

MOONEY INTERNATIONAL CORPORATION

The Symbol of Performance ™

SPECIAL LETTER 16-12

Date: 11-2-2016

SUBJECT:

To ADVISE MOONEY OWNERS/OPERATORS of the **LYCOMING MANDATORY SERVICE BULLETIN NO. 533C (Supersedes Service Bulletin No. 533B) - Issued 10/18/2016** - Recommended Action for Sudden Engine Stoppage, Propeller/Rotor Strike or Loss of Propeller/Rotor Blade or Tip (see Attached).

MODELS/ S/N AFFECTED: TIME OF

COMPLIANCE:

All LYCOMING reciprocating aircraft engines (see Attached).

BEFORE FURTHER FLIGHT - Refer to **LYCOMING MANDATORY SERVICE BULLETIN NO. 533C (Supersedes Service Bulletin No. 533B) - Issued 10/18/2016** - Recommended Action for Sudden Engine Stoppage, Propeller/Rotor Strike or Loss of Propeller/Rotor Blade or Tip (see Attached).

INTRODUCTION:

This Service Bulletin identifies propeller/rotor damage conditions and gives corrective action recommendations for aircraft engines that have had propeller /rotor damage as well as any of the following:

- Separation of the propeller/rotor blade from the hub
- · Loss of a propeller or rotor blade tip
- Sudden stoppage

A propeller strike includes:

- Any incident, whether or not the engine is operating, where repair of the propeller is necessary
- Any incident during engine operation where the propeller has impact on a solid object. This incident includes propeller strikes against the ground. Although the propeller can continue to turn, damage to the engine can occur, possibly with progression to engine failure
- Sudden RPM drop on impact to water, tall grass, or similar yielding medium where propeller damage does not usually occur

A propeller strike can occur at taxi speeds and during touch-and-go operations with propeller tip ground contact. In addition, propeller strikes also include situations where an aircraft is stationary and a landing gear collapse occurs causing one or more blades to be bent, or where a hangar door (or other object) hits the propeller blade. These instances are cases of sudden engine stoppage because of potentially severe side loading on the crankshaft propeller flange, front bearing, and seal.

INSTRUCTIONS:

Refer to LYCOMING MANDATORY SERVICE BULLETIN NO. 533C (Supersedes Service Bulletin No. 533B) - Issued 10/18/2016 - Recommended Action for Sudden Engine Stoppage, Propeller/Rotor Strike or Loss of Propeller/Rotor Blade or Tip (see Attached).

WARRANTY:

Refer to LYCOMING MANDATORY SERVICE BULLETIN NO. 533C (Supersedes Service Bulletin No. 533B) - Issued 10/18/2016 - Recommended Action for Sudden Engine Stoppage, Propeller/Rotor Strike or Loss of Propeller/Rotor Blade or Tip (see Attached).

REFERENCE DATA:

Refer to LYCOMING MANDATORY SERVICE BULLETIN NO. 533C (Supersedes Service Bulletin No. 533B) - Issued 10/18/2016 - Recommended Action for Sudden Engine Stoppage, Propeller/Rotor Strike or Loss of Propeller/Rotor Blade or Tip (see Attached).

PARTS LIST:

Refer to LYCOMING MANDATORY SERVICE BULLETIN NO. 533C (Supersedes Service Bulletin No. 533B) - Issued 10/18/2016 - Recommended Action for Sudden Engine Stoppage, Propeller/Rotor Strike or Loss of Propeller/Rotor Blade or Tip (see Attached).



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DATE:

MANDATORY SERVICE BULLETIN

October 18, 2016

Service Bulletin No. 533C (Supersedes Service Bulletin No. 533B) Engineering Aspects are FAA Approved

SUBJECT: Recommended Action for Sudden Engine Stoppage, Propeller/Rotor Strike or

Loss of Propeller/Rotor Blade or Tip

MODELS AFFECTED: All Lycoming reciprocating aircraft engines

TIME OF COMPLIANCE: BEFORE FURTHER FLIGHT

REASON FOR REVISION Applies to all Lycoming aircraft engines (not just direct drive engines); added

checklist specific for Lycoming geared engines; updated checklist which applies to all other Lycoming aircraft engines, added check for connecting rod

squareness to the checklists.

