

MANDATORY SERVICE BULLETIN

NUMBER: SB11-05
REVISION: 00
DATE: 06/08/2011

SUBJECT: ENGINE DRAIN LINE MODIFICATION

EFFECTIVITY:

KODIAK 100 Series Aircraft Serial Numbers: 100-0001 through 100-0047, 100-0049, 100-0050, and 100-0052

SUMMARY:

Quest is mandating a one time modification to the engine drain lines. It has been found through company testing that the engine drain lines in their current configuration have the potential to allow fuel to flow back into the Fuel Control Unit (FCU) through the FCU/Fuel Pump Seepage Drain Port. The change described within this Service Bulletin reroutes several engine drain lines.

ACTION:

Quest is mandating a one time modification to the engine drain line routing as outlined in **Figure 1-1**.

COMPLIANCE:

This Service Bulletin must be completed within 10 flight hours of the receipt of this Service Bulletin and parts.

LOG OF CHANGES:

| Revision: | Date: | Description of Change: |
|-----------|------------|------------------------|
| 00 | 06/08/2011 | Initial Release |

ATTACHED DOCUMENTS:

| Document #: | Date: | Document Title: |
|-------------|-------|-----------------|
| N/A | N/A | N/A |

PARTS, TOOLS, AND EQUIPMENT:

The parts, tools and equipment listed below are needed in order to complete the instructions contained within.

Parts and Tools included in this Service Bulletin:

| Item | Quantity | Part Number | Description |
|------|----------|--------------|--|
| 1 | 1 | MS21919WDG14 | Cushioned Loop Clamp |
| 2 | 9 | PLT2I-M76 | Tie Wrap |
| 3 | 1 | 100-171-7511 | 1/4" Barbed Wye, Drain Hose (Alt: Barbed Tee 100-828-9021) |
| 4 | 2 | 100-171-7513 | 3/8" Barbed Wye, Drain Hose |
| 5 | 2 | VC-375-16 | 3/8" x 1" Round Vinyl Cap |
| 6 | 1 | VC-250-16 | 1/4" x 1" Round Vinyl Cap |
| 7 | 13" | AAG00017 | 1/4" Tygon® Tubing |
| 8 | 30" | AAG00027 | 3/8" Tygon® Tubing |

Parts and Tools **Not** included in this Service Bulletin:

| Item | Quantity | Part Number | Description |
|------|----------|-------------|-------------|
| N/A | N/A | N/A | N/A |

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FAA APPROVED:

The modification described in this Mandatory Service Bulletin has shown compliance with the applicable Federal Aviation Regulations and is FAA Approved.

INDUSTRY SUPPORT INFORMATION:

N/A

WEIGHT AND BALANCE:

Negligible

MANPOWER:

The instructions contained in this Mandatory Service Bulletin will take approximately:

- 1 Hour

CREDIT AND WARRANTY INFORMATION:

Quest Aircraft Company will reimburse for the cost of this modification up to \$75.00 for aircraft still under factory warranty. For reimbursement send Quest Aircraft Company a copy of the modification record and serial number of the aircraft on which the modification was completed.

*Quest Customer Service
Service Bulletin SB11-05*

Phone: (208)263-1111 Toll Free: 1(866)263-1112

Email: Customercare@questaircraft.com

COMPLETION:

Record the work performed in the *KODIAK 100 Maintenance Records*.

ACCOMPLISHMENT INSTRUCTIONS:

Accomplishment Instructions are listed in the next section of this Service Bulletin.

ATTACHED DOCUMENTS:

N/A

SPECIAL INSTRUCTIONS:

NOTE: For greatest clarity, this Service Bulletin should be printed in color.



NOTE: Hose clamps should be installed such that the clamp pressure is distributed around the perimeter as evenly as possible. Finger pressure should be used as needed to ensure that the clamp does not bite into the hose wall. Ensure proper connection by pulling moderately-lightly on the ends of the flexible hoses. Adjust clamp pressure as needed



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1. COMPONENT REMOVAL

Remove the engine cowlings as needed to access the modification locations in accordance with the *KODIAK 100 Maintenance Manual, Chapter 71 Power Plant*.

2. ENGINE DRAIN LINE MODIFICATION

In the following steps, refer to **Figure 1-1** for a schematic showing how the current engine drain lines are routed, and how the drain lines should be routed upon completion of this service bulletin.

