TOPIC: PUMP CONFIGURATION ON CDF MODEL #10 AND #12 ENGINES

TIME FRAME: 1:00

LEVEL OF INSTRUCTION: Level II

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will describe the types, components, and characteristics of the pumps found on CDF Model #10 and #12 engines.

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- CDF Model #10 and #12 engine
- Chalkboard and chalk
- Appropriate visual aids

REFERENCES:

- Vehicle Operation and Maintenance Guide, (CDF Handbook 6804)

PREPARATION: In order to properly operate and diagnose problems with the pumping systems on a model #10 or #12 fire engine you must understand the pumping system and its component parts

PRESENTATION	APPLICATION

I. THE MODEL #10 AND #12 ENGINE IS EQUIPPED WITH A SINGLE PUMP WHICH IS USED FOR BOTH MOBILE AND STATIONARY PUMPING

A. The engine water tank capacity is 500 gallons

B. Fire pump

1. Gear ratio 1:97 to 1

NOTE: Check the 6804 Handbook for type

2. Single stage centrifugal pump

3. Rated capacity:

a. 300 GPM at 150 PSI

NOTE: Point out plate on engine with rated capacity

b. 150 GPM at 300 PSI

4. Pump is driven by its own engine

NOTE: Check the 6804 Handbook for type

a. Need not run apparatus engine since electrical and fuel systems are separate

5. Pump packing is a ceramic mechanical seal which is non-adjustable

C. Primer pump

NOTE: Point out primer pump and oil reservoir

1. Hale Model SMV 12

2. Electrically driven rotary vane positive displacement pump

3. Primer oil reservoir is needed for lubrication and to insure a seal within the pump case

PRESENTATION	APPLICATION

a. Use engine oil in reservoir

II. PLUMBING SYSTEM AND WATER TANK

NOTE: Point out all valves and their function and get student under engine and trace plumbing

A. Water tank capacity - 500 gallons

B. Sump location and function

1. Clean after pumping dirty water

C. Tank fill cap

D. Water level gauge

E. Trace inlet plumbing

F. Trace discharge plumbing

G. Show valves, purpose and location

1. Tank suction valve

2. Tank fill valve or churn valve

3. Suction inlet valve

4. Auxiliary pump discharges

5. Midship pump discharges

6. Primer valve

III. PUMP CONTROLS

A. Ignition switch on/off

B. Choke

C. Starter

D. Throttle controls

PRESENTATION	APPLICATION
E. Fuel primer	
F. Fuel tank selector	

SUMMARY:

Since CDF employees are likely to encounter model #10 and #12 engines on a frequent basis it is important that we know something about their pump characteristics. This will assist in operating and troubleshooting problems with these engines.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).