



BASECAMP OPERATOR MANUAL



Thermal Intelligence

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<https://thermalintelligence.com/>

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1. Introduction

Welcome and thank you for being a customer of Thermal Intelligence! We are looking forward to the success that BASECAMP will bring you and your worksite. Whatever you need we are here to help – Thermal Intelligence prides itself on providing you with detailed technical support for your BASECAMP.

The safe & efficient operation of BASECAMP requires that any individuals maintaining the unit read and understand the information contained in this Operator's Manual.

The BASECAMP is intended to provide heat on outdoor worksites and in other outdoor applications. Using the machine for any other purpose could permanently damage the machine or seriously injure the operator or other persons on the work site. Machine damage caused by misuse is not covered under warranty.

BASECAMP has been designed and built in accordance with the latest global safety standards and its ultra-efficient design has been awarded the Green Seal Certification of Environmental Innovation for its revolutionary ultra-efficient temporary heating, power generation, and lighting products. BASECAMP has been carefully engineered to eliminate hazards as best as possible, and to increase operator safety. However, some risks may remain even after protective measures have been taken. On this machine, they may include exposure to:

1. exhaust emissions
2. hot surfaces such as exhaust vents and air outlet
3. fuel and fuel fumes when refuelling

To protect yourself and others, thoroughly read and understand the safety information presented in this manual before operating the machine.

1.1 BASECAMP Identification:

1. A decal listing the Serial Number is located on the electrical panel below the breakers, or the inside of the electrical door depending on the model year. For reference, record the serial number in the space provided below. You will need the last four digits of the serial number when requesting parts, service, and support.

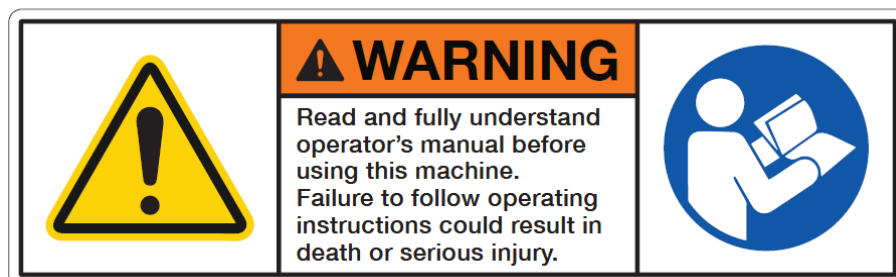
Serial Number: _____

1.2 Contact Information

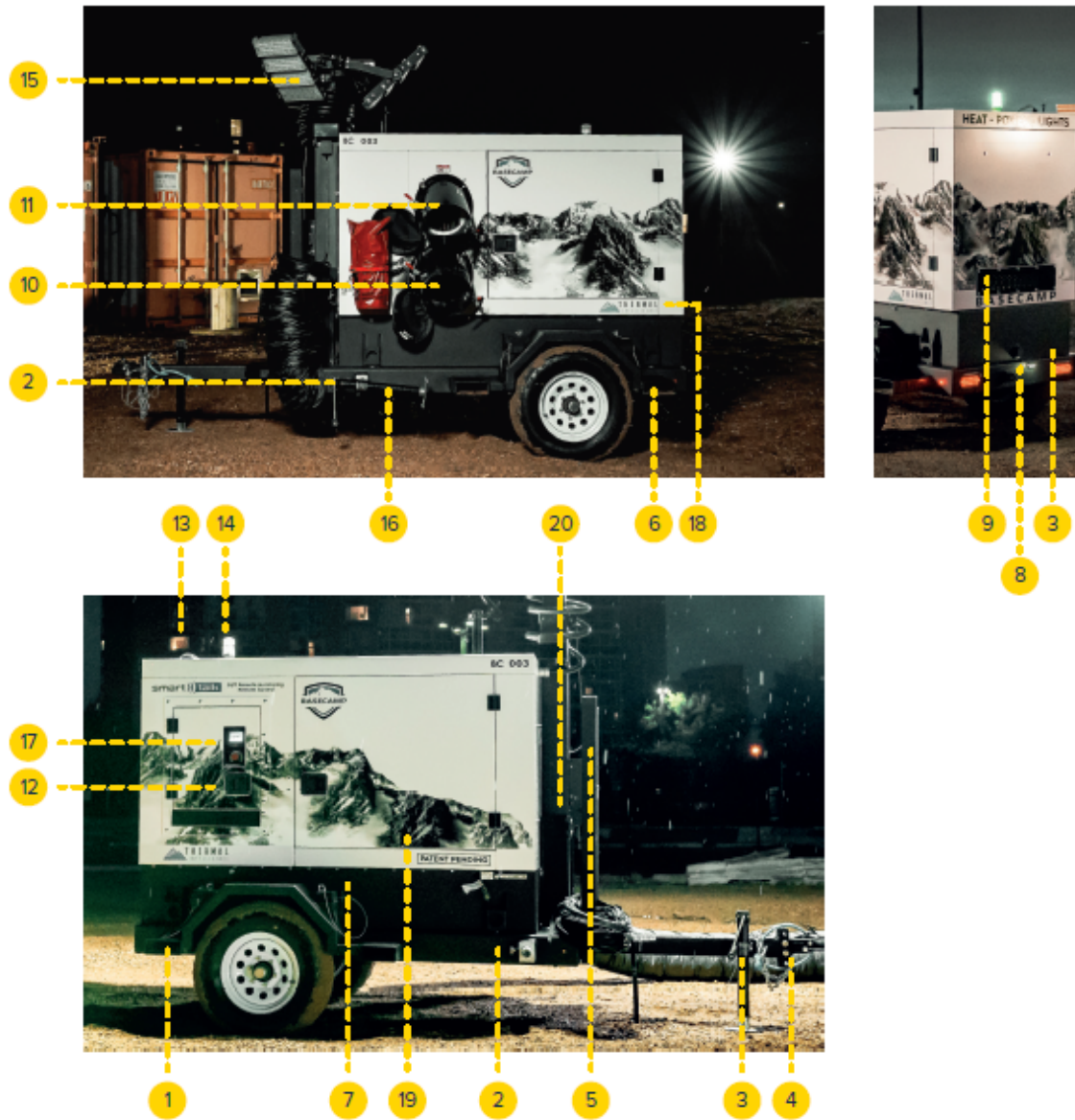
1. **Phone: 1 (855) 554-4344**
 - a. The main technical support phone line is staffed Monday-Friday 8:00 AM to 4:30 PM MST excluding holidays.
2. **After Hours Support:**
 - a. Calls received outside of regular hours are directed to the On-Call Technician. After-hours support is reserved for issues that cannot wait until the next business day for resolution. If no answer, please leave a message and we will get back to you as soon as possible.
3. **Email: basecamp@thermalintell.com**
 - a. Feel free to email us at any time with technical questions or parts inquiries. Please include the Serial Number of your BASECAMP if you have a specific question about your machine so we can better help you.
4. **Support Request Form**
 - a. To best support you and your BASECAMP please use the following form to submit a detailed explanation of the support request and add any relevant images to help us support you.
 - i. <https://thermalintelligence.com/basecamp-support-request/>

For additional troubleshooting, field support and maintenance videos visit our website:
<https://thermalintelligence.com/support-content>

Thermal Intelligence is committed to the continual development and improvement of new products in industrial heating. We pride ourselves on providing you with the safest, most efficient, and most reliable source of Heat, Power, and Lights.



