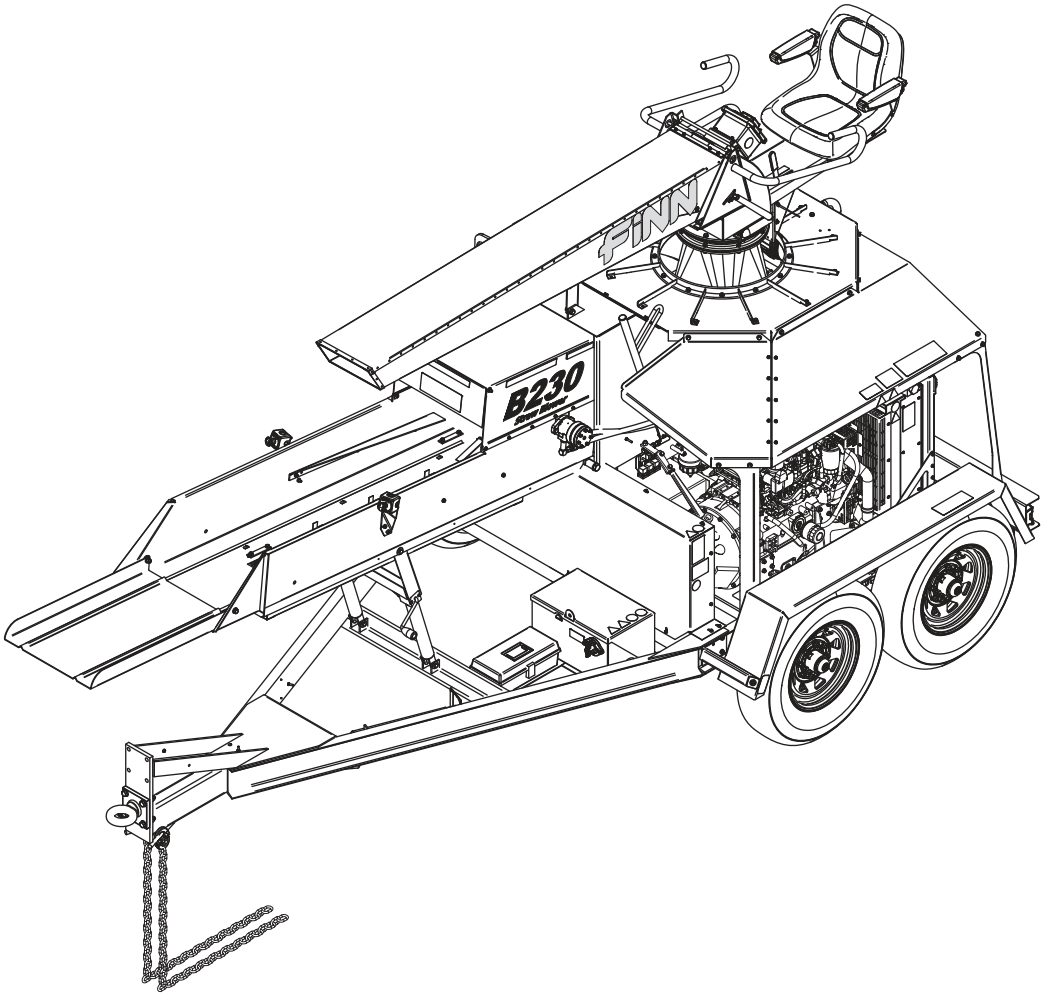
FINN CORPORATION®

Activate Your Warranty By Registering TODAY!!!

9281 LeSaint Drive • Fairfield, Ohio 45014
Phone (513) 874-2818 • Fax (513) 874-2914
1-800-543-7166



B230 Straw Blower

Operator Instructions and Parts Manual

Item **A5803-001** Serial No. _____

FOR OFFICE USE ONLY		
DATE	**UPDATE DESCRIPTION**	**CODE**
08/13/20	Initial release	OS0813
12/10/20	Parts Section of the Manual Added	OS1210

ACTIVATE YOUR FINN EQUIPMENT WARRANTY

☞ It is the responsibility of the Finn Dealer to register your Finn Equipment shortly after the equipment start-up and operation overview at which time you will be asked to sign off on the **WARRANTY VALIDATION FORM**.

Be sure to confirm with your sales representative that this has been done.

This registration process activates the Finn Limited Warranty.

What should you do if you need repairs or parts under Warranty?

How to get parts and or repairs done under warranty:

Notify **YOUR DEALER** immediately when you discover a faulty material, workmanship, or faulty component. **Do not** wait weeks or months to get it reported. Be sure to tell the dealer that this is a failure that occurred under warranty.

NOTE: Warranty work must be done by a Finn Authorized Dealer in order to be covered by the Finn Warranty Program, unless otherwise approved by the Finn Warranty Administrator.

Instructions to Dealer on processing warranty work:

Initiating a claim

1. Be sure to have the model, serial number and number of hours on unit.
2. A description of the problem as understood at the time.
3. Call Finn's Warranty Administrator to secure warranty claim authorization number.
4. Confirm with Warranty Administrator that the unit is eligible for warranty coverage.
5. Any parts needed for the repair work should be placed with the Warranty Administrator instead of the parts department. These will be shipped to you at no charge pending the outcome of the investigation.
6. Labor hours must coincide with the published "Labor Schedule" or estimate approved by the Finn Warranty Administrator.
7. Once work is done, a Finn Warranty Claim Form must be filled out and emailed along with any related receipts or invoices to the Warranty Administrator. We ask that this is done ASAP after work is completed.

Faulty or failed parts:

IF Finn wants you to return failed parts, you will receive a return shipping label in the package with new parts. On that Label will be marked a return authorization number. (Which is the same number as you claim number.)

Please also mark the outside of the package that you are shipping back (using a marker) with the claim/return number. **THESE PARTS MUST BE RETURNED WITHIN 10 DAYS!** Failure to do so can void warranty coverage.

NOTE: Further information and related forms can be found on the Finn Web site in the Dealer Portal warranty section.

FINN CORPORATION®

WARRANTY PERIOD

Hydroseeders® and Straw Blowers: 2 years or 2000 hours, whichever comes first.

Bark Blowers: 1 year or 1200 hours, whichever comes first.

COMMERCIAL LIMITED WARRANTY

EFFECTIVE 01/01/2018

OUR WARRANTY TO YOU

Finn Corporation warrants to you, the original purchaser, for use (or rental to others for use) and to a second owner who purchases a used machine from an Authorized Dealer Rental Program (the remaining warranty), all new construction machinery, parts and attachments (except those referred to herein) that are manufactured by Finn to be free from defects in material and workmanship for a period noted above. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product to which parts are installed, as if parts were original components of the product.

TO QUALIFY FOR WARRANTY CONSIDERATION

A. Your Finn Dealer will register your equipment with Finn. **FAILURE TO REGISTER WILL VOID THE WARRANTY.**
B. Notify your dealer same day or next day of any need for work under warranty.
C. Warranty work must be done by an authorized Finn dealer or service provider of Finn's choice and any parts must be ordered through the Finn warranty administrator.

WHAT FINN WILL DO

Upon notification to Finn concerning a failure of material or workmanship in accordance with the above stated Warranty, Finn Corporation will:

A. Verify claim falls within the valid warranty time frame.
B. Verify the product and equipment has been registered with Finn.
C. Upon affirmation of warranty period and registration, Finn will provide new or repaired replacement part(s), whichever Finn elects and a return shipping label for returning failed parts if applicable.
D. Evaluate the part when defective part is returned. If damage to a part is determined not to be covered under the warranty, the customer will be billed.
E. Reconcile costs with customer for parts and shipping, as determined by our inspection of failed parts, and confirmation of warranty coverage, per the terms of this warranty.
F. Correction of nonconformities, in the manner provided above, shall constitute fulfillment of all liabilities of Finn Corporation.

WHAT THE WARRANTY DOES NOT COVER

1. Normal wear parts, Allied Equipment, trade accessories not manufactured by Finn, such as but not limited to items such as various filters, fluids, brakes, clutch linings, coupler insert, belts, hoses, light bulbs, mechanical seal, over center clutches, tires, ignitions, starters, batteries, carburetors, engines or like or unlike equipment or accessories. (Such being subject to the warranty, if any, by their respective manufacture).
2. Secondhand, used, altered, or rebuilt machines or parts.
3. Defects, malfunctions or failures resulting from accidents, abuse, misuse, improper servicing, or neglect of required operational guidelines and maintenance service, as outlined in the Finn Corporation's Operators Manual(s).
4. Any defect or failure of products warranted arises out of or is caused by accessories or parts not manufactured or supplied by Finn Corporation, whether same are supplied by purchaser, dealers, or any other party.

STORAGE

Dealers and customers are responsible to follow all guidelines related to Seasonal and Long Term Storage of Equipment, as advised in operation and equipment manuals. i.e. Finn, Engine, Clutch, Pump, Motor, etc. Equipment failures caused by neglect of these guidelines are not warrantable.

THIS IS THE ONLY EXPRESS WARRANTY ON OUR PRODUCTS

We neither assume nor authorize anyone to assume for us any other express warranty. The Distributor/Dealer has no authority to make any representation or promise on behalf of Finn Corporation or to modify the terms or limitations of this warranty in any way.

THIS WARRANTY THEREFORE SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

LIMITATIONS ON OUR RESPONSIBILITY WITH RESPECT TO PRODUCTS PURCHASED

THE REMEDIES OF THE USER SET FORTH HEREIN ARE EXCLUSIVE, WITHOUT REGARD TO WHETHER ANY DEFECT WAS DISCOVERABLE OR LATENT AT THE TIME OF DELIVERY OF THE PRODUCT TO THE PURCHASER.

ALL WARRANTY REPAIR MUST BE DONE BY A FINN AUTHORIZED SERVICE PROVIDER OR AUTHORIZED REPAIR SHOP OF FINN'S CHOICE.

TRANSPORTATION, HAULING, STORAGE, OR OTHER SIMILAR COSTS ARE NOT PART OF FINN'S OBLIGATION UNDER THE LIMITED WARRANTIES AND IS THE RESPONSIBILITY OF THE EQUIPMENT OWNER.

THE ESSENTIAL PURPOSE of this exclusive remedy shall be to provide the original purchaser with repair or replacement of parts that prove to be defective within the period and under the conditions previously set forth. This exclusive remedy shall not have failed of its essential purpose (as that term is used in the Uniform Commercial Code) provided Finn remains willing to repair or replace defective parts within a commercially reasonable time after it obtains actual knowledge of the existence of a particular defect.

IN NO EVENT shall Finn be liable for any special, consequential, incidental or indirect damages, including lost profits or lost commercial opportunities, with respect to the sale of the above warranted product or anything done in connection therewith, or for property damage sustained by a person claiming to be a third party beneficiary of a surviving warranty under the law of any jurisdiction.

NOTICE

FINN CORPORATION URGES the use of only Finn corporation supplied parts and attachments to assure proper performance and safe operation of Finn corporation equipment. Insist on parts and attachments manufactured or supplied by Finn corporation when you purchase, repair or replace your Finn equipment and attachments. Finn corporation cannot assure that parts and attachments not manufactured or supplied by Finn meet Finn corporation's quality standards, specifications, or operating requirements. Our warranty is not effective to the extent any failure of or defect in a Finn corporation product arises from or is caused by parts, attachments or components not originating with Finn corporation. Use of Finn corporation equipment with parts and attachments not manufactured or supplied by Finn could result in personal injury and void warranty coverage.

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SAFETY FIRST

With any piece of equipment, new or used, the most important part of its operation is **SAFETY!**

FINN Corporation encourages you and your employees to familiarize yourselves with your new equipment and stresses safe operation.

The first five pages of this manual are a summary of the main safety aspects associated with this unit. Be sure to read and understand completely before operating the machine.

The symbols below are used throughout the operation and maintenance sections of this manual to call attention to safety procedures.

⚠ DANGER ***Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.***

⚠ WARNING ***Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.***

⚠ CAUTION ***Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.***

NOTICE ***Notice indicates important information, that if not followed, MAY cause damage to equipment.***

NOTE: This is helpful information.

CALIFORNIA PROPOSITION 65

⚠ WARNING ***The engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm. Wear protective equipment. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle.***

⚠ WARNING ***Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.***

- ***Always start and operate the engine in a well-ventilated area.***
- ***If in an enclosed area, vent the exhaust to the outside.***
- ***Do not modify or tamper with the exhaust system.***
- ***Do not idle the engine except as necessary.***

⚠ WARNING ***Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.***

⚠ WARNING ***This product can expose you to chemicals, including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. Go to www.P65Warnings.ca.gov for more information.***

STRAW BLOWER SAFETY SUMMARY SECTION

It is important that all operators of this machine are familiar with all safety aspects mentioned below, and have read the entire Operator's Manual before operating the machine. Always keep a copy of this manual with the machine. It is the responsibility of the operator of the machine to fully understand this safety sheet. Remember that **YOU** are the key to safety. Good safety practices protect not only you, but also the people working with and around you. Keep in mind that this safety sheet is written for this type of machine only. Practice all other usual and customary safe working precautions. Above all, remember that safety is up to you.

The FINN STRAW BLOWER is intended to be used as an applicator of vegetative hay or straw mulches onto the seedbed. Its use with other products or for other applications must be by approval of the product's manufacturer. If there are any questions, contact FiNN Corporation at 1-800-543-7166.

I. PRE-START EQUIPMENT CHECK (equipment check is to be made with the engine off)

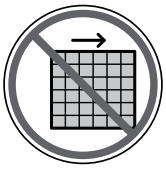
1. Check hitch and hitch bolts, safety chains, lights, brakes, and breakaway switch. Verify that the hitch ball is the correct size for the coupler.

2. Check that all guard railing is in place and secure.
3. Verify that all guards are in place.
4. By carefully looking in the shredder box, inspect the shredder box for foreign objects.
5. With the ignition switch ON, verify that the signal horn is operating correctly.
6. Make sure no one is working on or inside the machine. Give a visual and audible signal that all is clear before starting the engine.

II. MACHINE OPERATION

1. Always wear safety goggles when operating or feeding the machine. Other safety attire, such as safety shoes, ear protection, gloves, hard hats, dust masks, etc., should be worn as required by warning decals on machine, operator's manuals, or job site requirements. Remove rings, watches, etc. Avoid wearing loose-fitting clothing that may get caught in rotating machinery.

2. Do not operate the machine without all guards in place.



II. MACHINE OPERATION (Continued)

3. Make sure the discharge area is clear of all persons, animals, etc.
4. The driver of the carrying or towing vehicle is responsible for the safety of the operator(s) and feeder(s) of the machine. Make sure the driver is aware of and avoids all possible hazards to the operator(s) on the machine, such as tree limbs, low power lines, etc. Vehicles on which equipment is mounted or towed must be started or stopped gradually. Avoid abrupt starts and stops. Never operate on a slope or a hill that may endanger the operator(s). All personnel should review and be familiar with start/stop signals between the driver and operator(s) before operation of the equipment.
5. Operator(s) of equipment should never ride on machine at speeds greater than 5 MPH (8 km/h).

6. Never operate machine in an enclosed area without venting the exhaust of both the equipment and the vehicle on which the equipment is mounted or towed. Deadly carbon monoxide fumes can accumulate.

7. Never operate this or any other machinery when fatigued, tired, under the influence of alcohol, illegal drugs, or medication. You must be in good physical condition and mentally alert to operate this machine.

II. MACHINE OPERATION (Continued)

8. Never modify the machine. Never remove any part of the machine (except for service and then reinstall before operating).

9. Use proper means for mounting and dismounting of machine. Never mount or dismount a moving machine.
10. Do not aim discharge at people, animals, etc. Only aim the discharge at the intended seedbed.
11. Do not open any doors or access panels while machine is in operation. Severe injury may result from rotating parts.
12. Do not attempt to pull anything out of the feed chute or shredder box when machine is in operation. Shut down the engine and ensure non-operational machine state using the Occupational Safety and Health Administration (OSHA) lockout/tagout procedure (29CFR 1910.147) before removing any foreign objects. Give a visual and audible signal that all is clear before restarting the machine.

III. MAINTENANCE

1. Before servicing the machine, turn off engine and allow all moving parts to stop. Disconnect the battery cables to prevent accidental starting of the machine. Tag the engine operating area to show that the machine is being serviced. Use OSHA lockout/tagout procedure (29CFR 1910.147).

2. Perform general maintenance such as checking the safety chains, hitch, hitch bolts, tires, and brakes. Repair or replace if worn or broken. Never operate machine on improperly inflated or damaged tires. Always use a safety cage or cable restraints when reinflating a repaired tire.

III. MAINTENANCE (Continued)

3. Battery maintenance. Lead-acid batteries contain sulfuric acid, that will damage eyes or skin on contact. Always wear a face shield to avoid getting acid in the eyes. If acid contacts eyes, flush immediately with clean water and get medical attention. Wear rubber gloves and protective clothing to keep acid off skin. Lead-acid batteries produce flammable and explosive gases. Keep arcs, sparks, flames, and lighted tobacco away.

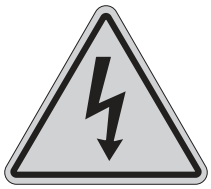
4. Filling of fuel. Never fill the fuel tank while the engine is running, while smoking, or when near an open flame. Never smoke while handling fuel or working on the fuel system. The fumes in an empty fuel container are explosive. Never cut or weld on fuel lines, tanks, or containers. Move at least 10 feet (3 meters) away from fueling point before starting engine. Wipe off any spilled fuel and let dry before starting engine

   IMPORTANT: Be careful not to allow fuel, lubricant, hydraulic fluid, or cooling fluids to penetrate into the ground or be discharged into the water system. Collect all used fluids and dispose of them properly.

5. It is recommended that only authorized, genuine FiNN replacement parts be used on the machine.
6. Make certain that all decals on the machine are maintained in good legible condition. Replacement decals are available through FiNN Corporation by specifying the part number shown in the lower right-hand corner of the decal. See page 4 for the current set of safety decals mounted on the unit. See Parts Manual for the location and quantity of all decals on this unit.
7. Do not pressure wash this unit. Do not pressure wash around any control boxes, radio remotes or control panels. Pressure washing this unit can cause damage to the electrical systems and components and also cause the unit to not function. Pressure washing injects water into sensitive electrical components. To clean the unit, use a method that controls the amount of water that is applied to the surface of the unit.

COMMON SAFETY SYMBOLS


Hazard/
Attention


Electrical
Shock Hazard


Hearing
Hazard


Arc Flash
Hazard or
Explosion
Hazard


Electrocution
Hazard


Fire Hazard


Body
Entanglement
Hazard

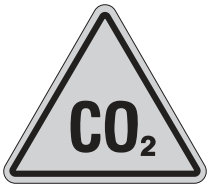

Electrostatic
Discharge
Hazard


Fumes/Dust
Hazard


Burn Hazard


Electrostatic
Sensitive Area
Hazard


Pinch Point/
Entanglement
Hazard



Carbon
Dioxide
Hazard


Explosive or
High Pressure
Hazard


Grounding
Required
Hazard


Corrosive
Hazard


Explosive
Material
Hazard


Crush Hazard


Cut/Crush
Hazard


Vision Damage
Hazard


Crush/Pinch-
point Hazard


Cut/Sever
Hazard


Vision and
Hearing
Damage
Hazard


Crush/
Entrapment
Hazard


Sever/Reach
Hazard


Vision,
Hearing and
Respiratory
Damage
Hazard


High Voltage
Hazard

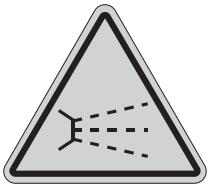
COMMON SAFETY SYMBOLS

Heavy Object Hazard

Skin Puncture Hazard

Vision Protection Required

Hot Surface Hazard



Splash/Spray Hazard

Hearing Protection Required

Loose Clothing Entanglement Hazard

Stumble Hazard

Vision, Hearing and Head Protection Required

Pinch Point/ Moving Belt Hazard

Trip Hazard

Breathing, Vision, Hearing and Head Protection Required

Poison Hazard

Watch Head/ Overhead Hazard

Foot Protection Required

Radio Frequency Hazard

Fall/Loss of Balance Hazard

Lockout/ Tagout Procedure Required

Remote Start Hazard

Mandatory Operator Action Required

Gloves Required

Sever by Rotating Parts Hazard

Read Manual

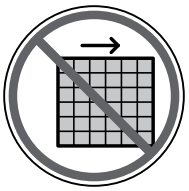
Trailer Safety

Rotating Shaft Hazard

Breathing Protection Required

Lift Point

COMMON SAFETY SYMBOLS



Do Not Remove Guards

Do Not Obstruct or Block

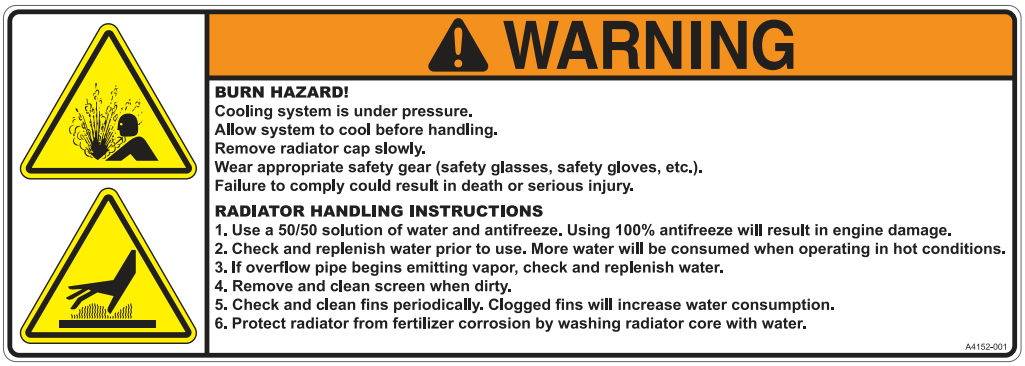
Do Not Spray Power Lines

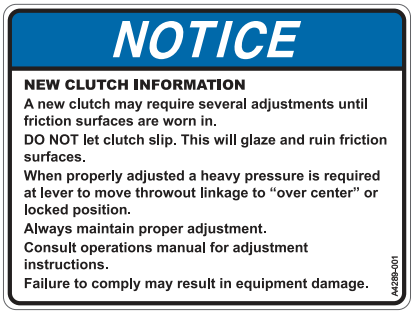
Do Not Touch

Diesel Engine

Do Not Pressure Wash

EXAMPLES OF SAFETY DECALS





OPERATION AND MAINTENANCE MANUAL FOR THE B230 STRAW BLOWER

INTRODUCTION

This manual is designed for step-by-step instructions of the operation, care, and maintenance of the B230 Straw Blower and, in addition, it contains illustrations and descriptions of a complete list of parts and components for easy identification. For best results and to ensure longer life of the equipment, please follow the instructions carefully. For your safety, read the entire manual before operation of this unit.

DEFINITION OF MULCHING

Mulching is the process whereby a vegetative mulch, such as hay or straw, sometimes excelsior, or other wood product or other vegetative material, is spread on previously seeded areas to promote germination, while providing temporary erosion control.

THE FINN B230 STRAW BLOWER AND HOW IT WORKS

The FINN B230 Straw Blower will apply vegetative mulch at a fast and uniform rate, utilizing a minimum amount of manpower.

The baled vegetative mulch material is placed on the feed chute by the bale feeder. With the B230 unit there is no need for the person loading the feed chute to break the bales apart. This unit has a bale breaker/pick wheel that mechanically breaks the bales before they enter the shredder box. In the shredder box, a combination of beater chains and air currents separates the mulch into individual fibers that are drawn into the blower housing and blown through the discharge assembly onto the seedbed.

TOWING VEHICLE

The truck used to tow the FINN Straw Blower should have a bed large enough to carry the quantity of mulch needed for economical operation. If the Straw Blower is going to be used on rough, hilly terrain, a truck with a two-speed axle is suggested. This will supply the necessary slow speed required for careful, uniform application.

The truck must be equipped with a pintle hitch with a large enough rating to tow the Straw Blower. There must be provisions for the safety chains to be attached. The hitch should be mounted as near the end of the truck bed as possible.

LOADING BALES

Load the bales of mulch on the truck bed with binder twine or wire on top rather than on the side. This makes it easier to grab the bales while the Straw Blower is in operation. Place the first layer of bales “lengthwise” on the truck. The second layer of bales should be placed “crosswise”. Alternate successive layers lengthwise and crosswise in order to secure the load. Leave enough room at the rear of the truck bed for the bale handler to stand.

EQUIPMENT CHECK

⚠ WARNING ***Equipment check should be made with the engine OFF and all rotating parts stopped. Failure to comply could result in death or serious injury.***

1. Tool kit - make sure that it contains all prescribed items (see tool kit list).
2. Check shredder box for foreign objects that could damage the equipment or injure workers.
3. Check fuel tank and fill as required. Refer to engine operator's manual for fuel specifications and requirements.
4. Check engine oil and fill or change as required. Refer to engine operator's manual.
5. Check liquid level in radiator and overflow tank. Refer to engine operator's manual.
6. Inspect air cleaner for dust and dirt.
   A. Knock the loose particles from element.
   B. Wash with water and detergent. Do not pressure wash.
   C. Rinse and allow to dry. Do not force dry, do not use compressed air or heat.
7. Engage and disengage clutch to determine if it "snaps" in and out of engagement.
8. Check beater chains and their mounting pins for damage or wear. Replace if necessary.
9. Lubricate equipment. Use hand gun only (see lube chart).
10. Check belts for proper tightness. Belts are in proper adjustment when 8 lb (3.6 kg) pressure in the center of the belt, produces 3/8 in. (1 cm) depression.

POSITIONING THE FEED CHUTE EXTENSION

The feed chute extension, when opened, should extend at least 18 in. (45 cm) over the rear edge of the truck bed. To achieve this, use the following:

1. Unhook the discharge spout holddown and fold it down to the horizontal position.
2. Move the discharge tube to the side.
3. Move the feed chute extension down to the feed position. If the extension is short of the edge of the truck bed, move it to the rear set of mounting holes.
4. Next, adjust the feed chute so that it is 6 to 12 in. (15 to 30 cm) higher than the bed of the truck.
5. Be sure that, when turning the truck, the payload does not come in contact with the feed chute.

PRE-START CHECK

Safety check to ensure operator safety:

1. Inspect the bolts on the hitch and safety chains, the brakes, and the trailer lights.
2. With ignition ON, check the amber safety light. Check the safety switches if the amber safety light is not flashing.
3. Check that the signal horn operates properly.
4. Ensure that all guards are in place.

STARTING PROCEDURE

⚠ CAUTION ***See safety section of the manual (pages 1 through 4) before operating the machine. Failure to comply could result in minor to moderate personal injury. Failure to comply could also result in product or property damage.***

1. Make sure the fuel filter/water separator fuel cock is in the ON position.
2. Disengage the PTO clutch.

NOTICE ***Never use an engine starting aid such as ether. Engine damage will result. Prime the engine before starting. If air is mixed in the fuel, damage to the supply pump and the injector may result.***

3. Insert the key into the key switch. The control panel is powered from the engine battery connection from the engine harness connector. Make sure the engine harness is connected to the control panel before proceeding.
4. Power up the system by turning the key switch to the **ON** "⏻" position. This will activate the control panel and apply power to the engine ECU. The system automatically energizes the glow plug relay and keeps it energized for a set amount of time depending on the cooling water temperature.

NOTE: A glow plug assists starting in cold weather conditions.

⚠ WARNING ***If the control panel indicates a fault condition, DO NOT start the engine. Review the fault condition and correct the condition before starting the engine. See Fault Codes section for details on system faults.***

5. Turn the key clockwise to the **START** "⏲" position. Release the key as soon as the engine starts. It will return to the ON position. If a fault condition exists, the engine ECU may prevent the engine from starting. All fault conditions will be indicated by the digital display. The display will indicate the active fault(s) by presenting a pop-up graphic describing the fault condition.

NOTICE ***Never hold the key in the START position for longer than 15 seconds or the starter motor will overheat.***

6. If the engine fails to start:
   a. Wait until the engine comes to a complete stop before you attempt to start it again. Engaging the starter while the engine is still rotating will result in damage to the starter and flywheel.
   b. Wait at least 30 seconds before you attempt to start the engine again. This procedure will allow the battery voltage to recover and prevent damage to the starter motor due to a low battery voltage.
7. Once the engine is started, the control panel will set the engine speed to the minimum RPM speed setting. To change the engine speed, toggle the throttle control switch ("Fast-Rabbit/Slow-Turtle") to the desired speed setting. The engine speed cannot be set below the minimum RPM speed setting or above the maximum RPM speed setting.

8. With the engine still idling, engage the clutch slowly. Move the throttle to wide-open position and let the governor control the engine speed.

⚠ CAUTION ***Do NOT engage the PTO clutch above 1000 RPMs or damage to the PTO clutch will occur.***

SHUTTING DOWN THE ENGINE

For maximum engine life, allow the engine to idle, without load, for five minutes. This will allow the engine components that operate at high temperatures, such as the turbocharger (if equipped) and exhaust system, to cool slightly before the engine itself is shut down.

Follow these steps to shut down the engine:

1. Disengage the PTO.
2. Set the engine speed control to its lowest setting.
3. Run the engine at low idle speed for at least five minutes before you shut it down.
4. Turn the key to the **OFF** "|" position, and remove the key from the switch.

CREW MEMBERS AND THEIR DUTIES

1. The Operator controls the placement of the mulch on the seedbed by moving the discharge assembly. He also controls the movement of the towing truck along the seedbed by using a predetermined set of hand or horn signals.
2. The Bale Handler operates from the truck bed and supplies the feeder with bales of mulch material, cut side up.
3. The Bale Feeder cuts and disposes of the twine or wire. He keeps the power feed chute full of material with no gaps so there will be no interruption in distribution of mulch to the seedbed.
4. The Truck Driver follows the directions of the operator for the movement of the towing truck. The truck driver should be cautious in starting or stopping the truck so that the crew members are not thrown off balance.

FEEDING THE MULCH

The power feed assembly of the FINN Straw Blower has been designed to give fast, uniform mechanical feeding. The adjustable feeding rate allows the use of various materials, and at the same time obtains maximum production. The power feed assembly is driven by a power feed chain. This allows the mulch material to be fed at an adjustable rate to the separator roll, which drops the bats into the shredder housing.

The power feed chain is driven by a hydraulic motor mounted on the top side of the power feed chute. This motor is controlled by the operator at the discharge control station. The power feed control is a lever that, when pulled back from the center position, makes the power feed chain run away from the shredder housing. When pushed forward from the center position, it causes the power feed chain to move toward the shredder housing. Either forward or rearward, the farther the lever is moved, the faster the chain travels. Once a speed has been selected, centering the lever stops the chain. If the lever is returned to its previous position, the chain will move at the previous speed. Through use of the power feed control lever, the operator can momentarily stop the feeding cycle when wet bales are encountered or when it is necessary to stop application because of driveways, bridge abutments, etc. The operator can slow down or speed up the rate of feeding depending on the type of material that is being encountered per bale.

To start the power feed, push the control lever slowly until the desired speed is reached. It is necessary for bale handlers to keep the power feed chute completely full at all times in order to get the maximum production rate of the FINN Straw Blower.

