CEAM020801

Operation & Maintenance Manual

830E-1AC

DUMP TRUCK

SERIAL NUMBERS **A30210 - A30239**

KOMATSU®

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SUBJECT - SECTION / PAGE

TABLE XI. PRESSURE CONVERSIONS
Pounds per square inch (psi) to Megapascals (MPa)
Formula: psi x 0.0069 = MPa

psi	0	10	20	30	40	50	60	70	80	90
0	**(MPa)**	0.069	0.14	0.21	0.28	0.34	0.41	0.48	0.55	0.62
100	0.69	0.76	0.83	0.90	0.97	1.03	1.10	1.17	1.24	1.31
200	1.38	1.45	1.52	1.59	1.65	1.72	1.79	1.86	1.93	2.00
300	2.07	2.14	2.21	2.28	2.34	2.41	2.48	2.55	2.62	2.69
400	2.76	2.83	2.90	2.96	3.03	3.10	3.17	3.24	3.31	3.38
500	3.45	3.52	3.59	3.65	3.72	3.79	3.86	3.93	4.00	4.07
600	4.14	4.21	4.27	4.34	4.41	4.48	4.55	4.62	4.69	4.76
700	4.83	4.90	4.96	5.03	5.10	5.17	5.24	5.31	5.38	5.45
800	5.52	5.58	5.65	5.72	5.79	5.86	5.93	6.00	6.07	6.14
900	6.21	6.27	6.34	6.41	6.48	6.55	6.62	6.69	6.76	6.83
See NOTE below regarding Table usage.										

NOTE: Tables such as Table VIII, IX, X, and XI may be used as in the following example:

Example: Convert 975 psi to kilopascals (kPa).

1. Select Table X.
2. Go to psi row 90, column 7; read 668.8
   97 psi = 668.8 kPa.
3. Multiply by 10:
   970 psi = 6688 kPa.
4. Go to psi row 0, column 5; read 34.475
   psi = 34.47 kPa. Add to step 3.
5. 970 + 5 psi = 6688 + 34 = 6722 kPa.

TABLE XII. TEMPERATURE CONVERSIONS
Formula: F° - 32 ³ 1.8 = C° or C° x 1.8 + 32 = F°

CELSIUS C°		FAHRENHEIT F°	CELSIUS C°		FAHRENHEIT F°	CELSIUS C°		FAHRENHEIT F°
121	250	482	63	145	293	4	40	104
118	245	473	60	140	284	2	35	95
116	240	464	57	135	275	– 1	30	86
113	235	455	54	130	266	– 4	25	77
110	230	446	52	125	257	– 7	20	68
107	225	437	49	120	248	– 9	15	59
104	220	428	46	115	239	– 12	10	50
102	215	419	43	110	230	– 15	5	41
99	210	410	41	105	221	– 18	0	32
96	205	401	38	100	212	– 21	– 5	23
93	200	392	35	95	293	– 23	– 10	14
91	195	383	32	90	194	– 26	– 15	5
88	190	374	29	85	185	– 29	– 20	– 4
85	185	365	27	80	176	– 32	– 25	– 13
82	180	356	24	75	167	– 34	– 30	– 22
79	175	347	21	70	158	– 37	– 35	– 31
77	170	338	18	65	149	– 40	– 40	– 40
74	165	329	15	60	140	– 43	– 45	– 49
71	160	320	13	55	131	– 46	– 50	– 58
68	155	311	10	50	122	– 48	– 55	– 67
66	150	302	7	45	113	– 51	– 60	– 76

Note: The numbers in the unmarked columns refer to temperature in either degrees Celsius (C°) or Fahrenheit (F°). Select a number in this unmarked column and read to the left to convert to degrees Celsius (C°) or read to the right to convert to degrees Fahrenheit (F°). If starting with a known temperature (either C° or F°), find that temperature in the marked column and read the converted temperature in the center, **unmarked** column.

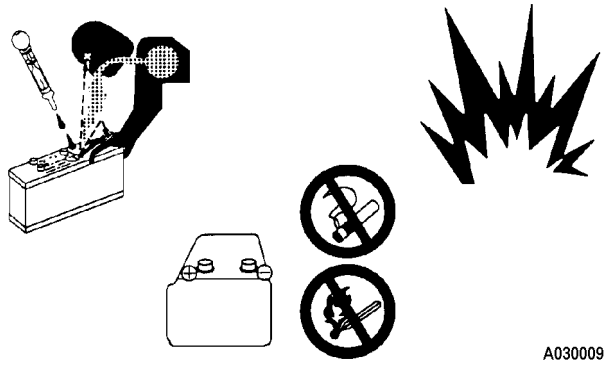
WORKING NEAR BATTERIES

Battery Hazard Prevention

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. 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.
- Always wear safety glasses or goggles when working with batteries.



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- 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, and 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 the terminals.
- Tighten battery caps securely.
- Tighten battery terminals securely. Loose terminals can generate sparks and lead to an explosion.

