

EO 110-10-10

ROYAL CANADIAN AIR FORCE



AIRCRAFT HOSE

"REVISION"

NOTICE

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SUPERSEDE THE SAME
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Insert revised pages into basic
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LIST OF RCAF REVISIONS

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AIRCRAFT HOSE

INTRODUCTION

1 The purpose of this Engineering Order is to provide information regarding permitted types of aircraft hose and the restrictions governing installation and storage. This provides general service information relative to aircraft hose authorized for use on RCAF aircraft. Hose connections of special design or those on aircraft or engines which are peculiar to the indi-

vidual type are beyond the scope of this instruction and will be included in the relevant EO.

IDENTIFICATION

2 Aircraft hose properly marked at the time of manufacture can be readily and completely identified by code markings. All specification types will be marked with a broken and/or a solid line as detailed in Figure 1.

Spec.	Description	Marking per MIL-M-6002	End Connections	Fuel Systems	Oil and Coolant System	Water and Alcohol
MIL-H-8794 super- cedes MIL-H- 5511A AN-H-24	Medium High Pressure, Aromatic Resistant, non-self sealing. Rigid.	8794 or 5511, size number, date of manufacture in quarter of year, and manufacturer's code in yellow stripe.	Detachable MS-28740 to MIL-H-8795	Yes	Yes	Yes
MIL-H-5593A super- cedes AN-H-29	Low Pressure Non self-sealing Aromatic Resistant. Flexible.	Symbol "LP", size number, date of manufacture in quarter of year and year, and manufacturer's code symbol in yellow stripe.	Detachable AN 773	* Use for instrument lines only.	Do not use (Not designed to carry hot fluids)	Use for instrument lines only.
MIL-H-6000 super- cedes AN-H-35	Medium pressure. Non self-sealing. Aromatic and High Temperature. Resistant but not Flame Resistant.	Manufacturers symbol in red stripe. Size, date of manufacture in quarter year and MIL-H-6000 in white stripe.	Hose Clamps AN-C-140 Drawings AND10058 AND10060 AN 840	Use when self-sealing or flame resistant qualities are not required.	Use when flame resistant qualities are not required.	Use when flame resistant qualities are not required.

* Do not use on high pressure Jet Engine Fuel Systems.

Figure 1

3 The manufacturer's symbols are as detailed below as per IQCI-12/56 dated 19 Oct 56 and ANA Bulletin #298c dated 7 Apr 56.

CANADIAN MANUFACTURE

Name of Manufacturer	Code Symbol
Dominion Rubber Company 550 Papineau Ave., Montreal, PQ	DOM
B. F. Goodrich Co. Kitchener, Ont.	BFG
Goodyear Tire & Rubber Co. Bowmanville, Ont.	GDR
Gutta Percha & Rubber Ltd. 114 O'Hara Ave., Toronto Ont.	GTA

US MANUFACTURE

Name of Manufacturer	Former Marking		New Marking
	Symbols		
	Dots	Dashes	
Dominion Rubber Company	2	2	..--
Electric Hose & Rubber Company	2	1	..-
Gates Rubber Company	1	None	.-
B. F. Goodrich Company	1	1	.-
Goodyear Tire & Rubber Company	4	1-
Gutta Percha Company	None	None-
Hewitt Rubber Company	1	3
Quaker Rubber Corporation	6	1-
Raybestos-Manhattan Inc.	5	1-
Republic Rubber Company	1	2	.-
Resistoflex Corporation	None	1	-
U. S. Rubber Company	3	1-

NOTE

The inclusion of a manufacturer in the above list does not necessarily indicate that their hose has RCAF approval, see para. 19. Occasionally hose bearing the symbol of one of these manufacturers may prove defective or unsatisfactory for a specific use, in which case instructions will be issued to that effect.

