



Operation & Safety Manual

*Original Instructions
Keep this manual with machine at all times.*

***Models
1644, 7013H
1732, 8010H***

PVC 1911, 2005

31211377

July 8, 2020 - Rev B

ANSI



An Oshkosh Corporation Company



WARNING

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to www.P65Warnings.ca.gov.

REVISION LOG

October 15, 2019 - A - Original Issue of Manual.

July 8, 2020 - B - Revised front cover.

Read This First

This manual is a very important tool! Keep it with the machine at all times.

The purpose of this manual is to provide owners, users, operators, lessors, and lessees with the precautions and operating procedures essential for the safe and proper machine operation for its intended purpose.

Due to continuous product improvements, JLG Industries, Inc. reserves the right to make specification changes without prior notification. Contact JLG Industries, Inc. for updated information.

Refer to www.JLG.com for Warranty, Product Registration, and other machine-related documentation.

Operator Qualifications

The operator of the machine must not operate the machine until this manual has been read, training is accomplished and operation of the machine has been completed under the supervision of an experienced and qualified operator. Operation within the U.S.A. requires training per OSHA 1910.178.

Operators of this equipment must possess a valid, applicable driver's license, be in good physical and mental condition, have normal reflexes and reaction time, good vision and depth perception and normal hearing. Operator must not be using medication which could impair abilities nor be under the influence of alcohol or any other intoxicant during the work shift.

In addition, the operator must read, understand and comply with instructions contained in the following material furnished with the material handler:

- This Operation & Safety Manual
- Telehandler Safety Manual (ANSI only)
- All instructional decals and plates
- Any optional equipment instructions furnished

The operator must also read, understand and comply with all applicable Employer, Industry and Governmental rules, standards and regulations.

Modifications

Modifications to this machine may affect compliance with Industry Standards and/or Governmental Regulations. Any modification must be approved by JLG.

This product must comply with all safety related bulletins. Contact JLG Industries, Inc. or the local authorized JLG representative for information regarding safety-related bulletins which may have been issued for this product.

JLG Industries, Inc. sends safety related bulletins to the owner of record of this machine. Contact JLG Industries, Inc. to ensure that the current owner records are updated and accurate.

JLG Industries, Inc. must be notified immediately in all instances where JLG products have been involved in an accident involving bodily injury or death of personnel or when damage has occurred to personal property or the JLG product.

FOR:

- Accident Reporting and Product Safety Publications
- Current Owner Updates
- Questions Regarding Product Applications and Safety
- Standards and Regulations Compliance Information
- Questions Regarding Product Modifications

CONTACT:

Product Safety and Reliability Department
JLG Industries, Inc.
13224 Fountainhead Plaza
Hagerstown, MD 21742
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or Your Local JLG Office

In USA:

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E-mail:

ProductSafety@JLG.com

Read This First

Other Publications Available

Service Manual.....	31211378
Parts Manual	
1644.....	31211379
7013H.....	31211380
1732.....	31211381
8010H.....	31211382

Note: The following standards may be referenced in this manual:

ANSI is compliant to ANSI/ITSDF B56.6

AUS is compliant to AS 1418.19

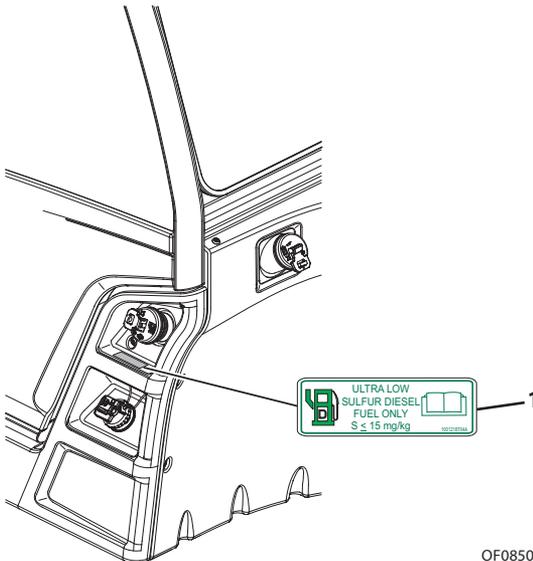
CE is compliant to EN1459

Refer to the machine Serial Number Plate to identify the applicable compliance standard.

Machine Configuration

Two configurations of each machine are included in this manual. Determine if machine is equipped with Ultra Low Sulfur Fuel Decal (1) as indicated below.

- If equipped with Ultra Low Sulfur decal, all specific references to this machine configuration will be referred to as Ultra Low Sulfur (**ULS**) from this point forward.
- If **not** equipped with Ultra Low Sulfur decal, all specific references to this machine configuration will be referred to as Low Sulfur (**LS**) from this point forward.



OF0850

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SECTION 1 - GENERAL SAFETY PRACTICES

1.1 HAZARD CLASSIFICATION SYSTEM

Safety Alert System and Safety Signal Words



DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

CAUTION indicates a potentiality hazardous situation which, if not avoided, may result in minor or moderate injury.

1.2 GENERAL PRECAUTIONS



WARNING

Before operation, read and understand this manual. Failure to comply with the safety precautions listed in this manual could result in machine damage, property damage, personal injury or death.

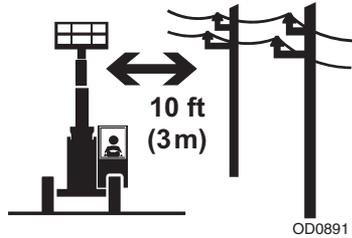
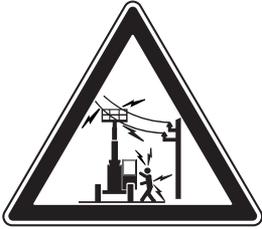
- Hydraulic cylinders are subject to thermal expansion and contraction. This may result in changes to the boom and/or attachment position while the machine is stationary. Factors affecting thermal movement can include the length of time machine is stationary, hydraulic oil temperature, ambient air temperature and boom and/or attachment position.
- Precautions to avoid all hazards in the work area must be taken by the user before and during operation of the machine.

Section 1- General Safety Practices

1.3 OPERATION SAFETY

Note: The manufacturer has no direct control over machine application and operation. Therefore, safety issues listed in this manual are non-exhaustive. The user and operator are responsible for conforming with good safety practices.

Electrical Hazards



- This machine is not insulated and does not provide protection from contact or being near electrical current.
- Always check for power lines before raising the boom.
- Maintain distance from electrical lines, apparatus, or any energized (exposed or insulated) parts according to the Minimum Approach Distance (MAD).

Voltage Range (Phase to Phase)	Minimum Approach Distance (MAD)
0 to 50 KV	10 ft (3 m)
Over 50KV to 200 KV	15 ft (5 m)
Over 200 KV to 350 KV	20 ft (6 m)
Over 350 KV to 500 KV	25 ft (8 m)
Over 500 KV to 750 KV	35 ft (11 m)
Over 750 KV to 1000 KV	45 ft (14 m)

Note: This requirement shall apply except where employer, local or governmental regulations are more stringent.

- Allow for machine movement and electrical line swaying.
- Maintain a clearance of at least 10 ft (3m) between any part of the machine and its occupants, their tools and their equipment from any electrical line or apparatus carrying up to 50,000 volts. One foot additional clearance is required for every additional 30,000 volts or less.

Section 1- General Safety Practices

- The minimum approach distance may be reduced if insulating barriers are installed to prevent contact, and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the machine. The minimum approach distance shall be reduced to a distance within the designed working dimensions of the insulating barrier. This determination shall be made by a qualified person in accordance with the employer, local, or governmental requirements for work practices near energized equipment.



DANGER

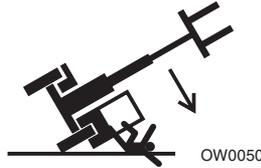
Do not maneuver machine or personnel inside prohibited zone (MAD). Assume all electrical parts and wiring are energized unless known otherwise.

Section 1- General Safety Practices

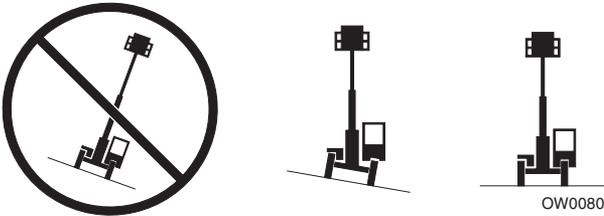
Tip Over Hazard

General

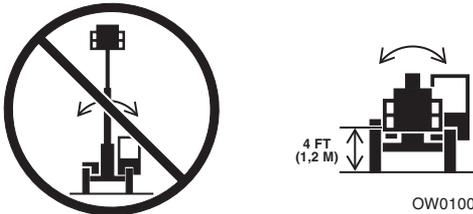
- For additional load requirements, refer to the appropriate capacity chart.



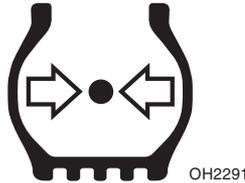
- Never use an attachment without the appropriate original equipment manufacturer (OEM) approved capacity chart installed on the telehandler.
- Understand how to properly use the capacity charts located in cab.
- **DO NOT** exceed rated lift capacity.
- Be sure that the ground conditions are able to support the machine.
- Be aware of wind conditions. Wind may cause load swing and dangerous side loads.
- Keep the machine a minimum of 2 ft (0,6 m) from holes, drop-offs, obstructions, debris, concealed holes and other potential hazards at ground level.



- **DO NOT** raise boom unless frame is level (0 degrees), unless otherwise noted on capacity chart.



- **DO NOT** level machine with boom/attachment above 4 ft (1,2 m). (AUS - **DO NOT** level machine with load more than 11.8 in (300 mm) above ground surface.)



- **MAINTAIN proper tire pressure** at all times. If proper tire pressures are not maintained, this machine could tip over.
- Refer to manufacturer's specifications for proper fill ratio and pressure requirements for tires equipped with ballast.



- Always wear seat belt.
- Keep head, arms, hands, legs and all other body parts inside operator's cab at all times.



If telehandler starts to tip over:

- **DO NOT JUMP**
- **BRACE YOURSELF** and **STAY WITH THE MACHINE**
- **KEEP YOUR SEAT BELT FASTENED**
- **HOLD ON FIRMLY**
- **LEAN AWAY FROM THE POINT OF IMPACT**

Section 1- General Safety Practices

Non-Suspended Load



OD0901

- **DO NOT** drive with boom raised.

Suspended Load



OW0150

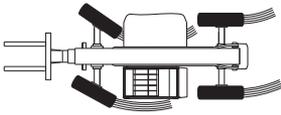
- Tether suspended loads to restrict movement.
- Weight of all rigging (slings, etc.) must be included as part of load.
- **DO NOT** attempt to use telehandler frame-leveling to compensate for load swing.
- Keep heavy part of load closest to attachment.
- Never drag the load; lift vertically.

When driving with a suspended load:

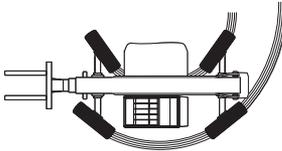
- Start, travel, turn and stop slowly to prevent load from swinging.
- **DO NOT** extend boom.
- **DO NOT** raise the load more than 300 mm (11.8 in) above ground surface or the boom more than 45°.
- **DO NOT** exceed walking speed.

Travel Hazard

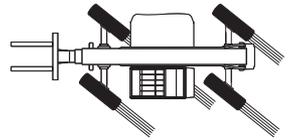
2-WHEEL FRONT STEER



4-WHEEL CIRCLE STEER



4-WHEEL CRAB STEER



OAL2030

- Steering characteristics differ between steer modes. Identify the steer mode settings of the telehandler being operated.
- **DO NOT** change steer modes while traveling. Steer modes must be changed while telehandler is stationary.
- Visually verify proper wheel alignment after each steer mode change.
- Ensure that adequate clearance is provided for both rear tail swing and front fork swing.
- Look out for and avoid other personnel, machinery and vehicles in the area. Use a spotter if you DO NOT have a clear view.
- Before moving be sure of a clear path and sound horn.
- When driving, retract boom and keep boom/attachment as low as possible while maintaining visibility of mirrors and maximum visibility of path of travel.
- Always look in the direction of travel.
- Always check boom clearances carefully before driving underneath overhead obstructions. Position attachment/load to clear obstacles.
- When driving in high speed, use only front wheel steer (if steering modes are selectable).
- Telehandlers equipped with solid or foam filled tires should not be used in applications requiring excessive roading or driving extended distances. In the event an application requires excessive roading or driving expanded distances, it is recommended to use telehandlers not equipped with solid or foam filled tires.

Section 1- General Safety Practices

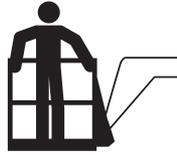
Load Falling Hazard



OW0130

- Never suspend load from forks or other parts of carriage weldment. Use only approved lift points.
- **DO NOT** burn or drill holes in fork(s).
- Forks must be centered under load and spaced apart as far as possible.

Lifting Personnel



OW0171

- When lifting personnel, **USE ONLY** an approved personnel work platform, with proper capacity chart displayed in the cab.

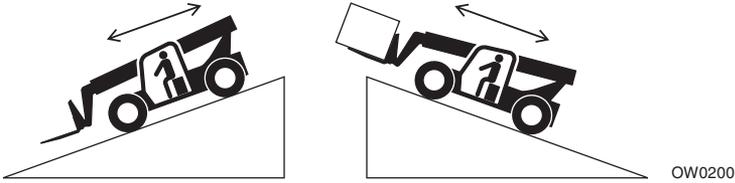


OD0921

- **DO NOT** drive machine from cab when personnel are in platform.

Section 1- General Safety Practices

Driving Hazards on Slopes

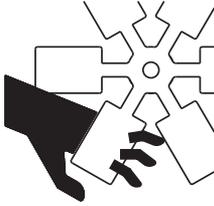


To maintain sufficient traction and braking capabilities, travel on slopes as follows:

- When unloaded, drive with forks pointed downhill.
- When loaded, drive with the forks pointed uphill.
- For additional travel requirements, refer to the appropriate capacity chart.
- To avoid overspeeding the engine and drivetrain when driving down slopes, downshift to a lower gear before going downhill and use the service brake as necessary to maintain a slow speed. **DO NOT shift into neutral and coast downhill.**
- Avoid excessively steep slopes or unstable surfaces. To avoid tip over **DO NOT** drive across excessively steep slopes under *any* circumstances.
- Avoid turning on a slope. Never engage “inching” or shift to “Neutral” when going downhill.
- **DO NOT** park on a slope.

Pinch Points and Crush Hazards

Stay clear of pinch points and rotating parts on the telehandler.



OW0210

- Stay clear of moving parts while engine is running.



OW0220

- Keep clear of steering tires and frame or other objects.



OW0230

- Keep clear from under boom.

Section 1- General Safety Practices



OW0240

- Keep clear of boom holes.



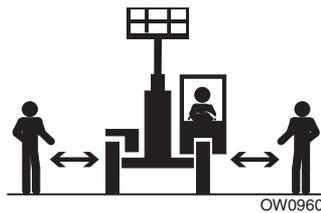
OW0250

- Keep arms and hands clear of attachment tilt cylinder.



OW0260

- Keep hands and fingers clear of carriage and forks.



OW0960

- Keep others away while operating.

Fall Hazard



OW0280

- Enter using the proper hand holds and steps provided. Always maintain 3-point contact when mounting or dismounting. Never grab control levers or steering wheel when mounting or dismounting the machine.
- **DO NOT** get off the machine until the shutdown procedure on page 4-5 has been performed.



OW0290

- **DO NOT** carry riders. Riders could fall off machine causing death or serious injury.

Section 1- General Safety Practices

Chemical Hazards

Exhaust Fumes

- **DO NOT** operate machine in an enclosed area without proper ventilation.
- **DO NOT** operate the machine in hazardous environments unless approved for that purpose by JLG and site owner. Sparks from the electrical system and the engine exhaust can cause an explosion.

Flammable Fuel



OW0300

- **DO NOT** fill the fuel tank or service the fuel system near an open flame, sparks or smoking materials. Engine fuel is flammable and can cause a fire and/or explosion.

Hydraulic Fluid



OW0950

- **DO NOT** attempt to repair or tighten any hydraulic hoses or fittings while the engine is running or when the hydraulic system is under pressure.
- Stop engine and relieve trapped pressure. Fluid in the hydraulic system is under enough pressure that it can penetrate the skin.
- **DO NOT** use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks. Wear gloves to protect hands from spraying fluid.

1.4 CLEARSKY (IF EQUIPPED)

Federal Communications Commission (FCC) Information for Users

FCC Statement Regarding Interference

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Section 1- General Safety Practices

Notice Regarding Radio Frequency Radiation Exposure

Do not operate your unit when a person is within eight inches (20 centimeters) of the antenna. A person or object within eight inches (20 centimeters) of the antenna could impair call quality and may cause the unit to operate at a higher power level than necessary, as well as expose that person to RF energy in excess of that established by the FCC RF Exposure Guidelines.

Important: The unit must be installed in a manner that provides a minimum separation distance of eight inches (20 centimeters) or more between the antenna and persons and just not be co-located or operate in conjunction with any other antenna or transmitter in order to satisfy FCC RF exposure requirements for mobile transmitting devices.

Important: To comply with the FCC RF exposure limits and to satisfy the categorical exclusion requirements for mobile transmitters, the requirements described in the following section, "Antenna Installation", must be met.

Antenna Installation

A minimum separation distance of eight inches (20 centimeters) must be maintained between the antenna and all persons.

The combined cable loss and antenna gain must not exceed +7.5 dBi (850 band). The combined cable loss and antenna gain must not exceed +2.5 dBi and total system output must not exceed 2.0W EIRP in the PCS (1900) band in order to comply with the EIRP limit of 24.232 (b). OEM installers must be provided with antenna installation instruction and transmitter operating conditions for satisfying RF exposure compliance.

SECTION 2 - PRE-OPERATION AND INSPECTION

2.1 PREPARATION, INSPECTION AND MAINTENANCE

The following table covers the periodic machine inspections and maintenance required. Consult local regulations for further requirements for telehandlers. The frequency of inspections and maintenance must be increased as necessary when the machine is used in a harsh or hostile environment, if the machine is used with increased frequency, or if the machine is used in a severe manner.

Inspection and Maintenance				
Type	Frequency	Primary Responsibility	Service Qualification	Reference
Pre-Operation Inspection	Beginning of each work shift or at each change of operator.	User or Operator	User or Operator	Operation & Safety Manual
Pre-Delivery Inspection (see note)	Before each sale, lease or rental delivery.	Owner, Dealer or User	Qualified Mechanic	Service Manual and applicable Inspection form.
Preventative Maintenance	At intervals as specified in the Service Manual and/or the Maintenance Charts located on the machine.	Owner, Dealer or User	Qualified Mechanic	Service Manual and Maintenance Charts

Note: Inspection forms are available.

Section 2- Pre-Operation and Inspection

2.2 PRE-OPERATION CHECK AND INSPECTION

Note: Complete all required maintenance before operating unit.

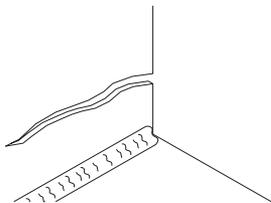


WARNING

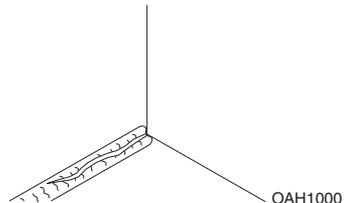
FALL HAZARD. Use extreme caution when checking items beyond your normal reach. Use an approved ladder.

The pre-operation check and inspection, performed at beginning of each work shift or at each change of operator, should include the following:

1. **Cleanliness** - Check all surfaces for leakage (oil, fuel or battery fluid) or foreign objects. Report any leakage to the proper maintenance personnel.
2. **Structure** - Inspect the machine structure for dents, damage, weld or parent metal cracks or other discrepancies.



PARENT METAL CRACK



WELD CRACK

OAH1000

3. **Safety Decals** - Ensure all safety decals are legible and in place. Clean or replace as required. See page 2-3 for details.
4. **Operation and Safety Manuals** - Operation & Safety Manual and AEM Safety Manual (ANSI only) located in cab manual holder.
5. **Walk-Around Inspection** - See page 2-9 for details.
6. **Fluid Levels** - Check fluids, including fuel, diesel exhaust fluid (DEF), hydraulic oil, engine oil and coolant. When adding fluids, refer to Section 7- Lubrication and Maintenance and Section 9- Specifications to determine proper type and intervals. Before removing filler caps or fill plugs, wipe all dirt and grease away from the ports. If dirt enters these ports, it can severely reduce component life.
7. **Attachments/Accessories** - Ensure correct capacity charts are installed on telehandler. If provided, reference Operation & Safety Manual of each attachment or accessory installed for specific inspection, operation and maintenance instructions.

Section 2- Pre-Operation and Inspection

8. **Operational Check** - Once the walk-around inspection is complete, perform a warm-up and operational check (see page 2-17) of all systems in an area free of overhead and ground level obstructions. See Section 3- Controls and Indicators for more specific operating instructions.



WARNING

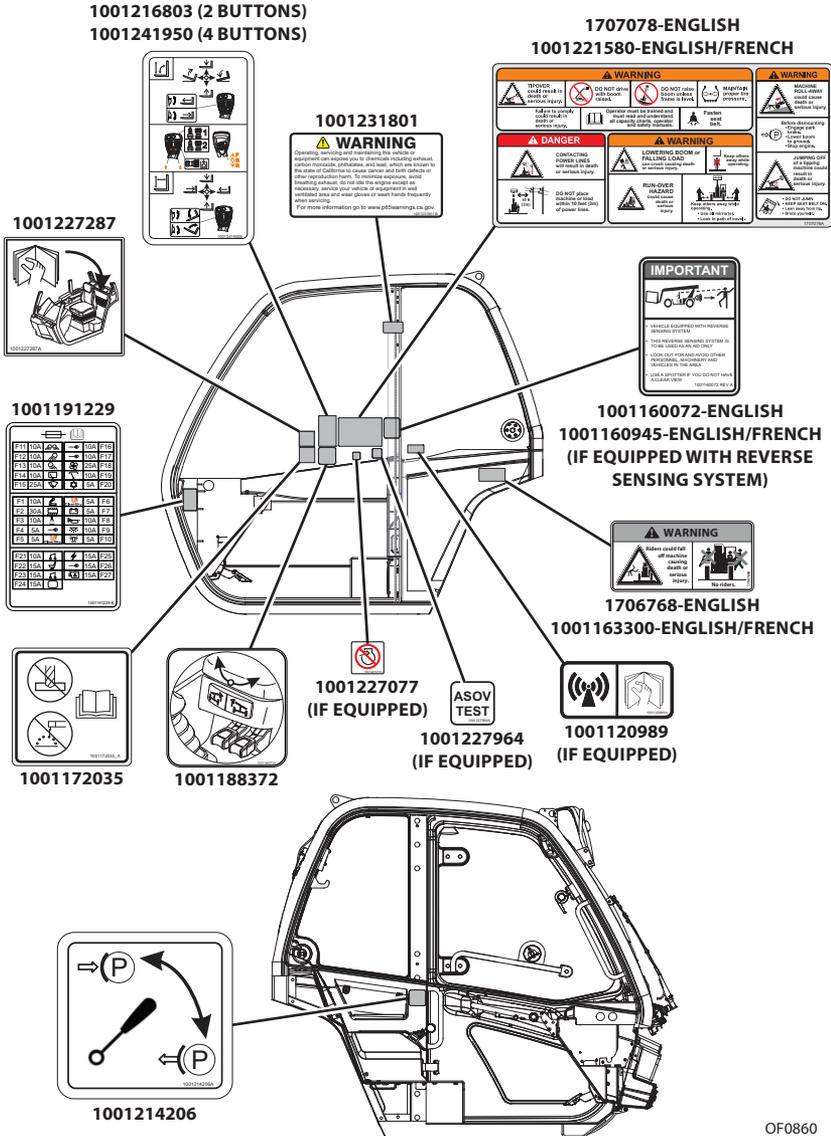
If telehandler does not operate properly, immediately bring machine to a stop, lower boom and attachment to ground and stop the engine. Determine cause and correct before continued use.

Section 2- Pre-Operation and Inspection

2.3 SAFETY DECALS

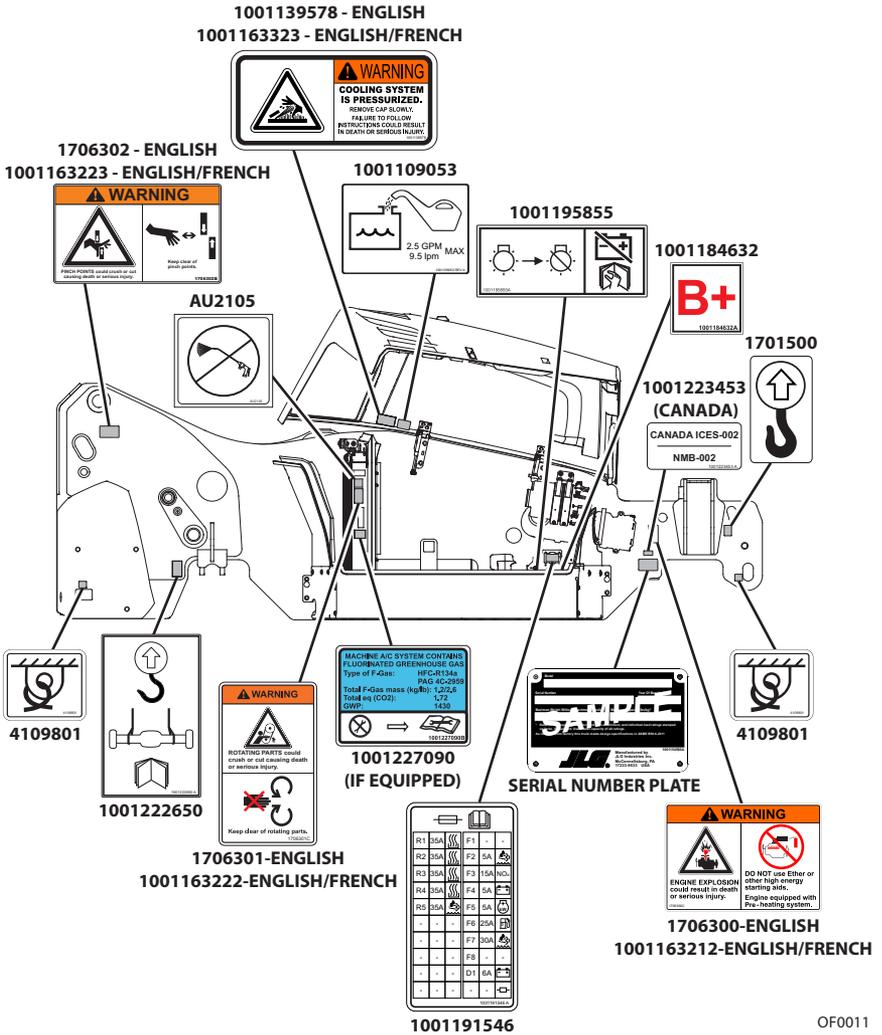
Ensure all **DANGER, WARNING, CAUTION** and instructional decals and proper capacity charts are legible and in place. Clean and replace as required.

ANSI (if equipped)

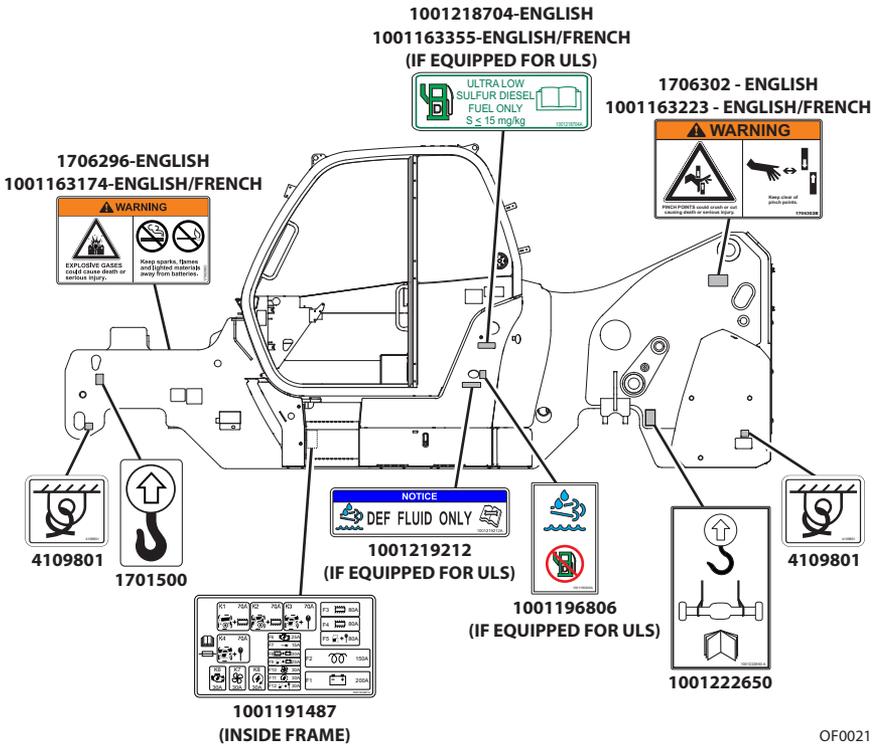


OF0860

Section 2- Pre-Operation and Inspection



Section 2- Pre-Operation and Inspection



Section 2- Pre-Operation and Inspection

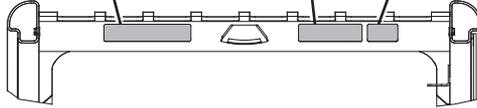
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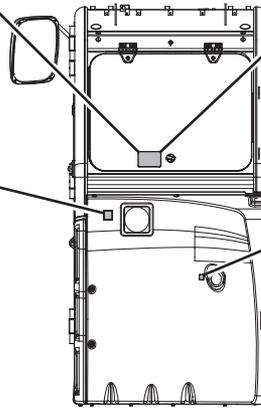
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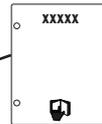
1001212049-ENGLISH
1001204709-ENGLISH/FRENCH
(IF EQUIPPED WITH SECONDARY EXIT)



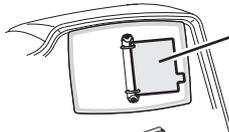
8005870
(INSIDE ENCLOSED CAB)



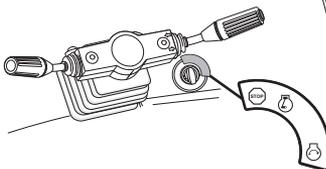
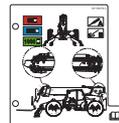
CAPACITY CHARTS



CHARTS NOT PRESENT IF EQUIPPED WITH MULTIFUNCTION DISPLAY



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1001224416 - 1732, 8010H

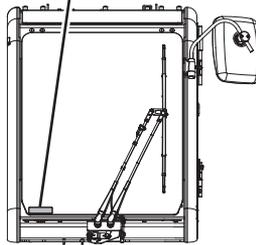


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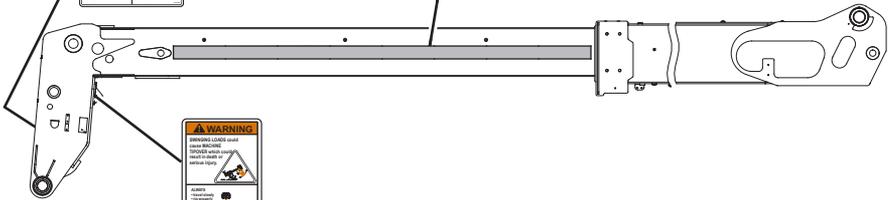
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Section 2- Pre-Operation and Inspection

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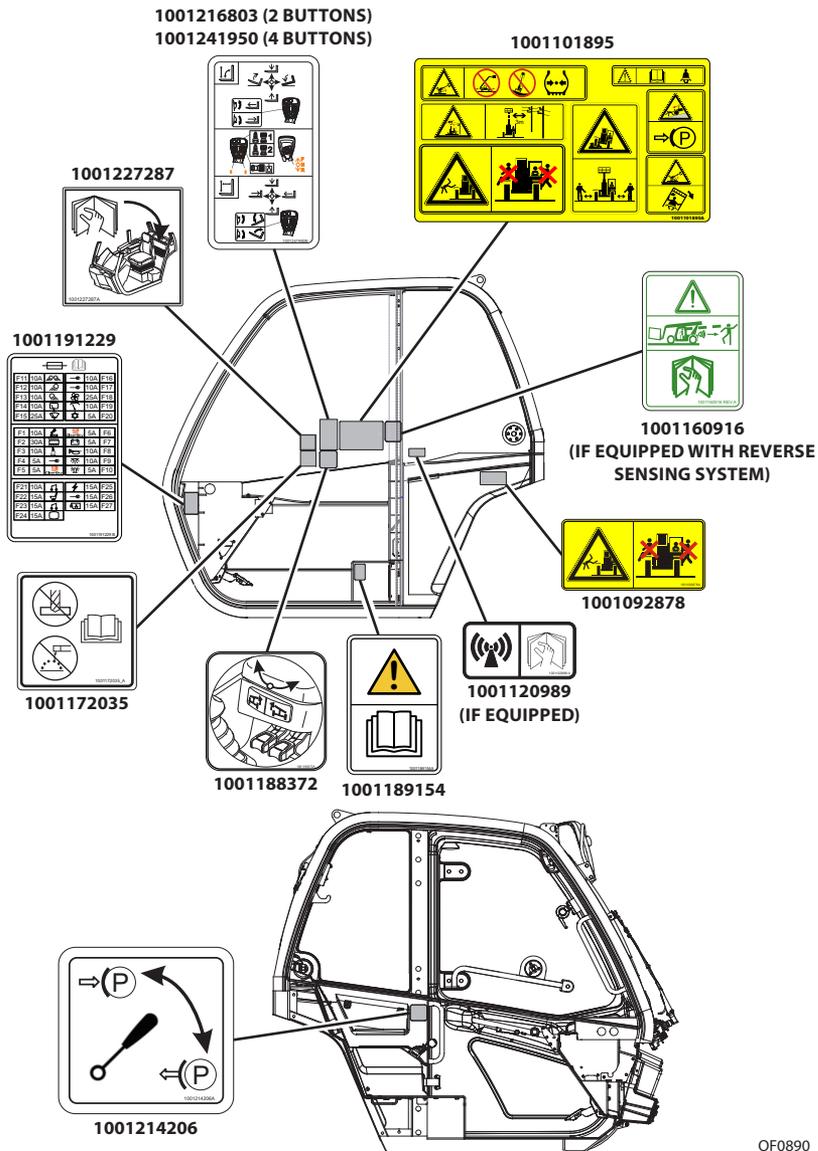
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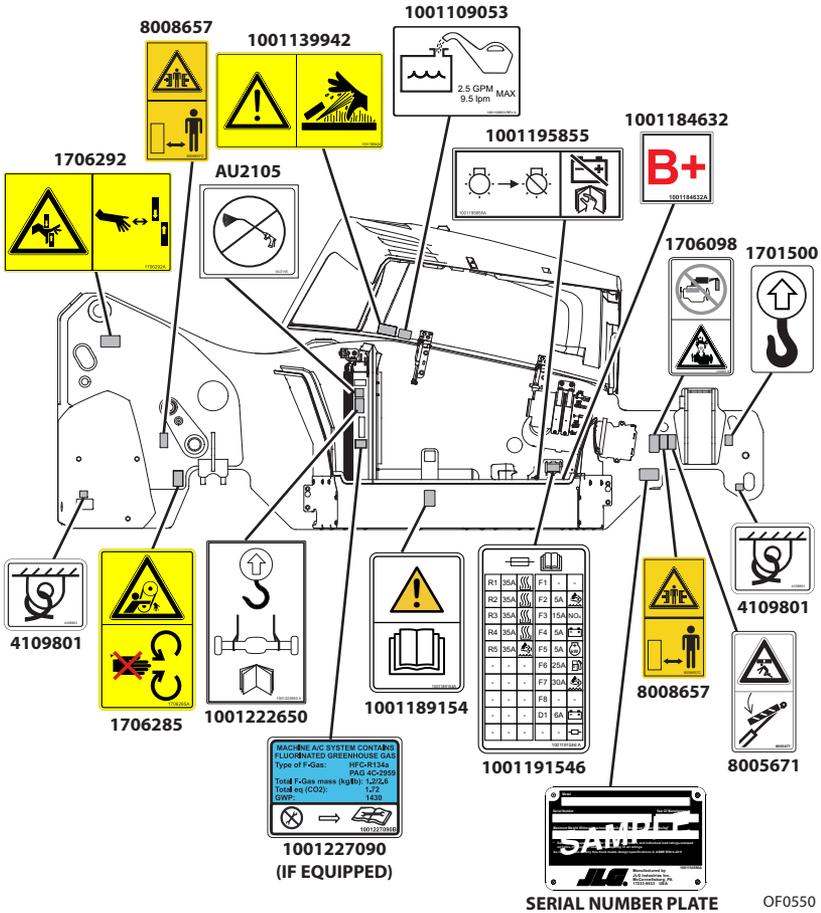
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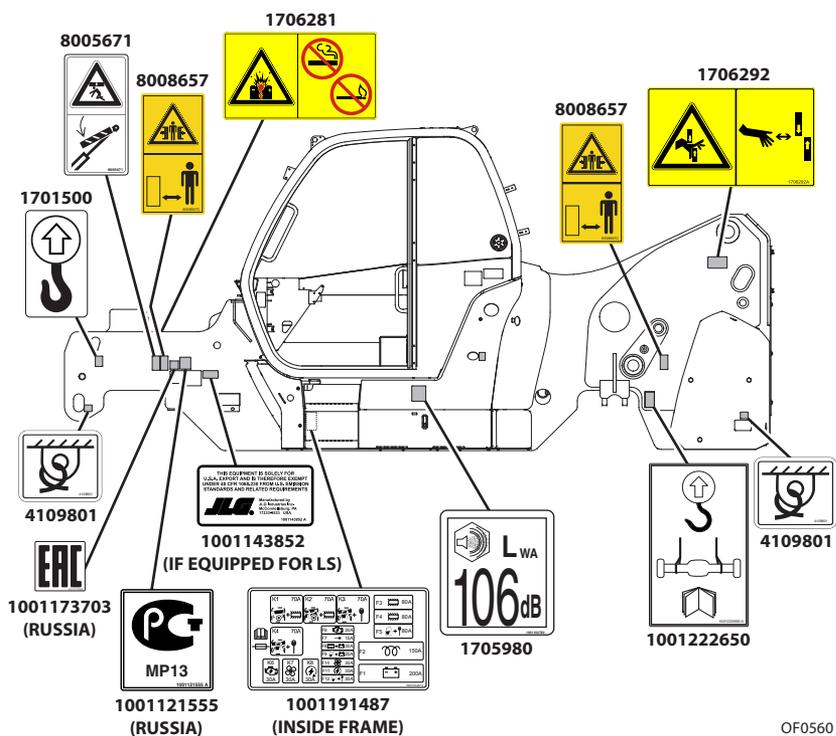
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ISO (if equipped)

