FLAG FIRE

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CASP AEROSPACE

3.5 LB. (1.6 KG) STORED PRESSURE PORTABLE AIRCRAFT FIRE EXTINGUISHER

100-9750 (Model HAL-035-AVH)

100-9750N (Model HAL-035-AVN)

COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

RECORD OF REVISIONS

Keep this page in the front of the manual. When you get a revision, put the revised pages in the manual, and record the revision number, the dates and your initials in the areas below.

Revision Number	Revision Date	Date Incorporated	By
1	Jun 13/03	Jun 13/03	CASP
2	Nov 14/05	Nov 14/05	CASP
3	Feb 24/06	Feb 24/06	CASP
4	May 08/07	May 08/07	CASP

LIST OF EFFECTIVE PAGES

Page	Rev.	Date
1	4	May 08/07
2	4	May 08/07
3	4	May 08/07
4	4	May 08/07
5	4	May 08/07
6	4	May 08/07
7	4	May 08/07
8	4	May 08/07
9	4	May 08/07
10	4	May 08/07
11	4	May 08/07
12	4	May 08/07
12	4	May 08/07
14	4	May 08/07
15	4	May 08/07
16	4	May 08/07
17	4	May 08/07

TABLE OF CONTENTS

1) DESCRIPTION

a) Part numbers 100-9750 and 100-9750N are portable hand held halon 1211 fire extinguishers for use in aircraft occupied spaces. Part numbers 200-9770 and B722538 are the brackets intended for use with these extinguishers when installed in aircraft. The brackets are not supplied with the fire extinguishers and must be ordered separately. Bracket part number 200-9770 is no longer available for new procurement but remains acceptable for use.

b) Canada (ULC) and US Coast Guard (USCG) approved. The extinguishers meet US DOT requirements of 49 CFR 173.309 and the provisions of FAA Advisory Circular AC 20-42C for aircraft occupied spaces. The extinguishers have a ULC 1-A, 5-B,C fire rating and are classified for use on the following three types of fires:

Ordinary combustibles like paper, wood and cloth

Flammable liquids like gas, oil and paint

Electrical equipment like computers, circuits and motors

c) The fire extinguishers consist of a welded steel cylinder, a pressure gauge and a machined aluminum valve assembly with a black steel handle. Extinguisher 100-9750 is fitted with a discharge hose assembly, and extinguisher 100-9750N is fitted with a discharge nozzle only. A pull-out pin and nylon pull-tite seal are fitted to the valve handle to prevent the fire extinguisher from being operated accidentally.

d) The extinguisher cylinders are filled with a liquid fire-extinguishing agent, Halon 1211 (Bromochlorodifluoromethane [$CBrClF_2$]). The cylinders are pressurized with nitrogen (N_2) to 100 PSI (689 KPA). The valve assembly is attached to the cylinder neck. The pressure gauge is attached to the valve body and continuously monitors the pressure inside the cylinder. The valve body provides a method to connect a recharge line to the fire extinguisher as well as to discharge the extinguishing agent. The hose assembly or nozzle, as applicable, are attached to the valve body.

e) The pressurized extinguishing agent is held inside the cylinder by the valve assembly until the lever is manually operated. When the valve is activated by removing pull-tite seal and the pull-out pin and squeezing the lever, the valve stem assembly inside the valve is pushed down and the nitrogen forces the extinguishing agent through the pickup tube, around the stem assembly, through the valve assembly and out the hose or nozzle.

2) OPERATION

a) To operate, hold the extinguisher upright and pull on the locking pin to break the nylon pull-tite seal. Ensure the pull pin is completely disengaged from the valve handle.

b) Stand at least 6 feet (2 meters) away from the fire and aim the discharge hose or nozzle at the base of the flames.

c) Hold the extinguisher firmly and squeeze the lever to discharge the extinguishing agent. Spray the agent using a sweeping side to side motion aimed at the near base of the fire.

d) After the fire is out, step back and watch for possible reignition.

e) Recharge the extinguisher immediately after use, regardless of the amount of extinguishing agent was used.

NOTE: At all times, care should be taken not to damage the operating labels (5)(5A) installed on the extinguishers. These labels are serialized ULC listed products that are not procurable as replacement parts. If the labels are damaged to the extent that they become illegible, the extinguisher must be removed from service.

