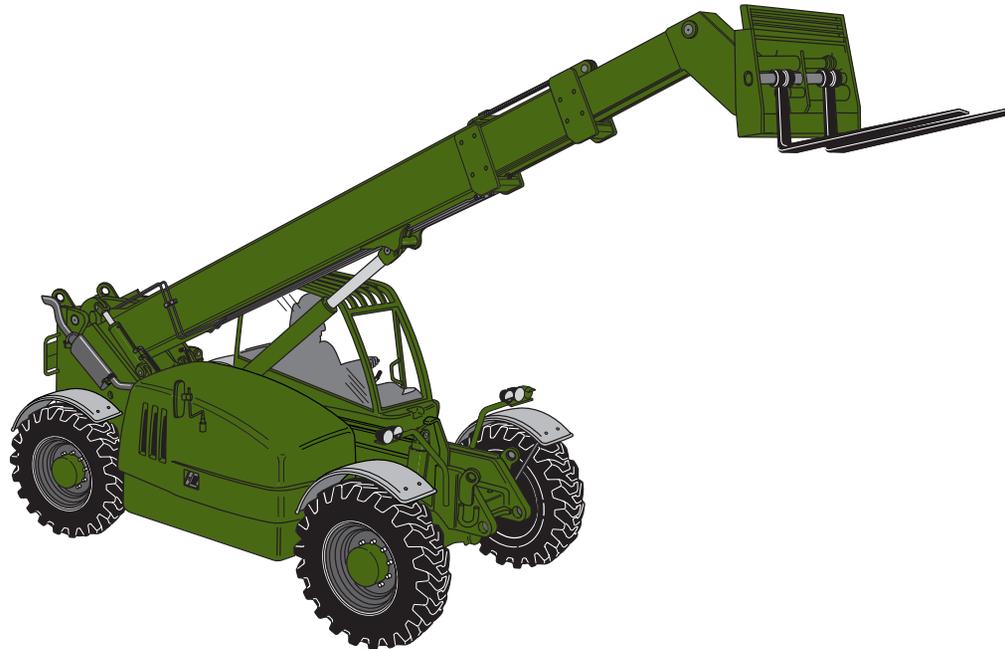


MMV Operator Training



OM0651

Introduction

MMV OPERATOR TRAINING PROGRAM

Disclaimer

OmniQuip reserves the right to make changes on and to add improvements upon its products at any time without public notice or obligation. **OmniQuip** also reserves the right to discontinue manufacturing any product at its discretion at any time.

NOTICE: Under OSHA rules, it is the responsibility of the employer to provide operator training. Successful completion and certification of Safety Training for Rough Terrain Forklifts is required. Operator Training Kits are available by calling Ken Cook Company at (414) 466-6060. An order form for these kits is available through our website, <http://www.omniquip.com>.

The information in this manual does not replace any safety rules and laws used in your area. Before operating this vehicle, learn the rules and laws for your area. Make sure the vehicle has the correct equipment according to these rules and laws.

Your safety and the safety of others in the worksite depend significantly upon your knowledge and understanding of all correct operating practices and procedures for this vehicle.



WARNING: DO NOT modify or alter (weld, drill, etc.) any part of this vehicle without consulting **OmniQuip**. Modifications can weaken the structure creating a hazard that can cause death or serious personal injury.

Safety

MMV OPERATOR TRAINING PROGRAM

Hazard Classification System



OP0330

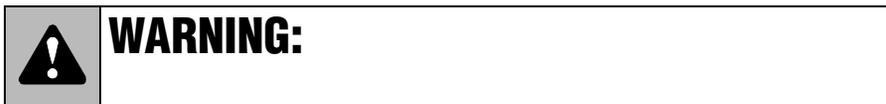
This safety alert symbol is used with the following signal words to attract your attention to messages found within the manual and on hazard decals located on the vehicle. They are reproduced herein and pertain to proper operation and procedure messages contained throughout the manual. The message that follows the symbol contains important information about Safety. To avoid possible death or serious personal injury, carefully read and follow the messages! Be sure to fully understand the potential causes of death or injury.

Signal Word

A signal word is a distinctive word located on hazard decals and used throughout this manual that alerts the viewer to the existence of and relative degree of the hazard.



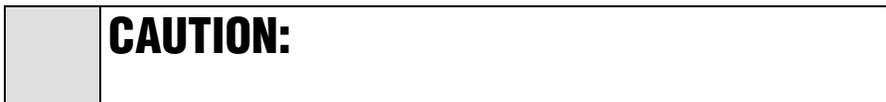
The signal word “**DANGER**” indicates an imminently hazardous situation which, if not avoided, will result in death or serious personal injury.



The signal word “**WARNING**” indicates a potentially hazardous situation which, if not avoided, could result in death or serious personal injury.



The signal word “**CAUTION**” indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



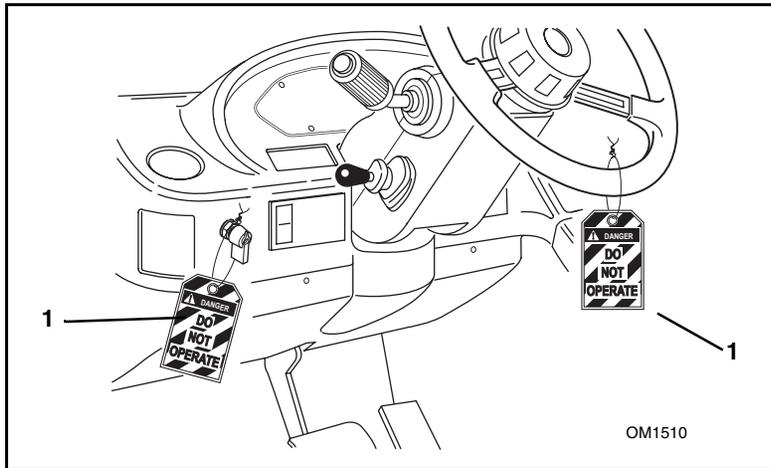
The signal word “**CAUTION**”, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, may result in property damage.

For safe maintenance of the vehicle, read, understand and follow all DANGER, WARNING and CAUTION information.

MMV OPERATOR TRAINING PROGRAM

Accident Prevention Tags

Before beginning any maintenance or service, place an Accident Prevention Tag (1) on both the ignition switch and the steering wheel, stating that the vehicle should not be operated. Actual Accident Prevention Tags, which can be punched out and used, are included as the last page of this manual. Retain these Accident Prevention Tags for reuse at a later date.



New or Additional Operators

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

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

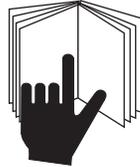
MMV OPERATOR TRAINING PROGRAM

Instructional Symbols



OP0330

Safety Alert Symbol



OH2100

Read Operator's Manual



OH2090

Fasten Seat Belt

Hazard Symbols



OH2110

**Lead Acid Batteries
Generate Explosive Gases**



OH2130

**Vehicle Tipover Can
Crush**



OH2120

**Rotating Fan Blades
Can Cut**



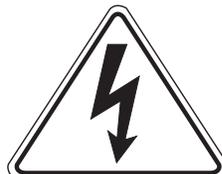
OH2140

**Vehicle Roll Away Can Cause
Death Or Serious Injury**



OH2300

**Rotating Belts Can Cut
Or Entangle**



OH2150

**Electrocution Can Cause
Death Or Serious Injury**



OH2160

**FALLING OFF ATTACHMENT Can
Result In Death Or Serious Injury**

MMV OPERATOR TRAINING PROGRAM

Avoidance Symbols



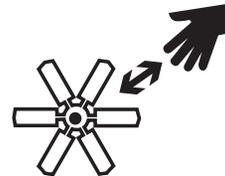
OH2320

**Keep Lit Cigarettes
Away**



OH2330

**Keep Flames and
Ignition Sources Away**



OH2310

**Keep Away From
Rotating Fan Blades**



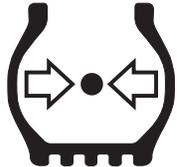
OH2270

**Do Not Travel With
Boom Raised**



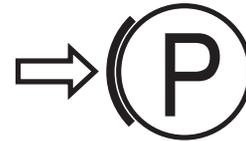
OH2280

**Do Not Raise Boom
While On A Slope**



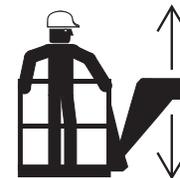
OH2290

**Maintain Proper Air
Pressure In Tire**



OH2260

Engage Parking Brake



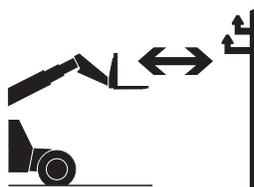
OH2170

**Use Only Approved
Work Platforms To
Raise Or Lower
Personnel**



OH2240

**Do Not Travel With
Personnel In Work
Platform**



OH2250

**Keep Clear Of Power
Lines**



OH2230

Carry No Riders



OH2220

DO NOT JUMP

- **Brace Yourself and Stay With Vehicle**
- **Keep Seat Belt Fastened**
- **Hold On Firmly**
- **Lean Away From The Point Of Impact**

Personal Considerations

1. Seat Belt

Always fasten the seat belt before starting the engine.

2. Clothing and Safety Gear

DO NOT wear loose clothing or jewelry that can get caught on controls or moving parts. Wear protective clothing and personal safety gear issued or called for by job conditions.

3. Dismounting



OS0023

DO NOT get off the vehicle until you:

- level the vehicle,
- ground the carriage,
- place the travel select lever in (N) NEUTRAL,
- place the neutral lock lever in (N) NEUTRAL LOCK,
- engage the parking brake switch,
- turn the engine off, if appropriate,
- unbuckle the seat belt,
- exit the vehicle using the hand holds.

4. Chemical Hazards

A. Exhaust Fumes

Fumes from the engine exhaust can cause death or serious personal injury. **DO NOT** operate vehicle in an enclosed area without a ventilation system capable of routing the hazardous fumes outdoors.

B. Explosive Fuel

Engine fuel is **flammable** and can cause a fire and/or an explosion. Avoid danger by keeping sparks, open flames and smoking materials away from the vehicle and from fuel during refueling or when servicing the fuel system. Know where fire extinguishers are kept on the worksite and how to use them.

C. Hydraulic Fluid

DO NOT attempt to repair or tighten any hydraulic hoses or fittings while the engine is running or when the hydraulic system is under pressure. Fluid in the hydraulic system is under enough pressure that it can penetrate the skin causing death or serious personal injuries.

HOT HYDRAULIC FLUID WILL CAUSE SEVERE BURNS. Wait for fluid to cool down before disconnecting lines.

DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks. Wear gloves to protect hands from spraying fluid.

Hydraulic fluid can cause permanent eye injury. Wear appropriate eye protection and stop engine. Relieve pressure before disconnecting lines. Pressure can typically be relieved by slowly and cautiously loosening one end of a hose at the swivel connection.

If anyone is injured by or if any hydraulic fluid is injected into the skin, obtain medical attention immediately or gangrene may result.

MMV OPERATOR TRAINING PROGRAM

D. Batteries

The following WARNING is intended to supplement and does not replace the warnings and information provided on the batteries by the battery manufacturer.

When slave starting the vehicle, carefully follow instructions found under "Slave Starting" on page 62.



OS0621

Keep sparks, flames and lit smoking materials away from the batteries at all times. Lead acid batteries generate **explosive** gases. Severe chemical burns can result from improper handling of battery electrolyte. Wear safety glasses and proper protective gear when handling batteries to prevent electrolyte from coming in contact with eyes, skin or clothing.

Battery Electrolyte First Aid:

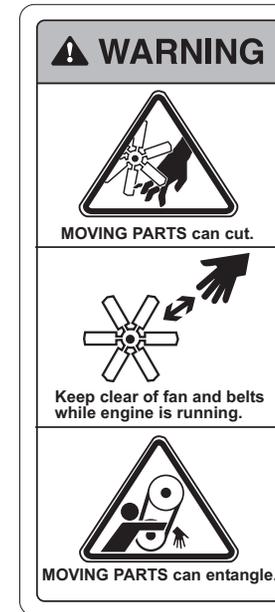
- **External Contact** — Flush with water.
- **Eyes** — Flush with water for at least 15 minutes and get medical attention immediately.
- **Internal Contact** — Drink large quantities of water. Follow with Milk of Magnesia, beaten egg or vegetable oil. Get medical attention immediately.

IMPORTANT! In case of internal contact, **DO NOT** give fluids that would induce vomiting!

5. Moving Parts Hazard

DO NOT place limbs near moving parts. Severing of any body part can result.

Turn off engine and wait until fan and belts stop moving before servicing.



OT0810

6. Lowering Boom or Falling Load Hazard

DO NOT get under a raised boom unless it is blocked up safely. Always empty the attachment of any load and block the boom up before doing any servicing that would require the boom to be raised.

NEVER allow anyone to walk or stand under the boom. A lowering boom or falling load can result in death or serious personal injury.

Operational Considerations

1. Preparation and Prevention

Know the location and function of all vehicle controls.

Make sure all persons are away from the vehicle and that the travel select lever is in the (N) NEUTRAL position and the Neutral Lock Lever is in the (N) NEUTRAL LOCK position with the parking brake switch engaged before starting the engine.

Holes, obstructions, debris and other worksite hazards can cause death or serious personal injury. Always walk around and look for these and other hazards before operating the vehicle in a new worksite.

Prevent accidents when you move the vehicle around the worksite. Know the rules for movement of people and vehicles on the worksite. Have a person act as a lookout for you. Follow the instructions of signals and signs.

DO NOT operate the vehicle unless all hazard and instructional decals are in place and readable. (Replace all missing, illegible, or damaged decals.)

2. Clearances

Look out for and avoid other personnel, machinery and vehicles in the area. Use a spotter if you do not have a clear view of conditions that affect clearances. Travel with the boom fully retracted and lowered as far as possible while still maintaining enough ground clearance for conditions.

Always check boom clearances carefully before driving underneath door openings, bridges, etc.

Always check for power lines when raising the boom. Beware of overhead wires. Contact with electrical power lines can result in electrocution. See "Electrocution Hazards."

3. Visual Obstruction

Dust, smoke, fog, etc. can decrease vision and cause an accident. Always stop or slow the vehicle until the obstruction clears and the worksite is visible again. Have a lookout person assist you.

Where the load will obstruct the operator's vision, it is recommended that the vehicle be operated in REVERSE, looking backwards in the direction of travel. Travel at a slower speed and get someone to direct you. Underground Hazards

Know the location of all underground hazards before operating this vehicle in a new area or worksite. Electrical cables, gas and water pipes, sewer, or other underground objects can cause death or serious personal injury. Contact your local underground utility service or diggers hotline to mark all underground hazards.

4. Underground Hazards

Know the location of all underground hazards before operating this vehicle in a new area or worksite. Electrical cables, gas and water pipes, sewer, or other underground objects can cause death or serious personal injury. Contact your local underground utility service or diggers hotline to mark all underground hazards.

5. Electrocution Hazards

NEVER operate this vehicle in an area where overhead power lines, overhead or underground cables, or other power sources may exist without first requesting that the appropriate power or utility company de-energize the lines, or take other suitable precautions.



OS0063

MMV OPERATOR TRAINING PROGRAM

6. Carrying Personnel

Use only an approved work platform meeting the ASME B56.6 standards for lifting and lowering personnel. **NEVER** transport personnel in a work platform for even the shortest distance.

Death or serious personal injury can occur if these rules are not obeyed. Riders can fall and be crushed or run over. Avoid accidents.

For other specific precautions, see “Elevating Personnel”



OS0072



OS0631

7. Tip Over Hazard



OS0086

Traveling with the boom raised is dangerous and can cause tipover. Keep the boom as low as possible. Travel with extreme caution and at the slowest possible speed.

Keep the vehicle under control at all times. When negotiating turns, slow down and turn the steering wheel in a smooth sweeping motion. Avoid jerky turns, starts or stops. Reduce vehicle speed on rough ground and slopes.

DO NOT exceed the rated lift capacity of the vehicle as structural damage and unstable conditions will result.

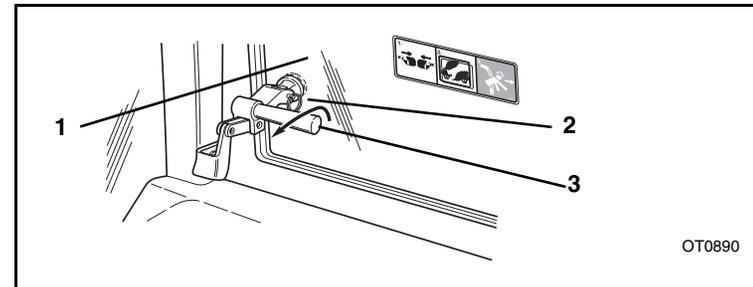
To ensure that the vehicle is positioned in the most stable condition before operating an attachment, use the frame sway control (frame tilt) to level the vehicle. The vehicle is level when the frame level indicator gauge reaches (0°) zero degrees.

If the vehicle cannot be leveled using the frame sway control, reposition the vehicle.

Frame swaying left or right with the boom raised above horizontal is dangerous. Always use the frame sway control to level the vehicle before raising the boom above horizontal, with or without a load. If the vehicle cannot be leveled using frame sway control, reposition the vehicle.

8. Emergency Exit Rear Window

The rear window (1) in the enclosed cab can be used as an emergency exit by removing the latch pins (2) located on the two window latches (3). The window is then free to swing open.



OT0890

9. Tire Pressure



OS0085

MAINTAIN proper tire pressures at all times. An underpressurized tire(s) adversely affects vehicle stability. If proper tire pressures are not maintained, this vehicle can tip over.

To ensure proper vehicle stability, check all four tire pressures before operating the vehicle.

MMV OPERATOR TRAINING PROGRAM

10. Do Not Jump



OT0520

If a vehicle ever becomes unstable and starts to tip over:

- BRACE YOURSELF and STAY WITH THE VEHICLE,
- KEEP YOUR SEAT BELT FASTENED,
- HOLD ON FIRMLY and
- LEAN AWAY FROM THE POINT OF IMPACT.

Indecision and trying to escape from a tipping vehicle can result in death or serious personal injury.

11. Slopes

DO NOT park the vehicle on an incline and leave it unattended.

- Driving across a slope is dangerous, as unexpected changes in the slope can cause tipover. Ascend or descend slopes slowly and with caution.
- Ascend or descend slopes with the heavy end of the vehicle pointing up the slope.

NOTE: *The rear of the vehicle is normally considered the heavy end unless the carriage is fully loaded. In this case the front of the vehicle is now the heavy end.*

- Unloaded vehicles should be operated on all slopes with the carriage pointing down the slope.
- On all slopes, the load must be tilted back and raised only as far as necessary to clear the ground.
- When operating on a downhill slope, reduce travel speed and downshift to a low gear to permit compression braking by the engine and aid the application of the service brakes.

12. Falling Load Hazard

DO NOT exceed the total rated load capacity of the specific type fork being used. Each fork is stamped with a maximum load capacity. If the capacity is exceeded, forks may break. See "Fork Rating."

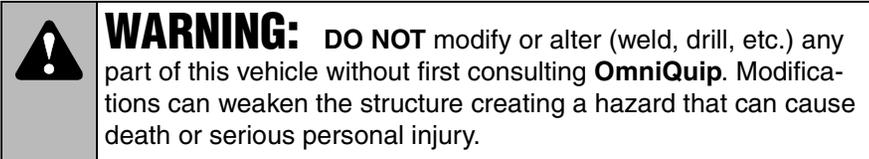
DO NOT downshift at a high ground speed. Sudden slowing can cause the load to drop off the forks.

13. Ventilation

Sparks from the electrical system and the engine exhaust can cause an explosion. **DO NOT** operate this vehicle in an area with flammable dust or vapors unless good ventilation has removed the hazard.

Carbon monoxide fumes from the engine exhaust can cause suffocation in an enclosed area. Good ventilation is very important when operating this vehicle.

Equipment Considerations



DO NOT by-pass or disconnect any electrical or hydraulic circuits. Consult the **OmniQuip** Service Department or your **OmniQuip** Sales & Service Center (SSC) if any circuit is malfunctioning.

DO check for frayed or cut seat belt webbing, damaged buckles or loose mounting brackets. Replace immediately if required.

ALWAYS wear a seat belt when operating the vehicle.

DO check tire pressure on all four tires. Add air if required.

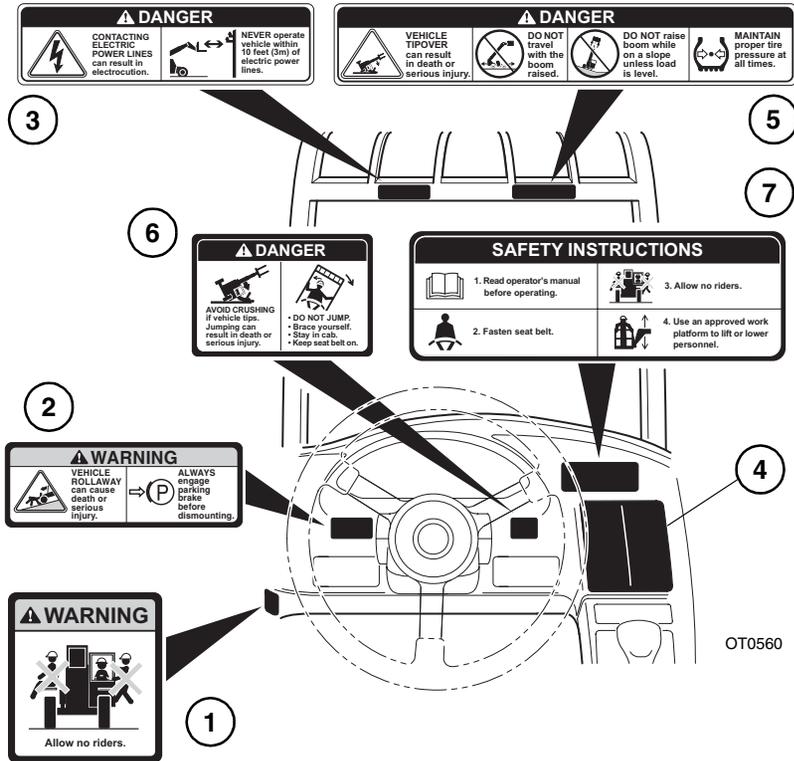
DO check the condition of all four rims. Check for bent flanges and/or bead mounting areas.

DO check the parking brake/transmission de-clutch operation. Refer to the test procedures. Repair immediately if required.

DO keep all non-skid surfaces clean and free of debris. Replace if worn, damaged or missing.

DO check the condition of decals and/or decal plates. Replace decals or decal plates if missing, damaged or illegible. The following slides show the proper location of the decals and/or decal plates.

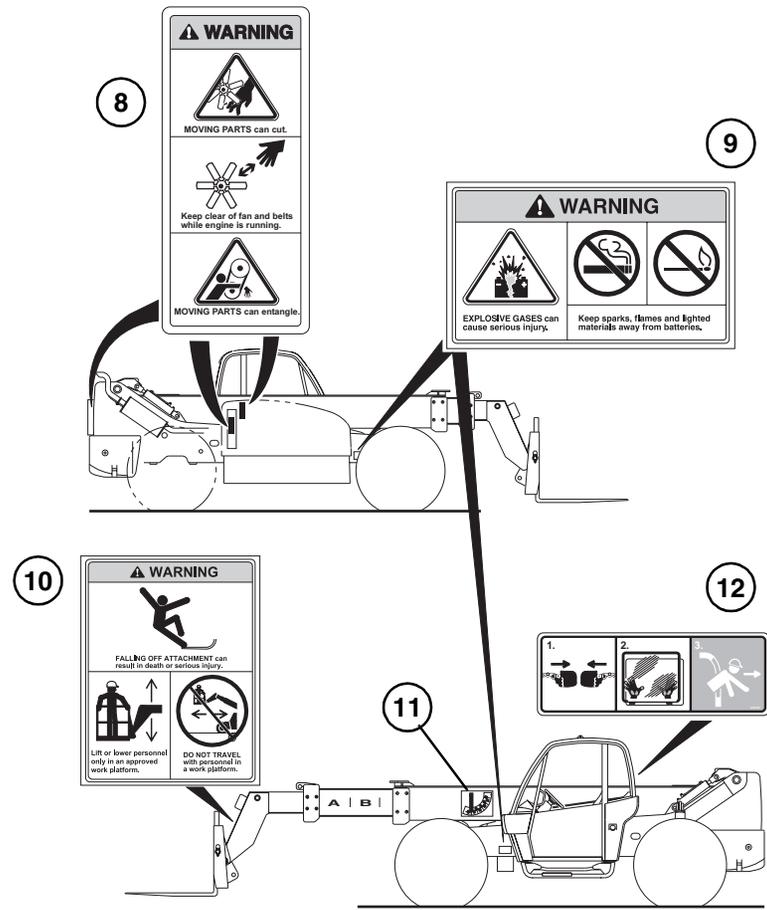
MMV OPERATOR TRAINING PROGRAM



OT0560

Item	Part Number	Quantity	Decal Description
1	mold in dash	1	No Riders Warning
2	mold in dash	1	Vehicle Rollaway Warning
3	4108991	1	Electrocution Danger
4	6623603	1	Load Chart Booklet
5	4110137	1	Tipover Danger
6	mold in dash	1	Do Not Jump Danger
7	mold in dash	1	Safety Instructions

NOTE: Hazard/Emergency Information related decals, with part numbers, are available free of charge by calling OmniQuip Textron Parts Worldwide at (888) 872-5123.



OM11411

Item	Part Number	Quantity	Decal Description
8	4110184	3	Moving Parts Warning
9	4110303	2	Explosive Gases Warning
10	4110304	1	Carrying Personnel Warning
11	4110305	1	Boom Angle Indicator
12	4109791	1	Emergency Exit

Vehicle Operations

MMV OPERATOR TRAINING PROGRAM

OPERATOR CONTROLS

Accelerator Pedal

Pressing down the accelerator pedal (1) increases engine and hydraulic speed of the vehicle. The pedal is spring-loaded to return to idle speed.

Service Brake Pedal

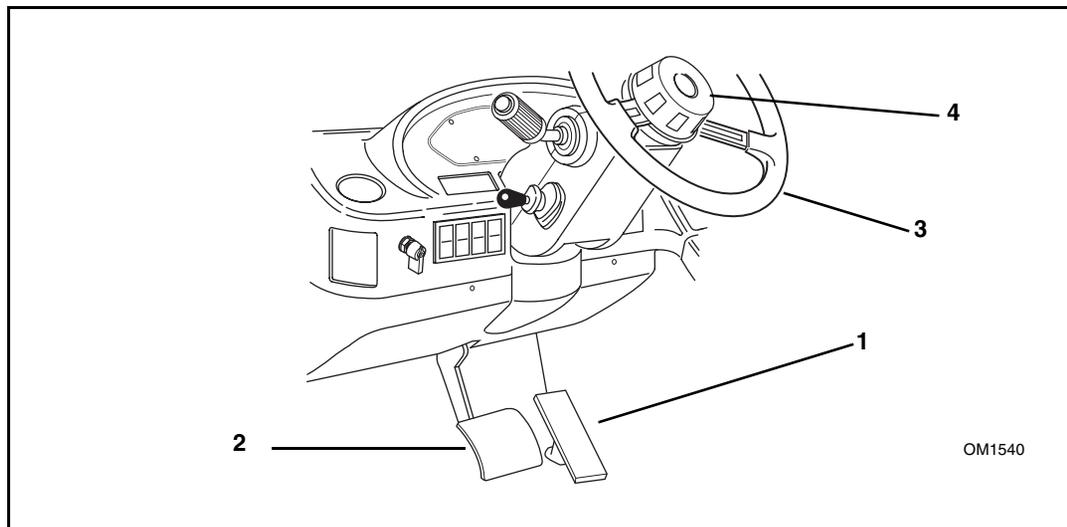
Pressing down the brake pedal (2) decreases the speed of the vehicle by applying the service brakes located in the axles. In the event of engine power loss, the service brake pedal can also be used for braking.

Steering Wheel

Turning the steering wheel (3) to the left or right steers the vehicle in the corresponding direction. Any one of the steering modes are selectable.

Horn Button

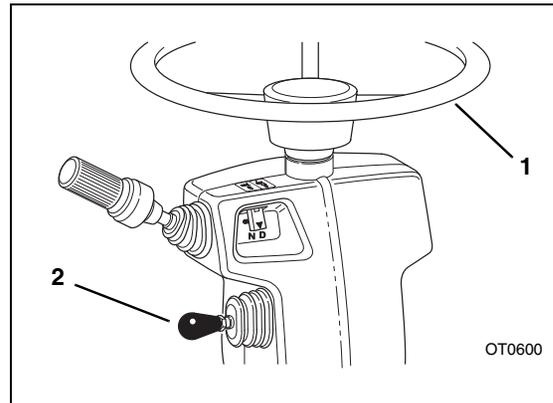
Pressing the horn button (4) sounds the horn. When the blackout light system is activated the horn will not operate.



MMV OPERATOR TRAINING PROGRAM

Tilt Steering Wheel Lever

To tilt the wheel, hold the steering wheel (1) and pull the tilt steering wheel lever (2) toward you. Move the steering wheel to a comfortable operating level, then release the lever to lock the wheel in place.



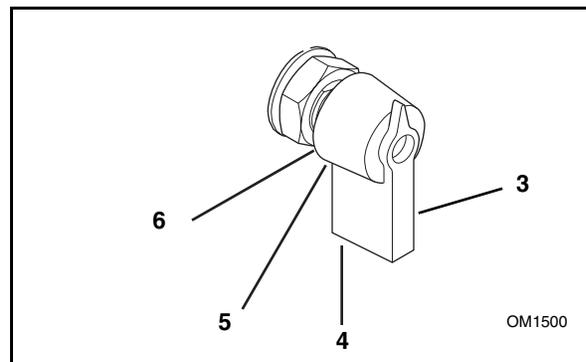
Ignition Switch

Using the ignition switch (3), the switch may be turned clockwise from the OFF (4) position to the RUN (5) and START (6) positions. To rotate the switch to the START position, push the switch IN and rotate to the START position. The START position is spring-loaded to return to the RUN position and must be manually held in place for starting.

OFF position (4) — The entire electrical system is shut down.

RUN position (5) — All controls and indicators are operable.

START position (6) — Engages starter motor to crank the engine when the parking brake switch is engaged and the transmission is in NEUTRAL.



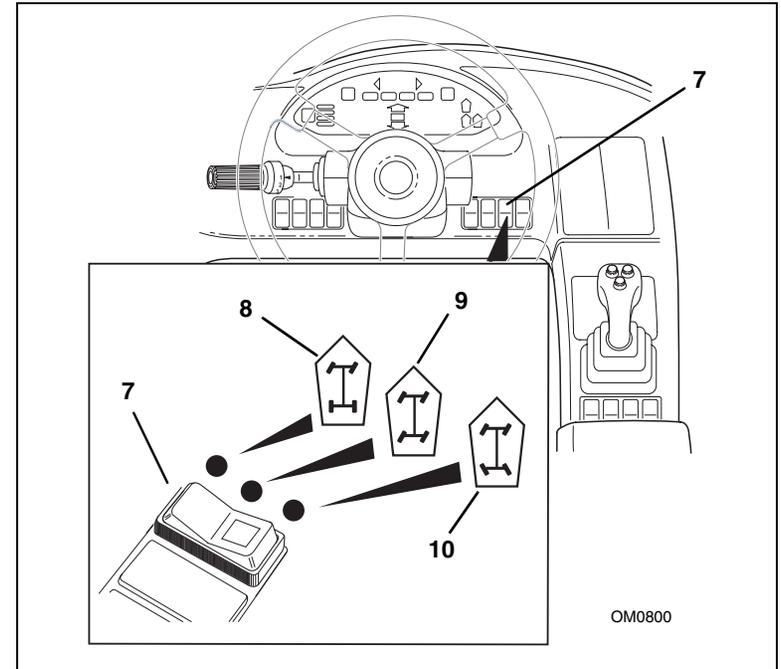
MMV OPERATOR TRAINING PROGRAM

Steering Select Switch

Three Mode Steer Select

This vehicle has one steering select switch (7) with three positions.

- Front Wheel Steer (8).
- Crab Steer (9).
- Four Wheel Steer (10).



Parking Brake Switch

The Parking Brake Switch (1) has two positions:

⇒ (P) ENGAGED..... toggle switch downward 

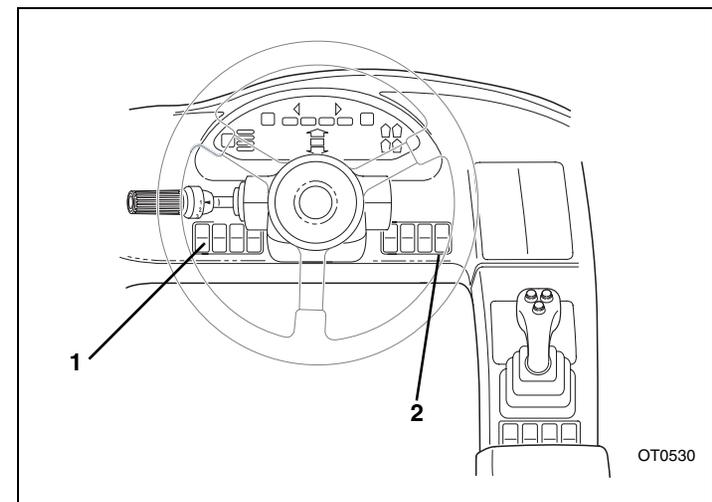
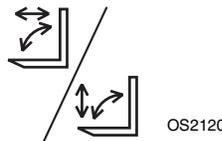
⇐ (P) OS0121 DISENGAGED..... toggle switch upward  OS1323

The Parking Brake Switch must be ENGAGED to permit engine starting. A red LED, on the parking brake switch, will indicate the brake is ENGAGED.

The parking brake may be used to stop in an EMERGENCY situation. However, use caution because the stop will be abrupt and the operator and the load may be jolted forward unexpectedly.

Attachment Tilt Mode Switch

The Attachment Tilt Mode Switch (2) has two positions which allow the operator to choose between the Lift/Lower function and the Extend/Retract function accompanying the Attachment Tilt capability.



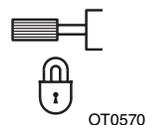
MMV OPERATOR TRAINING PROGRAM

Neutral Lock Lever

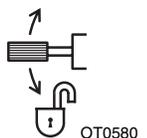
The Travel Select Lever (1) is equipped with a neutral lock. The Neutral Lock Lever (2) locks the Travel Select Lever in NEUTRAL or unlocks the Travel Select Lever so that it can be moved into the FORWARD or REVERSE drive position.

To lock the Travel Select Lever (1) in the NEUTRAL position, place the lever in the NEUTRAL position and move the Neutral Lock Lever (2) to the (N) NEUTRAL LOCK position.

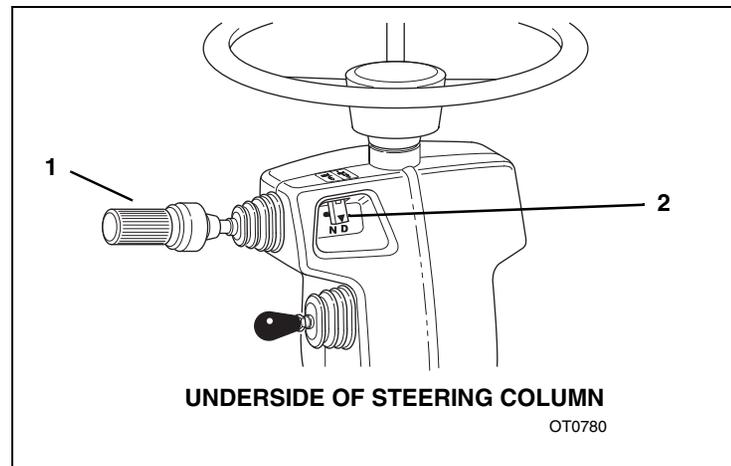
To unlock, move the Neutral Lock Lever to the (D) DRIVE position.



N = NEUTRAL LOCK all the way LEFT



D = DRIVE all the way RIGHT



Travel Select Lever

The Travel Select Lever (3) has three positions to select direction of travel:



F = FORWARD (4) all the way UP



N = NEUTRAL (5) CENTER position



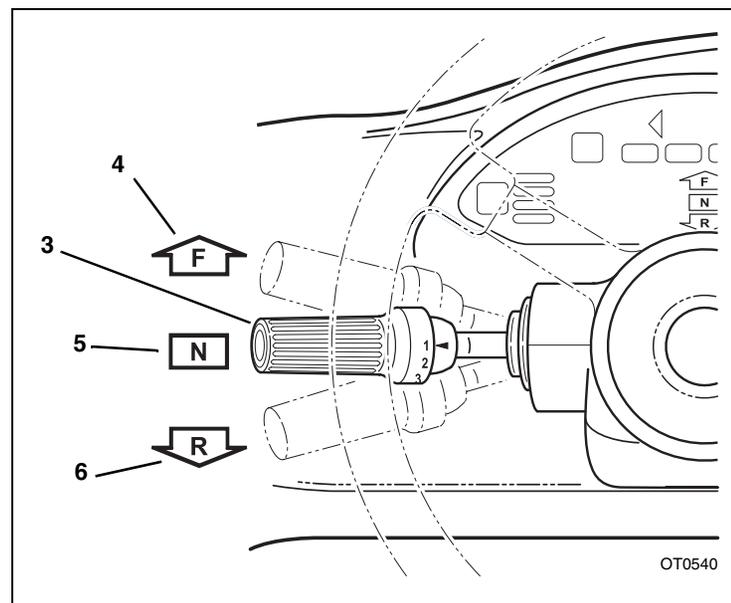
R = REVERSE (6) all the way DOWN

OS0340

To change travel selections, move the lever UP or DOWN to the desired selection.

When the Travel Select Lever is shifted to REVERSE, the back-up alarm will automatically sound. When the blackout light system is activated the back-up alarm will not operate.

NOTE: The Travel Select Lever must be in the (N) NEUTRAL position to permit engine starting.



MMV OPERATOR TRAINING PROGRAM

Gear Select Lever

The Gear Select Lever (5) has a twist grip handle with four positions. Vehicles have four forward gears and three reverse gears.

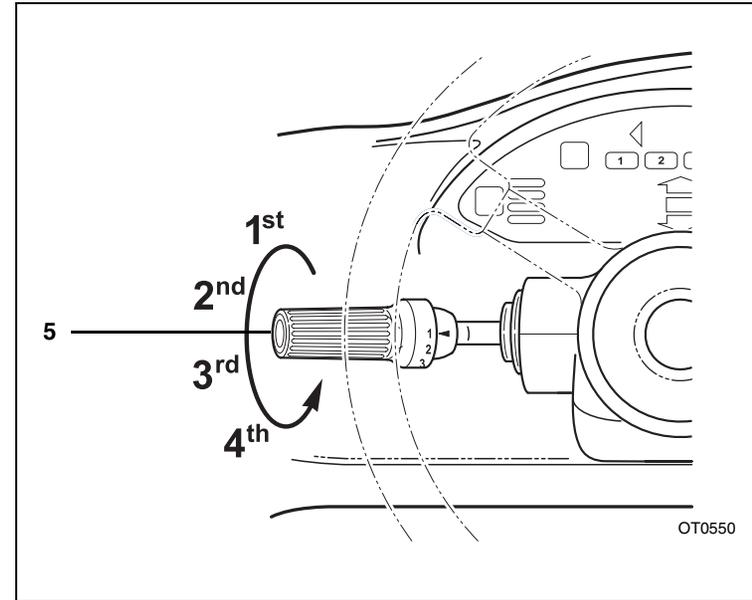
Use first gear for highest torque and pulling power. Use higher gears for higher ground speed. The recommendations listed in the tables that follow are guidelines only. Always use good judgement when traveling with a load.

Recommended Gear/Speed for Various Load/Travel Conditions

7 K Fork Carriage			
Load Size	Surface	Gear	Speed
No Load	Smooth	4th*	0 to 20 mph (0 to 32 km/h)
	Improved	3rd	0 to 14 mph (0 to 23 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load up to 3,500 lbs (up to 1.588 kg)	Smooth	3rd	0 to 14 mph (0 to 23 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load 3,500 to 7,000 lbs (1.588 to 3.175kg)	Smooth	2nd	0 to 6 mph (0 to 9.7 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	1st	0 to 3.5 mph (0 to 5.6 km/h)

11 K Fork Carriage			
Load Size	Surface	Gear	Speed
No Load	Smooth	4th*	0 to 20 mph (0 to 32 km/h)
	Improved	3rd	0 to 14 mph (0 to 23 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load up to 4,500 lbs (up to 2.041 kg)	Smooth	3rd	0 to 14 mph (0 to 23 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load 4,500 to 11,000 lbs (2.041 to 4.989 kg)	Smooth	2nd	0 to 6 mph (0 to 9.7 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	1st	0 to 3.5 mph (0 to 5.6 km/h)

***NEVER** travel in 4th gear when carrying a load.



MMV OPERATOR TRAINING PROGRAM

Multi-Function Joystick Operation

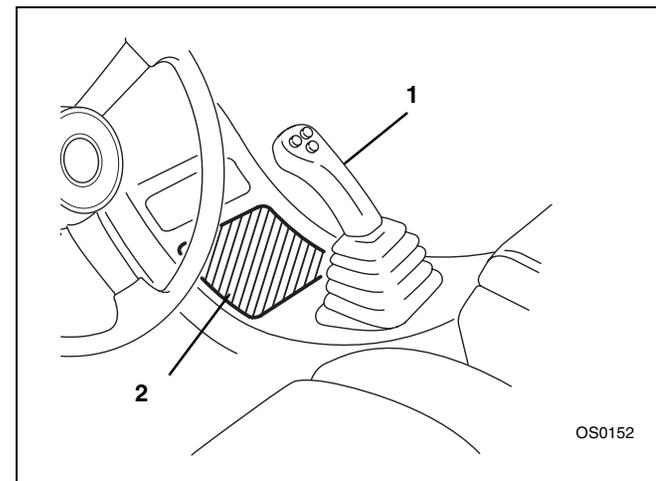
The joystick (1) is equipped with four buttons that enable the joystick to operate in three specific modes. The joystick controls boom movement, attachment tilt and frame sway control.

The logic panel (2) (located in front of the joystick) will illuminate the specific mode that corresponds with the movement of the joystick (1) and the selected buttons.

Two functions can be accomplished at the same time by moving the joystick in between quadrants. For example; in Mode 1, moving the joystick forward and to the left will lower and retract the boom simultaneously.

The speed of the function depends directly upon the amount of joystick travel in the corresponding direction. Increasing the engine speed will also increase the function speed.

IMPORTANT! Be aware that joystick modes will change *immediately* upon depressing or releasing of any button when the joystick is in an off-center position



Mode 1

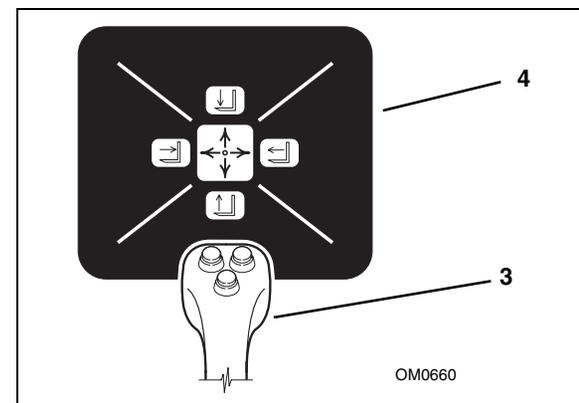
Boom Control (Default)

(No buttons depressed)

This mode is accomplished by using the multi-function joystick (3) without depressing any of the buttons. All four function lights will illuminate on the logic panel (4).

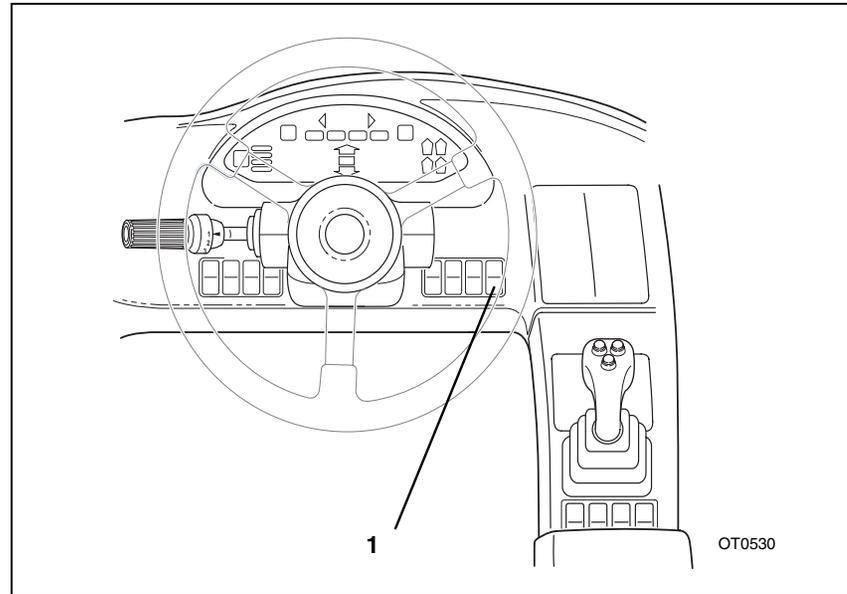
-  Boom Lift move handle backward
-  Boom Lower move handle forward
-  Boom Extend move handle to the right
-  Boom Retract move handle to the left

OS0600



MMV OPERATOR TRAINING PROGRAM

For the attachment tilt mode covered in Mode 2A and 2B on the following pages, use the attachment tilt mode switch (1) located in the bank of switches to the right of the steering wheel



Mode 2A

Attachment Tilt Up/Down & Boom Extend/Retract (Right button depressed)

Press the top of the attachment tilt mode switch in.

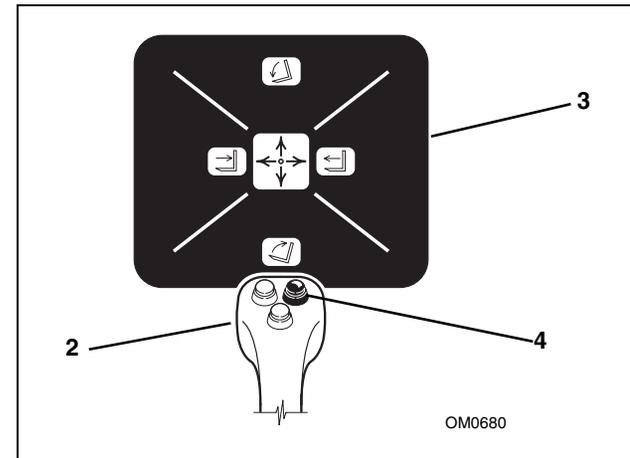
Attachment tilt with extend & retract will illuminate on operators display panel.

Press and hold the right button (4) on the top side of the multi-function joystick (2).

As the mode is activated the corresponding lights will illuminate on the logic panel (3).



OM0670



OM0680



Attachment Tilt Up..... move handle backward



Attachment Tilt Down move handle forward



Boom Extend.....move handle to the right



Boom Retractmove handle to the left

OS0671

Mode 2B

Boom Lift/Lower & Attachment Tilt Up/Down (Right button depressed) Press the bottom of the attachment tilt mode switch in.

Attachment tilt with lift & lower will illuminate on operators display panel.

Press and hold the right button (4) on the top side of the multi-function joystick (5).



OM0690

As the mode is activated the corresponding lights will illuminate on the logic panel (6).



Boom Lift move handle backward



Boom Lower move handle forward

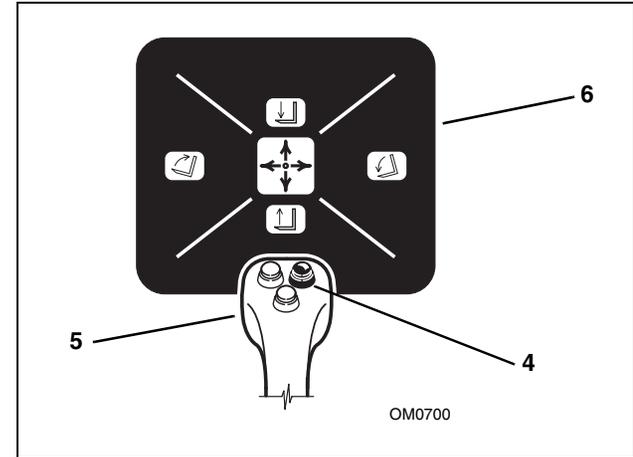


Attachment Tilt Down move handle to the right



Attachment Tilt Up move handle to the left

OS0610



Mode 3

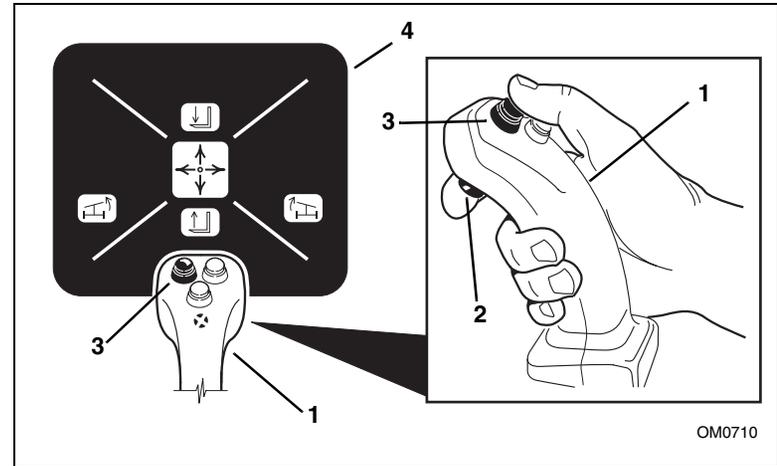
Boom Lift/Lower & Frame Sway Right/Left

(Depress left & front buttons simultaneously, then hold either button)

This mode is accomplished by using the multi-function joystick (1) and depressing the front (2) and left (3) buttons simultaneously, then while holding either button move the joystick for the required function. As the mode is activated the corresponding lights will illuminate on the logic panel (4).

-  Boom Lift move handle backward
-  Boom Lower move handle forward
-  Frame Sway Right move handle to the right
-  Frame Sway Left move handle to the left

OS0611



MMV OPERATOR TRAINING PROGRAM

Fork Shift Control Switches

The left (5) and right (6) fork shift switches shift the individual forks on the carriage to the left or right. The rocker switches are spring loaded to return to the center (stop) position when released.



Left Fork, Shift to the Left press top of left switch



Left Fork, Shift to the Right..... press bottom of left switch

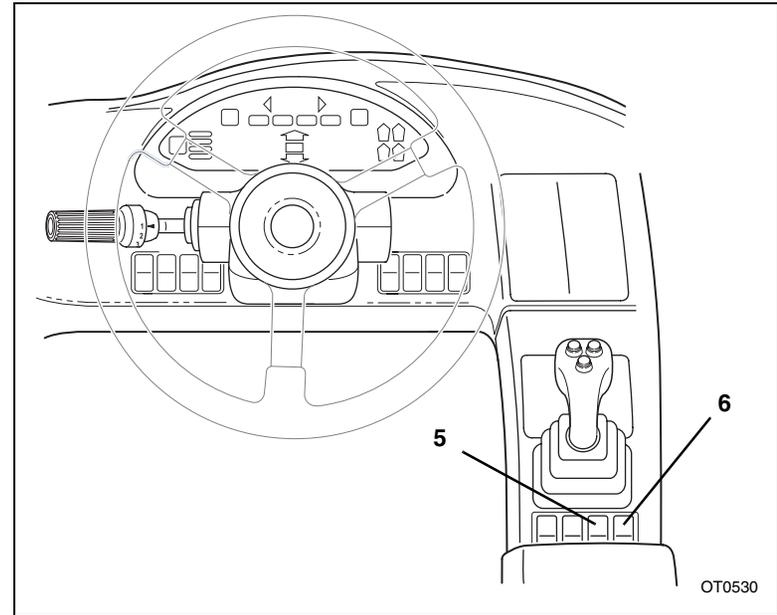


Right Fork, Shift to the Left..... press top of right switch



Right Fork, Shift to the Right press bottom of right switch

OM0880



MMV OPERATOR TRAINING PROGRAM

Seat Belt

Always wear the seat belt when operating the vehicle.