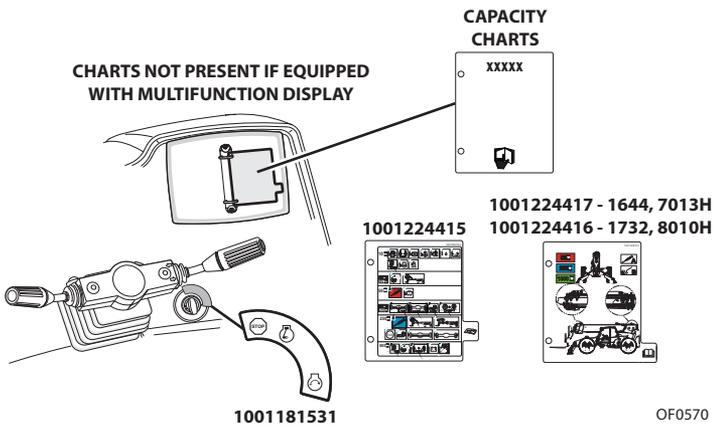
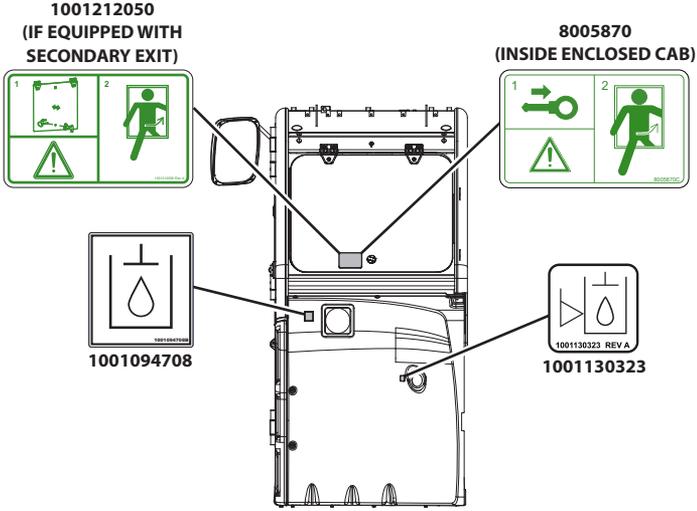
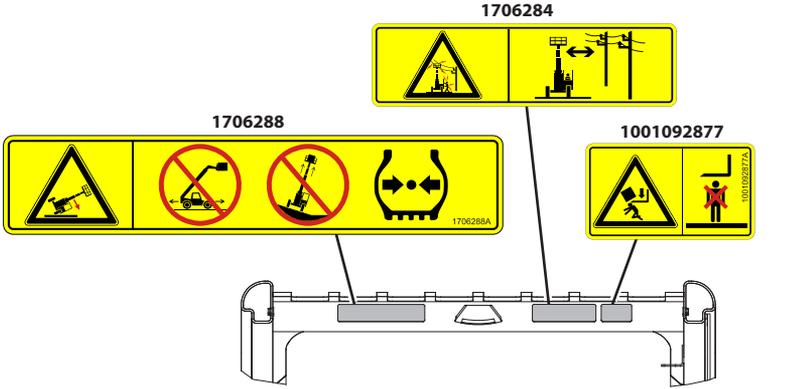


Section 2- Pre-Operation and Inspection



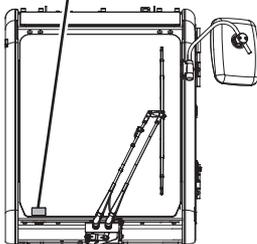


Section 2- Pre-Operation and Inspection



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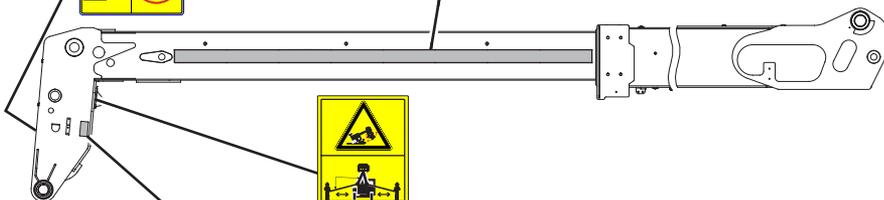
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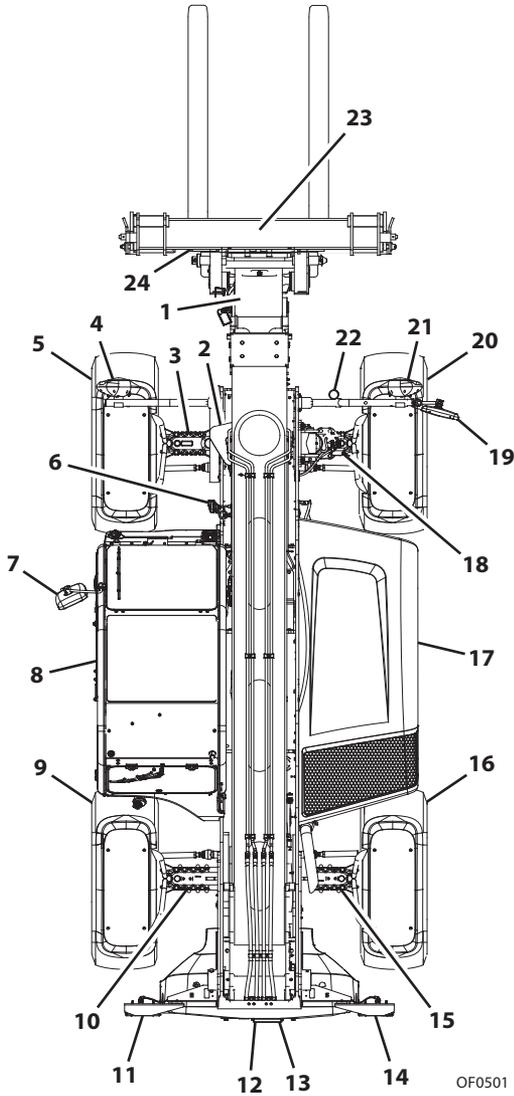
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(BOTH SIDES OF BOOM)

OF0580

Section 2- Pre-Operation and Inspection

2.4 WALK-AROUND INSPECTION



OF0501

Begin your walk-around inspection at item 1, as noted below. Continue to your right (counterclockwise when viewed from top) checking each item in sequence.

INSPECTION NOTE: On all components, make sure there are no loose or missing parts, that they are securely fastened and no visible leaks or excessive wear exists in addition to any other criteria mentioned. Inspect all structural members including attachment for cracks, excessive corrosion and other damage.

Section 2- Pre-Operation and Inspection

- 1. Boom Sections and Lift, Tilt, Extend/Retract, Compensating Cylinders -**
 - Check front, top, side and rear wear pads for presence of grease.
 - Pivot pins secure; hydraulic hoses undamaged, not leaking.
- 2. Attachment Recognition Antenna (if equipped) -** See inspection note.
- 3. Front Axle -** Steer cylinders undamaged, not leaking; pivot pins secure; hydraulic hoses undamaged, not leaking.
- 4. Front Lights (if equipped) -** Clean and undamaged.
- 5. Wheel/Tire Assembly -** Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
- 6. Boom Retract Sensor-** See inspection note.
- 7. Mirrors -** Clean and undamaged.
- 8. Cab and Electrical -**
 - General appearance; no visible damage
 - Frame level indicator(s) and window glass undamaged and clean
 - Gauges, switches, joystick, foot controls and horn operational
 - Check seat belt for damage, replace belt if frayed or cut webbing, damaged buckles or loose mounting hardware
- 9. Wheel/Tire Assembly -** Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
- 10. Rear Axle -** Steer cylinders undamaged, not leaking; pivot pins secure; hydraulic hoses undamaged, not leaking.
- 11. Rear Lights (if equipped) -** Clean and undamaged.
- 12. Reversing Camera (if equipped) -** See inspection note.
- 13. Reversing System (if equipped) -** See inspection note.
- 14. Rear Lights (if equipped) -** Clean and undamaged.
- 15. LSI Sensor (if equipped) -** See inspection note.
- 16. Wheel/Tire Assembly -** Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
- 17. Engine Compartment -**
 - Drive belts, check condition and replace as required.
 - Engine mounts - See inspection note.
 - Power Distribution Plate - No damage or corrosion on connections or wiring.
 - Engine cover properly secured.
 - Air Shutoff Valve (ASOV) (if equipped) - See inspection note.
- 18. Frame Level Cylinder -** Pins secure; hydraulic hoses undamaged, not leaking.

Section 2- Pre-Operation and Inspection

- 19. Mirrors** - Clean and undamaged.
- 20. Wheel/Tire Assembly** - Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
- 21. Front Lights (if equipped)** - Clean and undamaged.
- 22. LMIS External Audible Beacon Tower (if equipped)** - See inspection note.
- 23. Attachment** - Properly installed, see "Attachment Installation" on page 5-13.
- 24. RFID Tag (if equipped)** - See inspection note.

2.5 WARM-UP AND OPERATIONAL CHECKS

Warm-Up Check

During warm-up period, check:

1. Heater, air conditioning and wipers (if equipped).
2. Check all lighting systems (if equipped) for proper operation.
3. Adjust mirrors for maximum visibility.



WARNING

CUT/CRUSH/BURN HAZARD. Keep engine cover closed while engine is running except when checking transmission oil level.

Operational Check

When engine warms, perform an operational check:

1. Service brake and parking brake operation.
2. Forward and reverse travel.
3. Each gear.
4. Steering in both directions with engine at low idle (steering lock to lock will not be reached). Check in each steering mode.
5. Horn and back-up alarm. Must be audible from inside operators cab with engine running.
6. All joystick functions operate smoothly and correctly.
7. Perform any additional checks described in Section 8.

Section 2- Pre-Operation and Inspection

2.6 CAB

The telehandler is equipped with an enclosed ROPS/FOPS cab.



WARNING

Never operate telehandler unless the overhead guard, cab structure and right side glass or screen are in good condition. Any modification to this machine must be approved by JLG to assure compliance with ROPS/FOPS certification for this cab/machine configuration. If the overhead guard or cab structure is damaged, the **CAB CANNOT BE REPAIRED**. It must be **REPLACED**.



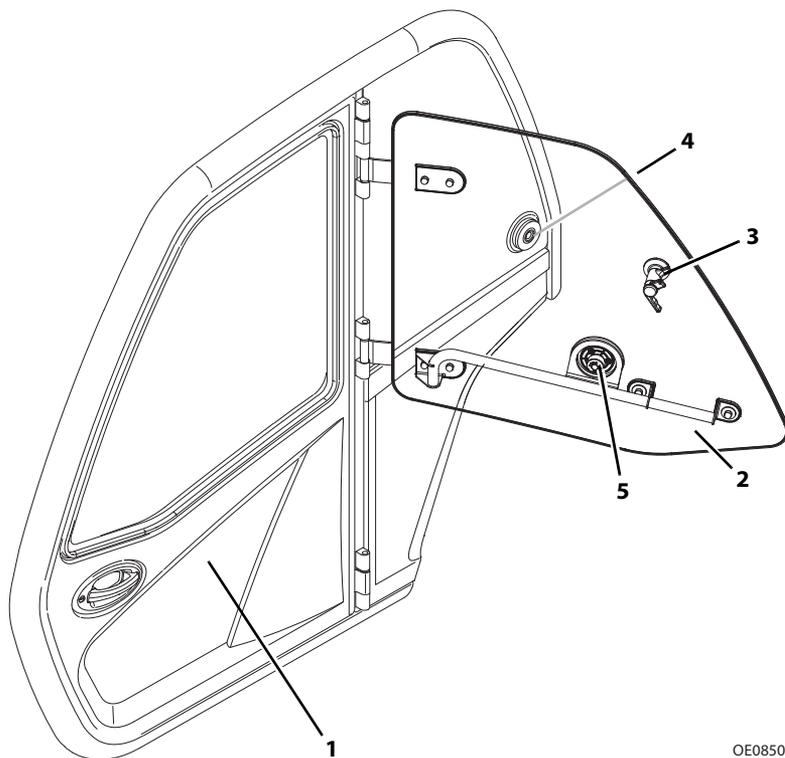
WARNING

Never drill, cut, and/or weld to cab. Any modification to this machine must be approved by JLG to assure compliance with machine configuration. If unauthorized drilling, cutting and/or welding is present, the cab must be **REPLACED**.

2.7 ENCLOSED CAB WINDOWS

Keep all windows clean and unobstructed.

Cab Door Window



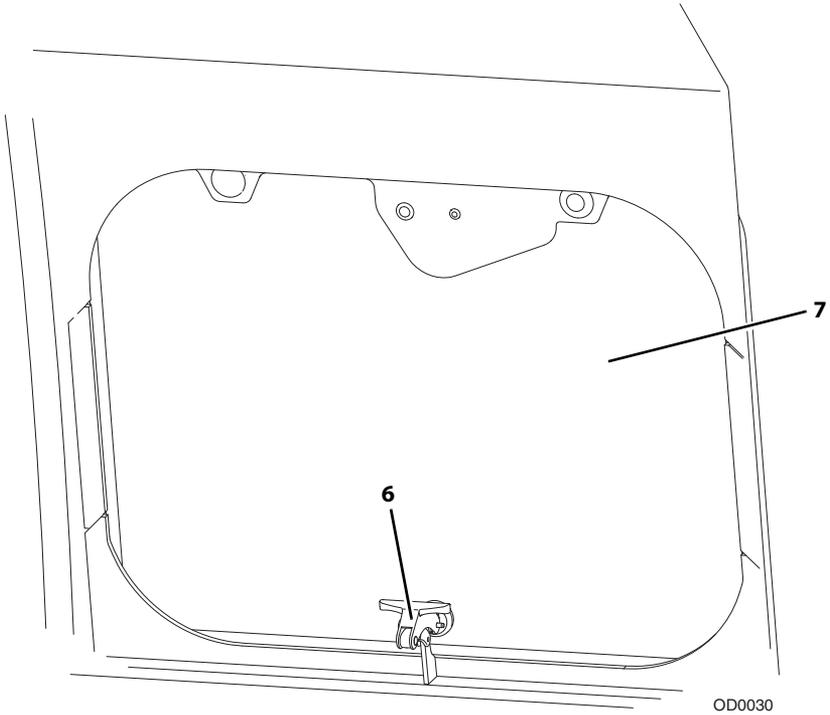
- During operation the cab door window (2) must either be latched open or closed
- Open the cab door window using lever (3) and secure it in the latch (4)
- Press release (4) inside cab or (5) outside cab to unlatch window

NOTICE

EQUIPMENT DAMAGE. Cab door (1) must be closed during operation. Failure to do so may result in machine damage.

Section 2- Pre-Operation and Inspection

Rear Window



- Lift lever (6) and push to open the rear window (7)
- Lift lever and pull to close

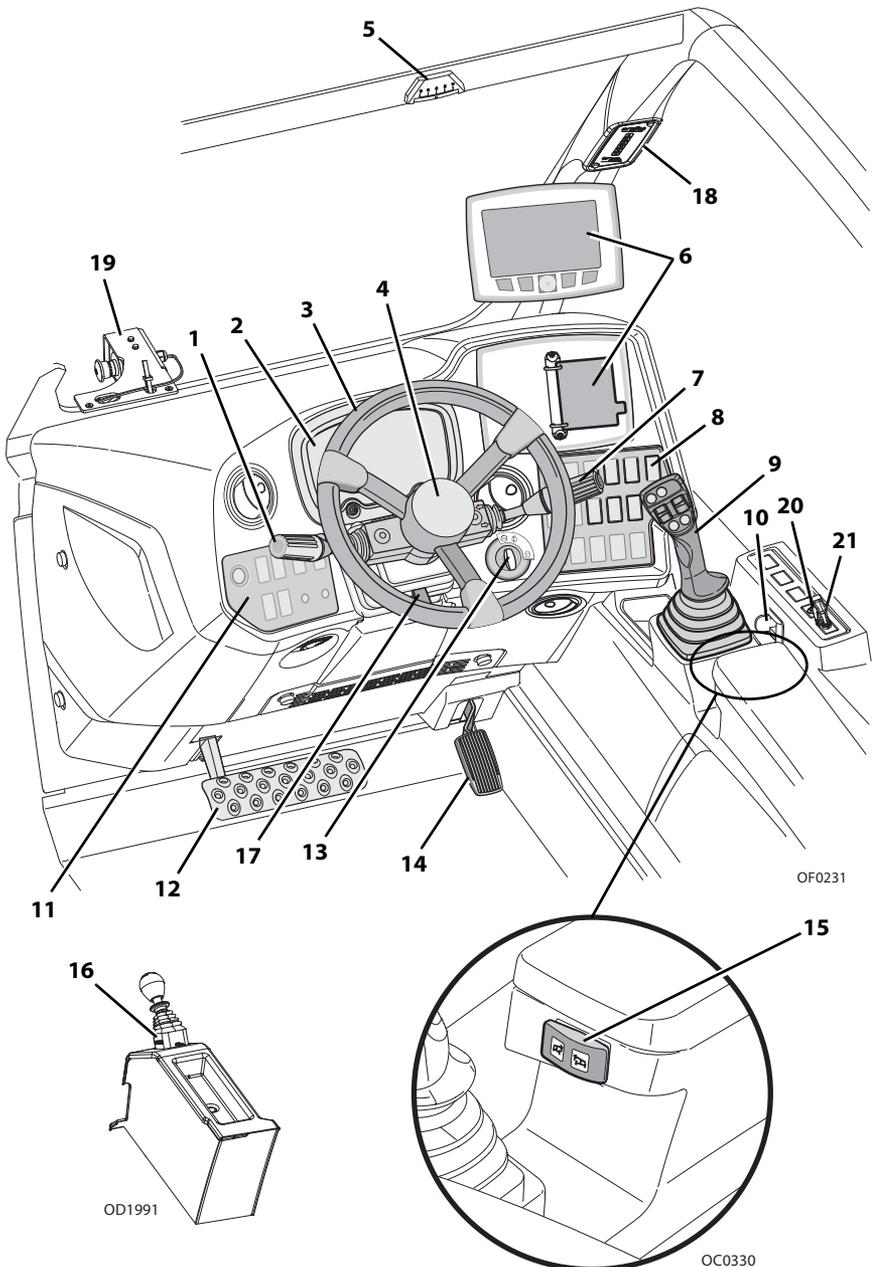
SECTION 3 - CONTROLS AND INDICATORS

3.1 GENERAL

This section provides the necessary information needed to understand control functions.

Section 3- Controls and Indicators

3.2 CONTROLS



Section 3- Controls and Indicators

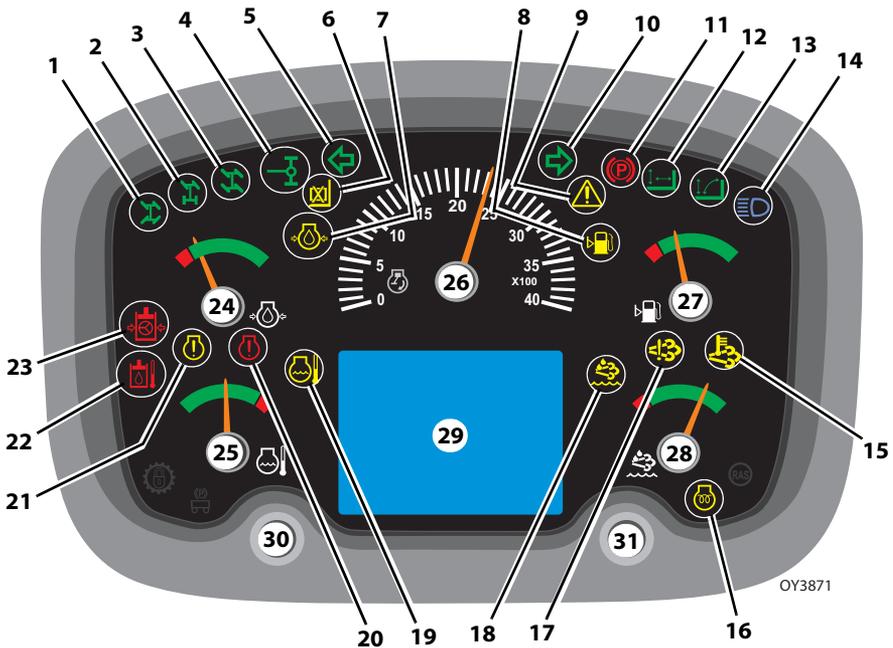
1. **Transmission Control Lever:** See page 3-15.
2. **Instrument Panel:** See page 3-4.
3. **Steering Wheel:** Turning the steering wheel to the left or right steers the machine in the corresponding direction. Three steering modes are available. See “Steer Modes” on page 3-31.
4. **Horn:** Press to sound horn.
5. **Frame Level Indicator:** Enables operator to determine the left to right level condition of the telehandler.
6. **Charts/Display:**
 - a. Capacity and Maintenance Charts (if equipped): See Section 5- Attachments or Section 7- Lubrication and Maintenance.
 - b. Multifunction Display (if equipped): See page 3-39.
7. **Accessory Control Lever:** See page 3-17.
8. **Right Dash Control Panel:** See page 3-11.
9. **Joystick:** See page 3-24.
10. **Adjustable Armrest Lever:** Activate lever to release armrest position lock.
11. **Left Dash Control Panel:** See page 3-10.
12. **Service Brake Pedal:** Further pedal is pressed, the slower the travel speed.
13. **Ignition Switch:** Key activated. See page 3-13.
14. **Accelerator Pedal:** Pressing down the pedal increases engine and hydraulic speed.
15. **Frame Level Switch:** Controls left to right frame level of machine. Press right side of switch to rotate frame right; press left side of switch to rotate frame left.
16. **Park Brake:** See page 3-14.
17. **Steering Column Adjuster:** See page 3-19.
18. **LSI Indicator (if equipped):** See page 3-22.
19. **Power/Emergency Stop Switch (exterior of cab - if equipped):** Push down to shut off power and stop engine.
20. **Air Shutoff Valve (ASOV) Indicator Lamp (if equipped):** Indicates when the ASOV valve has been actuated.
21. **Air Shutoff Valve (ASOV) Test Switch (if equipped):** See page 8-3.

Section 3- Controls and Indicators

Instrument Panel

The instrument panel uses different colors to alert the operator to different types of operational situations that could arise.

- When an indicator illuminates RED (except park brake) or if a gauge enters a red zone, immediately bring machine to a stop, lower boom and attachment to the ground and stop the engine. Determine cause and correct before continued use.
- When an indicator illuminates YELLOW an abnormal operating condition is present. If not corrected, machine interruption or damage may result.
- When an indicator illuminates GREEN or BLUE or if a gauge is in the green zone, important information regarding safe operation is being displayed.



NOTICE

EQUIPMENT DAMAGE. When a red indicator illuminates (except park brake), immediately bring machine to a stop, lower boom and attachment to ground and stop the engine. Determine cause and correct before continued use.

- 1. 4-Wheel Circle Steer:** Illuminates when all wheel steer is active. See page 3-31.
- 2. 2-Wheel Front Steer:** Illuminates when two wheel steer is active. See page 3-31.
- 3. 4-Wheel Crab Steer:** Illuminates when crab steer is active. See page 3-31.

Section 3- Controls and Indicators

4. **Rear Axle Center:** Illuminates when rear axle is aligned (centered).
5. **Left Turn (if equipped):** Illuminates and flashes when left turn signal or hazard lights are active.
6. **LSI Passive Mode (if equipped):** Illuminates when LSI passive mode is active. See page 3-22.
7. **Low Engine Oil Pressure:** Illuminates when oil pressure is low.
8. **Low Fuel Level:** Illuminates when fuel level is low.
9. **System Distress:** Illuminates when critical machine and engine faults exist.
10. **Right Turn (if equipped):** Illuminates and flashes when right turn signal or hazard lights are active.
11. **Park Brake:** Illuminates when park brake is applied. See page 3-14.
12. **Lift Mode:** Illuminates when lift joystick pattern is active. See page 3-10.
13. **Loader Mode:** Illuminates when loader joystick pattern is active. See page 3-10.
14. **High Beam (if equipped):** Illuminates when high beam lights are active.
15. **High Exhaust System Temperature (HEST) (if equipped for ULS):** May illuminate during exhaust system cleaning. See page 4-6.
16. **Engine Preheat:** Illuminates with ignition key in position 1. Indicator goes out when start temperature is reached.
17. **Selective Catalytic Reduction (SCR) (if equipped for ULS):** Flashes when stationary cleaning is required. Illuminates during cleaning process. See page 4-6 for details.
18. **Diesel Emission Fluid (DEF) (if equipped for ULS):** Illuminates when DEF level is low, DEF quality is low or system is malfunctioning. System derate and/or idle-lock may occur if conditions are not corrected.
 - DEF indicator illuminates, DEF level gauge shows low fluid level and fault codes are present when DEF fluid is low.
 - DEF and Engine Fault Warning indicators illuminate and fault codes are present when DEF quality is low or system is malfunctioning.
19. **High Engine Temperature:** Illuminates when engine temperature is high.
20. **Engine Fault Critical:** Illuminates when critical engine fault exists.
21. **Engine Fault Warning:** Illuminates when engine is operating outside normal range.
22. **High Hydraulic Oil Temperature:** Illuminates when hydraulic oil temperature is high.
23. **Low Steering Pressure:** Illuminates when steering pressure is low.
24. **Engine Oil Pressure Gauge:** Indicates engine oil pressure.
25. **Engine Coolant Temperature Gauge:** Indicates engine coolant temperature.
26. **Engine Speed:** Indicates engine speed in revolutions per minute (rpm).
27. **Fuel Level Gauge:** Indicates fuel level.
28. **Diesel Emission Fluid (DEF) Level Gauge (if equipped for ULS):** Indicates fluid level.

Section 3- Controls and Indicators

29. LCD Display: See page 3-8.

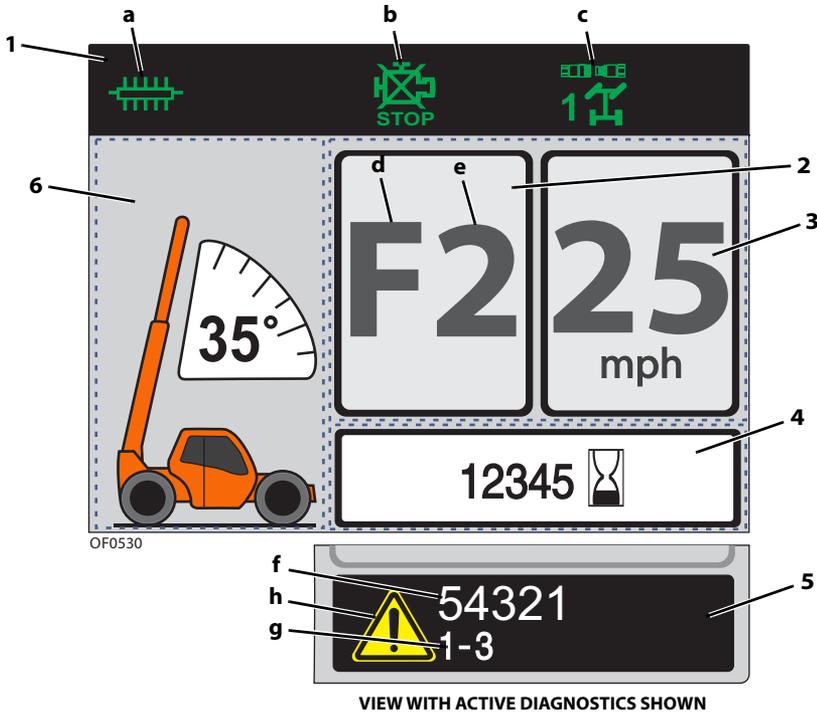
30. Left Control Button Press to decrease display brightness. Increases digits in anti-theft function. See page 3-30.

31. Right Control Button Press to increase display brightness. Confirms digits in anti-theft function. See page 3-30.

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Section 3- Controls and Indicators

LCD Display



VIEW WITH ACTIVE DIAGNOSTICS SHOWN

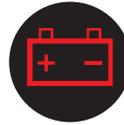
1. **Indicators:** Indicator will display when active.
 - a. Continuous Auxiliary Hydraulics - Illuminates when continuous auxiliary hydraulics are active.
 - b. Do Not Shut Off Engine - Illuminates when stationary exhaust system cleaning is required. See page 4-6.
 - c. Auxiliary Hydraulic Selection - Illuminates when auxiliary hydraulics are activated. Indicator will show 1 or 2 depending on operator's selection. See page 4-6.
2. **Driving Direction and Gear:** Displays current driving condition. When shifting gears, Driving Direction and Gear will flash while being executed. See "Transmission Control Lever" on page 3-16 or "Joystick" on page 3-24.
 - d. Direction - Forward (F), Neutral (N) or Reverse (R).
 - e. Gear - First (1) or Second (2).
3. **Speed (if equipped):** Displays machine speed mph (km/h). When maximum travel speed is exceeded, speed will flash and buzzer will sound.
4. **Operating Hours:** Displays total hours of telehandler operation. Displays when ignition is in ON position and no fault codes exist.



**TRANSMISSION OIL
TEMPERATURE**



**AIR CLEANER
RESTRICTION INDICATOR**



**LOW BATTERY
INDICATOR**



**SYSTEM DISTRESS
INDICATOR**



**MAINTENANCE
REQUIRED INDICATOR**

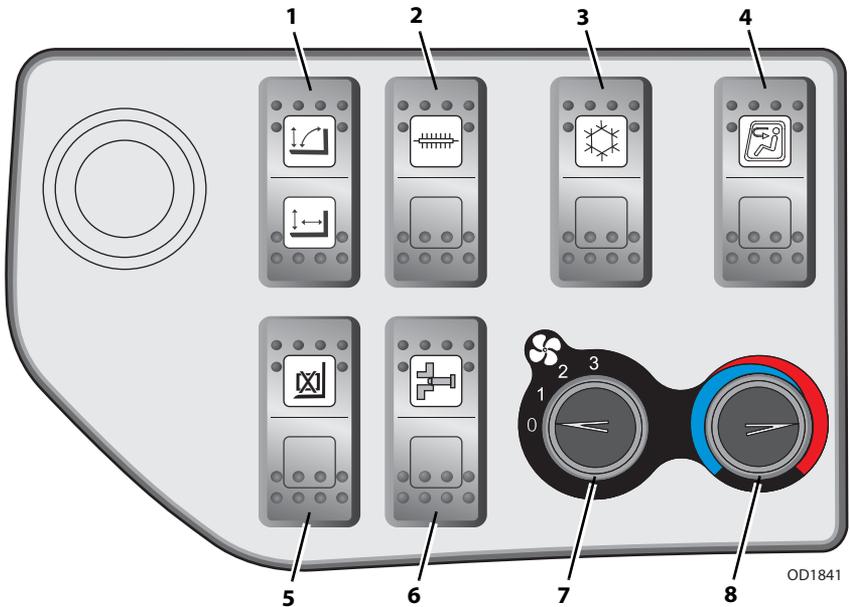


**OD0302
HYDRAULIC FILTER
RESTRICTION INDICATOR**

- 5. Active Diagnostics:** Displays icon and applicable diagnostic code. Display cycles through each active warning or diagnostic if multiple are present. See Service Manual for details.
- f. Fault Code - Displays applicable diagnostic code.
 - g. Numeric Code Indicator - Displays number of engine fault codes which are present.
 - h. Diagnostic Icon - Displays diagnostic symbols.
 - Transmission Oil Temperature Indicator - Illuminates when transmission temperature is high.
 - Air Cleaner Restriction Indicator - Illuminates when air cleaner requires maintenance.
 - Low Battery Indicator - Illuminates when battery is at low charge or charging system is not functioning properly.
 - System Distress Indicator - Illuminates when critical machine and engine faults exist.
 - Maintenance Required Indicator - Illuminates when maintenance is required.
 - Hydraulic Filter Restriction Indicator - Illuminates when hydraulic filter requires maintenance.
- 6. Boom Angle:** Displays boom angle.

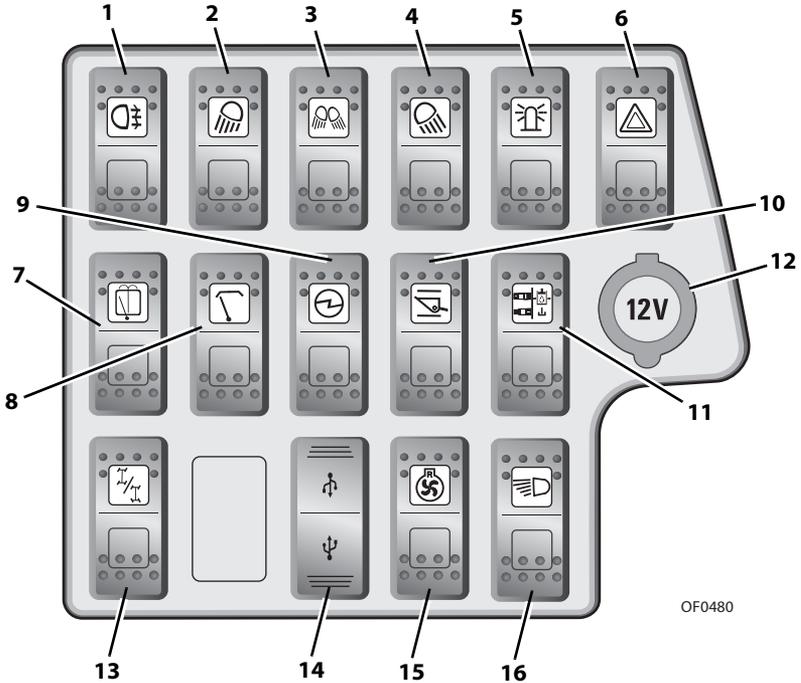
Section 3- Controls and Indicators

Left Dash Control Panel



- 1. Lift/Loader Switch:** Activates lift or loader pattern on joystick. See page 3-24 for details. Press top of switch to activate loader joystick pattern. Press bottom of switch to activate lift joystick pattern.
- 2. Continuous Auxiliary Hydraulic Switch:** Provides continuous operation of hydraulic powered attachments. To enable, press and hold switch, move auxiliary hydraulic roller switch to desired command, release continuous auxiliary hydraulics switch then release auxiliary hydraulic roller switch. To disable, press continuous auxiliary hydraulics switch again. See Section 5- Attachments for approved attachments and control instructions.
- 3. Air Conditioning Switch (if equipped):** On/Off switch.
- 4. HVAC Recirculation Switch (if equipped):** On/Off switch. Press to activate and recirculate air inside the cab. While deactivated, air is circulated from outside the cab.
- 5. LSI Override Switch (if equipped):** Momentarily disables the automatic function cut-out. Depress and hold up to 30 seconds while operating joystick to momentarily disable the automatic function cut-out.
- 6. Coupler Switch (if equipped):** Used in conjunction with joystick to hydraulically lock or unlock an attachment. See page 5-16 for details.
- 7. HVAC Fan Speed (if equipped):** Adjustable rotary switch.
- 8. HVAC Temperature Control Switch (if equipped):** Adjustable rotary switch.

Right Dash Control Panel



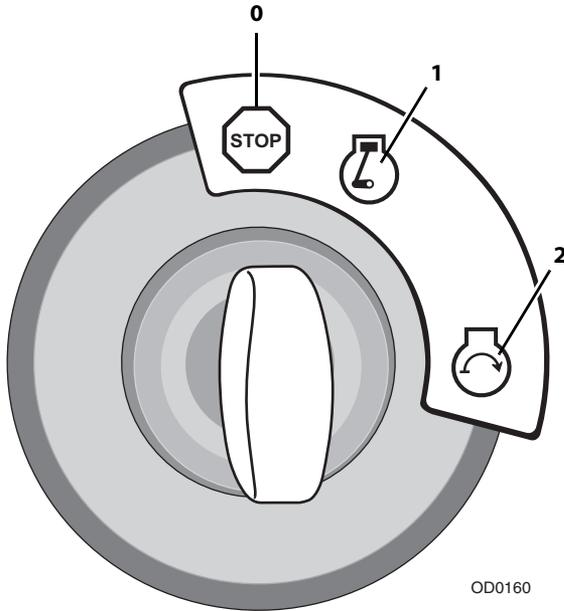
OF0480

1. **Fog Lights Switch (if equipped):** On/Off switch.
2. **Front Work Lights Switch (if equipped):** On/Off switch.
3. **Boom Work Lights Switch (if equipped):** On/Off switch.
4. **Rear Work Lights Switch (if equipped):** On/Off switch.
5. **Beacon Light Switch (if equipped):** On/Off switch.
6. **Hazard Lights Switch (if equipped):** On/Off switch.
7. **Rear Wiper Switch:** On/Off switch.
8. **Roof Wiper Switch (if equipped):** On/Off switch.
9. **Auxiliary Electric Switch (if equipped):** On/Off switch.
10. **Boom Ride Control Switch (if equipped):** On/Off switch. While enabled and travelling 3 mph (5 kph) or faster, the system acts to improve boom control over rough terrain. Depress switch again to disable boom ride control.
11. **Auxiliary Decompression Switch:** Press to relieve pressure in auxiliary hydraulic circuit. See page 5-18.
12. **Power Outlet:** 12V receptacle.