WHEN REPAIRS ARE NECESSARY

1. Only qualified maintenance personnel who understand the systems being repaired must attempt repairs.
2. Many components on the Komatsu truck are large and heavy. Ensure that lifting equipment - hoists, slings, chains, lifting eyes - are of adequate capacity to handle the lift.
3. DO NOT stand under a suspended load. DO NOT work under raised body unless body safety cables, props, or pins are in place to hold the body in up position.
4. DO NOT repair or service the truck while the engine is running, except when adjustments can only be made under such conditions. Keep a safe distance from moving parts.
5. When servicing any air conditioning system with refrigerant, wear a face shield and cold resistant gloves for protection against freezing. Ensure all current regulations for handling and recycling refrigerants are followed.
6. Follow package directions carefully when using cleaning solvents.
7. If an auxiliary battery assist is needed, refer to Jump Starting With Booster Cables or Jump Starting With Receptacles earlier in this section.
8. Before performing any welding on the truck, always turn the battery disconnect switches to the OFF position and disconnect the alternator positive cable. Failure to do so may seriously damage the battery and electrical equipment. It is not necessary to disconnect or remove any control circuit cards on electric drive dump trucks or any of the Alarm Indicating Device (AID) circuit control cards.

   Always fasten the welding machine ground (-) lead to the piece being welded; the grounding clamp must be attached as near as possible to the weld area. Never allow welding current to pass through ball bearings, roller bearings, suspensions, or hydraulic cylinders. Always avoid laying welding cables over or near the vehicle electrical harnesses. Welding voltage could be induced into the electrical harness and cause damage to components.
9. If a truck is to be towed for any reason, use a rigid tow bar. Check the truck cab for decals for special towing precautions. (Also refer to the Operation and Maintenance Manual, Operating Instructions - Towing.)
10. Drain, clean and ventilate fuel tanks and/or hydraulic tanks before making any welding repairs.

⚠WARNING

Any operating fluid, such as hydraulic oil or brake fluid escaping under pressure, can have sufficient force to enter a person's body by penetrating the skin. Serious injury and possibly death may result if proper medical treatment by a physician familiar with this injury is not received immediately.

11. Relieve pressure in lines or hoses before making any disconnects.
12. After adjustments or repairs, replace all shields, screens and clamps.
13. Working near tires can be dangerous. Use extreme caution when working around tires.

⚠WARNING

DO NOT stand in front of a rim and locking ring when inflating a tire mounted on the machine. Observers must not be permitted in the area.

DO NOT weld or apply heat to the rim assembly with the tire mounted on the rim. Resulting gases inside the tire may ignite, causing explosion of the tire and rim.

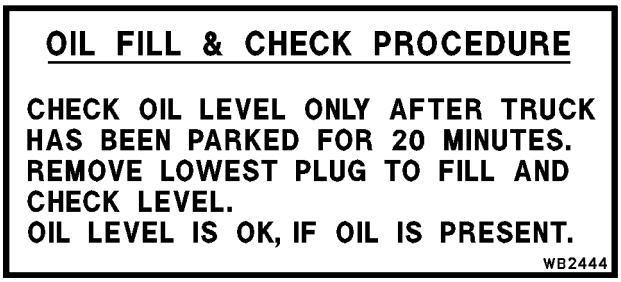
14. Only a qualified operator or experienced maintenance personnel who are also qualified in operation can move the truck under its own power in the repair facility or during road testing after repairs are complete.

A warning plate is attached to the hydraulic tank to inform technicians that high pressure hydraulic oil is present during operation. When it is necessary to open the hydraulic system, Ensure the engine is stopped and key switch is OFF to bleed down hydraulic pressure. There is always a chance of residual pressure being present. Open fittings slowly to allow all pressure to bleed off before removing any connections.

⚠WARNING

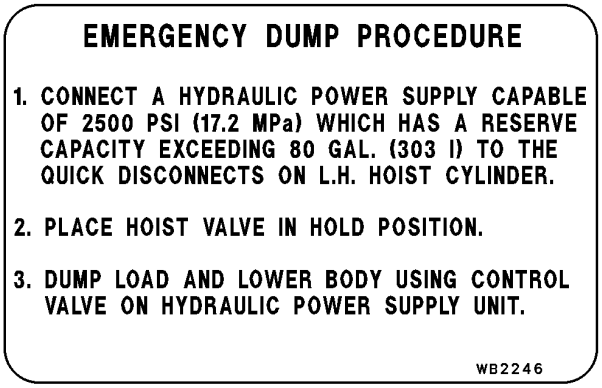
Any operating fluid, such as hydraulic oil, escaping under pressure can have sufficient force to enter a person's body by penetrating the skin. Serious injury and possibly death may result if proper medical treatment by a physician familiar with this injury is not received immediately.

A wheel motor oil level decal is attached to the gear cover on both electric wheel motors. This decal stresses the fact that the truck must be on a level surface and parked for 20 minutes prior to checking the oil level. This is necessary in order to get an accurate reading.



A decal plate located on the frame near the left hoist cylinder provides the operator or technician with the hook-up procedure for dumping a loaded, disabled truck. The use of a functional truck for hydraulic power is required.