FEEDING THE MULCH (CONTINUED)

The operator should have a full stream of mulch coming at all times and should be directing the material to the area being mulched. The operator has complete control of the power feed mechanism by the use of the control lever and can vary the rate of feed instantaneously to fit all conditions. If the bale handlers are unable to keep the feed chute full, the operator should slow the feed down slightly until the bale handlers can keep up. This will allow a more uniform application. If the feed rate is not fast enough for good, bright straw, and the control handle is full forward, move the handle to the right and then forward into the high-speed forward slot.

It is suggested that with every truckload of mulch, the power feed tray should be emptied. This will allow the operator to remove any wire or twine from around the feeder roll.

Rate of feed should never be set beyond the capacity of the machine so as to compensate for the poor quality of mulch material being used. Failure to comply could result in overloading of the machine, which causes extensive wear and maintenance problems.

DISTRIBUTING THE MULCH

The Straw Blower should be towed to a point approximately 60 ft. (18 m) from the area where mulch is to be applied. The operator elevates the discharge spout about 10 degrees above the plane of the seedbed so that the mulch floats onto the seedbed.

NOTE: Do not drive the mulch into the seedbed with air pressure. The higher the tube is held, the more uniform the application will be.

A full circle horizontal travel of the discharge spout allows the operator to vary the direction of the discharge spout according to the prevailing winds. The tube should never be directed into the wind, towards any persons, or at the towing vehicle.

SMOOTHING OUT MULCH PATTERNS

The lower roll assembly in the shredder housing, driven by the blower power band, is equipped with mounting points for eight beater chains and six fingers. For normal straw application, only four to six chains are needed. If you have material coming out in lumps or find it impossible to handle because the mulch is wet or hard, install extra chains in pairs until smoothness of mulch application is reached.

⚠ CAUTION ***Be sure beater chains are mounted opposite each other at all times to avoid throwing the blower shaft out of balance. Failure to comply could result in minor to moderate personal injury. Failure to comply could also result in product or property damage.***

If your equipment is still throwing mulch material out in lumps and does not have a good discharge pattern, move the last beater hub closer to the blower housing, but within the shredder box.

CLOGGING OF THE MULCH BLOWING SYSTEM

If during operation the machine gets plugged, simply shut off the power feed. If the machine does not clear, disengage clutch and let the machine coast to a stop. Before turning off the engine, the operator can reverse the power feed chain using the control lever. This will unload the power feed chute to facilitate cleaning the machine.

⚠ DANGER ***Do not reach into the shredder box or attempt to make any adjustment until the engine and all rotating parts have stopped. Failure to comply WILL result in serious personal injury or death.***

Four access locations have been provided to allow the removal of any obstructions:

1. The opening into the beater box into which the mulch material is fed.
2. The access door in the shredder housing.
3. The access door into the blower discharge transition.
4. The discharge tube itself.

When the obstruction has been removed and access doors closed, the motor can be restarted and mulch application continued.

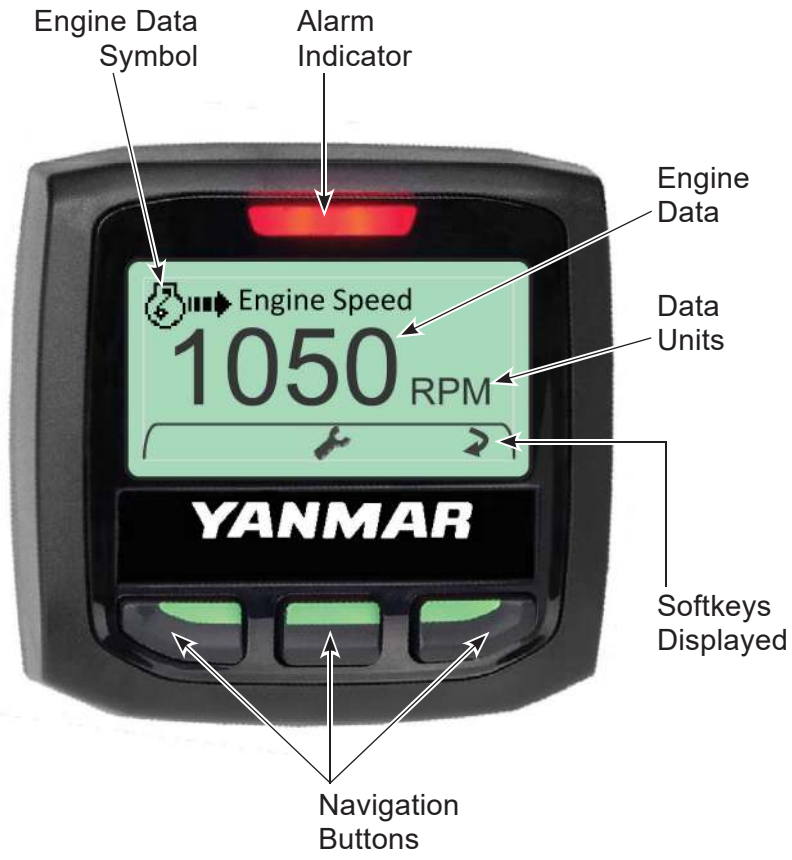
If consistent plugging occurs, it can be caused by one of several reasons:

1. The bale handlers do not feed the bales at a consistent rate and/or do not guide the bales properly onto the power feed mechanism, leaving gaps in the stream of bales or leaving the bats laying flat on the tray.
2. The power band is out of adjustment, causing it to slip.
3. The clutch is out of adjustment and is slipping.
4. Incorrect type or quantity of beater chains are installed.
5. Operator is feeding the mulch material too fast, overloading the shredder housing.

SYSTEM OPERATION

MENU NAVIGATION

The control unit has three navigation buttons which are configured as softkeys. The system softkeys are used to navigate between displays, select menu items and change data. Pressing any of the three navigation buttons will display the softkey menu that is associated with each button.



Softkeys Displayed

- : Main Menu
- : Exit
- : Change
- : Scroll Up
- : Scroll Down
- : Next
- : Increase Vale
- : Decrease Value
- ✓ : Acknowledge
- ? : More Information

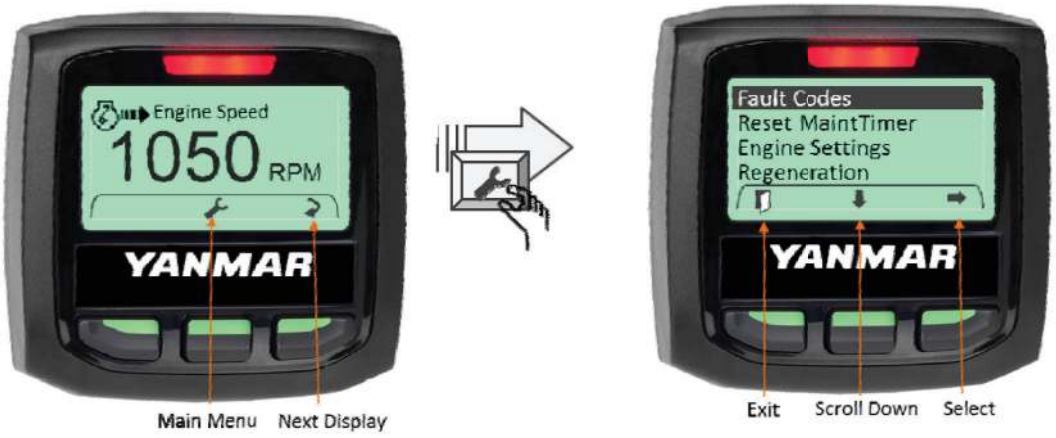
CHANGING DATA DISPLAYS

To change the data being displayed, press any key to activate the softkey menu. Press the Change "" softkey to access the next data display available.

See System Display List for complete selection of data displays available.

MAIN MENU ACCESS

To access the Main Menu, press any of the three navigation buttons. The unit will display a softkey popup window defining the available navigation possibilities. Select the Main Menu using the center softkey as shown.



MAIN MENU NAVIGATION

Access the main menu using the center softkey. The main menu will be displayed along with the main menu softkey popup window. Navigate through the main menu selections by using the "⬇" key. When the desired menu item is highlighted, press the "➡" key to select the menu item. To exit the main menu and return to the data displays press the EXIT "◧" softkey.

CHANGING PARAMETER SETTINGS

Parameter settings can be changed in one of two ways: using the "➕" / "➖" softkeys to increase or decrease a numeric value or using the Change "↻" softkey to toggle through a list of programmed settings.

FAULT CODES

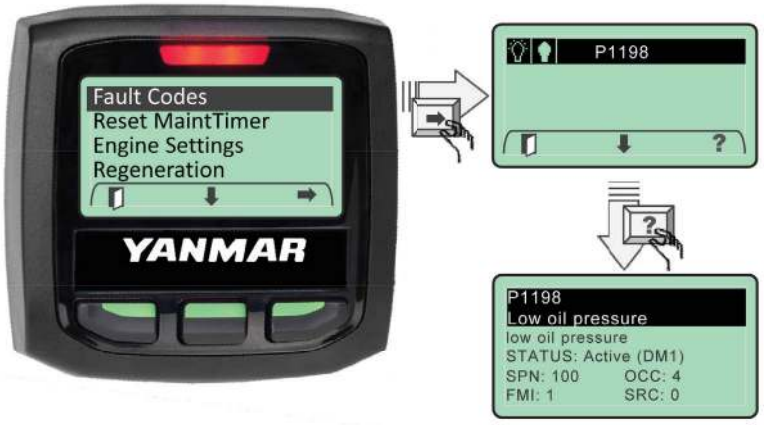
Engine fault codes (active and stored) are generated by the engine ECU and communicated to the control panel.

ACTIVE FAULT CODES

The control system reads standard messages to indicate active fault codes. When a fault is active the control system activates a popup fault display containing a check engine icon, fault code number (if applicable), a description of the active fault and an “Active Codes” alarm stripe at the bottom of the display. The control system will activate the red LED fault indicator above the digital display.

When an active fault is presented, the user must acknowledge the fault by pressing the softkey indicated. See “Acknowledging Active Faults” section.

After acknowledging a fault condition, the system will return to normal display operation. The controller will indicate that an active fault is present by displaying a “Check Engine” icon on the main data display. The system will also display an “Active Codes” alarm stripe at the bottom of the display.



ACKNOWLEDGING ACTIVE FAULTS

When the control system receives a new fault, the digital display responds by overlaying a fault pop-up graphic onto the currently active runtime display. This alerts the operator, signaling a response is needed by the operator. The display above (top) represents an unacknowledged fault for an oil pressure fault condition. To acknowledge an active fault, press the “Acknowledge” softkey (middle) button. This will remove the pop-up graphic. The control system will continue to inform the operator that a fault is active or until the fault is corrected.

NOTE: If the fault condition is cleared the associated pop-up will be automatically removed.

STORED FAULT CODES

The control unit allows the operator to request any stored fault codes that may be contained in the engine ECU. To view stored faults select the “Fault Codes” menu selection from the main menu. The control system will send a request to the engine ECU for any faults that the ECU may have stored. Should any faults exist, the control unit will display a list of the active and stored faults. The list will show if the fault is Active, Stored or both. The list will contain the engine manufacturer specific Fault Code (if available) for the fault condition. To view more detailed information about any of the fault conditions listed, navigate to the desired fault condition and select the “?” softkey. A more detailed description of the fault will be presented along with the current Status.

MAINTENANCE TIMER

The control system provides an engine maintenance timer feature. The maintenance timer is a countdown timer and indicates the amount of engine runtime remaining until maintenance is due. The maintenance timer is configurable and resettable by the operator. If the system is powered but the engine is not running maintenance hours will not be accumulated.

NOTE: Setting the timer to 0 will disable the maintenance timer operation.

The Maintenance Timer is factory-set to 250 hours.

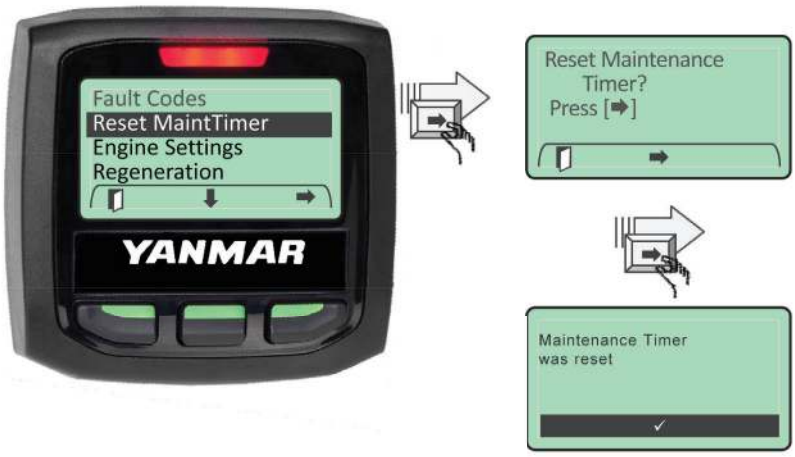
MAINTENANCE TIMER ALERT

When the maintenance timer expires the system will activate an “Engine Maintenance Due” alert popup window. If the maintenance due alert is acknowledged but the timer is not reset the alert popup will re-initiate for each key “ON” cycle.

ACKNOWLEDGING MAINTENANCE TIMER

Acknowledge the maintenance alert by selecting the acknowledge “✓” softkey.

RESETTING MAINTENANCE TIMER



The maintenance timer is operator configurable and can be accessed through the engine settings menu. See “Reset MaintTimer” selection in engine settings menu. When the maintenance timer has expired, a pop-up alert window indicating that “Engine Maintenance is Due” will be displayed. The operator must acknowledge this pop-up to return the control unit to normal display operation.

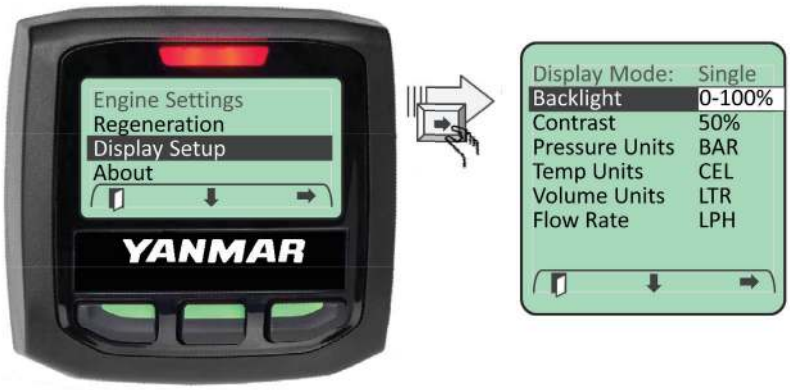
To reset the maintenance timer enter the Main Menu and then scroll to the “Reset MaintTimer” entry using the “⬇” softkey. Press the “➡” softkey to select the reset maintenance timer menu item.

Press the “➡” softkey to reset the timer.

Acknowledge the timer was reset by pressing the Acknowledge “✓” softkey.

NOTE: The maintenance hours data display will indicate 0 hrs when the timer has expired and the operator has not yet reset the timer.

BACKLIGHT SETTING



The LCD backlight is adjustable from 0 to 100%. To adjust the LCD backlight enter the Main Menu and navigate to the “Display Setup” menu using the “⬇” softkey.

When highlighted enter the Display Setup menu by selecting the “➡” softkey. Navigate through the “Display Setup” menu using “⬇” softkey until the “Backlight” entry is highlighted.

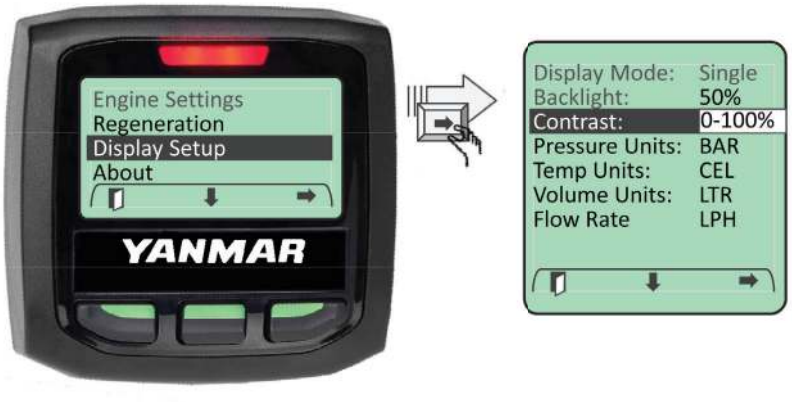
Press the “➡” softkey to select the backlight parameter setting.

Use the “➕” / “➖” softkeys to set the backlight value.

CONTRAST SETTING

The LCD contrast is adjustable from 0 to 100%. To adjust the LCD contrast enter the Main Menu and navigate to the “Display Setup” menu using the “⬇” softkey.

When highlighted enter the Display Setup menu by selecting the “➡” softkey. Navigate through the “Display Setup” menu using “⬇” softkey until the “Contrast” entry is highlighted.



Press the “➡” softkey to select the contrast parameter setting.

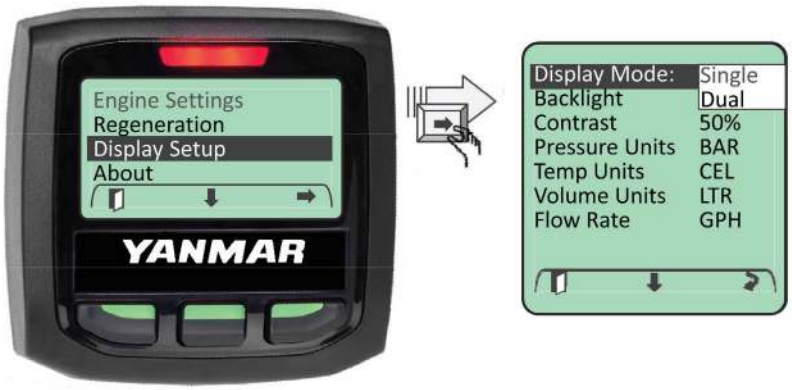
Use the “➕” / “➖” softkeys to set the contrast value.

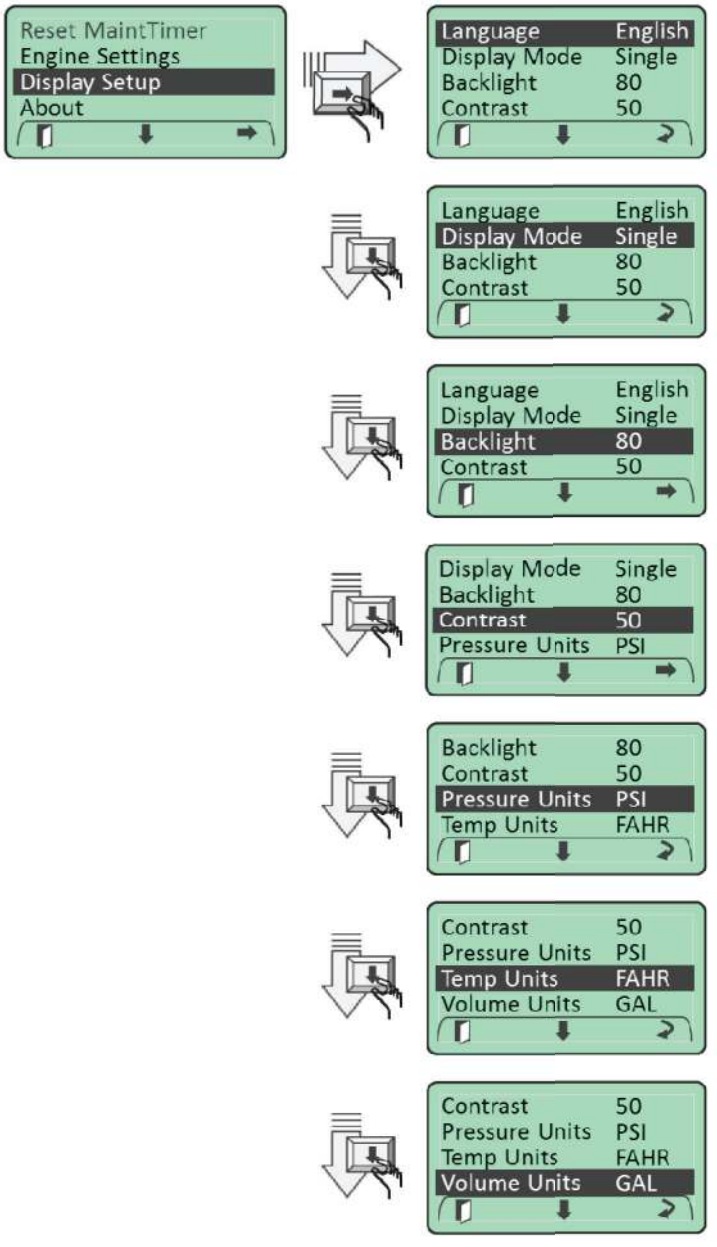
NOTE: Setting the contrast value below 30 may render the display to be unreadable.

DISPLAY MODE SETTING

Two display formats are available: “Single” display and “Dual” display formats. To access the display format setting, enter the Main Menu. Navigate to the “Display Setup” menu entry using “⬇” softkey. When highlighted, enter the Display Setup menu by selecting the “➡” softkey. Navigate through the “Display Setup” menu using “⬇” softkey until the “Display Mode” entry is highlighted.

Choose the desired display mode setting by cycling through the list of choices using the Change “↻” softkey.





DEFAULT DISPLAY

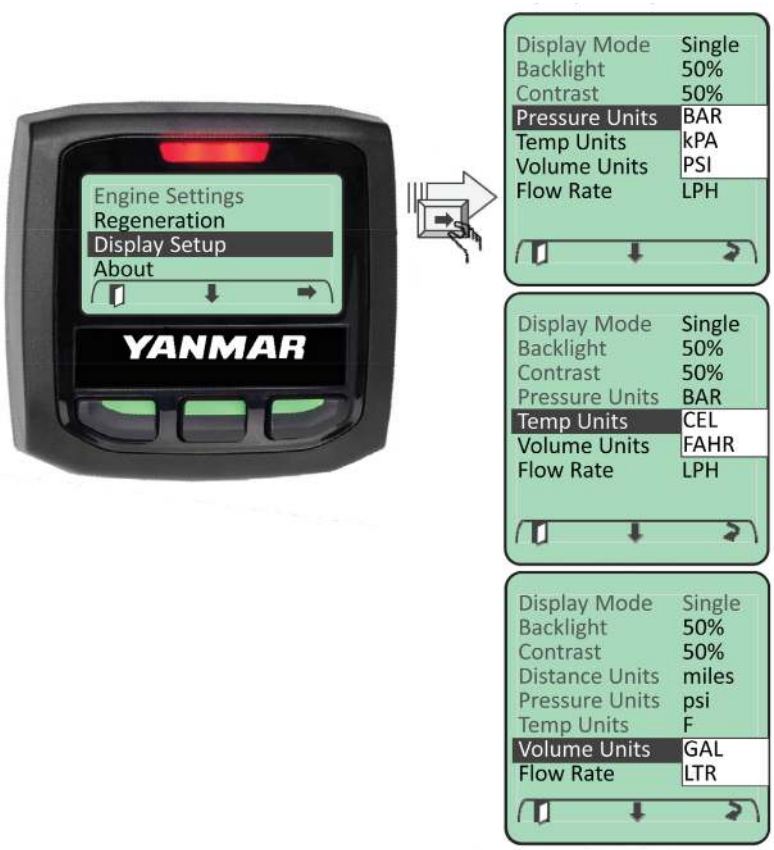
To configure a particular display as the default startup display, access the desired display and leave active for 5 minutes. The system will automatically set this display as the default startup display.

ENGINEERING UNITS

Displayed engineering units can be configured for Pressure, Temperature and Volume. To access the engineering unit's settings, enter the Main Menu. Navigate to the "Display Setup" menu entry using "⬇" softkey.

When highlighted enter the Display Setup menu by selecting the "➡" softkey. Navigate through the "Display Setup" menu using "⬇" softkey until the desired engineering unit's parameter is highlighted.

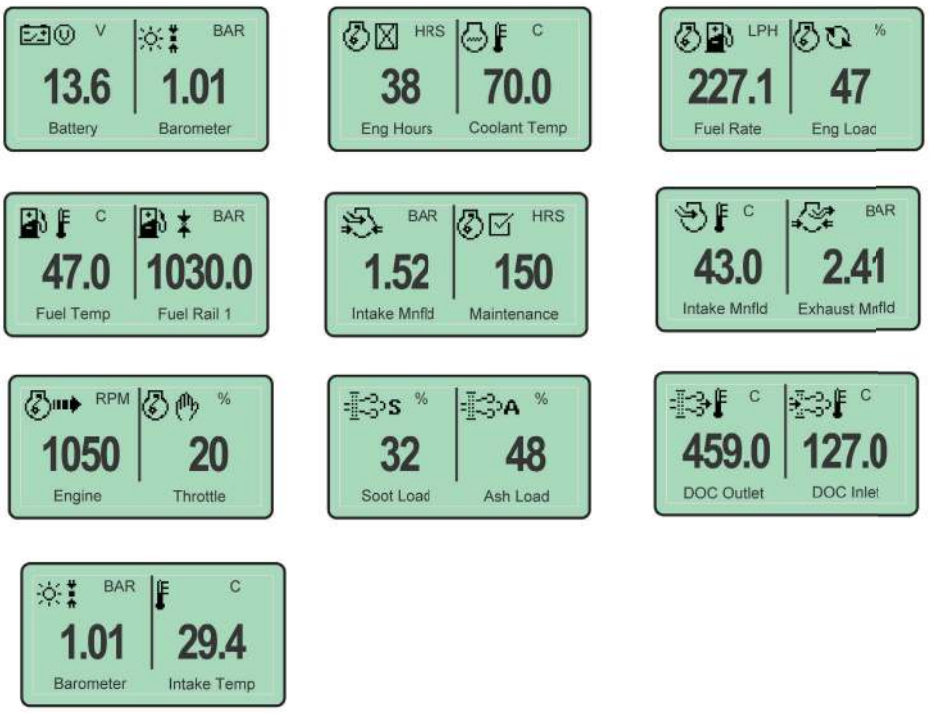
Choose the desired parameter setting by cycling through the list of choices using the change soft key.



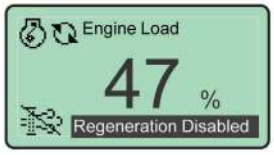
DISPLAY LIST

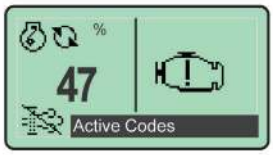
SINGLE DATA FORMAT

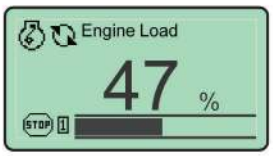
DUAL DATA FORMAT



MISCELLANEOUS DISPLAYS







ABOUT MENU

The About Menu indicates the software information used for programming the control unit.

ENGINE SETTINGS

The Engine Settings are factory-specified. This feature is password-protected to ensure the correct use of the engine in this unit.

REGENERATION

See Engine Owner's Manual for information on the Diesel Particulate Filter (DPF).

Particulate Matter (PM) in the engine exhaust accumulates in the Soot Filter (SF) within the DPF causing it to clog, reducing engine performance. Therefore, it is necessary to burn off the accumulated PM. This process is referred to as Regeneration. The Engine Control Unit (ECU) uses components such as the DPF differential pressure sensor, temperature sensor, and intake throttle to control assisted DPF regeneration automatically and prevent PM from over-accumulating in the SF. The Yanmar engine uses a stepped approach of both Automatic and Back-up regeneration modes. A detailed description of this process is provided the Engine Owner's Manual, but a brief summary is also provided below.

Automatic Regeneration Modes – These modes are performed automatically by the Engine Control Unit and operate without input from the machine operator or impact to mulching operations.

***Self Regeneration (Normal)* –** Regeneration without the use of assistance devices (e.g. intake throttle). During operation at high speed or high load, the exhaust temperature rises to a sufficient level such that PM is continuously combusted and eliminated.

***Assisted Regeneration* –** Regeneration with the use of assistance devices (e.g. intake throttle). When the differential pressure in the SF inlet/outlet in the DPF rises, the differential pressure sensor installed on the DPF detects the increase. The Engine Control Unit (ECU) commands the intake throttle to adjust the amount of engine intake air to increase exhaust temperature to a sufficient level such that PM is combusted and eliminated.

***Reset Regeneration* –** Regeneration with the combined use of Assisted Regeneration and post-injection. Approximately every 100 hours of operation, the Assisted Regeneration and post-injection are automatically used together to control regeneration by increasing the exhaust temperature to burn off and remove PM.

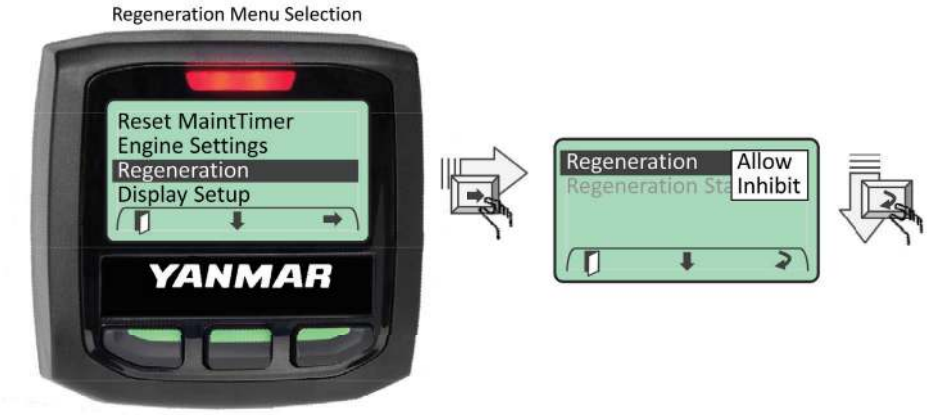
Back-up Regeneration Modes – These modes require direct action from the operator to be performed and the machine cannot be used for mulching operations while Back-up regeneration is underway.

***Stationary Regeneration* –** Although the DPF performs the regeneration control, if the operation conditions with idling at no load and low speed/low load operations are frequently repeated, the PM may not be regenerated. If the ECU determines that performing the Stationary Regeneration is required at this time, the operator will be alerted via the control panel that a Stationary Regeneration is required. A Stationary Regeneration takes approximately 30 minutes to complete.

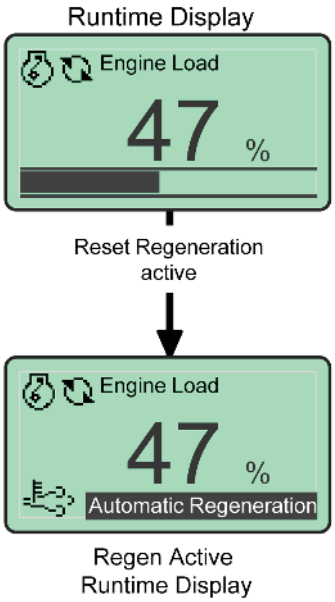
***Recovery Regeneration* –** Recovery Regeneration occurs when Stationary Regeneration cannot be completed and the engine has gone into Limp Home Mode. The Recovery Regeneration takes approximately 3 hours to complete. If the Recovery Regeneration is unsuccessful, the Soot Filter will need to serviced by a Yanmar certified service center.

RESET REGENERATION NORMAL OPERATION - DISPLAYS

The engine control panel is set at the factory to allow Reset Regeneration to occur automatically. However, the operator has the option to inhibit Reset Regeneration via the control panel [*Main Menu* "➡" *Regeneration* "➡" *Inhibit*] if the work environment poses a risk to safe regeneration.