Section 3- Controls and Indicators

13. **Steer Select Switch:** Three positions: front steer, circle steer and crab steer. See page 3-31.
14. **USB Port:** USB ports under protective tab.
15. **Reversing Fan Switch (if equipped):** Three position switch. See page 3-20.
16. **Master Light and Road Lights Switch (if equipped):** Three positions: Off, Enable, On. Switch must be in the enable or on position in order to operate work lights. Prior to machine shut-down, ensure switch is in the off position.

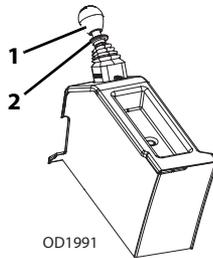
Ignition



- Position **0** - Engine off, no voltage available.
- Position **1** - Voltage available for all electrical functions. Wait to start engine until preheat indicator on instrument panel goes out.
- Position **1** - Engine run.
- Position **2** - Engine start. In the event the engine does not start, rotate key to position 0 then back to position 2 to re-engage the starter.

Section 3- Controls and Indicators

Park Brake



The park brake lever (1) controls the application and release of the park brake.

- Pull lever back to apply park brake.
- Lift detent ring (2) and push lever forward to release park brake.

WARNING

MACHINE ROLL-AWAY HAZARD. In the event of engine failure, apply constant pressure to service brake pedal while activating the park brake to the ON position.

WARNING

MACHINE ROLL-AWAY HAZARD. Always move park brake lever to ON position, lower boom to ground and stop engine before leaving cab.

WARNING

CRUSH HAZARD. Applying park brake or turning engine off while traveling will cause unit to stop abruptly and could cause load loss. Either may be used in an emergency situation.

Parking Procedure

1. Using service brake, stop telehandler in an appropriate parking area.
2. Follow "Shut-Down Procedure" on page 4-5.

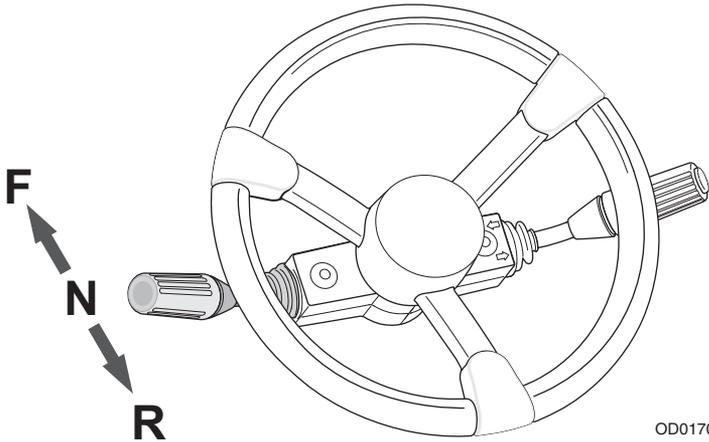
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Section 3- Controls and Indicators

Transmission Control Lever

Direction of Travel Selection

Transmission control lever takes priority over joystick transmission controls.



Transmission control lever engages forward or reverse travel.

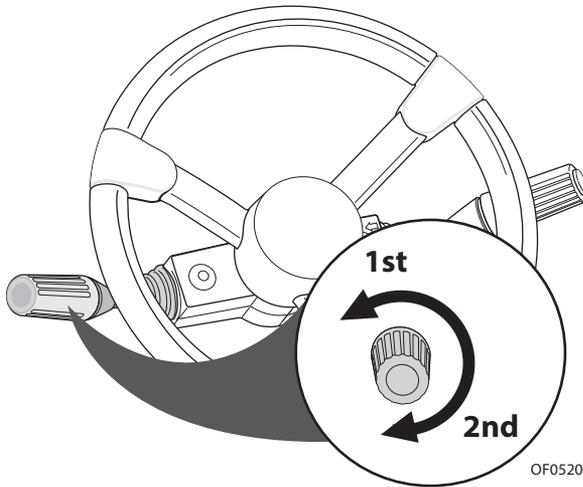
- Push lever forward for forward travel; pull lever rearward for reverse travel. Move lever to centered position for neutral.
- Forward or reverse travel can be selected while in any gear.
- When traveling in reverse, the back-up alarm will automatically sound.
- Drive in reverse and turn only at slow rates of speed.
- Do not increase engine speed with the transmission in forward or reverse and the service brake pressed in an attempt to get quicker hydraulic performances. This could cause unexpected machine movement.



WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop before shifting transmission control lever. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

Gear Selection (if equipped)



Gear selection is located on the twist grip handle of transmission control lever.

- Twist hand grip to select gear.
- Select appropriate gear for task being performed. **Use a lower gear for transporting a load.** Use a higher gear only when driving unloaded for longer distances.
- Stop prior to downshifting.

Driving Direction and Gear will flash on LCD Display when shifting gears.

1. Bring telehandler to a complete stop.
2. Shift gear.
3. Wait momentarily while shift is being executed. Driving Direction and Gear will flash.
4. Proceed to drive. Driving Direction and Gear will become solid on LCD Display after successfully shifting gears.

Note: Machine may experience a delay while shift is being executed.



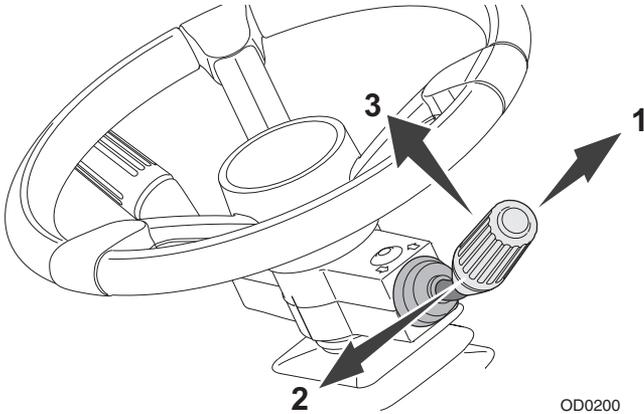
WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop on flat ground before shifting gears. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

Section 3- Controls and Indicators

Accessory Control Lever

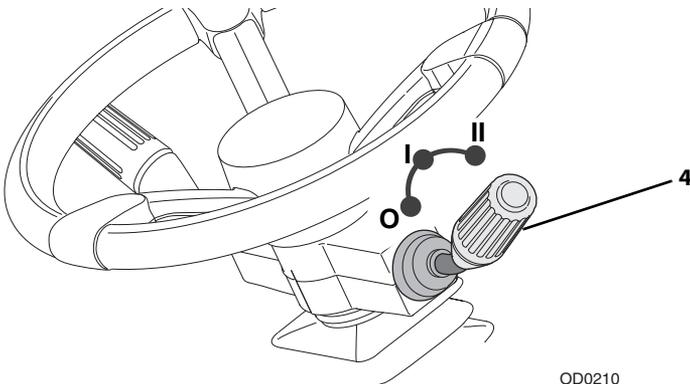
Turn Signals and Low/High Beam Headlights



OD0200

- Push accessory control lever forward (1) to activate left turn signal.
- Pull lever backward (2) to activate right turn signal.
- The lever must be manually returned to the center position to deactivate either turn signal. The lever will not cancel automatically after a turn.
- Pull lever up (3) to switch between low and high beam headlights.

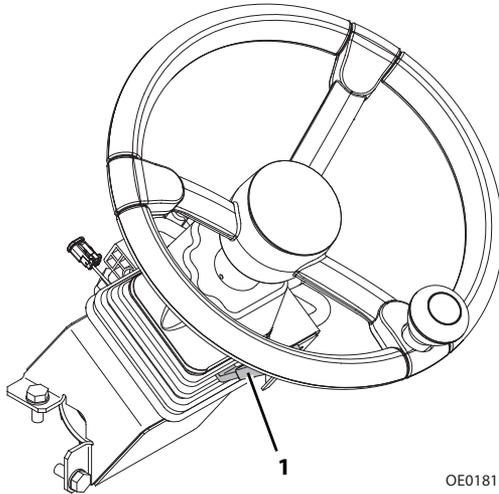
Front Windshield Wiper



OD0210

- Rotate hand grip (4) to activate front windshield wiper.
O - Off, I - Continuous or II - Fast.
- Push hand grip (4) towards column to activate windshield wiper fluid.

Steering Column Adjuster



OE0181

- Follow “Shut-Down Procedure” on page 4-5.
- Pull and hold lever (1) to unlock.
- Place steering column in desired position.
- Release lever to lock back into place.

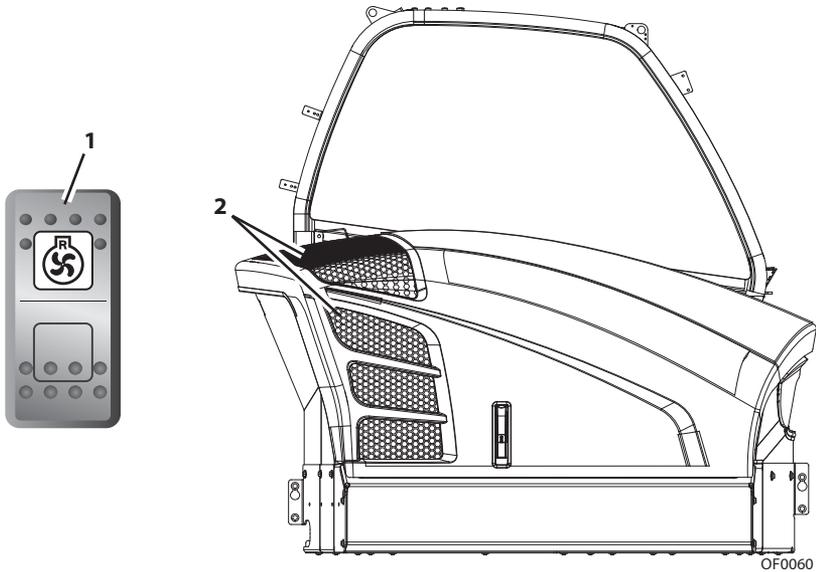


WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop and shutdown engine before adjusting steering column. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

Section 3- Controls and Indicators

Reversing Fan Switch (if equipped)



The reversing fan enables the operator to clear debris from the engine cover grill (2). Two modes of operation are available at any engine speed.

1. **Timed** - Fan will reverse automatically at predetermined intervals.
 - a. The fan will reverse every 20 minutes for a duration of 2 seconds.
 - b. The interval and duration can be adjusted using the analyzer.
2. **Manual** - The operator can depress and hold front of switch (1) to reverse the fan rotation.

Note: It is recommended to operate the reversing fan prior to opening the engine cover to remove debris.

SmartLoad Technology System (if equipped)

The SmartLoad Technology System includes Attachment Recognition, Load Management Indicator System (LMIS) and Load Stability Indicator (LSI) that provides the operator additional guidance on load capabilities.

1. **Attachment Recognition** - Automatically identifies an attachment and displays the appropriate capacity chart to the operator. See page 3-39.
2. **Load Management Indicator System (LMIS)** - Graphically depicts the location of the load within the capacity chart and works in conjunction with the LSI to prevent the operator from violating boundaries of the chart. See page 3-43.
3. **Load Stability Indicator (LSI)** - Works in conjunction with the LMIS to limit operation when a load is nearing the maximum capacity indicated on the capacity chart. See page 3-22.

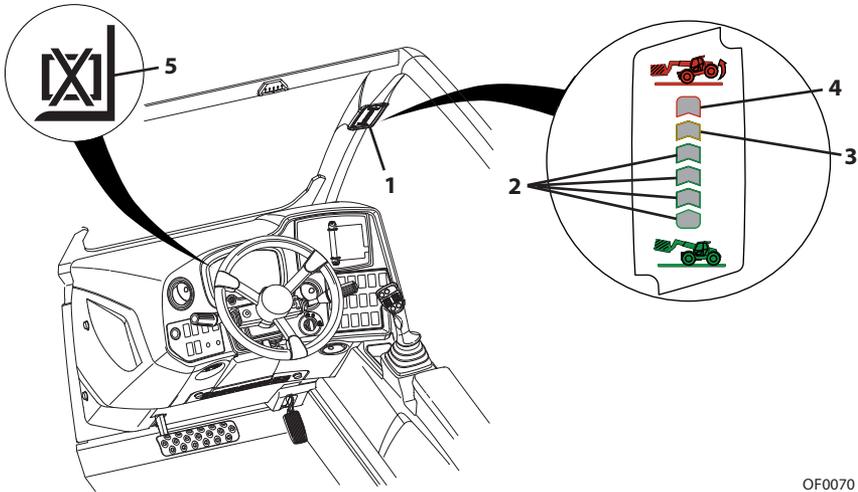
Section 3- Controls and Indicators

Load Stability Indicator - LSI (if equipped)



WARNING

TIP OVER HAZARD. The LSI considers only longitudinal stability limitations, observe all operating parameters. Failure to follow operating parameters of the telehandler could damage the equipment and/or cause tip over.



OF0070

The LSI (1) provides visual and audible indication of forward stability limitations when machine is static on firm, level surface.

- When approaching forward stability limitations LEDs progressively illuminate, green (2), then orange (3) and finally red (4).
- If the red LED illuminates the warning buzzer also sounds.

The LSI has two modes:

Active Mode

- As the telehandler reaches forward stability limitations and the red LED (4) illuminates, the automatic function cut-out is activated. All boom functions are disabled except for boom retract and boom lift. Retract boom to re-enable functions.

Note: When functions are cut-out, the LSI Override Switch can be used to temporarily re-enable them. See "Left Dash Control Panel" on page 3-10.

Section 3- Controls and Indicators

- In some instances the LSI system may slow down or stop boom functions if operated close to forward stability limitations. When LEDs begin to flash, certain functions can not be operated. Retract boom and/or return the joystick to neutral position for a short period to allow system to reset and LEDs to stop flashing before proceeding with operation.

Passive Mode

- The yellow LED (5) on the instrument panel illuminates when the boom is fully retracted.
- When approaching forward stability limitations, visual and audible indication is provided and the automatic function cut-out and/or slow down feature is disabled.
- Travel in accordance with the requirements set forth in Section 1- General Safety Practices.
- When placing a load, ensure axles are not fully steered in either direction.



WARNING

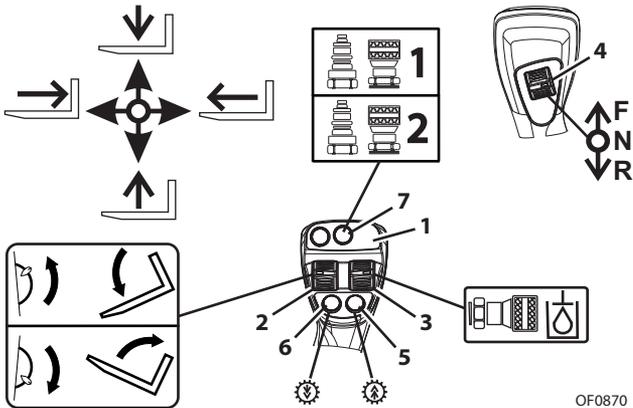
TIP OVER HAZARD. If the green, orange and red LEDs flash and warning buzzer sounds, retract and lower boom immediately. Determine cause and correct before continued use.

Section 3- Controls and Indicators

Joystick

Lift Joystick Pattern

Verify the lift joystick pattern icon is active on the display.



OF0870

The joystick (1) controls the boom, attachment, auxiliary hydraulics and transmission functions.

Boom Functions

- Move the joystick back to lift boom; move joystick forward to lower boom; move joystick right to extend boom; move joystick left to retract boom.
- The speed of boom functions depends upon the amount of joystick travel in corresponding direction. Increasing engine speed will also increase function speed.
- For two simultaneous boom functions, move joystick between quadrants. For example; moving the joystick forward and to the left will lower and retract boom simultaneously.



WARNING

TIP OVER/CRUSH HAZARD. Rapid, jerky operation of controls will cause rapid, jerky movement of the load. Such movements could cause the load to shift or fall or could cause the machine to tip over.

Attachment Tilt Function

Attachment tilt is controlled by the roller switch (2).

- Press the roller switch up to tilt attachment down; press the roller switch down to tilt attachment up.

Auxiliary Hydraulic Functions

The Auxiliary Hydraulics roller switch (3) controls the function of attachments that require the hydraulic supply for operation. See Section 5- Attachments for approved attachments and control instructions.

The Auxiliary Hydraulic selection switch (7) allows the desired auxiliary hydraulic function to be selected. Depress button to alternate between functions.

Transmission Control (if equipped)

Note: *Transmission control lever (see page 3-15) takes priority over joystick transmission controls.*

Transmission roller switch (4) engages forward or reverse travel.

- Push the roller switch up for forward travel; push the roller switch down for reverse travel. Move roller switch to centered position for neutral.
- Forward or reverse travel can be selected while in any gear.
- When traveling in reverse, the back-up alarm will automatically sound.
- Travel at slow rates of speed when making turns and driving in reverse.



WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop before shifting transmission. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

Gear selection is controlled by buttons (5 & 6).

- Depress upshift button (5) to request a higher gear; Depress downshift button (6) to request a lower gear.
- Select the appropriate gear for the task being performed. Use a lower gear when transporting a load. Use a higher gear only when driving unloaded for longer distances.
- Stop prior to downshifting.

Driving Direction and Gear will flash on LCD Display when shifting gears.

1. Bring telehandler to a complete stop.
2. Shift gear.
3. Wait momentarily while shift is being executed. Driving Direction and Gear will flash.

Section 3- Controls and Indicators

4. Proceed to drive. Driving Direction and Gear will become solid on LCD Display after successfully shifting gears.

Note: Machine may experience a delay while shift is being executed.

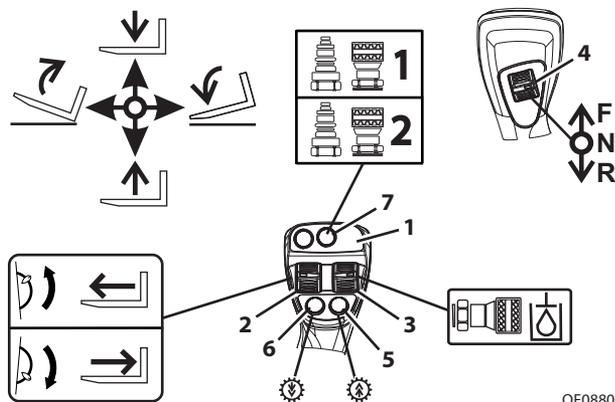


WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop on flat ground before shifting gears. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

Loader Joystick Pattern

Verify the loader joystick pattern icon is active on the display.



The joystick (1) controls the boom, attachment, auxiliary hydraulics and transmission functions.

Boom Functions

- Move the joystick back to lift boom; move joystick forward to lower boom.
- Extend/retract is controlled by the roller switch (2). Push roller switch up to extend boom; push roller switch down to retract boom.
- The speed of boom functions depends upon the amount of joystick travel in corresponding direction. Increasing engine speed will also increase function speed.
- For two simultaneous boom functions, move joystick between quadrants. For example; moving the joystick forward and to the left will lower boom and tilt attachment up simultaneously.



WARNING

TIP OVER/CRUSH HAZARD. Rapid, jerky operation of controls will cause rapid, jerky movement of the load. Such movements could cause the load to shift or fall or could cause the machine to tip over.

Section 3- Controls and Indicators

Attachment Tilt Function

Attachment tilt is controlled by the joystick.

- Move joystick right to tilt down; move joystick left to tilt up.

Auxiliary Hydraulic Functions

The Auxiliary Hydraulics roller switch (3) controls the function of attachments that require the hydraulic supply for operation. See Section 5- Attachments for approved attachments and control instructions.

The Auxiliary Hydraulic selection switch (7) allows the desired auxiliary hydraulic function to be selected. Depress button to alternate between functions.

Transmission Control (if equipped)

Note: *Transmission control lever (see page 3-15) takes priority over joystick transmission controls.*

Transmission roller switch (4) engages forward or reverse travel.

- Push the roller switch up for forward travel; push the roller switch down for reverse travel. Move roller switch to centered position for neutral.
- Forward or reverse travel can be selected while in any gear.
- When traveling in reverse, the back-up alarm will automatically sound.
- Travel at slow rates of speed when making turns and driving in reverse.



WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop before shifting transmission. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

Gear selection is controlled by buttons (5 & 6).

- Depress upshift button (5) to select a higher gear; Depress downshift button (6) to select a lower gear.
- Select the appropriate gear for the task being performed. Use a lower gear when transporting a load. Use a higher gear only when driving unloaded for longer distances.
- Stop prior to downshifting.

Driving Direction and Gear will flash on LCD Display when shifting gears.

1. Bring telehandler to a complete stop.
2. Shift gear.
3. Wait momentarily while shift is being executed. Driving Direction and Gear will flash.
4. Proceed to drive. Driving Direction and Gear will become solid on LCD Display after successfully shifting gears.

Note: Machine may experience a delay while shift is being executed.



WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop on flat ground before shifting gears. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

Section 3- Controls and Indicators

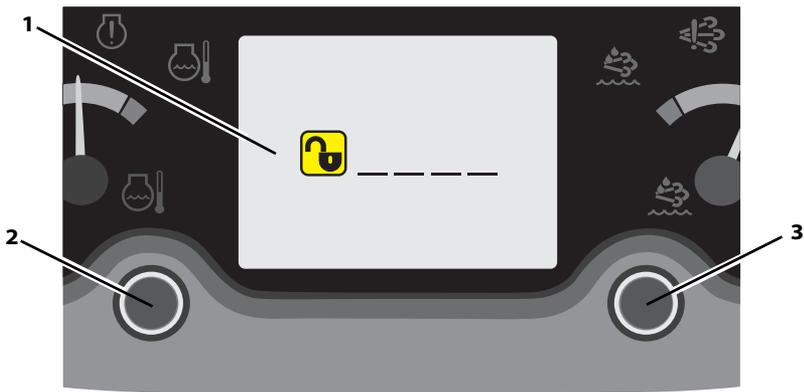
3.3 ANTI-THEFT FUNCTIONALITY (IF ENABLED)

Machines with anti-theft feature active require entering a numeric code before operation to prevent unauthorized use. If multifunction display is installed, anti-theft feature is accessed from that display only.

Note: If the anti-theft feature is active and the current access code is not known, it may be viewed or changed by the machine owner (level 2 password may be required). See Service Manual for information.

Instrument Panel Input

Code entry is accomplished using information provided in the instrument panel display.



OD1240

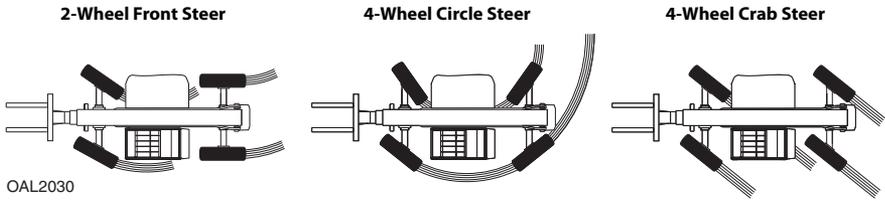
1. Turn ignition switch to position 1. If anti-theft is active, the display (1) will prompt the operator for a numeric code.
2. Use the left button (2) to select the first digit. Press button to increase number. Number will increase from 0 thru 9 then roll over to 0.
3. Press the right button (3) to confirm current digit and move to the next digit.
4. Continue until the code is complete.
5. If an incorrect code is entered, the display will prompt the operator again for the numeric code.
6. If the correct code is entered, normal start up can continue.

Multifunction Display Input

If machine is equipped with Multifunction Display, refer to page 3-56 for anti-theft functionality information.

3.4 STEER MODES

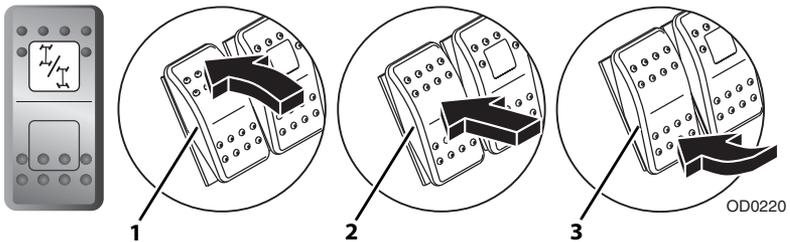
Three steer modes are available for operator use.



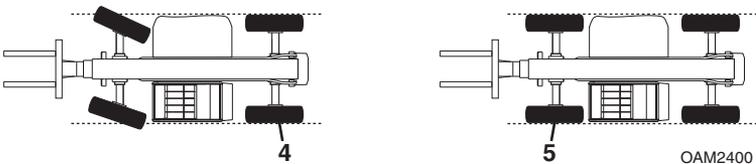
Note: 2-Wheel Front Steer mode is required for travel on public roads.

Manual Steering Alignment Mode Change

Note: Steer mode will change immediately after selection.



1. Bring machine to a stop using service brake. If front steer mode (2) is active and rear wheels are aligned, go directly to step 4.

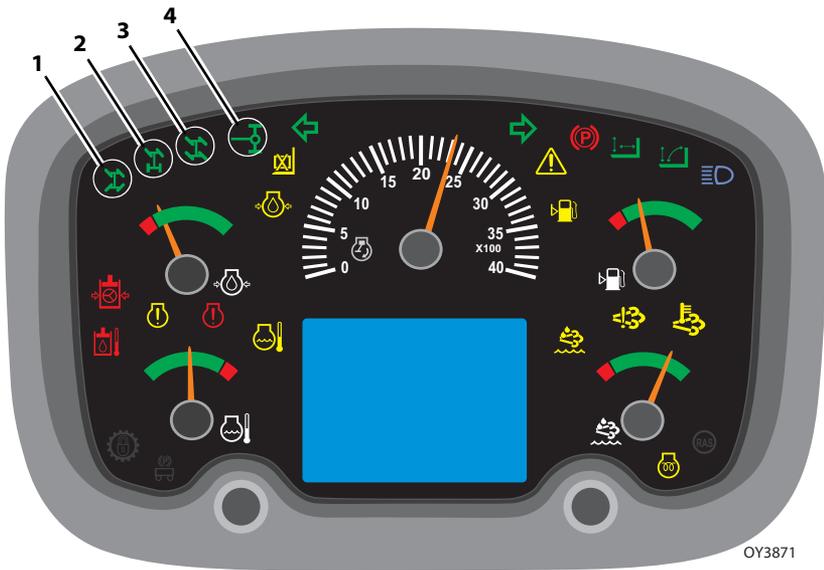
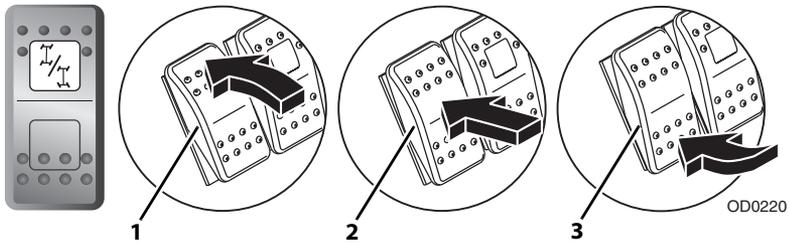


2. With circle steer (1) or crab steer (3) mode active, turn the steering wheel until the left rear wheel (4) is aligned with the side of the machine.
3. Select front steer mode (2).
4. Turn the steering wheel until the left front wheel (5) is aligned with the side of the machine.
5. Wheels are now aligned. Select desired steer mode.

Section 3- Controls and Indicators

All Wheel Assisted Steering Alignment Mode Change

1. Bring machine to a stop using service brake.



2. Select desired steer mode: circle steer (1), front steer (2) or crab steer (3).

Note: Selected steer mode LED will flash until the change is complete. After steering alignment is complete, steer mode LED will illuminate solid.

3. Turn the steering wheel slowly until the rear wheels are centered (4). This step will be skipped if changing from front steer mode and rear wheels are already centered.
4. Turn the steering wheel slowly until the front wheels are centered. This step will be skipped if changing to front steer mode.
5. Wheels are now aligned and steer mode change is complete.

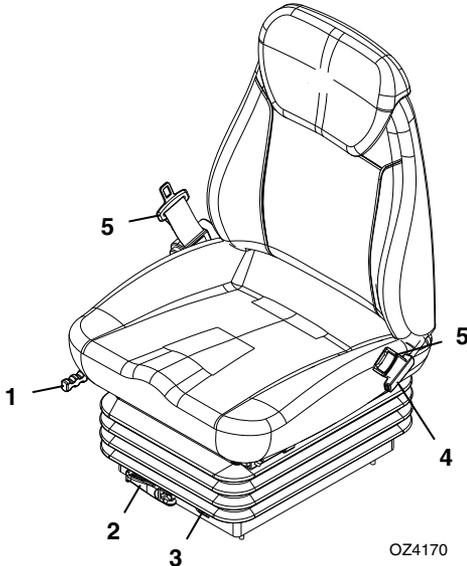
Note: Avoid turning steering wheel while machine is shut down. If wheels are not correctly aligned, manual adjustment may be required. See page 3-31.

3.5 OPERATOR SEAT

Adjustments

Prior to starting the engine adjust seat for position and comfort.

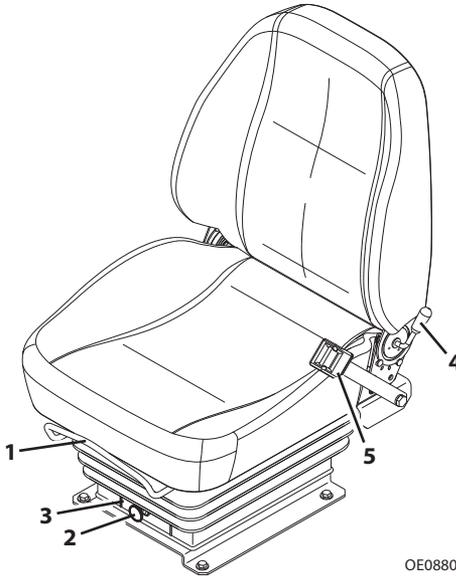
Mechanical Suspension Seat



1. **Fore/Aft:** Use handle to move seat fore and aft.
2. **Suspension:** Use handle to adjust the suspension to the appropriate weight setting.
3. **Weight:** Displays current weight setting.
4. **Backrest:** Use lever to adjust backrest angle.
5. **Seat Belt:** Always fasten seat belt during operation. If required, a 3 in (76 mm) seat belt is available.

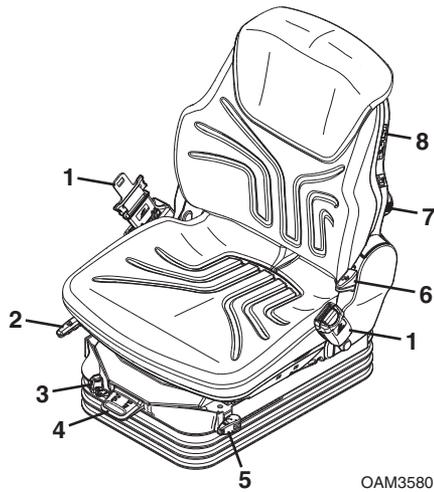
Section 3- Controls and Indicators

Pneumatic Suspension Seat



OE0880

1. **Fore/Aft:** Use handle to move seat fore and aft.
2. **Suspension:** Use knob to adjust the suspension to the appropriate weight setting.
3. **Weight:** Displays current weight setting.
4. **Backrest:** Use lever to adjust backrest angle.
5. **Seat Belt:** Always fasten seat belt during operation. If required, a 3 in (76 mm) seat belt is available.



OAM3580

- 1. Seat Belt:** Always fasten seat belt during operation. If required, a 3 in (76 mm) seat belt is available.
- 2. Fore/Aft:** Use handle to move seat fore and aft.
- 3. Absorber:** Use lever to adjust cushioning to soft or hard.
- 4. Suspension:** Use the lever to adjust the suspension to the appropriate weight and height settings.
- 5. Fore/Aft Isolator:** Use lever to activate fore/aft isolator.
- 6. Backrest:** Use lever to adjust backrest angle.
- 7. Lumbar:** Use knob to adjust the height and curvature of the backrest cushion.
- 8. Heater:** Use switch to activate seat heater.

Section 3- Controls and Indicators

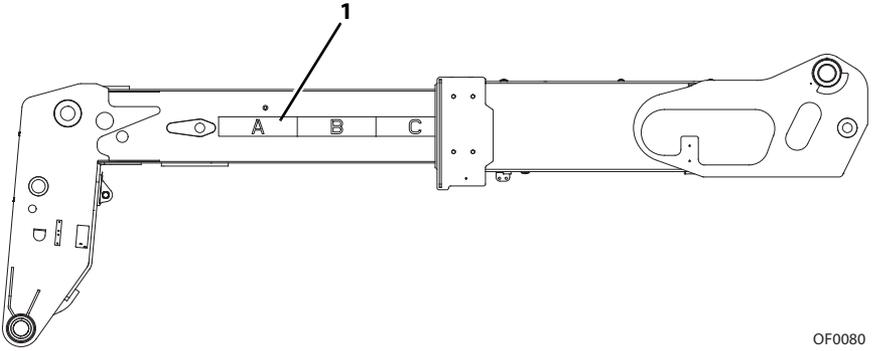
Seat Belt



Fasten seat belt as follows:

1. Grasp both free ends of the belt making certain that belt webbing is not twisted or entangled.
2. With back straight in the seat, couple the retractable end (male end) of the belt into the receptacle (buckle) end of the belt.
3. With belt buckle positioned as low on the body as possible, pull the retractable end of the belt away from the buckle until it is tight across the lap.
4. To release belt latch, press red button on the buckle and pull free end from buckle.

3.6 BOOM EXTENSION INDICATORS



OF0080

- The boom extension indicators (1) are located on the left side of the boom. Use these indicators to determine boom extension when using the capacity chart (see "Use of the Capacity Chart" on page 5-5).

3.7 REVERSE SYSTEMS (IF EQUIPPED)



WARNING

CRUSH HAZARD. Running into persons or objects can cause death, serious injury, or damage to property and equipment. Always check mirrors and area behind vehicle before and when backing up. Reverse systems are for supplementary use only.

Reverse Sensing System

The reverse sensing system provides audible indication of objects to rear of unit while in reverse gear.

- Alarm sounds signaling machine is placed in reverse gear.

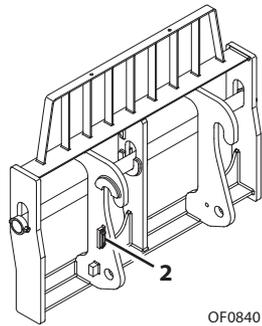
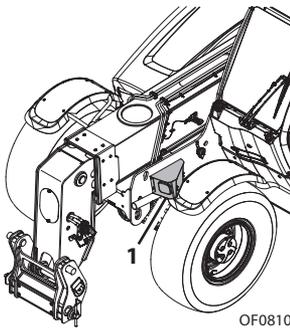
Note: *Reverse Sensing System detects objects larger than 36 square inches (232.25 square centimeters) area and is functional when machine is moving in reverse direction.*

- No alarm when detection zone is clear of objects.
- Pulsing alarm sounds when an object is in range of Reverse Sensing System. Alarm increases in frequency as object becomes closer.
- If alarm sounds at a frequency of eight pulses per second (8 Hz) an object is detected within 5 feet (1.5 m). Stop reverse direction of machine by applying service brake. Perform “*Shut-Down Procedure*” on page 4-4. Check and clear area behind machine of objects before proceeding in a reverse direction.

Reversing Camera

If machine is equipped with Multifunction Display, refer to page 3-59 for reversing camera information.

3.8 ATTACHMENT RECOGNITION (IF EQUIPPED)



- The attachment recognition antenna (1) is located on the left side of the frame. The Radio Frequency Identification (RFID) tag (2) on the attachment is recognized through this antenna allowing the machine to identify the attachment and display the appropriate capacity chart to the operator on the Multifunction Display (see page 3-40).

Note: Fork mounted attachments cannot be identified using the attachment recognition system. The manual selection process for the correct capacity chart is required. See "Capacity Chart Selection" on page 3-57.

Section 3- Controls and Indicators

3.9 MULTIFUNCTION DISPLAY (IF EQUIPPED)

General Information

This section provides the necessary information needed to understand the multifunction display.

Start of Multifunction Display

The multifunction display will be active when the ignition is in position 1.



OAP0010

After the multifunction display has been powered on, the machine brand logo (1) will be displayed briefly followed by the home screen.

Note: If anti-theft is active, the display will prompt the operator for a numeric code. See page 3-56 for procedure.

Multifunction Display and Buttons

Note: Apply park brake to access the Attachment Selection and Main Menu buttons.



OF0321

1. Display: The display shows the following depending on selection.

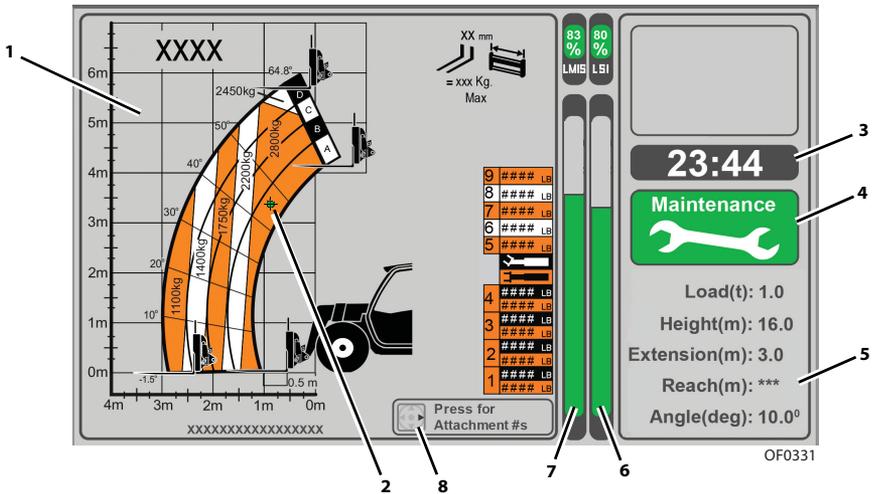
- Anti-theft. See page 3-56.
- Home screen. See page 3-43.
- Reversing camera (if equipped). See page 3-59.
- Advanced diagnostics. See page 3-48.
- Maintenance charts. See page 3-60.
- Lubrication charts. See page 3-62.
- Personalities screen: Personalities menu displays various electrically controlled parameters that drive the hydraulic functions related to frame level, boom lift, extend/retract and auxiliary. See Service Manual for more personalities information.
- Operator tools screen. See page 3-53.
- Calibration screen. See page 3-54.

