

Orchard-Rite®

BULLET® IIE

Owner's Manual



A Quality Product Offered by:

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FOREWORD

We would like to welcome you as a new owner of our highly advanced Orchard-Rite® Bullet® IIE tree shaker. Your Orchard-Rite tree shaker is backed by years of hands-on experience, research, development, and testing. You will find that your Orchard-Rite® tree shaker is engineered and manufactured with the highest quality components available to our industry.

The combination of the Caterpillar® four-cylinder engines, along with the electronically controlled Sauer-Danfoss® hydraulic components, result in a machine that is powerful, fuel efficient and retains the Orchard-Rite® tradition of reliability and serviceability.

We encourage you to read this owner's manual in its entirety, and to review its contents with all of your operators and service personnel **before placing the tree shaker into service**. If the operator cannot read English or if the manual cannot be translated, **DO NOT ALLOW THE INDIVIDUAL TO OPERATE THE MACHINE**. In that circumstance, a qualified translator should review the entire contents of this owner's manual with the operator, making sure to review all safety precautions. The safety precautions should be read by all personnel who might come in contact with the Orchard-Rite® Bullet® IIE Tree Shaker.

Should questions arise regarding the operation or maintenance of your Orchard-Rite® Bullet® IIE Tree Shaker, please be sure to contact your authorized Orchard-Rite® tree shaker dealer. For a current list of dealers, please visit orchard-rite.com

Thank you for choosing the Orchard-Rite® Bullet® IIE Tree Shaker. We sincerely appreciate the trust you have placed in us to aid in your orchard harvest needs. At Orchard-Rite® we continue to look to the future to bring new ideas in orchard technologies to our growers, and to continue as the industry leader in tree shaker innovations.

SERIAL # _____

MODEL # **BULLET IIE**

SAFETY PRECAUTIONS

BEFORE OPERATING THIS EQUIPMENT, **READ** THIS ENTIRE MANUAL CAREFULLY.

THE OPERATOR **MUST** BE FAMILIAR WITH ALL OF THE CONTROLS AND THEIR FUNCTIONS BEFORE ATTEMPTING TO START OR RUN THE EQUIPMENT.

NEVER OPERATE THE EQUIPMENT WHILE UNDER THE INFLUENCE OF ALCOHOL OR DRUGS, DURING TIMES OF ILLNESS, OR WHILE USING MEDICATION THAT COULD IMPAIR HEARING, VISION, OR GOOD JUDGEMENT.

ALL PERSONNEL EXCEPT THE OPERATOR **MUST** STAY 75 FEET AWAY FROM THE EQUIPMENT BEFORE IT IS STARTED OR OPERATED.

THE OPERATOR **MUST** NOT LEAVE THE OPERATOR'S SEAT WHILE THE EQUIPMENT IS RUNNING.

NEVER STAND OR PLACE ANY PART OF YOUR BODY UNDER THE SHAKER HEAD, EVEN IF THE ENGINE IS NOT RUNNING.

IF YOU ARE APPROACHING THE EQUIPMENT WHILE THE ENGINE IS RUNNING, BE **SURE** THAT THE OPERATOR SEES YOU AND SHUTS THE ENGINE OFF BEFORE YOU APPROACH.

NEVER OPERATE THE EQUIPMENT IF THE OPERATOR'S VISION BECOMES OBSCURED FOR ANY REASON. BE SURE TO RECTIFY THE PROBLEM BEFORE CONTINUING OPERATION.

ALWAYS STOP AND LOOK BEHIND YOU **BEFORE** BACKING UP.

THIS EQUIPMENT IS **NOT** TO BE DRIVEN ON PUBLIC ROADS.

TO AVOID SERIOUS INJURY OR DEATH, **ALWAYS** LOWER THE SHAKER HEAD TO THE GROUND BEFORE SHUTTING THE EQUIPMENT DOWN.

STOP ALL MOVEMENT OF THE EQUIPMENT, LOWER THE HEAD, SHUT THE ENGINE OFF AND REMOVE THE IGNITION KEY **BEFORE** MAINTENANCE OR REPAIR WORK IS STARTED.

BE ALERT. THE INJURY YOU PREVENT OR LIFE YOU SAVE MAY BE YOUR OWN.

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NEW MACHINE SALES AGREEMENT AND LIMITED WARRANTY

1. Pacific Distributing, Inc., (Company) warrants the original equipment product manufactured by Orchard-Rite, Ltd., Inc. (the "Company Product") will be free of any defects in material and workmanship from the date of delivery until one (1) year following the date of delivery or for a period ending after 500 hours of use, **whichever shall first occur**. Certain structural components of the Company Product, as described below, are warranted from the date of delivery until two (2) years following the date of delivery or for a period ending after 1,000 hours, **whichever shall first occur**. These structural components are limited to: chassis main frame weldment **less** sheet metal and any bolted on accessories, boom weldment, steering weldment **less** sheet metal, tilt section/suspension weldment, head case and clamp arm weldment.
2. THE WARRANTIES SET FORTH HEREIN ARE IN LIEU OF AND TO THE EXCLUSION OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY AS TO THE MERCHANTABILITY OR FITNESS OF THE PRODUCT FOR A PARTICULAR PURPOSE OR AS TO ITS PERFORMANCE. Any statement, description or specification in the Company's literature is for the sole purpose of identification of products sold by the Company and imparts no guarantee, warranty or undertaking by the Company of any kind.
3. Upon satisfactory proof by the buyer to the Company that a defect in material or workmanship occurred within the warranty period, as described in Section 1 above, the Company shall at its election, repair or replace any such defect as the sole and exclusive remedy as to Company Product only.
4. The warranties created herein shall **not** extend beyond the repair or replacement of the component parts of Company Products. Components and accessories which are not component parts of the Company Products are not included in this warranty but may be warranted separately by their respective manufacturers.
5. The Company shall **not** warrant all or any component parts of its Company Products which have been, misused, abused, altered, modified, negligently operated, damaged by virtue of an accident, due to lack of service, or repaired or altered in any manner by anyone other than an authorized service representative.
6. The Company shall **not** warrant high wear items including, but not limited to the following: belts, extension cylinder, hoses, suspension mounts, slings, clamp cylinders, shaker pads, and tires.
7. The timeliness of all warranty work provided is contingent upon and subject to the Company's ability to obtain the necessary labor and materials. No warranty of timeliness of performance of the warranty work is made by the Company nor shall be implied.

8. Any attempt to modify the Company Product in any manor will result in the voiding of all warranties. Buyer acknowledges that any such modification may create a hazardous condition.
9. The Company shall, pursuant to the terms of the limited warranty described herein, provide free of cost to the Buyer, labor associated with warranty work performed during normal business hours. Any Warranty work requested to be performed by Buyer outside of the Company's normal business hours is subject to charge to the customer at the Company's then current over timerates.
10. The Company generally and specifically disclaims any and all liability for injury to person or damage to property arising out of the operation of Company Products. The Company shall not be liable for damages of any kind from any cause whatsoever including loss of income and/or crop loss or damage due to equipment down time. UNDER NO CIRCUMSTANCES SHALL COMPANY BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHER SIMILAR DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGE TO PROPERTY, LOSS OF PROFIT, LOSS OF BUSINESS OR ANY OTHER LOSS BY BUYER OR ANY THIRD PARTY. Buyer's sole recourse is limited to repair or replacement of the Company Product upon the terms and conditions provided in the limited warranty described herein.
11. The Company reserves the right to modify and/or alter the design or manufacture of any of its Company Products at any time without incurring any obligation to the Buyer to modify and/or alter units previously sold.
12. This Sales Agreement and Limited Warranty (the "Agreement"), and any dispute arising from the relationship between the parties to the Agreement, shall be governed by California law, including any laws that direct the application of another jurisdiction's laws. Any dispute that arises under and/or relates to the Agreement, whether in contract, tort, by statute or other theory, shall be submitted to the jurisdiction of the federal or state courts located in the State of California.
13. Buyer and the Company intend this Agreement to be the final expression of the terms of their agreement and further intend that this writing be the complete and exclusive statement of all the terms of the Agreement.

USED MACHINE LIMITED WARRANTY

1. Used equipment is sold AS-IS WITH ALL FAULTS, and is sold without any express or implied warranty provided by the Company or any of its agents unless stipulated to in writing under the special warranty section immediately following this section.

2. The Company Disclaims:
 - All warranties of title or the Company's right to transfer the goods;
 - All warranties that the goods will be free from security interest, liens or other encumbrances: and
 - Any warranties relating to the Buyer's undisturbed possession of the goods. These disclaimers apply whether the warranties arise under California Commercial Code section 2312(1), from expressions of the Company by implication, or under the common law. The Company assumes no responsibility for defending whatever interest is conveyed.

DO'S AND DO NOT'S OF OPERATION AND MAINTENANCE

Listed below are a few of the "DO'S AND DO NOT'S" which pertain to both the operation and upkeep of your Orchard-Rite® Tree Shaker.

DO READ AND UNDERSTAND THIS OWNER'S MANUAL BEFORE OPERATING THE TREE SHAKER.

DO FOLLOW THE MAINTENANCE SCHEDULE CAREFULLY.

DO CHANGE AND/OR ROTATE THE TREE SHAKER PADS FREQUENTLY TO MINIMIZE HEAT IN THE PADS AND SLINGS.

