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Model BB302

Operator Instructions and Parts Manual

Model **MN** Serial No. _____

FOR OFFICE USE ONLY

DATE	UPDATE DESCRIPTION	CODE
04/28/16	Initial release.	MN0428
11/11/16	Revision A: Updated Engine Coupling Assembly; Updated Hydraulic Parts Solenoid Coil	MN1111
02/28/17	Revision B: Updated Blower Components to include T-Bolt Band Clamp	MN2017
03/23/17	Revision C: Manual Canister added to unit; added to Tool Kit parts list	MN2017
05/18/17	Revision D: New toolbox	MU2017



ACTIVATE YOUR FINN EQUIPMENT WARRANTY

IMPORTANT INFORMATION ON ACTIVATING YOUR FINN EQUIPMENT WARRANTY!!!

IT IS IMPERATIVE THAT YOU, THE PURCHASER, COMPLETE THE FOLLOWING STEP IN ORDER TO
ACTIVATE THE FINN CORPORATION LIMITED WARRANTY.



COMPLETE THE EQUIPMENT REGISTRATION FORM ON
THE NEXT PAGE AND MAIL TO THE FINN CORPORATION.

IF FINN CORPORATION DOES NOT HAVE YOUR COMPLETED REGISTRATION
FORM ON FILE, YOUR WARRANTY CLAIM WILL BE DENIED.

Once your FINN equipment has been registered, your FINN Limited Warranty will
be activated per the warranty statement on the other side of this notice.

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



1. NOTIFY FINN CORPORATION OF THE FAILURE OF MATERIAL OR WORKMANSHIP
1-800-543-7166 Extension (246)
WARRANTY@FINNCORP.COM



2. AFTER YOU OR YOUR SERVICE DEALER NOTIFY FINN, FINN WILL:
 - VERIFY THAT WE HAVE YOUR REGISTRATION ON FILE
 - VERIFY THAT THE WARRANTY PERIOD IS IN EFFECT
 - VERIFY THAT THE RELATED PART(S) ARE INCLUDED IN THE SCOPE OF WARRANTY (PENDING FINN'S INSPECTION OF DEFECTIVE PARTS)
 - SEND YOU REPLACEMENT PART(S) AND A WARRANTY INFORMATION PACKET
 - REQUEST YOU FOLLOW ALL INSTRUCTIONS AS NOTED IN THE PACKET
 - **Completely fill out the Parts Tag.**
 - **Attach the Parts Tag to the defective part(s).**
 - **Return the part(s) and the completed Warranty Claim Form to FINN Corporation using the return shipping label. (Within 2 weeks)**
 - **Tape the Orange identifier sheet, marked with the W/RMA#, on the outside of the box in which you are shipping the defective part(s).**



WARRANTY PERIOD

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

All other equipment: 1 year or 1200 hours whichever comes first.

COMMERCIAL LIMITED WARRANTY

EFFECTIVE 04/01/2011

OUR WARRANTY TO YOU

Finn Corporation warrants to you, the original purchaser, for use (or rental to others for use) 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.

WHAT FINN WILL DO

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

- Verify claim falls within the valid warranty time frame.
- Verify the product and equipment has been **registered** with Finn in order to be eligible for warranty coverage.
- Upon affirmation of warranty period and registration, Finn will send to you a new or repaired replacement part(s), whichever Finn elects and a "Warranty Claim Information packet" containing instructions for processing the warranty claim.
- Evaluate the part when defective part is returned. Note: Failure to return defective part within **two weeks** will result in an invoice being sent to the customer. In addition, if damage to a part is determined not to be covered under the warranty, the customer will be billed.
- 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.
- Correction of nonconformities, in the manner provided above, shall constitute fulfillment of all liabilities of Finn Corporation.

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE

- As the purchaser covered under the above limited warranty you must **REGISTER** the equipment with Finn **FAILURE TO REGISTER WILL VOID THE WARRANTY**.
- Claim Number: Notify the Warranty Department same day or next day of any intent to do warranty work and obtain a "Warranty Claim Number."
- All warranty **labor** must be pre-approved by providing Finn with an estimate of labor costs. Once approved, Finn will issue you a **Work Authorization Number**, prior to work being performed. (EXCEPTION: Unless the labor is per the Labor Allowance Schedule or less.)
- The labor costs reimbursement will be based on the Labor Allowance Schedule established by Finn and where not applicable, on a reasonable number of hours as determined by Finn.
- Notify Finn Corporation of any failure of material or workmanship as described under this warranty.
 - Web notification: Warranty@Finncorp.com
 - Phone 1-800-543-7166 extension 246
- Complete the required steps in the "Warranty Claim Information packet" (which Finn will send you) and return the defective part(s) as directed in the packet to Finn Corporation.
- Should the failed part, be a hydraulic component, Finn may send you an "**Oil Analysis Kit**," requesting that a sample of oil from the hydraulic system be taken, and mail it to a lab. Follow the instruction sheet, on how to use your Finn Oil Analysis Kit that comes with the Kit. Failure to comply when requested will void the warranty.

WHAT THE WARRANTY DOES NOT COVER

1. Normal wear parts and Allied Equipment or trade accessories not manufactured by it, such as but not limited to items such as various filters, fluids, brakes, clutch linings, belts, hoses, light bulbs, mechanical seal, over center clutches, tires, ignitions, starters, batteries, magnetos, carburetors, engines and labor, or like or unlike equipment or accessories. (Such being subject to the warranty, if any, provided 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. The warranty shall be null and void to the extent any defect or failure of the products warranted arises out of or is caused by accessories or component parts not manufactured or supplied by Finn Corporation, whether same are supplied by purchaser, dealers, or any other party.
5. This Warranty does NOT cover any costs associated with transporting the equipment for warranty service, such as mileage, fuel, or man hours; such is the responsibility of the equipment owner.
6. 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. Because 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.

INDEX

Safety First	1
Bark Blower Safety Summary Section	2 - 7
Operation And Maintenance Of The FINN Bark Blower	8
Introduction	8
The Finn Bark Blower And Its Functions	8
How The Bark Blower Works	8
Towing Vehicle	9
Selecting A Mulching Material	9
Pre-Start Equipment Check	10
Control Guide	11
Control Panel Guide and System Operation	12 - 30
System Operation	12 - 13
Menu Navigation	12
Changing Data Displays	12
Main Menu Access	13
Main Menu Navigation	13
Changing Parameter Settings	13
Fault Codes	14 - 15
Active Fault Codes	14
Acknowledging Active Faults	14
Stored Fault Codes	15
Maintenance Timer	15
Maintenance Timer Alert	15
Acknowledging Maintenance Timer	15
Resetting Maintenance Timer	16
Backlight Setting	16
Contrast Setting	17
Display Mode Setting	18
Default Display	18
Engineering Units	19
Display List	20 - 21
About Menu	21
Engine Settings	21
Regeneration	22 - 30
Reset Regeneration Operation - Displays	23
Reset Regeneration Standby Due to Inhibit Switch	24
Reset Regeneration Standby Due to Low DOC Temperature	25
Stationary Regeneration by Engine Management	25 - 27
Manual Stationary Regeneration - Operator Request	27 - 28
Recovery Regeneration	29 - 30
Starting Procedure	31

Continued to next page.

INDEX

Crew Members and their Duties	32
The Material-Feed System	32 - 35
Subsystem 1: Material Handling Group.	32
Subsystem 2: Hydraulic System	33
A. Rotary Air Valve/Feed Roll	33
B. Floor (Drag Conveyor)/Feed Roll	34
Subsystem 3: Hydraulic Control System.	34 - 35
Subsystem 4: Radio Remote Transmitter	36
Mulching with the Bark Blower	37
Bark Blower Adjustments	37 - 38
A. Consistent Hose Shock	37
B. Excessive Auto-Reversing.	38
C. Regularly Tripping the Blower Relief.	38
Clearing a Blockage	38
Troubleshooting Chart.	39
Maintenance	40 - 42
Weekly - After Every 50 Hours of Operation:	40 - 41
After First 100 Hours of Operation	42
Every 3 Months or 3,000 Miles (4,800 Km).	42
Every 12 Months or 12,000 Miles (19,300 Km).	42
Winter Shutdown and Storage	42
Lubrication Chart.	44 - 45
Technical Specifications	46 - 47
Parts Manual.	49 - 83
Hopper and Trailer Parts	50 - 52
Wheel/Axle Assembly	54 - 55
Air Lock Parts	56 - 58
Feeder Parts	60 - 61
Conveyor Parts	62 - 63
Blower Components	64 - 65
Hydraulic Parts	66 - 68
Specific Engine Parts	70 - 72
Trailer Wiring	74 - 75
Control Panel and Control Systems	76 - 77
Hose Reel Assembly	78 - 79
Discharge Hose.	80
Tool Kit.	81
Decal Location.	82 - 83

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.



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.

BARK BLOWER SAFETY SUMMARY SECTION

It is important that all operators of this machine are familiar with all the safety aspects mentioned below 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 section. 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; and above all, remember that safety is up to you.



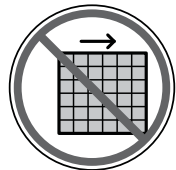
I. PRE-START EQUIPMENT CHECK (equipment check is to be made with the engine off)

1. Check hitch and hitch bolts, safety chains, lights, brakes, and breakaway switch. Verify that the hitch ball or pintle hook is the correct size for the coupler.
2. Verify that all guards and guarding is in place.
3. By carefully looking into the blower hopper and transition, inspect for and remove any foreign objects. Follow Occupational Safety and Health Administration (OSHA) lockout/tagout procedure (29 CFR 1910.147)
4. Inspect all hydraulic hoses and tubes for cracks, bulges, or damage. If hose and/or tube is cracked, bulging, or damaged, replace immediately.
5. Inspect the material discharge hose and connections for cracks or damage. If cracks or damage are found, replace affected part immediately.



II. MACHINE OPERATION

1. Always wear safety goggles when operating and/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 override or tamper with the safety-shutdown switches on the folding door or discharge. If switches fail, use OSHA lockout/tagout procedure (29 CFR 1910.147) until switches are repaired or replaced.
3. Do not operate the machine without all guards in place.
4. Never attempt to connect, or disconnect the discharge hose while the engine is running.
5. Make sure that no one is working in or on the machine. Make sure the discharge area is clear of all persons, animals, etc. Signal visually or audibly that all is clear before starting the engine. Keep unauthorized personnel away from the machine and discharge hose at all times.
6. The driver of the 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, such as tree limbs, low power lines, etc.
7. Do not allow anyone to ride on the trailer or any other part of the unit for any reason.



8. Never operate machine in an enclosed area without venting the engine exhaust of both the equipment and the towing vehicle. Deadly carbon monoxide fumes can accumulate.



9. 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.
10. Never modify the machine. Never remove any part of the machine (except for service and then reinstall before operating).
11. During application through the hose, high pressure can be exerted at the end of the hose. Hose-holding personnel must establish good footing. The operator should only increase the engine RPM which increases the air volume in the hose only after hose-holding personnel are firmly positioned and have firm control of the hose. Additional personnel to direct hose may be necessary if working on slopes. The proper technique for grasping the hose is to route and firmly grasp the hose over the shoulder or under both arms. Never route/hold the hose so it goes between the legs. If the hose-holding personnel finds that it is uncomfortable to handle the hose by himself, additional hose holders should be positioned at the end of the hose.

12. The blower discharges material at pressures and velocities that can cause severe bodily injury. Do not aim discharge at people, animals, etc. Only aim the discharge at the intended discharge area. Unless properly protected, do not place hand into the discharge stream.

13. Do not open any doors or access panels while machine is in operation. Severe injury may result from rotating parts.



14. Do not attempt to pull anything out of the blower hopper while machine is in operation. Shut down and lockout the engine using the OSHA lockout/tagout procedure (29 CFR 1910.147) before removing any foreign objects. Signal visually or audibly that all is clear before restarting the machine.



15. When leaving the blower unattended for any reason, be sure to:

- A. Shut off the rotary air valve and conveyor, then turn off the hydraulic system.
- B. Shut off vehicle engine and blower engine.
- C. Place transmission of the vehicle in "NEUTRAL" or "PARK".
- D. Set parking brake firmly.
- E. Remove keys from blower unit.
- F. Lock vehicle cab and take all keys with you.
- G. If parked on a steep grade, block/chock the wheels.

These actions are recommended to avoid unauthorized use, runaway, vandalism, theft, and unexpected operation when the equipment is unattended.



16. Do not read, eat or otherwise lose or lessen your attention in any manner while operating the blower. Operating the equipment is a full-time job.

17. Be careful in getting on and off the blower, especially in wet, icy, snowy, or muddy conditions. Clean mud, snow, or ice from steps, fenders, and footwear.




18. All personnel operating in/or around the machine must be aware that the blower can be controlled via remote control. For safety reasons and to prevent accidental starting, always keep the Emergency Stop (e-stop) button depressed on the remote control hand held unit when unit is not being used.
19. Turn slowly and travel carefully on rough surfaces and side slopes, especially with a loaded blower hopper.

III. MAINTENANCE

1. Before servicing the machine, turn off engine and allow all moving parts to stop. To prevent accidental starting, disconnect battery cables. Tag the engine operating area to show that the machine is being serviced. Use lockout/tagout procedure (OSHA 29 CFR 1910.147).
2. Take extreme care when adjusting or replacing knives. Knife edges are very sharp and can cause severe bodily injury.
3. Radiator maintenance: Liquid cooling systems build up pressure as the engine gets hot. Before removing radiator cap, stop the engine and let the system cool. Remove radiator cap only after the coolant is cool.
4. Battery maintenance: Lead-acid batteries contain sulfuric acid, which will damage eyes or skin on contact. Always wear a face shield to avoid getting acid in the eyes. If acid contacts the 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 gasses. Keep arcs, sparks, flames, and lighted tobacco away.
5. Filling of fuel: Never fill the tank with the engine 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 or near fuel lines, tanks or containers. Move at least 10 ft (3 m) away from fueling point before starting engine. Wipe off any spilled fuel and let dry before starting engine.

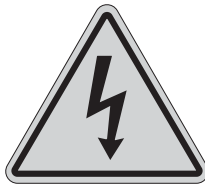
IMPORTANT: Be careful not to allow fuel, lubricant, hydraulic fluid, or cooling fluids to contaminate the surrounding environment. Collect all fluids and dispose of them properly.

6. It is recommended that only authorized, genuine FINN replacement parts be used on the machine.
7. Do not use ether cold start fluid, if engine is equipped with glow plug-type preheater, or other intake manifold-type preheater. It could cause an explosion or fire and severe injury or death.
8. Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause injury, blindness, or death. To check for such leaks, use a piece of cardboard or wood instead of your hand. Pressure may build up in the hydraulic system; use caution when removing the cap.
9. Some parts and assemblies are quite heavy. Before attempting to unfasten any heavy part or assembly, arrange to support it by means of a hoist by blocking or by use of an adequate arrangement to prevent it from falling, tipping, swinging, or moving in any manner. Failure to do so could result in component damage, or physical injury to someone.
10. If repairs require use of a torch or electric welder, be sure that all flammable and combustible materials are removed. Fuel or oil reservoirs must be emptied, steam-cleaned, and filled with clean water before any cutting or welding on them is attempted. Do NOT weld or cut on any tank containing oil, gasoline, fumes, other flammable material, or on any container of which the previous contents were unknown.

COMMON SAFETY SYMBOLS



Hazard/
Attention



Electrical
Shock Hazard



Hearing
Hazard



Arc Flash
Hazard or
Explosion
Hazard



Electrocution
Hazard



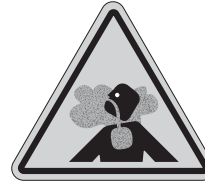
Fire Hazard



Body
Entanglement
Hazard



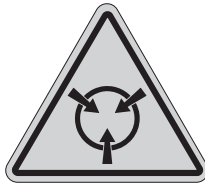
Electrostatic
Discharge
Hazard



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



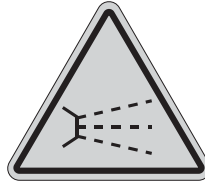
Skin Puncture
Hazard



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

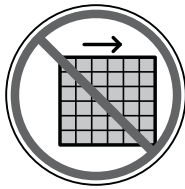


Breathing
Protection
Required



Lift Point

COMMON SAFETY SYMBOLS



Do Not
Remove
Guards



Do Not
Obstruct
or Block



Do Not Spray
Power Lines



Do Not Touch

SAFETY DECALS

	⚠ DANGER
	ENTANGLEMENT HAZARD! Keep arms and feet out! Never climb on or in unit before: Turning engine off. Allow all moving parts to stop. Disconnect battery cables and follow proper lock-out & tag-out procedures. Failure to comply will result in death or serious injury.

PIN 52177

	⚠ DANGER
	SEVER HAZARD! Keep hands and feet out! Sharp knives will sever. Failure to comply will result in death or serious injury.

PIN 52019

	⚠ WARNING
	RUNAWAY VEHICLE HAZARD! Always inspect tow vehicle and equipment hitch before towing. Tighten all hitch bolts and properly connect wiring and safety chains. BREAKAWAY SWITCH DO NOT use for parking. Attach cable to towing vehicle with enough slack for turning. Engine battery on trailer must be charged and hooked-up for proper breakaway function. SAFETY CHAIN INSTALLATION Both the single and double chains must be crossed under tongue. They must be oriented in such a manner as to prevent tongue from dropping to ground in event of failure to hitch, coupler or ball. Chains must be connected to towing vehicle so slack for each length of chain, between trailer and towing vehicle, is the same and must have no more slack when in use than necessary to permit proper turning of vehicles. Forward end of chain must be attached to towing vehicle, not to ball, but to hitch or other frame member. Chain must be looped around member and hooked back into itself. Failure to comply could result in death or serious injury.

PIN 31461

⚠ WARNING	
FLYING OBJECTS! STAY BACK! Stay away from discharge area during operation. Keep bystanders away. DO NOT point discharge toward people, animals or property. ALWAYS wear appropriate protective gear. Failure to comply could result in death or serious injury.	

PIN 52080

	⚠ WARNING
	BURN HAZARD! Cooling system is under pressure. Allow system to cool before handling. Remove radiator cap slowly. Wear appropriate safety gear. Failure to comply could result in death or serious injury. RADIATOR HANDLING INSTRUCTIONS 1. Use a 50/50 solution of water and antifreeze. Using 100% antifreeze will result in engine damage. 2. Check and replenish water prior to use. More water will be consumed when operating in hot conditions. 3. If overflow pipe begins emitting vapor, check and replenish water. 4. Remove and clean screen when dirty. 5. Check and clean fins periodically. Clogged fins will increase water consumption. 6. Protect radiator from fertilizer corrosion by washing radiator core with water.

PIN 31462

	⚠ WARNING
	BURN HAZARD! Hot exhaust! Stay back! Failure to comply could result in death or serious injury.

PIN 12278

	⚠ WARNING	
	SEVER HAZARD! Keep hands clear! Rotating fan and gears. DO NOT operate without guards or doors in place. Shut off engine, disconnect battery and allow all moving parts to stop before servicing. FLYING DEBRIS! Wear eye protection around equipment. Failure to comply could result in death or serious injury.	

PIN 31463

⚠ WARNING
Wear proper eye protection when operating machine. Failure to comply could result in death or serious injury.

23519

OPERATION AND MAINTENANCE OF THE FINN BARK BLOWER

INTRODUCTION

The FINN Corporation would like to thank you for your latest FINN purchase. In our efforts to maintain a quality and growing relationship with every customer, we would like to encourage you to contact us for help with service, genuine replacement parts, or for any other information you may require.

THE FINN BARK BLOWER AND ITS FUNCTIONS

The FINN Bark Blower is an apparatus for conveying and discharging bulk materials, such as bark mulch, at a fast and uniform rate while utilizing a minimum amount of manpower. The product to be used is generally composted and processed, then used as a soil amendment, ground cover for erosion, weed control, or for decorative purposes on landscaping (bark mulch).

This manual is intended to provide step-by-step instructions on the operation, care, and maintenance of the Bark Blower. In addition, it contains illustrations and a complete list of parts and components for easy identification.

HOW THE BARK BLOWER WORKS

Bulk material is loaded into the hopper by a loader or by the feed chute. Located along the bottom of the hopper is a drag chain conveyor that conveys the bulk material to an opening, in the rear of the hopper, containing a feed roll. The feed roll and drag chain conveyor feed the bulk material into the rotary air valve. The rotary air valve has been specifically designed and built to handle tough, fibrous materials such as bulk mulch. The function of the rotary air valve is to take the bulk material and convey into an enclosed chamber where it is then introduced into the high volume/low pressure air stream. The air stream is created by the blower, which is directly coupled to the engine and is channeled through the rotary air valve and then through the discharge hose.

NOTICE

For best results and to ensure safe operation and long life of the equipment, please read and follow all instructions carefully.

TOWING VEHICLE

The truck that will be used to tow the FINN BB302 Bark Blower must be equipped with a 2-5/16 in. ball or pintle-type hitch. The tow vehicle must also be able to support a 600 lbs. (272 kg) hitch load as well as safely tow a trailer with a GVWR of 6000 lbs. (2722 kg).

SELECTING A MULCHING MATERIAL

Several factors must be considered when selecting material to be conveyed through the Bark Blower. The variety of the wood used, how it is processed, its moisture content, and the presence of foreign objects all effect the ability of the Bark Blower to convey the mulch at a uniform and acceptable rate.

