# SERVICE BULLETIN NO. 0005 Rev B 

**Cub Crafters, Inc. Considers Compliance Mandatory** August 03, 2010
The parts of this Service Bulletin that change the Type Design of the aircraft have been approved by the FAA.

**SUBJECT:** Installation of Fuel Vent Check Valves

**MODELS AFFECTED:** CC18A serial number 0001
CC18-180 serial numbers 0002 through 0013, and 0016

**COMPLIANCE TIME:** Within the next 100 hours or annual inspection, whichever occurs first.

**PURPOSE:** Cub Crafters, Inc. has developed a Fuel Vent Check Valve to prevent fuel draining from the fuel vent lines during non-level uncoordinated flight or when the aircraft is parked on a slope.

**EFFECTIVE DATE:** Revision A approval date January 05, 2006.
Revision B approval date August 03, 2010.

**REVISION INFORMATION:** Compliance with earlier revisions is still acceptable. Revision B adds an updated check valve (VP7011-001). If the check valve is functioning properly, there is no need to upgrade to Revision B.

**MATERIALS REQUIRED:**

| Part Number | Description | Qty |
|---|---|---|
| VP7011-001 (preferred)<br>TC7032-001 (alternate) | Fuel Vent Check Valve | 2 |
| AN818-4D | Nut, Tube Coupling, short | 2 |
| AN819-4D | Sleeve, Coupling | 2 |
| RM6032-001 (not provided) | Fuel and Oil system Lubricant (MIL-G-6032D) | As required |

**INSTRUCTIONS:**

### Both Options:

1. Drain fuel from the fuel tanks until they are each less than ¾ full. This may be accomplished either through the drain valve on each tank or by using the strainer on the gascolator just forward of the engine firewall.
2. Remove the fuel tank cover from each wing and locate the tee fittings (1 per fuel tank part numbers TC7100-001 and TC7100-002) on the fuel vent lines; the tees are located on the forward, outboard side of the fuel tank.
3. Relocation of the through hole in the wing rib outboard of the fuel tank may be necessary. If necessary relocate the hole as follows: **Do not relocate hole if new hole and existing hole intersect. If holes do contact Cub Crafters for assistance.*
    1. Insert an 11/64 (.172) drill bit into the vent side AN male nipple of tee fitting (nipple opposite NPT nipple).
    2. Insert tee fitting in its original position in fuel tank until hand tight.
    3. Slide drill bit outboard until the drill bit contacts the wing rib.
    4. Rotate drill bit by hand to mark the rib.

5. Remove tee fitting and drill bit.
6. Remove drill bit from tee fitting.
7. Drill hole in rib with #30 drill (.1285)
8. Open hole to 13/32 – 27/64 (.406-.422) with a step drill.
9. Deburr hole.
10. Relocate rubber grommet to new hole.
11. Relocate vent line to new hole after cutting flare and before flaring.

### Option 1 (TC7032-001 Check Valve):

1. Remove fuel tank vent lines from the tee fittings and clean the threads on both parts see Figure 1.
2. Apply a fuel system lubricant that meets MIL-G-6032D (Cub Crafters P/N RM6032-001) on the male threads of each tee fitting.
3. Install 1 each Fuel Vent Check Valve (P/N TC7032-001) on each tee fitting. See Figure 1.
4. It will be necessary to adjust the length of the fuel vent lines to accommodate the Fuel Vent Check Valve. To do this, slide the AN fitting nuts and sleeves outboard as far as possible and cut the vent tubes as close to the existing flares as possible. Determine the correct length of the vent line, cut and flare the vent tubes per MS33584 or SAE-AS4330, see Appendix A. The vent line tubes may need to be reformed to mate with the vent check valves. Modify and shape the vent line tubes as necessary by hand or with a tube bender. No kinks are allowed in the tube during the forming. Exercise caution during the modification to prevent damage to the fuel tank.
5. Ensure that the inside of the fuel vent lines are clean before connecting the fuel vent lines to the check valves.
6. Apply a fuel system lubricant on the male threads of check valves.

