Pre-delivery Inspection Report must be completed upon placing unit in service. Please use QR link or visit www.xmfg.com/warranty/pre-delivery-inspection-report to register online.
Xtreme Manufacturing, LLC ([w://www.xmfg.com/](w://www.xmfg.com/)) is headquartered in Las Vegas, Nevada, and has fabrication facilities in Selma, California. In October 2013, Xtreme became the majority shareholder in Snorkel, a global aerial work platform manufacturer, which has manufacturing facilities in the US, UK & New Zealand, as well as a global sales distribution network. Find out more about Snorkel at [www.snorkellifts.com](http://www.snorkellifts.com).

---

Xtreme Manufacturing
8350 Eastgate Road
Henderson, NV 89015, USA

**Contact Us:**

**Corporate Office**  
T: 1.800.497.1704  
T: 1.702.636.2969  
F: 1.702.636.4943  
E: info@xmfg.com

**Service Hotline**  
T: 1.702.984.7249

**Parts Hotline**  
T: 1.702.984.7250

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**Pre-delivery Inspection Report** must be completed upon placing unit in service. Please use QR link or visit [www.xmfg.com/warranty/pre-delivery-inspection-report](http://www.xmfg.com/warranty/pre-delivery-inspection-report) to register online.

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This Operation and Safety Manual provides the information needed to safely operate the XR1147 Telehandler.

This manual should be considered a permanent part of the Telehandler, and kept in the protective manual case located in the operator’s cab.

Before operating the Telehandler, read this manual completely and carefully to understand the safety instructions and the operation of controls and safety equipment. You must comply with all DANGER, WARNING, and CAUTION notices. They are for your benefit.

Improper operation of this Telehandler could result in death or serious injury.

BEFORE starting the engine, do the following:
- Read the Operation and Safety Manual
- Read all the Safety Labels on the Telehandler
- Clear the area of all other persons

Learn and practice safe use of Telehandler controls in a safe, clear area, BEFORE you operate this Telehandler on a work site.

It is your responsibility to observe applicable laws and regulations and to follow manufacturer’s instructions on Telehandler operation and maintenance.

Replacement manuals for the XR1147 Telehandler can be obtained by contacting our parts department by phone or visiting our website:

Xtreme Manufacturing
Phone: (800) 497-1704
www.XMFG.com

When contacting our parts department, please have the Telehandler serial number available. The serial number plate is located in the operator’s cab, at the base of the seat.

For easy reference, you can record the serial number in the space below.

Serial Number:________

Right side, left side, front, and rear are directional references given from the operator’s seat when facing forward.
Safety

Signal Words

Signal words are the word or words that call attention to the safety sign and designate a degree or level of hazard seriousness. The signal words used in this manual are DANGER, WARNING, and CAUTION.

⚠️ Danger

DANGER (Red) used with the safety alert symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ Warning

WARNING (Orange) used with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ Caution

CAUTION (Yellow) with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

CAUTION (Yellow) used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Safety Symbols

Safety symbols are provided to remind the operator of hazardous situations. Xtreme Manufacturing provides these symbols in an attempt to inform all operators, regardless of reading and language skills, of as many potential hazards as possible. These symbols cover many, but not all, potential dangers and hazards associated with operating the Telehandler.

Make safety a high priority while operating the Telehandler. Learn and follow all safety messages in this manual and on Telehandler labels to prevent death, serious injury, or equipment damage. The following two pages include a list of some of the safety symbols that may be used on this Telehandler.
Safety

General Safety Alert Symbol

DO NOT OPERATE! Telehandler Down For Service Or Maintenance

Perform Operator Inspection Before Starting This Telehandler

Personal Protective Equipment Gloves

Personal Protective Equipment Ear Protectors

Keep Flames And Ignition Sources Away

Hydraulic System Under Pressure

Keep Hands A Safe Distance From Rotating Fan Blades

Make Sure All Safety Labels Are Attached And Legible

Replace Worn And Illegible Safety Labels And Labels

Read Operator Manual Before Operating This Telehandler

Read Material Safety Data Sheets (MSDS) For Chemicals And Fluids

DO NOT Operate If Using Alcohol, Drugs, Or Medications

Personal Protective Equipment Safety Shoes

Lead Acid Batteries Create Explosive Gases

WARNING: Hot Oil! DO NOT Open Unless Cap Is Cool To Touch

Use A Board Or Cardboard To Check Hydraulic Leaks. DO NOT Use Your Hand!

WARNING: Rotating Fan Blades Can Cut

Keep Hands At A Safe Distance From Rotating Belts

Use Three Points of Contact When Entering and Exiting Telehandler

Read Maintenance Manual Before Working On This Telehandler

Know First Aid Instructions And/Or Locations On Work site

Personal Protective Equipment Hardhat

No Smoking Keep Lit Cigarettes Away

WARNING: Rotating Belts Can Cut

Keep Hands At A Safe Distance From Rotating Belts

Use Three Points of Contact When Entering and Exiting Telehandler

Read Maintenance Manual Before Working On This Telehandler

Know First Aid Instructions And/Or Locations On Work site

Personal Protective Equipment Hardhat

No Smoking Keep Lit Cigarettes Away

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Keep Hands At A Safe Distance From Rotating Belts

Use Three Points of Contact When Entering and Exiting Telehandler

Read Maintenance Manual Before Working On This Telehandler

Know First Aid Instructions And/Or Locations On Work site

Personal Protective Equipment Hardhat

No Smoking Keep Lit Cigarettes Away

WARNING: Rotating Belts Can Cut

Keep Hands At A Safe Distance From Rotating Belts

Use Three Points of Contact When Entering and Exiting Telehandler
Safety

- Do not jump while dismounting the telehandler.
- Fasten seat belt.
- Do not allow riders on auxiliary attachments.
- Do not allow riders on telehandler frame or fenders.
- Falling off of attachment can result in death or serious injury.
- Set parking brake to on.
- Engage parking brake.
- Do not jump! If telehandler tips, keep seat belt on and brace yourself.
- Warning! Telehandler roll away can cause death or serious injury.
- Warning! Telehandler tip over can cause death or serious injury.
- Warning! Do not travel with boom raised.
- Do not raise boom while traveling on a slope.
- Warning! Electrocution can cause death or serious injury.
- Danger! Keep a safe distance from electrical lines.
- Do not allow anyone under a raised load.
- Pinch points hands.
- Warning! Explosion hazard.
- Do not use ether as a starting aid.
- Warning!establish radio communication before operating solo.
- Warning! Hot coolant.
- Do not use as a personnel carrier.
- Tip over hazard, especially traveling up a slope without a load.
- Hot surface! Keep hands away.
- Pinch points body.
- Have adequate ventilation if operating this telehandler in an enclosed space.
- Warning! Operate with caution during storms or high wind.
Safety

Employer Responsibility

Under Occupational Safety and Health Administration (OSHA) rules, employers are required to train workers about hazards related to operating and maintaining the Telehandler. Successful completion and certification of the Safety Training for Rough Terrain Telehandlers is required.

Additional safety information and training resources can be obtained through these publications, organizations, and/or appropriate sources:

- (OSHA) Occupational Safety and Health Administration.
- (NIOSH) National Institute for Occupational Health and Safety.
- (ANSI) American National Standards Institute
- (AEM) Association of Equipment Manufacturers
- (ITSDF) Industrial Truck Standards Development Foundation

Always consult Material Safety Data Sheets (MSDS) for chemical hazards and first aid instructions for any oil or lubricant being used. MSDS should be available from the manufacturer/supplier of the fluid.

Operator Qualifications

Operators must be in good physical and mental condition, with appropriate reflexes, reaction time, vision, depth perception, and hearing.

Operators must possess a valid, current driver’s license as required for the work site; plus those required by applicable State, Federal, and/or local laws:

Successful completion and certification of Safety Training for Rough Terrain Telehandlers is required.

- Operators must be properly instructed on how to operate the Telehandler and attachments.
- Operators must operate the Telehandler according to ALL appropriate safety regulations.
- Operator trainees must remain under constant observation and supervision of an experienced operator.

Modifications

Modifications to the Telehandler or attachments could affect Telehandler capacity and/or stability which could result in death or serious injury. DO NOT make modifications to the Telehandler or attachments without prior written approval from the manufacturer. Where such authorization is granted, capacity, operation, and maintenance instruction plates, tags, or labels shall be changed accordingly.

- Unauthorized modifications or alterations will void the warranty.
- DO NOT modify, disable, or bypass any safety devices.
- DO NOT burn or drill holes in forks or other attachments.

Structural damage, modification, or alteration, including welding or drilling, can impair and weaken the protective capability of the Rollover Protective Structure/Falling Object Protective Structure (ROPS/FOPS) and could result in death or serious injury.

- Replace the ROPS/FOPS, if it is damaged, before operating the Telehandler.

Operators must be in good physical and mental condition, with appropriate reflexes, reaction time, vision, depth perception, and hearing.

Operators must possess a valid, current driver’s license as required for the work site; plus those required by applicable State, Federal, and/or local laws:

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- Replace the ROPS/FOPS, if it is damaged, before operating the Telehandler.

Read the Operation and Safety Manual BEFORE operating the Telehandler. Follow all safety instructions and labels. Only operate the Telehandler if you understand the safety instructions and warnings in all applicable manuals and technical publications. Always follow all State and Federal health and safety laws and/or local regulations.

You must have the required training, skills, and tools to perform installation, operation, maintenance, or repair procedures properly and safely. Make sure the Telehandler and attachments will not be damaged or made unsafe by any procedures you choose.

Warning

Telehandlers are potentially dangerous if proper safety procedures are not followed. Workers who operate, maintain, or work near the Telehandler can be at risk of roll over and run over incidents or can be crushed or caught by the Telehandler or its parts which could result in death or serious injury if the Telehandler is not properly operated or maintained.

Read the Operation and Safety Manual BEFORE operating the Telehandler. Follow all safety instructions and labels. Only operate the Telehandler if you understand the safety instructions and warnings in all applicable manuals and technical publications. Always follow all State and Federal health and safety laws and/or local regulations.

You must have the required training, skills, and tools to perform installation, operation, maintenance, or repair procedures properly and safely. Make sure the Telehandler and attachments will not be damaged or made unsafe by any procedures you choose.
Mounting/Dismounting

**Warning**

Failure to use proper safety procedures when mounting and dismounting the Telehandler could result in death or serious injury.

- Keep steps clear of dirt, mud, snow, ice, debris, and other hazards.
  
  Face the Telehandler for mounting or dismounting. Use hand holds and steps to maintain three (3) points of contact at all times, either both hands and one foot or both feet and one hand.

- DO NOT use the controls, steering wheel, or foot pedals as hand holds or steps. Avoid accidentally engaging or disengaging a control.

**DO NOT** jump from the Telehandler. Clothing can get caught on pedals, levers, or other protruding parts. Landing on uneven surfaces could result in death or serious personal injury.

Work Site Safety

**Warning**

Use proper safety procedures and avoid hazardous situations while operating the Telehandler to prevent death, serious injury, or property damage.

- Check the work site for any hazards before operating the Telehandler.
- Check the work surface for loose soil conditions and overhead power lines.
- Contact your local underground utility service or digging hot line to mark all underground hazards.
- Learn the location of all underground hazards at the work site, such as:
  1. Gas and water pipes
  2. Electrical cables
  3. Sewers

Underground objects could cause death or serious injury.

**Warning**

- Operate the Telehandler only on firm, stable surfaces. Holes, obstructions, debris, loose fill, and other work site hazards could result in death or serious injury.
- DO NOT allow bystanders in the work area.
- Avoid personnel, machinery, and Telehandlers in the work area.
- Know the rules for movement of people and Telehandlers on the work site.
- Follow work site signs and signals.
- Check boom clearance before driving under a door opening, bridge, etc.
- Slow down when approaching obstructions. Use a spotter, if necessary.
- Stop for poor visibility conditions, such as dust, smoke, fog, etc. Wait until visibility improves before continuing.

**DO NOT** operate the Telehandler if you are using drugs, alcohol, or any medication that might impair your judgment or ability.

You must be 18 years of age or older to operate the Telehandler.

**DO NOT** operate the Telehandler on roads. The Telehandler is not equipped for road travel.

**Warning**

Wear appropriate protective clothing. Personal protective equipment can include, but is not limited to hardhat, gloves, footwear, safety glasses or goggles, and hearing protection. Make sure clothing is snug and properly belted. DO NOT wear loose clothing, jewelry, watches, or anything that can catch on Telehandler controls, moving parts, etc. Failure to wear the proper protective clothing could result in death or serious injury.

**Warning**

Operate the Telehandler in an enclosed area only if there is a ventilation system capable of routing hazardous fumes outside. Engine exhaust contains products of combustion that could cause death or serious injury.
California Proposition 65

Engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm.

Before Starting Telehandler

**Warning**

Keep the Operation and Safety Manual on the Telehandler at all times. Contact Xtreme Manufacturing for replacement manuals.

Clearly define responsibilities and procedures for operating the Telehandler and all attachments. DO NOT proceed until you seek expert assistance from a qualified person if any doubt or question arises about the correct or safe methods for operating the Telehandler.

To avoid death or serious injury, carefully read and understand all instructions before operating the Telehandler. DO NOT operate, modify, repair, or maintain the Telehandler unless you read and understand the instructions and warnings in this and all other applicable manuals and technical publications. Follow all State and Federal health and safety laws and/or local regulations.

Consult Material Safety Data Sheets (MSDS) for chemical hazards and first aid instructions. MSDS should be available from the manufacturer or supplier of the fluid.

**Warning**

Perform a pre-operation inspection and functional tests at the beginning of each work shift. Perform the pre-operation inspection first. DO NOT perform the pre-operation inspection with the engine running or hot. Contact with moving or heated parts could cause death or serious injury.

Perform the pre-operation inspection and functional tests in an open area and away from any other obstacles or equipment. Inspections and functional tests may require assistance. Keep the assistant visible and a safe distance from the Telehandler to prevent death or serious injury.

Become familiar with all safety and hazard labels, regulations, and procedures. Make sure all proper safety and hazard labels are attached to the Telehandler and remain legible.

A brief description of controls, indicators, and instruments is provided as a convenience for the operator. These descriptions DO NOT provide complete operation instructions. Read and understand the entire manual to prevent death, serious injury, or equipment damage.

Keep fingers and feet away from moving parts or pinch points to prevent pinching or crushing. DO NOT allow anyone between the tires and the Telehandler frame while operating the Telehandler. Doing so can result in death or serious injury.

Always check the condition of the seat belt and mounting hardware before operating the Telehandler. If the seat belt or mounting hardware is defective, it may not properly restrain the operator, resulting in death or serious injury.

- DO NOT operate the Telehandler until the seat belt or mounting hardware is replaced, if worn or damaged.
- The seat belt MUST be worn while operating the Telehandler. Failure to wear the seat belt could result in death or serious injury.

Operators must be properly trained and qualified to operate this specific Telehandler. Know the location, learn the specific purpose, and demonstrate safe and proper use of all controls, instruments, indicator lights, and safety and instruction labels. Safety is your responsibility. Failure to follow these guidelines could result in death or serious injury.

To prevent death or serious injury, the operator must be seated with seat belt fastened, the travel select lever set to NEUTRAL, the Parking Brake switch ON (engaged), the service brake applied, and the area free of people and obstructions BEFORE starting the Telehandler.
Safety

Operation Safety

⚠️ Danger

Death or serious injury by electrocution will result from contact with or inadequate clearance with energized power lines or apparatus.

- Never operate the Telehandler in an area where active overhead power lines, overhead or underground cables, or other power sources exist.
- Contact the appropriate power or utility company to de-energize power lines or take other suitable precautions.

Keep the Telehandler, attachments, and loads a safe distance from electrical power lines.

- Remain at least 10 feet, plus an additional 0.4 inches for each 1,000 volts over 50,000 volts, from active power lines and other power sources.
- Work site operating directives and/or local or state codes might require a greater distance.
- Know the maximum height and reach of this Telehandler.

⚠️ Warning

Use of the frame sway control with the boom raised above horizontal could cause tip over resulting in death or injury. Always use the frame sway control to level the Telehandler BEFORE raising the boom above horizontal. If the Telehandler cannot be leveled using the frame sway control, do not attempt to raise or place load. Reposition Telehandler or have the surface leveled.

⚠️ Warning

To prevent death, serious injury, or property damage, the operator must be seated with seat belt fastened, arms, legs, and head completely inside the Rollover Protection Structure/Falling Object Protection Structure (ROPS/FOPS), the travel select lever in NEUTRAL, the Parking Brake switch ON (engaged), and the service brakes applied BEFORE starting the Telehandler.

- The seat belt MUST be worn while operating the Telehandler. Failure to wear the seat belt could result in death or serious injury.

⚠️ Warning

DO NOT adjust the seat or seat belt while the Telehandler is moving. Keep both hands on the wheel while the Telehandler is moving to prevent loss of Telehandler control which could result in death or serious injury.

Never try to escape the Telehandler if it becomes unstable. Learn and practice these safety procedures to protect yourself from a roll over or tip over incident:

- Remain securely fastened in the seat belt.
- Keep your head, body, and limbs within the ROPS/FOPS structure.
- Brace yourself and hold on firmly.
- Lean away from the point of impact.
- Stay on the Telehandler and ride out the roll over or tip over.