The mulch material must be processed and/or screened so that a minimum ammount of material is over 2 in. (5.1 cm) in any direction, with no material exceeding 4 in. (10.2 cm) in length. The Bark Blower is not a wood processor. The Bark Blower only reduces mulch fibers when they protrude above the rotary air valve vanes. As the vanes rotate past the knives, the protruding fibers are sheared off. If the mulch contains long or large fibers and/or the wood fibers are harder to cut, then the machine's throughput will be reduced. For example, if two mulches have the same mix of material sizes that the Bark Blower rotor must cut, but one is a softwood like pine and one is a hardwood such as oak, the pine would go through at a higher rate because it is easier to cut. Two characteristics must be considered when selecting a material: the "greenness" of the wood, and the moisture of the mulch as a whole. Wood that is well-seasoned is easier to cut than "green" wood. Seasoned wood also processes better, making a less stringy mulch. If the mulch has a high moisture content, it may stick together and form a "bridge" inside the hopper or a blockage in the discharge hose. If a bridge occurs, no material will be processed until the bridge is broken or the blockage is removed.



Avoid using mulches that contain any hard foreign objects such as rocks, nails, steel, cans, glass, etc. Failure to comply could result in minor personal injury, product damage, or property damage.

PRE-START EQUIPMENT CHECK

⚠ CAUTION *Equipment check must be made with the engine off and all rotating parts stopped. Failure to comply could result in minor personal injury, product damage, or property damage.*

1. Check all trailer connections to the towing vehicle, as well as the condition of the safety chains, and bolts connecting the ball coupler or pintle eye to the tongue.
2. Ensure that all guards are in place.
3. Tool Kit - make sure that it contains all prescribed items (see Tool Kit list).
4. Lubricate equipment. Use hand gun only (see Lubrication Chart information).
5. Check engine oil and fill or change if necessary. Refer to engine operator's manual.
6. Check the radiator liquid level and fill if necessary. (Protected to -34°F (-37°C) when shipped.)
7. Check fuel level. Use ultra low sulfur diesel fuel only.
8. Inspect the engine air cleaner (refer to the engine operator's manual), the radiator chaff screen, and the blower air cleaner for dust and dirt. If necessary, clean or replace the air filter.
9. Check hopper and transition for foreign objects that could injure workers or damage equipment.
10. Check the fluid level in the hydraulic tank. Proper level is when the sight gauge is completely full with unit sitting on level ground. See Hydraulics information for oil specifications.
11. Install the discharge hose. Use the clamps provided with the machine.

⚠ CAUTION *Do not use radiator type clamps. These clamps may not hold under machine operating pressure. Failure to comply could result in minor personal injury, product damage, or property damage.*

CONTROL GUIDE



**Main Control
Panel**



**Start/Stop
Pendant**



**Radio Remote
Transmitter**



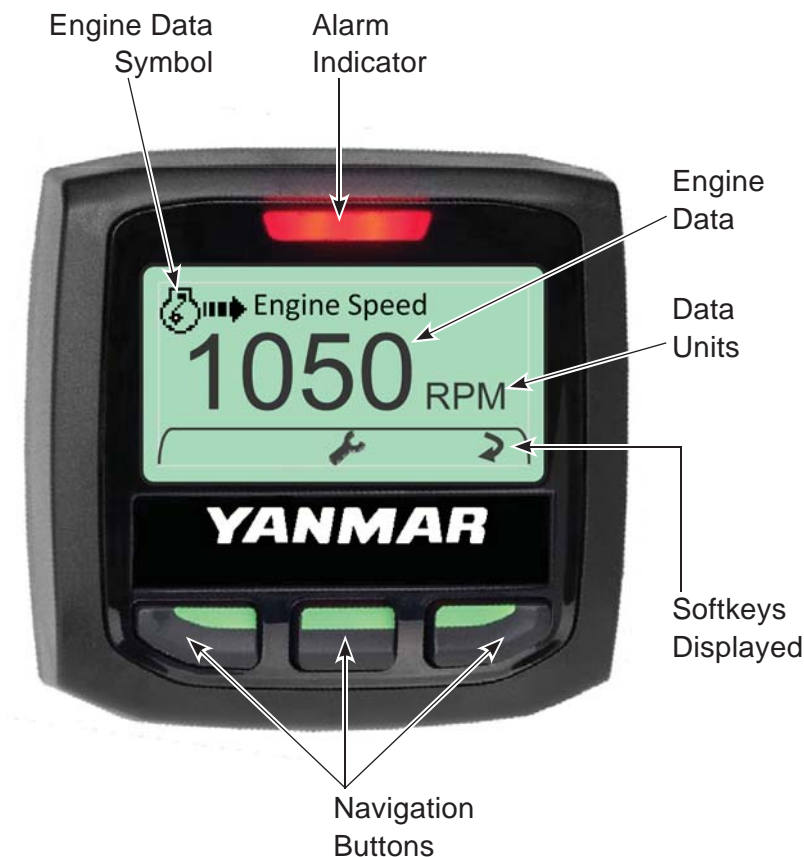
CONTROL PANEL GUIDE AND SYSTEM OPERATION

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 Value
-  : Decrease Value
-  : Acknowledge
-  : More Information



CHANGING DATA DISPLAYS

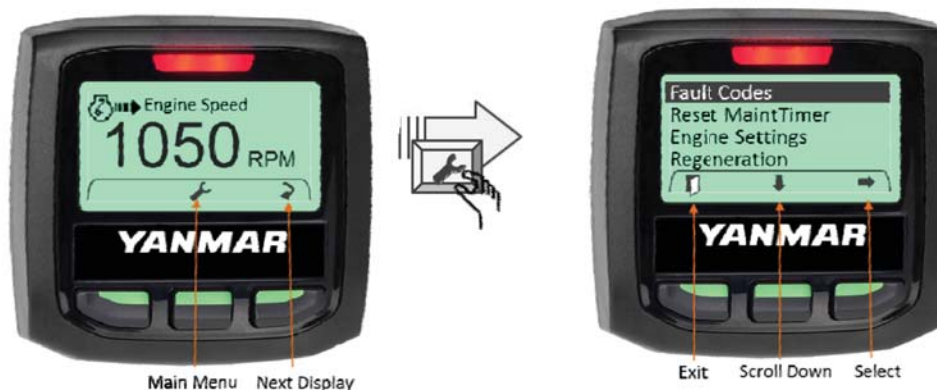
To change the data being displayed, press any key to activate the softkey menu. Press the Change “” softkey to access the next data display available.

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

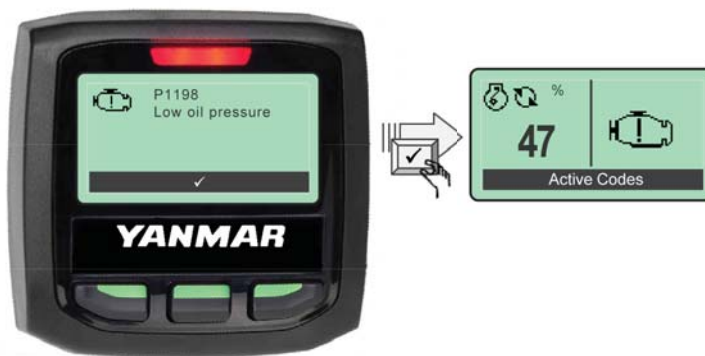
Parameter settings can be changed in one of two ways: using the “+” / “-” softkeys to increase or decrease a numeric value or using the Change “↻” softkey to toggle through a list of programmed settings.

FAULT CODES

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

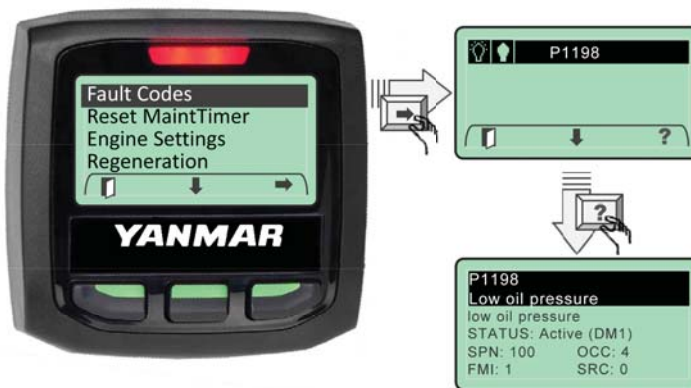
ACTIVE FAULT CODES

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.

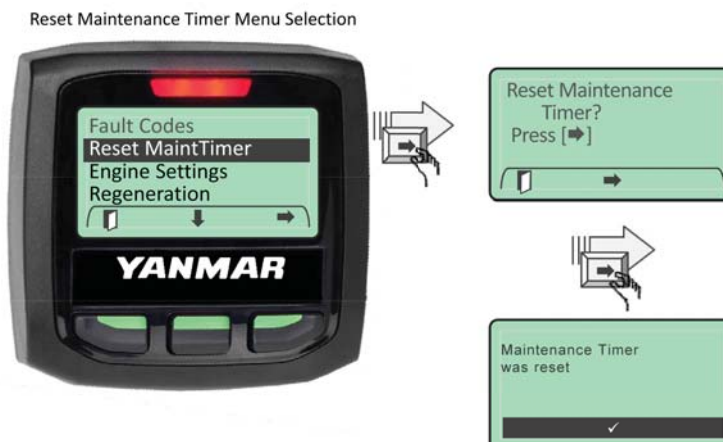
ACKNOWLEDGING MAINTENANCE TIMER

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.

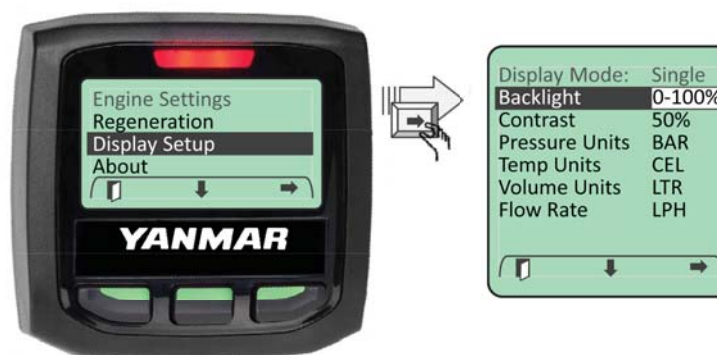
BACKLIGHT SETTING

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.

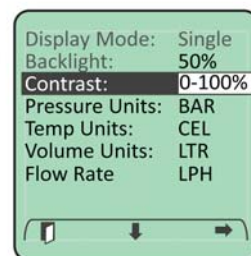
Use the “+” / “-” softkeys to set the backlight value.



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.



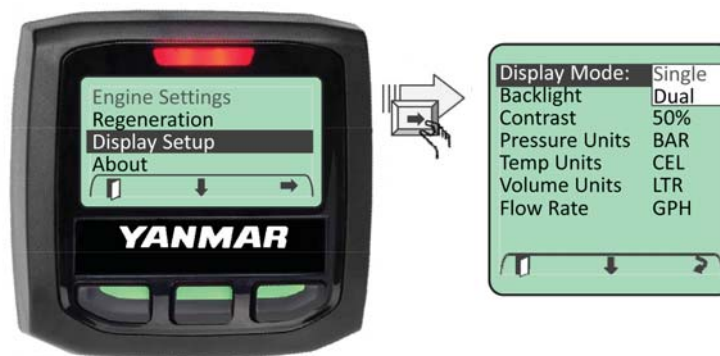
Press the “→” softkey to select the contrast parameter setting.

Use the “+” / “-” softkeys to set the contrast value.

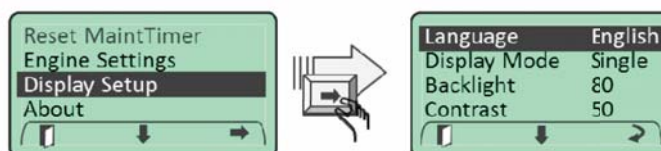
Note: Setting the contrast value below 30 may render the display to be unreadable.

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.

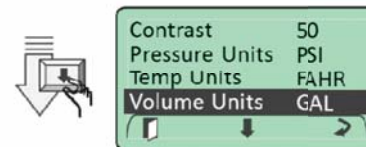
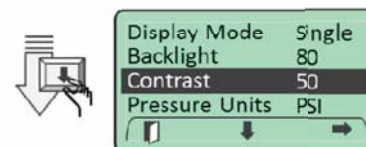
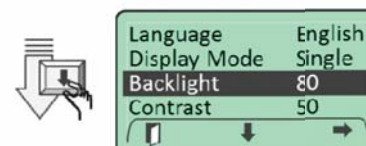
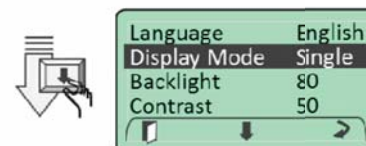


Choose the desired display mode setting by cycling through the list of choices using the Change “↔” softkey.



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.



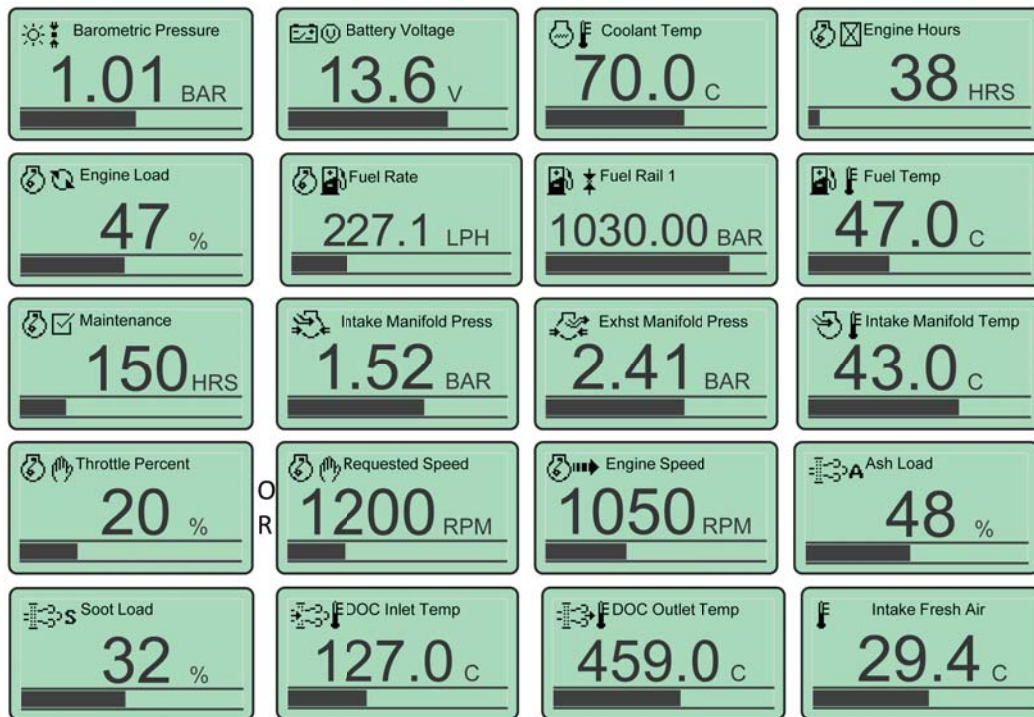
Display Mode	Single
Backlight	50%
Contrast	50%
Pressure Units	BAR
Temp Units	kPA
Volume Units	PSI
Flow Rate	LPH

Display Mode	Single
Backlight	50%
Contrast	50%
Pressure Units	BAR
Temp Units	CEL
Volume Units	FAHR
Flow Rate	LPH

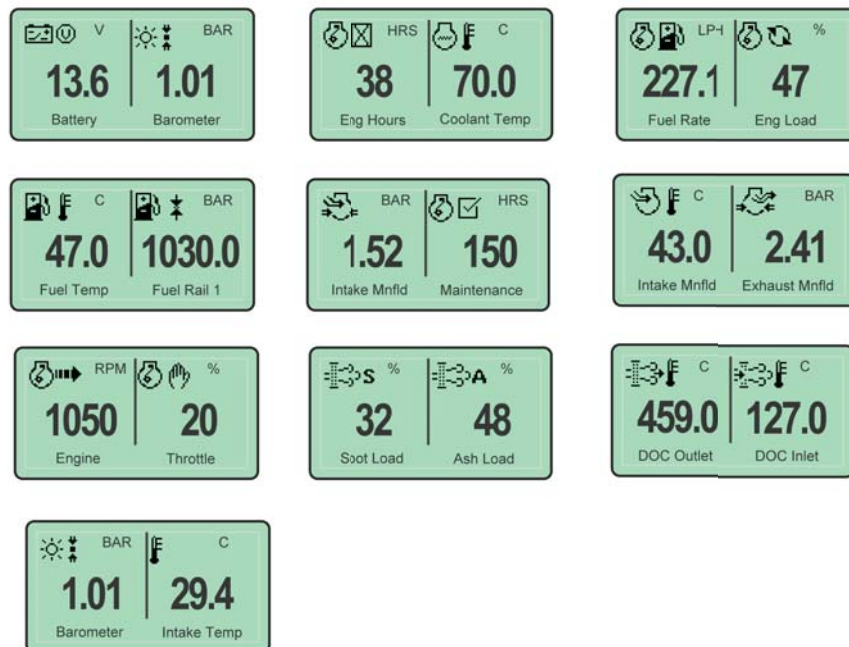
Display Mode	Single
Backlight	50%
Contrast	50%
Distance Units	miles
Pressure Units	psi
Temp Units	F
Volume Units	GAL
Flow Rate	LTR

DISPLAY LIST

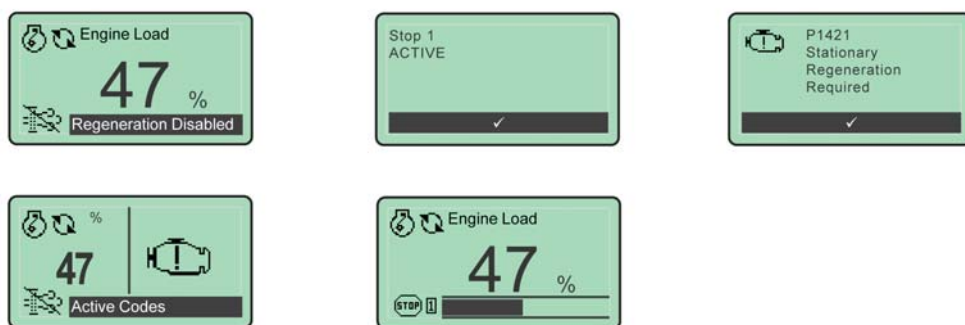
SINGLE DATA FORMAT



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.

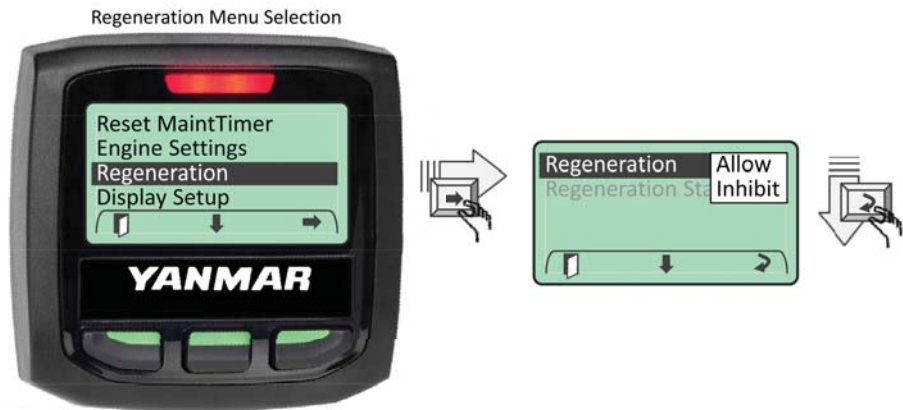
Back-up Regeneration Modes – These modes require direct action from the operator to be performed and the machine cannot be used for mulching operations while Back-up regeneration is underway.

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 be serviced by a Yanmar certified service center.

RESET REGENERATION NORMAL OPERATION - DISPLAYS

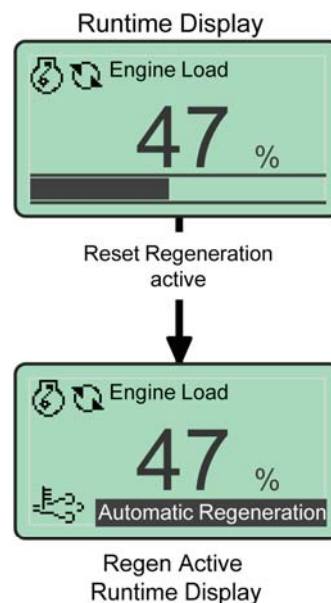
The engine control panel is set at the factory to allow Reset Regeneration to occur automatically. However, the operator has the option to inhibit Reset Regeneration via the control panel [Main Menu "→" Regeneration "→" Inhibit] if the work environment poses a risk to safe regeneration.



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.



