I.2 CONTROLS AND INDICATORS

The controls and indicators necessary to operate the machine are conveniently located and visible from the driller's platform. Other controls and indicators that affect operation of the machine, but are not available from the driller's or helper's platforms, are also included in this section. The locations of the controls and indicators are shown in Figure I-1 and I-2 and the name and function of each are listed in Tables I-1 and I-2. The identification numbers in the figure correspond to the index numbers in the table.

TABLE I-1 Refers to Figure I-1

INDEX NUMBER	NAME	FUNCTION
1	Engine Kill Switch	On all gasoline and some diesel engines, this switch pushed in breaks the circuit and kills the engine. Pulling the switch opens the circuit and allows the engine to run.
2	Mud Pump Clutch Handle	Pushing forward releases clutch; pulling engages.
3	Rotary Table Clutch Handle	Pull back and hook to disengage. CAUTION: Do not leave disengaged for long periods while engine is running.
4	Hydraulic Chain Feed Control	Pull toward back position to increase speed of chain pulldown. Push forward to open valve to permit operator to disengage pulldown transmission. Move pulldown control to neutral to relieve hydraulic pump pressure.
5	Mast Raising & Lowering Lever	Pull lever back to raise mast; push forward to lower. This lever is spring loaded; when released, it will return to neutral. CAUTION: Before attempting to lower the mast, ALWAYS place the valve in the raising position and pump oil into the bottom of the cylinder until you are sure there is pressure against the mast and the cylinder is full of oil and contains no air.
6	Transmission Shifter Lever	Standard automobile shift.
7	Hydraulic Oil Pressure Gauge	Indicates oil pressure of hydraulic system

TABLE 1-1 CONTROLS & INDICATORS (CONT'D)

INDEX NUMBER	NAME	FUNCTION
8	Auxiliary Drum Clutch Lever	This lever operates the auxiliary drum. Pull back engages the clutch. Push forward to release the clutch.
9	Hoisting Drum Brake Lever	Pull down applies brake, push up releases brake. Screw nut down to prevent dog from catching.
10.	Auxiliary Drum Brake Lever	Pull down applies brake, push up releases brake. Screw nut down to prevent dog from catching.
11	Air Compressor Clutch Control	Pull back to engage compressor.
12.	Pulldown Transmission Control	Two speed with neutral, pull back for low gear, center position neutral, push forward for high gear.
13.	Starter Button	Push to engage starter.
14.	Throttle Lever	Push down increases speed; pulling up decreases speed.
15	Table Cylinder Control	Pull back on handle to extend table. Push forward to retract table.
16	Hoisting Drum Clutch Lever	This lever operates the hoisting drum. Pull back to engage the clutch. Push up releases clutch.
17	Sandline Clutch Lever	This lever operates the sandline drum. Pull back to engage the clutch. Push up releases the clutch.
18	Sandline Brake Lever	Pull down applies brake; push up releases brake. Screw nut down to prevent dog from catching.

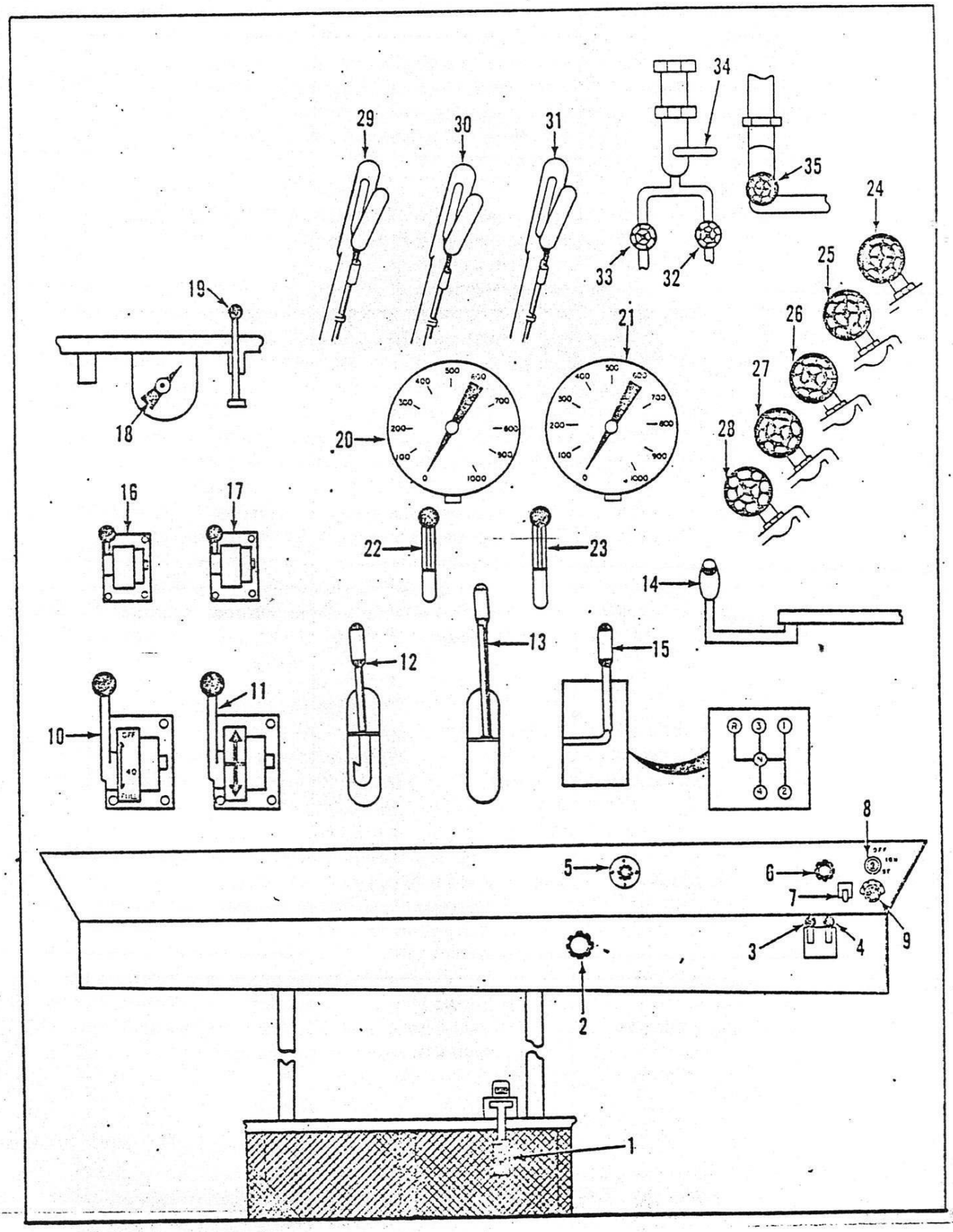

Figure 1-2 Controls and Indicators (View 1 of 6)
for Air-Operated Clutches & Controls

