Operation & Safety Manual

Original Instructions -
Keep this manual with the machine at all times.

1075, 4523

PVC 2605

3122571800

May 11, 2026 - Rev A

ANSI

English (en-US)

⚠ 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

DATE	REVISION	DESCRIPTION
May 11, 2026	A	Original Issue of Manual.

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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.

This manual is originally written in English.

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

USA

or Your Local JLG Office

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Outside USA:

Phone: +1-717-485-6591

E-mail:

ProductSafety@JLG.com

Other Publications Available

Service Manual 3122572200

Parts Manual

1075 3122570400

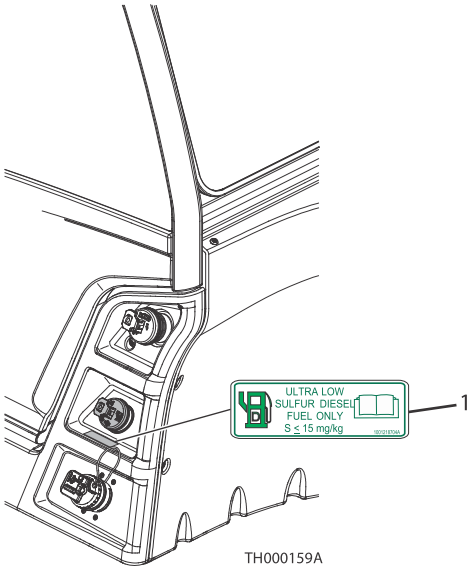
4523 3122570500

Note: 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.



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SECTION 1
General Safety Practices

1.1 HAZARD CLASSIFICATION SYSTEM

1.1.1 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.

NOTICE

Indicates information that relates directly or indirectly to machine practices or the protection of property.

1.2 GENERAL PRECAUTIONS

This vehicle has been designed and built as a self-propelled vehicle with operator's seat and wheels designed for use on paved or natural ground and driven on uneven ground.

It contains a main support structure suitable to support the extendable boom.

The head of the boom can be fitted with forks or other attachments only if approved by JLG.

The machine is designed to perform load lifting and positioning by extending/retracting and lifting/lowering of the boom.

The machine is designed for vertical loads during standard lifting operation. Boom operations including, but not limited to, back-dragging and trash compacting exert forces not typical during lifting applications and may result in damage to the boom and/or other machine structures or components.

⚠ WARNING

Any other use is considered contrary to the intended use by JLG which, therefore cannot be responsible for damage to objects and the machine itself, or injury to persons that might derive from misuse.

⚠ 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.

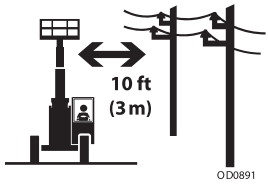
- Hydraulic cylinders are subject to thermal expansion and contraction. This may result in changes to the boom and/or attachment position while the machine is stationary. Factors affecting thermal movement can include the length of time machine is stationary, hydraulic oil temperature, ambient air temperature 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.

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.

1.3.1 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.

- 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.

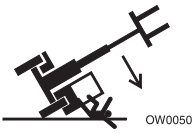
⚠ DANGER

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

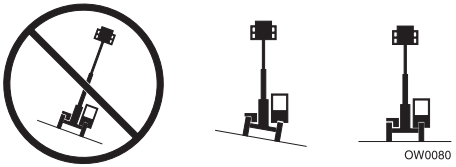
1.3.2 Tip Over Hazard

General

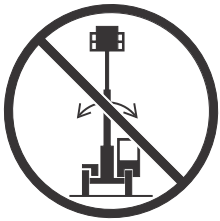
- For additional load requirements, refer to the appropriate capacity chart.

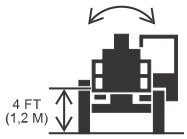


- Never use an attachment without the appropriate original equipment manufacturer (OEM) approved capacity chart installed on the telehandler.
- Understand how to properly use the capacity charts located in cab.
- **DO NOT** exceed rated lift capacity.
- Be sure that the ground conditions are able to 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.



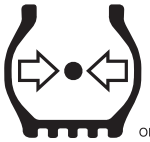
- **DO NOT** raise boom unless frame is level (0 degrees), unless otherwise noted on capacity chart.





OW0100

- **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.)



OH2291

- **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.



OH20911

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

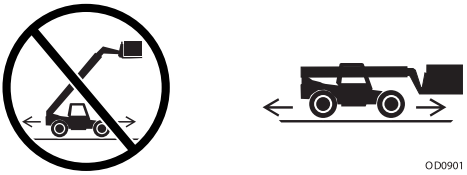


OH2221

If telehandler starts to tip over:

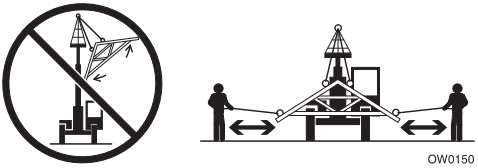
- **DO NOT** JUMP
- BRACE YOURSELF and STAY WITH THE MACHINE
- KEEP YOUR SEAT BELT FASTENED
- HOLD ON FIRMLY
- LEAN AWAY FROM THE POINT OF IMPACT

Non-Suspended Load



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

Suspended Load

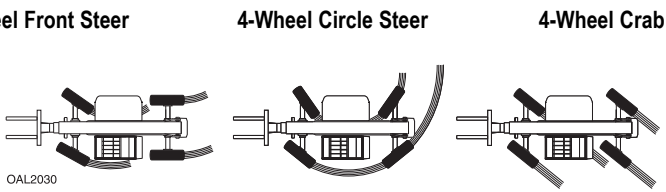


- Tether suspended loads to restrict movement.
- Weight of all rigging (slings, etc.) must be included as part of load.
- **DO NOT** attempt to use telehandler frame-leveling to compensate for load swing.
- Keep heavy part of load closest to attachment.
- Never drag the load; lift vertically.

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.

1.3.3 Travel Hazard



- 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.

1.3.4 Load Falling Hazard



- 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.

1.3.5 Lifting Personnel

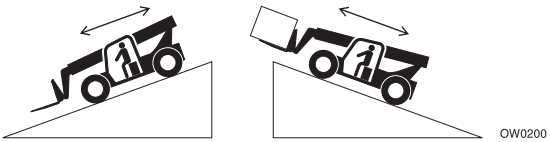


- When lifting personnel, **USE ONLY** an approved personnel work platform, with proper capacity chart displayed in the cab.



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

1.3.6 Driving Hazards on Slopes



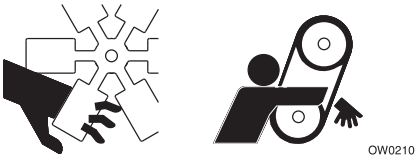
To maintain sufficient traction and braking capabilities, travel on slopes as follows:

- 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 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.

1.3.7 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.


OW0240

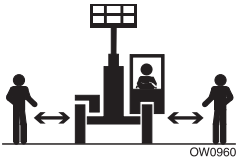
- Keep clear of boom holes.



- Keep arms and hands clear of attachment tilt cylinder.



- Keep hands and fingers clear of carriage and forks.



- Keep others away while operating.

1.3.8 Fall Hazard



- 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 *Shut-Down Procedure* has been performed.



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

1.3.9 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 RADIO FREQUENCY (RF) INFORMATION

Note: The ClearSky Smart Fleet™ CS550 connectivity module antenna is internal to the assembly. The CS550 connectivity module complies with the wireless certification regulations in the regions of sale. Machines equipped with ClearSky Smart Fleet telematics must be received by countries that are certified to have ClearSky Smart Fleet. For a full listing of ClearSky Smart Fleet certified countries, please refer to the ClearSky webpage on the JLG website.

1.4.1 Federal Communications Commission (FCC)

FCC Interference Statement

ClearSky CS550 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.

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.

Notice Regarding Radio Frequency Radiation Exposure

ClearSky CS550 complies with the FCC radio frequency exposure limits prescribed for mobile use (i.e,. antennas are greater than 20 cm from a person's body) in an uncontrolled environment. Consequently, a person within 20 cm (8 in) of a CS550 that is connected to machine battery power could expose that person to RF energy in excess of what has been established by the FCC RF exposure guidelines.

1.4.2 Innovation, Science and Economic Development (ISED)

Radio Frequency Interference Requirements

The ClearSky CS550 Class B digital apparatus complies with Canadian ICES-003. [Canada Compliance Label: CAN ICES-3 (B)/NMB-3(B)]

This device complies with Industry Canada license-exempt RSS standard (s). 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.

Notice Regarding Radio Frequency Radiation Exposure

ClearSky CS550 complies with the ISED radio frequency exposure limits prescribed for mobile use (i.e,. antennas are greater than 20 cm from a person's body) in an uncontrolled environment. Consequently, a person within 20 cm (8 inches) of a CS550 that is connected to machine battery power could expose that person to RF energy in excess of what has been established by the ISED RF exposure guidelines.

1.4.3 European Union Conformity (CE)

CE Interference Statement

JLG Industries, Inc. declares that the radio equipment ClearSky Smart Fleet CS550 Connectivity Module complies with Directive 2014/53/EU. Full details can be found on the declaration of conformity. The CS550 is intended to be mounted on JLG machines and has integrated beacon functionality. Additionally, it provides telematics data via WiFi or Cell, and provides local diagnostic data exchange with a mobile device connected via WiFi and BLE. Mobile device software is obtained through Google Play Store or Apple App Store.

Frequencies of Operation [and maximum power output]:

- LTE Cat M1: 700/750/800/850/900/1700/1800/1900/2100 MHz [23 dBm±2 dB]
- 2G GPRS: 900MHz [Class 4, 33 dBm ±3 dB], 1800MHz [Class 1, 30 dBm ±3 dB]
- 2G EGPRS: 900MHz [Class E2, 27 dBm ±3 dB], 1800MHz [Class E2, 26 dBm ±3 dB]
- WiFi (IEEE 802.11b/g/n): 2400-2483.5 MHz [18 dBm e.i.r.p]
- Bluetooth (BLE, Mesh 1.0 and proprietary GATT): 2400-2483.5 MHz [12.1 dBm e.i.r.p]
- GNSS (receive only: GPS, GLONASS, BeiDou, Galileo): 1575.42MHz, 1561.098MHz, 1602MHz

Ensure at least 20 cm separation distance is maintained between user's body and CS550 module to meet Maximum Permissible Exposure (MPE) restrictions for RF exposure.

Contact: JLG EMEA B.V., Polaris Avenue 63, 2132 JH Hoofddorp, Netherlands

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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.

2.2 PRE-OPERATION CHECK AND INSPECTION

Note: Complete all required maintenance before operating unit.

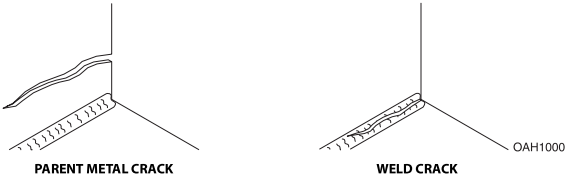
⚠ WARNING

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.



3. **Safety Decals** - Ensure all safety decals are legible and in place. Clean or replace as required. See *Section — Safety Decals* 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 *Section — Walk-Around Inspection* 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 — Lubrication and Maintenance* and *Section — 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.

8. **Operational Check** - Once the walk-around inspection is complete, perform a warmup and operational check (see *Section — Warm-Up And Operational Checks*) of all systems in an area free of overhead and ground level obstructions. See *Section — Controls and Indicators* for more specific operating instructions.

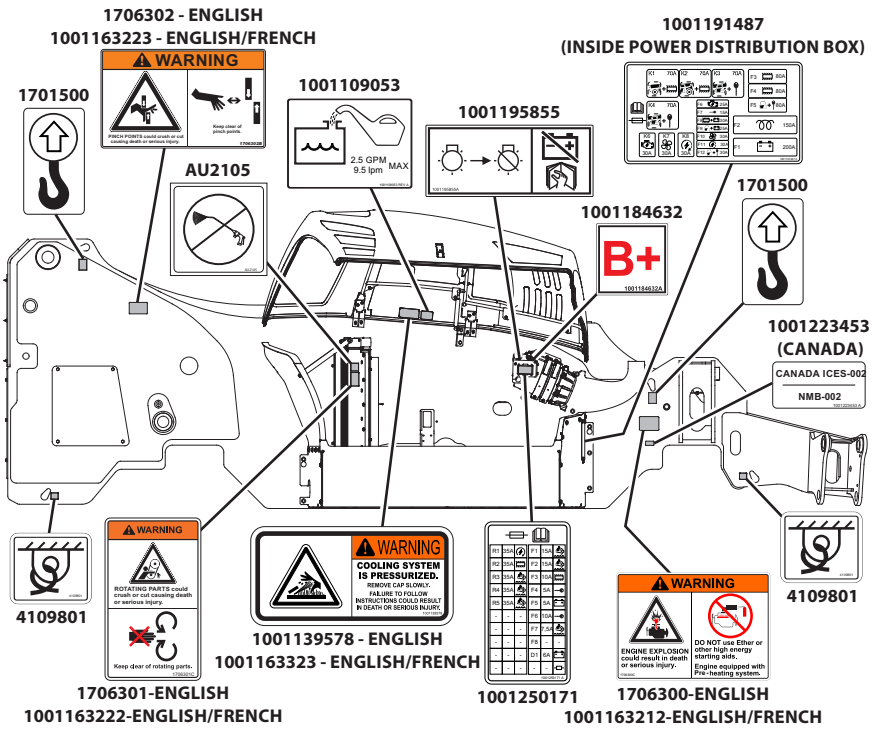
⚠ WARNING

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.

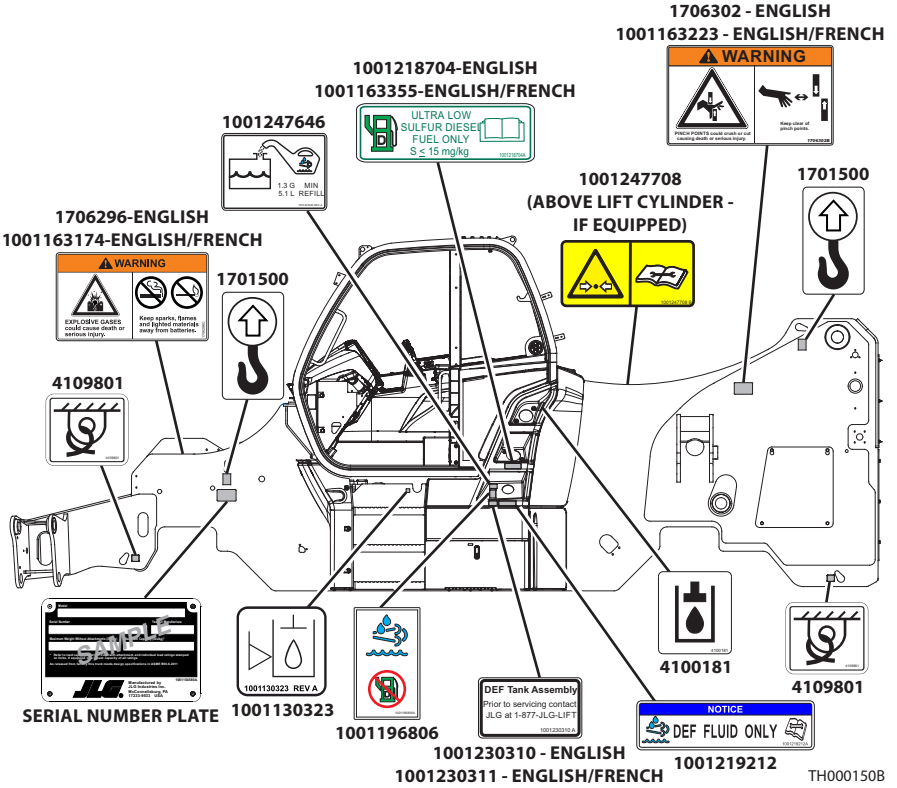
2.3 SAFETY DECALS

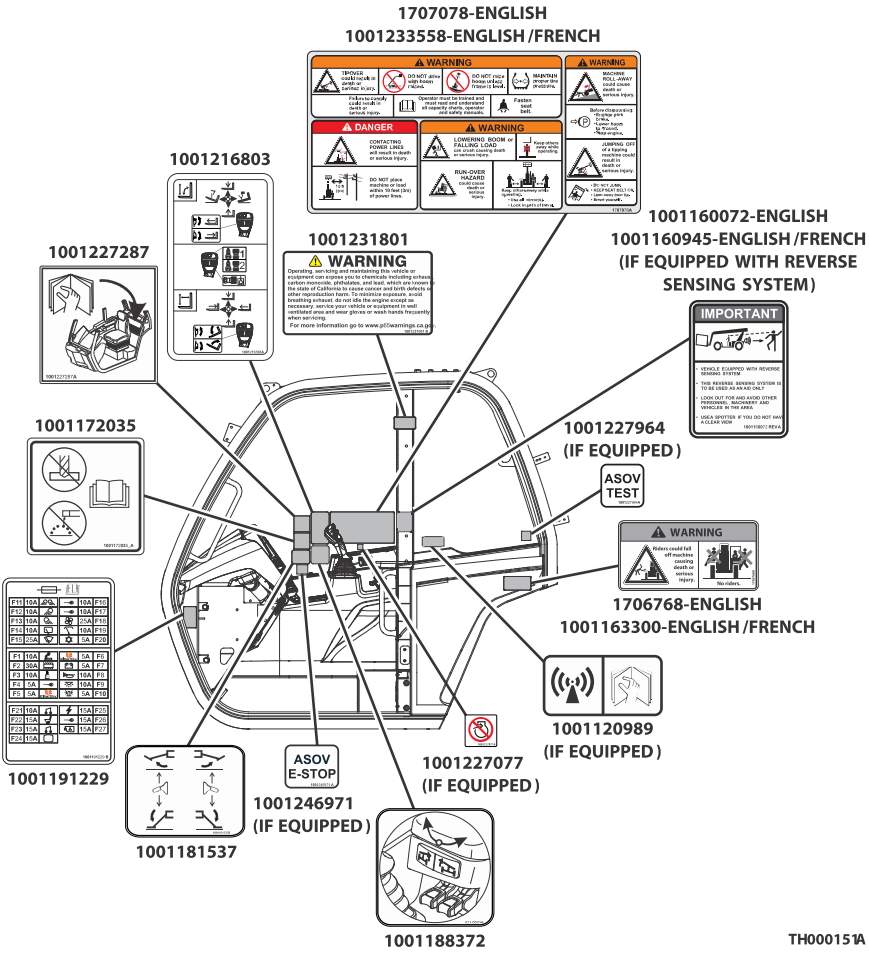
Ensure all **DANGER, WARNING, CAUTION** and instructional decals and proper capacity charts are legible and in place. Clean and replace as required.

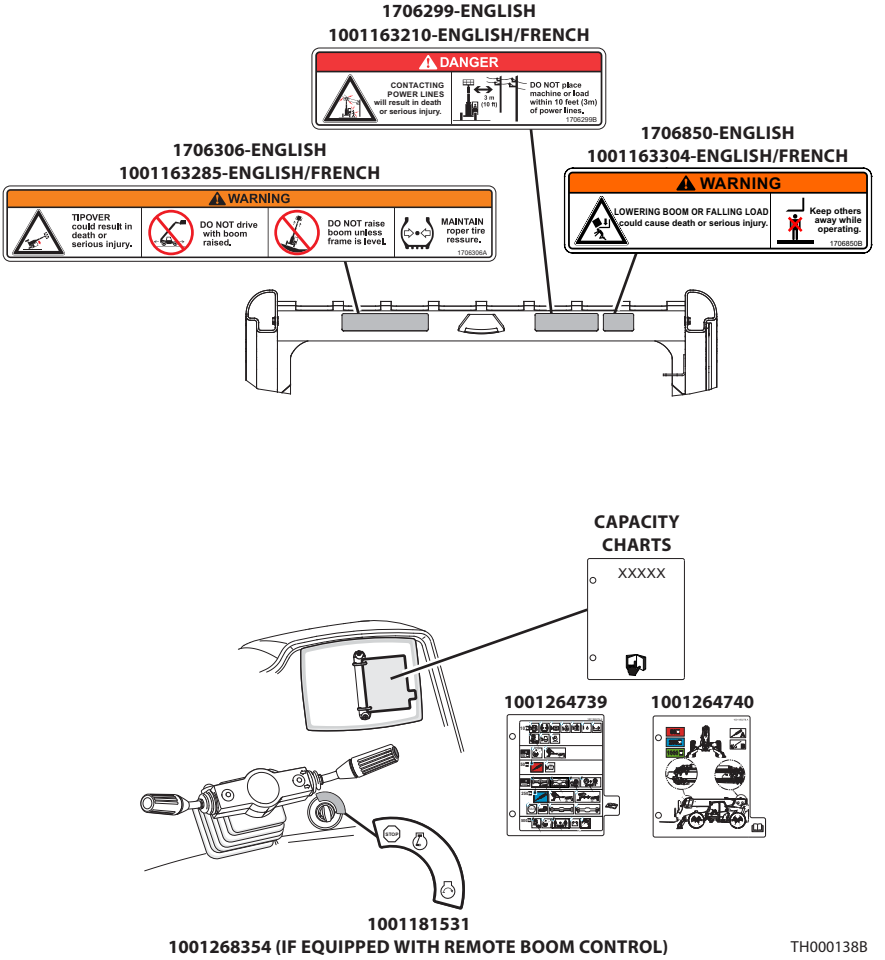
ANSI (if equipped)



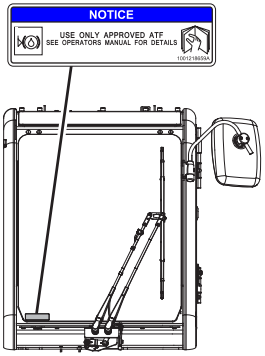
TH000149B


1706302 - ENGLISH
1001163223 - ENGLISH/FRENCH
WARNING
1001218704-ENGLISH
1001163355-ENGLISH/FRENCH
ULTRA LOW SULFUR DIESEL FUEL ONLY S ≤ 15 mg/kg
1001247646
1.3 G MIN. 5.1 L REFILL
1001247708
(ABOVE LIFT CYLINDER - IF EQUIPPED)
1701500
1706296-ENGLISH
1001163174-ENGLISH/FRENCH
WARNING
EXPLOSIVE GASES could cause death or serious injury.
Keep sparks, flames and lighted materials away from batteries.
1701500
4109801
SAMPLE
SERIAL NUMBER PLATE
1001130323 REV A
1001130323
1001196806
DEF Tank Assembly
Prior to servicing contact JLG at 1-877-JLG-LIFT
1001230310 - ENGLISH
1001230311 - ENGLISH/FRENCH
4100181
4109801
NOTICE
DEF FLUID ONLY
1001219212
TH000150B

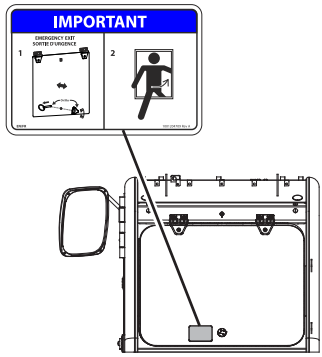

1707078-ENGLISH
1001233558-ENGLISH /FRENCH
1001216803
1001227287
1001231801
1001160072-ENGLISH
1001160945-ENGLISH /FRENCH
(IF EQUIPPED WITH REVERSE
SENSING SYSTEM)
1001172035
1001227964
(IF EQUIPPED)
ASOV
TEST
1706768-ENGLISH
1001163300-ENGLISH /FRENCH
1001120989
(IF EQUIPPED)
1001191229
ASOV
E-STOP
1001246971
(IF EQUIPPED)
1001227077
(IF EQUIPPED)
1001181537
1001188372
TH000151A


1706299-ENGLISH
1001163210-ENGLISH/FRENCH
DANGER
CONTACTING POWER LINES will result in death or serious injury.
3 m (10 ft)
DO NOT place machine or load within 10 feet (3m) of power lines.
1706299B
1706306-ENGLISH
1001163285-ENGLISH/FRENCH
WARNING
TIPOVER could result in death or serious injury.
DO NOT drive with boom raised.
DO NOT raise boom unless frame is level.
MAINTAIN proper tire pressure.
1706306A
1706850-ENGLISH
1001163304-ENGLISH/FRENCH
WARNING
LOWERING BOOM OR FALLING LOAD could cause death or serious injury.
Keep others away while operating.
1706850B
CAPACITY CHARTS
XXXXX
1001264739
1001264740
1001181531
1001268354 (IF EQUIPPED WITH REMOTE BOOM CONTROL)
TH000138B

1001218659-ENGLISH
1001219211-ENGLISH/FRENCH

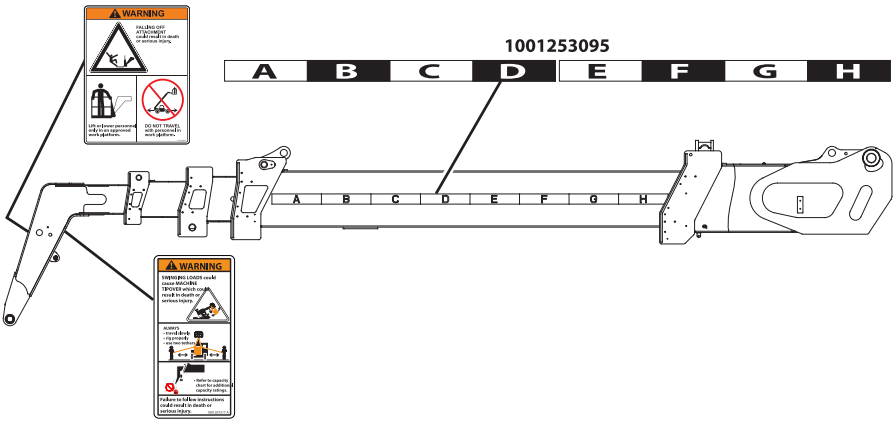


1001204709-ENGLISH/FRENCH
(IF EQUIPPED WITH SECONDARY EXIT -
INSIDE AND OUTSIDE ENCLOSED CAB)