Section 3- Controls and Indicators

- 2. Previous Screen Button:** The previous screen button returns the display to the previous menu or screen. The screen will not change if already at the home screen.
- 3. Attachment Select Button:** The attachment selection button allows the operator to select a specific attachment in order to display the applicable capacity chart. See page 3-57.
- 4. Navigation Button:** The navigation button has four arrow buttons to navigate up, down, left or right. The center button allows the operator to confirm the selection.
- 5. Main Menu Button:** The main menu button displays the main menu. The operator can navigate the menu using the navigation button. See page 3-47.
- 6. Home Screen Button:** The home screen button returns display to the home screen. The screen will not change if already at the home screen.

Home Screen

The home screen displays at the successful startup or when the Home Screen button is selected.



1. Capacity Chart: The capacity chart is displayed based on the selected attachment. See page 3-57 for capacity chart selection and page 5-10 for use of the capacity chart.

Note: If the display does not have capacity charts, see Service Manual for troubleshooting.

2. Load Indicator Circle (if equipped with LMIS): The cross hairs are displayed to show where the load is currently located with respect to the capacity chart.

Note: If LMIS has not been calibrated for the selected attachment or if an issue exists with LMIS, the load indicator circle (2) and LMIS bar graph (7) will be red, the cab and beacon tower alarms will sound and all hydraulic functions will be prevented. To re-enable functions, select an attachment that has been previously calibrated for LMIS or see Service and Maintenance Manual for troubleshooting.

3. Real-Time Clock (RTC): The real-time clock displays the time in 12 or 24 hour format.

4. Maintenance Status: The maintenance status icon shows the current status of maintenance and notifies the operator if any maintenance activity is required. See page 3-51.

- Green: No scheduled maintenance required.
- Yellow: Scheduled maintenance required. See page 3-60.

Note: Brand logo is displayed when the maintenance status is not enabled.

Section 3- Controls and Indicators

5. Lifting Information (if equipped with LMIS): The lifting information displays the load and boom position information.

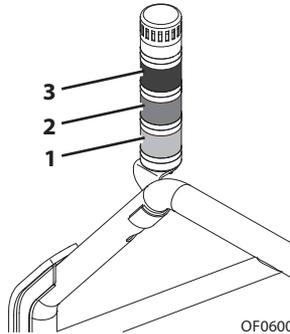
- Load: Displays approximate load in pounds or metric ton. Load includes object being lifted and all rigging (slings, etc).
- Height: Displays boom height in feet or meters.
- Length: Displays boom length in feet or meters.
- Radius/Reach: Displays boom reach from front of tires in feet or meters.
- Angle: Displays boom angle in degrees.

6. Load Stability Indicator (LSI) Bar Graph (if equipped with LMIS): Load stability indicator system bar graph displays forward stability limitations when machine is static on firm, level surface. See *“Load Stability Indicator - LSI (if equipped)”* on page 3-22.

- Green: LSI bar graph displays in green color when forward stability limitations is less than 90%.
- Yellow: LSI bar graph displays in yellow color when forward stability limitations is between 90% and 99%.
- Red: LSI bar graph displays in red color when forward stability limitations is greater than 100%.

Note: Hydraulic functions will be prevented when LSI bar graph displays in red.

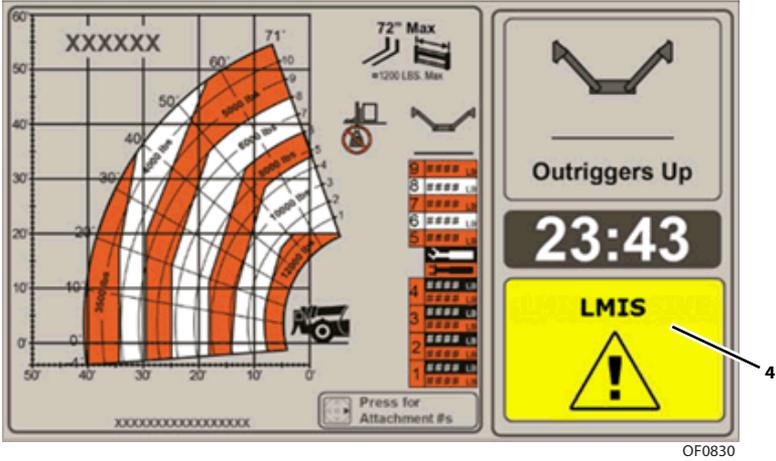
VIEW OF EXTERNAL LMIS AUDIBLE BEACON
TOWER (IF EQUIPPED)



- 7. Load Management Indicator System (LMIS) Bar Graph (if equipped):** Load management indicator system bar graph and external audible beacon tower display approximate load percentage to rated capacity.
- Green: LMIS bar graph and external audible beacon tower display in green (1) color when load is less than rated capacity.
 - Yellow: LMIS bar graph and external audible beacon tower display in yellow (2) color and intermittent alarm sounds when load is approaching rated capacity.
 - Red: LMIS bar graph and external audible beacon tower display in red (3) color and constant alarm sounds when automatic function cut-out is activated. Certain functions are disabled (i.e. boom lift, extend, etc). Retract boom to re-enable functions.

Note: When functions are cut-out, the LSI Override Switch can be used to temporarily re-enable them. See "Left Dash Control Panel" on page 3-10.

Section 3- Controls and Indicators



LMIS Passive Mode: In LMIS passive mode, the LMIS warning indicator (4) will display. When this indicator is shown, LMIS will not prevent any hydraulic functions. The external audible beacon tower will not illuminate or sound an alarm and no functions will be prevented if lifted load exceeds the rated capacity.

Note: *LMIS Passive Mode can only be enabled/disabled for non-suspended load attachments by a qualified technician. See Service and Maintenance Manual for information.*

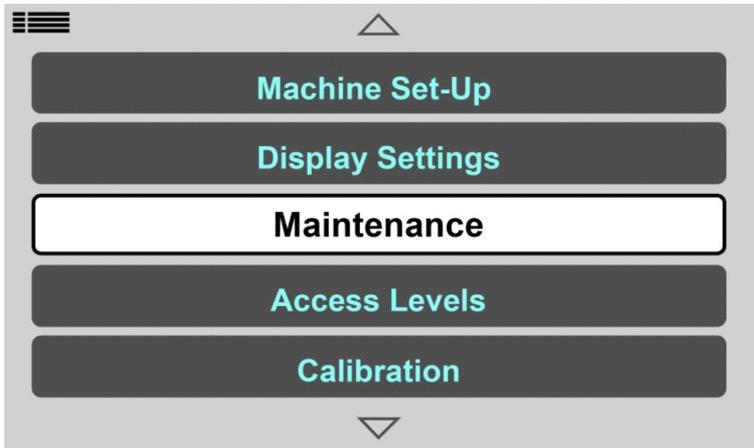
8. Attachment Part Numbers: Press right Navigation button to display the list of OEM supplied attachment part numbers. Part numbers display for 3 seconds, then home screen displays.



OAP0040

Main Menu

Press the Main Menu button to access the main menu.



OAP0050

Note: Scroll up or down to view all items.

Maintenance

Maintenance menu displays the maintenance intervals and lubrication requirements to properly maintain the telehandler.

Maintenance Intervals: Maintenance intervals allow the operator to view all the unique maintenance tasks required when engine hours reach an identified interval or multiples of the intervals. See page 3-60.

Lubrication: Lubrication allows the operator to view lubrication charts. See page 3-62.

Access Level

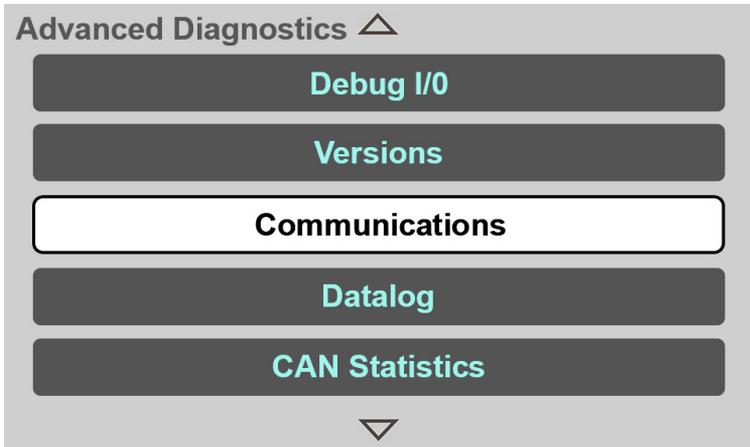
The access level screen displays the current access level. Code entry determines access level.

- Operator (Level 3) - No code required.
- Customer (Level 2) - See Service Manual.
- Service (Level 1) - Manufacturer service representative only.

Section 3- Controls and Indicators

Advanced Diagnostics

Advanced diagnostics menu allows the operator to view diagnostic information.



OAP0060

Communications: Communications screen displays the status of all CAN modules in the control system. The status of the appropriate module will be RED in color, if there is any CAN loss. If the communication is good, the appropriate module status will be GREEN in color.

Versions: Versions screen displays the version of the software, hardware and constant data of control modules in the machine.

Debug I/O: Debug I/O screen displays the status of all inputs/outputs and assigned machine function name for the cabin control module, front frame facing control module, and rear frame facing control modules.

Engine: Engine screen displays parameters related to engine.

Joystick: Joystick screen displays parameters related to the joystick.

Transmission: Transmission screen displays parameters related to the drive or transmission.

Hydraulics: Hydraulics screen displays parameters related to the frame level and cabin functions.

Load Stability Indicator: Load stability indicator screen displays parameters related to Load stability indicator.

Calibration Data: Calibration data screen displays calibration values for all calibrated sensors in the control system.

System: System screen displays parameters related to control system.

Drive/Steer: Drive/Steer screen displays parameters related to steering system.

Lights: Lights screen displays parameters related to lighting.

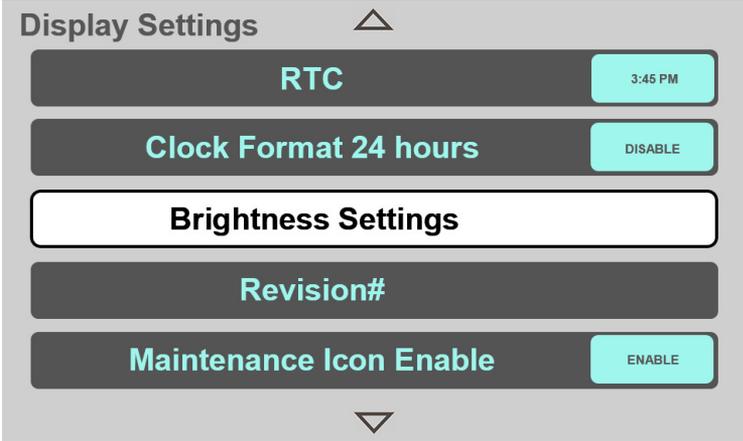
Boom Ride & Float: Boom ride and float screen displays parameters related to boom ride and float.

CAN Statistics: CAN statistics screen displays the parameters of the system bus and diagnostic bus.

Section 3- Controls and Indicators

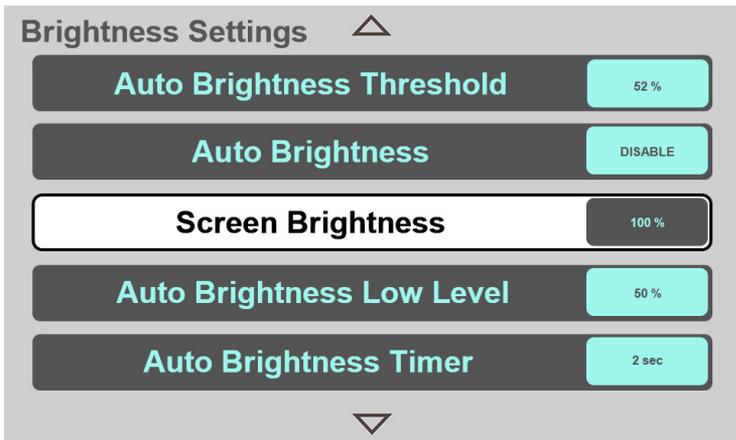
Display Settings

Display settings menu allows the operator to set up the Real-Time Clock (RTC) and screen brightness. Additionally, the operator can view the language settings, maintenance status icon (enable/disable) and revision number of library files.



OAP0070

Brightness Settings: Brightness settings menu allows the operator to adjust the screen brightness. It consists of following features to adjust the screen brightness.



OAP0080

- a. **Screen Brightness:** Screen brightness allows the operator to adjust the screen brightness (0 - 100% in 1% increment).
- b. **Auto Brightness:** Auto brightness screen allows the operator to set auto brightness to enable or disable mode.
- c. **Auto Brightness Threshold:** Auto brightness threshold allows the operator to adjust the auto brightness threshold value when auto brightness is enabled. Based on ambient light level and auto brightness threshold, display will set to auto brightness low level or screen brightness.
- d. **Auto Brightness Timer:** Auto brightness timer allows the operator to adjust the length of time to change to appropriate brightness when auto brightness is enabled.
- e. **Auto Brightness Low Level:** Auto brightness low level allows the operator to set the preferred lowest brightness level (in %) when auto brightness is enabled.

Clock Format 24 Hours: Clock format screen allows the operator to set the real-time clock in 12 or 24 hour format.

Real-Time Clock (RTC): Real-time clock screen allows the operator to set hours, minutes, month, day and year by the use of navigation button.

Language: Language allows the operator to view the current language. See Service Manual to change current language.

Maintenance Icon Enable: Maintenance icon enable screen allows the operator to set the maintenance status to enable or disable mode on the home screen.

Revision#: Revision# screen displays the revision numbers of all libraries (capacity and maintenance chart) and application.

Section 3- Controls and Indicators

Machine Set-Up

Machine set-up menu displays configuration (brand, model, engine, transmission, etc.) of the machine.

The screenshot shows a 'Machine Set-up' menu with four rows. The first row is 'Model' with a light blue button containing 'XXXX'. The second row is 'Vehicle' with a light blue button containing 'XXXX'. The third row is 'Brand' with a dark grey button containing 'JLG'. The fourth row is 'Options' with a dark grey button. The menu is titled 'Machine Set-up' at the top left and has an upward-pointing triangle at the top right and a downward-pointing triangle at the bottom center.

OAP0090

Brand: Brand displays brand name of the machine.

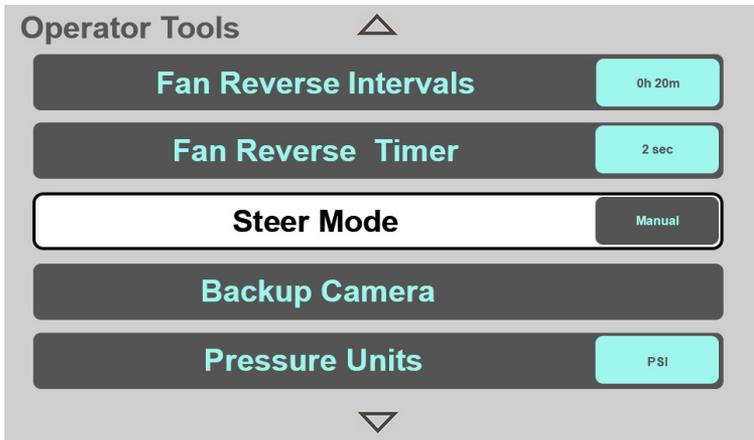
Vehicle: Vehicle displays the type of vehicle based on boom configuration and market preferences.

Model: Model displays machine model.

Options: Options screen provides machine configuration details for transmission, engine control, auxiliary functions and all other controls.

Operator Tools

Operator tools menu allows the operator to set various machine settings.



OAP0100

Steer Mode: Steer mode allows the operator to select desired steer mode.

- a. Manual steer mode
- b. Automatic steer mode (not utilized on current model)

Fan Reverse Timer (if equipped): Fan reverse timer allows the operator to set the duration to rotate the fan in reverse direction.

Fan Reverse Interval (if equipped): Fan reverse interval allows the operator to set the interval between fan reversals.

Default Gear: Default gear allows the operator to set the default transmission gear when engine is started.

Elevated Idle: Elevated idle allows the operator to set the elevated idle.

Vehicle Speed Units: Vehicle speed units allows the operator to set the units for vehicle speed in MPH or KPH.

Temperature Units: Temperature units allows the operator to set the units for temperature in Fahrenheit (F) or Celsius (C).

Pressure Units: Pressure units allows the operator to set the units for pressure in PSI or BAR.

Backup Camera (if equipped): Backup camera allows the operator to temporarily view the area behind the telehandler on the home screen.

Section 3- Controls and Indicators

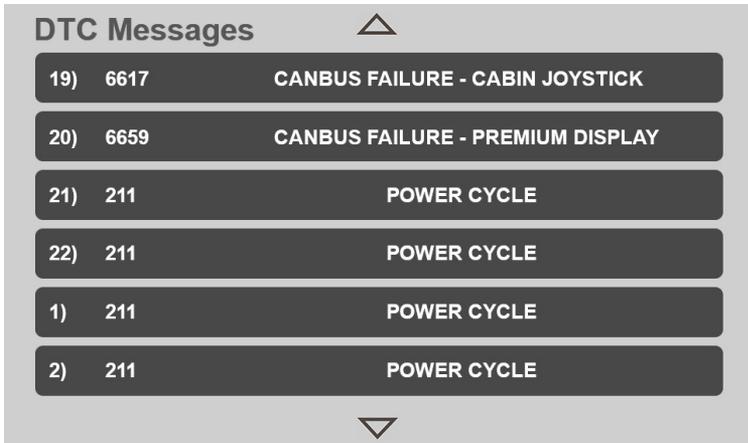
Calibrations

Calibrations menu allows the operator to perform functionality checks for various machine controls.

- Park brake test. See page 3-66.
- See Service Manual for more calibrations information.

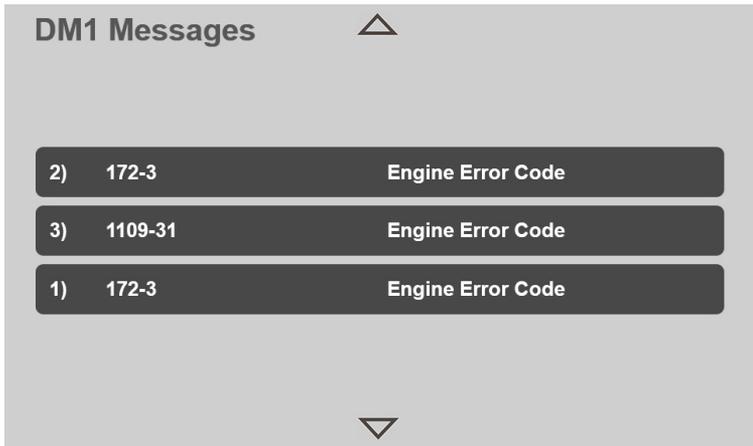
Error Messages (Fault Codes)

Error messages screen allows the operator to view up to 25 recently logged Diagnostic Trouble Code (DTC)/Diagnostics Message 1 (DM1) fault codes along with a text description. The fault codes are displayed in the order in which they are received. Active fault codes are shown with an asterisk symbol. See Service Manual for additional fault code information.



OAP0110

DTC Messages: DTC messages display all machine related fault codes. The DTC message consists of a three to five digit number and corresponding message.



OAP0120

DM1 Messages: DM1 messages display all engine related fault codes. The DM1 message consists of the Suspect Parameter Number (SPN) and Fault Mode Indicator (FMI) component.

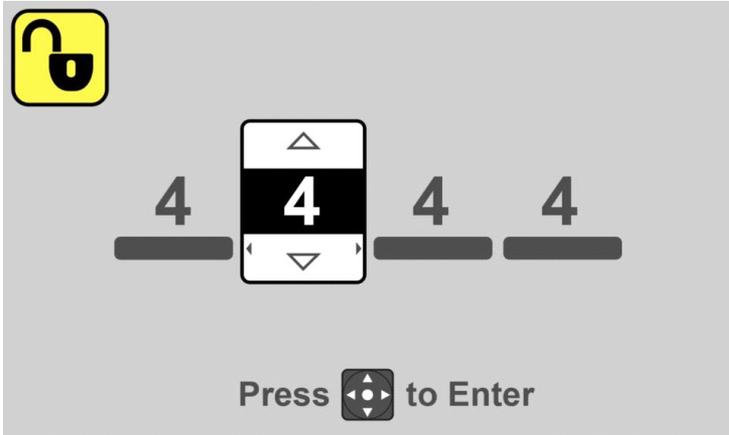
Section 3- Controls and Indicators

Operation and Maintenance

Anti-Theft Functionality

Machines with anti-theft feature active require entering a numeric code before operation to prevent unauthorized use. If multifunction display is installed, anti-theft feature is accessed from that display only.

Note: If the anti-theft feature is active and the current access code is not known, it may be viewed or changed by the machine owner. See Service Manual.



OD1920

1. Turn ignition switch to position 1. If anti-theft is active, the display will prompt the operator for a numeric code.
2. Press the up/down arrows of the Navigation button to select the first digit.
3. Press the right arrow of the Navigation button to move to the next digit.
4. Continue until the code is complete. Press the center of the Navigation button to confirm the code.
5. If an incorrect code is entered, the display will prompt the operator again for the numeric code.
6. If the correct code is entered, normal start up can continue.

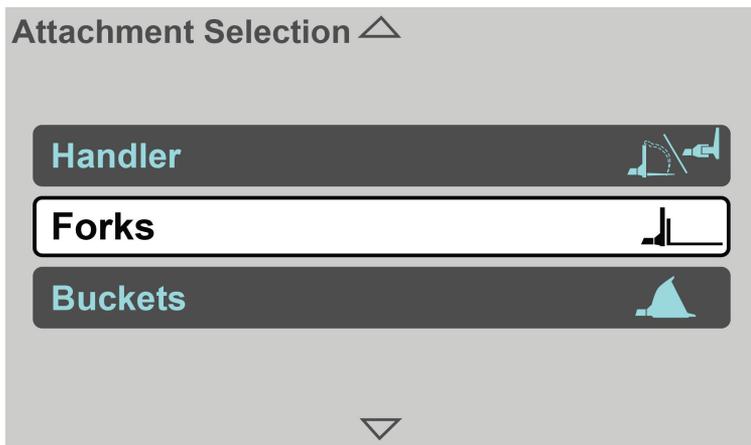
Capacity Chart Selection

The home screen displays proper capacity chart based on the selected attachment.

A. Attachment Selection

The attachment selection button allows the operator to select a specific attachment in order to display the applicable capacity chart.

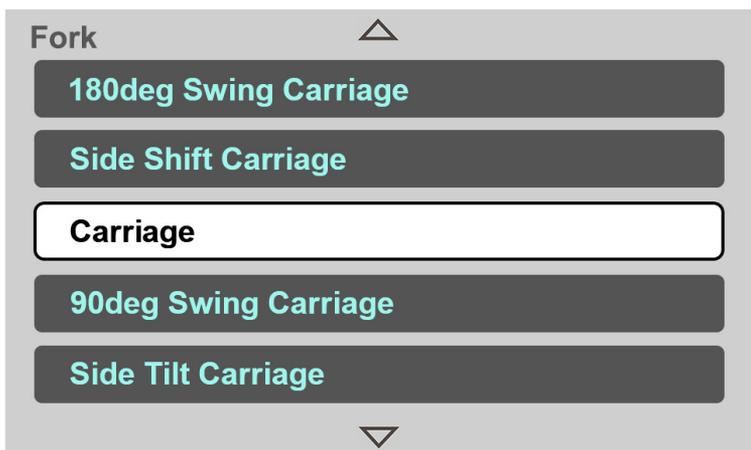
1. Press the Attachment Select button to access the types of attachments.



OAP0130

2. Select the type of attachment.

Note: Scroll up or down to view all items.



OAP0140

3. Select the specific attachment to be used.



OAP0150

4. A message screen will display to confirm the selection. Press Home Screen button to go to home screen, the capacity chart for the selected attachment will display.

Note: *When Attachment Recognition is fitted, the system will automatically attempt to identify the current attachment and briefly display this confirmation screen when the attachment is successfully identified. If the attachment cannot be identified, the attachment recognition error screen will display. See page 3-71 for details.*

Reversing Camera (if equipped)



WARNING

CRUSH HAZARD. Running into persons or objects can cause death, serious injury, or damage to property and equipment. Always check mirrors and area behind vehicle before and when backing up. Reverse systems are for supplementary use only.

The reversing camera provides an additional view of the area directly behind the telehandler. The view displays on the multifunction display home screen when the telehandler is running, transmission is in reverse and when backup camera is configured to be present under machine Setup. The display automatically returns to the standard home screen when transmission is shifted out of reverse.



OAP0160

The screen provides a graphic overlay indicating approximate distances of objects at rear of telehandler.

- **Red Line:** Approximately 5 ft (1,52 m).
- **Yellow Line:** Approximately 15 ft (4,57 m).

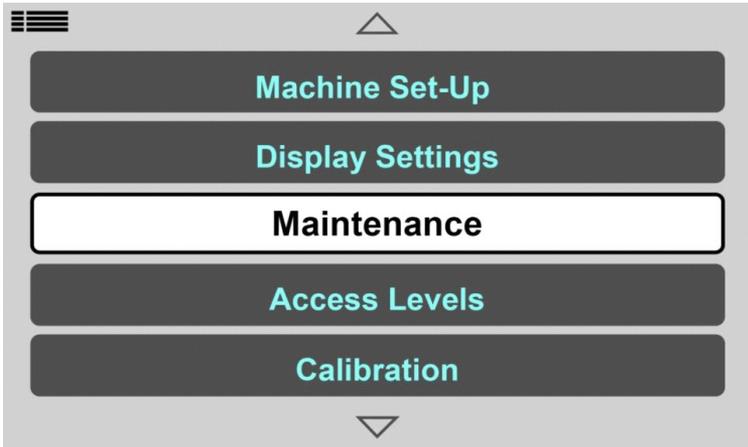
NOTICE

EQUIPMENT MALFUNCTION. Always keep camera lens clean. Camera may not operate normally at extremely high or low temperatures.

Section 3- Controls and Indicators

Maintenance Schedule Screen

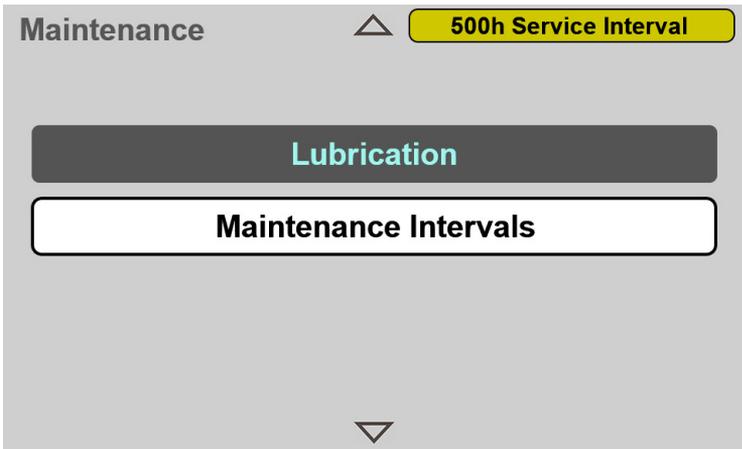
Maintenance schedules identify maintenance tasks required when operating hours reach an identified interval.



OAP0050

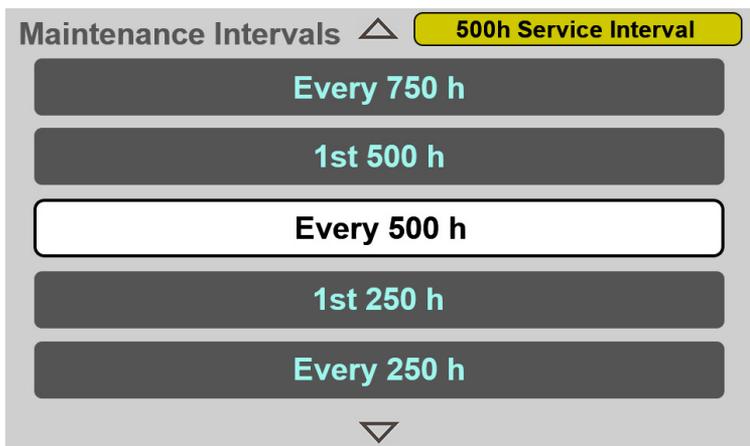
1. Press Main Menu button and select Maintenance.

Note: Scroll up or down to view all items.



OAP0170

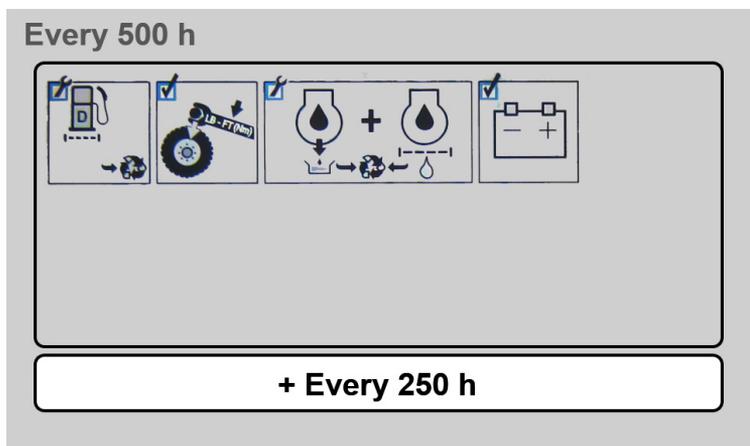
2. Select Maintenance Intervals.



OAP0180

3. Select the required maintenance interval to view the maintenance schedule. See Section 7- Lubrication and Maintenance for additional information.

Note: The screen will display the current maintenance interval in the upper right corner when scheduled operating hours are reached.



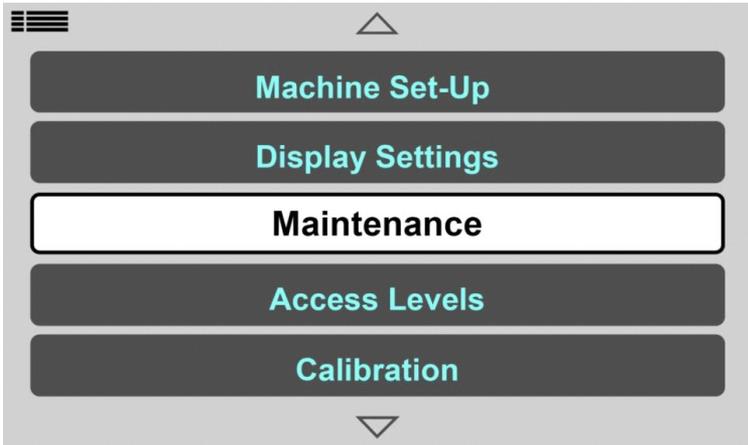
OAP0190

4. Press the center of the Navigation button to view subsequent maintenance schedules until maintenance intervals screen displays.

Section 3- Controls and Indicators

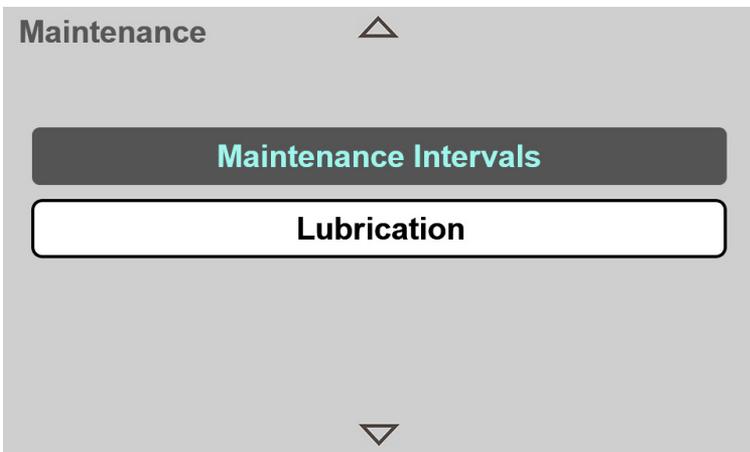
Lubrication Schedule Screen

Lubrication schedules identify lubrication tasks required when operating hours reach an identified interval.



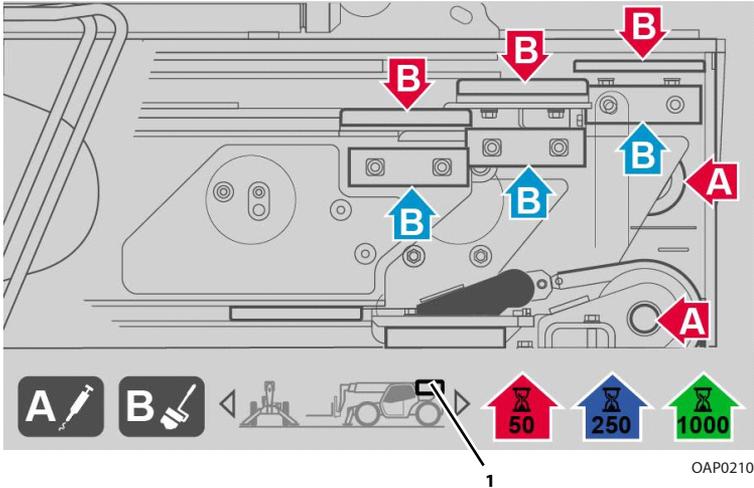
OAP0050

1. Press Main Menu button and select Maintenance.



OAP0200

2. Select Lubrication to view the lubrication schedule.

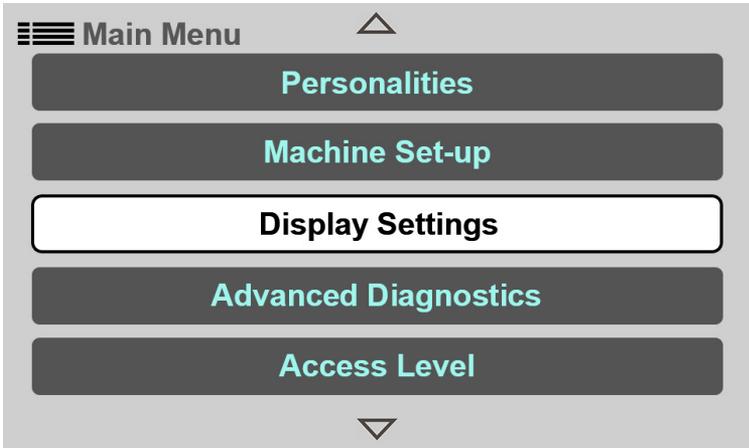


3. Use left/right arrow of the Navigation button to view lubrication points in different locations. See Section 7- Lubrication and Maintenance for additional information.

Note: Rectangle (1) indicates the area of the machine displayed on the screen above.

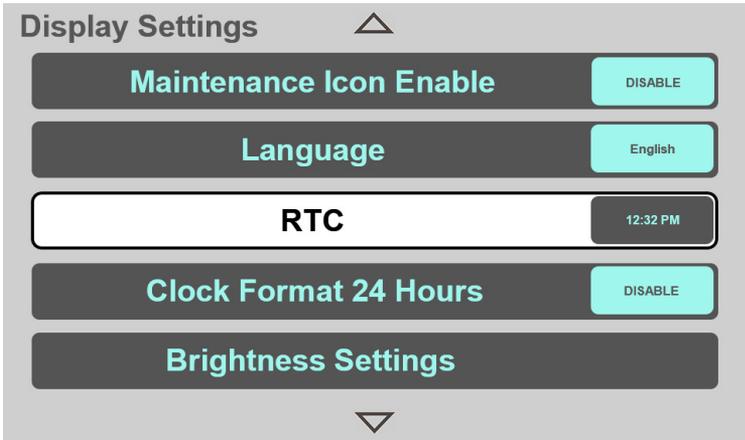
Section 3- Controls and Indicators

Real-Time Clock (RTC) Setup



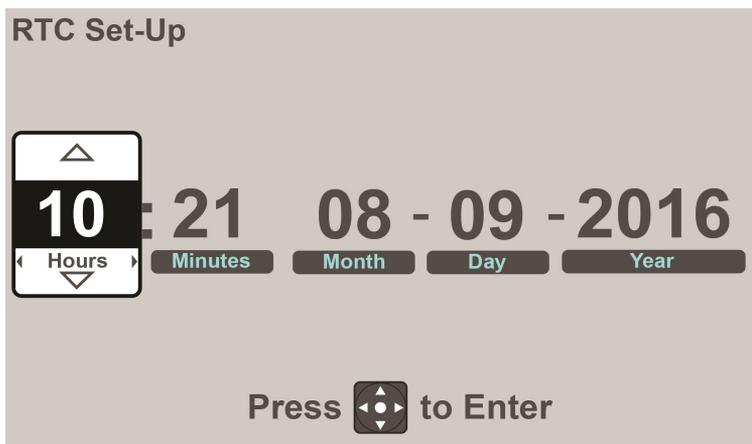
OAP0220

1. Press Main Menu button and select Display Settings.



OAP0230

2. Select RTC to set the date and time.



OAP0240

3. Press the up/down arrow of the Navigation button to select the first digit.
4. Press the right arrow of the Navigation button to move to the next digit.
5. Continue until the set-up is complete. Press the center of the Navigation button to confirm.

