CEAM024203

Operation & Maintenance Manual

Dump Truck

930E-4

Serial Numbers A31002 & UP

WARNING

Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept near the machine for reference and periodically reviewed by all personnel who will come into contact with it.

NOTICE

Komatsu has Operation & Maintenance Manuals written in some other languages. If a foreign language manual is necessary, contact your local distributor for availability.

KOMATSU

STANDARD CHARTS AND TABLES

⚠ WARNING

Read and follow all safety precautions. Failure to do so may result in serious injury or death.

This safety section also contains precautions for optional equipment and attachments.

CONVERSION MULTIPLIERS METRIC TO ENGLISH

Table 2-11

Common Conversion Multipliers Metric To English		
To Convert From	**To**	**Multiply By**
millimeter (mm)	inch (in.)	0.0394
centimeter (cm)	inch (in.)	0.3937
meter (m)	foot (ft)	3.2808
meter (m)	yard (yd)	1.0936
kilometer (km)	mile (mi)	0.6210
square centimeters (cm^2)	square inch ($in.^2$)	0.1550
square centimeters (cm^2)	square feet (ft^2)	0.001
cubic centimeters (cm^3)	cubic inch ($in.^3$)	0.061
liters (L)	cubic inch ($in.^3$)	61.02
cubic meters (m^3)	cubic feet (ft^3)	35.314
liters (L)	cubic feet (ft^3)	0.0353
grams (g)	ounce (oz)	0.0353
milliliter (mL)	fluid ounce (fl oz)	0.0338
kilogram (kg)	pound (mass)	2.2046
Newton (N)	pounds (lb)	0.2248
Newton meters (N·m)	kilogram force meters (kgf·m)	0.102
Newton meters (N·m)	foot pounds (ft lb)	0.7376
kilogram force meters (kgf·m)	foot pounds (ft lb)	7.2329
kilogram force meters (kgf·m)	Newton meters (N·m)	9.807
kilopascals (kPa)	pounds/square inch (psi)	0.1450
megapascals (MPa)	pounds/square inch (psi)	145.038
kilograms/cm^2 (kg/cm^2)	pounds/square inch (psi)	14.2231
kilograms/cm^2 (kg/cm^2)	kilopascals (kPa)	98.068
kilogram (kg)	short ton (tn)	0.0011
metric ton	short ton (tn)	1.1023
liters (L)	quart (qt)	1.0567
liters (L)	gallon (gal)	0.2642
Watts (W)	horsepower (hp)	0.00134
kilowatts (kW)	horsepower (hp)	1.3410

OPERATING THE MACHINE

General Information

While operating the truck obey the following guidelines:

- Wear seat belts at all times. Only authorized persons are allowed to ride in the truck.
- Passengers must be in the cab and belted in the passenger seat.
- DO NOT allow anyone to ride on the decks or on the steps of the truck.
- DO NOT allow anyone to get on or off the truck while it is in motion.
- DO NOT move the truck in or out of a building without a signal person present.
- Keep serviceable fire fighting equipment on hand. Report used extinguishers for replacement or refilling.
- Always move the directional control lever to PARK (this will apply the parking brake) when the truck is parked and unattended. DO NOT leave the truck unattended while the engine is running.

NOTE: *DO NOT use wheel brake lock when parking the truck.*

- Park the truck a safe distance away from other vehicles as determined by the supervisor.
- Stay alert at all times! In the event of an emergency, be prepared to react quickly and avoid accidents. If an emergency arises, know where to get prompt assistance.
- Know and obey hand signal communications between the operator and spotter. Use a signal person when other machines and personnel are present, the operator must move in and out of buildings, and traveling through traffic.
- Immediately report any adverse conditions on haul road, pit or dump area that may cause an operating hazard.
- Check for flat tires periodically during a shift. If the truck has been operating on a “flat”, the truck must not be parked indoors until the tire cools. DO NOT stand in front of the rim and locking ring when inflating a tire mounted on the machine. Observers must not be permitted in the area and must be kept away from the side of such tires.

⚠ DANGER

- **A tire and rim assembly may explode if subjected to excessive heat. Personnel must move to a remote or protected location if there is a fire near the tire and wheel area or if the smell of burning rubber or excessively hot brakes is evident.**
- **If the truck must be approached, such as to fight a fire, those personnel must do so only while facing the tread area of the tire (front or back), unless protected by use of large heavy equipment as a shield. Stay at least 15 m (50 ft) from the tread of the tire.**
- **In the event of fire in the tire and wheel area (including brake fires), stay away from the truck for at least 8 hours or until the tire and wheel are cool.**

Starting The Engine

- DO NOT attempt to start the machine by shorting across the starter terminals. This may cause fire, or serious injury or death to anyone in machine’s path.
- DO NOT start the engine if a warning tag has been attached to the controls.

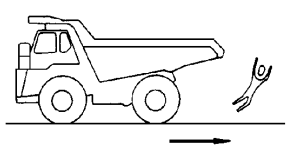
When starting the engine, sound the horn as an alert. Start and operate the machine only while seated in the operator’s seat. DO NOT allow any unauthorized persons in the operator's compartment or any other place on the machine.

Traveling In The Machine

When traveling on rough ground, travel at low speeds. When changing direction, avoid turning suddenly. Lower the dump body and move the dump lever to the FLOAT position before traveling. If the engine stops when the machine is in motion, the emergency steering system will be activated. Apply the brakes immediately and stop the machine as quickly and safely as possible (off of the haul road, if possible). Apply the parking brake.

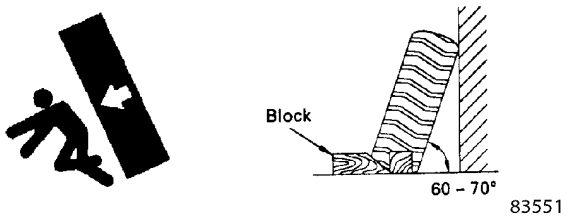
Traveling In Reverse

Before operating the machine or work equipment, do as follows:



- Ensure the backup alarm works properly.
- Sound the horn to warn people in the area.
- Check for personnel near the machine. Do a thorough check behind the machine.

