



SERVICE DIRECTIVE BULLETIN

SERVICE DIRECTIVE BULLETIN NO. 0107

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DATE: November 7, 2008

1. SUBJECT: Wastegate Linkage Assembly
2. MODEL: F-28F, 280F, and 280FX
3. EFFECTIVITY: All
4. BACKGROUND:

Enstrom received a field report of impaired throttle control due to the restrictor coming loose from the turbocharger bypass and jamming the wastegate. In the event of a jammed wastegate, the detent in the wastegate linkage is designed to break free and permit the linkage to telescope and allow the pilot to maintain throttle control. However, due to tolerance stack-up and the resulting wastegate rigging, after the linkage broke out of the detent, the detent locked into the thread relief near the end of the linkage rod and caused the throttle to lock in position. A change to the thread relief to prevent the detent from locking into the thread relief has been incorporated into the wastegate linkage assembly.

This Service Directive Bulletin (SDB) requires a mandatory inspection of the wastegate linkage and makes owner/operators aware of the redesigned linkage and recommends they replace the old linkage assembly with the new design.

NOTE

SDB 0107 supersedes and cancels SDB 0054R1.

Technical aspects of this SDB have been coordinated with the FAA.

5. COMPLIANCE:

Within 25 hours time in service or at the next scheduled inspection, which ever occurs first, inspect the wastegate linkage in accordance with paragraph 5.1 of this Service Directive Bulletin and if required, modify or replace the wastegate linkage in accordance with paragraph 5.2 of this Service Directive Bulletin.

5.1. INSPECTION:

NOTE

Perform all maintenance IAW the F-28F/280F Series Maintenance Manual.

- A. Remove the wastegate linkage assembly IAW Section 13-3, Paragraph G.
- B. Using a spring scale, determine the force required to pull the linkage assembly out of detent. The correct range is 15 - 20 pounds/6.8 - 9.1 kg.
- C. If the detent breakaway force is correct, fully collapse the wastegate linkage and determine if it is possible for the detent to lock into the thread relief near the rod end (Figure 2). If the detent can reach the thread relief, modify or replace the P/N 28-12551-15/-17 rod with P/N 28-12551-19/-21 rod, as appropriate, in IAW paragraph 5.2.
- D. If the detent breakaway force is not correct, adjust the spring plunger in accordance with paragraph 5.3. Repeat Steps B and C above.
- E. If the breakaway force is within limits and the detent cannot reach the thread relief, no further action is required.

NOTE

While no further action is required, Enstrom strongly recommends modifying or replacing the P/N 28-12551-15/-17 rod with a P/N 28-12551-19/-21 to eliminate any potential interference in the future.

- F. Reinstall the wastegate linkage assembly. Install a lock wire (MS20995C32) through the eye of the cotter pin used to secure the clevis pin and washer at the linkage assembly and wastegate arm connection (Refer to Figure 1). Terminate the lock wire around the linkage assembly clevis. The lock wire prevents the clevis pin from rotating and extends the service life of the clevis pin, wastegate linkage assembly, and the wastegate.
- G. Insure the breakaway mechanism is engaged after installation.

CAUTION

Insure breakaway mechanism is engaged after installation.

5.2. MODIFICATION:

- A. Disassemble the wastegate linkage assembly. To modify the existing rod, proceed to Step B. To replace the rod, proceed to Step C.
- B. Modify the existing rod in accordance with Figure 5 and proceed to Step D.
 - (1) Use a manual or CNC lathe.
 - (2) Turn a 0.16" by 20° chamfer as shown.
 - (3) Turn a 0.02" by 45° chamfer as shown. Break sharp corners.
 - (4) Minimum 63 surface finish required.
- C. Determine whether to install P/N 28-12551-19 or P/N 28-12551-21 by measuring the section of the old rod at the location shown in Figure 4. For 2.74", install the -21 rod. For 2.36", install the -19 rod.
- D. Reassemble the wastegate linkage assembly with the modified or new rod (Figure 2). Do not overtorque the spring plunger nut. Torque the nut 12-15 in-lbs/1.4-1.7 N-m.

