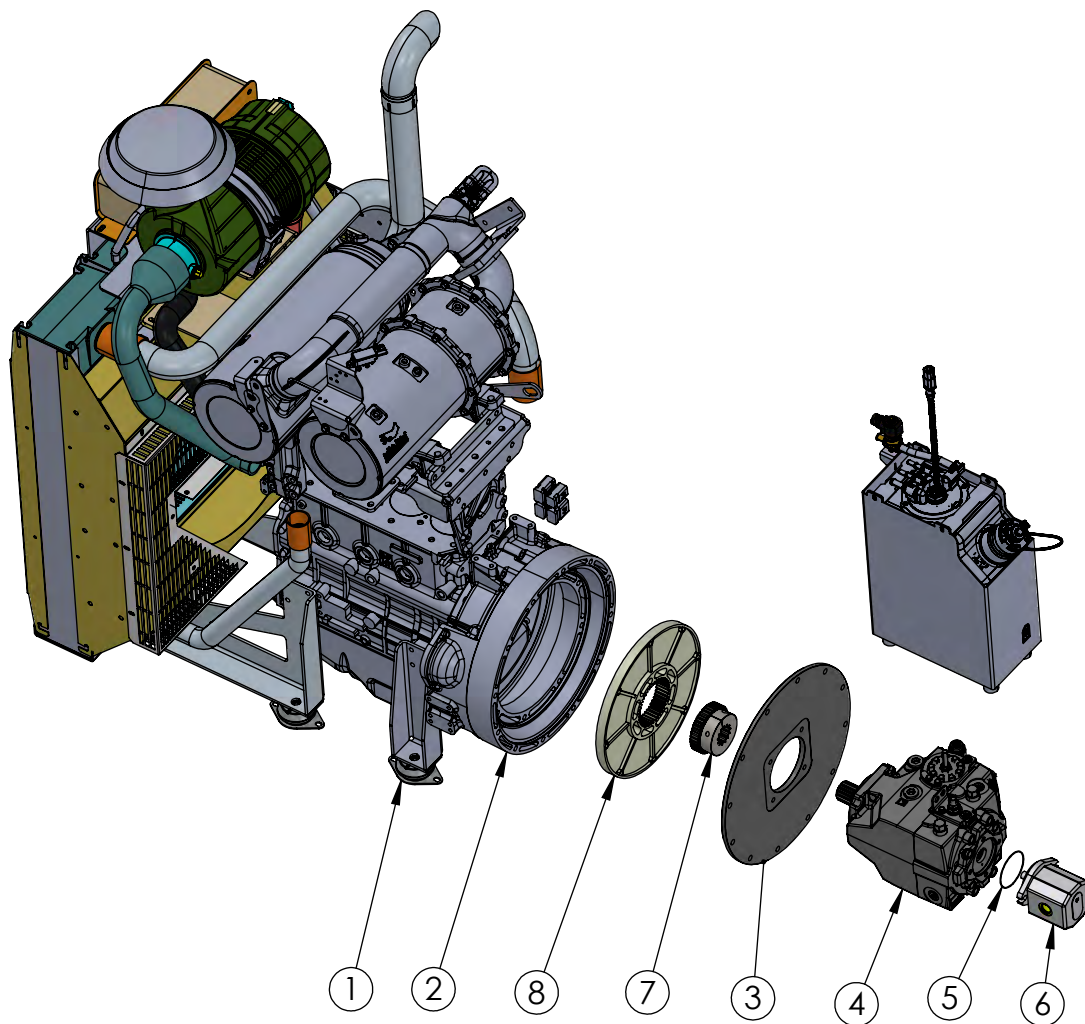
**M04090  
Levelwind Manifold**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	B11344	Bolt, Hx Head 3/8"-16 x 1-1/2"	5
2	W01545	Washer, Split Lock 3/8"zinc	5
3	C06041	Cap, End	5
4	B07110	Bearing, Roller	8
5	S43129	Shaft, Roller	2
6	R20044	Roller, Horizontal	4
7	P06027	Pin, Height Adjust	1
8	P06185	Pin, Roll 1/4" x 1-1/2"	2
9	B15897	Bracket, Swing-away Fairlead	1
10	S04475	Screw, Set Sq Head 1/2" x 1"	2
11	A08089	Arm, Levelwind	1
12	S17000	Sleeve, Levelwind	1
13	P06156	Pin, Levelwind Pivot	1
14	N04097	Nut, Hx Jam 1-1/4"-12	2
15	F05071	Fitting, Grease Zerk 1/4"-28 tap	1

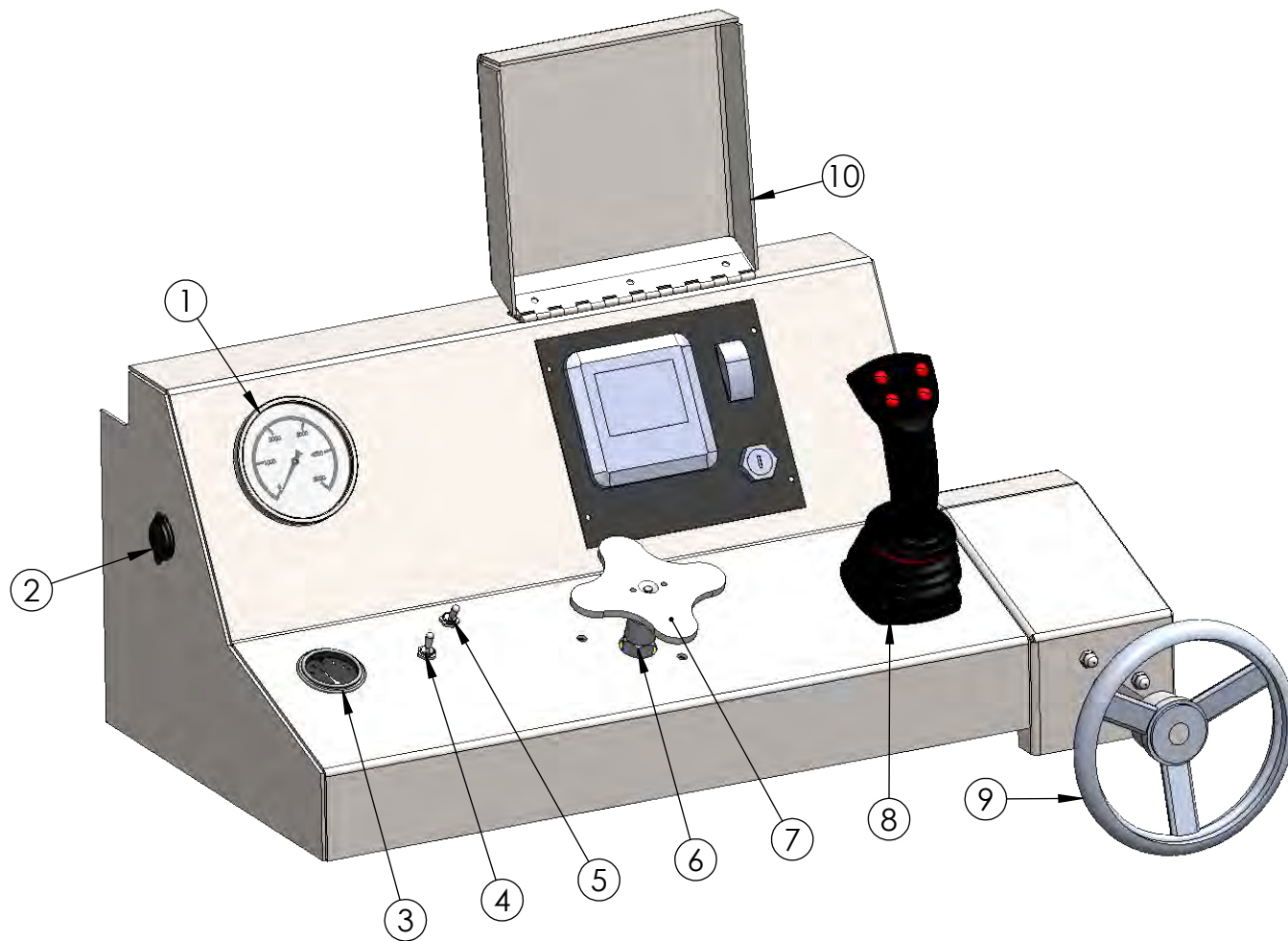
**If items look different from the parts breakdown please call for assistance. (541)354-1001**