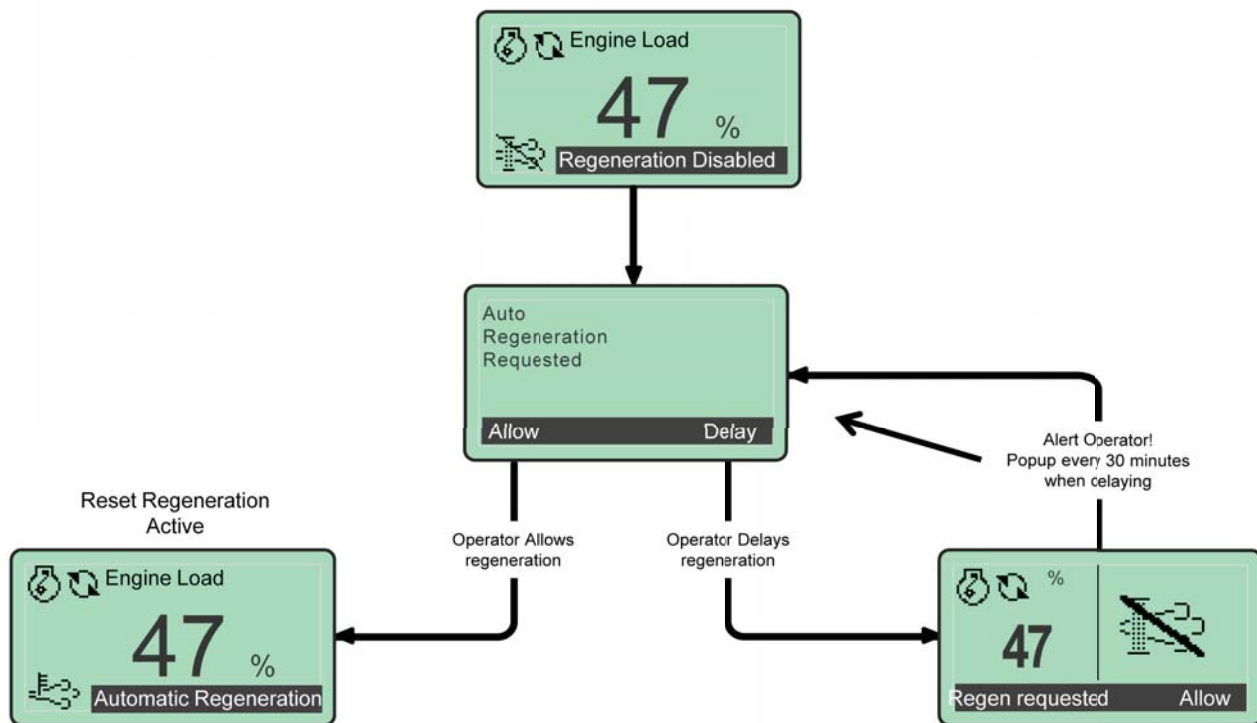
CAUTION *During Reset Regeneration, post-injection is used and fuel is burned directly inside the DPF (burned by chemical reaction inside the Diesel Oxidation Catalyst (DOC). Through this heat, regeneration occurs inside the SF, but the combustion increases the temperature of the exhaust gas to close 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.

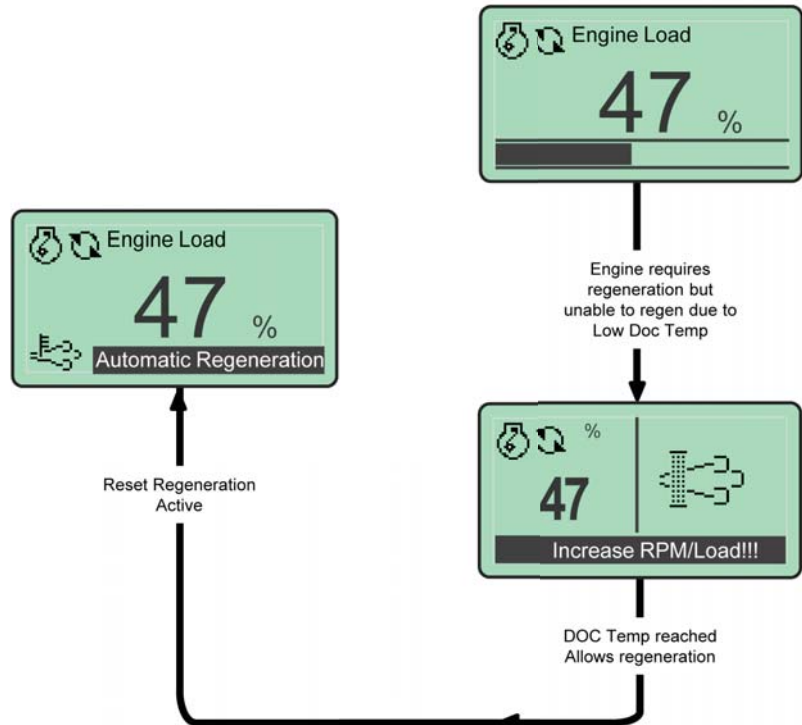
RESET REGENERATION STANDBY DUE TO INHIBIT SWITCH

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

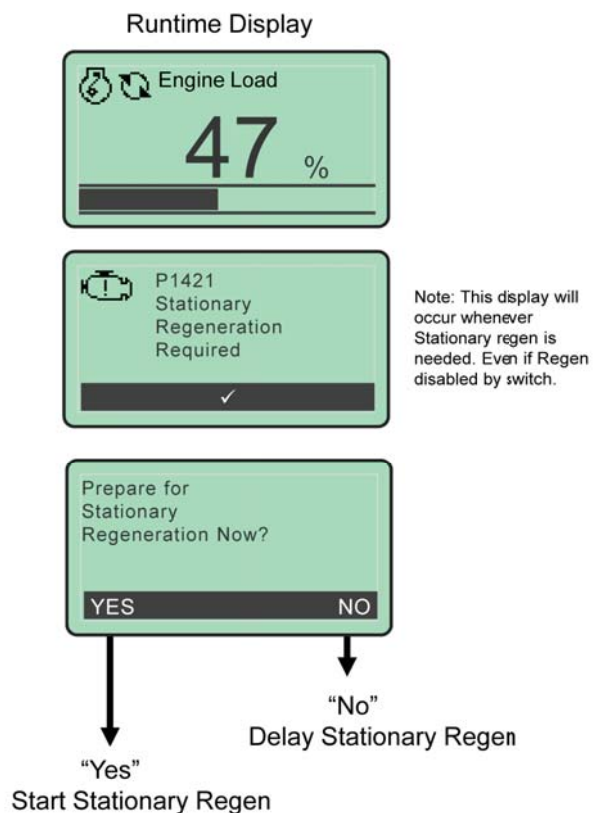
For Reset Regeneration to begin, the DOC temperature has to be at a sufficient level. If the DOC has not reached this temperature and Reset Regeneration is required, then a notification to Increase RPM/Load and the Regeneration icon will be displayed. Once the DOC reaches sufficient temperature, Reset 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 hydraulic switch on control box is in the **REGEN INTERLOCK** (down) position. 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
- If the hydraulic system is on
- Idle speed is too high

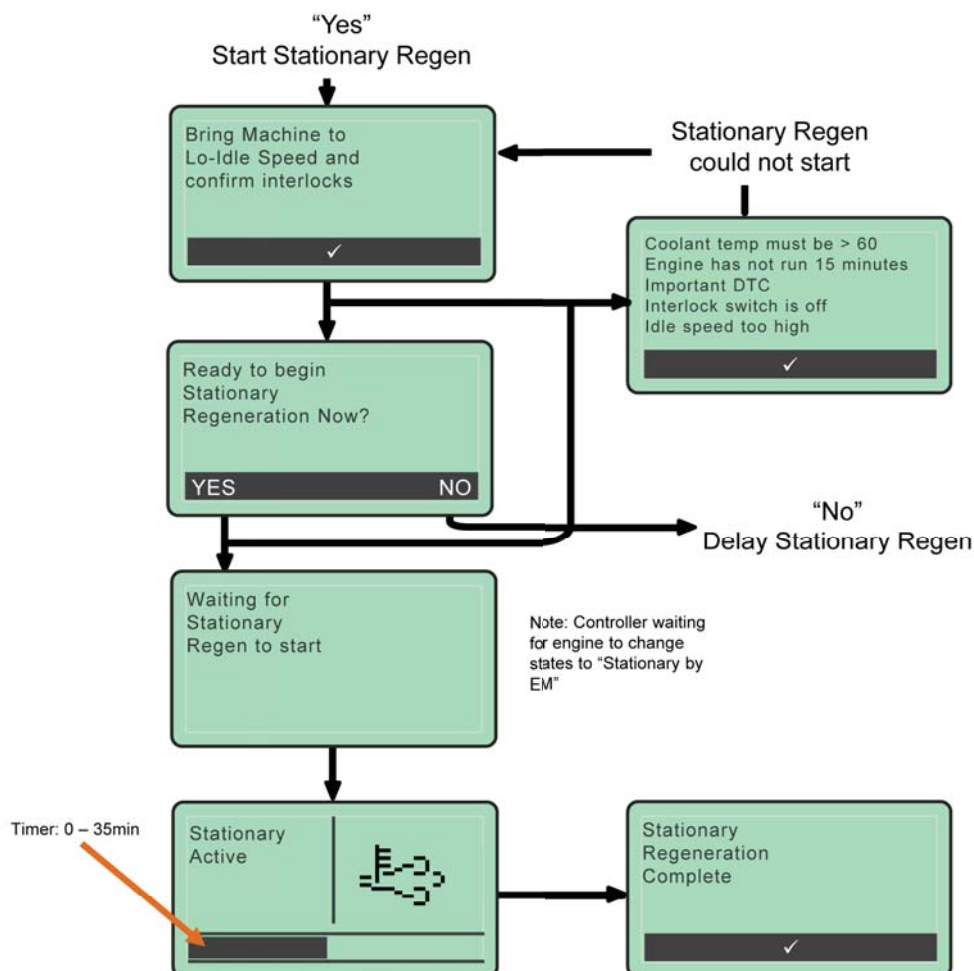
If these conditions are present, a notification will be displayed. Once these conditions are corrected by the operator, acknowledge the message and Stationary Regeneration will begin.

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.

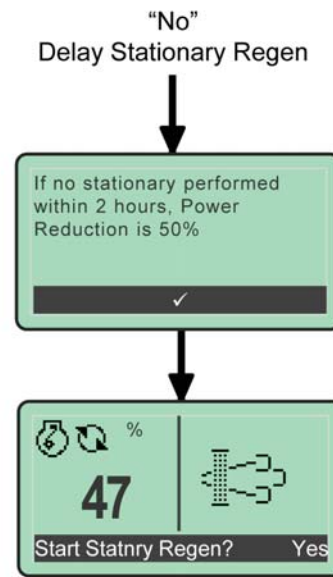
7. Once Stationary Regeneration is complete, a notification will be displayed and the engine will return to low idle, but will not automatically turn off. Normal machine operation can resume.



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.

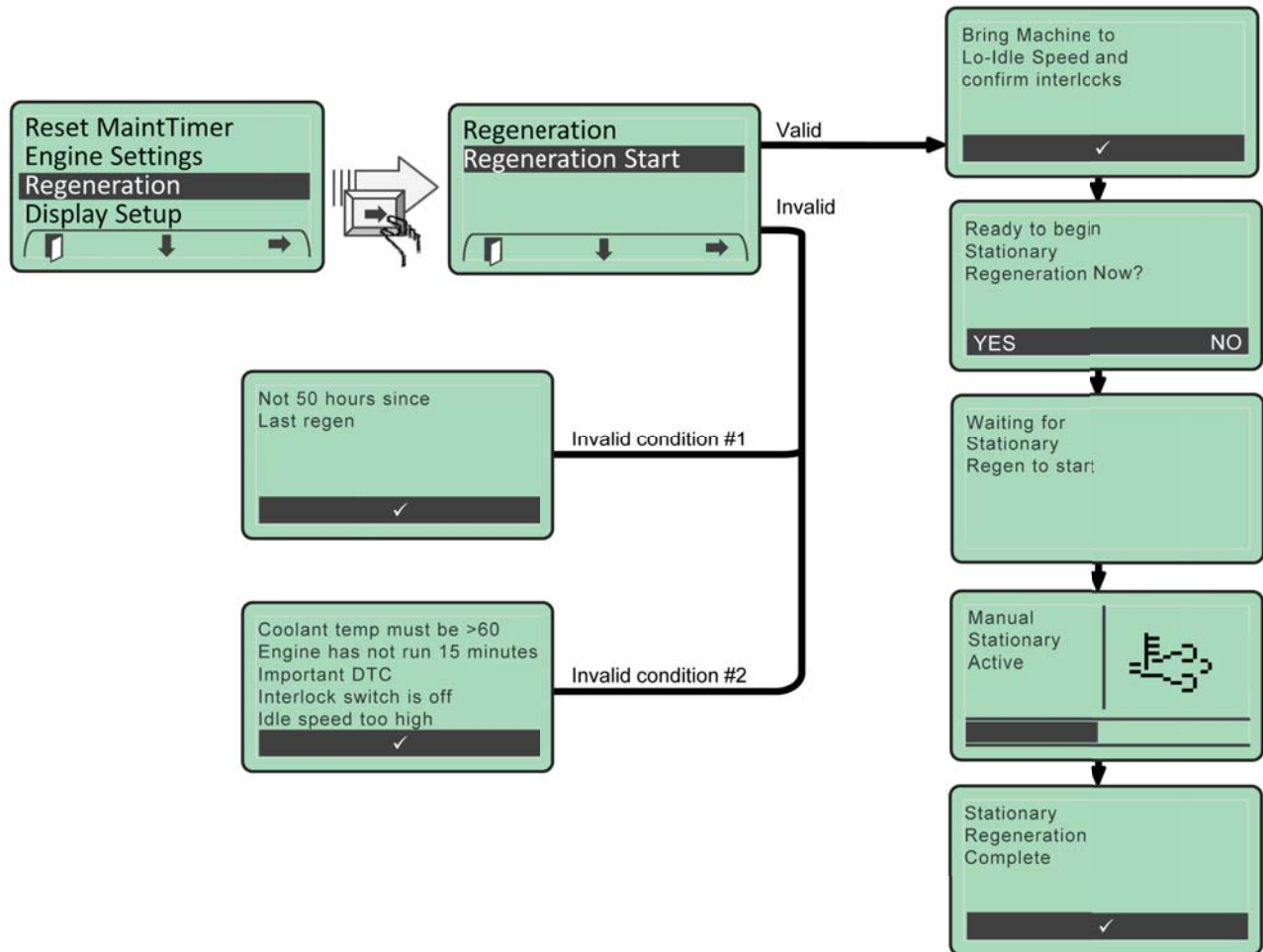
1. Move the machine to a well-ventilated and safe location.
2. When the message "Bring Machine to Lo-idle Speed and confirm interlocks" is displayed, make sure that the hydraulic switch on control box is in the **REGEN INTERLOCK** (down) position. Reduce engine speed to low idle. Then acknowledge the 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
- If the hydraulic system is on
- 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.

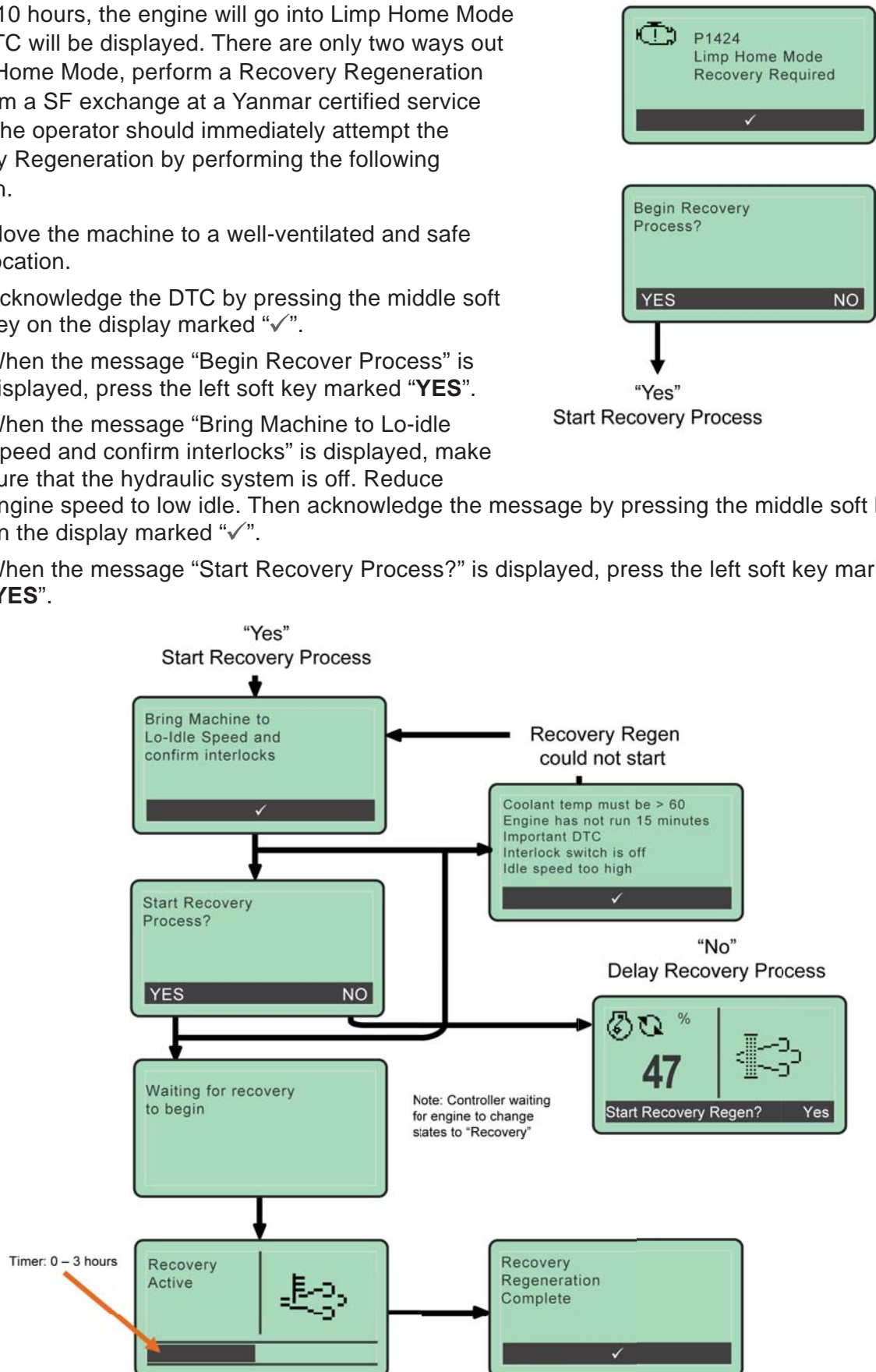
Note: If Stationary Regeneration needs to be interrupted for any reason, turn off the key switch. One the machine is restarted, the Stationary Regeneration request will be repeated.

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.

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 hydraulic system is off. 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
- If the hydraulic system is on
- Idle speed is too high

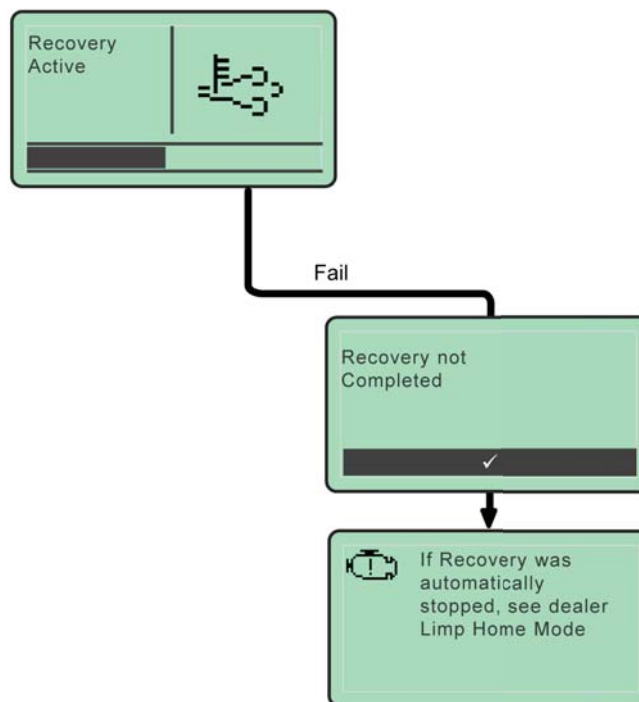
If these conditions are present, a notification will be displayed. Once these conditions are corrected by the operator, acknowledge the message and Stationary Regeneration will begin.

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

STARTING PROCEDURE

⚠ CAUTION See *Safety Summary* section of the manual before operating the machine. Failure to comply could result in minor personal injury, product damage, or property damage.

1. Verify that the rotary air valve cleanout/inspection doors are closed and secured in place.
2. Turn key clockwise to the **RUN/ON** (⏻) position and wait for key pad to illuminate and go through its start-up procedure.
3. Press the engine start (**ENG START**) button on the key pad one time to turn on the fuel pump. After fuel pump has started, press and hold the engine start (**ENG START**) button until the engine starts.



4. Allow the engine to warm up for 3 to 5 minutes.
5. Turn on the hydraulic system by flipping the toggle switch on the control box to the **HYDRAULICS ON** position.
6. Activate remote by rotating the Emergency Stop (e-stop) button clockwise to disengage e-stop functionality. Press the green button located on the back of the remote to turn on the unit.

