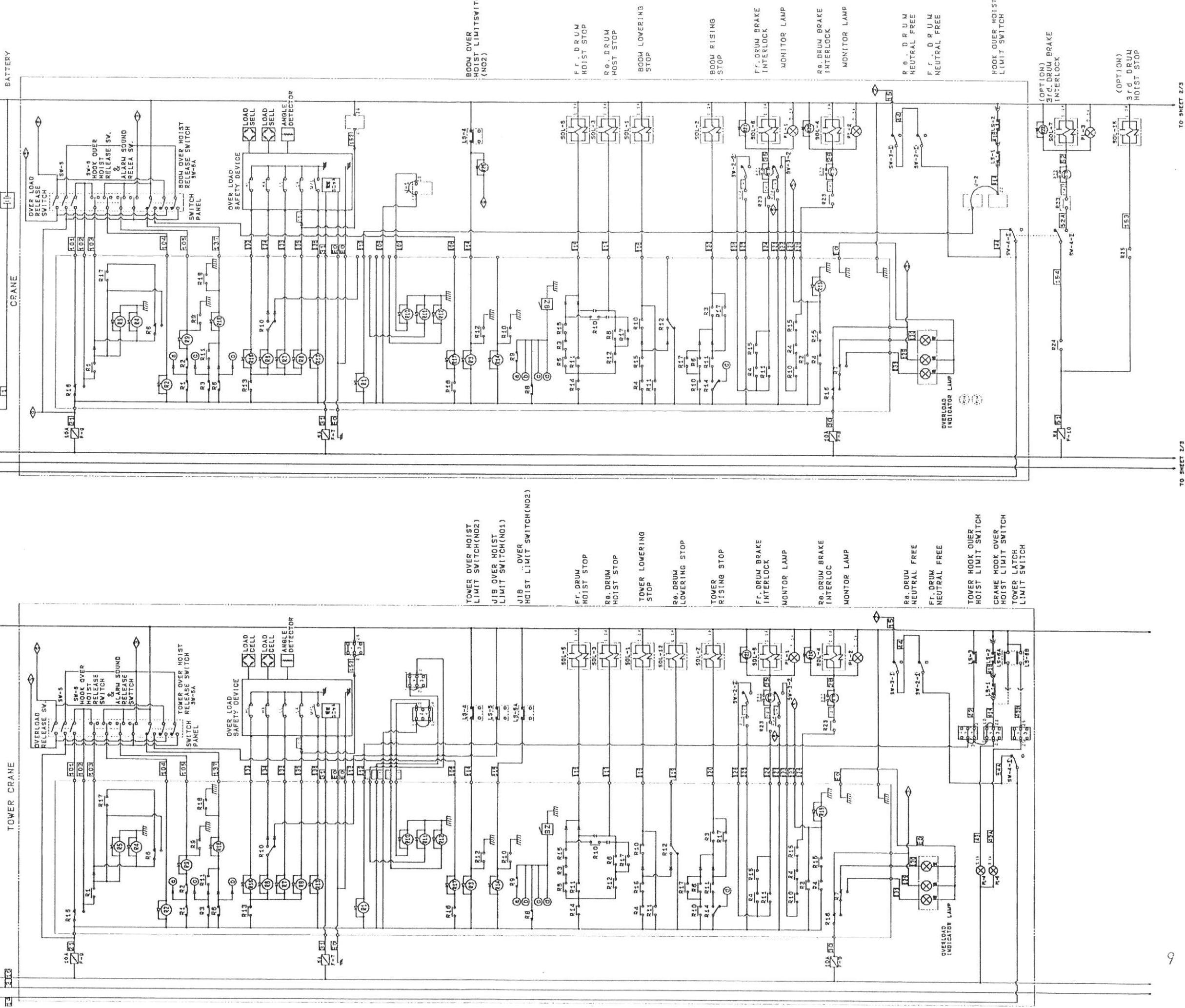
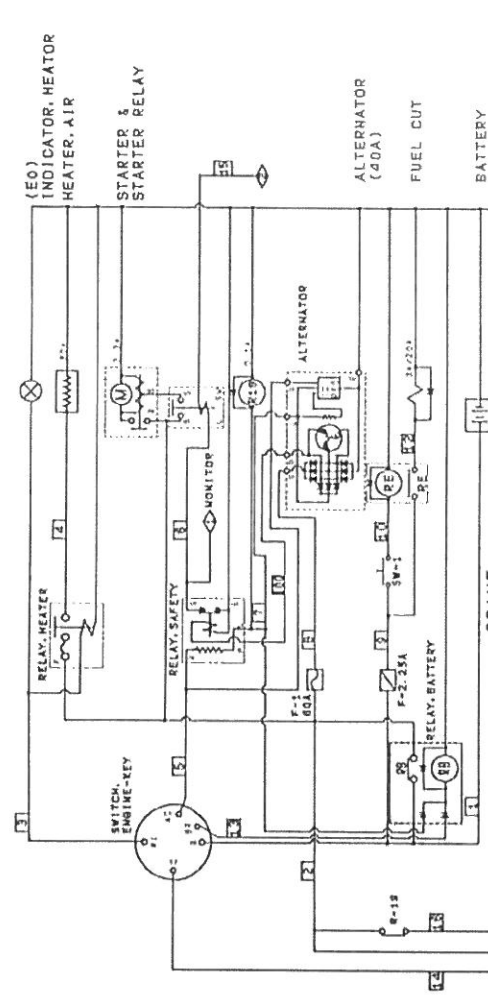
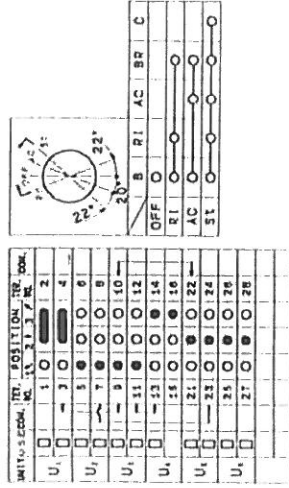


