CEBM006001

Shop Manual

730E

DUMP TRUCK

SERIAL NUMBERS **A30123 - A30132**

KOMATSU®

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TORQUE TABLES AND CONVERSION CHARTS

This manual provides dual dimensioning for many specifications. Metric units are specified first, with U.S. standard units in parentheses. When torque values are not specified in the assembly instructions contained in this manual, use the standard torque value for the hardware being used. Standard value torque tables are contained in this chapter for metric and SAE hardware.

NOTE: This truck is assembled with both metric and SAE (U.S.) hardware. Reference the correct table when determining the proper torque value.

⚠CAUTION

References throughout the manual to standard torques or other standard values will be to one of the following tables. Do not use standard values to replace specific torque values in assembly instructions.

For values not shown in any of the charts or tables, standard conversion factors for most commonly used measurements are provided in the following tables.

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COMPUTER DESCRIPTION

A total understanding of the following concepts is not essential to properly maintaining and troubleshooting the Komatsu truck control system. This information is presented as additional background information concerning operation of the FL275 panel computer and software programs required for operation. The technician should however, become familiar with basic operation of portable, MSDOS operating system computers (PTU) and must have the ability to use the menu operated software described later in this publication. These skills are necessary for programming the FL275 panel computer, troubleshooting, and obtaining statistical data.

Microprocessor

The microprocessor, located on the FB101 card (or FB144 card on later model trucks), contains the logical elements necessary to perform calculations and to carry out stored instructions. It is used as the central processing unit (CPU) of a computer. Computer operation is managed by a software program, which resides in the computer's memory. The software program also contains instructions to test and fault isolate the system.

A program is a sequence of specific instructions in an order that, when the microprocessor executes them, proper results occur. A program is generally stored in a read-only-memory (ROM). To execute the program, the microprocessor reads an instruction from ROM, interprets the instruction, performs whatever task that is dictated by the instruction, and then starts the process over again by reading a new instruction from ROM.

The microprocessor utilizes address, control, and data buses to accomplish the above process. A bus is a group of wires or circuits that collectively serve a similar function. For example, the address bus identifies the location that the microprocessor is reading from or writing to. The data bus provides a path for the flow of data from one point to another. The control bus is somewhat different from the other two buses in that each wire normally serves a separate and generally unrelated function used to control the actions of the system.

While executing the program, reading and writing of data is often necessary. This data is stored in a random-access-memory (RAM). A RAM is a temporary storage device, that is, if power to the RAM is lost, the data is cleared. The RAM stores all types of data, such as, input/status from external devices, fault information, specific program addresses, etc.

The final result is to provide instructions to external devices that tell them when and/or how to operate. Throughout the execution of the program, the microprocessor acts like a traffic officer; taking in instructions, interpreting them, and acting accordingly in order to process instructions to the output.

Download Capability

The computer can be reprogrammed by "downloading" new software into its memory. Downloading refers to transferring software program instructions from the PTU to the FL275 panel FB101/144 card through the serial port connector cable. This capability allows the system software to be changed if any new hardware or software option is to be installed or if an updated version of the existing software is to be implemented.

SOFTWARE

"Software" refers to computer programs written using coded instructions that can be understood by the CPU.

The following is a brief description of how the software establishes and regulates propulsion and retarding.

Base Monitor Program

The Base Monitor Program performs functions for the system, including power-up tests on the CPU card. This software is programmed on four Eprom chips at the factory and installed on the FB101/144 card.

Runtime Monitor Program - OBJRunning Code

The Runtime Monitor Program is used to control common truck functions. It is downloaded to Flash (Electrically Erasable Read Only Memory) chips on the CPU card from OBJ files stored on the PTU hard drive. This is done initially during factory check-out and can be redone in the field using the PTU.

After being downloaded to Flash, it is then copied to RAM (Random Access Memory) chips on the CPU card at system power-up.

This software:

- Controls contactors, relays, lights, solenoid, firing pulses, etc.
- Monitors truck running parameters and stores event/fault data for later examination.
- Communicates with the PTU to display operating parameters and event/fault data.