1001195849-ENGLISH
1001195851-ENGLISH/FRENCH

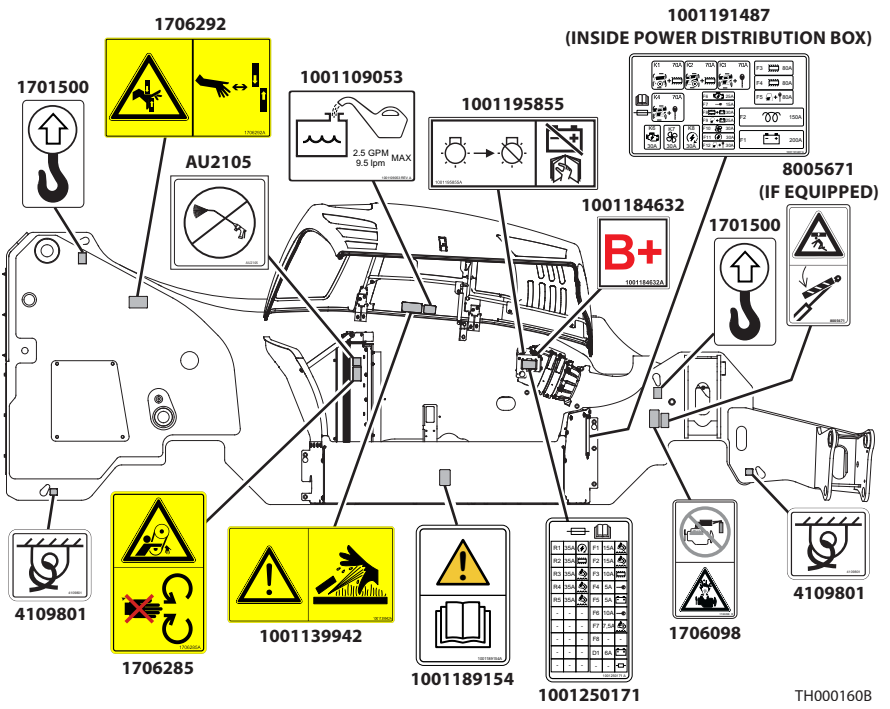
1001253095

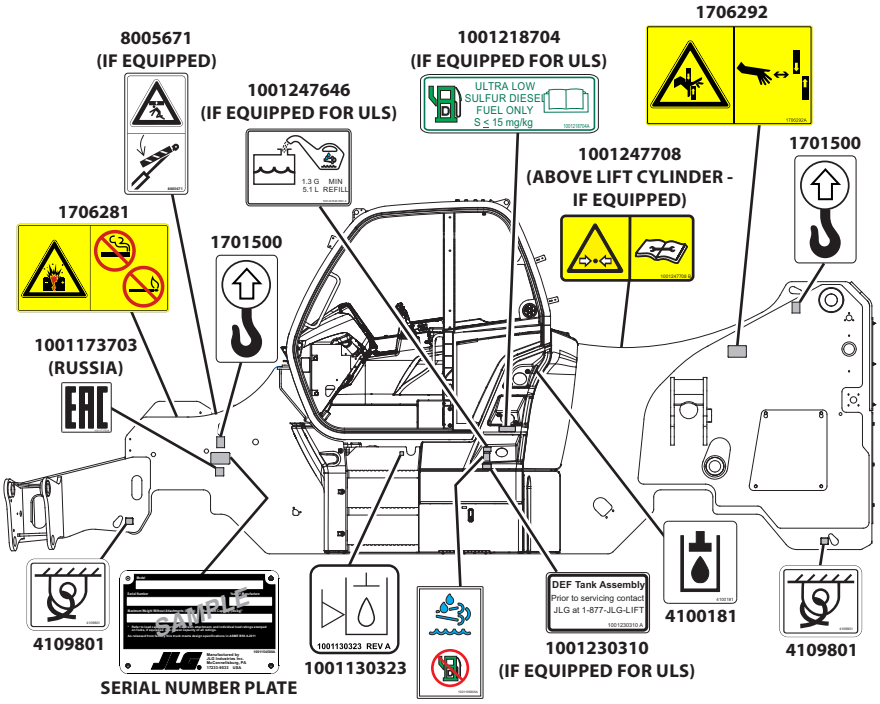


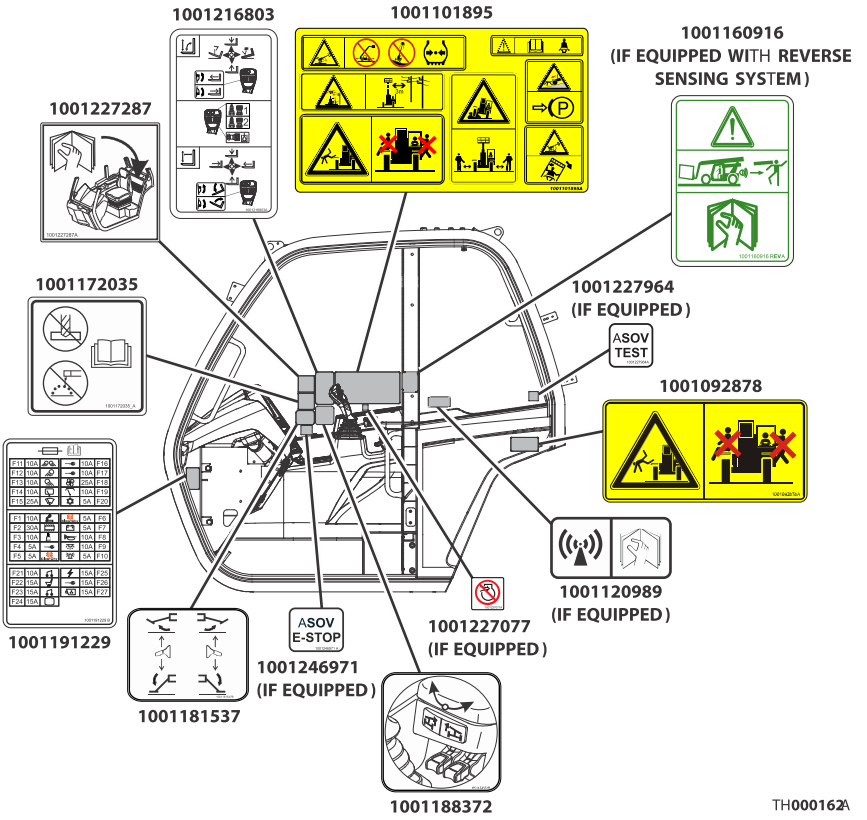
1001207217-ENGLISH
1001209625-ENGLISH/FRENCH

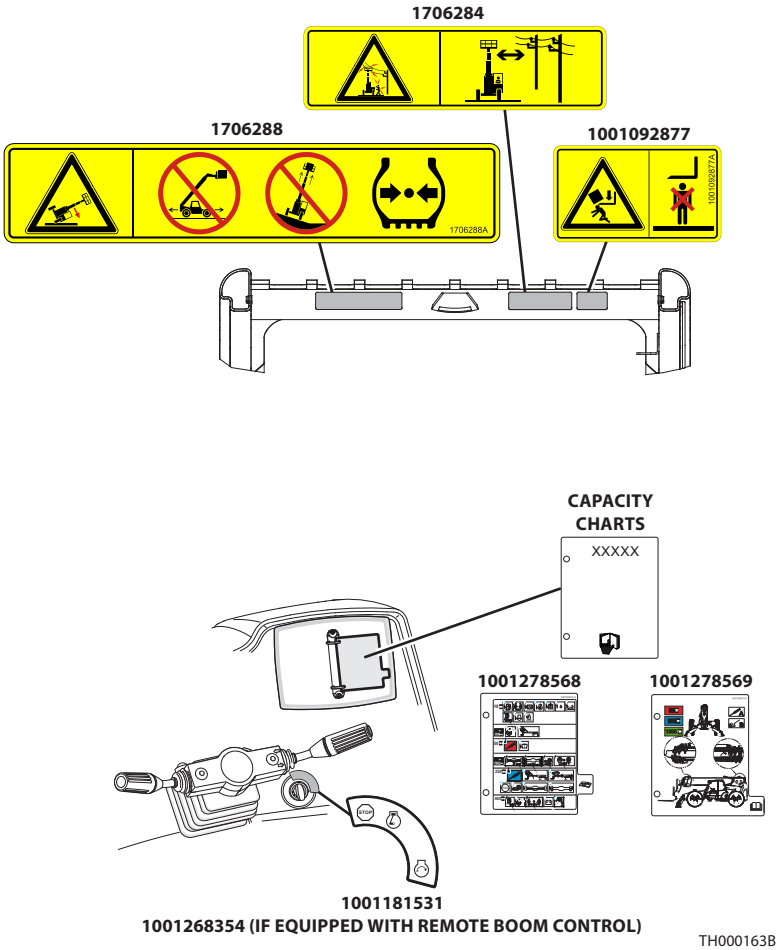
OY4160

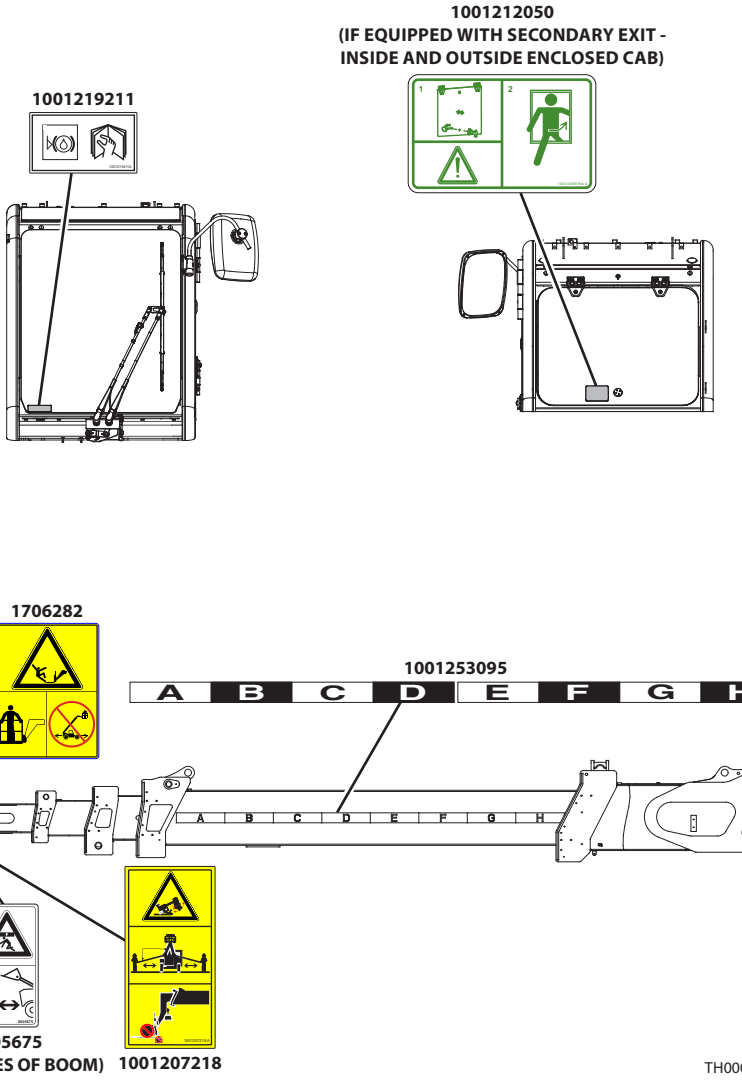
ISO (if equipped)

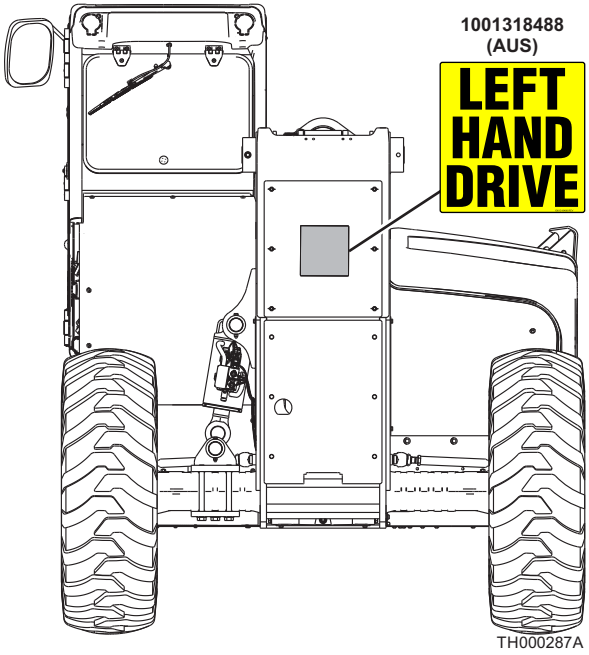



8005671
(IF EQUIPPED)
1001247646
(IF EQUIPPED FOR ULS)
1001218704
(IF EQUIPPED FOR ULS)
ULTRA LOW SULFUR DIESEL FUEL ONLY S ≤ 15 mg/kg
1706292
1701500
1001247708
(ABOVE LIFT CYLINDER - IF EQUIPPED)
1706281
1701500
1001173703
(RUSSIA)
EAC
4109801
SAMPLE
SERIAL NUMBER PLATE
1001130323 REV A
1001130323
DEF Tank Assembly
Prior to servicing contact JLG at 1-877-JLG-LIFT
1001230310
(IF EQUIPPED FOR ULS)
4100181
4109801
1001196806 (IF EQUIPPED FOR ULS)
TH000161C

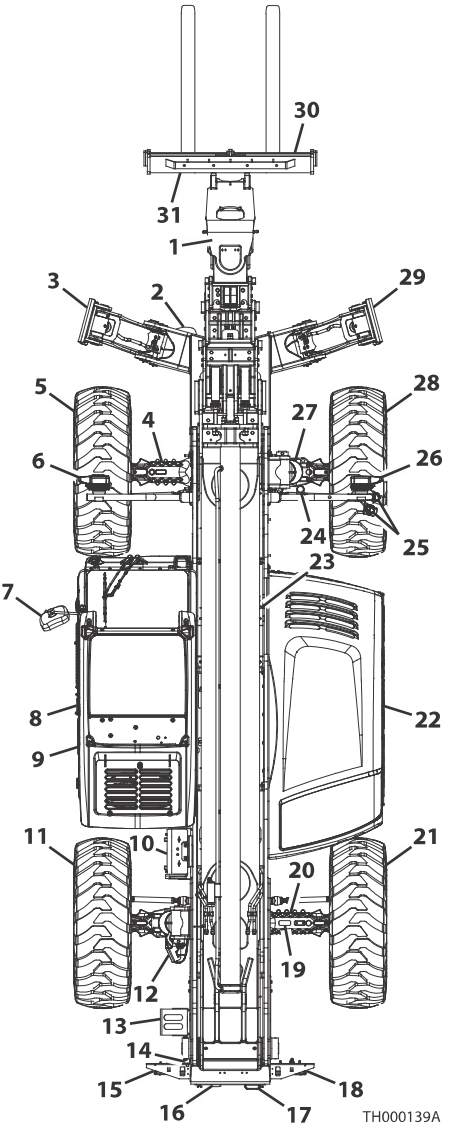

1001216803
1001101895
1001160916
(IF EQUIPPED WITH REVERSE SENSING SYSTEM)
1001227287
1001172035
1001227964
(IF EQUIPPED)
ASOV TEST
1001092878
1001191229
1001181537
ASOV E-STOP
1001246971
(IF EQUIPPED)
1001227077
(IF EQUIPPED)
1001120989
(IF EQUIPPED)
1001188372
TH000162A


1706284
1706288
1001092877
1706288A
CAPACITY
CHARTS
XXXXX
1001278568
1001278569
1001181531
1001268354 (IF EQUIPPED WITH REMOTE BOOM CONTROL)
TH000163B


1001219211
1001212050
(IF EQUIPPED WITH SECONDARY EXIT -
INSIDE AND OUTSIDE ENCLOSED CAB)
1706282
1001253095
A B C D E F G H
8005675
(BOTH SIDES OF BOOM)
1001207218
TH000164B


1001318488
(AUS)
LEFT
HAND
DRIVE
TH000287A

2.4 WALK-AROUND INSPECTION



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.

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. **Left Outrigger** - Pins secure; hydraulic hoses and cylinder undamaged, not leaking.
4. **Front Axle** - Steer cylinders undamaged, not leaking; pivot pins secure; hydraulic hoses undamaged, not leaking.
5. **Wheel/Tire Assembly** - Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
6. **Front Lights (if equipped)** - Clean and undamaged.
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. **Remote Boom Control (if equipped)** - Switches and levers return to neutral, decals/placards secure and legible, control markings legible.
10. **Boom Prop (if equipped)** - See *Inspection note*.
11. **Wheel/Tire Assembly** - Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
12. **Rear Axle Stabilization (RAS) Cylinder** - Pins secure; hydraulic hoses and cylinder undamaged, not leaking.
13. **Wheel Chock (if equipped)** - See *Inspection note*.
14. **Boom Angle Sensor** - See *Inspection note*.
15. **Rear Lights (if equipped)** - Clean and undamaged.
16. **Reversing Camera (if equipped)** - See *Inspection note*.
17. **Reversing System (if equipped)** - See *Inspection note*.
18. **Rear Lights (if equipped)** - Clean and undamaged.
19. **LSI Sensor** - See *Inspection note*.

20. **Rear Axle** - Steer cylinders undamaged, not leaking; pivot pins secure; hydraulic hoses undamaged, not leaking.
21. **Wheel/Tire Assembly** - Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
22. **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*.
23. **Boom Retract Sensor** - See *Inspection note*.
24. **LMIS External Audible Beacon Tower (if equipped)** - See *Inspection note*.
25. **Right Side Camera** - See *Inspection note*.
26. **Front Lights (if equipped)** - Clean and undamaged.
27. **Frame Level Cylinder** - Pins secure; hydraulic hoses undamaged, not leaking.
28. **Wheel/Tire Assembly** - Properly inflated and secured; no loose or missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies.
29. **Right Outrigger** - Pins secure; hydraulic hoses and cylinder undamaged, not leaking.
30. **Attachment** - Properly installed, see *Section — Attachment Installation*.
31. **RFID Tag (if equipped)** - See *Inspection note*.

2.5 WARM-UP AND OPERATIONAL CHECKS

2.5.1 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.

2.5.2 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 — Additional Checks*.

Remote boom control (if equipped):

1. Check all guards protecting the switches or locks are in place.
2. Operate all functions and check all limiting and cut-out switches to ensure proper operation.
3. Ensure all machine functions are disabled when the Emergency Stop Button is pushed in.

2.6 CAB

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

⚠ WARNING

CRUSH HAZARD. Never operate telehandler unless the overhead guard, cab structure, and right side glass (if equipped) 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**. Failure to comply could result in death or serious injury.

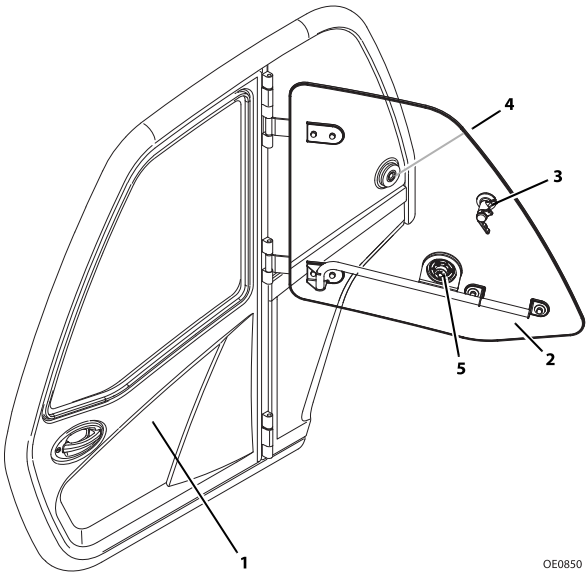
⚠ WARNING

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.

2.7.1 Cab Door Window

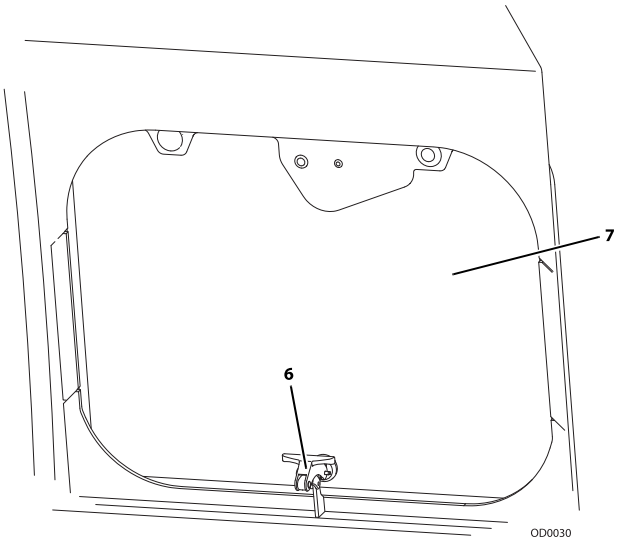


- During operation the cab door window (**2**) must either be latched open or closed
- Open the cab door window using lever (**3**) and secure it in the latch (**4**)
- Press release (**4**) inside cab or (**5**) outside cab to unlatch window

NOTICE

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

2.7.2 Rear Window



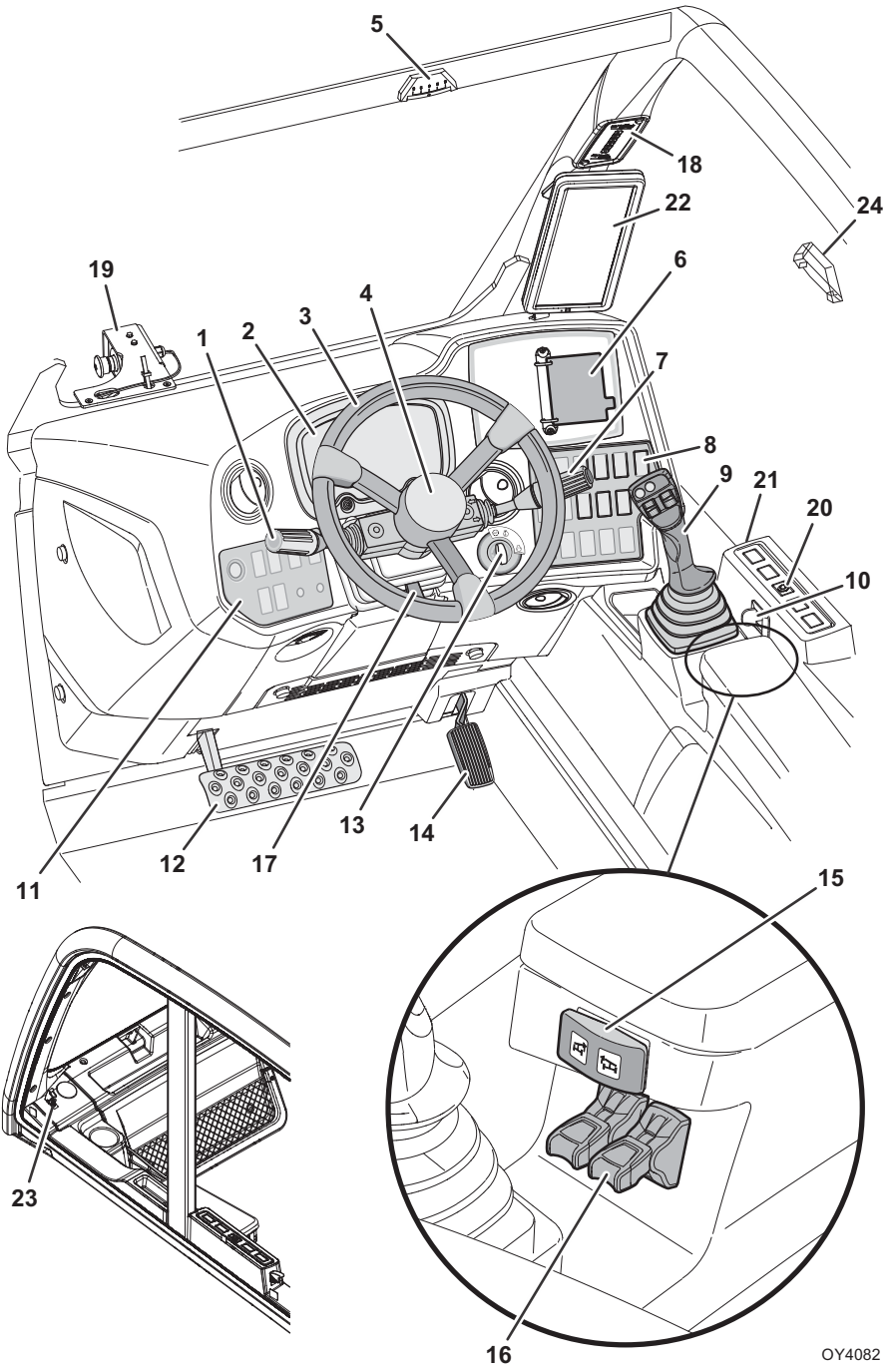
- Lift lever (**6**) and push to open the rear window (**7**)
- Lift lever and pull to close

SECTION 3
Controls and Indicators

3.1 GENERAL

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

3.2 CONTROLS


5
18
22
24
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OY4082

1. **Transmission Control Lever:** See *Section — Transmission Control Lever, page 67*.
2. **Instrument Panel:** See *Section — Instrument Panel, page 51*.
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 *Section — Steer Modes*.
4. **Horn:** Press to sound horn.
5. Frame Level**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 — Attachments* or *Section — Lubrication and Maintenance*.
   b. Premium Display (if equipped): See *Section — Premium Display (If Equipped)*.
7. **Accessory Control Lever:** See *Section — Gear Selection*.
8. **Right Dash Control Panel:** See *Section — Right Dash Control Panel, page 58*.
9. **Joystick:** See *Section — Joystick, page 75*.
10. **Adjustable Armrest Lever:** Activate lever to release armrest position lock.
11. **Left Dash Control Panel:** See *Section — Left Dash Control Panel, page 57*.
12. **Service Brake Pedal:** Further pedal is pressed, the slower the travel speed.
13. **Ignition Switch:** Key activated. See *Section — Ignition, page 65*.
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. **Outrigger Levers:** See *Section — Outrigger Levers, page 71* .
17. **Steering Column Adjuster:** See *Section — Steering Column Adjuster, page 70*.
18. **LSI Indicator:** See *Section — Load Stability Indicator - LSI, page 73*.
19. **Power/Emergency Stop Switch (exterior of cab - if equipped):** A two-position red mushroom shaped switch supplies power to machine and remote boom control (if equipped) when pulled out (on). When pushed in (off), power is shut off to the machine and remote boom control (if equipped).
20. **Air Shutoff Valve (ASOV) Indicator Lamp (if equipped):** Indicates when the ASOV valve has been actuated.

