CEBM018301

Shop Manual

730E Trolley

DUMP TRUCK

SERIAL NUMBERS **A30474, A30512 - A30517, & A30546 - A30549**

KOMATSU®

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TROUBLESHOOTING

⚠WARNING

Observe all safety precautions when working in the area of the fan. If working with a running engine, the fan may come on automatically, without warning, when engine temperature rises.

Preliminary Checks

Before troubleshooting the fan drive system, the following basic principles must be understood:

1. The fan drive clutch is not a snap off-snap on type. It is a modulating drive with infinite variable speeds. A thermal sensor(s) and solenoid valve are used to obtain a modulated engagement.
2. At idle with a cold engine, the fan clutch will be disengaged, but the fan will turn at approximately 100-300 rpm due to viscous drag of the oil between the clutch plates.
3. Oil control pressure locks up the clutch. Without pressure to the clutch it is disengaged (free-wheeling).
4. The solenoid valve, which receives its oil supply from the engine oil pump, regulates the amount of pressure directed to the clutch control pressure cavity. Control pressure will vary from 0.0 kPa (0.0 psi) to maximum engine oil pressure supplied, depending upon engine temperature and condition.
5. The thermal sensor is sensitive to engine water temperature. As engine water temperature rises above the minimum specified temperature, the thermal sensor signals the solenoid valve to increase control pressure going to the clutch, thus increasing fan speed. As engine water temperature drops, the thermal sensor signals the solenoid valve to decrease control pressure going to the clutch, thus decreasing fan speed.

In cooling systems equipped with two thermal sensors, either one or both sensors can control the solenoid valve depending upon coolant temperature and the operating range of the thermal sensor.

Several thermal sensors are available, each with a different operating range. The sensor(s) used with a particular installation have been selected based upon many factors, such as engine horsepower rating, cooling system design, etc. Each thermal sensor has a tag attached to the body which specifies the operating range. When testing operation of the thermal sensor, refer to this tag for the proper operating temperature range. Currently available thermal sensor operating ranges are:

87.8°C - 93.3°C (190°F - 200°F)
82.2°C - 93.°C (180°F - 190°F)
48.9°C - 54.3°C (120°F - 130°F)

NOTE: The thermal sensor rated for 48.9°C - 54.3°C (120°F - 130°F) is used in the engine intercooler circuit of trucks rated at 2200 horsepower, utilizing a Dual Path cooling system.

DO NOT replace a defective thermal sensor with one of a different operating range. Use the exact replacement part only! DO NOT substitute a non-modulating type thermal sensor.

6. The fan free-wheels when engine coolant temperature is below the thermal sensor's operating range because minimum control pressure is supplied to the clutch.
7. The fan rotates at the same speed as the fan pulley when the engine water temperature is at the thermal sensor's maximum specified operating temperature, because maximum control pressure is supplied to the clutch.
8. There must be no axial movement of the fan with or without control pressure applied to the clutch. The fan mounting hub must not move out or in, or front to rear, between the radiator and the engine.

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DIMENSIONS AND TORQUE VALUES