Table 1-2 Controls and Indicators (for Figure 1-2)

INDEX NUMBER	NAME	FUNCTION
1	Foot Throttle	Controls engine speed. Depressing the pedal increases engine rpm proportional to the amount that the pedal is depressed. When pressure on the pedal is relieved, the pedal returns automatically to the up position and engine rpm shows to idle.
2	Hand Throttle	Controls engine speed. Clockwise rotation of the throttle increases engine rpm. Rotation of the throttle to the full counterclockwise position reduces engine rpm to idle.
3	Breakout Control Lever	This control has three positions. The center position is the off position. Pushing the lever forward from the center position extends the breakout cylinder. When the cylinder is extended the breakout tong is in position to be coupled to the pipe. With the breakout tong connected to the pipe, pulling the lever back from the center position retracts the breakout cylinder to break the connection. When the lever is released from any position it returns automatically to the center position.
4	Cathead Control Lever	This control has two positions. Pulling the lever back from the center position engages the clutch to rotate cathead. NOTE The speed and direction of rotation of the cathead will depend on the position of the cathead transmission shift lever (INDEX NUMBER 75). When the lever is released it returns automatically to the center position and rotation of the cathead ceases. Forward movement of the lever from the center position has no function.
5	Hold-Back Balance Control Valve	Full clockwise rotation of the valve handle is the closed position. In this position no hold-back pressure is being applied. Counterclockwise rotation of the valve handle opens the valve . NOTE The hold-back pressure ON-OFF control (INDEX NUMBER 6) must be in the ON position when hold-back pressure is being adjusted. Hold-back pressure increases proportional to the amount the valve is opened. Hold-back pressure can be adjusted by observing the hold-back pressure gauge (INDEX NUM-

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
5	Hold-Back Balance Control Valve (Cont'd)	BER 20) and turning the valve handle in the direction necessary to obtain the desired hold-back pressure. The locknut on the valve handle shaft must be loosened before the valve handle can be turned, and should be tightened after pressure adjustment has been made.
6	Hold-Back Pressure ON-OFF Control (Cont'd)	Two position push-pull control. The in position is the OFF position, which shuts off hold-back pressure. The out position is the ON position. When the control is in the ON position, hold-back pressure is being applied, as set by the hold-back balance control. When the control is in the ON position, the hold-back pressure being applied will be indicated on the hold-back pressure gauge (INDEX NUMBER 20).
7	Engine Alarm Switch	Two position toggle switch. When the switch is in the ON position, the engine alarm will sound if either a low oil pressure or high water temperature condition occurs. The OFF position opens the alarm circuit. NOTE The switch should be in the ON position during normal operation.
8	Ignition and Starter Switch (OFF, IGN, ST)	Three position key operated switch. In the OFF position, the electrical circuit is de-energized and the key can be removed. The IGN (ignition) position energizes the electrical circuit. The ST. (start) position energizes the starter motor and engages the starter to the engine flywheel to crank the engine. The switch is spring-loaded and must be held in the ST position. When released, it returns automatically to the IGN position.
9	STOP Switch	Push button switch. Depressing the switch energizes a solenoid which shuts off fuel flow to the fuel injectors. When the switch is released, it returns automatically to the out position, and the solenoid is de-energized. NOTE This switch must be used for normal shutdown of the engine. Turning the ignition and starter switch to the OFF position will not shutdown the engine.

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
10	3rd Drum Clutch Control Lever	Controls air pressure applied to the clutch. The full forward position is the OFF position. The cam is designed to deliver 40 percent of the maximum pressure available, when the lever is moved through approximately 60 percent of travel to the rear. This position is indicated by the number 40 on the decal. The remaining 60 percent of pressure is applied as the lever is moved farther to the rear from the number 40 to the FULL position on the decal. When the lever is released it returns automatically to the OFF position. NOTE When the lever is in the OFF position the 3rd drum is free to rotate unless the 3rd drum brake (INDEX NUMBER 29) is applied.
11	Auxiliary and Hoist Drum Clutch Control Lever	This control is spring loaded to the center position which is the off position. (1) Pushing the lever forward from the center position applies air pressure to the auxiliary drum clutch to spool cable onto the auxiliary drum. The weight indicator (INDEX NUMBER 36) will indicate the weight being pulled on the auxiliary drum. NOTE When the lever is released it returns automatically to the center position, and the hoist drum is free to rotate unless the hoist drum brake (INDEX NUMBER 30) is applied.
12	Rotary Table Clutch Control Lever	This control lever has two positions. When the lever is in the forward position the rotary table clutch is engaged. Pulling the lever to the rear disengages the clutch. The rear position has a detent which will hold the clutch in the disengaged position. CAUTION The rotary table clutch control lever should not be left in the disengaged detent for any extended