Section 3- Controls and Indicators

Park Brake Test

Park brake test allows the operator to check the function of park brake.

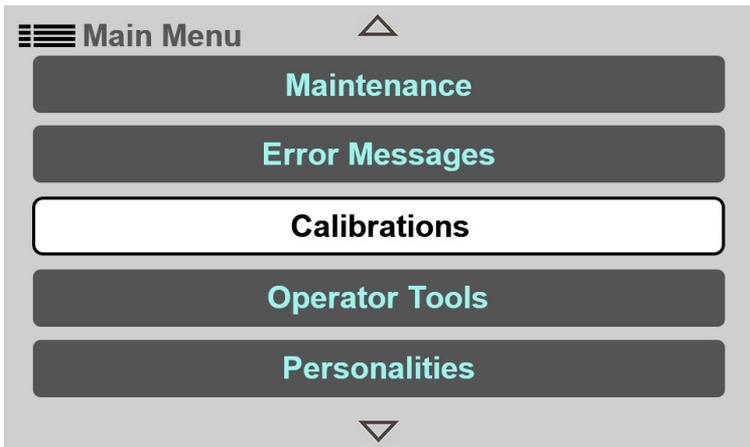
Note: Each step of the calibration procedure must be completed within 60 seconds. If not, then the calibration fails and need to initiate the calibration procedure again.



WARNING

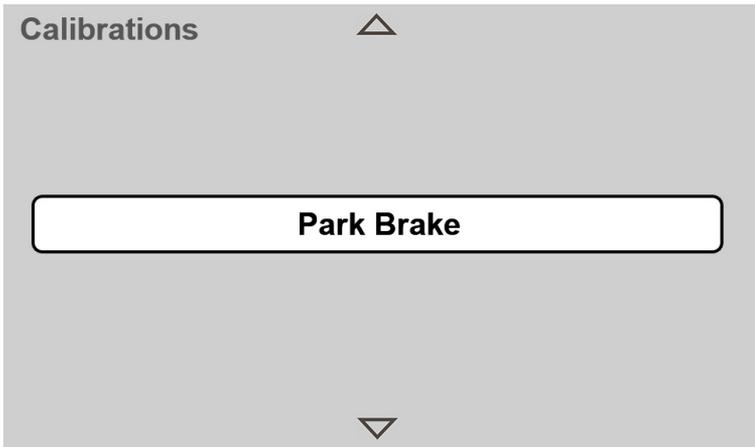
CRUSH HAZARD. Running into persons or objects can cause death, serious injury, or damage to property and equipment. Always check mirrors and area around machine before performing any test. Apply service brake if machine moves.

1. Apply park brake and start engine to perform the test.



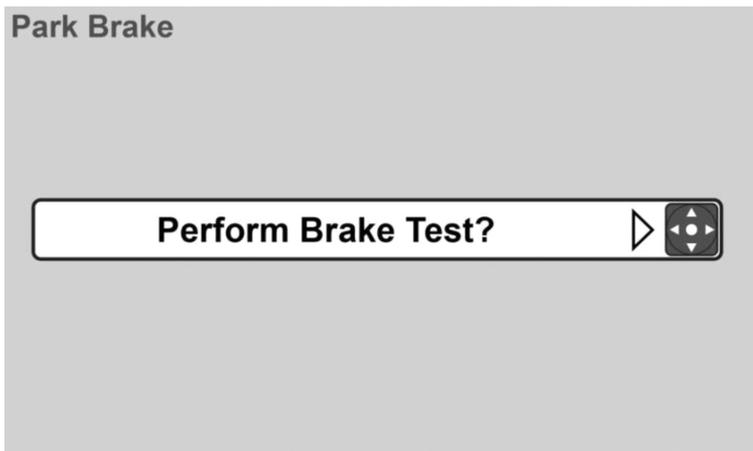
OAP0250

2. Press Main Menu button and select Calibrations.



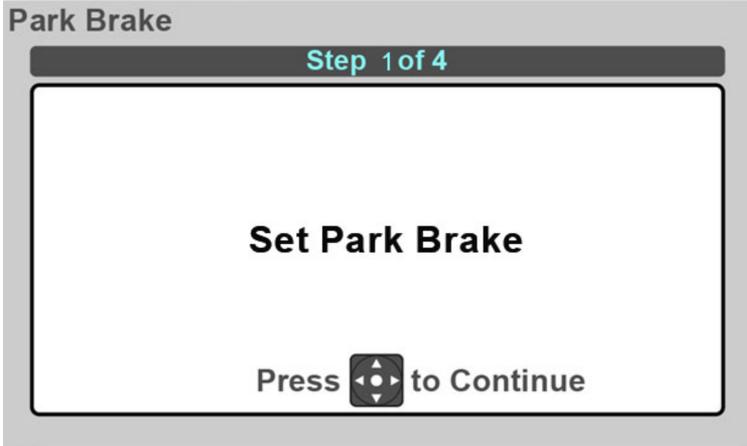
OAP0260

3. Select Park Brake.



OAP0270

4. Press center of the Navigation button to confirm "Perform Brake Test?".



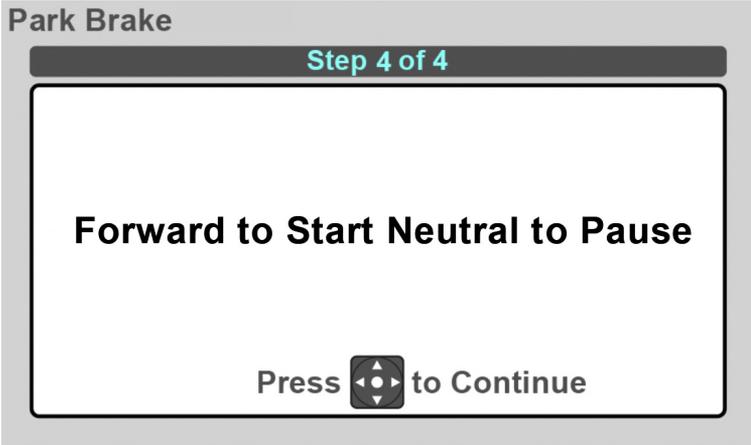
OAP0280

5. Ensure the park brake is engaged. Press center of the Navigation button to confirm.



OAP0290

6. Display shows warning message, "Warning: Drive will be engaged". Place transmission in second gear with engine at idle. Press center of the Navigation button to continue.



OAP0300

7. Place the transmission in Forward (F).
8. Place the transmission in Neutral (N). Press center of the Navigation button to continue.
9. "Park Brake Test Complete" will be displayed if successful. Press center of the Navigation button to confirm and return to calibrations menu.
"Park Brake Test Failed" will be displayed if failed. Press center of the Navigation button to confirm and return to calibrations menu to repeat the test. If failed again, machine must be removed from service and repaired before continued operation.

Section 3- Controls and Indicators

Troubleshooting

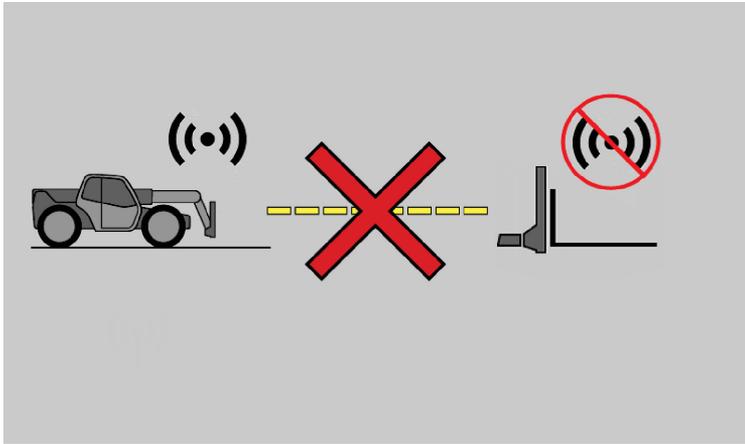
Communication Error Screen



OAP0310

Communication error screen will be displayed if there is a communication failure. Wait for a few moments and restart the machine. If the communication error continues to display, contact the local JLG dealer.

Attachment Recognition Error Screen



OF0820

Attachment recognition error screen will be displayed whenever the attachment recognition needs repaired or if the attachment cannot be identified.

When this screen appears, the following will occur:

- Boom functions will be prevented
- Cab and beacon tower alarms will sound
- Beacon tower will illuminate red
- LMIS information on multifunction display will be red

To clear the error screen, the operator must manually select an attachment using the attachment select button on the Multifunction Display (see page 3-41).

To troubleshoot an attachment that cannot be identified with the attachment recognition:

1. Ensure RFID tag is firmly affixed to the attachment and in view of the antenna (see page 3-39).
2. Ensure boom is raised slightly and not extended more than 10 ft (3,05 m) from front of machine.
3. Press coupler switch (see page 3-10) momentarily to re-attempt attachment identification. A confirmation screen will appear if successful. If the attachment recognition error continues to display, contact the local JLG dealer.

If the attachment recognition needs repaired, see Service and Maintenance Manual for troubleshooting.

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SECTION 4 - OPERATION

4.1 ENGINE

Note: Refer to Engine Operation & Maintenance Manual for additional information.

Starting the Engine in Normal Conditions

See "Machine Temperature Chart" on page 9-1 for machine operational temperatures. Consult JLG for operation outside these ranges or under abnormal conditions.

If equipped for extreme cold weather, see page 4-2 for starting procedure.

1. Make sure all controls are in "Neutral" and all electrical components (lights, heater, etc.) are turned off. Apply park brake.
2. Turn ignition switch to position 1 and wait for engine preheat indicator on instrument panel to go out.
3. Turn ignition switch to position 2 to engage starting motor. Release key immediately when engine starts. If engine fails to start within 20 seconds, release key and allow starting motor to cool for a few minutes before trying again.
4. After engine starts, observe indicators. If indicators remain on for more than five seconds, stop engine and determine cause before restarting engine.

Note: If engine preheat indicator flashes after engine starts, accelerator pedal is deactivated until indicator goes out.

5. Warm up engine at approximately 1/2 throttle.

Note: Engine will not start unless transmission is in neutral and park brake is applied.



WARNING

UNEXPECTED MOVEMENT HAZARD. Always ensure that transmission is in neutral and the service brake is applied before releasing park brake. Releasing park brake in either forward or reverse could cause the machine to move abruptly.



WARNING

ENGINE EXPLOSION. Do not spray ether into air intake for cold weather starting.

Section 4- Operation

Extreme Cold Weather Starting (if equipped)

If equipped with extreme cold weather components, machine can be operated in temperatures of -40°F to 0°F (-40° C to -20° C).

1. Machine must be equipped with heating components and extreme cold weather fluids. See Section 9- Specifications for fluid details.
2. Locate the three yellow extension cords stored behind seat in cab.
3. Connect the hydraulic tank heater to one extension cord, the battery and block heaters to another extension cord and the oil pan heater to the remaining extension cord. Connect each extension cord to separate A/C power supplies with a minimum rating of 15 Amps each.
4. Allow the heating components to operate a minimum of 12 hours prior to machine operation.
5. Follow start-up procedure on page 4-1 and allow engine to idle 20 minutes.
6. Operate all boom functions continuously for five minutes to circulate the warm hydraulic fluid.
7. Perform *"Shut-Down Procedure"* on page 4-5.
8. Disconnect A/C power supplies and place back in storage locations.
9. Machine is ready for operation.

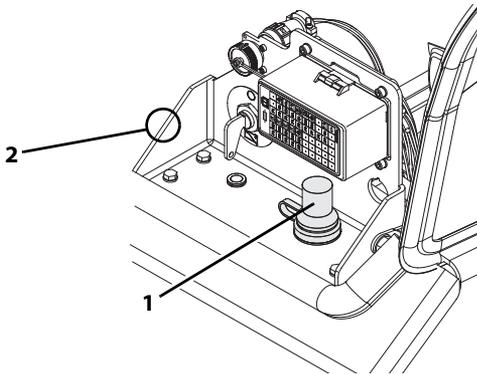
Battery Boosted Starting



OW0530

If battery-boost starting (jump-start) is necessary, proceed as follows:

- Never allow vehicles to touch.
- Ensure boosting vehicle engine is running.



- Remote battery post is located on right side of engine compartment for jump-starting.
- Connect positive (+) jumper cable to positive (+) post (1) of discharged battery.
- Connect opposite end of positive (+) jumper cable to positive (+) post of booster battery.
- Connect negative (-) jumper cable to negative (-) post on booster battery.
- Connect opposite end of negative (-) jumper cable to ground point on machine (2).
- Follow standard starting procedures.
- Remove cables in reverse order after machine has started.



WARNING

BATTERY EXPLOSION HAZARD. Never jump-start or charge a frozen battery as it could explode. Keep sparks, flames and lighted smoking materials away from battery. Lead acid batteries generate explosive gases when charging. Wear safety glasses.

Section 4- Operation

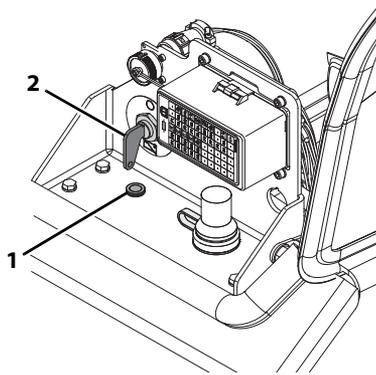
Normal Engine Operation

- Observe instrument panel and display frequently to be sure all systems are functioning properly.
- **Be alert for unusual noises or vibration.** When an unusual condition is noticed, park machine in safe position and perform shut-down procedure. Report condition to your supervisor or maintenance personnel.
- **Avoid prolonged idling.** If engine is not being used, turn it off.
- If prolonged idling is required (park brake applied and all controls in neutral), engine idle may increase if any of the following conditions are present.
 - Driving lights on.
 - Air conditioning on.
 - Ambient temperature below -1° F (-17° C).
- When operating a machine at high altitudes, a decrease in machine performance may occur due to a decrease in air density. When operating a machine at high temperatures, a decrease in machine performance and an increase in engine coolant temperature may occur. Contact JLG for operation under abnormal conditions.

Shut-Down Procedure

When parking the telehandler, park in a safe location on flat level ground and away from other equipment and/or traffic lanes.

1. Apply park brake.
2. Shift transmission to "Neutral".
3. Lower forks or attachment to ground.
4. Operate engine at low idle for 3 to 5 minutes. **DO NOT over rev engine.**
5. Shut off engine and remove ignition key.
6. Exit telehandler properly.



7. If equipped for ULS, purge indicator (1) will illuminate until DEF is purged from the system. Do not turn key (2) to off while indicator is illuminated.
8. Turn off electrical master switch.
9. Block wheels (if necessary).

Section 4- Operation

4.2 AFTER-TREATMENT SYSTEM (ATS) (IF EQUIPPED FOR ULS)

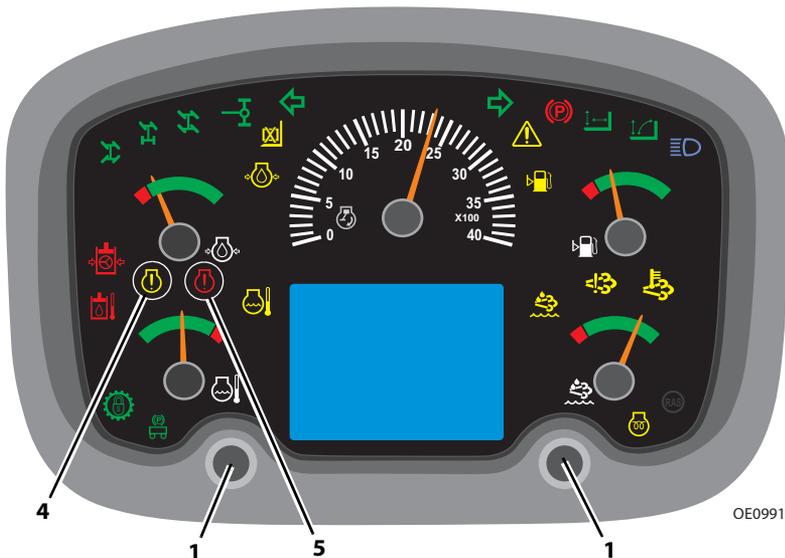
This machine is equipped with an exhaust After-Treatment System. Selective Catalytic Reduction (SCR) Indicator (2) will slowly blink when a maintenance/desulphurization or decrystallization refresh is required. Prior to a stationary exhaust system cleaning, ensure all stationary conditions are met.

1. Move telehandler to a level area free of flammables and people that could be exposed to hot exhaust.
2. Keep engine warm (coolant temperature above 39°C) and at idle speed and ensure no engine system faults are active.
3. Shift transmission to neutral, retract and lower boom and engage park brake.

Note: In cold environments, ensure DEF tank is thawed so that DEF pump can prime and inject.

Stationary Exhaust System Cleaning

To initiate stationary exhaust system cleaning, hold instrument panel buttons (1) simultaneously for 3 seconds.

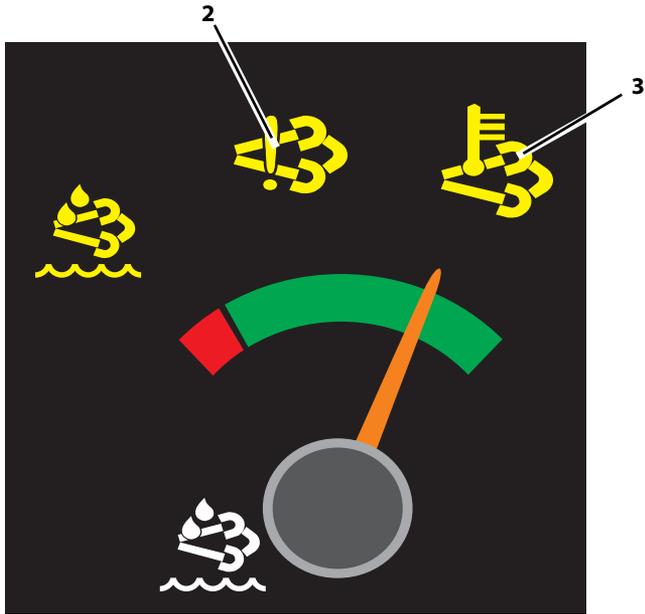


Note: JLG Analyzer may also be used to initiate exhaust system cleaning (except during idle lock induction).



WARNING

HIGH EXHAUST TEMPERATURE. Keep flammables and people away from hot exhaust.



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1. SCR (2) and High Exhaust System Temperature (HEST) (3) Indicators will illuminate during stationary exhaust system cleaning.

Note: Do not operate boom controls, park brake or accelerator pedal during exhaust system cleaning. Stationary exhaust system cleaning will stop and may be incomplete if any controls are inadvertently moved or activated.

2. If exhaust system cleaning is interrupted, both instrument panel buttons (1) must be pressed again simultaneously for 3 seconds to re-initiate cycle.
3. Exhaust system cleaning takes up to approximately 35 minutes. Stationary exhaust system cleaning is complete after SCR and HEST indicators go off.
4. If exhaust system cleaning is unsuccessful, SCR indicator (2) will turn off for 2 seconds before resuming a slow blink. Ensure all stationary conditions have been met.

NOTICE

EQUIPMENT DAMAGE. If exhaust system cleaning is ignored, Engine Fault Warning Indicator (4) will illuminate and a 25% power derate will begin. Immediately bring machine to a stop and perform stationary exhaust system cleaning. If cleaning is still ignored, Engine Fault Critical Indicator (5) will illuminate and engine will go into idle speed lock. Contact the local dealer.

Section 4- Operation

4.3 OPERATING WITH A NON-SUSPENDED LOAD

Lift Load Safely

- You must know weight and load center of every load you lift. If you are not sure of weight and load center, check with your supervisor or with supplier of the material.



WARNING

TIP OVER HAZARD. Exceeding lift capacity of the telehandler could damage the equipment and/or cause tip over.

- Know rated load capacities (refer to Section 5) of telehandler to determine operating range in which you can safely lift, transport and place a load.

Picking Up a Load

- Note conditions of the terrain. Adjust travel speed and reduce amount of load if conditions warrant.
- Avoid lifting double-tiered loads.
- Make sure load is clear of any adjacent obstacles.
- Adjust spacing of forks so they engage the pallet or load at maximum width. See *“Adjusting/Moving Forks”* on page 5-19.
- Approach load slowly and squarely with fork tips straight and level. **NEVER** attempt to lift a load with just one fork.
- **NEVER** operate telehandler without a proper and legible capacity chart in operator cab for telehandler/attachment combination you are using.

Transporting a Load



- After engaging the load and resting it against the backrest, tilt the load back to position it for travel. Travel in accordance with the requirements set forth in Section 1- General Safety Practices and Section 5- Attachments.

Leveling Procedure

1. Position machine in best location to lift or place load.
2. Apply parking brake and shift transmission to NEUTRAL.
3. Observe level indicator(s) to determine whether machine must be leveled prior to lifting load. Level machine with frame level switch (see page 3-3).
4. Move boom/attachment to 4 ft (1,2 m) off ground.

Important things to remember:

- Never raise boom/attachment more than 4 ft (1,2 m) above ground unless telehandler is level.
- Combination of frame leveling and load could cause telehandler to tip over.

Section 4- Operation

Placing a Load

Before placing any load be sure that:

- Landing point can safely support weight of the load.
- Landing point is level; front to back and side to side.
- Use capacity chart to determine safe boom extension range. See *"Use of the Capacity Chart"* on page 5-10.
- Align forks at level the load is to be placed, then position boom slowly until load is just above area where it is to be placed.
- Lower the boom until the load rests in position and the forks are free to retract.

Disengaging a Load

Once the load has been placed safely at the landing point, proceed as follows:

1. With forks free from weight of load, boom can be retracted.
2. Lower carriage.
3. Telehandler can now be driven from landing location to continue work.

4.4 OPERATING WITH A SUSPENDED LOAD

Lift Load Safely

- You must know weight and load center of every load you lift. If you are not sure of weight and load center, check with your supervisor or with supplier of the material.



WARNING

TIP OVER HAZARD. Exceeding lift capacity of the telehandler could damage the equipment and/or cause tip over.

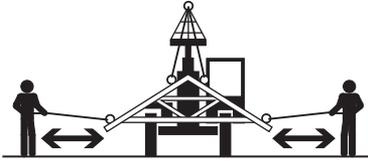
- Know rated load capacities (refer to Section 5) of telehandler to determine operating range in which you can safely lift, transport and place a load.

Picking Up a Suspended Load

- Note conditions of terrain. Adjust travel speed and reduce amount of load if conditions warrant.
- Avoid lifting double-tiered loads.
- Make sure load is clear of any adjacent obstacles.
- **NEVER** operate telehandler without a proper and legible capacity chart in operator cab for telehandler/attachment combination you are using.
- Only use approved lifting devices rated for lifting of load.
- Identify proper lifting points of load, taking into consideration center of gravity and load stability.
- Ensure to always properly tether loads to restrict movement.
- Refer to *"Use of the Capacity Chart"* on page 5-10 for proper lifting guidelines in addition to appropriate capacity chart in operator cab.

Section 4- Operation

Transporting a Suspended Load



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- Travel in accordance with the requirements set forth in Section 1- General Safety Practices and Section 5- Attachments.
- For additional requirements, refer to appropriate capacity chart in operator cab.

Important things to remember:

- Ensure boom is fully retracted.
- Never raise load more than 11.8 in (300 mm) above ground surface or boom more than 45°.
- Combination of frame leveling and load could cause telehandler to tip over.
- Guide persons and operator must remain in constant communication (verbal or hand) and be in visual contact with operator at all times.
- Never place guide persons between suspended load and telehandler.
- Only transport load at walking speed, 0.9 mph (0.4 m/s), or less.

Leveling Procedure

1. Position machine in best location to lift or place load.
2. Apply parking brake and shift transmission to NEUTRAL.
3. Observe level indicator(s) to determine whether machine must be leveled prior to lifting load. Level machine with frame level switch (see page 3-3).
4. Move boom so load is no more than 11.8 in (300 mm) above ground surface and boom/or boom is raised no more than 45°.

Placing a Suspended Load

Before placing any load be sure that:

- Landing point can safely support weight of load.
- Landing point is level; front to back and side to side.
- Use capacity chart to determine safe boom extension range. See *“Use of the Capacity Chart”* on page 5-10.
- Align load at level the load is to be placed, then position boom slowly until load is just above area where it is to be placed.
- Ensure that guide persons and operator remain in constant communication (verbal or hand) when placing load.

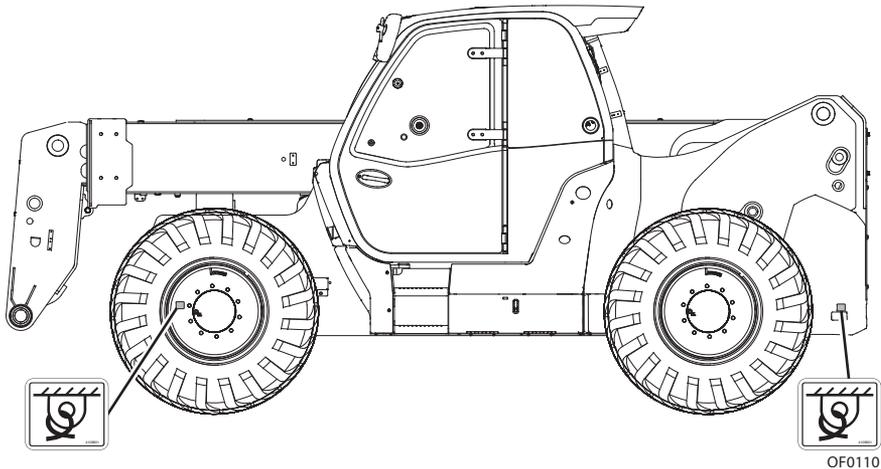
Disengaging a Suspended Load

- Never place guide persons between suspended load and telehandler.
- Once at destination of load, ensure to bring telehandler to a complete stop and apply park brake prior to disengagement of lifting devices and tethers.

Section 4- Operation

4.5 LOADING AND SECURING FOR TRANSPORT

Tie Down



1. Level telehandler prior to loading.
2. Using a spotter, load telehandler with boom as low as possible.
3. Once loaded, apply parking brake and lower boom until boom or attachment is resting on deck. Move all controls to "Neutral," stop engine and remove ignition key.
4. Secure machine to deck by passing chains through designated tie down points as shown in figure.
5. Do not tie down front of boom.

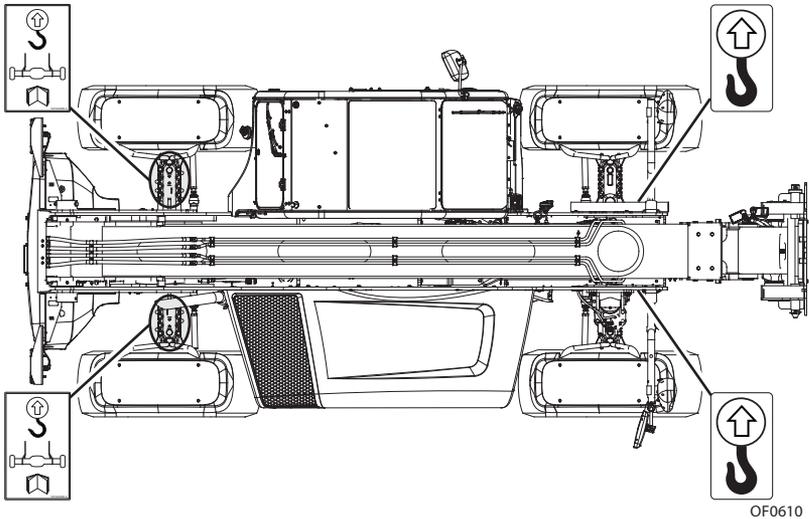
Note: User assumes all responsibility for choosing proper method of transportation and tie-down devices, making sure equipment used is capable of supporting weight of vehicle being transported and that all manufacturer's instructions and warnings, regulations and safety rules of their employer, Department of Transportation and/or any other local, state or federal/provincial laws are followed.



WARNING

TELEHANDLER SLIDE HAZARD. Before loading telehandler for transport, make sure deck, ramps and telehandler wheels are free of mud, snow and ice. Failure to do so could cause telehandler to slide.

Lifting



The weight of the machine is listed on the serial number plate located at the front of the frame. Actual machine weight and center of gravity will vary depending on attachment, fluid levels and machine options. Actual weight and center of gravity should be verified prior to lifting.

The following precautions must be taken when lifting the machine with a mobile crane:

- When lifting machine, it is very important that the lifting device and equipment is attached only to designated lifting points. If machine is not equipped with lifting lugs contact JLG Product Safety for information.
- Make adjustments to the lifting device and equipment to ensure that the machine will be level when elevated. The machine must remain level at all times while being lifted.
- Machine must never be lifted by any point on the boom.
- Take care not to let cables, chains, slings, etc. contact any part of the vehicle during lift.
- The appropriate lifting locations for the rear of the machine are the axle beams, inboard of the kingpins. Take care as not to damage the axles and components.
- Ensure that the boom is retracted and lowered.
- Ensure that the lifting device and equipment is adequately rated and suitable for the intended purpose.
- Remove all loose items from machine prior to lifting of the machine.
- Lift at a slow, even pace.
- Obtain any additional training regarding the proper lifting procedures that may be required. Please consult the local, state, and employer regulations.

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SECTION 5 - ATTACHMENTS

5.1 APPROVED ATTACHMENTS

Coupler Mounted Attachments

To determine if an attachment is approved for use on specific telehandler you are using, perform following prior to installation.

- The attachment type, weight and dimensions must be equal to or less than the data shown on a capacity chart located in the operator cab.
- The model on the capacity chart must match the model telehandler being used.
- Hydraulically powered attachments must only be used on machines equipped with auxiliary hydraulics.
- Hydraulically powered attachments that require auxiliary electrics must only be used on machines equipped with auxiliary hydraulics and electrics.
- The attachment is clearly labeled in accordance with ANSI/ITSDF B56.6

If any of the above conditions are not met, do not use attachment. Telehandler may not be equipped with proper capacity chart or attachment may not be approved for the model telehandler being used. Contact JLG or a local distributor for further information.

JLG Supplied Fork Mounted Attachments

To determine if an attachment is approved for use on specific telehandler you are using, perform following prior to installation.

- The machine is authorized for use with JLG supplied fork mounted attachments.
- The model on the capacity chart must match the model telehandler being used.
- Hydraulically powered attachments must only be used on machines equipped with auxiliary hydraulics.
- Hydraulically powered attachments that require auxiliary electrics must only be used on machines equipped with auxiliary hydraulics and electrics.

If any of the above conditions are not met, do not use attachment. Telehandler may not be equipped with proper capacity chart or attachment may not be approved for the model telehandler being used. Contact JLG or a local distributor for further information.

For requirements regarding fork mounted attachments, see *"Fork Mounted Attachments"* on page 5-4.

Non-OEM Fork Mounted Attachments

JLG authorizes the use of non-OEM fork mounted attachments provided the criteria and instructions are followed. See *"Fork Mounted Attachments"* on page 5-4.

Section 5- Attachments

5.2 UNAPPROVED ATTACHMENTS

Do not use unapproved attachments for the following reasons:

- Range and capacity limitations for “will fit,” homemade, altered, or other non-approved attachments cannot be established.
- An overextended or overloaded telehandler can tip over with little or no warning and cause serious injury or death to the operator and/or those working nearby.
- The ability of a non-approved attachment to perform its intended function safely cannot be assured.



WARNING

Use only approved attachments. Attachments which have not been approved for use with your telehandler could cause machine damage or an accident.

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Section 5- Attachments

5.3 FORK MOUNTED ATTACHMENTS

General Requirements

- Certain fork mounted attachments have a dedicated capacity chart. The attachment type, weight and dimensions must be equal to or less than the data shown on a capacity chart located in the operator cab. If it does not have a dedicated capacity chart, utilize the applicable carriage capacity chart on which the fork mounted attachment is attached.
- Fork mounted attachments are to be used on telehandlers with a standard carriage or side tilt carriage with pallet or lumber forks only.
- All fork mounted attachments must ensure secure connection with pins behind the heel of the forks. Do not secure using chains, straps or clamps directly to the forks, fork carriage, load bar and/or the boom.
- The forks of the carriage must support 2/3 of the load length for any load applied.
- The weight of the fork mounted attachment, rigging and the associated load is to be included in the total load being lifted. Refer to the capacity chart for the carriage in use.
- The capacity chart for the applicable carriage is established with a 24-inch load center, and the load center of the attachment and load must equal 24 inches to utilize the existing load chart capacities.
- When the load center of a combined attachment and/or load exceeds 24 inches, the equivalent load must be calculated to use with the carriage capacity chart. See *"Fork Mounted Attachments Equivalent Load"* on page 5-7.

Note: *When lifting loads, ensure that the center of gravity (CG) of the load being lifted is centered (right to left) between the forks.*

Non-OEM Attachments

User of non-OEM attachments is responsible for:

- Design
- Fabrication
- Workmanship
- Structural Integrity
- Maximum Capacity
- Fit and Function
- Overall Quality
- Any operation and safety instructions specific to the attachment
- The attachment is clearly labeled in accordance with ANSI/ITSDF B56.6
- Ensure that the attachment and use of the attachment complies with this and all other applicable standards

Section 5- Attachments

5.4 EQUIVALENT LOAD

Load Centers Beyond 24 Inches

Carriage and fork capacity charts provided by JLG are validated based on load centers of 24 inches. When the load center for the application being performed exceeds 24 inches, the Equivalent Load must be calculated to use with the carriage capacity chart.

Utilizing Equivalent Load Calculation is applicable for all carriage and fork arrangements. The forks of the JLG carriage must support 2/3 of the load length for any load applied.

Equivalent Load Calculation

The Equivalent Load is determined with the calculation below. The Equivalent Load is the value applied to the respective carriage capacity chart to determine the appropriate use zone(s).

$$\frac{\text{Weight of Attachment Load (lb)} \times \text{CG Distance of Load (in)}^1}{24 \text{ in}} = \text{Equivalent Load}$$

¹Center of Gravity (CG) Distance is measured horizontally from the front surface of the fork.

Example

- Weight of load = 5,000 pounds
- Center of gravity of load = 36 inches

The Equivalent Load for this example is:

$$\frac{5,000 \times 36}{24} = 7,500 \text{ pounds}$$

This value is cross-checked to the capacity of the forks to ensure the forks are rated to equally share this load. The user then utilizes the carriage capacity chart to determine where 7,500 lb can be safely moved and placed within the machine operating limits.

Fork Mounted Attachments Equivalent Load

Equivalent Load Calculation

The Equivalent Load is determined with the calculation below. The Equivalent Load is the value applied to the respective carriage capacity chart to determine the appropriate use zone(s).

$$\begin{aligned} & (\text{Weight of Attachment (lb)} \times \text{CG Distance of Attachment (in)}^1) \\ & + (\text{Weight of Attachment Load (lb)} \times \text{CG Distance of Load (in)}^1) \div 24 \text{ in} = \text{Equivalent Load} \end{aligned}$$

¹Center of Gravity (CG) Distance is measured horizontally from the front surface of the fork.

Example

- Weight of attachment = 500 pounds
- Center of gravity of attachment = 36 inches
- Weight of load = 1,000 pounds
- Center of gravity of load = 45 inches

The Equivalent Load for this example is:

$$\begin{aligned} 500 \times 36 &= 18,000 \\ 1,000 \times 45 &= 45,000 \\ \frac{18,000 + 45,000}{24} &= 2,625 \text{ pounds} \end{aligned}$$

This value is cross-checked to the capacity of the forks to ensure the forks are rated to equally share this load. The user then utilizes the carriage capacity chart to determine where 2,625 lb can be safely moved and placed within the machine operating limits.



WARNING

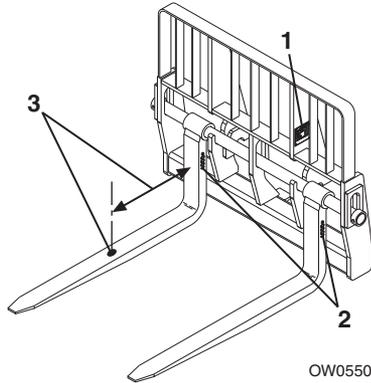
This calculation does not apply to Personnel Work Platforms. Refer to Telehandler Personnel Work Platform Operation & Safety Manual for additional information.

Section 5- Attachments

5.5 JLG SUPPLIED ATTACHMENTS

Attachment	Part Number	Applicable Model			
		1644	7013H	1732	8010H
Carriage, 60 in (1524 mm)	1001183447	X	X	X	X
Carriage, 72 in (1829 mm)	1001214415	X	X	X	X
Carriage, 87 in (2210 mm)	1001192339	X	X	X	X
Side Shift with Fork Positioning Carriage, 72 in (1829 mm)	1001192344	X	X	X	X
Dual Fork Positioning Carriage, 72 in (11829 mm)	1001192342	X	X	X	X
Fork, Pallet, 2.25x6x48 in (57x152x1220 mm)	1001196952	X	X	X	X
Fork, Pallet, 2.25x6x60 in (57x152x1524 mm)	1001196951	X	X	X	X
Fork, Pallet, 2.25x6x72 in (57x152x1829 mm)	1001196950	X	X	X	X
Fork, Pallet, 2.25x6x96 in (57x152x2438 mm)	1001196949	X	X	X	X
Pipe Grapple	1001192722	X	X	X	X
Bucket, Fork Mounted	1001195970	X	X	X	X
Bucket, General Purpose, 94 in–2.6 yd ³ (2388 mm–2,0 m ³)	1001192615	X	X	X	X
Bucket, Light Material, 94 in–5.2 yd ³ (2388 mm–4,0 m ³)	1001192616	X	X	X	X
Bucket, Multi-Purpose, 94 in–1.3 yd ³ (2388 mm–1,0 m ³)	1001228427	X	X	X	X
Bucket, Multi-Purpose, 94 in–2.6 yd ³ (2388 mm–2,0 m ³)	1001192614			X	X
Bucket, Grapple, 94 in–1.7 yd ³ (2388 mm–1,3 m ³)	1001223435	X	X	X	X
Bucket, Grapple, 94 in–2.6 yd ³ (2388 mm–2,0 m ³)	1001192617			X	X
Hook, Coupler Mounted	1001192700	X	X	X	X
Hook, Fork Mounted	1001193803	X	X	X	X
Truss Boom, Adjustable	1001192723	X	X	X	X
Winch, Coupler Mounted	1001192702	X	X	X	X
Trash Hopper, Fork Mounted	1001238566	X	X	X	X
Bale Clamp, Round	1001192649	X	X	X	X
Bale Clamp, Square	1001192650	X	X	X	X
Log Handler	1001192734	X	X	X	X
Steel Coil Handler	1001192735	X	X	X	X
Tire Handler	1001192707			X	X
Platform, Fork Mounted (ASME)	1001238653	X	X	X	X
Platform, Fork Mounted (ASME - French)	1001238655	X	X	X	X
Platform, Fork Mounted (ISO)	1001238654	X	X	X	X

5.6 TELEHANDLER/ATTACHMENT/FORK CAPACITY



Prior to installing attachment, verify it is approved and telehandler is equipped with proper capacity chart. See “Approved Attachments” on page 5-1.

