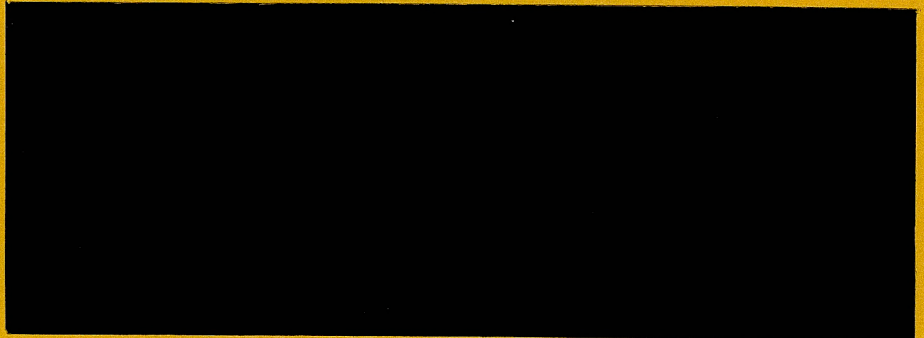
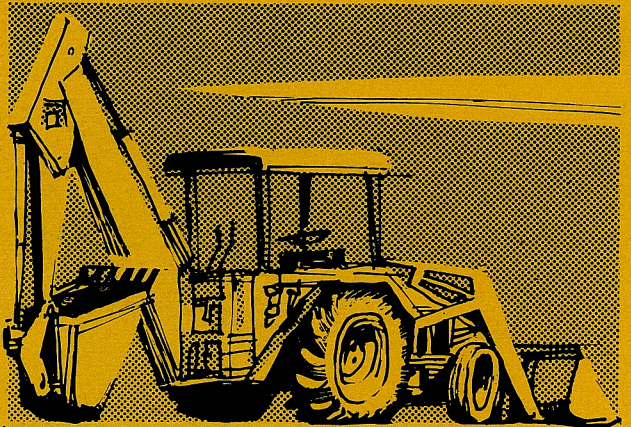


BAND TECHNICAL PUBLICATIONS



E78.C2
B35
no. FS-7
c. 2



Indian and Northern
Affairs Canada

Affaires indiennes
et du Nord Canada

Canada

**Technical Services
and Contracts**

**Services techniques
et marchés**

INSPECTION AND MAINTENANCE

OF FIRE EQUIPMENT

May 1984

Disponible en français

©Published under the authority of the
Hon. Douglas C. Frith, P.C., M.P.,
Minister of Indian Affairs and
Northern Development,
Ottawa, 1984.

QS-3374-000-EE-A1

Cette publication peut aussi être obtenue
en français sous le titre:

Inspection et entretien du matériel
d'incendie

INSPECTION AND MAINTENANCE OF FIRE EQUIPMENT

Table of Contents

1.0	INTRODUCTION
2.0	EQUIPMENT
2.1	General Remarks
2.2	Equipment Check List
3.0	INSPECTION AND MAINTENANCE
3.1	Continuous Maintenance Procedures
3.2	Preventive Maintenance Procedures
3.3	Inspection and Maintenance Schedules
3.3.1	Firefighting Apparatus (Trucks)
3.3.2	Firefighting Equipment
4.0	REFERENCES
APPENDIX	1 Apparatus Driver's Mechanical Report

INSPECTION AND MAINTENANCE OF FIRE EQUIPMENT

1.0 INTRODUCTION

This publication provides a list of equipment normally required for efficient firefighting and rescue operations on Indian reserves, and suggests procedures for inspection and maintenance.

The information contained in this publication is intended for those responsible for the organization, management and operation of volunteer fire departments in Indian reserves and communities.

2.0 EQUIPMENT

2.1 General Remarks

To a considerable degree, a firefighting department in a community is built around the apparatus and equipment used for suppressing fires. The effectiveness of the operation is often dependent upon the nature, adequacy and serviceability of this equipment. It is therefore most important to provide each fire department with suitable equipment and tools of a variety and quantity necessary to enable it to perform the service for which it is organized.

2.2 Equipment Check List

In North America, the basic firefighting equipment is a diesel or gasoline driven vehicle that carries an assortment of tools and equipment. This is commonly referred to as a "FIRE APPARATUS". The actual tools and equipment carried will depend on the intended service of the particular vehicle.

