



OPERATOR'S GUIDE

MODEL: _____

SERIAL NO: _____



IMPORTANT!
Read contents carefully prior to operation.





X-180S - 360L
XB-180S - 300L
XH-300L - 400L
X-400M - 700L
XH-550M - 700L
X-800S - 925L
XH-1000
Industrial Trucks

Equipped with
“Dream Cab”



IMPORTANT!

Read contents carefully prior to operation.



WARNING

DEATH OR SERIOUS INJURY MAY RESULT FROM IMPROPER OPERATION OF THIS MACHINE.

- Operator must be trained and knowledgeable of the operators guide, safety manual, and OSHA STANDARD 29 CFR, 1910.178 for powered industrial trucks.
- Capacity is with mast in vertical position and load retracted.
- Capacity greatly decreases with tilting, high load lifting, acceleration, braking, sharp turning, high wind velocity, and poor yard conditions.
- Tilt (mast and load out) only when load is over a stack.
- Visibility may be impaired by structural design (ALWAYS look in the direction of travel; DO NOT rely on mirrors.)
- Do not operate with bystanders present.
- Always travel with load in lowest possible position that allows good visibility.
- Always wear seat belt while machine is in operation.
- Do not attempt to jump from machine in event of tip over. Remain seated with seat belt fastened.

TAYLOR MACHINE WORKS, INC.

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Foreword

This Operator's Guide is intended to give the operator a basic understanding of the Taylor lift truck and how it operates - safely and efficiently. It includes preoperational checks, but does not concern itself with maintenance. (Refer to the Maintenance Manual for detailed maintenance and lubrication procedures.)

This booklet cannot explore every aspect of operating such a complex machine as a heavy duty lift truck. In addition to knowing the equipment, it takes skill in using it, a healthy mental and physical condition, constant alertness, and good judgment.

Taylor is constantly improving the design and performance of the "Big Red" machines to ensure safety and productivity; but, the operator is the most important factor in the operation of a lift truck!

Because the operator is so vital to safety and production, a list of precautions appears first. Read and practice these until they become second nature.

This vehicle is certified to meet the applicable design and performance criteria required for Powered Industrial Trucks in OSHA Safety and Health Standards, Title 29 CFR, Part 1910.178, and the applicable design and performance requirements in ANSI B56.1 that were in effect at the time of manufacture. These standards also apply to the user and must be adhered to while operating this vehicle.

Taylor products are updated periodically, and changes to literature such as operator guides and other manuals are sometimes necessary. The user is encouraged to contact their authorized Taylor dealer or Sudden Service Inc. periodically to check for availability of updated versions of this publication applicable to this model or truck series.

Record for future reference:

Model _____

Serial No. _____

Engine _____

Transmission _____

Drive Axle _____

Date placed in service _____

LIMITED WARRANTY

Products manufactured by Taylor Machine Works, Inc. (Taylor) and sold are warranted by Taylor to be free from defects in material and workmanship, under normal use and service, when Taylor products are operated at or below rated capacity* in accordance with operating instructions.

This warranty is limited to repair or replacement, (as Taylor may elect, and at an establishment authorized by Taylor) of such parts as shall appear to Taylor upon inspection to have been defective in material or workmanship.

This warranty period shall begin on the delivery date of the product to the purchaser and end on whichever occurs first of the warranty period, twelve (12) months or two-thousand (2,000) hours. During this period, Taylor will provide genuine Taylor parts, labor, and travel time to replace or repair any part furnished by Taylor and found to be defective in material and workmanship.** If a defect in material and workmanship is found during the twelve (12) months and/or two-thousand (2,000) hours whichever occurs first of the warranty period, Taylor will replace lubricating oil, filters, antifreeze, and other service items made unusable by the defect. Only genuine Taylor parts provided by Taylor's Sudden Service, inc. Will be used during the warranty period.

THE FOLLOWING ITEMS ARE NOT COVERED BY THIS WARRANTY:

1. Normal maintenance services and parts or supplies used therein including, without limitation, engine tune-up, wheel alignment, brake and linkage adjustment, lubrication services, tightening and adjusting such as bolts, screws, hoses, fittings, etc., Replacement of fuses, bulbs, filters, tune-up parts, fluids and brake and clutch linings, glass; shop supplies such as rags, oil dry, hand soaps, degreasers, cleaning solutions including brake clean, etc.; And adjustments which are a part of the required or recommended pre-delivery inspection and periodic inspections in accordance with operator's manual.
2. Leaks due to o-ring failures and fittings are covered up to one-thousand (1,000) hours or six (6) months (whichever comes first) from the date in service.
3. Normal deterioration of appearance due to use and exposure; or conditions resulting from misuse, negligence, or accident.
4. Any product on which any of the required or recommended periodic inspections or services have not been made.
5. Any parts or accessories, installed on the product which were not manufactured or installed by Taylor whether or not such parts or accessories were selected, recommended or installed by Taylor (including without limitation, engines, tires, batteries, air conditioners, air dryers, etc.). Such parts or accessories shall be covered by the warranties given by the manufacturers thereof and any claim thereof shall be made to such manufacturers.
6. Loss of time, inconvenience, loss of equipment use, other consequential damages or other matters not specifically included.

Taylor parts and assemblies which are furnished and installed under this warranty are themselves within the coverage of the machine warranty and are covered only for the duration of the original machine warranty period.

NOTE: All international warranty parts shipments are Freight On Board (F.O.B.) point of debarkation, duties, tariffs, or local taxes excluded.

This warranty is expressly in lieu of any other warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose.

Purchased parts are warranted for ninety (90) days from invoice date to be free from defects in material or workmanship. Parts only, no labor. (This applies after the truck is outside limited warranty period) ***

Taylor Machine Works, Inc. does not authorize any person to create (for Taylor) any other obligation or liability in connection with Taylor products.

*For example, a machine rated capacity at only standard load center is the rated lift capacity at less than load center. That is, a machine rated at 20,000 pounds at 24-inch load center implies 20,000 pounds is the maximum lift capacity even though the load center may be less than 24-inches. Subjecting Taylor products to conditions or loads exceeding those stipulated is justification for immediate cancellation of warranty for products involved.

**Travel reimbursement will be limited to six (6) hours maximum paid per claim, or to the nearest Taylor machine works' dealer location in the assigned territory in which the truck is based.

***However, if Sudden Service, Inc. mechanics are at fault due to improper workmanship, labor and travel will be covered for the repair. Labor is based on SRT guidelines (SRT guidelines are available from warranty department /sudden service, inc.)

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TMW-057-8 (8/17)

NOTE: The above information pertaining to the details of the Limited Warranty was current for this model at the time of publication. Warranty policy can change and must be verified through your local dealer.

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TAYLOR MACHINE WORKS, INC.
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Safety First



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



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



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



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

Observe these rules. They are universally recognized as practices that reduce the risk of injury to yourself and others, or damage to the machine or load.

⚠️WARNING: Death or serious injury can occur from being careless with the truck. Do not operate the truck or attempt to perform maintenance on the truck while under the influence of alcohol, drugs, or any other medications or substances that slow reflexes, alter safe judgment, or cause drowsiness.

Operate the truck from the operator's seat only. Never place any part of your body between mast uprights or outside the operator's compartment.

Always wear the seat belt while the truck is in operation.

Read the *Safety Check* booklet (TMW-072).

Taylor Machine Works, Inc. publishes *Safety Check* (TMW-072), a booklet citing some safety precautions to observe during lift truck operation. One copy is shipped with each truck; additional copies are available for a nominal fee from the authorized Taylor dealer from which the equipment was initially purchased. Also, *Safety Check* (TMW-072) can be downloaded free of charge, in various languages, from the Taylor website www.taylorbigred.com/safety. View the "Safety Check Video Training Program" video and take the operator's exam provided with material to ensure the operator understands OSHA, ANSI, and Taylor safety regulations before operating this machine.

Trained and Qualified Operators

⚠️WARNING: Untrained operators can cause death or serious injury. Federal law prohibits operation by untrained operators; see OSHA Title 29 CFR 1910.178.

The Operator must be trained and qualified in the operations of this truck. Thoroughly read this Operator's Guide, then return the guide to its proper place in the truck (for ready reference). Observe all OSHA regulations and all safe operating regulations.

Entering / Exiting the Cab

Face the truck when getting on or off the truck. One hand and two feet or two hands and one foot must be in contact with the truck at all times (3 point contact).

Neutral Start Position

Be certain the transmission and hydraulic controls are in neutral and parking brake must be applied before starting the engine.

Testing Controls

Test steering, brakes, accelerator and electrical systems for proper operation before placing the truck into service at each shift. Additionally, test the hydraulic controls for proper operation.

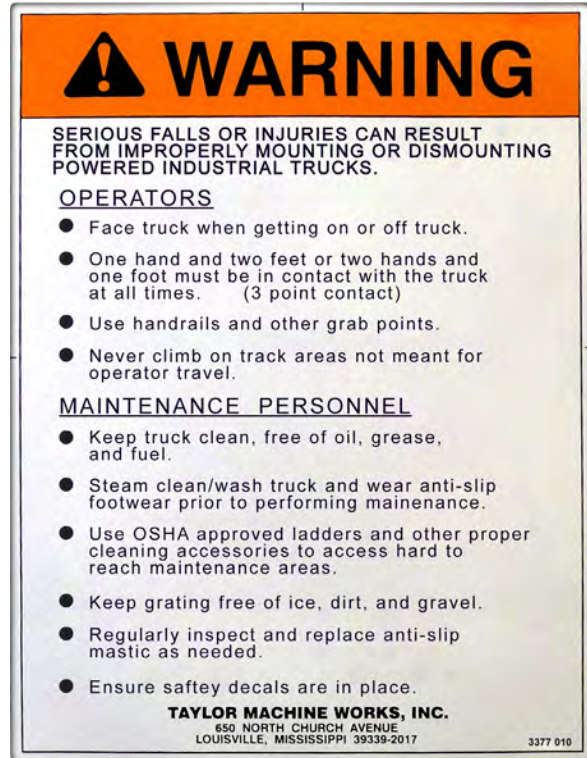
Brake System

Do not move the truck until the brake system reaches normal operating pressure. Hydraulic pressure is required for service brakes. If loss of hydraulic pressure occurs while the truck is in motion, the parking brake will automatically be applied.

Truck Capacity

Never overload this truck.

Misuse or overloading can result in injury to the operator or bystanders and cause damage to the truck or other property. Only trained and authorized operators, who know lift truck capacity and safety rules, should be permitted to operate this truck. Refer to the truck's Capacity Plate, located in a protected area of the truck, for specific information concerning loads.



Removable Counterweight (If Equipped)

⚠WARNING: Death or serious injury can occur from an improperly secured counterweight. Always ensure the counterweight pins are properly secured before operating the truck.

⚠WARNING: Death or serious injury can occur from loss of stability. Never operate the truck without the removable counterweight installed.

Handling Loads

Do not handle unstable loads or overload the truck.

Avoid sudden starts, stops and sharp turns while tiering.

Exercise extreme care when selecting the correct control for proper load function when high tiering or stacking.

Should the load break loose, stop the machine and inform the foreman or supervisor immediately.

If the load shifts, stop the truck immediately, lower the load and adjust the forks or rearrange the load until load weight is properly centered before attempting to move the load.

⚠WARNING: Death or serious injury can occur from truck tipping over. Use extreme care when tilting the load forward or rearward, especially when high tiering. Tilting the attachment forward is permitted only when picking up or depositing a load over a rack or stack. Use only enough rearward tilt to stabilize the load when stacking or tiering.

In the event of a tip over:

- Do not attempt to jump from the machine in the event of a tip over! Remain seated with the seat belt fastened.
- Brace feet firmly on the floor.
- Grip the steering wheel tightly.
- Lean away from the direction of the fall.

Traveling

Start, stop, change direction, travel and brake smoothly. Slow down for turns and when traveling on uneven or slippery surfaces.

Use care when traveling with or without a load.

Always look in the direction of travel. Keep a clear view; slow down and sound the horn at cross aisles and other locations where vision is obscured.

Travel with the load or lifting mechanism as low as possible while allowing for good visibility.

Visibility may be impaired by structural design. Always look in the direction of and keep a clear view of the path of travel.

If forward visibility is obstructed by the load, use ground guides or spotters when traveling in the forward direction.

Drive the truck in reverse (except when climbing ramps) if the load interferes with forward visibility.

Travel with the load or lifting mechanism as low as possible.

Grades shall be ascended or descended slowly. When ascending or descending grades, **loaded** trucks shall be driven with the load upgrade. **Unloaded** trucks should be operated on all grades with the load engaging means downgrade. On all grades, the load and load engaging means shall be tilted back if possible, and raised only enough to clear the ground.

Travel straight up and down grades. Do not turn on grades.

Do not operate the machine when pot holes or objects (i.e. debris) create an unsafe yard.

Video System (Optional)

The video system is no substitute for looking in the direction of and keeping a clear view of the path of travel.

Do not rely on the video system for machine movement or depth perception.

Camera image will be distorted by weather conditions and lighting.

Read video system instructions before operating the machine.

Leaving The Truck Unattended

When the truck is left unattended load engaging means shall be fully lowered, controls shall be neutralized, power shall be off and brakes set. Wheels shall be blocked if the truck is to be left on an incline. The truck is unattended when the operator is 25 feet (7.6 meters) or more away from the truck which remains in the operators view, or whenever the operator leaves the truck and it is not in the operator's view.

When the operator of an industrial truck is dismounted and within 25ft. of the truck still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.

Passengers

Carry no passengers on the truck. Passengers are allowed inside the cab only if the truck is equipped with a trainer seat.

People Under Elevated Loads

Do not allow anyone near the truck. Do not allow anyone to walk under an elevated load. Do not allow anyone to stand under or beside an elevated load or the truck's lifting mechanism.

People Near The truck

Do not operate the truck until both forward and reverse travel paths are clear. Be sure tail swing paths are clear. Do not operate the truck with bystanders present. A ground guide is not a bystander. Never lose sight of the ground guide if a ground guide is being used for clearance.

Obstructions and Clearances

Watch end clearances and overhead obstructions.

Clear yard of obstructions. Avoid potholes and debris.

⚠WARNING: Death or serious injury may occur from operating this lift truck in areas without proper overhead clearance.

- **Electrocution can occur without direct contact with power lines.**
- **Understand that this equipment is not electrically insulated.**
- **Ensure that sufficient clearance exists under overhead installations, power lines, lights, doors, pipes, sprinkler systems, structural members, etc.**
- **See *Safety Check (TMW-072)* for more information concerning electrocution hazards.**

Fire

In the event of a fire, exercise common sense. Exit the truck as quickly as the circumstances require. If time permits, the mast should be fully lowered, the ignition enable switch turned off, and the parking brakes applied. Contact qualified fire emergency personnel.

⚠WARNING: Death, serious injury or property damage can occur from industrial truck fires.

- **Personal safety is foremost in the event of a fire, know your employers fire safety rules.**
- **Fires in industrial trucks may spread extremely rapidly.**
- **Keep the truck and engine compartment clean, free of lint, excess oil, grease, and other combustible materials.**
- **Keep all flammable materials away from the exhaust components.**

Aftermarket Fire Suppression Systems

There are many different manufacturers of automatic fire suppression systems. Therefore, system operation can vary. It is imperative that the user fully understand the fire suppression system operating guidelines. Additionally, capabilities of different systems can vary. Always refer to the manufacturer of the actual installed system for operating instructions, system capability, and instructions on what do to in the even of an activation.

Additionally, automatic fire suppression systems can malfunction. The user must never rely solely on the automatic fire suppression system to extinguish a fire. Always understand and follow your employer's fire safety rules.

Some automatic fires suppression systems will cause the truck to shut down in the event of activation. On TICS-controlled trucks where Taylor facilitates system installation, Taylor provides a means to re-start and temporarily operate the truck if the situation requires.

⚠WARNING: Death or serious injury may occur from fires. Fire suppression system operation and effectiveness varies with each system design.

- The user must always read and understand the system operation guidelines provided by the specific fire suppression system manufacturer.
- Consult the company responsible for installation for additional information if necessary.
- Do not rely solely on automatic fire suppression systems to extinguish fires. Have workplace rules in place.

High Exhaust Temperatures

This truck is equipped with an engine exhaust aftertreatment system which may result in higher than normal exhaust temperatures. When operating in areas with combustible material or otherwise sensitive to high exhaust temperatures, inhibit the exhaust system cleaning until the truck is in a safe area. Refer to “Exhaust System Cleaning” section of this guide for more information.

⚠WARNING: Death, serious injury, or property damage may occur from fires caused by higher than normal exhaust temperatures. During the cleaning process, keep the exhaust pipe outlet away from flammable or combustible surfaces.

Controlling Toxic Exhaust Fumes

All internal combustion engines produce carbon monoxide, which can become concentrated in enclosed areas. Properly ventilate work areas and vent exhaust fumes from confined spaces.

1. Initial symptoms of carbon monoxide poisoning include headaches, dizziness, and nausea. The smell of truck exhaust means carbon monoxide is present.
2. If you experience initial symptoms, shut off the truck engine, notify your employer, and obtain medical attention.

Never rely on a control device to reduce carbon monoxide output. Carbon monoxide levels can change depending on maintenance. Make sure carbon monoxide level testing is included in regular maintenance procedures and that ventilation is used as the primary control for emissions.

⚠WARNING: Death or serious injury can occur from breathing carbon monoxide.

- Avoid breathing toxic exhaust fumes.
- Avoid operating the truck for prolonged periods in confined spaces that are not properly ventilated.
- Do not rely solely on carbon monoxide detection devices to detect carbon monoxide levels as these devices can fail.

Fueling The Truck

⚠WARNING: Death or serious injury may occur from explosion due to improperly refueling the truck.

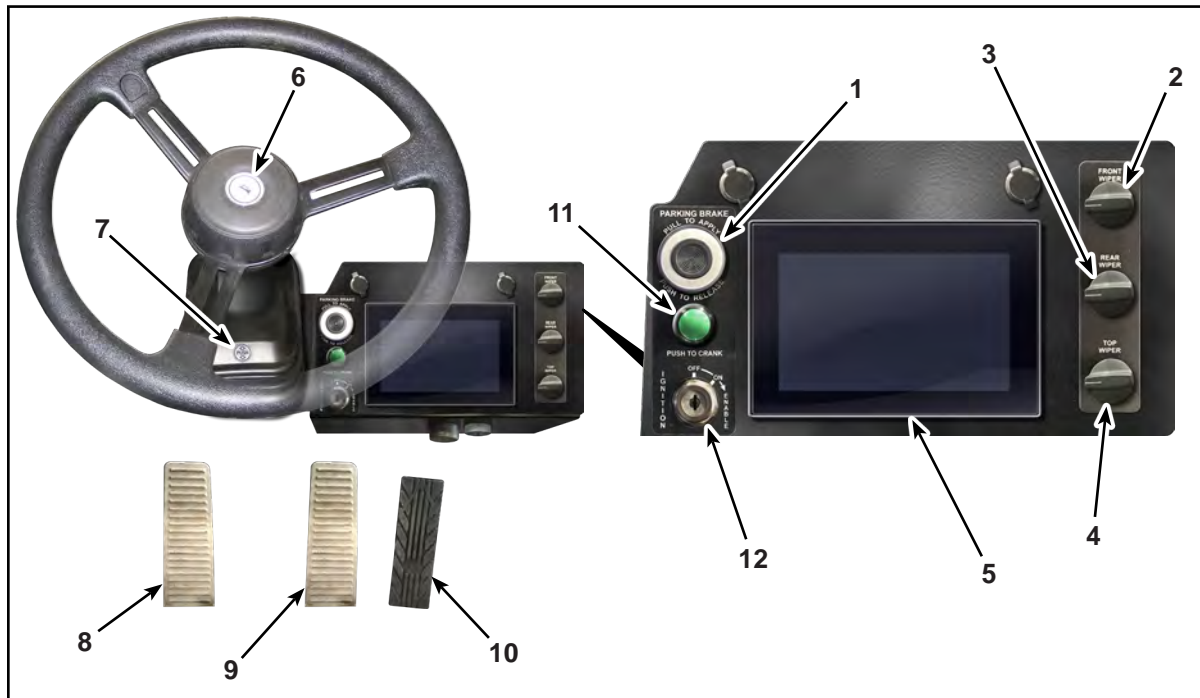
- Do not fill the fuel tank while the engine is running, while smoking, or when near an open flame or sparks.
- Never overfill the tank or spill fuel. If a spill occurs, clean it up immediately using a commercially available oil absorbent.
- Be sure to replace the fuel tank cap.

Only trained and authorized personnel are permitted to operate liquid petroleum (LP) gas fuel filling equipment. Refer to “LP Gas System” of the “Fueling The Truck” section of this guide for more information.

⚠WARNING: Death or serious injury may occur from explosion. Do not operate or perform maintenance on LP gas fuel system components without proper training and authorization.

Instruments, Controls, and Indicators

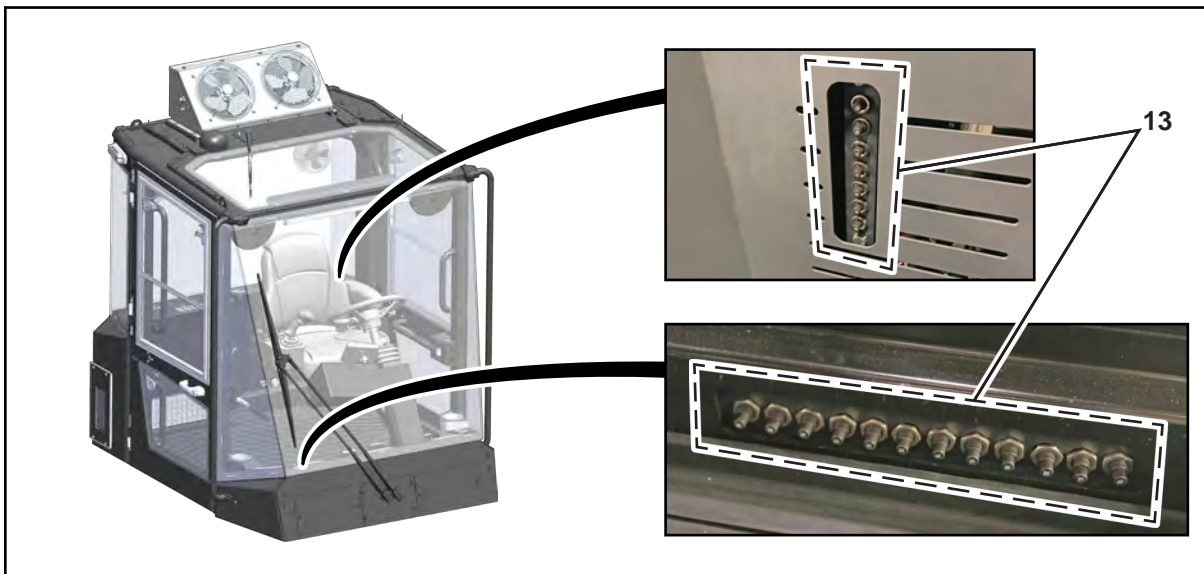
Some functionality described within this section may not be included with this particular truck. Additionally, this particular truck may have optional functionality which is not described in detail. Exact control locations may vary between truck models.



Instruments and Controls

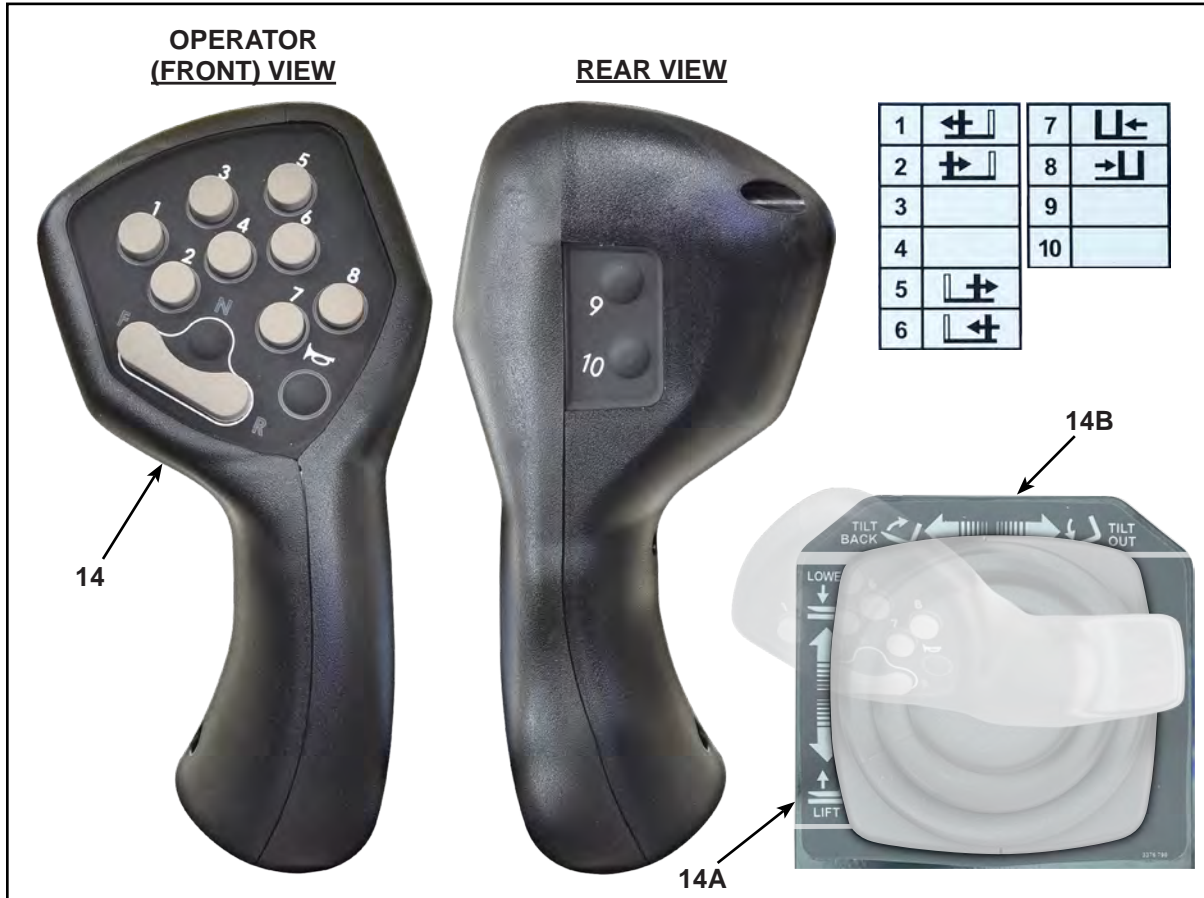
- 1. Parking Brake Control.** Pulling the control out applies the parking brake. Pushing the control in releases the parking brake.
- 2. Front Wiper Control.** Three-position switch. Rotate the knob clockwise to the first position (intermittent range) to allow variable adjustment of wiper speed, to the second position to activate the wipers at low speed, or to the third position to run the wipers at high speed.
- 3. Rear Wiper Control.** Three-position switch. Rotate the knob clockwise to the first position (intermittent range) to allow variable adjustment of wiper speed, to the second position to activate the wipers at low speed, or to the third position to run the wipers at high speed.
- 4. Top Wiper Control.** Three-position switch. Rotate the knob clockwise to the first position (intermittent range) to allow variable adjustment of wiper speed, to the second position to activate the wipers at low speed, or to the third position to run the wipers at high speed.
- 5. Taylor Integrated Control System (TICS) Display Module.** (Refer to “Taylor Integrated Control System (TICS)” of this guide for detailed information on TICS operation.)

6. **Horn.** Press this button to sound the horn.
7. **Steering Wheel Tilt.** Push downward on the rubber boot and position the steering wheel to the desired angle. Then, release the latch to lock the steering wheel into position.
8. **Declutch / Brake Pedal.** This pedal declutches the transmission and also applies the service brakes.
9. **Brake Pedal.** This pedal applies the service brakes.
10. **Accelerator Pedal.** This pedal controls engine speed.
11. **Engine Start Button.** Push and hold to start the truck (See the “Ignition Operation” section).
Note: The Engine Start Button will not start the engine until the Ignition Enable Switch (item 12) has been turned to the Start Position and released.
12. **Ignition Enable Switch.** Key-operated, three-position switch. The Start position (full clockwise) provides power to the TICS system and enables the Engine Start Button (item 11) to start the truck (See the “Ignition Operation” section).



Circuit Breakers

13. **Circuit Breakers.** Protects electrical system from damage due to overload. Push button to reset. (Quantity will vary according to auxiliary electrical circuits installed.)



Joystick Controls

14. Joystick Control Lever. Multiple functions:

Note: The operator must be seated in the normal operating position to activate the hydraulic functions. In the event the operator leaves the seat, the hydraulic functions are disabled.