To determine maximum capacity of telehandler and attachment, use the **smallest** of the following capacities:

- Capacity stamped on attachment identification plate (1).
- Fork capacities and load centers are stamped on the side of each fork (2) (if equipped). This rating specifies maximum load capacity that the individual fork can safely carry at maximum load center (3). Total attachment capacity is multiplied by number of forks on attachment (if equipped), up to maximum capacity of attachment.
- Maximum capacity as indicated on the proper capacity chart. See “Approved Attachments” on page 5-1.
- When load rating of telehandler differs from capacity of the forks or attachment, the lower value becomes the overall load capacity.

Use the proper capacity chart to determine maximum capacity at various machine configurations. Lifting and placing a load may require use of more than one capacity chart based on machine configuration.

Other than block forks, all forks should be used in matched pairs, block forks used in matched sets.



WARNING

Never use an attachment without the appropriate JLG approved capacity chart installed on the telehandler.

Section 5- Attachments

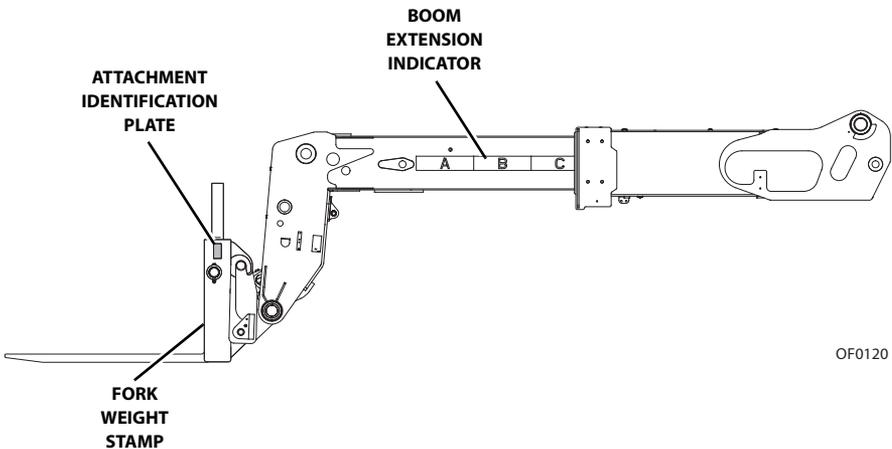
5.7 USE OF THE CAPACITY CHART

To properly use capacity chart (see page 5-11), operator must first determine and/or have the following:

1. An approved attachment. See "Approved Attachments" on page 5-1.
2. Proper Capacity Chart(s).
3. Weight of load being lifted.
4. Load placement information:
 - a. HEIGHT where load is to be placed.
 - b. DISTANCE from front tires of telehandler where load is to be placed.
5. On capacity chart, find the line for height and follow it over to distance.
6. Number in load zone where the two cross is the maximum capacity for this lift. If the two cross at a division between zones, the smaller number must be used.

The number in load zone must be equal to or greater than weight of load to be lifted. Determine limits of load zone on capacity chart and keep within these limits.

Capacity Indicator Locations



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Section 5- Attachments

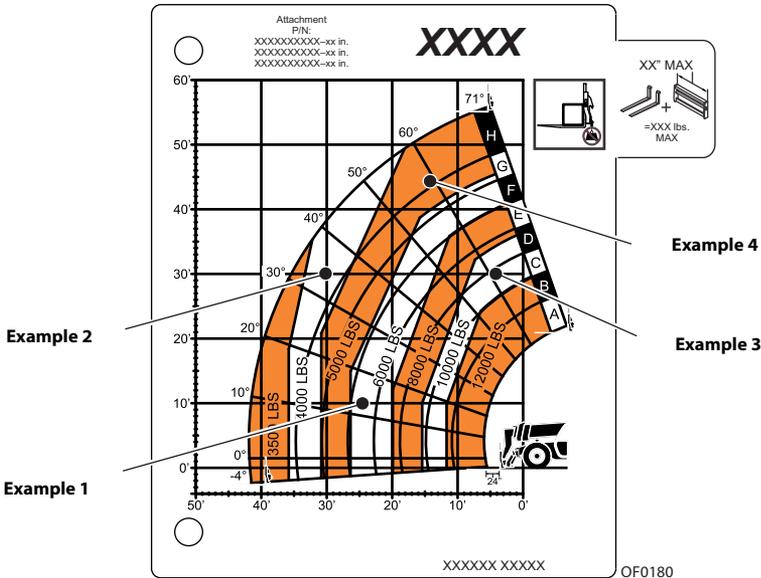
Example

A contractor owns a model xxxx telehandler with a fork carriage. The contractor knows this attachment may be used with his model since:

- The part number on the attachment identification plate matches the attachment part number on a capacity chart located in the operator cab.
- Attachment style, weight, dimensions and load center match the attachment data on the capacity chart.
- Capacity chart is clearly marked for model xxxx and corresponds with machine configuration being used.

Below are examples with various conditions the contractor may encounter and whether or not the load may be lifted.

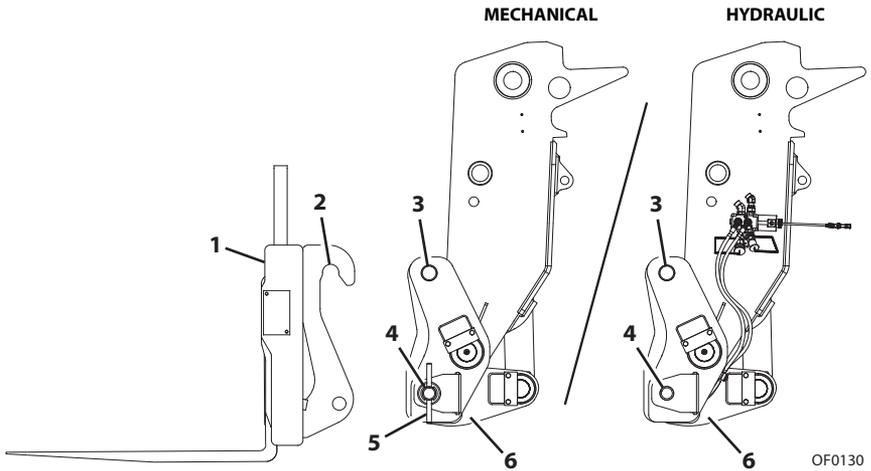
	Load Weight	Distance	Height	OK to Lift
1	5750lb (2608 kg)	25ft (7,62 m)	10ft (3 m)	Yes
2	4900lb (2223 kg)	30ft (9,2m)	30ft (9,2m)	NO
3	8100lb (3674 kg)	5ft (1,5 m)	30ft (9,2m)	Yes
4	5250lb (2381kg)	15ft (4,6 m)	45ft (13,7 m)	NO



Note: This is a sample capacity chart **only!** **DO NOT** use this chart, use the one located in your operator cab.

5.8 ATTACHMENT INSTALLATION

Coupler



1. **Attachment**
2. **Attachment Pin Recess**
3. **Attachment Pin**
4. **Lock Pin**
5. **Retainer Pin** (mechanical coupler)
6. **Coupler** (attachment tilt control in cab, see page 3-24)



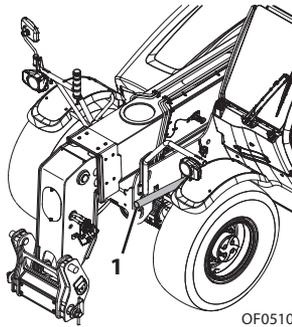
WARNING

CRUSH HAZARD. Always be certain that carriage or attachment is properly positioned on boom and is secured by lock pin and retainer pin. Failure to ensure proper installation could permit carriage/attachment/load to disengage.

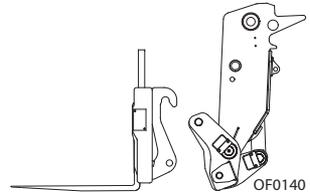
Section 5- Attachments

Mechanical Coupler

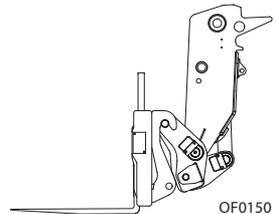
Important: This installation procedure is recommended for two-person operation. Prior to exiting cab, perform "Shut-Down Procedure" on page 4-5.



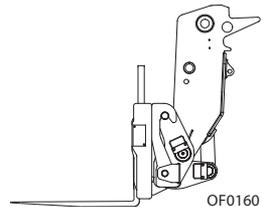
1. Tilt coupler forward to provide clearance. Check to be sure lock pin and retainer pin are out. This installation procedure recommends that two people lift to remove lock pin and place in storage tube (1) on frame.



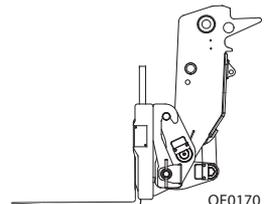
2. Align attachment pin with recess in attachment. Raise boom slightly to engage attachment pin in recess.



3. Tilt coupler back to engage attachment.



4. This installation procedure recommends that two people lift to remove lock pin from storage tube (1) on frame. Insert lock pin and secure with retainer pin.



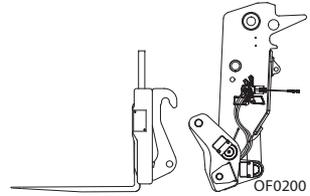
5. If attachment is equipped, connect auxiliary hydraulic hoses. See *"Auxiliary Hydraulic Decompression"* on page 5-18.
6. If equipped, connect auxiliary electric harness.

Section 5- Attachments

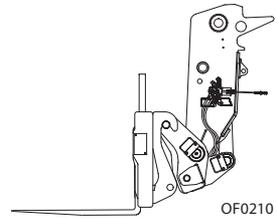
Hydraulic Coupler

This installation procedure is designed for one-person operation.

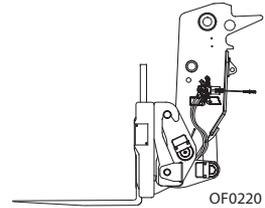
1. Tilt coupler forward to provide clearance.



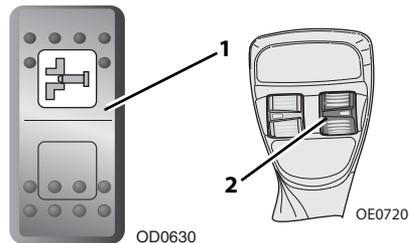
2. Align attachment pin with recess in attachment. Raise boom slightly to engage attachment pin in recess.



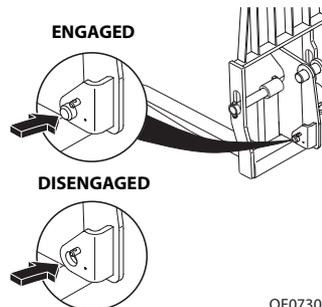
3. Check to be sure lock pin is disengaged. Tilt coupler back to engage attachment.



4. Press and hold the coupler switch (1) on left control panel then press roller switch (2) up to engage lock pin. Press roller switch (2) down to disengage lock pin.



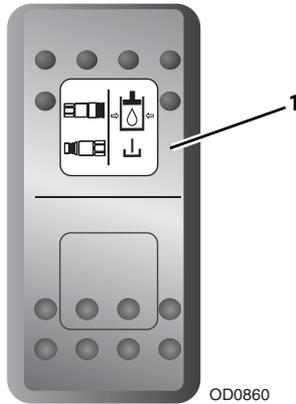
5. Raise boom to eye level and visually check that the lock pin protrudes through the hole. If the pin does not protrude through the hole, place the attachment on the ground and return to step 2.



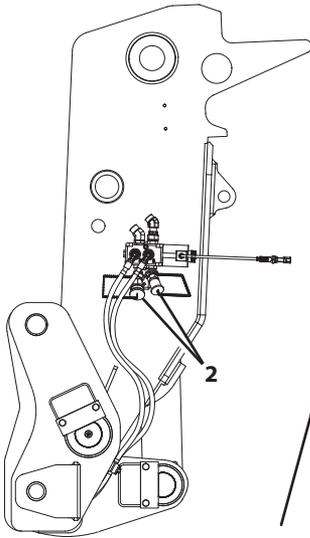
6. If attachment is equipped, connect auxiliary hydraulic hoses. See *"Auxiliary Hydraulic Decompression"* on page 5-18.
7. If equipped, connect auxiliary electric harness.

Section 5- Attachments

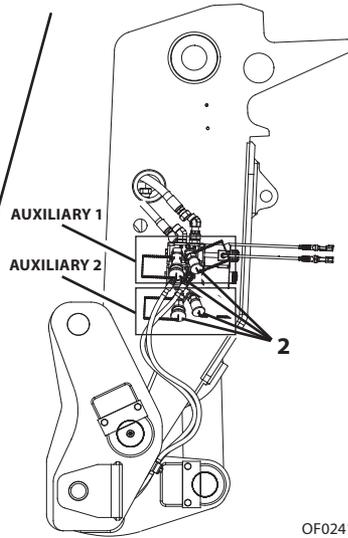
Auxiliary Hydraulic Decompression



SINGLE AUXILIARY HYDRAULICS



DUAL AUXILIARY HYDRAULICS



1. With engine running and attachment installed and lowered to ground, press and hold auxiliary decompression switch (1) on right control panel for three seconds to relieve pressure at auxiliary hydraulic fittings (2).
2. Perform "Shut-Down Procedure" on page 4-5.
3. Attachment hoses may be connected or disconnected at auxiliary hydraulic fittings.

5.9 ADJUSTING/MOVING FORKS

Carriages may have different locations where forks can be positioned. Two different methods can be used for repositioning, depending upon carriage structure.

Note: *Apply a light coating of appropriate lubricant to ease sliding of forks or fork bar.*

To slide forks:

1. Ensure attachment is properly installed. See "Attachment Installation" on page 5-13.
2. If equipped, loosen fork locking bolt.
3. Elevate attachment to approximately 5 ft (1,5 m) and tilt carriage forward until fork heel is free from attachment.
4. Stand at side of carriage. To slide fork toward center of carriage, push fork near fork eye. To slide fork toward edge of carriage, pull fork near fork eye. To avoid pinching, do not place fingers or thumb between fork and carriage structure.
5. If equipped, tighten fork locking bolt.

If removing fork bar is necessary:

1. Rest forks on ground.
2. If equipped, loosen fork locking bolt.
3. Remove fork bar.
4. Reposition forks.
5. Reinstall the fork bar and fork bar retaining mechanism(s).
6. If equipped, tighten fork locking bolt.

Section 5- Attachments

5.10 ATTACHMENT OPERATION

- Capacities and range limits for telehandler change depending on attachment in use.
- Separate attachment instructions must be kept in manual holder in cab with this Operation & Safety Manual. An additional copy must be kept with attachment if it is equipped with a manual holder.

Note: Operations described within this section reference the Lift joystick pattern. Refer to page 3-27 if utilizing the Loader joystick pattern.

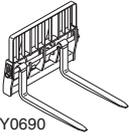
NOTICE

EQUIPMENT DAMAGE. Some attachments may contact front tires or machine structure when the boom is retracted and the attachment is rotated. Improper use of attachment may result in attachment or machine structural damage.

NOTICE

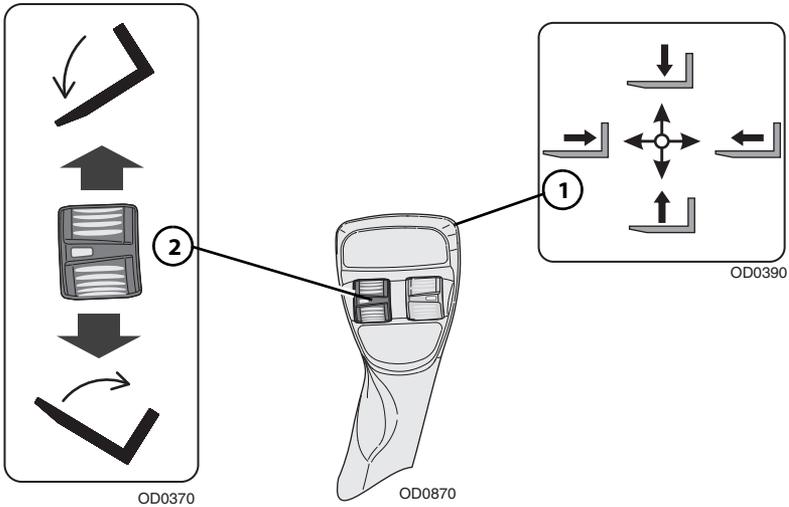
EQUIPMENT DAMAGE. Avoid contact with any structure or object when lifting a load. Maintain clearance around boom structure and load. Failure to maintain clearance may result in attachment or machine structural damage.

Carriage with Forks



Use Carriage Attachment Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

Roller switch (2) controls carriage tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

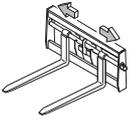
Refer to "Attachment Installation" on page 5-13.

Equipment Damage Precautions:

- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

Section 5- Attachments

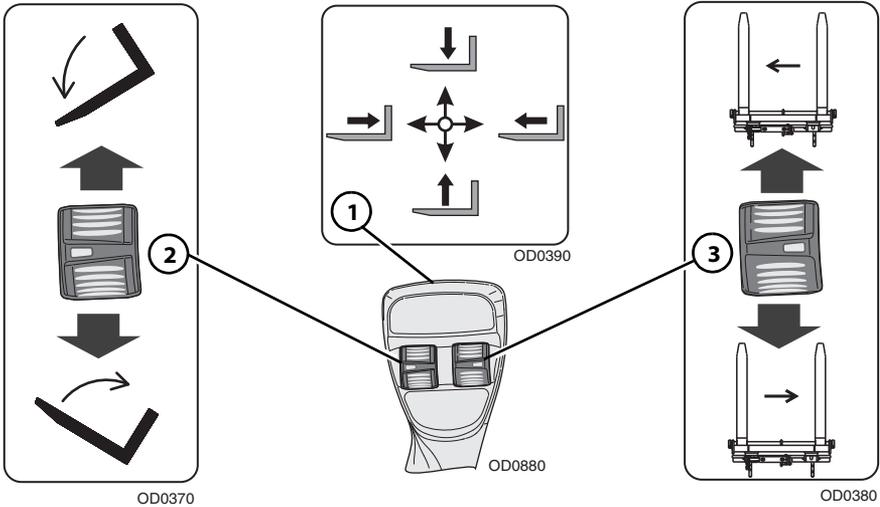
Side Shift Carriage with Fork Positioning



OAL1540

Use Side Shift Carriage Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom

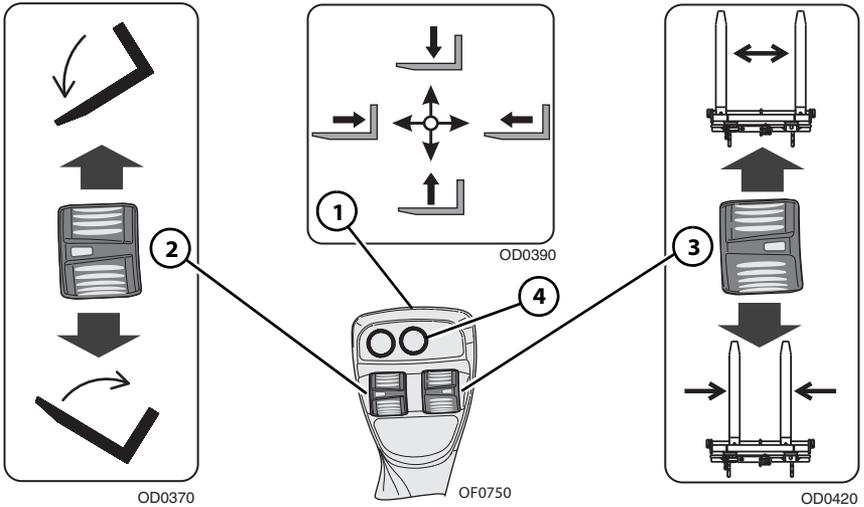
Roller switch (2) controls carriage tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Side Shift:

Roller switch (3) controls carriage side shift.

- Press roller switch down to shift right.
- Press roller switch up to shift left.



To Fork Position:

Press Auxiliary Hydraulic Selection Switch (4) on joystick to activate fork positioning function. Roller switch (3) controls fork position.

- Press roller switch down to shift forks in.
- Press roller switch up to shift forks out.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.
- Ensure side shift hoses (bundled) are connected to Auxiliary 1 hydraulic fittings and fork positioning hoses (not bundled) are connected to Auxiliary 2 hydraulic fittings. See “Auxiliary Hydraulic Decompression” on page 5-18.

! WARNING

CRUSH HAZARD. Do not use mast to push or pull objects or load. Failure to comply could cause object or load to fall.

Operation:

- Travel in accordance with requirements set forth in Section 1- General Safety Practices.

Equipment Damage Precautions:

- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

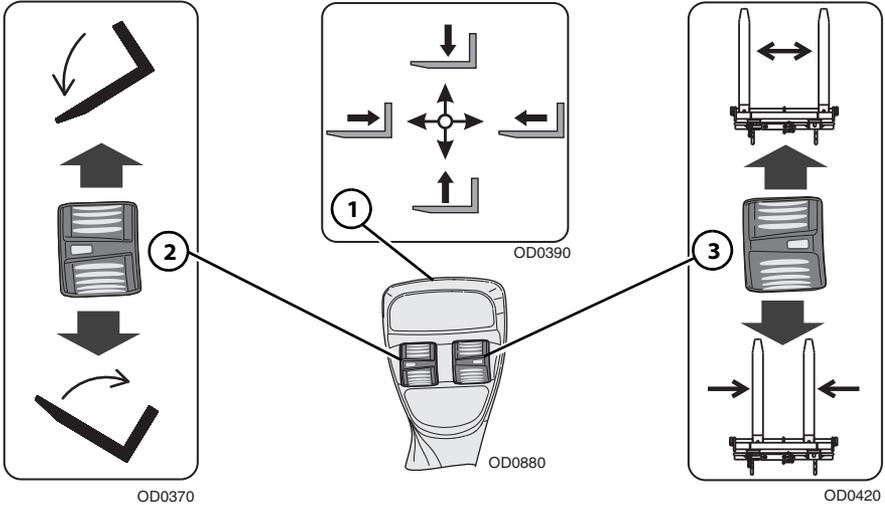
Section 5- Attachments

Dual Fork Positioning Carriage



Use Dual Fork Positioning Carriage Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom

Roller switch (2) controls carriage tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Fork Position:

Roller switch (3) controls fork position.

- Press roller switch down to shift forks in.
- Press roller switch up to shift forks out.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.



WARNING

CRUSH HAZARD. Do not use fork positioning to push or pull objects or load. Failure to comply could cause object or load to fall.

Operation:

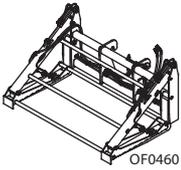
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.

Equipment Damage Precautions:

- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

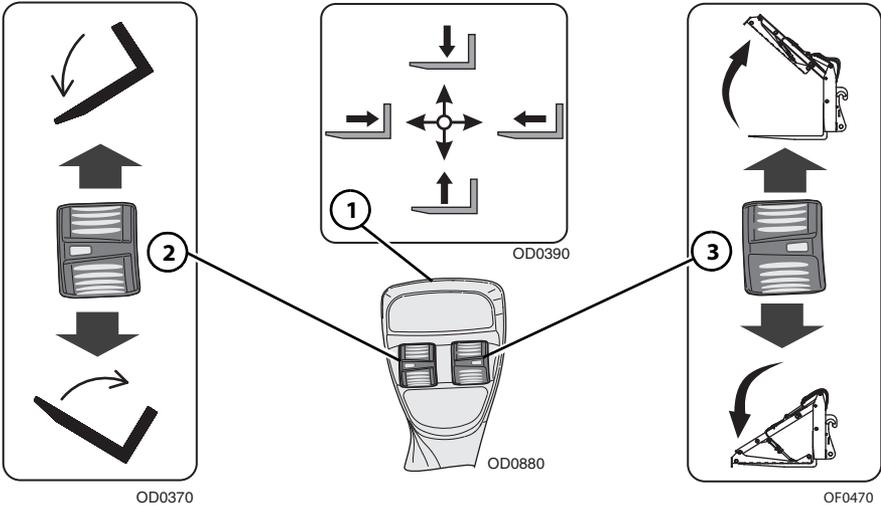
Section 5- Attachments

Pipe Grapple



Use Pipe Grapple Attachment Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

Roller switch (2) controls pipe grapple tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Open/Close Pipe Grapple:

Roller switch (3) controls the open/close movement of the pipe grapple.

- Press roller switch down to close grapple.
- Press roller switch up to open grapple.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.

Operation:

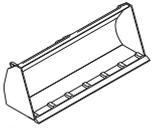
- Raise or lower boom to appropriate height and open pipe grapple for loading material.
- Align and center telehandler with face of material.
- Drive slowly and smoothly into material for loading. Boom extension may be required for loading material.
- Center load on forks, tilt forks up far enough to retain load, close pipe grapple and back away.
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.
- Open pipe grapple and unload material from forks.

Equipment Damage Precautions

- Except for lifting or unloading material, the boom must be fully retracted for all operations.
- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not use pipe grapple as a lever to pry material. Excessive prying forces could damage pipe grapple or machine structure.
- Do not attempt to load material which is hard or frozen. This could cause severe damage to coupler or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

Section 5- Attachments

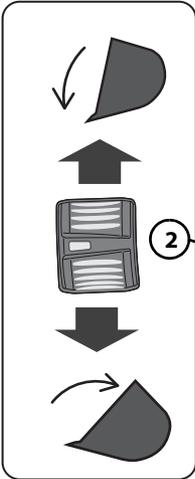
Bucket



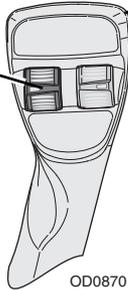
OZ0730

Use Appropriate Bucket Capacity Chart

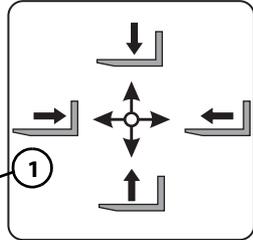
To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



OD0460



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OD0390

Joystick (1) controls movement of the boom

Roller switch (2) controls bucket tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.

Operation:

- Raise or lower boom to appropriate height for loading material from stockpile.
- Align telehandler with face of stockpile and drive slowly and smoothly into pile to load bucket.
- Tilt bucket up far enough to retain load and back away from pile.
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.
- Tilt bucket down to dump load.

Equipment Damage Precautions

- Except for lifting or dumping a load, the boom must be fully retracted for all bucket operations.
- Do not corner-load bucket. Distribute material evenly within the bucket. Bucket capacity charts are for evenly distributed loads only.
- Do not use bucket as a lever to pry material. Excessive prying forces could damage bucket or machine structure.
- Do not attempt to load material which is hard or frozen. This could cause severe damage to coupler or machine structure.
- Do not use bucket for "back dragging." This could cause severe damage to coupler and retraction cables/chains.

Section 5- Attachments

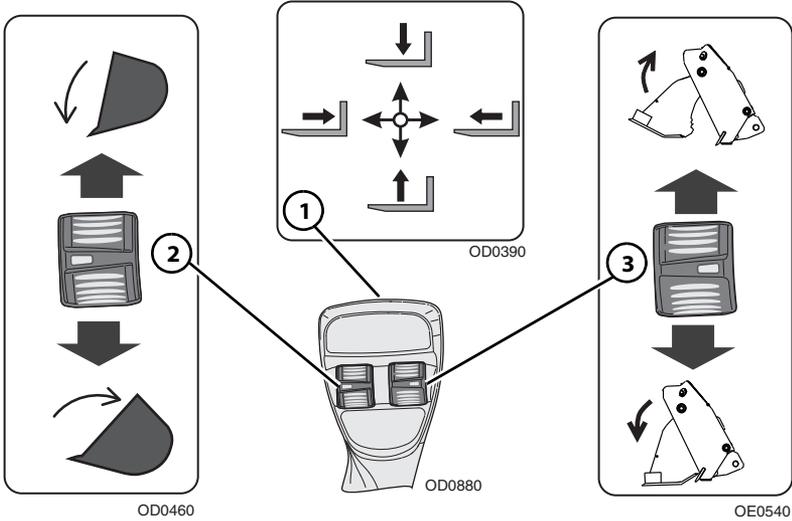
Multi-Purpose Bucket



OZ2540

Use Appropriate Multi-Purpose Bucket Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

Roller switch (2) controls bucket tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Open/Close Bucket:

The attachment auxiliary hydraulic roller switch (3) controls open/close movement of the bucket.

- Press roller switch down to close bucket.
- Press roller switch up to open bucket.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.

Operation:

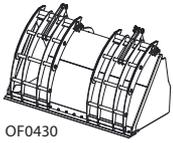
- Raise or lower boom to appropriate height and close bucket for loading material from stockpile.
- Align telehandler with face of stockpile and drive slowly and smoothly into pile to load bucket.
- Tilt bucket up far enough to retain load and back away from pile.
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.
- Open bucket or tilt bucket down to dump load.

Equipment Damage Precautions

- Except for lifting or dumping a load, the boom must be fully retracted for all bucket operations.
- Do not corner-load bucket. Distribute material evenly within the bucket. Bucket capacity charts are for evenly distributed loads only.
- Do not use bucket as a lever to pry material. Excessive prying forces could damage bucket or machine structure.
- Do not attempt to load material which is hard or frozen. This could cause severe damage to coupler or machine structure.
- Do not use bucket for "back dragging." This could cause severe damage to coupler.

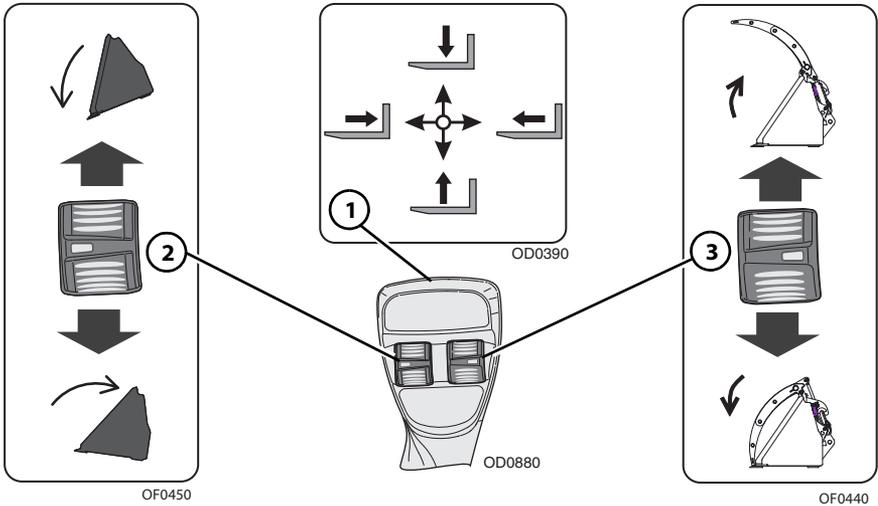
Section 5- Attachments

Grapple Bucket



Use Grapple Bucket Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom

Roller switch (2) controls grapple bucket tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Open/Close Grapple:

Roller switch (3) controls the open/close movement of the grapple.

- Press roller switch down to close grapple.
- Press roller switch up to open grapple.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.

Operation:

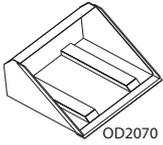
- Raise or lower boom to appropriate height and open grapple for loading material from stockpile.
- Align telehandler with face of stockpile and drive slowly and smoothly into pile to load bucket.
- Tilt bucket up far enough to retain load, close grapple and back away from pile.
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.
- Open grapple and tilt bucket down to dump load.

Equipment Damage Precautions

- Except for lifting or dumping a load, the boom must be fully retracted for all bucket operations.
- Do not corner-load bucket. Distribute material evenly within the bucket. Bucket capacity charts are for evenly distributed loads only.
- Do not use bucket as a lever to pry material. Excessive prying forces could damage bucket or machine structure.
- Do not attempt to load material which is hard or frozen. This could cause severe damage to coupler or machine structure.
- Do not use bucket for "back dragging." This could cause severe damage to coupler and retraction cables/chains.

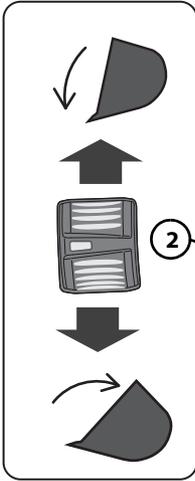
Section 5- Attachments

Bucket - Fork Mounted

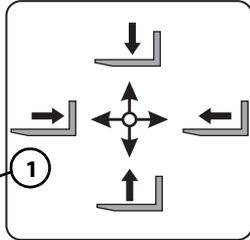
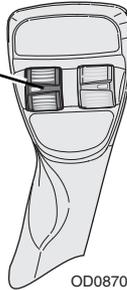


Use Appropriate Carriage Attachment Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



2



1

Joystick (1) controls movement of the boom

Roller switch (2) controls bucket tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

- Ensure carriage is properly installed. Refer to "Attachment Installation" on page 5-13.
- Secure the fork mounted bucket to the forks by sliding the fork mounted bucket onto the parent forks and install the retaining pin behind the vertical shank of the fork.

Operation:

- Raise or lower boom to appropriate height for loading material from stockpile.
- Align telehandler with face of stockpile and drive slowly and smoothly into pile to load bucket.
- Tilt bucket up far enough to retain load and back away from pile.
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.
- Tilt bucket down to dump load.
- Fork mounted bucket weight must be included as part of total load being lifted.
- Do not use fork mounted bucket with attachments capable of rotating (i.e. side tilt and swing carriages) without disabling the rotation feature(s).

Equipment Damage Precautions

- Except for lifting or dumping a load, the boom must be fully retracted for all bucket operations.
- Do not corner-load bucket. Distribute material evenly within the bucket. Capacity charts are for evenly distributed loads only.
- Do not use bucket as a lever to pry material. Excessive prying forces could damage bucket or machine structure.
- Do not attempt to load material which is hard or frozen. This could cause severe damage to coupler or machine structure.
- Do not use bucket for "back dragging." This could cause severe damage to coupler and retraction cables/chains.

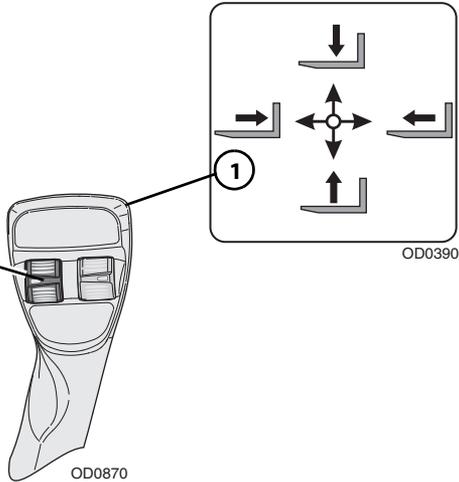
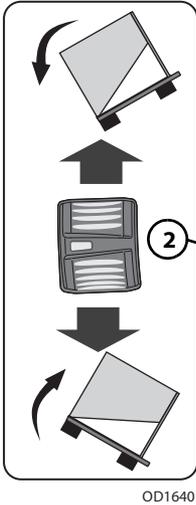
Section 5- Attachments

Trash Hopper - Fork Mounted



Use Appropriate Carriage Attachment Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom

Roller switch (2) controls trash hopper tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

- Ensure carriage is properly installed. Refer to “Attachment Installation” on page 5-13.
- Secure the trash hopper to the forks by sliding the trash hopper onto the parent forks and install the retaining pin behind the vertical shank of the fork.

Operation:

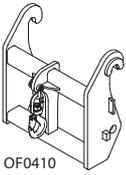
- Raise or lower boom to appropriate height for loading material.
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.
- To release gate, tilt fork mounted trash hopper down approximately 10 degrees and engage bottom bumper on edge of dumpster. The gate will open allowing the contents to slide out.
- Tilt fork mounted trash hopper back to close and secure the gate.
- Do not use fork mounted trash hopper with attachments capable of rotating (i.e. side tilt carriages) without disabling the rotation feature(s).

Equipment Damage Precautions:

- Except for lifting or dumping a load, the boom must be fully retracted for all fork mounted trash hopper operations.