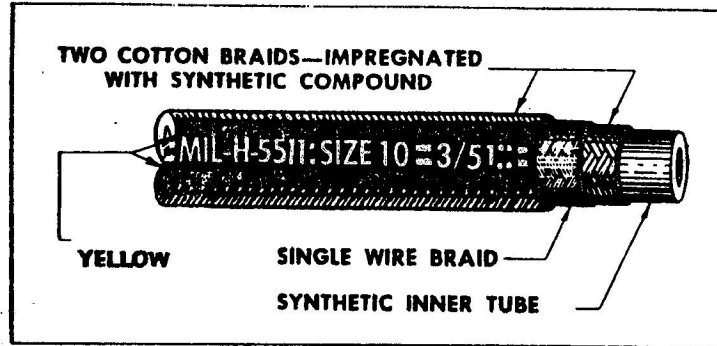


Figure 2 Medium High Pressure Aromatic Resistant, Non Self-Sealing Specification MIL-H-8794

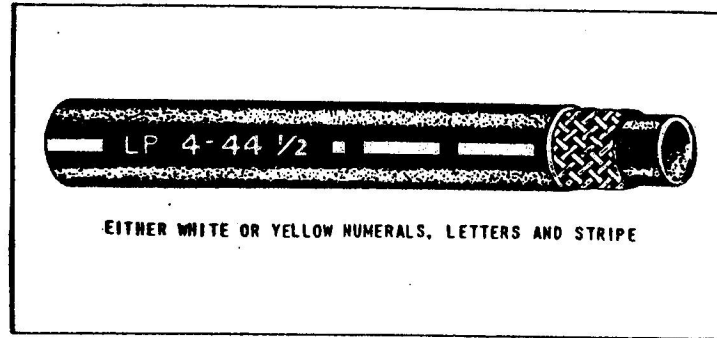


Figure 3 Non Self-Sealing, Aromatic Resistant, Low Pressure, Specification MIL-H-5593A

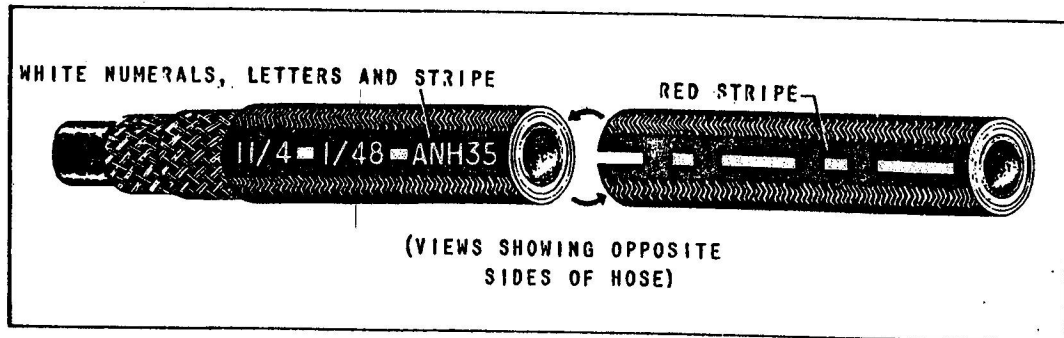


Figure 4 Medium Pressure, Non Self-Sealing, Aromatic, High Temperature Resistant Specification MIL-H-6000

LIFE OF HOSE

4 For shelf life of hose refer to EO 00-35-1 Part 5.

INSTALLATION

5 Oil or water may be used as an aid to installation on all types of aircraft hose except as detailed below:-

(a) Oil or water are never to be used when installing self-sealing hose.

(b) Oil is never to be used when installing oxygen lines.

BENDS

6 When bends are required in installing hose, minimum radii to be maintained are as follows:-

TYPE	SIZE	CORRECT RADII
MIL-H-5593A MIL-H-8794	All Up to and including - 6	R = 12 x ID R = 8 x OD
MIL-H-6000	Larger than - 6 All	R = 5 x OD R = 12 x ID

7 When hose is installed through holes or brackets and when supporting clips are used the diameter of the hose is not to be reduced. Reduction or diameter may restrict flow and/or damage hose.