21. **Air Shutoff Valve (ASOV) Emergency Stop Switch (if equipped):** Enables operator to manually close air shutoff valve.

22. **Right Side Camera:** Displays the view of the right side of the machine.

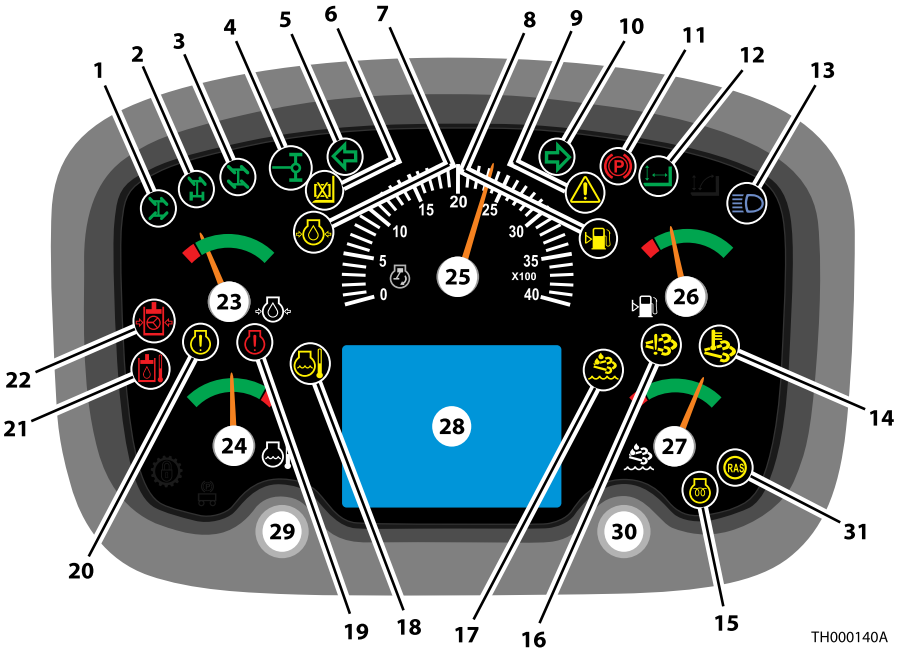
23. **Air Shutoff Valve (ASOV) Test Switch (if equipped):** See *Section — Air Shutoff Valve (ASOV) (If Equipped)*.

24. **Frame Level Indicator (AUS):** Enables operator to determine the front to rear level condition of the telehandler.

3.2.1 Instrument Panel

The 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.

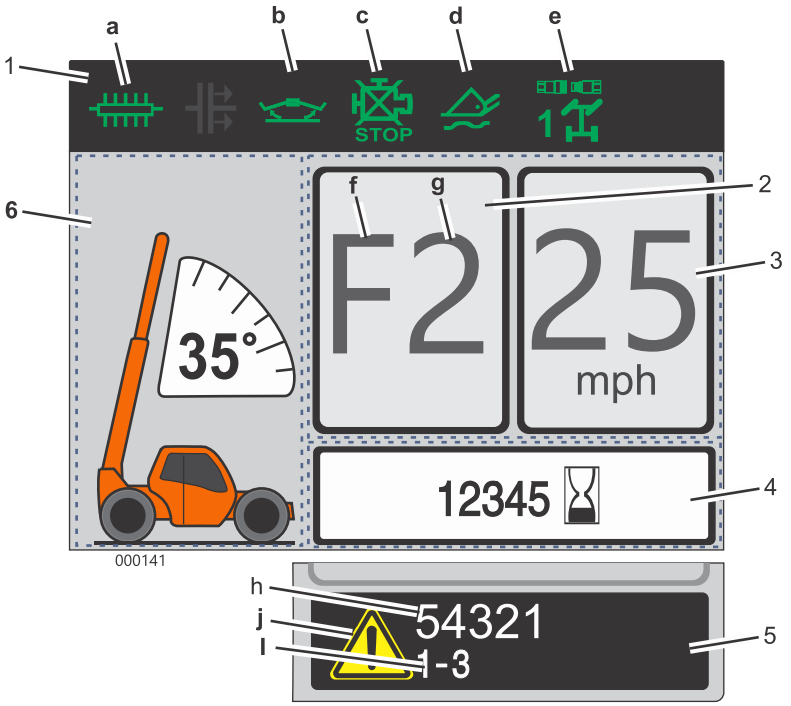
1. **4-Wheel Circle Steer:** Illuminates when all wheel steer is active. See *Section — Steer Modes*.
2. **2-Wheel Front Steer:** Illuminates when two wheel steer is active. See *Section — Steer Modes*.
3. **4-Wheel Crab Steer:** Illuminates when crab steer is active. See *Section — Steer Modes*.
4. **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:** Illuminates when LSI passive mode is active. See *Section — Load Stability Indicator - LSI, page 73*.
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 *Section — Park Brake, page 66*.
12. **Lift Mode:** Illuminates when lift joystick pattern is active. See *Section — Joystick, page 75*.
13. **High Beam (if equipped):** Illuminates when high beam lights are active.
14. **High Exhaust System Temperature (HEST) (if equipped for ULS):** May illuminate during exhaust system cleaning. See *Section — After-Treatment System (ATS)*.
15. **Engine Preheat:** Illuminates with ignition key in position 1. Indicator goes out when start temperature is reached.
16. **Selective Catalytic Reduction (SCR) (if equipped for ULS):** Flashes when stationary cleaning is required. Illuminates during cleaning process. See *Section — After-Treatment System (ATS)* for details.

17. **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.

18. **High Engine Temperature:** Illuminates when engine temperature is high.
19. **Engine Fault Critical:** Illuminates when critical engine fault exists.
20. **Engine Fault Warning:** Illuminates when engine is operating outside normal range.
21. **High Hydraulic Oil Temperature:** Illuminates when hydraulic oil temperature is high.
22. **Low Steering Pressure:** Illuminates when steering pressure is low.
23. **Engine Oil Pressure Gauge:** Indicates engine oil pressure.
24. **Engine Coolant Temperature Gauge:** Indicates engine coolant temperature.
25. **Engine Speed:** Indicates engine speed in revolutions per minute (rpm).
26. **Fuel Level Gauge:** Indicates fuel level.
27. **Diesel Emission Fluid (DEF) Level Gauge (if equipped for ULS):** Indicates fluid level.
28. **LCD Display:** See *Section — LCD Display, page 54*.
29. **Left Control Button:** Press to decrease display brightness. Increases digits in antitheft function. See *Section — Anti-Theft Functionality (If Enabled)*.
30. **Right Control Button:** Press to increase display brightness. Confirms digits in anti-theft function. See *Section — Anti-Theft Functionality (If Enabled)*.
31. **Rear Axle Stabilization (RAS):** Illuminates when rear axle stabilization is active. See *Section — Anti-Theft Functionality (If Enabled)*.

3.2.2 LCD Display



1. **Indicators:** Indicator will display when active.
   a. Continuous Auxiliary Hydraulics - Illuminates when continuous auxiliary hydraulics are active.
   b. Outrigger Position - Outriggers stowed position icon will illuminate solid when both outriggers are fully raised and flash when either outrigger is not fully raised or lowered. Outriggers deployed position icon will illuminate solid when both outriggers are fully lowered.

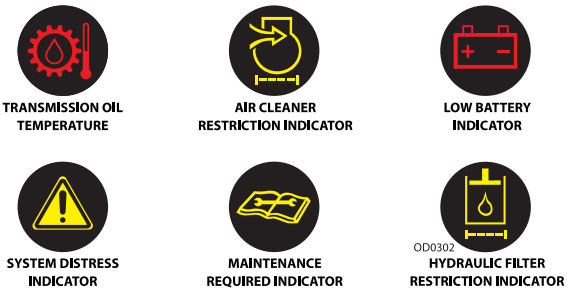
Note: When both outriggers are indicated as fully lowered, observe level indicator(s) to determine whether machine must be leveled. Level machine with frame level switch (see *Section— Controls*) or outrigger controls (see *Section — Outrigger Levers, page 71*).

   c. Do Not Shut Off Engine - Illuminates when stationary exhaust system cleaning is required. See *Section — After-Treatment System (ATS)*.
   d. Boom Float - Illuminates when boom float function is activated. See *Section — Joystick, page 75*.
   e. Auxiliary Hydraulic Selection - Illuminates when auxiliary hydraulics are activated. Indicator will show 1 or 2 depending on operator's selection. See *Section — Joystick, page 75*.

2. **Driving Direction and Gear:** Displays current driving condition. When shifting gears, Driving Direction and Gear will flash while being executed. See *Section — Transmission Control Lever, page 67*.
   f. Direction - Forward (F), Neutral (N) or Reverse (R).
   g. Gear - First (1) or Second (2).

3. **Speed:** 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.



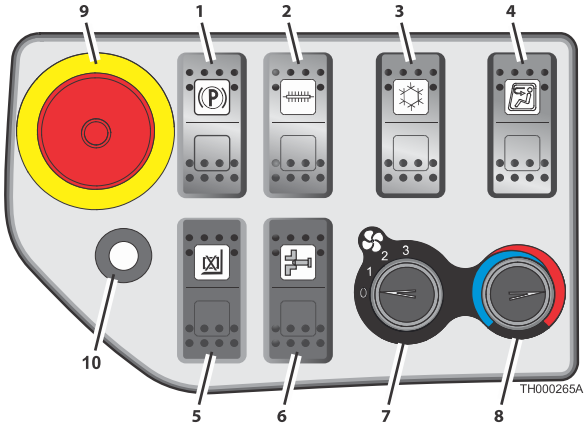
5. **Active Diagnostics:** Displays icon and applicable diagnostic code. Display cycles through each active warning or diagnostic if multiple are present. See Service Manual for details.
   h. Fault Code - Displays applicable diagnostic code.
   i. Numeric Code Indicator - Displays number of engine fault codes which are present.
   j. 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.



7. **Remote Boom Control (if equipped):** When the cab ignition key is turned to the remote control position and the remote is active, the LCD will display the remote control icon (**7**) in the upper right corner and the blue beacon light will illuminate on the cab roof. This indicates that the machine is being operated in remote control mode.

3.2.3 Left Dash Control Panel



1. **Park Brake Switch:** On/Off switch. See *Section — Park Brake, page 66* for details.

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 — 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:** 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 *Section — Hydraulic Coupler* for details.

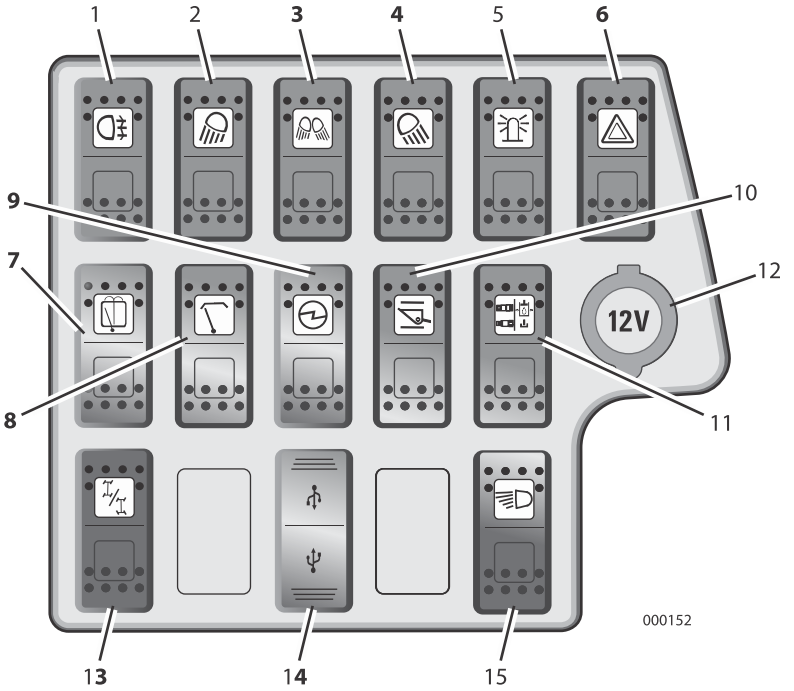
7. **HVAC Fan Speed (if equipped):** Adjustable rotary switch.

8. **HVAC Temperature Control Switch (if equipped):** Adjustable rotary switch.

9. **Power/Emergency Stop Switch (if equipped with Remote Boom Control):** A two-position red mushroom shaped switch supplies power to machine and remote boom control when pulled out (on). When pushed in (off), power is shut off to the machine and remote boom control.

10. **Seat Belt Indicator Lamp (if equipped):** Illuminates and sounds an alarm when the operator is seated but the seat belt is not fastened.

3.2.4 Right Dash Control Panel



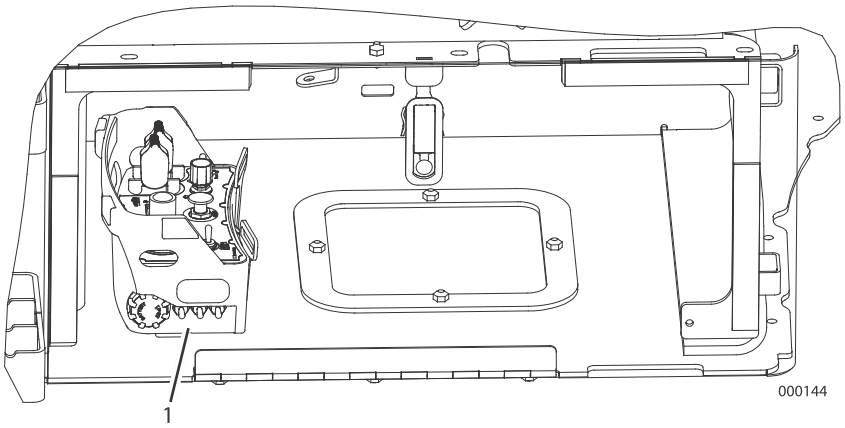
1. **Fog Lights Switch (if equipped):** On/Off switch.
2. **Front Work Lights Switch (if equipped):** On/Off switch.
3. **Boom Work Lights Switch (if equipped):** On/Off switch.
4. **Rear Work Lights Switch (if equipped):** On/Off switch.
5. **Beacon Light Switch (if equipped):** On/Off switch.
6. **Hazard Lights Switch (if equipped):** On/Off switch.
7. **Rear Wiper Switch (if equipped):** 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:** On/Off switch. While enabled and traveling 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 *Section — Auxiliary Hydraulic Decompression*.
12. **Power Outlet:** 12V receptacle.

13. **Steer Select Switch:** Three positions: front steer, circle steer and crab steer. See *Section — Steer Modes*.

14. **USB Port:** USB ports under protective tab.

15. **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.

3.2.5 Remote Boom Control (if equipped)



The remote boom control (**1**) is located in the compartment below the cab and to the right of the steps. The remote control contains a magnetic base to secure the unit in place while stored in the machine compartment. this unit enables wireless operation of the following functions.

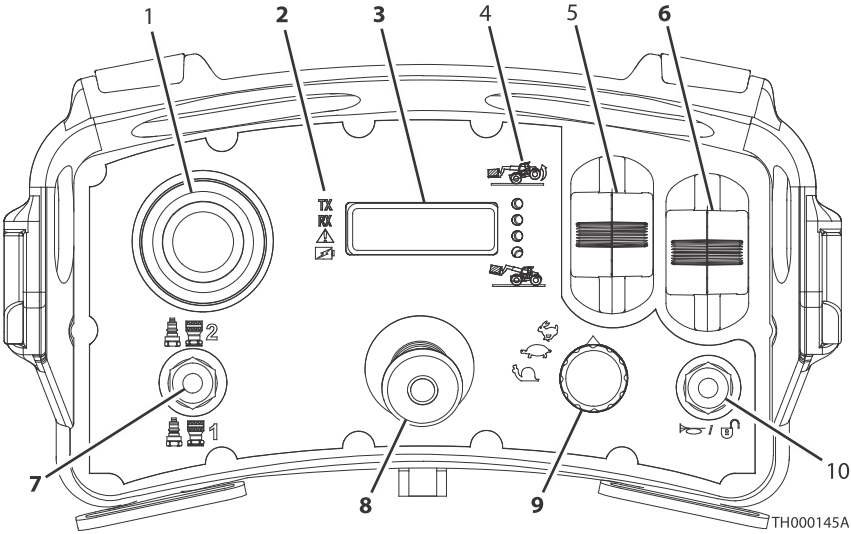
- Engine Startup
- Boom Lift and Lower
- Boom Extend and Retract
- Attachment Tilt Up and Down
- Auxiliary Hydraulics

Abide by regional and local regulations pertaining to remote control of equipment.

The ability to view boom angle and boom extension indicators must be considered when operating in remote control mode.

⚠ WARNING

When using the remote boom control, ensure that the cab door is not locked and the cab controls remain accessible in case of emergency.



1. **Boom Lift/Lower and Extend/Retract:** 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.

2. **LED Indicators:** Indicator will display when active.

   - TX (Green LED): Flashes when transmitting messages.
   - RX (Yellow LED): Flashes when receiving messages.
   - Error (Red LED): Illuminates solid when errors are detected.
   - Battery (Yellow LED): Flashes when battery is low.

3. **Indicator Panel:** Indicators or fault codes will display when active.

   - “asoc”: Remote control is ready to be associated to a new machine/receiver unit.
   - “mstop io”: User must press, then twist and pull the power/emergency stops switch on the remote control before proceeding.
   - “norx”: Remote control is not receiving communication from the machine.
   - “link”: Remote control is waiting for communication from the machine.

4. **Load Stability Indicator — LSI:** 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, then yellow and finally red.

Note: The warning buzzer and horn will sound when red LED illuminates. Retract boom to re-enable functions and disable alarm.

5. **Attachment Tilt Up/Down:** Move lever forward to tilt attachment down and pull back to tilt attachment up.

6. **Auxiliary Hydraulics:** Lever controls the function of attachments that require the hydraulic supply for operation. See *Section — Attachments* for approved attachments and control instructions.

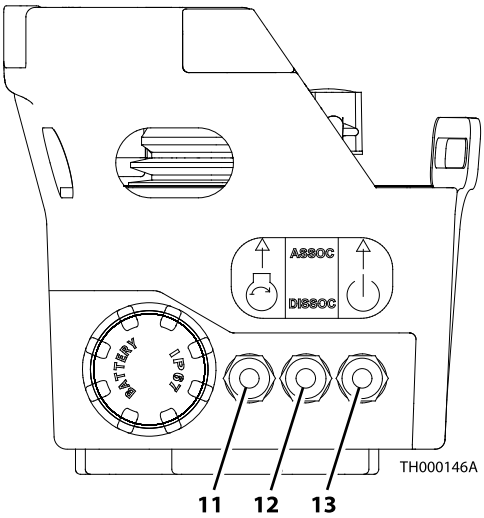
7. **Dual Auxiliary Hydraulics:** Selection switch allows the desired auxiliary hydraulic function to be selected. Move switch to alternate between functions.

8. **Power/Emergency Stop Switch:** To power off, press in to engage emergency stop. To power on, press, then twist and pull to reset emergency stop.

Note: After turning on the remote control with the power on/off switch, the remote control will display “mstop io” on the indicator panel. When this displays, the operator must first press, then twist and pull the power/emergency stop switch before continuing to operate the remote control.

9. **Function Speed Control:** This control affects the speed of the boom. Turn the knob all the way counterclockwise for creep speed, middle position for slow speed and all the way clockwise for fast speed.

10. **Horn/Function Enable:** A push-type horn switch supplies electrical power to an audible warning device when pressed. To operate any function, depress the enable switch and within 7 seconds the desired function must be moved in the proper direction in order to activate that function.



Note: The remote control requires two “C” cell batteries to operate.

11. **Engine Start:** When pushed up, the starter motor will energize to start the engine.

12. **Transmitter and Receiver Association/Dissociation:** On/Off switch. Establishes one-to-one communications between remote control and machine.
    a. Turn the cab ignition key to the off position.
    b. Press, then twist and pull power/emergency stop switch (**8**) on the remote control, on the front of the cab and on the left dash control panel in the cab. See “Controls” and “Left Dash Control Panel”.
    c. Hold both the remote control power switch (**13**) and the association switch (**12**) in the UP position.
    d. Wait until the indicator panel on the remote control displays “asoc”.
    e. Turn the cab ignition key to the remote control position.
    f. Release remote control power switch (**13**) and association switch (**12**).
13. **Remote Boom Control Power:** On/Off switch.
    a. Turn the cab ignition key to the remote control position.
    b. Hold the remote control power switch (**13**) in the UP position.
    c. Press, then twist and pull power/emergency stop switch (**8**) on the remote control, on the front of the cab and on the left dash control panel in the cab. See “Controls” and “Left Dash Control Panel”.

Proportional Function Timeout

If the remote control is tilted 45 degrees or greater for 5 seconds, all functions will stop. The operator has 2 seconds to return the remote control to within normal operating position in order to maintain functions. Otherwise, the LEDs flash and the indicator panel displays “TILTED”. If the remote control does not return to a normal operating position within an additional 3 seconds, all functions will be disabled until the unit is returned to normal range.

Note: If the remote control is dropped, all functions will be disabled and the engine will stop.

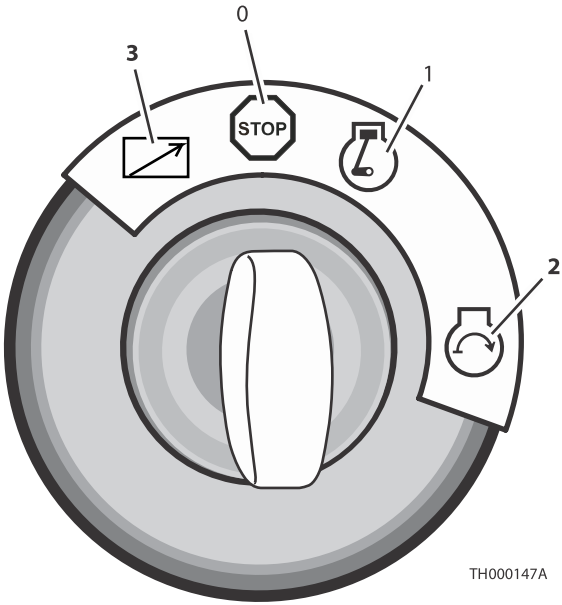
Anti-Theft Functionality (if enabled)

Remote boom controls with anti-theft feature active require entering a numeric code before operation to prevent unauthorized use.

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

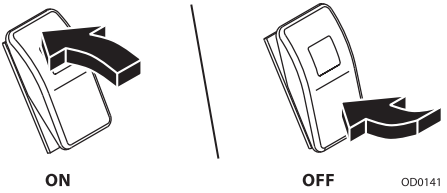
1. Turn ignition switch to position 3. If anti-theft is active, the indicator panel (**3**) will prompt the operator for a numeric code.
2. Use the Boom Lift/Lower and Extend/Retract joystick (**1**) to select the first digit. Move joystick up to increase number. Move joystick down to decrease number.
3. Move joystick to the right 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 indicator panel will prompt the operator again for the numeric code.
6. If the correct code is entered, normal start up can continue.

3.2.6 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.
- Position **3** (if equipped) - Remote boom control mode. See “Remote Control Mode (if equipped)”.

3.2.7 Park Brake



Park brake switch controls the application and release of the park brake.

- With the engine running and the park brake switch in OFF position, park brakes are disengaged.
- With switch in ON position, park brake is engaged and transmission will not engage forward or reverse.

⚠ 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 switch to ON position, lower boom to ground and stop engine before leaving cab.

⚠ WARNING

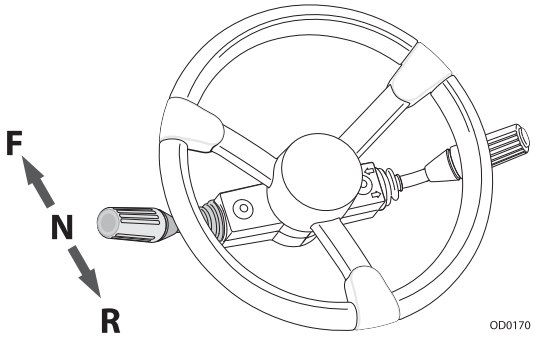
CRUSH HAZARD. Turning engine off applies the park brake. Applying park brake or turning engine off while traveling will cause unit to stop abruptly and could cause load loss. Either may be used in an emergency situation.

3.2.8 Parking Procedure

1. Using service brake, stop telehandler in an appropriate parking area.
2. Follow *Section — Shut-Down Procedure*.

3.2.9 Transmission Control Lever

Direction of Travel Selection



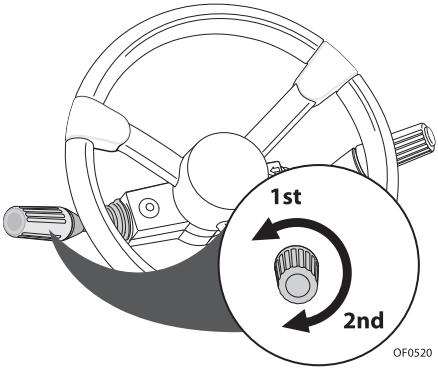
Transmission control lever engages forward or reverse travel.

- 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



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.

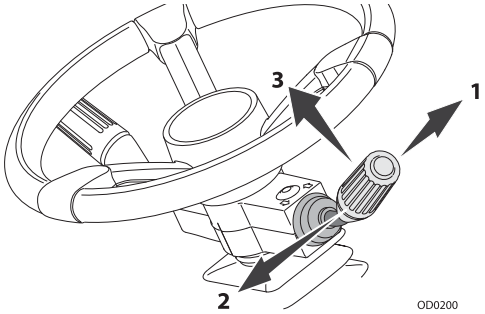
Note: Machine may experience a delay while shift is being executed.

⚠ 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.

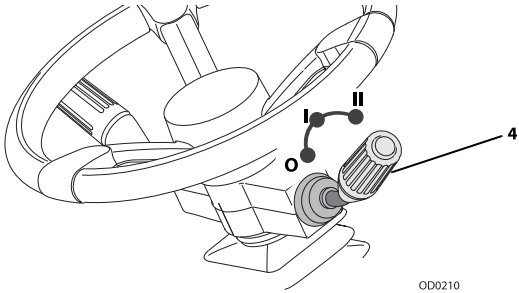
3.2.10 Accessory Control Lever (if equipped)

Turn Signals and Low/High Beam Headlights



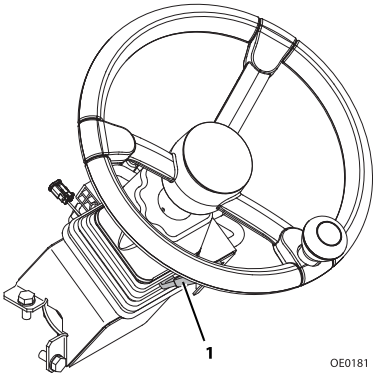
- Push accessory control lever forward (**1**) to activate left turn signal.
- Pull lever backward (**2**) to activate right turn signal.
- The lever must be manually returned to the center position to deactivate either turn signal. The lever will not cancel automatically after a turn.
- Pull lever up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

Front Windshield Wiper



- 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.