Refer to the Section L for additional instructions for using this procedure.



Warning decals are applied to both brake accumulators located inside the brake system cabinet behind the operator cab. These decals remind servicing technicians to close the accumulator drain valves after they have been opened to bleed brake pressure. It further warns not to over-tighten the drain valves to prevent damage to the valve seat(s).

8. Move behind the front wheel and inspect the steering cylinder. Check for proper greasing and inspect the mounting hardware to ensure it is all in place. Inspect the suspension mounting hardware to ensure it is all in place. Ensure the suspension protective boot is in good condition. Inspect the hub and brakes for any unusual conditions. Check the entire area for leaks.
9. Inspect the sight glass on the hydraulic tank. With the engine stopped and body down, hydraulic fluid must be visible in the upper sight glass.
10. Verify all hydraulic tank shut off valves are locked in their fully open positions.
11. Move around the hydraulic tank and in front of the rear dual tires. Inspect the hoist cylinder for any damage and leaks. Inspect both upper and lower hoist cylinder pins for integrity and for proper greasing.
12. Before leaving this position, look under the lower edge of the chassis to ensure the flexible duct that carries the air from the blower to the final drive housing is in good condition with no holes or breakage. Also, look up at the main hydraulic pumps to see that there is no leakage or any other unusual condition with the pumps or the pump drive shafts.
13. Move around the dual tires, and check to see that all lugs/wedges are in place and tight. Inspect latches on the wheel cover to be sure they are properly latched. Inspect the wheel for any oil that would indicate brake leakage or wheel motor leakage.

    Check the dual tires for cuts, damage or bubbles. Verify that inflation appears to be correct. If the truck has operating on a flat tire, the tire must be cool before moving the truck inside a building. Check for any rocks that might be lodged between the dual tires. Inspect the rock ejector condition and straightness so that it can not damage a tire.
14. Inspect the left rear suspension for damage and for correct rod extension. Check for leaks. Ensure that the covers over the chrome piston rod are in good condition. Inspect for proper greasing.
15. Open the rear hatch cover, turn on work light, if necessary. Inspect for leaks around wheel motor mounting to rear housing, and also brake hoses and fittings. Ensure that covers on wheel motor sump are in place, and that there are no rags or tools left behind. Inspect condition of hatch cover gasket, report any bad gasket to maintenance. Turn off work light if used, close and latch hatch.
16. While standing in front of the rear hatch, look up to see that rear lights are in good condition, along with the back-up horns. Look up at the panhard rod to see that it is getting proper greasing. Also look at both body hinge pins for greasing and any abnormal condition. Check hoist limit switch and clear any mud/debris from contacts.
17. Perform the same inspection on the right rear suspension as done on the left.
18. Move around the right dual tires. Inspect between the tires for rocks, and check the condition of the rock ejector. Inspect the tires for cuts or damage, and for correct inflation.
19. Perform the same inspection for wheel lugs/wedges, wheel cover latches, and wheel leaks that was done on the left hand dual wheels.
20. Move in front of the right dual tires and inspect the hoist cylinder in the same manner as the left side. Check integrity and condition of the body-up limit switch. Remove any mud/dirt accumulation from the switch.
21. Move around the fuel tank. Inspect the fuel sight gauge, (this must agree with the gauge in the cab). Inspect the attaching hardware for the fuel tank at the upper saddles, and then at the lower back of the tank for the security and condition of the mounts. Check the hoist filters for leaks.
22. Move behind the right front wheel, and inspect the steering cylinder. Check for proper greasing and inspect the mounting hardware. Check the suspension mounting hardware and suspension extension. Ensure the suspension protective boot is in good condition. Inspect the hub and brakes for any unusual conditions. Check the entire area for leaks.

FUEL DEPLETION

The high pressure injection (HPI) fuel system uses fuel to adjust fuel delivery timing by creating a hydraulic link between the upper plunger and the timing plunger. Metered fuel is also used for lubricating the injector plunger and barrel. The maximum demand for metered fuel is required during high speed / low load conditions.

⚠CAUTION

Operating the truck to fuel depletion forces the injector train into a no-follow* condition. No fuel flow between the plungers may cause damage to the injectors and the overhead due to adhesive wear, resulting in costly repairs and unnecessary downtime.

⚠WARNING

Allowing the Komatsu truck to operate until fuel depletion can lead to unsafe operating conditions possibly resulting in an uncontrollable vehicle and/or personal injury.

SAFE PARKING PROCEDURES

The operator must continue to use safety precautions when preparing for parking and stopping the engine.

In the event that the equipment is being used in consecutive shifts, any questionable truck performance the operator may have noticed must be checked by maintenance personnel before the truck is released to another operator.

1. Park the truck on level ground, if possible. If it is necessary to park on a grade, the truck must be positioned at right angles to the grade.
2. Stop the truck using the service brakes. Place the directional control lever in the PARK position. This will apply the parking brake. Slowly release the service brakes. If the truck starts to roll, apply the service brakes and notify maintenance personnel immediately.
3. If the truck is stationary with only the parking brake applied, place chocks fore/aft of the wheels to reduce the risk of the truck rolling. Each truck must be parked at a reasonable distance from other trucks/equipment.
4. Haul roads are not safe parking areas. In an emergency, pick the safest spot most visible to other machines in the area. If the truck becomes disabled where traffic is heavy, mark the truck with warning flags in daylight, or flares at night.