NOTE

Do not overtorque the spring plunger nut. Torque the nut 12-15 in-lbs/1.4-1.7 N-m.

5.3. DETENT ADJUSTMENT:

- A. Remove the lock wire from the jam nut securing the spring plunger and loosen the jam nut.
- B. Remove the rod from the sleeve assembly and clean the rod using a suitable solvent/cleaner.
- C. Lightly coat the rod with Loctite® Silver Grade Anti-Seize Compound or equivalent and insert the rod into the sleeve assembly.
- D. Using a spring scale, adjust the spring plunger as required to obtain a 15 - 20 pound/6.8 - 9.1 kg breakaway force to pull the rod out of detent. Tighten the jam nut to 12 - 15 in-lbs/1.4 - 1.7 Nm and recheck the breakaway force. Readjust the spring plunger as required. Lock wire (MS20995C32) the jam nut to the sleeve assembly.
- E. If breakaway requires more than 20 lbs/9.1 kg of force, replace the spring plunger P/N K3-N and repeat paragraph 5.3.

NOTE

Do not overtorque the spring plunger nut if replacing the spring plunger. Torque the nut 12-15 in-lbs/1.4-1.7 N-m.

- F. Install the modified or new wastegate linkage assembly into the aircraft IAW Section 13-3, Paragraph I. Refer also to paragraph 5.1.F.

5.4. PARTS:

Description	Part Number	Quantity
Rod	28-12551-19 or -21	1
Spring Plunger	K3-N	1
Lock Wire	MS20995C32	A/R
Anti-Seize Compound	Loctite [®] 76764	A/R

6. SPECIAL TOOLS: Spring Scale
7. MAN-HOURS: 15 minutes for the inspection; One (1) Man-hour for the repair.
8. WARRANTY: Per Enstrom New Helicopter Warranty policy.
9. WEIGHT CHANGE: None
10. LOG BOOK ENTRY: Enter compliance with this SDB in the aircraft maintenance records.
11. REPETITIVE INSPECTIONS:
- Inspect the wastegate linkage assembly for proper breakaway force in accordance with paragraph 5-3 during the 100 hour/annual inspection.