1. Disconnect both drain can overflow Tygon® tubing lines attached to the ejector assembly.
2. Cut the Tygon® tubing coming off each of the combustion chamber drains at the approximate location noted in **Figure 1-3**. Remove the lengths of tubing downstream of the cut.
3. Route a new length of 3/8" Tygon® tubing from the lower ejector assembly spout as shown in **Figure 1-7** up to the cut ends of the combustion chamber drains, and splice them together with a 3/8" Barbed Wye as shown in **Figure 1-3**.
4. Secure tubing to the barbed fitting with zip ties. Secure the new length of tubing to the ejector assembly with the hose clamp.
5. Remove the lower cushioned loop clamp (P/N **MS21919WDG16**) on the inboard side of the oil cooler as shown in **Figure 1-3**, and replace with a smaller cushioned loop clamp (P/N **MS21919WDG14**). Retain the larger clamp for reuse later in **Step #7**.
6. Remove and discard the saddle cushion loop clamp and one of the smaller adel clamps that secures the starter generator and FCU seepage drain lines to the oil flex hose as shown in **Figure 1-5**.
7. Re-secure the Tygon® tubing from the starter generator drive pad drain to the oil flex hose, but this time use the large cushioned loop clamp (P/N **MS21919WDG16**) previously removed in **Step 5**.
8. Remove and discard the entire length of Tygon® tubing coming off the FCU seepage drain port.
9. Install a new length of 1/4" Tygon® tubing extending from the FCU seepage drain port hard line to the location where the large cushioned loop clamp is secured to the oil flex hose, and splice the FCU seepage tubing into the tube coming from the starter generator drive pad drain using a 1/4" Barbed fitting, as shown in **Figure 1-5** and **Figure 1-6**.
10. Secure the flexible hoses to the barbed fitting with zip ties, and secure the upper end of the new FCU seepage drain tubing to the hard line using the pre-existing hose clamp.
11. In a similar manner, splice the drain can overflow lines together using a 3/8" Barbed Wye, and connect them to the upper spout on the ejector assembly as shown in **Figure 1-7**.

12. Cap the remaining open drain spouts on the EPA can using vinyl caps as shown in **Figure 1-7**.
13. To prevent local accumulation of fluid drainage within the drain lines inspect to the following:
 - A. A positive downward slope in all the tube routing has been maintained.
 - B. No flexible tubing is pinched off by cushioned hose clamps or by excessively tight tube bends.

3. COMPONENT INSTALLATION

Install the engine cowlings in accordance with the *KODIAK 100 Maintenance Manual, Chapter 71 Power Plant*.

4. RECORD WORK PERFORMED IN KODIAK LOG BOOKS

Upon completion, record all work performed in the appropriate KODIAK maintenance records.

