SCL800TM

Self Contained Leaf Collector

Owner's Manual
Safety Manual
Pre-Operating Manual
Operating Manual
Maintenance Manual
Service Manual
Parts Catalog

December 2013 Edition

ODB Company
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823
www.leafcollector.com

SCL800TM

312021

⚠ CAUTION

DO NOT ATTEMPT TO OPERATE OR REPAIR THE LEAF COLLECTOR WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL

IF YOU HAVE ANY QUESTIONS CONCERNING THE INSTALLATION OR OPERATION OF THIS UNIT, PLEASE CALL ODB FOR ASSISTANCE BEFORE ATTEMPTING TO REPAIR OR OPERATE THE UNIT.

IMPROPER USE OF ANY MACHINE CAN RESULT IN SERIOUS INJURY!

STUDY AND FOLLOW ALL SAFETY PRECAUTIONS BEFORE OPERATING OR REPAIRING UNIT

THIS MANUAL IS AN INTEGRAL PART OF THE LEAF COLLECTOR AND SHOULD BE KEPT WITH THE UNIT WHEN IT IS SOLD.

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

SAFETY PRECAUTIONS

⚠WARNING **Read and understand this entire manual before operating, maintaining or repairing the leaf vacuum.**

⚠ DANGER

DO NOT RIDE, SIT OR STAND ON UNIT.

RIDING ON UNIT COULD RESULT IN BODILY HARM OR FATAL INJURY USE EXTREME CAUTION WHEN UNIT IS IN USE, OR IN MOTION.

If the decal above is missing or damaged call ODB immediately and we will send you a replacement free of charge. Never operate a unit with damaged or missing safety decals.

⚠ DANGER **DO NOT RIDE, SIT OR STAND ON UNIT**

⚠ DANGER **DO NOT MODIFY THE UNIT FOR RIDERS IN ANY WAY. SERIOUS INJURY OR DEATH MAY OCCUR**

ODB's leaf collectors are NEVER to be used to accomodate riders. If your unit has been modified to accomdate riders, remove these modifications immediately as this can result in serious injury or death.

Municipal Products
Since 1910

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Since 1910

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
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www.odbco.com or
www.leafcollector.com

THANK YOU

Thank you and Congratulations on your puchase of your ODB Leaf Collector. Your ODB leaf collector has been carefully designed and manufactured to give you a maximum amount of dependability and years of trouble-free operation. Take comfort in the fact the ODB has been manufacturing municipal products since 1910 and takes pride in our product's quality and our customer service.

Please take the time to thoroughly read this manual, as well as the engine manual, in its entirety before operating, maintaining, servicing or repairing your leaf collector. Please thoroughly review and follow all the safety procedures located in this manual.

Whenever you need replacement parts, service information or any question regarding your ODB product please feel free to contact us at 800-446-9823 or www.odbco.com.

Please record the following information for future reference:

Model No.: _____

Serial No.: _____

Vin No: _____

Engine Serial No.: _____

Date of Purchase: _____

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1.0 GENERAL SAFETY

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SAFETY PRECAUTIONS

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SAFETY PRECAUTIONS

⚠WARNING **Read and understand this entire manual before operating, maintaining or repairing the leaf vacuum.**

1.1 Safety Symbol Definitions

This manual provides the owners/operator with procedures for safe operation, maintenance and repair of your leaf collector. As with any machine, there are hazards associated with their operation. For this reason safety is emphasized throughout this manual. To highlight specific safety information the following safety definitions are provided to assist the reader.

The purpose of safety symbols are to attract your attention to possible dangers. The safety symbols, and their explanations, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutues for proper accident prevention measures.

SYMBOL	MEANING
	**SAFETY ALERT SYMBOL:** Indicates danger, warning or caution. Attention is required in order to avoid serious personal injury. May be used in conjuction with other symbols or pictographs.
⚠DANGER	**Disregarding this safety warning <u>WILL</u> result in serious equipment damage, injury or possible death.**
⚠WARNING	**Disregarding this safety warning <u>CAN</u> result in serious equipment damage, injury or possible death.**
⚠CAUTION	**Disregarding this safety warning <u>MAY</u> result in minor or moderate injury or property damage.**

SAFETY PRECAUTIONS

⚠WARNING **Read and understand this entire manual before operating, maintaining or repairing the leaf vacuum.**

1.2 Do's and Do Not's:

This section contains some general safety precautions to do and not to do. This is not an all inclusive list and and it is the responsibilty of the operator to have proper training and use common sense in work situations.

⚠WARNING

DO NOT:

1. **DO NOT** operate, maintain or repair this unit without having fully read and understood ALL the aspects of this manual.
2. **DO NOT** ride, sit or stand on unit at anytime.
3. **DO NOT** modify the leaf vacuum for any reasons to allow for riders.
4. **DO NOT** operate the unit in a state of disrepair.
5. **DO NOT** operate the unit with ANY guards or safety devices broken, missing, or inoperable.
6. **DO NOT** operate the unit without wearing proper safety equipment.
7. **DO NOT** operate this unit while under the influence of any alcohol or medication.
8. **DO NOT** operate this unit if you have a record of mental instability or dizziness which could result in injury to yourself or others.
9. **DO NOT** operate this unit if you are under 18 years of age.
10. **DO NOT** operate this unit without fully inspecting the unit for any damage or leakage.
11. **DO NOT** operate if the unit has any excessive vibration.
12. **DO NOT** operate unit with the inspection door limit switch damaged or missing.
13. **DO NOT** operate unit unless it is properly connected to a leaf collection box.
14. **DO NOT** operate unit unless it is properly attached to the tow vehicle.
15. **DO NOT** tow unit without using all the safety chains.
16. **DO NOT** tow unit with a damaged tongue.
17. **DO NOT** fill fuel tank with engine running. Allow engine to cool for 5 minutes before refueling.
18. **DO NOT** operate unit if fuel is spilled or with fuel cap off.
19. **DO NOT** smoke or weld near the unit.
20. **DO NOT** run engine in an enclosed area.
21. **DO NOT** place hands or feet near moving or rotating parts.

SAFETY PRECAUTIONS

⚠WARNING **Do Not, continued;**

22. **DO NOT** operate engine with an accumulation of grass, leaves or other debris on the engine.
23. **DO NOT** run engine with air cleaner removed.
24. **DO NOT** leave leaf machine unattended while in operation.
25. **DO NOT** park machine on steep grade or slope.
26. **DO NOT** vacuum a leaf pile without looking for foreign objects such as metal, glass, plastic or large pieces of wood.

⚠WARNING **Do's:**

1. **DO** completely read and understand the owner's manual before operating, maintaining or repairing the leaf collector.
2. **DO** follow engine and PTO manufacturer operating and maintenance instructions.
3. **DO** check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.
4. **DO** completely inspect the unit before leaving the service garage.
5. **DO** check the tow tongue each day for cracks.
6. **DO** inspect and be attentive to what is being vacuumed.
7. **DO** check the impeller, liners and blower housing for cracks or holes daily.
8. **DO** wear proper safety equipment as described in this manual.
9. **DO** watch for pedestrians, animals and other foreign material when vacuuming leaves.
10. **DO** replace any worn or missing safety stickers immediately.

1.3 Training:

⚠WARNING

Improper use of the ODB leaf collector CAN result in severe personal injury or death. All personnel using this leaf vacuum must be trained and qualified with all the operations, maintenance, repair and safety procedures defined in this manual.

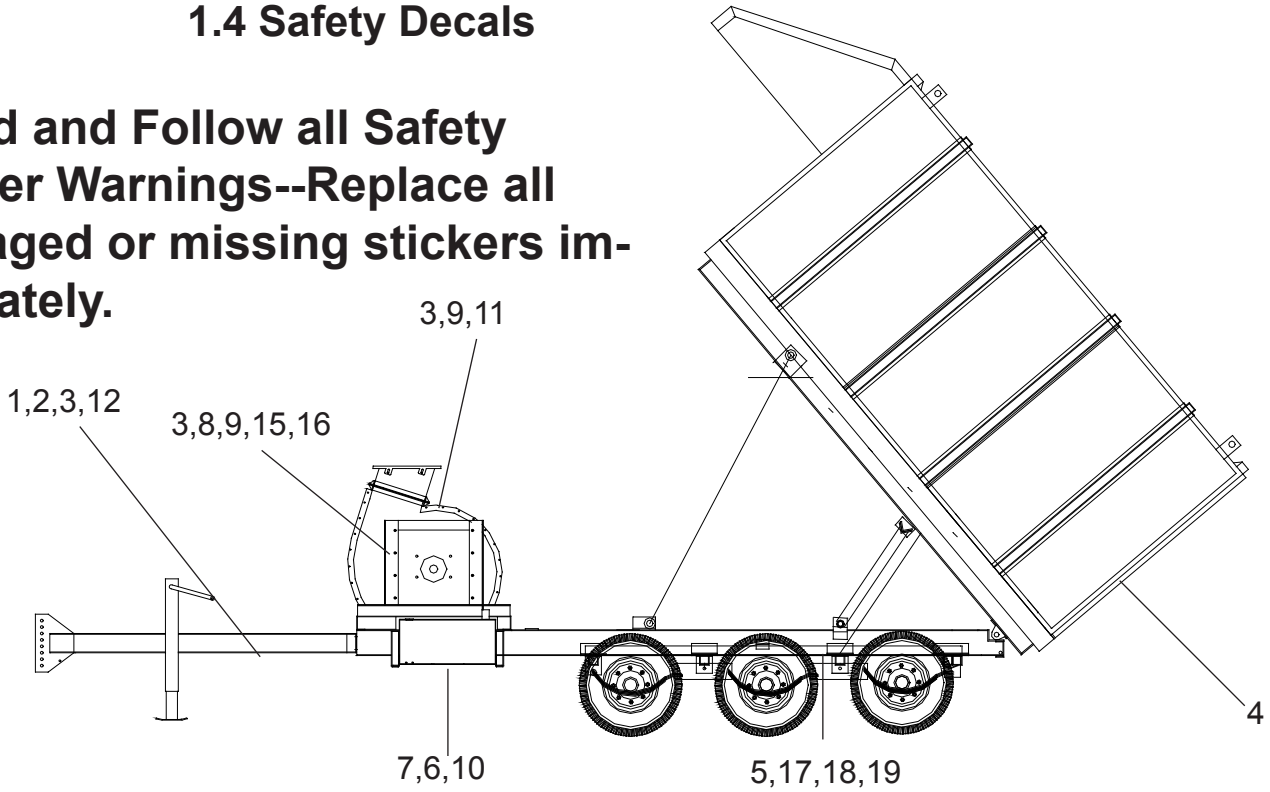
The warnings and procedures regarding safety in this manual are to be used as a guideline only. It is impossible to cover all the events that could happen in the vacuuming process. For this reason, it is vital that the owner accept the responsibility to implement a training program that will provide every operator or mechanic the basic skills and knowledge to make good judgement in all situations.

This training program must include the entire scope of hazards, precautions and government regulations encountered in the vacuuming process. The program should stress the need for regularly scheduled preventive maintenance and detailed equipment safety checks.

It is strongly recommended that all training programs be documented to ensure all operators and mechanics receive initial training on not just the operation but the safety features of the leaf collector.

1.4 Safety Decals

***Read and Follow all Safety Sticker Warnings--Replace all damaged or missing stickers immediately.**



*Not in SCL800DK Kit

ITEM#	PART #	DESCRIPTION
*	SCL800DK	Decal Kit - (all except *)
1.	200183	Danger--Rotating Parts
2.	200106	Caution- Pinch Point
3.	200192	Caution - Do Not Operate ... without reading manual
4.	200193	Caution - Allow Engine to Idle
5.	*200194	Caution - Do not use Dielectric grease
6.	200178	Danger - Explosion hazard
7.	Call	SCL800 oval sticker
8.	200195	Clean Hopper screens
9.	200181	Warning - Head, Eye ...
10.	200109	Do Not Over-Lubricate
11.	200179	Danger - Do Not Ride, ...
12.	Call	ODB Big Sticker
13.	Call	ODB wide sticker
14.	200177	Warning - Flammable
15.	200182	Warning - Do not open cover while in operation

*Not in SCL800DK Kit

ITEM#	PART #	DESCRIPTION
16.	*200190	Caution - Unload Body Prop
17.	*200187	Caution - Body must be braced
18.	*Call	Caution - Operation of body prop
19.	200175	Warning - Do Not Raise ...
20.	200189	Warning - Check Impeller
21.		Warning - Running Engine with the PTO ...
22.	200104	Warning - Driver Check Wheel Lugs ...
23.		Warning - Do Not Operate Unit Without Reading ...
24.	200055	Use Diesel Only
25.		Do Not Ride ... (Wide Version)
26.	200188	Do Not Go Under Raised Body ...
27.		Caution - Proper Wheel Nut Tightness ...
28.	200193	Caution - Allow Engine to Idle ...

SAFETY PRECAUTIONS

1.4 Safety Decals - Decal Layout for SCL800TM

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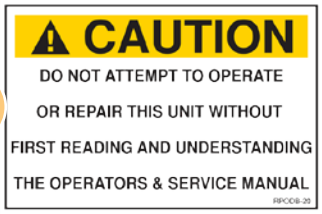

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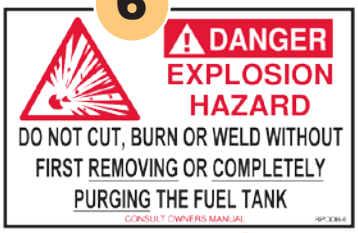

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1.4 Safety Decals - Decal Layout for SCL800TM

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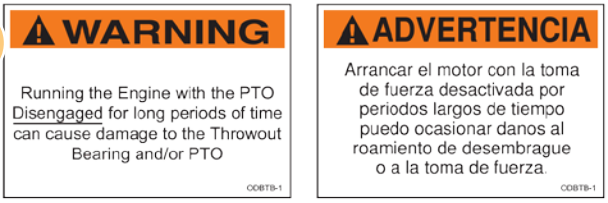

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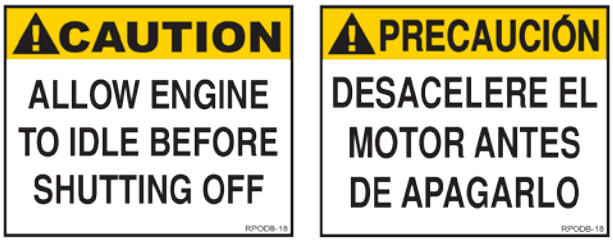


1.5 VIN And Serial Number Locations

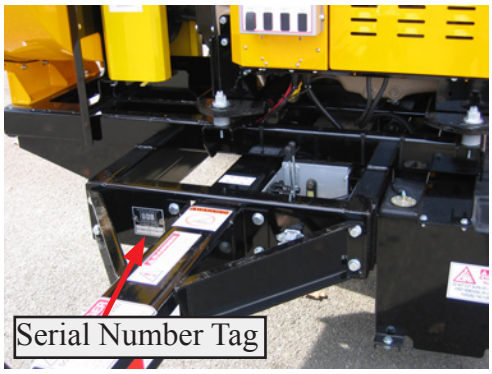
⚠WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before starting the engine.

⚠WARNING

Make sure each operator knows and understands the load ratings of the towed vehicle and that he/she is qualified to tow the vehicle.

figure 1.5a

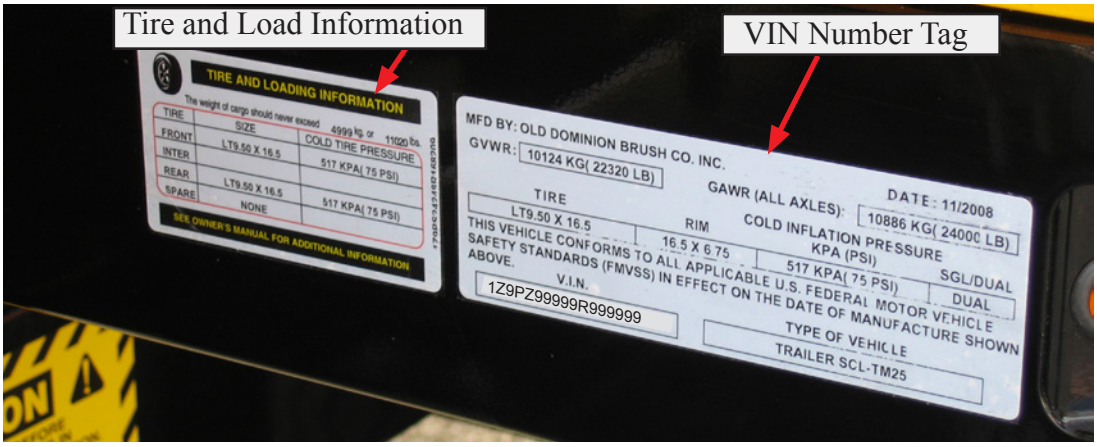


The serial number tag is located in front of the unit by the tongue. (See figure 1.5a).

figure 1.5b

The Vehicle Identification Number (VIN) sticker is located on the drivers side front of the box frame. It is directly behind the engine. (See figure 1.5b).

The VIN sticker gives the user critical information regarding the trailer specfications such as Gross Vehicle Weight Rating (GVWR) which is the maximum allowable total weight of the fully loaded trailer, including liquids, cargo and the tongue weight of any towed vehicle, the GAWR or Gross Axle Weight Rating which is the maximum allowable weight the axles are designed to carry. The tire inflation pressure is also on the sticker.



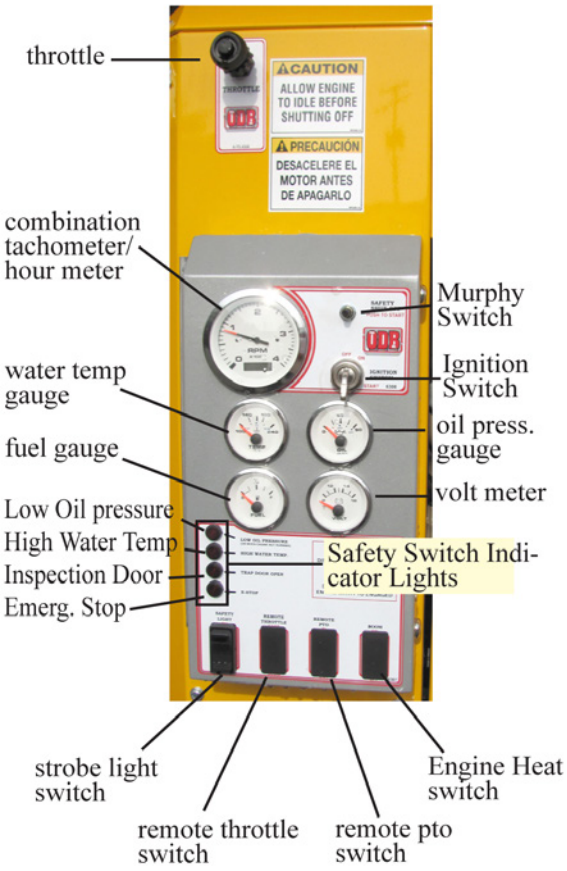
⚠WARNING **Read and understand this entire manual before operating, maintaining or repairing the leaf vacuum.**

2.0 PRE-OPERATING SECTION

2.0 Pre-Operating Section

2.1 Instruments and Controls:

(Typical)



⚠ CAUTION

Always make sure the PTO is disengaged before starting unit.

Ignition Switch:
Used to power the accessories and start the unit. Unit will not start without Murphy switch depressed.
ACCESSORIES - first position
STARTER ENGAGE - second position (springs return to first position)

Murphy Switch:
This switch overrides the low oil pressure and high temperature cutoff control. This switch must be depressed before the starter engages. After the engine starts, wait for oil pressure to rise before releasing the button.

Throttle:
This control provides positive locking and vernier adjustment of engine.

Combination Tachometer / Hour Meter:
This gauge indicates the engine r.p.m's. The sender is located on the tachometer. The hour meter is digital and indicates the accumulated hours of the engine. This should be used to schedule maintenance.

Volt Meter:
The gauge shows the status of the engine charging system. When the charging system is operating properly it should read approximately 14 volts. If the gauge reads below 13 volts, the alternator is not charging the battery and the system should be checked by a qualified technicican.

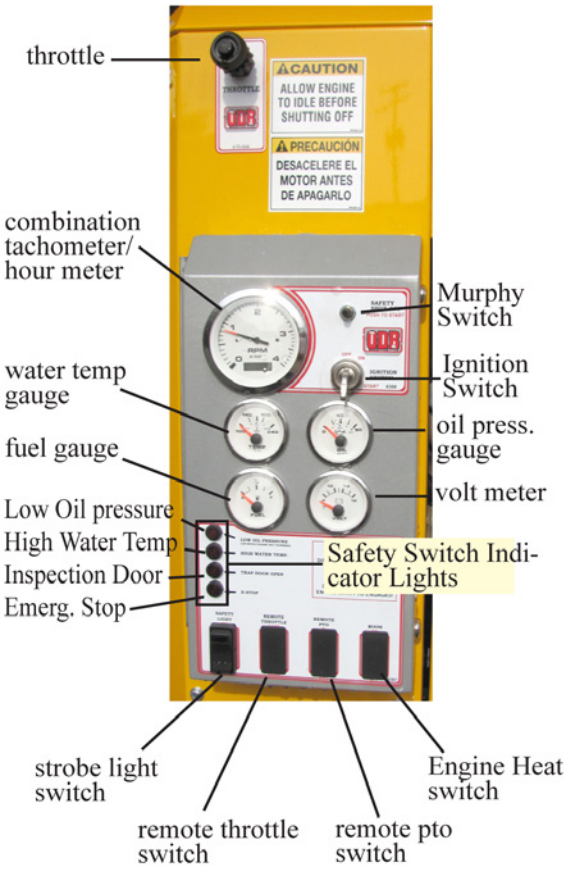
Oil Pressure Gauge:
Confirms and indicates the presense and pressure of engine oil. If the gauge reads low, it should be checked by a qualified technician.

Engine Temperature:
Indicates the engine coolant temperature. If the gauge reads over 240 degrees the unit should be checked by a qualified technician.

Hour Meter:
Indicates the accumulated hours of the the engine. This should be used to schedule maintenance.

2.1 Instrument and Controls, cont.:

(Typical)



⚠ CAUTION

Always make sure the PTO is disengaged before starting unit.

SAFETY SWITCH INDICATOR LIGHTS

These lights work with the Murphy (safety) shut off switch. When the light is on it indicates that the shut off switch has been tripped and the light indicates which device caused the trip.

Low Oil Pressure Indicator Light:
When lit the engine has reached a low oil pressure reading and has tripped (thus shut off the engine) the safety shut off (Muprhy) switch . This light will illuminate when the engine is first started until engine oil pressure has been established.

High Water Temperature Indicator Light:
Indicates the engine coolant temperature has reached 225 degrees and has tripped (thus shut off the engine) the safety shut off (Muprhy) switch.

Inspection Door Indicator Light:
Indicates that the limit switch located on the blower housing inspection door has been tripped (thus shut off the engine).

Emergency Stop Switch Indicator Light:
Indicates that the emergency stop switch (on the LCT650 only) has been depressed, tripping the safety switch and shutting off the engine.

ROCKER SWITCHES

Strobe Light Switch:
Turns the strobe light on or off

Remote Throttle Switch (optional):
Increases or decreases the engine throttle. Pressing and holding the top of the switch increases the thottle. The longer the button is pressed the higher the throttle is advanced. Pressing the bottom of the switch decreases the throttle in the same manner as increasing the throttle.

Remote PTO Switch (optional):
Engages or disengages the PTO. Pressing the top of the switch engages the PTO while pressing the bottom of the switch disengages the PTO.

Engine Heat Switch (Cummins engines only):
Press the top of the switch for 20 – 30 seconds initiates the glow plug to aid in starting a cold engine.

2.2 Safe Operations:

⚠WARNING

ALL personnel using, maintaining or servicing this unit must be trained in all safety procedures outlined in this manual. Improper or careless use of this equipment CAN result in personal injury or death.

Operations shall be restricted to:

1. Properly trained, qualified and experienced operators and/or qualified and experienced maintenance and test personnel.

2. Trainees under the direct supervision of qualified and experience personnel.

3. Qualified and experienced maintenance and service personnel.

Operators who qualify to operate this equipment under the above restrictions shall also comply with the following physical requirements:

1. Have good vision and the ability to read and understand this manual as well as all safety and operational decals on the equipment.

2. Be capable of hearing, with or without a hearing aid, at a level needed to safely operate this equipment.

3. A record of mental stability with no history of epileptic seizures, dizziness, or any other disability that may result in injury to himself or others.

If any of these requirements are not satisfied at any time, the person failing to meet these requirements **MUST NOT OPERATE THIS EQUIPMENT.**

2.2 Safe Operations (continued):

Additional Requirements:

1. Each operator must demonstrate competence to understand all safety decals, operator's manuals, safety codes, applicable government regulations, and all other information applicable to the safe and proper operation of the leaf vacuum.

2. Each operator must demonstrate the ability to recognize an emergency situation that may arise during vacuuming operations and the knowledge and procedures to implement corrective action.

3. Each operator must demonstrate or provide evidence of qualificatation and experience prior to operating the leaf vacuum.

4. Each operator must be able to recognize existing or potential problems regarding the mechanical integrity of the leaf vacuum and report any maintenance requirements to the supervisor in charge.

5. Each operator must wear the proper personal clothing and safety gear. (Refer to SAFETY PRECAUTIONS Section 5.4)

6. Operators must not be physically or mentally fatigued.

7. Operators must not be under the direct or indirect influence of alcohol and/or drugs. This includes prescription drugs that could cause drowsiness, dizziness, or any other condition that would impair their ability to operate or use this equipment in a safe manner.

2.3 Preparation For Operation

⚠ CAUTION

Before your leaf vacuum is put into operation it is very important to read and follow the procedures outlined in the engine owner's manual. (EOM).

For specific information regarding the following checks please refer to the "Maintenance" section of this manual and the engine owner's manual.

⚠ WARNING

DISENGAGE the clutch and remove the negative battery cable before performing the following checks.

⚠ WARNING

NEVER place any part of the body under or behind guards or any other area in which you cannot see.

IMPORTANT CHECKS:

NOTE: The following checks contained in the next three sections should be performed prior to leaving the storage area.

1. Check engine fuel, coolant and oil levels. (see EOM)
2. Check engine air filter
3. Check all bolts and nuts to ensure they are tight.
4. Check all controls for free and proper operation.
5. Check main drive belt (if equipped) for proper adjustment.
6. Inspect the fan blades to ensure that they are not bent , deformed, fatiqued or cracked. Replace fan if any damage is present.
7. Inspect the intake hose flange to make sure it is connected correctly to the blower housing.
8. Inspect the leaf vacuum frame and structure for any bent, broken, cracked, missing or loose parts.
9. Check all guards to ensure they are undamaged, in place and properly secured.
10. All decals must be in place and legible prior to operating the leaf vacuum. See the decal section for decal replacement.

2.4 Pre-Transport Checks

⚠WARNING

Failure to properly hitch the leaf vacuum to the tow vehicle, verify the road worthiness of the leaf vacuum and the tow vehicle and verify all equipment is properly stowed, may cause serious injury or death to yourself or others.

TOW VEHICLE MUST have proper towing capacity for the leaf vacuum being towed. Check the tow vehicles operating manual for rated capacity.

Do not tow the leaf vacuum unless all important checks listed below are completed.

IMPORTANT CHECKS

1. Hitch is properly secured to tow vehicle and hose boom secured. Frame must be level or the tongue slightly lower than the rear of the leaf vacuum while towing to ensure proper weight distribution. The hitch may have to be adjusted when towing with vehicles of varying tow hitch height.

2. Safety chains installed correctly.

3. Chains routed under trailer tongue in an “X” pattern between tow vehicle and trailer.

4. Slack in chain should be adjusted to permit turning but should not be dragging on the ground.

5. Connect trailer wiring to the tow vehicle and ensure that all trailer lighting is operating properly.

6. Ensure that the safety breakaway switch is functioning properly and attached securely to the tow vehicle. Allow enough slack to ensure that vehicle turns will not activate the safety breakaway switch. **NOTE:** Follow manufacturers procedure to ensure tow vehicles brake control box is properly adjusted.

2.4 Pre-Transport Checks (continued):

7. Check the general condition of the tires, tire pressure and ensure that all lugnuts are securely fastened.

8. Visual examination of the leaf vacuum frame, suspension and structure to determine if all components are correctly positioned and secured for travel.

9. Check the intake hose boom to verify that it is securely fastened to the leaf vacuum and can not swing free. (if equipped).

10. Verify there are no loose tools or materials on the trailer, inside the intake and exhaust hoses, or inside the engine sheet metal.

11. Check all cones, wheel-chocks, signs or other support tools and materials to ensure proper stowage.

2.5 Personal Protective Equipment and Clothing

⚠WARNING

Always wear proper safety equipment as outlined below, not wearing such equipment CAN result in serious personal injury or possible death.

IMPORTANT CHECKS:

Anyone operating the leaf vacuum equipment **MUST** wear appropriate protective equipment and clothing to protect them from injury during operations.

PROTECTIVE EQUIPMENT:

1. **Head Protection:** Hard hats without under-chin strapping.

2. **Eye Protection:** Wraparound goggle type eye protection held in place with an elastic band around the head or a hard hat mounted face shield, which provides full protection of the face.

3. Eye protection must meet ANSI Z87.1 standards.

4. **Hearing Protection:** plug type or “muff type” ear protection should be worn at all times while operating the unit.

5. **Breathing Protection:** Paper filter type dust masks should be worn to protect from dirt and dust particles during the vacuuming process.

6. **Reflective Vests:** Highly visible vests should be worn so motorists can see see the operator in all weather and lighting conditions.

7. **Work Gloves:** Gloves should be worn to protect the hands and wrists from debris.

8. **Steel Toed Boots:** should be worn to protect the feet.

⚠DANGER

Work clothes MUST be close fitting, but not restrictive of movement, without any loose parts that could be entangled in any parts of the leaf vacuum. This includes items such as jewelry, chains and backpacks.

2.6 Work Site Preparation

⚠WARNING

Never place any part of the body under or behind guards or any other visually obscured area.

Making sure the leaves are clear of possible dangerous material is critical to safe vacuuming. Vacuuming up metal, glass, rocks or other dangerous material CAN cause serious damage to the equipment or personal injury.

The following guidelines must be followed to insure safety.

1. An inspection of the leaves to be vacuumed must be done prior to the vacuuming process. We realize that it is impossible to completely inspect every inch of leaves being vacuumed, but it is imperative that all leaves be inpsected for obvious dangerous material before vacuuming.
2. The operator should never be in the line of traffic, the operator should work on the shoulder whenever possible.
3. The operators should place cones or other barriers to provide adequate warnings to vehicles and pedestrians that vacuuming is in progress.
4. Strobe lights on the leaf vacuum and on the tow vehicle should be on at all times for high visibility.
5. Confirm that all operators are wearing proper clothes and personal protective equipment.
6. Restrict all personnel, except the operator from the area near the leaf vacuum. **DO NOT** allow pedestrians, children or animals near the work area.

⚠WARNING **Read and understand this entire manual before operating, maintaining or repairing the leaf vacuum.**

3.0 OPERATING SECTION

figure 3a

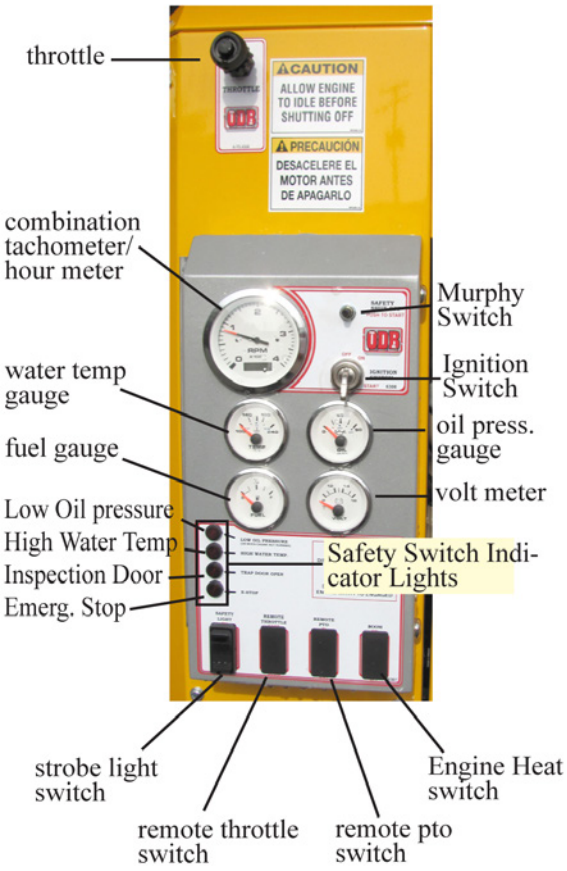


figure 3b

PTO shown disengaged

3.1 Starting Engine

⚠ CAUTION

Always make sure the PTO is disengaged before starting unit. (See figure 3b)

⚠ WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before staring the engine.

⚠ CAUTION

DO NOT start the engine in an enclosed building. Proper ventilation is required before starting the engine.

Review the Engine Operating Manual supplied with your leaf vacuum for specific start-up, maintenance and operating instructions. It is especially important to review break-in service procedures for brand new units.

Starting Procedure (refer to figures 3a and 3b):

1. Perform all the pre-starting, pre-operating checks outlined in the EOM and in this manual.

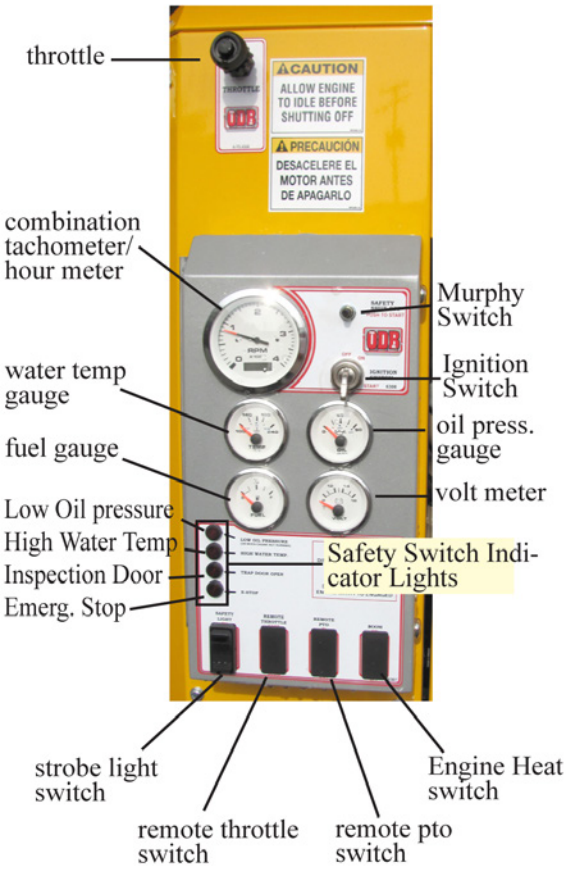
2. Make sure the PTO is disengaged as shown in figure 3b.

3. Turn the throttle control (fig. 3a) counter-clockwise 2 revolutions.

4. Depress and hold the Murphy switch while starting.

figure 3a

(Typical)



3.1 Starting Engine, continued;

5. **<u>IMPORTANT:</u> Do not operate the starter for more than 30 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, wait at least 2 minutes before trying again. If the engine fails to start after 4 attempts, see the trouble shooting section of the EOM and this manual.**

6. Turn the ignition switch all the way to the right, when the engine starts release the ignition switch. It should spring back to the first position.

7. **<u>IMPORTANT:</u> If the ignition switch is released before the engine starts, wait until the starter and the engine stop turning before trying again. This will prevent possible damage to the starter and/or flywheel.**

8. After the engine starts, continue to hold the Murphy Switch in until the oil pressure gauge reads at least 15 psi. The Murphy shut off switch will not allow the engine to operate below this level. If the gauge does not rise above 15 psi withing 5 seconds, stop the engine and determine the cause. Normal operating oil pressure is 50 psi with oil at normal operating temperature.

9. Check all gauges for normal engine opreration. If operation is not normal, stop the engine and determine the cause.

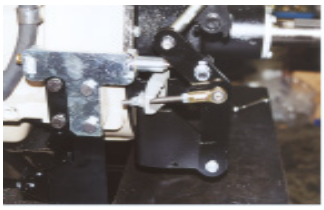
10. **<u>IMPORTANT:</u> To assure proper lubrication, operate the engine at or below 1200 rpm with no load for 1 -2 minutes. Extend this period 2 - 4 minutes when operating at temperatures below freezing.**

11. Watch the coolant temperature gauge. Do not place engine under load until it is properly warmed up. The normal engine coolant temperature range is 180 - 202 degrees F.

figure 3b

PTO shown disengaged

figure 3c



safety assist cylinder

figure 3d

PTO shown fully engaged

3.2 Engaging the PTO

⚠WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before staring the engine.

⚠WARNING

Make sure the intake hose is properly attached and make sure the front of the hose is clear of any objects which could be inadvertently vacumed during the PTO engagement process.

Review the Engine Operating Manual supplied with your leaf vacuum for specific start-up, maintenance and operating instructions. It is especially important to review break-in service procedures for brand new units.

Engaging the PTO (refer to figures 3b, 3c and 3d):

1. Perform all the pre-starting, pre-operating checks outlined in the EOM and in this manual.

2. Start the engine as previously discussed in this manual and in the EOM.

3. Once the engine has been allowed to thoroughly warm up (engine temperature gauge should read at least 180 degrees) pull the throttle control until the engine reaches 1000 rpm.

4. Grasp the PTO handle (fig. 3b) and slowly raise the handle. **NOTE:** Some units have a PTO assist cylinder which engages the PTO at a specific speed in order to properly engage the PTO. Because of this the PTO handle only needs to be raised slightly, then the assist cylinder will take over and engage the PTO automatically. (fig. 3c)

figure 3d

PTO shown fully engaged

3.2 Engaging the PTO, continued;

5. **<u>MPORTANT:</u> If the unit experiences any heavy vibrations or makes any unusual noises, shut the engine down and after following the necessary safety guidelines, have a qualified technician investigage the cause. DO NOT operate a unit that is in a state of disrepair.**

6. If the unit is running smoothly and does not dispaly any excessive vibration, the unit is ready to vacuum leaves. **<u>NOTE:</u>** Please see the next section before vacuuimg leaves.

<u>Disengaging the PTO (refer to figures 3b and 3d):</u>

1. Decrease the rpm to 1000 rpm.

2. Grasp the PTO handle and slowly disengage the PTO.

3. When the PTO is fully disengaged, the engine can be shut down.

figure 3b

PTO shown disengaged

3.3 Fluid Drive Coupler (if equipped)

Figure 3.3A

⚠ WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before staring the engine.

⚠ WARNING

Make sure the intake hose is properly attached and make sure the front of the hose is clear of any objects which could be inadvertently vacuumed at any time.

There is no PTO engagement when the unit is equipped with a Fluid Drive Coupler. The impeller is ALWAYS engaged and rotating.

⚠ WARNING

The suction impeller is ALWAYS rotating when the engine is running and for a few minutes after the engine is shut off. Exercise caution whenever the unit is running.

⚠ CAUTION

IMPORTANT: If the unit experiences any heavy vibrations or makes any unusual noises, shut the engine down and after following the necessary safety guidelines, have a qualified technician investigate the cause. DO NOT operate a unit that is in a state of disrepair.

3.4 Dumping the Body

⚠ DANGER

Make sure all people and animals are completely clear of the unit during the dumping process.

⚠ WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before staring the engine.

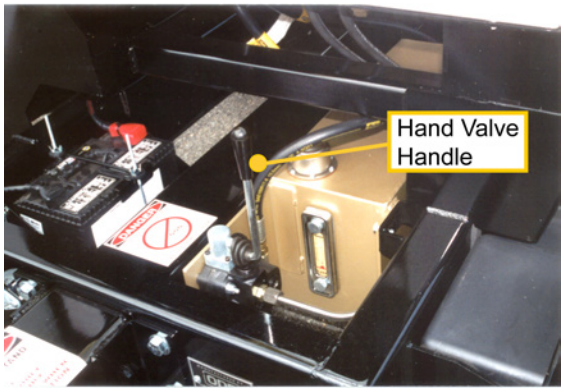
⚠ DANGER

Always operate the dump body controls from the front of the unit, standing beside the tongue.

⚠ WARNING

Make sure the unit is properly attached to the tow vehicle and the surface is level and solid before raising the body .

figure 3.3a



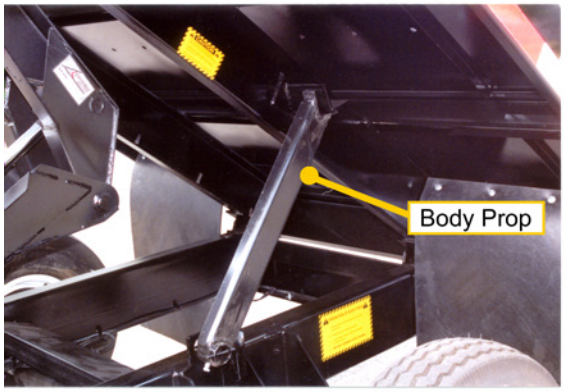
⚠ WARNING

Watch for any overhead obstacles such as power lines and tree limbs before dumping.

Review the Engine Operating Manual supplied with your leaf vacuum for specific start-up, maintenance and operating instructions. It is especially important to review break-in service procedures for brand new units.

Dumping the body (refer to figures 3.3a and 3.3b):

figure 3.3bc



1. Perform all the pre-starting, pre-operating checks outlined in the EOM and in this manual.
2. Start the engine as previously discussed in this manual and in the EOM. Make sure the PTO is disengaged.
3. Do a thorough inspection of the entire area around and above the unit, looking for any object that could get in the way of the body dumping.
4. Make sure the surface is level and the ground is solid before dumping.
5. Open the rear doors and secure to the side of the box container.

3.4 Dumping the Body, continued

figure 3.3a

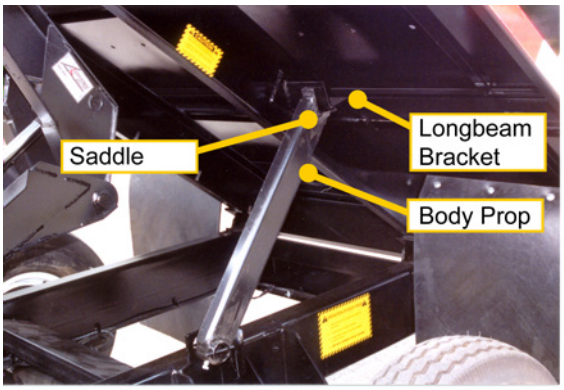
6. Increase the throttle to 1,200 rpm. **Do not** race the engine while using the hoist.

7. Grasp the hand valve handle (fig. 3.3a) pull the handle to the right (toward the radiator) to raise the body.

8. Raise the body only as high as it is needed to dump the load.

9. Shut off all power, raise the body prop(s) (fig. 3.3b) to a free standing position. Lower the body slowly until the the long beam bracket contacts the prop arm saddle (fig. 3.3c). DO NOT POWER HOIST DOWN.

figure 3.3b

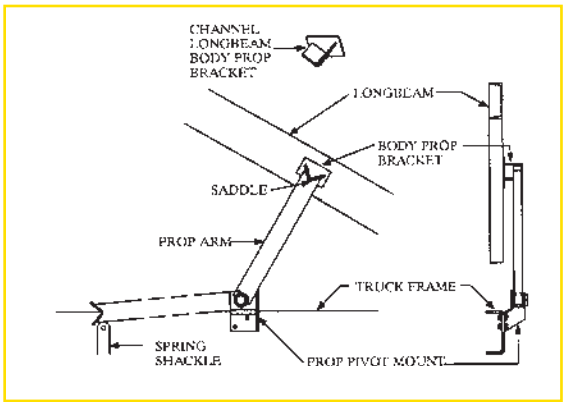


Lowering the body:

1. Before lowering the body, walk completely around the unit and thoroughly inspect the area between the body and the unit's frame. Look for any object, person or animal that could potentially get between the dump body and the frame. **DO NOT** go under the body while inspecting.

2. Once the load has been dumped, start the engine as described in section 3.1. **DO NOT** race the engine.

figure 3.3c



3. Slowly raise the body just enough to clear the body prop saddle, lower the body prop to the storage position (fig 3.3c) and slowly lower the body.

4. The dump body may stop approximately 12" from the bottom due to the safety check valve. If it does, slowly raise the body a few inches and SLOWLY lower the body down. The body needs to be lowered extremely slow the last 12 inches or the check valve will stop the body.

5. Once the body is completely down, close the rear doors and prepare the unit for travel as detailed in this manual.

3.5 Vacuuming Leaves

⚠WARNING

Thoroughly read and understand the safety, pre-operating and operating sections of this manual before vacuuming. Wear the proper safety equipment as outlined in this manual.

⚠WARNING

Make sure the exhaust hose is connected to the box container properly before vacuuming leaves. Visually inspect the leaves before vacuuming for any material that could be harmful to the leaf vacuum or people. This includes bottles, wood, steel, glass, stone or other hard or breakable objects.

Vacuuming Leaves:

1. Start the engine and engage the PTO using the procedures stated earlier in this manual.

2. Set the engine throttle to around 1400 rpm.

3. NOTE: Always vacuum leaves using the lowest rpm as possible. This saves fuel and decreases the amount of dust escaping the box container.

4. Lower the intake hose to a few inches above the leaf pile. Hold the intake nozzle at a 45 degree angle to allow proper air flow. This should allow the leaves to be vacuumed. DO NOT bury the intake nozzle into the leaf pile, this will cut off the air flow and will make vacuuming much more difficult and increase the chance of clogging.

5. If the leaves are not vacuuming, increase the rpm to 1400 and try vacuuming at this setting.

6. NOTE: Wet leaves will need higher rpm's to vacuum whereas dry leaves will only need minimal rpm's.

7. Continue moving the nozzle in a sweeping motion above the leaves while vacuuming.

⚠WARNING **Read and understand this entire manual before operating, maintaining or repairing the leaf vacuum.**

4.0 MAINTENANCE SECTION

Maintenance Section

4.1 Maintence Overview:

⚠ CAUTION

Only properly trained personnel should perform maintenance or repair on this equipment. Consult ODB before performing any maintenance procedures that is not specificially covered in this manual. Improper maintenance or repair may void any and all warranties on this equipment.

⚠ WARNING

Improper maintenance or repair CAN result in equipment damage and/or personal injuries.

⚠ DANGER

BEFORE CONTINUING, please read and understand the Safety, Pre-operating and Operating sections of this manual before doing any prodcedures in this section.

A properly maintained leaf vacuum will dramatically extend the life of the unit and will create a safer work place as well. For the general safety and welfare of all personnel it is important to create a scheduled maintenance program that covers all the elements in this manual as well as the engine, PTO and axle owner's manuals provided with this unit.

Use the chart on the following page as a guide for your scheduled maintenance program. If there are any questions concerning any ot these procedures please call ODB.