DO ALLOW OIL IN THE ENGINE AND HYDRAULICS TO WARM BEFORE OPERATING THE TREE SHAKER.

DO STOP AND LOOK BEFORE BACKING UP.

DO OBSERVE THE TREE BEFORE, DURING AND AFTER SHAKING FOR SIGNS OF BARKING OR OTHER DAMAGE.

DO NOT CONTINUE TO OPERATE THE SHAKER IF MULTIPLE TREES ARE DAMAGED. CONTACT YOUR LOCAL SERVICE REP.

DO NOT GREASE THE SLINGS. THIS TREE SHAKER IS EQUIPPED WITH AN AUTOMATIC LIQUID SLING LUBRICATING AND COOLING SYSTEM.

DO NOT USE GREASE ON ANY OF THE WEAR PLATES.

DO NOT SKIP THE DAILY OR SCHEDULED MAINTENANCE ROUTINE.

DO NOT SET CLAMP PRESSURE ABOVE 1500 PSI OR BELOW 1200 PSI.

DO NOT OPERATE THE TREE SHAKER IF THE MAIN PRESSURE IS ABOVE 4200 PSI.

DO NOT OPERATE THE TREE SHAKER IF FLUID LEVELS ARE LOW.

DO NOT ENGAGE THE PARKING BRAKE WHILE THE TREE SHAKER IS IN MOTION.

DO NOT RUN THE TREE SHAKER HEAD AT HIGH RPM WHEN NOT ATTACHED TO A TREE.

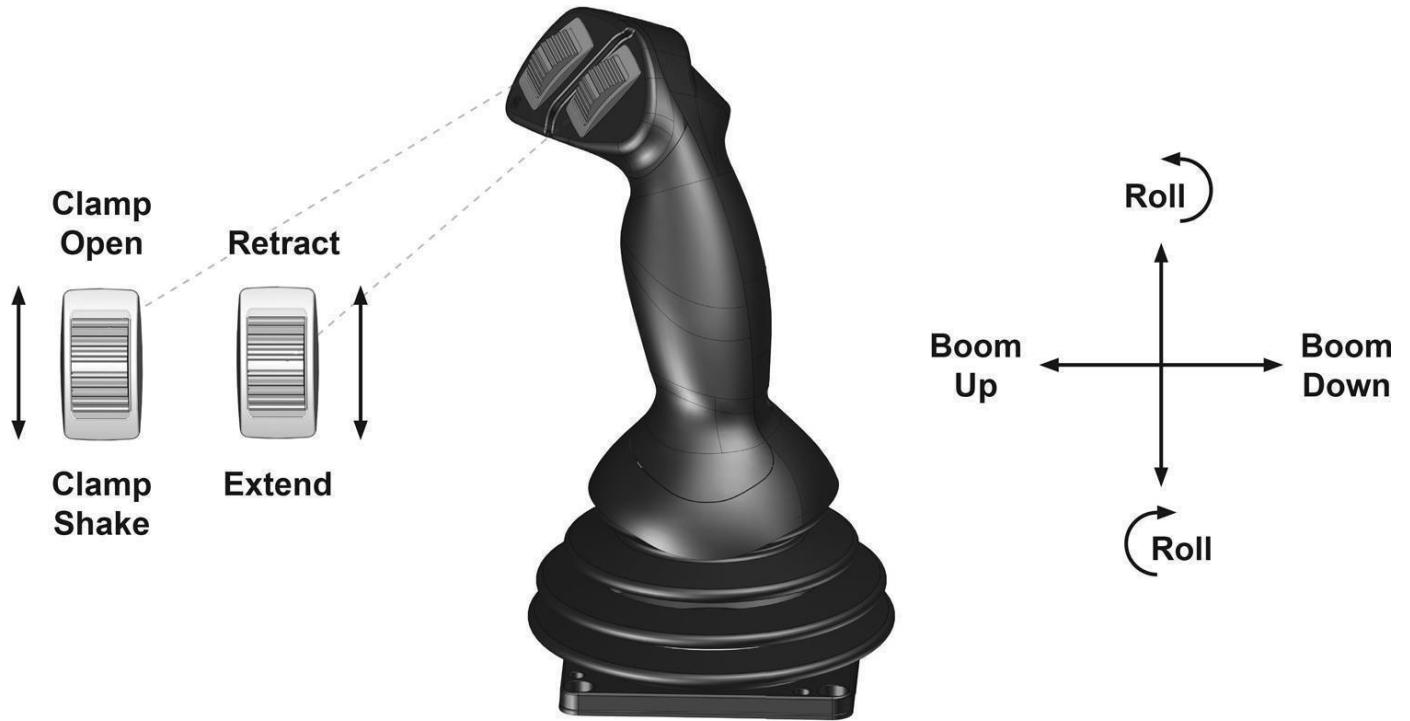
DO NOT OPERATE THE TREE SHAKER WITHOUT ALL DOORS AND COVERS SECURELY IN PLACE.

DO NOT ATTEMPT TO MANEUVER THE TREE SHAKER HEAD OR MACHINE WHILE CLAMPED TO A TREE.

DO NOT PUSH OR TOW THE TREE SHAKER.

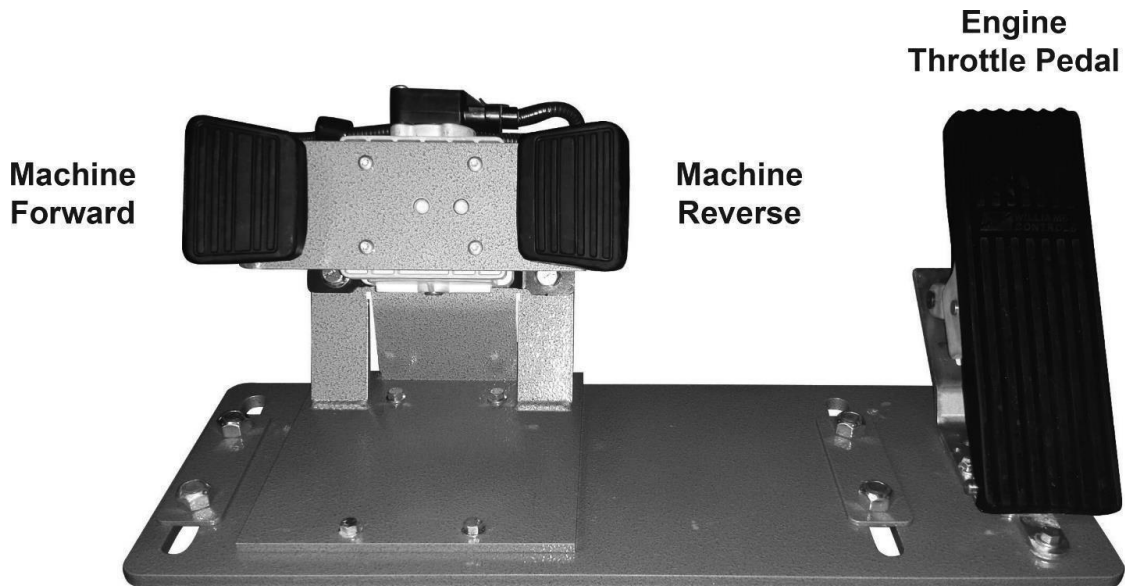
DO NOT WELD ON THE WHEEL RIMS.

BULLET[®] HAND CONTROLS

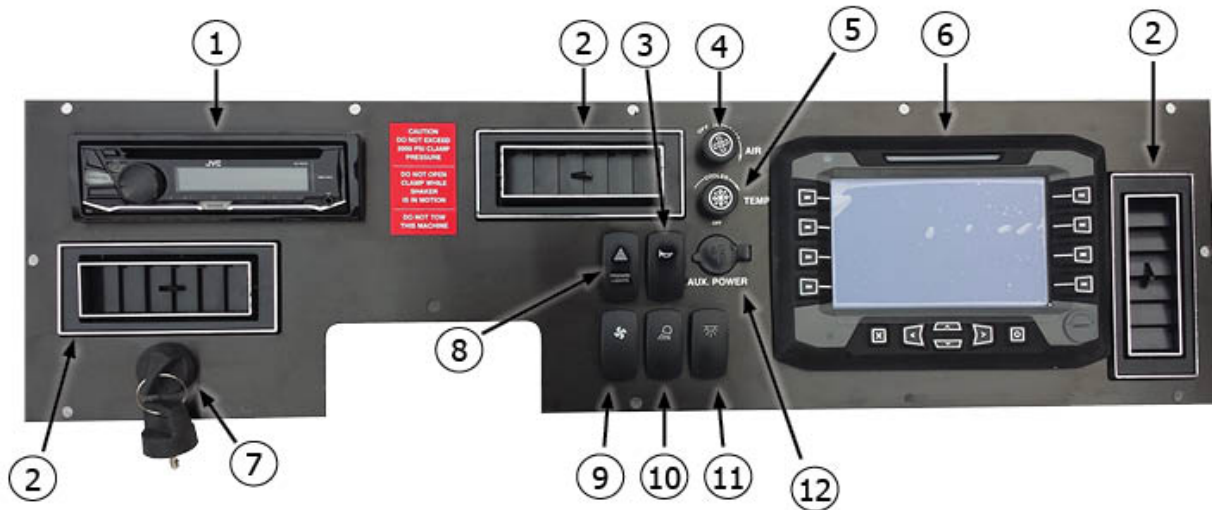


**Colors are not representative of the physical product.*

BULLET[®] FOOT CONTROLS



DASHBOARD FEATURES



- | | |
|-----------------------------|---------------------------------|
| 1. Stereo | 7. Ignition Switch |
| 2. A/C Dash Vent | 8. Hazard Light Switch |
| 3. Horn Switch | 9. Cab Pressure Fan Switch |
| 4. A/C Blower Speed Control | 10. Exterior Work Lights Switch |
| 5. A/C Temperature Control | 11. Interior Light Switch |
| 6. Dash Display Unit | 12. 12V Accessory Outlet |