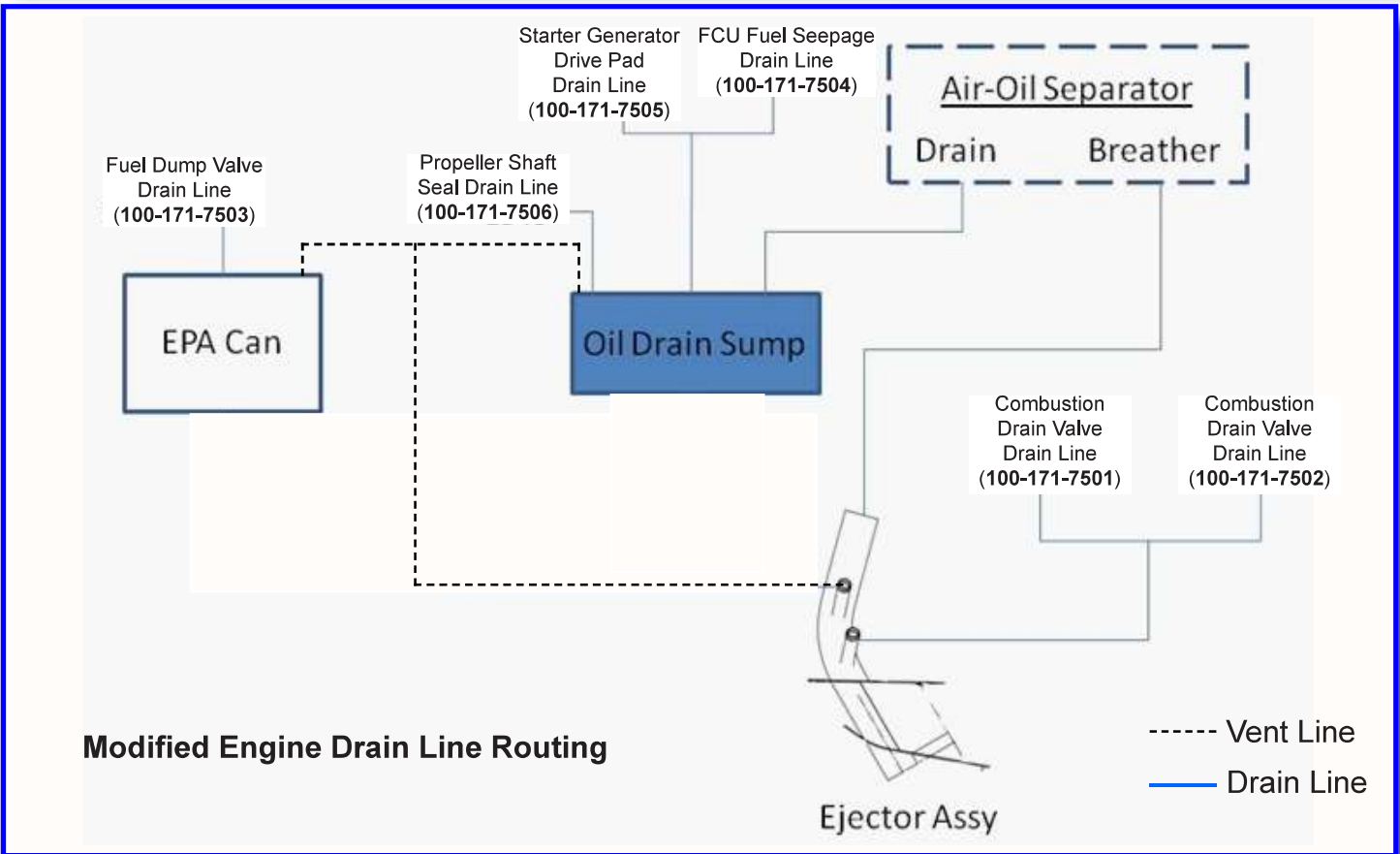
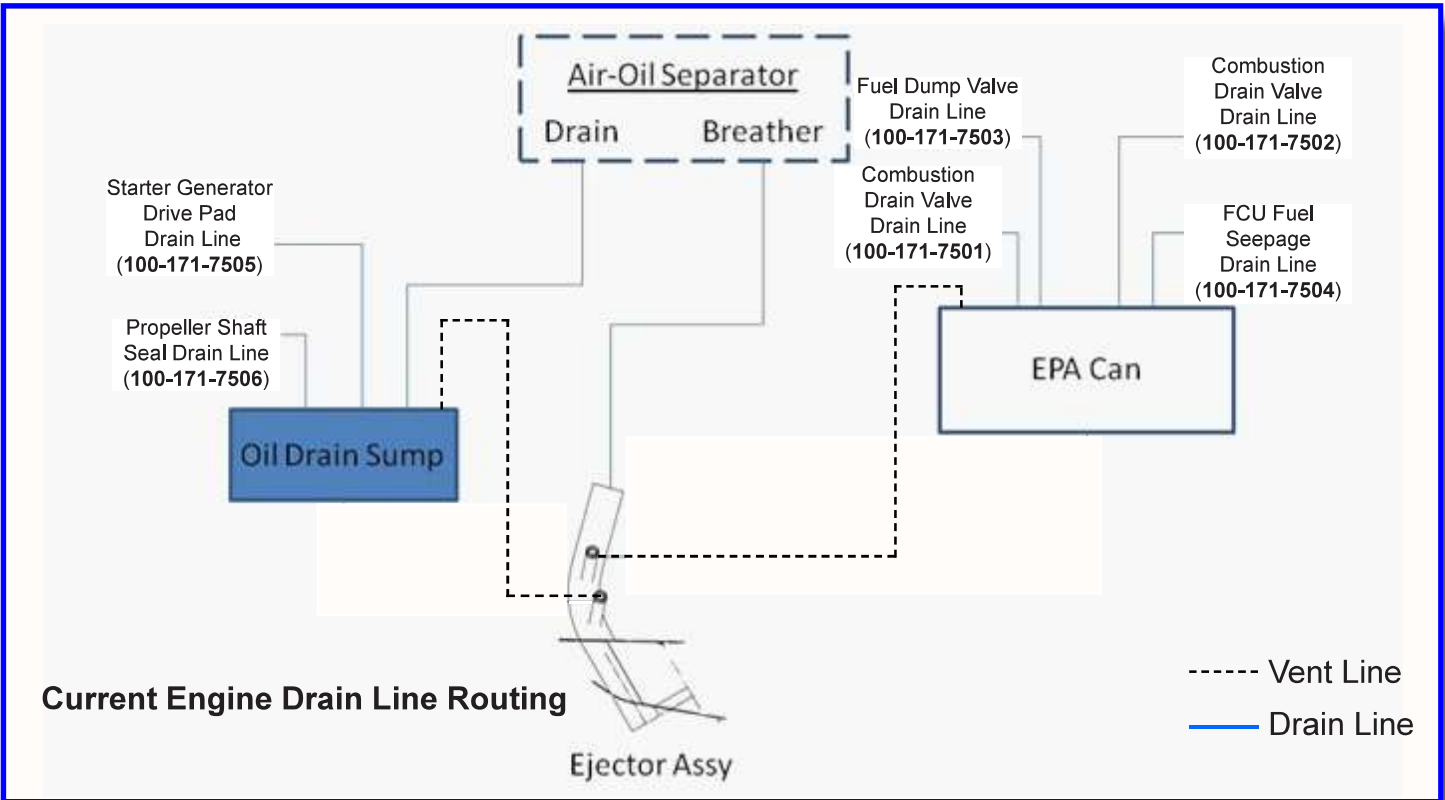