NOTE: If the machine is running, the remote should automatically pair.



CREW MEMBERS AND THEIR DUTIES

1. The Operator controls the placement of the mulch by moving and aiming the discharge hose.
2. The Loader(s) feed material to the machine by using a skid steer or loader tractor, dumping it directly into the hopper or by shoveling from the tow vehicle to the feed floor via the feed chute.

THE MATERIAL-FEED SYSTEM

The material-feed system on the Bark Blower has been designed to give fast and uniform mechanical feeding. The adjustable feeding rate and the automatic reverse control system allow the use of varied materials while obtaining maximum production. The system is an integration of the following four subsystems, all of which contribute to efficient material flow:

SUBSYSTEM 1: MATERIAL-HANDLING GROUP

The four major components of the material-handling group are the blower, the drag chain conveyor or floor, the feed roll, and the rotary air valve.

The blower is a rotary lobe, positive-displacement type unit having two double-lobe impellers. The blower is directly driven off the engine flywheel via a flexible coupling. Therefore, whenever the engine is running, air is being pumped through the system. The blower is equipped with a relief valve, limiting maximum air pressure to 10 psi (69 kPa), an inlet and outlet silencer for noise attenuation, and an inlet air filter.

The drag chain conveyor moves material from along the hopper interior to an opening located at the rear of the machine where the feed roll is located. The feed roll ensures a uniform feed of bulk material to the rotary air valve. The drag chain conveyor is powered by a variable-speed hydraulic motor, which also powers the feed roll.

The rotary air valve receives the material from the drag chain conveyor and feed roll as well as pressurized air from the blower. Its primary function is to convey the bulk material from the hopper, to a sealed chamber where the blower air picks it up and blows it out of the discharge hose. To enable the Bark Blower to convey fibrous material, the rotary air-valve housing is equipped with a cutting knife and the vanes on the rotor are angled and hardened. If any long strands of fibrous material should protrude above a vane, it will be sheared off by a scissor-like action between the vane and cutting knife. The rotor of the rotary air valve is directly coupled and driven by a bi-rotational hydraulic motor.

SUBSYSTEM 2: HYDRAULIC SYSTEM

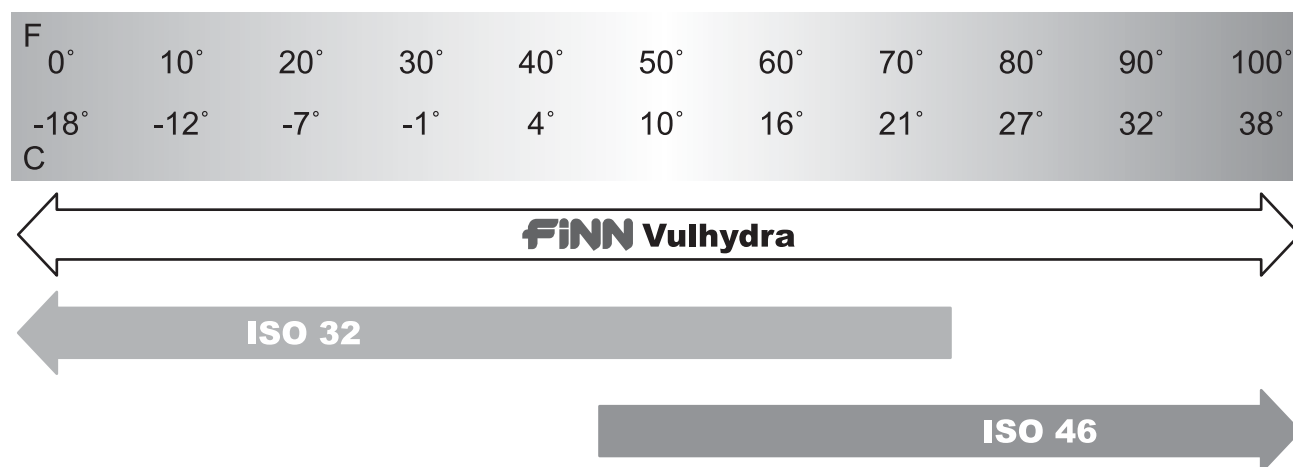
Hydraulic power for the Bark Blower is generated by a fixed-displacement hydraulic pump that is driven off the engine auxiliary drive. The pump receives hydraulic fluid from the 15-gallon (57 L) reservoir through a service ball valve and suction hose. It is then delivered to the solenoid control valves for both the rotary air valve and drag chain conveyor/feed roll circuits. The pressure driving the two individual hydraulic circuits can be monitored by utilizing the gauges provided on the drag chain conveyor and rotary air valve manifolds.

The hydraulic oil should be replaced per the lubrication schedule or if the oil becomes milky or gives off a burnt odor. The hydraulic oil filter must be replaced on schedule with a 5 absolute micron filter.

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.



A. ROTARY AIR VALVE/FEED ROLL

The fixed displacement pump delivers hydraulic oil to a flow divider manifold and from the flow divider manifold, 66% of the oil is routed to the rotary air valve motor through a solenoid valve. The solenoid valve is an open-center spool valve with built in relief set at 2650 psi (18 271 kPa). The spool in the valve is spring-centered and is moved by actuating a 12 VDC solenoid on either end of the spool.

Applying a 12 VDC signal to the solenoid causes the spool cartridge to shift directions. This action causes the high pressure hydraulic oil to be directed to the work port of the valve, causing the rotary air valve to move either in the forward or reverse direction.

NOTE: Spool movement can be checked manually by pressing the override button located in the center of the recessed area on the solenoid clamping nut.

B. FLOOR (DRAG CONVEYOR)/FEED ROLL

The fixed displacement hydraulic pump feeds hydraulic oil to a flow divider manifold and from the flow divider manifold, the other 33% of the oil flow is routed to the floor motor through a dump valve system. The floor dump valve system, located on the conveyor leg next to the control box, is actually three valves in one manifold. There is a relief valve set at set at 1850 psi (12 755 kPa) to protect the circuit, a 12 VDC normally open dump valve solenoid cartridge and a 12 VDC proportional flow control valve.

Oil entering the manifold flows back to the reservoir tank until a DC current activates the solenoid valve. When the solenoid valve is actuated, oil is then directed through the 12 VDC proportional flow control valve to drive the floor feed roll and to start moving the drag chain conveyor. By pressing the floor increase (**FLOOR INC**) button on the control box, voltage is increased on the proportional flow control solenoid increasing the flow to the floor feed roll and drag chain conveyor. To decrease the speed of the conveyor and feed roll, press the floor decrease (**FLOOR DEC**) button which reduces the voltage to the solenoid causing it to minimize oil flow. The floor drag chain conveyor is driven off of the feed roll hydraulic motor.

SUBSYSTEM 3: HYDRAULIC CONTROL SYSTEM

With the new Tier IV engines and the regeneration cycles that are required, the hydraulic system now has a switch that allows the operator to effectively turn ON/OFF the hydraulic circuit. When the toggle switch (located on the control box) is in the **REGEN INTERLOCK** position, the hydraulic circuit is closed (off), causing all of the oil flow to be routed back to the reservoir tank. When the switch is flipped to the **HYDRAULICS ON** position, the circuit is energized, allowing the operator to activate the various hydraulic circuits.



The hydraulic circuits are electronically controlled, allowing the operator the ability to control the function of the rotary air valve as well as the floor feed roll and feed conveyor. Both circuits are 12 VDC and are powered from the engines electrical system. It is a self-contained system located inside of the control box which controls all of the various solenoid valves in the system.

When the **MATERIAL START** button is pressed on the pendant, the rotary air valve forward solenoid is energized, causing the vanes inside of the valve to start turning. After the rotary air valve has started, the floor will start moving after a 2-second delay.

NOTE: Control box Material Start/Stop and Floor Increase/Decrease buttons will not work until initial start has occurred at the hardwired Material Start pendant.

As material drops into the top of the rotary air valve, the hydraulic pressure required to turn the rotary air valve varies. If the pressure reaches the high-pressure relief valve threshold in the solenoid control valve, the oil is channeled through the relief valve back to the hydraulic tank. In the forward work line is a normally open pressure switch. When the pressure in the work line exceeds the pressure-switch setting, the switch then closes and triggers the auto-reverse sequence.



SUBSYSTEM 3: HYDRAULIC CONTROL SYSTEM (CONTINUED)

During auto-reverse, the rotary air valve reverses direction for approximately 1 second. While in reverse, it also cuts power to the floor, shutting it OFF. At the end of the auto-reverse cycle, power is restored to the forward solenoid, putting the rotary air valve back into forward and restarting the floor after a 2-second delay.

There is a built-in 2-second time delay in the floor hydraulic circuit. This delay ensures that material is not fed into the rotary air valve before the auto-reverse cycle has completed. In the case of multiple auto-reverse cycles, it is meant to keep the transition area above the rotary air valve clear of any new material. There is also a time delay for the pressure switch. Since the electronics can reset faster than the hydraulics, the time delay activates the pressure switch after its set time passes following an auto-reverse cycle. This small amount of time, approximately 0.4 seconds, allows the relief valve to fully close and the pressure switch to return to the open position, eliminating a false signal that would trigger another auto-reverse cycle.

When the **MATERIAL STOP** button is pushed, power is cut to the floor and rotary air valve solenoids. Turning off the hydraulics master switch, pressing the engine stop (**ENG STOP**) button or turning off the ignition key can also stop the hydraulics. Please note that the hydraulics will also stop if either transition door between the floor and the rotary air valve is opened and cannot be restarted until the doors are closed and the **MATERIAL START** button on the pendant is pushed again.

SUBSYSTEM 4: RADIO REMOTE TRANSMITTER

This Bark Blower is equipped with a Cervis Radio Remote Transmitter to control the **MATERIAL START/STOP**, the **FLOOR SPEED DECREASE/INCREASE**, and the **ENGINE RPM INCREASE/DECREASE**. It also contains an Emergency Stop button that will shut down the engine.

To turn on the Radio Remote, twist the red E-Stop button clockwise to release it to its UP position, then press the green Power button located on the back side, bottom corner.



NOTE: Radio remote will not work until initial start has occurred at the hardwired Material Start pendant.

To utilize the Material Start/Stop feature of the Radio Remote Transmitter, the initial start must occur at the Start/Stop pendant on the Bark Blower. Start the engine using the STARTING PROCEDURE. Turn on material flow using the START button on the Pendant, then turn off material flow using the **MATERIAL START/STOP** function of the Radio Remote.

The hardwired, Start/Stop on the unit is the primary and overriding set of controls. When either the STOP button is pushed or a loss of power to the controls occurs (i.e. the rear door on the feed roll housing is opened), the material Start/Stop feature on the Radio Remote Transmitter is deactivated. This feature will remain inactive until the initial start is once again made at the machine by pressing the **START** button on the pendant.

The **MATERIAL INCREASE/DECREASE** function on the Radio Remote Transmitter can be used to change the floor speed and effectively adjust the output of mulch from the machine.

The **ENGINE RPM INCREASE/DECREASE** function on the Radio Remote Transmitter adjusts the throttle on the engine, which also increases or decreases the air flow output of the machine.

NOTE: If the **RPM INC** button is pressed and then released, the engine RPMs will only increase by 10 RPMs, but if the button is pressed and held, the engine RPMs will ramp up at a much faster rate.

For additional info, see Cervis Engineered Application Specific Supplement: WSMB-7454 FINN.

MULCHING WITH THE BARK BLOWER

1. Check all areas listed under PRE-START EQUIPMENT CHECK.
2. Start the engine following all the steps listed under STARTING PROCEDURE.
3. Press the **START** button on the hardwired pendant to activate the **MATERIAL START/STOP** feature on the remote. This will allow the material flow speed to be adjusted from the remote.
4. Use the Radio Remote to stop material flow.
5. With material flow stopped, increase **ENGINE RPM** to full
6. With a firm grip on the hose, use the remote to start material flow.
7. Adjust floor speed and engine throttle to achieve desired amount of mulch output.
8. At the end of the load, push the **MATERIAL STOP** button on the hardwired pendant and shut down the engine.

BARK BLOWER ADJUSTMENTS

The Bark Blower has been designed to be as simple as possible to operate. The feed roll and rotary air valve are designed to create a smooth, consistent flow of material from the hopper to the discharge hose. However, material conditions can change from one load to the next or from one day to the next. Adjusting the floor speed and engine RPM will allow the Bark Blower to efficiently convey many different types of materials.

Knowing when and how much to adjust the floor speed is the key to maximizing the machine's performance. The floor conveyor speed is controlled by the floor increase (**FLOOR INC**) or floor decrease (**FLOOR DEC**) on the Keypad and/or Radio Remote. The floor speed can be increased using these controls until certain warning signs appear. They include the following:

A. CONSISTENT HOSE SHOCK

The Bark Blower uses a large volume of air to blow the mulch material through the discharge hose, which can, at times, become difficult for an operator to handle. Hose shock is usually due to partial plugging around the rotary air valve discharge. When the material gets dislodged, the larger clumps are shot through the hose and this action can make the hose jump significantly. If rough shock waves become consistent, the floor speed can be turned down to smooth out the flow of material into the rotary air valve. Increasing the engine RPM can also smooth out hose shock by speeding up the air flow.

NOTE: Be careful not to lower the engine RPM too much, as this can cause excessive plugging if there is not enough air to move the material or if the material slows too much.

NOTE: Smooth application is a balance between air volume and material volume. If hose shock is a problem, reduce the amount of material being fed into the rotary air valve or increase air volume.

BARK BLOWER ADJUSTMENTS (CONTINUED)

B. EXCESSIVE AUTO-REVERSING

If the rotary air valve starts to auto-reverse more than three times per minute, that means the rotary air valve is being overfed and the floor speed should be turned down or the knife is dull and should be resharpened or replaced and/or the quality of the mulch is poor. Excessive auto-reversing leads to less production rather than if the floor was just turned down to a slower speed or the knives were sharpened. This condition will occur more often with green, stringy mulch or less-processed material that contains larger chunks of wood that the rotary air valve may have to cut.

C. REGULARLY TRIPPING THE BLOWER RELIEF

The blower on your machine has a relief valve in the air line circuit to protect the blower against a large back pressure that could build if the line becomes plugged. The relief valve, set for 10 psi (69 kPa), is located directly behind the blower in the engine area of the machine. A blockage, temporary or otherwise, can trip the relief valve, which causes a loud whining noise emanating from the engine area. Occasional blow off through the relief valve is expected, as long as the machine can clear itself. However, if the relief valve goes off repeatedly in a 10-second time span, then the rotary air valve or hose is in danger of becoming completely blocked. The floor speed should be immediately reduced until the relief valve is not heard consistently going off. Partial plugging most often occurs with less-processed material or if the mulch is wet and dense.

CLEARING A BLOCKAGE

If the unit does become plugged and the machine cannot clear itself, quickly shut off the material feed, decrease the engine RPM to low idle, and then shut off the engine.

NOTE: If the blockage is in the rotary air valve and not in the discharge hose, immediately use the **EMERGENCY STOP (E-Stop)** button.

To clear the blockage, perform the following steps:

1. Disconnect the discharge hose and determine if the blockage is in the rotary air valve discharge. Any blockage should be seen through the discharge outlet. If there is no blockage, then the hose is plugged somewhere.
2. If there is blockage in the rotary air valve, loosen and remove the discharge outlet.
3. Remove any blockage and clean the discharge of any mulch debris, especially on the gasket surface, so that it can seal tightly.
4. Re-install the discharge outlet.
5. Reconnect the discharge hose if it is not plugged.
6. Restart the machine with the floor off, then run the engine to full RPM to clear out the rotary air valve and any mulch lying in the hose.
7. Resume normal operation.

Troubleshooting Chart		
Symptom	Probable Cause	Suggested Solutions
Engine will not start	ECM has generated a fault code for the engine.	Check fault code and remedy.
	No fuel.	Check fuel gauge and water separator bowl.
Rotary air valve not turning	Hydraulics master toggle switch is not on.	Flip switch to ON position and press MATERIAL START button on the hardwired pendant.
	Rotary air valve clean out door switches are not closed.	Make sure doors are closed and handles are screwed down to ensure switches are closed.
	MATERIAL START button was not pressed on the pendant.	Press MATERIAL START button (on the hardwired pendant) firmly to start material flow.
Floor not turning	Dump valve solenoid is not energized.	Press FLOOR ON/OFF button on key pad.
		Make sure plug is connected on bottom solenoid valve.
		Check to make sure you are getting 12 VDC across plug terminals.
	Solenoid valve is stuck due to contamination.	Press override button in the center of the solenoid valve cartridge.
	Feed roll/floor jammed.	Check gauge reading; if 2000 psi, push FLOOR ON/OFF button and reverse floor with auto reverse (AUTO REV.) button.
Rotary air valve constantly auto-reversing	Overfeeding rotary air valve	Decrease floor speed. See Bark Blower Adjustments section for tips.
	Dull rotary air valve knives	Check knife clearance; sharpen or replace knife if dull or chipped.
Rotary air valve stalling, not auto-reversing	Pressure switch is not closing at 2,100 psi	Check pressure switch connections or replace switch if necessary. Check relief setting rotary air valve.
Discharge material pulsing; not smooth	Too much material and not enough air flow	Increase engine throttle and decrease floor speed accordingly.
	Partial plugging in rotary air valve discharge	Check rotary air valve discharge for blockage and air leaks.
Engine Overheat	Lack of Coolant	Check for leaks and add coolant.
	Radiator Obstructed	Blow out radiator to clear obstruction. DO NOT use pressurized water: damage to radiator fins could occur.

MAINTENANCE



Turn engine OFF and disconnect battery before servicing equipment. Failure to comply could result in minor personal injury, product damage, or property damage.

WEEKLY - AFTER EVERY 50 HOURS OF OPERATION

1. Lubricate the bearings on the floor, the blower, and on each end of the feed roll shaft. Wipe each bearing lube point before lubricating to remove dirt and prevent overheating.
2. Blow out radiator fins with dry compressed air. Do not use a pressure washer, as this will damage the fragile radiator fins.
3. Remove and clean or replace air cleaner elements on the engine and rotary blower. To clean elements, use clean compressed air.
4. Check the oil level in the rotary air valve gearbox. Add or replace if necessary.
5. Check the gear case on the blower (see Lubrication Chart information).
6. Check the tension on the floor conveyor chain. Adjust so the chain slats clear the bottom pans on the return side by 1/2 in. (13 mm), by turning the jackscrews on each end of the idler shaft. Adjust evenly, making sure the shaft does not shift sideways.
7. Check rotary air valve knife (or knives) for wear, chips, and clearance.



Knives have very sharp edges that can cause serious injury. Handle with care. Failure to comply WILL result in severe personal injury or death.

To change the knife (or knives), use the following:

- A) Remove the five bolts that hold the knives and transition doors to the rotary air valve knife shelves.
- B) Remove the transition doors and knives.
- C) Clean all dirt and debris from shelves.
- D) Back out the two center jacking screws on each shelf.
- E) Compare the replacement knife to the removed knife. If the new knife is wider, back the two outside jacking screws out by at least that amount. Count the turns and back both screws out evenly.
- F) Lay the knife on the knife shelf. Ensure the knife is installed with the cutting angle edge facing down, as shown in Figure 5. Loosely install the two outer, and the middle knife mounting bolts. Tighten the mounting bolts enough to hold knife in position, while still allowing it to be moved.
- G) Install a block of wood, approximately 2 in. x 4 in. x 6 in. (5cm x 10cm x 15cm) between the knife and the closest vane at the center of the rotor length. Pinch the wood between the knife and the vane by turning the rotor shaft with a pipe wrench.
- H) While keeping pressure on the knife, tighten the three mounting bolts.

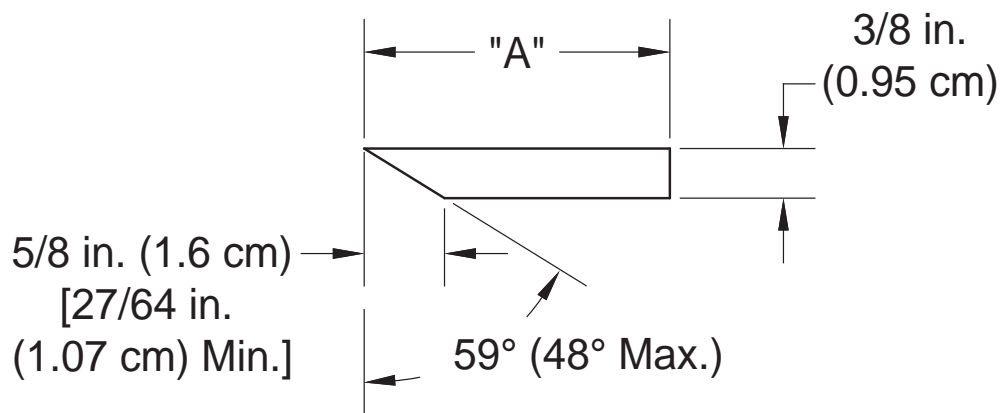
MAINTENANCE (CONTINUED)

WEEKLY - AFTER EVERY 50 HOURS OF OPERATION

- I) Remove the wood block and check the clearance between the knife and the rotor vane, using a feeler gauge at the three mounting bolts.