CLIMATE CONTROL



Fan speed can be adjusted to the following:

1. Off (AIR knob all the way Left)
2. Low
3. Medium
4. High (AIR knob all the way Right)

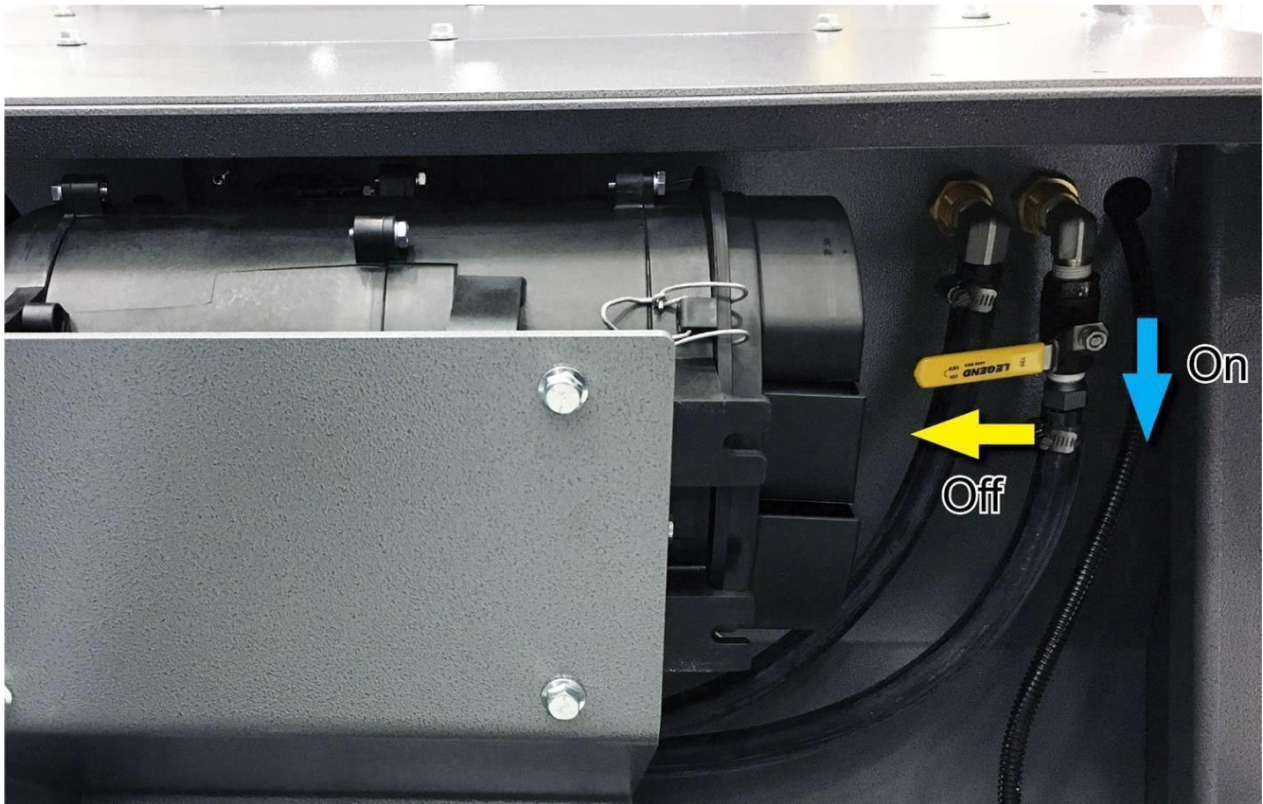
Air Temp is cooler the further the knob is turned right.

1. Off (TEMP knob all the way Left)
2. Coldest (TEMP knob all the way Right)

WARNING: Turning temp control knob to the farthest right (coldest) position may cause air conditioning unit to freeze up.

NOTE: For better air conditioning performance, make sure cab pressure fan is turned on. This will help reduce the amount of dust and debris that enters the air conditioning evaporator.

HEATER WATER VALVE



The Heater Water Valve is located at the front of the machine. Open the front hood and move any pads or equipment out of the way to access.

Off = Valve Handle Rotated Left

On = Valve Handle Rotated Down, In Line with Hose

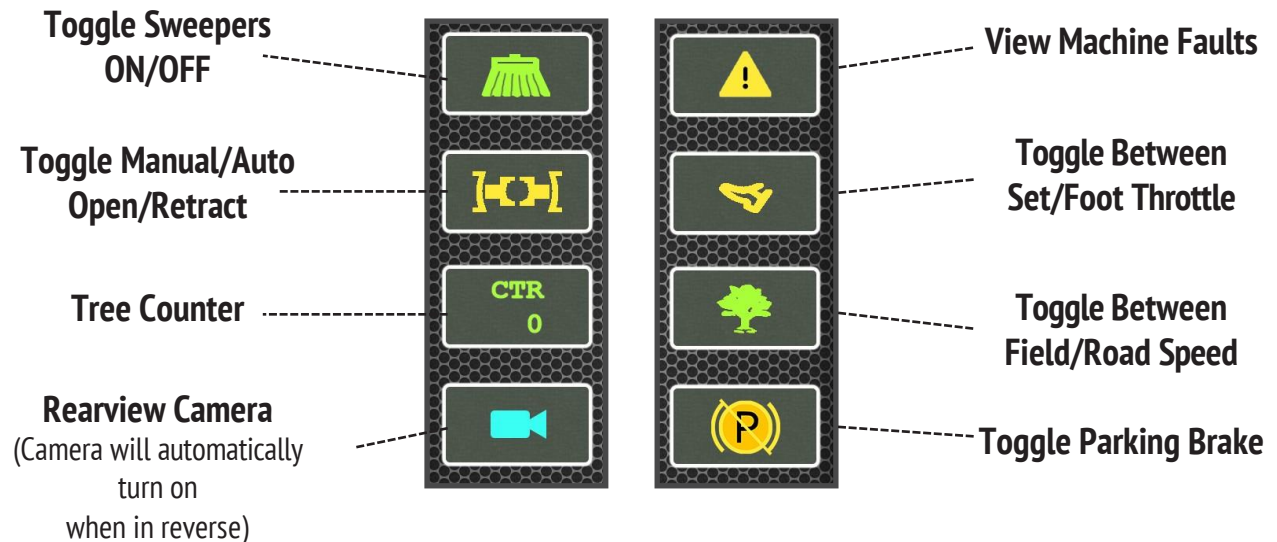
During times of high humidity and cold weather, it may be necessary to run the air conditioning and heat at the same time. This will help to de-humidify the air in the cab.

NOTE: If air conditioning is not cooling, ensure that heater water valve is in the fully off position

DISPLAY PANEL BUTTONS

Main Run Screen

Touch Screen - Can Touch Icons

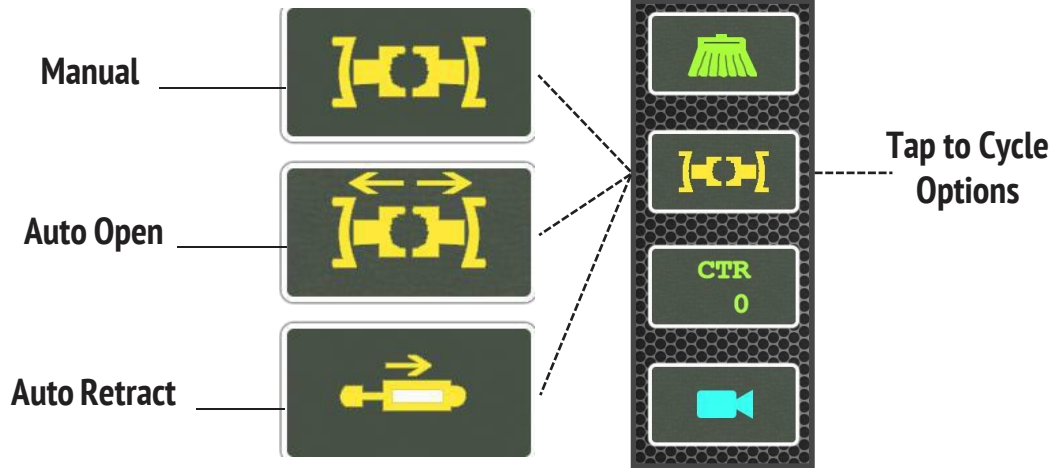


Description:

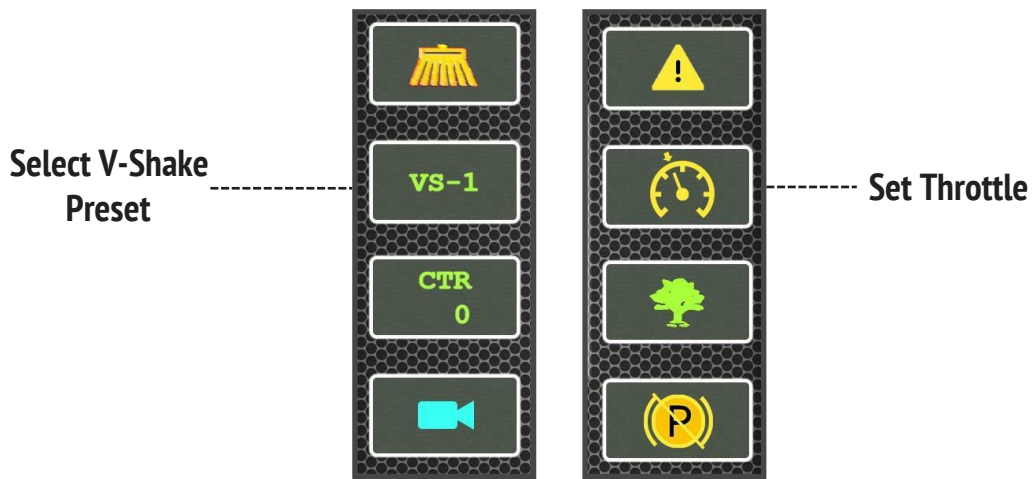
From this screen, the operator can activate sweepers, set throttle, field/road speed, and reversible camera functions. To operate the HydraShake™ and AccuShake™ functions, press the Settings Screen icon (see page 16 for setting screen location).