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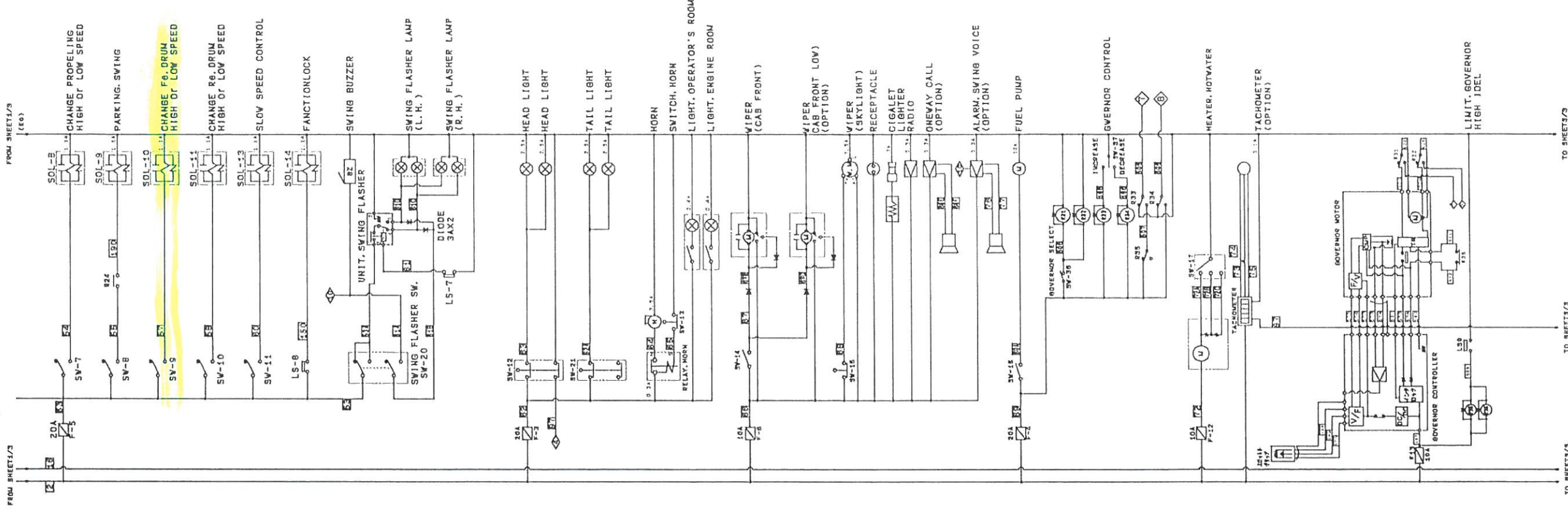
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FUSE		
F-NO.	LINE NO.	USE
F 1	60A 2-8	ALTERNATOR
F 2	25A 1-8	FUEL CUT
F 3	20A 2-62	HEADLIGHT HORN LIGHT, ROOM TAILLIGHT LIGHT, ENG. ROOM
F 4	20A 2-63	PUMP, FUEL
F 5	20A 2-63	OIL-PRESSURE
F 6	10A 2-66	WIPER LIGHTER RADIO FCS, etc
F 7	5A 16-51	OVER LOAD
F 8	10A 16-50	OVER LOAD
F 9	10A 16-51	OVER LOAD
F 10	5A 16-51	37G. DRUM-SOL
F 11	5A 2-63	MONITOR
F 12	10A 2-72	HEATER
F 13	10A 2-167	GOVERNOR CONT.

