SHERMAN+REILLY™
A Textron Company

Sherman + Reilly™ Revolution Series

PLW-200X

Pilot Line Winder
Operator's Manual

Important Safety Notice

Before using any Sherman + Reilly™ 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.

Advertencia

Por favor, lea atentamente todas las instrucciones operacionales y de seguridad antes de operar esta maquinaria. Si no entiende las instrucciones, por favor consulte a su supervisor antes de utilizar esta maquinaria. El uso inadecuado de estas instrucciones puede resultar en lesiones graves o en muerte.

Save this operator's manual for future reference.

 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 machine/unit, and does not cover every situation. With regard to situations not covered in this manual, the operator is responsible to ensure the safe operation of the machine and should ask questions or make inquiries if uncertainty exists prior to the operation of the machine or unit. Sherman + Reilly™ Inc. 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.

Communication with the Manufacturer

For information about Sherman + Reilly™ products, contact us by phone at **(423) 756-5300** or **800-251-7780** or via email at **help@sherman-reilly.com** or at 400 W. 33rd Street, Chattanooga, TN 37410; www.sherman-reilly.com.

NOTE: Product images shown in this document are for illustration purposes only and may not be an exact representation of your product. Actual product may vary due to continual product enhancement and improvement.

400 W 33rd Street
Chattanooga, TN 37410 USA
www.sherman-reilly.com

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1 Introduction

1.1 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 work place. If you have any questions regarding operation or safety of a procedure or situation regarding the operations of this unit, feel free to contact the Sherman+ Reilly™ Customer Service at **800-251-7780** or via email at **help@sherman-reilly.com.**

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.

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.

Sherman + Reilly™ 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.

Sherman + Reilly™ strongly recommends that only personnel that are literate in the English language and who verbally understand the English language be considered as operators or service personnel for this machine.

Sherman + Reilly™ 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 is 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.

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.

Sherman + Reilly™ units are powered, hydraulically actuated machines. This machine has variable speed and line tension controls; however, if pulling multiple conductors using a running board, the total line pull applied from all conductors must not exceed the capacity of the machine.

2 Safety

2.1 Hazard Overview

Familiarize yourself with the following safety symbols before operating machinery.

Common ISO symbols and ANSI style safety alert colors are used to alert the reader or operator of potential hazards or information.

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. These safety alert symbols are used to alert you to potential hazards.

DANGER — Indicates an imminently hazardous situation which **WILL** result in death or serious injury if not avoided.

WARNING — Indicates a potentially hazardous situation which **COULD** result in death or serious injury if not avoided.

CAUTION — Indicates a potentially hazardous situation which **MAY** result in minor or moderate injury and property damage if not avoided. It may also be used to alert against unsafe practices.

NOTICE — Indicates a potentially hazardous situation which **MAY** result in property damage if not avoided. It may also be used to alert against unsafe practices.

CAUTION: When washing down the unit:

- Use only freshwater for cleaning.
- Do not use high pressure spray.
- Do not spray water directly at the instrument panel, or any electrical components, electrical fittings, hydraulic fittings, hydraulic pistons, or hydraulic manifolds.
- Do not spray water into the cooling air intake or the engine air intake.
- Do not wash a hot or running engine. Use compressed air to clean the engine and radiator fins to reduce the potential for corrosion and moisture contamination.

2.2 Caution Symbols:

Common ISO symbols. Not all symbols apply to all machines

High voltage hazard

Electrical shock hazard

Pinch point and/or entanglement hazard

Cutting and/or crushing hazard

Crushing of body hazard

Crushing of Toes or Foot Hazard

Hot Surface Hazard

Risk of Explosion Hazard

Toxic Hazard

Flammable Material Hazard

Carcinogen Hazard

Corrosive

Hearing Protection Required

2.3 Operator Safety Precautions

- ☐ Do not attempt to operate any Sherman + Reilly™ equipment without proper instruction, including reading and understanding the provided manual.
- ☐ 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.
- ☐ Obey and enforce all warnings including OSHA requirements and ANSI standards.
- ☐ Never allow anyone to ride on the unit while it is being towed.
- ☐ Always wear proper safety equipment as required by employer.
- ☐ Never bypass safety switches or operate equipment with faulty safety devices.
- ☐ Be sure all guards and access covers are in place and secured when the machine is being operated.
- ☐ Be aware of people in the work area who may be at risk during operation.
- ☐ Know all emergency shutdown procedures.
- ☐ Do not obstruct controls or fire extinguisher and make sure fire extinguisher is fully charged.
- ☐ 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.
- ☐ Always use employer approved grounding procedures when operating the machine.
- ☐ Never use hands to check for hydraulic system leaks. Hydraulic fluid escaping under pressure can cause personal injury.
- ☐ Avoid contact with pumps, cylinders, hoses, engine components, and exhaust system.
- ☐ Do not refuel unit while the engine is running or hot.
- ☐ Keep all body parts, to include head and limbs, away from all moving parts.
- ☐ Refer to engine manufacturer's manual for all additional safety precautions which relate to engine operation and service.
- ☐ Know location and function of all controls, gauges, instruments, and protective devices.
- ☐ Never use unit to tow or winch another vehicle.
- ☐ Never use controls or hoses for hand holds.
- ☐ Do not exceed unit specifications and limitations, to include weight.
- ☐ 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.
- ☐ Do not make physical contact with rope or cable as it enters or leaves the machine or drum.
- ☐ 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.
- ☐ Avoid direct inhalation of engine exhaust gases.

2.4 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 the machine in order to be available to all potential users and operators.

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

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 must provide training and instruction in chemical safety and safe methods of work before assigning workers to operate, service, or repair the machine and equipment. A record of training dates, employee names, and level of training shall be maintained. Only persons who have a full understanding of the provided manual- *(provided in English only)*, and who are competent in the use of overhead pulling and tensioning machines; to include all applicable laws, regulations, and safety standards, should 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.

Employer must utilize a lock-out/tag-out procedure which complies with OSHA Standard, Part 1910.147, Title 29 of the Code of Federal Regulations or subsequent. This procedure must include control of all keys.

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.

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. 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.

2.4.1 Chemical Safety

Exposure to chemicals during normal operation of the machine is limited; however, chemical exposure may be encountered through preventive maintenance and repair. 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. All Material Safety Data Sheets (MSDS's) or Safety Data Sheets (SDS's) for OEM chemicals present upon initial manufacture/shipment of machine can be made available upon request to Sherman + Reilly™.

Any additional chemicals introduced to the machine or used in conjunction with maintenance or repair of the machine are required by federal regulations to have a MSDS/SDS available, and are the responsibility of the operator's employer or the organization providing the maintenance. All chemical handling and disposal should be done in accordance with environmental, federal, state, and local laws and regulations. Sherman + Reilly™ is not liable for the mishandling, misuse, or improper disposal of chemicals, with regard to the use or maintenance of Sherman + Reilly™ machines or equipment.

All responsibilities, including but not limited to: handling and disposal of chemicals, availability and maintenance of MSDS's/SDS's, labeling of chemical containers, and training of employees and operators, should be fulfilled in accordance with the Hazard Communication Act, Hazardous Materials Transportation Act, Occupational Safety and Health Administration's Hazard Communication Standard- (29 CFR) Part 1910.1200, and all applicable Environmental Protection Agency Standards and Regulations- *(additional standards may apply)*. For further information on safety standards regarding chemicals see OSHA and EPA websites.

2.5 Before Starting Operations

Only trained and authorized personnel can operate and maintain the machine.

Follow all safety, precautions, and instructions in this manual when operating or performing inspection or maintenance on 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.

When working with another operator if with the person on the worksite traffic duty, discuss the content of the operation beforehand and use the determined signals when performing the operation.

2.5.1 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.

2.5.2 Preparations for Safe Operation

Preparations for Safety Related Equipment

- Be sure that all guards, covers, and safety devices are in their proper position. Repair them immediately if they are damaged.
- Understand the application of safety-related devices and use them properly.
- Never remove any safety-related devices. Always keep them in good operating condition.
- Wear Well-Fitting Cloths and Personal Protective Equipment (PPE).
- 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.
- Always wear appropriate PPE: hard hat, safety shoes; protective eyeglasses, ear plugs, gloves, and/or face shield, depending on the work.
- 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.
- Check that all personal protective items function properly before using them.

Keep the Machine Clean.

- 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 for Inside the Cab

- Do not leave tools or machine parts lying around inside the operator's cab. If tools or parts get into the control devices, it may obstruct operation and cause the machine to move unexpectedly, resulting in serious personal injury or death.
- Do not use a cellular phone when operating the machine. This may lead to mistakes in operation and may be cause serious personal injury or death.
- Never bring any dangerous objects such as flammable or explosive items into the cab.

Use Handrails and Step when Getting on or Off Machine.

To prevent personal injury caused by slipping or falling off the machine, always observe the following:

- Always face the machine and maintain at least three-point contact (both feet and one hand or both hands and one foot) with the handrails and steps to ensure that you support yourself.
- Before getting on and off the machine, check the handrails and steps if there is any oil, grease, or mud on them. Wipe it off immediately so as not to slip. In addition, tighten any loose bolts on the handrails and steps. If the handrails and steps are damaged or deformed, they need to be repaired immediately.
- Do not grip the control levers or lock lever when getting on or off the machine.
- Never climb on the engine hood or covers where there are no non-slip pads.
- Never jump-off or leap from the Machine – unless necessary to avoid electrical shock.

Precautions to Prevent Fire

- Do not bring any open flame close to flammable substances such as fuel, oil, coolant, or window washer fluid. There is a danger that they may catch fire.
- Do not smoke or use an open flame near fuel or other flammable substances.
- Shut down the engine before adding fuel.
- Do not leave the machine when adding fuel or oil.
- Tighten all the fuel and oil caps securely.
- Be careful not to spill fuel on overheated surfaces or on parts of the electrical system.
- After adding fuel or oil, wipe up any spilled fuel or oil.
- Put greasy rags and other combustible materials into a safe container.
- When washing parts with oil, use non-flammable oil. Do not use diesel fuel or gasoline.
- Do not weld or use a cutting torch to cut any pipes or tubes that contain combustible liquids.
- Determine well-ventilated areas for storing oil and fuel. Keep the oil and fuel in the specified place and do not allow unauthorized person to enter.
- When performing grinding or welding work on the machine, move any flammable materials to a safe place before starting.
- Remove any dry leaves, chips, pieces of paper, dust, or any other combustible materials accumulated or affixed around the engine exhaust manifold, muffler, battery, or cowling.
- To prevent fires from spreading sparks or burning particles from other fires, remove any combustible materials such as dry leaves, chips, pieces of paper, or any other combustible materials accumulated on the machine or inside the engine cowling.
- Short circuits in the electrical system can cause fires. Check to see that all power cables and wirings are in good condition. Keep all electrical connections clean. Bare wire or frayed insulation can cause a dangerous electrical shock and personal injury.
- Keep all the electric wiring connections clean and securely tightened.
- Check the wiring every day for looseness or damage. Reconnect any loose connectors or refasten wiring clamps. Repair or replace damaged wiring.
- Check that all the hose and tube clamps, guards, and cushions are securely fixed in position. If they are loose, they may vibrate during operation and rub against other parts. There is danger that this may lead to damage to the hoses and cause high-pressure oil to spurt out, leading to fire and serious personal injury.

Precautions regarding highly heated exhaust gas

- The machine is equipped with Diesel Particulate Filter (hereafter DPF). DPF is a device to purify the soot in the exhaust gas. Exhaust gas temperature may increase during the filter cleaning/purification process (regeneration / ReGen). Do not bring any combustible material close to the outlet of the exhaust pipe. Be aware of nearby combustible materials that may be inadvertently heated by exhaust gases. *(See Section about DPF Codes).*
- When there is brush, trees, dry leaves or other combustible matter near the job site, be aware that the DPF regeneration may present a fire hazard. The system can be set to disable DPF ReGen if necessary.

Precautions regarding 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 Sherman+Reilly for instructional supplement regarding welding on the unit.
- Electrical components damaged by welding are not covered under warranty.

Precautions regarding corrosion

Regularly inspect the unit for corrosion. To help prevent rust on the unit, it is important to regularly apply a corrosion inhibitor / lubricant like TC-11™ Corrosion Inhibitor or equivalent 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.

Precautions regarding 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.

Contact information for the Original Equipment Manufacturers (OEM) for the peripheral equipment: grips, swivels, wire, and rope - provided with Sherman+Reilly™ equipment is provided at the back of this manual. This contact information is provided as a courtesy by Sherman+Reilly in an effort to keep end users well informed of the maintenance and safety requirements for this equipment. For the latest information on any of this accessory equipment check with the Original Equipment Manufacturer.

2.5.3 Pre-Towing Checklist

1. ___ Make certain tow vehicle has the capacity and rating to tow machine safely.
2. ___ Inspect pintle eye for excessive wear, corrosion, cracked welds or structural damage. Check the bolts holding the pintle eye in place.
3. ___ Inspect tow vehicle hitch and ensure hitch.
4. ___ Make sure trailer brakes are operable.
5. ___ Make sure the unit is safe for towing with tires in good condition and properly inflated.
6. ___ Make sure there are no tools, objects, or trash items which could fall off during transport
7. ___ Chock wheels on both sides of the machine/unit trailer, then start machine/unit engine- (*See Operator Controls and Start-Up Procedure)*.
8. ___ Make sure the right and left outrigger jacks are fully retracted- (*See Jack Controls)*.
9. ___ Open the tow vehicle hitch and back vehicle into position. Set tow vehicle parking brake.
10. ___ Slowly retract trailer tongue jack so that the pintle eye rests correctly in hitch strike plate.
11. ___ Ensure the hitch is secured. Connect the safety chains. The safety chains should be crossed and short enough to prevent the tongue from digging into the ground, should the unit unintentionally become disconnected. The chains should be no longer than necessary to allow slack for turning – crossing the chains provides directional control.
12. ___ After the trailer is secured to the vehicle, stop the machine/unit engine, and remove the key from the ignition key switch.
13. ___ Connect the electrical plug to the tow vehicle and check:
    a. Clearance lights
    b. Brake Lights
    c. Turn Signals
    d. Brakes
14. ___ Remove and store the wheel chocks.
15. ___ Remove vinyl drum/rope covers before transporting.
    Note: These covers are not transportation covers and should be handled accordingly.

2.5.4 In the Event a Fire Occurs

Most Sherman + Reilly™ equipment comes standard with a fire extinguisher mounted somewhere on the equipment for quick access by the operator. However, should a fire occur with S+R equipment; the **operator should only utilize the provided fire extinguisher, if trained in its use, if safe to do so, if in accordance with employer policy, and in these described situations**:

a. To save your own life, if in jeopardy from fire.
b. To save someone else's life, if in jeopardy because of a fire- but only if safe to do so.
c. To put out small equipment fires to avoid further damage to equipment or prevent a dangerous explosion, but only if safe to do so.

- ☐ Turn the starting switch to OFF position, and stop the engine or use one of the Emergency Stop buttons to shut down.
- ☐ Use the handrails and steps to escape from the machine.
- ☐ Do not jump off the machine, unless necessary to avoid electrical shock; there is the danger of falling, which could cause serious personal injury.
- ☐ The fumes generated by a fire contain harmful elements that are unhealthy when inhaled. Do not breathe the fumes.

CAUTION: Operators should exercise caution when attempting to put out fires, as **the provided extinguisher is only intended to suppress small localized fires,** and is not intended to put out or "fight" large scale fires, should one occur.

With the presence of flammable fluids and other operational environment factors, even small fires can grow out of control quickly- operators must maintain awareness of these factors.

Proper training must also be provided by employer before engaging in any firefighting efforts. Should a fire occur with Sherman + Reilly™ equipment, the operator should **not** use the equipment until it has been inspected for safety and approved to be returned to service- regardless of the size of the fire.

2.6 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 de-energize the drive system/engine and stop all equipment rotation and power as quickly as possible. This is done by **pushing one of the installed Emergency Stop Buttons** located on sides of the machine or on the control panel. Know the location of these E-stop switches.

2. If the Emergency Stop Button is pushed 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.
3. Quickly assess situation and assist any injured personnel to get free from hazards- only if safe to do so.
4. Notify proper authorities and get help.
5. Follow all employer emergency procedures.

2.6.1 Unauthorized Modifications

- ☐ Sherman + Reilly™ 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 Sherman + Reilly™.
- ☐ Any modifications made without written authorization from Sherman + Reilly™ can create hazards. Before making any modifications, consult Sherman + Reilly™.
- ☐ Any modifications made without authorization from Sherman + Reilly™ will void any written or implied warranty.

2.6.2 Precautions When Running Engine Inside Building

The engine exhaust gas contains substances that may damage your health and even cause death. Start or operate the engine in a place where there is good ventilation. If the engine or machine must be operated inside a building or underground, where the ventilation is poor, take steps to ensure that the engine exhaust gas is removed and that ample fresh air is brought in.

2.6.3 Investigate and Confirm Jobsite Conditions

On the jobsite, there can be various hidden dangers that may lead to serious personal injury or death. Before starting operations, always check the following to confirm that there is no danger on the jobsite:

- ☐ Always be careful when performing operations near materials such as shingled roofs, dry timber, dry leaves, or dry grass because they are easily combustible and may cause fire.
- ☐ Check the terrain and condition of the ground at the jobsite, and determine the safest method of operation. Do not operate in a dangerous area where landslides or falling rock may occur.
- ☐ If water lines, gas lines, or high-voltage electrical lines may be buried under the jobsite, contact the appropriate authority to identify their locations, and take care not to damage any of these lines.
- ☐ In particular, if you need to operate on an active right-of-way, protect pedestrian and cars by designating a person for jobsite traffic duty or by installing fences around the jobsite.

2.6.4 Precautions When Working on Loose Ground

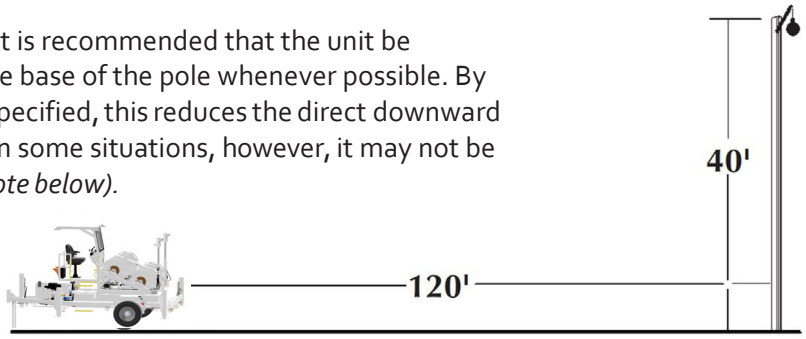
- ☐ Avoid operating the machine near the edge of cliffs, bluffs, road edges, and deep ditches. The ground may be weak in such areas. If the ground should collapse under the weight or vibration of the machine, there is a hazard that the machine may fall or tip over. Remember that the soil is weak in these areas, especially after heavy rain, blasting, or earthquakes.
- ☐ When working on embankments or near excavated ditches, there is a hazard that the weight and vibration of the machine will cause the soil to collapse. Before starting operations, take steps to ensure that the ground is safe and to prevent the machine from rolling over or falling.

2.6.5 Positioning the Machine

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. Sherman+Reilly will not be responsible to damage to the trailer caused by vertical lifting 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 three times (3X) 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 120 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.

3 Controls

3.1 General Overview

The Sherman+Reilly™ Revolution Series PLW-200X Four-Drum Turret Puller is a multi-purpose pilot line winder capable of pulling up to 2,000lbs. This distribution class puller utilizes a waterfall design that permits overhead pulling while allowing for added line clearance. This puller offers a rotating turret capable of rotating a continuous 360 degrees in either direction, while locking automatically when the rotation stops. The PLW-200X is equipped with an ACG (advanced control group), which allows for a single operator at a protected central control panel to control payout speed, tension, and over-spin of each drum independently. The operation controls employ PLC machine control with CAN-bus technology, allowing for centralized control of all operations from the safety of the cab.

Two hydraulically-driven, manually controlled levelwinds help ensure even distribution of rope when rewinding or pulling, thereby minimizing the risk of tangles and maximizing rope life. The PLW-200X 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 (at the top of each drum loaded with 6,000 ft. of 7/16 in. PE-12™ synthetic rope). Each Drum/Reel is loaded different color rope for easy identification. The PLW-200X's single axle trailer is equipped with four outrigged hydraulic jacks, a hydraulic 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 PLW-200X features a cab is designed 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. The cab is designed to reduce operator fatigue, thereby reducing errors and injuries in the field.

Key Features

- 360° Continuous Rotating Turret
- 4 Drums of 6,000 ft. of PE-12
- Centralized Drum Engagement Clutch Controls
- 4 Independent Hydraulic Payout Brakes
- 2 Levelwinds- Joystick Controlled
- 4 outriggers with hydraulic jacks
- Centralized Engine Controls- CAN-bus technology
- 49 HP Tier 4 Final water-cooled diesel Kubota engine

3.2 Specifications

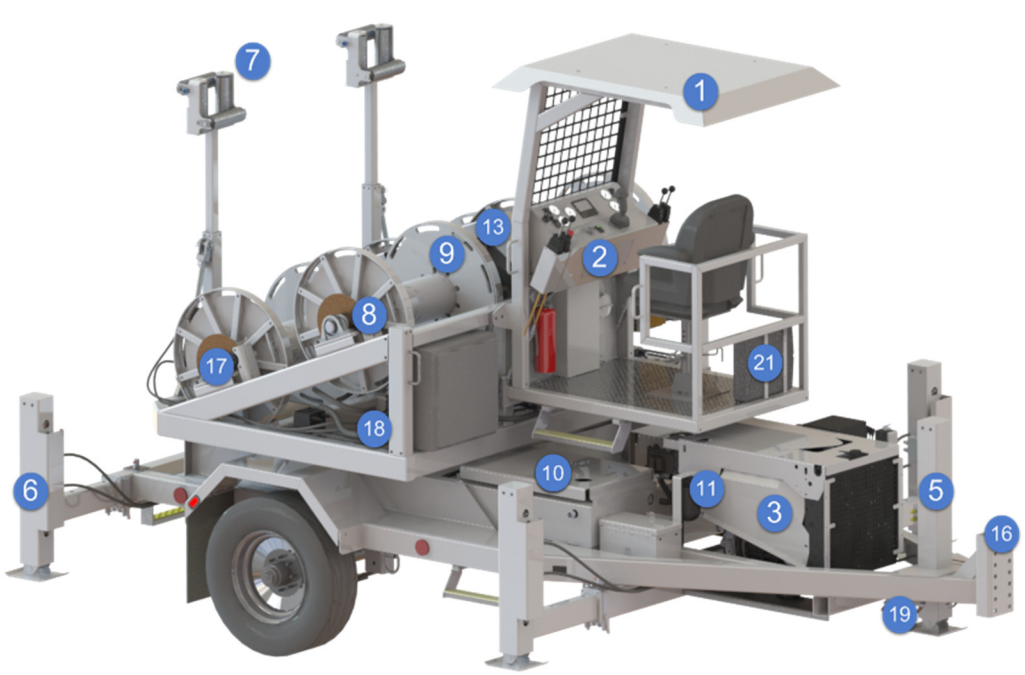
Specifications Details: PLW-200X

(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	3.5 mph *average*
Turret Rotation	360°continuous
Reel Capacity	6,000 ft. of 7/16 in. PE-12 rope
Drive System	Hydraulic motor, chain and sprocket
Engine	Tier 4 Final, diesel, 49 hp., water-cooled
Fuel Capacity	13 gallon
Hydraulic Fluid	ISO Grade 32
Hydraulic Reservoir (Main)	25 gallon
Hydraulic Fluid Filtration	10 microns
Payout Brake	Hydraulic disc-caliper, electronically adjusted, ACG (Advanced Control Group)
Levelwind (2)	Hydraulically driven, joystick controlled
Operator's Safety Enclosure	Safe-Zone™ Cab, open/half cab, turret mounted
Frame Construction	Steel tubing, continuous weld
Length (Overall, Nom.)	15 ft.
Width (Overall, Nom.)	8 ft.
Height (Overall, Nom.)	9 ft., 10 in.
Weight (With Rope)	Galvanized 12,200 lb. / Painted 12,000
GVWR	12,500 lbs.
Suspension	Leaf spring
Axle Configuration	Single
Wheel Configuration and Tires	Single 235/75R 17.5
Brakes (Trailer)	Electric, with break-away switch
Towing Attachment	3 in. pintle eye, with two safety chains and hooks
Tie Downs (4)	5/8 in. dia. steel D-Rings
Outriggers (4)	Manual outriggers with hydraulic jacks with shoe
Front/Nose Jack	Hydraulic, with shoe
Electrical System	12 VDC
Battery	12 V, group 27
Lights / Navigation	12 V LED, US DOT
Grounding (4)	¾ in. dia. copper-clad steel loops
Wheel Chocks and Holders	Standard
Fire Extinguisher	ABC
Drum Covers	Vinyl
Color	S+R White or Galvanized

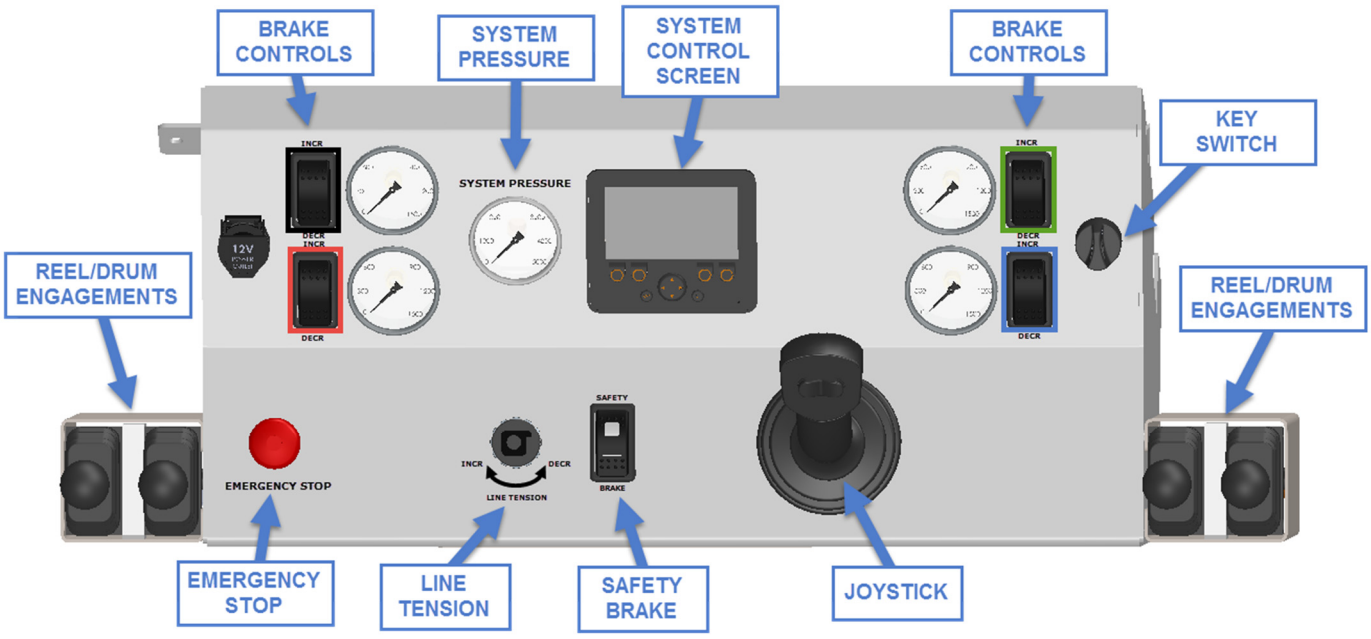
3.3 Terms to Know

1. Cab
2. Console
3. Engine
4. Jack Controls
5. Tongue Jack
6. Outrigger Jacks (x4)
7. Levelwinds (x2)
8. Payout Brakes
9. Pulling Drums (x4)
10. Hydraulic Tank
11. Hydraulic Filter
12. Fuel Tank
13. Drive Chain
14. Air Filter
15. Hydraulic Rotary Coupling
16. Breakaway Switch
17. Pillow Block Bearing (x4)
18. Manual Reel and Levelwind controls
19. Grounding Loops(x4)
20. Wheel Chocks
21. Manual Case



NOTE: Product images shown in this document are for illustration purposes only and may not be an exact representation of your product. Actual product may vary due to continual product enhancement and improvement.

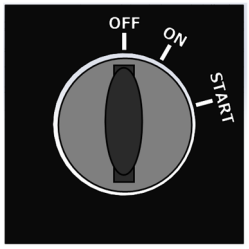
3.4 Operator Controls



3.4.1 Control Panel on the Unit

3.4.2 Master Power Key Switch

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



CAUTION: Always ensure that the master power key 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.

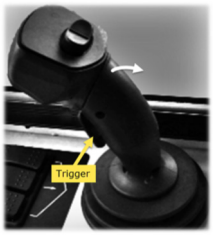
3.4.3 Emergency Stop Button

When pushed, this red push button stops all operation functions, turning off system and engine power, while disengaging all controls. This will not affect drums that are not physically engaged to the hydraulic drum engagement system.

After being depressed, the button must be rotated and released to the disengaged position to restore power to the system and re-engage operator controls.

NOTICE: The emergency stop button 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 button is pushed, line tensions can change rapidly. For more information on emergency shut down situations- (*see the Emergency Stop Procedure).*

3.4.4 Joystick Control



The function of the joystick is dependent upon which operational mode is selected on the system control. Turret rotation, drum/reel rotation, and the levelwind arms are all controlled by the joystick. The hydraulic brake is set when the joystick is in the center/ neutral position.

Controlling the Hydraulic Brake Function

CAUTION: Once the hydraulic brake is released, the trigger must be held when pushing the joystick forward or pulling backward from center/neutral to keep the brake from reapplying. The trigger is used to release the brake and to keep the brake released when passing forward through center neutral. Once the joystick is forward or backward of center neutral, the trigger should be released.

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

WARNING: Once the hydraulic brake is released, the operator should release the joystick trigger. This ensures that if the brake is needed for a rapid halt and the operator returns the joystick to the neutral position, the trigger will not be inadvertently pressed preventing the brake from engaging.

WARNING: To avoid potential personal injury and/or equipment damage, ensure that any vehicle actively pulling out line has completely stopped before returning the joystick to the center neutral position and setting the brake. Limit pull off vehicle speed to account for sudden accidental changes in line tension. If the joystick is placed in or passes through center/neutral with the trigger released, the hydraulic drum brake will set halting operations.

3.4.5 Levelwind Head

The pulling line should be removed from the levelwind during payout. To remove line, remove the retainer pin and open the levelwind by pulling the retainer plate and swinging out the top roller "gate." To close, close the roller "gate", and reinstall retainer plate and the retainer pin.

3.4.6 Turret Rotation Control

- Press the soft key under [TRT] to activate.
- Turret Rotation is controlled by the thumb rocker switch on the joystick when the Control System is in [TURRET ACTIVE] Mode.
- Pressing the joystick rocker switch will cause turret rotation.
- The horn will sound when in the Turret Active mode.
- NOTE: This mode cannot be activated with the levelwinds in use.

CAUTION: To avoid falling from the unit, the operator must be seated in the operator's chair while rotating the turret.

3.4.7 Levelwind Control

The levelwinds are also controlled using the joystick thumb rocker switch.

- To activate either levelwind, press the momentary soft key switch associated with that levelwind.
- The active levelwind will be indicated by a green box on the control panel.
- The levelwind rocker switch is proportional – the harder it is pressed, the faster the levelwind will move.
- **NOTE:** Only one levelwind can be active at a time.

The Operator controls the lateral side-to-side movement of the LEVELWIND and the turnaround using the top joystick lateral rocker switch.

3.4.8 Line Tension Control

This control determines the tension to the line as it leave and enters the drum/reel. 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. The line tension control knob is equipped with a position locking ring, allowing the operator to set and lock the tension knob at a set interval, and thus preventing accidental rotation of the knob.

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.

3.4.9 Engine Throttle Control

Engine throttle control is managed automatically by the control system depending upon the power demand.

- The engine idles at 1300 RPM.
- The default for the system is 2700 RPM when the joystick trigger is depressed.
- The RPM on the engine can also be increased or decreased from the System Control Panel Engine Information Screen in 100 RPM increments, depending upon the power demands of the pull.
- To adjust the engine "working" RPM higher or lower than the default, depress the joystick trigger then use the Up/Down arrows on the Control Panel. This will set the "working" RPM. When the engine is re-started, the working RPM setting will return to the default 2700.

3.4.10 Drum Drive Coupling Control Levers

Engagements in locked position

The four (4) control levers – two (2) on each side of the control panel - engage and disengage the drum/reel drive couplings. The coupling must be engaged and locked before the drum/reel will rotate.

The drums/reels are engaged by pushing down the lever handle, pushing the lever all the way forward away from the operator, and then releasing the lever to lock in place. The lever has a spring lock that holds it in place as a safety feature; the lever must be depressed, or pushed down, before the lever will move in either direction.

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

NOTE: It may be necessary to slowly rotate the drums to align and engage the drive couplings. *The operator can lean forward to see the drum engagement.*

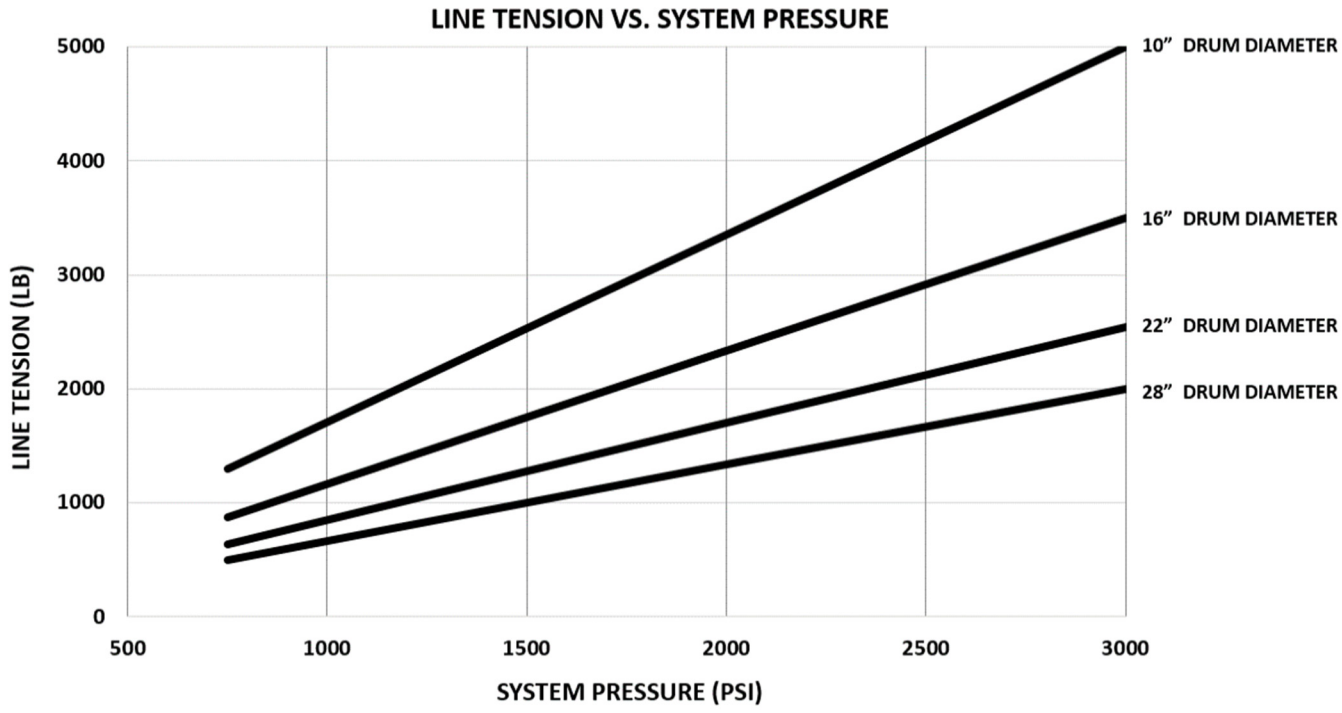
3.4.11 Safety Brake Override

The Safety Brake override switch allows the operator to manually engage the drive motor brake by placing the switch in the Stop position. The Safety Brake overrides the Joystick operation and will hydraulically brake any drum that is engaged with the hydraulic engagement system. Also, the Safety Brake may be activated when the operator sets the initial tension setting.

3.4.12 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.



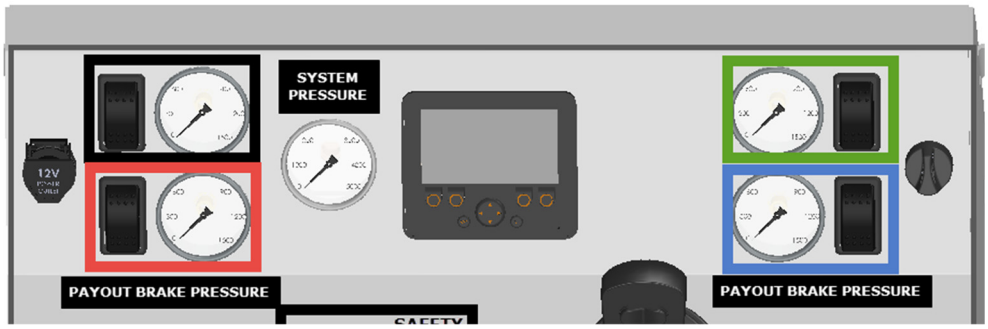
NOTICE: This chart is for reference purposes only, as a guidance to approximate Line Tension at a given System Pressure and Drum Diameter.

CAUTION: Confirm that the drum engagement lever is locked into placed before pulling. Pushed the lever forward, away from the operator, while also pressing down, to engage the drum coupling and lock it in place. The operator can confirm the drum coupling is locked by pulling back without pushing down - the lever should remain locked in place.

3.4.13 Payout Brake Pressure Control Switches

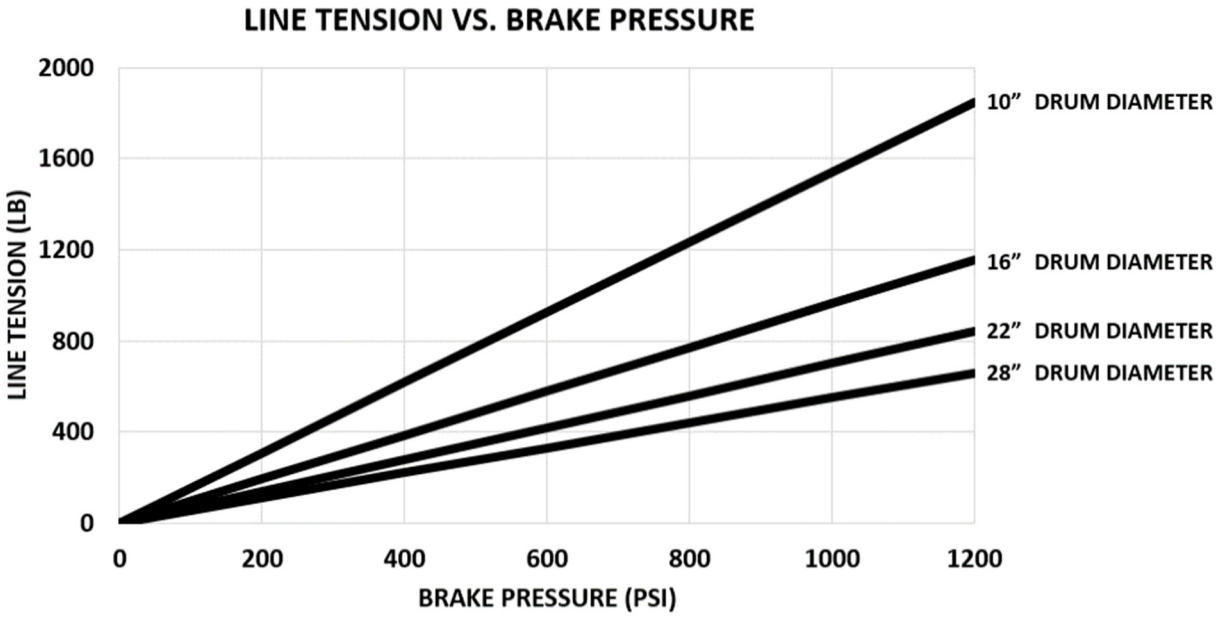
Each drum/reel payout brake can be set to the amount of tension/drag desired by pushing and holding the corresponding control switch. Each control switch operates in a rocking pattern depressing upward for increased pressure and downward for decreased pressure. The operator can press and hold or knock the switch in either direction to obtain the desired brake pressure. The payout brake system has its own independent hydraulic system that is battery powered, allowing full use without running the engine.

NOTICE: The payout brake should be engaged while transporting the machine to prevent the drum/reel rotation.



3.4.14 Payout Brake Pressure Gauges

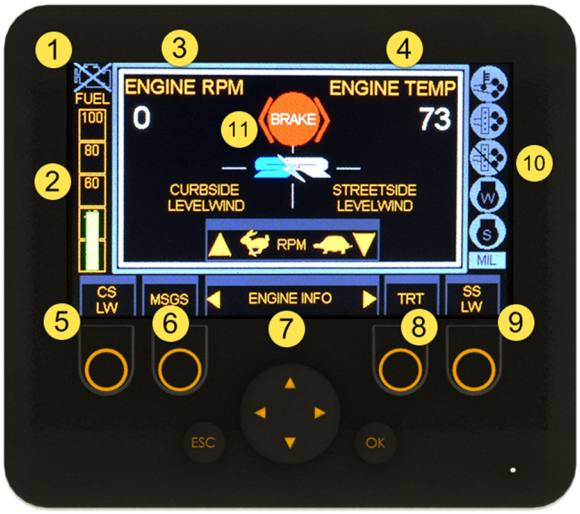
These gauges measure the amount of pressure applied to the payout brake caliper. This measurement along with the table below gives the operator a reference when setting the payout brake pressure during payout operations.



NOTICE: This chart is for reference purposes only, as a guidance to approximate Line Tension at a given Brake Pressure and Drum Diameter.

3.5 System Control Screen Descriptions

3.5.1 Main Screen



The Main Screen visible on the System Control Panel when the machine is first turned on shows the main system parameters.

Levelwinds and turret rotation can be activated from this screen.

Engine RPM can be adjusted with the Up/Down arrow keys.

If there is an Error, the backgrounds of the value fields will turn RED. See MESSAGES screen to determine cause of error.

This screen shows if the brake is engaged, DPF indicators, and if there are engine codes.

#	Name	Description
1	Engine Error Indicator	This will illuminate with there is an engine error code
2	Fuel Gauge (%)	Bar will flash RED to indicate low level (<= 15%).
3	Engine RPM	
4	Engine Oil Temperature	
5	Curbside Levelwind Activation	Press to activate Curbside Levelwind
6	MSGS soft-key	Push to go to MESSAGES screen. See MESSAGES SCREEN section for screen details. ORANGE frame indicates new indicator active on MESSAGES screen since last time screen was accessed.
7	Screen selection	Using the left/right arrow keys, select the screen to view and press OK.
8	Turret Active	See MULTI-SCREEN ITEMS, POP-UP INDICATORS section for details
9	StreetSide Levelwind Activation	Press to activate StreetSide Levelwind
10	Engine Indicators	See section on Engine Indicators.
11	Brake Indicator	Illuminates when the brake is applied.

3.5.2 Engine Information Screen

Screen is accessed by using ***Screen Selection Window*** on MAIN screen. Press ESC soft-key to return to MAIN screen. All values on this screen are received from ECU. Backgrounds of value fields will turn RED to indicate flawed value due to ECU communications error.

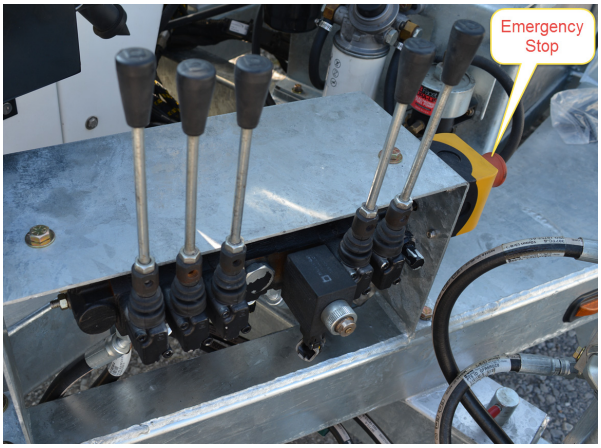
#	Name	Description
1	ECU Communications indicator	Gray = GOOD / Red = ERROR. See sections on Error Messages and DPF Engine Indicators
2	Fuel Gauge (%)	Bar will flash RED to indicate low level (<= 15%).
3	Engine RPMs	Indicates revolutions per minute of the engine.
4	Engine Coolant Temperature	Engine will shut down if the coolant temperature exceeds 240° Fahrenheit.
5	Engine Oil Pressure (PSI)	For diesel, T4F engines, monitored with a pressure switch. Engine will be stopped if < 29 psi. For gas engines, monitored with a sensor. Engine will be stopped if < 7 psi.
6	**Current DPF Level (0-5)** [for diesel, T4F engines only]	Level 0: REGEN is unnecessary. Level 1-2: REGEN can occur automatically. Level 3: PARKED, MANUAL REGEN is required Level 4-5: *Non-warranty factory assistance from Kubota is required.* **IMPORTANT: Perform a Parked, Manual ReGen BEFORE engine reaches Level 4.**
7	Reel Brake indicator	See MULTI-SCREEN ITEMS, POP-UP INDICATORS section for details.
8	Engine Percent Load at Current Speed (%)	Ratio of actual engine percent torque to maximum indicated torque available at current engine speed.
9	Battery Voltage (Volts)	Received from ECU. Background will turn RED to indicate flawed value due to ECU communications error.
10	Engine Fuel Rate (GPH)	Amount of fuel consumed by engine.
11	Engine Total Hours of Operation (HRS).	
12	MSGS soft-key	Push to go to MESSAGES screen. See MESSAGES SCREEN section for screen details. ORANGE frame indicates new indicator active on MESSAGES screen since last time screen was accessed.
13	**REGEN Request soft-key** [for diesel, T4F engines only]	Push for half (0.5) a second to request REGEN. This switch can only be used, and will only be visible, if the engine is running, REGEN conditions are met and a REGEN cycle is not taking place.
14	REGEN Inhibit Request soft-key [for diesel, T4F engines only]	Push for half (0.5) a second to request inhibiting REGEN. This switch can only be used, and will only be visible, if the engine is running and REGEN is *not* already happening. If the ECU accepts the request, the REGEN Inhibit indicator (item 14) will turn yellow.
15	Engine Indicators	See section on Engine Indicators.

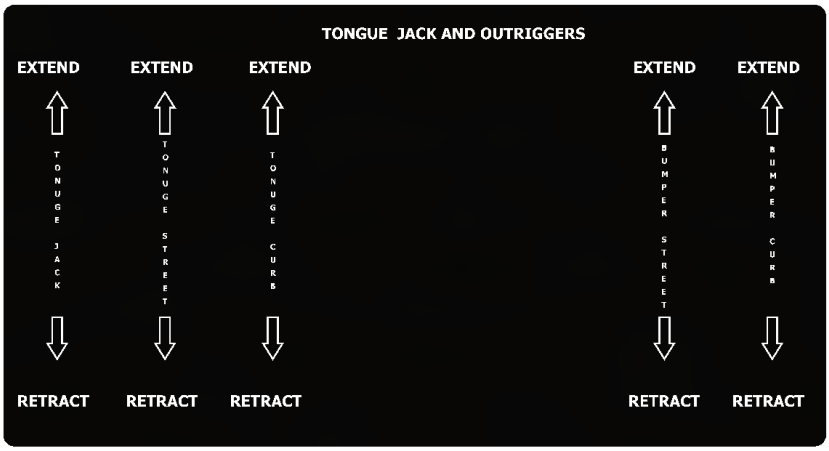
3.6 Exterior Hydraulic Controls

3.6.1 Hydraulic Jack Controls

The PLW-200X has four outrigger jacks and one tongue jack. The engine must be turned on and running to use jack controls. All the jacks are operated from the hydraulic levers located on the StreetSide tongue of the trailer (not from the operator's seat.) Press forward to extend the jack, thus raising the trailer. Pull back to retract the jack cylinders – lowering the trailer. Each outrigger is manually positioned before extension of the jack.

This exterior StreetSide hydraulic control manifold operates all hydraulic jacks. See the decal on the machine for additional instruction. An emergency stop is also located here.





4 Handling and Operation

4.1 Pre-Operation Inspection

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. **Check the engine radiator coolant level,** by opening the radiator cap.
2. **Check for proper engine oil level**. After checking oil level, wipe dipstick clean of any debris prior to reinserting into spout.
3. **Check hydraulic fluid reservoir level,** by viewing the sight gauge on the side of the tank.
4. **Check inside engine compartment for debris.** Open all engine compartments, while inspecting compartment latches. NOTE: Be sure the engine covers are replaced and latched in position properly before transport or operating the machine.
5. **Inspect drum and/or bullwheel surfaces** for signs of damage or excessive wear.
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. **Close and re-secure all latches,** engine compartments, and panels.
9. **Inspect for damage,** bent or broken parts, cracked or broken welds, missing pins and retainers.
10. Inspect all equipment grounds for any signs of damage.
11. **Inspect all jacks** for damage or leaking hydraulic components.
12. **Inspect connected** reel stands, drive motors, drive bars, drive pins, and reel shaft couplings to ensure they are secure and that there are no obvious signs of damage- if damaged do not operate, service may be required.
13. **Inspect fairleads and rollers** for any obvious signs of damage, and ensure rollers move freely.
14. **Check fuel level and battery charge**- 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 engine information screen.
15. **Check surrounding area**
    a. Check that there is no combustible material that could be ignited by high temperature exhaust during operations, especially during regeneration of a diesel particulate filter.
    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.
16. **Conduct towing readiness inspection.**
    a. Inspect all trailer connections, and ensure that the hitch is secured, and air supply/electrical hoses and trailer lighting are connected.
    b. 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.
    c. Ensure that trailer brakes work and that wheel chocks are available.
    d. Check tire pressure- tire pressures are posted on the tire sidewall.
    e. If tire pressure slow, inspect tire for damage or punctures. If damaged or punctured, have repaired or replace.
    f. Ensure that all jacks are raised and that trailer is clean and free from trash or debris.
17. **Inspect Fire Extinguisher.**
    a. Inspect fire extinguisher charge, and ensure that gauge shows within charge limits.
    b. Inspect the physical condition of the extinguisher- (cylinder, hose/cone assembly, etc.), for any signs of damage or corrosion.
    c. Ensure that hinge pin is in place, to prevent accidental discharge.
    d. Ensure that the plastic safety seal is secured to hinge pin, and that it has not been removed.
    e. Inspect mounting strap/bracket assembly to ensure extinguisher is secured to structure.

4.2 Start Up and Set Up Procedure

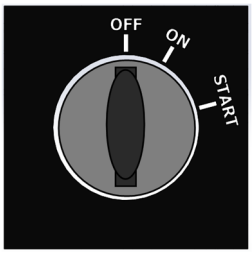
1) Perform all pre-operation inspections.

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) Ensure that all controls (levers, switches, etc.) are in the neutral and disengaged position (*See Operator Controls section*). Ensure Emergency Stop switches are in neutral position.

4) With the key inserted, turn master power key switch to the POWER ON / ENGINE START position; hold briefly (~ 2 seconds) and release.

5) The main control screen will flash the S+R logo, then the MAIN screen will be visible with all the potential error message indicators.



6) View the control panel [MSG] screen to ensure there are no warning or fault messages

7) Once the error messages clear, the MAIN screen is visible, turn the Master Power Key switch to [START]; hold briefly (~ 1 second) and release to start the engine. The unit will beep twice and the engine will start. If the engine does not start, check [MSG] to see if there are any error messages.

8) Outriggers and jacks should be deployed to level and stabilize the unit. (*See Hydraulic Jack Control section*).

9) 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.

NOTE: Visit https://www.youtube.com/user/ShermanReillyVideos to see instructional videos regarding the PLW-200X and other products.

4.3 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 hydraulic payout brake system will continue to function as normal, as it is not dependent upon the power of the engine. The independent hydraulic pump that actuates the drum payout brakes is powered directly from the battery. As the pressure is applied to the drum brakes, it is held in place by constant back pressure when the hydraulic motor is not engaged. Minimal operation and short cycle times of the drum payout brake pump help to ensure adequate battery charge. The operator can always start the engine to recharge the battery- if necessary.

- ✓ Further adjustment of payout brake may be required to prevent over-spin of drum. 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/rope, there can be a safety hazard- 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 drive coupling is engaged.

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

4.3.1 Payout Operations – Non-Powered

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

NOTE: When pulling the line of with the hydraulic motor disengaged, there is no counter to indicate line length.

1) The unit should be positioned, anchored, and appropriately grounded. *(See Positioning the Machine).*

2) If not done already, remove the rope from the Levelwind.

3) The Levelwind out of the way, all the way to the side. If necessary, start the unit to move the Levelwind.

4) Disengage the drive coupling from the drum/reel.

5) Decrease the Payout Brake pressure to zero.

4.4 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 drive coupling to engage and disengage the drum.

For power assisted payout operations, select [PULL] mode on the system control panel. Power assisted payout is useful when manually "walking out" the line.

1) The unit should be positioned, anchored, level, and appropriately grounded.
   a. *(See Positioning the Machine).*

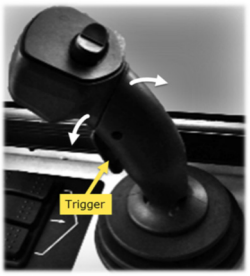
2) Perform Start-Up Procedure.

3) If not done already, remove the rope from the Levelwind.

4) Check and adjust levelwind position as needed so that the levelwind does not interfere with Payout. *(See instructions on regarding adjusting the levelwind)*

5) Engage the manual payout brake coupler.

6) Begin payout operations by depressing the joystick trigger. Slowly push forward on the joystick, through neutral while still holding trigger. Once past center/neutral, the trigger should be release. Once the desired speed is reached, the joystick can be released.



7) Once the rope is paid out and operations have concluded, place the joystick control into the center neutral position with the trigger released, and ensure that the hydraulic drum 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 drum brake is set and the joystick is in the neutral position with the joystick trigger released.

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.

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

4.5 Pulling

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 drive coupling 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 drive coupler and lock into place for the pulling drum(s) being used.

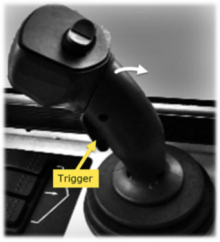
CAUTION: Confirm that the drum engagement lever is locked into placed before pulling.

4) Once the drum drive coupler is engaged, fully release the drum payout brake.

5) Place the pulling rope through the levelwind head and secure all rollers and retaining pins.

6) Activate the levelwind and position the levelwind so that it is centered over the exit rope in line with the pulling line as it enters the reel. (***See Levelwind Control***).

7) Pull in any unwanted slack in the line by squeezing the joystick trigger and slowly pulling back on the joystick to begin drum rotation. Return the joystick to center/neutral to stop rotation.



8) Set the Safety Brake switch to the BRAKE / STOP position (Red LED illuminates).

9) 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.

10) Cycle the Safety Brake Override switch. This is a safety feature designed to avoid accidental reel rotation.

11) Begin pulling by depressing the joystick trigger, wait briefly, then pull back slightly on the joystick, bringing it out of center/neutral.

12) 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.

13) Manage the lay of the pulling line using the LEVELWIND. The LEVELWIND requires constant operator input. *See Levelwind Control section*

14) Continue to monitor system pressure-

NOTE: The Levelwind lateral rocker switch is proportional. The harder it is pressed, the faster the levelwind will move.

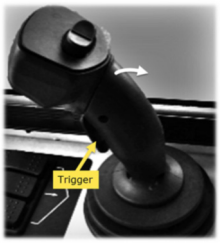
15) After line/rope is released from conductor and fully wound on drum/reel, set Safety Brake override to ON position.

4.6 To Pre-set a System Pressure / Line Tension for Pulling

1) Make sure joystick is in the center/neutral position.

2) Set the Safety Brake to the Brake position.

3) Turn the Line Tension Control knob all the way counter clockwise (CCW) in the DECREASE direction.



4) Pull the joystick trigger and pull back slightly on the joystick to engage the hydraulic.

5) Slowly turn the line tension control clockwise (CW) to increase line pressure to the desired setting on the System Pressure gauge.

NOTE: *There should be no rotation of any drums. You will notice as you turn the line tension control knob the system pressure gauge will start showing the pressure. As you turn the line tension control knob to increase or decrease, the System Pressure gauge will reflect the pressure.*

6) Once you have turned the line tension to the desired setting on the gauge, return joystick to center / neutral position.

7) Do not make any adjustments to line tension control after returning the joystick to center / neutral, or this will change the set pressure point.

8) The system is now preset at the desired system pressure / estimated line tension.

9) Once operations commence, the operator can adjust as needed.

4.7 Emergency Manual Overrides / [Limp Home] Mode

In the event there is a failure of electronic controls, "Limp Home" Mode may be utilized to operate the reels and levelwinds from the Emergency Manual Reel and Levelwind Controls. This mode should only be utilized if necessary to return the worksite to a safe operational situation.

To activate this mode, go to the SETUP screen, move the cursor to highlight the [LIMP HOME] mode. Pres OK to Enter this command.

A confirmation screen will ask the operator to confirm.

Once confirmed, the joystick functionality for moving the reels is disabled and the operator must go to the curbside override controls to operate the reels and levelwinds.

After the operations are complete using the manual controls, return to the cab and disable Limp Home Mode by again pressing [Limp Home Mode] in the setup screen followed by "No".

This will return the system to normal operations and, provided all is functioning properly, the joystick is activated and the machine can be utilized from the cab.

To utilize the Reel Drive Manual Override hydraulic controls, activate the [LIMP HOME] at the SETUP screen.

4.8 Post-Operation Inspection Checklist

- ☐ When parking the machine, the wheels should be chocked
- ☐ Check engine oil, radiator coolant, and hydraulic fluid levels- to ensure no leakage after operations.
- ☐ Store all grips, blocks, and other tools/equipment used during operations back into the tool box. Then close and lock tool box.
- ☐ Secure all rope/conductor ends to the reel using a tie- off rope around the reel or an industrial zip tie.
- ☐ Remove the keys from the control panel, and shut and lock the control panel box.
- ☐ Lock all engine panels.
- ☐ Remove any trash, rags, or other loose material from the machine.

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 psi. ratings listed on the tire sidewall.

NOTE: It is necessary to open the engine covers to check the fluid levels. Be sure all covers are 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.

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

NOTE: To help prevent rust on the unit, it is important to regularly apply a corrosion inhibitor / lubricant like TC-11 Corrosion Inhibitor or equivalent to exposed metal as well as fairlead rollers and pins. If the unit is stored outdoors, the 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 cable 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.

5 Quick Start Guide

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

PLW-200X Pilot Line Winder

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 START position; hold briefly and release.	The key will spring back to the ON position. Wait for the control system to load. The main control screen will flash the Sherman Reilly logo, then the MAIN screen will be visible.
3	Again, turn the Master Power Key switch to START; hold briefly and release.	The key will spring back to the ON position. After the preheat cycle has concluded, the engine will start automatically.
4	Warm-up hydraulic fluid prior to pulling.	It is recommended that the hydraulic fluid be allowed to warm-up to a working temperature of 60° F or 16°C prior to use of any hydraulics.
5	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.
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	**Check the hydraulic filter indicator** to ensure that the filter does not need replacing.	The filter indicator is located adjacent to the filter and hydraulic tank. If filter gauge shows red, filter replacement may be necessary.
8	Set outriggers for operation.	Extend outriggers to the extent possible in accordance with the site conditions.
9	Use the jack controls to level the machine.	Anchor and appropriately ground the unit. Wheels should be chocked to prevent rolling.
10	With the engine running, move each control, to check that all functions operate correctly.	**Do not do this if transitioning from payout to pulling operations.
11	Rotate turret if necessary. Use the thumb rocker switch on the joystick to rotate the turret.	To rotate the turret, the Control System must be in "Turret" Mode. Activate the turret by pressing associated soft key.
12	To engage a drum - used the associated drum engagement lever.	Drum engagement levers are located to the left and right of the main control panel.
13	In the event of an emergency, the Emergency Stop button can be used to stop all operations and shut down the machine.	This will cause an abrupt and total shutdown of the unit.
14	Use the SAFETY BRAKE to activate the hydraulic spring brake to lock the engaged drums, as needed.	The SAFETY BRAKE will lock down any drums that are engaged. Unengaged drums will not be affected.
15	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.

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 turret/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	Activate the levelwind – Streetside [SS] or Curbside [CS]. Press associated soft key on the system control display panel.	A highlight box will indicate the levelwind is active.
5	Adjust levelwind position using the thumb rocker switch on the top of the joystick.	Park the Levelwind out of the way, all the way, to the right side / streetside
6	Remove the line from the levelwind fairlead head for payout.	Remember to re-thread rope through the levelwind prior to pulling operations.
a) MANUAL PAYOUT – Manual Payout may be conducted with the unit turned off.		
7a	Disengage the drive coupling from the drum / reel.	Hydraulics are not used for manual payout.
8a	Decrease the Payout Brake pressure to zero.	This allows the reels to spin freely.
9a	Adjust drum brake tension: Each drum payout brake can be set to the amount of tension and drag desired by pushing and holding the corresponding Payout Brake control switch.	Each control switch operates in a rocking pattern pressing upward for increased pressure and downward for decreased pressure.
10a	Begin manually pulling line off the drum.	Watch of over spin of the drum.
11a	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.
12a	Monitor the payout brake pressure, and maintain contact with the other machine operators and spotters to ensure that adequate line tensions are maintained.	An electric pump and hydraulic accumulators will maintain brake pressure as long as there is adequate battery power.
13a	Remember, the **Payout Brake is designed for low-force tensions only**	Payout Brake Tension should remain below 1000 lb.

Payout continued

b) POWER ASSISTED PAYOUT (see steps 1 through 6 on previous page)

Step	Action	Note
7b	Engage the drum(s) from which line will be paid out using the associated drum engagement levers.	These manual engagement levers are located to the left and right of the main control panel.
8b	Cycle Brake Override Switch.	This is a safety feature designed to avoid accidental reel rotation.
9b	Begin payout operations by depressing the joystick trigger. Gently push 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.
10b	Once the brake is released, slowly push forward on the joystick to reach the desired payout speed.	The joystick controls drum rotational speed.
11b	When the desired speed is reached, the joystick can be released to maintain that speed.	**CAUTION:** Watch for over spin of the drum.
12b	Continue to monitor the line.	**CAUTION:** Excessive slack could become a safety hazard.
13b	To stop drum rotation at any time, return the joystick control to the center neutral position with the joystick trigger released, and the hydraulic brake will set.	**CAUTION:** Be certain pull vehicle is stopped before setting brake.
14b	Use the SAFETY BRAKE to activate the hydraulic spring brake to lock the engaged drums, as needed.	The SAFETY BRAKE will lock down any drums that are manually engaged. Unengaged drums will not be affected.
15b	To shut down the machine, turn the keyed ON / START switch to OFF.	Follow Post-Operations procedures.

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

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 & Safety Brake	Ensure all lines are tied off and secured before releasing brakes.
5	Engage the drum drive coupler for the pulling drum or drums being used.	It will likely be necessary to jog the drum engagement to get the teeth to align.
6	Place the pulling rope through the levelwind head and secure all rollers and retaining pins.	
7	On the Control Panel, activate the levelwind - Streetside or Curbside.	A highlight box will indicate the levelwind is active. See Levelwind Control section.
8	Using the top joystick lateral rocker switch, adjust the R/L starting position.	Position the levelwind so that it is centered over the exit rope in line with the pulling line as it enters the reel.
9	Pull in any unwanted slack in the line.	Squeeze the joystick trigger and slowly pull back on the joystick to begin drum rotation. Return the joystick to center/neutral to stop rotation.
10	Set the Safety Brake switch to the BRAKE position.	See Operator's Manual for instructions.
11	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.
12	To begin pulling, release the SAFETY BRAKE and squeeze the joystick trigger, slowly pulling back on the joystick to begin drum rotation.	See Operator's Manual for instructions.
To Set the Line Tension before pulling.		***The unit can also be operated without presetting the line tension.***
A	With the SAFETY BRAKE set to BRAKE, squeeze the joystick trigger and slowly pull back on the joystick.	The SAFETY BRAKE will hold tension.
B	Using the LINE TENSION control, and looking at the System Pressure gauge, set the desired line tension / pressure.	Look at the System Pressure gauge and estimate line tension using the provided chart.
C	After setting the desired Line Tension / Pressure, return the joystick to center neutral.	
D	Cycle Brake Override Switch to FREE and back to BRAKE.	This is a safety feature designed to avoid accidental reel rotation.
E	Put safety brake override in the FREE position.	The drums may now rotate.
F	Fully release selected reel/drum payout brake.	Payout brake must be fully released. Brake drag during PULL-IN operations will overheat the brakes.
G	Pulling back on the joystick will increase drum rotational speed.	Manage the lay of the rope with the levelwind.
H	Continue to monitor line tension, system pressure, and levelwind adjustment.	See Operator Controls Section.
I	After line/rope is released from conductor and fully wound on drum/reel, set Safety Brake override to BRAKE position.	Follow Post-Operations procedures.

6 System Control Information

6.1.1 Set Up Screen – Security Level 0

Screen is accessed by pressing SET UP soft-key on MAIN screen. Press ESC Soft-key to return to MAIN screen.

1	**Machine Model indicator**	Shows model identifier.
2	**Security Code**	Use Left / Right cursor soft-keys to move highlight box, when box is NOT flashing, to desired field. Press Security CODE soft-key (item 11) and use Left / Right cursor soft-keys to adjust selected field's value while highlight box is flashing. Press Security CODE soft-key when finished adjusting value. Code can only be entered when Current Level (item 08) = 0. Returning to MAIN screen automatically resets Current Level to 0.
3	**Inputs**	Press OK soft-key (item 10) while field is selected (ORANGE) to go to INPUTS screen. Use Up / Down cursor soft-keys (item 09) to move selection cursor.
4	**Outputs**	Press OK soft-key (item 10) while field is selected (ORANGE) to go to OUTPUTS screen. Use Up / Down cursor soft-keys (item 09) to move selection cursor.
5	**Program Versions**	Current software versions of Cr0233 controller and Cr0452 display.
6	**Current Security Level (0-3)**	Indicates the level of access permission.
7	**Move Cursor**	Use Up / Down cursor soft-keys to move between items 03-06.
8	**Select / Enter**	Press OK soft-key to select/enter currently selected (ORANGE) field (items 03-06).
9	**Security Code Select / Enter**	Press soft-key to edit currently selected security code field (item 02). Press while security code highlight box is flashing to end editing.

6.2 Error Messages

Message Screen is accessed by pressing MSGS soft-key on MAIN screen.

This screen Provides IO related warning / fault indicators.

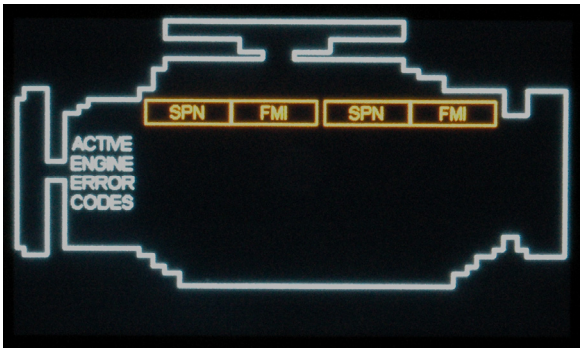
All possible indicators are listed on this screen.

- GRAY = inactive
- YELLOW =active.

Press ESC soft-key to return to MAIN screen.

6.2.1 Engine Error Codes

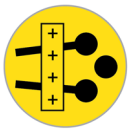
Pressing the [MSGS] soft key on the ENGINE INFO screen will show any engine errors.
This screen displays Active Engine Error codes (maximum of 10) being reported by ECU. Contact engine supplier for detailed information on SPN / FMI codes.



Pop-Up Indicator Lights

The following "pop-up" indicators can appear on multiple (MAIN, ENGINE INFORMATION, & HYDRAULIC INFORMATION) screens:

Indicates that reel brake is ON / applied. Disappears when the brake is released.

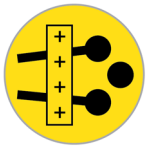


This is the initial warning that soot levels are rising in the Diesel Particulate Filter (see the following pages).

6.3 Diesel Particulate Filter (DPF) Re-Generation Information

PLW-200X employs a T4 Diesel Engine that utilizes a Diesel Particulate Filter (DPF) to remove soot and undesired combustion gas from the exhaust system. This filter must be periodically cleaned. During normal operation, the regeneration (ReGen) of the DPF occurs automatically. However, under certain conditions (particularly when the engine is lightly loaded for long periods of time) or the unit was shut down before ReGen was completed, the operator may have to instruct the control system to perform a manual cleaning of the DPF system.

A DPF Icon is the initial warning that soot levels are rising in the diesel particulate filter (DPF) ReGen should occur automatically without interference to operations.



If, however, the engine is shut down before ReGeneration is completed, the next time the engine is started, ReGeneration will be required, and can be initiated by pressing the key associated with the ReGen icon.

NOTICE: For ANY regeneration to take place, the coolant temperature must be at or above 160°F (71°C). If not, the ReGen will not take place.

There are three (3) types of regeneration modes:

1) PASSIVE – This means the engine is working hard enough to create sufficient exhaust temperatures so that regeneration is taking place without any external assistance. This goes on without any operator intervention; in fact, the operator may not even be aware of it unless he notices the high exhaust temperature light illuminated.
2) ACTIVE – In this situation, the conditions are close to being correct for a ReGen but the exhaust temp is not quite high enough so the ECU injects some fuel into the exhaust stream to raise the temperature and allow ReGen. Again, this goes on without the need for any outside intervention from external controls and would only be noticed by someone monitoring the exhaust gas temp light.
3) PARKED – This is the one that requires "special conditions" be met for the ReGen to occur. The engine must be at DPF level 2, 3 or 4 and the park and neutral signals must be sent so the ECU knows the engine is not under any load. (The engine may need to be at LOW idle, which varies from engine to engine). Once those conditions are met, the operator must press the active ReGen button and the control system starts the ReGen.

If an automatic ReGen has not occurred or completed, the operator should immediately perform a Parked, Manual REGEN. DPF level must be at Level 2, 3, or 4 to perform a Parked Regeneration.

CAUTION: Do not operate the unit during a Parked ReGen, this will abort the process.

6.3.1 Engine DPF Error Codes

CAUTION: HIGH EXHAUST TEMPERATURE
Active ReGen - Hot Exhaust warning.
Be sure that exhaust will not come into contact with any combustible materials.

Engine Warning Icon

DPF Auto ReGen Active

Engine Stop Icon

DPF Regen Inhibited

MIL

Engine Malfunction Indicator

6.3.2 DPF and Engine Indicators

DPF LEVEL	Inhibit Switch	Active ReGen (High Exhaust Temp) Lamp	ReGen Needed/Request Lamp	MIL Lamp Engine Malfunction Indicator
				MIL
LEVEL 1: Active ReGen				
ReGen Not Needed	ON	OFF	OFF	OFF N/A
ReGen Not Needed	OFF	OFF	OFF	OFF N/A
LEVEL 1: Active ReGen				
Active ReGen Needed	ON	OFF	SOLID LIGHTING	OFF N/A
Active ReGen Occurring	OFF	SOLID LIGHTING	SOLID LIGHTING	OFF N/A
LEVEL 2: Active or Parked ReGen				
Active ReGen Needed Parked ReGen Needed	ON	OFF	BLINKING LIGHT	OFF N/A
Active ReGen Occurring Parked ReGen Occurring	OFF	SOLID LIGHTING	SOLID LIGHTING	OFF N/A
LEVEL 3: De-rating Power & Speed				
Parked ReGen Needed	ON	OFF	BLINKING LIGHT	ON
Parked ReGen Occurring	OFF	SOLID LIGHTING	SOLID LIGHTING	ON
LEVEL 4: De-rating Power & Speed				
Parked ReGen Needed	ON	OFF	BLINKING LIGHT	ON
Parked ReGen Occurring	OFF	SOLID LIGHTING	SOLID LIGHTING	ON
LEVEL 5: ENGINE STOP				
DPF Service Required (Active & Parked ReGen Disabled)	ON	OFF	BLINKING LIGHT	ON
DPF Service Required (Active & Parked ReGen Disabled)	OFF	OFF	BLINKING LIGHT	ON

6.4 Troubleshooting Quick Tips

ENGINE WILL NOT START OR RUN

- ☐ 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)**
- ☐ 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.
- ☐ Verify all E-stops are pulled "OFF".
- ☐ If no power inside electrical box assembly, using a DVM (Digital Volt Meter):
  - a. Verify power cables + and - coming into the box to the terminal blocks have power (+12Vdc).
  - b. Verify all DIN-rail wiring is correct per vehicle schematics.
  - c. Remove each fuse (one at a time) and verify they are not blown. Using DVM (Digital Volt Meter), fuses resistance should read 0.5 ohms or less.
- ☐ No fuel- check fuel gauge/tank for fuel level.
- ☐ Refer to engine manufacturer's manual.

DRUM WILL NOT ROTATE

- ☐ Did not cycle Brake Override Switch
- ☐ Low system pressure drum clutch not releasing.
- ☐ Obstruction between drum and frame.
- ☐ Existing line tension higher than line tension limit setting.

HYDRAULIC JACK CREEPS DOWN

- ☐ If motor is running, control valve seals are bad.
- ☐ If motor off, holding valve on jack needs adjusting.

UNIT WILL NOT BUILD MAXIMUM HYDRAULIC SYSTEM PRESSURE

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

HYDRAULIC FLUID TEMPERATURE IS ABOVE NORMAL

- ☐ Drum clutch not fully releasing.
- ☐ Contamination in hydraulic system.
- ☐ Wiring damage to the hydraulic cooling system- fan, wiring, coil, or sensor.

TRAILER LIGHTS DO NOT WORK AFTER CONNECTED TO VEHICLE

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

6.5 Service & Repair

NOTE: For service or repair please contact the Sherman + Reilly™ Parts & Service at **800-251-7780** or **(423)756-5300,** via email at help@sherman-reilly.com, or via our website: www.sherman-reilly.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 Sherman + Reilly™ Parts & Service Department at **800-251-7780** or **(423)756-5300,** via email at help@sherman-reilly.com, or via our website: www.sherman-reilly.com. Further operation should not continue until the issue or fault is resolved.

6.6 Overhead Swivel, Grip, and Rope Safety

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.

The following contact information is for the Original Equipment Manufacturers (OEM) for the peripheral equipment: grips, swivels, wire, and rope - provided with Sherman+Reilly™ equipment. This contact information is provided as a courtesy by Sherman+Reilly in an effort to keep end users well informed of the maintenance and safety requirements for this equipment. For the latest information on any of this accessory equipment check with the Original Equipment Manufacturer.

Original Equipment Manufacturers

Miller Lifting Products overhead swivels
Division of GHM Industries, Inc.
100A Sturbridge Road
Charlton, MA 01507 USA
Phone: (508) 248-3941
Toll Free: **800-733-7071**
www.millerproducts.net
http://www.millerproducts.net/for_your_safety.htm
http://www.millerproducts.net/maintenance.htm

Yale Cordage rope
77 Industrial Park Road
Saco, ME 04072 USA
Phone: (207) 282-3396
www.yalecordage.com

For information about inspecting and maintaining pulling ropes, visit:
http://www.yalecordage.com/splicing-and-instructions/rope-selection-and-inspection-guide

Hubbell Wiring Device-Kellems pulling grips
40 Waterview Drive
Shelton, CT 06484
Phone: (475) 882-4820
Email: techserv@hubbell.com

www.hubbell-wiring.com
http://www.hubbell-wiring.com/press/catalog/V.pdf

NOTE: *The listed URLs to which these QR Codes are linked are not under the control of Sherman+Reilly. If the provided QR code link is broken, check the OEMs' website for the latest information.*

PLW-200X Operator's Manual

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every night, no exceptions

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