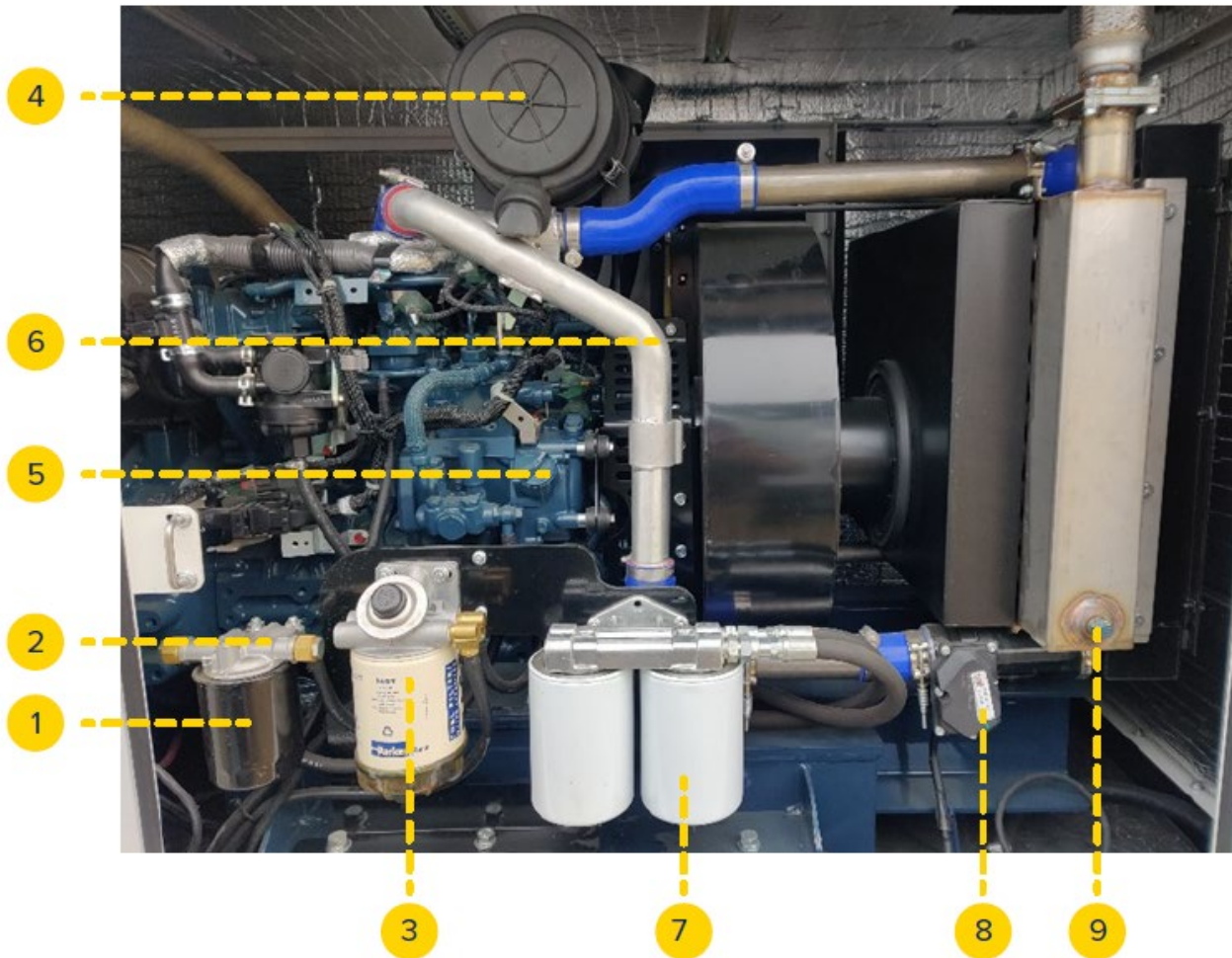
2. Exterior Component Locations



- | | |
|--|---|
| 1. Forklift Pockets | 11. 12" Side Outlet |
| 2. Outrigger Stabilizers | 12. Control Panel & Electrical Panel |
| 3. Fixed Stabilizers | 13. SmartTalk Antenna |
| 4. Interchangeable Hitch | 14. Tri-Color Beacon Light |
| 5. Ducting Storage Posts | 15. Electronic Light Mast |
| 6. Transport Tie Down Points (both sides) | 16. VIN, Serial Number, Tire & Loading Information |
| 7. Wheel Chocks (both sides) | 17. Emergency Shut Down Push Button |
| 8. Containment Tank Drain with Internal Fuel Drain | 18. Diesel Fuel Filler (interior location) |
| 9. Rear Cold Air Intake | 19. Oil Dipstick, Fuel, and Oil Filters (interior location) |
| 10. 12" Side Intake - Recirculation Port | 20. Light Mast Switch |

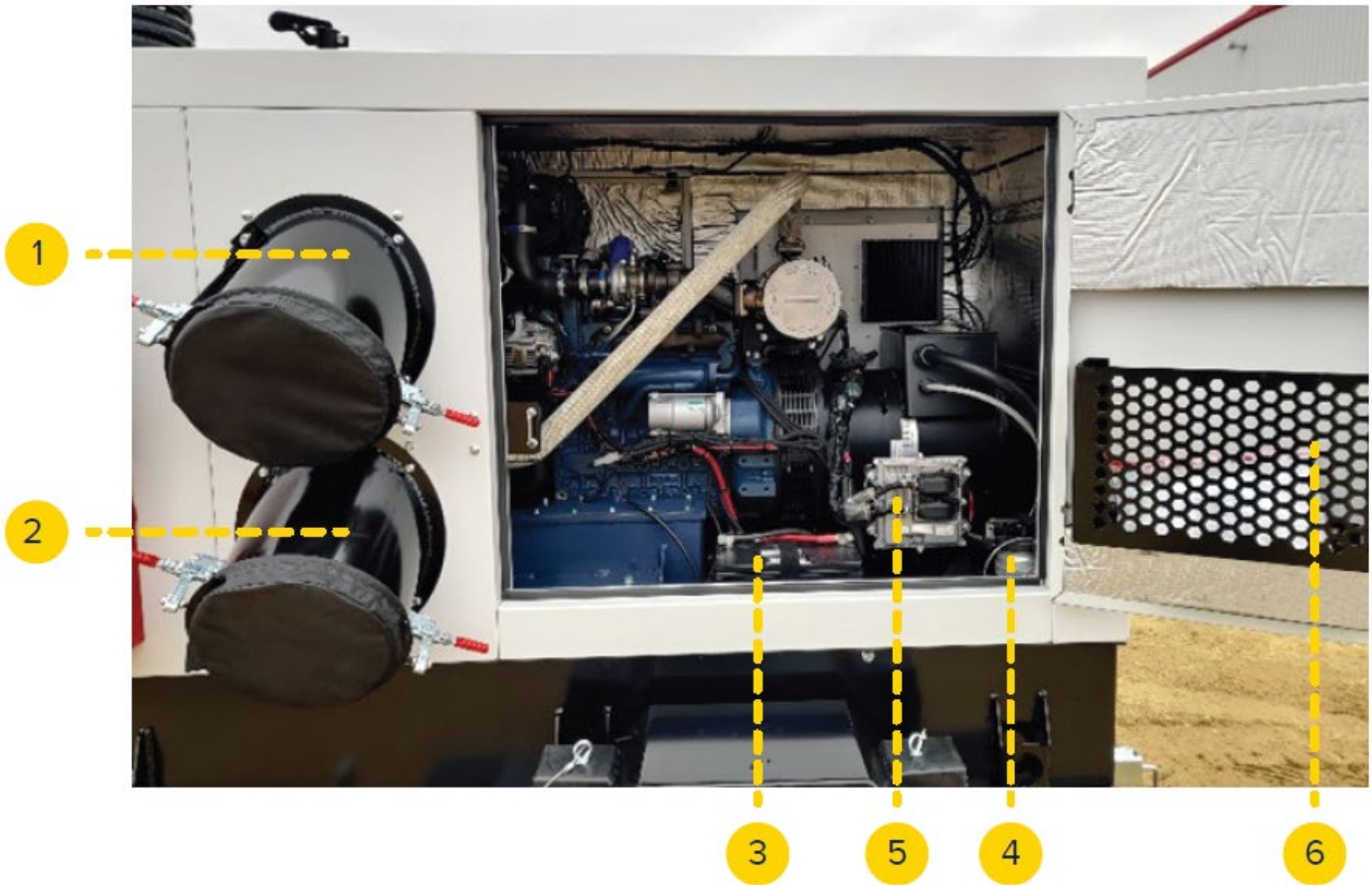
3. Interior Component Locations

3.1 Passenger Side (Right):



- | | |
|-------------------------|---------------------------------|
| 1. Fuel Filter | 6. Fan Belt |
| 2. Oil Dip Stick | 7. Oil Filters |
| 3. Fuel Water Separator | 8. Positive Air Shutdown Valve |
| 4. Air Filter Housing | 9. Exhaust Heat Exchanger Drain |
| 5. Oil Fill | |

3.2 Drivers Side (Left):



1. Heater Outlet
2. Heater Inlet
3. Unit Battery

4. Fuel Tank Inlet
5. Engine ECM
6. Consumables Shelf & Manuals

4. Safety

4.1 General Safety Information:

1. It is required that anyone towing, operating, or maintaining this equipment read and understand this manual.
2. This manual was written specifically for the safe operation and maintenance of this equipment. Your safety and the safety of others depend on the proper and safe use of this equipment. Do not modify or alter this equipment or any of its components without written authorization from Thermal Intelligence.
3. Thermal Intelligence is constantly working to improve its products. We reserve the right to make improvements or changes to subsequent models, with no obligation to make these changes or additions to previous models.
4. Thermal Intelligence cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual and decals affixed to the unit are, therefore, not all inclusive. If using an operating technique that the manufacturer does not specifically recommend, verify that it is safe for others. Also make sure the procedure, work method or operating technique utilized does not render the equipment unsafe.