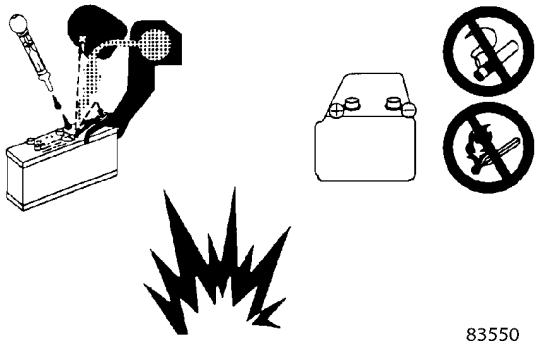
Storing Tires After Removal



Store the tires in a warehouse in which unauthorized persons cannot enter. If the tires are stored outside, erect a fence around the tires with warning signs. Stand the tire on level ground, and block it securely so that it cannot roll or fall over. If the tire falls, flee the area as quickly as possible. The tires for mining equipment are extremely heavy. DO NOT attempt to hold a tire upright when the tire is falling. The weight of these tires may lead to serious injury or death.

Mounted tires stored as spares must be inflated to the minimum inflation pressure necessary to keep the tire beads properly seated. Maximum inflation pressure of the stored tire must, in no instance, exceed 15% of the tire's cold inflation pressure.

Battery Hazard Prevention



Before repairing the electrical system or when performing welding, turn the key switch to the OFF position. Wait two minutes after the engine has stopped, and if no warning lights illuminate, then turn the master disconnect switch and starter disconnect switch to the OFF position.

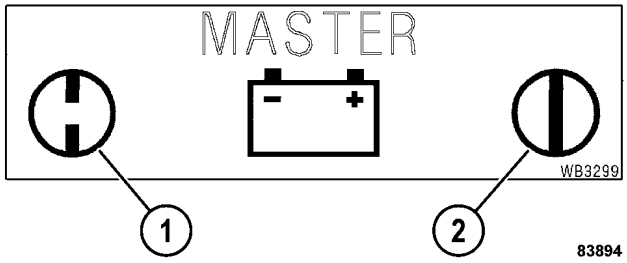
Battery electrolyte contains sulfuric acid and can quickly burn the skin and eat holes in clothing. If electrolyte comes in contact with skin, immediately flush the area with water.

Battery acid can cause blindness if splashed into the eyes. Always wear safety glasses or goggles when working with batteries. If acid gets into the eyes, flush them immediately with large quantities of water and see a doctor immediately.

If acid is accidentally ingested, drink a large quantity of water, milk, beaten eggs or vegetable oil. Call a doctor or poison prevention center immediately.

When working with batteries, obey the following guidelines:

- Batteries generate hydrogen gas. Hydrogen gas is very explosive, and is easily ignited with a small spark or flame.
- Before working with batteries, stop the engine and turn the key switch to the OFF position. Wait two minutes after the engine has stopped. If no warning lights illuminate, then turn the battery disconnect switches to the OFF position.
- Avoid short-circuiting the battery terminals through accidental contact with metallic objects, such as tools, across the terminals.
- When removing or installing a battery, positively identify the positive (+) terminal and negative (-) terminal and use precautions not to short circuit between the terminals.
- This truck is equipped with a master disconnect switch on the battery ground circuit. When disconnecting battery cables, always move the master disconnect switch to the OFF position. Disconnect the positive (+) battery cables first, then disconnect the negative (-) battery cables.



1. Off 2. On

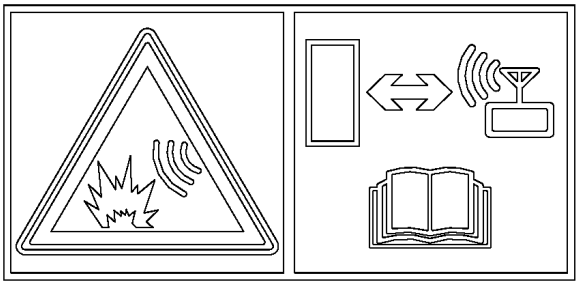
Figure 3-5 MASTER DISCONNECT SWITCH

NOTE: *If the master disconnect switch is OFF, and a wrench on the negative (-) terminal touches the battery box frame, a spark will occur if any electrical component on the truck was left in the ON position.*

- When connecting battery cables, always move the master disconnect switch to the OFF position. Connect the negative (-) cables first, then the positive cables (+) last.
- Tighten battery terminals securely. Loose terminals can generate sparks and could lead to an explosion.

This decal is located by the emergency ladder on both sides of the truck.

This decal is located in the cab to the left of the intake vacuum gauges. Wireless signals from the truck's KOMTRAX Plus system can interfere with other wireless signals in the area. This interference can cause a malfunction in a blast zone resulting in an unintended detonation. Know the locations of blast zones in the area and keep a safe distance to avoid unintentional blasts. Operating frequency of KOMTRAX Plus is 148 MHz to 150 MHz.

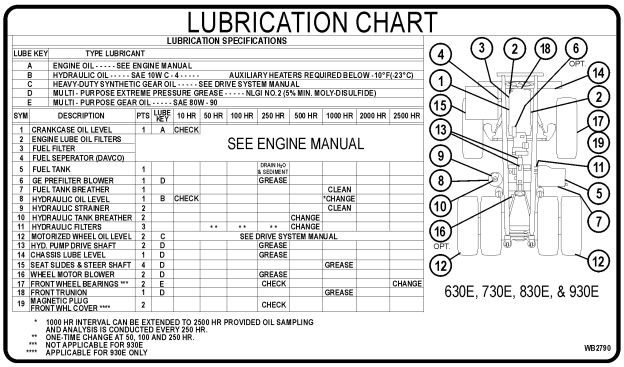


KEY SWITCH

A warning decal is located below the key switch, to the right of the steering column on the instrument panel. The warning stresses the importance of reading the operator's manual before operation.

LUBRICATION CHART

The lubrication chart is mounted on the left hand side of the radiator grille structure. Refer to the lube chart in the lubrication and service section later in this manual for more complete lubrication instructions.



