DURATECH®

Manual I: Operating Instructions and Parts Reference

TC-15™
Tree Chipper

Product Information

DURATECH INDUSTRIES

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Clearing the Way for a Better Tomorrow

TC-15™
Tree Chipper

Operating Instructions and Parts Reference

DuraTech Industries International Inc. (DuraTech) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the TC-15™ Tree Chipper as of the date of publication. DuraTech reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to DuraTech are all considered to be part of the information package. Every operator is required to read and understand these manuals, and they should be located within easy access for periodic review.

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Foreword

All personnel must read and understand before operating unit

DuraTech Industries International Inc. (DuraTech Industries) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of this Industrial Grinder as of the date of publication. DuraTech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your machine.

This manual, as well as materials provided by component suppliers to DuraTech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals All manuals should be located within easy access for troubleshooting and periodic review.

Appropriate use of the unit

This Tree Chipper is designed to grind brush and tree branches no larger than 15 inches in diameter.

Operator protection

As with all machinery, care needs to be taken by the operator in order to insure the safety of the operator and those in the surrounding area.

WARNING: Operators and those observing the operation of the Industrial Grinder are required to wear head, eye, and ear protection. No loose clothing is allowed.

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DURATECH®

TC-15™
TREE Chipper

Part 1:
Operating Instructions

Introduction

This TC-15 TREE CHIPPER is designed to chip trees and shrubs 15” diameter or less.

Purpose

Purpose of this owner’s manual is to explain maintenance requirements, safety and routine adjustments for most efficient operation of your TC-15 TREE CHIPPER. There is also a trouble shooting section that may help in case of problems in the field. Any information not covered in this manual may be obtained from your dealer.

SPECIAL NOTE: When reference is made as to front, rear, left hand or right hand of this machine, the reference is always made from standing at the rear of the machine and looking toward the hitch. Always use serial number and model number when referring to parts or problems. Please obtain your serial number and write it below for your future reference.

MODEL: _____ SERIAL NUMBER: _____

How to use this manual

Manual organization

This manual is organized into the following parts:

- **Part 1: Operating instructions** explain how to set up, use and maintain the TC-15 TREE CHIPPER.
- **Part 2: Parts reference** contains diagrams of each assembly with the number of each part identified. A key on the facing page contains a description of the part and the quantity used.

Operator responsibilities

- The operator is responsible for his own safety.
- The operator is responsible for the safety of others near the machine.
- Note the important safety information in the Foreword and in Section 1, “Safety.”
- Thoroughly review sections 1 through 3 which explain normal operation of the machine, and section 4, which explain maintenance requirements.
- Keep copies of manual in a readily accessible location for future reference.

Section 1: Safety

The safety of the operator is of great importance to DuraTech Industries. We have provided decals, shields and other safety features to aid in using your machine safely. In addition, we ask you to be a careful operator who will properly use and service DuraTech Industries equipment.

WARNING: FAILURE TO COMPLY WITH SAFETY INSTUCTIONS THAT FOLLOW WITHIN THIS MANUAL COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH. BEFORE ATTEMPTING TO OPERATE THIS MACHINE, CAREFULLY READ ALL INSTRUCTIONS CONTAINED WITHIN THIS MANUAL.

THIS MACHINE IS NOT TO BE USED FOR ANY PURPOSE OTHER THAN THOSE EXPLAINED IN THE OPERATOR'S MANUAL, ADVERTISING LITERATURE OR OTHER DURATECH INDUSTRIES WRITTEN MATERIAL PERTAINING TO THE TC-15 TREE CHIPPER.

1.1 Safety-alert symbols

Decals are illustrated in Part 2: Parts Reference.

The safety decals located on your machine contain important and useful information that will help you operate your equipment safely.

To assure that all decals remain in place and in good condition, follow the instructions below:

- Keep decals clean. Use soap and water- not mineral spirits, adhesive cleaners and other similar cleaners that will damage the decal.
- Replace all damaged or missing decals. When attaching decals, surface temperature of the machine must be at least 40 degrees F (5 degrees C). The surface must be also clean and dry.
- When replacing a machine component to which a decal is attached, be sure to also replace the decal.

DuraTech Industries uses industry accepted **ANSI** standards in labeling its products for safety and operational characteristics.

Safety-Alert Symbol

Read and recognize safety information. Be alert to the potential for personal injury when you see this safety-alert symbol.

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

DANGER:
Signal word - White Lettering/Red Background
Safety Alert Symbol - White Triangle/Red Exclamation Point

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

WARNING:
Signal word - Black Lettering/Orange Background
Safety Alert Symbol - Black Triangle/Orange Exclamation Point

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

CAUTION:
Signal word - Black Lettering/Yellow Background
Safety Alert Symbol - Black Triangle/Yellow Exclamation Point

This manual uses the symbols to the right to denote important safety instructions and information.

The **DANGER**, **WARNING** and **CAUTION** symbols are used to denote conditions as stated in the text above. Furthermore, the text dealing with these situations is surrounded by a box with a white background, will begin with **DANGER**, **WARNING**, or **CAUTION**.

The **INFORMATION** symbol is used to denote important information or notes in regards to maintenance and use of the machine. The text for this information is surrounded by a box with a light grey background, and will begin with either **IMPORTANT** or **NOTE**.

	**1. Yellow warning triangle/black graphical symbol, indicates what the hazard is.** **Hazard Identification**
	**2. Red circle-with-slash/black graphical symbol indicates a prohibited action to avoid the hazard.** **Prohibited Action**
	**3. Blue mandatory action circles/white graphical symbol - indicates an action to take to avoid the hazard.** **Mandatory Action**

1.2 Operator - personal equipment

THE OPERATOR

NOTE: DO NOT OPERATE THIS MACHINE ALONE! Always have two operators present at all times.

Physical Condition

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol) which might impair vision, dexterity or judgment.

Do not operate a TC-15 TREE CHIPPER when you are fatigued. Be alert - If you get tired while operating your TC-15 TREE CHIPPER, take a break. Fatigue may result in loss of control. Working with any industrial equipment can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating.

Proper Clothing

Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Avoid loosefitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become entangled with the machine.

Protect your head with a hard hat to reduce the risk of injury from flying debris.

Protect your hands with gloves when handling hammers, screens, etc.. . Heavy-duty, nonslip gloves improve your grip and protect your hands.

Good footing is most important. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.

To reduce the risk of injury to your eyes never operate a **TC-15 Tree Chipper** unless wearing goggles or properly fitted safety glasses with adequate top and side protection.

Tractor noise may damage your hearing. Always wear sound barriers (ear plugs or ear mufflers) to protect your hearing. Continual and regular users should have their hearing checked regularly.

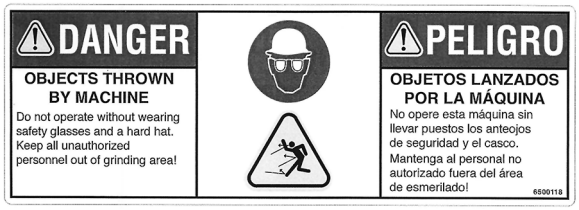
1.3 Machine safety labels

The safety decals located on your machine contain important information that will help you operate your equipment. Become familiar with the decals and their locations.

DANGER: ROTATING PARTS WITHIN CAN KILL OR DISMEMBER. WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING, UNLOGGING, OR INSPECTING MACHINE.

6500082

DANGER: OBJECTS THROWN BY MACHINE
DO NOT OPERATE WITHOUT WEARING SAFETY GLASSES AND A HARD HAT.
KEEP UNAUTHORIZED PERSONNEL OUT OF THE GRINDING AREA



6500118

DANGER: THROWN OBJECT HAZARD
KEEP AWAY
- TO PREVENT SERIOUS INJURY OR DEATH THROWN OBJECT:
- STAY AWAY FROM DISCHARGE AREA DURING OPERATION. KEEP OTHERS AWAY.
- DO NOT POINT DISCHARGE TOWARD PEOPLE, ANIMALS OR PROPERTY.

6500221

DANGER: DO NOT OPEN WHEN CHIPPER IS TURNING.

6500447

DANGER: ALWAYS USE THE CHIPPER DISC LOCK WHEN CHANGING CHIPPER KNIVES

6500446

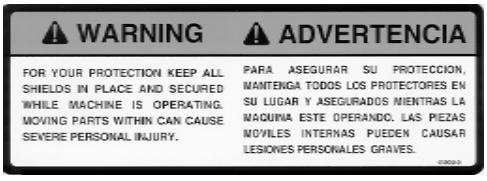
DANGER: DO NOT USE STARTING FLUID WITH ENGINE PREHEATER

6500448

DANGER: NEVER REACH INSIDE INFEED CHUTE!

6500445

WARNING: FOR YOUR PROTECTION KEEP ALL SHIELDS IN PLACE AND SECURED WHILE MACHINE IS OPERATING MOVING PARTS WITHIN CAN CAUSE SEVERE PERSONAL INJURY.



6500040

WARNING: PINCH POINT STAY BACK

6500339

WARNING: CHECK FOR FIRES, CLEAN OFF DEBRIS, SWITCH OFF BATTERY
NEVER LEAVE THIS MACHINE UNATTENDED UNTIL ALL POTENTIAL FIRE DEBRIS IS REMOVED, NO FIRE OR SMOLDERING EXISTS, AND THE BATTERY IS SWITCHED OFF. REMOVE ALL FLAMMABLE DEBRIS FROM ENGINE, SHIELDING, CONTROL PANEL, UNDER MACHINE AND ANYWHERE MATERIAL IS COLLECTED.

DURATECH INDUSTRIES IS NOT RESPONSIBLE FOR FIRES CAUSED BY HAZARDS LEFT TO SMOLDER OR BURN, OR IMPROPER SHUTDOWN PROCEDURES.

6500425

1.4 Shielding

Shields are installed for your protection. Keep them in place and replace damaged shields.

1.5 Safety Review Section

Before operating

Read and follow all instructions contained in:

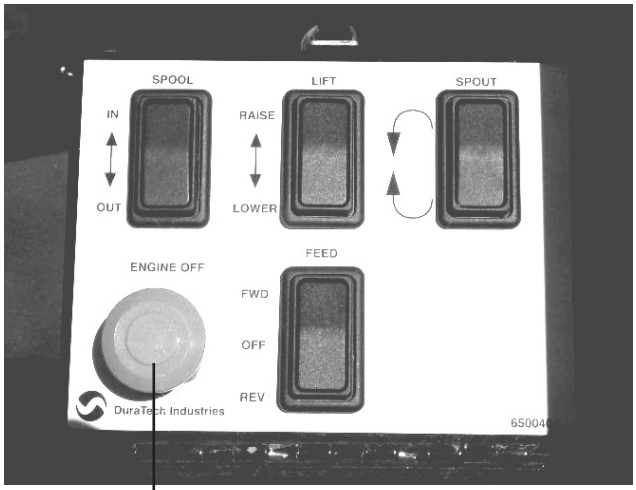
- This TC-15 TREE CHIPPER operator's manual
- Decals placed on the TC-15 TREE CHIPPER
- Check hydraulic oil level

NOTE: Additional copies of the above mentioned materials can be obtained from your dealer.

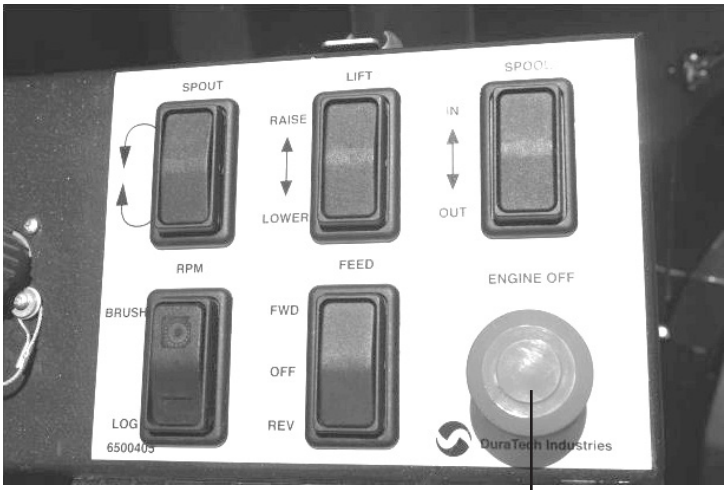
- Allow only responsible, properly instructed individuals to operate your machine. Carefully supervise inexperienced operators.
- Make sure the machine is in good operating condition and that all protective shields are in place and in proper working order. Replace damaged shields before operating.
- Be sure all bystanders and other workers are clear before starting the TC-15 TREE CHIPPER. Machine should be in a restricted area from people passing by and the area around the machine should be clear of all objects that can obstruct your movement when working with the machine.
- Machine should never be operated unless hooked to a towing vehicle.
- Make no modifications to the machine unless specifically recommended or requested by DuraTech Industries.
- Check periodically for breaks or unusual wear and make necessary repairs.
- **Do not** wear torn or loose clothing as they can get caught in moving machinery and tree branches. Items such as long hair, shirt sleeves and shirt need to be kept contained. Wear all personal protection equipment and follow all safety standards.

During operation

- Operators need to be located within easy reach of all feed controls and shut-off devices when the unit is running. Always be attentive and prepared to activate the devices.
- Always know the direction of the discharge chute before chipping. Never stand in front or direct the chute towards anyone or any thing.
- Never allow anyone to sit, stand, lay, climb or ride on the TC-15 TREE CHIPPER while it is running, operating, or in transit.
- Emergency stop switches (will shut down the engine when pressed)

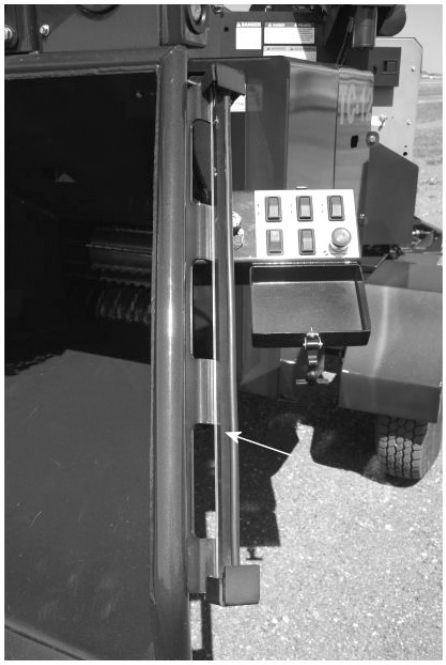


Emergency stop (left control panel)



Emergency stop (right control panel)

Figure 1.1
Safety Bumper Bar



Safety bumper bar

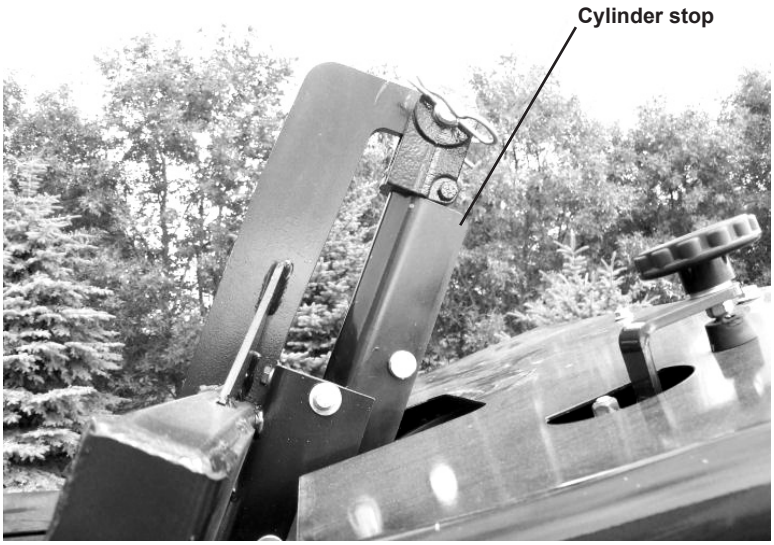
- Feed forward will not operate if the safety bumpers bars are not properly functioning. Consult your dealer if feed forward does not work after pressing reset.
- After the safety bumper bars are pressed the feed forward switch will not work until the reset on the engine control panel is pressed. Feed reverse will still function after the safety bumper is activated.
- Never reach into the infeed hopper area. The feedwheels are designed to pull trees and shrubs into the machine and could easily pull a person or extremities through much easier.
- Always stand to the side of the infeed hopper when inserting material. This allows you to turn away from the wood, and walk away, without passing through the material. (Figure 1.2)

Figure 1.2
Proper position for feeding material into the hopper

During service and maintenance

- Before working in or near the TC-15 TREE CHIPPER for any reason, including servicing, cleaning, unplugging or inspecting the machine, use the normal shut down procedures unless instructed differently in this manual.
- Never work on or near the TC-15 TREE CHIPPER unless engine is shut off.
- Check periodically and tighten any loose bolts or connections.
- Use only replacement parts that are recommended by DuraTech Industries.
- Use cylinder stop when cleaning or unplugging debris between feedwheels and chipping disc. (See Figure 1.3)

Figure 1.3
Cylinder Stop



- Use disc lock pin when servicing knives. (See Figure 1.4)

Figure 1.4
Disc Locking Pin

- Hydraulic fluid escaping under pressure can be invisible and have enough force to penetrate the skin. When searching for a suspected leak, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.
- Do not operate the TC-15 TREE CHIPPER indoors.
- Make sure wheels are always blocked before running the chipper.

1.6 Towing/road transport

- Discharge spout needs to be in transport position pointed towards the hitch of the TC-15 TREE CHIPPER.
- Close and secure all doors and covers on the TC-15 TREE CHIPPER.
- Check tire pressure.
- Raise hitch to proper height and attach to towing vehicle securely.
- Locate jack and place in towing position.
- Hook safety chains to towing vehicle.
- Hook breakaway safety switch cable securely to towing vehicle.

Section 2: Introduction

2.1 Dry Clutch

The **HPTOTM Hydraulic Power Take off** is hydraulically actuated, enclosed dry clutch that requires no adjustment throughout its wear life. During a torque spike, the clutch will act as a torque limiter by slipping to absorb the shock load. The bearings in the clutch are grease for the life of the product.

A **Microprocessor Controller** provides remote push button controlled clutch engagement of the HPTO. The controller monitors clutch pressure, engine speed and equipment safety switch.

A **Hydraulic Manifold Assembly** controls the pressure required for clutch engagement. System components include a DC coil, a pressure regulating cartridge, and a pressure switch.

The pre-programmed setting of the controller determines how the HPTO unit will function during start up.

The “Power” LED illuminates to notify the operator that the controller is receiving switched power from the engine ignition switch.

The “Engine RPM” LED illuminates when the engine is running.

To engage the clutch, set the engine rpm below 1100 rpm, press and hold the “Engage/Disengage Button” for 3 seconds. Once the “Clutch Engage Symbol” illuminates, the reset button can be released. The controller will begin the engagement of the clutch and perform a series of “bumps” to bring the driven equipment up to engine speed.

Note that there is a safety switch that prevents the rotor from engaging when the disc cover is raised.

If the engine speed is above 1100 rpm while attempting to engage the clutch, the “Engine Over-speed Symbol” will illuminate. Reduce speed below 1100 rpm and the light will turn off.

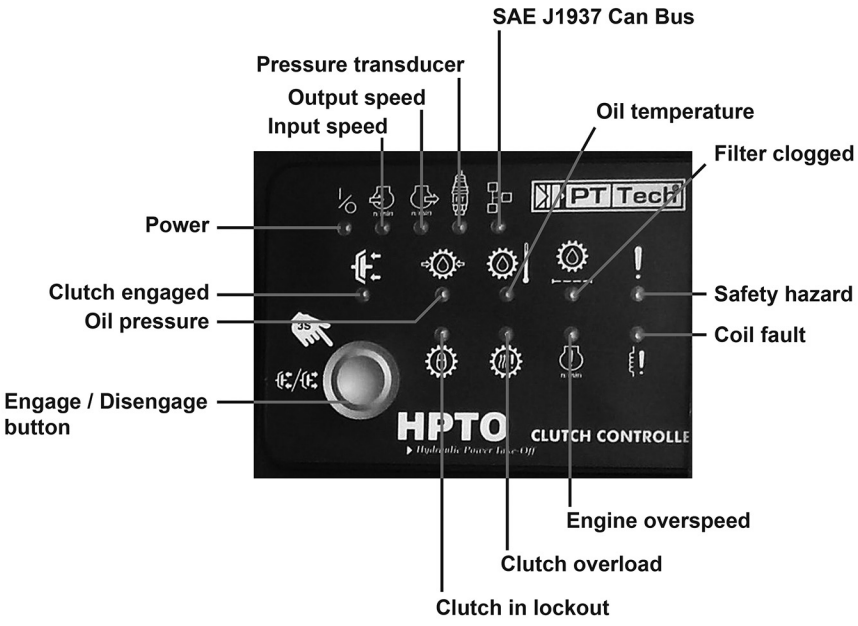
To disengage the clutch, set engine speed below 1200 rpm and push the “Engage/Disengage Button”. The clutch will immediately disengage.

The controller will allow 3 failed clutch startup attempts in a row. After the 3rd failed clutch startup attempt, the controller will prevent the clutch from being engaged for 10 minutes.

There are three different conditions that are considered as "failed start attempts". They are:

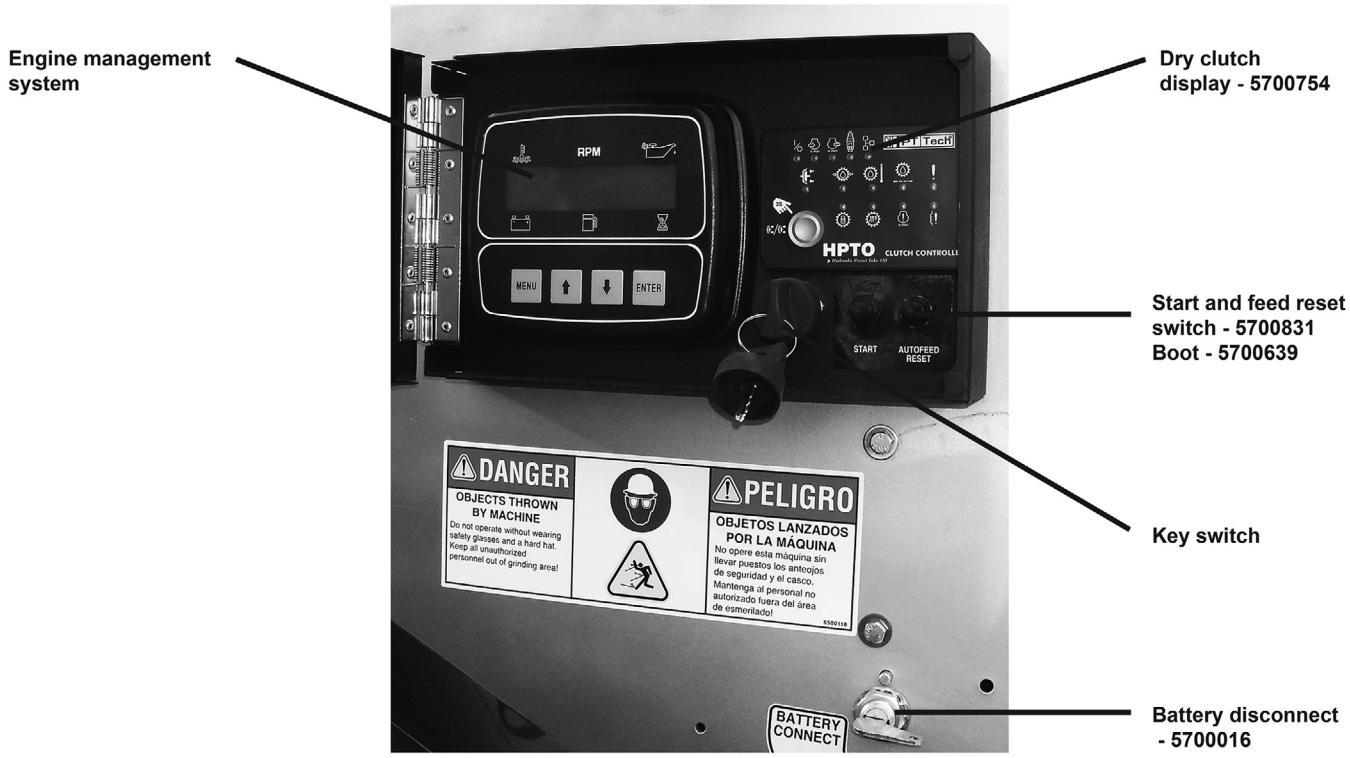
- The engine speed goes to zero and the engine stalls while the clutch is engaging.
- The operator attempts to increase engine speed while the clutch is engaging.
- The operator pushes the green engage/disengage button to disengage the clutch while the clutch is engaging.

If there is a pressure loss while the clutch is engaged, the controller will disengage the clutch and the "Oil Pressure Loss Symbol" will flash to indicate that there was a pressure loss while the clutch was engaged.



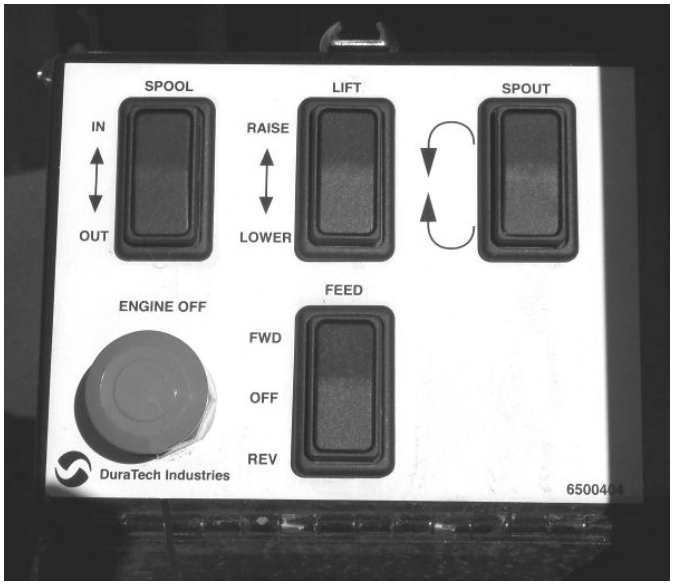
2.2 Engine Control Panel

The engine control panel is located on rear of the engine compartment. Controls and gauges on the control panel include the key switch, fuel gauge, safety bar reset, and the engine management screen and controls.



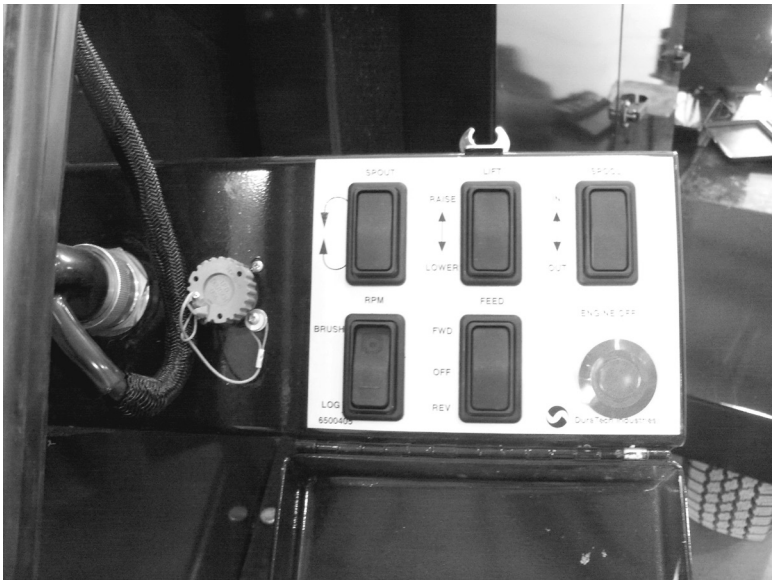
Left side control panel

Located on the left side of the machine, the switches control the spool, lift, spout, feed mode and engine off.



Right side control panel

Located on the right side of the machine, the switches control the spool, lift, spout, feed mode, rpm, engine off and a computer plug in.



2.3 Other controls

Battery disconnect switch

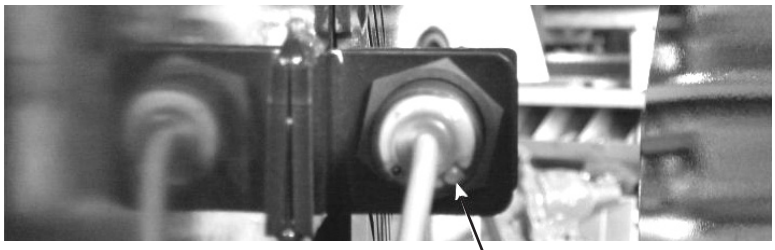
The battery disconnect switch is used to connect and disconnect the main battery ground to the machine. When the machine is not in use, it should be disconnected.

Governed Feed System

Governed feed system is intended to optimize engine horsepower and maintain consistent feed flow, it is always functioning. The hydraulic flow to the feedwheel drive mechanism is regulated proportionally to the engine speed. When the engine begins to lug down, the hydraulic oil flow is reduced which in turn slows down the feedwheel. The engine will only lug down to its optimum horsepower RPM and the feedwheel speed will be varied proportionally to keep the engine at this RPM. The result is a nearly constant load on the engine, which will maximize chipping efficiency. However, if the engine RPM goes below this preprogrammed RPM, the feedwheels will stop, reverse briefly, then when engine RPM recovers feed forward will reengage. If engine RPM does not recover in 10 seconds feed forward will not reengage until RPM's recover and feed forward switch is pressed.

Disc access safety switch

The TC-15 TREE CHIPPER is designed with a proximity switch assembled to the chipper hood. This safety feature is designed to shut down the engine if the chipper hood is not in a closed position. Engine will not start when switch and mating magnet are not aligned. The sensor has a yellow LED at the cable end of it that will light up when properly aligned. Proper clearance is 5mm and the sensor must be properly rotated to match the sensor with the polarity of the magnet. The magnet has an anti-rotation pin and a tamper proof screw.



Proximity switch
(LED light location)

Radio remote transmitter (Option)

The radio remote transmitter has two possible functions.

The choices are:

1)	Feed roller	Raise/Lower
2)	Feed roller	Fwd./Rev.
3)	Winch	In/Out

Radio remote transmitter

Function 1

Function 2

Section 3: Operation

To insure long life and economical operation, we highly recommend the operator of the TC-15 TREE CHIPPER be thoroughly instructed in the maintenance and operation of the machine. There is no substitute for a sound preventative maintenance program and a well trained operator.

Prior to starting the engine of the TC-15 TREE CHIPPER, we recommend the operator make a visual inspection of the unit. This can be done as the lubrication is being carried out. Any items that are worn, broken, missing, or needing adjustment must be serviced accordingly before operating the TC-15 TREE CHIPPER.

3.1 Pre-starting inspection instructions

Check the following:

Warning: Hydraulic fluid escaping under pressure can be invisible and have enough force to penetrate the skin. When searching for a suspected leak, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

- Check for loose bolts, worn or broken parts.
- Lug nuts for tightness.
- Condition of tire rims.
- Installation and condition of shields.
- Condition of decals.

3.2 Normal shut down procedure

Use this procedure before servicing, cleaning, inspecting, or transporting the TC-15 TREE CHIPPER.

Use a variation of this procedure only when instructed to so within this manual, or if an emergency requires it.

1. Reduce engine speed to idle.

Important: Whenever practical and consistent with good safety practices, allow the engine to run without being under load for a few minutes before shutting it off. This allows the engine temperature to decrease and equalize, which will increase engine life.

2. Disengage clutch.

Warning: The chipper disc will continue to turn for a short time after clutch has been disengaged.

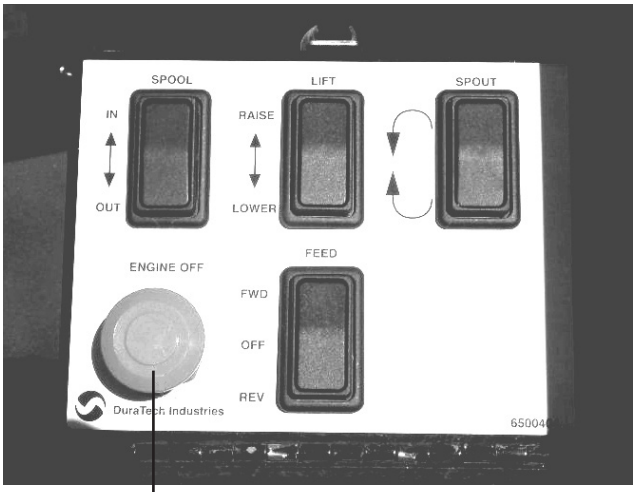
3. Turn ignition key to the OFF position and remove the key.
4. Wait for the chipper disc to stop turning.

Note: Chipper disc rotation can be checked by looking at the end of the shaft on the side of the chipper housing.

3.3 Emergency stopping

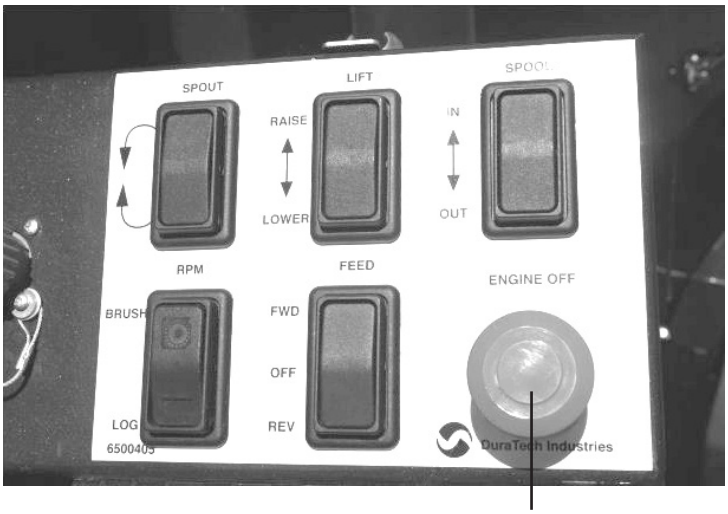
Notice: Emergency shutoff controls are for **EMERGENCY** use **ONLY**. **DO NOT** use the emergency shutoff devices or controls for normal stopping procedure.

Left Control Panel



Emergency stop

Right Control Panel



Emergency stop

3.4 Safety bumper bars

The safety bumper bars are located on each side of the infeed. After these bumpers are pressed, the feed forward switch will not work until the reset button on the engine control panel is pressed. Feed reverse will still work if bumper is pressed. Feed forward will not function if either bumper bar is not working properly. If feed forward does not work after pressing reset button consult your dealer.

3.5 Normal Start up procedure

Note: Do not adjust the engine speed control during start-up. The electronic control Unit (ECU) will control the engine speed during start-up.

Starting a cold engine

Warning: If engine is equipped with an intake preheater, DO NOT use starting fluid.

When starting, both emergency stops must be pulled out. Rotor cover must be closed. By pressing the start toggle switch, the yellow LED rotor cover proximity switch will light. Turn engine key.

1. Disengage any equipment that is driven by the engine.
2. Turn the key switch to the RUN position. Leave the key switch in the RUN position for 20 seconds. (This allows glow plugs time to heat)

3. Turn the key switch to the START position in order to engage the electric starting motor and crank the engine.

Notice: Do not engage the starting motor when flywheel is turning. Do not start the engine under load.

If the engine fails to start within 30 seconds, release the starter switch or button and wait two minute to allow the starting motor to cool before attempting to start the engine again.

4. Allow the key switch to return to the RUN position after the engine starts.
5. Repeat step 2 through 4 if the engine fails to start.

Starting a warm engine

1. Disengage any equipment that is driven by the engine.
2. Turn the key switch to the START position in order to engage the electric starting motor and crank the engine.

Notice: Do not engage the starting motor when flywheel is turning. Do not start the engine under load.

If the engine fails to start within 30 seconds, release the starter switch or button and wait two minute to allow the starting motor to cool before attempting to start the engine again.

3. Allow the key switch to return to the RUN position after the engine starts.
4. Repeat step 2 and 3 if the engine fails to start.

3.6 Rotating Discharge Spout

Notice: Operator is responsible for insuring the spout is directed properly prior to engaging the chipper disc. Spout should "NEVER" be pointed toward the infeed area of the chipper. Spout should not be pointed at buildings, roadways, vehicles or anywhere flying debris may cause injury to others. Use traffic cones or tape off a perimeter to help alert others to flying debris hazard. Never point spout at surface of object or trees for example, that may deflect flying debris back at the chipper or operators.

1. With engine running, use the spout rotation switch on either control panel to adjust spout direction.
2. Adjust the spout deflector by pulling the handle down, then sliding toward end of spout to raise the deflector or toward chipper to lower the deflector.
3. Point spout toward the hitch for transport.

3.7 Engage Chipper Disc

1. Engine must be at low idle RPM to engage the clutch.
2. Press and hold clutch engagement button on the clutch control panel.
3. If the clutch control system fails to engage the clutch after the start sequence is complete, turn off the engine and inspect the disc housing and feed area for obstruction. Be sure that the disc is not rotating before servicing. (See 3.13 Unplugging Procedure)
4. Repeat step 2.

3.8 Adjusting Engine Speed

Use the up and down arrow keys on the engine management display to control the engine RPM. The engine will run at two preset engine RPM, Either 850 rpm (low idle) or 2400 rpm (high idle)

3.9 Select Feed Speed (RPM)

On the right control panel located at the right side of the chipper, the switch labeled RPM is used to set the feedroll speed and enables the auto height sensor if installed. Tree Mode is intended for chipping small log and brush with a faster feed RPM. Log Mode is intended for larger logs 6" diameter or larger. It has a slower feed RPM and enables the auto height sensor if equipped. Auto feed speed is always on and will stop when low engine RPM limit is reached, then reverse briefly to help the engine RPM recover.

3.10 Feed Forward/Reverse

Located on either control panel, the switch labeled FEED will start the feed wheels when pressing FWD or REV. If the light bars were contacted to stop the feed wheels, then auto feed reset must be pressed prior to FEED FWD. FEED Rev is momentary and requires the button to be held down to keep reverse engaged. If going from FEED FWD to FEED REV, then FEED REV must be pressed to turn off FEED FWD and pressed and held to engage FEED REV.

Engine must be at high idle and the chipper turning (clutch engaged) for FEED FWD to work.