Main Run Screen

Part Two



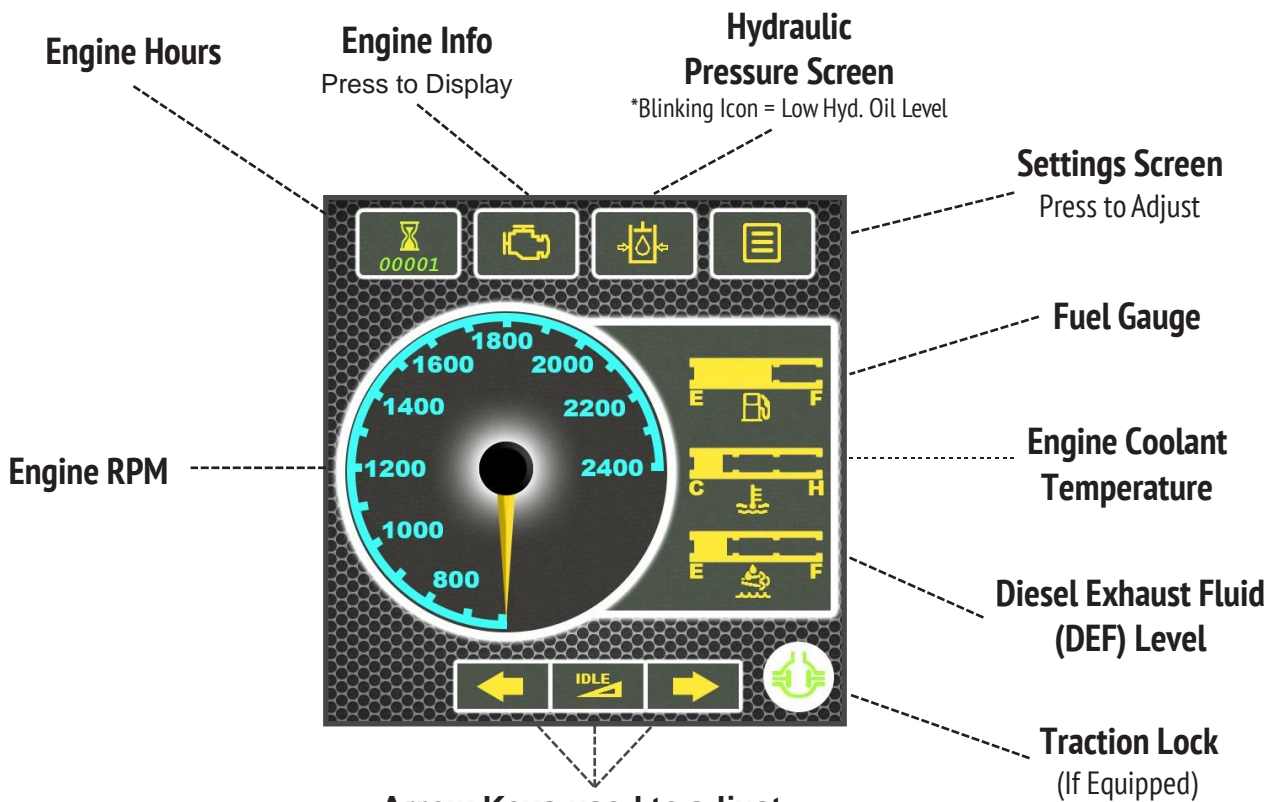
Icons change while in Variable Shake Mode



Throttle Adjustment

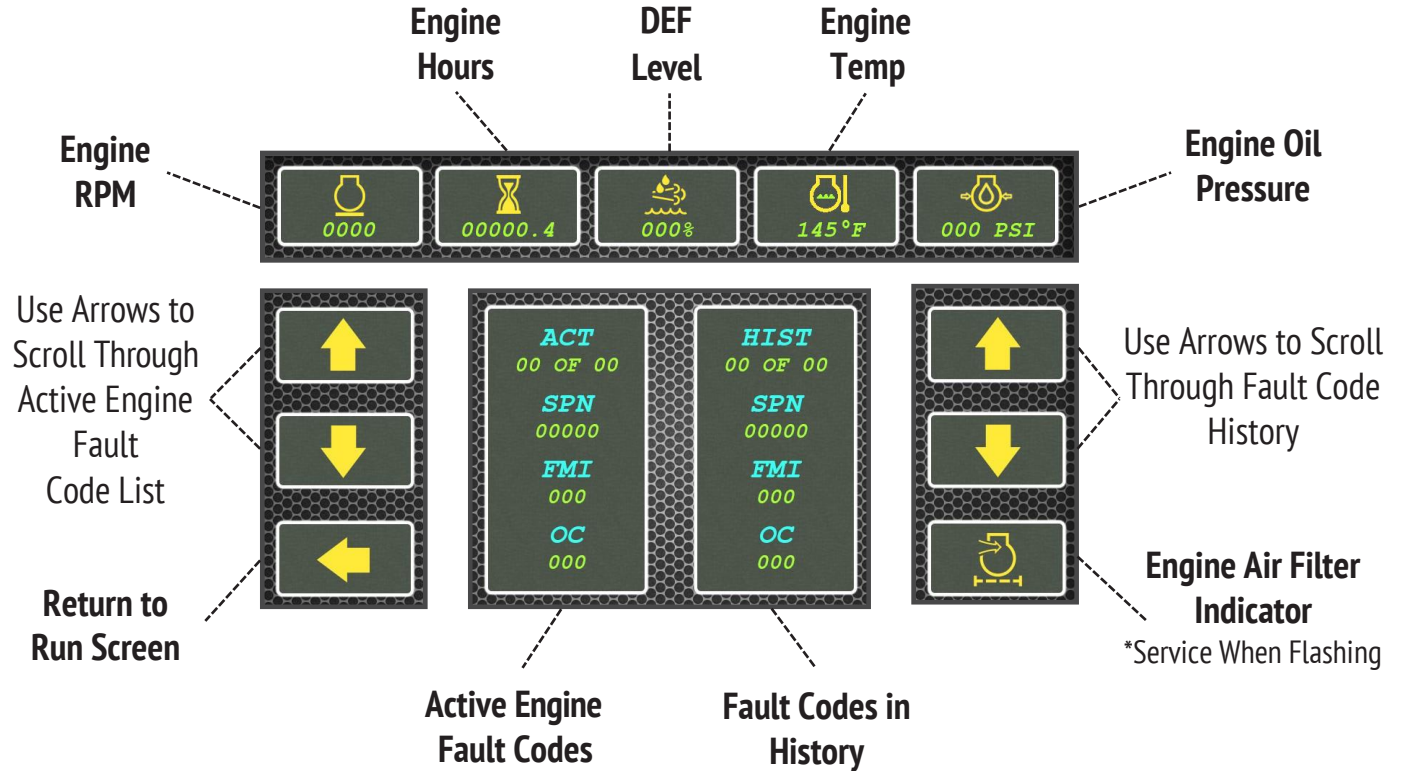
Main Run Screen

Part Three

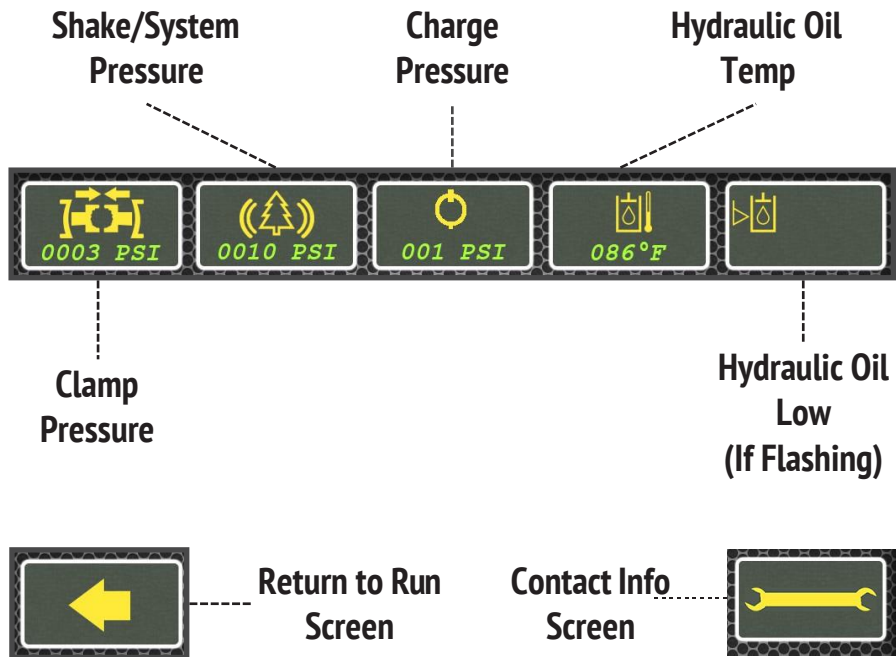


- Arrow Keys used to adjust:**
1. Idle in Foot Throttle Mode.
 2. Throttle Speed in Set Throttle Mode

