



# SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. 0128

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DATE: December 20, 2017

1. SUBJECT: Copilot Collective – Retention Pin Installation
2. MODEL: F-28, F-28A, 280, F-28C, F-28C-2, 280C, F-28F, 280F, and 280FX (does not apply to F-28C-2R and F-28F-R unless the aircraft has been modified to a left-hand pilot in command configuration)
3. EFFECTIVITY: All aircraft models equipped with the quick release collective retention pin; Serial numbers are as follows:

Model	Serial Number
F-28	All
F-28A	All
F-28C	All
F-28F	832 and prior
280	All
280C	All
280F	All
280FX	2148 and prior

4. BACKGROUND:

Enstrom has received a report of impaired flight control caused by the copilot collective retention pin assembly. In a situation where the copilot's collective stick had been removed, the copilot collective retention pin assembly disengaged from its stowed position in the stick fitting and dropped into the throttle control during flight. As a result of this incident, Enstrom has relocated the retention pin lanyard mount from the stick fitting to the copilot collective stick. In this configuration, the retention pin will not remain in the aircraft when the collective is removed.

This SDB (Service Directive Bulletin) provides instructions for removing the retention pin lanyard mount from the stick fitting and installing it to the copilot collective stick.

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## 5. COMPLIANCE:

At the next 100 hr/annual inspection, modify the copilot collective retention pin lanyard mount in accordance with paragraph 6.

## 6. PROCEDURE:

**NOTE: Perform all maintenance in accordance with the F Series Maintenance Manual.**

**NOTE: The retention pin is also referred to as a quick release pin or P/N ABC6114 expando pin.**

6.1 Remove the retention pin securing the collective stick and remove the collective stick.

6.2 Remove the existing hardware attaching the lanyard to the seat structure (Figure 1).

**NOTE: Use care when removing hardware to avoid dropping parts into the controls.**

6.3 Retain the retention pin and lanyard.



*Figure 1. Former Retention Pin Lanyard Installation*

6.4 Disassemble the collective stick assembly to remove the throttle control tube assembly.

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## 6.4.1 Disassembly (F-28, F-28A, and 280 models) (Figure 2):