During machine operation with Regeneration in the "Allow" state, on the control panel, when the ECU begins Reset Regeneration, a notification and regeneration icon will display at the bottom of the screen.



NOTE: The ECU will not perform Reset Regeneration within the first 50 hours of engine life.

NOTE: The machine can be operated normally during Reset Regeneration. The machine can also be turned **OFF**. If this occurs, Reset Regeneration will resume again when the machine has been turned back **ON** and the DOC temperature has risen to a sufficient level.

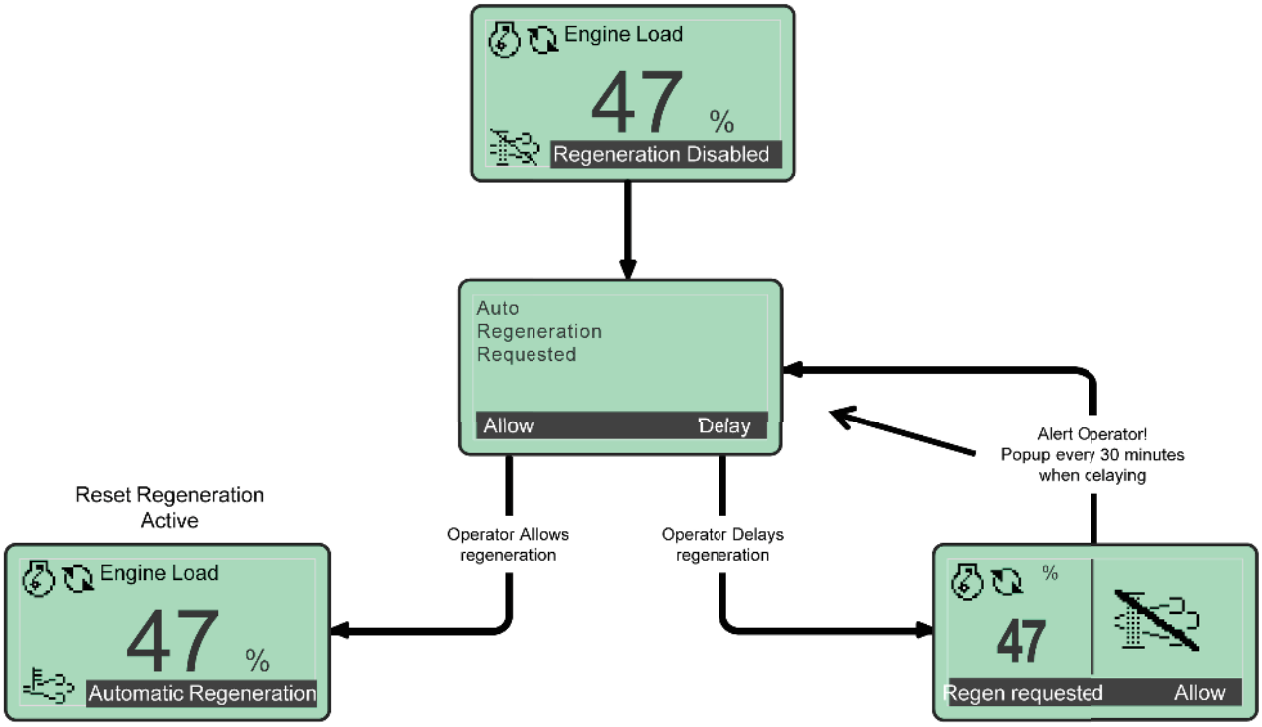
⚠ CAUTION ***During Reset Regeneration, post-injection is used and fuel is burned directly inside the DPF (burned by chemical reaction inside the Diesel Oxidation Catalyst (DOC). Through this heat, regeneration occurs inside the SF, but the combustion increases the temperature of the exhaust gas to close to 600° C (1112° F). Be careful that neither people nor flammable materials are near the exhaust gas outlet.***

NOTE: During Automatic Regenerations, the following conditions may occur due to the characteristics of the DPF system, but they are not malfunctions.

- The engine sound may change during idling operation at no load.
- White smoke may be discharged from the exhaust pipe right after starting a cold engine or during acceleration. This is due to the discharge of water vapor. When the exhaust temperature increases, the white smoke disappears.
- The exhaust gas is purified through the catalyst installed in the DPF, so the smell of the exhaust gas is different from the exhaust gas of a conventional diesel engine.

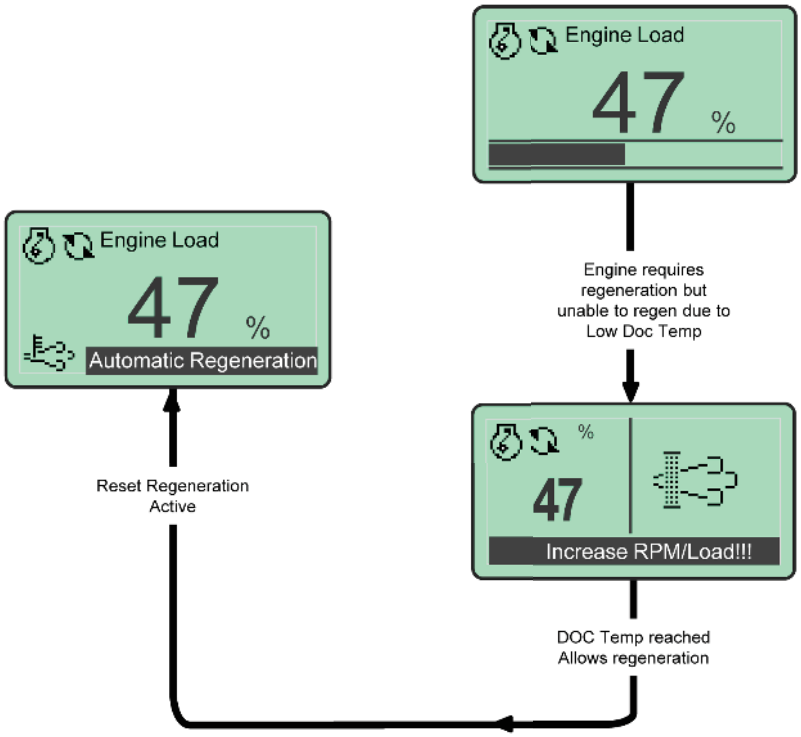
RESET REGENERATION STANDBY DUE TO INHIBIT SWITCH

During machine operation with Regeneration in the *Inhibit* state on the control panel, a notification and regeneration inhibited icon will display at the bottom of the screen. If the ECU determines that Reset Regeneration is required, a Auto Regeneration request will be displayed. If the operator allows the regeneration, it will begin and a notification and regeneration icon will display at the bottom of the screen. If the operator delays the regeneration, the display will go to dual mode with one display showing the regeneration inhibit icon and the regeneration request continuously displayed at the bottom of the screen. Further, the Auto Regeneration request message will re-display every 30 minutes. The machine can continue to operate with Reset Regeneration inhibited for 3 hours, however, after 3 hours, a Stationary Regeneration request may occur.



RESET REGENERATION STANDBY DUE TO LOW DOC TEMPERATURE

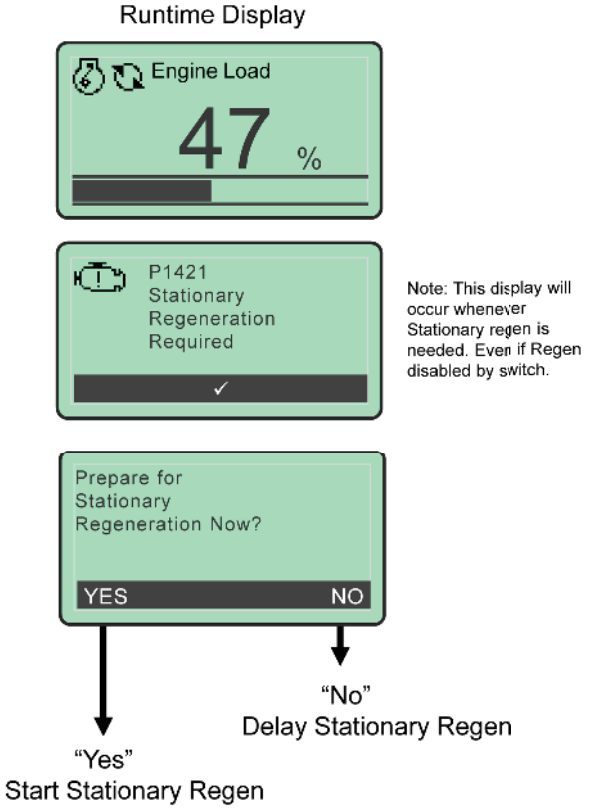
For Reset Regeneration to begin, the DOC temperature has to be at a sufficient level. If the DOC has not reached this temperature and Reset Regeneration is required, then a notification to Increase RPM/Load and the Regeneration icon will be displayed. Once the DOC reaches sufficient temperature, Reset Regeneration will begin and a notification and regeneration icon will display at the bottom of the screen.



STATIONARY REGENERATION BY ENGINE MANAGEMENT

If the ECU determines that performing the Stationary Regeneration is required, the operator will be alerted via the control panel that a Stationary Regeneration is required via a Diagnostic Trouble Code (DTC) even if Regeneration on the control panel is set to Inhibit. The operator should immediately conduct the Stationary Regeneration by performing the following operation.

1. Move the machine to a well-ventilated and safe location.
2. Acknowledge the DTC by pressing the middle soft key on the display marked "✓".
3. When the message "Prepare for Stationary Regeneration Now" is displayed, press the left soft key marked "**YES**".
4. When the message "Bring Machine to Lo-idle Speed and confirm interlocks" is displayed, make sure that the PTO clutch is disengaged and reduce engine speed to low idle. Then acknowledge the message by pressing the middle soft key on the display marked "✓".
5. When the message "Ready to begin Stationary Regeneration Now?" is displayed, press the left soft key marked "**YES**".



STATIONARY REGENERATION BY ENGINE MANAGEMENT (CONTINUED)

NOTE: Stationary Regeneration will not begin if any of the following conditions are present:

- Coolant temperature is less than 60° C (140° F)
- The engine has not been running for 15 minutes
- An important DTC is active
- The interlock switch is off (PTO clutch is engaged)
- Idle speed is too high

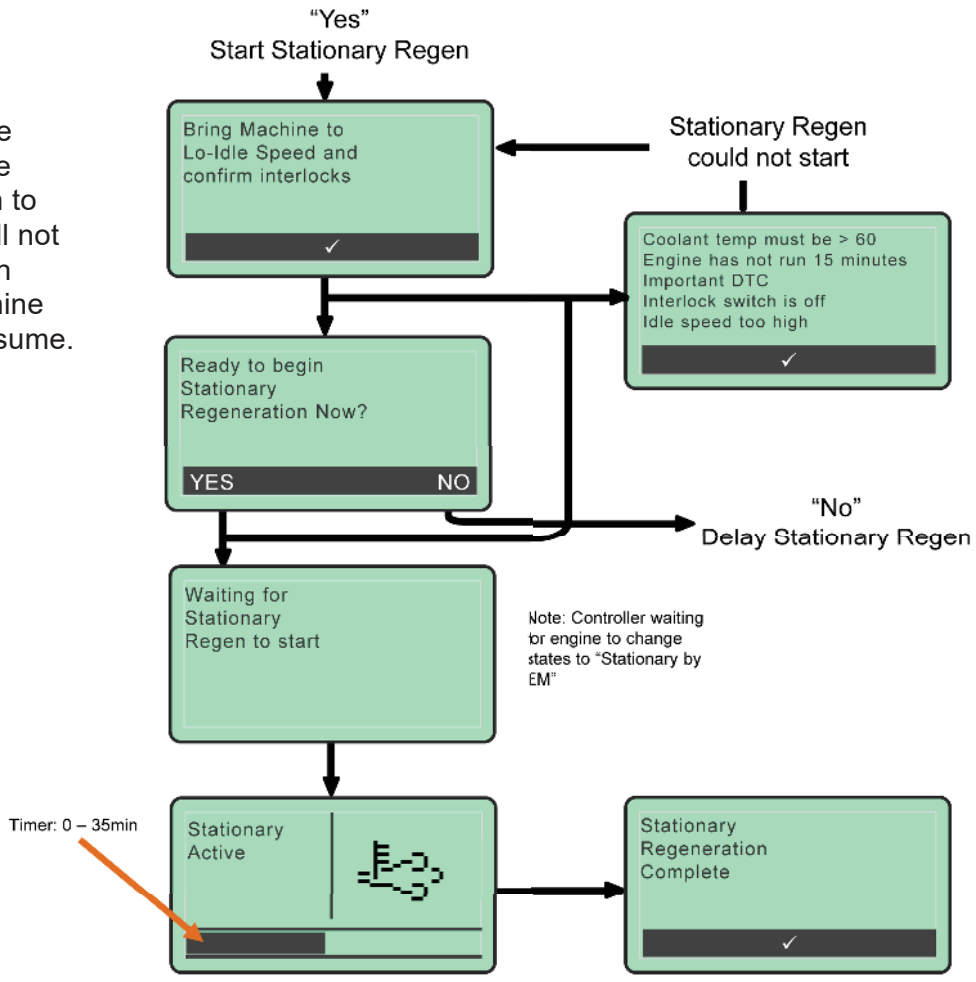
If these conditions are present, a notification will be displayed. Once these conditions are corrected by the operator, acknowledge the message and Stationary Regeneration will begin.

6. At this point, the ECU will take over control of the engine to perform the Stationary Regeneration and a notification of “Stationary Active” and the regeneration icon will be display along with a status bar (0 to 35 minutes) at the bottom of the screen.

NOTE: When the Stationary Regeneration starts, the engine speed increases gradually to high idle speed, then the regeneration begins and may modulate engine speed throughout the process.

NOTE: If Stationary Regeneration needs to be interrupted for any reason, turn off the key switch. One the machine is restarted, the Stationary Regeneration request will be repeated.

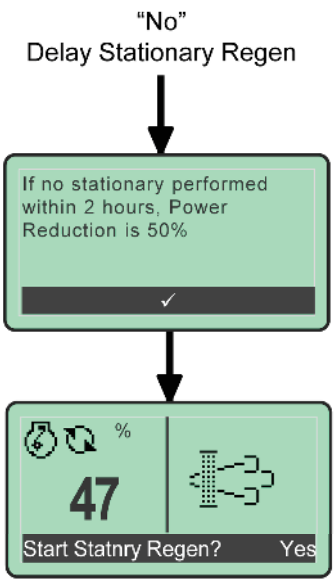
7. Once Stationary Regeneration is complete, a notification will be displayed and the engine will return to low idle, but it will not automatically turn off. Normal machine operation can resume.



STATIONARY REGENERATION BY ENGINE MANAGEMENT (CONTINUED)

If the Stationary Regeneration is delayed by pressing the right soft key marked "**NO**" when the request is displayed, a 15% power reduction is immediately applied to the engine. A notification stating that "If no stationary performed within 2 hours, Power Reduction is 50%" will also be displayed. Once this message is acknowledged by pressing the middle soft key on the display marked "✓", the regeneration icon will be displayed and the regeneration request will remain at the bottom of the screen.

NOTE: Although not recommended, the engine can be run in Stationary Standby mode (delaying Stationary Regeneration) for a total of 10 hours. For the first 2 hours, the engine power will be reduced to 85%. For the remaining 8 hours, engine power will be reduced to 50%. If the Stationary Regeneration is not performed when requested by the ECU, an excessive amount of PM will accumulate. Abnormal combustion of PM may cause damage to the DPF after extended operation in Stationary Standby mode.



Engine can be run in Stationary Standby Mode for 10 hours.

First 2 hours: 15% fuel cut

Next 8 hours: 50% fuel cut

MANUAL STATIONARY REGENERATION - OPERATOR REQUEST

The operator has the option of performing a Manual Stationary Regeneration should work conditions/schedule require. This is accomplished via the display [*Main Menu* "➡" *Regeneration* "➡" *Regeneration Start*]. Manual Stationary Regeneration can only be completed after the engine has accumulated 50 hours or more since its last regeneration.

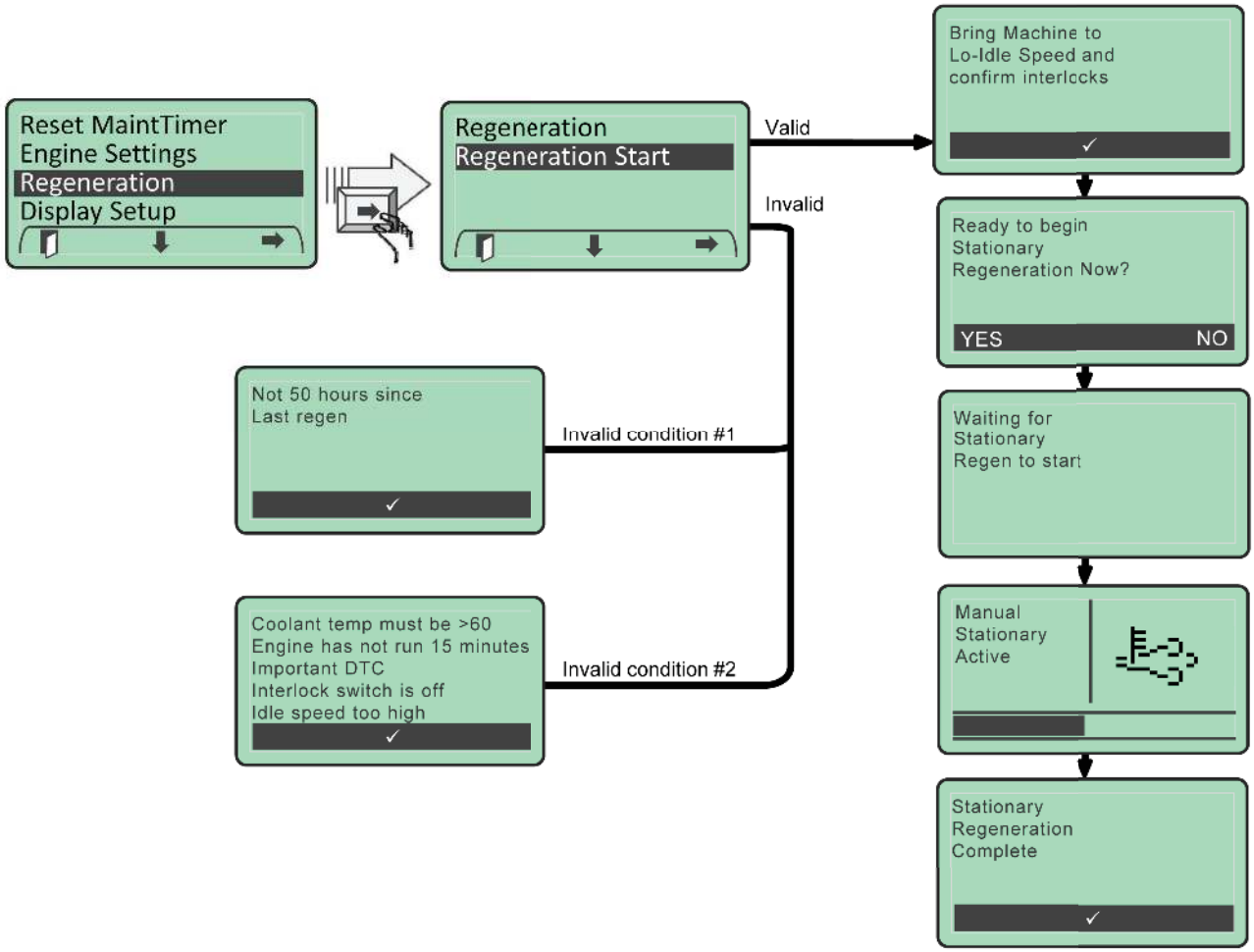
1. Move the machine to a well-ventilated and safe location.
2. When the message "Bring Machine to Lo-idle Speed and confirm interlocks" is displayed, make sure that the PTO clutch is disengaged and reduce engine speed to low idle. Then acknowledge the message by pressing the middle soft key on the display marked "✓".
3. When the message "Ready to begin Stationary Regeneration Now?" is displayed, press the left soft key marked "**YES**".

NOTE: Stationary Regeneration will not begin if any of the following conditions are present:

- Coolant temperature is less than 60° C (140° F)
- The engine has not been running for 15 minutes
- An important DTC is active
- The interlock switch is off (PTO clutch is engaged)
- Idle speed is too high

If these conditions are present, a notification will be displayed. Once these conditions are corrected by the operator, acknowledge the message and Stationary Regeneration will begin.

MANUAL STATIONARY REGENERATION - OPERATOR REQUEST (CONTINUED)



4. At this point, the ECU will take over control of the engine to perform the Stationary Regeneration and a notification of “Stationary Active” and the regeneration icon will be display along with a status bar (0 to 35 minutes) at the bottom of the screen.

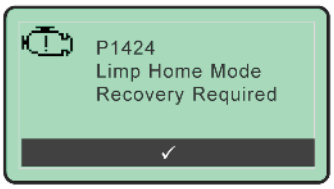
NOTE: When the Stationary Regeneration starts, the engine speed increases gradually to high idle speed, then the regeneration begins and may modulate engine speed throughout the process.

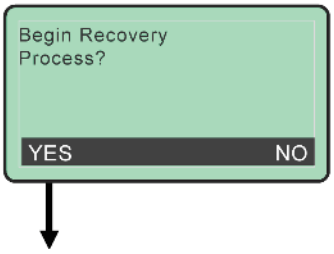
NOTE: If Stationary Regeneration needs to be interrupted for any reason, turn off the key switch. One the machine is restarted, the Stationary Regeneration request will be repeated.

5. Once Stationary Regeneration is complete, a notification will be displayed and the engine will return to low idle, but will not automatically turn off. Normal machine operation can resume.

RECOVERY REGENERATION

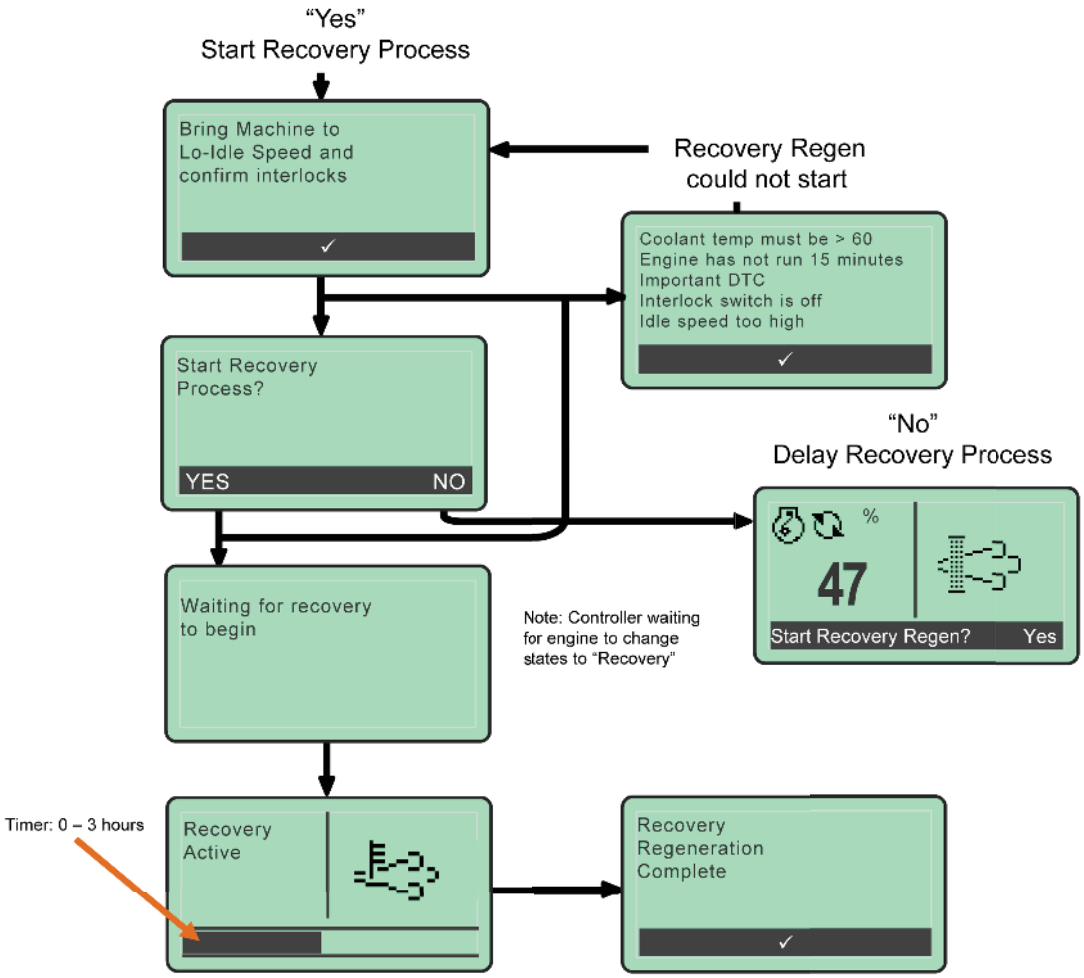
If Recovery Regeneration is not performed within the allowed 10 hours, the engine will go into Limp Home Mode and a DTC will be displayed. There are only two ways out of Limp Home Mode, perform a Recovery Regeneration or perform a SF exchange at a Yanmar certified service center. The operator should immediately attempt the Recovery Regeneration by performing the following operation.





"Yes"
Start Recovery Process

1. Move the machine to a well-ventilated and safe location.
2. Acknowledge the DTC by pressing the middle soft key on the display marked "✓".
3. When the message "Begin Recover Process" is displayed, press the left soft key marked "**YES**".
4. When the message "Bring Machine to Lo-idle Speed and confirm interlocks" is displayed, make sure that the PTO clutch is disengaged and reduce engine speed to low idle. Then acknowledge the message by pressing the middle soft key on the display marked "✓".
5. When the message "Start Recovery Process?" is displayed, press the left soft key marked "**YES**".



RECOVERY REGENERATION (CONTINUED)

Note: Recovery Regeneration will not begin if any of the following conditions are present:

- Coolant temperature is less than 60° C (140° F)
- The engine has not been running for 15 minutes
- An important DTC is active
- The interlock switch is off (PTO clutch is engaged)
- Idle speed is too high

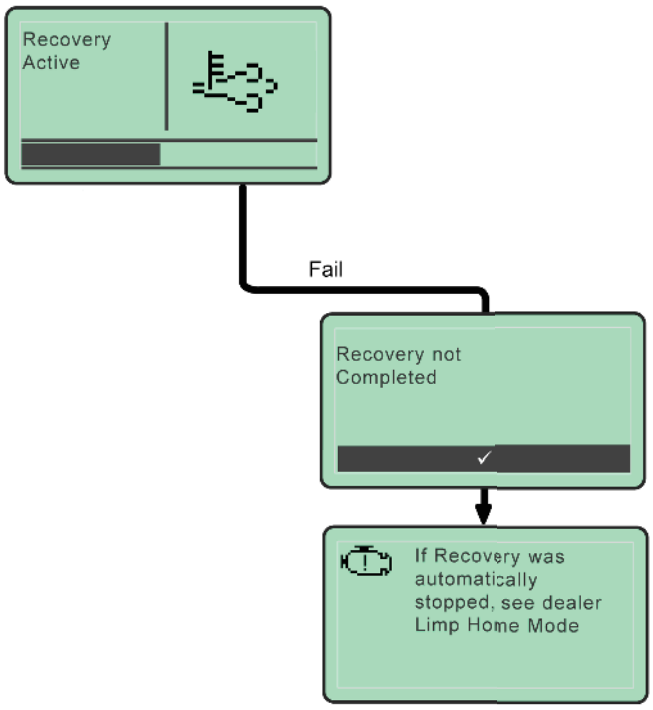
If these conditions are present, a notification will be displayed. Once these conditions are corrected by the operator, acknowledge the message and Stationary Regeneration will begin.

6. At this point, the ECU will take over control of the engine to perform the Recovery Regeneration and a notification of “Recovery Active” and the regeneration icon will be display along with a status bar (0 to 3 hours) at the bottom of the screen.

NOTE: When the Recovery Regeneration starts, the engine speed increases gradually to high idle speed, then the regeneration begins and may modulate engine speed throughout the process.

NOTE: If Recovery Regeneration needs to be interrupted for any reason, turn off the key switch. One the machine is restarted, the Recovery Regeneration request will be repeated.

7. If the Recovery Regeneration is successful, a notification will be displayed and the engine will return to low idle, but will not automatically turn off. Normal machine operation can resume.
8. If the Recovery Regeneration is not successful, a notification will be displayed. Stop the engine and see a Yanmar certified service center for a Soot Filter exchange.



There are 2 ways out of Limp Home:

1. Perform a Recovery Regeneration
2. Perform a Soot Filter exchange with SA-D

HYDRAULIC SYSTEM

The hydraulic system on your FINN Straw Blower consists of a pump, reservoir with suction strainer, oil filter, and power feed hydraulic motor with flow control valve set to operate at 2,000 psi (13,790 kPa). The most important maintenance areas are the hydraulic oil and filtration.

The reservoir holds 8 gal (30 L) of ISO Grade 46 Hydraulic Oil. The hydraulic oil should be replaced per the lubrication schedule or if the oil becomes milky or gives off a burnt odor.

The hydraulic-system oil filter cartridge must be replaced with a 5 Micron absolute filter cartridge (FINN part number 023914). The following checks will keep your FINN Straw Blower in proper operating condition:

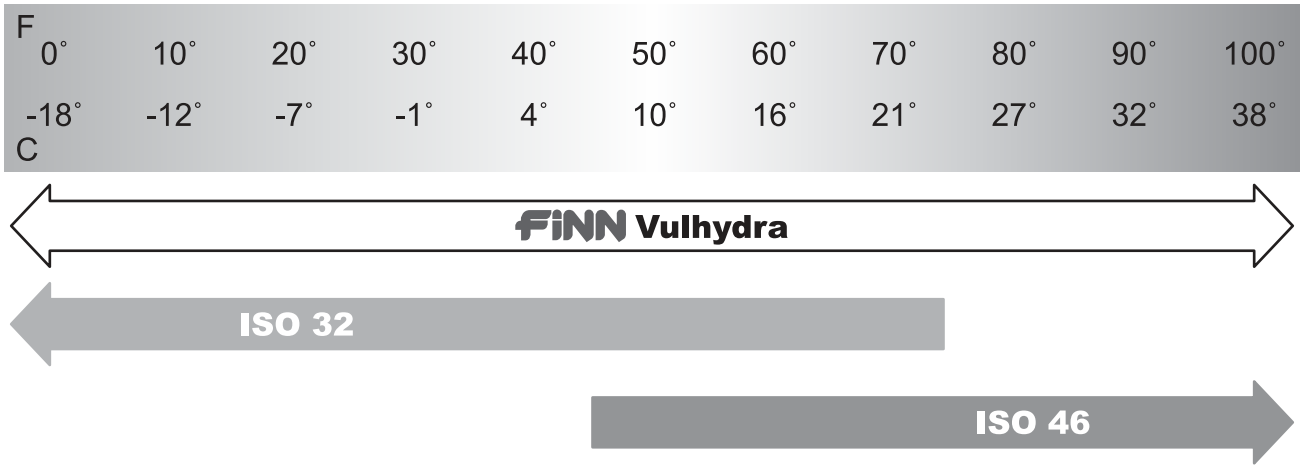
1. Check oil level once a week. Add additional oil when level goes down below 1-1/2 in. (3.8 cm).
2. Change oil filter cartridge on oil tank every 500 hours of operation.
3. Check and clean suction strainer once a year or whenever the oil is changed.
4. Change hydraulic oil whenever the color turns to milky white (change is caused by water getting into hydraulic system).
5. Change hydraulic oil if oil gives off a burnt odor.
6. Keep all fittings and hoses tight and leak-free.
7. Keep system clean at all times.

