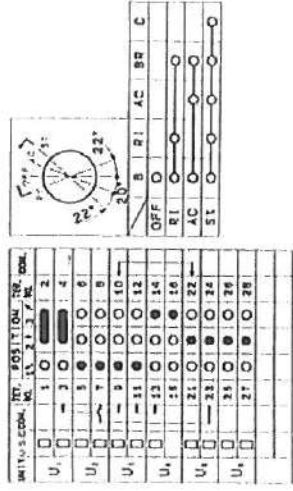


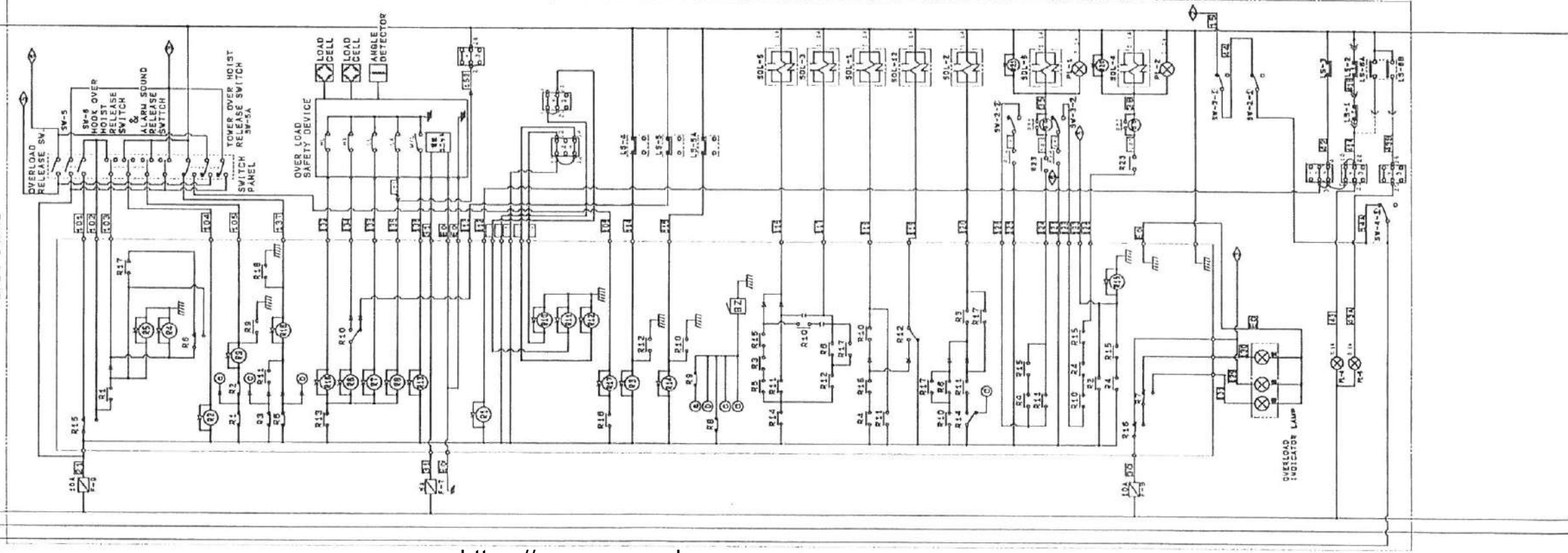
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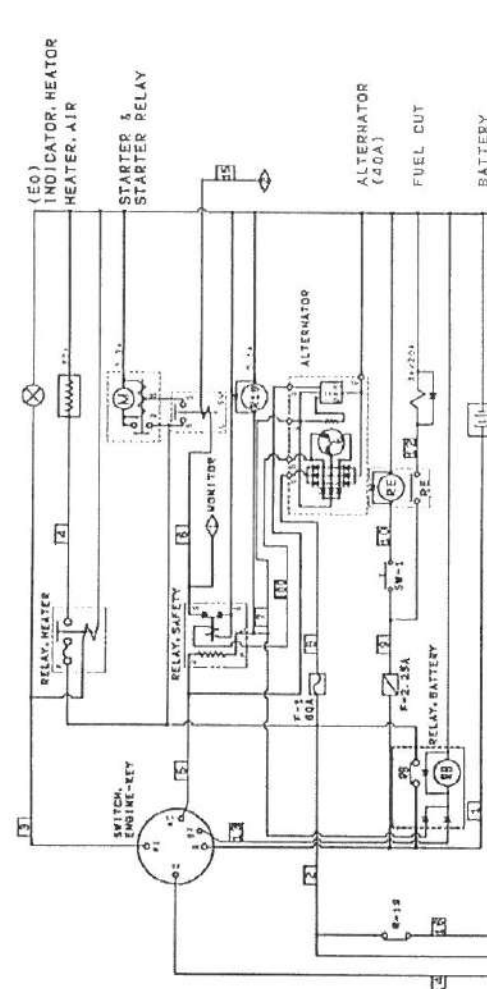
FOR C. TERMINAL  
ENG. C. SWITCH