PILOT LAMP		
PL-NO.	USE	PART NO.
PL-1	IFr. INTERLOCK	R79P0060F1
PL-2	Re. INTERLOCK	R79P0060F1
PL-3	3rd. INTERLOCK	R79P0060F1
PL-4	17W PILOT LAMP (R)	R79P0060F1
PL-5	17W PILOT LAMP (G)	R79P0060F2

SWITCH		
SW-NO.	LINE NO.	USE
SW-1	8-10	FUEL CUT 2479Z11402
SW-2	14A-14	Ft. DRUM 2479Z714
SW-3	192-128	INTERLOCK 2479Z714
SW-4	14-13	Re. DRUM 2479Z714
SW-5	14-14	37G. DRUM 2479Z714
SW-6	123-121	OVER LOAD 2479Z2265D1
SW-7	123-121	RELEASE
SW-8	101-102	
SW-9	137-137	ROOM OVER 2479Z2265D2
SW-10	106-106	HOIST (NO2) RELEASE
SW-11	123-121	
SW-12	21-129	HOOK OVER 2479Z2265D2
SW-13	104-104	HOIST RELEASE
SW-14	105-105	ALARM RELEASE
SW-15	53-52	PROPEL " / " 7922297
SW-16	53-53	PARKING SWING 2479Z2058
SW-17	53-57	Ft. DRUM " / " 7922297
SW-18	53-58	Re. DRUM " / " 7922297
SW-19	53-60	SLOW SPEED 2479Z714
SW-20	53-63	HEAD LIGHT 2479T0054
SW-21	57-57	LIGHT, PANEL 2479T0054
SW-22	58-58	SWITCH, HORN 2479Z1811
SW-23	58-58	WIPER (Ft. LOW) 2479R1875
SW-24	58-58	WIPER (Ft. UPP) 2479R1875
SW-25	58-58	WIPER (SKYLIGHT) 2479T0001
SW-26	58-58	PUMP, FUEL 2437U164
SW-27	72A-72A	HEATER, HOT 2479R002
SW-28	72B-72B	WATER 2479T10140
SW-29	72C-72C	
SW-30	56-56	LAMP CHECK 2479Z1174
SW-31	53-53	BUZZER STOP 2479Z849
SW-32	53-53	SWING BUZZER 2479Z582
SW-33	51A-51A	
SW-34	52-52	TAIL LIGHT 2479T0054
SW-35	59-59	GOVERNOR 2479Z566
SW-36	59-59	GOVERNOR CONTROL 2479Z584

LIMIT SWITCH		
LS-NO.	LINE NO.	USE
LS-1	41A-41B	MAIN HOIST 2479Z2338
LS-2	41B-41B	AUX. HOIST 2479Z2338
LS-3	42-42	Y/W HOOK 2479Z2338
LS-4	42-42	CRANE OVER HOIST 2479Z2338
LS-5	114-114	OVER HOIST (NO2) 2479R175702F1
LS-6	113-113	TOWER JIB OVER HOIST 2479R175702F1
LS-7	115-115	TOWER JIB OVER HOIST 2479R175702F1
LS-8	41A-41A	LATCH 2479P1410F1
LS-9	43B-43B	LATCH 2479P1410F1
LS-10	51-51	SWING BUZZER 2479Z700
LS-11	53-53	FUNCTION LOCK 2479Z932
LS-12	50B-50B	HIGH IDOL 2479R1211