3) SPECIFIED DATA

Extinguishing agent	Bromochlorodifluoromethane (Halon 1211)
Operating pressure	100 psi @ 70˚F (690 kPa @ 21˚C)
Test pressure	300 psi (2069 kPa)
Burst Pressure	600 psi @ 70˚F (4140 kPa @ 21˚C)
Ambient temperature range	-40 to + 120˚F (-40 to +49˚C)
Cylinder material	Welded steel
Cylinder finish	Red powder coat finish
Valve construction	Machined aluminum
Handle contruction	Black powder coated steel
Weight data	See Section 5
Agent weight	3.5 lb (1.59 kg)
Discharge time	10 – 12 sec
Range	10 – 12 ft
Fire rating	ULC 1-A, 5-BC
Bracket	Part No. 200-9770
Bracket	Part No. B722538 (Alternate for 200-9770)
Approx. overall depth	4.00 in. (with bracket)
Approx. overall width	7.00 in. (with bracket)
Approx. overall height	16.25 in. (with bracket)

4) RELATED PUBLICATIONS

a) The latest revisions of the following publications are considered part of this manual and specify the regulatory requirements for the maintenance, testing, inspection and handling of these extinguishers.

Compressed Gas Association (CGA) Pamphlet C-1

Compressed Gas Association (CGA) Pamphlet C-6.3

The National Fire Protection Association (NFPA) Standard for Portable Fire Extinguishers – NFPA-10

5) INSPECTION & MAINTENANCE

a) On extinguishers manufactured since November 1996, the month and year of manufacture can be found metal stamped on the valve body. The extinguisher maintenance schedule shall be based on the manufacturing date specified on the valve body.

b) On extinguishers manufactured prior to November 1996, the extinguisher maintenance schedule shall be based on the date the last 6 year or 12 year maintenance was performed (see below). If the last maintenance was correctly performed, the date of the last maintenance should be indicated on a label affixed to the extinguisher. In the event there is no label indicating the last maintenance carried out, the owner of the extinguisher will have to rely on their own maintenance records in order to determine a suitable maintenance schedule that complies with this manual and applicable regulations.

c) Perform a monthly visual inspection of the extinguisher to ensure that the unit is in good operating condition. This maintenance must be recorded, including the date of the inspection and the identity of the person performing the inspection. Inspection records shall be kept on a tag or lable attached to the extinguisher, on an inspection checklist maintained on file, or by an electronic method that provides a permanent record.

(1) Visually examine the cylinder for damage, dents, bulges, scratches, gouges, nicks, excessive corrosion, or evidence of repairs by soldering, welding, brazing or use of patching compounds. Cylinders that have bulges, dents, pitting or line corrosion, large amounts of general corrosion, evidence of fire damage or unauthorized repairs, or loss of wall thickness due to scratches, gouges, cuts, digs or nicks must be removed from service.

(2) Examine the valve for loose or damaged components. Repair or replace missing, loose or damaged components as necessary.

(3) Visually examine the valve assembly for cracks or other damage. Extinguishers with damaged valves must be removed from service and repaired.

(4) Verify valve to ensure all seals are intact, and that the pull pin is present and properly fitted. Replace or reattach as required.

(5) Visually examine the pressure gauge for damage, and verify that the pressure indicated is within operational limits. Replace damaged gauge or repair and recharge extinguisher, as applicable.

(6) Visually examine the hose or nozzle (as applicable) for damage or blockage. Clean or replace, a blocked or damaged hose or nozzle as required.

(7) Ensure the operating instruction label is intact, legible and facing outward when the extinguisher is installed in the bracket.

d) Once a year, the extinguisher must be weighed using calibrated high resolution scales to ensure the actual weight of the extinguisher (less bracket) is not below the minimum allowable weight specified on the instruction label. After the extinguisher is weighed, record the date the unit was weighed and the actual weight on a locally approved label or tag attached to the cylinder. Underweight units must be removed from service for repair and recharge.

NOTE: The only valid minimum allowable weight is the weight that is specified on the operating label affixed to the unit at the time of manufacture. Changes in the materials used for the manufacture of this extinguisher has resulted in changes to the empty weight of the extinguisher, which in turn has caused changes to the minimum allowable full weight. Only the minimum allowable weight specified on the original operating label correctly reflects the minimum weight requirements for a particular extinguisher.

e) Every six years, the extinguisher must be removed from service and subject to the six year maintenance requirements specified in NFPA-10 (The National Fire Protection Association Standard for Portable Fire Extinguishers). This maintenance shall be carried out in accordance with this manual and must include as a minimum the following:

(1) Expelling of the extinguishing agent into a closed recovery system and disassembly of the extinguisher (refer to Disassembly below).