LUBRICATION CHART

LUBRICATION SPECIFICATIONS

LUBE KEY	TYPE LUBRICANT
A	ENGINE OIL - - - - - SEE ENGINE MANUAL
B	HYDRAULIC OIL - - - - - SAE 10W C - 4 - - - - - AUXILIARY HEATERS REQUIRED BELOW -10°F(-23°C)
C	HEAVY-DUTY SYNTHETIC GEAR OIL - - - - - SEE DRIVE SYSTEM MANUAL
D	MULTI - PURPOSE EXTREME PRESSURE GREASE - - - - - NLGI NO.2 (5% MIN. MOLY-DISULFIDE)
E	MULTI - PURPOSE GEAR OIL - - - - - SAE 80W - 90

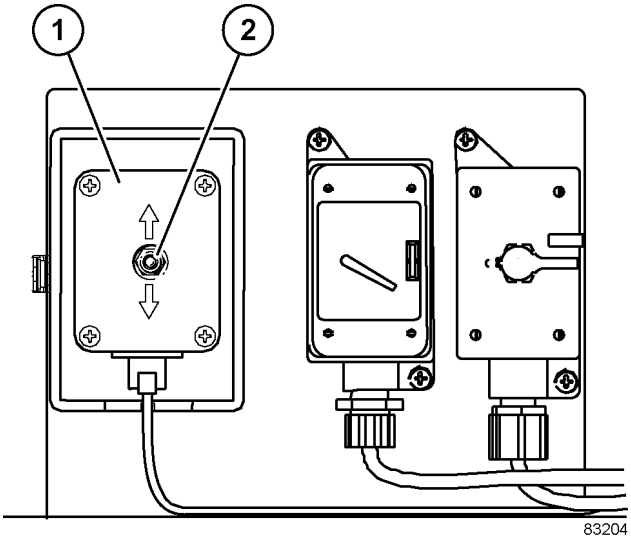
SYM	DESCRIPTION	PTS	LUBE KEY	10 HR	50 HR	100 HR	250 HR	500 HR	1000 HR	2000 HR	2500 HR
1	CRANKCASE OIL LEVEL	1	A	CHECK							
2	ENGINE LUBE OIL FILTERS	SEE ENGINE MANUAL									
3	FUEL FILTER										
4	FUEL SEPERATOR (DAVCO)										
5	FUEL TANK	1					DRAIN H2O & SEDIMENT				
6	GE PREFILTER BLOWER	1	D				GREASE				
7	FUEL TANK BREATHER	1							CLEAN		
8	HYDRAULIC OIL LEVEL	1	B	CHECK					*CHANGE		
9	HYDRAULIC STRAINER	2							CLEAN		
10	HYDRAULIC TANK BREATHER	2						CHANGE			
11	HYDRAULIC FILTERS	3			**	**	**	CHANGE			
12	MOTORIZED WHEEL OIL LEVEL	2	C	SEE DRIVE SYSTEM MANUAL							
13	HYD. PUMP DRIVE SHAFT	2	D				GREASE				
14	CHASSIS LUBE LEVEL	1	D				GREASE				
15	SEAT SLIDES & STEER SHAFT	4	D						GREASE		
16	WHEEL MOTOR BLOWER	2	D				GREASE				
17	FRONT WHEEL BEARINGS ***	2	E				CHECK				CHANGE
18	FRONT TRUNION	1	D						GREASE		
19	MAGNETIC PLUG FRONT WHL COVER ****	2					CHECK				

* 1000 HR INTERVAL CAN BE EXTENDED TO 2500 HR PROVIDED OIL SAMPLING AND ANALYSIS IS CONDUCTED EVERY 250 HR.
** ONE-TIME CHANGE AT 50, 100 AND 250 HR.
*** NOT APPLICABLE FOR 930E
**** APPLICABLE FOR 930E ONLY

630E, 730E, 830E, & 930E

WB2790

Ground Level Control Box



1. Ground Level Control Box
2. Toggle Switch

Figure 5-4 GROUND LEVEL CONTROL BOX

Ground level control box (1, Figure 5-4 GROUND LEVEL CONTROL BOX, page 5-9) is located next to the ground level ladder light switch. Toggle switch (2) lowers and raises the ladder.

NOTE: *The parking brake must be applied before the ladder can be lowered. If toggle switch (2) is held in either position for more than ten seconds, a fault will be activated and will need to be acknowledged by pressing either the [EXIT] or [ENTER] buttons located on the in-cab control panel.*

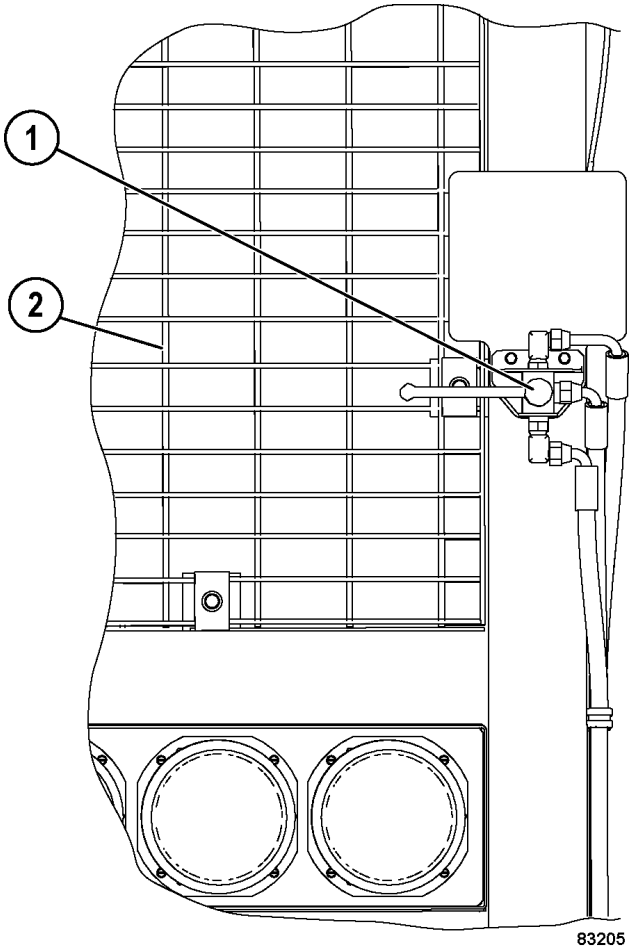
Raising the Ladder

To raise the ladder, push toggle switch (2) to the LADDER UP position and release. Ladder operation via this switch is the same as using the in-cab control panel. Any ladder movement will be shown on the in-cab control panel.

Lowering the Ladder

To lower the ladder, push toggle switch (2) to the LADDER DOWN position and release. Ladder operation via this switch is the same as using the in-cab control panel. Any ladder movement will be shown on the in-cab control panel.

Emergency Down Valve



1. Emergency Down Valve
2. Grille

Figure 5-5 EMERGENCY DOWN VALVE

In an emergency, the RLS ladder can be lowered by using the emergency down valve (1, Figure 5-5 EMERGENCY DOWN VALVE, page 5-9) mounted on the frame above the left hand side headlight assembly. The emergency down valve relieves ladder system hydraulic pressure and allows the ladder to smoothly lower to the ground.

To lower the ladder, rotate the handle on the emergency down valve clockwise. The ladder will lower smoothly until it reaches the ground.

To reset the ladder, rotate the handle counterclockwise to its original position and, with power restored to the power pack, press the [UP] button to raise the ladder.