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
12	Rotary Table Clutch Control Lever (Cont'd)	CAUTION (Cont'd) period of time or the clutch will be damaged. Shift the rotary table transmission to neutral, and return the clutch control lever to the engaged position.
13	Pulldown Control Lever	Pulling the lever to the rear starts the pulldown hydraulic motor which drives the pulldown transmission. Pulling the lever farther to the rear increases the pulldown pressure. Pushing the lever forward stops operation of the motor. If the lever is released, it remains in position until manually moved to a different position. The amount of pressure being used will be indicated on the Hydraulic System Pressure Gauge (INDEX NUMBER 21).
14	Pulldown Transmission Control Lever	This control has two positions. The forward position is the high speed position. The rear position is the low speed position.
15	Rotary Table Transmission Control Lever	This control has six positions. The center position is the neutral position. Moving the lever to the right and forward selects the slowest forward speed for the rotary table. Moving the lever to the right and to the rear selects the slower of two intermediate forward speeds for the rotary table. Pushing the lever directly forward from the neutral position selects the higher of the two intermediate forward speeds for the rotary table. Pulling the lever directly to the rear from the neutral position selects the highest forward speed for the rotary table. All four forward speeds turn the rotary table in a clockwise direction. Moving the lever to the left and forward selects reverse for the rotary table. When the lever is in reverse the rotary table turns counterclockwise.
16	Mud Pump Clutch Control Lever	This control has two positions. Pushing the control forward to the OUT position disengages the mud pump drive clutch and stops operation of the mud pump. Pulling the control back to the IN position engages the mud pump drive clutch to operate the mud pump.
17	Air Compressor Clutch Control Lever	This control has two positions. Pushing the lever forward to the OUT position disengages the clutch and stops operation of the compressor. Pulling the lever back to the IN position engages the clutch to operate the air compressor.

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
18	Water Injection Pump Speed Control	Rotating the control counterclockwise increases pump speed. Clockwise rotation decreases pump speed.
19	Water Injection Control Lever	Pulling the lever to the rear injects water proportional to the amount that the lever is pulled to the rear. Pushing the lever to the full forward position shuts off water injection. NOTE Usually the amount of water desired is set by the Water Injection Pump Speed Control, and the control lever is pulled full back to start water injection.
20	Hold-Back Pressure Gauge	Indicates the amount of hold-back pressure being used in the hold-back system.
21	Hydraulic System Pressure Gauge	Indicates the amount of hydraulic pressure in the hydraulic system. The indication on the pressure gauge will vary, depending on the particular function that the hydraulic system is being used to perform at that time.
22	TABLE CYL, Rotary Table and Jacks Control Lever	This control has three positions. (1) When one of the jacks has been selected for operation, and the associated Jack Control Valve (INDEX NUMBERS 24 thru 27) has been opened, pulling the lever to the rear from the center position will extend the jack. Pushing the lever forward from the center position will retract the jack. When the lever is released from any position, it will return automatically to the center position. (2) When the rotary table control valve (INDEX NUMBER 28) is open, pushing the lever forward from the center position retracts the rotary table. Pulling the lever to the rear from the center position extends the rotary table into position over the hole. When the lever is released from any position it will return automatically to the center position.

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
22	TABLE CYL, Rotary Table and Jacks Control Lever (Cont'd)	NOTE (Cont'd) In either of the above operations, any time the control lever is moved out of the center position, the hydraulic pressure applied will be indicated on the hydraulic system pressure gauge (INDEX NUMBER 21).
23	MAST CYL Control Lever	This control has three positions. Pulling the lever to the rear from the center position applies hydraulic pressure to raise the mast. Pushing the lever forward from the center position applies hydraulic pressure to lower the mast. Any time the lever is moved out of the center position, the hydraulic pressure applied will be indicated on the hydraulic system pressure gauge (INDEX NUMBER 21). When the lever is released from any position, it will return automatically to the center position. CAUTION Before lowering the mast, always pull the lever to the rear momentarily and check the pressure indication on the hydraulic system pressure gauge (INDEX NUMBER 21). This will ensure that the up side of the mast raising cylinders are full of hydraulic fluid, and prevent rapid descent of the mast when the lever is pushed forward to lower the mast.
24, 25, 26, 27	Jack Control Valves	Full clockwise rotation of the valve handles is the closed position. Full counterclockwise rotation of the valve handles is the open position. The values are connected to the jacks as follows: 24 - Helper's rear jack 25 - Helper's front jack 26 - Driller's front jack 27 - Driller's rear jack When the value is open for the jack selected to be operated, the jack can be raised or lowered with hydraulic

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
24, 25, 26, 27	Jack Control Values (Cont'd)	pressure using the rotary table and jacks control lever (INDEX NUMBER 22). When the rotary table and jacks control lever is actuated, hydraulic pressure being applied to the jack will be indicated on the hydraulic system pressure gauge (INDEX NUMBER 21).
28	Rotary Table Control Valve	Full clockwise rotation of the value handle is the closed position. Full counterclockwise rotation of the valve handle is the open position. When valve is open, the rotary table can be retracted or extended with hydraulic pressure using the rotary table and jacks control lever is actuated, hydraulic pressure being applied to the rotary table transfer cylinder will be indicated on the hydraulic system pressure gauge (INDEX NUMBER 21).
29, 30, 31	Brake Control Levers	These control levers are provided to apply, hold, and release the brakes for the three drums on the drawworks. The levers are connected to the brakes for the drums as follows: 29 - 3rd drum brake lever 30 - Hoisting drum brake lever 31 - Auxiliary drum brake lever To apply any one of the brakes, depress the release on the brake handle and pull the lever toward the driller's platform to apply the brake. When the desired brake application is obtained, relieve pressure on the release to hold the brake in the applied position. To release the brake, depress the release on the brake handle and push the lever away from the driller's platform. When the brake is fully released, release the handle.
32	Water Injection Shutoff Valve	Full clockwise rotation of the valve handle is the closed position. Full counterclockwise rotation of the valve handle is the open position.
33	Force Feed Lubricator Shutoff Valve	Full clockwise rotation of the valve handle is the closed position. Full counterclockwise rotation of the valve handle is the open position.
34	Air Control Valve	Positioning the lever parallel to the piping opens the valve and allows air to flow from the air supply re-receiving tank. Positioning the lever 90 degrees to the piping shuts off air flow from the receiving tank.