FOR STARTER & STARTER RELAY  
TO SWITCH-TERMINAL

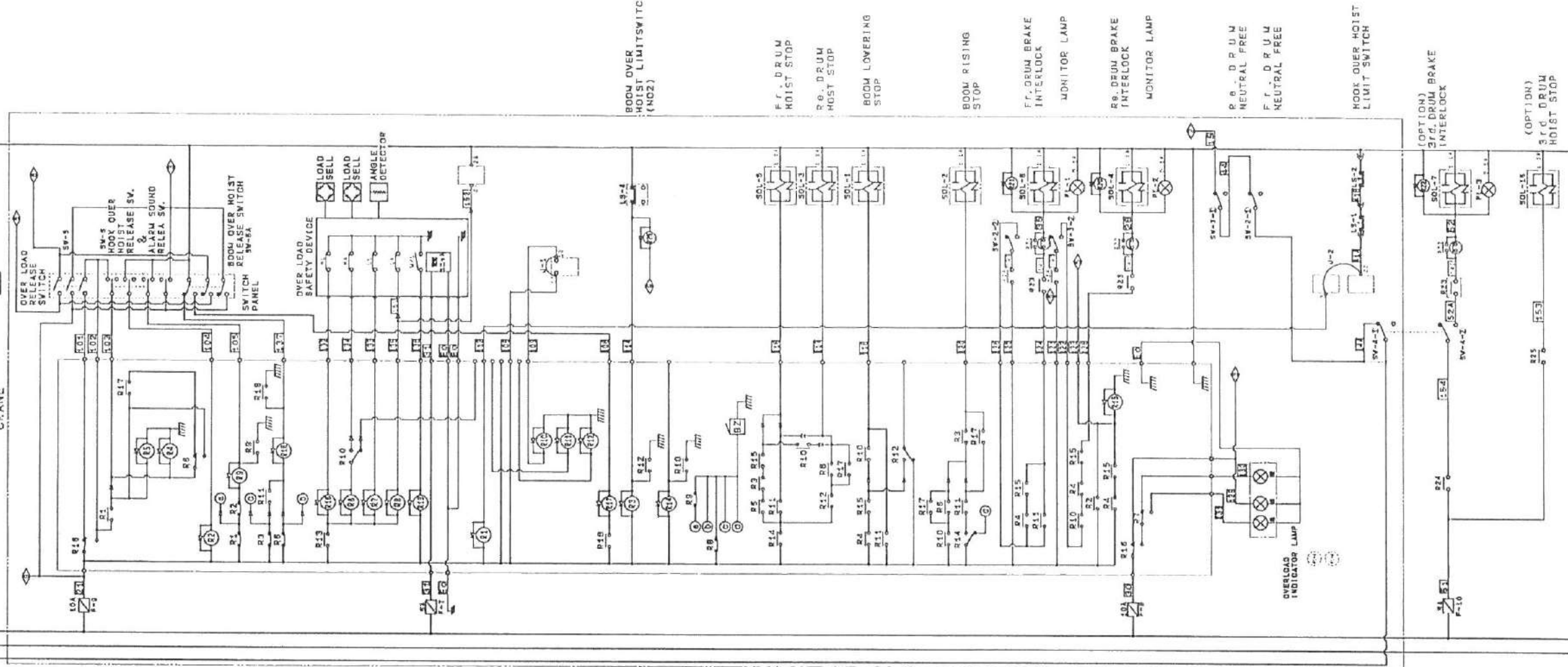
TOWER CRANE



- TOWER OVER HOIST LIMIT SWITCH (NO2)
- JIB OVER HOIST LIMIT SWITCH (NO1)
- JIB OVER HOIST LIMIT SWITCH (NO2)
- F.F. DRUM HOIST STOP
- R.R. DRUM HOIST STOP
- TOWER LOWERING STOP
- R.R. DRUM LOWERING STOP
- TOWER RISING STOP
- F.F. DRUM BRAKE INTERLOCK
- MONITOR LAMP
- R.R. DRUM BRAKE INTERLOCK
- MONITOR LAMP
- R.R. DRUM NEUTRAL FREE
- F.F. DRUM NEUTRAL FREE
- TOWER HOOK OVER HOIST LIMIT SWITCH
- CRANE HOOK OVER HOIST LIMIT SWITCH
- TOWER LATCH LIMIT SWITCH



CRANE



- ROOM OVER HOIST LIMIT SWITCH (NO2)
- F.F. DRUM HOIST STOP
- R.R. DRUM HOIST STOP
- ROOM LOWERING STOP
- ROOM RISING STOP