NOTE: If the knife touches the vane at any point, loosen the three mounting bolts, back off the jacking screws evenly, and repeat steps G, H, and I until clearance is obtained.

- J) Loosen the three mounting bolts; use the jacking screws to close the gap. One full turn of the screw moves the knife 0.070 in. (1.8 mm).
- K) Tighten mounting bolts as explained in steps G and H.
- L) Repeat steps, G, H, I, and J until the knife-to-vane clearance is between 0.006 in. (0.15 mm) and 0.010 in. (0.254 mm) at the closest point(s).
- M) Once set, install the other two mounting bolts and tighten.
- N) Run the two center jacking screws into contact with the knives. Lock all jacking screws in place with the jam nuts.
- O) Remove three mounting bolts for transition door, and install the door.
- P) Repeat procedure for other knife (if equipped).
- Q) Immediately have the removed knives sharpened. Do not attempt to grind the knives by hand. The knives must be ground straight and true on a surface grinder by an experienced knife sharpener. Have the knives ground to the profile shown in the illustration below.



Knife Profile

NOTICE

When dimension "A" has been reduced to 2- $\frac{3}{8}$ in. (6 cm), the knife must be discarded.

AFTER FIRST 100 HOURS OF OPERATION

1. Change engine oil and filter after 100 hours, then every 250 hours after that, following the engine manufacturer's recommendations.
2. Change the gear box oil on the blower; use ISO Grade 100 Extreme Pressure Gear Oil if your ambient operating range is from 32° F to 90° F. If your ambient operating range is above 90° F, use ISO Grade 150 Extreme Pressure Gear Oil. Change oil every 1000 hours after that.
3. Change the gearbox oil on the rotary air valve using SAE 90W gear oil. Fill oil to the side plug. Change every 1000 hours after that.

EVERY 3 MONTHS OR 3,000 MILES (4,800 KM)

1. Check and adjust trailer brakes.
2. Torque wheel lug nuts to 95 to 115 ft.-lb. (129 to 156 N•m).
3. Check tire condition.

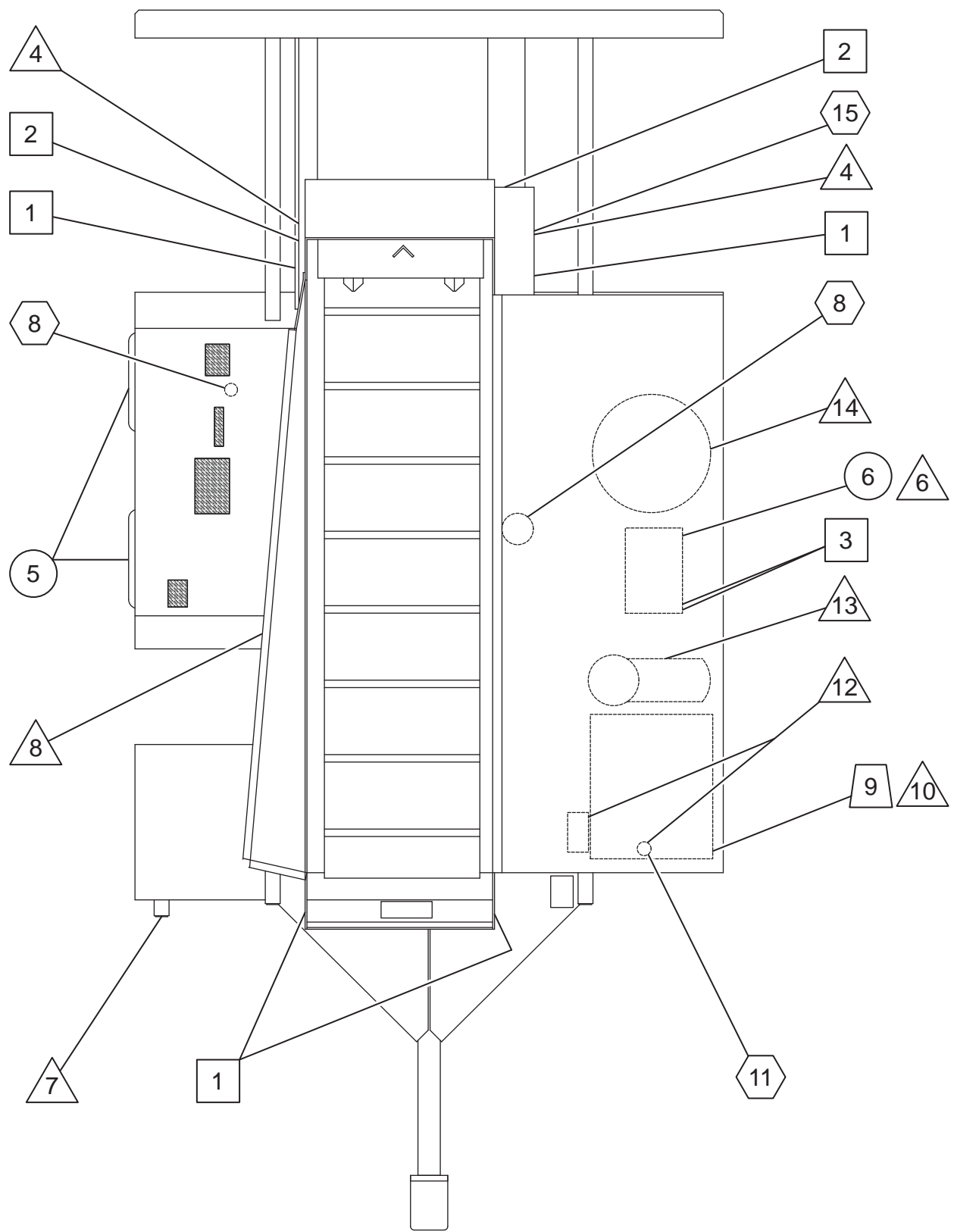
EVERY 12 MONTHS OR 12,000 MILES (19,300 KM)

1. Inspect and repack wheel bearings.
2. Inspect trailer brake magnets, pads, drums, etc.

WINTER SHUTDOWN AND STORAGE

1. Blow all built-up material out of hopper, rotary air valve, transition and discharge pan. Disconnect battery cables.
2. Remove the inlet elbow to the blower air chamber, and coat internals of impeller cylinder with a rust inhibitor, such as WD-40. Reconnect piping to prevent foreign debris from entering blower chamber. Rotate the drive shaft three or four revolutions. Repeat this process every month or as conditions may require.
3. Store machine inside if possible. If machine is being stored outside, protect machine from the elements as best as possible.

NOTES



LUBRICATION AND FLUIDS CHART

Ref. No.	Location	Lubricant	Frequency	Number
1	Conveyor Bearings (Idle & Drive)	CL	Weekly	4
2	Feed Roll Bearings (Idle & Drive)	CL	Weekly	2
3	Blower Bearings	CL	Weekly	2
4	Rotary Air Valve Bearing	CL	Daily	3
5	Wheel Bearings	CL	Annually	4
6	Check Oil Level-Blower	BO	Daily	1
	Change Oil-Blower	BO	Annually	1
7	Check Fuel Level	DF	Daily	1
8	Check Hydraulic Oil Level	HO	Daily	1
	Change Hydraulic Oil & Filter	HO	Seasonally	1
9	Change Engine Oil & Filter	MO	See Engine Manual	1
10	Check Engine Oil Level	MO	Daily	1
11	Change Engine Coolant	AF	Seasonally	1
12	Check Coolant Level	AF	Daily	2
13	Check Air Cleaner-Engine		Daily	1
14	Check Air Cleaner-Blower		Daily	1
15	Rotary Air Valve Gear Box	GO	Seasonally	1

LUBRICANT OR FLUID USED

CL Chassis Lubricant

BO Blower Oil

[if ambient operating range is from 32° F to 90° F, use ISO Grade 100 Extreme Pressure Gear Oil; if ambient operating range is above 90° F, use ISO Grade 150 Extreme Pressure Gear Oil]

MO Motor Oil, 15W - 40

AF 50/50 Anti-Freeze and Water

DF Diesel Fuel

HO Hydraulic Oil

[Finn Vulhydra hydraulic oil or the closest ISO equivalent (see Hydraulic System section)]

GO 90 W Gear Oil

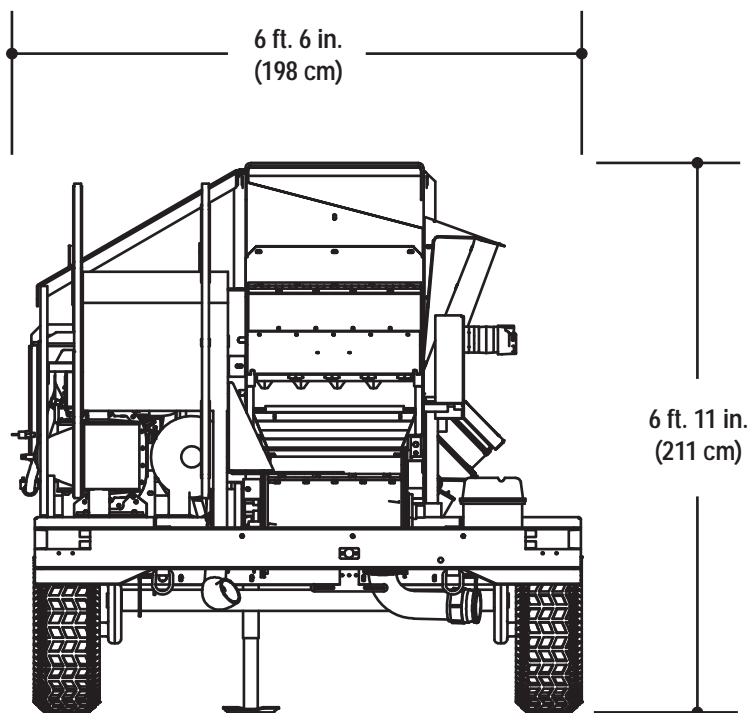
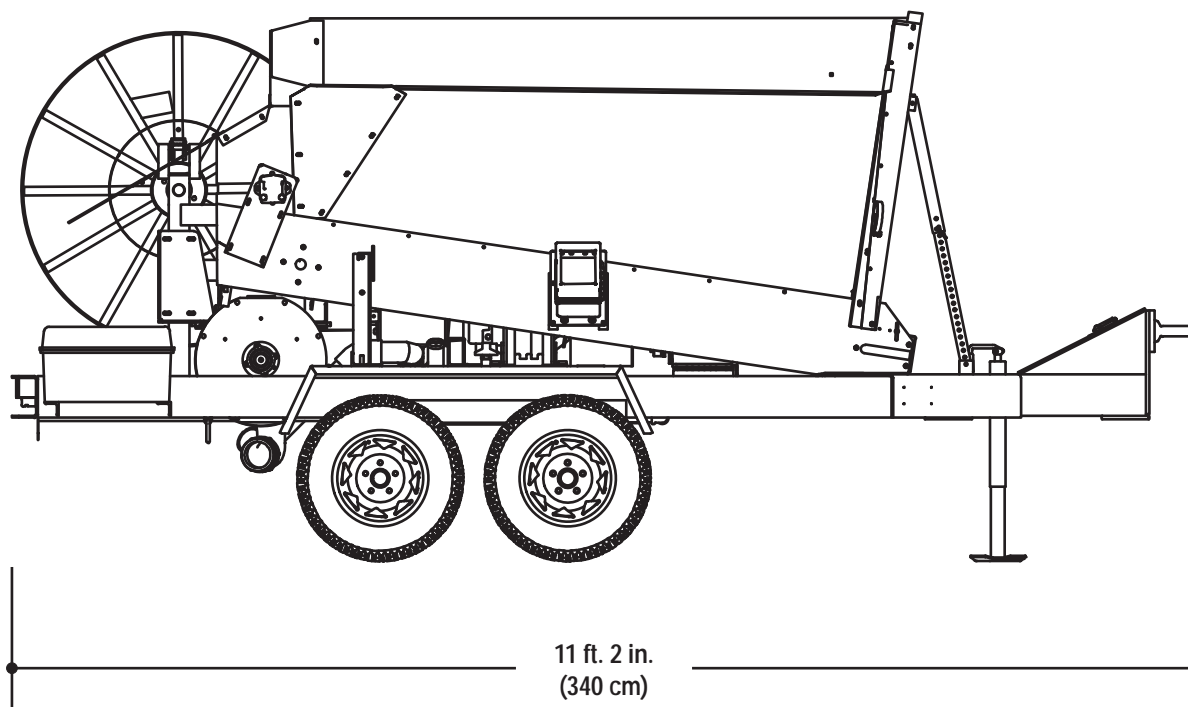
FLUID CAPACITIES

Fuel	11 Gallons (42 L)
Hydraulic Oil	15 Gallons (57 L)
Engine Coolant	See engine manual
Engine Oil	See engine manual
Gear Box Oil	9 ounces (0.26L)

TIME KEY

	Daily (8 Hours)
	Weekly (40 Hours)
	Seasonally (500 Hours)
	Annually (1000 Hours)
	See Engine Manual

FINN BB302 BARK BLOWER® TECHNICAL SPECIFICATIONS



FINN BB302 BARK BLOWER® TECHNICAL SPECIFICATIONS

POWER	Yanmar 3TNV88C-DYEM, 35.1hp (26.2kW), 3 cylinder water cooled diesel engine. Tier 4Final. 1.642L
ENGINE SAFETY SYSTEM	Low oil pressure, Electronic Engine Control and Monitoring
CAPACITY.....	1.5 cubic yards (1.15 m ³)
FUEL TANK CAPACITY	11 gallon (42 L)
BLOWER	500 CFM @ 10 psi (14 cmm @ 69 kPa)
EMPTY WEIGHT	4,700 lbs (2,132 kg)
WORKING WEIGHT*	5,825 lbs (2,642 kg)
BRAKES	Electric on both axles with breakaway switch
LIGHTS	D.O.T. including side marker lights, an identification light, and a license plate light
TIRES	ST185/80D13 bias ply tires, load range D
TRAILER AXLES	Tandem 3,000 lbs (1,361 kg) rubber torsion
GVWR.....	6,000 lbs (2,722 kg)

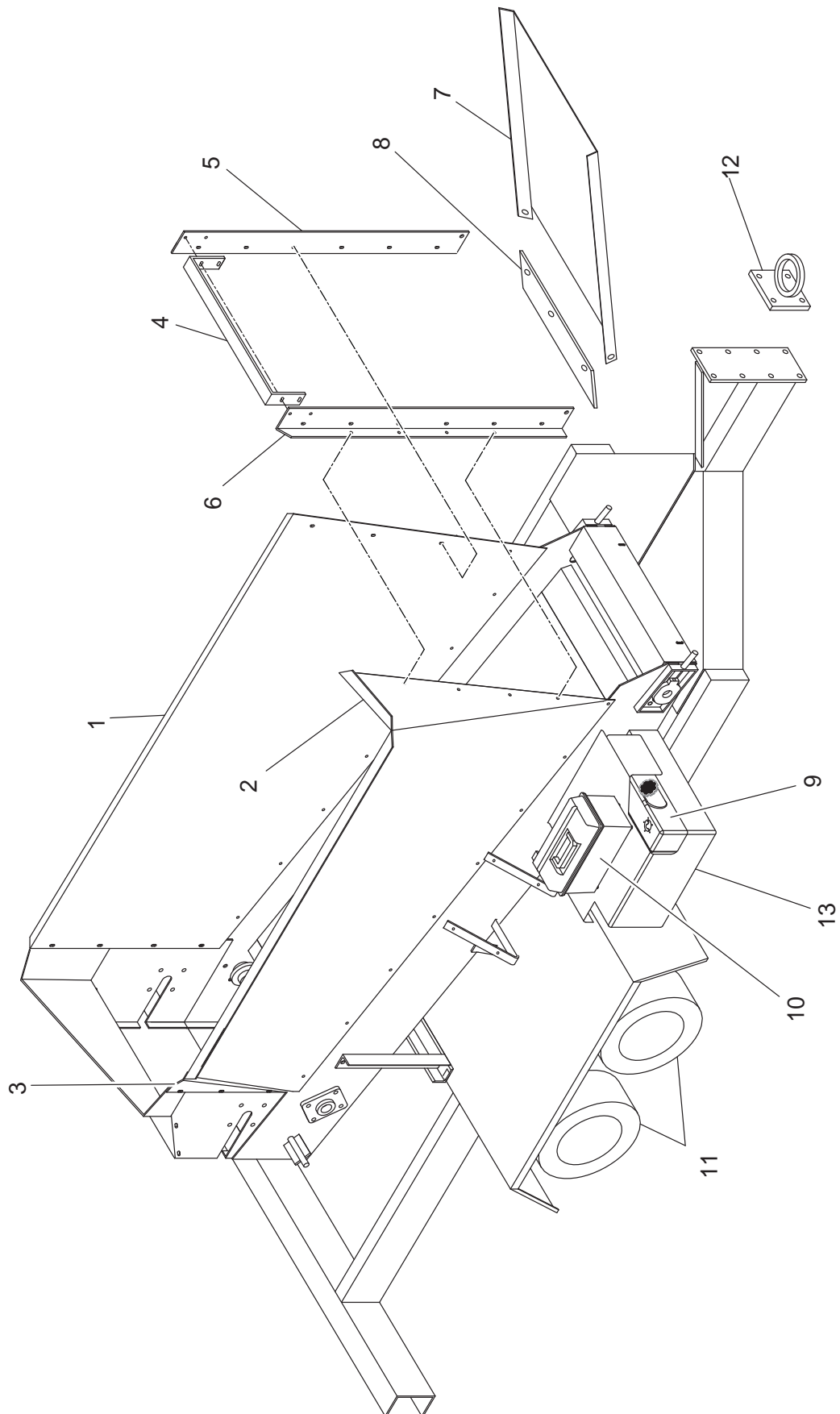
** Working weights are approximate and do not include options or stored materials.
Working weights are based on material at 750 lbs./cu. yd.*

NOTES

BARK BLOWER

Model 302 Parts Manual

Model MN



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

HOPPER AND TRAILER PARTS

Ref. No.	Part Number	Description	No. Req'd
1	055531	Hopper Left Side	1
2	055530	Hopper Right Side	1
3	055533	Hopper Corner	1
4	055583	Front Cross Member	1
5	055529-01	Front-Left Support Angle	1
6	055529-02	Front-Right Support Angle	1
7	055638	Feed Chute	1
	055629	Material Retaining Flaps	2
	055577	Feed Chute Support Jack Base	1
	055577-03	Support Jack Lower Tube (Inner)	1
	055577-04	Support Jack Top Tube (Outer)	1
	FW71225	Support Jack Locking Snap Pin	1
	007913	Retaining Tie Back Strap	2
8	055623-01	Lower Feed Chute Seal	1
	055582-21	Seal Retaining Strap	1
9	055871	Fuel Tank Assembly	1
	055871-01	Fuel Tank	1
	031464-02	Drain Cock	1
	031464-03	Grommet	3
	031464-04	Fuel Tube Assembly	2
	031459	Fuel Level Gauge	1
	005726	Fuel Tank Cap	1
10	A1198-002	Toolbox (Modified)	1
11	055737	Tire and Rim Assembly	4
	055789	Axle with Brake Assembly (see Wheel/Axle Assembly)	2
12	080043	Tow Ring (Optional)	1
	005134	Coupler (Optional)	1
	005135	2 5/16 Ball (Optional)	1
	190028	Safety Chain (3 ft. long)	2'
	031181	Coupling Link	2
	023915	Clevis Grab Hook	2
13	055874	Fuel Tank Cover	1

Continued to next page.