4.2 Maintenance and Lubrication

This chart is only a reference, always consult the Owners Manual of the Engine, PTO, etc for actual recommendations

(Use Hour Meter as a Guide)

MAINTENANCE	INTERVAL					
	Daily	First 8 Hours	Every 25 Hours	Every 50 Hours	Every 100 Hours	Every 200 Hours
Check and add engine oil, coolant, fuel and hydraulic fluid (hoist and boom)*	●					
Check for loose nuts or bolts	●					
Check for fuel, oil, coolant and hydraulic leakage*	●					
Check or clean radiator screen	●					
Lubricate impeller shaft flange bearings(if equipped)	●					
Check lug nuts and tire pressure / condition	●					
Check trailer safety chains and hitch	●					
Check tow bar for damage or wear	●					
Check and clean instrument panel and circ. board	●					
Clean pre-cleaner	●					
Check air filter for dirt or debris*	●					
Check trailer lighting and trailer brake operation	●					
Change engine oil*					●	
Clean and check battery and connections*			●			
Check power band tension (if equipped)			●			
Check power band condition (if equipped)			●			
Check impeller for damage, cracks or wear			●			
Grease (non-conductive) circuit board connectors			●			
Clean hydraulic pump motor/connections			●			
Lubricate throttle and choke cables				●		
Check blower housing liners for cracks or wear				●		
Check Clutch/PTO linkage adjustment				●		
Change hoist hydraulic fluid and filter		●			●	
Change boom hydraulic fluid					●	
Inspect intake and exhaust hoses for damage					●	
Check exhaust duct gasket for wear	●					
Replace oil filter*					●	
Replace air filter primary element*					●	
Inspect radiator and hoses*					●	
Check fan belt conditions and tension*					●	
Inspect all duct work for cracks, holes or wear	●					
Grease / Inspect wheel bearings for corrosion					●	
Change engine coolant*						●
Check fuel tank for leaks						●
Lubricate Hoist and Hinge Fittings						●

* = see the engine owner's manual for complete details

4.3 Lubrication:

⚠ CAUTION

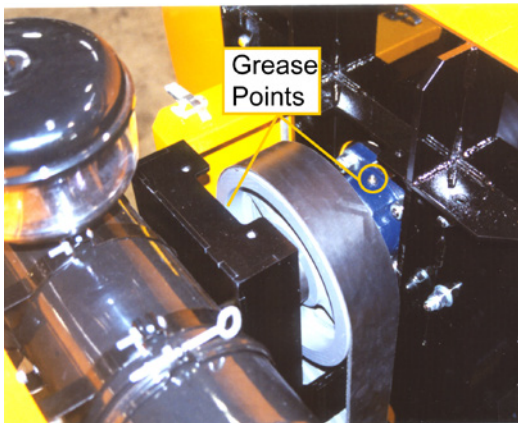
Remove the negative battery terminal before attempting any lubrication procedures.

⚠ WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before performing any lubrication procedures.

Figure 4.3A

Belt drive units only



The following are general lubrication procedures for our standard units. Any special or custom built units may have other lubrication procedures not directly mentioned in this manual. Please consult ODB before any lubricating procedures not specifically mentioned in this manual.

Proper lubrication of your unit correlates directly to how long your unit will last. A properly maintained unit will last much longer than a unit that is not maintained properly. **NOTE:** Always lubricate bearings at the end of each work day. This will displace any moisture in the bearings. Also lubricate thorougly before extended shutdown or storage.

Lubrication Points:

1. **Drive Bearings (if equipped) (figure 4.3a):** These bearings are critical components of the belt-driven units. These bearings should be greased every 10 hours with approximately two strokes from the average hand pump grease gun. The type of grease used in these bearings are also critical to the performance of the bearings. A multi-purpose, heavy-load, high-temperature, moisture resistant #2 grease is required for the drive bearings. ODB recommends Mantek Elite Supreme #1 WG Extreme Duty multi-purpose grease.. Other premium quality grease that matches the above requirements may be used but after years of testing ODB recommends the Elite Supreme grease.

4.3 Lubrcation, continued;

Lubrication Points, continued:

2. **Trailer Wheel Bearings (figure 4.3b):** All of ODB's units are equipped with oil lubricated hubs. Periodically fill the hub with a high quality hypoid gear oil to the level indicated on the clear plastic oil cap. The oil can be filled from either the oil fill hole in the hub or through the rubber plug hole in the cap itself.

Figure 4.3b

Oil specifications:

SAE 90 Hypoid Gear (Hypoid Rear Axle Gear Oil)

Approved Sources:

Union Oil Co.....Union MP, Gearlube - LS
Exxon Co.....Gear OIl GX80W-90
Mobil Oil Corp.....Mobilube SHC 75W-90
Penzoil Prod. Co.....Multipurpose Gear Lubr. 4092
.....or Mulitpurpose Gear Lubr. 4096

3. For any questions concerning wheel lubrication please consult the axle owner's manual supplied with your leaf collector or contact ODB.

Figure 4.3c

Hitch and Tongue (figure 4.3c):
The hitch and hitch ring should be checked and lubricated daily to minimize wear. Apply grease and/or SAE30 weight oil wherever applicable. While lubricating, make sure all components are in good working order and not worn in any way.

Figure 4.3d

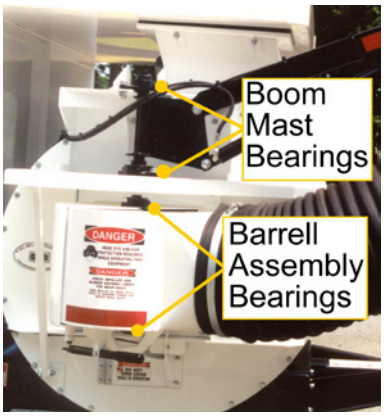


Figure 4.3e

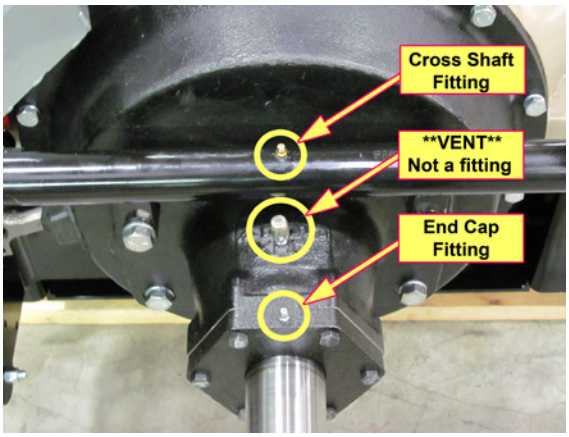


Figure 4.3f

4.3 Lubrication, continued;

Lubrication Points, continued;

4. **Boom Swivel and Barrell Assembly Bearings (figure 4.3d):** These bearings are on most of ODB's model leaf machines after 1996. Grease the boom bearings once every week with a multi-purpose moisture resistant #2 grease.

5. **PTO Bearing & PTO Shaft Fitting (figure 4.3e):** The PTO crossover shaft and linkage should be lubricated with high temperature lithium base #2 lubricant after 200 hours of operation.

6. **Hinge and Friction Points:** Leaf vacuum operation and longevity can be improved by keeping hinges and friction points lubricated. ODB recommends that lubricaton be performed weekly. Use SAE30 weight oil on hinges and a premium grade, high temperature lithium based EP#2 grease on friction points.

7. **Parking Jack (figure 4.3f):** Remove the top cover and lubricate the gears inside with a standard gear grease. This should be done at the beginning of each season. Proper lubrication will make hitching the leaf collector much easier.

4.4 Preventative Maintenance

⚠ CAUTION **Remove the negative battery terminal before attempting any maintenance procedures.**

⚠ WARNING **Thoroughly read and understand the safety and pre-operating sections of this manual before performing any maintenance procedures.**

The following are general preventative maintenance procedures for our standard units. Any special or custom built units may have other preventative maintenance procedures not directly mentioned in this manual. Please consult ODB before doing any preventative maintenance procedures not specifically mentioned in this manual.

Proper preventative maintenance of your unit, just like lubrication, correlates directly to how long your unit will last. A properly maintained unit will last much longer than a unit that is not maintained properly.

Preventative Maintenance:

1. **Engine Oil:** Change the oil and oil filter according to schedules provided in your engine's owner's manual (EOM). The engine oil level should be checked every day. The level should be checked after the engine has been stopped for a period of time. This will allow the oil to drain back into the oil pan, allowing a better indication of the true oil level. If the level is low, see the engines owner's manual for the correct type of oil.

2. **Engine Coolant:** Check the coolant level before starting the unit each day. The coolant level should not be less than one inch below the top of the radiator.

⚠ CAUTION **NEVER check the engine coolant when the engine is hot. Allow the engine to cool at least one hour before checking the coolant. Check the engine owner's manual for instructions. ALWAYS wear eye and hand protection when working with the radiator.**

4.4 Preventative Maintenance, continued;

Preventative Maintenance, continued;

3. **Engine Radiator:** The engine radiator on a leaf vacuum becomes clogged with dust and debris frequently because of the nature of the job. If the radiator is not cleaned properly it WILL cause improper cooling and WILL eventually cause serious damage to your engine. The debris accumulating on the radiator can be lessened by lowering the RPM on the engine to a level just enough to vacuum the leaves. The higher the RPM the more dust that is put into the air. Also, it may be necessary to put mesh or tarps on the top of the leaf box container to reduce the debris and dust. If this is done, make sure there is enough air ventilation on the box so the box is not blown apart. Proper belt condition and coolant mix-ratio, as well as coolant conditioners, are all critical to proper engine cooling. See the engines owner's manual for specifics on coolant mixture ratios and conditioners. The radiator should be inspected and cleaned with compressed air everyday at the very least.

⚠ DANGER

NEVER attempt to clean or inspect the radiator with the engine running or while the engine is HOT. Allow the engine to cool at least one hour before mantaining the radiator. Check the engine owner's manual for instructions. ALWAYS wear eye and hand protection when working with the radiator.

4. **Engine Air Cleaner:** Due to the large amounts of dust generated in collection leaves, it is critical to your engine's life that the pre-cleaner and air filter be maintained properly. The pre-cleaner should be cleaned at least daily of any debris that has accumulated. If conditions warrant it should be cleaned more. The air filter should be checked daily and should be replaced at the first sign of it being dirty. DO NOT attempt to clean the air filter, replace the dirty air filter. It is a good idea to clean out the air filter housing once a week to clean any dust debris that may have accumulated.

5. **Tires and Wheels:** Tires and wheel lug nuts should be checked on a daily basis. Tires should be checked for excessive wear and proper air pressure. Check the side wall of the tire for proper inflation pressure. Torque all 1/2" diameter lug nuts from 90 to 120 foot pounds. Torque all 5/8" diameter lug nuts from 175 to 225 foot pounds. Consult the axle manufacturers owner's manual for more detailed information.

4.4 Preventative Maintenance, continued;

Preventative Maintenance, continued:

6. **Trailer Brakes (if equipped):** Most of the newer ODB leaf vacuums have electric brakes on the axle(s). It is critical that these brakes work properly. The trailer's brakes should be checked daily, before leaving the equipment yard, for proper operation. The trailer brakes are designed to work in synchronization with your tow vehicles brakes. Never use your tow vehicle or trailer brakes alone to stop the combined load. The synchronization between the tow vehicle and the leaf vacuum is accomplished through the brake controller and needs to be set correctly. Please read the brake controllers manual and the axle owner's manual for these procedures.

⚠WARNING **DO NOT tow the leaf vacuum with damaged or non-operating brakes. Check the brakes daily for proper operation.**

The brakes should be adjusted after the first 200 miles of operation when the brake shoes and drums have "seated" and at 3,000 mile intervals, or as use and performance requires. The adjustment procedures are beyond the scope of this manual, please see the axle owners/service manual for specific instructions.

The trailer brakes should be inspected and serviced at yearly intervals or more often as use and performance requires. Magnets and shoes must be changed when they become worn or scored thereby preventing adequate vehicle braking. Again, see the axle owner's/service manual for specific procedures.

7. **FUEL TANK:** Fill the fuel tank at the beginning of the work shift leaving a gap of at the top of the tank for expansion of fuel. A full fuel tank will reduce the possibility of condensation forming in the tank and moisture entering the fuel lines. Check the fuel lines daily for cracks, holes or tightness.

4.4 Preventative Maintenance, continued;

Preventative Maintenance, continued:

⚠ CAUTION **ALWAYS wear eye and hand protection when working with the battery.**

8. **BATTERY:** ODB's units are supplied with "maintenance free" batteries so there is no need to check fluid levels but the battery terminals should be checked daily for corrosion. Remove any corrosion with a wire brush and coat the terminals with light grease or petroleum jelly to reduce the possibility of corrosion. Also check the battery cable for wear all cable connections and battery tie downs to be certain that they are not loose.

9. **DRIVE BELT (if equipped):** The main drive belt should be checked daily for cracks and for proper tension. If the belt shows any sign of

⚠ CAUTION **Remove the negative battery cable before opening the belt guard.**

cracking it should be replaced immediately. The proper tension of the belt should be approximately 1/2" deflection when applying a 8 pound pull.

10. **FASTENERS:** Fasteners should be checked weekly for the first 30 days and monthly thereafter. They must be in place at all times and properly torqued. For general torque values see the torque chart at the end of this section.

11. **INSTRUMENT PANEL AND CIRCUIT BOARD:** The instrument panel and circuit board should be cleaned with compressed air daily. Also the circuit board connectors should be wiped clean and have nonconductive grease applied weekly to help maintain solid connections.

12. **BOOM HYDRAULIC PUMP:** Check the fluid level daily. If fluid needs to be added, automatic transmission fluid (ATF) is recommended. Clean debris and oil off the solenoid and pump daily. A build up of debris can cause premature failure to the pump. Check and tighten all hydraulic fittings making sure there are no leaks.

4.4 Preventative Maintenance, continued;

Preventative Maintenance, continued:

13. **Hoist Hydraulic Fluid and Filter:** The hoist hydraulic fluid and filter should be changed every 100 hours of operation. The fluid should be completely drained and fresh high quality **ISO 68 non-foaming** hydraulic fluid should be added.

⚠ CAUTION **ALWAYS raise and support the box container properly using the steps outlined in this manual.**

14. **Exhaust Duct Gasket:** The 1.5" thick gasket should be checked for wear every 200 hours. This gasket creates a tight seal between the box container and the blower housing.

15. **Axle Hangers:** The hanger bolts should be checked periodically for tightness and wear.

16. **Hydraulic Fittings:** Check all hydraulic fittings for leaks and tightness. Any leak could become a hazard, fix immediately.

4.5 Torque Values

INCH BOLT AND CAP SCREW TORQUE VALUES					METRIC BOLT AND CAP SCREW TORQUE VALUES						
TYPE	SAE GRADE					CLASS					
	5		8			8.8 or 9.8		10.9		12.9	
HEAD MARK					HEAD MARK						
SIZE(D)	LB-FT		LB-FT		SIZE(D)	LB-FT		LB-FT		LB-FT	
	Lub*	Dry*	Lub*	Dry*		Lub*	Dry*	Lub*	Dry*	Lub*	Dry*
1/4"	7	9	10	12.5	M6	6.5	8.5	9.5	12	11.5	14.5
5/16"	15	18	21	26	M8	16	20	24	30	28	35
3/8"	26	33	36	46	M10	32	40	47	60	55	70
7/16"	41	52	58	75	M12	55	70	80	105	95	120
1/2"	63	80	90	115	M14	88	110	130	165	150	190
9/16"	90	115	130	160	M16	140	175	200	255	240	300
5/8"	125	160	175	225	M18	195	250	275	350	325	410
3/4"	225	280	310	400	M20	275	350	400	500	460	580
7/8"	360	450	500	650	M22	375	475	540	675	625	800
1"	540	675	750	975	M24	475	600	675	850	800	1000
1-1/8"	675	850	1075	1350	M27	700	875	1000	1250	1150	1500
1-1/4"	950	1200	1500	1950	M30	950	1200	1350	1700	1600	2000
1-3/8"	1250	1550	2000	2550	M33	1300	1650	1850	2350	2150	2750
1-1/2"	1650	2100	2650	3350	M36	1650	2100	2350	3000	2750	3500

***Lub** means coated with a lubricant such as engine oil, or fasteners with phospate or oil coatings. "Dry" means plain or zinc plated without any lubrication.

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening. Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown inthe chart, applied to the nut, not the bolt head.

4.6 Quick Reference Chart

⚠ CAUTION

Only properly trained personnel should perform maintenance or repair on this equipment. Consult ODB before performing any maintenance procedures that is not specificially covered in this manual. Improper maintenance or repair may void any and all warranties on this equipment.

NOTE: THIS CHART IS FOR REFERENCE ONLY, CONSULT THE ENGINE'S OWNERS MANUAL FOR SPECIFIC DETAILS. FOR JOHN DEERE 4045D ENGINES ONLY.

ITEM	
Fuel Requirement	Diesel fuel specified to EN 590 or ASTM D975
Fuel Capacity	42 gallons
Low / High Idle Speed	750 rpm / 2,600 rpm
Engine Oil: Grade Viscocity Capacity	 API service classicfication; CG-4, CF-4 SAE15W-40 / SAE10W-40, or SAE 5W-30 (see EOM manual for details) 9 US qt
Coolant: Type Mixture Freezing Point Amount	 Permanent type of antifreeze; green in color (see EOM manual) Water 50%; Antifreeze 50%; (1:1) -35 degrees C (-31 degrees F) 2.5 US gallons
Hoist Hydraulic Tank Type Amount	 High Viscocity, Premium Hydraulic Fluid; Shell Tellus #68 recommended. (ISO 68 viscosity grade) 8 US gallons

⚠ WARNING

Improper maintenance or repair CAN result in equipment damage and/or personal injuries.

⚠ DANGER

BEFORE CONTINUING, please read and understand the Safety, Pre-operating and Operating sections of this manual before doing any prodcedures in this section.

⚠ CAUTION

DO NOT ATTEMPT TO OPERATE OR REPAIR THE LEAF COLLECTOR WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL

IF YOU HAVE ANY QUESTIONS CONCERNING THE INSTALLATION OR OPERATION OF THIS UNIT, PLEASE CALL ODB FOR ASSISTANCE BEFORE ATTEMPTING TO REPAIR OR OPERATE THE UNIT.

IMPROPER USE OF ANY MACHINE CAN RESULT IN SERIOUS INJURY!

STUDY AND FOLLOW ALL SAFETY PRECAUTIONS BEFORE OPERATING OR REPAIRING UNIT

THIS MANUAL IS AN INTEGRAL PART OF THE LEAF COLLECTOR AND SHOULD BE KEPT WITH THE UNIT WHEN IT IS SOLD.

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

SERVICE SECTION

5.0 SERVICE SECTION

5.0 Service and Troubleshooting
5.10 Wiring Diagrams
5.20 Hoist Hydraulic System

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

SERVICE AND TROUBLESHOOTING

5.0 SERVICE SECTION

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5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

5.1 Engine Electrical Troubleshooting Guide

ENGINE RUNS ONLY WHEN OVERRIDE BUTTON IS DEPRESSED

1. Make sure the PTO is disengaged.
2. Take a look at the limit switch located at the inspection door of the blower housing. Check to be sure that the inspection door closes completely and that the door presses in the limit switch. The limit switch is extremely sensitive and only needs to open 1/64" to shut the engine off.
3. If the inspection door closes properly and presses in the limit switch properly, then disconnect the two wires from the back of the limit switch.
4. Start the engine using the normal procedure then release the shut off button. If the engines continues to run then the problem lies in the limit switch or the limit switch wiring. If the engine still cuts off then the limit switch is not the cause, go to Testing the shut off switch.

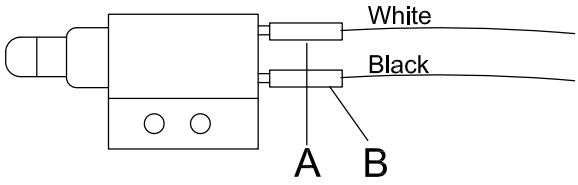
TO TEST THE LIMIT SWITCH:

5. With an ohm meter check the resistance of the terminals A & B (Fig. 1) while the button is not depressed. There should be no resistance or continuity. With the button depressed there should be full continuity or infinite resistance, if not the switch is bad and should be replaced.

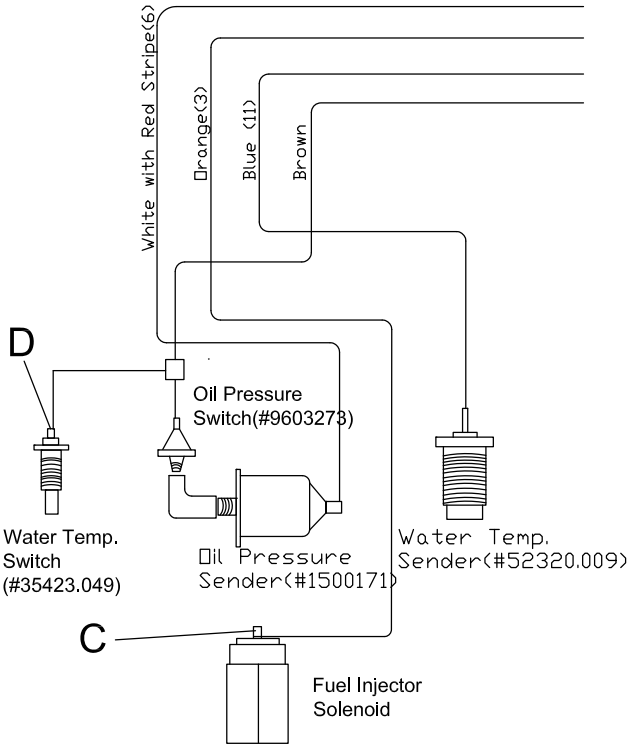
TESTING THE SHUT OFF (MURPHY) SWITCH:

6. Turn the ignition switch to the first position.
7. Put a test light to terminal B (Fig. 3) to test for current. If there is no current at B, power is not getting to the shut off switch. Then the problem is not the shut off switch.
8. If there is current at terminal B, put a test light on the fuse at location Z (Fig. 3). If there is no current there the fuse is blown. Replace fuse.
9. If there is current at B and Z, push the override button (letter X, Fig. 3) in on the shut off switch. While the button is depressed place the test light on terminal C (Fig. 3). If there is current at terminal C then the shut off switch is functioning properly and the problem lies elsewhere. If there is no current at terminal C then the shut off switch is defective and needs to be replaced.

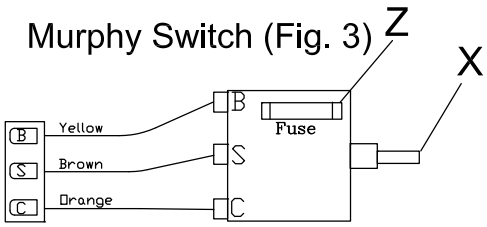
Limit Switch (Fig. 1)



Typical Wiring (Fig. 2)



Murphy Switch (Fig. 3)



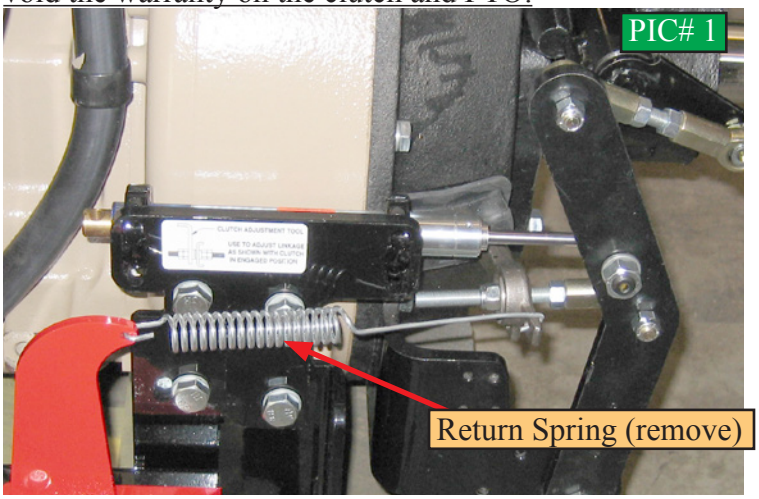
10. Next locate the fuel solenoid valve located on the fuel injector pump (Letter C, Fig. 2). It has an orange wire running to it. Pull the ignition switch to the first position. Put a test light on the terminal of the fuel solenoid where the wire is attached. Test light should light up showing current, if not shut off switch is bad. Replace.
11. If engine still cuts off after shut off button is released then test the water temperature switch (located on the engine block, Letter D, fig. 2) by removing the brown wire attached to the temperature switch. Start the engine using the normal procedure then release the shut off button. If the engine continues to run then the water temperature switch is defective. Replace the switch. If the engine shuts off, do the same test on the oil pressure switch. If the engine continues to shut off after this test call ODB for additional service procedures.

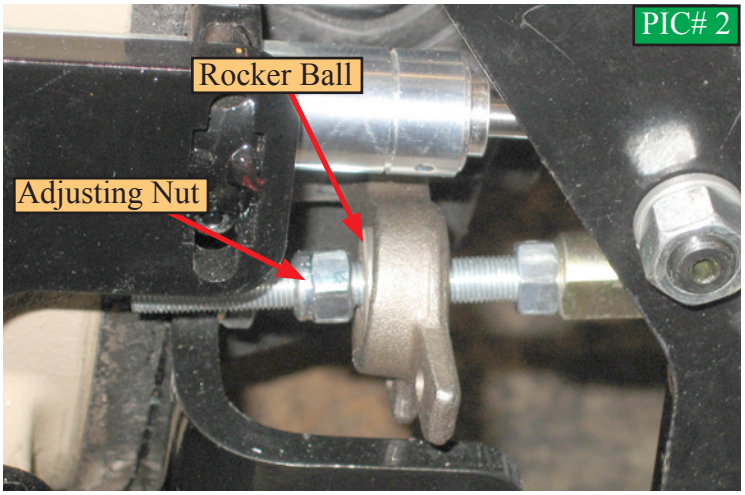
5.2 Auto Mfg. Clutch Adjustment - 2008 and after

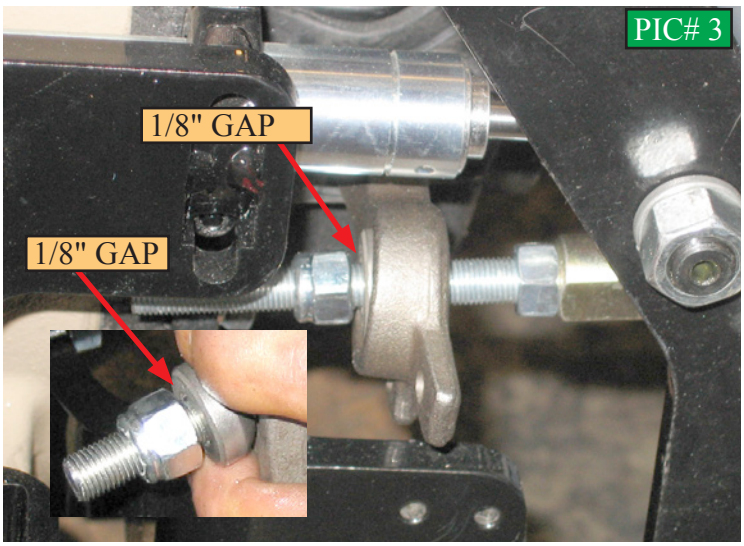
⚠ CAUTION

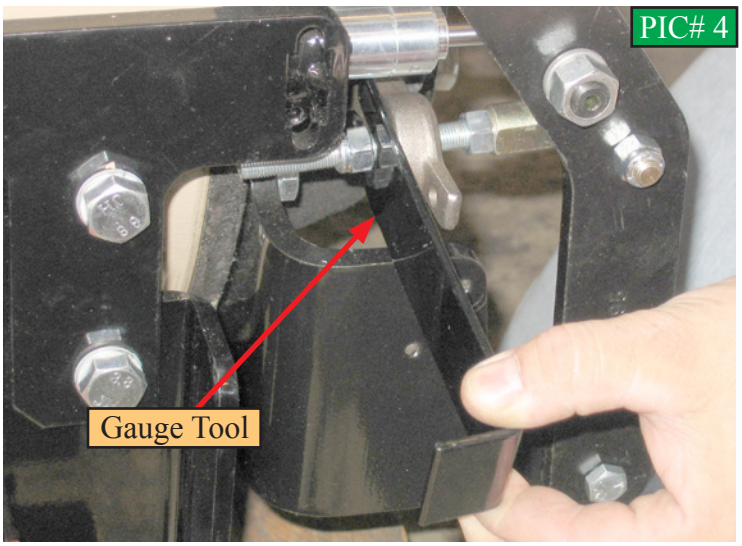
Rotating Shafts, pulleys, and moving belts can cause severe injury or can be fatal. The engine and driven unit MUST be completely stopped before any adjustments or work is attemped to the engine, driven unit, or the PTO clutch itself.

The clutch linkage should be checked after the first 15 hours of operation and every 40 hours there after. An improperly adjusted clutch can result in premature wear to the clutch disc, flywheel and the throwout bearing and will void the warranty on the clutch and PTO.





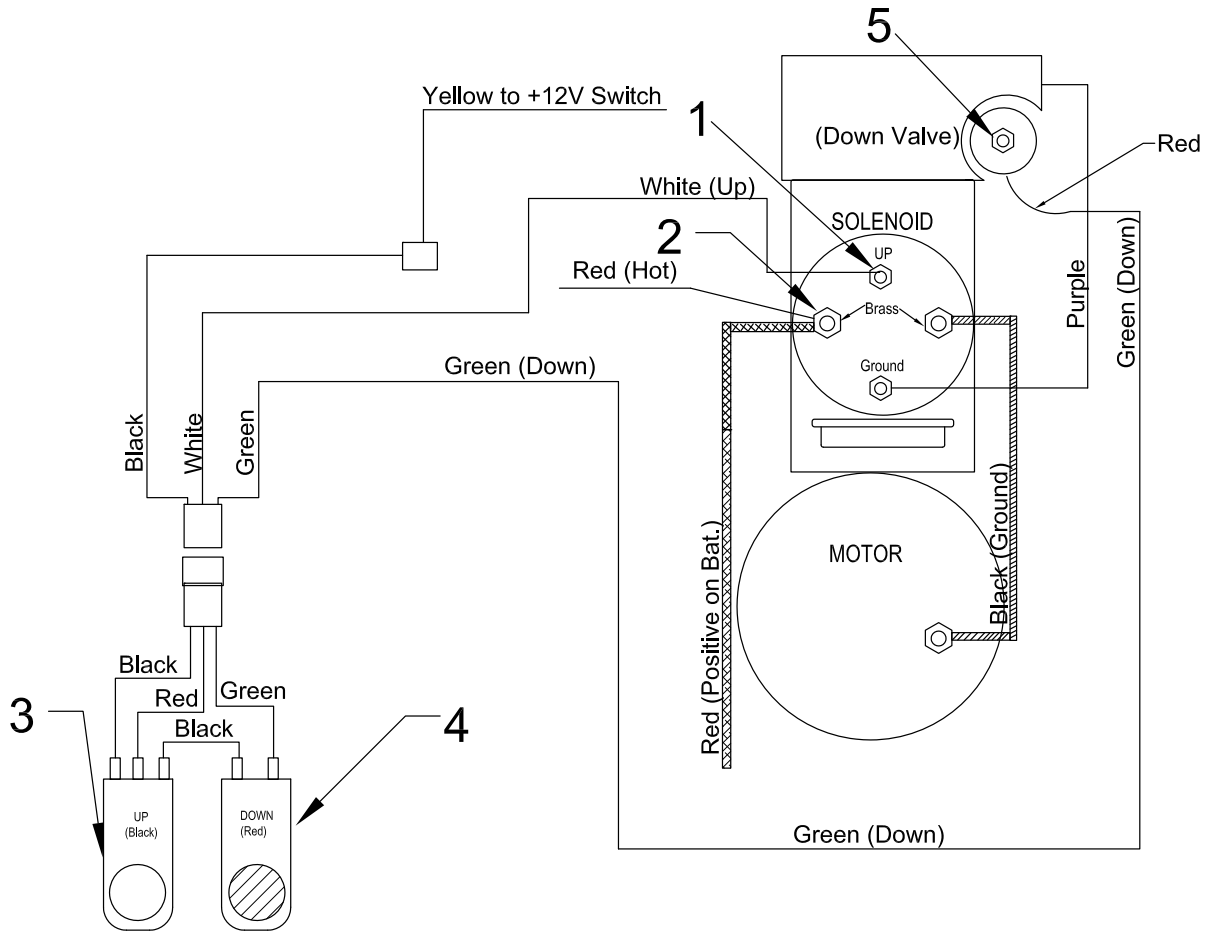




ADJUSTMENT OF THE CLUTCH LINKAGE

1. Make sure the engine is OFF and remove the negative battery cable to ensure the unit can not accidently be started.
2. Remove the spring from the throwout arm. (See PIC# 1) An accurate measure of the arm tension CAN NOT be made with the spring attached.
3. With the clutch in the engaged position adjust the nut (See PIC# 2) against the "rocker ball" until a 1/8" gap between the nut and rocker ball is visible (See PIC# 3).
4. If available, use the special 1/8" gauge tool to slip between the nut and rocker ball. With the proper adjustment the gauge should slide between the nut and rocker ball with a slight amount of pressure. (See PIC# 4)
5. Move the adjustment nut to create the 1/8" gap.
6. Re-install the return spring.
7. Place the handle in the disengaged position. Check to make sure that the PTO output shaft turns freely.

5.3 Hydraulic Boom Troubleshooting Guide



BOOM WILL NOT GO UP

1. Check the fluid level in the reservoir.
2. Using a test light make sure there is current at the outside solenoid post (item#2), this has a 4 gauge Red battery cable attached. If no current is found check the battery condition and battery connections.
3. If there is current at this post, depress the "up" button (item# 3), while pressing the "up" button check for current at the middle post (item# 1), it has a White wire attached. If there is current at the post (item# 1) the solenoid may be defective. Run a jumper wire connecting #1 and #2. This will test the motor, bypassing the solenoid. If the boom raises, the motor is okay (motor part# MP-08004) but the solenoid is bad and needs to be replaced. Solenoid part number is MP-17744.
4. If there is NO current at the post (item# 1) check the wiring between the switch and the solenoid. If the wiring checks out okay, the switch is bad and needs to be replaced.

BOOM WILL NOT GO DOWN

1. Using a test light make sure there is current at the outside solenoid post (item#2), this has a 4 gauge Red battery cable attached. If no current is found check the battery condition and battery connections.
2. Press and hold the "down" button (item# 4), take a test light and probe through the insulation and test for current on the red wire at the valve (item #5).
3. If there is current, the valve is bad and need to be replaced. Valve part number is MP-19283.D. If there is NO current, check the wiring between the switch and valve, especially any connections. If the wiring checks out okay, the switch is bad and needs to be replaced.

5.4 Impeller Installation and Removal

⚠ CAUTION

Before removing the blower housing face remove the negative battery cable to ensure unit can not be started.

REMOVAL

1. The blower housing face must be removed to gain access to the impeller. Use an overhead crane or forklift to support the face while removing.
2. Once the face has been removed, remove the shaft protector (Fig. 1 or 2).
3. Saturate the shaft and bushing using a penetrating lubricant to help loosen the bushing. Clean any grease or debris from the bushing and shaft.
4. Remove the 3 bolts attaching the bushing to the impeller.(Fig. 3) Being careful not to break the bolts. If a set screw is on the lip of the bushing, loosen it using an allen wrench.(Fig. 4)
5. Using two of the bolts that were just removed screw those bolts into the threaded holes on the bushing. Drive the two bolts into the bushing.(Fig. 5) This will separate the bushing from the impeller. Alternate from one bolt to the other driving only about a 1/4" at a time to keep the bushing coming out straight. It is imperative to keep the bushing straight to remove it.

IMPORTANT: Be sure to drive the bushing out evenly or it will get in a bind making removal much harder.

6. If the bushing does not come off using the two bolts, drill and tap several additional 3/8-16 holes around the bushing. Using Grade 8, 3/8-16 - 2 inch bolts, alternately drive the bolts 1/4" at a time to remove the bushing. KEEP THE BUSHING STRAIGHT while removing.

IMPORTANT: If additional holes were drilled in the bushing, it can not be reused. It must be be replaced.

7. Once the bushing has been removed use an overhead crane or other suitable device to help lift the impeller out of the blower housing.
8. At this point it would be a good idea to inspect the blower housing liners and blower housing for any damage or wear. Any damage or wear to the liners should be fixed by replacing the liners immediately.

Fig. 1

Direct Drive

Fig. 2

Belt Drive

Fig. 3

Fig. 4

Fig. 5

5.4 Impeller Installation and Removal, continued

⚠ CAUTION

Before removing the blower housing face remove the negative battery cable to ensure unit can not be started.

INSTALLATION

1. Clean the shaft of any debris and remove any rust using a 120 grit emory cloth.
2. Using an overhead crane or other suitable lifting device lift the impeller on to the shaft. Turn the impeller to align the keyways of the shaft with the keyway in the impeller.
3. Insert key into the keyway. A light sanding of the keyway may be needed, as well as a few light blows with a rubber mallet.
4. Tap the bushing onto the shaft aligning the keyways.
5. BELT DRIVE UNITS: Align the bushing and key to be flush with the end of the shaft (Fig 1).
6. DIRECT DRIVE UNITS: The bushing and key should protrude from the shaft about 1/2 inch (Fig. 2).
7. Put the 3 bolts into the non-threaded holes and drive them into the impeller holes evenly. Alternate between the three bolts as you drive the bolts in. Torque to 40 to 50 lbs/ft. There should be a gap of 3/8" to 1/2" between the bushing and the impeller.

IMPORTANT: Slowly spin the impeller by hand making sure that the back of the impeller is not hitting any of the bolt heads located at the back of the blower housing.

8. If the bushing has a set screw on it, tighten the screw snug with an allen wrench (Fig. 3). This will help keep the key in place.
9. Install the shaft protector on to the shaft (Fig. 4 or 5).

Fig. 1

Fig. 2

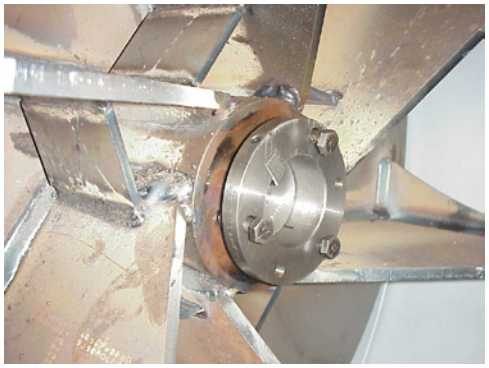


Fig. 3

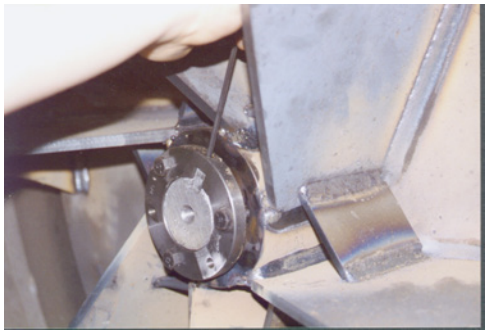
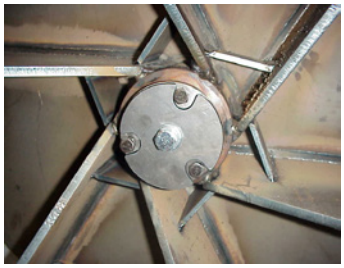


Fig. 4

Direct Drive

Fig. 5

Belt Drive



5.5 Replacing the Drive Belt (if equipped)

figure 5.2a

⚠ WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before working on the unit.

⚠ WARNING

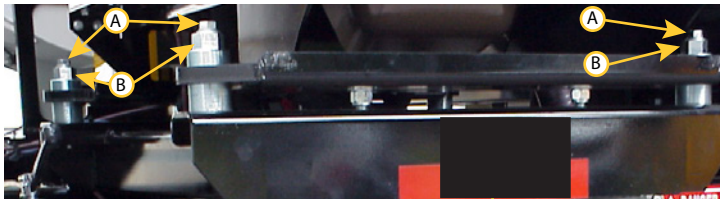
Make sure the negative battery cable is disconnected before opening the blower housing.

Review the safety section of this manual before attempting these procedures.

Removing Drive Belt (refer to 5.1a thru 5.1d):

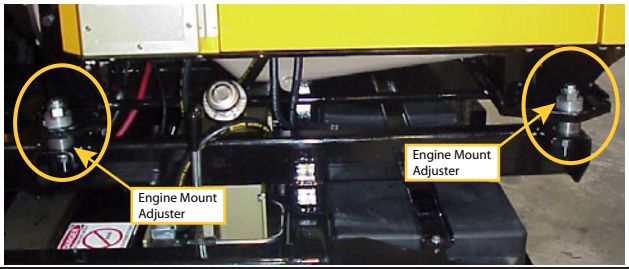
1. Open the belt guard (figure 5.2a) to gain access to the power band.
2. Remove the top cover plate (figure 5.2b).
3. Loosen the 1/2" nut on the engine mount adjuster bolts (item A on figure 5.2b & 5.2c). There are 4, one in each corner.

figure 5.2b



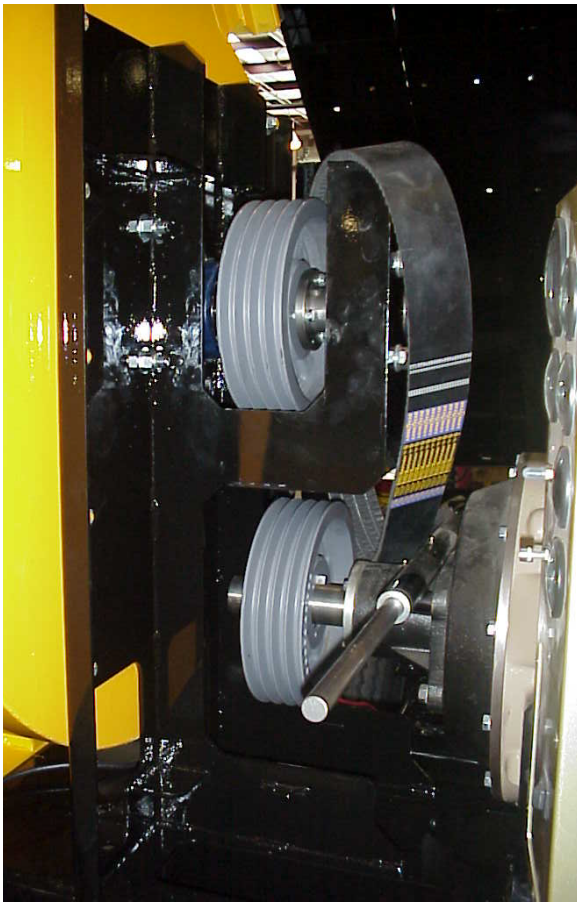
4. This should allow the belt to have enough slack to slip out (figure 5.2d on next page).

figure 5.2c



5.5 Replacing the Drive Belt (if equipped)

figure 5.2d



⚠ WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before working on the unit.

⚠ WARNING

Make sure the negative battery cable is disconnected before opening the blower housing.

Review the safety section of this manual before attempting these procedures.

Installing the Drive Belt (refer to 5.1a thru 5.1d):

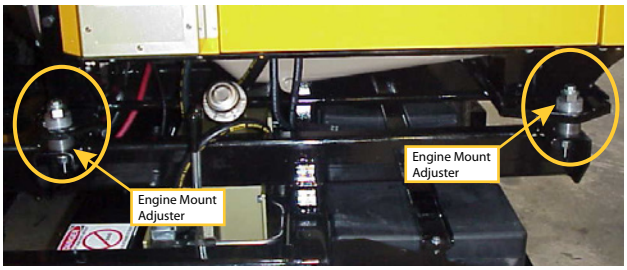
1. Install the belt by reversing the previous procedure.

2. If the belt needs to be adjusted more, loosen the 1/2" nut on the engine adjuster bolt (item A figure 5.2a) and "fine tune" the adjustment using the large nut (item B Figure 5.2b). Be careful to keep the engine level.

3. After adjusting the engine height using the large nut, tighten down the 1/2" nut (Item A, figure 5.2b).

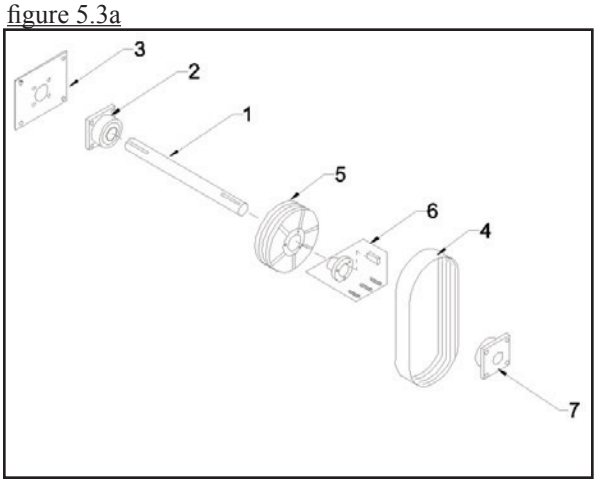
figure 5.2b

figure 5.2c



5.6 Flange Bearing Installation and Removal (if equipped)

figure 5.3a



⚠ WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before working on the unit.

⚠ WARNING

Make sure the negative battery cable is disconnected before opening the blower housing.

Review the safety section of this manual before attempting these procedures.

figure 5.3b

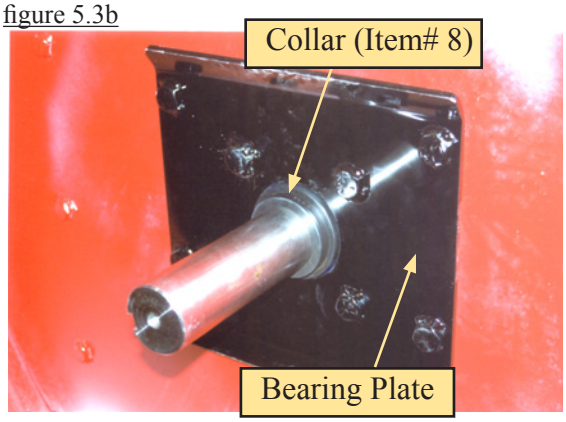


figure 5.3c

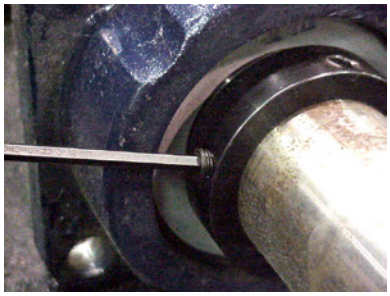
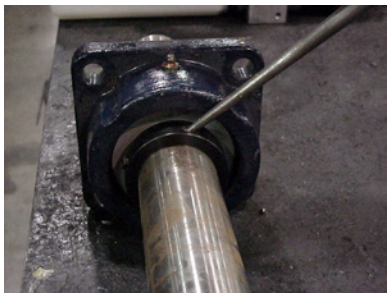


figure 5.3d

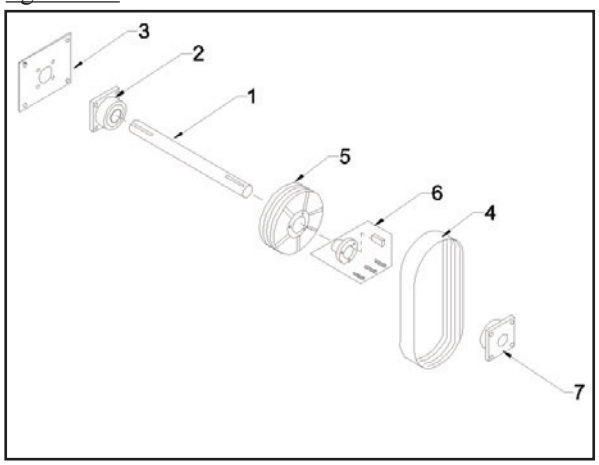


Removing Drive Bearings (refer to 5.3a thur 5.3d):

1. Remove the impeller and drive belt as described in this manual.
2. If the bearings have not "seized" onto the shaft then removal is straightforward.
3. Loosen the pulley (item# 5, fig. 5.3a) by removing the bushing bolts (item# 6, fig. 5.3a).
4. Remove the bearing collar (Item# 8, fig. 5.3b), if equipped, at the rear of the front bearing (the bearing closest to the blower housing).
5. On the rear bearing (closest to the engine) loosen the set screw on the bearing lock collar (fig. 5.3c)
6. Using a punch, loosen the lock collar. (fig. 5.3d)
7. Pull the shaft out toward the blower housing. The bearing plate, front bearing and pulley should come out in one unit.