- F.F. DRUM BRAKE INTERLOCK
- MONITOR LAMP
- R.R. DRUM BRAKE INTERLOCK
- MONITOR LAMP
- R.R. DRUM NEUTRAL FREE
- F.F. DRUM NEUTRAL FREE
- HOOK OVER HOIST LIMIT SWITCH
- (OPTION) 3rd DRUM BRAKE INTERLOCK
- (OPTION) 3rd DRUM HOIST STOP

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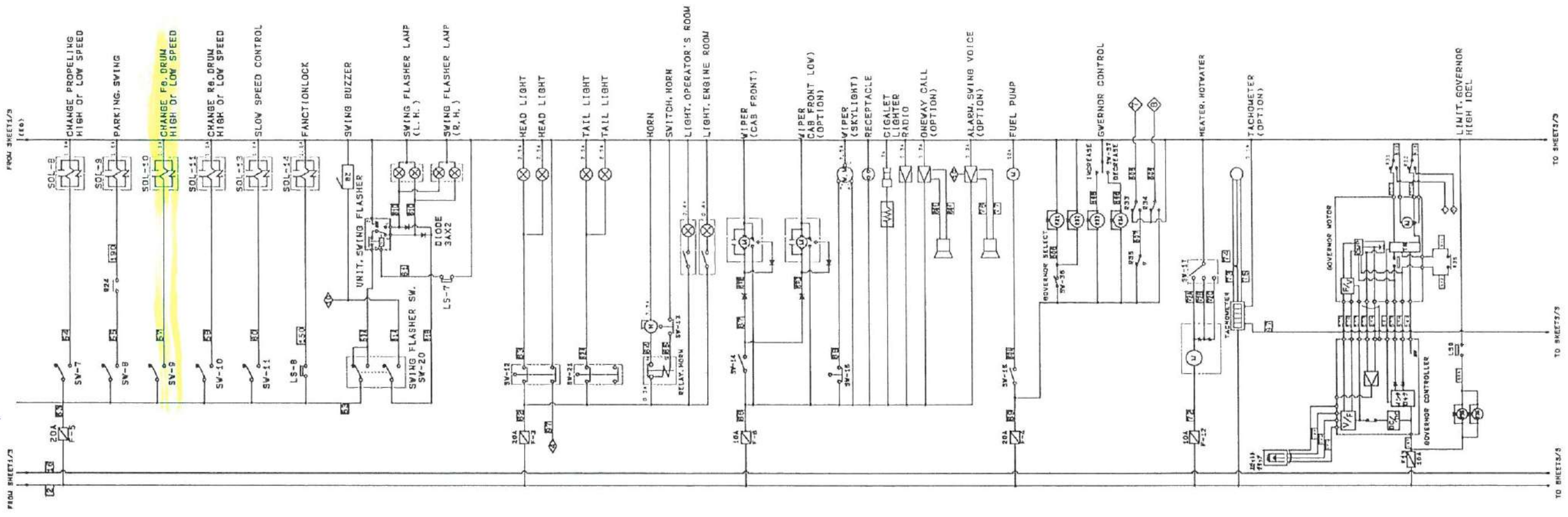
FUSE	
F-NO.	LINE NO. USE
F 1	60A 2-8 ALTERNATOR
F 2	25A 1-8 FUEL CUT
F 3	20A 2-62 HEADLIGHT HORN LIGHT, ROOM TAILLIGHT LIGHT, ENG. ROOM PUMP, FUEL OIL-PRESSURE WIPER LIGHTER RADIO FCS, etc
F 7	5A 18-51 OVER LOAD
F 8	10A 18-50 OVER LOAD
F 9	10A 18-23 OVER LOAD
F 10	5A 18-51 3rd. DRUM-SOL
F 11	5A 2-63 MONITOR
F 12	10A 2-72 HEATER AIR COND.
F 13	10A 2-167 GOVERNOR CONT.