⚠️ Warning

It is unlawful to tamper with or remove any component of the aftertreatment system. It is also unlawful to use Diesel Exhaust Fluid (DEF) that does not meet the specifications provided or to operate the machine with no DEF.

⚠️ Warning

Diesel Exhaust Fluid contains urea. DO NOT get the substance in your eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. DO NOT swallow internally. In the event the DEF is ingested, contact a physician immediately. Refer to the Material Data Safety Sheet (MSDS) for additional information.

⚠️ Caution

Never attempt to create Diesel Exhaust Fluid by mixing agricultural grade urea with water. Agricultural grade urea does not meet the specifications required and the aftertreatment system may be damaged.

⚠️ Warning

DO NOT use attachments that are corroded excessively.

DO NOT use the Telehandler as a work platform or personnel carrier. Falling of attachments could result in death or serious injury.
NEVER allow passengers to ride on the Telehandler. DO NOT allow riders on the frame or operator cab. Allowing passengers to ride could result in serious injury. The Telehandler is designed for the safety of the operator only.

NEVER use crab or four wheel (4W) steering for traveling at high speeds. Use only two wheel (2W) steering for higher speed travel and slow the Telehandler before turning. Rapid turning while using crab or four wheel steering can cause tip over which could result in death or serious injury.

DO NOT travel with an elevated boom. Retract the boom fully. Lower the boom as low as practical for proper visibility. Maintain enough ground clearance for conditions. Traveling with an elevated boom can cause tip over, which could result in death or serious injury. Allow for adequate clearance between the attachment and other objects when turning. The attachment extends beyond the front of the Telehandler. The operator must be aware of the maximum sweep of any attachment being used to avoid hitting personnel and other objects in the area and to prevent death, serious injury, or property damage.

**Warning**

To prevent death, serious injury, or property damage, make sure the Telehandler comes to a complete stop before moving the travel select lever. A sudden change in direction of travel, while carrying a load, could reduce stability and/or cause the load to shift or fall.

DO NOT shift through multiple gears with a single turn of the gear select lever. Allow the engine speed to slow down before shifting to the next lower gear. Improper use of the gear select lever could cause transmission damage or Telehandler tip over/roll over and result in death or serious injury.

Operate the Telehandler for maximum stability. Unstable Telehandlers can tip over, resulting in death, serious injury, or property damage. Keep the Telehandler stable by following these and other appropriate guidelines:

- Adjust speed for terrain and conditions.
- Avoid obstacles by driving around them rather than over them, when possible.
- Start, stop, travel, steer, and brake smoothly.

- Load, unload, and turn the Telehandler on level ground, when possible.
- Slow down for turns.
- Slow down for rough, slippery, or soft terrain.
- Use caution around steep slopes, creeks, gullies, ridges, ditches, and ravines.
- Stay away from soft edges that could collapse under the Telehandler.

**Warning**

Become completely familiar with the Telehandler before operating on slopes. The Telehandler could overturn due to sudden movement or while operating on a slope resulting in death or serious injury.

DO NOT raise the boom while operating on a slope. Raising the boom on a slope, even without a load, will change the center of gravity, could cause a tip over, and result in death or serious injury.

- DO NOT turn on a steep slope.
- DO NOT drive the Telehandler across slopes.
- Always drive the Telehandler straight up and down a slope (never drive diagonally up or down a slope).
- Drive the Telehandler forward up a slope (front of Telehandler facing uphill).
- Back the Telehandler down a slope when loaded (front of Telehandler facing uphill).

Follow appropriate procedures to prevent sudden changes in Telehandler speed that could result in death or serious injury.

- Turn the gear select lever to the lowest speed before descending a slope and before loading or unloading a trailer.
- DO NOT adjust the travel select lever while the Telehandler is moving.
- DO NOT coast downhill. Keep the travel select lever in the appropriate position.
- DO NOT exit the Telehandler without following proper shut-down procedures.

Engine fuel is flammable and can cause a fire or explosion resulting in death or serious injury. DO NOT smoke while refueling and keep sparks and open flames away from the Telehandler.
Contact with hot surfaces and the exhaust pipe after the Telehandler has been operated could result in serious personal injury.

Check warning indicators and gauges on the dash panel frequently during operation. If a warning indicator is illuminated or a gauge shows abnormal readings, stop the Telehandler, follow proper shut down tag the Telehandler with “Do Not Operate” tags, and have a qualified mechanic service or repair the Telehandler BEFORE placing it into service again. Ignoring warning indicators can result in death, serious injury, or property damage.

**Caution**

Release the key immediately once the motor starts. If the motor does not start, DO NOT crank the starter motor continuously for more than 15 seconds. Failure to release the key after the motor has started or continuous cranking can damage the starter motor.

**Warning**

Make sure the Telehandler frame is level before raising and extending the boom. Frame swaying left or right with the boom raised is extremely dangerous and can result in death or serious injury.

- Use the frame sway control to level the Telehandler before raising the boom.
- Reposition the Telehandler if it cannot be leveled using the frame sway control.
- DO NOT enter or exit a tilted cab.
- Remain seated with the seat belt securely fastened while the cab is tilted.
- Keep personnel at least 30 feet from a tilted Telehandler.

**Caution**

Use caution when operating the Telehandler during storms or strong winds.

**Warning**

Failure to follow proper safety procedures when lifting, lowering, and traveling with a load could result in death, serious injury, or property damage.

DO NOT exceed Telehandler capacity of 11,000 lbs. The total rated capacity of the forks being used must equal or exceed Telehandler capacity. Forks can break causing loss of load and possible death or serious injury.

DO NOT exceed the manufacturer’s rated load for any auxiliary attachment. Any attempt to lift or carry loads in excess of the manufacturer’s rated load may cause Telehandler tip over, loss of load, or structural damage which could result in death or serious injury.

Failure to keep personnel clear of the load area while the load is being raised or lowered could result in death or serious injury. DO NOT lift, swing, or move a load over anyone or over a Telehandler cab.

- Review the rated load capacity of each auxiliary attachment before performing any operation.
- Use the correct load chart and NEVER exceed specified weights and load centers.
- DO NOT exceed the manufacturer’s recommended load capacity.
- DO NOT operate the Telehandler with an unsafe load distribution.
- Adjust the load as necessary, especially for nonstandard loads.
- Use caution when handling loose material that can fall into the cab.
- Remove overhanging load materials, when possible, and watch for sliding material.
- DO NOT reach a load over posts or other objects that can enter the cab, if tipped.
- Avoid sudden stops, starts, or turns.
- Avoid carrying a swinging load. If necessary, secure the load by attaching it to the Telehandler tie-downs and/or have another person assist with safely steadying the load.

**Caution**

Use caution when operating the Telehandler during storms or strong winds.

**Warning**

Failure! Establish radio communication before operating solo

DO NOT try to lift or handle heavy components without the use of appropriate lifting equipment.
Attachments

**Warning**

Improper connection of an auxiliary attachment could result in death or serious injury. Attachments not locked into place can become unstable and fall on the operator or other personnel near the Telehandler.

- Make sure attachment locking devices are always in place.
- **DO NOT** operate the Telehandler until you have positive indication that the coupler pin and lever are fully engaged.
- Hydraulic attachments have a maximum hydraulic pressure rating. Failure to make sure the attachment is equipped with a pressure reducing valve, or is rated to be equal or greater than 3,500 psi, which is the maximum pressure of the Telehandler auxiliary hydraulic system at the quick-disconnect couplers, could result in death or serious injury.
- Make sure all hydraulic connections are tight (if equipped).

Telescoping Maintenance

**Warning**

Follow the manufacturer’s instructions for proper maintenance to make sure the Telehandler continues to meet manufacturer’s specifications. Failure to properly maintain the Telehandler can result in improper performance, which could cause death, serious injury, or property damage.

- Attach “Do Not Operate” tags to the Ignition switch and steering wheel before beginning any service or maintenance.
- “Do Not Operate” tags indicate the Telehandler should not be operated until all service or maintenance is completed.
- Keep two (2) legible “Do Not Operate” tags with the Telehandler at all times. “Do Not Operate” tags are provided in this manual.
- **DO NOT** operate the Telehandler and attachments if they require repairs.
- Make sure basic maintenance is completed and service problems are corrected.
- Death or serious injury can result from operating a Telehandler before all repairs have been made and all proper maintenance is completed.

All the attachments should be stored in an appropriate enclosure to prevent corrosion and deterioration due to environmental conditions.

Inspect Telehandler and attachments periodically for corrosion.

**Warning**

Check hydraulic oil lines, tubes, and hoses carefully. **DO NOT** use your bare hand to check for leaks. Always use a board or cardboard when checking for a hydraulic leak. Escaping hydraulic fluid under pressure, even a pinhole size leak, can penetrate body tissue, which could cause death or serious injury. If hydraulic oil is injected into your skin, a doctor familiar with this type of injury must treat it immediately.

Serious injury could result from hydraulic oil pressure or hot oil. **DO NOT** remove a hydraulic tank filler cap unless it is cool enough to touch with bare hands. Remove the hydraulic tank filler cap slowly to relieve pressure. Relieve all pressure in a hydraulic system before any caps, lines, fittings, or related items are disconnected or removed.

Shut Down Procedure

**Warning**

To prevent death or serious injury, follow these procedures before leaving the Telehandler cab:

- Park Telehandler on a firm, level surface.
- Move travel select lever to NEUTRAL (N).
- Actuate (engage) the parking brake.
- Lower forks and attachments to the ground.

**NOTE:** The parking brake MUST be actuated (engaged) only when Telehandler is at standstill.

Always engage the parking brake before leaving the Telehandler. The Telehandler can roll if the parking brake is not ON (engaged), which could result in death, serious injury, or property damage.

- Turn Ignition switch to the OFF position.
- Remove the key.
- Unbuckle the seat belt.
- Place “Do Not Operate” tags on the Starter switch and steering wheel when maintenance or service is required.
- Block wheels when maintenance is required.
Safety

It is possible for the Telehandler to move suddenly when the brakes are released, which could result in death, serious injury, or property damage. To prevent sudden movement of the Telehandler, place wheel chocks in front of and behind wheels before the brakes are released.

If the Telehandler is to be towed, make sure the released brake(s) can be reapplied or the tow Telehandler has the braking capacity to stop the Telehandler.

DO NOT use ether as a starting aid. Ether is flammable and can cause an explosion when starting the engine, which could result in death or serious injury. Follow the cold starting procedures and engine manufacturer's specifications for using a starting aid.

Tires must have proper ballast. DO NOT replace foam-filled tires with pneumatic tires. Use of pneumatic tires will severely affect Telehandler load capacity, which could result in death, serious injury, or property damage.

Warning

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Wash hands after handling these items.

Warning

Lead-acid batteries produce flammable and potentially explosive gases. To avoid death or serious injury when checking, testing, or charging batteries:

- DO NOT use smoking materials near batteries.
- Keep arcs, sparks, and open flames away from batteries.
- Provide ventilation for flammable vapors.
- Wear proper personal protective equipment, including safety glasses.

Fluid in electric storage batteries contains sulfuric acid, which is poison and could cause severe chemical burns. Avoid all contact of fluid with eyes, skin, or clothing. Use protective gear when handling batteries. DO NOT tip a battery beyond a 45° angle in any direction.

If contact does occur, follow these First Aid suggestions:

- External contact - Flush with water.
- Eyes - Flush with water (including under the eyelids) for at least 15 minutes and get medical attention immediately. Flushing must begin immediately to avoid permanent eye tissue damage.
- Internal contact - Drink large quantities of water or milk to dilute stomach contents. Do not induce vomiting. Get medical attention immediately.

IMPORTANT - In case of internal contact, DO NOT give fluids that induce vomiting.

Warning

Wear eye protection when starting a Telehandler with jump start cables. Improper jump start procedures could cause the battery to explode, which could result in death or serious injury.

- Never jump start a frozen battery, as it can explode. Let the battery thaw out before charging.
- NEVER jump start the Telehandler when travel select lever is in gear, which can cause the Telehandler to lurch forward or backward, and could result in death, serious injury, or property damage.
- To avoid injury or death when jump starting with another Telehandler, make sure the two (2) Telehandlers are not touching.
- DO NOT allow jump start cable ends to contact each other.
- Connect charged battery positive (+) to stalled battery positive (+).
- Connect charged battery negative (−) to stalled Telehandler ground. Make the connection to the stalled Telehandler ground last.
- Connect jump start cable to stalled Telehandler ground a safe distance from the battery to prevent sparks near the battery.
- Jump start only with a power source with the same voltage as the stalled Telehandler.
- Turn off all lights and accessories on the stalled Telehandler to prevent them from operating when the power source is connected.
- Electrolyte contains acid and could cause serious personal injury if it contacts the skin or eyes.
Dead Engine Towing

Parking Brake - Manual Release

The parking brake is a SAHR - Spring Applied Hydraulic Released brake. In case of a breakdown or a malfunction of the hydraulic system, the parking brake can be released by using a manual high pressure hydraulic pump that must be connected to the axle parking brake ports (Figure 3).

**NOTE:** The minimum release pressure is 435 psi. The maximum release pressure is 653 psi.

**Warning**

NEVER perform this procedure with the engine running. The Ignition Switch should be in OFF position, the Parking Brake ON (engaged) and the red cover over the parking brake switch CLOSED.

**Warning**

Block all four (4) wheels. Failure to do so could result in death or serious injury from Telehandler roll away.

1. Block all four wheels to prevent the Telehandler from moving once the parking brake is disabled.
2. Position the towing vehicle in place. Attach any chain needed to secure the disabled Telehandler.
3. Locate the two (2) parking brake hydraulic connection ports as shown in Figure 3.

4. Remove the hydraulic hose connected to one port
5. Connect a manual HP hydraulic pump to the parking brake ports using a threaded coupling (9/16" - 18 UNF) and a collector bottle, as shown in Figure 4.
6. Apply hydraulic pressure using the manual hydraulic pump to release the brake.

**NOTE:** For illustration purposes, we used an Enerpac P 142 manual HP pump.

![Figure 3. Connect HP Pump to HP Parking Brake Ports (both sides of axle). See Figure 3 For Ports Location.](image3)

7. To reapply parking brake, disconnect the manual hydraulic pump from the parking brake release ports of the axle and re-connect the hydraulic hose.

![Figure 4. Example of a Manual Hydraulic Pump](image4)

8. Repeat steps 4 to 7 for the other hydraulic connection port (Figure 3)
9. Crawl out from under the Telehandler and clear the area of any unnecessary personnel.
10. Carefully remove the blocking from each of the four (4) tires and tow the vehicle to a secure location.

**Warning**

NEVER operate the Telehandler with the manual hydraulic pump connected.
Figure 5. Label Legend (Left Side)

Figure 6. Label Legend (Right Side)
### Table 1. Labels

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NUMBER</th>
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<td>LOAD CHART, XR1147 STANDARD CARRIAGE OUTRIGGERS DOWN</td>
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</tbody>
</table>
Replacement labels may be obtained by contacting Xtreme Manufacturing at (702) 636-2969.

From outside the Las Vegas, Nevada area please call Xtreme Manufacturing toll free at (800) 497-1704.

Please have the correct label number available when you call.

1) 18008-000

2) 18004-060

3) 18010-001

4) 18011-001

5) 18013-002

6) 18014-002

DIESEL ONLY

Ultra Low Sulphur Fuel Only
Maximum Sulphur Content: 15ppm

CHECK ENGINE OIL

Minimum Oil Specification: API CJ-4 or higher
7) 18015-001

8) 18016-001

9) 18017-001

10) 18018-001

11) 18018-002

12) 18019-001
13) 18020-001

14) 18021-001

15) 18022-001

16) 18023-001

17) 18025-001

18) 18026-001
31) 18048-000
32) 18049-000
33) 18053-000
34) 18054-000
35) 18055-000
36) 18066-001
37) 18307-001
39) 18069-000

CAUTION
CRUSHING HAZARD
VEHICLE DAMAGE may result from leaving hood open.
CLOSE HOOD before lowering boom.

WARNING
FALLING HAZARD
DEATH or SERIOUS INJURY could result from falling.
NO STEP.