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 identifies propeller/rotor damage conditions and gives corrective action recommendations for aircraft engines that have had propeller /rotor damage as well as any of the following:

- Separation of the propeller/rotor blade from the hub
- Loss of a propeller or rotor blade tip
- Sudden stoppage

A propeller strike includes:

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A propeller strike can occur at taxi speeds and during touch-and-go operations with propeller tip ground contact. In addition, propeller strikes also include situations where an aircraft is stationary and a landing gear collapse occurs causing one or more blades to be bent, or where a hangar door (or other object) hits the propeller blade. These instances are cases of sudden engine stoppage because of potentially severe side loading on the crankshaft propeller flange, front bearing, and seal.



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A CAUTION:

BASED UPON THE ACCUMULATED ENGINEERING, TECHNICAL, AND HISTORICAL DATA AVAILABLE, LYCOMING ENGINES **PROHIBITS** STRAIGHTENING OR GRINDING OF BENT CRANKSHAFT PROPELLER FLANGES TO RESTORE MAXIMUM RUN-OUT SPECIFICATION AS NOTED IN THE LATEST REVISION OF THE SERVICE TABLE OF LIMITS - SSP-1776. IF THE CRANKSHAFT PROPELLER FLANGE IS BENT, REPLACE THE CRANKSHAFT. **DO NOT TRY TO STRAIGHTEN OR GRIND THE CRANKSHAFT PROPELLER FLANGE.**

Recommended Corrective Action for Propeller Strikes

<u>CAUTION</u>: DAMAGE TO A PROPELLER IS SERIOUS AND CAN CAUSE THE ENGINE TO BE UNAIRWORTHY.

Circumstances of a propeller strike cannot always be used as predictors for the extent of engine damage or its future reliability. There can be varying degrees of damage to an engine and propeller from a propeller strike. The initial damage can be hidden but could become progressively worse with time and wear.

Given these possibilities and the fact that there is no identified clear, quantifiable threshold limit or gradient standard to reliably measure the extent of damage to an engine, Lycoming Engines can only recommend BEFORE FURTHER FLIGHT, that you complete the tasks in the sequential order shown in the applicable "Inspection Checklist After a Propeller Strike" included in this Service Bulletin as the corrective action for a propeller strike. One checklist applies specifically to Lycoming geared engines (GO-435, GO-480, GSO-480, IGO-540, IGSO-540, and TIGO-541) while the other checklist is for all other Lycoming aircraft engines. Make a copy of the checklist that applies to your engine model, complete it and keep it as a service record. Record all results and any corrective action taken in compliance as per the revision of this Service Bulletin in the engine logbook.

NOTICE: The agency that returns the aircraft to service is responsible for the decision to operate an engine that had a propeller strike. Lycoming Engines does not take the responsibility for the decision to return the engine to service after a propeller strike.

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E	Engine Inspection Checklist After Propell	er Stril	ke for A	ll Lycoming Engines - Exce	pt Geared Engines
Eng	gine Model:		Engine	Serial Number:	
Dat	te Inspection Started:		Date In	spection Completed:	
	Sequential Task		Addi	tional Information	Corrective Action Done/Comments
1.	damage; record condition of propeller.		ropeller Repair pro ropeller Replace p	Propeller/Corrective Action: satisfactory opeller in accordance with manufacturer's instructions ropeller in accordance with me manufacturer's instructions.	
2.	Remove the propeller.			rame and propeller s instructions.	
3.	Remove the engine.			with the airframe instructions.	
CR	ANKCASE P/N:			MATCH NO:	
4.	Disassemble the engine - remove the crankshaft, camshaft, connecting rods, crankshaft gear, and internal steel parts.			with the applicable ine manual.	
5.	Complete blast cleaning of the crankcase with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa); remove all coatings on the crankcase and engine mount bosses.	paint,	or any o nt reliabl	re is no dirt, debris, sludge, ther substance that could e Fluorescent Penetrant PI) or subsequent oil flow.	
6.	Complete blast cleaning of the oil sump and engine mount bosses with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa).	paint,	or any o	re is no dirt, debris, sludge, ther substance that could e FPI or subsequent oil	
7.	Complete blast cleaning of the engine mount brackets (on six-cylinder engines) and, if used, the lower mount rings (on helicopter engines) with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa).	paint,	or any o	re is no dirt, debris, sludge, ther substance that could e FPI or subsequent oil	
8.	Complete blast cleaning of the accessory housing with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa).	paint,	or any o	re is no dirt, debris, sludge, ther substance that could e FPI or subsequent oil	

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Engine Inspection Checklist After Propeller Strike for All Lycoming Engines - Except Geared Engines (Cont.)

