

SERVICE INSTRUCTION

DATE: January 6, 2010

Service Instruction No. 1238B
(Supersedes Service Instruction No. 1238A)Engineering Aspects are
FAA (DER) Approved

SUBJECT: Assembly and Torque Procedures for V-Band Couplings

MODELS AFFECTED: Lycoming turbocharged engines.

TIME OF COMPLIANCE: When assembling V-band couplings to the engine.

V-band couplings are employed by Lycoming on certain airframe applications such as the Piper Malibu and Saratoga or by other airframe manufacturers at various locations in turbocharger exhaust systems. They are used primarily to seal joints in the exhaust system without the necessity for heavy bolted flanges. The typical V-band coupling joint consists of the coupling, two flanges and a metal gasket.

For V-band couplings employed by Lycoming, a typical example of their installation can be found at the transition assembly and rear exhaust adapter pipe as shown in Figure 1. The proper assembly procedure for the V-band coupling is as follows:




Proper installation is critical. Tubes and components to be joined must be aligned with each other before installation of the V-band coupling. Flanges must also be aligned correctly with zero gap between flange faces prior to V-band coupling installation to ensure good joint performance.

1. Slip V-band coupling (1) over the exhaust adapter pipe (2).
2. Place the special metal gasket (3) in position with lip of gasket facing exhaust adapter pipe (2).

NOTE 1

Anytime a V-band coupling is disassembled, a new gasket must be installed at reassembly. This will ensure maximum sealing efficiency of the joint.

3. Join the machined flange of the transition assembly (4) and the coupling flange of the exhaust adapter pipe (2).
4. With both flanges joined, assemble the V-band coupling (1) over both flanges and the gasket (3).

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5. Press the V-band coupling (1) over the flanges and engage the latch on the coupling. Using a torque indicator wrench, tighten coupling latch nut to approximately 70% of torque value. Tap the outer surfaces of the coupling with a rubber mallet to distribute the band tension.
6. Check the torque with wrench, and continue tightening until the specified torque is reached. Repeat as in step 5. until torque reading stabilizes. Do **not** overtorque.

NOTE 2

Two types of coupling latch nuts may be found on 2.00 inch V-band couplings. A split type lock nut, as described with a specified torque of 80 in.-lbs., or a drilled hex. nut secured with safety wire, having a torque value of 75 in.-lbs. See Table 1 for additional information.

TABLE 1 – V-BAND COUPLING TORQUE DATA

Coupling Size Tube OD	Lycoming Part No.	Vendor Part No.	V-Band Coupling Type	T-Bolt Split Type Locknut Torque In.-Lbs.	1/4 Inch Drilled Hex. Nut with Safety Wire Torque In.-Lbs.
1.00 in.	LW-12093-1	MVT69183-100	Spot-Welded	45	--
1.25 in.	LW-12093-2	MVT69183-125	Spot-Welded	45	--
1.50 in.	LW-12093-3	MVT69183-150	Spot-Welded	65	75
1.75 in.	LW-12093-4	MVT69183-175	Spot-Welded	65	75
2.00 in.	LW-12093-5	MVT69183-200	Spot-Welded	85	75
2.25 in.	LW-12093-6	MVT69183-225	Spot-Welded	85	75
2.50 in.	LW-12093-7	MVT69183-250	Spot-Welded	85	75
2.75 in.	LW-12093-8 *	MVT69183-275	Spot-Welded	85	75
1.75 in.	LW-12125-1	NH1008723-20	Spot-Welded	65	--
2.00 in.	LW-12125-2	NH1008723-30	Spot-Welded	85	--
2.25 in.	LW-12125-3	NH1008723-10	Spot-Welded	85	--
2.50 in.	LW-12125-4	NH1008723-40	Spot-Welded	85	--
3.00 in.	LW-12125-5	NH1008723-50	Spot-Welded	85	--
3.69 in.	LW-13464	U4204-55-369M	Spot-Welded	70	--
3.69 in.	LW-15768	NH1004420-10	Spot-Welded	70	--
3.30 in.	40D23255-340M	NH1009399-10	Riveted	50-60	--
3.69 in.	40D22382	NM115002-0225	Spot-Welded	80-90	--
3.15 in.	40D22383	NH1008896-10	Spot-Welded	80-90	--
3.61 in.	40D23026	NH1009507-10	Spot-Welded	80-90	--

* - TIO-540-AE2A installations: The latest revision of Service Bulletin No. 492 states that P/N LW-12093-8 must be removed at the next periodic inspection. Replace with P/N 40D23255-340M.