The seat belt has one retractable strap (1) for easy installation and removal.

Insert the seat belt tang into the receptacle (2) to fasten.

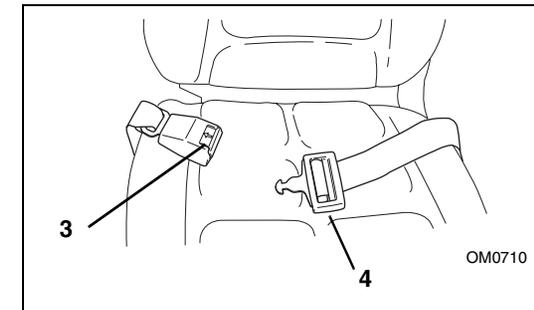
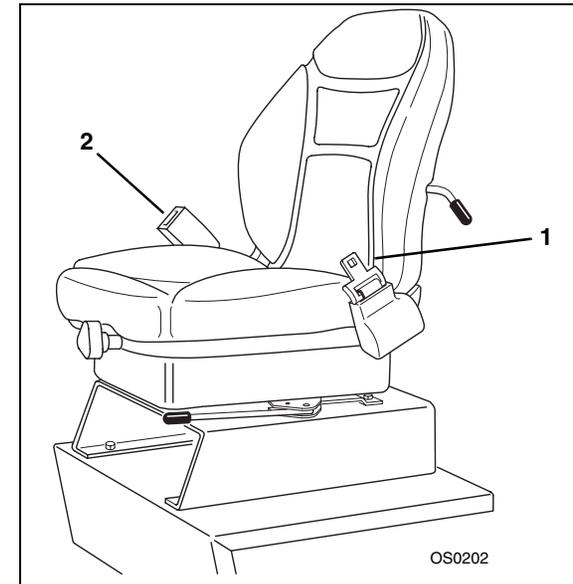
Press the center button to unfasten the seat belt

	<p>WARNING: Serious bodily injury or death may result from failure to wear the seat belt installed on this vehicle. The seat belt is a critical component of the Operator's Protective Structure, and is provided for the operators protection in case of vehicle upset. The seat belt MUST be worn whenever this vehicle is operated.</p>
---	--

IMPORTANT! Inspect the seat belt every time it is used, looking for cut or worn webbing, or any defect in the latch assembly. If any wear or damage is noted, **DO NOT** operate the vehicle until the seat belt is replaced.

Before the engine is started, adjust the seat as required for position and comfort. Then adjust the seat belt as follows:

1. Grasp both free ends of the belt and make certain that the belt webbing is not twisted or entangled in any portion of the seat assembly.
2. With your back straight in the seat, couple both ends of the belt.
3. With the belt buckle as low on your body as possible, pull the free end of the belt to shorten it until it is tight across the lap.
4. To release the belt latch, depress the red button (3) and pull the free end (4) from the buckle.



MMV OPERATOR TRAINING PROGRAM

Operators Seat Adjustments

The operator's seat can be adjusted three ways:

Fore and Aft Adjustment

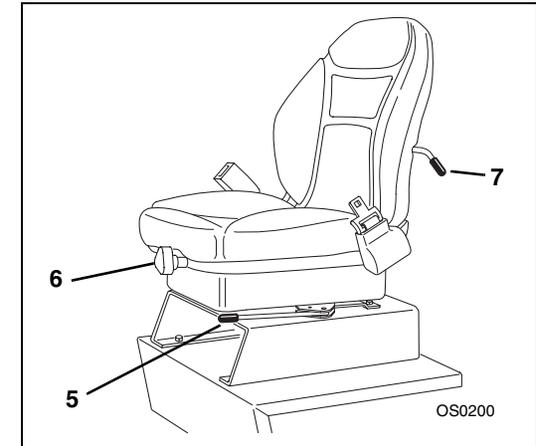
Pull the handle (5) outward to adjust the seat forward and backward. Release the handle to lock the seat in the desired position.

Suspension Adjustment

Turn the knob (6) on the front of the seat to adjust the suspension to correspond with the operator's weight. Turn clockwise to increase stiffness. Turn counter-clockwise to reduce the stiffness.

Backrest Angle Adjustment

The angle of the seat backrest can be adjusted in four positions to suit the operator. Move the lever (7) located on the left side the seat backrest to adjust the angle.



MMV OPERATOR TRAINING PROGRAM

Interior Cab Light

The interior cab light is located on the top of the cab just behind the operators head. The interior cab light will operate with the ignition switch in the OFF or RUN positions.

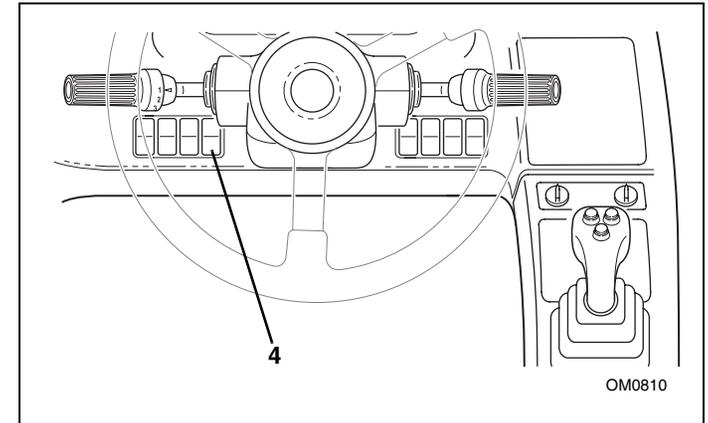


The interior cab light is operated with a slide type switch located on the light assembly. To turn the interior light ON, push the switch on the light to the rear ON position. Return the switch to the center OFF position to turn the interior light OFF.

When the blackout light system is activated the interior cab light will not operate.

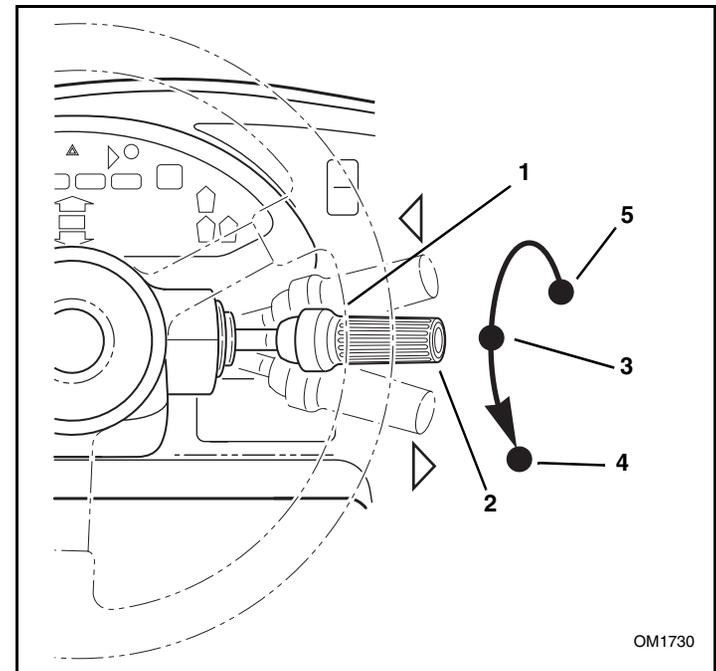
Worklights

The worklights are activated with a toggle switch (4) located in a bank of switches on the left side of the dash. There are three positions - OFF, Boom Worklight and Boom & Rear Worklights. The lights only work when the ignition switch is in the RUN position and the blackout light system switch is in the OFF position. When the blackout light system is activated these lights will not operate.



Parking Lights, Headlights & High/Low Beam Switch

With the ignition switch ON use the turn signal switch (1) to control the high/low beam headlights, turn ON the parking lights and the headlights. Turn the twist grip end (2) of the turn signal switch counter-clockwise to the first position (3) to turn the parking lights ON. Turn the twist grip to the second position (4) to turn the headlights and parking lights ON. Turn the twist grip clockwise to the OFF position (5) to turn all the lights OFF. Pull the turn signal switch toward you to switch from low beam to high beam. When the high beam is ON the high beam indicator light will illuminate. When the blackout light system is activated these lights will not operate.



MMV OPERATOR TRAINING PROGRAM

Blackout Light System Activation Switch

The blackout light system activation switch (6) is a rocker switch, located in the bank of switches on the left side of the dash. This switch has two positions - system ON and system OFF. This switch must be in the ON position and the ignition switch in the RUN position before the blackout driving lights or marker lights can become functional.



Blackout Drive/Marker Lights

This switch (7) is located in the bank of switches on the left side of the dash. The blackout light system activation switch must be in the ON position. The blackout drive/marker switch has two positions:

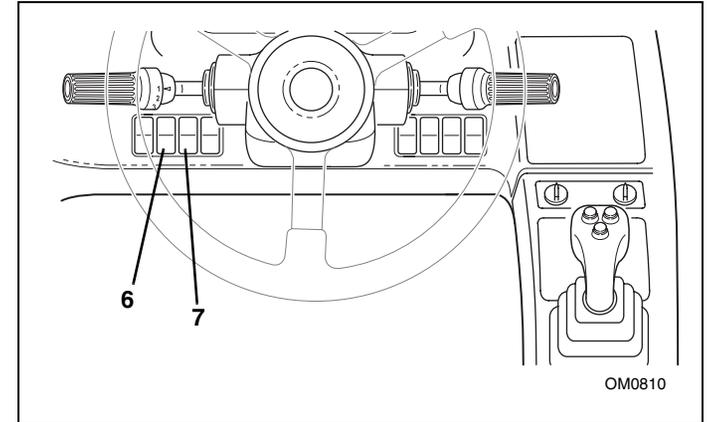


Drive/Marker Lights ON Press bottom of switch



Marker Lights Only ON Press top of switch

OM0850



MMV OPERATOR TRAINING PROGRAM

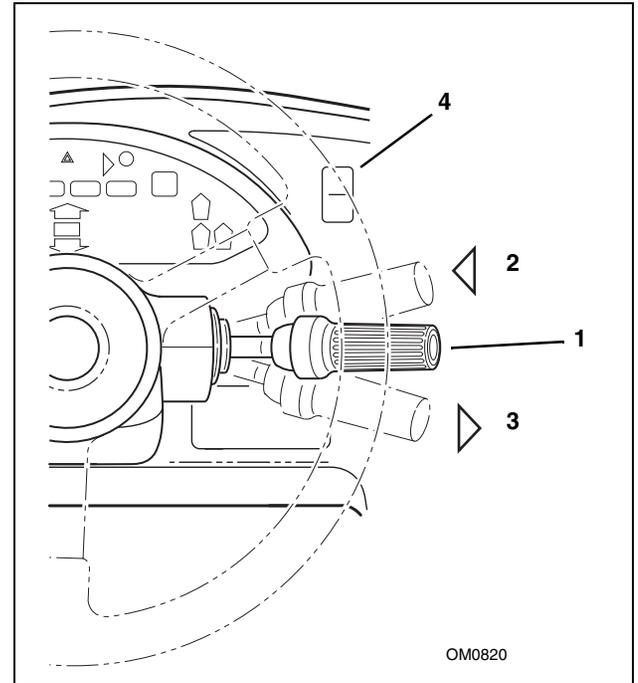
Directional Signals

The directional signals are activated from the lever (1) on the right side of the steering wheel. To activate the left turn signal (2); raise the lever. To activate the right turn signal (3); lower the lever. To deactivate either directional signal, the lever must be manually returned to the center position. The lever will not cancel automatically after a turn. When the blackout light system is activated the directional signals will not operate.



Emergency Flashers

To activate the emergency flashers; push the emergency flashers switch (4) located on the dash to the right of the steering wheel. When the blackout light system is activated the emergency flashers will not operate.



MMV OPERATOR TRAINING PROGRAM

Door Latches

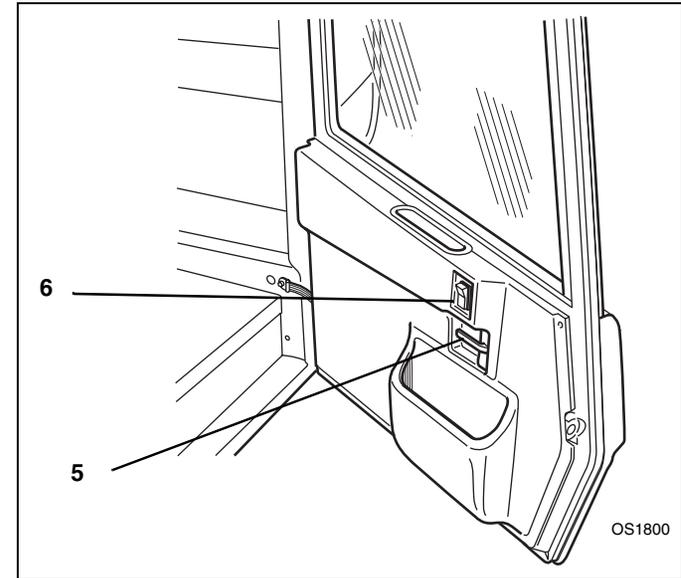
There are two door latches. The outside latch is a pull-to-release type. The inside latch (5) is also a pull-to-release latch.

Power Window

The power window control is a momentary toggle switch (6) that will raise or lower the cab door window when the ignition is in the RUN position. To lower the window, toggle the switch downward to the desired position and then release the switch.

NOTE: The window will not lower entirely into the door; it will stop approximately half way down and it will not go any further.

To raise the window, toggle the switch upward to the desired position and then release the switch.

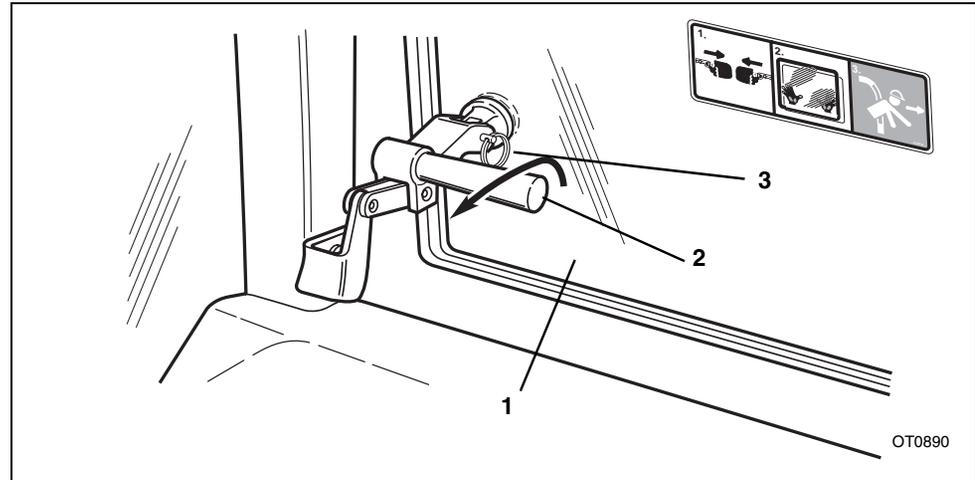


MMV OPERATOR TRAINING PROGRAM

Rear Window Latches

The rear window (1) can be partially opened and secured in place with the rear window latches. To open the window, grab both latch handles (2) simultaneously and pull up and then push the window outward. To close and secure the window, pull both latch handles up and then inward.

NOTE: In an emergency situation, the operator can exit through the rear window opening by removing the latch pins (3) on both window latches. The window is then free to swing open.



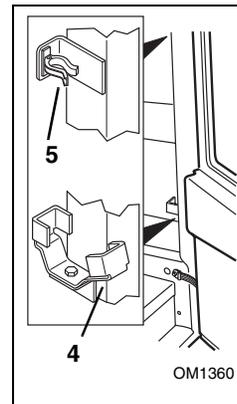
Rifle Mount

Stow rifle in stowage mount as follows:

- Position butt of M-16 rifle in the lower mount (4) with trigger guard forward.
- Position barrel of M-16 rifle in upper mount (5).
- Check that M-16 rifle is held tightly.

Remove rifle from stowage mount as follows:

- Pull the handle of the upper mount (5) to the side.
- Remove the barrel of M-16 rifle from the upper mount.
- Remove the butt of M-16 rifle from the lower mount.



MMV OPERATOR TRAINING PROGRAM

Front Windshield Wiper/Washer

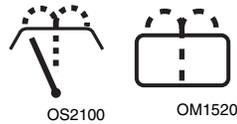
The front wiper/washer switch (6) is located in the bank of switches to the right of the steering wheel.



Push the top of the switch in to turn the front wiper OFF. Place the switch in the middle position to turn the front wiper ON. Press and hold the bottom of the switch to activate the washer. The switch is spring loaded and will return to the wiper ON position when the washer position is released.

Skylight Wiper/Washer & Rear Window Washer

The skylight (roof) wiper/washer switch and rear window washer (7) is located in the bank of switches to the right of the steering wheel. It controls the skylight wiper, skylight washer along with the rear window washer. When the skylight washer is activated the rear window washer is also activated.

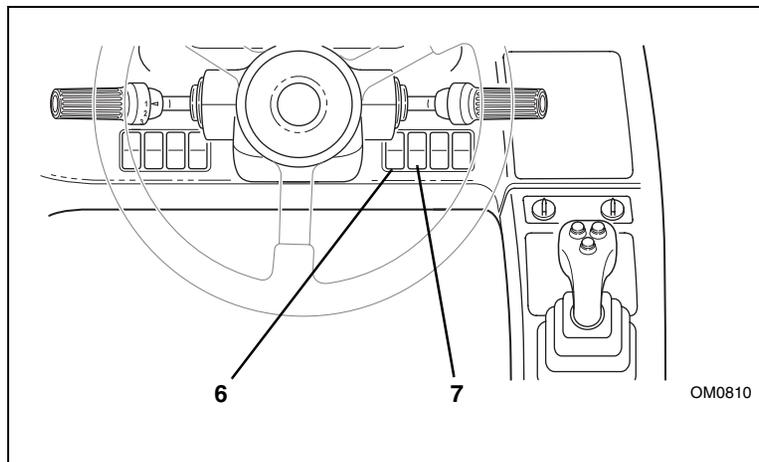


Push the top of the switch in to turn the skylight wiper OFF. Place the switch in the middle position to turn the skylight wiper ON. Press and hold the bottom of the switch to activate the skylight and rear washers. The switch is spring loaded and will return to the wiper ON position when the washer position is released.

Rear Window Wiper

The rear window wiper switch is located on the motor housing of the rear wiper.

The Switch has two positions: wiper ON and wiper OFF.

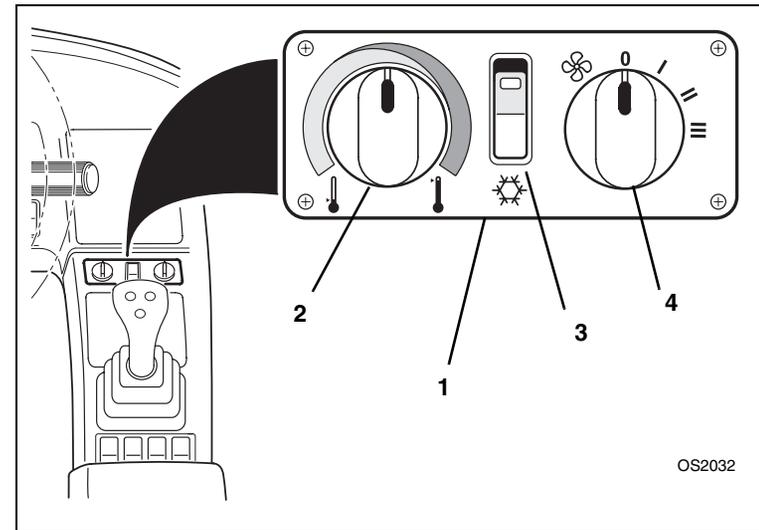
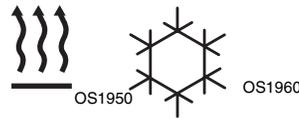


MMV OPERATOR TRAINING PROGRAM

Cab Heater/Air Conditioning Controls

The cab heater and air conditioning controls (1) are located directly below the vehicles Capacity Chart Booklet. From left to right the control panel consists of: a temperature control knob (2), an A/C on-off rocker switch (3) and a variable speed fan control knob (4).

Control of air flow is made by opening, closing or redirecting the air vent louvers in five separate locations inside the cab. For instance, if the front glass needs rapid defrosting, redirect the air flow at the front two vents (directing the vent louvers toward the glass) and close the remaining three vents. This will increase the volume of air flow to the front glass and speed defrosting.



To heat the cab:

- turn A/C rocker switch (3) to the OFF position,
- turn temperature control knob (2) to far right position (RED = HOT),
- direct desired air flow by adjusting vent louvers,
- turn fan control (4) to “3” to assure rapid warm-up.



To defrost the cab:

- turn temperature control knob (2) to the far right position (RED = HOT),
- direct desired air flow by adjusting vent louvers,
- turn fan control (4) to “3” to assure rapid defrost.



To cool the cab:

- turn A/C rocker switch (3) to the ON position,
- turn temperature control knob (2) to the far left position (BLUE = COOL),
- direct desired air flow by adjusting vent louvers,
- turn fan control (4) to “3” to assure rapid cool-down.



MMV OPERATOR TRAINING PROGRAM

Operators Display Panel

The display panel (1) provides the operator with important information. It is “user friendly” and only provides the operator with the information needed at any given time.

POWER-UP Lights



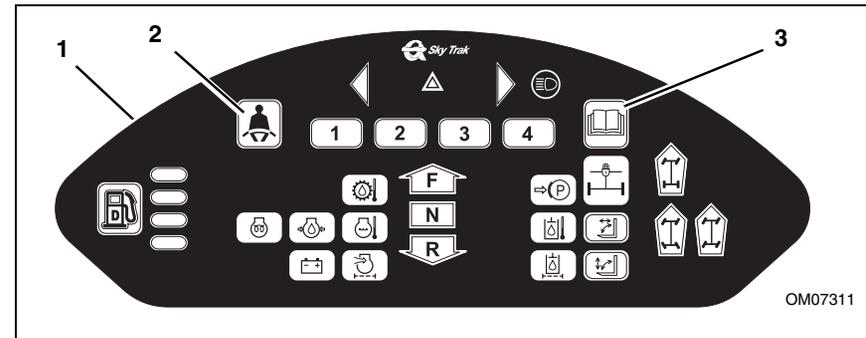
OT11170

At POWER-UP the display panel will illuminate the lights for several seconds as a test function (with the exception of the light package LEDs which includes; the left/right turn signals, the hazard lights, and the hi-beam indicator). During this time an audible alarm will sound.

The FASTEN SEAT BELT (2) and READ OPERATOR MANUAL (3) symbols will remain illuminated for 5 to 7 seconds. This is an important reminder to the operator to fasten the seat belt and to review the operators manual if there are any questions about operation.

After the five to seven second time period, the audible alarm will cease and the FASTEN SEAT BELT and READ OPERATOR MANUAL symbols will go out.

Do not forget to refasten your seat belt before operation. Always wear the seat belt when operating the vehicle.



MMV OPERATOR TRAINING PROGRAM

Normal Operating Lights

After the engine has started, the display panel provides the operator with information about:

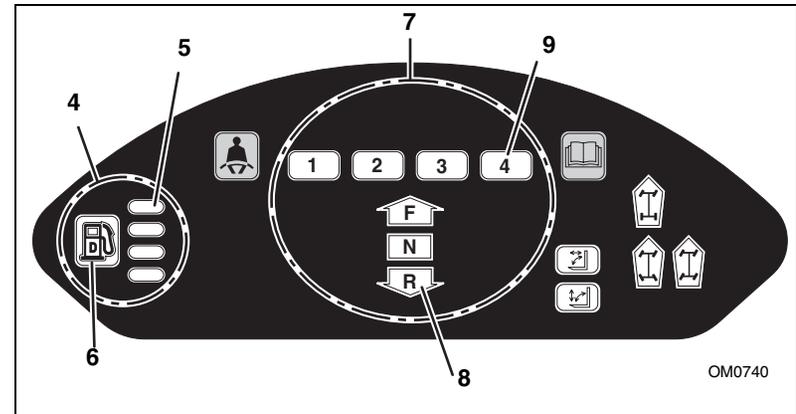
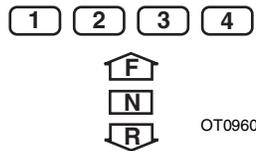
Fuel Level Indicators (4)

Make sure the vehicle is level to ensure an accurate fuel level reading. Each bar (5) represents 1/4 of the tank capacity. When 1/8 tank is reached, the last bar will turn OFF and the fuel level indicator symbol (6) will illuminate an intense ORANGE indicator light. Refuel at this point.



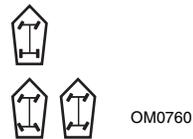
Travel & Gear Select Indicators (7)

The light that illuminates indicates which direction (8) the vehicle is presently traveling and the gear (9) presently engaged.



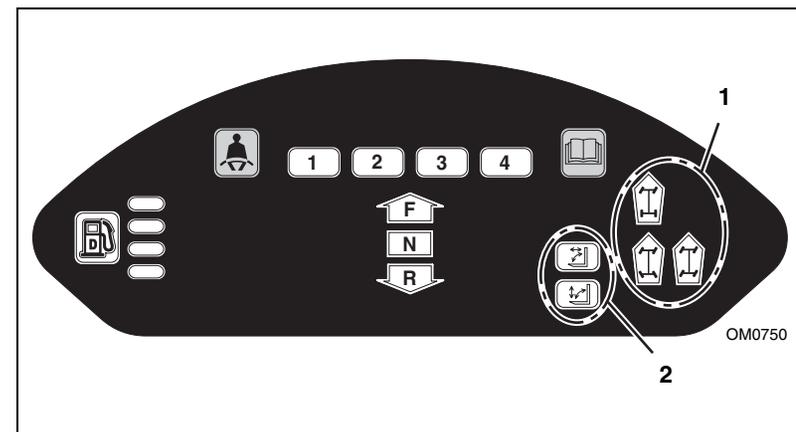
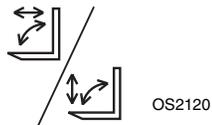
Steering Mode Indicators (1)

The light that illuminates will indicate which steering mode is presently engaged.



Attachment Tilt Mode Indicator (2)

One of these two lights will be illuminated to indicate which attachment tilt mode is presently engaged.



MMV OPERATOR TRAINING PROGRAM

Function Indicator Lights

There are two “hidden” function indicator lights in the display panel that illuminate only when a specific function has been activated. They are:

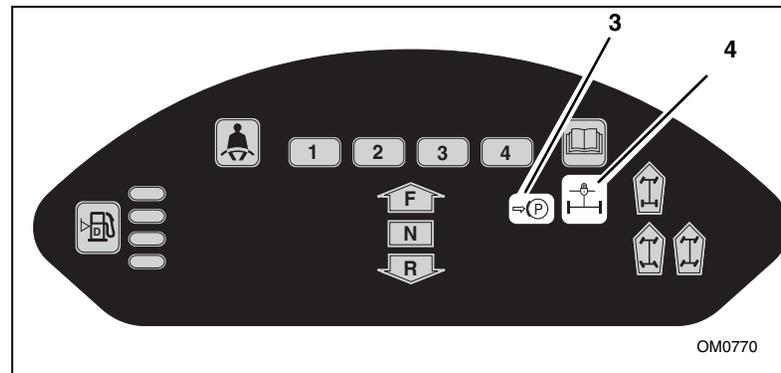
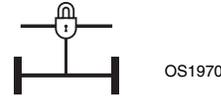
Parking Brake Indicator (3)

This light illuminates any time the parking brake is applied and the ignition switch is in the RUN position.



Stabil-TRAK Indicator (4)

This light illuminates when the Stabil-TRAK system has been ACTIVATED.



MMV OPERATOR TRAINING PROGRAM

Warning Indicator Lights

There are seven additional “hidden” indicator lights in the display panel that will illuminate during critical circumstances. All eight warning indicator lights demand immediate attention and vehicle servicing. In many cases, the vehicle should be shut down AS SOON AS PRACTICAL to prevent serious mechanical failure.

The eight warning indicator lights are:

Engine Coolant Temperature Warning Indicator (1)

This light illuminates when the engine coolant temperature is too high; above 210° F (99° C). An audible alarm will also sound. SHUT THE VEHICLE DOWN AS SOON AS PRACTICAL.



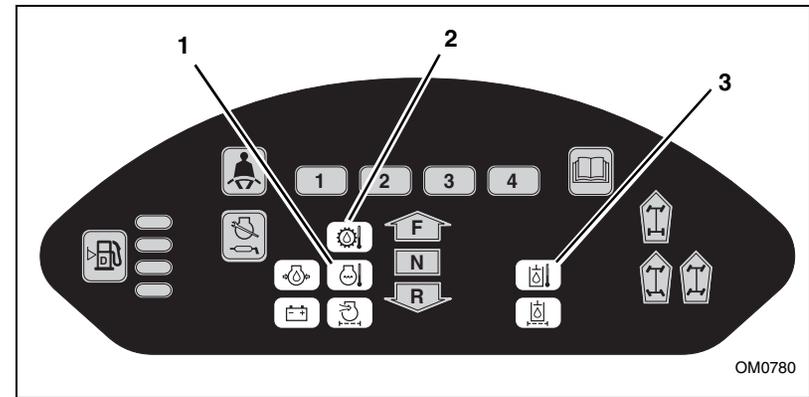
Transmission Temperature Warning Indicator (2)

This light illuminates when the transmission oil temperature is too high; above 250° F (121° C). An audible alarm will also sound. Stop and idle the vehicle with the transmission in (N) Neutral, allowing time for cooling. If the light does not go out after two minutes, shut the vehicle down.



Hydraulic Oil Temperature Warning Indicator (3)

This light illuminates when the hydraulic oil temperature is too high; above 195° F (91° C). Stop and idle the engine, allow time for cooling. If the light does not go out after five minutes, shut the vehicle down.



MMV OPERATOR TRAINING PROGRAM

Low Brake Pressure Warning Indicator (1)

This light is located in the upper right corner of the front dash just above the load chart booklet.



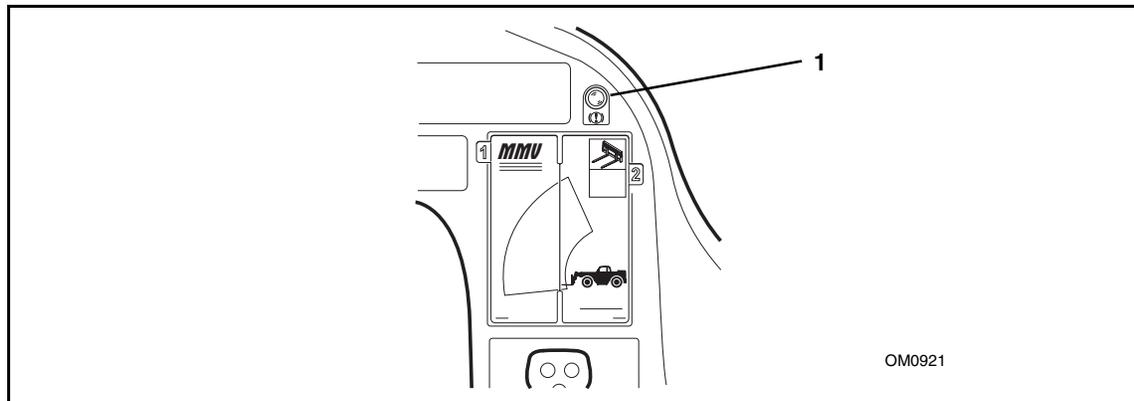
The red lamp lights and buzzer sounds when service brake hydraulic system pressure drops below the safe operating level. Under normal conditions, the light and buzzer will go out quickly after engine start. If the light or buzzer does not go out or comes ON during vehicle operation, shut off engine immediately, investigate, and repair before operating. **DO NOT** operate vehicle when low brake pressure light or buzzer is on.



WARNING: Operating the vehicle with the service brake system malfunctioning will cause reduced braking ability or no braking ability when the service brake pedal is depressed. Death or serious personal injury could result from the inability to stop or slow the vehicle.

If the low brake pressure light or buzzer remains ON, place the travel select lever in (N) NEUTRAL, place the neutral lock lever in the (N) NEUTRAL LOCK position, engage the parking brake switch and turn the engine OFF.

Have the service brake system serviced before using the vehicle again. Contact your local **OmniQuip** Sales & Service Center (SSC) immediately to repair the system.



MMV OPERATOR TRAINING PROGRAM

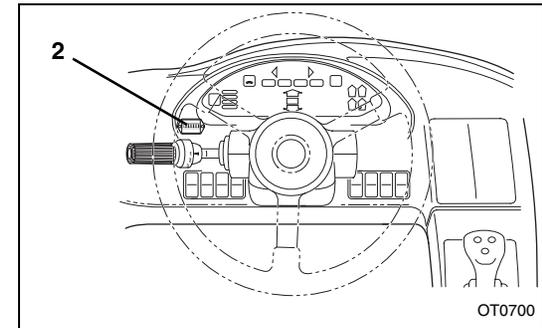
Instruments and Indicators

Hourmeter



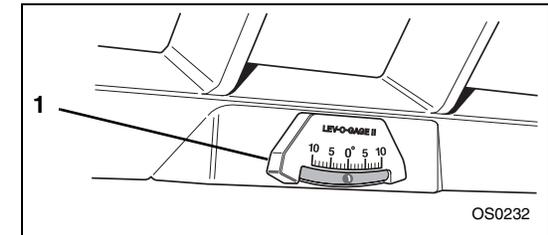
OS0260

The hourmeter (2) records engine operating hours and has a total readout of 99,999.9 hours. It is located on the dash to the left side of the display panel.



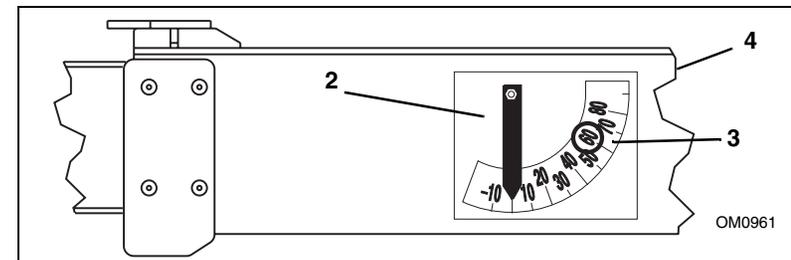
Frame Level Indicator

The frame level indicator (1) is mounted on the top inside of the cab. It is a bubble type indicator which allows the operator to tell if the vehicle has been positioned in a level condition. Always frame sway the vehicle either right or left until the indicator reads zero degrees (0°). If zero cannot be achieved, then reposition the vehicle until it is level before placing the load.



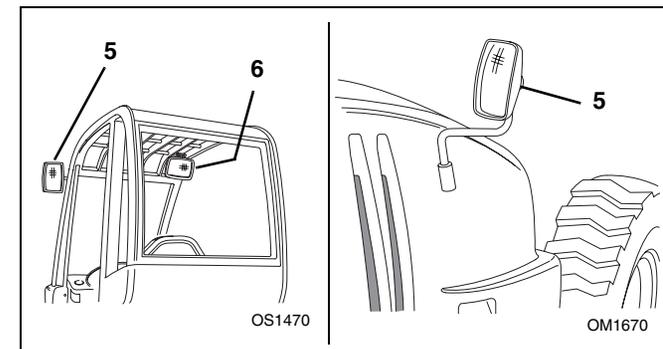
Boom Angle Indicator

The boom angle indicator is a plumb arrow (2) with angular graduations (3) from -10° to + 80°. It is located on the left side of the boom (4) and is visible from the operators position. Use this indicator to determine the boom angle when reading the capacity chart.



Rear View Mirrors

Two rear view mirrors (5) are provided to aid the operator's rear visibility. The mirrors are adjustable and need to be adjusted to obtain the best rear view possible for the operator. An optional third mirror (6) is available inside the cab.



MMV OPERATOR TRAINING PROGRAM

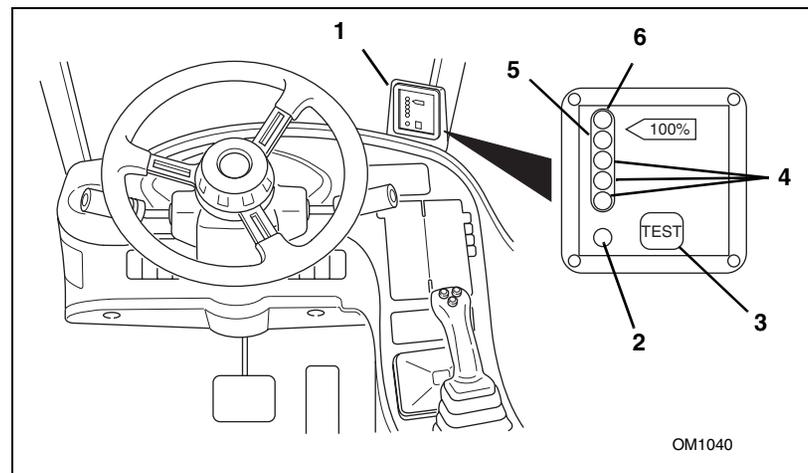
Load Moment Indicator



WARNING: The Load Moment Indicator (LMI) system is not intended to be an absolute replacement for the capacity charts. **DO NOT** exceed rated capacities! Any attempt to lift or carry loads in excess of those shown on the capacity chart may cause vehicle tipover, loss of load or structural damage which could result in death or serious personal injury.

The load moment indicator is a feature which continually monitors the load on the rear axle as loads are being lifted and extended. The system alerts the operator when the ground pressure on the rear of the vehicle has decreased to a point that the rear of the vehicle could raise up off the ground. This system indicates the level of forward stability and not necessarily of sideways stability. The display panel (1) is mounted above the front dash in the right front corner of the cab.

1. The display has a green power light (2) next to the test button (3) to inform the operator that the system is active. This light will come ON when the ignition is turned to the RUN position
2. The display has a series of three green lights (4), one amber light (5), one red light (6) and an audible alarm that informs the operator of each operating load range.
3. As the load is extended and reaches 100% of the vehicles capacity, the three green lights will be lit and the amber light will flash.
4. As the load goes over 100% of the vehicles capacity the red light will come ON and an audible alarm will sound, alerting the operator that the load should be retracted.



MMV OPERATOR TRAINING PROGRAM

Load Moment Indicator System Test

ALWAYS test the LMI system before starting to work with a load.

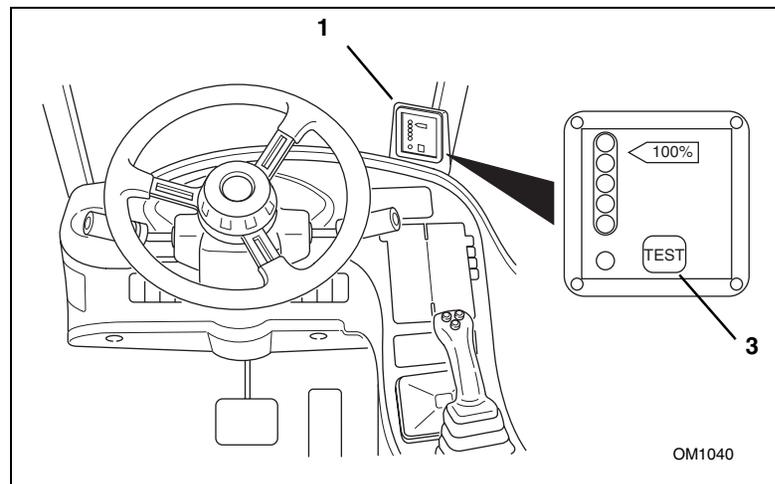
1. Turn the ignition to the RUN position.
2. Momentarily press the test button (3) on the load moment indicator display (1). ALL the lights should flash ON and the audible alarm will sound. This will tell you that the display is functioning properly.

Changing Display Settings

The display has muting and dimming settings which allow the operator to set the level of brightness and the sound level of the alarm. There are four possible combinations.

To change the settings, PRESS and HOLD the test button (3) continuously while the display sequences through each combination. Release the test button when the preferred combination occurs. The combinations are:

- Full Brightness with Full Volume
- Full Brightness with Muted Volume
- Dim Brightness with Full Volume
- Dim Brightness with Muted Volume



Pre-Operation Inspection

1. Check safety belt for damage. Check for frayed or cut seat belt webbing, damaged buckles or loose mounting brackets. Make any necessary repairs before operating the vehicle.
2. Check all four tires and rims for damage. Check for proper tire pressure, add air if required. Observe the condition of each tire looking specifically for punctures, cracks, cuts, gouges, bulges or any other damage. Check the condition of each rim for bent flanges or any other damage. Make any necessary repairs before operating the vehicle.
3. Check and add engine oil if required.
4. Check and add transmission oil if required.
5. Check the cooling system overflow bottle for coolant. Add coolant if required. Remove any debris blocking the radiator cooling fins.
6. Check the hydraulic oil level sight glass and add hydraulic oil if required.
7. Visually inspect the batteries for cleanliness. Check terminals for corrosion. Check the cable connections to ensure proper tightness.
8. Walk around the vehicle and check for oil leakage as well as damaged or missing parts. Make any necessary repairs before operating the vehicle.
9. Perform the LMI system test.
10. Check ALL lighting systems for proper operation.
11. Adjust rear view mirrors as required to obtain proper field of vision to the rear.
12. Test the back-up alarm and horn for proper operation.
13. Check condition of cab glass, looking for cracks or other damage.
14. Visually check the condition of the air conditioner condenser. Remove any debris from the cooling fins of the air conditioner condenser located at the rear of the frame. Clean the fins as needed.

Normal Starting

1. Enter the cab and adjust the seat for comfortable operation.
2. Adjust the mirrors to obtain the best rear view from the operator's position.



WARNING: DO NOT start the engine unless you are in the seat with the seat belt fastened around you. Death or serious personal injury could result if the belt is not securely fastened.

3. Fasten the seat belt.
4. Make sure the parking brake switch is ENGAGED.
5. Place the travel select lever in (N) NEUTRAL.
6. Move the Neutral Lock Lever to the (N) NEUTRAL LOCK Position.
7. Push and turn the ignition switch to the START position (fully clockwise) to crank the engine. Release the ignition switch when the engine starts. If the engine fails to start on the first try, wait until the engine and starter come to a complete stop before cranking the engine again.

IMPORTANT! DO NOT crank the starting motor continuously for more than 30 seconds. Stop cranking the starter and allow the starter to cool for 2 minutes before engaging the starter again.

8. After the engine starts, run engine at partial throttle for 30 to 60 seconds before operating the vehicle. Return to idle before engaging the travel or range select levers.
9. Move the Neutral Lock Lever to the (D) DRIVE Position before you start operating.
10. Disengage the parking brake switch before you start operating.

Cold Starting

The engine is equipped with a 120 volt 750 watt block heater. Block heaters are recommended when temperatures drop below 10° F (-12° C). (Temperature ranges will vary when using different oil weights. Consult the engine manufacturer's manual for other variables.)

At temperatures below 10° F (-12° C), operate the engine at moderate speeds for 5 minutes before full loads are applied.

1. Enter the cab and adjust the operator's seat.



WARNING: DO NOT start the engine unless you are in the seat with the seat belt fastened around you. Death or serious personal injury could result if the belt is not securely fastened.

2. Fasten the seat belt. Adjust the mirrors if necessary.
3. Make sure the parking brake switch is ENGAGED.
4. Make sure the travel select lever is in the (N) NEUTRAL position and Neutral Lock Lever in the (N) NEUTRAL LOCK Position.
5. If using starting fluid with electrical metering equipment:
 - Push and turn the ignition switch to the START position to engage the starter.
 - While cranking the engine with the ignition switch, press the ether start button on the right side of the seat for 2 seconds and then release the ether start button for at least 5 seconds. Upon release of the button a metered amount of ether is released from the solenoid and injected into the intake manifold. It may be necessary to press the ether start button a second time while cranking the engine, depending on temperature.

IMPORTANT! DO NOT crank the starting motor continuously for more than 30 seconds. Stop cranking the starter and allow the starter to cool for 2 minutes before engaging the starter again.

- As the engine starts, release the ignition switch to the RUN position. Depress the accelerator pedal enough to provide a smooth idle speed.

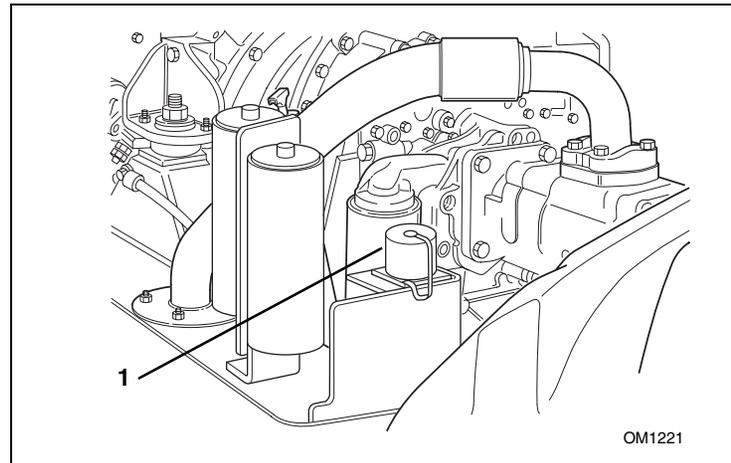
Slave Starting



WARNING: To avoid death or serious personal injury, never slave start the vehicle with a frozen battery as it will explode. Keep sparks, flames and lighted smoking materials away from the battery. Lead acid batteries generate explosive gases when charging. Wear safety glasses when working near batteries.

This vehicle is equipped with a 24 volt, negative ground electrical system. The NATO slave receptacle (1) is located under the engine cover in front of the transmission. Ensure that both the disabled and booster vehicle are equipped with a NATO slave receptacle.

1. Connect the NATO slave cable to the booster vehicle NATO slave receptacle.
2. Connect the other end of the NATO slave cable to the disabled vehicle NATO slave receptacle.
3. Run the booster vehicle at a speed just above idle.
4. Follow the steps in "Normal Starting."
5. After starting the disabled vehicle, return the booster vehicle to idle.
6. Remove the NATO slave cable from the disabled vehicle first and then from the booster vehicle.



MMV OPERATOR TRAINING PROGRAM

Refueling

Make sure the vehicle is level to assure an accurate fuel level reading. The fuel tank is capable of holding 35 gallons (133 liters) of diesel fuel.

Fuel Types



OS0860

The preferred fuel is ASTM #2 diesel fuel with a minimum Cetane rating of 40. #2 diesel fuel gives the best fuel economy and performance under most operating conditions. Fuels with Cetane ratings higher than 40 may be needed in higher altitudes or extremely low ambient temperatures to prevent misfiring and excessive smoke.

- When operating at temperatures above 32° F (0° C), use standard #2 diesel fuel.
- When operating at temperatures below 32° F (0° C), use a blend of #1 & #2 diesel fuels, most commonly known as “winterized” #2 diesel.

	WARNING: Engine fuel is <i>flammable</i> and can cause a fire or an explosion. Keep sparks and open flames away from the vehicle and DO NOT use smoking materials while refueling.
---	--

Alternate Fuel Types

The vehicle is also capable of operation on alternate military fuels including JP-5, JP-8 and Jet A-1. However, an up to 5% reduction in engine horsepower output can be expected when using alternate military fuels due to the lower BTU rating of these fuels.

MMV OPERATOR TRAINING PROGRAM

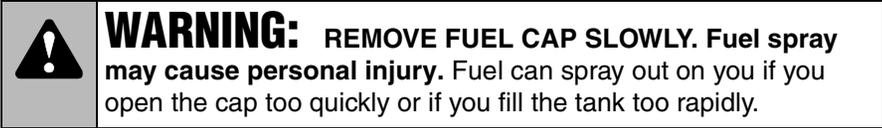
Fuel Cap

The fuel cap (1) is conveniently located on the left side of the vehicle.

The fuel cap meets EPA standards.

To remove the fuel cap:

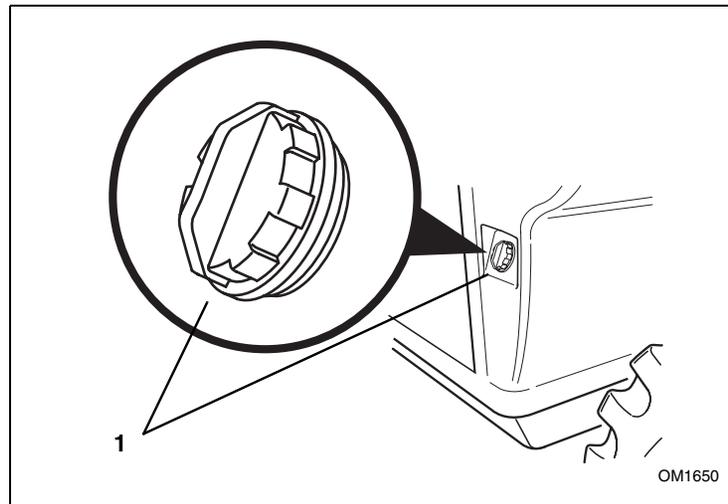
Level the vehicle, ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and turn the ignition switch to the OFF position.



1. **Slowly** turn the cap in a counter-clockwise rotation. Venting of the system will start after approximately 110° of counter-clockwise rotation. Wait for any “hissing” noise to stop. THEN unscrew the cap all the way and remove the cap from the filler neck.

To install the fuel cap:

Turn the cap clockwise until you hear distinct “clicks.” The fuel cap is now properly installed.

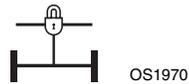


MMV OPERATOR TRAINING PROGRAM

Operating

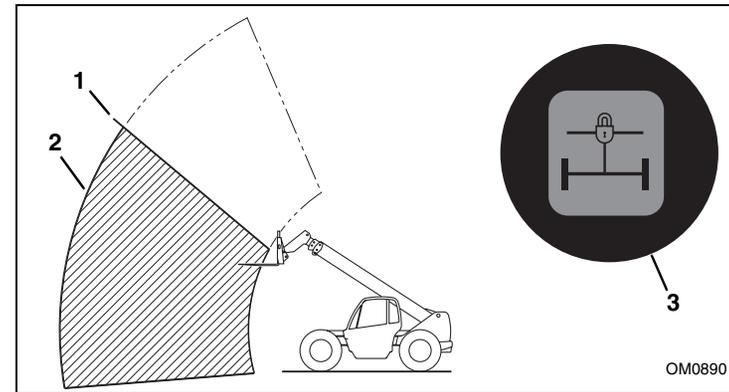
Understanding the Stabil-TRAK™ System

The following describes the three basic modes of the patented Stabil-TRAK system. The vehicle may operate in any one of these three modes.



Free Pivot Mode

With the boom below 40° (1), the Stabil-TRAK system is in the FREE PIVOT MODE (2) and the rear axle is allowed to pivot freely. The frame sway control will function normally. The Stabil-TRAK light will be OFF (3).

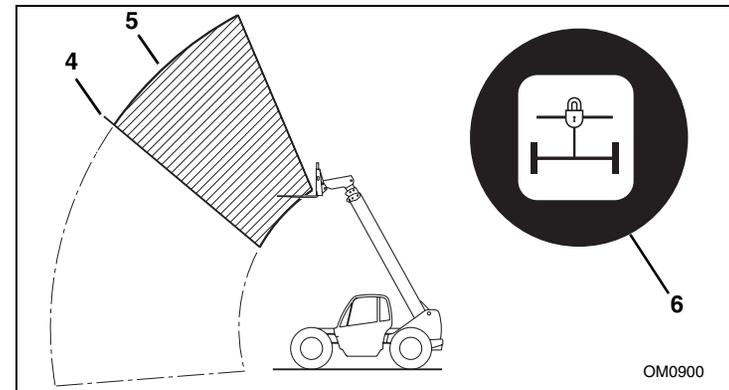


Locked Mode

With the boom above 40° (4) and by activating one or more of the functions (as follows), the Stabil-TRAK system is in the LOCKED MODE (5). The rear axle is locked so it is rigid with the frame. The Stabil-TRAK light will be ON (6).