NOTE: *The handle on the emergency down valve must be in the original position before re-activating the ladder.*

SUDDEN LOSS OF ENGINE POWER

If the engine suddenly stops, there is enough hydraulic pressure stored in the brake and steering accumulators to allow the operation of the steering and brake functions. However, this oil supply is limited so it is important to stop the truck as quickly and safely as possible after the loss of engine power.

If the brake supply pressure drops to a pre-determined level, the low brake pressure warning light will illuminate and a buzzer will sound. If the brake pressure continues to decrease, the auto-apply feature will activate and the service brakes will apply automatically to stop the truck.

NOTE: *Dynamic retarding will not be available. DO NOT use the service brakes for continuous retarding purposes.*

When loss of engine power occurs, perform the following:

1. Bring the truck to a safe stop as quickly as possible by using the foot pedal to apply the service brakes. If possible, safely steer the truck to the side of the road while braking.
2. As soon as the truck has stopped moving, park the truck.
3. Slowly release the service brakes to check the capacity of the parking brake. If the parking brake can not hold the truck stationary, apply the service brakes and hold them ON. DO NOT turn the key switch OFF, and DO NOT release the service brakes.
4. Notify maintenance personnel immediately.
5. If the truck is on level ground, or if the parking brake can hold the truck stationary and the truck is in a stable condition, it is then OK to turn the key switch OFF.
6. If safe to do so, have maintenance personnel place wheel chocks or other mechanisms in front or behind the wheels to reduce the risk of the truck rolling.
7. If traffic is heavy near the disabled machine, mark the truck with warning flags during daylight hours or use flares at night. Adhere to local regulations.

EMERGENCY STEERING SYSTEM

Operation

This truck is equipped with an emergency steering system. This system is a backup in the event of loss of oil supply to the main steering system. The emergency steering system was designed to meet or exceed SAE J1511 and ISO 5010 standards.

If the low steering system pressure indicator light and alarm are activated, a failure in the hydraulic oil supply to the steering and brake system exists. When the alarm is activated, typically there is enough hydraulic pressure stored in the brake and steering accumulators to allow brief operation of the steering and brake functions. However, this oil supply is limited. Therefore, it is important to stop the truck as quickly and safely as possible after the alarm is first activated.

If the oil supply pressure drops to a predetermined level, the low brake pressure warning light will also illuminate. If the oil pressure continues to decrease, the brake auto-apply feature will activate the service brakes to stop the truck.

Pre-Operation Testing

NOTE: *Komatsu recommends that operators perform this test to verify that the steering accumulator precharge pressure is adequate at the beginning of each shift before operating the truck.*

⚠ WARNING

- **Ensure no one is near the front tires during this test. All personnel are warned that clearances change when the steering wheel is turned and this could cause serious injury.**

This test can only be performed with an empty truck.

1. Park the empty truck on flat, level ground. Lower the dump body onto the frame and stop the engine. Ensure the key switch is in the OFF position.
2. Wait at least 90 seconds to verify that all hydraulic pressure has been relieved from the steering accumulators. Turn the steering wheel from stop to stop. If the front wheels do not move, there is no hydraulic pressure.
3. Check the hydraulic tank oil level. The oil level must be visible in the center of the upper sight glass and must not cover the entire upper sight glass. Add oil if necessary. DO NOT overfill.
4. Turn the key switch to the ON position, but DO NOT start the engine.

Payload Meter Module

The payload meter module is housed in a black aluminum housing. There is a small window on the face of the module. Status and active alarm codes can be viewed through the window. During normal operation, a two-digit display flashes 0 back and forth. Active fault codes will be displayed for two seconds. These codes are typically viewed using a laptop computer connected to the serial communications port or the diagnostic port next to the DID panel.

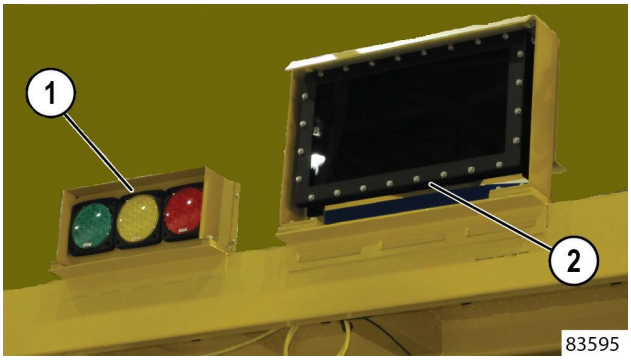
Communications Ports

The payload meter has two RS232 serial communications ports and two CAN ports. Connections for the two serial ports are available inside the payload meter junction box. The two CAN ports are available for future electronics systems.

Serial port #1 is used to communicate with the dashboard display. Serial port #1 is also used to connect to a laptop computer. A laptop computer can also be connected to the payload meter diagnostic port located at the rear of the cab. The display gauge will remain blank when the PC is using the serial port. This port initially operates with serial settings at 9600,8,N,1. These settings change automatically to increase the communications rate when a PC is using the port. This serial port uses a 3-wire hardware connection.

Serial port #2 is used to communicate to other on-board electronics like Modular Mining's Dispatch® system or the scoreboard. This port uses a 3-wire hardware connection. Connections to this serial port need to be approved by Komatsu. Several protocol options are available and detailed technical information is available depending on licensing.

Load Lights



1. Load Lights
2. Payload Meter Score Board (Optional)

Figure 5-12 SCORE BOARD AND LOAD LIGHTS

PLMIII uses load lights to indicate to the shovel operator the approximate weight of the material in the truck. The load lights are illuminated only when the brake lock is applied. The optimal loading target is a solid green and amber lights with a flashing red light. This indicates that the load is between 90% and 105% of rated load for the truck and the next swing load will load the truck over 105%.

A flashing green light indicates the next swingload will make the measured load greater than 50% of rated load. A solid green light indicates that the current load is greater than 50% of rated capacity.

A flashing amber light indicates the next swingload will make the measured load greater than 90% of rated load. A solid amber light indicates that the current load is greater than 90% of rated capacity.

A flashing red light indicates the next swingload will make the measured load greater than 105% of rated load. A solid red light indicates that the current load is greater than 105% of rated capacity.