PILOT LAMP	
PL-NO.	USE PART NO.
PL-1	FR. INTERLOCK R79P0050F1
PL-2	RR. INTERLOCK R79P0060F1
PL-3	3rd. INTERLOCK R79P0060F1
PL-4	1st. PILOT LAMP (R) R79P0060F1
PL-5	2nd. PILOT LAMP (R) R79P0060F1

SWITCH			
SW-NO.	LINE NO.	USE	PART NO.
SW-1	8	FUEL CUT	2479Z11402
SW-2	10A 1-4	FR. DRUM INTERLOCK	2479Z714
SW-3	15	RR. DRUM INTERLOCK	2479Z714
SW-4	14A 1-4	3rd. DRUM INTERLOCK	2479Z714
SW-5	123	OVER LOAD RELEASE	2479Z226501
SW-5A	137	BOOM OVER HOIST (NO.2) RELEASE	2479Z226502
SW-6	21	HOOK OVER HOIST RELEASE	2479Z226502
SW-7	53	PROPEL "/>	
SW-8	53	PARKING SWING	2479Z2058
SW-9	53	FR. DRUM "/>	
SW-10	53	RR. DRUM "/>	
SW-11	53	SLOW SPEED	2479Z714
SW-12	52	HEAD LIGHT LIGHT. PANEL	R79T0054 744X LS501WHW
SW-13	55	SWITCH. HORN	2479Z1811
SW-14	56	WIPER (FR. LOW)	2479R1875
SW-15	56	WIPER (SKYLIGHT)	R79T0001
SW-16	59	PUMP, FUEL	(243TU164)
SW-17	72A	HEATER. HOT WATER	2479R902 (51521-1040 7772)
SW-18	56	LAMP CHECK	2479Z1174
SW-19	53	BUZZER STOP	2479Z849
SW-20	53	SWING BUZZER	2479Z582
SW-21	52	TAIL LIGHT	R79T0054
SW-36	59	GOVERNOR	2479Z566
SW-37	165	GOVERNOR CONTROL	2479Z584

LIMIT SWITCH			
LS-NO.	LINE NO.	USE PART NO.	
LS-1	41A 41B	MAIN HOIST	2479Z2338
LS-2	41B	AUX. HOIST	2479Z2338
LS-3	42	YAW HOOK OVER HOIST	2479Z2338
LS-4	114	OVER HOIST (NO.2)	2479R175702F1
LS-5	113	TOWER JIB OVER HOIST	2479R175702F1
LS-5A	115	TOWER JIB OVER HOIST (NO.2)	2479R175702F1
LS-6A	41A	LATCH	2478P1410F1
LS-6B	41B	LATCH	2478P1410F1
LS-7	51	SWING BUZZER	2479Z700
LS-8	53	FUNCTION LOCK	2479Z932
LS-9	508	HIGH IDOL	2479R1211

