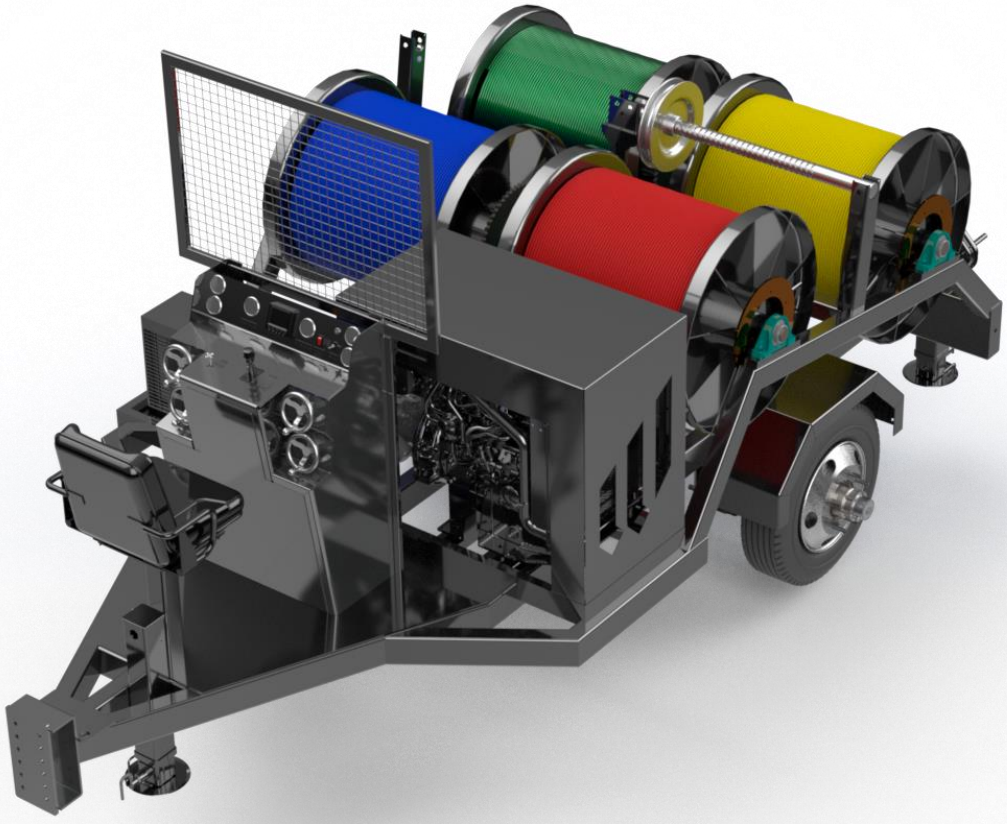
WHITE'S WELDING
LLC



2K 4 Drum Overhead Rope Puller Operator's Manual

Attention

Before using any White's Manufacturing equipment, operators must read and understand all procedures and safety instructions. Note all safety information and specific safety requirements as explained in this manual.

Failure to follow these instructions could result in damage to the machine, serious personal injury, or death.

 Information is provided for the purpose of product usage and maintenance descriptions only. The descriptions and specifications in this manual are subject to change without notice, and to the best of our knowledge, are accurate at the time of printing. The information contained may not be specific to all models or units and must not be construed as warranted characteristics in the legal sense. The information does not relieve users from the duty of conducting their own inspections and evaluations. The information contained represents the best practices for the safest use and maintenance of the unit and does not cover every situation.

Regarding situations not covered in this manual, the operator is responsible to ensure the safe operation of the unit and should ask questions or make inquiries if uncertainty exists prior to the operation of the machine or unit. White's Welding LLC reserves the right to continually improve and expand our product line. It is our policy to improve our products whenever it is possible and practical to do so. We reserve the right to make changes or improvements at any time without incurring any obligation to install such changes on products previously sold. As our products are subject to continual improvement, we reserve the right to amend the product specifications, maintenance steps, and all information contained in this manual. Some product improvements may have taken place after this manual was published.

Manufacturer

For information about White's Welding LLC products, contact us by phone at (580) 254-3766 or at WhitesWeldingLLC.com or in trailersales@whitesenergy.com.

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Rev A

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Introduction

Terms of Use

It is important that every machine is operated in a safe manner. To properly, safely operate this machine, it is required that operators and service people read and understand the information in this and the engine manufacturer's manual. ANYONE working around the machine should read the safety precautions in the manuals. Be aware each warning and precaution is to help protect against injury. Taking unnecessary risks and ignoring warnings is the primary cause of personal injury and fatal accidents in the workplace. If you have any questions regarding operation or safety of a procedure or situation regarding the operations of this unit.

White's Welding LLC strongly recommends that only persons who have a full understanding of the provided manual and who are knowledgeable in the use of overhead line pulling and tensioning machines, including all applicable laws, regulations, and safety standards, be allowed to operate this machine. There are significant hazards inherent to the use of this machine; therefore, all operators should be educated on all functions, procedures, and safety measures outlined in this manual prior to their use or maintenance of this machine.

Should a problem or unsafe condition arise, shut the machine down using the normal shut-down procedure. In the event of an emergency, use the emergency stop procedure described in this manual, and then notify the proper authorities or follow your employer's prescribed procedure for an emergency.

The operator must be aware of the machine's capacities and limitations. It is the operator's responsibility to watch for situations and conditions which could affect the normal performance of the machine and the safety of the operating/work environment.

Publication of this manual and the safety precautions in it does not in any way represent an all-inclusive list. It is the owner and operator's responsibility to make sure the machine is operated in accordance with all state and local safety requirements and codes, including all applicable OSHA- (Occupational Safety and Health Administration) and EPA- (Environmental Protection Agency) regulations, as well as ANSI- (American National Standards Institute) accredited standards.

White's Welding LLC also recommends following applicable guidance published by the Institute of Electrical and Electronics Engineers (IEEE), and specifically IEEE Standard 524 – Guide to the Installation of Overhead Transmission Line Conductors (IEEE 524-2016 or subsequent).

This manual was prepared to help the owner and operator use and service the machine in a safe manner. Responsibility for safety during operation and service rests with the person(s) performing the work. Being alert of surroundings and observing all safety precautions, and all rating requirements and standards are required to help reduce the possibility of an accident. This manual is of no value if the operator does not read and understand the instructions and precautions- before starting or trying to operate the machine.

Safety

Hazard Overview

Please pay attention to all safety warning labels and information placards posted on the machine, components, and trailer assembly. These labels and placards are not all inclusive and are provided to simply assist in identifying areas containing potential hazards while also providing information regarding equipment specifications and limitations. Please see below for examples

Caution Symbols:

Operator Safety Precautions

- Be sure all guards and access covers are in place and secured when the machine is being operated.
- Know location and function of all controls, gauges, instruments, and protective devices.
- Never bypass safety switches or operate equipment with faulty safety devices.
- Do not place any part of the body into a potential pinch point. The machine should be turned off and locked out in accordance with OSHA regulations before attempting to correct a problem, work on the machine, or perform preventive maintenance.
- Do not make physical contact with rope or cable as it enters or leaves the machine or drum.
- Do not attempt to operate any White's Welding LLC equipment without proper instruction, including reading and understanding the provided manual.
- Keep all body parts, to include head and limbs, away from all moving parts.
- Obey and enforce all warnings including OSHA requirements and ANSI standards.
- Always wear proper safety personal protective equipment (PPE) as required by employer.
- Know all emergency shutdown procedures.
- Do not obstruct controls.
- Do not exceed unit specifications and limitations, to include weight.
- Never operate equipment while under the influence of any substance which could impair ability or judgment.
- Do not operate equipment if work ability is impaired by fatigue, illness, or other causes.
- Do not refuel unit while the engine is running or hot.
- Be aware of people in the work area who may be at risk during operation.
- Avoid direct inhalation of engine exhaust gases.
- To prevent the possibility of electrocution, do not enter or leave the unit while it is operating or allow anyone to touch or lean on the machine when in use.
- Always use employer approved grounding procedures when operating the machine.
- Avoid contact with pumps, cylinders, hoses, engine components, and exhaust system.
- Never use hands to check for hydraulic system leaks. Hydraulic fluid escaping under pressure can cause personal injury.
- Never use unit to tow or winch another vehicle.
- Refer to engine manufacturer's manual for all additional safety precautions which relate to engine operation and service.
- Never use controls or hoses for hand holds.
- Know where to get help in the event of an emergency or injury.
- When towing this machine/unit trailer, the driver should use caution and adjust speed based on road, weather, and terrain conditions, as well as applicable laws and speed limits.

Employer Safety Precautions

This guideline is intended to assist owners, employers, job site supervisors, and operators in ensuring that the equipment is operated in a safe manner. Each job site may have additional situations and conditions which need consideration. Information in this manual applies to all the operators charged with the use and/or maintenance of the machine. This manual is not a training manual. This manual must be kept with the machine for the entire life of the machine in order to be available to all potential users and operators.

Establish a regular inspection program which includes malfunction reports, inspection, and service records. This inspection should cover the machine condition, adjustment, and ensure all safeguards are in place and functional. Additionally, all pre/post-operation inspections should be conducted at prescribed intervals.

Make sure that any malfunction or breakdown affecting the safe operation of the equipment is properly corrected or repaired before returning the machine to service.

The employer should specifically inspect all safety equipment and protective devices on the equipment to ensure they are not bypassed or disabled. Operation of equipment should not be permitted unless all safety devices are in place and functional. The employer should meet all appropriate information dissemination and protection requirements for the workers.

Monitor the operators to be sure they observe and practice safety procedures and operate the support equipment as outlined in this manual.

Operators should wear suitable clothing to reduce the possibility of entanglement in the machines moving parts. Operators should not wear chains or other jewelry for the same reason.

Operators and maintenance/service personnel should take appropriate precautions, to include wearing all (PPE)-Personal Protection Equipment, prior to the operation, maintenance, or service of the machine.

Before Starting Operations

- Only trained and authorized personnel can operate and maintain the machine.
- If you are not feeling well, of if you are under the influence of alcohol or medication, your ability to safely operate or repair your machine may be severely impaired, putting yourself and everyone else on your job site in danger.
- Follow all safety, precautions, and instructions in this manual when operating or performing inspection or maintenance on the machine.

Understand the Machine

- Before operating the machine, read this manual thoroughly. If there is any place in this manual that you do not understand, ask the person in charge of safety for explanation.
- If you find any problem in the machine during operation or maintenance (noise, vibration, smell, incorrect gauges, smoke, oil leakage, etc., or any abnormal display on the warning devices or monitor), report the problem(s) to the person in charge and take the necessary action. Do not operate the machine until the problem has been corrected.

Preparations for Safe Operation

- Understand the application of safety-related devices and use them properly.
- Never remove any safety-related devices. Always keep them in good operating condition.
- Check that all personal protective items function properly before using them.
- Do not wear loose clothes or any accessories that could catch the control levers or protruding parts and could cause the machine to engage unexpectedly.
- Wear Well-Fitting Cloths and Personal Protective Equipment (PPE).
- Long hair hanging down could become entangled in the machine. Tie the hair up and be careful that it is not caught in the machine.
- Be sure that all guards, covers, and safety devices are in their proper position. Repair them immediately if they are damaged.
- Always wear appropriate PPE: hard hat, safety shoes; protective eyeglasses, ear plugs, gloves, and/or face shield, depending on the work.

Housekeeping

- Wipe off any mud or oil from the machine. Always keep the machine clean.
- If water gets into the electrical system, it could cause systems malfunctions which could cause the unit to engage unexpectedly and could cause serious personal injury or death. When washing the machine with water or steam, do not allow the water or steam to come into direct contact with electrical components.
- Do not use high-pressure water to clean the unit. Do not spray water directly onto electrical fittings, hydraulic fittings, hydraulic pistons, or hydraulic manifolds. Wipe off any dirt from electrical and hydraulic fittings and components with soft cloth.

Precautions

Sensitive electrical components and welding

- The machine is equipped multiple electronic controllers and electronically actuated hydraulics. Electrical surges to the machine can damage the sensitive electronic controls.
- Do not weld on the unit without disconnecting the batteries and all electronic controllers. Locate the weld grounding wire as absolutely near as possible to welding point.
- Contact White's Welding LLC for instructional supplement regarding welding on the unit.
- Electrical components damaged by welding are not covered under warranty.

Corrosion

Regularly inspect the unit for corrosion. To help prevent rust on the unit, it is important to regularly apply a corrosion inhibitor / lubricant to exposed metal as well as fairlead rollers and pins. If the unit is stored outdoors, a corrosion inhibiting product should be reapplied every 6 months. The product should also be reapplied if a visual inspection indicates that surface areas are no longer glossy. The friction between the ropes and the surface of the reel and rollers can accelerate the degradation of any corrosion inhibiting coating, therefore, the reel and rollers should be examined after each use to determine if reapplication would be beneficial.

Rope, rope eyes, grips, and swivels.

All mechanical components are subject to wear. Worn components do not have the same *Maximum Load Limit* rating as do new components. The total responsibility for the inspection, maintenance, lubrication, and continued use is entirely up to the purchaser/user. Remember, visual inspection may not be sufficient and examination methods such as X-ray, ultrasonic testing, magnetic particle inspection, dielectric resistance, and others, might be required to establish the present integrity of the product. External factors will affect the longevity of the product. There is no defined time period for the useful life of any of these products.

Check to see that your equipment is being inspected and tested in accordance with all applicable governmental rules and regulations and Original Equipment Manufacturer (OEM) guidance. Should any products become worn and in need of repair, the responsibility for the actual repair work will be borne solely by the party making such repairs. It is recommended that the OEM be contacted should there be any questions whatsoever relating to a repair.

Emergency Stop Procedure

In the event of an emergency, the operator must be aware of how to shut down the machine so as to avoid any additional injuries or equipment damage. In these emergency situations, the lives of lineman, work crews, surrounding bystanders, as well as the operator may become at risk- dependent upon the severity of the situation. As an operator in these situations, the level of operating knowledge and proficiency can be tested. These factors alone make this procedure one of the most important to know.

1. The first step of an emergency shut down during operations is to attempt to stop the hydraulic system by putting the joystick in the neutral position.
2. If this does not work the next step is to apply the brake by turning the knob on the control console to the ON position.
3. If the operator is still unsuccessful the last option is to de-energize the drive system/engine. This is done by turning the BATTERY DISCONNECT to the OFF position. (Know the location of these E-stop switches.)
4. If the Emergency Stop Button is activated during operations and other machines/operators are being utilized in tandem or sync with your machine, notify them as quickly as possible that an emergency has occurred and advise to halt rotations.
5. Quickly assess situation and assist any injured personnel to get free from hazards- only if safe to do so.
6. Notify proper authorities and get help.
7. Follow all employer emergency procedures.

Unauthorized Modifications

- Any modifications made without authorization from White's Welding LLC will void any written or implied warranty.
- Any modifications made without written authorization from White's Welding LLC can create hazards. Before making any modifications, consult White's Welding LLC.
- White's Welding LLC will not be responsible for any personal injuries, product failures, physical loss, or damage, or impacts to the environment resulting from modifications made without written authorization from White's Welding LLC.

Controls

General Overview

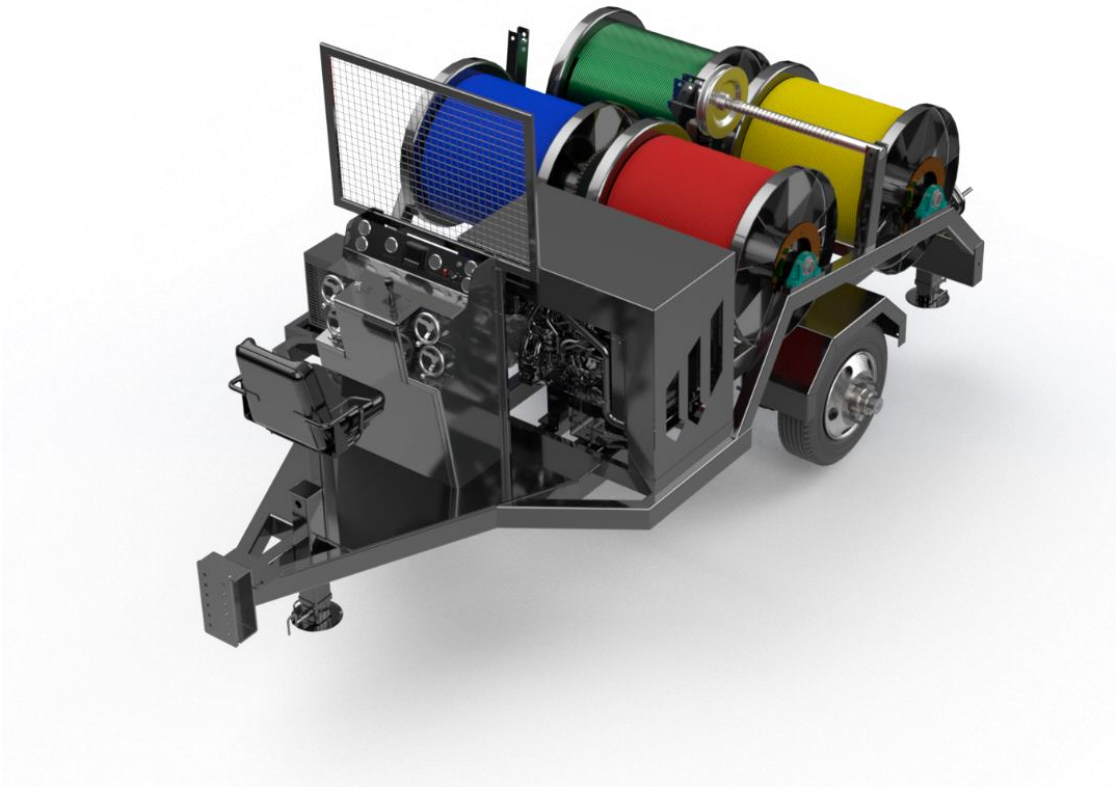
The White's Welding LLC 2K Four-Drum Overhead Puller is a multi-purpose pilot line winder capable of pulling up to 2,000lbs. The operation controls employ PLC machine control with CAN-bus technology, allowing for centralized control of all operations from the safety of the control console. This distribution class puller utilizes a waterfall design that permits overhead pulling while allowing for added line clearance.

One, automatically controlled levelwind helps ensure even distribution of rope when rewinding or pulling, thereby minimizing the risk of tangles and maximizing rope life. The 2K4DP is equipped with a Tier 4 final, turbo charged, 49 hp industrial diesel engine capable of delivering a full 2,000 lbs of line pull from first wrap to the last with 9,000 ft. of 1/2 in. synthetic rope on each drum. Each drum is loaded with a different color rope for easy identification. The 2K4DP single axle trailer is equipped with two rear jacks, a front/nose jack, adjustable pintle eye, safety chains/hooks, and US DOT LED lighting.

With state of the art design to ensure operator safety, the 2K4DP features an operator stand to keep the operator off the ground while the equipment is in use, and is built with a fully adjustable ergonomic seat and a full set of electronic controls and gauges.

Key Features

- Constant speed to tension technology
- 4 Drums of 8,000 ft. ½" synthetic rope
- 4 Independent Hydraulic Payout Brakes
- Centralized Engine Controls- CAN-bus technology
- 49 HP Tier 4 Final water-cooled diesel Kubota engine
- Automatic controlled levelwind



Specifications

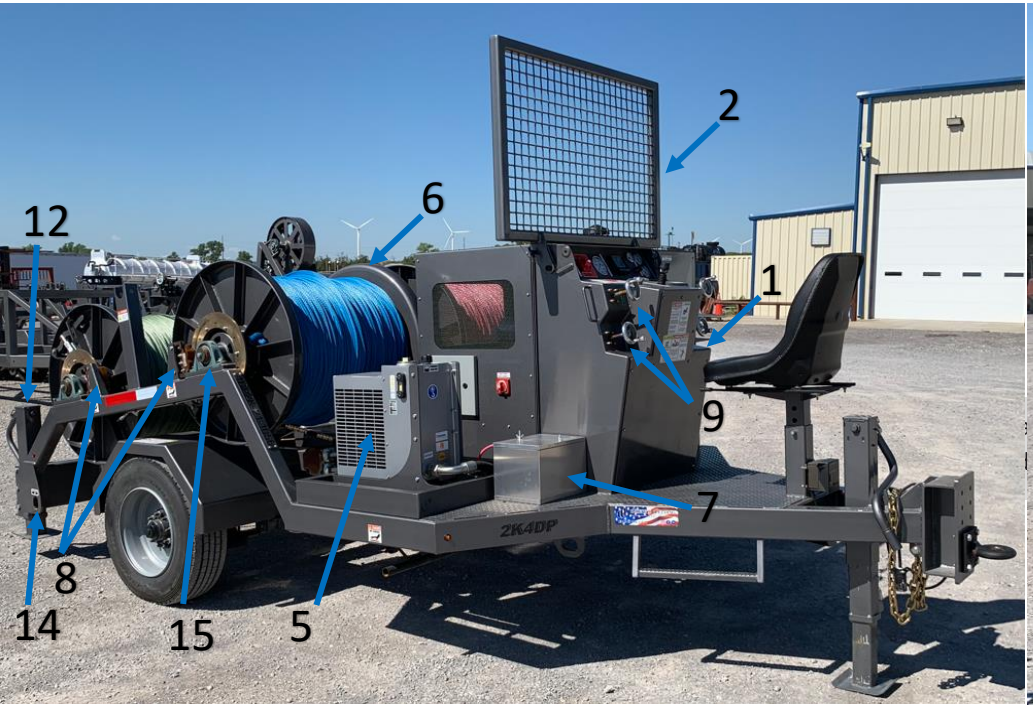
Specifications Details: 2k4DP

(Dimensions, weights, and capacities listed are approximate. All specifications are subject to change without notice.)

Pulling Capacity	2,000 lbs. rated at the top of drum
Max Line Speed	4.0 mph *average*
Max Reel Capacity	9,000 ft. of 1/2 in. synthetic rope
Drive System	Hydraulic motor, chain, and sprocket
Engine	Tier 4 Final, diesel, 49 hp., water-cooled
Fuel Capacity	22 gallons
Hydraulic Fluid	ISO Grade 46
Hydraulic Reservoir (Main)	4.4 gallon
Hydraulic Fluid Filtration	10 microns
Payout Brake	Hydraulic disc-caliper, electronically adjusted, ACG (Advanced Control Group)
Levelwind	Automatic leadscrew design
Frame Construction	Steel tubing, continuous weld
Length (Overall, Nom.)	15′ 5″
Width (Overall, Nom.)	94″ OAW
Height (Overall, Nom.)	8 ft., 11 in.
Weight (Empty)	6,000 lbs.
GVWR	11,400 lbs.
Suspension	Leaf spring
Axle Configuration	Single
Wheel Configuration and Tires	Single 235/80R 16
Brakes (Trailer)	12 ¼″ x 5″ Electric with self-charging break-away system
Towing Attachment	3 in. pintle eye, with two safety chains and hooks
Tie Downs (4)	Custom ½″ plate pad eyes (2) in front and (2) in rear
Outriggers (2)	12,000lb spring loaded retraction, manual pin type
Front/Nose Jack	12,000lb static drop leg
Electrical System	12 VDC
Battery	12 V, group 27
Lights / Navigation	12 V LED, Sealed beam with waterproof wiring, US DOT
Grounding (2)	½ in. dia. Copper in rear corners
Color	Smoke Gray or Customer Spec

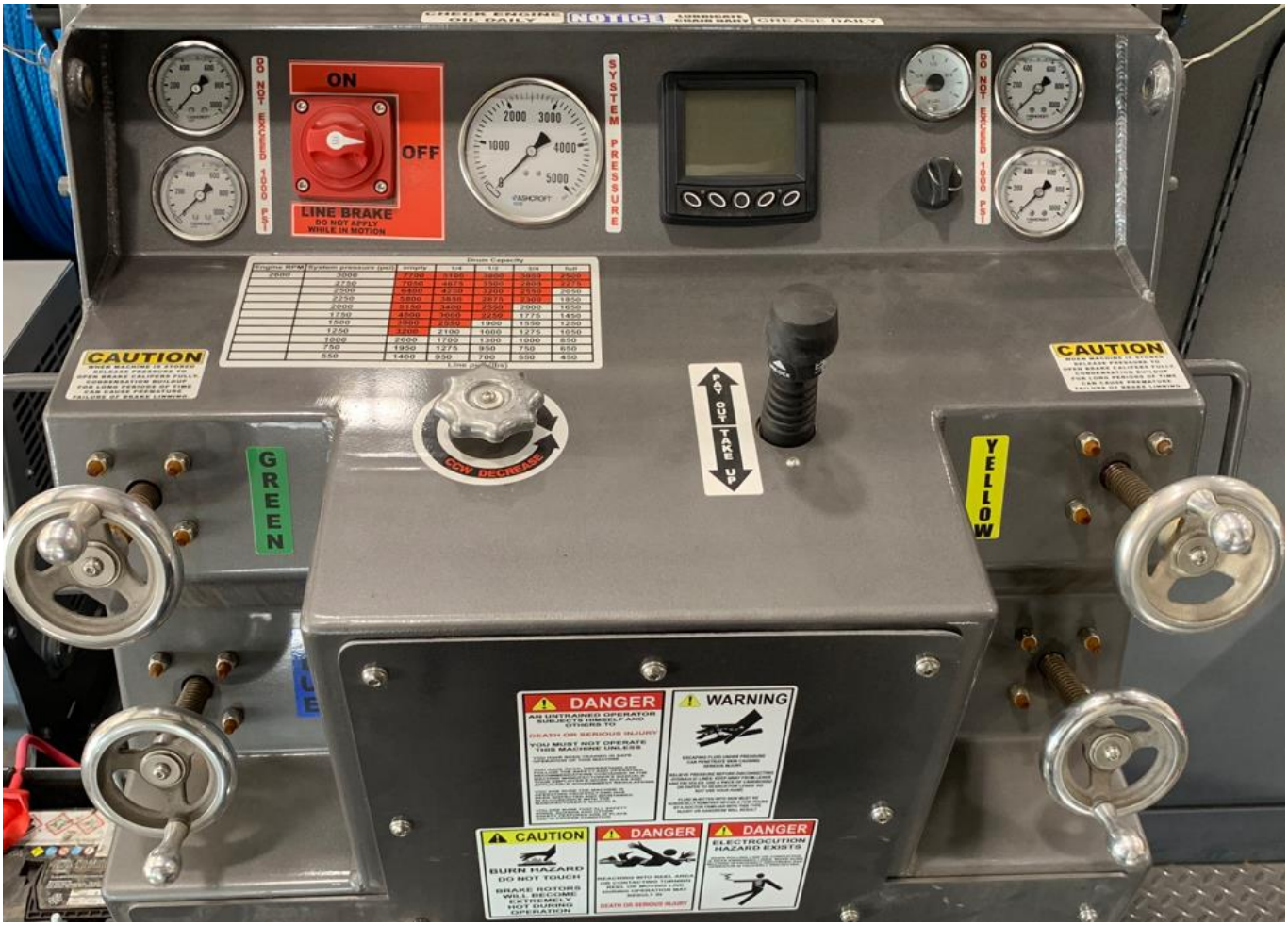
Trailer Overview

1. Console
2. Operator Safety Screen
3. Adjustable Operator Seat
4. Engine Enclosure
5. Hydraulic Tank/Cooler
6. Pulling Drums (x4)
7. Battery Box
8. Payout Brakes (x4)
9. Payout Brake Controls (x4)
10. Tongue Jack
11. Levelwind
12. Outrigger Jacks (x2)
13. Fuel Tank Filling Door
14. Anchor Tie Downs (x2)
15. Reel Shaft Bearings (x14)



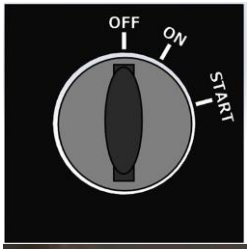
Operator Controls

Control Panel



Battery Disconnect Switch

This switch is used to control power to the operator controls and engine.



CAUTION: Always ensure that the BATTERY DISCONNECT switch is turned to the [OFF] position when the machine is not in use. If the machine is to be left unattended, remove key from the key switch and stow in a secure place.

CAUTION: Before starting the machine or engaging any machine component, read and observe all safety precautions and operational procedures listed in this manual.

Emergency Stop / Battery Disconnect

When turned, this red switch stops all operation functions, turning off the system and engine power.

After being switched to the OFF position, the switch must be rotated back to the ON position to restore power to the system and re-engage operator controls.

NOTICE: The battery disconnect switch should only be used to stop the machine in an emergency where there poses a risk of injury or death to personnel or to prevent equipment or property damage. When this switch is turned, line tensions can change rapidly. For more information on emergency shut down situations- (*see the Emergency Stop Procedure).*

Joystick Control

The function of the joystick is to pay in or pay out the rope on which ever drum that is engaged by the drum engagement lever (See illustration of drum engagement lever below). To take up the rope, the operator needs to pull the joystick towards them. To pay out the rope, the operator needs to push the joystick away. The further away from neutral the joystick is moved the faster the drum will move in either direction. The joystick along with White's Welding LLC proprietary programming, has a horsepower limiting factor built in. This will ensure the operator can spool the rope onto the drum under any condition as close to, max rated line speed from bare drum to full drum without causing the engine to stall out.

CAUTION: Confirm that the drum engagement lever is locked into placed before pulling. The drum engagement lever should be in the down position as close to the core of the drum as the slot will allow. The operator can confirm the drum is locked by moving the joystick in either direction and observing drum movement. The unit is only intended to pay in one drum at a time.

Line Tension Control

This control determines the tension to the line as it is taken up or paid out. This is achieved by regulating the overall torque applied to the drive system. As the overall torque is increased, so does the overall system pressure. By monitoring the overall system pressure, the operator can increase line tension by rotating the knob clockwise and decrease the tension by rotating the knob counterclockwise.

NOTE: If the line tension control knob is rotated all the way counterclockwise to the far most Decreased position, it may prevent the engaged drum/reel from spinning- even if the Line Speed is increased. The operator will need to rotate the knob clockwise slowly until the system pressure is enough to sustain drum rotation.

Levelwind Sheave

The pulling line should be clear from the levelwind sheave during payout. To move the sheave so that it's not in the way, remove the retainer pin and pick the lead screw up out of the pocket, swing the level wind around so that it rests on the mount in the middle of the trailer. Using the same methods explained above, in reverse order, depending on which drum the operator is wanting to pay in on, swing the lead screw to the driver's side or passenger side pocket and re-pin.

CAUTION: Confirm that the sensors on both outside uprights are clean and clear of any obstructions between the eye of the sensor and the reflector on the sheave.

Engine Throttle Control

Engine throttle control is adjustable through the user display on the engine controller.

- The engine idles at 1100 RPM.
- The engine high idle is 2600 RPM.
- The RPM on the engine can be increased or decreased in 750 RPM increments.
- When the engine is started in cold weather conditions, the engine will go through a warm up period before high idle can be reached to insure no damage can be done to the engine.

Line Brake

The Line Brake switch allows the operator to manually engage the drive motor brake by placing the switch in the ON position. The Line Brake overrides the Joystick operation and will hydraulically brake any drum that is engaged with the system.

System Gauge Pressure

This gauge shows the overall pressure in the main hydraulic system. This gauge is also used to measure the line tension during pulling operations. With a single drum engaged in normal operating conditions, the system pressure gauge will reflect a higher pressure as the line tension is increased.

The following table can be used to estimate pulling tension.

		Drum Capacity				
Engine RPM	System Pressure (psi)	empty	1/4	1/2	3/4	full
2600	3000	7700	5100	3800	3050	2500
	2750	7050	4675	3500	2800	2275
	2500	6400	4250	3200	2550	2050
	2250	5800	3850	2875	2300	1850
	2000	5150	3400	2550	2000	1650
	1750	4500	3000	2250	1775	1450
	1500	3900	2550	1900	1550	1250
	1250	3200	2100	1600	1275	1050
	1000	2600	1700	1300	1000	850
	750	1950	1275	950	750	650
	550	1400	950	700	550	450
		Linepull (lbs)				

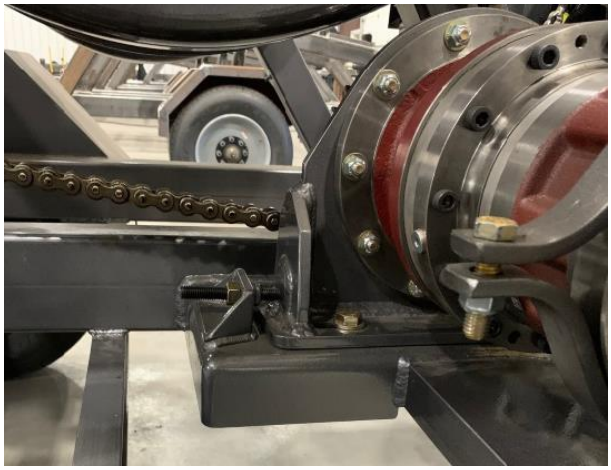
Payout Brake Pressure Control

Each drum payout brake can be set to the amount of tension/drag desired by turning the hand wheel that corresponds to the drum in which the operator wants to increase or decrease tension on. Each hand wheel operates by turning clockwise to increase brake pressure and counterclockwise to decrease brake pressure. Each hand wheel also has a pressure gauge that corresponds with it on the control panel in which the operator should NOT exceed 1000 psi on.

NOTICE: The payout brake should be engaged while transporting the machine to prevent drum rotation. Each unit has a hook for each drum, on the bumper, to tie the rope off for transport.

Drive Chain Motor and Adjustment

The hydraulic planetary gearbox and brake, that drives the chain, is located directly behind the hydraulic cooler. The drive chain can be adjusted with the adjustment screw to the right and should be locked down after adjustments have been made.



Engine Information Screen

Screen is accessed on MAIN screen. All values on this screen are received from the engine ECM.

#	Name	Description
1	Fuel consumption rate (GPH)	Indicates the rate of fuel being consumed
2	Engine Percent Load at Current Speed (%)	Ratio of actual engine percent torque to maximum indicated torque. available at current engine speed.
3	Engine oil pressure	For diesel, T4F engines, monitored with a pressure switch. Engine will be stopped if < 29 psi.
4	Engine Coolant Temperature	Engine will shut down if the coolant temperature exceeds 240^{o} Fahrenheit.
5	Battery Voltage (Volts)	Indicates current battery voltage
6	Engine RPM	Indicates revolutions per minute of the engine.
7	Engine Hours of Operation (HRS).	Indicates the total engine hours acquired on the engine
8	Menu soft key	Push to go into system menus. Refer to engine operator's manual for further information.
9	Engine RPM Decrease soft key	Push to decrease engine RPMs
10	Engine RPM Increase soft key	Push to increase engine RPMs

Handling and Operation

Pre-Operation Inspection

Conduct towing readiness inspection.

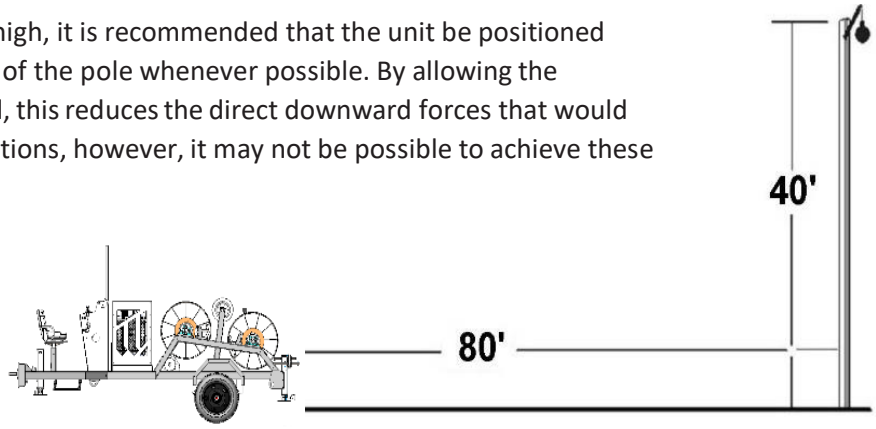
1. Check tire pressure, tire pressures are posted on the tire sidewall.
2. If tire pressure is low, inspect tire for damage or punctures. If damaged or punctured, have repaired or replace.
3. Ensure that all jacks are raised and in the locked position.
4. Trailer is clean and free from trash or debris.
5. Inspect all trailer connections, and ensure that the hitch is secured, and trailer lighting is connected.
6. Inspect tail lights to ensure all lights work- replace bulbs as needed. If none of the lights work, inspect vehicle fuses and trailer wiring for corrosion.
7. Ensure that trailer brakes work and that wheel chocks are available.
8. Ensure safety chains are attached.

Positioning the Unit

WARNING: DO NOT OVERSTRESS THE HITCH AND TRAILER TONGUE. The trailer frame is not designed to lift or support the weight of the pulling vehicle. If the unit is to remain connected to the towing vehicle, extreme caution should be taken to assure that the pintle-eye hitch does not lift the towing vehicle in conjunction with leveling and lifting with the trailer's hydraulic jacks. Overloading the pintle-eye hitch connection and trailer tongue can cause structural damage to the trailer frame. White's Welding LLC. will not be responsible for damages to the trailer caused by vertical lifting, or stress caused by downward forces on the pintle eye connection.

The driver/operator should position the unit in a suitable location where it will be free from obstructions and clear of any apparent hazards. For overhead pulling, the unit should be approximately two times (2X) the distance of the lead block height.

Example: If the lead block is 40 feet high, it is recommended that the unit be positioned approximately 80 feet from the base of the pole whenever possible. By allowing the distance to the lead block as specified, this reduces the direct downward forces that would be created other- wise. In some situations, however, it may not be possible to achieve these distances. *(See note below).*



NOTE: In some situations, (i.e., due to rough terrain), it may not be possible to achieve safe distances from the lead block. In such situations, operators should establish as much distance as possible from the lead block and remain aware of the increased down forces during operations.

The unit should be leveled as much as possible, centered on the lead block, and parallel to the line being pulled prior to beginning operations.

CAUTION: All jacks should be extended for stabilization, and the machine must be leveled prior to conducting operations.

The operator must chock the trailer wheels prior to operations and any time the vehicle is parked. All appropriate grounding, anchoring, and protective equipment must be installed and secured to machine prior to operations.

CAUTION: Do not open the radiator cap on a hot engine. Ensure radiator cap is reinstalled and tightened prior to operations.

Perform the following checks before starting the engine:

1. Walk around unit and do a visual check for any leaks.
2. Check hydraulic fluid reservoir level, by viewing the sight gauge on the side of the tank.
3. Check inside engine compartment for debris. Open engine compartment door and check to make sure there is nothing around any rotating equipment as well as anything impeding the flow to the radiator and intake.
4. Check the engine radiator coolant level, by opening the radiator cap.
5. Check for proper engine oil level. After checking oil level, wipe dipstick clean of any debris prior to reinserting into spout.
6. Inspect hydraulic systems - pump, drive motors, and hoses for loose fittings, leaking fluid, and damaged hoses.
7. Inspect the battery, terminals, and wires for any signs of corrosion or damage.
8. Inspect for damage, bent or broken parts, cracked or broken welds, missing pins and retainers.
9. Inspect all equipment grounds for any signs of damage.
10. Inspect all jacks for damage.
11. Check fuel level and battery voltage- With key inserted in master power key switch, turn key to the ON position to activate the display. The fuel level will show on the gauge on the control console and the battery voltage will show on the engine information screen.
12. Check surrounding area.
    a. Check that there is no combustible material that could be ignited by high temperature exhaust during operations.
    b. Check that the ground where the machine is located is stable.
    c. Check that there are no persons in the area around the machine.

Start Up and Set Up Procedure

1. Perform all pre-operation inspections.
2. Position the machine in a suitable location for the pull. The drums should be positioned centered on the lead block, and rotation should be parallel to the direction that line is being pulled, prior to beginning operations. Wheels should be chocked to prevent the unit from rolling.
3. All jacks should be in the lowered position and the unit secured.
4. Ensure that controls (levers, switches, etc.) are in the neutral and disengaged position (See Operator Controls section). Ensure Emergency Stop switches are in neutral position.
5. With the key inserted, turn master power key switch to the first click, this is the ACCESSORY/ON position.
6. The main control screen will flash the White's Welding LLC logo, then the MAIN screen will be visible with all the potential error message indicators.
7. View the control panel screen to ensure there are no warning or fault messages
8. Once the error messages clear, the MAIN screen is visible, turn the Master Power
9. Key switch to START; hold briefly (~ 2-3 seconds) and release to start the engine. If the engine does not start, check to see if there are any error messages.
10. Properly ground and anchor the machine to prevent the machine from moving under tension or line load.

CAUTION: All jacks must be extended for stabilization, and the machine must be leveled, anchored, and properly grounded prior to conducting operations.

Payout Operations

NOTICE: Before beginning payout operations, the operator must perform all pre-operation inspections. *(See Pre-Operation Inspection Checklist) Pre*-operation inspections are important for the safe operation of the machine and are required under OSHA Regulations.

After initial start-up and payout setup procedures are completed, the engine can be turned off during payout operation. After the engine is turned off the operator can use the hand wheels to apply pressure to the payout brake system as needed. As the pressure is applied the gauge that corresponds to each hand wheel will display to the operator how much pressure is being applied. The operator should continually monitor the payout brake pressure and maintain contact with other machine/system operators and spotters to ensure that adequate line tensions is maintained. If brake pressure is not monitored and excessive slack is allowed to form in the line, there can be a safety hazards, especially when conducting operations adjacent to or around energized lines.

CAUTION: Before transitioning to pulling operations, and to prevent the line from continuing to payout or from paying out on its own, the operator must leave the payout brake applied until the drum engagement lever is engaged.

Once the drum engagement lever is engaged the drum payout brake can be released, as the drive motor line brake will hold pressure on the drum/line.

Payout Operations – Non-Powered

Line can be pulled off or walked- off. The method is essentially a freewheel with a low-tension payout brake.

1. The unit should be positioned, anchored, and appropriately grounded.
2. If not done already, remove the rope from the levelwind.

3. Move levelwind out of the way, resting it in the cradle, positioned in the center of the trailer.
4. Disengage the drum engagement lever from the drum/reel.
5. Decrease the Payout Brake pressure to zero.

Payout Operations – Power Assisted

All four pulling drums are driven by one common hydraulic drive assembly through a chain a sprocket final drive arrangement. Each pulling drum has a drum engagement lever to engage and disengage the drum.

Power assisted payout is useful when manually "walking out" the line.

1. The unit should be positioned, anchored, level, and appropriately grounded.
2. Perform Start-Up Procedure.
3. Move levelwind out of the way, resting it in the cradle, positioned in the center of the trailer.
4. Engage the drum engagement lever on the drum paying out.
5. Begin payout operations by lifting up on the bottom of the knob and slowly pushing forward on the joystick, through neutral. Once the desired speed is reached, the joystick can be released.
6. Once the rope is paid out and operations have concluded, place the joystick control into the center neutral position and ensure that the hydraulic line brake is set. This will conclude payout operations.

CAUTION: Before handling any pilot, pulling, or conductor lines attached to this machine, the operator must ensure that the hydraulic line brake is set, and the joystick is in the neutral position.

NOTICE: To stop drum rotation at any time, return the joystick control to the center neutral position**,** and the hydraulic brake will set.

Pulling Operations

The unit should be positioned, anchored, level, and appropriately grounded. All four pulling drums are driven by one common hydraulic drive assembly through a chain a sprocket final drive arrangement. Each pulling drum has a drum engagement lever to engage and disengage the drum.

CAUTION: After completing payout operations, and before transitioning to pulling operations, the operator must ensure that the line doesn't continue to payout under any existing line tension. Therefore, the operator must leave the payout brake applied until all lines, ropes, or conductor are secured and tied- off. Secure all lines before engaging or disengaging the drums.

1. Ensure all lines, ropes, or conductor are securely tied-off before engaging or disengaging the drums.
2. Release the Safety Brake and the Payout Brakes enough to rotate the drum(s) for engagement.
3. Engage the drum engagement lever and lock into place for the pulling drum(s) being used.

CAUTION: Confirm that the drum engagement lever is locked into placed before pulling.

4. Once the drum engagement lever is engaged, fully release the drum payout brake.
5. Place the pulling rope over the levelwind sheave.
6. Pull in any unwanted slack in the line by lifting up on the bottom of the knob and slowly pulling back on the joystick to begin drum rotation. Return the joystick to center/neutral to stop rotation.
7. Set the Line Brake switch to the ON position.
8. After taking in the slack line and setting the Safety Brake, the tie offs can be released. The unit is now set up for pulling.
9. Set the Line Brake switch to the OFF position. This is a safety feature designed to avoid accidental reel rotation.

10. Begin pulling by lifting up on the bottom of the knob and slowly pulling back on the joystick, bringing it out of center/neutral.
11. Pull backward on the joystick until the desired rotation speed is reached. Once the speed is at the desired level, the joystick itself can be released.
12. With the automatic levelwind in place you don't have to worry about the rope getting put back onto the drum evenly.
13. Continue to monitor system pressure.
14. After line is released from conductor and fully wound on drum, put the joystick in the center/neutral position and set Line Brake to the ON position.

Post-Operation Inspection Checklist

NOTE: Post-operation checklist should be conducted in accordance with OSHA requirements, to include OSHA Standard- 29 CFR, Part 1926.600 or subsequent

- When parking the machine, the wheels should be chocked
- Secure all rope/conductor ends to the reel using the tie off loops on the middle of the unit as well as on the bumper.
- Check engine oil, radiator coolant, and hydraulic fluid levels- to ensure no leakage after operations.
- Remove any trash, rags, or other loose material from the machine.
- Remove the keys from the control panel.
- Lock engine door panel.

Storage:

- For periods of extended storage without use, the batteries will need to be periodically charged. A low amperage "trickle" charger can be used periodically to maintain proper battery charge during periods of extended storage.
- During extended storage, the trailer tire pressures should be periodically monitored, as heavy trailer weight on low tires can create permanent buckling of the tire sidewall resulting in the need for tire replacement.
- Always see the specified air pressure ratings listed on the tire sidewall.

NOTE: It is necessary to open the engine door panel to check the fluid levels. Be sure door is closed and latched in position properly before transport or operating the machine. If machine is to be parked in a publicly accessible area, the engine compartments must be secured.

This Quick Start Guide is not a substitute for reading the Operator's Manual.

Start-Up Procedure		
Step	Action	Note
1	Perform all pre-operation inspections before starting up the machine.	See Pre-Operation Inspection Checklist and Start Up Procedure in the Operator's Manual.
2	Insert the key; turn the key clockwise to the first click/detent.	Wait for the control system to load. The main control screen will flash the White's Welding LLC logo, then the MAIN screen will be visible.
3	Ensure that there are no warnings listed on the system control display screen.	If there are warnings or error messages, refer to the Operator's Manual.
4	Again, turn the Master Power Key switch to past the first detent; hold briefly and release.	The key will spring back to the ON position.
5	Warm-up hydraulic fluid prior to pulling.	It is recommended that the hydraulic fluid be allowed to warm-up to a working temperature of 70° F or 21°C prior to use of any hydraulics.
6	Check the engine oil pressure to ensure everything is working properly.	The engine oil pressure is found on the Engine Info screen of the system control display.
7	Lower the jacks to level the machine.	Anchor and appropriately ground the unit. Wheels should be chocked to prevent rolling.
8	To engage a drum - used the associated drum engagement lever.	Drum engagement levers are located on each individual drumhead.
9	In the event of an emergency, the Line Brake Switch or the Battery Disconnect can be used to stop all operations and shut down the machine.	This will cause an abrupt and total shutdown of the unit.
10	To shut down the machine, turn the key switch to OFF.	Follow Post-Operations procedures.

NOTE: Before beginning operations, the operator must perform all pre-operation inspections, which are important for the safe operation of the machine and are required under OSHA Regulations.

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Start Payout Operations

a) Line can be manually pulled off the reels if the reels are not engaged.

b) Line can also be paid out using the hydraulic system to "drive" out the line.

Step	Action	Note
1	Perform all Start-Up Procedures.	*Must include pre-operation inspections- if not already completed.
2	Position drums to align with tower.	See Positioning the Machine section.
3	The unit should be positioned, anchored, level, and appropriately grounded.	Refer to the Operator's Manual for proper set-up, safety procedures, and operation instructions.
4	Adjust levelwind position	Park the levelwind lead screw on the cradle in the middle of the trailer, out of the way of the line.
a) MANUAL PAYOUT – Manual Payout may be conducted with the unit turned off.		
5a	Disengage the drum engagement lever from the drum.	Disconnects drum from hydraulic drive system.
6a	Decrease the payout brake pressure to zero.	This allows the reels to spin freely.
7a	Adjust drum brake tension: Each drum payout brake can be set to the amount of tension and drag desired by rotating the handwheel associated with the desired drum.	Handwheel operates in a clockwise direction for increased pressure and counterclockwise direction for decreased pressure.
8a	Begin manually pulling line off the drum.	Watch for over spin of the drum.
9a	Add payout brake pressure as necessary to prevent over spin of the drum.	If drum spin and braking is not monitored, excessive slack could become a safety hazard.
10a	Monitor the payout brake pressure and maintain contact with the other machine operators and spotters to ensure that adequate line tensions are maintained.	The operator will need to maintain brake pressure by adjusting the corresponding handwheels.
11a	Remember, the payout brake is designed for low-force tensions only.	Payout brake pressure should remain below 1000 psi.

Payout continued		
b) POWER ASSISTED PAYOUT (see steps 1 through 4 on previous page)		
Step	**Action**	**Note**
5b	Engage the drum(s) from which line will be paid out using the associated drum engagement levers.	These manual engagement levers are located on each individual drumhead.
6b	Cycle Line Brake switch to the OFF position.	This is a safety feature designed to avoid accidental reel rotation.
7b	Begin payout operations by lifting up on the bottom side of the knob and gently pushing the joystick forward, bringing it out of neutral, and then pause for the brake to release.	This will cause any engaged drum(s) to begin rolling.
8b	Once the brake is released, slowly push forward on the joystick to reach the desired payout speed.	The joystick controls drum rotational speed.
9b	When the desired speed is reached, the joystick can be released to maintain that speed.	**CAUTION:** Watch for over spin of the drum.
10b	Continue to monitor the line.	**CAUTION:** Excessive slack could become a safety hazard.
11b	To stop drum rotation at any time, return the joystick control to the center neutral position and the hydraulic brake will set.	**CAUTION:** Be certain pull vehicle is stopped before setting brake.
12b	Use the LINE BRAKE to activate the hydraulic brake to lock out the drive system.	The LINE BRAKE will lock down the entire hydraulic drive system.
15b	To shut down the machine, turn the key switch to the OFF position.	Follow Post-Operations procedures.

CAUTION: Before handling any pilot, pulling, or conductor lines attached to this machine, the operator must ensure that the hydraulic line brake is set, and the joystick is in the neutral position.

CAUTION: Never payout all of the rope off of the drum. Leave at least one layer of rope wrapped on the drum. Otherwise, the rope end could be pulled from its anchor point.

Start Pulling Operations		
Step	**Action**	**Note**
1	Perform all Start-Up Procedures.	To include restarting engine.
2	The unit should be positioned, anchored, level, and appropriately grounded.	Refer to the Operator's Manual for proper set-up, safety procedures, and operation instructions.
3	All lines, ropes and conductor must be tied-off before engaging or disengaging the drums.	There cannot be any load on the brakes or against hydraulic drive when engaging or disengaging the pulling drums.
4	Fully release the Payout Brakes & Line Brake	Ensure all lines are tied off and secured before releasing brakes.
5	Engage the drum engagement lever for the pulling drum being used.	It will likely be necessary to jog the drum for the drum engagement lever to engage in one of the 4 holes on the clutch.
6	Place the pulling rope around the levelwind sheave.	If it is a drum closest to operator rope will go over the sheave. If it is a drum closest to the bumper rope will go under and around the top side of the sheave.
7	Pull in any unwanted slack in the line.	Pull up on the bottom of the knob and slowly pull back on the joystick to begin drum rotation. Return the joystick to center/neutral to stop rotation.
10	Set the Line Brake switch to the ON position.	See Operator's Manual for instructions.
11	After taking in the slack line and setting the Line Brake, the tie offs can be released.	The unit is now set up for pulling.
12	To begin pulling, release the LINE BRAKE and pull up on the bottom of the knob, slowly pulling back on the joystick to begin drum rotation.	See Operator's Manual for instructions.

Troubleshooting Quick Tips

ENGINE WILL NOT START OR RUN

- No fuel check fuel gauge/tank for fuel level.
- Verify BATTERY DISCONNECT is on.
- Confirm starter and chassis ground wires are torque to 80-100 in-lbs.
- Confirm that all electrical connectors around the vehicle are connected and wires are not damaged.
- Check battery charge. Fully charged batteries should measure at 12.6 volts or above. When the engine is running, this measurement, with alternator charging, should be 13.7 to 14.7 volts.
- Confirm battery terminals are torqued to 80-100 in-lb. (6.6 to 8.3 ft lb)
- Refer to engine manufacturer's manual.

DRUM WILL NOT ROTATE

- Obstruction between drum and frame.
- Existing line tension higher than line tension limit setting.
- Did not cycle Line Brake Switch to the OFF position.

UNIT WILL NOT BUILD MAXIMUM HYDRAULIC SYSTEM PRESSURE

- Hydraulic oil level is to low
- Pump relief valve malfunctioning.
- System pressure relief valve at the pump out of adjustment or malfunctioning.
- Wiring damage to pump actuators.
- Control valve blocked or malfunctioning.
- Pump failure.
- Contamination in hydraulic system.

HYDRAULIC FLUID TEMPERATURE IS ABOVE NORMAL

- Contamination in hydraulic system.
- Drum clutch not fully releasing.
- Hydraulic cooling system fan, wiring, coil, or sensor failure.

TRAILER LIGHTS DO NOT WORK AFTER CONNECTED TO VEHICLE

- Check vehicle/trailer wire connectors and wires for damage or corrosion.

Service & Repair

Maintenance:

Daily:

- All fluids including but not limited to, engine oil, diesel, hydraulic oil, coolant, gear oil, grease, etc.
- Check air cleaner to make sure it is free of debris and filter is not plugged.
- Check engine compartment to make sure it is free of debris and no objects around any rotating parts, look for worn fan and drive belts, loose connections, leaks, etc.
- Do a walk around of the unit and inspect for leaks, any damaged components, loose nuts and bolts, and any excessive wear.
- Check chain drive to ensure chain is tight.

Each 50 Hour Inspection:

- Refer to engine manual for break-in service starting on page 38 of this manual.

Each 100 Hour Inspection:

- Check for water in hydraulic oil (water will cause oil to look milky).
- Perform 50-hour inspection.
- Refer to engine manual starting on page 38 of this manual.
- Check battery voltage, ensure connections are tight and free of corrosion, no frayed wires, etc.
- Check drive chain for alignment and adjust tension as necessary.
- Chain should be lubricated with a synthetic lubricant with molybdenum disulfide anti-wear additive.

Each 200 Hour Inspection:

- Perform 100-hour inspection.
- Refer to engine manual starting on page 38 of this manual.
- Grease reel shaft bearing with a No. 2 lithium base grease or equivalent.

Each 400 Hour Inspection:

- Check air intake system.
- Inspect all intake hoses for any excessive wear and/or cracks and replace, as necessary.
- Check clamps on hoses and tighten, as necessary.
- Refer to engine manual starting on page 38 of this manual for service intervals.
- Hydraulic fluid and filter change (after this it is recommended to change both the hydraulic fluid and filter every 1500 hours). Use ISO Grade 46 synthetic hydraulic fluid or equivalent.

NOTE: For service or repair please contact the White's Welding LLC Parts & Service at **580-254-3766** or via our website: WhitesWeldingLLC.com or trailersales@whitesenergy.com

Record your equipment information here:

Equipment Information
Company Name: _____
Date of Purchase: _____
Date of Manufacture: _____
Equipment/Unit Model Number: _____
Equipment/Unit VIN Number: _____
Engine Serial Number: _____

Major Fault:

A "major fault" describes a system malfunction or other system degradation that, by equipment failure, operator error, or other environmental condition, renders that machine inoperable. A major fault can be identified when, through normal operations, the machine would create; an unsafe condition, further or permanent equipment damage, or other situations deemed outside of the operator's ability to effectively and safely operate the machine.

When to send for Service or Repair:

If after troubleshooting an issue or fault that cannot be resolved, or a major fault has been identified, the operator should stop all operation attempts and contact the White's Welding LLC Parts & Service Department at **(580)254-3766,** via email at service@whitesenergy.com. Further operation should not continue until the issue or fault is resolved.

Safety and Inspection

All mechanical components are subject to wear. Worn components do not have the same *Maximum Load Limit* rating as do new components. The total responsibility for the inspection, maintenance, lubrication, and continued use is entirely up to the purchaser/user. Remember, visual inspection may not be sufficient and examination methods such as X-ray, ultrasonic testing, magnetic particle inspection, dielectric resistance and others, might be required to establish the present integrity of the product. External factors will affect the longevity of the product. There is no defined period of time for the useful life of any of these products.

Check to see that your equipment is being inspected and tested in accordance with all applicable governmental rules and regulations and Original Equipment Manufacturers (OEM) guidance. Should any products become worn and in need of repair, the responsibility for the actual repair work will be borne solely by the party making such repairs. It is recommended that the Original Equipment Manufacturer be contacted should there be any questions whatsoever relating to a repair.

Operator's Manual

The yellow light is illuminated when a warning is present.

The red light is illuminated when a shutdown has occurred

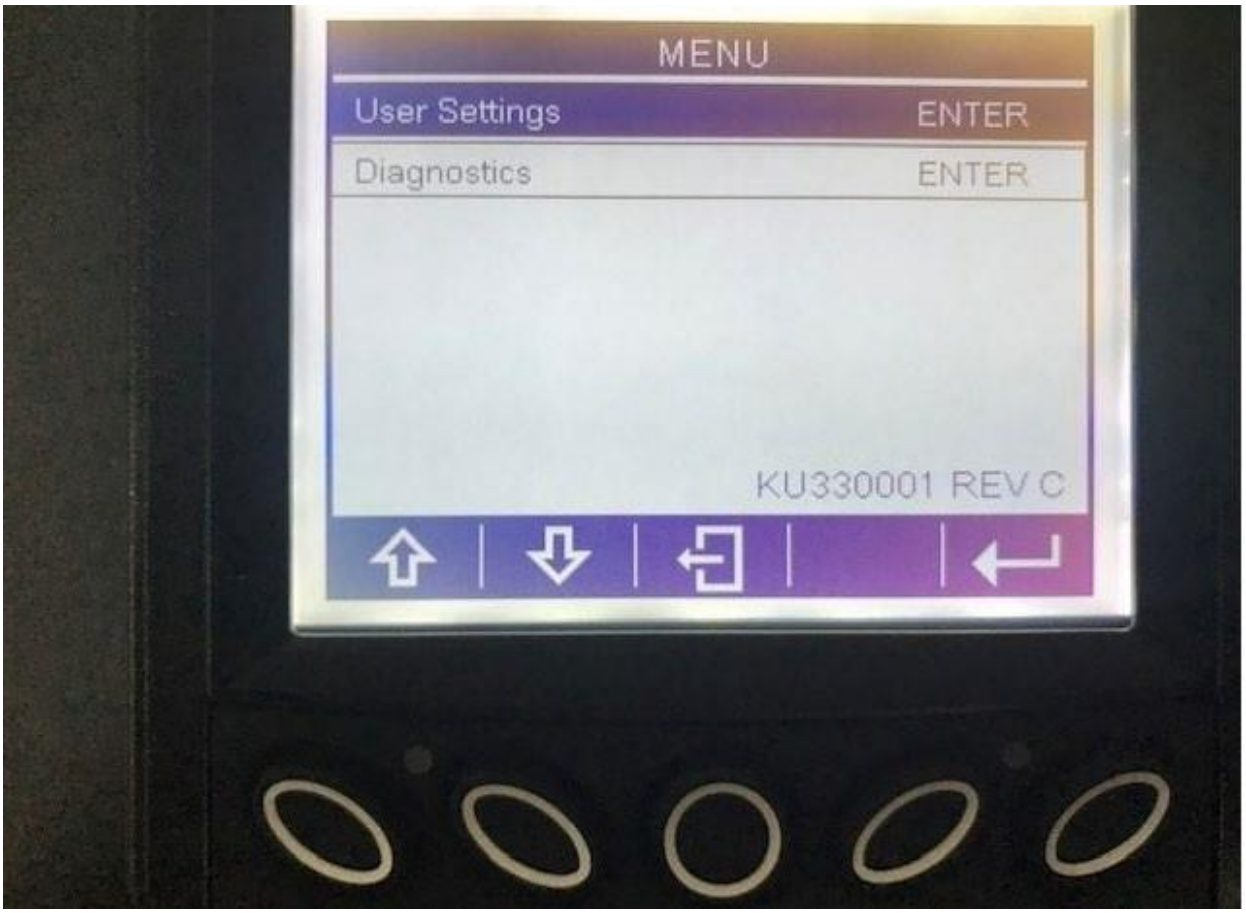
Located on the bottom right is key switch.

Outlined in white is the increase/decrease switch (up increases throttle) (down decreases throttle)

Also first tactile button (on display) on the left is the throttle decrease as well (turtle)

The second tactile button (on display) from left is the throttle increase (rabbit)

Throttling can be performed with increase / decreases switch on panel or by tactile buttons on display.



Press the center button to access Menu screen.

The tactile button on far left (arrow up) allows highlighted selection to move up.

The tactile button on 2nd from left (arrow down) allows highlighted selection to move down The middle button is the exit button that takes operator back to operator screen

Button on far right (arrow point left) is the enter button to select the highlighted function selected

Once in menu screen can adjust brightness or contrast depending which one is selected (using up or down arrow)

Once selected these settings can be increased or decreased via the + or – tactile buttons on the right.

Once adjustments are made press middle button to exit.

Pressing the middle tactile button will take operator to diagnostics and press far right tactile button on right (arrow icon pointing to left.)

This allows operator to see and any diagnostics that may occur with engine (see example screen

below). This will give you a diagnostic descriptions along with related SPN, FMI , OC.

J1939 signals are called Suspect Parameter Numbers (SPN)

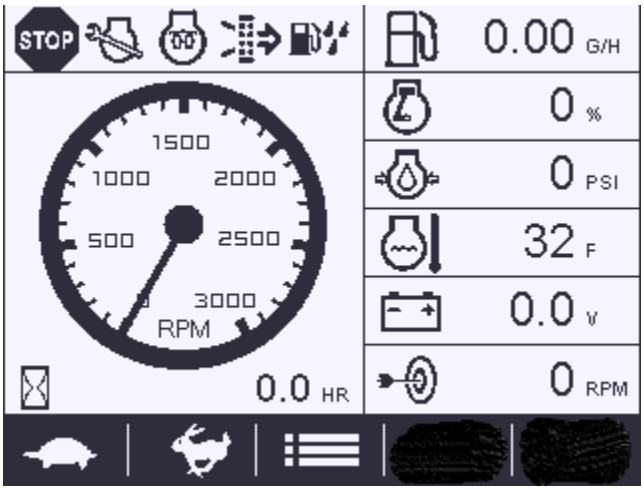
Failure Mode Identifier (FMI) Represents the nature and type of error that occurred, e.g., value range violation (high or low), sensor short-circuits, incorrect update rate, calibration error.

OC is a 7-bit number and it tells how many times failure has occurred.

SPN, FMI, OC's can be helpful when communicating with tech service personal that may give a clue on what is causing a warning or shutdown for engine


DIAGI' ☐STIC MESSAGE
OF 0
SPN: 0
FMI: 0
OC: 0
DE1.4ICE ICo:
0
BACK

Below is a screen shot example of display with brief explanations of icons on displays



Icons along top, left to right are:

Stop = Shutdown alarms, will also show warning Icon w/Wrench =

Service Reminders

Icon w/Coil = Wait to Start / Preheat Icon w/Filter = Air

Filter Restriction Icon w/Fuel & Water = Water in Fuel

Icons on side, top to bottom screen1:

Fuel = Fuel Rate or level depending on settings Icon w/Piston =

Percent Load

Icon w/Oil = Oil Pressure

Icon w/Water and temp = Coolant Temp Icon w/battery =

Battery Voltage

Icon w/ Target = Target Speed