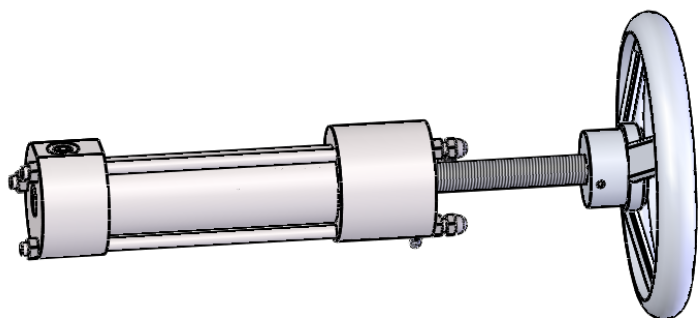
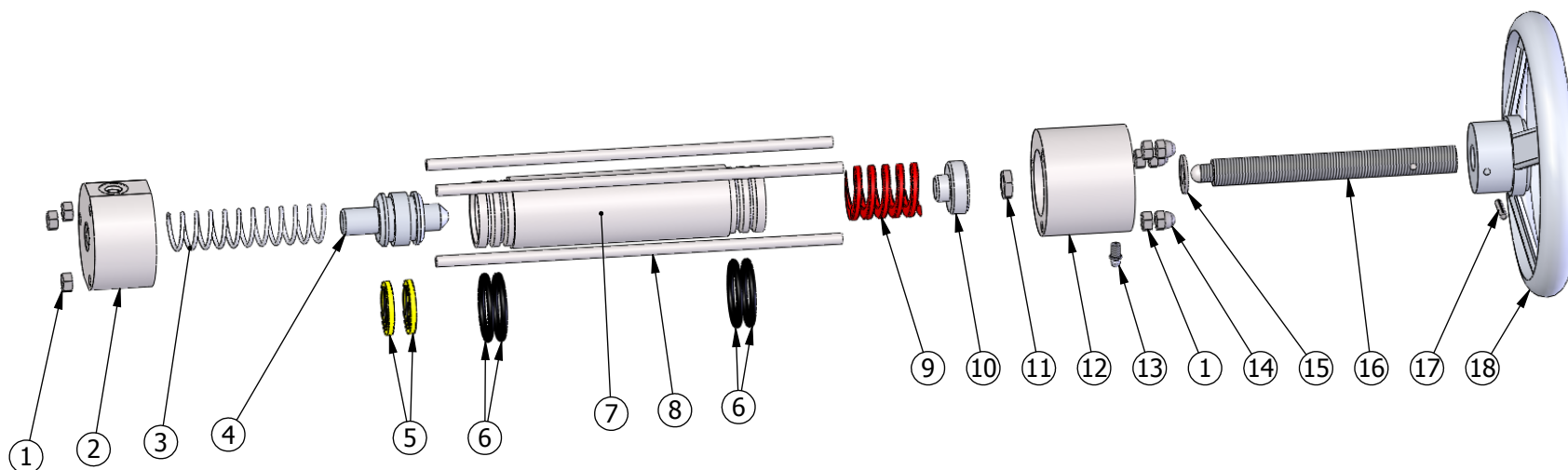
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	S43024	Shaft, Hex Drive	1
2	F05630	Zerk, Grease 1/4"-28	2
3	W01040	Washer, Split Lock 5/8"zinc	8
4	B11476	Bolt, Hx Head 5/8"-11 x 2-1/2" Z8	8
5	R18014	Ring, External Snap	3
6	W01014	Washer, Thrust	2
7	B21023	Bushing, Bronze,4.75" X 4" X 1.875"	1
8	H09022	Hub, Engagement	1
9	P06049	Pin, 5/8" X 5-1/2" w/ Lanyard	1
10	F05629	Zerk, Grease 1/8"NPT	1
11	M08047	Motor, Hydraulic	1
12	B11445	Bolt, Hx Head 1/2"-13 x 1-3/4" Z8	4
13	W01565	Washer, Split Lock 1/2"zinc	12
14	W01005	Washer, Flat SAE 1/2"zinc	12
15	B11451	Bolt, Hx Head 1/2"-13 x 2-1/4" Z8	8
16	G12013	Auburn Planetary	1
17	B11448	Bolt, Hx Head 3/4"-16 x 2" Z8	4
18	W01585	Washer, Split Lock 3/4"zinc	4
19	W01285	Washer, Flat SAE 3/4"zinc	4
20	S29068	140B15	1
21	B15114	2-1/2" SQ	1
22	Y01062	Yoke, Hex Drive	1
23	W01205	Washer, Flat SAE 1/4"zinc	4
24	W01525	Washer, Split Lock 1/4"zinc	4
25	B11325	Bolt, Hx Head 1/4"-20 x 1-1/4"	4
26	N04474	Nut, Hx Jam 5/8"-11	1
27	B11020	Bolt, Hx Head 5/16"-18 x 1"	2
28	W01048	Washer, Split Lock 5/16"zinc	2
29	W01235	Washer, Flat SAE 5/16"zinc	2
30	B15084	Yoke Pivot	1
31	B11030	Bolt, Shoulder 3/4" x 2-3/4"	1
32	M09049	Mount, Planetary	1
33	W01598	Washer, 1"x 1/4 thick	2
34	N04267	Nut, 1-8 Z	2



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	I04011	Spring Isolator 176#	4
2	E02038	Engine, 118hp Yanmar	1
3	P09098	SAE #3 to SAE C 4 bolt	1
4	P20072	Pump, H1 89cc	1
5	O01111	O-ring Small Gear Pump	1
6	P20103	Pump, 10gpm	1
7	C28046	Coupler, Flywheel M-65	1
8	F07027	Flywheel Plate, SAE 11-1/2	1

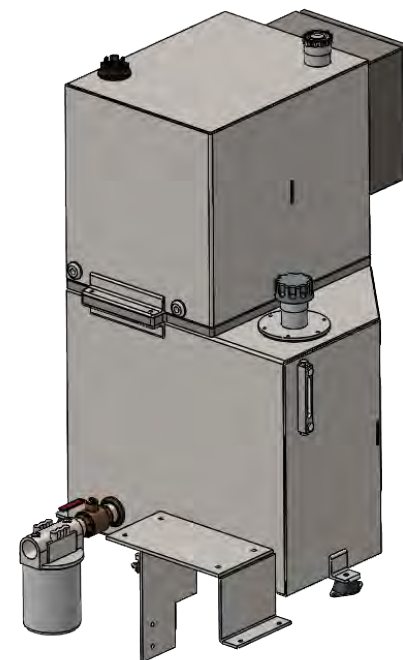
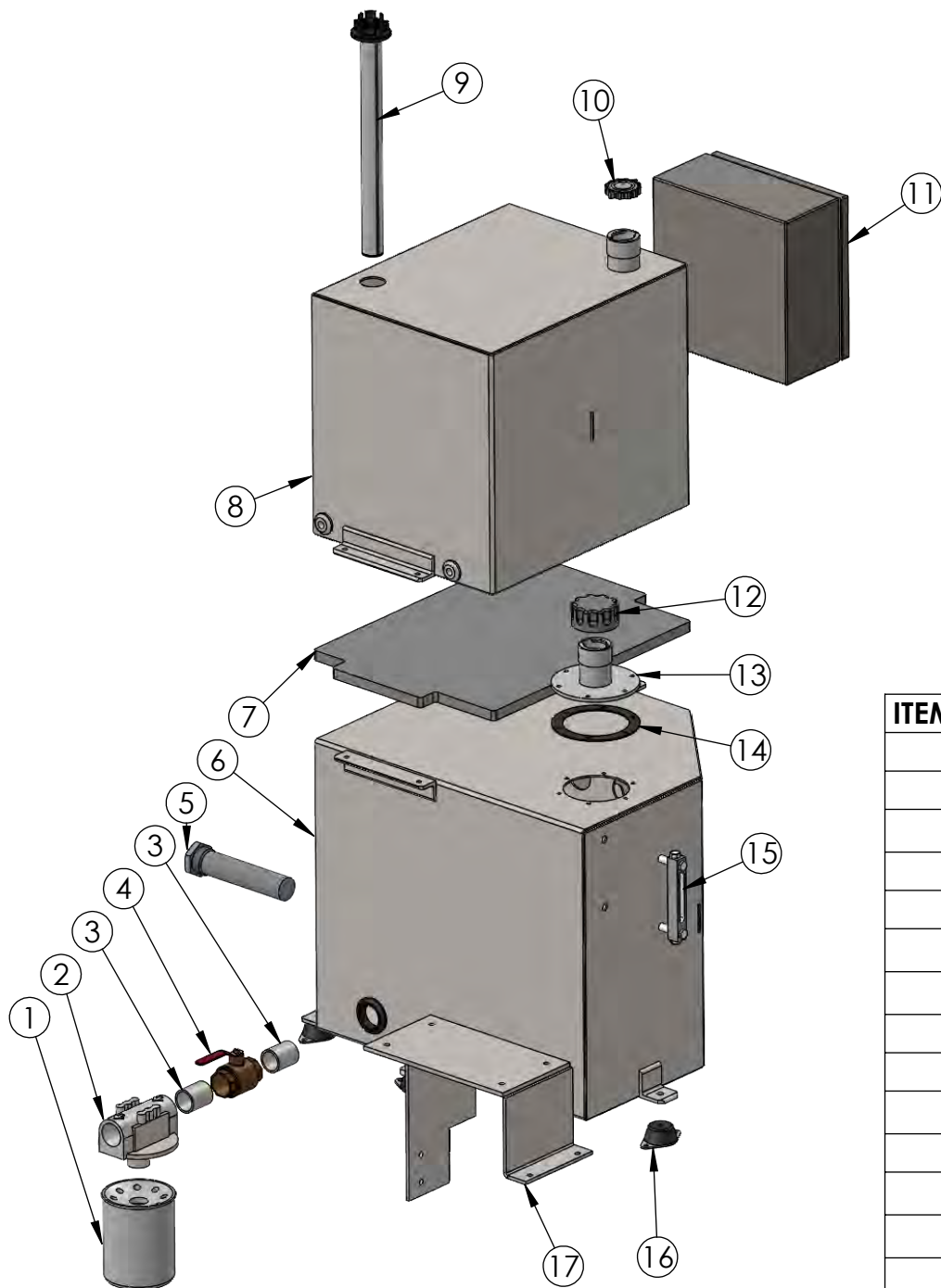


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	G02076	Gauge, 600PSI	1
2	R12005	12v Socket	1
3	G02005	Gauge, Fuel Level	1
4	S40100	Switch, SP/DT Momentary	1
5	S40035	Switch, SP/ST Toggle	1
6	M04061	Manifold Tension Control	1
7	H02063	Handle CP210 relief	1
8	C34102	Joystick JS1	1
9	C32004	Brake Cylinder	1
10	C29062	Cover, Display Panel	1