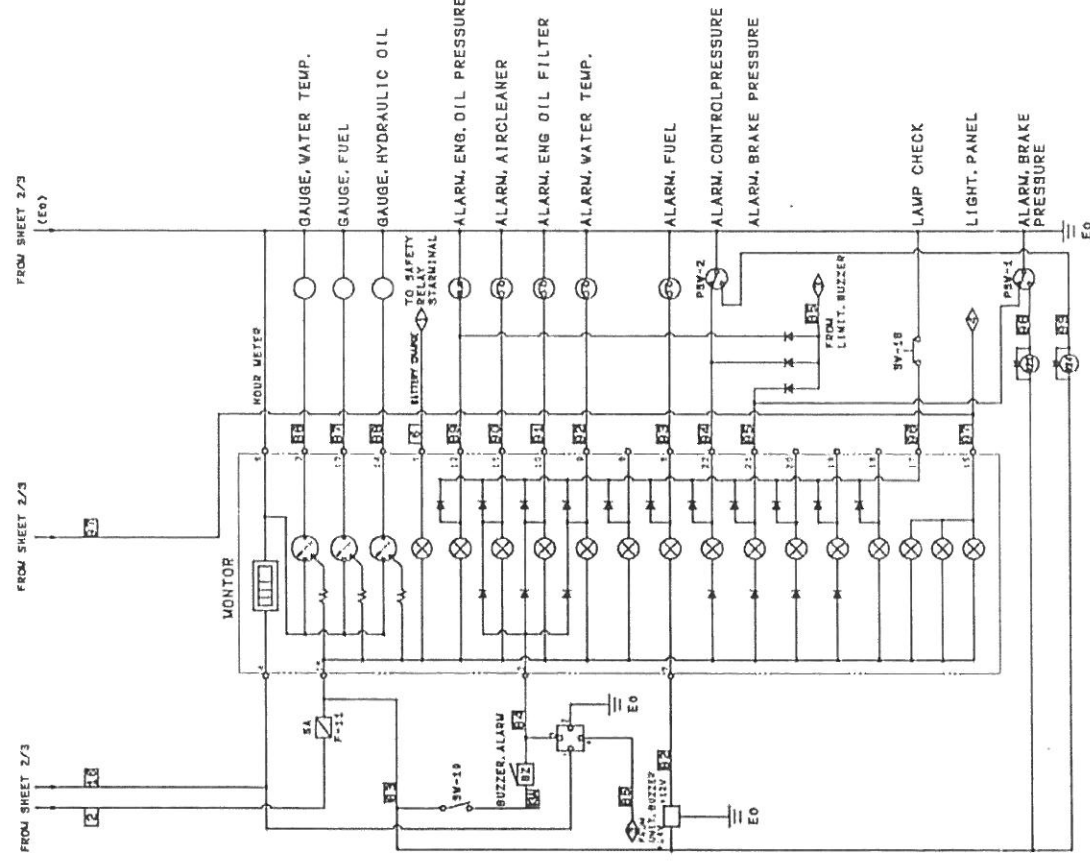


CHECK THE SCHEMATIC #10
AND HARNESS, INPUT 24 ✓ FROM
PAGE # 5

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SOLENOID VALVE				
SOL NO. LINE NO.	U S E	PART NO.	CR	TW
SOL 1 118	BOOM LOWERING STOP	2436U989D3F1	0	0
SOL 2 120	BOOM RISING STOP	2436U989D3F1	0	0
SOL 3 117	R6. DRUM HOIST STOP	2481R171	0	0
SOL 4 119	R6. DRUM INTERLOCK	2436U989D3F1	0	0
SOL 5 116	R6. DRUM HOIST STOP	2481R171	0	0
SOL 6 115	Ft. DRUM INTERLOCK	2436U989D3F1	0	0
SOL 7 114	3rd. DRUM INTER LOCK	2436U989D3F1	0	0
SOL 8 113	PROPEL"/SELECT	2436U989D3F1	0	0
SOL 9 112	PARKING. SWING	2436U989D3F1	0	0
SOL 10 111	Ft. DRUM"/SELECT	2436U989D3F1	0	0
SOL 11 110	R6. DRUM LOWERING STOP	2436U989D3F1	0	0
SOL 12 109	R6. DRUM LOWERING STOP	2436U989D3F1	0	0
SOL 13 108	SLOW SPEED CONTROL	2436U989D3F1	0	0
SOL 14 107	FUNCTION LOCK	2436U989D3F1	0	0
SOL 15 106	3rd. DRUM HOIST STOP	2436U989D3F1	0	0

R E L A Y				
RELAY NO.	COIL LINE NO.	TERMINAL U S E	PART NO.	NOTE
R E	10-11	NO FUEL CUT	2479R395	
R B	12-13	NO BATTERY	2479R1767F1	
R19	17-18	NO SAFETY	2479R1424	
R20	28-29	R6. DRUM BRAKE INTERLOCK	2479R2154	
R21	35-36	Ft. DRUM BRAKE INTERLOCK	2479R2154	
R22	52-53	3rd. DRUM BRAKE INTERLOCK	2479R2154	BRAKE
R23	63-64	Ft. DRUM BRAKE INTERLOCK	2479R2154	
	126-141	R6. DRUM BRAKE INTERLOCK		
	52A-142	NO INTERLOCK		
R24	65-66	NO PARKING. SWING		SWING
	121-191	R6. DRUM BRAKE INTERLOCK	2479R2154	
	125-192	Ft. DRUM BRAKE INTERLOCK		BRAKE
	51-154	3rd. DRUM BRAKE INTERLOCK		
R25	21-114	NO 3rd. DRUM HOIST STOP	2479R2154	
R31	501-502	N.C.-① NORMAL MODE EMERGENCY MODE	EN24500001P1	
R32	504-505	N.C.-① NORMAL MODE N.O.-① EMERGENCY MODE	EN24500001P1	
R33	506-507	N.C.-① STOP N.O.-① INCREASE	EN24500001P1	GOVERNOR CONTROL
R34	508-509	N.C.-① STOP N.O.-① DECREASE	EN24500001P1	
R35	167-503	N.C.-① HI. IDEL LIMIT	EN24500001P1	
R36	167-503	N.C.-① HI. IDEL STOP	2479R603	



CAUTION

Apply the swing brake after the upper completely stops. Do not use this brake to reduce swing speed or stop swinging. To reduce swing speed or stop swinging, use the swing control lever (05) in the reverse direction.