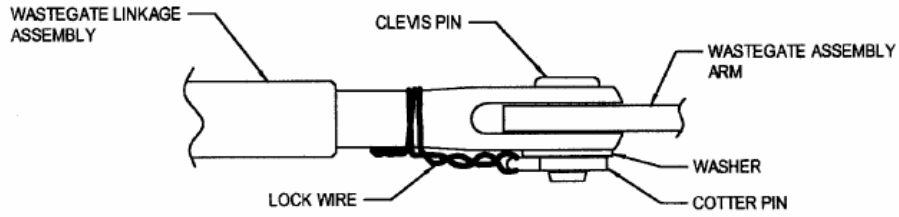


Figure 1

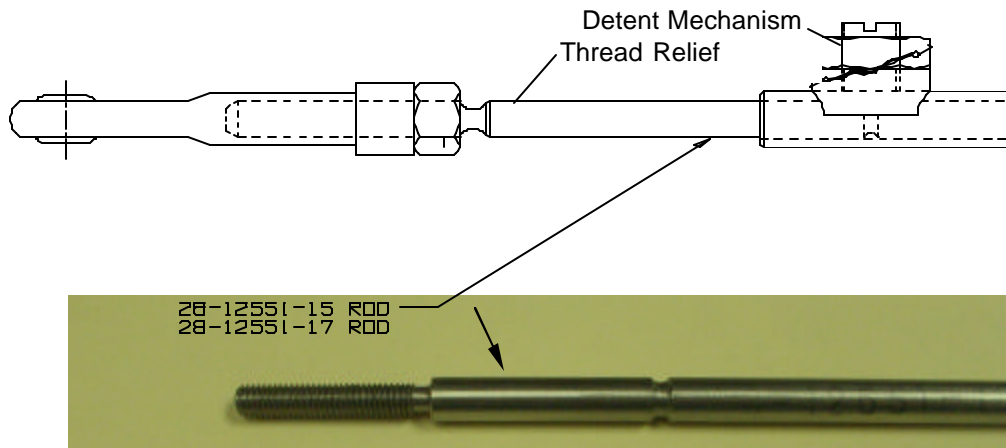


Figure 2. Former Wastegate Rod Assembly

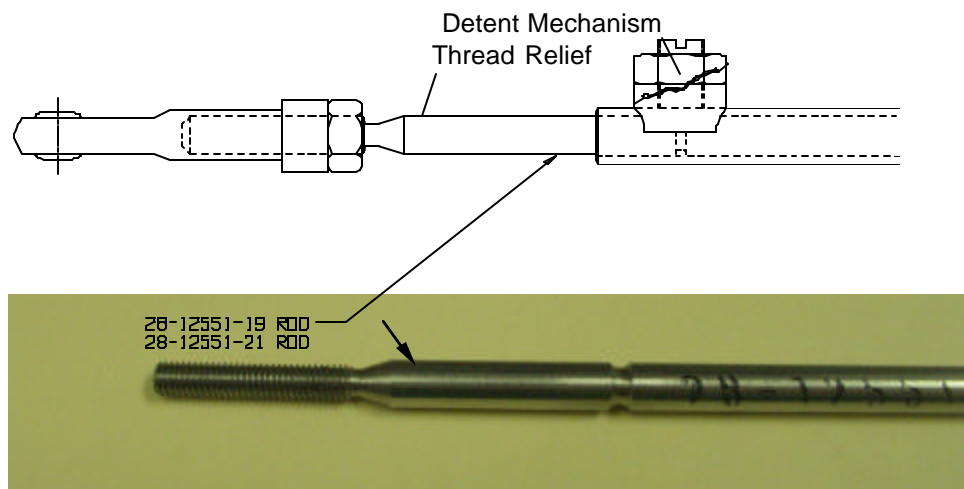


Figure 3. New Wastegate Rod Assembly