(2) Inspection of all mechanical parts to ensure they are functional.

(3) Internal inspection of the cylinder for corrosion.

(4) Replacement of plunger assembly and cylinder neck o-ring.

(5) Recharging with correct amount and type of extinguishing agent.

(6) Affixing a locally approved label to the extinguisher identifying the maintenance carried out, the date and the name and location of the repair facility.

f) Every twelve years the extinguisher must be removed from service for hydrostatic (proof pressure) testing and requalification of the cylinder. The six year maintenance described above must also be performed at this time.

NOTE: Hydrostatic testing and maintenance shall only be performed by trained and appropriately authorized personnel familiar with the required procedures and safeguards, and who have suitable testing equipment, facilities and regulatory approvals to reliably and legitimately carry out the work

g) If monthly or yearly inspections determine a possible weakening of the cylinder integrity at any time before the next hydrostatic test is due, the extinguisher must be removed from service and hydrostatically tested prior to being returned to service.

h) The extinguisher may remain in service indefinitely provided the hydrostatic test requirements are complied with and completed successfully.

i) The equipment and procedures used for hydrostatic testing shall be in accordance with the requirements for proof pressure testing specified in CGA Pamphlet C-1.

6) DISASSEMBLY

a) Observe the pressure gauge to ensure the pressure in the cylinder has been reduced to zero before starting disassembly. Pressure should only be vented into an approved halon 1211 recycling or recharge/recovery system.

NOTE: Halon 1211 is a substance which harms public health and environment by destroying ozone in the upper atmosphere. As a result of the Montreal Protocol and environmental regulations, the release of halons into the atmosphere during maintenance of fire extinguishers has been banned. The servicing of this equipment should only be performed by facilities equipped with a halon closed recovery or recycling system. Recovered halon 1211 shall not be reused unless it has been recycled and/or shown to meet the purity requirements of MIL-DTL-38741.

b) Refer to the illustrated parts list at the back of this manual when servicing these extinguishers.

c) Disassemble the hose assembly or nozzle (25)(25A) from the valve body (15) by turning counterclockwise.

d) Remove the valve assembly from the cylinder (4) by turning counterclockwise.

e) Remove and discard the cylinder neck seal o-ring (8)(8A).

f) Unscrew the pickup tube (7) from the valve body by turning it counterclockwise.

g) To remove the plunger assembly (14)(14A), use a vise-grip type wrench. Squeeze and lock onto the leaf spring (17). Remove the leaf spring and push the plunger assembly down out of the valve assembly. Discard the used plunger assembly.

h) If required, turn the pressure gauge counterclockwise to remove it from the valve assembly.

i) Do not remove the operating labels (5)(5A) from the extinguisher. These are serialized ULC listed products that are not procurable as replacement parts. Only the extinguisher manufacturer is authorized to install these labels.

7) REPAIR

a) Repair of the detail parts of the fire extinguisher is not permitted. Repairs are limited to replacing defective items.

b) Clean all parts thoroughly prior to inspection and examine all moving mechanical parts for a free and/or unobstructed fit.

c) Replace all damaged or unserviceable components. Do not reuse o-rings or the plunger assembly. The plunger assembly and all o-rings must be replaced before reassembly.

8) ASSEMBLY

a) Refer to the illustrated parts list at the back of this manual when servicing these extinguishers.

b) Ensure all parts are thoroughly clean and dry before reassembling the extinguisher.

c) Lightly lubricate a new plunger assembly (14)(14A) at the o-ring (13) only, with a good quality silicon based o-ring lubricant such as Dow Corning DC-55.

d) Apply a light coat of o-ring lubricant to a new neck seal o-ring (8)(8A) and the threads of the valve body (15) where they will meet with the cylinder threads.

e) Insert the plunger assembly (14)(14A) into the valve body (15) and use the vise grip wrench to squeeze the leaf spring (17) and replace the leaf spring into the handle notch and into the plunger groove.

f) Squeeze the lever (19) to ensure proper working action.

g) Install the neck seal o-ring (8)(8A) onto the threaded portion of the valve body (15).

h) Rethread the pickup tube (7) into the valve body (15) in a clockwise rotation.