Engine Info Screen



Hydraulic Pressure Screen



Settings Passcode Screen



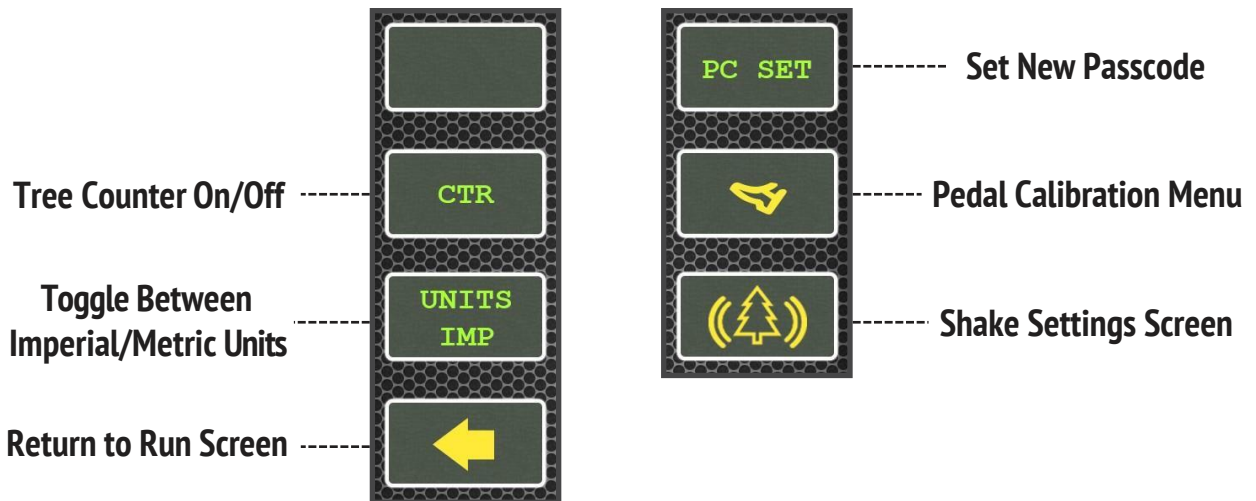
Enter Passcode to Access Protected Settings

Factory Passcode is set to: **1111**



Return to Run
Screen

Settings Menu



Description:

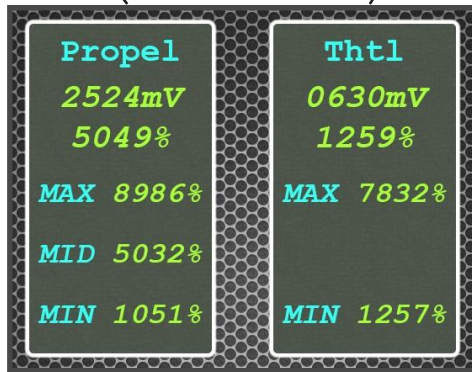
This screen will give the operator access to foot pedal and throttle calibration, the timer/tree counter toggle, as well as shake settings. To access the shake settings, press the tree icon, 3rd from the top on the right of the Settings Menu.

Pedal Calibration Menu



Propulsion Pedal Settings

Throttle Pedal Settings



Return to Settings Screen

Hold Reading

Press to Place Machine in Test Mode
(Used for Propulsion System Testing)

Shake Settings Menu



Toggle Between Dual-Shake/Vari-Shake Mode

Vari-Shake Settings

Return to Settings Menu

Clamp Open - Millisecond
(Time selected controls how wide the shaker head opens)

Brake Delay - Millisecond
(How fast brakes engage once propulsion pedal is disengaged)

HydraShake™ Percentage

(One preset selection for manual mode only)

Adjust Auto-Shake Time

(Single Shake)
(Use Arrow Keys)

Adjust 1st Auto-Shake Time

(Used When in Dual-Shake Mode)
(Use Arrow Keys)

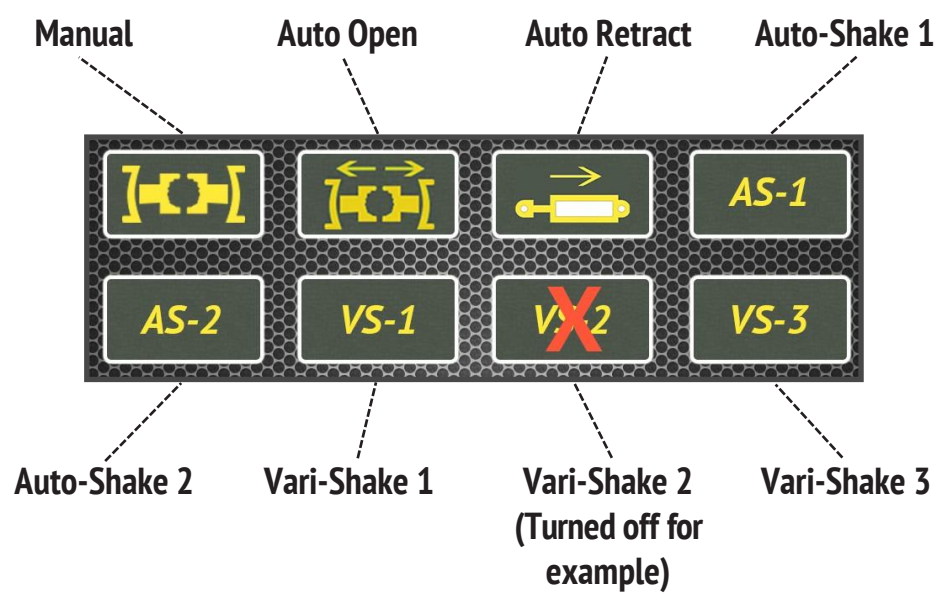
Adjust 2nd Auto-Shake Time

(Used When in Dual-Shake Mode)
(Use Arrow Keys)

Description:

This screen will allow for all shaking functions, including the timed Auto-Shake, Dual-Shake, as well as adjusting the HydraShake™ and AccuShake™ functions.

Shake Modes Menu



V-Shake Settings Menu



**Toggle Between
Profile 1 (P1) - Profile 3 (P3)**

**HydraShake™ Percentage
for Each Profile**

Description:

Settings can vary between profiles depending grower's preferences. For demonstration purposes, it is best to set profile(s) 1, 2, and 3 for large, medium, and small trees, in that order.

Profile 1 (P1) has been set for large almond trees, aged 12-20+ years old. RPM (RPM 1-6) and time (T1-6) can be adjusted using the up/down arrows on the left of the monitor. RPM will adjust by 50 RPM at a time. Time can be adjusted by 0.1 of a second.

Profile 2 (P2) has been set for medium sized almond trees shaking for a total of 3.0 seconds. This profile is generalized for trees aged 7-12 years old. These settings must be adjusted depending upon rootstock, watering schedule, age of the trees, and soil type amongst other variables.

Profile 3 (P3) has been set for smaller almond trees shaking for a total of 2.5 seconds. This profile is generalized for trees 3-7 years old. These settings must also be adjusted depending upon rootstock, watering schedule, age of the trees, and soil type amongst other variables.

Contact Information Screens



STARTING AND OPERATING THE ORCHARD-RITE[®] BULLET[®] IIE TREE SHAKER

WARNING: Read this entire Owner's manual and understand all warnings and safety tips before attempting to operate your Orchard-Rite Tree Shaker.

Before starting your tree shaker, examine the equipment to see that there are no loose nuts, bolts, wires or hoses. Check over the tree shaker for worn or broken parts and repair or replace any that are found. Be sure that the tree shaker has been properly serviced, all fluid levels are correct, and all bearings/pivot points have been properly lubed according to the recommended maintenance and service schedule.

WARNING: Never start the engine with people nearby.

After starting the engine, allow it to warm up for a few minutes at idle before trying to work the tree shaker. This allows the oil in the engine and the hydraulic system to warm before they are put under load, reducing wear and early / potential failure.

WARNING: The operator should never leave the driver's seat while the engine is running.

After the tree shaker has warmed for a few minutes, it is ready for use. Be sure that the head is raised off of the ground. Check to be sure that everyone and everything is clear of the tree shaker before attempting to move it. Before attempting to drive the tree shaker, verify that the parking brake is deactivated.

NOTE: DUE TO THE IMPORTANCE OF PROTECTING YOUR TREE SHAKER AND TREES, WE STRONGLY RECOMMEND THAT THE OPERATOR PRACTICE OPERATING THE MACHINE BEFORE STARTING THE ACTUAL HARVEST.