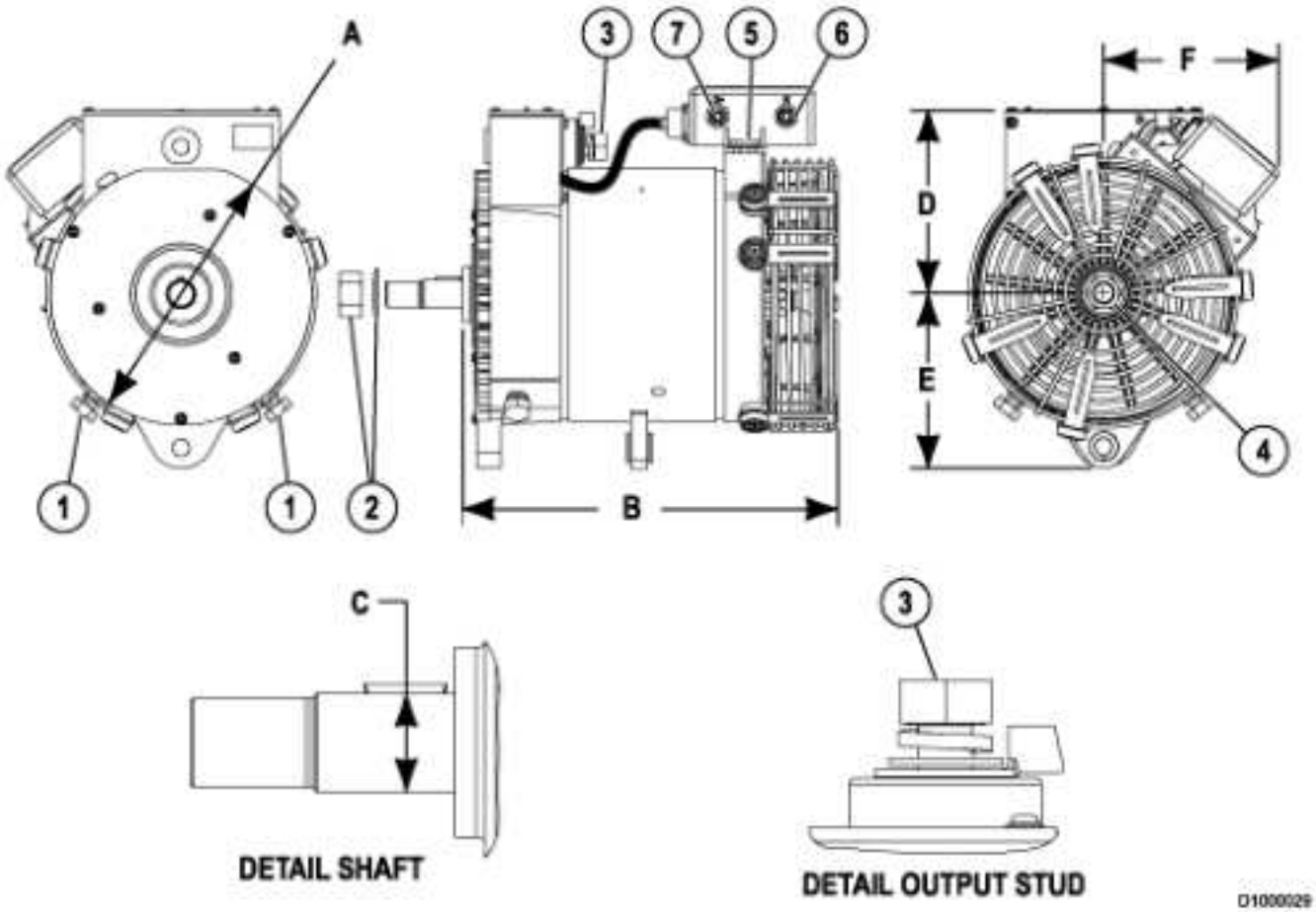


FIGURE 10-6. TORQUE SPECIFICATIONS AND OVERALL DIMENSIONS

		TORQUE SPECIFICATIONS	
Item	Description	Metric	SAE
1	Ground Bolt (B-), M10 X 1.5	15 N·m	11 ft lbs
2	Pulley Nut, M20 X 1.5	163 N·m	120 ft lbs
3	Output Bolt (B+), M12 X 1.75	32 N·m	24 ft lbs
4	Fan Nut, M16 X 1.5	67 N·m	50 ft lbs
5	Regulator Hold Down Screw, M5 X 0.8	8.5 N·m	75 in. lbs
6	Regulator Terminal (R), M6 X 1	4.5 N·m	40 in. lbs
7	Regulator Terminal (D+), M5 X 0.8	4.5 N·m	40 in. lbs
		DIMENSIONS	
A	Housing Diameter	203.2 mm	8.0 in.
B	Overall Length Minus Drive Shaft	292.0 mm	11.5 in.
C	Shaft Diameter	22.22 mm	0.875 in.
D	Height (Centerline to Top)	142.0 mm	5.59 in.
E	Height (Centerline to Bottom)	135.6 mm	5.34 in.
F	Width (Centerline to Regulator)	139.2 mm	5.48 in.