i) Thread the valve assembly into the cylinder (4) in a clockwise rotation. Hand tighten until snug and then tighten approximately 20 degrees more. Be careful not to rip, tear, or otherwise damage the neck seal o-ring (8)(8A) while tightening the valve assembly. Do not over torque the valve assembly.

j) Connect the pressure gauge (16) to a pressure source. Using a calibrated master gauge, apply 100 psi pressure. Ensure the pressure indicated by the pressure gauge (16) corresponds to the applied pressure as indicated by the master gauge. Replace the pressure gauge (16) if it does not correctly indicate the applied pressure.

k) Install the pressure gauge (16) into the valve assembly gauge port. Apply a thin layer of thread seal tape to the threads of the pressure gauge prior to installation, and thread it into the valve body (15) in a clockwise direction until hand tight. Tighten with a wrench until the end of the threaded portion of the gauge is flush with the inside surface of the valve body (approximately 3 to 4 turns).

l) The extinguisher is ready to be recharged at this point, before assembling the hose assembly or nozzle (25)(25A). Refer to recharge instructions.

9) RECHARGE INSTRUCTIONS

a) The recharging of these extinguishers should be performed only by qualified, experienced personnel with access to a closed halon recovery system. In order to prevent corrosion of the cylinder, ensure it is fully dry before recharging the extinguisher.

b) Check the extinguisher label for the correct weight of Halon 1211 agent, and for the proper recharging pressure prior to recharging.

c) Pressurize the Halon 1211 recharge tank to 100 PSI (689 KPA) with nitrogen through the gas inlet connection. Do not over pressurize. If several extinguishers are to be recharged at the same time, it will become necessary to add more nitrogen to keep the pressure at 100 PSI (689 KPA).

d) If the hose assembly or nozzle (25)(25A) are attached to the extinguisher, they must be removed prior to recharging the unit. Attach an appropriate charging adapter (3/8 -24 thread connection) to the hose/nozzle port.

e) Place the extinguisher on a calibrated high resolution scale and clamp the extinguisher valve open with a "U" clamp under the handle.

f) Fill the unit with the required weight of Halon 1211 and pressurize to 100 PSI (689 KPA) with nitrogen.

g) Lift and shake the extinguisher for at least 30 seconds to cause the nitrogen to be absorbed into the extinguishing agent and verify the pressure gauge (16) to ensure it shows the correct operating pressure.

h) If required, repeat steps (f) and (g) until the nitrogen is absorbed and the cylinder pressure becomes stable.

i) Vent any line pressure before removing the "U" clamp from the extinguisher valve.

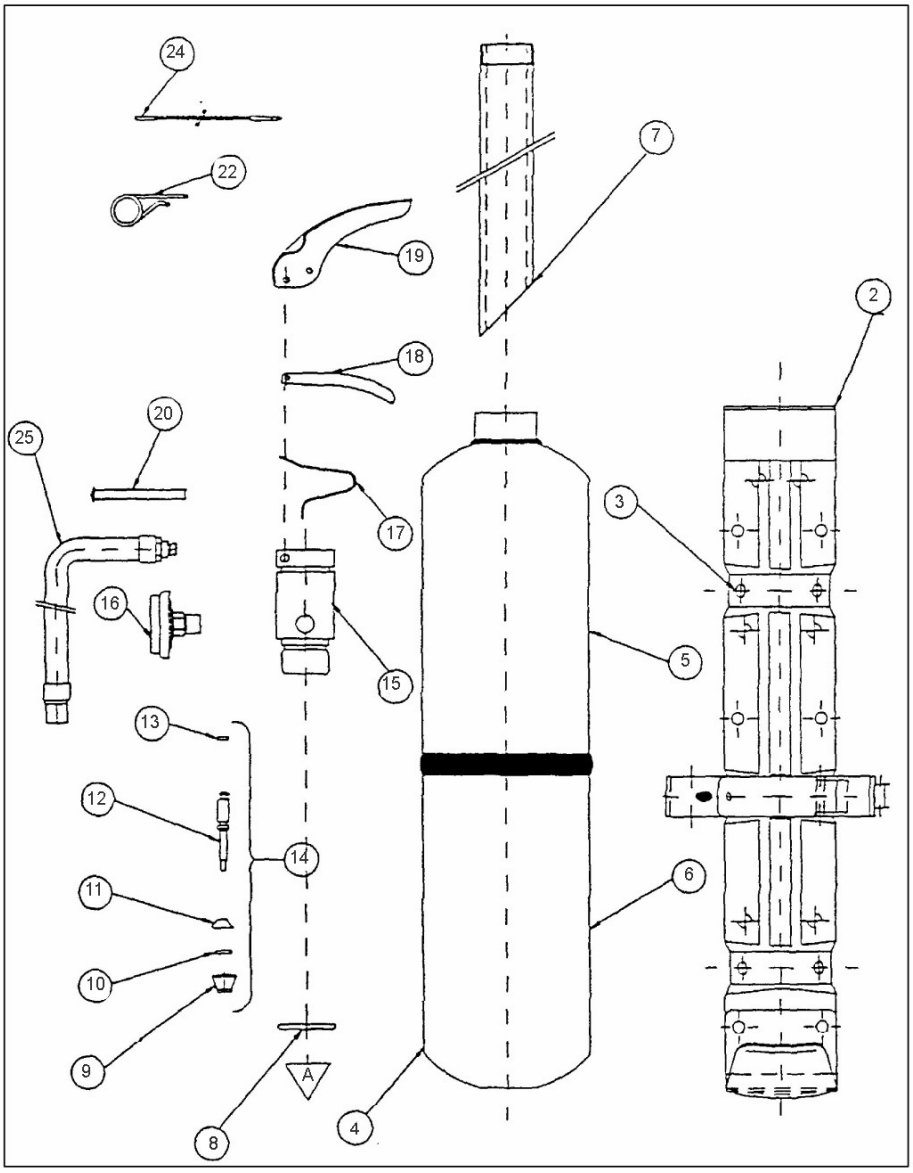
j) Remove the charging adapter and reinstall the hose assembly or nozzle (25)(25A).