3.2.11 Steering Column Adjuster

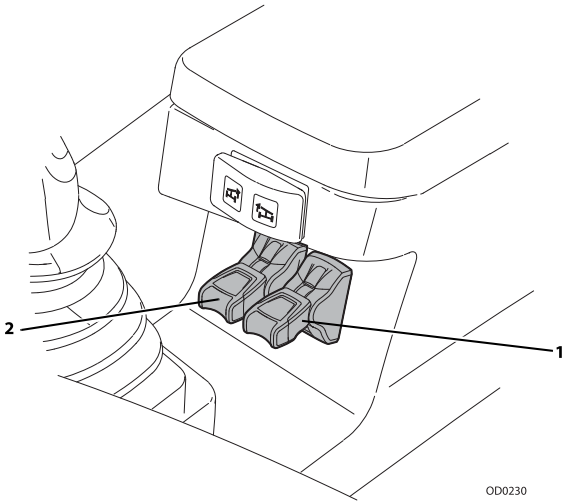


- Follow *Section — Shut-Down Procedure*.
- Pull and hold lever (**1**) to unlock.
- Place steering column in desired position.
- Release lever to lock back into place.

⚠ 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.

3.2.12 Outrigger Levers



Levers (**1** & **2**) control the outriggers.

- Left lever (**1**) controls left outrigger and right lever (**2**) controls right outrigger.
- Press lever down to lower outriggers.
- Lift lever up to raise outriggers.
- Use the outriggers to increase stability and/or load capacity and in leveling telehandler. Study capacity charts to determine maximum load capacities, with and without outriggers.

⚠ WARNING

TIP OVER HAZARD. Outriggers increase stability and load capacity only if they are used properly. Using outriggers on soft surfaces could cause telehandler to tip over. Always ensure surface can support telehandler and load.

3.2.13 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 *Section — Attachment Recognition (If Equipped)*.

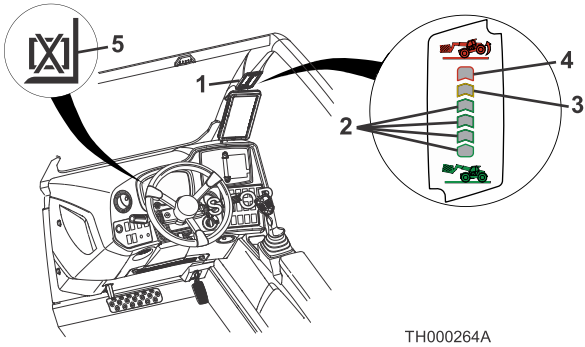
2. **Load Management Indicator System (LMIS)** - Graphically depicts the location of the load within the capacity chart and works in conjunction with the LSI to prevent the operator from violating boundaries of the chart. See *Section — Home Screen*.

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 *Section — Load Stability Indicator - LSI, page 73*.

3.2.14 Load Stability Indicator - LSI

⚠ 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.



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, frame level and outrigger functions are disabled except for boom retract, boom lift, and outrigger extend (AUS - All boom, frame level and outrigger functions are disabled except for boom retract). 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 *Section — Left Dash Control Panel, page 57*.

- 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 (ANSI Only)

- 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 — General Safety Practices*.

When placing a load, ensure axles are not fully steered in either direction.

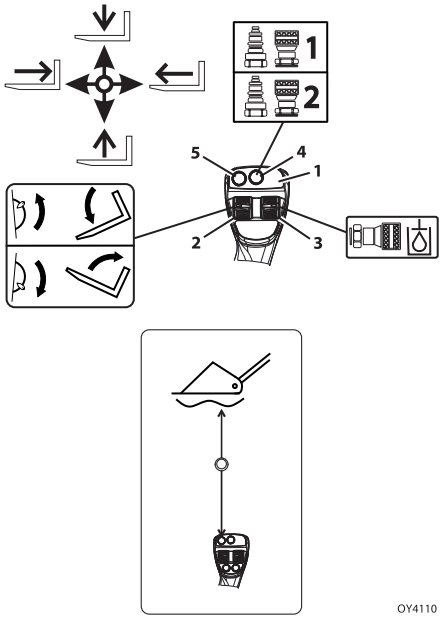
⚠ WARNING

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

3.2.15 Joystick

Lift Joystick Pattern

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



The joystick (**1**) controls the boom, attachment and auxiliary hydraulics 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 — Attachments* for approved attachments and control instructions.

The Auxiliary Hydraulic selection switch (**4**) allows the desired auxiliary hydraulic function to be selected. Depress button to alternate between functions.

Boom Float Functions (if equipped)

Joystick button (**5**) controls boom float. Boom float allows free movement of boom (lift/lower) while the attachment follows ground contours.

- With the boom retracted and lowered, press and hold the button; move the joystick forward to activate boom float. Button and joystick position must be held to maintain boom float.
- Release button to deactivate boom float and move joystick to neutral position.

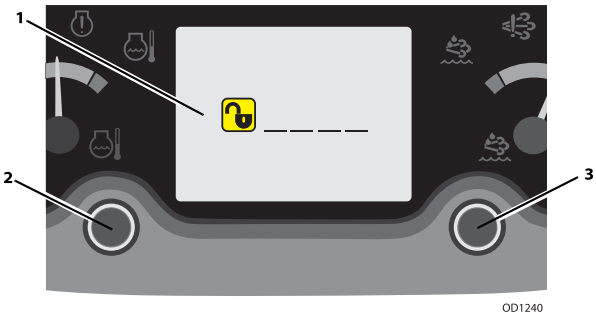
3.3 ANTI THEFT FUNCTIONALITY (IF ENABLED)

Machines with anti theft feature active require entering a numeric code before operation to prevent unauthorized use.

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.

3.3.1 Instrument Panel Input

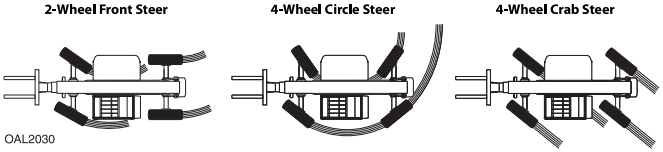
Code entry is accomplished using information provided in the instrument panel display.



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.

3.4 STEER MODES

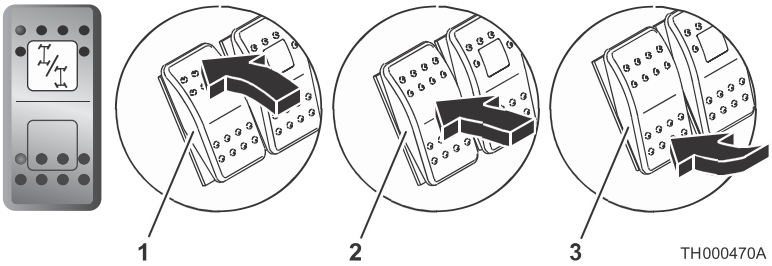
Three steer modes are available for operator use.



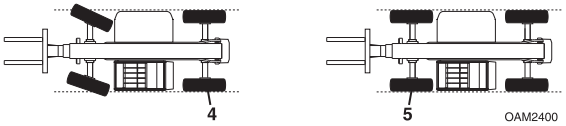
Note: 2-Wheel Front Steer mode is required for travel on public roads.

3.4.1 Manual Steering Alignment Mode Change

Note: Steer mode will change immediately after selection.



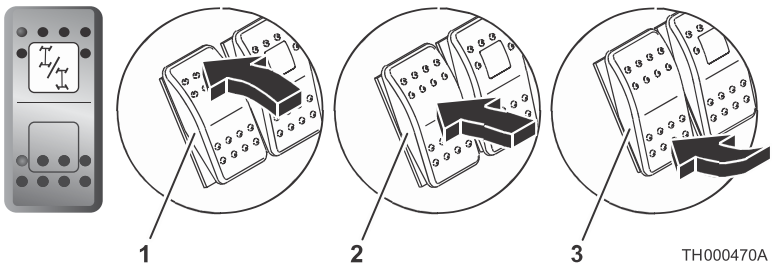
1. Bring machine to a stop using service brake. If front steer mode (2) is active and rear wheels are aligned, go directly to step 4.

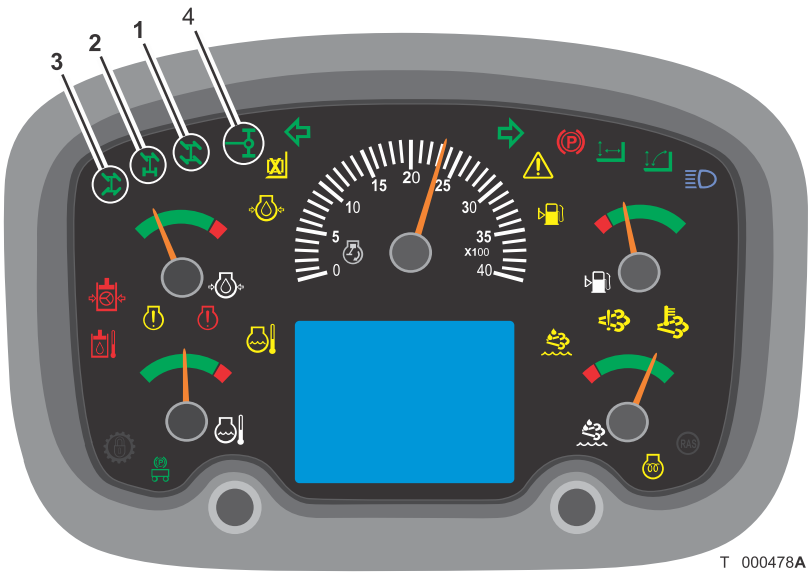


2. With crab steer (**1**) or circle steer (**3**) mode active, turn the steering wheel until the left rear wheel (**4**) is aligned with the side of the machine.
3. Select front steer mode (**2**).
4. Turn the steering wheel until the left front wheel (**5**) is aligned with the side of the machine.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

3.4.2 All Wheel Assisted Steering Alignment Mode Change

1. Bring machine to a stop using service brake.





2. Select desired steer mode: crab steer (**1**), front steer (**2**) or circle 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 *Section — Steer Modes, page 78*.

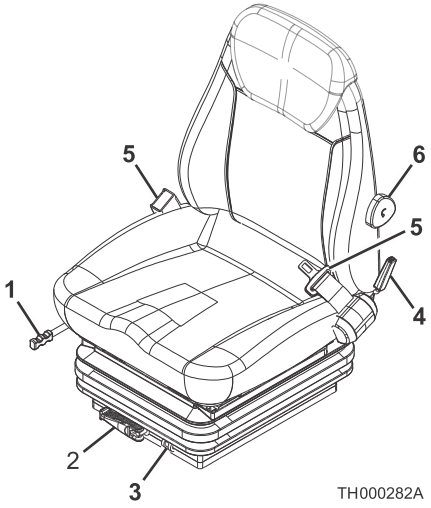
Note: Steering alignment mode change can be enabled or disabled using the analyzer hand-held diagnostic tool: Operator Tools menu, “Steer Mode” screen set to AUTOMATIC.

3.5 OPERATOR SEAT

3.5.1 Adjustments

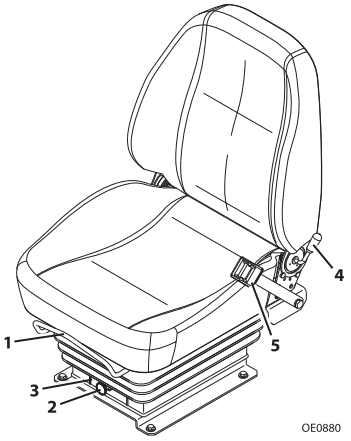
Prior to starting the engine adjust seat for position and comfort.

Mechanical Suspension Seat



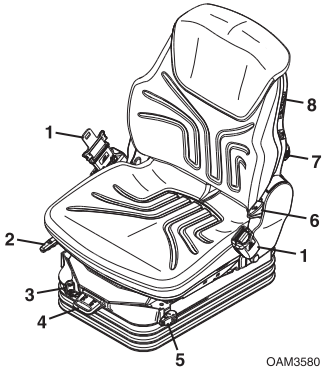
1. **Fore/Aft:** Use handle to move seat fore and aft.
2. **Suspension:** Use handle to adjust the suspension to the appropriate weight setting.
3. **Weight:** Displays current weight setting.
4. **Backrest:** Use lever to adjust backrest angle.
5. **Seat Belt:** Always fasten seat belt during operation.
6. **Lumbar:** Use knob to adjust the height and curvature of the backrest cushion.

Pneumatic Suspension Seat



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.

Pneumatic Suspension Seat



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.

3.5.2 Seat Belt

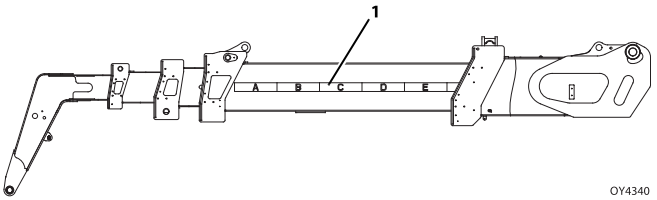


Fasten seat belt as follows:

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

Boom Extension Indicators



- 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 *Section — Use of the Capacity Chart*).

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.

3.7.1 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*. Check and clear area behind machine of objects before proceeding in a reverse direction.

3.7.2 Multi—View Camera

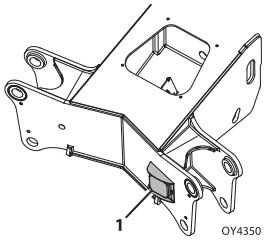
The multi-view camera provides additional views of the area directly behind, to the left, and to the right of the telehandler. The view displays on the multi-view camera monitor when the key is switched on and transmission is in reverse.

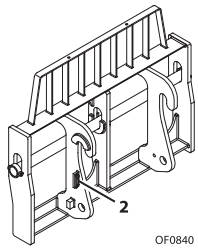


NOTICE

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

3.8 ATTACHMENT RECOGNITION (IF EQUIPPED)

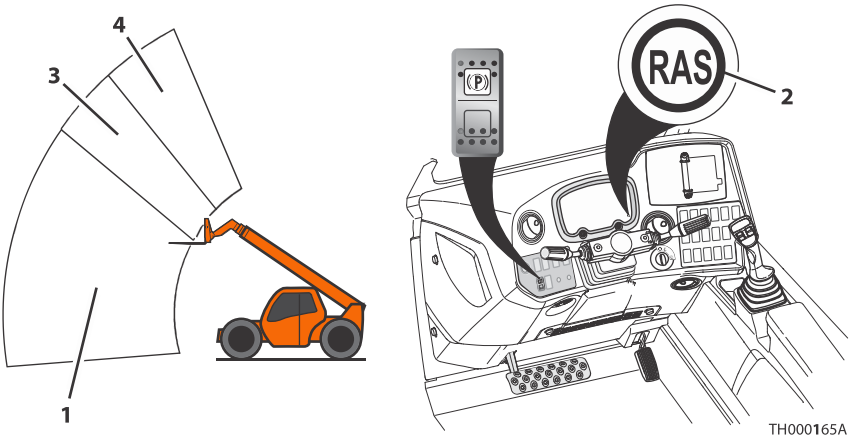




- The attachment recognition antenna (**1**) is located on the front left side of the frame. The Radio Frequency Identification (RFID) tag (**2**) on the attachment is recognized through this antenna allowing the machine to identify the attachment and display the appropriate capacity chart to the operator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

Note: Fork mounted attachments cannot be identified using the attachment recognition system. The manual selection process for the correct capacity chart is required. See *Section — Capacity Chart Selection*.

3.9 REAR AXLE STABILIZATION (RAS) SYSTEM



3.9.1 Free Pivot Mode

With boom below 40° **(1)**, RAS system is in Free Pivot Mode. Rear axle pivots freely and frame level functions normally. RAS indicator **(2)** will be off.

3.9.2 Soft Lock Mode

With boom between 40° and 55° **(3)**, RAS system is in Soft Lock Mode. Rear axle is locked. The RAS indicator **(2)** will illuminated when in Soft Lock Mode.

3.9.3 Slow Pivot Mode

With boom between 40° and 55° **(3)**, RAS system is in Slow Pivot Mode when transmission is in gear or frame level or outrigger functions are operated.. Rear axle will respond slowly to changes in terrain and frame level functions normally. The RAS indicator **(2)** will be off.

3.9.4 Hard Lock Mode

With boom above 55° **(4)**, RAS system is in Hard Lock Mode. The RAS indicator **(2)** will illuminate when in Hard Lock Mode.

Note: When in Hard Lock Mode, frame level, outriggers and drive functions are disabled.

⚠ WARNING

TIP OVER/CRUSH HAZARD. Bring telehandler to a complete stop in order to raise boom 55° and lock the RAS cylinder. A sudden change in direction of travel could reduce stability and/or cause load to shift or fall.

If the RAS indicator **(2)** blinks slowly the operator should apply the park brake, lower and retract boom and let the machine idle for 3 minutes to automatically check the integrity on the RAS system.

If the RAS indicator **(2)** blinks fast an issue has been found with the RAS hydraulics. Park machine in a safe position and perform *Section — Shut-Down Procedure*. See Service Manual for troubleshooting.

3.10 PREMIUM DISPLAY (IF EQUIPPED)

3.10.1 General Information

This section provides the necessary information needed to understand the touchscreen premium display.

Start of Premium Display

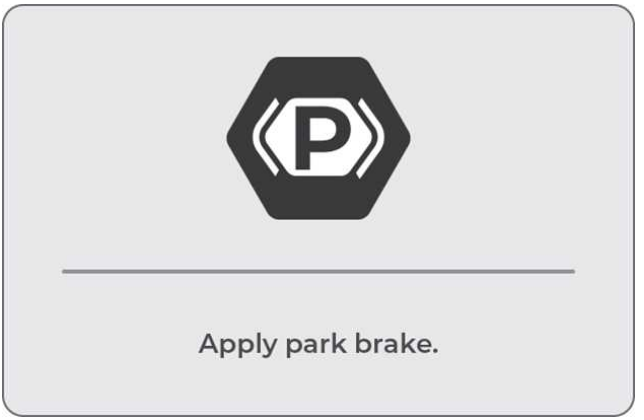
The display will be active when the ignition is in position 1.



TH000371A

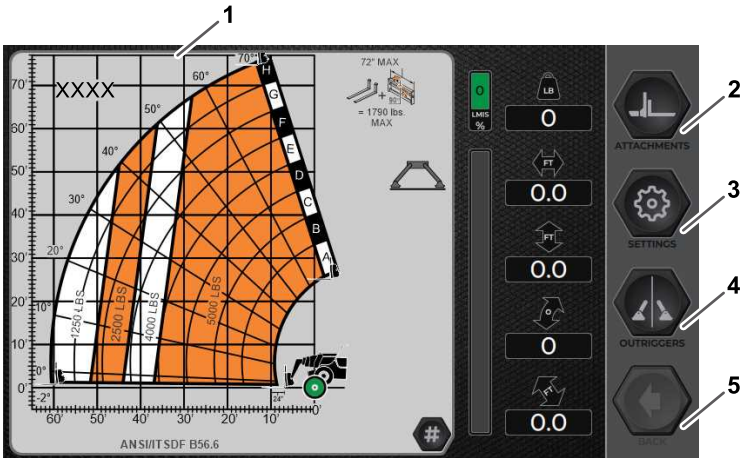
After the display has been powered on, the machine brand logo **(1)** will be displayed briefly followed by the home screen.

3.10.2 Home Screen and Touch Screen Soft Buttons



TH000395A

Note: Apply park brake to access the display menus.



1. **Home Screen:** The home screen display at the successful startup. This screen is the default and primary screen and will display the following information.

   - Electronic Capacity Chart
   - Outriggers Position (if equipped)
   - Load Management Indicator System (LMIS) (if equipped)

   This screen serves as a starting point for all user interactions. Users will touch the screen to navigate to other screens. See Home Screen.

2. **Attachment Select Soft Button:** The attachment selection soft button allows the operator to select a specific attachment in order to display the applicable capacity chart. See Attachments Selection.

3. **Settings/Main Menu Soft Button:** The settings soft button displays the main menu. See Main Menu.

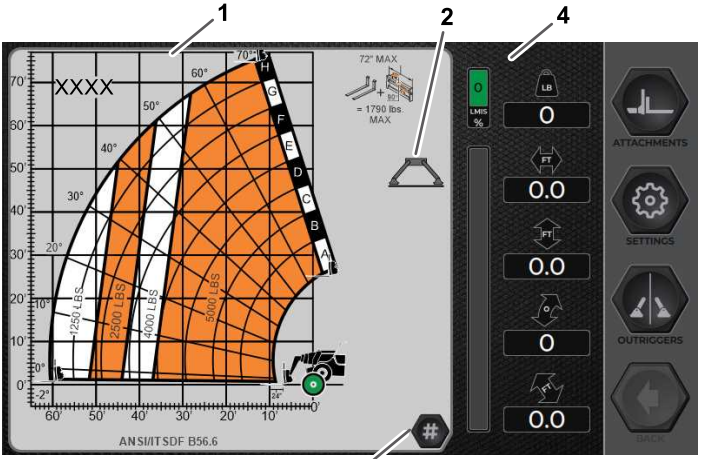
4. **Outriggers Soft Button (if equipped):** The outriggers soft button allows the operator to toggle the capacity charts between outriggers up and down.

5. **Back/Previous Screen Soft Button:** The previous screen soft button returns the display to the previous menu or screen. The screen will not change if already at the home screen.

Note: Non-applicable soft buttons are grayed out and inaccessible.

3.10.3 Home Screen

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



1. **Capacity Chart:** The capacity chart is displayed based on the selected attachment, and if equipped, selected outriggers position. See Attachment Selection for capacity chart selection.

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

2. **Outriggers Position (if equipped):** The display will show the capacity chart based on the selected outriggers position.

Note: If machine is not equipped with outriggers, the outriggers position will be blank.

3. **Attachment Part Numbers:** Press Attachment Part Numbers soft button (**3**) to display the list of OEM supplied attachment part numbers. The display returns to the Home Screen when the soft button is selected again.

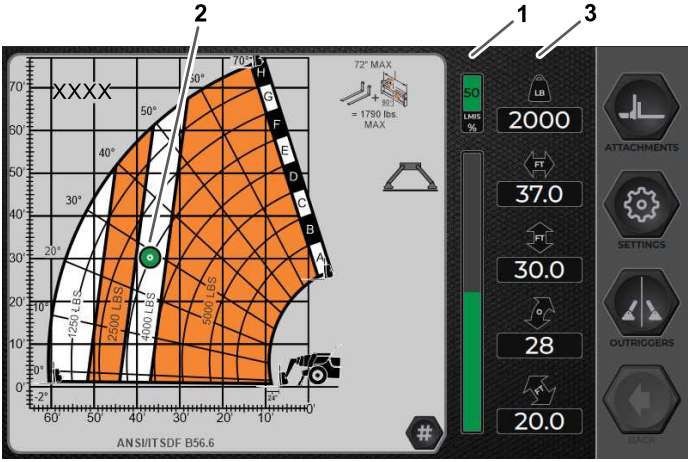


TH000375A

Note: Machines in CE market do not show attachment part numbers.

4. **Load Management Indicator System (LMIS) (if equipped):** See Load Management Indicator System (LMIS) (if equipped) for LMIS information.

3.10.4 Load Management Indicator System (LMIS) (if equipped)



TH000390B

LMIS Bar Graph: The LMIS bar graph (**1**) displays approximate load percentage to rated capacity.

- Green: LMIS bar graph displays in green color when load is less than rated capacity.
- Yellow: LMIS bar graph displays in yellow color and intermittent alarm sounds when load is approaching rated capacity.
- Red: LMIS bar graph displays in red 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 Section — Left Dash Control Panel.

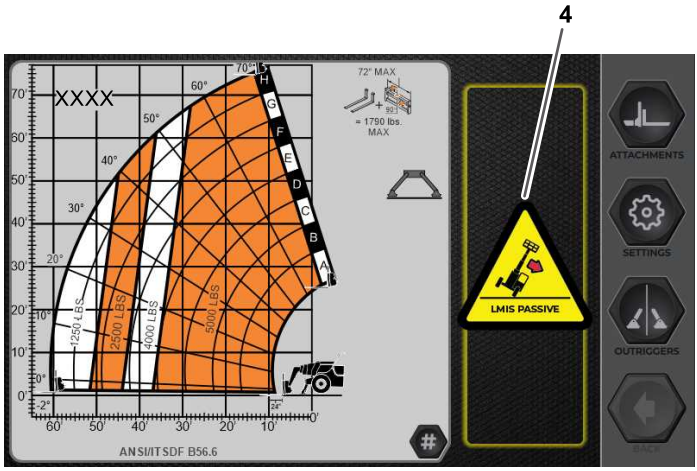
Load Indicator Circle: The circle (**2**) is displayed to show where the load is currently located with respect to the capacity chart.

Note: The Load Indicator Circle also changes color similar to the LMIS Bar Graph.

Lifting Information: The lifting information (**3**) 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.)
- Radius/Reach: Displays boom reach from front of tires in feet or meters.
- Height: Displays boom height in feet or meters.
- Angle: Displays boom angle in degrees.
- Length: Displays boom length in feet or meters.

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 (**1**) 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.



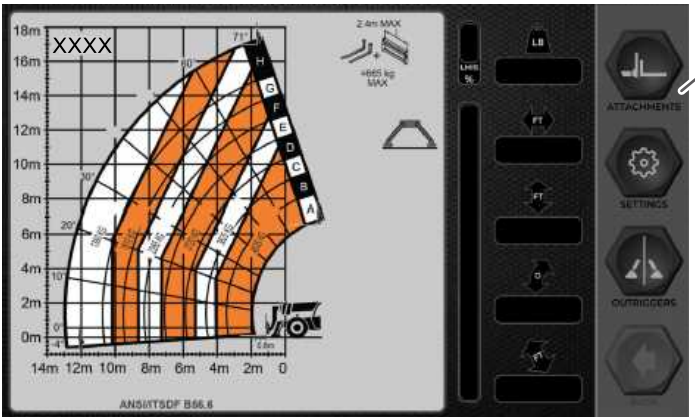
TH000391B

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 illuminate yellow and sound an intermittent 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.