- Engaging the parking brake switch
- Placing the travel select lever in (N) NEUTRAL
- Depressing and holding the service brake pedal

The frame sway control will function slower than normal in this mode.

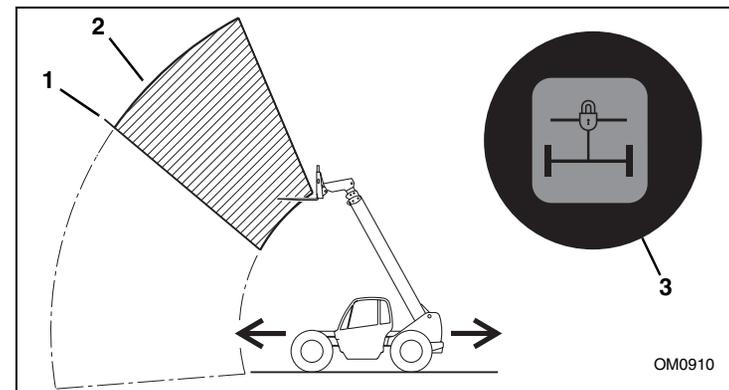


Final Positioning Mode

With the boom above 40° (1), the Stabil-TRAK System is now in the FINAL POSITIONING MODE (2). In this mode the rear axle is UNLOCKED and is allowed to pivot but will respond SLOWLY to changes in terrain. The Stabil-TRAK light will be OFF (3).

The frame sway control will function normally in this mode.

Check that the Stabil-TRAK System is functioning properly.



MMV OPERATOR TRAINING PROGRAM

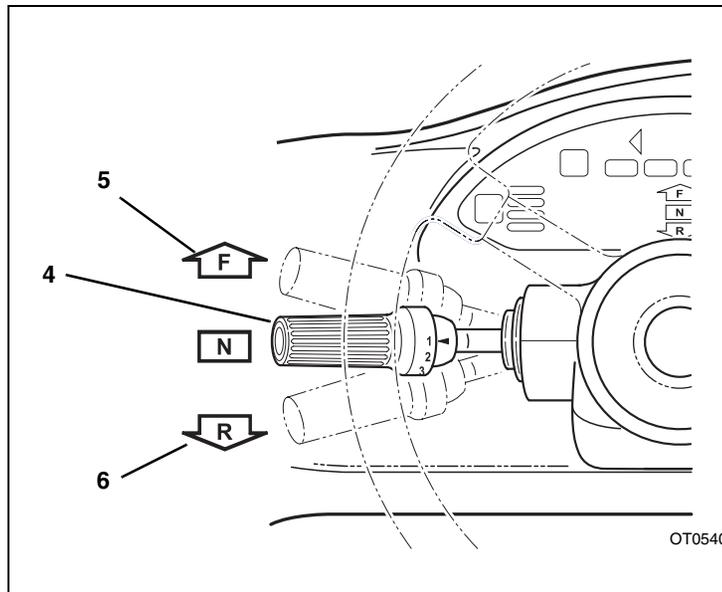
Starting Travel

1. Enter the operator cab, fasten the seat belt, start the engine, apply the service brake pedal and disengage the parking brake switch.
2. Rotate the twist grip of the range select lever to 1st gear.
3. Move the travel select lever (4) to (F) FORWARD (5) to travel in a forward direction or to (R) REVERSE (6) to travel backward.
4. Slowly remove your foot from the service brake pedal and press the accelerator pedal to start travel.

IMPORTANT! Check for warning lights frequently during operation. Any abnormal indication should be corrected as soon as practical.

Changing Travel Direction

1. Stop the vehicle by applying the service brakes.
2. Grasp the travel select lever (1), pull it toward the steering wheel, then move the lever up or down in the opposite direction; (R) REVERSE (6) or (F) FORWARD (5).



MMV OPERATOR TRAINING PROGRAM

Shifting Gears

1. Rotate the twist grip of the gear select lever to the next desired gear. The transmission has four forward gears and three reverse gears.
2. Use first gear for highest torque and pulling power. Use higher gears for higher ground speed. The recommendations listed in the tables that follow are guidelines only. Always use good judgement when traveling with a load.

Recommended Gear/Speed for Various Load/Travel Conditions

7 K Fork Carriage			
Load Size	Surface	Gear	Speed
No Load	Smooth	4th*	0 to 20 mph (0 to 32 km/h)
	Improved	3rd	0 to 14 mph (0 to 23 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load up to 3,500 lbs (up to 1.588 kg)	Smooth	3rd	0 to 14 mph (0 to 23 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load 3,500 to 7,000 lbs (1.588 to 3.175 kg)	Smooth	2nd	0 to 6 mph (0 to 9.7 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	1st	0 to 3.5 mph (0 to 5.6 km/h)

11 K Fork Carriage			
Load Size	Surface	Gear	Speed
No Load	Smooth	4th*	0 to 20 mph (0 to 32 km/h)
	Improved	3rd	0 to 14 mph (0 to 23 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load up to 4,500 lbs (up to 2.041 kg)	Smooth	3rd	0 to 14 mph (0 to 23 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	2nd	0 to 6 mph (0 to 9.7 km/h)
Load 4,500 to 11,000 lbs (2.041 to 4.989 kg)	Smooth	2nd	0 to 6 mph (0 to 9.7 km/h)
	Improved	2nd	0 to 6 mph (0 to 9.7 km/h)
	Rough	1st	0 to 3.5 mph (0 to 5.6 km/h)

3. ***NEVER** travel in 4th gear when carrying a load.

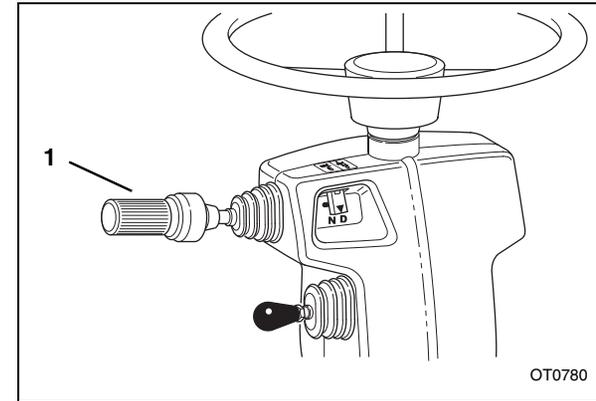
NOTE: Shifting to the next higher gear may be done while the vehicle is in motion.

IMPORTANT! When downshifting, allow the engine speed to slow down before shifting to the next lower gear.

MMV OPERATOR TRAINING PROGRAM

Stopping Travel

1. Apply the service brake pedal and downshift the vehicle to a lower gear if necessary to slow the vehicle until it comes to a complete stop.
2. Move the travel select lever (1) to (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position and engage the parking brake switch.



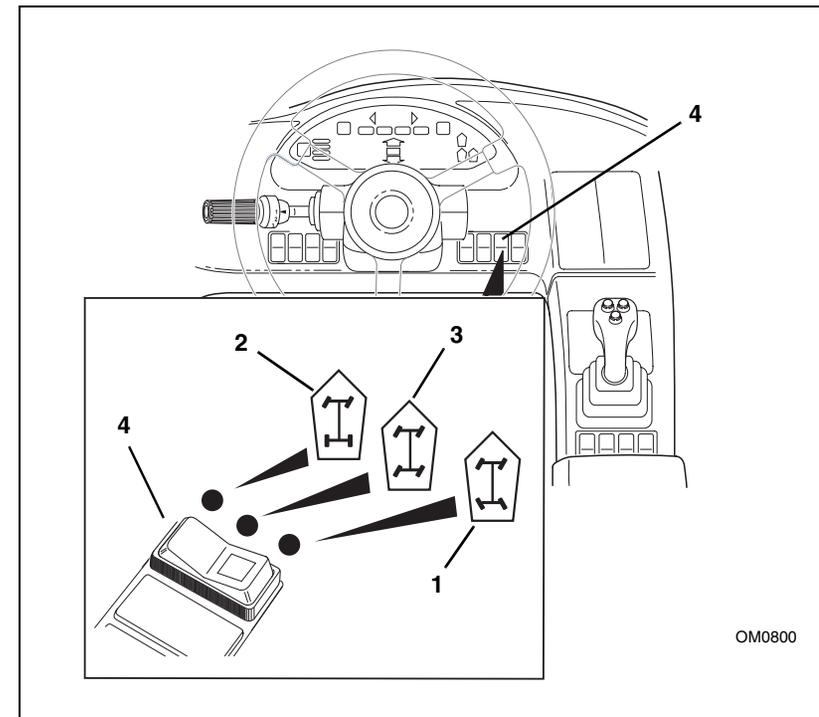
Steering Modes

IMPORTANT! DO NOT change steering modes unless you are at a complete stop and all four tires are in the "straight-ahead" position.

All vehicles come equipped with three steering modes.

- Four Wheel Steering (1)
- Front Wheel Steering (2)
- Crab Steering (3)

Steering modes can be changed using a single toggle switch (4) located on the front console in the right switch bank.



MMV OPERATOR TRAINING PROGRAM

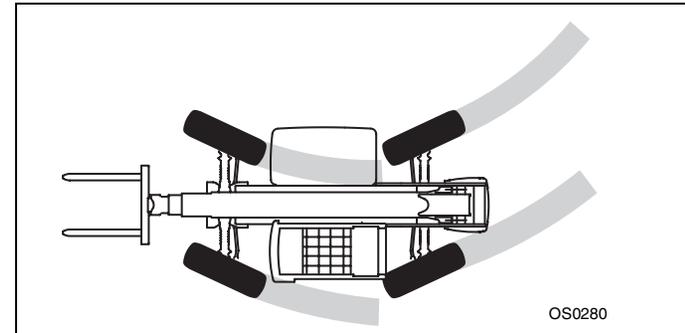
Four Wheel Steer Indexing

If the vehicle does not drive “straight,” the steering could be “out of phase.” Perform the “Four Wheel Steer Indexing Procedure” to synchronize the front and rear steering.

Four Wheel Steering

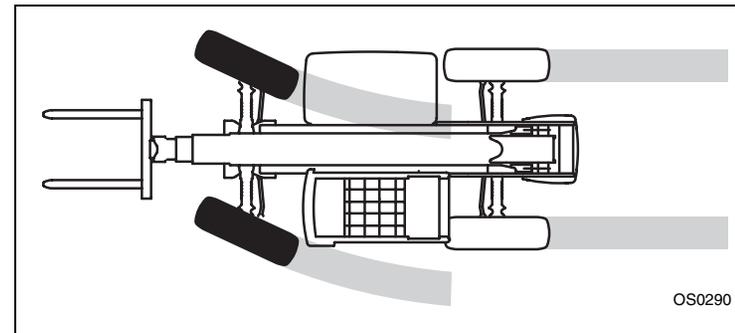
 **WARNING:** NEVER use the Four Wheel Steering Mode when traveling at high speed. Rapid turning in this mode can cause tipover. Use only the Front Wheel Steering Mode at higher speeds and slow the vehicle when turning.

The front wheels will steer in the direction that the steering wheel is turned; the rear wheels will steer in the opposite direction. This steering mode allows an extremely short turning radius and enables the rear wheels to follow the tracking of the front wheels which can be an advantage in mud and sand conditions.



Front Wheel Steering

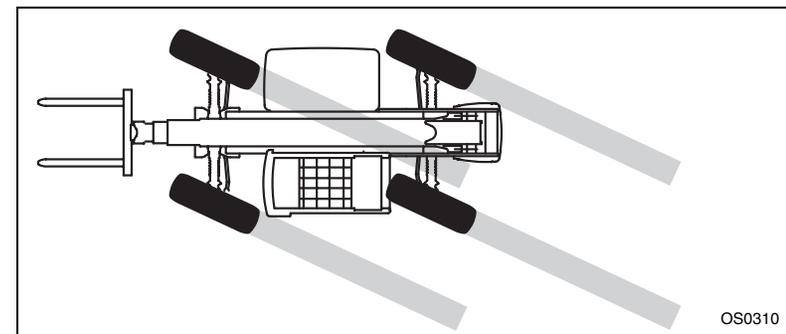
The front wheels will steer in the direction that the steering wheel is turned. The rear wheels will remain in a fixed forward position. This steering mode should be used when loading or unloading the vehicle from a trailer and for on-highway travel at higher speeds.



Crab Steering

 **WARNING:** NEVER use the Crab Steering Mode when traveling at high speed. Rapid turning in this mode can cause tipover. Use only the Front Wheel Steering Mode at higher speeds and slow the vehicle when turning.

All wheels will steer in the same direction that the steering wheel is turned. This steering mode allows the operator to move the vehicle “sideways” toward the landing point of a load. This is especially useful on a congested worksite in order to line up at the exact spot in front of the loading location.



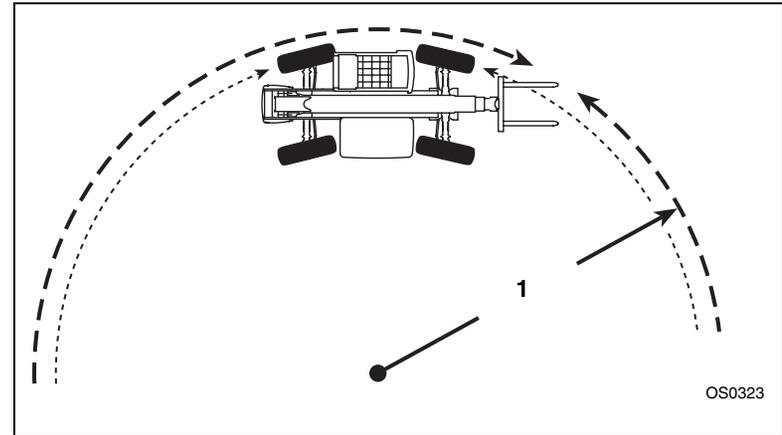
MMV OPERATOR TRAINING PROGRAM

Maximum Fork Sweep



CAUTION: Allow for adequate clearance between the attachment and other objects when turning.

The attachment extends beyond the end of the vehicle. The operator must be aware of the maximum sweep (1) of the attachment when turning in order to avoid hitting personnel and other objects in the area.

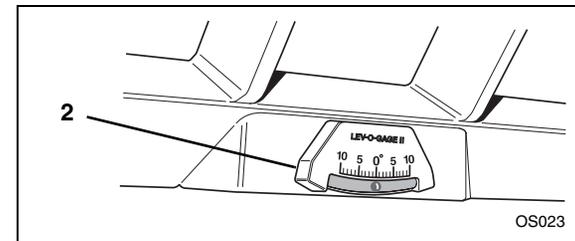


Leveling the Vehicle

When placing a load while on a slope, use the frame sway control to keep the vehicle level. The operator should observe the frame level indicator (2) to assure that the vehicle is level at all times.



DANGER: Use of the frame sway control with the boom raised above horizontal can cause tipover resulting in death or serious personal injury. Always use the frame sway control to level the vehicle before raising the boom above horizontal. If the vehicle cannot be leveled using the frame sway control, reposition the vehicle.



MMV OPERATOR TRAINING PROGRAM

Carriages

Quick Attach

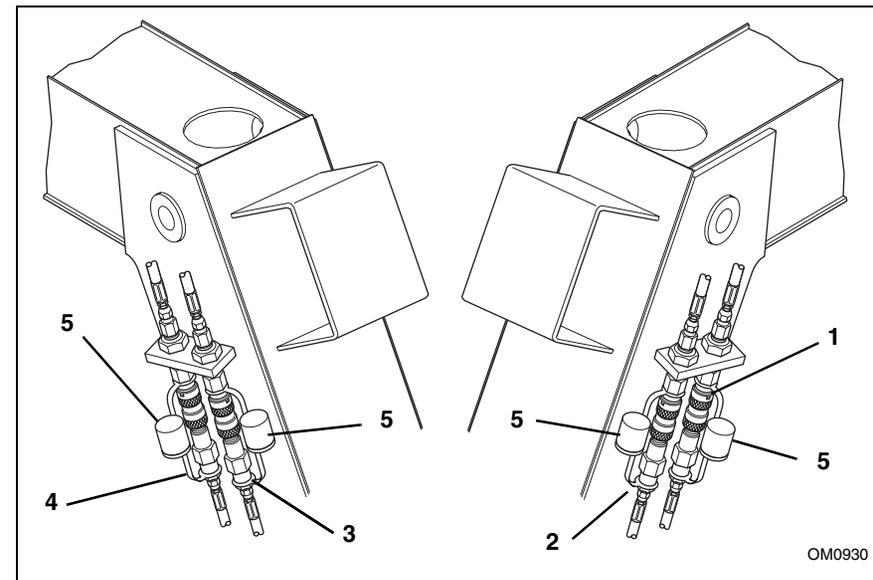
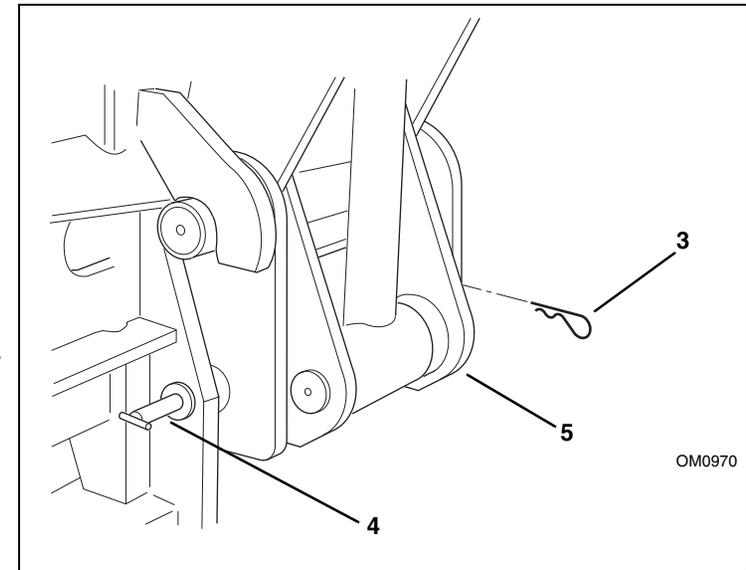
This vehicle is equipped with a quick attach system for easy attachment changing.

Attachment Removal

Be sure you are performing this procedure on level ground.

NOTE: Ensure the forks of the carriage being removed are in a position other than fully shifted inboard or outboard to minimize trapped hydraulic pressure.

1. Place the travel select lever in (N) NEUTRAL, come to a complete stop, move the neutral lock lever to the (N) NEUTRAL LOCK position and engage the parking brake switch.
2. Extend the boom approximately 10 feet (3 meters) and tilt the carriage backward.
3. Exit the vehicle using both hand holds.
4. Remove the spring clip pin (3) from the quick attach pin (4) and pull the pin out of the bottom of the quick attach link (5).
5. Remove the four hydraulic quick disconnects between the carriage and the vehicle. Remove the disconnects in the following order: Disconnect the RED (1) then the BLACK (2) on the left side. Disconnect the GREEN (3) then the YELLOW (4) on the right side.
6. Install the "Male" and "Female" protective caps (5) on all four quick disconnects.
7. Return to the operators compartment, fasten the seat belt and lower the attachment to the ground in a level position. Tilt the attachment forward. This will rotate the quick attach link back away from the attachment.
8. Lower and then retract the boom until the attachment pivot pins have disconnected from the attachment.

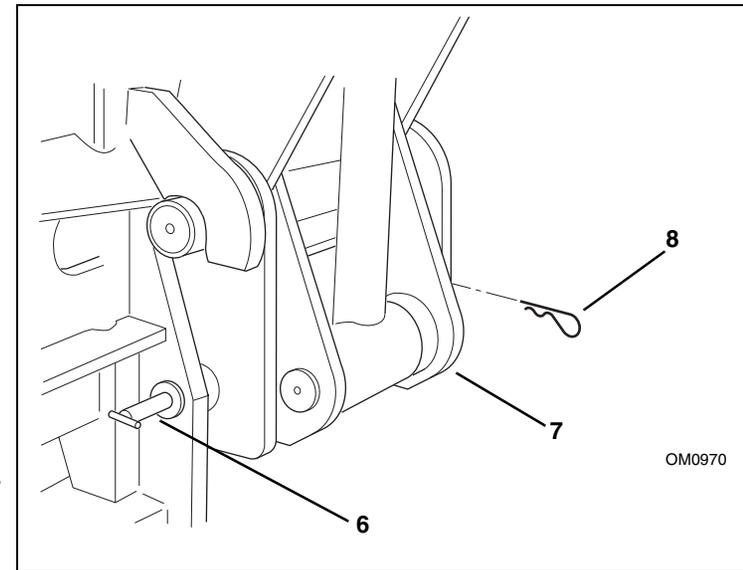


MMV OPERATOR TRAINING PROGRAM

Attachment Reconnect

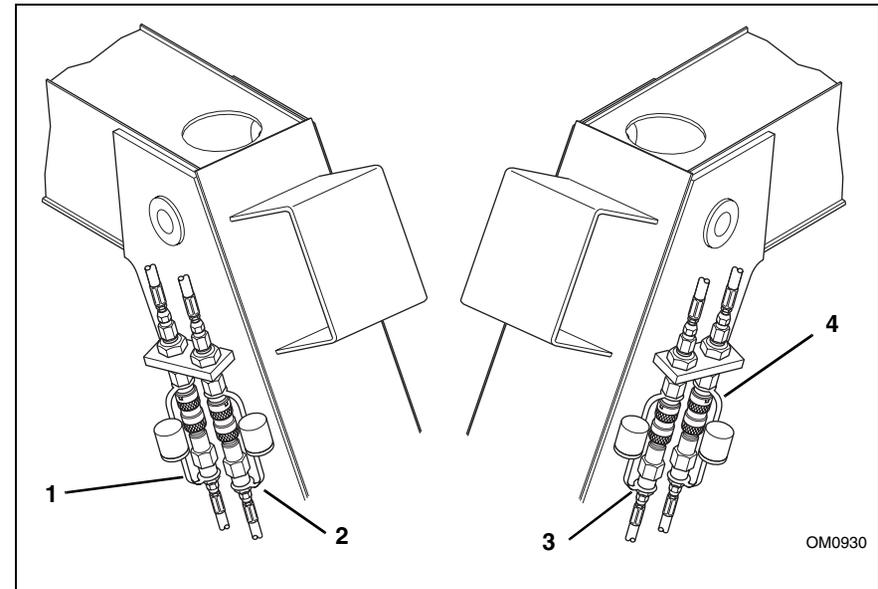
Be sure you are performing this procedure on level ground.

1. Position the vehicle directly behind the attachment to be mounted.
2. Tilt the quick attach backward.
3. Extend the boom approximately 10 feet (3 meters) and drive the vehicle forward until the attachment pivot pins are below and between the two hooks on the attachment.
4. Raise the boom until the attachment pivot pins have seated fully in the hooks of the attachment.
5. Tilt the attachment up slightly. The quick attach link should be tight against the rear of the attachment and the holes in the link and the attachment should be aligned.
6. Place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and exit the vehicle using both hand holds.
7. Insert the quick attach pin (6) completely through the attachment and the quick attach link (7). Insert the spring clip pin (8) through the quick attach pin.
8. Remove the protective caps from the quick couplers. Connect the quick couplers in the following order: Connect the YELLOW (1) then the GREEN (2) on the right side. Connect the BLACK (3) then the RED (4) on the left side.
9. In the event there is trapped pressure in one of the carriage hydraulic hoses, connect the quick coupler(s) with a firm constant motion. This will allow the (specially designed) male quick coupler to drain the trapped pressure through to the female coupler and into the hydraulic system.



 **WARNING:** DO NOT operate this vehicle unless you are in the seat with the seat belt fastened around you. Death or serious personal injury could result if the belt is not securely fastened.

10. Return to the cab, fasten the seat belt and resume operation.



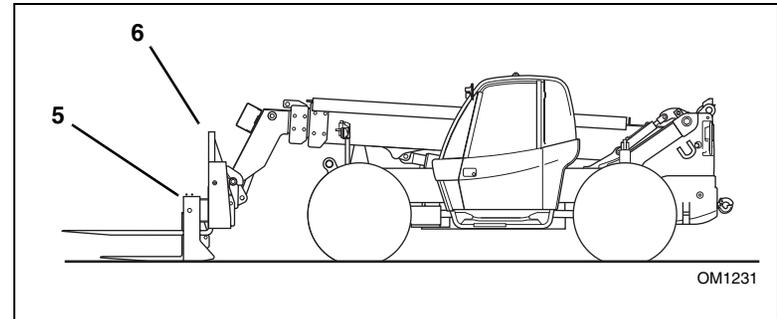
MMV OPERATOR TRAINING PROGRAM

Transport Position - 11K Fork Carriage

Loading the 11K Carriage for Transport

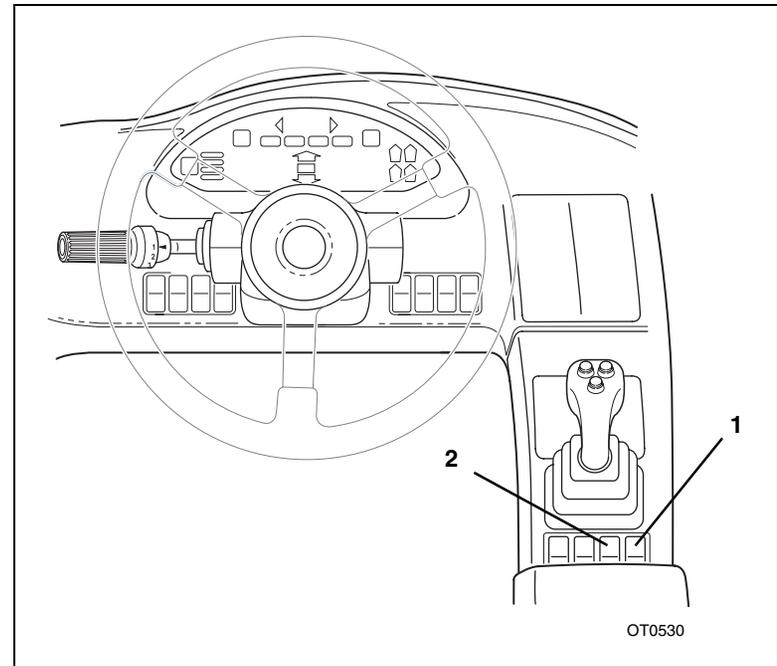
Your vehicle will arrive with its 11K carriage (5) riding on the attached 7K carriage (6). You must remove and store the 11K carriage if the 7K carriage is to be used. Or, if the 11K carriage will first be placed in service, you will remove the 11K carriage and store the 7K carriage, and then reattach the 11K carriage to the vehicle.

The aid of an assistant will be required to perform this task, because the proximity of the 11K carriage alignment to the 7K carriage will be difficult to determine from inside the cab.



Removing the 11K Carriage from the 7K Carriage

1. Use the right fork shift switch (1) to move the right fork on the 7K carriage to the right, just enough for the back of the right fork to clear the weldment on the back of the 11K carriage. Use the left fork shift switch (2) to move the left fork on the 7K carriage to the left, just far enough for the back of the left fork to clear the other weldment.
2. Ensure that the 11K carriage is positioned on a level surface for proper storage.
3. Lower and level the 7K carriage until the 11K carriage just rests on the ground.
4. Back the vehicle up until the 7K carriage forks are clear of the unloaded 11K carriage.

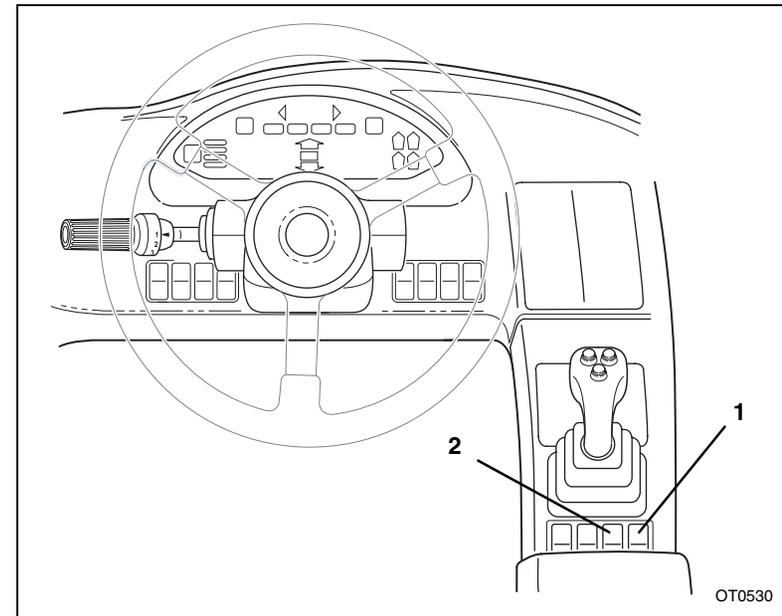
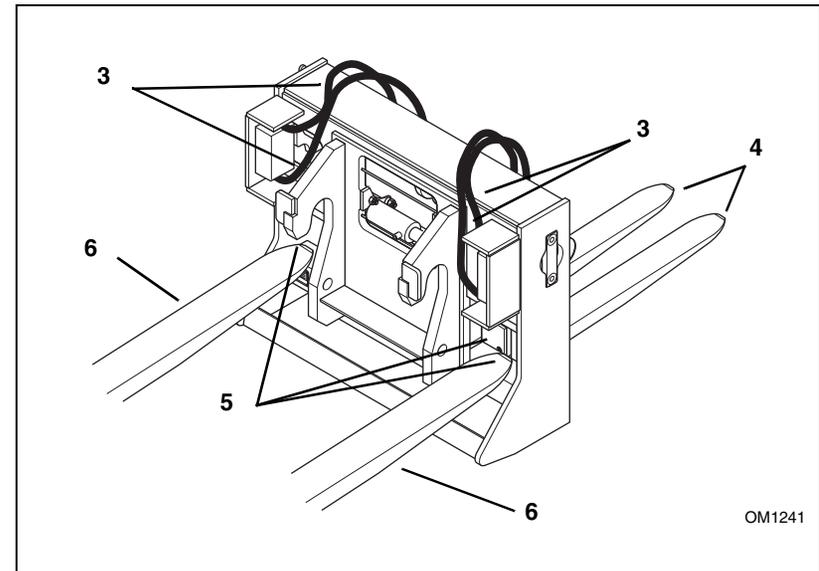


MMV OPERATOR TRAINING PROGRAM

Installing the 11K Carriage on the 7K Carriage

IMPORTANT! Before installing the 11K carriage on the 7K carriage place the four hoses (3) from the rear of the 11K carriage up and over the top of the carriage. This will ensure that the hoses do not get pinched by the 7K carriage during installation of the forks for transport of the 11K carriage. Pull the hoses toward the front of the carriage to remove all the slack from the hoses. Let all four hoses hang down in front of the 11K carriage.

1. Ensure that the 11K carriage forks (4) are inboard of the openings (5) in the carriage back for the 7K carriage forks to be inserted through. If the 11K carriage forks interfere, attach the 11K carriage, close the fork gap and remount the 7K carriage.
2. Maneuver the vehicle so the 7K carriage is centered on the 11K carriage.
3. Lower the 7K carriage so the forks are at the same height from the ground as the openings (5) in the 11K carriage.
4. Maneuver the vehicle so the 7K carriage forks (6) go in the intended openings (5) in the 11K carriage. The back of the 11K carriage must be resting against the vertical area of the 7K forks.
5. Use the right fork shift switch (1) to move the right fork on the 7K carriage to the left, enough for the back of the right fork to rest tightly against the weldment on the back of the 11K carriage. Use the left fork shift switch (2) to move the left fork on the 7K carriage to the right, enough for the back of the left fork to rest tightly against the other weldment.
6. Place the travel selector in NEUTRAL (N) and engage the parking brake.
7. Exit the operators compartment and visually confirm that both 7K forks are fully engaged behind the weldments on the back of the 11K carriage.
8. Raise the boom and the 7K carriage into the travel position. The 11K carriage can now be transported.



MMV OPERATOR TRAINING PROGRAM

Using the Capacity Chart

The individual capacity charts are located inside a booklet (3) on the right side of the operator's compartment. Capacity charts are provided to assist the operator in determining how far in front, how high and at what angle a specific load can be safely handled with this vehicle.

The vehicle is equipped with two indicators that will assist the operator in determining how to accurately use the capacity chart. These indicators are:

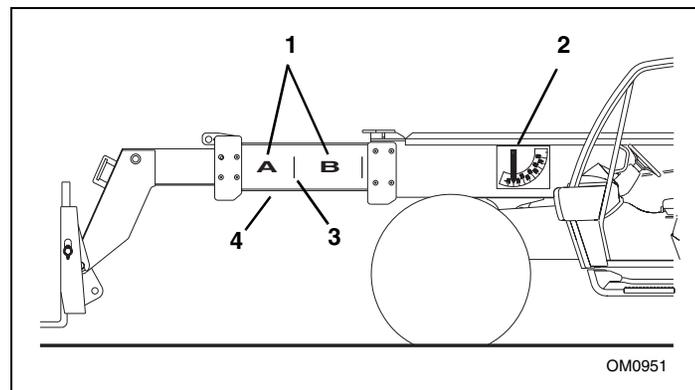
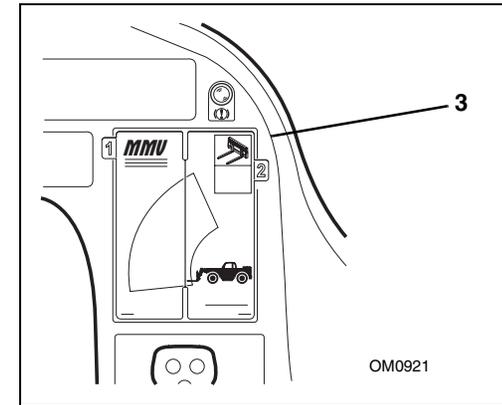
- boom extend letters (1)
- boom angle indicator (2)

As the boom is extended, boom extend letters (1) and vertical dividing lines (3) become visible on the left side of the intermediate boom (4). These letters and vertical lines indicate the point (zone) of boom extension and correspond to the capacity chart. For example, when the boom extend "B" first appears, the boom is at the point of boom extension corresponding to an arc of line "B" on the capacity chart.

The boom angle indicator (2), located on the left side of the outer boom, indicates the angle of the boom and also corresponds with the angles indicated on the capacity chart.

To accurately use the capacity chart, the operator must first determine three important things:

1. Weight of the load being lifted.
2. Height of the structure where the load is to be placed.
3. Distance where the load will ultimately be placed in front of the front tires.



MMV OPERATOR TRAINING PROGRAM

Reading Capacity Charts

Example: (1) 11K Carriage

1. The operator has placed the load onto the forks, fully retracted the boom, positioned the vehicle perpendicular to the structure and leveled the vehicle.
2. The operator determines that:
 - The weight of the load is 9,000 pounds (4,082 kg).
 - The height of the structure the load is to be placed upon is 30 feet (9,1 meters) from ground level.
 - The distance where the load will ultimately be placed in front of the vehicle is 9 feet (2,7 meters) from the front of the tires.
3. After applying the height of the structure and the distance of load placement away from the vehicle to the capacity chart on to the right, the operator knows that it will be safe to place the load if the boom extend letter for zone "E" has not started to show and the boom angle indicator reading does not go below approximately 55°.

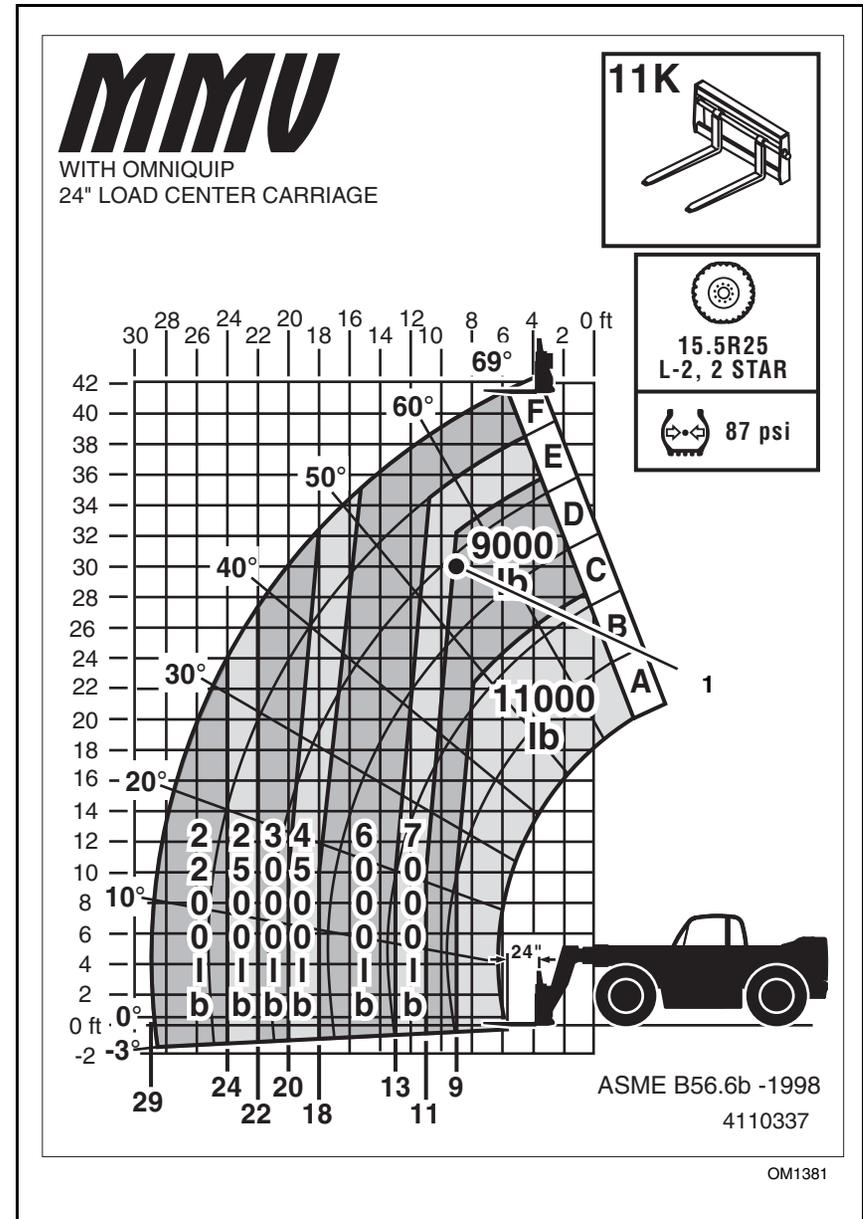
This condition is, however, a maximum limit for this weight, height and distance away from the vehicle. The operator should move the vehicle closer to the structure to assure that the vehicle will not exceed the maximum limits for placing the load.



WARNING: DO NOT exceed rated capacities! Any attempt to lift or carry loads in excess of those shown on the capacity chart may cause vehicle tipover, loss of load or structural damage which could result in death or serious personal injury.

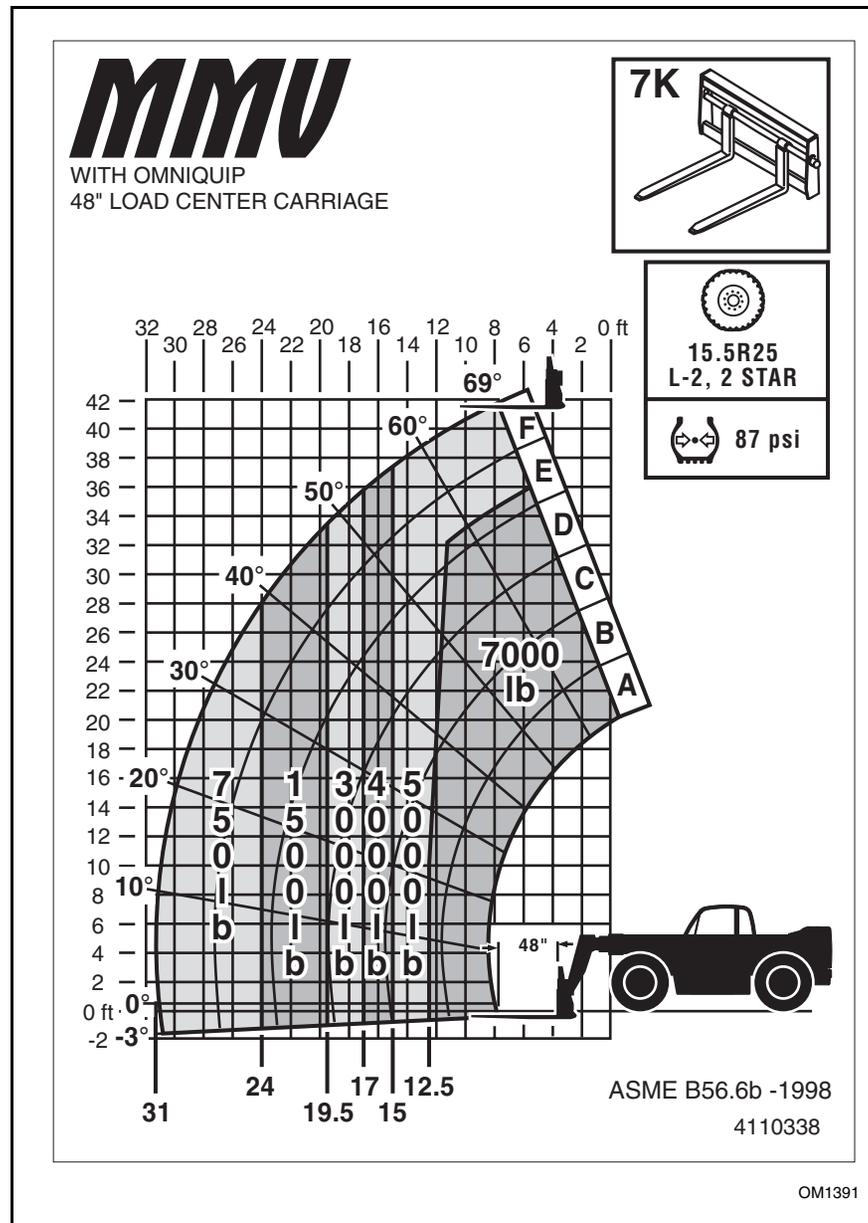
IMPORTANT! The above procedure is an example for operating with the 11K carriage. The same principles apply when operating with the 7K carriage.

Capacity Chart 24" Load Center with 11K Carriage



MMV OPERATOR TRAINING PROGRAM

Capacity Chart 48" Load Center with 7K Carriage



MMV OPERATOR TRAINING PROGRAM

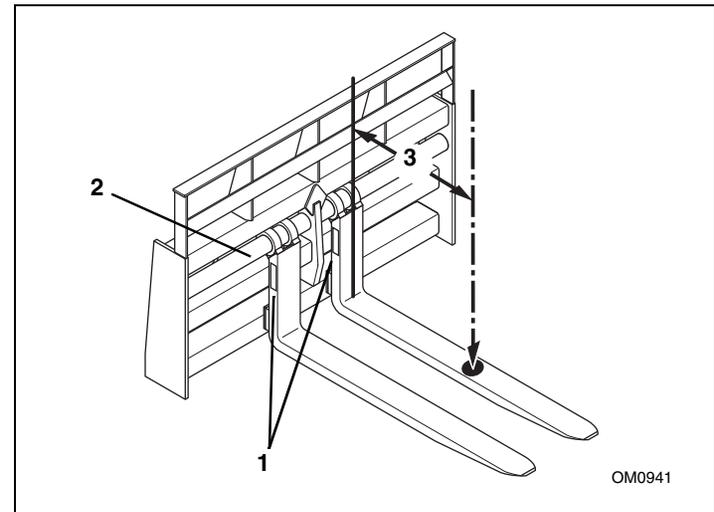
Fork Rating

All approved forks for this vehicle are marked with a maximum load capacity rating. This rating is stamped on the right edge of the fork (1) just below the fork pivot shaft (2). The rating is listed in U.S. pounds and based upon a 24" (610 mm) load center (3) (11K carriage) or 48" (1219 mm) load center (3) (7K carriage). This rating specifies the maximum load capacity that the individual fork can safely carry at the maximum specified load center.

Since forks are always used in multiples, the total rating of any combination of forks will be the sum of their rated capacity. All forks should be used in matched pairs.

	<p>WARNING: DO NOT exceed the total rated capacity of the specific pair of forks being used. Forks can break causing loss of load and possible death or serious personal injury to the operator or personnel in the area. If the total rated capacity of the forks <u>exceeds</u> the capacity of the vehicle, the vehicle capacity should not be exceeded.</p>
---	--

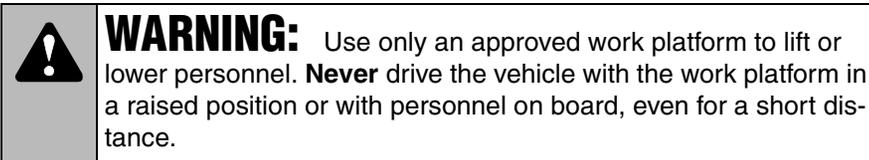
The maximum load capacity for this vehicle is 7,000 pounds (3.175 Kg) for the 7K carriage or 11,000 pounds (4.989 Kg) for the 11K carriage. The matched pair or set of forks used on this vehicle should have total load ratings which equal or exceed these weights. When the load rating of the vehicle differs from the load capacity of the forks, the lower value becomes the overall load capacity.



Elevating Personnel

This vehicle is designed to lift and transport materials and should not be used to elevate personnel except as explained in this section. Only equipment designed and approved for elevating personnel should be used.

If the vehicle must be used to elevate personnel, use only an approved work platform. When using a work platform, the following precautions must be taken:



Preperation and Set-up

1. Be sure the forks of the carriage are the right size for the fork pockets on the platform. Be sure the platform is the right size for the length of the forks. Be sure the appropriate size carriage is attached for the work platform being used. Change fork carriages if necessary.
2. Use the side shift switches to align the forks of the carriage with the fork pockets on the platform. Be sure the two forks are centered on the carriage.
3. Place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position and engage the parking brake switch.
4. Shut the engine OFF.
5. Exit the cab and go to the front of the boom.

MMV OPERATOR TRAINING PROGRAM



WARNING: Always disconnect the side shift hydraulics from the carriage before attaching the work platform. **Never** allow personnel on board the work platform with the side shift hydraulics connected. Unintentional or unexpected movement of the forks can cause damage to or upset of the work platform resulting in death or serious personal injury of anyone on board the platform.

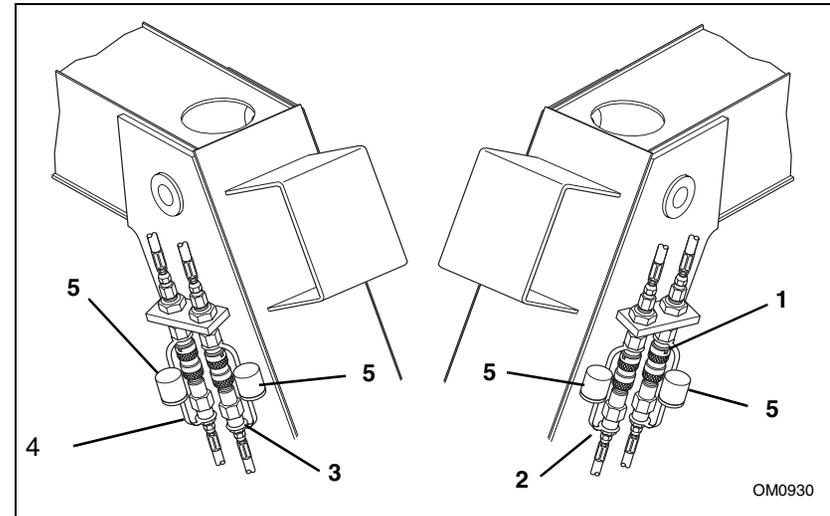
6. Remove the four hydraulic quick disconnects between the carriage and the vehicle. Remove the disconnects in the following order: Disconnect the RED (1) then the BLACK (2) on the left side. Disconnect the GREEN (3) then the YELLOW (4) on the right side.
7. Install the protective caps (5) on all four quick disconnects.
8. Make sure that the work platform is securely attached to the quick attach or forks. Follow the platform manufacturer's instructions.
9. Make sure the platform, carriage and forks are secured to prevent them from pivoting from side to side.
10. Ensure the vehicle has a firm footing and is level.
11. Place the travel select lever in (N) NEUTRAL.
12. Move the neutral lock lever to the (N) NEUTRAL LOCK position.
13. Engage the parking brake switch. Blocking the wheels is also recommended.
14. Level the platform in both the side-to-side and front-to-back directions before us



WARNING: **Never** tilt the platform forward or rearward when elevating with personnel aboard. Death or serious personal injury could result.



DANGER: **Never** operate this or any equipment in an area in which overhead or underground cables or power sources exist without first requesting that the appropriate power company or utility company de-energize the lines or take other suitable precautions.



MMV OPERATOR TRAINING PROGRAM

Elevating Personnel

1. Make sure there are no overhead obstructions or electrical wires above the platform before lifting.
2. A trained operator must operate the controls from the operators compartment and must remain with the vehicle at all times. Using extreme caution, lift and lower personnel smoothly and only at their request. The operator should move the platform up and down only in response to instruction from personnel on the platform.
3. Always position the platform in the travel position (approximately one foot above ground level) before moving the vehicle.

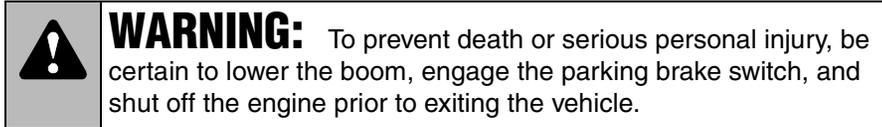
IMPORTANT! Make sure that required restraining equipment such as railings, chains, cable, body belts with lanyards, etc. are in place and properly used. Never use railings, planks, ladders, etc. on the platform for the purpose of achieving additional reach or height.

Capacity Limitations

The combined mass (weight in pounds) of the platform, load and personnel shall not exceed one-third (33%) of the capacity of the related load center position indicated on the capacity chart.

Shut-Off

1. Bring the vehicle to a complete stop using the service brakes.
2. Park the vehicle on level ground.



3. Place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position and engage the parking brake switch.
4. Lower the boom and ground the carriage.
5. Turn the ignition key to the OFF position.

Emergency Operations

MMV OPERATOR TRAINING PROGRAM

Towing a Disabled Vehicle

Towing a disabled vehicle should only be attempted after exhausting all other options. Every effort should be made to repair the vehicle and move it under its own power. Towing the vehicle improperly can result in damage to the vehicle drivetrain.

IMPORTANT! *In the event the vehicle is disabled and cannot be moved under engine power, the situation must be properly evaluated and dealt with on an individual basis. Contact your local **OmniQuip** Sales & Service Center (SSC) or the **OmniQuip** Service Department at (800) 439-8959 for specific instructions for your particular situation.*

Short Distance Towing

If it is necessary to tow the vehicle a short distance to avoid a potentially hazardous situation such as being in an unsafe area on the worksite or on a roadway, prepare the vehicle for towing as follows;

1. Remove the load from the vehicle.
2. Fully retract the boom. Position the forks approximately 24" above the ground. Refer to "Emergency Boom Lowering" for proper procedure if required.
3. Unlatch and open the engine cover. Allow the hydraulic oil to cool.



4. **Block all four wheels** to prevent any unexpected movement of the vehicle after the parking brake is disabled.