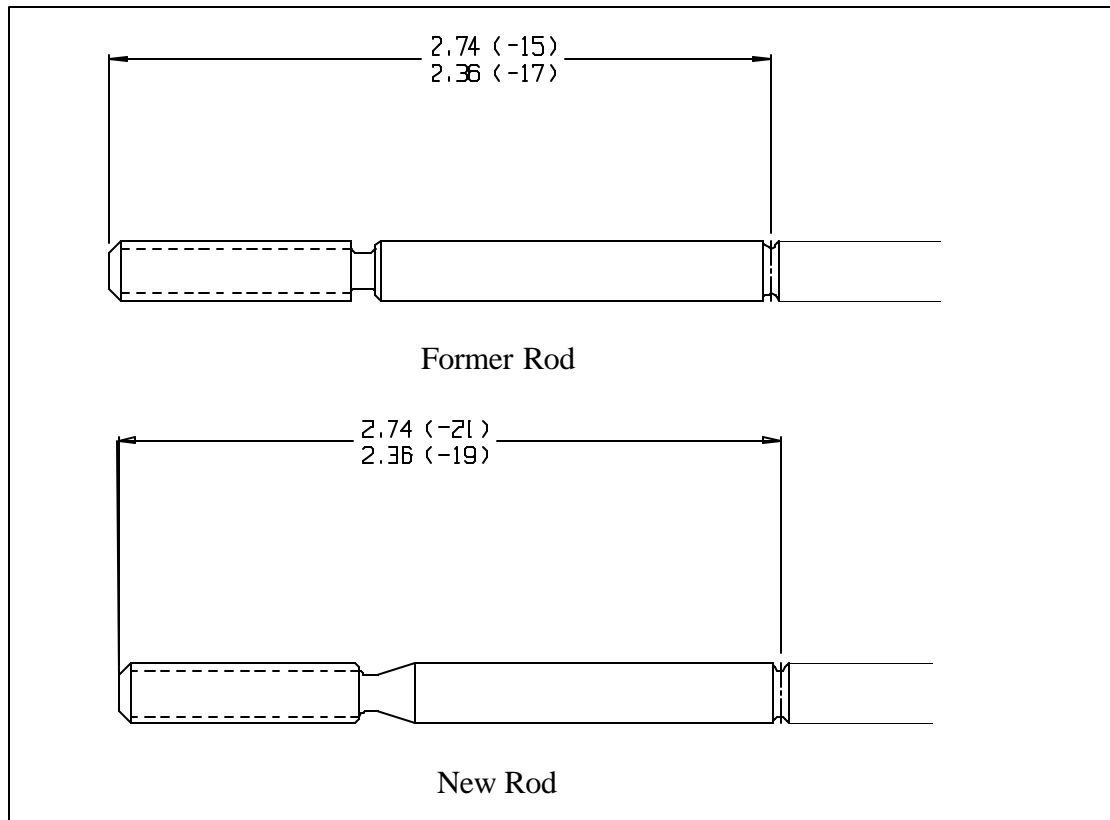


Figure 4. Wastegate Rod Part Number Determination

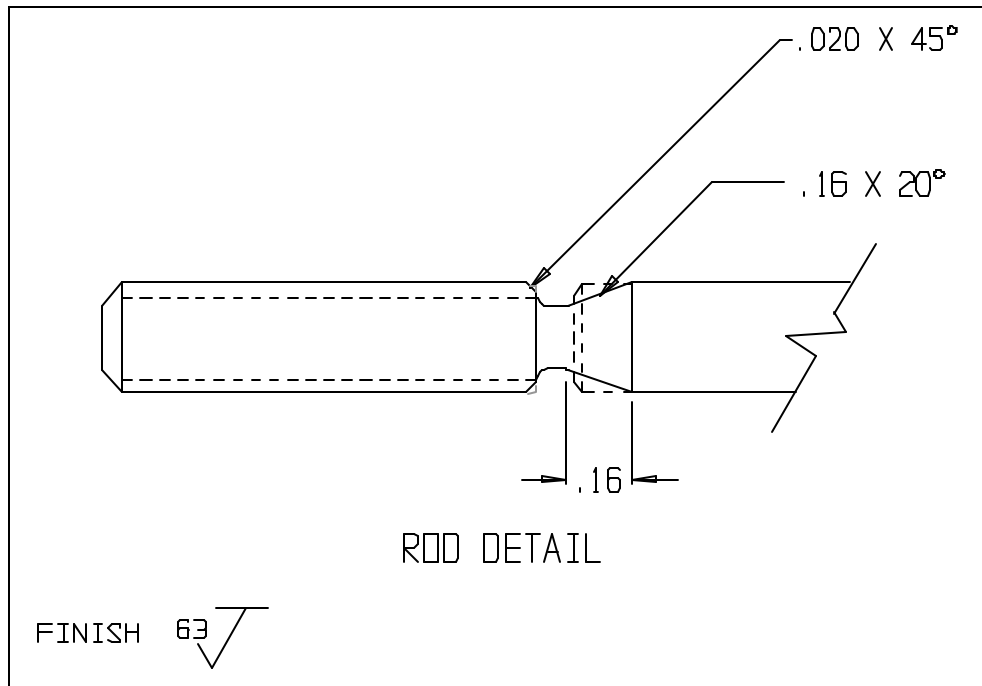


Figure 5. Existing Rod Modification to the New Rod Dimensions