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Service Bulletin SB-12

December 12, 2023

Procedures specified in this service bulletin must be accomplished in accordance with accepted methods of aircraft maintenance and applicable government regulations. Appropriate log book entries must be made.

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I. SUBJECT

This Mandatory Service Bulletin addresses a potential failure condition of the outlet fitting on McFarlane Aviation, LLC. (McFarlane) produced, MC0513120 series Fuel Selector Valves used in various Cessna 170, 172, 175, and 177 series aircraft. The failure condition presents itself on valves that have been overhauled, or otherwise reassembled, since the original assembly by McFarlane and have had excessive torque applied to the outlet fitting.

II. BACKGROUND

It was discovered by McFarlane that the outlet fitting on these fuel selector valves could potentially deform or crack when assembled multiple times. An investigation revealed this was due to an oversized O-ring used in the outlet port and high torque assembly requirements which led to excessive stress being placed on the outlet fitting. This risk only appears after removal and reinstallation of the same outlet fitting using the same high torque values (22-24 ft-lbs), such as during overhauls or other service operations on the valve itself. The investigation did not reveal any risk to valves that have only undergone their original assembly by McFarlane before installation. This service bulletin affects all MC0513120 series valves released before November 1, 2023.

III. AFFECTED AIRCRAFT

The aircraft affected by this service bulletin are as follows:

Series	Model	Serial Number Range
170	170B	20286 thru 27169
172	172	All
	172A	All
	172B	All
	172C	All
	172D	All
	172E	All
	172F (T-41A)	All
	172G	All
	172H (T-41A)	All
	172I	All
	172K	All
	172L	All
	172M	17260759 thru 17267584
	F172D	All
	F172E	All
	F172F	All
	F172G	All
	F172H	F172-0320 thru F172-0654
	F172H	F17200655 thru F17200754
	F172K	All
	F172L	All
	F172M	F17200905 thru F17201514
	FP172	All
	FR172E	All
	FR172F	All
	FR172G	All
	FR172H	All

Series	Model	Serial Number Range
172 Cont.	FR172J	FR17200351 thru FR17200590
	FR172K	All
	P172D	All
	R172E (T-41B, C, D)	All
	R172F (T-41D)	All
	R172G (T-41C, D)	All
	R172H	All
	R172K	All
175	175	All
	175A	All
	175B	All
	175C	All
177	177	All
	177A	All
	177B	All

IV. AFFECTED PARTS

The parts affected by this service bulletin are as follows:

Valve Part Number	Lot Number
MC0513120-5	53113
	54463
	55862
	61199
	64142
	64937
	70108
	70997
	73499
	75810
	76524*
MC0513120-6	53114
	58951
	62825
	66692
	67722
	69919
	70109
	70998
	73664
	74381
	78080*
MC0513120-8	53115
	54412
	54464
	58746
	58840
	59750

Valve Part Number	Lot Number
MC0513120-8 Cont.	60240
	61053
	62477
	64884
	65368
	65684
	65777
	65845
	65944
	66800
	70106
	70224
	73258
	73283
	73665
	73934-1
	74934
MC0513120-9	76804
	77992
	79352*
MC0513120-9	53116
	58858
	70999*
MC0513120-200	53117
	58883
	62051
	70111
	71604*

*Does not apply to lots 76524-1, 78080-1, 79352-1, 70999-1, or 71604-1

V. IDENTIFICATION METHODS

The affected Fuel Selector Valves include any released from McFarlane before November 1, 2023. Specific lot numbers of affected Valves are listed in Section IV.

Lot numbers can be found on the body of the valve, opposite the outlet port, in the area shown in Figure 1 below. Lot numbers are either laser engraved on the body or printed on a polyester label.

Aircraft with an affected Fuel Selector Valve must have the log book checked for any record of overhaul or service to the valve as this may affect the required service time as detailed in Section VI below.