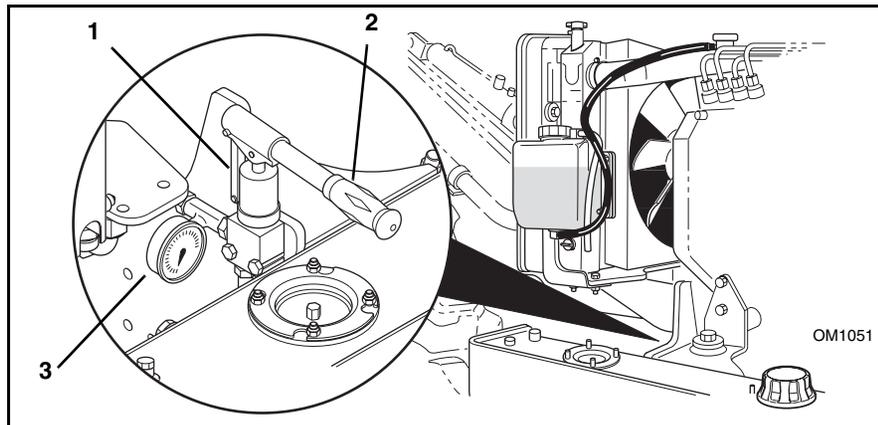
MMV OPERATOR TRAINING PROGRAM

5. Locate the emergency towing pressurizing valve (1) located under the radiator on the mounting bracket.
6. Turn the ignition switch to the ON position (with the engine not running), release the park brake switch.

NOTE: With the ignition switch in the ON position, the low brake pressure buzzer will sound continuously until the towing operation is complete and ignition switch turned to the OFF position.

7. Use the handle (2) on the emergency towing valve to pump pressure into the system. Watch the pressure gauge (3) while pumping pressure into the park brake system. **DO NOT** exceed 650 psi (45 bar).

CAUTION: DO NOT exceed 650 psi (45 bar) when pressurizing the park brake. Applying too much pressure may damage the brake seals.



8. Turn the steering wheel until the front tires are pointed in a straight ahead position.



WARNING: DO NOT open the rear door with the air conditioner rocker switch in the ON position and the fan switch turned to the ON position. Contact with moving parts can cause death or serious personal injury.

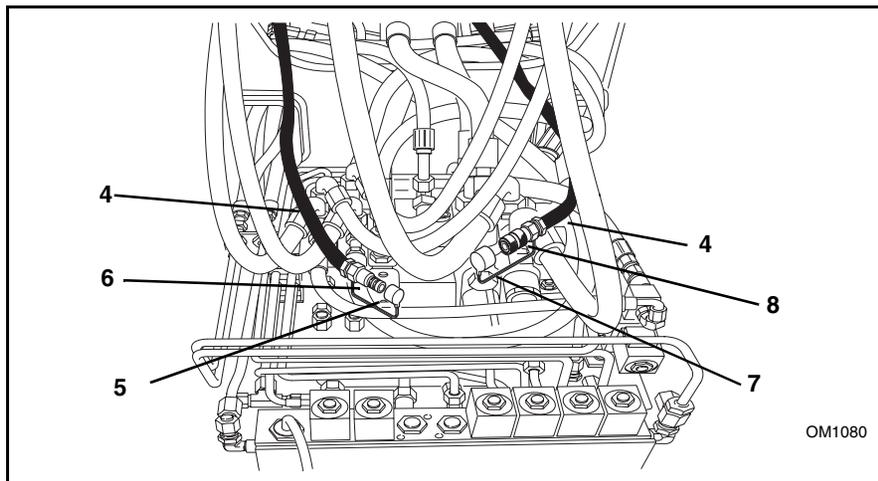
MMV OPERATOR TRAINING PROGRAM

9. Unlatch and open the rear door. Connect the steer cylinder crossover tow hoses (4) together. The two hoses are located inside the rear of the frame.
10. Remove the dust cap (5) from the “male” nipple (6) on one crossover hose. Remove the dust cap (7) from the “female” quick disconnect (8) on the other crossover hose. Couple the quick disconnects together. Close the rear door.
11. With the crossover hoses (4) coupled together, the rear wheels will be free to steer, thus “tracking” as the vehicle is being towed.



WARNING: DO NOT tow at speeds over 20 mph. Carefully move the towing vehicle into position. Always use a ground guide and any device necessary to lift the tow bar into position without standing directly between vehicles. Failure to comply could result in vehicle damage, or injury or death to personnel.

12. Clear the area of any unnecessary personnel.
13. Carefully remove the blocks from the four wheels of the vehicle.
14. Have an operator seated in the seat.
15. The vehicle can now be towed out of the way using the pintle hook provided. **Tow the vehicle at a very slow speed!**



MMV OPERATOR TRAINING PROGRAM

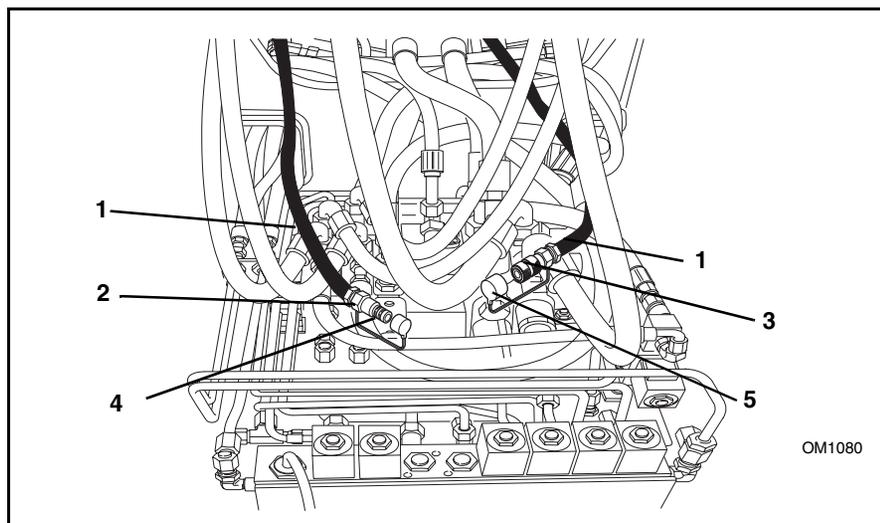


WARNING: Always disconnect the steer cylinder crossover hoses before resuming normal operation. Failure to disconnect the crossover hoses will result in the inability to steer the rear wheels. If the vehicle is driven in this condition, control of the rear wheels will be unpredictable.



WARNING: **DO NOT** open the rear door with the air conditioner rocker switch in the ON position and the fan switch turned to the ON position. Contact with moving parts can cause death or serious personal injury.

16. Before returning the vehicle to service, disconnect the steer cylinder crossover hoses (1) by removing the “male” nipple (2) from the “female” coupler (3). Re-install both dust caps (4 and 5). Perform the “Four Wheel Steer Indexing Procedure”.



MMV OPERATOR TRAINING PROGRAM

Long Distance Towing

Towing a disabled vehicle should only be attempted after exhausting all other options. Every effort should be made to repair the vehicle and move it under its own power. Towing the vehicle improperly can result in damage to the vehicle drivetrain.

IMPORTANT! *In the event the vehicle is disabled and cannot be moved under engine power, the situation must be properly evaluated and dealt with on an individual basis. Contact your local **OmniQuip** Sales & Service Center (SSC) or the **OmniQuip** Service Department at (800) 439-8959 for specific instructions for your particular situation.*

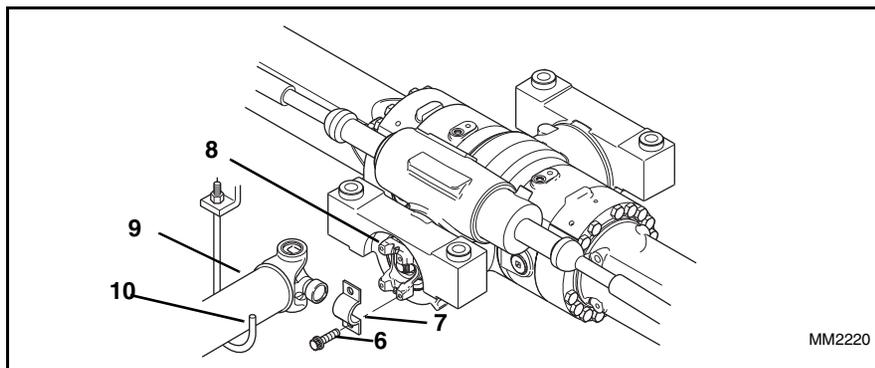
If it is necessary to tow the vehicle a long distance to a repair facility, prepare the vehicle for towing as follows;

1. Remove the load from the vehicle.
2. Fully retract and lower the boom until the forks are approximately 24" above the ground. Refer to "Emergency Boom Lowering" for proper procedure if required.



WARNING: **BLOCK ALL FOUR WHEELS.** Failure to do so could result in death or serious injury from vehicle roll-away.

3. **Block all four wheels** to prevent any unexpected movement of the vehicle after the parking brake is disabled.
4. Remove the four bolts (6) and two straps (7) securing the bearing crosses to the front and rear axle input yokes (8).
5. Secure the unattached end of each driveshaft (9) in the hanger hooks (10) provided underneath the frame of the vehicle. Rotate the hanger hooks into position to hold the driveshaft. The hanger hooks have spring tension applied to hold them in position.



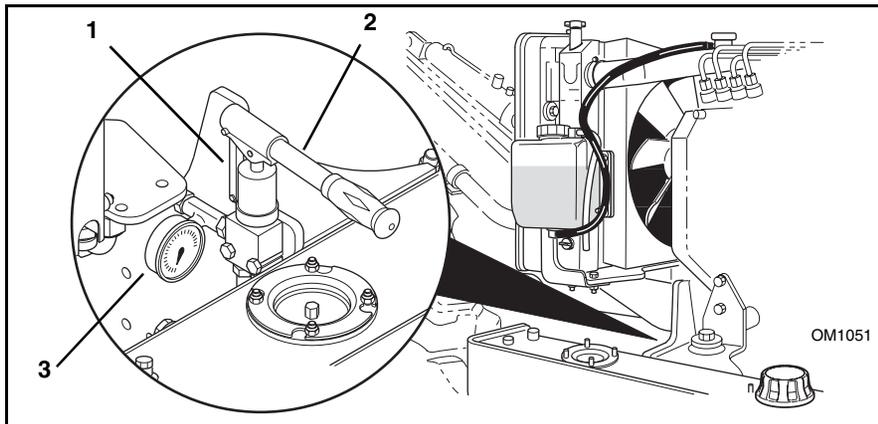
MMV OPERATOR TRAINING PROGRAM

6. Turn the ignition switch to the ON position (with the engine not running), release the park brake switch.

NOTE: With the ignition switch in the ON position, the low brake pressure buzzer will sound continuously until the towing operation is complete and ignition switch turned to the OFF position.

7. Unlatch and open the engine cover.
8. Locate the emergency towing pressurizing valve (1) located under the radiator on the mounting bracket.
9. Use the handle (2) on the emergency towing valve to pump pressure into the system. Watch the pressure gauge (3) while pumping pressure into the park brake system. **DO NOT** exceed 650 psi (45 bar).

CAUTION: DO NOT exceed 650 psi (45 bar) when pressurizing the park brake. Applying too much pressure may damage the brake seals.



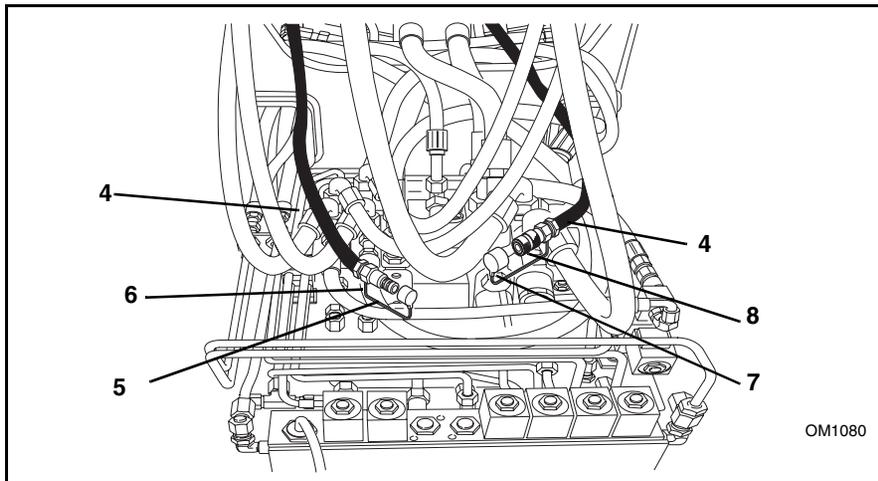
MMV OPERATOR TRAINING PROGRAM

10. Turn the steering wheel until the front tires are pointed in a straight ahead position. Assemble the rear axle steer cylinder crossover hose quick disconnects located inside the rear of the frame together.
11. Connect the steer cylinder crossover tow hoses (4) together. The two hoses are located inside the rear of the frame.



WARNING: DO NOT open the rear door with the air conditioner rocker switch in the ON position and the fan switch turned to the ON position. Contact with moving parts can cause death or serious personal injury.

12. Unlatch and open the rear door. Remove the dust cap (5) from the “male” nipple (6) on one crossover hose. Remove the dust cap (7) from the “female” quick disconnect (8) on the other crossover hose. Couple the quick disconnects together.
13. With the crossover hoses (4) coupled together, the rear wheels will be free to steer, thus “tracking” as the vehicle is being towed.
14. Close and latch the rear door.



WARNING: DO NOT tow at speeds over 20 mph. Carefully move the towing vehicle into position. Always use a ground guide and any device necessary to lift the tow bar into position without standing directly between vehicles. Failure to comply could result in vehicle damage, or injury or death to personnel.

MMV OPERATOR TRAINING PROGRAM

15. Position the towing vehicle in place. Using the tow lugs, located at the rear of the vehicle, connect the tow bar to the disabled vehicle.
16. Clear the area of any unnecessary personnel.
17. Have an operator seated in the seat.
18. Carefully remove the wheel blocks from each of the four tires. Tow the vehicle to a secure location.

IMPORTANT! Tow the vehicle at a speed not to exceed 20 mph!

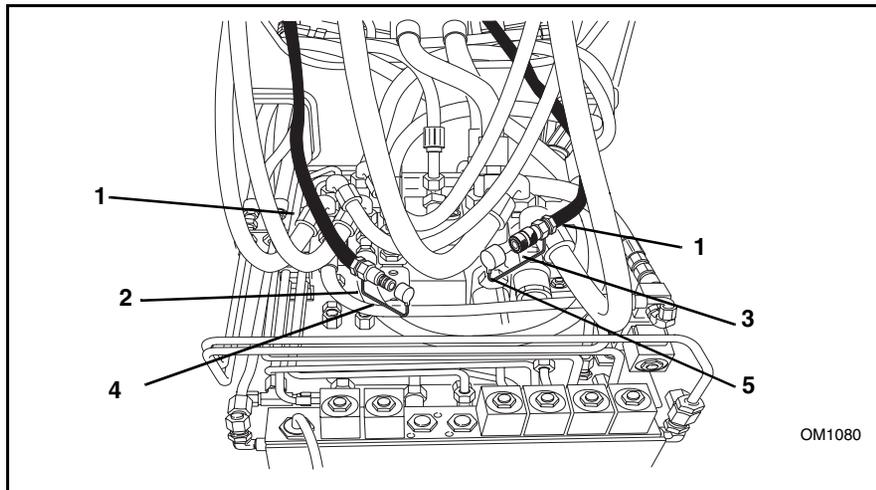


WARNING: Always disconnect the steer cylinder crossover hoses before resuming normal operation. Failure to disconnect the crossover hoses will result in the inability to steer the rear wheels. If the vehicle is driven in this condition, control of the rear wheels will be unpredictable.

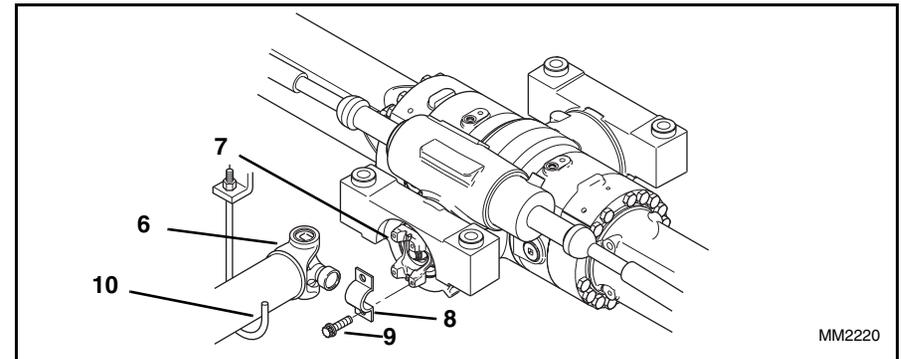


WARNING: DO NOT open the rear door with the air conditioner rocker switch in the ON position and the fan switch turned to the ON position. Contact with moving parts can cause death or serious personal injury.

19. Before placing the vehicle back into service, disconnect the steer cylinder crossover hoses (1) by removing the “male” nipple (2) from the “female” coupler (3). Re-install both dust caps (4 and 5).



1. Re-install the ends of the driveshafts (6) to the front and rear axle input yokes (7) using the straps (8) and bolts (9) removed in step 4. Torque the M12 bolts to 156 lb/ft (212 Nm). Rotate the driveshaft hanger hooks (10) out of the way and install the driveshafts to the front and rear axles.



2. Perform the “Four Wheel Steer Indexing Procedure”.

MMV OPERATOR TRAINING PROGRAM

Emergency Boom Lowering

This section discusses emergency boom lowering procedures:

Part I *In case of loss of engine power or hydraulic pump failure.*

Part II *In case of hydraulic line failure.*

Part I

Loss of Engine Power or Hydraulic Pump Failure

IMPORTANT! *In the event of total loss of engine power or hydraulic pump failure with an elevated load, the situation must be properly evaluated and dealt with on an individual basis. Contact your local **OmniQuip** Sales & Service Center (SSC) or the **OmniQuip** Service Department at (800) 439-8959 for specific instructions for your particular situation.*

In any event, the vehicle should be secured until the situation has been properly evaluated. Secure the vehicle by following the procedures below:

1. Clear the area around the vehicle of all personnel.
2. Block all four wheels.
3. Section off a large area under the boom with string or tape to restrict any personnel from entering this potentially dangerous area.



WARNING: **DO NOT** get under a raised boom unless the boom is blocked up. Always block the boom before doing any servicing that requires the boom to be up.

4. Temporarily block up or support the outer boom so it cannot be lowered.
5. If the load is in a position where it can be removed safely, completely remove the load from the carriage, otherwise leave the load in place.
6. Place an accident prevention tag on both the ignition switch and steering wheel. Actual accident prevention tags can be found as the last page of this manual. If you do not have a safety tag, place tape over the ignition switch.

MMV OPERATOR TRAINING PROGRAM

Part II - Hydraulic Line Failure

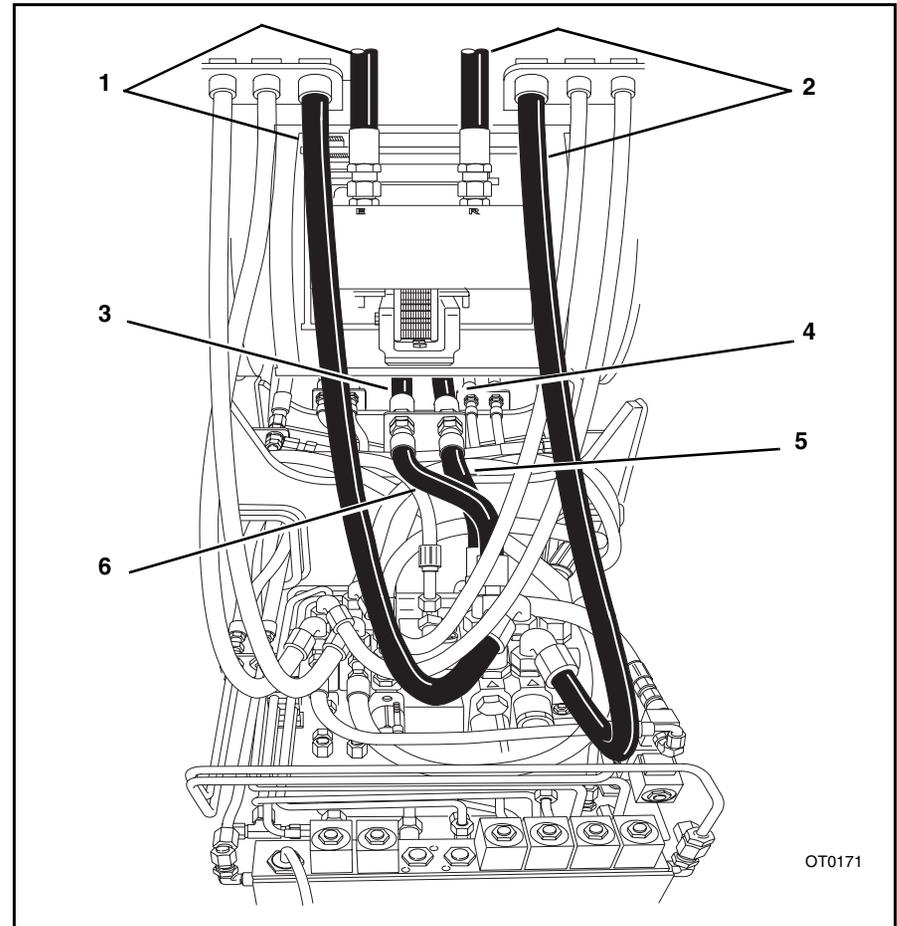
In case of hydraulic line failure, there are step-by-step procedures available to assist you in safely retracting and then lowering the boom. Read Part II from start to finish before performing any of these procedures so you fully understand the process and the danger involved. If you are unsure about any part of these procedures contact your local **OmniQuip** Sales & Service Center (SSC) or the **OmniQuip** Service Department.

Every attempt should be made to repair the hydraulic line failure and to retract and then lower the boom in its normal fashion. We realize this is not always possible. Step-by-step procedures are also available when the boom must be retracted and lowered immediately and replacement parts are not available. Only resort to Steps 3 & 4 when absolutely necessary.

IMPORTANT! Be aware that the boom must first be retracted and then lowered to avoid vehicle tipover.

In any case of hydraulic line failure, it is critical to correctly identify which hydraulic line has failed. Identify the hydraulic line that has failed and use the table that follows to determine which Step to follow to retract and lower the boom. The hydraulic lines are:

- Boom Extend Line (1)
- Boom Retract Line (2)
- Boom Lower Line - Lift Cylinder to Bulkhead (3)
- Boom Lift Line - Lift Cylinder to Bulkhead (4)
- Boom Lift Line - Bulkhead to Control Valve (5)
- Boom Lower Line - Bulkhead to Control Valve (6)



MMV OPERATOR TRAINING PROGRAM

HYDRAULIC LINE THAT FAILED	NORMAL STEPS		EMERGENCY STEPS
	FOLLOW THIS STEP IF PARTS ARE AVAILABLE	FOLLOW THIS STEP IF PARTS ARE NOT AVAILBLE	 OP0330 FOLLOW THIS STEP AS A LAST RESORT
BOOM LIFT LINE (LIFT CYLINDER TO BULKHEAD)	STEP 1	STEP 2	
BOOM LIFT LINE (BULKHEAD TO CONTROL VALVE)	STEP 1	STEP 2	
BOOM LOWER LINE (LIFT CYLINDER TO BULKHEAD)	STEP 1		STEP 3
BOOM LOWER LINE (BULKHEAD TO CONTROL VALVE)	STEP 1		STEP 3
BOOM EXTEND LINE	STEP 1	STEP 2	
BOOM RETRACT LINE	STEP 1		STEP 4

MMV OPERATOR TRAINING PROGRAM

STEP 1

1. Clear the area of any unnecessary personnel.
2. Block all four wheels.



WARNING: DO NOT get under a raised boom unless the boom is blocked up. Always block the boom before doing any servicing that requires the boom to be up.

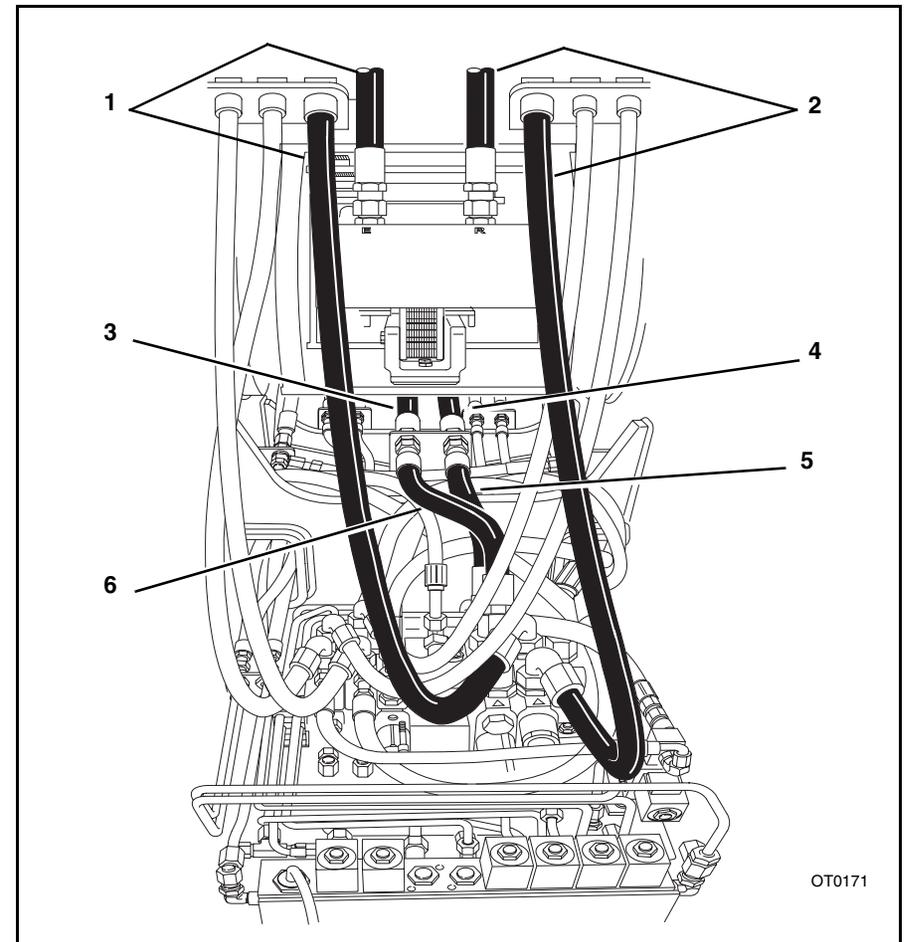
3. If the load is in a position where it can be removed safely, completely remove the load from the carriage; otherwise, leave the load in place.
4. Temporarily block up or support the outer boom.



WARNING: Wear protective clothing and proper eye protection when working with or around hydraulic oil. Wait for hydraulic oil to cool before attempting to repair the failure. Hot hydraulic oil can cause severe burns and other serious injury.

5. Replace the failed hydraulic line with a new part.
 - Boom Extend Line (1)
 - Boom Retract Line (2)
 - Boom Lower Line - Lift Cylinder to Bulkhead (3)
 - Boom Lift Line - Lift Cylinder to Bulkhead (4)
 - Boom Lift Line - Bulkhead to Control Valve (5)
 - Boom Lower Line - Bulkhead to Control Valve (6)
6. Check the hydraulic oil level, add oil if needed.
7. Remove the blocking or support from the outer boom.
8. Return to the cab, fasten your seat belt and start the engine.
9. Tilt the carriage upward if necessary for clearance before retracting the boom.
10. Slowly retract the boom.
11. Slowly lower the boom and ground the carriage.

12. Shut off the engine.
13. Completely remove the load from the carriage, if you haven't already done so.
14. Return to the cab, fasten your seat belt and start the engine.
15. Cycle the lift/lower and extend/retract cylinders several times to bleed air from the system. Check for leaks.
16. Recheck the hydraulic oil level. Add oil if necessary.



STEP 2

USE IN CASE OF:

BOOM LIFT LINE FAILURE - Lift Cylinder to Bulkhead (1)

BOOM LIFT LINE FAILURE - Bulkhead to Control Valve (2)

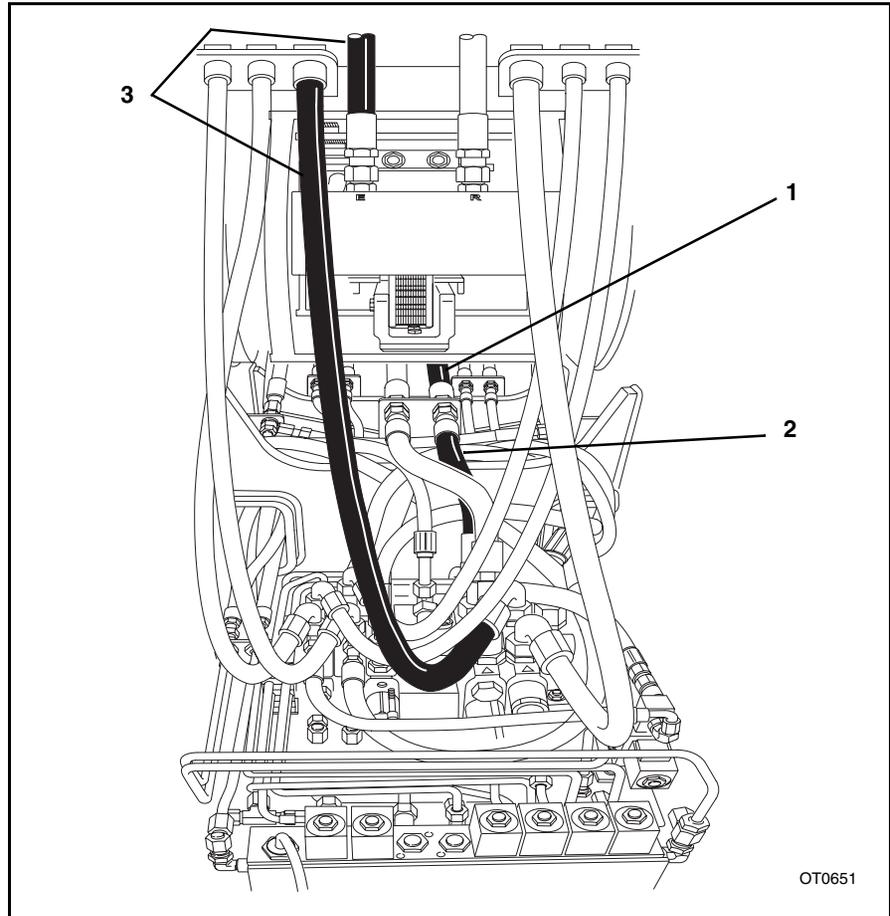
BOOM EXTEND LINE FAILURE (3)

1. Clear the area of any unnecessary personnel.
2. Block all four wheels.



WARNING: Wear protective clothing and proper eye protection when working with or around hydraulic oil. Wait for hydraulic oil to cool before attempting to repair the failure. Hot hydraulic oil can cause severe burns and other serious injury.

3. Place a container under the failed hose to catch any hydraulic oil that may escape during this procedure.
4. Return to the cab, fasten your seat belt and start the engine.
5. Slowly retract the boom.
6. Slowly lower the boom and ground the carriage.
7. Shut off the engine.
8. Completely remove the load from the carriage.
9. Place an accident prevention tag on both the ignition switch and steering wheel. Refer to "Accident Prevention Tags". Actual accident prevention tags can be found as the last page of the manual. If you do not have a safety tag, place tape over the ignition switch.
10. Have the vehicle serviced immediately. Replace any failed hydraulic lines with new parts.
11. Return to the cab, fasten your seat belt and start the engine.
12. Cycle the lift/lower cylinder several times to bleed air from the system. Check for leaks.
13. Recheck the hydraulic oil level. Add oil if necessary.
14. Transfer any waste oil to a container with a cover and label as used oil. Dispose of properly.



MMV OPERATOR TRAINING PROGRAM

STEP 3

BOOM LOWER LINE FAILURE - Lift Cylinder to Bulkhead (1)

BOOM LOWER LINE FAILURE - Bulkhead to Control Valve (2)

1. Clear the area of any unnecessary personnel.
2. Block all four wheels.



WARNING: DO NOT get under a raised boom unless the boom is blocked up. Always block the boom before doing any servicing that requires the boom to be up.

3. Temporarily block up or support the outer boom.
4. If the load is in a position where it can be removed safely, completely remove the load from the carriage; otherwise, leave the load in place.
5. Place a 10 gallon (40 liter) container under the vehicle to catch any hydraulic oil that will escape during this procedure.



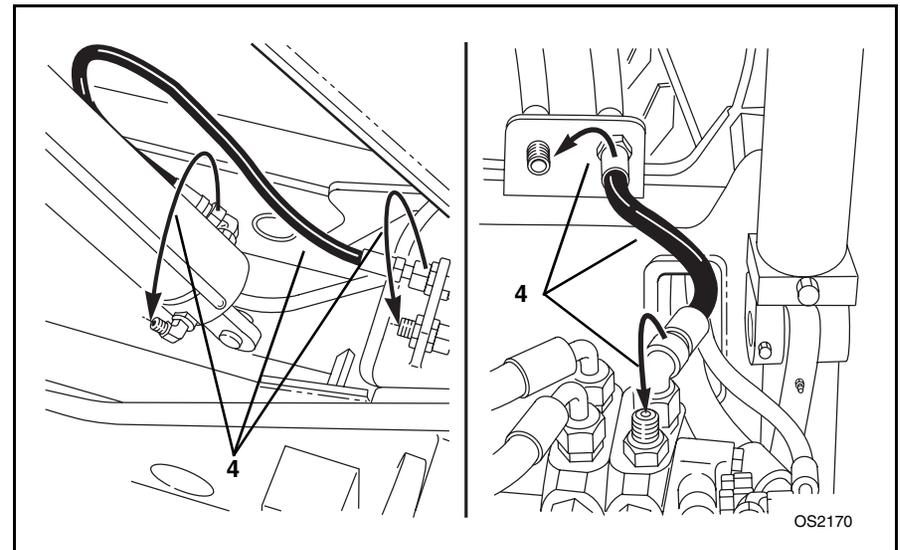
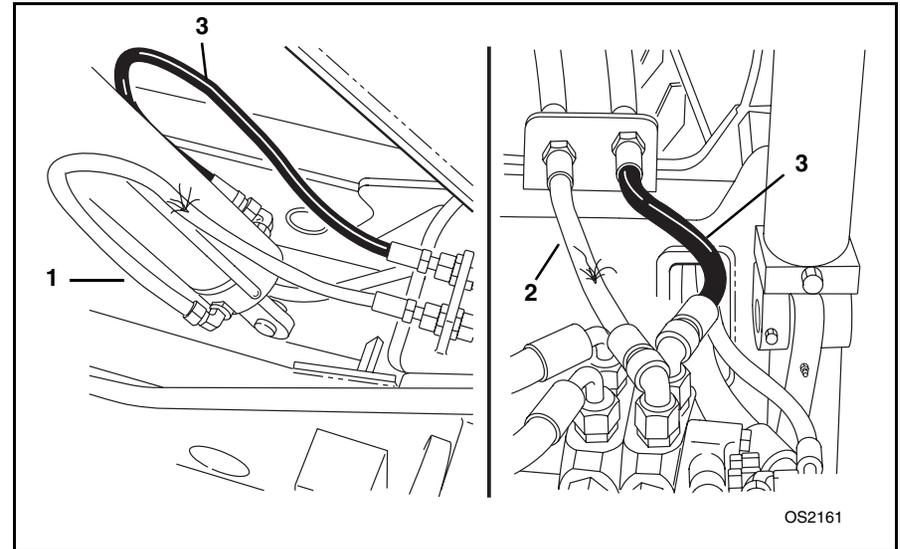
WARNING: Wear protective clothing and proper eye protection when working with or around hydraulic oil. Wait for hydraulic oil to cool before attempting to repair the failure. Hot hydraulic oil can cause severe burns and other serious injury.

NOTE: If a replacement hose is not available, the adjacent boom lift line (3) can be used to replace the failed boom lower line.

6. Remove the individual failed boom lower line (1 or 2) from the circuit.
7. Remove and temporarily reposition the adjacent boom lift line (4) in place of the failed boom lower line (1 or 2).

IMPORTANT! Once either boom lift line is removed and the boom is retracted during the remaining steps, hydraulic oil will drain out of the base end of the boom cylinder. The escaping oil should be deflected by some means (the failed hose could be used) directing the oil into the drain container.

8. Check the hydraulic oil level and add oil if needed.
9. Remove the blocking or support from the outer boom.
10. Return to the cab, fasten your seat belt and start the engine.



IMPORTANT! Have the vehicle serviced and hoses replaced as soon as the boom has been lowered and the vehicle is in a secure location.

MMV OPERATOR TRAINING PROGRAM

11. Tilt the carriage upward if necessary for clearance before retracting the boom.
12. **SLOWLY RETRACT** the boom.
13. **SLOWLY LOWER** the boom and ground the carriage.
14. Completely remove the load from the carriage, if you haven't already done so.
15. Have the vehicle serviced immediately.
16. Replace any faulty hydraulic lines.
17. Return to the cab, fasten your seat belt and start the engine.
18. Cycle the lift/lower cylinder several times to bleed air from the system. Check for leaks.
19. Transfer the waste oil to a container with a cover and label as used oil. Dispose of properly.
20. Recheck the hydraulic oil level. Add oil if necessary.

STEP 4

BOOM RETRACT LINE FAILURE

1. Clear the area of any unnecessary personnel.
2. Block all four wheels.



WARNING: DO NOT get under a raised boom unless the boom is blocked up. Always block the boom before doing any servicing that requires the boom to be up.

3. If the load is in a position where it can be removed safely, completely remove the load from the carriage, otherwise leave the load in place.
4. Place a 10 gallon (40 liter) container under the vehicle to catch any hydraulic oil that will escape during this procedure

MMV OPERATOR TRAINING PROGRAM



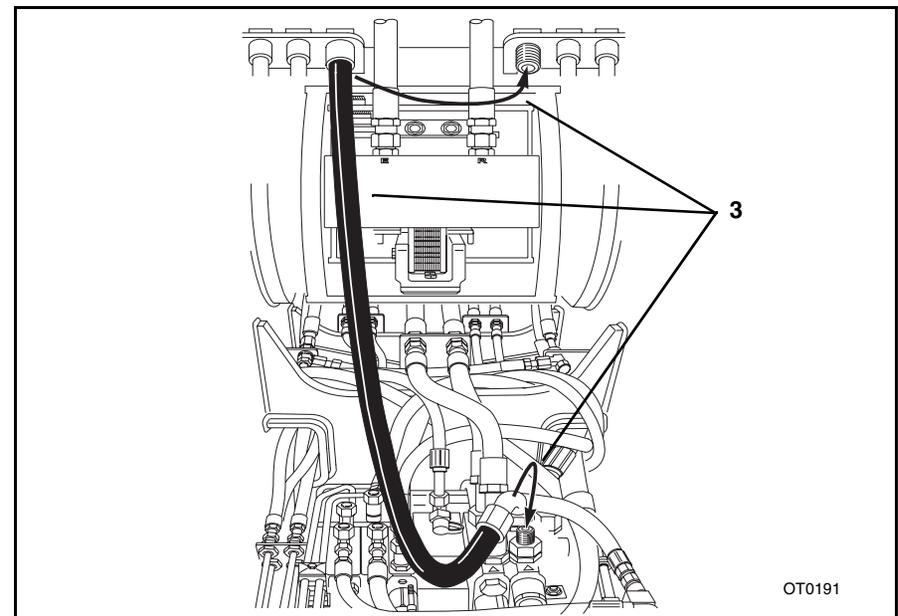
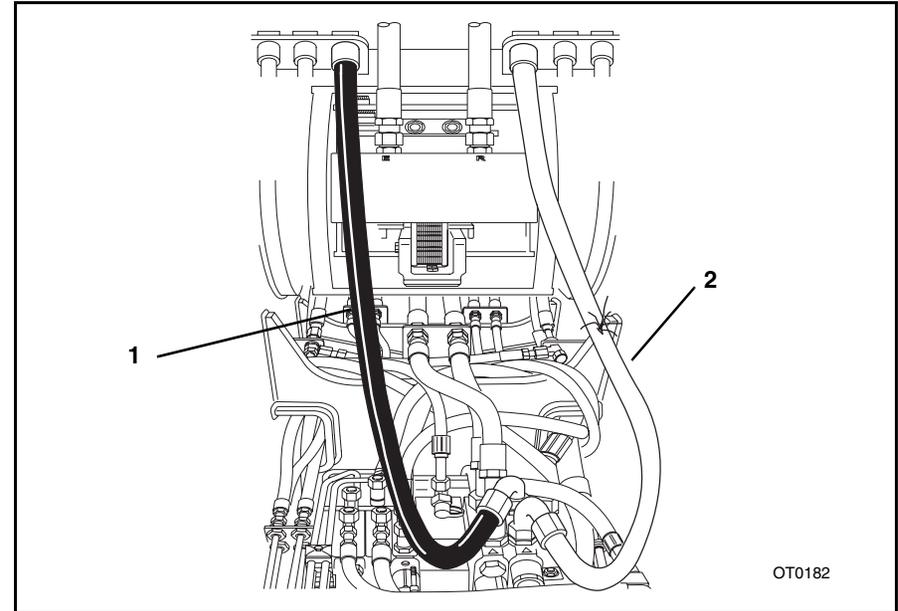
WARNING: Wear protective clothing and proper eye protection when working with or around hydraulic oil. Wait for hydraulic oil to cool before attempting to repair the failure. Hot hydraulic oil can cause severe burns and other serious injury.

NOTE: If a replacement hose is not available, the adjacent boom extend line (1) can be used to replace the failed boom retract line.

5. Remove the failed boom retract line (2) from the circuit.
6. Remove and temporarily reposition the adjacent boom extend line (3) in place of the failed boom retract line (2).

IMPORTANT! During the remaining steps, hydraulic oil will drain out of the base end of the boom cylinder. The escaping oil should be deflected by some means (the failed hose could be used) directing the oil into the drain container.

7. Check the hydraulic oil level and add oil if needed.
8. Return to the cab, fasten your seat belt and start the engine.
9. Tilt the carriage upward if necessary for clearance before retracting the boom.
10. **SLOWLY RETRACT** the boom.
11. **SLOWLY LOWER** the boom and ground the carriage.
12. Completely remove the load from the carriage if you haven't already done so.
13. Have the vehicle serviced immediately.
14. Replace any faulty hydraulic lines.
15. Return to the cab, fasten your seat belt and start the engine.
16. Cycle the extend/retract cylinder several times to bleed air from the system. Check for leaks.
17. Transfer the waste oil to a container with a cover and label as used oil. Dispose of properly.
18. Recheck the hydraulic oil level. Add if necessary.



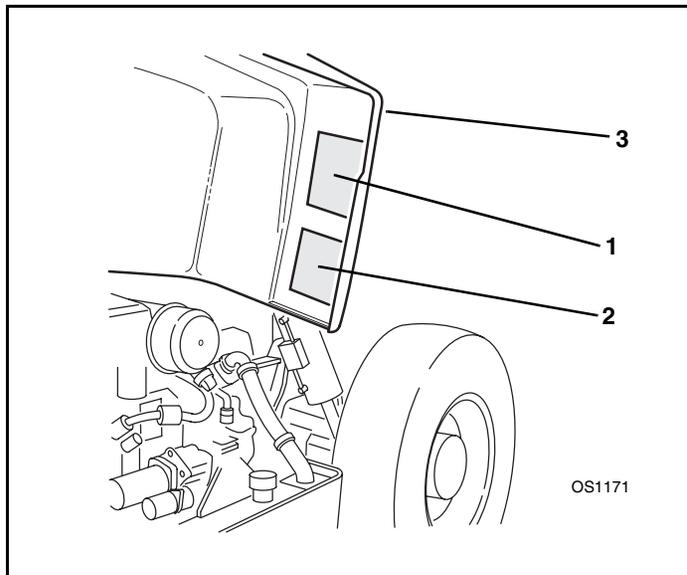
General Maintenance

MMV OPERATOR TRAINING PROGRAM

Introduction

This section of the manual contains a maintenance schedule and checklist with references to pertinent procedures and instructions. To prevent problems before they occur, follow the maintenance schedule.

NOTE: The Lubrication (1) and Maintenance Chart (2) decals are located inside the engine cover (3). They contain a general maintenance schedule that should be followed to maintain the vehicle in good operating condition. The same schedule information is presented in this manual, except it contains a more detailed account of how to perform these specific maintenance operations.



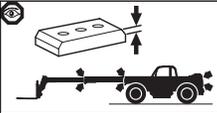
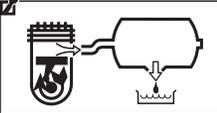
WARNING: DO NOT perform service or maintenance on the vehicle with the engine running, with the exception of the transmission level check. Contact with moving parts can cause death or serious personal injury.

MMV OPERATOR TRAINING PROGRAM

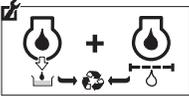
Maintenance Schedule and Checklist

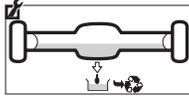
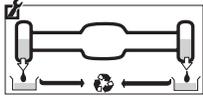
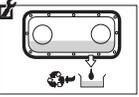
10 Hour Intervals

10 						
	Drain Fuel/Water Separator	Check Engine Coolant Level	Check Engine Oil Level	Check Hydraulic Oil Level	Check Transmission Oil Level	Check Tire Pressure
Paragraph Ref.	6A	4A	5A	9A	10A	15A

			
Inspect Wear Pads	Drain Water From Emergency Tire Inflation Tank	Inspect and/or Clean Air Compressor Intake Filter	
Paragraph Ref.	19E	16B	16A

At First 50 Hours of Use

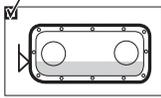
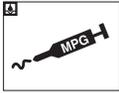
1st 50 				
Change Engine Oil and Filter	Change Transmission Filter	Change Hydraulic Filter	Check Wheel Lug Nut Torque	
Paragraph Ref.	5B	10B	9B	15B

			
Change Axle Oil	Change Wheel End Oil	Change Transfer Case Oil	
Paragraph Ref.	11B	13B	14B

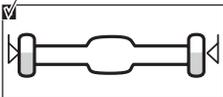
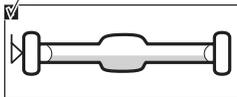
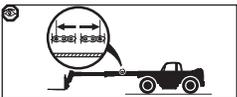
MMV OPERATOR TRAINING PROGRAM

250 Hour Intervals

OT1090

	250 			
		Change Engine Oil and Filter	Check Transfer Case Oil Level	Lubricate Fittings
Paragraph Ref.		5B	14A	1

OM1060

				
				Check Wheel End Oil Level
Paragraph Ref.		13A	11A	19C

500 Hour Intervals

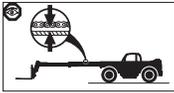
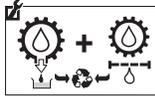
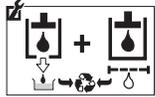
OT1100

	500 		
		Change Air Filter	Change Fuel Filter
Paragraph Ref.		2A	6B & 6C

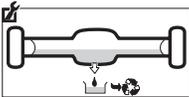
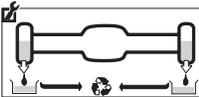
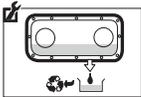
MMV OPERATOR TRAINING PROGRAM

1000 Hour Intervals

OT1110

1000 			
	Check Boom Chain Tension	Change Transmission Oil and Filter	Change Hydraulic Oil and Filter
Paragraph Ref.	19A & 19B	10B	9B

OT1120

			
	Change Axle Oil	Change Wheel End Oil	Change Transfer Case Oil
Paragraph Ref.	11B	13B	14B

OM1490

				
	Check Axle Brake Discs	Check Fan Belt	Check Air Intake System	Lubricate Boom Chains
Paragraph Ref.	12A	7A	2B	19D

2000 Hour Intervals

OT1140

2000 	
	Change Engine Coolant
Paragraph Ref.	4B

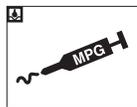
MMV OPERATOR TRAINING PROGRAM

Lubrication Points



OH2710

Lubricate the following grease fittings using Multi-Purpose Grease (MPG) every 250 hours:



OS1750

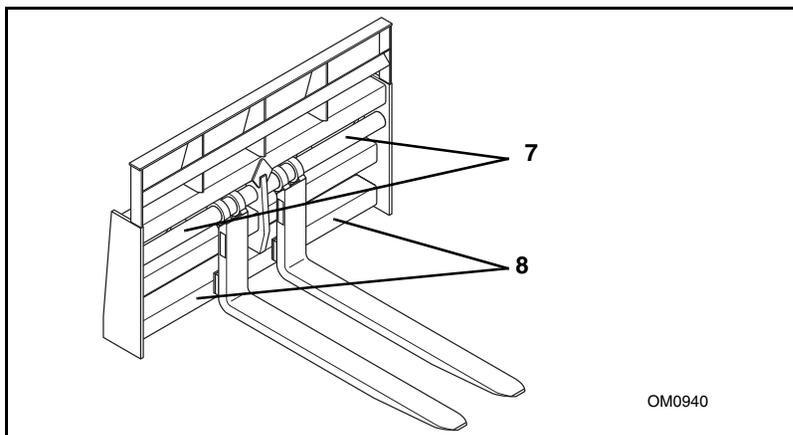
- Hydraulic cylinder pins (1)(14 points)
- Powertrain slip joints & axle U-joints (2)(11 points)
- Boom pivot pin (3)(4 points)
- Quick attach pivot pin (4)(2 points)
- Axle pivot pins (5)(4 points)
- Chain sheave (6)(2 points)

NOTE: Shorten the lubrication interval on all lube points when operating in severe conditions.

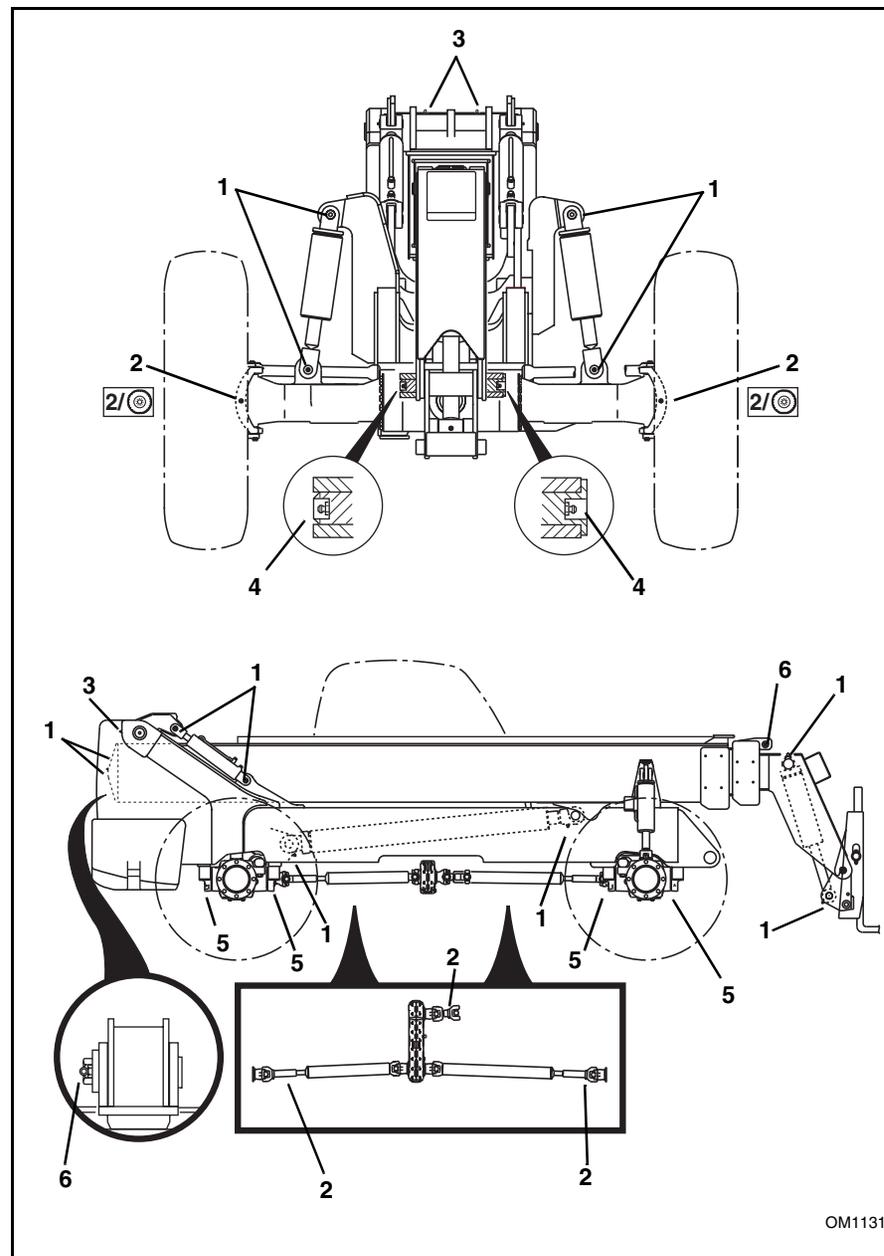
Carriage Fork Shaft and Wear Bar Lubrication

Use ONLY Teflon Lube to coat the entire fork shaft (7) and the wear bar (8). **DO NOT** apply grease or any other type of petroleum based lubricant to these areas as these will attract debris which will prematurely wear the fork bushings and/or wear pads.