	Sequential Task	Additional Information	Corrective Action Done/Comments
9.	Remove and discard the existing crankshaft gear retaining bolt and lockplate.		
10.	Examine the crankshaft.	Refer to the applicable Lycoming engine manual and the latest revision of the Service Table of Limits - SSP-1776 for the crankshaft disassembly and inspection procedures.	
11.	Examine, the crankshaft counter-bored recess, the alignment dowel especially at the base where it goes into the crankshaft, the bolt hole threads, and the crankshaft gear for wear, galling, corrosion, and fretting.	Refer to the latest revision of Service Bulletin No. SB-475. If the bolt hole threads are damaged, they cannot be repaired. Replace the crankshaft.	
12.	Clean the crankshaft, camshaft, crankshaft gear, counterweights, rollers and bushings.	Make sure there is no dirt, debris, sludge, paint, or any other substance that could prevent reliable magnetic particle inspection or subsequent oil flow.	
13.	Clean the following internal parts made of steel: Oconnecting rods Tappets (not roller tappets) Piston pins Rocker shafts Accessory drive gears Magneto drive gears Idler and oil pump shafts Shaft gears and impellers		

ACAUTION:

BASED UPON THE ACCUMULATED ENGINEERING, TECHNICAL, AND HISTORICAL DATA AVAILABLE, LYCOMING ENGINES PROHIBITS STRAIGHTENING OR GRINDING OF BENT CRANKSHAFT PROPELLER FLANGES TO RESTORE MAXIMUM RUN-OUT SPECIFICATION AS NOTED IN THE LATEST REVISION OF THE SERVICE TABLE OF LIMITS - SSP-1776. IF THE CRANKSHAFT PROPELLER FLANGE IS BENT, REPLACE THE CRANKSHAFT. DO NOT TRY TO STRAIGHTEN OR GRIND THE CRANKSHAFT PROPELLER FLANGE.

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CR/	ANKSHAFT P/N:		S/N:			
CIC	Sequential Task		Additional Informa	tion	Corrective Done/Com	
14.	Measure the flange run-out on the crankshaft.	Bullett of Lim run-ou Record	to the latest revisions of in No. SB-240 and the saits - SSP-1776 for crant tolerance. If the crankshaft flange rement.*	Service Table kshaft flange	☐Use cranks☐Replace cr	
15.	Measure the main bearing run-out on the crankshaft.	Table bearing Record	to the latest revision of of Limits - SSP-1776 for grun-out tolerance d the main bearing run-rement.*	☐Use cranks☐Replace cr		
16.	Measure the polished dimensions on the main journals.	Table dimen	to the latest revision of of Limits - SSP-1776 for sions on the main journ the dimensions of the ls.*	Main journ within acce limits - use crankshaft ☐Replace cra	eptable e	
17.	Measure the polished dimensions on the pin journals.	Table dimen	to the latest revision of of Limits - SSP-1776 for sions on the pin journal d the dimensions of the	or the s	Pin journal within acce limits - use crankshaft Replace cra	eptable e
cran	ne measurement or dimension is out of tolkshaft. Install the crankshaft per the appliale of Limits - SSP-1776.					
18.	Complete a check of connecting rod		to the section ecting Rod	Parallel	sm Measurem	nent
	parallelism.	Paralle	elism/Squareness	Connecting F	Rod 1	
			" in this Service in. Record the	Connecting F	Rod 2	
			elism measurement for onnecting rod.	Connecting F		
			ce all connecting rods	Connecting F		
			compliance with rements in the latest	Connecting F		
		revisio	on of the Service Table	Connecting F		
			nits - SSP-1776 ence 503).	Connecting F		
				Connecting F	Lou o	