Review the safety section of this manual before attempting these procedures.

figure 5.3a



Removing the Drive Bearings, continued:

8. If the shaft doesn't pull out easily, lubricate the shaft generously where the shaft goes through the bearings. If the shaft still doesn't come out, the final solution is to cut the shaft in half.

9. Once the shaft is out, remove the front bearing from the shaft by using steps 5 and 6.

Installing the Drive Bearings:

1. Make sure the shaft is clean and remove any burrs.

2. Bolt up the rear bearing (closest to the engine) to the frame.

3. Bolt the front bearing to the bearing plate

4. Bolt the bearing plate (fig. 5.3b) up to the blower housing and bearing frame.

5. Slide the shaft through the front bearing, making sure the front locking collar is slid on to the shaft.

6. Once the shaft is through the front bearing, install the pulley onto the shaft, but don't tighten it until the bearings have been installed and your sure the two pulleys are lined up correctly.

7. Slide the shaft through the rear bearing (closest to the engine). Make sure the front locking collar is put on before the bearing.

figure 5.3b

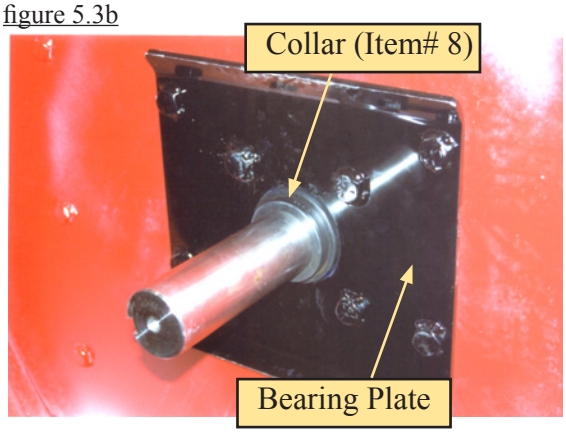
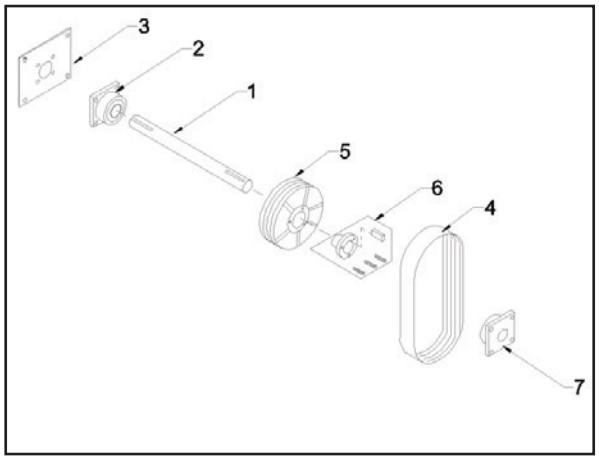


figure 5.3a



Review the safety section of this manual before attempting these procedures.

Installing the Drive Bearings, continued:

8. Once the shaft is in place, lock down the bearings:

9. Starting with the rear bearing (closest to the blower housing) install the rear collar on the blower housing side (figure 5.3b). The rubber seal should be facing the bearing.

10. Push the steel collar up to the bearing and make sure the groove in the collar goes inside the groove in the bearing.

11. Tighten the set screw (figure 5.3e).

12. Install the front locking collar sliding the locking collar up to the bearing and the turn the collar clockwise until is slips over the inner ring extension and engages the eccentric. Turn by hand until the parts are locked together.

13. Place a punch or drift in the blind hole in the collar and strike it sharply to the lock the collar and ring tightly together (figure 5.3f)

14. Tighten the set screws with an Allen wrench until the set screw stops. (figure 5.3g)

15. Do steps 11-14 for the other bearing also.

16. Line up the pulleys and tighten the busing.

17. Re-install the belt guards and impeller as described earlier.

figure 5.3b

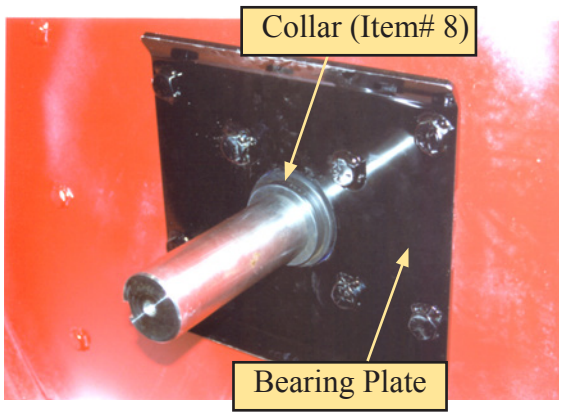


figure 5.3e

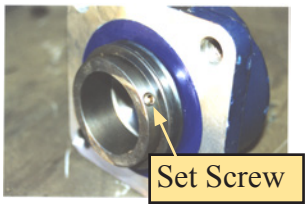
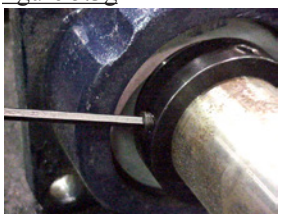


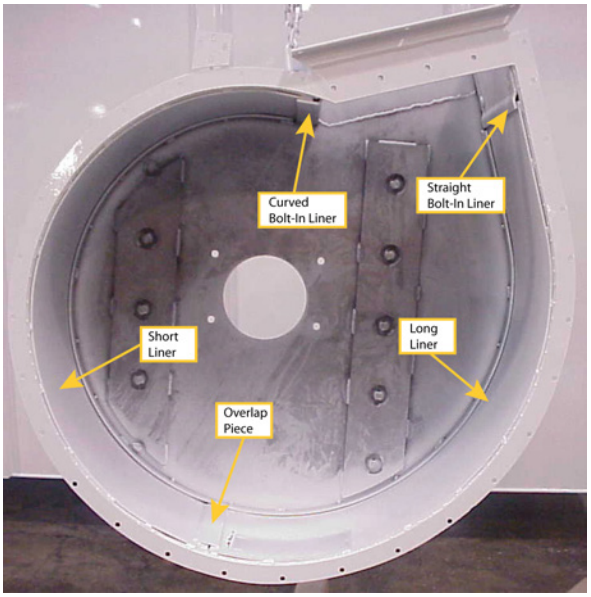
figure 5.3f

figure 5.3g



5.7 Replacing the Blower Housing Liners

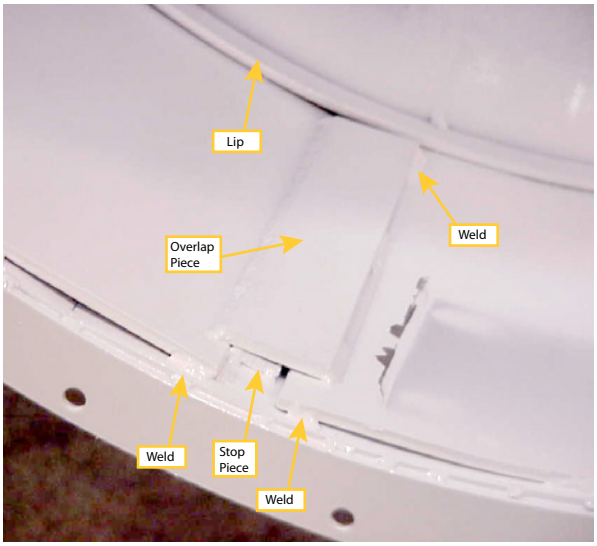
figure 5.5a



⚠WARNING

Keep all fuel and fuel fumes away from the unit when grinding or welding. Work only in a well ventialted area.

figure 5.5b



⚠WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before working on the unit.

⚠WARNING

Make sure the negative battery cable is disconnected before opening the blower housing.

Review the safety section of this manual before attempting these procedures. To gain access to the interior of the blower housing please see the previous sections.

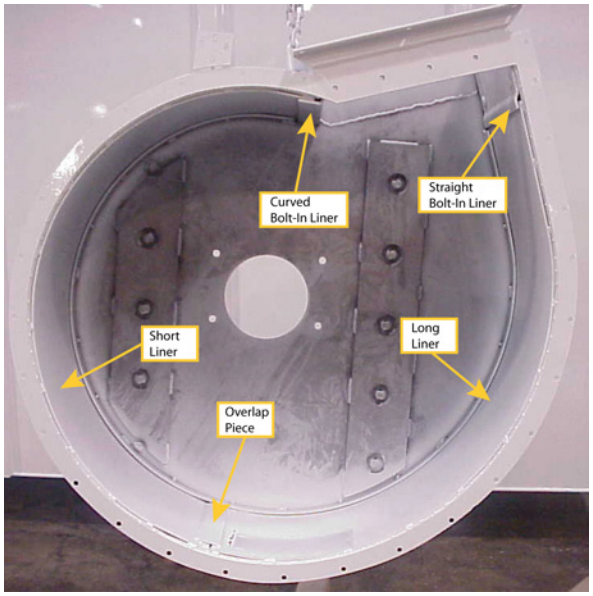
Removing and installing the Liners (refer to 5.5a and 5.5b):

1. Unbolt the the blower housing face as described previously in this manual.
2. Remove the curved and straight bolt-in liners by removing the appropriate bolts.
3. With a grinder cut out the remaining welds to free the liners. DO NOT remove the "stop piece" at the bottom of the housing.

TO INSTALL:

1. Place the short liner into lip at the rear of the housing and line up the bottom of the liner with the "stop" at the bottom of the housing. The short liner has the overlap piece on it and should be installed as shown in the pictures at the left.
2. Tack weld the liner in place every 8 to 10 inches to help keep the liner in place.

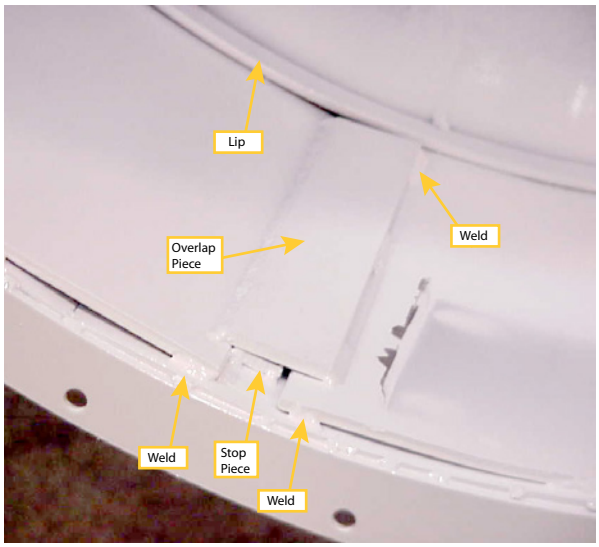
figure 5.5a



⚠WARNING

Keep all fuel and fuel fumes away from the unit when grinding or welding. Work only in a well ventialted area.

figure 5.5b



⚠WARNING

Thoroughly read and understand the safety and pre-operating sections of this manual before working on the unit.

⚠WARNING

Make sure the negative battery cable is disconnected before opening the blower housing.

Review the safety section of this manual before attempting these procedures. To gain access to the interior of the blower housing please see the previous sections.

Installing the Liners (refer to 5.5a and 5.5b), continued;

3. Install the long liner the same way as the short liner except the long liner should slip under the overlap piece. Make sure the liner slips under the rear lip and the overlap piece.

4. Tack weld the long liner to the overlap piece and tack weld around the liner as you did on the short liner.

5. Install the two bolt-in liners just as they were removed.

5.10 WIRING DIAGRAMS

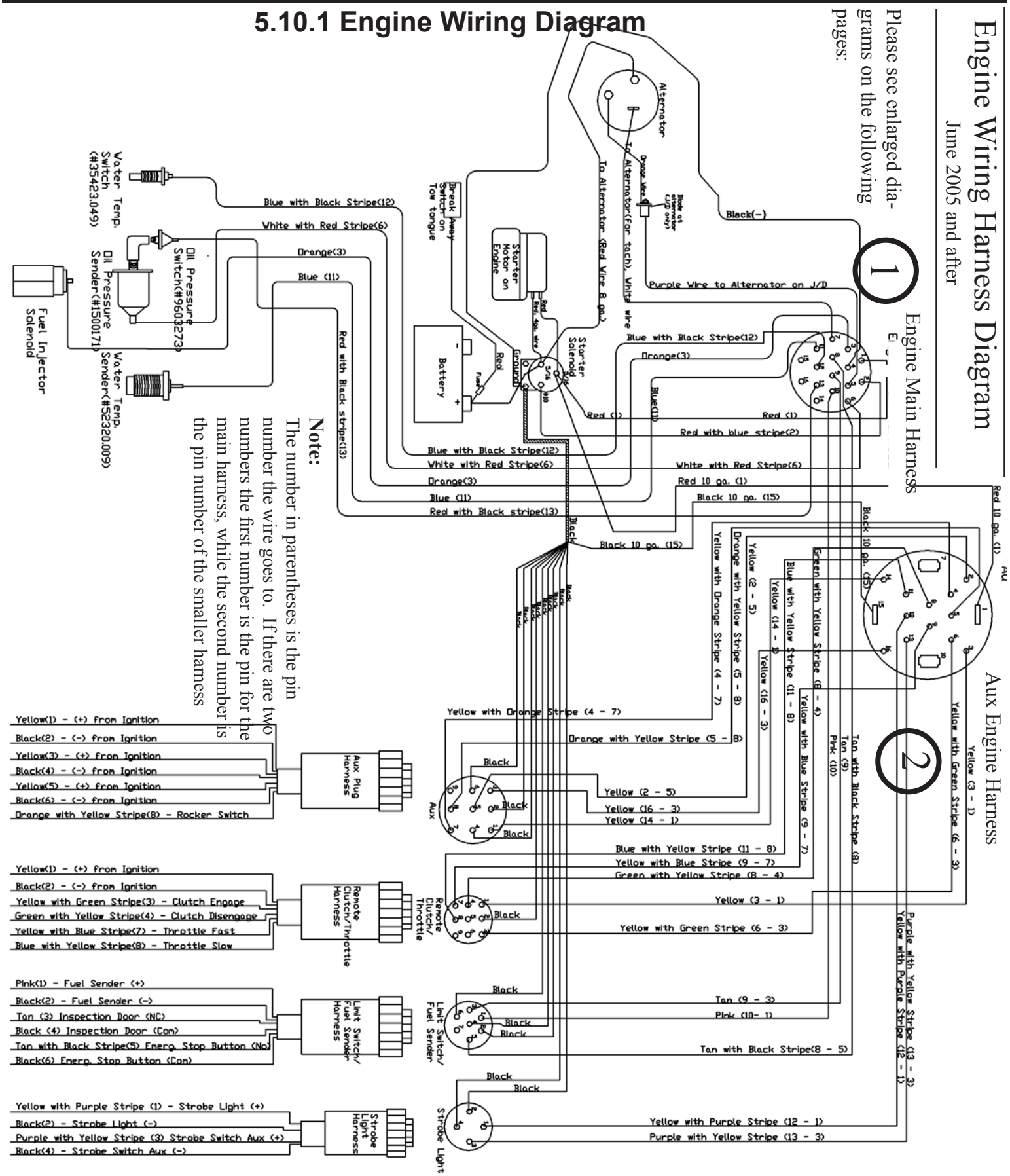
ENGINE WIRING DIAGRAMS

5.10 WIRING DIAGRAMS

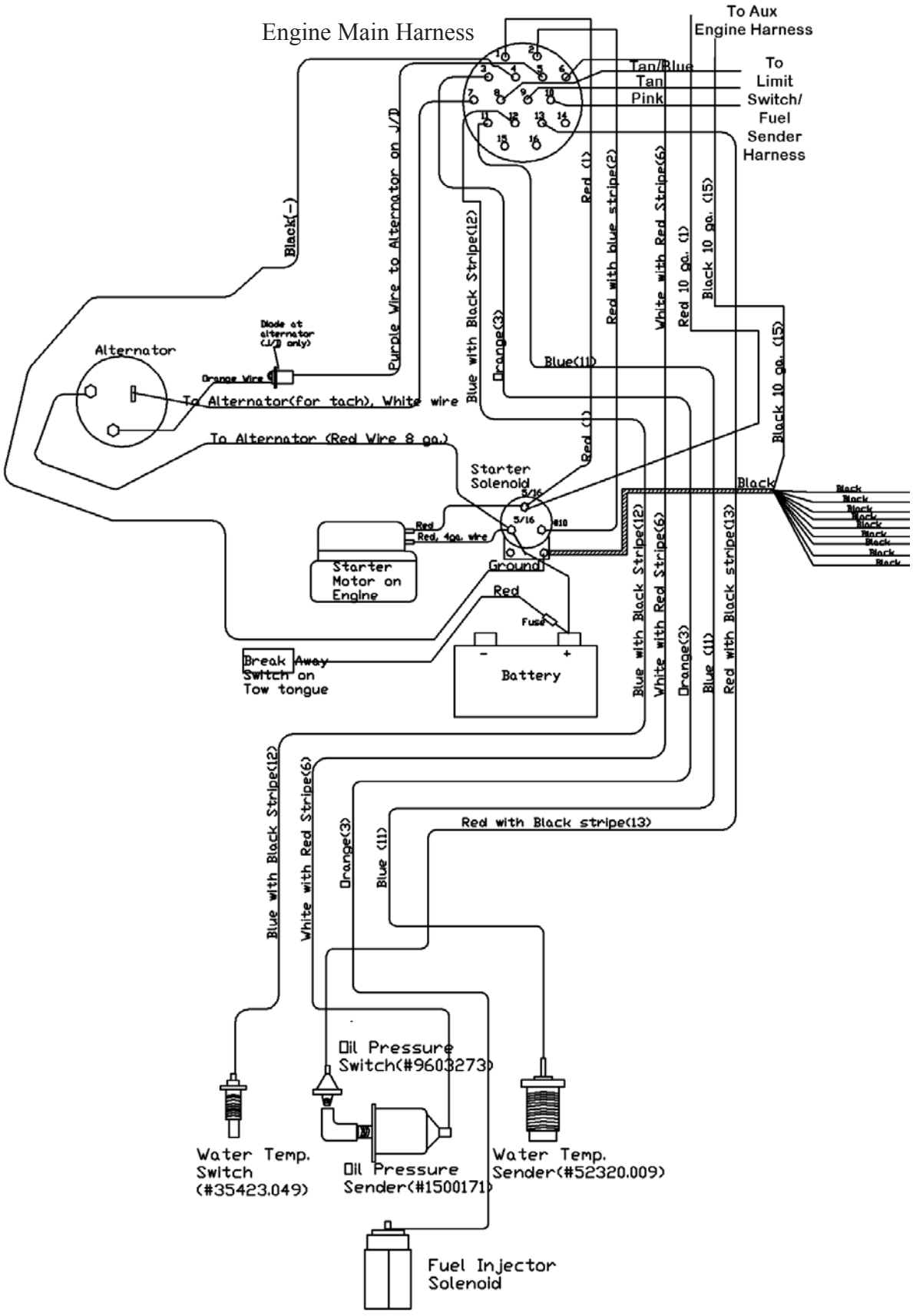
TRAILER / REMOTE WIRING DIAGRAMS

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

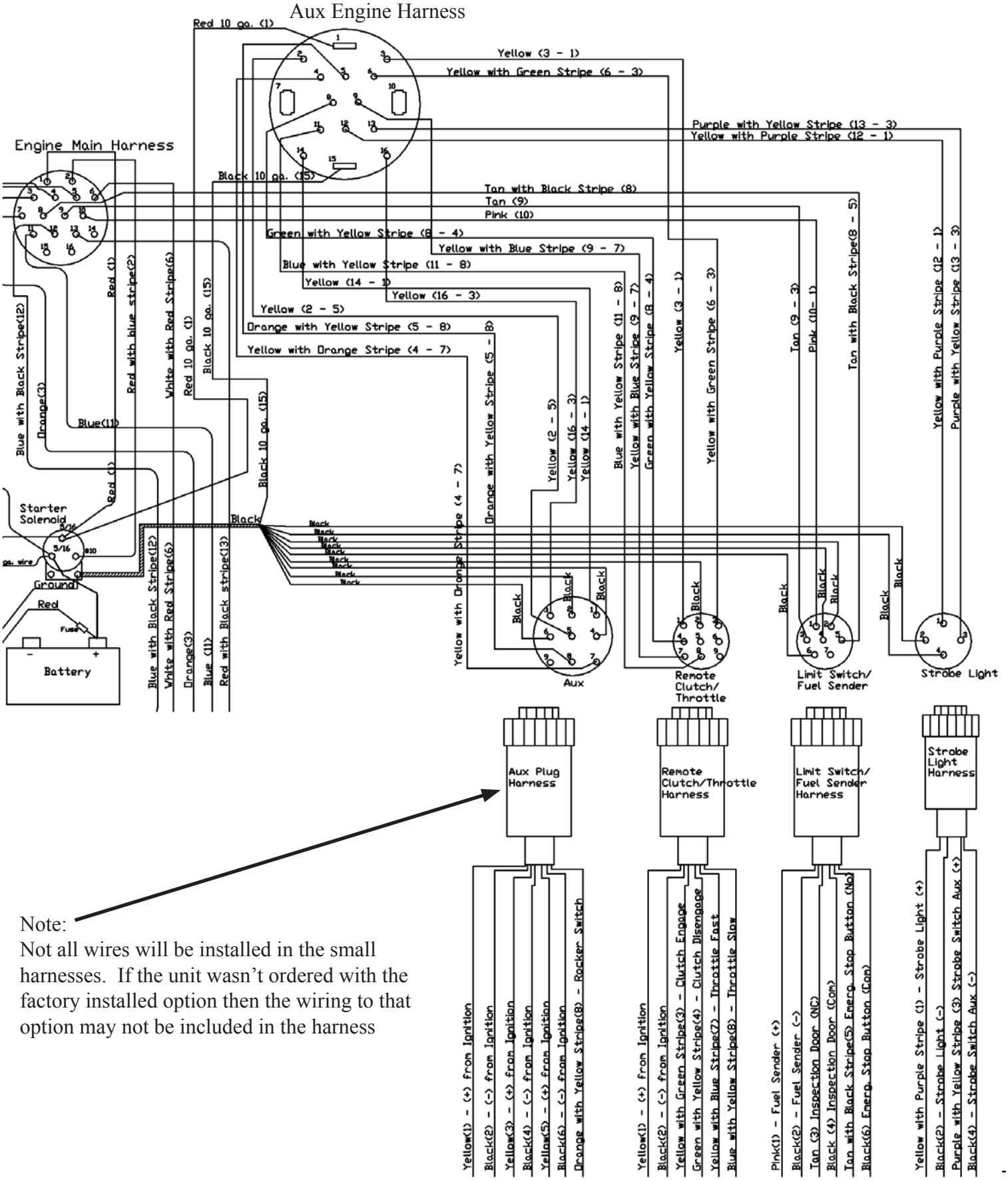
5.10.1 Engine Wiring Diagram



5.10.2 Engine Main Harness - Enlarged



5.10.3 Auxillary Engine Harness - Enlarged



Note:
Not all wires will be installed in the small harnesses. If the unit wasn't ordered with the factory installed option then the wiring to that option may not be included in the harness

5.10.4 Engine Wiring Harness Descriptions

ENGINE MAIN HARNESS		
PIN #	**COLOR**	**DESCRIPTION**
1	Red	"+" from Solenoid (battery)
2	Red w/ Blue Stripe	Starter Solenoid
3	Orange	Fuel Shutoff Solenoid
4	Black	"-" from Solenoid (battery)
5	Purple	Alternator Energize "+"
6	White w/ Red Stripe	Oil Sender
7	White	Tach Signal from Alternator
8	Tan w/ Black Stripe	Emergency Stop Button (650 only) goes to Limit Switch plug pin #5
9	Tan	Inspection Door on Blower Housing, goes to Limit Switch plug pin #3
10	Pink	Fuel Sender, goes to Limit Switch Plug pin #5
11	Blue	Water Temperature Sender on Engine Block
12	Blue w/ Black Stripe	Water Temperature Switch on Engine Block
13	Red w/ Black Stripe	Oil Pressure Switch on Engine Block
AUXILLARY ENGINE HARNESS		
1	Red 10 Gauge	"+" from Solenoid (Battery)
2	Yellow	Aux "+" from Ignition; goes to Aux Plug Harness pin #5
3	Yellow	Aux "+" from Ignition; goes to Remote Clutch Harness pin #5
4		
5		
6	Yellow w/ Green Stripe	Clutch Engage; goes to Remote Clutch Harness pin #3
7	[empty]	
8	Green w/ Yellow Stripe	Clutch Disengage; goes to Remote Clutch Harness pin #4
9	Yellow w/ Blue Stripe	Throttle Fast; goes to Remote Clutch Harness pin #7
10	[empty]	
11	Blue w/ Yellow Stripe	Throttle Slow; goes to Remote Clutch Harness pin #8
12	Yellow w/ Purple Stripe	Strobe Light "+"; goes to Strobe Light Harness pin #1
13	Purple w/ Yellow Stripe	Strobe Light Aux; goes to Strobe Light Harness pin #3
14	Yellow	Aux "+" from Ignition; goes to Aux Plug Harness pin #1
15	Black 10 gauge	"-" from Solenoid (Battery)
16	Yellow	Aux "+" from Ignition; goes to Aux Plug Harness pin #3
STROBE LIGHT HARNESS		
	Yellow w/ Purple Stripe	Fuel Sender "+"; came from Engine Main Harness pin #10
	Black	Strobe Light "-"; came from ground to solenoid
	Purple w/ Yellow Stripe	Strobe Switch Aux "+"; came from Aux Engine Harness pin #13
	Black	Strobe Switch Aux "-"; came from ground on Solenoid

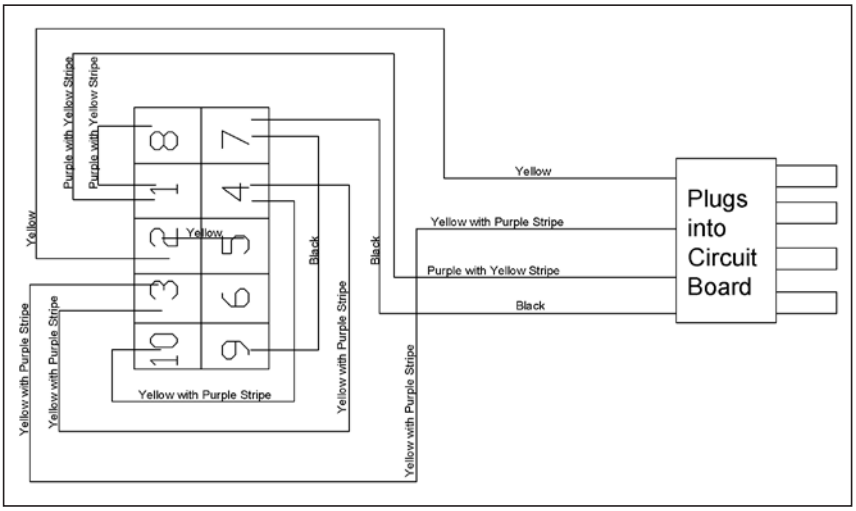
Continued ... -->

5.10.4 Engine Wiring Harness Descriptions, continued

FUEL & LIMIT SWITCH HARNESS		
	Pink	Fuel Sender "+"; came from Engine Main Harness pin #10
	Black	Fuel Sender "-"; came from ground to solenoid
	Tan	Inspection Door "+"; came from Engine Main Harness pin #9
	Black	Inspection Door "-"; came from ground to solenoid
	Tan w/ Black Stripe	Emergency Stop Button "NO"; came from Engine Main Harness #8
	Black	Emergency Stop Button "COM"; came from ground on Solenoid
	[empty]	
REMOTE THROTTLE AND CLUTCH HARNESS		
1	Yellow	"+" from Ignition; came from Aux Engine Harness pin# 3
2	Black	"-" from Ignition; came from ground on Solenoid
3	Yellow w/ Green Stripe	Clutch Engage; came from Aux Engine Harness pin# 6
4	Green w/ Yellow Stripe	Clutch Disengage; came from Aux Engine Harness pin# 4
5	[empty]	
6	[empty]	
7	Yellow w/ Blue Stripe	Throttle Fast; came from Aux Engine Harness pin# 9
8	Blue w/ Yellow Stripe	Throttle Slow; came from Aux Engine Harness pin# 11
9	[empty]	
AUX PLUG IN HARNESS		
1	Yellow	"+" from Ignition; came from Aux Engine Harness pin# 14
2	Black	"-" from Ignition; came from ground on Solenoid
3	Yellow	"+" from Ignition; came from Aux Engine Harness pin# 16
4	Black	"-" from Ignition; came from ground on Solenoid
5	Yellow	"+" from ignition; came form Aux Engine Harness pin# 2
6	Black	"-" from ignition; came from ground on solenoid
7	[empty]	
8	Orange w/ Yellow Stripe	Rocker Switch; came from Aux Engine Harness pin# 5
9	Yellow w/ Orange Stripe	Rocker Switch; came from Aux Engine Harness

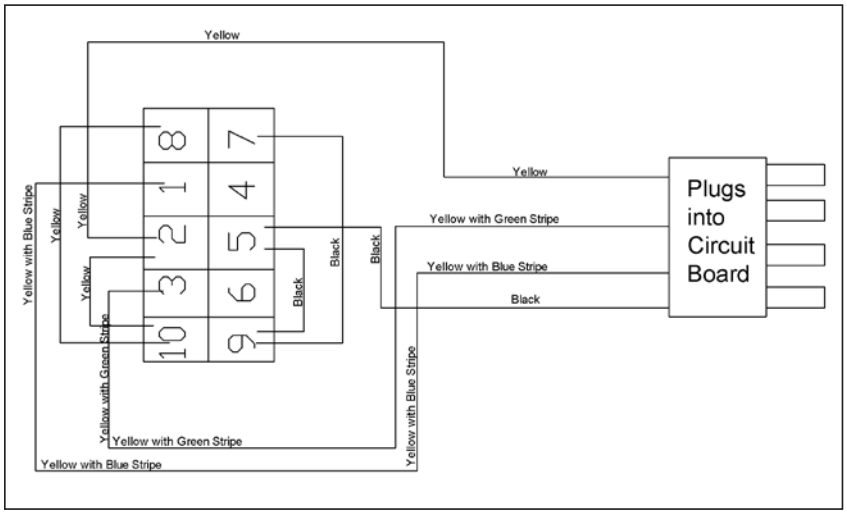
5.10.5 Engine Rocker Switch Wiring Diagrams

Strobe Light Rocker Switch



Pin#	Color	Description
1	Purple w/ Yellow Stripe	"+" Aux from Switch
2	Yellow	"+" from Circuit Board
3	Yellow w/Purple Stripe	"+" from Strobe Light
4	Yellow w/Purple Stripe	Looped from #3
5	Yellow	Looped from #2
6		
7	Black	"-" from Circuit Board
8	Purple w/Yellow Stripe	Looped from #1
9	Black	Looped from #7
10	Yellow w/ Purple Stripe	Looped from #4

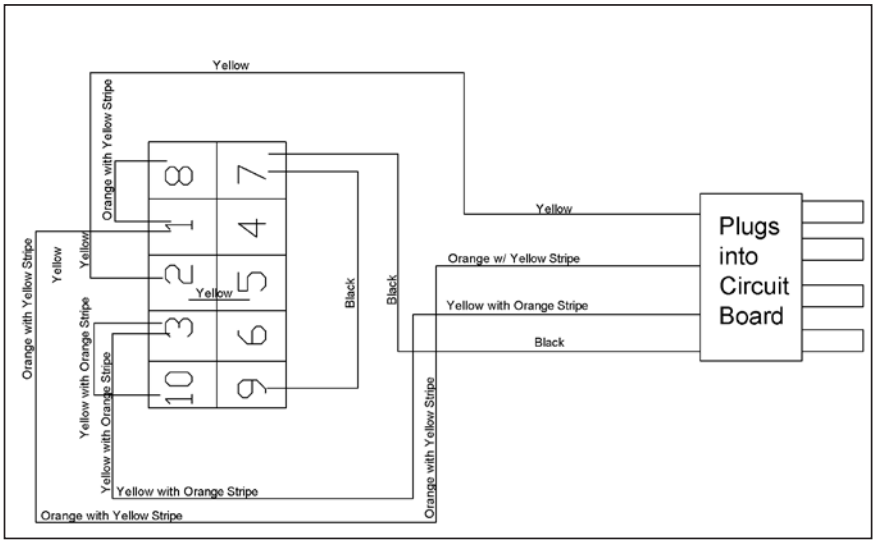
Remote Throttle and Remote Clutch Rocker Switch



Pin#	Color	Description
1	Yellow w/ Blue Stripe	Throttle Fast / Clutch Engage
2	Yellow	"+" from Circuit Board
3	Yellow w/ Green Stripe	Throttle Slow / Clutch Disengage
4		
5	Black	"-" from Circuit Board
6		
7	Black	Looped from #9
8	Yellow	Looped from #10
9	Black	Looped from #5
10	Yellow	Looped from $2

This plug is used for the Remote Throttle and the Remote Clutch Rocker Switches.

Caterpillar Engine Heater Rocker Switch



Pin#	Color	Description
1	Orange w/ Yellow	"+" Aux from Switch
2	Stripe	"+" from Circuit Board
3	Yellow	"+" to Engine Heater
4	Yellow w/Orange Stripe	
5		Looped from #2
6	Yellow	
7		"-" from Circuit Board
8	Black	Looped from #1
9	Orange w/Yellow Stripe	Looped from #7
10	Black	Looped from #3

Yellow w/Orange Stripe

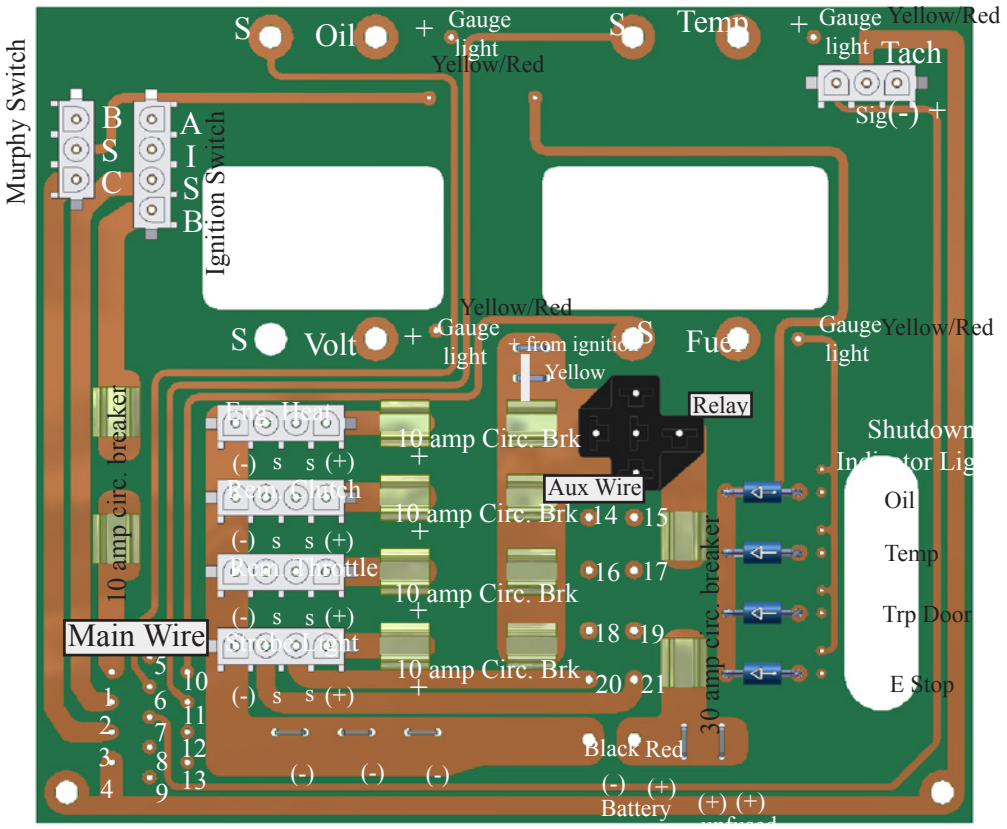
5.10.6 Main Circuit Board

TOP LAYER

The circuit board has traces on 2 layers - the top and bottom.

Main Plug Wire ID's

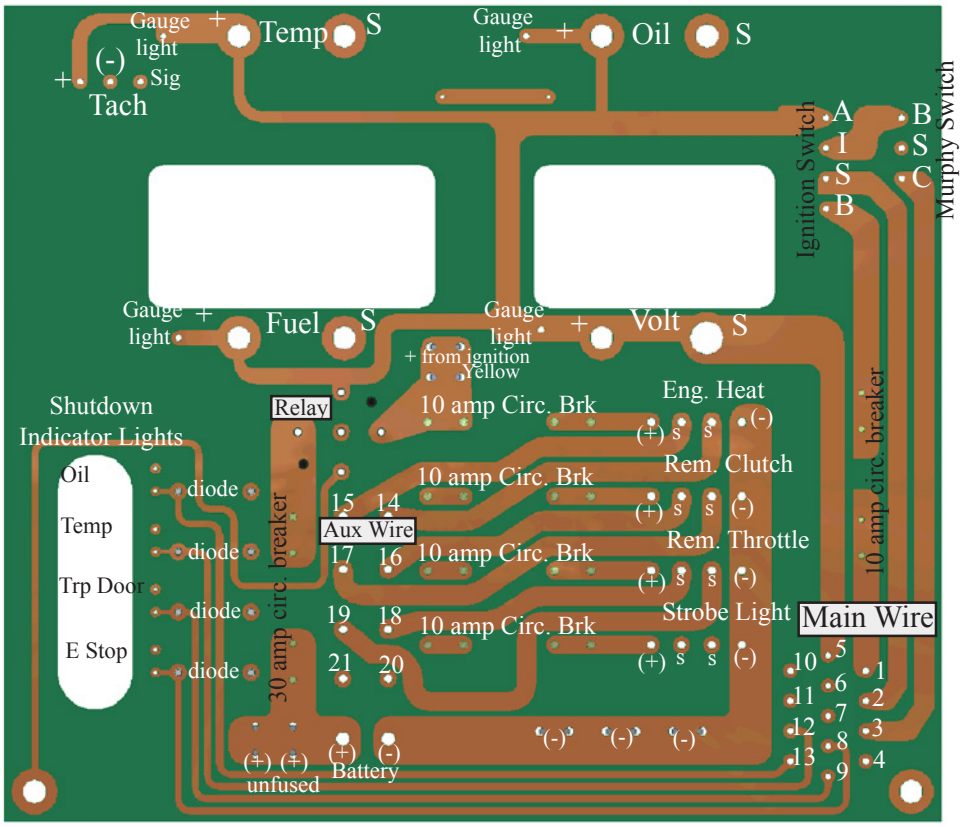
1	+ from Battery (Red)
2	Starter + (Red/Blue)
3	Fuel Sol./Col + (Orange)
4	Ground (Black)
5	Alt Energize + (Purple)
6	Oil Signal (White/Red)
7	Tach Signal (White)
8	E Stop Sig. (Tan/Black)
9	Insp. Door Sig. (Tan)
10	Fuel Level Sig. (Pink)
11	Temp Sig. (Blue)
12	Temp Shtdwn Sig (Blue/Blk)
13	Oil Shutdown Sig. (Red/Blk)



BOTTOM LAYER
(looking from the back

Aux Plug Wire ID's

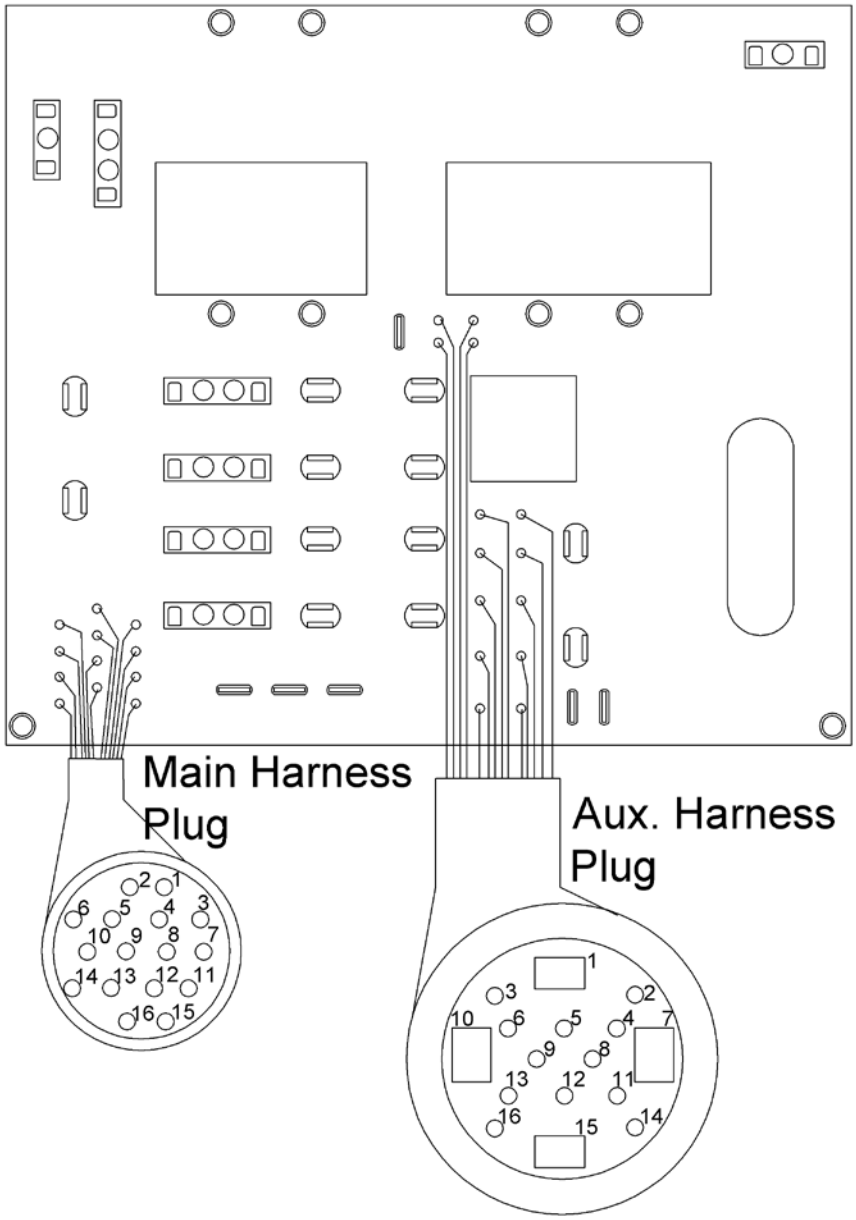
14	Eng Heat (+) (Yellow/Orange)
15	Eng. Heat Aux (Orange/Yellow)
16	Clutch Engage (Yellow/Green)
17	Clutch Disengage (Green/Yel)
18	Throttle Fast (Yellow/Blue)
19	Throttle Slow (Blue/Yellow)
20	Strobe Light + (Yellow/Purple)
21	Aux Light + (Purple/Yellow)



5.10.7 Main Circuit Board Plug Diagrams

Main Harness Plug

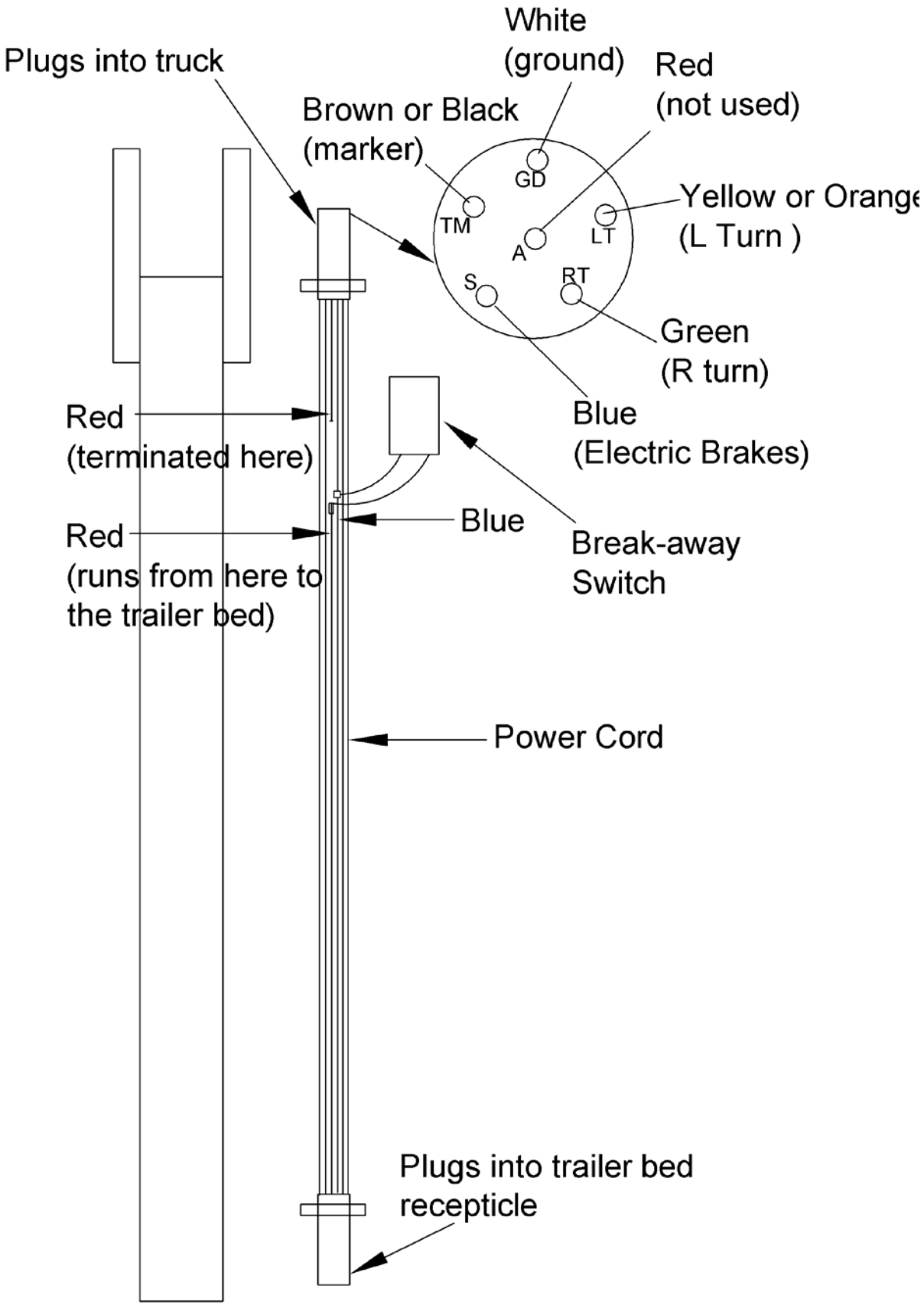
Pin#	Description
1	Red + from battery
2	Red / Blue stripe - starter +
3	Orange - Fuel Sol./Col +
4	Black - Ground
5	Purple Alt Energize +
6	White / Red stripe Oil Signal
7	White - Tach Signal
8	Tan / Black stripeE Stop Sig.
9	Tan - Insp. Door Signal
10	Pink - Fuel Level Signal
11	Blue - Temp Signal
12	Blue/Black Temp Shtdwn Sig
13	Red/Black Oil Shutdown Sig.
14	Empty
15	Empty
16	Empty



