



Machine Storage

Section 02-02

Komatsu has made every effort to make this manual as accurate as possible based on the information available at the time of publication and printing. Continuous improvement and advancement of product design may cause changes to machines, which may not have been included in this publication. Komatsu reserves the right to make changes and improvements at any time. To ensure the most current information, please contact your service center.

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Scope of This Publication, 02-02

Maintenance and servicing of the machine is important prior to storage for even a short period of time. The following guidelines will help to prevent an expensive overhaul of various components or a delay in returning the machine to service.

These procedures should be considered as minimum requirements as they do not attempt to cover all possible details of storage maintenance or inspection. The age of the machine, length of storage, and conditions under which the machine is stored contribute to the amount and kind of maintenance required. Local conditions and/or experience may dictate additional storage precautions. These instructions assume the machine is fully operational and in generally good working order.

Safety

This publication contains special instructions that pertain to safety, operation, maintenance, and repair of the machine. Listed below are the signal words and symbols that precede these instructions and their meanings:


DANGER

- The danger label indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

- The warning label indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

- The caution label, used with the safety alert symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury (includes the safety alert symbol ).

CAUTION

- The caution label (without safety alert symbol) is used to address practices not related to personal injury – only equipment damage.

NOTICE

The NOTICE graphic is to indicate areas of importance to the reader that are not related to personal injury or machine damage.

Safety, Warnings and Cautions

WARNING

It is important that all personnel read and understand all CAUTIONS and WARNINGS before operating, or working on or near the machine. The following processes in this section should not be attempted without fully understanding how to perform the procedure. Reference the appropriate section in the Service Manual for procedures, before attempting to performing any process in this section. Failure to understand all procedures before performing any process in this section can result in multiple hazards resulting in serious injury or death.

WARNING

EYE INJURY, CHEMICAL BURNS, AND INGESTION HAZARDS

- Eye injury, chemical burns, and ingestion hazards exist when working around the machine's batteries. **ALWAYS** wear appropriate Personal Protective Equipment (PPE), including safety goggles or a face shield when working around the machine's batteries. Failure to wear proper PPE when working around the machine's batteries can cause eye injuries and chemical burns resulting in serious injury.

CRUSH HAZARD

- Crush hazard exists when lifting the rear axle off the ground. Caution should be exercised when using jacks to lift the machine. If both wheels of the oscillating axle are off the ground at the same time, the axle may swivel or pivot vertically. This is a potentially hazardous situation. Both sides of the axle should be blocked to prevent swiveling. Refer to JACKING INSTRUCTIONS, located in the Section 03 of the Service Manual, **BEFORE** attempting to jack up the machine. Failure to block both sides of the rear axle or to use proper jacking procedures can cause a crush hazard resulting in serious injury or death.

STRUCK BY AND CRUSH HAZARDS

- Struck by or crush hazards exist when inflating the tire. If the tire ruptures it is possible to be crushed or struck by flying debris. It is recommended to stand behind the tread, as shown in graphic "Tire inflation position". Do not stand in front of or behind the tire and rim assembly (**DO NOT** stand in front of either tire sidewall). Failure to stand behind the tread of the tire during a rupture can cause struck by or crush hazards resulting in serious injury or death.

LEAD PRESENCE HAZARD

- Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California, USA to cause cancer and birth defects or other reproductive harm. Do not handle battery posts, terminals or related accessories containing let or lead compounds without wearing proper personal protective equipment (PPE) as required by local rules, regulations, or policies.

EXPLOSION AND FIRE HAZARDS

- Explosion or fire hazards exists when charging a battery. **NEVER** charge a frozen battery, it could explode. Warm it to at least 60° F (16° C) internal temperature before charging. Always wear all locally required personal protective equipment (PPE), including safety glasses and gloves when charging a battery. Failure to warm the battery could cause an explosion resulting in serious injury or death.