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171	ngine Inspection Checklist After Propel		ont.)	z Engines - Except Geaten Engines		
	Sequential Task	Addi	tional Information	Corrective Action Done/Comments		
19.	Complete a check of connecting rod		o the section	Squareness Measurement		
	squareness.		ecting Rod lism/Squareness	Connecting Rod 1		
		Check"	in this Service	Connecting Rod 2		
			n. Record the ness measurement f	Connecting Rod 3		
		each co	onnecting rod.	Connecting Rod 4		
		-	e all connecting room on the compliance with	Connecting Rod 5		
		measur	ements in the lates	comiceting itou o		
			n of the Service Ta ts - SSP-1776	Connecting Rod 7		
			ence 504).	Connecting Rod 8		
NO'	TICE: The magnetic particle inspection Service Instruction No. SI-1285.	must be d	lone by a certified	technician as per the latest revision of		
20.	Complete a magnetic particle inspection	on the	Record test	Use crankshaft		
	crankshaft.		results.	Replace crankshaft		
21.	Complete a magnetic particle inspection	on the	Record test results.	Replace all counterweight pins,		
	crankshaft counterweights. Examine the counterweight bushing bor	es in	results.	bushings, end plates and snap rings - regardless of their condition.		
	both the counterweights and the cranksh					
22.	Complete a magnetic particle inspection	on the	Record test	Use camshaft		
	camshaft.		results.	Replace camshaft		
23.	Complete a magnetic particle inspection connecting rods.	on the	Record test results.	Replace connecting rod bolts and nuts -regardless of condition. Refer		
	competing rous.		Tosuits.	to the latest revision of Service		
				Instruction No. SI-1458 for assembly instructions.		
24.	Complete a magnetic particle inspection	on the	Record test	Use crankshaft gear		
	crankshaft gear; examine the gear end a	s per the	results.	Replace crankshaft gear		
25.	latest revision of Service Bulletin No. S		Record test			
23.	Complete a magnetic particle inspection following internal parts made of steel:	i on the	results.	Use Replace		
	Accessory drive gears			Accessory drive gears		
	Magneto drive gears			Magneto drive gears		
	Idler and oil pump shafts			Idler and oil pump shafts		
	Shaft gears and impellers Production The state of			Shaft gears and impellers		
	Piston pins Connecting rods			☐ ☐ Piston pins ☐ ☐ Connecting rods		
	Connecting rods					

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En	gine Inspection Checklist After Propeller Strike (C	e for All Lycoming Engines ont.)	- Except Geared Engines
	Sequential Task	Additional Information	Corrective Action Done/Comments
26.	Complete the visual inspection and Fluorescent Penetrant Inspection (FPI) on the crankcase. Refer to the latest revision of Service Instruction No. SI-1285. Closely examine the forward crankcase bearing support and adjacent structure.	Record test results.	☐ Use crankcase ☐ Replace crankcase
27.	Complete the visual inspection and FPI on the oil sump.	Record test results.	Use oil sump Replace oil sump
28.	Complete the visual inspection and FPI on the engine mounts and, if used, the lower mount rings (on helicopter engines).	Record test results.	☐ Use engine mounts ☐ Replace engine mounts
29.	Complete the visual inspection and FPI on the accessory housing.	Record test results.	Use accessory housing Replace accessory housing
30.	Complete the visual inspection on the oil pump impeller.	Record test results.	☐ Use impeller☐ Replace impeller
NOT	ICE: Roller tappets, counterweight rollers, and	d bushings must be replaced.	
31.	Complete the visual inspection and FPI on the tappets (not roller tappets) and lifters. Refer to the latest revision of Service Instruction No. SI-1011.	Record test results.	☐ Tappets/lifters acceptable ☐ Replace tappets/lifters
32.	Examine each magneto in accordance with the magneto manufacturer's instructions.	Record test results.	Replace magneto
33.	Examine the pistons as per instructions in the applicable Lycoming manual and the latest revision of the Service Table of Limits - SSP-1776.	Record test results.	☐ Pistons acceptable ☐ Replace pistons
34.	Refer to the latest revision of Service Bulletin No. SB-240 to identify any parts that must be replaced during engine assembly.	Record parts that must be replaced.	
35.	Install a new crankshaft gear retaining bolt and lockplate.	Refer to the latest revision of Service Bulletin No. SB-475.	

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Engine Inspection Checklist After Propeller Strike for All Lycoming Engines - Except Geared Engines (Cont.) **Corrective Action Sequential Task Additional Information Done/Comments** Review the documents of all other engine-36. mounted accessories on the engine, propeller governor (if installed), etc. for instructions on what to do for components exposed to sudden engine stoppage. Assemble and install the engine. Install the In accordance with 37. propeller and test the engine. Complete an instructions in the applicable operational check of the engine. Lycoming engine manuals, the latest revisions of the Service Table of Limits -SSP-1776 and Service Instruction No. SI-1427. 38. Record maintenance findings and any corrective action in the engine logbook. **UNAIRWORTHY PARTS:** ADDITIONAL WORK/INSPECTIONS NECESSARY: **OUTCOME OF INSPECTION- SUMMARY NOTES:**