Aux. Harness Plug

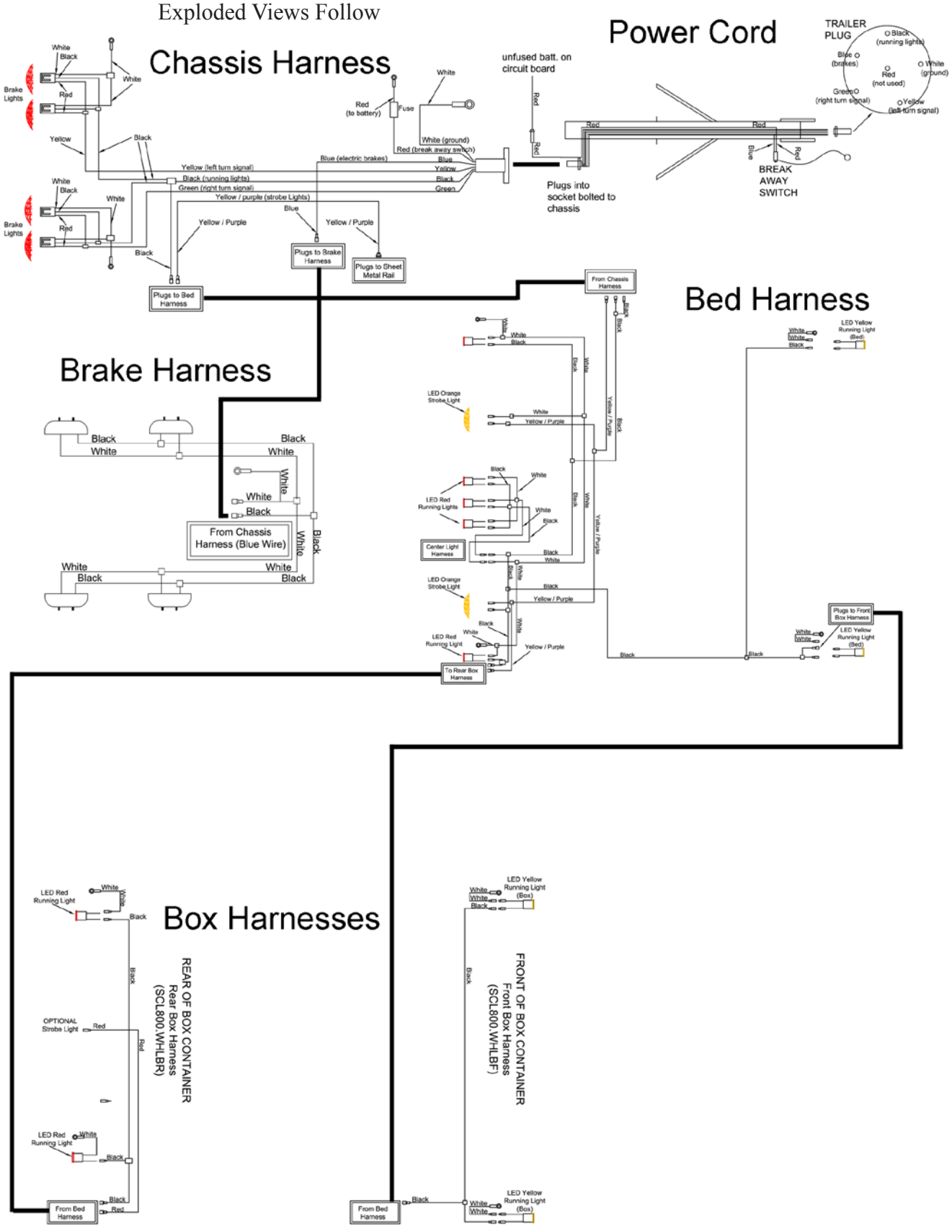
Pin#	Description
1	Red + from battery
2	Yellow - Aux Plug harness
3	Yellow - Remote Throttle Har
4	Yellow / Orange stripe-Aux har
5	Orange / Yellow stripe-Aux har
6	Yellow / Green stripe-Clutch Eng
7	Empty
8	Green / Yellow stripe-Clutch Diseng
9	Yellow / Blue stripe-Throttle Fast
10	Empty
11	Blue / Yellow stripe-Throttle Slow
12	Yellow / Blue stripe-Strobe +
13	Purple / Yellow stripe-Strobe Sw+
14	Yellow - Aux Harness
15	Black - battery
16	Yellow - Aux Harness

5.10.8 Trailer Plug Wiring Diagram

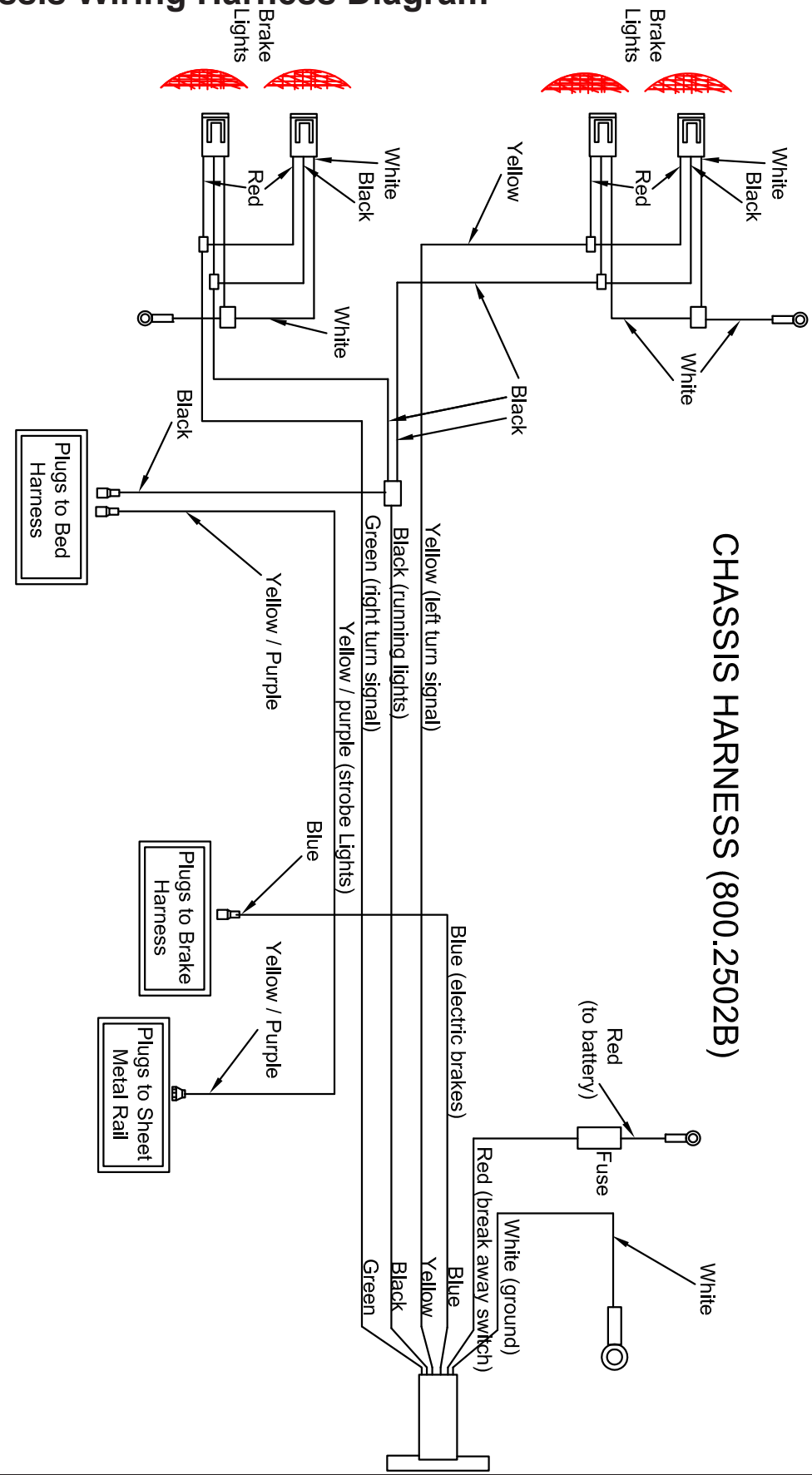


5.10.9 Trailer Bed Wiring Harnesses Diagram

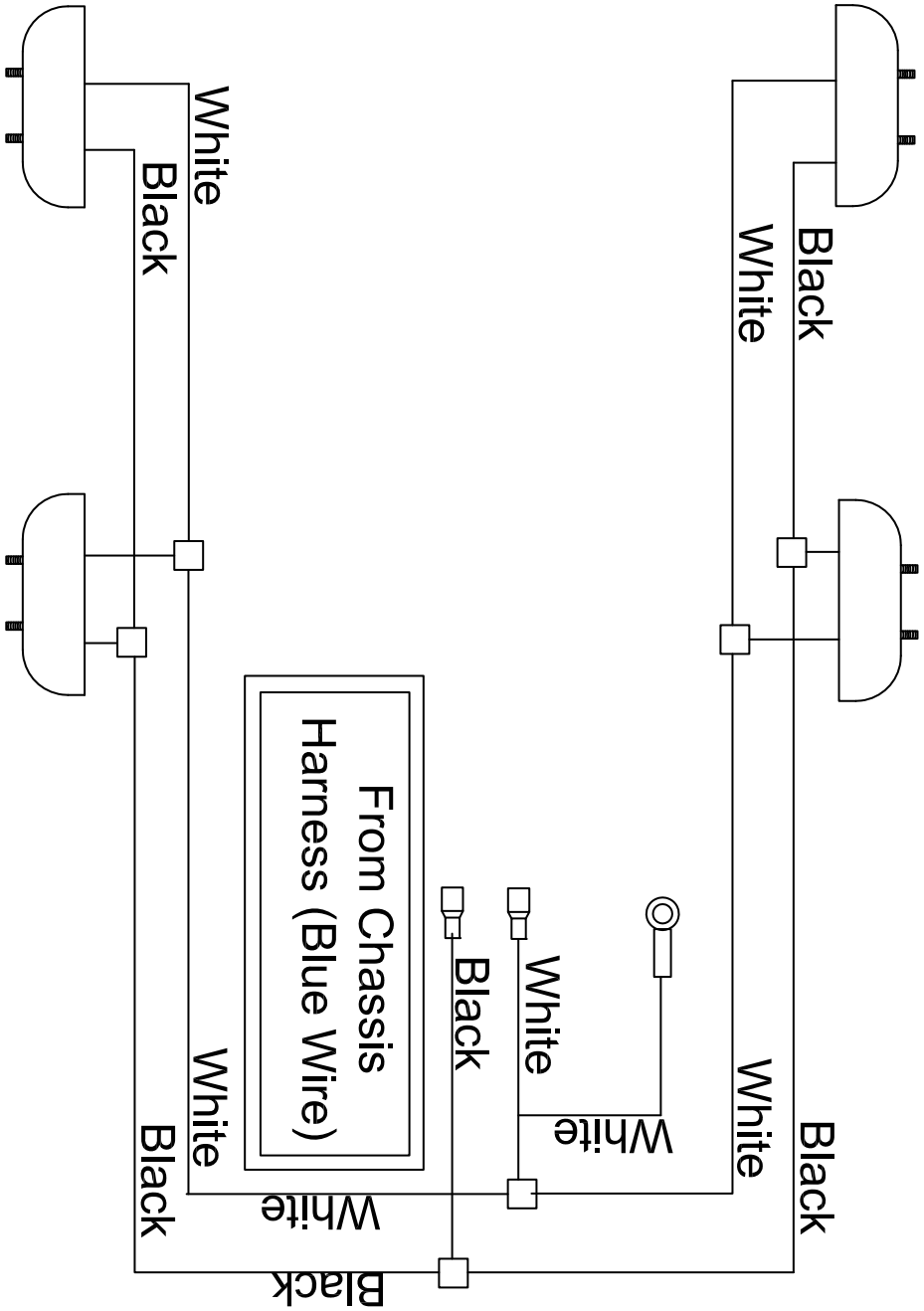
Exploded Views Follow



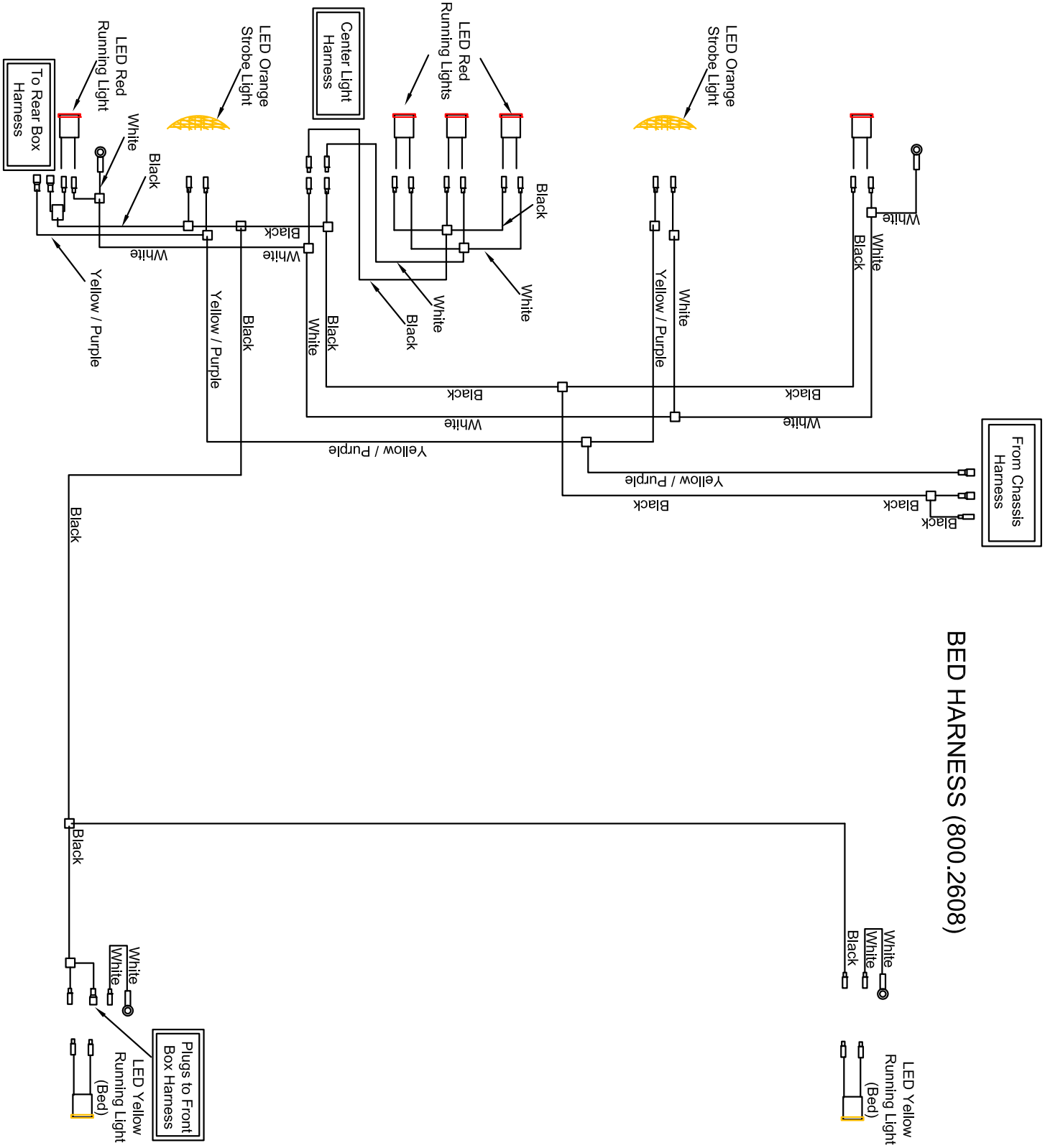
5.10.10 Chassis Wiring Harness Diagram



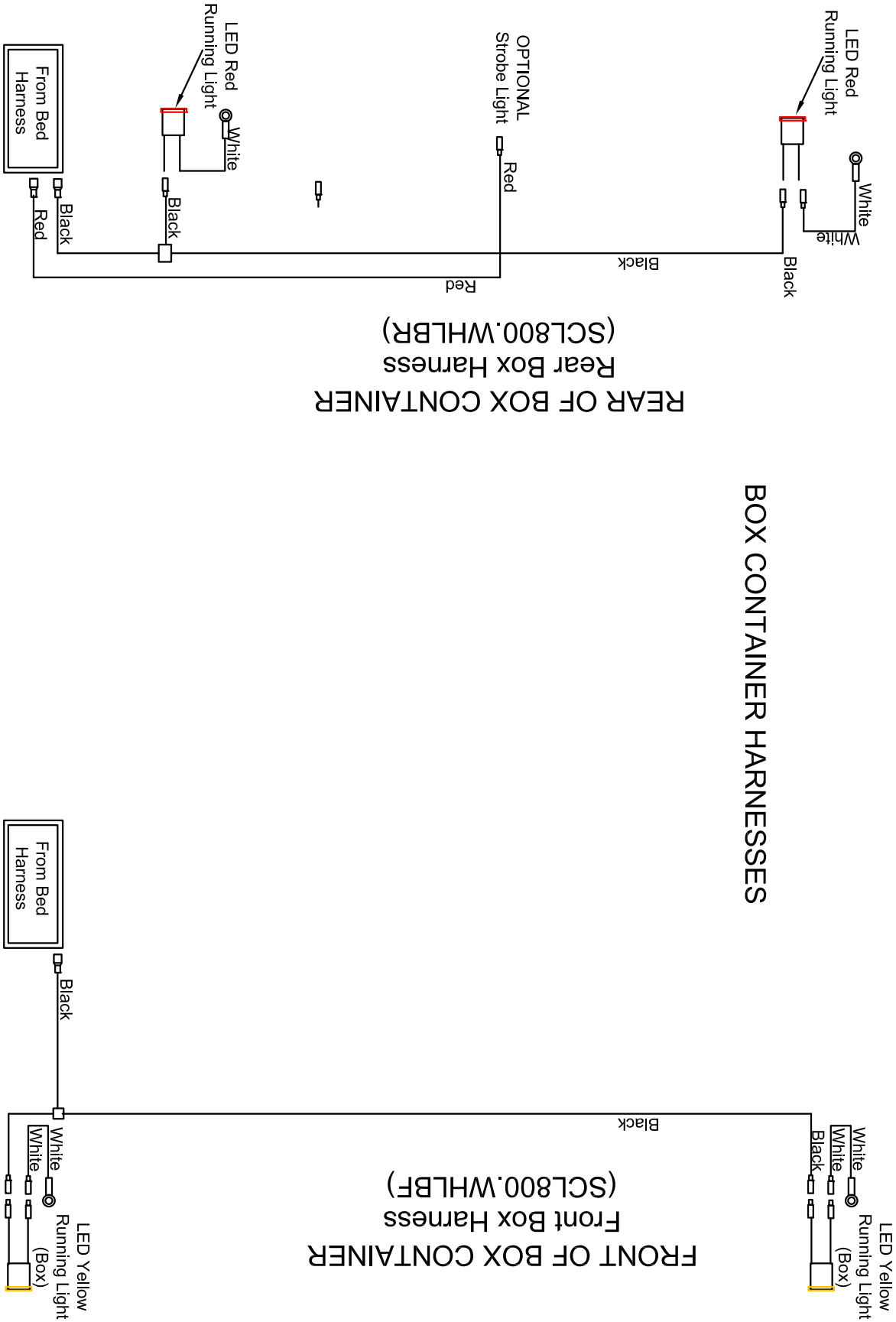
5.10.11 Brake Wiring Harness Diagram



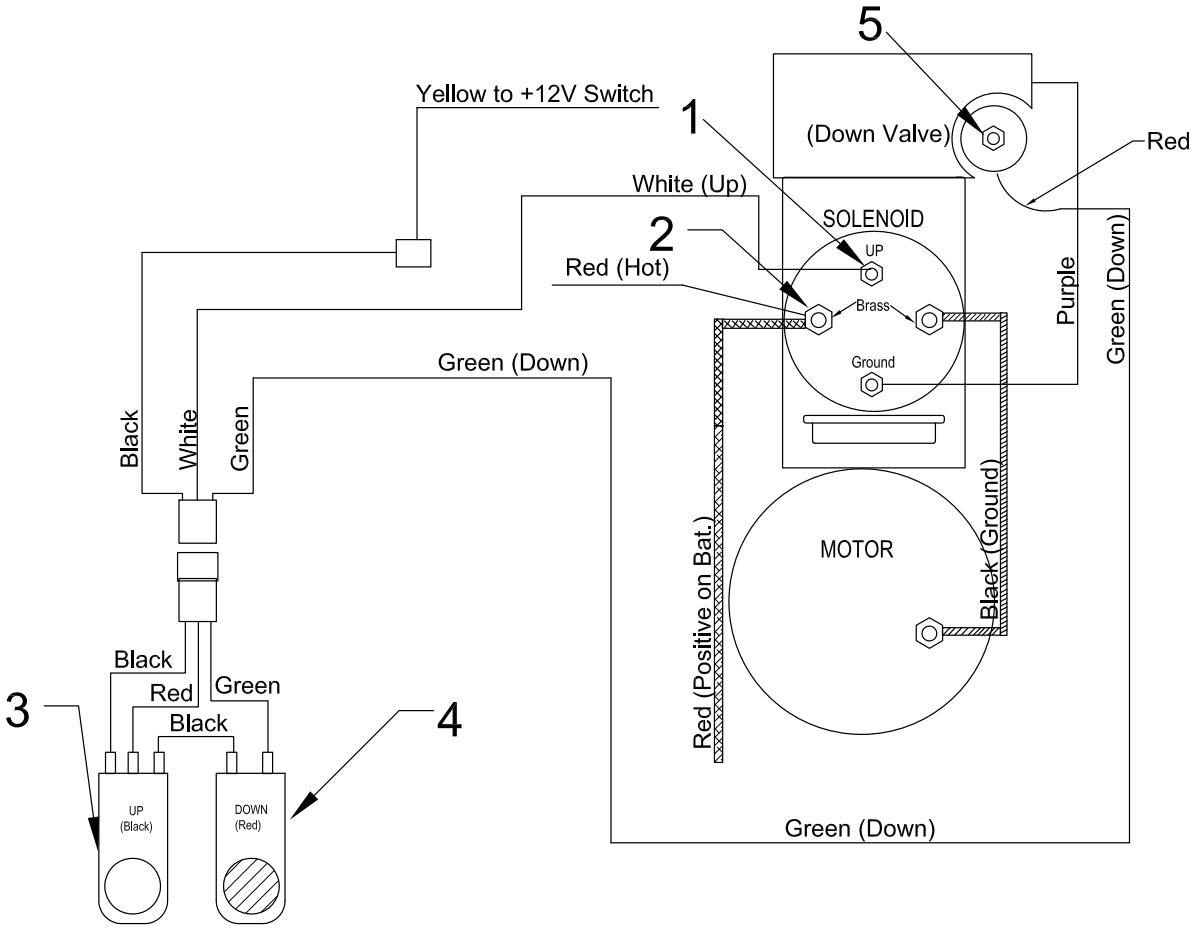
5.10.12 Bed Wiring Harness Diagram



5.10.13 Box Wiring Harness Diagram

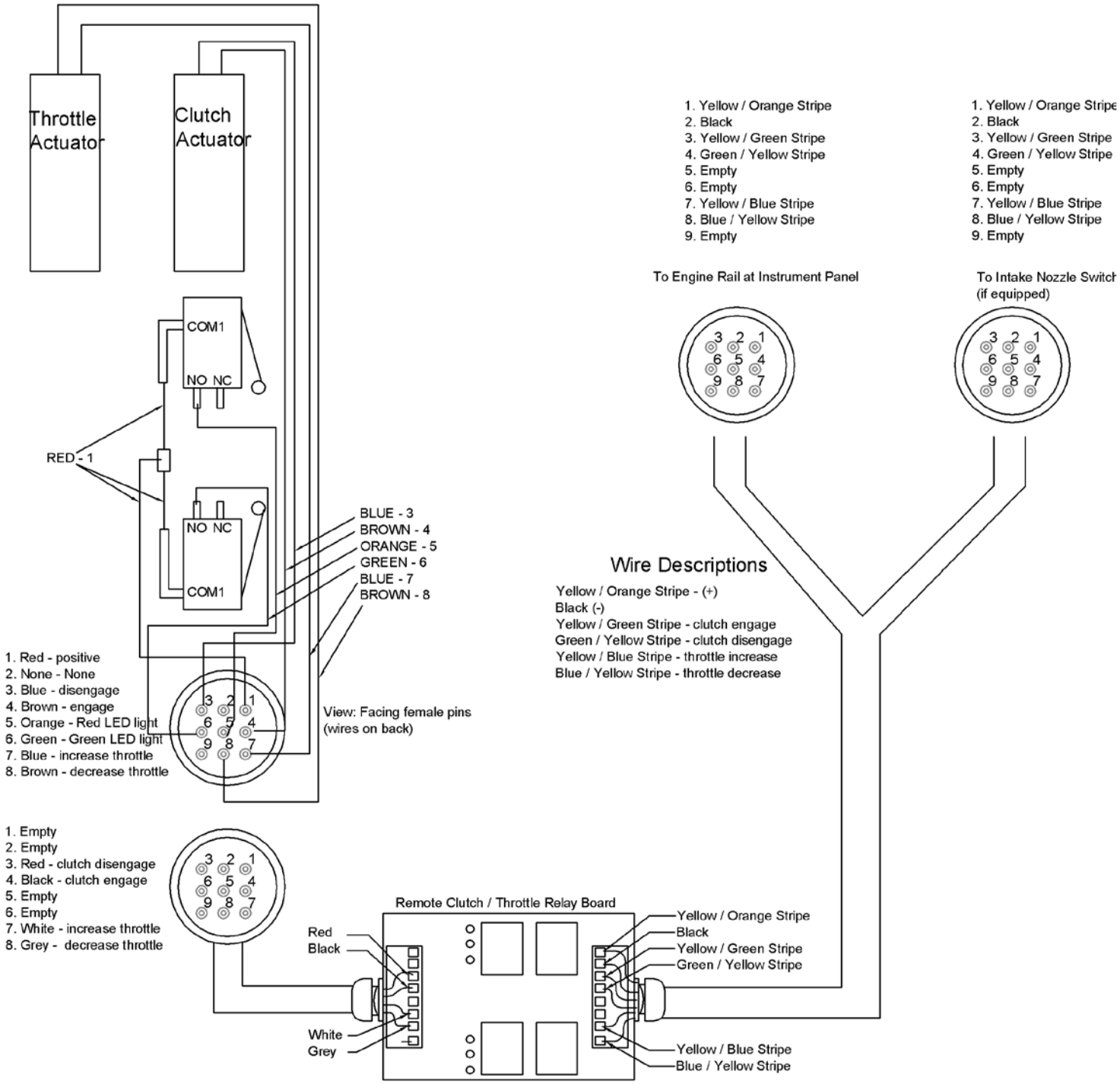


5.10.14 Boom Wiring Diagram



COLOR	FUNCTION
Green	Down
White	Up
Purple	Ground on Solenoid
Red (4 gauge cable)	Positive to Battery
Black (4 gauge cable)	Ground from Solenoid to Hydraulic Motor
Black (from up down switch)	changes to Yellow - Positive for Boom Rocker Switch on instrument panel (if equipped)

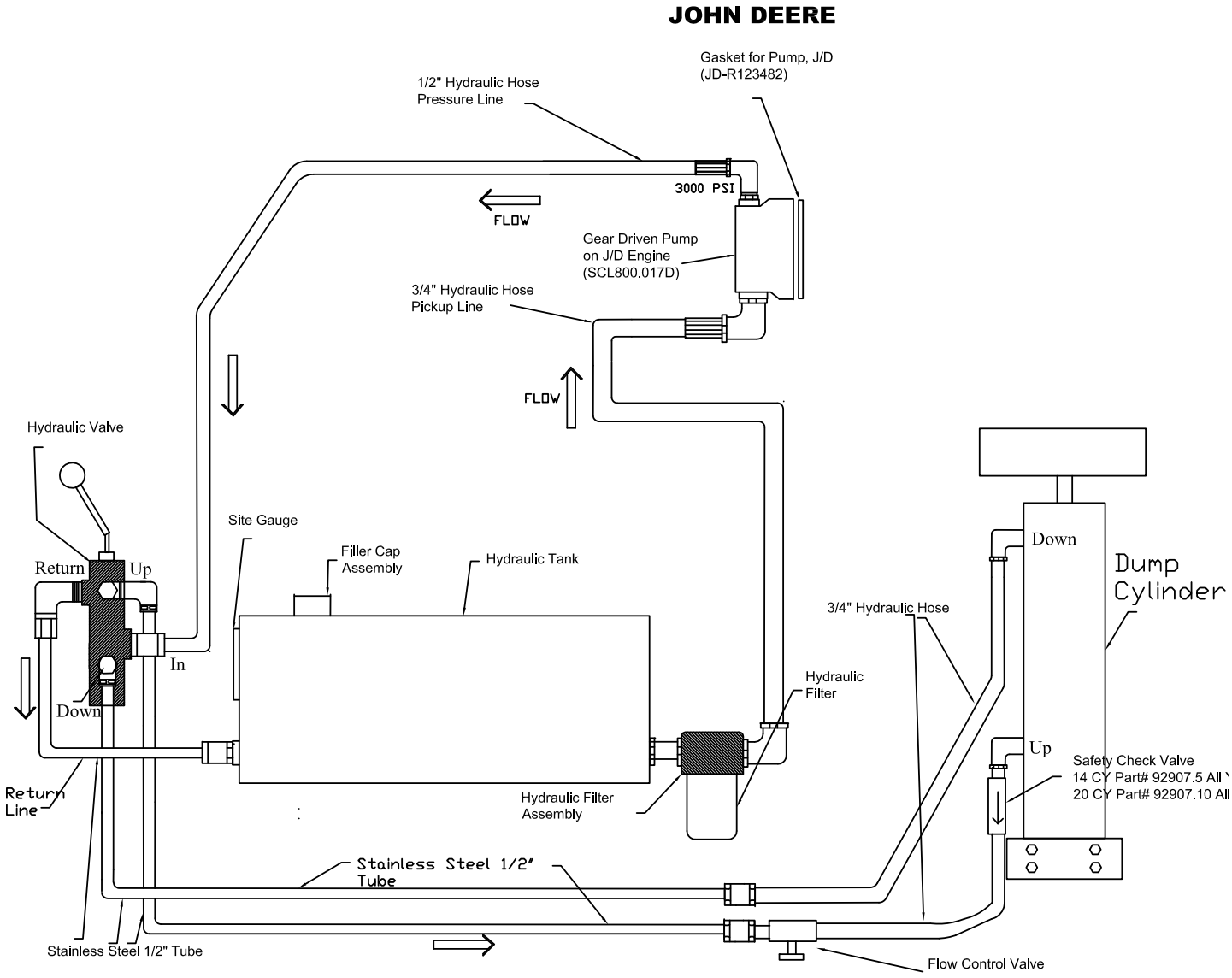
5.10.15 Remote Throttle / Clutch Wiring Harness



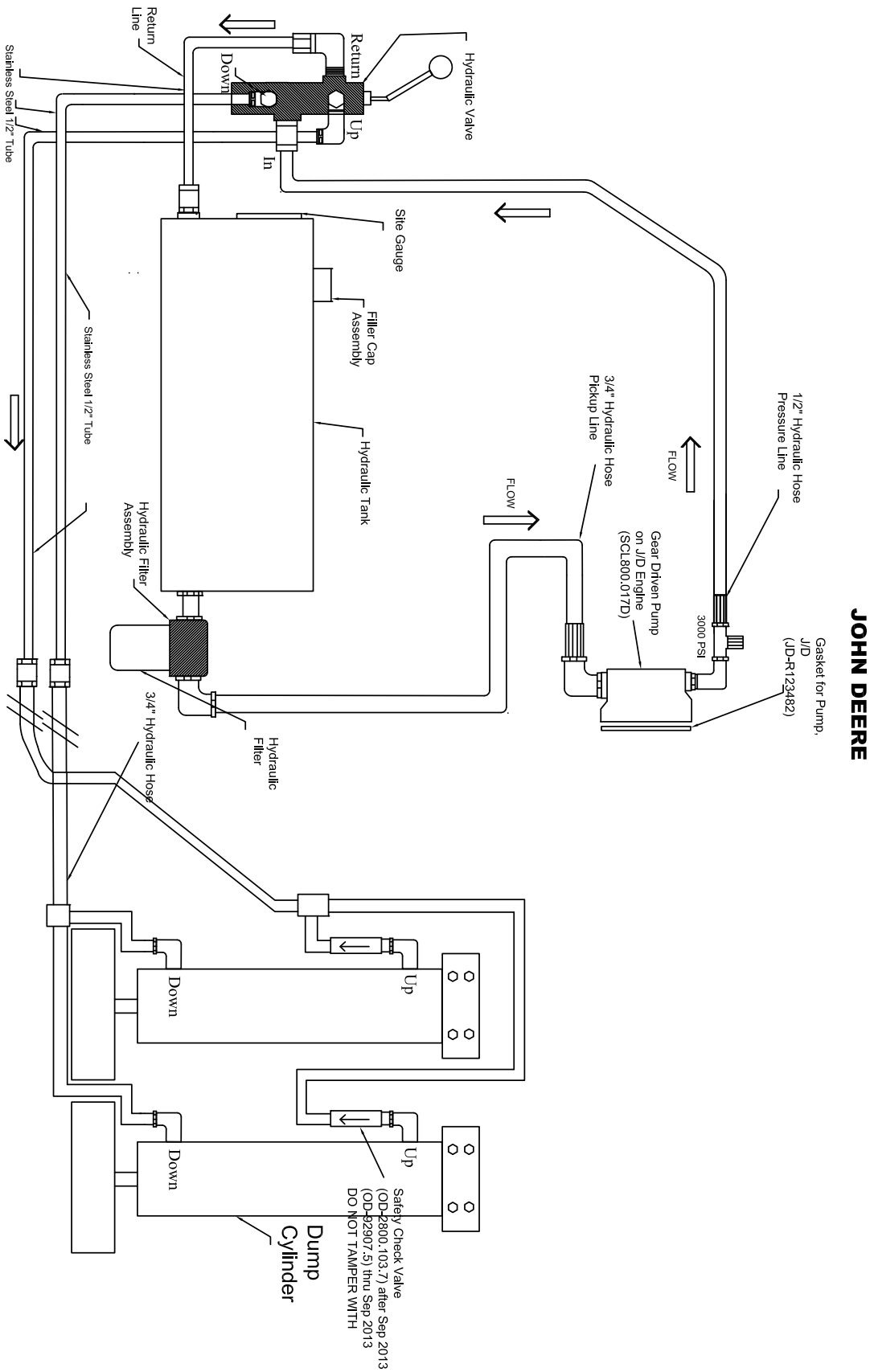
5.20 HYDRAULIC DIAGRAM

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

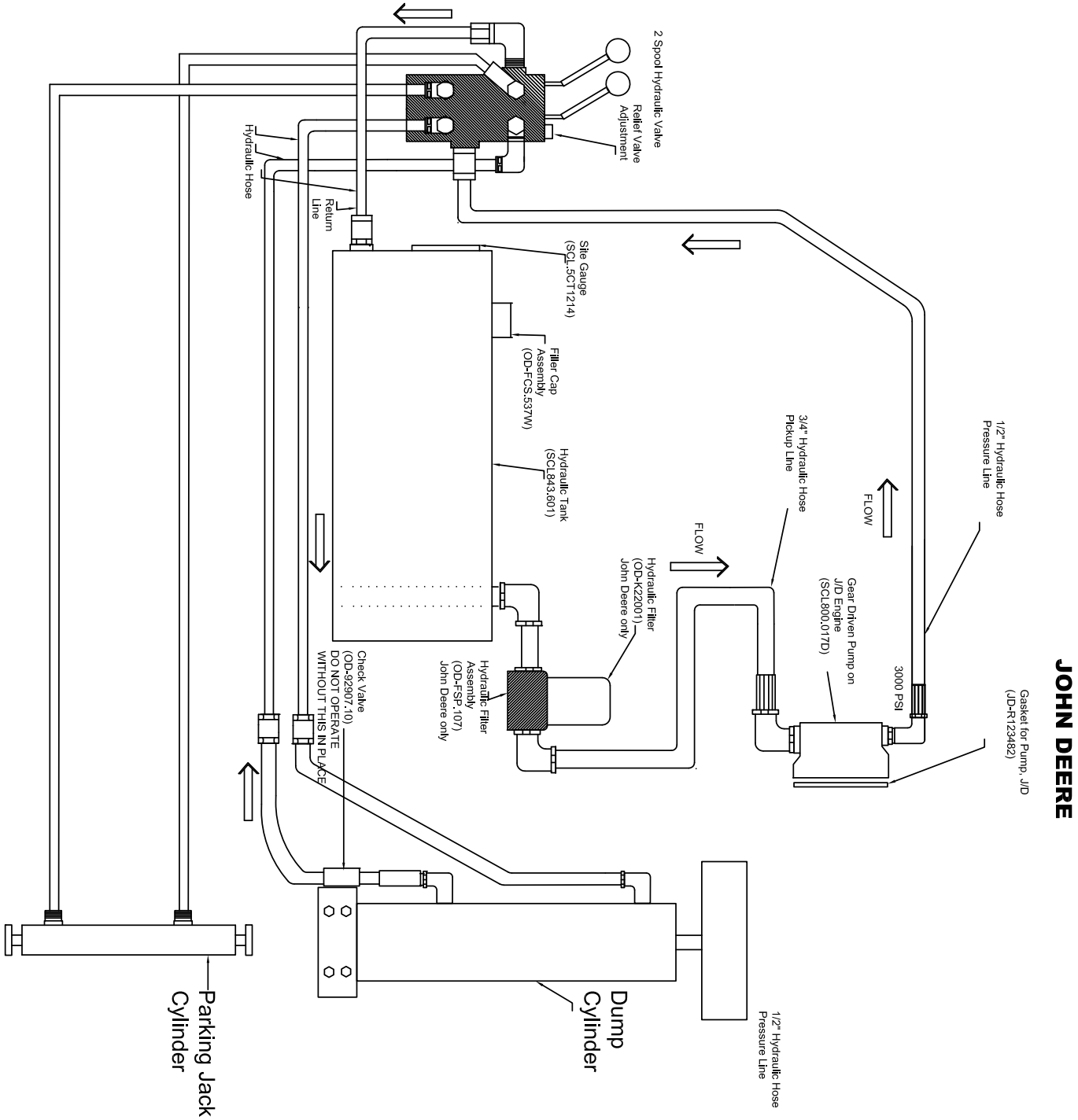
5.20.1 Hoist Hydraulic System 14 and 20CY



5.20.2 Hoist Hydraulic System 25 and 30CY



5.20.3 Hoist Hydraulic System with Parking Jack



PARTS BREAKDOWNS SECTIONS

PARTS BREAKDOWN SECTIONS

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

6-0

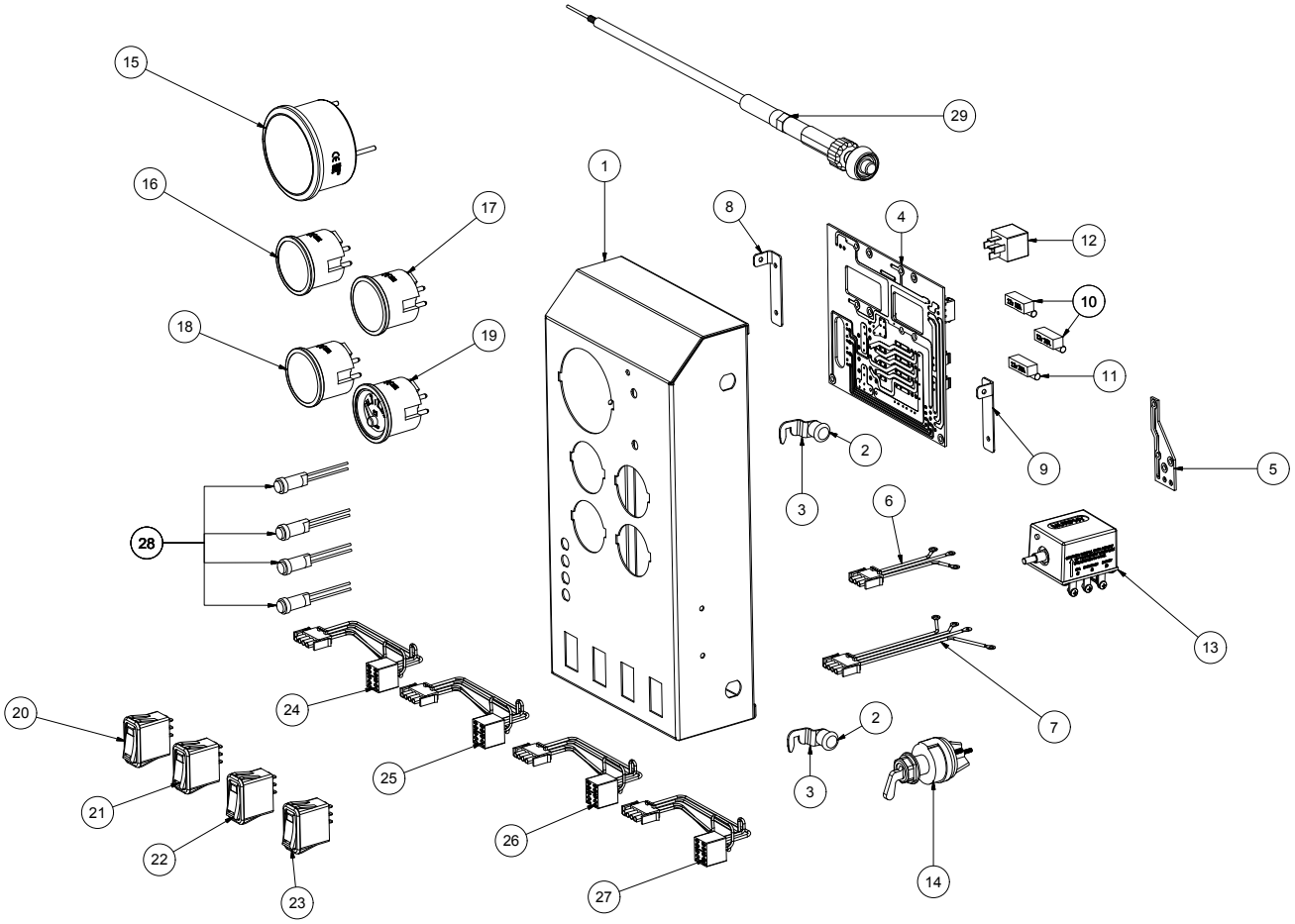
6.0 ENGINE GROUP

6.0 ENGINE GROUP

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

6.1 Instrument Panel Group

Standard units Nov 2008 and after

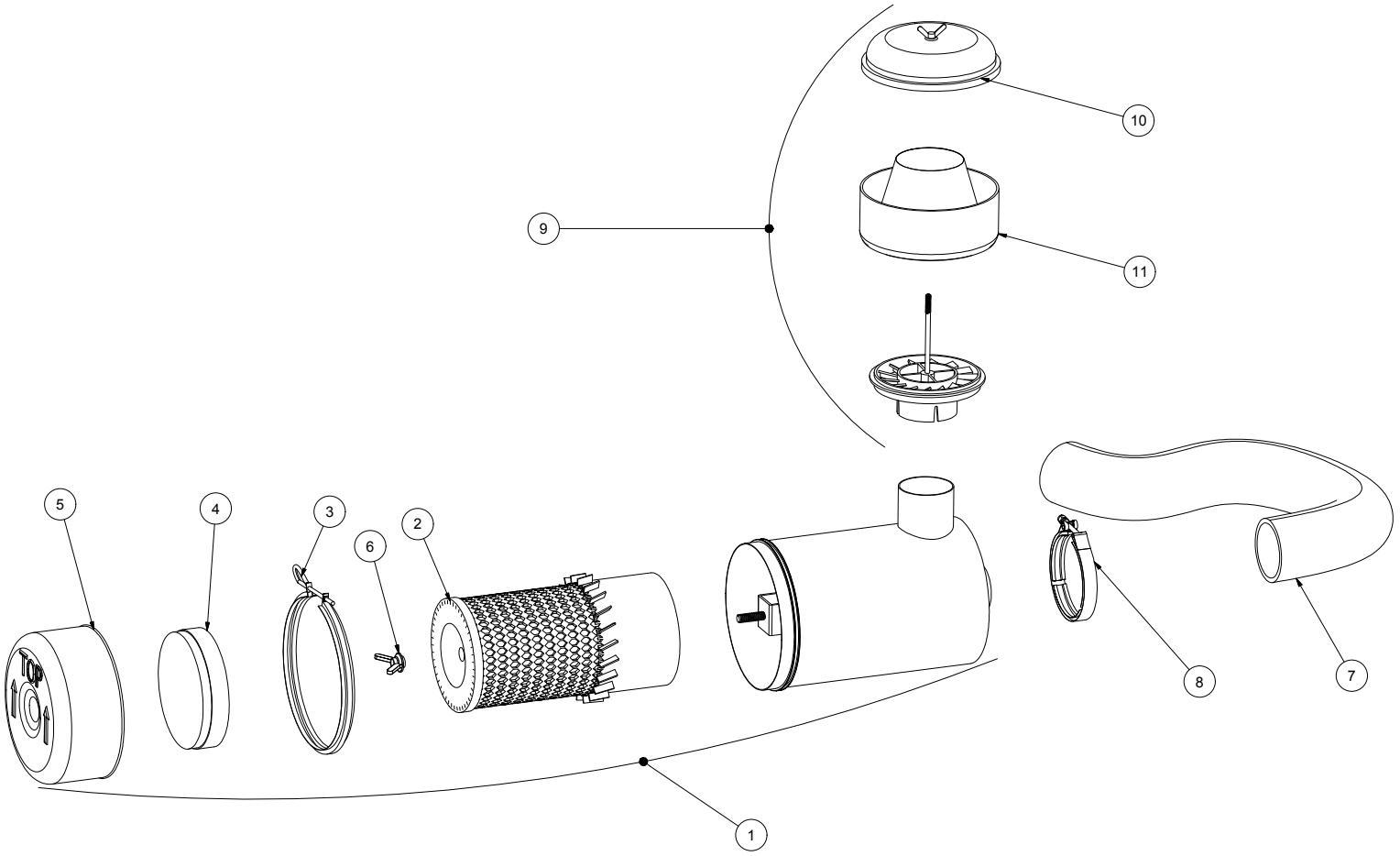


ITEM#	PART NO.	DESCRIPTION
1	STD.6300 STD.6301	Instrument Panel Complete Inst.Panel Housing with latches
2	STD.6308	Latch
3	STD.6309	Latch Hook
4	STD.2005	Circuit Board
5	STD.2006	Tachometer Circ. Board
6	400022	Murphy Swith Harness Plug
7	400021	Ign. Switch Harness Plug
8	STD.6303	Circ. Brd Supp Brkt, LH
9	STD.6302	Circ. Brd Supp Brkt, RH
10	100014.10	Circuit Breaker, 10 amp
11	30410.30	Circuit Breaker, 30 amp
12	0.332.209.151	Relay
13	MO-P81505	Murphy Switch
14	31.253	Ignition Switch
15	63524	Tachometer / Hour Meter