3.11 Feeding Chipper without Auto Feed Height

1. Never enter feed hopper while engine is running.
2. Always stand to the side of the feed hopper while feeding the chipper to avoid being pulled into feed hopper by trailing branches, standing to the side of the feed hopper insures access to a safety bar.
3. Cut pieces into manageable sizes. Trying to feed logs too heavy or branches not easily handled by one operator increases the chances of strains and fatigue.
4. Load trees and limbs so the trunk end of the limb enters first with crotches and brush after. Once material has engaged the feed wheels and is advancing, step back from infeed hopper to avoid trailing limbs and branches.
5. When loading larger diameter logs, using the feed wheel lift to open the feed "throat" reduces the force required to push the log into the opposing feed wheels.

3.12 Feeding Chipper with Auto Feed Height

1. Select log RPM on the right control panel.
2. Never enter feed hopper while engine is running.
3. Always stand to the side of the feed hopper while feeding the chipper to avoid being pulled into feed hopper by trailing branches, standing to the side of the feed hopper insures access to a safety bar.
4. Cut pieces into manageable sizes. Trying to feed logs too heavy or branches not easily handled by one operator increases the chances of strains and fatigue.
5. Load trees and limbs so the trunk end of the limb enters first with crotches and brush after. Once material has engaged the feed wheels and is advancing, step back from infeed hopper to avoid trailing limbs and branches.
6. Load end of limb or log onto feed hopper and pass under height sensor. Height sensor will immediately open feed wheel throat to accept the material and release the top feed wheel to the spring applied down pressure to close the throat. The diameter of the material being fed will determine how high the top feed wheel will rise. Once material has engaged the feed wheels and is advancing step back from hopper to avoid trailing limbs and branches.

3.13 Unplugging Procedure

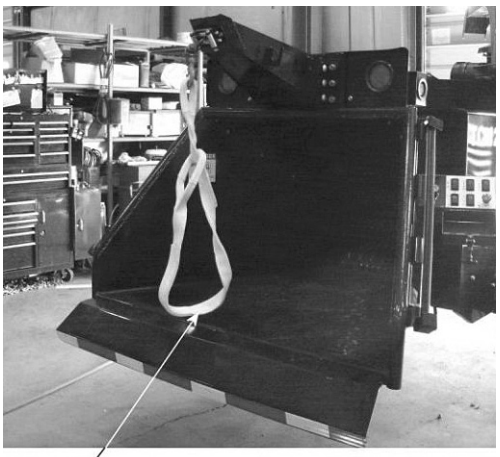
Always run the chipper at full engine speed. Dull knives can create chunks, and slivers, causing the engine to lug. This also contributes to the chipper plugging. Follow the steps below if your TC-15 TREE CHIPPER becomes plugged:

1. Follow the normal shut-down procedure.
2. Open the hinged portion of chipper hood when the disc is **NOT** turning.
3. Install disc/drum lock pin, and disconnect battery.
4. Open the hinged portion of chipper hood when the disc is **NOT** turning.
5. Open cleanout door on bottom of chipper housing.
6. Using a raking tool or gloved hands dig the chips out of the chipper housing.
7. If the discharge chute is plugged, use a raking tool to pull out the majority of the chips out of the open end of chute. Remove chute access located beneath curve in chute. Push/pull chips to clean as needed. Install discharge chute access cover.
8. **NEVER** turn the disc when someone is working inside the chipper housing. The chipper disc will turn hard then loose causing it to turn faster. Injury could result.
9. **ALWAYS** use a pry bar to turn the disc. **NEVER** turn by hand!
10. When the chipper disc turns freely, close and secure the chipper hood and close cleanout door. Engine will not start until this is done.
11. Follow normal start up procedure, engage clutch and throttle to full speed.
12. Insert small branch into feedwheel and check that it discharges properly then resume normal operations.

3.14 Winch Operating Procedure

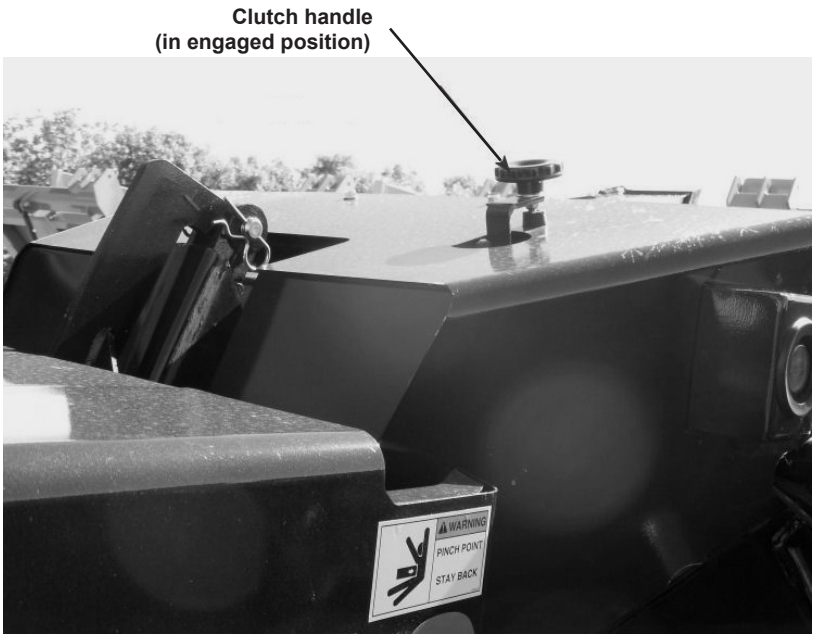
DANGER: NEVER REACH INTO THE WINCH OR WINCH ROLLER AREA**.**

1. Disengage the winch clutch and pull cable to the material to be reeled in. Securely attach cable to the wood material that needs to be pulled to the chipper.
2. Make sure area is clear of workers and bystanders. Rotate clutch handle to rubber stop to engage winch clutch and make sure handle is in the lock position.
3. Using the SPOOL switch on the left or right control panel, pull the wood material to the chipper.
4. Unhook cable from the wood material and make sure it is completely reeled back in and out of the way.
5. Inspect winch cable daily for broken wires or frayed cable. Replace cable if it is damaged.



IMPORTANT: Always make sure that the cable is clear of the feedwheel. Severe damage can occur if the cable enters the chipper.

6. Engage the feedwheel and begin feeding the wood material.



3.15 Transporting the TC-15 TREE CHIPPER

1. Make sure towing vehicle hitch is properly equipped for the hitch of the TC-15 TREE CHIPPER.
2. Properly attach the chipper to the towing vehicle and install safety pins. Securely attach safety chains to the towing vehicle.
3. Check tire pressure and wheel rims for fatigue or loose bolts.
4. Hook up electrical connections and make sure all taillights and turn signals function properly.
5. Raise tongue jack to transport position.
6. Clean infeed of all debris.
7. Point discharge chute toward the hitch for transport.
8. Remove wheel blocks and check machine for any loose items that might get lost during transport.

Section 4: Engine Maintenance

Engine oil level, engine coolant level, air filters, and fan belt tension should be checked daily. All debris and combustible or ignitable material should be cleared from the engine compartment daily or more often as conditions warrant. When cleaning the engine compartment, pay particular attention to the top of the engine. Follow the engine manufacturer's recommendations for the replacement of parts and fluids, and follow the manufacturer's recommended maintenance schedule. Engine specifications should be found in the Operation and Maintenance manual for the engine.

Section 5: General Maintenance

Warning: Before servicing the TC-15 TREE CHIPPER, read the Service and Maintenance section of the Safety Instructions.

5.1 Welding Procedure

Welding on a machine that is equipped with an Electronic Engine.

Proper welding procedures are necessary in order to avoid damage to the computerized equipment. Computerized equipment includes but not limited to the following; the Engine Control Unit (ECU), HPTO Control Module and autofeed controller.

If at all possible, the component that is to be welded should be removed from the machine for welding. If removal of the component is not possible, the following procedure must be followed when welding on a machine that is equipped with electronic engine. This procedure is considered and safest and should provide minimum risk of electronic component damage.

Note: Do not ground the welder to electrical components such as the ECU or sensors. Improper grounding can also damage the drive train bearings or hydraulic components. Clamp the ground cable from the welder to the component that will be welded. Place the clamp as close as possible to the weld. This will help reduce the possibility of damage.

1. Stop the engine. Turn the battery disconnect switch to the OFF position.
2. Disconnect the negative battery cable from the battery.
3. Disconnect the connectors from the computerized equipment listed on the pervious page. Move each harness to a position that will not allow the harness to accidentally move back and make contact with any of the connector pins.
4. Connect the welding ground cable directly to the part that will be welded. Place the ground cable as close as possible to the weld in order to reduce the possibility of welding current damage to the bearings, hydraulic components, electrical components, and ground straps.

Note: If the electrical/electronic components are used as a ground for the welder, or electrical/ electronic components are located between the welder ground and the weld, current flow from the welder could damage the components.

5. Protect the wiring harness and hydraulic hoses from welding debris and spatter.
6. Use standard techniques to weld the materials.

5.2 Batteries

Check the condition of the batteries to insure that the electrolyte level is correct. Make sure that the terminals and cables are not corroded. Also make sure there is no arcing or grounding by the terminals.

The system uses two 12 volt batteries in a series for a 24 volt system.

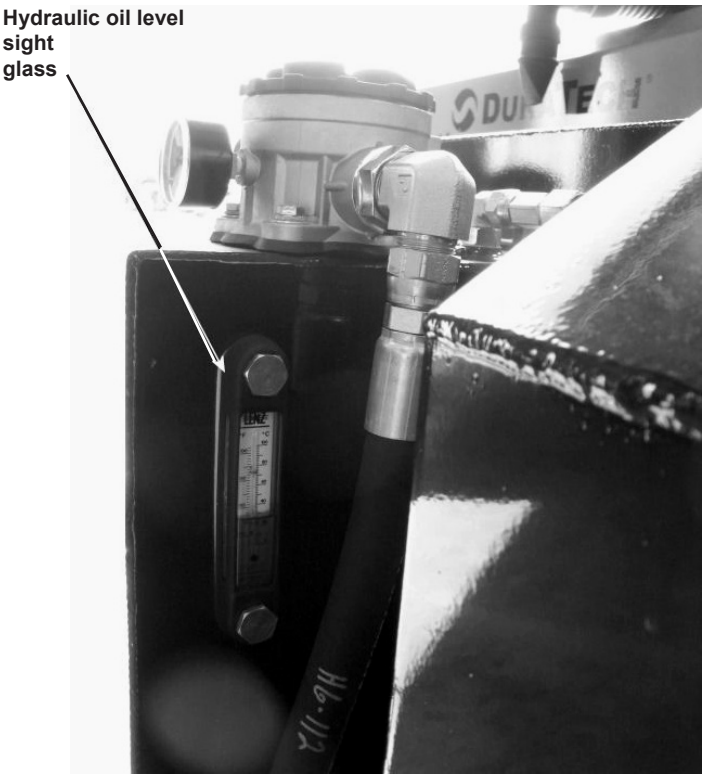
Caution: Hydrogen gas given off by a battery is explosive. Keep sparks and flames away from the battery. Before connecting or disconnecting a battery charger, turn the charger off. Make last connection and first disconnection at a point away from the battery. Always connect the NEGATIVE (-) cable last and disconnect the NEGATIVE (-) cable first.

5.3 Hydraulic system

Caution: Lack of proper hydraulic oil level in the reservoir tank will cause system to heat under continuous running. Check the hydraulic oil level daily and replace as necessary.

The in-tank hydraulic oil filter should be changed after the first 10 hours of operation. Then change hydraulic oil and filters after 100 hours of operation. Thereafter, change hydraulic oil filters every 3 months or 400 hours of operation. Oil filter must be removed first before changing the oil or adding oil if the oil level is low. Maintain hydraulic oil level 7/8 full. Check hydraulic oil level daily. The filter housing has a filter restriction gage installed to monitor filter life.

Check the hydraulic oil regularly, and if the oil has a burnt smell or milky appearance, change immediately.



DuraTech Industries recommend using Cenex Qwicklift HTB if your machine has a Qwicklift decal on the hydraulic tank. Other acceptable fluids include Mobil 423, Farmland Super HTB, Conoco Hydroclear Power Tran Fluid, or similar fluids. If the hydraulic tank does not have a decal, then all the above fluid is acceptable.

5.4 Clutch system

Check all HPTO bolted connections and hydraulic connections every 500 hours.

Clutch is to be serviced and inspected after 5000 hours of operation – contact your dealer for details.

5.5 Axle, wheels, and tires

Tire Pressure

Set the tire pressure according to the manufacturer's specifications. The appropriate tire pressure can be found on the sidewall of the tire.

Brakes

The brakes are electrically activated drum style brakes that are actuated by an electromagnet. These braking systems are self-adjusting, but if manual adjustment is required, use the following procedure:

Brakes should be adjusted after the first 200 miles of operation when the brake shoes and drums have seated, at 3,000 mile intervals, or as the use and performance requires.

5.6 Lubrication

Use only high quality, #2 multi-purpose grease when lubricating the unit. Make sure all fittings and the nozzles or the grease applicators are clean before applying grease. If any grease fittings are missing, replace them immediately.

The TC-15 TREE CHIPPER has eight points to lubricate with a grease gun.

1. Chipper disc bearings - (2) places every 50 hrs.
2. Feedwheel bearings - (2) places every 50 hrs.
3. Discharge swivel - (2) places as needed
4. Wheel bearings – (2) places every 12 months

Discharge swivel chain- use a dry lubricant on it weekly

Figure 5.1
Chipper Disc Bearing
lubrication zerk (1 of 2)

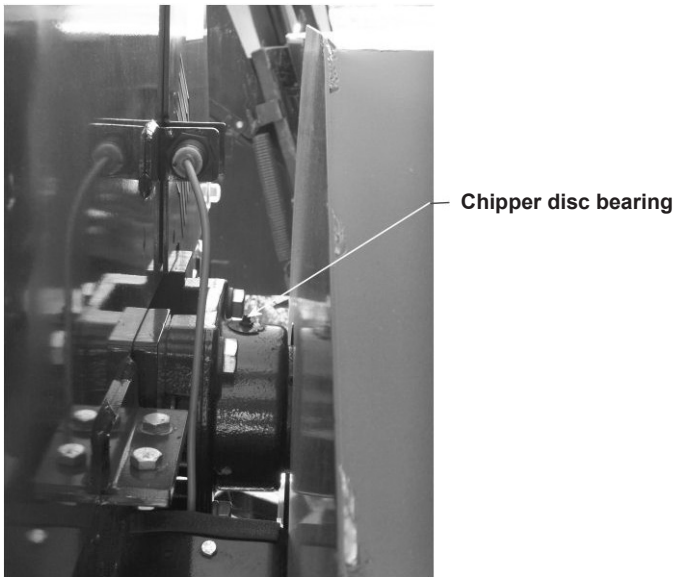


Figure 5.2
Chipper Disc Bearing
lubrication zerk (2 of 2)

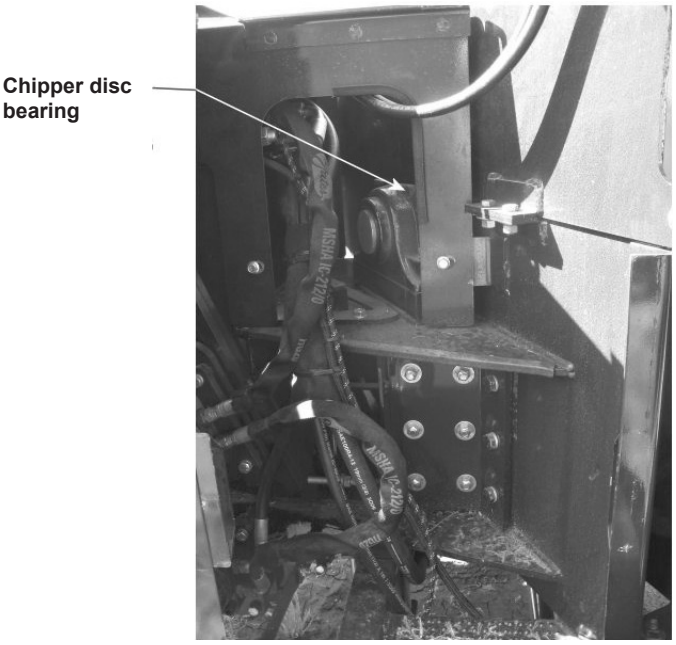


Figure 5.3
Feedwheel Bearings
lubrication zerks

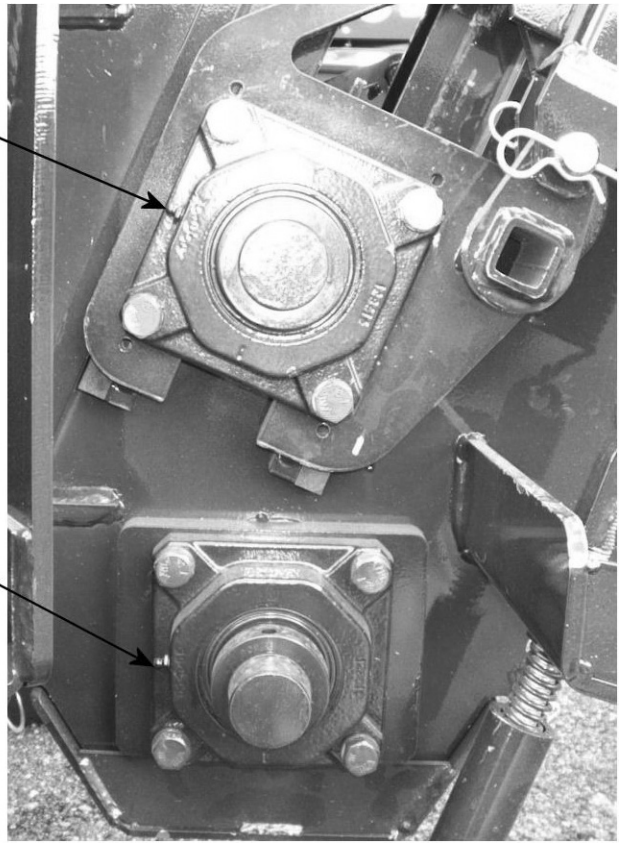
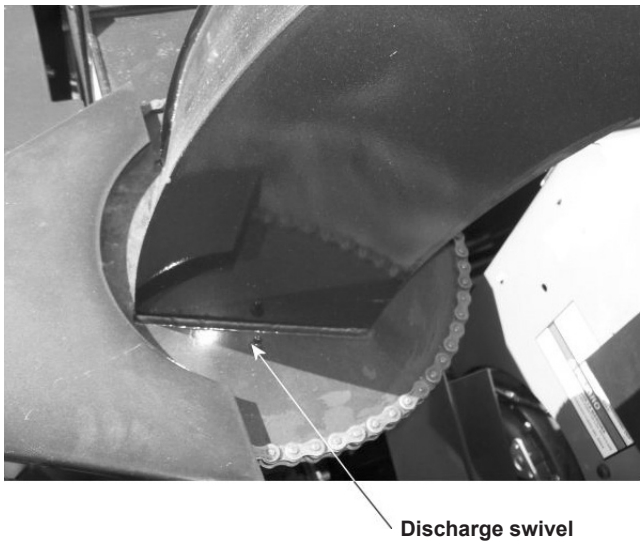


Figure 5.4
Discharge Swivel
lubrication point



5.7 Wear parts

The feedwheel slide has friction pads and wear pads that will need to be replaced from time to time.

Figure 5.5
Feedwheel Slide Arm

5.8 Checking and setting belt tension procedures

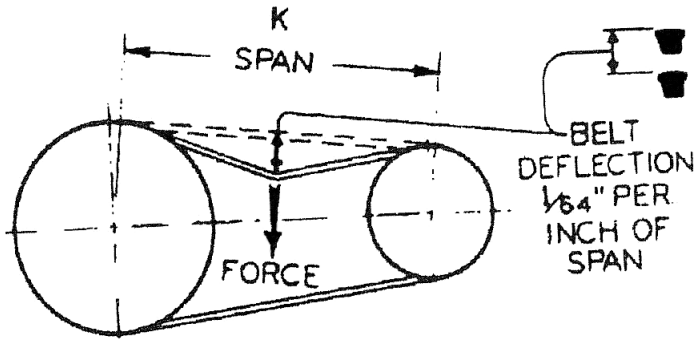
NOTE: Check new belts as they stretch and must be adjusted several times in the first few hours of operation. Adjust after the first hour of operation and then every four hours until the belts quit stretching. If belt "chirps" or slips during clutch engagement sequence it is not tight enough.

General rules for tensioning:

1. Ideal tension is the lowest tension at which the belt will not slip under peak load conditions.
2. Check tension frequently during the first 24-48 hours of run-in operation.
3. Over tensioning shortens belt and bearing life.
4. Keep belts free of debris which may cause slipping.
5. Make V-Drive inspection on a periodic basis. Tension when slipping. Never apply belt dressing as this will damage the belt and cause early failure.
6. Make sure tension belt does not slip at start up.
7. Verify sheave alignment by laying a straight edge across the face of the sheaves. Alignment should be a ¼" or less for the given span.

Tensioning procedure:

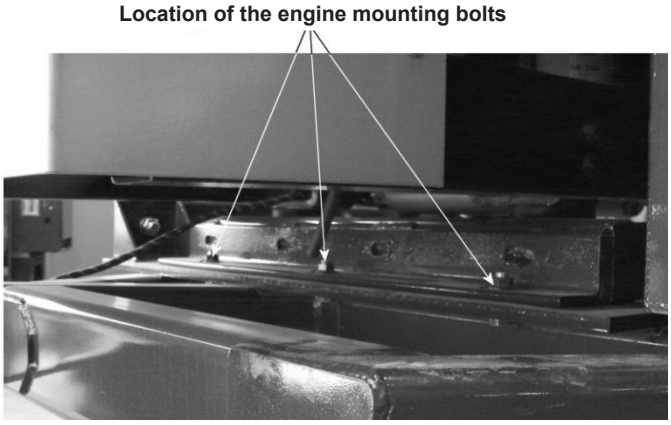
1. Measure the span length, K.
2. At the center of the span (K) apply a force (perpendicular to the span) large enough to deflect the 1/64", for every inch of span length. For the TC-15 Chipper K= 28", so 28/64=7/16" deflection.



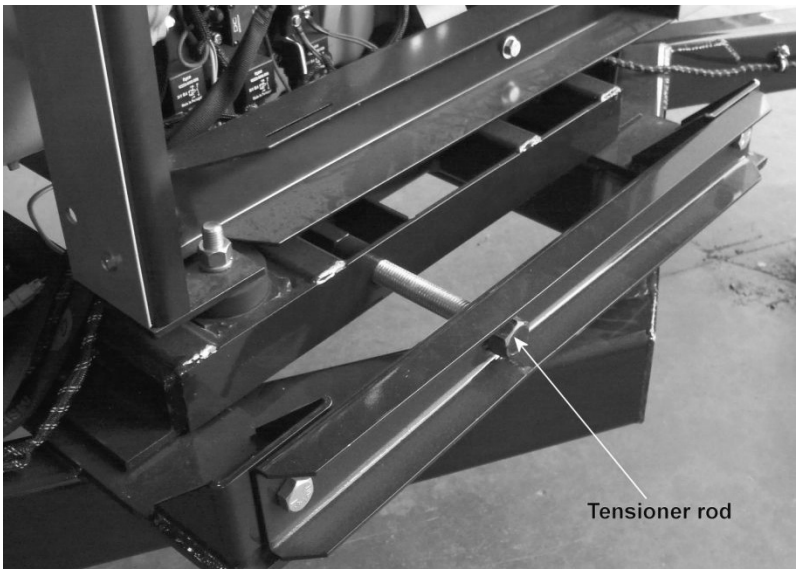
3. Belt Deflection force for the TC-15 chipper with a new belt is 92 lbs at 7/16" deflection and the normal value is at 64 lbs at 7/16" deflection. If the force is between the values for normal tension and 1-1/2 times normal, then drive tension should be satisfactory. A force below the value for normal tension indicates an under-tensioned drive. If the force exceeds the value for 1-1/2 times normal tension, the drive is tighter than it needs to be.

Adjusting the belt tension on the TC-15 Chipper

1. Open belt shield.
2. Loosen all (6) bolts on the engine mount.



3. Using the "Tensioning Procedure", adjust belt tension using the tensioner rod on the tension assembly.



4. Retighten the (6) engine mounting bolts.
5. Close belt cover.

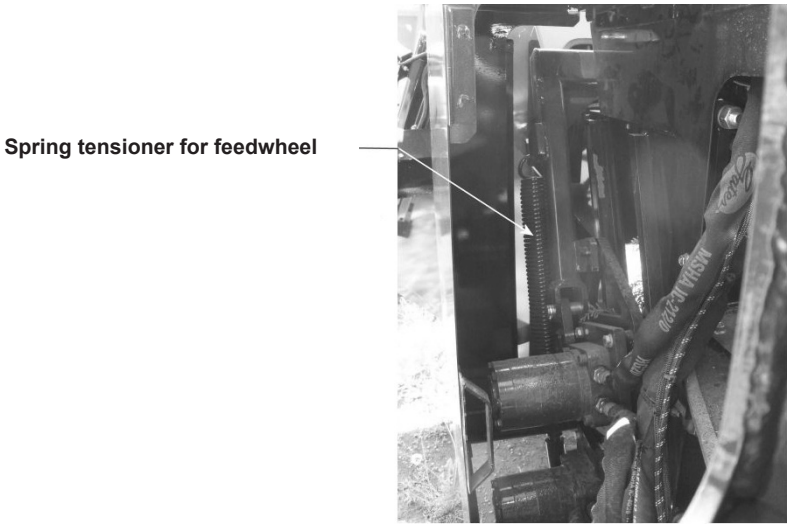
Torques for sheave bolts

Disc side sheave (1400618) torque for bolts is 900 in-lbs (124.4 m-kg) and 720 in-lbs (99.5 m-kg) for engine side sheave (1400617).

5.9 Spring tensioner for feed wheel

The spring tensioners allow you to adjust the amount of tension on the top feedwheel.

1. Spring tension can be increased by tightening jam nuts on the bottom spring hook assembly.
2. Higher spring tension provides greater grip force.



5.9A Torquing the feed wheel motor nut

Torque tolerance for the feed wheel motor nut is 300-400 ft-lbs (41.5-55.3 m-kg). Torque to 300 ft-lbs (41.5 m-kg) then tighten until the pin holes line up with the castle nut.

5.10 Anvil adjustment

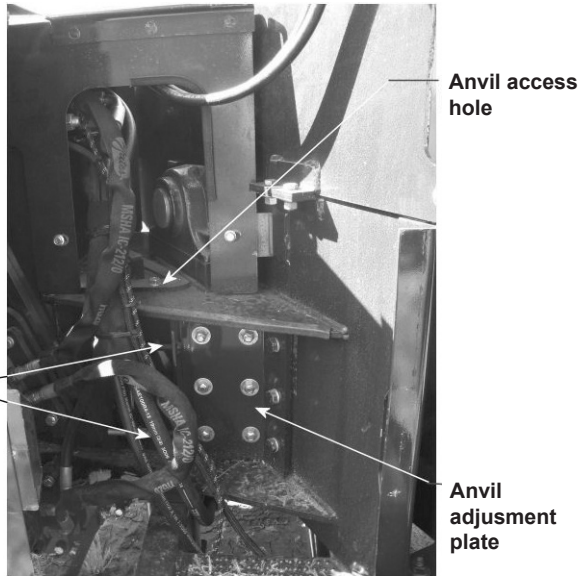
ALWAYS FOLLOW NORMAL SHUT DOWN PROCEDURE!

Locate the access hole on top of the feed housing in front of the bearing. Remove the three nuts and lift off cover.

Warning: Never turn disc while someone is adjusting the anvil. Disc should be turned by operator adjusting the anvil only! Operator adjusting anvil should only turn the disc in a clockwise direction to avoid limbs dismembered.

Checking and adjusting anvil to knife clearance

1. Follow the above safety features.
2. Check the anvil clearance by reaching into the access hole.
3. Using a feeler gauge, check the clearance between the knife anvil and the cutting edge of each knife. Anvil is set to the knife that is located closest to the anvil.



4. Inspect anvil edge for wear. Flip/rotate anvil if the cutting edge is unevenly worn or excessively rounded.
5. Loosen the six anvil bolts enough to move the anvil adjustment plate with the jam nuts.
6. Using the adjustment plate located by the anvil bolts, adjust the jam nuts to move the anvil to the desired position.
7. Retighten the anvil bolts and jam nuts.
8. Turning the disc clockwise, check the clearance on the knives making sure the closest knife is no closer than .050” and no further than 0.10”. If anvil is not set close enough to knives, excessive knife wear will occur.

5.11 Changing knives

Knives should always be replaced in pairs. Pairs are determined by the amount of resharpening done to the knives. Reinstall with another knife of comparable usage. This helps to keep the disc balanced and it maintains chip quality.

ALWAYS FOLLOW NORMAL SHUT DOWN PROCEDURE!

1. With chipper properly shut down, open disc hood and insert disc lock pin through hole in chipper housing and hole in disc that allows access to knives to be changed.

Disc locking pin (in the locked position)

2. Loosen nuts and remove bolts and knife. Either rotate knife and replace, or insert new replacement knife, insert bolt and tighten to 125 ft-lbs (17.28 m-kg).
3. Always use same generation knives on the disc. Never install one or two resharpened knives with new knives. All knife surfaces should have the same clearance from the disc face. Failure to use like knives will cause premature knife and anvil wear.
4. Using anvil adjustment procedure from above, set anvil to 0.05-0.10” tolerance.
5. Replace hood and insert hood pin.

6.0 Troubleshooting the TC-15

6.1 General trouble shooting

Problem	Possible cause	Solution
Chipper disc will not turn.	1. Obstruction in chipper housing 2. Check for seized chipper bearings	1. Check chipper housing and clean out 2. Lubricate or replace
Chipper disc wobbles.	1. Disc hub loose 2. Bearing loose 3. Chipper bearings worn 4. Knife pocket or paddle is plugged with material	1. Re-torque to 1620 in-lbs 2. Re-torque to 270 ft-lbs 3. Replace 4. Unplug pockets
Chipper bearings running too hot.	1. Improper lubrication 2. Belt too tight 3. Bearing lock collar may be loose 4. Bearings worn out	1. Purge bearings once a day with lithium grease 2. Set belt tension with tension gauge 3. Tighten bearing lock collar set screws 4. Replace
Discharge plugs or does not throw chips properly.	1. Knives are dull or worn 2. Obstruction in discharge chute	1. Sharpen knives or replace with new ones 2. Remove access cover on chute to remove obstruction
Chipper knife hits anvil	1. Anvil not set properly 2. Shaft misaligned 3. Disc is not properly set on shaft.	1. Follow anvil adjustment procedure. 2. Disc should have same clearance side to side. Adjust pillow block bearing. 3. Disc should have min. 11/16” clearance to housing on feed side. Slide disc on shaft
Chipper makes poor quality chips or does not feed properly.	1. Knives lost their edge 2. Knife anvil worn or need adjustment. 3. Knives are at wrong angle 4. Not sufficient feedwheel down pressure 5. Material being chipped is small, dry or rotting	1. File, grind or replace knives 2. Rotate, repair or replace 3. Use DuraTech knives and sharpen to 30 degree angle 4. Increase spring tension 5. Type of material does not produce good quality chips
Feedwheel slow or stops when feeding.	1. Dull knives 2. Relief valve is worn or dirty 3. Pump is worn 4. Motors are worn 5. Feedwheel springs to tight	1. Replace knives/Resharpen 2. Clean, rest or replace 3. Replace 4. Replace 5. Adjust
Feedwheel turns slowly or not at all.	1. Relief valve stuck open 2. Worn hydraulic motor 3. Pump worn 4. Pinched hydraulic or damaged hydraulic hose 5. Feedwheel valve worn and leaking internally 6. Low hydraulic oil level 7. Plugged oil screen 8. binding such as worn bearing, etc, 9. Hydraulic oil is cold 10. Speed sensor is out of adjustment/not working or program set points are wrong	1. Clean or replace 2. Replace 3. Replace 4. Replace 5. Replace 6. Fill 7/8 full minimum 7. Replace 8. Repair 9. Should warm up while running 10. Turn senor in until it contacts side of flywheel and turn out one turn.

6.2 Troubleshooting the feed control and electronic monitoring system (PLC)

General:

Tree chipper control to start and stop the feed roll based on engine speed and safety bar input. In log mode, ultrasonic sensor will adjust the feed roll height according to log size.

Details:

Feed Speed

- This output will drive the Feed Speed output proportionally to the engine RPM and the max speed will be set by the mode setting. There are two speed settings Log mode and Tree mode.

Feed Roller Forward

- Feed roller forward input will turn on feed roller forward output
- The safety bar, safety bar reset, and rpm will affect the forward direction

Feed Roller Reverse

- Feed roller reverse input will turn on feed roller reverse output to a fixed speed.

Feed Roll Raise

- Feed roll raise input will turn on feed roll raise output.

Clutch

- This input will tell the controller if the clutch is engaged. If the clutch is not engaged the feed forward cannot be turned on.

Log Mode

- When the log mode input is turned on the log height will be sensed by the Ultrasonic Sensor and raise the feed roll for a proportional amount of time based on the sensor output. After the time has elapsed the controller will bump the output for a number of times to hold the feed roll up. Then the output will be turned off. The Feed Roll height output will not be turned on until the feed position reaches the bottom Feed Roll Reset prox sensor.
- The feed roll output speed will be set to eeLogMode setting.

Tree Mode

- In brush mode the controller will not use the Ultrasonic Sensor and the Feed Roll feed position sensor.

- The feed roll output speed will be set to eeTreeMode setting.

Engine RPM

- The control will monitor the chipper speed, and based on when the engine rpm will proportionally control the feed roll speed until the speed drops to its programmable adjustable set point, will determine when the feed roller reverses.
- There will be an engine rpm set point and time of reversal setting for when the drop set point is reached.
- When the engine rpm starts to rise and reaches a programmable adjustable set point, the feed rollers will turn back on in the forward direction.
- If engine rpm does not reach the forward set point, feed roll stays in neutral
- This rpm will be taken off of the Engine flywheel (126 pulses per revolution)
- Low rpm fault
- When feed roll forward is on, and engine rpm is below its programmable adjustable set point for 10 seconds, the low rpm fault is true. If the rpm fault is true, the operator will have to momentarily reselect the direction desired with the switch.
- If engine rpm is below its programmable adjustable set point when the feed roll forward is pressed, the low rpm fault will be true. The engine rpm will have to be raised above the programmable adjustable set point and the feed roll forward switch will need to be pressed to start operation.

Safety Bar

- If safety bar is pressed or disconnected, the feed roller will stop.
- Feed roll will not go into forward position until Safety Bar Reset is pressed and the operator will have to momentarily press the forward direction with the feed forward switch.
- The safety bar will have no effect on the feed roller reverse switch; the feed roller will reverse at all times.

Safety Bar Reset

- Any time the safety bar is pressed, the safety bar reset will need to be pressed to reset the safety bar.
- If the safety bar is pressed, the operator must press the safety bar reset and then press the feed roll forward switch to continue forward movement of the feed rollers. If the safety bars have not reset, the feed rollers will not move forward.

Winch Override

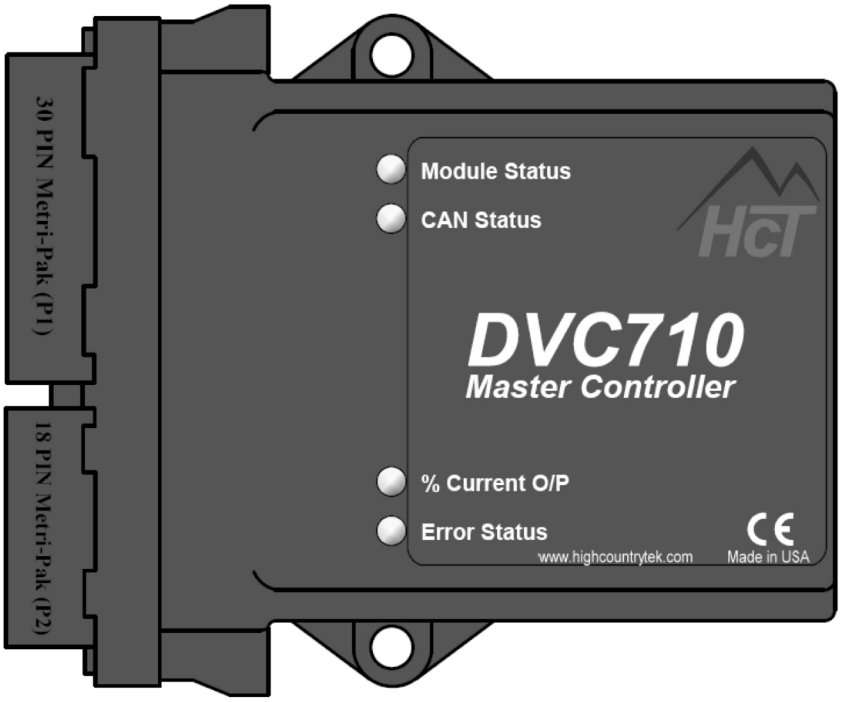
- Any time the winch override input is turned on the feed roll will stop and the feed speed will = 100%.

LED Fault Lights

- The DCV710 has four Red/Green LEDs. Two are positioned on each side. The application can switch the meaning of the LEDs using the Programming Tool DVC710 IO configuration screen. Note the Power On period time can be changed as well. This is provided so that depending on how your controller is oriented in your vehicle the appropriate LEDs for your application can be seen.

LED Indicators

The DVC710 has four Red/Green LEDs, positioned on top of the module. They are labeled, Module Status, CAN Status, % Current and Error Status.



DVC710 LED Layout

Operation

When a BIOS or application is being downloaded to the controller all LED's will be off. The Following is a list of the individual LED behaviors:

Module Status	
LED STATE	**MEANING**
Off	There is no power applied to the module.
On **GREEN**	The module is operating in a normal condition.
Flashing **GREEN**	Device is in standby state. May need servicing.
On **RED**	Module has an unrecoverable fault.
On **YELLOW**	System Disabled active
Flashing **RED**	Low Supply Voltage.