ELECTRICAL SHOCK HAZARDS

- Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

CAUTION**COLD WEATHER CONDITIONS**

- If the machine is to sit outside when not working, with the ambient temperature below -4°F (-20° C):
- The engine must be running at high idle.
- Or all heaters must be plugged into a power supply external to the machine and operational if the engine is not running.
- Failure to comply with these instructions could result in serious damage to the machine.
- In extremely cold climates where freezing of battery electrolyte is a problem, battery heaters are recommended if the batteries are not removed from the machine.

TURBOCHARGER DAMAGE

- Turbocharged engines make pre-lubrication essential, since the turbocharger bearings are damaged easily and quickly during a dry start. Make certain pre-lubrication instructions, as covered in the engine manufacturer's service manual are followed prior to start up.

PLANETARY DRIVE DAMAGE

- **DO NOT** operate the machine for even a short period of time without lubricant in the planetary drives.

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Temporary Storage - 30 Days or Less

Inspection and Repair

Thoroughly inspect and test the machine and make any necessary repairs and adjustments that may be required to prepare the unit for service. This will allow the machine to be put back into service with a minimum delay.

Lubrication

Completely lubricate the machine in accordance with LUBRICATION AND SERVICE, located in the PREVENTIVE MAINTENANCE section 02 of the Service Manual.

Cleaning

Thoroughly clean the entire machine with a steam cleaner or hot water high-pressure washer and inspect the welds, tires etc. per the instructions in section 02 of the Service Manual titled "PREVENTIVE MAINTENANCE."

Parking

Park machine on a hard, dry, level surface that is free from grease and oil. Grease and oil will cause tire deterioration. **Securely position suitable chock blocks at each wheel.**

Batteries

Moderate climates: Where moderate temperatures are expected, the batteries may be left in the machine. If the machine is not going to be used for approximately 30 days, the batteries may need a boost at the end of the storage period.

WARNING

Eye injury, chemical burns, and ingestion hazards exist when working around the machine's batteries. ALWAYS wear appropriate Personal Protective Equipment (PPE), including safety goggles or a face shield when working around the machine's batteries. Failure to wear proper PPE when working around the machine's batteries can cause eye injuries and chemical burns resulting in serious injury.

Temperature extremes - hot/cold: It is recommended the batteries be removed and taken into a shop where they can be inspected, brought up to full charge, and placed on a trickle charger to keep them at full charge.

NOTICE

In very cold or hot climates, it is IMPORTANT to store the batteries where they will be protected from temperature extremes.

 **WARNING**

Explosion or fire hazards exists when charging a battery. **NEVER** charge a frozen battery, it could explode. Warm it to at least 60° F (16° C) internal temperature before charging. Always wear all locally required personal protective equipment (PPE), including safety glasses and gloves when charging a battery. Failure to warm the battery could cause an explosion resulting in serious injury or death.

 **WARNING**

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California, USA to cause cancer and birth defects or other reproductive harm. Do not handle battery posts, terminals or related accessories containing let or lead compounds without wearing proper personal protective equipment (PPE) as required by local rules, regulations, or policies.

CAUTION

In extremely cold climates where freezing of battery electrolyte is a problem, battery heaters are recommended if the batteries are not removed from the machine.

Rust Prevention

Clean all evidence of rust from the machine. Prime and paint affected areas as required to prevent the re-formation of rust. Also, cover all exposed machined surfaces with a good rust preventative.

Air Reservoirs

Open the drain cocks on air reservoirs.

NOTICE

When the air reservoirs are bled, the park brakes will be set.

Fuel and Hydraulic Oil Reservoirs

Fill fuel and hydraulic reservoirs to prevent moisture condensation within the reservoirs. If filling the reservoirs is not possible or practical, use alternate methods to ensure that no moisture collects in the reservoirs.

Tires

Inflate all tires to correct pressure. During storage, check inflation pressure approximately once every two weeks.