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
35	Mud Control Valve	Controls the flow of mud from the mud pump. Full clockwise rotation of the valve handle is the closed position. Full counterclockwise rotation of the valve handle is the open position.
36	Weight Indicator	This instrument has two indicator pointers. One pointer can be set with the knurled knob in the center of the dial, to any desired setting, and will remain on this setting until manually reset. The instrument has two circular scales on the face of the dial. The inside scale is graduated in pounds x 1000 and is the scale that is used. The weight being pulled on the hoist or auxiliary drum is indicated on the inside scale by the second indicator pointer.
37	STARTING AID Switch	Push button switch. This switch is used to inject ether into the engine air intake system to aid in starting the engine when the ambient temperature is below +40°F. (+4°C). When the switch is in the depressed position, ether is being injected into the engine air intake system. The switch should be depressed and held for two seconds while the engine is cranking. The switch will return automatically to the out position when released. CAUTION The switch should not be depressed and held in depressed position longer than two seconds, and should not be depressed repeatedly, during the engine starting cycle.
38	START Switch	Push button switch. Depressing the switch energizes the starter motor circuit and engages the starter to the engine flywheel to crank the engine. CAUTION The switch should be held firmly in the depressed position while the engine is being cranked. When the switch is released it will return automatically to the out position.

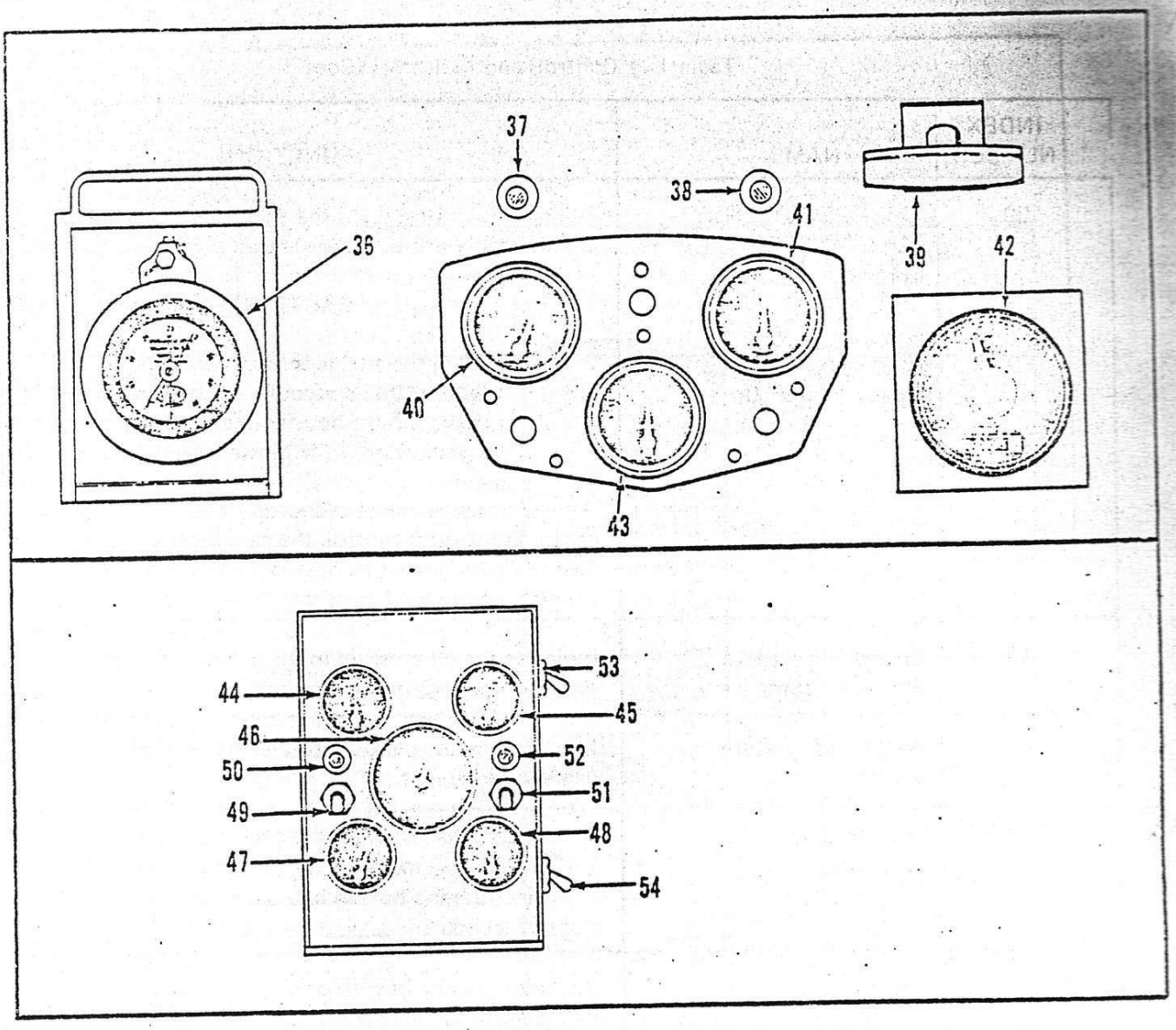

Figure 1-2 Controls and Indicators (View 2 of 6)
(for Detroit Diesel Auxiliary)

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
39	EMERGENCY ONLY PULL-TO-STOP Control NOTE: Used only with Detroit Diesel Power Unit.	Pulling this control stops the engine by shutting off the air supply at the blower housing. CAUTION When the engine is shutdown using this control, a vacuum will be created in the blower housing that could suck in and destroy the blower seals. After the engine has been shutdown using the emergency pull-to-stop control, the cam handle near the blower housing must be manually reset to the down position before the engine can be restarted.
40	Engine Oil Pressure Gauge	Indicates the oil pressure in the engine lubricating system in pounds per square inch.
41	Water Temperature Gauge	Indicates the temperature of the engine coolant in degrees Fahrenheit.
42	Tachometer/ Hourmeter	The tachometer indicates the engine speed in rpm x 100. The hourmeter records a cumulative total of engine running time in hours and decimal fractions of an hour.
43	Ammeter	Indicates current flow to or from the battery. Should indicate a slight change (+) during normal operation.
44	Remote Ammeter	Indicates current flow to or from the battery. Should indicate a slight change (+) during normal operation.
45	Fuel Level Gauge	Indicates the quantity of fuel in the fuel tank in fractional increments from E (Empty) to F (Full).
46	Remote Tachometer	Indicates the engine speed in rpm x 100.
47	Remote Water Temperature Gauge	Indicates the temperature of the engine coolant in degrees Fahrenheit.
48	Remote Oil Pressure Gauge	Indicates the oil pressure in the engine lubricating system in pounds per square inch.
49	Force Feed Lubricator Switch	Two position toggle switch. Moving the switch to the ON position operates the motor in the force feed lubricator. The OFF position stops operation of the motor.