The "short term" numbers listed on the chart indicate the combination of speeds and grades which the vehicle can safely negotiate for a short duration before system components reach the maximum allowable temperature during retarding. These speeds are faster than the "continuous" values, reflecting the thermal capacity of various system components. System components can accept heating at a higher-than-continuous rate for a short period of time. Beyond this short duration of time, the system would become overheated.

If the vehicle is operated at "short term" grade and speed limits for a period of time exceeding thermal capacity, the Propulsion System Controller (PSC) gradually reduces retarding effort from "short term" to "continuous". The "retard @ continuous" indicator light will illuminate alerting the operator of the retarding reduction and the need for a reduction in speed. The operator must use the service brakes to **quickly** slow the truck to maximum "continuous" retarding limits or less.

⚠CAUTION

DO NOT LIGHTLY apply the service brakes when attempting to slow the truck on a downhill grade. Overheating of the brakes will result. FULLY apply the brakes (within safe limits for road conditions) in order to quickly slow the truck to maximum "continuous" retarding limits or less.

NOTE: The "three minute" curve is a MINIMUM; the actual time limit could be greater. Ambient temperature, barometric pressure and recent motor power levels can affect this number.

The "short term" rating will successfully accommodate most downhill loaded hauls. It is necessary to divide haul road grade segment length by allowable speed to determine actual time on grade. If actual time on the grade exceeds the allowable limits, the grade will need to be negotiated at the "continuous" speed.

The "continuous" numbers on the chart indicate the combination of speeds and grades which the vehicle can safely negotiate for unlimited time or distance during retarding.

DO NOT exceed these recommended MAXIMUM speeds when descending grades with a loaded truck.

Key Switch

Key switch (1, Figure 32-7) is a three-position (OFF, RUN, START) switch.

Starting

When the switch is rotated one position clockwise, it is in the RUN position and all electrical circuits except START are activated.

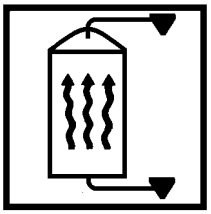
1. With the selector switch in PARK, rotate key switch fully clockwise to the START position, and hold this position until the engine starts. The START position is spring-loaded to return to RUN when the key is released. If the engine is equipped with a prelube system, a noticeable delay will occur before engine cranking begins.
2. After engine has started, place rest switch (4, Figure 32-7) in the OFF position, which will deactivate the rest mode of operation. Refer to the discussion of rest switch later in this chapter.

NOTE: The electric cranking motors have a 30 second time limit. If the 30 second limit is reached, cranking will be prohibited for two minutes. After two minutes, cranking will be allowed. If the 30 second limit is reached seven consecutive times, the key switch must be turned to the OFF position. This will allow the interface module to power down and reset, which requires seven minutes to complete.

Rotating Beacon Light Switch (Optional)

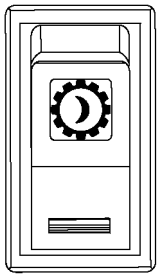
Switch (2, Figure 32-7) controls the operation of the rotating beacon light.

Heated Mirror Switch (Optional)



Switch (3, Figure 32-7) controls the operation of the heated mirrors.

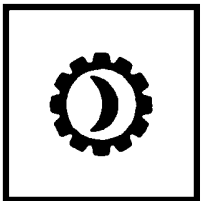
Rest Switch



Switch (4, Figure 32-7) is a rocker type switch with a locking device for the OFF (lower side pressed in) position. There is no LED light to illuminate when this switch is in the OFF position. A small red tab must be pushed up to unlock the switch before the top side can be depressed to the rest position. When in the rest (ON) position, an internal amber lamp will illuminate. The switch must be activated to de-energize the AC drive system whenever the engine is to be turned off or parked for a length of time with the engine running.

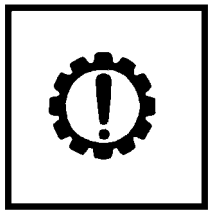
The selector switch must be in PARK and the vehicle not moving to enable this function. This will allow the engine to continue running while the AC drive system is de-energized.

Activation of the rest switch alone DOES NOT completely ensure that the drive system is safe to work on. Refer to Section 20, Safety, for more information on servicing a 830E truck. Check all "link-on", or "link energized", indicator lights to verify the AC drive system is de-engergized before performing any maintenance on the drive system. DO NOT activate the rest switch while the truck is moving! The truck may unintentionally enter the “rest” mode after stopping.



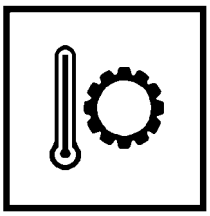
An amber (yellow) indicator light in the overhead panel (B6, Figure 32-8) will illuminate when the "rest" state has been requested and entered.