CAN Status	
LED STATE	**MEANING**
Off	There is no J1939 device (or other DVCs) in the project.
On **GREEN**	Communication established with another DVC module through DVC Devicenet.
Flashing **GREEN**	Waiting to establish communication with another DVC (i.e. DVC61) or J1939 Bus Enabled
On **RED**	The device has detected an error that has rendered it incapable of communicating on the network.
Flashing **RED**	The DVC Devicenet communication is in a timed-out state

% Current O/P	
LED STATE	**MEANING**
Off (Outputs Disabled) **GRN** (0-33%) **YEL** (34-66%) **RED** (66-100%)	
Flashing **GREEN**	PWM or High Side output Open circuit detected
Flashing **RED**	PWM or High Side output Short circuit detected

Error Status	
LED STATE	**MEANING**
Off	No errors
On **RED**	PWM1 Open or Short Detected
On **GREEN**	PWM2 Open or Short Detected
Flashing **YELLOW**	High Side Open or Short Detected
Multi Digit Blink Code	Application defined blink codes.

The Status LED

The programmer can send different single or multi digit blink codes to the status LED by using the application variable "Blinkcode". In the application code, the programmer would assign a 1, 2 or 3 digit non-zero value to the Blinkcode variable (i.e. Blinkcode = 501). The BIOS would then read this value, and then start flashing the Status LED to the assigned code, for example, in the example above (Blinkcode = 501) the Status LED would flash 5 times followed by a short pause then flash 10 times followed by a short pause then flash once then stop if no other code has been assigned. If a new code was assigned during the time that the code was flashing, there would be a longer pause before the next code began flashing. After the BIOS reads a blink code it will reset the Blinkcode variable to 0 allowing the application to test and see if the BIOS is ready for the next blink code assignment.

The following is an example of valid Blink Code assignments:

Solid red = PWM1 Open or Short Detected (Feed Roll)
Safety Fault - Error Light should blink 2 times
RPM loss - Error light should blink 3 times
Low Speed – Error light should blink 4 times

Appendix A: WARRANTY

DuraTech Industries International Inc. warrants to the original purchaser for one year from purchase date that this product will be free from defects in material and workmanship when used as intended and under normal maintenance and operating conditions. This warranty is limited to the replacement of any defective part or parts returned to our factory in Jamestown, N.D., within thirty (30) days of failure.

This warranty shall become void if in DuraTech Industries International, Inc.'s, judgment the machine has been subject to misuse, negligence, alterations, damaged by accident or lack of required normal maintenance, or if the product has been used for a purpose for which it was not designed.

All claims for warranty must be made through the dealer which originally sold the product and all warranty adjustments must be made through same.

This warranty does not apply to tires or bearings or any other trade accessories not manufactured by DuraTech Industries International Inc.'s. Buyer must rely solely on the existing warranty, if any, of these respective manufactures.

DuraTech Industries International Inc., shall **not** be held liable for damages of any kind, direct, contingent, or consequential to property under this warranty. DuraTech Industries International Inc., cannot be held liable for any damages resulting form causes beyond its control. DuraTech Industries International Inc., shall **not** be held liable under this warranty for loss of crops, or rental costs or any expense or loss for labor or supplies.

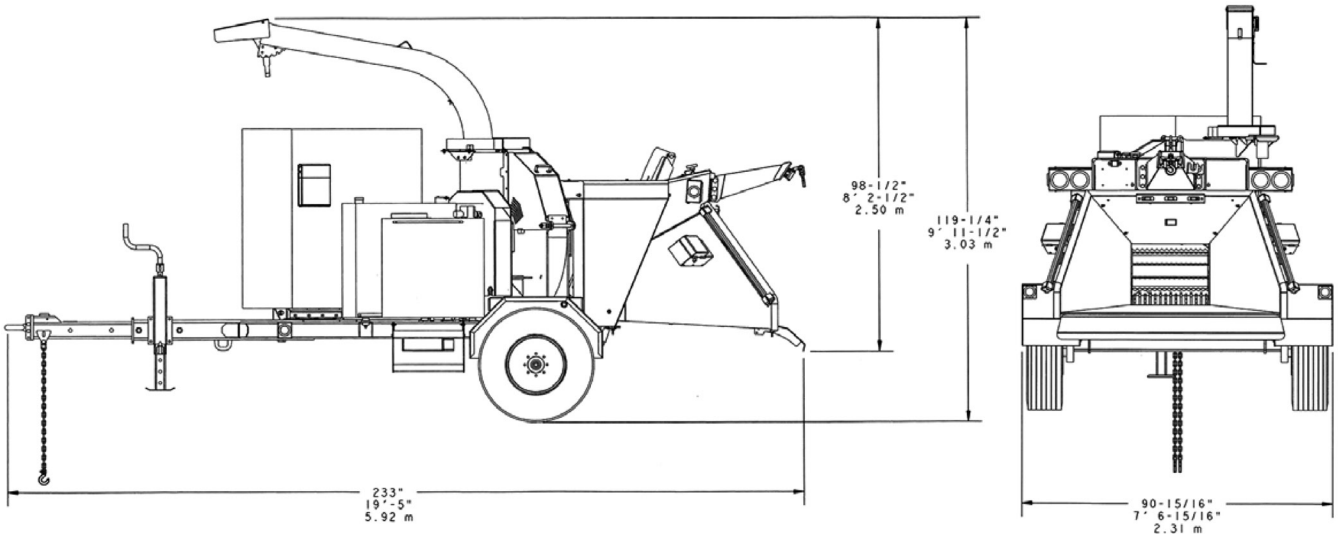
DuraTech Industries International Inc., reserves the right to make changes in material and/or designs of this product at any time without notice.

All other warranties made with respect to this product, either expressed or implied, are hereby disclaimed by DuraTech Industries International Inc.

Appendix B: TC-15 Specifications

General Specifications

Engine.....CAT C4.4 122 HP (91 kW) or CAT C4.4 139 HP (103.7 kW)
Gross Weight .....8,540 lbs. (3,874 kg)
Transport width .....91” (231.1 cm)
Transport length .....208” (528 cm)
Hitch .....3” Pintle or 2-5/16” Ball
Tongue weight .....1,140 lbs. (517.1 kg)
Axle .....8,000 lb (3,629 kg) Torflex
Suspension ..... Torsional
Brakes .....Electric
Electrical control system .....24 V
Tires.....10R 17.5 (16 ply)
Fuel capacity .....40 gallon (152 L)
Hydraulic oil capacity .....25 gallon (95 L)
Lights.....Clearance and Directional
Transmission .....PT Tech HPTO
Chipping capacity.....15” (38.1 cm)
Infeed hopper opening..... 40” x 64” (102 cm x 163 cm)
Throat opening ..... 15” x 23” (38 cm x 58 cm)
Disc size .....48” (122 cm) diameter x 2” (5.08 cm)
Disc shaft size.....3-15/16” (10 cm) diameter
Feed system .....Hydraulic 2 drum
Number of knives .....4, 2 slots
Size of knives ..... 4-1/2” (11.5 cm) x 9-1/4” (23.5 cm) 3-bolt
Discharge system..... 360 degree, hydraulic rotation w/adjustable chip spout
Frame size .....3” (7.6 cm) x 5” (12.7 cm) x 1/4 “ (0.64 cm)
Safety Features ..... Breakaway Brake Switch, 2 E-Stop Switches,
.....2 Infeed Hopper Light Bars, Disc Hood Closed Proximity Switch

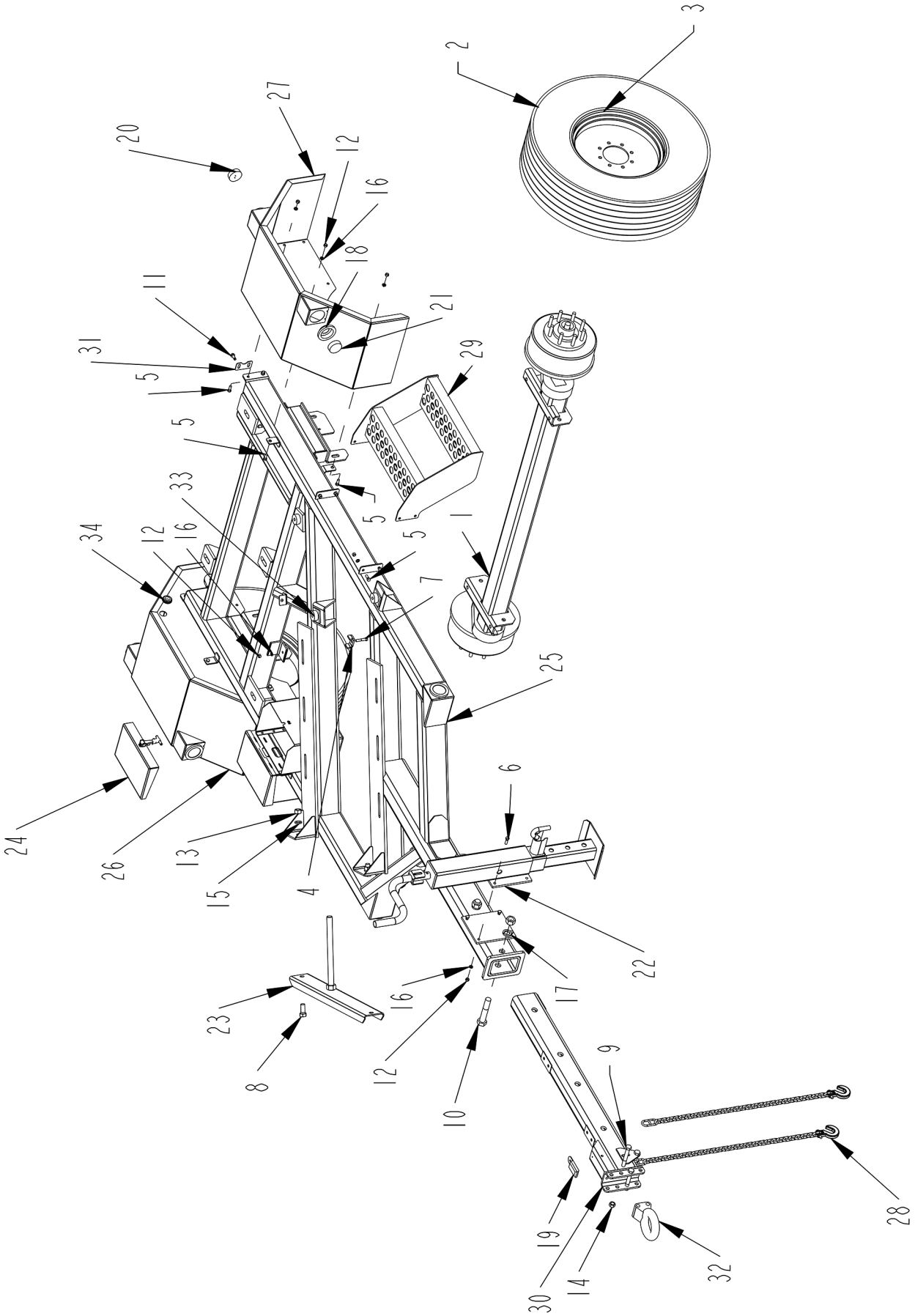


DURATECH®

TC-15™
Tree Chipper

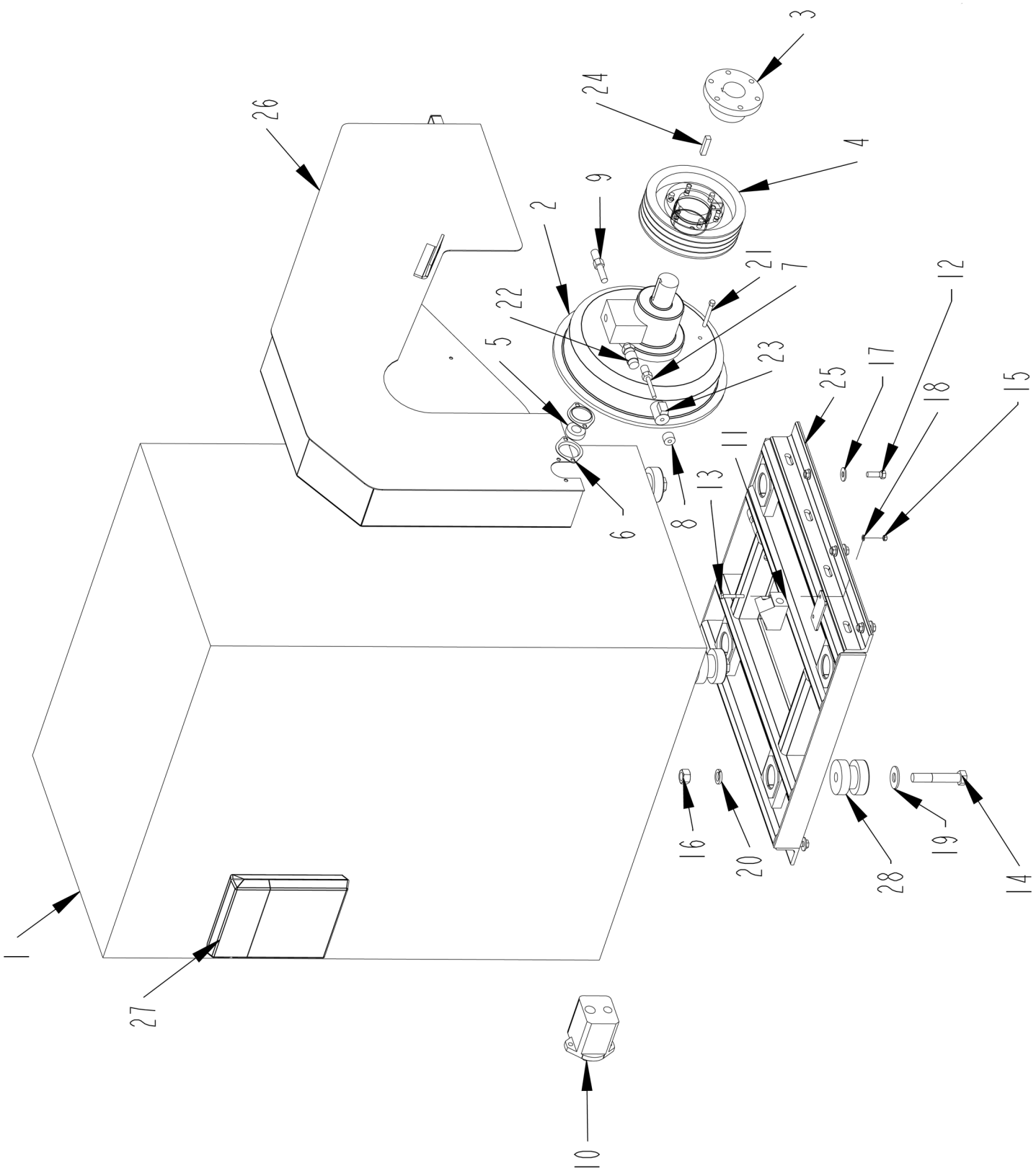
Part 2:
Parts Reference

TRAILER ASSEMBLY

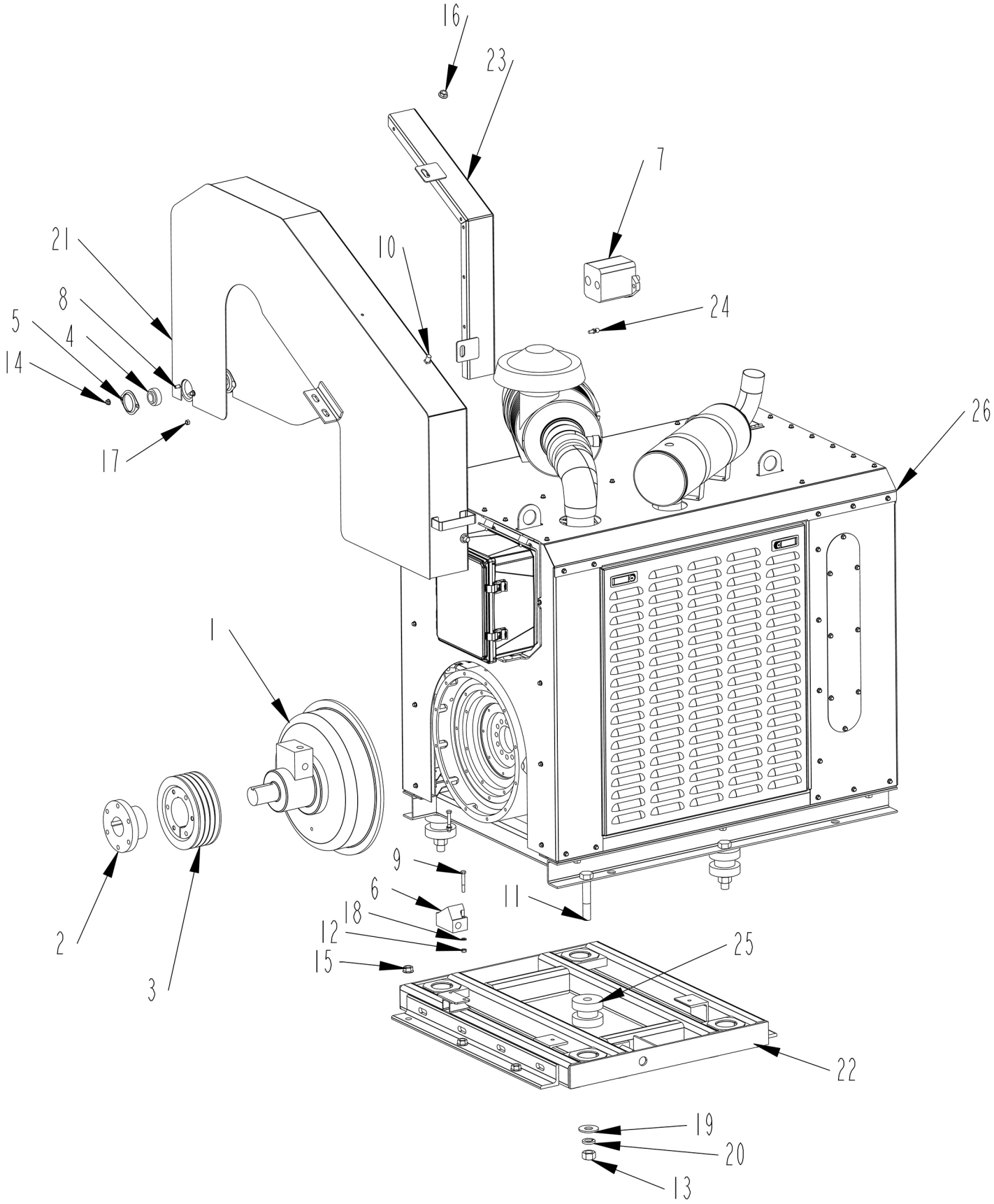


ITEM	PART	QTY.	PART DESCRIPTION
1	2500975	1	AXLE\TOR\8KLB
2	2600866	2	TIRE\10R17.5\16PLY
3	2600867	2	WHL\8-BOLT\17.5X6.75\8x6.5
4	4700777	3	CLMP\HOSE\1/2
5	4800003	12	BOLT\HEX\3/8X1
6	4800098	4	BOLT\HEX\3/8X1-1/4\NC
7	4800146	1	BOLT\HEX\3/8X2
8	4800469	2	BOLT\HEX\3/4X1-3/4
9	4800573	3	BOLT\HEX\5/8X4-1/2\NF\GR8
10	4800633	2	BOLT\HEX\1X5-1/2\NC\GR5\PLT
11	4800639	4	SCR\HEX\SLOT\3/8X1\SELF-TAPPING
12	4900002	17	NUT\HEX\3/8\NC
13	4900004	2	NUT\HEX\3/4\NC
14	4900005	3	NUT\HEX\5/8\NC
15	5000012	2	WASH\LOCK\3/4
16	5000019	17	WASH\LOCK\3/8
17	5000053	2	WASH\LOCK\1
18	5700202	6	LAMP\GRMMT\2-1/2KIT\W/PLUG
19	5700725	1	SWITCH\BRAKE\BREAKAWAY
20	5700861	2	LAMP\CL\12VDC\2-1/2ROUND\RED\SEALED
21	5701015	4	LAMP\CL\12VDC\2-1/2ROUND\AMB\SEALED
22	6300046	1	JACK\10K\SINGLE SPEED\TC12
23	6300137	1	TENSIONER\ASSY\CHIPPER
24	6300162	2	LID\BOX\BATT\CHIP\ASSY
25	6300188	1	FRM\WELD\TC15
26	6300192	1	FNDR\R\CHPPR\TC15
27	6300193	1	FNDR\L\CHPPR\TC15
28	6300202	2	CHAIN\SAFETY\TC15
29	6300203	1	STEP\FRM\FNDR
30	6300214	1	HITCH\ASSY\ADJ
31	6300215	2	PL\COVER\HARN\TUBE
32	7500729	1	HITCH\PINTLE\3\BOLT-ON
33	7501183	3	CUSH\RBBR\1.87”ODX1.31”IDX390LB
34	7501523	8	GRMT\RBBR\1-3/8X1IDX1/8T
	6300187		**TRAILER\ASSY\TC15**
NOT SHOWN			
	5700227	2	BATT\12VDC\GRP24
	5700275	4	TERM\BATT\UNIV\MARINE\

CAT ENGINE ASSEMBLY (FOR S.N. UP TO 0010)



ITEM	PART	QTY.	PART DESCRIPTION
1	0900148	1	ENG\CAT\C4.4\122HP\ATAAC
2	0900150	1	CLUTCH\HPTO8\CHIPPER
3	1400533	1	BUSH\QD\E\2-1/8
4	1400617	1	SHVE\5V-4\10.3\4/5V10.3-E
5	2000002	2	1” BEARING W/ LOCK COLLAR
6	2000703	4	2 HOLE FLANGETTE
7	4000290	1	VALVE\HYD\CART\2POS
8	4000434	1	NUT;O-RING\CART\HPTO
9	4000487	1	VALVE\CART\REDUCE\310P
10	4200124	1	PUMP\HYD\.89CID\CASAPPA
11	4200139	1	VLV\SEQ\0-15GPM\PTTECH
12	4800082	6	BOLT\HEX\1/2X1-1/2
13	4800162	2	BOLT\HEX\5/16X2-1/4
14	4800925	4	BOLT\HEX\7/8X5
15	4900003	2	NUT\HEX\5/16\NC
16	4900022	4	NUT\HEX\7/8\NC
17	5000004	6	WASH\FLAT\1/2
18	5000022	2	WASH\LOCK\5/16
19	5000098	4	WASH\FLAT\7/8
20	5000106	4	WASH\LOCK\7/8
21	5700682	1	SNSR\MAG\HPTO12\3/8”DIA
22	5700957	1	SWITCH\PRESS\295\NO
23	5700970	1	VALVE\CLTCH\SOL\24V\770\DEUTSCH
24	6200061	1	KEY\SQ\1/2X2-1/4
25	6300051	1	MNT\ENG\ASSY\TC12
26	6300059	1	GUARD\PLLY\END\WELD
27	7500590	1	ENCL\OPS\8-1/2X11X1-5/8
28	7501062	4	CUSH\RBBR\3-1/2ODX2-7/8\>
	6300003		**ASSY\ENG\TC12**
NOT SHOWN (WEAR PARTS)			
	1700237	1	BELT\5VX1120
	4400129	1	FLTR\ELMT\AIR\C4.4
	4400130	1	FLTR\FUEL\C4.4
	4400131	1	FLTR\OIL\ENG\C4.4
	4400132	1	FLTR\FUEL\WATER\C4.4
	4400161	1	FLTR\ELMT\AIR\INNER\C4.4
	5700854	1	SNSR\MAG\ENG\C4.4\2PIN\16MMDIA\DEUTSCH
NOT SHOWN			
	5700916	1	CNTRLLR\UNIT\DISPLAY\ADV3
	5701020	1	CNTRLLR\UNIT\MSTR\BR72\HPTO8&10\
	5701021	1	DISPLAY\ICAN\J1939\C3-2500
	5701082	1 SET	KEY\IGN\CHIPPERS\CONTROLS_INC
	7500346	1	SAFETY CLIP
	7500583	2	END FITTING\GAS SPRNG\
	7500706	1	GAUGE\FUEL\24V\>
	7501090	1	SPRNG\GAS\100LB\9416K22->
	7501554	4	LATCH\DRAW\PANEL\ENG\CAT\C4.4


16
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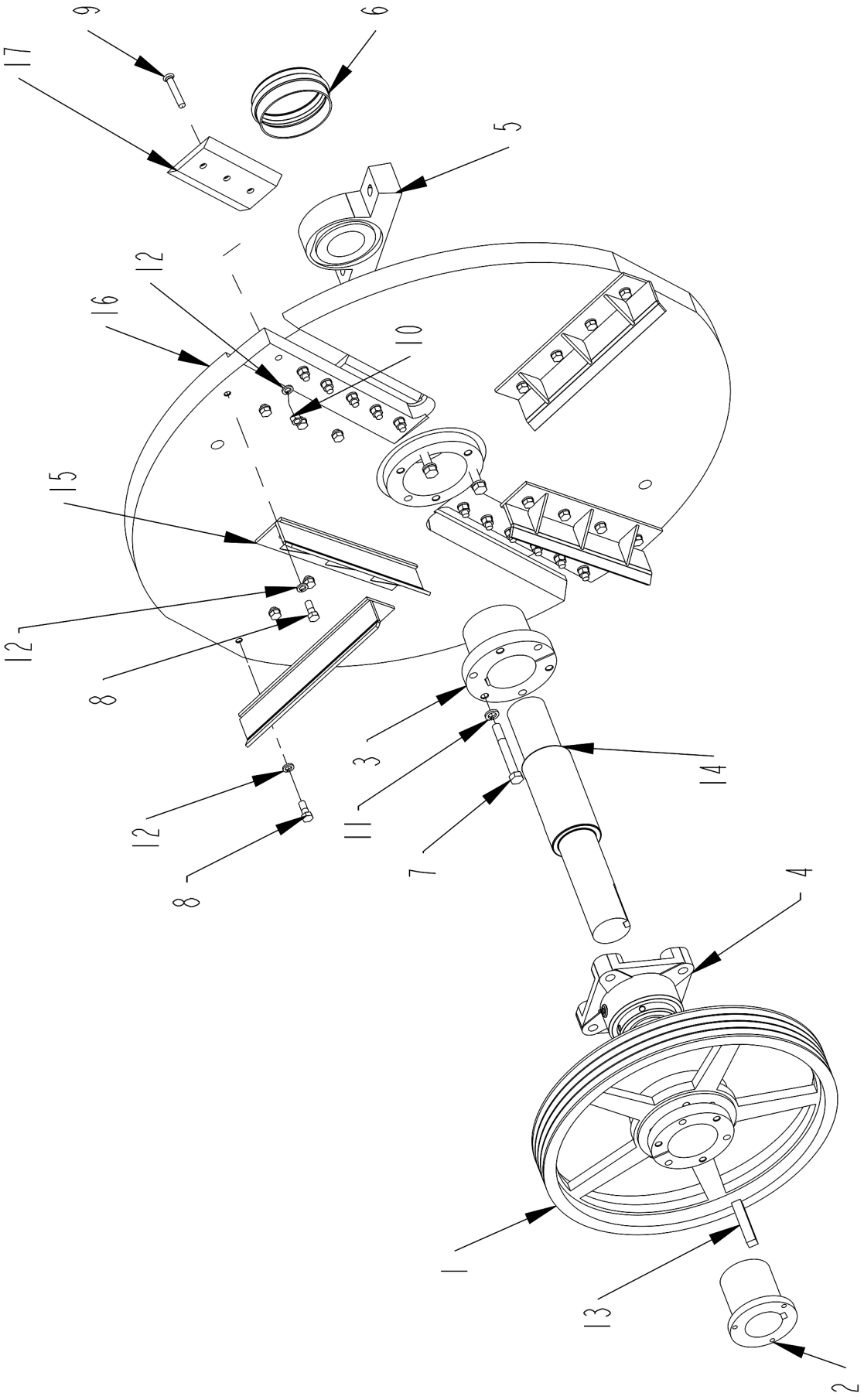
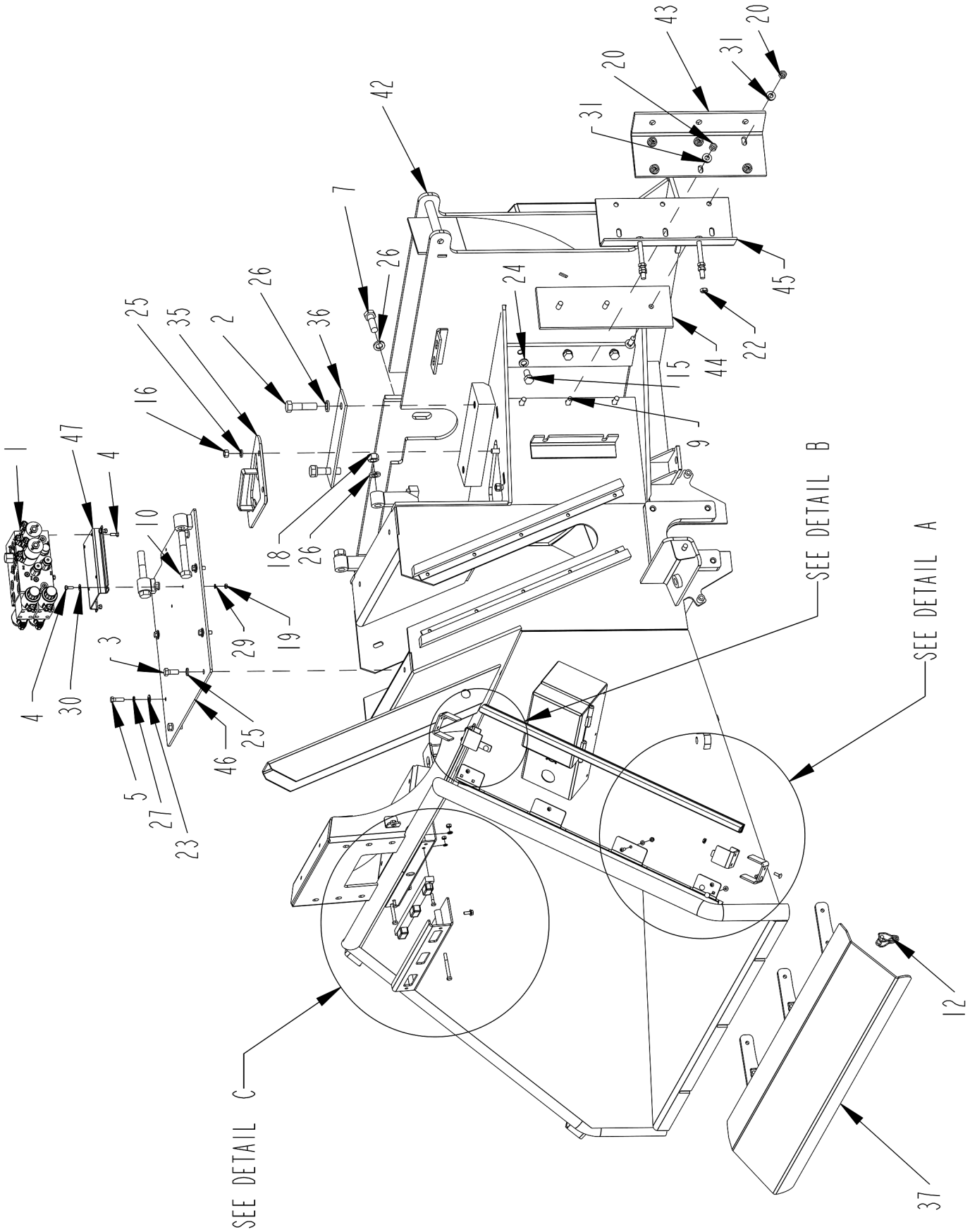
ITEM	PART	QTY.	PART DESCRIPTION
1	0900150	1	CLUTCH\HPTO8\CHIPPER
2	1400533	1	BUSH\QD\E\2-1/8
3	1400617	1	SHVE\5V-4\10.3\4/5V10.3-E
4	2000002	2	1” BEARING W/ LOCK COLLAR
5	2000703	4	2 HOLE FLANGETTE
6	4200139	1	VLV\SEQ\0-15GPM\PTTECH
7	4200201	1	Pump\HYD\.89CI\CW\A-PAD\5/8” 9T\CASAPPA
8	4800153	4	BOLT\CRG\5/16X3/4\NC
9	4800162	2	BOLT\HEX\5/16X2-1/4
10	4800908	2	BOLT\CRG\1/2X1
11	4800925	4	BOLT\HEX\7/8X5
12	4900003	2	NUT\HEX\5/16\NC
13	4900022	4	NUT\HEX\7/8\NC
14	4900108	4	NUT\FLG\SERR\5/16\NC
15	4900110	6	NUT\FLG\SERR\5/8\NC
16	4900133	2	NUT\FLG\1/2\NC
17	4900142	1	NUT\TPLCK\5/16\NC
18	5000022	2	WASH\LOCK\5/16
19	5000098	4	WASH\FLAT\7/8
20	5000106	4	WASH\LOCK\7/8
21	6300212	1	GUARD\PLLY\END\WELD
22	6300229	1	MNT\ENG\CAT_C4.4\T3\CHIP
23	6300234	1	SHLD\CLUTCH\TC15
24	7500345	1	BALL STUD
25	7501062	4	CUSH\RBBR\3-1/2ODX2-7/8\>
26	0900214	1	ENG\CAT\C-4.4\129HP\ATAAC 24V
	6300231		**ENG\ASSY\C4.4_T3\TC15**
NOT SHOWN (WEAR PARTS)			
	1700237	1	BELT\5VX1120
	4400129	1	FLTR\ELMT\AIR\C4.4
	4400130	1	FLTR\FUEL\C4.4
	4400131	1	FLTR\OIL\ENG\C4.4
	4400132	1	FLTR\FUEL\WATER\C4.4
	4400161	1	FLTR\ELMT\AIR\INNER\C4.4
	5700854	1	SNSR\MAG\ENG\C4.4\2PIN\16MMDIA\DEUTSCH
NOT SHOWN			
	5700916	1	CNTRLLR\UNIT\DISPLAY\ADV3
	5701020	1	CNTRLLR\UNIT\MSTR\BR72\HPTO8&10\
	5701021	1	DISPLAY\ICAN\J1939\C3-2500
	5701082	1 SET	KEY\IGN\CHIPPERS\CONTROLS_INC
	7500346	1	SAFETY CLIP
	7500583	2	END FITTING\GAS SPRNG\
	7500706	1	GAUGE\FUEL\24V\>
	7501090	1	SPRNG\GAS\100LB\9416K22->

DISC ASSEMBLY



ITEM	PART	QTY.	PART DESCRIPTION
1	1400618	1	SHVE\5V-4\23.6\4/5V23.6-F
2	1400624	1	BUSH\R2\3
3	1400625	1	BUSH\QD-J\3-15/16
4	2000336	1	BRG\FLG\E\3”\4BOLT
5	2000512	1	BRG\PB\3\2BOLT\E\DODGE
6	2900170	1	CAP\END\BRG\3\PB\E
7	4800567	3	BOLT\HEX\5/8X5\NC\GR8
8	4800628	16	BOLT\HEX\1/2X1-1/4\GR8\NC
9	4801204	12	SCR\CSK\ALN\1/2X3\NC
10	4900019	12	NUT\HEX\1/2\GR8\NC
11	5000003	3	WASH\LOCK\5/8
12	5000006	28	WASH\LOCK\1/2
13	6200024	1	KEY\SQ\3/4X4
14	6300007	1	SHAFT\DISC\CHIPPER
15	6300009	4	PADDLE\DISC\CHIPPER
16	6300166	1	DISC\HUB\ASSY\CHIPPER
17	7501510	4	KNIFE\CHIPPER\TC15
	6300165		**DISC\SHAFT\ASSY\TC15**