ITEM#	PART NO.	DESCRIPTION
16	62540	Temperature Gauge
17	62542	Oil Pressure Gauge
18	62551 59414	Fuel Gauge (if equipped) Blank Gauge
19	62555	Volt Meter
20	4045.0021B1	Rocker Switch,Safety Light
21	4045.0021A1	Rocker Switch, Rem. Thrttle
22	4045.0025A	Rocker Switch, Rem. PTO
23	3054.0028.	Rocker Switch, Engine Heat
24	STD.2003	Switch Harness, Light
25	STD.2004	Switch Harness, Rem Thrtle
26	STD.2004	Switch Harness, Rem PTO
27	STD.2002	Switch Harness, Eng Heat
28	STD.1502B	LED Light Assembly
29	LCT623.001A	Throttle Cable

6.2 Air Cleaner Group

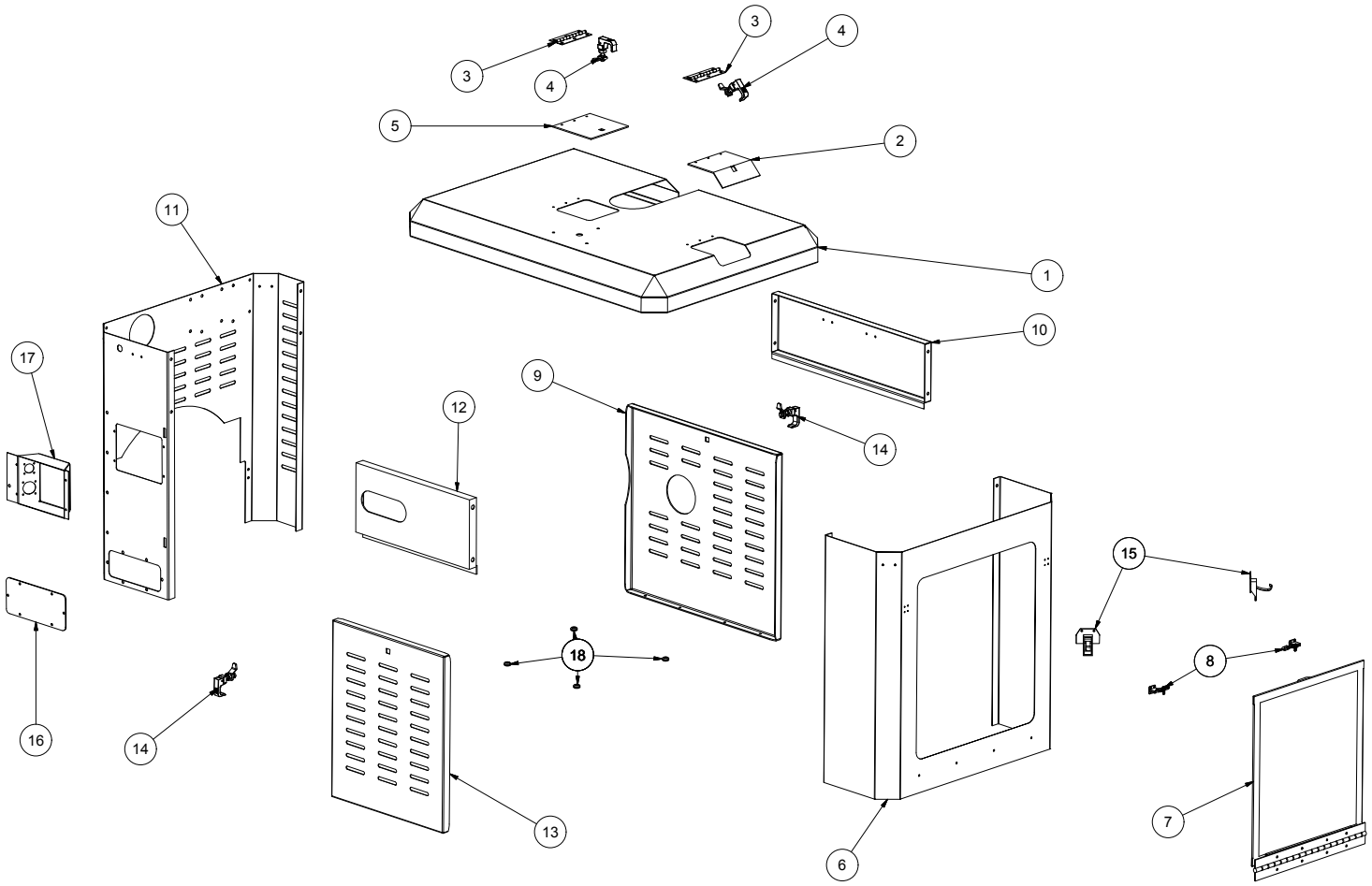
Approx. 08/96 and after



ITEM #	PART NUMBER	DESCRIPTION
1	UU-G080023	Air Cleaner Assembly
2	... P18105.4	... Filter Element
3	... P003951	... Clamp
4	... P102980	... Rubber Baffle
5	... P103113	... Dust Cap
6	... P101870	... Wing Nut
7	STD.2704	Rubber Elbow
8	P004307	Mounting Bands (to sheet metal)
9	H001249	Pre-Cleaner
10	... P020648	... Bowl Cover
11	... P020227	... Bowl

6.3 Sheet Metal Group, SCL

John Deere 4045T and 6068D June 2005 and after

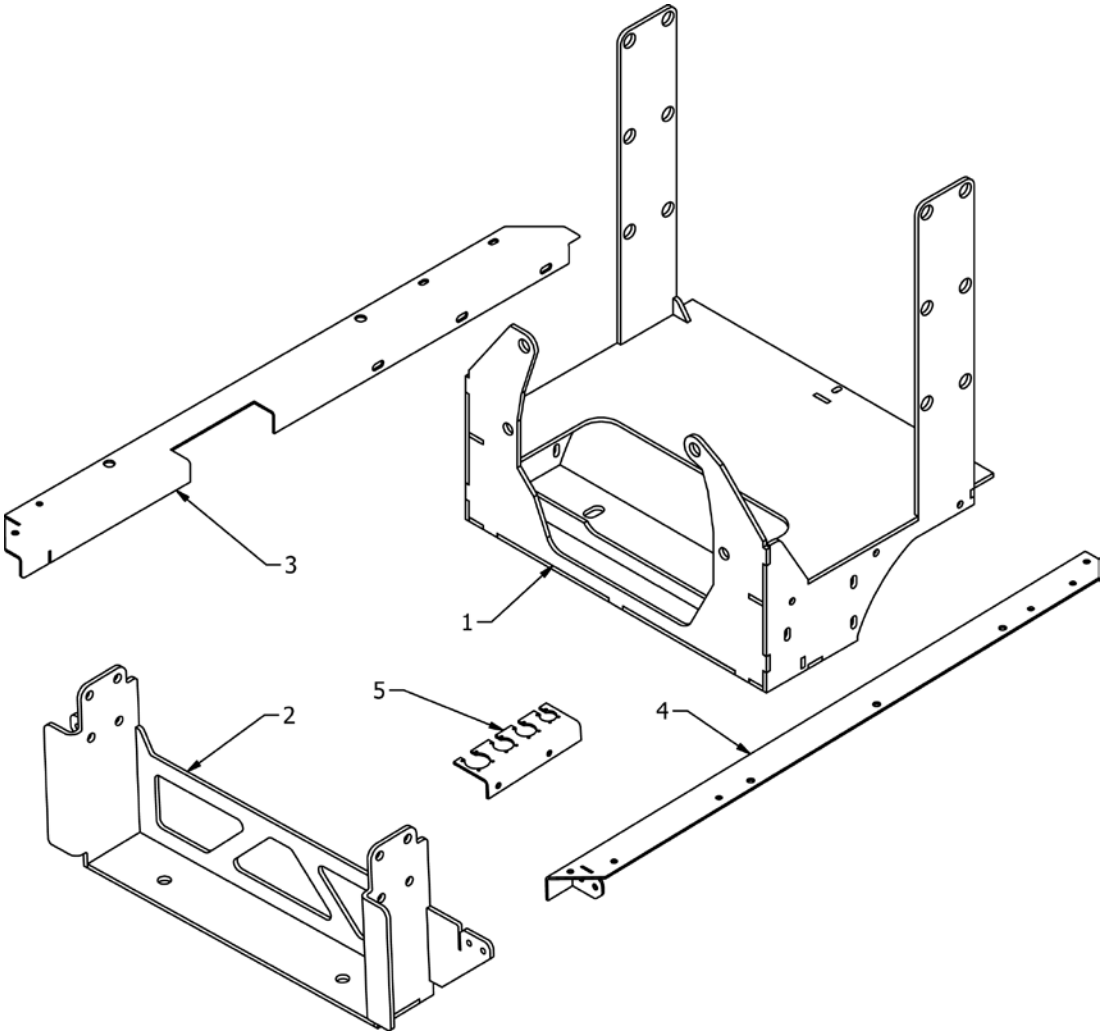


ITEM#	PART NO.	DESCRIPTION
1	4045T.2102 4045T.2102S	Hood, not SCL Hood, SCL800, JD TURBO
2	4045.2102A	Radiator Access Door
3	4045.2102C	Radiator Access Door Hinge
4	LCT60.624A	Lift and Turn Latch
5	4045.2102B	Oil Fill Access Door
6	4045.2101	Front Panel
7	4045.0018	Radiator Screen
8	LCT650.114	Radiator Screen Clamp
9	4045.2109	Panel Door, LH

ITEM#	PART NO.	DESCRIPTION
10	4045.2106A	Upper Side Panel, LH
11	4045.2112C 4045.2112T	Rear Panel, NOT SCL Rear Panel, SCL
12	4045.2105A	Upper Side Panel, RH
13	4045.2108	Panel Door, RH
14	LCT60.624	Lift and Turn Latch
15	LCT609.602	Overcenter Latch
16	4045.2112F	Cover, Solenoid
17	STD.6304	Wiring Plug Bracket
18	2856.26012	Door Grommet

6.4 Engine Mount Group

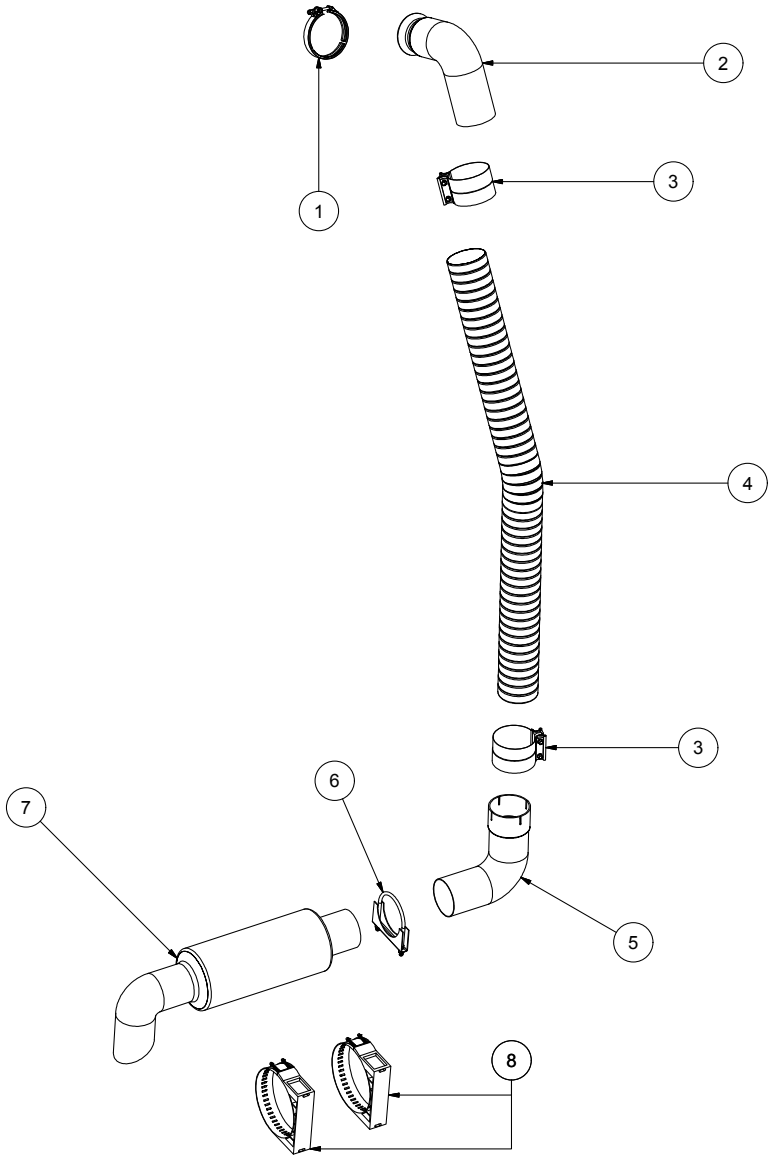
John Deere 4045D, 4045T and 6068D after 04/10



ITEM #	PART NUMBER	DESCRIPTION
1	4045.2151A	Engine Mount, Front
2	4045.2152	Engine Mount, Rear
3	4045.2154	Side Rail, LH, except LCT650
4	4045.2153	Side Rail, RH
5	4045.2155	Wire Harnesses Bracket, June 2005 and after

6.5 Muffler (Exhaust) Assembly

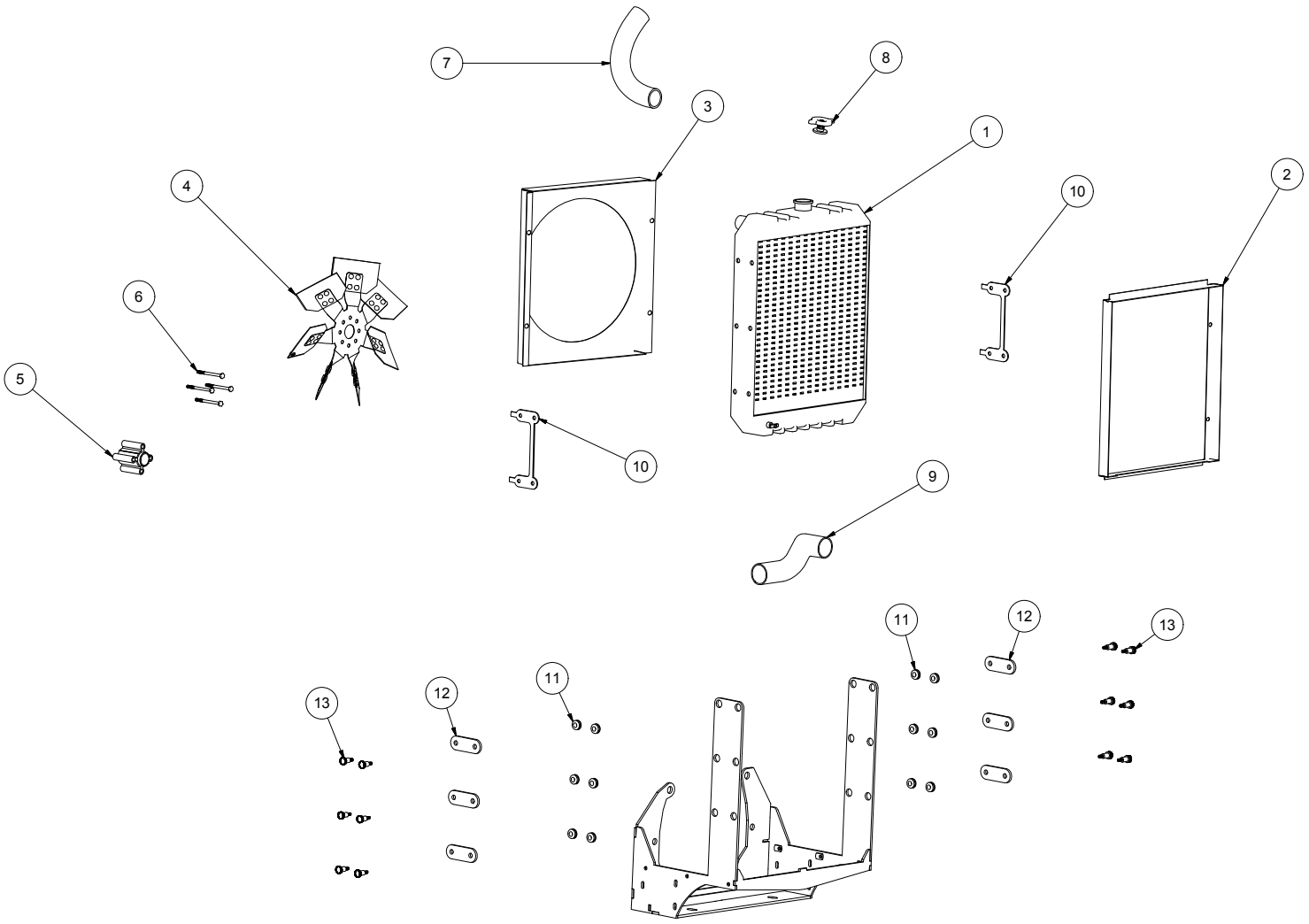
May 2004 and after



ITEM #	PART NUMBER	DESCRIPTION
1.	JD-R132471	Clamp
2.	800.3401	90 Degree Elbow to turbocharger
3.	800.3404	Clamp
4.	800.3402	Flex Pipe, 4" D
5.	800.3403	90 Degree elbow to muffler
6.	800.3407	Clamp, Muffler
7.	800.3405	Muffler
8.	UU-P007191	Muffler Support Bands

6.6 Radiator Assembly Group

John Deere after August 1996, Caterpillar 2005 and after

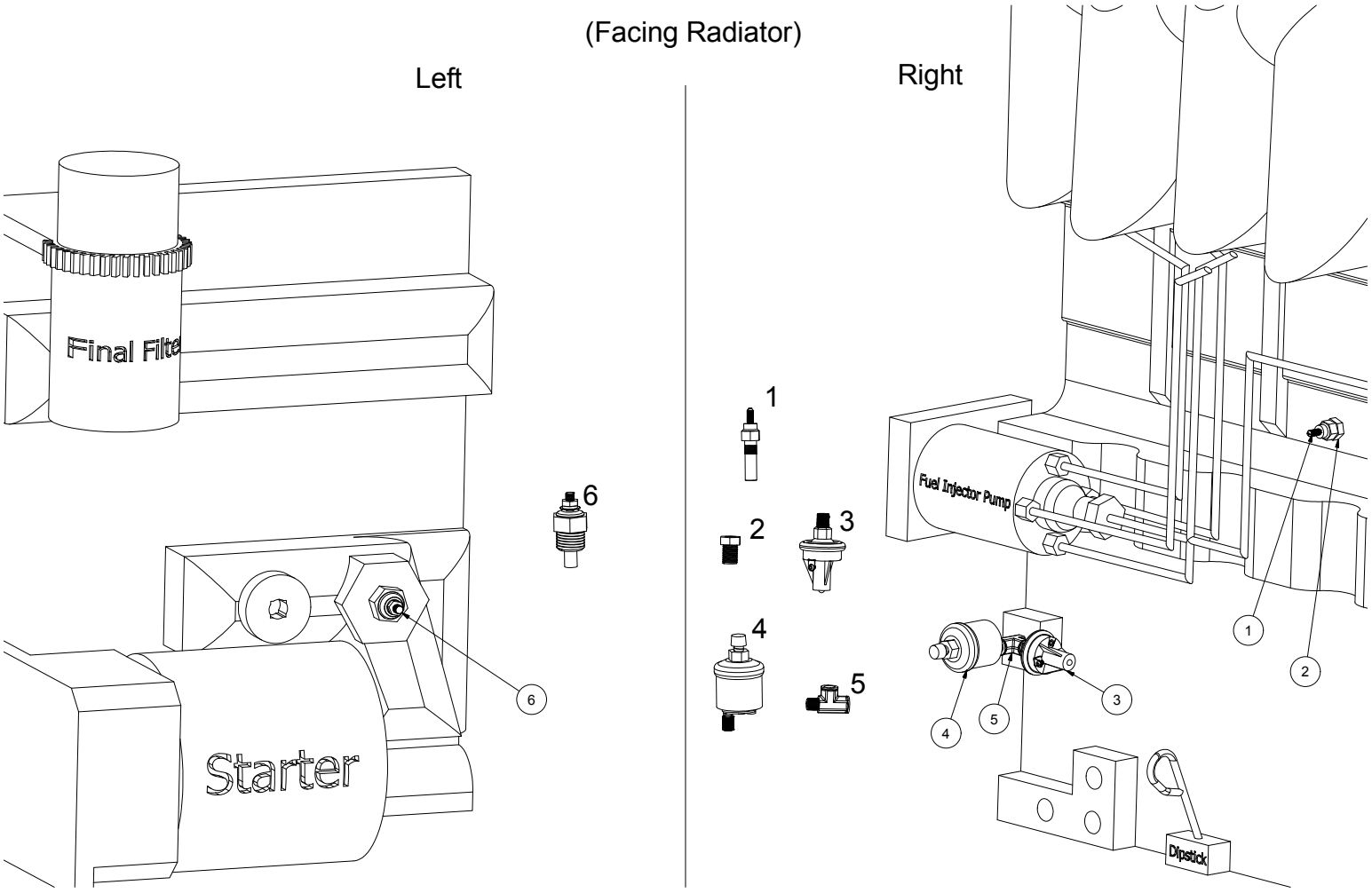


ITEM#	PART NO.	DESCRIPTION
1	4045.9503A	Radiator
2	4045.2190B	Front Fan Shroud
3	4045.2190A	Rear Fan Shroud
4	AT35158.A	Radiator Fan
5	R128443	Fan Spacer
6	G8M8X090	Spacer Bolts, 4 required
7	81331	Upper Radiator Hose

ITEM#	PART NO.	DESCRIPTION
8	C.89C.022.5010	Radiator Cap
9	4045.9681	Lower Radiator Hose
10	4045.2151E	Radiator Shim
11	H9601	Radiator Grommet
12	4045.2151F	Radiator Bolt Bracket
13	ZSB.500.750	Shoulder Bolt

6.7 Engine Senders / Switch Group

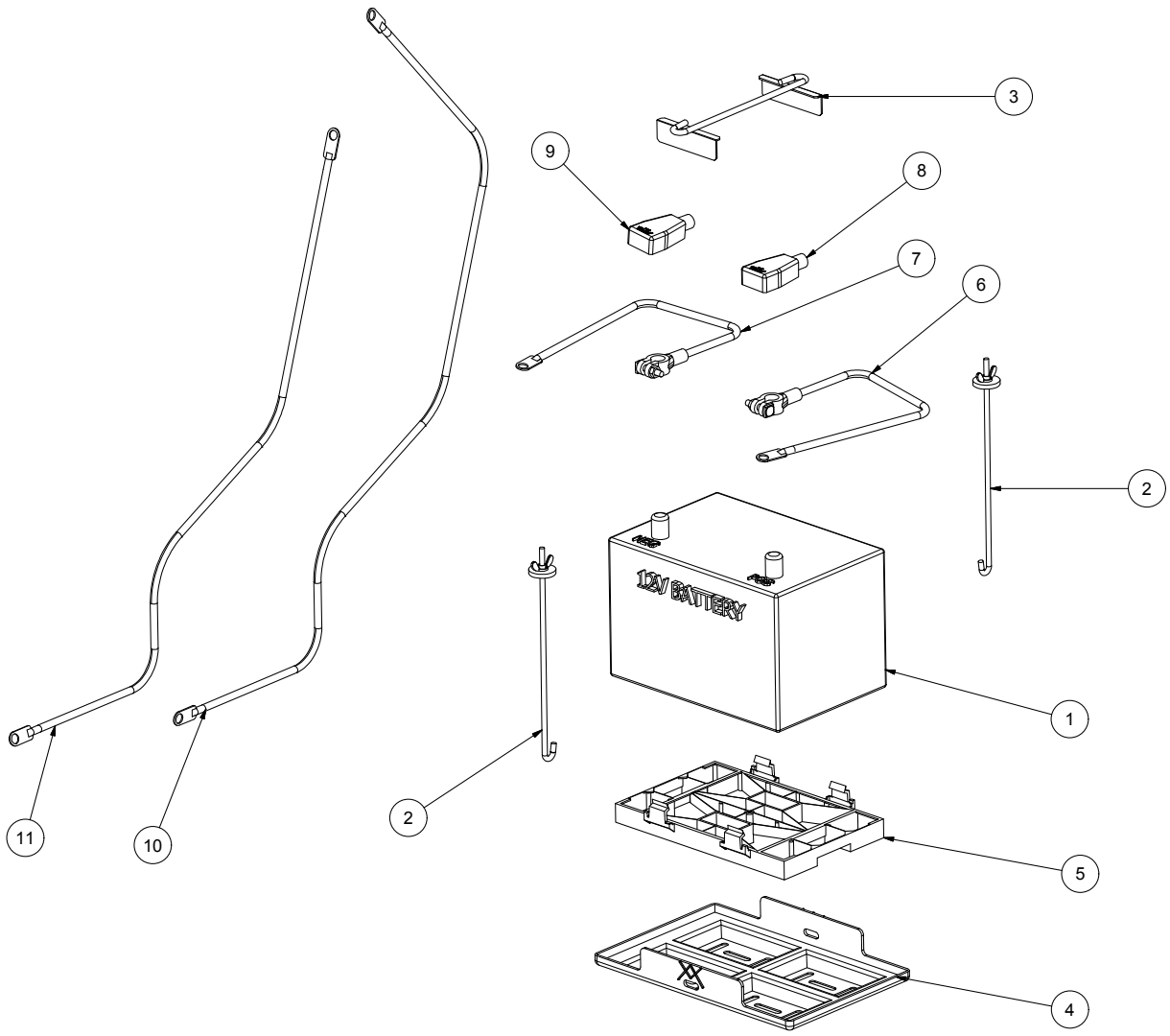
John Deere Engines



ITEM #	PART NUMBER	DESCRIPTION
1.	35423.049	Water Temperature Switch
2.	C5104.4.2	Fitting for Water Temperature Switch
3.	9603273	Oil Pressure Switch
4.	1500171	Oil Pressure Sender
5.	3750.2*	Bushing for Oil Pressure Switch and Sender
6.	52320.009	Water Temperature Sender

6.8 Battery Group

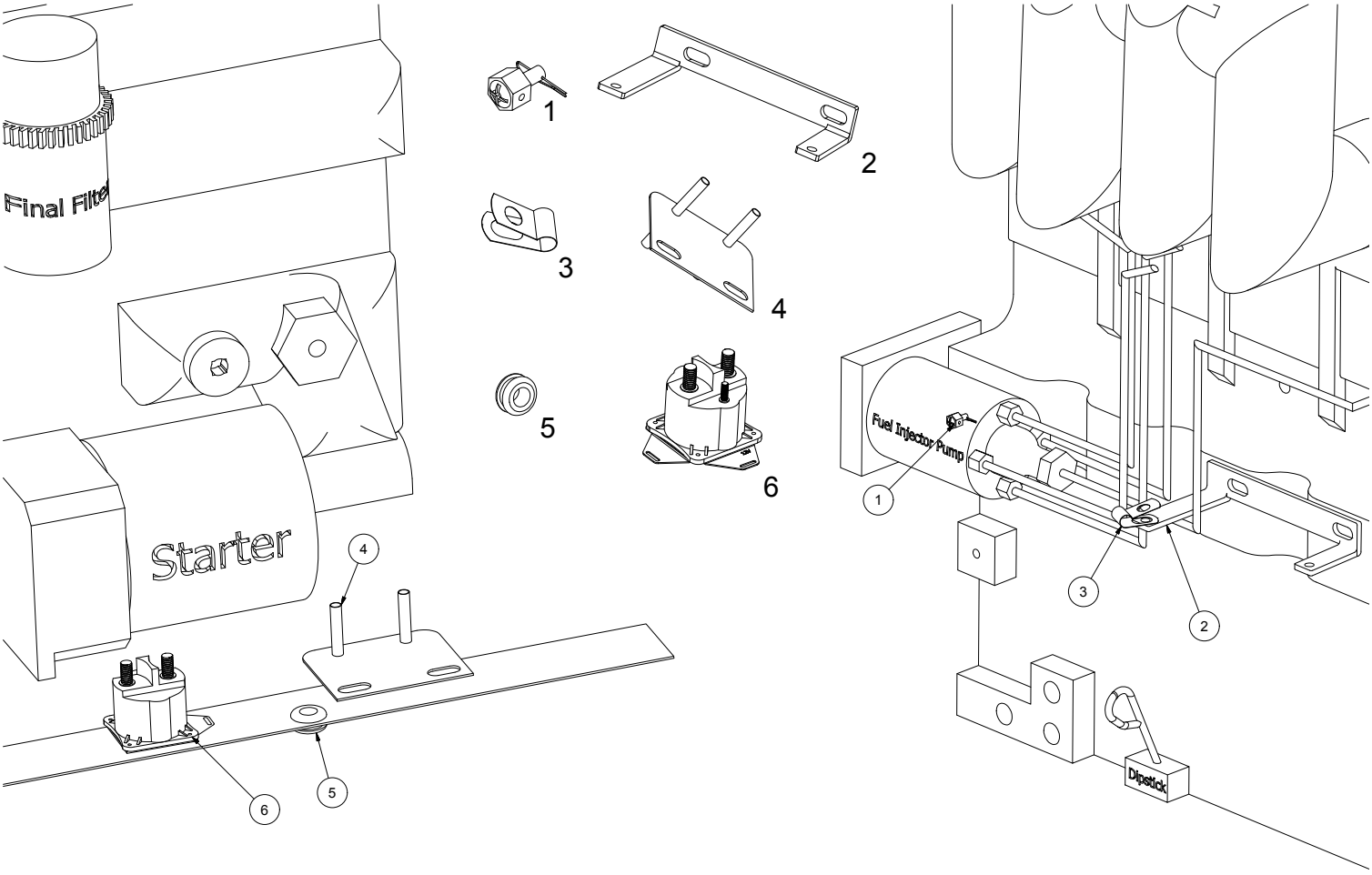
Standard units 2001 and after



ITEM #	PART #	DESCRIPTION
1.	STD.2200	Battery, not shippable
2.	BHB10J	J-Hook
3.	BHCB	Battery Hold Down Bar
4.	BTS1	Battery Tray, all but SCL's
5.	BTSCL	Battery Tray, SCL
6.	SCL.42B	Positive Battery Cable, Battery to Solenoid - SCL (standard)- 42" long
	LCT600.84B	Positive Battery Cable, Battery to Solenoid - SCL (Belt-Drive) - 84" long
7.	LCT60.15B	Negative Battery Cable, all - 15" long
8.	BTC.R	Terminal Cover, Red, all
9.	BTC	Terminal Cover, Black, all
10.	LCT600.72SS	Red Cable to Hydraulic Boom Pump, SCL/600/6000 - 72" long
11.	LCT600.24SS	Ground (Black) Cable to Chassis, 600/6000/60C - 24"

6.9 Engine Miscellaneous Parts Group

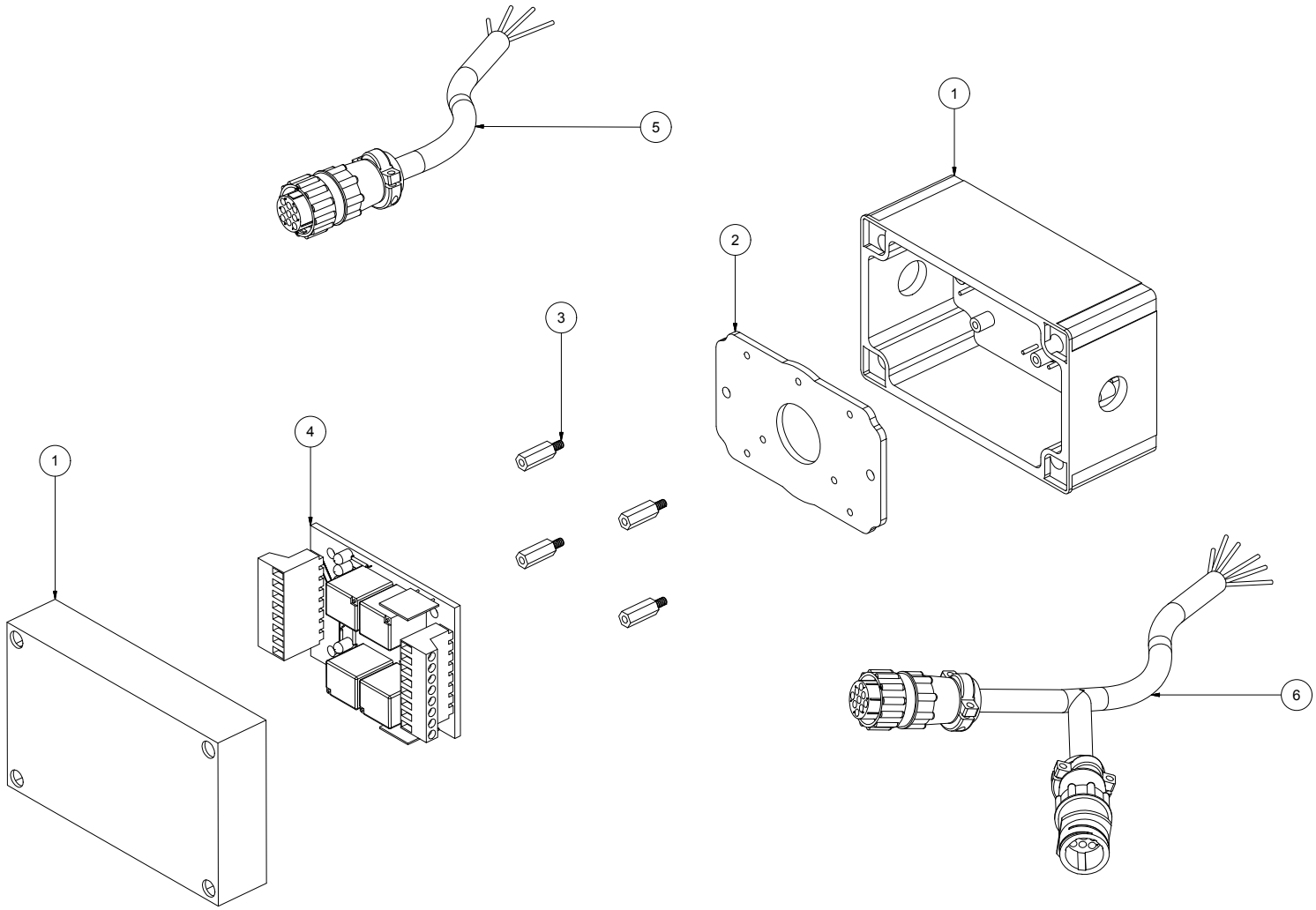
John Deere Engines



ITEM #	PART NUMBER	DESCRIPTION
1	39011.2	Throttle Connector
2	4045T.9101	Throttle Cable Bracket
3	4045T.9101A	Throttle Cable Clamp
4	400016	Fuel Line Bracket
5	2856.26012	Grommet - Door
6	ST40	Starter Solenoid

6.10 Remote Clutch / Throttle Circuit Board Assembly

October 2005 and after with remote throttle / clutch option

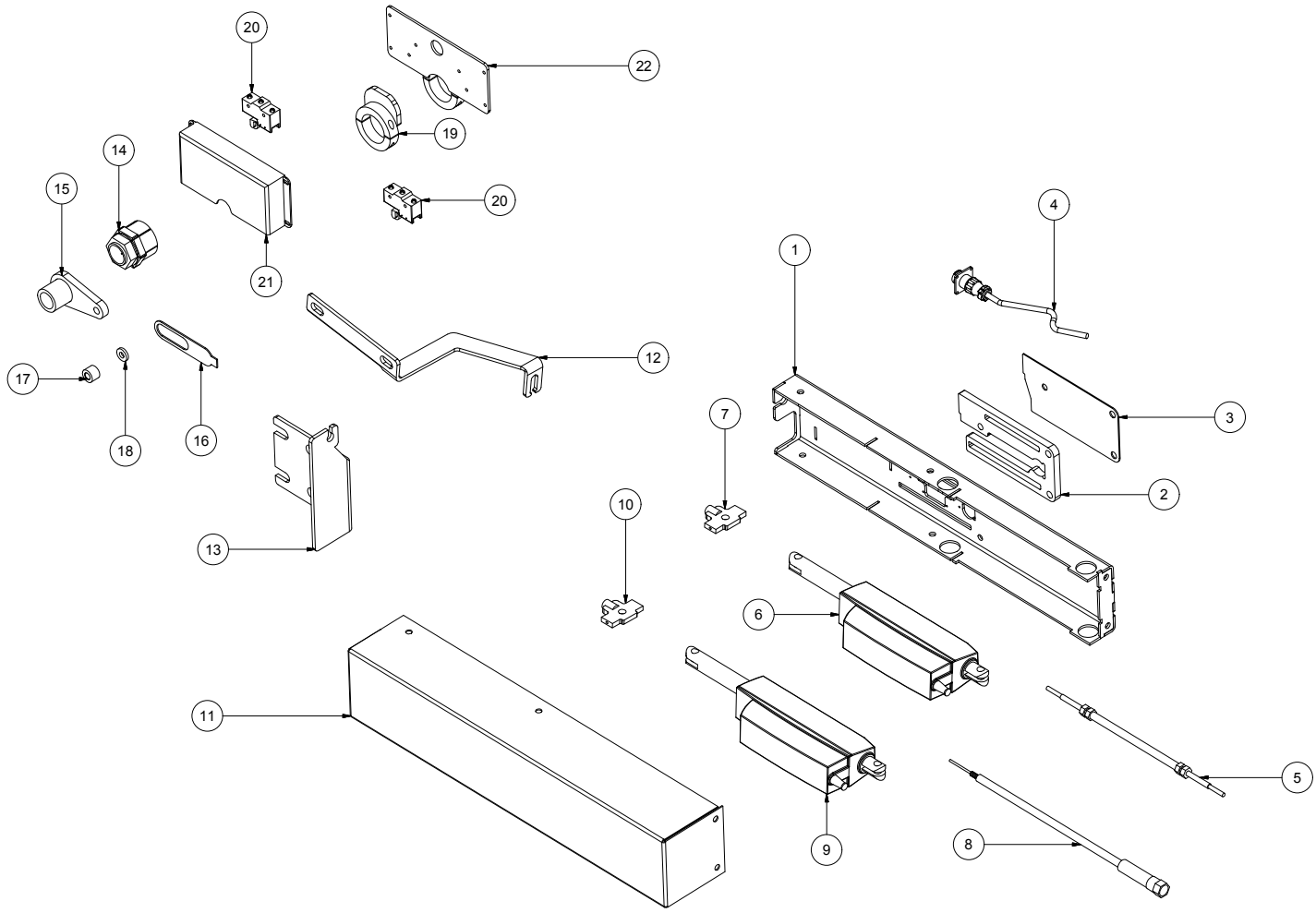


ITEM #	PART NUMBER	DESCRIPTION
*	STD.3000	Entire Assembly
1	only available as an assembly	Box and Cover
2	only available as an assembly	Backing Plate
3	only available as an assembly	Spacer, rquires 4
4	only available as an assembly	Circuit Board
5	only available as an assembly	Actuator Wiring Harness
6	only available as an assembly	Instrument Panel and Nozzle Wiring Harness

Note: This assembly is only used if the unit is equipped with the OPTIONAL remote clutch or remote throttle configuration.