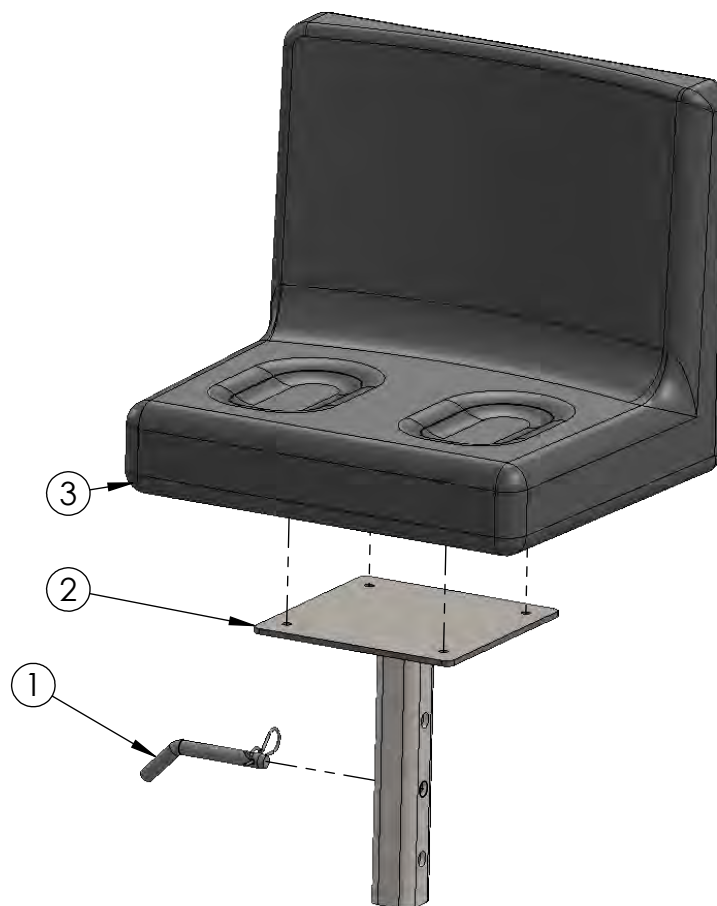


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	N04107	Nut Hex 5/16"-18	6
2	C06009	Bar round 3" 1018	1
3	S28022	Return Spring	1
4	P08017	Piston, Aluminum two groove	1
5	O01061	Seal	2
6	O01060	O-Ring	4
7	H08003	Cylinder Tube	1
8	R19007	Bar round 5/16" 1018	3
9	S28021	Spring	1
10	P08016	2" Aluminum RB	1
11	N04039	Nut Hex Jam 1/2-20	1
12	C06012	Bar round 3" 1018	1
13	F05630	Fitting, 1/4"-28 Zerk	1
14	N04103	Nut Hex 5/16"-18 Acorn	3
15	W01005	Washer, Flat SAE 1/2"	1
16	S04006-001	Bar 3/4"-8 acme thread	1
17	P06186	Pin, Roll 3/16 "x 1"	1
18	H02060	Handle, 8" Dia.	1

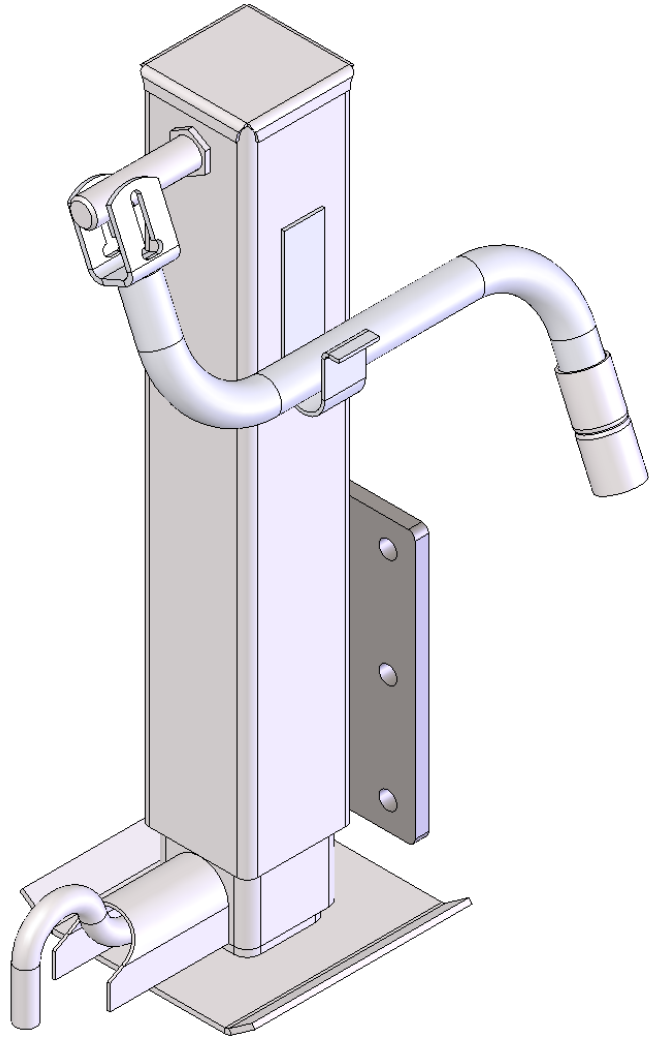
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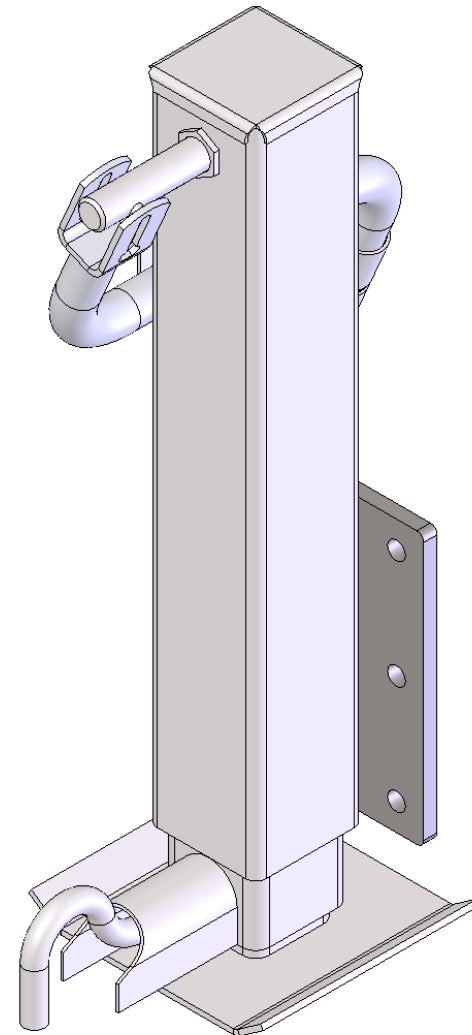
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	F04020	Filter 10 micron	1
2	F04021	Filter Head	1
3	N02005	1-1/4" Closed Nipple	2
4	V02001	Valve, Ball 1-1/4" NPT	1
5	F06070	Filter, suction mesh	1
6	T01013	Tank, Hydraulic	1
7	S24121	Spacer, Fuel Tank ODP60 XS	1
8	T01007	Tank, Fuel	1
9	S46008	Sender, Fuel Level	1
10	C06205	Cap, Fuel	1
11	B13106	Box, Electrical	1
12	C06155A	Cap, Hydraulic	1
13	N07002	Neck, Hydraulic fill	1
14	G01165	Gasket, Neck Fill	1
15	G02046	Gauge, Hyd oil level	1
16	I04003	Insulator, Small	5
17	B15180	Bracket, Def Tank	1



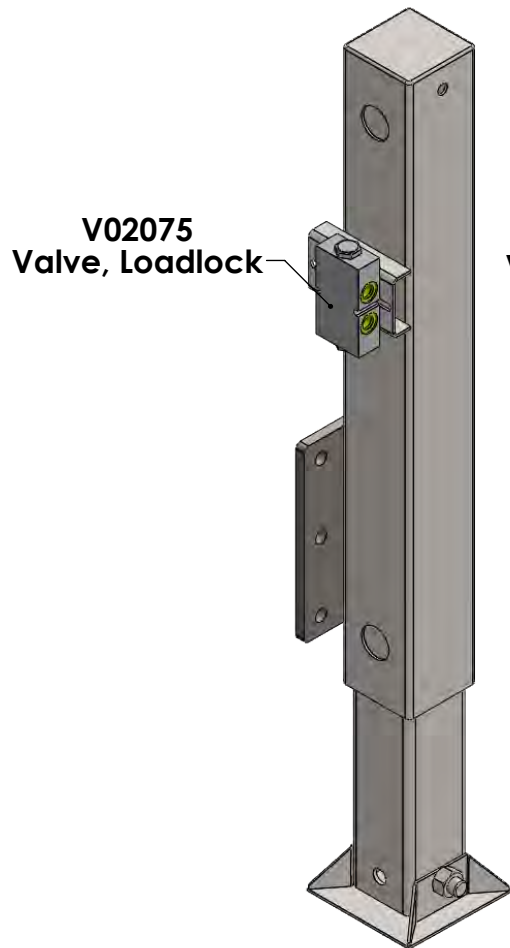
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	P06999	Pin, Bent Hitch 5/8 x 3"	1
2	P14051	Post, Seat Mount	1
3	S03040	Seat, Operator JD	1



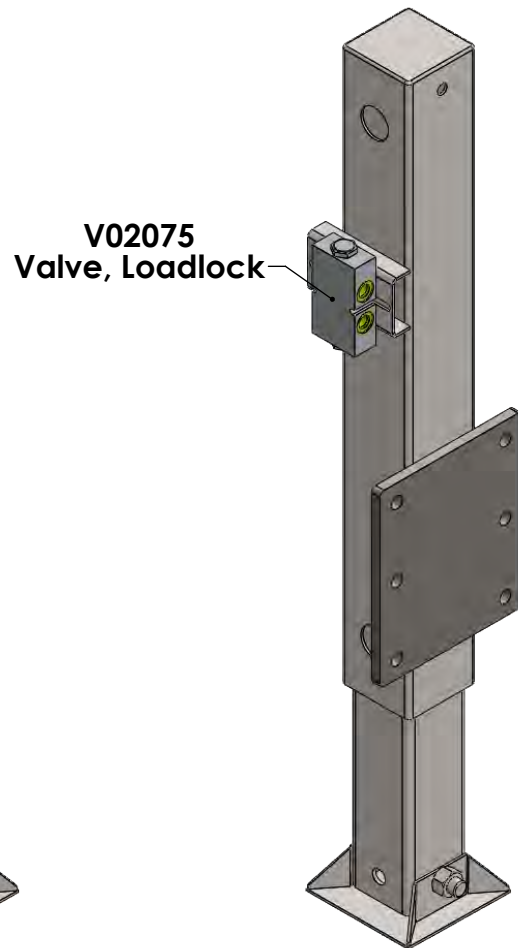
**J04041**  
**Rear Curbside Jackstand**