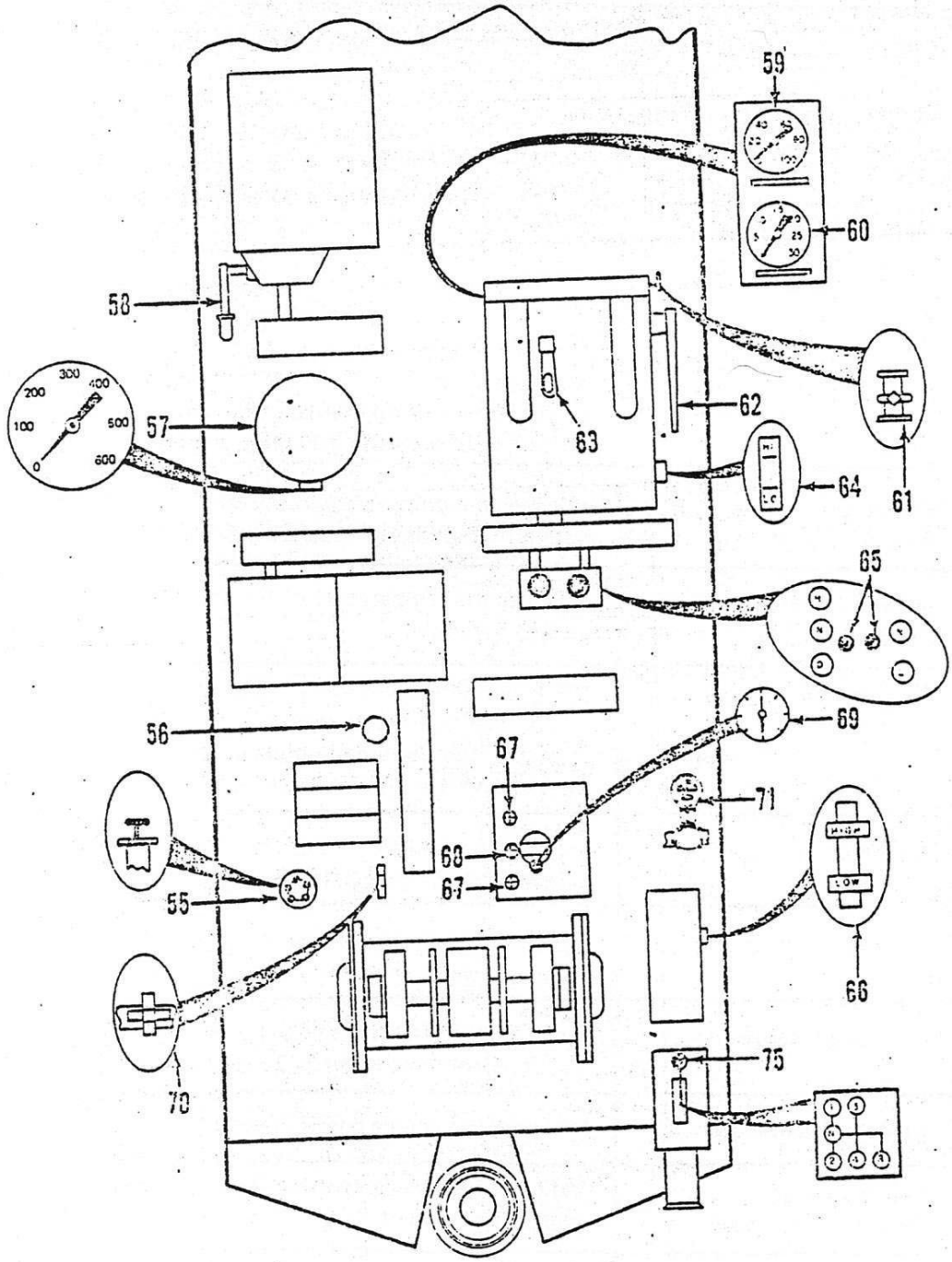

Figure 1-2 Controls and Indicators (View 3 of 8)

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
50	Force Feed Lubricator Indicator Light	This indicator light glows green continuously when the force feed lubricator switch (INDEX NUMBER 49) is in the ON position
51	Foam Injector Switch	Two position toggle switch. Moving the switch to the ON position operates the motor in the foam injector. The OFF position stops operation of the motor.
52	Foam Injector Indicator Light	This indicator light glows green continuously when the foam injector switch (INDEX NUMBER 51) is in the ON position.
53	Mast Lights Switch	Two position toggle switch. The ON position illuminates the mast lights. The OFF position turns the mast lights off.
54	Ditch Lights Switch	Two position toggle switch. The ON position illuminates the ditch lights. The OFF position turns the ditch lights off.
55	Water Injection Pump Flow Relief Valve	Full clockwise rotation of the valve handle is the closed position. Full counterclockwise rotation of the valve handle is the open position. Turning the valve handle from the closed position toward the open position increases the amount of water bypassed back to the inlet side of the pump. NOTE This valve is usually left in the closed position, and the amount of water injected is controlled with the water injection pump speed control (INDEX NUMBER 18).
56	Hydraulic Pressure Relief Valve	Full clockwise rotation of the valve handle is the closed position. Full counterclockwise rotation of the valve handle is the open position. NOTE This valve is normally left in the open position.