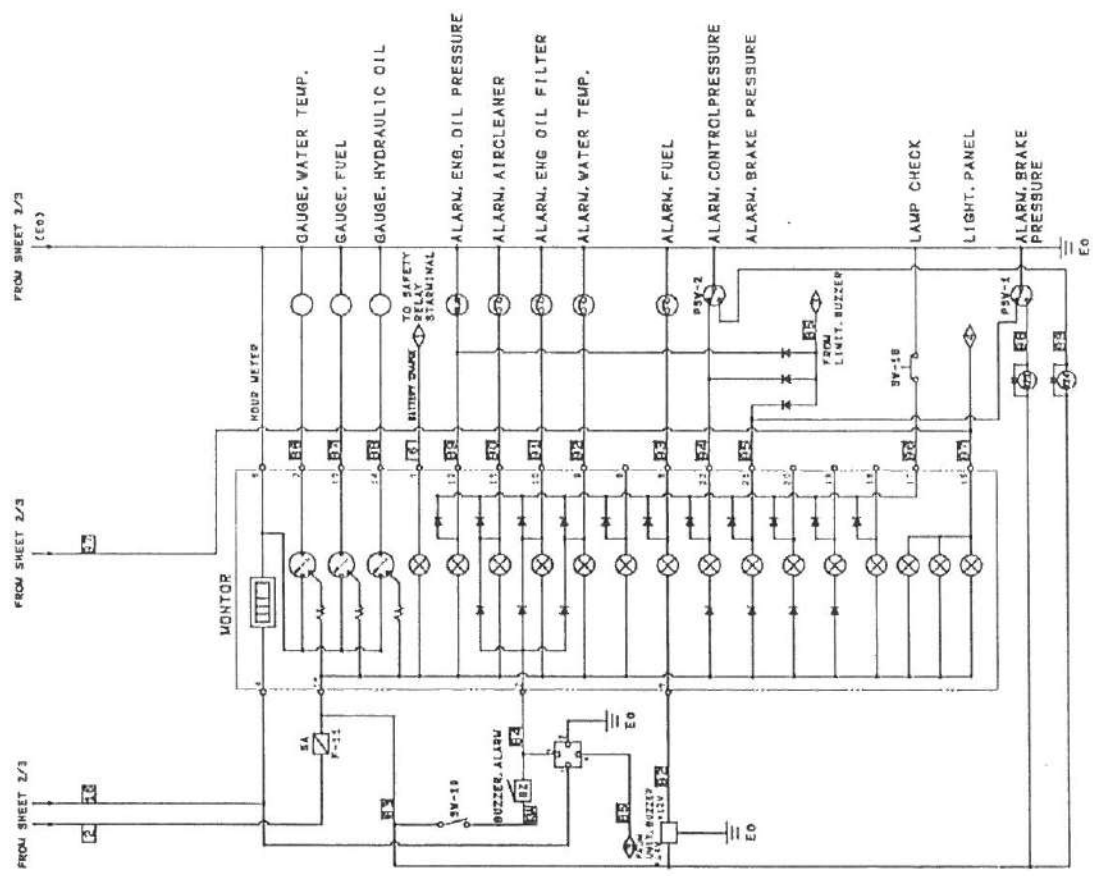
CHECK THE SCHEMATIC #10 AND HARNESS, INPUT 24 ✓ FROM PULSE # 5





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SOLENOID VALVE				
SOL. NO.	LINE NO.	USE	PART NO.	CR / TW
SOL 1	113	BOOM LOWERING STOP	2436U989D3F1	○
SOL 2	123	BOOM RISING STOP	2436U989D3F1	○
SOL 3	113	Rd. DRUM HOIST STOP	2481R171	○
SOL 4	123	Rd. DRUM INTERLOCK	2436U989D3F1	○
SOL 5	113	Ft. DRUM HOIST STOP	2481R171	○
SOL 6	123	Ft. DRUM INTERLOCK	2436U989D3F1	○
SOL 7	123	3rd. DRUM INTER LOCK	2436U989D3F1	○
SOL 8	123	PROPEL" / "SELECT	2436U989D3F1	○
SOL 9	123	PARKING. SWING	2436U989D3F1	○
SOL 10	123	Ft. DRUM" / "SELECT	2436U989D3F1	○
SOL 11	123	Rd. DRUM" / "SELECT	2436U989D3F1	○
SOL 12	113	Rd. DRUM LOWERING STOP	2436U989D3F1	○
SOL 13	123	SLOW SPEED CONTROL	2436U989D3F1	○
SOL 14	123	FANCTION LOCK	2436U989D3F1	○
SOL 15	123	3rd. DRUM HOIST STOP	2436U989D3F1	○