Section 5- Attachments

Coupler Mounted Hook

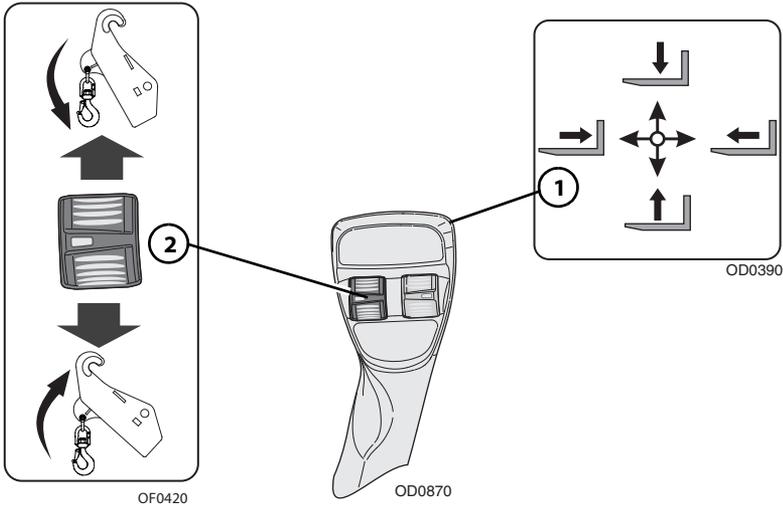


OF0410

Use Appropriate Coupler Mounted Hook Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.

Suspend loads in accordance with requirements set forth in Section 1- General Safety Practices.



OF0420

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OD0390

Joystick (1) controls movement of the boom

Roller switch (2) controls coupler mounted hook tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

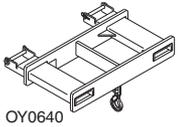
- Refer to “Attachment Installation” on page 5-13.

Operation:

- Weight of rigging must be included as part of total load being lifted.

Section 5- Attachments

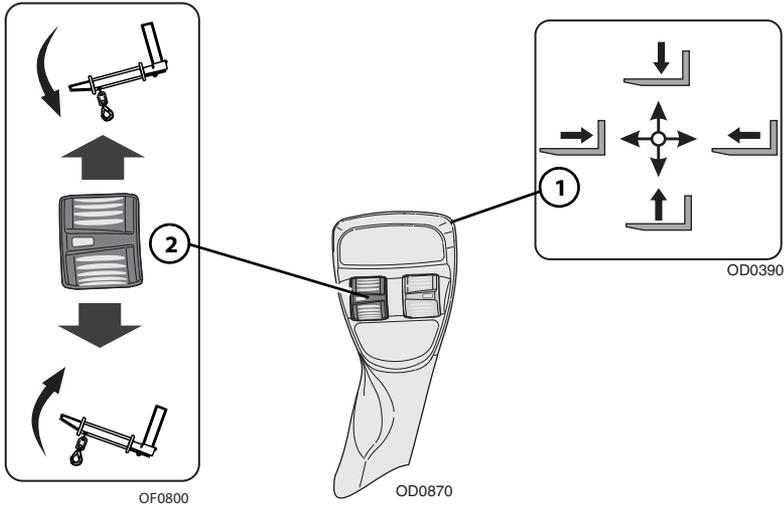
Fork Mounted Hook



Use Appropriate Carriage Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.

Suspend loads in accordance with requirements set forth in Section 1- General Safety Practices.



Joystick (1) controls movement of the boom

Roller switch (2) controls fork tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

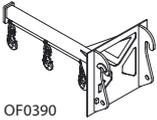
- Ensure carriage is properly installed. Refer to “Attachment Installation” on page 5-13.
- Secure the fork mounted hook to the forks by sliding the fork mounted hook onto the parent forks and install the retaining pin behind the vertical shank of the fork.

Operation:

- Pallet or lumber forks of an appropriate load rating must be used. Do not use with cubing or block forks.
- Weight of fork mounted hook and rigging must be included as part of total load being lifted.
- Do not use fork mounted hook with attachments capable of rotating (i.e. side tilt and swing carriages) without disabling the rotation feature(s).

Section 5- Attachments

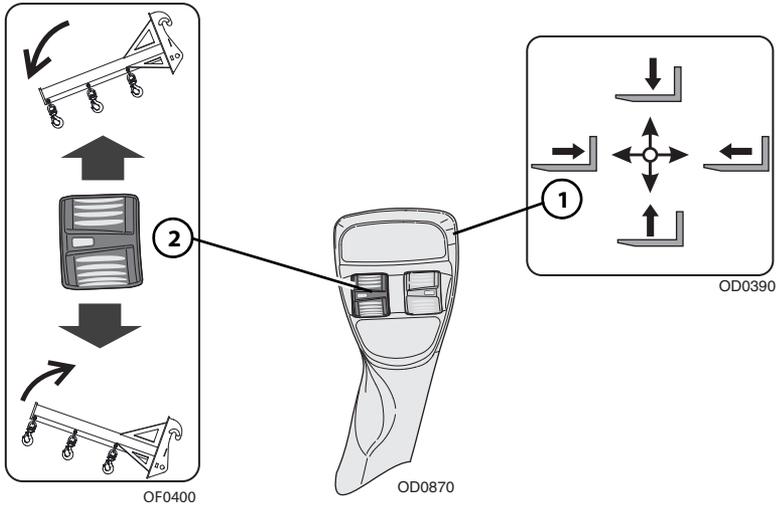
Truss Boom



Use Appropriate Truss Boom Attachment Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.

Suspend loads in accordance with requirements set forth in Section 1- General Safety Practices.



Joystick (1) controls movement of the boom

Roller switch (2) controls truss boom tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedures

- Refer to “Attachment Installation” on page 5-13.



WARNING

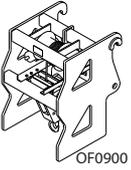
CRUSH HAZARD. Maintain a minimum of three wraps of wire rope on the cable drum at all times. Failure to comply could cause object or load to fall.

Operation:

- Weight of rigging must be included as part of total load being lifted.
- Only use one hook to lift a load.

Section 5- Attachments

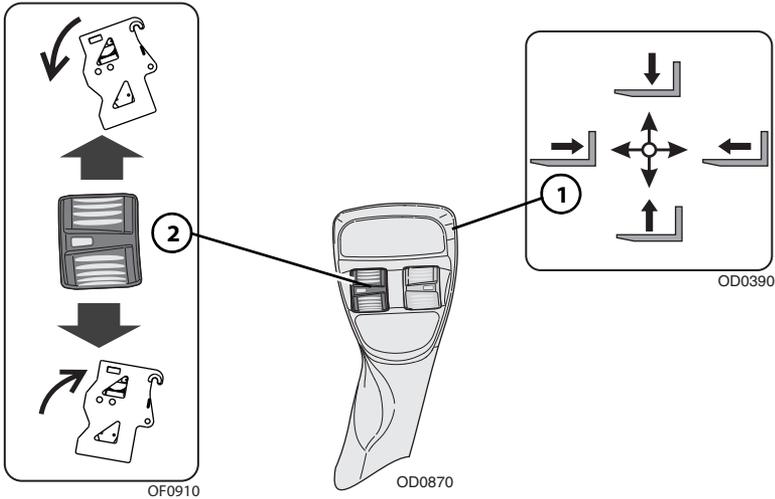
Winch, Coupler Mounted



Use Coupler Mounted Winch Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.

Suspend loads in accordance with requirements set forth in Section 1- General Safety Practices.



Joystick (1) controls movement of the boom

Roller switch (2) controls winch tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedures

- Refer to “Attachment Installation” on page 5-13.



WARNING

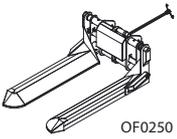
CRUSH HAZARD. Maintain a minimum of three wraps of wire rope on the cable drum at all times. Failure to comply could cause object or load to fall.

Operation:

- Weight of rigging must be included as part of total load being lifted.

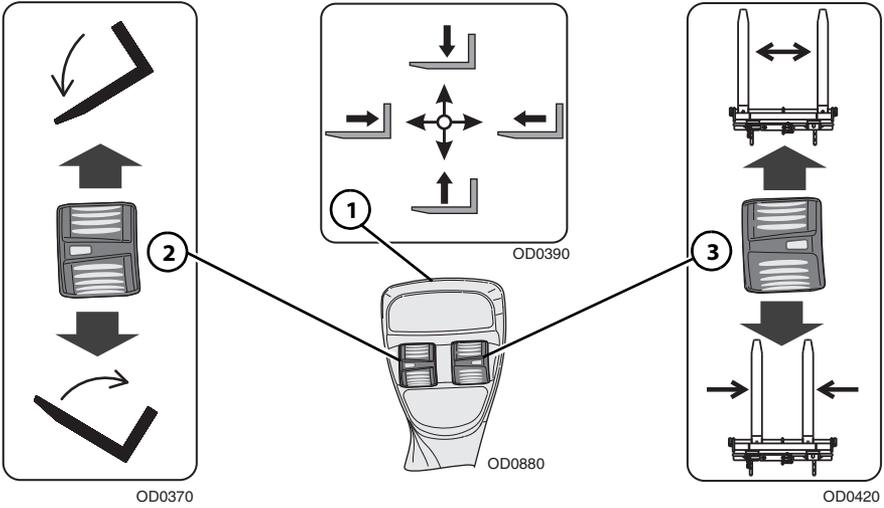
Section 5- Attachments

Round Bale



Use Round Bale Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

Roller switch (2) controls carriage tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Fork Position:

Roller switch (3) controls fork position.

- Press roller switch down to shift forks in.
- Press roller switch up to shift forks out.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.



WARNING

CRUSH HAZARD. Do not use fork positioning to push or pull objects or load. Failure to comply could cause object or load to fall.

Operation:

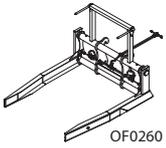
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.

Equipment Damage Precautions:

- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

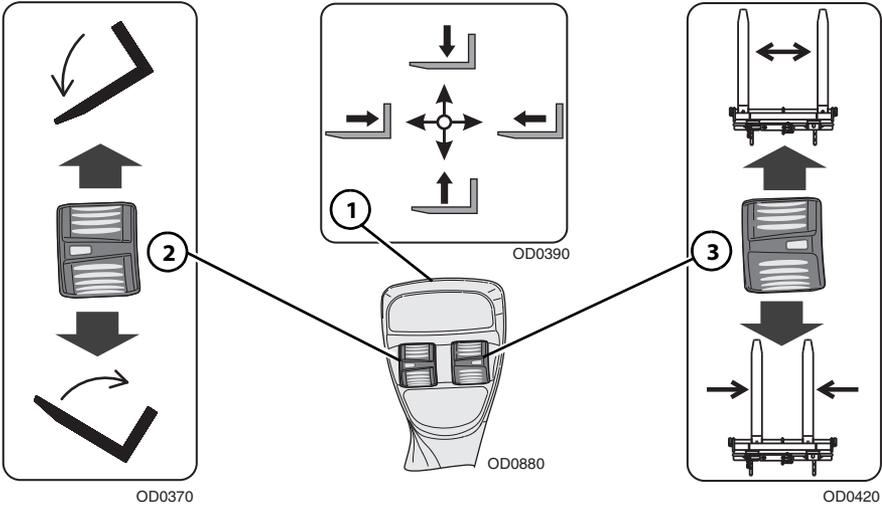
Section 5- Attachments

Square Bale



Use Square Bale Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

Roller switch (2) controls carriage tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Fork Position:

Roller switch (3) controls fork position.

- Press roller switch down to shift forks in.
- Press roller switch up to shift forks out.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.



WARNING

CRUSH HAZARD. Do not use fork positioning to push or pull objects or load. Failure to comply could cause object or load to fall.

Operation:

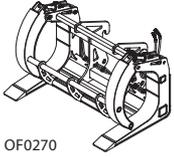
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.

Equipment Damage Precautions:

- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

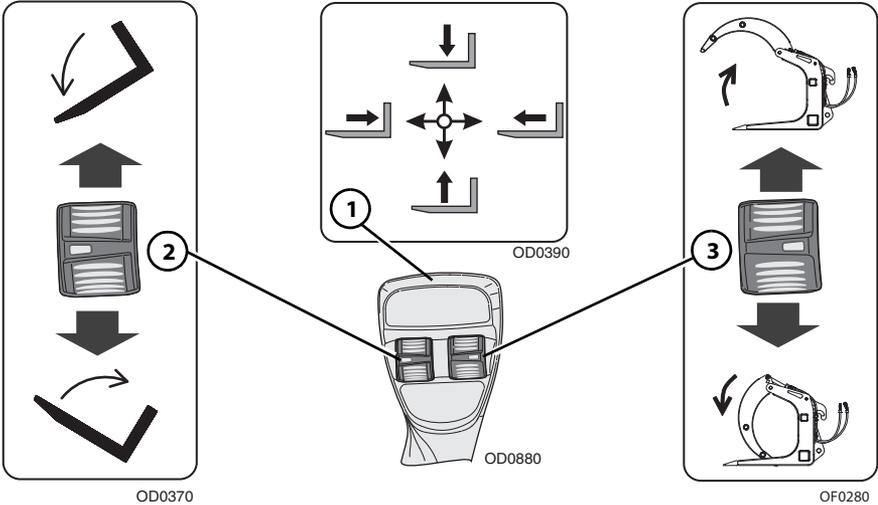
Section 5- Attachments

Log Handler



Use Log Handler Attachment Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

Roller switch (2) controls log handler tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Open/Close Log Handler:

Roller switch (3) controls the open/close movement of the log handler.

- Press roller switch down to close log handler.
- Press roller switch up to open log handler.

Installation Procedure:

- Refer to “Attachment Installation” on page 5-13.

Operation:

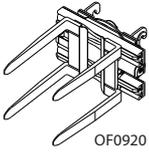
- Raise or lower boom to appropriate height and open log handler for loading material.
- Align and center telehandler with face of material.
- Drive slowly and smoothly into material for loading. Boom extension may be required for loading material.
- Center load on log handler, tilt log handler up far enough to retain load, close log handler and back away.
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.
- Open log handler and unload material from log handler.

Equipment Damage Precautions

- Except for lifting or unloading material, the boom must be fully retracted for all operations.
- Do not use log handler as a lever to pry material. Excessive prying forces could damage log handler or machine structure.
- Do not attempt to load material which is hard or frozen. This could cause severe damage to coupler or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

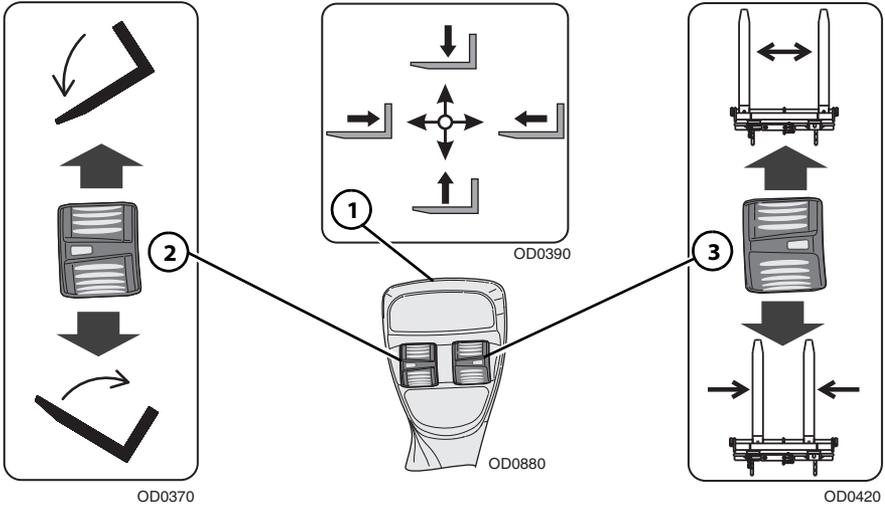
Section 5- Attachments

Tire Handler



Use Tire Handler Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

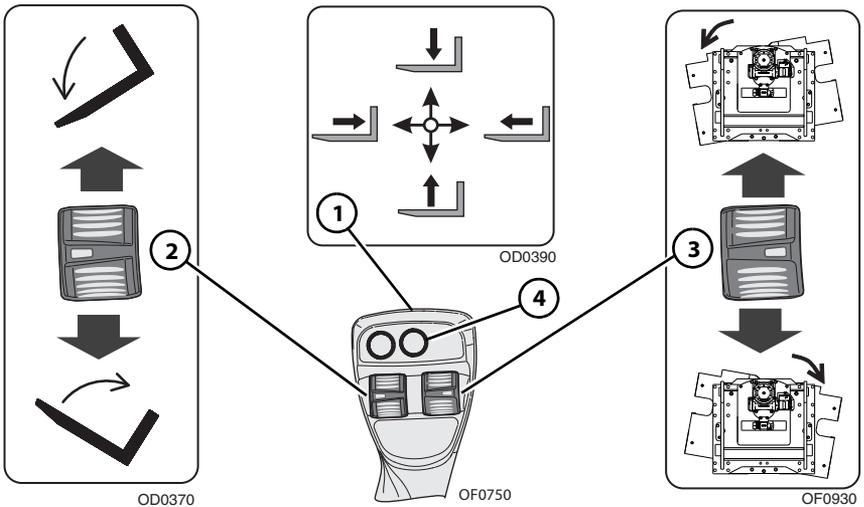
Roller switch (2) controls tire handler tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

To Fork Position:

Roller switch (3) controls fork position.

- Press roller switch down to shift forks in.
- Press roller switch up to shift forks out.



To Rotate:

Press Auxiliary Hydraulic Selection Switch (4) on joystick to activate rotate function. Roller switch (3) controls rotation.

- Press roller switch down to rotate right.
- Press roller switch up to rotate left.

Installation Procedure:

- Refer to "Attachment Installation" on page 5-13.

WARNING

CRUSH HAZARD. Do not use fork positioning or rotation to push or pull objects or load. Failure to comply could cause object or load to fall.

Operation:

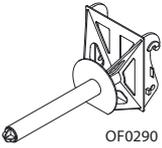
- Travel in accordance with requirements set forth in Section 1- General Safety Practices.

Equipment Damage Precautions:

- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

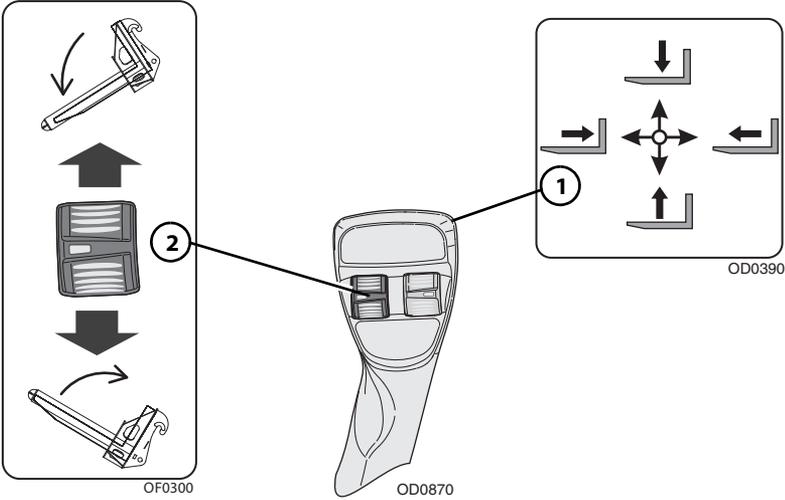
Section 5- Attachments

Steel Coil Handler



Use Steel Coil Handler Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/Fork Capacity" on page 5-9.



Joystick (1) controls movement of the boom.

Roller switch (2) controls carriage tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

Refer to "Attachment Installation" on page 5-13.

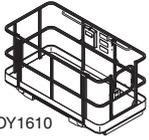
Equipment Damage Precautions:

- Do not use steel coil handler as a lever to pry material. Excessive prying forces could damage steel coil handler or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

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Section 5- Attachments

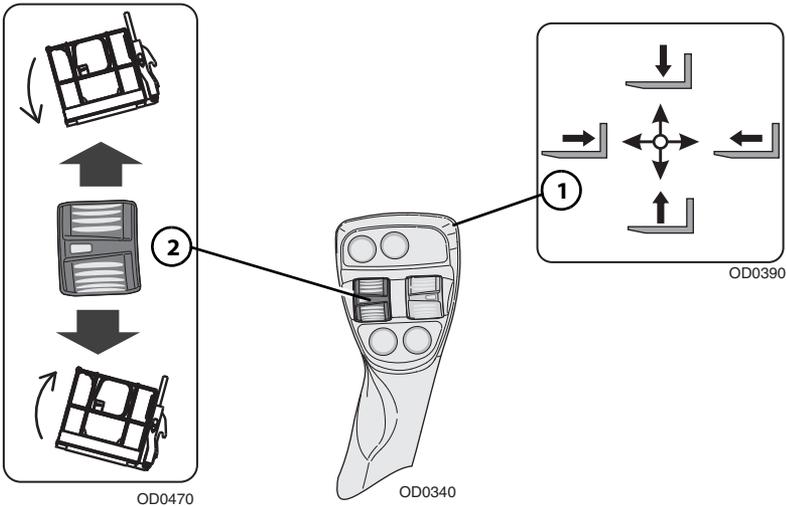
Personnel Work Platform - Fork Mounted



Use Fork Mounted Platform Attachment Capacity Chart

To determine maximum capacity, refer to "Telehandler/Attachment/
Fork Capacity" on page 5-9.

The operator and personnel in platform must read and understand the separate personnel work platform manual prior to installing and using a platform.



Joystick (1) controls movement of the boom

Roller switch (2) controls platform tilt.

- Press roller switch down to tilt up.
- Press roller switch up to tilt down.

Installation Procedure:

- Ensure carriage is properly installed. Refer to “Attachment Installation” on page 5-13.
- Secure the fork mounted platform to the forks by sliding the fork mounted platform onto the parent forks and install the retaining pin behind the vertical shank of the fork.

Preparation and Setup:

1. Ensure the telehandler is on a firm surface and is level.
2. Engage the park brake. Blocking the wheels is also recommended.
3. Level the platform, both side to side (frame level) and front to back (attachment tilt).
4. Keep area under platform free from personnel.
5. When personnel are on platform, the operator must remain seated in cab with personnel in direct line of sight.
6. **DO NOT** lift or carry persons in a bucket or on forks.



WARNING

FALL HAZARD. Never tilt the platform forward, rearward, or level the machine when the platform is occupied.

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SECTION 6 - EMERGENCY PROCEDURES

6.1 TOWING A DISABLED PRODUCT

The following information assumes telehandler cannot be moved under its own power.

- Before moving the telehandler, read all of the following information to understand options available. Then select the appropriate method.
- Machine mounted retrieval devices provide suitable means to attach a tow rope, chain or tow bar only in the event the telehandler becomes stuck or disabled.
- Retrieval devices are not intended for on-road trailer towing applications.
- The steering system permits manual steering if engine or power assist feature fails; however, **steering will be slow and will require much greater force.**
- **DO NOT** attempt to tow a telehandler that is loaded or the boom/attachment is raised above 4 ft (1,2 m).

Moving Short Distances

- If it is only necessary to move telehandler a short distance, less than 100 ft (30 m), it is permissible to use a vehicle of sufficient capacity to tow the unit with no previous preparation.

Moving Longer Distance

- See Service Manual for information.
- Dependant on local regulations the appropriate machine Service Manual should be kept in the cab at all times.

Contact the local dealer for specific instructions if neither of these methods are applicable.

Section 6- Emergency Procedures

6.2 EMERGENCY LOWERING OF BOOM

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 the local dealer for specific instructions.**

Secure the telehandler using the following procedures:

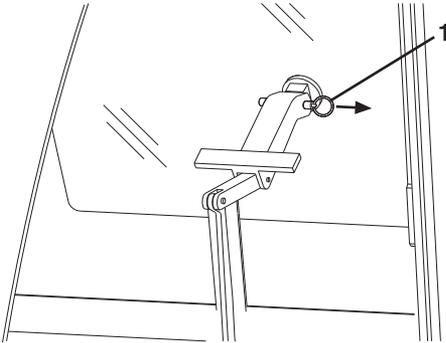
1. If equipped with platform attachment, rescue platform occupants.
2. Clear the area around telehandler of all personnel.
3. Apply the parking brake. Place the transmission in "NEUTRAL".
4. Block all four wheels.
5. Section off a large area under the boom to restrict any personnel from entering this area.
6. See Service Manual for information.

6.3 EMERGENCY EXIT FROM ENCLOSED CAB

In an emergency the rear window can be used to exit the telehandler if it is not possible to use the cab door.

If possible, fully lower the boom, shut off the engine and remove ignition key before using any of the following procedures to exit the telehandler.

Inside Cab



OZ0240

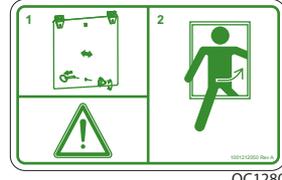
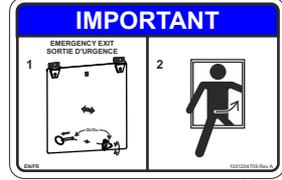
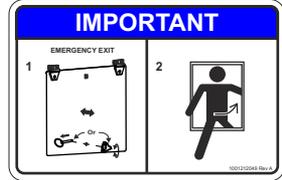
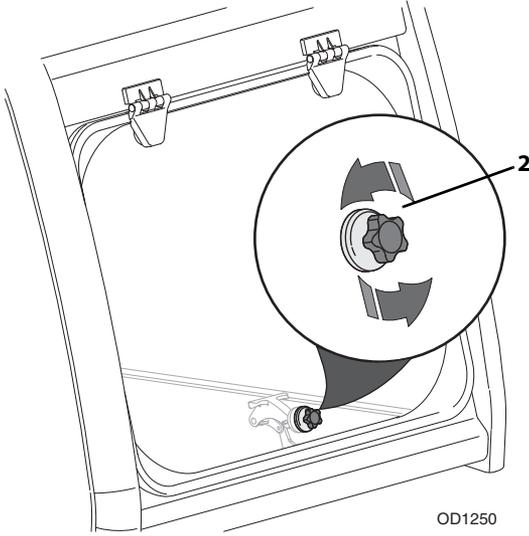


OE0751

1. Remove the latch pin (1).
2. Swing open the window and exit the telehandler.

Section 6- Emergency Procedures

Outside Cab

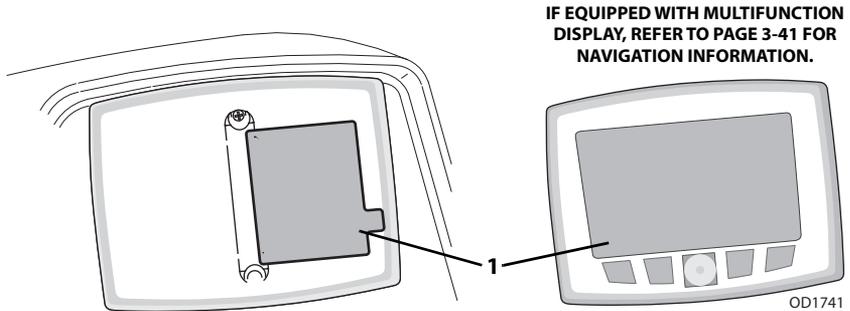


- Remove the knob (2) securing the window.
- Swing open the window and exit the telehandler.

SECTION 7 - LUBRICATION AND MAINTENANCE

7.1 INTRODUCTION

This section is intended as information to assist the operator to perform maintenance tasks only. Service product in accordance with maintenance schedule on the following pages.



Lubrication and maintenance charts (1) contain instructions that must be followed to keep this product in good operating condition. Operation & Safety Manual and Service Manual contain more detailed service information with specific instructions. If equipped with Multifunction Display, refer to page 3-41 for navigation information.

Clothing and Safety Gear

- Wear all protective clothing and personal safety devices issued to you or called for by job conditions
- **DO NOT** wear loose clothing or jewelry that can get caught on controls or moving parts

Section 7- Lubrication and Maintenance

7.2 GENERAL MAINTENANCE INSTRUCTIONS

Prior to performing any service or maintenance on the telehandler, follow the shut-down procedure on page 4-5 unless otherwise instructed. Ensure telehandler is level, for proper fluid readings.

- Clean lubrication fittings before lubricating.
- After greasing telehandler, cycle all functions several times to distribute lubricants. Perform this maintenance procedure without attachment installed.
- Apply a light coating of engine oil to all linkage pivot points.
- Intervals shown are for normal usage and conditions. Adjust intervals for abnormal usage and conditions.
- Check all lubricant levels when lubricant is cool. For ease of filling hydraulic reservoir, use a funnel with a hose or flexible tube for best results.



WARNING

CUT/CRUSH/BURN HAZARD. Do not perform service or maintenance on the machine with engine running.

7.3 MAINTENANCE SCHEDULES

Note: If hour and year intervals are listed, perform maintenance at interval that occurs first.

Every 10 Hours



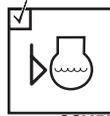
OC0880

Check Fuel Level



OC0890

Check Tire Condition and Pressure



OC0970

Check Engine Coolant Level



OC0910

Check Engine Oil Level



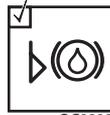
OC0920

Check Hydraulic Oil Level



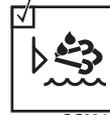
OC0960

Drain Fuel/Water Separator



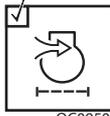
OC0900

Check Brake Fluid Level



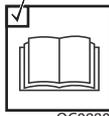
OC0940

Check DEF Level (if equipped for ULS)



OC0950

Check Air Cleaner



OC0980

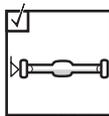
Additional Checks (see Section 8)

First 50 Hours



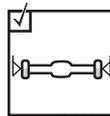
OC0990

Check Wheel Lug Nut Torque



OC1110

Check Axle Oil Level



OC1130

Check Wheel End Oil Level



OC1180

Change Hydraulic Tank Breather



OC1190

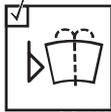
Change Hydraulic Filters

Section 7- Lubrication and Maintenance

Every 50 Hours



Lubrication
Schedule



Check Washer
Fluid



Check LSI System



Check Cab Filter

First 250 Hours



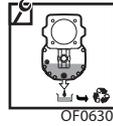
Change Axle Oil



Change Wheel End
Oil



Change Dual
Pump Drive Oil

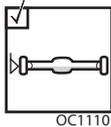


Change Drop Box
Oil

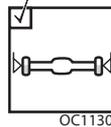
Every 250 Hours



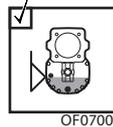
Lubrication
Schedule



Check Axle Oil
Level



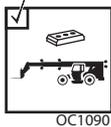
Check Wheel End
Oil Level



Check Drop Box
Oil



Check Dual Pump
Drive Oil



Check Boom Wear
Pads

Section 7- Lubrication and Maintenance

Every 500 Hours



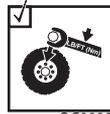
OC1180

Change Hydraulic Tank Breather



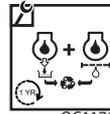
OC1190

Change Hydraulic Filters



OC0990

Check Wheel Lug Nut Torque



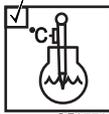
OC1171

Change Engine Oil and Filter



OC1160

Check Fan Belt



OF0770

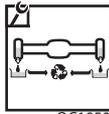
Check Engine Coolant Quality

Every 1000 Hours



OC1040

Change Axle Oil



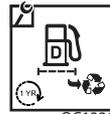
OC1050

Change Wheel End Oil



OC1200

Check Air Intake System



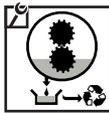
OC1221

Change Fuel Filters



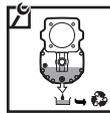
OC1261

Change DEF Pump Filter (if equipped for ULS)



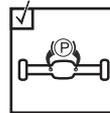
OF0690

Change Dual Pump Drive Oil



OF0630

Change Drop Box Oil



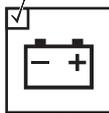
OC1210

Check Park Brake



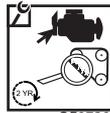
OF0650

Check LSI Calibration



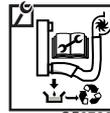
OC1150

Check Battery



OF0730

Change Fan Belt



OF0790

Drain Charge Air Cooler Piping

Section 7- Lubrication and Maintenance

Every 1500 Hours



Change Hydraulic
Fluid and Filters

Every 2000 Hours



Change DEF Tank
Filter (if equipped
for ULS)



Change Air
Cleaner Elements

Every 3000 Hours or 2 Years



Change Engine
Coolant (see note)

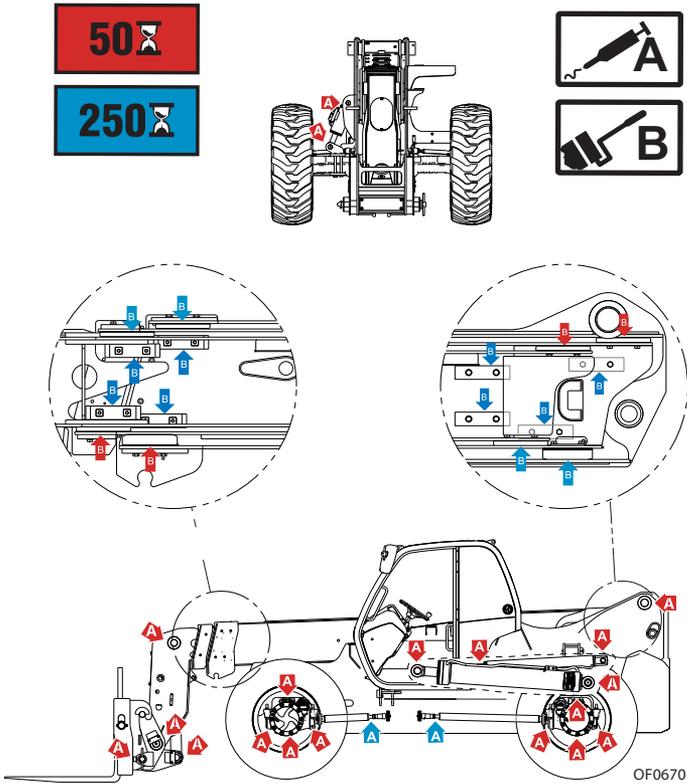
Note: For first engine coolant change or if using DQC CA-14 engine coolant, change intervals are 3,000 hours or 2 years. If using DQC CB-14 or DQC CC-14 engine coolant, all subsequent change intervals are 6,000 hours or 4 years.

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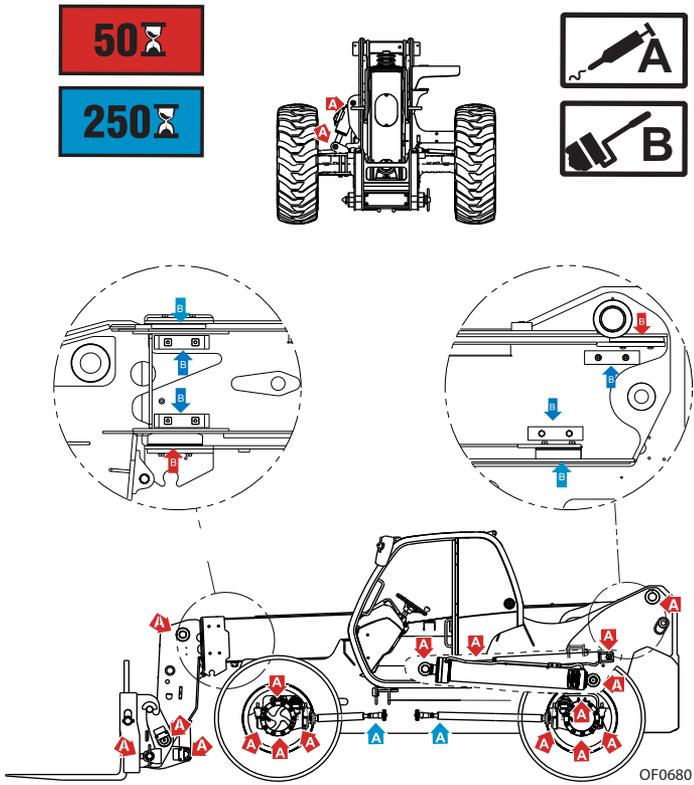
Section 7- Lubrication and Maintenance

7.4 LUBRICATION SCHEDULES

1644, 7013H



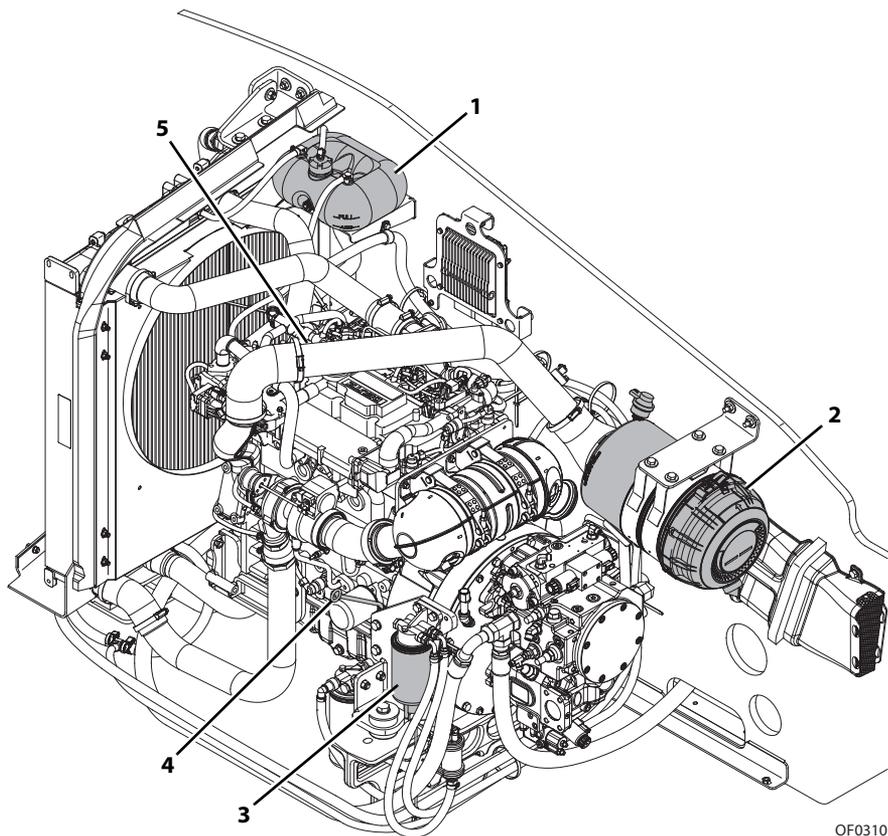
1732, 8010H



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7.5 OPERATOR MAINTENANCE INSTRUCTIONS

Engine Maintenance Components



OF0310

1. **Surge Tank:** See page 7-22.
2. **Air Cleaner:** See page 7-16.
3. **Primary Fuel Filter:** See page 7-12.
4. **Engine Oil Dipstick:** See page 7-15.
5. **Engine Oil Cap:** See page 7-15.

