



Piper Aircraft Corporation
Vero Beach, Florida, U.S.A.

SERVICE No. 644D BULLETIN

* PIPER CONSIDERS *
* COMPLIANCE MANDATORY *

Date May 29, 1986 M

FAA Approved

(Service Bulletin No. 644D supersedes and voids Service Bulletin No. 644C, dated December 3, 1985.)

This Service Bulletin is divided into three (3) PARTS. Please check each PART for specific Instructions.

SUBJECT:

Turbocharger Exhaust Coupling
Inspection/Replacement

REASON FOR REVISION:

Add PART III, Add Sketch "B",
Revise PART II Instructions,
Correct Part Number in Material
Required, and Revise Purpose.

NOTE: Compliance with PART II
of this Service Release relieves
the requirements of PART I.

MODELS AFFECTED:

PA-31 and PA-31-325 Navajo
PA-31-350 Chieftain
PA-31-350 T-1020

SERIAL NUMBERS AFFECTED:

31-2 through 31-8312019
31-5001 through 31-8452021
31-8253001 through 31-8553002

COMPLIANCE TIME: PART I: All aircraft within ten (10) hours of operation or at the next scheduled inspection, whichever occurs first, determine the type of exhaust coupling installed. If coupling is Piper Part Number 555-511 or 555-366 (segmented type), inspect every one-hundred (100) hours of operation. Replace coupling at one-thousand (1000) hours of operation.

NOTE: If coupling is Piper Part Number 556-962 or 556-053, it is no longer an approved part and must be replaced prior to further flight with an approved coupling.

COMPLIANCE TIME:
by PART I.

PART II: At Owner/Operator's discretion, or when required

COMPLIANCE TIME: PART III: Within the next ten (10) hours of operation or at the next regularly scheduled maintenance event, whichever occurs first.

PURPOSE: Field reports indicate several service problems associated with turbocharger to tailpipe couplings. A field investigation into the cause has

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PURPOSE: (Cont'd.)

revealed that in many instances the recommended maintenance, inspection, and torquing procedures in this very important part of the exhaust system have not been followed. The failure of a turbocharger to tailpipe coupling can allow hot turbocharger exhaust gases to be expelled into the coupling area, creating a fire hazard.

PART I of this Service Bulletin provides instructions for a more detailed inspection and torquing of the segmented-type turbocharger tailpipe coupling Piper Part Number 555-511 or 555-366, at each one-hundred (100) hours; requires the use of the revised One-Hundred Hour Inspection Forms, and requires that coupling be replaced at one-thousand (1000) hours of coupling time in service.

PART II announces the availability of a new, heavy-duty field tested turbocharger exhaust coupling that, when installed, relieves the Inspection Requirement of PART I and the one-thousand (1000) hour mandatory replacement.

NOTE: Compliance with PART II also relieves the one-thousand (1000) hour replacement requirements called for in the PA-31 and PA-31-350 Navajo Service Manual Inspection Report, Revision PR831012, Note 20, and in the PA-31-350 Chieftain Service Manual Inspection Report, Revision PR810924, Note 19.

PART I

INSTRUCTIONS:

(Refer to the following Piper Aircraft Inspection Reports):

PA-31-350	Piper Part No. 230-764	Rev. 801121 or latest subsequent revision
PA-31, PA-31-325	Piper Part No. 230-211	Rev. 801117 or latest subsequent revision

1. Within the next ten (10) hours of operation, determine type of turbocharger exhaust coupling installed:
 - a. If single-piece type, Piper Part Number 556-962 (PA-31/31-325) or 556-053 (PA-31-350), replacement is required prior to further flight.
 - B. If segmented type, Piper Part Number 555-511 (PA-31/31-325) or 555-366 (PA-31-350), proceed to Instruction 2 below, in accordance with Compliance Time, PART I.
2. Remove upper engine cowlings.
3. Remove turbocharger exhaust couplings. Inspect couplings for cracks, spreading of sides, and indication of exhaust pipe flanges bottoming in coupling. (Refer to Sketch "A" attached). Inspect coupling clamp bolt for bending, overstress and cracks. (Refer to Sketch "A").

INSTRUCTIONS: (Cont'd.)

CAUTION: Any time an exhaust system component is installed or removed, use caution not to spread or force the coupling beyond its normal open position. To do so will either distort its shape and cause an ineffective seal or it will damage the metal and result in eventual failure of the coupling.

4. Inspect turbocharger exhaust pipe flange area for proper mating of surfaces and for leaks. Inspect flanges for cracks and distortion. Carbon deposits should be removed from mating flanges before reassembly.
5. Should any parts of the above inspection reveal any of the described faults, the failed component(s) must be replaced before further flight.
6. Reinstall turbocharger exhaust pipe and coupling onto the tailpipe assembly and turbocharger.

NOTE: Waste gate exhaust clamps should be loosened to facilitate installation of exhaust pipe and insure proper alignment of exhaust flanges without unnecessary strain on exhaust system components.