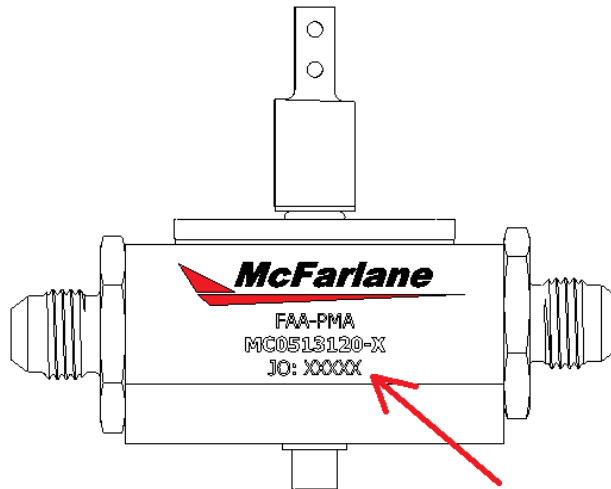


Figure 1: MC0513120 series valve showing part marking location. Arrow specifically points to location of lot number.

VI. COMPLIANCE

Compliance with this service bulletin is **mandatory** for all valves with lots listed in Section IV of this service bulletin. Required service times for these valves are dependent on the valve's service history as listed below.

Valves with no history of outlet port removal

For valves that have only undergone their original assembly by McFarlane, replacement of the outlet fitting and O-ring is **mandatory** before, or during, the next required overhaul or service of the fuel selector valve.

Valves with history of outlet port removal

For valves that have a history of the outlet port being removed and reinstalled, such as during an overhaul or other service to the valve, replacement of the outlet fitting and O-ring is **mandatory** and must be completed within the next 10 hours time-in-service (TIS) or within the next 3 months, whichever comes first.

Valves with no history of installation

For any fuel selector valves with a lot number listed in Section IV that have never been installed on an aircraft, it is **mandatory** to return the valve to McFarlane for exchange before installation.

VII. ACCOMPLISHMENT INSTRUCTIONS

A. Repair Material Information

All fuel valves will require one (1) new outlet fitting and one (1) new outlet O-ring. (See Figure 2). These components are part of the relevant McFarlane service kit.

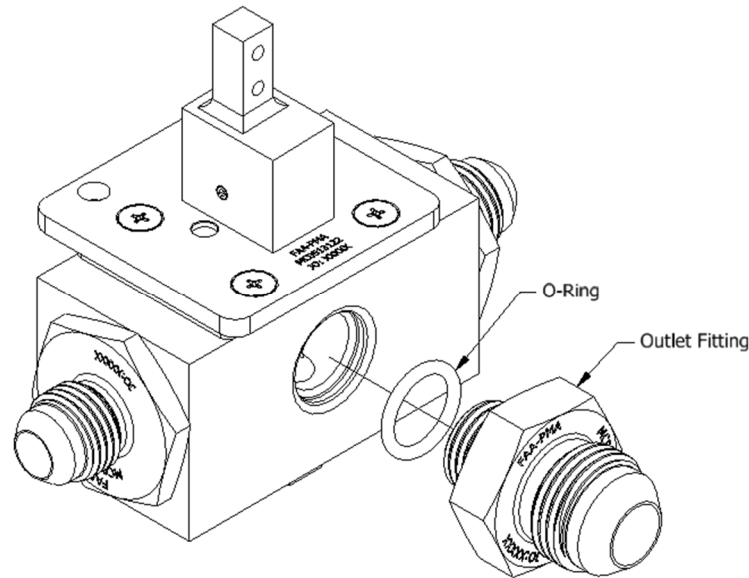


Figure 2: MC0513120 series Fuel Selector Valve w/ Outlet Fitting and O-ring

All repaired valves must use an MCM83248/2-906 O-ring for the outlet port. For the outlet fitting, use the table below to confirm the correct outlet fitting P/N for the repair of your Fuel Selector Valve:

Valve P/N	Outlet Fitting P/N	Service Kit
MC0513120-5	MC0513126	SB12-KT-1
MC0513120-6	MC0513126-1	SB12-KT-2
MC0513120-8	MC0513126-1	
MC0513120-9	MC0513126-1	
MC0513120-200	MC0513126-1	

B. Outlet Fitting Removal and Replacement.

Remove the fuel selector valve from the aircraft in the manner listed in your Cessna maintenance manual. (Outlet fitting may be replaced without valve removal if there is enough space in the aircraft. See Section C below) Replace the outlet fitting in the order described below:

NOTE: Ensure all safety precautions for an open fuel system are followed until repair is complete and valve is reinstalled.