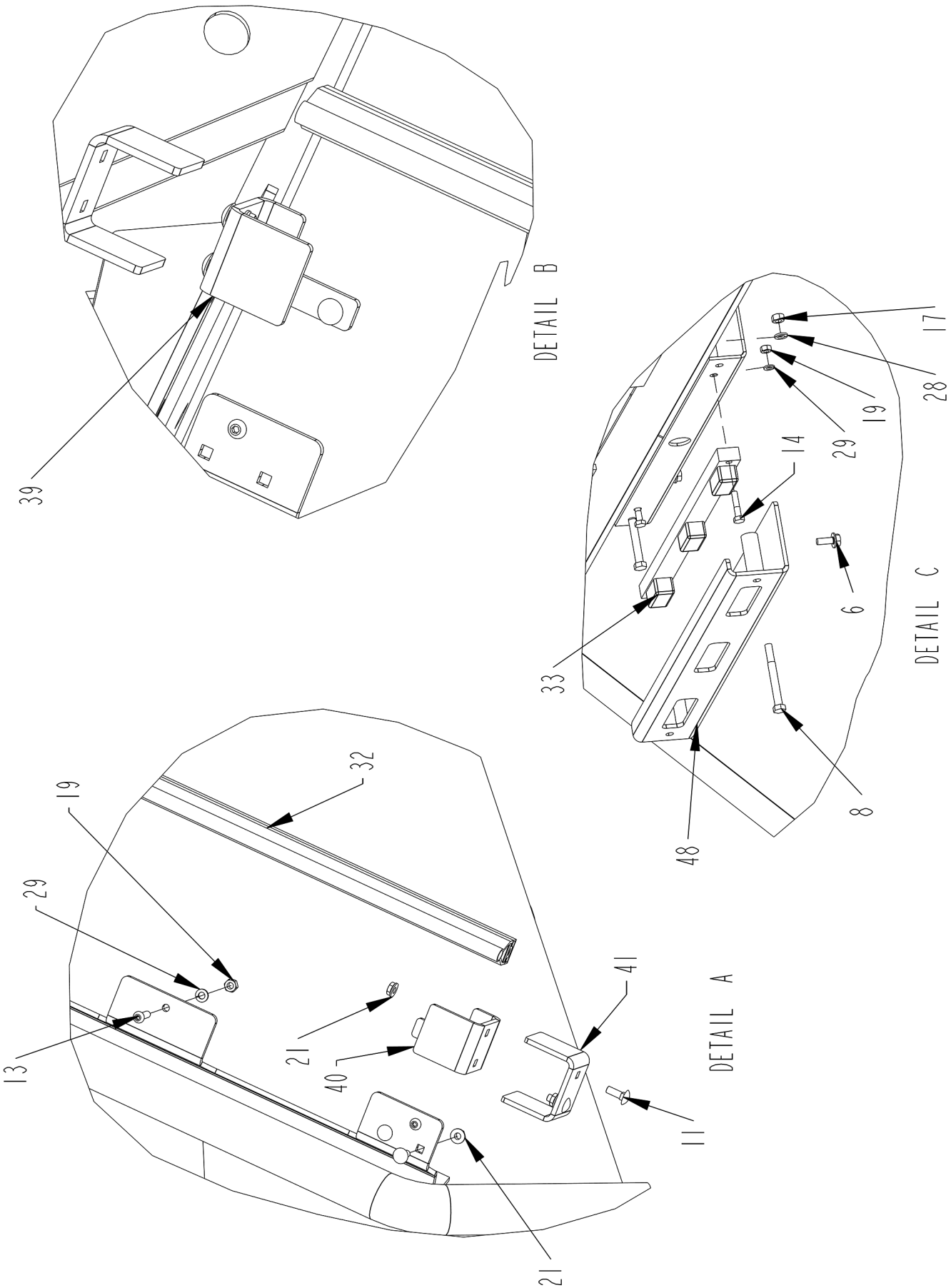
INFEED ASSEMBLY VIEW 1



INFEED ASSEMBLY VIEW 1

ITEM	PART	QTY.	PART DESCRIPTION
1	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER
2	4800017	2	BOLT\HEX\3/4X3
3	4800018	4	BOLT\HEX\1/2X1-1/4
4	4800024	8	BOLT\HEX\1/4X3/4
5	4800098	4	BOLT\HEX\3/8X1-1/4\NC
6	4800113	2	SCR\FLNG\SERR\5/16X3/4\TP
7	4800115	4	BOLT\HEX\3/4X2-1/2
8	4800182	2	BOLT\HEX\5/16X3
9	4800201	6	BOLT\CRG\1/2X1-3/4\NC\GR5
10	4800224	2	BOLT\HEX\3/4X5
11	4800291	16	BOLT\CRG\1/4X3/4\NC
12	4800365	3	PIN\LYNCH\3/8X1-1/2\W/U WIRE;KEEPER
13	4800404	8	SCR\BUT\ALN\1/4X1\NC
14	4800602	2	BOLT\HEX\1/4X1-1/4\NC
15	4801199	3	BOLT\HEX\5/8X1-1/4\GR8
16	4900001	3	NUT\HEX\1/2\NC
17	4900003	2	NUT\HEX\5/16\NC
18	4900004	2	NUT\HEX\3/4\NC
19	4900009	16	NUT\HEX\1/4\NC
20	4900014	6	NUT\TPLCK\1/2\NC
21	4900040	16	NUT\FLG\SERR\1/4\NC
22	4900046	8	NUT\JAM\1/2\NC
23	5000001	4	WASH\FLAT\3/8
24	5000003	3	WASH\LOCK\5/8
25	5000006	7	WASH\LOCK\1/2
26	5000012	8	WASH\LOCK\3/4
27	5000019	4	WASH\LOCK\3/8
28	5000022	2	WASH\LOCK\5/16
29	5000024	20	WASH\LOCK\1/4
30	5000035	4	WASH\FLAT\1/4
31	5000113	6	WASH\FLAT\1/2\EXTRTHK\GR8
32	5700722	2	SNSR\IR\T/RSET\ASSY
33	5701009	1	LIGHTBAR\MINI\1073R
34	6300032	1	PIN\LATCH\HSG\ACCESS
35	6300036	1	ACCESS\HSG\DISC
36	6300062	1	SHIM\1/4\BRG\FEED
37	6300092	1	RAMP\SPOUT\INFEED
38	6300125	1	COVER\CLEANOUT\HSG\DISC\ASSY
39	6300158	2	SHLD\LEFT\LIGHTBAR
40	6300159	2	SHLD\RIGHT\LIGHTBAR
41	6300160	4	SHLD\EXT\LIGHTBAR
42	6300168	1	HSG\DISC\WELD
43	6300172	1	MNT\ANVIL
44	6300175	1	ANVIL\CHIPPER
45	6300177	1	GUIDE\ANVIL
46	6300178	1	COVER\FEED\HSG
47	6300179	1	MNT\VLV\TC15
48	6300196	1	DEFLECTOR/LIGHTBAR

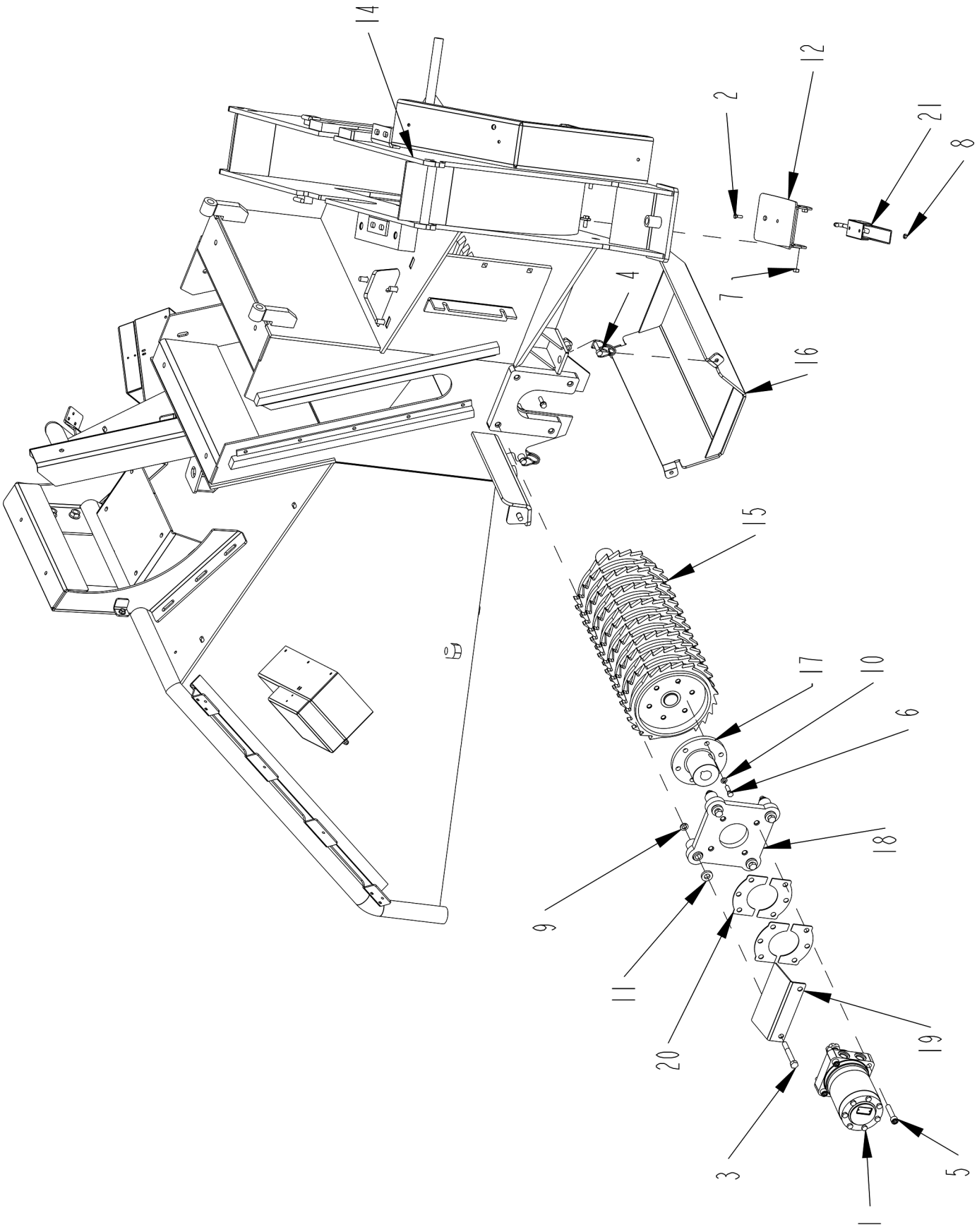
INFEED ASSEMBLY VIEW 1 - DETAILS A,B, & C



INFEED ASSEMBLY VIEW 1 - DETAILS A,B, & C

ITEM	PART	QTY.	PART DESCRIPTION
1	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER
2	4800017	2	BOLT\HEX\3/4X3
3	4800018	4	BOLT\HEX\1/2X1-1/4
4	4800024	8	BOLT\HEX\1/4X3/4
5	4800098	4	BOLT\HEX\3/8X1-1/4\NC
6	4800113	2	SCR\FLNG\SERR\5/16X3/4\TP
7	4800115	4	BOLT\HEX\3/4X2-1/2
8	4800182	2	BOLT\HEX\5/16X3
9	4800201	6	BOLT\CRG\1/2X1-3/4\NC\GR5
10	4800224	2	BOLT\HEX\3/4X5
11	4800291	16	BOLT\CRG\1/4X3/4\NC
12	4800365	3	PIN\LYNCH\3/8X1-1/2\W/U WIRE;KEEPER
13	4800404	8	SCR\BUT\ALN\1/4X1\NC
14	4800602	2	BOLT\HEX\1/4X1-1/4\NC
15	4801199	3	BOLT\HEX\5/8X1-1/4\GR8
16	4900001	3	NUT\HEX\1/2\NC
17	4900003	2	NUT\HEX\5/16\NC
18	4900004	2	NUT\HEX\3/4\NC
19	4900009	16	NUT\HEX\1/4\NC
20	4900014	6	NUT\TPLCK\1/2\NC
21	4900040	16	NUT\FLG\SERR\1/4\NC
22	4900046	8	NUT\JAM\1/2\NC
23	5000001	4	WASH\FLAT\3/8
24	5000003	3	WASH\LOCK\5/8
25	5000006	7	WASH\LOCK\1/2
26	5000012	8	WASH\LOCK\3/4
27	5000019	4	WASH\LOCK\3/8
28	5000022	2	WASH\LOCK\5/16
29	5000024	20	WASH\LOCK\1/4
30	5000035	4	WASH\FLAT\1/4
31	5000113	6	WASH\FLAT\1/2\EXTRTHK\GR8
32	5700722	2	SNSR\IR\T/RSET\ASSY
33	5701009	1	LIGHTBAR\MINI\1073R
34	6300032	1	PIN\LATCH\HSG\ACCESS
35	6300036	1	ACCESS\HSG\DISC
36	6300062	1	SHIM\1/4\BRG\FEED
37	6300092	1	RAMP\SPOUT\INFEED
38	6300125	1	COVER\CLEANOUT\HSG\DISC\ASSY
39	6300158	2	SHLD\LEFT\LIGHTBAR
40	6300159	2	SHLD\RIGHT\LIGHTBAR
41	6300160	4	SHLD\EXT\LIGHTBAR
42	6300168	1	HSG\DISC\WELD
43	6300172	1	MNT\ANVIL
44	6300175	1	ANVIL\CHIPPER
45	6300177	1	GUIDE\ANVIL
46	6300178	1	COVER\FEED\HSG
47	6300179	1	MNT\VLV\TC15
48	6300196	1	DEFLECTOR/LIGHTBAR

INFEED ASSEMBLY VIEW 2 (FOR S.N. UP TO 0010)



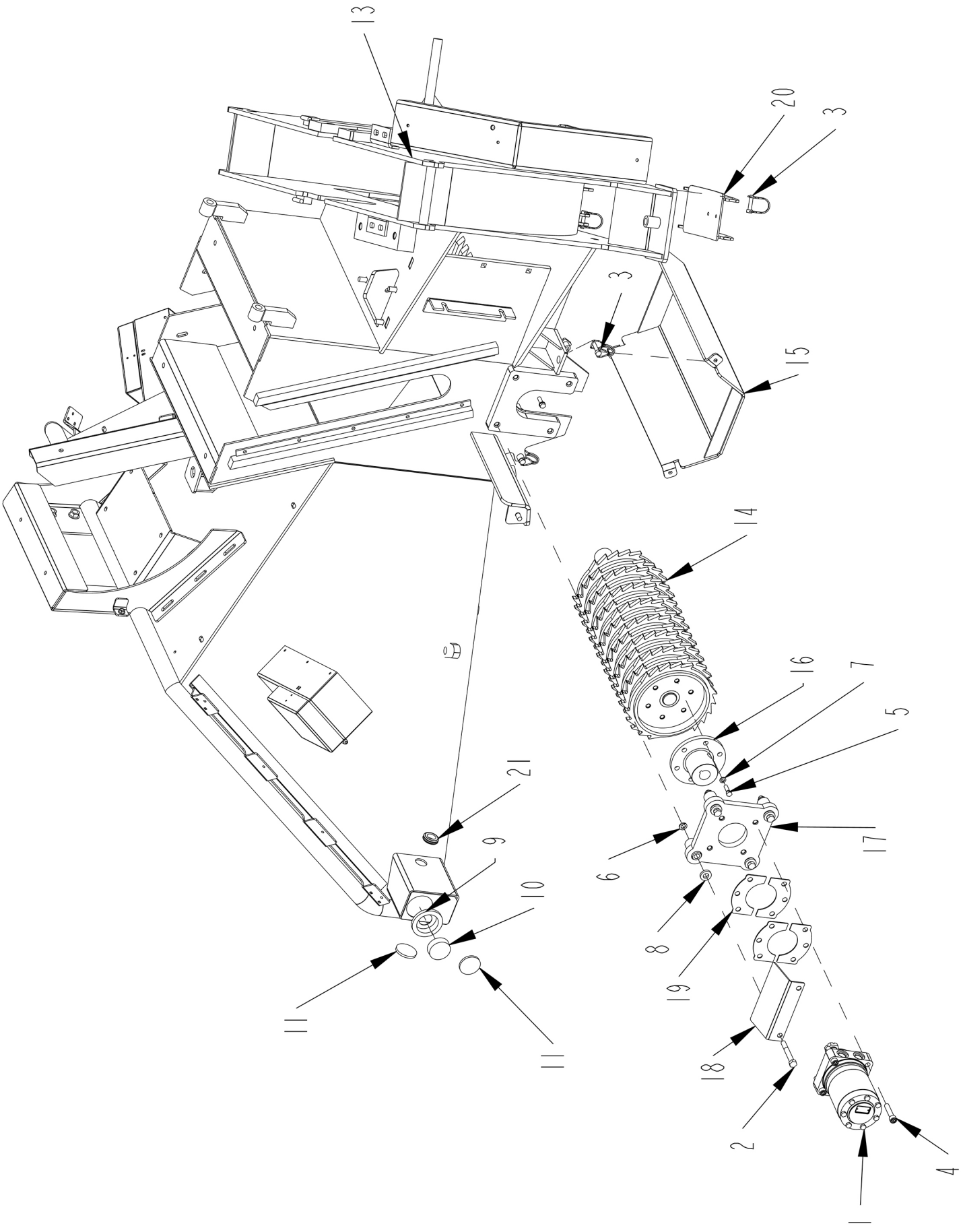
INFEED ASSEMBLY VIEW 2 (FOR S.N. UP TO 0010)

ITEM	PART	QTY.	PART DESCRIPTION
1	3900047	1	MTR\HYD\39.6CI\DELTA\TAPERED
2	4800024	2	BOLT\HEX\1/4X3/4
3	4800231	4	BOLT\HEX\1/2X3-3/4
4	4800365	4	PIN\LYNCH\3/8X1-1/2\W/U WIRE;KEEPER
5	4800449	4	SCR\CAP\ALN\1/2X2-1/2\NC
6	4800486	6	BOLT\HEX\3/8X1-1/4\GR8\NC
7	4900030	2	NUT\NYLCK\3/8\NC
8	4900084	2	NUT\TPLCK\1/4\NC
9	5000006	4	WASH\LOCK\1/2
10	5000019	6	WASH\LOCK\3/8
11	5000114	4	WASH\FLAT\5/8\EXTRTHK\GR8
12	6300125	1	COVER\CLEANOUT\HSG\DISC\ASSY
13	6300140	1	DEFL\SPOUT\DISCH\ASSY
14	6300168	1	HSG\DISC\WELD
15	6300174	1	RLLR\FEED\WELD\BTTM
16	6300176	1	DOOR\BTTM\ACCESS
17	6300219	1	COUPLER\ROLLER\FEED
18	6300220	1	MNT\MTR\FEED\BTTM
19	6300221	1	COVER\BRG\FEED
20	6300223	4	SHIM\MTR\WHL
21	7501045	1	LATCH\ADJ\OTC\4” GRIP

NOT SHOWN

3900056		SEAL\KIT\MTR\3900047
4900188		NUT\SLOT\1”-20 UNEF-2B
6200095		KEY\SQ\5/16”X1”\HARDENED

INFEED ASSEMBLY VIEW 2 (FOR S.N. 0011 AND UP)



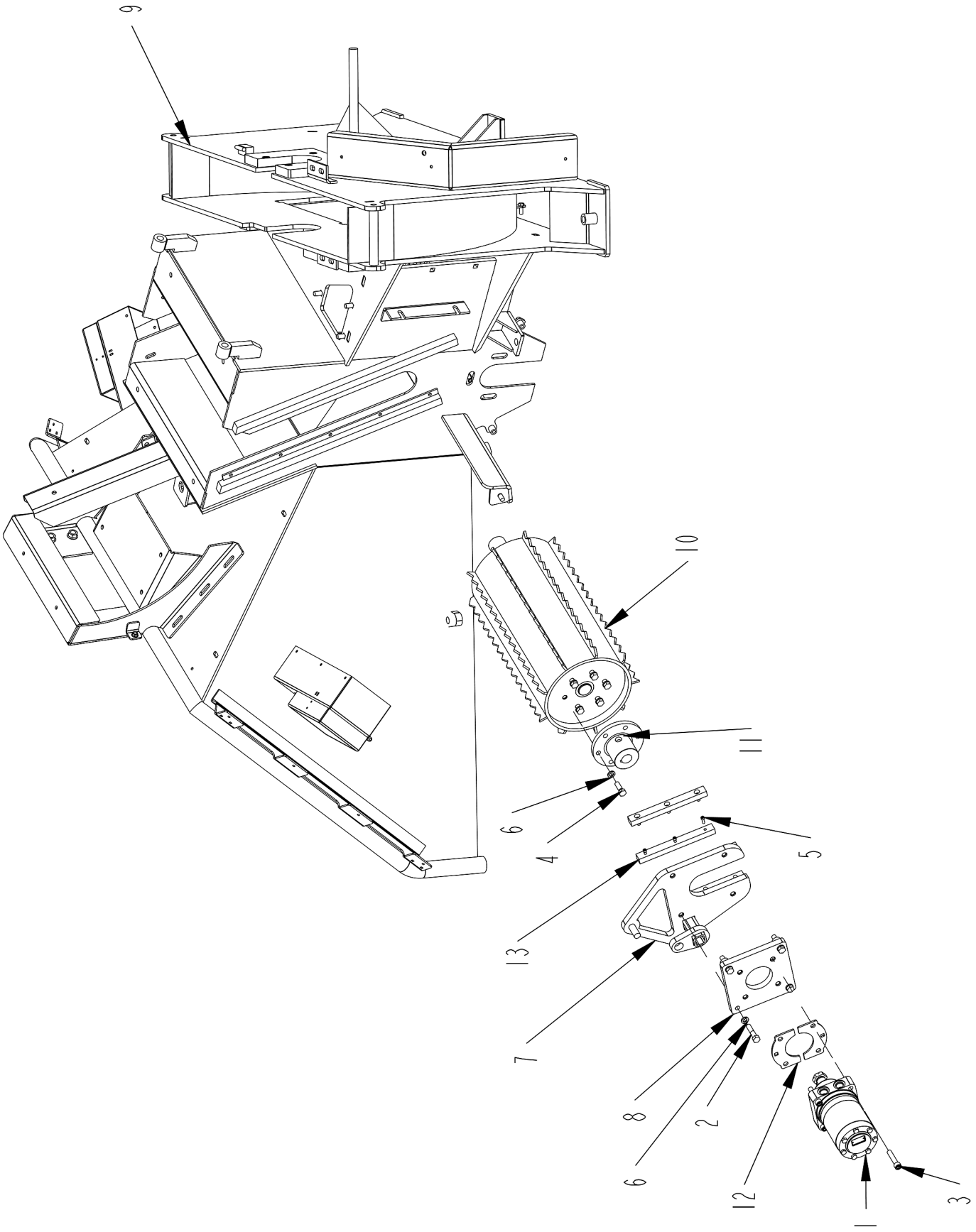
INFEED ASSEMBLY VIEW 2 (FOR S.N. 0011 AND UP)

ITEM	PART	QTY.	PART DESCRIPTION
1	3900047	1	MTR\HYD\39.6CI\DELTA\TAPERED
2	4800231	4	BOLT\HEX\1/2X3-3/4
3	4800365	8	PIN\LNCH\3/8X1-1/2\W/KEEPER
4	4800449	4	SCR\CAP\ALN\1/2X2-1/2\NC
5	4800486	6	BOLT\HEX\3/8X1-1/4\GR8\NC
6	5000006	4	WASH\LOCK\1/2
7	5000019	6	WASH\LOCK\3/8
8	5000114	4	WASH\FLAT\5/8\EXTRTHK\GR8
9	5700202	2	LAMP\GRMMT\2-1/2KIT\W/PLUG
10	5700861	2	LAMP\CL\12VDC\2-1/2ROUND\RED\SEALED
11	5701155	4	REFL\RD\2.375”\RED\ADHESIVE
12	6300140	1	DEFL\SPOUT\DISCH\ASSY
13	6300168	1	HSG\DISC\WELD
14	6300174	1	RLLR\FEED\WELD\BTTM
15	6300176	1	DOOR\BTTM\ACCESS
16	6300219	1	COUPLER\ROLLER\FEED
17	6300220	1	MNT\MTR\FEED\BTTM
18	6300221	1	COVER\BRG\FEED
19	6300223	4	SHIM\MTR\WHL
20	6300232	1	COVER\CLEANOUT\HSG\DISC
21	7501523	2	GRMT\RBBR\1-3/8X1IDX1/8T

NOT SHOWN

3900056		SEAL\KIT\MTR\3900047
4900188		NUT\SLOT\1”-20 UNEF-2B
6200095		KEY\SQ\5/16”X1”\HARDENED

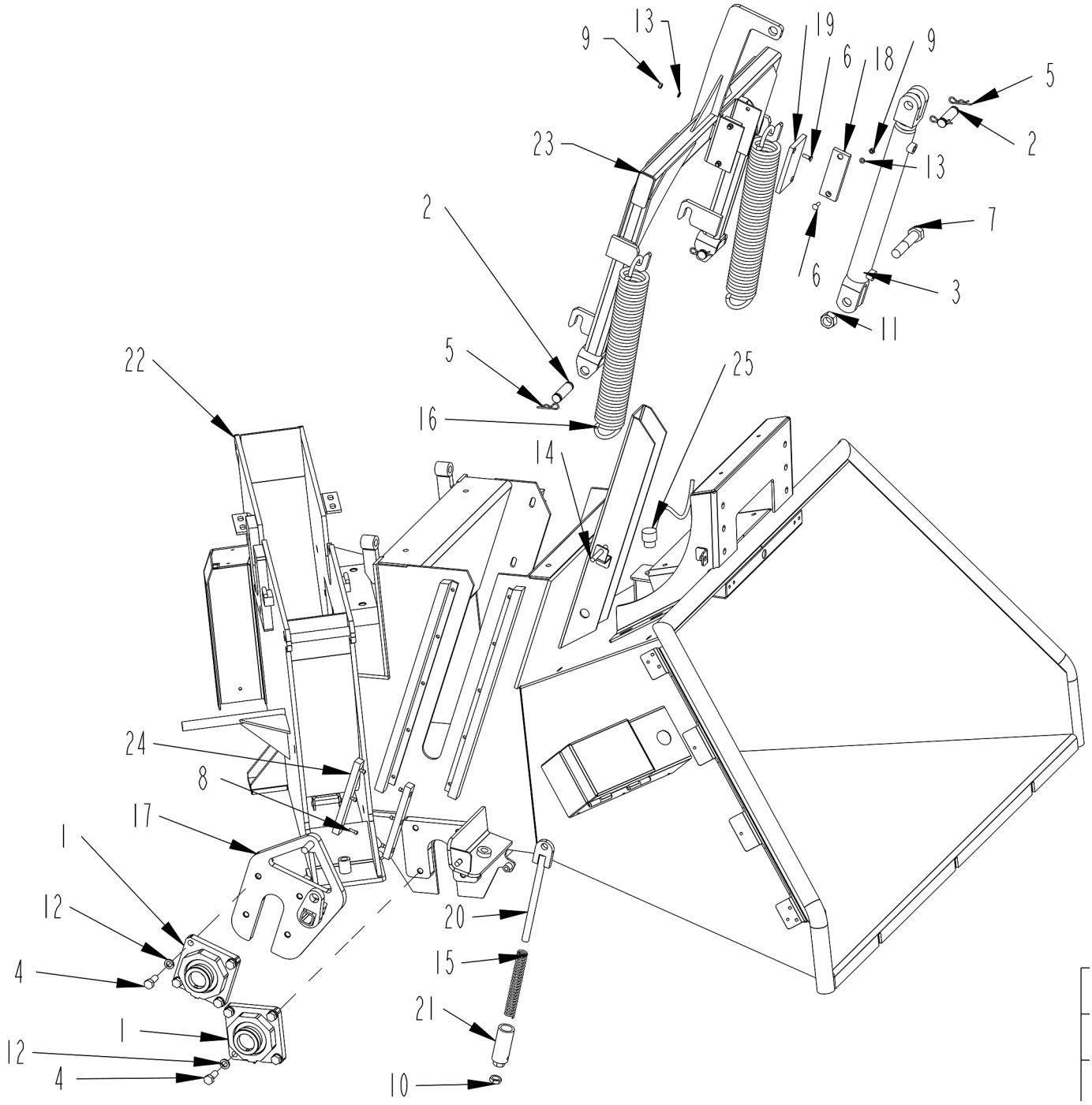
INFEED ASSEMBLY VIEW 3



INFEED ASSEMBLY VIEW 3

ITEM	PART	QTY.	PART DESCRIPTION
1	3900047	1	MTR\HYD\39.6CI\DELTA\TAPERED
2	4800251	4	BOLT\HEX\1/2X2-1/4\NC
3	4800449	4	SCR\CAP\ALN\1/2X2-1/2\NC
4	4800634	6	BOLT\HEX\1/2X1-1/2\GR8\NC
5	4800662	6	SCR\CAP\ALN\1/4X3/4\NC
6	5000006	10	WASH\LOCK\1/2
7	6300014	1	ARM\R\ROCKER\RLLR\FEED
8	6300102	1	MNT\MTR\FEED\SLIDE
9	6300168	1	HSG\DISC\WELD
10	6300218	1	RLLR\FEED\WELD
11	6300219	1	COUPLER\ROLLER\FEED
12	6300222	2	SHIM\MTR\WHL
13	7501351	2	PAD\WEAR\NY\9-1/2X1X3/4
NOT SHOWN			
	3900056		SEAL\KIT\MTR\3900047
	4900188		NUT\SLOT\1”-20 UNEF-2B
	6200095		KEY\SQ\5/16”X1”\HARDENED

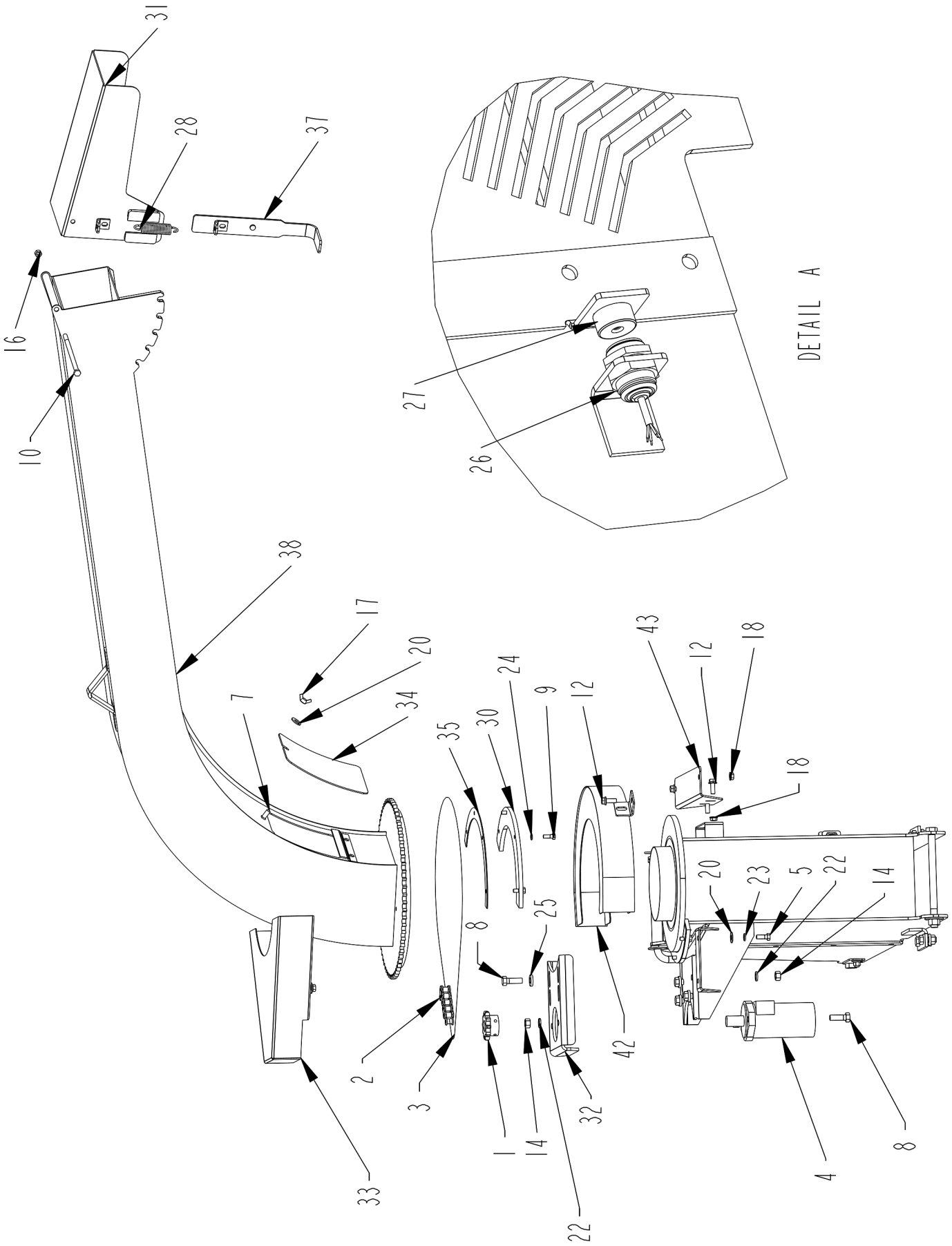
INFEED ASSEMBLY VIEW 4



INFEED ASSEMBLY VIEW 4

ITEM	PART	QTY.	PART DESCRIPTION
1	2000337	2	BRG\FLG\CAST\4BOLT\2”
2	4100030	3	PIN 1” X 3-1/2” HYD. CYL.
3	4100284	1	CYL\HYD\2X16\1-1/4RD\WELDE
4	4800106	8	BOLT\HEX\5/8X1-1/2
5	4800107	6	PIN\HAIR\1/8(#9)
6	4800166	6	SCR\CSK\ALN\5/16X1\NC
7	4800546	1	BOLT\HEX\1X5\NC
8	4800662	12	SCR\CAP\ALN\1/4X3/4\NC
9	4900003	6	NUT\HEX\5/16\NC
10	4900104	2	NUT\JAM\3/4\NC
11	4900127	1	NUT\TPLCK\1\NC
12	5000003	8	WASH\LOCK\5/8
13	5000022	6	WASH\LOCK\5/16
14	5700680	1	SNSR\MAG
15	6100024	2	SPG\COMP\1.125OD\.152WD\8”LONG
16	6100093	2	SPG\EXT\3.281DIAX.406 WIRE\22.25FREE LENGTH
17	6300011	1	ARM\L\ROCKER\RLLR\FEED
18	6300030	2	PAD\FRICTION\LIFT\RLLR
19	6300031	1	PAD\FRICTION\LIFT\FEED\RLLR
20	6300058	2	LNK\SPRG\CHPPR
21	6300094	2	RETAINER\SPG\TNSN\FEED\ROLL
22	6300168	1	HSG\DISC\WELD
23	6300180	1	LIFT\FEED\RLLR
24	7501351	4	PAD\WEAR\NY\9-1/2X1X3/4
25	7501356	1	SENSOR\ULTRASONIC\UGAGE_T_30

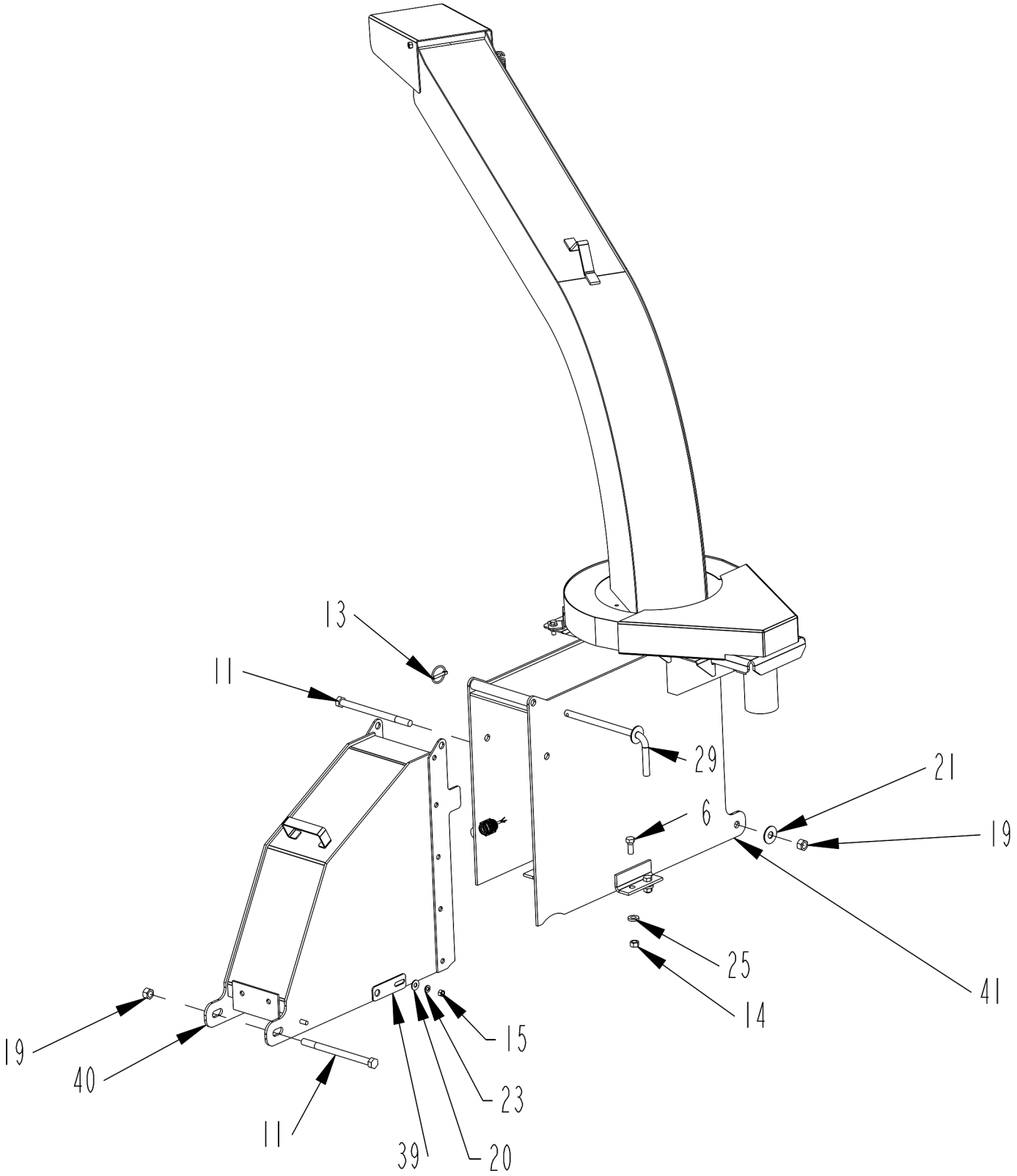
DISCHARGE ASSEMBLY VIEW 1



DISCHARGE ASSEMBLY VIEW 1

ITEM	PART	QTY.	PART DESCRIPTION
1	1000215	1	SPKT\60\B\10\1
2	1100062	1	CHAIN\60\CL
3	1100266	1	CHAIN\60 PITCH\81 LINK
4	3900032	1	MOTOR\HYD\22.6\H
5	4800003	4	BOLT\HEX\3/8X1
6	4800018	4	BOLT\HEX\1/2X1-1/4
7	4800053	1	BOLT\CRG\3/8X1\NC
8	4800082	6	BOLT\HEX\1/2X1-1/2
9	4800147	8	BOLT\HEX\5/16X7/8
10	4800222	1	BOLT\HEX\3/8X8
11	4800576	2	BOLT\HEX\5/8X9
12	4800913	4	BOLT\FLG\SERR\3/8X1\NC
13	4801236	1	PIN\LYNCH\1/4X1-9/16\ZN_PLT
14	4900001	10	NUT\HEX\1/2\NC
15	4900002	2	NUT\HEX\3/8\NC
16	4900030	1	NUT\NYLCK\3/8\NC
17	4900032	1	NUT\WING\3/8\NC
18	4900076	8	NUT\FLG\SERR\3/8\NC
19	4900141	2	NUT\TPLCK\5/8\GR8\NC
20	5000001	7	WASH\FLAT\3/8
21	5000002	2	WASH\FLAT\5/8
22	5000006	6	WASH\LOCK\1/2
23	5000019	6	WASH\LOCK\3/8
24	5000022	8	WASH\LOCK\5/16
25	5000113	8	WASH\FLAT\1/2\EXTRTHK\GR8
26	5700724	1	SW\MAG\CODED\1M_CABLE
27	5700730	1	ACTUATOR\CODED\MAGNET
28	6100010	1	SPRING\EXT\.55W X 1/2O.D. X 3
29	6300032	1	PIN\LATCH\HSG\ACCESS
30	6300033	2	CLAMP\SPOUT\DISCH
31	6300035	1	DEFL\SPOT\DISCH
32	6300044	1	PL\BRKT\MTR\CHUTE\ROT
33	6300050	1	SHLD\CHAIN\SPOUT
34	6300115	1	COVER\CLEANOUT\SPOUT
35	6300124	2	SHIM\CLAMP\SPOUT
36	6300125	1	COVER\CLEANOUT\HSG\DISC\ASSY
37	6300139	1	LATCH\DEFL\SPOUT
38	6300157	1	SPOUT\DISCH\CHIPPER
39	6300163	2	PL\ADJ\HINGE\HSG\ACCESS
40	6300170	1	HSG\ACCESS\CHIPPER
41	6300171	1	HSG\DISCH\CHIPPER
42	6300210	1	SHIELD\CHAIN\SPOUT\TC15
43	6300211	1	BRKT\SHIELD\CHAIN\SPOUT