7. Install coupling on exhaust flange and torque nut in accordance with Sketch "A" while tapping gently around the periphery with a soft mallet to distribute band tension.
8. Turbocharger to tailpipe coupling with one-thousand (1000) hours or more time in service must be replaced. (See MATERIAL REQUIRED, below).

NOTE: If a coupling has more than one-thousand (1000) hours in service, and if a new coupling is not immediately available, the existing coupling may be continued in use for up to an additional two-hundred (200) hours if the coupling is inspected for cracks every twenty-five (25) hours without removal with a 10X magnifying glass. This twenty-five (25) hour inspection requirement does not relieve the one-hundred (100) hour inspection requirement for couplings with Piper Part Numbers 555-511 or 555-366.

9. Reinstall upper cowling.
10. Make appropriate logbook entry of compliance with PART I of this Service Bulletin.

PART II

INSTRUCTIONS:

1. Remove upper engine cowlings.
2. Remove turbocharger exhaust couplings and discard.
3. Inspect turbocharger exhaust pipe flange area for proper mating of surfaces and for leaks. Inspect flanges for cracks and distortion. Carbon deposits should be removed from mating flanges before reassembly.

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INSTRUCTIONS: (Cont'd.)

4. Install new style exhaust couplings. (See MATERIAL REQUIRED, below).

NOTE: Waste gate exhaust clamps should be loosened to facilitate installation of exhaust pipe and insure proper alignment of exhaust flanges without unnecessary strain on exhaust system components.

CAUTION: Allow couplings to seat under torque load ONLY. DO NOT use mallet around the periphery while tensioning band.

5. Tighten couplings to torque value of 30 inch/pounds minimum, 35 inch/pounds maximum.
6. Secure and tighten waste gate exhaust clamps previously loosened per note above.
7. Inspect couplings for positive clearance between safety latch and "T" bolt, and between coupling segments after final torque. See Sketch "B" attached.
8. Reinstall upper engine cowlings.
9. Make appropriate logbook entry of compliance with PART II of this Service Bulletin.

PART III

INSTRUCTIONS:

1. If couplings, Piper Part Number 557-584 and 557-369 have been installed prior to the date of this publication, comply with following instructions.
2. Remove upper cowlings on left and right engines.
3. Inspect couplings for positive clearance between safety latch and "T" bolt, and between coupling segments, after final torque. See Sketch "B" attached.
4. Inspect couplings for security and that "T" bolt is not bottomed out.
5. If couplings are found to be distorted and/or bottomed out, replacement is required. (See MATERIAL REQUIRED, below).
6. Reinstall upper cowlings on left and right engines.
7. Make appropriate logbook entry of compliance with PART III of this Service Bulletin.

MATERIAL REQUIRED:

Two (2) each Couplings, Piper Part Number 557-584 for PA-31 and PA-31-325. Two (2) each Couplings, Piper Part Number 557-369 for PA-31-350.

AVAILABILITY OF PARTS:

Your Piper Field Service Facility.

EFFECTIVITY DATE:

This Service Bulletin is effective upon receipt.

SUMMARY:

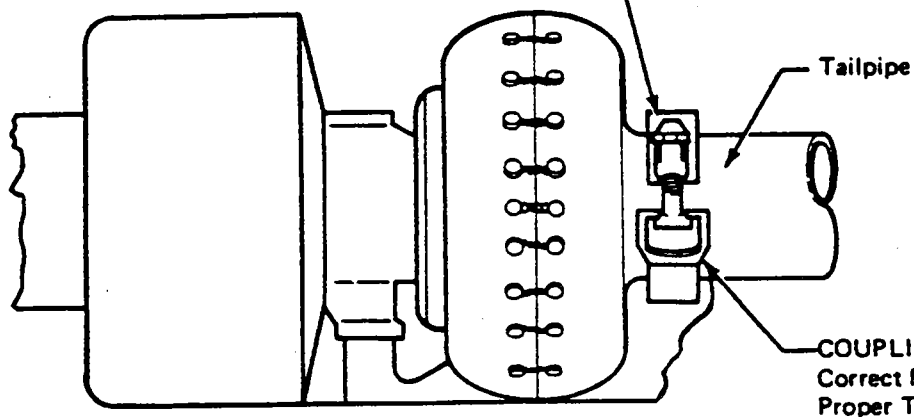
Please contact your Piper Field Service Facility to make arrangements for compliance with this Service Bulletin.

Any applicable factory participation will remain in effect for a period of time not to exceed 180 days from the date of this Service Bulletin.

NOTE: If you are no longer in possession of this aircraft, please forward this information to the present owner.

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Inspect Tailpipe And Turbocharger
Flanges For Proper Mating.



COUPLING - Refer to Chart For
Correct Part Number And
Proper Torque.

VIEW LOOKING AFT AT TURBOCHARGER

Inspect Turbocharger Flange For
Carbon Deposits, Cracks And Distortion.