WARNING

Struck by or crush hazards exist when inflating the tire. If the tire ruptures it is possible to be crushed or struck by flying debris. It is recommended to stand behind the tread, as shown in graphic “Tire inflation position”. Do not stand in front of or behind the tire and rim assembly (DO NOT stand in front of either tire sidewall). Failure to stand behind the tread of the tire during a rupture can cause struck by or crush hazards resulting in serious injury or death.



Tire inflation position

NOTICE

Refer to **TIRE MAINTENANCE**, located in Section 03 of the Service Manual for proper inflation procedures and safety precautions **BEFORE** inflating the tires.

Engine

Consult engine manufacturers' service manual. Follow the recommended storage procedures for periods equivalent to 30 days or less.

Care must be taken to see that the exhaust stack is covered. If it has a rain cap, make sure it is working properly. If the rain cap is damaged or worn it should be replaced. If replacement is not possible at that time, cover the stack by some other means to ensure that moisture will not be allowed to enter the engine through the exhaust stack.

Electric Wheel Assemblies

The best protective measure for the electric wheel assemblies for a machine that is to be stored for a short period of time is to operate the machine once a week for at least 30 minutes.

Operating the machine circulates oil in the planetary drives to keep gears lubricated and free from rust.

If it is not possible or practical to operate the machine for a short period of time, the use of Axle Structure Anti-Condensation Heaters is recommended.

 **WARNING**

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

Hydraulic Pump Drive Gearbox

The **best protective measure** for the hydraulic pump drive for a machine that is to be stored for a short period of time is to operate the machine once a week for at least 30 minutes.

Operating the machine circulates oil in the hydraulic pump drive to keep gears lubricated and free from rust.

High Voltage Cabinet

The use of a high voltage cabinet heater is recommended and the heater should be energized continuously during cool/cold weather.

 **WARNING**

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

Radiator and Cooling System

Service the cooling system in accordance with the instructions provided in Section 3 of the Service Manual, and the instructions in the engine and radiator manufacturers' service manuals. BE SURE the antifreeze mixture is adequate to carry the machine down to the lowest expected temperature.

NOTICE

In extremely cold climates, the use of a coolant and engine oil preheating system or a block heater is recommended.

NOTICE

Refer to RETURN TO SERVICE PROCEDURES before the machine is returned to service.

Extended Storage - Under Six Months

When storing the machine for periods of longer than 30 days, but less than six months, the following procedures should be followed:

Inspection and Repair

Thoroughly inspect and test the machine and make any necessary repairs and adjustments that may be required to prepare the unit for service. This will allow the machine to be put back into service with a minimum delay.

Lubrication

Completely lubricate the machine in accordance with LUBRICATION AND SERVICE, located in the PREVENTIVE MAINTENANCE section 02 of the Service Manual.

Rust Prevention

Clean all evidence of rust from the machine. Prime and paint affected areas as required to prevent the re-formation of rust. Also, cover all exposed machined surfaces with a good rust preventative.

Air Reservoirs

Open the drain cocks on air reservoirs.

NOTICE

When the air reservoirs are bled, the park brakes will be set.

Fuel and Hydraulic Oil Reservoirs

Fill fuel and hydraulic reservoirs to prevent moisture condensation within the reservoirs. If filling the reservoirs is not possible or practical, use alternate methods to ensure that no moisture collects in the reservoirs.

Radiator and Cooling System

Service the cooling system in accordance with the instructions provided in Section 3 of the Service Manual, and the instructions in the engine and radiator manufacturers' service manuals. BE SURE the antifreeze mixture is adequate to carry the machine down to the lowest expected temperature.

NOTICE

In extremely cold climates, the use of a coolant and engine oil preheating system or a block heater is recommended.

Parking

In addition to the procedures listed in TEMPORARY STORAGE - 30 DAYS OR LESS (above), the machine should be jacked up and securely blocked under the axles so the tires are off the ground or shop floor.