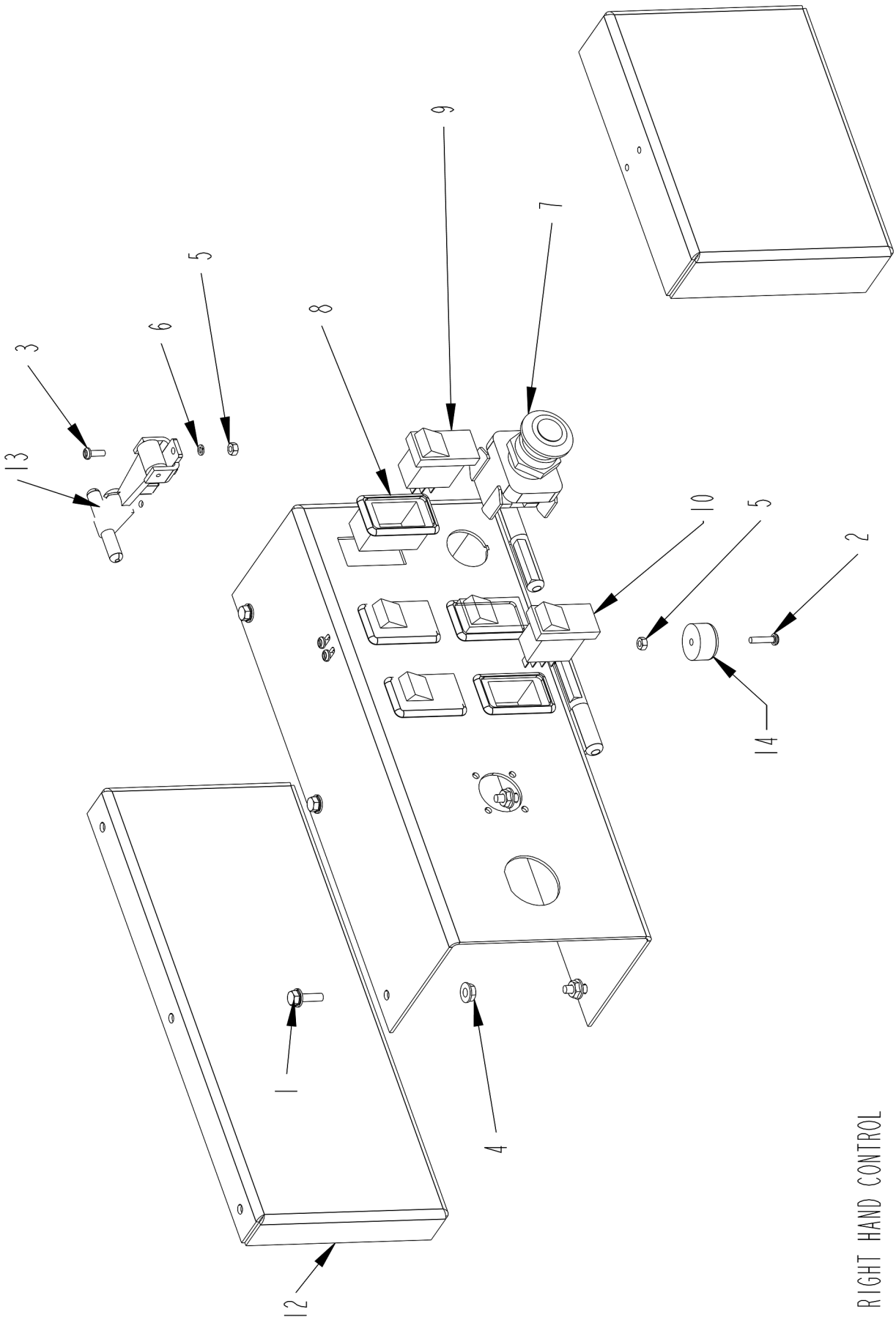
DISCHARGE ASSEMBLY VIEW 2



DISCHARGE ASSEMBLY VIEW 2

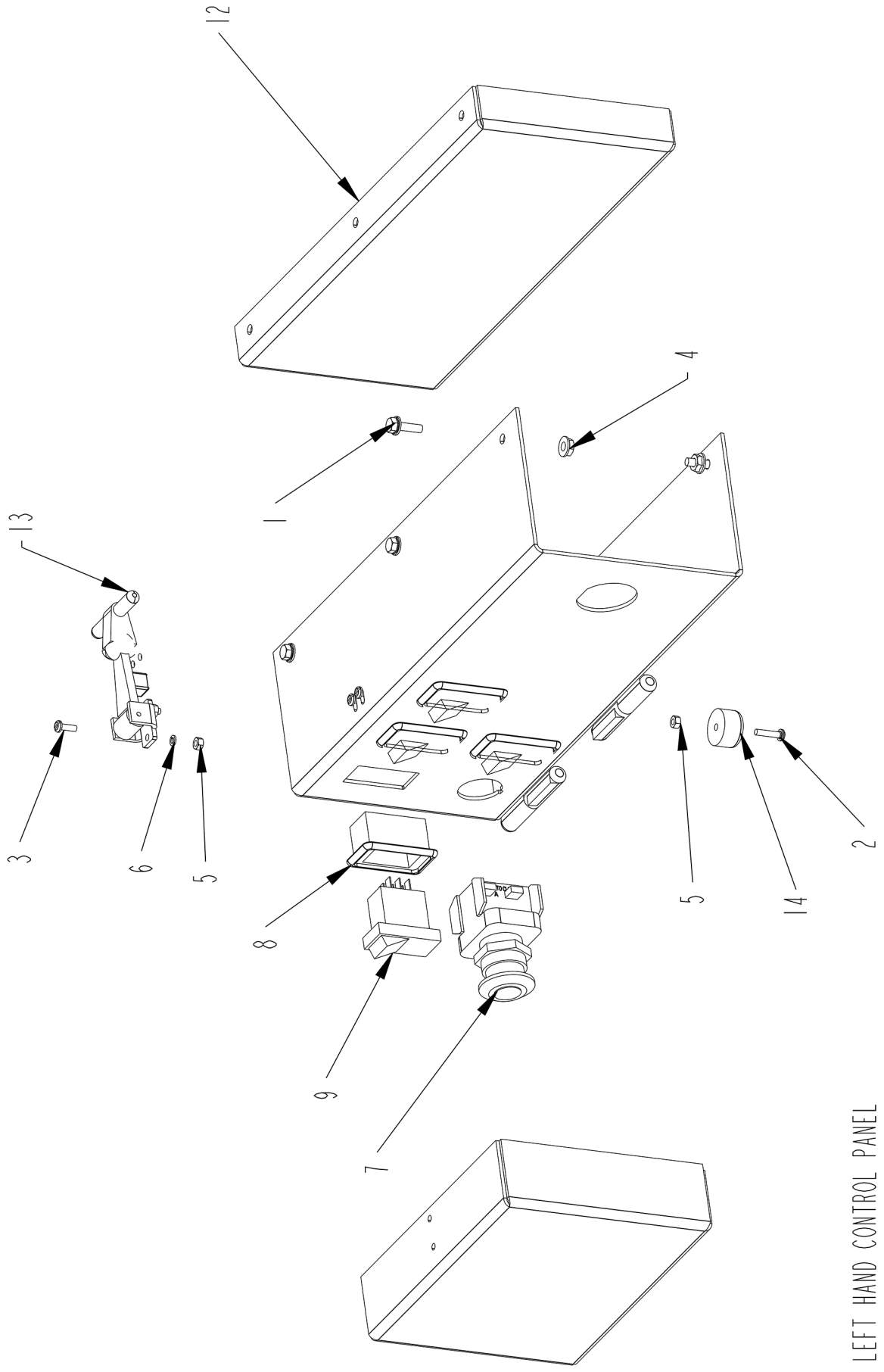
ITEM	PART	QTY.	PART DESCRIPTION
1	1000215	1	SPKT\60\B\10\1
2	1100062	1	CHAIN\60\CL
3	1100266	1	CHAIN\60 PITCH\81 LINK
4	3900032	1	MOTOR\HYD\22.6\H
5	4800003	4	BOLT\HEX\3/8X1
6	4800018	4	BOLT\HEX\1/2X1-1/4
7	4800053	1	BOLT\CRG\3/8X1\NC
8	4800082	6	BOLT\HEX\1/2X1-1/2
9	4800147	8	BOLT\HEX\5/16X7/8
10	4800222	1	BOLT\HEX\3/8X8
11	4800576	2	BOLT\HEX\5/8X9
12	4800913	4	BOLT\FLG\SERR\3/8X1\NC
13	4801236	1	PIN\LYNCH\1/4X1-9/16\ZN_PLT
14	4900001	10	NUT\HEX\1/2\NC
15	4900002	2	NUT\HEX\3/8\NC
16	4900030	1	NUT\NYLCK\3/8\NC
17	4900032	1	NUT\WING\3/8\NC
18	4900076	8	NUT\FLG\SERR\3/8\NC
19	4900141	2	NUT\TPLCK\5/8\GR8\NC
20	5000001	7	WASH\FLAT\3/8
21	5000002	2	WASH\FLAT\5/8
22	5000006	6	WASH\LOCK\1/2
23	5000019	6	WASH\LOCK\3/8
24	5000022	8	WASH\LOCK\5/16
25	5000113	8	WASH\FLAT\1/2\EXTRTHK\GR8
26	5700724	1	SW\MAG\CODED\1M_CABLE
27	5700730	1	ACTUATOR\CODED\MAGNET
28	6100010	1	SPRING\EXT\.55W X 1/2O.D. X 3
29	6300032	1	PIN\LATCH\HSG\ACCESS
30	6300033	2	CLAMP\SPOUT\DISCH
31	6300035	1	DEFL\SPOT\DISCH
32	6300044	1	PL\BRKT\MTR\CHUTE\ROT
33	6300050	1	SHLD\CHAIN\SPOUT
34	6300115	1	COVER\CLEANOUT\SPOUT
35	6300124	2	SHIM\CLAMP\SPOUT
36	6300125	1	COVER\CLEANOUT\HSG\DISC\ASSY
37	6300139	1	LATCH\DEFL\SPOUT
38	6300157	1	SPOUT\DISCH\CHIPPER
39	6300163	2	PL\ADJ\HINGE\HSG\ACCESS
40	6300170	1	HSG\ACCESS\CHIPPER
41	6300171	1	HSG\DISCH\CHIPPER
42	6300210	1	SHIELD\CHAIN\SPOUT\TC15
43	6300211	1	BRKT\SHIELD\CHAIN\SPOUT

RIGHT HAND CONTROL PANEL ASSEMBLY



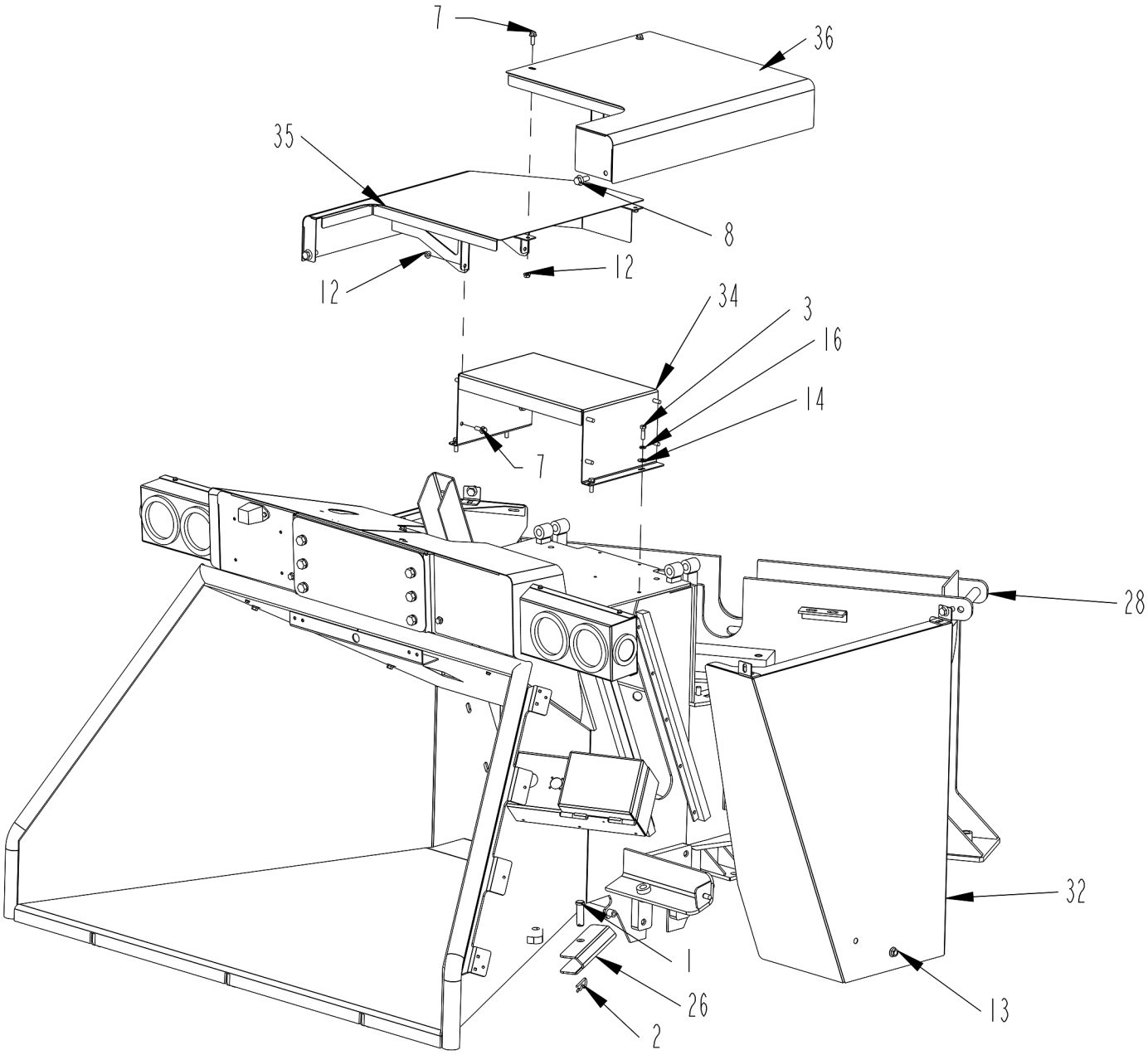
ITEM	PART	QTY.	PART DESCRIPTION
1	4800301	12	SCR\FLNG\SERR\1/4X3/4
2	4800463	2	SCR\RD\SLOT\#8X3/4\NC
3	4801225	8	SCR\RD\SLOT\#8-32X1/2\NC
4	4900040	12	NUT\FLG\SERR\1/4\NC
5	4900096	10	NUT\HEX\#8\NC
6	5000092	5	WASH\LOCK\#8
7	5700028	2	SWITCH\MAINT\PB\RED\MUSH
8	5700328	9	SWITCH\RCKR\MNT\PNL\SNGL
9	5700542	8	SWITCH\RCKR\DPDT\24VUNLIT\15A\MOMNTRY\W/RASED BRCKT
10	5700545	1	SWITCH\RCKR\DPST\24V\2LIT\15A\LATCH\W/RAISED BRACKET
11	5700722	2	SNSR\IR\T/RSET\ASSY
12	6300105	2	BACK\PANEL\CNTRL
13	7500606	2	LATCH\35-M\AUSTIN
14	7500756	2	BMPR\RBBR\1-1/32X5/8
	6300190		**PANEL\CNTRL\SUB-WELD\LEFT**
	6300191		**PANEL\CNTRL\SUB-WELD\RIGHT**

LEFT HAND CONTROL PANEL ASSEMBLY



ITEM	PART	QTY.	PART DESCRIPTION
1	4800301	12	SCR\FLNG\SERR\1/4X3/4
2	4800463	2	SCR\RD\SLOT\#8X3/4\NC
3	4801225	8	SCR\RD\SLOT\#8-32X1/2\NC
4	4900040	12	NUT\FLG\SERR\1/4\NC
5	4900096	10	NUT\HEX\#8\NC
6	5000092	5	WASH\LOCK\#8
7	5700028	2	SWITCH\MAINT\PB\RED\MUSH
8	5700328	9	SWITCH\RCKR\MNT\PNL\SNGL
9	5700542	8	SWITCH\RCKR\DPDT\24VUNLIT\15A\MOMNTRY\W/RASED BRCKT
10	5700545	1	SWITCH\RCKR\DPST\24V\2LIT\15A\LATCH\W/RAISED BRACKET
11	5700722	2	SNSR\IR\T/RSET\ASSY
12	6300105	2	BACK\PANEL\CNTRL
13	7500606	2	LATCH\35-M\AUSTIN
14	7500756	2	BMPR\RBBR\1-1/32X5/8
	6300190		**PANEL\CNTRL\SUB-WELD\LEFT**
	6300191		**PANEL\CNTRL\SUB-WELD\RIGHT**

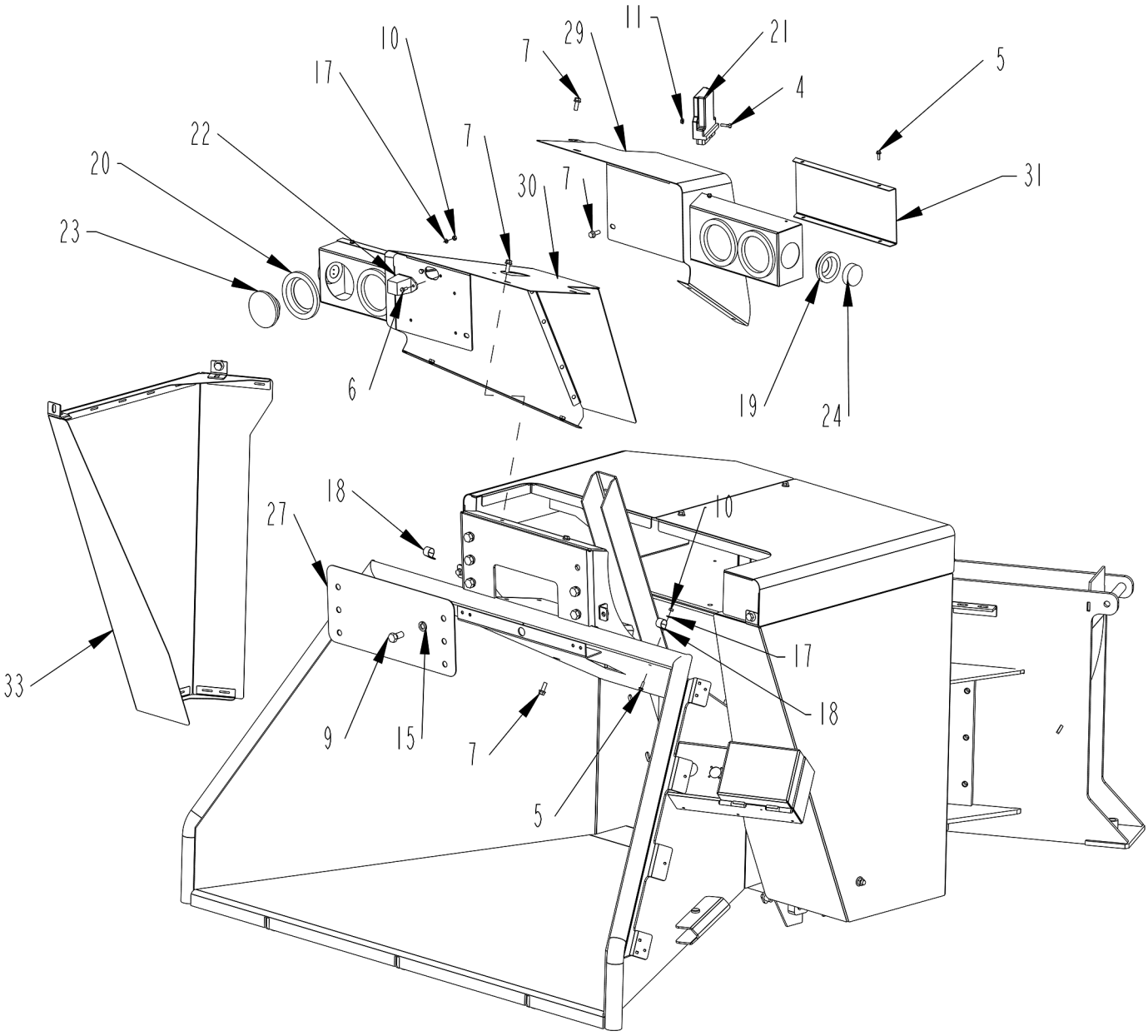
SHROUD ASSEMBLY VIEW 1



SHROUD ASSEMBLY VIEW 1

ITEM	PART	QTY.	PART DESCRIPTION
1	4800045	1	PIN\CLEVIS\3/4X2-1/2
2	4800056	1	PIN\HAIR\3/16(#3)
3	4800098	4	BOLT\HEX\3/8X1-1/4\NC
4	4800277	2	BOLT\HEX\1/4X1
5	4800301	10	SCR\FLNG\SERR\1/4X3/4
6	4800503	2	BOLT\HEX\1/4X5/8\NC
7	4800913	19	BOLT\FLG\SERR\3/8X1\NC
8	4800928	6	BOLT\FLG\SERR\1/2X1-1/4\NC
9	4801199	6	BOLT\HEX\5/8X1-1/4\GR8
10	4900009	4	NUT\HEX\1/4\NC
11	4900040	10	NUT\FLG\SERR\1/4\NC
12	4900076	23	NUT\FLG\SERR\3/8\NC
13	4900133	7	NUT\FLG\1/2\NC
14	5000001	4	WASH\FLAT\3/8
15	5000003	6	WASH\LOCK\5/8
16	5000019	4	WASH\LOCK\3/8
17	5000024	4	WASH\LOCK\1/4
18	5700090	2	CLAMP\CUSH\HD\#16\1”
19	5700202	2	LAMP\GRMMT\2-1/2KIT\W/PLUG
20	5700539	4	LAMP\GRMMT\4-1/2
21	5700723	1	PLC\DVC710
22	5700818	1	LAMP\LIC\KIT
23	5700860	4	LAMP\TAIL\12VDC\4-1/2RD
24	5700861	2	LAMP\CL\12VDC\2-1/2ROUND\RED\SEALED
25	6300125	1	COVER\CLEANOUT\HSG\DISC\ASSY
26	6300145	1	STOP\CYL\CHIPPER
27	6300153	1	COVER\WINCH\HOOD
28	6300168	1	HSG\DISC\WELD
29	6300184	1	HOOD\RH\TAIL\CHIPPER
30	6300185	1	HOOD\LH\TAIL\CHIPPER
31	6300195	2	COVER\LIGHT\TAIL\R
32	6300197	1	SHIELD\R\TC-15
33	6300199	1	SHIELD\L\TC15
34	6300207	1	BRKT\COVER\VLV
35	6300208	1	SHIELD\TOP\L
36	6300209	1	SHIELD\TOP\R

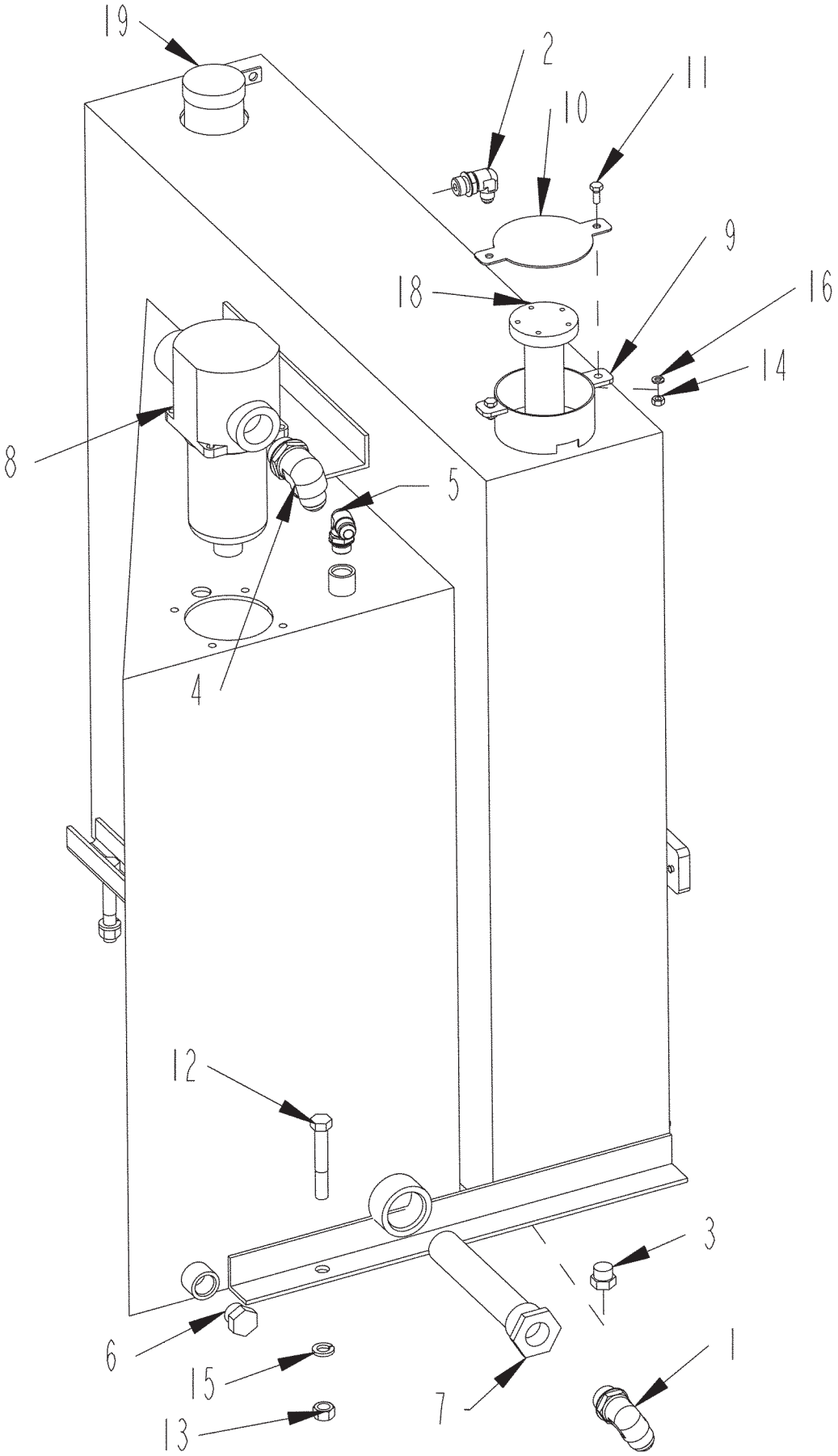
SHROUD ASSEMBLY VIEW 2



SHROUD ASSEMBLY VIEW 2

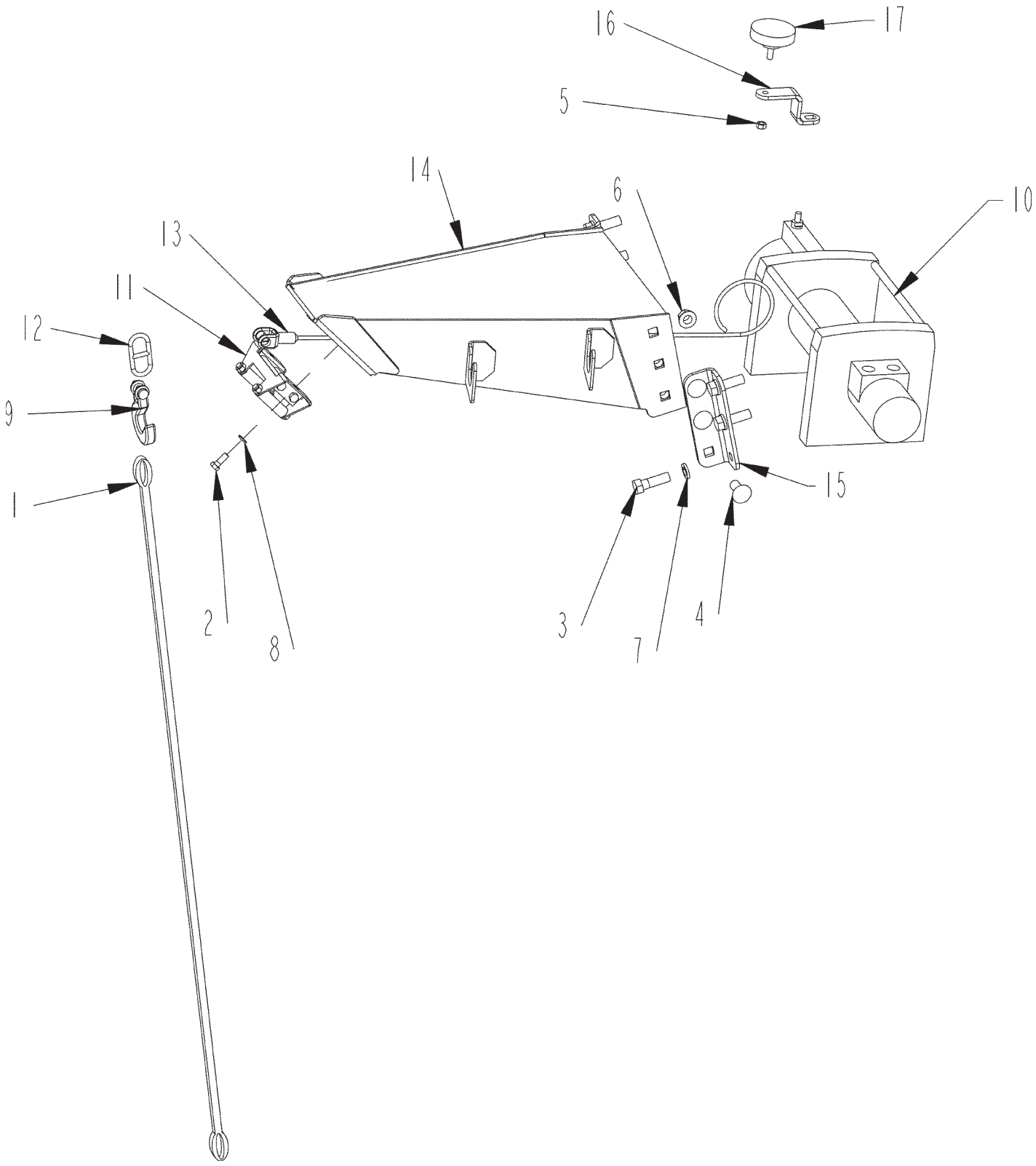
ITEM	PART	QTY.	PART DESCRIPTION
1	4800045	1	PIN\CLEVIS\3/4X2-1/2
2	4800056	1	PIN\HAIR\3/16(#3)
3	4800098	4	BOLT\HEX\3/8X1-1/4\NC
4	4800277	2	BOLT\HEX\1/4X1
5	4800301	10	SCR\FLNG\SERR\1/4X3/4
6	4800503	2	BOLT\HEX\1/4X5/8\NC
7	4800913	19	BOLT\FLG\SERR\3/8X1\NC
8	4800928	6	BOLT\FLG\SERR\1/2X1-1/4\NC
9	4801199	6	BOLT\HEX\5/8X1-1/4\GR8
10	4900009	4	NUT\HEX\1/4\NC
11	4900040	10	NUT\FLG\SERR\1/4\NC
12	4900076	23	NUT\FLG\SERR\3/8\NC
13	4900133	7	NUT\FLG\1/2\NC
14	5000001	4	WASH\FLAT\3/8
15	5000003	6	WASH\LOCK\5/8
16	5000019	4	WASH\LOCK\3/8
17	5000024	4	WASH\LOCK\1/4
18	5700090	2	CLAMP\CUSH\HD\#16\1”
19	5700202	2	LAMP\GRMMT\2-1/2KIT\W/PLUG
20	5700539	4	LAMP\GRMMT\4-1/2
21	5700723	1	PLC\DVC710
22	5700818	1	LAMP\LIC\KIT
23	5700860	4	LAMP\TAIL\12VDC\4-1/2RD
24	5700861	2	LAMP\CL\12VDC\2-1/2ROUND\RED\SEALED
25	6300125	1	COVER\CLEANOUT\HSG\DISC\ASSY
26	6300145	1	STOP\CYL\CHIPPER
27	6300153	1	COVER\WINCH\HOOD
28	6300168	1	HSG\DISC\WELD
29	6300184	1	HOOD\RH\TAIL\CHIPPER
30	6300185	1	HOOD\LH\TAIL\CHIPPER
31	6300195	2	COVER\LIGHT\TAIL\R
32	6300197	1	SHIELD\R\TC-15
33	6300199	1	SHIELD\L\TC15
34	6300207	1	BRKT\COVER\VLV
35	6300208	1	SHIELD\TOP\L
36	6300209	1	SHIELD\TOP\R

FUEL AND HYDRAULIC OIL TANK ASSEMBLY



ITEM	PART	QTY.	PART DESCRIPTION
1	3800279	1	FTG\1-1/16MORX1-1/16MJIC\90
2	3800453	1	FTG\3/4MORX9/16MJIC\90
3	3800490	1	FTG\3/4MOR\PLUG\HEX
4	3800534	1	FTG\1-5/16MORX1-1/16MJIC\90
5	3800537	1	FTG\3/4MORX3/4MJIC\90
6	3800847	1	FTG\7/8MOR\PLUG\HEX
7	4400111	1	FLTR\SCRN\1-5/8MORX1-1-16FOR\10GPM
8	4400112	1	FLTR\HYD\RET\15GPM\TTF
9	4704786	1	GUARD\SENSOR\TANK\FUEL
10	4704787	1	CVR\SENSOR\TANK\FUEL
11	4800503	2	BOLT\HEX\1/4X5/8\NC
12	4800592	3	BOLT\HEX\1/2X3-1/4
13	4900001	3	NUT\HEX\1/2\NC
14	4900009	2	NUT\HEX\1/4\NC
15	5000006	3	WASH\LOCK\1/2
16	5000024	2	WASH\LOCK\1/4
17	6300057	1	TANK\FUEL\WELD\CHPPR
18	7501475	1	GAUGE\FUEL\SEND\WEMA\32”\240-33OHMS
19	7501472	1	FUEL\CAP\DT-20
	6300225		**TANK\ASSY\TC15**
	NOT SHOW (WEAR PARTS)		
	4400127	1	FLTR\ELMT\OIL\MPFILTRI
	4400066	1	GAUGE\FLTR\25PSI\1/8NPTF\COLOR CODED
	4400148	1	FLTR\BRTHR\ASSY\10MIC\MPFILTRI
	7501511	1	SEAL\SENDER\FUEL

GATHERING WINCH ASSEMBLY (OPTION)



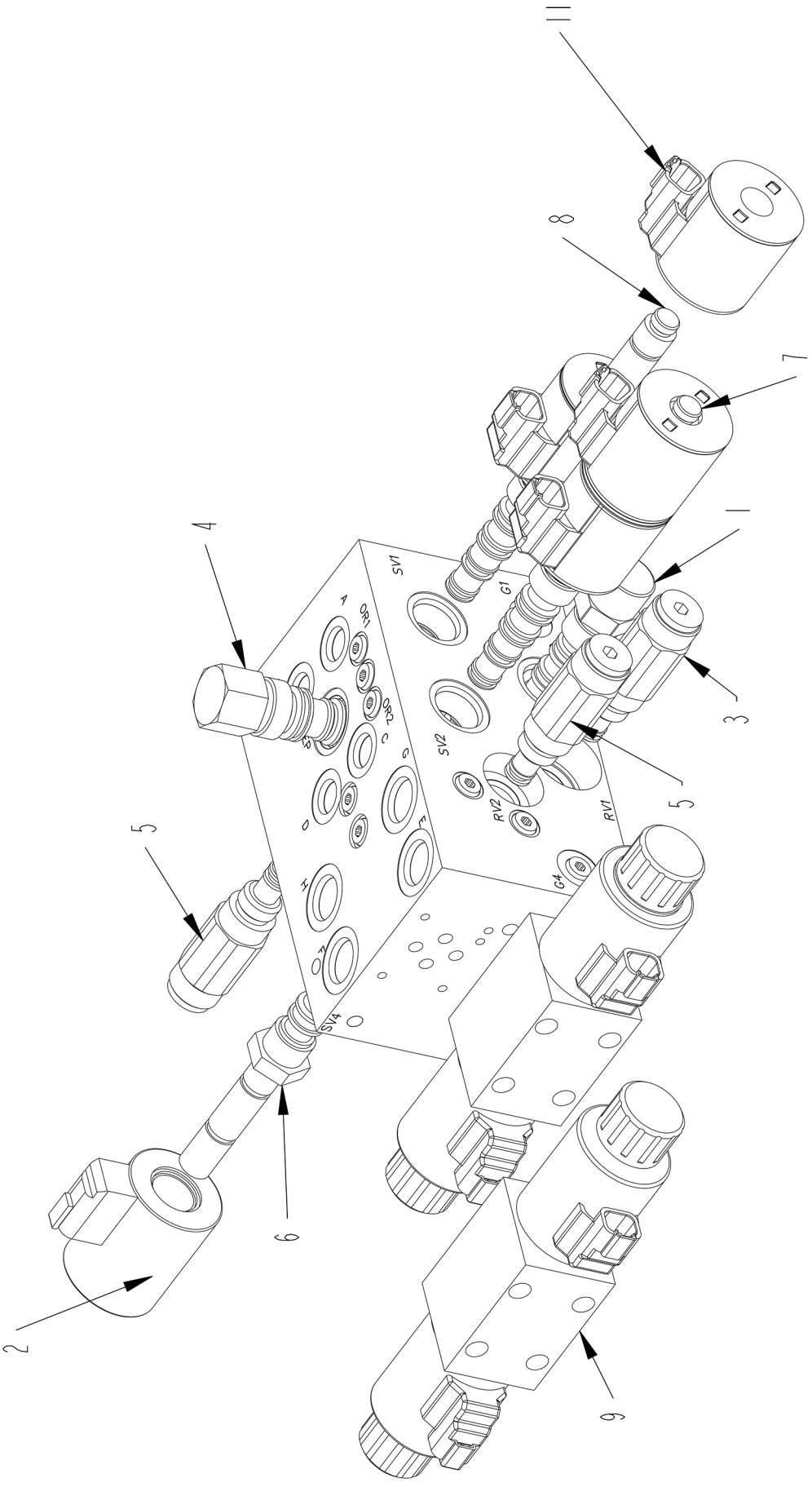
GATHERING WINCH ASSEMBLY (OPTION)