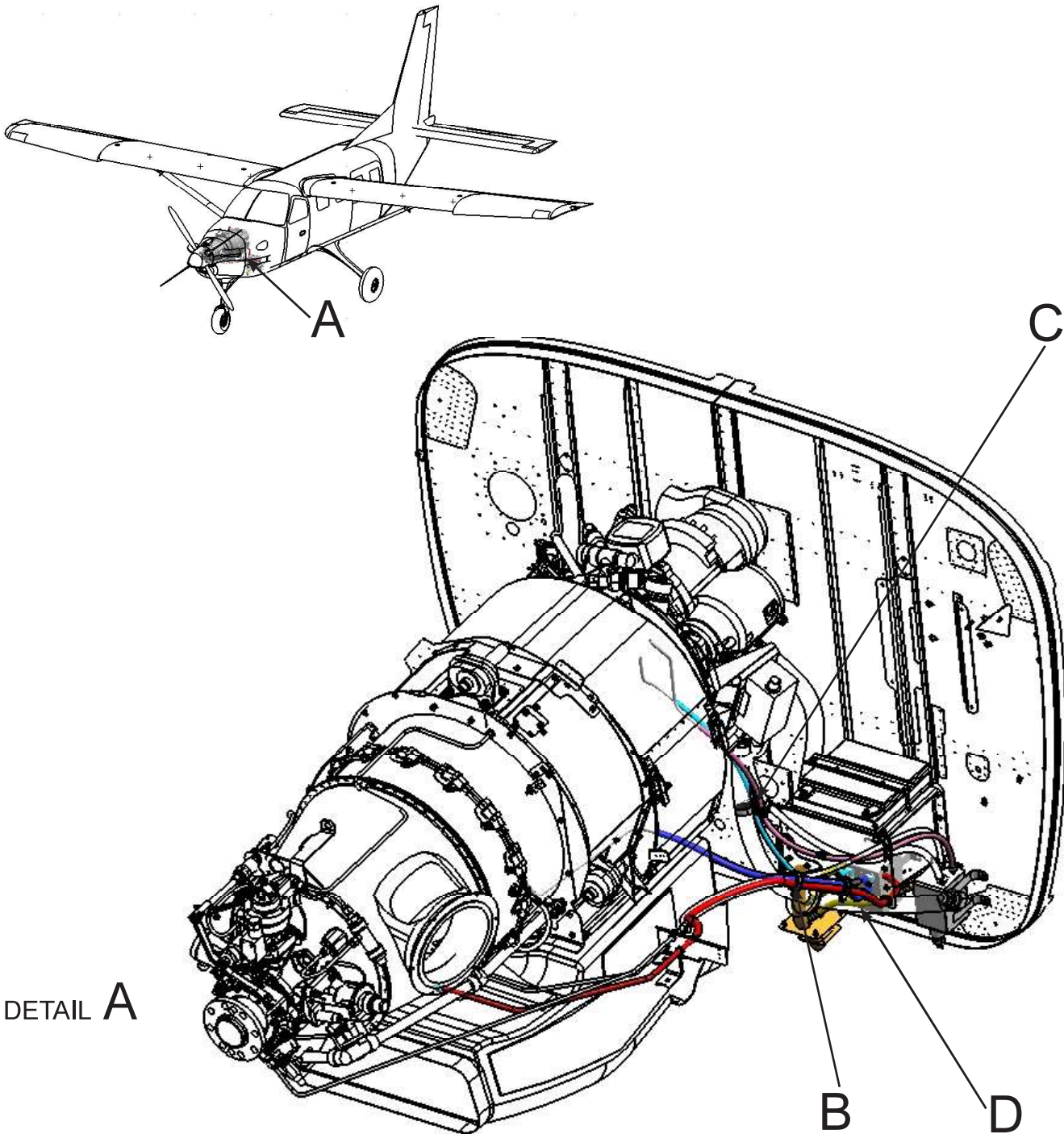