- A. Lift/Lower Function.** Push joystick forward to lower the mast and carriage; pull joystick rearward to lift the mast and carriage.
- B. Tilt Forward/Back.** Push joystick to the left to tilt the mast back; push joystick to the right to tilt the mast forward.

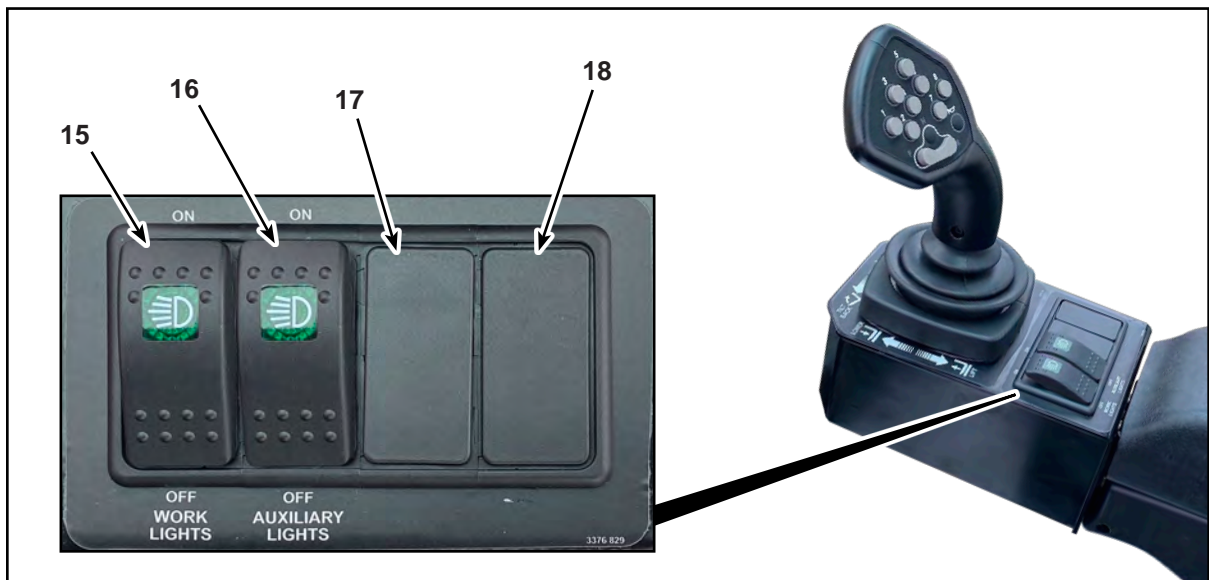
Button 1. **Fork Position Left Fork Left.** (if equipped) Press to move the left fork to the left.

Button 2. **Fork Position Left Fork Right.** (if equipped) Press to move the left fork to the right.

Button 3. Reserved for Optional Functions.

Button 4. Reserved for Optional Functions.

- Button 5.**  **Fork Position Right Fork Right.** (if equipped) Press to move the right fork to the right.
- Button 6.**  **Fork Position Right Fork Left.** (if equipped) Press to move the right fork to the left.
- Button 7.**  **Side Shift Left.** (if equipped) Press to move the carriage to the left.
- Button 8.**  **Side Shift Right.** (if equipped) Press to move the carriage to the right.
- Button 9. Reserved for Optional Functions.**
- Button 10. Reserved for Optional Functions.**
- Button F. Forward.** Press to shift the truck to the forward direction of travel. (Refer to “Transmission Operating Instructions” of this guide.)
- Button R. Reverse.** Press to shift the truck to the reverse direction of travel. (Refer to “Transmission Operating Instructions” of this guide.)
- Button N. Neutral.** Press to place the transmission in Neutral. (Refer to “Transmission Operating Instructions” of this guide.)
- Button  Horn.** Press to blow horn.



Control Stand Switches

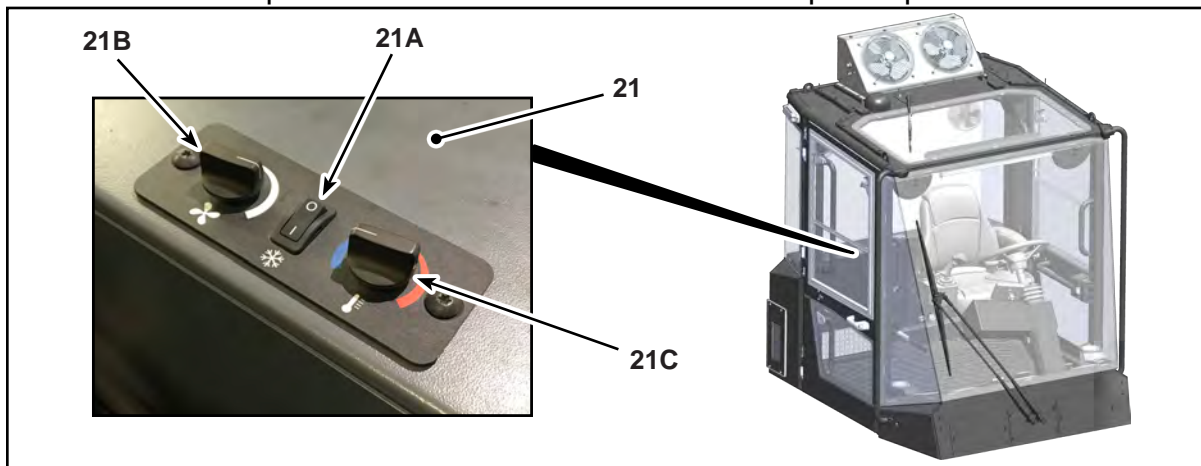
- 15. Work Lights Switch.** (if equipped) This switch turns the work lights on or off.
- 16. Auxiliary Lights Switch.** (if equipped) This switch turns the auxiliary lights on or off.
- 17. Reserved for Optional Functions.**
- 18. Reserved for Optional Functions.**



Arm Rest Levers

19. Arm Rest Forward Adjust Lever. This lever allows the position of the arm rest to be adjusted to the operator’s arm length for comfort of joystick control. Lift up and outward, and position the arm rest forward and upward to position arm rest to a different height. After adjusting to the desired position, lock the lever in place.

20. Arm Rest Lever. This knob allows the arm rest / joystick to be rotated upward and out of the way so the operator can exit the cab through the right door. Rotate the knob up and inward to lift the arm rest to its upward position.



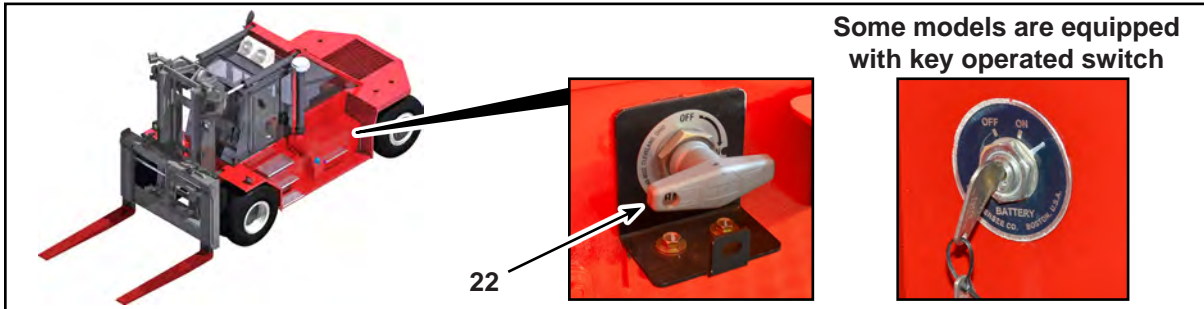
Heater/Air Conditioner Controls

21. Heater/Air Conditioner Unit. The heater/air conditioner unit controls the temperature inside the cab.

A. Power Button. This switch turns the heater/air conditioner unit on or off.

B. Air Flow Knob. This knob controls the amount of air flow displaced by the unit. Turn knob clockwise to increase air flow or counterclockwise to decrease air flow.

C. Temperature Knob. This knob controls the temperature of the air displaced by the unit.

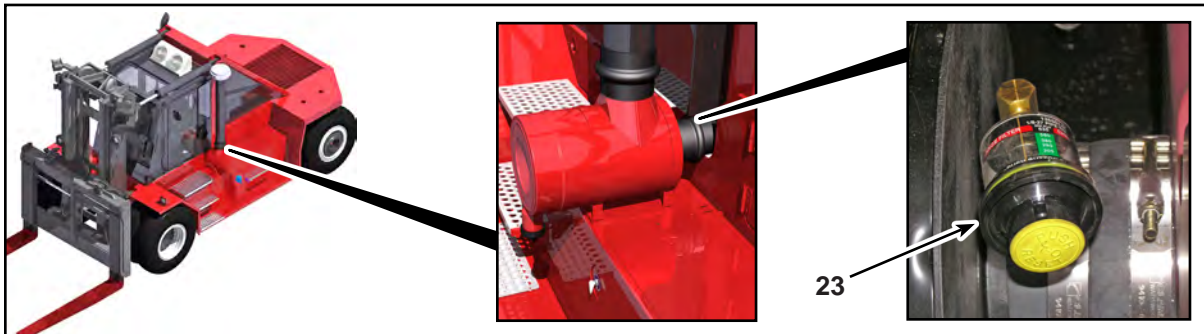


Battery Disconnect Switch

22. Battery Disconnect Switch. This is a two-position (On / Off) switch. This switch disconnects battery power from the truck's electrical system when in the Off position. This switch must be in the On position to start the truck. Locations may vary.

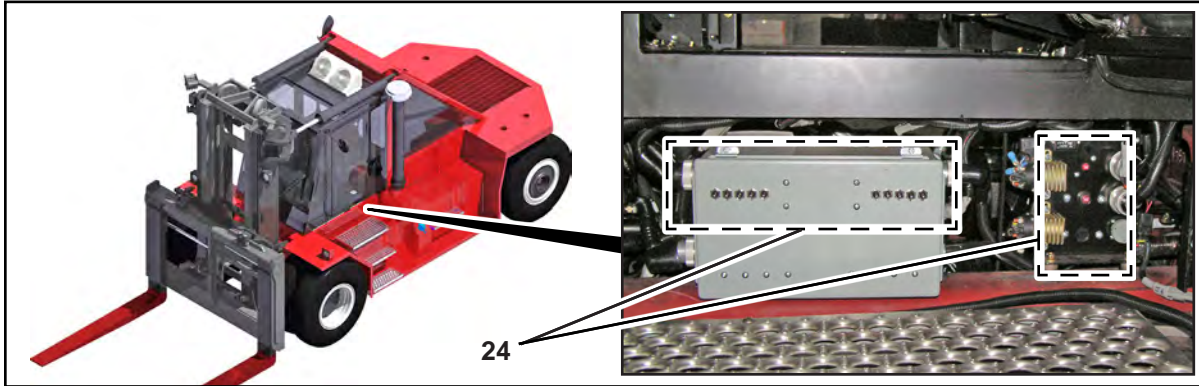
⚠CAUTION: Permanent engine component damage can occur if battery power is disconnected before the system is properly shutdown. Wait 2 minutes after turning the Ignition Enable Switch to the Off position before turning the battery disconnect switch to the Off position.

Note: The battery disconnect switch is usually located on the side of the chassis just above the runningboard, near the battery compartment. The side of the truck the switch is located on may vary between truck models.



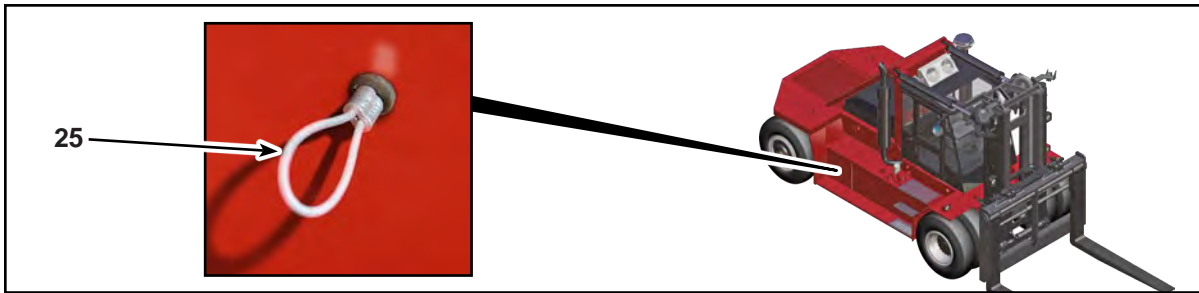
Air Filter Service Indicator

23. Air Filter Service Indicator. Indicates the operational status of the primary air filter. When red is not visible, the primary filter is operational. When red is visible, the primary filter is restricted and must be replaced.



Circuit Breakers

24. Circuit Breakers. Protects electrical system from damage due to overload. Push button to reset. (Quantity will vary according to auxiliary electrical circuits installed.)



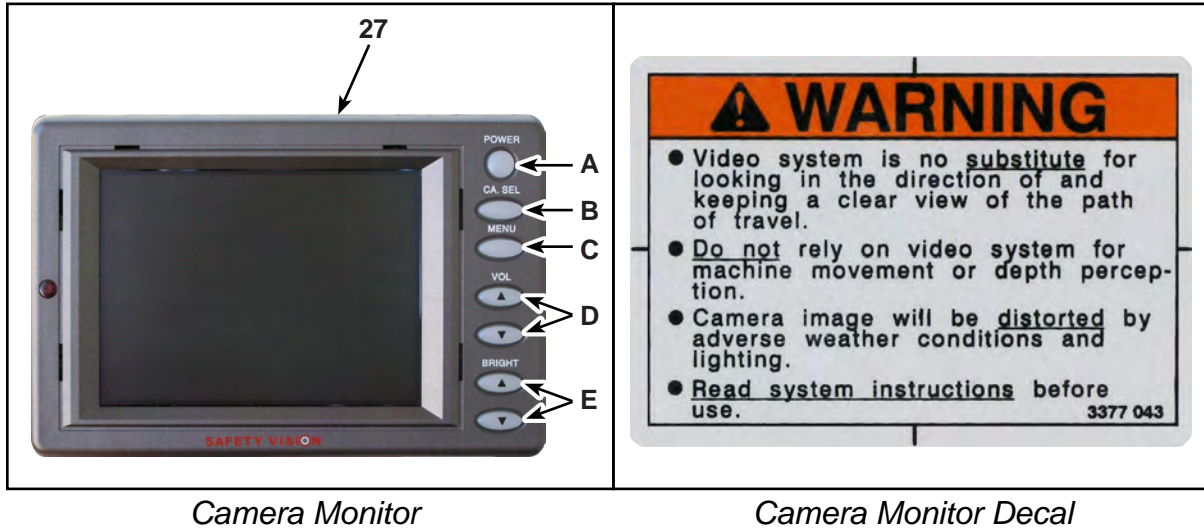
Air Tank Drain Lanyard (if equipped)

25. Air Tank Drain Lanyard. (on trucks equipped with air horn) Pull the lanyard to exhaust all air and water emulsions from the tank. Perform this procedure daily. Locations may vary between truck models.



USB Charging Port

26. USB Charging Port. This is a dual USB charging port rated at 5 Vdc / 2A output. This port can be used to charge or power up to two devices simultaneously.



⚠ WARNING: Cameras are not substitutes for looking in the direction of and keeping a clear view of the path of travel. Never use them as substitutes, Always look in the direction of and keep a clear view of the path of travel.

27. Camera Monitor. The monitor provides the operator with a view from the camera.

A. Power Button. Press this button to turn the monitor on (button illuminated green). Press this button again to turn the monitor off. This button will be illuminated red when the monitor is on and in Standby mode.

B. Camera Select Button. Press this button to view the video from camera 1 (CA1). Press this button again to view the video from camera 2 (CA2) (if equipped).

C. Menu Button. Press this button to display the main menu of the monitor. To navigate through the main menu, press the Brightness Buttons. To change the content of a selected menu item, press the Camera Select Button. The main menu consists of the following adjustable items:

1). Color. Press the Camera Select Button to change the color depth of the displayed images.

2). Contrast. Press the Camera Select Button to change the contrast level of the displayed images.

3). Tint. Press the Camera Select Button to change the color coordination of the displayed images.

D. Volume Buttons. Press the upper button to increase the volume of the monitor; press the lower button to decrease the volume.

E. Brightness Buttons. Press the upper button to increase the brightness of the monitor's display; press the lower button to decrease the brightness.

Additional Controls

Paddle Lever Controls.

Trucks equipped with an optional paddle lever controls.

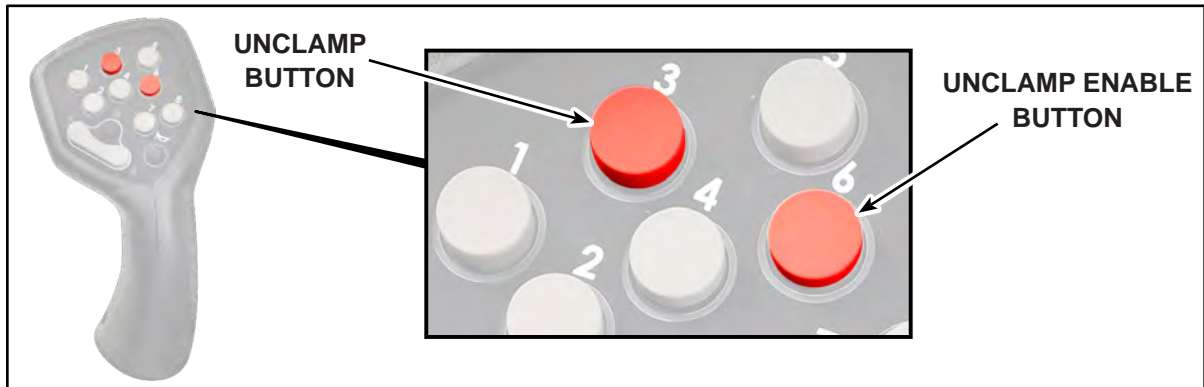


Trucks Equipped with Paddle Lever Controls

- 1. Lift/Lower Function.** Push lever forward to lower the mast and carriage. Push the lever rearward to raise the mast and carriage.
- 2. Tilt Forward/Back.** Push lever forward to tilt the mast forward. Push the lever rearward to tilt the mast back.
- 3. Side Shift Left/Right.** (if equipped) Push lever forward to move the carriage to the left. Push the lever rearward to move the carriage to the right.
- 4. Fork Position Left Fork.** (if equipped) Push lever forward to move the left fork to the left. Push the lever rearward to move the left fork to the right.
- Fork Position Right Fork .** (if equipped) Push lever forward to move the right fork to the right. Push the lever rearward to move the right fork to the left.

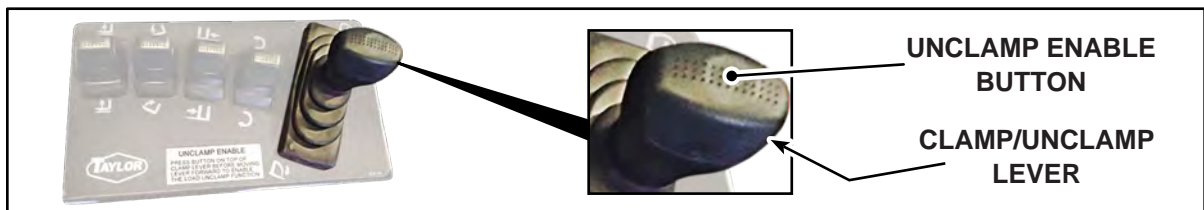
Suspended Load Clamp Controls.

Trucks equipped with suspended load clamp attachments are required to use two motions or operations by the operator before the clamp is opened. The exact configuration of the load clamp controls can vary.



Unclamp Enable Controls (Press and Release)

Joystick Unclamp Enable Controls (Press and Release). Pressing only the Unclamp button will not perform the unclamp function. To unclamp the attachment, press and release the Unclamp Enable button and then press the Unclamp button. Once the Unclamp Enable button has been pressed and released, the Unclamp button is enabled (for one second) and can then be pressed to unclamp the attachment.

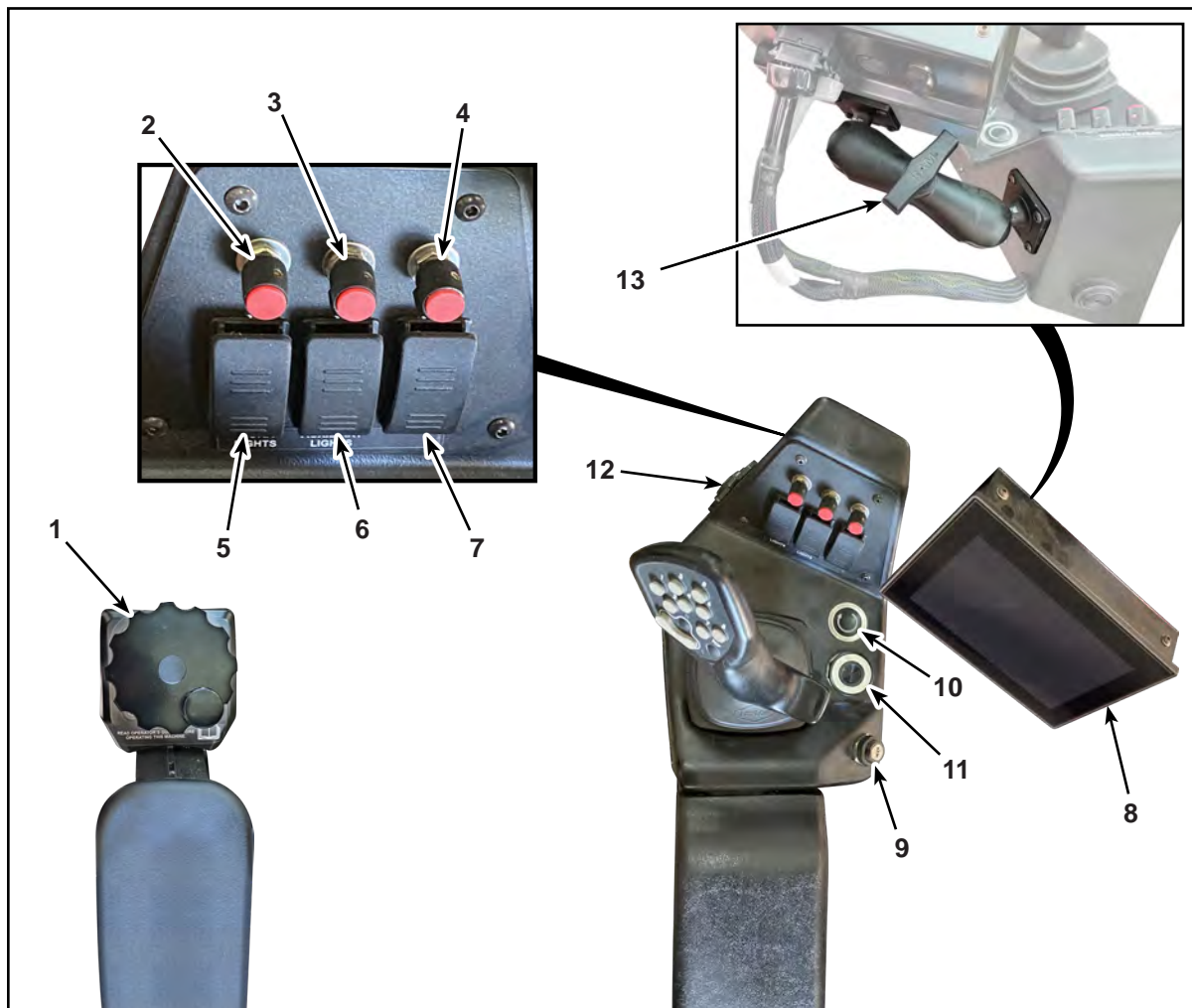


Lever Unclamp Enable Controls

Lever Unclamp Enable Controls (Press and Release). Pushing only the Clamp/Unclamp lever forward will not perform the unclamp function. To unclamp the attachment, press and release the Unclamp Enable button and then push the Clamp/Unclamp lever forward.

Comfort Steering Controls.

Trucks equipped with an optional comfort controls.



Comfort Steering Controls

- 1. Steering Wheel.** The steering wheel controls the steering of the truck. Rotate the wheel clockwise to turn the truck right and counterclockwise to turn the truck left.
- 2. Front Wiper Control.** Three-position switch. Rotate the knob clockwise to the first position (intermittent range) to allow variable adjustment of wiper speed, to the second position to activate the wipers at low speed, or to the third position to run the wipers at high speed.
- 3. Rear Wiper Control.** Three-position switch. Rotate the knob clockwise to the first position (intermittent range) to allow variable adjustment of wiper speed, to the second position to activate the wipers at low speed, or to the third position to run the wipers at high speed.
- 4. Top Wiper Control.** Three-position switch. Rotate the knob clockwise to the first position (intermittent range) to allow variable adjustment of wiper speed, to

the second position to activate the wipers at low speed, or to the third position to run the wipers at high speed.

5. **Work Lights Switch.** (if equipped) This switch turns the work lights on or off.
 6. **Auxiliary Lights Switch.** (if equipped) This switch turns the auxiliary lights on or off.
 7. **Reserved for Optional Functions.**
 8. **Taylor Integrated Control System (TICS) Display Module.** (Refer to “Taylor Integrated Control System (TICS)” of this guide for detailed information on TICS operation.)
 9. **Ignition Enable Switch.** Key-operated, three-position switch. The Start position (full clockwise) provides power to the TICS system and enables the Engine Start Button (item 10) to start the truck (See the “Ignition Operation” section).
 10. **Engine Start Button.** Push and hold to start the truck (See the “Ignition Operation” section).
- Note:** The Engine Start Button will not start the engine until the Ignition Enable Switch (item 19) has been turned to the Start Position and released.
11. **Parking Brake Control.** Pulling the control out applies the parking brake. Pushing the control in releases the parking brake.
 12. **USB Charging Port.** This is a dual USB charging port rated at 5 Vdc / 2A output. This port can be used to charge or power up to two devices simultaneously.
 13. **TICS Display Adjustment Knob.** This adjustment knob allows the operator adjust the positioning of the TICS display.

To adjust the TICS display position:

- A. Grip the TICS display with one hand to support the display.
- B. Loosen the knob with the other hand.
- C. Position the display to the desired position using the support hand.
- D. Fully tighten the knob.

Note: Ensure the display adjustment knob is fully tightened to prevent the display from falling.

Ignition Operation

Trucks Equipped With Standard Ignition Controls.



Ignition Controls

To Start The Truck:

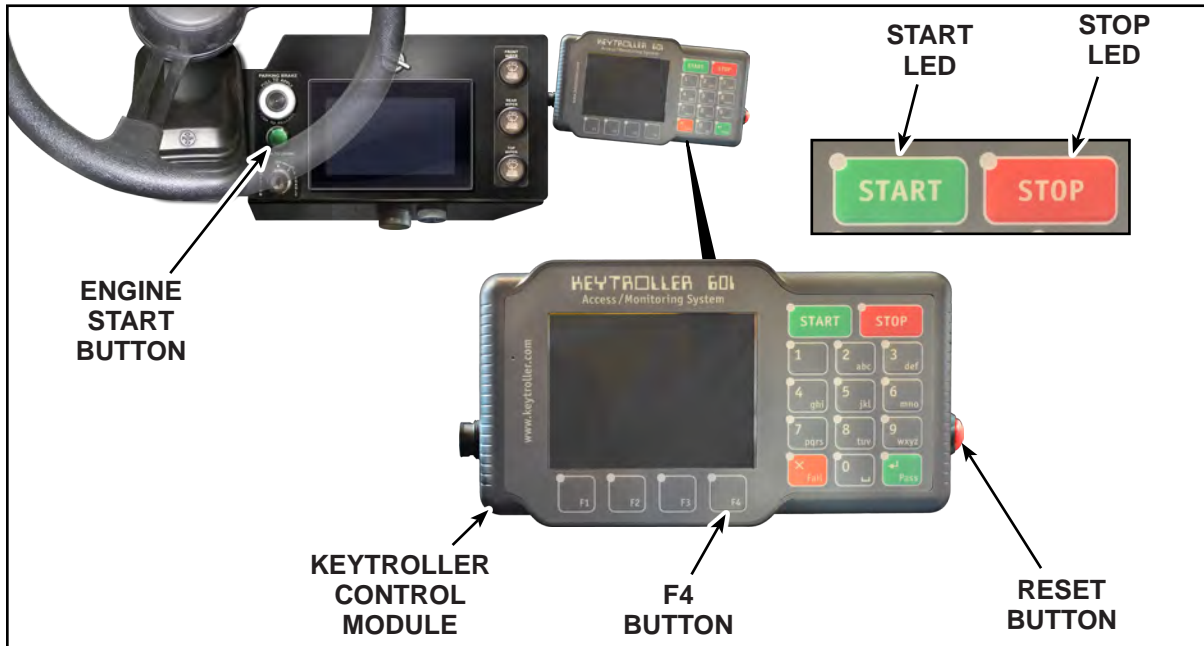
1. Place the shift control in neutral (only on trucks equipped with column mounted electric shift control).
2. Turn the Ignition Enable switch (key or lever) to the Start position.
3. Push and **hold** the Engine Start button to start the engine.