38) 18069-000
### Labels

<table>
<thead>
<tr>
<th>No.</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>18471-000</td>
<td>Fire Resistant Hydraulic Fluid</td>
</tr>
<tr>
<td>41</td>
<td>18081-000</td>
<td>Plant Based Hydraulic Fluid</td>
</tr>
<tr>
<td>42</td>
<td>18082-001</td>
<td>Biodegradable Fluid</td>
</tr>
<tr>
<td>43</td>
<td>18083-001</td>
<td>Dexron III ATF</td>
</tr>
<tr>
<td>44</td>
<td>18086-002</td>
<td>ISO22 Synthetic Extreme Cold Climate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO15 Hydraulic Oil Extreme Cold Climate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO22 Hydraulic Oil (AW32) Cold Climate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO68 Hydraulic Oil (AW68) High Temp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO46 Hydraulic Oil (AW46)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO32 Hydraulic Oil (AW32)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO22 Hydraulic Oil Cold Climate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO15 Hydraulic Oil Cold Climate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ISO22 Synthetic Extreme Cold Climate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Devon III ATF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mobil DTE10XL - Zinc Free Environmental</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biodegradable Fluid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plant Based Hydraulic Fluid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fire Resistant Hydraulic Fluid</td>
</tr>
</tbody>
</table>

### Warning Messages

#### INJECTION HAZARD
**DEATH or SERIOUS INJURY could result from contact with pressurized fluid. KEEP CLEAR of leaks.**

#### EXPLOSION HAZARD
**DEATH or SERIOUS INJURY could result from ignition of explosive gases. AVOID OPEN FLAMES and SPARKS near battery.**

#### TIP OVER HAZARD
**DEATH or SERIOUS INJURY could result from tip over. DO NOT OPERATE this vehicle without foam filled tires.**
DEATH or SERIOUS INJURY could result from improper operation when using tow connection.
- Do not exceed rated tow capacity.
  - Max vertical load 500 LBS.
  - Max tow capacity 5000 LBS.

EQUIPMENT DAMAGE
Wait at least two (2) minutes after shutting engine off before setting the battery disconnect switch to OFF. Equipment damage may occur if the engine control systems are not allowed to shutdown properly.

CAUTION
DIESEL EXHAUST FLUID (DEF) ONLY

52) 18409-000

53) 18331-000
55) 18306-001

**DANGER**

CRUSHING HAZARD
DEATH or SERIOUS INJURY will result from contact with outrigger.
KEEP CLEAR

56) 18413-000

**DANGER**

CRUSHING HAZARD
DEATH or SERIOUS INJURY will result from contact with outrigger. KEEP CLEAR

57) 17412-000

XR1147 LOAD CHART - OUTRIGGERS UP
STANDARD CARRIAGE

NO OPERATION ABOVE 40 DEGREES BOOM ANGLE WITH REAR AXLE UNLOCKED.
LOAD RATINGS ARE FOR VEHICLE EQUIPPED WITH FOAM FILLED OR SOLID TIRES.
LOAD INCLUDES WEIGHT OF ANY RIGGING
5,500 LBS AT 24 IN MIN CAPACITY FORK (11,000 LBS PAIR).

58) 17545-000

XR1147 LOAD CHART - OUTRIGGERS DOWN
STANDARD CARRIAGE

THE REAR AXLE MUST BE LOCKED AND THE OUTRIGGERS FIRMLY AGAINST THE GROUND.
LOAD RATINGS ARE FOR VEHICLE EQUIPPED WITH FOAM FILLED OR SOLID TIRES.
LOAD INCLUDES WEIGHT OF ANY RIGGING
5,500 LBS AT 24 IN MIN CAPACITY FORK (11,000 LBS PAIR).

59) 17546-000
### Standard Equipment

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom</td>
<td>Universal quick attach head</td>
</tr>
<tr>
<td></td>
<td>Three (3) section boom</td>
</tr>
<tr>
<td></td>
<td>Boom equipped with heavy duty boom rollers</td>
</tr>
<tr>
<td>Chassis</td>
<td>Rear axle stabilization</td>
</tr>
<tr>
<td></td>
<td>1-1/4 inch main frame plate</td>
</tr>
<tr>
<td></td>
<td>Sealed pivot pins for extended service periods</td>
</tr>
<tr>
<td></td>
<td>High boom mount design</td>
</tr>
<tr>
<td></td>
<td>Sliding engine transmission cownling</td>
</tr>
<tr>
<td></td>
<td>Low mounted central engine &amp; drive train</td>
</tr>
<tr>
<td></td>
<td>Limited slip differential</td>
</tr>
<tr>
<td>Cab</td>
<td>Lights (front and rear)</td>
</tr>
<tr>
<td></td>
<td>12 volt electrical system</td>
</tr>
<tr>
<td></td>
<td>Dash mounted Diagnostic Display which include: fuel level, engine coolant</td>
</tr>
<tr>
<td></td>
<td>temperature, voltage and oil pressure indicators, hydraulic oil pressure,</td>
</tr>
<tr>
<td></td>
<td>parking brake, axle lock, rear wheel alignment, transmission oil indicator,</td>
</tr>
<tr>
<td></td>
<td>transmission range, tilt interlock, engine warning lights</td>
</tr>
<tr>
<td></td>
<td>Easy access drop down electrical panel</td>
</tr>
<tr>
<td></td>
<td>12 volt accessory power outlet</td>
</tr>
<tr>
<td></td>
<td>Electric horn and backup alarm</td>
</tr>
<tr>
<td></td>
<td>Rear view mirror</td>
</tr>
<tr>
<td></td>
<td>Adjustable seat with seat belt</td>
</tr>
<tr>
<td></td>
<td>Deluxe suspension seat</td>
</tr>
<tr>
<td></td>
<td>Boom angle and frame level indicator</td>
</tr>
<tr>
<td></td>
<td>360° visibility</td>
</tr>
<tr>
<td>Tires</td>
<td>Foam-filled</td>
</tr>
<tr>
<td>Hydraulics</td>
<td>Auxiliary hydraulic circuit with quick attach</td>
</tr>
<tr>
<td></td>
<td>Attachment tilt switch</td>
</tr>
<tr>
<td></td>
<td>Frame sway control handle (Y-Handle)</td>
</tr>
</tbody>
</table>

### Optional Equipment

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td>Enclosed cab with air conditioning</td>
</tr>
<tr>
<td></td>
<td>Heater/defroster/windshield wiper</td>
</tr>
<tr>
<td></td>
<td>Work light package</td>
</tr>
<tr>
<td></td>
<td>Hydraulic side-swing carriage (with quick attach couplers)</td>
</tr>
<tr>
<td></td>
<td>Various carriage sizes</td>
</tr>
<tr>
<td></td>
<td>Full line of attachments</td>
</tr>
<tr>
<td></td>
<td>Turn signals/hazard lights</td>
</tr>
<tr>
<td></td>
<td>Outriggers</td>
</tr>
</tbody>
</table>
Specifications

Performance
- Capacity: 11,000 lbs
- Lift Height: 47" 
- Forward Reach: 31'6" 
- Frame Leveling L/R: 11°/11°
- Operating Weight: 30,610 lbs

Power Train
- Engine: Cummins 74 HP, 120 HP optional
- Fuel Capacity: 50 gal
- Transmission: 3-Speed With Automatic
- Brakes: Inboard Wet Disc
- Parking Brake: SAHR

Tires
- Tires (Standard Eq): Foam Filled 15.50 x 25 E3

Hydraulics
- Hydraulic Flow (GPM): 49
- Hydraulic Pressure (PSI): 3,500
- Hydraulic Oil Capacity (Gal): .62

Dimensions
- Length to fork face: 22' 6"
- Width: 101"
- Height: 8' 9"
- Wheel Base: 125"
- Ground Clearance: 17.75"
- Turning Radius: 12'

Standard Equipment
- Heavy-duty Frame/Chassis
- Heavy-duty Roller Boom
- Melonite Pins and Rollers
- Robust Wiring, No Spades, No Pins
- Rear Axle Stabilization (RAS)
- Center Inline Engine Drive Train
- Full-time Planetary 4-Wheel Drive
- Steering - 4-Wheel Circle, Crab, 2-Wheel Front
- Limited Slip Differential
- Back-Up Alarm
- Open ROPS/FOPS
- Adjustable Hydraulic Operator Controls
- Suspension Seat
- Quick Attach (Common Fit)
- Rear View Mirrors
- Xtreme Service Accessibility

Attachments
- Carriage Class: B
- Standard Carriage: 48" or 72"
  +45° Swing Carriage: 48" or 72"
  +10° Side Tilt Carriage: 52" or 72"
- Pallet Forks - 2.25" X 4" X 48"
- Lumber Forks - 1.75" X 7" X 60"
- Block Forks - 2" X 2" X 48"
- Utility Bucket - 1.25 cu. yd.
- Concrete Bucket - 0.5 cu. yd., or 1.00 cu. yd.
- Truss Boom - 12'
- Wallboard/Sheet Material Handler

Accessories and Options
- Enclosed Cab
- Air Conditioning
- Work Light Package
- Rotating Beacon
- Outriggers


**Warning**

A brief description of controls, indicators, and instruments is provided as a convenience for the operator. These descriptions DO NOT provide complete operation instructions. Read and understand the entire manual to prevent death, serious injury, or equipment damage.

---

**Ignition Switch**

A key is required to operate the ignition switch.

The ignition switch has three (3) positions: OFF, RUN, and START.

<table>
<thead>
<tr>
<th>Ignition Switch</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Shuts down entire electrical system, except the horn and accessory outlet.</td>
</tr>
<tr>
<td>RUN</td>
<td>All controls and indicators are operable.</td>
</tr>
<tr>
<td>START</td>
<td>Engages starter motor to crank engine.</td>
</tr>
</tbody>
</table>

**NOTE:** The START position is spring-loaded. When the key is released, the Ignition switch will automatically return to the RUN position.

---

**Accessory Outlet**

A 12 volt accessory outlet is provided as a power source for personal items, such as a radio or cell phone.

---

**Accelerator Pedal**

Press the accelerator pedal to increase engine speed. The accelerator pedal is spring-loaded to return to idle speed.
Operator Cab

**Service Brake Pedal**

Press the service brake pedal to slow or stop the Telehandler. The service brake pedal activates the service brakes on all four (4) wheels.

*Figure 14. Service Brake Pedal*

**Steering Wheel**

Turn the steering wheel left or right to steer the Telehandler in the corresponding direction.

*Figure 15. Steering Wheel*

**Horn Button**

Press the horn button to sound the horn.

*Figure 16. Horn Button*

**Operator Seat**

The operator seat can be adjusted four (4) ways: weight suspension, lumbar support, fore and aft, and backrest angle.

*Figure 17. Operator Seat*
Operator Cab

---

Weight Suspension Lever

Rotate the weight suspension lever to increase or decrease the seat cushion suspension based on the weight of the operator and comfort level desired.

---

Backrest Angle Adjustment Lever

Pull the backrest angle adjustment lever up to release the seat backrest lock. Adjust the angle of the backrest and release the lever to lock the backrest to the desired angle.

---

Fore and Aft Adjustment Lever

Pull the fore and aft adjustment lever outward from the seat to release the seat lock. Slide the seat forward or backward to a comfortable location and release the lever to lock the seat in the desired position.

---

Heating/Air Conditioning Controls (If Equipped)

The air conditioning controls include two rotary knobs located to the right of the operator seat towards the rear of the center console; one is for adjusting the cab temperature and the other is for selecting the vent speed. Rotate the corresponding knob to adjust the temperature inside the operator cab.

---

Figure 18. Weight Suspension Lever

Figure 19. Heating / Air Conditioning Controls (If Equipped)

Figure 20. Fore and Aft Adjustment Lever

Figure 21. Backrest Angle Adjustment Lever
Operator Cab

---

### Seat Belt

**Warning**

Always check the condition of the seat belt and mounting hardware before operating the Telehandler. If the seat belt or mounting hardware is defective, it may not properly restrain the operator, which could result in death or serious injury.

- **DO NOT** operate the Telehandler until the seat belt or mounting hardware is replaced, if worn or damaged.
- The seat belt **MUST** be worn while operating the Telehandler. Failure to wear the seat belt could result in death or serious injury.

The Telehandler is equipped with a standard two inch (2") wide retractable seat belt. A three inch (3") wide retractable seat belt is available where required by local laws and regulations.

1. Grasp the free end of the seat belt (located on the left side of the seat) and make sure the belt webbing is not twisted or entangled in any portion of the seat assembly.
2. Pull the retractable seat belt across your lap. Position the seat belt as low on your body as possible.
3. Insert the latch plate into the buckle (on the right side of the seat) until a “click” is heard.
4. Make sure seat belt retracts snugly across your lap.

---

### Rear View Mirrors

Two (2) adjustable rear view mirrors are provided to aid the operator’s rear vision. One (1) rear-view mirror is mounted on the upper left of the operator’s cab.

One (1) rear-view mirror is mounted on the right side of the chassis.

---

**Figure 22. Retractable Seat Belt (A) and Buckle (B)**

**Figure 23. Cab-Mounted Mirror**

**Figure 24. Chassis-Mounted Mirror**

---

**Warning**

DO NOT adjust the seat or seat belt while the Telehandler is moving. Keep both hands on the wheel while the Telehandler is moving to prevent loss of Telehandler control which could result in death or serious injury.

Before starting the engine, adjust the seat for position and comfort (refer to the Operator Seat section of this manual) and then adjust the seat belt as follows:

1. Grasp the free end of the seat belt (located on the left side of the seat) and make sure the belt webbing is not twisted
The travel select lever has three (3) positions: FORWARD, NEUTRAL, and REVERSE, and is used to change the direction of travel. It automatically locks when it is in the NEUTRAL position. The operator must raise and move the travel select lever when changing to the FORWARD or REVERSE position.

NOTE: The travel select lever must be in the NEUTRAL position to start the Telehandler.

NOTE: The back-up alarm automatically sounds when the travel select lever is in the REVERSE position.

The Gear Select switch has a twist grip handle with the following positions: 1 - FIRST, 2 - SECOND, 3 - THIRD, and D - Automatic (Drive).

NOTE: The Telehandler can be operated in three (3) forward and three (3) reverse gears. Automatic (Drive) should be selected for normal driving.

The Load Capacity Charts are located on the left side of the front control panel. The Load Capacity Charts are provided to assist the operator in determining how to safely handle loads with the Telehandler, including boom angle, height, and reach.

The Parking Brake toggle switch (A) has two (2) positions: ON and OFF.

Set Parking Brake switch (A) to ON (DOWN) to engage the parking brake and to OFF (UP) to disengage the parking brake. The parking brake indicator (B) illuminates when the parking brake is set to ON (engaged).
Display Indicators

The display allows the operator to view vital engine information and other critical functions.

A. HIGH HYDRAULIC OIL TEMP

The hydraulic oil temperature indicator illuminates when the oil temperature is above 180°F (82°C). If the hydraulic oil temperature indicator illuminates, stop and idle the engine to allow time for cooling. If the hydraulic oil temperature indicator does not go out after five (5) minutes, stop the forklift, follow proper shut down procedures, tag the forklift with “Do Not Operate” tags, and have a qualified mechanic service or repair the forklift BEFORE placing it into service again.

B. WATER IN FUEL

The Water in Fuel Indicator will be displayed when water is detected in the fuel filter. Drain the water by opening the petcock on the bottom of the fuel filter.

C. LOW BRAKE PRESSURE

The Low Brake Pressure indicator illuminates if the hydraulic oil pressure gets too low. If the Low Brake Pressure indicator is illuminated, do not release the parking brake or engage transmission until the indicator is out. If the indicator does not go out, stop the forklift, follow proper shut down procedures, tag forklift with “Do Not Operate” tags, and have a qualified mechanic service or repair the forklift BEFORE placing it into service again.

D. LOW OIL PRESSURE

The Low Oil Pressure Indicator will be displayed when the engine oil pressure is below normal (below 10 psi). If the Oil Pressure Indicator comes on during normal operation, stop the forklift, follow proper shut down procedures, tag forklift with “Do Not Operate” tags, and have a qualified mechanic service or repair the forklift BEFORE placing it into service again.

E. LOW COOLANT LEVEL

The Low Coolant Level Indicator will be displayed when the coolant level in the surge tank drops below normal. Add coolant to the top of the sight gauge of the surge tank.

F. WAIT TO START

The Wait to Start Indicator is displayed when the key switch is moved to the RUN position. Wait until the indicator goes out before starting the engine.

Figure 29. Display Indicators
G. ENGINE SERVICE REQUIRED
The Engine Service Required Indicator will be displayed when a maintenance interval has been exceeded.

H. LEFT / RIGHT OUTRIGGER DOWN (IF EQUIPPED)
Indicates that the outrigger on the left side and/or the one on the right side of the forklift is locked in the DOWN position.

I. REAR AXLE LOCKED
The Rear Axle Locked Indicator illuminates when the forklift is in the axle lock mode. The rear axle locks when the parking brake is set to ON (engaged), or the transmission is in NEUTRAL or the service brake is applied, and when the boom is above 10°. If the Rear Axle Locked Indicator does not illuminate when the forklift is in the axle lock mode, stop the forklift, follow proper shut down procedures, tag forklift with "Do Not Operate" tags, and have a qualified mechanic service or repair the forklift BEFORE placing it into service again.

J. REAR AXLE CENTERED
The Rear Axle Centered Indicator will be displayed when the rear wheels are aligned perpendicular to the rear axle. The rear wheels should be centered before changing steering modes.

K. REAR-VIEW CAMERA
The rear-view camera operates automatically when the forklift is in reverse or by pressing the soft button CAM.

L. TACHOMETER
The Tachometer indicates engine RPM using a 0-2500 RPM analog dial and also using digital RPM readout at the bottom of the tachometer display.

M. HOURMETER
The Hourmeter indicates and records engine operating hours. Use the Hourmeter to establish a forklift maintenance schedule.

N. DIGITAL CLOCK

O. DIRECTION OF TRAVEL INDICATOR
Displays the direction of travel selected: Forward or Reverse.

P. TRANSMISSION GEAR INDICATOR
Displays the transmission gear selected. The available positions are: 1, 2, 3, and Automatic. Automatic is displayed as A1, A2, or A3, with the numbers representing the current gear the transmission is in.