Apply Teflon Lube as needed to keep forks sliding side to side smoothly, when putting vehicle into storage or when Teflon Lube appears to be worn off or rust starts to appear on the fork shaft or wear bar.



OM0940



OM1131

MMV OPERATOR TRAINING PROGRAM

Air Cleaner

The operator's display panel illuminates an indicator light that will alert the operator when it senses restricted air flow to the engine. This indicates the air filter(s) needs servicing. **NEVER** operate the vehicle without the air cleaner assembly and both filters in place.

A. Element: Change

(As Restriction Indicator Indicates or Every 500 Hour Intervals)



Outer Primary Element

All air cleaner manufacturers agree that attempting to clean or wash an element increases the chance for element damage. It is highly recommended that you consider the value of cleaning an element against the risks which could lead to engine damage. Adopt the policy that all elements should be replaced with new and not cleaned.

Inner Element

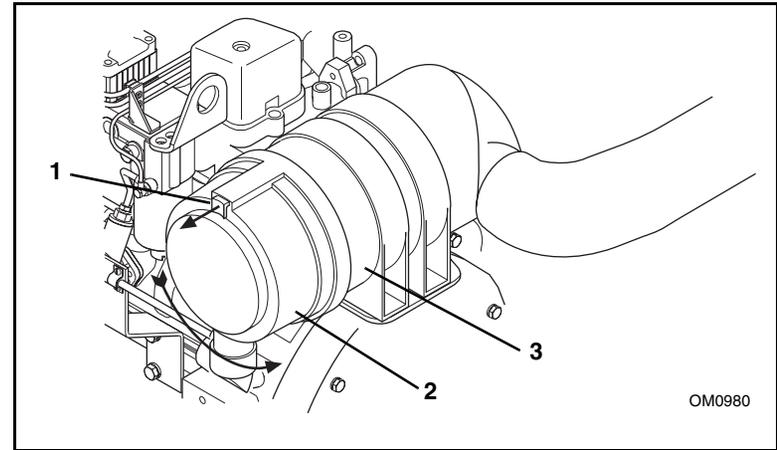
An inner element should never be washed or reused. Always install a new element. Replace inner elements after every third primary element change. **DO NOT** remove an inner element until you have thoroughly cleaned the inside of the air cleaner canister. This will prevent dirt, which could damage the engine, from entering the induction manifold.

CAUTION: **NEVER** run the engine with only the inner element installed. Severe engine damage will result from dust entering the engine.

MMV OPERATOR TRAINING PROGRAM

To change elements:

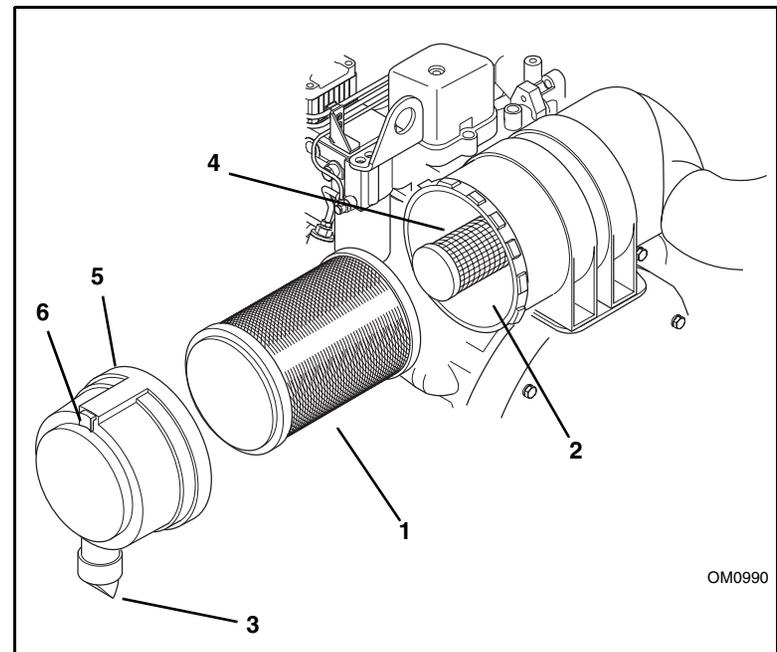
1. Pull the air cleaner cover lock (1) OUT, turn the air cleaner cover (2) counter-clockwise and remove the cover from the air cleaner canister (3).



2. Remove the primary element (1). Inspect the element for damage. Damaged elements should never be reused.
3. Thoroughly clean the interior of the air filter canister (2) and vacuator valve (3).
4. If replacing the inner element (4) at this time, carefully slide the element out. Always discard this element and replace with a new element.
5. Slide the new primary element over the inner element making sure the sealing edge is flush with the base of the air cleaner.

IMPORTANT! DO NOT apply any type of petroleum product to the sealing surface of the filter in an attempt to get a more positive seal. This will cause sealing surface damage and allow dirt to by-pass the filter. Use liquid dishwashing soap (Ivory, Dawn, etc.) on the seal of the filter only.

6. Position the canister cover (5) in place, turn clockwise to lock into position and secure in place by pushing the air cleaner cover lock (6) all the way in.



Air Intake System-Inspection

(1000 Hour Intervals)



OH2690



OT0880

Inspect the intake piping for cracked hoses, loose clamps or punctures which can allow dirt or debris to enter the combustion chamber. If dirt or debris are allowed to enter the combustion chamber, they can severely damage the engine. If necessary, tighten or replace parts to prevent air intake system leakage.

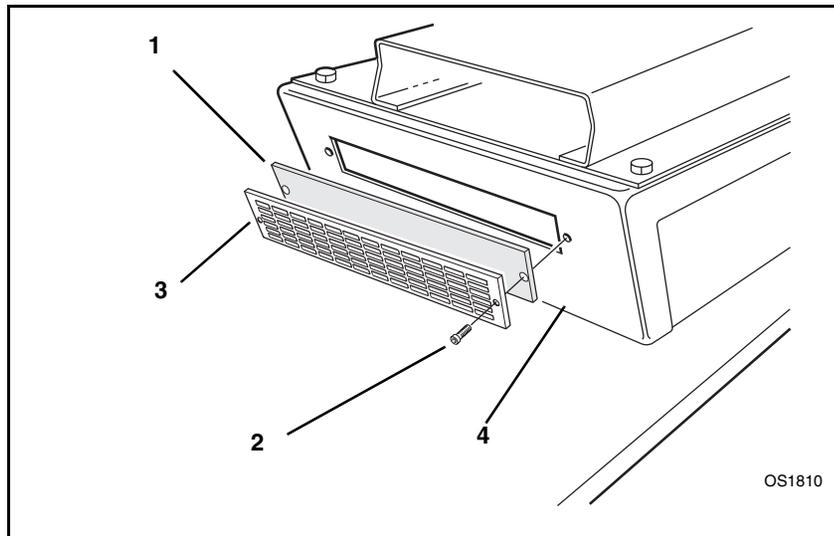
MMV OPERATOR TRAINING PROGRAM

Closed Cab Air Filters

The closed cab has two air filters. These filters require periodic maintenance.

Recirculation Air Filter

Periodically remove and inspect the recirculation air filter (1) located directly below the seat. Remove the two truss head bolts (2) holding the vent cover (3) and filter to the seat base (4). Gently hand wash with water. A mild detergent may also be used if the filter is saturated with dirt.



Fresh Air Intake Filter

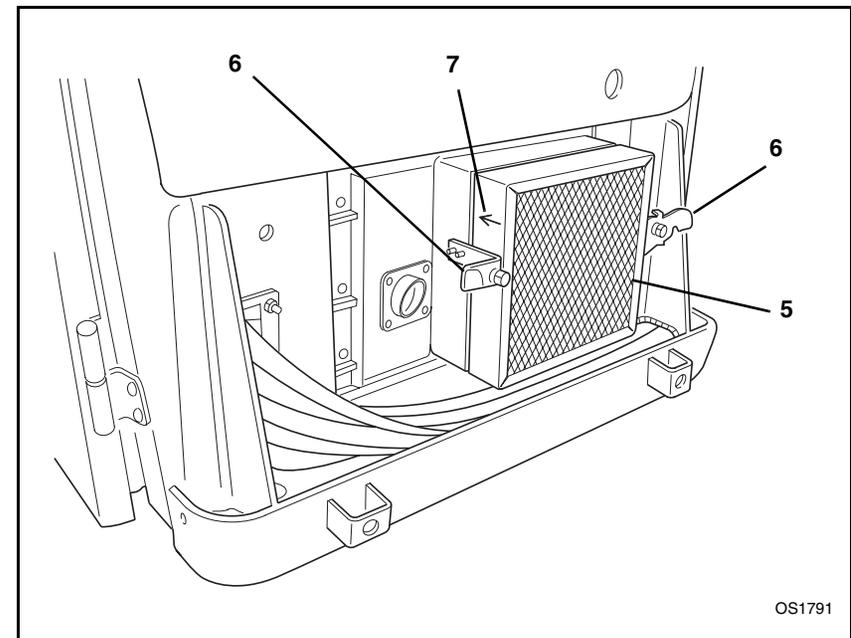
The fresh air intake filter (5) cleans outside air when pressurizing the cab. Check the condition of the filter by removing the rear panel of the cab.

When operating in normal conditions, inspect the filter weekly. When operating in extreme conditions, inspect the filter daily. Clean the filter by removing the filter and shaking it. Be sure the filter is held in place with both filter latches (6)

The filter can be gently hand washed with water. A mild detergent may also be used if the filter is saturated with dirt.

The filter should be replaced at 250 hour intervals under normal operating conditions and at 50 hour intervals under extreme operating conditions.

NOTE: Correctly position the filter so the air flow (7) is directed into the cab.



MMV OPERATOR TRAINING PROGRAM

Engine Coolant Level Check

(10 Hour Intervals)

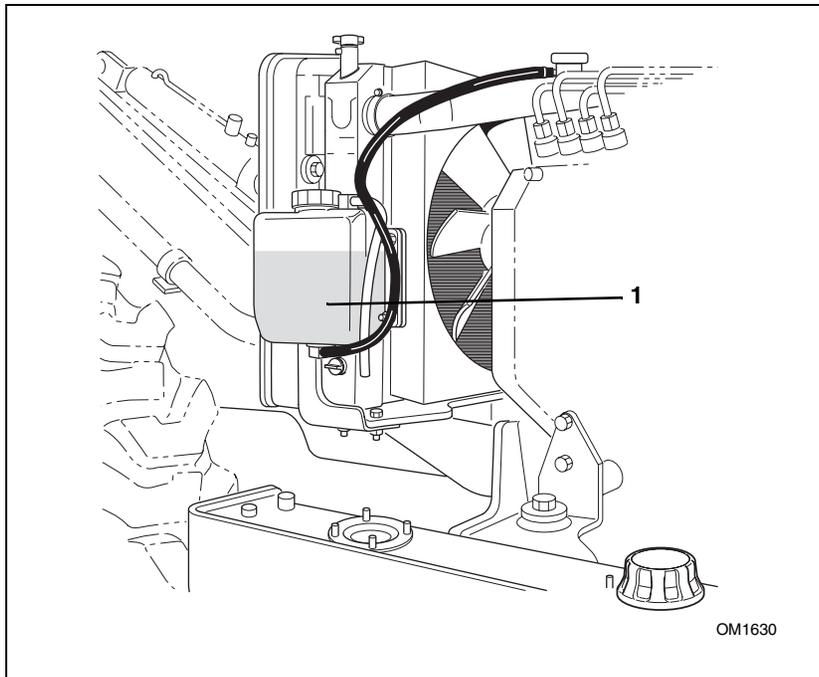


OH2660



OS0800

1. Level the vehicle, ground the carriage, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Unlatch and open the engine cover.
3. Check the coolant level in the overflow bottle (1). When the coolant is hot, the bottle should be 1/2 to 3/4 full. When the coolant is cool, the bottle should be 1/4 to 1/2 full. Add coolant (50/50 mixture of ethylene glycol and water) as required through the overflow bottle.



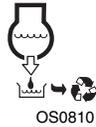
MMV OPERATOR TRAINING PROGRAM

Drain and Flush Radiator

(2000 Hour Intervals)



OH2700



OS0810

1. Level the vehicle, ground the carriage, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.



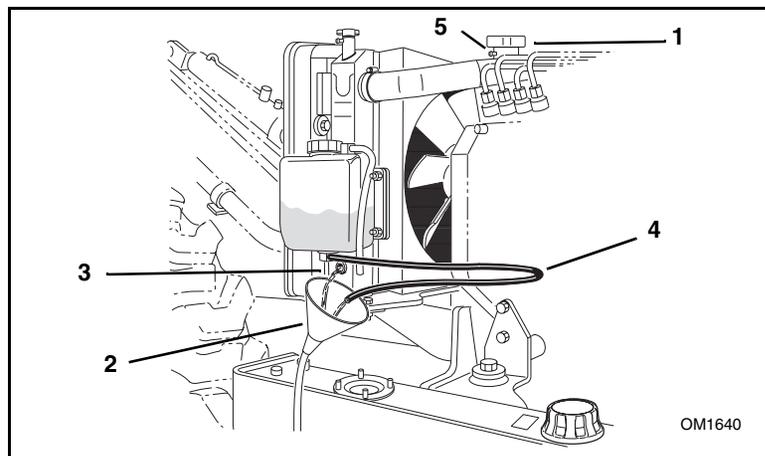
WARNING: DO NOT attempt this procedure when the engine is hot. Wait for the engine, muffler and tailpipes to cool down before proceeding. Failure to do so could result in severe burns.

2. Unlatch and open the engine cover. Allow time for the engine to cool down before proceeding. Draining and flushing the engine cooling system while the engine is still hot can cause cracks in the engine block.

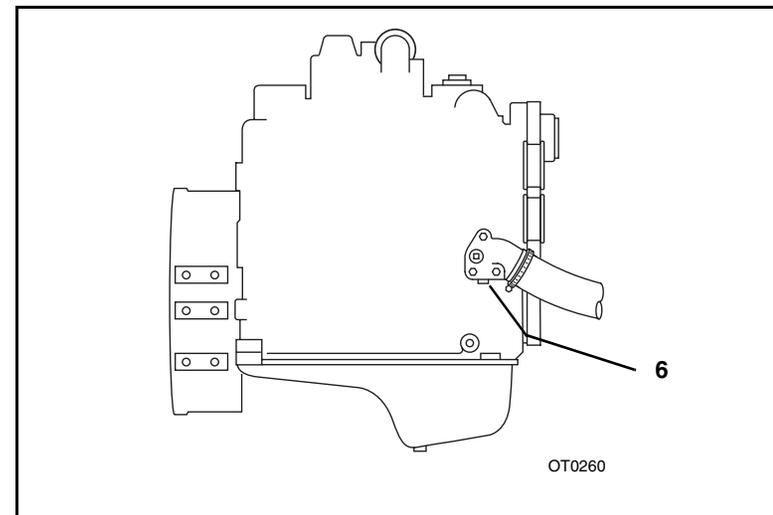


WARNING: NEVER remove the radiator cap while the engine is hot. The cooling system is under pressure. Hot coolant can cause severe burns or eye injury. Wear protective clothing and safety glasses.

3. Slowly turn the radiator cap (1) located in the upper radiator hose to the first stop and allow any pressure to escape. Remove the radiator cap.

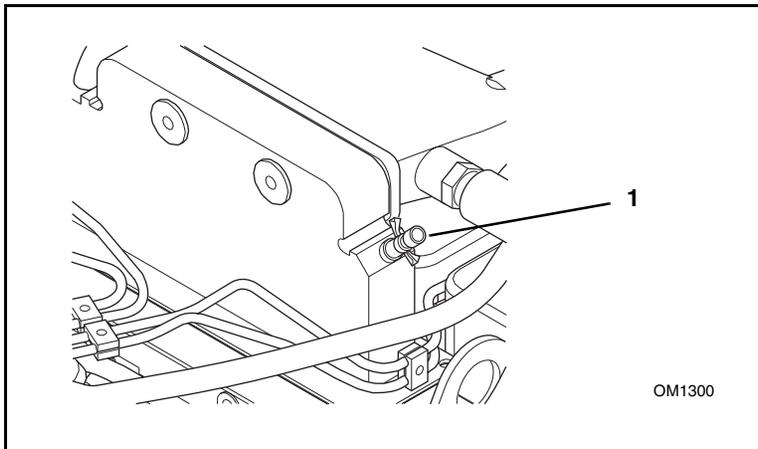


4. Place a funnel (2) at the base of the radiator to channel the drained coolant into a container. Unscrew the radiator drain plug (3) and allow the coolant to drain into the funnel.
5. Detach the hose (4) from the fitting on the neck of the radiator fill tube (5) and drain any coolant from the overflow bottle into the funnel.
6. Flush the radiator with clean water and drain again.
7. Remove the coolant drain plug (6) and drain any coolant from the engine block. Replace the drain plug.
8. Transfer the coolant into a properly labelled container. Dispose of properly.
9. Reconnect hose (4) to the fitting on the neck of the radiator fill tube (5) located in the upper radiator hose. Close the radiator drain plug or petcock.



MMV OPERATOR TRAINING PROGRAM

10. Open the petcock (1) on the turbo aftercooler.
11. Fill the radiator completely with a 50/50 mixture of ethylene glycol and water. Replace the radiator cap. Add coolant to the overflow bottle until the bottle is 1/2 to 3/4 full. This “over-filling” will compensate for any air in the cooling system.
12. Close the petcock (1) on the turbo aftercooler.
13. Clean any dirt or debris from the radiator fins and core.
14. Start the engine and run the vehicle to normal operating temperature then shut off the engine. While the engine is cooling, check for leaks.
15. After engine has cooled for several minutes, open the petcock (1) on the turbo aftercooler. Allow air in the system to escape. Close the petcock when coolant starts flowing from the petcock. All air is now purged from the aftercooler.

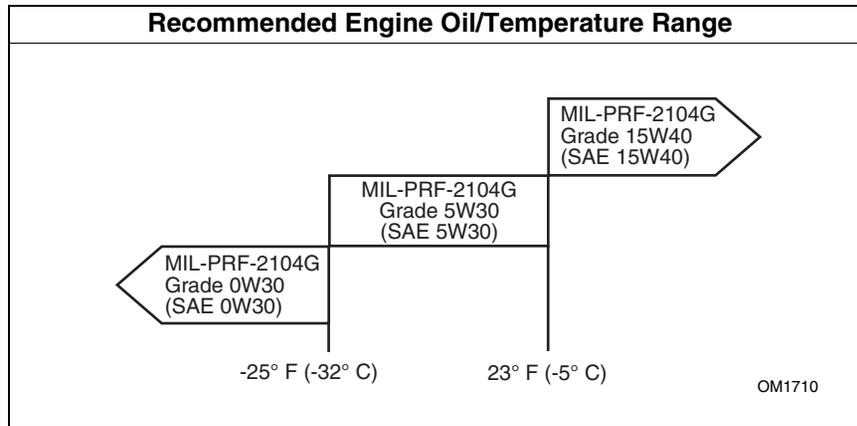


16. Allow the engine to cool. Check the radiator coolant level again and top off with 50/50 mixture of ethylene glycol and water. Replace the radiator cap.
17. The overflow bottle should be 1/4 to 1/2 full. If not, fill to this level with 50/50 mixture of ethylene glycol and water.

MMV OPERATOR TRAINING PROGRAM

Engine Oil and Filter

Engine Oil Recommendations



The use of quality engine oil combined with the appropriate oil and filter change intervals are critical factors in maintaining engine performance and durability.

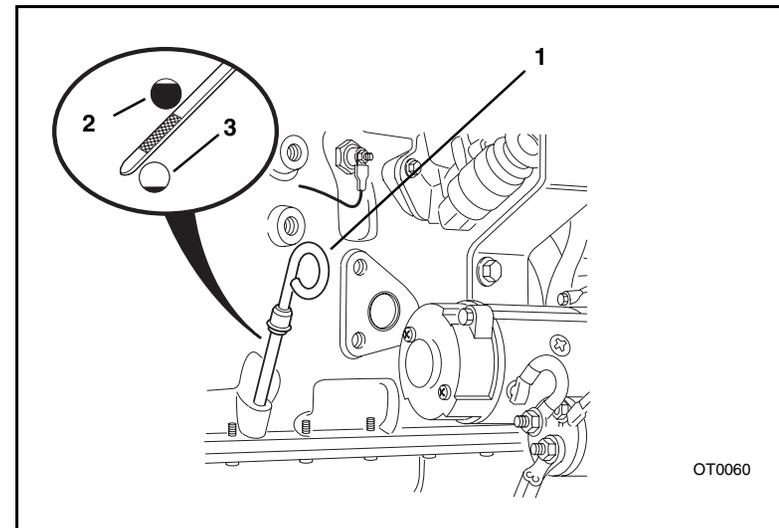
Refer to the "Recommended Engine Oil/Temperature Range" chart above for the type of oil recommended for specific temperature ranges.

A. Oil Level Check

(10 Hour Intervals)



1. Level the vehicle, ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Unlatch and open the engine cover.
3. Remove the engine dipstick (1). Check the oil mark on the dipstick. The oil should be between the full (2) and add (3) marks within the cross-hatched area of the dipstick.
4. Add oil if necessary. Replace the dipstick.



MMV OPERATOR TRAINING PROGRAM

Oil and Filter Change

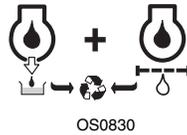
(First 50 Hours)
(250 Hour Intervals)



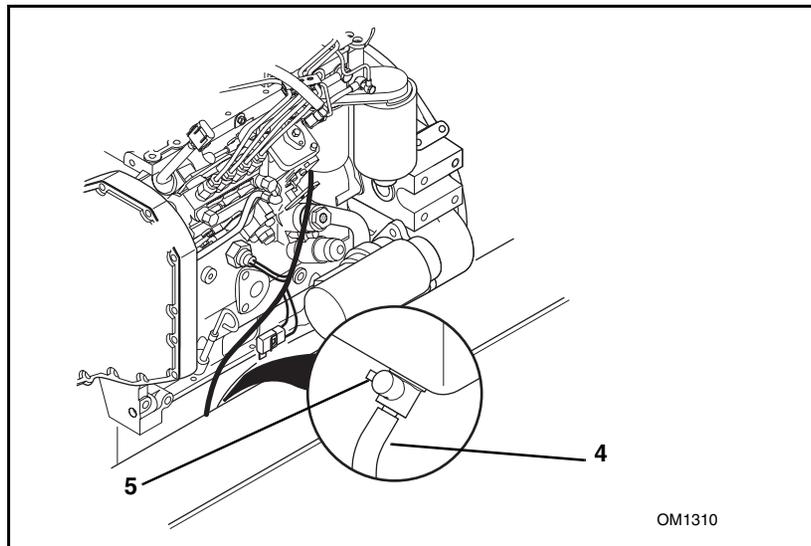
OH2670



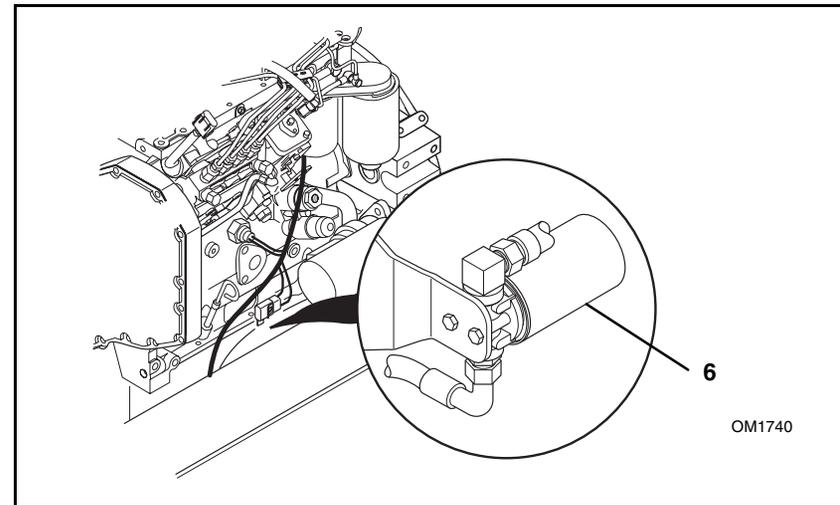
OH2710

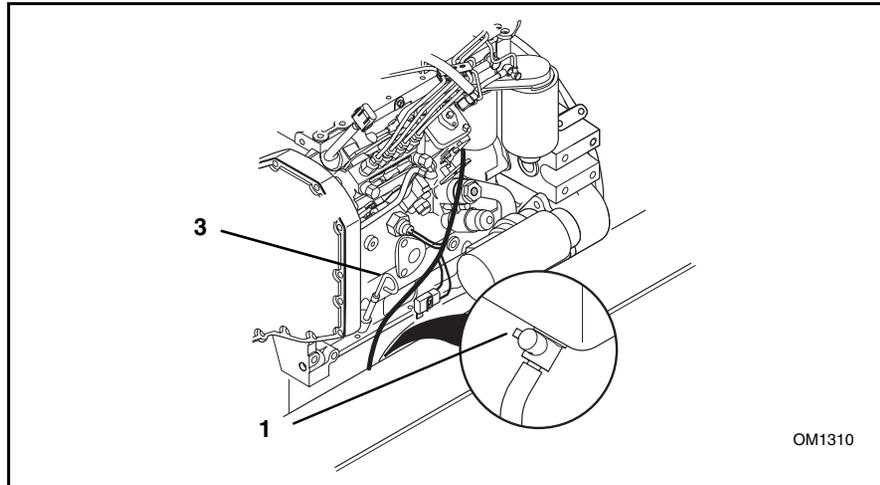


1. Operate the engine until warm (approximately 5 minutes).
2. Level the vehicle, ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, come to a complete stop, engage the parking brake switch and shut off the engine.
3. Unlatch and open the engine cover.
4. Place a receptacle under the engines oil pan drain hose (4). The hose is located under the engine up behind the hydraulic oil reservoir.
5. Lift the petcock lever (5) up and turn counterclockwise to OPEN and drain the oil from the engine oil pan.
6. Allow the oil to drain completely into the receptacle. Transfer the oil to a container with a cover and label the container as used motor oil. Dispose of properly.

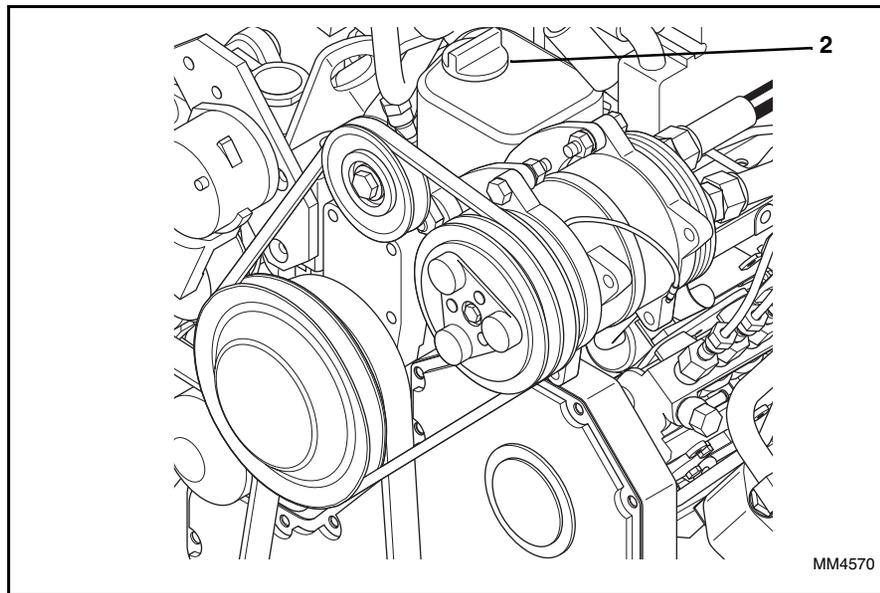


7. Remove the oil filter (6) and clean the filter sealing surface. The oil filter is remotely mounted on a bracket under the frame, in front of the transfer box. Access the filter from under the vehicle.
8. Apply a thin coat of clean engine oil to the new filter mating surface.
9. Install the new oil filter and hand tighten. Use an oil filter wrench or strap to tighten the filter down another 1/4 to 1/2 turn.





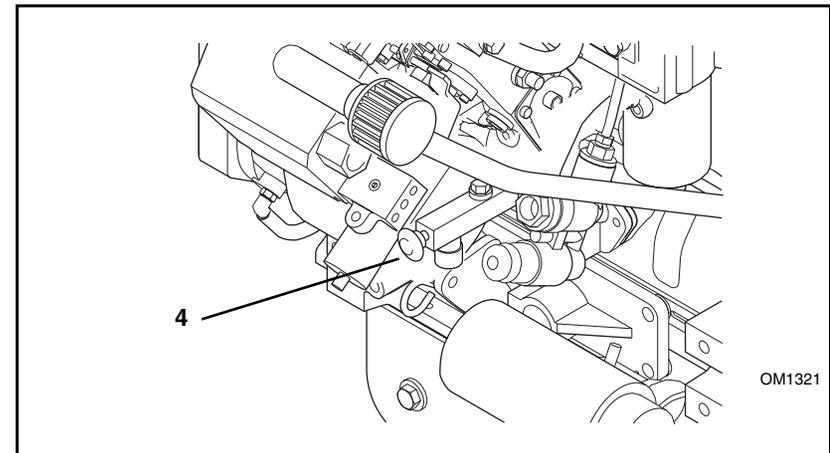
10. Turn the oil drain petcock lever (1) clockwise and lock into the CLOSED position. The petcock lever is spring loaded and will lock in the CLOSED position.



11. Remove the engine oil fill cap (2) and add oil. Refer to the "Recommended Engine Oil/Temperature Range" on page 12 for proper oil to use. (Refer to engine manufacturers manual for recommended oil type for various conditions.) Engine oil capacity with filter change is 13.3 quarts (12,6 liters).
12. Reinstall oil fill cap (2). Start engine and allow to run for several minutes.
13. Shut off engine. Wait several minutes and check the oil level on the dipstick (3). Add oil if necessary. **DO NOT** overfill.
14. Look for oil leaks at the filter and oil pan drain. Tighten if necessary.

C. Engine Oil Sample Point

1. Unlatch and open the engine hood.
2. Locate the oil sample valve (4) on the side of the engine.
3. After oil sample has been taken, close and latch the engine hood.



Engine Fuel System

Drain water from fuel water separator/filter (10 Hour Intervals)



Unlatch and open the engine cover. Loosen the drain cock (2) on the underside of the fuel filter (3) and allow all the water to drain into a container until clear fuel is visible. Dispose of properly. Tighten drain cock after draining. Close and lock engine cover.

Change Fuel Filter (500 Hour Intervals)

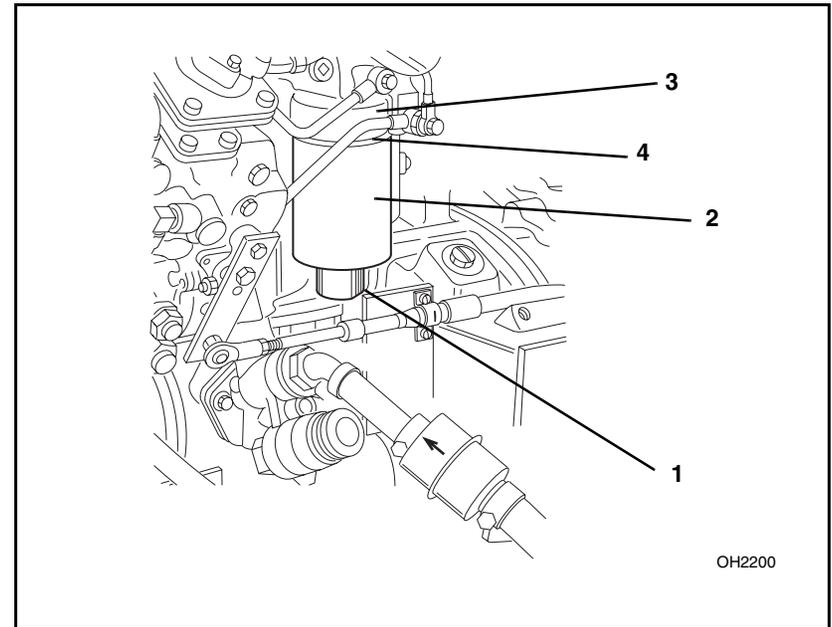


The fuel filter (1) must be changed at shorter intervals with evidence of water or contaminated fuel.

1. Unlatch and open the engine cover.
2. Clean around the fuel filter head (2).
3. Unscrew the fuel filter and dispose of properly.
4. Clean the gasket surface (3) of the filter head and replace the o-ring.
5. Fill the new fuel filter with clean No. 2 diesel fuel. Alternate fuels can also be used. They are: JP-5, JP-8 or Jet A-1.
6. Lubricate the o-ring seal with clean No. 2 diesel fuel. Alternate fuels can also be used. They are: JP-5, JP-8 or Jet A-1.
7. Install the fuel-filled filter and hand tighten. **DO NOT** overtighten.

NOTE: Mechanical over-tightening may distort the threads or damage the sealing ring.

8. Close and latch the engine cover.



MMV OPERATOR TRAINING PROGRAM

Controlled venting is provided at the injection pump through the fuel drain manifold. Small amounts of air introduced by changing the fuel filter element will be vented automatically as long as the element was filled with fuel prior to installation.

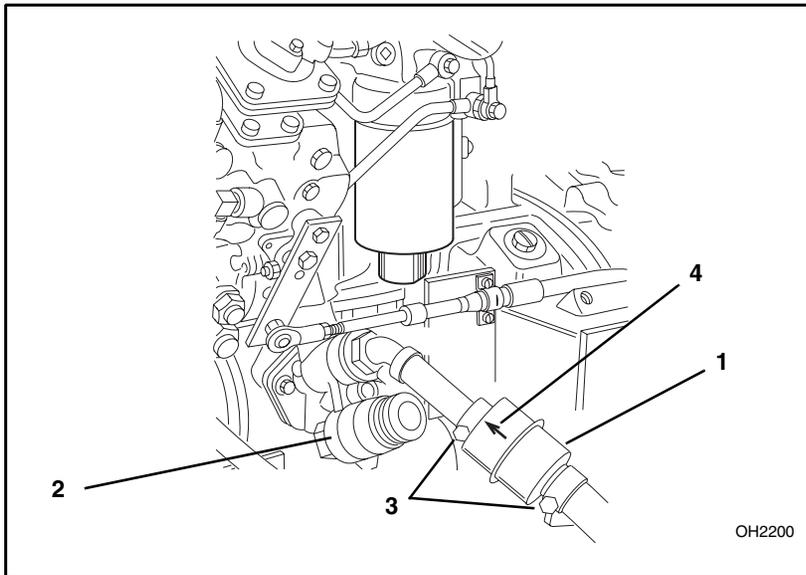
C. Replace In-line Fuel Strainer

(500 Hour Intervals)



OT1150

1. Unlatch and open the engine cover.
2. The fuel strainer (1) is located down line from the engines lift pump (2). Loosen the two hose clamps (3) that secure the strainer in place.
3. Remove the old strainer and dispose of properly.
4. Install the new strainer with arrow (4) pointing toward the lift pump.
5. Assemble the hoses to the strainer and tighten the hose clamps.
6. Remove air from the fuel system.
7. Close and latch the engine cover.



MMV OPERATOR TRAINING PROGRAM

D. Bleeding Fuel System

Air must be vented from the fuel system whenever any component between the fuel tank and the injection pump has been disconnected, or when the system has been emptied or run out of fuel.



WARNING: DO NOT bleed the fuel system of a hot engine. Doing so could create a fire hazard. Allow the engine to cool before bleeding the fuel system.

IMPORTANT! DO NOT attempt to start the engine until the injection pump has been filled and primed with fuel. Serious damage to the lift pump will result due to lack of proper lubrication.

1. To vent the low pressure lines and fuel filter, open the vent screw (5) located on the filter head.
2. Operate the hand plunger (6) on the lift pump (2) until fuel flowing from the fitting is free of air.
3. Tighten the vent screw (5) and torque to 7 lb/ft (9 Nm).

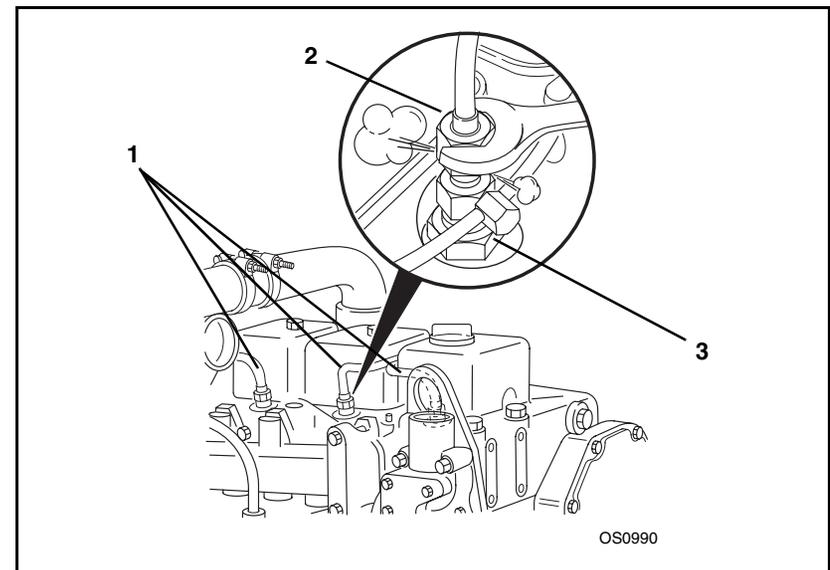
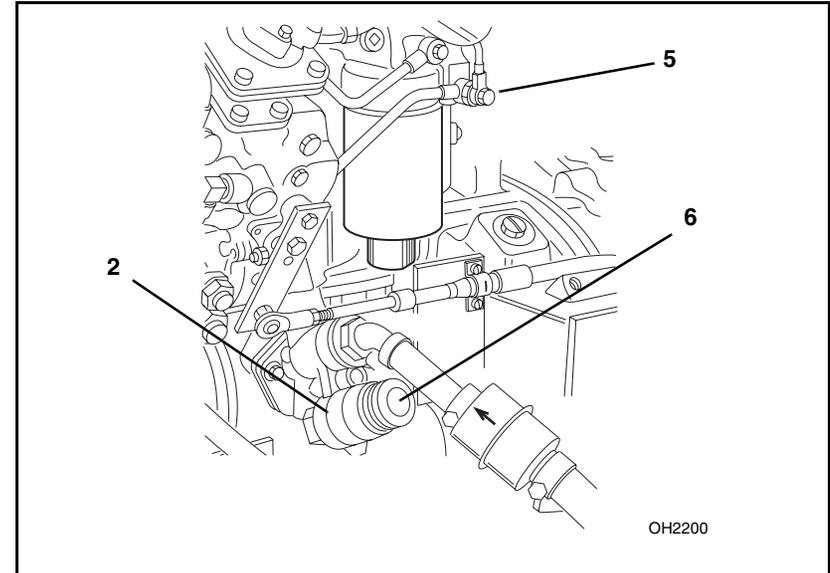
The process to vent the high pressure fuel lines involves energizing the starter motor to rotate the crankshaft which will, in turn, pump any unwanted air from the fuel lines.

CAUTION: When using the starting motor to vent the fuel system, DO NOT energize the starter solenoid or crank the engine for more than 15 seconds at a time; wait two minutes between engagements.



WARNING: KEEP CLEAR of spraying fuel. Fuel can spray when venting high pressure lines. The fuel pressure is sufficient to penetrate the skin and cause serious bodily injury. Wear protective clothing and safety glasses.

4. To vent the high pressure fuel lines (1), loosen one fitting (2) at the injector (3).
5. Turn the ignition to the START position and crank the engine for a maximum of 15 seconds or until fuel, free of air, comes out of the injector fitting.
6. Tighten the fitting. Torque to 22 lb/ft (30 Nm).
7. Repeat Steps 4-6 for each fitting until the engine runs smoothly.
8. With the engine running, visually check for leaks. Turn ignition switch OFF.



MMV OPERATOR TRAINING PROGRAM

Engine Fan Belt

Engine Fan Belt Check

(1000 Hour Intervals)

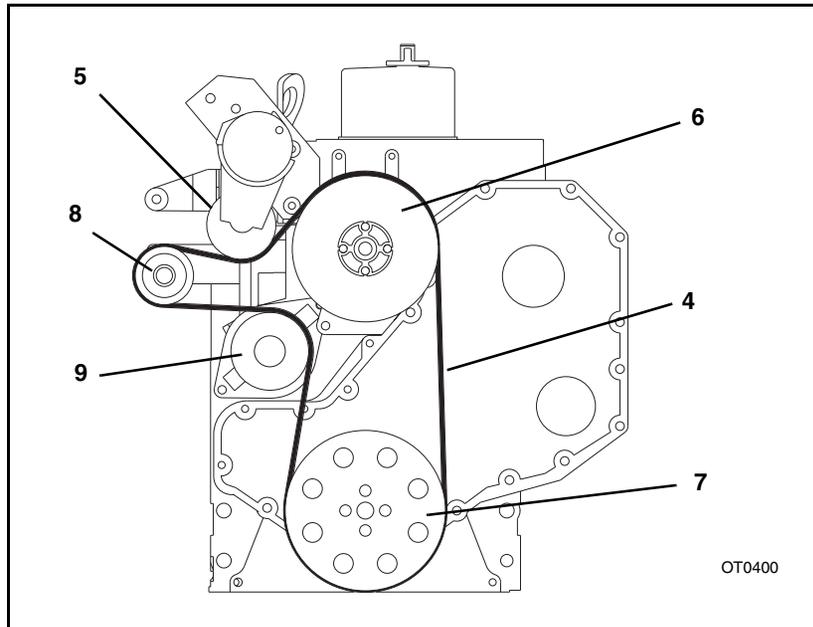


OH2690



OS0880

1. Ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Unlatch and open the engine cover.
3. Inspect the fan belt (4). Replace if cracked or frayed.
4. This engine is equipped with an automatic belt tensioner (5). Inspect the tensioner bearing. Spin the bearing and check for rough spots under hand pressure.
5. Spin the fan and check for wobble or excessive play. Maximum play should be .006 inch (0,15 mm).
6. To install the fan belt (4); first position the belt over the fan pulley (6), crankshaft pulley (7), alternator pulley (8) and then, while holding up the tensioner (5), slide the belt over the water pump pulley (9).
7. Close and latch the engine cover.



Air Conditioner Compressor Belt

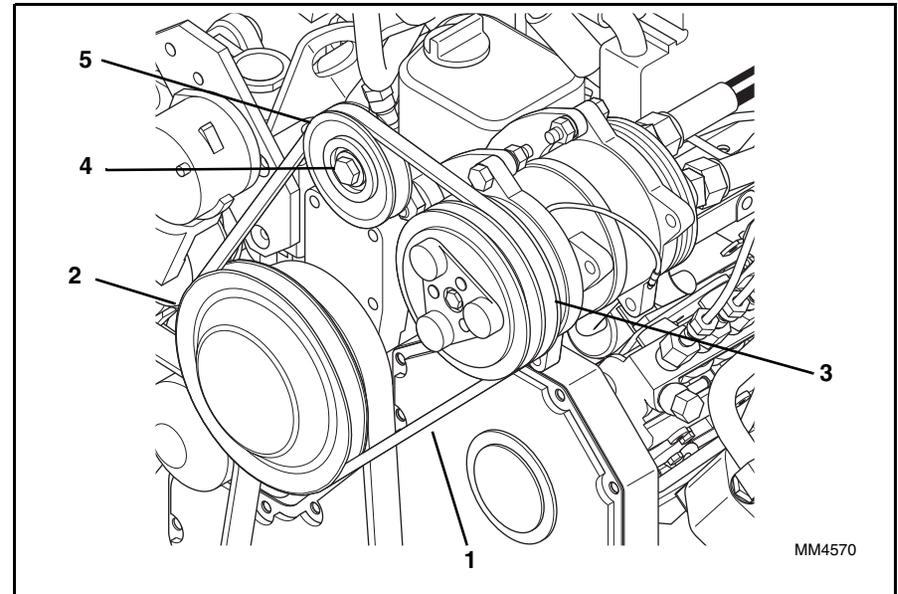
Engine Fan Belt Check

(1000 Hour Intervals)



OH2690

1. Ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Unlatch and open the engine cover.
3. Inspect the air conditioner compressor belt (1). Replace if cracked or frayed.
4. Check the tension of the belt midway between the fan pulley (2) and the compressor pulley (3). The belt deflection should be 3/16" (4,8 mm) with an applied force of 5-1/2 lb (2,5 kg).
5. Adjust the tension on the belt by loosening the bolt (4) on the belt tensioning pulley (5). Reposition the belt tensioning pulley and securely tighten the bolt.
6. Close and latch the engine cover.



MMV OPERATOR TRAINING PROGRAM

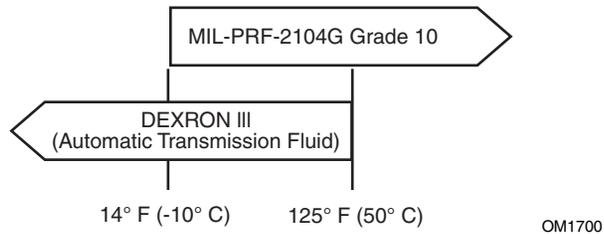
Hydraulic Oil and Filter

Hydraulic Oil Level Check

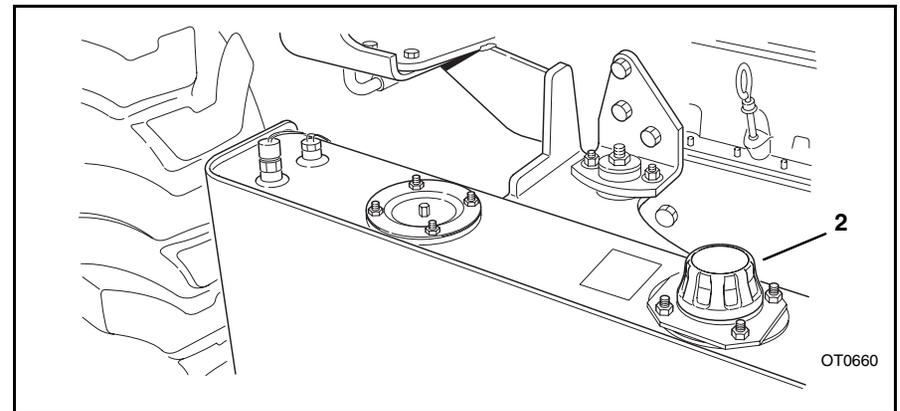
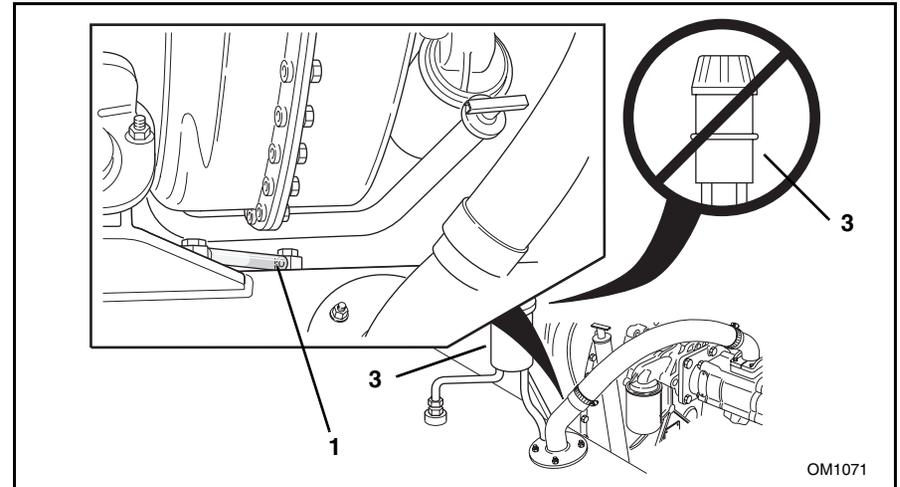
(10 Hour Intervals)



Recommended Hydraulic Oil/Temperature Range



1. Level the vehicle, ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position and engage the parking brake switch.
2. Fully retract all hydraulic cylinders and shut off the engine.
3. Unlatch and open the engine cover.
4. Allow the hydraulic oil to cool.
5. Locate the sight glass (1) along the vertical wall of the hydraulic tank. Check the level of the hydraulic oil in the tank. The oil level should be in the upper 2/3 to 3/4 of the sight glass when oil is cold and all cylinders retracted. If oil is not visible, remove the hydraulic oil fill cap (2) and add hydraulic oil until the oil level is visible in the upper 2/3 to 3/4 of the sight glass. Refer to the "Recommended Hydraulic Oil/Temperature Range" chart above. **DO NOT** overfill. **DO NOT** add oil through the hydraulic oil tank breather (3) located beside the suction hose fitting.
6. Reinstall the hydraulic oil fill cap (2).
7. Close and latch the engine cover.



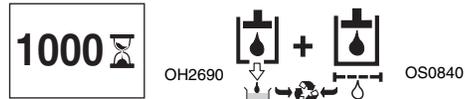
MMV OPERATOR TRAINING PROGRAM

Hydraulic Oil & Filter Change

(First 50 Hours - Filter Only)



(1000 Hour Intervals - Oil & Filter)



Change the hydraulic oil filter after the first 50 hours of operation and change the hydraulic oil and filter every 1000 hours of operation thereafter. The hydraulic filter must be changed anytime the hydraulic oil filter restriction warning indicator light begins to flicker on and off at a high idle. See display panel for the location of this light.