Inspect Coupling Strap For
Cracks, Separation And Distortion.

Inspect Coupling V Bands For
Cracks, Separation From Strap
And Distortion.

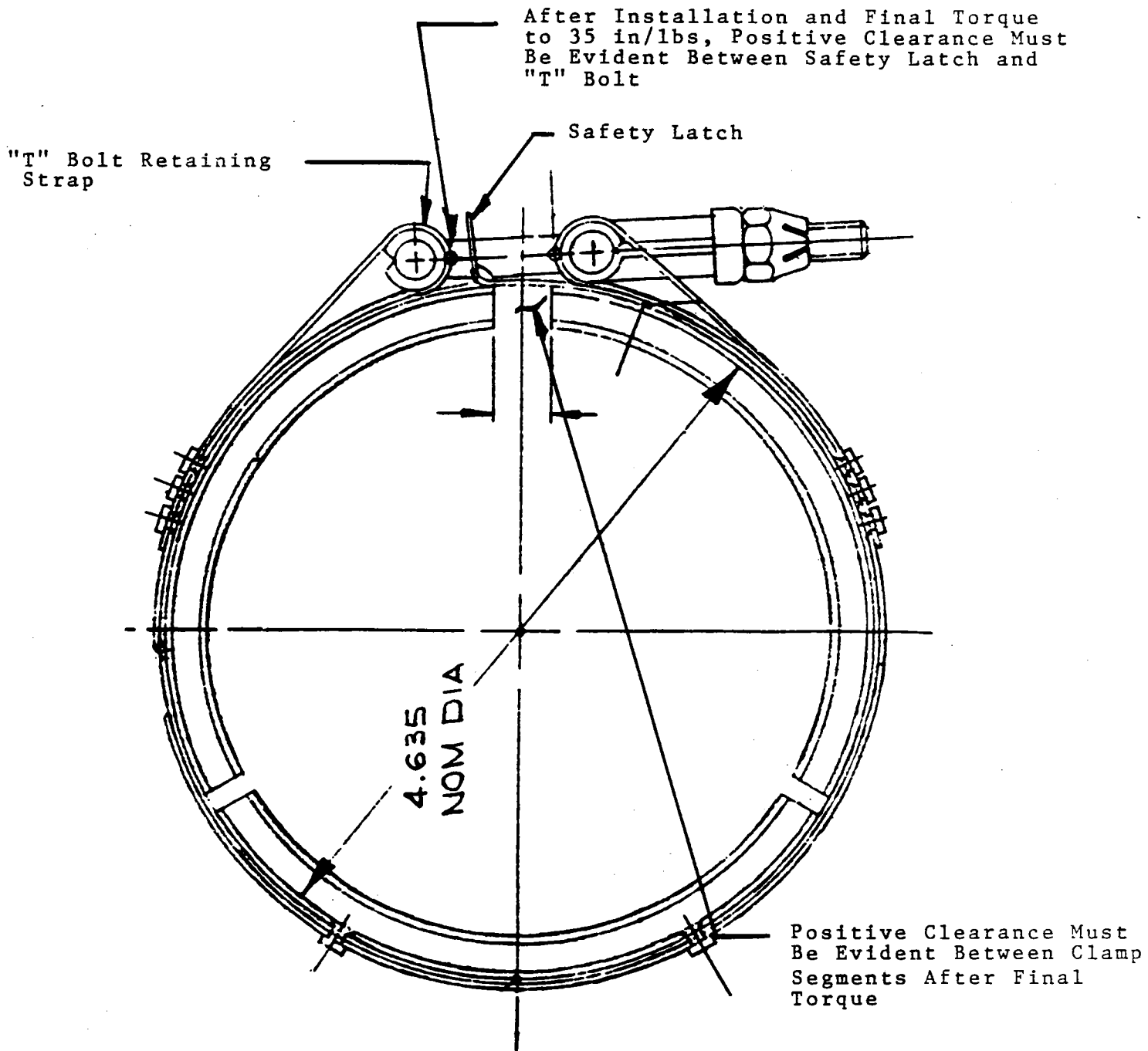
Inspect Coupling Bolt For Bends,
Distortion, Cracks And Thread Damage.

Inspect Tailpipe Flange For Carbon
Deposits, Cracks And Distortion.

Torque The Coupling Nut In Accordance With This Chart

Model	Clamp Part Number	Torque
PA-31-350	555 366 (MVT68049-450M)	45-55 in. lbs.
PA-31/PA-31-325	555 511 (MVT69861-377M)	40-50 in. lbs.

SKETCH "A"



V BAND CLAMPING DETAILS

Torque The Coupling Nut In Accordance With This Chart

Model	Clamp Part Number	Torque
PA-31-350	557-369 (NH1005798-10)	30-35 in.lbs.
PA-31/PA-31-325	557-584 (NH1005834-10)	30-35 in.lbs.