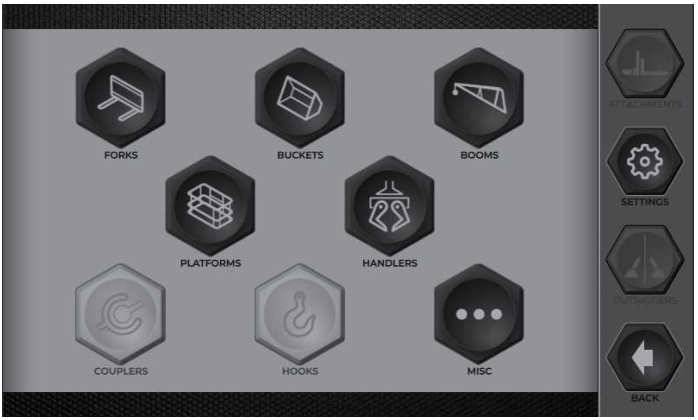
3.10.5 Attachment Selection

The operator will use the touchscreen to manually select a new capacity chart each time an attachment is swapped.



TH000376A

Press the attachments soft button (**2**) to access the types of attachments.



TH000377B

Select the type of attachment.

Note: Soft buttons are grayed out if no capacity charts are available for that type of attachment.



TH000378A

Scroll through the list and select the specific attachment to be used.

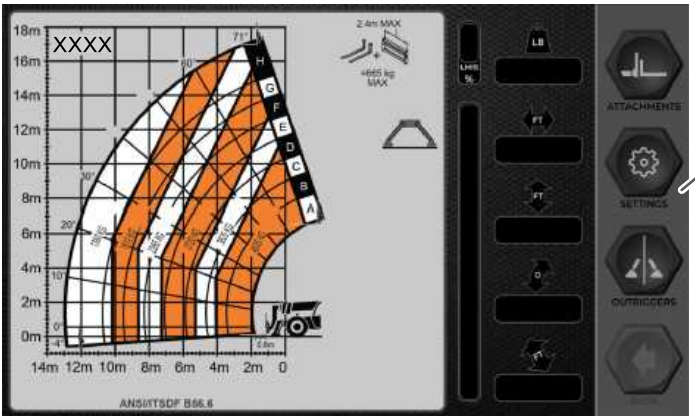
Once loading is complete, the capacity chart for the selected attachment will briefly display then automatically return to the home screen.



TH000388A

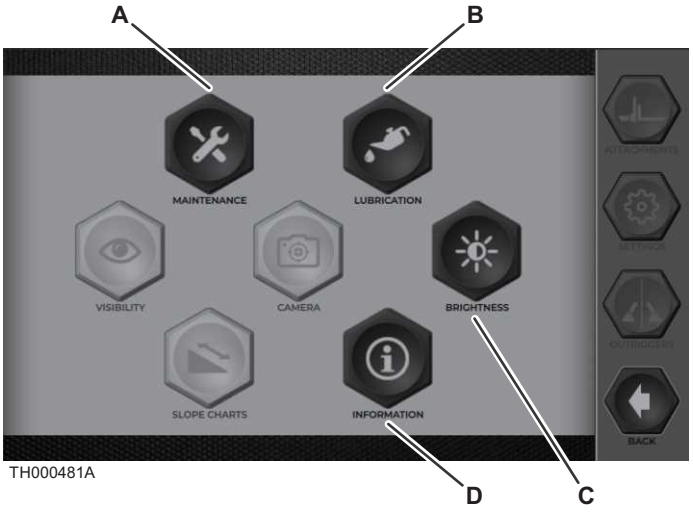
Note: Machines equipped with SmartLoad Technology System will automatically detect the new attachment and display associated capacity chart. If attachment recognition fails to identify the new attachment, the attachment recognition error screen will display and hydraulic functions are prevented until the operator manually selects an attachment. See Attachment Recognition Error Screen for details.

3.10.6 Main Menu



TH000379A

Press the Settings soft button (**3**) to access the main menu.

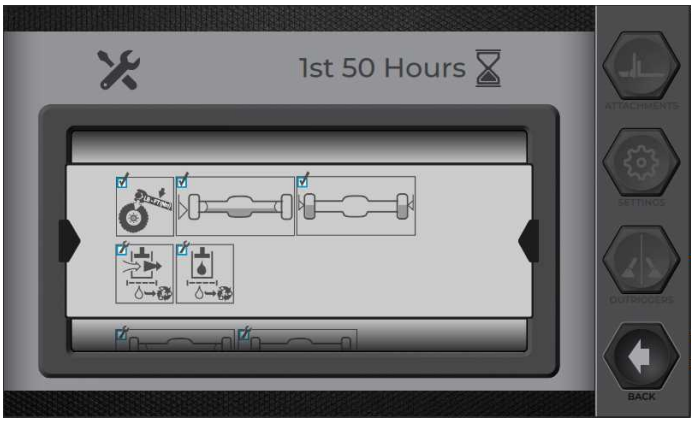


TH000481A

Icons of all the available selections appear on the display.

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

1. Select the required maintenance interval to view the maintenance schedule. Swipe up or down to view all items. See Lubrication and Maintenance for additional information.



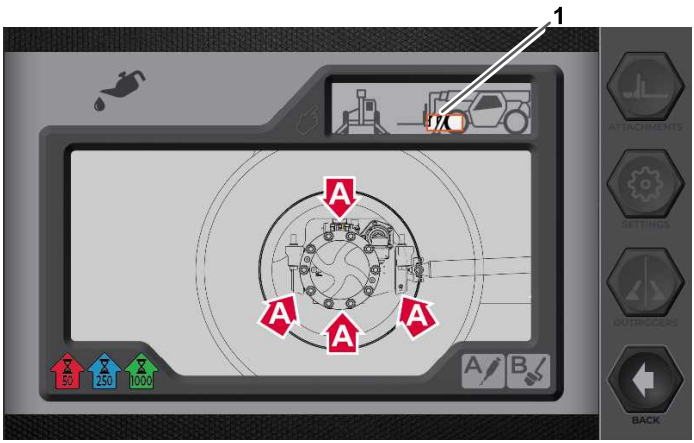
TH000382A

2. On the Maintenance Schedules screen, press the back soft button to return to the main menu.

Note: The screen will display the maintenance interval associated to what is shown on the screen in the upper right corner.

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

1. Pan and zoom on the touchscreen to view lubrication point in different locations. See Lubrication and Maintenance for additional information.

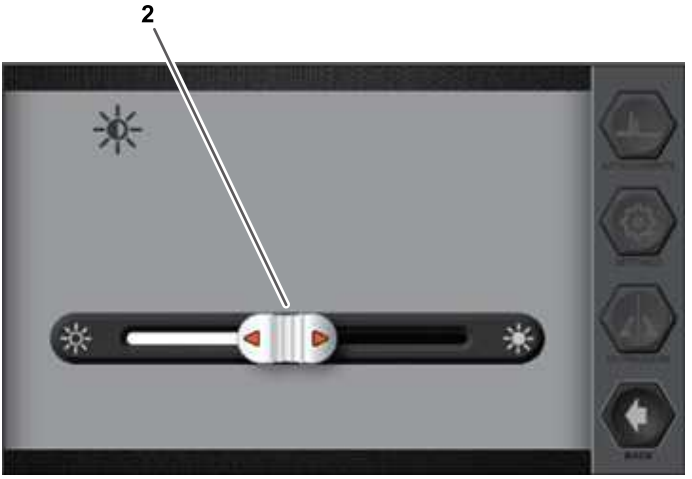


TH000384A

2. On the Lubrication Schedules screen, press the back soft button to return to the main menu.

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

C. Brightness — Brightness allows the operator to adjust the screen brightness.



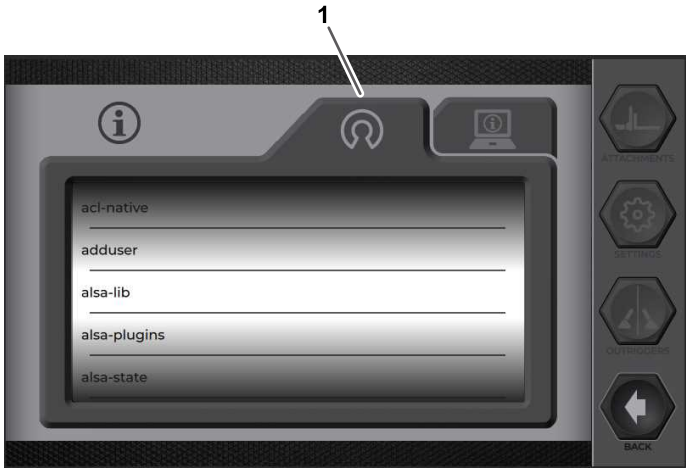
TH000385A

Using the touch slider (**2**), touch and drag slider to the left to minimize screen brightness or to the right to maximize screen brightness.

Note: When the premium display screen temperature gets extremely hot or due to outside ambient and solar conditions, the brightness will automatically adjust to regulate the temperature to avoid the display becoming extremely hot to the touch. At this point, the slider to adjust brightness will have no impact on the brightness level until temperatures get cooler.

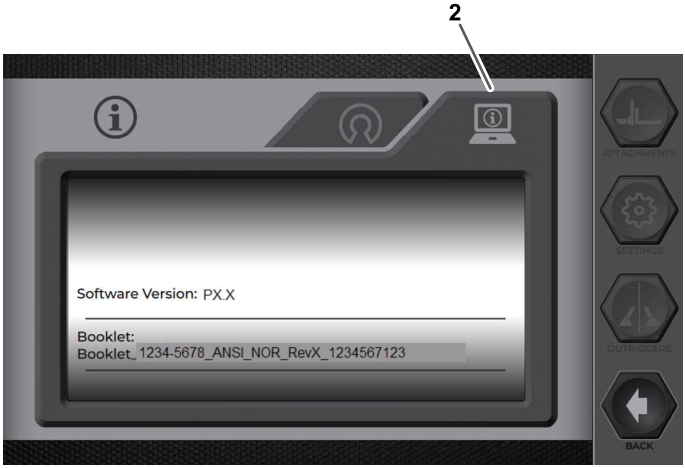
Note: For machines equipped with road lights or work lights, the screen brightness will automatically adjust while lights are on.

D. Information — Information screen displays the software version, booklet version, and open source licenses.



TH000386A

Selecting the Open Source Licenses tab (**1**), the display navigates to the Open Source License menu. The display shows a list of utilized Open Source Licenses. The user can swipe up or down to scroll this list.



TH000387A

Selecting the Versions tab (**2**), the display navigates to the Versions Information Screen. The display shows a list of the Display Software Version and Default Booklet Revision. The user can swipe up or down to scroll this list.

3.10.7 Troubleshooting

Attachment Recognition Error Screen



TH000388A

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 alarm will sound
- Beacon tower will illuminate red
- LMIS information on premium display will be red

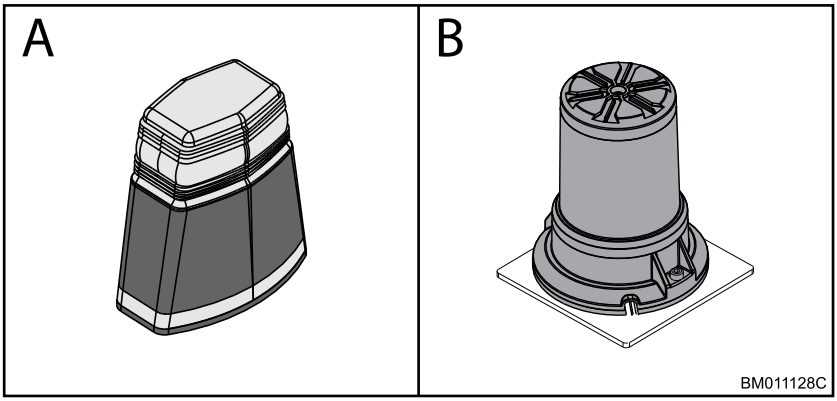
To clear the error screen, the operator must manually select an attachment using the attachments soft button on the premium display (see Home Screen and Touch Screen Soft Buttons).

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 Attachment Recognition (If Equipped)).*
2. *Ensure boom is raised slightly and not extended more than 10 ft (3,05 m) from front of machines.*
3. *Press coupler switch (see Left Dash Control Panel) 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 need repaired, see Service and Maintenance Manual for troubleshooting.

3.11 BEACONS



A. LED Motion / Amber Beacon (CS550) B. Beacon

Note: Image for reference only. Beacon design may vary based on beacon type, machine model, and installation location.

3.11.1 ClearSky® LED Motion / Amber Beacon (CS550)

The ClearSky® CS550 is installed on ClearSky Smart Fleet™ equipped machines.

The CS550 can function as a machine beacon using multiple colors and flash patterns for communication and identification purposes. In addition to amber, colors include: red, blue, green, cyan, and white. The ClearSky Smart Fleet mobile app can command visual alerts or audible alarms to assist in machine identification.

The CS550 also functions as a visible connectivity point for ClearSky Smart Fleet. Refer to the ClearSky Smart Fleet section for more information.

3.11.2 Amber Beacon

This amber-colored beacon flashes in a consistent pattern to alert those nearby that the machine power is on or, if configured, when commanded to flash through a separate Beacon Light Switch. The device may also use different flash patterns to identify specific machine alerts.

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SECTION 4
Operation

4.1 ENGINE

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

4.1.1 Starting the Engine in Normal Conditions

This machine can be operated under normal conditions in temperatures of 0° F to 114° F (-20° C to 45° C). Consult JLG for operation outside this range or under abnormal conditions.

If equipped for extreme cold weather, -40°F to 0°F (-40°C to -20°C), 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

⚠ 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.

4.1.2 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).

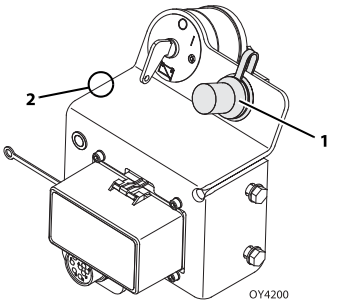
1. Machine must be equipped with heating components and extreme cold weather fluids. See *Section — Specifications* for fluid details.
2. Locate the three yellow extension cords stored behind seat in cab.
3. Connect the hydraulic tank heater to one extension cord, the battery and block heaters to another 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 *Section — Engine , page 105* and allow engine to idle 20 minutes.
6. Operate all boom functions continuously for five minutes to circulate the warm hydraulic fluid.
7. Perform *Section — Shut-Down Procedure, page 108*.
8. Disconnect A/C power supplies and place back in storage locations. Machine is ready for operation.

4.1.3 Battery Boosted Starting



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.

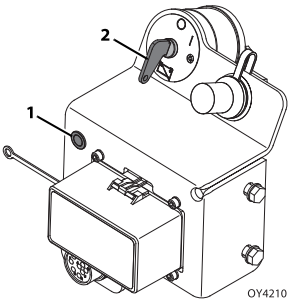
4.1.4 Normal Engine Operation

- 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.

4.1.5 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).

NOTICE

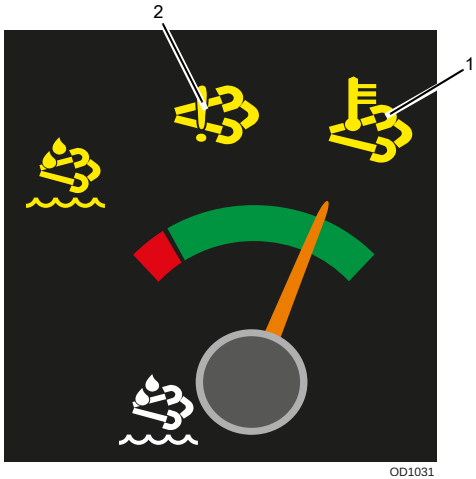
If parking a telehandler with the boom elevated in an effort to conserve space, booms may be elevated, but shall not be extended. It is the operator’s responsibility to ensure all safety precautions in section 1 of this manual are followed for each unique situation.

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

After-Treatment System (ATS)

This machine is equipped with an Selective Catalytic Reduction (SCR) exhaust After-Treatment System (ATS). The system injects liquid through a special catalyst into the exhaust stream of the diesel engine. The liquid is automotive-grade urea, otherwise known as Diesel Exhaust Fluid (DEF). The DEF sets off a chemical reaction that converts nitrogen oxides into nitrogen, water and carbon dioxide (CO2), which is then expelled through the engine exhaust pipe.

The ATS is equipped with an automatic, or in-mission, exhaust cleaning system. A stationary, or non-mission, exhaust system cleaning will be required if the in-mission cleaning was not successful.



4.2.1 Automatic Exhaust System Cleaning (In-Mission)

The in-mission cleaning process will be performed during normal machine operation without any operator interaction.

- High Exhaust System Temperature (HEST) (**1**) Indicator may illuminate during exhaust system cleaning.

⚠ WARNING

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

4.2.2 Stationary Exhaust System Cleaning (Non-Mission)

If the in-mission cleaning process was not successful, the Selective Catalytic Reduction (SCR) Indicator (**2**) will illuminate to indicate a non-mission cleaning process is required. A 50 hour period is available to complete the non-mission cleaning process.



1. Move telehandler to an area free of flammables and people that could be exposed to hot exhaust.
2. Shift transmission to neutral, retract and lower boom and engage park brake.
3. When exhaust system cleaning begins, the HEST (**1**) and Do Not Turn Off Engine (**3**) indicators will illuminate. Do not turn off engine.
4. Do not press accelerator pedal or other controls during exhaust system cleaning.
5. SCR indicator (**2**) flashes during cleaning. Stationary exhaust system cleaning takes approximately 30 to 60 minutes.

Note: Stationary exhaust system cleaning will stop and may be incomplete if any controls are inadvertently moved or activated. If stationary exhaust cleaning is interrupted, HEST (**1**) indicator will turn off and SCR Indicator (**2**) will stop blinking and illuminate solid. To restart stationary exhaust system cleaning, depress service brake and disengage park brake. Return to step 1 and repeat process.

6. Stationary exhaust system cleaning is complete after HEST, SCR and Do Not Turn Off Engine indicators turn off.

NOTICE

EQUIPMENT DAMAGE. System damage may occur if exhaust system cleaning requirements are not performed.

If stationary exhaust system cleaning is not completed within the 50 hour period, SCR (**2**), System Distress (**4**) and Engine Fault Warning (**5**) indicators will illuminate. A torque derate is initiated.

If stationary exhaust system cleaning is not completed within the next ten hours, SCR (**2**), System Distress (**4**), Engine Fault Warning (**5**) and Engine Fault Critical (**6**) indicators will illuminate. Engine is placed in idle-lock until resolved. Contact the local dealer or engine manufacturer.

4.3 OPERATING WITH A NON-SUSPENDED LOAD

4.3.1 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 — Attachments*) of telehandler to determine operating range in which you can safely lift, transport and place a load.

4.3.2 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 *Section — Adjusting/Moving Forks*
- 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.

4.3.3 Transporting a Load


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- 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 — General Safety Practices* and *Section — Attachments*

4.3.4 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 *Section — Frame Level Switch*).
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.

4.3.5 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 *Section — Use of the Capacity Chart* .
- 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.

4.3.6 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

Note: Lifting or placing a load below grade level is permissible.

4.4.1 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 — Attachments*) of telehandler to determine operating range in which you can safely lift, transport and place a load.

4.4.2 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 *Section — Use of the Capacity Chart* for proper lifting guidelines in addition to appropriate capacity chart in operator cab.

4.4.3 Transporting a Suspended Load


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- Travel in accordance with the requirements set forth in *Section — General Safety Practices* and *Section — 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.

4.4.4 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 *Section — Frame Level Switch*).
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°.

4.4.5 Placing a Suspended Load

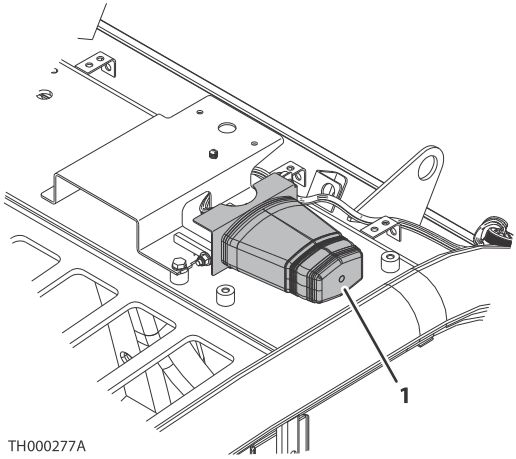
Before placing any load be sure that:

- 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 *Section — Use of the Capacity Chart*.
- 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.

4.4.6 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.

4.5 LOADING AND SECURING FOR TRANSPORT

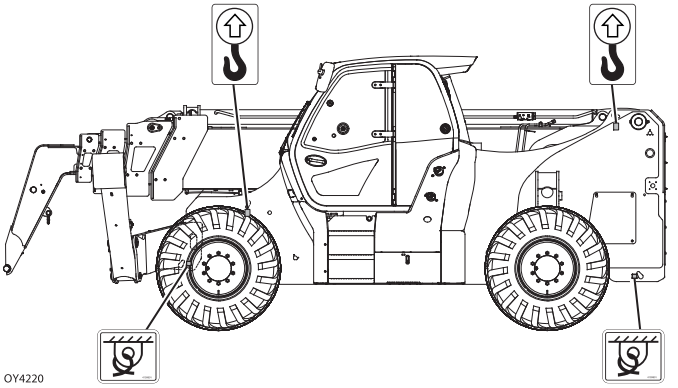


4.5.1 Beacon Fold-Down

The CS550 (ClearSky® LED Motion / Amber Beacon) (**1**) must be folded down during transportation. If in the up position, the beacon is over the height requirements for shipping and could get damaged while in transit.

NOTICE

EQUIPMENT DAMAGE. Fold down beacon during transportation. Failure to do so may result in beacon damage and machine may also be placed into a Locked Out state.



4.5.2 Tiedown

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 tiedown 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.

4.5.3 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.
- 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 are on the sides of the frame for the front and the rear of the machine.
- 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.

4.6 CLEARSKY SMART FLEET™

ClearSky Smart Fleet™ integrates on-machine hardware with web-based software and a mobile app to provide fleet management data and analytics. Personnel with the appropriate permissions can access telematics and machine identification data using a dashboard visible in the ClearSky Smart Fleet web portal or the ClearSky Smart Fleet mobile app. (Navigation and visual configuration may vary between the web portal or mobile app.)

Features include machine monitoring such as fuel level and battery charge, remote analyzer tasks including diagnostic trouble codes or system alerts, and access control (if available) restrictions.

Refer to the Access Control and Beacons sections of this manual for more information. Visit the ClearSky section of the JLG website for more resources and information about accessing web portal or mobile app data.

4.7 ACCESS CONTROL - CLEARSKY SMART FLEET™ (IF EQUIPPED)

NOTICE

Operator access to the machine may be placed into a restricted state remotely.

If a modification to a restricted state is required, contact the ClearSky Smart Fleet™ account owner. Only authorized personnel can make changes from within the web portal or mobile app.

This machine may be equipped with ClearSky Smart Fleet Access Control. Using the ClearSky Smart Fleet mobile app or web portal (remotely or locally), the machine can be placed into restricted states that limit machine functionality for all operators.

By using this machine, the operator acknowledges Access Control functionality, including restricted states, and accounts for it in their safe use plan.

Restricted states may include:

1. Speed Restricted — Machine drive speed is restricted to low speed and boom lift speed is reduced.
2. Speed and Function Restricted — Machine drive speed is restricted to low speed and boom lift speed is reduced. On certain machines, the maximum boom angle allowed will be reduced.
3. Locked Out — Machine has been locked out and will not operate (including engine start, if applicable).

Note: Restricted functionality may occur if the CS550 (ClearSky® LED Motion / Amber Beacon) is damaged or removed. A protective cage is available through JLG.

Machines equipped with ClearSky Smart Fleet Access Control are also equipped with the CS550. Refer to the ClearSky Smart Fleet and Beacons sections of this manual for more information.

SECTION 5
Attachments

5.1 APPROVED ATTACHMENTS

5.1.1 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.

5.1.2 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 *Section - Fork Mounted Attachments*.

5.1.3 Non-OEM Fork Mounted Attachments

JLG authorizes the use of non-OEM fork mounted attachments provided the criteria and instructions are followed. See *Section - Fork Mounted 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.

5.3 FORK MOUNTED ATTACHMENTS

5.3.1 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*.

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

5.3.2 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
- Ensure that the attachment and use of the attachment complies with this and all other applicable standards

5.4 EQUIVALENT LOAD

5.4.1 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).

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

[1] Center 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:

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

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.

5.4.2 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).

Weight of Attachment (lb) x CG Distance of Attachment (in)[1]) + (Weight of Attachment Load (lb) x CG Distance of Load (in)[1]) ÷ 24 in = Equivalent Load

[1] Center 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:

$$500 \times 36 = 18000$$

$$1000 \times 45 = 45000$$

$$\frac{18{,}000 + 45{,}000}{24} = 2{,}625 \text{ pounds}$$

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 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.