⚠ CAUTION ***Do not start or run the engine without hydraulic oil in the reservoir or with a closed reservoir ball valve as permanent damage to the hydraulic pump will occur. Failure to comply could result in minor to moderate personal injury. Failure to comply could also result in product or property damage.***

At time of manufacture, this unit contains Finn Vulhydra hydraulic oil. The chart below illustrates the operating temperature range of the Finn Vulhydra hydraulic oil as well as the closest ISO equivalents.

NOTE: When changing the hydraulic filter, use 5 micron or better filter element.

NOTE: The Finn Vulhydra hydraulic oil may be substituted for either of the two ISO oils listed below. Please use the temperature chart to determine what oil works best in your situation.



CLEANING AND MAINTENANCE

⚠ WARNING ***Turn off engine and disconnect battery before servicing equipment. Failure to comply could result in death or serious injury. Allow all moving parts to stop. Disconnect the battery cables to prevent accidental starting of the machine. Tag the engine operating area to show that the machine is being serviced. Use lockout/tagout procedure (29 CFR 1910.147).***

AFTER FIRST 4 TO 8 HOURS OF OPERATION

1. Check belt tension on the drive belt.
2. Check and adjust clutch.
3. Torque wheel lugs. Torque again after 7 days.

DAILY CLEAN-UP MAINTENANCE

Follow this procedure daily to keep the equipment in good operating condition:

1. Check the air cleaner on the engine by removing the element and checking the cleanliness of the element. Check the cleanliness by inserting a light inside the element. If light cannot be seen shining through the element, the element is dirty. Wash it with clean water and detergent; do not use a pressure washer. If you cannot get it clean enough to see light shining through it, the element should be replaced.
2. Clean radiator and radiator guard with tap water.

NOTICE ***Never use high-pressure water or compressed air at greater than 28 psi (193 kPa; 19686 mmHg) or a wire brush to clean the radiator fins. Radiator fins damage easily.***

3. Check crankcase oil level and add oil if necessary.
4. Check the tension on the power band. There should be a 3/8 in. (1 cm) depression at the center of the band when using 8 lb (3.6 kg) of pressure. Adjust if necessary.
5. Clean beater rolls. Make sure to remove all twine, wire, and other foreign objects.
6. Lock the discharge tube (using the holddown strap) into the carrying saddle.
7. Fill the fuel tank.
8. Check hitch bolts, safety chains, and brakes.

WEEKLY MAINTENANCE

After each 40 hours of operation, follow this procedure:

1. Change the engine oil following the engine manufacturer's recommendations.
2. Change the engine oil filter cartridge with every other oil change.
3. Lubricate bearings with general-purpose chassis lubricant to remove dirt and prevent overheating.
4. Inflate tires to pressure as specified on the tire.
5. Check clutch adjustment to ensure that it snaps in and out of engagement. Refer to the clutch manual for instructions.

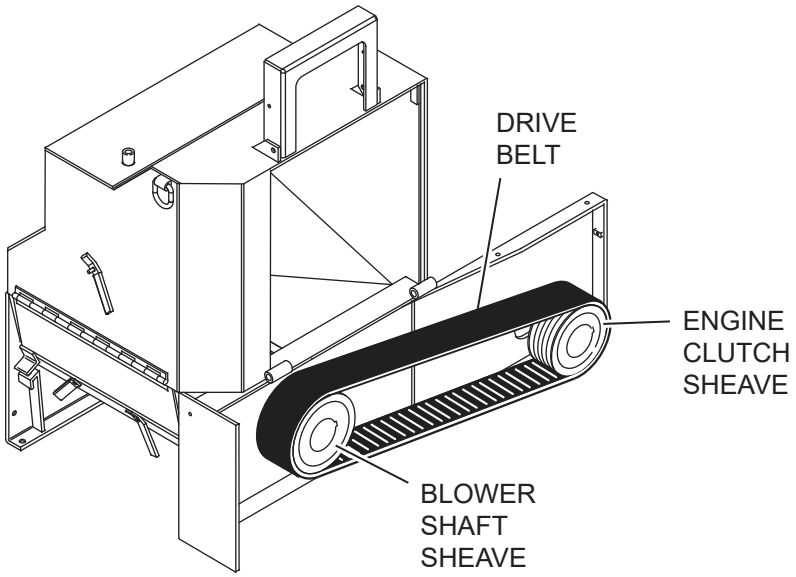
CLEANING AND MAINTENANCE (CONTINUED)

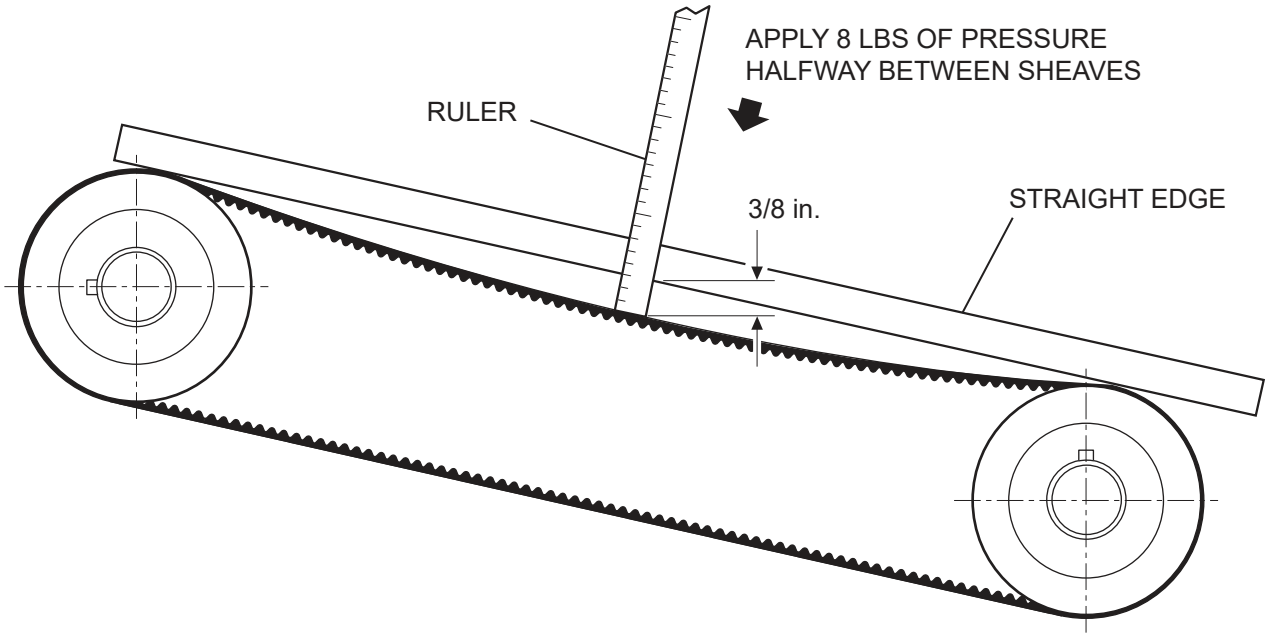
⚠ WARNING ***Turn off engine and disconnect battery before servicing equipment. Failure to comply could result in death or serious injury. Allow all moving parts to stop. Disconnect the battery cables to prevent accidental starting of the machine. Tag the engine operating area to show that the machine is being serviced. Use lockout/tagout procedure (29 CFR 1910.147).***

CHECKING AND ADJUSTING THE DRIVE BELT

Check the drive belt by the following method:

1. Remove the belt guard to expose the drive belt.
2. Position a straight edge across the belt, starting from the blower shaft sheave and extending across the top of the engine clutch sheave. See illustration below.
3. Apply 8 lb (3.6 kg) of pressure directly down on the drive belt (about halfway between the two sheaves). Measure the distance from the bottom of the straight edge, to the top of the drive belt. This dimension should be 3/8 in. (1 cm).



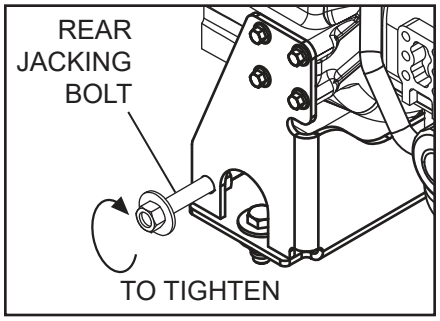


CLEANING AND MAINTENANCE (CONTINUED)

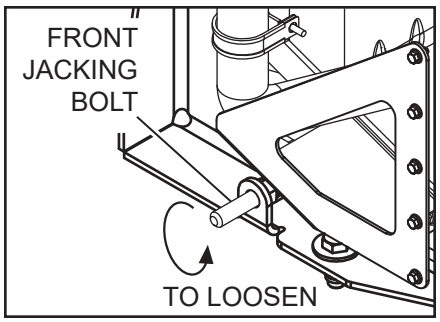
CHECKING AND ADJUSTING THE DRIVE BELT (CONTINUED)

If the drive belt is not fit for opperation and needs to be adjusted, use the following method to correct the situation:

1. Loosen the four bolts that secure the front engine mount and the rear engine foot to the trailer frame.
2. Mark the front and rear jacking bolts to identify the current positions.
3. To tighten the drive belt, tighten the rear jacking bolt by turning the bolt clockwise two full turns.



4. To keep the engine in proper alignment, loosen the front jacking bolt by turning the bolt counterclockwise two full turns.



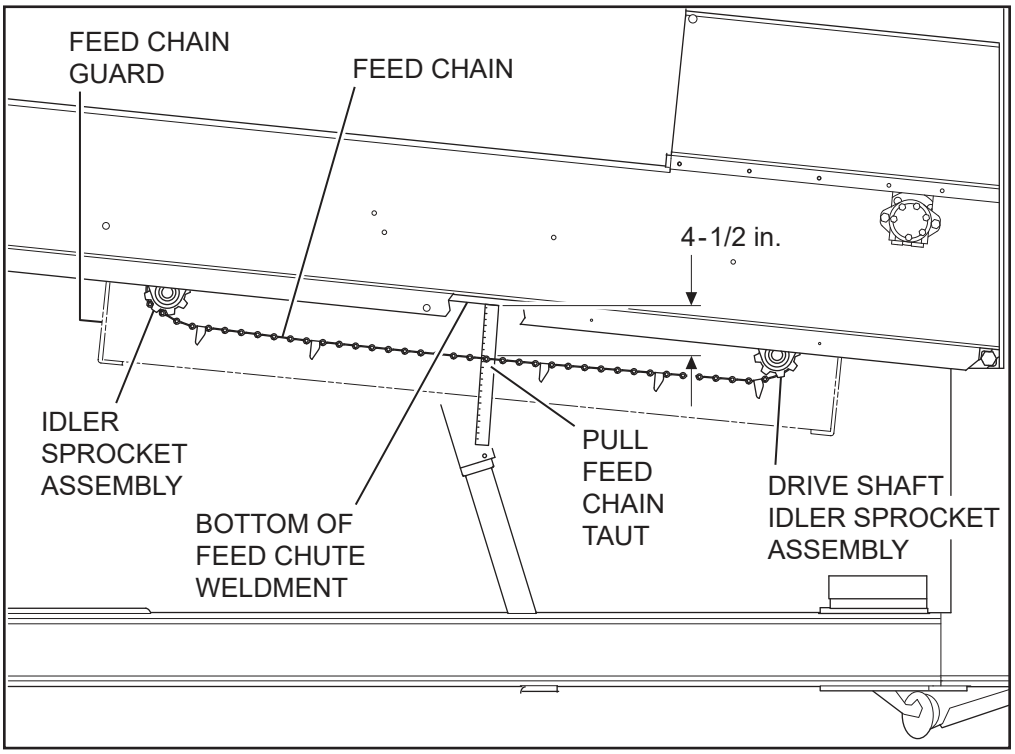
5. Position a straight edge across the belt, starting from the blower shaft sheave and extending across the top of the engine clutch sheave. See illustration used for checking the drive belt tension.
6. Apply 8 lb (3.6 kg) of pressure directly down on the drive belt (about halfway between the two sheaves). Measure the distance from the bottom of the straight edge, to the top of the drive belt. This dimension should be 3/8 in. (1 cm).
7. Continue to adjust jacking bolts to obtain the correct measurement.
8. After obtaining the correct measurement, tighten the four bolts that secure the front engine mount and the rear engine foot to the trailer frame.
9. Replace the belt guard.

CLEANING AND MAINTENANCE (CONTINUED)

⚠ WARNING ***Turn off engine and disconnect battery before servicing equipment. Failure to comply could result in death or serious injury. Allow all moving parts to stop. Disconnect the battery cables to prevent accidental starting of the machine. Tag the engine operating area to show that the machine is being serviced. Use lockout/tagout procedure (29 CFR 1910.147).***

ADJUSTING THE FEED CHAIN

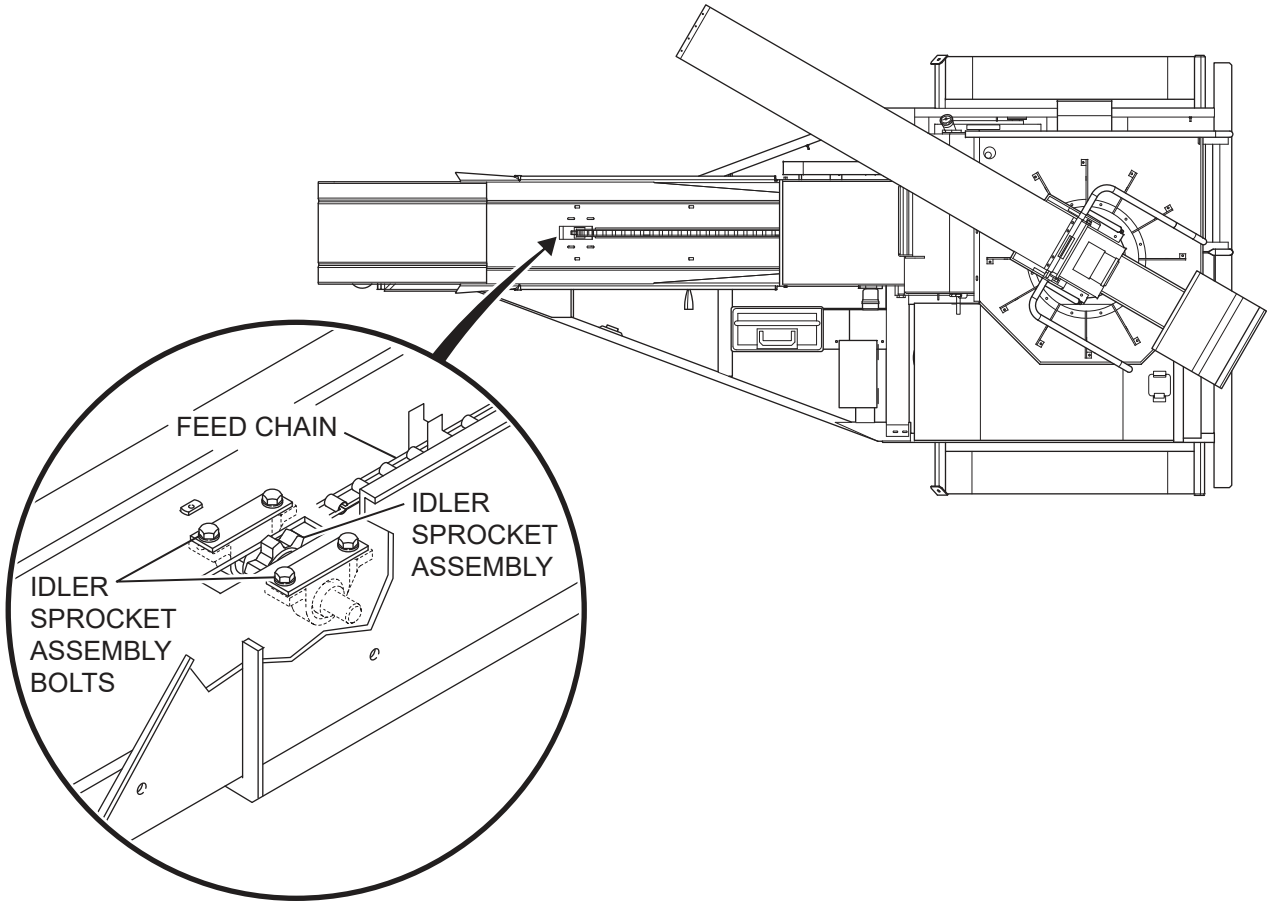
1. About halfway between the idler sprocket assembly and the drive shaft idler assembly, pull the feed chain taut and away from the bottom of the feed chute weldment. At the point where you have pulled the feed chain away, measure the distance between the top of the feed chain and the bottom of the feed chute weldment. This should measure 4-1/2 in. (11.4 cm).



CLEANING AND MAINTENANCE (CONTINUED)

ADJUSTING THE FEED CHAIN (CONTINUED)

2. If the feed chain requires adjustment, loosen the four bolts that secure the idler sprocket assembly to the feed chute weldment.



3. Adjust the feed chain by moving the idler sprocket assembly toward the end of the feed chute until you obtain the measurement provided in Step 2. If the 4-1/2 in. (11.4 cm) measurement cannot be obtained by shifting the idler sprocket assembly, remove links from the feed chain as necessary to obtain the correct adjustment.
4. Tighten the four bolts that secure the idler sprocket assembly to the feed chute weldment.

CLUTCH CARE AND MAINTENANCE

This is an outline of the PTO clutch adjustment and lubrication procedure. When you perform maintenance beyond this outline, refer to the power take-off manufacturer's service manual. In order to properly identify parts when ordering replacement parts, always refer to the unit and specification number stamped on the nameplate located on the top center of the power take-off housing.

NOTE: If your Straw Blower is equipped with a NACD clutch, refer to the NACD Power Take-Off Service Manual for 6-1/2 in., 7-1/2 in., 8 in., 10 in. and 11-1/2 in. HE Clutches.

LUBRICATION

The operating shaft bearing (located where the drive shaft exits the PTO housing) should be lubricated every one (1) to three (3) months, depending on usage. The PTO cross shaft should be lubricated weekly. The PTO release bearing, accessible by removing the PTO nameplate, should be lubricated daily using a hand operated grease gun only.

ADJUSTMENT

The clutch described in this manual does not automatically adjust to compensate for wear of the clutch facing(s), and must be manually adjusted. Maintaining the correct engagement pressure is the responsibility of the owner/operator. The owner/operator must periodically adjust the clutch to ensure correct clutch operation.

The clutch should be adjusted if the force to engage the clutch drops by 10-15% of the specified engagement force. Destructive damage may have already occurred if engagement force is allowed to diminish to the point where the clutch fails to carry the load (slippage), or if facing(s) has (have) overheated.

⚠ CAUTION ***Do NOT engage the PTO clutch above 1000 RPMs or damage to the PTO clutch will occur.***

NOTICE ***Do not adjust clutch too tightly. Overtightening can cause component failure.***

If the clutch requires adjustment, remove the PTO nameplate, disengage the clutch and rotate it to gain access to the adjusting ring lock.

With a flat blade screwdriver or 7/16 inch wrench, loosen the adjustment lock bolt and loosen or remove the adjustment lock.

Rotate the adjusting ring counter-clockwise to tighten the clutch. Rotating the adjustment ring clockwise will loosen the clutch. Adjust to obtain the proper handle engagement force. Handle force should be measured with a spring scale at the end of the handle and pulling perpendicular to the handle. Engagement force should be 31 to 35 lbs. on trailer units and 34 to 38 lbs. on skid units.

When clutch is properly adjusted, reposition the adjustment lock in the notches. Install and tighten the adjustment lock bolt. Rotate clutch and re-engage. Reinstall the PTO nameplate.

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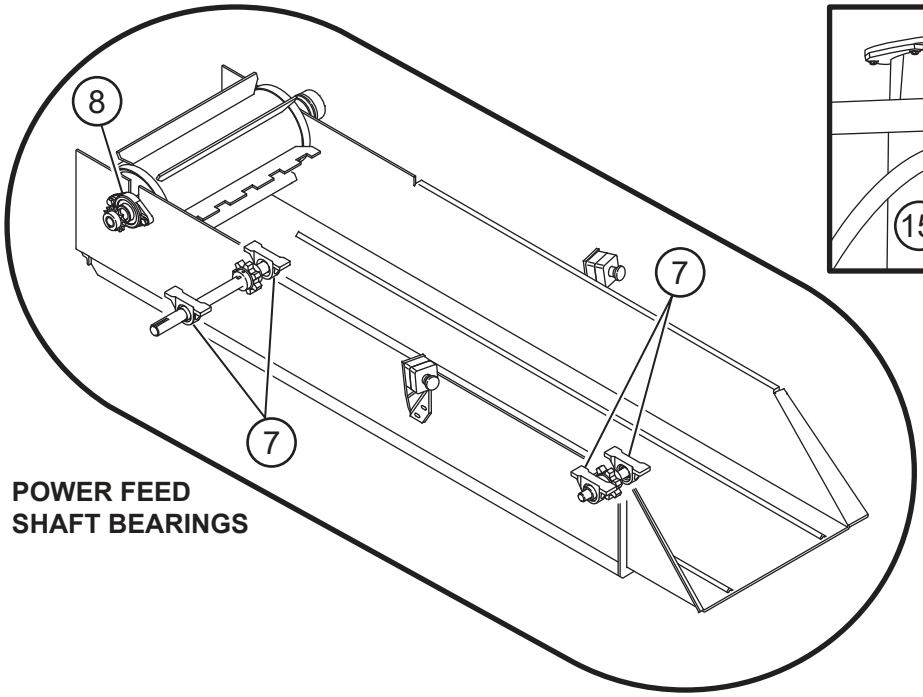
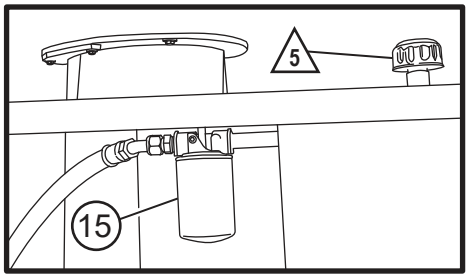
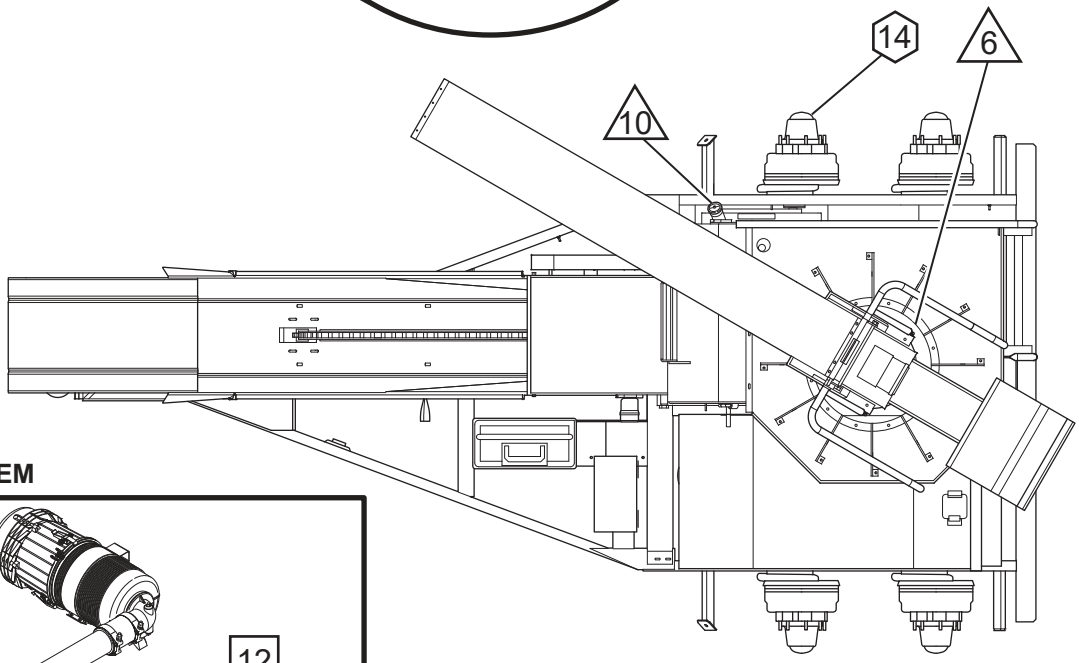


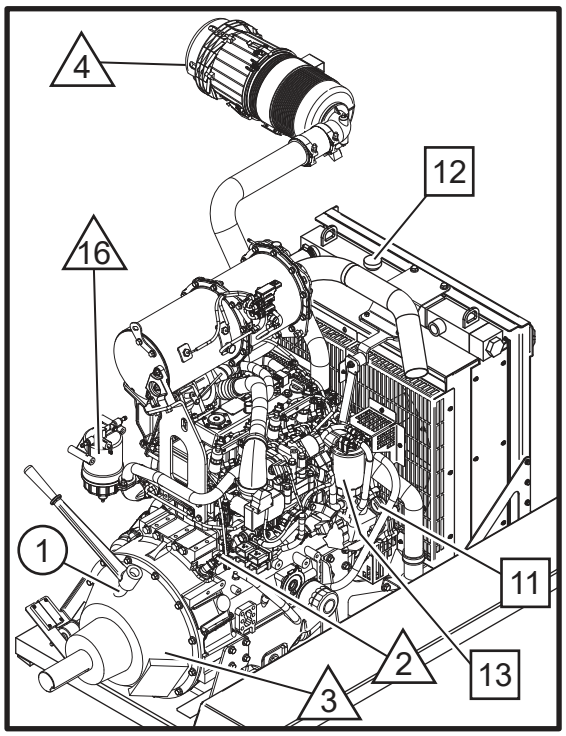
POWER FEED SHAFT BEARINGS



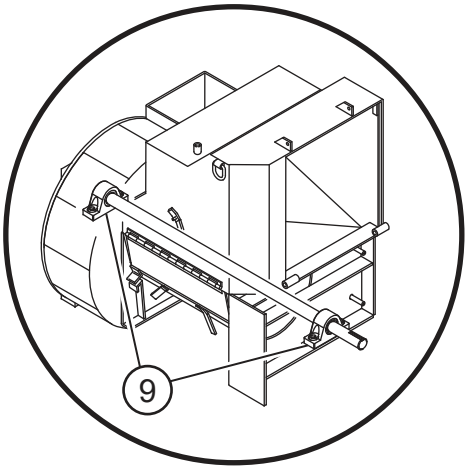
HYDRAULIC OIL LEVEL AND FILTER



POWER SYSTEM



BLOWER SHAFT BEARINGS



LUBRICATION AND FLUIDS CHART

Ref. No.	Location / Task	Lubricant	Frequency	Number of Locations
1	Clutch Shaft Bearing	CL	Weekly	1
2	Check Engine Oil Level	MO	Daily	1
3	Clutch Yoke Shaft	CL	Weekly	2
4	Check Air Cleaner		Daily	1
5	Check Hydraulic Oil Level	HO	Daily	1
	Change Hydraulic Oil and Filter	HO	Annually	1
6	Discharge Elbow Bearing (Rotate Elbow to six or eight different positions)	CL	Daily	1
7	Power Feed Shaft Bearings	CL	Weekly	4
8	Feeder Roll Bearing	CL	Weekly	1
9	Blower Shaft Bearings	CL	Weekly	2
10	Check Fuel Tank Level	DF	Daily	1
11	Change Engine Oil	MO	See Engine Manual	1
12	Check Engine Coolant Level	AF	Daily	1
	Check Engine Coolant	AF	Seasonally	1
13	Check Oil Filter		See Engine Manual	1
14	Repack Wheel Bearings	CL	Seasonally	2
15	Change Hydraulic Oil Filter	HO	Seasonally	1
16	Check Fuel Filter		Daily	2

LUBRICANT OF FLUID USED

CL	Chassis Lubricant
MO	Motor Oil - See Engine Manual
AF	50/50 Antifreeze and Water Mixture
DF	Diesel Fuel
HO	Hydraulic Oil

FLUID CAPACITIES

Fuel - 27 gallons (102 L)
Hydraulic Oil - 8 gallons (30 L)
Engine Oil - See engine manual
Engine Coolant - See engine manual

TIME KEY

△ DAILY
□ WEEKLY
⬡ SEASONALLY (OR 500 HOURS)
○ ANNUALLY

FINN B230 STRAW BLOWER TECHNICAL SPECIFICATIONS

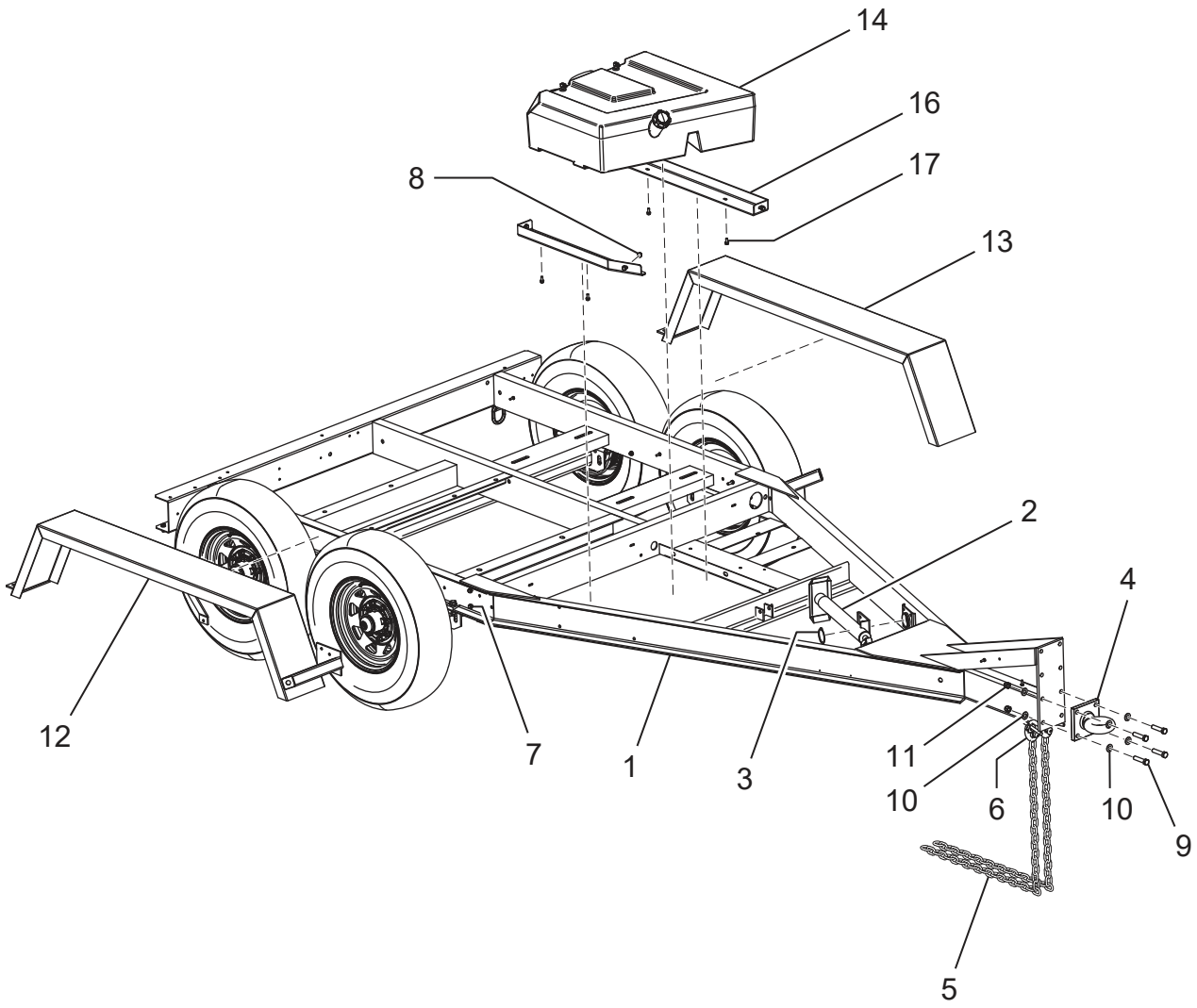
POWER	Yanmar 4TNV98CT-NVT, 72 HP (53.7 kW), 4 cylinder water cooled diesel engine. Tier 4Final. 3.32 L
ENGINE SAFETY SYSTEM	Low oil pressure, Electronic engine control and monitoring
CAPACITY	Up to 23 tons of hay or straw per hour
FUEL TANK CAPACITY	25 gallon (95 L)
BLOWER	Dynamically balanced, 30 in. (76.2 cm) diameter fan with 6 blades developing a discharge velocity greater than 185 mph (298 km/h)
RANGE	90 ft. (27.4 m) in still air
FEED	Hydraulic Driven Chain
BEATER CHAMBER	13 cu. ft. (368 liter) with removable beater chains
DISCHARGE SPOUT	Block bearing mounted. 359 degrees horizontal rotation and 40 degrees vertical travel
TRAILER	Independent suspension rubber torsion axles, with electric brakes, ST225/90D16 load range E tires, fenders, D.O.T highway lights, skid proof operator platform, parking jack, heavy-duty lunette ring
FEED TRAY	Folding tray, adjustable height to meet bed of supply vehicle
DRIVE	Belt Driven Blower Fan
WEIGHT*	4760 lbs. (3384 kg)