6.11 Remote Clutch and Remote Throttle Assembly

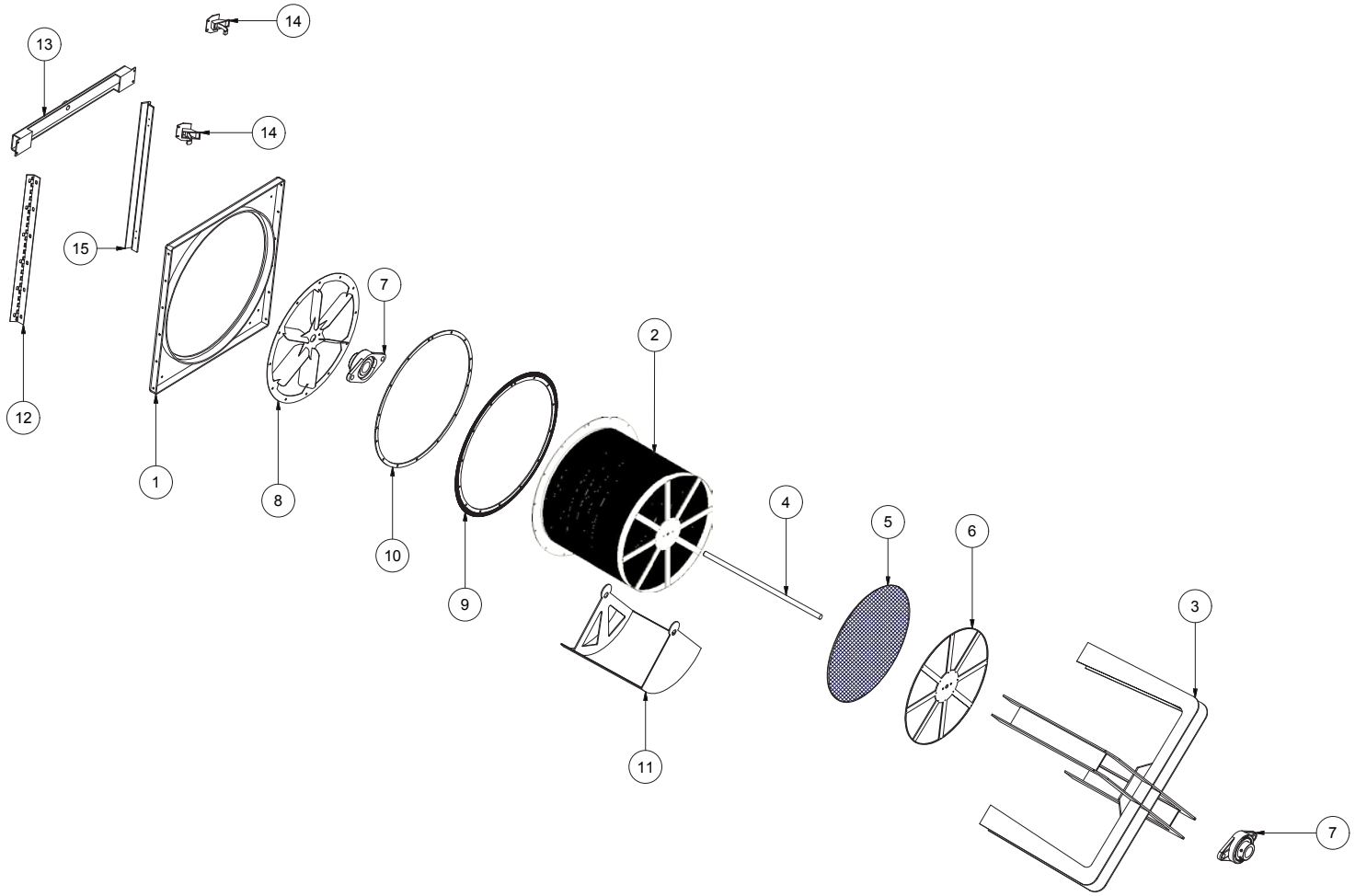
after March 2002- ver. 2



ITEM #	PART NO.	DESCRIPTION
	STD.6550B	Entire Assembly1
1	STD.6551A	Mounting Base
2	STD.6551A.01	Thick Spacer
3	STD.6551A.02	Thin Spacer
4	STD.6566	Wiring Harness
5	STD.6554 STD.6554B	Clutch Cable - Direct Drive Clutch Cable - Belt Drive
6	STD.6556	Clutch Actuator (top)
7	STD.6559	Cable Adaptor - clutch
8	STD.6553 STD.6553B	Throttle Cable - direct drive Throttle Cable - belt drive
9	STD.6557	Throttle Acutator (bottom)
10	STD.6558	Cable Adaptor-throttle

ITEM #	PART NO.	DESCRIPTION
11	STD.6552A	Cover
12	4045.6565	Throttle Cable Bracket
13	4045.6564	Clutch Cable Bracket
14	STD.6563	Torque Coupling
15	STD.6562	Coupling Sleeve
16	STD.6560	PTO Cable Adaptor
17	STD.6561	Roller Bearing
18	STD.6568	Spacer Washer
19	STD.6569	Collar Cam (3x only)
20	800.434	Limit Switch (3x only)
21	STD.6571	Cover
22	STD.6570	Limit Switch Bracket

6.12 Chaffe Eliminator Assembly, hinged



ITEM #	PART NO.	DESCRIPTION
1	RAS.102	Base Frame and Support Frame Assembly (#1 and #3 welded together.
2	RAS.103	Barrell Assembly
3	RAS.104	Support Frame, thru 04/02; after May 2002 must order RAS.102A
4	RAS.105	Shaft
5	RAS.106	Mesh Screen
6	RAS.107	Screen Holder
7	RAS.108	Flange Bearing

ITEM #	PART NO.	DESCRIPTION
8	RAS.101	Fan
9	RAS.109	Strip Brush
10	RAS.110	Brush Holder
11	RAS.111	Air Deflector
12	RAS.112	Hinge
13	RAS.113	Shaft Bracket
14	LCT609.602 LCT650.114	Over center Latch, all but LCT650 Destaco Latch, not shown, LCT650 only
15	RAS.114	Angle Frame, LCT650 only

7-0

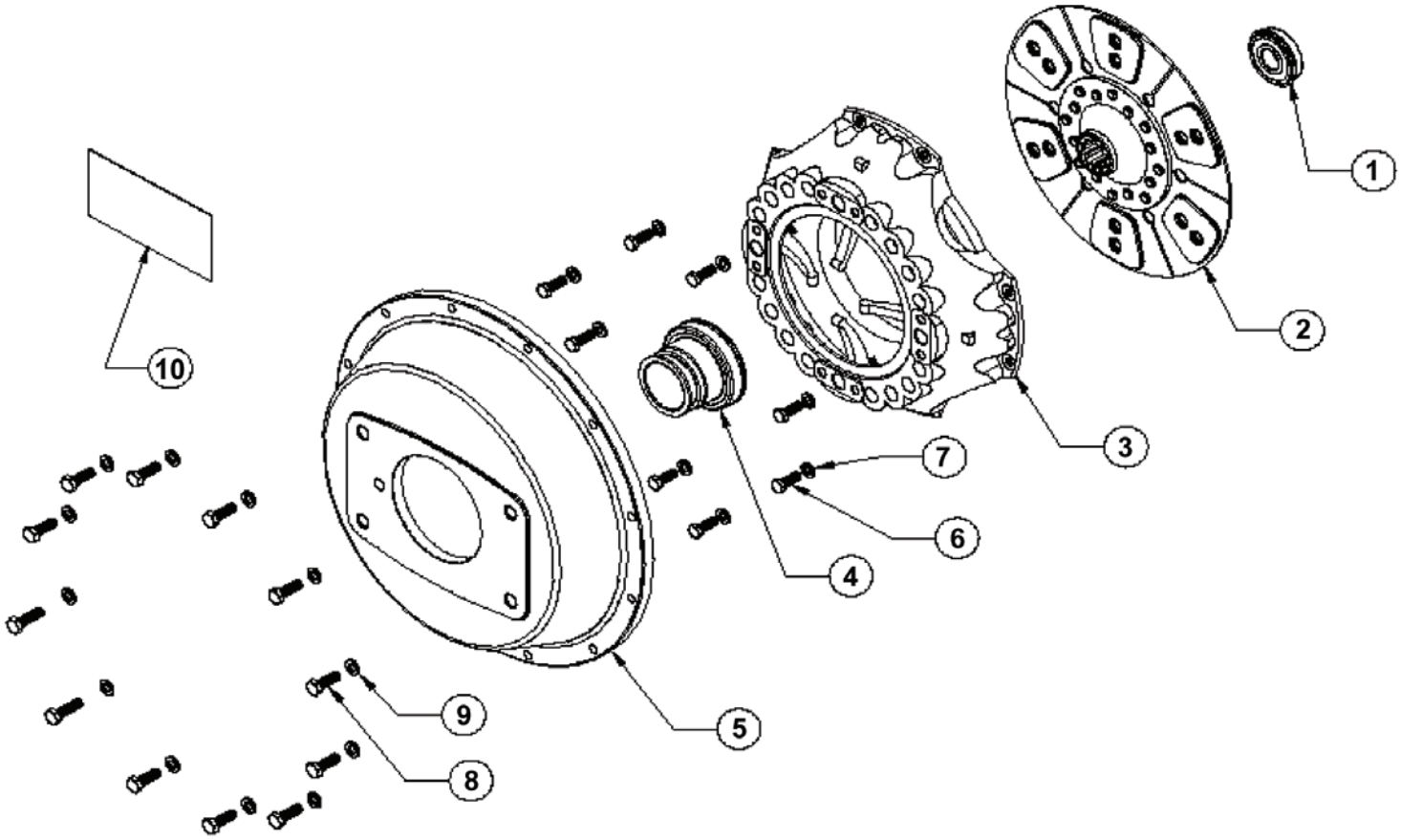
7.0 CLUTCH GROUP

7.0 CLUTCH GROUP

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

7.1 AutoHD PTO Clutch Group

February 2006 - Present

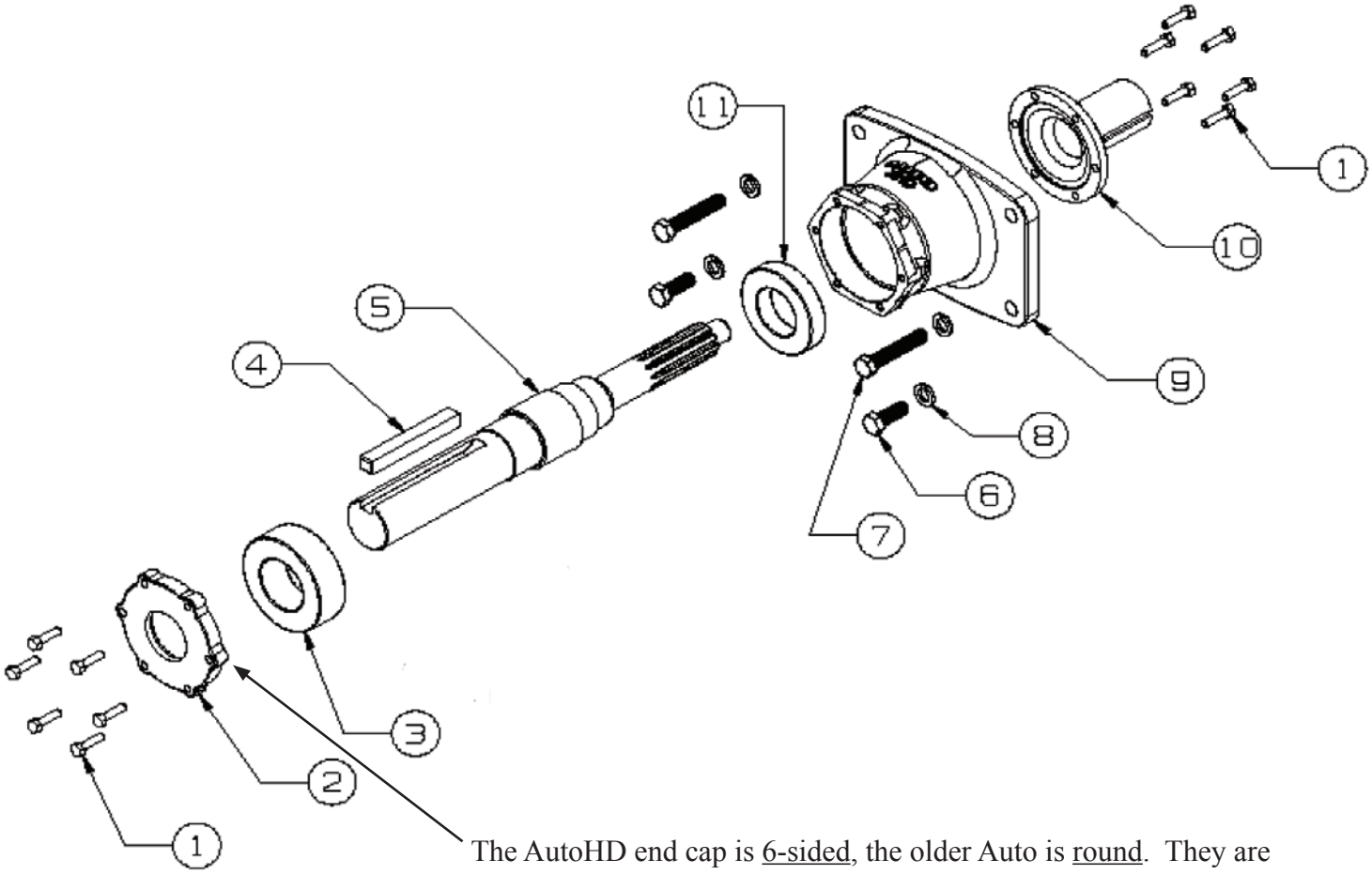


ITEM #	PART NUMBER	DESCRIPTION
*	OD-48080050.8OF	*Complete PTO and Clutch Assembly 03/08 -
1	OD-41500217	Pilot Bearing, JD
2	OD-41500237	Clutch Disk
3	OD-361919	Pressure Plate, 03/08 -
4	OD-41500248	Throw out Bearing,03/08 -
5	OD-41500172	Clutch Cover
6	OD-45000054	Bolt, 3/18-16 x 1"
7	OD-45000063	Lock Washer, 3/8"
8	OD-45000226	Bolt, M10-1.50 x 35MM
9	OD-45000046	Lock Washer, M10
10	OD-41500216	Decal, Diesel Clutch

Note: *48080050 and 48080050.8OF includes the everything on this page, the AutoHD PTO page and the AutoHD linkage page. This is the complete PTO/Clutch assembly. It does not include the clutch assist assembly.

7.2 AutoHD PTO Assembly Group

February 2006 - Present

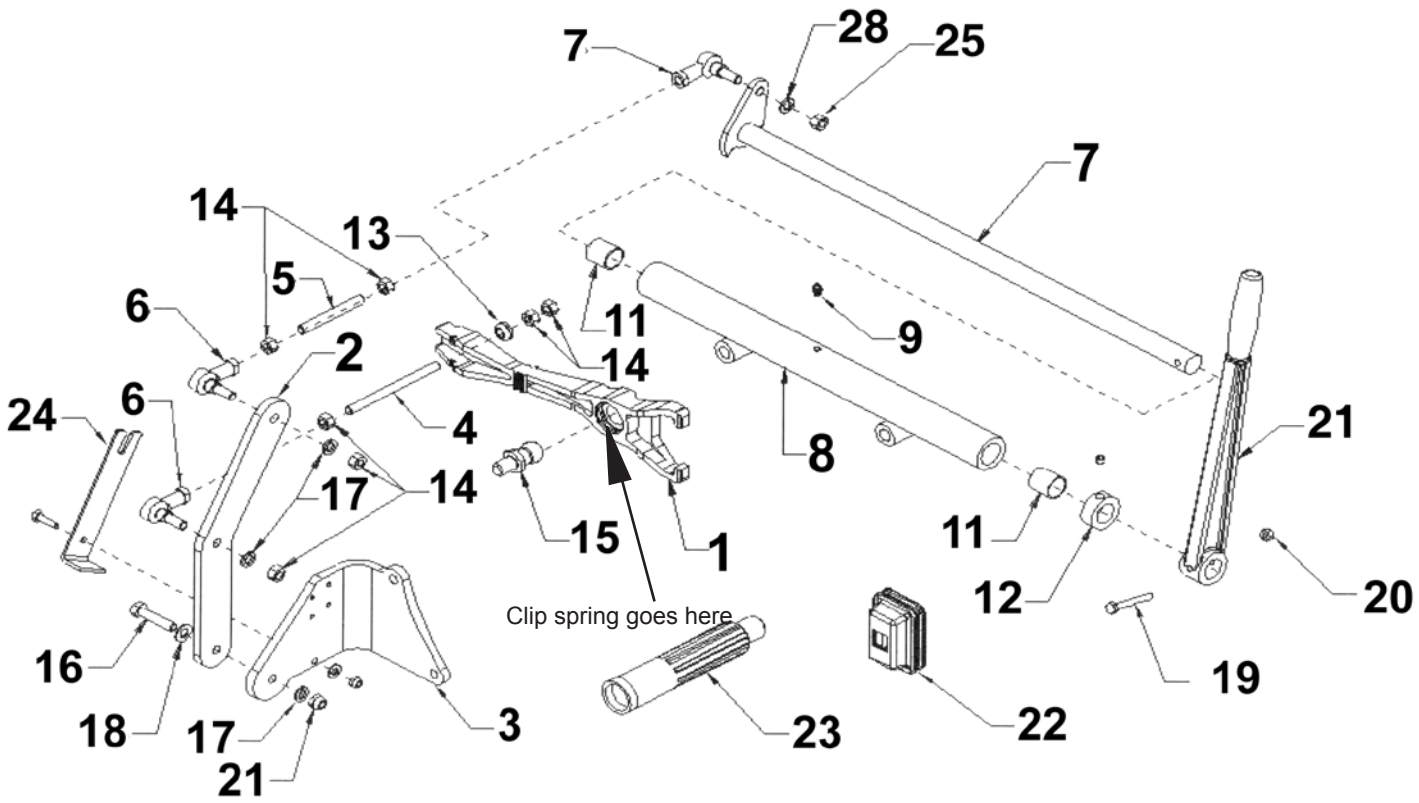


The AutoHD end cap is 6-sided, the older Auto is round. They are not interchangeable! Some units in the time period above used the standard Auto PTO. Please verify.

ITEM #	PART NUMBER	DESCRIPTION
*	OD-41500252	Complete PTO Assembly (items 1 -11,13)
**	OD-48080050.8OF	**Complete PTO & Clutch Assembly
1	OD-45000212	Bolt, 5/16-18 x 1-1/4" HD model
2	OD-41500205M	Bearing Retainer Cover
3	OD-41500206	PTO Bearing, Rear
4	OD-LCT650.601K OD-LCT650.601F	Key, Stepdown--direct drive units only Key, belt drive units only
5	OD-41500203	PTO shaft
6	OD-45000105	Bolt, 9/16-12 x 1- 3/4"
7	OD-45000177	Bolt, 9/16-12 x 3"
8	OD-45000103	Lock Washer, 9/16"
9	OD-41500204	PTO Housing
10	OD-41500242	PTO Collar, 03/08 - present
11	OD-41500207	PTO Bearing, Front

7.3 AutoHD PTO Linkage Group

February 2006 - Present



ITEM #	PART NO.	DESCRIPTION
1	41500251	Fork, 03/08-
NS	41500174	Clip Spring in Fork
NS	41500999	Return Spring
2	41500095	Linkage Bracket
3	41500241	Linkage Bracket
4	41500065	Linkage Rod
5	41500066	Linkage Rod
6	41500019	Linkage Rod End
7	see below	Shaft, Lever
8	41500102	Shaft Housing, AutoHD
9	41500043	Grease Zerk
10	NLA	NLA

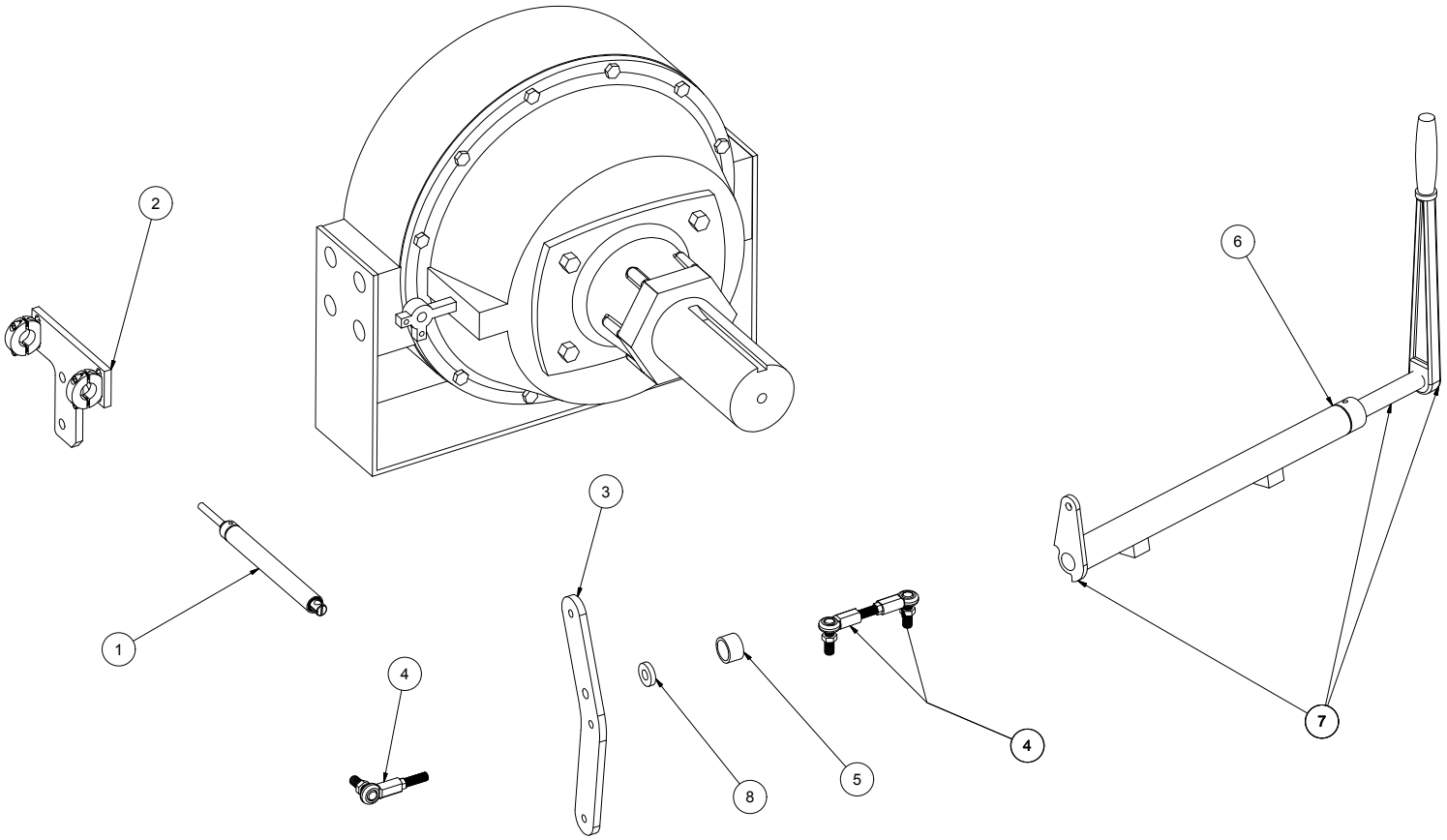
ITEM #	PART NO.	DESCRIPTION
11	41500045	Shaft Bushing
12	41500046	Shaft Collar
13	41500030	Rocker Ball
14	45000050	Nut, 3/8 - 16
15	41500072	Pivot Ball 03/08-
16	45000177	Bolt, 3/8 - 16 x 1 3/4"
17	45000063	Lock Washer, 3/8"
18	45000064	Flat Washer, 3/8"
19	45000012	Bolt, 1/4 - 28 x 2"
20	45000015	Locknut, 1/4 - 28
21	45000044	Handle
22	45000175	Boot
23	41500164	Alignment Tool
24	41500103	Alignment Tool

Item #7

Unit	Auto HD
SCL800/60C	41500041A.HD

7.4 Clutch Assist Group

Auto PTO- John Deere 4045D/T (11/00 -



ITEM #	PART NUMBER	DESCRIPTION
1	400050.A	Clutch Cylinder
2	400054.C	Cylinder Support Bracket, JD
3	41500095	Clutch Bracket Arm, Auto HD
4	41500019	Linkage, Rod end
	41500019A	Linkage, Threaded insert
5	400050.C1	Bearing
6	41500102	Pivot Shaft Tube, Auto HD
7	41500041A.HD	Pivot Shaft,
8	400050.C2	Spacer

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INSTALLATION AND MAINTENANCE MANUAL

THIS MANUAL CONTAINS INSTRUCTIONS FOR INSTALLATION, START UP, FUNCTIONING, AND MAINTENANCE KFBD POWER TAKE OFFS.
WE SUGGEST THAT ANY PERSON WHO IS RESPONSIBLE FOR USE AND/OR MAINTENANCE SHOULD BE PROVIDED WITH THIS MANUAL. THE RESPECT OF RULES, CONTAINED IN THIS MANUAL IS MANDATORY FOR WARRENTY VALIDITY.
WE REQUIRE THAT, FOR SPARE PARTS ORDERS, IT IS IMPORTANT TO PROVIDE, BESIDES PART NUMBER AND QUANTITY: MODEL, SPECIFICATION No AND SERIAL No WHICH ARE STAMPED ON NAME PLATE.

Type : 13KFBD

Spec. nr. : 2248__ __

Serial nr. :

13KFBD

drive with us

TRANSFLUID trasmissioni industriali	13 KFBD MANUALE INSTALLAZIONE, USO E MANUTENZIONE *INSTALLATION,USE AND MAINTENANCE MANUAL*	TF 6217 Rev.0 1/3

Questo manuale contiene le istruzioni per l'installazione, l'avviamento, l'uso e la manutenzione del giunto idrodinamico tipo KFBD.
CONSIGLIAMO CHE I RESPONSABILI DELL'USO E DELLA MANUTENZIONE DEL KFBD, VENGANO DOTATI DEL PRESENTE MANUALE. IL NON RISPETTO DELLE REGOLE CITATE IN QUESTO MANUALE, PROVOCA IL DECADERE DELLA GARANZIA.
Ricordiamo che, per ordinare le parti di ricambio, e' importante specificare, oltre al numero di dettaglio e quantita' richiesta, anche:
TIPO - N° di SPECiFICA - N° di SERIE del KFBD, che si trovano stampigliati sulla targhetta di identificazione a bordo macchina.

This manual contains instructions for installation, start up, working, and maintenance of KFBD fluid coupling.
WE SUGGEST THAT ANY PERSON WHO IS RESPONSIBLE FOR USE AND/OR MAINTENANCE, SHOULD BE PROVIDED WITH THIS MANUAL. THE RESPECT OF RULES, CONTAINED IN THIS MANUAL, IS MANDATORY FOR WARRANTY VALIDITY.
We recall that, for spare parts order, it is important to provide, besides detail number and quantity, even:
TYPE - SPECIFICATION Nr. - SERIAL Nr. of KFBD that are stamped on identification metal plate.

DESCRIZIONE	*DESCRIPTION*
Il KFBD e' un giunto idrodinamico la cui parte esterna, motrice, e' collegata al volano di un motore endotermico mediante un giunto elastico ed il cui albero di uscita e' supportato da un cuscinetto orientabile a rulli, lubrificato ad olio, alloggiati in una campana di supporto flangiata al coprivolano del motore. Un secondo cuscinetto, alloggiato nel volano, sostiene l'albero di uscita dal lato motore. Il KFBD e' adatto per applicazioni con puleggia od i linea.	KFBD is a fluid coupling having the outer driving impeller connected to the internal combustion engine flywheel through an elastic coupling. The output shaft is supported by a spherical roller bearing, oil lubricated, fitted in a cover flanged to the engine flywheel housing. Another bearing, fitted into the flywheel, supports the output shaft at the engine side. The KFBD is suitable for pulley or in line applications.

Prima di iniziare il montaggio del KFBD sul motore, e' bene verificare che il volano rientri nelle tolleranze SAE. Questo e' importante soprattutto per il buon funzionamento del giunto elastico.(Vedere foglio 2/3 Fig.1)

Before KFBD be mounted onto the engine, it is recommended to check that flywheel be within SAE tolerances. This is very important for elastic coupling good working.(see sheet 2/3 Fig.1)

	INSTALLAZIONE (vedere foglio 2/3)		***INSTALLATION** (see sheet.2/3)*
1	Montare l'anello di trascinamento del giunto elastico sul volano del motore.	1	Mount elastic coupling driving ring, onto engine flywheel.
2	Montare il cuscinetto pilota, ingrassato a vita, sull'albero del KFBD.	2	Mount pilot bearing, greased for life, onto KFBD shaft.
3	Montare la flangia SAE 3 sul coprivolano.	3	Mount SAE 3 flange onto flywheel housing.
4	Posizionare il gruppo completo, osservando con cura l'allineamento dell'albero nel cuscinetto pilota e dei blocchetti del giunto elastico con l'anello di trascinamento montato sul volano. La campana esterna deve essere orientata in modo da avere l'apertura per il riempimento dell'olio a circa 60° dalla verticale, in senso orario guardando il volano del motore. Cosi' montato, si avra' l'apertura di drenaggio dell'olio in basso. Infine fissare il gruppo con le apposite viti sulla flangia esterna.	4	Install complete group paying attention at alignement between shaft and pilot bearing as well as alignement between rubber blocks and driving ring. External housing must be orientated to get the oil fill opening at about 60° clockwise from vertical line, looking at the flywheel. In such a way, the oil drain opening will be downwards. Therefore tighten screws of external flange.
5	Riempimento olio giunto (vedere tabella olii consigliati). Togliere il coperchio che protegge il tappo di carico . Ruotare il giunto sino a portare il tappo in corrispondenza del segno di riferimento X sulla verticale (X-1-2-3-4 dipende dall'applicazione). Togliere il tappo e riempire fino allo sbocco dal foro (13KFBD X=5,2 lt;), quindi chiudere utilizzando del sigillante sul filetto. La coppia di serraggio e' 30 Nm per tappo 3/8". Rimontare il coperchio di protezione.	5	Fluid coupling oil filling (see recommended oil table). Remove cover. Turn fluid coupling untill X mark be on vertical line (X-1-2-3-4 depends on application). Remove plug and fill untill oil overflows (13KFBD fill X=5,2 lt;). Therefore fit the plug using sealent on thread. Tightening torque is 30 Nm for 3/8" plug .Fit again the cover.
6	Riempimento grasso (vedere tabella grassi consigliati). Mediante l'apposito ingrasatore,, riempire la camera di lavoro del cuscinetto fino a far fuoriuscire il grasso attorno all'albero	6	Grease filling (see recommended grease table). Through the grease filler, fill grease untill it comes out around the shaft.
7	Dare alcuni colpi, con un martello non metallico, sull'estremita' dell'albero onde eliminare ogni eventuale tensione sui cuscinetti dovuta alla resistenza offerta dal cuscinetto pilota, quando esso viene montato forzato nella sede del volano.	7	Rap the shaft on the end to relieve any preloading that may result due to the resistance of pilot bearing when being pressed into the flywheel.
8	Al primo avviamento, far girare il gruppo innestato, per almeno 10 minuti,con il motore alla meta' dei giri massimi.	8	At first start up, run the unit engaged and engine at half of max speed for not less than 10 minutes.

tf6217-1 06/04/01

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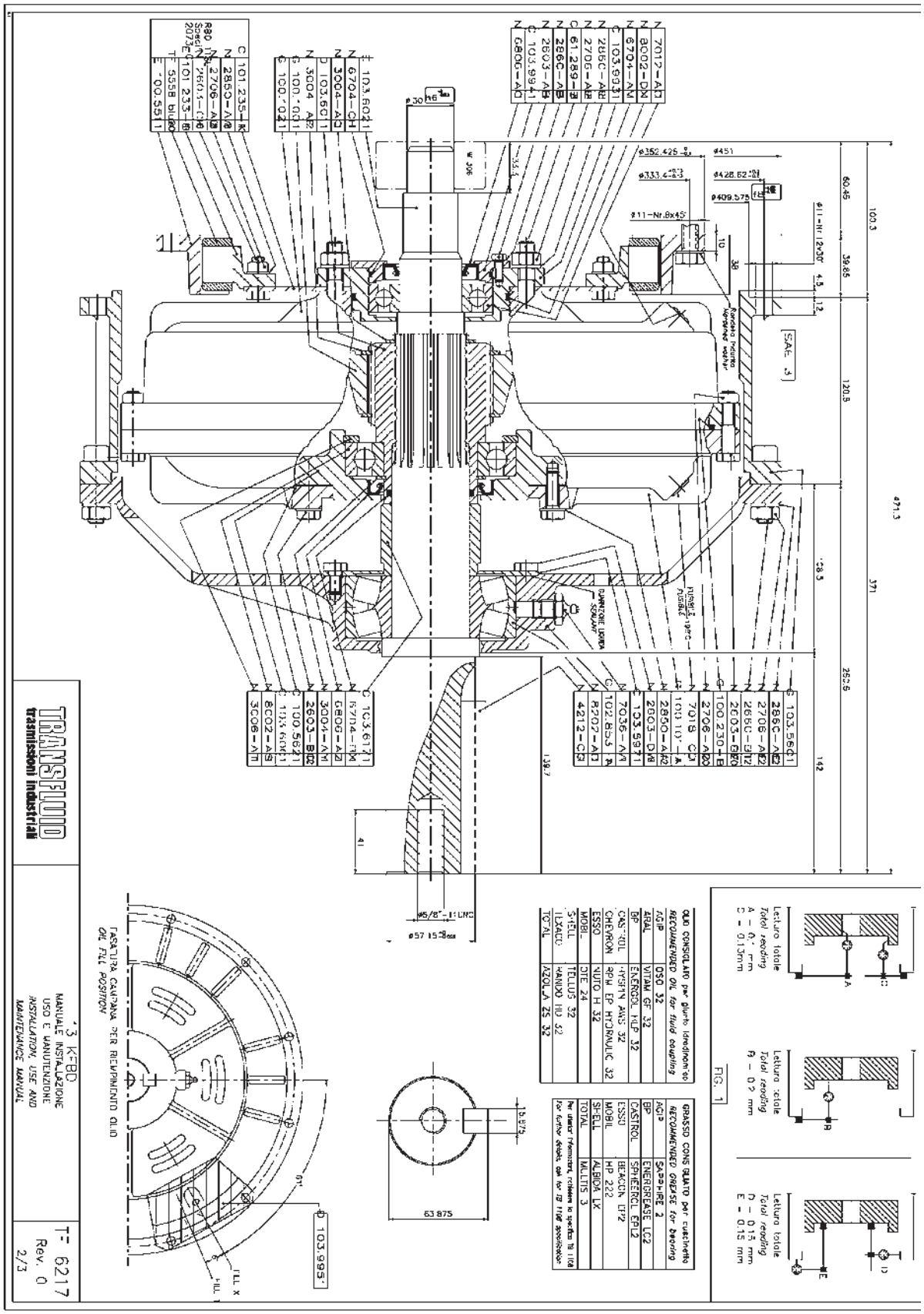
tel.0039-02-339315.1 - fax.0039-02-33910699 – www transfluid.it - e-mail:info@transfluid.it

7.7 Kraft Fluid Drive Breakdown (Optional)

Fluid Drive Coupler (Optional)



7.8 Kraft Fluid Drive Common Parts (Optional)

Fluid Drive Coupler (Optional)

ITEM #	PART NUMBER	DESCRIPTION
1	UU-TFP7018CC	390 Degree Fuse Plug, 5/8"
2	UU-TFP2292	Seal Kit
3	UU-8202AD	Roller Bearing
4	UU-TFP103602X	Shaft
5	UU-8002DX	Bearing, small
6	UU-8002AS	Ball Bearing
7	UU-KPC2.01.5	Fluid, 1-1/2 gallon

8-0

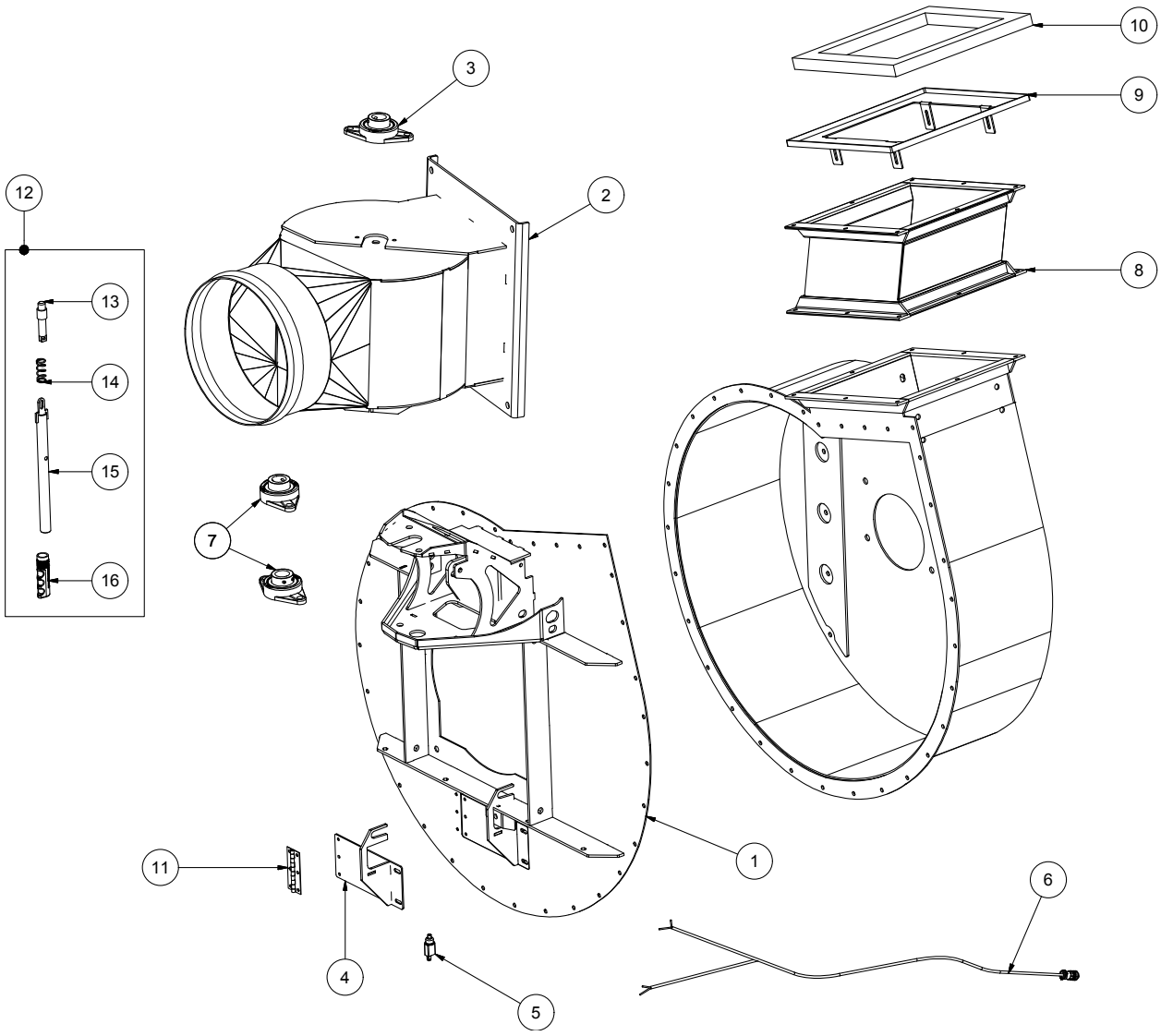
8.0 BLOWER HOUSING GROUP

8.0 BLOWER HOUSING GROUP

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

8.1 Blower Housing Face Group

DIRECT DRIVE - Single Axis units April 2001 and after

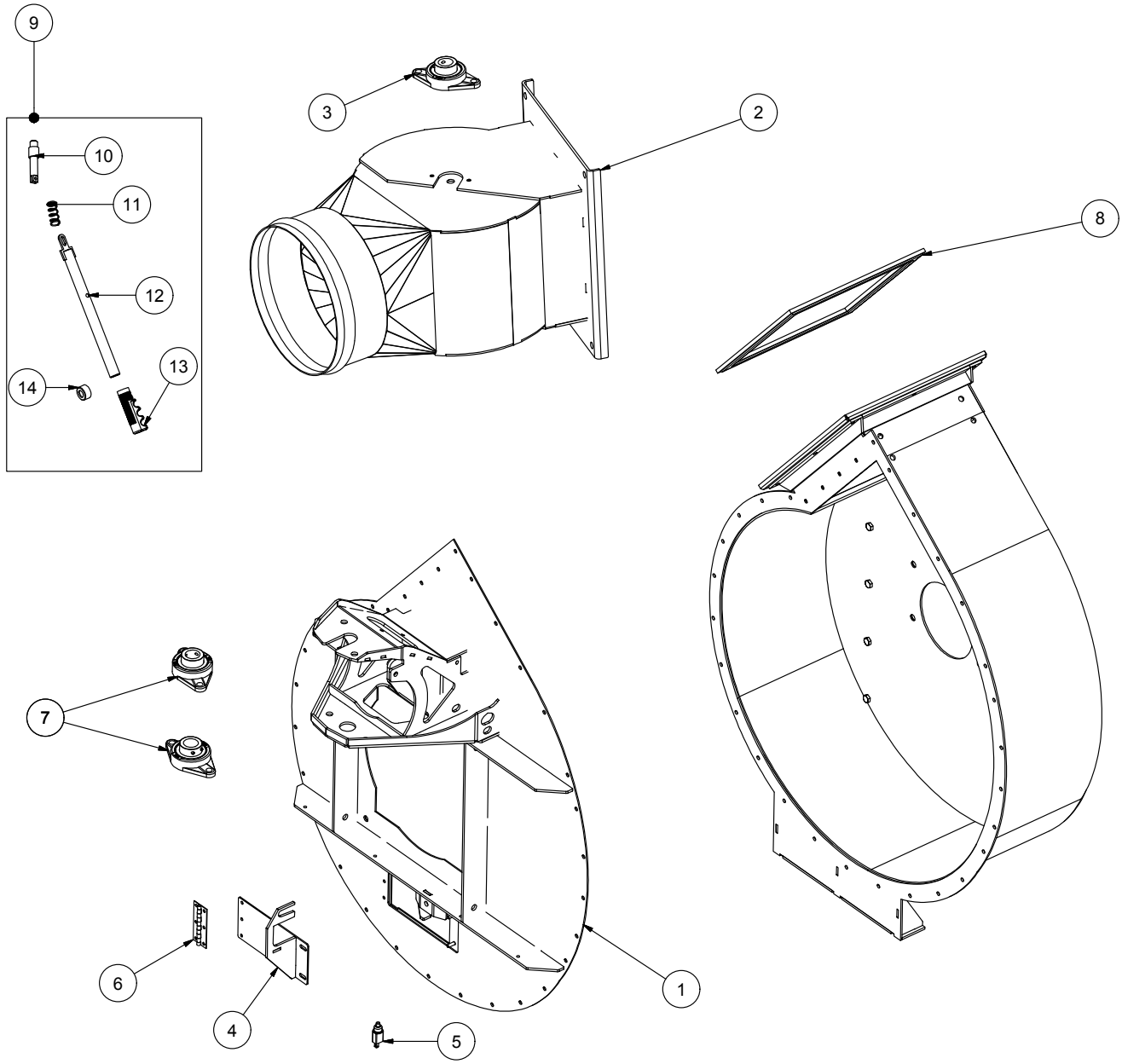


ITEM #	PART NO.	DESCRIPTION
1.	SCL621.601C	Blower Housing Face, direct
2.	SCL875.001A	Intake Swivel Elbow
3.	SCL875.001	Bearing for Swivel Elbow
4.	SCL621.602	Inspection Door
5.	LCT690.601.A	Limit Switch
6.	LCT690.602	Limit Switch Wire
7.	LCT616.801	Boom Bearing
8.	800.2801	Exh. Duct, direct drive only
9.	800.2802	Exh. Adj. Flange, 04/03-

ITEM #	PART NO.	DESCRIPTION
10.	800.2803	Exh. Duct Gasket,direct drive
11.	LCT621.603	Inspection Door Hinge
12.	SCL670.2	Stop Pin Handle Assembly
13.	SCL670.1	Pin
14.	SCL670.3	Spring
15.	SCL670.4	Handle Rod
16.	SCL670.5	Grip
17.	SCL670.6	End Cap

8.2 Blower Housing Face Group - Belt Drive

BELT DRIVE - Single Axis units April 2001 and after

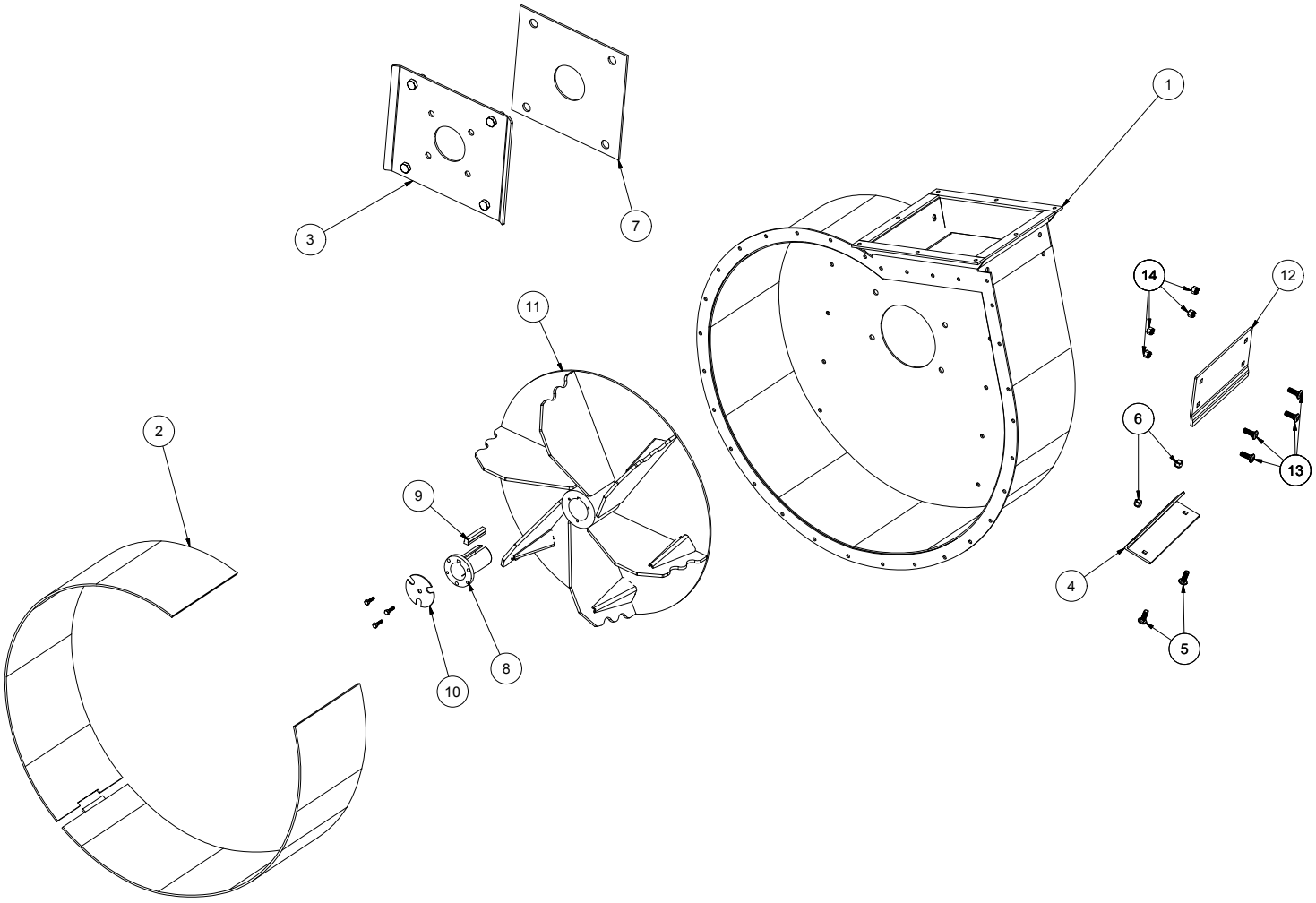


ITEM #	PART NO.	DESCRIPTION
1.	SCL621.601BD	Blower Housing Face
2.	SCL875.001A	Intake Swivel Elbow
3.	SCL875.001	Bearing for Swivel Elbow
4.	SCL621.602	Inspection Door
5.	LCT690.601.A	Limit Switch
6.	LCT621.603	Hinge, Inspection Door
7.	LCT616.801	Boom Bearing

ITEM #	PART NO.	DESCRIPTION
8.	SCL821.817BD	Gasket, Exhaust Duct Belt drive only
9.	SCL670.2	Stop Pin Handle Assembly
10.	SCL670.1	Pin
11.	SCL670.3	Spring
12.	SCL670.4	Handle Rod
13.	SCL670.5	Grip
14.	SCL670.6	End Cap

8.3 Blower and Impeller Group

DIRECT DRIVE UNITS ONLY

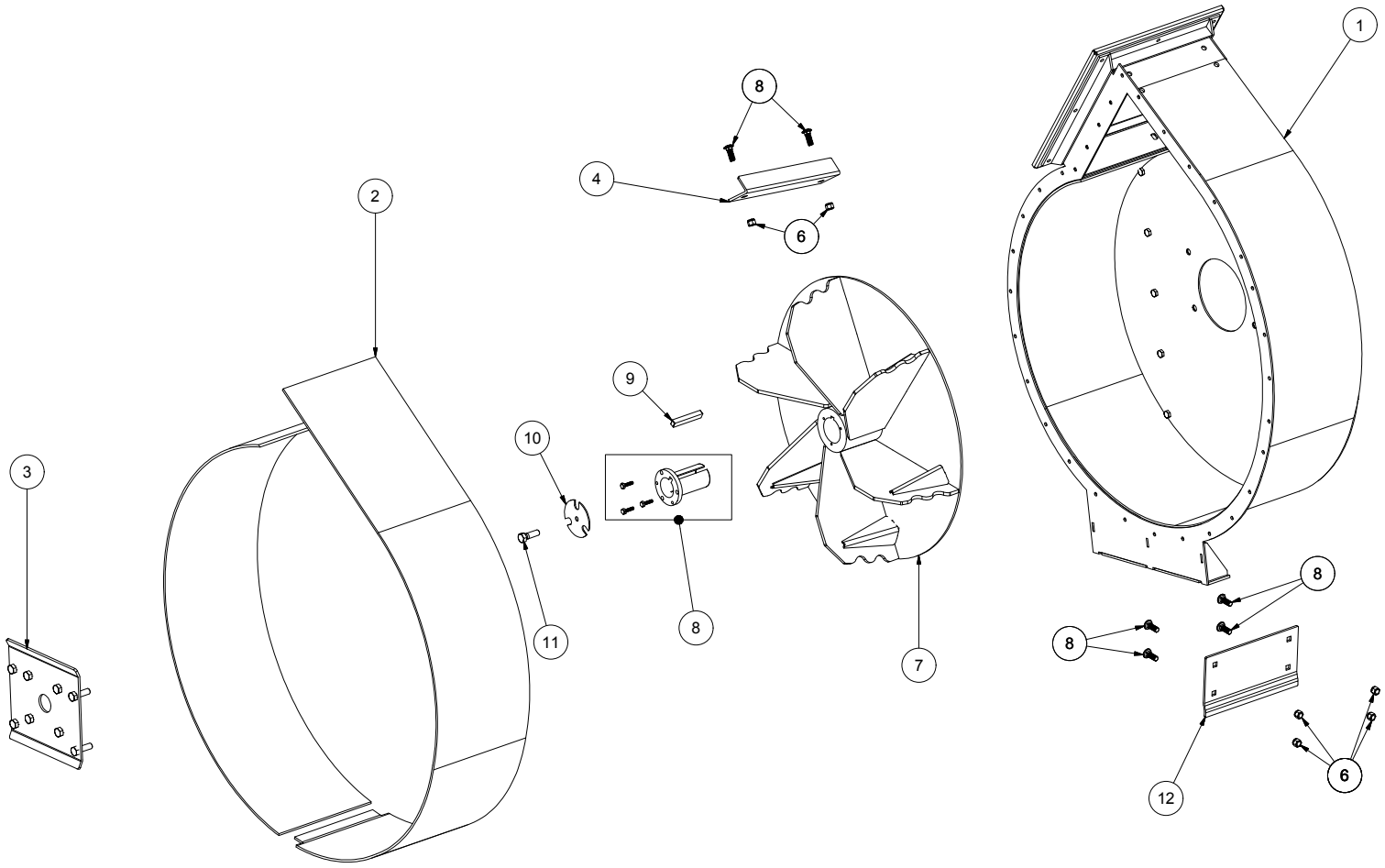


ITEM #	PART NO.	DESCRIPTION
1.	SCL620.601	Blower Housing Back,
2.	LCT620.602	Liner Set
3.	SCL800.201*	Seal Plate, metal, Dir Drive
4.	LCT620.602A	Bolt-In Liner
5.	LCT620.603	Bolt
6.	LCT620.603N	Nut
7.	SCL800.202	Rubber Seal

ITEM #	PART NO.	DESCRIPTION
8.	LCT650.601	Impeller Bushing
9.	LCT650.601K	Step Down Key-Direct Drive only
10.	LCT60.652	Shaft Protector
11.	LCT60.33	Impeller
12.	LCT620.604	Liner, straight, after 03/02
13.	LCT620.603	Bolt, after 03/02
14.	LCT620.603N	Nut, after 03/02