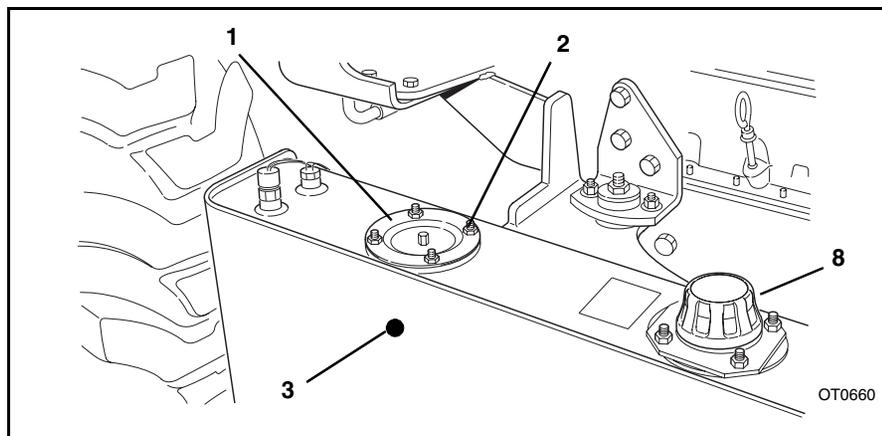
1. Level the vehicle, ground the carriage, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position and engage the parking brake switch.
2. Fully retract all hydraulic cylinders and shut off the engine.
3. Unlatch and open the engine cover. Allow the oil to cool.

MMV OPERATOR TRAINING PROGRAM

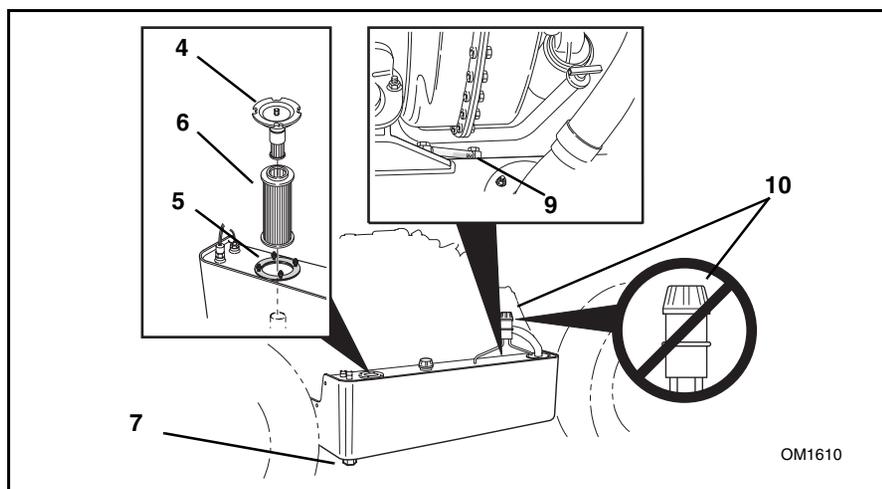


WARNING: DO NOT change the hydraulic oil or filter with the engine running. Contact with moving parts can cause death or serious personal injury.

4. Clean around the hydraulic filter head (1). Loosen but do not remove the nuts (2) that secure the filter head to the hydraulic tank (3).



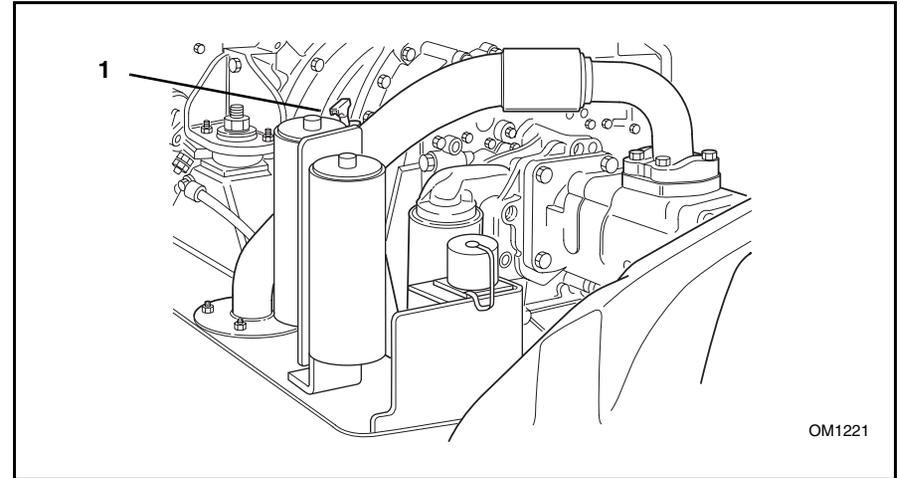
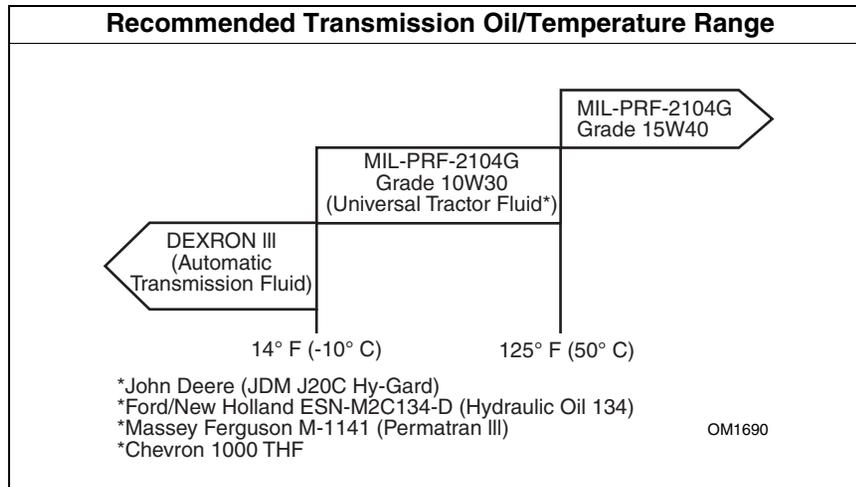
5. Rotate and remove the filter head (4).
6. Remove the seal (5) and the element (6) from the filter head (4). Dispose of properly.
7. Clean the filter head sealing surface.



8. Place a receptacle under the hydraulic reservoir magnetic drain plug (7). The receptacle must be large enough to hold 30 gallons (113 liters) of oil. Remove the magnetic drain plug and allow the oil to drain into the receptacle. Clean any loose particles attached to the drain plug. Transfer the oil to a container with a cover and label the container as used oil. Dispose of properly.
9. Re-install the magnetic drain plug (7) into the reservoir.
10. Re-install the top seal (5) and push a new filter element (6) all the way onto the filter head (4) until it seats. Slide the assembly into the reservoir and secure.
11. Remove the fill cap (8) located toward the center of the hydraulic reservoir. Refer to the "Recommended Hydraulic Oil/Temperature Range" chart and fill with hydraulic oil until the oil level is in the upper 2/3 to 3/4 of the sight glass (9) when oil is cold and all cylinders retracted. Reservoir capacity is 28.5 gallons (108 liters). Re-install the fill cap (8). **DO NOT** add oil through the hydraulic oil tank breather (10) located beside the suction hose fitting.
12. Close and latch the engine cover.
13. Run vehicle and operate all hydraulic functions. Cycle all modes of controls to purge air from the system.
14. Check for leaks.

MMV OPERATOR TRAINING PROGRAM

Transmission Oil and Filter



Transmission Oil Level Check

(10 Hour Intervals)



1. Level the vehicle, ground the carriage, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position and engage the parking brake switch.
2. Check the transmission oil level with the engine at idle and the oil at normal operating temperature.
3. Remove the transmission dipstick (1). Check oil level.
4. Add oil to transmission as required to bring the level up to the full mark. Refer to "Recommended Transmission Oil/Temperature Range" Chart above for proper oil.

MMV OPERATOR TRAINING PROGRAM

Transmission Oil & Filter Change

(First 50 Hours)

1st
50



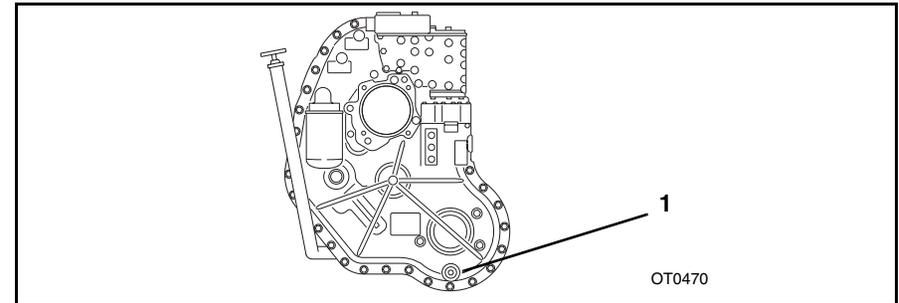
(1000 Hour Intervals)

1000

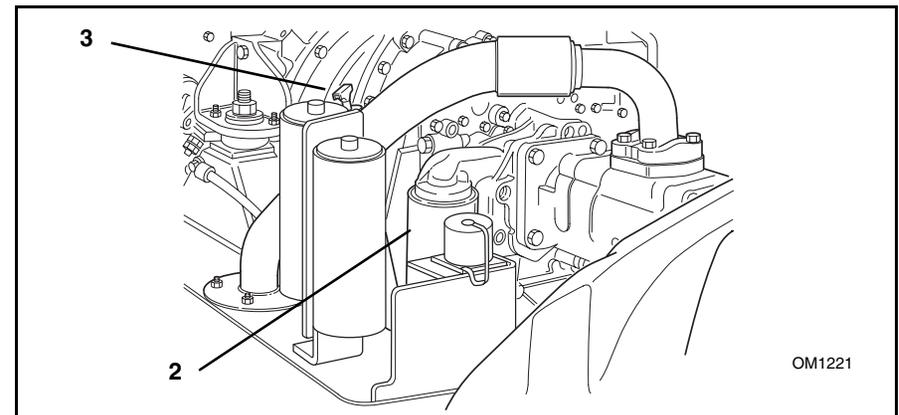


1. Level the vehicle, ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Unlatch and open the engine cover. Allow the engine and transmission to cool.

3. Place a receptacle under the transmission drain plug (1). Remove the drain plug and allow the oil to drain into the receptacle. Transfer the used oil into a suitable container with a cover and label the container as used oil. Dispose of properly.



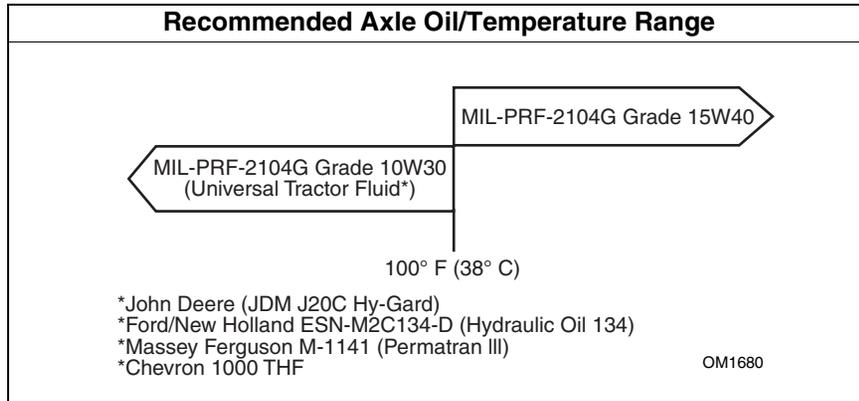
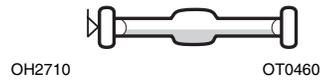
4. Clean and re-install the drain plug into the transmission housing.
5. Remove the filter (2) and dispose of properly. Clean the mating surface where the filter mounts.
6. Apply a thin film of clean oil to the new filter gasket. Carefully install a new filter.
7. Remove the dipstick (3) and fill with oil approximately 12 quarts (11,4 liters). Refer to "Recommended Transmission Oil/Temperature Range" Chart. Re-install the dipstick.



8. Check the transmission level and add oil as required following the procedures outlined in "Transmission Oil Level Check".
9. Close and latch the engine cover.

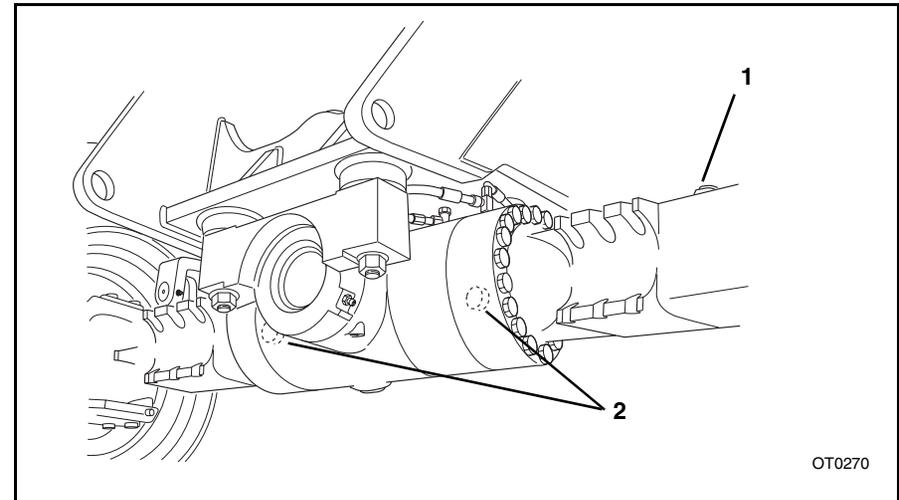
MMV OPERATOR TRAINING PROGRAM

Axle Oil Level Check (250 Hour Intervals)



1. Level the vehicle, ground the carriage, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.

2. Clean the area around the axle fill plug (1) and the axle level plugs (2) and remove the plugs from the axle housing.
3. Add oil to bring the oil level up and even with the level plug holes. Refer to the "Recommended Axle Oil/Temperature Range" Chart for proper oil.
4. Re-install the axle fill plug (1) and the axle level plugs (2).



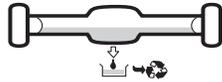
MMV OPERATOR TRAINING PROGRAM

Axle Oil Change

(First 50 Hours)



OH2670



OT0440

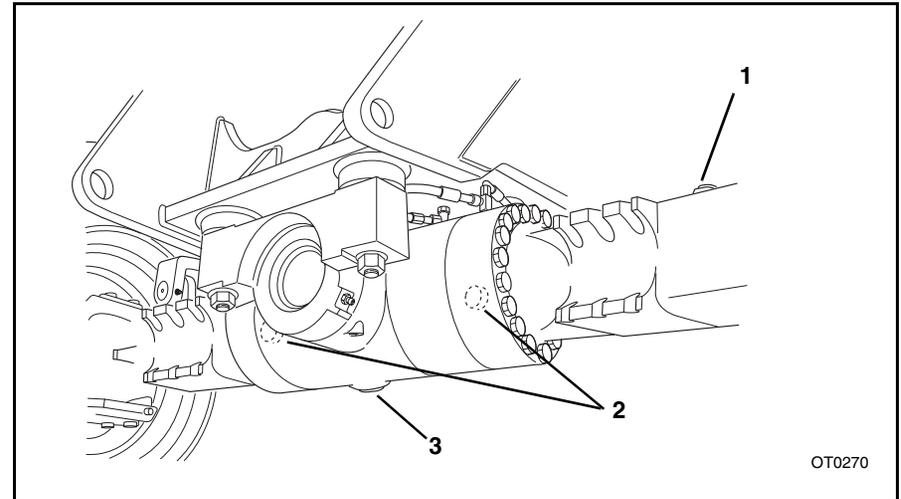
(1000 Hour Intervals)



OH2690

NOTE: At the 1000 Hour Interval Oil Change also inspect the brake disk wear. Refer to “Brake Disk Inspection” and follow the inspection procedure. After brake disk inspection is complete, reassemble the level plugs using new o-rings.

1. Level the vehicle, ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Clean the area around the axle drain plug (3), the axle fill plug (1) and the axle level plugs (2).
3. Place a receptacle under the axle drain plug (3). Remove the plug from the axle housing and allow the oil to drain completely.
4. Transfer the oil to a container with a cover and label the container as used oil. Dispose of properly.
5. Clean off the axle drain plug (3) and re-install. Remove the axle fill plug (1) and the axle level plugs (2) from the axle housing. Check brake disk wear at this time. Refer to “Brake Disk Inspection..
6. Fill the axle with oil through the axle fill hole until the oil level is even with the axle level holes (2). Refer to the “Recommended Axle Oil/ Temperature Range” Chart for proper oil. The axle capacity is 10.5 quarts (10 liters). Fill axle slowly, the oil has to run across the differential. Allow time for the oil to run across the differential. Axle level is correct when oil is up to both level plugs (2).
7. Reassemble the level plugs (2) using new o-rings.
8. Re-install the axle fill plug (1) into axle housing.

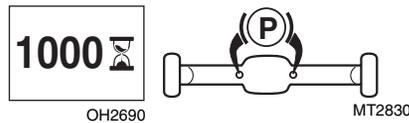


OT0270

MMV OPERATOR TRAINING PROGRAM

Brake Disk Wear Check

(1000 Hour Intervals)



Check the brake disks for wear every 1,000 hours of operation or yearly.

If the brake disks require service due to wear, the axle should be checked, serviced and repaired only by experienced service technicians who are aware of all safety instructions and particular component features.

A. Front Axle



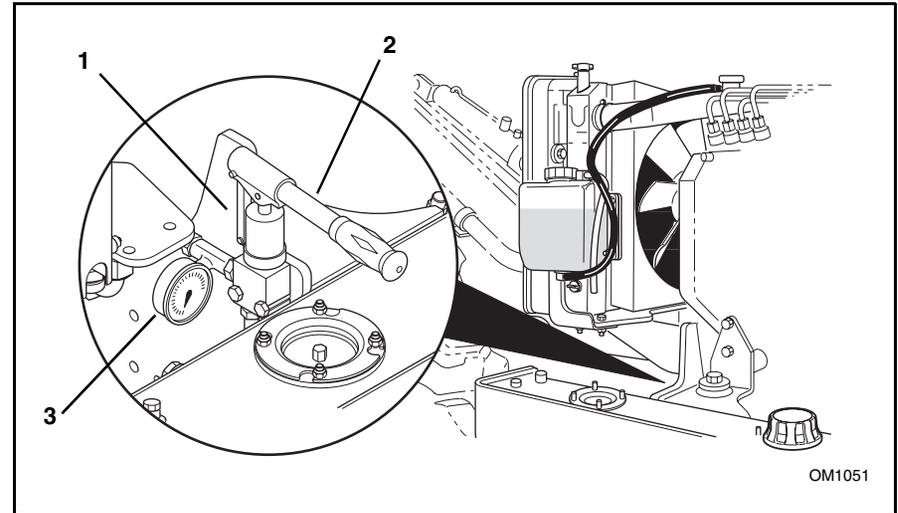
WARNING: BLOCK ALL FOUR WHEELS. Failure to do so could result in death or serious injury from vehicle roll-away.

1. **Block all four wheels** to help prevent the vehicle from moving after the parking brake is disabled.
2. Turn the ignition switch to the ON position (with the engine not running), release the parking brake switch, and have the operator seated in the seat.

NOTE: With the ignition switch in the ON position, the low brake pressure buzzer will sound continuously until the inspection procedure is complete and ignition switch turned to the OFF position.

3. Unlatch and open the engine compartment cover.
4. Locate the emergency towing pressurizing valve (1) located under the radiator on the mounting bracket.
5. Use the handle (2) on the emergency towing valve to pump pressure into the system. Watch the pressure gauge (3) while pumping pressure into the park brake system. **DO NOT** exceed 650 psi (45 bar).

CAUTION: DO NOT exceed 650 psi (45 bar) when pressurizing the park brake. Applying too much pressure may damage the brake seals.

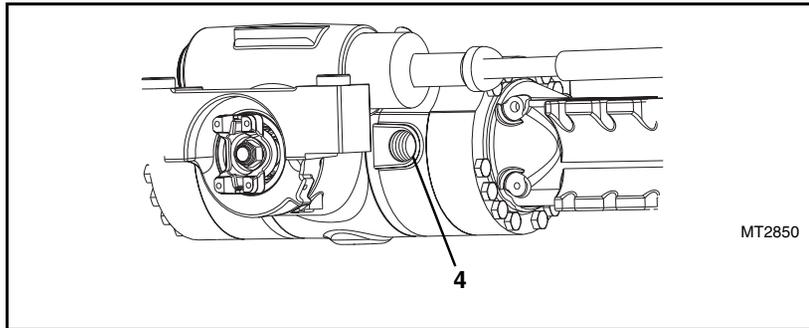


OM1051

MMV OPERATOR TRAINING PROGRAM

- Working through the level plug hole (4), carefully use a screwdriver to spread the brake disks apart.

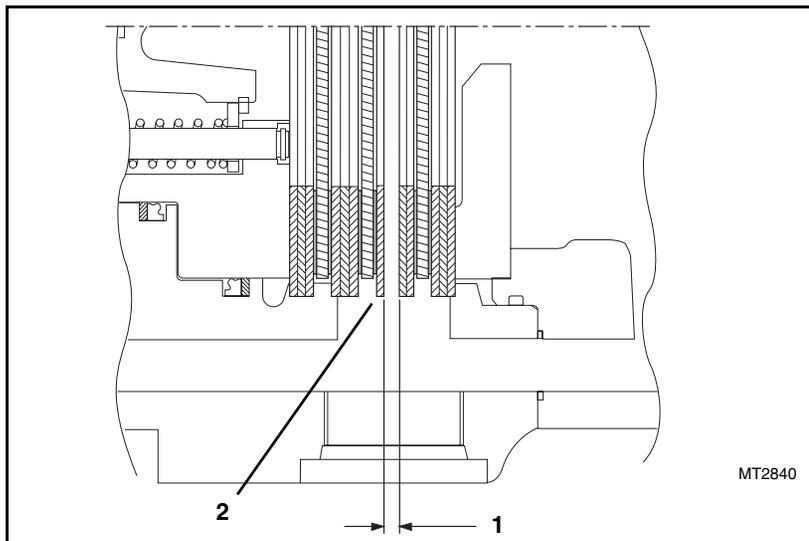
IMPORTANT! DO NOT damage the surfaces of the brake disks when spreading the brake disks.



- Using a feeler gauge, check the gap (1) between the brake disks (2). If the gap is greater than .26" (6,75 mm), replace the brake disks.

NOTE: If the brake disks are worn beyond .26" (6,75 mm), the brake disk must be replaced on both sides of the axle at the same time.

- Repeat step 6 and step 7 for the other side of the axle.
- Continue with Step 6 of "Axle Oil Change."

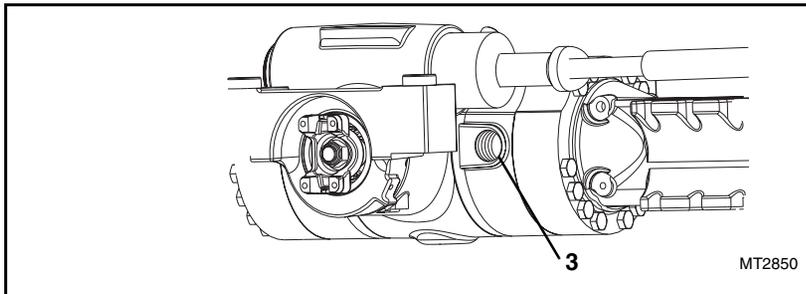


MMV OPERATOR TRAINING PROGRAM

Rear Axle

1. Working through the level plug hole (3), carefully use a screwdriver to spread the brake disks apart.

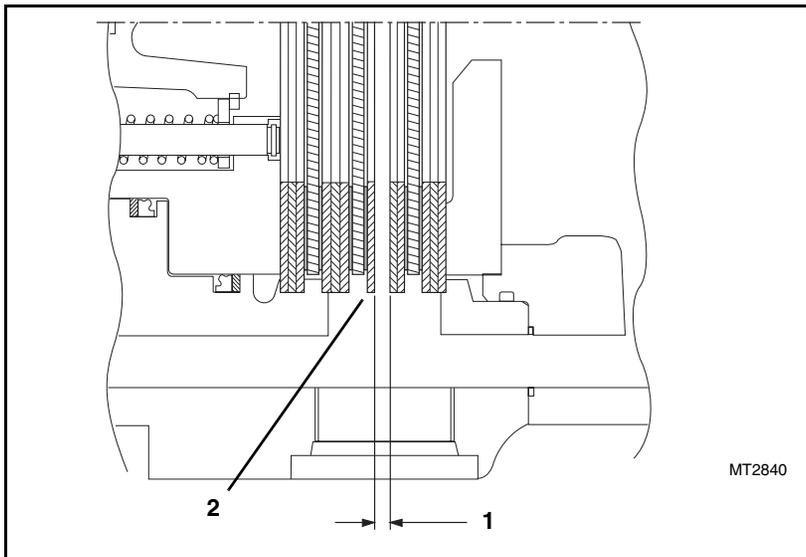
IMPORTANT! DO NOT damage the surfaces of the brake disks when spreading the brake disks.



2. Using a feeler gauge, check the gap (1) between the brake disks (2). If the gap is greater than .167" (4,25 mm), replace the brake disks.

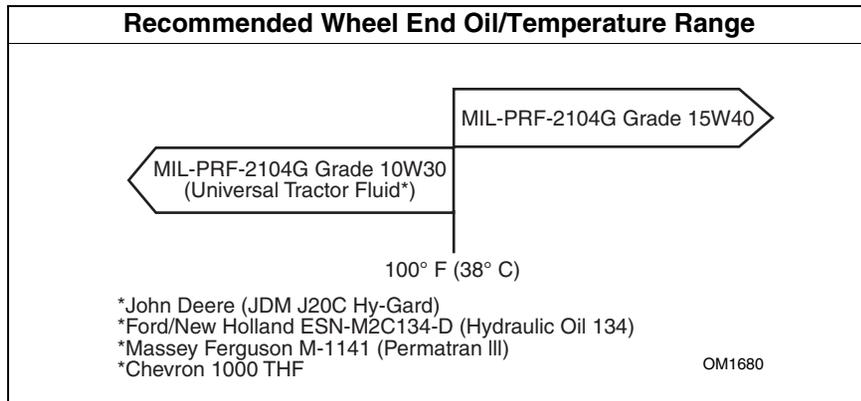
NOTE: If the brake disks are worn beyond .167" (4,25 mm), the brake disk must be replaced on both sides of the axle at the same time.

3. Repeat step 1 and step 2 for the other side of the axle.
4. Continue with Step 6 of "Axle Oil Change."



Wheel End Oil

WARNING: DO NOT perform service or maintenance on this vehicle with the engine running. Contact with moving parts can cause death or serious personal injury.



Wheel End Oil Level Check

(250 Hour Intervals)



OH2710

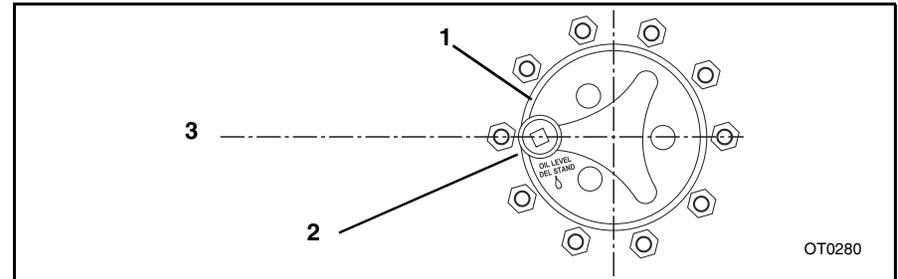


OT0430

1. Position the vehicle on level ground, move the vehicle forward or backward enough to ensure that the lower edge of the wheel end (1) fill/drain plug hole (2) is positioned horizontally (3).
2. Ground the carriage, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.

4. Add oil to bring the oil level up and even with the plug hole. Refer to the "Recommended Wheel End Oil/Temperature Range" Chart for proper oil.

5. Clean and re-install the wheel end fill/drain plug (2).

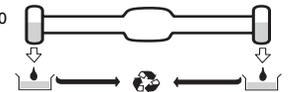


B. Wheel End Oil Change

(First 50 Hours)



OH2670



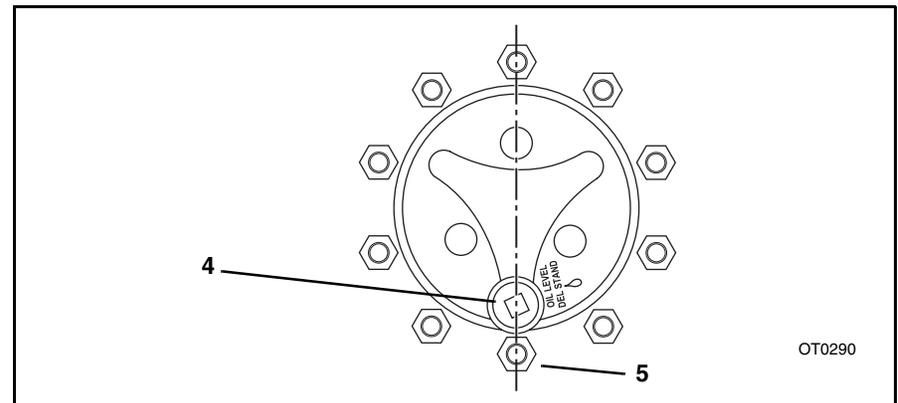
(1000 Hour Intervals)



OH2690

OT0450

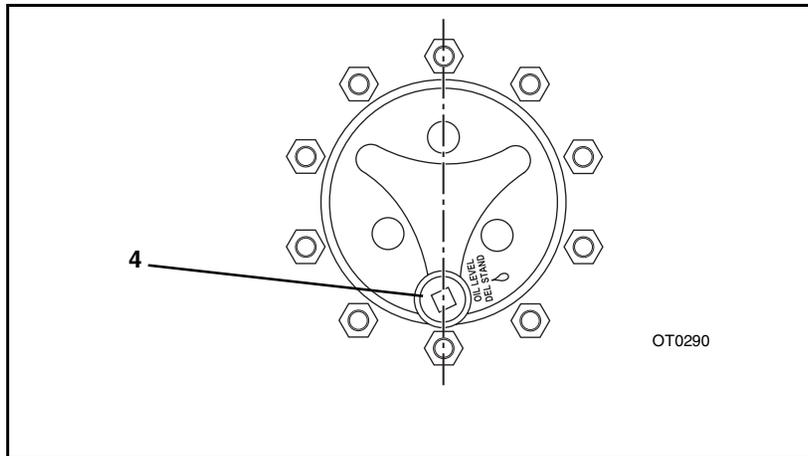
1. Position the vehicle on level ground, move the vehicle forward or backward enough to ensure that the wheel end fill/drain plug (4) is in the 6 o'clock position (5).



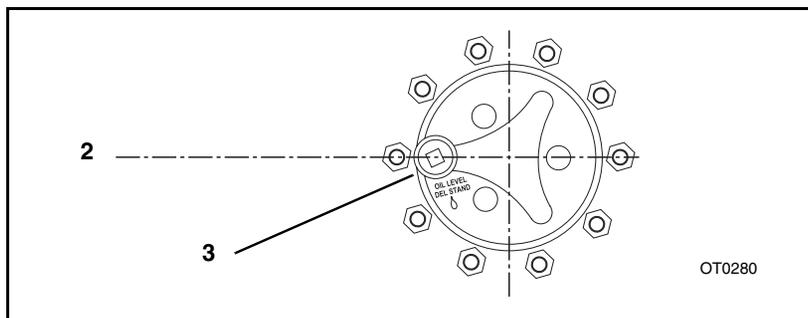
2. Ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.

MMV OPERATOR TRAINING PROGRAM

3. Clean the area around the wheel end fill/drain plug (1). Slowly loosen the plug. Hold a receptacle under the wheel end and remove the plug from the wheel end.

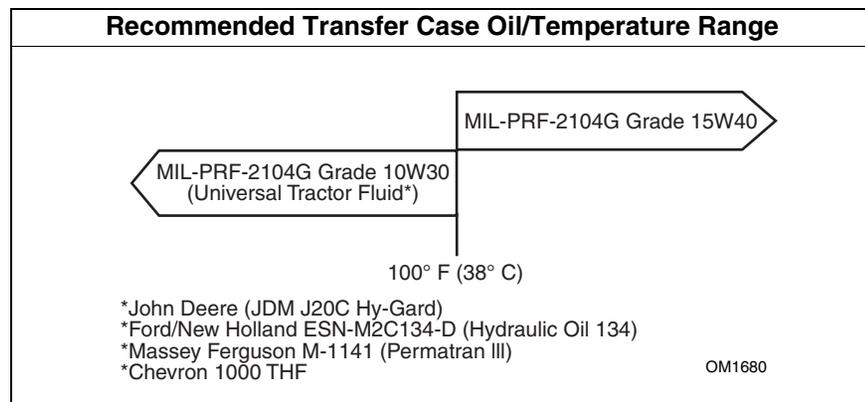


4. Allow the oil to drain completely into the receptacle. Transfer the oil to a container with a cover and label the container as used oil. Dispose of properly.
5. Reposition the vehicle so the wheel end fill/drain plug is positioned horizontally (2).
6. Fill the wheel end with oil to the level of the drain plug (3). Refer to the "Recommended Wheel End Oil/Temperature Range" Chart for proper oil. Wheel end capacity is approximately 1.3 quarts (1,2 liters).
7. Clean and re-install the wheel end fill/drain plug (3).



MMV OPERATOR TRAINING PROGRAM

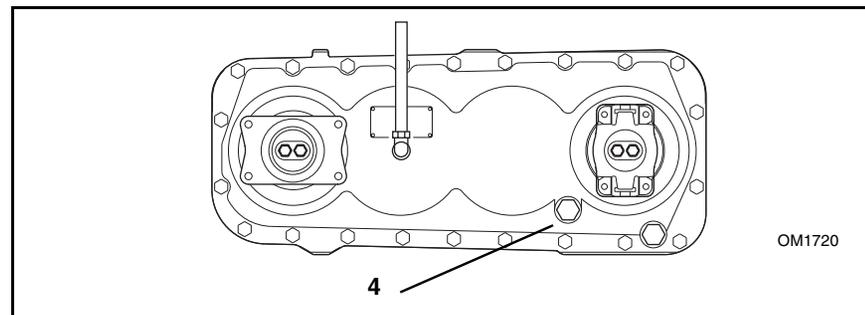
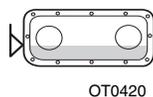
Transfer Case Oil



Transfer Case Oil Level Check

(250 Hour Intervals)

1. Place the vehicle on level ground, ground the attachment, level the vehicle, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Clean the area around the transfer case oil fill/level plug (4).



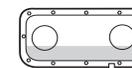
3. Remove the oil fill/level plug (1) from the transfer case (2) and check the oil level.
4. Add oil as required through the oil fill/level hole (1). Bring the oil level up and even with the oil fill/level plug hole. Refer to the "Recommended Transfer Case Oil" Chart above for proper oil.
5. Clean and re-install the oil fill/level plug (1).

Transfer Case Oil Change

(First 50 Hours)



OH2670



(1000 Hour Intervals)

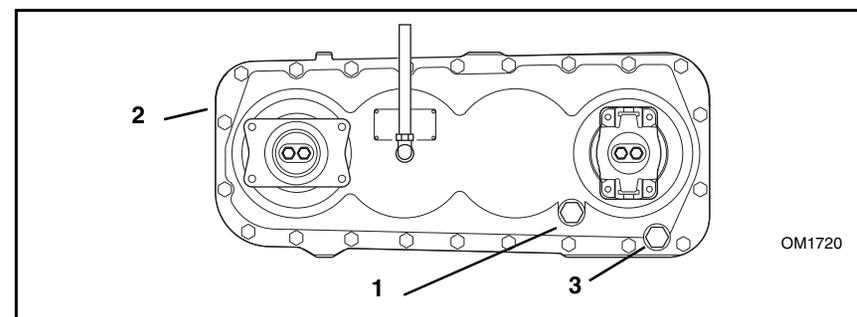


OH2690



OT0410

1. Place the vehicle on level ground, ground the attachment, level the vehicle, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Clean the area around the transfer case oil fill/level plug (1) and the oil drain plug (3).
3. Place a receptacle under the transfer case drain plug.
4. Remove the drain plug (3) from the transfer case (2).
5. Allow the oil to drain completely into the receptacle. Transfer the oil into a container with a cover and label as used oil. Dispose of properly.
6. Clean and re-install the transfer case drain plug (3).
7. Remove the oil fill/level plug (1).
8. Fill the transfer case with oil through the oil fill/level hole (1). Fill until the level is up to and even with the oil fill/level plug hole. Refer to the "Recommended Transfer Case Oil" Chart for proper oil. The transfer case capacity is 1.5 quarts (1,4 liters).
9. Clean and re-install the oil fill/level plug (1).



Wheels and Tires

Tire Air Pressure Check (10 Hour Intervals)



OH2660



OS0900



DANGER: LOW TIRE PRESSURE can result in tipover.
MAINTAIN proper tire pressure at all times.

Check all four tires:

1. Remove the valve stem cap.
2. Check tire pressure using a good quality gauge. You cannot tell if a tire is properly inflated simply by looking at it.
3. Add air if required. Fill the tire(s) to 87 psi (600 kPa).
4. Refer to “Emergency Tire Inflation System” for proper procedure as if a tire or tires must be filled with the vehicle away from a normal inflation system.
5. **DO NOT** overinflate.
6. Replace the valve stem cap.

Wheel Lug Nut Torque Check (First 50 Hours)

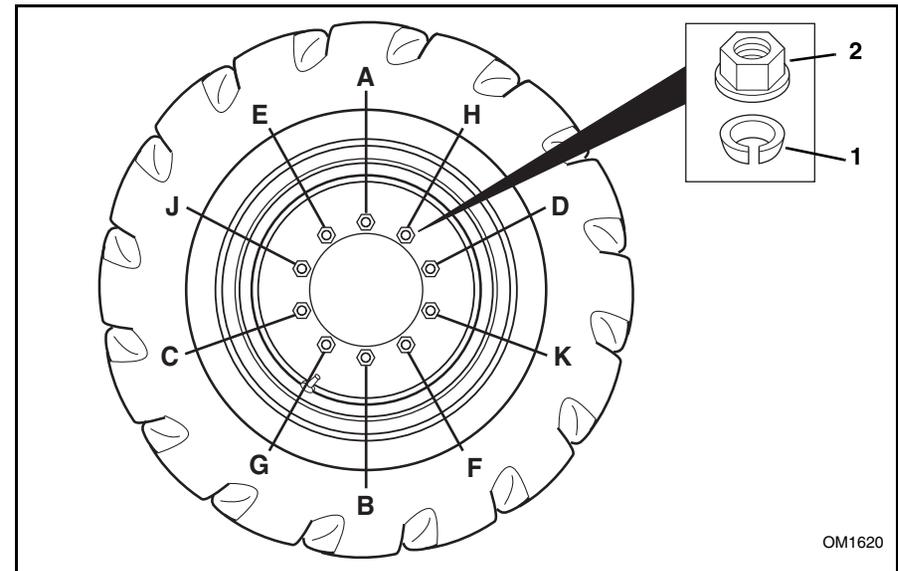


OH2670



OM1400

1. Wire brush the area around the lug nuts if necessary. There are separate lockwashers (1) under the lug nuts (2). Be sure the lockwashers are installed under each lug nut.
2. Using the torque sequence (A thru K) shown below, alternately check the torque of each of the ten lug nuts. The recommended torque should be 430-470 lb/ft (583-637 Nm).



OM1620

C. Replacing Tires



WARNING: Mis-matched tire sizes and star ratings may compromise vehicle stability and may result in vehicle tipover.

IMPORTANT! The specified size and star rating for this vehicle is 15.5R25, L-2, 2 Star. Make sure any replacement tire is of the same size and star rating. DO NOT use lower star rated tires on this vehicle.

MMV OPERATOR TRAINING PROGRAM

Emergency Tire Inflation System

Inspect Air Compressor

Intake Filter

(10 Hour Intervals)



OH2660

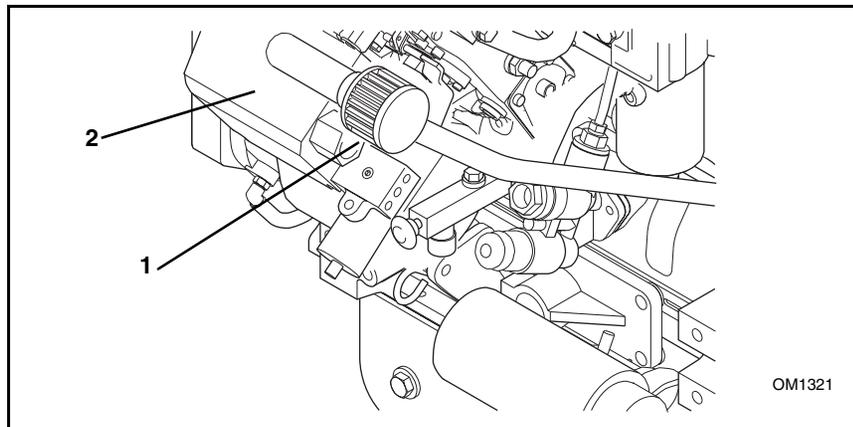


OM1580

NOTE: Shorten the maintenance interval if operating in extremely dusty conditions.

Inspect Air Intake Filter

1. Place the vehicle on level ground, ground the attachment, level the vehicle, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine.
2. Unlatch and open the engine hood.
3. Locate the air compressor intake filter (1) located on the air compressor (2).
4. Visually inspect the air filter. If the filter appears extremely dirty (wire mesh no longer visible), the filter element requires cleaning or replacement.

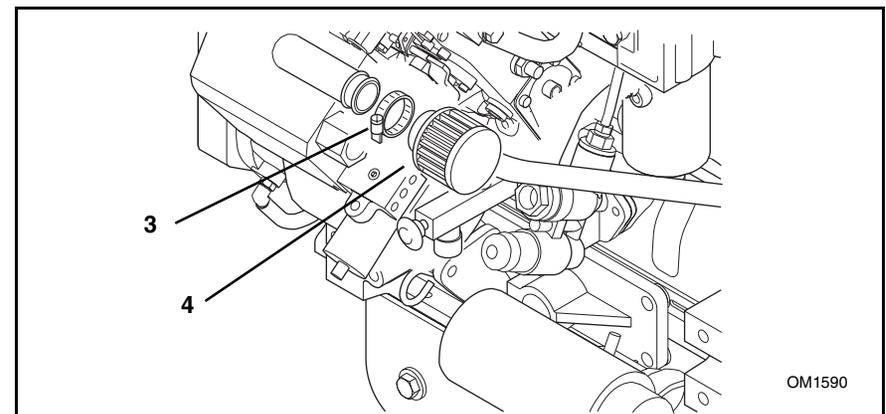


Air Intake Filter Assembly Cleaning

NOTE: The air intake filter assembly must be replaced after every 25 cleanings or if damaged.

To clean and recharge the filter you will require a filter cleaner/recharger kit. The kit can be ordered by calling OmniQuip Textron Parts Worldwide at (888) 872-5123 domestically or (262) 268-8958 internationally. This kit contains a 12 oz bottle of filter cleaner and a 6.5 oz spray can of oil.

1. Clean the area around the base of the intake filter assembly where it attaches to the air compressor.
2. Loosen the clamp (3) holding the intake filter assembly (4) to the air compressor and remove the filter assembly from the barbed fitting. Save the clamp for reassembly. If you are replacing the intake filter assembly, the clamp can be discarded.
3. Tap the filter assembly to dislodge any embedded dirt, then gently brush with a soft bristle brush.
4. Spray the outside of the filter assembly with filter cleaner from the filter cleaner/recharger kit. Let the filter soak for 10 minutes.
5. Thoroughly rinse the filter assembly from the inside out using water at low pressure. DO NOT use high pressure water to rinse the filter.
6. Shake off all excess water and allow the filter to dry naturally.
7. After cleaning the filter assembly always re-oil before using. Spray the air filter oil down into each pleat with one pass per pleat. Wait 10 minutes and re-oil any white spots showing.
8. Reassemble the filter (4) onto the barbed fitting and secure in place with the clamp (3). Tighten the clamp securely.



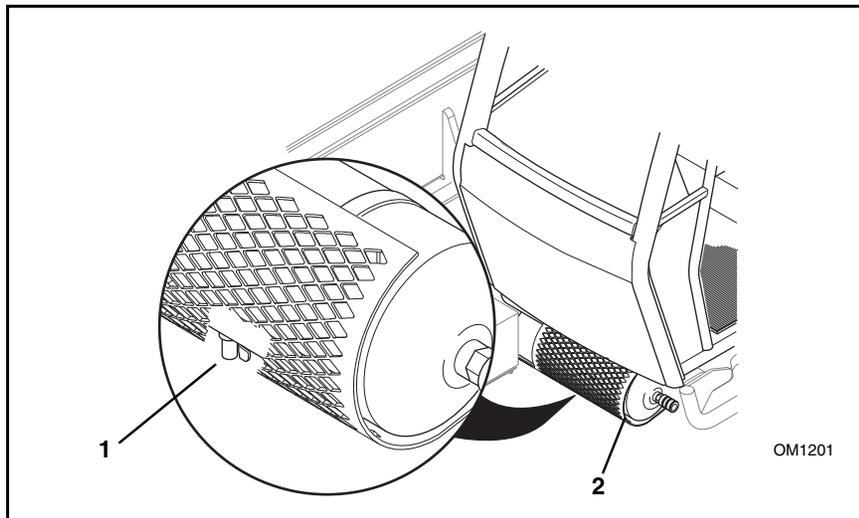
MMV OPERATOR TRAINING PROGRAM

Air Intake Filter Assembly Replacement

1. Before installing the replacement filter assembly, use the filter oil provided with the new filter and oil the outside of the element. Be sure to cover the entire filter element. Wait 10 minutes and re-oil any white spots showing.
2. Place the new clamp onto the inlet of the filter and assemble to the barbed fitting on the air compressor. Tighten the clamp securely.

Drain Water From Emergency Tire Inflation Tank (10 Hour Intervals)

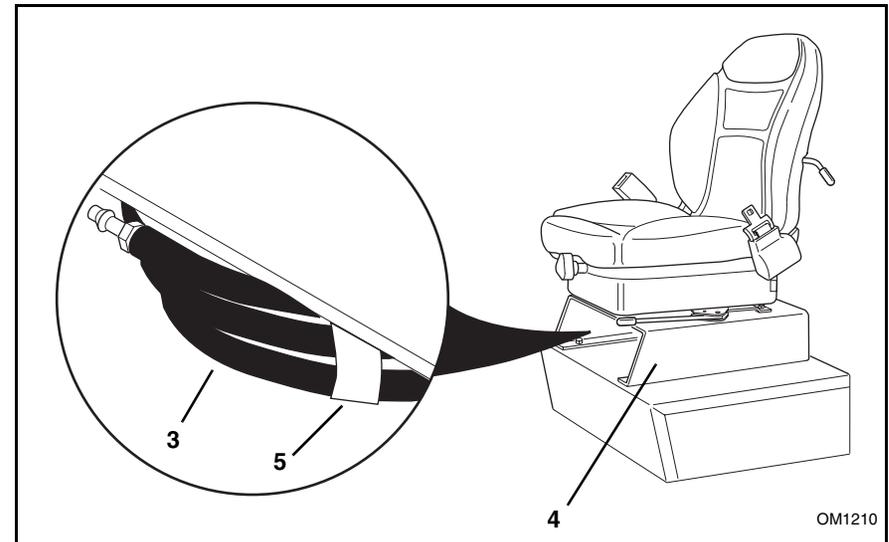
Daily, drain the water from the tank. Open the petcock (1) on the bottom of the tank (2) to remove any water that has accumulated inside the tank. Close the petcock after all water has been removed.



Tire Inflation

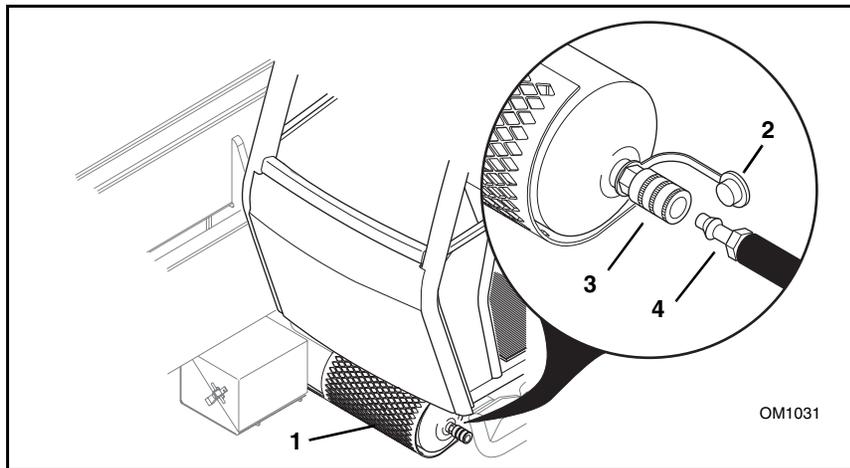
The tire inflation system will enable the tires on this vehicle to be inflated to the proper air pressure without going back to a maintenance area.

1. Place the vehicle on level ground, ground the attachment, level the vehicle, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch.
2. Shut the engine OFF.
3. The tire inflation hose (3) is stored inside the seat riser (4). The hose is coiled up and secured in place with velcro strips (5). Remove the hose coil from the seat riser and then remove the velcro straps from around the hose coil.

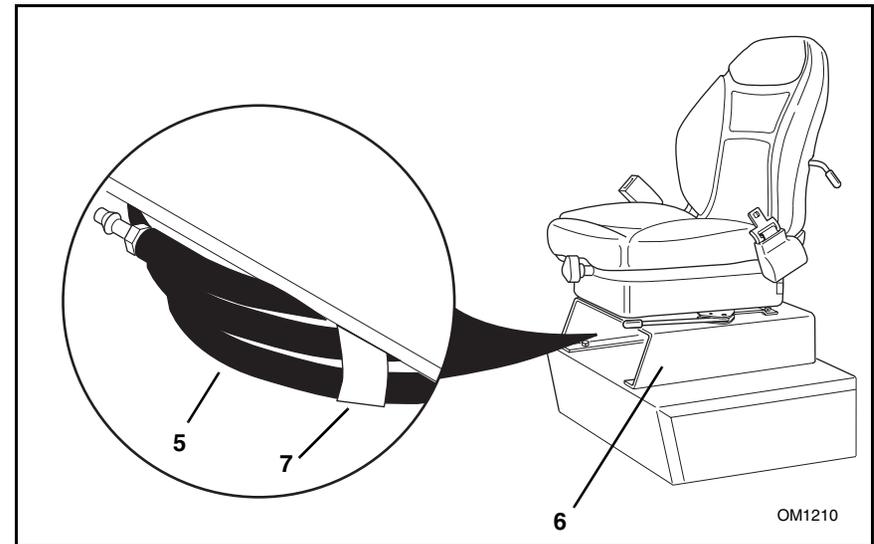


MMV OPERATOR TRAINING PROGRAM

4. The air storage tank (1) is located at the front underside of the operators cab.
5. Remove the dust plug (2) from the quick disconnect (3) on the end of the air storage tank.
6. Insert the male end of the tire inflation hose (4) into the quick disconnect (3) on the side of the air storage tank. Push the outside of the quick disconnect back toward the tank, insert the male end into the quick disconnect and release the outside of the quick disconnect to secure the air hose in the disconnect.



7. Enter the operators cab and start the engine.
8. Exit the cab and inflate the tire or tires to the proper pressure. The hose is able to reach all four tires.
9. Inflate the tire(s) to 87 psi (600 kPa).
10. Check the tire pressure using a good quality tire gauge.
11. Turn the engine OFF before disconnecting the tire inflation hose.
12. Remove the tire inflation hose from the quick disconnect and coil and remount the hose (5) inside the seat riser (6). Be sure to secure the coil of hose to the velcro strips (7) inside the seat riser.
13. Reassemble the dust plug (2) back into the quick disconnect.