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

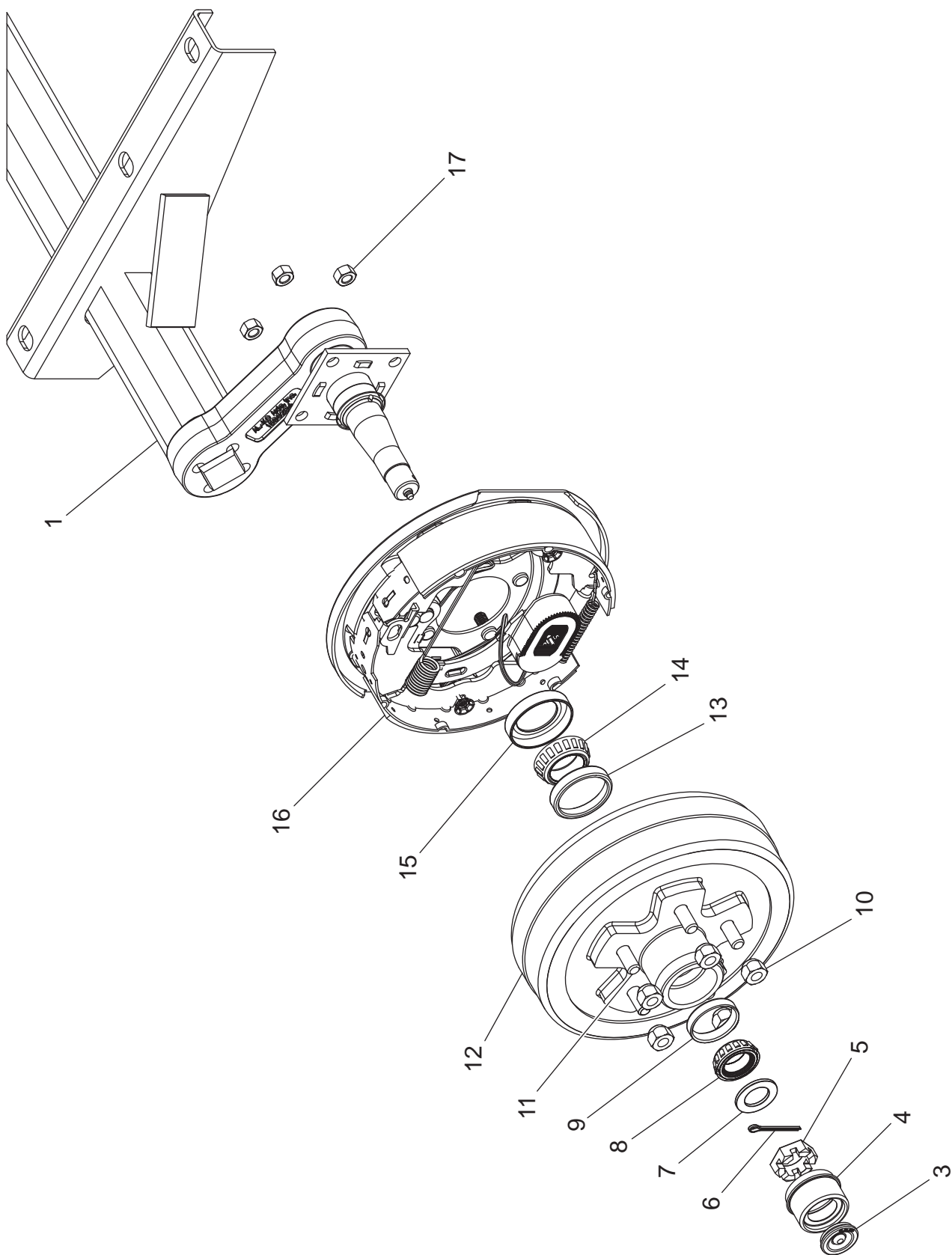
HOPPER AND TRAILER PARTS

Ref. No.	Part Number	Description	No. Req'd
NOT SHOWN			
	022588	Trailer Jack	1
	055527	Engine and Blower Canopy	1
	055846	Front Canopy Support	1
	055845	Rear Canopy Support	1
	055821	Front Canopy Cover	1
	055820	Hydraulic Reservoir (<i>See HYDRAULIC PARTS section</i>)	1
	055847	Battery Box tray	1
	080223	Battery Box	1
	002256-12	Battery	1
	085185	Positive Marine Style Battery Lug	1
	085186	Negative Marine Style Battery Lug	1
	055844	Control Box Mounting Plate	1
	055875	Control Box Cover Frame	1
	055876	Control Box Cover Plexiglass	1
	055669	Snap Hinge	2
	055858	DPF Guard	1
	055832	Air Cleaner Mount Bracket	1
	F90-0016	Battery Box Hold-down	1
	055715-02	Guard Bar	1
	055822	Fuse Relay Mounting Bracket	1

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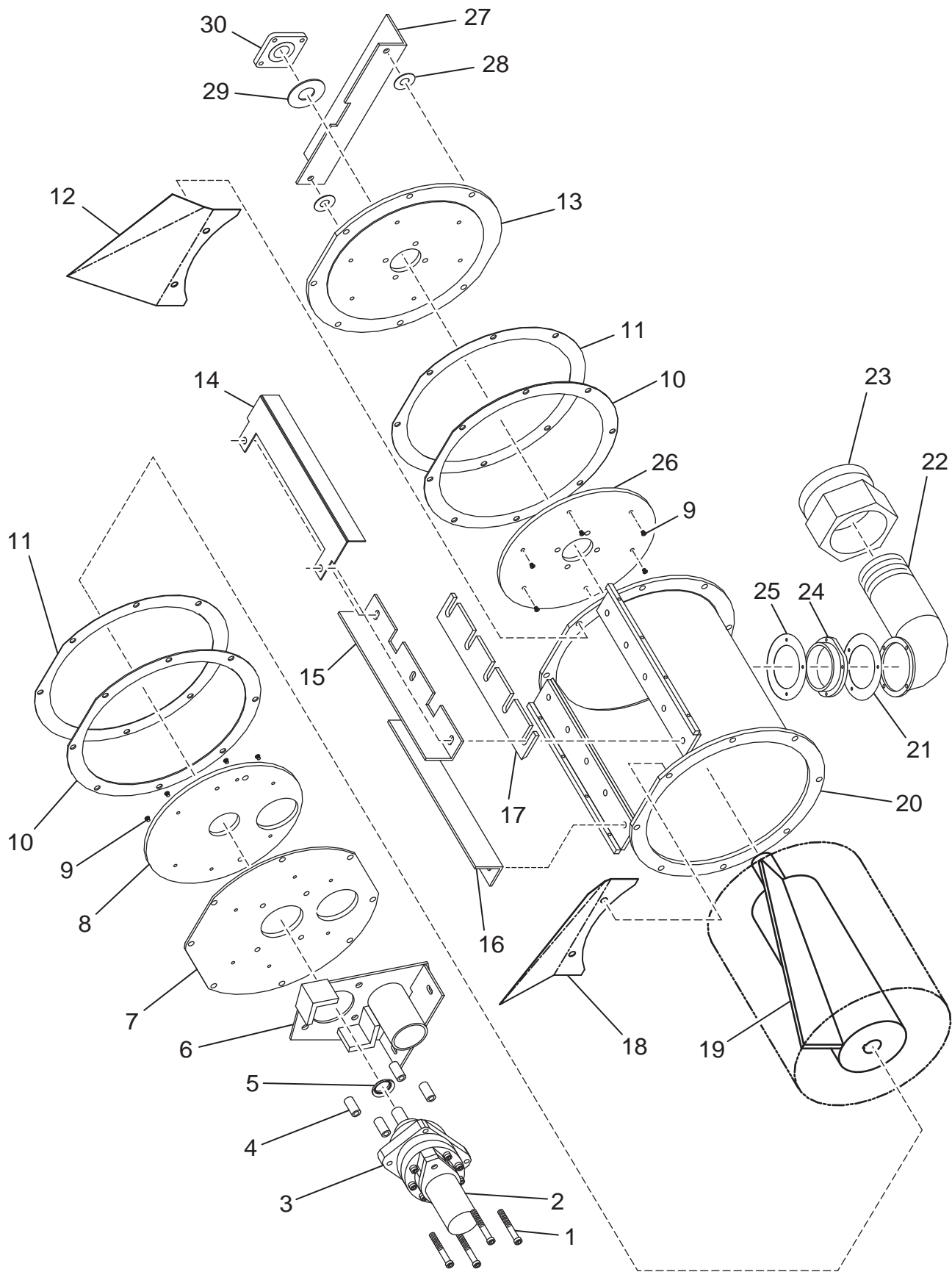


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WHEEL/AXLE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	055789	#3000 Rubber Torsion Axle	2
2	055737	Wheel/Tire Assembly (Not Shown)	2 per axle
3	005811-01	Rubber Plug Insert	1 per side
4	005812-02	Grease Cap	1 per side
5	055789-20	Spindle Nut	1 per side
6	005814-01	Cotter Pin	1 per side
7	005815-01	Spindle Nut Washer	1 per side
8	005816-02	Outer Bearing Cone	1 per side
9	005817-02	Outer Bearing Race	1 per side
10	005825-02	Wheel Lug Nut	5 per side
11	005818-02	Wheel Stud	5 per side
12	005819-02	Hub/Brake Drum Assembly	1 per side
13	005820-02	Inner Bearing Race	1 per side
14	005821-02	Inner Bearing Cone	1 per side
15	005822-02	Grease Seal	1 per side
16	005823-02	Brake Assembly, Left Side	1 per axle
	005824-02	Brake Assembly, Right Side	1 per axle
17	-----	Hex Nut (included with part number 16)	4 per side

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AIR LOCK PARTS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	-----	1/2-13 X 3-3/4 in. Long Socket Head Cap Screw *	4 per
	▲	-----	1/2 in. Lock Washer	4 per
2	▲	055552	Hydraulic Motor	1 per
3	▲	055464	Air Lock Gearbox	1 per
4	▲	052139-03	Spacers (Must be within 0.002 in. of each other)	4 per
5	▲	055700	Gearbox Slinger Seal	1 per
6	▲	055580	Inlet Flanged Gearbox Mount	1 per
7	▲	055439-02	Air Lock Inlet End Plate	1 per
8	▲	055721	Inlet Seal Plate	1 per
9	▲	-----	3/8-16 UNC X 3/4 Long Low Profile Socket Head Bolt **	12 per
10	▲	055148-01	1/32 in. Thick Shim/Gasket	A/R
11	▲	055148-03	1/64 in. Thick Shim/Gasket	A/R
12		055619-02	Left Hand Deflector	1
13	▲	052103	Air Lock Outlet Plate	1 per
14		F302-0005	Knife Screw Cover	1
15		055635-01	Air Lock Seal Angle (Knife Side)	1
16		055635-02	Air Lock Seal Angle	1
17	▲	055113	Chipper Knife	1 per
18		055619-01	Right Hand Deflector	1
19	▲	055423	Finished Rotor	1 per
20	▲	055644	Air Lock Housing	1 per
21		055440-01	Discharge Elbow Gasket	1
22		055630	Discharge Elbow	1
23		055374	Hose Adapter	1
24	▲	055597	Discharge Insert	1 per
25	▲	055440	Gasket Shim	A/R
26	▲	055720	Outlet Seal Plate	1 per
27	▲	055579-03	Air Lock Mounting Foot	1 per
28	▲	-----	1/2 in. SAE Stainless Steel Flat Washer	2 per
29	▲	F302-0003-01	Bearing Seal	1 per
30	▲	005446	Rotor Shaft Bearing	1 per

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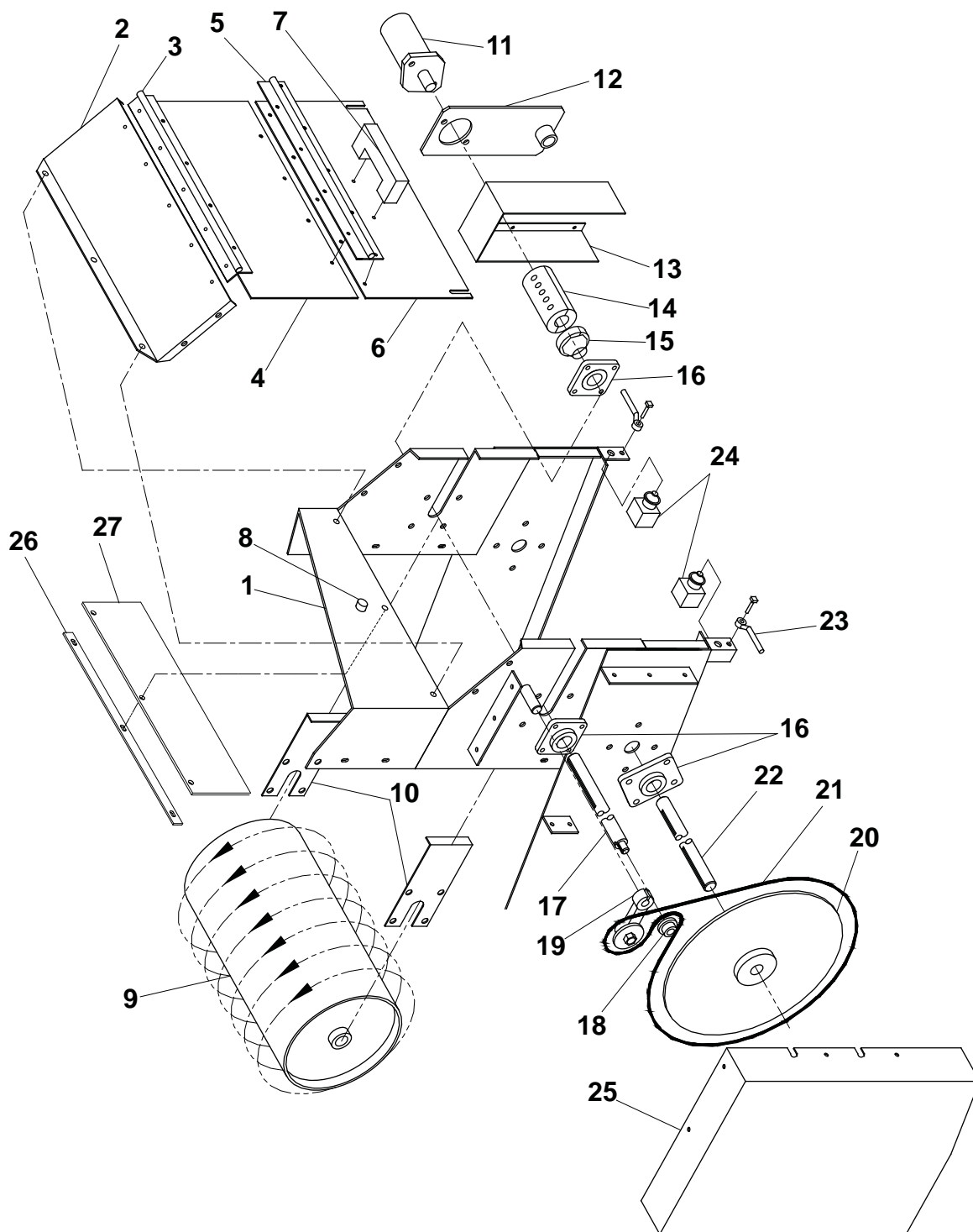
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AIR LOCK PARTS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
NOT SHOWN				
▲			Air Lock Inlet End Plate Hardware	
		-----	7/16-14 X 2 in. Long Hex Head Cap Screw	4 per
		-----	7/16-14 X 1-3/4 in. Long Hex Head Cap Screw	4 per
		-----	7/16 Flat Washer	8 per
		-----	7/16 Lock Washer	4 per
		-----	7/16-14 Hex Nut	4 per
▲			Air Lock Outlet Plate Hardware	
		-----	7/16-14 X 2 in. Long Hex Head Cap Screw	4 per
		-----	7/16-14 X 1-3/4 in. Long Hex Head Cap Screw	4 per
		-----	7/16 Flat Washer	8 per
		-----	7/16 Lock Washer	4 per
		-----	7/16-14 Hex Nut	4 per
▲			Discharge Insert Hardware	1 per
		-----	1/4-20 X 3/4 in. Long Socket Flat Head Cap Screw	4 per
▲			Rotor Shaft Bearing Hardware	1 per
		-----	7/16-14 X 1-1/2 in. Long Hex Head Cap Screw	4 per
		-----	7/16 in. Lock Washer	4 per
▲	055517		Motor Gasket	1 per
▲	055464-1B		Gearbox Lip Seal	1 per
		-----	5/16-18 X 3/4 in. Long Set Screw**	2 per
▲	055463		Hex Plug	2 per
	055402		3/8 in. Hardened Rotor Key	1 per
	XS0444		1/4-20 X 2 in. Square Head Set Screw	4 per
		-----	1/4-20 Hex Nut	4
	055623-02		Deflector Skirt	2
▲	055332		Expansion Plug	1
KITS AND MARKERS				
▲	055656		Air Lock Assembly	
*			Hardware Installed Using Red Loctite®	
**			Hardware Installed Using Blue Loctite®	

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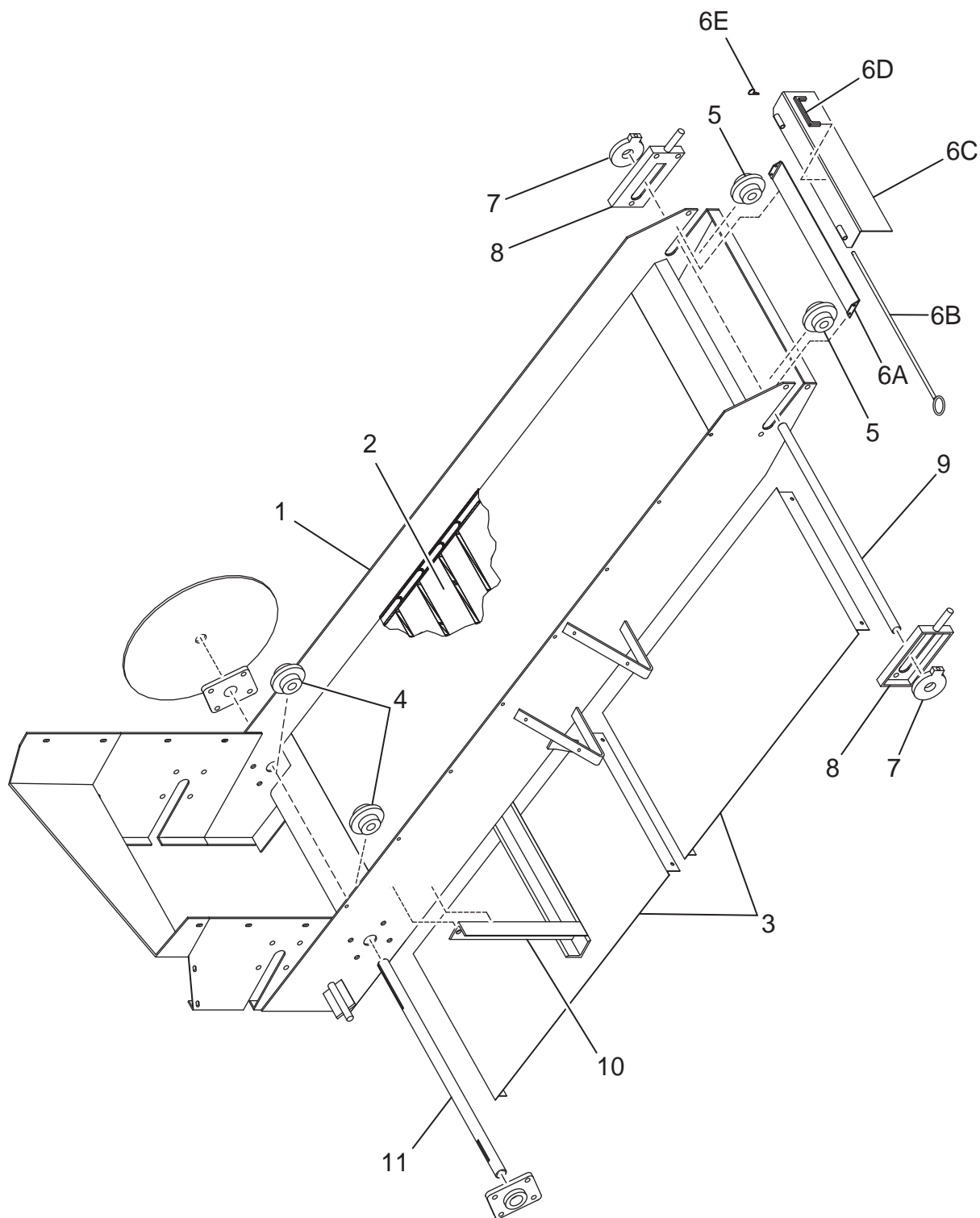


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FEEDER PARTS

Ref. No.	Part Number	Description	No. Req'd
1	055817	Conveyor Weldment	1
2	055532-01	Feeder Top Cover	1
3	055631-01	Top Cover Hinge	1
4	055532-02	Feeder Door (Center Panel)	1
5	055631-02	Feeder Door Hinge	1
6	055532-03	Feeder Door (Bottom Panel)	1
7	055586	Feeder Door Handle	1
8	085152	Feeder Door Stop	1
9	055625	Feed Roll	1
10	055563-01	Feed Roll Closure Plate	2
11	055698	Feed Roll Hydraulic Motor	1
12	055267-01	Hydraulic Motor Mounting Plate	1
	004630	Torque Arrestor Insert	1
13	055537	Coupling Guard	1
14	055545	Feed Roll Coupling	1
	190123-32	1/4 in. Square x 2 in. Long Key	1
15	021440	Feeder Roll Bushing	1
	190123-32	1/4 in. Square x 2 in. Long Key	1
16	055502	1-1/4 in. Shaft Bearing	4
17	055596-03	Feed Roll Shaft	1
18	055544	Drive Sprocket	1
	190122-12	3/16 in. Square x 3/4 in. Long Key	1
19	055486	Idle Sprocket Tensioner	1
	055572-06	Conveyor Spacer	1
	055543	Tensioner Sprocket	1
	055485	Shoulder Stud	1
20	055547	Driven Sprocket	1
	190123-32	1/4 in. Square x 2 in. Long Key	1
21	055546	Roller Chain	1
22	055596-02	Conveyor Floor Drive Shaft	1
23	031258	Feeder Door Lock Lever	2
	-----	3/8-16 X 2 in. Long Square Head Screw	2
	-----	3/8-16 Hex Nut	2
24	052436	Safety Switch	2
25	055528	Chain Cover	1
26	055745	Clamping Strap	1
27	055744	Closure Flap	1