4.2 Operator Safety:

1. The following safety items are for the safe operation of the unit. Failure to meet or exceed any of the following safety procedures will result in damage to the heater and/or property damage as well as serious injury or death.
 - a. Keep the area around the heater clear.
 - b. Never smoke when refuelling.
 - c. The operator must wear approved personal protective equipment (PPE), especially for the eyes, ears, and hands.
 - d. Never remove safety guards, shields, or switches when operating the heater.
 - e. During operations the unit can have extremely hot surfaces. Be very careful not to touch heat transfer surfaces, heat exchanger, engine, or engine exhaust surfaces.
 - f. Always use caution around the rotating shafts and engine. Loose clothing or hair can be pulled into the shafts or engine causing serious injury or death.



5. Transportation

5.1 Transportation Safety:

1. Trailer Towing Can Be Hazardous:
 - a. BASECAMP is equipped with electronic trailer brakes. Allow for increased braking distance due to weight.
 - b. Reduce speed under adverse weather, road, or terrain conditions.
 - c. Avoid sudden lane changes, U-turns, etc.
 - d. Sudden maneuvers may cause tipping, rollover, jackknifing or sliding of the trailer and without warning loss of control of the towing vehicle may result.

5.2 Towing with Vehicle:

1. The BASECAMP can never be transported while the engine is running.
2. Ensure that BASECAMP has been shut off, the breakers are all in the off position and the Master Battery Connect Switch has been turned off (the control panel should be off).
3. Open the engine compartment door on the same side as the input/output chutes and make sure the fuel cap is properly secured.
4. Walk around the unit ensuring that side and rear jacks are all retracted and properly secured as well as all doors are fully closed. Secure ducting on ducting posts.
5. Ensure that the light tower has been fully lowered.
6. Once the BASECAMP's hitch has been secured to the towing vehicle, remove all wheel chocks, and place them back in the storage position.
7. Finally, attach the breakaway chains, emergency brake cable, and electrical cable, and test for brake and light function.
8. Inflate tires to 65 psi & check wheel lug nuts; Tighten to 80 ft-lb.
9. Towing Vehicle:
 - a. Check that the towing vehicle is rated to tow the load.
 - b. Check that the towing vehicle is in serviceable condition.
 - c. Do any necessary service/maintenance on the towing vehicle before towing.

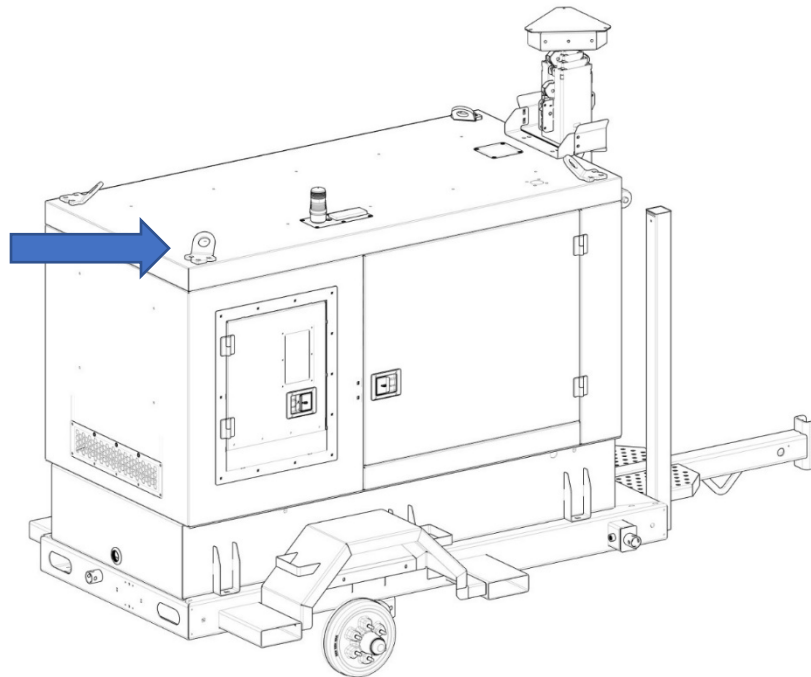


5.3 Transport on Flat Bed:

1. The BASECAMP can never be transported while the engine is running.
2. The unit can be lifted by a forklift from either side using the fork pockets.
3. Arrange the unit(s) on the flatbed, leaving enough room for movement between units, especially the overhead lights if transporting multiple BASECAMP units.
 - a. Make sure overhead lights are secure within the bracket before loading.
4. Secure the unit using the chains through the fork pockets, and the front D-ring.
5. Safety clips for the ducting should be on, all doors should be latched, light mast in its downright resting position.

5.4 Vertical Lifting by Crane:

1. The lifting eye lugs are made only for vertical lifting. DO NOT transport with a crane.
2. Use a four-point sling with the lifting eye lugs.
3. Attach a sling to all (4) lifting eye lugs or the unit may rotate freely. A freely spinning load poses a danger to equipment and the people involved. If a lift requires a unit to rotate, be sure to use a tagline.
 - a. Extra care must be used in environments with power lines near or overhead as the tagline will conduct electricity.
4. Lifts should be completed slowly and gradually.



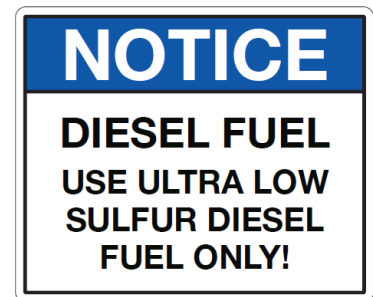
6. Pre-Operation

6.1 Daily Walk Around Inspection:

1. Look for conditions that could hinder performance or safety, such as oil, coolant, fuel leakage, blocked vents, loose or missing hardware and electrical connections.
2. Verify the V-belt is properly seated in the pulley grooves.
3. Coolant levels should be checked daily.
4. Check electrical battery, connectors, and ground points.
5. Check flexible rubber hoses for deterioration.
6. Check hoses are not twisted, crushed, or kinked.
7. Check there are no cracks or corrosion.

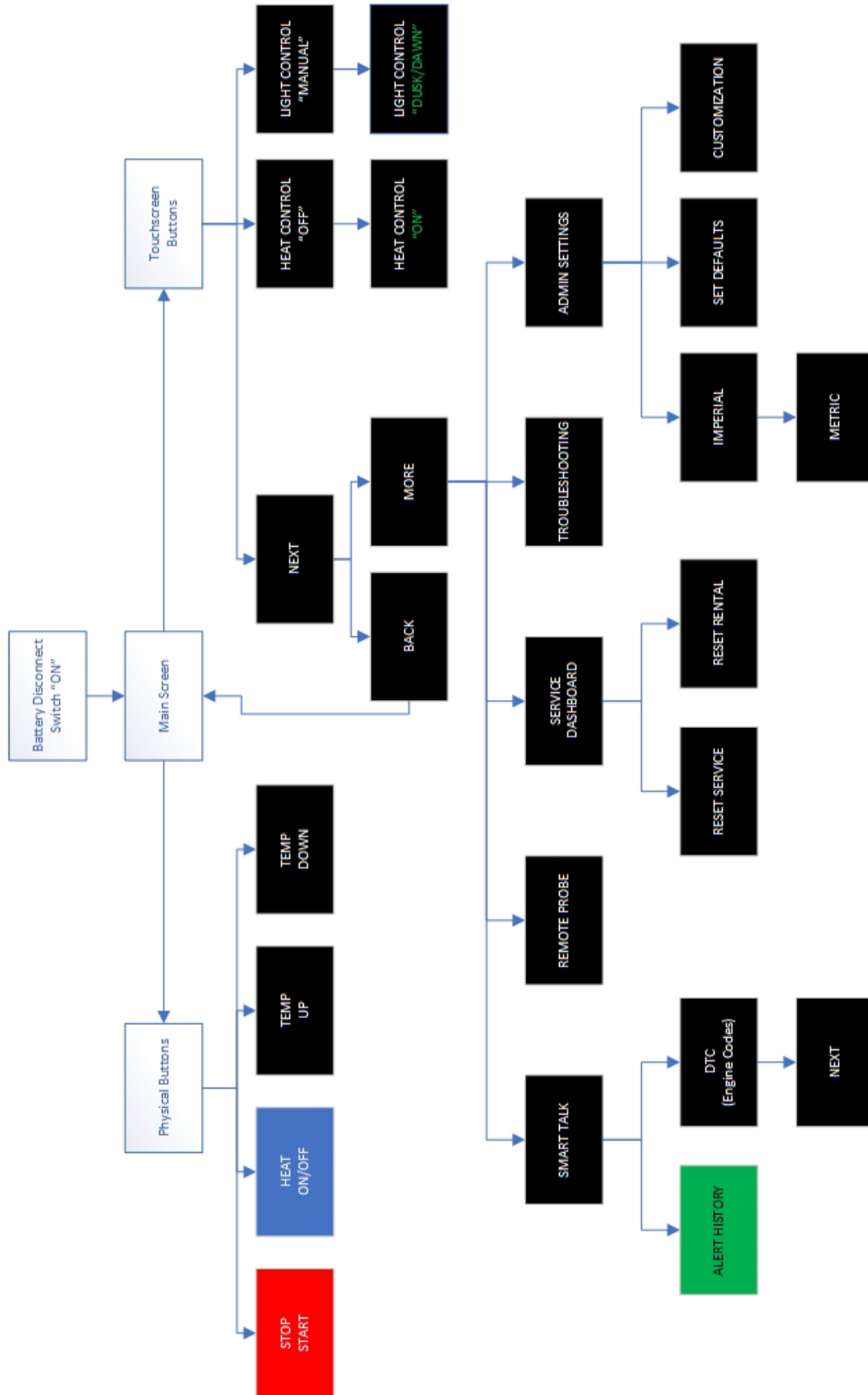
6.2 Refueling Safety:

1. Clean up any spilled fuel immediately.
2. Refill the fuel tank in a well-ventilated area.
3. Replace the fuel tank cap after refuelling.
4. Do not smoke.
5. Do not refuel a hot or running engine.
6. Do not refuel the engine near sparks or open flames.



7. Operating

7.1 Controller Operation Flow Chart:

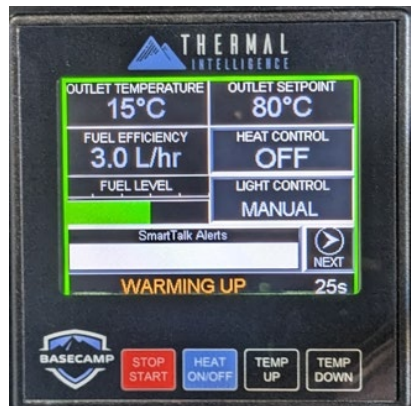
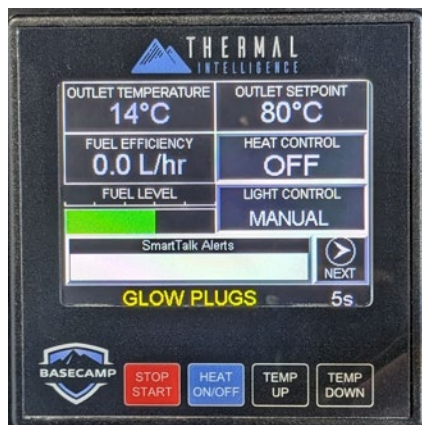


7.1.0 Controller Navigation:

1. Turn on the main battery disconnect; this will power on the controller and load the main menu.



2. Press the "START STOP" button to start the unit – You may see a "WAIT TO START" delay at the bottom of the screen to allow time for the controller starting capacitor to charge to maintain 12V to the screen during starting. Once the "WAIT TO START" delay is completed, you will need to press "START STOP" again. You will then see a glow plug delay prompt at the bottom of the screen followed by "STARTING" and finally "WARMING UP" before the unit becomes fully operational. The warm-up delay is temperature-dependent and will lock out the heating capabilities of the unit until the warm-up phase is completed.



- By pressing the physical “HEAT ON/OFF” button you can toggle the heat control from on to off, this can also be done by pressing the touchscreen “HEAT CONTROL ON”.



- By pressing the touchscreen “LIGHT CONTROL MANUAL” button, you can toggle between “MANUAL” and “DUSK/DAWN” settings for the light mast flood lights. In “DUSK/DAWN” the lights will come on automatically 2 hours before sunset and turn off 2 hours after sunrise.



- Pressing “NEXT” on the main screen will bring you to the secondary menu which will display other operating information about the unit.



- From the secondary menu you can navigate to the “MORE” Menu.



- From the “MORE” menu, you can see the status of Smart Talk connections along with Smart Talk alert history and DTC (engine) codes by pressing “SMART TALK”.



- In the “REMOTE PROBE” menu you can view if your remote probe is connected and the signal strength.



- In the “SERVICE DASHBOARD” you can view service and rental hours as well as reset said values after service or before rental.



- In the “TROUBLESHOOTING” menu, you can view all detailed operating data on one screen.



- In the “ADMIN SETTINGS” menu, you can switch between Imperial & Metric units as well as access two additional functions, “RESET DEFAULTS” and “CUSTOMIZATION”, with the authorization of a Thermal Intelligence authorized employee.



7.2 Unit Start-Up:

1. Ensure the heater is level and wheel chocks are placed under the wheels for stability.
2. Remove both port covers from the inlet/outlet chutes.
3. Turn the Master Battery Disconnect to the "On" position, the control panel will go through a booting sequence before taking you to the main screen.
4. If no alarms are present, press the "Stop/Start" button on the unit. After a glow plug countdown, the unit will start up.
 - a. If it is cold outside the unit may go through a pre-warming phase before saying "Full Operation" at the bottom of the screen.

7.3 Unit Start-Up – Winter:

1. In temperatures below freezing, diesel fuel will coagulate and cause problems with starting the machine. The engine will require preheating. Preheating can be achieved using the installed 120V block heater or by using a heater or other heat source indoors.
 - a. In temperatures between 32°F (0°C) and -58°F (-50°C) the machine should be preheated using the block heater. Plug the block heater into a 120V outlet. Let the engine warm for 2.5 hours minimum.
 - b. After preheating, the machine can be started normally.
2. In cold weather conditions please allow the unit to charge for 2 to 3 minutes before pressing the "Stop/Start" button to allow the capacitor start system to charge. If the capacitors are not charged the unit may fail to start.

7.4 Heat Function:

1. Once the control panel says, "Full Operation", users can turn on the main breaker and then press the "Heat On/Off" button.
 - a. The default heat setpoint is 80°C or 176°F.
 - b. Users can choose to set the temperature as high as 100°C or 212°F.
2. The BASECAMP will ramp up the engine load to attempt to hit your desired output temperature. Keep in mind the BASECAMP does a 100°C or 180°F temperature rise over ambient.
 - a. If users want more specific temperature control in their space, then we recommend using a BASECAMP Wi-Fi Remote Probe.



7.5 Heater & Engine Shutdown:

1. Do not use the Emergency Stop to turn off the machine.
2. Press the “Heat On/Off” button to disengage the heat.
3. Shut off all the breakers including the upper red main breaker.
4. Press the “Stop/Start” button to stop the engine. Allow the engine to cool down, you will see a timer and message stating, “Cool Down”. Once the cooldown period has ended, see the next step.
5. Turn the Master Battery Switch to the “Off” position to shut down the control panel and avoid any unnecessary battery drain.

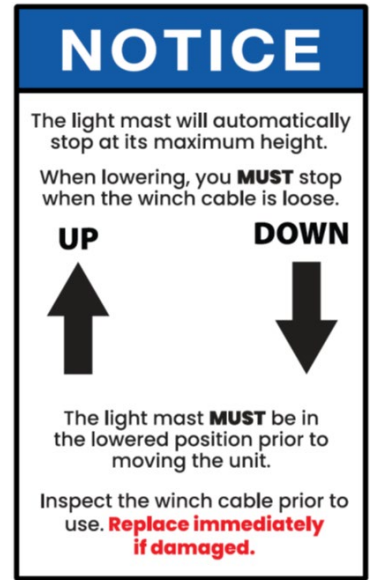
7.6 Generator Usage:

1. BASECAMP provides 27 kW of continuous power.
2. Once the BASECAMP is running and at full operation, users may turn on the Main Breaker to access the power distribution.
3. Simply match your required power with the outlet label on the BASECAMP, plug into the socket and turn on the corresponding breaker.
4. The unit will automatically and instantly divert power from heat generation (if in use) and provide electricity as necessary.
5. If the heat is engaged and the BASECAMP has not reached the desired setpoint, all remaining power is directed at the heating elements to ensure that the unit remains under a full heat generation load.
 - a. Having the BASECAMP lights turned on does not negatively affect the available power generation.
6. Utilizing all 27 kW of available power distribution will result in the heater operating at 60% of its normal peak capability. Airflow is not affected.
 - a. Using air recirculation in this scenario is recommended.