13. SIGNAL HORN BUTTON. Depress this button to sound the signal horn. (See Fig. 2-2.)

14. ENGINE SPEED HAND THROTTLE. The engine speed hand throttle is mounted on the swing control lever (05) (See Fig. 2-2.) Turn the handle counterclockwise (looking from above) to increase engine speed. Turn the handle clockwise to decrease engine speed.

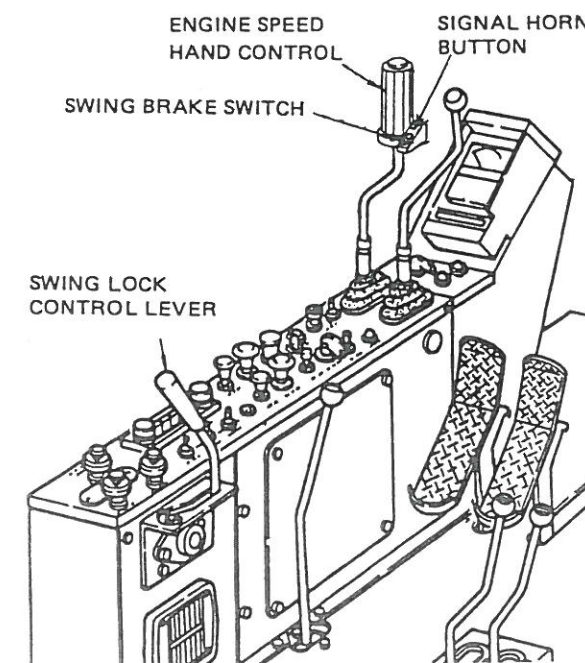


Figure 2-2. Swing Controls

15. REAR DRUM PAWL LOCK KNOB. Depress the button on the top of this knob and pull the knob up to engage the pawl in the ratchet of the rear drum. To release the pawl lock, depress the button and push the knob down. When disengaging the pawl lock, it may be necessary to wind a small amount of rope on the drum by pulling the rear drum control lever (02) backward. Use this control knob whenever a load is suspended with the rear drum.

16. FRONT DRUM PAWL LOCK KNOB. Depress the button on the top of this knob and pull the knob up to engage the pawl in the ratchet of the front drum. To release the pawl lock, depress the button and push the knob down. When disengaging the pawl lock, it may be necessary to wind a small amount of rope with the drum by pulling the front drum control lever (03) backward. Use this control knob whenever a load is suspended with the front drum.

17. THIRD DRUM PAWL LOCK KNOB (OPTIONAL). Depress the button on the top of this knob and pull the knob up to engage the pawl in the third drum ratchet. To release the pawl lock, depress the button and push the knob down. When disconnecting the pawl from the ratchet, it may be necessary to wind a small amount of rope on the drum by pulling third drum control lever (04) toward the operator. Use this control knob whenever the load is kept hanged with the third drum.