MMV OPERATOR TRAINING PROGRAM

Batteries

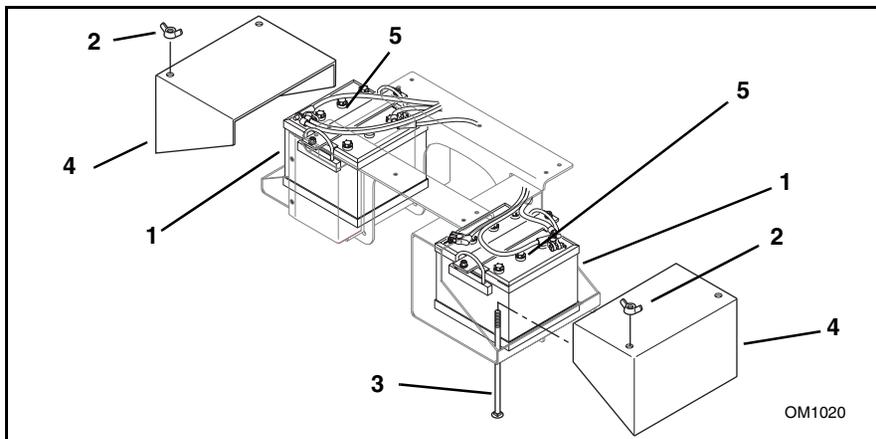


WARNING: Lead-acid batteries produce flammable and potentially explosive gases. To avoid personal injury when checking, testing or charging batteries:

- **DO NOT** use smoking materials near batteries.
- Keep arcs, sparks and open flames away from batteries.
- Provide ventilation and wear safety glasses.

The batteries in this vehicle are shipped in the vehicle filled with electrolyte and charged. The batteries in this vehicle are maintenance free batteries and shipped in the vehicle filled with electrolyte and charged. A warning indicator light will illuminate on the display panel when the alternator is no longer able to charge the batteries. To service the batteries:

1. Level the vehicle, ground the attachment, place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and shut off the engine. Unlatch and open the engine cover.
2. The batteries (1) are located under the main frame one on each side of the frame. Remove the wing nuts (2) from the carriage bolts (3). Remove the battery box covers (4).
3. Wearing safety glasses, visually inspect the batteries for cleanliness. Check terminals for corrosion. Check the cable connections to ensure proper tightness. Replace a battery if it has a cracked, melted or damaged case.





WARNING: Fluid in electric storage batteries contains sulfuric acid which is **POISON** and can cause **SEVERE CHEMICAL BURNS**. Avoid all contact of fluid with eyes, skin or clothing. Use protective gear when handling batteries. **DO NOT** tip a battery beyond a 45° angle in any direction. If contact does occur, follow the First Aid suggestions that follows.

Battery Electrolyte First Aid:

- **External Contact** — Flush with water.
- **Eyes** — Flush with water for at least 15 minutes and get medical attention immediately.
- **Internal Contact** — Drink large quantities of water. Follow with Milk of Magnesia, beaten egg or vegetable oil. Get medical attention immediately.

IMPORTANT! *In case of internal contact, **DO NOT** give fluids that would induce vomiting!*

Battery Charging



WARNING: **DO NOT** charge a frozen battery, it may explode and cause serious injury. Let the battery thaw out before putting on a battery charger.

Under normal conditions, the engine alternator will have no problem keeping the batteries charged. The only condition in which the batteries may cause a problem is when they have been completely discharged for an extended period of time. Under this condition, the alternator may not be able to recharge the batteries. A battery charger will be required for recharging.

Before using a battery charger, an attempt can be made to recharge the batteries using the engine alternator by first starting the vehicle and letting the engine run. See “Slave Starting” instructions.

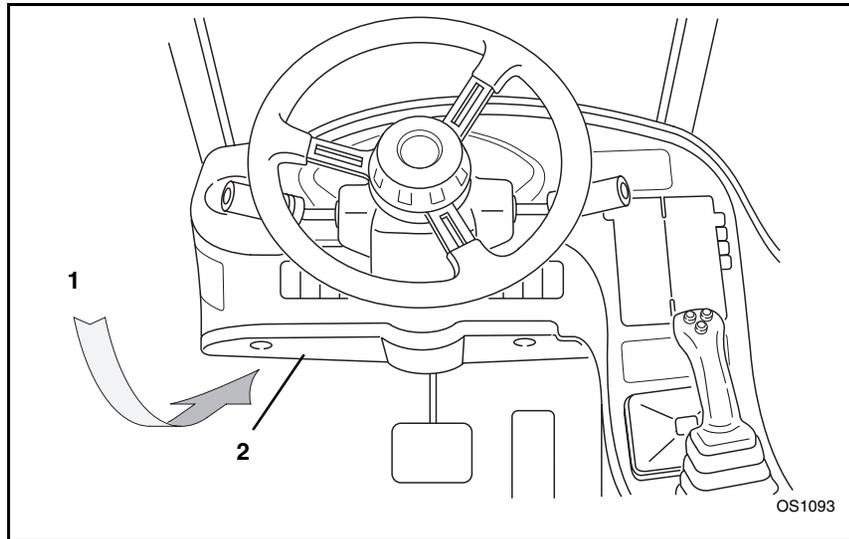
MMV OPERATOR TRAINING PROGRAM

Fuse & Relay Replacement

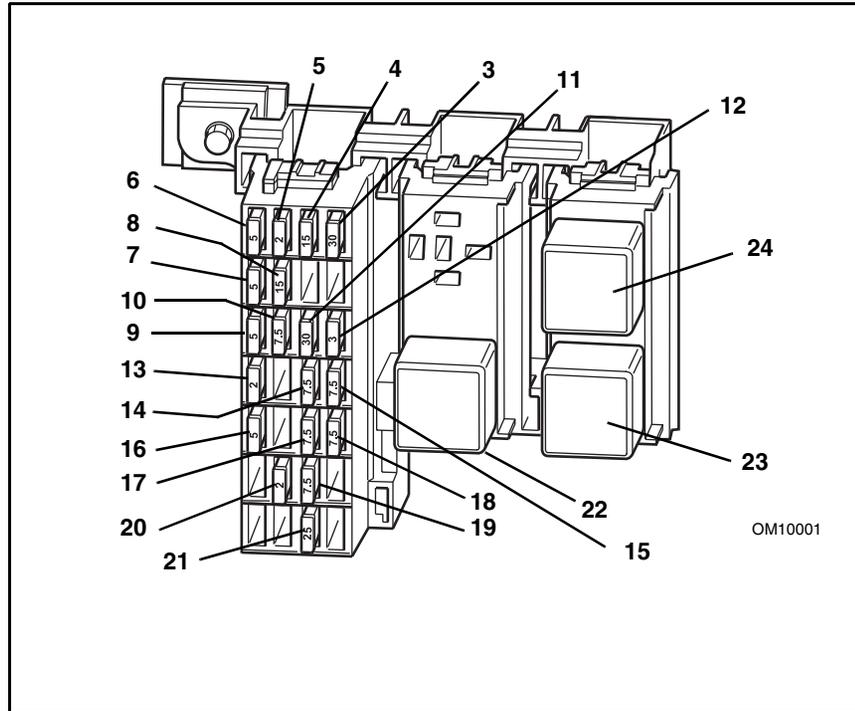
Fuses and Relays (Fuse Block)

The fuses and relays in this vehicle protect the electrical system. The fuses most often fail if there is a short or grounded wire in the applicable circuit. The fuses will have to be replaced if they fail. If fuses continually fail, check the system for shorts, grounds or defective electrical components.

The fuse and relay block is mounted under the lower left side of the operators dash panel (1). To gain access, remove the three screws that secure the lower dash panel (2) in place. Refer to the following chart for the locations of fuses and relays within the fuse block.



MMV OPERATOR TRAINING PROGRAM



No.	Amp/Volt	Circuit Protected
3	30 Amp	Main
4	15 Amp	Ignition - Preheat
5	2 Amp	Hourmeter
6	5 Amp	Transmission Gear
7	5 Amp	Transmission Direction
8	15 Amp	Front Dash Display Panel
9	5 Amp	Parking Brake
10	7.5 Amp	Joystick Logic Panel
11	30 Amp	Power Window
12	3 Amp	LMI (Load Moment Indicator)
13	2 Amp	Service Brake
14	7.5 Amp	Front Wiper/Washer
15	7.5 Amp	Left Fork Shift
16	5 Amp	Steer Mode
17	7.5 Amp	Top Wiper/Washer
18	7.5 Amp	Right Fork Shift
19	7.5 Amp	Rear Wiper
20	2 Amp	Switch Lamps
21	25 Amp	Heater
22	12 Volt	Neutral Engage Relay
23	12 Volt	Door Window Relay
24	12 Volt	Closed Cab Accessory Power Relay

MMV OPERATOR TRAINING PROGRAM

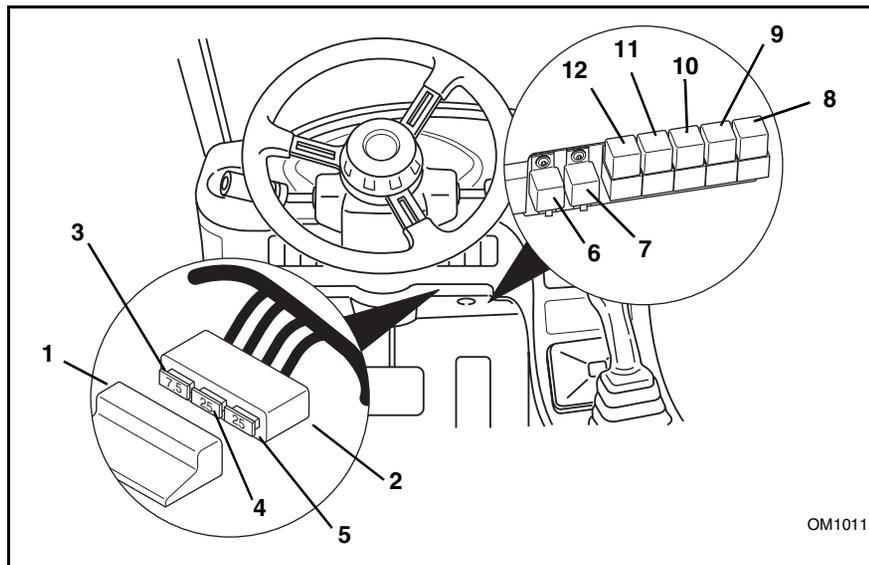
Fuses, Relays and Circuit Breaker (Right Side Dash)

There is a separate fuse holder under the right side of the dash containing three fuses. This fuse holder is located in the cab wire harness. To gain access, remove the three screws that secure the lower dash panel in place.

To gain access to the fuses remove the cover (1) from the fuse holder (2).

Refer to the following chart for the size of fuse and circuit protected.

There are seven relays mounted to the front of the cab. Refer to the following chart for the voltage rating of each relay and circuit that they control.



No.	Amp/Volt	Circuit Protected
3	7.5 Amp	Horn
4	25 Amp	Normal Lights
5	25 Amp	Blackout Lights
6	24 Volt	Relay - Work Light Power
7	24 Volt	Relay - High Beam Power
8	12 Volt	Relay - Brake Light
9	12 Volt	Relay - Light Power
10	12 Volt	Relay - Blackout Ignition
11	12 Volt	Relay - Normal Lights Ignition
12	12 Volt	Relay - Reverse Signal

There is one circuit breaker (13) located under the right side of the dash. It is mounted to the side of the steering column mount just below the flasher.

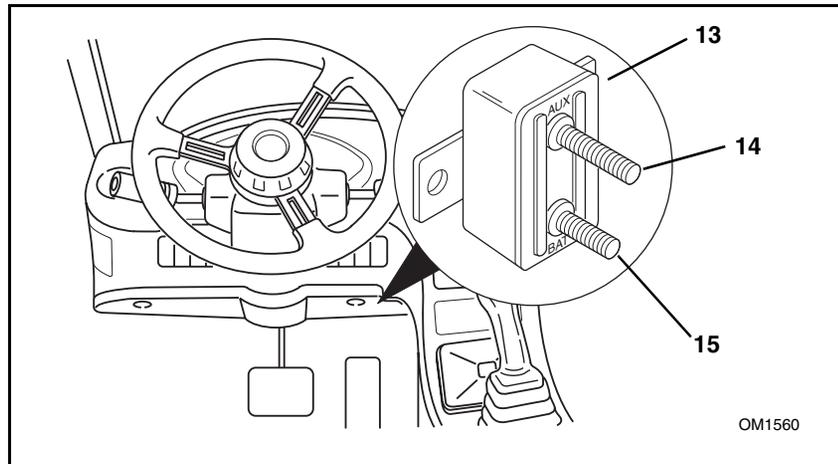
This circuit breaker will trip if there is a short or grounded wire in the applicable circuit. The circuit breaker protects the keyless ignition circuit. The circuit breaker will automatically reset once it cools. If the circuit breaker continually trips, check the system for shorts, grounds or defective electrical components.

Under normal operating conditions the circuit breaker should never need replacement. However, if a circuit breaker does not automatically reset, the breaker is defective and replacement is required.

IMPORTANT! The circuit breaker has a long terminal (14) and a short

MMV OPERATOR TRAINING PROGRAM

terminal (15). The short terminal is labeled "BAT" and the long terminal is labeled "AUX". Connect the wires from the battery to the "BAT" terminal and connect the other wires to the "AUX" terminal. If the wires are connected to the wrong terminals and the circuit breaker trips because of a short or grounded wire in the circuit, the contacts in the circuit breaker will melt together and the circuit breaker will not protect the circuit because it cannot open.

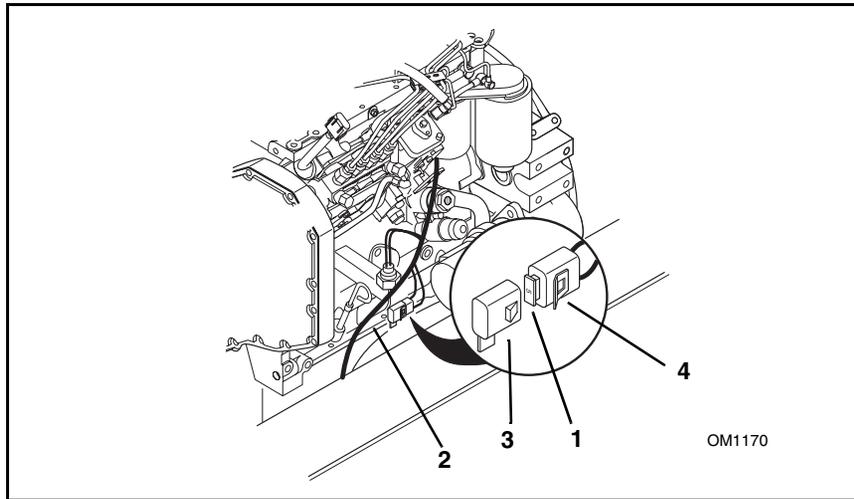


MMV OPERATOR TRAINING PROGRAM

Fuse and Relay (Under Engine Cover)

There is one fuse (1) located in the engine harness under the engine cover. Unlatch and open the engine cover to gain access to this fuse.

The fuse is a 5 amp fuse which protects the fuel shut off solenoid, located in the engine harness (2). To gain access to the fuse, remove the protective cover (3) from the fuse holder (4).



There are two fuses (5) located on the bottom side of the equalizer (6). These two fuses are 125 amp fuses and are located on the 12V and 24V positive terminals of the equalizer. These fuses protect the 12V and 24V circuits of the equalizer. You will require a small telescoping mirror to check these two fuses.

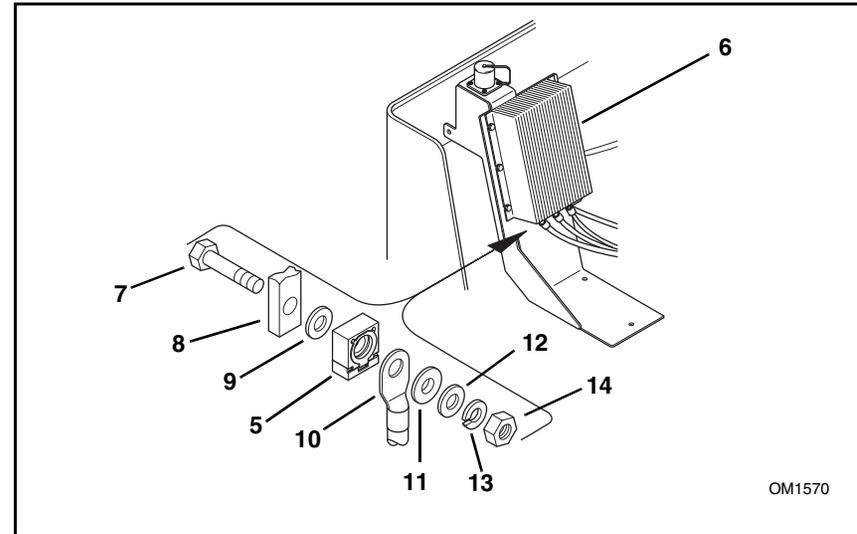
If a 125 amp fuse blows, the fuse along with the mounting hardware will have to be replaced as a kit.

Replace a 125 amp fuse as follows:

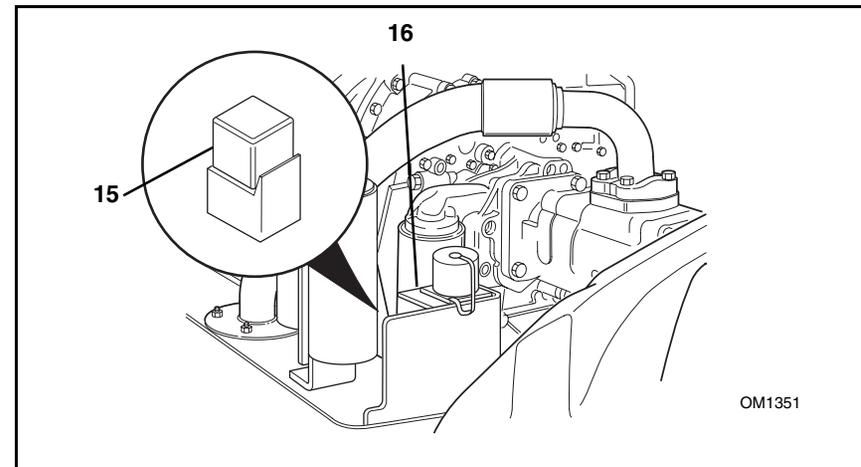
IMPORTANT! When removing the cable or cables from the fuse or fuses be sure to insulate each cable away from any metal objects to prevent shorting of the electrical system.

1. Remove the blown fuse and associated hardware. Discard all items.
2. Insert the new capscrew (7) through the tab (8) on the equalizer (6).
3. Place a flat washer (9) and new fuse (5) onto the capscrew. Position fuse as required to best see the clear window.
4. Place the positive cable (10) onto the capscrew.

5. Place the nylon shoulder washer (11) onto the capscrew and place against the positive cable with the hub toward the cable.
6. Secure in place with a flat washer (12), lockwasher (13) and hex nut (14). Torque the hex nut to a maximum of 100 lbs/in (11 Nm).



There is one relay (15) located behind the battery equalizer mounting bracket (16). This relay is a 12 volt relay that controls the fuel shut off solenoid.



MMV OPERATOR TRAINING PROGRAM

Relay and Fuse (Inside Rear Door)

There is one relay (1) and one fuse (2) located inside the rear door (3). The relay is a 12 volt relay that controls the fan on the air conditioner condenser.

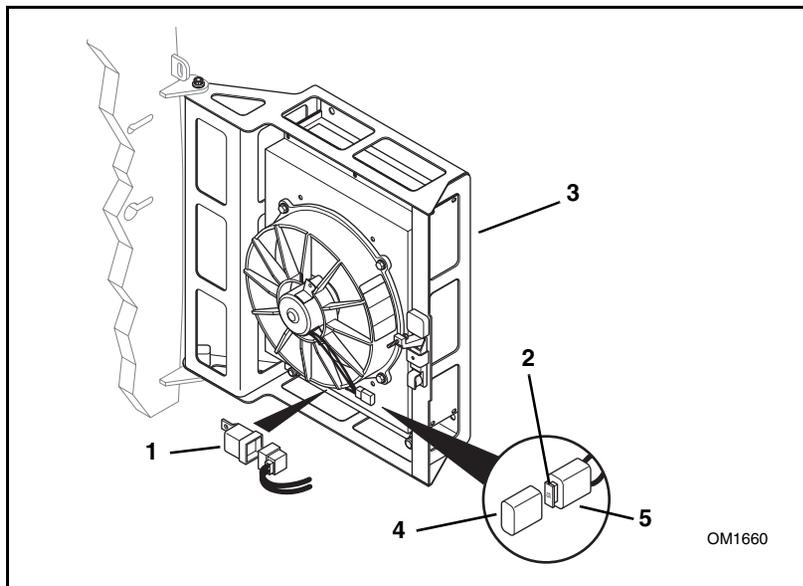
The fuse is a 15 amp fuse that protects the fan motor on the air conditioner condenser.



WARNING: DO NOT open the rear door with the ignition switch in the RUN position. Contact with moving parts can cause death or serious personal injury.

Unlatch and open the rear door. The relay is mounted to the fan shroud.

Remove the protective cover (4) from the fuse holder (5) to gain access to the 15 amp fuse.



MMV OPERATOR TRAINING PROGRAM

Boom Chains and Wear Pads

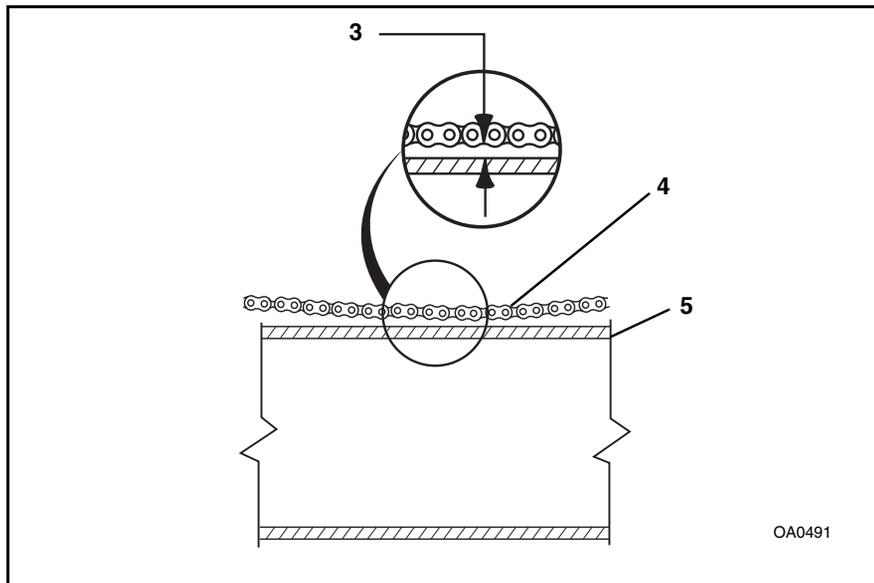
Boom Chain Tension Check

(1000 Hour Intervals)



Check the boom chain tension by measuring the top boom extend chain sag.

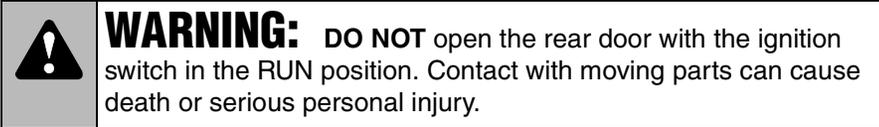
1. Park the vehicle on level ground. Place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and raise the boom to a horizontal (level) position.
2. Fully extend the boom, then retract it 2" (51 mm) (one inch per section). Turn the vehicle OFF.
3. Measure the sag (3) in the top boom extend chains (4) between the bottom of the chains and the top of the intermediate boom (5) at their closest point. Acceptable boom chain sag is between 1.5" (38 mm) and 2.5" (64 mm). If the measurement is less than 1.5" (38 mm), the boom chains need to be adjusted.



MMV OPERATOR TRAINING PROGRAM

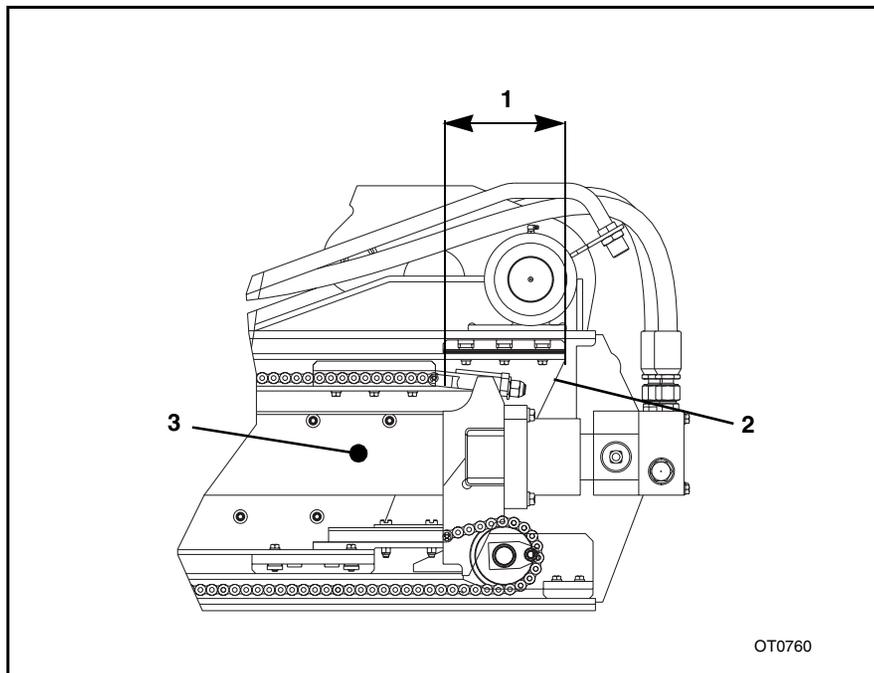
Before making any adjustments to the extend chains, check the following measurement at the rear of the boom.

4. Start the vehicle, retract the boom completely and turn the vehicle OFF.



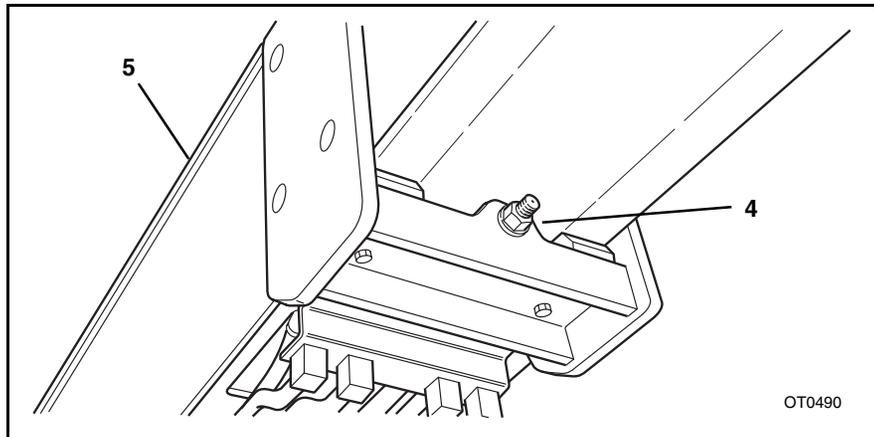
5. Go to the back of the vehicle, unlatch and open the rear door.
6. Check the measurement (1) from the rear of the intermediate boom (2) to the rear of the inner boom (3). This measurement should be in the range of 8.5" (216 mm) to 9" (229 mm).

NOTE: If the measurement is less than 8.5" (216 mm) the boom may require extensive adjustment and/or repair. Contact your authorized **OmniQuip** Sales & Service Center (SSC).



MMV OPERATOR TRAINING PROGRAM

7. If the measurement is more than 9" (229 mm), tighten the retract chain locknut (4) located on the bottom front of the outer boom (5).



8. Start the vehicle and cycle the boom in and out several times. Then with the boom horizontal, retract the boom completely. Turn the vehicle OFF.
9. Recheck the measurement at the rear of the boom between the intermediate and inner boom. If the measurement is still more than 9" (229 mm), repeat step 7 and step 8.

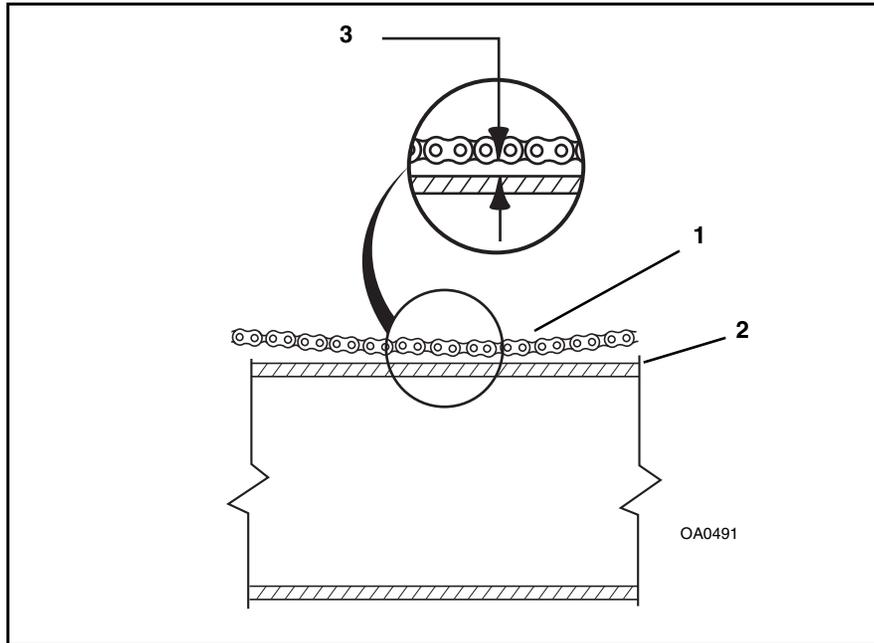
NOTE: If, by adjusting the retract locknut, you cannot get the measurement within the range of 8.5" (216 mm) to 9" (229 mm), the boom may require extensive adjustment and/or repair. Contact your authorized **OmniQuip** Sales & Service Center (SSC).

If the measurement is within the range of 8.5" (216 mm) to 9" (229 mm), measure the top boom extend chain sag again.

10. Start the vehicle, cycle the boom in and out several times. With the boom horizontal, fully extend the boom and then retract it 2" (51 mm) (one inch per section). Turn the vehicle OFF.

MMV OPERATOR TRAINING PROGRAM

11. Measure between the bottom of the chains (1) and the top of the intermediate boom (2) at their closest point. Acceptable boom chain sag (3) is between 1.5" (38 mm) and 2.5" (64 mm). If the measurement is less than 1.5" (38 mm), the top boom extend chains need to be adjusted. See "Top Boom Chain Tension Adjustment".



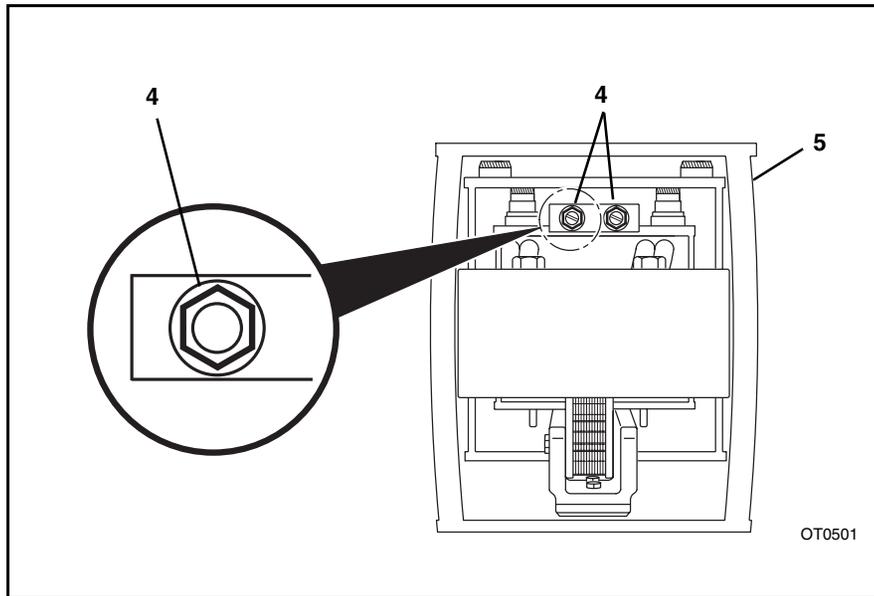
MMV OPERATOR TRAINING PROGRAM

Top Boom Chain Tension Adjustment

(As required)

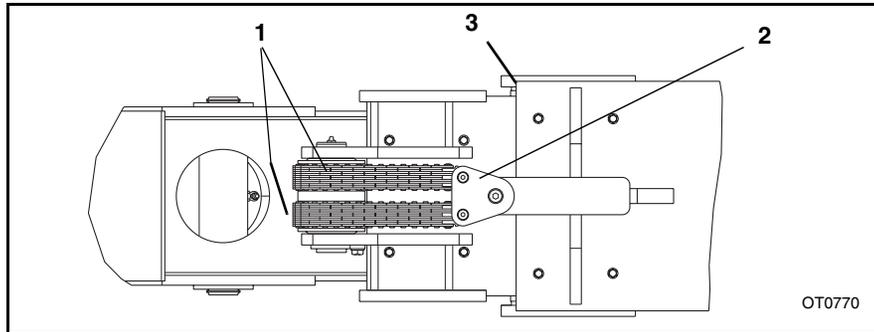
NOTE: Always perform the “Boom Chain Tension Check” before adjusting the boom chain tension.

1. Park the vehicle on level ground. Place the travel select lever in (N) NEUTRAL, move the neutral lock lever to the (N) NEUTRAL LOCK position, engage the parking brake switch and raise the boom to a horizontal position. Retract the boom completely and turn the vehicle OFF.
2. Adjust the top extend boom chains by tightening the locknuts (4) located at the rear of the boom (5). Be sure each locknut is tightened equally so that each chain maintains the same tension.



MMV OPERATOR TRAINING PROGRAM

3. Equal chain tension (1) can be checked by the position of the yoke (2) on the outer boom (3). The front of the yoke should be parallel with the front edge of the boom.



4. Start the vehicle and cycle the boom in and out several times. With the boom horizontal, fully extend the boom and then retract it 2" (51 mm) (one inch per section). Turn the vehicle OFF.
5. Measure the chain sag. Acceptable boom chain sag is between 1.5" (38 mm) and 2.5" (64 mm). If the chain sag is less than 1.5" (38 mm), repeat step 2 through step 5 until the sag is within the acceptable range.

NOTE: If the top boom extend chain sag cannot be adjusted within the acceptable range of 1.5" (38 mm) to 2.5" (64 mm), the boom may require extensive adjustment and/or repair. Contact your authorized **OmniQuip** Sales & Service Center (SSC).

6. Close and latch the rear door.

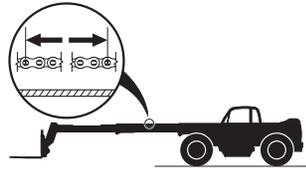
MMV OPERATOR TRAINING PROGRAM

Boom Chain Inspection

(250 Hour Intervals)



OH2710



MM2130



WARNING: Worn pins, stretched or cracked links or corrosive environments can cause chain failure. A chain failure could result in uncontrolled boom movement, loss of load or vehicle instability and could cause death or serious injury and/or property damage.

Under normal operating conditions the boom chains will need to be inspected every 250 hours of operation. Environmental conditions and dynamic impulse/shock loads can drastically affect normal operating conditions.

Environments in which material handling vehicles operate can vary widely from outdoor moisture to temperature to mildly corrosive or highly corrosive industrial atmospheres, in addition to abrasive exposures such as sand and grit.

Dynamic shock loading can impose abnormal loads above the endurance limit of a leaf chain.

- High velocity movement of load, followed by sudden, abrupt stops.
- Carrying loads in suspension over irregular surfaces such as railroad tracks, potholes, and rough terrain.
- Attempting to “inch” loads which are beyond the rated capacity of the vehicle.

A chain replacement schedule should be established to prevent chain failure. This schedule can be established by frequent inspections. This inspection procedure development should go on until a projected time of replacement can be predicted.

The boom chain's normal life expectancy can be expressed as a maximum percent of elongation. This is generally 3% of pitch. As the chain flexes back and forth over the sheave, the bearing joints (pins and inside link plates) gradually incur wear due to articulation.

MMV OPERATOR TRAINING PROGRAM

Inspection Guidelines

1. Park the vehicle on level ground. Place the travel select lever in (N) NEUTRAL, place the neutral lock lever in the (N) NEUTRAL LOCK position, engage the parking brake switch and raise the boom to a horizontal (level) position.

2. Fully extend the boom until the extend chain is taut. Shut the engine off.

The extend chains will be visible for inspection with the vehicle in this state. The retract chain can be visually inspected, at the rear of the boom, as the boom is slowly retracted.

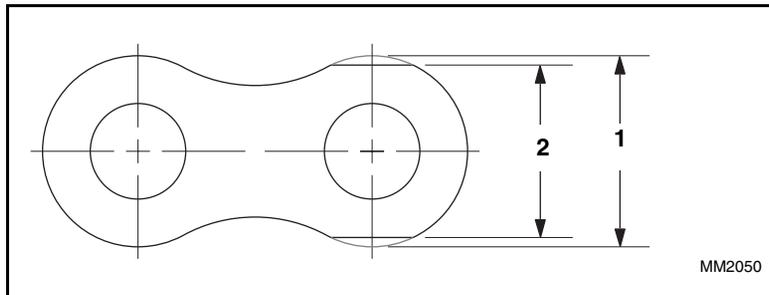
While doing the chain inspection, check all chain clevis ends for distortion or cracking and sheaves for bearing wear or grooving from the chain.

3. Inspect the chains for the following conditions:

Edge Wear

Check the chain for wear on the link plate edges caused by running back and forth over the sheave. The maximum reduction of material should not exceed 5%. This can be compared to a normal link plate height by measuring a portion of chain that does not run over the sheave.

The new chain link measures .713" (18 mm) (1). If the measurement of the worn chain is less than .677" (17 mm) (2), the chain should be replaced.



MMV OPERATOR TRAINING PROGRAM

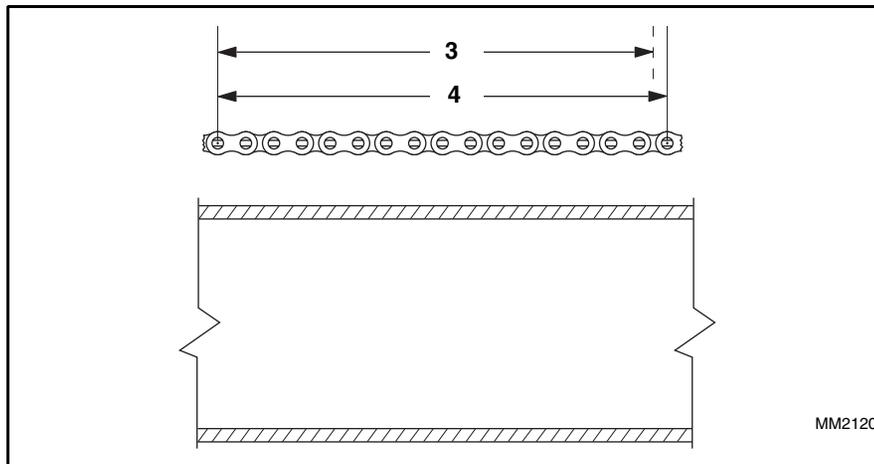
Elongation

When the original length (3) of 12.00" (305 mm) per foot of new chain has elongated from wear to a length (4) of 12.36" (313 mm), the chain should be discarded and replaced.

It is important to measure the chain in the section that moves over the sheaves because it receives the most frequent articulation. Measuring the chain near its clevis terminals could give an inaccurate reading. The ends of the chains, near the clevis terminal, will not have flexed as frequently, if at all, as nearer the middle of the chains.

Measure across a span of 17 pins (16 links) at the center of the extend chain. Measure from pin center to pin center. Because the retract chain is inside the boom you will not be able to measure the chain.

The maximum measurement allowed is 12.36" (313 mm). If the measurement is more than 12.36" (313 mm), the chain should be replaced.



MMV OPERATOR TRAINING PROGRAM

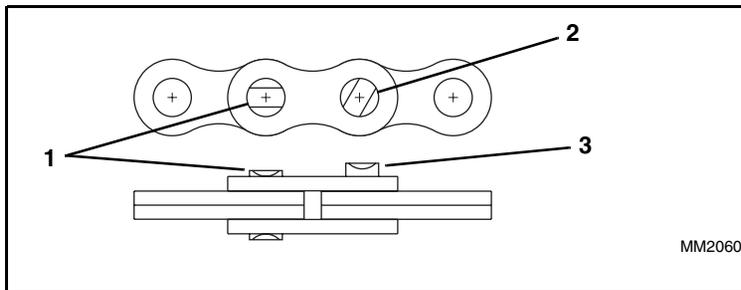
Turning or Protruding Pins

Highly loaded chain, operating with inadequate lubrication can generate abnormal frictional forces between pin and link plates. When chain is allowed to operate in this condition, a pin or series of pins, can begin to twist out of a chain, resulting in failure.

Examine the pin head rivets to determine if the “VEE” flats are still in correct alignment (1). Chain with rotated/displaced heads (2) or abnormal pin protrusion (3) should be replaced immediately.

DO NOT attempt to repair the chain by welding or driving the pin(s) back into the chain. Once the press fit integrity between outside plates and pins has been altered, it cannot be restored.

Any wear pattern on the pin heads or the sides of the link plates indicates misalignment in the system. This condition damages the chain as well as increases frictional loading and should be corrected.



MMV OPERATOR TRAINING PROGRAM

Cracked Plates

Inspect the chains very carefully, front and back as well as side to side, for any evidence of cracked plates. If any one crack is discovered, the chain should be replaced in its entirety.

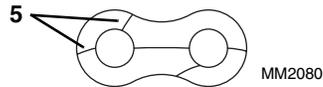
It is important, however to determine the cause of the crack before installing a new chain so the condition does not repeat itself.

The types of cracks are:

- **Fatigue Cracking** - Fatigue cracks (4) are a result of repeated cyclic loading beyond the chain's endurance limit.



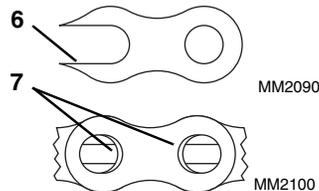
- **Stress Corrosion Cracking** - The outside link plates are particularly susceptible to stress corrosion cracking (5).



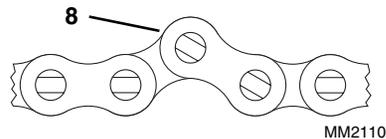
- **Corrosion Fatigue Cracking** - Corrosion fatigue cracks are very similar to fatigue cracks in appearance. Corrosion fatigue is the combined action of an aggressive environment and cyclic stress.

Other Modes of Failure

- **Ultimate Strength Failure** - These types of failures are caused by overloads far in excess of the design load. Either fractured plates (6) or enlarged holes (7) can occur. If either of these failures occurs, the chain should be replaced immediately.



- **Tight Joints** - All joints in the chain should flex freely. Tight joints (8) resist flexing. If the problem is caused by dirt or foreign substance packed in the joints, clean and lubricate thoroughly before re-installing the chain. If the problem is caused by corrosion and rust or bent pins, replace the chain.



MMV OPERATOR TRAINING PROGRAM

Chain Lubrication

(1000 Hour Intervals or Annually)

After inspection and before being returned to service, chains must be lubricated with a quality chain lubricant ("LUBRIPLATE" Chain & Cable Fluid, "LPS3" or equivalent).



OH2690



The lubricant must penetrate the chain joint to prevent wear. Applying lubricant to the external surfaces will prevent rust, but the chains should be articulated to make sure the lubricant penetrates to the working surfaces between the pins and links.

To prepare the chain for lubrication, the chain plates should be brushed with a stiff brush or wire brush to clear the space between the plates so that lubricant can penetrate to the working surfaces.

Lubricant may be applied with a narrow paint brush or directly poured on, but the chain should be well flooded with lubricant and the boom should be extended and retracted to be sure that the lubricant penetrates to the working surfaces. All surplus lubricant should be wiped away from the external surfaces. **DO NOT** use a solvent for this wiping operation.

Regular application of lubricant is necessary to make sure that all working surfaces are adequately lubricated. In extremely dusty conditions, it may be necessary to lubricate the chains more often.

Lubrication of chains on vehicles working consistently in extreme hot or cold conditions requires special consideration. It is important that a reputable lubrication specialist, an authorized **OmniQuip** Sales & Service Center (SSC) or the vehicle distributor be consulted for guidance.

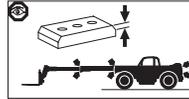
MMV OPERATOR TRAINING PROGRAM

Wear Pad Inspection

(10 Hour Intervals)



OH2660



OS1760

Visually inspect the boom wear pads between the boom sections at the rear and front of the boom for excessive wear.

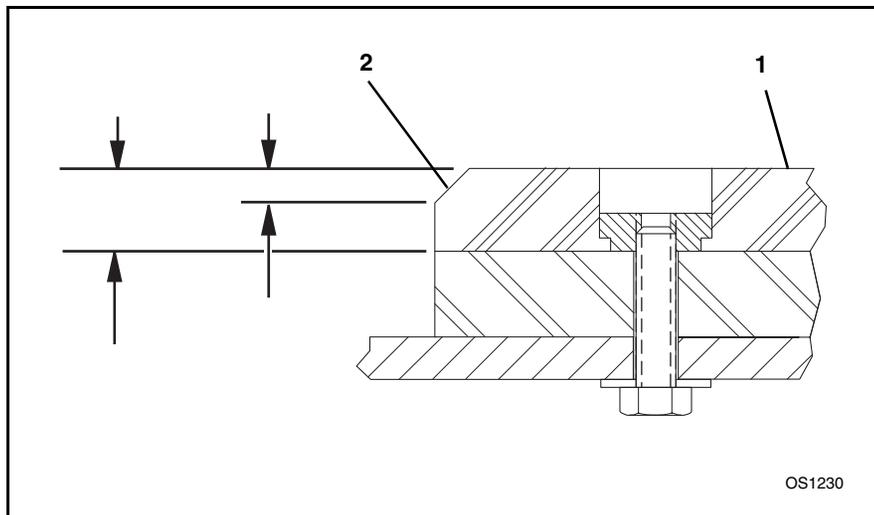
The average expected life of the wear pads will vary depending upon vehicle use, weight of the loads, operating conditions and the location of the boom pads inside the boom.

If the vehicle is used continuously and the weights of the loads are at or near capacity, or if you are operating the vehicle in very dusty or dirty conditions, the pads will wear much faster. The pads that are under most stress from the weight of the load will also wear faster than other pads. For example, the lower pads at the front of the boom and the upper pads at the rear of the boom are under more stress than pads attached to any other surface of the boom. Consequently, the lower pads at the front and the upper pads at the rear will require service more often.

F. Wear Pad Replacement

(As Wear Pad Indicators Indicate)

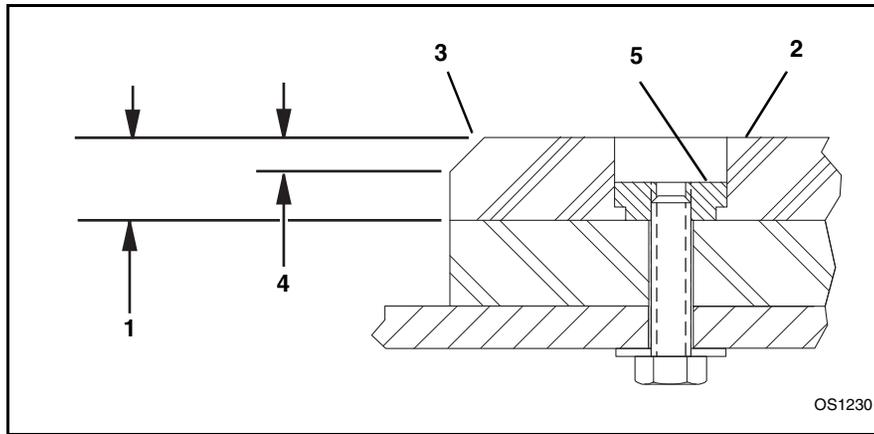
Each boom wear pad (1) is manufactured with a convenient wear pad indicator. This is the angled cut (2) at each end of all wear pads.



MMV OPERATOR TRAINING PROGRAM

The total thickness (1) of a new wear pad (2) is .625" (16 mm). The angled cut (3) will provide a total wear thickness (4) of .25" (6 mm). This will leave approximately .375" (10 mm) of total unused base material.

The pads must never be worn past the angled cut indicator because the metal pad insert (5), that holds the pads in place, will begin to wear into the boom pad sliding surfaces. If the pad wears past this point, the metal insert in the pad will begin to gouge the boom plate surfaces. Contact your authorized **OmniQuip** Sales & Service Center (SSC).



Replacement of boom wear pads must be performed by an authorized **OmniQuip** Sales & Service Center (SSC) when the wear pads indicate.

The boom has been factory lubricated for proper wear pad break-in and will normally not require further lubrication. However, after replacing any wear pad(s), or after prolonged periods of inoperation, light lubrication with "LPS3" or "LUBRIPLATE" chain or cable fluid (or equivalent) of the boom wear surfaces is recommended to keep the wear pads and the boom wear surfaces lubricated properly. Light lubricating of the boom wear surfaces is also recommended in salt air climates, after cleaning with pressure washer using solvents or when the vehicle is to be put in storage, to prevent rusting.

Storage and Transport

Short Term Storage

Less Than Two Months Duration

A. Before Storing

Perform the following steps prior to placing the vehicle in storage:

1. Clean the entire vehicle. DO NOT remove the grease coating from the boom chains.
2. Lubricate all grease fittings as described in "Lubrication Points".
3. Prepare the engine for storage (refer to the engine manual).
4. Apply multi-purpose grease to all exposed hydraulic cylinder rods.
5. Apply Teflon based lubricant to the fork shafts and the fork slide plates.
6. If the ambient temperature, anytime during the storage period is expected to drop to a point that the batteries could freeze, remove the batteries from the vehicle. Store the batteries in a dry place where they are not subject to temperatures near or below freezing.
7. If the ambient temperature is expected to remain above freezing and the vehicle is to be stored less than one month, the batteries can remain connected and no further disconnection of the equalizer is required.
8. If the ambient temperature is expected to remain above freezing and the vehicle is to be stored more than one month, but less than two months the batteries can remain connected. However the NEGATIVE (-) lead to the bottom of the equalizer must be disconnected to prevent electrical draw on the batteries. Save the capscrew, lockwasher and hex nut for reassembly. Isolate the cable away from the equalizer.
9. If the ambient temperature is expected to drop below freezing at anytime during the storage period, make sure the engine coolant is either completely drained from the radiator and engine block or that the amount of anti-freeze in the system is adequate to keep the coolant from freezing.
10. Preferably, store the vehicle inside where it will remain dry. If it must be stored outside, park it on lumber laid on flat level ground or on a concrete slab and cover with a tarp.

B. Removing From Short Term Storage

After removing the vehicle from storage and before operating it, perform the following steps:

1. Reinstall the properly charged batteries (if removed). Secure the hold-down brackets and attach battery cables.
2. If the NEGATIVE (-) lead to the equalizer was disconnected, reconnect the lead to the NEGATIVE (-) terminal and secure with the capscrew, lockwasher and hex nut saved from putting the vehicle into storage. Torque the hex nut to 100 lb/in (11 Nm).
3. Change the engine oil and filter to remove condensation or other residuals.
4. If the coolant has been drained from the engine block and radiator, refill with a 50/50 mixture of fresh anti-freeze and water. For detailed information, see "Drain and Flush Radiator".
5. Wipe off any multi-purpose grease that was applied to the vehicles hydraulic cylinder rods prior to storing.
6. Refer to "Maintenance Schedule and Check List". Perform all the maintenance checks listed under the 10 Hour Intervals.
7. Review and familiarize yourself and any other operator with all the safe and proper operating procedures contained in this manual.