To Turn Off The Truck:

1. Turn the Ignition Enable switch (key) to the Off position.

Trucks Equipped With Optional Keytroller Control Module.

Refer to the manufacturer's operator information for detailed instructions.



Optional Machine Access Module (MAM) Controls

To Start The Truck:

1. Keytroller start up sequence.
 - A. Press and hold the Reset button (located on the right side of the Keytroller module) until the Start and Stop LEDs flash. This will power up the Keytroller module.
 - B. Press F4 on the Keytroller keypad when "Login" appears on the screen.
 - C. Type in the four digit code provided by maintenance personnel.
 - D. Press F4 on the Keytroller keypad once "↵" appears on the screen.
 - E. Press and **hold** Start on the Keytroller keypad until the Start LED begins to flash.
2. Press and **hold** the Engine Start button to start the engine.

To Turn Off The Truck:

1. Press Stop on the Keytroller keypad. This will turn the engine off.
2. Keytroller shutdown sequence.
 - A. Press F2 on the Keytroller keypad to logout and shutdown the keytroller.
 - B. Press F1 ("Yes") when "Are you sure you want to logout?" appears on the keytroller display.
 - C. Press F1 to shutdown the Keytroller module.

Taylor Integrated Control System (TICS)

The TICS system is a vehicle electronic control system comprised of multiple components including an operator display module which provide integrated control of the electronic and hydraulic systems on the truck. The TICS system is incorporated into a wide range of truck models in the Taylor product line. Some functionality described within this section may or may not be included with this particular truck model. Additionally, this particular truck model may have optional functionality which is not described in detail in this guide. If there are any questions concerning proper operation of this truck using the TICS system, contact your certified Taylor dealer or service technician.

⚠ WARNING: Death or serious injury may occur from improper operation of the lift truck. The TICS control system affects many electrical and hydraulic components. Incorrect settings may affect correct function and safe operation. Some parameters within the TICS system are password protected and all system parameters should only be modified by trained and authorized personnel.


Basic Display Module Operation.

The TICS Display Module provides an interface between the operator and the electrical and hydraulic systems of the truck. Information concerning the operational status of the truck is provided through the TICS Display Module. Input for operator controlled functions of the truck is provided through the TICS Display Module. The display module is operated using touch screen commands.





Navigation Buttons. These buttons are touch activated buttons that navigate the displays screens.

NAVIGATION BUTTONS

(example)

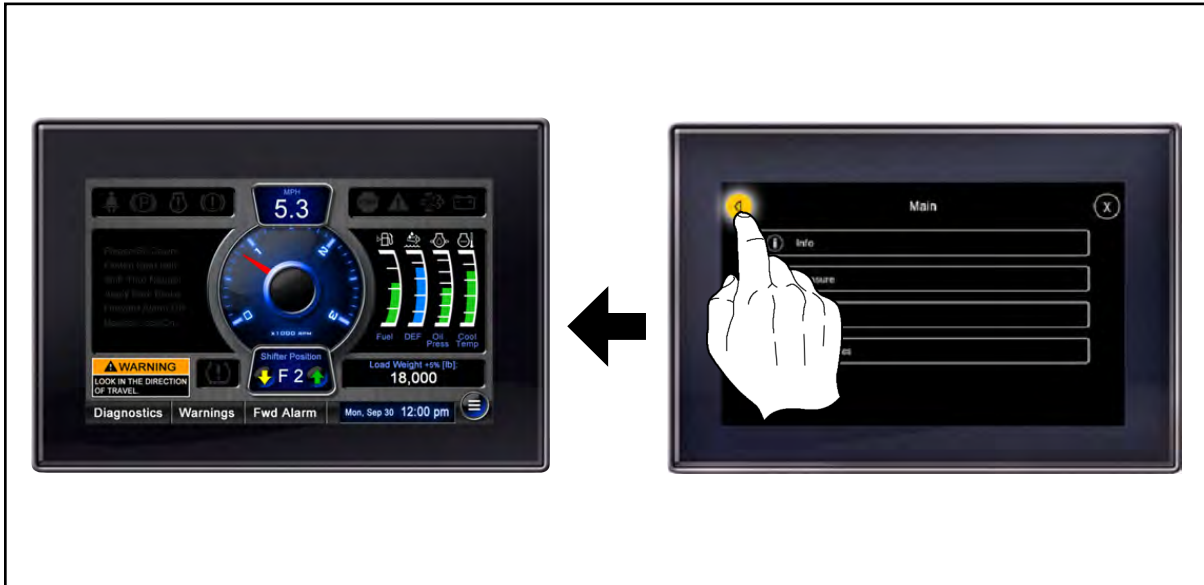


The screenshot shows a dark-themed display with 'ENGINE INFORMATION' at the top. It features a gauge for 'Oil Level' and several data points. At the bottom, there are three navigation buttons: a back arrow, a home icon, and a menu icon.

-  **Back** - Returns to the previous screen
-  **Home** - Returns to the Home screen
-  **Main Menu** - Displays a menu containing maintenance and troubleshooting options
-  **Cancel** - Cancels the current screen and returns to the previous display screen

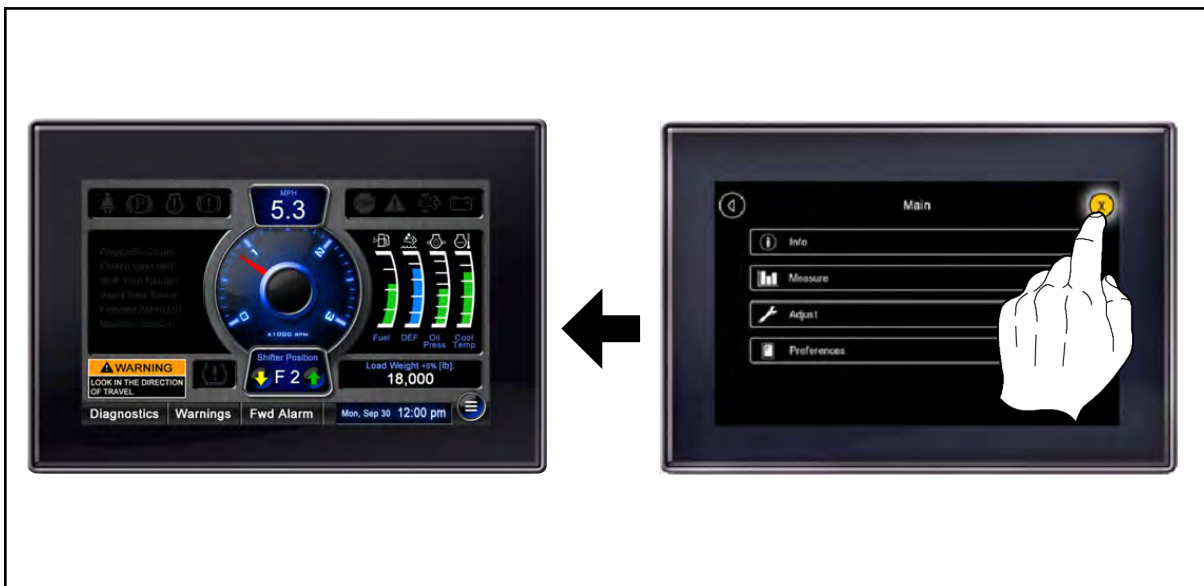
Note: Navigation buttons may appear at various positions, depending upon the current display screen.

TICS Navigation Buttons and Functions



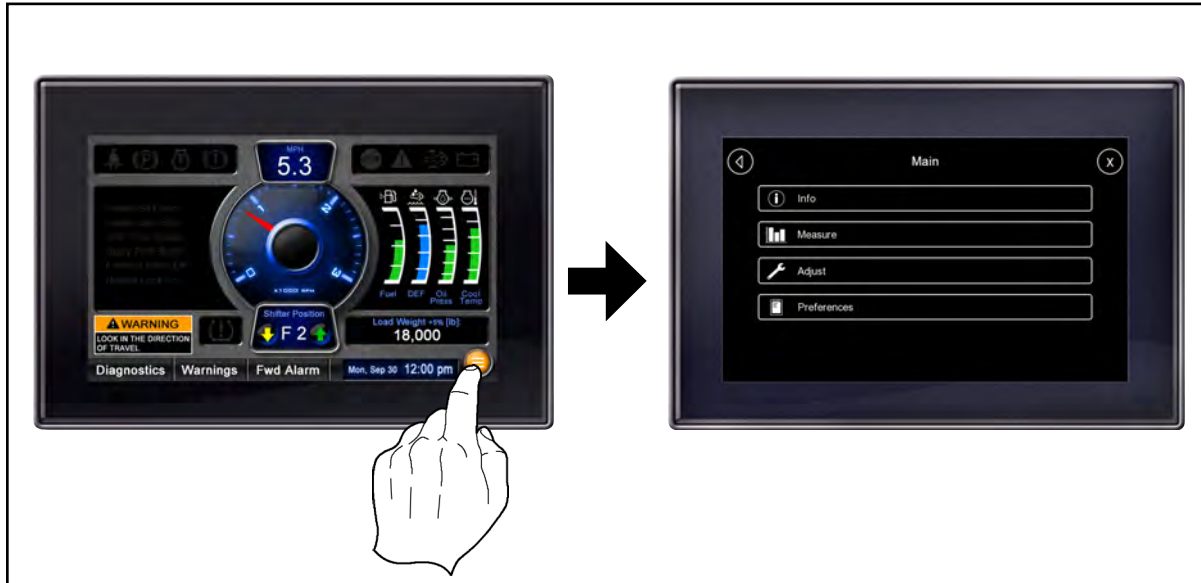
Back Button

1. **Back Button.** When the **Back** button is tapped, the display screen will return to the previous display screen. Tapping the **Back** button multiple times will continue to return through the display screens until the Home screen is displayed.



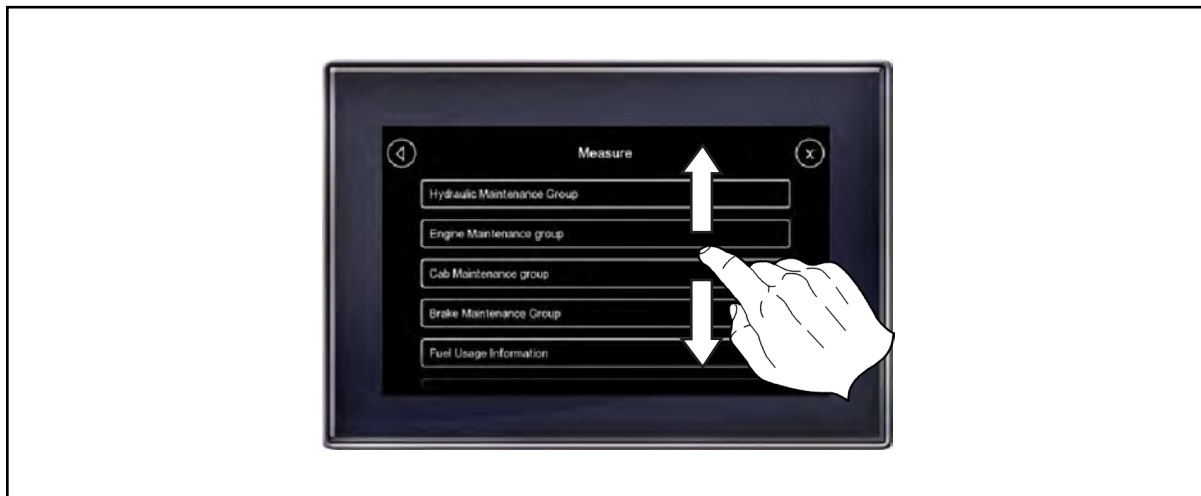
Cancel Button

2. **Cancel Button.** When the **Cancel** button is tapped, the current action or display screen is canceled. Tapping the **Cancel** button will return the display module to the previous display screen.



Main Menu

3. Main Menu Button. Tapping the **Main Menu** button will display the Main Menu for selecting maintenance and troubleshooting options. The Main Menu allows the user to view various system parameters and system settings. Generally, the main menu function is used only for maintenance purposes.



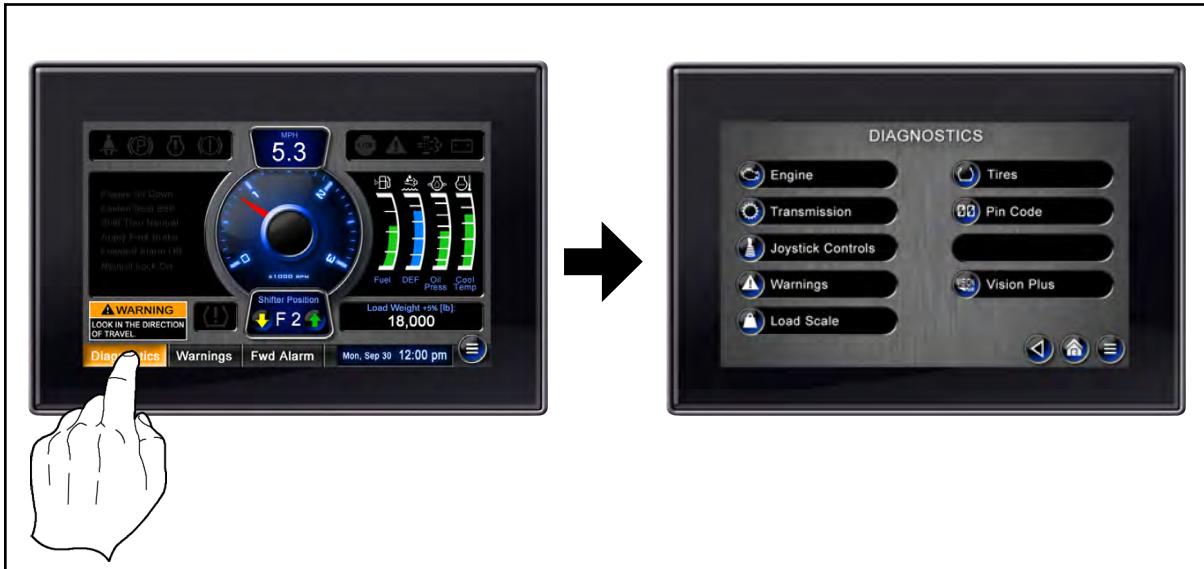
Tapping and Dragging / Scrolling

4. Tapping and Dragging. Tapping and dragging on the screen scrolls the parameter selection up or down.

Function Buttons.

These buttons are touch activated buttons that perform operational functions and direct the display module to related screens. Function buttons are all displayed with white outlines.

Note: Function buttons may appear at various positions, depending upon the current display screen.



Function Buttons

When a **Function** button is tapped, the display screen will change to an alternate screen or an action will be taken as indicated by the description on the function button. Each display screen can have its own particular alternate screens.



Making Selections

Tapping an option makes a selection.

Introduction Screens

When the truck ignition enable switch is turned to the ON position, the TICS Display Module first displays an introduction screen and then automatically proceeds to the following screen which provides the operator with important safety information. After reading the information, the operator can proceed to the Home screen by acknowledging the safety information and tapping the **Acknowledge** button.



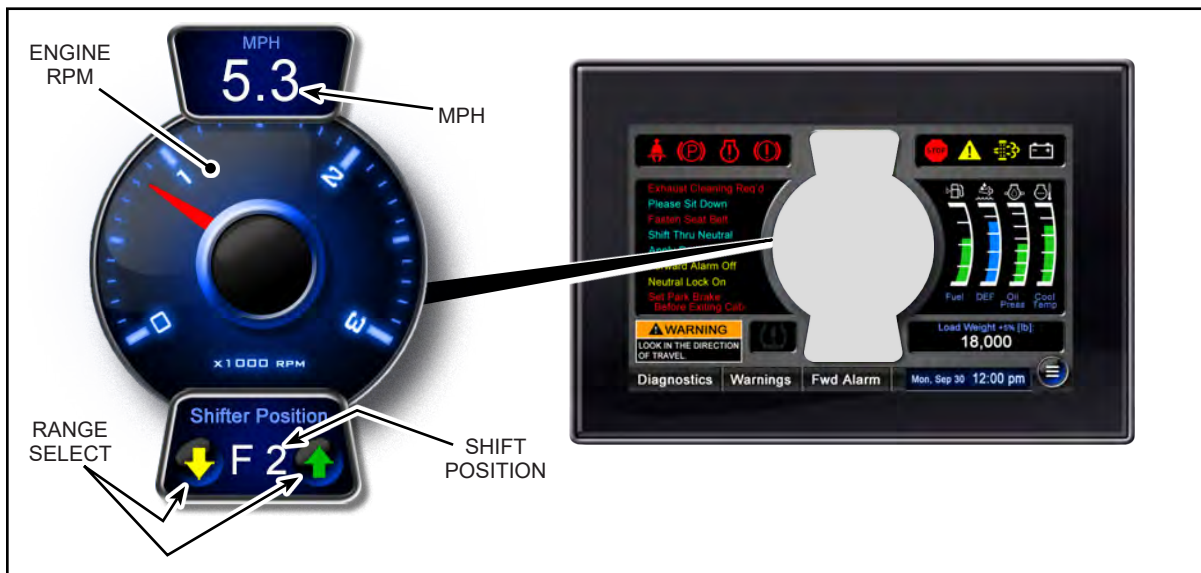
Acknowledging Safety Information

Home Screen

Note: The Home screen illustrated in this section may differ slightly depending on exact truck model. Some functions shown may not be present on this particular truck model. Additionally, there may be options installed on a particular truck which may not be described in detail in this manual.

The TICS Display Module Home screen contains basic information concerning truck operation. There are certain operator selected screens which will automatically return to the Home screen after a specified amount of time if there is no activity.

The Home screen displays the status of various drivetrain components and truck equipment operating information. The operating information that appears on the Home screen is described as follows:



Speed and Shift Position Indicators

Speed and Shift Position Indicators

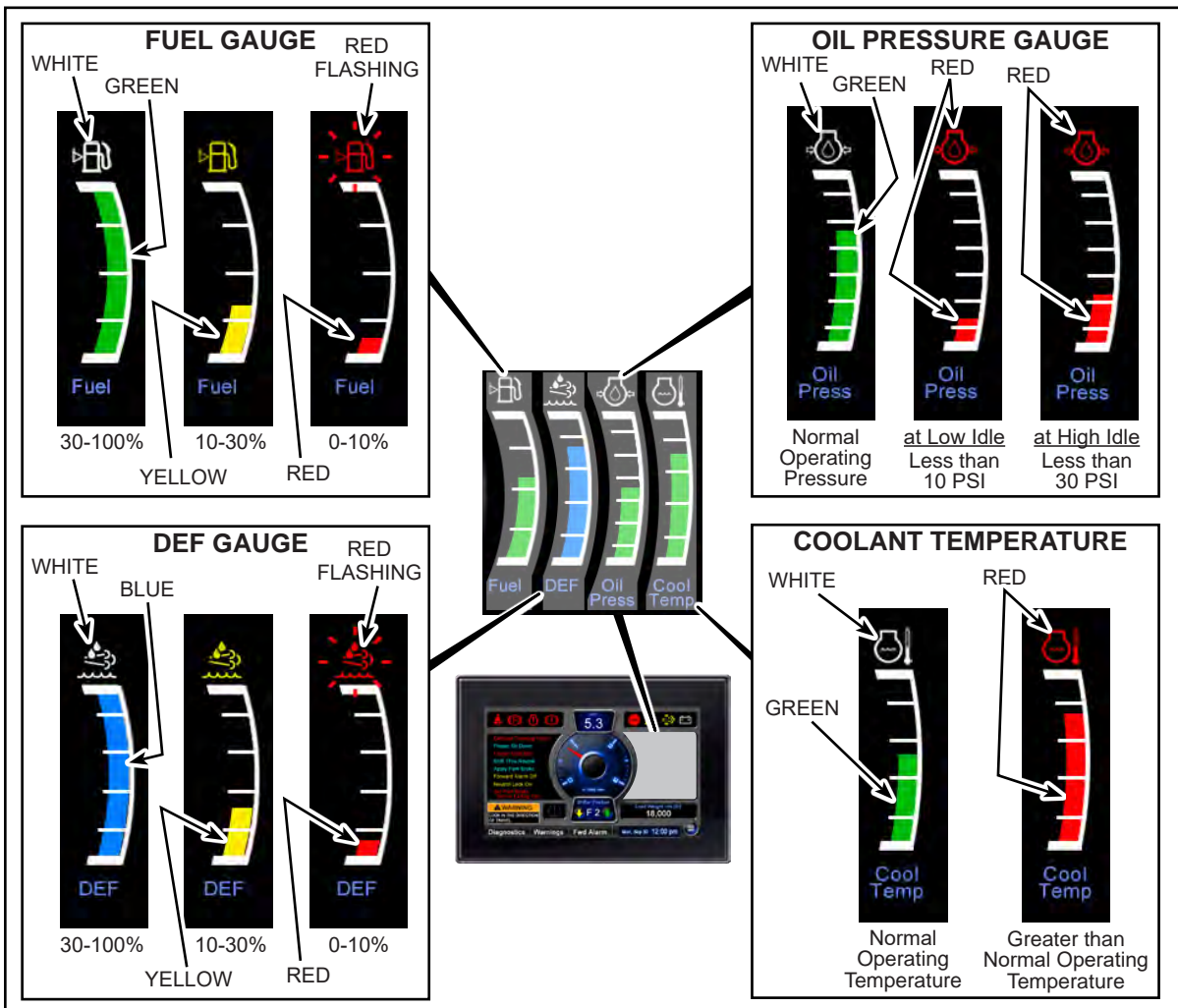
1. **MPH.** This indicates vehicle ground speed in miles per hour. Depending on units system selection, this can be KPH (kilometers per hour).
2. **Engine RPM.** This indicates engine speed.
3. **Shift Position.** This indicates the transmission gear selected by the operator (refer to the “Transmission Operating Instructions” of this guide).
4. **Range Select.** These buttons increase or decrease gear selection (refer to the “Transmission Operating Instructions” of this guide).



Steer Tire Angle Indicators


Steer Tire Angle Indicators (on trucks equipped with Comfort Steering)

1. **Steer Tire Direction Indicator.** This indicates the direction the steer tires are currently rotated.
2. **Steer Angle Indicator.** This indicates the angle the steer tires are currently rotated.
3. **Max Steer Angle.** This indicates the maximum angle the steer tires can be rotated.





Fluids, Pressure, and Temperature Gauges

Fluids, Pressure, and Temperature Gauges


-  **Fuel Quantity Gauge.** This indicates the fuel quantity in the tank. When the fuel quantity is above 30%, the bar is green and the fuel symbol is white. When the fuel quantity is between 10% and 30%, the bar and the fuel symbol are yellow indicating that quantity is low. When the fuel quantity is less than 10%, the bar and fuel symbol are red and the fuel symbol begins to flash.

The fuel quantity indicator updates immediately when the ignition enable (key) switch is turned on and every 4 minutes during truck operation. If the truck is refueled while the truck is running, the fuel quantity indicator may not indicate the correct quantity until the indicator updates.

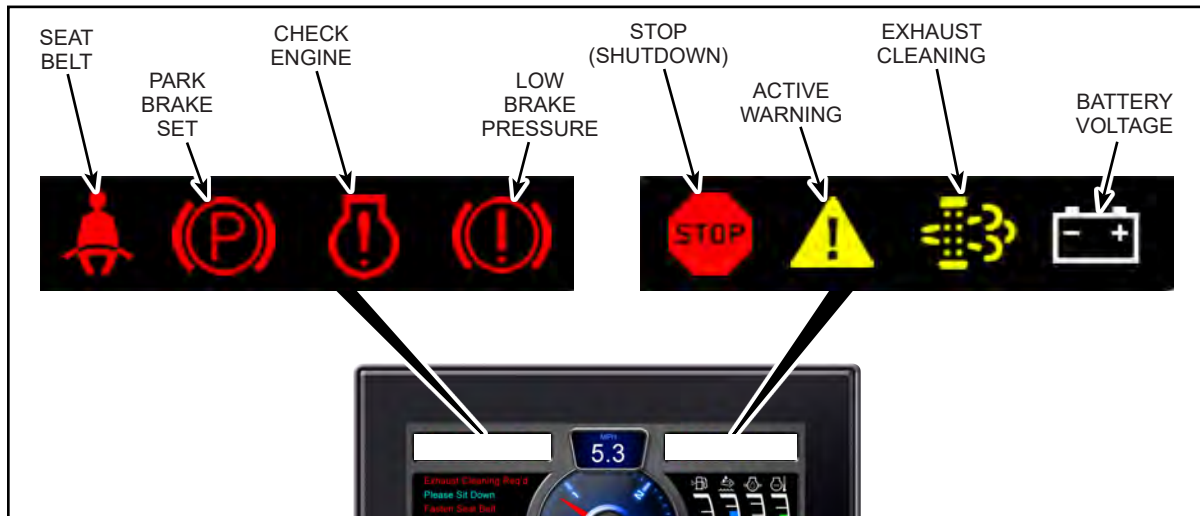
-  **DEF (Diesel Exhaust Fluid) Level Gauge.** This indicates the DEF quantity in the tank. When the DEF quantity is above 30%, the bar is blue and DEF Level text is white. When the DEF quantity is between 10% and 30%, the bar and DEF Level text are yellow indicating that quantity is low. When the DEF quantity is less than 10%, the bar and DEF Level text are red and DEF Level text begins to flash.

-  **Engine Oil Pressure Gauge.** This indicates engine oil pressure. When the oil pressure is in the normal operating range, the bar is green and the oil pressure symbol is white. If the pressure drops below 10 PSI at low idle or below 30 PSI at high idle, the bar and oil pressure symbol will change to red.

⚠CAUTION: Permanent engine damage may occur if engine warning information is ignored. If this icon and bar changes to red, stop the engine as soon as it is safe to do so and notify maintenance personnel.




-  **Engine Coolant Temperature Gauge.** This indicates engine coolant temperature. When the coolant temperature is in the normal operating range, the bar is green and the coolant temperature symbol is white. If the coolant temperature becomes greater than the normal operating temperature, the bar and coolant temperature symbol will become red.

⚠CAUTION: Permanent engine damage may occur if engine warning information is ignored. If this icon and bar changes to red, stop the engine as soon as it is safe to do so and notify maintenance personnel.




Indicator Lamps


Indicator Lamps

8.  **Seat Belt.** This icon flashes when the seat belt is unfastened. After 30 seconds, this icon will stop flashing but will remain on until the seat belt is fastened.
9.  **Park Brake Set.** This icon illuminates when the parking brake is applied.
10.  **Check Engine.** This icon indicates that there is an engine related problem and that the engine needs to be checked.




⚠CAUTION: Permanent damage may occur if check engine warning information is ignored. If this icon illuminates, stop the engine as soon as it is safe to do so and notify maintenance personnel.

11.  **Low Brake Pressure.** This warning is displayed when a low brake pressure problem exists. The low brake pressure active warning will be displayed in the event the brake pressure falls below a set pressure (See “Brake Operation” section). The parking brake will be applied as brake pressure decreases.

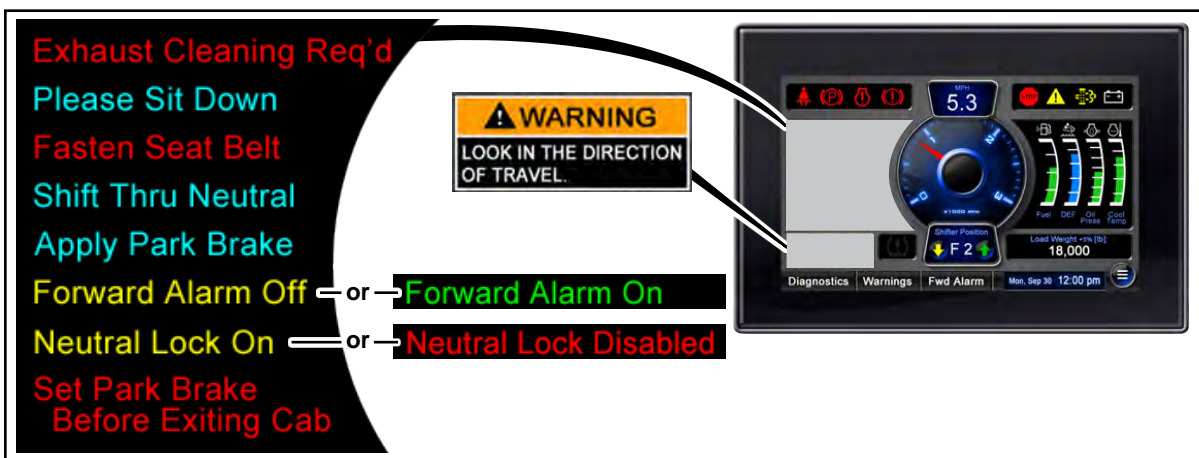
⚠WARNING: Death, serious injury, or property damage may occur from loss of brakes due to low brake pressure. Stop the truck immediately and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

12.  **Stop (Shutdown).** This icon flashes for 30 seconds before the engine shuts down. Automatic engine shut down will occur under specific situations to avoid permanent engine damage. The engine can be re-started and will run for approximately 30 seconds after each re-start.