### Option 2 (VP7011-001 Check Valve):

1. Cut fuel vent line mid-way between the wing ribs and trim to accommodate fuel check valve (VP7011-001). See Figure 2.
2. Install sleeve (AN819-4D) and nut (AN818-4D) onto each trimmed end and flare the tubes per MS33584 or SAE-AS4330, see Appendix A. The vent line tubes may need to be reformed to mate with the vent check valves. Modify and shape the vent line tubes as necessary by hand or with a tube bender. No kinks are allowed in the tube during the forming. Exercise caution during the modification to prevent damage to the fuel tank.
3. Ensure that the inside of the fuel vent lines are clean before connecting the fuel vent lines to the check valves.
4. Apply a fuel system lubricant on the male threads of check valves.

### Both Options:

1. Connect the vent line to the check valve and tighten the AN nut(s) to 132-144 in-lbs.
2. Install and secure the fuel tank covers.
3. Perform an engine run check to verify the fuel flow in each fuel selector position.
4. Record this modification in the aircraft's logbook.

**Cub Crafters, Inc. Considers Compliance Mandatory** August 03, 2010
The parts of this Service Bulletin that change the Type Design of the aircraft have been approved by the FAA.

If you are not longer in possession of this aircraft, please forward this information to the present owner/operator and notify Cub Crafters, Inc. of the address of the current owner, address to:

Cub Crafters, Inc.
1918 S. 16th Avenue,
Yakima, WA 98903.

Please include the aircraft registration number, serial number, current name and address of the owner and/or operator.

**Cub Crafters, Inc. Considers Compliance Mandatory** August 03, 2010
The parts of this Service Bulletin that change the Type Design of the aircraft have been approved by the FAA.