OPERATORS DISPLAY AND SWITCH

Reading the Load Display

The lower display on the speedometer/display gauge is used for payload information. The SELECT position on the operator switch allows the user to scroll through a number of useful displays. The order for the displays is as follows:

- PL = Payload
- Id = Operator ID
- tL = Total Shift Tons
- LC = Shift Load Counter
- LF = Left Front Suspension Pressure
- rF = Right Front Suspension Pressure
- Lr = Left Rear Suspension Pressure
- rr = Right Rear Suspension Pressure
- In = Inclinometer

The display holds the displayed information until the SELECT switch is pressed again. The suspension pressures, inclinometer, and payload displays are based on current sensor inputs.

Communications to the display use the same serial link as the download connection. Whenever another computer is connected to serial port #1 to download or configure the system, the lower display will blank. This is not the same connection used by mine dispatch systems.

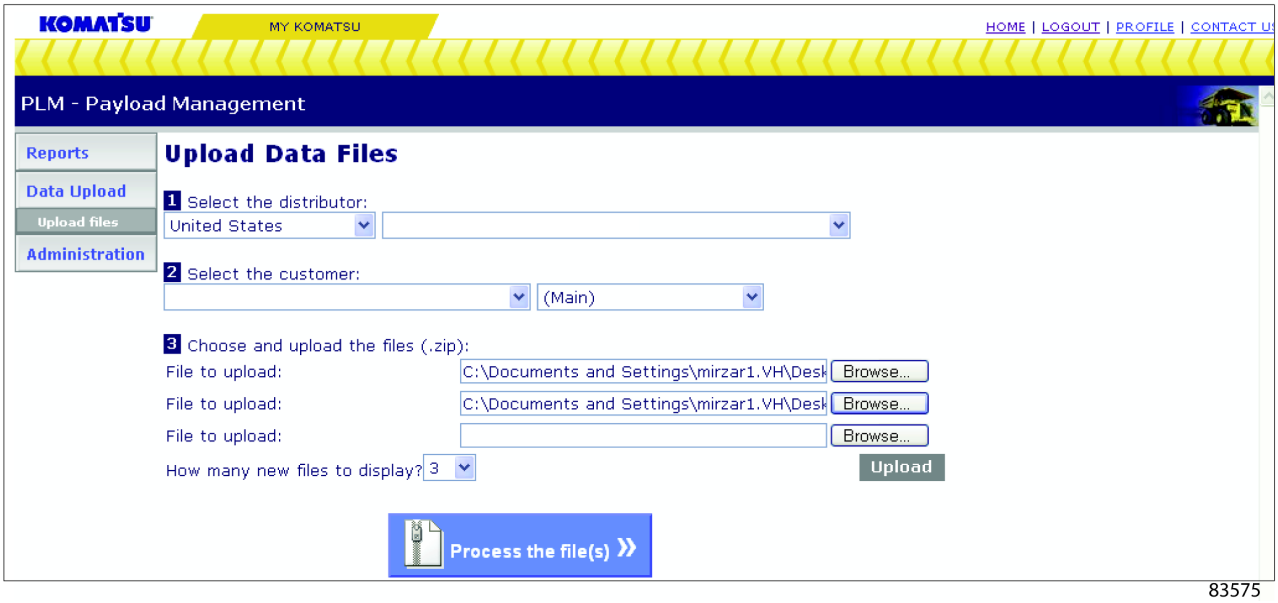
The PC software downloads the data from the payload meter into a database. The data from all the trucks is added to the same database. Downloading the payload meter can take several minutes.

To move the data to another computer, a query must be run to isolate the particular data for export. Do not press the operator switch on the dashboard while downloading.

To download the payload meter, perform the following:

1. Connect to the payload meter and start the PC software.
2. From the main menu, select "Connect to Payload Meter". The PC will request the latest status information from the payload meter. The number of haul cycles and alarms will be displayed.
3. Select the "Begin Download" button. The PC will request the payload and alarm data from the payload meter and save it into the database. This may take several minutes. A progress bar at the bottom will show the approximate time left.

UPLOADING DATA



83575

Figure 5-13 UPLOADING DATA

The Payload Meter (PLM) application uses data that has been uploaded and stored on the server. The reports generated by the application are in PDF (Adobe) format. CSV files are also available for special analysis. The upload feature allows you to send the PLM data stored on your computer to the server.

To access the PLM application, perform the following:

1. Open the internet browser and go to https://www.mykomatsu.com. User id and password is required. If you need access, either contact your administrator or click “Register Now”.
2. Once logged in, there will be “Go To” links for the applications that you have access to. Click “Go to PLM” to access the PLM application.

NOTE: *If no link exists, please send an email to: servicesystems@komatsuna.com. Please include your company and contact information.*

To upload PLM information to the server, perform the following:

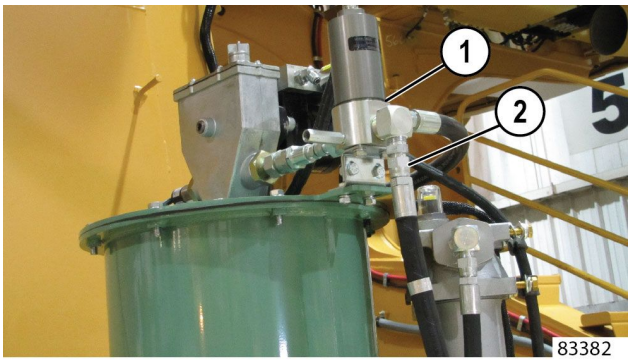
NOTE: *Data must be exported as a “Compressed File” (.zip) from the Payload Data Manager software. If the file is in the incorrect format, an error will be displayed when trying to upload.*

1. Once logged in and at the “Payload Management” screen, click “Data Upload”, on the left side of the screen, and enter the specific information about the location, distributor, and customer.
2. Click the “Browse” button to locate the file desired for uploading. Multiple files can be

- -32° to 32°C (-25° to 90°F) - Use NLGI No. 1 multipurpose grease (MPG).
- Below -32°C (-25°F) - Refer to local supplier for extreme cold weather lubricant requirements.

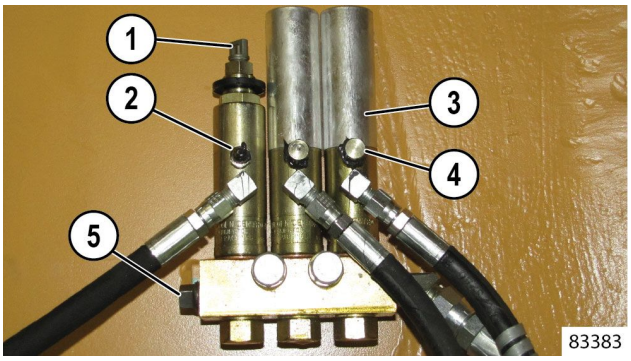
Priming The Automatic Lubrication System

The system must be full of grease and free of air pockets to function properly. After maintenance, if primary or secondary lubrication lines were replaced, it will be necessary to prime the system to eject all entrapped air.