Q. DEF GAUGE / LOW DEF LEVEL INDICATOR (FOR 120 HP MODELS)
The DEF Gauge indicates the quantity of fluid in the Diesel Exhaust Fluid (DEF) tank. The total capacity of the DEF tank is 5 gallons. The DEF tank should be filled after every fuel refill. DEF should be added when the Low DEF (Diesel Exhaust Fluid) Level indicator is displayed.

R. FUEL GAUGE AND LOW FUEL INDICATOR
The fuel gauge indicates the approximate quantity of fuel in the tank. The total capacity of the fuel tank is 50 gallons. When the fuel level is below 10%, the low fuel level indicator turns red.

S. ENGINE TEMP GAUGE AND HIGH TEMP INDICATOR
The Engine Temp Gauge indicates the temperature of the coolant in the engine cooling system. After starting the forklift, allow time for the Engine Temp Gauge to begin moving before operating the forklift. After the engine has sufficiently been warmed up, normal engine coolant temperature should read between 180° to 200° F.

T. OIL PRESSURE INDICATOR
The Oil Pressure Indicator monitors the engine oil pressure. At normal operating pressure it stays green (above 20 psi). Between 12-20 psi it turns yellow and below 10 psi it becomes red. If the indicator turns red (shows oil pressure below 10 psi) and the Oil Pressure Warning (red) is displayed, stop the forklift, follow proper shut down procedures, tag forklift with “Do Not Operate” tags, and have a qualified mechanic service or repair the forklift BEFORE placing it into service again.

U. VOLTAGE GAUGE
The Voltage Gauge indicates the amount of charge (in Volts). Normal system voltage is between 12.5 and 14 Volts. If the voltage gauge shows abnormal readings, stop the forklift, follow proper shut down procedures, tag forklift with “Do Not Operate” tags, and have a qualified mechanic service or repair the forklift BEFORE placing it into service again.

V. MESSAGE / STATUS DISPLAY
Displays engine status messages or additional warnings.

W. REGENERATION MENU (FOR 120 HP MODELS)
Pushing the soft button adjacent to the Regen Menu indicator displays the exhaust system regeneration mode with the available options.

X. STOP INDICATOR (FOR 120 HP MODELS)
The Engine Stop Indicator is displayed when the engine is shut down. It is displayed with a flashing Check Engine Indicator when an engine shutdown is imminent.

Y. CHECK ENGINE/GENERAL WARNING INDICATOR
In case of any engine errors, the general error lamp of the engine will be activated. Whenever the error lamp is active, a fault code is stored in the error memory.

Two different states are possible:

• Solid on - Errors that allow continuing engine operation with minor restrictions.
Operator Cab

- **Blinking** - Errors that cause an engine shut down or shut down request.

Emission related errors of the EAT system will also be displayed on the Status Display and the malfunction indicator will come on.

The Check Engine Indicator will be displayed when there is a minor engine or ESC fault.

**Z. EXHAUST SYSTEM CLEANING (ESC) INDICATOR (FOR 120 HP MODELS)**

The Exhaust System Cleaning (ESC) Indicator will be displayed when a manual regeneration is recommended or required.

**#. HIGH EXHAUST TEMPERATURE INDICATOR (HEST) - (FOR 120 HP MODELS)**

Will appear when exhaust temperature is higher than normal.

**&. ESC REGEN DISABLED (FOR 120 HP MODELS)**

The ESC Regen Disabled indicator will be displayed if the ESC Regen has been manually disabled by the user.

**Display Features**

The display allows the operator to view vital engine information and other critical functions, including gauge display, engine diagnostics to monitor engine condition and performance, fault codes, and warning lights.

**POWER UP**

When the ignition is turned on, the display powers up and defaults to GAUGE DISPLAY mode. The display should remain in this mode for normal operation.

**MAIN MENU**

Pressing the MENU button will bring up the MAIN MENU. Pressing the MENU button again, or the GAUGE DISPLAY soft button, will return to the GAUGE DISPLAY mode.
TRANSMISSION CALIBRATION (EZCal)

After each transmission oil change the transmission needs to be re-calibrated to accommodate for clutch wear. When the EZCal button is pressed, the TCU (Transmission Control Unit) enters transmission calibration mode and it checks first for all the machine conditions necessary for a successful transmission calibration. It displays a green check symbol to the right of the condition if it is met.

Figure 34. Transmission Calibration - Machine Conditions Check

When all of the machine conditions for calibration are met, the TCU enters clutch calibration mode.

Figure 35. Clutch Calibration

It calibrates the first clutch, and upon successful calibration it moves to the second and so forth. The forklift must be OFF after calibration is complete.

Figure 36. First Clutch Calibration Successful

EZCal MAIN SCREEN

Use the upper left buttons to navigate; use the upper right buttons to change settings.

Figure 37. EZCal Main Screen

Use the left/right buttons to navigate to the “Access Level 3” screen and press enter. Use the up/down buttons to change the code and left/right to scroll. Enter code “1010” and press enter. Screen now shows “Access Level 1” if entered correctly.

ADJUSTMENT SCREEN

Using the left/right buttons, navigate to adjustments and press enter. From here adjust the following settings to match the settings below. Once adjustments are complete press the lower left hand button repeatedly till you are at the main gauge screen.

Figure 38. Adjustment Screen

NOTE: Speeds and Accel can be adjusted to preference. Increasing Decel will increase stop times. Keep this setting to 0.3 or lower.

Table 2. EZCal Recommended Settings
SERVICE REMINDERS
Pressing the SERVICE REMINDERS soft button will display data pertaining to maintenance schedules.

![Service Reminders Menu](image)

If a scheduled service is due, the GAUGE DISPLAY indicates below the tachometer in the hour meter box, the service needed.

![Service Requested](image)

DIAGNOSTICS
Pressing the ENGINE DIAGNOSTICS soft button will display engine information. Use the up/down buttons to navigate. Press the MENU button to return to the GAUGE DISPLAY mode.

![Diagnostics Menu](image)

USER SETTINGS
Pressing the USER SETTINGS soft button will enter a mode where some display settings may be adjusted using the Up/Down buttons. The top left button restores the default settings.

![User Settings](image)

Each Restore Defaults needs to be confirmed or canceled on the next screen. Pressing the MENU button will return to the previous menu.

![Diagnostics Menu](image)

REGENERATION MENU
Pressing the ENTER button while in GAUGE DISPLAY mode or pressing the REGEN MENU soft button will bring up a menu that displays the exhaust system regeneration mode with the available options. The operator may disable an automatic regen or force a manual regeneration from this menu (a manual regen can only be initiated if the system is requesting it). Pressing the ENTER button will return to the GAUGE DISPLAY mode.

CLOCK SETUP
Pressing the CLOCK SETUP soft button will enter a menu where the clock can be setup or adjusted.
The outrigger toggle switches are used to lower and raise the outriggers. The outrigger indicators illuminate when the outriggers are fully extended and on the ground.

The Steering Select switch has three (3) steering positions: Crab, Two Wheel Steering (2W), and Four Wheel Steering (4W).

**Outrigger Control**

**FAULT CONDITION POP-UPS**

A fault condition may trigger a pop-up dialog box describing the nature of the fault.

**BACKUP CAMERA (OPTIONAL)**

The display automatically changes to backup camera when the transmission is in REVERSE. When the transmission is in NEUTRAL or FORWARD, the display can be switched from the GAUGE DISPLAY to the BACKUP CAMERA by using the select button CAM. Press it again to return to the GAUGE DISPLAY.

**Warning**

DO NOT change steering modes until the forklift slows or comes to a complete stop. Align all four (4) wheels perpendicular to the axle, before changing steering mode. Changing steering modes at higher travel speeds can make the forklift unstable, and cause a loss of control, which could result in death, serious injury, or property damage.
### Boom Control

The boom control joystick has variable motions from the center position that control boom and tilt functions. It is used to raise, lower, extend, retract the boom, tilt the carriage (or attachment), and control auxiliary functions (when equipped with a carriage or attachment with additional functions).

- The boom control joystick is a variable speed control. Function speed is proportional to handle movement. The more the handle is moved in the appropriate direction, the faster the corresponding function will occur.
- Increasing engine speed can increase boom lift and extend speed.

<table>
<thead>
<tr>
<th>Boom Control Joystick Functions</th>
<th>Function</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aux Button 1</td>
<td>Move forks outward (adjustable carriage)</td>
<td></td>
</tr>
<tr>
<td>Aux Button 2</td>
<td>Move forks inward (adjustable carriage)</td>
<td></td>
</tr>
<tr>
<td>Joystick Enable Trigger</td>
<td>When depressed it enables joystick functions. If not depressed, joystick is inert</td>
<td></td>
</tr>
<tr>
<td>Sway Enable Trigger</td>
<td>Trigger must be enabled (pulled in) to activate the frame sway function</td>
<td></td>
</tr>
<tr>
<td>Tilt Thumbstick</td>
<td>Control carriage tilt (UP/DOWN)</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Two (2) boom functions can be performed at the same time by moving the handle into the corner between (2) functions.

### Attachment Tilt Switch

The Attachment Tilt Switch located on the top of the joystick:

- Controls the attachment tilt functions by rolling the switch upward and downward.
- Is a variable speed switch. Function speed is proportional to how far the switch is rolled. The more the switch is rolled in the appropriate direction, the faster the corresponding function will occur.
- To tilt the attachment down: Roll switch (A) downward (1)
- To tilt the attachment up: Roll switch (A) upward (2)

**NOTE:** The attachment carriage will retain the set angle throughout boom raising, lowering, retracting, or extending operations.
NOTE: Maximum frame sway is 22° overall or 11° each direction, left and right.

**Lights Switch**

Flip the toggle switch to ON to turn the front lights on.

**Frame Sway Control**

The Frame Sway Y-Handle is used to enable the machine frame sway before lifting any loads. For this purpose, the Y-Handle is moved sideways, left or right as needed to level the telehandler before lifting any weight.

The Boom Maintenance Stand is an optional safety equipment used to support the boom during any and maintenance activities where the boom is raised.

When preparing to set boom stand:

- Make sure machine is on a flat level ground and machine has no load on the forks.
- Raise machine boom to 40 degrees for clearance and remove latch and pin from boom stand weldment.
- Position the boom stand in the upright position and re-apply the pin to secure stand.
- Proceed by slowly lowering machine boom to lay on stand.

When not in use, fold the support down and latch it in place.

When preparing to remove boom stand:

- Make sure all maintenance has been performed and area is clean.
- Raise machine boom to 40 degrees for clearance and remove pin from stand weldment
- Lay boom stand in the down position and re-latch stand to secure.
Operator Cab

**Boom Angle Indicator**

The boom angle indicator is located on the left side of the boom and is visible from the operator’s seat. Use the boom angle indicator to determine the boom angle when referring to load capacity charts. Refer to the LOAD CAPACITY CHARTS section of this manual for more information.

NOTE: The boom angle indicator is a plumb arrow with angular graduations from $-5^\circ$ to $+70^\circ$

---

**Frame Level Indicator**

The frame level indicator is mounted on the upper right corner of the operator’s cab. The frame level indicator allows the operator to view if the Telehandler has been positioned in a level condition.

---

**Boom Extend Letters**

As the boom is extended, the boom extend letters on the left side of the boom are visible to the operator. These letters indicate boom extension as it corresponds to the load capacity charts.

---

**Telehandler Lifting Points**

The XR1147 lifting points are shown below. The Telehandler should only be lifted if lifting points are installed.

⚠️ Warning

Ensure that no one is in the work radius before lifting Telehandler to avoid crushing hazard.

---

**Model: XR1147**

UNLADEN VEHICLE WEIGHT: 30,140 lbs

---

Figure 55. Boom Angle Indicator

Figure 56. Boom Extend Letters

Figure 57. Frame Level Indicator

Figure 58. XR1147 (No Outriggers) Lifting Points
Pre-Operation Inspection

To perform the pre-operation inspection make sure the Telehandler is NOT running, the engine is cool, the Telehandler is parked on level ground, the boom is completely retracted, and the frame is level.

**NOTE:** Copy and use the Pre-Operation Inspection Checklist in this section.

**Caution**

Contact with hot surfaces and the exhaust pipe after the Telehandler has been operated could result in serious personal injury.

**Warning**

Always check the condition of the seat belt and mounting hardware before operating the Telehandler. If the seat belt or mounting hardware is defective, it may not properly restrain the operator, resulting in death or serious injury.

- DO NOT operate the Telehandler until the seat belt or mounting hardware is replaced, if worn or damaged.
- The seat belt MUST be worn while operating the Telehandler. Failure to wear the seat belt could result in death or serious injury.

**Warning**

Wear appropriate protective clothing. Personal protective equipment can include, but is not limited to hardhat, gloves, footwear, safety glasses or goggles, and hearing protection. Make sure clothing is snug and properly belted. DO NOT wear loose clothing, jewelry, watches, or anything that can catch on Telehandler controls, moving parts, etc. Failure to wear the proper protective clothing could result in death or serious injury.

Perform a pre-operation inspection and functional tests at the beginning of each work shift. Perform the pre-operation inspection first. DO NOT perform the pre-operation inspection with the engine running or hot.

Contact with moving or heated parts could cause death or serious injury.

Perform a pre-operation inspection and functional tests in an open area.

Become familiar with all safety and hazard labels, regulations, and procedures. Make sure all proper labels are attached to the Telehandler and remain legible.

Remove Telehandler from service and place “Do Not Operate” tags on the Starter switch and steering wheel if anything is found to be in need of repair or maintenance, defective, or unsafe in any way.

**Pre-Operation Inspection**

To perform the pre-operation inspection make sure the Telehandler is NOT running, the engine is cool, the Telehandler is parked on level ground, the boom is completely retracted, and the frame is level.

**NOTE:** Copy and use the Pre-Operation Inspection Checklist in this section.

**Warning**

Wear appropriate protective clothing. Personal protective equipment can include, but is not limited to hardhat, gloves, footwear, safety glasses or goggles, and hearing protection. Make sure clothing is snug and properly belted. DO NOT wear loose clothing, jewelry, watches, or anything that can catch on Telehandler controls, moving parts, etc. Failure to wear the proper protective clothing could result in death or serious injury.

Perform a pre-operation inspection and functional tests at the beginning of each work shift. Perform the pre-operation inspection first. DO NOT perform the pre-operation inspection with the engine running or hot.

Contact with moving or heated parts could cause death or serious injury.

Perform a pre-operation inspection and functional tests in an open area.

Become familiar with all safety and hazard labels, regulations, and procedures. Make sure all proper labels are attached to the Telehandler and remain legible.

Remove Telehandler from service and place “Do Not Operate” tags on the Starter switch and steering wheel if anything is found to be in need of repair or maintenance, defective, or unsafe in any way.

**Caution**

Contact with hot surfaces and the exhaust pipe after the Telehandler has been operated could result in serious personal injury.

**Warning**

Always check the condition of the seat belt and mounting hardware before operating the Telehandler. If the seat belt or mounting hardware is defective, it may not properly restrain the operator, resulting in death or serious injury.

- DO NOT operate the Telehandler until the seat belt or mounting hardware is replaced, if worn or damaged.
- The seat belt MUST be worn while operating the Telehandler. Failure to wear the seat belt could result in death or serious injury.

Check hydraulic oil lines, tubes, and hoses carefully. DO NOT use your bare hand to check for leaks. Always use a board or cardboard when checking for a hydraulic leak. Escaping hydraulic fluid under pressure, even a pinhole size leak, can penetrate body tissue, which could cause death or serious injury. If hydraulic oil is injected into your skin, a doctor familiar with this type of injury must treat it immediately.

Serious injury could result from hydraulic oil pressure or hot oil. DO NOT remove a hydraulic tank filler cap unless it is cool enough to touch with bare hands. Remove the hydraulic tank filler cap slowly to relieve pressure. Relieve all pressure in a hydraulic system before any caps, lines, fittings, or related items are disconnected or removed.

Never remove the radiator cap while the engine is hot. The cooling system is under pressure. Hot coolant could cause severe burns or eye injury. Wear protective clothing and safety glasses.
Lead-acid batteries produce flammable and potentially explosive gases. To avoid death or serious injury when checking, testing, or charging batteries:

- **DO NOT** use smoking materials near batteries.
- Keep arcs, sparks, and open flames away from batteries.
- Provide ventilation for flammable vapors.
- Wear proper personal protective equipment, including safety glasses.

The fluid in electric storage batteries contains sulfuric acid, which is poison and could cause severe chemical burns. Avoid all contact of fluid with eyes, skin, or clothing. Use protective gear when handling batteries. **DO NOT** tip a battery beyond a 45° angle in any direction.

If contact does occur, follow these First Aid suggestions:

- **External contact** - Flush with water.
- **Eyes** - Flush with water (including under the eyelids) for at least 15 minutes and get medical attention immediately. Flushing must begin immediately to avoid permanent eye tissue damage.
- **Internal contact** - Drink large quantities of water or milk to dilute stomach contents. Do not induce vomiting. Get medical attention immediately.