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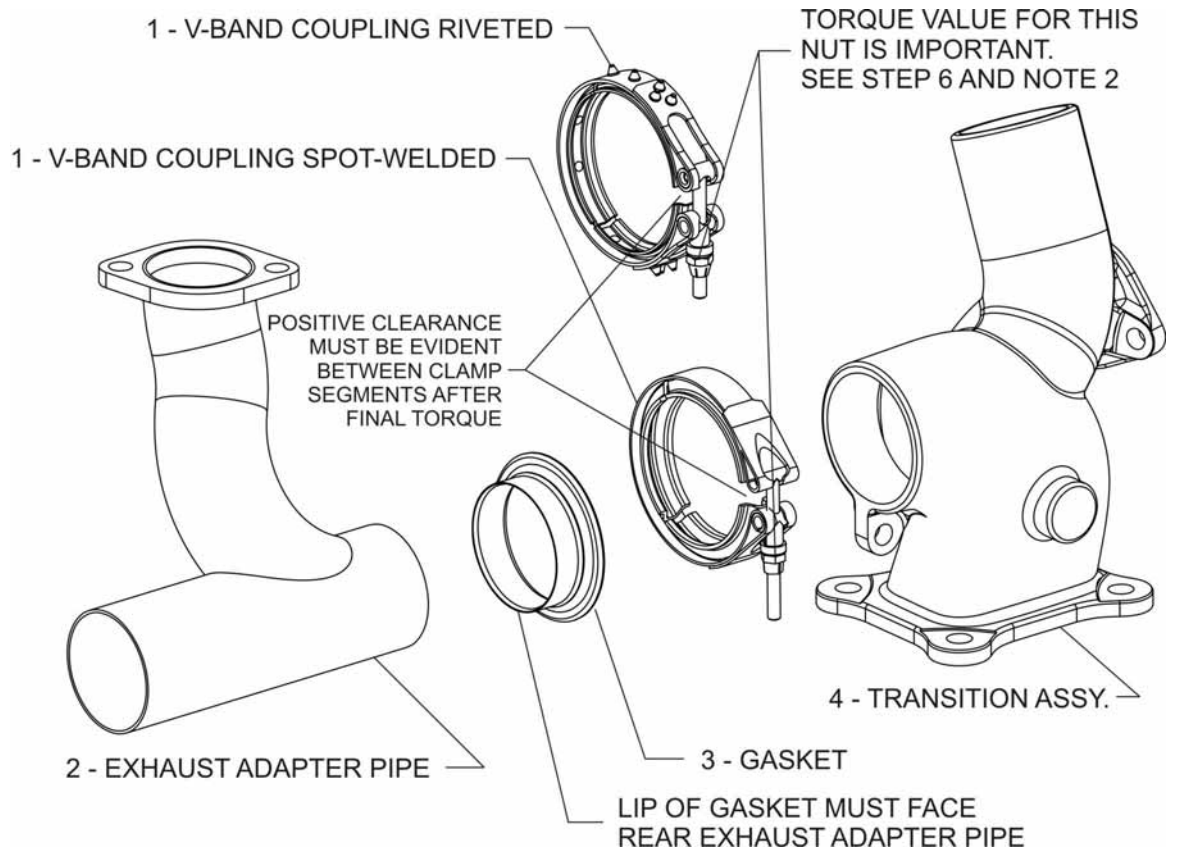


Figure 1. Illustrative Example of Exhaust Manifold Gasket and V-Band Coupling Assembly

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