** Working weights are approximate and do not include options or stored materials.*

B230 Straw Blower

Parts Manual

Model **OS**



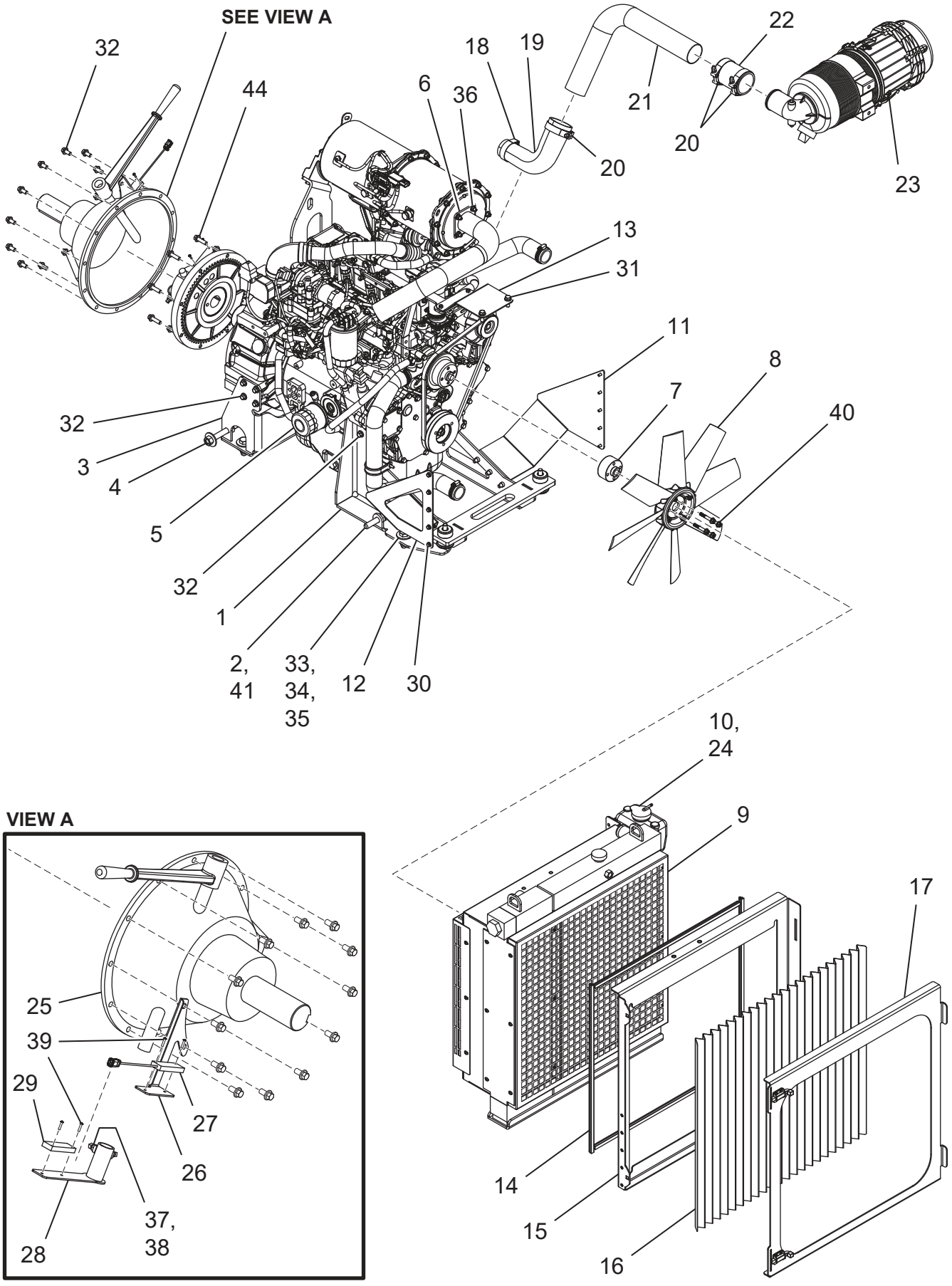
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

TRAILER ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	061044	Trailer, Tandem Axle	1
2	022588-01	Swivel Jack, 3K	1
3	022588-03	Retaining Ring, Swivel Jack	1
4	080043	Tow Ring	1
5	190033	Safety Chain, 3 ft. Length	2
6	004888	Coupling Link, 3/8 GR 80	2
7	●	3/8-16 UNC x 1 Hex Flange Screw, Regular Thread	14
8	●	3/8-16 Hex Flange Nut	14
9	●	5/8-11 UNC x 2.75 Hex Cap Screw	4
10	●	5/8 in. Type A Plain Washer, Narrow	8
11	●	5/8-11 Metal Prevailing Torque Type Hex Nut	4
12	023779-01	Fender Weldment, Curbside	1
13	023779-02	Fender Weldment, Roadside	1
14	075799	Fuel Tank Assembly	1
15	A6251-001	Fuel Tank Bracket	1
16	A6252-001	Fuel Tank Bracket	1
17	●	5/16-18 UNC x 0.75 Hex Flange Screw, Regular Thread	4
NOT SHOWN			
	005796	Clevis Grab Hook, Self-lock 3/8 GR 80	2
KITS AND MARKERS			

● Standard Hardware Item - Available at your local hardware store.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

ENGINE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	A4981-001	Bracket Assembly, Front Engine Mount	1
2	023167	Jacking Bolt	1
3	A4979-001	Bracket Assembly, Rear Engine Mount	1
4	023166	Engine Jacking Bolt	1
5	A2160-001	Engine, Diesel, 72hp	1
6	A5941-001	Exhaust Weldment	1
7	A2871-001	Fan Hub, Standoff	1
8	A2796-001	Cooling Fan	1
9	A3095-001	Radiator	1
10	031542	Overflow Bottle Assembly Kit, 1 qt.	1
11	A5930-001	Radiator Screen Bracket, Righthand	1
12	A5929-001	Radiator Screen Bracket, Lefthand	1
13	A5928-001	Sheet, Formed Radiator Screen Support	1
14	A5937-001	Bulb Seal, Push-On, EPDM, 1/8 in. Sheet	4
15	A5935-001	Assembly, Radiator Screen Mount	1
16	A5920-001	Radiator Screeen	1
17	A5934-001	Assembly, Radiator Screen Door	1
18	A0959-009	Clamp, T-Bolt Band	1
19	A2982-001	90° Elbow	1
20	A0959-015	Clamp, T-Bolt Band	3
21	A5953-001	Tube, Air Intake	1
22	A4317-001	Straight Coupler Hose	1
23	A3006-001	Air Cleaner Assembly	1
24	190034	Hose, 1/4 in. I.D., 36 in.	1
25	012069	PTO Assembly SAE#4 with 10 in. Clutch	1
26	A5965-001	Interlock Switch Bracket	1
27	031567-06	Regen Interlock Switch Cable Assembly	1
28	031519-00	Regen Interlock Switch Actuator	1
29	005893	Regen Interlock Switch Magnet	1
30	●	1/4-20 UNC x 0.5 Hex Flange Screw Regular Thread	10
31	●	3/8-16 UNC x 1 Hex Flange Screw Regular Thread	8
32	●	M10 x 1.5 x 20 Hex Flange Head Machine Screw	28
33	●	5/8 in. Type A Plain Washer, Wide	9
34	●	5/8-11 Metal Prevailing Torque Type Hex Nut	4
35	●	5/8-11 UNC x 1.75 Hex Cap Screw	4
36	●	M8 x 1.25 Metric Hex Flange Nuts	4

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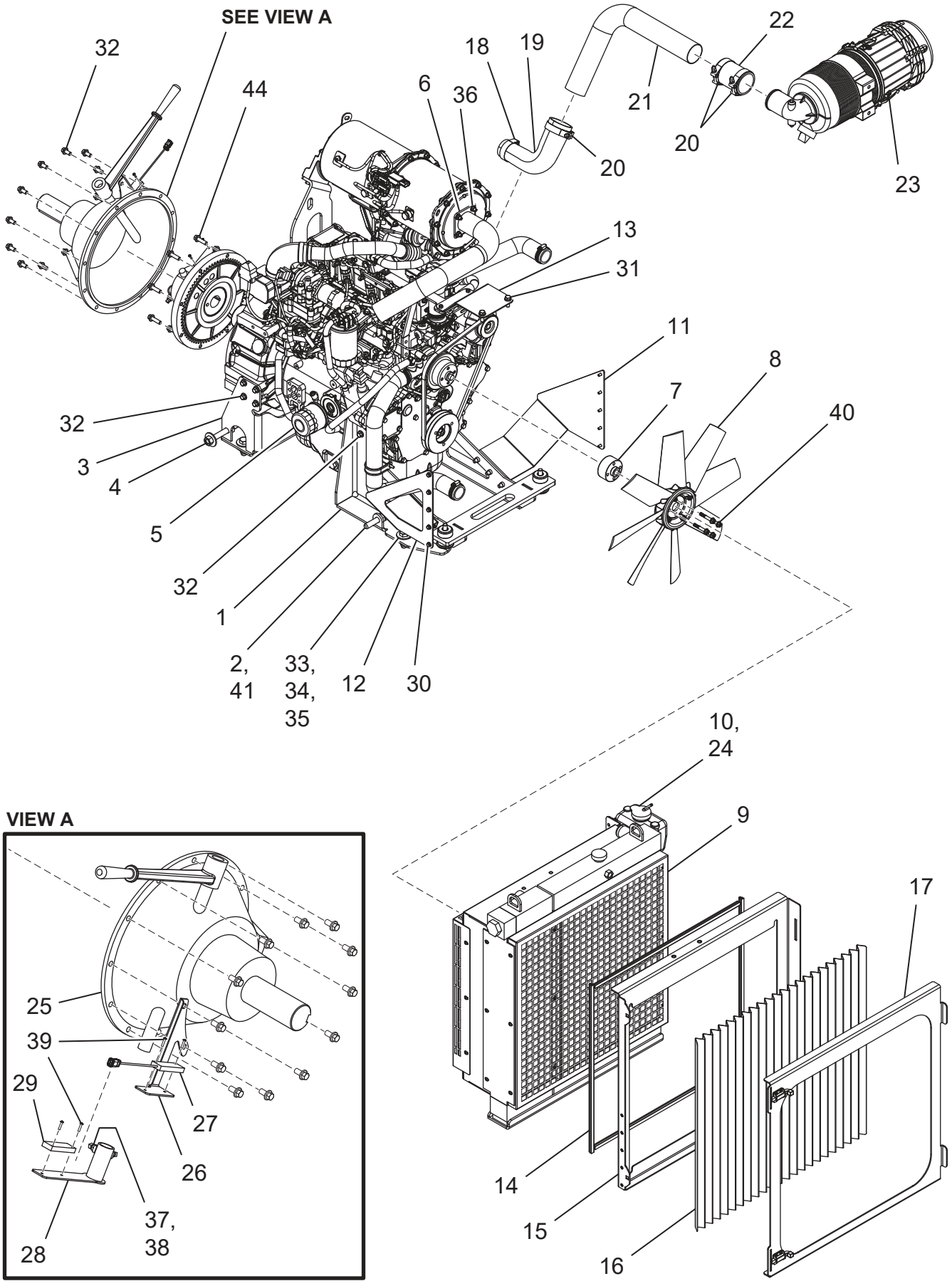


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

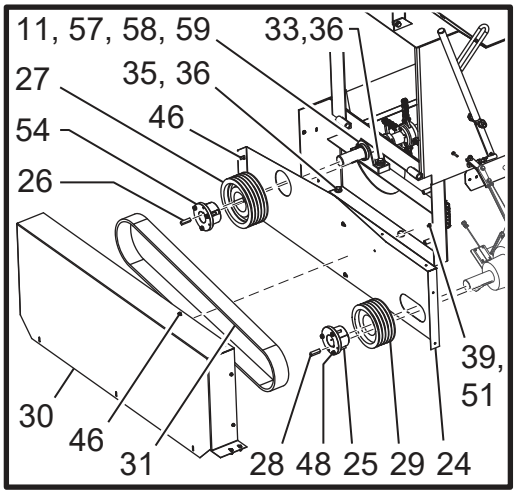
ENGINE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
37	●	5/16-18 x 3/4 Square Head Set Screw, Flat Point	2
38	●	5/16-18 Hex Jam Nut	2
39	●	No.6 - 32 x 5/8 Cross Recessed Pan Head Machine Screw	4
40	A2884-001	Screw - Flanged Hh, Jis, M8 x 1.25 THD x 50L	4
41	●	5/8-11 Hex Nut	1
42	●	1/4-20 Hex Flange Nut	2
43	●	1/4-20 UNC x 0.75 Hex Flange Screw Regular Thread	2
44	●	M10 x 1.5 x 35 Hex Flange Head Machine Screw	8

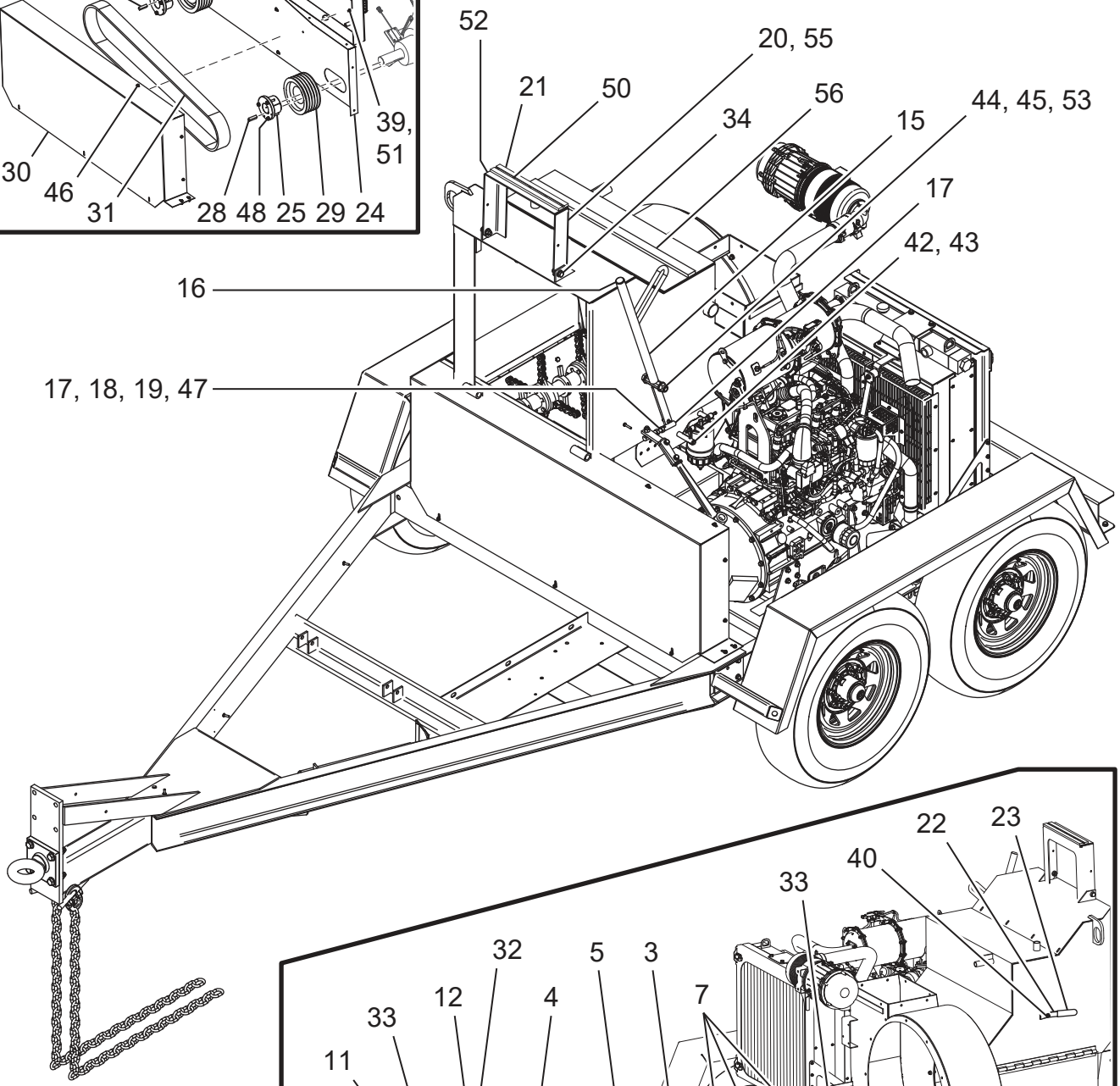
KITS AND MARKERS

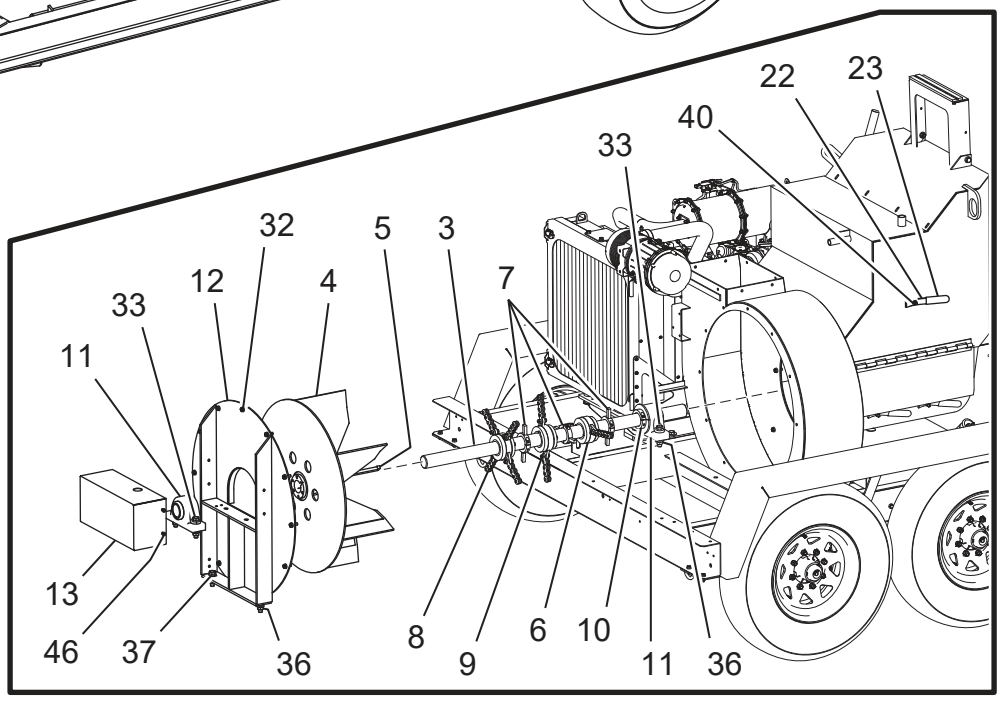
● Standard Hardware Item - Available at your local hardware store.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



BELT GUARD COMPONENTS





BLOWER SHAFT COMPONENTS

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

BLOWER ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023571	Shredder Box Weldment	1
2	023627	Blower Housing	1
3	023940	Blower Shaft	1
4	023311	Blower Blade Assembly, Balanced	1
5	022159	Blower Blade Key	1
6	023228	Blower Shaft, 5 Pitch Chain Assembly	1
7	023334	Breaker Collar	3
8	021361	Blower Shaft, 3 Pitch Chain Assembly	1
9	021822	Blower Shaft, 4 Pitch Chain Assembly	1
10	023752-02	Bearing Shield Weldment	1
11	021511	Bearing	2
12	023632	Blower Cover Weldment	1
13	023418	Blower Shaft Cover	1
14	A5969-001	Fuel Filter Bracket	1
15	023794-01	Clutch Handle	1
16	004996	Pipe Plug, 1 in.	1
17	006737	Ball Joint	2
18	190183	1/2-20 Threaded Rod	1
19	23792-04	Clutch Handle Extension	1
20	F260-0017	Discharge Tube Holddown	1
21	023583-06	Tube Holddown Pad	1
22	023572-09	Door Latch	3
23	022202	Grip, Vinyl Handle	3
24	023536	Dust Guard	1
25	060030	Bushing	1
26	190127-32	Key	1
27	060032	Blower Shaft Sheave	1
28	011441	Key	1
29	023595	Engine Clutch Sheave	1
30	023537	Belt Guard	1
31	023839	Belt, Blower Drive	1
32	●	3/8-16 UNC x 1 Hex Flange Screw Regular Thread	23
33	●	5/8-11 UNC x 3 Hex Flange Screw Regular Thread	4
34	●	1/2-13 UNC x 1.25 Hex Flange Screw Regular Thread	2
35	●	5/8-11 UNC x 1.5 Hex Flange Screw Regular Thread	4

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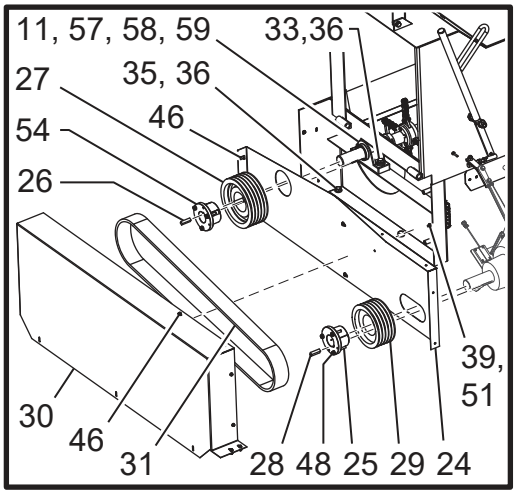
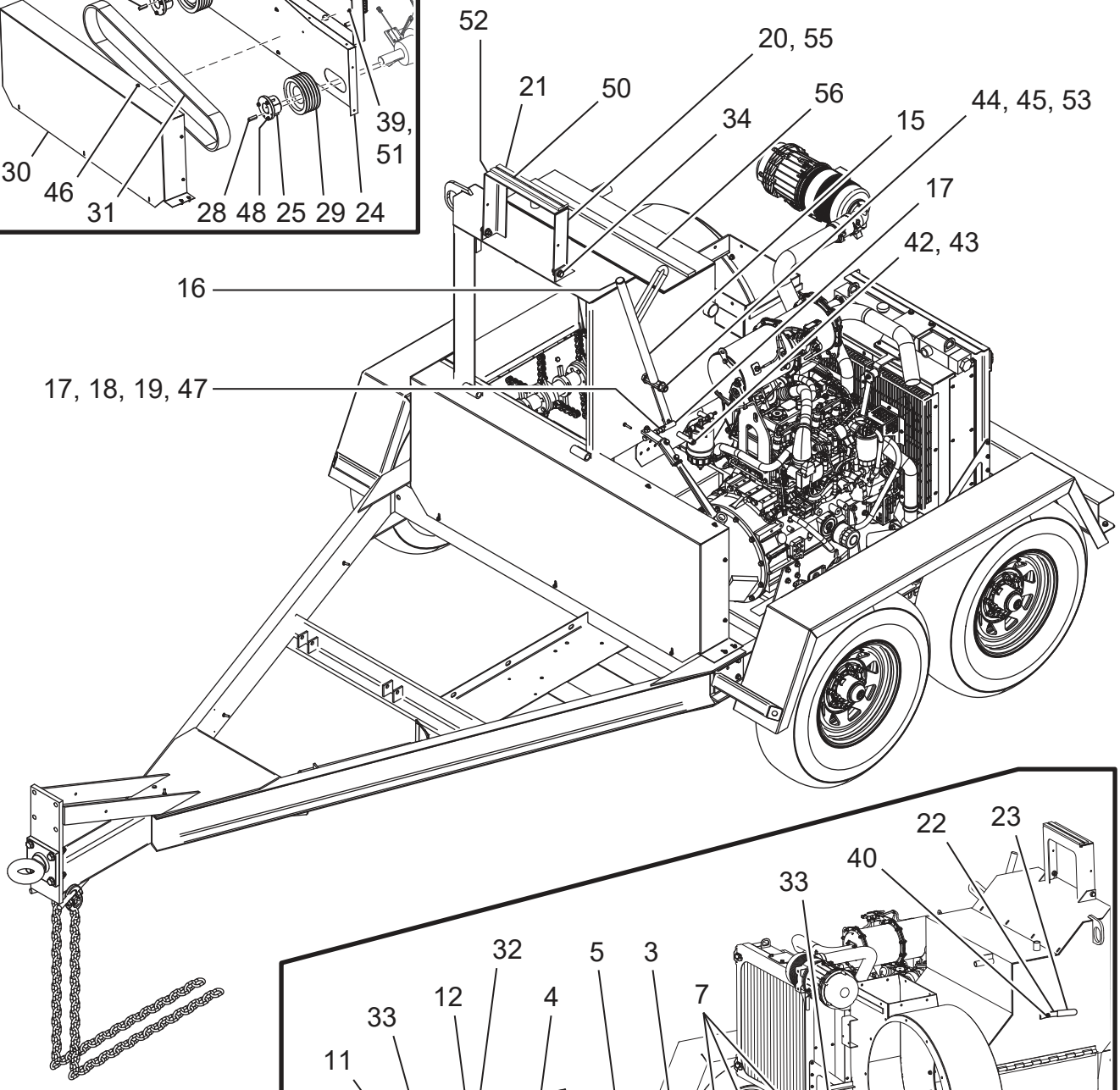
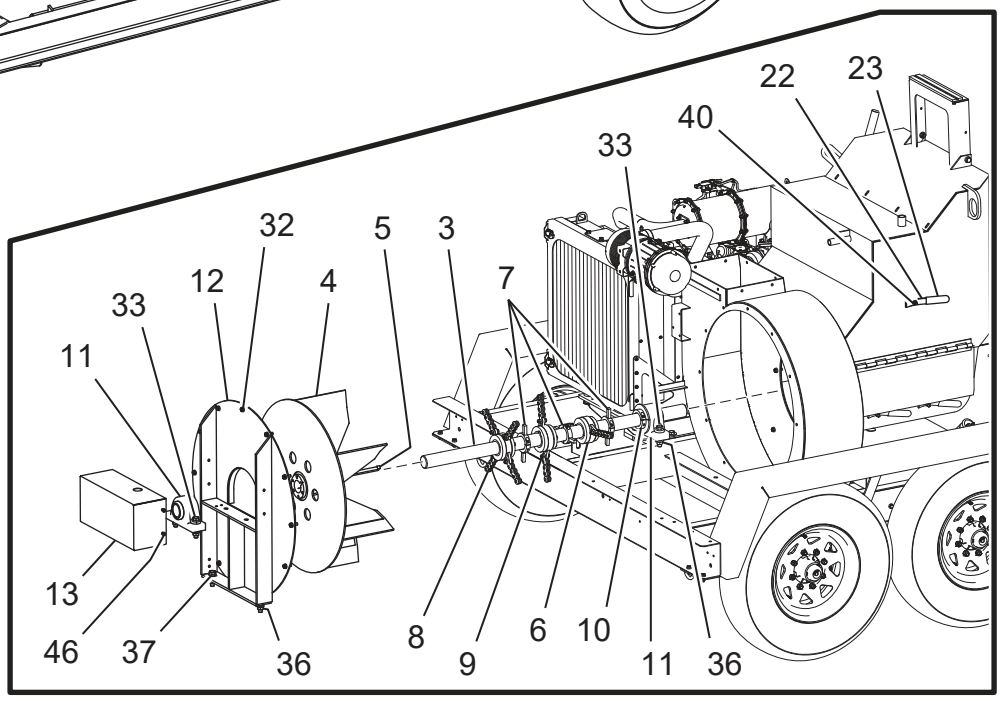