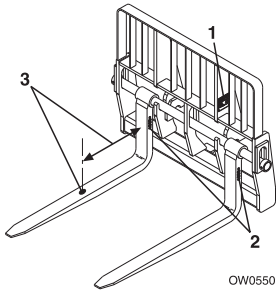
5.5 JLG SUPPLIED ATTACHMENTS

Attachment	Part Number	Applicable Model		
		1075	4523	4523 (AUS)
Carriage, 50 in (1270 mm)	1170021	X	X	X
Carriage, 60 in (1524 mm)	1170024	X	X	X
Carriage, 72 in (1829 mm)	1001211516	X	X	X
Carriage, 96 in (2438 mm)	1001278571	X	X	X
Side Tilt Carriage, 50 in (1270 mm)	1001233383	X	X	
	1001277290	X	X	X
Side Tilt Carriage, 60 in (1524 mm)	1001233384	X	X	
	1001277338	X	X	X
Side Tilt Carriage, 72 in (1829 mm)	1001233385	X	X	
	1001276666	X	X	X
90° Swing Carriage, 72 in (1829 mm)	1001095418	X	X	X
180° Swing Carriage, 72 in (1829 mm)	1001238627	X	X	X
Drywall Swing Carriage	1001246022	X	X	X
Side Shift Carriage, 48 in (1219 mm)	1001242644	X	X	X
Dual Fork Positioning Carriage, 50 in (1270 mm)	7301295	X	X	X
Bucket, Fork Mounted	1001195970	X	X	
Bucket, General Purpose, 72 in–1.0 yd^3 (1829 mm–0,76 m^3)	1001100822	X	X	X
Bucket, General Purpose, 96 in–1.5 yd^3 (2438 mm–1,15 m^3)	1001100823	X	X	X
Truss Boom, 12 ft (3658 mm)	1001099902	X	X	
	1001275853	X	X	
	1001311054	X	X	X
Truss Boom, 15 ft (4572 mm)	1001099901	X	X	
	1001275852	X	X	
	1001311056	X	X	X

Attachment	Part Number	Applicable Model		
		1075	4523	4523 (AUS)
Material Handling Arm, 6.7–13.2 ft (2007–3941 mm)	1001176515	X	X	
Truss Boom, Adjustable, Fork Mounted	1001230241	X	X	
Truss Boom w/Winch, 3 ft (914 mm)	1001100967	X	X	
Truss Boom w/Winch, 12 ft (3658 mm)	1001099351	X	X	
Hook, Fork Mounted	1001097205	X	X	
Hook, Coupler Mounted	1001207606	X	X	X
Trash Hopper, Fork Mounted	1001238566	X	X	
Fork, Pallet, 2.36x4x48 in (60x100x1220 mm)	2340045	X	X	X
Fork, Pallet, 2.36x5x48 in (60x127x1220 mm)	2340038	X	X	
Fork, Pallet, 2.36x4x48 in (60x100x1220 mm)	7301408	X	X	X
Fork, Pallet, 2.36x4x60 in (60x100x1524 mm)	1001227379	X	X	
Fork, Pallet, 2.36x5x72 in (60x127x1830 mm)	1001232355	X	X	X
Fork, Pallet, 2.36x5x60 in (60x127x1524 mm)	1001227382	X	X	X
Fork, Pallet, 2.36x6x60 in (60x152x1524 mm)	2340039	X	X	
Fork, Full Taper, 2x6x48 in (50x150x1220 mm)	1001258605	X	X	
Fork, Lumber, 1.6x5.9x60 in (40x150x1540 mm)	1001099457	X	X	
Fork, Lumber, 2x7x60 in (50x178x1524 mm)	1001097110	X	X	
Fork, Dual Taper, 2x6x72 in (50x152x1830 mm)	1001259206	X	X	
Fork, Block, 2x2x48 in (50x50x1220 mm)	2340037	X	X	

Attachment	Part Number	Applicable Model		
		1075	4523	4523 (AUS)
Fork, Extension, 90 in (2286 mm)	1001137512		X	X
Platform, Fork Mounted (ASME)	1001238653	X		
Platform, Fork Mounted (ASME - French)	1001238655	X		
Platform, Fork Mounted (ISO)	1001238654		X	

5.6 TELEHANDLER/ATTACHMENT/FORK CAPACITY



Prior to installing attachment, verify it is approved and telehandler is equipped with proper capacity chart. See *Section — Approved Attachments*.

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 *Section — Approved Attachments*.
- 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.

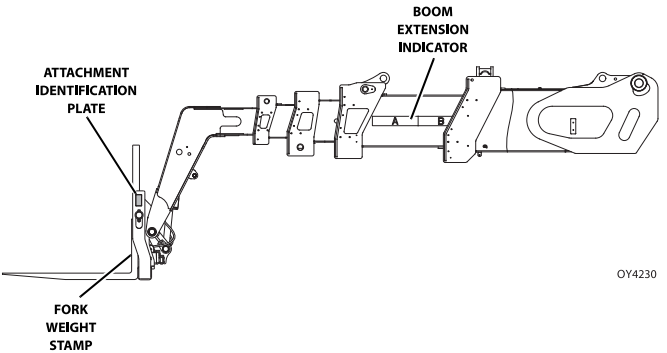
5.7 USE OF THE CAPACITY CHART

Use of the Capacity ChartTo properly use capacity chart (see *Section — Sample Capacity Chart, page 129*), operator must first determine and/or have the following:

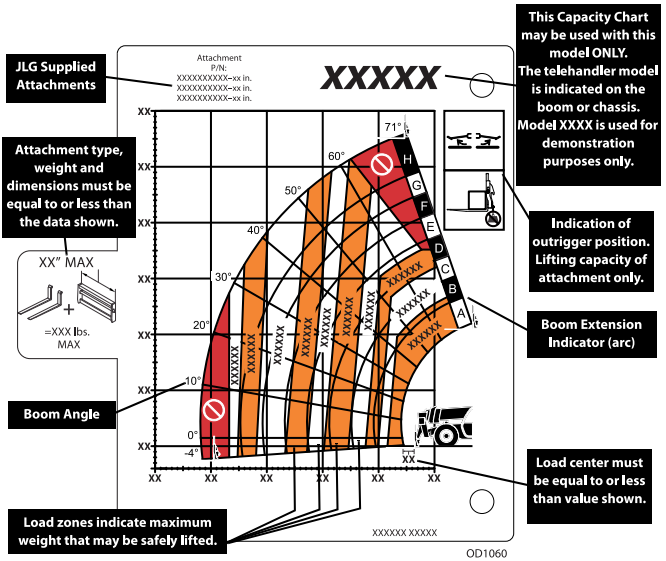
1. An approved attachment. See *Section — Approved Attachments*.
2. Proper Capacity Chart(s).
3. Weight of load being lifted.
4. Load placement information:
   a. HEIGHT where load is to be placed.
   b. DISTANCE from front tires of telehandler where load is to be placed.
5. On capacity chart, find the 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.

5.7.1 Capacity Indicator Locations



5.7.2 Sample Capacity Chart (ANSI)



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

⚠ WARNING

TIP OVER HAZARD. All loads shown on rated capacity chart are based on machine being on firm ground with frame level (see *Section — Transporting a Load* or *Section - Transporting a Suspended Load*); the forks being positioned evenly on carriage; the load being centered on forks; proper size tires being properly inflated; and the telehandler being in good operating condition.

To identify the proper capacity chart on telehandlers equipped with outriggers, refer to the following icons which may be located on the capacity chart.

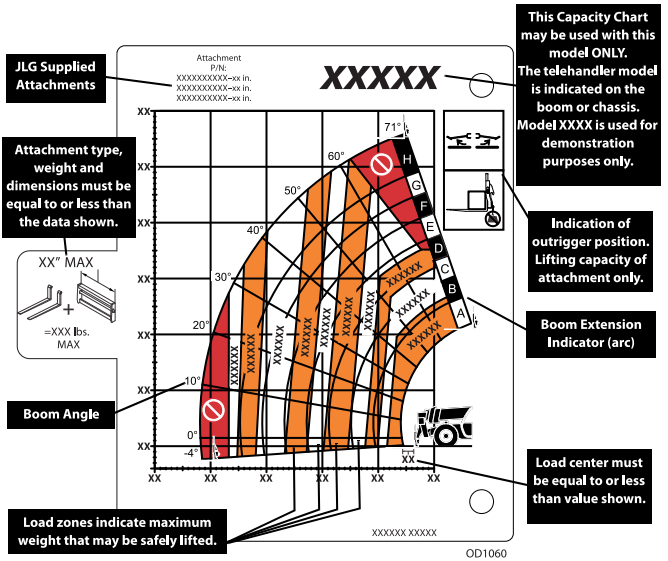
- Use when lifting a load with outriggers up.


OD1080

- Use when lifting a load with outriggers down.


OD1070

5.7.3 Sample Capacity Chart (AUS)



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

⚠ WARNING

TIP OVER HAZARD. All loads shown on rated capacity chart are based on machine being on firm ground with frame level (see *Section — Transporting a Load* or *Section - Transporting a Suspended Load*); the forks being positioned evenly on carriage; the load being centered on forks; proper size tires being properly inflated; and the telehandler being in good operating condition.

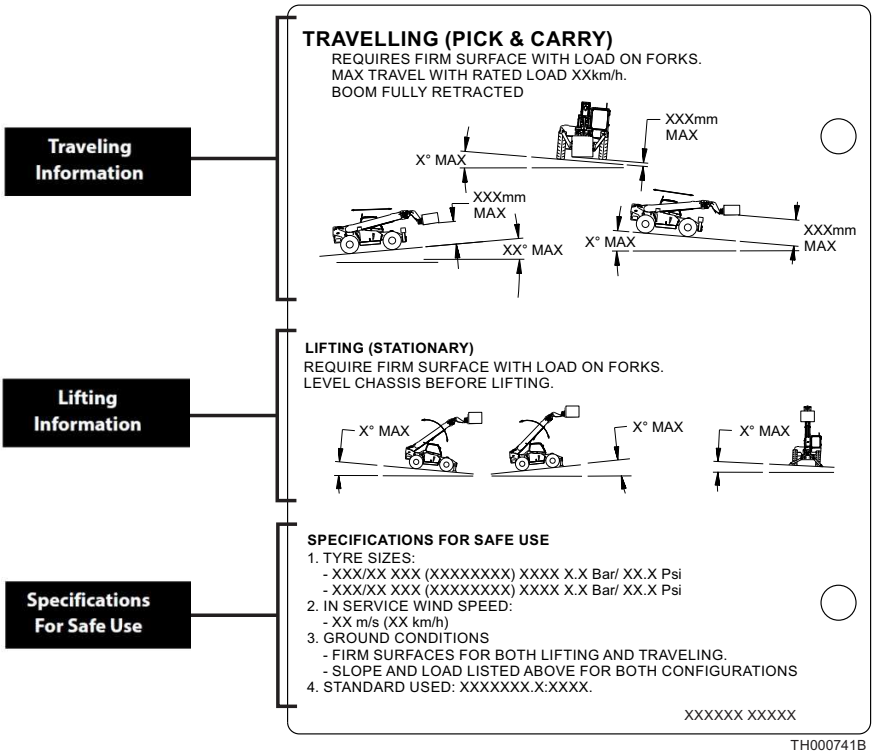
To identify the proper capacity chart on telehandlers equipped with outriggers, refer to the following icons which may be located on the capacity chart.

- Use when lifting a load with outriggers up.


OD1080

- Use when lifting a load with outriggers down.


OD1070



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

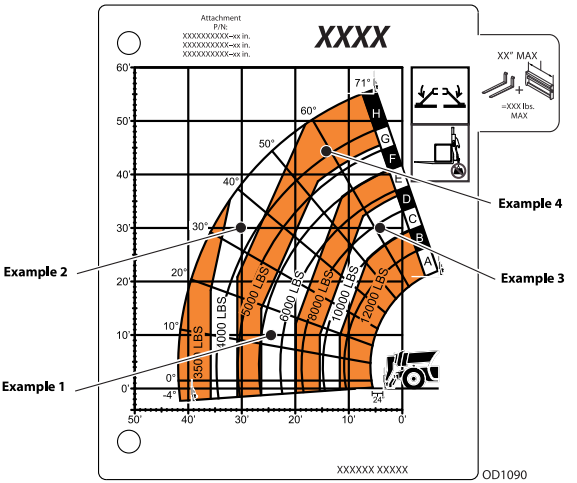
5.7.4 Example

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.

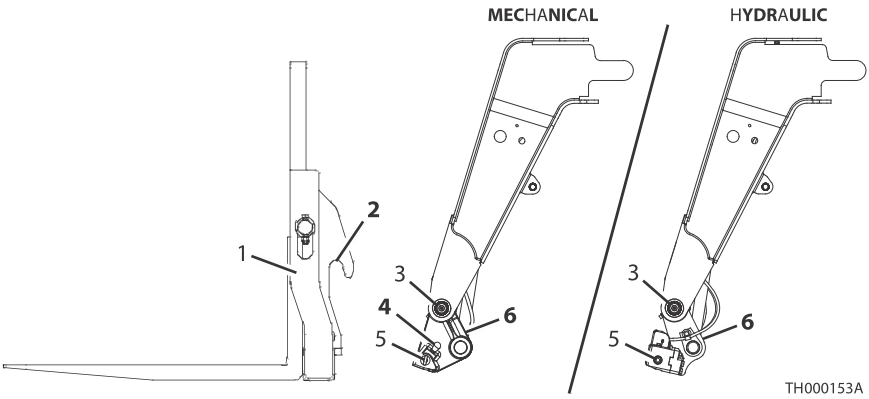
	Load Weight	Distance	Height	OK to Lift
1	5750 lb (2608 kg)	25 ft (7,62 m)	10 ft (3 m)	Yes
2	4900 lb (2223 kg)	30 ft (9,2m)	30 ft (9,2 m)	NO
3	8100 lb (3674 kg)	5 ft (1,5 m)	30 ft (9,2 m)	Yes
4	5250lb (2381kg)	15ft (4,6 m)	45 ft (13,7 m)	NO



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

5.8.1 Coupler



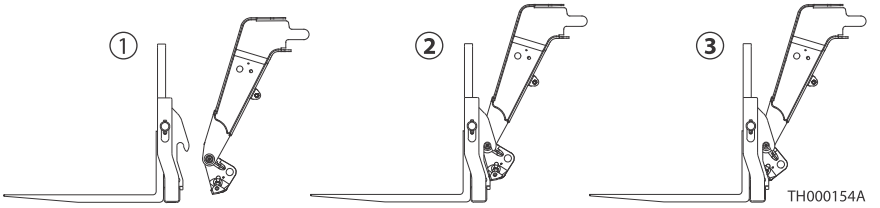
1. **Attachment**
2. **Attachment Pin Recess**
3. **Attachment Pin**
4. **Retainer Pin** (mechanical coupler)
5. **Lock Pin**
6. **Coupler** (attachment tilt control in cab, see *Section — Joystick*)

⚠ WARNING

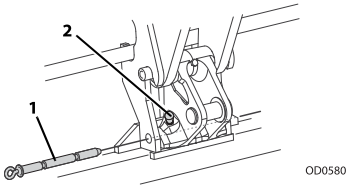
CRUSH HAZARD. Always be certain that carriage or attachment is properly positioned on boom and is secured by lock pin and retainer pin. Failure to ensure proper installation could permit carriage/attachment/load to disengage.

5.8.2 Mechanical Coupler

This installation procedure is designed for one-person operation. Prior to exiting cab, perform *Shut-Down Procedure*.



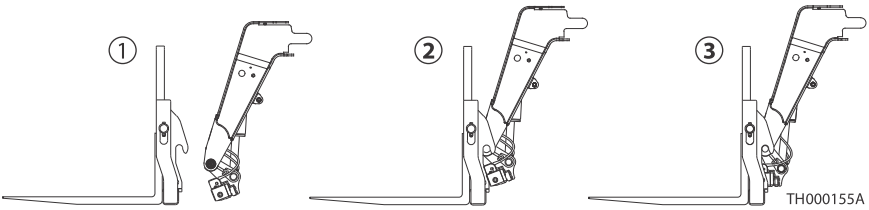
1. Tilt coupler back to provide clearance. Check to be sure lock pin is removed.
2. Align attachment pin with recess in attachment. Raise boom slightly to engage attachment pin in recess.
3. Tilt coupler forward to engage attachment.



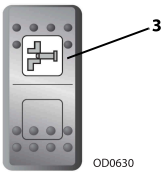
4. Lift retainer pin **(2)** and insert lock pin **(1)** completely through coupler. Release retainer pin and ensure lock pin is secure.
5. If attachment is equipped, connect auxiliary hydraulic hoses. See *Auxiliary Hydraulic Decompression, page 136*.
6. If equipped, connect auxiliary electric harness.

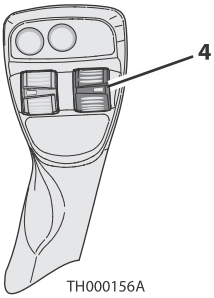
5.8.3 Hydraulic Coupler

This installation procedure is designed for one-person operation.

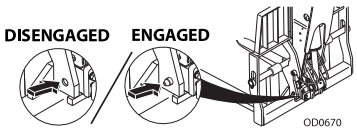


1. Tilt coupler back to provide clearance.
2. Align attachment pin with recess in attachment. Raise boom slightly to engage attachment pin in recess.
3. Check to be sure lock pin is disengaged. Tilt coupler forward to engage attachment.



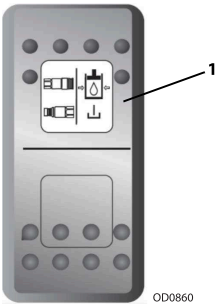


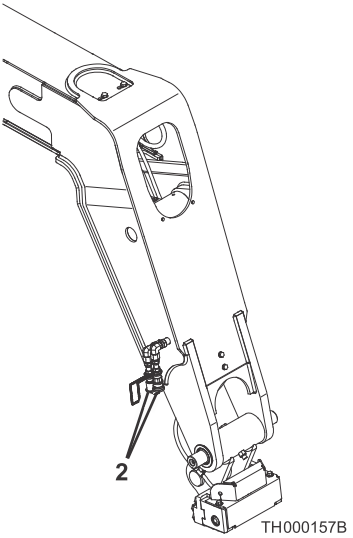
4. Press and hold the coupler switch **(3)** on left control panel. At the same time, press roller switch **(4)** up to engage lock pin. Press roller switch **(4)** down to disengage lock pin.



5. Raise boom to eye level and visually check that lock pins protrude through holes on both sides of coupler. If lock pins do not protrude through holes, place attachment on ground and return to step 2.
6. If attachment is equipped, connect auxiliary hydraulic hoses. See *Auxiliary Hydraulic Decompression, page 136*.
7. If equipped, connect auxiliary electric harness.

5.8.4 Auxiliary Hydraulic Decompression





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 both auxiliary hydraulic fittings **(2)**.
2. Perform *Shut-Down Procedure*.
3. Attachment hoses may be connected or disconnected at both 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 *Section — Attachment Installation*.
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.

5.10 ATTACHMENT OPERATION

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 *Section — Loader Joystick Pattern* 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.

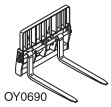
NOTICE

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.

NOTICE

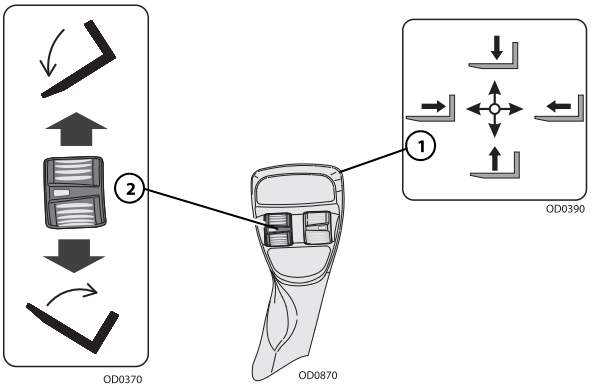
EQUIPMENT DAMAGE. Boom operations including, but not limited to, back-dragging and trash compacting exert forces not typical during lifting applications and may result in damage to the boom and/or other machine structures or components.

5.10.1 Carriage with Forks



Use Carriage Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.



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.

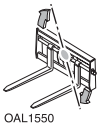
Installation Procedure:

Refer to *Section — Attachment Installation*.

Equipment Damage Precautions:

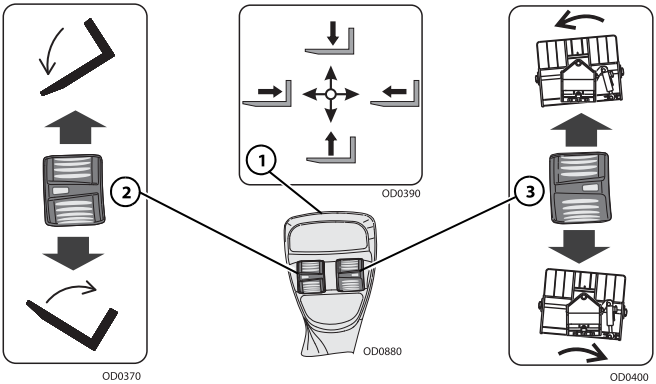
- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

5.10.2 Side Tilt Carriage



Use Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.



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 Tilt:

Roller switch (**3**) controls carriage side tilt.

- Press roller switch down to side tilt right.
- Press roller switch up to side tilt left.

Installation Procedure:

- Refer to *Section — Attachment Installation*.

⚠ WARNING

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

Operation:

- Approach load with forks centered on load and stop telehandler.
- Level telehandler before side tilting carriage to engage load.
- Side tilt carriage to left or right to align forks with load and engage load.
- Raise load slightly and level carriage side to side.
- Travel in accordance with requirements set forth in *Section — General Safety Practices*.

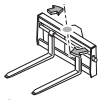
Equipment Damage Precautions:

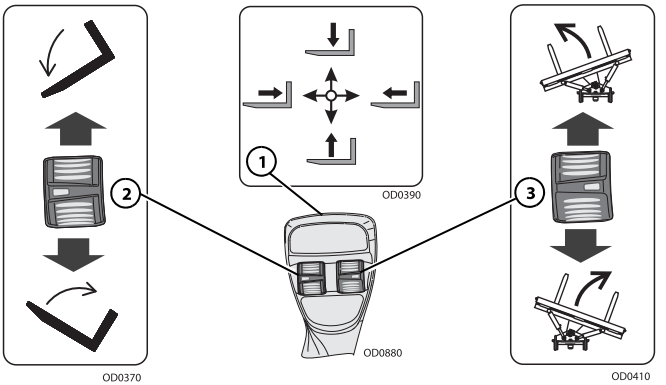
- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

5.10.3 Swing Carriage

Use Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.


OU2150



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 Swing:

Roller switch (**3**) controls carriage swing.

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

Installation Procedure:

- Refer to *Section — Attachment Installation*.

⚠ WARNING

CRUSH HAZARD. Always level forks (horizontally) and telehandler frame before swinging load to side. Swinging unlevel forks could cause load to slide off forks.

⚠ WARNING

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

⚠ WARNING

CRUSH HAZARD. Use retaining pin (if equipped) for locking swing frame to fixed frame when carrying loads greater than 5000 lb (2268 kg). Failure to comply could cause object or load to fall.

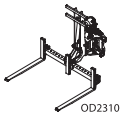
Operation:

- To drive with a load, keep forks pointed forward and travel in accordance with requirements set forth in *Section — General Safety Practices*

Equipment Damage Precautions:

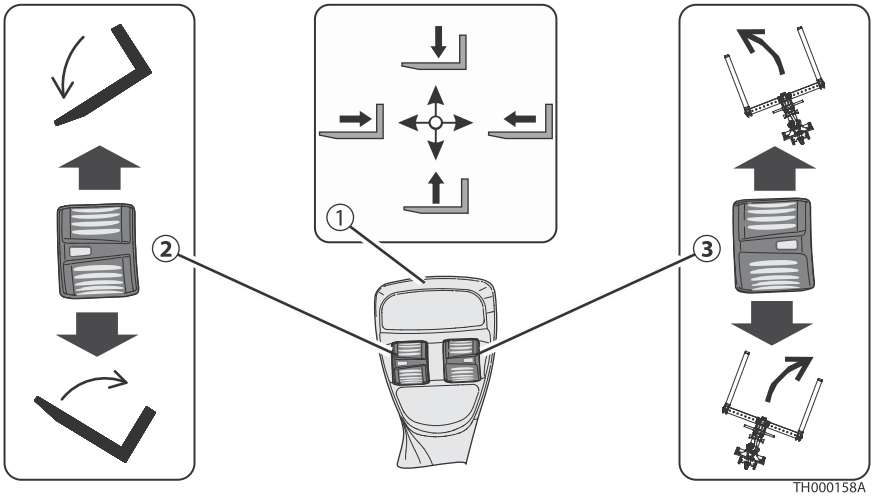
- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

5.10.4 Drywall Swing Carriage



Use Drywall Swing Carriage Attachment Capacity Chart.

To determine maximum capacity, refer to *Section — Telehandler/Attachment/Fork Capacity***.**



Joystick **(1)** controls movement of the boom.

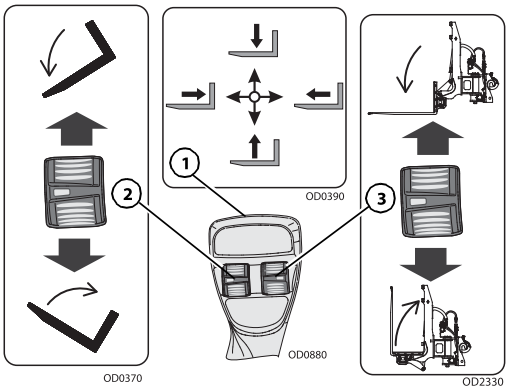
Roller switch **(2)** controls carriage tilt.

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

To Swing:

Roller switch **(3)** controls carriage swing.

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





To Fork Tilt

Press Auxiliary Electric Switch **(4)** on Right Control Panel to activate fork tilt function. Roller switch **(3)** controls fork tilt.

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

Installation Procedure:

Refer to *Section — Attachment Installation*.

⚠ WARNING

CRUSH HAZARD. Always level forks (horizontally) and telehandler frame before swinging load to side. Swinging unlevel forks could cause load to slide off forks.

⚠ WARNING

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

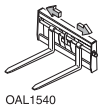
Operation:

- To drive with a load, keep forks pointed forward and travel in accordance with requirements set forth in *Section — General Safety Practices*.
- Use a signal person to assist in positioning of load if necessary.

Equipment Damage Precautions:

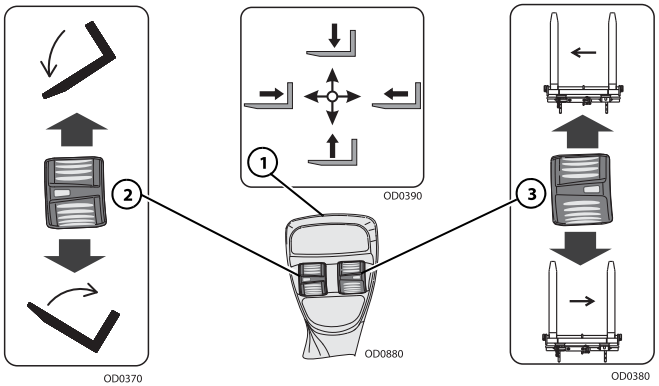
- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

5.10.5 Side Shift Carriage


OAL1540

Use Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.



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.

Installation Procedure:

Refer to *Section — Attachment Installation*.

