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MANDATORY

SERVICE BULLETIN

DATE: August 31, 2016

Service Bulletin No. 627A
(Supersedes Service Bulletin No. 627)
Engineering Aspects are
FAA Approved

SUBJECT: Exhaust System Inspection

MODELS AFFECTED: Lycoming Engine Model TIO-540-AJ1A

TIME OF COMPLIANCE: Within 10 flight hours from the date of this Service Bulletin, complete an initial Exhaust System Inspection in accordance with the Required Action in this Service Bulletin

After the initial Exhaust System Inspection, subsequent repetitive Exhaust System Inspections are to be completed per the following schedule:

- **Every 25 flight hours** for engines that have accumulated **less than 1000** hours time in service since having maintenance that required the removal and reinstallation or the removal and replacement of any exhaust system pipe or turbocharger mounting bracket.

Or

- **Every 50 flight hours** for engines that have accumulated **more than 1000** hours time in service since having maintenance that required the removal and reinstallation or the removal and replacement of any exhaust system pipe or turbocharger mounting bracket.

REASON FOR REVISION: Clarification to the TIME OF COMPLIANCE and a revised Figure 5 to better highlight the typical staining associated with exhaust gas leakage.

NOTICE: Incomplete review of all the information in this document can cause errors. Read the entire Service Bulletin to make sure you have a complete understanding of the requirements.

This Service Bulletin is in response to field reports of exhaust leaks due to cracked welds and exhaust studs pulling from a cylinder on some Lycoming model TIO-540-AJ1A engines. This Service Bulletin contains instructions for the mandatory inspection of the exhaust system for ALL Lycoming model TIO-540-AJ1A engines within the next 10 hours, time in service, and every 25 hours, or 50 hours, as applicable, thereafter. Figures in this Service Bulletin are for illustration purposes only; your engine can appear differently.

The inspections in this Service Bulletin are in addition to the requirements of Service Bulletin No. SB-614A and AD 2015-10-06. Both are to be accomplished as specified in their respective compliance times.

CAUTION: TOXIC GASES, SUCH AS CARBON MONOXIDE, FROM LEAKS IN THE EXHAUST SYSTEM CAN POTENTIALLY ENTER THE COCKPIT.



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Required Action

Exhaust System Inspection

⚠ CAUTION: BEFORE THE EXHAUST SYSTEM INSPECTION, IF THE ENGINE HAD BEEN OPERATING, LET THE ENGINE AND THE EXHAUST SYSTEM COOL FOR 1 HOUR OR LONGER AFTER ENGINE SHUTDOWN TO PREVENT BURNS.

NOTICE: To accurately and efficiently assist those who could be experiencing exhaust leaks due to cracked welds and exhaust studs pulling from a cylinder, Lycoming must collect certain data and information from you each time you complete this inspection.

This inspection can be done on an engine installed in an airframe.

During this exhaust system inspection and each subsequent inspection thereafter, complete the steps in this Service Bulletin. Record and submit the findings on the attached form either online or on hardcopy.

1. Examine the weld joints of the exhaust pipes for all cylinders (Figures 1 and 2). Closely examine the saddle reinforced weld joints (Figures 3 and 4), especially at the #3 cylinder. If any cracks or damage are found, contact Lycoming Engines' Product Support at +1 (877) 839-7878 (Toll Free) or +1 (570) 327-7222.

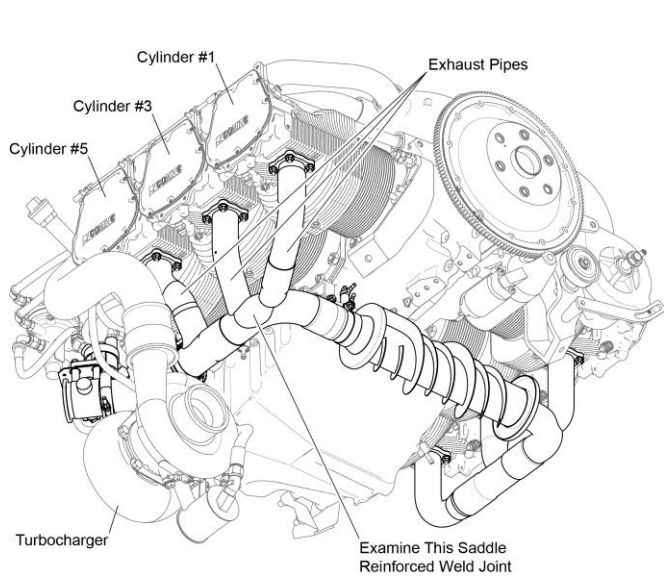


Figure 1
Installed Exhaust System
(Cylinders #1, #3, #5 - Right Side of Engine)