B5. Propulsion System Warning



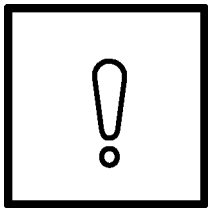
When this amber indicator is illuminated, the light indicates a “no propel” or “no retard” event may be about to occur. It is intended to provide advance notice of these events when possible. It does not require the operator to stop the truck, but may suggest that truck operation be appropriately modified, in case a red alarm does occur.

C5. Propulsion System Temperature



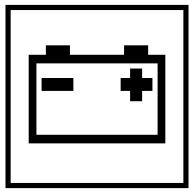
This amber AC drive system temperature warning light indicates the drive system temperature is above a certain level. When this condition occurs, the operator must consider modifying truck operation in order to reduce system temperature. The operator is not required to stop the truck at this time.

D5. System/Component Failure



This red warning light indicates that the interface module system detected a failure somewhere on the truck. There are many conditions that could trigger the light to illuminate. If this light illuminates, the operator must safely stop the truck, move selector switch to PARK, shut the engine off, and notify maintenance personnel immediately.

E5. Battery Charging System Failure

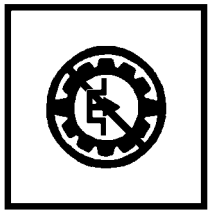


The red battery charging system light indicates a problem has been detected in the charging system, and system voltage is outside the normal operating range. If this light illuminates, the operator must safely stop the truck, move selector switch to PARK, shut the engine off, and notify maintenance personnel immediately. If truck operation continues, and the battery voltage drops below 20.0 volts, the propulsion system will not operate, but retarding will still be available.

The following conditions will also illuminate this light:

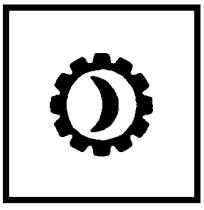
- Battery voltage below 24.5V, engine rpm above 1450. Resets at 26V.
- Battery voltage below 23V with engine off. Resets at 25.5V.
- Battery voltage above 32V with engine operating. Resets at 27.5V.

A6. No Propel



The red “no propel” light indicates a fault has occurred which has eliminated the propulsion capability. If this condition occurs, the operator must safely stop the truck, move selector switch to PARK, shut down the engine, and notify maintenance personnel, immediately.

B6. Propel System @ Rest



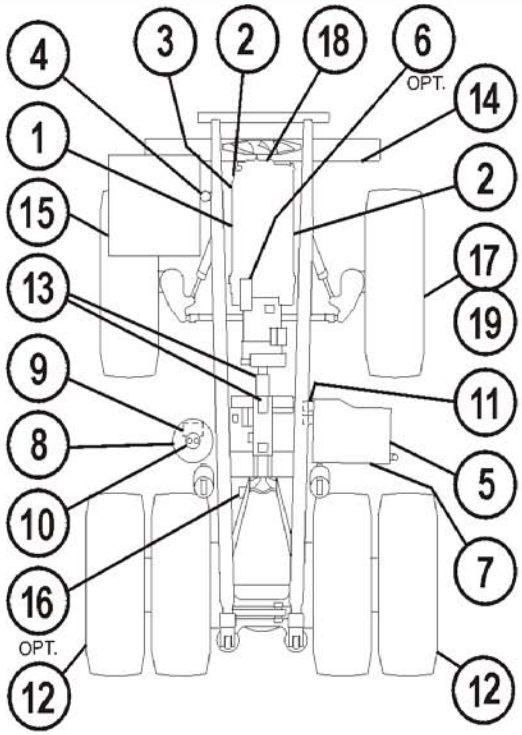
The amber “propel system @ rest” light is used to indicate that the AC drive system is de-energized and propulsion is not available. This light is activated when the instrument panel rest switch is turned ON and the AC drive system is de-energized. The three link energized lights (one on rear of the center console inside the operator cab, and two on the deck-mounted control cabinets) must NOT be illuminated at this time.

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	SEE ENGINE MANUAL						
2	ENGINE LUBE OIL FILTERS										
3	FUEL FILTER										
4	FUEL SEPERATOR (DAVCO)										
5	FUEL TANK	1					DRAIN H_2O & 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				



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

* 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

WB2790

LUBRICATION CHART

500 HOUR LUBRICATION AND MAINTENANCE CHECKS (Continued)

Truck Serial Number_____ **Site Unit Number**_____ **Date**_____
Hourmeter_____ **Name of Service Technician**_____

	TASK	COMMENTS	CHECKED	INITIALS
10.	WHEEL MOTOR OIL SAMPLING - Refer to Section G5, Wheel Motor, for oil sampling information.			
11.	WHEEL MOTOR OIL ***(Initial 500 hours only)*** - Change or filter wheel motor gear oil only after initial 500 hours or operation. Wheel motor gear oil must be filtered or changed every 2500 hours of operation thereafter.			
12.	VHMS DATA DOWNLOAD - Using a laptop PC with the *VHMS Technical Analysis Tool Box* program, perform a data download from the VHMS controller. Send the data to WebCARE using the FTP feature. Refer to Section D in the shop manual for more detailed instructions.			
13.	FRONT BRAKE DISC - Measure the thickness of the disc. If 20 to 25% of the disc wear surface is worn below 28.7 (1.13 in.), the disc must be replaced. Refer to the shop manual, Parking Brake, Section J, for additional information.			
14.	FRONT WHEELS - Take an oil sample of the front wheel bearing oil. Refer to Section G in this shop manual for detailed instructions.			