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
57	Air Pressure Gauge	Indicates the air pressure inside the air receiving tank in psi (pounds per square inch). The gauge has an indicating range of 0 to 600 psi.
58	Power Take-Off Control Lever	This control has two positions. Moving the lever to the rear position disengages the PTO (Power Take-Off) from the engine. The forward position engages the PTO to the engine. The lever will remain in either position until manually moved to the opposite position.
59	Interstage Air Pressure Gauge	Indicates the pressure of air circulating through the core of the intercooler in pounds per square inch. NOTE Excessive air pressure indicates the intercooler is plugged.
60	Oil Pressure Gauge.	Indicates the oil pressure in the air compressor lubricating system in pounds per square inch.
61	Shut-Off Valve	This valve has two operating positions. The valve is in the open position when the valve handle is parallel to the flow (vertical). This is the position that the valve handle must be in for single stage operation. The valve is in the closed position when the valve handle is perpendicular to the flow (horizontal). This is the position that the valve handle must be in for 2-stage operation.
62	3-Way Valve (suction)	This valve has two operating positions. When the valve handle is down (horizontal) the valve is in position for single stage operation. When the valve handle is up (vertical) the valve is in position for 2-stage operation.
63	3-Way Valve (discharge)	This valve has two operating positions. When the valve handle is perpendicular to the intercooler the valve is in position for single stage operation. When the valve handle is parallel to the intercooler the valve is in position for 2-stage operation.
64	Compressor Oil Level Sight Gauge	Indicates the oil level in the air compressor crankcase. The gauge has high and low marks. The oil level must be kept between these marks for adequate lubrication.

Table 1-2.-Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
65	Auxiliary Transmission Shift Levers	When both the left and right shift levers are in the center position, the transmission is in neutral. With the right shift lever in the neutral position, moving the left shift lever from the neutral position to the rear position shifts the transmission to direct drive. Moving the left shift lever from the neutral position to the forward position shifts the transmission to overdrive (high). With the left shift lever in the neutral position, moving the right shift lever from the neutral position to the rear position shifts the transmission to underdrive (low). Moving the right shift lever forward from the neutral position has no function.
66	Hydraulic Fluid Level Sight Gauge	Indicates the level of hydraulic fluid in the hydraulic tank. The gauge has HIGH and LOW markings. The fluid level should be kept between the marks.
67	Hydraulic Suction Line Valves	Full clockwise rotation of the valve handles is the closed position. Full counterclockwise rotation of the valve handles is the open position. These valves are located in the hydraulic supply lines and are normally in the open position. They are closed only when necessary to perform maintenance. CAUTION If the machine is operated with either of these values closed, the hydraulic oil pump will be damaged.
68	Hydraulic Return Line Valve	Full clockwise rotation of the valve handle is the closed position. Full counterclockwise rotation of the valve handle is the open position. This valve is located in the hydraulic return line to the tank. The valve is normally open, and should be closed only when changing the hydraulic return line filter element or performing other maintenance. CAUTION If the machine is operated with this valve closed, the hydraulic oil pump will be damaged.
69	Hydraulic Return Line Filter Indicator	Indicates the degree of clogging in the hydraulic return line filter. The indication is a pressure indication, and the pounds per square inch. Any pressure indication above the normal operating pressure of the system, with a

Table 1-2 -Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
69	Hydraulic Return Line Filter Indicator (Cont'd)	clean filter installed, is an indication that clogging has started. As the pressure indication increases, it indicates a greater clogging condition, inside the filter.
70	Hydraulic Fluid Cooling Fan Motor Control Valve	Full clockwise rotation of the valve handle is the closed position. Full counterclockwise rotation of the valve handle is the open position. When the valve is open, hydraulic fluid under pressure operates the hydraulic motor to turn the cooling fan, located behind the hydraulic system cooler. Closing the valve shuts off the flow of hydraulic fluid to the motor and stops operation of the fan. NOTE The valve is normally closed when the machine is operating. The valve is opened to operate the cooling fan if additional cooling is necessary.
71	Mud Pump Pressure Gauge	Indicates the pressure of drilling mud in the mud circulating system. The gauge has an indicating range of 0 to 1000 pounds per square inch.
72	Shear Relief Valve	Relieves excessive pressure in the mud circulating system by shearing the nail. The relief pressure is controlled by the size of the nail installed as follows: 16 Penny Relieves at 1000 lbs. 10 Penny Relieves at 850 lbs. 8 Penny Relieves at 600 lbs. 6 Penny Relieves at 500 lbs. 4 Penny Relieves at 400 lbs. 3 Penny Relieves at 250 lbs.
73, 74	Auxiliary Mud Pump Control Valves	Full clockwise rotation of the valve handles closes the valves. Full counterclockwise rotation of the valve handles opens the valves. These valves are normally closed, and are opened only if auxiliary mud pumps are connected to the mud circulating system.
75	Cathead Transmission Control Lever	This control has six positions. The center position is the neutral position. Pushing the lever directly forward from the neutral position selects the slowest forward speed for the cathead. Pulling the lever