⚠ WARNING

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

Equipment Damage Precautions:

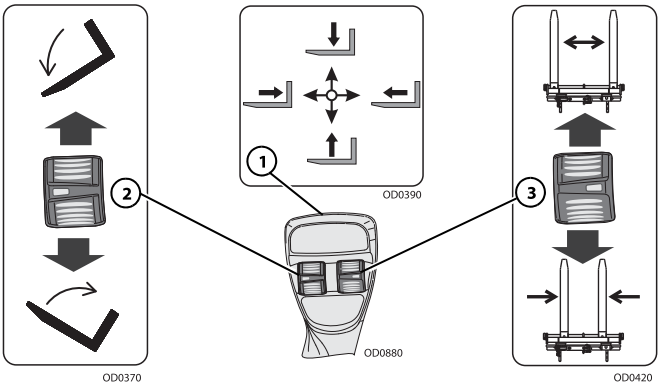
- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

5.10.6 Dual Fork Positioning Carriage



Use Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.



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 *Section — Attachment Installation*.

⚠ 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.

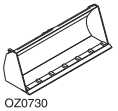
Operation:

- Travel in accordance with requirements set forth in *Section — General Safety Practices*

Equipment Damage Precautions:

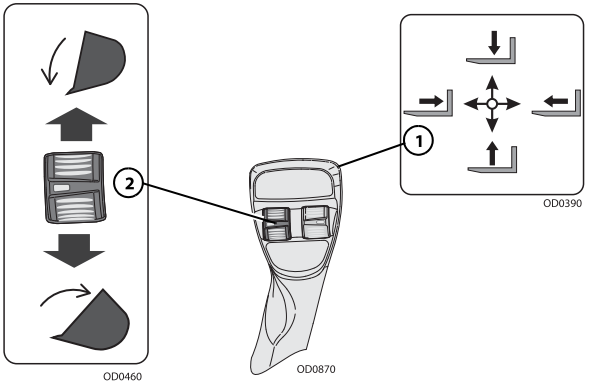
- Do not use forks as a lever to pry material. Excessive prying forces could damage forks or machine structure.
- Do not attempt to lift loads that are attached or connected to another object.

5.10.7 Bucket


OZ0730

Use Appropriate Bucket Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.



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 *Section — Attachment Installation*.

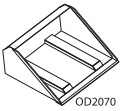
Operation:

- 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 — General Safety Practices*
- Tilt bucket down to dump load.

Equipment Damage Precautions

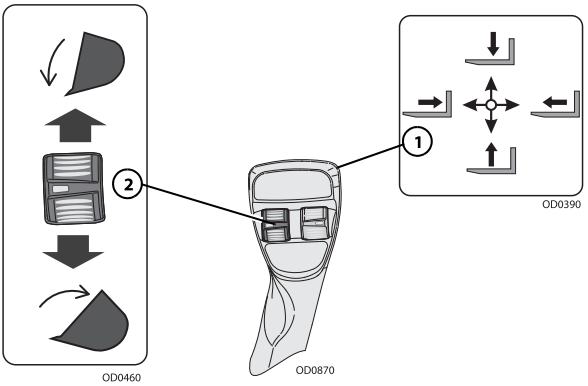
- Except for lifting or dumping a load, the boom must be fully retracted for all bucket operations.
- Do not corner-load bucket. Distribute material evenly within the bucket. Bucket capacity charts are for evenly distributed loads only.
- Do not use bucket as a lever to pry material. Excessive prying 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.

5.10.8 Bucket - Fork Mounted



Use Appropriate Carriage Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.



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 *Section — Attachment Installation*.
- 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.

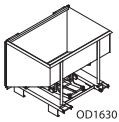
Operation:

- 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 — 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

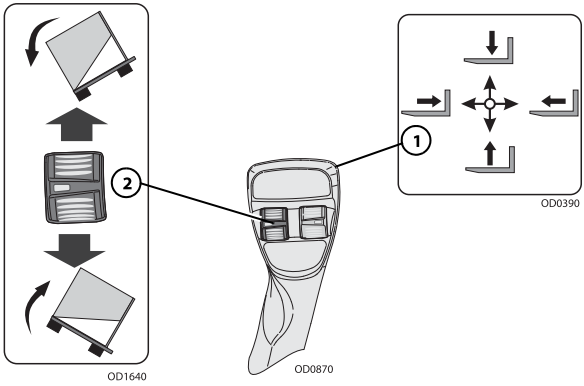
- Except for lifting or dumping a load, the boom must be fully retracted for all bucket operations.
- Do not corner-load bucket. Distribute material evenly within the bucket. Capacity charts are for evenly distributed loads only.
- Do not use bucket as a lever to pry material. Excessive prying forces 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.

5.10.9 Trash Hopper - Fork Mounted



Use Appropriate Carriage Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.



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 *Section — Attachment Installation*.
- 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.

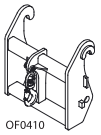
Operation:

- Raise or lower boom to appropriate height for loading material.
- Travel in accordance with requirements set forth in *Section — 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.

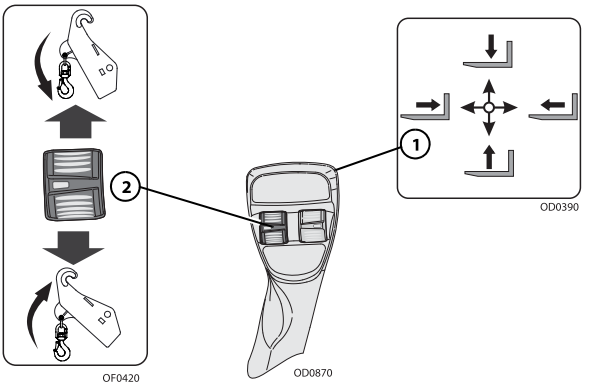
5.10.10 Coupler Mounted Hook



Use Appropriate Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.

Suspend loads in accordance with requirements set forth in *Section — General Safety Practices*.



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.

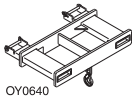
Installation Procedure:

- Refer to *Section — Attachment Installation*.

Operation:

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

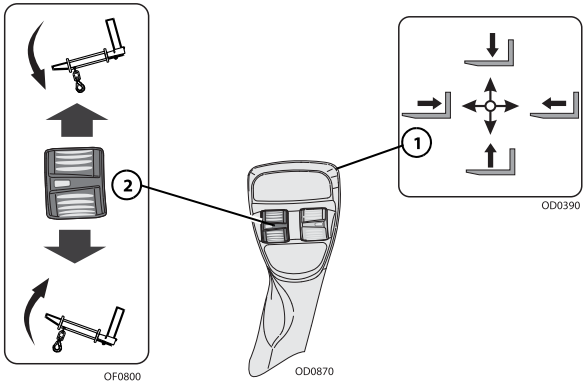
5.10.11 Fork Mounted Hook


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Use Appropriate Carriage Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.

Suspend loads in accordance with requirements set forth in *Section — 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.

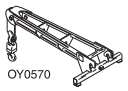
Installation Procedure:

- Ensure carriage is properly installed. Refer to *Section — Attachment Installation*.
- 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).

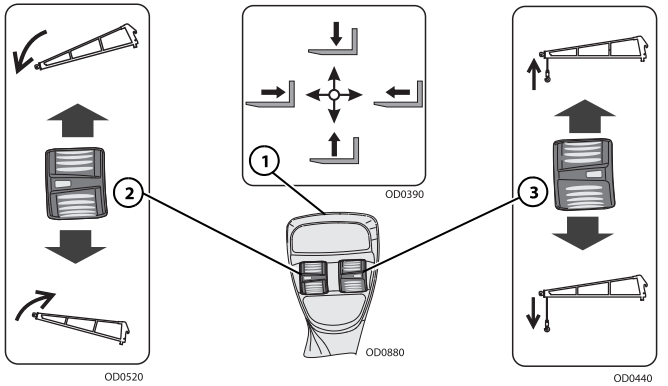
5.10.12 Truss Boom



Use Appropriate Truss Boom Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.

Suspend loads in accordance with requirements set forth in *Section — 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.

Winch Control (if equipped):

Roller switch (**3**) controls truss boom mounted winch.

- Press roller switch down to lower cable.
- Press roller switch up to raise cable.

Note: Use of winch below grade level is permissible.

Installation Procedures

- Refer to *Section — Attachment Installation*.

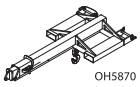
⚠ WARNING

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.

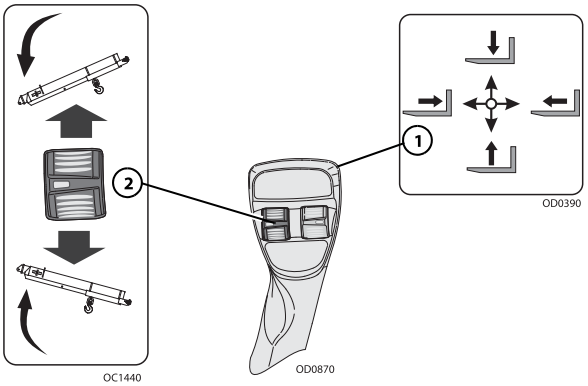
5.10.13 Adjustable Truss Boom - Fork Mounted



Use Appropriate Adjustable Truss Boom Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.

Suspend loads in accordance with requirements set forth in *Section — General Safety Practices*.



Joystick (**1**) controls movement of the boom.

Roller switch (**2**) controls adjustable truss boom tilt.

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

Installation Procedures

- Ensure carriage is properly installed. Refer to *Section — Attachment Installation*.
- Secure the adjustable truss boom to the forks by sliding the adjustable truss boom onto the parent forks and install the retaining pin behind the vertical shank of the fork.

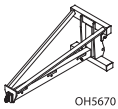
⚠ WARNING

CRUSH HAZARD. Ensure adjustable arm is properly secured using the retaining pin prior to lifting load. Failure to comply could cause object or load to fall.

Operation:

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

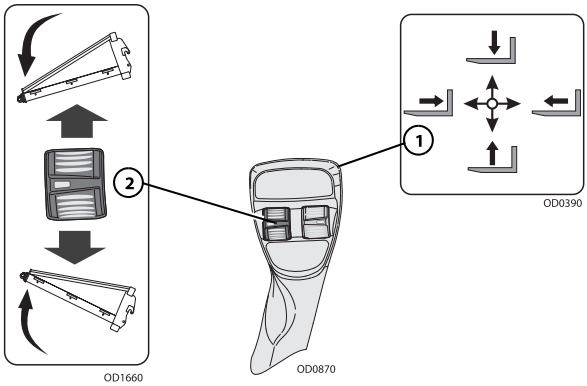
5.10.14 Material Handling Arm



Use Appropriate Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.

Suspend loads in accordance with requirements set forth in *Section — General Safety Practices*.



Joystick (**1**) controls movement of the boom.

Roller switch (**2**) controls material handling arm tilt.

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

Installation Procedures

- Refer to *Section — Attachment Installation*.
- Secure adjustable arm in desired position using the retaining pin.

⚠ WARNING

CRUSH HAZARD. Ensure adjustable arm is properly secured using the retaining pin prior to lifting load. Failure to comply could cause object or load to fall.

Operation:

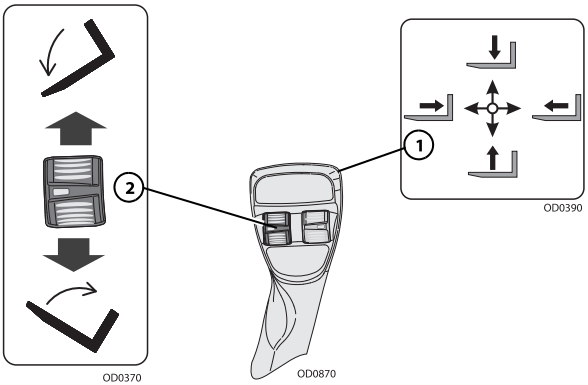
- Weight of rigging must be included as part of total load being lifted.

5.10.15 Fork Extension



Use Appropriate Carriage Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*. The maximum capacity of the carriage when equipped with fork extensions may be reduced to the capacity indicated on the fork extensions. If the load exceeds the capacity of the fork extension, contact JLG to obtain forks and/or fork extensions of the proper load rating and length.



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.

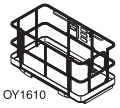
Installation Procedure:

- Ensure carriage is properly installed. Refer to *Section — Attachment Installation*.
- Ensure length and cross section of the parent fork arm is equal to or exceeds the parent fork arm blade length stamped into the fork extension.
- Secure the fork extensions to the forks by sliding the fork extensions onto the parent forks and install the retaining pin behind the vertical shank of the fork.

Operation:

- Heavy part of load must be against carriage backrest.
- Do not allow load center of gravity to be in front of tip of the supporting fork.
- Do not pick up a load or pry materials with tip of fork extensions.

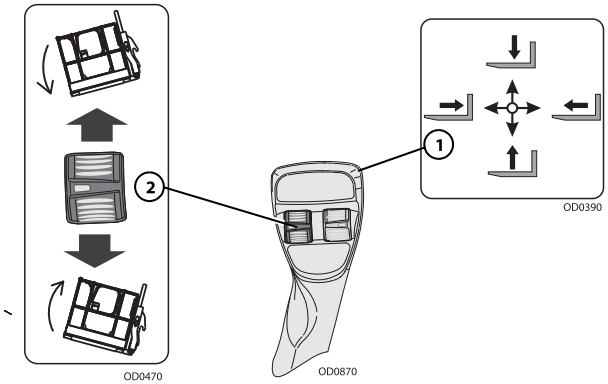
5.10.16 Personnel Work Platform - Fork Mounted



Use Fork Mounted Platform Attachment Capacity Chart

To determine maximum capacity, refer to *Section — Telehandler/Attachment/ Fork Capacity*.

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 *Section — Attachment Installation*.
- 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

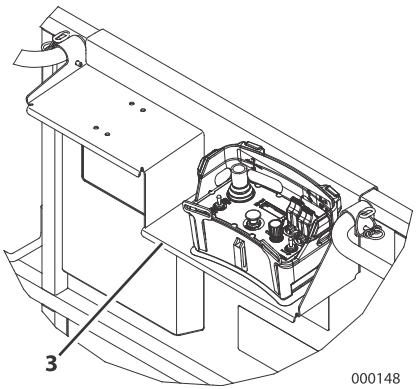
FALL HAZARD. Never tilt the platform forward, rearward, or level the machine when the platform is occupied.

Remote Boom Control (if equipped)

When operating remote boom control while on platform, the operator must ensure the ability to view boom angle and boom extension indicators.

⚠ WARNING

When the remote boom control is utilized, the personnel work platform is designed as a single station operation machine. Do not allow anyone in the cab while machine is being operated.



The remote boom control should be placed in the docking station (**3**).

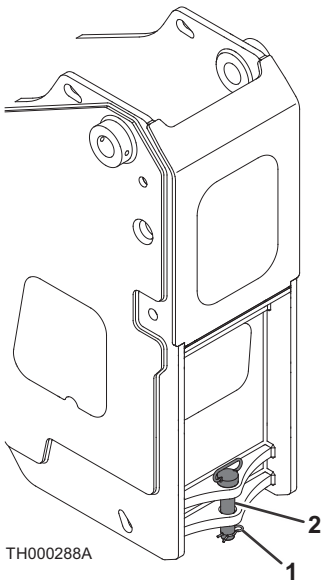
5.11 HITCHES

Machines may be equipped with various types of hitches. If not previously installed, secure hitch to machine with hardware supplied with installation.

Maximum towing capacity shall be the smallest of the telehandler and hitch capacities. Refer to *Section 9 - Specifications* for hitch capacity details.

Note: Ensure hitch is in lowest position when towing trailer. Speed and/or load may need reduced if traveling on ground which is not level.

5.11.1 Retrieval Hitch



Connecting for retrieval:

1. Remove safety pin (**1**) and pull pin (**2**) from hitch.
2. Place pin through hitch and retrieval device. Secure pin with safety pin.

Note: Retrieval devices are not intended for trailer towing applications.

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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).

6.1.1 Moving Short Distances

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

6.1.2 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.

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”.

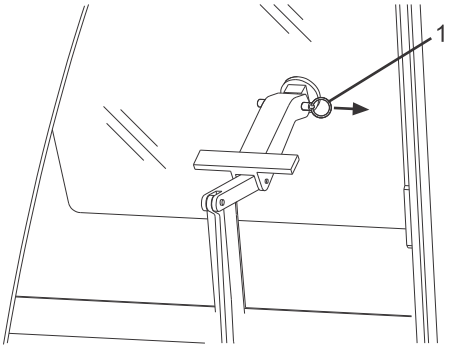
4. Block all four wheels.
5. Section off a large area under the boom to restrict any personnel from entering this area.
6. See Service Manual for information.

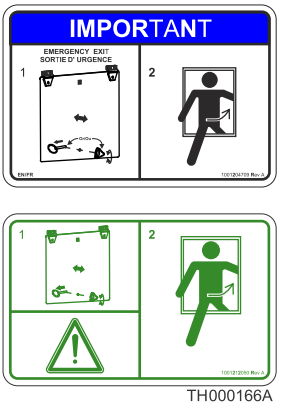
6.3 EMERGENCY EXIT FROM ENCLOSED CAB

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.

6.3.1 Inside Cab

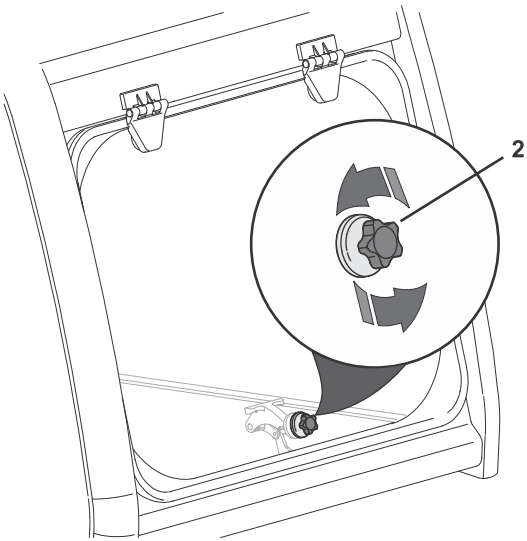


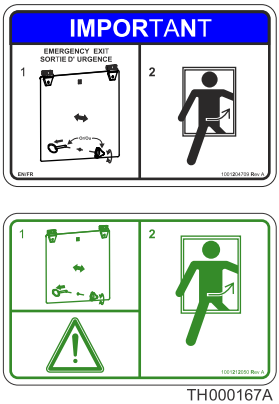


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1. Remove the latch pin (**1**).
2. Swing open the window and exit the telehandler.

6.3.2 Outside Cab





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

6.4 CLEARSKY SMART FLEET™ - LOCKED OUT STATE

The machine may be placed into a Locked Out state remotely through ClearSky Smart Fleet.

If the CS550 (ClearSky® LED Motion / Amber Beacon) is removed from a machine or disconnected from the control system through damage, the machine may also be placed into a Locked Out state.

NOTICE

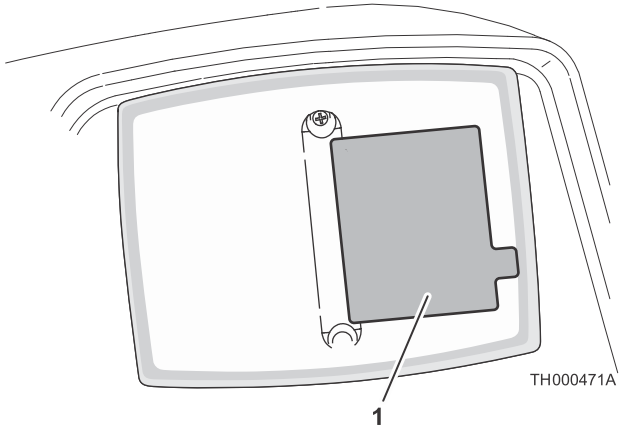
Contact the ClearSky Smart Fleet™ account owner if the machine is in a Locked Out state.

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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.

7.1.1 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

7.2 GENERAL MAINTENANCE INSTRUCTIONS

Prior to performing any service or maintenance on the telehandler, follow the *Shutdown Procedure* 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 the engine running.

7.3 MAINTENANCE SCHEDULES

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

7.3.1 Every 10 Hours



Check Fuel Level



Check Tire Condition and Pressure



Check Engine Coolant Level



Check Engine Oil Level



Check Hydraulic Oil Level



Drain Fuel/Water Separator



Check Engine Coolant Level



Check DEF Level (if equipped for ULS)



Check Air Cleaner

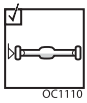


Additional Checks (see Section 8)

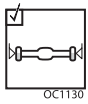
7.3.2 First 50 Hours



Check Wheel Lug Nut Torque



Check Axle Oil Level



Check Wheel End Oil Level



Change Hydraulic Tank Breather



Change Hydraulic Filters



Check Boom Chain Tension

7.3.3 Every 50 Hours



Lubrication Schedule



Check Washer Fluid



Check LSI System



Check Cab Filter

7.3.4 First 250 Hours



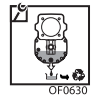
Change Axle Oil



Change Wheel End Oil



Change Dual Pump Drive Oil

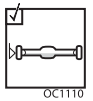


Change Drop Box Oil

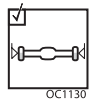
7.3.5 Every 250 Hours



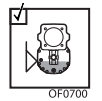
Lubrication Schedule



Check Axle Oil Level



Check Wheel End Oil Level



Check Drop Box Oil



Check Dual Pump Drive Oil



Check Boom Wear Pads



Check Boom Chains

7.3.6 First 500 Hours



Change Engine Oil and Filter

7.3.7 Every 500 Hours



Change Hydraulic Tank Breather



Change Hydraulic Filters



Check Wheel Lug Nut Torque

7.3.8 Every 1000 Hours



Change Axle Oil



Change Wheel End Oil



Check Air Intake System



Change Fuel Filters



Check Battery



Change Engine Oil and Filter



Change Dual Pump Drive Oil



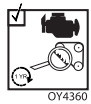
Change Drop Box Oil



Check Park Brake



Check LSI Calibration



Check Fan Belt



Check Boom Chain Tension



Lubrication Schedule

Note: If using fully synthetic oil that meets Cummins Engineering Standard (CES) 20086, oil change intervals are every 1,000 hours or 1 year. If using conventional oil or an oil that does not meet CES 20086, oil change intervals are 500 hours or 6 months. If the engine oil being used does not meet CES 20086, then the oil must meet the CES 20081 standard. It is also recommended to use Cummins genuine replacement lube and fuel filters or equivalent JLG branded filters.

7.3.9 Every 1500 Hours



Change Hydraulic Fluid and Filters

7.3.10 Every 2000 Hours



Change DEF Tank Filter (if equipped for ULS)



Clean Engine Coolant Strainer (if equipped for ULS)



Change Crankcase Vent Filter

7.3.11 Every 4000 Hours



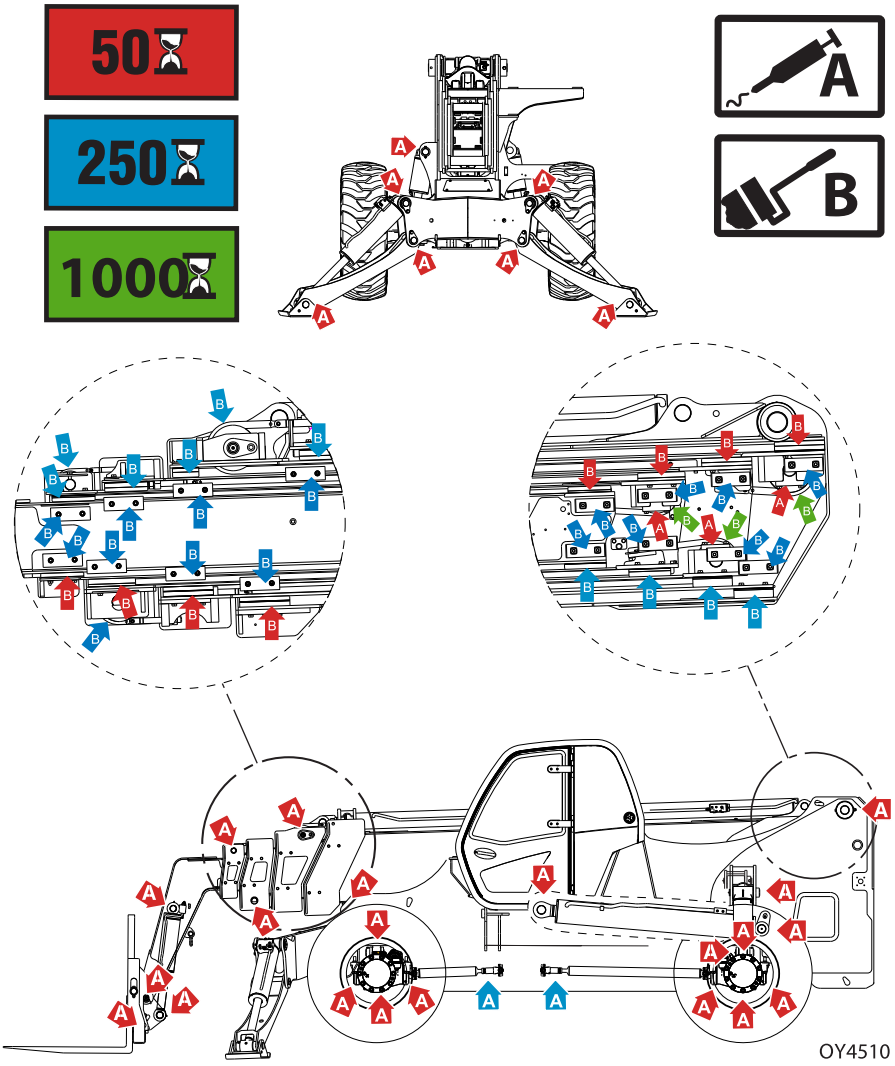
Change DEF Pump Filter (if equipped for ULS)

7.3.12 Every 5000 Hours



Engine Valve Lash Adjustment

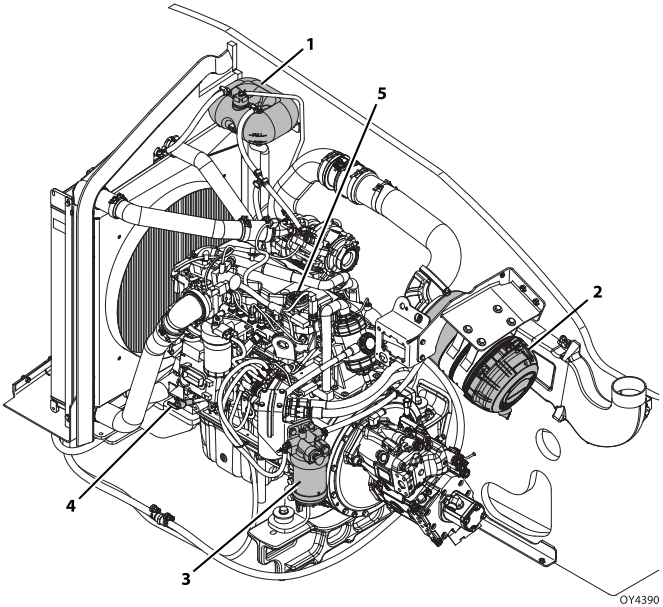
7.4 LUBRICATION SCHEDULES



7.5 OPERATOR MAINTENANCE INSTRUCTIONS

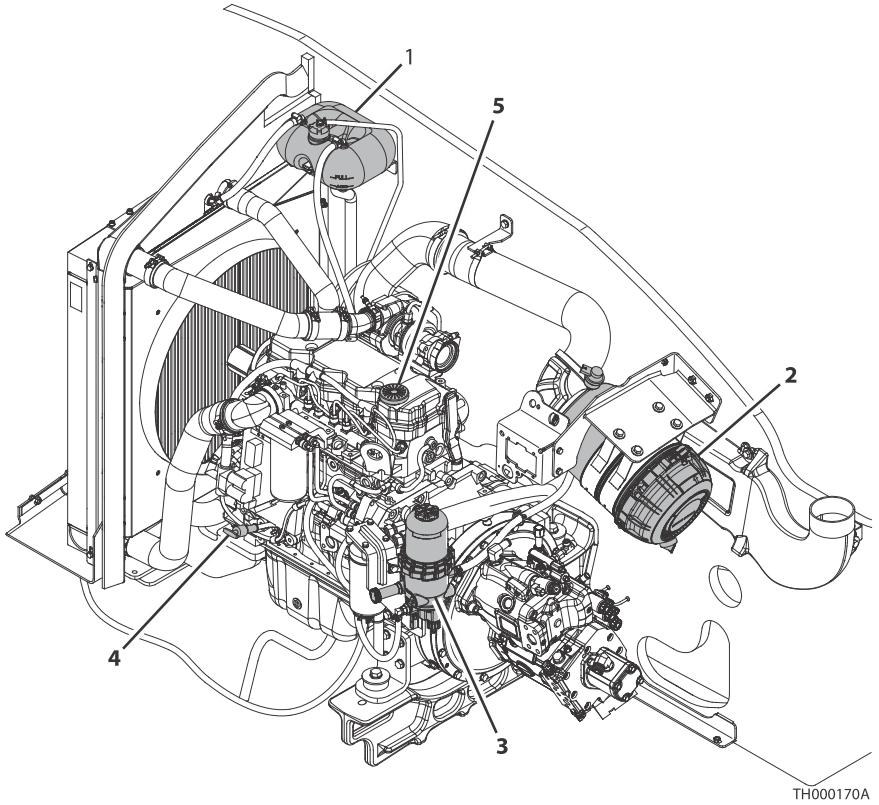
7.5.1 Engine Maintenance Components

If Equipped for ULS



1. **Surge Tank:** See *Section — Engine Cooling System, page 190*.
2. **Air Cleaner:** See *Section — Air Intake System, page 184*.
3. **Primary Fuel Filter:** See *Section — Fuel System, page 180*.
4. **Engine Oil Dipstick:** See *Section — Engine Oil, page 183*.
5. **Engine Oil Cap:** See *Section — Engine Oil, page 183*.