**J04044**  
**Rear Streetside/Front Jackstand**



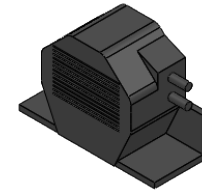
**J04033**  
Tongue & Streetside Rear



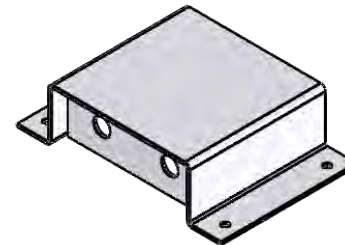
**J04031**  
Curbside Rear



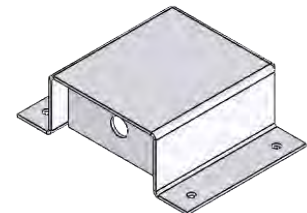
**S40100**  
Switch, SP/DT Momentary



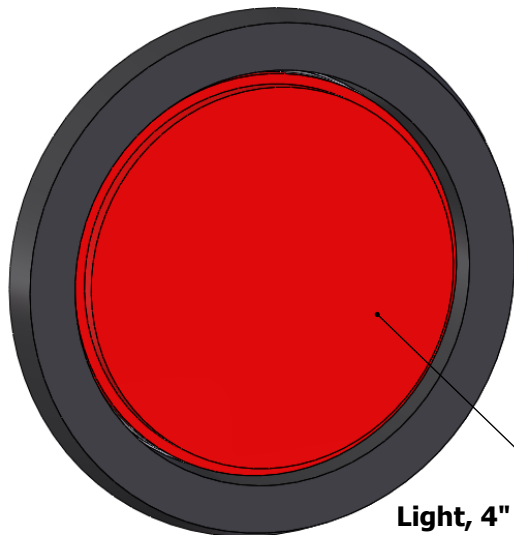
**A03005**  
Alarm, motion



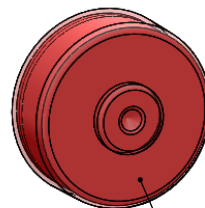
**B15907-002**  
Bracket, Rear Switch



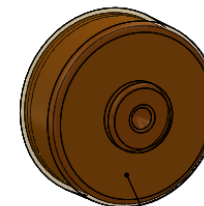
**B15908-002**  
Bracket, Front Switch  
(Optional)



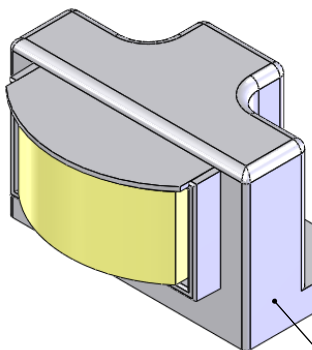
**L04032**  
**Light, 4" Tail/Stop/Turn Kit LED**



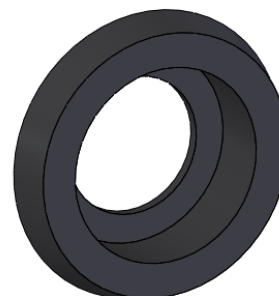
**L04310**  
**Light Red 2" LED**



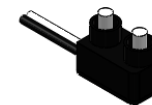
**L04311**  
**Light Amber 2" LED**



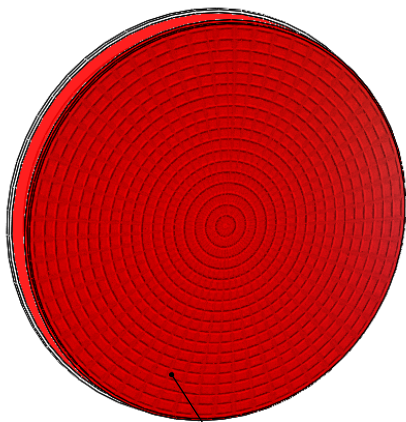
**L04055**  
**Light, License plate**



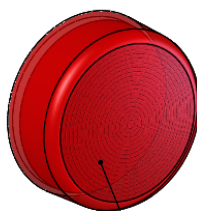
**G08005**  
**Grommet 2" Light**



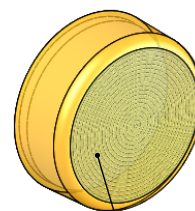
**P05025**  
**Pigtail 2 wire**



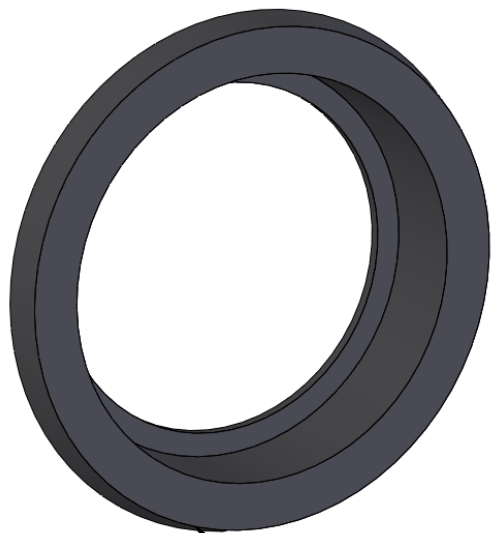
**L04030**  
**Light, 4" Tail Stop Turn**



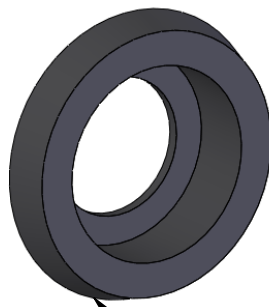
**L04070**  
**Light, 2" Red**



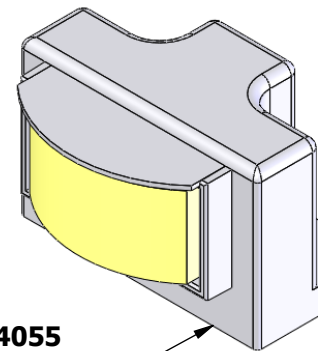
**L04035**  
**Light, 2" Amber**



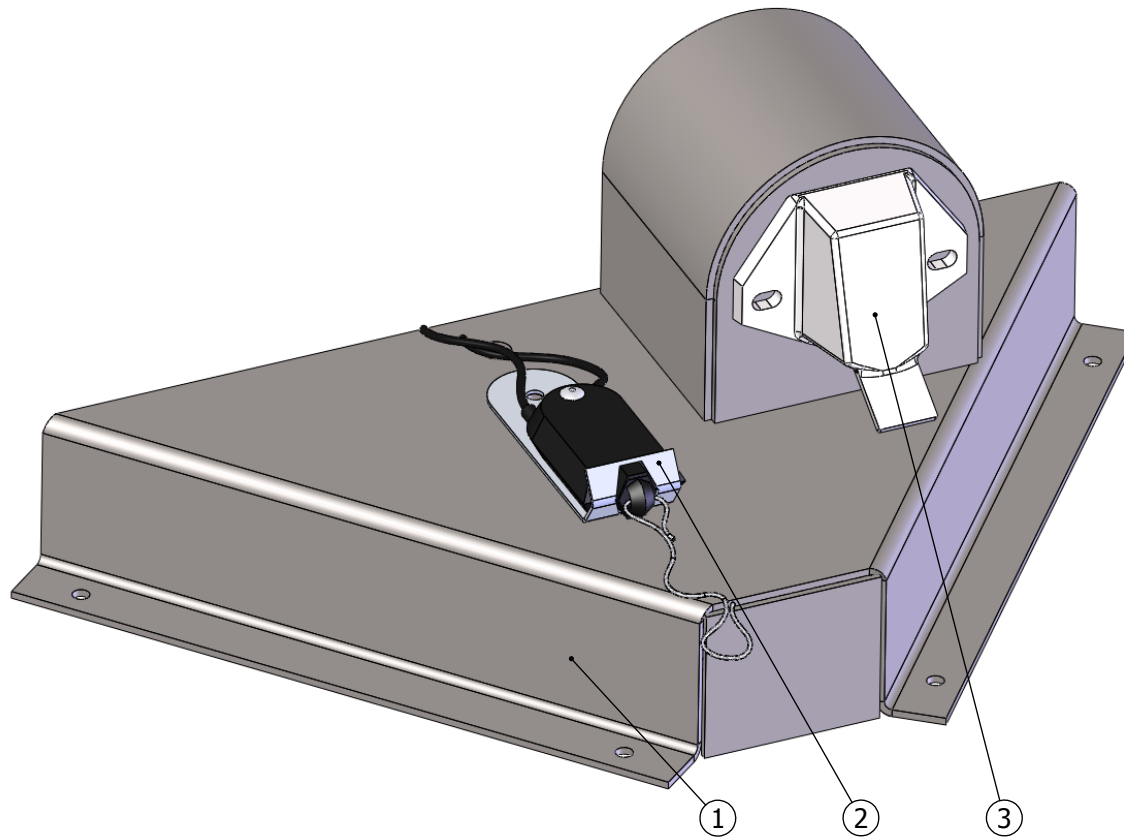
**G08010**  
**Grommet, 4" Tail/Stop/Turn**



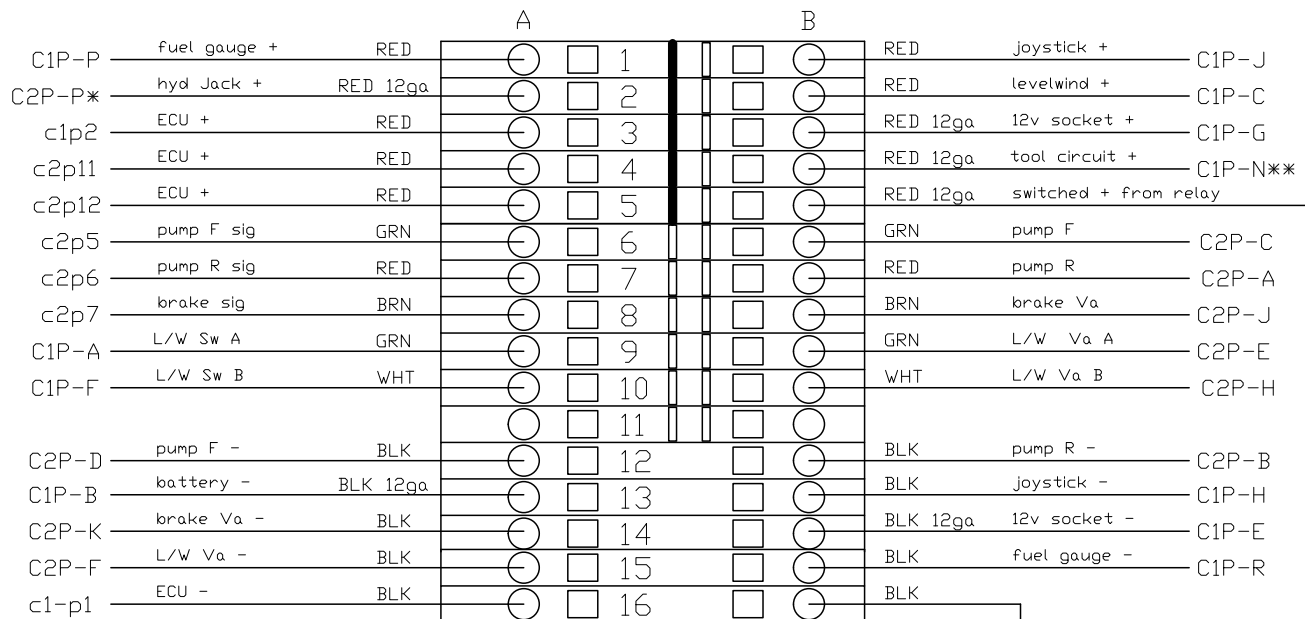
**G08005**  
**Grommet 2" Light**



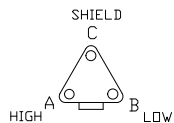
**L04055**  
**Light, License plate**



ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.
1	H05002	Hood, Electrical	1
2	S40003	Tekonsha Break-away switch	1
3	S21035	Socket 7-wire Pollak	1