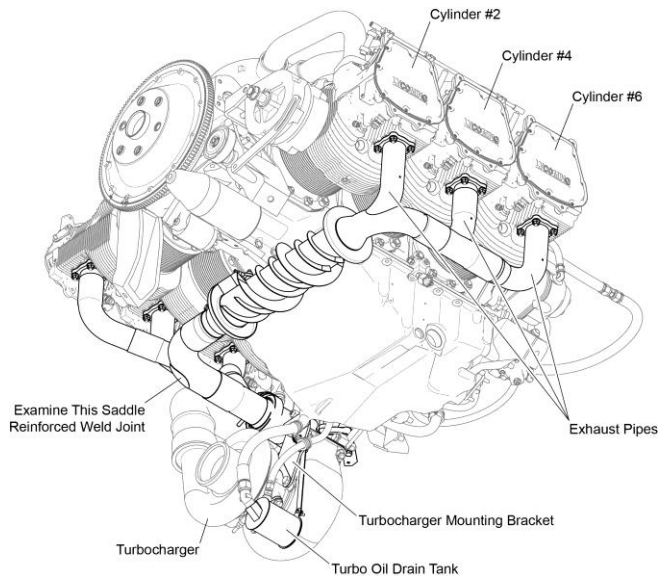


Figure 2
Installed Exhaust System
(Cylinders #2, #4, #6 - Left Side of Engine)



Figure 3
Saddle

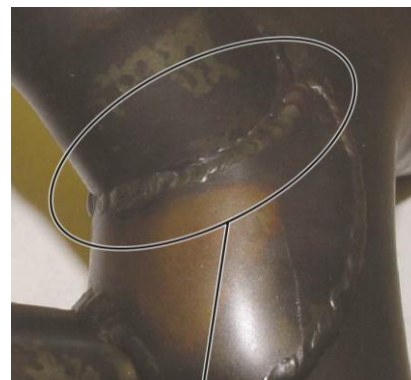


Figure 4
Saddle

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- Examine all cylinder exhaust flanges (Figure 5) for damage, distortion, or signs of exhaust gas leaking past the gasket, especially at the #2 cylinder. Indications of a flange gasket leak are burnt paint around the exhaust flange bosses or powdery white to light brown or black residue near the leaks, on the spark plug, and the baffle. If the flange or pipe is distorted, damaged, or there are signs of exhaust leaking past the gasket, contact Lycoming Engines' Product Support.

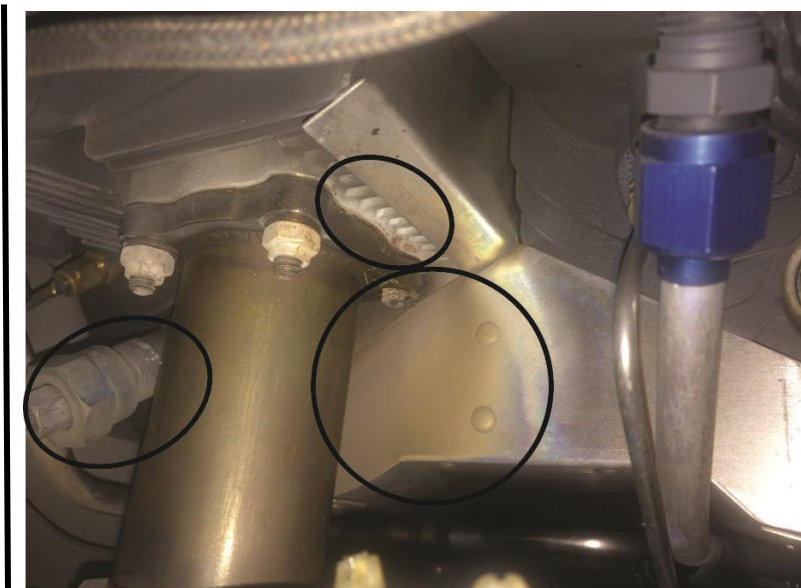


Figure 5
Signs of Exhaust Leak

- Complete a visual inspection on the entire exhaust system (Figures 1 and 2). If any sign of leaks, distortion, or damage is found, contact Lycoming Engines' Product Support.
- Since loose flange nuts can be an indication of a potential exhaust leak, complete a torque check on exhaust system flange nuts for all six cylinders. On the attached form, record the fractional amount each flange nut turns to achieve the required 96 in.-lb (11 Nm) torque. If any flange nuts are loose enough to allow movement of the washer, contact Lycoming Engines' Product Support.
- Submit the completed form after each inspection to Lycoming Engines either online or by mail.