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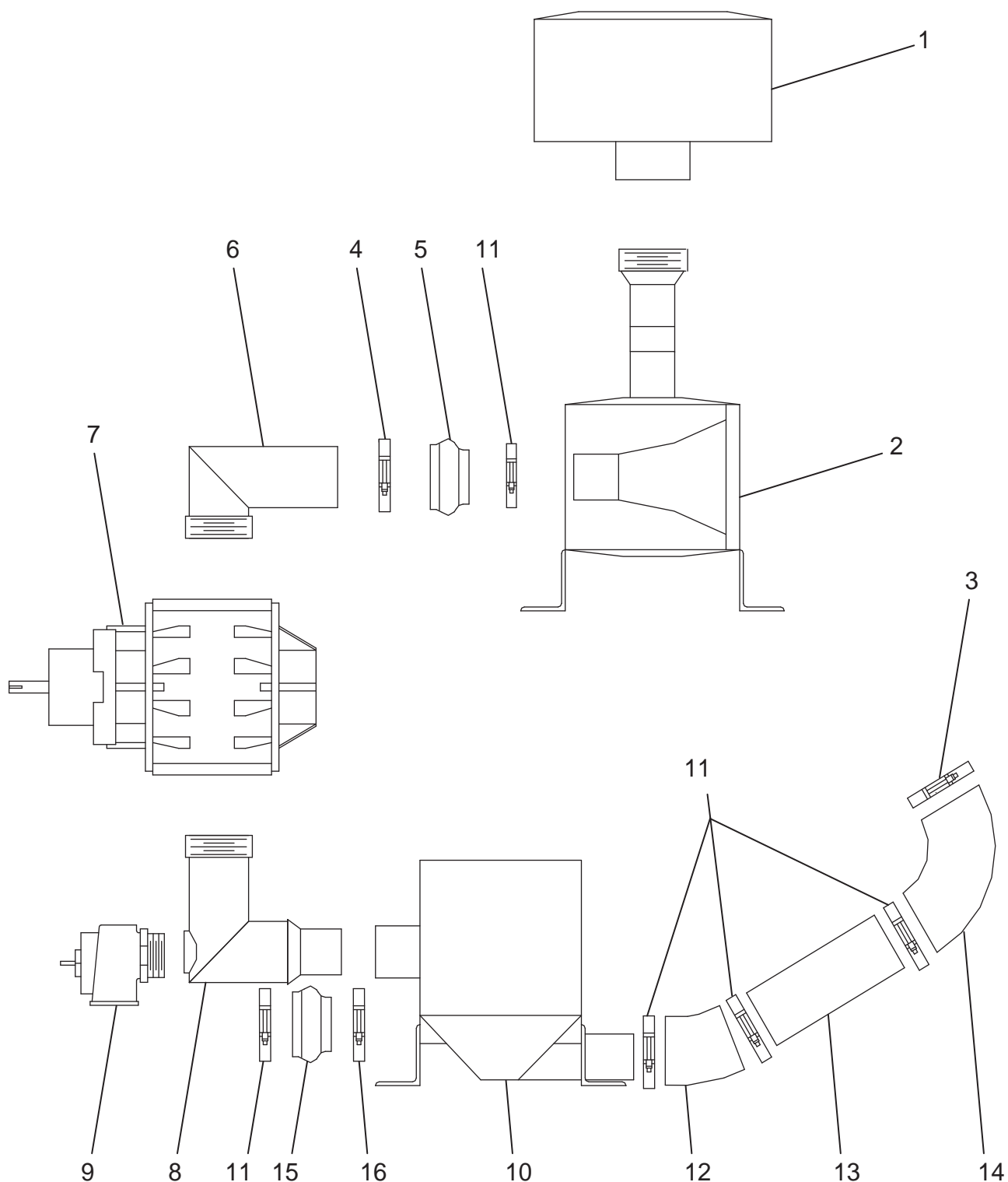


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CONVEYOR PARTS

Ref. No.	Part Number	Description	No. Req'd
1	055817	Conveyor Weldment	1
2	055483	Conveyor Drag Chain Assembly	1
	055703	Replacement Individual Slat	
	055483-RK	Chain Link Repair Kit	
3	055524	Conveyor Floor Pan	2
4	021517-04	Conveyor Drive Sprocket	2
	190123-32	1/4 in. Square X 2 in. Long Key	2
5	021517-02	Conveyor Take-Up Sprocket (no key)	2
6A	F302-0006-02	Front Clean Out Door Lip	1
6B	055728-02	Front Clean Out Door Pin	1
6C	055729	Front Clean Out Door	1
6D	055586	Clean Out Door Handle	1
6E	030894	Cotter Pin	1
7	055487	1 in. Take-up Bearing	2
8	055488	Take- Up Bearing Frame (Bearing Not Included)	2
9	055596-01	Conveyor Take-Up Shaft	1
10	055572	Conveyor Mounting Frame	1
11	055596-02	Conveyor Drive Shaft	1

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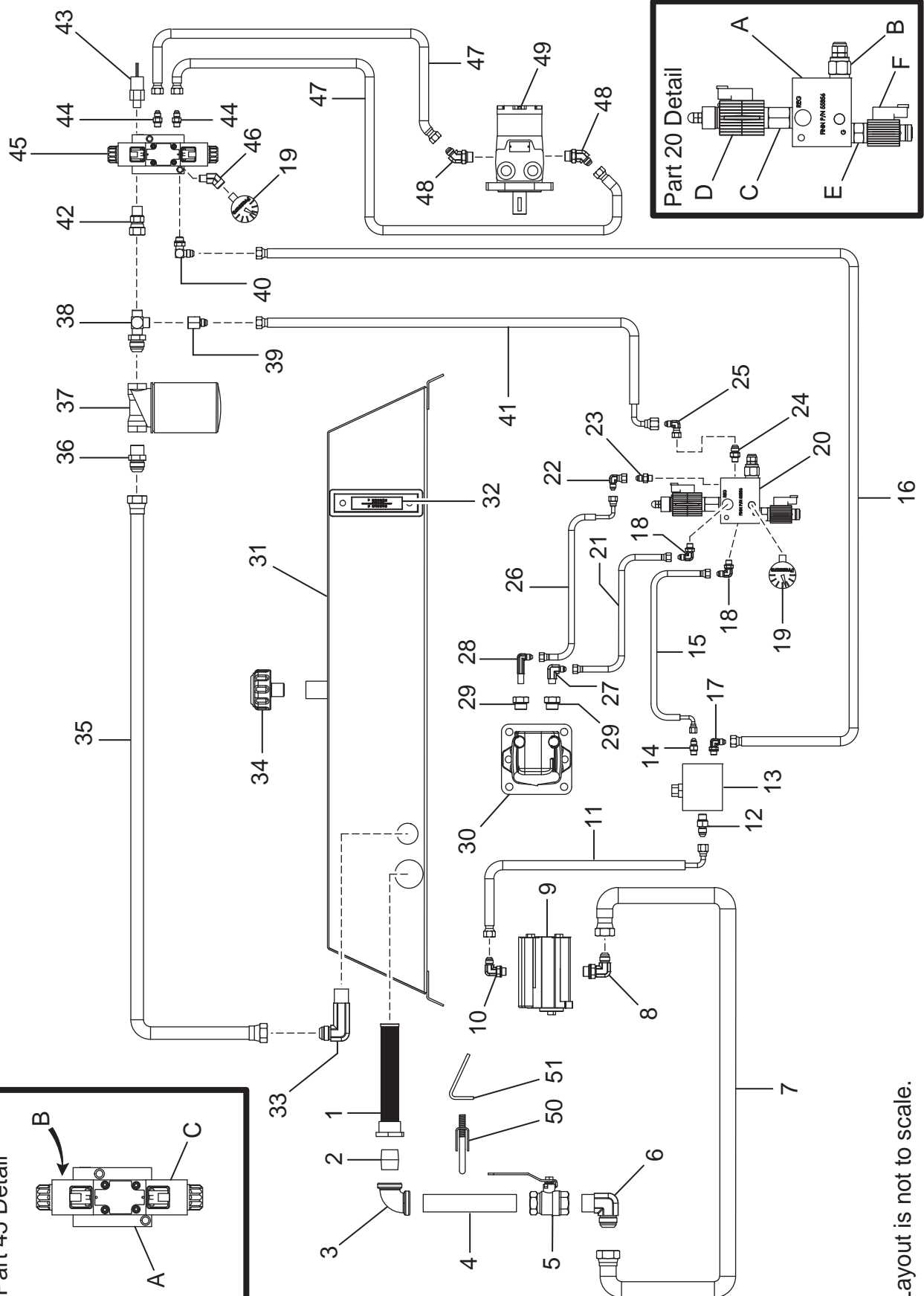
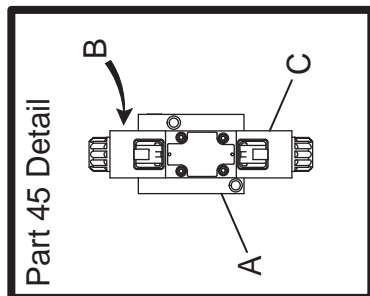


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BLOWER COMPONENTS

Ref. No.	Part Number	Description	No. Req'd
1	055144	Filter	1
	055145	Filter Element	1
2	055850	Air Intake Assembly	1
3	055497	Clamp 350 Series	1
4	055335	Clamp 400 Series	1
5	055498	Hump Reducer	1
6	055575-02	Blower Inlet Adapter	1
7	055706	Blower	1
8	055575-01	Blower Outlet Adapter	1
9	055141	Relief Valve	1
10	055585	Outlet Silencer	1
11	055496	Clamp 300 Series	5
12	055499	Modified 45 Elbow	1
13	055574-11	Air Lock Extension Tube	1
14	060325	90 Reducer Elbow	1
15	055857	Hump Reducer	1
16	A0959-019	Clamp, T-Bolt Band	1
NOT SHOWN			
	005861	Snubbing Washer (Under Blower)	4

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HYDRAULIC PARTS

Ref. No.	Part Number	Description	No. Req'd
1	011466	Hyd Suction Strainer S-15-60	1
2	160484	Nipple 1 X 3 LG SCH 40	1
3	160010	Elbow 90 Deg 1	1
4	160498	Nipple 1 X 7 LG SCH 40	1
5	021559	1 in. Ball Valve	1
6	FW71452	1 in. MNPT X #16 MJIC 90° Elbow	1
7	055837-01	1 in. Suction Hose X 60 in. OAL	1
8	FW75113	#12 MSAE X #16 MJIC 90° Elbow	1
9	005889	Hydraulic Gear Pump	1
10	023621	#10 MSAE X #8 MJIC 90° Elbow	1
11	055837-02	1/2 in. Pressure Hose X 45 in. OAL	1
12	012086	#10 MSAE X #8 MJIC Straight Fitting	1
13	055848	Manifold, Flow Divider	1
	055848-01	Manifold, Flow Divider Block	1
	055848-02	Flow Divider Cartridge	1
14	055869	#8 MSAE X #4 MJIC Straight Fitting	1
15	055837-08	1/4 in. Pressure Hose X 61 in. OAL	1
16	055837-03	3/8 in. Pressure Hose X 25 in. OAL	1
17	FW71786	#8 MSAE X #6 MJIC 90° Elbow	1
18	055274	#4 MSAE X #4 MJIC 90° Elbow	2
19	012044	5000 PSI Pressure Gauge	2
20	055856	Manifold, Floor Hydraulic	1
A	055856-01	Machined Floor Manifold Block	1
B	055859	Relief Valve	1
C	055862	Porportional Flow Control (PFC) Valve	1
	055856-02	PFC Solenoid Coil Nut	1
D	055863	Solenoid Coil for PFC Valve	1
E	055860	Floor ON/OFF Valve	1
	055856-03	Floor ON/OFF Solenoid Coil Nut	1
F	055861	Solenoid Coil for Floor ON/OFF Valve	1
21	055837-07	1/4 in. Working Hose X 26 in. OAL	1
22	FW71909	#4 FJIC Swivel X #4 MJIC 90° Elbow	1
23	055308	#4 MSAE X #4 MJIC Straight Fitting	1
24	055602	#4 MSAE X #6 MJIC Straight Fitting	1
25	FW71636	#6 FJIC Swivel X #6 MJIC 90° Elbow	1

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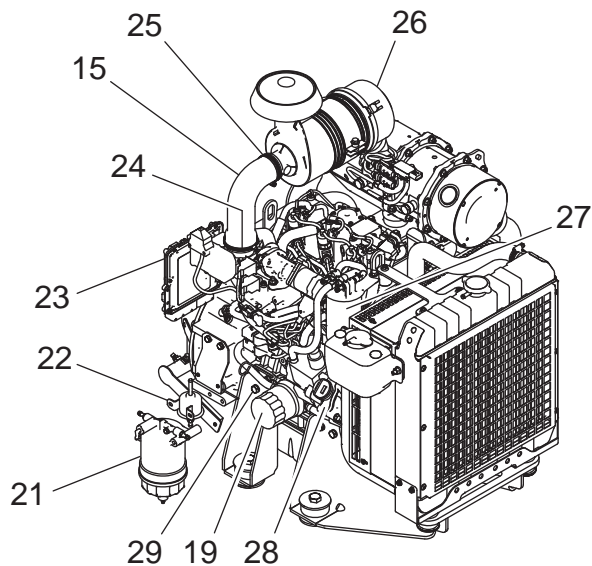
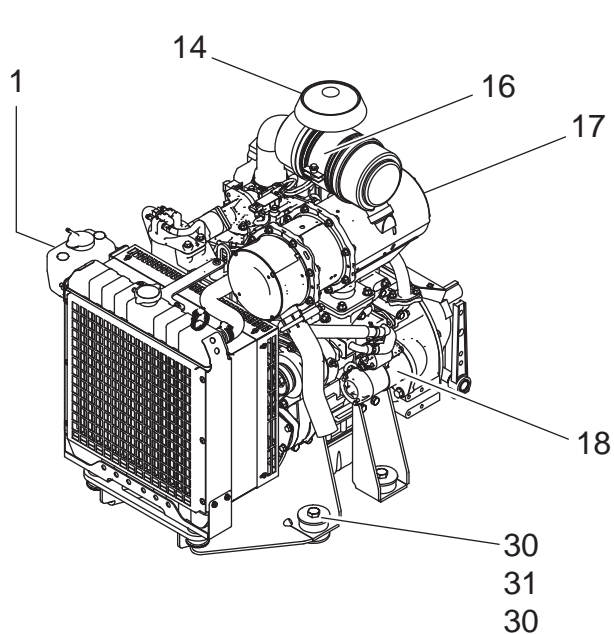
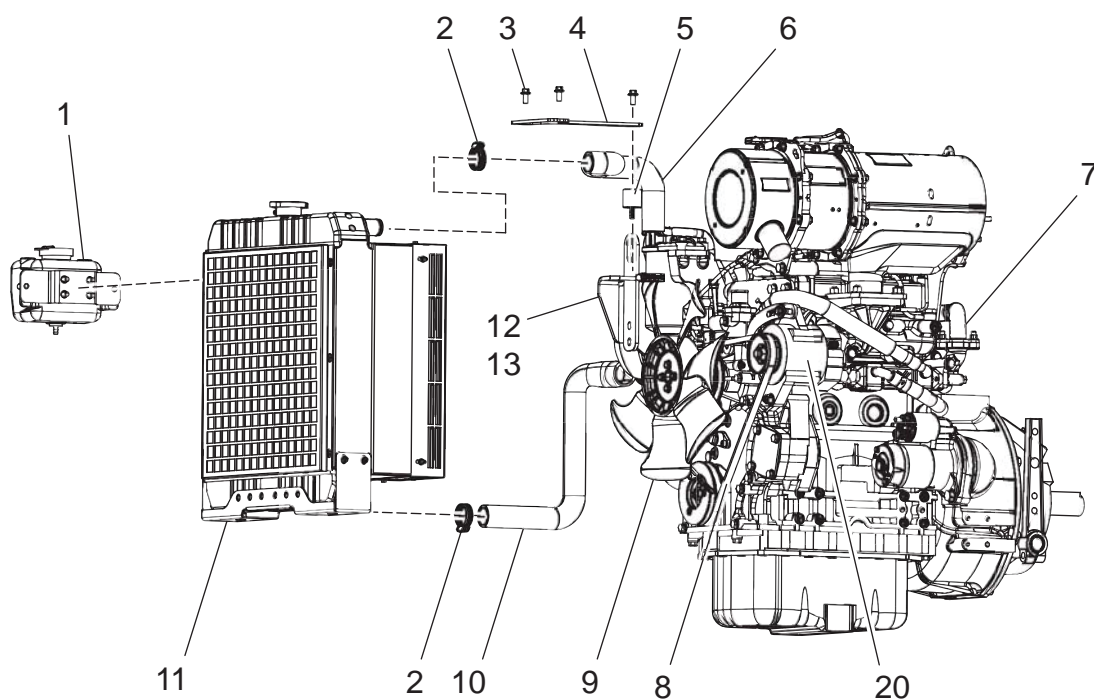
HYDRAULIC PARTS

Ref. No.	Part Number	Description	No. Req'd
26	055837-06	1/4 in. Working Hose X 26 in. OAL	1
27	FW71450	1/4 in. MNPT X #4 MJIC 90° Elbow	1
28	055598	1/4 in. MNPT X #4 MJIC 90° LL Elbow	1
29	005686	#10 MSAE X #4 FJIC Reducer	2
30	055698	Hydraulic Motor, Feed/Floor	1
31	055820	Hydraulic Reservoir	1
32	080329	Sight Gauge, Reservoir	1
33	055599	3/4 in. MNPT X #12 MJIC 90° LL Elbow	1
34	005793	Filler Breather, Hydraulic	1
35	055837-09	3/4 in. Return Hose X 56 in. OAL	1
36	055233	#8 MSAE X #12 MJIC Straight Fitting	1
37	023913	Filter Assembly, Hydraulic	1
	023914	Cartridge, Filter	1 per
38	008689	#8 MSAE X #8 MJIC X #8 MJIC Tee Fitting	1
39	055868	#6 FJIC X #6 MJIC Reducer	1
40	FW71448	#6 MSAE X #6 MJIC 90° Elbow	1
41	055837-05	3/8 in. Return Hose X 69 in. OAL	1
42	055357	#8 FJIC Swivel X #8 MJIC Straight Fitting	1
43	055659	Switch, Pressure	1
44	055601	#6 MSAE X #6 MJIC Straight Fitting	2
45	055855	Manifold, Rotary Air Valve	1
A	055855-01	Machined Rotary Air Valve Manifold Block	1
B	055855-02	Relief Valve	1
C	055864	4-Way Solenoid Valve	1
	075919	Solenoid Coil	2 per
	055866	Solenoid Coil Nut	2 per
46	FW71609	1/4 in. FNPT X 1/4 in. MNPT 45° Elbow	1
47	055837-04	3/8 in. Working Hose X 41 in. OAL	2
48	055741	#10 MSAE X #6 MJIC 45° Elbow	2
49	055552	Motor, Airlock Hydraulic	1
	055517	Hydraulic Motor Gasket	1 per
50	005619	Pipe Clamp	1
51	055882	Suction Pipe Support Bracket	1

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SPECIFIC ENGINE PARTS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	031542	Overflow Bottle Assembly, 1 quart	1
2	▲	●	Hose Clamp, 24 - 44 mm	4
3	■	●	Hex Flange Machine Screw, M8 - 16 x 1.25 in. LG	3
4	■	031534	Radiator Support, Upper	1
5	■	031538	Radiator Mount Isolator, Upper	1
6	▲	031544	Upper Radiator Hose	1
7		031504	Yanmar 3TNV88C-DYEM Engine	1
8		031562	V-Belt, Fan	1
9		031563	Cooling Fan	1
10	▲	031545	Lower Radiator Hose	1
11	▲	031541	Radiator Assembly	1
12	■	031535	Radiator Mount, Upper	1
13	■	031536	Radiator Mount Spacer, Upper	2
14		031552	Rain Cap Assembly	1
15		055823	Hose, Air Intake	1
16		031551	Band, Air Cleaner	1
17		031558	DPF Assembly	1
		---	DPF Case (must be serviced by Yanmar)	1
		---	Soot Filter (must be serviced by Yanmar)	1
		---	Silencer (must be serviced by Yanmar)	1
		---	Gasket (must be serviced by Yanmar)	1
18		031555	Starter	1
19		031561	Oil Filter	1
20		031556	Alternator	1
21		031522-00	Fuel/Water Separator Assembly	1
		031522-01	Upper Body Housing Assembly	1
		031522-02	O-ring	1
		031522-03	Filter Element	1
		031522-04	Float	1
		031522-05	Cup	1
		031522-06	Drain Plug	1
22		031521	Pump Assembly, Fuel Feed	1
23		---	ECU (Supplied with Engine)	1
24		007391	Pipe Clamp	1
25		022450	Pipe Clamp	1
26		031549	Air Cleaner Assembly with Air Filter Element	1
		031550	Air Filter Element	1

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SPECIFIC ENGINE PARTS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
27		031564	Filter, Fuel Oil	1
28		031560	Oil Cooler Assembly	1
29	●		Hex Head Cap Screw, M10 - 25 UNC x 1 in. LG	16
30		005861	Snubbing Washer	8
31		005860-02	Engine Mounting Isolators	4
32		055804	Front Engine Foot Weldment	1
33		055805	Rear Engine Foot Weldment	2
34	■ ●		Radiator Mounting Hex Head Cap Screw, 1/2 - 13 UNC x 2.5 in. LG	2
35		031537	Radiator Snubbing Washer	2
36		031539	Radiator Mounting Isolator	2