#### CAN PLUG WIRING

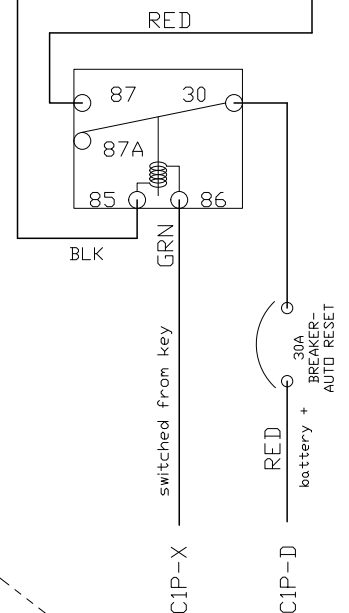
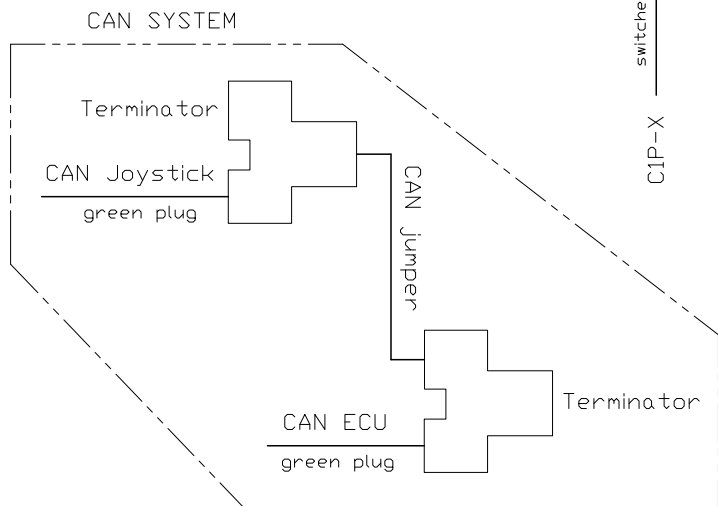
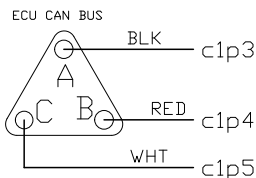
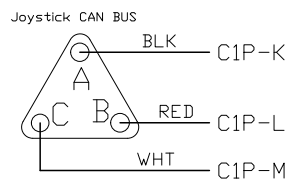


MC024-120 ECU

gray plug			
C1-P1	-	BLK	Ground
C1-P2	-	RED	Power
C1-P3	-	BLK	CAN Hi
C1-P4	-	RED	CAN Lo
C1-P5	-	WHT	CAN Shield
C1-P6	-		
C1-P7	-		
C1-P8	-		
C1-P9	-		
C1-P10	-		
C1-P11	-		
C1-P12	-		

Black plug			
C2-P1	-		
C2-P2	-		
C2-P3	-		
C2-P4	-		
C2-P5	-	GRN	Pump F
C2-P6	-	RED	Pump R
C2-P7	-	BRN	Brake
C2-P8	-		
C2-P9	-		
C2-P10	-		
C2-P11	-	RED	power +
C2-P12	-	RED	power +