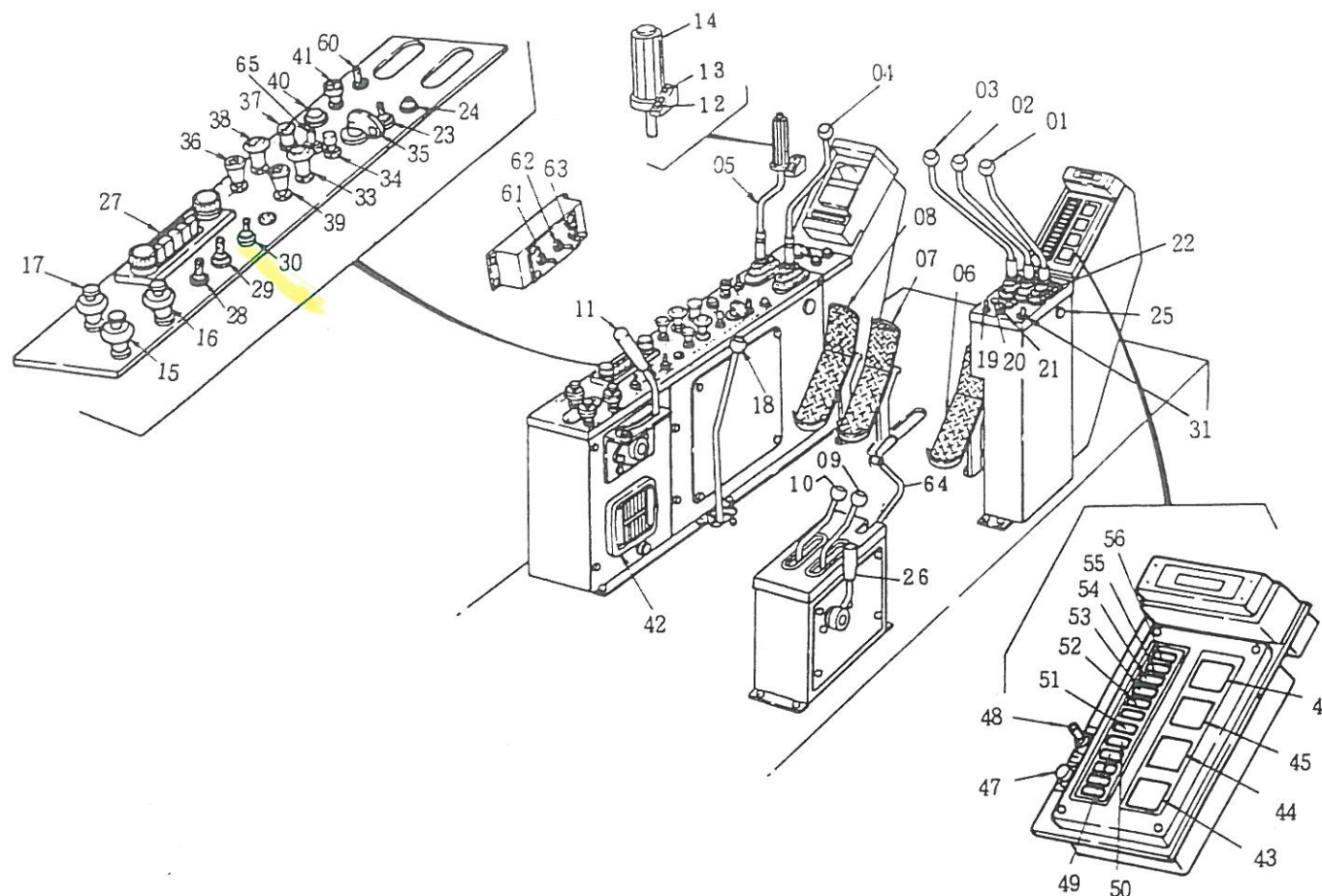
18. CRAWLER EXTENSION AND RETRACTION CONTROL LEVER. Push this lever forward to extend the crawler track. Pull this lever back to retract the crawler track.

19. FRONT DRUM BRAKE SELECT SWITCH. Moving this switch to the NEUTRAL BRAKE position will automatically engage the front drum brake when the front drum control lever (03) is placed in the neutral position. Moving this switch to the FREE FALL position. With front drum brake pedal once depressed strong free fall indicator lamp lights up and and load is allowed to free fall. Will disengage the front drum brake and allow the load to free fall when the operator removes his foot from the front drum brake pedal slowly.

WARNING

For safety, when shifting to "FREE FALL" position, even with brake select switch placed in "FREE FALL" position, the load will not be allowed to free fall unless brake pedal is depressed. But in this case, be sure to operate brake select switch only after depressing brake pedal.

20. FRONT DRUM FREE FALL INDICATOR LAMP. When the operator strongly depresses front drum brake pedal with front drum brake select switch, (19) placed in "FREE FALL" position, this red light will illuminates.