8.4 Blower Housing Group - Belt Drive

BELT DRIVE - Single Axis units April 2001 and after

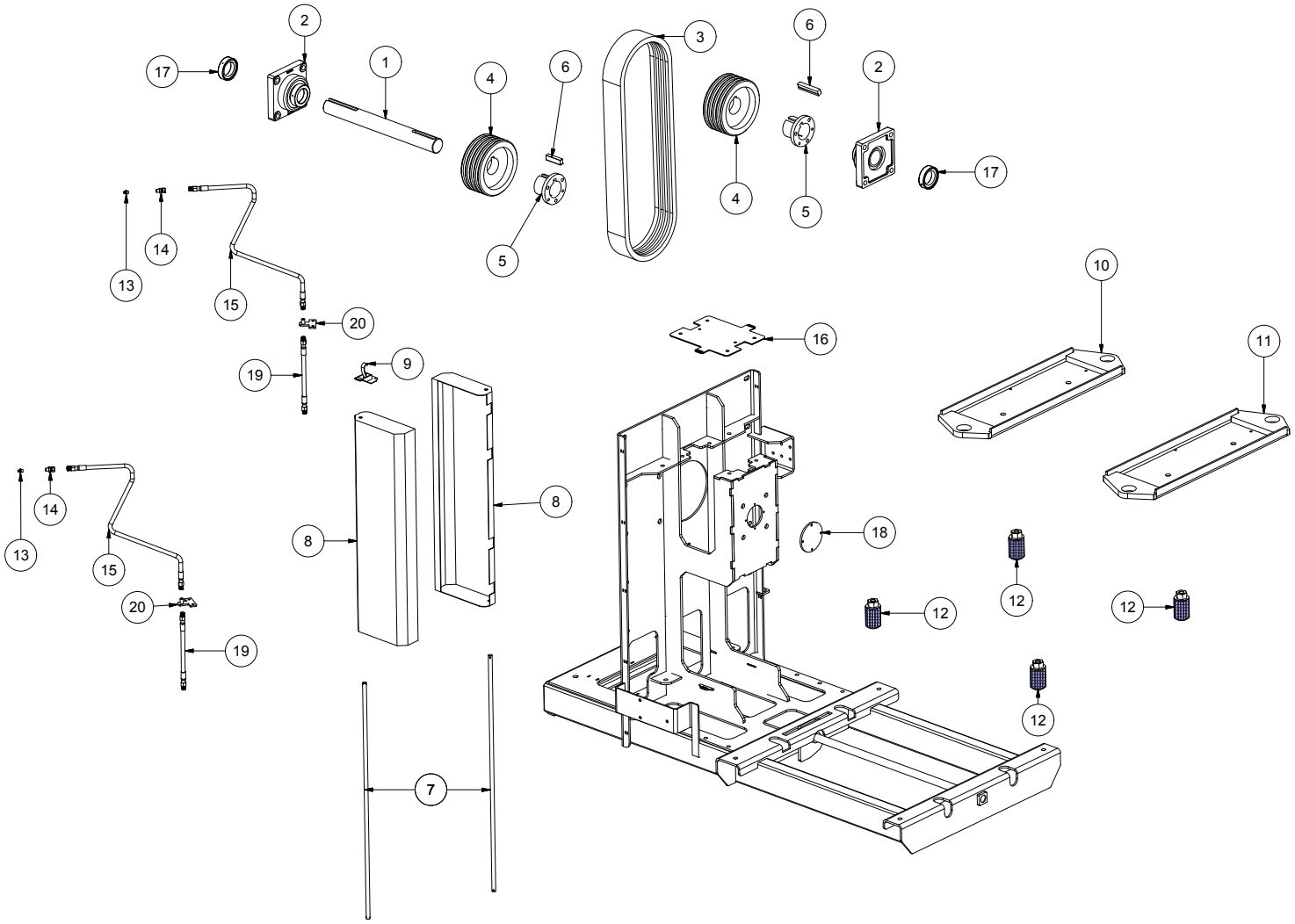


ITEM #	PART NO.	DESCRIPTION
1.	SCL620.601.BD	Blower Housing Back, Belt
2.	LCT620.602	Liner Set
3.	LCT600.602	Bearing Plate
4.	LCT620.602A	Bolt-In Liner
5.	LCT620.603	Bolt
6.	LCT620.603N	Nut

ITEM #	PART NO.	DESCRIPTION
7.	LCT60.33	Impeller
8.	LCT650.601	Impeller Bushing
9.	LCT650.601F	Key, Straight-Belt Drive only
10.	LCT600.615	Shaft Protector
11.	5CZ.500.750	Bolt
12.	LCT620.604	Liner, straight, after 03/02

8.5 Belt Drive Assembly

After February 2012



091913

ITEM #	PART NO.	DESCRIPTION
1	800.2705A	Shaft
2	LCT650.602.A	Bearing
3	SCL850.606	Power Band
4	LCT650.603.11A	Pulley
5	LCT650.604A	Bushing
6	LCT650.601K	Step Down Key
7	800.2750A	Belt Guard Shaft
8	800.2750	Belt Guard, LH & RH
9	LCT609.602	Latch, top and bottom
10	800.2702	Engine Adaptor, Rear
11	800.2702	Engine Adaptor, Front

ITEM #	PART NO.	DESCRIPTION
12	800.2710	Jack Bolt
13	450.1412	Grease Zerk
14	450.1411	Fitting
15	TCC.2034	Grease Hose
16	800.2751	Cover Plate
17	LCT650.602.C	Bearing Collar
18	800.2730	Shaft Cover
19	UU-199.T52500H	Lube Hose, short
20	UU-199T552500B	Lube Hose Bracket

TRAILER GROUP

9-0

9.0 Hoist Hydraulic Group

ODB COMPANY

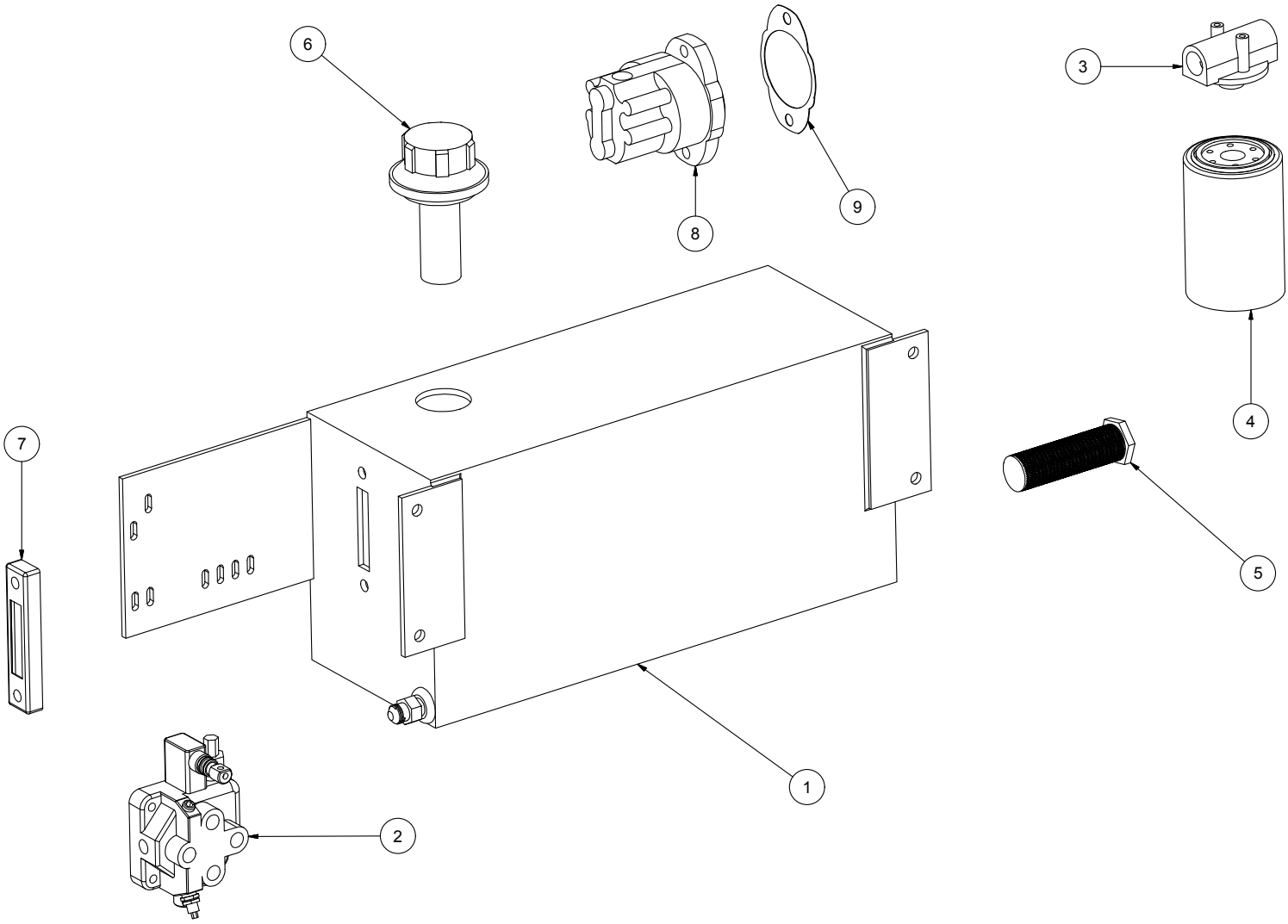
5118 Glen Alden Drive

Richmond, VA 23231

800-446-9823

9.1 Hydraulic Tank Assembly

March 2007 and after

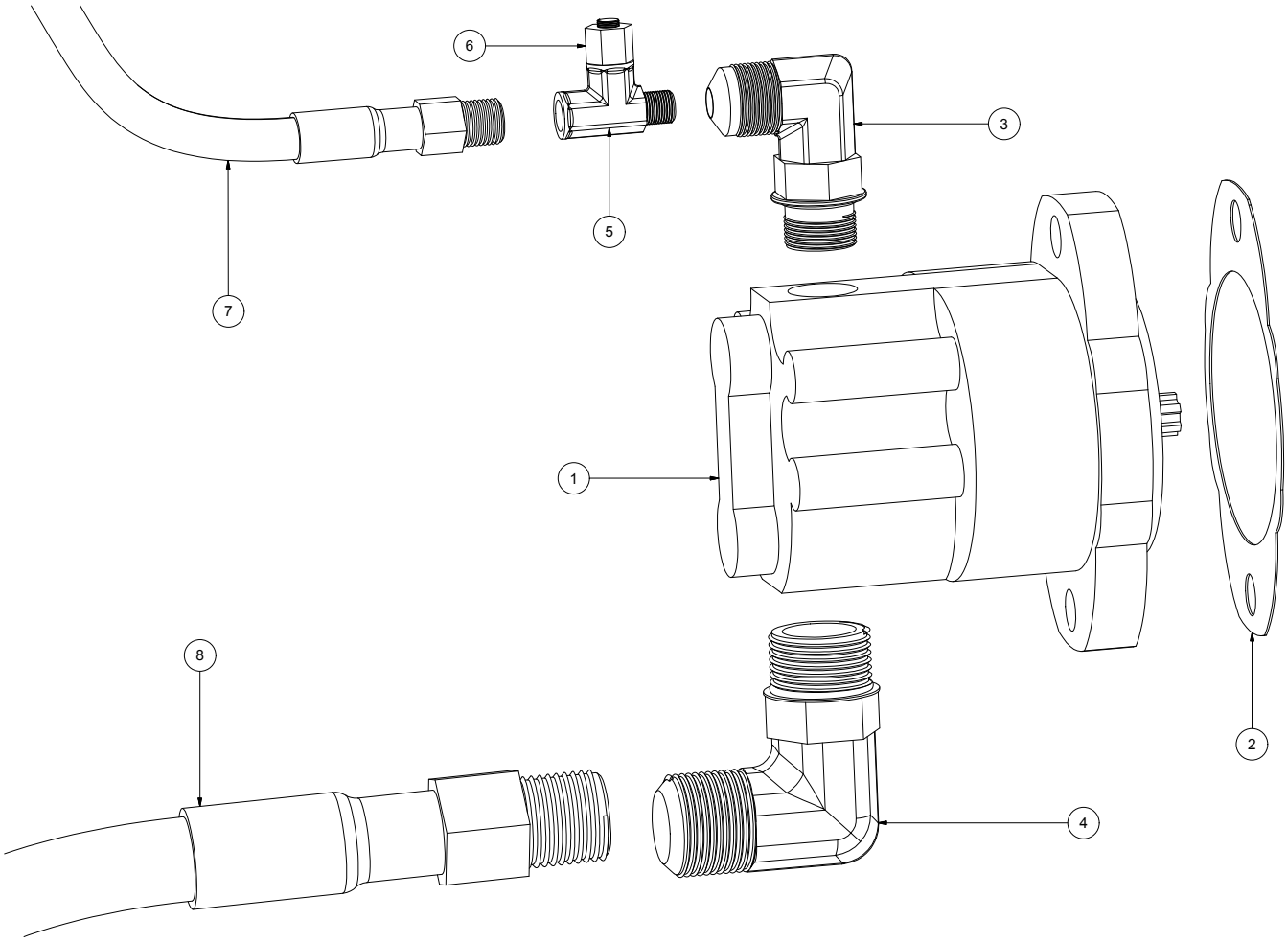


091913

ITEM #	PART NUMBER	DESCRIPTION
1	SCL843.601	Hydraulic Tank
2	800.2300	Hydraulic Valve, single spool (no gear drive hyd. jack)
3	800.2003	Hydraulic Filter Head
4	800.2004	Hydraulic Filter Only
5	800.2002	In-Line Strainer
6	800.2005	Filler Cap
7	SCL.5CT1214	Site Guage
8	SCL800.017JD	Hydraulic Pump, John Deere
9	JD-R123482	Gasket

9.2 Hydraulic Hoist Gear Pump

JD 4045/6068 Engines 08/96 and after - Single Axis Units



091913

ITEM #	PART NUMBER	DESCRIPTION
1	SCL800.017JD	Hydraulic Pump
2	JD-R123482	Gasket for Pump
3	800.2122	90 Degree Fitting
4	800.2102	90 Degree Fitting, 3/4 x 1
5		
6		
7	800.2112	Hydraulic Hose, 1/2"
8	800.2111	Hydraulic Hose, 3/4" pressure in

TRAILER GROUP

10-0

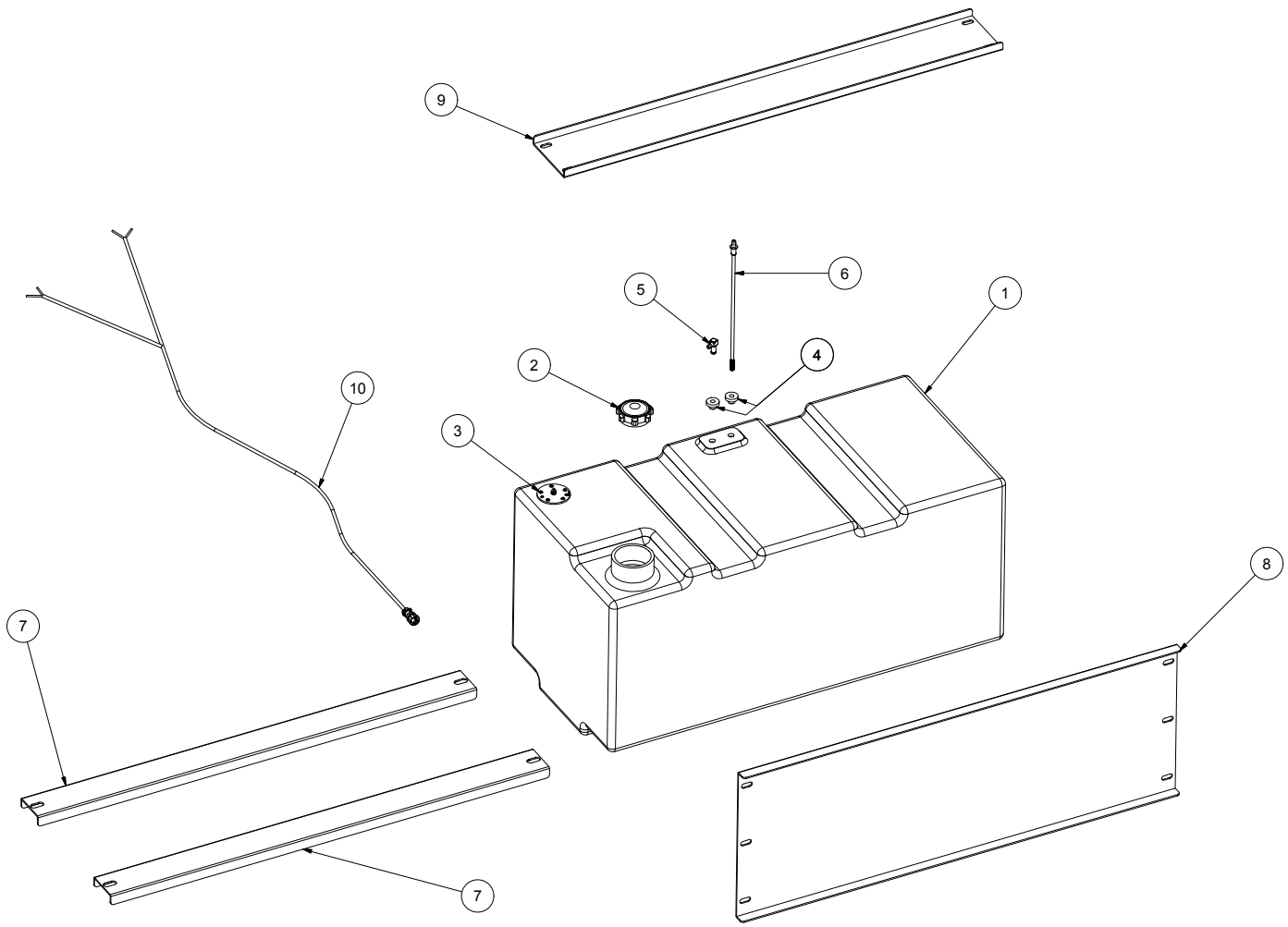
10.0 Chassis and Hopper Group

10.0 Chassis and Hopper Group

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

10.1 Fuel Tank Group

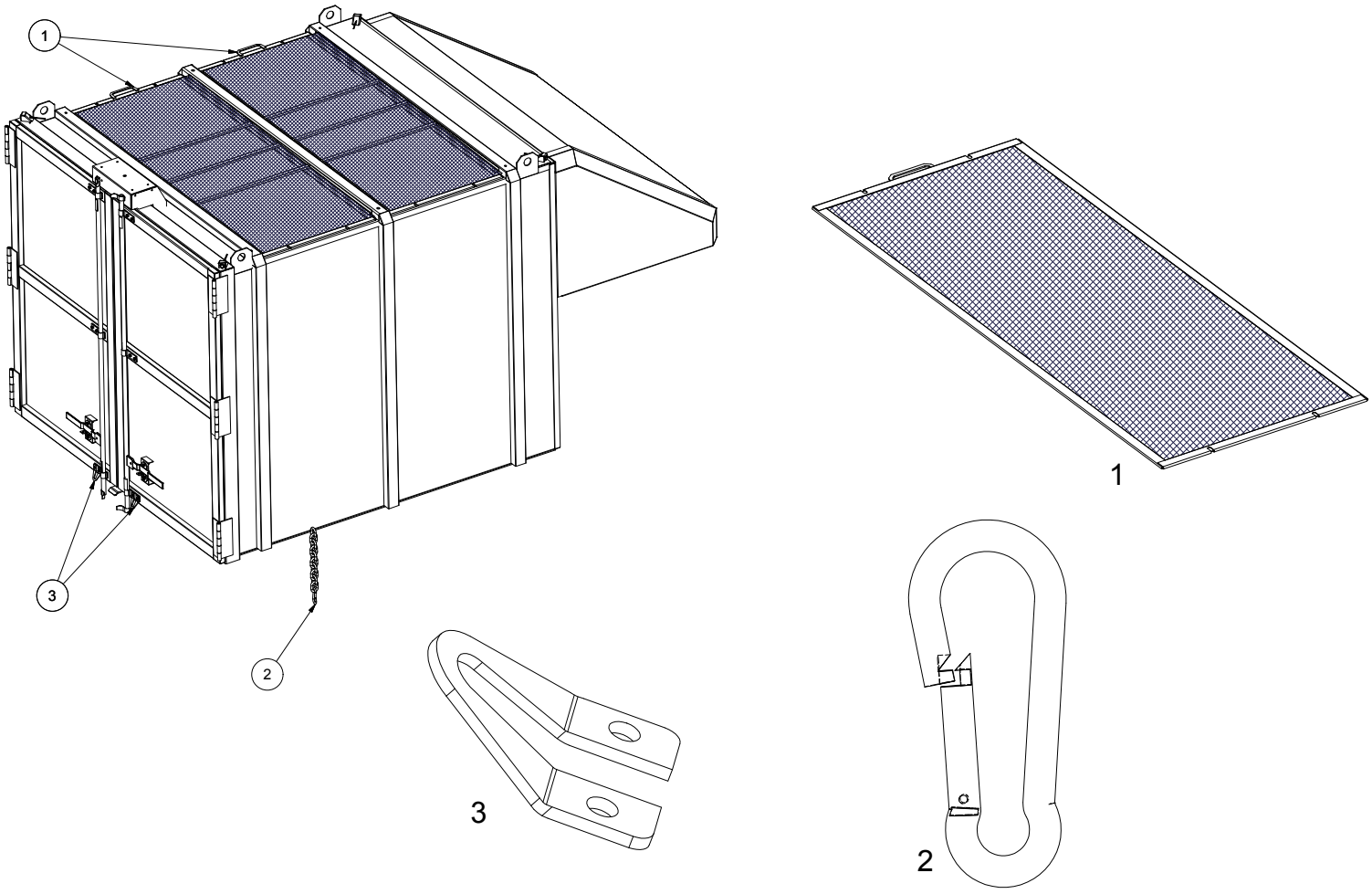
April 2007 and after



091913

ITEM #	PART NUMBER	DESCRIPTION
1	800.3501	Fuel Tank, (includes #2 - 6)
2	800.3502	Fuel Cap
3	8341.A.7000	Fuel Sender
4	MET633.901M	Grommet
5	MET633.901	Fuel Fitting, not pick up
6	800.2527	Fuel Fitting Pickup tube and screen
7	800.3506	Tank Support Bracket, Bottom
8	800.3504	Tank Support Bracket, Front
9	800.3505	Tank Support Bracket, Top
10	800.2506B	Fuel Tank Wiring Harness

10.2 Box Container Screens

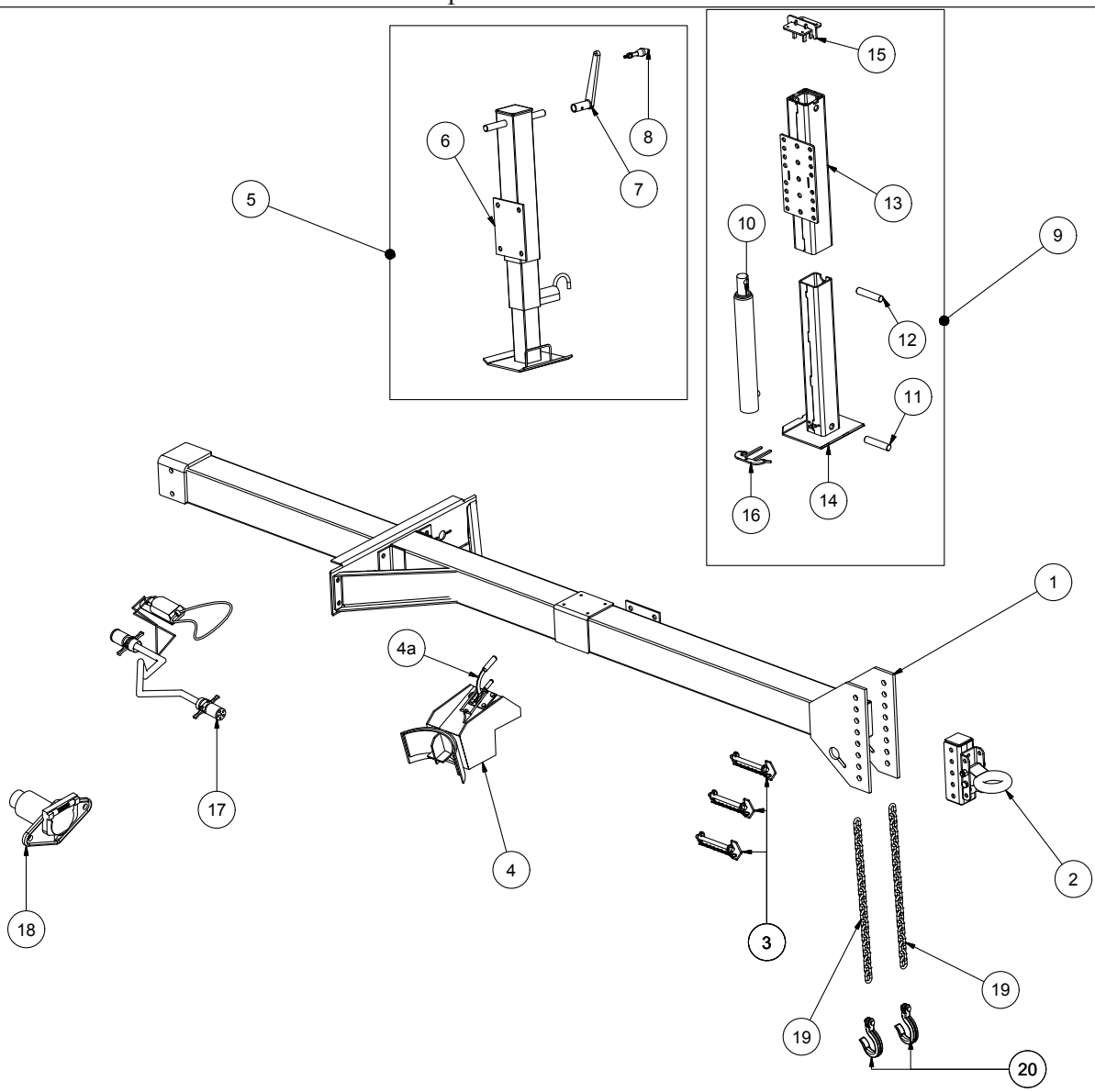


091913

ITEM #	PART NUMBER	DESCRIPTION
1	SCL805.810	Screen, 2 required for 14/20 CY 3 required for 25/30 CY
	SCL805.810M	Replacement mesh screen, 36”W x 100’ roll
2	OD-200008	Spring Clip
3	OD-7502.99	Lock down bracket

10.3 Tongue Group

April 2007 and after



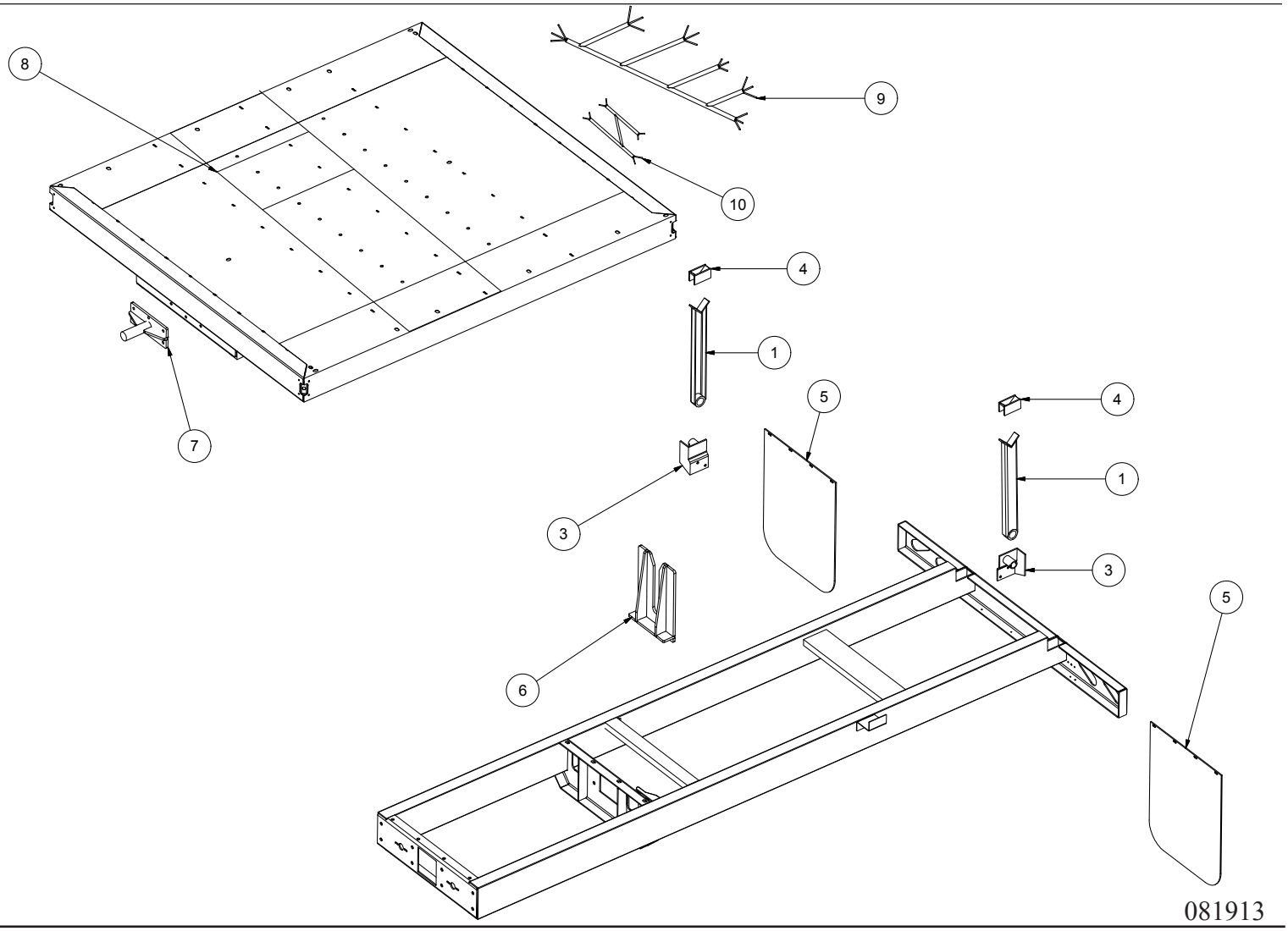
091913

ITEM #	PART NO.	DESCRIPTION
1	SCL800.622	Tongue, 12 foot
2	SCL800.623	Pintle Eye Assembly
3	SCL800.623P	Clevis Pins
4	SCL800.827	Tongue Hose Clamp Asy
4a	... SCL800.827B	... Clamp
5	SCL800.624	Parking Jack Assembly
6	... SCL800.624	... Jack
7	... SCL800.624.2	...Handle Bracket
8	... SCL.B2.53	... Revolving Handle
9	800.3002	Hydr. Parking Jack Asy
		(Optional)

ITEM #	PART NO.	DESCRIPTION
10	... 800.3505	... Hydr. Cylinder
11	... 800.3006	... Cylinder Pin, top
12	... 800.3006	... Cylinder Pin, bottom
13	... 800.3010	... Upper Frame
14	... 800.3011	... Lower Frame
15	... 800.3008	... Cap Weldment
16	... 800.3009	... Bottom Pin Kepper
17	SCL822.826A	Trailer Power Cord
18	800.2502B	Chassis Wiring Harness
19	SCL800.200HD.6	Safety Chain
20	200009.2	Safety Hook

10.4 Chassis Group

2001 and after



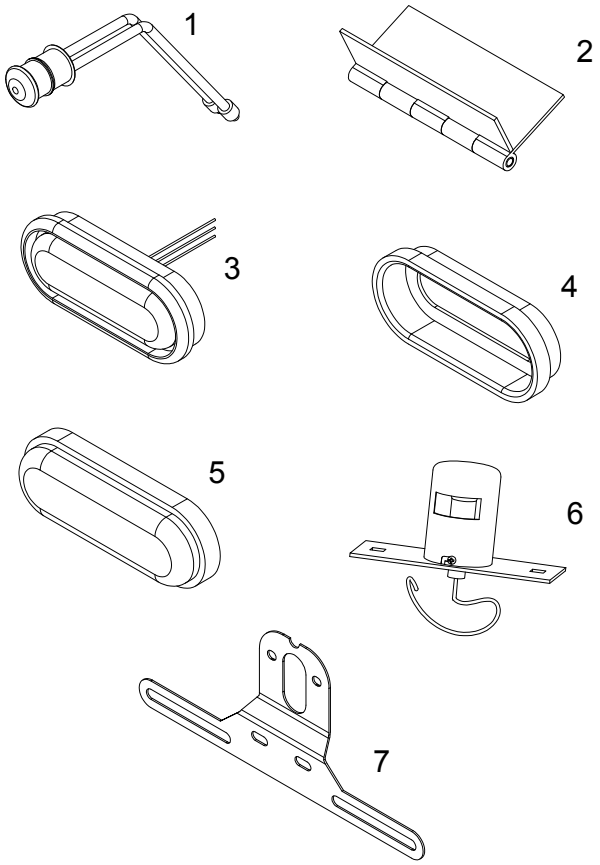
081913

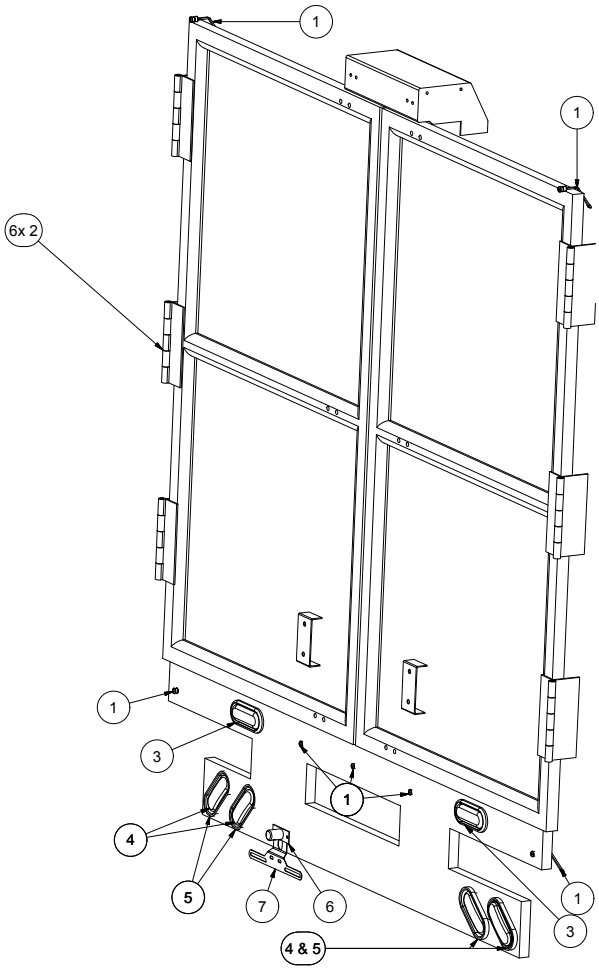
ITEM #	PART NO.	DESCRIPTION
1	SCL800.015	Body Prop
2	SCL800.015B	Body Prop Receiver, drivers side
3	SCL800.015C	Body Prop Receiver, passenger side (if equipped)
4	SCL800.015A	Body Prop Bracket (welded on bed)
5	SCL800.811	Mud Flap
6	800.3309	Dump Body Alignment Receiver
7	800.3308	Dump Body Alignment Guide
8	800.3310	Trap Door, 25/30 CY units
9	800.2608	Bed Harness

ITEM #	PART NO.	DESCRIPTION
10	800.2501C	Center Market Light Harness
11	8B.001AL	Mudflap Bracket, driver side
12	8B.001A	Mudflap Bracket, passenger side
NS	92907.5 92907.10 2800.103.7 92907.5	Check Valve, Hoist 14CY Check Valve, Hoist, 20CY Check Valve, 25/30CY* Check Valve, 25/30CY**
*Sept 2013-Nov 2013(needs 2); (Champion Hoist) **thru Sep 2013 and Dec. 2013 and after (needs 2) (Crysteel Hoist)		

10.5 Light and Reflector Group

April 2009 and after



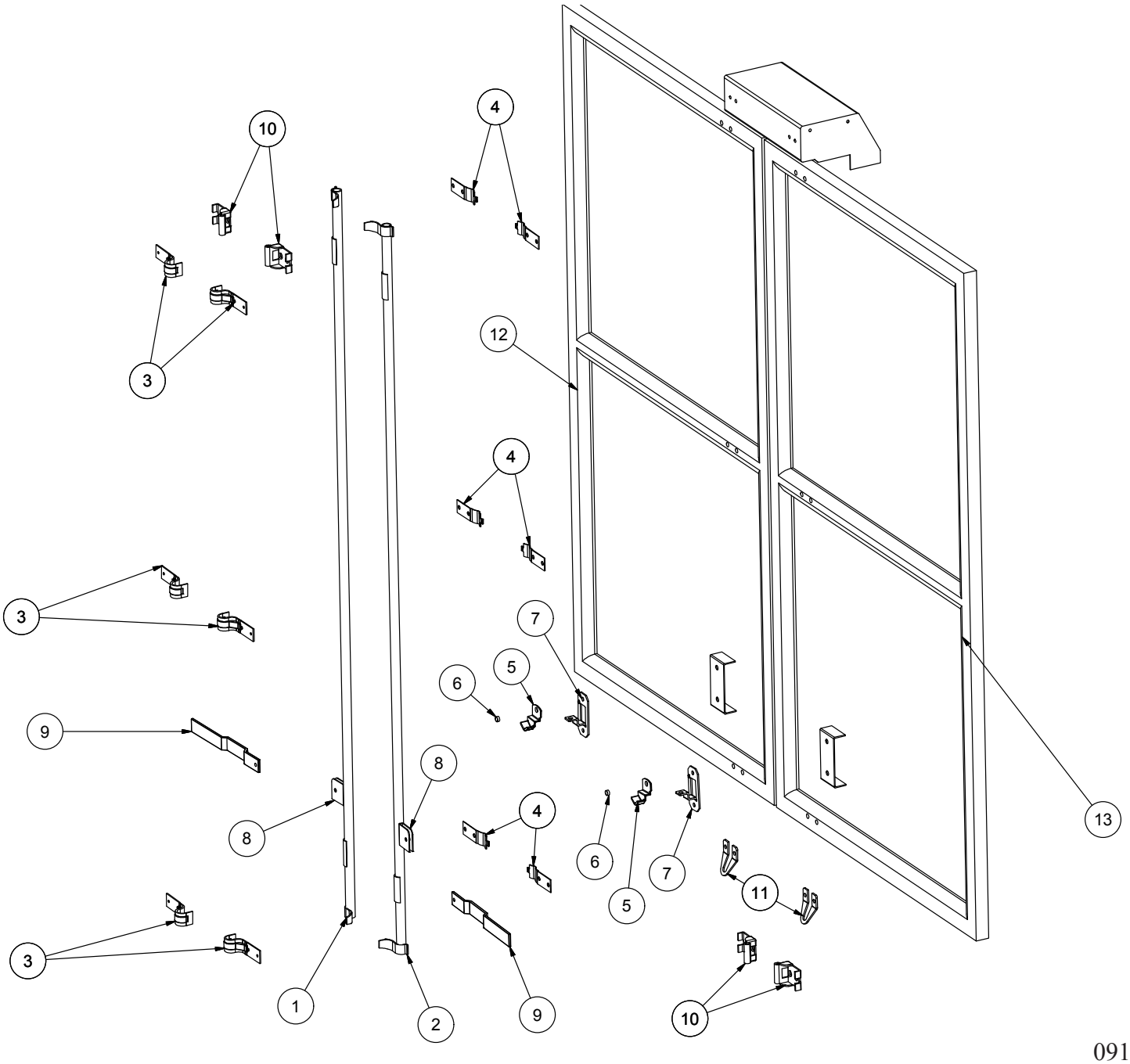


091913

ITEM #	PART NUMBER	DESCRIPTION
1	STD.2201 STD.2202	LED Marker Light, Red-- rear of unit LED Marker Light, Yellow-- front of unit
2	SCL800.028	Door Hinge
3	STD.2213	LED Strobe Light with Flasher
4	STD.2414	LED Tail Light Assembly (after 01/05)
	94706	Plug Harness (after 01/05)
5	660700	Oval Grommet for tail light
6	LCT60.615B	License Plate Light
7	LCT600.010	License Plate Bracket

10.6 Rear Door Hardware Group

Side Hinge Doors



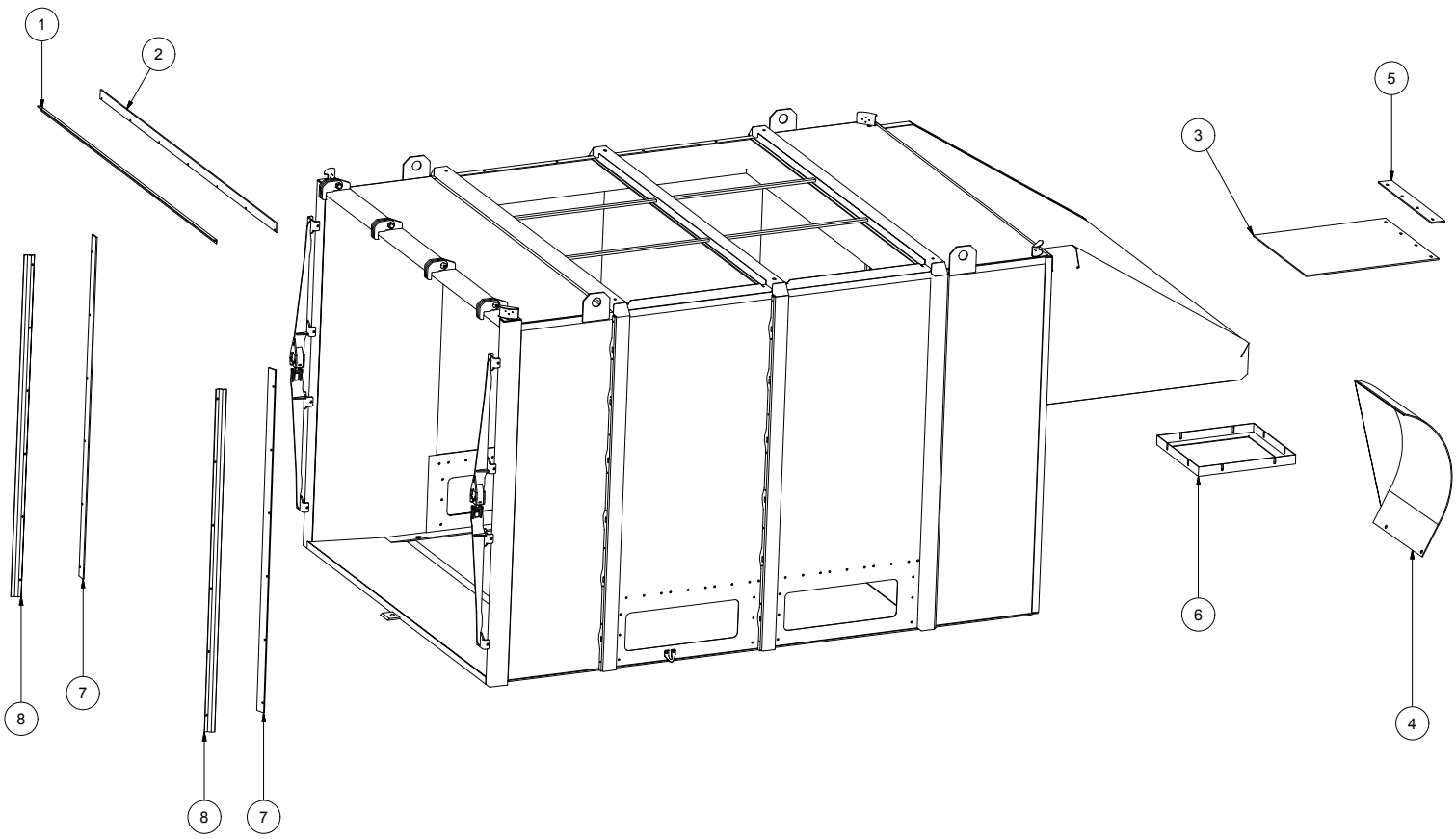
091913

ITEM #	PART NO.	DESCRIPTION
1	7502.14A	Door Rod, LH
2	7501.14B	Door Rod, RH
3	7502.2	Rod Bracket
4	7502.3	Rod Bracket Back
5	1969.7X	Seal Pin
6	1969.39	Bushing
7	1969.4X	Seal Plate

ITEM #	PART NO.	DESCRIPTION
8	1969.5	Handle Clip, welded on
9	1969.6X	Handle
10	7502.1	Keeper
11	7502.99	Lock Down Bracket
12	SCL800.027B	Door, driver side
13	SCL800.027A	Door, pass. side
NS	SCL800.028	Hinge for Door

10.7 Box Interior Group

2007 and after

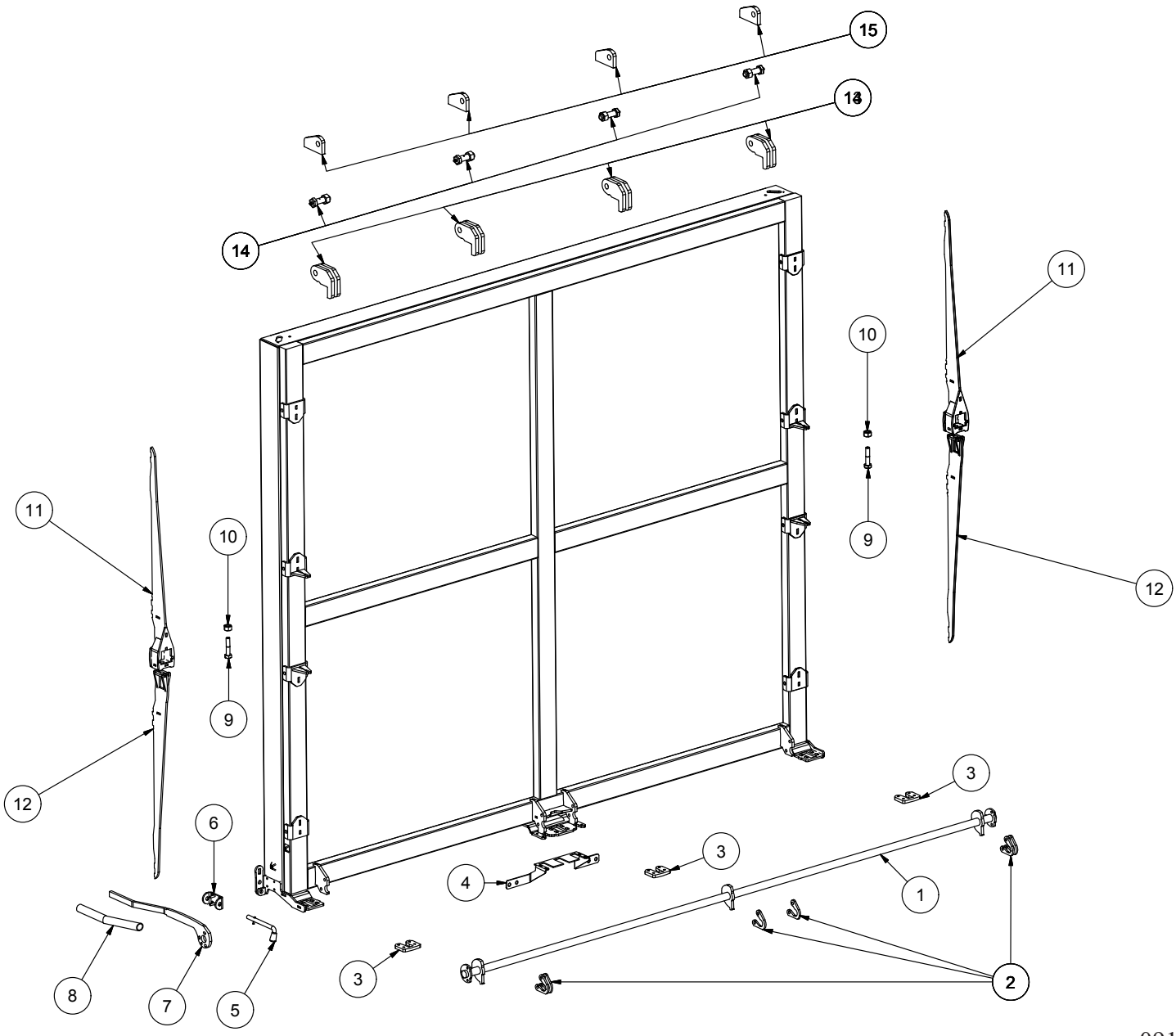


091913

ITEM #	PART NUMBER	DESCRIPTION
1	SCL800.034	Door Seal Bracket, L-shaped; bolts to welded piece on box
2	SCL800.030	Door Seal Rubber
3	SCL800.811	Deflector Rubber
4	SCL800.880	Nose Cone Liner
5	SCL800.881	Deflector Rubber Retainer
6	800.2805	Nose Cone Adjustable Insert - BELT DRIVE UNITS ONLY, used July 2005 and after
7	SCL800.035	Door Seal Bracket - vertical
8	SCL800.030	Door Seal Rubber - vertical, same as #2