WARNING

Crush hazard exists when lifting the rear axle off the ground. Caution should be exercised when using jacks to lift the machine. If both wheels of the oscillating axle are off the ground at the same time, the axle may swivel or pivot vertically. This is a potentially hazardous situation. Both sides of the axle should be blocked to prevent swiveling. Refer to JACKING INSTRUCTIONS, located in the Section 03 of the Service Manual, BEFORE attempting to jack up the machine. Failure to block both sides of the rear axle or to use proper jacking procedures can cause a crush hazard resulting in serious injury or death.

Batteries

The batteries should be removed from the machine and stored in a suitable place where they are protected from extremes of heat and cold and charged at least every 30 days or kept on a trickle charger.

Tires

With the machine positioned on blocks, deflate the tires to 10 lbs. pressure. Clean off all grease and oil and protect the tires from direct sunlight and water with a suitable cover. **Refer to "TIRE & RIM", located in Section 03 of the Service Manual, for proper deflation procedures and safety advisories BEFORE deflating the tires.**

Engine

Consult engine manufacturers' service manual. Follow the recommended storage procedures.

Electric Wheel Assemblies

Proper storage of the electric wheel assemblies is critical to the life of these components. Bearings, gears, and insulation may deteriorate unless adequate protective measures are taken to protect against the elements.

Bearings and gears in the planetary drives are susceptible to the formation of rust; insulation in rotating electrical equipment can accumulate moisture; and bearings may become pitted.

Electrical Components

- a. Cover any open ductwork with screening material to prevent rodents from entering, and then tape around edges of screening material to prevent the entry of water and dirt (allow breathing).
- b. Seal compartment doors with weatherproof tape to prevent entry of rain, snow, dirt, or any other foreign debris.
- c. Perform a megohmmeter test on the drive motors. Record the Megger readings for future reference. They will be helpful in determining if deterioration is being experienced when additional megger tests are made as part of a periodic inspection.
- d. Perform a megohmmeter test on the ESD (Energy Storage Device) motors (when present). Record the Megger readings for future reference. They will be helpful in determining if deterioration is being experienced when additional megger tests are made as part of a periodic inspection.

WARNING

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

Planetary Drives

The planetary drives should have Cortec® M-531, Komatsu P/N (R4143841 - 55 gallon drum - 208 liters), or (R4294833 - 5 gallon bucket - 18.9 liters), (or equivalent) added per normal filling procedures. The planetary drives should have the following amounts of lubricating oil and rust inhibitor added.

CAUTION

Overfilling by 2 gallons (7.57 liters) is acceptable when the machine is only being stored. The machine should not be operated in production unless the planetary drives are drained and refilled, with correct lubricant, to the proper fill level.

NOTICE

The fluid amounts in the table are based on a manufacturer required dosage of 3% - 5%. Should that manufacturer ratio change, adjust the fluid amounts accordingly. Consult the container or manufacturer for the proper ratio before adding the inhibitor. The amounts below are approximate.

Model		Total Planetary Drive Capacity		Cortec® M-531	
Machine	Planetary Drive	Gallons	Liters	Gallons	Liters
L-1350	51A2	36	135	1.5	5.68
L-1850	57	40	151	1.5	5.68
L-2350	57	40	151	1.5	5.68

Fluid mix ratio amounts

NOTICE

Rotate electric wheel assemblies (not in production operation) for at least 30 minutes to ensure the rust preventative is thoroughly circulated in the planetary drive.

Hydraulic Pump Drive Gearbox

The hydraulic pump drive (HPD) should have Cortec® M-531, Komatsu P/N (R4143841 - 55 gallon drum – 208 liters), or (R4294833 - 5 gallon bucket - 18.9 liters), (or equivalent) added per normal filling procedures. The HPD should have the following amounts of lubricating oil and rust inhibitor added.