1. Vent Valve
2. Main Supply Line

Figure 5-18 AUTO LUBE MAIN SUPPLY LINE



1. Injector Indicator
2. Injector Grease Zerk
3. Injector Cover
4. Injector Grease Zerk Cap
5. Injector Manifold Plug

Figure 5-19 INJECTOR MANIFOLD

To prime the main supply lines, perform the following:

1. Fill lube reservoir with lubricant, if necessary.
2. Remove injector manifold plug (5, Figure 5-19 INJECTOR MANIFOLD, page 5-49) from injector manifold. Always start with the injector manifold closest to the pump. The last grease line to be purged should be the main grease line to the rear axle (longest grease line).
3. Disconnect main supply line (2, Figure 5-18 AUTO LUBE MAIN SUPPLY LINE, page 5-49) from vent valve (1). Connect an external grease supply to main supply line (2).
4. Pump grease in main supply line (2) until grease appears at the injector manifold plug.
5. Re-install the injector manifold plug. Repeat for remaining injector groups.

After all main supply lines are purged of air, the injector circuits must now be primed.

To prime the secondary supply lines, perform the following:

1. If necessary, disconnect an injector grease line from the component that particular injector supplies grease to.
2. Remove injector grease zerk cap (4) from each injector and connect an external grease supply to injector grease zerk (2) on the injector.
3. Pump grease into the injector until grease appears at the far end of the individual grease line or the joint being greased.
4. Reconnect injector grease line to the component, remove the external grease supply, and reinstall injector grease zerk cap.
5. Repeat steps 1 through 4 until all secondary supply lines have been primed.
6. After all grease lines are primed, use the override switch to cycle the automatic lubrication pump a few times to lube the components.

PREVENTIVE MAINTENANCE PROCEDURES

Use the following maintenance procedures to ensure proper system operation.

Daily Lubrication System Inspection

1. Check the grease reservoir level after each shift of operation. Grease usage should be consistent from day-to-day operations. Lack of lubricant usage would indicate an inoperative system. Excessive usage would indicate a broken supply line.
2. Check filter bypass indicator when filling reservoir. Replace element if bypassing.

OVERHEAD PANEL AND DISPLAYS

The items listed below are located on the overhead panel. Refer to Figure 6-1 CAB INTERIOR - OPERATOR VIEW, page 6-2 for the location of each item. A brief description of each component is documented below.

RADIO SPEAKERS

Radio speakers for the AM/FM Radio / CD Player are located at the far left and right of the overhead panel.

WARNING ALARM BUZZER

Warning alarm buzzer will sound when activated by any one of several truck functions. Refer to INSTRUMENT PANEL , page 6-17 in this section for a detailed description of functions and indicators that will activate this alarm.

CAB RADIO

This panel will normally contain AM/FM Radio/CD Player. Refer to RADIO OPERATION, page 9-2 for a more complete description of the radio and its functions. Individual customers may use this area for other purposes, such as a two-way communications radio.

WARNING LIGHT DIMMER CONTROL

Warning light dimmer control permits the operator to adjust the brightness of warning indicator lights.

STATUS/WARNING INDICATOR LIGHT PANEL

Panel contains an array of indicator lights to provide the operator with important status messages concerning selected truck functions. Refer to INSTRUMENT PANEL , page 6-17 in this section for a detailed description of these indicators.

AIR CLEANER VACUUM GAUGES

Air cleaner vacuum gauges provide a continuous reading of the maximum air cleaner restriction reached during operation. The air cleaner(s) must be serviced when the gauge(s) shows the maximum recommended restriction of 635 mm (25 in.) of H_2O vacuum.

NOTE: *After service, push the reset button on face of gauge to allow the gauge to return to zero.*

WINDSHIELD WIPERS

Windshield wipers are powered by an electric motor. Refer to STEERING WHEEL AND CONTROLS, page 6-3 for a location and description of the windshield wiper and washer controls.

CAMERA MONITOR (OPTIONAL)

The camera monitor displays the images from one of four different cameras. Three cameras are mounted on the front of the truck (left corner, center, right corner) and one camera facing rearward. Once the truck speed reaches 16 km/h (10 mph), the camera monitor will go dark automatically. Once truck speed is reduced to less than 16 km/h 10 mph for more than 30 seconds, it will display camera images again.

STATUS / WARNING INDICATOR LIGHT SYMBOLS

Amber indicator lights alert the operator that the indicated truck function requires some precaution when lighted.

Red indicator lights alert the operator that the indicated truck function requires immediate action by the operator. Safely stop the truck and turn the engine off.

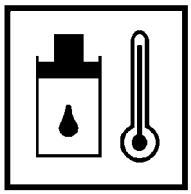
DO NOT OPERATE THE TRUCK WITH A RED WARNING LIGHT ILLUMINATED!

Refer to the descriptions below for explanations of the symbols. Location of the symbols are described by rows (A - E) and columns (1 - 7).

High Hydraulic Oil Temperature

⚠ WARNING

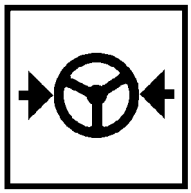
- **If temperature gauge does not move into the green range after a few minutes, and the red overhead indicator light does not go out, stop the engine and notify maintenance personnel immediately.**



This red warning light indicates high oil temperature in the hydraulic tank. Continued operation could damage components in the hydraulic system.

The light illuminates at 107°C (225°F). If this condition occurs, the operator must safely stop and park the truck and operate the engine at 1200 - 1500 rpm to reduce system temperature.

Low Steering Pressure



When the key switch is turned ON, the low steering pressure warning light will illuminate until the steering system hydraulic pressure reaches 15 860 kPa (2,300 psi).

The warning alarm will also turn on, and both will remain on, until the accumulator has been filled with hydraulic oil.

During truck operation, the low steering pressure warning light and warning horn will turn on if the steering system hydraulic pressure drops below 15 860 kPa (2,300 psi).

