(13). When assembly is completed, operate the engine to buildup air pressure in the controls air reservoir.

(14). Open the air cutoff valve (3, Figure 2-12).

(15). Check to see that the pressure (6) on the pressure regulator is indicating the desired delivery pressure.

NOTE

Controls on the driller's control panel must be operating to perform the following procedures.

(16). Count the number of drops of oil per minute falling from the tube (20, Figure 2-15) inside the sight glass (19). The rate of flow should be 1 to 3 drops per minute.

(17). If necessary, turn the adjusting screw (11) to attain the desired number of drops per minute.

2-16. FOAM INJECTION PUMP SERVICING. Over an extended period of time deposits will collect in the foam injector pump and lines, which will require disassembly and cleaning. If the foam injection system is flushed with clean water after being used, the interval between disassembly and cleaning will be lengthened considerably. The following procedures include disassembly of the entire injection system. When maintenance is being performed, only those procedures necessary to effect repair or cleaning should be performed.

a. Removal and Disassembly

(1). Loosen the tube nuts (1 and 2, Figure 2-16 and remove the suction and discharge line assemblies.

(2). Remove the cover from the foam injection pump housing.

(3). Remove the mounting bolts attaching the foam injection pump to the housing.

(4). Position the pump so that the cover can be removed from the junction box (3). Remove the junction box cover and disconnect electrical leads. Remove the foam injection pump.

NOTE

If the diaphragm (4) is being replaced, start and stop the motor intermittently until the diaphragm plunger is at maximum distance away from the head