INJECTORS (SL-1 Series “H”))

Injector Specifications

- Each lube injector services only one grease point. In case of pump malfunction, each injector is equipped with a covered grease fitting to allow the use of external lubricating equipment.
- *Injector output volume:*

  Maximum output = ... 1.31 cc (0.08 in^3).

  Minimum output = ... 0.13 cc (0.008 in^3).
- *Operating Pressure:*

  Minimum - . . . . . 12,755 kPa (1850 psi)

  Maximum - . . . . . 24,133 kPa (3500 psi)

  Recommended - . . . . 17,238 kPa (2500 psi)
- *Maximum Vent Pressure - (Recharge)*

  . . . . . 4137 kPa (600 psi)

Injector Adjustment

The injectors may be adjusted to supply from 0.13 - 1.31 cc (0.008 - 0.08 in^3) of lubricant per injection cycle. The injector piston travel distance determines the amount of lubricant supplied. This travel is in turn controlled by an adjusting screw in the top of the injector housing.

Turn adjusting screw (1, Figure 42-6) counterclockwise to increase lubricant amount delivered and clockwise to decrease the lubricant amount.

When the injector is not pressurized, maximum injector delivery volume is attained by turning the adjusting screw (1) fully counterclockwise until the indicating pin just touches the adjusting screw. At the maximum delivery point, about 9.7 mm (0.38 inch) adjusting screw threads should be showing. Decrease the delivered lubricant amount by turning the adjusting screw clockwise to limit injector piston travel. If only half the lubricant is needed, turn the adjusting screw to the point where about 4.8 mm (0.19 inch) threads are showing. The injector will be set at minimum delivery point with about 0.22 mm (0.009 inch) thread showing.

NOTE: The above information concerns adjustment of injector delivery volume. The timer adjustment should also be changed, if overall lubricant delivery is too little or too much. Injector output should NOT be adjusted to less than one-fourth capacity.

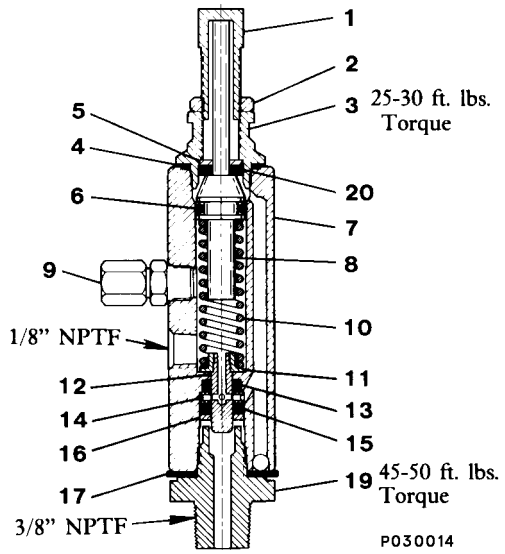


FIGURE 42-6. TYPE SL-1 INJECTOR

1. Adjusting Screw
2. Locknut
3. Piston Stop Plug
4. Gasket
5. Washer
6. Viton O-Ring
7. Injector Body Assy.
8. Piston Assembly
9. Fitting Assembly
10. Plunger Spring
11. Spring Seat
12. Plunger
13. Viton Packing
14. Inlet Disc
15. Viton Packing
16. Washer
17. Gasket
18. Adapter Bolt
19. Adapter
20. Viton Packing

NOTE: The piston assembly (8) has a visible indicator pin at the top of the assembly to verify injector operation.

SPECIFICATIONS

These specifications are for the standard Komatsu 830E-AC Truck. Customer Options may change this listing.

ENGINE

Komatsu SDA16V160

No. of Cylinders 16
Operating Cycle 4-Stroke
Rated Brake HP. . . . 1865 kW (2500 HP) @ 1900 RPM
Flywheel HP . . . . . 1761 kW (2360 HP) @ 1900 RPM
Weight* (Wet) . . . . . 9,608 kg (21,182 pounds)
* 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 .255 m³/ min (9,000 cfm)
Motorized Wheels . . . . . GEB25 AC Induction Traction Motors
Standard Gear Ratio* 31.875:1
Maximum Speed . . . . . 64.5 km/h (40 mph)
*NOTE: Wheel motor application depends upon GVW, haul road grade and length, rolling resistance, and other parameters. Komatsu & G.E. must analyze each job condition to assure proper application.

