	Nokomis Fire Department		
	Date	**Directive**	**Number**
	May 2, 2019	**#2**	**#215**
		Category **R.O.G**	
	Fire Apparatus Pump Service Test		

PURPOSE:

To ensure all Fire Apparatus are tested annually and after extensive repair in compliance to NFPA Standard 1901.

BACKGROUND:

All Fire Apparatus with pumps will be service tested during the month of November (unless otherwise specified)

PROCEDURE:

PRIOR TO STARTING ANY OF THESE TESTS ALL PERSONNEL ARE REQUIRED TO WEAR HELMETS WITH VISOR AND GLOVES DURING ALL PHASES OF THESE TESTS. THE PUMP OPERATOR SHALL WEAR HEARING PROTECTION WHILE OPERATING AT THE PUMP.

Pump test assignments will be completed in the month of October. The Service Test will be performed by the station Lieutenant.

Conduct tests in the order listed following procedures specified:

1. Check engine oil before and after conducting tests
2. Monitor engine temperature during testing. (over 240 degrees notify service)
3. Backflush pumps after drafting operation.
4. ALL headlights, running lights, warning lights, and air conditioning shall be operating during tests.
5. Hose layouts, nozzles and applicable charts for various capacity pumps are listed on the attached chart.

Any discrepancies discovered during any portion of the test will reported to the Service Manager immediately.

FLUSH PUMP TEST STATION INTAKE ASSEMBLY WITH TANK WATER PRIOR TO TEST

VACUUM TEST (Checks the primary device, pump and hard intake for air leaks)

STEP 1 - Drain the pump

STEP 2 - Inspect gaskets in intake hose and all caps (clean or replace as required).

STEP 3 - Connect **20** feet of hard intake hose to the intake connection and Cap the free end.

STEP 4 - Open all intake valves. Cap or plug all intakes. All discharge caps will be removed.

STEP 5 - Check, and replenish as necessary, oil in the priming pump reservoir.

STEP6 - Activate the priming pump until 22 inches of mercury is indicated on the intake gauge.

STEP 7 - Shut off the engine. Listen for leaks.

TO PASS TEST- Vacuum should not drop more than ten inches of mercury in five minutes.

STEP 1 - Equalize pressure by opening a discharge valve.

STEP 2 - Connect hard intake hose with strainer (supplied at the site, already pre-connected) to the intake.

STEP3 - Connect hoses and tip to the stationary appliance at the test site as specified in the attached chart.

STEP 4 - Close all discharges, drains and booster tank valves and petcocks.

STEP 5 Start priming device and timer. **Stop timing when water discharges on to the ground beneath engine.**

TO PASS TEST- Water should discharge under the truck within 30 seconds for pumps rated less than 1,500 GPM and within 45 seconds for those rated 1,500 GPM or greater. Allow an extra 15 seconds for apparatus equipped with front suction.

STEP 6 - Increase engine rpm to develop pressure. Open discharge valves.

PUMPING TESTS (Checks the overall condition of the engine and pump)

Note: Nokomis Fire Department only has SINGLE STAGE pumps

(100% Capacity) @ 150 PSI (Test duration 20 minutes)

Step 1- Gradually speed up pump until 150 psi (adjust for suction hose lift loss usually 5 psi) discharge pressure is reached.

Step 2- Check flow at tip using the proper size tip (see attached chart) from the "Pump Test Kit" supplied by service.

Step 3- Adjust gates and throttle to attain proper pitot reading, while maintaining 150 psi.

Step 4- Monitor and record results at start and at five minute intervals.

(70% Capacity) @ 200 PSI (Test duration 10 minutes)

STEP 1- Throttle engine back and close discharge gates while making nozzle and hose changes.

STEP 2- Gradually speed up pump until 200 psi (adjusted for suction hose friction loss) discharge pressure is reached.
STEP 3- Check flow at tip using the proper size tip (see attached chart) from the "Pump Test Kit" supplied by service.
STEP 4- Adjust gates and throttle to attain proper pitot reading, while maintaining 200 psi.
STEP 5- Monitor and record results at start and at five minute intervals.

(50% Capacity) @ 250 PSI (Test Duration 10 Minutes)

FOR THE PROTECTION OF THE OPERATOR, WHENEVER POSSIBLE THE 250-PSI TEST SHOULD BE CONDUCTED USING THE PUMP DISCHARGE OUTLETS ON THE OPPOSITE SIDE OF THE APPARATUS FROM THE PUMP CONTROL PANEL (NFPA 1911 A.2-3.2).

STEP 1 - Throttle engine back and close discharge gates while making nozzle and hose changes.

STEP 2 - Gradually speed up pump until 250 psi (adjusted for suction hose friction loss) discharge pressure is reached.

STEP 3 - Check flow at tip using the proper size tip (see attached chart) from the "Pump Test Kit" supplied by service.

STEP 4 - Adjust gates and throttle to attain proper pitot reading, while maintaining 250 psi.

STEP 5- Monitor and record results at start and at five minute intervals.

PRESSURE CONTROL TEST (checks operation of the Pressure Relief Valve.) Phase I

Phase I

STEP1 – Throttle engine back to 150 psi discharge pressure.

STEP2 - Set pressure relief valve to maintain 150 psi, while flowing water.

STEP3 - Slowly (3 to 10 Sec) close all discharge valves.

TO PASS TEST- The rise in discharge pressure shall not exceed 30 psi.

Phase II

STEP 1 - Slowly open all discharge valves (those connected to hose layouts) to re-establish 150 psi discharge pressure).

STEP 2 - Throttle engine back to 90 psi discharge pressure. Do not adjust gates.

STEP 3 - Set pressure relief valve to maintain 90 psi, while flowing water.

STEP 4 - Slowly (3 to 10 seconds) close all discharge valves.

TO PASS TEST- The rise in discharge pressure shall not exceed 30 psi.

STEP 1 - Slowly open all discharge valves (those connected to hose layouts) and throttle engine to 250 psi.

STEP 2 - Set pressure relief valve to maintain 250 psi, while flowing water.

STEP 3 - Slowly (3 to 10 seconds) close all discharge valves.

TO PASS TEST- The rise in discharge pressure shall not exceed 30 psi.

TABLE OF HOSE AND NOZZLE LAYOUTS

Rated Capacity	Pump Pressure	GPM	Tip Size	Discharge Hose (*) 50 Foot Section Using 3" Hose	Pitot Pressure	Suction Hose
500	150 200 250	500 350 250	1-1/2" 1-1/4" 1-1/4"	One 50' Line One 50' Line One 50' Line	58 58 30	4-1/2"
750	150 200 250	750 525 375	2" 1-3/4" 1-1/2"	Two 50' Lines One 50' Line One 50' Line	40 34 32	5"
1000	150 200 250	1000 700 500	2-1/4" 2" 1-3/4"	Three 50' Lines Two 50' Lines One 50' Line	44 36 32	5" or 6"
1250	150 200 250	1250 875 625	2-1/2" 2-1/4" 1-3/4"	Three 50' Lines Two 50' Lines Two 50' Lines	46 34 48	6"
1500	150 200 250	1500 1050 750	2-1/2" 2-1/4" 2'	Three 50' Lines Three 50' Lines Two 50' Lines	66 50 40	6"