If Equipped for LS

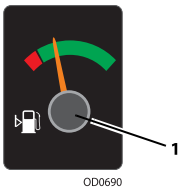


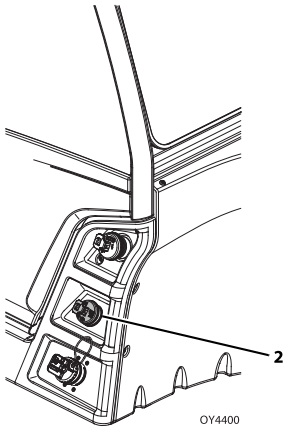
1. **Surge Tank:** See *Section — Engine Cooling System, page 190*.
2. **Air Cleaner:** See *Section — Air Intake System, page 184*.
3. **Primary Fuel Filter:** See *Section — Fuel System, page 180*.
4. **Engine Oil Dipstick:** See *Section — Engine Oil, page 183*.
5. **Engine Oil Cap:** See *Section — Engine Oil, page 183*.

7.5.2 Fuel System

Fuel Level Check

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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 *Section — Shut-Down Procedure*.
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

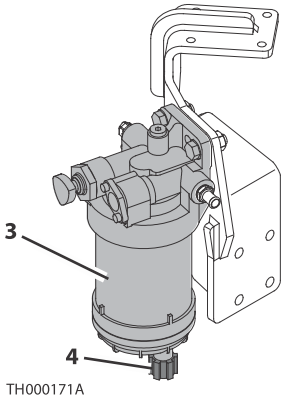
EQUIPMENT DAMAGE. Do not allow machine to run out of fuel during operation. See Engine Operation & Maintenance Manual for details prior to servicing.

Drain Fuel/Water Separator

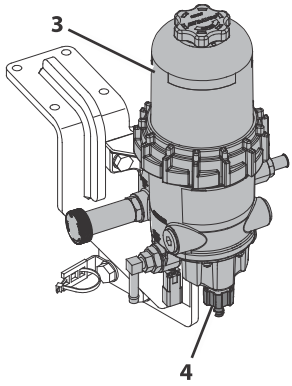
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IF EQUIPPED FOR ULS



IF EQUIPPED FOR LS

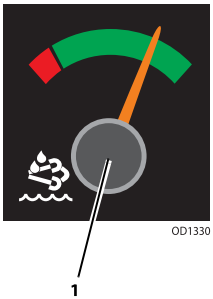


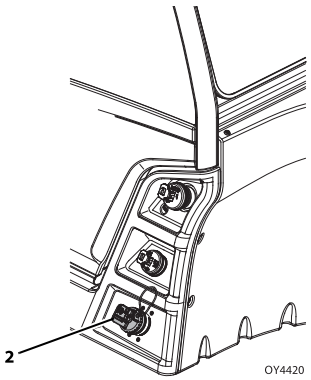
1. Perform *Section — Shut-Down Procedure*.
2. Open engine cover.
3. Loosen drain cock (**4**) on underside of fuel filter (**3**) and allow all water to drain into a glass until clear fuel is visible. Tighten drain cock.
4. Close and secure engine cover.

7.5.3 Emission System (if equipped for ULS)

Diesel Emission Fluid (DEF) Level Check







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 *Section — Shut-Down Procedure*.
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.

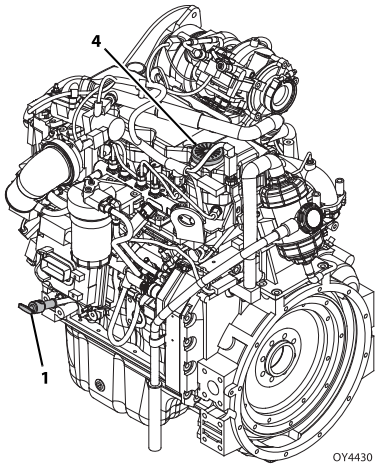
NOTICE

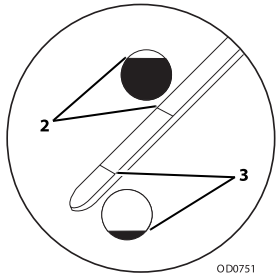
EQUIPMENT DAMAGE. Carefully fill DEF tank to avoid system contamination.

7.5.4 Engine Oil

Engine Oil Level Check

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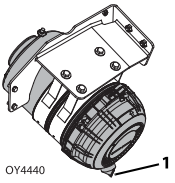


1. Perform *Section — Shut-Down Procedure*.
2. Open engine cover
3. Remove dipstick (**1**) and check oil mark. Oil should be between full (**2**) and add (**3**) marks of dipstick.
4. Replace dipstick.
5. If oil is low, remove oil fill cap (**4**) and add oil to bring oil up to full mark in crosshatch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

7.5.5 Air Intake System

Air Cleaner Check

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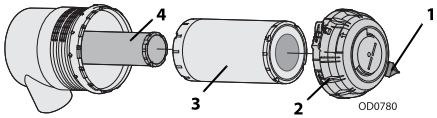


1. Perform *Section — Shut-Down Procedure*.
2. Open engine cover.
3. Remove dust from vacuator valve (**1**) by squeezing bottom of valve to allow loose particles to fall out.
4. Close and secure engine cover.

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.

Element Change



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

1. Perform *Section — Shut-Down Procedure*.
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.

7.5.6 Tires

Tire Air Pressure Check



1. Perform *Shut-Down Procedure*.
2. Remove valve stem cap.
3. Check tire pressure.
4. Add air if required. See *Section — Tires* for tire pressures.
5. Replace valve stem cap.

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.

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)

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

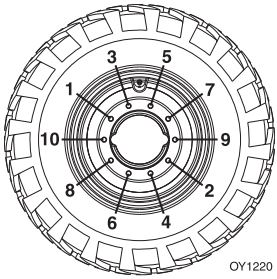
CRUSH HAZARD. The wheels are a three piece design and are to be serviced by a Qualified Tire Repair Center ONLY.

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 *Section — Tires* for torque value.

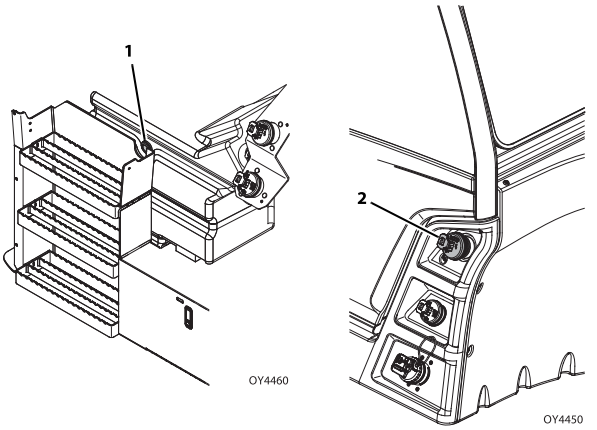
⚠ WARNING

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.

7.5.7 Hydraulic Oil

Hydraulic Oil Level Check

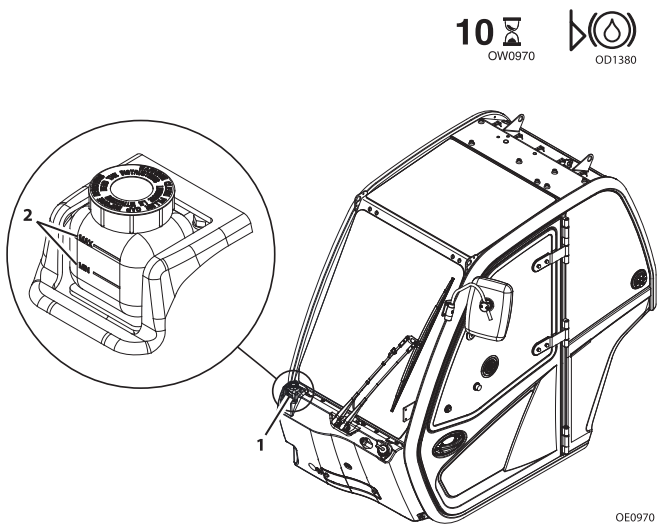
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1. Be sure all cylinders are fully retracted and machine is level.
2. Perform *Section — Shut-Down Procedure*.
3. Allow hydraulic oil to cool. Check fluid level at sight gauge (**1**). Oil level should be visible in gauge window.
4. Remove fill cap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

7.5.8 Brake Fluid

Brake Fluid Level Check

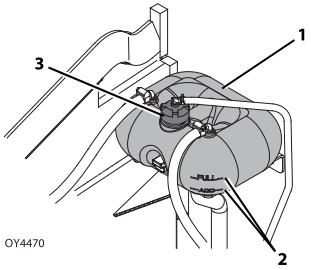


1. Perform *Section — Shut-Down Procedure*.
2. Check the brake fluid level (**1**). Fluid should be between Max and Min (**2**) marks on brake reservoir.
3. If fluid is low, remove the product from service. See Service Manual for information.

7.5.9 Engine Cooling System

Engine Coolant Level Check

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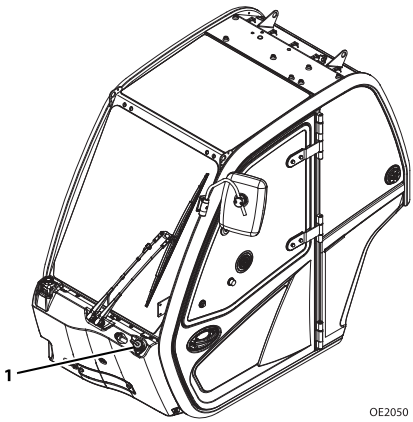
1. Perform *Section — Shut-Down Procedure*.
2. Open engine cover.
3. Check in surge tank (**1**). Coolant should be between Full and Add (**2**) marks on surge tank.
4. If coolant is low, allow fluid to cool.
5. Remove surge tank cap (**3**) slowly. Add coolant as required.
6. Replace surge tank cap.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

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

7.5.10 Windshield Washer System

Windshield Washer Fluid Level Check



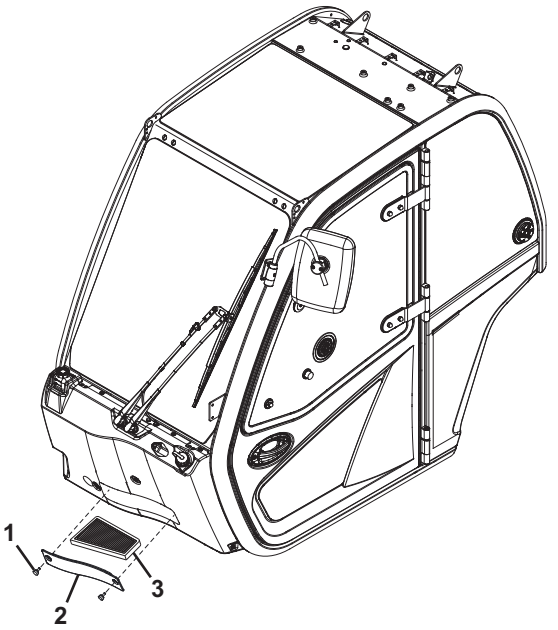


1. Perform *Section — Shut-Down Procedure*.
2. Remove reservoir cap (**1**).
3. Windshield washer fluid should be visible in the reservoir.
4. If washer fluid level is low, add fluid as needed.
5. Replace reservoir cap.

7.5.11 Cab Air Filters (if equipped)

Cab Air Filters Check

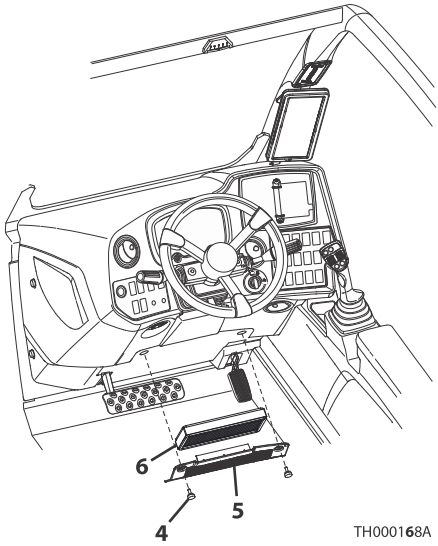
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1. Perform *Shut-Down Procedure*.
2. Remove two thumb screws **(1)** and panel **(2)** from front of cab.
3. Remove filter **(3)** and inspect.
4. If filter is not damaged, clean and place back under dash. If damaged, replace filter.

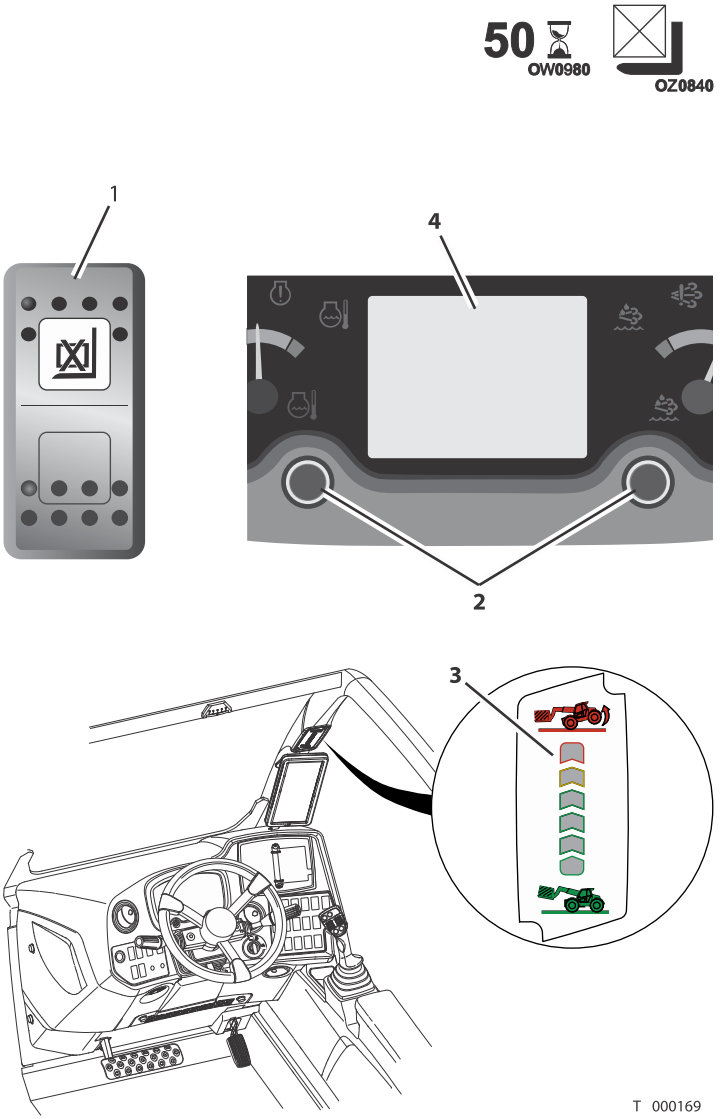
5. Replace panel on front of cab and secure with thumb screws.



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.

7.5.12 Load Stability Indicator System

Check LSI System



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.
2. Fully retract boom.

3. Fully raise boom.
4. Fully deploy outriggers.
5. Initiate “Check LSI System”:
   a. Press and hold the two control buttons (**2**) on instrument panel.
   b. Double press LSI override switch (**1**) on left control panel, followed by a sustained third press.
6. If check is successful, the LSI indicator LEDs (**3**) will illuminate sequentially then repeat. LSI indicator LEDs will resume normal functionality when control buttons are released.
7. 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)

Reverse Sensing System Check

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OW0970

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).

8.3 AIR SHUTOFF VALVE (ASOV) (IF EQUIPPED)

Air Shutoff Valve Test

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OW0970

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 *Section— Controls*).
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

9.1.1 Fluids

If Equipped for ULS

Compartment or System	Type and Classification	Viscosities	Ambient Temperature Range			
			°F		°C	
			Min	Max	Min	Max
Engine Crankcase	API CK-4 CES-20086 Fully Synthetic*	SAE 5W-40	-13	115	-25	46
		SAE 15W-40	15	115	-9	46
		SAE 10W-30	10	104	-12	40
		SAE 5W-30	-13	104	-25	40
		SAE 0W-30	-40	104	-40	40
Gearbox, Dual Drive	Spirax S4 TXM	10W-30	-4	115	-20	46
	Spirax S3 TLV	75W-80	-40	14	-40	-10
Axle Differential, Axle Wheel Ends	API GL5 LS Oils	80W-90 LS	-4	115	-20	46
		75W-90 LS	-40	115	-40	46
Hydraulic System	Tellus S4 VX 32		-40	115	-40	38
	Spirax S4 TXM		12	115	-11	46
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	Ethylene Glycol and Water CES 14439 or CES 14603	50% Ethylene Glycol 50% Water	-26	115	-32	46
		55% Ethylene Glycol 45% Water	-40	104	-40	40
		60% Ethylene Glycol 40% Water	-40	86	-40	30

Compartment or System	Type and Classification	Viscosities	Ambient Temperature Range			
			°F		°C	
			Min	Max	Min	Max
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 (DEF)	ISO22241 — 1	32.5% Urea				
Brake Fluid	Pennzoil Dex-111/ MercATF		-40	115	-40	46
Air Conditioning	Refrigerant R-134-a	Tetrafluoroethane				

Note: *See Note on *Section — Lubrication and Maintenance* for details.

If Equipped for LS

Compartment or System	Type and Classification	Viscosities	Ambient Temperature Range			
			°F		°C	
			Min	Max	Min	Max
Engine Crankcase	API CI-4 CES-20078	SAE 5W-40	-13	115	-25	46
		SAE 15W-40	15	115	-9	46
		SAE 10W-30	10	104	-12	40
		SAE 5W-30	-13	104	-25	40
		SAE 0W-30	-40	104	-40	40
Gearbox, Dual Drive	Mobilfluid 424 Spirax S4 TXM	10W-30	-4	115	-20	46
	Spirax S3 TLV	75W-80	-40	14	-40	-10
Axle Differential, Axle Wheel Ends	API GL5 LS Oils	80W-90 LS	-4	115	-20	46
		75W-90 LS	-40	115	-40	46
Hydraulic System	Tellus S4 VX 32		-40	100	-40	38
	Spirax S4 TXM		12	115	-11	46
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	Ethylene Glycol and Water CES 14439 or CES 14603	50% Ethylene Glycol 50% Water	-26	115	-32	46
		55% Ethylene Glycol 45% Water	-40	104	-40	40
		60% Ethylene Glycol 40% Water	-40	86	-40	30
Fuel	EN590 EN 15940 ASTM D 975 Grade 1-D ASTM D 975 Grade 2-D (Maximum B5 Biodiesel)	Low Sulfur(S ≤ 15 mg/kg)				
Brake Fluid	Pennzoil Dex-111/ MercATF		-40	115	-40	46
Air Conditioning	Refrigerant R-134-a	Tetrafluoroethane				

9.1.2 Capacities

Engine Crankcase Oil
Capacity with Filter Change . . . . . 16.9 qt (16 L)

Fuel Tank
Capacity . . . . . 43 gal (163L)

Diesel Exhaust Fluid Tank (if equipped for ULS)
Capacity . . . . . 5.7 gal (21,5 L)

Cooling System
System Capacity . . . . . 5.8 gal (22,0 L)

Hydraulic System
System Capacity . . . . . 90 gal (342 L)
Reservoir Capacity to Full Mark . . . . . 44.4 gal (168 L)

Dual Pump Drive
Capacity . . . . . 1.1 qt (1,05 L)

Drop Box
Capacity . . . . . 2.6 qt (2,5 L)

Axles

Differential Housing Capacity

Front . . . . . 13.2 qt (12,5 L)
Rear . . . . . 13.7 qt (13,0 L)

Wheel End Capacity

Front . . . . . 1.9 qt (1,75 L)
Rear . . . . . 1.9 qt (1,75 L)

Air Conditioning System (if equipped)
System Capacity . . . . . 2.6 lb (1,2 kg)

Brake Fluid
Capacity . . . . . 1.1 qt (1,0 L)

9.1.3 Tires

17.5-25, 20 Ply

Foam. . . . . Approx 715 lb (324,3 kg)

Wheel Lug Nut
Torque. . . . . 507.5 ±32.5 Nm (374 ±24 lb-ft)

9.1.4 Performance

Maximum Lift Capacity . . . . . 10,000 lb (4536 kg)

Maximum Lift Height . . . . . 75 ft (22860 mm)

Capacity at Maximum Height . . . . . 6,000 lb (2720 kg)

Maximum Forward Reach . . . . . 60 ft (18288 mm)

Capacity at Maximum Forward Reach

Outriggers Engaged. . . . . 2,100 lb (950 kg)
Outriggers Not Engaged . . . . . 0 lb (0 kg)

Reach at Maximum Height

Outriggers Engaged. . . . . 13 ft (3962 mm)
Outriggers Not Engaged . . . . . 16 ft (4876 mm)

Auxiliary Hydraulic Circuit Max Flow. . . . . 18 gpm (68 lpm)

Maximum Travel Speed (see note). . . . . 17 mph (28 kph)

Hitch Capacity (no load on attachment) . . . . . 10,000 lb (4536 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.

9.1.5 Dimensions

Note: Values will vary depending on machine configuration.

Maximum Overall Width . . . . . 98 in (2496 mm)

Maximum Track Width . . . . . 80.3 in (2040 mm)

Wheelbase . . . . . 142 in (3600 mm)

Length at Front Wheels . . . . . 192.3 in (4885 mm)

Overall Length (no forks) . . . . . 289 in (7336 mm)

Ground Clearance . . . . . 17 in (440 mm)

Turn Radius - Over Tires . . . . . 160 in (4064 mm)

Turn Radius - Curb to Curb . . . . . 160 in (4064 mm)

Maximum Operating Weight (no attachment) . . . . . 43,766 lb (19 852 kg)

Distribution of Maximum Operating Weight

(no attachment, boom level and fully retracted)

Front Axle . . . . . 21,229 lb (9629 kg)
Rear Axle . . . . . 22,537 lb (10 223 kg)

Maximum Ground Bearing Pressure

Outriggers . . . . . 166.9 lb/in² (11,7 kg/cm²)

Tires

17.5-25, 20 Ply

Foam . . . . . 164.4 lb/in² (11,6 kg/cm²)

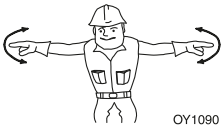
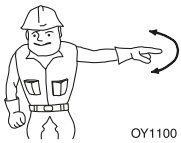
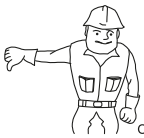
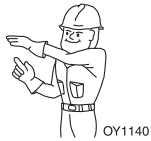
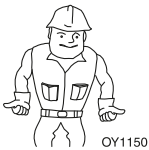
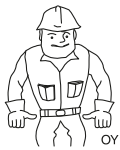
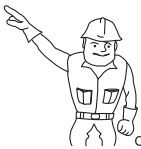
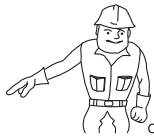
Serial Number _____

Any additional required certificates can be attached to the rear cover of this manual or stored in the manual box.

Date	Comments

Inspection, Maintenance and Repair Log

Hand Signals

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

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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