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OIL AND NITROGEN SPECIFICATIONS CHART

HYDRAIR® II OIL SPECIFICATIONS			
Ambient Temperature Range	**Part No.**	**Approved Sources**	
-30°F & above (-34.5°C & above)	VJ3911 (need to add 6% of AK3761)	Mobil 424 Mobil D.T.E. 15 Texaco TDH Oil AMOCO ULTIMATE Motor Oil 5W-30	Sunfleet TH Universal Tractor Fluid Chevron Tractor Hydraulic Fluid- Conoco Power Tran III FluidPetro Canada Duratran Fluid Shell Canada Donax TDL
	AK4063	Suspension Oil (premixed with 6% Friction Modifier)	5 Gallon container
	AK4064		55 Gallon container
-55°F & above (-48.5°C & above)	VJ5925 (need to add 6% of AK3761)	Emery 2811, SG-CD, 5W-30 Mobil Delvac I, 5W-30	Petro Canada Super Arctic Motor Oil, 0W-30 Conoco High Performance Synthetic Motor Oil, 5W-30
	AK4065	Suspension Oil (premixed with 6% Friction Modifier)	5 Gallon container
	AK4066		55 Gallon container
NOTE: *VJ3911 and VJ5925 oils are not compatible and must not be mixed in a suspension. VJ3911 and VJ5925 oils are supplied in 5 gallon (19 Liter) cans.*			

FRICTION MODIFIER	FRICTION MODIFIER Mixing Instructions (94% Suspension oil, 6% Friction Modifier)	
Part Number	**Suspension Oil**	**Amount of Friction Modifier to add**
AK3761 (5 Gallon container of 100% Friction Modifier)	1 gallon of suspension oil	add 7.7 oz.
	5 gallons of suspension oil	add 38.4 oz.
	55 gallons of suspension oil	add 3.3 gal.

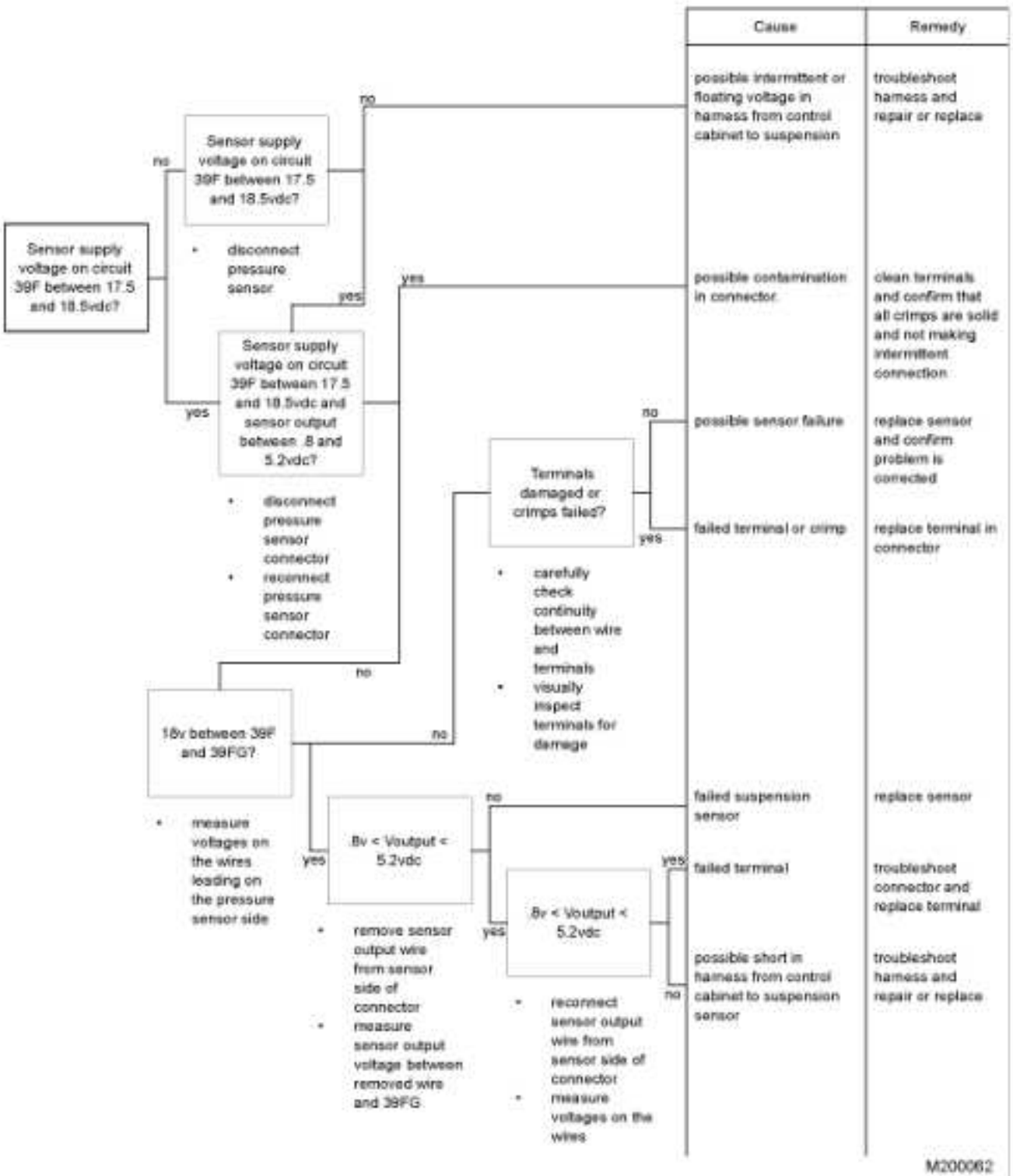
NITROGEN GAS (N_2)SPECIFICATIONS		
	Property	**Value**
Nitrogen gas used in HYDRAIR® II Suspension Cylinders must meet or exceed CGA specification G-10.1 for Type 1, Grade F Nitrogen Gas	Nitrogen	99.9% Minimum
	Water	32 PPM Maximum
	Dew Point	-68°F (-55°C) Maximum
	Oxygen	0.1% Maximum