**IMPORTANT** - In case of internal contact, **DO NOT** give fluids that induce vomiting.

**Warning**

**California Proposition 65**

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Wash hands after handling these items.

**Warning**

**Warning**

Wear eye protection when starting a Telehandler with jump start cables. Improper jump start procedures could cause the battery to explode, which could result in death or serious injury.

- Never jump start a frozen battery, as it can explode. Let the battery thaw out before charging.
- NEVER jump start the Telehandler when travel select lever is in gear, which can cause the Telehandler to lurch forward or backward, and could result in death, serious injury, or property damage.
- To avoid injury or death when jump starting with another Telehandler, make sure the two (2) Telehandlers are not touching.
- **DO NOT** allow jump start cable ends to contact each other.
- Connect charged battery positive (+) to stalled battery positive (+).
- Connect charged battery negative (−) to stalled Telehandler ground. Make the connection to the stalled Telehandler ground last.
- Connect jump start cable to stalled Telehandler ground a safe distance from the battery to prevent sparks near the battery.
- Jump start only with a power source with the same voltage as the stalled Telehandler.
- Turn off all lights and accessories on the stalled Telehandler to prevent them from operating when the power source is connected.
- Electrolyte contains acid and could cause serious personal injury if it contacts the skin or eyes.

**Warning**

**Warning**

Tires must have proper ballast. **DO NOT** replace foam-filled tires with pneumatic tires. Use of pneumatic tires will severely affect Telehandler load capacity, which could result in death, serious injury, or property damage.

**Warning**

Use DEF meeting ISO 22241-1. There is **NO** acceptable substitute. Using anything other than DEF fluid may result in permanent aftertreatment damage.

All the attachments should be stored in an appropriate enclosure as to prevent corrosion and deterioration due to environmental conditions.

**Do not** use Telehandler or attachments if any parts or components are corroded excessively.

Inspect Telehandler and attachments periodically for corrosion.
Pre-Operation Inspection Checklist

Walk around the ENTIRE forklift while visually performing the pre-operation inspection.

☐ Check that “Do Not Operate” tags have not been placed on the forklift.

☐ Check that load capacity charts are legible.

☐ Check that frame level indicator is working properly.

☐ Check condition and operation of the seat belt and mounting hardware.

☐ Check that Operation and Safety Manual is in the protective case and legible.

☐ Check forks for welds, cracks, misalignment, or any other damage.

☐ Check that carriage assembly crossbar is straight and in place to prevent forks from changing position or coming the carriage.

☐ Check all hydraulic hoses and hose connections for wear or leaks.

☐ Check tilt cylinder for leaks or any other damage.

☐ Check boom for straightness or any other damage.

☐ Check all four (4) tires and wheels for:
  ☐ Punctures, cracks, cuts, gouges, bulges, foreign objects, or any other damage to tires.
  ☐ Loose or missing lug nuts.
  ☐ Bent flanges or any other damage to rims.

☐ Check front and rear sway cylinders and hoses for leaks or any other damage.

☐ Check mirrors for cracks, cleanliness, and proper adjustment.

☐ Check hydraulic reservoir sight gauge for proper fluid level. Add hydraulic fluid if necessary.

☐ Check engine compartment for:
  ☐ Loose or damaged belts, hoses, and radiator blades.
  ☐ Coolant reservoir level. Add radiator coolant, if necessary.
  ☐ Engine oil level. Add engine oil, if necessary.
  ☐ Electrical wires and connectors.

☐ Check transmission fluid level.

☐ Check front and rear axles for leaks or any other damage.

☐ Check main boom cylinders and hydraulic lines for leaks or any other damage.

☐ Check battery terminals for corrosion.

☐ Check battery for cracked, melted, or damaged case.

☐ Check electrical connections on rear sway cylinder.

☐ Check that all labels are legible. Replace any damaged or illegible labels.

☐ Check that operator’s cab is empty of all trash, debris, or any loose items.

☐ Check that personal belongings are secured in the personal storage box.

☐ Check that pedals, and non-skid surfaces are clean and free of grease, oil, dirt, snow, or ice.

☐ Date: __________________________  ☐ Initials: __________________________
## Functional Test Checklist

### Warning

Perform a pre-operation inspection and functional tests at the beginning of each work shift. Perform the pre-operation inspection first. DO NOT perform the pre-operation inspection with the engine running or hot. Contact with moving or heated parts could cause death or serious injury.

Perform the pre-operation inspection and functional tests in an open area and away from any other obstacles or equipment. Inspections and functional tests may require assistance. Keep the assistant visible and a safe distance from the Telehandler to prevent death or serious injury.

If anything is found to be in need of repair or maintenance, defective, or unsafe in any way, remove Telehandler from service and place “Do Not Operate” tags on the starter switch and steering wheel.

The safety, efficiency, and service life of your Telehandler will be increased by performing functional tests at the beginning of each shift. If any of the items in the functional tests are not operating properly or within set tolerances, stop the Telehandler, follow proper shut down procedures, tag the Telehandler with “Do Not Operate” tags, and have a qualified mechanic service or repair the Telehandler before placing it into service again.

- Operate the boom control handle forward and backward to lower and raise boom.
- Operate the boom control handle left and right to retract and extend boom.
- Operate the attachment tilt thumb stick up and down to tilt the attachment.
- Operate the sway control handle (Y-Handle) left and right to frame sway left or right.
- Operate the auxiliary attachment control (if an auxiliary attachment is being used).
- Turn work lights on and off.
- Press the horn button to sound the horn.
- Place the travel select lever in reverse to sound the backup alarm.
- Release the parking brake.
- Operate the Telehandler in forward and reverse.
- Test the service and parking brakes.
  - Apply the service brake pedal after the Telehandler begins to move and the Telehandler should stop immediately.
  - Apply the parking brake. The Telehandler should not move unless the parking brake is released.
- Test each steering function. Operate the Telehandler in forward and reverse at low idle speed and turn the steering wheel approximately 1/4 turn in each direction for each of the following modes:
  - Align the wheel and set the Steering Select switch to crab steering.
  - Align the wheel and set the Steering Select switch to 2 wheel (2W) steering.
  - Align the wheel and set the Steering Select switch to 4 wheel (4W) steering.
- Check the indicators after the engine warms to the proper operating range.
  - Check the voltage indicator. The voltage should be between 11 and 15 volts.
  - Check the engine coolant temperature indicator. The engine coolant temperature should be between 180 to 200°F.
  - Check the engine oil pressure indicator. The engine oil pressure should be between 40 to 80 PSI.
Operator Maintenance

Figure 59. Check Hydraulic Oil Sight Gauge

Figure 60. Add Hydraulic Oil, If Necessary

Figure 61. Check Coolant Reservoir Level. Add Coolant, if Necessary.

Figure 62. Check Engine Oil Level. Add Engine Oil (API CJ-4), If Necessary.

Figure 63. Check Battery Case and Terminals

Figure 64. Store Operation Manual in Protective Case
Before Starting Telehandler

⚠️ Warning

Failure to use proper safety procedures when mounting and dismounting the Telehandler could result in death or serious injury.

- Keep steps clear of dirt, mud, snow, ice, debris, and other hazards.
- Face the Telehandler for mounting or dismounting. Use hand holds and steps to maintain three (3) points of contact at all times, either both hands and one foot or both feet and one hand.
- DO NOT use the controls, steering wheel, or foot pedals as hand holds or steps. Avoid accidentally engaging or disengaging a control.

DO NOT jump from the Telehandler. Clothing can get caught on pedals, levers, or other protruding parts. Landing on uneven surfaces could result in death or serious personal injury.

1. Master battery disconnect on.
2. Use safe mounting/dismounting procedures to enter the operator cab.
3. Adjust the operator seat for position and comfort. (Refer to Seat Adjustment section in this manual)
4. Adjust mirrors (this may require assistance).
5. Adjust the side console control panel.
6. Fasten seat belt.
7. Make sure the travel select lever is set to NEUTRAL (N) and the Parking Brake is ON (engaged).

NOTE: The engine will only start when the travel select lever is in NEUTRAL (N) and the Parking Brake switch is ON (engaged).

Starting Telehandler

⚠️ Warning

To prevent death, serious injury, or property damage, the operator must be seated with seat belt fastened, arms, legs, and head completely inside the Rollover Protection Structure/Falling Object Protection Structure (ROPS/FOPS), the travel select lever in NEUTRAL, and the Parking Brake switch ON (engaged) BEFORE starting the Telehandler.

Normal Starting

The Parking Brake switch (A) has two (2) positions: ON and OFF.
1. Place Key in Ignition Switch.
2. Disengage the driving unit, or if equipped, put the transmission in NEUTRAL.
3. With the accelerator pedal or lever in the idle position, turn the keyswitch to the ON position.
4. When the ignition is turned on, the display powers up and defaults to GAUGE DISPLAY mode. The display should remain in this mode for normal operation.

**Figure 68. Gauge Display Mode**

5. Under cold conditions, the Wait-to-Start indicator will illuminate at Ignition Switch ON position, and will stay on for a period of up to 30 seconds.
6. Turn key in Ignition Switch clockwise to the START position.
7. Release key immediately after the engine starts. The Ignition Switch will automatically return to RUN.

**Figure 69. Turn Key in Ignition Switch to START. Ignition Switch Automatically Returns to RUN When Released**

8. After the engine starts, allow the engine to idle for approximately 60 seconds.

9. Apply the service brake pedal and disengage the Parking Brake switch.

**NOTE:** If the engine fails to start on the first try, wait until the engine and starter come to a complete stop before cranking the engine again.

---

**Caution**

The engine must have adequate oil pressure within 15 seconds after starting. If the WARNING lamp indicating low oil pressure has not gone out or there is no oil pressure indicated on a gauge within 15 seconds, shut OFF the engine immediately to avoid engine damage.

10. Idle the engine 3 to 5 minutes before operating with a load. After starting a cold engine, increase the engine speed (rpm) slowly to provide adequate lubrication to the bearings and to allow the oil pressure to stabilize.

---

**Jump Starting**

Jump Start or replace the battery of the Telehandler when the battery is discharged to the point that it will not crank the starter.

**Warning**

Lead-acid batteries produce flammable and potentially explosive gases. To avoid death or serious injury when checking, testing, or charging batteries:

- DO NOT use smoking materials near batteries.
- Keep arcs, sparks, and open flames away from batteries.
- Provide ventilation for flammable vapors.
- Wear proper personal protective equipment, including safety glasses.

Fluid in electric storage batteries contains sulfuric acid, which is poison and could cause severe chemical burns. Avoid all contact of fluid with eyes, skin, or clothing. Use protective gear when handling batteries. DO NOT tip a battery beyond a 45° angle in any direction.

If contact does occur, follow these First Aid suggestions:

- **External contact -** Flush with water.
Operation Manual

- **Eyes** - Flush with water (including under the eyelids) for at least 15 minutes and get medical attention immediately. Flushing must begin immediately to avoid permanent eye tissue damage.

- **Internal contact** - Drink large quantities of water or milk to dilute stomach contents. Do not induce vomiting. Get medical attention immediately.

**IMPORTANT** - In case of internal contact, DO NOT give fluids that induce vomiting.

**Warning**

Wear eye protection when starting a Telehandler with jump start cables. Improper jump start procedures could cause the battery to explode, which could result in death or serious injury.

- Never jump start a frozen battery, as it can explode. Let the battery thaw out before charging.
- NEVER jump start the Telehandler when travel select lever is in gear, which can cause the Telehandler to lurch forward or backward, and could result in death, serious injury, or property damage.
- To avoid injury or death when jump starting with another Telehandler, make sure the two (2) Telehandlers are not touching.
- DO NOT allow jump start cable ends to contact each other.
- Connect charged battery positive (+) to stalled battery positive (+).
- Connect charged battery negative (–) to stalled Telehandler ground. Make the connection to the stalled Telehandler ground last.
- Connect jump start cable to stalled Telehandler ground a safe distance from the battery to prevent sparks near the battery.

**Caution**

Release the key immediately once the motor starts. If the motor does not start, DO NOT crank the starter motor continuously for more than 15 seconds. Failure to release the key after the motor has started or continuous cranking can damage the starter motor.

- Jump start only with a power source with the same voltage as the stalled Telehandler.
- Turn off all lights and accessories on the stalled Telehandler to prevent them from operating when the power source is connected.
- Remove the jumper cables in reverse order of their connection (i.e. negative cable ground first, etc.)
- Electrolyte contains acid and could cause serious personal injury if it contacts the skin or eyes.

**NOTE:** If the engine fails to start on the first try, wait until the engine and starter come to a complete stop before cranking the engine again.

**After Extended Shutdown Or Oil Change**

Follow the Normal Starting Procedure in this section. The engine will not start until the minimum cranking oil pressure is detected by the ECM. It can take more cranking time to start the engine after an extended shut down or oil change.

**Caution**

Do not idle for extended periods of time. Excessive idle time can cause poor engine performance.

**Operating the Engine**

Monitor the oil pressure and coolant temperature gauges frequently. Shut off the engine if any pressure or temperature does not meet the specifications. Continuous operation with engine coolant temperature above or below the engine coolant temperature specifications can damage the engine.

If an overheating condition starts to occur, reduce the power output of the engine by releasing the accelerator pedal or lever or shifting the transmission to a lower gear, or both, until the temperature returns to the normal operating range. If the engine temperature does not return to normal, shut off the engine, and refer to Troubleshooting Symptoms, or contact a Cummins® Authorized Repair Location.

**Warning Indicators**

A fault condition may trigger a pop-up dialog box on the display describing the nature of the fault during operation. Corresponding red or amber warning lights will illuminate to indicate the severity of the fault. If an Engine Shutdown fault condition is present, stop the Telehandler, follow proper shut down procedures, tag the Telehandler with “Do Not Operate” tags, and have a qualified mechanic...
service or repair the Telehandler BEFORE placing it into service again. Report all warning indicators and fault codes to a qualified mechanic. Ignoring warning indicators or fault codes can cause improper performance, which could result in death, serious injury, or property damage.

Fault condition dialog boxes will pop up and warning lights on the display will illuminate during critical circumstances. Some of these conditions demand immediate attention and Telehandler servicing. If an Engine Shutdown fault condition is present, the Telehandler should be shut down as soon as practical to prevent serious mechanical failure. For more information refer to “Display Indicators” section.

Some of the following indicators are green while the engine is within normal operation range, turning yellow when the normal operating range is exceeded. Some of these indicators turn red and become warnings when a particular parameter reaches or exceeds a critical level.

- **Battery Voltage Indicator**: yellow between 11.5 V and 12.5 V. Indicator turns RED warning below 11.5V. The normal operating range is 12.6-14V.
- **Transmission Temperature Indicator**: between 215 and 224 °F. It becomes a RED Warning, above 225 °F.
- **Fuel Level Indicator**: between 10 and 20% fuel left in the tank. It becomes a RED warning below 10%.
- **Low Oil Pressure Indicator**: between 10 and 20 psi. *Engine must be running above 500 RPM.* It turns into a RED Low Oil Pressure Warning, below 10 psi.
- **Service Reminder**: will be displayed in RED when a maintenance interval has been exceeded.
- **Coolant Temperature Indicator**: it is yellow between 205 and 215°F. It becomes a RED warning above 216°F. Normal operating range: 180 to 205°F. The Low Coolant Level Indicator will be displayed when the coolant level in the surge tank drops below normal. Add coolant to the top of the sight gauge of the surge tank.
- **High Hydraulic Temperature Indicator**
- **Low Brake Pressure Temperature Indicator**
- **Wait To Start Indicator**: displayed when the key switch is moved to the RUN position. Wait until the indicator goes out before starting the engine.
- **Rear Axle Centered**
- **Rear Axle Locked**
- **Water In Fuel Indicator**: displayed when water is detected in the fuel filter. Drain the water by opening the petcock on the bottom of fuel filter.

The Check Engine Indicator displayed by itself shows the engine is operating normally but there are one or more minor faults with the engine electronic management system.

The Check Engine Indicator displayed with a steady Engine Shutdown Indicator shows there are one or more severe faults with the engine electronic management system and the engine is operating at reduced power.

The Check Engine Indicator displayed with a flashing Engine Shutdown Indicator shows there are one or more very severe faults with the engine electronic management system and the engine should be shut down as soon as possible (the engine may automatically shutdown in some conditions).

The Check Engine Indicator displayed with a flashing Low DEF Level Indicator shows the DEF tank is critically low and the engine is operating at reduced power; add DEF as soon as possible.

The Check Engine Indicator displayed with a steady Engine Shutdown Indicator and a flashing Low DEF Level Indicator shows the DEF tank is empty and the engine is operating at reduced power or limited to idle; add DEF immediately.

The Check Engine Indicator displayed with the Exhaust System Cleaning Indicator shows that a manual regeneration of the exhaust system is required and the engine is operating at reduced power.

A steady Engine Shutdown Indicator displayed with the Check Engine Indicator shows there are one or more severe faults with the engine electronic management system and the engine is operating at reduced power.

A flashing Engine Shutdown Indicator displayed with the Check Engine Indicator shows there are one or more very severe shows there are one or more very severe faults with the engine electronic management system and the engine should be shut down as soon as possible (the engine may automatically shutdown in some conditions).