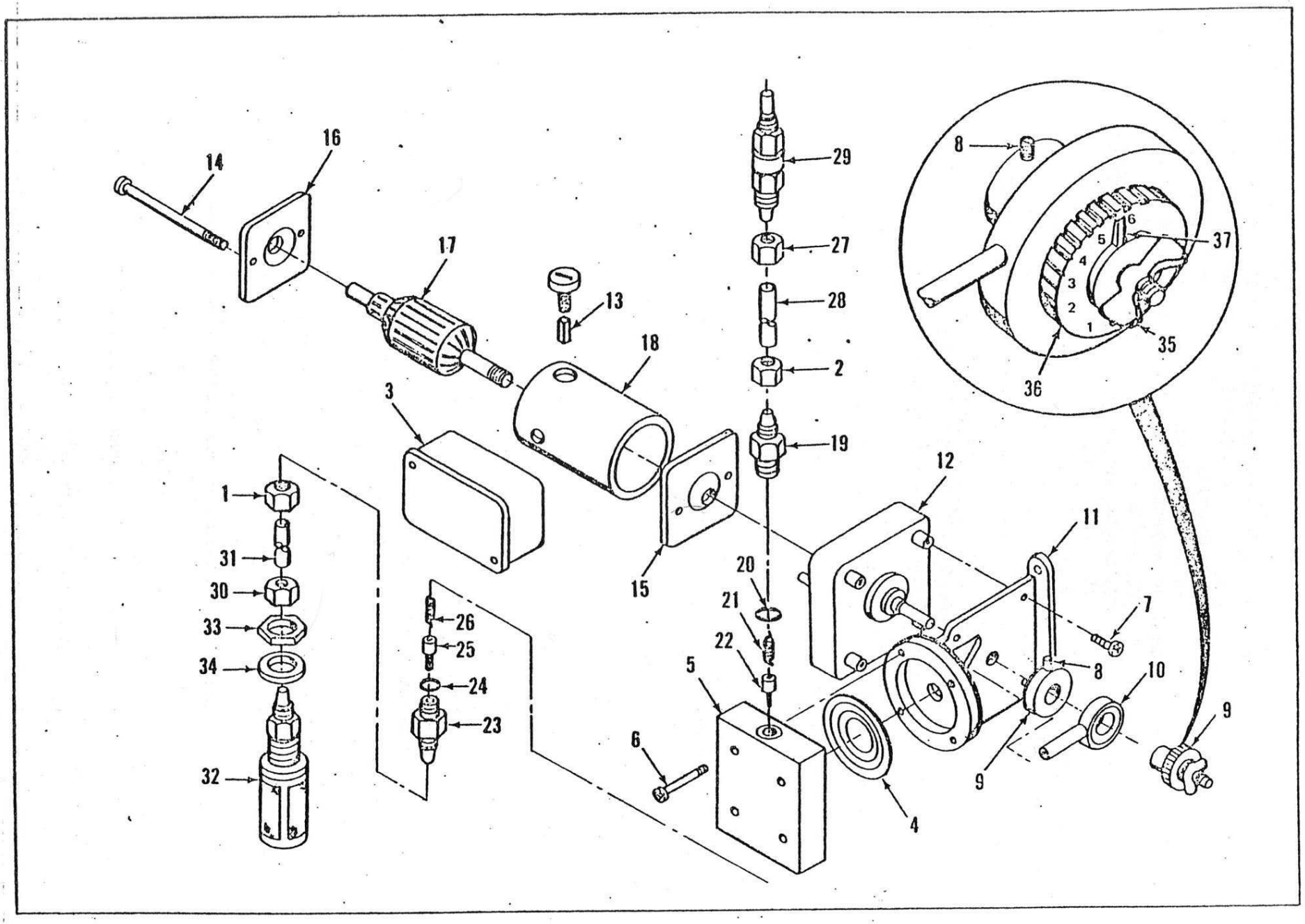

Figure 2-16 Foam Injector Pump

1. TUBE NUT
2. TUBE NUT
3. JUNCTION BOX
4. DIAPHRAGM
5. HEAD BLOCK
6. SCREW
7. SCREW
8. SETSCREW
9. CAM ASSEMBLY
10. YOKE AND BEARING
11. MOUNTING BRACKET
12. GEAR BOX
13. BRUSH ASSEMBLY
14. SCREW
15. ARMATURE BEARING
16. ARMATURE BEARING
17. ARMATURE
18. MOTOR HOUSING
19. ADAPTER
20. O-RING
21. SPRING
22. VALVE
23. ADAPTER
24. O-RING
25. VALVE
26. SPRING
27. TUBE NUT
28. TUBING
29. ANTI-SIPHON VALVE
30. TUBE NUT
31. TUBING
32. FOOT VALVE
33. LOCKNUT
34. WASHER
35. WING NUT
36. SCALE
37. POINTER

Legend for Figure 2-16 Foam Injector Pump

block (5), before disconnecting electrical leads.

(5). Remove the head block screws (6) and head block (5).

(6). Remove the screws (7). Loosen the setscrew (8) and remove the cam assembly (9), yoke and bearing (10), and mounting bracket (11) from the gear box (12). Separate the diaphragm (4) from the yoke and bearing (10).

(7). Remove the brush assemblies (13), thru bolts (14), front and rear armature bearings (15 and 16), and armature (17) from the motor housing (18).

(8). Remove the adapter (19), o-ring (20), spring (21), and valve (22) from the top of the head block (5).

(9). Remove the adapter (23), o-ring (24), valve (25), and spring (26) from the bottom of the head block (5).

(10). Loosen the tube nut (27) to disconnect the discharge tubing (28) from the anti-siphon valve (29).

(11). Loosen the tube nut (30) to disconnect the suction tubing (31) from the foot valve (32).

(12). Remove the locknut (33) and washer (34) from the foot valve (32).

b. Inspection.

(1). Check all components for worn or damaged condition.

(2). Check all components that make contact with the fluid being pumped, for solid deposits that would restrict or block the fluid flow.

(3). Shake the foot valve to see if the valve inside is free.

(4). Carefully check the condition of the diaphragm and o-rings, and replace if necessary.

c. Cleaning

(1). Thoroughly clean away all solid deposits from components.

(2). Remove any solid deposits from the passage in the head block, and clean the passage.

(3). Ensure that all passages in the valves, adapters, tubing, etc., are open.

d. Reassembly and Installation. Reassemble and install the foam injector by reversing removal and disassembly procedures, and performing the following additional procedures.

(1). When installing the valves (22 and 25), both valves must be installed with the spring end up and tail painting downward as shown in Figure 2-16.

(2). When installing adapters (19 and 23) in the head block (5), tighten by hand only.

(3). When installing tube nuts (1, 2, 27 and 30), tighten by hand only.

e. Operational check. Whenever maintenance or repairs have been performed on the pump, an operational check of the pump should be made.

(1). Place a container of water below the pump. Submerge the foot valve (32) at a point 2 to 3 inches above the bottom of the container.

NOTE

The foot valve must hang vertically.

(2). Insert an Allen wrench in the setscrew (8), and hold the wrench to keep the shaft from turning.

(3). Loosen the wing nut (35) and rotate the scale (36) until the numeral 6 is aligned with the pointer (37).

NOTE

When the numeral 6 on the scale (36) is aligned with the pointer (37) the pump output is maximum.

(4). Tighten the wing nut (35) and remove the Allen wrench.

(5). Operate the pump motor to prime the pump.

(6). If liquid does not rise in the suction tubing (31) within one minute of operation, loosen the tube nut (2) and disconnect the discharge tubing (28) from the adapter (19).

(7). When liquid reaches the top of the pump, reconnect the discharge tubing.

NOTE

If the pump failed to prime when performing the above procedures, perform the following procedures.

(8). Loosen the tube nut (1) and disconnect the suction tubing (31) from the adapter (23).

(9). Submerge the suction tube assembly in the container and fill it with water.

(10). Reconnect the suction tubing (31) to the adapter (23).

(11). Raise the foot value (32) and suction tubing (31) higher than the pump, and operate the pump motor to prime the pump.

(NOTE

When the operational check is completed, perform the following procedures to adjust the pump output.

(12). Insert an Allen wrench in the setscrew (8), and hold the wrench to keep the shaft from turning.

(13). Loosen the wing nut (35) and rotate the scale (36) to obtain the desired output.

NOTE

When the numeral 6 on the scale (36) is aligned with the pointer (37) the pump output is maximum. When the pointer (37) is aligned with 0, pump output is minimum.

(14). When the desired pump output is obtained, tighten the wing nut (35) and remove the Allen wrench.