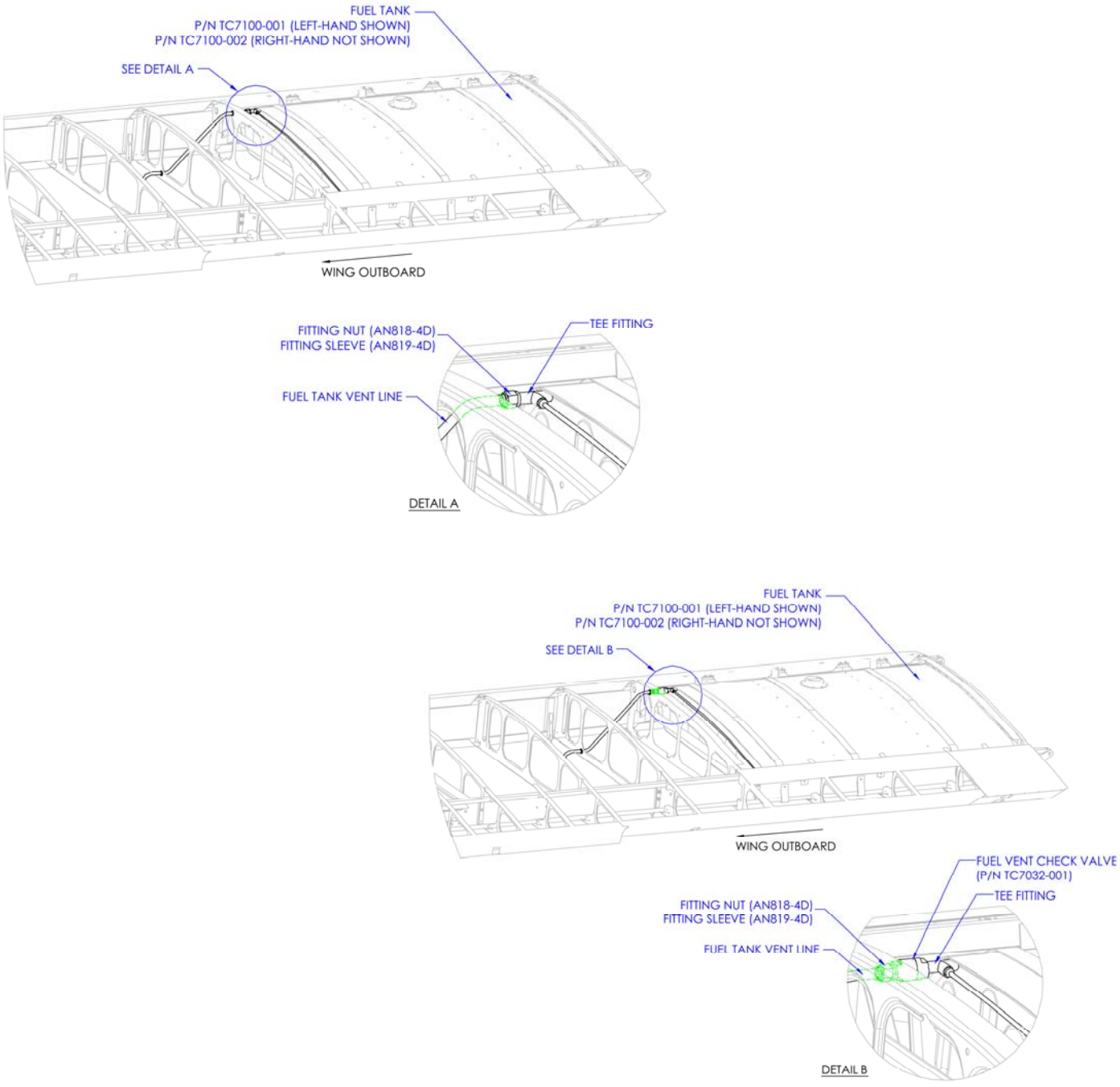


**FIGURE 1: Option 1 Fuel Vent System (Left Wing Shown)**

**Cub Crafters, Inc. Considers Compliance Mandatory** August 03, 2010
The parts of this Service Bulletin that change the Type Design of the aircraft have been approved by the FAA.