NOT SHOWN

		005849	Exhaust Pipe	1
		031557	Oil Fill Cap	1
		031559	Pilot Bearing Retainer	1
		031566	Switch, Oil Pressure	1
		005905	ECM Mounting Isolator	4
		004161	2 in. Exhaust Clamp	2
		055515	Blower Mounting Strap	2
		055569	Engine Coupling Guard	1
		055889	Coupling Hub (Ø1-7/16 in. Bore)	1
		055888	Coupling Sleeve with PVC Support	1
		055890	Coupling Hub (Ø1-1/8 in. Bore)	1
		055809	Radiator Screen Mount	1
		055824	Radiator Screen	1
		055825	Radiator Screen Fastening Rod	1
		055831	Exhaust Mounting Bracket	1
		023438	Rubber Shock Mount for Mounting Exhaust Bracket	1
		055886	Forged Flywheel Adapter	1

KITS AND MARKERS

▲	031540	Complete Radiator Kit
■	031533	Radiator Bracket Kit
●	Standard Hardware Item - Available at your local hardware store	

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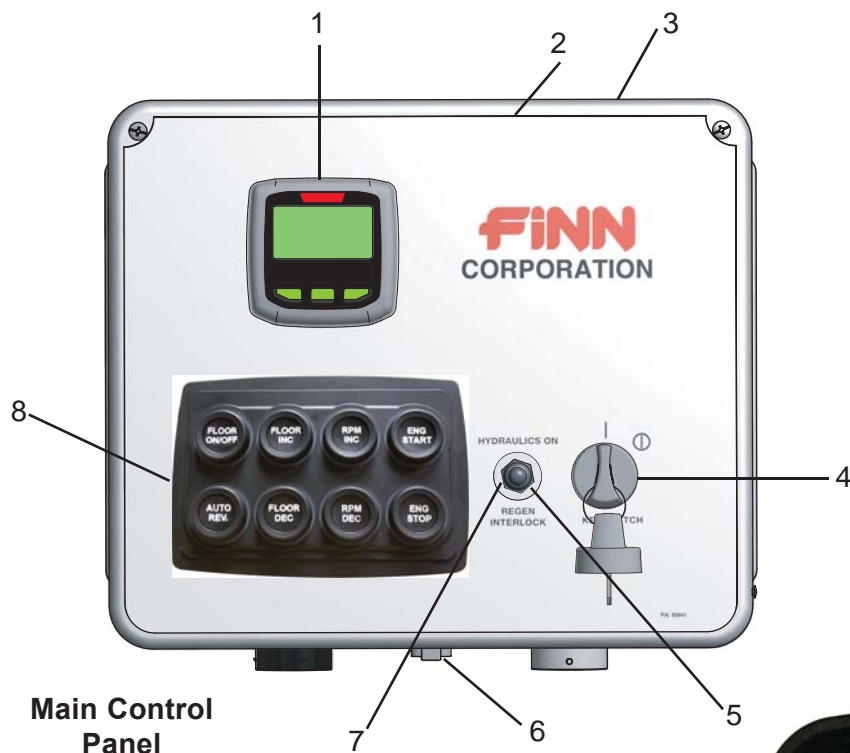
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TRAILER WIRING

Ref. No.	Part Number	Description	No. Req'd
1	075592	7-Blade Trailer Plug	1
2	023424	Breakaway Switch	1
	190029	Chain – 2 Tenso Weldless	2 ft
	005016	“S” Hook	3
	005017	Snap Hook	1
3	005137	Tail Light Left Hand Side	1
	005137-A	Tail Light Lens	1
	005138	Tail Light Right Hand Side	1
	005137-A	Tail Light Lens	1
4	005436	License Plate Light	1
	004720	License Plate Bracket	1
NOT SHOWN			
	055650	BB302 Trailer Wiring Harness	1
	055650-01	BB302 Brake Wiring Harness	1

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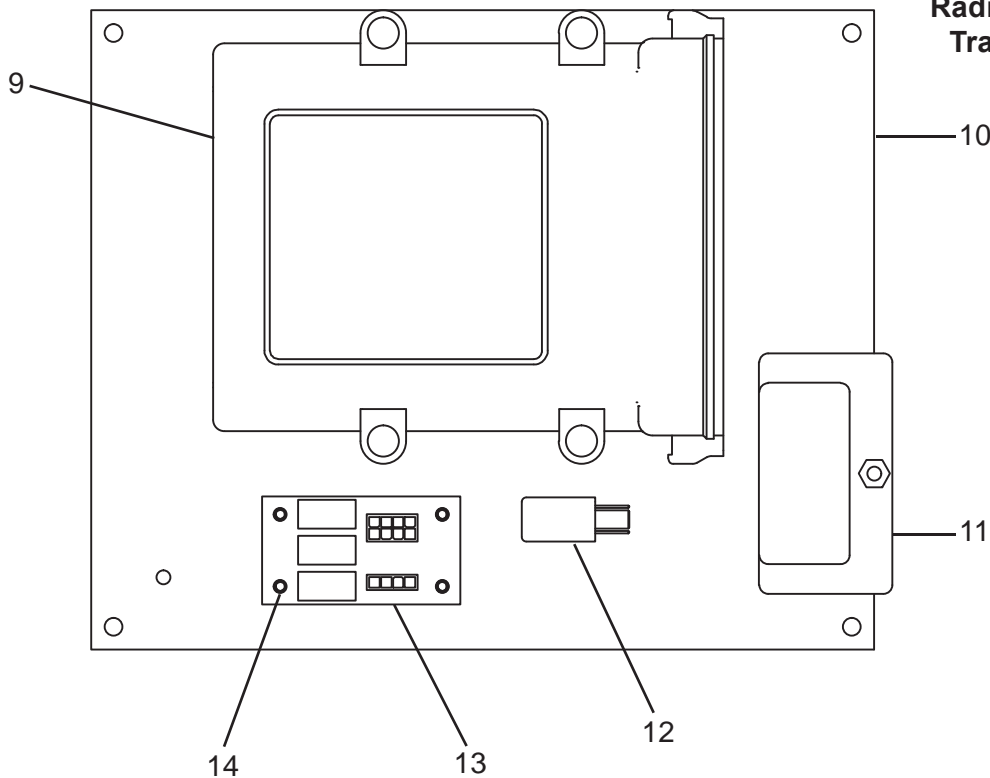
Main Control Panel



**Start/Stop Pendant
(Cord Not Shown)**



Radio Remote Transmitter

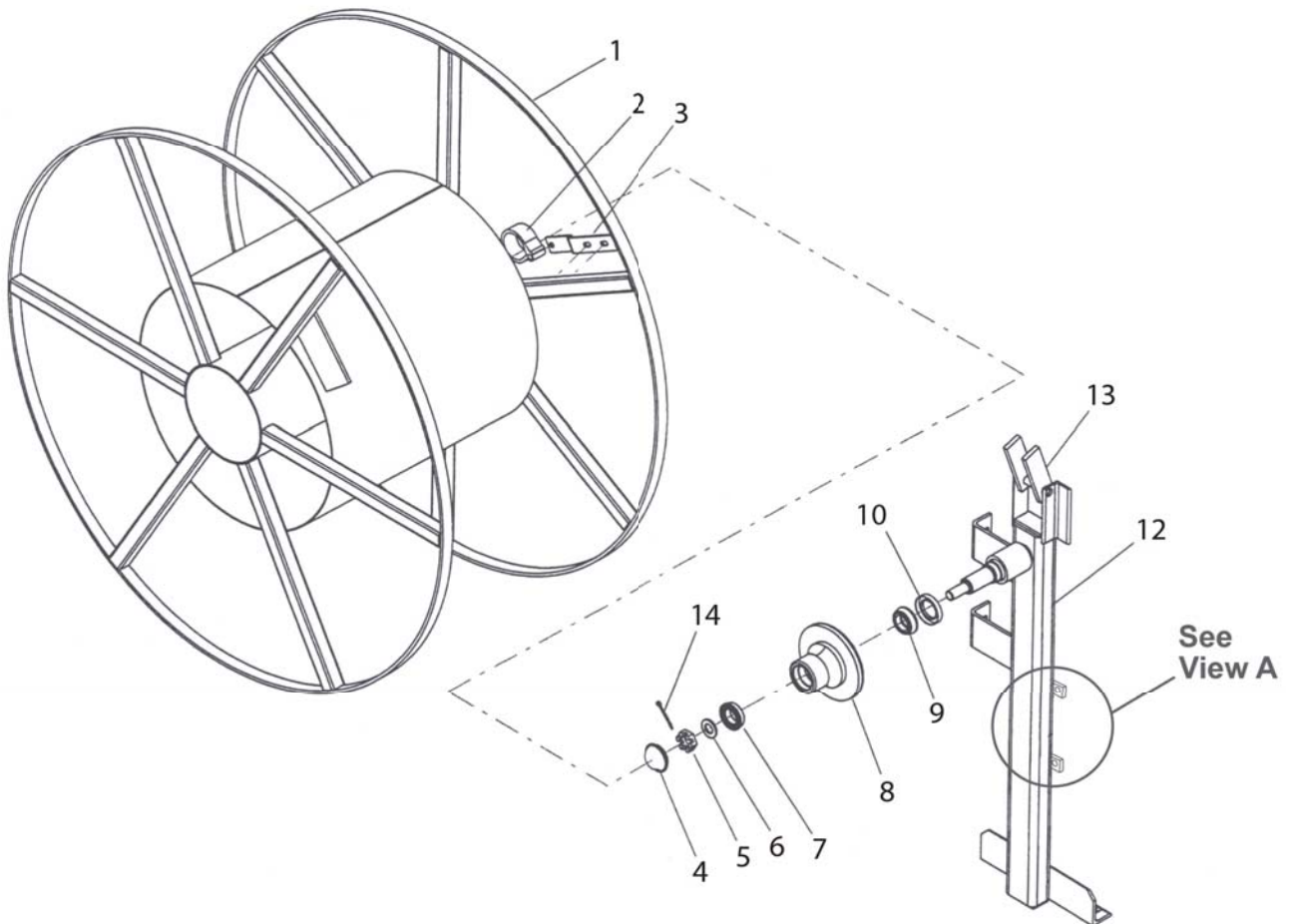
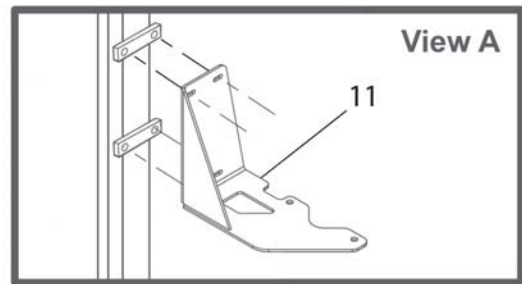


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CONTROL PANEL AND CONTROL SYSTEMS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	031520	Controller/Display, Yanmar T4F	1
2	▲	055841	BB302 Control Box Decal (2014 Yanmar)	1
3	▲	055828-01	Box, Modified	1
4	▲	055851	Ignition Switch, 2 Position	1
	▲	031506-01	Ignition Switch Key	1
5	▲	080526	Toggle Switch Boot	1
6	▲	075735-06	Deutsch Receptacle	1
7	▲	052112	Toggle Switch	1
8	▲■	075858-KP	Key Pad, Cervis Control System	1
9	▲■	075858-M	Module, Key Pad, Cervis Control System	1
10	▲	055828-02	Sub Panel, Modified	1
11	▲	031575	Mini ATM Fuse block, 4 Position with Clear Cover	1
12	▲	031578	Micro ISO Relay, 12V, SPDT, 35A NO, 25A NC, Sealed	1
13	▲	055883	Throttle Hook-up Converter (RTS)	1
14	▲	075906	Nylon Standoff W/8-32 Thread	4
15	▲■	075858-RP	Remote Start/Stop Pendant	1
16	▲■	075858-T	Radio Remote Transmitter	1
NOT SHOWN				
	▲	031577	Mini ATM Fuse, 20A (Yellow)	2
	▲	031576	Mini ATM Fuse, 15A (Blue)	1
	▲	055839	Control Box Wiring Harness	1
		055836-02	Battery Ground Cable	1
		055836-03	Starter Cable Assembly	1
		055836-04	Frame Ground Cable Assembly	1
		055836-01	Engine Harness	1
		055840	Hydraulic Harness	1
		002256-12	Battery, 12V	1
	▲	055867	Coaxial Antenna Cable (15 in.)	1
	■	075736-A	Control Box Coaxial Antenna	1
KITS AND MARKERS				
	▲	055884	Complete Control Box Assembly	
	■	075858	BB302 Control System Kit	

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HOSE REEL ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	055714	Hose Reel Drum	1
2	055725	Drum Brake	1
3	F302-0004-03	Brake Arm	1
4	WL1504	Dust Cap	1
5	WLSN-750	Spindle Nut	1
6	WLSW-751	Spindle Washer	1
7	WLLM11949	Outer Cone	1
8	WLH-15-450E	Hub Assembly	1
9	WLLM67048	Inner Cone	1
10	WLSL-150	Seal	1
11	F302-0008	Hose Reel Bracket	1
12	055713	Hose Reel Mount	1
13	055715-01	Hose Reel Lock	1
14	WLSCP-100	Cotter Pin	1
NOT SHOWN			
	055715-02	Hose Filter Guard Bar	1
	WL25-53	Wheel Stud	4
	WL6-80	Lug Nuts	4

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DISCHARGE HOSE

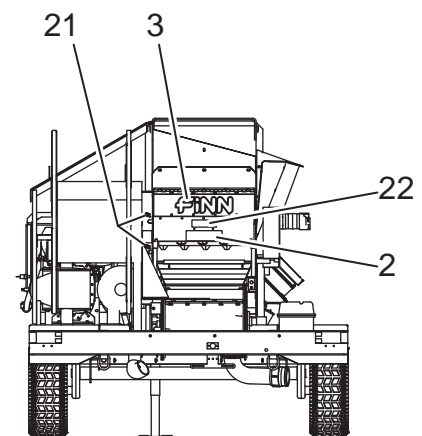
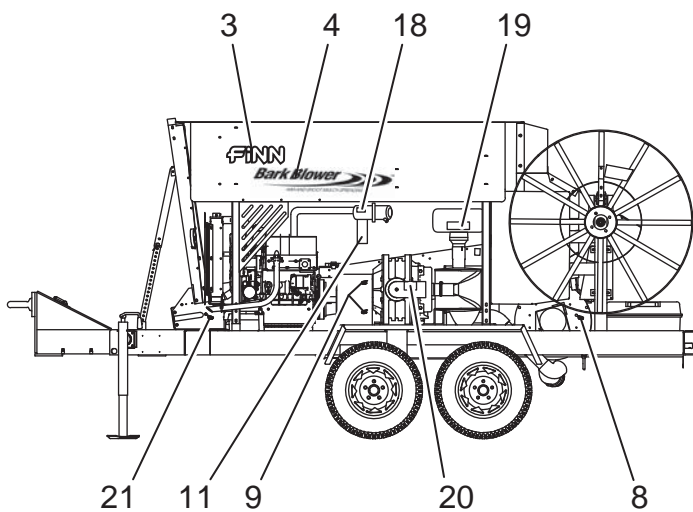
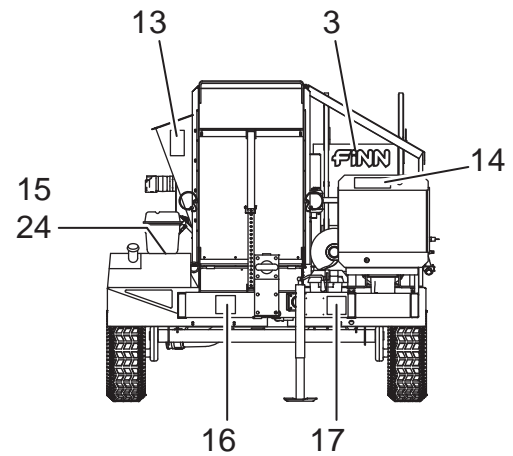
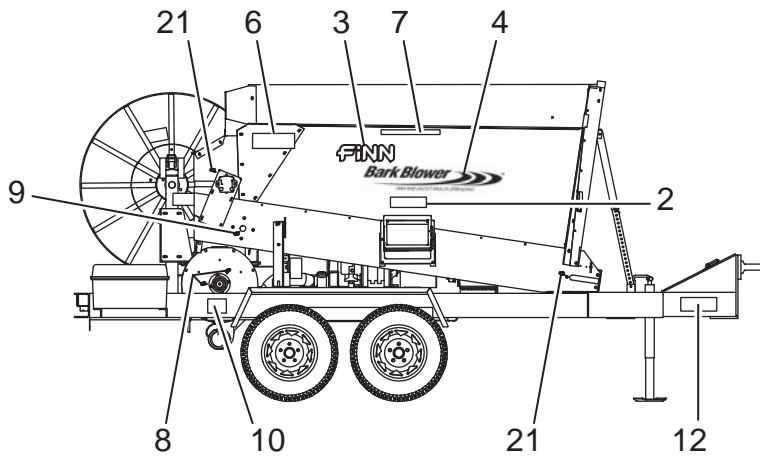
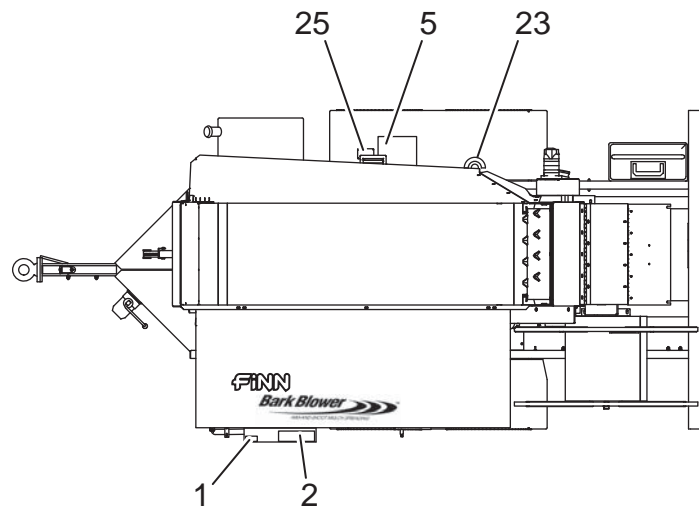
Part Number	Description	No. Req'd
055399B	4 in. x 100 ft. BB Hose Assembly	1
055398B	4 in. x 50 ft. BB Hose Assembly	1
055377	Hose Adapter	2 per
055374A	Aluminum Adapter Part A	1 per
055375A	Aluminum Coupler Part D	1 per

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TOOL KIT

Part Number	Description	No. Req'd
055385	4 in. Coupler Gasket	1
012681A	FINN Beige Aerosol Paint	1
053075	4 in. Red Diffuser Cone Assembly	1
020365	Grease, Multi Purpose	1
021375	Grease Gun (Hose Not Included)	1
021741	12 in. Whip Hose W/1/8 in. Male Ends	1
	Engine Manual	1
	Blower Manual	1
	BB302 Operator Instructions and Parts Manual	1
A1096-001	Manual Canister	1

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DECALS

Ref. No.	Part Number	Description	No. Req'd
1	<input type="checkbox"/>	"WARNING! Burn Hazard" Decal	1
2	<input type="checkbox"/>	"WARNING! Sever Hazard/Flying Debris" Decal	3
3	031235	Red "FINN" Medium Decal	4
4	055639	"BARK BLOWER" Decal	2
5	055877	"Operating Instructions" Decal	1
6	<input type="checkbox"/>	"DANGER! Entanglement Hazard" Decal	1
7	<input type="checkbox"/>	"WARNING! FLYING OBJECT" Decal	1
8	<input type="checkbox"/>	"SERVICE DAILY" Decal (Arrow Down)	3
9	<input type="checkbox"/>	"SERVICE WEEKLY" Decal (Arrow Up)	3
10	<input type="checkbox"/>	"WARNING! FLYING OBJECTS" Decal	1
11	<input type="checkbox"/>	"Hydraulic System Instructions" Decal	1
12	<input type="checkbox"/>	"WARNING! Runaway Vehicle Hazard...." Decal	1
13	<input type="checkbox"/>	"WARNING! Wear Proper Eye Protection" Decal	1
14	<input type="checkbox"/>	"WARNING! Burn Hazard" Decal	1
15	<input type="checkbox"/>	"DIESEL FUEL" Decal	1
16	<input type="checkbox"/>	"U.S. PAT NO'S NOTICE" Decal	1
17	005807	FINN Name Plate	1
18	<input type="checkbox"/>	"CAUTION, Do Not Use Ether or..." Decal	1
19	<input type="checkbox"/>	"SERVICE WEEKLY" Decal (Rectangle)	1
20	<input type="checkbox"/>	"CAUTION Rotary Blower Maintenance" Decal	1
21	<input type="checkbox"/>	"SERVICE WEEKLY" Decal (Arrow Down)	5
22	<input type="checkbox"/>	"DANGER! SEVER HAZARD" Decal	1
23	055878	"Hydraulic Oil" Decal (Semicircle)	1
24	<input type="checkbox"/>	"Ultra Low Sulfur Diesel Fuel Only" Decal	1
25	012260	"IMPORTANT-Maintain all Safety..." Decal	1
KITS AND MARKERS			
	<input type="checkbox"/>	055748 BB302 Decal Kit	

NOTE: All of the decals listed here with a ☐ in the part number space are available only in the BB302 Decal Kit. Replacement decals and plates for those identified with a part number are **not** part of the decal kit and **must** be ordered separately.

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