RELAY			
RELAY NO.	COIL LINE NO.	TERMINAL USE	PART NO. NOTE
R E	10-12	NO FUEL CUT	2479R395
R B	1-2	NO BATTERY	2479R1767F1
R19	7-18	NO SAFETY	2479R1424
R20	141-143	Rd. DRUM BRAKE INTERLOCK	2479R2154
R21	140-142	Ft. DRUM BRAKE INTERLOCK	2479R2154
R22	142-144	3rd. DRUM BRAKE INTERLOCK	2479R2154
R23	124-140	Ft. DRUM BRAKE INTERLOCK	2479R2154
	128-141	Rd. DRUM BRAKE INTERLOCK	
	142	3rd. DRUM BRAKE INTERLOCK	
R24	190	NO PARKING. SWING	
	121-123	Rd. DRUM BRAKE INTERLOCK	
	125-127	Ft. DRUM BRAKE INTERLOCK	
	51-154	3rd. DRUM BRAKE INTERLOCK	
R25	114	NO 3rd. DRUM HOIST STOP	2479R2154
R31	501-502	N.C.-① NORMAL MODE EMERGENCY MODE	EN24500001P1
	503	N.O.-①	
R32	504-505	N.C.-① NORMAL MODE EMERGENCY MODE	EN24500001P1
	506	N.O.-①	
R33	507-508	N.C.-① STOP INCREASE	EN24500001P1
	509	N.O.-①	
R34	509-510	N.C.-① STOP DECREASE	EN24500001P1
	511	N.O.-①	
R35	509-510	N.C.-① HI. IDEL LIMIT	EN24500001P1
R36	509-511	N.C.-① HI. IDEL STOP	2479R503