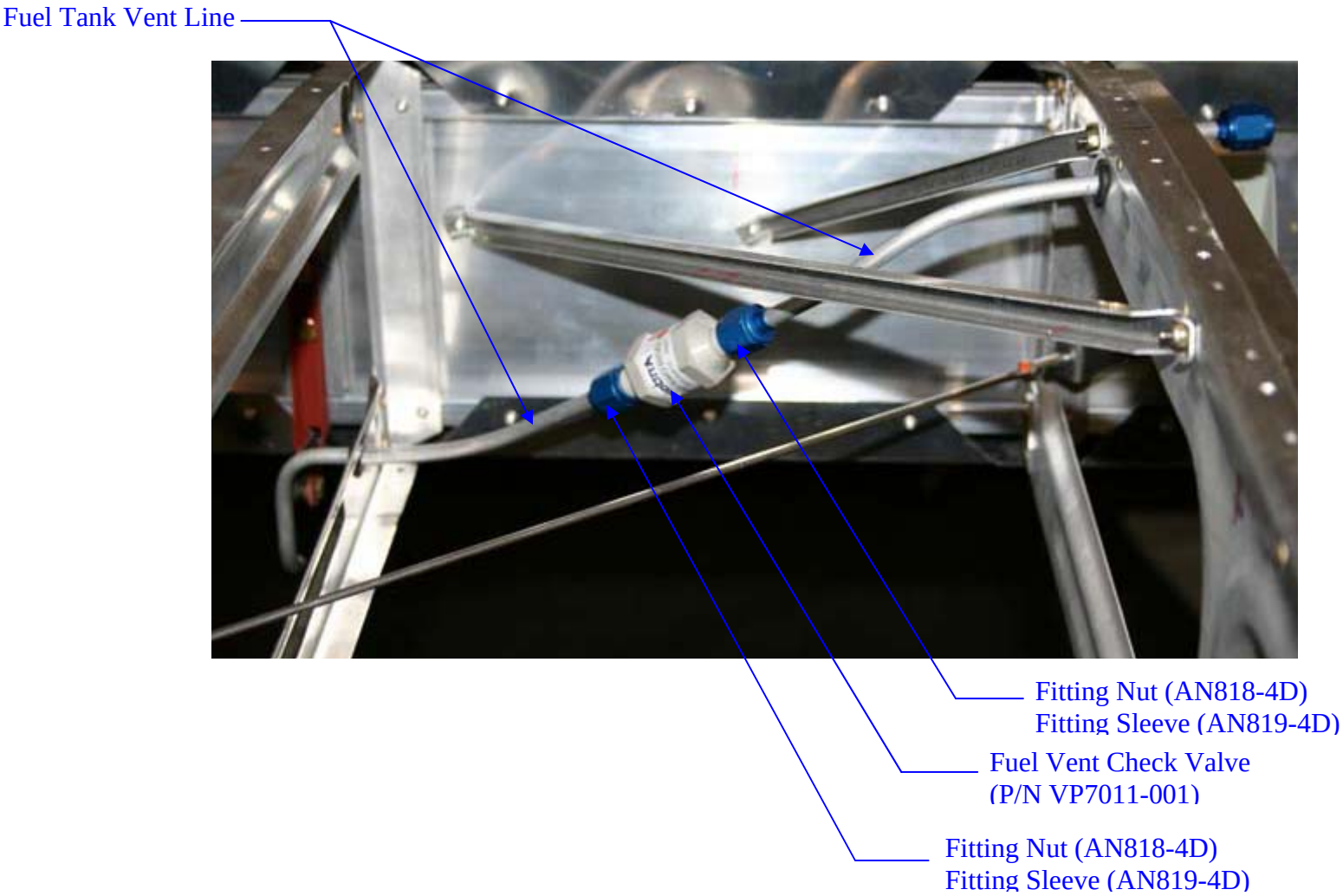


**FIGURE 2: Option 2 Fuel Vent System (Left Wing Shown)**

**Cub Crafters, Inc. Considers Compliance Mandatory** August 03, 2010
The parts of this Service Bulletin that change the Type Design of the aircraft have been approved by the FAA.

## APPENDIX A: MS33584 Tubing End Standard Dimensions for Flared

Form approved
OMB No. 0704-0188

THE REQUIREMENTS FOR ACQUIRING THE PRODUCT(S) DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DODISS SPECIFIED IN THE SOLICITATION: NONE

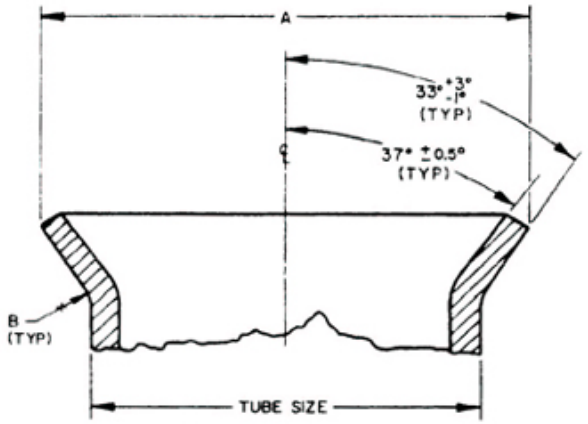


TABLE I. DIMENSIONS DATA.

| TUBE SIZE NOMINAL OD | A DIA | | B RAD ±.010 |
|---|---|---|---|
| 0.125 | .200 | +.000 -.010 | .032 |
| 0.188 | .302 | | |
| 0.250 | .359 | | |
| 0.313 | .421 | | |
| 0.375 | .484 | | .046 |
| 0.500 | .656 | | .062 |
| 0.625 | .781 | | |
| 0.750 | .937 | | .078 |
| 1.000 | 1.187 | +.000 -.015 | .093 |
| 1.250 | 1.500 | | |
| 1.500 | 1.721 | | .109 |
| 1.750 | 2.106 | | |
| 2.000 | 2.356 | | |
| 2.500 | 2.856 | | |
| 3.000 | 3.356 | | |