DYNAMIC RETARDING

Electric Dynamic Retarding . . . . . Standard
Maximum Rating . . . . . 2983 kW (4000 HP)

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

	Liters	(Gallons)
Crankcase *	280	74
* Includes Lube Oil Filters		
Cooling System	568	(150)
Fuel	4542	(1200)
Hydraulic System	946	(250)
Wheel Motor Gear Box (each)	38	(10)

HYDRAULIC SYSTEMS

Hoist . . . . . Tandem Gear Pump 851 lpm (225 gpm) @ 1900 rpm and 17 240 kPa (2,500 psi)
Steering/Brake Pump: . Pressure Compensated Piston
Rated @ . . . . . 246 lpm (65 gpm) @ 1900 rpm and 18 961 kPa (2750 psi)
Relief Pressure-Hoist. . . . . 17 240 kPa (2500 psi)
Relief Pressure-Steering/Brake . 27 580 kPa (4000 psi)
Hoist Cylinders (2) . . . . . 3-Stage Hydraulic
Tank (Vertical/Cylindrical) . . . . . Non-Pressurized
Filtration . . . . . In-line replaceable elements
Suction. . . . . .Single, Full Flow, 100 Mesh
Hoist & Steering Filters.....Beta $_{12}$ Rating =200 Dual In-Line, High Pressure

SERVICE BRAKES

Actuation . . . . . .All Hydraulic
Front . . . . . .Wheel Speed, Single Disc
Inboard Mounted . . . . . 3 Calipers
Disc Diameter, O.D.. . . . . 1213 mm (47.75 in.)
Rear. . . . . Armature Speed, Dual Disc
Disc Diameter, O.D.. . . . . .635 mm (25.00 in.)
Emergency Brake- . Automatically Applied (Standard)
Wheel Brake Lock . . . . . Manual Switch on Panel
. . . . . (Loading and Dumping)

PARKING BRAKE

Each Rear Wheel . . . . . Intregal Caliper
. . . . . .Spring Applied, Hydraulically Released

STEERING

Turning Circle (SAE) . . . . . 28.4 m (93 ft.)

Twin hydraulic cylinders with accumulator assist to provide constant rate steering. Emergency power steering automatically provided by accumulators.

Total Load Counter

The total load counter records the number of loads hauled since the last time it was cleared. This display can be cleared at the beginning of each shift to allow the operator to record how many loads have been hauled during the shift.

- To view the total load counter press and release the “SELECT” switch until LC= is displayed on the gauge.

Clearing the Counters

Clearing the total ton counter or total load counter clears both records.

To clear the total ton and total load counter:

1. Press the “SELECT” switch until tL= or LC= is displayed.
2. Hold the “SET” button until the display clears.

Viewing Live Sensor Data

The display can also be used to quickly show the current readings from the four suspension pressure sensors and the inclinometer. This can be used during regularly scheduled service periods to check the state of the suspensions. These displays are live and will update as the values change.

The live displays cannot be cleared and the SET button will have no effect.

The units for the display are controlled by the configuration of the payload meter. If the payload meter is set to display metric units, the pressures will be displayed in tenths of kg/cm^2. For example, if the display shows 202 the actual value is 20.2 kg/cm^2. If the payload meter is set to display short tons, the pressures will be displayed in psi (lbs/in^2). Multiply by 14.2 to convert kg/cm^2 to psi. (example -- 1kg/cm^2 x 14.2 = 14.2 psi). There is no way to detect the units setting for the gauge without the PC software.

The inclinometer displays whole degrees of incline. Positive incline is truck nose up. The gauge will quickly display the type of information shown every 10 seconds. For example, if the left-front pressure is being displayed, LF= will flash on the display every minute. Only the payload display, PL= does not display this information.

- Left Front Pressure - To display the pressure in the left-front suspension, press and release the “SELECT” switch until LF= is displayed.
- Right Front Pressure - To display the pressure in the right-front suspension, press and release the “SELECT” switch until rF= is displayed.
- Left Rear Pressure - To display the pressure in the left-rear suspension, press and release the “SELECT” switch until Lr= is displayed.
- Right Rear Pressure - To display the pressure in the right-rear suspension, press and release the “SELECT” switch until rr= is displayed.
- Inclinometer - To display the truck incline, press and release the “SELECT” switch until In= is displayed.

Other Display Messages

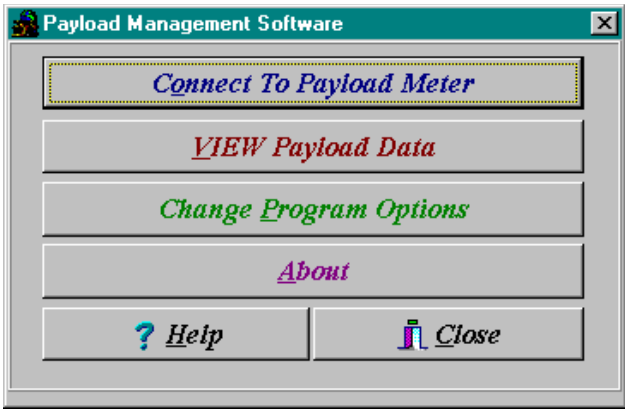
On startup of the payload meter system, the gauge display will scroll the truck type that the PLMIII is configured for. For example, on a 930E, the gauge will scroll, ---930E---.