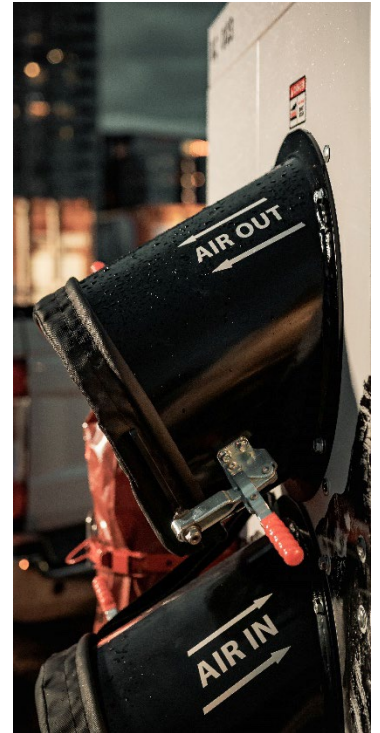
7.7 Light Tower:

1. The BASECAMP is equipped with (3) 480-watt LED lights providing 192,000 Lumens.
2. The breaker switches for the lights can be turned on once the BASECAMP is running and the main breaker is turned to the on position.
3. On the main screen of the control panel users have further control with the ability to turn the lights to a Dusk/Dawn setting where lights will turn on approximately (2) hours before dusk and turn off (2) hours after dawn.
4. Before extending the light mast, first extend the side outriggers and securely extend all four jacks for stability.
5. The up/down switch is used to raise the light mast to the desired height or until the upper limit switch is tripped and the mast extends no further. Do not solely rely on the upper limit switch.
6. When lowering the light mast, you **must stop** when the winch cable is loose.
7. The light mast can be raised and lowered on the battery; however, Thermal Intelligence recommends having the unit running during mast operation to eliminate unnecessary battery drain.
8. The BASECAMP must be transported with the light mast in the fully lowered position.
9. Light Tower Maintenance:
 - a. Inspect mast/winch cables regularly. Replace immediately if damaged.
 - b. Lubricate cables after every wash with a dry wire rope lubricant.



7.8 Connect Ducting:

1. If using a coil-style duct, bunch up as much of the duct as possible before securing the clamp. This will ensure an airtight seal and maximum airflow down the duct.
2. If using a soft cuff style duct, then simply secure using the included buckle and tighten before securing the ducting clamps.
3. It is recommended that ducting is secured before turning on the BASECAMP as it is easier to work while no air is flowing, however, if not practical hook up ducting while the unit is running.
4. The high static pressure of the BASECAMP means it can push air a long distance. To ensure that as much air gets to the destination as possible, always confirm that ducting connections are fully secure.
5. When using a ducting splitter, it is again recommended that connections are made while the BASECAMP is off. Always place the output duct inside the splitter to not impede airflow.
6. Once the air is flowing, check to make sure the splitter is properly open to allow for equal airflow.
7. If hooking up more than one splitter and wanting to have equal air flow at all output points it is necessary to restrict air at the first and second outlets by closing the opening to less than 12".



7.9 Wi-Fi Remote Probe:

1. Plug the Remote Probe into any 120V outlet within 50' of BASECAMP. Place away from metal structures for better signal strength.
2. The control panel screen will update with the Remote Probe temperature & control once properly connected.
3. Select the desired Remote Probe temperature on the screen based on the heating requirements of the Remote Probe location.
4. Unplug the Remote Probe to return to output temperature setpoint options.

7.10 Beacon Light:

1. BASECAMP is equipped with a tri-colour beacon that indicates the operating status of the heater:
 - a. The green light turns on whenever the engine is running.
 - b. The yellow light turns on whenever there's a fault which doesn't shut down the machine. Example: Fuel level dips below 20% or Air Filter Restriction.
 - c. The red light turns on if there is a critical error, which shuts the heater down.

8. Maintenance

8.1 Maintenance Overview:

1. Top-level maintenance is provided in this section. For detailed engine maintenance procedures please refer to the Engine Owners Manual.

8.2 Maintenance Safety:

1. The following safety items are to protect the operator and heater during maintenance. Failure to meet or exceed any of the following safety procedures will result in damage to the heater, towing vehicle, other vehicles, property damage as well as serious injury or death.
 - a. Place wheel chocks in front and behind the heater wheels to prevent accidental movement during maintenance.
 - b. The area around the heater must be cleared of all unauthorized personnel.
 - c. Wear approved protective clothing and safety glasses.
 - d. No loose clothing or hanging jewelry. Long hair must be secured.
 - e. Never weld or modify the heater unless approved by Thermal Intelligence.
 - f. Do not replace any parts or tires except for parts from Thermal Intelligence or tires with the same rating as the original equipment and meet the specifications listed in Section 13.
 - g. Always use the correct tools when performing repairs or routine maintenance.
 - i. Using improper or inadequate tools can cause damage to the heater or injury to the operator.



8.3 Engine Service & Maintenance Intervals

1. All BASECAMP's are equipped with an extended service interval tank allowing for 2,500-hour service intervals.
 - a. Oil and oil filter changes to be completed every 2,500 hours.
 - b. Fuel Filters & Fuel Water Separator Filter are to be changed every 2,500 hours.
 - i. Depending on the running conditions, the fuel filters may need to be changed sooner.
2. For any other service and maintenance intervals, please refer to the Kubota manuals.
 - a. The manual can be found here: <https://thermalintelligence.com/basecamp-user-manuals/>

8.4 Maintenance Tasks:

8.4.1 Change Engine Oil:

1. Place the container under the drain port or connect a hose to the drain port leading to the container.
2. Remove the plug from the oil drain.
3. Open the drain valve to drain.
4. Drain the oil immediately to be sure all the oil and suspended contaminants are removed from the engine.
5. Close the drain valve once completed.

8.4.2 Change Air Filters:

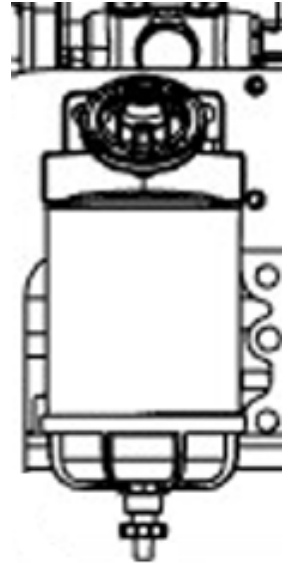
1. Replace air filters every 2,500 hours. Depending on the operating environment, air filters may need to be replaced more frequently
2. Lift the clamps to open the housing.
3. Replace inner and outer filters if heavily soiled.
 - a. Write current engine hours on filters when replacing.
4. Replace the housing and reattach the clamps.

8.4.3 Change Fuel Filter:

1. Remove the spin-on fuel filter with a filter wrench, and collect escaping fuel.
2. Install:
 - a. Do not pre-fill. The fuel filter can result in debris entering the fuel system and damaging fuel system components. Lubricate the O-ring seal with a small amount of diesel.
 - b. Install the filter on the filter head.
 - i. Write current engine hours on the filter when replacing.
 - c. Tighten the filter until the gasket contacts the filter head surface.
 - d. Tighten the fuel filter an additional $\frac{3}{4}$ turn after contact or consult the filter manufacturer's instructions.
 - e. Prime fuel system after filter installation.
 - f. WARNING:
 - i. The fuel pump's high-pressure fuel lines and fuel rail contain very high-pressure fuel.
 - ii. Never loosen any fittings while the engine is running. Personal injury and property damage can result.
 - iii. Operate the engine and check for leaks.

8.4.4 Fuel/Water Separator:

1. Draining Water (regularly check for water in a base container and drain as necessary):
 - a. Shut down the engine.
 - b. Place a suitable container underneath.
 - c. Loosen drain plug.
 - d. Drain until pure fuel runs out.
 - e. Tighten drain plug.
2. Changing the Pre-filter insert:
 - a. Shut down the engine.
 - b. Place a suitable container underneath.
 - c. Loosen the drain plug and drain the liquid.
 - d. Disassemble filter insert.
 - e. Clean any dirt off the sealing surfaces.
 - f. Wet the sealing surfaces of the filter cartridge with fuel and screw back onto the filter head, clockwise.
 - g. Tighten the drain plug.
 - h. Prime the fuel system. See below.