FIGURE 4-5. SPECIFICATIONS CHART

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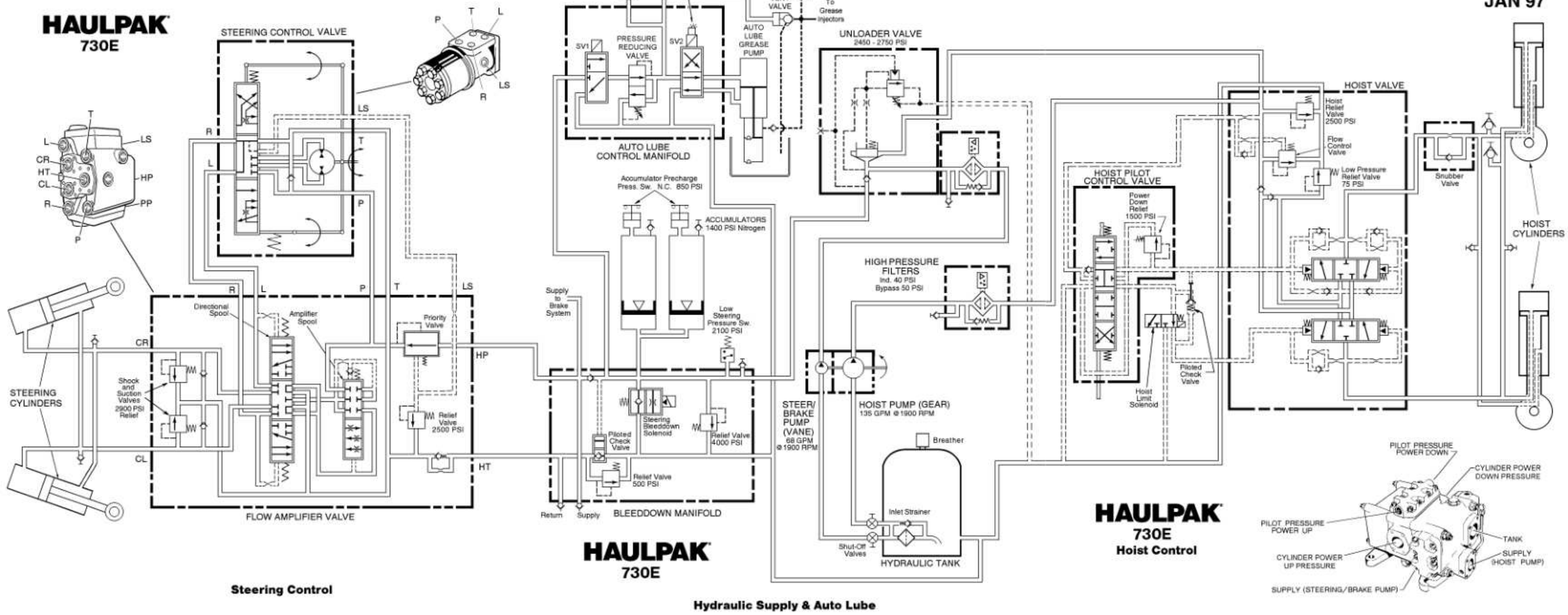
Pressure Sensor Fault Tree

NOTE: Confirm the sensor voltages using the Sensor Power Fault tree to confirm that the problem is not a failure in the harnesses coming from the cab to the control cabinet. If all the pressure sensor faults are active, check the power supply first.



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