A steady Engine Shutdown Indicator displayed with the Check Engine Indicator and a flashing Low DEF Level Indicator shows the DEF tank is empty and the engine power is operating at reduced power or limited to idle; add DEF immediately.

**EXHAUST AFTER TREATMENT SYSTEM INDICATORS**

The engine control system monitors and manages the exhaust after treatment system. The system works to reduce soot loading. If excessive soot loading is detected, the engine control system will enter an automatic regeneration mode by elevating the exhaust temperature. The Telehandler can be operated normally during this regeneration as long as there are no issues with the high exhaust temperature. If the Telehandler is being operated in an area where the high exhaust temperature could cause problems, such as...
near combustibles, the automatic regeneration may be temporarily disabled by pressing the Enter button or Regen soft button to bring up the After Treatment Control menu and then pressing the Regen Mode Disable soft button. If the automatic regeneration is unable to keep the soot loading under control, a manual regeneration will be requested. If a manual regeneration is not performed and the soot loading becomes serious, the engine power will be reduced and a manual regeneration is required. The Telehandler must not be operated during a manual regeneration.

The ESC Indicator will be displayed by itself when a manual regeneration is recommended. The ESC Indicator will be displayed with the Check Engine Indicator when a manual regeneration is required.

The engine is operating with reduced power.

A flashing ESC Indicator will be displayed with the HEST Indicator when the exhaust temperature is elevated due to a manual regeneration. The Telehandler must not be operated in this condition.

The HEST indicator will be displayed by itself when the exhaust temperature is elevated due to an automatic regeneration. The Telehandler may be operated in this condition as long as there is no concern for operating with high exhaust temperature.

The HEST Indicator will be displayed with a flashing ESC Indicator when the exhaust temperature is elevated due to a manual regeneration. The Telehandler must not be operated in this condition.

The ESC Regen Disabled indicator will be displayed if the ESC Regen has been manually disabled by the user. The Telehandler should only be operated in this condition if it is in an area where the high exhaust temperature could cause problems, such as near combustibles. As soon as the concern for high exhaust temperature subsides, the automatic regeneration should be enabled by pressing the Enter button or Regen soft button to bring up the After Treatment Control menu and then pressing the Regen Mode Auto soft button.

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO FAULTS</td>
<td>ENGINE OPERATING NORMALLY</td>
</tr>
<tr>
<td>MINOR FAULT</td>
<td>ENGINE OPERATING NORMALLY</td>
</tr>
<tr>
<td>SEVERE FAULT</td>
<td>ENGINE OPERATING WITH REDUCED POWER</td>
</tr>
<tr>
<td>VERY SEVERE FAULT</td>
<td>ENGINE OPERATING WITH MAX DE-RATE; SHUT ENGINE DOWN AS SOON AS POSSIBLE. ENGINE MAY SHUT DOWN AUTOMATICALLY.</td>
</tr>
<tr>
<td>DEF LEVEL LOW</td>
<td>ADD DEF</td>
</tr>
<tr>
<td>DEF LEVEL VERY LOW</td>
<td>ADD DEF</td>
</tr>
<tr>
<td>DEF LEVEL CRITICALLY LOW</td>
<td>ENGINE POWER WILL BE DERATED SOON; ADD DEF AS SOON AS POSSIBLE</td>
</tr>
<tr>
<td>DEF LEVEL IS ZERO</td>
<td>ENGINE POWER DERATED OR LIMITED TO IDLE; ADD DEF IMMEDIATELY</td>
</tr>
<tr>
<td>EXCESSIVE SOOT LOADING</td>
<td>MANUAL ESC REGEN RECOMMENDED</td>
</tr>
<tr>
<td>SERIOUS SOOT LOADING</td>
<td>MANUAL ESC REGEN REQUIRED; ENGINE OPERATING WITH REDUCED POWER</td>
</tr>
<tr>
<td>HIGH EXHAUST TEMP</td>
<td>MANUAL ESC REGEN IN PROCESS</td>
</tr>
<tr>
<td>HIGH EXHAUST TEMP</td>
<td>AUTO ESC REGEN IN PROCESS</td>
</tr>
<tr>
<td>ESC REGEN DISABLED</td>
<td>ESC REGEN DISABLED DUE TO OPERATOR</td>
</tr>
<tr>
<td>LOW COOLANT LEVEL</td>
<td>ADD COOLANT TO SURGE TANK</td>
</tr>
<tr>
<td>WATER IN FUEL</td>
<td>DRAIN WATER FROM FUEL FILTER</td>
</tr>
<tr>
<td>WAIT TO START</td>
<td>DO NOT START ENGINE UNTIL INDICATOR TURNS OFF</td>
</tr>
<tr>
<td>ENGINE SERVICE</td>
<td>PERFORM ENGINE SERVICE</td>
</tr>
</tbody>
</table>

Fig 70. Engine Indicator Chart
**Manual Regeneration**

**Caution**

DO NOT leave Telehandler unattended during manual regeneration.

The manual regeneration should be performed by qualified personnel. This procedure requires the engine to run continuously for 15 to 30 minutes. The Telehandler cannot be operated during this procedure.

1. Stop the Telehandler and set the parking brake (Do not release the parking brake until the regeneration is complete).
2. Verify the engine is at low idle.
3. Verify the fuel level is sufficient for 30 minutes of operation.
4. Verify the accelerator pedal is not depressed.
6. The engine speed will increase to 1000 RPM and the High Exhaust System Temperature (HEST) indicator will be displayed.
7. Do not press the accelerator pedal.
8. Allow the manual regeneration to complete without interruption.
9. Engine speed will decrease to low idle and High Exhaust System Temperature (HEST) indicator will turn off.
10. The manual regeneration is complete.
11. Turn the engine off and re-start to reset the Exhaust Aftertreatment System.

**Telehandler Travel**

**Steering Modes**

**Warning**

Never use crab or four wheel (4W) steering for traveling at high speeds. Use only two wheel (2W) steering for higher speed travel and slow the Telehandler before turning. Rapid turning using crab, four wheel (4W), or the optional two wheel rear (2WR) steering could cause tip over, which could result in death, serious injury, or property damage.

Check the turning radius around the Telehandler before making a turn, especially if using four wheel (4W) steering or two wheel rear (2WR) steering, which provide a tighter turning radius. Look over your shoulder in the direction of the turn when backing. Failure to remain aware of your turning radius area could result in death, serious injury, or equipment damage.

**Caution**

DO NOT change steering modes until Telehandler slows or comes to a complete stop. Align all four (4) wheels “straight-ahead”, or perpendicular to the axle, before changing steering mode. Changing steering modes without aligning all four (4) wheels may result in equipment damage.

The Telehandler includes three STANDARD modes of steering; Crab, Two Wheel (2W), and Four Wheel (4W) Steering. Use the Steering Select switch located on the dash panel to change steering modes.

The Telehandler includes three STANDARD modes of steering; Crab, Two Wheel (2W), and Four Wheel (4W) Steering. Use the Steering Select switch located on the dash panel to change steering modes.

**Crab Steering**

Crab steering allows all four (4) wheels to turn in the same direction as the steering wheel, allowing the Telehandler to move “sideways”. Crab steering is useful in a congested work site to line up to a loading location.

**Two Wheel Front Steering (2W)**

Two wheel (2W) steering allows the front wheels to turn in the same direction as the steering wheel. The rear wheels remain in a fixed forward position. Two wheel (2W) steering is useful for traveling at higher speeds.

**Four Wheel Steering (4W)**

Four wheel (4W) steering allows the front wheels to turn in the same direction and the rear wheels to turn in the opposite direction of the steering wheel. The rear wheels follow the front wheel path. Four wheel (4W) steering is useful for a short turning radius and in muddy or sandy conditions.

**Two Wheel Rear Steering (2WR) - OPTIONAL**

OPTIONAL two wheel rear (2WR) steering allows the rear wheels to turn in the same direction as the steering wheel. The front wheels remain in a fixed forward position.

**NOTE:** A separate switch is located on the right side of the dash panel to engage and disengage the optional two wheel rear (2WR) steering mode.
## Starting Travel

**Warning**

Use proper safety procedures and avoid hazardous situations while operating the Telehandler to prevent death, serious injury, or property damage.

- Check the work site for any hazards before operating the Telehandler.
- Check the work surface for loose soil conditions and overhead power lines.

**Warning**

To prevent death or serious injury, the operator must be seated with seat belt fastened, the travel select lever set to NEUTRAL, the Parking Brake ON (engaged), and the area free of people and obstructions BEFORE starting the Telehandler.

1. Start the Telehandler. Refer to the Starting Telehandler section in this manual.
2. Apply service brake.
3. Release parking brake.
4. Rotate the gear select switch to the gear desired.
5. Move the travel select lever to FORWARD or REVERSE for the appropriate direction of travel.
6. Release the service brake pedal.
7. Slowly press the accelerator pedal to start travel.

## Changing Travel Direction

1. Stop the Telehandler by applying the service brake pedal.
2. Move the travel select lever to FORWARD or REVERSE.

**Warning**

Make sure the Telehandler comes to a complete stop before moving the travel select lever. A sudden change in direction of travel, while carrying a load, can reduce stability and/or cause the load to shift or fall, which could result in death, serious injury, or property damage.

## Stopping Travel

1. Stop the Telehandler by applying the service brake pedal.
2. Slow the Telehandler until it comes to a complete stop.
3. Move the travel select lever to NEUTRAL (N).
4. Set the parking brake to ON (engaged).

## Shifting Gears

**Warning**

DO NOT shift through multiple gears with a single turn of the gear select lever. Allow the engine speed to slow down before shifting to the next lower gear. Improper use of the gear select lever could cause transmission damage or Telehandler tip over/roll over and could result in death or serious injury.

The transmission has three (3) gears that can be used for traveling in forward or reverse. Use Automatic (D) in normal driving situations.

To shift gears rotate the gear select lever to the next gear while the Telehandler is traveling.

- Use first gear (1) for highest torque and pulling power.
- Use higher gears for higher ground speed.
- Never travel in top gear (3) when carrying a load.
- Allow the engine speed to slow down before shifting to a lower gear.

**Warning**

DO NOT shift through multiple gears with a single turn of the gear select lever. Allow the engine speed to slow down before shifting to the next lower gear. Improper use of the gear select lever could cause transmission damage or Telehandler tip over/roll over and could result in death or serious injury.

The transmission has three (3) gears that can be used for traveling in forward or reverse. Use Automatic (D) in normal driving situations.

To shift gears rotate the gear select lever to the next gear while the Telehandler is traveling.

- Use first gear (1) for highest torque and pulling power.
- Use higher gears for higher ground speed.
- Never travel in top gear (3) when carrying a load.
- Allow the engine speed to slow down before shifting to a lower gear.
WARNING

To prevent death, serious injury, or property damage, apply service brakes until the Telehandler comes to a complete stop, move travel select lever to NEUTRAL (N), set the Parking Brake switch to ON (engaged), lower and retract the boom, and shut off the engine before exiting the Telehandler.

SHUT DOWN PROCEDURE

Failure to follow the correct shutdown procedure may result in damage to the turbocharger and shorten the turbocharger life.

1. Park Telehandler on level ground, if possible.
2. Stop the Telehandler by applying the service brake pedal.
3. Place the travel select lever in NEUTRAL (N) and set the parking brake to ON (engaged).
4. Lower the boom and rest carriage on ground.
5. Allow the engine to idle 3 to 5 minutes before shutting it off after a full-load operation. This allows adequate cool down of pistons, cylinders, bearings, and turbocharger components.

NOTE: The engine is equipped with an electronic control module (ECM). Ensure the Ignition Switch is turned off for a minimum of 100 seconds prior to disconnecting the continuous (unswitched) battery power supply. If the unswitched battery power supply is disconnected in less than 100 seconds after the Ignition Switch is turned off active fault codes and incorrect ECM information can occur.
6. Turn the ignition key to OFF and remove the key.
7. If the Telehandler is parked on an incline, block the wheels.

CAUTION

Fuel Types

Use ASTM #2 diesel fuel with a minimum Cetane rating of 40 for better fuel economy and performance under most operating conditions.
- Use standard #2 diesel fuel for operating at temperatures above 32°F (0°C).
- Use a blend of #1 and #2 diesel fuel ("winterized" #2 diesel) for operating at temperatures below 32°F (0°C).
- Fuels with Cetane ratings higher than 40 may be needed in higher altitude or in an extremely low temperature climate to prevent hard starts and excessive smoke.

Engine Protection System

The engine is equipped with an engine protection system. The system monitors critical engine temperatures and pressures, and logs diagnostic faults when an over or under normal condition occurs. If an out-of-range condition exists and engine derate action is to be initiated, the operator is alerted by an in-cab WARNING lamp.

The STOP ENGINE Indicator blinks or flashes when out-of-range conditions continue to worsen. The driver must pull to the side of the road or to a safe area when it is safe to do so, to reduce the possibility of engine damage.

NOTE: Engine power and speed will gradually be reduced, depending on the level of severity of the observed condition. The engine protection system will not shut down the engine unless the engine protection shutdown feature has been enabled.

Pintle Hook

Death or serious injury could result from improper operation when using tow connection. Do not elevate boom above 30 degrees when towing. Do not exceed rated tow capacity (500 lbs vertical load, 5,000 lbs tow capacity).

The Pintle Hook is used for towing trailers and equipment, rated at or below 5,000 lbs maximum capacity. Failure to comply with this capacity limitation, or elevating the boom above 30 degrees when towing could result in death or serious injury.

Refueling

WARNING

Engine fuel is flammable and can cause a fire or explosion resulting in death or serious injury. DO NOT smoke while refueling and keep sparks and open flames away from the Telehandler.
Attachments

Attachment Disclaimer

⚠️ Warning

DO NOT exceed the manufacturer’s rated load for any auxiliary attachment. Any attempt to lift or carry loads in excess of the manufacturer’s rated load may cause Telehandler tip over, loss of load, or structural damage which could result in death, serious injury, or property damage.

Xtreme Manufacturing makes no representations or warranties, expressed or implied, as to the design, manufacture, or fitness for use with this Telehandler of any third party attachment. This Telehandler is not intended to be used and should not be used with an attachment that would alter the center of gravity or stability of this Telehandler. Xtreme Manufacturing assumes no liability for any third party attachment that would alter the center of gravity or stability.

Fork Ratings

⚠️ Warning

DO NOT exceed Telehandler capacity of 11,000 lbs. The total rated capacity of the forks being used must equal or exceed Telehandler capacity. Forks can break causing loss of load and could result in death or serious injury.

All approved forks for this Telehandler are marked with a maximum load capacity rating (A). This rating is stamped on the left edge of the fork just below the fork pivot shaft. The rating listed is in pounds and is based upon a 24 inches load center (B). This rating specifies the maximum load capacity that the individual fork can safely carry at a maximum load center of 24 inches.

Because forks are always used in multiples, the total rating of any combination of forks will be the sum of their rated capacity. Other than block forks, all forks should be used in matched pairs. Block forks should be used in matched sets.

Maximum load capacity for this Telehandler is 11,000 lbs. The matched pair or set of forks used on this Telehandler must have the total load rating equal or exceeding 11,000 lbs. When the load rating of the Telehandler differs from the load capacity of the forks, the lower value becomes the overall load capacity.
Fork Positioning Carriage Operation

**Caution**

Do not adjust forks when the carriage is loaded. Adjusting forks when carriage is loaded may result in loss of load or carriage damage. Always use Fork Positioning (Aux Control) buttons to adjust the forks BEFORE loading the carriage.

To move the forks outward, press the Aux Control top button (1) on the front of the joystick. To move the forks inward, press the lower button (2) on the front of the joystick.

**Warning**

Improper connection of an auxiliary attachment can result in death or serious injury. Attachments not locked into place could become unstable and fall on the operator or other personnel near the Telehandler, which could result in death or serious injury.

1. Position the Telehandler directly behind the attachment.
2. Tilt the quick attach adapter forward.
3. Extend the boom and/or drive the Telehandler forward until the pivot pins (A) are below and between the two (2) attachment hooks (B).
4. Raise the boom until pivot pins (A) have seated fully in attachment hooks (B).

Quick Attach System

This Telehandler includes a quick attach system that allows for easy attachment changes. Perform attachment connection and removal procedures on level ground.

**Attachment Connection**

**Warning**

Hydraulic attachments have a maximum hydraulic pressure rating. Failure to make sure the attachment is equipped with a pressure reducing valve, or is rated to be equal or greater than 3,500 psi, which is the maximum pressure of the Telehandler auxiliary hydraulic system at the quick-disconnect couplers, could result in death or serious injury.

When the Attachment Tilt Control Thumbstick is moved, it activates hydraulic pressure through the quick attach couplers (A) and (B) to move the carriage.
5. Tilt the attachment up slightly. The quick attach adapter should be tight against the rear of the attachment. Align the holes between the quick attach adapter and attachment.

6. Raise the quick attach lock lever.

7. With lock lever raised, insert quick attach pin completely through the attachment and quick attach adapter.

8. Release the quick attach lock lever and make sure it has lowered and seated itself in groove (A) of the quick attach pin.