8.4.5 Priming the BASECAMP:

1. The filter primer pump is located above the fuel water separator on the Control Panel side of the BASECAMP.
2. First, press the Primer pump several times until it becomes too hard to press in. Cycle the BASECAMP power on and off using the main battery disconnect then press the start button. If the unit still doesn't start, then re-press the primer pump until it is hard then continue to press the pump button while the starter is turning over.
3. If BASECAMP still doesn't start you may have an air-locked fuel line or a fuel leak. If no leaks are present, using a 10mm wrench open the fuel line bleed screw located on the fuel filter (not on the water separator) and see if any diesel fuel comes out.
 - a. If no fuel comes out, then press the primer pump until you see diesel come out of the bleed screw (be sure to have a soaker pad underneath the screw to catch any diesel). Once diesel comes out of the screw, tighten it back up and press the primer pump until it becomes hard.
4. Try re-starting the engine. If there was air in the lines this process may need to be completed several times. If the BASECAMP still does not start and there are no other codes on the control panel, contact Thermal Intelligence.

8.4.6 Oil Filter:

1. Remove:
 - a. Clean the area around the oil filter head.
 - b. Use an oil filter wrench to remove the filter.
 - c. Clean the gasket surface of the filter head.
 - i. The O-ring can stick on the filter head. Be sure it is removed before installing the new filter.
2. Install:
 - a. Use clean oil to coat the gasket surface of the filter.
 - b. Apply a light film of lubricating oil to the gasket sealing surface before installing the filter.
 - i. Be careful that no debris is poured into the filter. If using an oil supply with a metallic or plastic seal under the cap, be careful to peel the seal back. Punching the seal with a knife or sharp object can create debris in the oil container.
 - c. Mechanical overtightening of the filter can distort the threads or damage the filter sealing element seal. Install the filter on the oil filter head. Tighten the filter until the gasket contacts the filter head surface. Tighten $\frac{3}{4}$ turn after the gasket contacts the filter head.

8.4.7 Adding Coolant & Coolant Check:

1. If the coolant level is below the filler neck, coolant must be added.
 - a. Verify engine is stopped and cooled.
 - b. Remove the radiator cap.
 - c. Fill the radiator slowly with coolant until it comes up to the filler neck.
 - d. Coolant can be added inside the enclosure or from the roof access panel.
 - e. Operate the engine for approximately five minutes to bleed the air in the coolant circuit.
 - f. Coolant level will drop.
 - g. Stop the engine and once cooled, there should be approximately 1" of coolant in the reserve tank.



8.4.9 Engine Oil Check:

1. If the engine was running, wait ten minutes before proceeding.
2. Remove the dipstick and wipe it dry with a lint-free and clean cloth.
3. Insert the clean dipstick. Verify the dipstick is fully seated.
4. Remove the dipstick and look at the oil level on both sides. The lower of the two readings is the correct oil level.
5. Add oil (if necessary) to adjust the level. After adding or changing the oil, run the engine for one minute before checking the oil level.



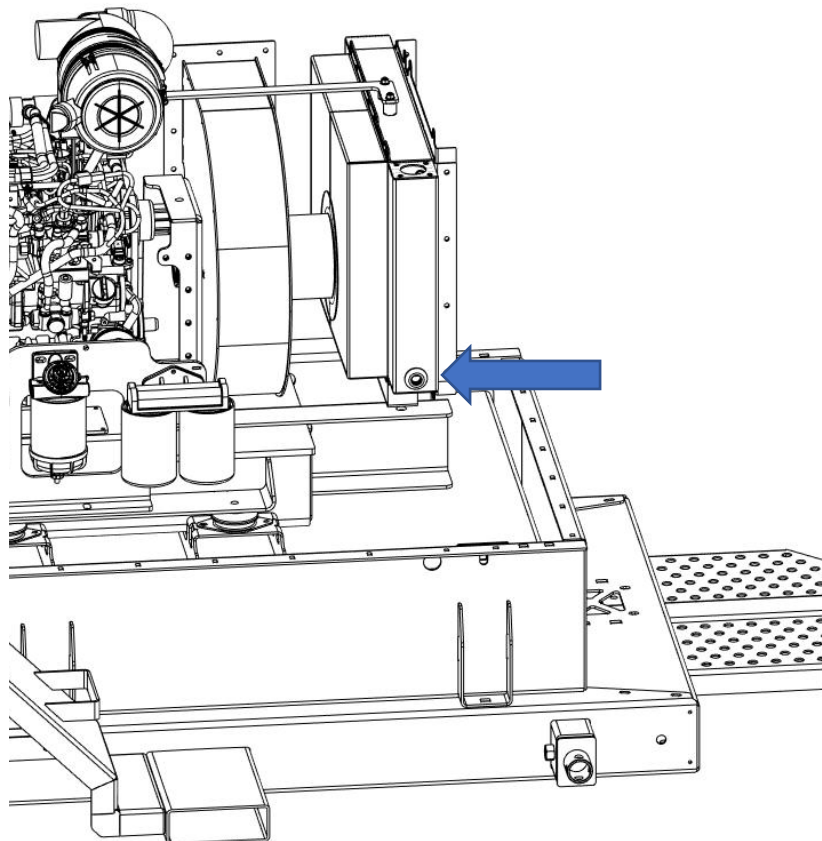
8.4.10 Battery Check:

1. Battery maintenance checklist should be performed monthly. Always wear approved eye protection when working with batteries and wash hands after handling.
2. Inspect battery posts and cables for tightness and corrosion.
3. Tighten and clean cables and posts as necessary. If required, use a battery contact cleaner.
4. Coat the battery posts with dielectric grease, after tightening and cleaning.



8.4.11 Exhaust Heat Exchanger Check and Drain:

1. BASECAMP has a wet stack prevention program built into the unit; the exhaust heat exchanger can see an excess build-up of fluids.
2. It is recommended that the 3/8" hex inspection bolt is removed at least once a year and the bottom of the exchanger is inspected for fluids.
3. The BASECAMP should be off when the bolt is removed. If the exchanger is cool to the touch, users may insert a finger into the exchanger to check for fluid.
 - a. It is normal to feel small amounts of condensation when inserting your finger into the exchanger.
4. If the fluid level is below the drain, that is considered acceptable and will not damage the unit.
5. If the fluid level is above the drain, allow the fluid to drain then re-insert the plug for normal operation. It is recommended in this case that the BASECAMP is run under full load for two hours to clear excess condensation.



8.4.12 Blower Belt Replacement (V-Belt):

1. For ease of access remove the intercooler to manifold pipe (will be either 10mm or 8mm).
2. Remove the (12) bolts on the side belt guard of the blower, and use a 9/16" wrench.
3. Then remove the (1) vibration dampener bolts using a 13MM wrench.
4. Remove the belt guard.
5. Slightly loosen (**do not remove**) the (4) blower fan bearing bolts using an 11/16" wrench.
6. Loosen the tensioner bolt by loosening the 1/2" bolt located on the top of the blower bracket until the belt is loose enough to remove (prybar may be needed to assist). If it doesn't move freely with a prybar, further loosen the tensioner bolt.
7. Place a crescent wrench on the tensioner arm and apply pressure to remove tension from the belt.
8. While holding the crescent wrench, remove the belt, ensuring that you do not have to roll it or kink it to take it off as this will damage your new replacement belt during the installation.
9. Install replacement belt. It should not need to be forced on.
10. Put the unit back together in reverse order.

8.4.13 Blower Belt Tension (V-Belt):

1. Test belt tension and record value for future records.
2. Loosen 7/16 Nyloc nuts on the blower bearing.
3. Loosen 1/2 lock nut on the tensioner.
4. Use a crescent wrench on the tensioner arm to remove tension, and adjust the 1/2" tensioner bolt till adequate tension is applied to the belt.
5. When retightening bearing 7/16 Nyloc nuts, tension will increase significantly.
 - a. Final running tension (without the tensioner touching the belt) should be:
 - i. 80 LBS

Warning: Over-tensioned fan belts may result in premature failure of related components

IMPORTANT

**FAN BELT TENSION:
80 LBS**

Warning: Over-tensioned fan belts may result in premature failure of related components

8.4.14 Light Tower Maintenance:

1. Inspect mast/winch cables regularly. Replace immediately if damaged.
2. Lubricate cables after every wash with a dry wire rope lubricant.

8.4.15 Light Tower Lens Adjustment:

1. Utilizing a 13mm wrench users may adjust the individual light lenses to the desired angle.
2. For adjusting the entire bracket assembly up or down you will require a 16mm (outside) and 17mm (inside) to loosen the bracket and adjust the angle.