ITEM	PART	QTY.	PART DESCRIPTION
1	1100297	1	SLING\2EYE\2PLY\2" X 6'
2	4800003	2	BOLT\HEX\3/8X1
3	4800010	6	BOLT\HEX\5/8X2
4	4800482	6	BOLT\CRG\5/8X1-1/2\NC
5	4900023	1	NUT\TPLCK\3/8\NC
6	4900110	6	NUT\FLG\SERR\5/8\NC
7	5000003	6	WASH\LOCK\5/8
8	5000019	2	WASH\LOCK\3/8
9	5800032	1	HOOK\SLIP\5/16\GR70\LATCH
10	5800035	1	WINCH\HYD\9000#
11	5800036	1	FAIRLEAD\RLLR\ASSY
12	5800041	1	LOCK\HMMR\CHAIN\WINCH\9/32
13	5800331	1	CABLE\1/4\ASSY\CHIPPER
14	6300107	1	SUPPORT\CABLE\WINCH\WELD
15	6300110	2	BRKT\SUPPORT\CABLE\WINCH
16	6300127	1	LEVER\CLTCH\WINCH
17	7500891	1	KNOB\CLAMP\3/8NCx1"STUD
	6300147		OPTION\WINCH\TC-15

REMOTE RADIO (OPTION)

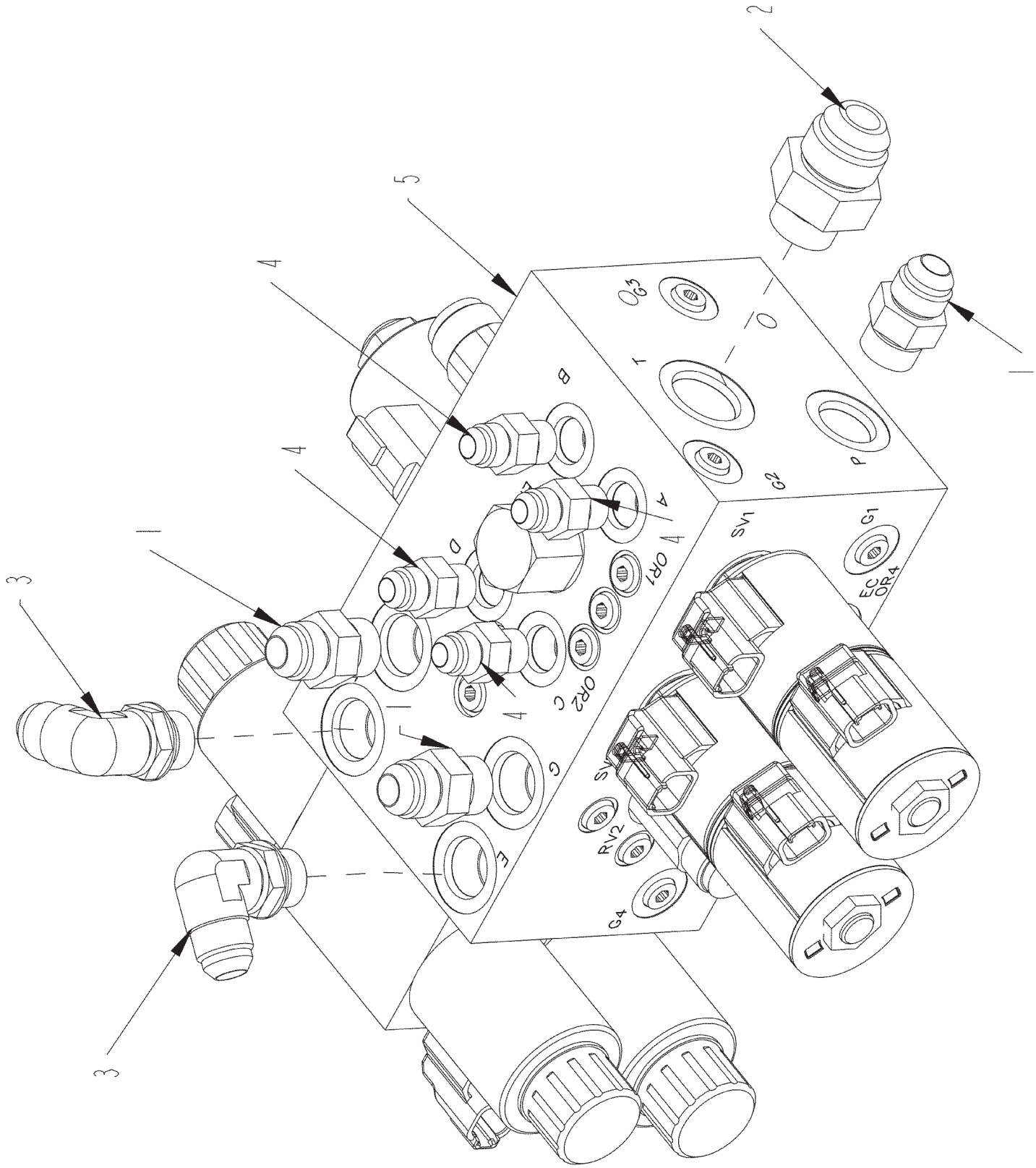
ITEM	PART	QTY.	PART DESCRIPTION
1	5701007	1	TRANSMITTER\RADIO\MINI\KARTECH
	5700954		**RADIO\MINI\KARTECH**
NOT SHOWN			
	5701006	1	RECEIVER\RADIO\MINI\KARTECH
	5701075	1	CHARGER\BATTERY\REMOTE\TRANSMITTER

4000403 MANIFOLD VALVE ASSEMBLY



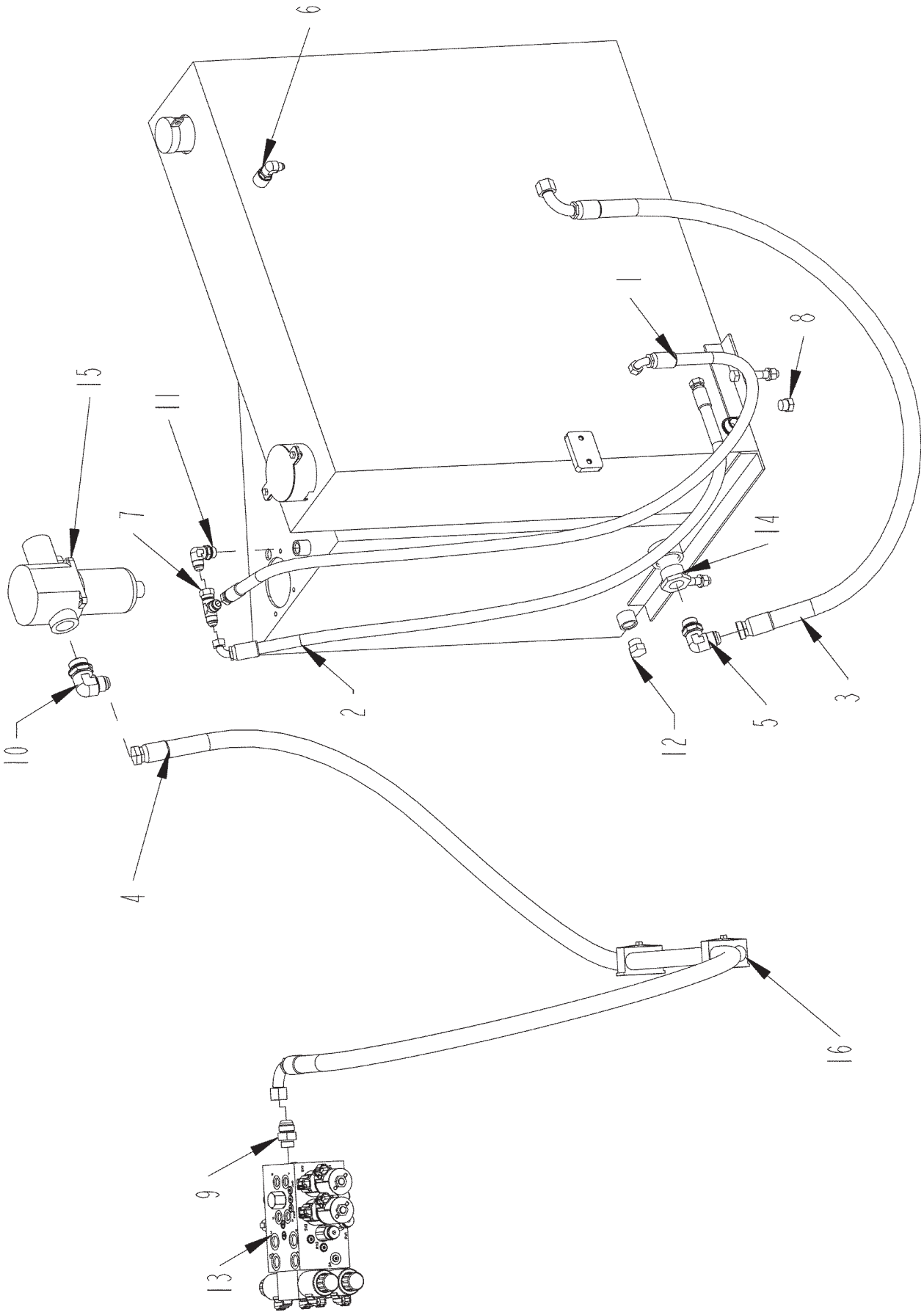
ITEM	PART	QTY.	PART DESCRIPTION
	4000403		**VLV\MANIFOLD\ASSY\CHIPPER**
1	4000346	1	VALVE\HYD\CART\COMP\150PSI
1 Seal	4000358		VALVE\SEAL\KIT\SZ10\2,3 OR 4 WAY
2	4000348	1	VALVE\HYD\SOL\24V\E70\DTZ
3	4000349	1	VALVE\HYD\CART\RELIEF\2500
3 Seal	7501370		SEAL\KIT\VLV\SZ8\2WAY
4	4000350	1	VALVE\HYD\CART\PILOT\110P
4 Seal	4000358		VALVE\SEAL\KIT\SZ10\2,3 OR 4 WAY
5	4000351	2	VALVE\HYD\CART\RELIEF\1000
5Seal	7501370		SEAL\KIT\VLV\SZ8\2WAY
6	4000352	1	VALVE\HYD\CART\PROPOR\6GPM
6Seal	4000358		VALVE\SEAL\KIT\SZ10\2,3 OR 4 WAY
7	4000353	1	VALVE\HYD\CART\3POS,5WAY\FLOAT;CENTER
7Seal	4000359		VALVE\SEAL\KIT\SZ10\5 WAY
8	4000354	1	VALVE\HYD\CART\3POS,5WAY\CLOSED;CENTER
8Seal	4000359		VALVE\SEAL\KIT\SZ10\5 WAY
9	4000355	2	VALVE\HYD\VCKR\3POS4WAY
	NOTE - There are (4) size -012 O-rings between 4000356 and main body		
11	4000407	4	VALVE\HYD\SOL\24V\E10\DTZ\W/DIODE

MANIFOLD VALVE HYDRAULIC ASSEMBLY

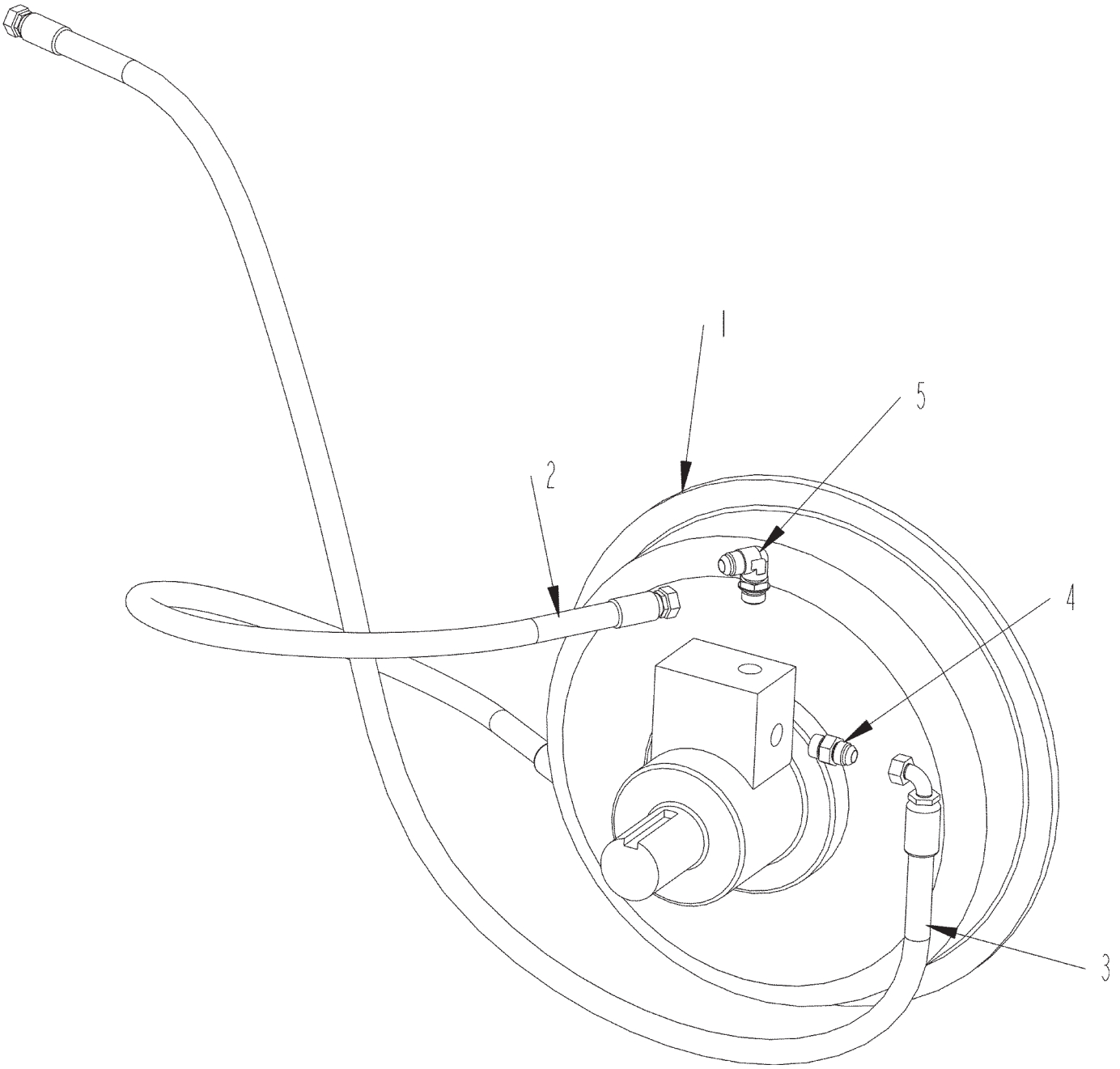


ITEM	PART	QTY.	PART DESCRIPTION
1	3800477	3	FTG\3/4MORX3/4MJIC\ST
2	3800527	1	FTG\7/8MORX1-1/16MJIC\ST
3	3800537	2	FTG\3/4MORX3/4MJIC\90
4	3800631	4	FTG\9/16MORX9/16MJIC\ST
5	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER

HYDRAULIC TANK ASSEMBLY

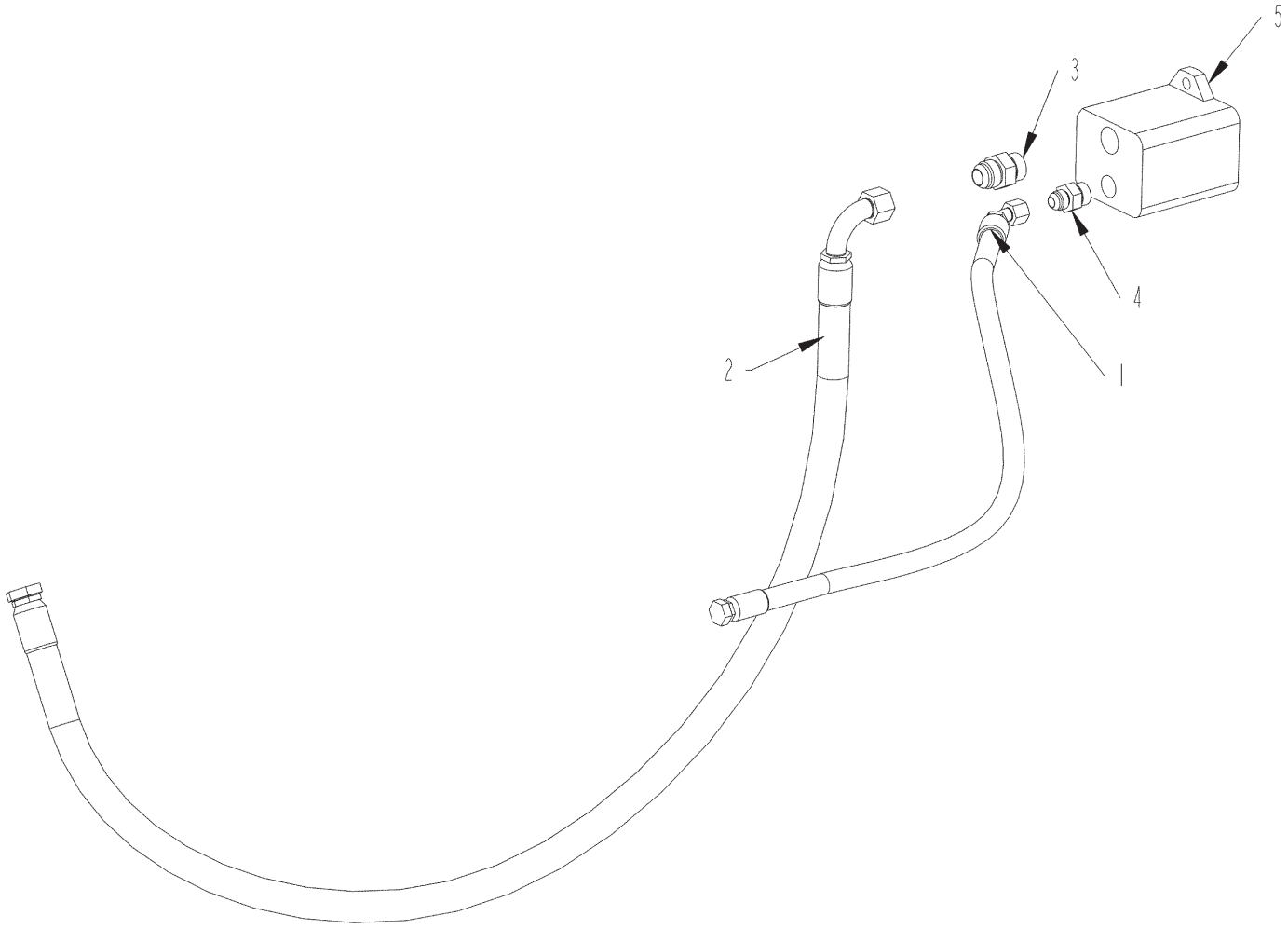


ITEM	PART	QTY.	PART DESCRIPTION
1	3700998	1	HOSE\HYD\1/2X62\3/4FJICSX3/4FJIC90 FROM CLUTCH SIDE TO TANK T
2	3700999	1	HOSE\HYD\1/2X48\3/4FJICSX3/4FJIC90 FROM SEQUENCE SIDE TO TANK T
3	3701514	1	HOSE\HYD\3/4X60\1-1/16FJICSX1-1/16FJIC90 FROM TANK OUT TO PUMP IN
4	3701001	1	HOSE\HYD\3/4X112\1-1/16FJICSX1-1/16FJIC90 FROM VALVE T TO FILTER
5	3800279	1	FTG\1-1/16MORX1-1/16MJIC\90
6	3800453	1	FTG\3/4MORX9/16MJIC\90
7	3800484	1	FTG\3/4FJICSX3/4MJICX3/4MJIC\RUN;TEE
8	3800490	1	FTG\3/4MOR\PLUG\HEX
9	3800527	1	FTG\7/8MORX1-1/16MJIC\ST
10	3800534	1	FTG\1-5/16MORX1-1/16MJIC\90
11	3800537	1	FTG\3/4MORX3/4MJIC\90
12	3800847	1	FTG\7/8MOR\PLUG\HEX
13	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER
14	4400111	1	FLTR\SCRN\1-5/8MORX1-1-16FOR\10GPM
15	4400112	1	FLTR\HYD\RET\15GPM\TTF
16	7501337	2	CLMP\HOSE\CUSH\3/8



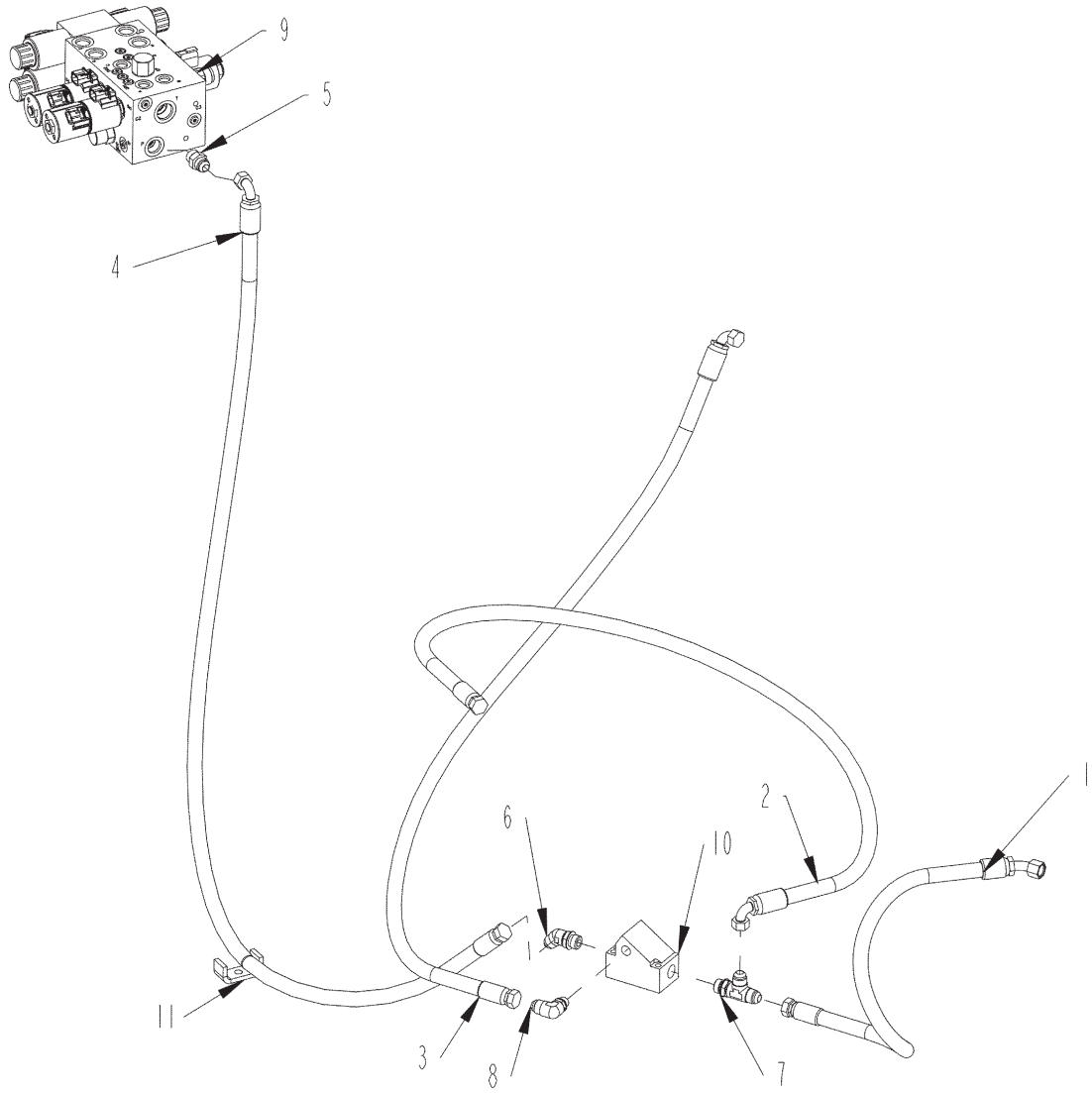
ITEM	PART	QTY.	PART DESCRIPTION
1	O900150	1	CLUTCH\HPTO8\CHIPPER
2	3700997	1	HOSE\HYD\1/2X26\3/4FJICSX3/4FJIC90 FROM SEQUENCE T TOP TO CLUTCH TOP
3	3700998	1	HOSE\HYD\1/2X62\3/4FJICSX3/4FJIC90 FROM CLUTCH SIDE TO TANK T
4	3800477	1	FTG\3/4MORX3/4MJIC\ST
5	3800537	1	FTG\3/4MORX3/4MJIC\90

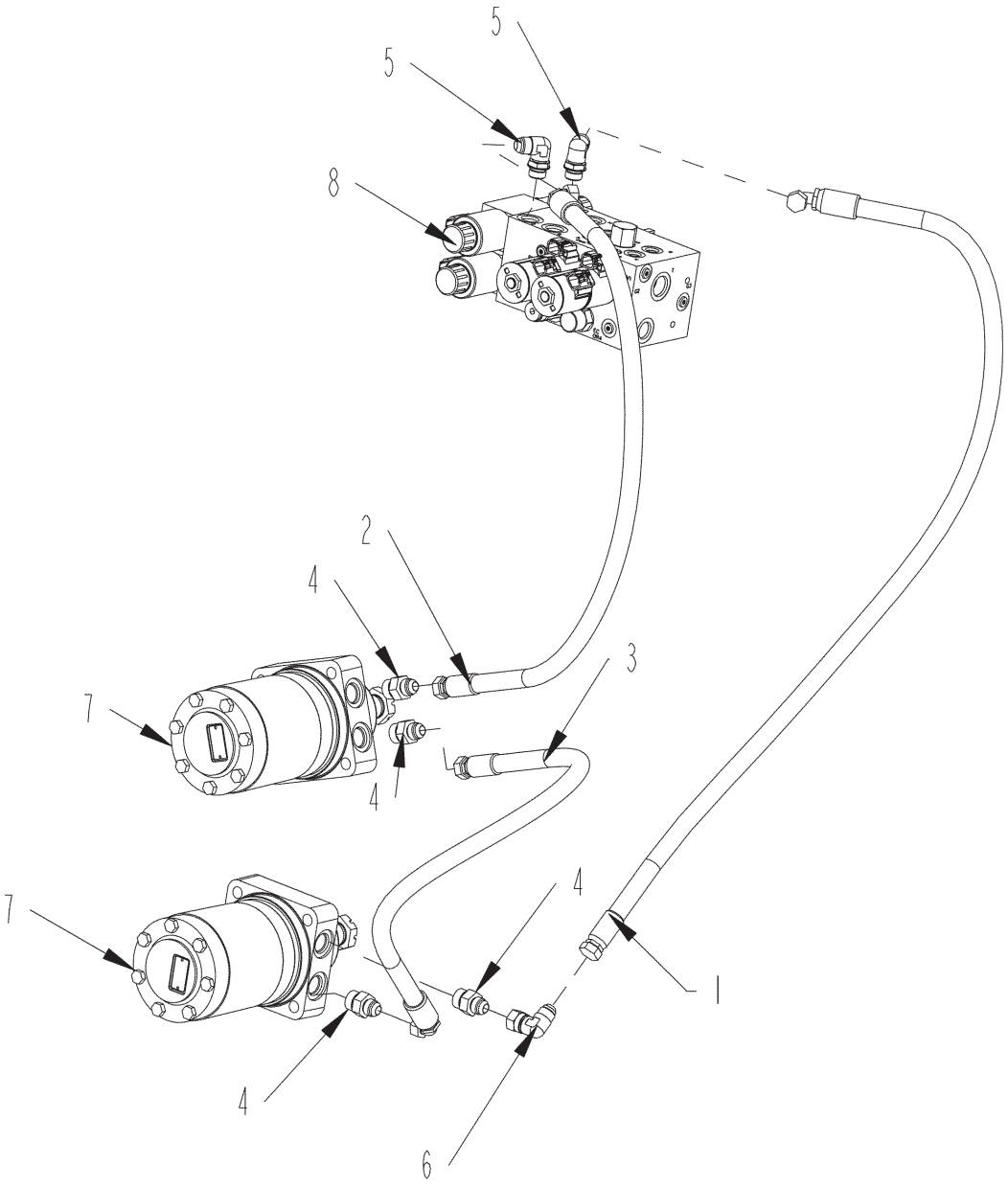
ITEM	PART	QTY.	PART DESCRIPTION
1	3700996	1	HOSE\HYD\1/2X23\3/4FJICSX3/4FJIC45 FROM PUMP TO SEQUENCE T FRONT
2	3701514	1	HOSE\HYD\3/4X60\1-1/16FJICSX1-1/16FJIC90 FROM TANK OUT TO PUMP IN
3	3800277	1	FTG\1-1/16MORX1-1/16MJIC\ST
4	3800328	1	FTG\7/8MORX3/4MJIC\ADPT
5	4200124	1	PUMP\HYD\.89CID\CASAPPA
NOT SHOWN (WEAR PARTS)			
	4200161		PUMP\SEAL\KIT\4200142
	4200168		GSKT\A-PAD\2BOLT\PUMP



SEQUENCE VALVE ASSEMBLY

ITEM	PART	QTY.	PART DESCRIPTION
1	3700996	1	HOSE\HYD\1/2X23\3/4FJICSX3/4FJIC45 FROM PUMP TO SEQUENCE T FRONT
2	3700997	1	HOSE\HYD\1/2X26\3/4FJICSX3/4FJIC90 FROM SEQUENCE T TOP TO CLUTCH TOP
3	3700999	1	HOSE\HYD\1/2X48\3/4FJICSX3/4FJIC90 FROM SEQUENCE SIDE TO TANK T
4	3701513	1	HOSE\HYD\1/2X87\3/4FJICSX3/4FJIC90 FROM SEQUENCE REAR TO VALVE P
5	3800477	1	FTG\3/4MORX3/4MJIC\ST
6	3800479	1	FTG\3/4MORX3/4MJIC\45
7	3800483	1	FTG\3/4MORX3/4MJICX3/4MJIC\RUN;TEE
8	3800816	1	FTG\9/16MORX3/4MJIC\90
9	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER
10	4200139	1	VLV\SEQ\0-15GPM\PTTECH
11	4700777	1	CLMP\HOSE\1/2

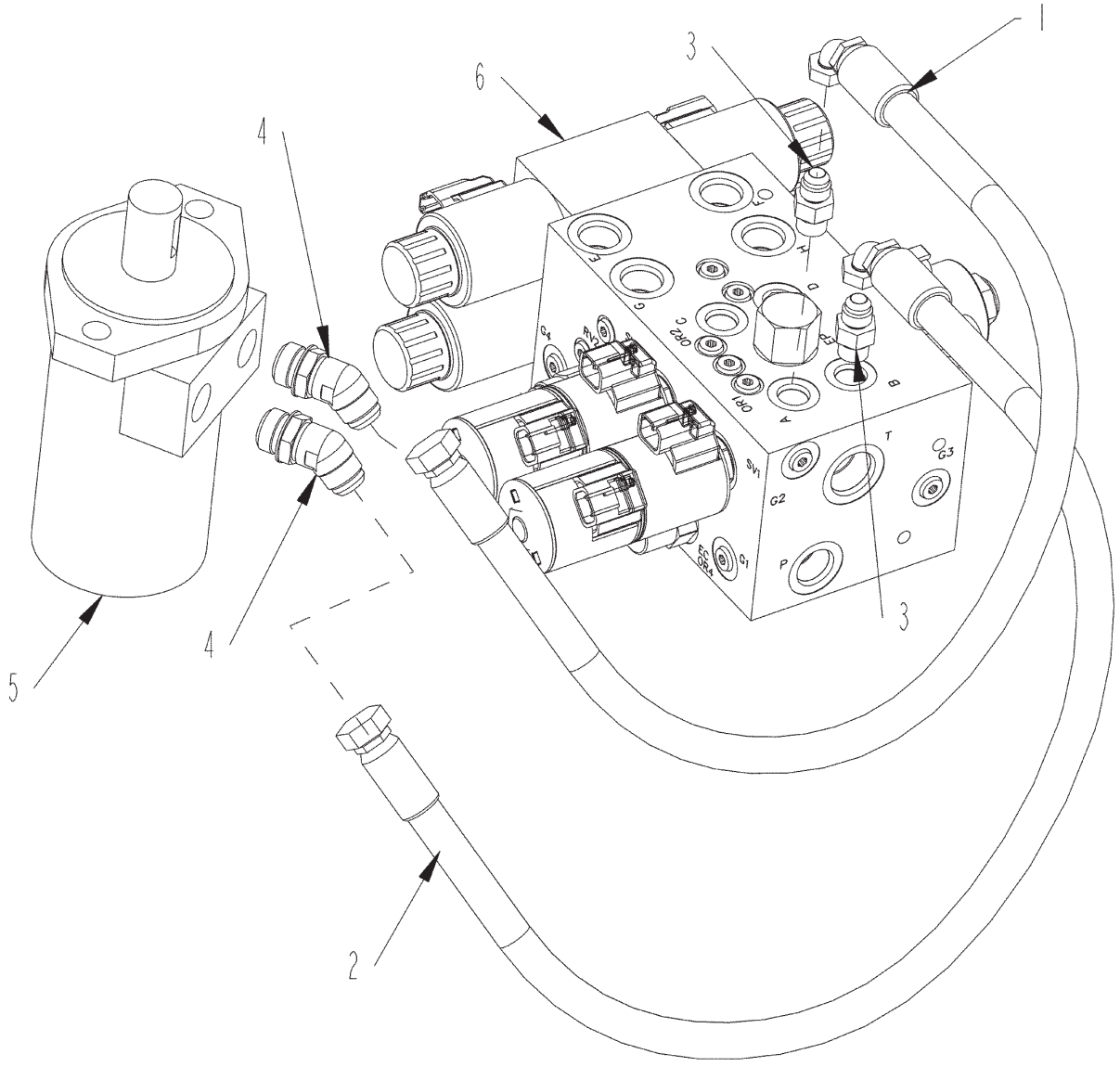




ITEM	PART	QTY.	PART DESCRIPTION
1	3701023	1	HOSE\HYD\1/2X54\3/4FJICSX3/4FJIC90 VALVE F TO MOTOR FEED BOTTOM TOP PORT
2	3701009	1	HOSE\HYD\1/2X48\3/4FJICSX3/4FJIC90 VALVE E TO MOTOR FEED TOP TOP PORT
3	3701010	1	HOSE\HYD\1/2X36\3/4FJICSX3/4FJIC90 MOTOR FEED BOTTOM BOTTOM PORT TO MOTOR FEED TOP BOTTOM PORT
4	3800328	4	FTG\7/8MORX3/4MJIC\ADPT
5	3800537	2	FTG\3/4MORX3/4MJIC\90
6	3800546	1	FTG\3/4MJICX3/4FJIC\90\SW
7	3900047	2	MTR\HYD\39.6CI\DELTA\TAPERED
8	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER

DISCHARGE HYDRAULICS

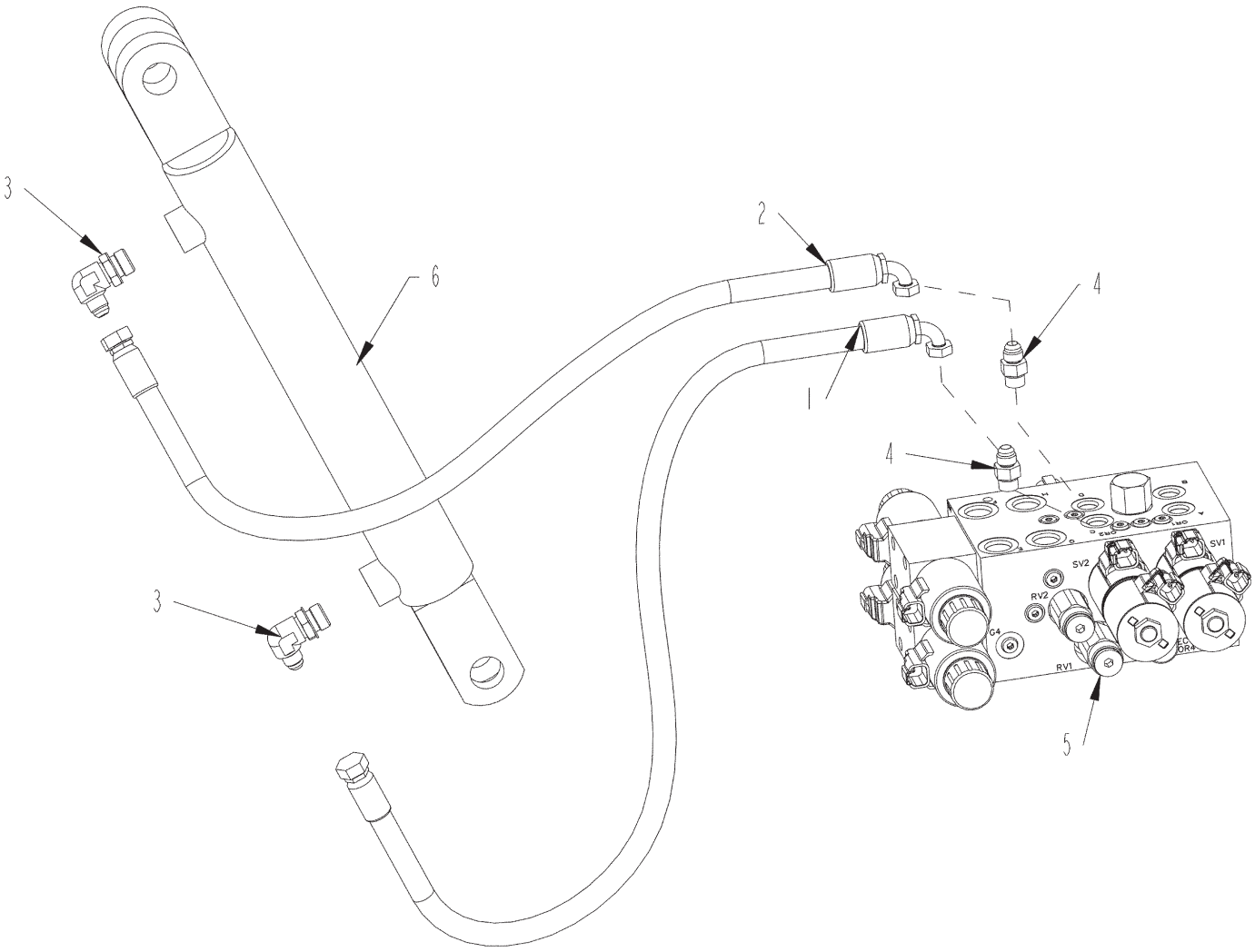
ITEM	PART	QTY.	PART DESCRIPTION
1	3701003	1	HOSE\HYD\3/8X39\3/4FJICSX9/16FJIC90 FROM VALVE A TO MOTOR SPOUT RH
2	3701003	1	HOSE\HYD\3/8X39\3/4FJICSX9/16FJIC90 FROM VALVE B TO MOTOR SPOUT LH
3	3800631	2	FTG\9/16MORX9/16MJIC\ST
4	3800675	2	FTG\7/8MORX3/4MJIC\45
5	3900032	1	MOTOR\HYD\22.6\H
6	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER



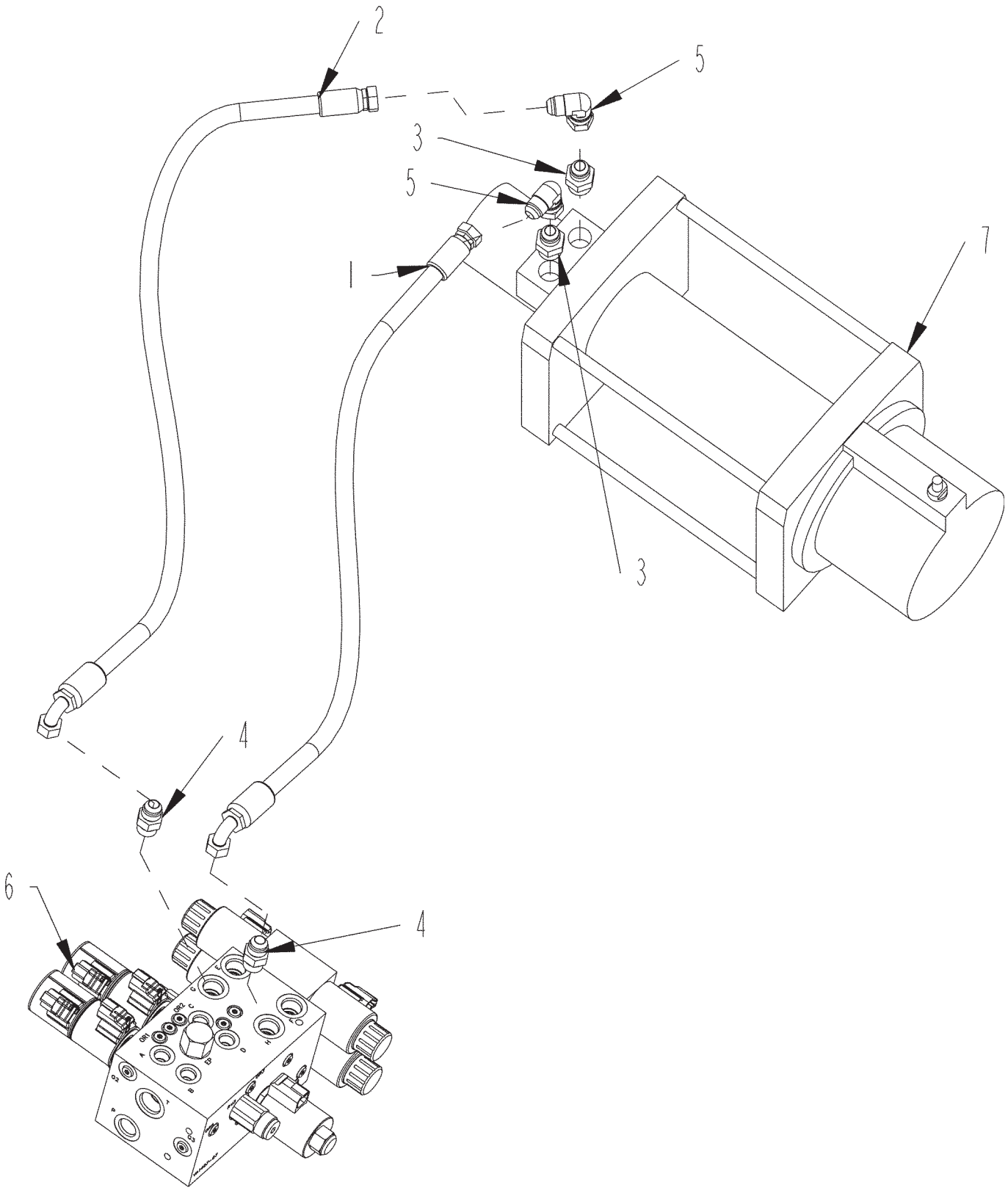
DURATECH®

Clearing the Way for a Better Tomorrow

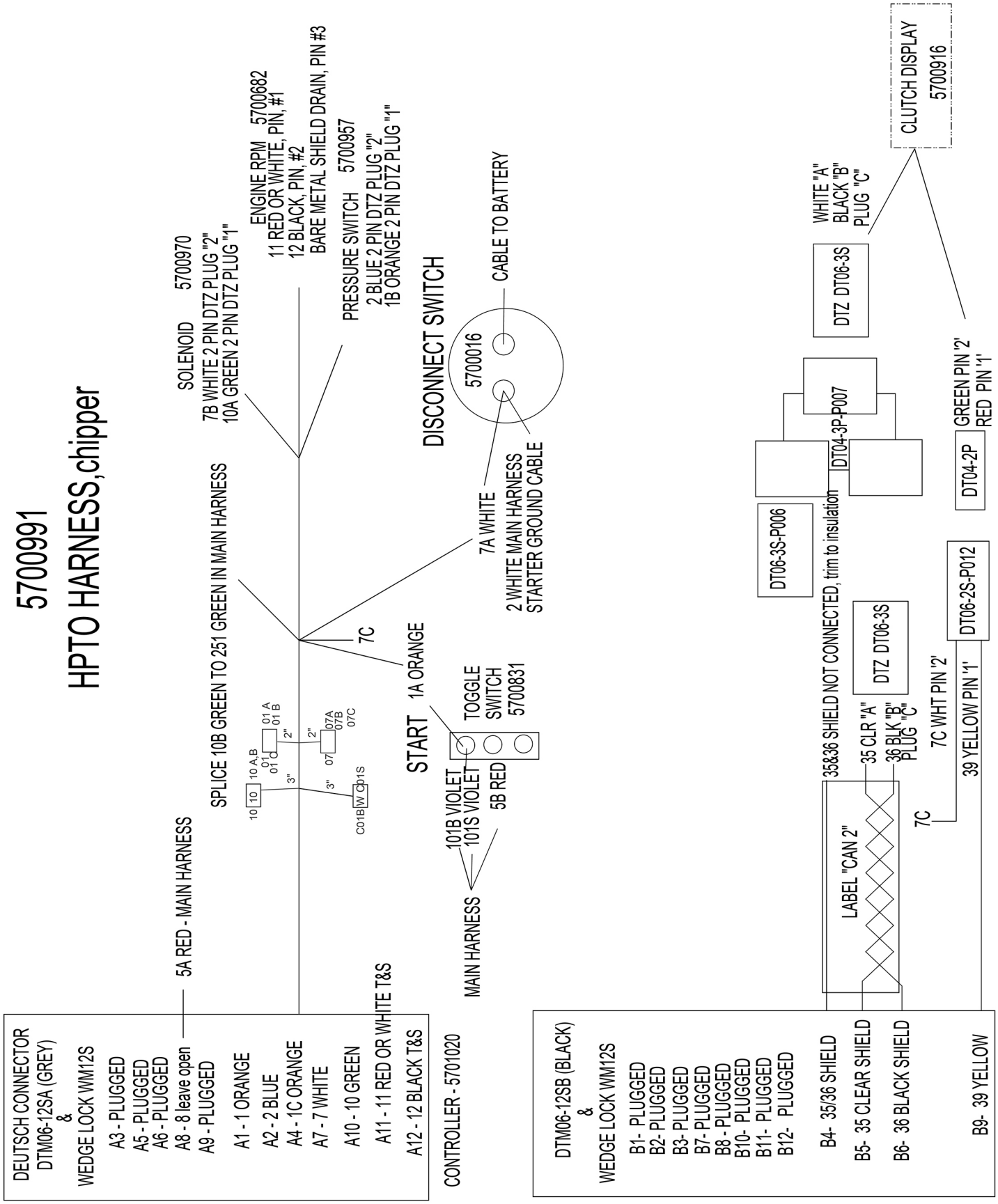
HYDRAULIC CYLINDER ASSEMBLY

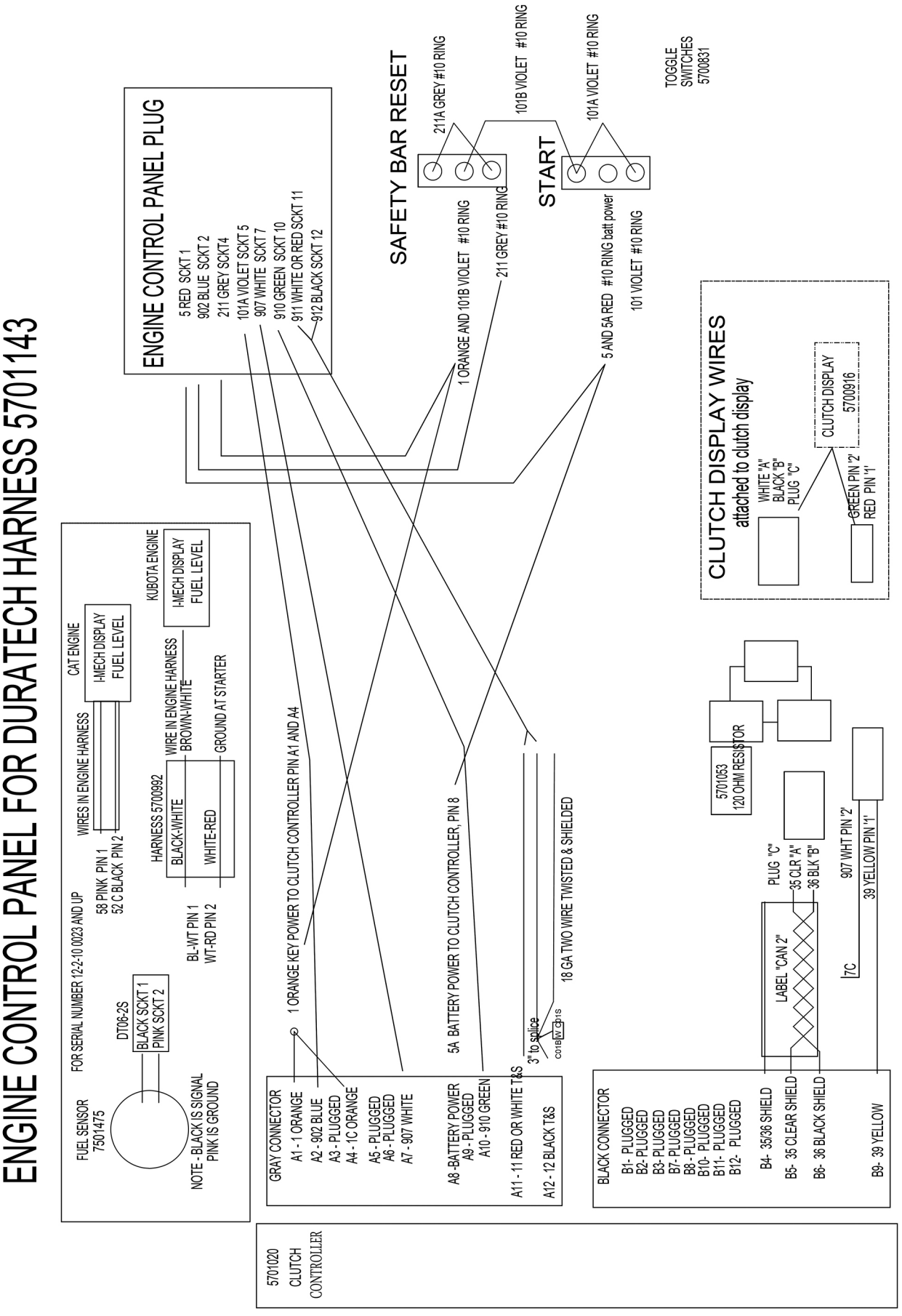


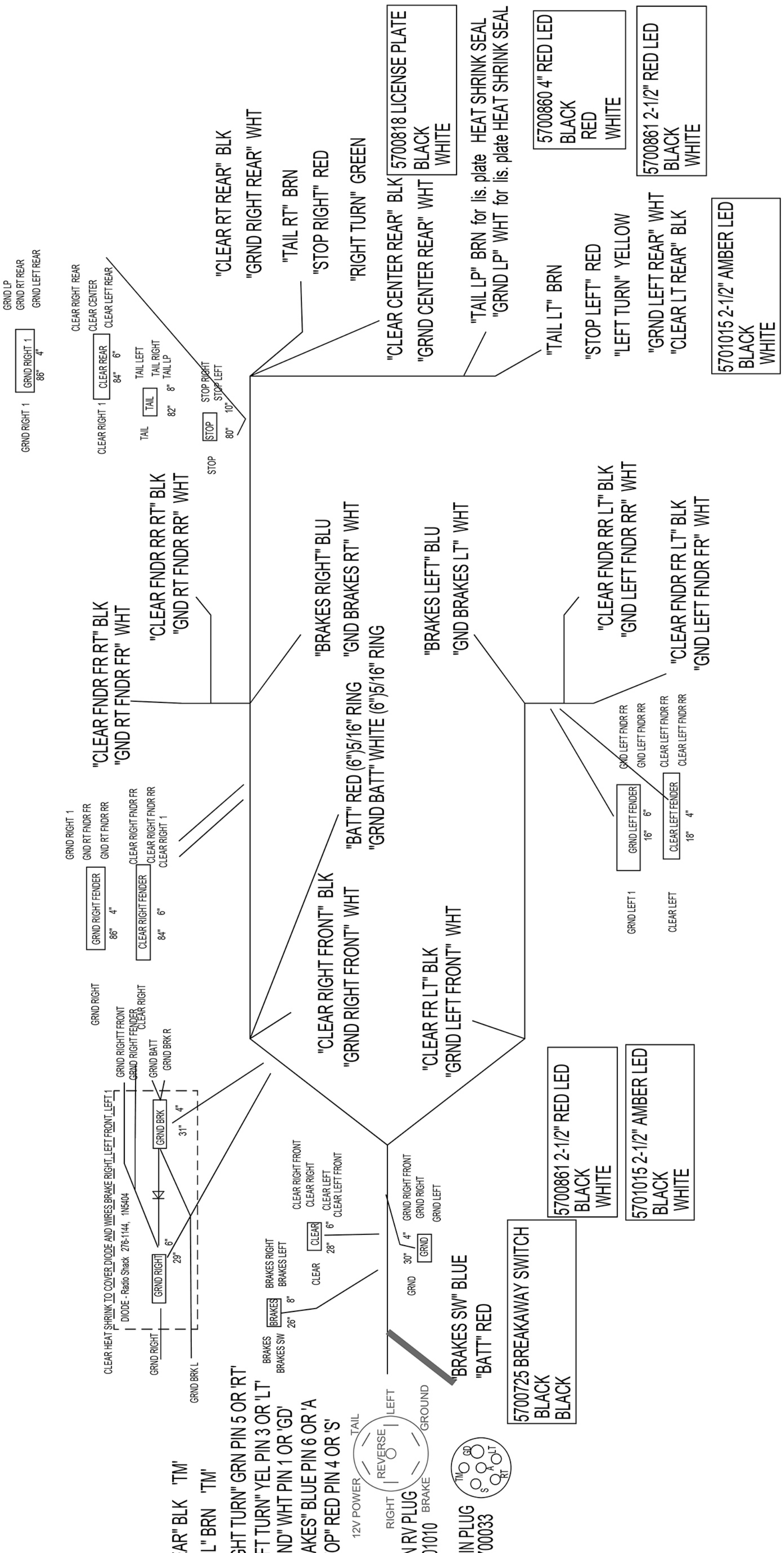
ITEM	PART	QTY.	PART DESCRIPTION
1	3701006	1	HOSE\HYD\3/8X33\9/16FJICSX9/16FJIC90 VALVE D TO CYLINDER BOTTOM LIFT
2	3700653	1	HOSE\HYD\3/8X336\9/16FJICSX9/16FJIC90 VALVE C TO CYLINDER TOP LIFT
3	3800453	2	FTG\3/4MORX9/16MJIC\90
4	3800631	2	FTG\9/16MORX9/16MJIC\ST
5	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER
6	4100262	1	CYL\HYD\2X12\1-1/4TUBE


2
5
3
5
1
7
3
4
6
4

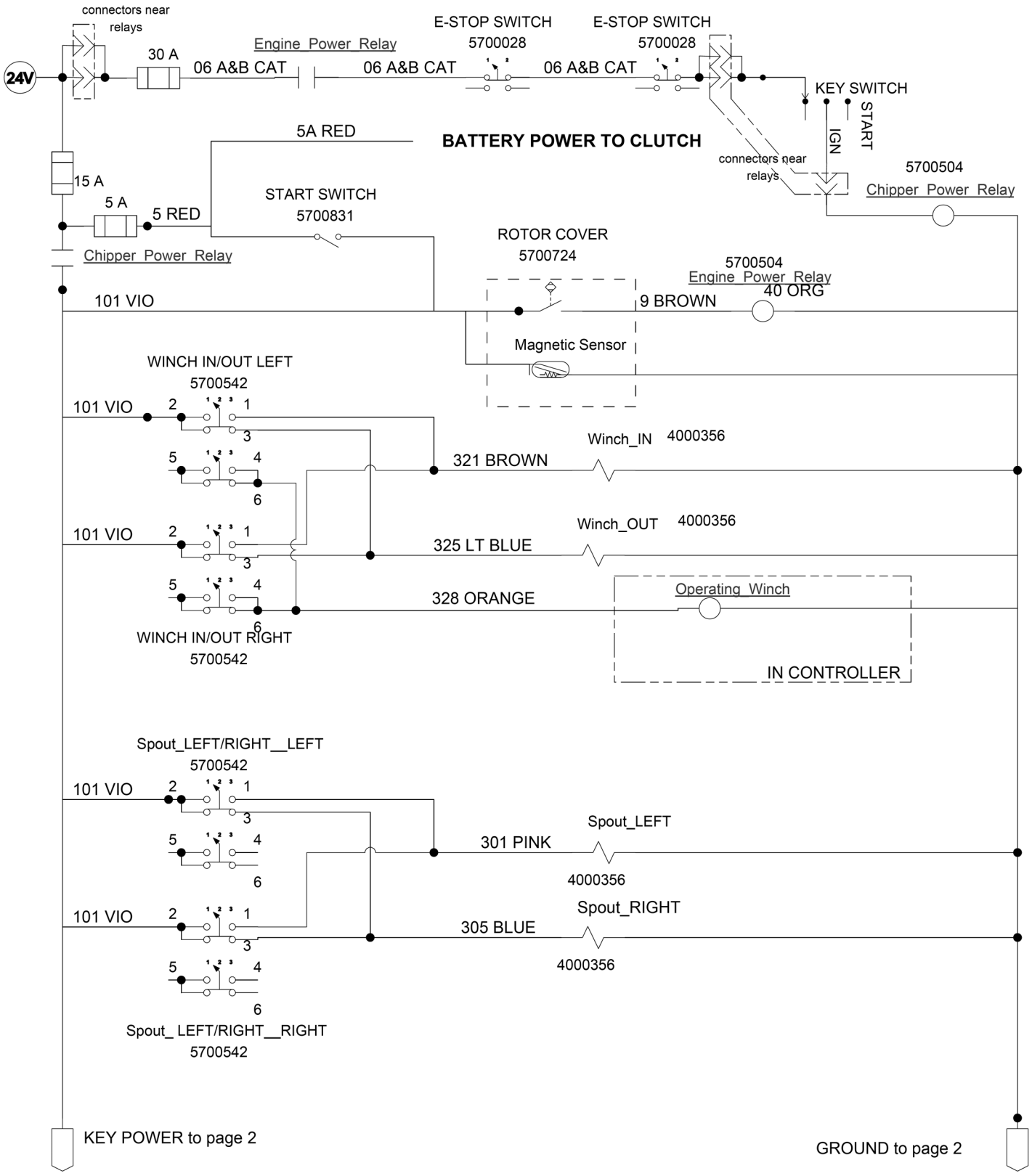
ITEM	PART	QTY.	PART DESCRIPTION
1	3701007	1	HOSE\HYD\1/2X35\3/4FJICSX3/4FJIC90 FROM VALVE H TO MOTOR WINCH FRONT
2	3701008	1	HOSE\HYD\1/2X37\3/4FJICSX3/4FJIC90 FROM VALVE G TO MOTOR WINCH REAR
3	3800328	2	FTG\7/8MORX3/4MJIC\ADPT
4	3800477	2	FTG\3/4MORX3/4MJIC\ST
5	3800546	2	FTG\3/4MJICX3/4FJIC\90\SW
6	4000403	1	VLV\MANIFOLD\ASSY\CHIPPER
7	5800035	1	WINCH\HYD\9000#

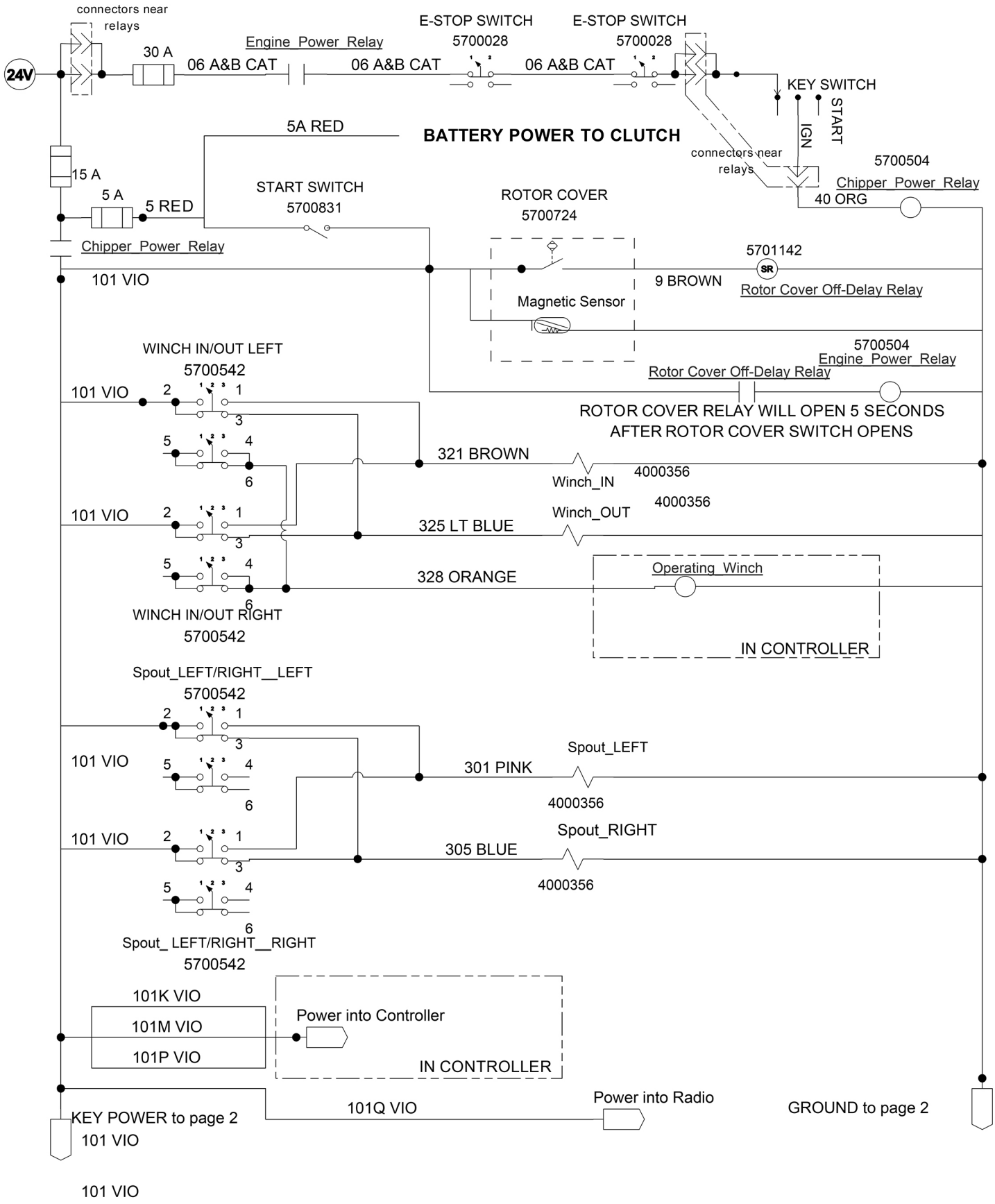

5700991
HPTO HARNESS,chipper
DEUTSCH CONNECTOR
DTM06-12SA (GREY)
&
WEDGE LOCK WM12S
A3 - PLUGGED
A5 - PLUGGED
A6 - PLUGGED
A8 - 8 leave open
A9 - PLUGGED
A1 - 1 ORANGE
A2 - 2 BLUE
A4 - 1C ORANGE
A7 - 7 WHITE
A10 - 10 GREEN
A11 - 11 RED OR WHITE T&S
A12 - 12 BLACK T&S
CONTROLLER - 5701020
5A RED - MAIN HARNESS
SPLICE 10B GREEN TO 251 GREEN IN MAIN HARNESS
SOLENOID 5700970
7B WHITE 2 PIN DTZ PLUG "2"
10A GREEN 2 PIN DTZ PLUG "1"
ENGINE RPM 5700682
11 RED OR WHITE, PIN, #1
12 BLACK, PIN, #2
BARE METAL SHIELD DRAIN, PIN #3
PRESSURE SWITCH 5700957
2 BLUE 2 PIN DTZ PLUG "2"
1B ORANGE 2 PIN DTZ PLUG "1"
DISCONNECT SWITCH
5700016
CABLE TO BATTERY
7A WHITE
2 WHITE MAIN HARNESS
STARTER GROUND CABLE
7C
START 1A ORANGE
TOGGLE
SWITCH
5700831
101B VIOLET
101S VIOLET
5B RED
MAIN HARNESS
10 A,B
01 C
01 A
01 B
2"
3"
07
07A
07B
07C
C01B
C01S
DTM06-12SB (BLACK)
&
WEDGE LOCK WM12S
B1- PLUGGED
B2- PLUGGED
B3- PLUGGED
B7- PLUGGED
B8 - PLUGGED
B10- PLUGGED
B11- PLUGGED
B12- PLUGGED
B4- 35/36 SHIELD
B5- 35 CLR SHIELD
B6- 36 BLACK SHIELD
B9- 39 YELLOW
LABEL "CAN 2"
35&36 SHIELD NOT CONNECTED, trim to insulation
35 CLR "A"
36 BLK "B"
PLUG "C"
DTZ DT06-3S
7C WHT PIN '2'
39 YELLOW PIN '1'
DT06-2S-P012
7C
DT06-3S-P006
DT04-3P-P007
DTZ DT06-3S
WHITE "A"
BLACK "B"
PLUG "C"
CLUTCH DISPLAY
5700916
DT04-2P
GREEN PIN '2'
RED PIN '1'

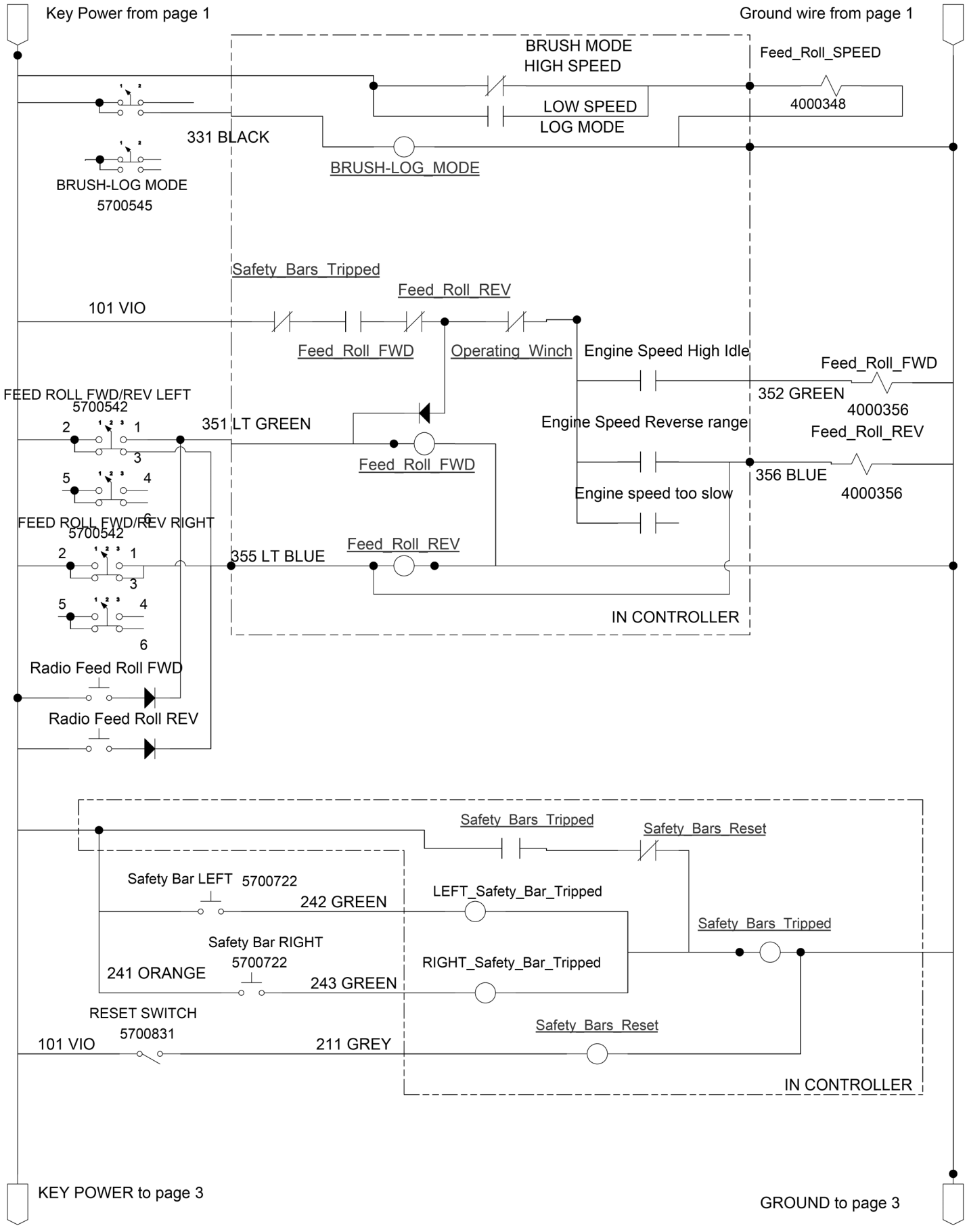

ENGINE CONTROL PANEL FOR DURATECH HARNESS 5701143
ENGINE CONTROL PANEL PLUG
5 RED SCKT 1
902 BLUE SCKT 2
211 GREY SCKT4
101A VIOLET SCKT 5
907 WHITE SCKT 7
910 GREEN SCKT 10
911 WHITE OR RED SCKT 11
912 BLACK SCKT 12
SAFETY BAR RESET
211A GREY #10 RING
101B VIOLET #10 RING
START
101A VIOLET #10 RING
TOGGLE SWITCHES 5700831
1 ORANGE AND 101B VIOLET #10 RING
211 GREY #10 RING
5 AND 5A RED #10 RING batt power
101 VIOLET #10 RING
CLUTCH DISPLAY WIRES
attached to clutch display
WHITE "A"
BLACK "B"
PLUG "C"
CLUTCH DISPLAY 5700916
GREEN PIN "2"
RED PIN "1"
FUEL SENSOR 7501475
FOR SERIAL NUMBER 12-2-10 0023 AND UP
DT06-2S
BLACK SCKT 1
PINK SCKT 2
NOTE - BLACK IS SIGNAL PINK IS GROUND
WIRES IN ENGINE HARNESS
58 PINK PIN 1
52 C BLACK PIN 2
CAT ENGINE
I-MECH DISPLAY FUEL LEVEL
KUBOTA ENGINE
I-MECH DISPLAY FUEL LEVEL
HARNESS 5700992
BLACK-WHITE
WHITE-RED
BL-WT PIN 1
WT-RD PIN 2
WIRE IN ENGINE HARNESS BROWN-WHITE
GROUND AT STARTER
1 ORANGE KEY POWER TO CLUTCH CONTROLLER PIN A1 AND A4
5A BATTERY POWER TO CLUTCH CONTROLLER, PIN 8
3" to splice
C018W 03HS
18 GA TWO WIRE TWISTED & SHIELDED
5701053
120 OHM RESISTOR
PLUG "C"
35 CLR "A"
36 BLK "B"
LABEL "CAN 2"
7C
907 WHT PIN "2"
39 YELLOW PIN "1"
GRAY CONNECTOR
A1 - 1 ORANGE
A2 - 902 BLUE
A3 - PLUGGED
A4 - 1C ORANGE
A5 - PLUGGED
A6 - PLUGGED
A7 - 907 WHITE
A8 -BATTERY POWER
A9 - PLUGGED
A10 - 910 GREEN
A11 - 11 RED OR WHITE T&S
A12 - 12 BLACK T&S
BLACK CONNECTOR
B1- PLUGGED
B2- PLUGGED
B3- PLUGGED
B7- PLUGGED
B8 - PLUGGED
B10- PLUGGED
B11- PLUGGED
B12- PLUGGED
B4- 35/36 SHIELD
B5- 35 CLEAR SHIELD
B6- 36 BLACK SHIELD
B9- 39 YELLOW
5701020 CLUTCH CONTROLLER