9. Connect the quick attach couplers (this only applies to attachments with a quick attach hydraulic system).
Hydraulic attachments have a maximum hydraulic pressure rating. Failure to make sure the attachment is equipped with a pressure reducing valve, or is rated to be equal or greater than 3,500 psi, which is the maximum pressure of the Telehandler auxiliary hydraulic system at the quick-disconnect couplers, could result in death or serious injury.

Attachment Removal

NOTE: To remove a standard carriage with forks, spread the forks apart on the carriage shaft. This provides adequate support for the carriage to stand alone.

1. Bring the Telehandler to a complete stop.
2. Move the travel select lever to NEUTRAL (N).
3. Set the parking brake switch to ON (engaged).
4. Extend the boom approximately 18 to 20 inches.
5. With the attachment 10’-12” off of the ground, tilt the attachment backward.
6. Disconnect the quick attach couplers (this only applies to attachments with a quick attach hydraulic system).
7. Raise the quick attach lock lever.
8. Pull out the quick attach pin at the bottom of the quick attach adapter.
9. Lower the attachment to the ground in a level position.
10. Tilt and lower boom until pivot pins (A) have disconnected from attachment hooks (B).

11. Retract the boom to fully disconnect the attachment from the quick attach link.

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**Load Handling**

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**Danger**

Death or serious injury by electrocution will result from contact with or inadequate clearance with energized power lines or apparatus.

- Never operate the Telehandler in an area where active overhead power lines, overhead or underground cables, or other power sources exist.
- Contact the appropriate power or utility company to de-energize power lines or take other suitable precautions.

---

**Warning**

Failure to follow proper safety procedures when lifting, lowering, and traveling with a load could cause death, serious injury, or property damage.

DO NOT exceed Telehandler capacity of 11,000 lbs. The total rated capacity of the forks being used must equal or exceed Telehandler capacity. Forks can break causing loss of load and could result in death or serious injury.

---

**Warning**

Failure to keep personnel clear of the load area while the load is being raised or lowered could result in death or serious injury. DO NOT lift, swing, or move a load over anyone or over a Telehandler cab.

- Review the rated load capacity of each auxiliary attachment before performing any operation.
- Use the correct load chart and NEVER exceed specified weights and load centers.
- DO NOT exceed the manufacturer’s recommended load capacity.
- DO NOT operate the Telehandler with an unsafe load distribution.
• Adjust the load as necessary, especially for nonstandard loads.
• Use caution when handling loose material that can fall into the cab.
• Remove overhanging load materials, when possible, and watch for sliding material.
• DO NOT reach a load over posts or other objects that can enter the cab, if tipped.
• Avoid sudden stops, starts, or turns.
• Avoid carrying a swinging load. If necessary, secure the load by attaching it to the Telehandler tie-downs and/or have another person assist with safely steadying the load.

**Warning**

DO NOT exceed rated capacities. Any attempt to lift or carry loads in excess of those shown on the load capacity charts could cause Telehandler tip over, loss of load, or structural damage which could result in death, serious injury, or property damage.

There is boom lift point on the underside of the boom that may be used to lift and carry loads.

There is a dedicated boom lift point load chart (available separately), which should be referenced when using the boom lift point. Refer to the suspended loads section of this manual when handling suspended loads for specific warnings and instructions unique to this type of operation.

---

**Suspended Loads**

Avoid carrying a suspended load. If necessary, secure the load by attaching it to the Telehandler tie-downs and/or have another person assist with safely steadying the load. The handling of suspended loads can introduce dynamic forces drastically affecting the stability of the Telehandler. Grades and sudden starts, stops, and turns can cause the load to swing and create a hazard if not stabilized. Swinging loads can become unstable, and could cause death, serious injury, or property damage.

1. Do not exceed the load capacity of the Telehandler (as noted on the load chart).
2. Only lift the load vertically, and never drag it horizontally.
3. Transport the load with the bottom of the load and the boom as low as possible.
4. With the load elevated, move the Telehandler slowly and cautiously. Only move the Telehandler to the extent needed to raise, transport, and place the load.
5. Use guy lines to restrain load swing if possible.

---

**Pick Up A Load**

1. Use correct load chart to review the rated load capacity of the auxiliary attachment being used. NEVER exceed specified weights and load centers.
2. Approach the load slowly and squarely with the fork tips straight and level.
3. Adjust the spacing of the forks so they engage the pallet or load at its maximum width. NEVER use just one fork to lift a load.
4. Tilt the attachment forward so the forks hang freely on the fork shaft.
5. Insert forks under the load until the load is against the fork frame. Load should be supported in such a manner that the forks can be positioned in a resistance free manner.
6. Tilt the forks back, and raise the boom slightly to secure the load.

---

Figure 87. Boom Lift Point
Operation

**Carry A Load**

1. Carry the load as low as possible while maintaining good ground clearance and visibility.
2. Back away slowly.
3. To travel with a load, use first gear (1) for highest torque and pulling power. NEVER travel in higher gears when carrying a load.

**Load Shift**

1. If the load shifts, stop the Telehandler immediately.
2. Lower and adjust the load to center its weight.
3. If the load shift is too great for adjustment, rearrange the load before attempting to move the Telehandler.

**Place A Load**

1. Before placing the load, refer to the appropriate load capacity chart to determine safe boom extension range.
2. Set the Parking Brake switch to ON (engaged).
3. Use the frame sway control to level the Telehandler. For additional information, refer to the Frame Leveling section in this manual.

**Elevating Personnel**

Use only a compliant work platform to lift or lower personnel. Never drive the Telehandler with the work platform in a raised position or with personnel on board, even for a short distance. Doing so could result in death, serious injury, or property damage.

Please refer to ANSI/ITSDF B56.6 for additional design and operating information regarding elevating personnel.

**Design Requirements For A Personnel Platform:**

1. Platform floor must have a slip resistant surface located not more than 8” above the normal load supporting surface of the fork.
2. Platform floor dimensions shall not exceed two times the load center distance. This floor dimension is measured parallel to the longitudinal center pane of the Telehandler.
3. Platform floor width shall not be greater than the overall width of the Telehandler, measured across the load bearing tires, plus 10” on each side.
4. Minimum space requirements for each person on the platform shall not be less than 18” in either direction.
5. Minimum 4” height toe plate around the perimeter of the platform which may be omitted at the access opening.
6. On the overhead protection device, when requested by the user.
7. Protection must be provided for the personnel in their normal working position on the platform from moving parts of the rough terrain Telehandler that represent a hazard.

**Warning**

Exercise caution when moving objects containing liquids, as the load may shift during lifting and handling.
3. Make sure the platform, carriage, and forks are secured to prevent them from pivoting from side to side.

4. On side tilt or swing carriage, the carriage must be centered and/or leveled horizontally and vertically. The hydraulic system quick disconnects must also be disconnected and the carriage securely fastened to prevent any tilting or side to side swinging motion.

5. Ensure the Telehandler has a firm footing and is level.

6. Be sure the Telehandler is in a level position (side to side) before any operation is begun. Use the frame sway control to level the Telehandler. If the Telehandler cannot be leveled, reposition the Telehandler.

7. Place the travel select lever in the NEUTRAL position.

8. Engage the parking brake switch. Blocking the wheels is also recommended.

9. Level the platform in both the side-to-side and front-to-back directions before use.

10. Before lifting or lowering personnel, be sure the Telehandler lifting mechanism operates smoothly through the entire lifting and lowering of the platform and maintains its self-leveling function. The Telehandler must operate smoothly both empty and loaded.

11. Lift and lower personnel smoothly, with caution, and only at their request.

12. Keep hands and feet clear of controls other than those in use.

13. Be certain that the path of platform travel is clear of hazards, e.g., storage racks, scaffolds, overhead obstructions, and electrical wires.

14. Be sure any lift limiting devices and latches are functioning properly.

15. A trained operator shall be in position to control the Telehandler. When the operator is not in the operating position, block the wheels and apply the parking brake with all controls in neutral.

16. Alert elevated personnel before moving the platform. Then move the platform smoothly and with caution.

17. Always lower the platform if you must move the Telehandler for adjustment in positioning.

8. Information prominently indicated on the platform;
   A) Maximum work load including personnel and equipment.
   B) Weight of empty platform.

9. Provide a means so that the platform can only be centered laterally on the Telehandler and retained against the vertical face of the forks, carriage, or lifting mechanism.

10. Provide a means to securely attach the platform to the lifting mechanism, and to prevent the platform from inadvertent pivoting.

11. Provide restraining means for securing personnel such as an anchorage for attaching the lanyard of a body belt or harness.

12. Provide a guardrail or similar structure with a nominal height to the platform of 42" around its upper periphery and include a mid rail. It may be hinged, removable, or of chains, and used if proper positioning is easily discernible.

Such restraining means shall be capable of withstanding a concentrated horizontal force of 200 lbs applied at the point of least resistance without permanent deformation. A body belt and lanyard is to have an attachment point provided for freedom of movement, and its length is limited to a free-fall of 5 feet, measured from the point of attachment to the operator. The complete system shall be capable of withstanding three consecutive drop test to simulate a 250 lbs person free falling 6 ft. without allowing the test weight to fall free to the ground. A deceleration device may be included.

13. Lanyards shall be arranged so as not to cause a tripping hazard.

14. Body belts should have a width of at least 1.75".

15. Structural safety factor - all load supporting structural elements of the work platform shall have a structural safety factor of not less than 2 to 1 based on the minimum yield strength of the material used.

**Capacity Limitations:**

The combined weight in lbs of the platform, load, and personnel shall not exceed 33% of the capacity of the related load center position indicated on the machine load chart.

**Preparation and Set-Up:**

1. **DO NOT** alter or modify the work platform in any manner that is detrimental to its safe use.

2. Make sure that the work platform is securely attached to the quick attach or forks. Follow the platform manufacturer’s instructions.
18. Be certain that personnel and equipment on the platform do not exceed the available space.

19. Any body belt, lanyard, or deceleration devices which has sustained permanent deformation or is otherwise damaged shall be replaced.

20. Use of railings, planks, ladder, etc. on the platform for purpose of achieving additional reach or height is prohibited.

21. Before elevating personnel, the area around and under the work platform should be marked to warn anyone on the ground that overhead work is being done.

22. The platform shall be lowered to ground level for personnel to enter and exit. Personnel shall not climb on any part of the rough terrain Telehandler in attempting to enter and exit.

23. Protection must be provided for the personnel on the work platform from pinch points or moving parts while in their normal working position on the platform.

24. Provide overhead protection device as required by work site conditions or if requested by the user of the platform.

### Load Capacity Charts

**Warning**

DO NOT exceed rated capacity. Any attempt to lift or carry loads in excess of those shown on the load capacity charts could cause Telehandler tip over, loss of load, or structural damage which could result in death, serious injury, or property damage.

All load ratings shown on load capacity charts are based on the Telehandler being on firm, level ground, the forks being evenly positioned on the carriage, the load being centered on the forks, properly sized tires properly inflated and/or foam filled, and the Telehandler being in good operating condition.

Load capacity charts, located on the left side of the dash panel, are provided to assist the operator in determining how to safely operate the boom to pick up, carry, and set down a load with the Telehandler, including what angle, how high, and how far to extend the boom.

**Using Load Capacity Charts**

The Telehandler includes two (2) indicators to assist the operator for accurately using the load capacity charts. These indicators are the Boom Extend Letters and the Boom Angle Indicator.

Boom extend letters are located on the left side of the boom and visible to the operator as the boom is extended. These letters indicate boom extension as it corresponds to the load capacity charts.

**NOTE:** For example, when letter “A” first appears, the boom extension corresponds to the arc of line “A” throughout all the load capacity charts.

**Figure 88. Load Capacity Chart**

**Figure 89. Boom Extend Letters**

The boom angle indicator is located on the left side of the boom and is visible from the operator’s seat. Use the boom angle indicator to determine the boom angle when referring to load capacity charts.
NOTE: The boom angle indicator is a plumb arrow with angular graduations from -5° to +70°.

Figure 90. Boom Angle Indicator.

Reading Load Capacity Charts

To accurately read the load capacity charts, you must determine three (3) things:

- Weight of the load being lifted
- Height of structure where load is to be placed
- Distance from front tires where load will be placed

For example:
1. The operator determines load weight and makes sure load does not exceed fork, attachment, or boom capacity. The load is 3,000 lbs.
2. The operator safely moves the load to a loading position.
3. Places forks under load
4. Tilts and raises load safely
5. Fully retracts boom
6. Drives Telehandler to position perpendicular to structure
7. Levels the Telehandler and sets the outriggers if so equipped. The operator determines height of structure where load is to be placed. The structure height is 30 feet from ground level.
8. The operator determines distance from front tires where load will be placed. The distance in front of Telehandler where load will be placed is 20 feet.
9. Operator reads load capacity chart for attachment carriage to learn it will be safe to place the load at any boom angle with the boom extend letter “F” showing.
Frame Leveling

⚠️ Warning

Use of the frame sway control with the boom raised above horizontal could cause tip over resulting in death or injury. Always use the frame sway control to level the Telehandler BEFORE raising the boom above horizontal. If the Telehandler cannot be leveled using the frame sway control, do not attempt to raise or place load. Reposition Telehandler or have the surface leveled.

The Frame Sway Y-Handle is used to level the machine before lifting any load. It controls the machine frame sway (right or left) when moved right or left accordingly.

<table>
<thead>
<tr>
<th>Function</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame sway right</td>
<td>Move Y-Handle right</td>
</tr>
<tr>
<td>Frame sway left</td>
<td>Move Y-Handle left</td>
</tr>
</tbody>
</table>

NOTE: Maximum frame sway is 22° overall or 11° each direction, left and right.

A frame level indicator is mounted on the inside upper right corner of the operator’s cab. The frame level indicator allows the operator to view if the Telehandler has been positioned in a level condition. Always frame sway the Telehandler right or left until the indicator shows 0° (level).

NOTE: Frame sway speed is automatically reduced when the boom is raised above 40°.

Figure 94. Frame Sway Y-Handle

Figure 95. Frame Level Indicator.
Establishing a Maintenance Program

The hour meter displays elapsed engine operating hours and has a total readout of 9,999.9 hours. Use the hour meter and the schedules contained in this section to establish a comprehensive preventive maintenance program.

Figure 96. Hourmeter

Maintenance Schedule

Every Day or 8 Hours of Operation

☐ All items from Pre-Operation Inspection Checklist
☐ Crankcase Breather Tube
☐ Fuel-Water Separator
☐ Lubricating Oil Level
☐ Coolant Level
☐ Fan, Cooling
☐ Drive Belts
☐ Air Cleaner Restriction
☐ Dust Ejection Valve
☐ Air Intake Piping

After First 50 Hours of Operation

☐ Change engine oil and filters
☐ Check air filter (replace if necessary)
☐ Replace fuel filter and pre-filter
☐ Check engine hoses and connections for leaks, damage, and tightness
☐ Check radiator hoses for leaks, damage, and tightness
☐ Check electrical cables, leads, and connections for damage and tightness

☐ Check for oil and coolant leaks
☐ Check condition and tension of drive belts (use tension meter to check belt tension)
☐ Lubricate front and rear drive shaft grease fittings
☐ Lubricate outrigger pivot point grease fittings
☐ Lubricate front and rear axle grease fittings
☐ Change differential oil
☐ Change wheel-end oil
☐ Check wheel lug nuts torqued to 380-420 ft-lbs
☐ Lubricate boom pivot point grease fittings
☐ Lubricate front and rear axle cylinder pivot point grease fittings
☐ Lubricate boom roller grease fittings and chains
☐ Replace hydraulic return line filter
☐ Replace transmission filter and top off fluid, as required
☐ Lubricate boom pivot point grease fittings
☐ Lubricate front and rear axle cylinder pivot point grease fittings

After Every 250 Hours of Operation or 3 Months

☐ Check air cooler and air piping
☐ Check air filter (replace if necessary)
☐ Check tension and condition of drive belts (use tension meter to check belt tension)
☐ Lubricate front and rear drive shaft grease fittings
☐ Lubricate front and rear axle grease fittings
☐ Check differential oil level
☐ Check wheel-end oil level
☐ Check boom chain tension (adjust if necessary)
☐ Inspect boom rollers and slide blocks for condition and tightness
☐ Lubricate boom roller grease fittings and chains

After Every 500 Hours of Operation or 6 Months

☐ Replace air filters
☐ Replace fuel filters
☐ Check cooling system antifreeze
☐ Check engine hoses and connections for leaks, damage, and tightness
☐ Check radiator hoses for leaks, damage, and tightness
Preventive Maintenance

☐ Check cooling fan belt tensioner
☐ Check electrical cables, leads, and connections for damage and tightness
☐ Check specific gravity of engine coolant
☐ Replace transmission fluid and filters and perform the required transmission calibration
☐ Replace hydraulic reservoir air breather
☐ Replace hydraulic return line filter
☐ Replace hydraulic high-pressure filter

After Every 1,000 Hours of Operation

☐ Comply with 50-Hour Maintenance Requirements
☐ Comply with 250-Hour Maintenance Requirements
☐ Comply with 500-Hour Maintenance Requirements
☐ Change wheel-end oil
☐ Change differential oil
☐ Inspect boom chains

After Every 2,000 Hours of Operation

☐ Comply with 50-Hour Maintenance Requirements
☐ Comply with 250-Hour Maintenance Requirements
☐ Comply with 500-Hour Maintenance Requirements
☐ Comply with 1000-Hour Maintenance Requirements
☐ Change hydraulic fluid
☐ Clean or replace hydraulic reservoir strainer

After Every 4,000 Hours of Operation

☐ Drain and flush cooling system

Engine Diagnostic Fault Codes

The electronic engine control system displays and records certain detectable fault conditions. These failures are displayed as fault codes, which make troubleshooting easier. The fault codes are retained in the ECM.