- | | |
|--|---|
| 01. BOOM HOIST CONTROL LEVER | 33. WIPER SWITCH (FRONT WINDOW) |
| 02. REAR DRUM CONTROL LEVER | 34. ENGINE STOP BUTTON |
| 03. FRONT DRUM CONTROL LEVER | 35. ENGINE STARTER SWITCH |
| 04. THIRD DRUM CONTROL LEVER (OPTIONAL) | 36. TAIL LAMP SWITCH |
| 05. SWING CONTROL LEVER | 37. CIGAR LIGHTER |
| 06. REAR DRUM BRAKE PEDAL | 38. WIPER SWITCH (SKYLIGHT) |
| 07. FRONT DRUM BRAKE PEDAL | 39. HEAD LAMP SWITCH |
| 08. THIRD DRUM BRAKE PEDAL (OPTIONAL) | 40. ENGINE PREHEAT SIGNAL |
| 09. RIGHT PROPEL CONTROL LEVER | 41. HEATER SWITCH |
| 10. LEFT PROPEL CONTROL LEVER | 42. LOUDSPEAKER |
| 11. SWING LOCK CONTROL LEVER | 43. HYDRAULIC FLUID TEMPERATURE GAUGE |
| 12. SWING BRAKE SWITCH | 44. FUEL GAUGE |
| 13. SIGNAL HORN BUTTON | 45. WATER TEMPERATURE GAUGE |
| 14. ENGINE SPEED HAND CONTROL | 46. HOUR METER |
| 15. REAR DRUM PAWL LOCK KNOB | 47. LAMP CHECK SWITCH |
| 16. FRONT DRUM PAWL LOCK KNOB | 48. BUZZER STOP SWITCH |
| 17. THIRD DRUM PAWL LOCK KNOB (OPTIONAL) | 49. BRAKE HYDRAULIC PRESSURE WARNING LAMP |
| 18. CRAWLER EXTENSION/RETRACTION CONTROL LEVER | 50. CONTROL HYDRAULIC PRESSURE WARNING LAMP |
| 19. FRONT DRUM BRAKE SELECT SWITCH | 51. FUEL WARNING LAMP |
| 20. FRONT DRUM FREE FALL INDICATOR LAMP | 52. OVERHEAT WARNING LAMP |
| 21. REAR DRUM BRAKE SELECT SWITCH | 53. ENGINE OIL FILTER CLOGGING WARNING LAMP |
| 22. REAR DRUM FREE FALL INDICATOR LAMP | 54. AIR CLEANER CLOGGING WARNING LAMP |
| 23. THIRD DRUM BRAKE SELECT SWITCH (OPTIONAL) | 55. ENGINE OIL WARNING LAMP |
| 24. THIRD DRUM FREE FALL INDICATOR LAMP (OPTIONAL) | 56. CHARGE LAMP |
| 25. CONTROL LEVER STOP PIN | 60. SWING ALARM AND LAMP SELECT SWITCH |
| 26. PROPEL CONTROL LEVER LOCK LEVER | 61. SAFETY DEVICE RELEASE SWITCH |
| 27. RADIO | 62. BOOM OVERHOIST RELEASE SWITCH |
| 28. PROPEL SPEED SELECT SWITCH | 63. HOOK OVERHOIST RELEASE SWITCH |
| 29. REAR DRUM SPEED SELECT SWITCH | 64. FUNCTION LOCK LEVER |
| 30. FRONT DRUM SPEED SELECT SWITCH | 65. ENGINE SPEED CONTROL SWITCH |
| 31. CREEPING SPEED CONTROL SWITCH | |

Figure 2-1. Operator's Controls

21. REAR DRUM BRAKE SELECT SWITCH. Moving this switch to the NEUTRAL BRAKE position will automatically engage the rear drum brake when the rear drum control lever (02) is placed in the neutral position. Moving this switch to the FREE FALL position. With rear drum brake pedal once depressed strong free fall indicator lamp lights up and load is allowed to free fall. Will disengage the rear drum brake and allow the load to free fall when the operator removes his foot from the rear drum barke pedal slowly.

WARNING

For safety, when shifting to "FREE FALL" position, even with brake select switch placed in "FREE FALL" position, the load will not be allowed to free fall unless brake pedal is depressed. But in this case, be sure to operate brake select switch only after depressing brake pedal.

22. REAR DRUM FREE FALL INDICATOR LAMP. When the operator strongly depresses rear drum brake pedal with rear drum brake select switch, (21) placed in "FREE FALL" position, this red light will illuminates.

23. THIRD DRUM BRAKE SELECT SWITCH. Moving this switch to the NEUTRAL BRAKE position will automatically engage the rear drum brake when the rear drum control lever (04) is placed in the neutral position. Moving this switch to the FREE FALL position. With rear drum brake pedal once depressed strong free fall indicator lamp lights up and load is allowed to free fall. Will disengage the rear drum brake and allow the load to free fall when the operator removes his foot from the rear drum barke pedal slowly.

WARNING

For safety, when shifting to "FREE FALL" position, even with brake select switch placed in "FREE FALL" position, the load will not be allowed to free fall unless brake pedal is depressed. But in this case, be sure to operate brake select switch only after depressing brake pedal.

24. THIRD DRUM FREE FALL INDICATOR LAMP. When the operator strongly depresses rear drum brake pedal with rear drum brake select switch, (23) placed in "FREE FALL" position, this red light will illuminates.

25. CONTROL LEVER STOP PIN. When such a winding down with the control lever as clamshell operation or drag-line operation is not performed, keep this stopper inserted and fixed with a hair pin to prevent the front and rear drum control levers from winding down.

26. PROPEL CONTROL LEVER LOCK LEVER. Move this lever down forward to lock two propel control levers at the neutral position. Pull this lever back, toward the operator, to release the propel control levers.

27. RADIO. It receives AM broad casting.

28. PROPEL SPEED SELECT SWITCH. This switch is to put the propel hydraulic motor into LOW SPEED-HIGH TORQUE and HIGH SPEED-LOW TORQUE. Push it down backward to put the motor into LOW SPEED and pull it down forward for HIGH SPEED.

29. REAR DRUM SPEED SELECT SWITCH. This switch changes speed of the rear drum winding up and down the rope. Throwing this switch backward decreases winding speed and throwing forward increases winding speed.

30. FRONT DRUM SPEED SELECT SWITCH. Putting this switch down backward reduces winding speed of the front drum, and putting down forward increases the speed.