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WIRE NUMBERS AND SHEET LOCATIONS

A01Z	16
0	13,14,17,21 23,24,25,27 28,29,30
0AM	12
0AMB	8,9
0A0V	8
0AFA	10
0ATA	10
0BV	11
0DPZ	11
0LEV	22
0M1A	10
0M2V	8
0M2Y	10
0MPH	27
0S2	11
0S3	11
0S4	11
0TA	10
0TM	10
1	7,28
10V	21,22
11	7,10,18,24 27,28
11A	7,13,24
11B	28
11B1	7,16,28
11B2	7,16
11B4	7,16
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11B6	7,16
11BT	16
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11D	7,24
11DL	7,24
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2DDW	11
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31PE	12
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39AA	27
39B	27
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52C	21
52CS	21
52R	22
53H	23
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63H	29
63HI	29
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63L2	29
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67M	16
67S	16
677	16
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68A	7,13
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68T	13
68TL	13
69M	16
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72S1	27
72W	7,25,29,30
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717G	10,17
717H	10,17
717R	8,10
717S	8,10
719A	20
719AS	20
719AT	20
719AV	20
719AW	20
719AX	20
719B	20
719BB	20
719CS	20
719D	20
719DP	19
719DS	20
719ES	20
719FS	20
719M	20
719P	20
719SB	19
719T	20
71D	10
71E	10
71F	18
71G	8,10
71H	21
71HT	7,21
71J	10
71K	10
72	21
72AM	8,9,12
72D	8,9,10
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72FF	17
72G	18
72H	17
72J	18
72L	17
72LL	17
72N	8
72P	10
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72R	10
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72X	10
72Y	10
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721AS	20
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721DS	20
721E	19
721ES	20
721F	19
721FS	20
721G	19
721GS	20
721H	19
721HA	20
721J	19
721JA	20
721K	19
721KA	20
721L	19
721LA	20
722A	9
722C	9
722F	9
722H	9
722L	25
725J	19,20
725K	20
725L	20
73A	17
73C	18
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73D	8
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73LL	21
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73DSL	27
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73VR	13
73W	20
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74AA	8,10
74B	10
74C	7,10
74D	8,10
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74GS	17
74H	18
74HS	17
74N	22
74PU	20
74X	8
74XA	21
74XB	21
74XC	21
74XD	21
74Z	8
74ZA	17
74ZD	20
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75A1	18
75B	8,10
75C	8,10
75D	8,10
75X	8,10
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76L	22
76M	22
76MM	22
76N	18
76R	18
76RS	17
76S	18
76SS	17
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76TS	17
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76WS	17
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76XS	17
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73F	27
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79E	19
79ES	20
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79M	20
79V	25
79VD	25
79VG	25
79VS	25
7AA1	8,9
7AA2	8
7JJ	8,10
7JJL	8
7JJLS	8
7JJR	8
7JJRS	8
7JQ	8,9
7JQ	8
7JQ30	8,9
7JQ32	8
7JQ	8
7JQ46	8
7JQ5	8
7JQ7	8
7JQ8	8
7JQ9	8
7JQ13	8,10
7JQ14	8,10
7JQ15	8
7JQ16	8
7JQ17	8
7JQ18	8
7RC4	8
7RCS	8,9
7RC6	8
7SQ1	8
7SSQ1	8
7SXQ1	8
7SSX1	8
7SQ2	8
7SSQ2	8
7SXQ2	8
7TRQ	9
7TRQ2	9
7TRQA	9
7TRS	8
7TRQ0	8
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SHLD5	27
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SHLD7A	27
SHLD8B	27
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SP4	15
SP6	15
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SPR54-55	15
SPR57-59	15
SPR60-63	14
SP5D1	15
SP7D1	15
T1	8
T2	8
T3	8