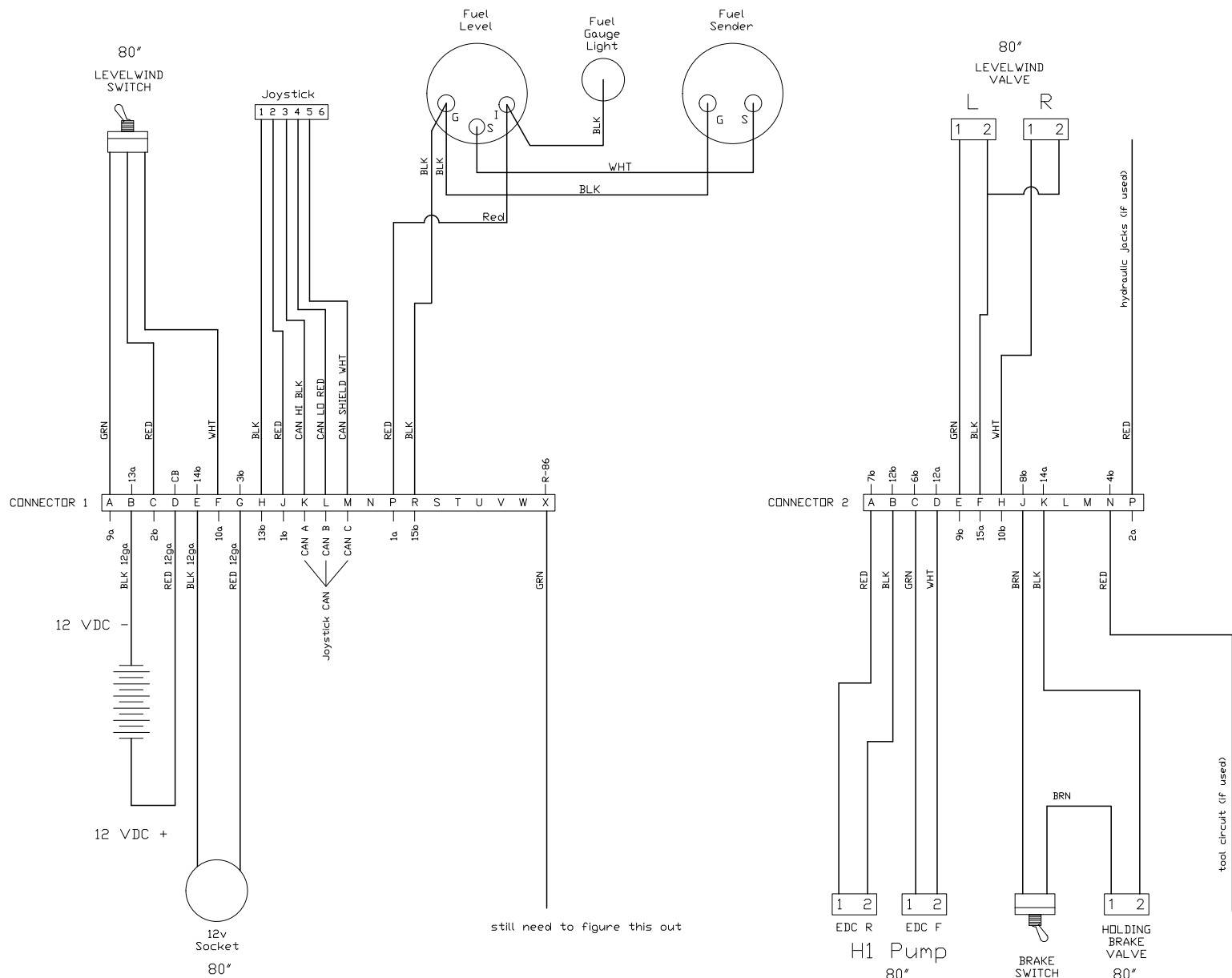


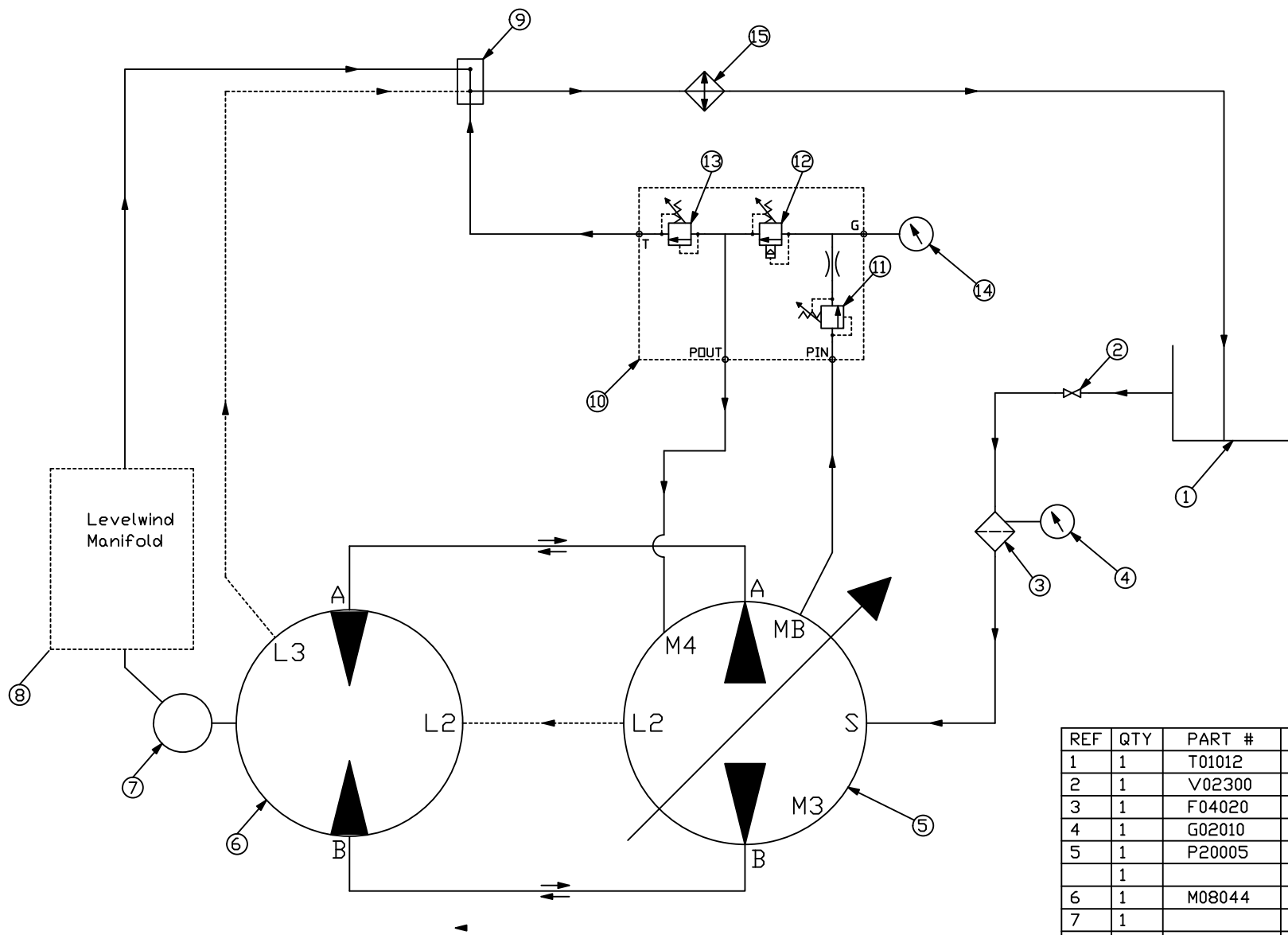
\* Pin is OPTINAL power wire for HYDRAULIC OUTRIGGERS

\*\* Pin is for OPTIONAL TOOL CIRCUIT

C1P-D is BATTERY (+)

C1P-B is BATTERY (-)





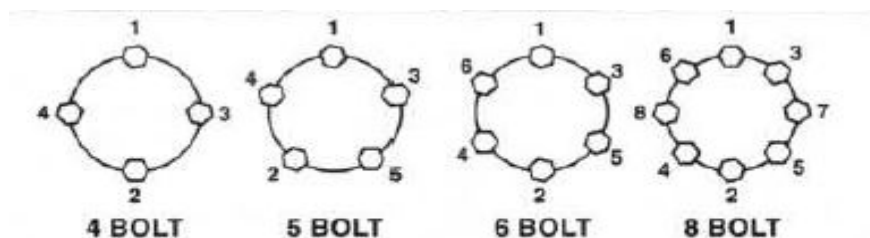
REF	QTY	PART #	DESCRIPTION
1	1	T01012	Tank, Hydraulic
2	1	V02300	Valve, Ball 1-1/4
3	1	F04020	Filter, Spin-on 10 Micron
4	1	G02010	Gauge, Suction
5	1	P20005	Pump Sundstrand
6	1	M08044	Motor, Sauer Danfoss
7	1		Planetary Brake
8	1	M04090	Valve, Levelwind V2
9	1	M04010	Return Manifold
10	1	M04061	Manifold, Pressure Limiting
11	1		Relief, LOW PSI
12	1		Relief, TENSION
13	1		Relief, HIGH PSI
14	1	G02076	Gauge, 5K PSI
15	1	C35010	Cooler, Hydraulic Oil

# Wheel Torque Requirements

Be sure to use only the fasteners matched to the cone angle of your wheel (usually 60° or 90°). The proper procedure for attaching your wheels is as follows:

1. Start all bolts or nuts by hand to prevent cross threading.
2. Tighten bolts or nuts in the sequence shown for wheel torque requirements.
3. The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners as shown in the chart below.
4. Wheel nuts/bolts should be torqued before first road use and after each wheel removal. Check and re-torque after the first 10 miles, 25 miles and again at 50 miles. Check periodically thereafter.

Wheel Size	1st Stage	2nd Stage	3rd Stage
12"	20-25	35-40	50-75
13"	20-25	35-40	50-75
14"	20-25	50-60	90-120
15"	20-25	50-60	90-120
16"	20-25	50-60	90-120
16.5" x 6.75"	20-25	50-60	90-120
16.5" x 9.75"	55-60	120-125	175-225
14.5" Demount	Tighten Sequentially to		85-95
17.5" Hub Pilot Clamp Ring & Cone Nuts	50-60	100-120	190-210
17.5" Hub Pilot 5/8" Flange Nuts	50-60	90-200	275-325



## Maximum Wheel Fastener Torque

The wheel mounting studs used on Dexter Axles conforms to the SAE standards for grade 8. The maximum torque level that can be safely applied to these studs is listed in the following chart:

<b>Stud Size</b>	<b>Max. Torque</b>
½"-20 UNF, class 2A	120 lb ft.
9/16"-18, class 2A	170 lb ft.
5/8"-18, class 2A	325 lb ft.

# CAUTION

**Exceeding the above listed torque limits can damage studs and/or nuts and lead to eventual fractures and dangerous wheel separation.**

Step 4: Crack fitting to let any trapped air out  
not all systems may have a gauge

Step 3: Crack bleeder and pump oil through system until no more air comes out of caliper

C28072 male  
quick connect  
fitting

Pad set - P01012  
pads are 3/8" thick

Step 5: Pump system up to 500psi and look for leaks. When finished, let the pressure in the system reach zero, then disconnect oil supply.

Step 2: Attach pressurized hydraulic oil source to connector if needed

ISO46 hydraulic oil

Step 1: Back handle all the way out, turn in 1-1/2 turns.



D30001  
(2)

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D30018  
(2)



D30027  
(1)



D30010  
(3)



D30015  
(3)



D30042  
(10)



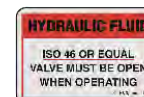
D30087  
(2)



D30204  
(2)



D30034  
(3)



D30033  
(1)



D30022  
(1)



D30021  
(1)



D30026  
(3)



D30028  
(6)



D30036  
(6)



D30127  
(3)



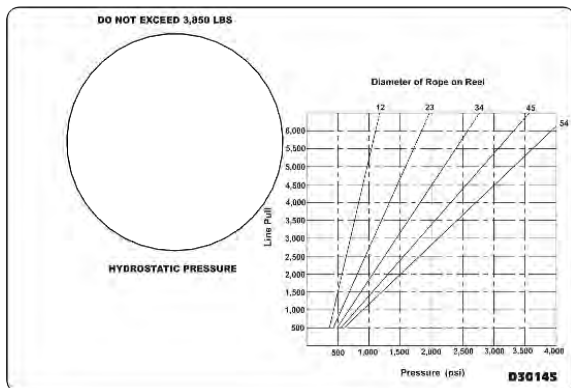
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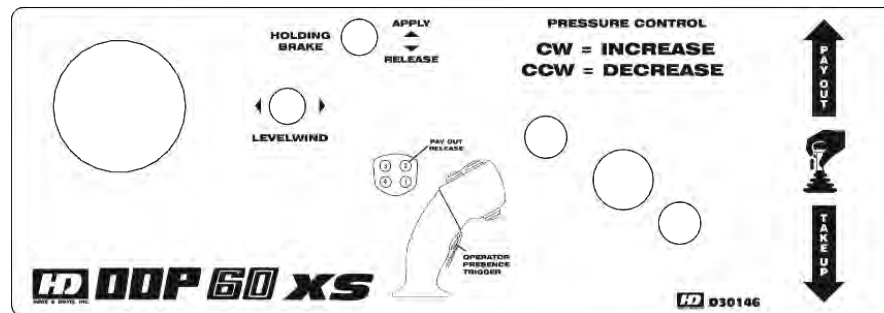
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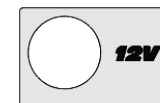
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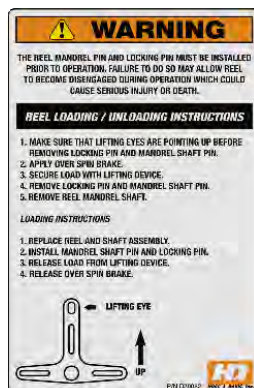
D30145  
(1)



D30146  
(1)



D30083  
(1)



D30082  
(1)



D30128  
(1)



D30081  
(1)