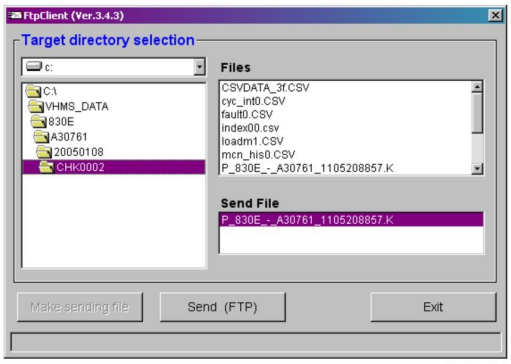
- If the light illuminates momentarily (flickers) while turning the steering wheel while at low truck speed and low engine rpm, truck operation may continue. This may be considered normal.
- If the indicator light illuminates at higher truck speed and high engine rpm, DO NOT OPERATE THE TRUCK. If low steering pressure exists, perform the following:

⚠ WARNING

- **If the low steering warning light continues to illuminate and the alarm continues to sound, low steering pressure is indicated. The remaining pressure in the accumulators allows the operator to control the truck to a stop. If the oil pressure continues to decrease, the brake auto-apply feature will activate and the service brakes will apply automatically to stop the truck. DO NOT attempt further operation until the malfunction is located and corrected.**

1. Stop the truck as quickly as possible by using the foot pedal to apply the service brakes. If possible, steer the truck to the side of the road while braking.
2. As soon as the truck has stopped moving, park the truck.
3. Slowly release the service brakes to check the capacity of the parking brake. If the parking brake can not hold the truck stationary, apply the service brakes and hold them ON. DO NOT turn the key switch OFF, and do not release the service brakes.
4. Notify maintenance personnel immediately.
5. If the truck is on level ground, or if the parking brake can hold the truck stationary and the truck is in a stable condition, it is then OK to turn the key switch OFF.
6. If safe to do so, have maintenance personnel place wheel chocks or other mechanisms in front or behind the wheels to reduce the risk of the truck rolling.
7. If traffic is excessive near the disabled machine, mark the truck with warning flags during daylight hours or use flares at night. Adhere to local regulations.

e. Double-click the appropriate check number folder to display its contents in the files window.



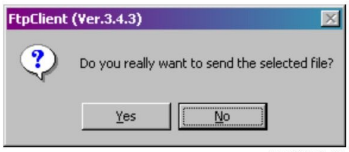
D120047

6. Some models will automatically create a sending file during the download process. Others need to have the sending file created at this time. A sending file is just a compressed version of all the other downloaded files. If there is already a sending file in the Send File window, you do not need to perform this step. If there is not a sending file in the Send File window, click the [Make Sending File] button.

NOTE: *The compressed sending file will look similar to this file name, and will always end with a ".K". P_830E_-_A30761_1105208857.K*

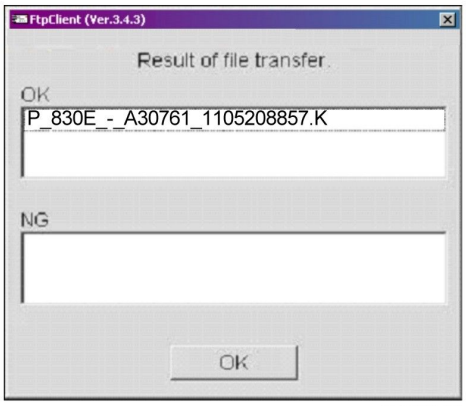
7. After selecting the correct file to send, click the [Send (FTP)] button.

8. Click the [Yes] button to verify that you want to upload the data to WebCARE.



D120048

9. If the sending file was uploaded successfully, the file will appear in the OK window. If the sending file was not uploaded successfully, the file will appear in the "NG" (No Good) window. Ensure the PC has an internet connection.



D120049

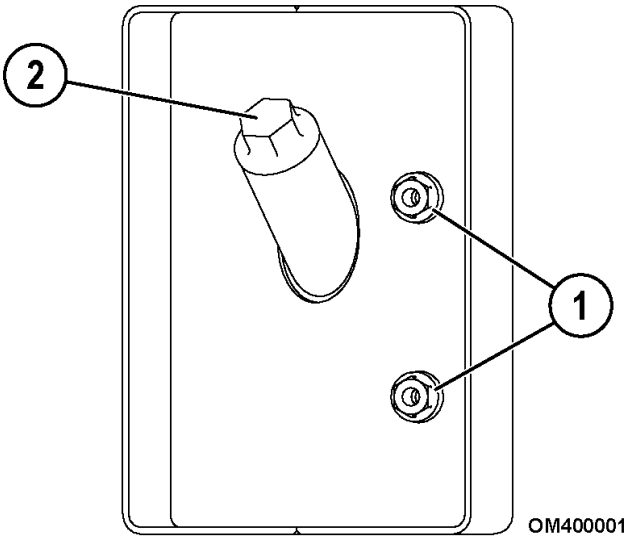
10. Click the [OK] button, then the [Exit] button. Close all other open windows.

ORBCOMM

⚠ DANGER

- **ORBCOMM is a two-way radio communication device. Wireless signals from the system can interfere with other wireless signals in the area. This interference can cause a malfunction in a blast zone resulting in an unintended detonation. Know the locations of blast zones in the area and keep a safe distance to avoid unintentional blasts. If the machine is operating within a distance of 12m (40 ft) of a blast zone, disconnect the ORBCOMM harness. Failure to do so could result in serious injury or death. This warning does not supersede requirements or regulations of the area or country where this machine is in operation. The following specifications are provided to ensure compliance with all of the applicable requirements or regulations: Transmit power: 5-10 Watts Operating Frequency Range: 148 - 150 MHz**

The Orbcomm controller transmits data through antenna (1, Figure 6-16 ORBCOMM ANTENNA, page 6-36) mounted on top of the cab. The antenna coaxial cable is routed through the inside of the cab to protect it from damage. If the antenna or coaxial cable is damaged, replace the parts.



1. Sight Gauges 2. Fill Cap

Figure 7-1 HYDRAULIC TANK SERVICE

1. Hydraulic Tank Breathers

Figure 7-2 HYDRAULIC TANK BREATHERS

Hydraulic tank breathers (1, Figure 7-2 HYDRAULIC TANK BREATHERS, page 7-3) need to be replaced every 500 hours.