1. Remove all safety wire from the outlet fitting.
2. Remove the old fuel outlet fitting from the valve body and discard the old O-ring.
3. Destroy the old outlet fitting in a manner that prevents future use (EX: damaging the threads, drilling into the fitting body, etc.). **NOTE:** Record of destruction is required for compliance with this service bulletin.
4. Clean and inspect outlet threads on valve body for any gouges, scratches, burrs, or defects that could affect proper sealing.
5. Lubricate the new outlet O-ring (P/N: MCM83248/2-906) with aviation motor oil (SAE Standard J1899 or equivalent)
6. Slide new outlet O-ring around threaded end of the new fitting until making contact with the wrench flats.
7. Lubricate new outlet fitting threads with a thin coat of general purpose grease to prevent galling.
8. Thread new outlet fitting into the valve body and tighten until sealed (Torque fitting to 13-14 ft-lbs. or 156-168 in-lbs.)
9. Resecure drain plug to outlet fitting with .021", or larger, safety wire.

C. Alternate Means of Compliance

Compliance with this service bulletin may alternatively be accomplished through the following methods:

1. The outlet fitting replacement may be performed without removing the fuel selector valve from the aircraft, as long as there is enough room in the aircraft to correctly perform all steps listed in Section B above. In these instances, the outlet fuel line should be removed and the fuel shut off before beginning the replacement.
2. Any fuel selector valve affected by this service bulletin may be returned to McFarlane for service and fitting replacement. A record of this service from McFarlane must be kept with the aircraft log book and must show the date of service occurring after November 1, 2023.

D. Return to Service

1. Reinstall fuel selector valve to the aircraft in the same manner it was removed.
2. Perform a functional leak check at all four valve positions: "RIGHT", "LEFT", "BOTH" and "OFF". Inspect the fittings and fuel lines for any signs of leaking. Correct any leaks if discovered.
3. Make an entry in the aircraft log book that states compliance with this service bulletin.

VIII. MATERIAL PRICE AND AVAILABILITY

Outlet fittings MC051316 and MC051316-1, as well as O-Ring MCM83248/2-906, are available from McFarlane and will be provided free of charge to customers with affected valves.

IX. CREDIT INFORMATION

McFarlane will issue a replacement outlet fitting and new outlet O-ring at no cost to any customer with a fuel selector valve listed in Section IV.

For aircraft with valves requiring repair within the next 10 hours time-in-service (TIS) or the next 3 months, a service credit will be allocated for labor costs for compliance with this service bulletin. (Please contact the McFarlane Sales department for the authorized credit amount for this service bulletin.) To receive credit for compliance, the following will need to be provided:

- Aircraft N-number, model, and serial number
- Copy of aircraft maintenance record entry showing compliance with this service bulletin, the lot number of the affected valve, and the date of service.
- Either return of the old, original outlet fitting to McFarlane, OR sufficient evidence of its destruction, preventing reuse.
- Total cost of the replacement; including labor hours, materials, and other related costs.

For valves that are returned to McFarlane for service in compliance with this service bulletin, McFarlane will cover all related shipping, material, and McFarlane labor costs.

X. DISTRIBUTION

This service bulletin has been distributed to all customers for whom McFarlane has sales records indicating the purchase of affected parts. All McFarlane service bulletins may also be found at www.mcfarlaneaviation.com. Please forward this urgent information to the current owner or operator of the affected aircraft. For further information or questions call (800) 544-8594 or (785) 594-2741. All persons are free to copy this bulletin if it is copied in its entirety with no alterations or additions.