ABBREVIATIONS

A	- AMPERE
ACCL	- ACCELERATOR
ACCUMR	- ACCUMULATOR
AID	- ALARM [INDICATING] DEVICE
A/C	- AIR CONDITIONER
ALT	- ALTERNATOR
ANNUN	- ANNUNCIATOR
AUX	- AUXILIARY
BAT	- BATTERY
BL	- BLEED
BLWR	- BLOWER
BR	- BRAKE
BKR	- BREAKER
BUZ	- BUZZER
CKT/BKR	- CIRCUIT BREAKER
CK	- CHECK
CKT	- CIRCUIT
CLEAR	- CLEARANCE
CLR	- COOLER
CNTRL	- CONTROL
COMP	- COMPARTMENT
CONNR	- CONNECTOR
DET	- DETECTOR
DIAGN	- DIAGNOSTIC
DIFF	- DIFFERENTIAL
DIG	- DIGITAL
DN	- DOWN
DTSV	- DIESEL TROLLEY SWITCH
DYN	- DYNAMIC
ECM	- ENGINE CONTROL MONITOR
ELECL	- ELECTRICAL
EMER	- EMERGENCY
ENG	- ENGINE
EQ	- EQUALIZER
EXC	- EXCITER
EXTRNL	- EXTERNAL
FIL	- FILTER
FRWD	- FORWARD
GA	- GAUGE
GEN	- GENERATOR
GRND	- GROUND
HSNG	- HOUSING
HTR	- HEATER
HVTB	- HI VOLTAGE TERMINAL BOARD
HYD	- HYDRAULIC
INDCTG	- INDICATING
INLCK	- INTERLOCK
JCT	- JUNCTION
L.H.	- LEFT HAND
LEV	- LEVEL
LK	- LEAK
LOCAT	- LOCATION
LT	- LIGHT
MTR	- MOTOR
MAN	- MANUAL
MFA	- MOTOR FIELD 'A'
MFB	- MOTOR FIELD 'B'
MODL	- MODULE
MON	- MONITOR
MTD	- MOUNTED
NO	- NUMBER
PLG	- PLUG
PNL	- PANEL
POS	- POSITION
PRESS	- PRESSURE
PROP	- PROPULSION
RECPCL	- RECEPTACLE
RAD	- RADIATOR
RD	- ROAD
RES	- RESISTOR
RETD	- RETARD
REV	- REVERSE
R.H.	- RIGHT HAND
REL	- RELAY
SEC	- SECOND, SECONDARY
SLCTR	- SELECTOR
SNDR	- SENDER
SIG	- SIGNAL
SOLEN	- SOLENOID
SERV	- SERVICE
SS1	- SPEED SENSOR 1
SS2	- SPEED SENSOR 2
STRG	- STEERING
SW	- SWITCH
SYS	- SYSTEM
TACH	- TACHOMETER
TB	- TERMINAL BOARD
TEMP	- TEMPERATURE
THERMO	- THERMOSTAT
THROT	- THROTTLE
TRANSF	- TRANSFORMER
VLV	- VALVE
WRNG	- WARNING
WT	- WEIGHT

XS1002-2 DEC 04
ELECTRICAL SCHEMATIC
CIRCUIT NUMBER LOCATION
730E TROLLEY
A30225 & UP
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5. Remove the rotor from the rotor shaft.

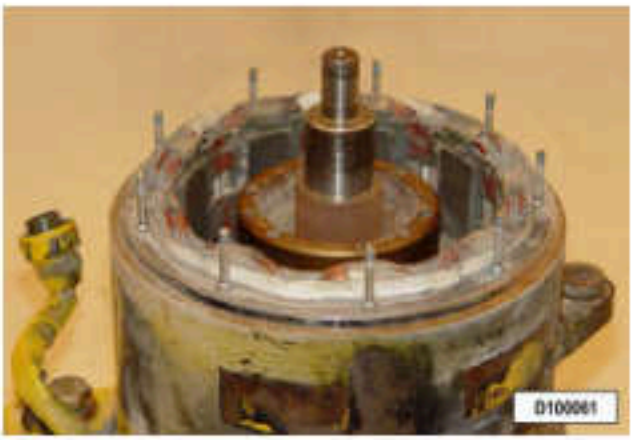


FIGURE 10-50.

Drive End Housing Removal

⚠ IMPORTANT ⚠

Ensure the single mark has been scribed between drive end housing (20) and shell (58). This mark will be used during the assembly process to correctly align the two parts.

1. Position the support stand so the large diameter hole is facing up.

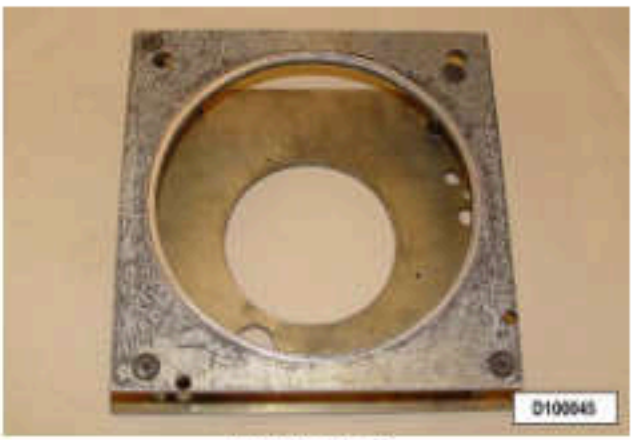


FIGURE 10-51.

2. Place the alternator in the support stand with the drive end facing up.



FIGURE 10-52.