BELT GUARD COMPONENTS





BLOWER SHAFT COMPONENTS

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

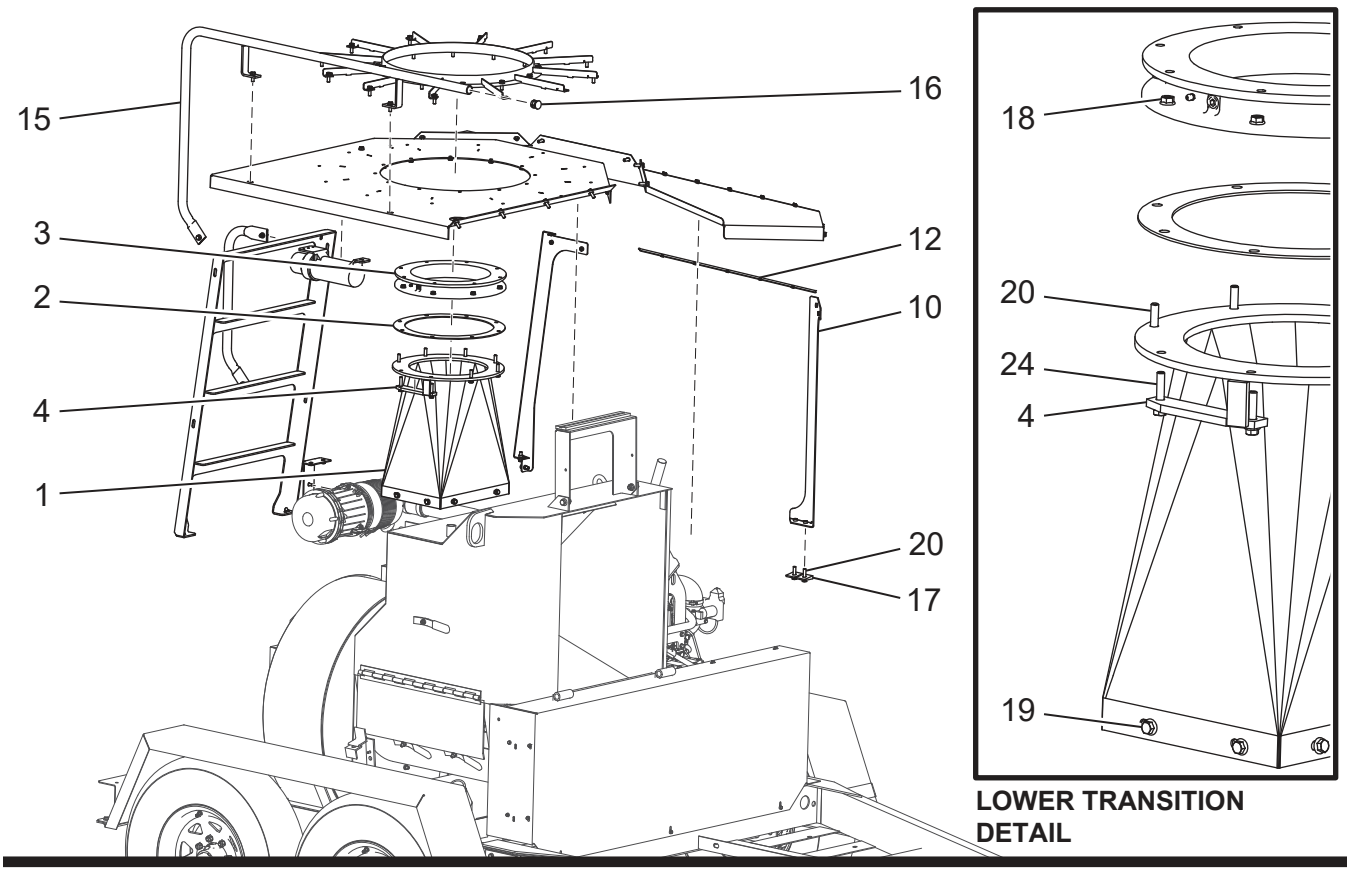
BLOWER ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
36	●	5/8-11 UNC Hex Flange Nut	10
37	●	5/8-11 UNC x 2 Hex Flange Screw Regular Thread	2
38	●	16 Hex Flange Nut	23
39	●	20 Hex Flange Nut	7
40	●	3/8-16 Prevailing Torque Type Hex Flange Nut	3
41	●	1/2-13 Prevailing Torque Type Hex Flange Nut	2
42	●	1/4-20 UNC x 4 Hex Cap Screw	4
43	●	1/4 Type A Plain Washer, Wide	6
44	●	3/4 Type A Plain Washer, Narrow	2
45	●	3/4-10 Metal Prevailing Torque Type Hex Nut	1
46	●	1/4-20 UNC x 0.75 Hex Flange Screw Regular Thread	19
47	●	1/2-20 Hex Nut	4
48	●	3/8-16 UNC x 1.75 Hex Flange Screw Regular Thread	11
49	●	3/8 in. Type A Plain Washer, Wide	3
50	●	1/8 in. Blind Rivet	5
51	●	1/4-20 UNC x 1.25 Hex Flange Screw Regular Thread	4
52	190260	Trim Seal 5/8 in. Bulb x 1/8 in. Edge Thick, 14 in. Long	1
53	A6277-001	Sleeve Bearing, 3/4 in. I.D., 1 in. O.D., 5/8 in. Long	1
54	060302B	Bushing	1
55	023527	Hold-Down Strap Assembly	1
56	023838	Platform Mounting Pad	1
57	160052	1/8 in. 90° Street Elbow	1
58	023850	Grease Hose x 15 in. Long	1
59	160152	1/8 in. Standard Coupling	1

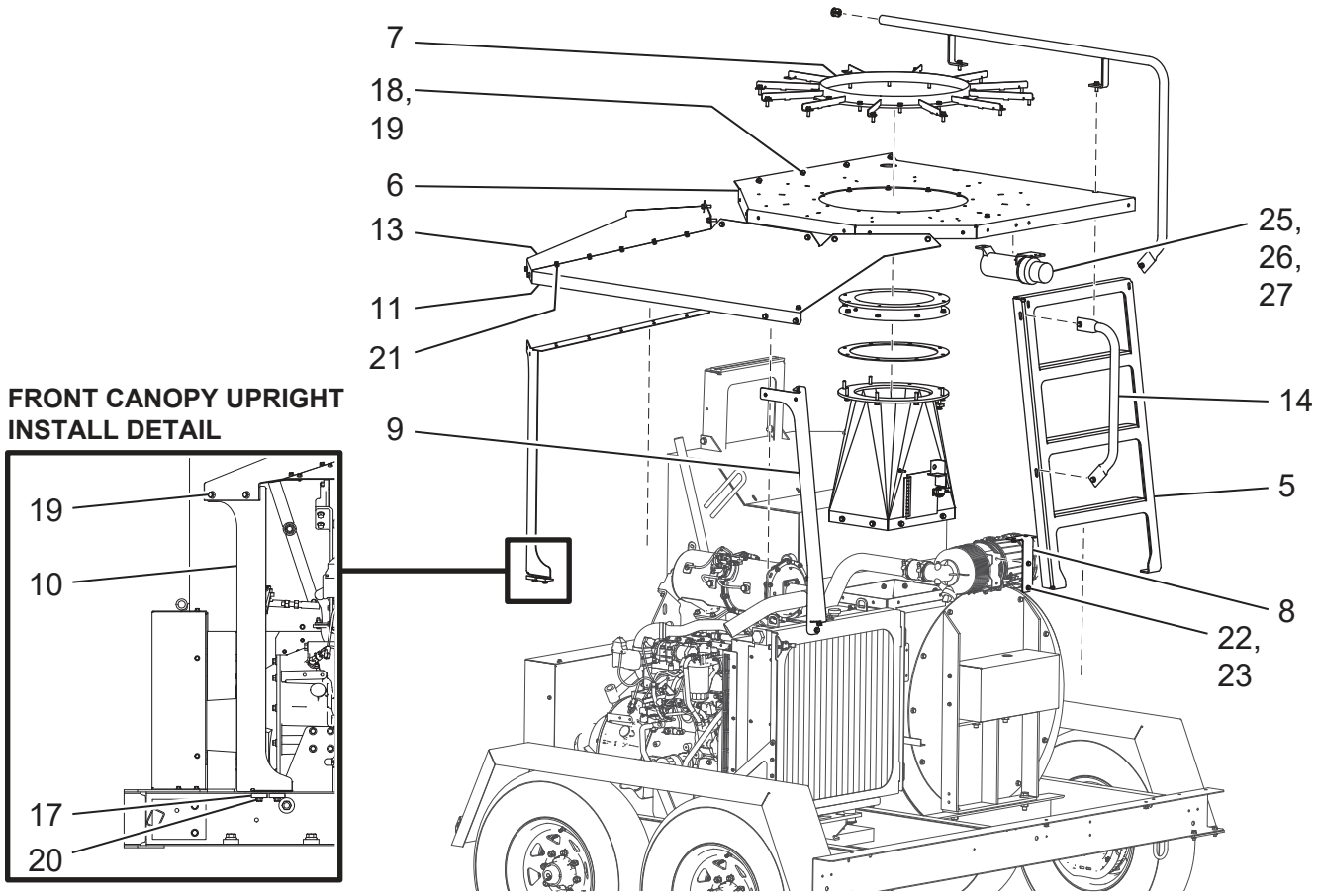
KITS AND MARKERS

● Standard Hardware Item - Available at your local hardware store.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



LOWER TRANSITION DETAIL



FRONT CANOPY UPRIGHT INSTALL DETAIL

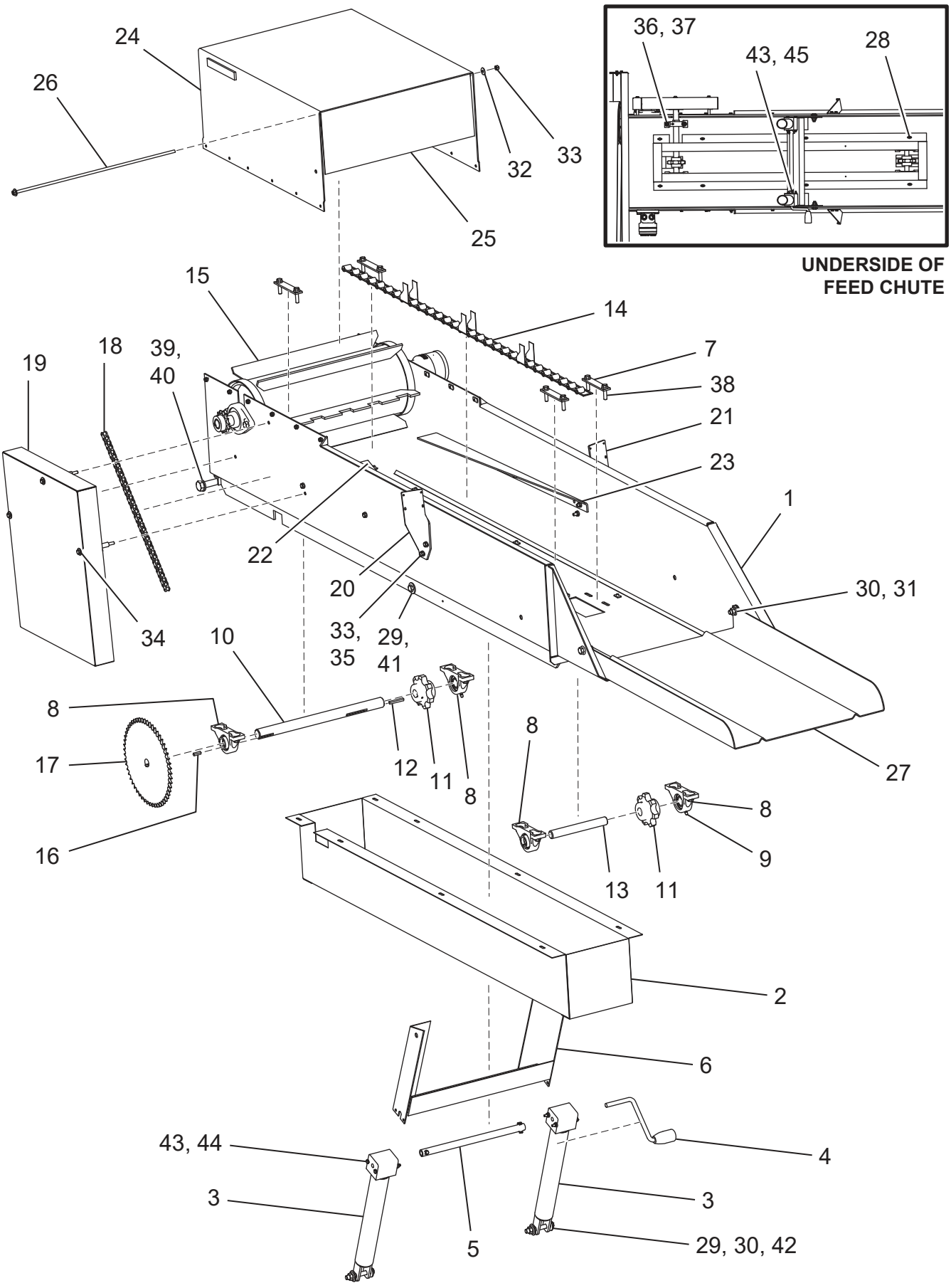
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

PLATFORM ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023626	Lower Transition Weldment	1
2	023368	Gasket	1
3	023374	Transition Bearing Assembly	1
4	023633-02	Rotary Stop	1
5	A6293-001	Ladder, B230	1
6	023549-01	Platform	1
7	023836	Kick Strap Weldment	1
8	A5967-001	Sheet - Air Cleaner Bracket	1
9	A5945-001	Assembly, Rear Canopy Upright	1
10	A5947-001	Assembly, Front Canopy Upright	1
11	A5921-001	Sheet, Formed, Rear Canopy	1
12	A5943-001	Assembly, Canopy Joiner	1
13	A5936-001	Sheet, Formed, B230 Front Canopy	1
14	023638-03	Guard Rail	1
15	023638	Guard Rail Weldment	1
16	004996	Pipe Plug, 1 in.	1
17	●	1/2 Square Beveled Washer	2
18	●	3/8-16 UNC Hex Flange Nut	54
19	●	3/8-16 UNC x 1.0 Hex Flange Screw Regular Thread	56
20	●	3/8-16 UNC x 1.5 Hex Flange Screw Regular Thread	9
21	●	1/4-20 UNC x 0.5 Hex Flange Screw Regular Thread	10
22	●	5/16-18 UNC x 0.75 Hex Flange Screw Regular Thread	2
23	●	5/16-18 UNC Hex Flange Nut	2
24	●	3/8-16 UNC x 1.75 Hex Flange Screw Regular Thread	2
25	A1096-001	Manual Canister	1
26	●	1/4-20 Hex Flange Nut	2
27	●	1/4-20 x 5/8 Cross Recessed Pan Head Machine Screw	2
NOT SHOWN			
	190038	Foam Gasket, 1/8 x 1/2 x 3.0 ft.	1
KITS AND MARKERS			

● Standard Hardware Item - Available at your local hardware store.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

CHUTE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023570	Feed Chute Weldment	1
2	023590	Feed Chain Guard Weldment	1
3	023922	Leveling Jack	2
4	023923	Jack Crank Handle	1
5	023591-07	Feed Chute Jack Connecting Rod	1
6	023592	Dual Jack Mount	1
7	023170-01	Bearing Support Tab	4
8	020386	Feed Chain Shaft Bearing	4
9	021823	Grease Fitting	4
10	023198	Feed Chain Shaft	1
11	021517-02	Sprocket	2
12	190123-24	Key	1
13	023197	Feed Chain Idler Shaft	1
14	021516	Feed Chain	1
15	023189	Feed Roll Assembly	1
16	190123-16	Key	1
17	023134	Drive Sprocket	1
18	023153	Drive Chain	1
19	023361	Drive Chain Guard	1
20	F260-0020-01	Emergency Stop (E-Stop) Mount - Passenger Side	1
21	F260-0020-02	Emergency Stop (E-Stop) Mount - Driver Side	1
22	023158-02	Bale Holder - Passenger Side	1
23	023158-01	Bale Holder - Driver Side	1
24	023171-01	Feed Chute Cover	1
25	F260-0016	Air Baffle Door	1
26	023348-02	Rod Hinge Weldment	1
27	023542	Feed Chute Extension	1
28	●	1/4-20 UNC x 0.5 Hex Flange Screw Regular Thread	20
29	●	1/2 in. Type A Plain Washer, Wide	12
30	●	1/2-13 Prevailing Torque Type Hex Flange Nut	6
31	●	1/2-13 UNC x 1.25 Hex Flange Screw Regular Thread	2
32	●	5/16 in. Type B Plain Washer, Regular	5
33	●	5/16-18 UNC Hex Flange Nut	9
34	●	5/16-18 UNC x 5 Hex Cap Screw	3
35	●	5/16-18 UNC x 1 Hex Flange Screw Regular Thread	8

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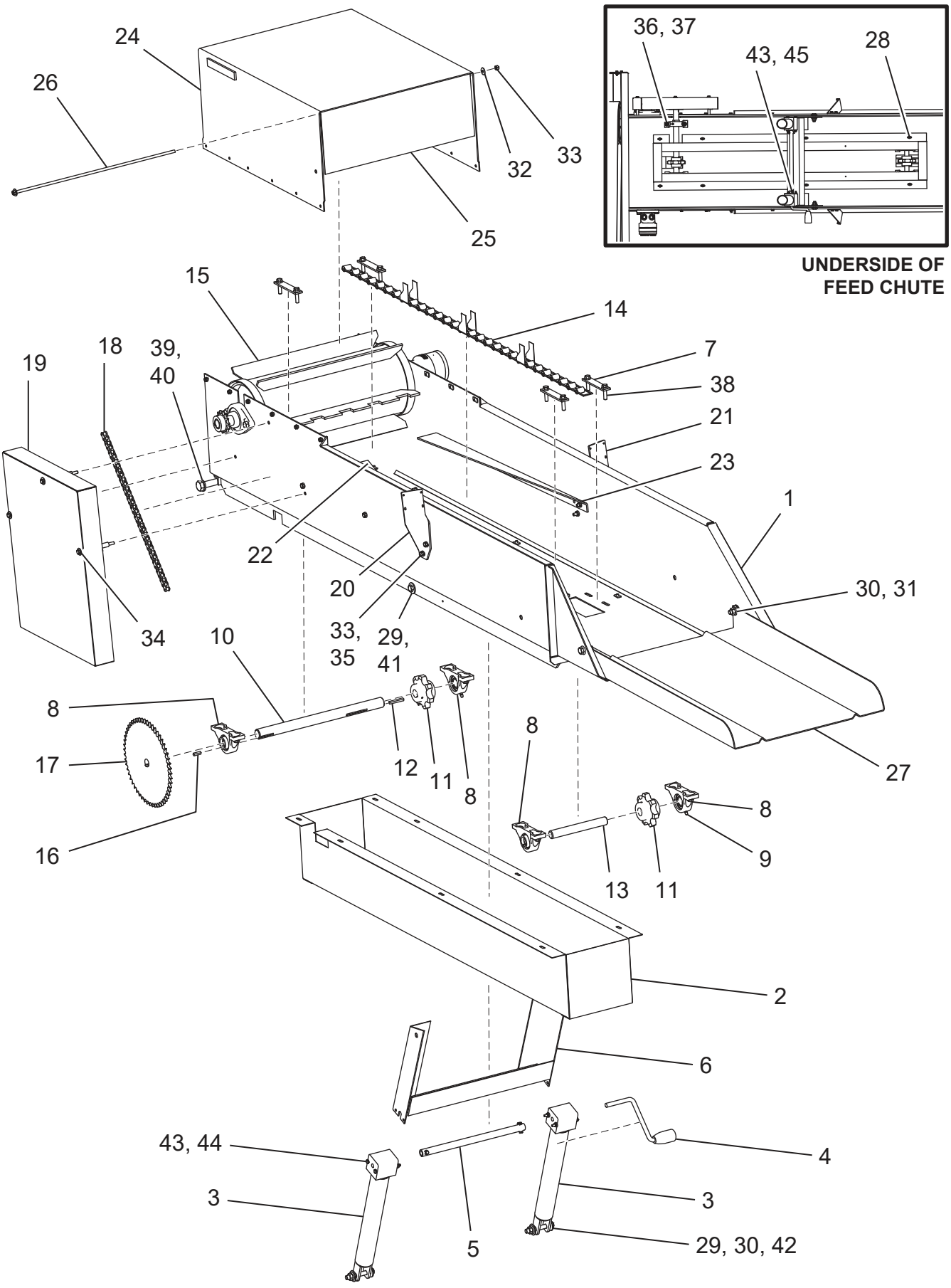


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

CHUTE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
36	●	3/8 in. Type A Plain Washer, Wide	8
37	●	3/8-16 UNC Hex Flange Nut	8
38	●	3/8-16 UNC x 1.5 Hex Flange Screw Regular Thread	8
39	●	3/4 in. Type A Plain Washer, Narrow	2
40	●	3/4-10 UNC x 7.5 Hex Cap Screw	2
41	●	1/2-13 UNC x 1.5 Hex Cap Screw	2
42	●	1/2-13 UNC x 3.5 Hex Cap Screw	2
43	●	1/4-20 UNC Hex Flange Nut	6
44	●	1/4-20 UNC - 3.5 Hex Cap Screw	4
45	●	1/4-20 UNC x 1.25 Hex Flange Screw Regular Thread	2

KITS AND MARKERS

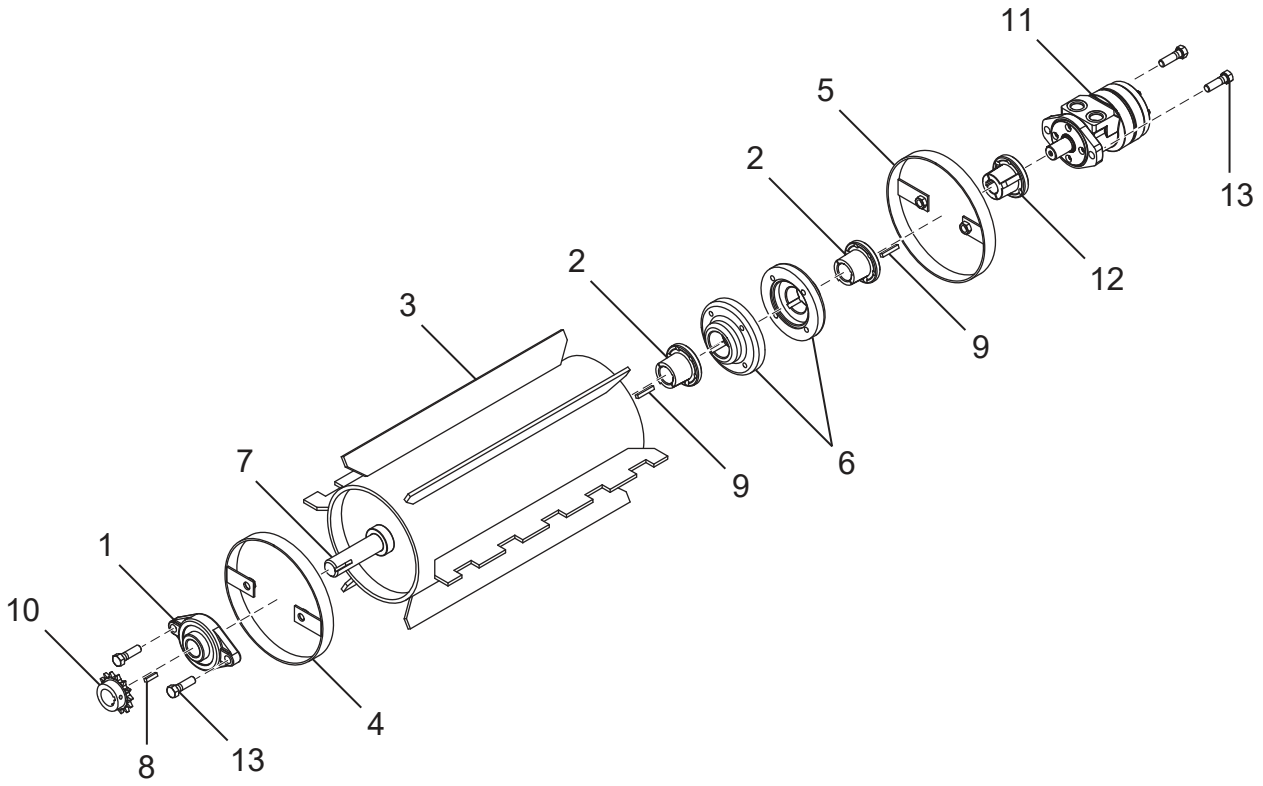
● Standard Hardware Item - Available at your local hardware store.

FEEDER ROLL ASSEMBLY

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	020586	2 Bolt Flange Bearing	1
2	▲	021440	Bushing	2
3	▲	023123	Feeder Roll Weldment	1
4	▲	023125	Beater Roll End Caps Weldment	1
5	▲	023152	Beater Roll End Caps Weldment	1
6	▲	023156	Rigid Coupling	1
7	▲	023190	Feeder Roll Drive Shaft	1
8	▲	190123-16	Machine Key	1
9	▲	190123-24	Machine Key	2
10	▲	023596	Drive Sprocket	1
11	▲	A6093-001	Hydraulic Motor	1
12	▲	000393B	Bushing	1
13	▲	●	1/2-13 UNC x 1.75 Hex Bolt - UNC Regular Thread	4

KITS AND MARKERS

▲	023189	Feeder Roll Assembly
●	Standard Hardware Item - Available at your local hardware store.	



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

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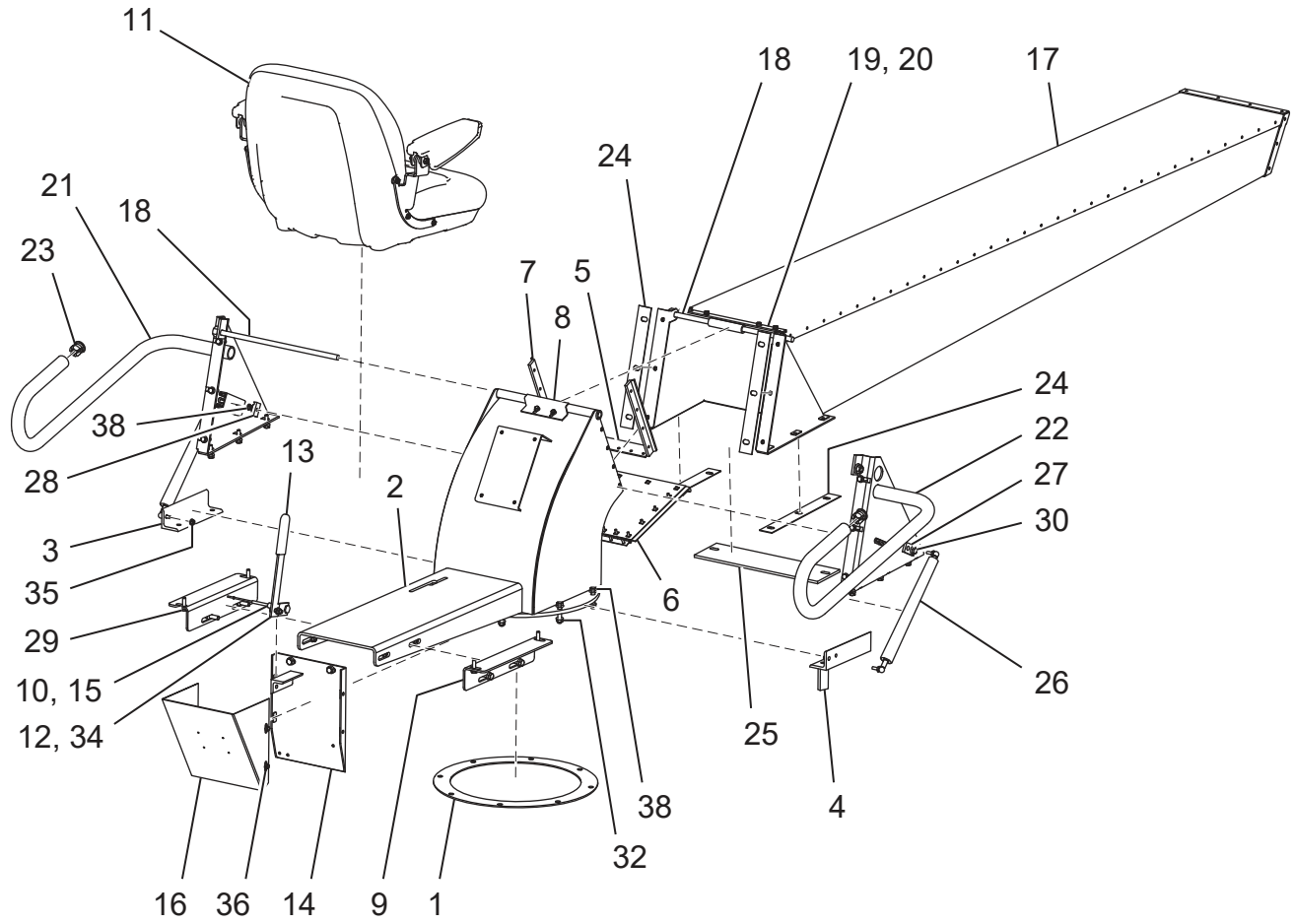

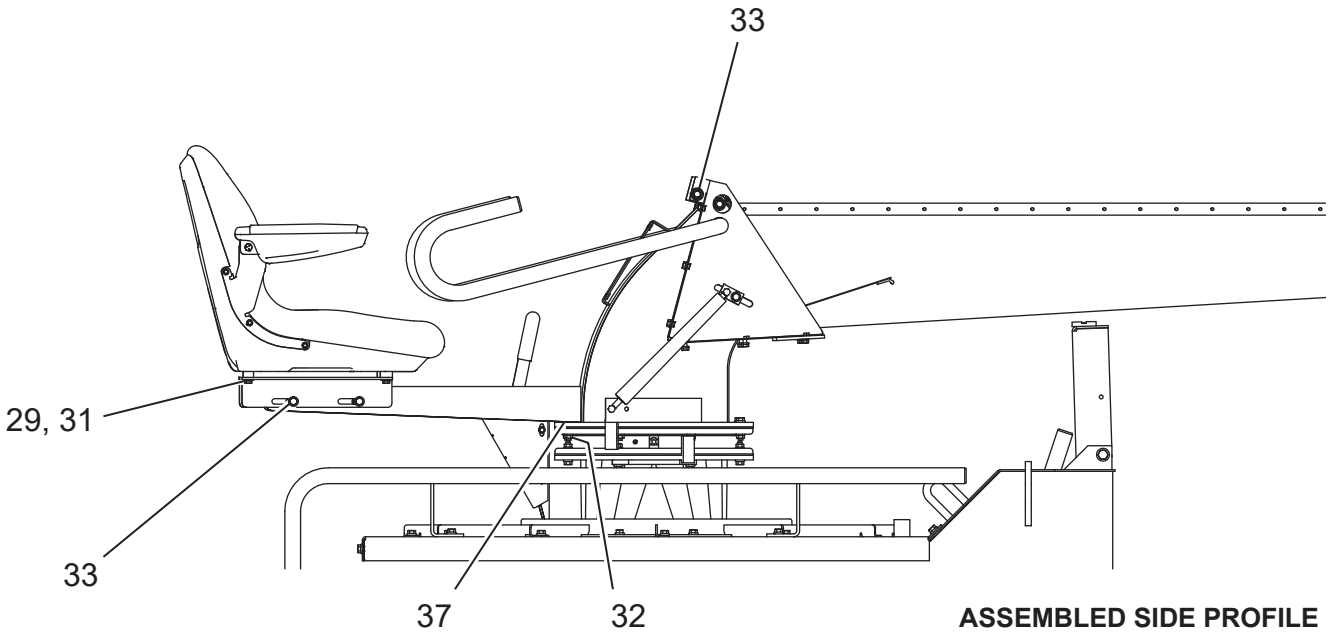

ASSEMBLED SIDE PROFILE

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

DISCHARGE HEAD ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	023368	Gasket	1
2	A6027-001	Elbow Weldment	1
3	023633-03	Lower Spring Mount Angle, Left Hand Side	1
4	023633-01	Lower Spring Mount, Right Hand Side	1
5	023726-03	Hinge Seal	1
6	023729	Seal Plate Assembly	1
7	023726-07	Elbow Wiper Seal	2
8	023560-05	Hinge Seal Bracket	1
9	F260-0026	Seat Mounting Bracket	2
10	●	7/16-14 Hex Nut	1
11	A5995-001	Midback Seat Assembly	1
12	F260-0015	Power Feed Handle Weldment	1
13	022202	Grip, Vinyl Handle, 1 x 1/4 x 4 in. Long	1
14	023555-02	Control Cable Plate Weldment	1
15	023639	Power Feed Cable	1
16	023554-01	Control Cable Plate	1
17	023629	Discharge Tube Weldment	1
18	023586-05	Elbow Rod Weldment	2
19	023726-01	Top Seal	1
20	023726-04	Top Seal Retainer	1
21	023588-01	Handle Weldment, Left Hand Side	1
22	023588-02	Handle Weldment, Right Hand Side	1
23	004996	Pipe Plug, 1 in.	2
24	023583-04	Discharge Tube Seal	4
25	023587-01	Elbow Support Plate	1
26	023609	Gas Spring Assembly	2
27	023587-02	Ball Stud Strap	2
28	080086	Spring Nut 3/8-16 UNC	2
29	●	5/16-18 UNC x 1 Hex Flange Screw Regular Thread	17
30	●	3/8-16 UNC x 1 Hex Flange Screw Regular Thread	8
31	●	5/16 Type B Plain Washer, Regular	4
32	●	3/8-16 UNC Hex Flange Nut	14
33	●	1/2-13 Prevailing Torque Type Hex Flange Nut	2
34	●	5/16-18 Prevailing Torque Type Hex Flange Nut	1
35	●	1/4-20 Prevailing Torque Type Hex Flange Nut	4