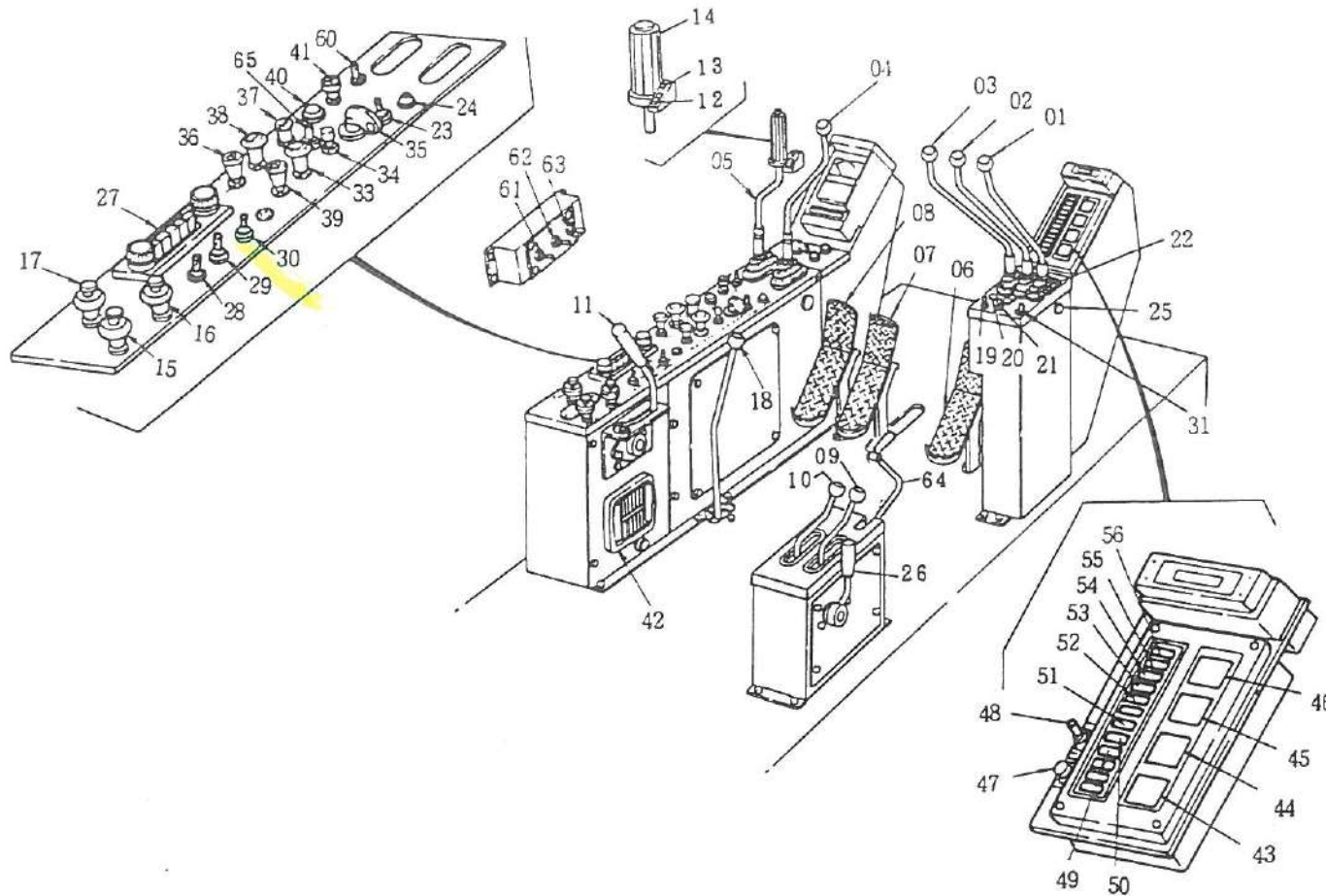


**CAUTION**

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.



- |  |   |
|--|---|
| 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

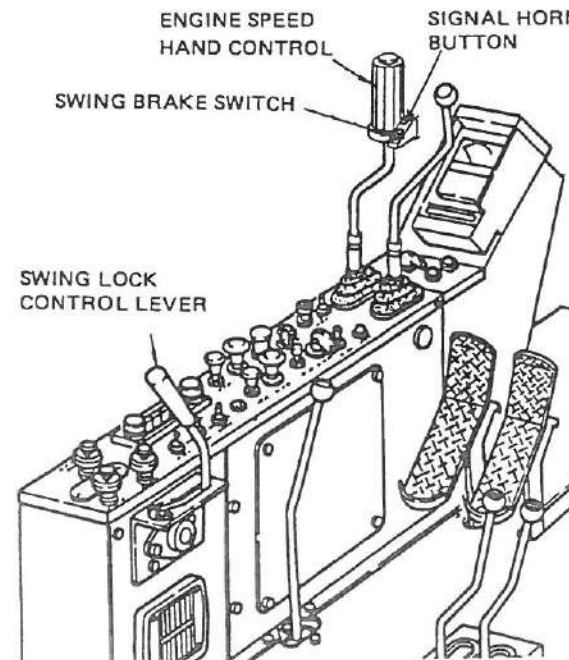


Figure 2-2. Swing Controls

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 illuminate.



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.

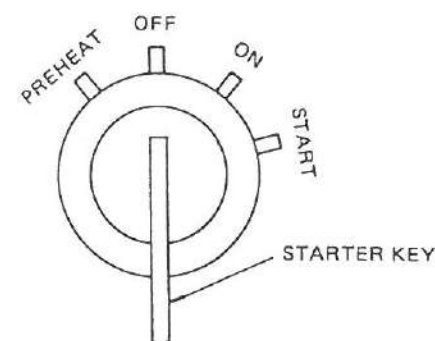


Figure 2-4. Engine Starter Switch

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.

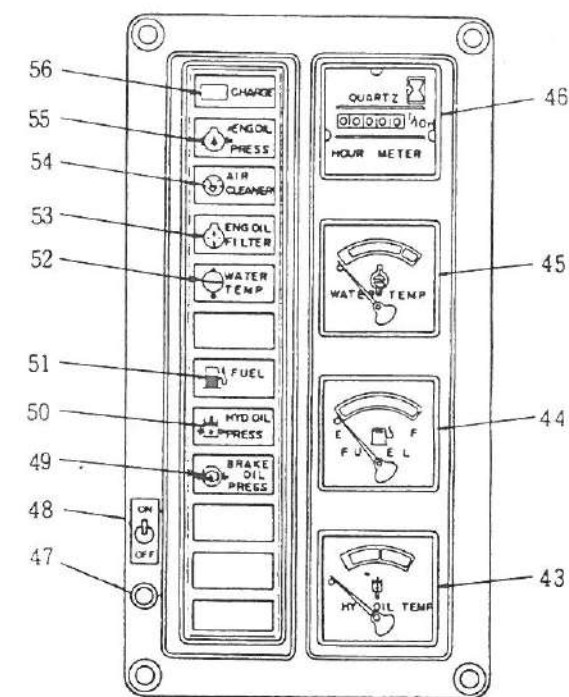


Figure 2-5. Monitor

**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.