Long Term Storage

Two Months Duration or More.

A. Before Storing

Perform the following steps prior to placing the vehicle in storage:

1. Clean the entire vehicle. Clean and dry all surfaces to be sprayed with transit coat, except DO NOT remove the grease coating from the boom chains.
2. Lubricate all grease fittings as described in "Lubrication Points".
3. Thoroughly clean all four tires (side walls and tread area) removing all dirt and debris. Be sure the tires are free of grease and oil residue.
4. Coat the tires with a anti-ozone protectant coating. One of the recommended coatings is #G9588 "Black Rubber Preservative" from the Akron Paint and Varnish Company. Apply the protectant coating per the application instructions on the container.

Akron Paint and Varnish Company
1390 Firestone Parkway
Akron, OH 44301. Phone (216) 773-8911

5. Allow the coating to dry per the instructions on the container, rotate the tires by moving the vehicle forward or backward. Coat the area of each tire that was in contact with the ground.
6. Prepare the engine for storage (refer to the engine manual).
7. Apply multi-purpose grease to all exposed hydraulic cylinder rods.
8. Seal all other exposed unpainted and plated metal with transit coat including surfaces that are accessible with boom, hydraulic tank, engine and transmission covers open or battery covers removed. Unpainted surfaces include boom chains and chain clevis'. Plated surfaces including pin ends, fastener hardware, hydraulic tubes, fittings and hose ends should also be coated.
9. Apply a coating thickness of .003" to .005" (0,08 to 0,1 mm). Allow one to fifteen minutes to dry, depending on temperature, humidity and coating thickness.

NOTE: *Overspray will not harm paint, rubber and glass and will be easily removed.*

10. Apply Teflon based lubricant to the fork shafts and the fork slide plates.

MMV OPERATOR TRAINING PROGRAM

11. Disconnect the battery cables. Remove the batteries from the vehicle and store in a dry place where they are not subject to temperatures near or below freezing.
12. If the ambient temperature is expected to drop below freezing at anytime during the storage period, make sure the engine coolant is either completely drained from the radiator and engine block or that the amount of anti-freeze in the system is adequate to keep the coolant from freezing.
13. Preferably, store the vehicle inside where it will remain dry. If it must be stored outside, park it on lumber laid on flat level ground or on a concrete slab and cover with a tarp.

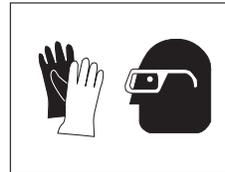
B. Removing From Long Term Storage

After removing the vehicle from storage and before operating it, perform the following steps:

Parts of this vehicle have been sprayed with a clear protective “transit” coating prior to being stored. Removing the transit coating will prevent discoloration. If you do not remove the transit coating it will not harm the vehicle.

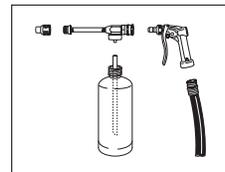
The transit coating has been sprayed primarily onto plated metal parts such as brackets, pulleys, hose connections, pipe fittings and hardware. Some overspray will have settled on the surrounding areas. Before removing the transit coating, read all removal information and material data safety sheets supplied with the transit coating decoater gun.

1. To remove the transit coating, refer to the following steps.
 - a. Wear the recommended safety equipment, rubber gloves and eye protection.



OM1410

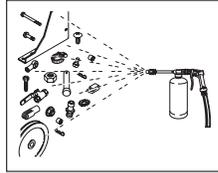
- b. Assemble the transit coating decoater gun.



OM1420

MMV OPERATOR TRAINING PROGRAM

c. Dilute the transit coating remover with water 1:6. Position the vehicle in a shaded area. DO NOT pre-rinse with water. Spray the coated areas thoroughly.



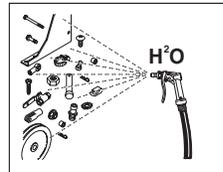
OM1430

d. Wait two - three minutes, keeping the coated areas wet the full two - three minutes.



OM1440

e. Remove the transit coating remover bottle and rinse the vehicle thoroughly with water.



OM1450

2. Reinstall the properly charged batteries. Secure the hold-down brackets and attach battery cables.
3. Change the engine oil and filter to remove condensation or other residuals.
4. If the vehicle has been stored for two years or more, drain the coolant from the engine block and radiator and refill with a 50/50 mixture of fresh anti-freeze and water. For detailed information, see "Drain and Flush Radiator".
5. Wipe off any multi-purpose grease that was applied to the vehicles hydraulic cylinder rods prior to storing.
6. Refer to "Maintenance Schedule and Check List". Perform all the maintenance checks listed under the 10 Hour Intervals.
7. Review and familiarize yourself and any other operator with all the safe and proper operating procedures contained in this manual.

MMV OPERATOR TRAINING PROGRAM

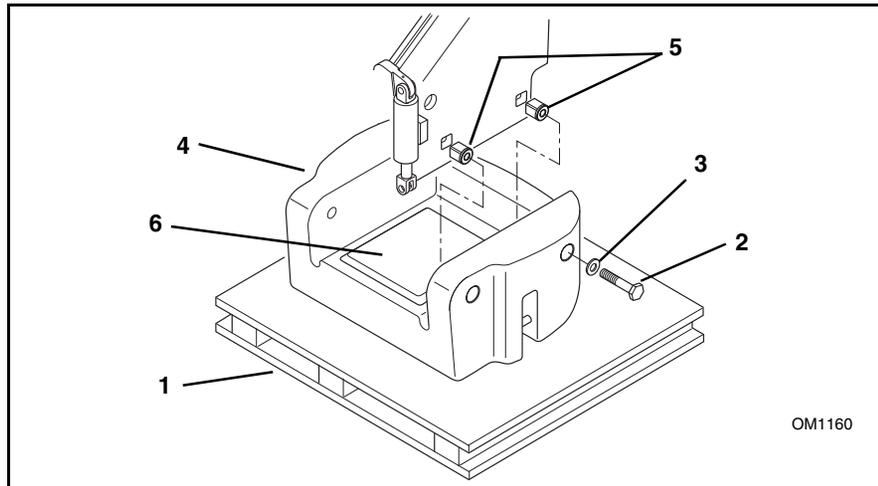
Counterweight Removal and Reassembly

Removal

The counterweight will require removal for certain transport applications. When removing the counterweight, another piece of equipment (such as another MMV) capable of lifting 5,000 lbs (2.268 kg) will be required.

1. Park the vehicle on level ground, frame sway the vehicle to 0° and ground the attachment.
2. Place the travel select lever in (N) NEUTRAL, place the neutral lock lever in the (N) NEUTRAL LOCK position, engage the parking brake switch and turn the engine OFF.
3. Using another piece of equipment, lift a pallet (1) up underneath the counterweight. Lift the pallet up to the counterweight, but DO NOT put pressure on the counterweight.
4. Remove the four capscrews (2) and flat washers (3) securing the counterweight (4) to the vehicle frame. Remove and clean any Loctite® threadlocker residue from the threads of each capscrew and bushing.

NOTE: If a white, powdery residue is present on the threads, it can be removed. Use "Methylene Chloride" to soften the residue and clean the residue from the threads with a soft brass wire brush.



NOTE: Record the number of flat washers on each capscrew as they are removed. The correct number of flat washers must be reassembled in the same locations to ensure proper capscrew protrusion during reassembly of the counterweight.

1. The four threaded bushings (5) will remain in place in the frame until the counterweight has been removed.
2. Lower the counterweight down with the pallet.
3. Remove the four threaded bushings (5) from the frame.

NOTE: When securing the counterweight to the pallet, be sure to secure the counterweight insert (6). The counterweight insert is located in a "pocket" inside the counterweight. The insert weighs 500 lbs (227 kg).

B. Assembly

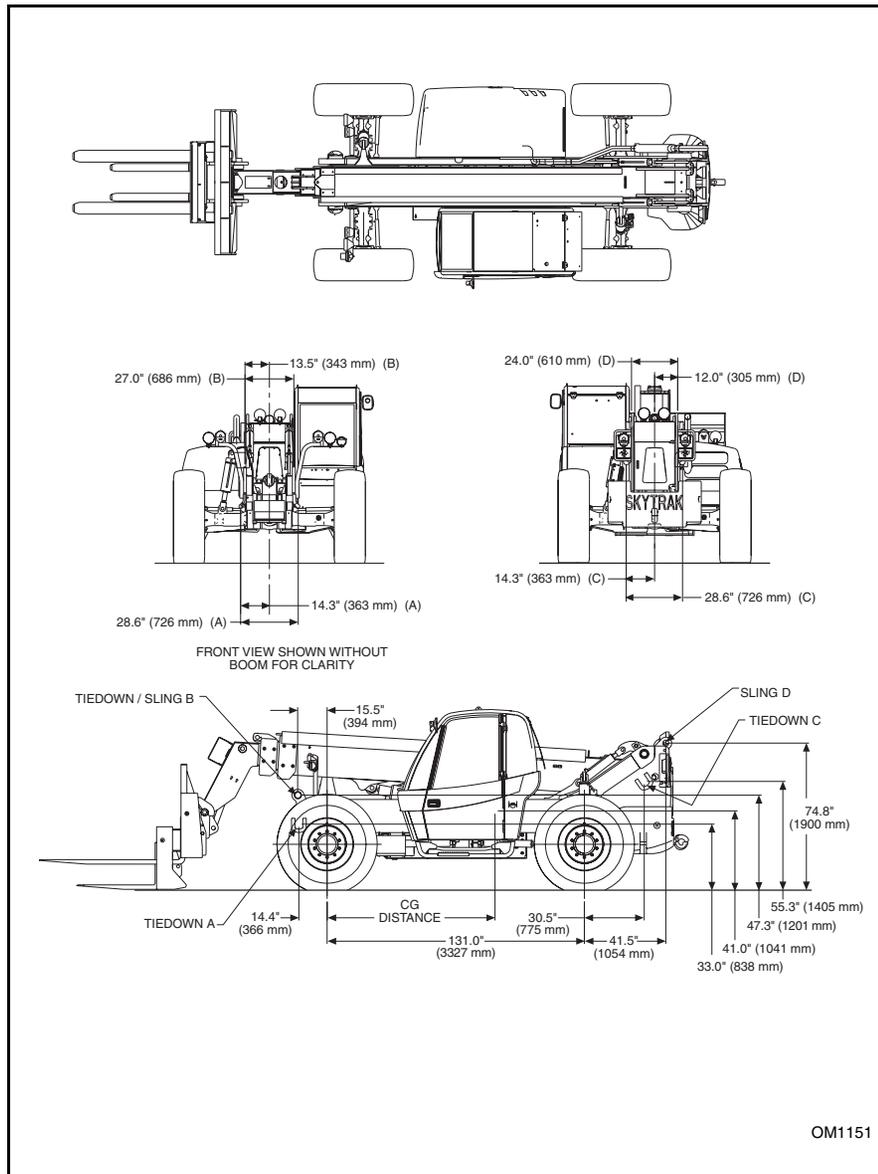
IMPORTANT! When applying the Loctite® threadlocker to the threads of the bushing and the capscrews you have a maximum of ten minutes to line the counterweight up and insert all four capscrews. The threadlocker will start to set-up after ten minutes.

1. Insert the four threaded bushings (5) into the square holes in the vehicle frame. Apply a few drops of Loctite® threadlocker #277 to the threads of each bushing.
2. Be sure the counterweight insert (6) is in place in the "Pocket" inside the counterweight.
3. With the counterweight on the transport pallet (1), use another piece of equipment to lift the pallet up. Line up the holes in the counterweight (4) with the threaded bushings.
4. Apply Loctite® threadlocker #277 to 1-1/2" of the engaging threads of each capscrew (2).
5. Assemble the flat washers (3) onto the capscrews (2) and insert the capscrews with flat washers into the mounting holes in each side of the counterweight. Thread the capscrews into the threaded bushings (5) in the frame. Torque all capscrews to 680 lb/ft (922 Nm).

MMV OPERATOR TRAINING PROGRAM

Transport

When transporting the vehicle, make use of all tiedown/lift point locations on the vehicles frame.



NOTE: The user assumes all responsibility for choosing the proper method of transportation, and the proper selection and use of transportation and tiedown devices, making sure the equipment used is capable of supporting the weight of the vehicle being transported and that all manufacturer's instructions and warnings, regulations and safety rules of their employer, the Department of Transportation and/or any other state or federal laws are followed.

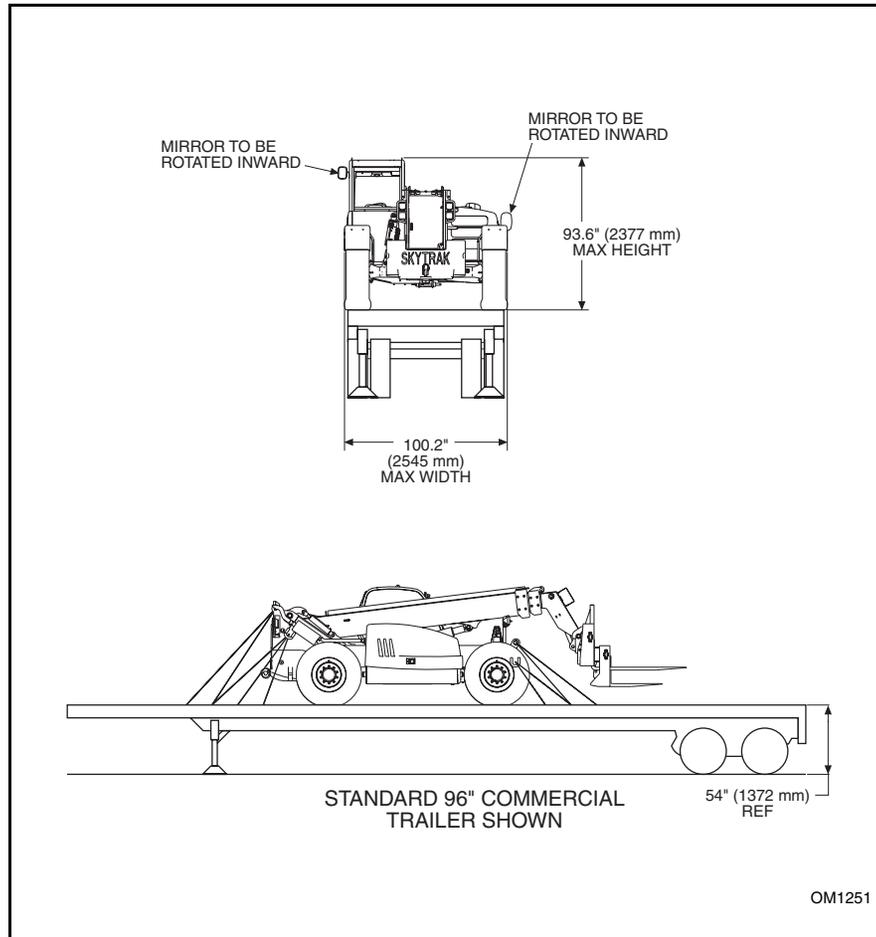
For the different modes of transportation, refer to the proper section required. The different modes are:

- Truck Transportability. Refer to "Truck Transportability."
- Rail Transportability and GIC Clearance. Refer to "Rail Transportability and GIC Clearance."
- Air Transport, C-17, C141 or C-5 Tiedowns. Refer to "Air Transport, C-17, C141 or C-5 Tiedowns."
- Air Transport, C-130 Configuration. Refer to "Air Transport, C-130 Configuration."
- Marine Transportability. Refer to "Marine Transportability."
- External Transport/Slings. Refer to "External Transport/Slings."

MMV OPERATOR TRAINING PROGRAM

Truck Transportability

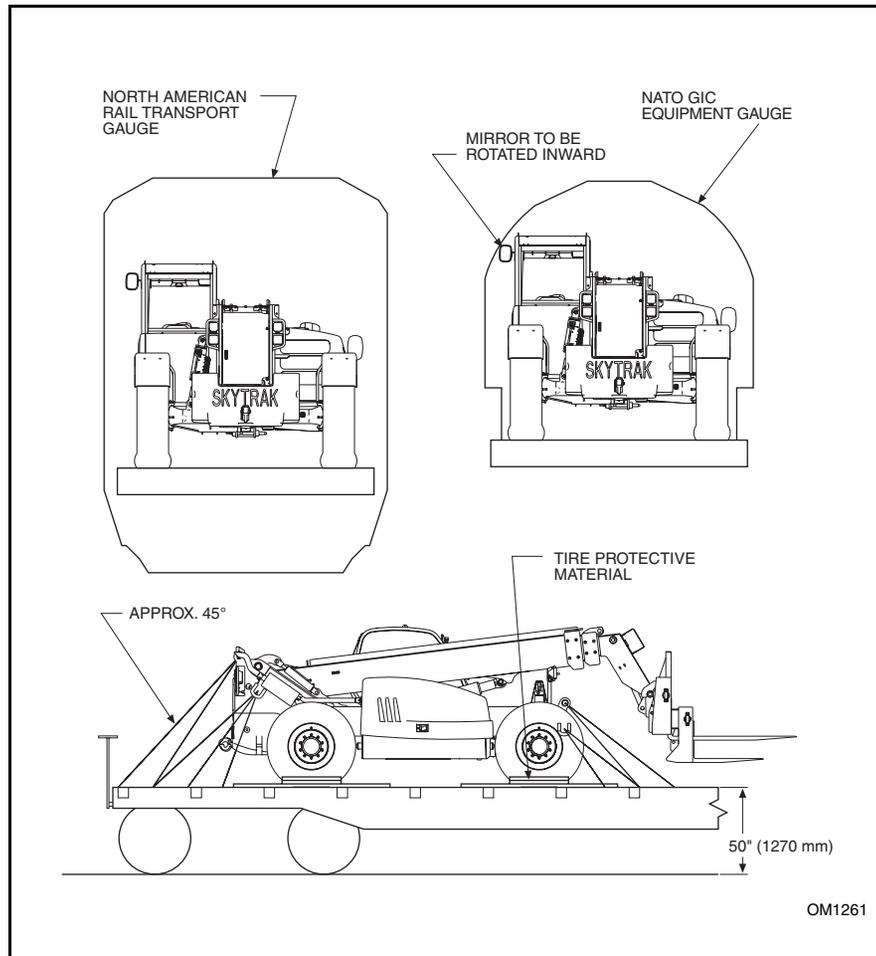
Refer to the following diagram.



MMV OPERATOR TRAINING PROGRAM

Rail Transportability and GIC Clearance

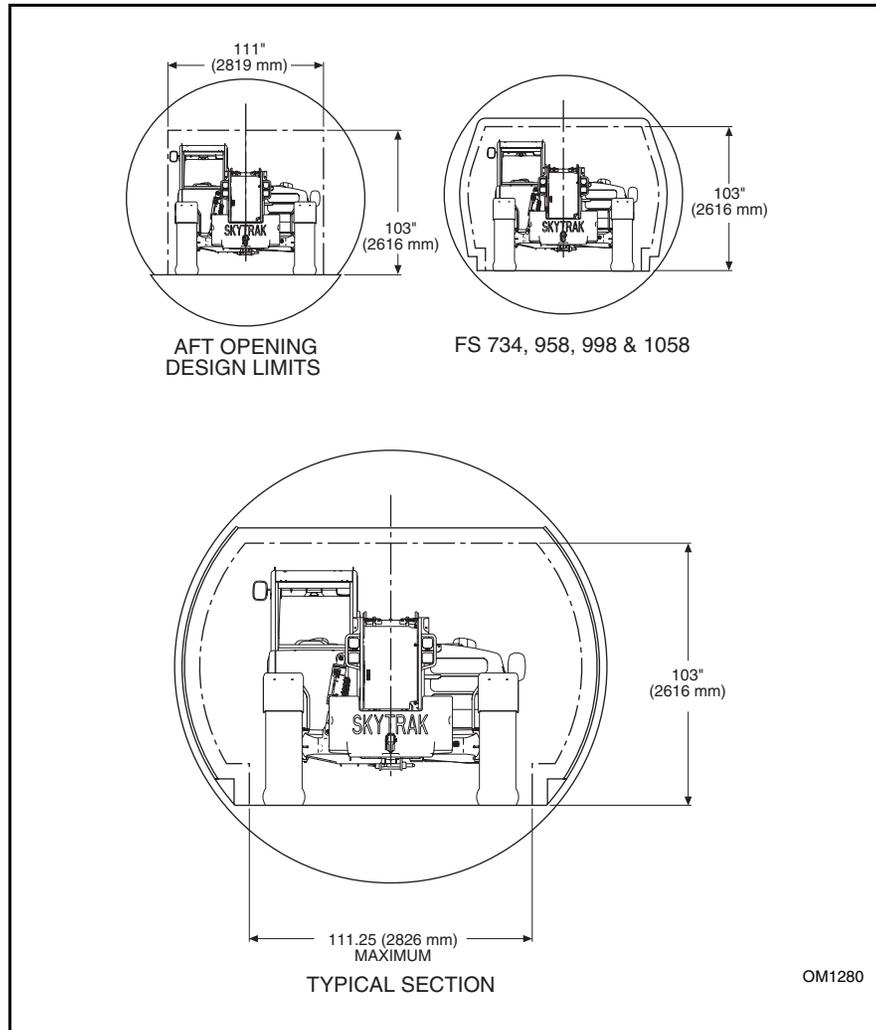
Refer to the following diagram.



MMV OPERATOR TRAINING PROGRAM

Air Transport, C-17, C141 or C-5 Tiedowns

Refer to the following diagrams.



MMV OPERATOR TRAINING PROGRAM

Air Transport, C-17, C141 or C-5 Tiedowns cont'd

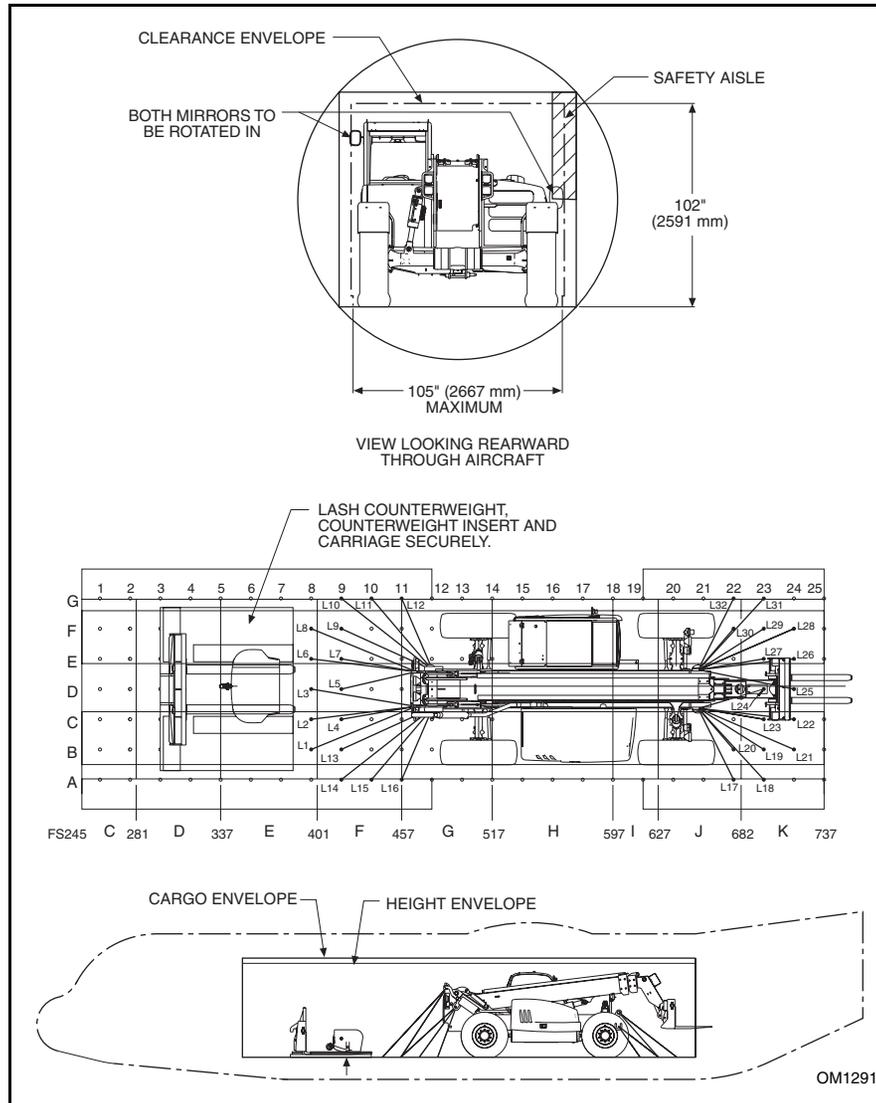
OM1271

Axle and Tire Data		
Axle	Rear	Front
Axle Load	15,700 lbs. (7.121 Kg)	14,800 lbs. (6.713 Kg)
Load/Tire	7,850 lbs. (3.561 Kg)	7,400 lbs. (3.357 Kg)
Footprint Area @ 87 PSI	123 Sq. In. (793 cm ²)	119 Sq. In. (768 cm ²)

MMV OPERATOR TRAINING PROGRAM

Air Transport, C-130 Configuration

Refer to the following diagram.



For axle weights and pallet weights refer to the following tables.

MMV OPERATOR TRAINING PROGRAM

Air Transport, C-130 Configuration cont'd

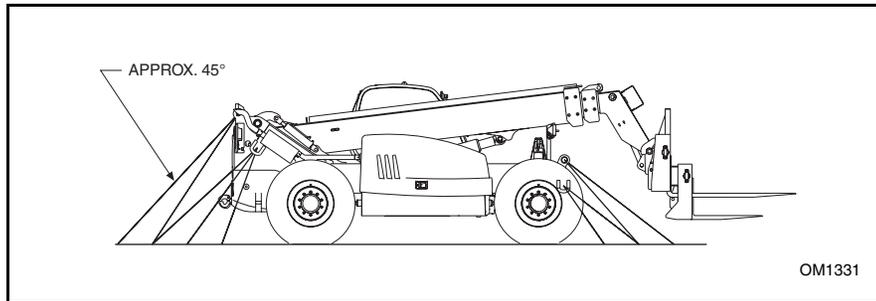
Axle and Tire Data		
Axle	Rear	Front
Axle Load	11,100 lbs (5.035 Kg)	12,200 lbs (5.534 Kg)
Load/Tire	5,550 lbs (2.517 Kg)	6,100 lbs (2.767 Kg)
Footprint Area @ 87 PSI	101 Sq. In. (652 cm ²)	105 Sq. In. (677 cm ²)

463L Pallet Data	
463L Pallet Weight	290 lbs. (131 Kg)
7,000 lb Fork Carriage Weight	2,500 lbs. (1134 Kg)
Counterweight Assembly Weight	4,200 lbs. (1905 Kg)
Counterweight Insert Weight	500 lbs. (227 Kg)
Total Weight	7,490 lbs. (3397 Kg)

MMV OPERATOR TRAINING PROGRAM

Marine Transportability

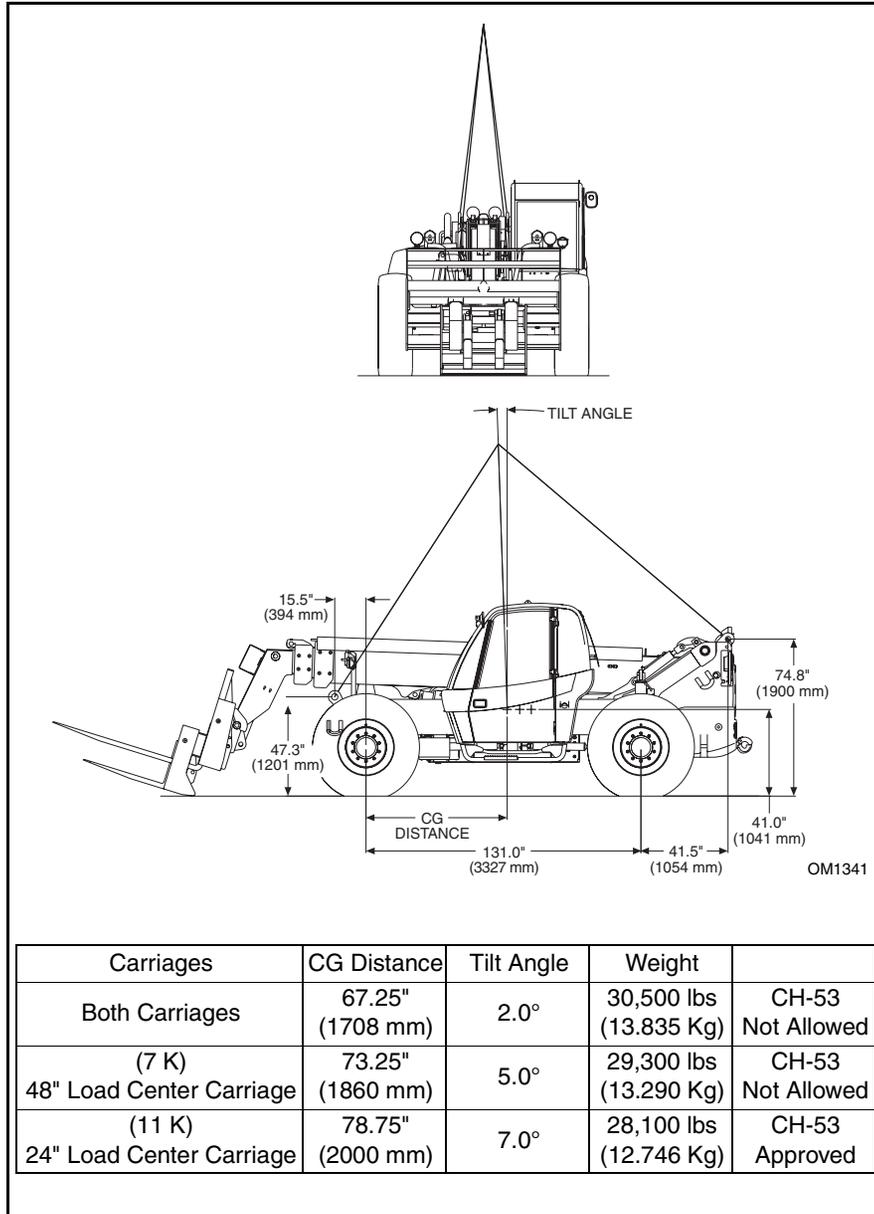
Refer to the following diagram.



MMV OPERATOR TRAINING PROGRAM

External Transport/Slings

Refer to the following diagram.



Test Procedures

MMV OPERATOR TRAINING PROGRAM

Stabil-TRAK™ System Test

To test the function of the Stabil-TRAK system, read the Stabil-TRAK System Test Instructions on this page and follow Steps 1 through 9 of the Stabil-TRAK System Test Procedure.

Stabil-TRAK™ System Test Instructions

- Test the Stabil-TRAK system with the vehicle on a level surface.
- Remove any attachment from the quick attach before performing the test.
- **DO NOT** extend the boom at any time during the test. Perform the test with the boom fully retracted.
- **DO NOT** raise the boom above 60° for Steps 3 through 6.
- **DO NOT** raise the boom above 45° for Steps 7 through 9.
- Follow Steps 1 through 9 of the Stabil-TRAK system test procedure exactly as written.

IMPORTANT! *If the Stabil-TRAK light goes OFF and the front left tire lowers to the ground at any time during Steps 4 through 7, the test was not performed properly or the Stabil-TRAK system is not functioning properly. Carefully repeat the steps starting with Step 1.*

*If the Stabil-TRAK light goes OFF and the front left tire lowers to the ground consistently during Steps 4 through 7, the Stabil-TRAK system is not functioning properly and the test should be stopped immediately. Contact your local **OmniQuip** Sales & Service Center (SSC) immediately to repair the system.*



WARNING: DO NOT operate this vehicle unless you are in the seat with the seat belt fastened around you. Death or serious personal injury could result if the belt is not securely fastened.

Stabil-TRAK™ System Test Procedures

Step 1:

- a. Place the vehicle on a level surface with 0° sway.
- b. Have the boom fully retracted and horizontal.
- c. Place an 8" (203 mm) wood or cement block in front of the front left tire.
- d. Enter the vehicle.
- e. Fasten the seat belt.
- f. Turn the ignition switch to the RUN position.
- g. Check to be sure the Stabil-TRAK light is OFF. (See display panel for the location of the light in the display panel.)

Step 2:

- a. Push and turn the ignition switch and start the engine.
- b. Turn the parking brake switch OFF.
- c. Move the range select lever to (1) FIRST gear.
- d. Move the travel select lever to the (F) FORWARD position.
- e. Drive the vehicle up on the block.
- f. Use the frame sway control to level the vehicle back to 0°.

Step 3:

- a. Depress the service brake pedal.
- b. Move the travel select lever to the (N) NEUTRAL position.
- c. Raise the boom to exactly 60°. The Stabil-TRAK light should come ON when the boom angle is at about 40° and remain ON.

MMV OPERATOR TRAINING PROGRAM

Step 4:

- a. Use your left foot to depress the service brake pedal.
- b. Move the travel select lever to the (R) REVERSE position.
- c. Ease your left foot partially off the service brake pedal make sure that the Stabil-TRAK light remains ON.
- d. With your right foot, increase the engine RPM slightly, as necessary, just enough to back the vehicle off the block. While backing off the block, the front left tire should remain off the ground.

IMPORTANT! Perform procedures 5 through 9 with the engine rpm at idle.

Step 5:

- a. Keep the service brake pedal depressed.
- b. Move the travel select lever to the (N) NEUTRAL position.
- c. Take your foot off the service brake pedal. The Stabil-TRAK light should remain ON and the front left tire should remain off the ground.

Step 6:

- a. With the travel select lever in the (N) NEUTRAL position, engage the parking brake switch.
- b. Move the travel select lever to the (F) FORWARD position. The Stabil-TRAK light should remain ON and the front left tire should remain off the ground.

Step 7:

- a. With the parking brake switch ON, move the travel select lever to the (N) NEUTRAL position.
- b. Lower the boom to exactly 45°.
- c. Frame sway the vehicle no more than 5° to the left.
- d. Frame sway the vehicle back to 0°.
- e. Frame sway the vehicle no more than 5° to the right.

NOTE: Observe that frame sway will be slower than normal during this test.

- f. The Stabil-TRAK light should remain ON and the front left tire should remain off the ground. The front left tire should not raise or lower during frame sway.
- g. Frame sway back toward 0°, leaving the vehicle swayed to the right approximately 1° to 2°.

Step 8:

- a. Depress the service brake pedal.
- b. Disengage the parking brake switch.
- c. With the range select lever in (1) FIRST gear, move the travel select lever to the (R) REVERSE position.
- d. Release the service brake pedal to deactivate the Stabil-TRAK system.
- e. The Stabil-TRAK light should go OFF.
- f. The front left tire should return to the ground while the vehicle travels in reverse.
- g. Depress the service brake pedal to stop the vehicle.

Step 9:

- a. With the service brake pedal depressed and the boom angle at exactly 45°, move the range select lever to (3) THIRD gear.
- b. Move the travel select lever to (F) FORWARD.
- c. Release the service brake pedal to deactivate the Stabil-TRAK system. The Stabil-TRAK light should go OFF.
- d. Slowly drive the vehicle forward against the block to stop the vehicle from moving forward.
- e. With the front left tire against the block, frame sway the vehicle no more than 5° to the left.
- f. Check that the front left tire remains on the ground. It is normal for the front left tire to raise slightly when swaying to the left, but the tire should immediately lower when the frame sway function is stopped.
- g. Frame sway the vehicle back to 0° and pause briefly.
- h. Frame sway the vehicle no more than 5° to the right.
- i. Check that the front right tire remains on the ground. It is normal for the front right tire to raise slightly when swaying to the right, but the tire should immediately lower when the frame sway function is stopped.
- j. Frame sway the vehicle back to 0°.
- k. Depress the service brake pedal.
- l. Shift the travel select lever to (N) NEUTRAL.
- m. Lower the boom.

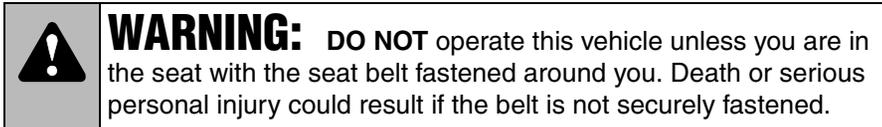
If steps 1 through 9 prove positive, the Stabil-TRAK system is functioning properly and the vehicle can be returned to service. If any of these steps indicate that the Stabil-TRAK system is not functioning properly, contact your local **OmniQuip** Sales & Service Center (SSC) immediately to repair the system.

MMV OPERATOR TRAINING PROGRAM

Parking Brake/Transmission De-Clutch Test Procedures

To check that the parking brake/transmission de-clutch system is functioning properly, perform the following tests.

IMPORTANT! These tests should be performed in (1) FIRST gear only.



Test 1 - Transmission De-Clutch

Step 1

- a. Place the vehicle on a level surface.
- b. Clear the area in front and behind the vehicle of any obstacles.
- c. Fasten your seat belt.
- d. Push and turn the ignition switch and start the engine.
- e. With the parking brake applied, move the range select lever to (1) FIRST gear.
- f. Move the travel select lever to (F) FORWARD.
- g. Depress the throttle pedal fully. The unit should not move.

Step 2

- a. Remove your foot from the throttle pedal.
- b. Move the travel select lever to (R) REVERSE.
- c. Depress the throttle pedal fully. The unit should not move.
- d. Remove your foot from the throttle pedal.
- e. Move the travel select lever to (N) NEUTRAL.

Test 2 - Transmission De-Clutch/Parking Brake Activation

- a. With the vehicle unloaded, disengage the parking brake.
- b. Move the travel select lever to (F) FORWARD.
- c. Move the unit **slowly** in a forward direction (approximately 1 mph [1,6 kmh]).
- d. Engage the parking brake. The unit should stop abruptly.

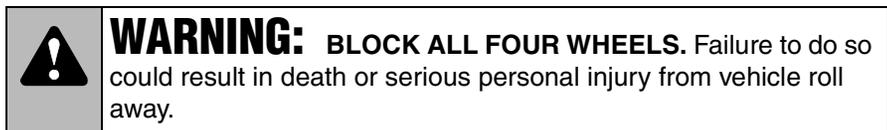
MMV OPERATOR TRAINING PROGRAM

Test 3 - Park Brake Hold Performance

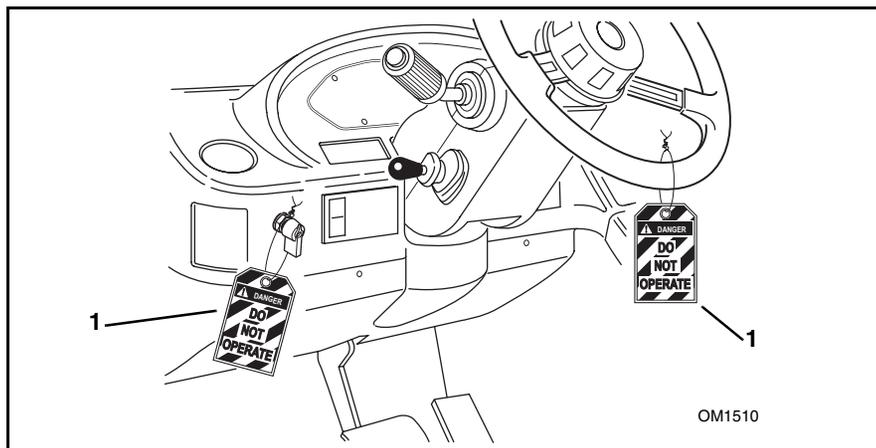
- a. With the rated load of 11,000 lbs (4.989 Kg) on the forks, drive the vehicle forward up a 15% grade (15 ft. rise over 100 ft. run).
- b. Stop the vehicle using the service brakes, apply the park brake, shift the transmission into NEUTRAL (N).
- c. Take your foot off the service brake pedal. The vehicle should not move.
- d. Apply the service brakes, shift the transmission into REVERSE (R), move the park brake switch to the OFF position and back down off the grade.
- e. Repeat "Test 3" by backing up the grade and checking the park brake holding performance.

If the parking brake or transmission de-clutch does not pass these tests, do the following.

1. **Immediately** remove the vehicle from service.



2. Block all four wheels to prevent the vehicle from moving.
3. Place the accident prevention tags (1) on the ignition switch and the steering wheel.
4. Service the parking brake immediately or contact your local **OmniQuip** Sales & Service Center (SSC) to repair the system.



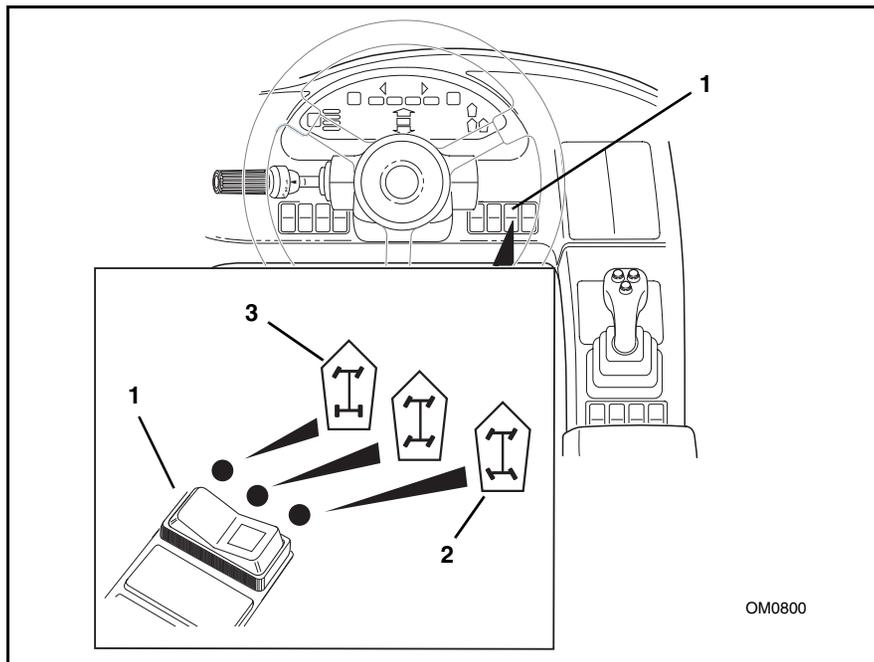
MMV OPERATOR TRAINING PROGRAM

Four Wheel Steer Indexing Procedure

If the vehicle does not drive “straight,” the steering could be out-of-phase. Perform the following Four Wheel Steer Indexing Procedure to synchronize the front and rear steering.

1. With the steering select switch (1) in the Four Wheel Steer position (2), turn the steering wheel full left.
2. While holding the steering wheel full left, toggle the steer select switch to the Front Wheel Steer position (3) and steer the front wheels back to center.
3. Toggle the steer select switch back to Four Wheel Steer position (2) and turn the steering wheel full left.
4. Toggle the steer select switch back to Front Wheel Steer position (3) and steer the front wheels full left.
5. Toggle the switch to the Four Wheel Steer position (2) and return to center.

The vehicle should now be properly indexed in Four Wheel Steering. If the wheels are still out-of-phase, repeat the above procedure.



Specifications

MMV OPERATOR TRAINING PROGRAM

Fluid & Lubrication Capacities

Engine Crankcase Oil:

Capacity with Filter Change 13.3 quarts (12,6 liters)

Filter Capacity 1.3 quart (1,2 liter)

Type of Oil See Chart

Above 23° F (-5° C) 15W40

23° F (-5° C) to -25° F (-32° C) 5W30

Below -25° F (-32° C) 0W30

Oil Meeting MIL-PRF-2104G Specifications Is Also Acceptable

Fuel Tank:

Total Capacity 35.5 gallons (134 liters)

Usable Capacity 33.5 gallons (127 liters)

Type of Fuel

Below 32° F (0° C) Winterized #2 Diesel

Above 32° F (0° C) Standard #2 Diesel

Alternate Fuels Include: JP-5, JP-8 and Jet A-1

Cooling System:

Cooling System Capacity (w/o heater) 12.5 quarts (11,8 liters)

Overflow Bottle Capacity 3.0 quarts (2,8 liters)

Type of Coolant 50/50 ethylene glycol and water

Hydraulic System:

System Capacity 41.3 gallons (156 liters)

Reservoir Capacity to Full Mark 28.5 gallons (108 liters)

Type of Oil See Chart

14° F (-10° C) & Above MIL-PRF-2104G Grade 10 Hydraulic Oil

125° F (50° C) & Below .. DEXRON III (Automatic Transmission Fluid)

Transmission:

Capacity with filter change 12 quarts (11,4 liters)

Type of Oil See Chart

Above 125° F (50° C) MIL-PRF-2104G Grade 15W40

14° F (-10° C) to 125° F (50° C) MIL-PRF-2104G Grade 10W30
(Universal Tractor Fluid)

Below 14° F (-10° C) DEXRON III (Automatic Transmission Fluid)

Filter Capacity 1 quart (1 liter)

Axles:

Differential Housing Capacity 10.5 quarts (10 liters)

Type of Oil See Chart

Above 100° F (38° C) MIL-PRF-2104G Grade 15W40

Below 100° F (38° C) MIL-PRF-2104G Grade 10W30
(Universal Tractor Fluid)

Wheel Ends:

Wheel End Capacity 1.3 quarts (1,2 liters)

Type of Oil See Chart

Above 100° F (38° C) MIL-PRF-2104G Grade 15W40

Below 100° F (38° C) MIL-PRF-2104G Grade 10W30
(Universal Tractor Fluid)

Transfer Case:

Capacity 1.5 quarts (1,4 liters)

Type of Oil See Chart

Above 100° F (38° C) MIL-PRF-2104G Grade 15W40

Below 100° F (38° C) MIL-PRF-2104G Grade 10W30
(Universal Tractor Fluid)

MMV OPERATOR TRAINING PROGRAM

Tires

Air Pressure:

15.5R25, L-2, (2 star minimum) 87 psi (600 kPa)

Wheel Lug Nut Torque:

Torque 430-470 lb/ft (583-637 Nm)

Maximum Ground Pressure (w/full load):

7K Fork carriage (15.5R25, L-2, 2 star) 174 psi (1200 kPa)

11K Fork carriage (15.5R25, L-2, 2 star) 185 psi (1275 kPa)

Footprint (w/full load):

7K Fork carriage (15.5R25, L-2, 2 star) 183 sq. in. (1181 cm²)

11K Fork carriage (15.5R25, L-2, 2 star) 209 sq. in. (1348 cm²)

Weights

Basic Vehicle:

Curb Weight (with both carriages) 30,500 lbs (13.835 Kg)

Curb Weight (with 7K fork carriage) 29,300 lbs (13.290 Kg)

Curb Weight (with 11K fork carriage) 28,100 lbs (12.746 Kg)

Curb Weight (without any carriages) 26,900 lbs (12.202 Kg)

Maximum Rated Capacity:

7K Fork Carriage 7,000 lbs (3.175 Kg)

11K Fork Carriage 11,000 lbs (4.989 Kg)

Vehicle Dimensions

With 15.5R25, L-2, 2 Star Tires:

Length (less forks) 248 inches (6.299 mm)

Width 101 inches (2.565 mm)

Height 93 inches (2.362 mm)

Wheelbase 131 inches (3.327 mm)

Ground Clearance 15.1 inches (383 mm)

Tread Center 84 inches (2.134 mm)

Maximum Lift Height 42 feet 4 inches (12.9 meters)

Max. Forward Reach 30 feet (9.1 meters)

MMV OPERATOR TRAINING PROGRAM

Electrical System

Rating: 12/24V DC Negative Ground

Number of Batteries: Two

Type:..... Maintenance Free (1225 Cold Cranking Amps)

Series of Batteries:..... HASP-FT

Alternator Rating: 24 Volt - 70 Amp

Battery Equalizer Rating: 12/24 Volt

Fuse Ratings (Fuse Block):

Main	30 Amp
Ignition - Preheat.....	15 Amp
Hourmeter	2 Amp
Transmission Gear	5 Amp
Transmission Direction	5 Amp
Front Dash Display Panel.....	15 Amp
Parking Brake.....	5 Amp
Joystick Logic Panel.....	7.5 Amp
Power Window	30 Amp
LMI (Load Moment Indicator)	3 Amp
Service Brake.....	2 Amp
Front Wiper/Washer	7.5 Amp
Left Fork Shift	7.5 Amp
Steer Mode	5 Amp
Top Wiper/Washer.....	7.5 Amp
Right Fork Shift	7.5 Amp
Rear Wiper.....	7.5 Amp
Switch Lamps.....	2 Amp
Heater	25 Amp

Relay Ratings (Fuse Block):

Neutral Engage Relay	12 Volt
Door Window Relay	12 Volt
Closed Cab Accessory Power Relay	12 Volt
Fuse, Relay & Circuit Breaker Ratings (Right Side Dash):	
Horn.....	7.5 Amp
Normal Lights	25 Amp
Blackout Lights	25 Amp
Work Light Power Relay	24 Volt
High Beam Power Relay.....	24 Volt
Brake Light Relay	12 Volt
Light Power Relay.....	12 Volt
Blackout Ignition Relay	12 Volt
Normal Lights Ignition Relay.....	12 Volt
Reverse Signal Relay	12 Volt
Ignition Circuit Breaker	12 Volt/50 Amp

Fuse & Relay Ratings (Under Engine Cover):

Fuel Shut Off Solenoid	5 Amp
Fuel Shut Off Solenoid Relay	12 Volt
Battery Equalizer (12V Positive)	125 Amp
Battery Equalizer (24V Positive)	125 Amp

Fuse & Relay Ratings (Inside Rear Door):

Air Conditioner Condenser Fan Motor	15 Amp
Air Conditioner Condenser Fan Relay	12 Volt

Engine

Turbocharged Cummins:

Model.....	4BTA 3.9 Aftercooled Turbo
Horsepower	116 hp @ 2500 rpm

Load Placement

MMV OPERATOR TRAINING PROGRAM

How To Pick, Carry & Place A Load



WARNING: The Load Moment Indicator (LMI) system is not intended to be an absolute replacement for the capacity charts. **DO NOT** exceed rated capacities! Any attempt to lift or carry loads in excess of those shown on the capacity chart may cause vehicle tipover, loss of load or structural damage which could result in death or serious personal injury.

IMPORTANT! All lights continuously ON or NO lights at all on the LMI display is an indication that the LMI system is malfunctioning or out of calibration. Contact your local **OmniQuip** Sales & Service Center (SSC) or refer to the MMV Service Manual for the proper procedure to recalibrate or repair the system. **NEVER** attempt to work with a load when the LMI system is malfunctioning.

The LMI system is a warning device that alerts the operator by means of progressive colored lights and an audible alarm that informs the operator of the machines front or rear stability. As the load is extended and/or raised, the LMI system senses the strain on the rear axle and starts to illuminate the first green light when the load reaches 40% of the vehicles capacity. As the load reaches 100% of capacity the three green lights will be ON and the amber light will flash. As the load goes over 100% of capacity the red light will come ON and the alarm will sound.

ALWAYS test the LMI system before starting to work with a load.

To pick a load, move the forks inward or outward on the fork shaft so that they are aligned with the openings in the pallet. Extend the boom slowly so the forks slide into the openings in the pallet. Raise the boom so that the load is lifted.

To carry a load, position the boom so that the load is as low as possible and the travel area is visible to the operator.



WARNING: **DO NOT** operate the vehicle with the LMI system malfunctioning. Attempting to lift or carry loads in excess of the rated capacity of the vehicle may cause vehicle tipover which could result in death or serious personal injury.

The LMI system display is an indicator that is used by the operator to monitor the vehicles front or rear stability while working with loads. This system does not replace the information contained on the individual load charts or the skills of a trained or experienced operator.

Before placing the load, use the capacity chart to determine safe boom extension range for the applicable load. To place a load, align the forks at the level the load is to be placed and then extend the boom slowly until the load is just above the area where it is to be placed. Lower the boom until the pallet rests in position and the forks are free to retract.