CAUTION

Overfilling by 1.5 quarts (1.42 liters) is acceptable when the machine is only being stored. The machine should not be operated in production unless the planetary drives are drained and refilled, with correct lubricant, to the proper fill level.

The amounts below are approximate.

NOTICE

The fluid amounts in the table are based on a manufacturer required dosage of 3% - 5%. Should that manufacturer ratio change, adjust the fluid amounts accordingly. Consult the container or manufacturer for the proper ratio before adding the inhibitor. The amounts below are approximate.

Model Machine	Total Planetary HPD Capacity		Cortec® M-531	
	Gallons	Liters	Quarts	Liters
L-1350/1850/2350	7	26.5	1 – 1-1/2	1 – 1.4

NOTICE

Rotate the hydraulic pump drive shaft (not in production operation) for at least 30 minutes to ensure the rust preventative is thoroughly circulated.

High Voltage Cabinet

The use of a High Voltage cabinet heater is recommended and the heater should be energized continuously.

WARNING

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

Vents and Breathers

Securely seal all vents and breathers on the machine to prevent moisture, insects, birds, rodents etc. from entering.

NOTICE

Refer to RETURN TO SERVICE PROCEDURES (below) before the machine is returned to service.

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Extended Storage - Over Six Months

Follow the procedures outlined in EXTENDED STORAGE - UNDER SIX MONTHS (above). Repeat these procedures every six-month period the machine is in storage. It is IMPORTANT to maintain the lubrication procedures outlined in LUBRICATION AND SERVICE, located in Section 02 of the Service Manual, for each six month period the machine is in storage (with the exception of the planetary drives which have rust preventative installed).

Periodic Inspections

Inspections should be made every three months to determine the lasting qualities of extended storage protection measures. Such inspections will indicate the need for renewing or modifying protective measures when necessary to prevent equipment deterioration:

Component Heaters

Check the anti-condensation heaters in the axle structures and the converter cabinet. Repair or replace any that have become inoperative.

WARNING

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

Walk-Around Inspection

Check all weatherproof tape and seals. Replace any that has become loose or is missing completely.

Engine

Consult engine manufacturers' service manual. Follow the recommended storage procedures.

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Return to Service

Proper inspection and servicing prior to placing the machine back in service is equally as important as the procedures used for placing the machine into storage. The following procedures should be followed prior to returning the machine to service:

NOTICE

During the “Return to Service” process, some fluids will be drained from components. All fluids must be contained and properly disposed of in a manner consistent with all local rules, regulations, and laws. Failure to properly contain and properly dispose of fluids could cause an environmental impact.

Walk-Around Inspection

Often potential problems can be identified and corrected by a walk around inspection of the sheet metal, air and oil hoses, fittings, electrical connections, frame, and other structural assemblies.

Lubrication

Completely lubricate the machine in accordance with the instructions in LUBRICATION AND SERVICE, located in Section 02 of the Service Manual.

Batteries

Install the batteries and make sure they are fully charged. Refer to Section 02 of the Service Manual, for additional maintenance instructions and safety precautions regarding the machine’s batteries.

Tires

Inflate the tires to the correct pressures.

WARNING

Struck by or crush hazards exist when inflating the tire. If the tire ruptures it is possible to be crushed or struck by flying debris. It is recommended to stand behind the tread, as shown below. Do not stand in front of or behind the tire and rim assembly (DO NOT stand in front of either tire sidewall). Failure to stand behind the tread of the tire during a rupture can cause struck by or crush hazards resulting in serious injury or death.



NOTICE

Refer to TIRE & RIM located in Section 03 of the Service Manual, for proper inflation procedures and safety precautions BEFORE inflating the tires.

Engine

Refer to engine manufacturers' service manuals (available on manufacturer's website) for instructions on returning the engine to service after extended storage.

CAUTION

Turbocharged engines make pre-lubrication essential, since the turbocharger bearings are damaged easily and quickly during a dry start. Make certain pre-lubrication instructions, as covered in the engine manufacturer's service manual are followed prior to start up.