The following is a list of the principal categories of equipment carried on a fire truck and which are suitable for use in Indian reserves and communities. An inventory of this equipment and records of its maintenance and/or replacement should be kept in a safe place (preferably the band office):

- a. portable fire extinguishers - one or two 9 kg (20 lbs.), ABC Dry Chemical is suggested;
- b. hose and hose accessories, including hydrant wrenches, hydrant valves, hose straps, rope, combination shut-off nozzles, gated wyes, double hose couplings and hose spanners;
- c. portable lighting equipment, including a portable electric generator, a hand lantern and a supply of extra batteries;
- d. forcible entry tools, including axes, saws, plaster hooks and pike poles, claw tools, door openers, crow bars, wire cutters and sledge hammers;
- e. ladders - a selection of 2 or 3 ladders of sufficient length for the work anticipated;
- f. salvage equipment including pails, salvage covers, brooms, shovels and squeegees;
- g. rescue and first aid equipment - the exact equipment provided should be governed by the extent to which members of the fire department have been trained in its use and may include first-aid kits and resuscitation equipment as well as spare cylinders of gas and other expendable items like bandages, wound dressing material etc.;
- h. spare and replacement equipment -- this should include items which are practicable for members of the fire department to replace -- exact items will depend on their availability and relative importance, but should include fusible links for fire doors and automatic sprinkler heads;
- i. personnel protective equipment, including helmets, coats, water-proof mittens and rubber boots -- the exact numbers will depend on how many persons are required to use them at any one time;

- j. portable pumps - at least one multi-purpose, high pressure pump with suitable hoses and strainers for drawing water from lake, stream or river or for use in conjunction with the fire truck pump when required; and
- k. tool kit - a suitable box with various assorted tools, such as screw drivers, hammers, wrenches pliers, hacksaw, screws, bolts and nails, to permit first line repairs when responding to emergency calls.

3.0 INSPECTION AND MAINTENANCE

3.1 Continual Maintenance Procedures

Maintenance should be performed to make sure that the equipment is in proper working order and ready to respond at all times.

Following any response, perform maintenance immediately to make the equipment ready for another response. This should include the following:

- a. replenish supplies used;
- b. restore ladders, tools and respiratory equipment to operating condition; and
- c. inspect apparatus for damage and initiate corrective action.

See Appendix 1 for a sample of a driver's mechanical report.

3.2 Preventive Maintenance (PM) Procedures

Establish a procedure for inspecting the fire truck and its related equipment at regular intervals. The fire department should provide qualified personnel from its own staff or make suitable arrangements through the senior regional fire and safety officer. Prepare written instructions defining the work to be performed in inspections, and keep records.

NOTE: Manufacturers' operating instructions and maintenance procedures should be followed precisely when preparing PM instructions and reports, and performing maintenance and/or repair work.

3.3 Inspection and Maintenance Schedules

3.3.1 Firefighting Apparatus (Trucks)

3.3.1.1 Inspection

Conduct the following inspections:

- a. Weekly (or after each firefighting operation):
 - (1) Check engine compartment and ensure that:
 - (a) the engine oil is in good condition and at the proper level;
 - (b) the radiator coolant is at the proper level;
 - (c) the fan belts are in good condition and at the proper tension; and
 - (d) the battery and terminals are in good condition.
 - (2) Check truck cab to ensure that:
 - (a) all switches and controls are in good condition;
 - (b) the clutch pedal is free of obstructions;
 - (c) the hand brake operates properly; and
 - (d) the interior is clean and tidy.
 - (3) Start engine and check:
 - (a) starter operation;

- (b) oil pressure gauge for correct reading;
 - (c) battery charging rate;
 - (d) windshield wiping operation;
 - (e) windshield washing operation (fill if necessary);
 - (f) heater and defroster operation (in season);
 - (g) foot brake operation (before moving truck);
 - (h) clutch for operation;
 - (i) engine for operation (listen for unusual noises);
 - (j) fuel gauge (fill tank if necessary);
 - (k) siren for operation;
 - (l) all lights (headlights, tail, flashing, brake and instrument panel) for operation; and
 - (m) automatic transmission oil level.
- (4) Stop engine and check:
- (a) rear view mirrors;
 - (b) tires for damage and proper inflation;
 - (c) batteries for security, electrolyte level, corrosion and terminal tightness; and
 - (d) general vehicle condition and cleanliness.

- (5) On the fire pump check the following:
- (a) transfer case oil;
 - (b) priming pump oil level;
 - (c) pump governor (oil the shaft if necessary);
 - (d) gauges for operation;
 - (e) valves and drains for free operation; and
 - (f) pump operation (open the tank suction valve and engage the fire pump with the drain closed, recirculating water from the booster tank to the pump and back to the booster tank).

NOTES: The fire pump must have water for lubrication, so never run the pump without water. It must, however, be drained after use. Do not move the fire truck while the fire pump is in gear.