There are two types of diagnostic codes:

- Engine electronic control system fault codes inform the operator that there is a problem with the control system that requires troubleshooting.
- Information and engine protection fault codes inform the operator that the control system has detected an engine condition outside the normal operating range.

All fault codes recorded will either be active (fault code is presently active on the engine) or inactive (fault code was active at some time, but is not presently active).

The STOP ENGINE lamp is red and indicates the need to stop the engine as soon as it can be safely done. The engine must remain shut down until the engine can be repaired.

When illuminated, the yellow “WARNING” or “CHECK ENGINE” lamp indicates that the engine is in need of repair at the first available opportunity.

Another function of the WARNING or CHECK ENGINE lamp (yellow lamp) is to flash for 30 seconds at key ON when one of the following occurs:

- Maintenance is required (if the Maintenance Monitor feature is enabled)
- Water in fuel is detected.

If the warning light flashes for 30 seconds at Ignition Switch ON and water is drained from the primary water-separating fuel filter, the secondary fuel filter must be replaced.

Fault codes can be accessed using the electronic service tool or by fault code flash out.

To check for active engine electronic fuel system and engine protection system fault codes, turn the Ignition Switch OFF and move the diagnostic switch to the ON position.

Turn the vehicle Ignition Switch to the ON position.

If no active fault codes are recorded, both lights will come on and stay on.

If active fault codes are recorded, both lights will come on momentarily, then begin to flash the code numbers of the recorded fault codes.

The fault code flashes in the following sequence:

- A WARNING (amber) light flashes.
- Following a short one or two second pause, the number of the recorded fault code flashes in the STOP (red) lamp.
- There is a one or two second pause between each number.
- After the number finishes flashing in red, an amber light appears again.

The lights flash each fault code out three times before advancing to the next code. To skip to the next fault code, move the Increment/Decrement switch, if equipped, momentarily to the increment (+) position. You can go back to the previous fault code by momentarily moving the Increment/Decrement switch, if equipped, to the decrement (-) position. If only one active fault code is recorded, the same fault code will continuously be displayed when either (+) or (-) switch is depressed.

The diagnostic switch must remain in the OFF position (shorting plug removed) while the engine is being operated for all
fault codes to be logged.

The diagnostic on/off switch circuit signals the system that the operator is requesting to read any active fault code recorded in the ECM.

When the ECM receives the signal from the diagnostic ON/OFF switch, the yellow and red warning lights come on and start flashing if any active fault code is recorded in the ECM. If both warning lights remain on and do not flash, there are no active fault codes present.

**NOTE:** The equipment must be stationary. If road speed is detected, the flashing sequence will not occur.

Turn the diagnostic switch OFF when the diagnostic system is not in use.

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**Boom Emergency Lowering**

In the event of total loss of engine power or hydraulic pump failure with an elevated load, the situation must be properly evaluated and dealt with on an individual basis.

**Contact a local Xtreme Authorized Distributor for specific instructions.**

Secure the Telehandler and area by following the procedure below until the situation has been properly evaluated.

1. Clear the area around the Telehandler of all personnel.
2. Engage the parking brake switch to the ON position and Place the sift lever in NEUTRAL.
3. Block all four wheels.
4. Section off a large area under the boom with tape to restrict any personnel from entering this potentially dangerous area.
Do Not Operate - Accident Prevention Tags

Before beginning any maintenance or service, place a Do Not Operate Tag on both the starter key switch and the steering wheel, stating that the Telehandler should not be operated. Do Not Operate Tags, which can be cut out and used, are included at the end of this manual. Retain these Tags for use at a later date.

New or Additional Operators

At the time of original purchase, the purchaser of this Telehandler was instructed by the seller on its proper use. If this Telehandler is to be used by an employee or is loaned or rented to someone other than the purchaser, make certain that the new operator is trained, in accordance with OSHA regulations, and reads and understands this Operation & Safety Manual before operating the Telehandler.

In addition, make sure that the new operator has completed a walk-around inspection of the Telehandler, is familiar with all the labels on the Telehandler, and has demonstrated the correct use of all controls.

Lockout/Tagout Procedure

Perform the following procedure to lockout and tag out the Telehandler. This procedure, requiring a lock, and danger tags are to be used whenever the Telehandler is unsafe for operation or maintenance.

Removing Telehandler From Service

1. Attach “DO NOT OPERATE” tags to steering wheel and ignition key.
2. Open battery access cover.
3. Set battery disconnect switch to OFF.
4. Lock battery disconnect switch.
5. Attach “DO NOT OPERATE” tag to battery disconnect switch.

Warning

If Telehandler is unsafe for operation or maintenance, the defect or defects must be clearly documented and posted in a conspicuous place on the Telehandler. Failure to comply could result in death, serious injury, or property damage.

Return Telehandler to Service

When the Telehandler has been repaired and made safe for operation and maintenance, perform the following procedure to return Telehandler to service.

1. Remove lock and “DO NOT OPERATE” tag from battery disconnect switch.
2. Close battery access cover.
3. Remove “DO NOT OPERATE” tags from steering wheel and ignition key.
DANGER
DO NOT OPERATE
DANGER
DO NOT OPERATE
DANGER
DO NOT OPERATE
DANGER
DO NOT OPERATE
Xtreme Manufacturing Product Warranty Policy

1) Xtreme Manufacturing warrants, its authorized sales and service centers (herein referred to as “SSC”), new product(s) the mainframe and chassis weldments shall be free from defect in material and workmanship for the period of 10 years or 10,000 hours whichever comes first. The boom weldment and boom rollers shall be free from defects in material and workmanship for the period of 5 years or 5,000 hours whichever comes first. The powertrain assemblies consisting of engine, transmission and drive axles and all other components not listed above shall be free from defects in material and workmanship for the period of 2 year or 2,000 hours after date of delivery. This warranty is made to the original owner of the new product(s) and is transferable for the duration of the coverage period, to the subsequent owner with prior written approval from Xtreme Manufacturing (see limitations).

2) Machines may be held in an authorized Distributor/SSC’s stock for a maximum period of six (6) months from the date of shipment from Xtreme, before the warranty period is automatically initiated on each machine.

3) It is the responsibility of the Distributor/SSC to complete and return to Xtreme Manufacturing a Pre-delivery Inspection Record, Warranty Registration Form, before the act of rental / loan / demonstration of the machine or delivery to an end user. In the case of direct sale to end customers the same responsibility lies with the end customer.

4) Any end customer, SSC, distributor or dealer shall not be entitled to the benefits of this warranty and Xtreme Manufacturing shall have no obligations hereunder unless the “Pre-Delivery and Inspection Record” has been properly completed and returned to the Xtreme Manufacturing Warranty department within fifteen (15) days after delivery of the Xtreme Manufacturing product to the Customer or Dealer’s demonstration / rental fleet. Xtreme Manufacturing must be notified, in writing, within ten (10) days, of any machine sold to a Customer from a Dealer/SSC’s rental fleet during the warranty period.

5) Any part or parts which upon examination by the Xtreme Product Support Department are found to be defective within the specified warranty period, will be replaced or repaired at the sole discretion of Xtreme Manufacturing, through its local Authorized Distributor/SSC, at no charge. Any parts replaced under warranty must be original Xtreme parts obtained through an authorized Xtreme Manufacturing Distributor/SSC unless expressly agreed otherwise in writing and in advance by Xtreme Manufacturing’s warranty department.
Xtreme Manufacturing Product Warranty Policy

6) All parts claimed under warranty must be held available for return and inspection upon request for a period of 90 days from date of claim submission, it is necessary that all parts are individually tagged or marked with their part number and the warranty claim number. All parts returning should be still in a factory state, free of any alteration to the original design. If the parts are subject to repair it will need to be pre-authorized by the Xtreme Product Support Group and or Warranty Department prior to the repair being completed. After 90 days all parts replaced under warranty which have not been returned, to Xtreme Manufacturing should be destroyed. Failure to produce parts requested by the Warranty Administrator for inspection within a period of 14 days will result in the claim being automatically rejected in full. Materials returned for warranty inspection must have the following procedure:

Carefully packaged to prevent additional damage during shipping
Drained of all contents and all open ports capped or plugged
Shipped in a container tagged or marked with the RMA number
Shipped PREPAID (ground service only). Any item(s) returned for warranty by any other means may be refused and returned, unless prior approval is agreed with Xtreme.

7) At the direction of the Xtreme Manufacturing Warranty department, any component part(s) of Xtreme Manufacturing products to be replaced or repaired under this warranty program must be returned freight prepaid for inspection. An RMA (Returns material authorization) must be requested from Xtreme Manufacturing Warranty department, a copy to be placed with the returning component part(s).

8) All warranty replacement parts will be shipped freight prepaid (standard charges, ground shipping only) from the Xtreme Manufacturing Parts department, Service Department or from the Vendor to Dealer/SSC or Customer. Any other shipping method is the customer responsibility.

9) All warranty claims are subject to approval by Xtreme Manufacturing Service Department. Xtreme Manufacturing reserves the right to limit or adjust claims with regard to defective parts, labor or travel time based on usual and customary guidelines.

10) Reimbursement policy, labor will be paid at 75% of posted hourly shop rate. Travel time will be paid at $50 per hour up to a maximum of 3 hours. Xtreme Manufacturing will pay 1 hour of troubleshooting time per warranty claim, unless expressly agreed otherwise in writing and in advance by Xtreme’s Warranty Department. An annual rate declaration must be supplied to the Xtreme Warranty administrator by January 31st and will be used as the reimbursable rate for that calendar year.
Xtreme Manufacturing Product Warranty Policy

REPLACEMENT PARTS WARRANTY

1. Any part replaced under this limited warranty is not subject to further warranty cover beyond the normal warranty period of the machine upon which the part was installed.
2. Any replacement parts sold (not delivered under a warranty claim) will be subject to a warranty period of (6) six months from the date of invoice.
3. Parts held by an authorized Distributor/SSC are covered under warranty for a period of (12) twelve months from the date of invoice, provided that those parts have been subject to appropriate storage to prevent damage and deterioration (conditional on Xtreme Manufacturing review).

CLAIM PROCEDURE

The Xtreme Manufacturing Warranty department must be notified within forty-eight hours (48) of any possible warranty situation during the applicable warranty period. Personnel performing major warranty repair or parts replacement must obtain specific approval by the Xtreme Manufacturing Warranty department prior to performing the warranty repair or replacement.

When a Distributor/SSC/Customer perceive a warranty issue to exist the following steps must be adhered to:

• Customer/SSC/Distributor to place a purchase order for genuine Xtreme Manufacturing replacement parts.
• Xtreme Manufacturing to dispatch parts via the requested method (in line with the required response time).
• Confirmation that a qualified technician is available to replace the part and that this person has been accepted by Xtreme Manufacturing to carry out such work under the warranty of the machine. Failure to do this may nullify the warranty.
• Customer/SSC/Distributor to allocate a warranty claim number to the repair.
• All correspondence in respect of the claim to be on an official Xtreme Manufacturing warranty claim form as supplied by Xtreme Manufacturing’s warranty department.
• All warranty claims must be submitted within 30 days of the date of the machine repair.

FREIGHT DAMAGE

• If a machine is received in a damaged condition, then the damage must be noted on the bill of lading and/or delivery documents and photographs must be taken at the point of delivery, prior to signing acceptance of the consignment.
• The freight company and Xtreme Manufacturing must be contacted by the Distributor and a damage claim registered by either party immediately.
Xtreme Manufacturing Product Warranty Policy

- The above requirements apply only to freight damage associated with equipment supplied by Xtreme Manufacturing transport. Customer freight issues are excluded from this warranty policy.

THIS PRODUCT WARRANTY POLICY SPECIFICALLY EXCLUDES:

1. Engines, motors, tires and batteries are manufactured by specialist suppliers to Xtreme Manufacturing, who furnish their own warranty policies. Xtreme Manufacturing will, however, to the extent permitted pass through any such warranty protection to the Distributor/SSC/Customer.

2. Xtreme Manufacturing products which have been modified or altered outside Xtreme Manufacturing factories without written approval, if such modification or alteration, in the sole judgment of Xtreme Manufacturing Engineering and/or Service Departments, adversely affects the stability, reliability or service life of the Xtreme Manufacturing product or any component thereof.

3. Any Xtreme Manufacturing product which has been subject to misuse and abuse, improper maintenance or accident. “Misuse” includes but is not limited to operation beyond the factory-rated load capacity and speeds. “Improper maintenance” includes but is not limited to failure to follow the recommendations contained in the Xtreme Manufacturing Operation, Maintenance, and repair Parts Manuals.

4. Normal wear of any Xtreme Manufacturing component/part(s). Normal wear of component parts may vary with the type, application or type of environment in which the machine may be used; such as, but not limited to sandblasting applications.

5. Routine maintenance, routine maintenance items and minor adjustments are not covered by this warranty, including but not limited to hydraulic fluid, filters and lubrication, paint and decals engine tune-up, brake adjustments, etc. Xtreme Manufacturing will not cover leaks from fittings, hoses and any other connection points after the unit has been in service for 90 days or 150 hours of operation which ever comes first.

6. Any Xtreme Manufacturing product that has come into direct contact with any chemical or abrasive material.

7. Incidental or consequential expenses, losses, or damages related to any part or equipment failure, including but not limited to freight cost to transport the machine to a repair facility, downtime of the machine, lost time for workers, lost orders, lost rental revenue, lost profits, expenses or increased cost. This warranty is expressly in lieu of all other warranties, representations or liabilities of Xtreme Manufacturing, either expressed or implied, unless otherwise amended in writing by Xtreme Manufacturing.

8. Xtreme Manufacturing warranty policy does not cover any duties, taxes, environmental fees including without limitation, disposal or handling of tires, batteries and petrochemical items.

9. Items specifically excluded are: fuel injectors, motor brushes, glow plugs, contactor tips and springs, filters, lamp bulbs, lamp lenses, coolants, lubricants, brake pads and cleaning materials.

10. Failure of replacement parts due to fault misdiagnosis or incorrect fitting by the
Xtreme Manufacturing Product Warranty Policy

Distributor/SSC/ Customer.

XTREME MANUFACTURING MAKES NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THIS LIMITED WARRANTY. XTREME MANUFACTURING MAKES NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND DISCLAIMS ALL LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO INJURY TO PERSONS OR PROPERTY.

Wherever possible the end customer shall obtain all warranty support & make all warranty claims through the local Xtreme Manufacturing authorized Distributor / SSC / Dealer. Warranty support should be from the Distributor / SSC / Dealer from whom the Xtreme Manufacturing product was purchased. Where Xtreme Manufacturing equipment is supplied directly from the factory, the end customer, if unable to contact a Distributor / SSC / Dealer, may contact the Xtreme Manufacturing Warranty Department for further assistance.

APPEAL
The buyer may appeal in writing against a rejected or adjusted claim to Xtreme Manufacturing warranty department within a period of 21 days of receiving the rejection or adjustment notice. The appeal should be grounded on express reasons and supported by relevant evidence. Appeals received outside of this time limit will not be considered.
# Xtreme Manufacturing Product Warranty Policy

**XTREME MANUFACTURING WARRANTY SCHEDULE**

<table>
<thead>
<tr>
<th>Item</th>
<th>Warranty Period</th>
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<tbody>
<tr>
<td>Main Frame and Chassis</td>
<td>10 years or 10,000 hours, parts replacement or repair</td>
</tr>
<tr>
<td>Boom weldment and rollers</td>
<td>5 years or 5,000 hours, parts replacement or repair</td>
</tr>
<tr>
<td>Powertrain and all other components not listed above</td>
<td>2 years or 2,000 hours, parts replacement or repair</td>
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<tr>
<td>Parts held in a Distributor’s stock</td>
<td>12 months from date of invoice, subject to adequate storage / protection.</td>
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<tr>
<td>Parts sold (non warranty)</td>
<td>6 months from date of invoice</td>
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<tr>
<td>Batteries supplied on new machines</td>
<td>6 months from warranty registration date</td>
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<tr>
<td>Other specifically excluded parts:</td>
<td>Not covered by Warranty</td>
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<tr>
<td>Fuel injectors</td>
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<tr>
<td>Brake pads</td>
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<td>Glow plugs</td>
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<td>Springs</td>
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<td>Filters</td>
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<td>Lamp bulbs</td>
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<td>Lamp lenses</td>
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<td>Coolants</td>
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<td>Lubricants</td>
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<tr>
<td>Cleaning materials</td>
<td></td>
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<tr>
<td>All consumable / wear parts.</td>
<td></td>
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</tbody>
</table>
Pre-delivery Inspection Report must be completed upon placing unit in service. Please use QR link or visit www.xmfg.com/warranty/pre-delivery-inspection-report to register online.