9. Seasonal

9.1 Off-Season Maintenance:

1. Unplug the block heater from the 110-volt plug. This is done so that the unit can still be plugged in periodically and the onboard battery tender can charge the battery without the block heater running. Plug the block heater back in before the start of next season.
2. Remove the containment drain plug on the rear of the unit to drain any excess water, or potential diesel from overflowing. This should be done at least twice per year.
3. Check the exhaust heat exchanger as noted in Section 8.4.11.
4. Check Oil levels and ensure the oil level is at the "Full" line on the dipstick.
5. Check the fuel system for leaks
6. Check the Alternator V-belt for proper tension
7. Check the Fan V-belt for proper tension and adjust if necessary (80lbs is the proper tension level without the auto-tensioner installed)
8. Check the Coolant and add if necessary. In a fully cooled condition, there should be no more than 1" of coolant in the expansion tank.
9. Do a visual check of all fasteners to ensure they remain tight
10. Check the light mast winch cable for damage, and replace it if necessary. Apply dry lubricant.
11. Open up the electrical panel and inspect electrical connections, checking for potential shorts or bare/loose wires.
12. Open up the generator junction box and inspect connections and wiring for damage.
13. Ensure ducting caps are on to avoid debris/rodents entering the unit.

9.2 Seasonal Checklist:

1. Check oil.
2. Test the control panel for proper operation.
3. Check the radiator for corrosion and damage.
4. Check engine hoses and exhaust clamps; tighten or replace them as needed.
5. Check wiring harnesses for damage; replace as needed.
6. Check the battery; replace it as a set as needed.
 - a. Disconnect for storage; connect for operation.
7. Check the engine fan belt; replace it if necessary.
8. Check engine coolant; replace if necessary.
9. Check the air filter; replace if necessary.
10. Check the fuel filter; replace if necessary.
11. Check tire pressure. Inflate to 80 psi.
12. Inspect for loose bolts and nuts.
13. Inspect safety guards and shields.

10. Recommended Filter & Fluids

10.1 Filters:

1. Air Filter - Inner
 - a. Donaldson - Item #P829332
2. Air Filter - Outer
 - a. Donaldson - Item #P827653
3. Engine Oil Filters x 2
 - a. Kubota - Part #HH160-32430
4. Fuel Filter - Primary
 - a. Kubota - Item #HH1J0-43172
5. Fuel Filter/Water Separator
 - a. Racor - Item #R60T
6. CCV Elements
 - a. Kubota - Item #1J770-05810

10.2 Fluids:

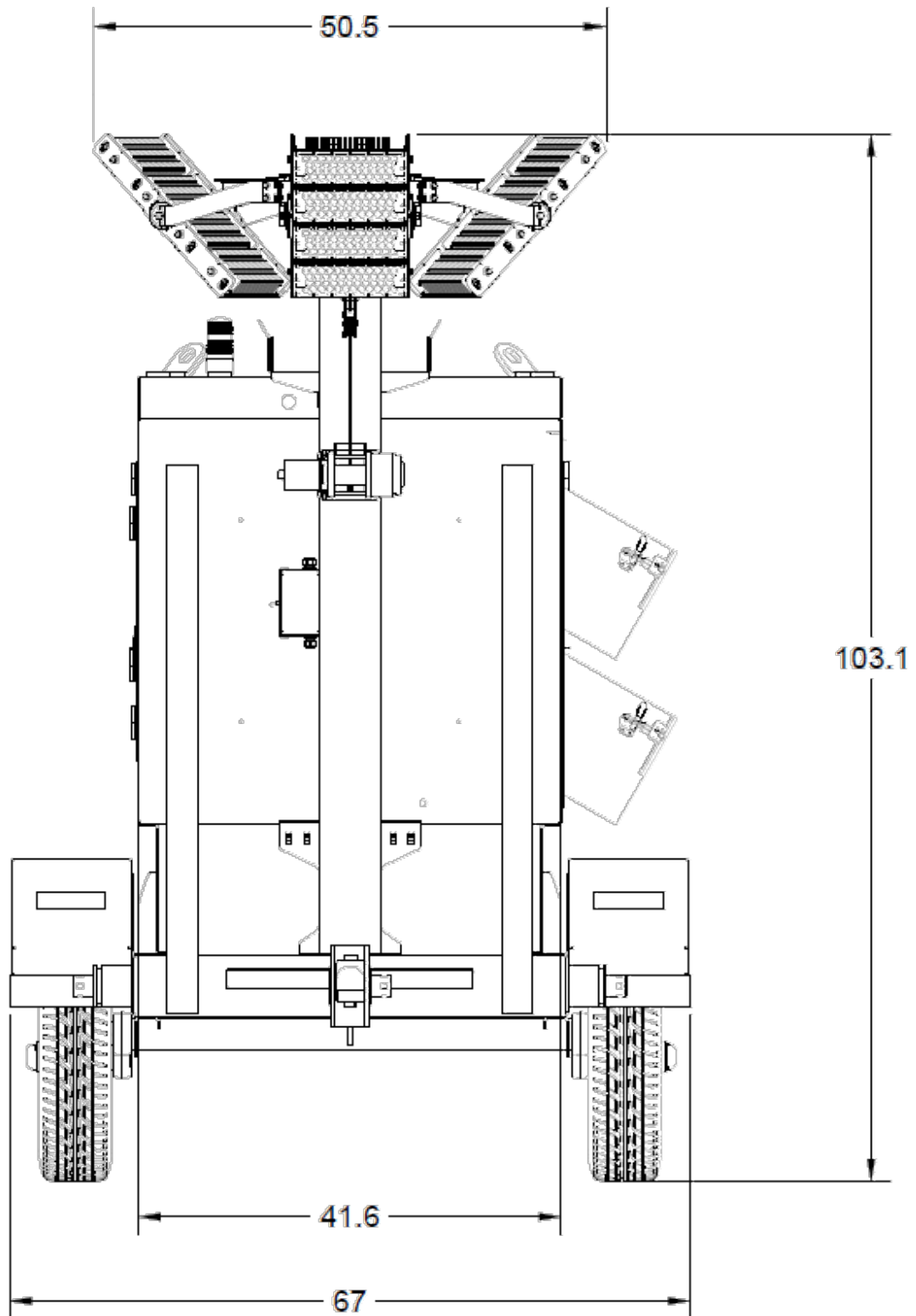
1. Engine Oil
 - a. Refer to the Kubota Engine Manual for precise oil specifications.
 - b. BASECAMP is shipped with CJ4-compliant 5W-40 diesel engine oil.
2. Engine Coolant
 - a. Refer to the Kubota Engine Manual for precise coolant specifications.
 - b. BASECAMP is shipped with Cool-Gard Coolant - Item #TY26576 diesel engine coolant.