When pulling up to a tree, the stationary pad needs to be placed so that it is close to or touching the tree trunk and centered between the graft and the lower limbs of the tree perpendicular to the tree trunk.

If the top of the pads are touching the bottom of the limbs there is a very good possibility that tree damage will occur (this can also cause excessive sling wear and/or tearing).

If the stationary pad is not close to the tree trunk when the shaker head is closed, the head will be pulled over to the tree trunk possibly resulting in:

- Excessive shake being transmitted back to the treeshaker;
- Premature wear on shaker head mounting components;
- Damage to tree (barking)

After the tree has been shaken and the shaker head has been opened, maneuver the tree shaker to the next tree and repeat the operation.

**BE SURE TO FOLLOW THE MAINTENANCE SCHEDULE
LISTED IN THIS MANUAL**

SERVICE SPECIFICATIONS BULLET® IIE G2 C4.4

Air Filters

Engine Outer Element.....	SMMF132000	Donaldson® P781039
Engine Inner Element.....	SMMF131000	Donaldson P777639
Cab Filter Element.....	SMMF013000	Sy-Klone® FEFF008

Engine Oil

Type	15W-40 API CJ-4, CK-4 Caterpillar® Approved Oil	
Capacity	9 Quarts (8.5 L)	
Engine Oil Filter.....	SMMF014000	Caterpillar 7W-2326

Tier III Engine Serial # Begins with 444

Engine Fuel

WARNING: NEVER PRE FILL FUEL FILTERS

Type	Ultra Low Sulfur Diesel	
Capacity	50 Gallons (189 L)	
Primary.....	SMMF011000	Caterpillar 308-7298
Final.....	SMMF006000	Caterpillar 299-8229

Tier III Engine Serial # Begins with W23

Engine Fuel

WARNING: NEVER PRE FILL FUEL FILTERS

Type	Ultra Low Sulfur Diesel	
Capacity	50 Gallons (189 L)	
Primary.....	SMMF017000	Caterpillar 439-5037
Final (2 req.).....	SMMF015000	Caterpillar 360-8960

Tier IV ONLY

Engine Fuel

WARNING: NEVER PRE FILL FUEL FILTERS

Type	Ultra Low Sulfur Diesel	
Capacity	50 Gallons (189 L)	
In-Line Pre Filter.....	SMHF123825	Caterpillar 384-8512
Primary.....	SMMF016000	Caterpillar 363-6572
Final.....	SMMF015000	Caterpillar 360-8960

Tier IV ONLY

Diesel Exhaust Fluid (DEF)

Type Fresh DEF that meets or exceeds ISO 22241-1 requirements
Capacity 5 Gallons (19 L)

Engine Coolant

Type Extended Life Coolant that meets or exceeds ASTM D6210
Capacity 3.5 Gallons (13 L)

Hydraulic System

WARNING: TRACTOR HYDRAULIC OIL IS NOT COMPATIBLE

Oil Type AW 68 Hydraulic Oil
Capacity 40 Gallons (151 L)
Charge Filter SXMFO08000 Donaldson P163555
Return Filters (2) SMHF131000 Hycon® 02065628

Air Conditioning System

Refrigerant Type R134a
Capacity 3.0 LBS (1.7 kg)

Drive Hubs

Oil Type API-GL-5 80W-90 Gear Oil
Capacity (each) 1 Quart (0.94 L)

WETHEAD® Sling Lubrication System

Capacity 50 Gallons (189 L)
Silicone Additive SMXX005000

Lubrication Grease Type Lithium Complex NLGI Approved or Equivalent

Energy Wheel Belt SXS B15000

Engine Belt SMKE116000

PARTS

THE ORCHARD-RITE® BULLET® IIE TREE SHAKER IS COMPOSED OF MANY PARTS THAT HAVE BEEN **SPECIALLY DESIGNED AND HEAVILY TESTED**. USING PARTS FROM AN UNKNOWN SOURCE COULD LEAD TO MAJOR ISSUES. IT IS HIGHLY RECOMMENDED THAT ANY PARTS NEEDED FOR REPAIR OR REPLACEMENT BE PURCHASED FROM YOUR NEAREST AUTHORIZED ORCHARD-RITE® SERVICE REPRESENTATIVE OR DEALER.

MAINTENANCE AND SERVICE SECTION

DUE TO THE INTENSITY OF THE SHAKER OPERATION, IT IS IMPORTANT TO FOLLOW THE HOURLY, DAILY AND YEARLY SERVICE REQUIREMENTS OF YOUR ORCHARD-RITE® TREE SHAKER.

RECOMMENDED LUBRICATION AND MAINTENANCE:

SHAKER PADS - Shaker pads should be rotated 180 degrees after approximately one hour (this time period will change depending on ambient air temperature and tree size) and switched out with the spare set after the next hour to keep the pads and slings from becoming excessively hot. Heat is the number one enemy of slings and pads. Overheated pads will collapse or crack. Overheated slings will split.

SLINGS - The Orchard-Rite WET-HEAD® pad cooling system automatically lubricates and cools the shaker pads and slings. **DO NOT** operate the shaker when slings are dry. This condition will cause excessive wear, premature failure and can cause tree bark damage. Fill tank with water and liquid silicone before starting to shake.

WEAR PLATES - The clamp arm and extension slider wear plates are made from a nylon plastic material. These plates need to be checked for wear or damage every 24 hours of operation. **DO NOT APPLY GREASE** to them.

CHAIN ROLLER - Lubricate the chain roller every one to two hours of operation with two to three pumps of grease. There is a hole in the clamp arm cover to allow access to this grease fitting without removing the clamp arm cover.

ENERGY WHEEL BEARINGS - Each energy wheel in the shaker head should be checked and greased daily. Slowly pump small amounts of grease into each grease fitting just until the grease can be seen or heard emitting from the bearings.

ENERGY WHEEL BOLT - Because the energy wheels are under constant vibration, the energy wheel bolt can work loose and should be checked for tightness daily. It should be torqued to 500 ft.-lbs.

ENERGY WHEEL BELT - A new belt should be checked for correct tension and wear every half hour of operation for the first half day and then checked daily (over tension is as harmful as under tension).

CLAMP ARM PIVOT - The clamp arm pivot pin should be greased every two hours. Pump grease into the fitting just until the grease can be seen or heard emitting from the top/bottom of the pivot tube/pin assembly.

CLAMP OPEN CYLINDER ANCHOR - The small clamp cylinder or clamp open cylinder is located inside the shaker head towards the back of the shaker head. The stationary anchor pin needs to be greased after every one to two hours of operation with two to three pumps of grease.

BOOM PIVOT SECTIONS - Grease the boom, roll, pivot bearings and cylinder pins after every ten to twelve hours of operation with approximately three to four pumps of grease.

ALL FASTENERS - All of the machine's fasteners need to be rechecked for tightness after the first initial hour of operation, after the next four hours, and then daily thereafter. Due to the vibrations that the shaker head produces, fasteners can easily work loose and should be rechecked often. Never run the tree shaker with nuts or bolts missing.

WHEELS AND RIMS - Because the shaker is constantly changing directions (forward and reverse), the wheel lug nuts can loosen damaging the rim and wheel studs. **Check and re-torque** the wheel lug nuts to **120 ft./lbs.** after the first initial two hours of use and daily thereafter.

TIRES - The tires should be checked every 50 hours for damage and correct pressure. Tire pressure should be checked when tires are cold and set to 45 PSI.

POWER WHEELS - Check the oil level in the power wheels every 250 hours of operation. When checking the level, make sure the wheel is rotated so that the plug is located at 3 or 9 o'clock position. Fill the hub with 85W-90 gear oil until the oil is level with the bottom of the plug hole. Change the oil every year.

HYDRAULIC OIL - Check the oil level in the hydraulic oil reservoir daily. Your shaker comes from the factory filled with AW 68 hydraulic oil. **WARNING: TRACTOR HYDRAULIC OIL IS NOT COMPATIBLE.**

HYDRAULIC FILTERS - Your Orchard-Rite tree shaker is equipped with two hydraulic filters. A canister type charge filter located on the propulsion pump and two separate return filters are located on the top of the hydraulic tank. The filter elements should be changed after the first fifty hours of operation and yearly thereafter.

AIR CLEANERS - If the filter element is contaminated with water or oil it must be replaced. Service the outer filter element only when the service indicator in the display panel illuminates. If the inner element is dirty it must be replaced, it cannot be cleaned. **DO NOT OVER SERVICE THE ELEMENTS.**

ENGINE OIL AND FILTER - Check the oil daily and add oil as needed. Refer to the Caterpillar operation and maintenance manual for service interval. Use only Caterpillar approved oil and filter.

ENGINE FUEL FILTER - Refer to the Caterpillar operation and maintenance manual for service interval. Use only Caterpillar approved fuel filters.

ENGINE COOLANT - Check the coolant level daily and add as needed. Refer to the Caterpillar operation and maintenance manual for service interval.