**NOTE: It is recommended to mark the location of screw (28-16207) prior to removal.**

6.4.1.1 Remove screw (28-16207) and flat-head screws (3 places) from the throttle control tube cap.

6.4.1.2 Push the throttle control tube assembly through the forward end of the collective stick.

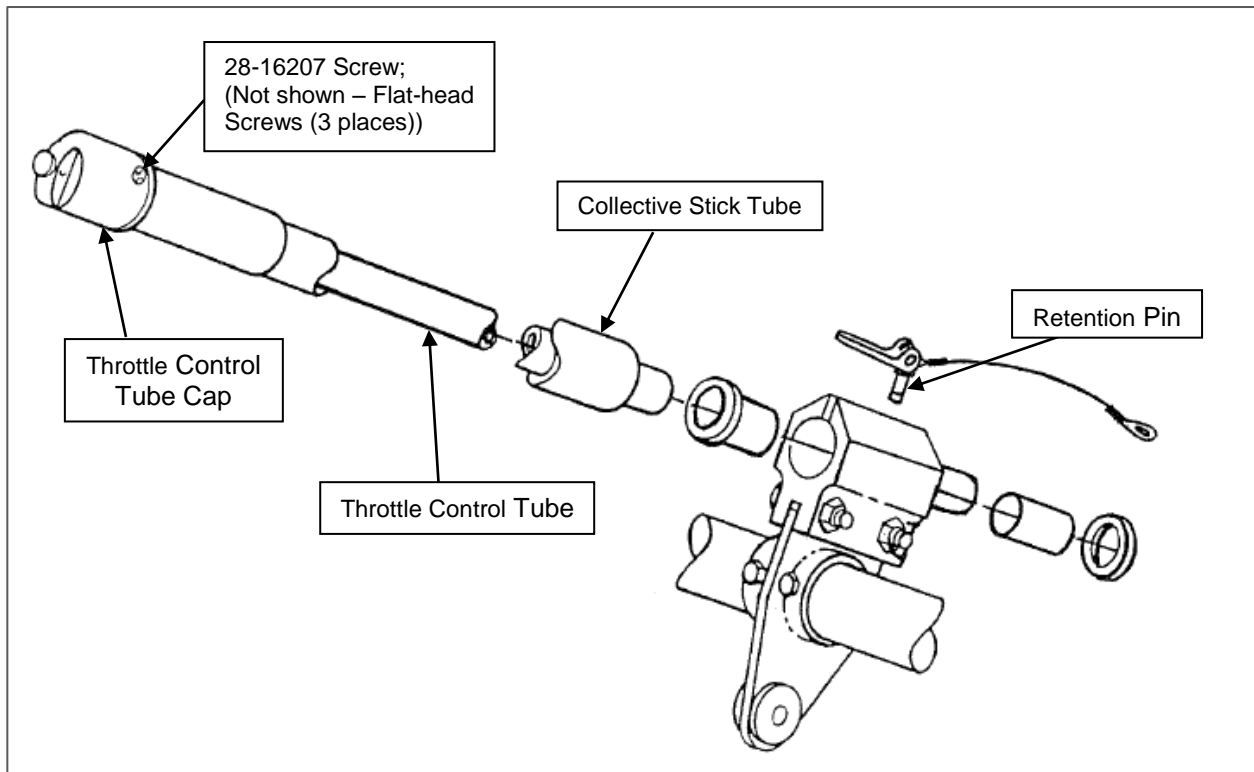


Figure 2. Collective Stick Assembly (F-28, F-28A, 280 models)

## 6.4.2 Disassembly (all other models) (Figure 3):

6.4.2.1 Remove screw (AN509-8R8) from the throttle control tube cap assembly.

6.4.2.2 Remove screws (3 places) from the cap.

6.4.2.3 Push the throttle control tube assembly through the forward end of the collective stick.

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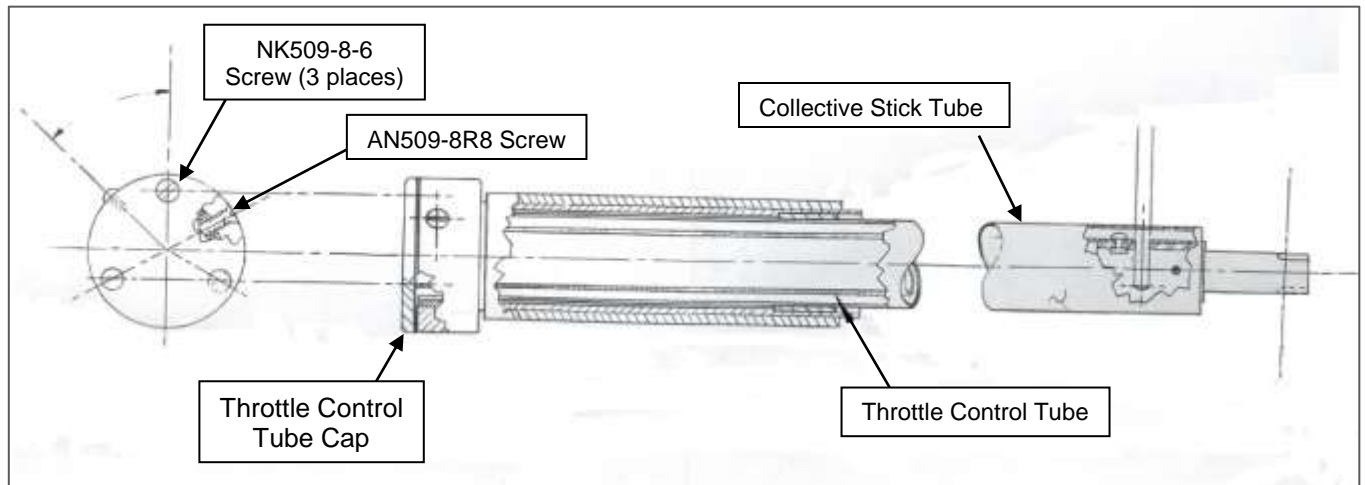


Figure 3. Collective Stick Assembly (all other models)

- 6.5 Drill a  $\text{Ø}0.129/0.132$  hole through the wall of the collective stick in the location shown in Figure 4. Deburr the hole.

**WARNING:** Ensure the collective stick is free of debris. Throttle operation may be impaired if debris is not removed.

- 6.6 Remove all debris from the interior of the collective stick.

**WARNING:** Ensure the rivet is the correct length. Improper rivet length and/or rivet installation could interfere with the throttle operation.

- 6.7 Install retention pin lanyard to the collective stick using NAS1149FN816P washer and CR3213-4-02 rivet. The washer and rivet may be painted a semi-flat black.