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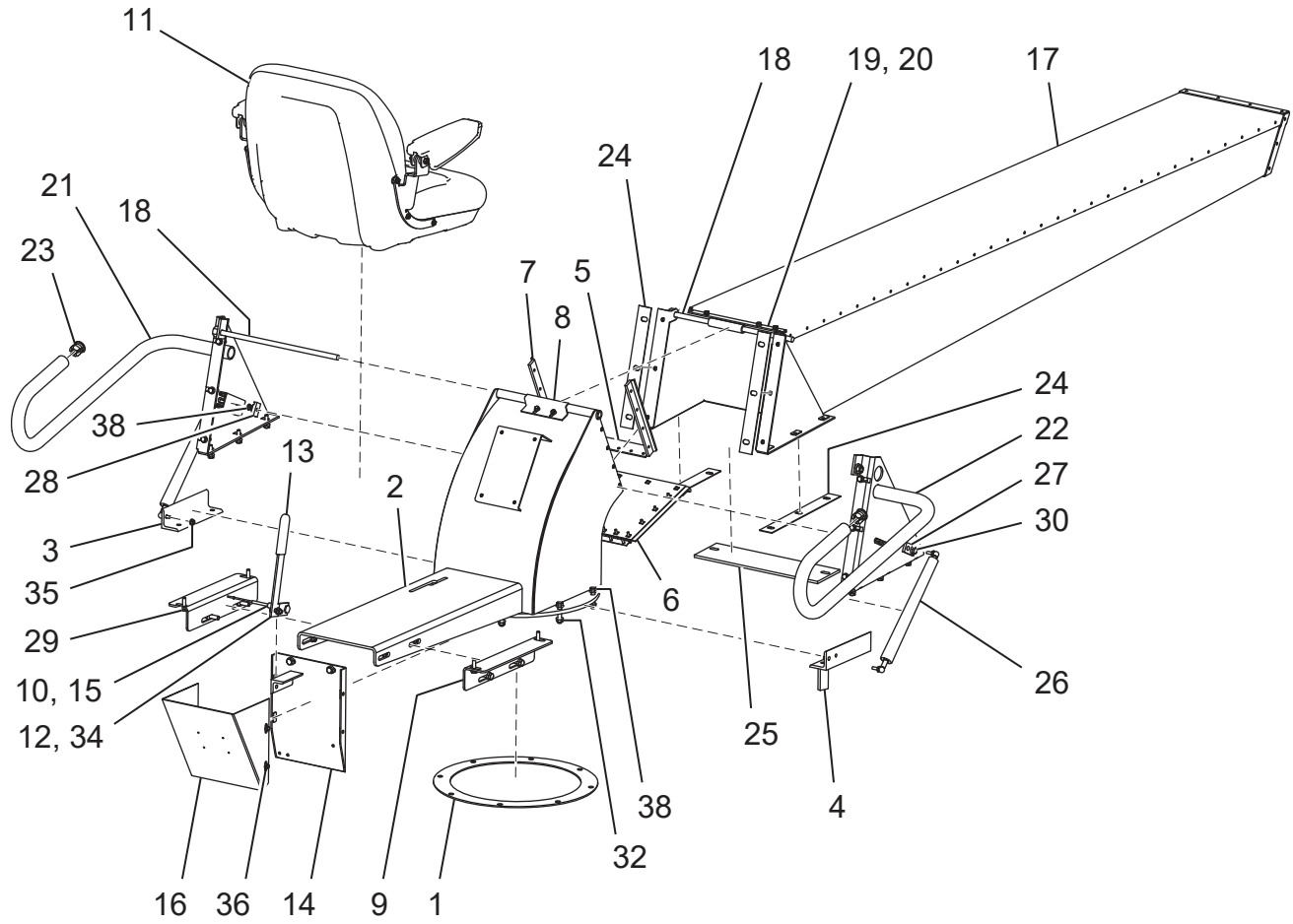
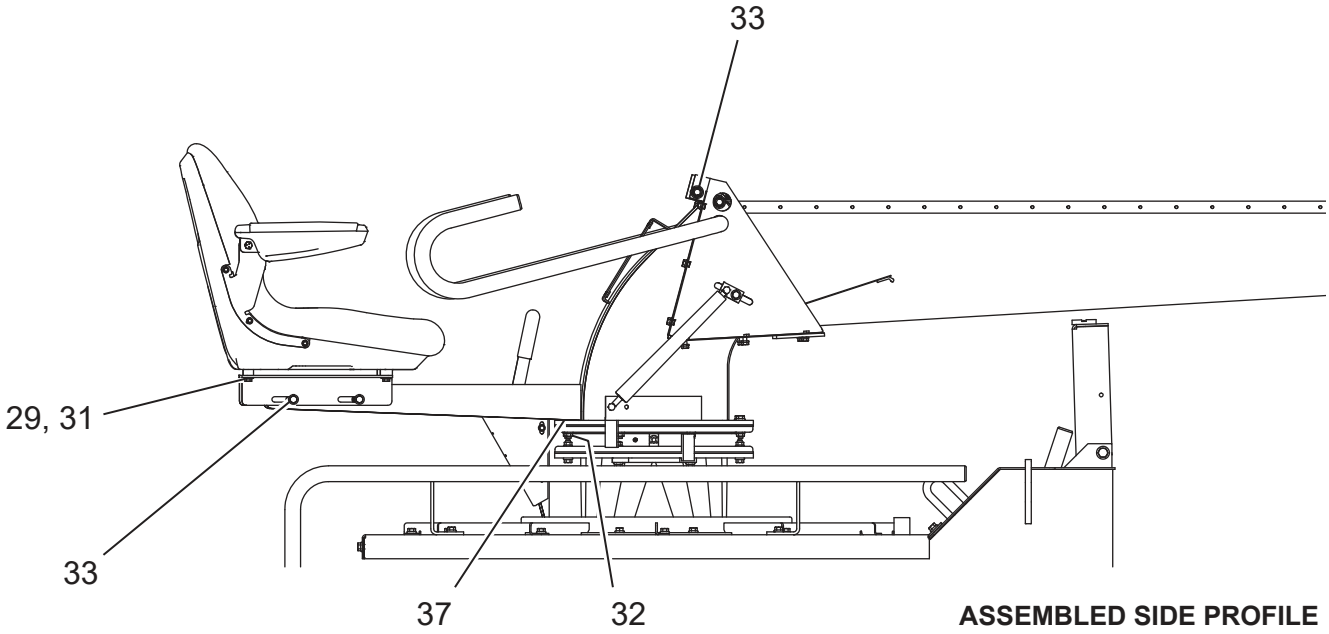


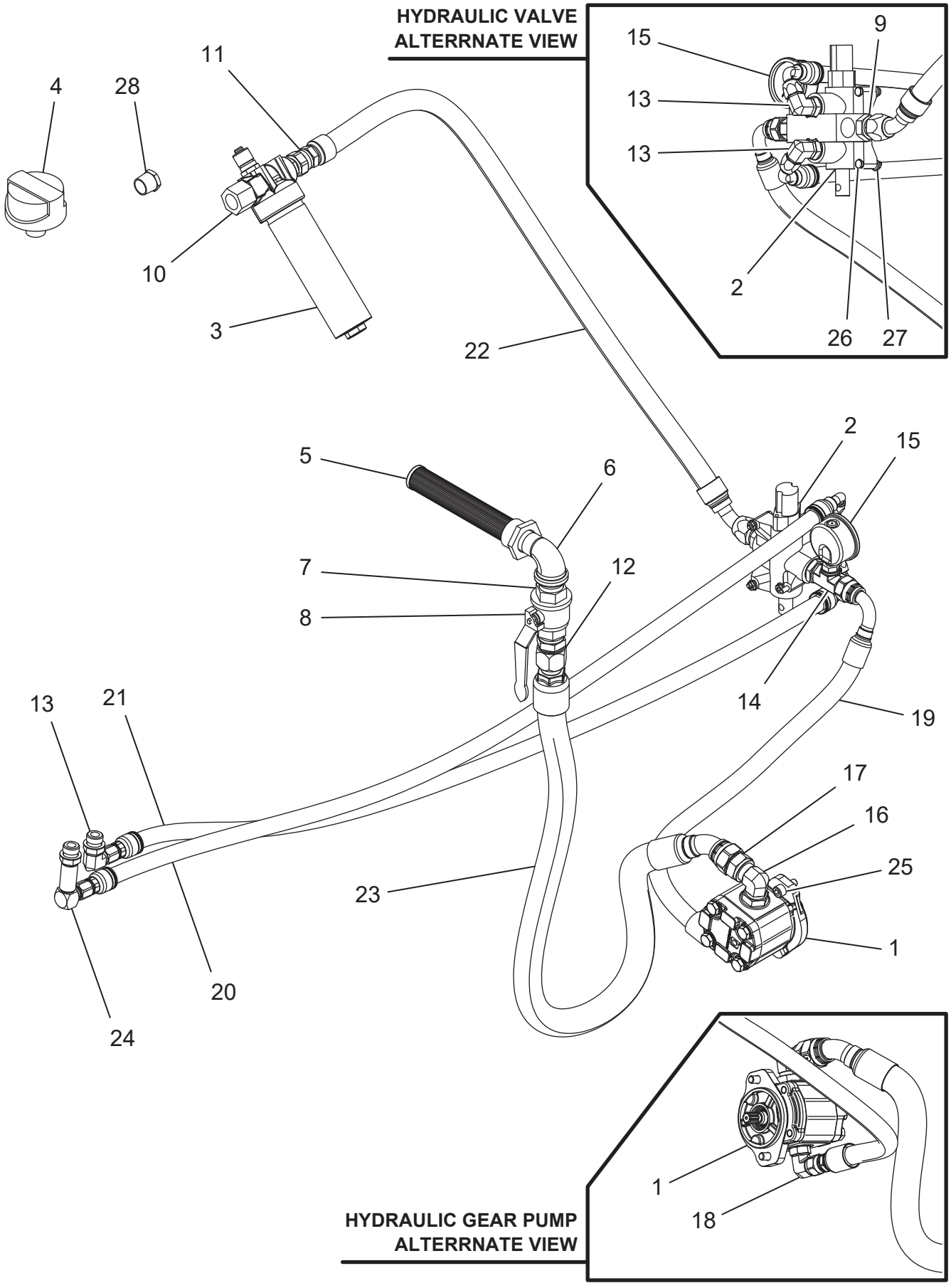


ASSEMBLED SIDE PROFILE

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

DISCHARGE HEAD ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
36	●	1/4-20 UNC x 0.5 Hex Flange Screw Regular Thread	10
37	●	3/8-16 UNC x 1.5 Hex Flange Screw Regular Thread	4
38	●	3/8-16 UNC x 1.75 Hex Flange Screw Regular Thread	4
NOT SHOWN			
	A6287-001	Eye Nut, 3/8-16, Zinc	1
	023524	Seat Belt (optional)	1
	●	No. 10-24, Hex Machine Screw Nut	16
	●	No. 10 - 24 x 5/8 Countersunk Flat Head Screw	8
	●	No. 10 - 24 x 5/8 Cross Recessed Pan Head Screw	8
KITS AND MARKERS			
	●	Standard Hardware Item - Available at your local hardware store.	



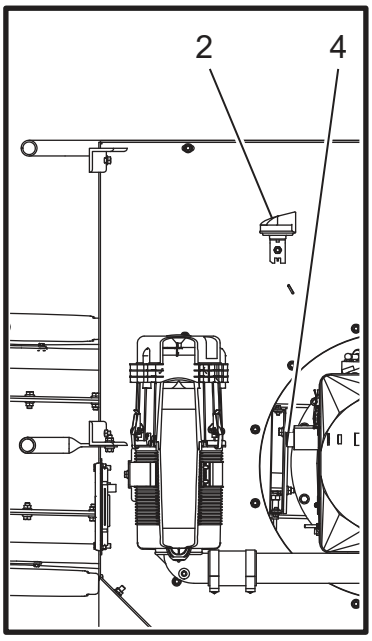
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

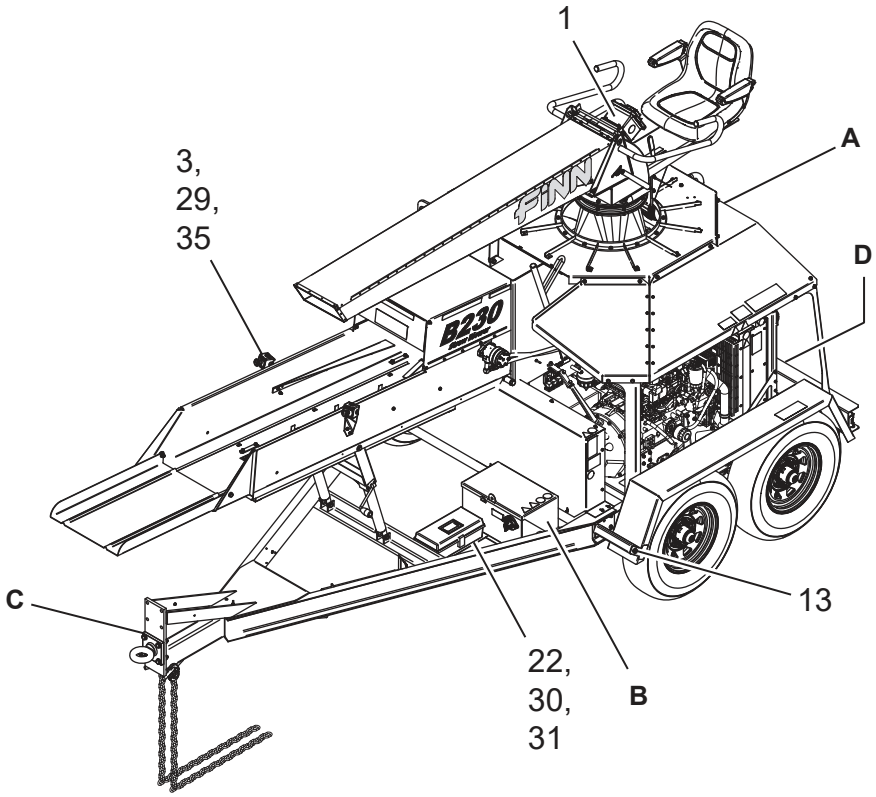
HYDRAULIC SYSTEM COMPONENTS, HOSES AND FITTINGS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1		005889	Hydraulic Gear Pump	1
2		008686	Hydraulic Valve	1
3		A3555-001	Filter Assembly	1
4		005793	Filler/Breather	1
5		011466	Suction Strainer	1
6		160062	90° Street Elbow, 1 in.	1
7		160305	Stdandard Close Nipple, 1 in.	1
8		021559	NPT Ball Valve, 1 in.	1
9	▲	012087	Fitting, #12 MSAE x #12 MJIC	1
10	▲	023911	SAE Straight Thread/Female Pipe Adapter	1
11	▲	055233	SAE Straight Thread/Male Connector	1
12	▲	2404-16-16	Adapter, #16 MNPT x #16 MJIC	1
13	▲	6801-8-10	Fitting, #8 MJIC x #10 MSAE Adj, 90°	3
14	▲	GP6400-12-12-4	Gauge Port Adapter	1
15	▲	A1374-001	Pressure Gauge, 0-5000 psi	1
16	▲	6801-12-12	NWO Fitting, #12 MJIC x #12 MSAE Adj, 90°	1
17	▲	2406-12-16	Fitting, Adapter, #12 FJIC x #16 MJIC	1
18	▲	6801-10-10	Adapter, 90 Elbow, #10 SAE #10 ORB, Steel	1
19	▲	A6101-001	5/8 in. ID 100R17 Hose x 27 in OAL with #10 FJIC, #12 90 FJIC	1
20	▲	A6102-001	1/2 in. ID 100R17 Hose x 59 in OAL with #8 FJIC, #8 90 FJIC	1
21	▲	A6103-001	1/2 in. ID 100R17 Hose x 59 in OAL with #8 FJIC, #8 90 FJIC	1
22	▲	A6104-001	3/4 in. ID 100R4 Hose x 38 in OAL with #12 FJIC, #12 45 FJIC	1
23	▲	A6107-001	1 in. ID 100R4 Hose x 47.5 in OAL with #16 FJIC, #16 45 FJIC	1
24	▲	6801-LL-8-10	Fitting, #8 MJIC x #10 MSAE Adj, Long 90°	1
25		●	M10 x 1.5 x 25 Broached Socket Head Cap Screw	2
26		●	1/4-20 UNC x 1.5 Hex Cap Screw	3
27		●	1/4-20 UNC Hex Flange Nut	3
28		080534	Sight Guage	1
NOT SHOWN				
	▲	6408-16	Hex Head Plug, #16, MSAE	2
		----------	Small Radiator Assembly (part of Cooling Pack)	
KITS AND MARKERS				
	▲	A6108-001	Hydraulic Hose and Fitting Kit	
	●	Standard Hardware Item - Available at your local hardware store.		

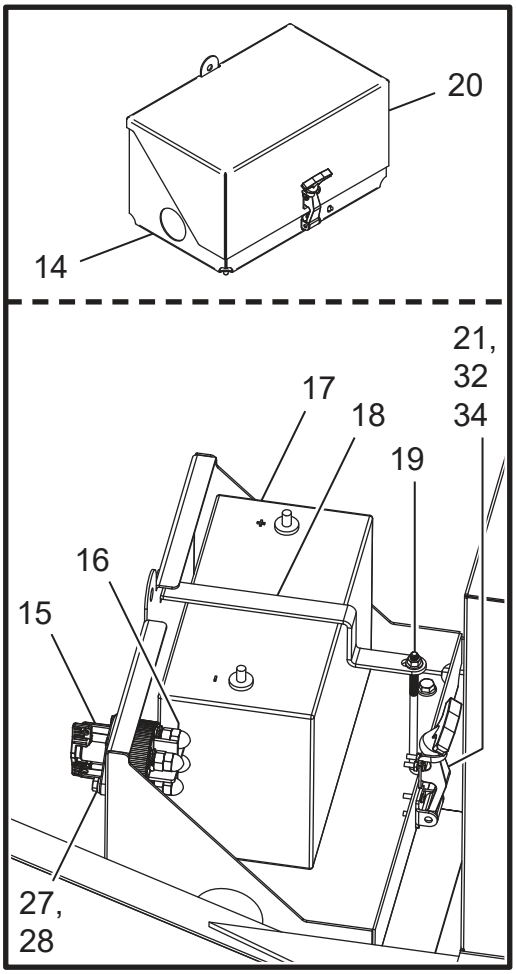
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

A: UNDER CANOPY DETAIL

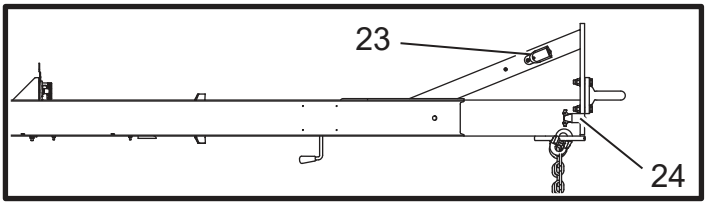




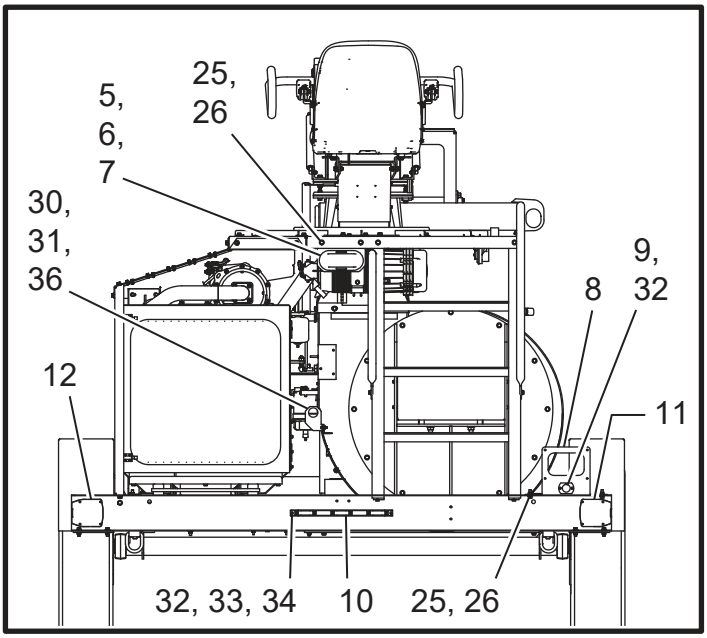
B: BATTERY BOX DETAIL



C: HITCH DETAIL



D: REAR VIEW DETAIL



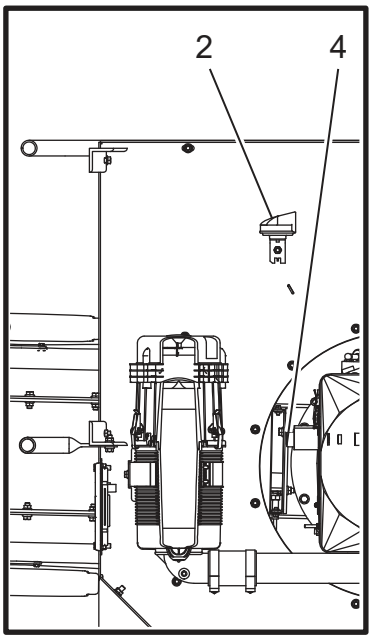
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

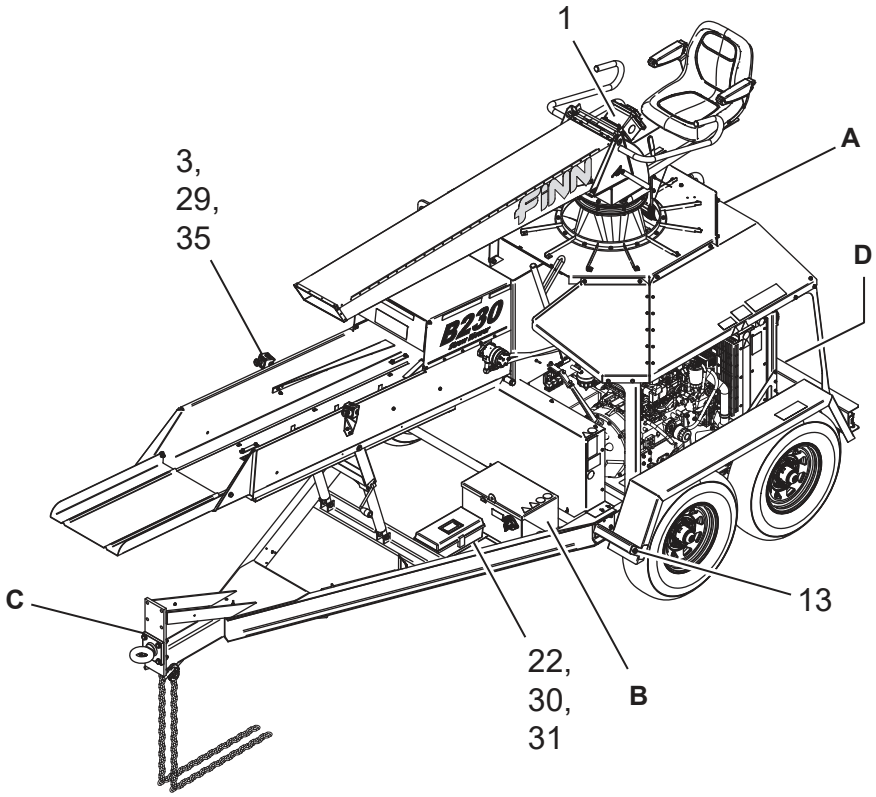
ELECTRICAL COMPONENTS ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	A6028-001	Control Box Assembly	1
2	006499	Horn Assembly	1
3	A2395-001	Emergency Stop (E-Stop) Station Assembly	2
4	A5992-001	Momentary Switch with Connector	2
5	A6025-001	Sheet - Flashing Light Bracket	1
6	A1296-001	Grommet, Mounting, 6 in. Oval Light	1
7	A1295-001	Warning Light, LED, 9-30VDC, Function 1	1
8	A3782-001	License Plate Bracket Assembly	1
9	A1220-001	License Plate Light, LED, 12VDC	1
10	005944	Identification Light, LED	1
11	A1450-001	Combination Tail Light, Right Hand Side, LED, 12VDC	1
12	A1451-001	Combination Tail Light, Left Hand Side, LED, 12VDC	1
13	A1227-001	Clearance Marker Light, LED, 12VDC, Amber	2
14	A6078-001	Battery Box Base	1
15	013250	Battery Disconnect Switch	1
16	013284	Hex Cap Nut, M12x1.75, Black Nylon	4
17	366177	Truck Battery, 12V	1
18	A6079-001	Battery Clamp	1
19	A3024-001	J-Bolt, 0.3125-18 UNC x 5.75 in. OAL	1
20	A6080-001	Battery Box Top	1
21	A3040-001	Latch, T-Handle Flexible Draw	1
22	031389	Tool Box, Plastic Gray 15 in.	1
23	023424	Breakaway Switch	1
24	075592	Trailer Plug, 7-Blade RV Style	1
25	●	3/8-16 UNC x 1 Hex Flange Screw Regular Thread	8
26	●	3/8-16 UNC Hex Flange Nut	8
27	●	5/16-18 UNC x 1 Hex Flange Screw Regular Thread	2
28	●	5/16-18 Hex Nut	2
29	●	No.8-32 Hex Machine Screw Nut	8
30	●	1/4-20 UNC x 0.75 Hex Flange Screw Regular Thread	14
31	●	1/4-20 UNC Hex Flange Nut	11
32	●	No. 10-24 x 3/4 Cross Recessed Pan Head Machine Screw	8
33	●	No.10 Type A Plain Washer	2
34	●	No.10-24 Hex Machine Screw Nut	6
35	●	No.8-32 x 1 Cross Recessed Pan Head Machine Screw	8
36	A6265-001	Bulkhead Bracket	1

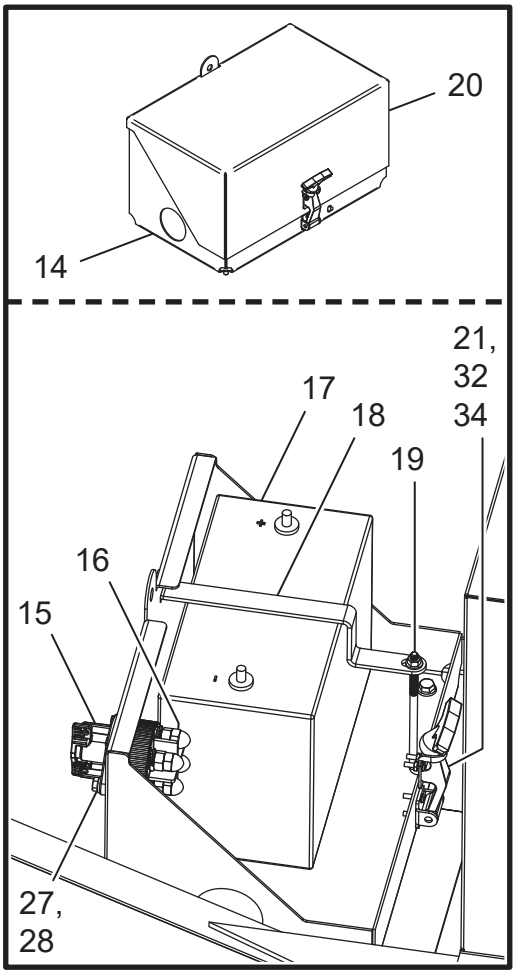
Continued to next page.