⚠CAUTION: Permanent engine damage may occur if engine shut down information is ignored. If an engine shut down warning occurs, stop the truck as soon as it is safe to do so and notify maintenance personnel.

13.  **Warning.** Indicates that there is an Active Warning which needs to be immediately addressed. Tap the Warnings Function button to move to the Active Warnings screen. Determine the Active Warning and take appropriate action. Notify maintenance personnel if necessary.
14.  **Exhaust Cleaning.** (not applicable on trucks equipped with Volvo engines) Indicates the exhaust needs cleaning. When solid, this also indicates that the operator has 10 hours, from the time first illuminated, to find a convenient time to perform a manual cleaning. When flashing, this indicates that exhaust cleaning is in process. Refer to the “Emissions Information Screen” of this guide for more information.
15.  **Battery Voltage.** This icon indicates battery voltage and will change from white to red when the battery voltage is outside the normal operating voltage range.

⚠CAUTION: Permanent damage may occur if battery warning information is ignored. If this icon changes to red, stop the engine as soon as it is safe to do so and notify maintenance personnel.



Message Window

16. **MESSAGE WINDOW.** This area on the Home screen is used to provide important information to the operator concerning truck operating conditions. Additionally, this area is used to alert the operator of Active Warnings which need to be immediately addressed.

Possible messages which can appear in the **MESSAGE WINDOW** include, but are not limited to the following:

- A. **Exhaust Cleaning Req'd.** (not applicable on trucks equipped with Volvo engines) Indicates the exhaust needs cleaning. This also indicates that the operator has 10 hours, from the time first illuminated, to find a convenient time to perform a manual cleaning. Refer to the “Emissions Information Screen” of this guide for more information.

- B. Please Sit Down.** Indicates that the operator needs to occupy the seat.
- C. Fasten Seat Belt.** Indicates that the operator needs to fasten the seat belt.
- Note:** When “Fasten Seat Belt” illuminates, the transmission is automatically placed in Neutral Lock, disabling the directional controls. To enable the transmission directional controls, the operator must first be seated and then the seat belt fastened. Refer to “Neutral Lock” of the “Transmission Operating Instructions” of this guide.
- D. Shift Thru Neutral.** Indicates that the transmission needs to be placed in Neutral and then a direction chosen (only on trucks with column mounted shift control). Refer to “Transmission Operating Instructions” of this guide for shifting operation information.
- E. Apply Park Brake.** In the instance that the park brake was not applied when the truck was last shut down, this message will appear instructing the operator to cycle the park brake control to deactivate neutral lock (Refer to “Neutral Lock State” in this guide for detailed information).
- F. Forward Alarm On/Off.** Indicates the status of the forward alarm. Tapping the **Fwd. Alarm** function button will toggle the operation of the forward alarm.
- Note:** The ability to toggle the forward alarm on/off is only available while the forward alarm is in the Operator Controlled mode. Refer to “Forward Alarm System” in this guide for detailed information concerning forward alarm system control.
- G. Neutral Lock On.** Indicates that the Neutral Lock feature is On. Refer to “Neutral Lock” in the “Transmission Operating Instructions” in this guide for detailed information.
- H. Neutral Lock Disabled.** Indicates that the Neutral Lock feature has been disabled. Disabling Neutral Lock affects normal operation and is for maintenance purposes only. Refer to “Neutral Lock” in the “Transmission Operating Instructions” in this guide for detailed information.
- ⚠ WARNING:** Normal truck operation is affected by operating with Neutral Lock disabled. Disabling Neutral Lock is for maintenance purposes only. Stop the truck and notify maintenance personnel.
- I. Set Park Brake Before Exiting Cab.** (if equipped) Illuminates when the operator opens the cab door without setting the park brake.
- J. Look In The Direction Of Travel.** Activates when the reverse direction of travel is selected indicating the operator must look in the direction of and keep a clear view of the path of travel.

⚠ WARNING: Death or serious injury may occur if a pedestrian is struck by a truck. Never move the truck in any direction unless you have

visually cleared the area. Clear tail swing areas. Never lose sight of the ground guide if you are using a ground guide for clearance. See *Safety Check (TMW-072)*.

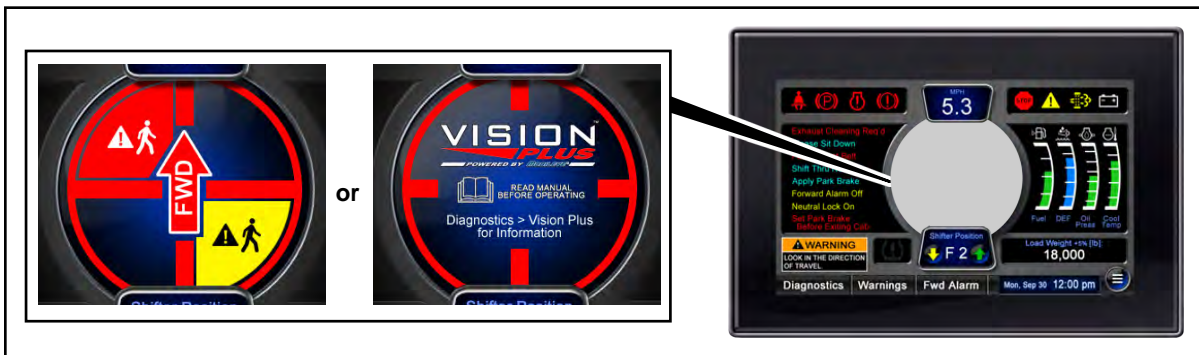


Inflation & Load Weight Indicators

17. Inflation Warning. (if equipped) This indicates improper tire inflation. When the tire pressure reaches 5% above or below normal pressure, the icon will illuminate yellow. When the tire pressure reached 10% above or below normal pressure, the icon will become red.

18. Load Weight. (if equipped) This indicates the approximate weight of the load. Refer to “Load Scale System Calibration Procedure” of this guide for calibration information.

⚠ WARNING: Death or serious injury may occur from misuse or overloading. Never handle loads which exceed the rated capacity and load center of the truck as indicated by the truck’s capacity plates. Refer to the truck’s capacity plate, located in a protected area of the truck, for specific information concerning loads.



Vision Plus™ Indicators

19. Vision Plus™ Indicators. (if equipped) Read the *Vision Plus™ Operating Instructions Guide (OG-182)* before operating.

⚠ WARNING: Death or serious injury may occur from improper training. Read, understand, and follow all operating rules found in the *Vision Plus™ Operating Instructions (OG-182)*.

⚠ WARNING: Death or serious injury may occur from ignoring the warning information provided by the Vision Plus™ system. When the audible and/or visual warning information is provided, slow down if necessary, identify the area around the vehicle where the pedestrian has been detected, and immediately clear that area of pedestrians with direct vision. Be prepared to take corrective action.

20. Home Screen Function Buttons.



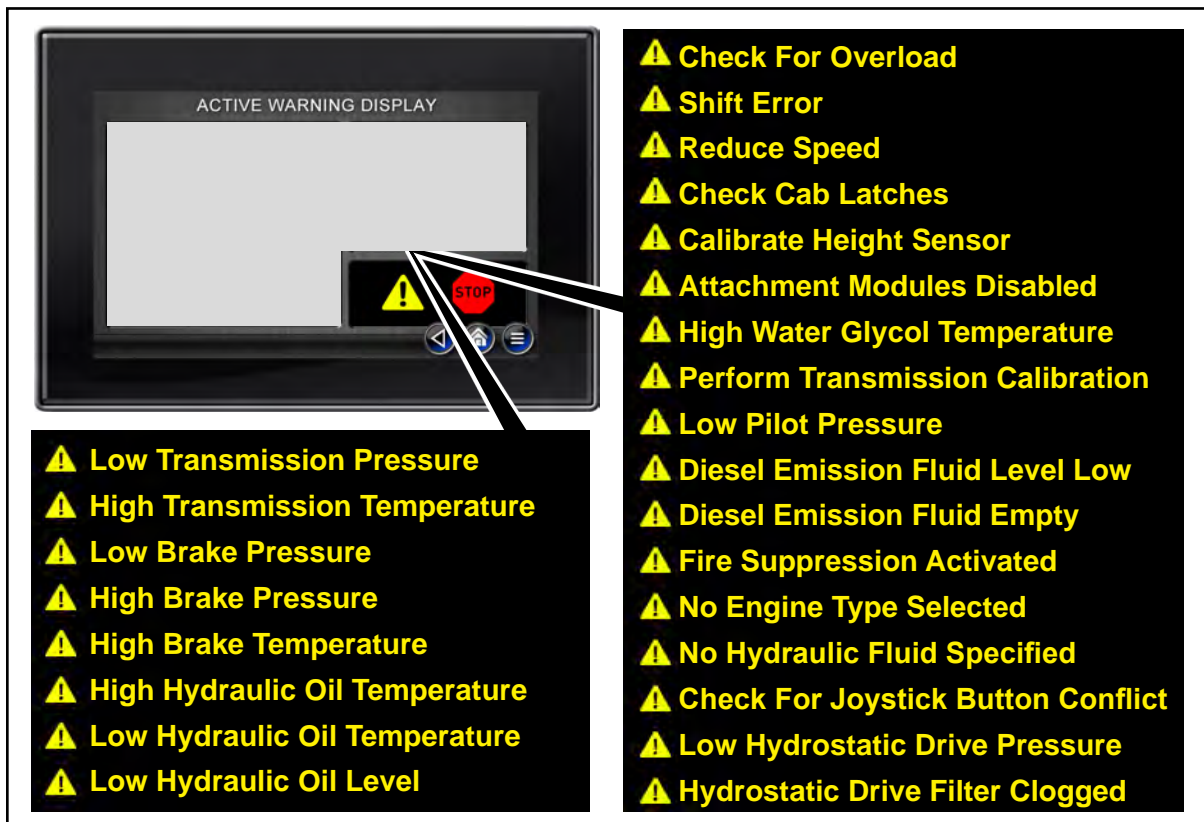
Home Screen Function Buttons

- A. Diagnostics.** Tap to enter the Diagnostics screen. Entering this screen will display various diagnostic screen options.
- B. Warnings.** Tap to enter the Active Warnings screen. Entering this screen will display any warnings that are presently active.
- C. Fwd. Alarm.** Tap to toggle operation of the Forward Alarm. **Note:** This button is only visible when the Forward Alarm is set to an Operator Controlled mode. Refer to “Forward Alarm System” of this guide.

Active Warnings Screen

Note: Some active warnings described in this section may not apply to this particular truck model.

The Active Warnings screen appears when certain circumstances occur that require immediate attention. When an issue occurs, the display module will automatically proceed from the Home screen to the Active Warning screen where active warnings are displayed. Additionally, the Active Warnings screen can be accessed by tapping the Warnings button at the Diagnostics Select screen.



Possible Active Warnings (some functions may be optional)

- 1. Low Transmission Pressure.** This warning is displayed when a low transmission pressure problem exists. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the problem has been corrected.

▲CAUTION: Permanent transmission damage may occur if warning information is ignored. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

- 2. High Transmission Temperature.** This warning is displayed when a high transmission temperature problem exists. Stop the truck immediately and notify maintenance personnel. Do not operate the truck until the high transmission temperature problem has been corrected. The engine will automatically be shut down.

⚠CAUTION: Permanent transmission damage may occur if warning information is ignored. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

- 3. Low Brake Pressure.** This warning is displayed when a low brake pressure problem exists. The low brake pressure active warning will be displayed in the event the brake pressure falls below a set pressure (See “Brake Operation” section). The parking brake will be applied as brake pressure decreases.

⚠WARNING: Death, serious injury, or property damage may occur from loss of brakes due to low brake pressure. Stop the truck immediately and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

- 4. High Brake Pressure.** This warning is displayed when a high brake pressure problem exists. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the high brake pressure problem has been corrected.

⚠WARNING: Death, serious injury, or property damage may occur from loss of brakes due to high brake pressure. Stop the truck immediately and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

- 5. High Brake Temperature.** This warning is displayed when a high brake temperature problem exists. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the high brake temperature problem has been corrected.

⚠CAUTION: Permanent brake damage may occur if warning information is ignored. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

- 6. High Hydraulic Oil Temperature.** This warning is displayed when a high hydraulic oil temperature problem exists. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the high brake temperature problem has been corrected.

⚠CAUTION: Permanent hydraulic system damage may occur if warning information is ignored. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

7. Low Hydraulic Oil Temperature. This warning is displayed when a low hydraulic oil temperature problem exists. When this warning displays, increase the hydraulic fluid temperature with a hydraulic tank heater (if equipped) or contact maintenance personnel.

8. Low Hydraulic Oil Level. This warning is displayed when the hydraulic tank oil level is low.

⚠CAUTION: Permanent damage to hydraulic components may occur by operating the truck with low hydraulic oil level. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

9. Check For Overload. If equipped with the Load Scale System, this warning is displayed when the truck is overloaded. Deposit the load and notify the appropriate personnel.

⚠WARNING: Death or serious injury may occur from misuse or overloading. Never handle loads which exceed the rated capacity and load center of the truck as indicated by the attached capacity plates. Refer to the truck's capacity plate, located in a protected area of the truck, for specific information concerning loads.

10. Shift Error. This warning is displayed when an incorrect shifting procedure was performed by the operator. For example, a directional change was attempted when ground speed was above 0.5 mph. **Note:** Refer to the "Transmission Operating Instructions" of this guide for proper gear shifting.

⚠WARNING: Death, serious injury or property damage can occur from traveling in an unintended direction. Change in vehicle direction may not occur immediately after the directional shift has been performed. When a directional shift is made, remove foot from the accelerator and slow to a creep speed to allow the shift to occur.

11. Reduce Speed. This warning is displayed when corrective action is required to complete a directional shift. Reduce vehicle speed before attempting a directional change.

⚠WARNING: Death, serious injury or property damage can occur from traveling in an unintended direction. Change in vehicle direction may not occur immediately after the directional shift has been performed. When a directional shift is made, remove foot from the accelerator and slow to a creep speed to allow the shift to occur.

12. Check Cab Latches. (on truck models with tilting cab only) This warning is displayed when the cab is unlatched. Stop the truck immediately and notify maintenance personnel. Do not operate the truck until the problem has been corrected. The truck will automatically be placed into Neutral Lock.

⚠CAUTION: Permanent damage to the cab latches may occur if warning information is ignored. If this active warning is displayed, stop the truck as

soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

13. Calibrate Height Sensor. (if equipped) This warning is displayed when a lift height sensor problem exists upon start up. Deposit the load, lower the carriage fully and raise the carriage approximately 10 feet to clear warning. If this active warning remains displayed after cycling the carriage, stop the truck as soon as it is safe to do so and notify maintenance personnel. **Note:** While this warning is active, hoist speed is automatically reduced. Once this warning is cleared, hoist speeds return to normal operating speeds.

14. Attachment Modules Disabled. This warning is displayed when the attachment modules have been disabled through TICS. **Note:** Modules are disabled to prevent TICS errors from occurring when the attachment has been removed for shipping. Modules can be re-enabled via the Attachment Adjust Group on the TICS display module.

⚠WARNING: Operating the truck with disabled TICS modules eliminates some controls of the truck. Disabling TICS modules should only be done for maintenance and shipping purposes only. Ensure all modules are enabled before placing truck in service.

15. High Water Glycol Temperature. This warning is displayed when a high water glycol temperature problem exists. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the problem has been corrected.

⚠CAUTION: Permanent hydraulic system damage may occur if warning information is ignored. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

16. Perform Transmission Calibration. This warning is displayed when there is a calibration issue concerning the transmission. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the problem has been corrected.

⚠CAUTION: If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

17. Low Pilot Pressure. This warning is displayed when a low pilot pressure problem exists. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the problem has been corrected.

18. Diesel Emission Fluid Level Low. (if equipped) This warning is displayed when the DEF tank quantity is low. Refer to “Diesel Exhaust Fluid (DEF)” of this guide.

19. Diesel Emission Fluid Empty. (if equipped) This warning is displayed when the DEF tank is empty and engine shutdown begins. Refer to “Diesel Exhaust Fluid (DEF)” of this guide.

20. Fire Suppression Activated. This warning is displayed when a third-party fire suppression system has been activated. Stop the truck immediately and exit the truck as quickly as the circumstances require. Personal safety is foremost in the event of a fire, know your employer’s fire safety rules and the guidelines published in **Fire** and **Aftermarket Fire Suppression Systems** of the **Safety First** section of this guide.

If this warning is displayed, automatic engine shut down will occur. The engine can be re-started and will run for approximately 30 seconds after each re-start.

⚠WARNING: Death or serious injury may occur from fires. Fire suppression system operation and effectiveness varies with each system design.

- The user must always read and understand the system operation guidelines provided by the specific fire suppression system manufacturer.
- Consult the company responsible for installation for additional information if necessary.
- Do not rely solely on automatic fire suppression systems to extinguish fires. Have workplace rules in place.

21. Check Vision Plus™ System (if equipped). This warning is displayed when the Vision Plus™ System has been disabled due to a system error. If this warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel.

Hydrostat Truck Related Active Warnings (if equipped)

22. Low Hydrostatic Drive Pressure. This warning is displayed when a low hydrostatic drive pressure problem exists. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the problem has been corrected.

⚠CAUTION: Permanent hydraulic system damage may occur if warning information is ignored. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

23. Hydrostatic Drive Filter Clogged. This warning is displayed when the hydrostatic drive filter is clogged. As soon as it is safe to do so, shut down the truck and notify appropriate maintenance personnel. Do not operate the truck until the problem has been corrected.

⚠CAUTION: Permanent hydraulic system damage may occur if warning information is ignored. If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

Maintenance Related Active Warnings

The following active warnings are displayed only when there is an issue with initial truck setup. Contact maintenance personnel.

24. No Engine Type Selected. This warning is displayed when there is a recognition issue concerning the engine. Notify appropriate maintenance personnel.

⚠CAUTION: If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

25. No Hydraulic Fluid Specified. This warning is displayed when there is a recognition issue concerning the hydraulic fluid. Notify appropriate maintenance personnel.

⚠CAUTION: If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

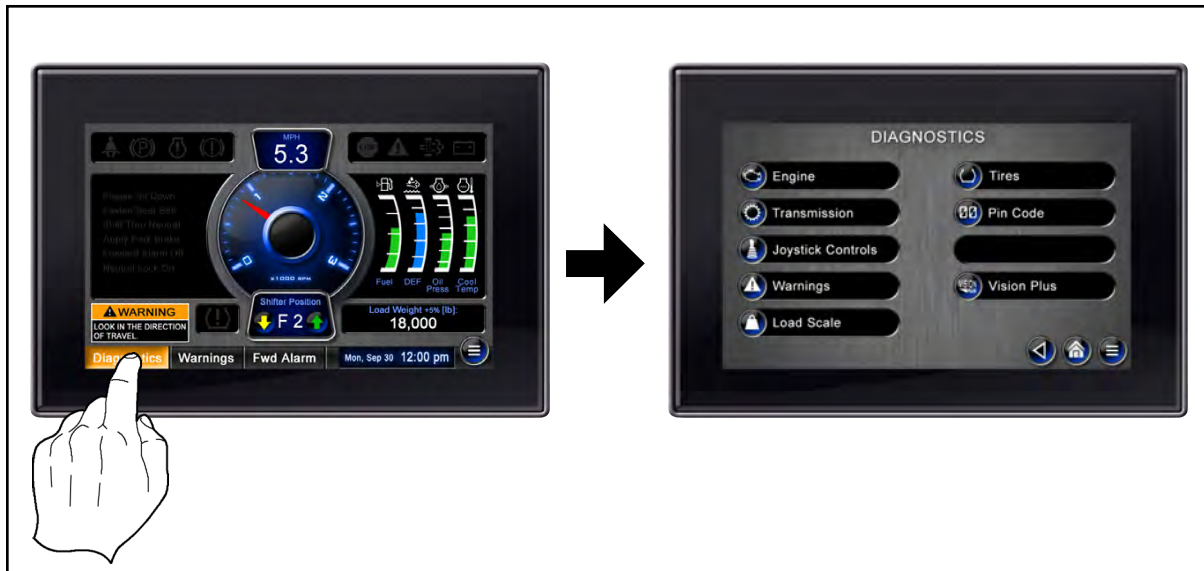
26. Check For Joystick Button Conflict. This warning is displayed when there is a recognition issue concerning the joystick. Notify appropriate maintenance personnel.

⚠CAUTION: If this active warning is displayed, stop the truck as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

Alternate Display Screens

Diagnostics. The TICS Display Module can be used to display specific component information such as engine or transmission settings. To access this information, select the Diagnostics button on the Home screen.

⚠WARNING: Death or serious injury may occur from improper operation of the lift truck. The TICS control system affects many electrical and hydraulic components. Incorrect settings may affect correct function and safe operation. Some parameters within the TICS system are password protected and all system parameters should only be modified by trained and authorized personnel.



Diagnostics Function Button

The following outline summarizes the possible alternate display screens available through the Diagnostics function button.

Note: The actual installed functions which are controlled by the Diagnostics screens may differ slightly depending on exact model truck or equipped options. Some diagnostic functions shown may not be present on this particular truck model. Additionally, there may be options installed on a particular truck which may not be described in detail in this guide.



Diagnostics Screen Examples

The following is an outline of typical Diagnostics screens and their function button options:

ENGINE

- Service Timer
- Emissions
- Diagnostic Mode
- Alternate Idle
- P.O.D. (Power On Demand)

TRANSMISSION

- Shift Mode
- Trans Controls
- Fwd. Alarm
- Starting Gear
- Calibrate Trans

JOYSTICK CONTROLS

- Lift / Tilt
- Accessory Function
 - Acc 1-5
- Joystick Inputs
- Disconnect Pressure Relief

WARNINGS

TIRE INFORMATION

- Add Sensor
- Delete Sensor

LOAD SCALE

- Enable Calibration
- Press to Calibrate

PIN CODE

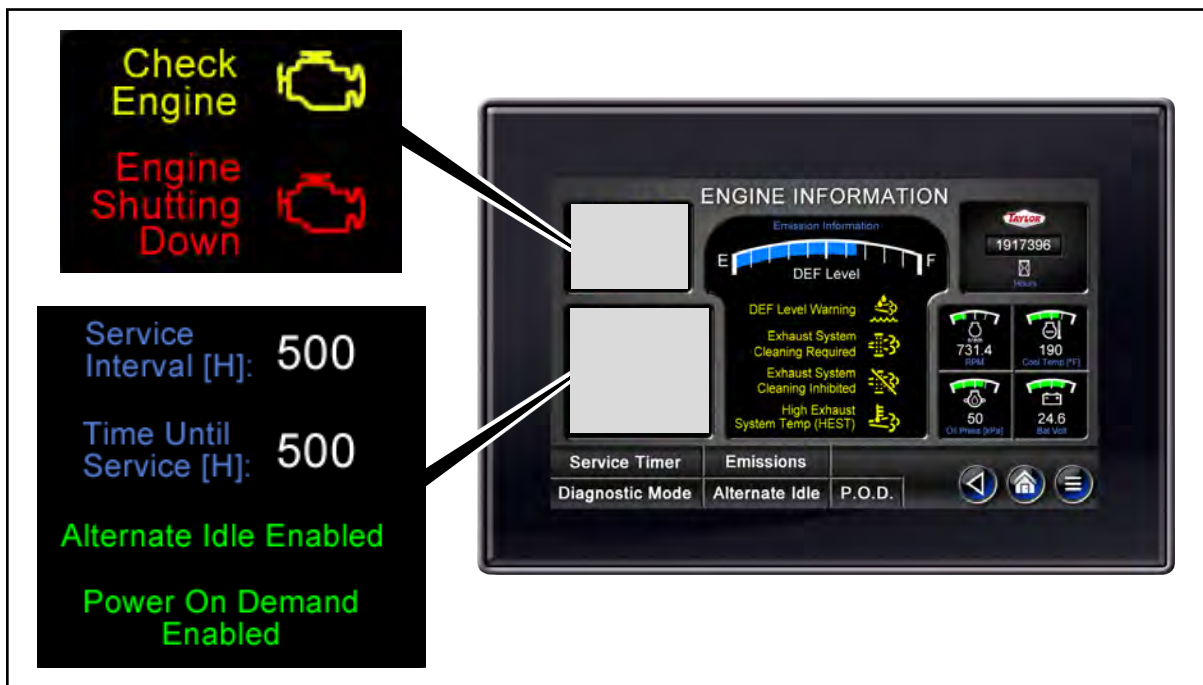
VISION PLUS™ (if equipped)

Refer to **Vision Plus™ Operating Instructions (OG-182)** for more information

Engine Information Screen

Note: Some engine information described in this section may not apply to this particular truck model. Additionally, there may be some functionality installed on a particular truck which may not be described in detail in this manual.


Engine Information Screen. The Engine Information screen displays the status of the engine diagnostic icons. The Engine Information screen will automatically be displayed when service is required, a system fault is activated, or the engine shut down warning is activated. To view the Engine Information screen when it does not automatically appear, tap the Engine function button on the Diagnostics Select screen.




Engine Warning and Engine Status Windows

The Engine Information screen displays the status of the engine and emissions operating information. The operating information that appears on the Engine Information screen is described as follows:

Engine Warning Window.

1.  **(Yellow) Check Engine.** (not applicable on trucks equipped with Volvo engines) A yellow Check Engine icon and text will illuminate on the Engine Information screen when a nonfatal system error has occurred. The engine can still be operated, but the fault should be corrected as soon as possible.

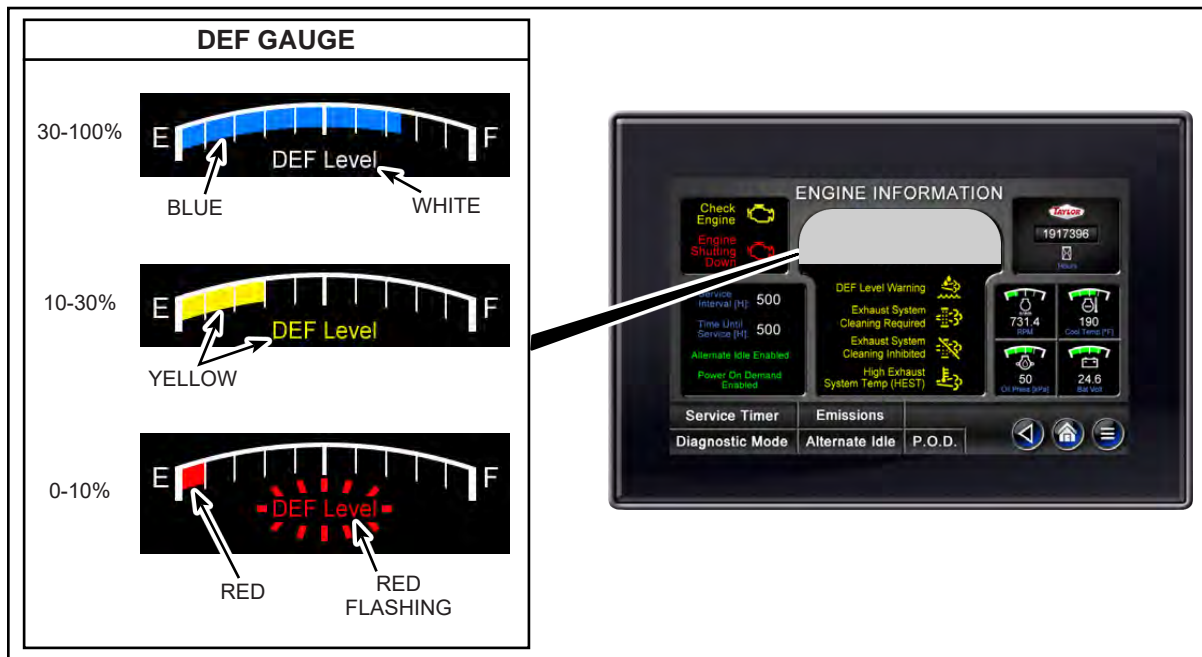
⚠CAUTION: Permanent engine damage may occur if system faults are ignored. If a system fault occurs, notify maintenance personnel as soon as possible.

-  **(Red) Engine Shutting Down.** (not applicable on trucks equipped with Volvo engines) A red Engine Shutting Down icon and text will illuminate on the Engine Information screen, indicating that the engine needs to be shut down before permanent damage occurs to the engine. If the red icon is flashing, the engine will be shut down automatically after approximately 30 seconds. The engine can be re-started and will run for approximately 30 seconds at each re-start.