3. Remove cover plate (7) by removing six Torx screws (6) using a number T20 Torx bit.

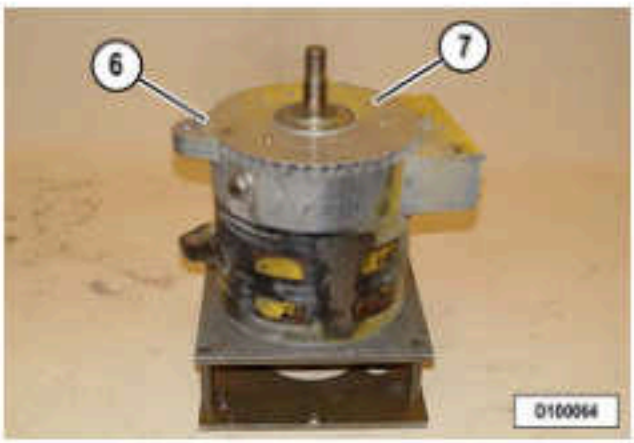
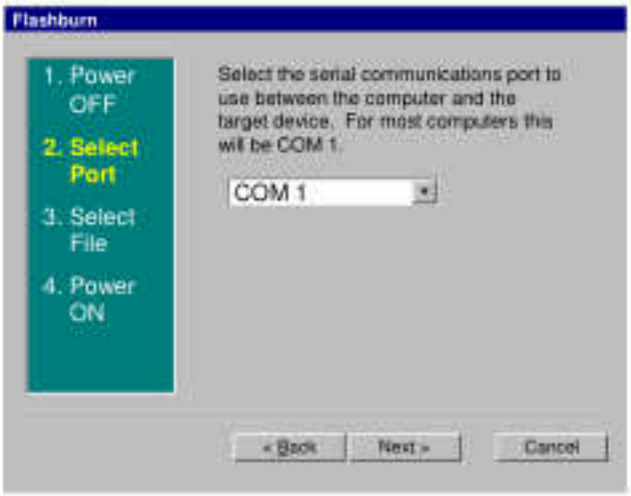


FIGURE 10-53.

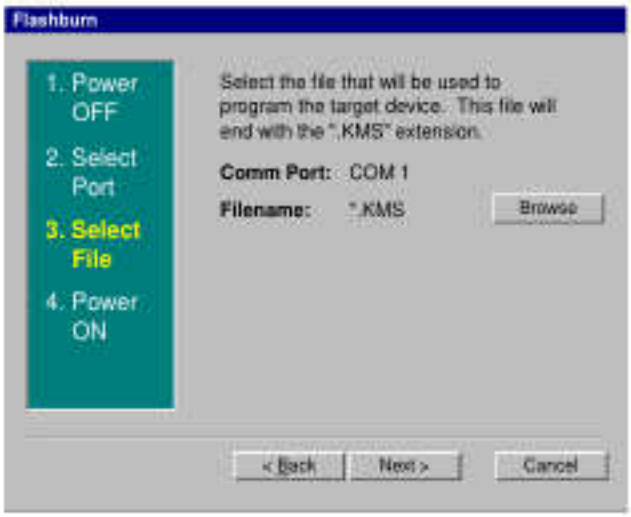
6. Screw 7. Cover Plate

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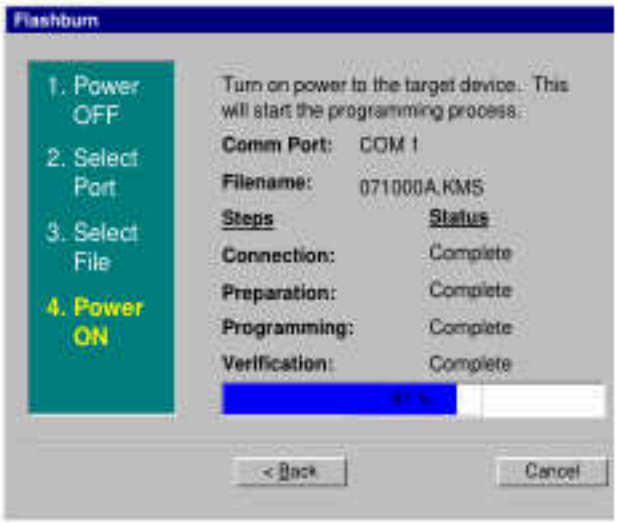
4. Confirm the proper communications port for the programming laptop. This is usually COM 1. Press "NEXT".