MAINTENANCE AND SERVICE SCHEDULE

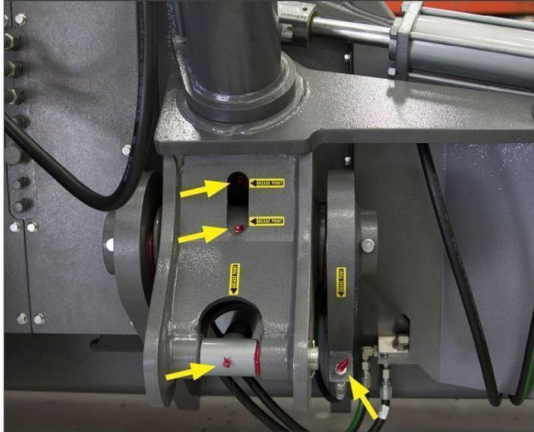
Perform the Following Items:

After 1 Hour
<ol style="list-style-type: none"> 1. Turn Shaker Pads 180 Degrees 2. Clean Radiator Screen 3. Check Sling Lubrication 4. Visual Walk Around Inspection
Every 2 Hours
<ol style="list-style-type: none"> 1. Grease Clamp Chain Roller 2. Grease Clamp Arm Pivot 3. Grease Clamp Open Cylinder Anchor 4. Rotate Out Shaker Pads in Head with Spare Set
Daily
<ol style="list-style-type: none"> 1. Check All Fluid Levels 2. Check Wheel Lug Nuts 3. Service All Chassis Grease Fittings 4. Inspect All Bolts and Fasteners 5. Inspect Clamp Chain, Cylinders, and Chain Roller Components 6. Check Tightness of Energy Wheel Pin Bolt 7. Inspect Wear Plates 8. Inspect Shaker Head Belt 9. Inspect Shaker Head Suspension Components 10. Inspect Slings and Pads 11. Inspect Hydraulic Hoses 12. Clean Radiator, Oil Cooler and A/C Condenser Fins 13. Clean Engine Air Filter Element when Service Indicator Light Illuminates <u>Do Not Use Compressed Air</u> 14. Inspect All Engine Components 15. Grease Energy Wheel Bearings 16. Grease Boom Pivot Sections
Every 250 Hours
<ol style="list-style-type: none"> 1. Check Battery Water Level 2. Check Pressures 3. Check Oil Level in Power Wheels
Yearly
<ol style="list-style-type: none"> 1. Replace Engine Inner and Outer Air Filter Elements 2. Replace Hydraulic Filters 3. Replace Power Wheel Oil, Check Bearings and Gears 4. Inspect Engine Mounts 5. Check A/C Freon Level 6. Inspect Clamp Chain Roller Bushings 7. Service Battery
Every 1500 Hours
<ol style="list-style-type: none"> 1. Replace Engine Coolant 2. Replace Hydraulic Oil
Refer to Engine Manufacturer's Recommendations
<ol style="list-style-type: none"> 1. Replace Engine Oil and Filter 2. Replace Engine Fuel Filter

GREASE POINTS



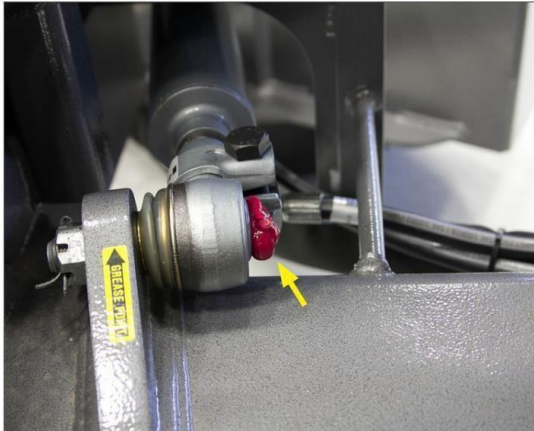
Front Wheel



Boom



Steering Cylinder



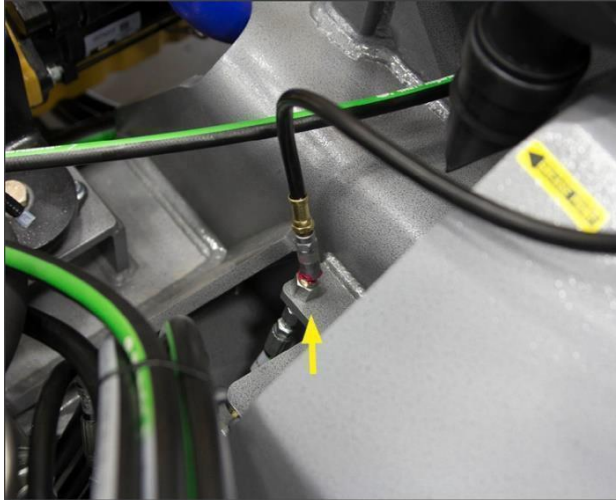
Steering Cylinder (frame side)



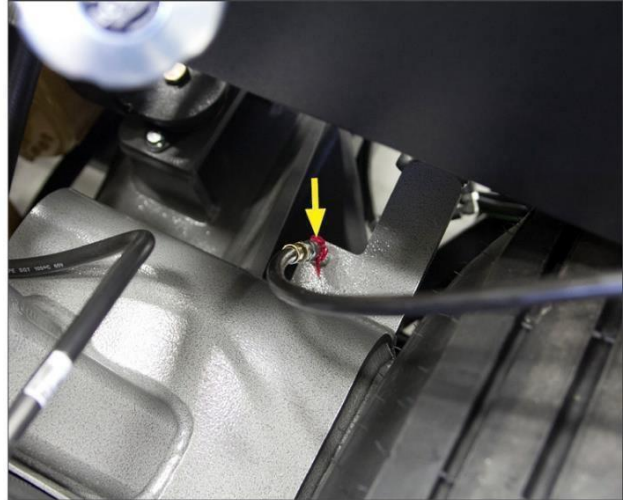
Each Sweeper Arm Has (2)



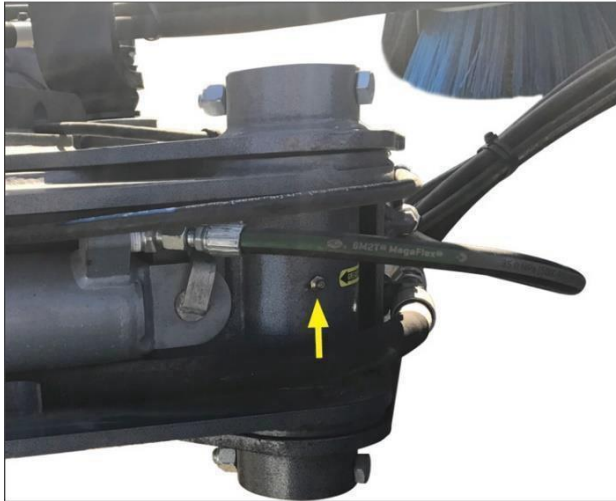
Some Sweeper Points Are Under the Machine



Near Engine



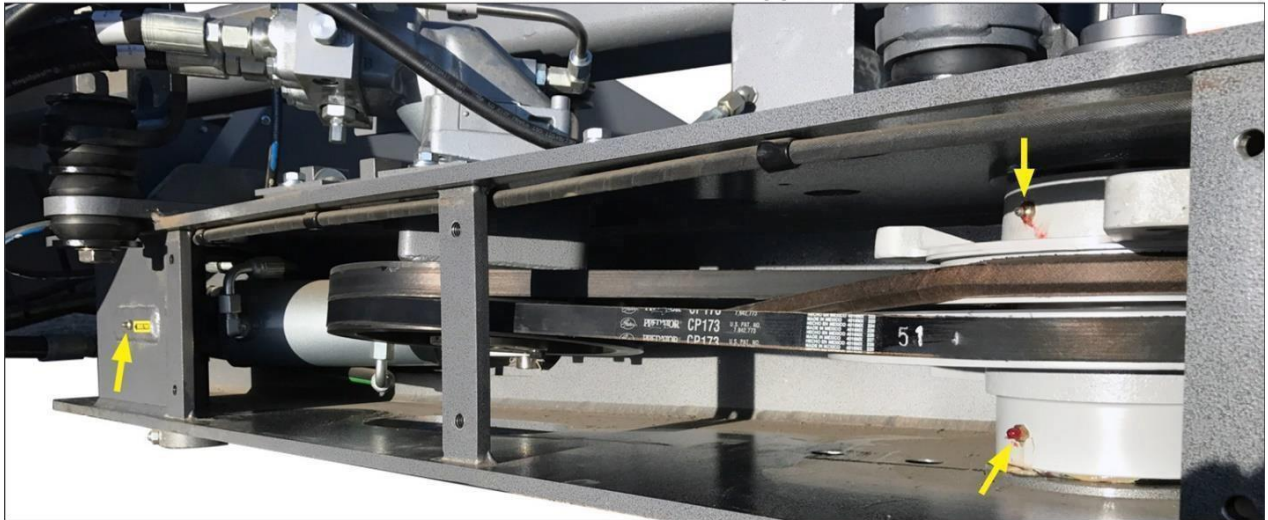
Near Engine (other side)



Back Left Side of Shaker Head



Upper Left Side of Shaker Head

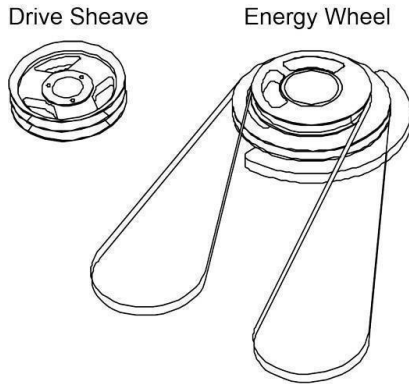


Right Side of Shaker Head

Grease Type: Lithium Complex NLGI Approved or Equivalent

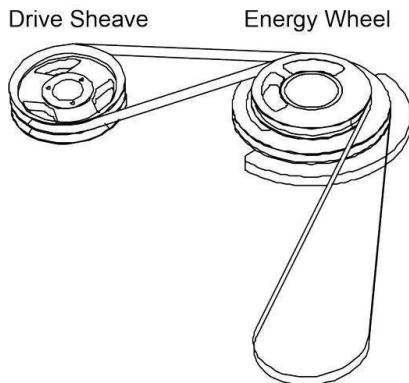
SHAKER HEAD DRIVE BELT INSTALLATION GUIDE

STEP ONE



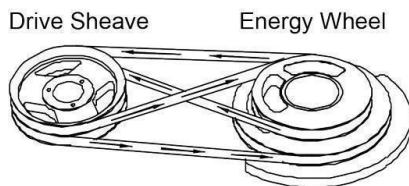
- a. Lay belt in a large loop on the ground.
- b. Insert one end of the loop around the backside of the energy wheels.