⚠CAUTION: Permanent engine damage may occur if engine shut down information is ignored. If an engine shut down warning occurs, stop the truck as soon as it is safe to do so and notify maintenance personnel.

Engine Status Window.

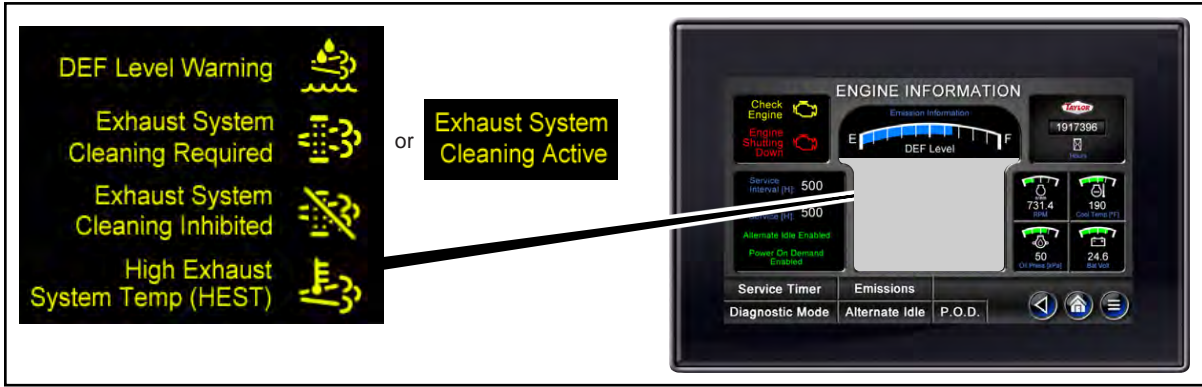
- Service Interval.** This indicates the amount of hours of the current service interval. It has been factory set for 500 hours.
- Time Until Service.** This feature serves as an aid to alert operators and maintenance personnel how many hours of operation remains until routine maintenance should be performed.
- Alternate Idle Enabled/Disabled.** This indicates the status of the Alternate Idle engine warm-up assist feature.
- Power On Demand Enabled/Disabled.** This indicates the status of the Power On Demand feature.



DEF Level

- DEF (Diesel Exhaust Fluid) Level.** (on all models equipped with DEF) This

indicates the DEF quantity in the tank. When the DEF quantity is above 30%, the bar is blue and DEF Level text is white. When the DEF quantity is between 10% and 30%, the bar and DEF Level text are yellow indicating that quantity is low. When the DEF quantity is less than 10%, the bar and DEF Level text are red and DEF Level text begins to flash.




Emissions Information Window



8. Emissions Information Window. This area on the Engine Information screen is used to provide important information to the operator concerning the truck emissions system. Additionally, this area is used to alert the operator of emissions issues which need to be immediately addressed.


Possible messages which can appear in the EMISSIONS INFORMATION WINDOW include, but are not limited to the following:

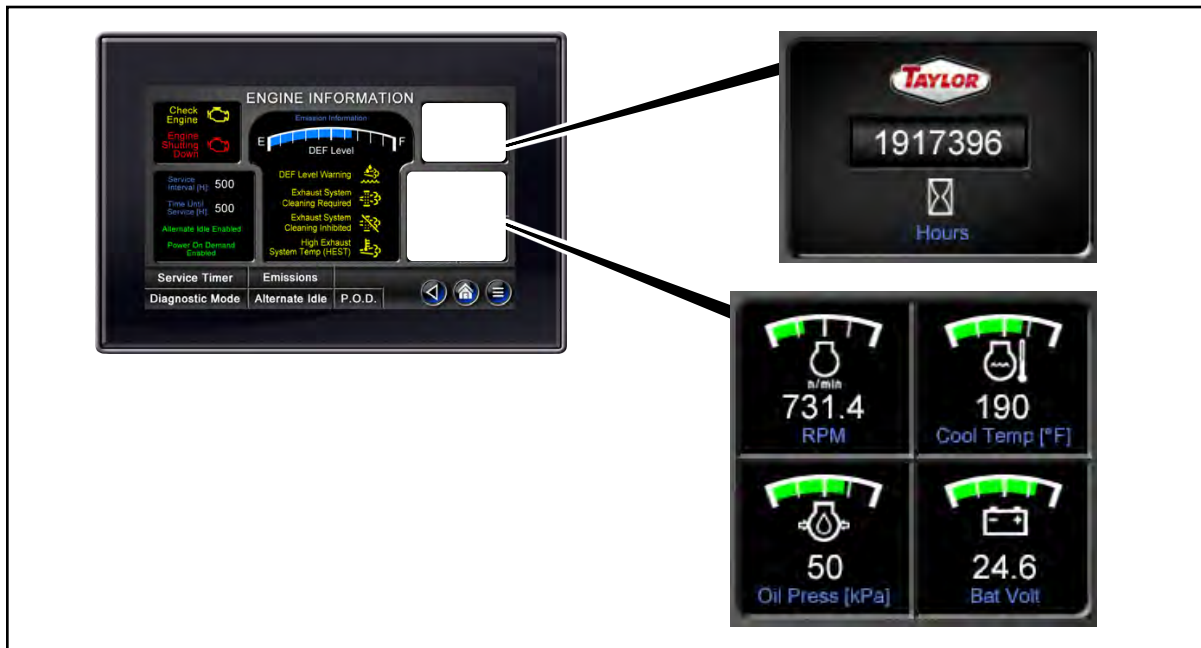
On all models equipped with DEF:

A.  **DEF Level Warning.** This icon and text will illuminate when the DEF tank level is low. If the DEF tank level reaches empty, this icon will begin to flash.


Not applicable on trucks equipped with Volvo engines:

- B.  **Exhaust System Cleaning Indicator.** This icon and text displays when there is a cleaning issue concerning the exhaust system.
- 1). **Exhaust System Cleaning Required.** A yellow icon and Cleaning Required text will be displayed when the exhaust system requires the operator to manually initiate exhaust system cleaning. Refer to the “Emissions Information Screen” of this guide for more information.
 - 2). **Exhaust System Cleaning Active.** A flashing yellow icon and Cleaning Active text will be displayed during an active exhaust system cleaning function.
- C.  **Exhaust System Cleaning Inhibited.** This icon and text is displayed when the exhaust system cleaning has been manually inhibited. Refer to the “Emissions Information Screen” of this guide for more information.



- D.  High Exhaust System Temp. This icon and text is displayed when higher-than-normal exhaust temperatures occur during exhaust system cleaning.




Engine Hours and Engine Gauges Window

9.  **Engine Hours.** This indicates the number hours the engine has been operated.

Engine Gauges Window.

10.  **Engine RPM.** This indicates engine speed.
11.  **Engine Coolant Temperature.** This icon indicates engine coolant temperature and will change from white to red when the engine coolant temperature is greater than the normal operating temperature.

CAUTION: Permanent engine damage may occur if engine warning information is ignored. If this icon changes to red, stop the engine as soon as it is safe to do so and notify maintenance personnel.

12.  **Engine Oil Pressure.** This icon indicates engine oil pressure and will change from white to red when the engine oil pressure has fallen below normal operating pressures.

CAUTION: Permanent engine damage may occur if engine warning information is ignored. If this icon changes to red, stop the engine as soon as it is safe to do so and notify maintenance personnel.

13.  **Battery Voltage.** This icon indicates battery voltage and will change from

white to red when the battery voltage is outside the normal operating voltage range.

⚠CAUTION: Permanent damage may occur if battery warning information is ignored. If this icon changes to red, stop the engine as soon as it is safe to do so and notify maintenance personnel.



Engine Information Screen Function Buttons

14. Engine Information Screen Function Buttons.


- A. Service Timer.** Tap to enter the Service Timer screen. Entering this screen will display the time remaining before service is required and allow the timer to be reset. For use by maintenance personnel only.
- B. Emissions.** Tap to enter the Emissions Information screen. Refer to “Emissions Information Screen” of this guide for more information.
- C. Diagnostic Mode.** For use by maintenance personnel only.
- D. Alternate Idle.** Tap to toggle Alternate Idle On and Off. This feature allows the engine to be warmed with an increased low idle engine speed.
Note: This feature can only be activated when the truck is in Neutral Lock. Refer to “Neutral Lock” of the “Transmission Operating Instructions” of this guide for more information.
- E. P.O.D. (Power On Demand).** Tap to toggle P.O.D. On and Off. This feature automatically increases engine rpm when lift and tilt functions are activated.

Note: When P.O.D. is toggled On and a joystick function is activated, engine rpm will increase only when the transmission is placed in neutral by the shift control, by activating the park brake, or by pressing the declutch pedal. Refer to “Neutral Lock State” of the “Transmission Operating Instructions” section of this guide for more information.

Engine Fault Code Warning. An engine fault code warning will be displayed on the TICS display module when an engine fault has occurred. Record the fault codes (SPN and FMI) and contact maintenance personnel.



Engine Fault Code Warning

Alternately, engine fault code warnings can be displayed by accessing the Modules screen. To access the Modules screen, tap the Main Menu button , Info, and then Modules. Tap the appropriate engine function button (i.e. Volvo or Cummins, etc.).

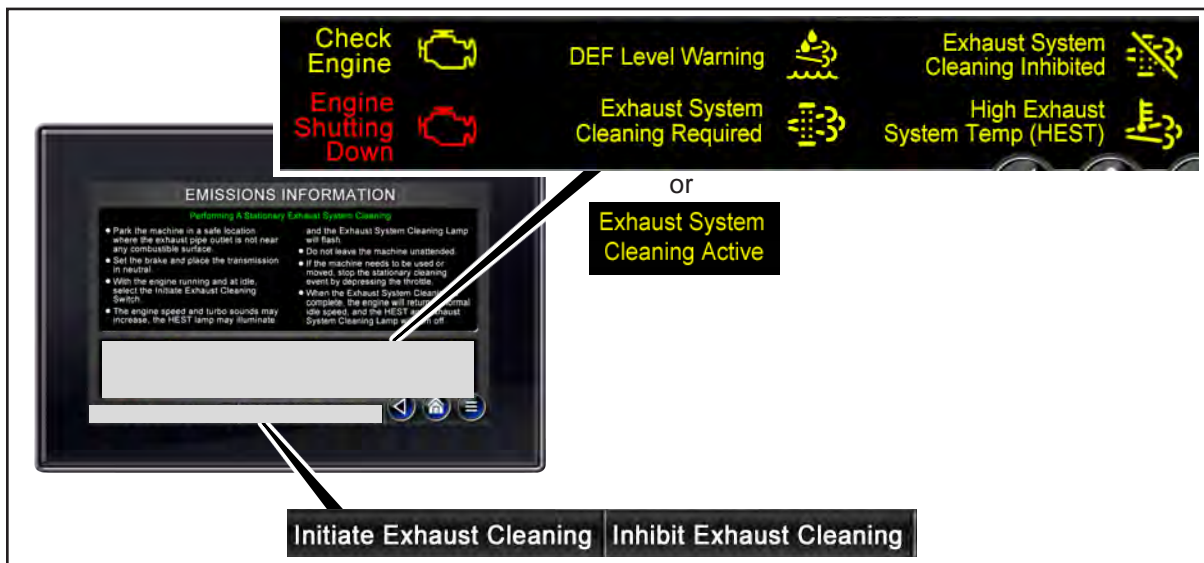
Emissions Information Screen

For trucks equipped with DEF

Not applicable to trucks equipped with Volvo engines


Emissions Information Screen. The Emissions Information screen displays the status of the exhaust system as well as instructs on how to properly and safely clean the emissions system. The Emissions Information screen will automatically be displayed by the display module when cleaning is required. To view the Emissions Information screen when it does not automatically appear, tap the **Emissions** function button on the Engine Information screen.

Note: Refer to “Exhaust System Cleaning” of this section for more information concerning exhaust system cleaning and indicators.




Emissions Information Screen


The Emissions Information screen displays the status of the emissions system operating information. The operating information that appears on the Emissions Information screen is described as follows:


1.  **(Yellow) Check Engine.** A yellow Check Engine icon and text will illuminate when the exhaust system has degraded due to a lack of cleaning. The engine can still be operated, but engine rpm will decrease.

CAUTION: Permanent engine and exhaust damage may occur if exhaust system cleaning commands are ignored. If Check Engine appears, clean the exhaust system as soon as possible. Refer to “Exhaust System Cleaning” of this guide for more information.

2.  **(Red) Engine Shutting Down.** A red Engine Shutting Down icon and text will illuminate indicating that the engine will shut down before permanent damage occurs to the engine and exhaust system. If the red icon is flashing, the engine will be shut down automatically after approximately 30 seconds. The engine can be re-started and will run for approximately 30 seconds at each re-start.


⚠CAUTION: Permanent engine damage may occur if engine shut down information is ignored. If an engine shut down warning occurs, stop the truck as soon as it is safe to do so and notify maintenance personnel.

3.  **DEF Level Warning.** A yellow DEF Level Warning icon and text will illuminate when DEF tank level is low. If the DEF tank level reaches empty, this icon will begin to flash.

4.  **Exhaust System Cleaning Indicator.** This icon and text displays when there is a cleaning issue concerning the exhaust system.

A. Exhaust System Cleaning Required. A yellow Exhaust System Cleaning Required icon and text will illuminate when the exhaust system requires the operator to manually initiate exhaust system cleaning. Once this indicator illuminates, the operator has 10 hours to find a convenient time to perform a manual cleaning.

B. Exhaust System Cleaning Active. A flashing yellow Exhaust System Cleaning Active icon and text will illuminate during an active exhaust system cleaning function.

5.  **Exhaust System Cleaning Inhibited.** A yellow Exhaust System Cleaning Inhibited icon and text will illuminate when the exhaust system cleaning is manually inhibited.

6.  **High Exhaust System Temp (HEST).** This icon and text is displayed when higher-than-normal exhaust temperatures occur during exhaust system cleaning.

⚠WARNING: Death, serious injury, or property damage may occur from fires caused by higher than normal exhaust temperatures. During the cleaning process, keep the exhaust pipe outlet away from flammable or combustible surfaces.

7. **Emissions Information Screen Function Buttons.** (Refer to “Exhaust System Cleaning” of this guide)

A. Initiate Exhaust Cleaning. Tap to manually start cleaning the exhaust system.

Note: Before manually cleaning the exhaust system, follow all instructions provided on the Emissions Information screen.

B. Inhibit Exhaust Cleaning. Tap to toggle On and Off the Inhibit Exhaust Cleaning function. Tapping this button will prevent the exhaust system from

automatically cleaning the exhaust system and the Exhaust System Cleaning Inhibited text and icon will appear on the display module. While this function is activated, cleaning of the exhaust system cannot be performed.

- 8. Perform Exhaust Cleaning Within __. __ Hours.** This indicator is a timer that indicates the remaining time that the operator has to find a convenient time to perform a manual cleaning.

Exhaust System Cleaning

For trucks equipped with DEF

Not applicable to trucks equipped with Volvo engines

This truck is equipped with an exhaust cleaning system. During normal operation, deposits form in the exhaust system when the exhaust temperature is not adequate to burn away these deposits. The exhaust system must be periodically cleaned to maintain proper function of the engine and the exhaust system.

Why is this important?

1. Exhaust cleaning must be performed within every 60 to 80 hours of truck operation. If the cleaning system is unable to clean automatically, the operator must perform a manual cleaning. For this reason, operators should recognize and understand exhaust system cleaning related icons and function buttons.
2. During the exhaust system cleaning process, exhaust temperatures can be elevated when not expected. The operator should be aware that unexpected, higher than normal, exhaust temperatures may occur and take precautions in environments where such temperatures could be a hazard.

⚠WARNING: Death, serious injury, or property damage may occur from fires caused by higher than normal exhaust temperatures. During the cleaning process, keep the exhaust pipe outlet away from flammable or combustible surfaces.

3. Manual cleaning processes require the truck to be pulled from service. Understanding cleaning process details can help operators know when exhaust cleaning is necessary and when it can be postponed until it is convenient to perform a manual cleaning.

Exhaust system cleaning happens in one of two ways; automatically or manually.

Automatic Cleaning (most common).

Automatic exhaust system cleaning is initiated by a system operated timer. Under normal conditions, the exhaust cleaning system will perform an automatic cleaning and the operator will not know that the cleaning has been performed. During automatic cleaning, truck performance is not affected, and on rare occasions, the HEST indicator will be the only indication that an automatic cleaning is in process [Refer to “High Exhaust System Temperature (HEST)” of this section]. Since automatic cleaning is performed during the truck’s normal operation, the truck does not have to be pulled from service. Once automatic cleaning is initiated, exhaust temperatures will elevate to reach temperatures necessary for burning away deposits.

Manual Cleaning

In the event that an automatic cleaning has failed to successfully complete, the operator will need to perform a manual cleaning. The exhaust system uses a series

of indicators to not only alert the operator if a manual cleaning is necessary, but also to indicate when the engine will shutdown to avoid damage to engine and exhaust system when exhaust cleaning has been ignored. Manual exhaust system cleaning is a process that takes approximately 15 to 30 minutes to successfully complete.

Exhaust System Cleaning Required. This yellow Exhaust System Cleaning Required icon and text is the first indicator that a manual cleaning is required. These will illuminate when an automatic cleaning failed to complete and indicates that the operator needs to perform a manual cleaning. Once this icon illuminates, the operator has 10 hours to find a convenient time to perform a manual cleaning (refer to “Perform a Manual Cleaning” of this section).



Exhaust System Cleaning Required Indicator

Operator Options. Once this indicator illuminates, the operator will have two options:

- A. Stop work and perform a manual cleaning.
- B. Continue work and perform a manual cleaning at a convenient time. Refer to “When the Exhaust System Cleaning Required” indicator is ignored of this section.

Perform a Manual Cleaning. To manually clean the exhaust system, perform the following:



Initiate Exhaust Cleaning Function Button

1. Park the truck in a safe location where the exhaust pipe outlet is not near any combustible surface. High exhaust temperatures will occur.
2. Set the park brake and place the transmission in neutral.

3. Ensure the engine is running and at idle.
4. At the Emissions Information screen, tap the **Initiate Exhaust Cleaning** button.

Notes:

- The engine speed and turbo sounds may increase, the HEST lamp [refer to “High Exhaust System Temperature (HEST)” of this section] may illuminate and the Exhaust System Cleaning Lamp will flash.
- Do not leave the truck unattended. The truck is unattended when the operator is 25 feet (7.6 meters) or more away from the truck which remains in the operator’s view, or whenever the operator leaves the truck and it is not in the operator’s view.



Exhaust System Cleaning Active Indicator

During manual exhaust cleaning, the yellow Exhaust System Cleaning Active text and icon will illuminate on both the Engine Information and Emissions Information screens.

When a manual cleaning is successfully completed, the automatic timer will start over and the system will try to perform an automatic cleaning the next time cleaning is required.

To stop the manual cleaning process, perform the following:

1. Press the throttle.

Note: When the exhaust system cleaning is complete, the engine will return to normal idle speed, and the HEST and Exhaust System Cleaning Active will turn off.


Note: If the exhaust cleaning process is stopped before it is fully completed, cleaning must be initiated again to completely clean the exhaust and ensure proper exhaust function.

When the Exhaust System Cleaning Required indicator is ignored. In the event that the Exhaust System Cleaning Required indicator is ignored for 10 hours, deposits will continue to build. If this indicator is ignored until the 10 hour period ends,

engine performance will derate and the engine will eventually shutdown.




Check Engine Indicator

 **Check Engine.** If the Exhaust System Cleaning Required indicator is ignored for 10 hours, the yellow Check Engine icon and text will illuminate. The Check Engine indicator alerts the operator that exhaust cleaning is required to prevent damage to engine and exhaust system. When this indicator illuminates, the engine will go into derate mode causing engine performance to be impacted. The engine can still be operated, but engine rpm will decrease and continue to decrease until the engine shuts down or a manual cleaning is performed. Once engine deration begins, the operator must perform a manual cleaning to regain proper truck operation.

CAUTION: Permanent engine and exhaust damage may occur if exhaust system cleaning commands are ignored. If Check Engine appears, clean the exhaust system as soon as possible. Refer to “Manual Cleaning” of this section for more information.



Engine Shutting Down Indicator

 **Engine Shutting Down.** If the Exhaust System Cleaning Required and Check Engine indicators are ignored, eventually the red Engine Shutting Down indicator will illuminate. The Engine Shutting Down icon and text will illuminate indicating that the engine will shut down before permanent damage occurs to the engine and exhaust system. If the red icon is flashing, the engine will be shut down automatically after approximately 30 seconds. The engine can be re-started and will run for approximately 30 seconds at each re-start.

⚠CAUTION: Permanent engine damage may occur if engine shut down information is ignored. If an engine shut down warning occurs, stop the truck as soon as it is safe to do so and notify maintenance personnel.

High Exhaust System Temperature (HEST).



High Exhaust System Temp (HEST)

During exhaust system cleaning, exhaust temperatures elevate above normal exhaust operating temperatures. In some cases, temperatures may elevate higher than what is normally required for cleaning. When this occurs, the HEST text and icon will illuminate.

Note: In the event that high exhaust temperatures occur during a manual cleaning and present a hazard, the manual cleaning process can be stopped by pressing the throttle.

Note: If a manual cleaning is stopped before the process is complete, another manual cleaning will be necessary to complete the process, turn the cleaning required indicators off, and restart the automatic exhaust cleaning system.

Inhibit Exhaust Cleaning



Inhibit Exhaust Cleaning Function Button and Indicator

Certain working environments may not be suitable for automatic exhaust system cleaning due to the high exhaust temperatures generated during the cleaning process. While operating in these environments, inhibiting automatic exhaust system

cleaning and choosing a safe location to perform a manual cleaning is recommended.

To inhibit exhaust system cleaning, tap the Inhibit Exhaust Cleaning function button. The yellow Exhaust System Cleaning Inhibited icon and text will illuminate. To turn off the inhibit cleaning function, tap the Inhibit Exhaust Cleaning function button again. This will cause the yellow Exhaust System Cleaning Inhibited icon and text to turn off.

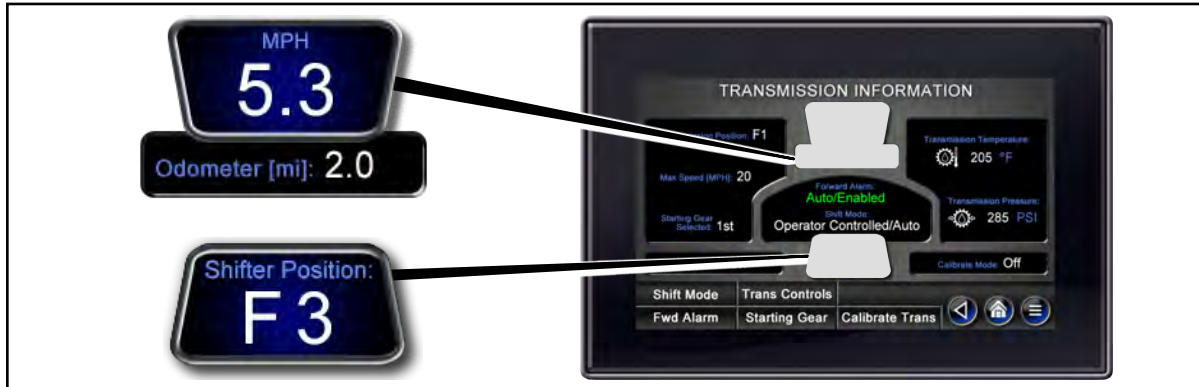
Note: If the Exhaust System Cleaning Inhibited indicator is illuminated, exhaust cleaning (automatic or manual) cannot be performed until the Inhibit Exhaust Cleaning button is tapped again and the Exhaust System Cleaning Inhibited indicator turns off.

Note: When the truck is shut down, the Exhaust System Cleaning Inhibited feature will be deactivated.

Transmission Information Screen

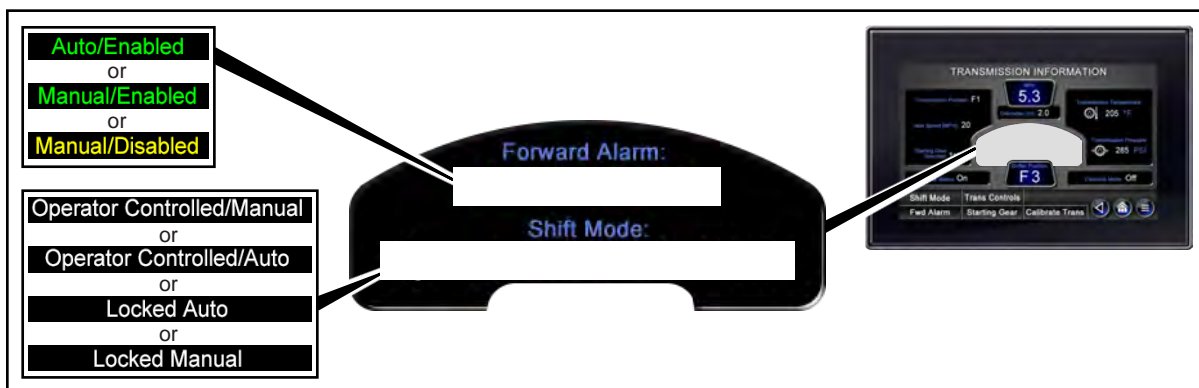
Note: Some transmission information described in this section may not apply to this particular truck model. Additionally, there may be functionality installed on a particular truck which may not be described in detail in this manual.

Transmission Information Screen. The Transmission Information screen displays operational information of the transmission. To view the Transmission Information screen, tap the **Transmission** function button on the Diagnostics Select screen.



Speed, Odometer and Shifter Position Indicators

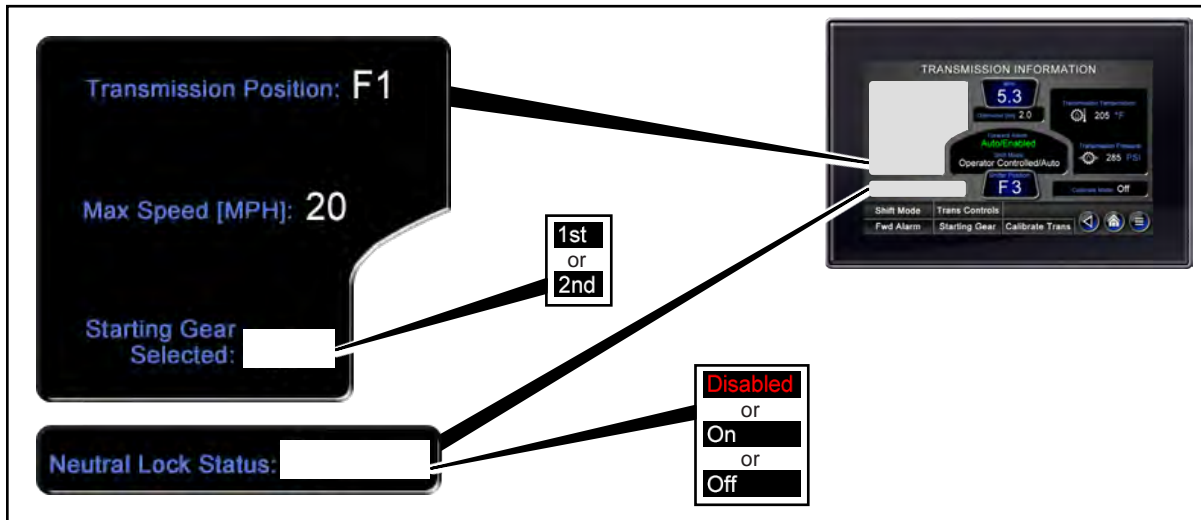
1. **MPH (or KPH).** This indicates vehicle speed in miles per hour.
2. **Odometer.** (on some models) Indicates the total distance that the truck has traveled.
3. **Shifter Position.** This indicates the transmission gear selected by the operator (refer to the “Transmission Operating Instructions” of this guide).



Forward Alarm and Shift Mode Indicators

4. **Forward Alarm.** This indicates the status of the Forward Alarm feature (refer to the “Forward Alarm System” of this guide).

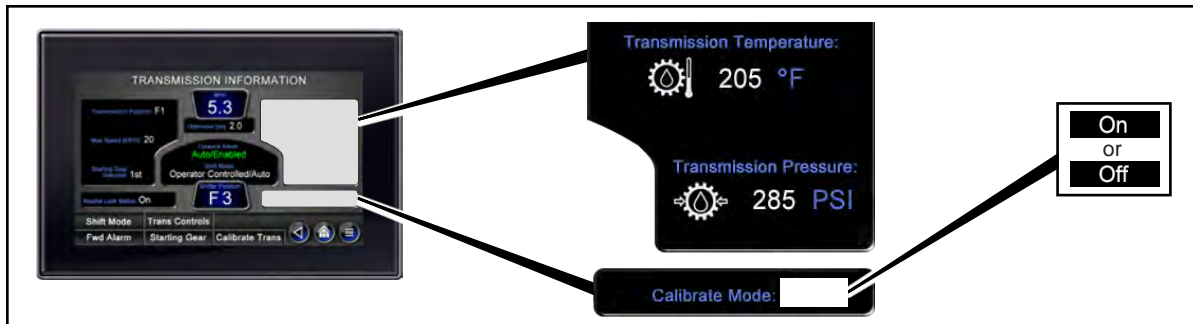
5. **Shift Mode.** This indicates the current transmission shift mode. There are various directional control options available for this truck model. The available shift modes vary between options. Refer to the “Transmission Operating Instructions” of this guide.