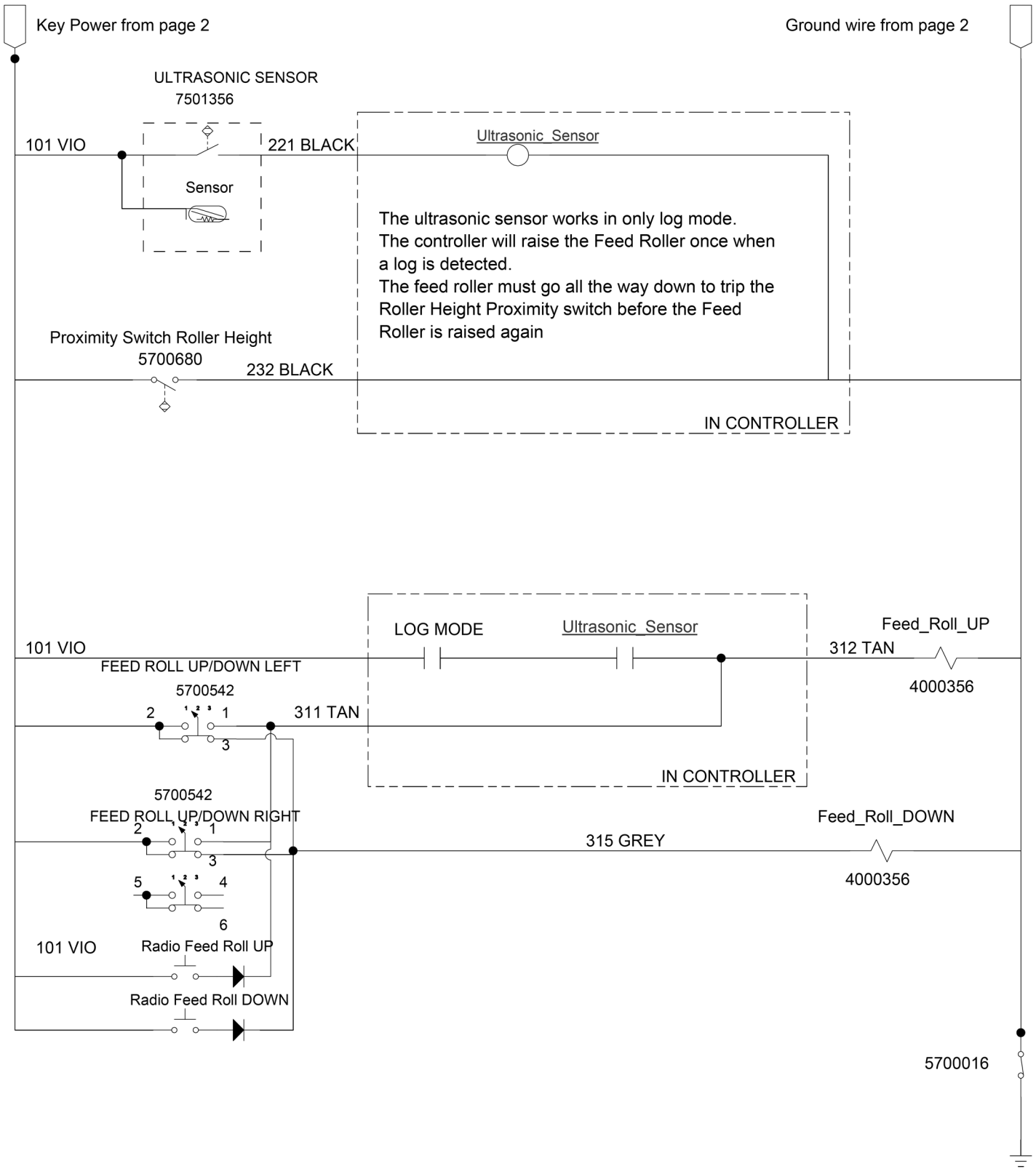


"CLEAR RT REAR" BLK
"GRND RIGHT REAR" WHT
"TAIL RT" BRN
"STOP RIGHT" RED
"RIGHT TURN" GREEN
"CLEAR CENTER REAR" BLK
"GRND CENTER REAR" WHT
5700818 LICENSE PLATE
BLACK
WHITE
"TAIL LP" BRN for lis. plate HEAT SHRINK SEAL
"GRND LP" WHT for lis. plate HEAT SHRINK SEAL
5700860 4" RED LED
BLACK
RED
WHITE
5700861 2-1/2" RED LED
BLACK
WHITE
"TAIL LT" BRN
"STOP LEFT" RED
"LEFT TURN" YELLOW
"GRND LEFT REAR" WHT
"CLEAR LT REAR" BLK
5701015 2-1/2" AMBER LED
BLACK
WHITE
"CLEAR FNDR FR RT" BLK
"GND RT FNDR FR" WHT
"CLEAR FNDR RR RT" BLK
"GND RT FNDR RR" WHT
"BRAKES RIGHT" BLU
"GND BRAKES RT" WHT
"BRAKES LEFT" BLU
"GND BRAKES LT" WHT
"CLEAR FNDR RR LT" BLK
"GND LEFT FNDR RR" WHT
"CLEAR FNDR FR LT" BLK
"GND LEFT FNDR FR" WHT
"BATT" RED (6")5/16" RING
"GRND BATT" WHITE (6")5/16" RING
"CLEAR RIGHT FRONT" BLK
"GRND RIGHT FRONT" WHT
"CLEAR FR LT" BLK
"GRND LEFT FRONT" WHT
5700861 2-1/2" RED LED
BLACK
WHITE
5701015 2-1/2" AMBER LED
BLACK
WHITE
"BRAKES SW" BLUE
"BATT" RED
5700725 BREAKAWAY SWITCH
BLACK
BLACK
CLEAR HEAT SHRINK TO COVER DIODE AND WIRES BRAKE RIGHT, LEFT FRONT, LEFT 1
DIODE - Radio Shack 276-1144, 1N5404
"CLEAR" BLK "TM"
"TAIL" BRN "TM"
"RIGHT TURN" GRN PIN 5 OR 'RT'
"LEFT TURN" YEL PIN 3 OR 'LT'
"GRND" WHT PIN 1 OR 'GD'
"BRAKES" BLUE PIN 6 OR 'A
"STOP" RED PIN 4 OR 'S'
7-PIN RV PLUG
5701010
6-PIN PLUG
5700033
12V POWER
TAIL
LEFT
GROUND
BRAKE
RIGHT
REVERSE


connectors near relays
24V
30 A
Engine Power Relay
06 A&B CAT
06 A&B CAT
E-STOP SWITCH
5700028
06 A&B CAT
E-STOP SWITCH
5700028
KEY SWITCH
START
IGN
5A RED
BATTERY POWER TO CLUTCH
connectors near relays
5700504
Chipper Power Relay
15 A
5 A
5 RED
START SWITCH
5700831
Chipper Power Relay
ROTOR COVER
5700724
5700504
Engine Power Relay
40 ORG
101 VIO
9 BROWN
Magnetic Sensor
WINCH IN/OUT LEFT
5700542
101 VIO
Winch_IN
4000356
321 BROWN
101 VIO
Winch_OUT
4000356
325 LT BLUE
328 ORANGE
Operating Winch
IN CONTROLLER
WINCH IN/OUT RIGHT
5700542
Spout_LEFT/RIGHT__LEFT
5700542
101 VIO
Spout_LEFT
301 PINK
4000356
101 VIO
Spout_RIGHT
305 BLUE
4000356
Spout_ LEFT/RIGHT__RIGHT
5700542
KEY POWER to page 2
GROUND to page 2


connectors near relays
24V
30 A
Engine Power Relay
06 A&B CAT
06 A&B CAT
E-STOP SWITCH
5700028
E-STOP SWITCH
5700028
06 A&B CAT
KEY SWITCH
START
IGN
5A RED
BATTERY POWER TO CLUTCH
connectors near relays
5700504
Chipper Power Relay
40 ORG
15 A
5 A
5 RED
START SWITCH
5700831
ROTOR COVER
5700724
Chipper Power Relay
101 VIO
5701142
SR
9 BROWN
Rotor Cover Off-Delay Relay
Magnetic Sensor
WINCH IN/OUT LEFT
5700542
5700504
Engine Power Relay
Rotor Cover Off-Delay Relay
101 VIO
ROTOR COVER RELAY WILL OPEN 5 SECONDS
AFTER ROTOR COVER SWITCH OPENS
321 BROWN
Winch_IN
4000356
101 VIO
Winch_OUT
4000356
325 LT BLUE
328 ORANGE
Operating Winch
IN CONTROLLER
WINCH IN/OUT RIGHT
5700542
Spout_LEFT/RIGHT__LEFT
5700542
Spout_LEFT
101 VIO
301 PINK
4000356
Spout_RIGHT
101 VIO
305 BLUE
4000356
Spout_ LEFT/RIGHT__RIGHT
5700542
101K VIO
101M VIO
101P VIO
Power into Controller
IN CONTROLLER
KEY POWER to page 2
101 VIO
101Q VIO
Power into Radio
GROUND to page 2
101 VIO


Key Power from page 1
Ground wire from page 1
BRUSH MODE
HIGH SPEED
Feed_Roll_SPEED
LOW SPEED
LOG MODE
4000348
331 BLACK
BRUSH-LOG_MODE
BRUSH-LOG MODE
5700545
Safety_Bars_Tripped
Feed_Roll_REV
101 VIO
Feed_Roll_FWD
Operating_Winch
Engine Speed High Idle
Feed_Roll_FWD
352 GREEN
4000356
FEED ROLL FWD/REV LEFT
5700542
351 LT GREEN
Engine Speed Reverse range
Feed_Roll_REV
Feed_Roll_FWD
356 BLUE
4000356
Engine speed too slow
FEED ROLL FWD/REV RIGHT
5700542
Feed_Roll_REV
355 LT BLUE
IN CONTROLLER
Radio Feed Roll FWD
Radio Feed Roll REV
Safety_Bars_Tripped
Safety_Bars_Reset
Safety Bar LEFT 5700722
242 GREEN
LEFT_Safety_Bar_Tripped
Safety_Bars_Tripped
Safety Bar RIGHT
5700722
241 ORANGE
RIGHT_Safety_Bar_Tripped
243 GREEN
RESET SWITCH
5700831
Safety_Bars_Reset
101 VIO
211 GREY
IN CONTROLLER
KEY POWER to page 3
GROUND to page 3


Key Power from page 2
Ground wire from page 2
ULTRASONIC SENSOR
7501356
101 VIO
221 BLACK
Sensor
Ultrasonic_Sensor
The ultrasonic sensor works in only log mode.
The controller will raise the Feed Roller once when a log is detected.
The feed roller must go all the way down to trip the Roller Height Proximity switch before the Feed Roller is raised again
Proximity Switch Roller Height
5700680
232 BLACK
IN CONTROLLER
LOG MODE
Ultrasonic_Sensor
Feed_Roll_UP
101 VIO
312 TAN
4000356
FEED ROLL UP/DOWN LEFT
5700542
311 TAN
IN CONTROLLER
5700542
FEED ROLL UP/DOWN RIGHT
Feed_Roll_DOWN
315 GREY
4000356
101 VIO
Radio Feed Roll UP
Radio Feed Roll DOWN
5700016

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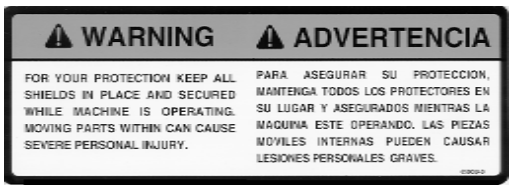
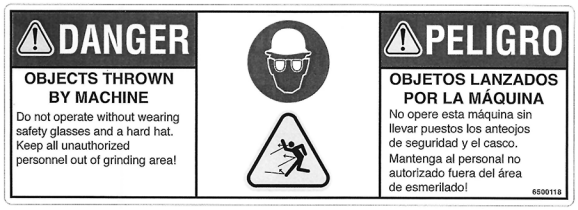


6500040

6500082

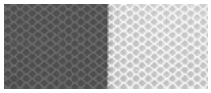


6500118

6500123

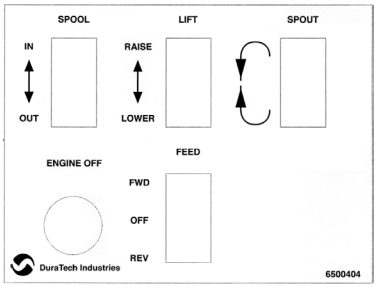
6500221

6500224



6500245

6500339



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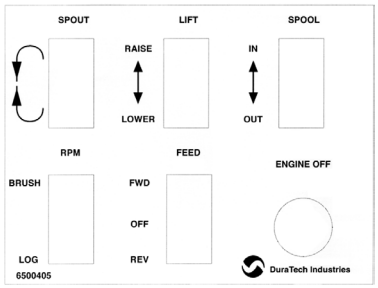


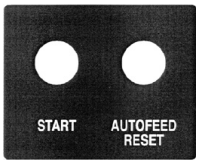
6500405

6500445

6500446

6500447

6500448



6500449

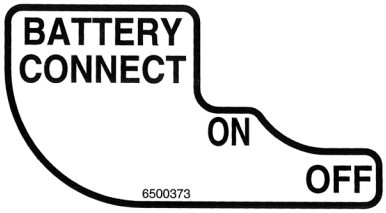
6500445

TC-15

6500516

6500455

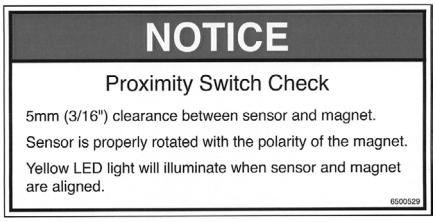
6500253



6500373

PART	QTY.	PART DESCRIPTION
6500495		**DECAL\KIT\TC15**
6500040	2	DECAL\WARN\SHIELD\PROT
6500082	2	DECAL\WARN\ROTATN;PART;>
6500118	2	DECAL\DNGR\OBJCTS;THROWN
6500123	1	DECAL\INFO\DIESEL;FUEL
6500221	2	DECAL\WARN\THROWN;OBJCTS
6500224	2	DECAL\LOGO\DURA\4-3/4\SIL
6500245	5.5 ft.	DECAL\TAPE\REFL\RED\WHT
6500253	1	DECAL\INFO\FLUID;LEVEL\>
6500339	2	DECAL\WARN\PINCH;POINT
6500373	1	DECAL\INFO\BATT;DISC
6500404	1	DECAL\PNL\CNTRL\LEFT\CHIPPER
6500405	1	DECAL\PNL\CNTRL\RIGHT\CHIPPER
6500425	2	DECAL\WARN\FIRE\PREVENT
6500445	2	DECAL\DNGR\CHUTE\INFEED
6500446	2	DECAL\DNGR\LOCK\DISC\CHIPPER
6500447	2	DECAL\DNGR\TURNING\CHIPPER
6500448	1	DECAL\DNGR\FLUID\STARTING
6500449	1	DECAL\START\AUTOFEED
6500455	2	DECAL\LOGO\DURATECH\3”
6500478	1	DECAL\PATENT\US\7954736
6500516	2	DECAL\LOGO\TC15
6500529	1	DECAL\NOTICE\SWITCH\PROXIMITY
6500537	1	DECAL\BRAKE\ELEC\PULL\BUMPER
7500933		PAINT\BLUE\SPRAY\MET
7500984		PAINT\BLUE\GALLON

6500478



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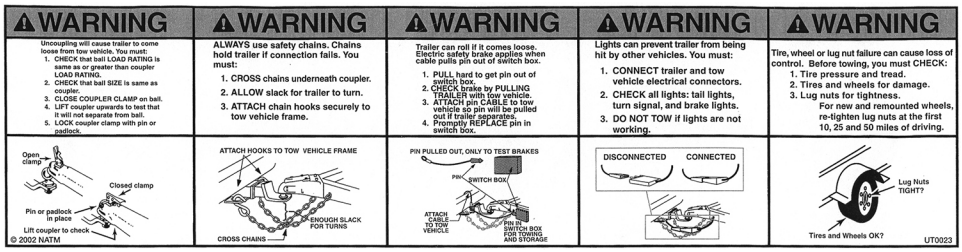

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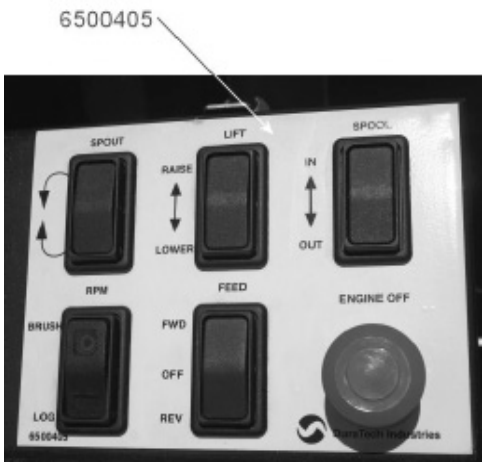
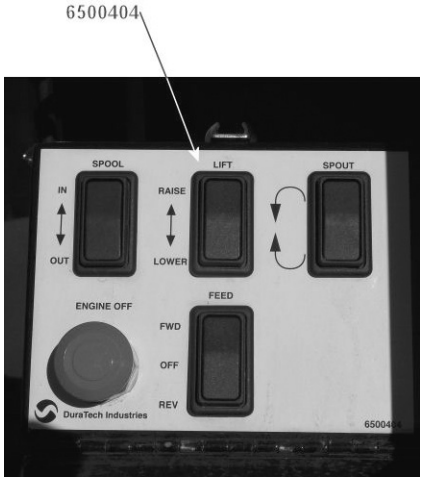
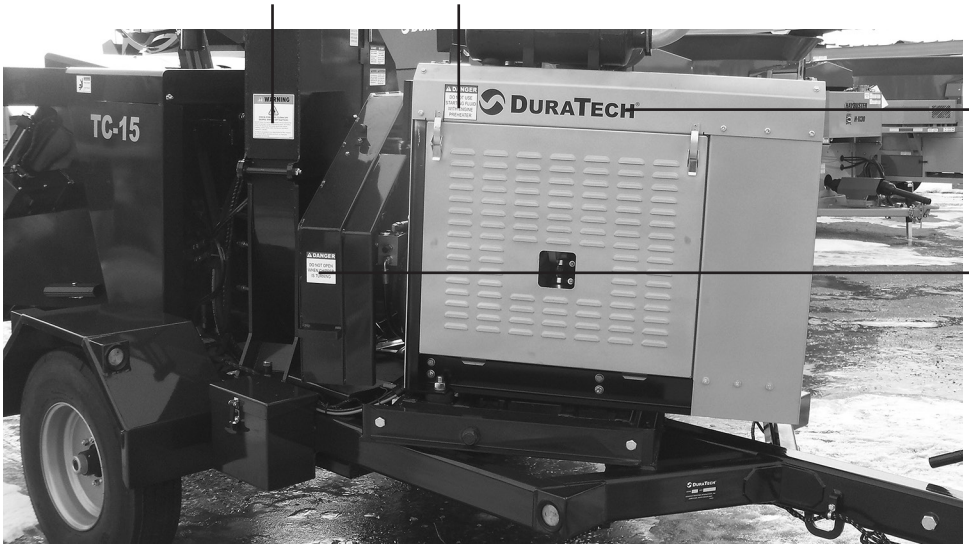
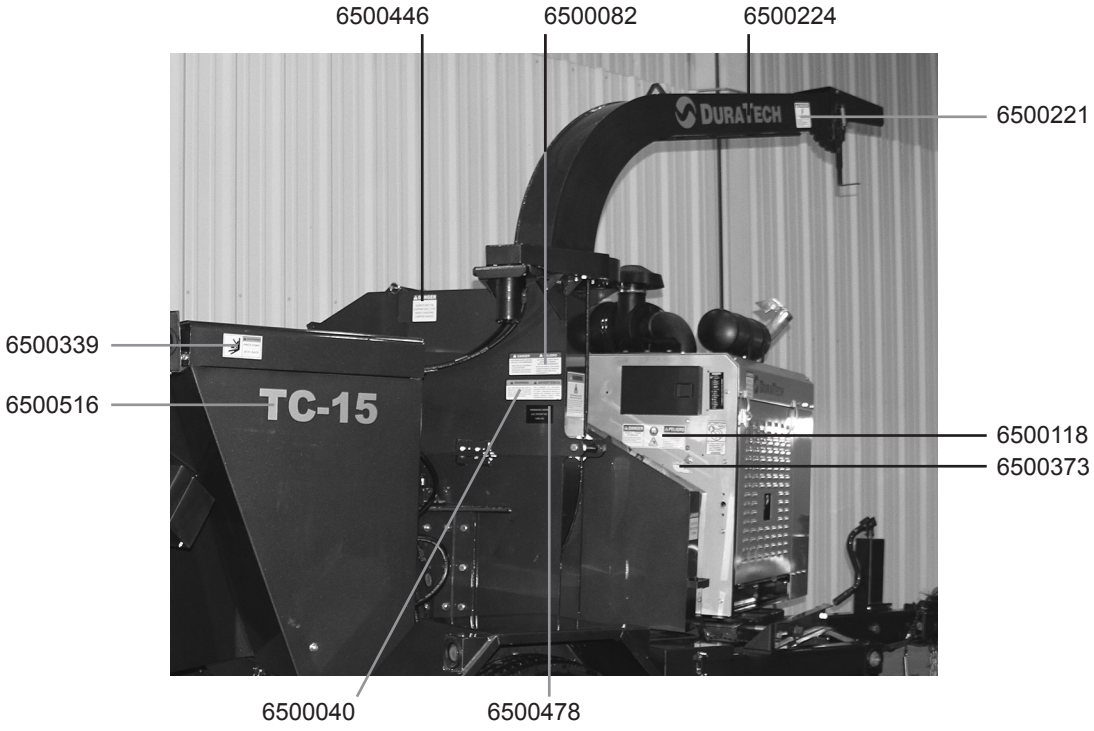

6500405
SPOUT
LIFT
SPOOL
RAISE
LOWER
IN
OUT
RPM
FEED
ENGINE OFF
BRUSH
FWD
OFF
REV
DuraTech Industries

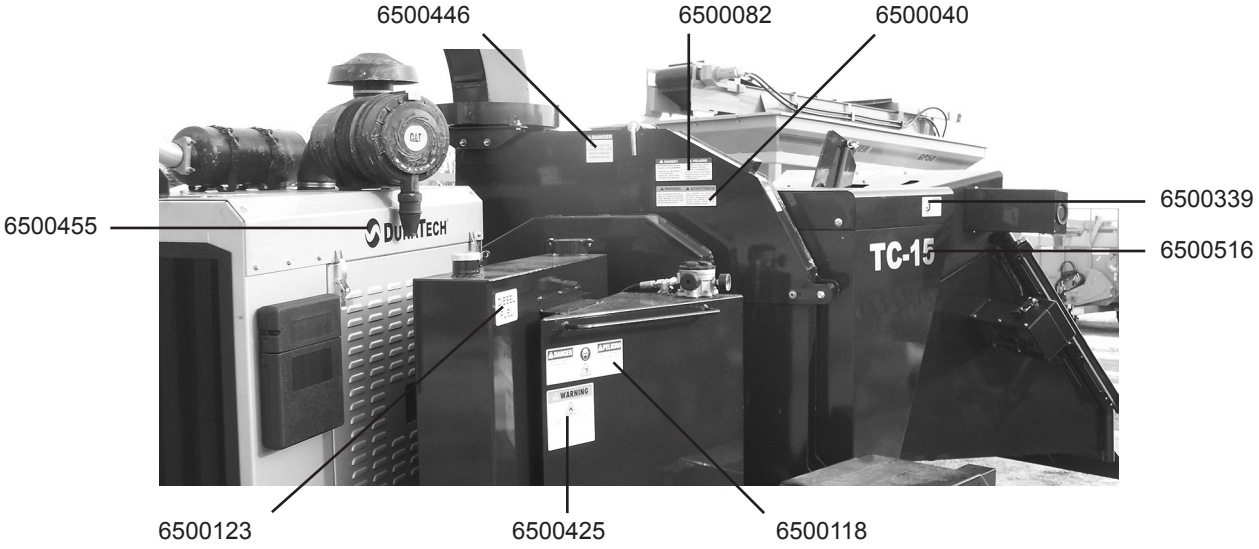

6500404
SPOOL
LIFT
SPOUT
IN
OUT
RAISE
LOWER
ENGINE OFF
FEED
FWD
OFF
REV
DuraTech Industries


RPM
MENU
ENTER
HPTO
START
AUTOFEED RESET
DANGER
OBJECTS THROWN BY MACHINE
PELIGRO
OBJETOS LANZADOS POR LA MAQUINA
ATTENTION
Welding Alert
PT Tech electronic components will be damaged if not unplugged before welding.
BATTERY CONNECT
6500449
6500118
6500373


6500425
6500448
6500455
6500447
TC-15
DURATECH


6500446
6500082
6500224
6500221
6500339
6500516
6500118
6500373
6500040
6500478
TC-15
DURATECH


6500445
6500445
6500245


6500446
6500082
6500040
6500455
6500339
6500516
6500123
6500425
6500118
TC-15
WARNING

TC-15 Documentation Comment Form

DuraTech Industries welcomes your comments and suggestions regarding the quality and usefulness of this manual. Your comments help us improve the documentation to better meet your needs.

- Did you find any errors?
- Is the information clearly presented?
- Does the manual give you all the information you need to operate the equipment safely and effectively?
- Are the diagrams and illustrations correct?
- Do you need more illustrations?
- What features do you like most about the manual? What features do you like least?

If you find errors or have specific suggestions, please note the topic, chapter and page number.

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Thank you for taking the time to help us improve our documentation.

For contact information, you can access our web page at:

www.duratechindustries.net

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DuraTech Industries International, Inc.
P.O. Box 1940
Jamestown, ND 58402-1940

APPENDIX C SCHEMATIC FOLDOUTS

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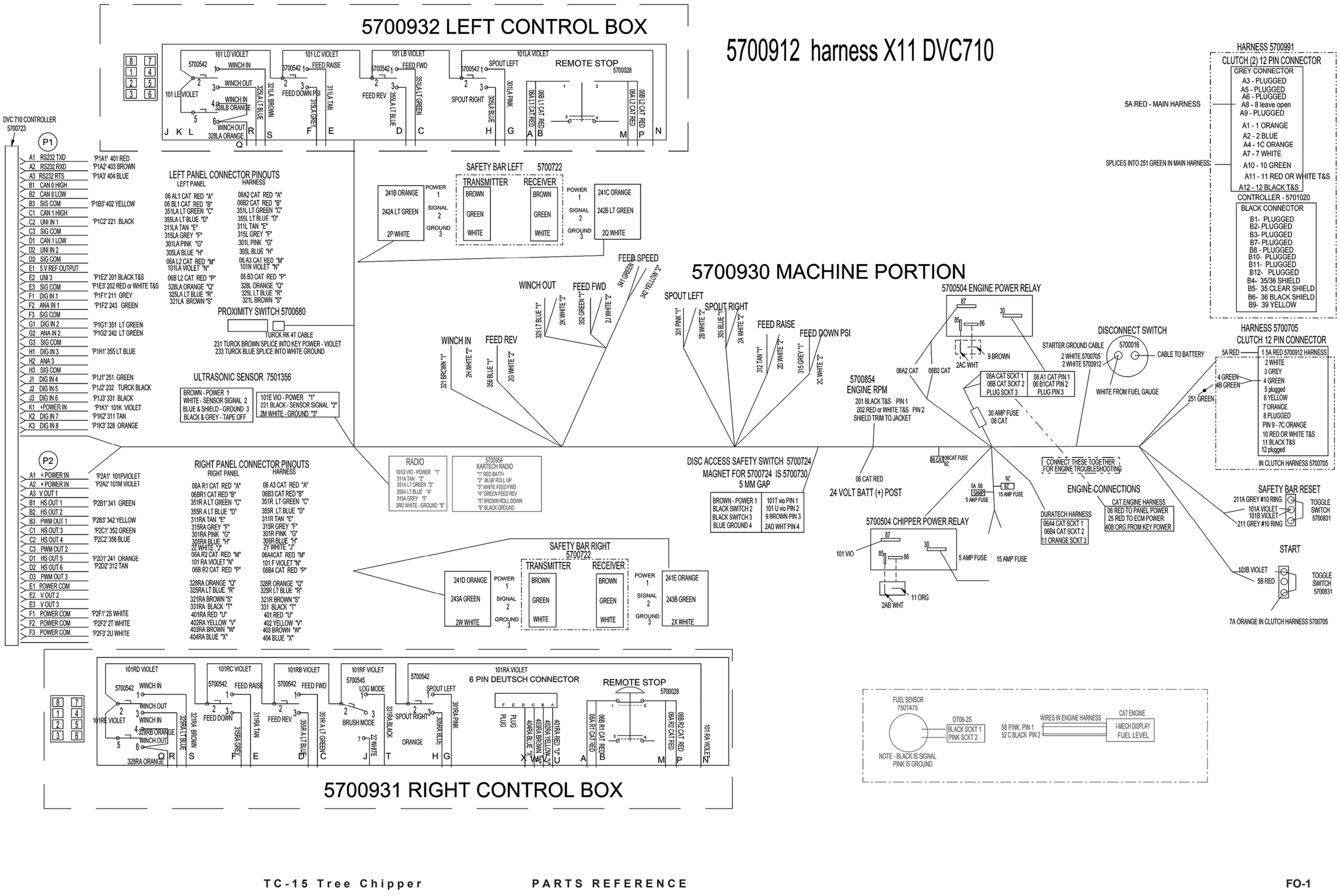
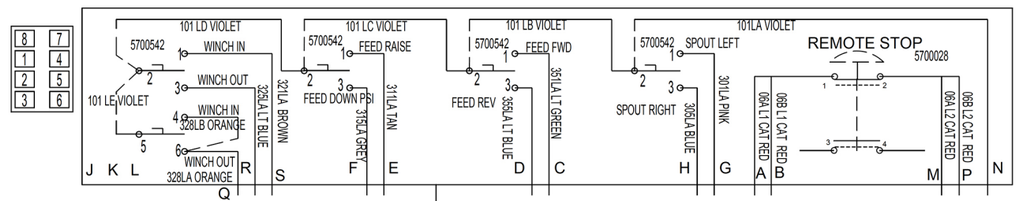

5700932 LEFT CONTROL BOX
5700912 harness X11 DVC710
5700930 MACHINE PORTION
5700931 RIGHT CONTROL BOX
DVC 710 CONTROLLER 5700723
P1
P2
LEFT PANEL CONNECTOR PINOUTS
RIGHT PANEL CONNECTOR PINOUTS
PROXIMITY SWITCH 5700680
ULTRASONIC SENSOR 7501356
SAFETY BAR LEFT 5700722
SAFETY BAR RIGHT 5700722
RADIO
5700954 KARTECH RADIO
DISC ACCESS SAFETY SWITCH 5700724
MAGNET FOR 5700724 IS 5700730
5 MM GAP
5700504 ENGINE POWER RELAY
5700854 ENGINE RPM
5700504 CHIPPER POWER RELAY
24 VOLT BATT (+) POST
DISCONNECT SWITCH 5700016
ENGINE CONNECTIONS
DURATECH HARNESS
CAT ENGINE HARNESS
HARNESS 5700991
CLUTCH (2) 12 PIN CONNECTOR
CONTROLLER - 5701020
HARNESS 5700705
CLUTCH 12 PIN CONNECTOR
SAFETY BAR RESET
START
6 PIN DEUTSCH CONNECTOR
FUEL SENSOR 7501475
WIRES IN ENGINE HARNESS
CAT ENGINE

5701143 CHIPPER

5700932 LEFT CONTROL BOX



5701144 MACHINE PORTION

DVC 710 CONTROLLER
5700723

P1

A1	RS232 TXD	'P1A1' 401 RED
A2	RS232 RXD	'P1A2' 403 BROWN
A3	RS232 RTS	'P1A3' 404 BLUE
B1	CAN 0 HIGH	
B2	CAN 0 LOW	
B3	SIG COM	'P1B3' 402 YELLOW
C1	CAN 1 HIGH	
C2	UNI IN 1	'P1C2' 221 BLACK
C3	SIG COM	
D1	CAN 1 LOW	
D2	UNI IN 2	
D3	SIG COM	
E1	5 V REF OUTPUT	
E2	UNI 3	'P1E2' 201 BLACK T&S
E3	SIG COM	'P1E3' 202 RED or WHITE T&S
F1	DIG IN 1	'P1F1' 211 GREY
F2	ANA IN 1	'P1F2' 243 GREEN
F3	SIG COM	
G1	DIG IN 2	'P1G1' 351 LT GREEN
G2	ANA IN 2	'P1G2' 242 LT GREEN
G3	SIG COM	
H1	DIG IN 3	'P1H1' 355 LT BLUE
H2	ANA 3	
H3	SIG COM	
J1	DIG IN 4	'P1J1' 251 GREEN
J2	DIG IN 5	'P1J2' 232 TURCK BLACK
J3	DIG IN 6	'P1J3' 331 BLACK
K1	+POWER IN	'P1K1' 101K VIOLET
K2	DIG IN 7	'P1K2' 311 TAN
K3	DIG IN 8	'P1K3' 328 ORANGE

LEFT PANEL CONNECTOR PINOUTS

LEFT PANEL	HARNESS
06 AL1 CAT RED "A"	06A2 CAT RED "A"
06 BL1 CAT RED "B"	06B2 CAT RED "B"
351LA LT GREEN "C"	351L LT GREEN "C"
355LA LT BLUE "D"	355L LT BLUE "D"
311LA TAN "E"	311L TAN "E"
315LA GREY "F"	315L GREY "F"
301LA PINK "G"	301L PINK "G"
305LA BLUE "H"	305L BLUE "H"
06A L2 CAT RED "M" 101LA VIOLET "N"	06 A3 CAT RED "M" 101N VIOLET "N"
06B L2 CAT RED "P"	06 B3 CAT RED "P"
328LA ORANGE "Q"	328L ORANGE "Q"
325LA LT BLUE "R"	325L LT BLUE "R"
321LA BROWN "S"	321L BROWN "S"

PROXIMITY SWITCH 5700680

TURCK RK 4T CABLE
231 TURCK BROWN SPLICE INTO KEY POWER - VIOLET
233 TURCK BLUE SPLICE INTO WHITE GROUND

ULTRASONIC SENSOR 7501356

BROWN - POWER 1
WHITE - SENSOR SIGNAL 2
BLUE & SHIELD - GROUND 3
BLACK & GREY - TAPE OFF

101E VIO - POWER "1"
221 BLACK - SENSOR SIGNAL "2"
2M WHITE - GROUND "3"

SAFETY BAR LEFT 5700722

241B ORANGE
242A LT GREEN
2P WHITE
POWER 1
SIGNAL 2
GROUND 3
TRANSMITTER: BROWN, GREEN, WHITE
RECEIVER: BROWN, GREEN, WHITE
POWER 1
SIGNAL 2
GROUND 3
241C ORANGE
242B LT GREEN
2Q WHITE

FEED SPEED

WINCH OUT: 325 LT BLUE "1"; 2K WHITE "2"
FEED FWD: 352 GREEN "1"; 2J WHITE "2"
341 GREEN
342 YELLOW "2"
WINCH IN: 321 BROWN "1"; 2H WHITE "2"
FEED REV: 355 BLUE "1"; 2G WHITE "2"

SPOUT LEFT / SPOUT RIGHT / FEED RAISE / FEED DOWN PSI

SPOUT LEFT: 301 PINK "1"; 2B WHITE "2"
SPOUT RIGHT: 305 BLUE "1"; 2A WHITE "2"
FEED RAISE: 312 TAN "1"; 2D WHITE "2"
FEED DOWN PSI: 315 GREY "1"; 2C WHITE "2"

5700992 ONLY USED WITH KUBOTA ENGINE

5700992 TO KUBOTA ENGINE
06A KUB RED — "BATT +" KEY SWITCH
06B KUB RED — "IGN" KEY SWITCH
11 KUB ORG

FUEL SENSOR
BL-WT PIN 1
WT-RD PIN 2
HARNESS 5700992
BLACK-WHITE — WIRE IN ENGINE HARNESS BROWN-WHITE
WHITE-RED — GROUND AT STARTER

5700504 ENGINE POWER RELAY

87, 30, 85, 86
9Z BROWN
2AC WHT
06A2 CAT
06B2 CAT

TIME DELAY RELAY 5701142

9Z BROWN
2AF WHT
87, 87A, 85, 86, 30
101 X VIO
9 BROWN

DISCONNECT SWITCH

STARTER GROUND CABLE
2 WHITE 5700705
2 WHITE 5700912
5700016
CABLE TO BATTERY
WHITE FROM FUEL GAUGE

06A CAT SCKT 1
06B CAT SCKT 2
PLUG SCKT 3
06 A1 CAT PIN 1
06 B1CAT PIN 2
PLUG PIN 3

30 AMP FUSE
06 CAT

5700854 ENGINE RPM

201 BLACK T&S PIN 1
202 RED or WHITE T&S PIN 2
SHIELD TRIM TO JACKET

06 CAT RED
24 VOLT BATT (+) POST

06 CAT
06CAT FUSE 6Z
5A 5B 5 AMP FUSE
6Z 15 AMP FUSE

CONNECT THESE TOGETHER FOR ENGINE TROUBLESHOOTING

ENGINE CONNECTIONS

DURATECH HARNESS
06A4 CAT SCKT 1
06B4 CAT SCKT 2
11 ORANGE SCKT 3

CAT ENGINE HARNESS
06 RED TO PANEL POWER
25 RED TO ECM POWER
40B ORG FROM KEY POWER

5700992 TO KUBOTA ENGINE
06A KUB RED — "BATT +" KEY SWITCH
06B KUB RED — "IGN" KEY SWITCH
11 KUB ORG

5700504 CHIPPER POWER RELAY

101 VIO
87, 30, 85, 86
5 AMP FUSE
15 AMP FUSE
2AB WHT
11 ORG

RADIO

101Q VIO - POWER "1"
311A TAN "2"
351A LT GREEN "3"
355A LT BLUE "4"
315A GREY "5"
2RD WHITE - GROUND "6"

OPTIONAL RADIO WIRES
321A BROWN "1"
325A LT BLUE "2"

PLUGGED

5700954 KARTECH RADIO

"1" RED BATT+
"2" BLUE ROLL UP
"3" WHITE FEED FWD
"4" GREEN FEED REV
"5" BROWN ROLL DOWN
"6" BLACK GROUND

DISC ACCESS SAFETY SWITCH 5700724

MAGNET FOR 5700724 IS 5700730
5 MM GAP

BROWN - POWER 1	101T vio PIN 1
BLACK SWITCH 2	101 U vio PIN 2
BLACK SWITCH 3	9 BROWN PIN 3
BLUE GROUND 4	2AD WHT PIN 4

SAFETY BAR RIGHT 5700722

241D ORANGE
243A GREEN
2W WHITE
POWER 1
SIGNAL 2
GROUND 3
TRANSMITTER: BROWN, GREEN, WHITE
RECEIVER: BROWN, GREEN, WHITE
POWER 1
SIGNAL 2
GROUND 3
241E ORANGE
243B GREEN
2X WHITE

PRESSURE SWITCH

902 BLUE 2 PIN DTZ PLUG "2"
101B VIOLET 2 PIN DTZ PLUG "1"

CLUTCH SOLENOID

2A7B WHITE 2 PIN DTZ PLUG "2"
251-10A GREEN 2 PIN DTZ PLUG "1"

ENGINE RPM

911 WHITE OR RED, PIN, #1
912 BLACK, PIN, #2

ENGINE CONTROL PANEL

5B RED SCKT 1
902 BLUE SCKT 2
211 GREY SCKT 4
101A VIOLET SCKT 5
2A7A WHITE SCKT 7
251-10b GREEN SCKT 10
911 WHITE OR RED SCKT 11
912 BLACK SCKT 12

P2

A1	+ POWER IN	'P2A1' 101PVIOLET
A2	+ POWER IN	'P2A2' 101M VIOLET
A3	V OUT 1	
B1	HS OUT 1	'P2B1' 341 GREEN
B2	HS OUT 2	
B3	PWM OUT 1	'P2B3' 342 YELLOW
C1	HS OUT 3	'P2C1' 352 GREEN
C2	HS OUT 4	'P2C2' 356 BLUE
C3	PWM OUT 2	
D1	HS OUT 5	'P2D1' 241 ORANGE
D2	HS OUT 6	'P2D2' 312 TAN
D3	PWM OUT 3	
E1	POWER COM	
E2	V OUT 2	
E3	V OUT 3	
F1	POWER COM	'P2F1' 2S WHITE
F2	POWER COM	'P2F2' 2T WHITE
F3	POWER COM	'P2F3' 2U WHITE

RIGHT PANEL CONNECTOR PINOUTS

RIGHT PANEL	HARNESS
06A R1 CAT RED "A"	06 A3 CAT RED "A"
06BR1 CAT RED "B"	06B3 CAT RED "B"
351R A LT GREEN "C"	351R LT GREEN "C"
355R A LT BLUE "D"	355R LT BLUE "D"
311RA TAN "E"	311R TAN "E"
315RA GREY "F"	315R GREY "F"
301RA PINK "G"	301R PINK "G"
305RA BLUE "H"	305R BLUE "H"
2Z WHITE "J"	2Y WHITE "J"
06A R2 CAT RED "M" 101 RA VIOLET "N"	06A4CAT RED "M" 101 F VIOLET "N"
06B R2 CAT RED "P"	06B4 CAT RED "P"
328RA ORANGE "Q"	328R ORANGE "Q"
325RA LT BLUE "R"	325R LT BLUE "R"
321RA BROWN "S"	321R BROWN "S"
331RA BLACK "T"	331 BLACK "T"
401RA RED "U"	401 RED "U"
402RA YELLOW "V"	402 YELLOW "V"
403RA BROWN "W"	403 BROWN "W"
404RA BLUE "X"	404 BLUE "X"

5700931 RIGHT CONTROL BOX