Online

Fill out the online form at
www.lycoming.com/SB627

Click on the link or cut and paste into your browser.

Mail

Copy and manually complete the hard copy version of the form in this Service Bulletin and send it by postal service to:

Technical Support
Lycoming Engines
652 Oliver Street
Williamsport, PA 17701 USA

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Engine Serial Number (Ex. L-12345-61E): _____

Time Since Overhaul (TSO): _____

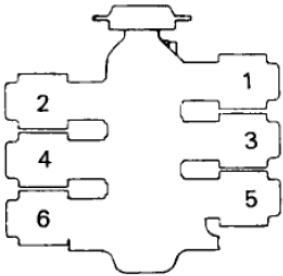
OWNER INFORMATION

Name:	
Company:	
Address:	
City:	
State:	
Postal Code:	
Country:	
Telephone Number:	

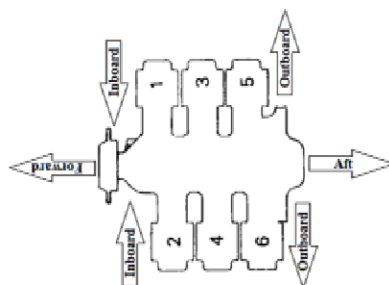
MAINTENANCE PROVIDER INFORMATION

Name:	
Company:	
Address:	
City:	
State:	
Postal Code:	
Country:	
Telephone Number:	

EXHAUST SYSTEM REVIEW

Time Since Exhaust System Installation (this may be the same as TSO)						
Were any cracks found on the welded joints?	Yes			No		
If yes, please describe the location of the crack.						
Were any exhaust leaks found at the cylinder exhaust mounting flange?	Yes			No		
						
What cylinder exhaust flange was leaking? (You may select multiple cylinders)	1	2	3	4	5	6
Were there any other exhaust discrepancies found?	Yes			No		
If yes, please describe what discrepancies were found.						

Did any exhaust flange nuts require more than a few degrees of turning to reach the required torque? (96in/lbs)	Yes	No
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If yes, which cylinder exhaust flange nuts did you find loose? Please indicate the amount of movement that you needed to tighten the nuts.

CYLINDER 1

	n/a	<1/8 Turn	1/8 th Turn	¼ Turn	½ Turn	>1/2 Turn
Forward Outboard Nut						
Forward Inboard Nut						
Aft Outboard Nut						
Aft Inboard Nut						

CYLINDER 2

	n/a	<1/8 Turn	1/8 th Turn	¼ Turn	½ Turn	>1/2 Turn
Forward Outboard Nut						
Forward Inboard Nut						
Aft Outboard Nut						
Aft Inboard Nut						

CYLINDER 3

	n/a	<1/8 Turn	1/8 th Turn	¼ Turn	½ Turn	>1/2 Turn
Forward Outboard Nut						
Forward Inboard Nut						
Aft Outboard Nut						
Aft Inboard Nut						

CYLINDER 4

	n/a	<1/8 Turn	1/8 th Turn	¼ Turn	½ Turn	>1/2 Turn
Forward Outboard Nut						
Forward Inboard Nut						
Aft Outboard Nut						
Aft Inboard Nut						

CYLINDER 5

	n/a	<1/8 Turn	1/8 th Turn	¼ Turn	½ Turn	>1/2 Turn
Forward Outboard Nut						
Forward Inboard Nut						
Aft Outboard Nut						
Aft Inboard Nut						

CYLINDER 6

	n/a	<1/8 Turn	1/8 th Turn	¼ Turn	½ Turn	>1/2 Turn
Forward Outboard Nut						
Forward Inboard Nut						
Aft Outboard Nut						
Aft Inboard Nut						