5. Press "BROWSE" and select the ".kms" file to program into the payload meter. Press "NEXT".

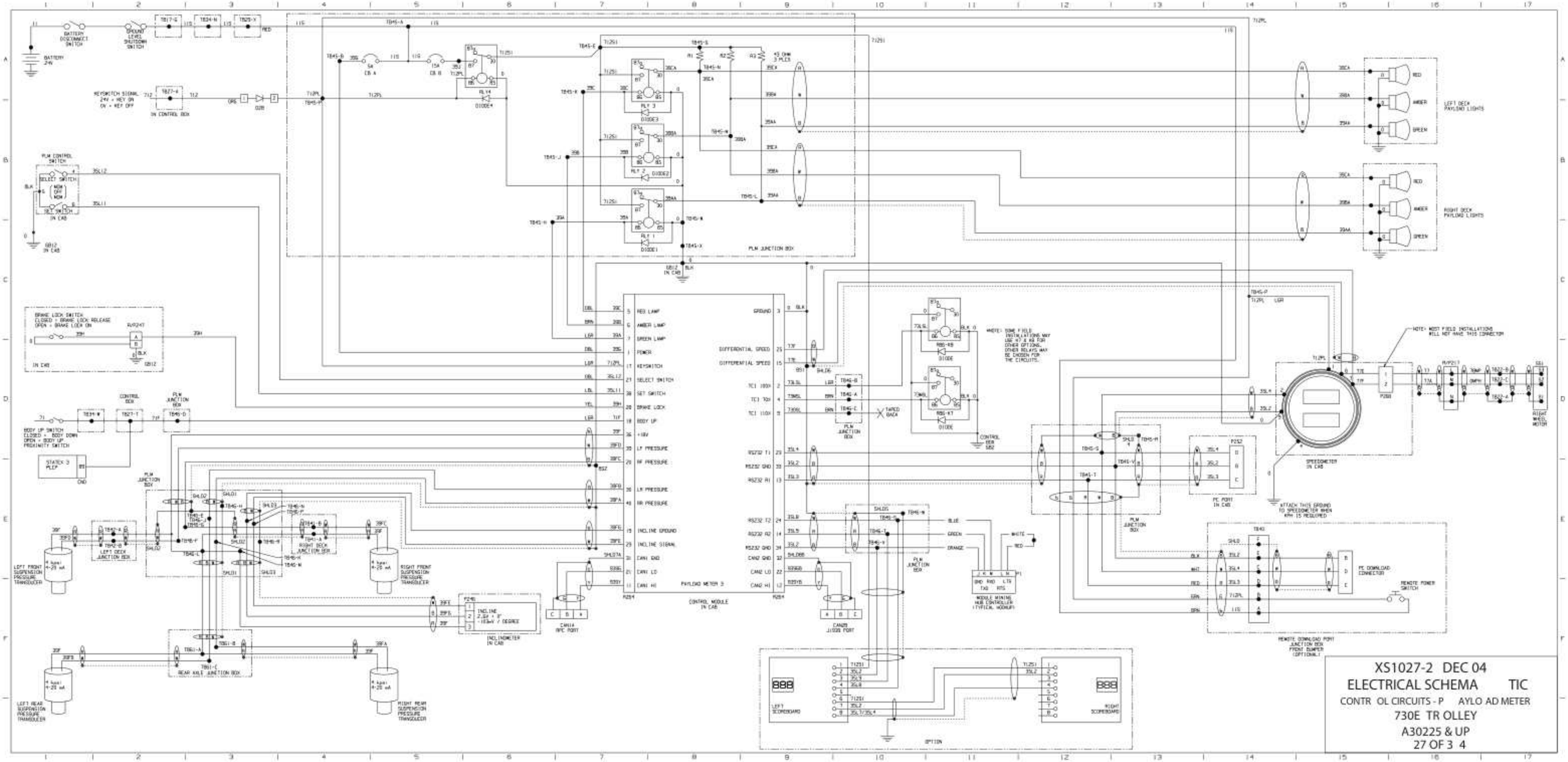


6. When instructed, turn the key switch ON in order to power-up the payload meter. The PC will begin to reprogram the payload meter. This process takes approximately 5 minutes.



7. After successful programming, turn the key witch OFF.
8. Wait 20 seconds and turn the key switch ON.
9. The payload meter will need to be configured as instructed in the manual using the Payload Data Manager software on the laptop computer.

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