If the PLMIII encounters memory problems, it will display ERnn ,where nn is the specific memory error. In this very rare circumstance, the system should be turned off for 30 seconds and restarted.

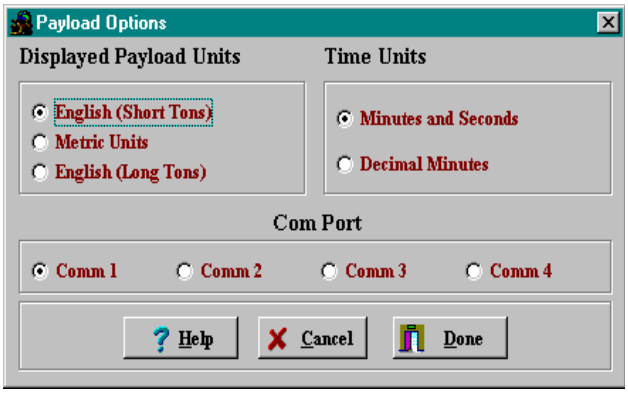
PLM III SYSTEM CONFIGURATION

Starting Communications

The PDM software allows users to download and configure the system.



Before connecting to the payload meter, select "Change Program Options" and confirm that the program has selected the correct laptop serial port. Most laptops use Comm 1 for serial communications. The units displayed for reports and graphs by the PC software can be set on this form. Click “Done” to return to the main menu.



From the main menu, click the "Connect to Payload Meter" button. The PC will try to connect to the payload meter and request basic information from the system. In the event of communications trouble, the PC will try 3 times to connect before "timing-out". This may take several seconds.

Displayed Payload Units

Three options are available for the display of units in the PC software, reports, and graphs:

Short Tons: Payload is displayed in short tons, distances and speeds will be displayed in Miles

Metric Tons: Payload is displayed in metric tons, distances and speeds are displayed in Kilometers

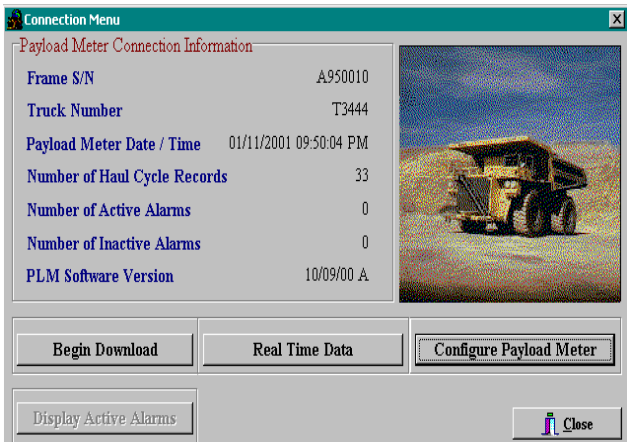
Long Tons: Payload is displayed in long tons, distances and speeds are displayed in Miles

Time Units

Minutes and Seconds Example:
Five minutes and thirty-two seconds = 5:32

Decimal Minutes Example:
Five minutes and thirty-two seconds = 5.53

Connection Menu



The connection screen displays basic system information to the user.

- Frame S/N should agree with the truck serial number from the serial plate located on the truck frame.
- Truck Number is an ID number assigned to the truck by the mine.
- The Payload Meter Date / Time values come from the payload meter at the moment of connection.
- Number of Haul Cycle Records is the number of haul cycles records stored in memory and available for download.
- Number of Active Alarms shows how many alarms are currently active in the system at the time of connection. If there are active alarms, the "Display Active Alarms" button is available.
- Number of Inactive Alarms shows how many alarms have been recorded in memory and are available for download.
- PLM Software Version displays the current version of software in the payload meter.

The information on the connection menu comes from the configuration of the payload system on the truck.

To export data in ZIP format:

1. Confirm that the data displayed is the query data that needs to be exported.
2. From the payload summary screen, press the "EXPORT" button and select "To ZIP".
3. The program will ask for a filename and location.

Importing Data

This import function allows the data from one laptop to be transferred to another computer. This can be useful when a service laptop is used to download multiple machines and transfer the data to a central computer for analysis. This can also be used to copy haul data from a particular truck from a diskette into a database for analysis.

To import data, press the "IMPORT" button at the bottom of the “Payload Summary” screen. The program will ask for a ".zip" file to import, locate the file and press "Open". The program will only import ".zip" files created by another computer running the PDM Software.

Deleting Haul Cycle Records

To delete haul cycle records from the main database, press the "Delete" button at the bottom of the “Payload Summary” screen. The program will display a summary of the records from the displayed query. To delete a record, select one at a time and press the "Delete" button. It is recommended that records be exported to a zip file for archival purposes before deletion. Multiple records may be selected by holding down the Shift key. Pressing the "Delete All" button will select all the records from the current query and delete them.

NOTE: There is no recovery for records that have been deleted from the main database. It is highly recommended that all records be exported and archived in a compressed file format for future reference before being deleted.