Hydraulic Filters

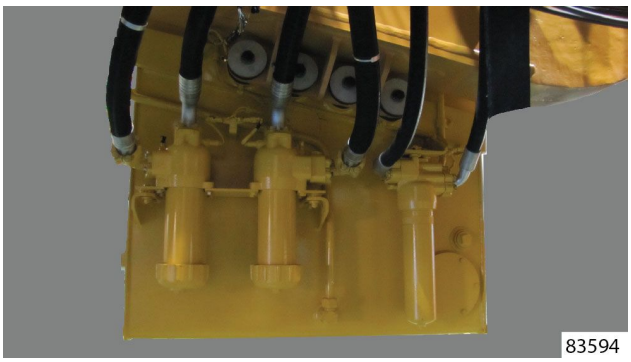
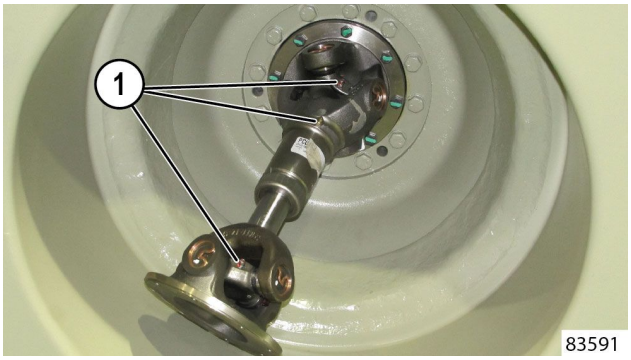


Figure 7-3 HYDRAULIC FILTERS

Replace filter elements after the Initial 50, 100, and 250 hours of operation; then at each 500 hours of operation thereafter. Check oil level. Add oil as necessary. (Lube Key “B”).

Hydraulic Pump Drive Shaft



1. Drive Shaft Grease Fittings

Figure 7-4 DRIVE SHAFT LUBRICATION POINTS

Add one or two applications of grease to each drive shaft grease fitting (1, Figure 7-4 DRIVE SHAFT LUBRICATION POINTS, page 7-3). Non - moly grease only. Check that each bearing of the u-joint assembly is receiving grease. Replace bearings if any wear is detected.

WHEEL MOTOR SERVICE

Due to differences in gear ratio and component evolution/design, wheel motor service intervals may be unit number and/or mine specific. Because of the wide variety of factors involved, it is necessary to consult your area Komatsu representative for all wheel motor service intervals and instructions. General intervals for oil service and sampling are listed in the interval charts.

COOLANT LEVEL SERVICE

Inspect the coolant sight gauge. If coolant cannot be seen in the sight gauge, it is necessary to add coolant to the system before truck operation. Refer to the procedure below for the proper filling instructions.

INITIAL 100 HOUR LUBRICATION AND MAINTENANCE INSPECTION

NOTE: *These checks are required only after the initial 100 hours of operation (such as: the commissioning of a new truck, or after a new or rebuilt component installation).*

INITAL 100 HOUR LUBRICATION AND MAINTENANCE INSPECTION	
Item	**Task**
HYDRAULIC SYSTEM FILTERS	Replace filter elements only, after the initial 100 and 250 hours of operation; then at each 500 hours of operation thereafter.

SPECIFICATIONS

Engine

Komatsu SSDA16V160

No. of Cylinders 16
Operating Cycle 4-Stroke
Rated Brake HP .. 2 014 kW (2,700 HP) @ 1900 RPM
Flywheel HP ..... 1 902 kW (2,550 HP) @ 1900 RPM
Weight* (Wet) ..... 9 608 kg (21,182 lb)
**Weight does not include Radiator, Sub-frame, or Alternator.*

AC Electric Drive System

(AC/DC Current)
Alternator ..... General Electric GTA - 41
Dual Impeller, In-Line Blower ..... 340 m^3/ min (12,000 cfm)
Motorized Wheels ..... GDY106 AC Induction Traction Motors
Standard Gear Ratio* 32.62:1
Maximum Speed ..... 64.5 km/h (40 mph)
**Wheel motor application depends upon GVW, haul road grade and length, rolling resistance, and other parameters. Komatsu and GE must analyze each job condition to ensure proper application.*

Dynamic Retarding

Electric Dynamic Retarding ..... Standard
Maximum Rating ..... 4 026 kW (5,400 HP)
Continuous* ..... 2 460 kW (3,300 HP)
**Continuously rated high-density blown grids with retard at engine idle and retard in reverse propulsion.*

Battery Electric System

Batteries 4 x 8D 1450 CCA, 12 volt, in series/parallel, bumper mounted with disconnect switch
Alternator ..... 24 Volt, 140 Ampere Output
Lighting ..... 24 Volt
Cranking Motors (2) ..... 24 Volt

Service Capacities

Crankcase (including lube oil filters) ..... 280 L / 74 gal
Cooling System ..... 594 L / 157 gal
Fuel ..... 4 542 L / 1,200 gal
Hydraulic System ..... 1 325 L / 350 gal
Wheel Motor Gear Box (per wheel) ..... 95 L / 25 gal

Hydraulic Systems

Hoist and Brake Cooling Pump ..... Tandem Gear
Rating ..... 931 L/min (246 gpm) @ 1900 RPM and 17 237 kPa (2,500 psi)
Steering/Brake Pump Pressure Compensated Piston
Rating ..... 246 L/min (65 gpm) @ 1900 RPM and 18 961 kPa (2,750 psi)
Relief Pressure-Hoist ..... 17 237 kPa (2,500 psi)
Relief Pressure-Steering/Brake ..... 27 579 kPa (4,000 psi)
Hoist Cylinders (2) ..... 3-Stage Hydraulic
Tank (Vertical/Cylindrical) ..... Non-Pressurized
Tank Capacity ..... 947 liters (250 gallons)
Filtration ..... In-line replaceable elements
Suction ..... Single, Full Flow, 100 Mesh
Hoist and Steering Filters (Dual In-Line, High Pressure) ..... Beta $_{12}$ Rating =200

Service Brakes

Hydraulic actuated, oil-cooled multiple discs on each wheel with slip/slide control.

Total Friction Area / Brake ..... 97 019 cm^2 (15,038 in^2)
Maximum Apply Pressure ..... 17 238 kPa (2,500 psi)

Steering

Twin hydraulic cylinders with accumulator assist to provide constant rate steering. Emergency power steering automatically provided by accumulators.
Turning Circle (SAE) ..... 29.7 m (97 ft. 7 in.)

Standard Dump Body Capacities and Dimensions

Capacity

Heaped @ 2:1 (SAE) ..... 211 m^3 (276 yd^3)
Struck ..... 171 m^3 (224 yd^3)
Width (Inside) ..... 8.15 m (26 ft. 9 in.)
Depth ..... 3.2 m (10 ft. 7 in.)
Loading Height ..... 7.06 m (23 ft. 2 in.)
Dumping Angle ..... 45°

***NOTE:** Optional capacity dump bodies are available.*

Tires

Radial Tires (standard) 53/80 R63
Rock Service, Deep Tread ..... Tubeless
Rims, standard 5 piece .... Rated to 827 kPa (120 psi)