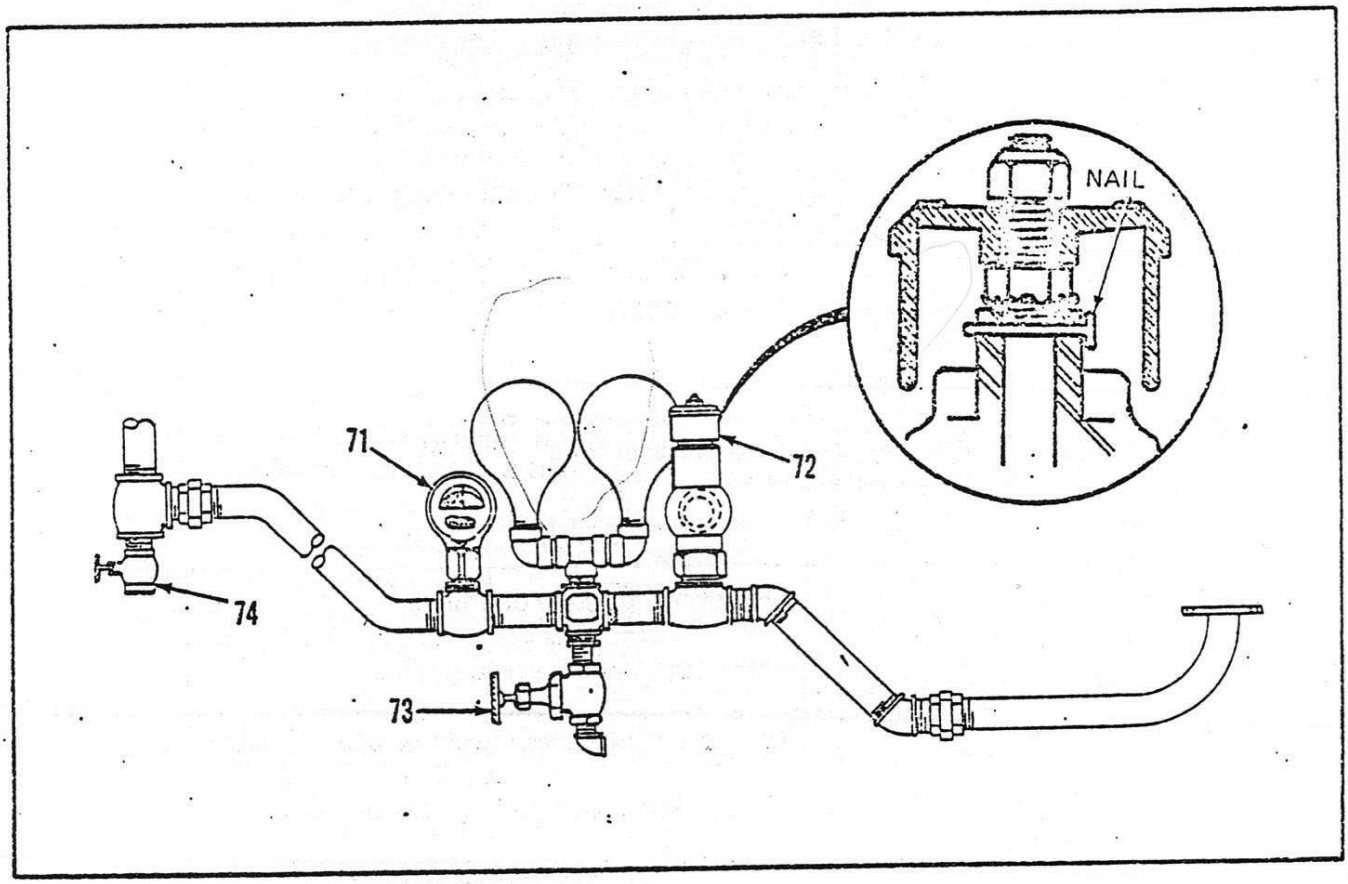

Figure 1- 2 Controls and Indicators (View 4 of 6)

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
75	Cathead Transmission Control Lever (Cont'd)	directly to the rear from the neutral position selects the slower of two intermediate forward speeds for the cathead. Moving the lever to the right and forward from the neutral position selects the higher of the two intermediate forward speeds for the cathead. Moving the lever to the right and to the rear from the neutral position selects the highest speed for the cathead. All four forward speeds rotate the cathead in the direction to spool cable onto the cathead. Moving the lever to the extreme right and to the rear from the neutral position selects reverse rotation of the cathead. When the lever is in reverse, the cathead rotates in the direction to spool cable off the cathead.
76	Cutoff Valve	Shuts off air flow from the controls air reservoir to the penumatic lubrication system. Full clockwise rotation of the valve handle is the open position.
77	Air Filter Drain Cock	This drain cock is provided to drain moisture and foreign particles that become entrapped in the air filter.
78	Pressure Regulator Control Valve	Controls delivery pressure to the penumatic lubricator. Clockwise rotation of the valve handle increases the delivery pressure. Counterclockwise rotation of the valve handle decreases delivery pressure. Full counterclockwise rotation of the valve handle reduces delivery pressure to zero.
79	Pressure Regulator Pressure Gauge	Indicates delivery air pressure being supplied to the penumatic lubricator. The indication on the gauge reflects the setting of the pressure regulator control valve.
80	Oil Level Sight Glass	Provides a visual external indication of the oil level inside the penumatic lubricator.
81	Sight Glass and Drip Tube	Indicates the rate of flow of lubricant when the controls are operating. NOTE The rate of flow of lubricant should be 1 to 3 drops per minute.
82	Adjusting Screw	Adjusts the rate of flow of the lubricant. NOTE Adjustment must be made while controls are operating.