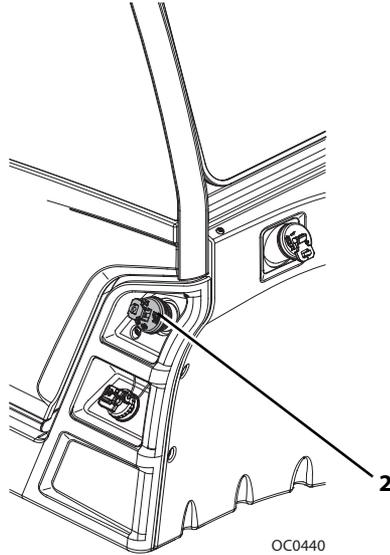
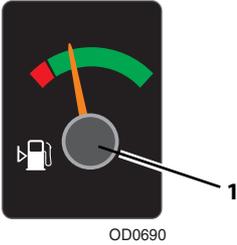
Section 7- Lubrication and Maintenance

Fuel System

A. Fuel Level Check

10 
OW0970


OW0990



1. Check Fuel Gauge (1) located in right side of Instrument Panel in cab.
2. If fuel is low, proceed to fuel source and perform "Shut-Down Procedure" on page 4-5.
3. Turn fuel tank cap (2) to remove from filler neck.
4. Add fuel as needed.
5. Replace fuel tank cap.

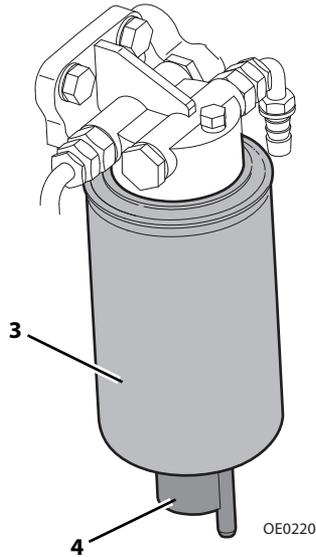
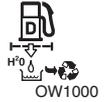
Note: Replenish diesel fuel at end of each work shift to minimize condensation.

NOTICE

EQUIPMENT DAMAGE. Do not allow machine to run out of fuel during operation. See Engine Operation & Maintenance Manual for details prior to servicing.

B. Drain Fuel/Water Separator

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OW0970



1. Perform "Shut-Down Procedure" on page 4-5.
2. Open engine cover.
3. Loosen drain cock (4) on underside of fuel filter (3) and allow all water to drain into a glass until clear fuel is visible. Tighten drain cock.
4. Close and secure engine cover.

Section 7- Lubrication and Maintenance

Emission System (if equipped for ULS)

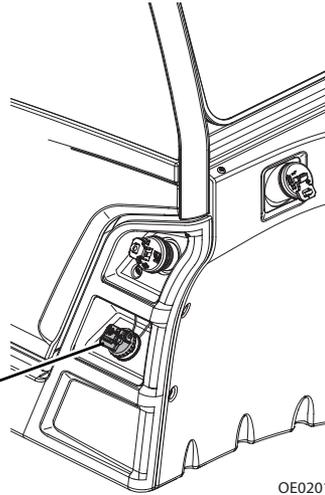
A. Diesel Emission Fluid (DEF) Level Check

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OW0970



OD1330

1



2

OE0201

1. Check Diesel Emission Fluid (DEF) Gauge (1) located in right side of Instrument Panel in cab.
2. If DEF is low, proceed to DEF source and perform "Shut-Down Procedure" on page 4-5.
3. Turn DEF tank cap (2) to remove.
4. Add DEF as needed. Fill with a minimum of 1.3 gallon (5 liters) in order for low DEF level indicator on instrument panel to go out.
5. Replace DEF tank cap.

Note: If DEF level becomes too low, system derate and/or idle-lock may occur.

NOTICE

EQUIPMENT DAMAGE. Do not allow machine to run out of Diesel Emission Fluid (DEF) during operation. See the Engine Operation & Maintenance Manual for details prior to servicing.

NOTICE

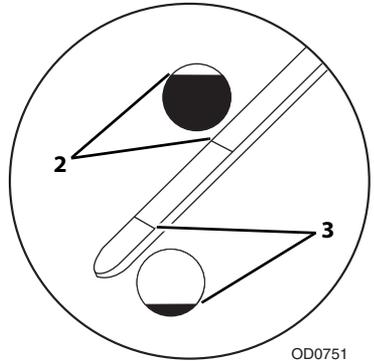
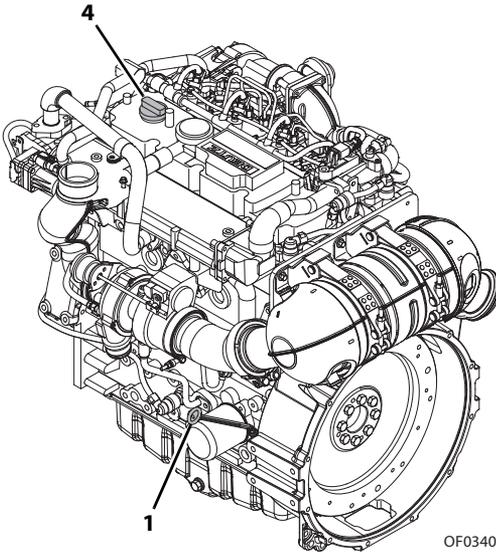
EQUIPMENT DAMAGE. Carefully fill DEF tank to avoid system contamination.

Engine Oil

A. Engine Oil Level Check

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OW0970


OW1020



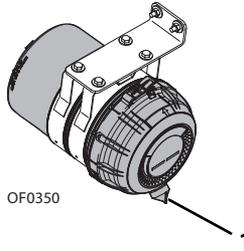
1. Perform "Shut-Down Procedure" on page 4-5.
2. Open engine cover.
3. Remove dipstick (1) and check oil mark. Oil should be between full (2) and add (3) marks of dipstick.
4. Replace dipstick.
5. If oil is low, remove oil fill cap (4) and add oil to bring oil up to full mark in crosshatch area.
6. Replace oil fill cap.
7. Close and secure engine cover.

Section 7- Lubrication and Maintenance

Air Intake System

A. Air Cleaner Check

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OW0970

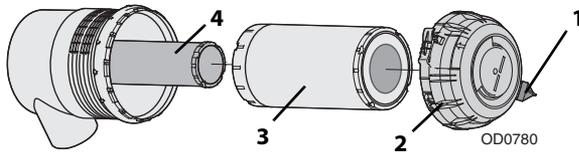


1. Perform "Shut-Down Procedure" on page 4-5.
2. Open engine cover.
3. Remove dust from vacuator valve (1) by squeezing bottom of valve to allow loose particles to fall out.
4. Close and secure engine cover.

NOTICE

EQUIPMENT DAMAGE. Only remove air cleaner cover to service elements. Excessive access to check elements can lead to premature element and/or engine failure.

B. Element Change



Note: Change elements as air cleaner restriction indicator indicates or every two years. Use the interval that occurs first.

1. Perform "Shut-Down Procedure" on page 4-5.
2. Open engine cover.
3. Unlock air cleaner cover (2) and remove from air cleaner.
4. Remove outer primary element (3). Inspect element for damage then discard.
5. Thoroughly clean interior of air cleaner canister and vacuator valve (1).
6. Replace inner safety element (4) every third primary element change or if primary element was found to be damaged. If replacing inner safety element at this time, carefully slide element out and replace with new element.
7. Slide new primary element over inner safety element making sure sealing edge is flush with base of air cleaner.
8. Position air cleaner cover in place and lock into position.
9. Close and secure engine cover.

Note: Elements should never be washed or reused. Always install new elements.

NOTICE

EQUIPMENT DAMAGE. Primary and safety elements are required to be replaced if used in an application longer than two years regardless of hours of operation.

Section 7- Lubrication and Maintenance

Tires

A. Tire Air Pressure Check



1. Perform “Shut-Down Procedure” on page 4-5.
2. Remove valve stem cap.
3. Check tire pressure.
4. Add air if required. See page 9-6 for tire pressures.
5. Replace valve stem cap.

B. Tire Damage

For pneumatic tires, when any cut, rip or tear is discovered that exposes sidewall or tread area cords in the tire, measures be taken to remove the product from service immediately. Arrangements must be made for replacement of the tire or tire assembly.

For polyurethane foam filled tires, when any of the following are discovered, measures must be taken to remove the product from service immediately. Arrangements must be made for replacement of the tire or tire assembly.

- Smooth even cut through the cord piles which exceeds 3 in (7,5 cm) in total length
- Any tears or rips (ragged edges) in cord plies which exceeds 1 in (2,5 cm) in any direction
- Any punctures which exceed 1 in (2,5 cm) in diameter

If a tire is damaged but within above noted criteria, tire must be inspected daily to ensure damage has not propagated beyond allowable criteria.

C. Tire and Wheel Replacement

Machines equipped with pneumatic tires from manufacturer must use pneumatic replacements. Machines equipped with foam filled or ballast filled tires from manufacturer must use foam filled or ballast filled replacements.

It is recommended that a replacement tire to be same size, ply, inflation medium and brand as originally installed. Refer to appropriate parts manual for ordering information. If not using an approved replacement tire, replacement tires must have the following characteristics:

- Equal or greater ply/load rating and size of original
- Tire tread contact width equal or greater than original
- Wheel diameter, width and offset dimensions equal to the original
- Approved for application by tire manufacturer (including inflation pressure and maximum tire load)

Section 7- Lubrication and Maintenance

Due to size variations between tire brands, when selecting and installing a replacement tire ensure both tires on the axle are the same.

The rims installed have been designed for stability requirements which consist of track width, tire pressure and load capacity. Size changes such as rim width, center piece location, larger or smaller diameter, etc., without written factory recommendations, may result in unsafe condition regarding stability.



WARNING

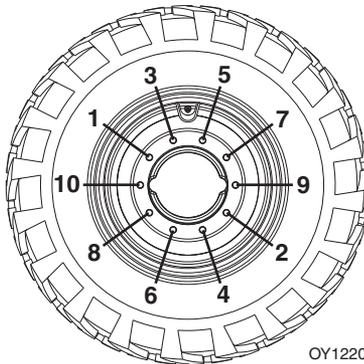
CRUSH HAZARD. The wheels are a three piece design and are to be serviced by a Qualified Tire Repair Center ONLY.

D. Wheel Installation

Torque lug nuts after first 50 hours and after each wheel installation.

Note: If machine is equipped with directional tire assemblies, wheel and tire assemblies must be installed with directional tread pattern "arrows" facing in direction of forward travel.

1. Start all nuts by hand to prevent cross threading. DO NOT use a lubricant on threads or nuts.



2. Tighten lug nuts in an alternating pattern as indicated in figure. See page 9-6 for torque value.



WARNING

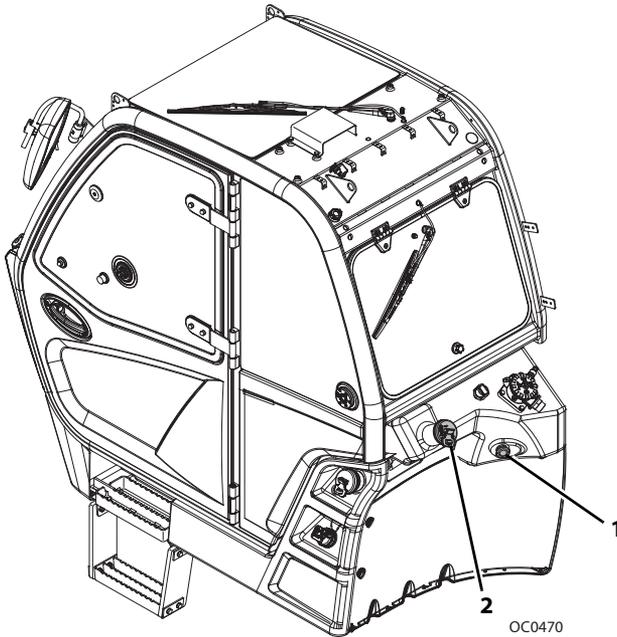
TIP OVER HAZARD. Lug nuts must be installed and maintained at the proper torque to prevent loose wheels, broken studs and possible separation of wheel from the axle.

Section 7- Lubrication and Maintenance

Hydraulic Oil

A. Hydraulic Oil Level Check

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OW0970



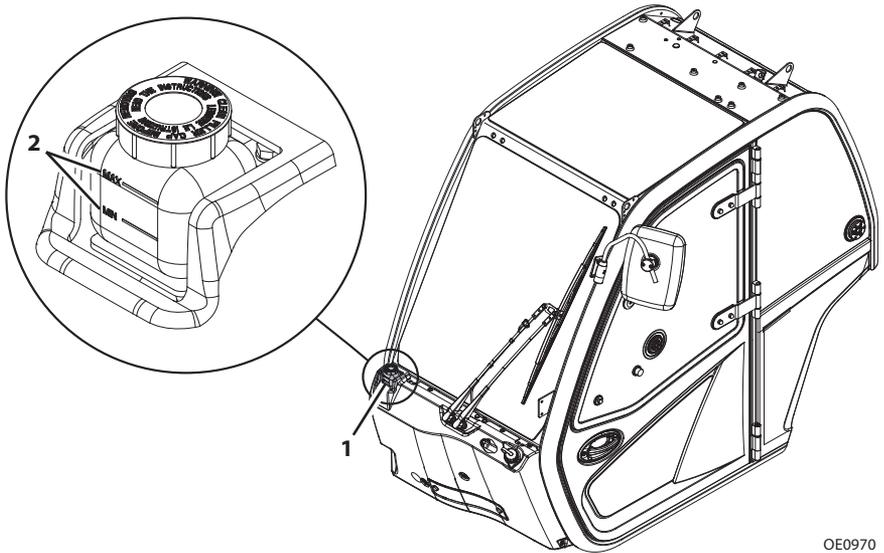
1. Be sure all cylinders are fully retracted and machine is level.
2. Perform "Shut-Down Procedure" on page 4-5.
3. Allow hydraulic oil to cool. Check fluid level at sight gauge (1). Oil level should be visible in gauge window.
4. Remove fill cap (2). Add fluid to bring oil up to the center of the sight gauge.
5. Replace hydraulic oil fill cap.

Brake Fluid

A. Brake Fluid Level Check

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OW0970


OD1380



OE0970

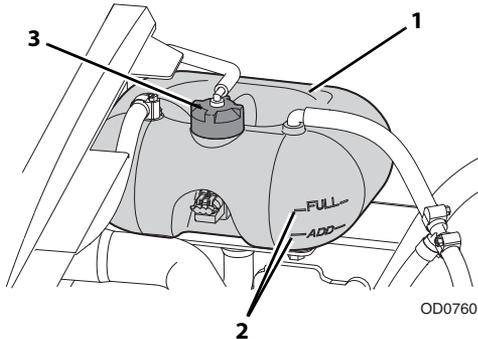
1. Perform "Shut-Down Procedure" on page 4-5.
2. Check the brake fluid level (1). Fluid should be between Max and Min (2) marks on brake reservoir.
3. If fluid is low, remove the product from service. See Service Manual for information.

Section 7- Lubrication and Maintenance

Engine Cooling System

A. Engine Coolant Level Check

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OW0970



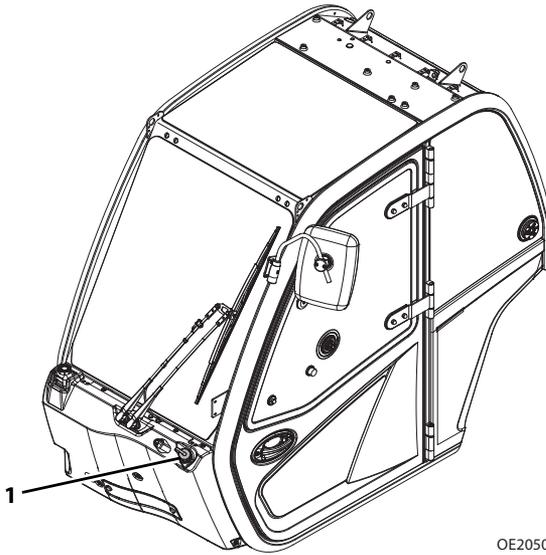
1. Perform "Shut-Down Procedure" on page 4-5.
2. Open engine cover.
3. Check coolant level in surge tank (1). Coolant should be between Full and Add (2) marks on surge tank.
4. If coolant is low, allow fluid to cool.
5. Remove surge tank cap (3) slowly. Add coolant as required.
6. Replace surge tank cap.
7. Close and secure engine cover.

Note: When filling coolant, maximum fill rate is 2.5 gallon per minute (9,5 liter per minute).

Windshield Washer System

A. Windshield Washer Fluid Level Check

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OW0980



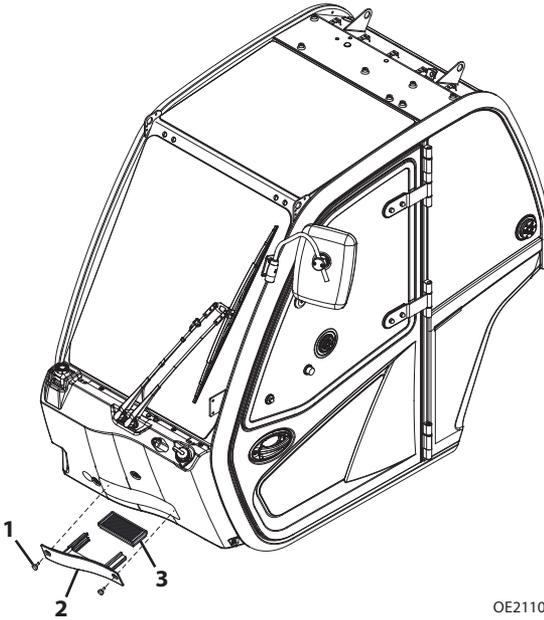
1. Perform "Shut-Down Procedure" on page 4-5.
2. Remove reservoir cap (1).
3. Windshield washer fluid should be visible in the reservoir.
4. If washer fluid level is low, add fluid as needed.
5. Replace reservoir cap.

Section 7- Lubrication and Maintenance

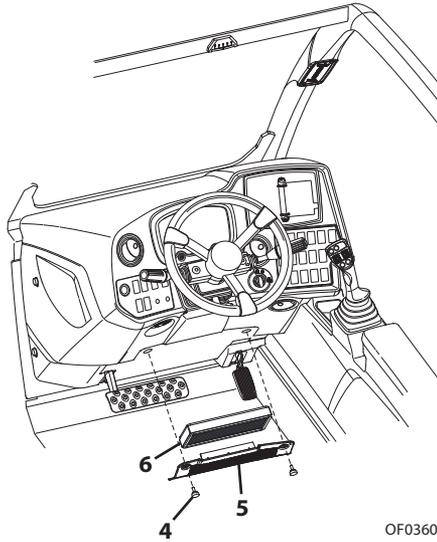
Cab Air Filters

A. Cab Air Filters Check

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OW0980



1. Perform "Shut-Down Procedure" on page 4-5.
2. Remove two thumb screws (1) and panel (2) from front of cab.
3. Remove filter (3) and inspect.
4. If filter is not damaged, clean and place back under dash. If damaged, replace filter.
5. Replace panel on front of cab and secure with thumb screws.



6. Remove two thumb screws (4) and panel (5) from under dash.
7. Remove cab air filter (6) and inspect.
8. If filter is not damaged, clean and place back under dash. If damaged, replace filter.
9. Replace panel and secure with thumb screws.

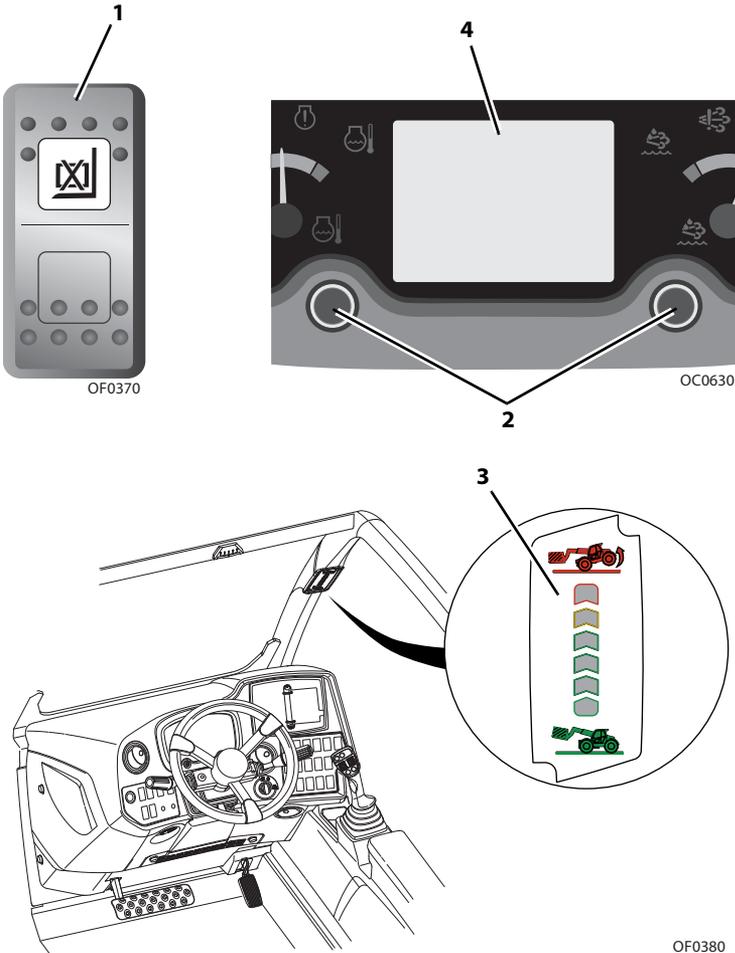
Section 7- Lubrication and Maintenance

Load Stability Indicator System (if equipped)

A. Load Stability Indicator System Check

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OW0980


OZ0840



The Load Stability Indicator (LSI) is intended to continuously monitor the forward stability of the telehandler. To check this feature, perform the following:

1. Remove attachment and fully retract and fully raise boom.
2. Press and hold LSI override switch (1) on left control panel and the two control buttons (2) on instrument panel.

Section 7- Lubrication and Maintenance

3. LSI indicator LEDs (**3**) will illuminate sequentially then repeat if check is successful. LSI indicator LEDs will resume normal functionality when control buttons are released.
4. If check fails, a fault code will appear in the LCD display (**4**) and must be corrected before continued use. Repeat system check or re-calibrate machine. See Service Manual for LSI system calibration information.

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SECTION 8 - ADDITIONAL CHECKS

8.1 GENERAL

If any of the following test results cannot be achieved, the system is not functioning properly and the machine must be removed from service and repaired before continued operation.

8.2 REVERSE SENSING SYSTEM (IF EQUIPPED)

A. Reverse Sensing System Check



Reverse Sensing System provides audible indication of objects to rear of unit while in reverse gear.

1. Clear all people and/or obstacles behind machine before performing Reverse Sensing System check.
2. Start machine and depress and hold brake. Place machine in reverse gear.
3. Verify alarm sounds upon system start up.

Note: Reverse Sensing System detects objects of size more than 36 square inches (232.25 square centimeters) area and is functional when machine is moving in reverse direction.

Note: The use of a construction cone or similar object must be used to test the Reverse Sensing System.



WARNING

CRUSH HAZARD. Do not use a person to test the reverse sensing system.

4. Verify operation with no objects in detection zone. No audible alarm.
5. Verify operation when object is in range of approximately 9 to 15 ft (2.7 to 4.5 m). Produces pulsing audible alarm at a frequency of one per second (1 Hz).
6. Verify operation when object is in range of approximately 7 to 9 ft (2.1 to 2.7 m). Produces pulsing audible alarm. Produces pulsing audible alarm at a frequency of two per second (2 Hz).
7. Verify operation when object is range of approximately 5 to 7 ft (1.5 to 2.1 m). Produces pulsing audible alarm at a frequency of four per second (4 Hz).
8. Verify operation when object is under approximately 5 ft (1.5 m) from machine. Produces pulsing audible alarm at a frequency of eight per second (8 Hz).

Section 8- Additional Checks

8.3 BOOM INTERLOCK

A. Boom Interlock System Test



Boom interlock system operates in three modes. With boom at any extension and angle below 20 degrees, frame level is operable. With boom fully retracted and raised between 20 and 60 degrees, frame level is operable. With boom at any extension and raised above 60 degrees, frame level is not operable. To check the system, perform the following:

- 1. Test system with machine on a level surface and no load.**
2. Shift transmission to neutral and engage park brake.
3. Ensure frame level function is properly functioning. Rotate frame in each direction.
4. Level machine using level in cab.
5. Raise boom to between 20 and 60 degrees and extend approximately 39 in (1 m).
6. Attempt to rotate frame. Function should not respond.
7. Fully retract boom and raise above 60 degrees.
8. Attempt to rotate frame. Function should not respond.
9. Lower boom fully.

8.4 AIR SHUTOFF VALVE (ASOV) (IF EQUIPPED)

A. Air Shutoff Valve Test



Air Shutoff Valve (ASOV) is an overspeed protection device mounted to the engine's air intake system. When the valve is actuated, it obstructs airflow intake and stops the engine. Weekly tests are recommended to ensure the valve remains in good working condition.

1. Start the engine, running at idle.
2. Open the red switch guard of ASOV test switch, then activate toggle to test mode (see page 3-2).
3. Rev the engine in neutral until the valve actuates at the test RPM of 1500. Once valve actuates, engine will stop.
4. Turn ignition to OFF.
5. Visually inspect valve to ensure it appears in good condition.
6. Reset valve by rotating valve handle to the Open position.

Note: *The handle cannot be turned unless the machine is off. Ensure the ignition is moved to the OFF position.*



WARNING

Do not use ASOV as an alternative to shutting down machine properly.

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SECTION 9 - SPECIFICATIONS

9.1 PRODUCT SPECIFICATIONS

Machine Temperature Chart

Configuration	Ambient Temperature Range			
	°F		°C	
	Min	Max	Min	Max
Standard System	0	115	-18	46
Arctic Minimum	-40	N/A	-40	N/A

Note: Consult JLG for operation outside these ranges or under abnormal conditions.

Fluids

If Equipped for ULS

Compartment or System	Type and Classification	Viscosities	Ambient Temperature Range			
			°F		°C	
			Min	Max	Min	Max
Engine Crankcase	Deutz DQC III-10 LA or Deutz DQC IV-10 LA	SAE 15W-40	5	115	-15	46
		SAE 10W-40	-4	115	-20	46
		SAE 10W-30	-4	86	-20	30
		SAE 5W-40	-22	115	-30	46
		SAE 5W-30	-22	86	-30	30
		SAE 0W-40	-40	115	-40	46
		SAE 0W-30	-40	86	-40	30
Pump Drive Gearbox, Drop Box	Mobilfluid 424	10W-30	-4	115	-20	46
	Mobilfluid LT	75W-80	-40	68	-40	20
	API GL4 or API GL5 Oils	SAE90	32	115	0	46
		80W-90	-4	115	-20	46
		85W-90	-40	115	-40	46
		75W-90	-40	115	-40	46
	75W	-40	50	-40	10	
Axle Differential, Axle Wheel Ends	API GL5 LS Oils	80W-90 LS	-4	115	-20	46
		85W-90 LS	-40	115	-40	46
Hydraulic System	Mobilfluid 424	10W-30	5	131	-15	55
	Exxon UniVis HVI 26		-40	100	-40	38

Section 9- Specifications

Compartment or System	Type and Classification	Viscosities	Ambient Temperature Range			
			°F		°C	
			Min	Max	Min	Max
Boom Wear Pad Grease	Extreme Pressure Grease	NLGI Grade 000	-31	115	-35	46
Grease Fittings	Extreme Pressure Grease	NLGI Grade 2 EP or NLGI Grade 3 EP with Moly Additive	5	115	-15	46
Engine Coolant	Deutz DQC CA-14 or Deutz DQC CB-14 or Deutz DQC CC-14	50% Ethylene Glycol 50% Water	Standard			
		60% Ethylene Glycol 40% Water	Cold Weather			
Fuel	EN590 ASTM D 975 Grade 1-D ASTM D 975 Grade 2-D (Maximum B5 Biodiesel)	Ultra Low Sulfur (S ≤ 15 mg/kg)				
Diesel Exhaust Fluid	ISO22241-1	32.5%Urea				
Brake Fluid	Mobil ATF D/M		-40	131	-40	55
	Mobil ATF 220		-40	131	-40	55
Air Conditioning	Refrigerant R-134-a	Tetrafluoroethane				

If Equipped for LS

Compartment or System	Type and Classification	Viscosities	Ambient Temperature Range			
			°F		°C	
			Min	Max	Min	Max
Engine Crankcase	Deutz DQC II-10 LA or Deutz DQC III-10 LA or Deutz DQC IV-10 LA or Deutz DQC III-10 LA or Deutz DQC IV-10 LA	SAE 20W-50	23	115	-5	46
		SAE 15W-40	5	115	-15	46
		SAE 10W-40	-4	115	-20	46
		SAE 10W-30	-4	86	-20	30
		SAE 5W-40	-22	115	-30	46
		SAE 5W-30	-22	86	-30	30
		SAE 0W-40	-40	115	-40	46
		SAE 0W-30	-40	86	-40	30
Pump Drive Gearbox, Drop Box	Mobilfluid 424	10W-30	-4	115	-20	46
	Mobilfluid LT	75W-80	-40	68	-40	20
	API GL4 or API GL5 Oils	SAE90	32	115	0	46
		80W-90	-4	115	-20	46
		85W-90	-40	115	-40	46
		75W-90	-40	50	-40	10
Axle Differential, Axle Wheel Ends	API GL5 LS Oils	80W-90 LS	-4	115	-20	46
		85W-90 LS	-40	115	-40	46
		75W-90 LS	-40	115	-40	46
Hydraulic System	Mobilfluid 424	10W-30	5	131	-15	55
	Exxon UniVis HVI 26		-40	100	-40	38
Boom Wear Pad Grease	Extreme Pressure Grease	NLGI Grade 000	-31	115	-35	46
Grease Fittings	Extreme Pressure Grease	NLGI Grade 2 EP or NLGI Grade 3 EP with Moly Additive	5	115	-15	46
Engine Coolant	Deutz DQC CA-14 or Deutz DQC CB-14 or Deutz DQC CC-14	50% Ethylene Glycol 50% Water	Standard			
		60% Ethylene Glycol 40% Water	Cold Weather			
Fuel	EN590 ASTM D 975 Grade 1-D ASTM D 975 Grade 2-D (Maximum B5 Biodiesel)	Low Sulfur (S ≤ 500 mg/kg)				

Section 9- Specifications

Compartment or System	Type and Classification	Viscosities	Ambient Temperature Range			
			°F		°C	
			Min	Max	Min	Max
Brake Fluid	Mobil ATF D/M		-40	131	-40	55
	Mobil ATF 220		-40	131	-40	55
Air Conditioning	Refrigerant R-134-a	Tetrafluoroethane				

Capacities

Engine Crankcase Oil

Capacity with Filter Change..... 9.4 qt (8,9 L)

Fuel Tank

Capacity 39.1 gal (148 L)

Diesel Exhaust Fluid Tank (if equipped for ULS)

Capacity 5.3 gal (20,25 L)

Cooling System

System Capacity 6 gal (22,6 L)

Hydraulic System

System Capacity

 1644, 7013H 67.4 gal (255 L)

 1732, 8010H 77.1 gal (292 L)

Reservoir Capacity to Full Mark 39.6 gal (150 L)

Dual Pump Drive

Capacity 2.1 qt (2 L)

Drop Box

Capacity 1.6 qt (1.5 L)

Axles

Differential Housing Capacity

 Front 15 qt (14,2 L)

 Rear 15 qt (14,2 L)

Wheel End Capacity

 Front 1.8 qt (1,7 L)

 Rear 1.5 qt (1,42 L)

Air Conditioning System (if equipped)

System Capacity 2.6 lb (1,2 kg)

Brake Fluid

Capacity 1.1 qt (1,0 L)

Section 9- Specifications

Tires

17.5-25, 20 Ply	
Pneumatic	90 psi (6,2 bar)
Foam	Approx 795 lb (360,6 kg)
17.5-25, XKA	80 psi (5,5 bar)
17.5-25, EM60	90 psi (6,2 bar)

Wheel Lug Nut

Torque	510 ±30 Nm (376 ±25 lb-ft)
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Performance

Maximum Lift Capacity

1644, 7013H	15,650 lb (7100 kg)
1732, 8010H	16,755 lb (7600 kg)

Maximum Lift Height

1644, 7013H	43.7 ft (13301 mm)
1732, 8010H	31.8 ft (9658 mm)

Capacity at Maximum Height

1644, 7013H	6,750 lb (3060 kg)
1732, 8010H	9,900 lb (4500 kg)

Maximum Forward Reach

1644, 7013H	31.1 ft (9480 mm)
1732, 8010H	18.7 ft (5669 mm)

Capacity at Maximum Forward Reach

1644, 7013H	2,000 lb (908 kg)
1732, 8010H	5,500 lb (2500 kg)

Reach at Maximum Height

1644, 7013H	85.5 in (2171.4 mm)
1732, 8010H	36.4 in (924.5 mm)

Auxiliary Hydraulic Circuit Max Flow 21 gpm (80 lpm)

Maximum Travel Speed (see note) 20 mph (32 kph)

Hitch Capacity (no load on attachment)

1644, 7013H	15,650 lb (7100 kg)
1732, 8010H	16,755 lb (7600 kg)

Frame Leveling 8 degrees

Maximum Travel Grade (boom in travel position)

Gradeability	24 degrees (45%)
Side Slope	5 degrees (8.75%)

Note: Refer to machine specific documents and/or plates for local governmental requirements and/or restrictions.

Section 9- Specifications

Dimensions

Note: Values will vary depending on machine configuration.

Maximum Overall Height	105 in (2673 mm)
Maximum Overall Width.....	97 in (2475 mm)
Maximum Track Width.....	78 in (1990 mm)
Wheelbase	127 in (3220 mm)
Length at Front Wheels	167 in (4248 mm)
Overall Length (no forks)	
1644, 7013H.....	243 in (6163 mm)
1732, 8010H.....	233 in (5917 mm)
Ground Clearance	19 in (483 mm)
Turn Radius - Over Tires	158 in (4008 mm)
Turn Radius - Curb to Curb.....	154.9 in (3935 mm)
Maximum Operating Weight (no attachment)	
1644, 7013H.....	33,660 lb (15 265 kg)
1732, 8010H.....	31,175 lb (14 140 kg)
Distribution of Maximum Operating Weight (no attachment, boom level and fully retracted)	
Front Axle	
1644, 7013H	12,696 lb (5759 kg)
1732, 8010H	11,120 lb (5044 kg)
Rear Axle	
1644, 7013H	20,269 lb (9194 kg)
1732, 8010H	19,100 lb (8664 kg)

Maximum Ground Bearing Pressure

1644, 7013H

Tires

17.5-25, 20 Ply

Pneumatic 145.3 lb/in² (10,2 kg/cm²)

Foam..... 161.5 lb/in² (11,4 kg/cm²)

17.5-25, XKA 110.6 lb/in² (7,8 kg/cm²)

17.5-25, EM60 151.3 lb/in² (10,6 kg/cm²)

1732, 8010H

Tires

17.5-25, 20 Ply

Pneumatic 144.8 lb/in² (10,2 kg/cm²)

Foam..... 160.9 lb/in² (11,3 kg/cm²)

17.5-25, XKA 109.9 lb/in² (7,7 kg/cm²)

17.5-25, EM60 149.9 lb/in² (10,5 kg/cm²)

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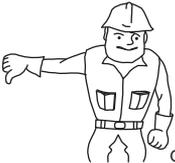
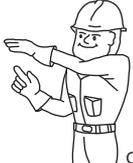
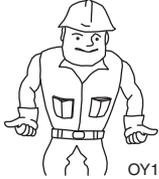
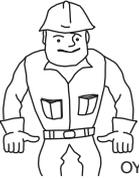
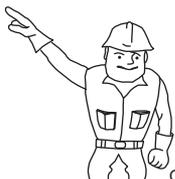
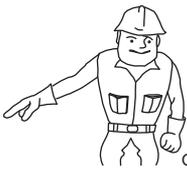
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Hand Signals

 <p>OY1090</p> <p>EMERGENCY STOP - With both arms extended laterally, hands open downward, move arms back and forth.</p>	 <p>OY1100</p> <p>STOP - With either arm extended laterally, hand open downward, move arm back and forth.</p>	 <p>OY1110</p> <p>STOP ENGINE - Draw thumb or forefinger across throat.</p>
 <p>OY1120</p> <p>RAISE BOOM - With either arm extended horizontally, fingers closed, point thumb upward.</p>	 <p>OY1130</p> <p>LOWER BOOM - With either arm extended horizontally, fingers closed, point thumb downward.</p>	 <p>OY1140</p> <p>MOVE SLOWLY - Place one hand motionless in front of hand giving motion signal. (Raise load slowly shown)</p>
 <p>OY1150</p> <p>EXTEND BOOM - With both hands clenched, point thumbs outward.</p>	 <p>OY1160</p> <p>RETRACT BOOM - With both hands clenched, point thumbs inward.</p>	 <p>OY1170</p> <p>THIS FAR TO GO - With hands raised and open inward, move hands laterally, indicating distance to go.</p>
 <p>OY1180</p> <p>TILT FORKS UP - With one arm held at side, extend other arm upward at about 45 degrees.</p>	 <p>OY1190</p> <p>TILT FORKS DOWN - With one arm held at side, extend other arm downward at about 45 degrees.</p>	

Special Signals - When signals for auxiliary equipment functions or conditions not covered are required, they shall be agreed upon in advance by the operator and signalman.



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