8 Hose is to be supported at least every twenty-four inches, with closer supports being preferable.

9 Chafing is to be avoided by the use of suitable bulkhead type grommets or clips and by providing adequate clearance. Adjacent lines are not to be clipped or connected together unless adequate clearance is provided.

10 Flame resistant hose is preferred forward of the firewall and is directed by EO's

on certain aircraft. Flame resistant hose will also be used near exhaust blasts, super-charger ducts and other locations where high temperatures are encountered, although such installations should be re-routed wherever possible.

11 Connections using hose clamps to the engine or engine mounted accessories are to be installed so that 1-1/2" of slack or an adequate bend is provided (where length permits) after the last point of support to prevent the possibility of disconnection due to engine movement.

12 Hose connected to the engine by a hose clamp combination is to be firmly supported in a manner to relieve vibrational or torsional strain on the connection. Whenever possible the support is to be placed approximately 3" from the engine connection.

INSPECTION , INSTALLED HOSE

13 Hose installed on aircraft is to be inspected in accordance with the relevant Maintenance Schedule (-7 of the relevant EO).

14 Hoses are to be replaced when any deterioration is evident. Deterioration may be determined by ply (cover, braid or tube) separation, excessive "cold flow" hardening, lack of flexibility, collapse of hose, etc.

(a) Hose constructed of synthetic compound is subject to "cold flow" and has a tendency to creep; therefore, new hose is to be inspected daily until creep ceases and thereafter on minor inspections. "Cold flow or creep is indicated by deep permanent impressions and cracks in the tube or cover stock, produced by the pressure of the hose clamp and chafing of the bead of the nipple. Some hose connections tend to flare at the ends beyond the clamp; this is not an unsatisfactory condition, nor is it an indication of leakage.

(b) Hardening and lack of flexibility is determined by squeezing the hose.

(c) Collapse is due to bends or misalignment of lines and fittings.

15 All hose forward of the firewall is to be inspected at every engine change and defective hose replaced.

16 When fuel hose is placed in service, the gasoline has a tendency to extract the plasticizer from the inner-lining rubber of the hose. This extraction of the plasticizer is not detrimental as long as gasoline remains in the hose, inasmuch as the gasoline itself will act as a suitable plasticizer. If the gasoline is drained from the line and the line permitted to remain dry, the plasticizer effect is lost and the innerliner of the hose begins to dry out and subsequent cracking will occur. Storage instructions in other Engineering Orders provide for oiling fuel lines of aircraft placed in storage. If it is found that the fuel hose on any aircraft removed from storage has been without fuel or oil, the hose will be removed and inspected for inward cracking. Inspection can be made by pressing the hose between the fingers, thus widening any cracks which may be present. The absence of cracks in both ends as far in as can be seen will be an indication that the entire length is satisfactory internally.

17 Hose will be replaced when peeling or flaking of the hose cover results in exposure of the fabric re-inforcement, or when weather checks are deep or wide enough to expose fabric when the walls are flattened together.

18 Weather checking at the end of the hose (radial cracks), to a depth in excess of 1/8", render the hose unserviceable.

QUALIFICATION STATUS

19 Interim Quality Control Instruction, IQCI-3/56 provides information on the approval status of aircraft hose, and states receipt testing requirements for imported hose.

SHIPPING AND STORAGE

20 Hose packaged in straight lengths is to be retained in the carton during storage.

21 Hose except MIL-H-8794 received in coils, for stock or storage, is to be unrolled and stored in straight lengths and is to be reshipped in straight 10 or 12 foot lengths.

22 All hose containers are to be clearly marked to indicate size, type and quantity contained therein.

23 Cut lengths of hose up to 6" will be stored in closed containers to prevent contamination and deterioration.

24 Under no circumstances is hose to be piled to a height which will result in distortion and damage to the lower lengths. This precaution is also applicable to hose in cartons.