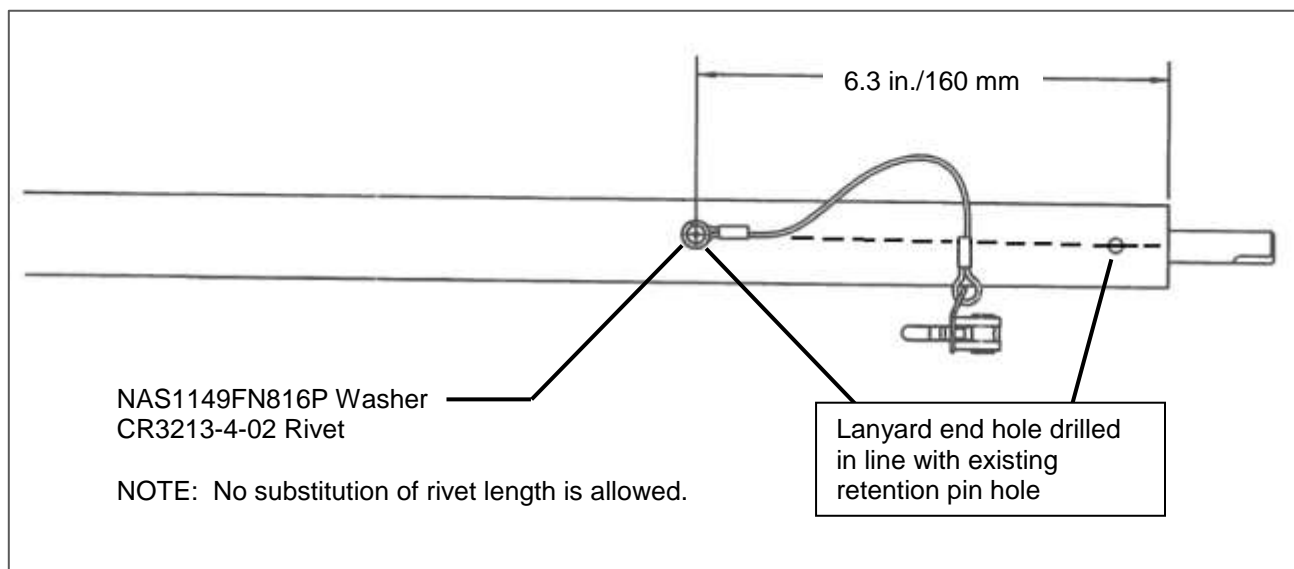


Figure 4. Lanyard Mount Hole Location

- 6.7.1 Install washer onto rivet.
- 6.7.2 Insert rivet through lanyard keyhole and install into drilled hole to attach the lanyard to the collective stick.



Figure 5. Lanyard Installed on Collective Stick

- 6.8 Reassemble the collective stick assembly.
  - 6.8.1 Reassembly (F-28, F28A, and 280 models) (Figure 2):
    - 6.8.1.1 Install the throttle control tube into the collective stick tube.
    - 6.8.1.2 Install screw 28-16207 at marked position (if applicable) into the cap of the throttle control tube assembly.
    - 6.8.1.3 Install the screws (3 places) into the throttle control tube cap.
    - 6.8.1.4 If ON/OFF placard was removed during disassembly, re-apply placard in the proper location.
  - WARNING: Rotate the throttle control tube to ensure there is no contact with the rivet installation.**
  - 6.8.1.5 Ensure that there is no contact of the throttle control tube with the rivet.
- 6.8.2 Reassembly (all other models) (Figure 3):
  - 6.8.2.1 Install the throttle control tube into the collective stick tube.
  - 6.8.2.2 Align the throttle control tube with the slot in the collective stick tube.

6.8.2.3 Install screw AN509-8R8 into the cap of the throttle control tube assembly.

6.8.2.4 Install the screws (3 places) into the throttle control tube cap.

**WARNING: Rotate the throttle control tube to ensure there is no contact with the rivet installation.**

6.8.2.5 Ensure that there is no contact of the throttle control tube with the rivet.

6.9 Install the collective stick into the stick fitting. Ensure the throttle rod is properly engaging the bellcrank.

6.10 Insert the retention pin with lever aligned with the collective and fold the lever down.

**NOTE: The pin lever is correctly installed when the cam locking feature is engaged. If the lever folds down with no resistance felt, insert the pin 180° the other way, and fold down. A resistance should be felt as the cam engages.**

**WARNING: The pin must engage the hole in the collective stick. After installing the pin, verify the security of the collective stick by trying to pull the collective stick out of the stick fitting.**

6.11 To ensure the pin is fully engaged in the hole in the collective stick, try to pull the collective stick out of the stick fitting. If the collective stick does not pull out of the stick fitting, it is properly secured.

6.12 Twist the throttle full travel and verify the pilot's and copilot's throttles move together.

6.13 Move the collective full travel and move throttle full travel with the collective fully up and full down. Verify there is no binding or interference in the throttle or collective.

## 7. PARTS:

7.1 Required hardware:

Part	Description	Quantity
NAS1149FN616P	Washer	1
CR3213-4-02*	Rivet	1
*No substitution of rivet length is allowed.		

7.2 Consumable material supplied by the installer:

Semi-flat black paint
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8. SPECIAL TOOLS: N/A
9. MAN-HOURS: 1 hour
10. WARRANTY: Per Enstrom Warranty Policy
11. WEIGHT CHANGE: None
12. LOG BOOK ENTRY: Record modification in the maintenance log book.
13. REPETITIVE ACTION: N/A