Figure 1-1: Engine Drain Line Routing Current/Modified



DETAIL A






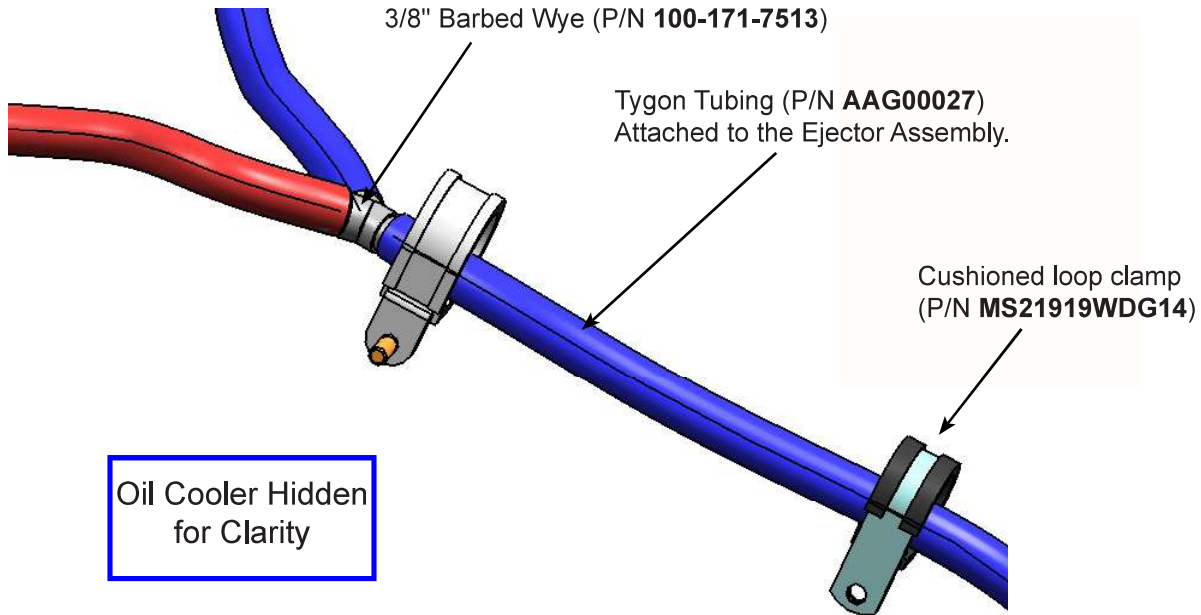
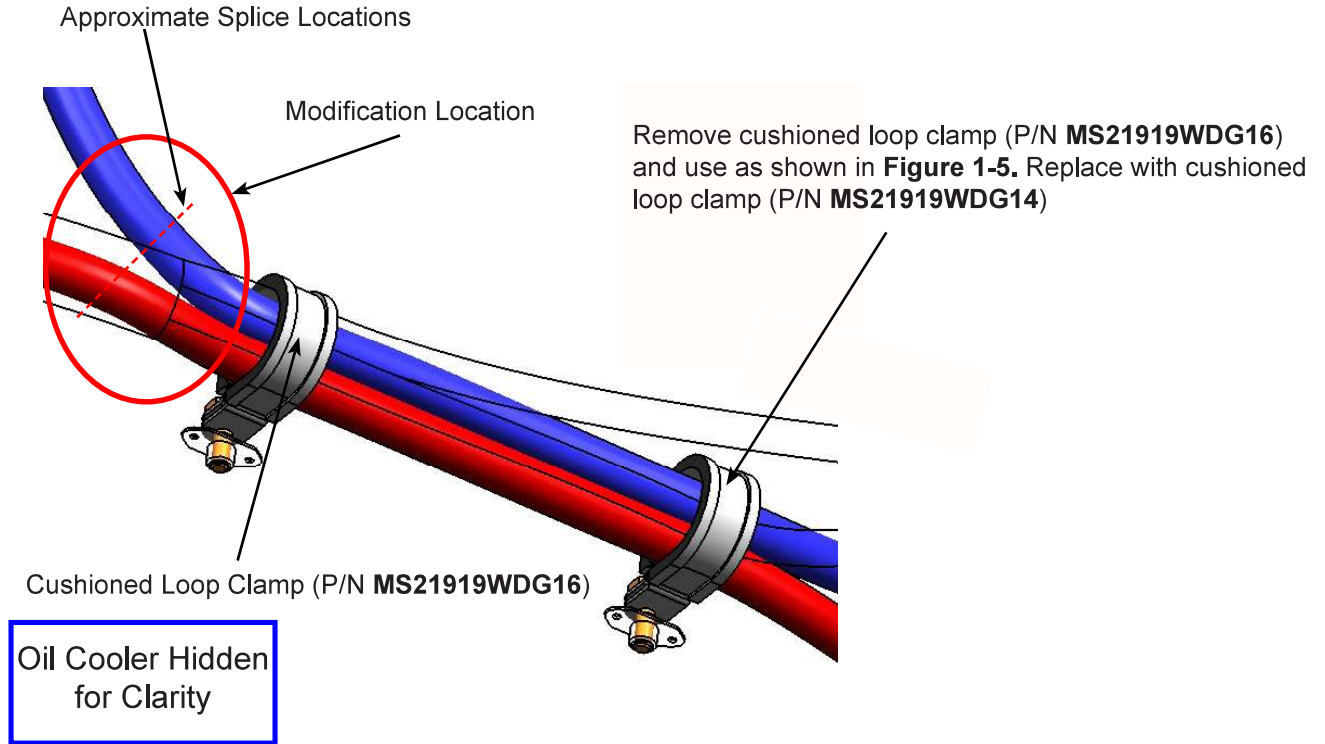
| Color | Drain Line |
|--|---|
|  | Combustion Valve Drain Line (From P/N 100-171-7502) |
|  | Combustion Valve Drain Line (From P/N 100-171-7501) |
|  | Fuel Seepage Drain Line (From P/N 100-171-7504) |
|  | Starter Generator Drive Pad Drain (From P/N 100-171-7505) |
|  | EPA Can and Oil Drain Sump Drain Lines |

Figure 1-2: Engine Drain Line Modification Locations



NOTE: For clarity, the remaining engine drain tubes shown ghosted above are removed to allow full view of the drain line modification.

Figure 1-3 Detail B: Combustion Valve Drain Line Modification

From Combustion Valve Drain Line (P/N 100-171-7502)

3/8" Barbed Wye (P/N 100-171-7513)



Perspective of
Illustration

From Combustion Valve Drain Line (P/N 100-171-7501)

To Ejector Assembly

Figure 1-4: Combustion Valve Drain Line Modification

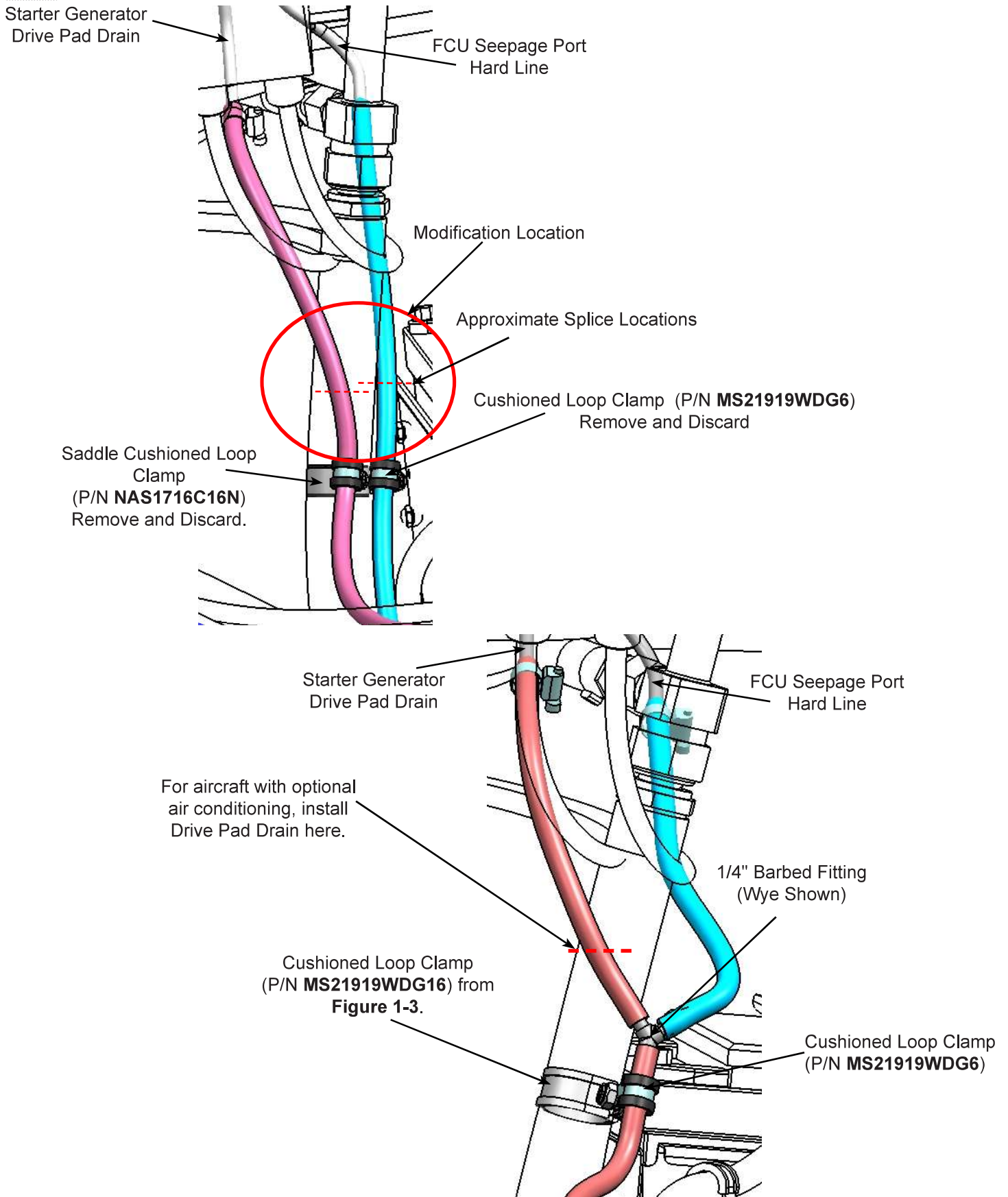
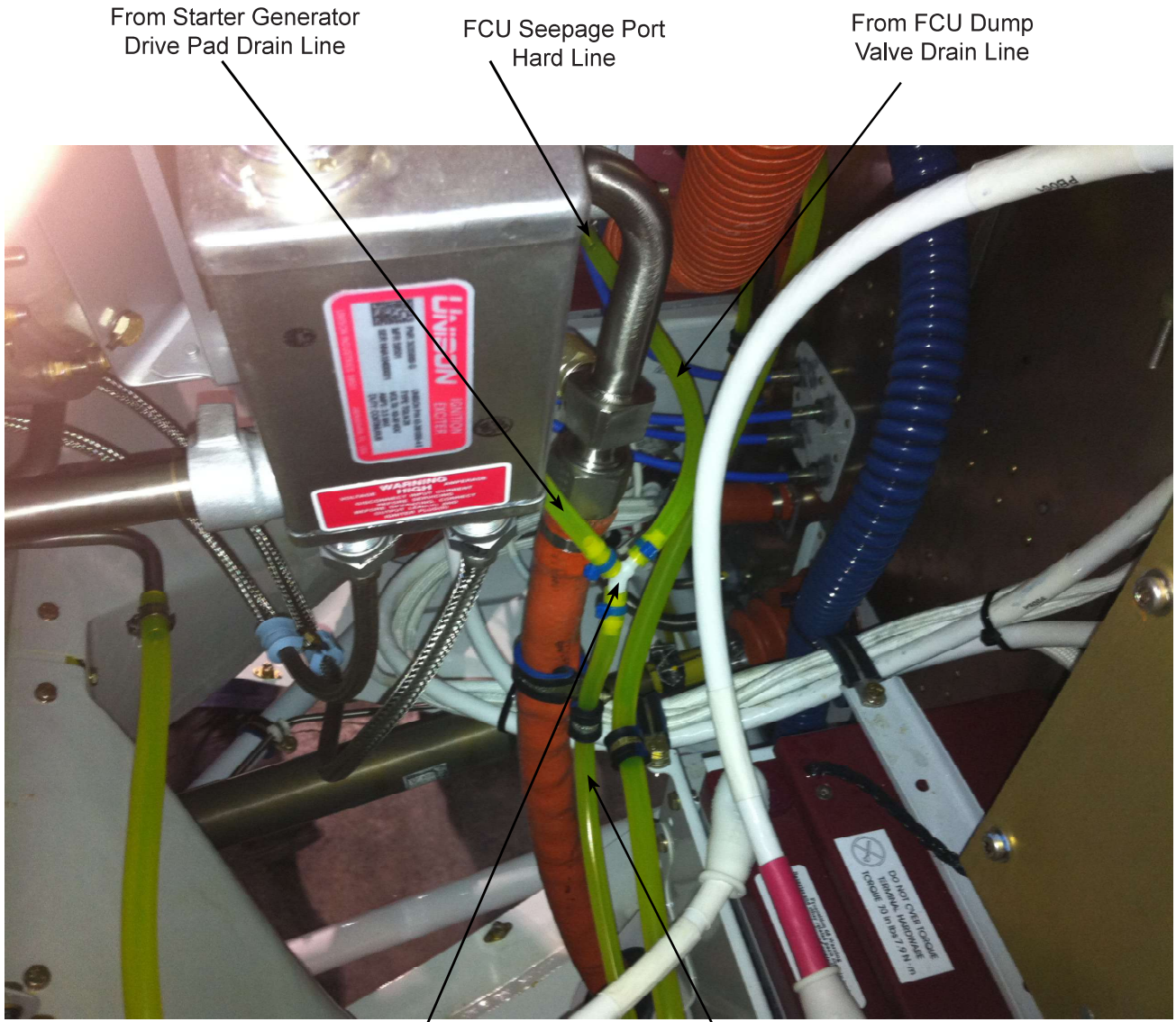


Figure 1-5 Detail C: Fuel Seepage/Starter Generator Drain Line Modification



From Starter Generator
Drive Pad Drain Line

FCU Seepage Port
Hard Line

From FCU Dump
Valve Drain Line

1/4" Barbed Fitting
(Wye Shown)

To Oil Drain Sump



Perspective of
Illustration

Figure 1-6 Detail C: Photo of Fuel Seepage/Starter Generator Drain Line Modification

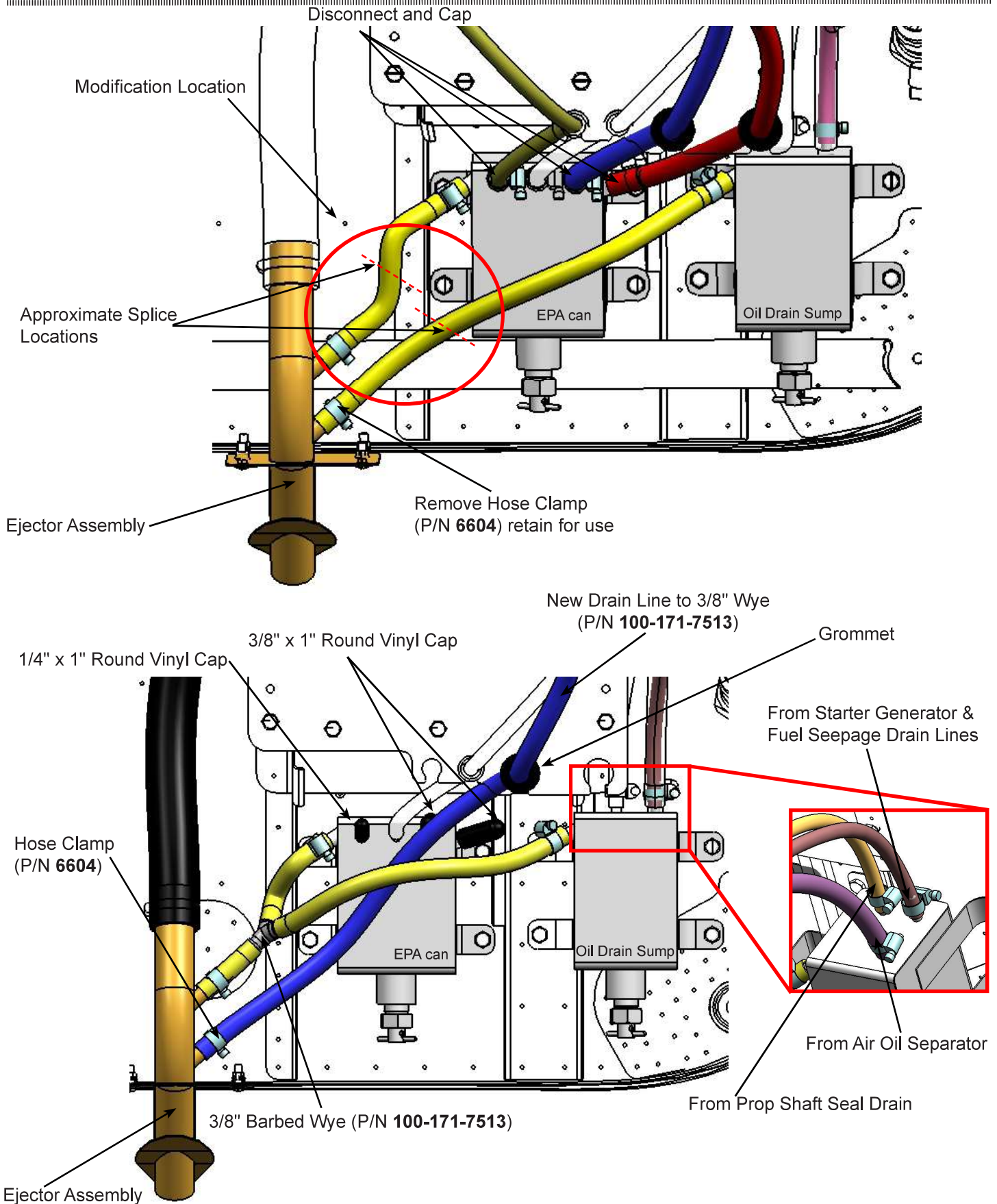
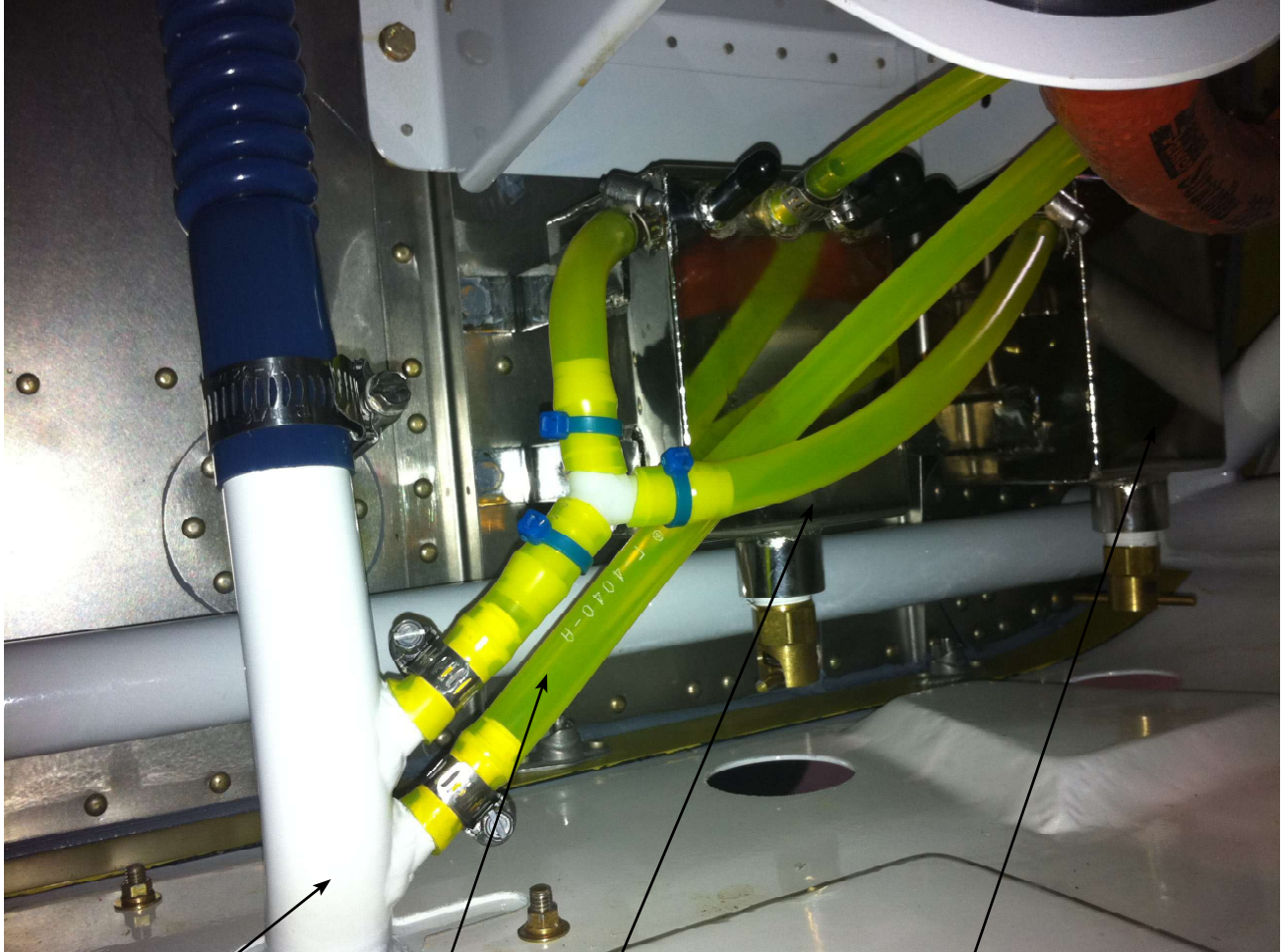


Figure 1-7 Detail D: EPA can/Oil Drain Sump Drain Line Modification



Ejector Assembly

EPA Can

Oil Drain Sump

From Combustion
Chamber Drain Lines

Figure 1-8: EPA can/Oil Drain Sump Drain Line Modification