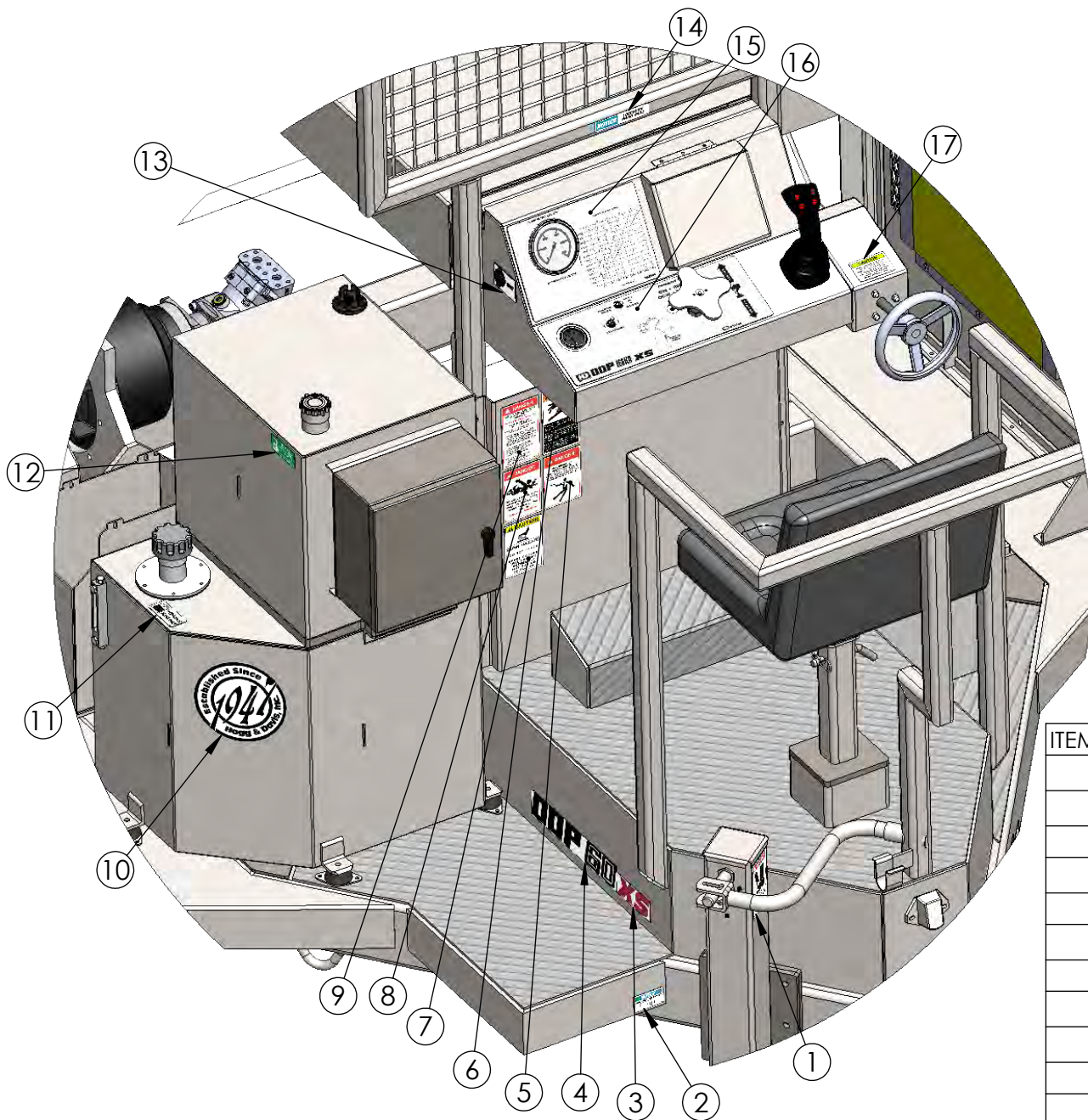
R09043  
(4)



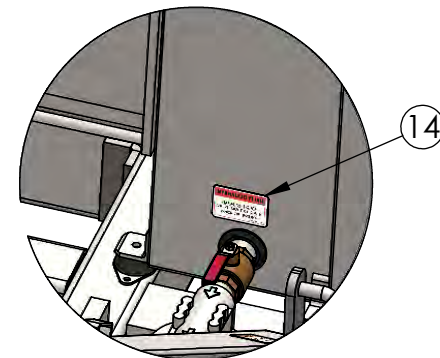
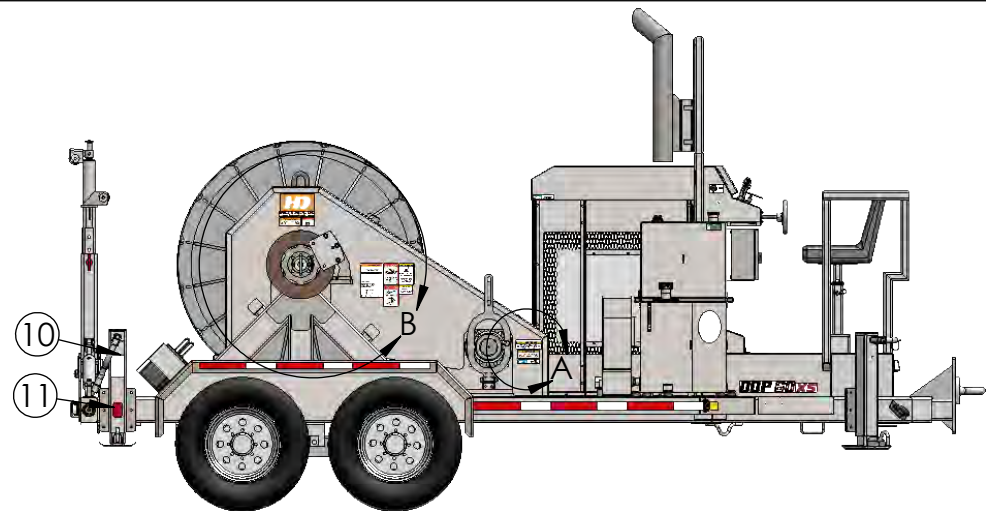
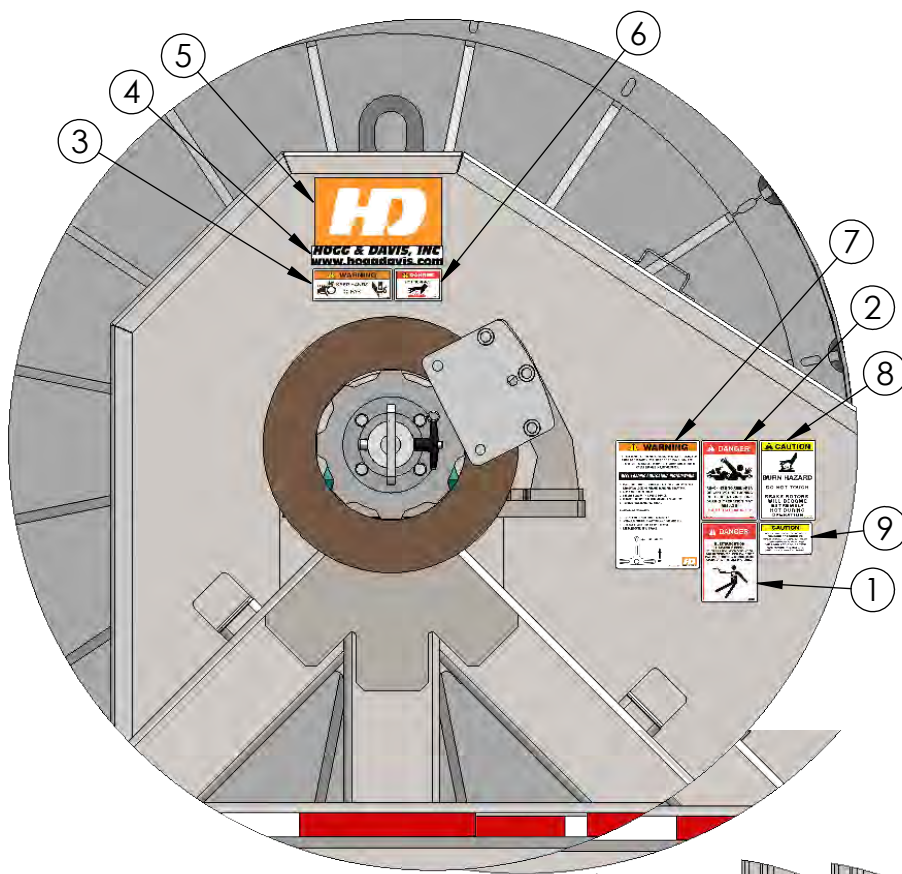
R09044  
(2)



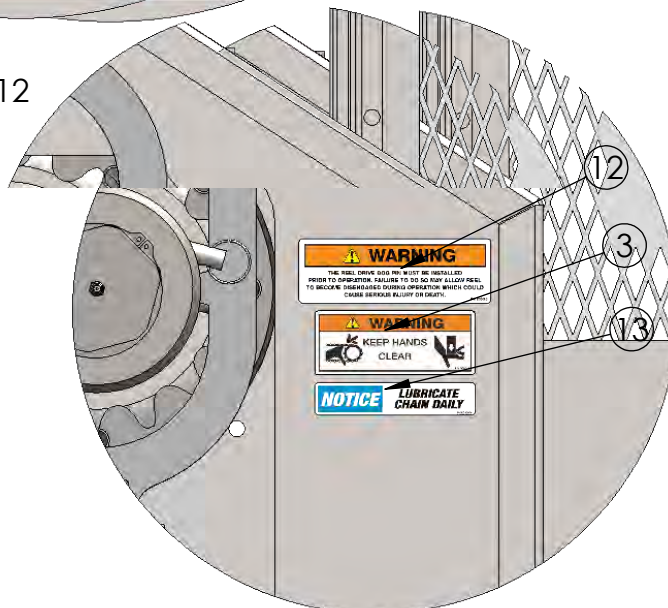
T19001  
(12)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	D30026	Decal, Danger Stand Clear	3
2	D30034	Decal, Grounding Lug	3
3	D30204	Decal, Red XS	2
4	D30087	Decal, ODP60 Tongue	2
5	D30036	Decal, Electrocution Hazard	5
6	D30022	Decal, Danger Fluid Pressure	1
7	D30127	Decal, Burn Hazard	2
8	D30028	Decal, Danger Twisty Man	5
9	D30021	Decal, Untrained Operator	1
10	D30128	Established 1947	1
11	D30010	Decal, Hydraulic Fluid Only	2
12	D30027	Diesel Ultra Low Sulfur	1
13	D30083	Decal, 12v Socket	1
14	D30069	Decal, Lubricate Chain Daily	3
15	D30145	Decal ODP60XS Up Con	1
16	D30146	Decal ODP60XS low con	1
17	D30067	Decal, Release Pressure	2

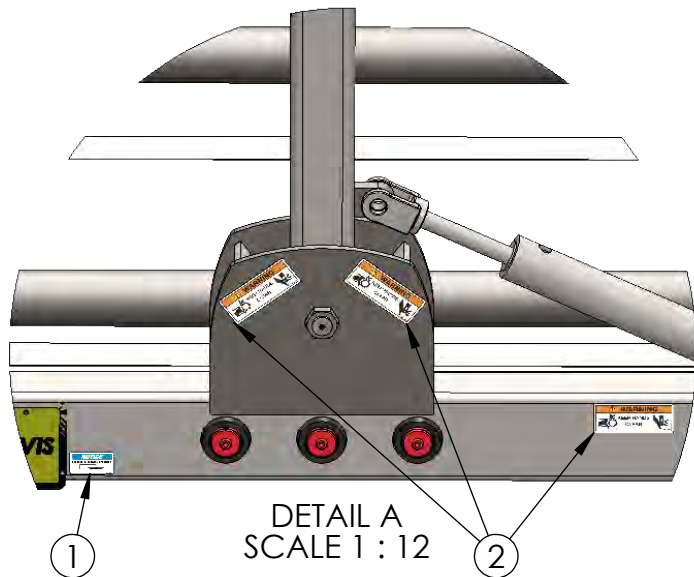


DETAIL B  
SCALE 1 : 12



DETAIL A  
SCALE 1 : 6

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	D30036	Decal, Electrocution Hazard	5
2	D30028	Decal, Danger Twisty Man	5
3	D30042	Decal, Keep Hands Clear	9
4	D30018	Decal, HD 1/2" x 9"	2
5	D30001	HD Logo 6x9	2
6	D30015	Decal, Hot Surface	3
7	D30082	Decal, Reel Loading Inst.	1
8	D30127	Decal, Burn Hazard	3
9	D30067	Decal, Release Pressure	2
10	D30026	Decal, Danger Stand Clear	3
11	R09043	Reflector, Red 2x3-1/2	4
12	D30080	Decal, Caution Drive Dogs	1
13	D30069	Decal, Lubricate Chain Daily	3
14	D30033	Decal, Hyd Fluid ISO 46	1