A: UNDER CANOPY DETAIL

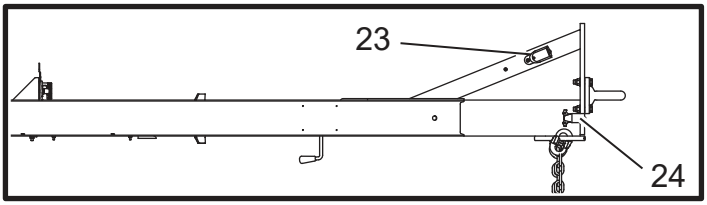




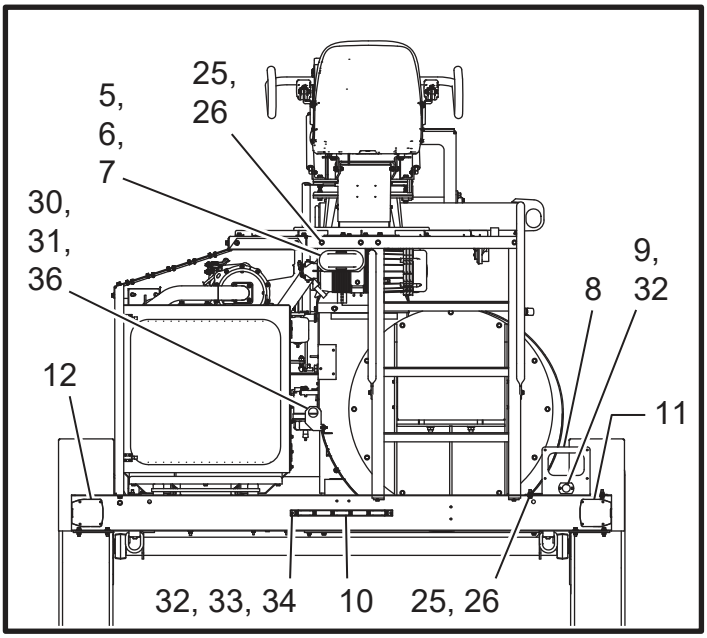
B: BATTERY BOX DETAIL



C: HITCH DETAIL



D: REAR VIEW DETAIL



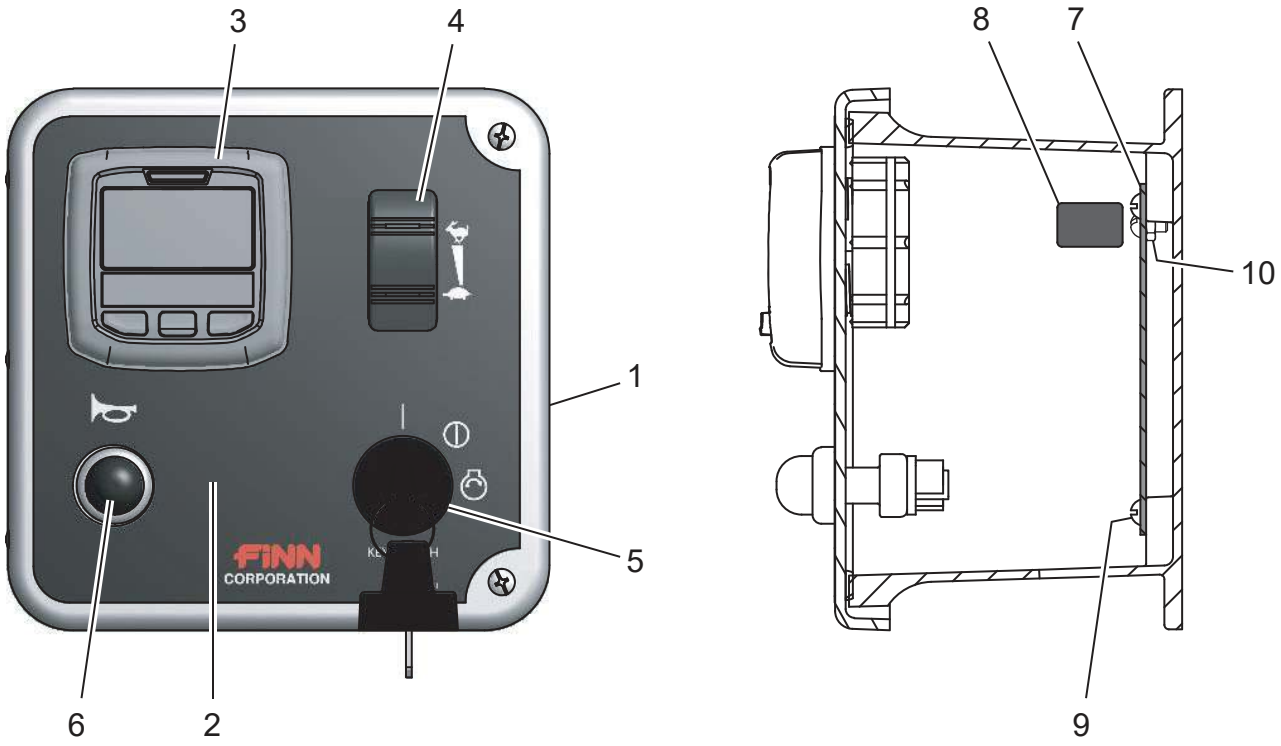
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

ELECTRICAL COMPONENTS ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
NOT SHOWN			
	A4295-001	Battery Cable, Alternator	1
	A4294-001	Wiring Harness, Engine	1
	A6036-001	Battery Cable, Frame	1
	A6035-001	Battery Cable, Fuse Block	1
	A6034-001	Battery Cable, Engine Block	1
	A6033-001	Battery Cable, Starter	1
	A6032-001	Battery Cable, Battery Negative	1
	A6031-001	Battery Cable, Battery Positive	1
	A6030-001	Wiring Harness, External	1
	A6263-001	Wiring Harness, B230 External Upper	1
	000489	Static Strap, 25 in. Long	1
	031267	1-5/8 in. Cushioned Loop Clamp	10
	013112	3/4 in. Cushioned Loop Clamp	18
	●	1/4-20 UNC x 2 Hex Cap Screw	1
KITS AND MARKERS			
	●	Standard Hardware Item - Available at your local hardware store.	

CONTROL BOX

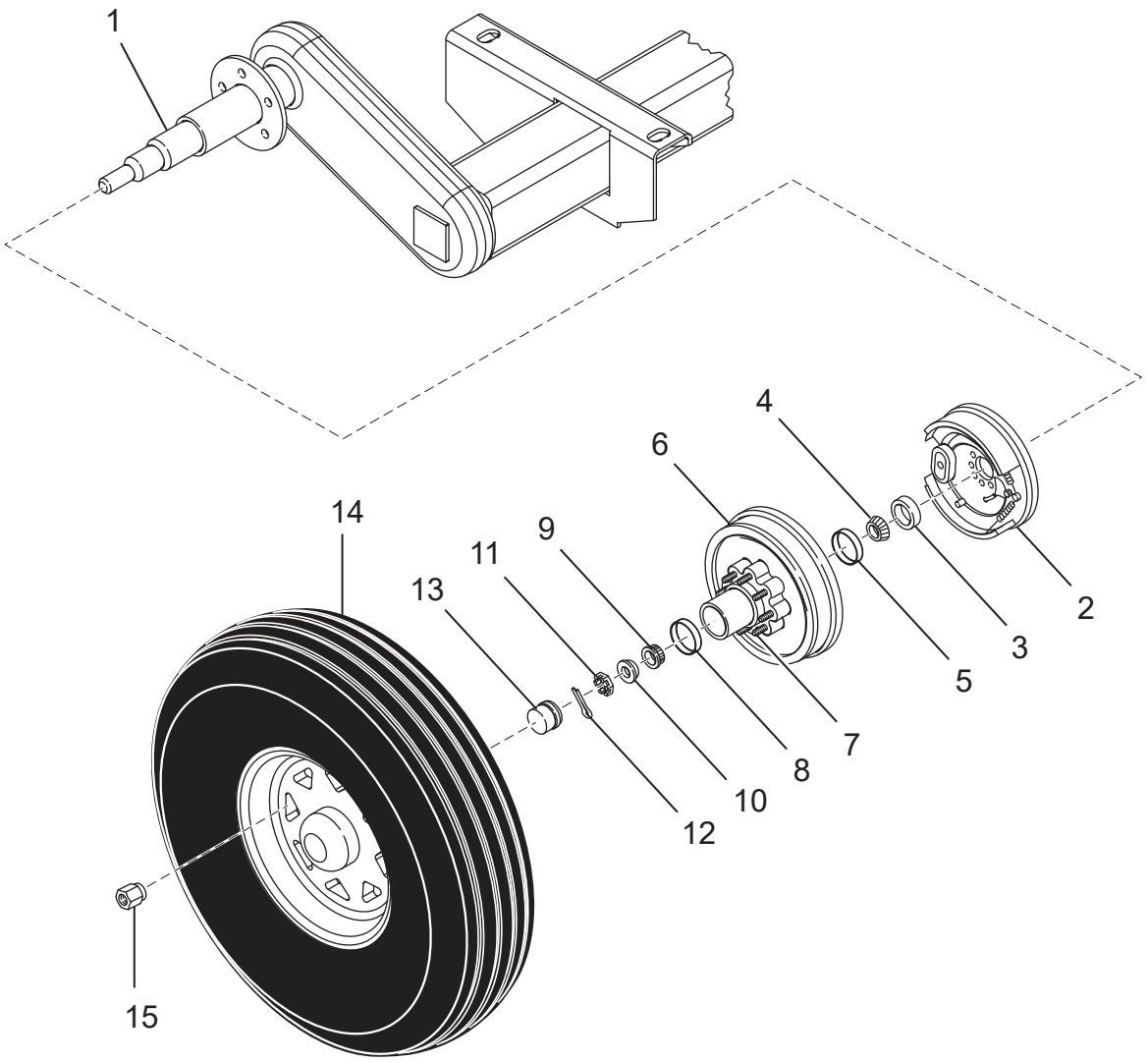
Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	031583	Control Box, Modified	1
2	▲	031585	Control Box Decal	1
3	▲	A6070-001	Controller/Display	1
4	▲	031507	SPDT Rocker Switch	1
5	▲	031506	Ignition Switch	1
	▲	031506-01	Replacement Key for Ignition Switch	2
6	▲	020886	Horn Button	1
7	▲	031571	Control Box Back Panel	1
8	▲	031578	Micro ISO Relay, 12V, SPDT	1
9	▲	●	No. 10-24 x 3/8 Slotted Round Head Machine Screw	5
10	▲	●	No. 10 - 24 Hex Machine Screw Nut	1
NOT SHOWN				
	▲	A6029-001	Control Box Wire Harness	1
KITS AND MARKERS				
	▲	A6028-001	Control Box Assembly	
	●	Standard Hardware Item - Available at your local hardware store.		



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

TOOL KIT

Kit Ref.	Part Number	Description	No. Req'd
▲	021375	Grease Gun	1
▲	021741	Grease Gun Hose	1
▲	020365	Grease Cartridge	1
▲	012681A	Touch-Up Paint Finn Beige	1
▲	020057	Twine Cutter, Size 13	1
▲	020063	Twine Cutter, Size 11	1
KITS AND MARKERS			
▲	A5809-001	Tool Kit Assembly	

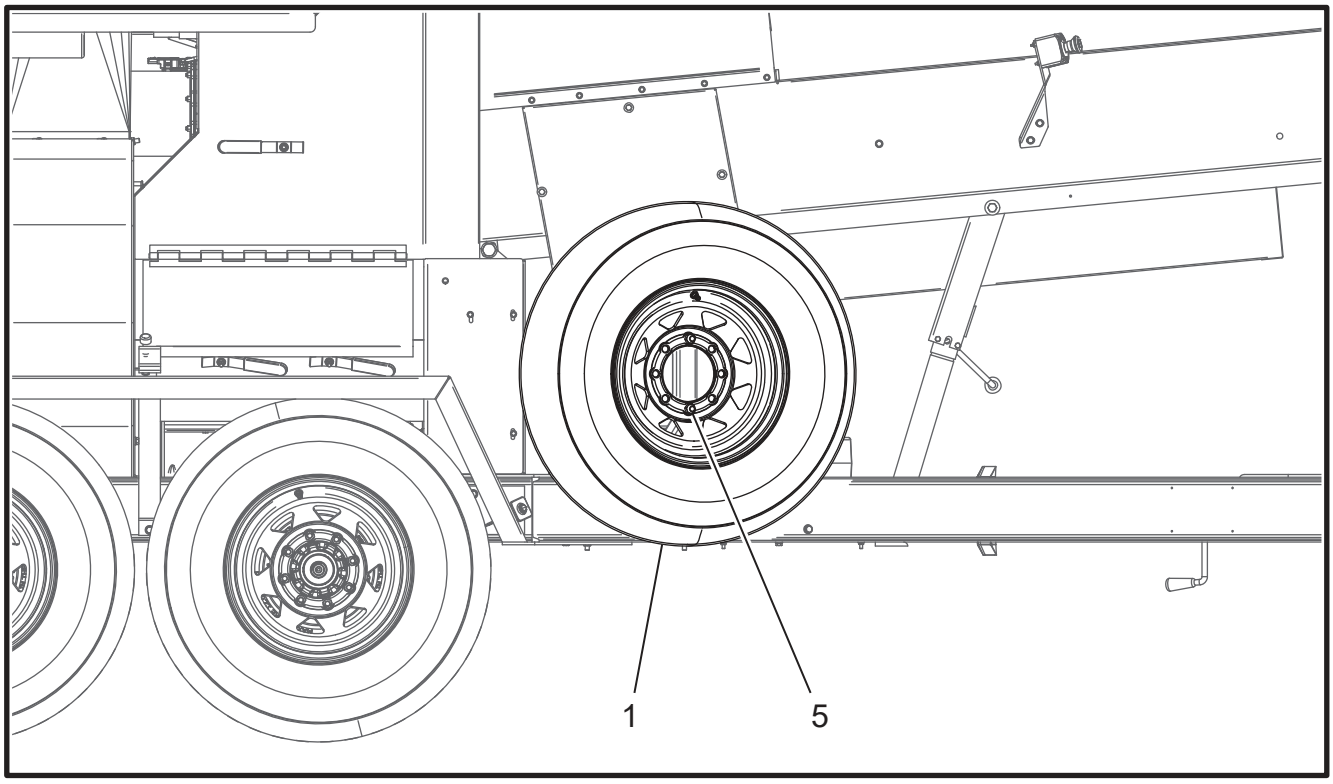


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

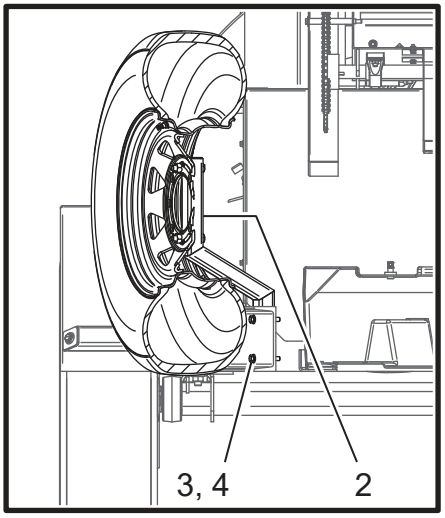
TIRE AND AXLE ASSEMBLY

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1		023919	Axle Assembly *(Includes Hub, Drum, and Brakes)*	2
2		080814-08	Brake Assembly LH Side	1 p/a
		080814-09	Brake Assembly RH Side	1 p/a
3	▲	005822-01	Grease Seal	1 p/s
4	▲	005821-01	Inner Bearing Cone	1 p/s
5	▲	005820-01	Inner Bearing Race	1 p/s
6	▲	023919-10	Drum (with Studs installed)	1 p/s
7	▲	005818-02	Wheel Stud	8 p/d
8	▲	005817-01	Outer Bearing Race	1 p/s
9	▲	005816-01	Outer Bearing Cone	1 p/s
10		005815-01	Spindle Nut Washer	1 p/s
11		005813-01	Spindle Nut	1 p/s
12		005814-01	Cotter Pin	1 p/s
13		005812-01	Grease Cap	1 p/s
14		005830	Wheel Assembly (ST225/90D16 on 16 x 6 Rim)	2 p/a
15		005825-02	Wheel Lug Nut	8 p/s
NOT SHOWN				
		005811-01	Rubber Plug for Grease Cap	1 p/s
KITS AND MARKERS				
	▲	080814-01	Hub and Drum Assembly	
	●	Standard Hardware Item - Available at your local hardware store.		
	p/a	Per Axle		
	p/d	Per Drum		
	p/s	Per Side		

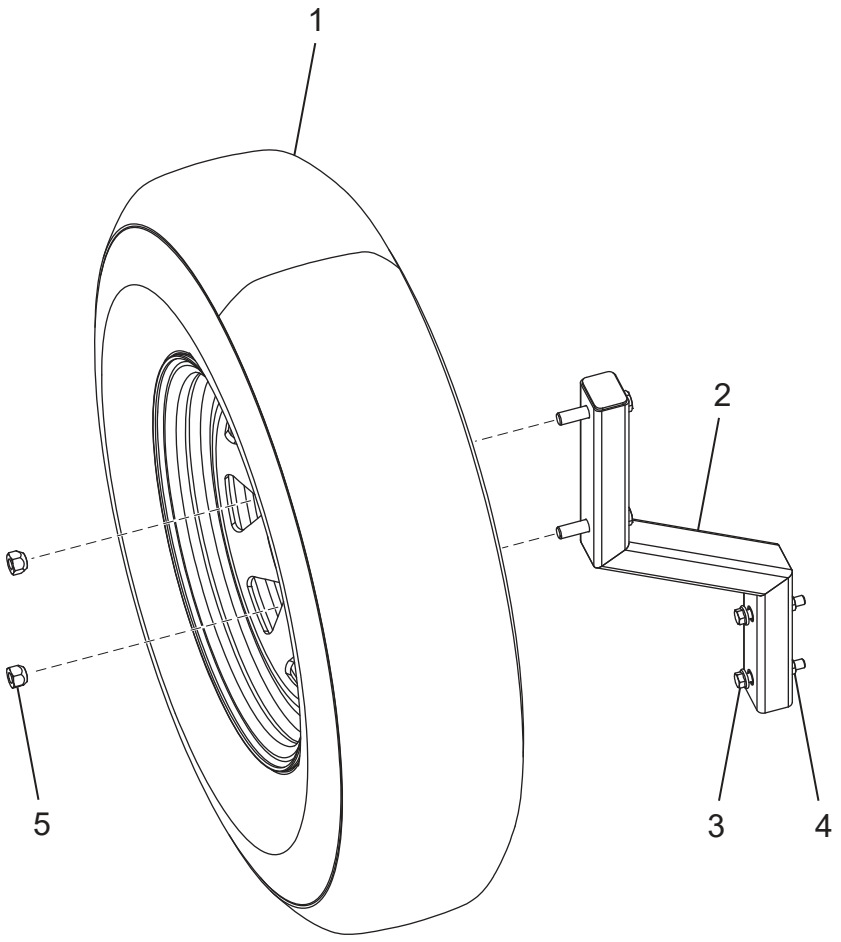
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



SIDE VIEW



CUTAWAY VIEW



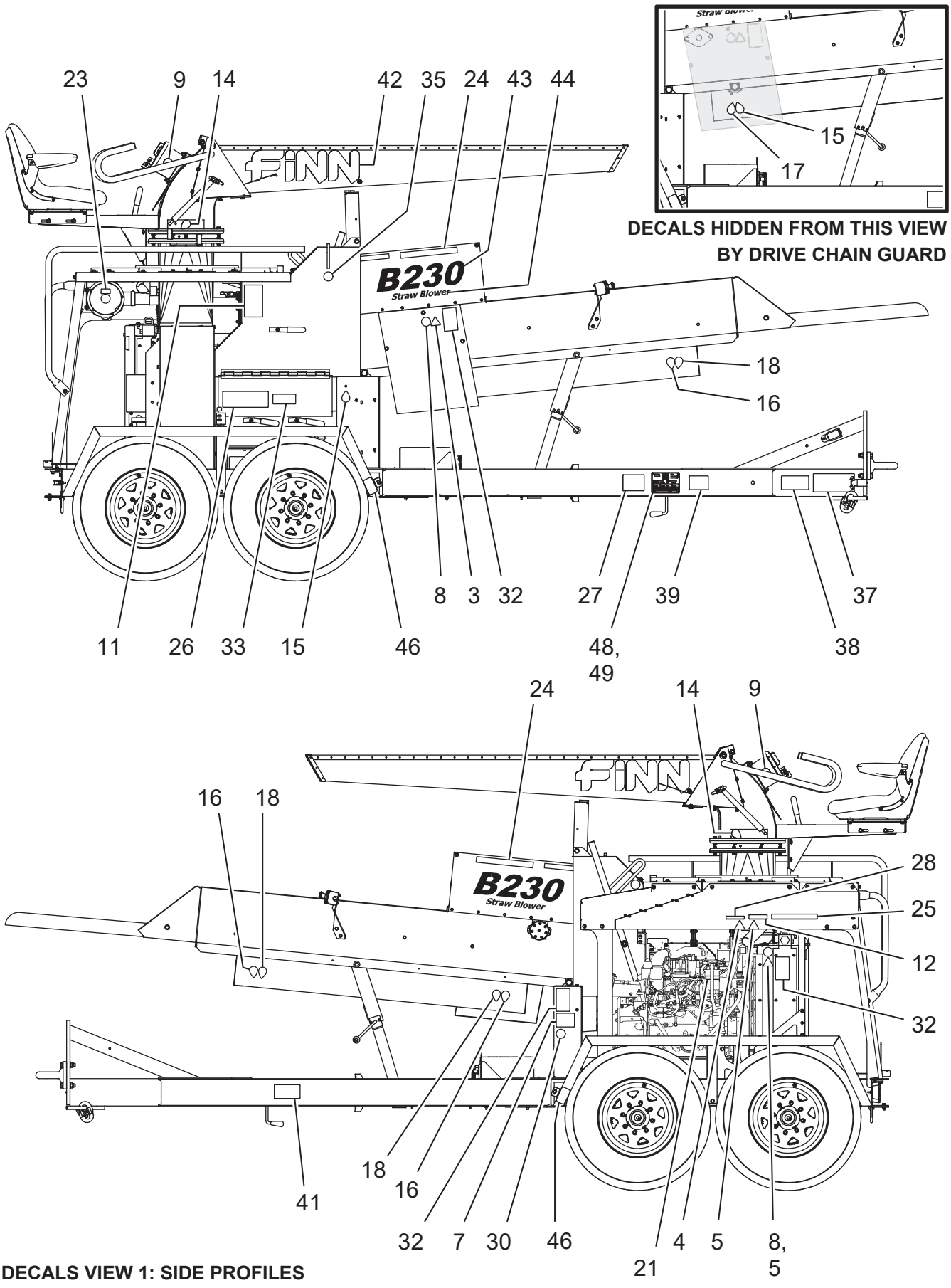
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

SPARE TIRE OPTION

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1		005830	Wheel Assembly ST225/90D16 on 16 x 6 Rim	1
2		A6257-001	Spare Tire Mount	1
3		●	3/8-16 UNC x 2.5 Hex Flange Screw, Regular Thread	2
4		●	3/8-16 Hex Flange Nut	2
5		005825-02	Wheel Lug Nut, 1/2 in.	2

KITS AND MARKERS

● Standard Hardware Item - Available at your local hardware store.



DECALS VIEW 1: SIDE PROFILES

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

DECAL AND PLATE LOCATIONS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	----------	Electrical Shock Hazard Decal	2
2	▲	----------	Fall Off Edge Decal	1
3	▲	----------	Gears Pinch Point Decal	2
4	▲	----------	Hazard/Attention Decal	2
5	▲	----------	Hot Surface Hazard	3
6	▲	----------	Pinch Point Belt Hazard Decal	2
7	▲	----------	Read Manual Decal	2
8	▲	----------	Do Not Remove Guard Decal	2
9	▲	----------	Do Not Pressure Wash Decal	4
10	▲	----------	Do Not Step Decal	2
11	▲	----------	Hydraulic Fluid Only Decal	1
12	▲	----------	Decibel Decal	1
13	▲	----------	Service Daily Decal	3
14	▲	----------	Service Daily Decal, Inverted	3
15	▲	----------	Service Weekly Decal	5
16	▲	----------	Service Weekly Decal, Inverted	5
17	▲	----------	Grease Using Hand Gun Decal	2
18	▲	----------	Grease Using Hand Gun Decal, Inverted	4
19	▲	----------	Diesel Fuel Decal	1
20	▲	----------	Ultra Low Sulfur Fuel Decal	1
21	▲	----------	Drain Water Daily Decal	2
22	▲	----------	Danger! Fire Hazard Decal	1
23	▲	----------	Notice. Do Not Use Ether or Starting Fluid Decal	1
24	▲	----------	Warning! Flying Objects Decal	3
25	▲	----------	Warning! Burn Hazard/Radiator Handling Decal	1
26	▲	----------	Warning! Sever Hazard/Flying Debris Decal	2
27	▲	----------	U.S. Patent Decal	1
28	▲	----------	Warning! Burn Hazard Decal	1
29	▲	----------	Warning! Fall Hazard Decal	1
30	▲	----------	Notice. Clutch Information Decal	1
31	▲	----------	Notice. Wait Before Disconnect Decal	1
32	▲	----------	Warning! Do Not Operate Without Guards in Place Decal	4
33	▲	----------	Operating Instructions Decal	1
34	▲	----------	Warning! Eye And Ear Decal	1
35	▲	----------	Lift Point Decal	2
36	▲	----------	Clutch Decal	1

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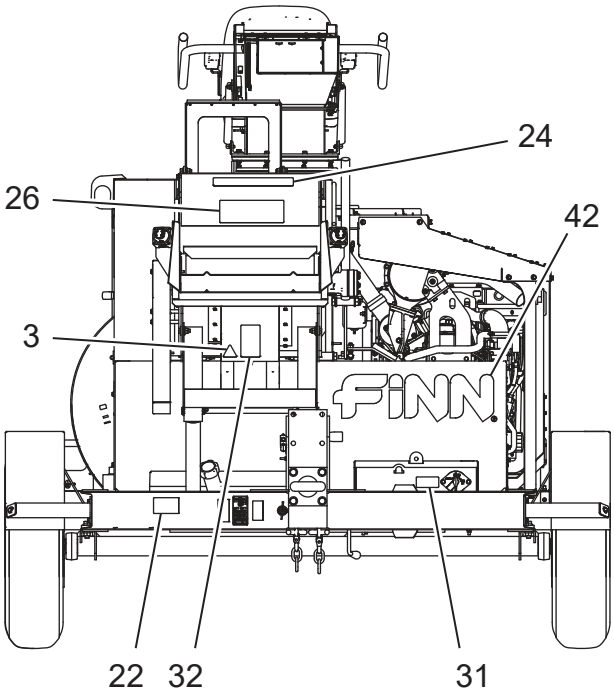
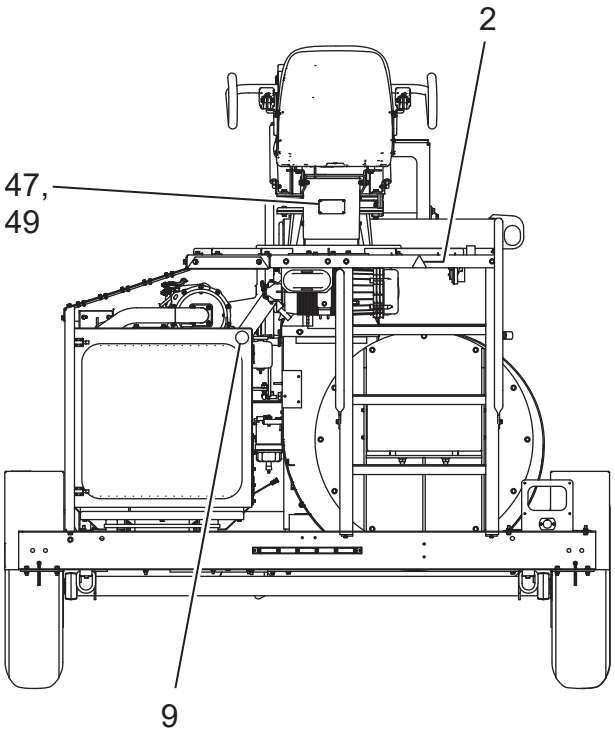
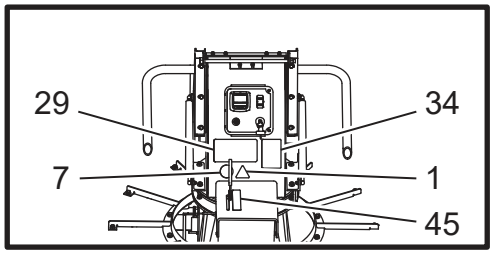
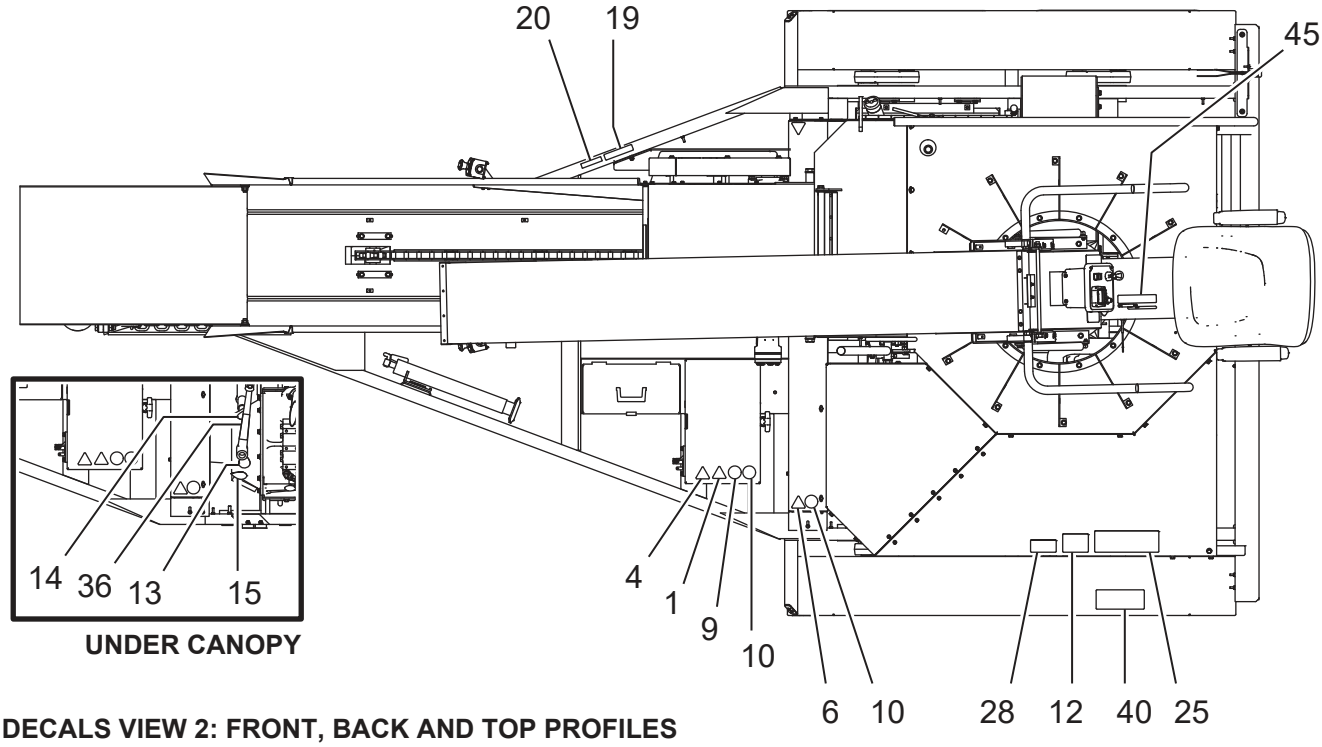






OPERATOR CONTROLS

UNDER CANOPY



DECALS VIEW 2: FRONT, BACK AND TOP PROFILES

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

DECAL AND PLATE LOCATIONS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
37	■	----------	Warning! Runaway Vehicle Decal	1
38	■	----------	Warning! Control Hazard Decal	1
39	■	----------	Warning! Control Hazard, GVWR Decal	1
40	■	----------	Warning! Control Hazard, Dual Axle Decal	1
41	■	----------	Warning! Personal Injury Hazard (Jack) Decal	1
42		023174	Finn Decal (Large, Red)	3
43		A6157-001	B230 Decal	2
44		023855	Straw Blower Decal	2
45		023247	Power Feed Decal	1
46		A1304-001	Amber Reflector, Rectangular	2
47		012260	Metal Plate "IMPORTANT"	1
48		005807	Trailer Nameplate	1
49		●	1/8 in. Blind Rivet	8

NOT SHOWN

	190017	Safety Walk: 6 in. x 2 ft.
	190018	Safety Walk: 2 in. x 9 ft.
	190027	Safety Walk, 1 in. x 6 ft.

NOTE: *Safety Walk is applied to the bumper, ladder and platform walking surfaces of the unit. It is designed to keep the operator safe when moving around and on the unit. If the Safety Walk becomes split or tears, replace as soon as possible to reduce safety risks.*

KITS AND MARKERS

▲	A6100-001	B230 Decal Kit
■	A2270-001	Decal Kit, Trailer Safety Warnings
●	Standard Hardware Item - Available at your local hardware store.	

RECOMMENDED SPARE PARTS LIST

Part Number	Description	No. Req'd
A4343-001	Primary Air Filter Vlr - 2.5	1
A4344-001	Secondary Air Filter Vlr - 2.5	1
031564	Primary Fuel Filter	1
031522-00	Water Separator	1
31561	Oil Filter	1
A2165-001	Fan Belt	1
031521	Fuel Pump	1
A3555-001	Hydraulic Filter	1
011466	Hydraulic Strainer	1
020111	Beater Chain - 3 Pitch	4
020110	Beater Chain - 4 Pitch	2
023363	Beater Chain - 5 Pitch	2
020119	Chain Pin	8
020686	Feed Chain Links	3
020687	Feed Chain Links with Attachment	3

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE