THE POWER TO MOVE YOU

Operations Manual

Vehicle Types: XL30 and XL40 Models

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Safety Warning

Read this manual in its entirety before putting your Eagle tow tractor into service. This manual contains important safety instructions. Improper usage or a failure to follow the safety requirements listed in this manual could result in severe injury or death.

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Welcome and Contact Information

Welcome

Welcome to the growing family of Eagle tractor operators. This tractor was built with the operator's safety, comfort and ease of operation in mind. We hope you agree and enjoy your Eagle experience.

Purpose & Use of Manual

This manual is designed as a quick guide to familiarize you with the correct and safe operation of your Eagle tow tractor.

Your Eagle tractor was designed to do very specific tasks. For that reason, it will look, feel, drive and function differently than over-the-road trucks and automobiles, as well as various other types of vocational vehicles. It is the operator's responsibility to operate this equipment in a safe and prudent manner. Be alert; your safety and the safety of others is involved.

The descriptions and specifications contained in this manual were in effect at the time the manual was printed. Eagle Tugs reserves the right to discontinue models at any time and/or to change specifications, designs or components used without notice and without incurring obligations.

Contact Information

Corporate Offices
Sales, Support, Customer Service
Eagle Industrial Truck
26111 Northline Rd.
Taylor, MI 48180
USA
(734) 442-1000 — (800) 671-0431

Website
www.eagletugs.com contains useful sales and service information. Please refer to this website for the latest revision of this and all other manuals.

Email Addresses

Customer Service	customerservice@eagletugs.com
Parts Department	parts@eagletugs.com
Technical Support	support@eagletugs.com
Sales Department	sales@eagletugs.com

Warranty Information

Warranty Registration

Please take the time to completely fill out the warranty registration information at our website www.eagletugs.com. It allows Eagle Tugs to contact the appropriate person(s) for future documentation updates, warranty notices, and safety bulletins.

Note: Eagle Tugs cannot start a warranty claim without a completed registration card.

Warranty

Please read the Eagle Tugs warranty statement (available on our website) carefully.

When contacting Eagle Tugs for warranty or parts service, please have the following information ready:

- Tractor model number
- Tractor serial number
- Current hour reading
- Maintenance and Service records

This information can be found on the data plate located beside the driver seat with the exception of the hours which can be read using the display on the dash.

Vehicle Specifications

Note: for full vehicle specifications refer to the Parts and Preventive Maintenance Manual section 10.

Tractor Model	GVW (lbs/kg)	Rated DBP* (lbf/kN)	Vertical Hitch Capacity (lbf/N)	Towing Capacity† (lbs/kg)
XL-30	33,000 / 15.000	28,000 / 125	750 / 3300	300,000 / 136.000
XL-40	40,000 / 18.150	30,000 / 133	750 / 3300	372,500 / 169.000

* Drawbar rating assumes a Coefficient of Friction of .85
† Towing Capacity applies to 1% grade, wet surface condition.

Engine Specifications

Note: for full vehicle specifications refer to the Parts and Service Manual section 10.

Engine Model	Emissions Rating	Power Rating (hp/kW	Peak Torque (ft-lbf/N-m)	Fuel Sulfur Requirement (ppm)
Deutz TCD 3.6 L4	EPA Tier4i / EU Stage 3B	120 / 90	354 / 480	≤ 15
Deutz TCD 3.6 L4 EDG	EPA Tier3 / EU Stage 3A	120 / 90	354 / 480	≤ 2000

Putting Into Service

Unpacking and Setting Up

The following directions specify the correct steps that should be taken once you receive delivery of your XL series tow tractor. These steps will ensure that the tow tractor will operate safely. Reference the Parts and Preventive Maintenance Manual for details as appropriate.

- During the unloading of your tractor, note any shipping damage and report it to Eagle Tugs and the shipping company. Verify that all components appear to be in order and undamaged.
- Remove manual and any shipped-loose components from the operator compartment.
- Install shipped-loose components per the Parts and Preventive Maintenance Manual.
- Read this manual in its entirety, paying close attention to all safety requirements.
- Verify that tires are inflated to 145 psi / 1000 kPa.
- Fill the fuel tank with the appropriate diesel fuel.
- Check the following fluid levels:
    - Engine Oil
    - Hydraulic Fluid
    - Transmission Fluid
    - Coolant
- Familiarize yourself with the tractor operation and control.

General Safety

The following safety recommendations are not intended to cover all possible safety aspects of the XL series tow tractor. Please use common sense in addition to the safety recommendations that follow.

Warning: Failure to comply with the following safety precautions can result in serious injury or death as well as equipment damage.

- Always do the Pre-Operation Inspection before using the tractor.
- If you have not operated this equipment previously, practice driving and operating it in a safe and clear (not congested) area until you are familiar with all aspects of its operation.
- Always operate the tractor at a speed appropriate for the environmental conditions and the towed load. Slow down in congested areas, when moving a large load, or when conditions reduce traction or visibility.
- Always take care when driving on a slope or uneven ground. Reduce speed and take turns slowly in a controlled manner.
- When working on or around the tractor, take care to keep well clear of any moving components including tires, fans, belts, and driveshafts. Also keep clear of hot surfaces such as exhaust and cooling components.
- The XL series tractor features a braking system that utilizes accumulators for backup pressure. These accumulators store hydraulic fluid at pressures up to 3,000 psi. Take extreme care when working with the hydraulics to bleed the accumulator pressure down. Fully press and release the service brake pedal 15 times to bleed down the pressure.
- The rear axle steering is controlled by an on-board computer. When the tractor is running, stay away from the rear tires. In the rare event that a switch or sensor malfunctions, the rear axle can rapidly steer in an unanticipated direction. Failure to stay clear of the rear tires can result in severe injury or death.
- The XL series tractor is intended to be operated on hard improved surfaces. Never drive on soft surfaces, and avoid potholes and damaged pavement.
- The engine of the tractor emits potentially harmful gases when running. Always operate the tractor outdoors or in an environment with adequate ventilation.

Operator Requirements and Workstation

Operator Requirements

The XL series tow tractor is a piece of industrial equipment and has inherent safety risks. As such, the operator of the tow tractor is expected to have a fork truck or similar license, or be otherwise trained in the usage of material handling equipment.

The operator should read this manual in its entirety before operating the tow tractor.

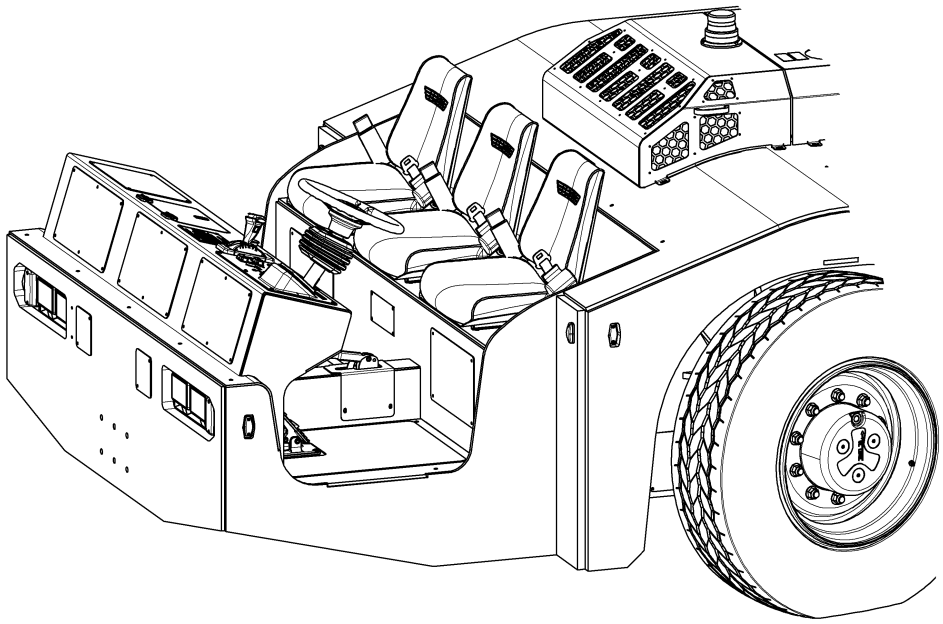
The operator should be familiar with all aspects of the tow tractor before operating it.

Operator Workstation

Your XL series tow tractor features an ergonomically designed operator's workstation. This is the only operator workstation on the tractor. Do not sit on or stand on the tractor outside of this area during tractor movement.

The operator and any passengers should be seated with the seatbelt secured when moving or operating the tractor.

Keep arms and legs within the perimeter of the tractor's frame to avoid injury.
Always place the tractor in Neutral and apply the parking brake before exiting the tractor.



Operator Workstation

Pre-Operation Inspection Checklist

The following inspections should be conducted as stated below. Additional inspections may be required due to unusual operating conditions.

Daily Pre-Operation Checklist	Satisfactory	Service Required	Not Applicable
Walk-around inspection			
Verify no evidence of leaks under and around the tractor			
Verify fuel cap securely in place			
Visually verify tires are fully inflated			
Verify rims and tires free from damage including tire tread			
Verify tire tread is free from debris			
Verify lights, mirrors, and reflectors are clean			
Operational Checks (tractor engine running)			
Verify that the digital display panel is free of errors and warnings			
Verify that oil pressure is in the normal operating range			
Verify that battery voltage is in the normal operating range			
Verify that horn is operational			
Verify that lights, flashers, and beacon (if equipped) work properly			
Cab Inspection (if equipped)			
Verify windows clean			
Verify windows free of cracks and chips			
Verify windshield wipers operate properly			
Verify heater and fans operate properly			

Weekly Operation Checklist	Satisfactory	Service Required	Not Applicable
Walk-around inspection			
Verify tire inflation pressure at 145 psi / 1000 kPa			
Engine Compartment Inspection			
Check engine oil level (top off in necessary)			
Check engine coolant level (top off if necessary)			
Check hydraulic fluid level (top off if necessary)			
Check transmission fluid level (top off if necessary)			
Drain water from fuel/water separator			
Verify wiring, hoses, and tubing free of leaks and damage			
Remove dust from air cleaner dust valve			

Warning: Any problems noted during inspection should be corrected as soon as possible. Failure to promptly attend to problems could compromise safety and/or the tractor's performance. Do not attempt to make repairs. Contact a qualified mechanic.

Startup/Shutdown and Safe Towing

Starting the unit:

1. With feet firmly on floor mat, adjust the seat to a comfortable position.
2. Sit in operator seat and buckle the seat belt.
3. Ensure the parking brake is engaged.
4. Select “N” (Neutral) using the shift lever.
5. Turn the ignition switch to the “ON” position.
6. When prompted by the display, crank the engine using the ignition switch.
7. Select Tow or Travel mode using the dash-mounted switch.
8. Select the desired steering mode. Changes will not take effect until steering is centered while in Neutral.
9. Select “F” (Forward) or “R” (Reverse) using the shift lever. Shifting changes must be made when the tractor is stopped.
10. Verify that the intended path of the tractor is clear of obstructions and personnel and then proceed with driving.

Shutting down the unit:

1. Bring the tractor to a complete stop.
2. Put the tractor in Neutral using the shift lever.
3. Apply the parking brake by pulling the lever located in the floor.
4. Turn the tractor off by turning the ignition switch.

Moving Loads

Maximum capacity towing or pushing of loads must be done with the transmission selector in Tow Mode. This provides for controlled speed and maximum drawbar pull.

Load Towing and Pushing Safety

If towing or pushing a load, check to see that:

- The towed load is securely connected to the hitch of the tractor. Be sure hitch is locked/fastened into the closed position.
- For maximum tractor and load control and stability, as well as towing power, be sure the towbar is parallel to the ground when connected to the tractor's hitch.
- Ensure the plane or other towed load clears all obstacles when towing.

Ignition Switch

Your tractor is equipped with a keyed or keyless ignition switch. The switch provides power to the tractor and is used to crank the engine.

Headlight Switch

The headlight switch is an on/off type. There is no hi/low beam control position. Headlights will work regardless of whether the tractor's ignition switch is in the "ON" or "OFF" position.

Spotlight Switches (if equipped)

The spotlight switches are on/off types. The front and rear spotlights (if equipped) are controlled independently. Spotlights will work regardless of whether the tractor's ignition switch is in the "ON" or "OFF" position.

Hazards

This switch controls the action of the marker lamps located on the corners of the tractor. The operator can select between solid or a safety flashing pattern.

Steering Mode Switch

There are two modes of steering available on your tractor. This switch allows you to choose which mode you are using. As a safety feature, the XL tractor will only change steering modes when steering is straight ahead, the tractor is in neutral, and the tractor is stopped.

4WS (Four Wheel Steer) - Four wheel steer turns all four wheels and allows for maneuvering in tight areas. Note that steering automatically transitions to 2WS at high speeds to maintain proper steering sensitivity.

CRAB - Crab steering operates by allowing all wheels to turn in the same direction at the same time. In this mode, the tractor can travel in a diagonal line while allowing the tractor to stay facing the same direction.

Tow/Travel Switch

The Tow setting limits tractor speed to 2.2 mph / 3.5 kph for safe travel and maximum drawbar.

The Travel setting allows for speeds up to 13 mph / 21 kph for quick travel when unloaded.

The Tow/Travel switch can be selected on the fly, but may require a reduction in driving speed to take effect.

Controls (Continued)

Charge Warning Light

This indicator light helps diagnose a problem with the alternator. If the light stays lit while the tractor is running, it should be addressed by maintenance personnel.

Horn Button

The horn button is located in the center of the steering wheel. The horn will work regardless of whether the tractor's ignition switch is in the "ON" or "OFF" position.

E-Stop Button

In the event of an emergency, the E-stop button will shut down the engine of the tractor. Note that loss of engine power will reduce controllability of the tractor.

Gear Shifter

The automatic transmission is controlled by an electronic gearshift located in the dash. The control has three selector positions: R (Reverse), N (Neutral), F (Forward). The tractor must be in Neutral to start the engine.

- Keep your foot ON the brake pedal and OFF the accelerator and release the parking brake before shifting the transmission into gear.
- Before shifting from Forward to Reverse or Reverse to Forward, bring the tractor to a complete stop. Do not shift into gear except when the engine is at idle speed.
- Always place the tractor in Neutral and apply the parking brake before exiting the tractor.

Parking Brake

The parking brake is operated by hand lever action. By pulling back on the lever, you activate and set the brake. Pushing forward will release the brake. The brake is adjustable for braking pressure by rotating the knob on the end of the handle lever. A clockwise direction is used to increase the brake holding pressure and counter clockwise to reduce the pressure.

While the parking brake is engaged, a message will appear on the electronic display panel and the accelerator pedal will not respond. This is to prevent damage to the parking brake.

Foot Brake

The foot brake is hydraulically powered and should be applied with a steady and firm downward pressure.

Speed should always be adjusted to allow for a safe and controlled stop. Adjust your speed based on the surface conditions, the space available for stopping and the weight of the load being moved. Be aware of your surroundings. Avoid sudden stops and always be prepared to stop.

Your tractor is equipped with both front and rear wheel brakes. The front and rear brakes operate on a dual system; if one set should fail, the operation of the other set will continue. In the event the tractor loses power, the system has an emergency backup of up to eight hard applications of the brakes.

Pressing the foot brake will disable the accelerator pedal to prevent damage to the brakes.

Cab Controls (Optional)

Windshield Wiper Switch - There are two wiper switches. One for the front wiper and one for the rear wiper. Both wipers have a HIGH and LOW speed..

Fan Control - The fan motors are controlled from a common switch. The switch has three positions: OFF, LOW, and HIGH.

Heater Controls - There is a fan control dial and a temperature dial that may be operated independently from each other.

Defroster Controls - There is a fan control dial and a temperature dial that may be operated independently from each other.

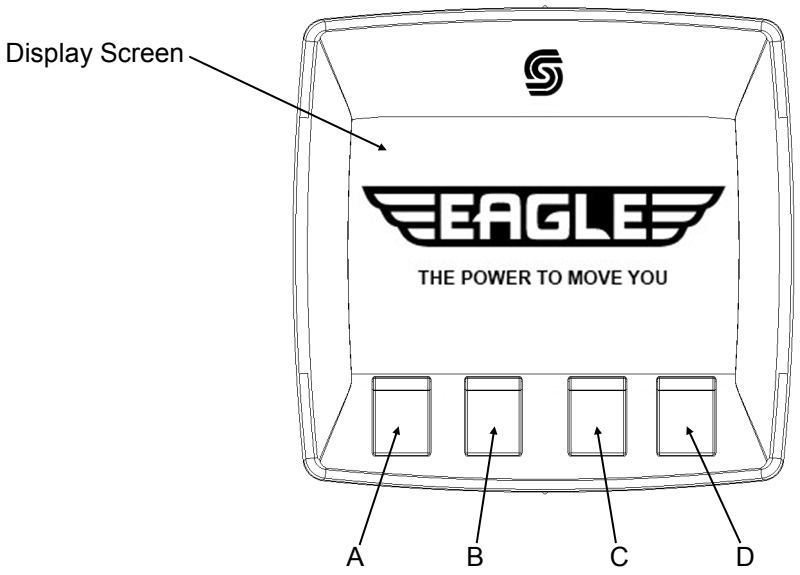
Dome Light Switch - The dome light switch (in concert with the door ajar switches) turns the interior dome light on and off.

Instrumentation

Familiarize yourself with all instruments on the tractor. Many are designed to alert you to conditions that must be addressed. When operating the tractor, frequently check gauges to ensure everything is functioning as it should be and in the normal range.

XL Digital Control Panel:

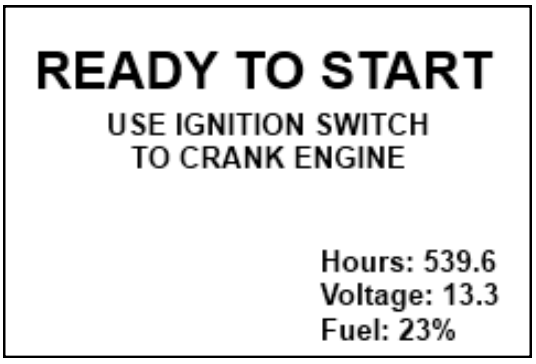
The XL line of tow tractors is equipped with digital display and control unit. The display provides many useful features and benefits to the operator. Below, you will find standard operating instructions for the display.



Starting the unit:

Be sure the transmission is in Neutral and the parking brake is engaged. Turn the ignition switch to "ON" to provide power to the display panel.

Once powered up, the display panel will prompt the user to turn the ignition switch to crank the engine.



Shutting Down the Unit:

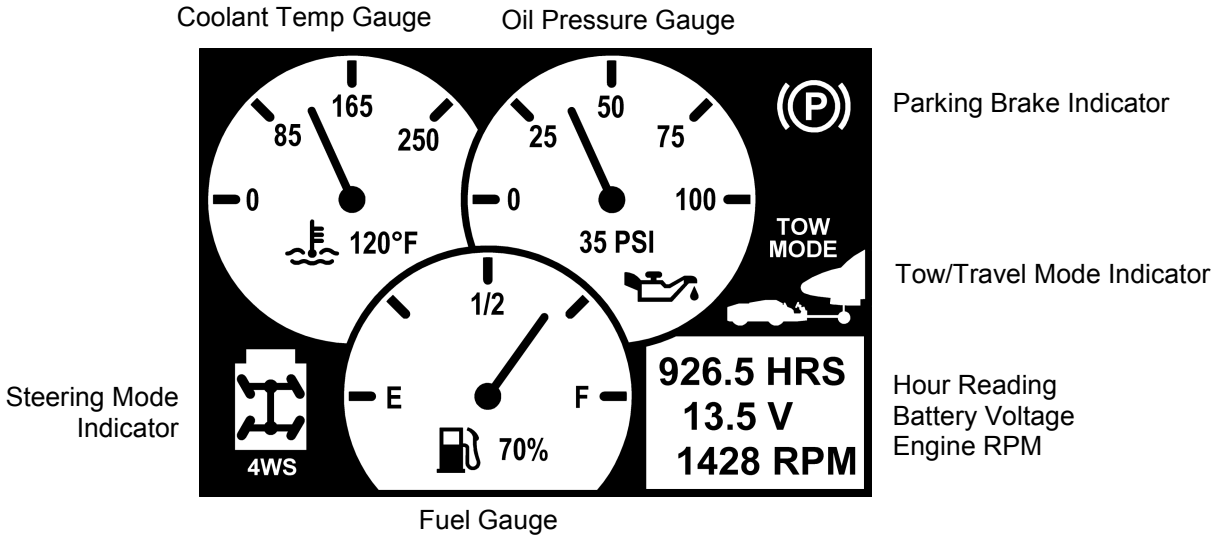
To shut down the tractor, bring it to a safe stop, engage the parking brake, put the gear selector in neutral, and turn the key switch to the off position.

Instrumentation (Continued)

Operation Screen:

The **Operation Screen** is the main screen and provides gauges and other engine/tractor operating information.

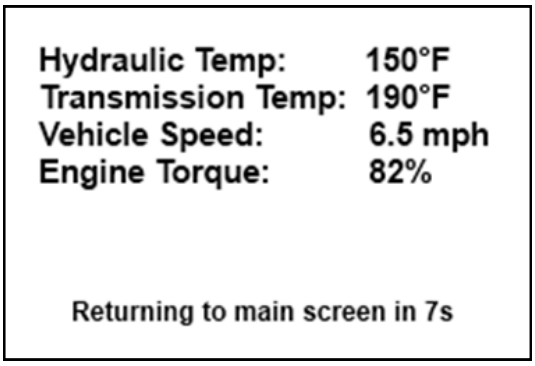
The Operation Screen will also show fault codes, warnings, and informational messages. If a fault code appears, take careful note of it before powering down the tractor. The fault code history will be deleted after restarting.



More Information:

Press **A** from the Operation Screen to access more information about the tractor.

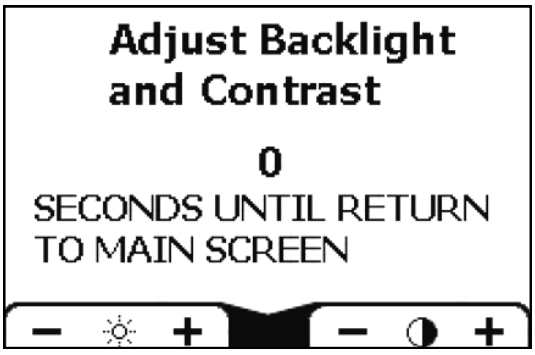
The display will return to the Operation Screen after 7 seconds without a key press.



Brightness/Contrast:

Press **D** from the Operation Screen. Use the **A** and **B** buttons to adjust the brightness. Use the **C** and **D** buttons to adjust the contrast.

The display will return to the Operation Screen after 5 seconds without a key press.



Units:

Press **C then B** at the same time for 3 seconds to toggle from Imperial to Metric Units.

Instrumentation (Continued)

Fault Codes:

Press **B** to from the Operation Screen to view the Engine Fault Screen. This will show active and inactive faults that have occurred since the vehicle was turned on. If you are receiving a fault code, take careful note of it before powering down the tractor. All fault history will be deleted after restarting.

Display Maintenance:

- Clean with soap and water
- Do not pressure wash
- Do not clean with solvent

Oil Pressure Gauge

The gauge will vary within the normal operating range. If the value drops below the normal range when the engine is running, there is a loss of pressure. If this occurs, an error message will show on the display and the tractor will shut down after a 15 second delay. Check oil level, and add oil as necessary. Check for possible causes (leaks) of the low oil pressure. If low oil pressure should recur, contact equipment maintenance personnel to determine cause of recurring low oil pressure.

Caution: Do not continue to operate the tractor as long as the oil pressure is below the normal operating range. Continued operation may cause severe internal engine damage.

Hour Meter

The hour meter indicates the amount of running time on the engine. It should be used to schedule preventive maintenance (see section 11, Preventive Maintenance in the Parts and Service Manual).

Voltage Gauge

This gauge indicates the current battery voltage (normally 13-14 volts). The value may periodically fall below 12 volts while the engine is under high electrical demand. A voltage consistently below 12 volts indicates an electrical system or battery issue; have the truck checked by maintenance personnel.

Fuel Gauge

The fuel gauge indicates the approximate fuel level in the fuel tank. The reading may fluctuate during starting up, cornering, and stopping. It is recommended that the fuel supply be kept at 1/4 or higher levels to prevent any water condensation in the fuel tank from entering the fuel lines.

Instrumentation (Continued)

Temperature Gauge

This gauge indicates the temperature of the engine coolant. The temperature will rise to the normal range as the engine warms. If the value moves above the normal range of 230°F (110°C), the engine is overheating. If this occurs, an error message will show on the display and the tractor will shut down after a 15 second delay. Check for proper air-flow through the radiator and that there is not a coolant leak. Running the engine while overheating can cause engine damage.

Caution: If the engine continues to overheat, have the cooling system checked by maintenance personnel.

Cold-Weather Operation

Engine Cold Start Assist

When the engine coolant or air intake temperature is below 32°F / 0°C, the tractor will have a delay on startup while the glow plugs pre-heat the engine cylinders. The digital control panel will prompt you to start the engine once the cold-start assist is complete.

For extreme cold weather operation an optional engine block heater is available. The optional block heater uses wall outlet power to pre-heat the engine block to make cold-weather starting easier.

Transmission

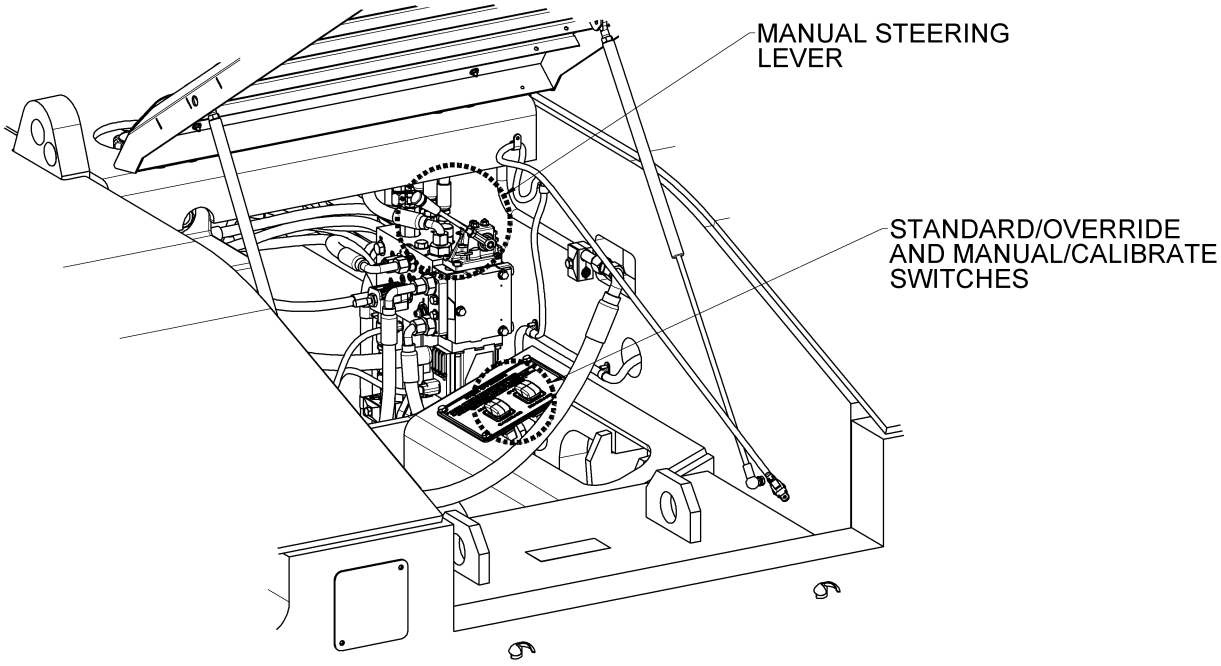
The tractor computer will display an error message warning “TRACTOR WARM-UP IN PROCESS, ENGINE AT IDLE “ when the transmission fluid temperature is below minimum operating temperature (15°F / -10°C). The engine will be forced to idle until the transmission reaches operating temperature, at which point the tractor can then be used normally.

For extreme cold weather operation, a sump cartridge heater may be required. Contact Eagle Tugs for more information.

Steer Override

Should a component failure or vehicle damage render the four wheel steering system non-operational, the XL tractor features a steering override system to allow for continued short-term operation of the tractor. Should you experience issues with steering coordination, please follow the below steps to return the tractor to an operating condition.

1. Put the tractor in neutral, apply the parking brake, and start the tractor.
2. Exit the operator compartment and walk to the rear of the tractor.
3. Raise the louver panel and locate the steering override controls.



4. Switch the Standard/Override switch to Override.
5. If the rear wheels are not centered, hold the Manual/Calibrate switch on Manual while operating the manual steering lever. The lever will actuate the hydraulics to allow you to manually center the rear tires.
6. When the tires are in the desired position release the lever and the Manual/Calibrate switch.
7. Close and secure the louver panel.
8. Return to the operator compartment and proceed to drive the tractor.

For further details, see appendix E in the Parts and Service Manual.

Caution: Long-term operation while in steer override mode will lead to reduced tire life and possible drivetrain damage.

Revision Log

Rev	Date	Description	Appr.
A	02-Apr-2013	Original release for production	PRB
B	03-Apr-2013	Corrected towing capacities and towing capacity footnote	PRB
C	09-Apr-2013	Revised transmission cold weather operation	PRB
D	03-May-2013	Revised steering mode switch operation	PRB
E	14-Jan-2015	Updated operating speeds, added defroster control information	PRB
F	19-Jan-2015	Updated four wheel steering behavior	PRB
G	20-May-2016	Added prop 65 warning, some small revisions for accuracy	PRB