- (6) Report all defects, that could not be corrected during the above inspection, to the band office in writing for immediate initiation of corrective action.

b. Twice a year (and after every use):

- (1) Check all valves and ports for leaks and necessary adjustments:
- (a) tank suction valve;
 - (b) all discharge ports;
 - (c) main suction port; and
 - (d) hydrant ports.
- (2) Perform the following:
- (a) check the priming system;

- (b) check the transfer valve;
- (c) check the relief valve or E.M. governor;
- (d) check all oil levels (gear box and priming tank);
- (e) check the remote controls and lubricate ball valves;
- (f) perform the dry vacuum test (annually);
- (g) check the drive line flange bolts;
- (h) check the drive line oil seals (visually);
- (i) check for controlled leakage of packing glands;
- (j) check the suction tube gaskets for deterioration (grease tube threads if necessary);
- (k) check all strainers (clean if necessary);
- (l) check the drive unit oil (drain and replace with SAE 10W-30 if necessary);
- (m) check all gauges for proper calibration;
- (n) check the pump (repack if necessary - annually) and;
- (o) check the suction hoses for collapsed inner liner.

3.3.1.2 Maintenance

Following each inspection of the firefighting apparatus, maintenance should be performed in accordance with the manufacturer's instructions:

- a. All valves and ports must be cleaned and adjusted to prevent leaks.
- b. All vehicle components, (cab, chassis, wheels, tires, glass, etc.) must be inspected and adjusted as required.
- c. All vehicle systems, (electrical, cooling, braking, warning and heating) must be tested, and all deficiencies noted must be rectified.
- d. Upon completion of the inspection and correction of the deficiencies, the vehicle and all systems must be road tested.

3.3.2 Firefighting Equipment

3.3.2.1 Inspection

- a. Weekly (or after each firefighting operation):
 - (1) check all portable extinguishers to ensure proper operation and sign the inspection tag;
 - (2) check hose loads for proper lays and lengths;
 - (3) check all nozzles to ensure that the required number are on the truck and that they are secure, operate all valves;
 - (4) check all portable lighting equipment;
 - (5) check the air pressure in the protective breathing equipment and ensure two full spare cylinders are available for each -- examine the regulator and head piece;

- (6) ensure that the breathing equipment is properly cleaned and disinfected after each use;
- (7) check ladders for safety and proper placement;
- (8) check portable pump for serviceability under load conditions; and
- (9) check forcible entry tools to ensure serviceability and proper storage.

b. Monthly:

- (1) remove all equipment from the fire truck, check serviceability -- repair, adjust or clean where necessary -- and replace on the truck;
- (2) start all portable engines or motor driven equipment and permit them to warm up properly (operate under load conditions for 30 min); and
- (3) report any damage or loss to the band office in writing, for corrective action.

c. Annually:

- (1) remove all hose from the fire truck, check condition, test and reload changing bends;
- (2) remove all ladders from their racks, and inspect, clean and replace on the truck;
- (3) lubricate all motor, gear or hand operated appliances according to manufacturer's instructions; and
- (4) flush the pump and water tank according to the manufacturer's instructions.

3.3.2.2 Maintenance

The maintenance of firefighting equipment should be performed in accordance with the manufacturer's instructions, as indicated in 3.3.2.1.

A written report on the condition of the equipment and any suggestions for improvement should be sent to the band office.

4.0 REFERENCES

1. National Fire Protection Association. 1976. Fire Protection Handbook - Fourth Edition.
2. National Fire Protection Association. 1976. NFPA Inspection Manual - Fifth Edition.
3. National Fire Protection Association. 1976. National Fire Codes, 1979.
4. International Fire Service Training Association - Introduction To Fire Apparatus Practices - IFSTA #106 - Sixth Edition.
5. DIAND Technological Development Division. December 1982. Maintenance Management Standards - Task Statements 1510 and 1520.

APPENDIX "1"APPARATUS DRIVER'S MECHANICAL REPORT
(to be filled out monthly)

Date _____ Fire Department _____ Type of Apparatus _____
 Make _____ Chassis No. _____ Model _____
 Speedometer Reading _____ Engine Miles/Kilometre _____
 Pump hours since last report _____ Total Pump Hours _____

Marking Code: O.K. Repairs Needed - 0 Adj. Made - X

1. Check steering for excess play
2. Foot brake pedal reserve
3. Hand brake
4. Transmission shift lever and safety locks
5. Pump shift levers and safety locks
6. Clutch
7. Starter-both switches
8. All lights, head, tail, compart, etc.
9. Windshield wipers
10. Clean, tighten battery connections, inspect cables
11. Check for gasoline, oil, and water leaks (engine hot and running)
12. Check all doors, latches, handles, and glass
13. Check all equipment brackets and holders
14. Check all pump controls
15. Check pump governor
16. Check all drain valves
17. Windshield washing operation
18. Check all nozzles
19. Auxiliary generator and flood lights
20. Portable pumps
21. Ladders
22. Tool kit
23. All masks and breathing equipment
24. Body or other damage
25. General performance and appearance of apparatus

REMARKS: When any of the above are marked 0, an explanation shall appear under remarks with that item's listed number:
 (Example: 9 wiper blades need replacing).

Drivers Signature: _____

Officers' Signature: _____

21/03/83