STEP TWO



- a. Hook the loop of the belt around the top groove on the shake motor sheave.
- b. Be sure the flat side of the belt is against the flat (top) wheel and the vee side is against the vee (bottom) wheel.

STEP THREE



Final Belt Lay and Direction of Travel

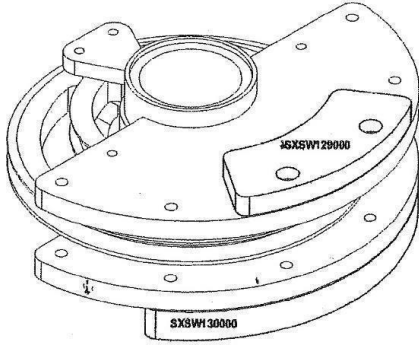
- a. Hook remaining belt loop around the bottom groove on the shake motor drive sheave.
- b. Tighten the drive belt, reinstall access door.

STEP FOUR

Check and tighten belt every half hour for the first three hours after belt replacement.

108 HEAD 9.5 E/W SHAKE PATTERNS

9.5" + 15" Almond Pattern 2C12.0 Drive Sheave



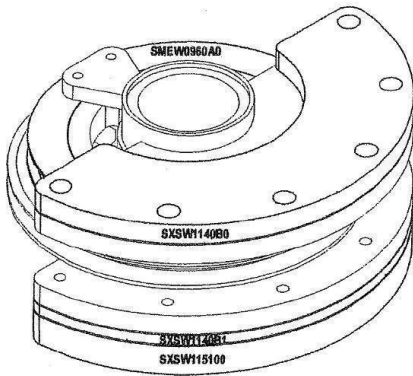
Top Weight:

SXSW129000 1" 2 Hole
Uses (2) 5/8" x 1 1/4" Bolts

Bottom Weight:

SXSW130000 1 1/2" 4 Hole
Uses (4) 5/8" x 1 1/4" Bolts

13" Adder + 15" Walnut/Pecan Pattern 2C10.0 Drive Sheave



Top Weight:

(1) SXSW1140B0 1" 6 Hole
Uses (6) 5/8" x 1 1/4" Bolts

Bottom Weights:

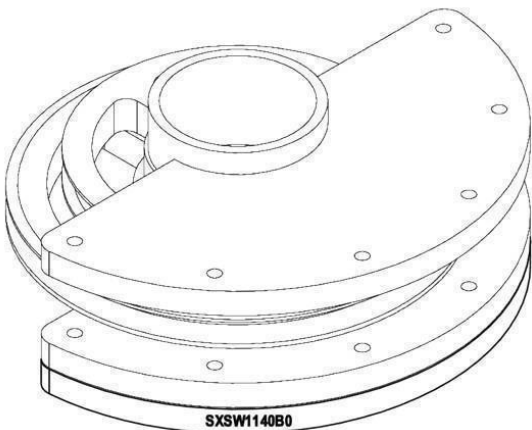
(1) SXSW1140B1 1/2" 6 Hole
Uses (6) 5/8" x 2 1/2" Bolts
(1) SXSW115100 1 1/2" 6 Hole
Uses (6) 5/8" x 2 1/2" Bolts

13" Adder:

(1) Set SMEW0960A0
Uses (6) 1/2" x 1 1/2" Bolts
(6) High Collar Lock Washers

STANDARD/108 HEAD 11" ENERGY WHEEL SHAKE PATTERNS

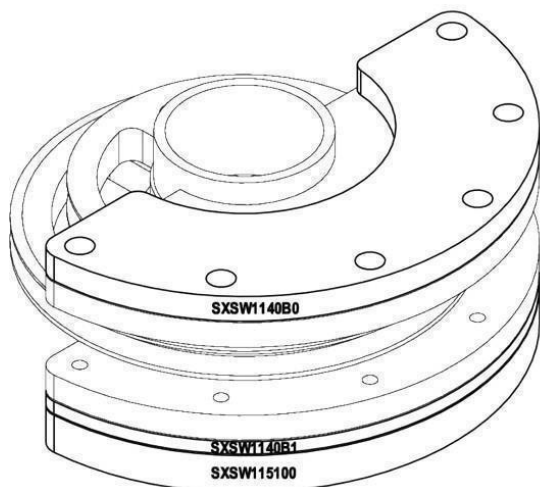
11" + 15" Almond Pattern 2C11.0 Drive Sheave



Bottom Weight:

SXSW1140B0 1" 6 Hole
Uses (6) 5/8" x 1 1/4" Bolts

11" + 15" Walnut/Pecan Pattern 2C11.0 Drive Sheave



Top Weight:

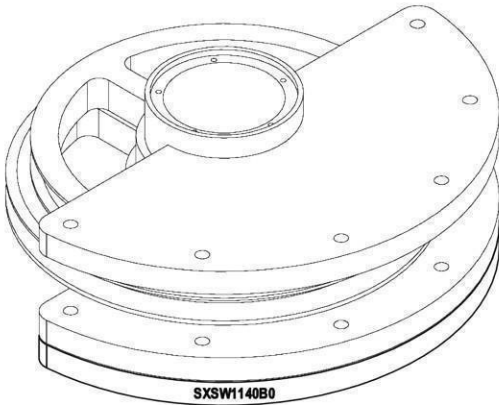
(1) SXSW1140B0 1" 6 Hole
Uses (6) 5/8" x 1 1/4" Bolts

Bottom Weights:

(1) SXSW1140B1 1/2" 6 Hole
(1) SXSW115100 1 1/2" 6 Hole
Uses (6) 5/8" x 2 1/2" Bolts

STANDARD/108 HEAD 13" ENERGY WHEEL SHAKE PATTERNS

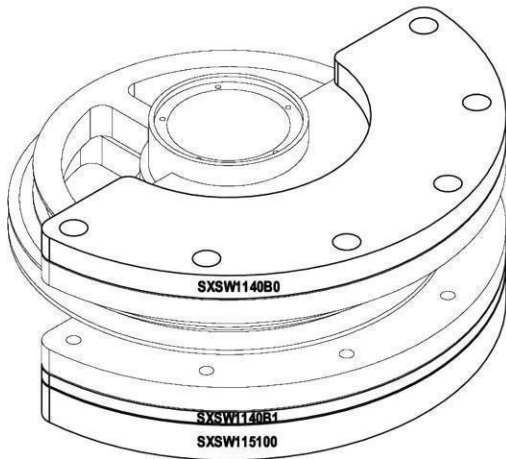
13" + 15" Almond Pattern 2C10.0 Drive Sheave



Bottom Weight:

SXSW1140B0 1" 6 Hole
Uses (6) 5/8" x 1 1/4" Bolts

13" + 15" Walnut/Pecan Pattern 2C10.0 Drive Sheave



Top Weight:

(1) SXSW1140B0 1" 6 Hole
Uses (6) 5/8" x 1 1/4" Bolts

Bottom Weights:

(1) SXSW1140B1 1/2" 6 Hole
(1) SXSW115100 1 1/2" 6 Hole
Uses (6) 5/8" x 2 1/2" Bolts

WARNING DECAL LOCATIONS



Reflective Decal on the Back Right



Caution on Every Wheel Cover



Warning and Danger/Peligro Inside Door



Caution Above Steering Wheel



Danger/Peligro on Side of Shaker Head

DECALS ARE FOR EVERYONE'S SAFETY REPLACE IF LOST OR NOT READABLE

THE LIFE YOU SAVE MAY BE YOUR OWN.

REGEN SWITCH (Tier 4 Engines Only)

A regen switch has been added to new machines near the shut-off switch. It's required for certain Caterpillar® diagnostics tests. **DO NOT USE OR MODIFY.**

WAIT TO DISCONNECT LIGHT (Tier 4 Engines Only)

NON EMERGENCY SITUATION:

If light is illuminated, do not disconnect battery, or turn off isolation switch. DEF system malfunction can result.


EMERGENCY SITUATION:

Disconnect or turn off isolation switch at any time in emergency.




LEGAL NOTICES

California Proposition 65 Warning

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

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

For more information go to www.p65warnings.ca.gov/diesel.

 **WARNING:** This product can expose you to chemicals, including ethylene glycol, which are known to the State of California to cause cancer, birth defects and other reproductive harm.

For more information go to: www.p65warnings.ca.gov

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