31. CREEPING SPEED CONTROL SWITCH. This switch is to perform inching operation for propelling, boom hoisting, front and rear drum winding and third drum (option) winding by throwing the switch down backward (ON). The speed of each operation becomes approx. 1/5 of usual speed.

33. WIPER SWITCH (FRONT WINDOW). Operate the wiper on the front window by drawing this switch. If the switch is pushed, the wiper returns to the preset position and stops.

34. ENGINE STOP BUTTON. Stop the engine by pushing this button. After the engine stopped, turn the engine starter switch to OFF.

35. ENGINE STARTER SWITCH. Insert the starter key and turn it to the right (clockwise) to "ON" position. Further turning it to "START" position will start the engine. Do not hold the key at "START" position continuously for more than 15 seconds.

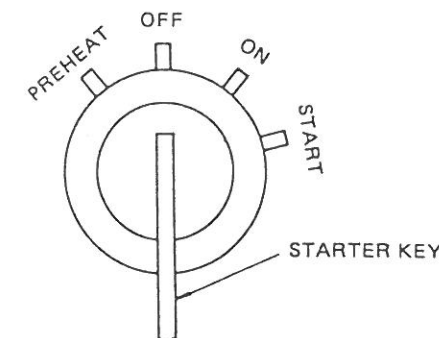


Figure 2-4. Engine Starter Switch

If the engine does not start, wait for about 20 seconds before attempting to start the engine again. When the engine starts, release the key immediately from the hand. The key will automatically return to "ON" position.

When the engine is difficult to start in cold weather, turn the starter key to "PREHEAT" position to preheat the engine. 15 to 20 seconds are standard preheating time. Use care not to exceed 40 seconds for one preheating.

36. TAIL LIGHT SWITCH. This switch, if pulled, lights up the tail light

37. CIGAR LIGHTER. This push type lighter is held at the depressed position and automatically returns to its original position when the lighting face is red heated.

38. WIPER SWITCH (SKYLIGHT). Draw this switch out to operate the wiper on the skylight and push it to stop the wiper after returning to the preset position.

39. HEAD LIGHT SWITCH. This switch, if pulled, lights up the head light and the monitor lamp.

40. ENGINE PREHEAT INDICATOR LAMP. Turning the engine starter switch to PREHEAT position will light up this lamp.

41. HEATER SWITCH. Pull this switch up to operate the operator's cab heater: push this switch down to stop the heater.

42. LOUDSPEAKER. This is for conveying the sound from the car radio.

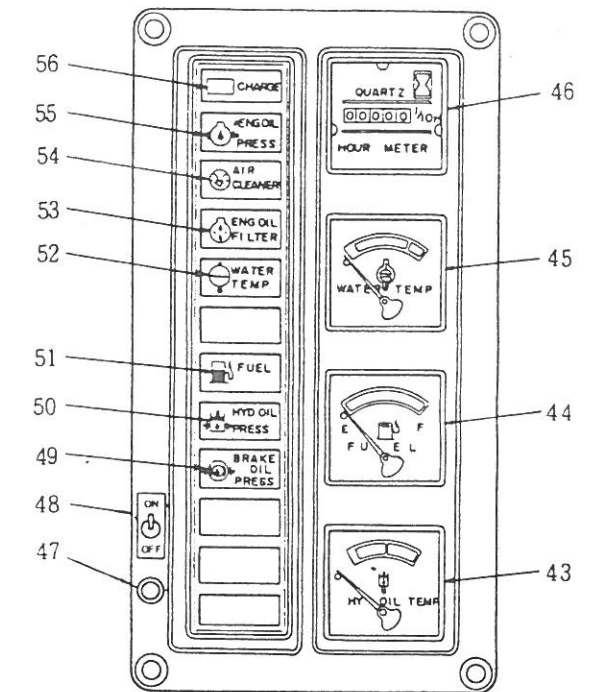


Figure 2-5. Monitor

CAUTION

The monitor does not guarantee the machine conditions. Perform daily checking not only with the monitor but with the machine in the field in accordance with the manual.

43. HYDRAULIC FLUID TEMPERATURE GAUGE. The indicator is in the range of white or green under normal operating conditions. If the indicator is in the red zone, keep the engine idling until the indicator returns to the range of green.

CAUTION

Rapid operation with the indicator in the range of white at low temperatures may damage the hydraulic devices and piping. In such a case, insert the swing lock pin, turn the swing brake switch to ON, operate swinging and relief the safety valve to raise the oil temperature.

44. FUEL GAUGE. The indicator pointing "E" shows that the remaining oil is about 20 liters.

45. WATER TEMPERATURE GAUGE. The indicator is within the range of green under normal operating conditions. When the indicator enters into the red zone, stop operation until the indicator returns to the green range with the engine kept idling.