© ENTIRE STANDARD REVISED

DESIGN STANDARD

PREPARING ACTIVITY NAVY - AS
CUSTODIANS ARMY - AV NAVY - AIR FORCE - 99
REVIEW AF - 71, 82, ARMY - AR, ME, MI, DLA - CS
USER ARMY - AT, MAR CORPS - MC
PROJECT NUMBER 4730-0020

MILITARY SPECIFICATION SHEET

TITLE
TUBING END STANDARD DIMENSIONS FOR FLARED

SPECIFICATION SHEET NUMBER
MS33584C 17 DEC 90
SUPERSEDING
MS33584B 9 DEC 1960
AMSC - N/A FSC 4730

SPECIFICATION IS APPROVED FOR USE L DEPARTMENTS AND AGENCIES OF THE RTMENT OF DEFENSE.

**Cub Crafters, Inc. Considers Compliance Mandatory** August 03, 2010

The parts of this Service Bulletin that change the Type Design of the aircraft have been approved by the FAA.

THE REQUIREMENTS FOR ACQUIRING THE PRODUCT(S) DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE ISSUE OF THE FOLLOWING SPECIFICATION LISTED IN THAT ISSUE OF THE DODISS SPECIFIED IN THE SOLICITATION NONE

SPECIFICATION IS APPROVED FOR USE L DEPARTMENTS AND AGENCIES OF THE RTMENT OF DEFENSE.

Form approved
OMB No. 0704-0188

NOTES:

1. DIMENSIONS ARE IN INCHES.
2. FLARE SHALL BE SQUARE WITH CENTERLINE OF TUBE WITHIN 0.5° FOR THE DISTANCE COVERED BY THE LENGTH OF THE MS20819 SLEEVE.
3. THE CIRCULAR RUNOUT BETWEEN THE INNER AND OUTER SURFACES OF THE FLARE SHALL NOT EXCEED .005 FULL INDICATOR MOVEMENT (F.I.M.) WITH THE TUBING O.D.
4. THE SEALING SURFACE SHALL BE FREE OF PIT MARKS, RADIAL OR LONGITUDINAL SCRATCHES AND INDENTATIONS. FLARE SEALING SURFACE SHALL NOT EXCEED 32 MICROINCHES Ra PER ANSI/ASME B46.1.
5. THIS STANDARD IS FOR USE WITH FLARED TUBE FITTINGS SPECIFICATION MIL-F-5509.
6. IN THE EVENT OF A CONFLICT BETWEEN THE TEXT OF THIS STANDARD AND THE REFERENCES CITED HEREIN, THE TEXT OF THIS STANDARD SHALL TAKE PRECEDENCE.
7. REFERENCED GOVERNMENT (OR NON-GOVERNMENT) DOCUMENTS OF THIS ISSUE LISTED IN THAT ISSUE OF THE DEPARTMENT OF DEFENSE INDEX OF SPECIFICATIONS AND STANDARDS (DoDISS) SPECIFIED IN THE SOLICITATION FORM A PART OF THIS STANDARD TO THE EXTENT SPECIFIED HEREIN.
8. THIS IS A DESIGN STANDARD, NOT TO BE USED AS A PART NUMBER.
9. RECOMMENDED BURNISHING THE FLARED END OF THE TUBE DURING INSTALLATION IF NECESSARY.

© ENTIRE STANDARD REVISED

| | | |
|---|---|---|
| PREPARING ACTIVITY: NAVY - AS<br>CUSTODIANS: ARMY - AV NAVY -<br>AIR FORCE - 99<br>REVIEW: USAF - 71, 82 ARMY - AR, ME, MI, DLA - CS<br>USER: ARMY - AT, MAR CORPS - MC<br>PROJECT NUMBER: 4730 - 0020 | MILITARY SPECIFICATION SHEET<br>TITLE<br>TUBING END<br>STANDARD DIMENSIONS FOR FLARED | SPECIFICATION SHEET NUMBER<br>MS33584C 17 DEC 90<br>SUPERSEDING<br>MS33584B 9 DEC 196<br>AMSC N/A FSC 4730 |