10.8 Manual Top Hinger Door (Optional)

OPTIONAL



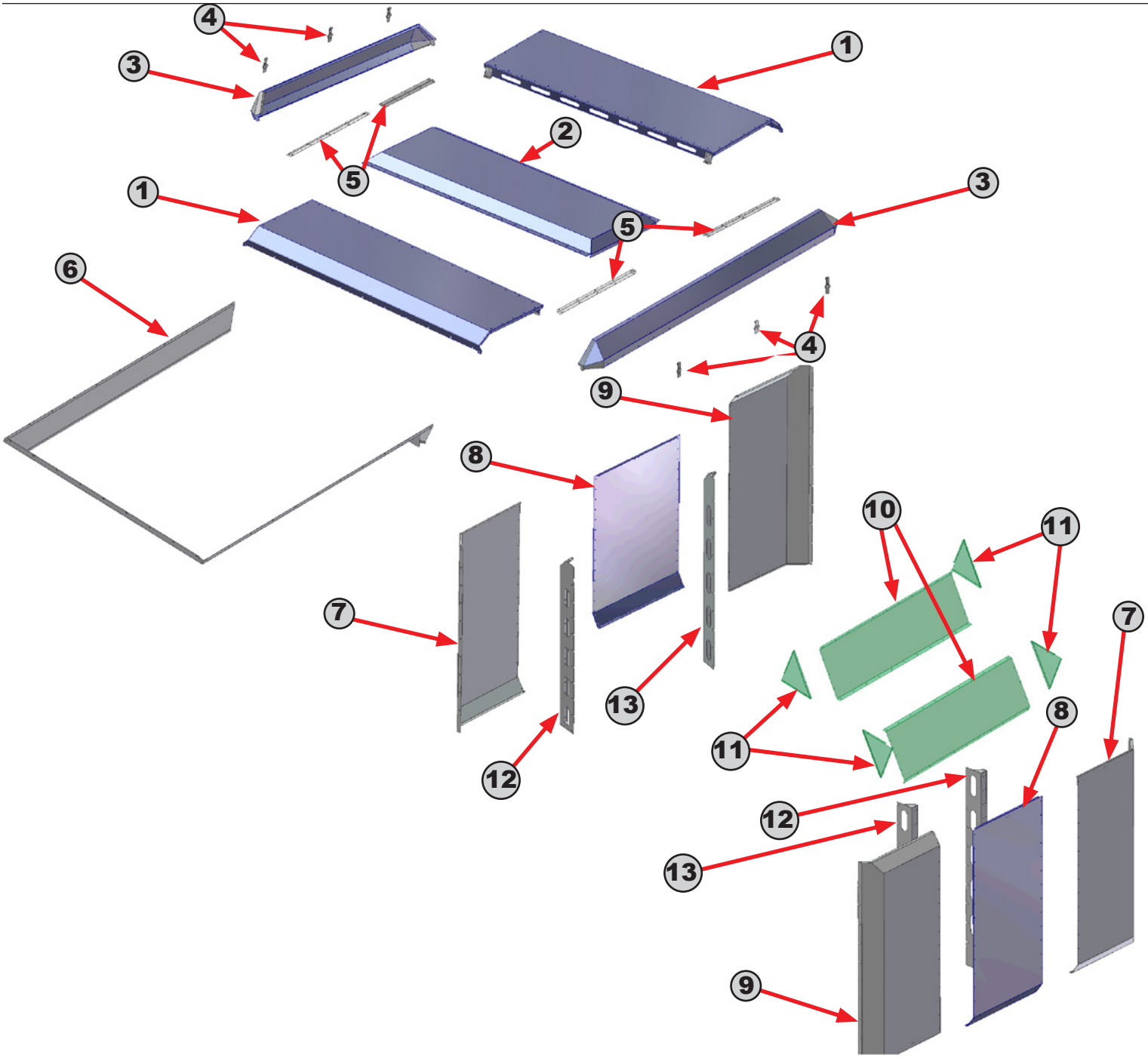
091913

ITEM#	PART NO.	DESCRIPTION
*		Top Hinge Door - (Items 1 - 7)
1	800.2825	Door Rod
2	800.2826	Rod Holder
3	800.2827	Slide Pad
4	800.2828	Center Gusset
5	800.2829	Door Latch Pin
6	800.2930	Door Latch Base
7	800.2931	Handle
8	800.2932	Handle Grip

ITEM#	PART NO.	DESCRIPTION
9	800.2933	Truss Bolt
10	800.2934	Truss Nut
11	800.2935	Top Truss
12	800.2936	Bottom Truss
13	800.2937	Hinge, Door Side
14	800.2938	Hinge Bolt
15	800.2939	Hinge, Frame Side

10.9 Bottom Exhaust Group (Optional)

OPTIONAL



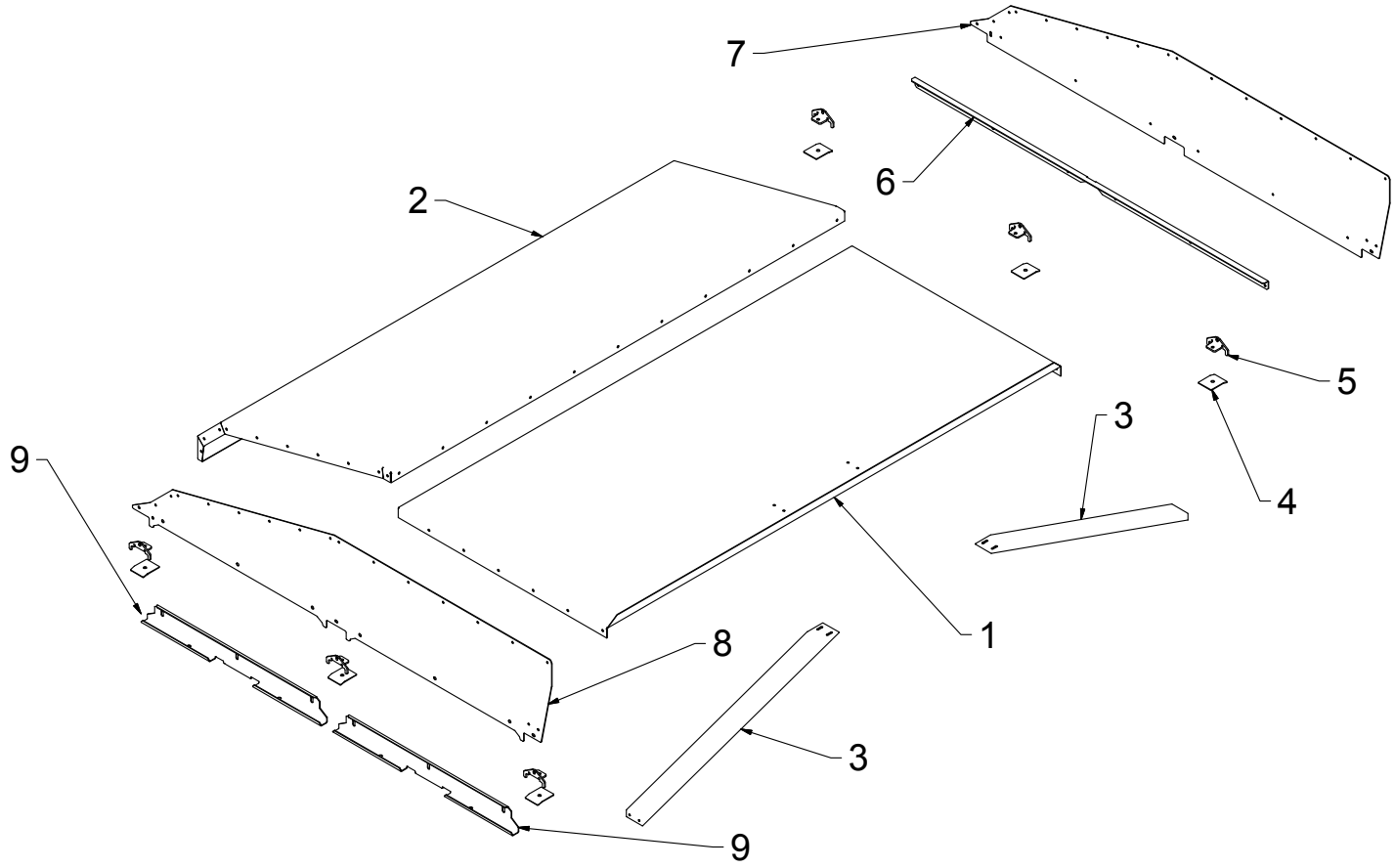
ITEM#	PART NO.	DESCRIPTION
*	800.2900	Bottom Exhaust Complete
1	800.2905	Top Panel
2	800.2906	Top Panel, Center 25CY only
3	800.2904	Screen Door
4	LCT609.602	Latch
5	800.2907	Hinge
6	800.2914	Air Deflector Skirt (welded on)

ITEM#	PART NO.	DESCRIPTION
7	800.2901	Side Panel, RH
8	800.2902	Center Side Panel, 25CY only
9	800.2903	Side Panel, LH
10	800.2911	Hopper Pan Long (inside box)
11	800.2912	Hopper Pan Brace Plate (inside box)
12	800.2909	Side Panel Flange, RH
13	800.2908	Side Panel Flange, LH

Note: We define RH or LH as if you are facing a side panel.

10.10 Hood Scoop Group (Optional)

OPTIONAL



021313

ITEM#	PART NO.	DESCRIPTION
*	800.1900	Complete Assembly
1	800.1905	Rear Panel
2	800.1902	Front Panel
3	800.1903	Cross Brace
4	800.1906	Hat Channel Nut
5	800.1901	Hat Channel Bracket

ITEM#	PART NO.	DESCRIPTION
6	800.1904	Side Stiffener
7	800.1902L	Side Panel Left Hand
8	800.1902R	Side Panel Right Hand
9	800.1907	Screen Retainer

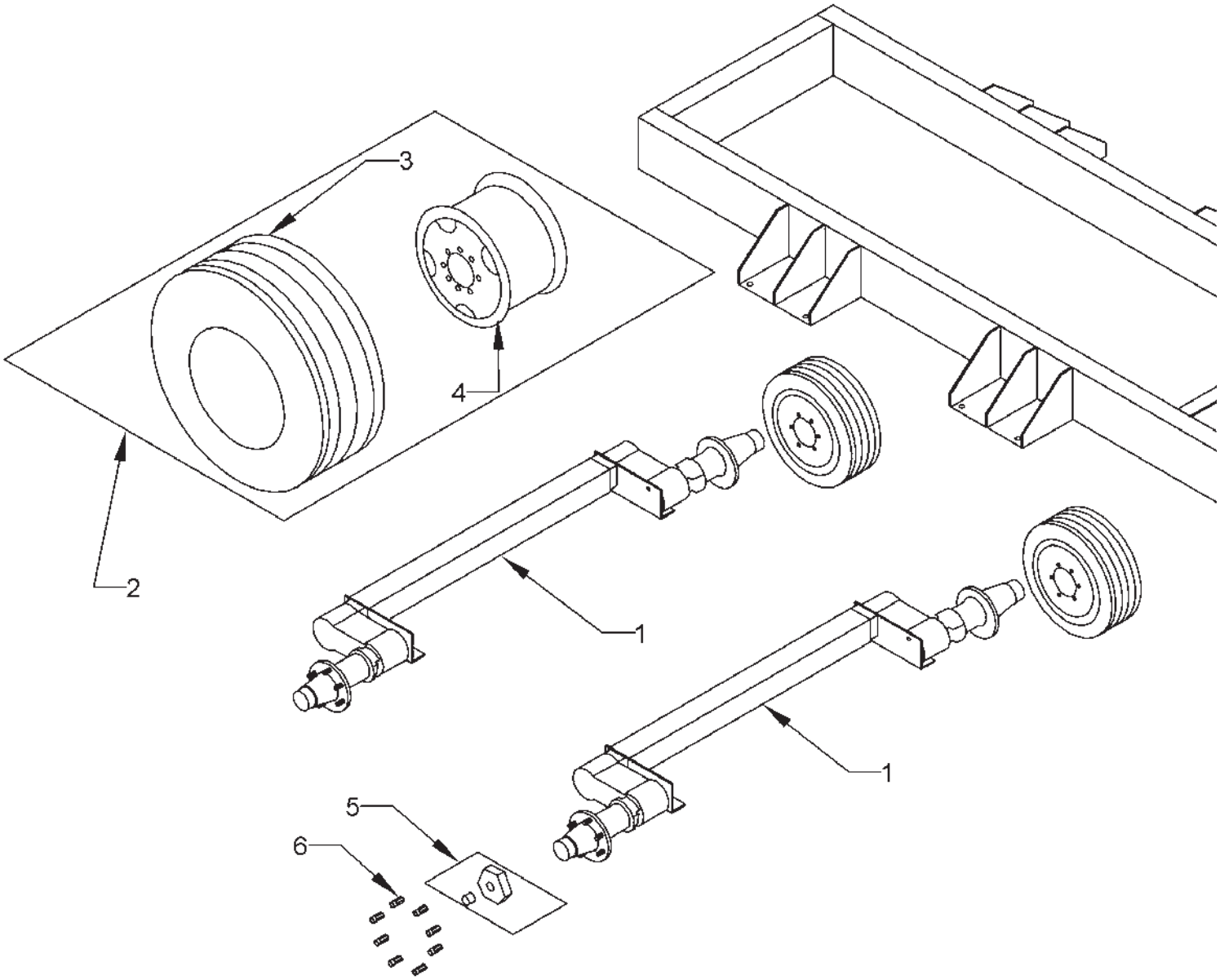
11-0

11.0 TIRE AND AXLE GROUP

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

11.1 Axle Group 14 CY, 8K

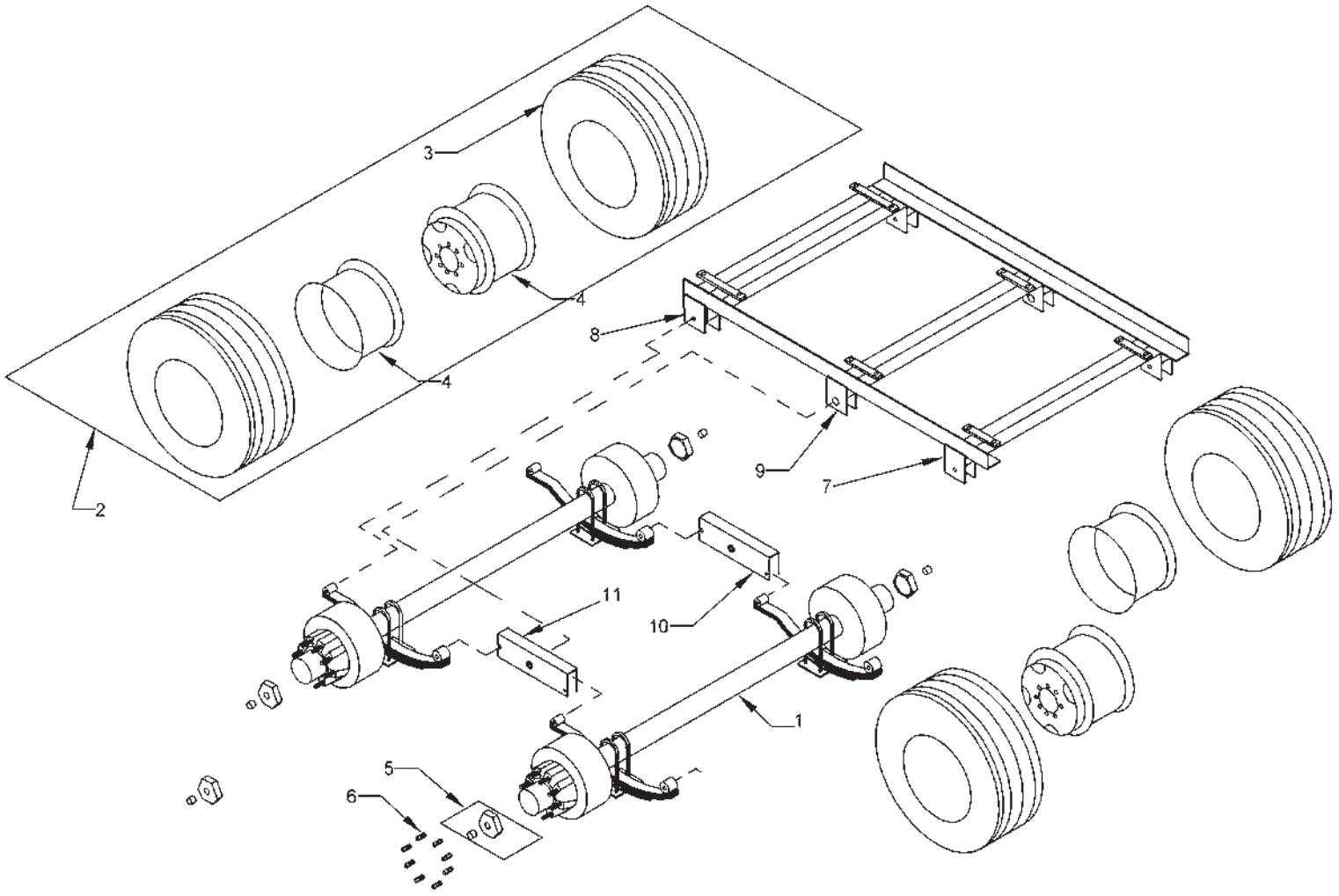
2008 and after



ITEM #	PART NUMBER	DESCRIPTION
1	SCL822.614.14	Axle Assembly, 8K
2	SCL822.619A	Time and Rim Assembly
3	...SCL822.619.T2	...Tire only ST235/85 R16
4	...SCL822.619.R	...Rim only
5	SCL810.820A	Oil Cap, O-ring assembly
6	006.053.00	Lug Nuts, 1/2" - 20

11.2 Axle Group 20/25/30 CY, 10/20K

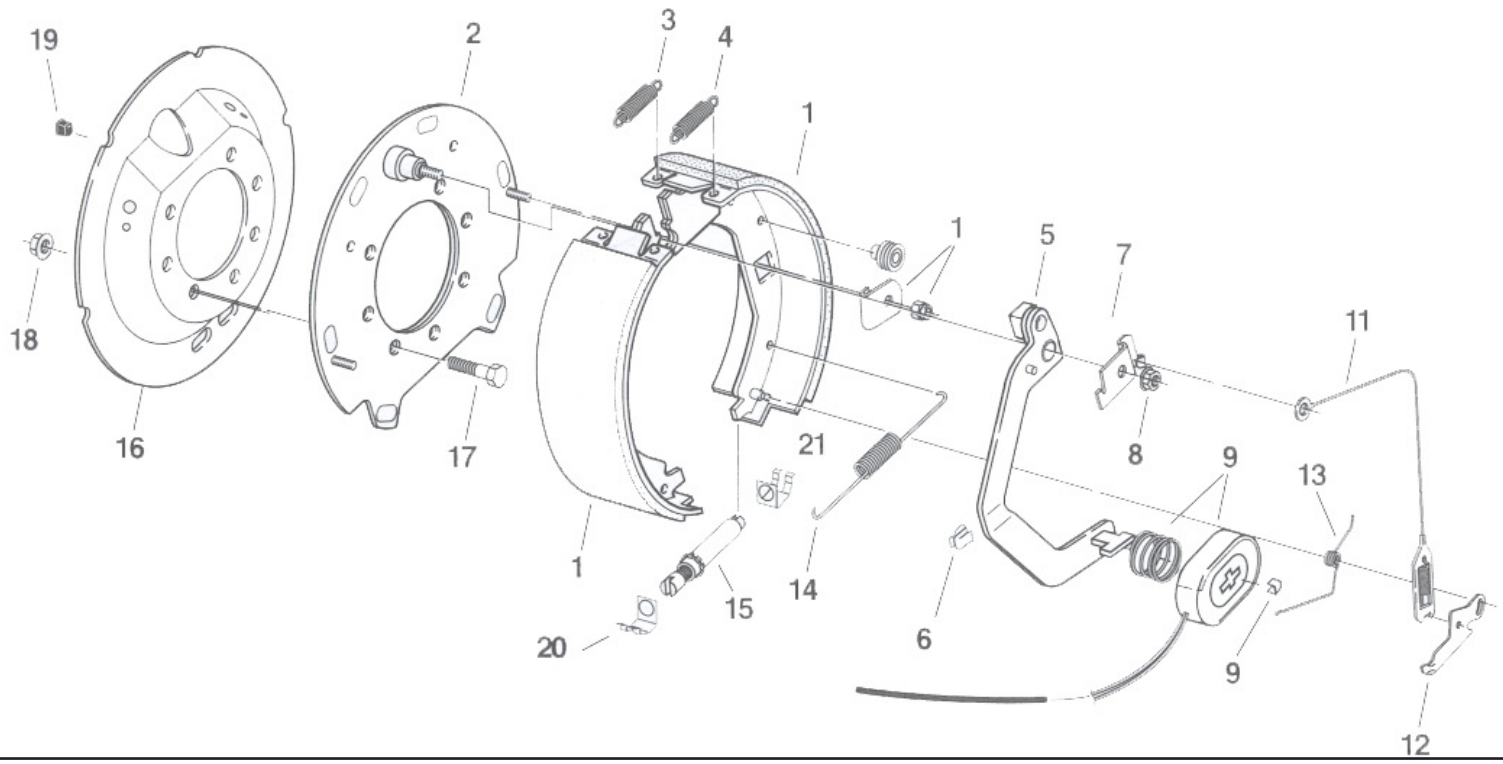
Dual Axle Units



	10K (20CY)	12K (25/30 CY)	
ITEM #	PART NO.	PART NO	DESCRIPTION
1	10000K	29194	Axle Assembly
2	SCL822.620DWR	SCL822.620DWR	Tire and Rim Assembly, 16" Rim
3	...SCL822.619.T2	...SCL822.619.T2	...Tire only, ST235/80 R16
4	...OD20798	...OD20798	...Rim only,16"
5	SCL810.820B	SCL810.820B	Oil Cap, O-ring Asy
6	006.109.00	006.109.00	Lug Nuts, 5/8-18
7	028.059.00	028.067.04	Front Hanger
8	030.061.02	030.066.01	Rear Hanger
9	028.060.00	029.037.04	Center Hanger
10	013.084.01	013.109.03	Equalizer, LH
11	013.085.01	013.109.04	Equalizer, RH

11.3 Brake Assembly Group

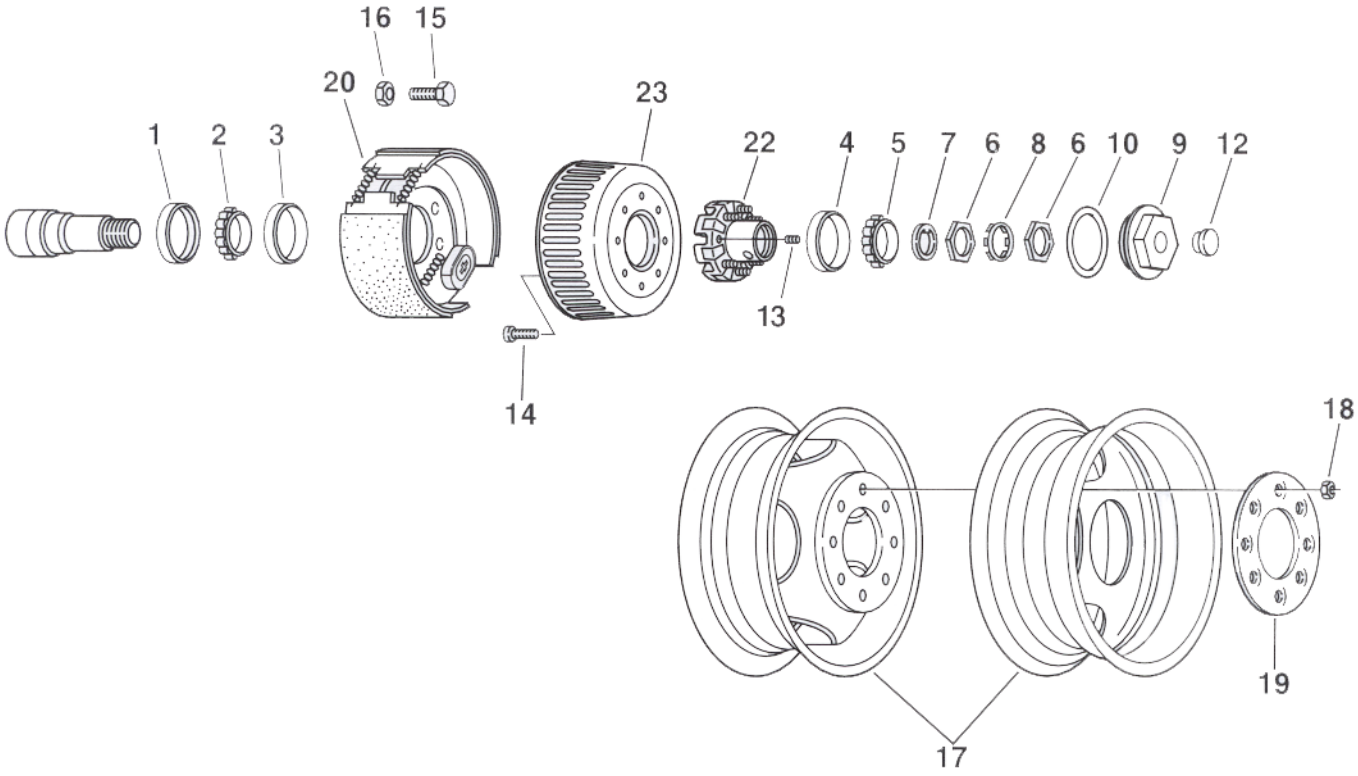
Typical



ITEM NO.	DESCRIPTION	PART NUMBERS 6K Axle	8K Axle	9K Axle	10K Axle	12K Axle
*	Brake Kit,LH (includes everyhing on page)	023.105.00	023.097.00	023.450.00	023.450.00	023.442.00
*	Brake Kit,RH (includes everyhing on page)	023.106.00	023.098.00	023.451.00	023.451.00	023.443.00
1.	LH Shoe & Lining Kit	K71.048.00	K71.049.00	K71.049.00	K71.051.00	K71.053.00
	RH Shoe & Lining Kit	K71.048.00	K71.050.00	K71.050.00	K71.052.00	K71.054.00
2.	Backing Plate Assembly	036.089.05	036.050.03	036.072.05	036.072.05	036.072.06
3.	Shoe Return Spring, (Rear-Black)	046.009.00	046.071.00	046.071.00	046.071.00	046.071.00
4.	Shoe Return Spring, (Front-Green)		046.083.00	046.083.00	046.083.00	046.083.00
5.	LH Actuator Arm Assembly	047.107.00	047.123.38	047.123.38	047.123.06	047.123.04
	RH Actuator Arm Assembly	047.108.00	047.123.38	047.123.37	047.123.05	047.123.03
6.	Wire Clip	027.005.00	027.039.00	027.039.00	027.039.00	027.039.00
7.	LH Arm/Shoe Retainer		071.455.01	071.455.01	071.455.01	071.455.01
	RH Arm/Shoe Retainer		071.455.02	071.455.02	071.455.02	071.455.02
8.	Flange Nut		006.062.00	006.062.00	006.062.00	006.062.00
9.	Magnet Kit	K71.105.00	K71.375.00	K71.376	K71.376	K71.377.00
	Magnet Retainer Clip	027.009.00	027.050.00	027.050.00	027.050.00	027.050.00
	Magnet Assembly	042.009.00	042.127.00	042.129.00	042.129.00	042.130.00
	Magnet Mfg. Spring	046.080.00	046.117.00	046.117.00	046.117.00	046.117.00
11.	Adjuster Cable		071.020.00	071.020.00	071.020.00	071.020.00
12.	LH Adjuster Lever		071.019.01	071.019.01	071.019.01	071.019.01
	RH Adjuster Lever		071.019.02	071.019.02	071.019.02	071.019.02
13.	LH Adjuster Lever Spring	046.018.00	046.073.00	046.073.00	046.073.00	046.073.00
	RH Adjuster Lever Spring	046.018.00	046.074.00	046.074.00	046.074.00	046.074.00
14.	Adjuster Spring		046.072.00	046.072.00	046.072.00	046.072.00
15.	LH Adjuster Assembly	043.004.00	048.009.00	048.009.00	048.009.00	048.009.00
	RH Adjuster Assembly	043.004.00	048.010.00	048.010.00	048.010.00	048.010.00
16.	Dust Shield Kit		036.115.20	036.115.21	036.115.22	036.115.23
17.	Brake Mounting Screw		007.097.00	007.116.00	007.116.00	007.116.00
18.	Brake Mounting Nut		006.046.00	006.092.00	006.092.00	006.092.00
19.	Sleeve			027.014.00	027.014.00	027.014.00
20.	Adjuster Clip (thread end)			046.132.00	046.132.00	046.132.00
21.	Adjuster Clip (Barrel end)			046.133.00	046.133.00	046.133.00

11.4 Axle Hub Assembly Group

Typical



ITEM NO.	DESCRIPTION	PART NUMBERS 6K Axle	8K Axle	9K Axle	10K Axle	12K Axle
1.	Oil Seal	021.042.00	010.063.00	010.051.00	010.056.00	010.056.00
2.	Inner Bearing Cone	031.030.02	031.030.02	031.019.02	031.022.02	031.020.02
3.	Innner Bearing Cup	031.030.01	031.030.01	031.019.01	031.022.01	031.020.01
4.	Outer Bearing Cup	031.017.01	031.028.01	031.030.01	031.019.02	031.021.02
5.	Outer Bearing Cone	031.029.02	031.028.02	031.030.02	031.019.01	031.021.01
6.	Spindle Nut	006.176.00	006.001.00	006.096.00	006.084.00	006.084.00
7.	Spindle Washer	005.057.00	005.057.00	005.070.00	005.060.00	005.060.00
8.	Tang Washer	N/A	005.101.00	005.071.00	005.059.00	005.059.00
	Oil Cap Kit contains (#9,10,12)	SCL810.820B	SCL810.820A	SCL810.820	SCL810.820	SCL810.820
9.	Oil Cap	021.001.00	021.035.00	021.036.00	021.036.00	021.036.00
10.	'O' Ring	N/A	010.045.00	010.050.00	010.050.00	010.050.00
12.	Oil Cap Plug	N/A	046.032.00	046.032.00	046.032.00	046.032.00
13.	Wheel Stud		007.132.00	007.115.00	007.115.00	007.115.00
14.	Drum Mounting Screw			007.245.00	007.103.00	007.103.00
15.	Brake Mounting Bolt		007.097.00	007.116.00		
16.	Brake Mounting Nut		006.046.00	006.092.01		
17.	Rim	see axle pages	see axle pages	see axle pages	see axle pages	see axle pages
	Tire and Rim Assembly	see axle pages	see axle pages	see axle pages	see axle pages	see axle pages
18.	Lug Nut	006.080.00	006.053.00	EX30300E[1]	006.109.00	006.109.00
19.	Wheel Clamp Ring	N/A	N/A	N/A	N/A	N/A
20A	LH Brake Assembly	023.105.00	023.097.00	023.450.00	023.450.00	023.442.00
20B	RH Brake Assembly	023.106.00	023.098.00	023.451.00	023.451.00	023.443.00
22.	Hubs w/cups and studs		8.287.92	8.288.3	8.214.5	8.214.08
23.	Brake Drum		8.285.9[2]	009.044.01	009.027.01	009-028-01

Notes:

1 = 1997 and after; 1997 and before use 006.109.00

2 = brake drum and studs come together

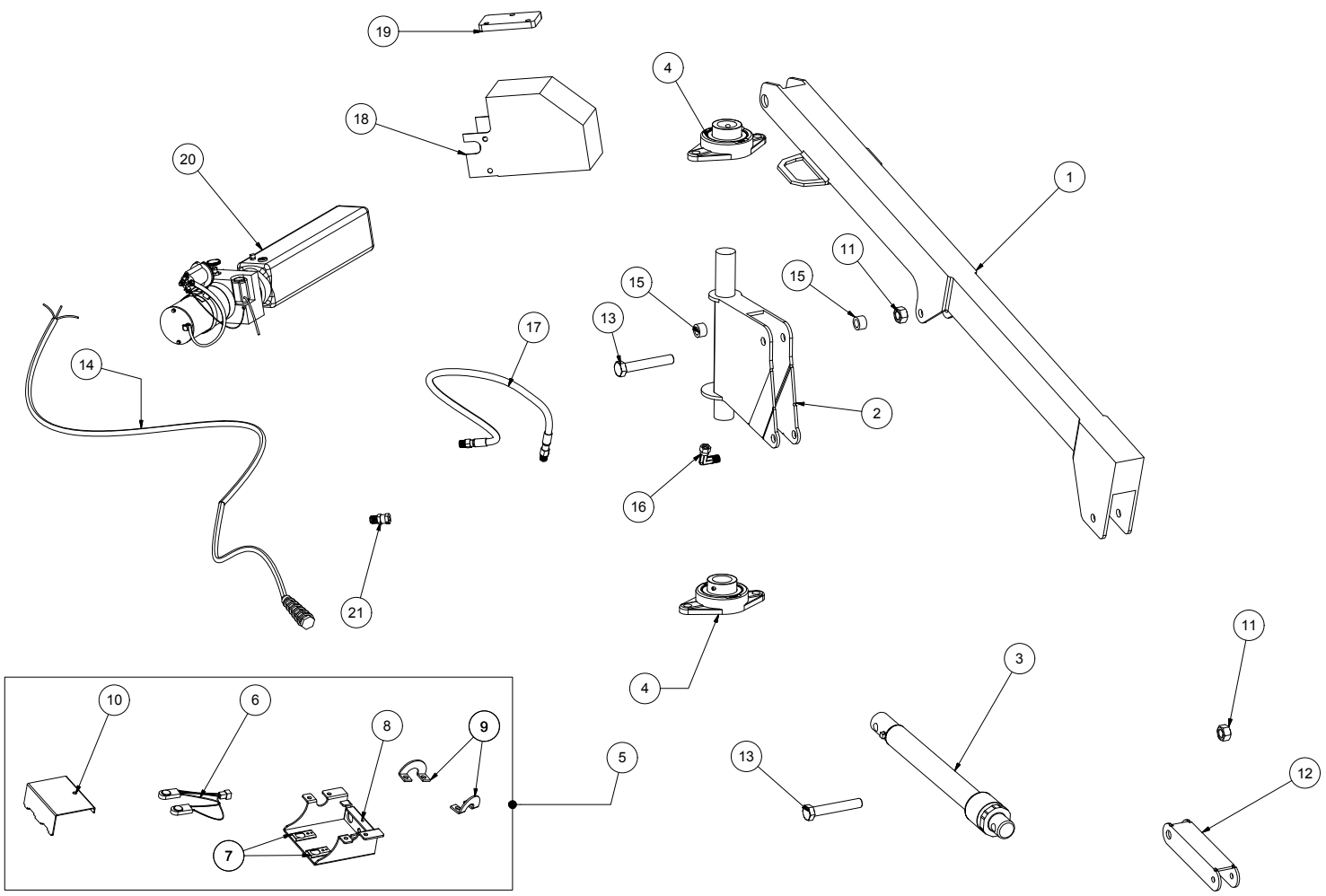
12-0

12.0 HOSE BOOM GROUP

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823

12.1 Boom Group

May 2012 - present

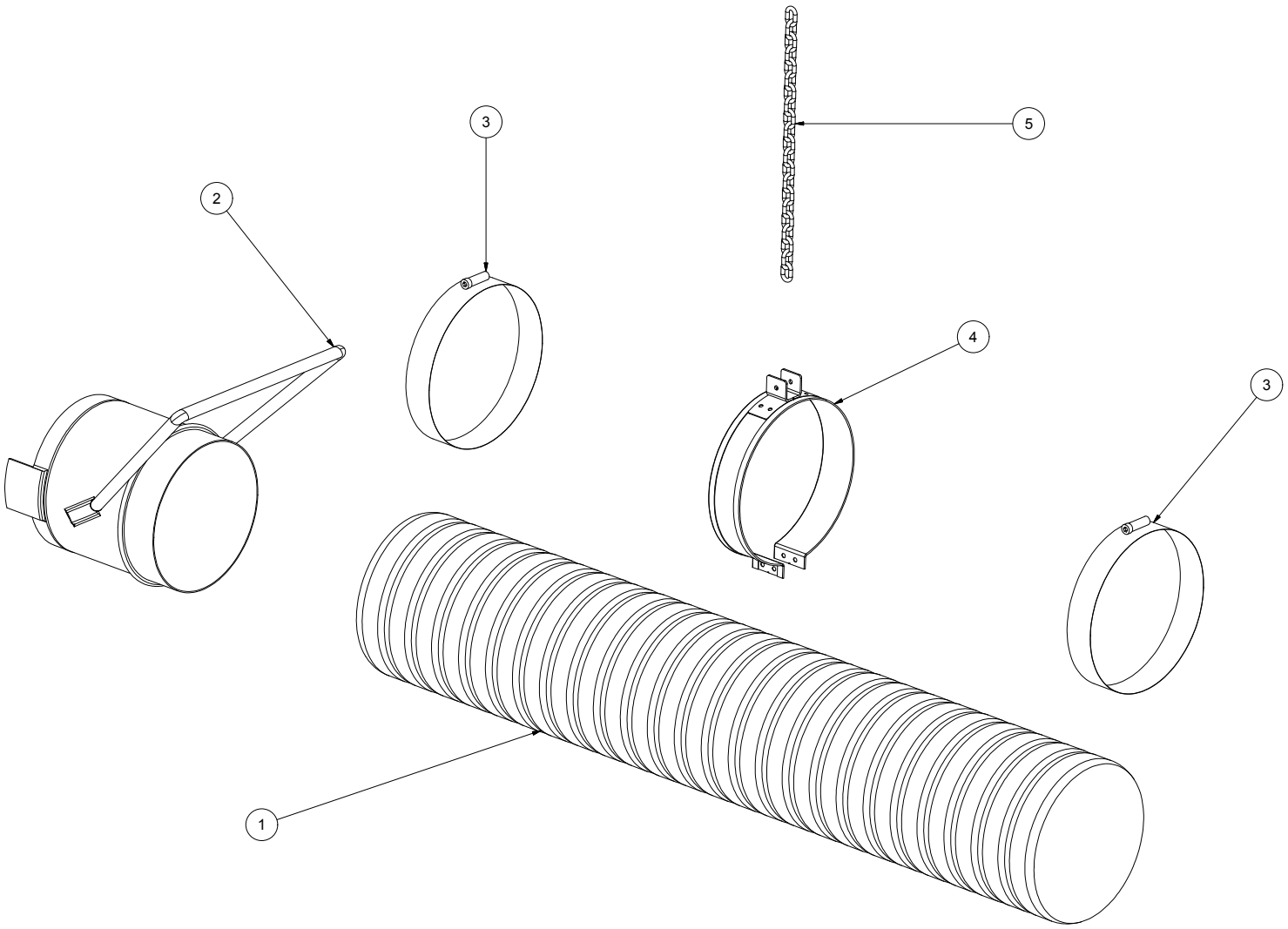


091913

ITEM #	PART NO.	DESCRIPTION
1	LCT616.606A	Boom Arm
2	SCL816.606A	Boom Mast
3	MP-CS.150.12	Boom Cylinder
4	LCT616.801	Boom Mast Bearings
5	STD.2320	Up/Dwn Switch Assmbly (Items #6 - 9)
6	STD.2321C	Push Buttons Only
7	LCT616.611B	SS Button Hold Down
8	STD.2322	Push Button Box
9	LCT616.615D	Hold Down Bracket
10	STD.2320E	Cover Plate
11	ZENC.625	Nut

ITEM #	PART NO.	DESCRIPTION
12	LCT616.607	Hose Support Hanger
13	5CZ.625.4.0	Bolt
14	600.2322B	Boom Harness
15	RMB531	Bushing
16	9405.4.4	90 Degree Fiting
17	LCT617.608	Hydraulic Hose
18	M3219.PC	Boom Pump Cover
19	200022	Pump Spacer
20	M3219.S	Boom Pump
21	9205.4.4	Straight Fitting

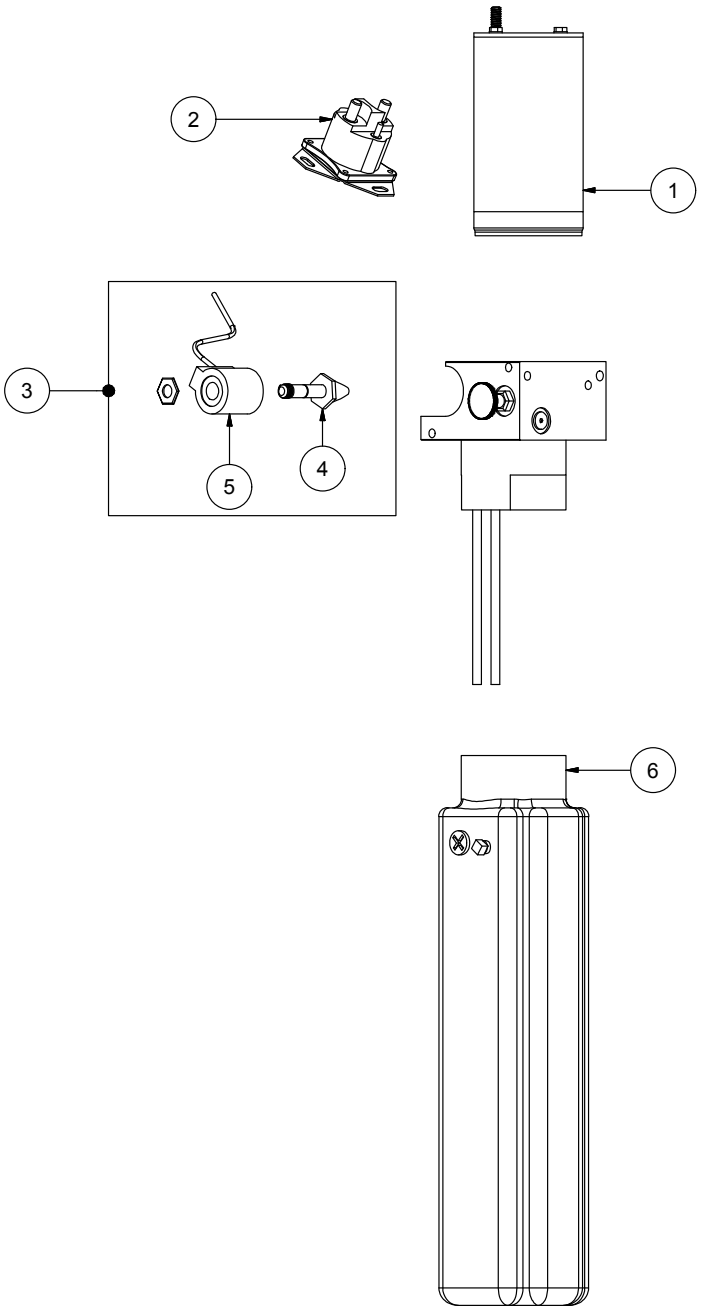
12.2 Intake Hose Group



ITEM #	PART NUMBER	DESCRIPTION
1	LC-MDH.16.120 LC-SDH.16.120.UC LC-MDH.16.100	Intake Hose, except SCL Intake Hose, Urethane (multi-axis) Intake Hose, SCL800
2	LCT616.601	Intake Nozzle
3	LCT616.616	Hose Clamp, Bolt Style
4	LCT616.603U LCT616.603U.B	Hose Clamp, 3/8" thick hoses Hose Clamp, urethane hoses
5	LCT60.642	Support Chain

12.3 M3219 Hydraulic Boom Pump

May 2012 and after



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ITEM #	PART NUMBER	DESCRIPTION
	MP-M3219.S	Complete Pump Assembly (all above)
1	MP-08004	Electric Motor, 12V
2	MP-17744	Solenoid Switch, heavy duty
3	MP-19283.D	Coil, Cartridge Assembly
4	MP-07193.D	Cartridge
5	MP-10861.D	Coil, 2 way - 2 position
6	MP-06232	Plastic Reservoir, 3.5" x 15.7"

**Call ODB for any part not listed.*

SAFETY PRECAUTIONS

⚠WARNING **Read and understand this entire manual before operating, maintaining or repairing the leaf vacuum.**

⚠ DANGER

DO NOT RIDE, SIT OR STAND ON UNIT.

RIDING ON UNIT COULD RESULT IN BODILY HARM OR FATAL INJURY USE EXTREME CAUTION WHEN UNIT IS IN USE, OR IN MOTION.

If the decal above is missing or damaged call ODB immediately. Never operate a unit with damaged or missing safety decals.

⚠ DANGER **DO NOT RIDE, SIT OR STAND ON UNIT**

⚠ DANGER **DO NOT MODIFY THE UNIT FOR RIDERS IN ANY WAY. SERIOUS INJURY OR DEATH MAY OCCUR**

ODB's leaf collectors are NEVER to be used to accomodate riders. If your unit has been modified to accomdate riders, remove these modifications immediately as this can result in serious injury or death.

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⚠ CAUTION

DO NOT ATTEMPT TO OPERATE OR REPAIR THE LEAF COLLECTOR WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL

IF YOU HAVE ANY QUESTIONS CONCERNING THE INSTALLATION OR OPERATION OF THIS UNIT, PLEASE CALL ODB FOR ASSISTANCE BEFORE ATTEMPTING TO REPAIR OR OPERATE THE UNIT.

IMPROPER USE OF ANY MACHINE CAN RESULT IN SERIOUS INJURY!

STUDY AND FOLLOW ALL SAFETY PRECAUTIONS BEFORE OPERATING OR REPAIRING UNIT

THIS MANUAL IS AN INTEGRAL PART OF THE LEAF COLLECTOR AND SHOULD BE KEPT WITH THE UNIT WHEN IT IS SOLD.

ODB COMPANY
5118 Glen Alden Drive
Richmond, VA 23231
800-446-9823