Transmission Gear, Max Speed and Neutral Lock Indicators

6. **Transmission Position.** This indicates the current gear of the truck.
7. **Max Speed (MPH).** This indicates the maximum allowable ground speed.
8. **Starting Gear Selected.** This indicates the gear in which the truck starts while operating in the Auto Shift Modes.
9. **Neutral Lock Status (On/Off/Disabled).** This indicates the status of the Neutral Lock feature. Refer to “Neutral Lock” in the “Transmission Operating Instructions” in this guide for detailed information.

⚠ WARNING: Normal truck operation is affected by operating with Neutral Lock disabled. Disabling Neutral Lock is for maintenance purposes only. Stop the truck and notify maintenance personnel.



Transmission Temperature, Transmission Pressure and Calibrate Mode Indicators

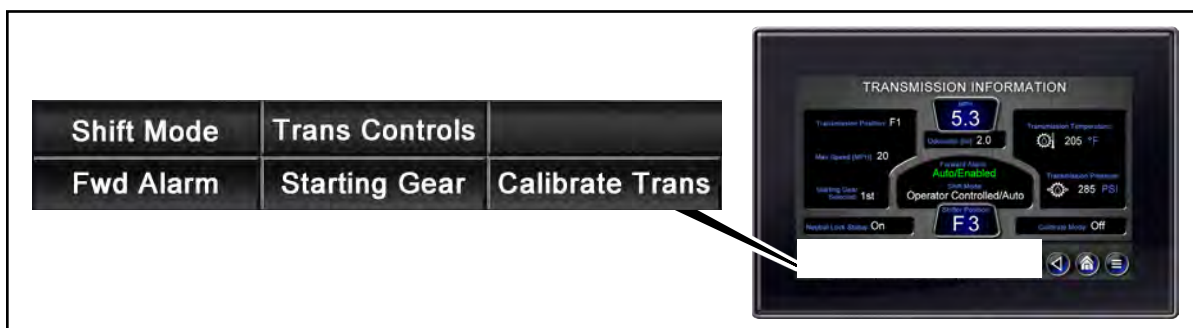
10. Transmission Temperature. This icon indicates the transmission operating temperature. If this icon changes from white to red, the transmission has over-heated and the engine will shut down.

⚠CAUTION: Permanent transmission damage may occur if warning information is ignored. If this icon changes to red, stop the engine as soon as it is safe to do so and notify maintenance personnel. Do not operate the truck until the problem has been resolved.

11. Transmission Oil Pressure. (on some models) This icon indicates the transmission operating oil pressure. If this icon changes from white to red, the transmission oil pressure has fallen below normal operating pressure and the transmission will begin to function improperly.

⚠CAUTION: Permanent transmission damage may occur if transmission warning information is ignored. If this icon is flashing red, stop the truck as soon as it is safe to do so and notify maintenance personnel.

12. Calibrate Mode. (on some models) This indicates when the transmission Calibrate Mode is On or Off. For use by maintenance personnel. Do not operate the truck if the transmission Calibrate Mode is On.



Transmission Information Screen Function Buttons

13. Transmission Information Screen Function Buttons.

A. Shift Mode. (if equipped) Tap to toggle operation of the Shift Mode.

Note: This button is not available on trucks with joystick mounted shift controls.

B. Trans Controls. Tap to enter the Transmission Controls screen. Refer to “Transmission Control Screen” of this guide for more information.

C. Fwd. Alarm. Tap to toggle operation of the Forward Alarm.

Note: This button is only visible when the Forward Alarm is set to an Operator Controlled mode.

D. Starting Gear. Tap to toggle the Starting Gear between First and Second. Refer to “Transmission Operating Instructions” of this guide.

Note: This button is only visible when the Starting Gear Select is set to an Operator Controlled mode.

E. Calibrate Trans. (on some models) Tap to toggle Calibrate Mode On and Off. For use by maintenance personnel.

Joystick Controls Screen

Joystick Controls Screen. The Joystick Controls screen displays operational status information of the joystick. To view the Joystick Controls screen, tap the Joystick Controls function button on the Diagnostics Select screen.

Note: This screen is for use by maintenance personnel to check functions of the joystick.








Joystick Controls Screen

TICS Machine Limiting Controls

There are controls integrated into the TICS system which can limit functions of the truck under specific circumstances. These controls are called “limiting controls” because they can limit the normal operation of the vehicle. Limiting controls occur when more than one parameter must be met before a function will work properly. For instance, the operator must be seated for TICS to allow the machine to be shifted from neutral. Almost all limiting controls can be addressed by the operator, and indicators are provided on the Home Screen to describe the limiting control and what action is required. Some information may be provided on an alternate screen. If a machine control is encountered frequently, a review of the operational procedures may be necessary to ensure proper operation procedures are being followed.

The Limiting Controls provided in the chart below are those which are included in the standard TICS control system for this truck model. Because of the wide variety of options, there may be limiting controls on your specific machine not described in this guide. Further, the limiting controls outlined in this section include only those which can occur during normal truck operation. Limiting controls which are a result of defective components or system faults are not included in this guide and may be found in the Maintenance Manual for this model. For any questions about TICS and limiting controls, contact authorized service personnel or your servicing Taylor dealer.

Machine Function Limited	Cause	Warning / TICS Display	Solution
Lift & Tilt Suspended	Operator seat is vacant	Please Sit Down displays on the Home screen.	Sit in the seat
	Engine rpm below 600	 Engine rpm is displayed on the Engine Information screen	Contact maintenance personnel
Accessory Functions Suspended	Operator seat is vacant	Please Sit Down displays on the Home screen	Sit in the seat
	Engine rpm below 600	 Engine rpm is displayed on the Engine Information screen	Contact maintenance personnel
Vehicle Movement Suspended (Transmission disengaged) (Continued on next page)	Alternate Idle is active	Alternate Idle Enabled displays on the Engine Information screen	Tap  to toggle Alternate Idle off


Machine Function Limited	Cause	Warning / TICS Display	Solution
Vehicle Movement Suspended (Transmission disengaged) (Continued)	Operator seat is vacant	Please Sit Down displays on the Home screen	Sit in the seat
	Parking brake is applied	 displays on the Home screen	Push the parking brake knob in to release the parking brake
	Seat belt is unfastened	Fasten Seat Belt displays on the Home screen	Fasten seat belt
	Seat belt sequence not preformed properly	Fasten Seat Belt displays on the Home screen (even if seat belt is fastened)	Perform proper sequence. Refer to Fasten Seat Belt of the Home Screen section of this guide.
Neutral Lock On displays on the Home screen			
Travel Speed Reduced	Authorized personnel has reduced Percent Ground Speed	Maximum Speed (MPH):  displays on the Transmission Information screen	Contact maintenance personnel
	Neutral Lock is Disabled	Neutral Lock Status: Disabled displays on the Transmission Information screen	Stop truck operation and contact maintenance personnel
		Neutral Lock Disabled displays on the Home screen	
Engine Shuts Down	Operator seat has been vacant for more than 5 minutes (adjustable by authorized personnel)	Please Sit Down displays on the Transmission Information screen	Sit in the seat and re-start the truck
	Transmission has been in Neutral for more than 5 minutes (adjustable by authorized personnel)	N 1 displays on the Home screen.	Re-start the truck
Truck Will Not Start	Shifter is not in Neutral (on trucks equipped with column mounted shifter)	Shift Thru Neutral displays on the Home screen	Place the shifter in Neutral and start the truck

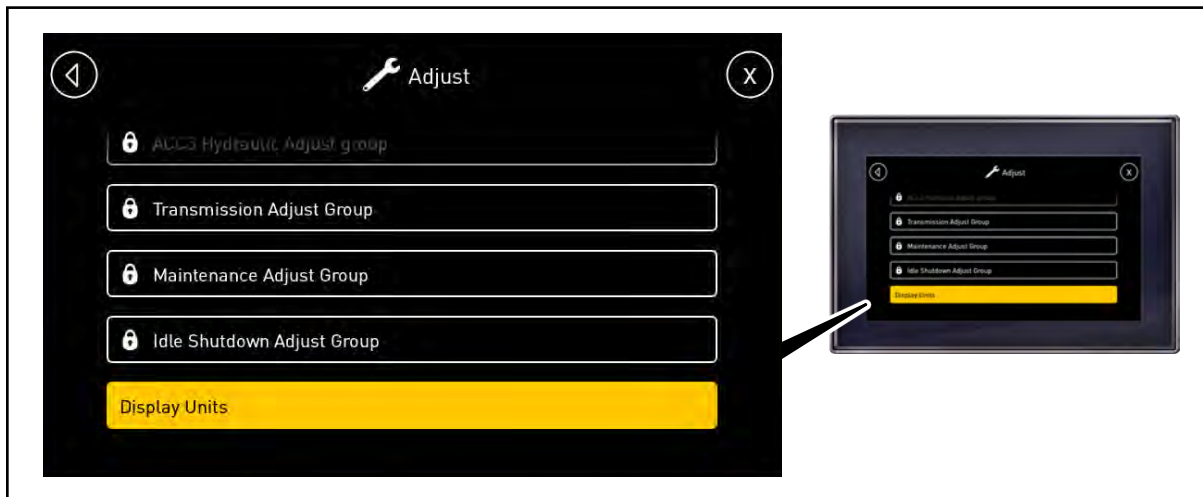
TICS Display Module Units Selection

TICS Display Module Units. The measure units displayed on various TICS screens can be displayed in one of two operator controlled modes: English or Metric. To select the desired mode, perform the following steps:



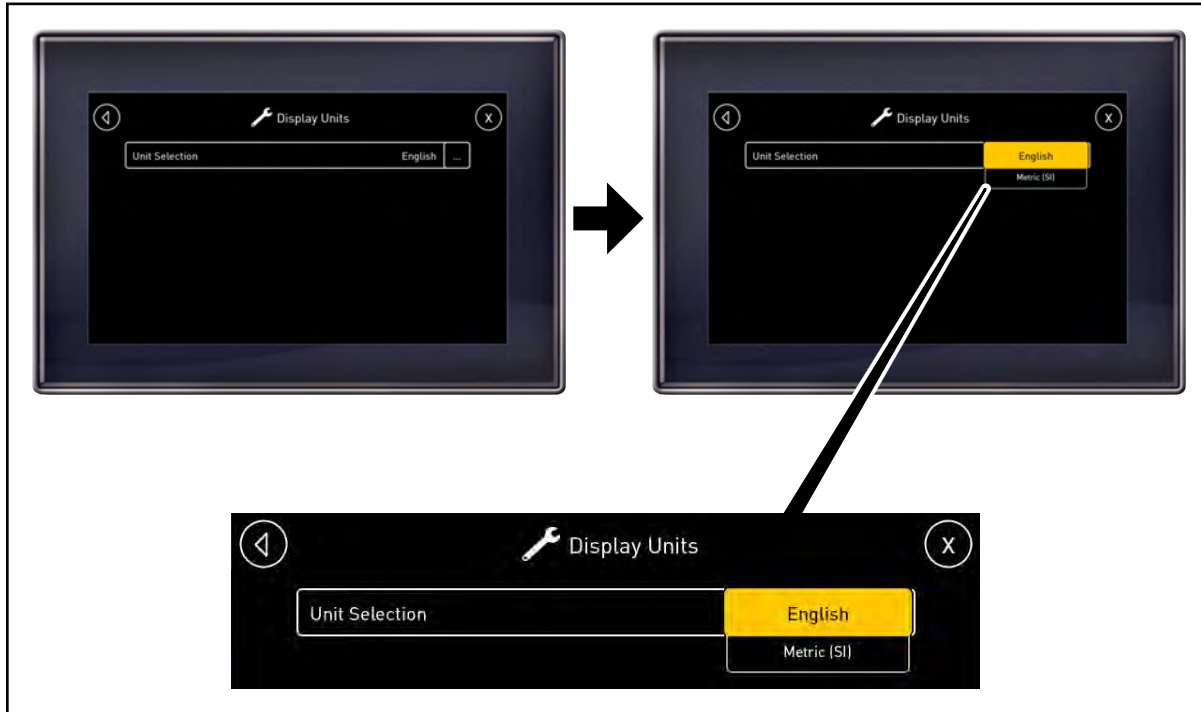
Home & Main Menu Screens

1. At the Home screen, tap the Main Menu button  to access the Main Menu screen.
2. Tap the Adjust button to access the Adjust screen.



Adjust Screen

3. At the Adjust screen, select Display Units by tapping and dragging up until Display Units is visible. Then tap the Display Units button to enter the Display Units screen.





Display Units & Unit Selection Screens

4. At the Display Units screen, tap the Unit Selection button to access the Unit Selection menu.
5. On the Unit Selection menu, tap English or Metric to select the desired measure unit mode.

Note: Tapping the desired mode sets the units and closes the menu.

Return to Home Screen.

To return to the Home screen, perform the following steps:

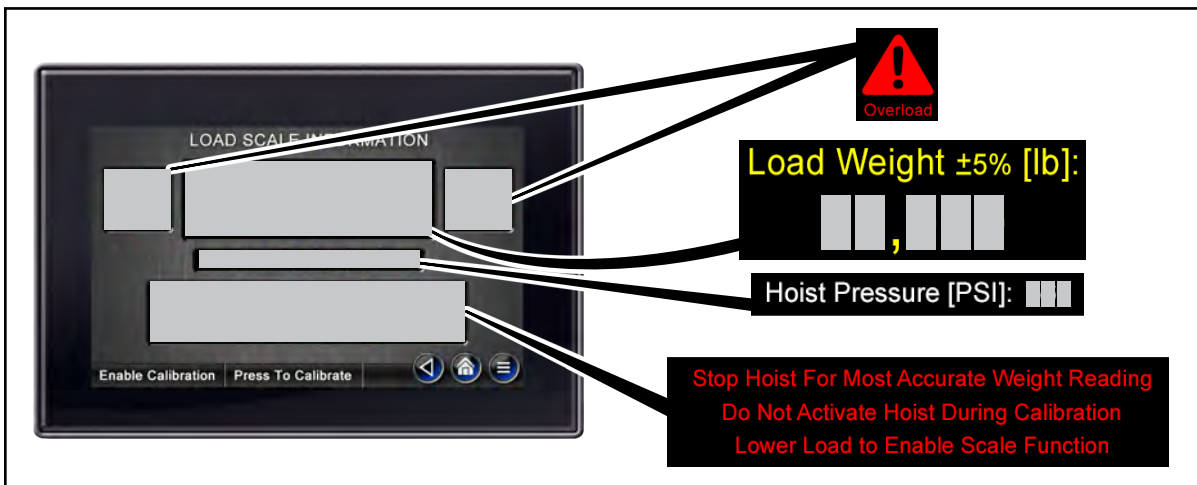
1. Tap the Cancel button  or the Back button  three times while at the Display Units screen. Both actions will return to the Home screen.

Load Scale System Operation (Optional)

Load Scale Information Screen. The Load Scale Information screen displays the status of the load. To access the Load Scale Information screen, tap the Load Scale button at the Diagnostic Select screen.

Never overload this truck. Misuse or overloading can result in injury to the operator or bystanders and cause damage to the truck or other property. Only trained and authorized operators, who know lift truck capacity and safety rules, should be permitted to operate this truck. Refer to the truck's Capacity Plate for specific information concerning loads. The Capacity Plate is located in a protected area of the truck and an additional Capacity Plate is located in the operator's compartment.

The load scale information provided through the TICS display is intended for reference use only and is not to be used as certified scales. The load weight as indicated by the Load Scale Information screen is an approximation and may vary by as much as +/- 5%. To ensure the maximum available accuracy, the load scale system must be calibrated daily.



Load Scale Information Screen

⚠️ WARNING: Death or serious injury may occur from misuse or overloading. Never handle loads which exceed the rated capacity and load center of the truck as indicated by the attached capacity plates. Refer to the truck's capacity plate, located in a protected area of the truck, for specific information concerning loads.

1. **⚠️ Overload.** This icon will illuminate when the truck is overloaded. Deposit the load and notify the appropriate personnel.
2. **Load Weight.** This indicates the approximate weight of the load in pounds.
3. **Hoist Pressure.** This indicates the hydraulic pressure of the hoist system in psi.
4. **Stop Hoist For Most Accurate Weight Reading.** This indicates that movement of the load and/or the truck should be stopped for the load scale feature to function properly.

- 5. **Do Not Activate Hoist During Calibration.** This indicates that hoisting must be stopped to complete the calibration procedure.
- 6. **Lower Load to Enable Scale Function.** (if equipped) This indicates that the load must be lowered for the load scale feature to function properly.

Hoist Stop (Optional)

Hoist Stop is a feature that will automatically suspend the hoist function when the truck is overloaded. In the event the truck becomes overloaded, hoist function will be suspended, the **Load Scale System Information** screen will appear for seven seconds, and the **Overload** indicator illuminates. After seven seconds, the **Active Warnings** screen will appear and **Check for Overload** will illuminate. Deposit the load and notify the appropriate personnel. Refer to “Active Warnings Screen” of this guide for more information.

Note: Performance of the Hoist Stop feature is affected when the Power On Demand (P.O.D.) function is activated. Ensure that the P.O.D. function is toggled off before using the Hoist Stop feature. Refer to “Engine Information Screen” of this guide.

Calibration Procedure

With the transmission placed in neutral and the parking brake set, perform the following procedure.



Display Module Home Screen

1. Tap the Diagnostics button to access the Diagnostic Select screen.



Diagnostic Select Screen

2. Tap the Load Scale button to access the Load Scale Information screen.



Load Scale Information Screen

3. With the truck unloaded, raise the forks to a height of 1 - 2 feet and set mast tilt to vertical. Tap the Enable Calibration button to enter the calibrate mode.



Load Scale Calibration Screen

4. Ensure hoist lift or lower is not activated and tap the Press to Calibrate button to calibrate the scale reading.
The load weight value will reset to 0.

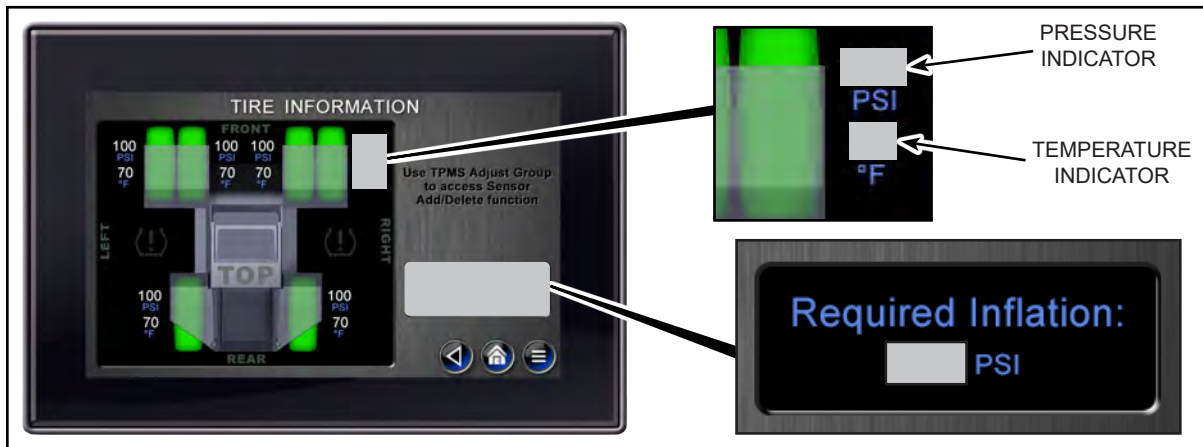
Note: You can exit the calibrate mode at any time by tapping the Enable Calibration button before tapping the Press to Calibrate button.

Tire Information Screen (Optional)

⚠WARNING: Death or serious injury can occur from ignoring an indication of improper tire air pressure. Improper tire air pressure may result in less truck stability. Never ignore Caution or Warning indicators.

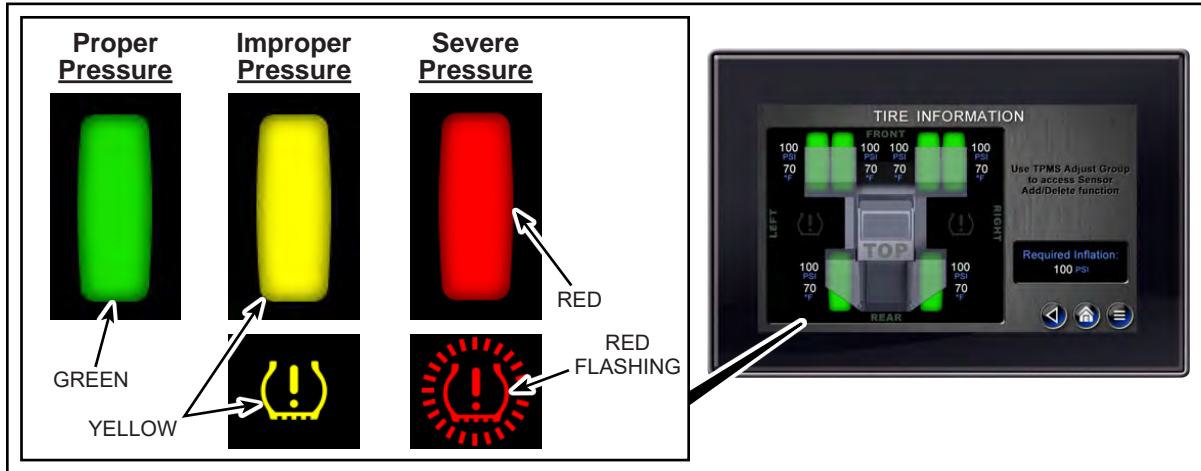
⚠WARNING: Electronic devices can fail. Perform daily manual tire air pressure check of all tires prior to placing the truck in service. Never rely solely on the Tire Pressure Monitoring System.

Tire Information Screen. The Tire Information Screen displays tire pressure and temperature status for each of the truck's tires. Trucks equipped with an optional Tire Pressure Monitoring System (TPMS) have tire sensors that are mounted on the valve stem of each tire. Each tire sensor wirelessly transmits tire pressure and temperature information which is indicated on the TICS display. Additionally, each tire sensor is factory mounted and registered to a specific tire. Caution should be used to ensure that each sensor is replaced on the correct valve stem when checking tire pressure. To view the Tire Information Screen, tap the **Tires** function button on the Diagnostics Select Screen.



Tire Inflation Indicators

1. **Pressure Indicator (PSI).** This indicates the current tire inflation pressure.
2. **Temperature Indicator (°F).** This indicates the current tire temperature.
3. **Required Inflation.** This indicates the required tire inflation pressure.



Tire Pressure Indicators

4. **Proper Pressure Indicator (Green).** A green tire indicates that a tire is properly inflated.
5. **Improper Pressure Caution Indicators (Yellow).** A yellow tire and inflation caution symbol indicates that a tire is improperly inflated.

⚠CAUTION: Permanent tire component damage can occur if a tire is operated with improper tire pressure. If a tire and the inflation caution symbol illuminate yellow, notify maintenance personnel as soon as possible.

6. **Severe Pressure Warning Indicators (Red).** A red tire, a flashing red inflation warning symbol, and an audible buzzer indicate the tire needs to be inspected by maintenance personnel immediately.


⚠WARNING: Death or serious injury can occur from truck tires being improperly inflated. If a low tire warning occurs, stop the truck as soon as it is safe to do so and notify maintenance personnel.

Warning Messages. A warning message will be displayed on the TICS display module when an inflation pressure, temperature, or sensor issue has occurred.



Severe Pressure Warning

7. **Severe Pressure Warning.** This indicates when a tire has reached a severe pressure level and requires immediate attention. When this dialog box appears,

a continuous audible buzzer will sound in the cab. Pressing the  button will cancel the message window and will cause the buzzer to begin to sound every thirty (30) seconds. The buzzer will sound until the tire is properly inflated.

⚠WARNING: Death or serious injury can occur from truck tires being improperly inflated. If a low tire warning occurs, stop the truck as soon as it is safe to do so and notify maintenance personnel.



Five Minute Signal Warning

- 8. Five Minute Signal Warning.** This indicates that a tire sensor signal has not been received during initial daily power-up and may take up to five minutes to display a tire's information.



Signal Loss Warning

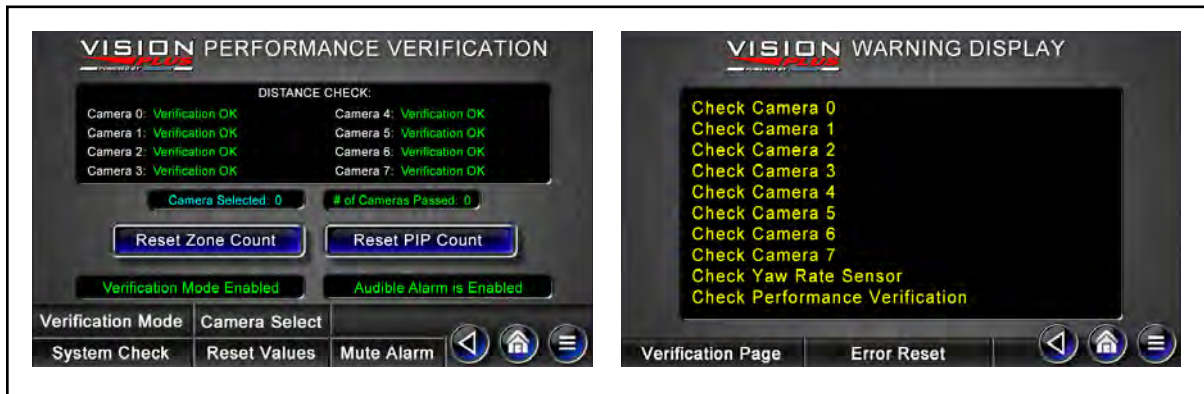
- 9. Signal Loss Warning.** This indicates that a tire sensor signal has not been received within the expected cycle time. If a tire sensor signal is not received, the tire sensor may be damaged and needs to be inspected by maintenance personnel immediately.

When checking tire pressure:

- Always remove one sensor at a time to prevent reinstalling the sensor in the wrong location.
- Always reinstall the sensor on the same tire (valve stem). Each sensor is programmed to indicate information for a specific tire.
- Power down the truck, if possible. Removing a sensor while the truck is powered

up will cause a Severe Pressure Warning (item 7) to appear on the TICS display and a buzzer to sound in the cab. Reinstalling the sensor will turn off the warning and display that tire's information again.

Additional Vision Plus™ Screens (Optional)



Additional Vision Plus™ Screens (Optional)

Vision Plus™ Screens. The TICS Display Module can be used to display Vision Plus™ specific information using various screens. Refer to *Vision Plus™ Operating Instructions* (OG-182) for important, detailed information pertaining to Vision Plus™ operation.

The screen's function button appearance and location, and screen layout will vary slightly from the information provided in the *Vision Plus™ Operating Instructions* (OG-182).

⚠WARNING: Death or serious injury may occur from improper training. Read, understand, and follow all operating rules found in the *Vision Plus™ Operating Instructions* (OG-182).

Transmission Operating Instructions

This truck is equipped with a transmission that is controlled by the direction control buttons (located on back of the joystick) and the Taylor Integrated Control System (TICS).



Transmission Direction Controls & Indicators

Direction of Travel Controls

The direction control buttons control the direction of travel. Forward and reverse directions of travel are selected by pressing the forward direction (F) button for the forward direction of travel and pressing the reverse direction (R) button for the reverse direction of travel. Press neutral (N) button to place the transmission in neutral.

Changing Direction of Travel. When changing the direction of travel, bring the truck to a slow (creeping) speed by releasing the accelerator and applying the brake pedal. The transmission can then be shifted to the opposite direction and the accelerator applied.

⚠️ WARNING: Death, serious injury or property damage can occur from traveling in an unintended direction. Change in vehicle direction may not occur immediately after the direction switch is toggled. When a direction shift is made, remove foot from the accelerator and slow to a creep speed to allow the shift to occur.