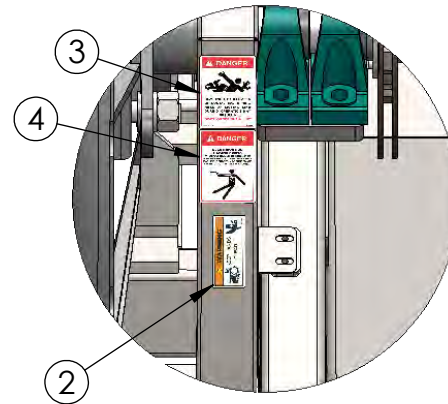


DETAIL A  
SCALE 1 : 12

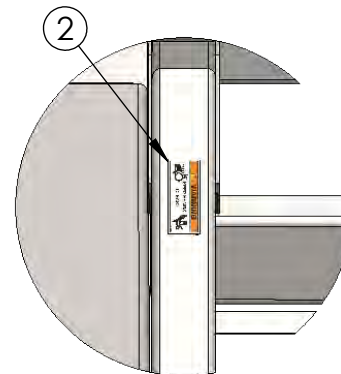
Leave room for  
licence plate.  
Approx 13" from  
licence plate light



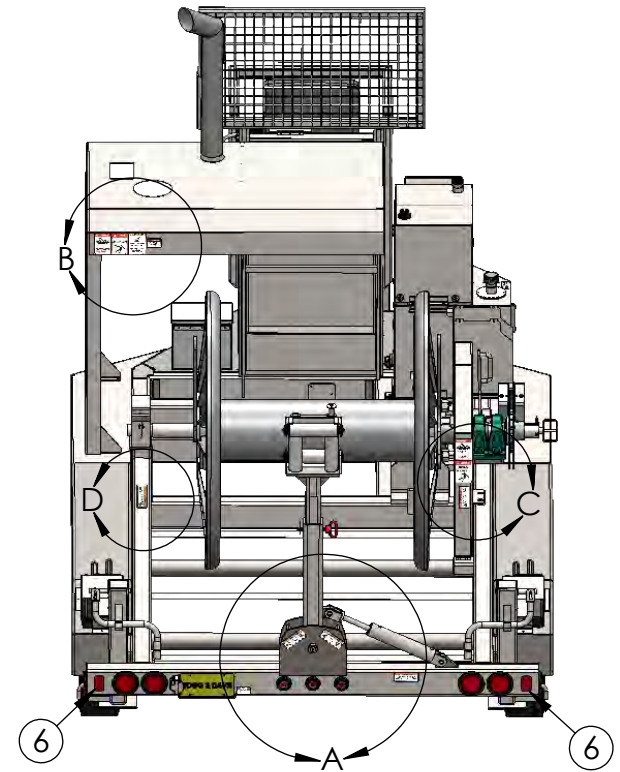
DETAIL B  
SCALE 1 : 12



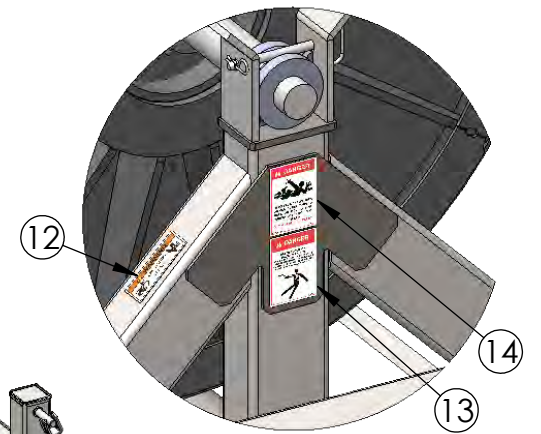
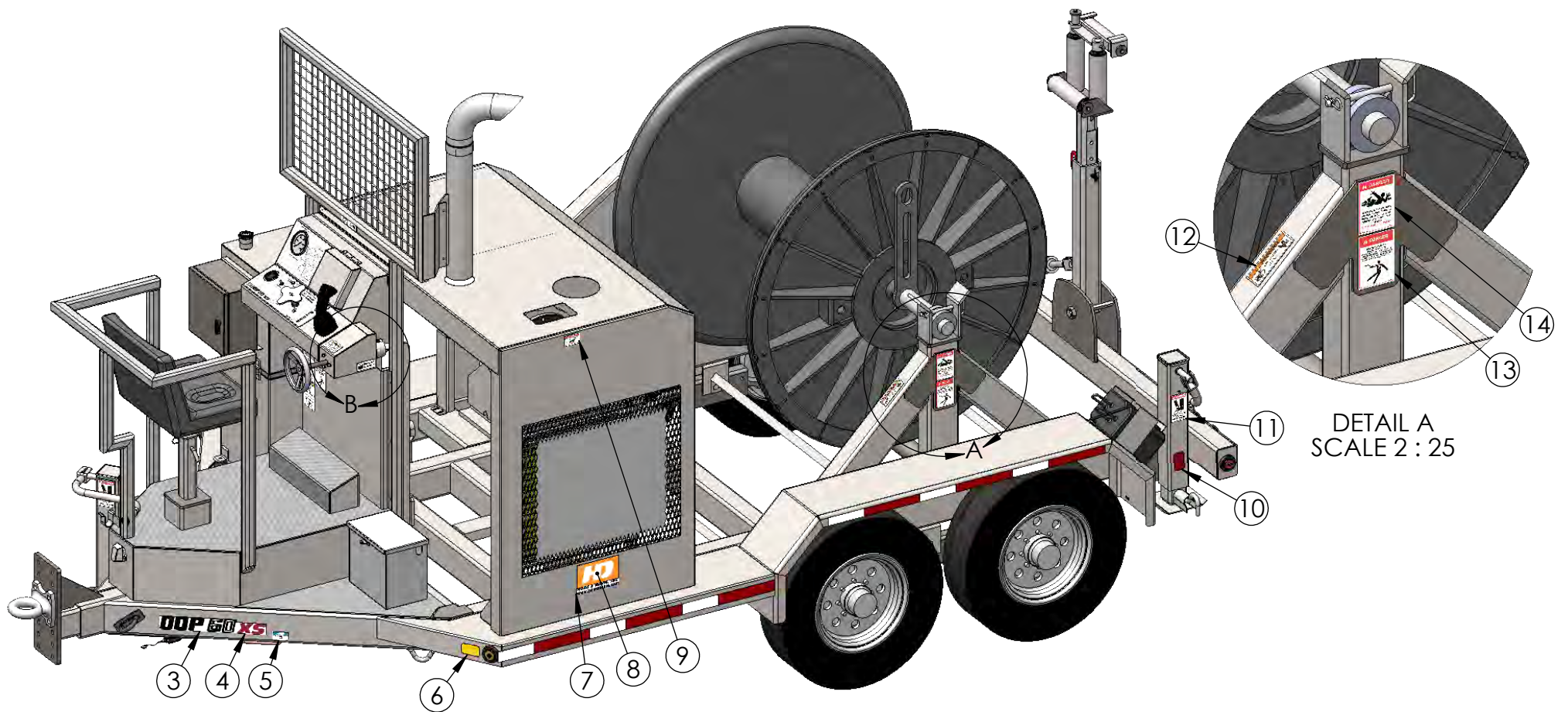
DETAIL C  
SCALE 1 : 12



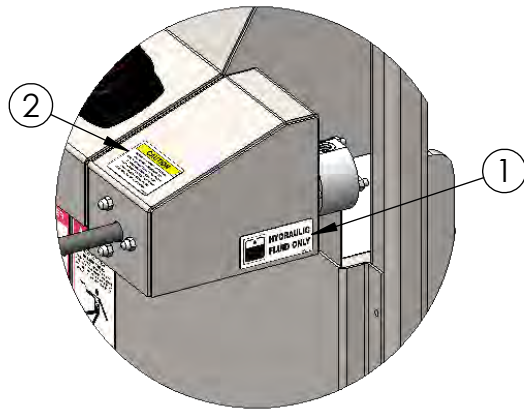
DETAIL D  
SCALE 1 : 12



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	D30034	Decal, Grounding Lug	3
2	D30042	Decal, Keep Hands Clear	9
3	D30028	Decal, Danger Twisty Man	5
4	D30036	Decal, Electrocution Hazard	5
5	D30015	Decal, Hot Surface	3
6	R09043	Reflector, Red 2x3-1/2	4
7	D30127	Decal, Burn Hazard	3



DETAIL A  
SCALE 2 : 25



DETAIL B  
SCALE 1 : 8

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	D30010	Decal, Hydraulic Fluid Only	2
2	D30067	Decal, Release Pressure	2
3	D30087	Decal, ODP60 Tongue	2
4	D30204	Decal, Red XS	2
5	D30034	Decal, Grounding Lug	3
6	R09044	Reflector, Amber 2x3-1/2	2
7	D30018	Decal, HD 1/2" x 9"	2
8	D30001	HD Logo 6x9	2
9	D30015	Decal, Hot Surface	3
10	R09043	Reflector, Red 2x3-1/2	4
11	D30026	Decal, Danger Stand Clear	3
12	D30042	Decal, Keep Hands Clear	9
13	D30036	Decal, Electrocution Hazard	5
14	D30028	Decal, Danger Twisty Man	5