11. Technical Specifications

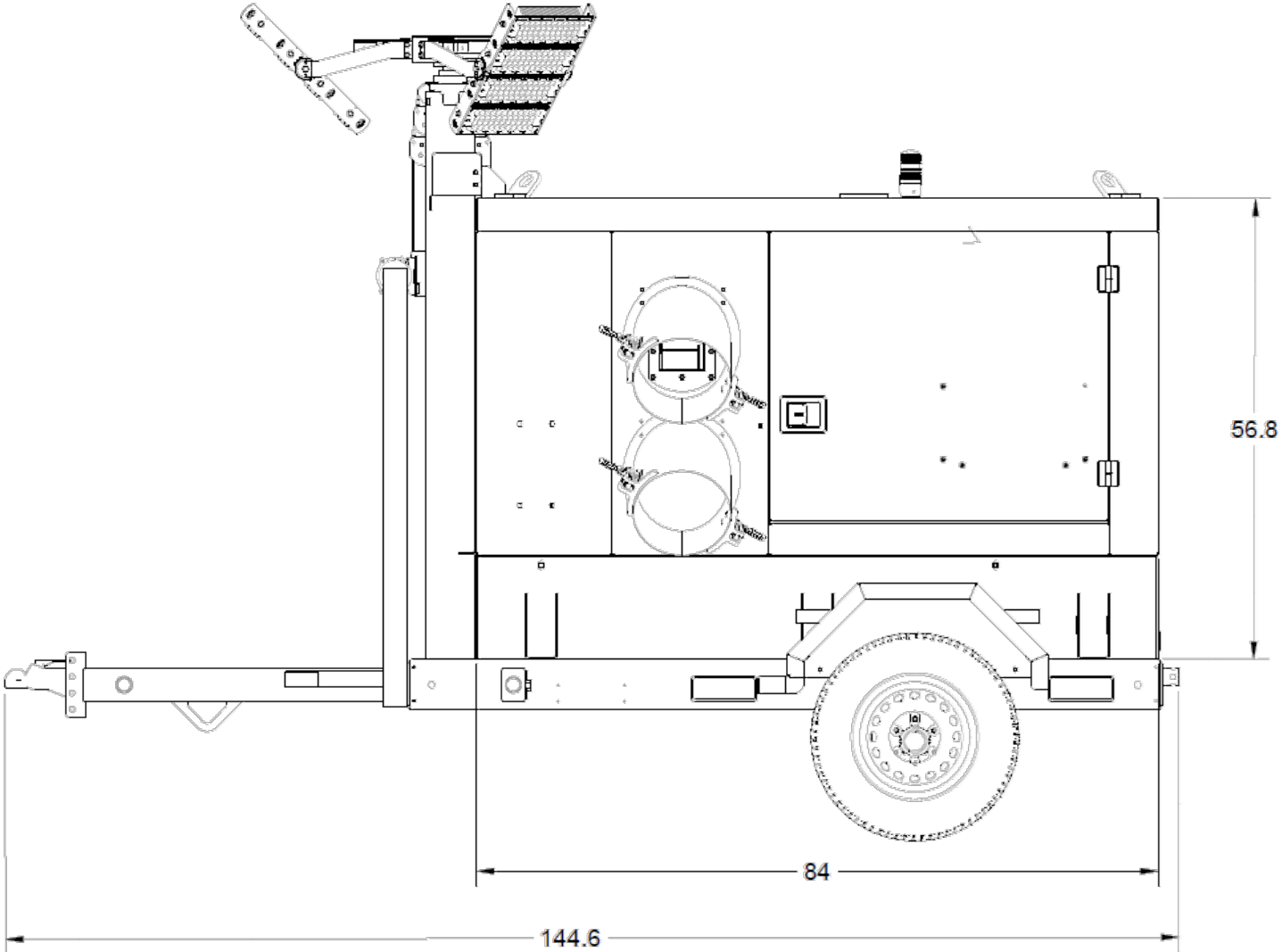
BASECAMP	
Fuel Type	Diesel
Dimensions	12' 5" L x 5' 6" W x 8' 6" H
Curb Weight	5,511 lb 2,500 KG
Dry Weight	4,563 lb 2,070 KG
Engine	Kubota 2.4 Litre Electronic Tier 4 Final
Fuel Capacity	Gallons: 119 Litres: 450
Minimum Run Time	48 Hours
Power Generation	27 KW of continuous power
Power Plugs	(3) Twist Locks – 30 Amp (3) GFI – 20 Amp 120V
Light Output	192,000 Lumens 5k colour
Temp Rise	212°F 100°C
Static Pressure	10 INCH WC
BTU Equivalent	700,000
SCFM	3,250

12. Dimensions

12.1 Front View:



12.2 Side View:



13. Tire & Rim Specifications

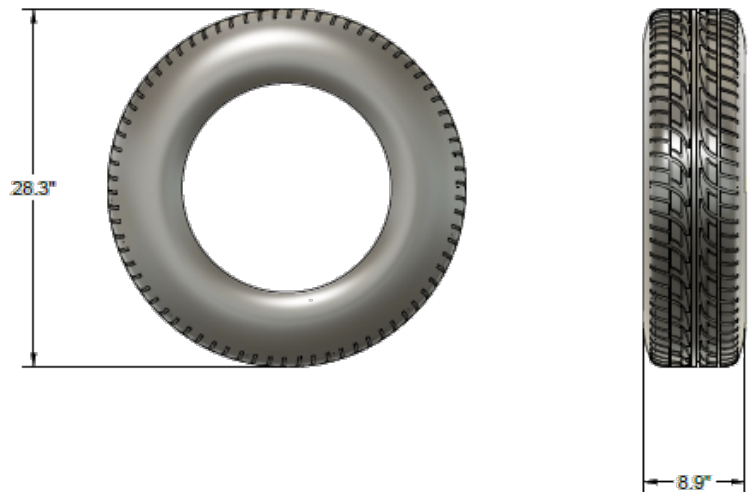
13.1 Rims:

1. Size: 15"x6"
2. Bolt Pattern: 5x4.5"
3. Maximum Load Rating: 2,830 lbs

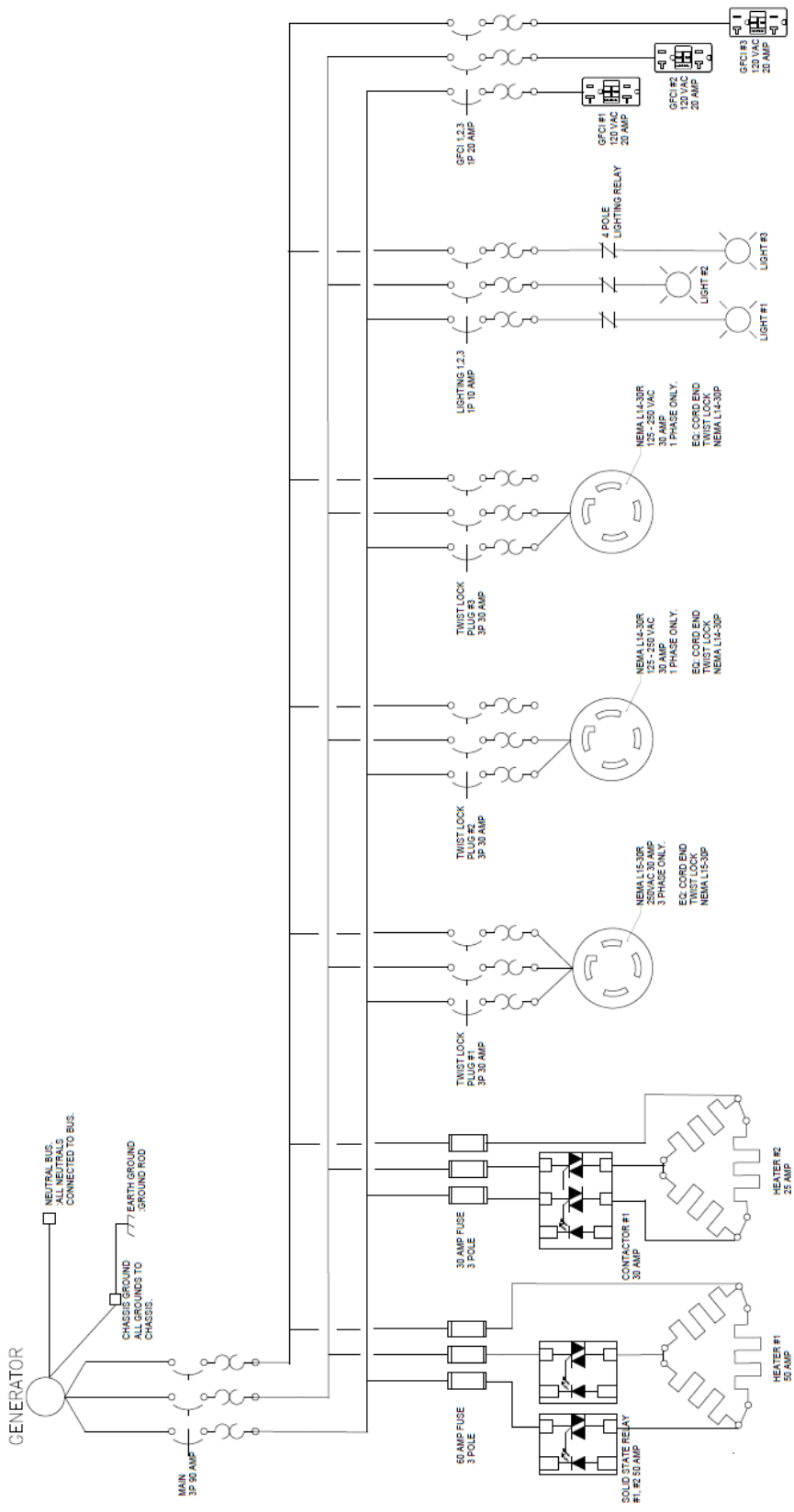


13.2 Tires:

1. Size: ST 225/75 R15 Tubeless
2. Load Rating "E" 10 Ply
3. Max Load: 2,830 Lbs at 80 PSI
4. Tread: 2 Steel + 2 Poly + 1 Nylon
5. Sidewall: 2 Poly



14. Power & Electrical Schematic





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