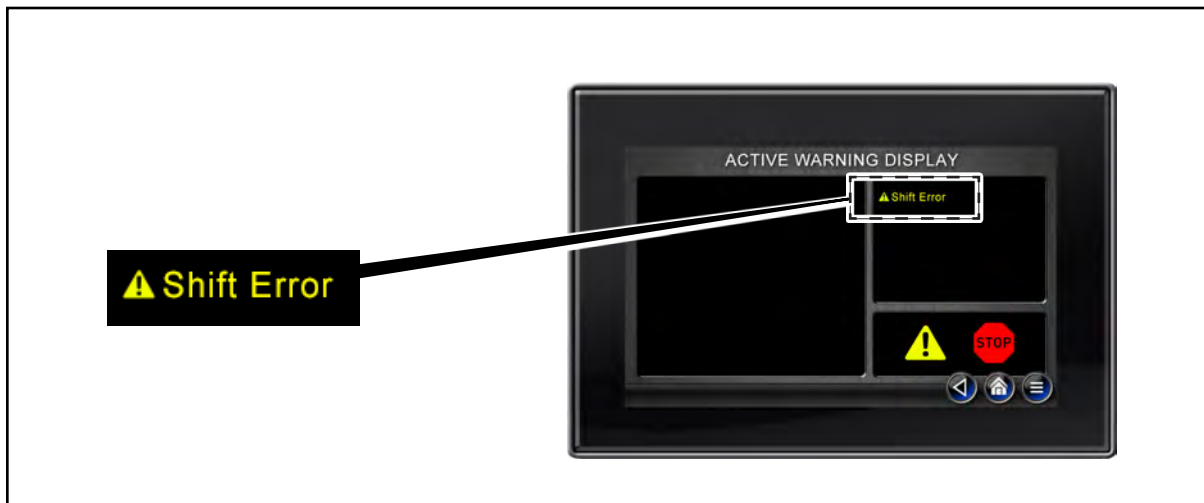
Auto-Shift Feature

Trucks equipped with direction controls on the joystick feature Auto-Shift as the only mode of transmission operation. Auto-Shift is a feature controlled by the Automatic Powershift Control (APC) transmission module to upshift or downshift the transmission from gear to gear as required by grade, load conditions, and operator selections.

Note: When starting the truck, a 3 second warm up time is required to allow the auto-shift to initialize before a shift can be made to move the truck.

Note: Starting Gear and Max Gear selections are operator controlled functions on all trucks, including trucks equipped with Auto-Shift only transmission operation.

⚠ WARNING: Death or serious injury can occur if truck tips over. Improperly downshifting a truck that is loaded can cause truck to tipover. Do not downshift to a lower gear if the ground speed is greater than the maximum speed range of the desired lower gear.



Active Warning Screen With Shift Failure Warning

A **Shift Error** message on the Active Warnings screen will appear on the TICS display module to indicate when auto-shift cannot produce the desired direction change or achieve the desired speed change.

⚠ WARNING: Death, serious injury or property damage can occur from traveling in an unintended direction. Change in vehicle direction may not occur immediately after the direction switch is toggled. When a direction shift is made, remove foot from the accelerator and slow to a creep speed to allow the shift to occur.

Starting Gear

Starting Gear is an operator specified minimum gear in which the truck will start or downshift to under normal conditions. If the Starting Gear Selected is set to (2) second gear, the transmission may downshift into a lower gear under certain load and terrain conditions.

Starting Gear features two modes of operation, Non-Adjustable, and Operator Controlled Mode, detailed below. Trucks are shipped from the factory with the Starting Gear set to (1) First gear. Access to setting the Starting Gear selection is password protected and can only be changed by qualified personnel. Refer to “Taylor Integrated Control System (TICS)” of this guide for further “Transmission Information Screen” description.



Starting Gear

Starting Gear Select Mode:

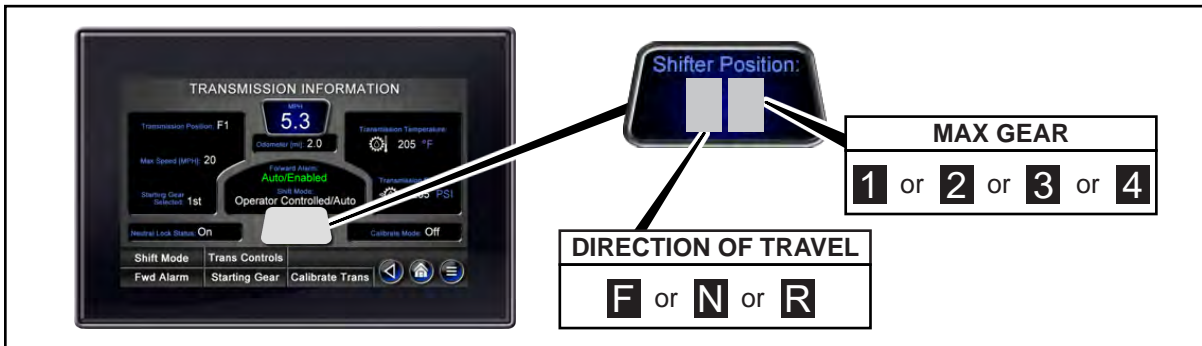
Non-Adjustable. In this mode the Starting Gear is set to First or Second gear and cannot be changed by the operator. Additionally, while in this mode the Starting Gear function button is not visible on the screen, which is the only indication that the Starting Gear Select Mode is set in Non-Adjustable mode.

Operator Controlled. In this mode the selection of First or Second gear can be selected by the operator. Tap the Starting Gear function button to toggle between First and Second gear. The Starting Gear function button is only visible in Operator Controlled mode.

Note: Authorized management in conjunction with personnel responsible for the safety of the truck working environment should make an informed decision and select the Starting Gear Mode that would be most beneficial in their particular operation conditions. Refer to the Taylor Machine Works' maintenance manual for procedures for setting the Starting Gear Select Mode. Access to setting the Starting Gear Select Mode is password protected and can only be changed by qualified personnel.

Shift Position

Shift Position indicates the direction of travel and the maximum gear to which the transmission will upshift.




Shift Position

Direction of Travel Indication. The current direction of travel is indicated by “F” for forward, “N” for neutral, and “R” for reverse. Refer to “Direction of Travel Controls” of this section for more information.

Max Gear Indication. This indicates the maximum gear to which the transmission will upshift.

If the Max Gear is set to a lower gear than the Starting Gear, the transmission will start in the gear indicated by the Shift Position and will not upshift to a higher gear. Example: if the Starting Gear is set to (2) second gear and the Max Gear is set to (1) first gear, the transmission will remain in first gear until the operator manually changes the Max Gear to a higher gear.

If the Shift Position is changed from a higher to a lower gear, the auto-shift system will not allow the downshift to occur unless the truck has slowed to the appropriate speed and engine rpm. Example: if the auto-shift has the transmission in (3) third gear and the operator changes the Shift Position to (2) second gear to make a downshift, the shift will only occur after the truck speed has been reduced enough to allow the shift to be made smoothly.

To change the Max Gear, while at the Home screen, tap the  button to increase the maximum upshift gear, or tap the  button to decrease the maximum upshift gear.



Transmission Controls Screen & Max Gear Buttons

Transmission Position. This indicates the current gear of the transmission.

Neutral Lock

The Neutral Lock feature will neutralize the transmission if active for one of the following instances:

1. Alternate Idle is active.
2. The operators seat has been vacated [refer to “Operator Presence Sensor (OPS)” below].
3. The parking brake is activated.
4. The park brake was not applied when the truck was last shut down.
5. The seat belt is not fastened.
6. The seat belt is unfastened for more than 2 seconds.

Note: There may be customer requested options (not listed here) that place the transmission in Neutral Lock. If there are any questions concerning options that place the transmission in Neutral Lock, contact your certified Taylor dealer or service technician.

When neutral lock is active, the transmission is automatically shifted to neutral. Once all conditions are satisfied to allow neutral lock to be removed, the operator must re-select the desired direction of travel.

Note: To enable the transmission directional controls, the operator must first be seated and then the seat belt fastened.

Neutral Lock Status. The status of the Neutral Lock feature is indicated on the TICS Home screen and on the TICS Transmission Information screen.

Neutral Lock On. This indicates that the Neutral Lock feature is currently active and the transmission has been neutralized.

Neutral Lock Off. This indicates that the Neutral Lock feature is currently not active, and that normal transmission operation is allowed.

Neutral Lock Disabled. This indicates that the Neutral Lock feature has been disabled by authorized personnel. Disabling the Neutral Lock feature affects normal truck operation and is for maintenance purposes only. When Neutral Lock is disabled, maximum travel speed is limited, an audible alarm (inside the cab) will sound, and a warning is provided on the display. Contact maintenance personnel if Neutral Lock has been disabled.

⚠ WARNING: Death or serious injury can result from unintended movement when the Neutral Lock feature has been disabled. Disabling Neutral Lock is for maintenance purposes only. Do not operate the truck with the Neutral Lock feature disabled.

Operator Presence Switch (OPS). In the event that the operator leaves the seat, powered vehicle movement is interrupted until the operator is seated again. Once seated, the operator must re-select the desired direction of travel.

⚠ WARNING: Death or serious injury could result from a run away truck. Before leaving the operators seat, perform the following:

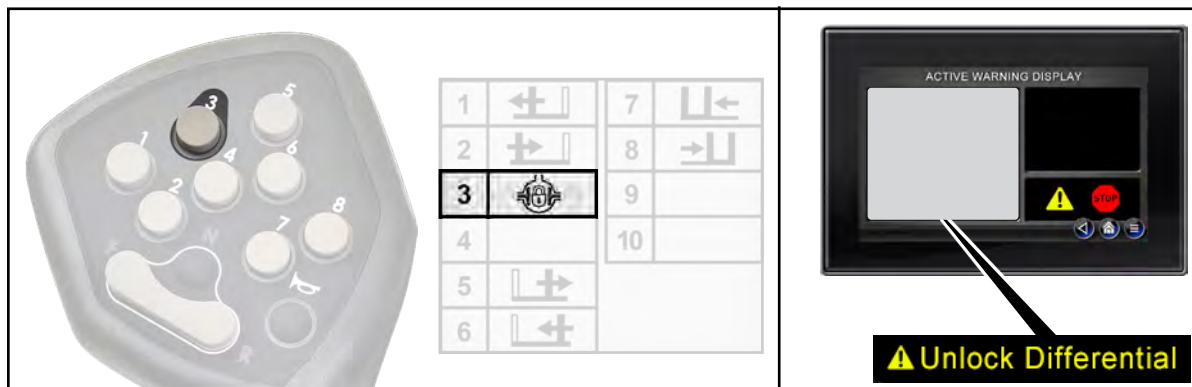
- Bring the truck to a complete stop.
- Place the transmission in neutral by pressing both direction control buttons at the same time.
- Apply the parking brake.
- Lower load engaging means fully, unless supporting an elevated platform.

When leaving the truck unattended

- Stop the engine or turn off all controls.
- If the truck must be left on an incline, block the wheels.
- Fully lower the load engaging means.

Differential Lock (Optional)

This truck is equipped with an operator controlled Differential Lock which provides maximum vehicle traction and control by locking the differential case, gearing, and axle shafts together. This function is only to be used to prevent drive tire traction slippage due to poor terrain surface conditions (mud, snow, or ice). Differential Lock should never be used on surfaces that have good traction (pavement, concrete, packed dirt or gravel) as this can damage axle components.



Differential Lock Button and Unlock Indicator

The Differential Lock function is engaged by pressing and holding the Differential Lock button (button 3) on the joystick. Releasing this button will disengage the Differential Lock function. While this function is engaged, travel speed is limited to 4 mph.

Differential lock may not disengage as soon as the differential lock button is released if axle components remain under pressure due to inclines or the truck being in motion. If differential lock remains engaged for ten (10) seconds after the button is released, Neutral Lock will automatically activate (refer to “Neutral Lock” in the “Transmission Operating Instructions” of this guide) and an “Unlock Differential” message will appear on the Active Warning Display screen of the TICS display. Once Neutral Lock activates, axle component pressure should reduce enough to allow Differential Lock to disengage. Should Neutral Lock remain active after the desired travel gear is re-selected, shutdown the truck and notify maintenance personnel immediately.

⚠ WARNING: Permanent axle damage will occur if the differential lock is misused.

- Only engage differential lock in poor driving conditions (mud, snow, or ice).
- Never engage Differential Lock on surfaces that have good traction (pavement, concrete, packed dirt or gravel).
- Always travel in a straight line while differential lock is engaged. Do not steer until the differential lock is disengaged.
- Never engage the differential lock if wheels are losing traction, slipping (spinning) or when traveling down steep grades.
- Only engage the differential lock when the truck is stopped and engine rpm

is at idle.

- **Maintain consistent travel speed. Do not jerk the truck.**
- **Never drive long distances while differential lock is engaged.**

Forward Alarm System

This system can be operated in one of two different modes. Factory installed systems are shipped with the forward alarm set for the Automatic mode of operation.

Automatic Mode

In this mode, the alarm is activated anytime the truck is operated for forward travel.

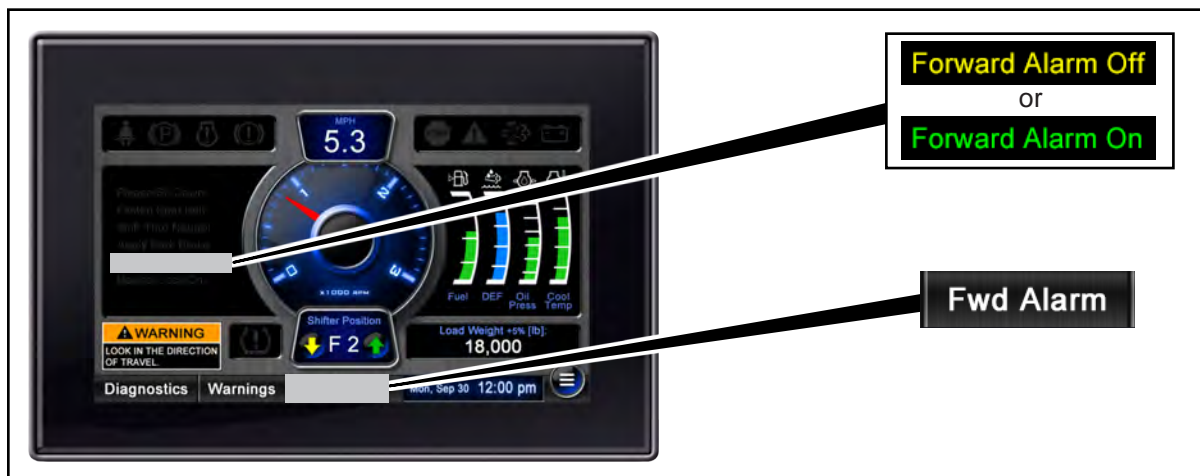
While in the Automatic mode of forward alarm operation, the Forward Alarm will sound any time the Forward direction is selected.



Forward Alarm Operation (Automatic Mode)

Operator Controlled Mode

In this mode, the operator can determine when or when not to enable the forward alarm circuit.



Forward Alarm Status and Fwd. Alarm Function Button (Operator Controlled Mode)

To toggle the forward alarm On and Off, tap the Fwd. Alarm button. The Fwd. Alarm button is also visible on the Transmission Information screen and the Transmission Controls screen when the forward alarm system is set to the Operator Controlled Mode.

Authorized management in conjunction with personnel responsible for the safety of the truck working environment should make an informed decision and select the mode that would be most beneficial in their particular operation conditions. See Taylor Machine Works' *Safety Check* (TMW-072) for information helpful in making such a decision. Remember, OSHA 29 CFR 1910.178 requires lift trucks to be operated by users (you) in accordance with ANSI B56.1 which states that, "The user shall determine if operation conditions require the truck to be equipped with additional sound-producing or visual (such as lights or blinkers) devices and be responsible for providing and maintaining such devices". Refer to the Taylor Machine Works' maintenance manual for procedure for setting the mode of forward alarm operation. Access to setting the forward alarm mode of operation is password protected and can only be changed by qualified personnel.

⚠WARNING: Death or serious injury may occur if a pedestrian is struck by a truck. Never move the truck in any direction unless you have visually cleared the area. Never lose sight of the ground guide if you are using a ground guide for clearance. See *Safety Check* (TMW-072).

⚠WARNING: Death, serious injury, or property damage could result from operating the truck with the Forward Alarm disabled while in the Operator Controlled mode of forward alarm operation. With the Forward Alarm disabled and the Forward direction selected, there will be no sound emitted by the Forward Alarm.

Brake System Operation



Parking Brake Control

Service Brake Operation. The left brake pedal applies the service brakes and disconnects the transmission. The right brake pedal applies the service brakes only. This truck is equipped with wheel end service brakes on the drive axle.

Parking Brake Operation. Pulling the parking brake control knob out applies the parking brake, places the transmission into neutral lock and will illuminate the parking brake icon on the Home screen of the TICS display module. Once the parking brake control knob is pulled to the out position, it must be manually pushed in to release the parking brake.

Proper parking brake operation must be checked daily. Refer to “Daily Checks (After Starting The Engine)” section of this guide. To test parking brake operation, with the truck unloaded, move the truck to a slope adequate enough to cause the truck to roll when placed into neutral without the parking brake control activated. With the service brakes applied and the truck in Neutral, activate the parking brake control. Slowly release the service brakes and ensure the truck does not roll on the slope. Refer to periodic maintenance requirements in the Maintenance Manual for parking brake adjustment and inspection requirements.

⚠ WARNING: Improper operation can cause permanent damage to the parking brake system.

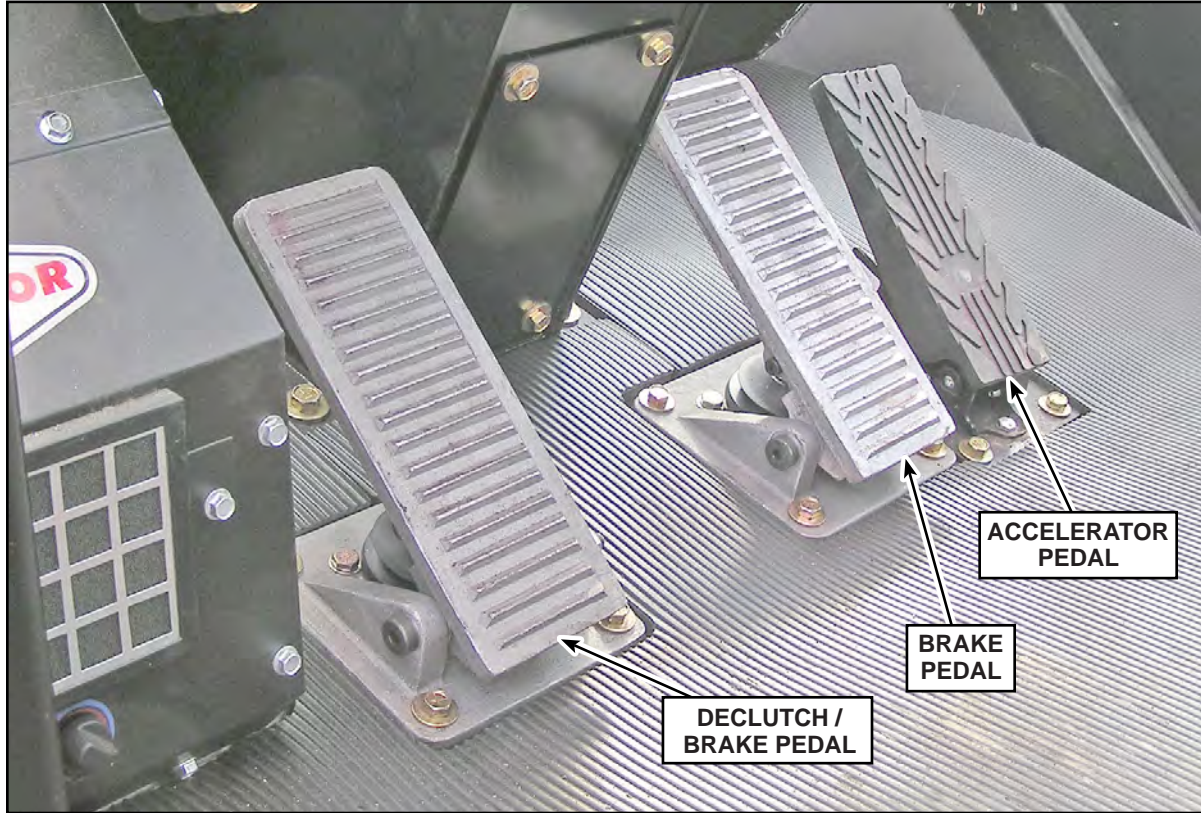
- Except in the event of an emergency, always use the service brakes only to bring the truck to a full stop before activating the parking brake.
- Always apply the parking brake before turning off the ignition.
- The parking brake must be applied before leaving the operator position.
- Refer to the proper shutdown procedure as outlined in this operator’s guide.

⚠ WARNING: During operation should the parking brake pressure drop below a safe pressure, the parking brake will automatically be applied, a low brake pressure icon will appear on the Home screen of the TICS display module, an audible buzzer will sound, and the Active Warnings screen will appear on the display module. Shut the truck down and notify maintenance personnel immediately. To reset the parking brake if applied due to low brake pressure, the parking brake control must be pulled to its out position and then pushed back in.

Note: The parking brake control draws a small amount of current from the electrical system. Leaving the parking brake unapplied after turning off the ignition can cause excessive battery drain.

⚠ WARNINGS:

- **Death or serious injury can occur from operating a truck in need of repairs to the brake system. If the truck's brakes are in need of repairs, remove the truck from service immediately and notify maintenance personnel.**
- **Death or serious injury can occur from a truck being tipped over by improper application of the parking brake. Do not apply the parking brakes until the truck has come to a complete stop.**
- **Death or serious injury can result from truck accidentally rolling on incline. Do not rely on the parking brakes to hold a truck on an incline. Avoid parking on inclines. In the event that parking on an incline is unavoidable, apply the parking brakes and block the wheels to prevent the truck from running away.**



Foot Pedals

Declutch / Brake Pedal

Application of this pedal disengages the transmission and applies wheel end brakes. This allows for high engine speeds for greater hydraulic pump output while reducing travel speed.

Brake Pedal

Application of this pedal will apply the service brakes only; no declutching will occur.

Accelerator

Application of this pedal will increase the engine speed.

Fueling The Truck

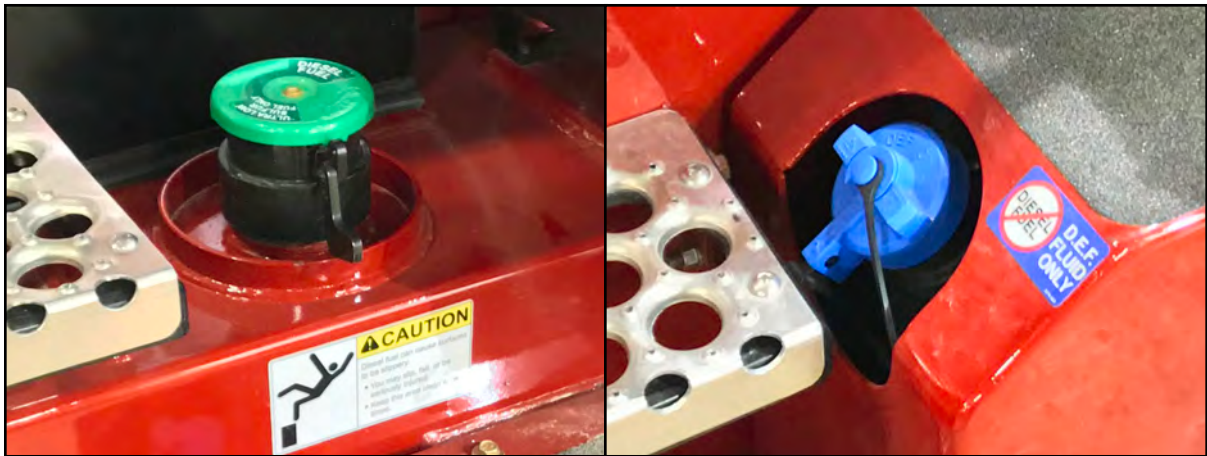
The fuel tank should be filled before parking the truck after a shift operation or overnight. Filling the fuel tank will prevent overnight condensation.

For trucks equipped with DEF, it is recommended to fill the DEF tank each time the fuel tank is filled.

Keep the tanks, especially the filling area, clean and free of debris.

⚠️WARNING: Death or serious injury may occur from fire.

- Always stop the engine and exit the truck while fuel is being added. No smoking.
- Never have the truck fueled near an open flame. All fuels for internal combustion engines are flammable. Always have a fire extinguisher available.
- Always have the truck fueled in a well ventilated area. Avoid breathing fuel vapors. Fuel vapors may cause unconsciousness or death.
- Always keep the funnel or fuel nozzle in contact with the metal of the filler neck, while fuel is being added, to avoid static electric sparks.



Diesel Tank Cap

DEF Tank Cap

LP Gas Fuel System (if equipped)

When changing liquid petroleum (LP) gas tanks, follow these basic rules:

- Change only in well ventilated areas.
- Never allow open flames.
- Turn the ignition enable switch to the OFF position.
- Check for leaks.
- Check condition of the connector coupling O-ring.

- Make sure horizontal mounted tank is on locating pin.
- Make sure tank latches are securely fastened.
- Store tanks according to local fire codes.

Only trained and authorized personnel are permitted to operate liquid petroleum (LP) gas fuel filling equipment.

If you refill LPG tanks:

- All refueling, storage, and handling of LP gas shall be done in accordance with NFPA 58.
- NFPA 505 requires all exchangeable or removable LPG tanks be removed prior to filling.
- Make sure you know and understand the proper procedure for filling an LPG tank.
- If you have any questions on refilling LPG tanks, please ask your supervisor.

⚠ WARNING: Death or serious injury may occur from explosion. Do not operate or perform maintenance on LP gas fuel system components without proper training and authorization.

- Always stop the engine and exit the truck while fuel is being added. No smoking.
- All fuels for internal combustion engines are highly flammable.
- Never have the truck fueled near an open flame. Always have the truck fueled in a well ventilated area. Avoid breathing fuel vapors. Fuel vapors may cause unconsciousness or death.
- Close the fuel valves on the tanks when parking the lift truck.
- LPG IS HEAVIER THAN AIR. It settles on your clothes and the ground around you, displacing oxygen vital for breathing. Open flame can cause flash fires.
- Check all connections for damage or leaks. If the truck will not start after you change tanks, get a qualified mechanic to check the truck.

Diesel Exhaust Fluid (DEF)

Diesel Exhaust Fluid (if equipped)

Certain engine options include a Selective Catalytic Reduction (SCR) system used to reduce NOx emissions from the exhaust. This system incorporates a urea-based fluid called Diesel Exhaust Fluid (DEF). DEF is a nontoxic, non-polluting, non-hazardous and nonflammable solution of water and urea. DEF is stable and colorless. DEF is safe to handle and store and poses no serious risk to humans, animals, equipment or the environment when handled properly.

DEF should be stored in a cool, dry, well-ventilated area, out of direct sunlight. The optimum storage temperature is around 77° F, and temporary exposure to higher temperatures has little to no impact on the quality of DEF.

DEF freezes. The freezing temperature of DEF (32.5% concentration) is 12° F. However, the freezing and thawing of DEF will not cause degradation of the product, whether in the vehicle's storage tank or in other storage containers. The vehicle's engine systems include ways to prevent frozen DEF from affecting operation.

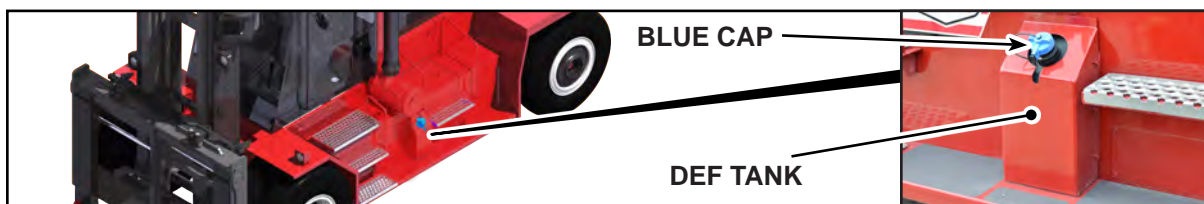
Refer to the truck's maintenance manual for information concerning DEF fluid specifications.

Filling the DEF Tank. To avoid confusion when filling fluids, a blue cap is installed on the DEF tank indicating that only DEF should be added to this tank. Do not allow DEF to come in contact with other chemicals. The tank filler neck is designed to only accept DEF fill nozzles to prevent liquids other than DEF from being added to the DEF tank by mistake. DEF is extremely corrosive to many materials. Spilling DEF should be avoided when filling directly from an open container.

If DEF is spilled, contain the spilled liquid and absorb it with an inert, non-combustible absorbent material, such as sand. Shovel the material into a suitable container for disposal. Spills into a drain should be avoided, and if spilled into a drain, flush thoroughly with water. Follow all local, state, and federal guidelines for disposal.

IMPORTANT! If spilled DEF fluid, even in the smallest amount, is ignored, crystallization of the DEF fluid will occur. Parts exposed to spilled DEF fluid will corrode, and this corrosion can cause severe problems with electrical wiring, connectors, fittings, seals, gaskets and other components. Always clean spilled DEF fluid immediately to avoid long term damage.