Electric Wheel Assemblies

The following procedures should be done before placing the electric wheel assemblies back into service:

- a. Turn off axle structure anti-condensation heaters.
- b. Remove all tape and screening material from the axle structures.
- c. Drain, flush, and refill the planetary drives with recommended lubricant.
- d. Change the planetary drive filtration system filters.

WARNING

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

CAUTION

DO NOT operate the machine for even a short period of time without lubricant in the planetary drives.

NOTICE

Oil samples for analysis should be taken every 500 hours. Refer to Section 02 of the Service Manual, for additional information.

Hydraulic Pump Drive (Gearbox)

Drain, flush, and refill the hydraulic pump drive (gearbox) with the recommended lubricant.

CAUTION

DO NOT operate the machine for even a short period of time without lubricant in the hydraulic pump drive (HPD) (gearbox). Severe damage to the HPD could occur if it is run without lubricant.

Traction Motors

- a. **TRACTION MOTOR INSPECTION:** Perform a thorough inspection of the traction motors and all associated components. Look for:
 1. Rust or dirt accumulation.
 2. Damaged insulation.
 3. An accumulation of moisture or debris.
 4. Loose wiring and cables.
 5. Any accumulation of moisture or debris in the ductwork.
- b. **Clean or make repairs as necessary.**
- c. **MEGGER COILS:** Perform a megohmmeter test.

WARNING

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

NOTICE

If Megger readings are less than 2.0 megohms, the problem could be an accumulation of moisture in the motor. If this is the case, the faulty component will have to be isolated and dried out. Refer to your distributor or an authorized Komatsu repair facility for assistance.

- d. If the megger readings are acceptable, perform the preventive maintenance procedures recommended in Section 02.

NOTICE

Some procedures found in Section 02 may refer to DC motors only.

High Voltage Cabinet

- a. Turn off the heater in the high voltage cabinet.
- b. Check for any corrosion on electrical connectors and any loose cards or cables in the card panels.

WARNING

Electrical shock hazard exists when touching electrical components or electrical connections. Do not touch any electrical component or assembly inside the electrical converter cabinet or touch any electrical connections on the machine if the bus voltage indicator LED's on the SR converter assemblies are illuminated. High voltage is present on the electrical components when the drive is enabled. Voltage can be present on electrical connections or electrical components for five minutes after the ignition switch is turned off. Check ALL converter panel LED's for voltage and verify the absence of bus voltage before touching electrical connections, including braking grids at the rear of the machine. Contacting electrical connections while converter panel LED's are energized will cause a shock hazard resulting in serious injury or death.

Air Reservoirs

Close the drain cocks. Charge the air reservoirs from an outside supply.

NOTICE

The brakes and the air horn will not function until the air pressure is returned to the proper level.

Fuel and Hydraulic Oil Reservoirs

Drain the sumps and fill the reservoirs to the proper level.

NOTICE

It is possible to damage the hydraulic components unless the hydraulic reservoir is filled, the pumps primed and the system bled of air before start up. Refer to Section 04 of the Service Manual for pump priming instructions.

NOTICE

Testing the reservoirs for water and microbial contamination is recommended. Refer to WATER CONTAMINATION and MICROBIAL CONTAMINATION, located in Section 03 of the Service Manual, for more information.

Vents and Breathers

Remove the seals for the vents and breathers and verify the passages are clean and unobstructed.

Radiator and Cooling System

Once the machine is capable of operation, visually check for leaks, and pressure test the system to be sure no internal leaks are present. Refer to "COOLING SYSTEM MAINTENANCE SERVICING AND TROUBLESHOOTING PROCEDURES", located in the Section 03 of the Service Manual for additional information on pressure testing the cooling system and external and internal leaks.

Paint

Check the machine for rust. Remove all rusty spots and repaint these areas.