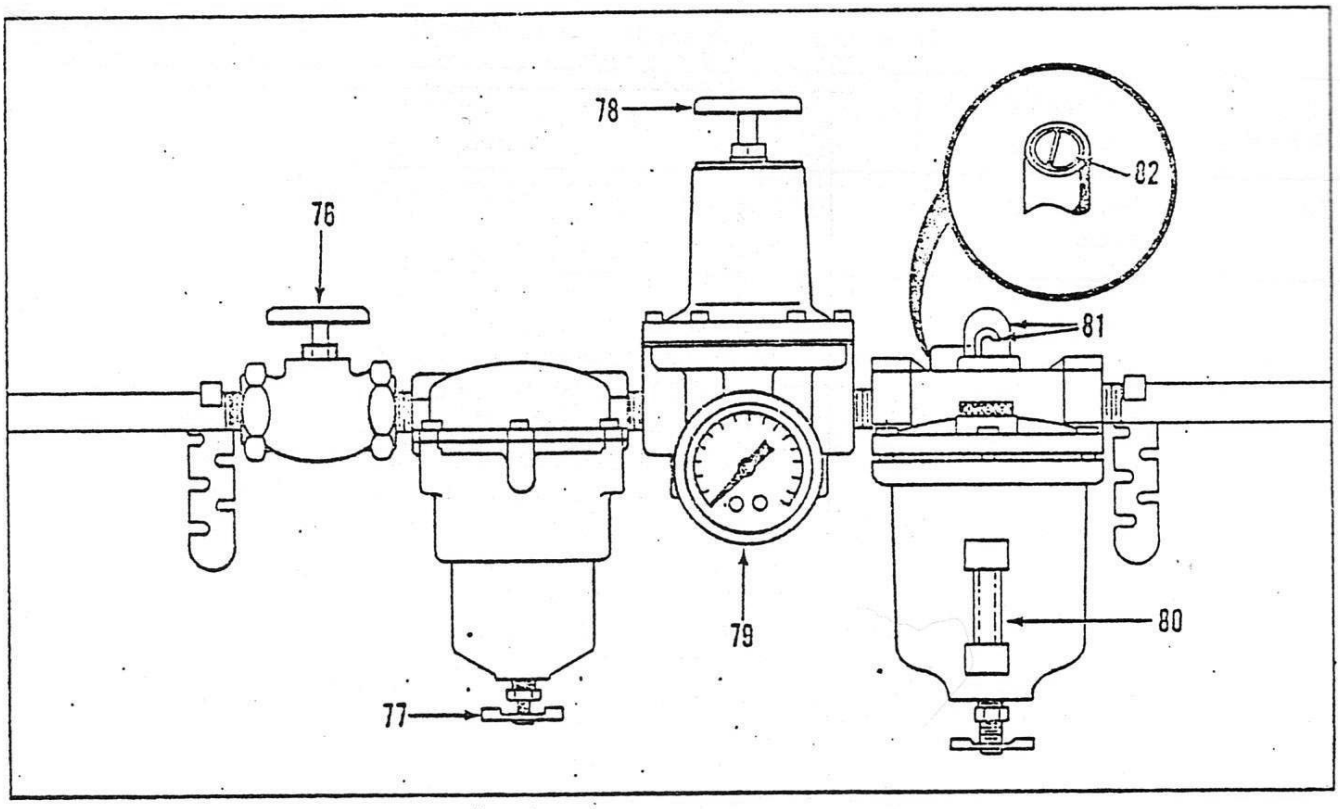

Figure 1-2 Controls and Indicators (View 5 of 6)

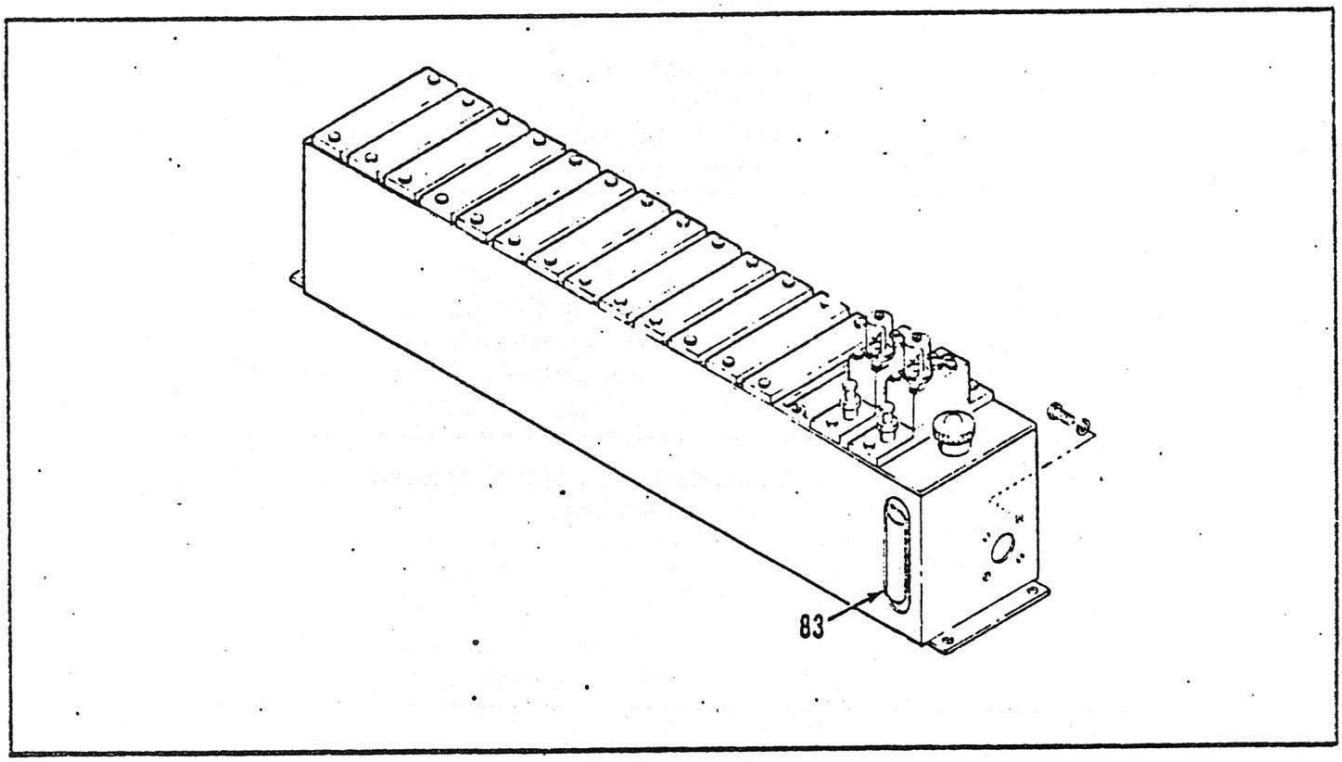

Figure 1-2 Controls and Indicators (View 6 of 6)

Table 1-2 Controls and Indicators (Cont'd)

INDEX NUMBER	NAME	FUNCTION
83	Oil Level Sight Glass	Indicates the oil level in the force feed lubricator reservoir.