Fill the DEF tank each time the fuel tank is filled.



DEF Tank and Blue Cap

Exposure to DEF. DEF can cause irritation and contact should be avoided. Wear gloves when filling the DEF tank. Should DEF contact eyes or skin, flush with water. Should DEF fumes be inhaled, breathe fresh air. Should DEF contact gloves or clothing, gloves should be changed and contaminated clothing should be removed and thoroughly cleaned.

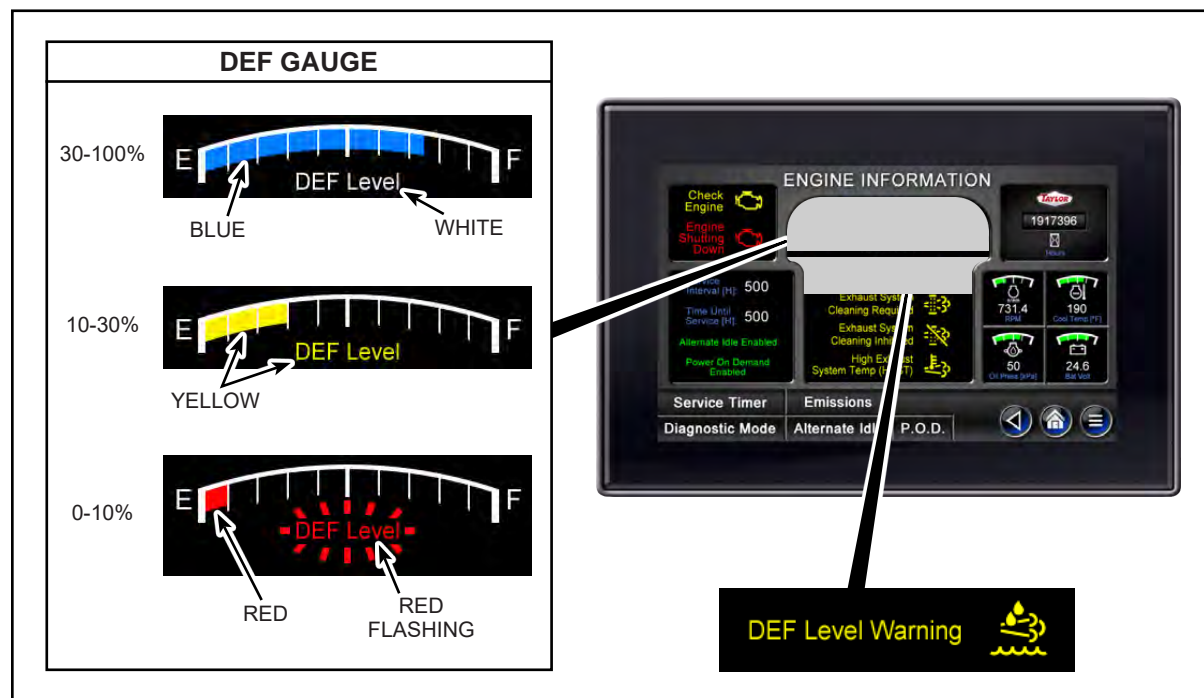
CAUTION: In the case that DEF contacts with eyes or skin, the affected area must be thoroughly rinsed with lukewarm water. If you breathe in any fumes, make sure you breathe fresh air.

CAUTION: In the case that DEF is spilled onto a hot surface, turn your face away quickly. DEF that is spilled onto hot surfaces will quickly vaporize and should not be inhaled.

CAUTION: Never start the engine if you have filled anything other than pure API certified DEF solution (conforming to ISO 22241-1) into the tank! Filling urea solutions other than manufacturer's specified DEF in the tank will damage the exhaust aftertreatment system permanently. Engine output will be negatively affected and other engine components also risk being damaged.

DEF Level Indicators.

On models equipped with DEF tanks, the TICS display module will display the DEF tank level, low DEF warning, and DEF tank empty warning.



DEF Tank Level Indication

DEF (Diesel Exhaust Fluid) Level. This indicates the DEF quantity in the tank. When the DEF quantity is above 30%, the bars are blue and DEF Level text is white. When the DEF quantity is between 10% and 30%, the bars and DEF Level text are yellow indicating that quantity is low. When the DEF quantity is less than 10%, the bars and DEF Level text are red and DEF Level text begins to flash.



DEF Level Warning. If the DEF tank level drops below 30%, the yellow DEF Level Warning icon and text illuminate to alert the operator that the DEF tank level is low. If the DEF tank level drops below 10%, this icon will begin to flash.

Note: Refilling the DEF tank will turn off the DEF Level Warning indicator.



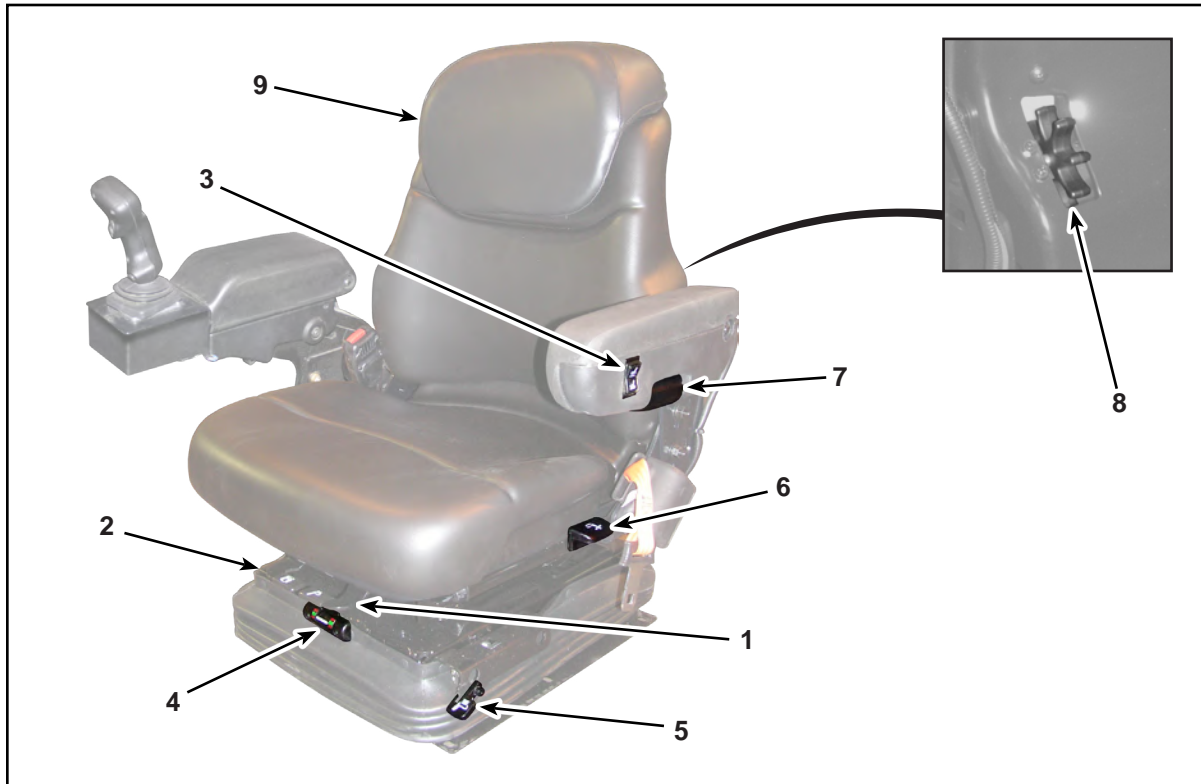
Check Engine. (not applicable on trucks equipped with Volvo engines) If the DEF tank level drops below 10%, the Engine Information screen will automatically appear on the TICS Display Module and the yellow Check Engine icon and text will flash indicating that the DEF tank is almost empty.



Engine Shutting Down. (not applicable on trucks equipped with Volvo engines) If the DEF tank level reaches empty, the red Engine Shutting Down icon and text will illuminate and engine will go into derate mode. Engine deration will become severe if the DEF tank is not refilled.

Seat Operation

Taylor offers several seat models as standard or optional, depending on vehicle model. The following seats described cover the most common. Identify the seat model on the particular vehicle you have and refer to the following seat controls. If your seat is not covered in this section, refer to the Vehicle Information Package or contact your authorized Taylor dealer for more information.



Sears Seating Air Suspension Seat

Air Suspension Seat. The controls of this mechanical suspension seat are as follows:

- 1. Fore / Aft Adjustment Lever.** Pulling the bar upward allows the seat to be positioned forward or rearward. The seat locks in place when the bar is released.
- 2. Seat Rotate Adjustment Lever.** Pulling this bar upward allows the seat to rotate left 15° and right 20° from center. The swivel locks in place once the lever is released.
- 3. Height & Weight Adjustment Switch.** Pressing the top side of the rocker switch raises the seat while pressing the bottom side lowers the seat. The proper weight adjustment is shown by the height & weight indicator (item 4.).
- 4. Height & Weight Indicator.** This indicates when the seat is properly adjusted to the driver's height and weight. When green is visible the seat is properly adjusted. When red is visible the seat needs adjustment by operating the height and

weight adjustment switch (item 3.).

5. **Ride Damping Lever.** Rotating the lever into the upward position produces a soft ride.
Rotating the lever into the downward position produces a firm ride.
6. **Backrest Angle Adjustment Lever.** Pulling this lever upward allows the backrest to be positioned to the desired angle. The backrest locks in place once the lever is released.
7. **Armrest Angle Adjustment Knob.** Rotating this knob clockwise increases the angle of the armrest upward. Rotating this knob counterclockwise decreases the angle of the armrest downward.
8. **Lumbar Support Adjustment Knob.** Rotating this knob upward increases the lumbar section's angle of curvature. Rotating this knob downward decreases the lumbar section's angle of curvature.
9. **Upper Back Rest Height Adjustment.** The height of upper back rest can be adjusted by lifting up on the back rest.

Battery Safety

1. Smoking, flames, arcs or sparks may result in battery explosion.
2. Keep metal tools away from battery terminals.
3. Battery contains sulfuric acid which will burn skin on contact. Wear rubber gloves and eye protection when working with battery.
4. Flush with water and seek medical attention in case of contact.

Jump Starting A Weak Battery

1. Read, understand and comply with all battery safety procedures (above).
2. Do not lean over batteries when making connections.
3. First connect positive (+) terminal of booster battery to positive (+) terminal of discharged battery.
4. Then connect negative (-) terminal of booster battery to engine or body ground (-). Never cross polarity of terminals.

⚠WARNING: Death or serious injury can occur when batteries explode. Crossing the polarity of two different batteries when jump starting will emit a spark which could ignite the flammable gases of a battery. Do not cross the polarity of two different batteries.

5. Disconnect cables in exact reverse order.



Battery Safety Decal

Daily Checks (Prior To Starting The Engine)

The truck must be checked daily before being placed in service. If found to be defective, in need of repair or maintenance, or in any way unsafe, the matter should be reported immediately to the proper authority and the truck removed from service until it has been restored to proper operating condition.

- ☑ Fuel level.
- ☑ DEF tank level.
- ☑ Oil levels - engine, transmission and hydraulic tank.
- ☑ Coolant level.
- ☑ Visually inspect the unit for loose parts, hydraulic leaks, and obvious damage to the structure.
- ☑ Visually ensure that no external AC power is connected to cold weather package (if equipped).
- ☑ Visually inspect chains for wear, flat spots, and kinks.
- ☑ Mirrors and windows must be kept clean.
- ☑ Air Filter Service Indicator.
- ☑ Check the tension and condition of the alternator and fan belts.
- ☑ Steps and operator's compartment must be free of oil, grease, and trash.
- ☑ Anti-Slip surfaces must be in place and clean.
- ☑ Check the Time Until Service hours located on the Engine Information screen. This reading determines when inspections are due. (Refer to the "Engine Information Screen" of this guide.)
- ☑ Visually inspect mast hoses, attachment hoses, and electrical cables.
- ☑ Ensure that the camera viewing system is clean (if equipped).
- ☑ All machine safety/operation labels are in place and legible.
- ☑ Tires, tire air pressure, lug nuts, wheels, and valve stems. Refer to the serial plate on the truck for tire air pressure and lug nut torque.

⚠WARNING: Death or serious injury can occur from being pinned and crushed by pivoting tires. Do not enter or allow any personnel to enter the tire pivot area with the truck running. Remove the ignition enable key, block the wheels in both directions to prevent movement of the truck, and Lock Out & Tag Out the truck before entering this area.

⚠WARNING: Death or serious injury can occur from truck tires being improperly inflated. Improper tire air pressure may result in less truck stability when stacking or traveling. Inflate tires to specified air pressure.

- Remove any flammable materials from around the exhaust system if present.
- On models with removable counterweight, ensure that the counterweight pins are properly secured (if equipped).
- Check Vision Plus™ cameras (if equipped) for obstructions, damage, and alignment. Clean camera glass if necessary.

Starting The Engine

1. Perform all daily checks (prior to starting engine).
2. Make sure all personnel are clear of the truck.
3. Turn the battery disconnect switch to the ON position.
4. Open the valves on the LP tanks (if equipped).
5. Adjust the seat and lock it in position.
6. Sit in the operator's seat and fasten seat belt.
7. Make sure the parking brake is applied. If the truck was properly shutdown at the end of the previous shift, the parking brake will already be applied.
8. Make sure the transmission and all hydraulic controls are in their neutral position. (On trucks equipped with a column mounted electric shift control, the engine will not start unless the electric shift control is in neutral.)
9. Turn the ignition enable (key) switch to the Start position.
10. If a "Wait to Start" message (on some models) activates on the Home screen of the TICS display, wait for the message to deactivate before pushing the engine start button. Push and **hold** the engine start button and partially press the accelerator.

Notes:

- The operator must be sitting in the operator's seat.
 - If the engine fails to start within 30 seconds, release the engine start button and allow the starting motor to cool for a few minutes before trying again. If the engine fails to start after four attempts, notify maintenance personnel and perform an inspection to determine the cause.
11. When the engine starts, release the engine start button and press the accelerator to obtain the desired warm-up speed.

Note: The TICS is equipped with alternate idle feature, which if enabled, will increase the low idle rpm [refer to "Engine Information Screen" in the "Taylor Integrated Control System (TICS)". This feature may assist with engine warm-up. If alternate idle is enabled, neutral lock is activated. Forward and reverse travel is not permitted.

⚠CAUTION: Property damage can occur if these guidelines are not followed.

- Do not warm up engine at high idle.
- Allow all systems to reach operating temperature before moving the truck. If operating in freezing temperatures and the truck is equipped with an optional starting aid, refer to the engine manufacturer's operation manual and follow the engine manufacturer's instructions.

- Stop the engine if the engine oil pressure light (if equipped) does not go off within 10 to 15 seconds or the engine oil pressure gauge fails to indicate minimum engine operating oil pressure.

Daily Checks (After Starting The Engine)

Check for normal operation after the engine has warmed.

- Oil level - The transmission fluid level must be checked at normal operating temperature [180 - 200°F, (82 - 93°C)] with the engine operating at low idle. Add fluid to bring the level to the FULL mark on the dipstick.
- Horn
- Lights
- Ensure no Error messages appear on the TICS Home screen. If an Error message is present, shut the truck down and notify maintenance personnel immediately.
- Parking Brake Control. Activating the parking brake control should place the truck in Neutral Lock. The truck should remain in Neutral after attempting to shift into gear with the parking brake control activated.
- Parking Brake. Test the application of the parking brake (see “Brake System Operation” section of this guide).

⚠WARNING: Death or serious injury can occur from the truck moving unexpectedly. Ensure area is clear of all personnel before moving the truck.

- Declutch / Brake Pedal. Move the truck and press the left service brake pedal. Doing so should disengage the transmission and apply the service brakes while the engine rpm can be increased.
- Service Brakes. Move the truck and press the right service brake pedal. The transmission will not disengage and the engine will be under load.
- Steering. Move the truck and test the steering.
- Hydraulic Controls. Cycle each hydraulic function and ensure proper operation.
- Strobe Light
- Reverse Alarm System
- Forward Alarm System
- Any other customer specified equipment.
- Ensure that the camera viewing system (if equipped) is clean and operating properly.

Should the truck fail any of the above checks, stop the truck and notify maintenance or appropriate personnel.

- Check Vision Plus™ system (if equipped) for proper operation.

Shutdown Procedure

When parking the truck after a shift operation or overnight:

1. Fill the fuel tank (to prevent overnight condensation).
2. It is recommended to fill the DEF tank any time the fuel tank is filled (if equipped).
3. Move the truck to the parking area. Using the service brakes, bring the truck to a full stop.
4. Place transmission in Neutral.
5. Pull the parking brake control to the out position to apply the parking brake.
6. Lower the carriage completely.
7. Ensure that all hydraulic controls are in their neutral position.
8. Allow the engine to idle 3 to 5 minutes after a full load operation before shutting off the engine. This will allow the engine to cool gradually and uniformly.
9. Turn all work lights off.
10. Turn the ignition enable switch to the Off position and remove the key.
11. Wait 2 minutes after turning off the truck, then turn the battery disconnect switch to the Off position. Waiting 2 minutes allows the engine system to properly shut-down before disconnecting the battery.
⚠CAUTION: Permanent engine component damage can occur if battery power is disconnected before the system is properly shutdown. Wait 2 minutes after turning the Ignition Enable Switch to the Off position before turning the battery disconnect switch to the Off position.
12. Close the valves on the LP tanks (if equipped).
13. Block the wheels in both directions to prevent truck movement if necessary.
14. Pull the air tank drain lanyard and exhaust the system air supply. This will expel all emulsions and air from the air tank(s) (if equipped).

Leaving The Truck Unattended

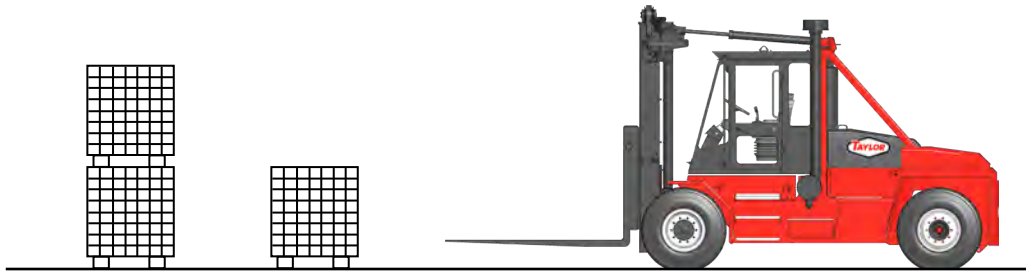
When the truck is left unattended load engaging means shall be fully lowered. Controls shall be neutralized, power shall be off and brakes set. Wheels shall be blocked if the truck is to be left on an incline. The truck is unattended when the operator is 25 feet (7.6 meters) or more away from the truck which remains in the operators view, or whenever the operator leaves the truck and it is not in the operator's view.



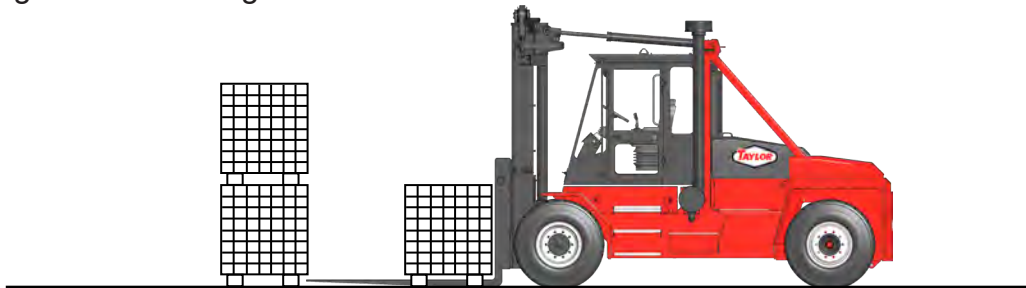
⚠ WARNING: Death or serious injury or property damage can result from a runaway truck. Never rely solely on the parking brakes to hold the truck on an incline. Block the wheels to prevent movement of the truck down the incline. See *Safety Check* (TMW-072).

Maneuvering and Transporting

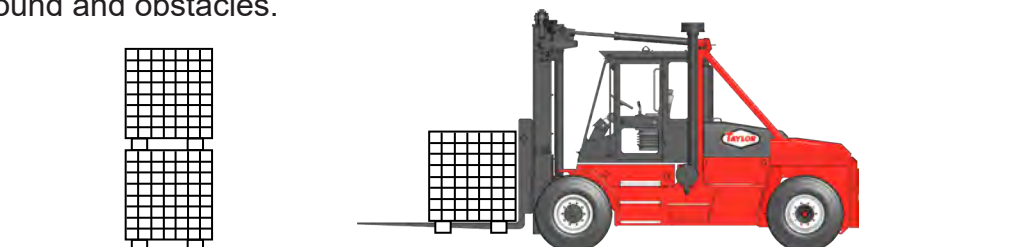
Approach the load slowly and carefully with the mast in the vertical position.



Stop the truck when properly centered in front of the load. Lower the carriage and slightly tilt the mast forward. Insert the forks under the load until the load is against the carriage.



After the forks are under the load, raise the load only enough to clear the stack or ground. When lifting a long, thin item or bulky object with one side heavier than the other, estimate the load's center of gravity and carefully lift it. If the load tilts to one side, lower it and position the forks closer to the center of gravity. Tilt the mast back just enough to stabilize the load. Ensure that the path of travel is clear. Slowly back straight away until clear of the stack. Lower the load to the lowest possible height that allows clearance over ground and obstacles.



⚠WARNING: Use extreme care when tilting the load forward or backward, particularly when stacking. Tilting forward with the load engaging means elevated is prohibited except when the load is in a deposit position over a rack or stack. Use only enough backward tilt to stabilize the load while stacking. Avoid sudden starts, stops, and short turns while stacking. Lower the load as soon as possible.

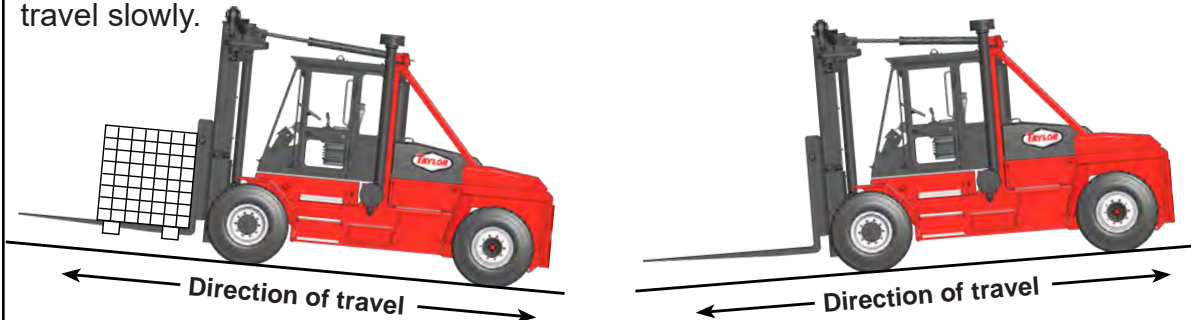
The truck is not intended to be operated with slack or loose lift chains. Actuating attachment functions with slack or loose lift chains can cause permanent damage to the chains or other front end components.

⚠CAUTIONS: Vehicle damage can occur if the truck is operated with lift chains that are loose or have slack. Do not operate if lift chains are loose or have slack.

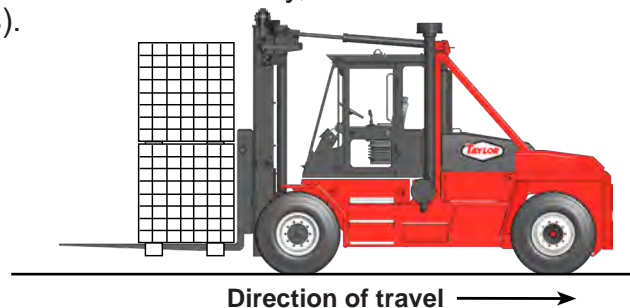
Actions that can cause slack or loose chains.

- Lowering the Forks on uneven surfaces
- Excessive forward tilt
- Misadjusted lift chains

Avoid traveling on inclines. If traveling on an incline can not be avoided, travel straight up and down inclines. Do not travel diagonally on an incline. When traveling on inclines, **loaded trucks** shall be driven with the load upgrade. **Unloaded trucks** should be operated on all grades with the load engaging means downgrade. On all grades the load and load engaging means shall be tilted back if applicable, and raised only enough to clear the ground. If the load blocks forward visibility, use a ground guide to assist the operator. Sound the horn and travel slowly.



If the load obscures forward visibility, drive the machine in reverse (except when climbing ramps).




Avoid parking on inclines. If parking on an incline cannot be avoided or when maintenance is to be done on the truck, apply the parking brakes and block the wheels to prevent the machine from rolling down the incline.



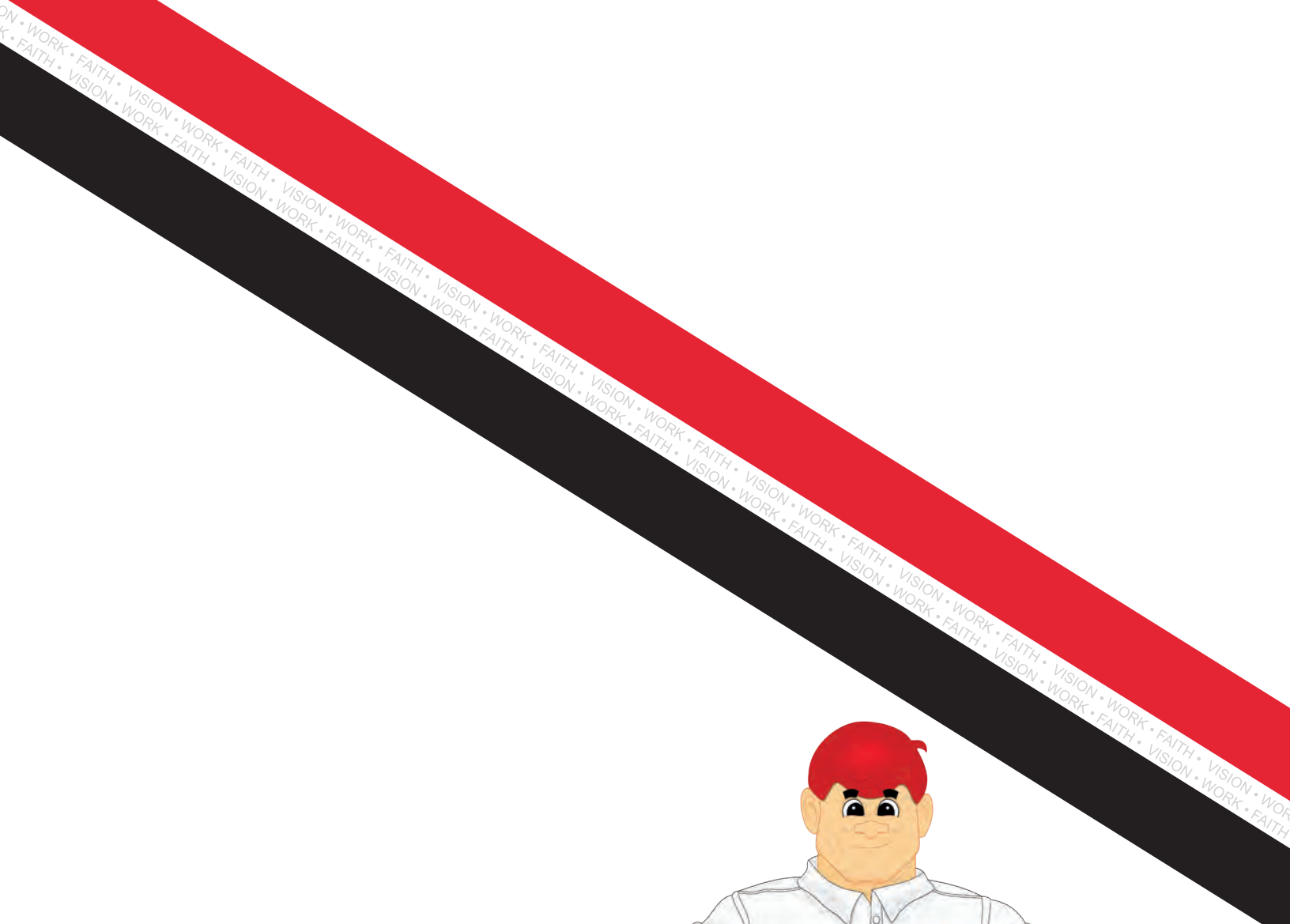
CALIFORNIA

Proposition 65 Warning

 **WARNING:** Operating, servicing and maintaining a passenger vehicle or off-road vehicle 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 in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

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