k) After recharge is complete, apply a liquid leak detection compound onto all possible leakage points. No leakage is permitted.

l) Dry and thoroughly clean the extinguisher using a clean cloth and clean compressed air, ensuring no leak detection compound remains on the valve.

m) Install the pull pin (22) through the holes in the handle, and secure the pull pin with the nylon pull tite seal (24) before returning the extinguisher to service.

ILLUSTRATED PARTS LIST



ITEM	PART No.	REF. No.	DESCRIPTION	EFFECTIVE CODE	QTY. PER ASSY.
1	100-9750	552267	PORTABLE FIRE EXTINGUISHER	A	
1A	100-9750N	552268	PORTABLE FIRE EXTINGUISHER	B	
2	200-9770	551957	BRACKET (NOT PROCURABLE, ORDER ITEM 3)	A, B	NP
2A	400-10459	552707	. RUBBER GROMMETS		7
*3	B722538	-	BRACKET	A, B	1
*3A	4154	-	. RUBBER BUMPER		1
*3B	315-301	-	. RUBBER BUMPER		6
4	200-10940	551283	CYLINDER	A, B	NP
5	400-1909	552965	OPERATING LABEL, 100-9750	A	NP
*5A	400-1899	552979	OPERATING LABEL, 100-9750N	B	NP
6	400-11134	552966	WARNING LABEL	A, B	1
7	400-10465	552512	PICKUP TUBE	A, B	1
8	400-10364	551386	O-RING	A, B	1
*8A	0117.19357	-	O-RING (ALT. FOR P/N 400-10364)	A, B	1
9	400-10425	-	PLUNGER	A, B	NP
10	400-10367	-	O-RING	A, B	NP
11	400-10424	-	WASHER	A, B	NP
12	400-10468	-	STEM	A, B	NP
13	400-10365	-	O-RING	A, B	NP
14	200-11570	552972	PLUNGER ASSY	A, B	1
*14A	FVS1	-	PLUNGER ASSY (ALT. FOR P/N 200-11570)	A, B	1
15	400-10741	431013	VALVE BODY	A, B	1
16	400-10362	551428	GAUGE	A, B	1

17	400-10426	429162	LEAF SPRING	A, B	1
18	400-10784	551979	HANDLE	A, B	1
19	400-10785	552003	LEVER	A, B	1
20	400-10964	552016	RIVET	A, B	1
21	-	-	(DELETED)	-	-
22	400-11114	553005	PULL PIN, ANTI VIBRATION	A, B	1
23	-	-	(DELETED)	-	-
24	400-10349	025940	NYLON SEAL	A, B	1
25	200-9760	552970	HOSE ASSEMBLY	A	1
25A	400-1269	552982	NOZZLE	B	1
*26	200-13440	-	RECHARGE ADAPTOR	A, B	

* ITEM NOT SHOWN.