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	Engine Inspection Checklist After	r Prope	eller Stri	ke for All Lycoming Geared	d Engines
Eng	ine Model:		Engine	Serial Number:	
Dat	e Inspection Started:		Date In	spection Completed:	
	Sequential Task		Addit	tional Information	Corrective Action Done/Comments
1.	Examine the propeller for extent of damage; record condition of propeller.	□P □R p □R th	Condition of Propeller/Corrective Action: Propeller satisfactory Repair propeller in accordance with propeller manufacturer's instructions Replace propeller in accordance with the airframe manufacturer's instructions.		
2.	Remove the propeller.			rame and propeller s instructions.	
3.	Remove the engine.			with the airframe instructions.	
CRANKCASE P/N:				MATCH NO:	
4.	Disassemble the engine - remove the crankshaft, camshaft, connecting rods, crankshaft gear, and internal steel parts.			with the applicable ine manual.	
5.	Complete blast cleaning of the crankcase with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa); remove all coatings on the crankcase and engine mount bosses.	paint, preve	or any o nt reliabl	re is no dirt, debris, sludge, ther substance that could e Fluorescent Penetrant I) or subsequent oil flow.	
6.	Complete blast cleaning of the oil sump and engine mount bosses with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa).	paint,	or any o	re is no dirt, debris, sludge, ther substance that could e FPI or subsequent oil	
7.	Complete blast cleaning of the engine mount brackets (on six-cylinder engines) and, if used, the lower mount rings (on helicopter engines) with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa).	paint,	or any o	re is no dirt, debris, sludge, ther substance that could e FPI or subsequent oil	
8.	Complete blast cleaning of the accessory housing with 17 grit walnut shells or equivalent at 35 to 45 psi (241 to 310 kPa).	paint,	or any o	re is no dirt, debris, sludge, ther substance that could e FPI or subsequent oil	

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	Sequential Task	Additional Information	Corrective Action Done/Comments
9.	Remove and discard the existing crankshaft gear retaining bolt and lockplate.		
10.	Examine the crankshaft.	Refer to the applicable Lycoming engine manual and the latest revision of the Service Table of Limits - SSP-1776 for the crankshaft disassembly and inspection procedures.	
11.	Examine, the crankshaft counter-bored recess, the alignment dowel especially at the base where it goes into the crankshaft, the bolt hole threads, and the crankshaft gear for wear, galling, corrosion, and fretting.	Refer to the latest revision of Service Bulletin No. SB-475. If the bolt hole threads are damaged, they cannot be repaired. Replace the crankshaft.	
12.	Clean the crankshaft, camshaft, crankshaft gear, counterweights, rollers and bushings.	Make sure there is no dirt, debris, sludge, paint, or any other substance that could prevent reliable magnetic particle inspection or subsequent oil flow.	
13.	Clean the following internal parts made of steel:		
	 Magneto drive gears Idler and oil pump shafts Shaft gears and impellers 		

A CAUTION:

BASED UPON THE ACCUMULATED ENGINEERING, TECHNICAL, AND HISTORICAL DATA AVAILABLE, LYCOMING ENGINES PROHIBITS STRAIGHTENING OR GRINDING OF BENT CRANKSHAFT PROPELLER FLANGES TO RESTORE MAXIMUM RUN-OUT SPECIFICATION AS NOTED IN THE LATEST REVISION OF THE SERVICE TABLE OF LIMITS - SSP-1776. IF THE CRANKSHAFT PROPELLER FLANGE IS BENT, REPLACE THE CRANKSHAFT. DO NOT TRY TO STRAIGHTEN OR GRIND THE CRANKSHAFT PROPELLER FLANGE.

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	Engine Inspection Checklist After Pr	opeller Strike for	r All Lycomi	ng Geared Ei	ngines	(Cont.)
CRA	NKSHAFT P/N:	S/N:				
	Sequential Task	Additio	onal Informa	tion		rective Action ne/Comments
14.	Measure the flange run-out on the crankshaft.	Refer to the late Service Bulletin Service Table of crankshaft flang Record the cran measurement.*	No. SB-240 a f Limits - SSP ge run-out tole	and the 2-1776 for rance.		e crankshaft place crankshaft
15.	Measure the main bearing run-out on the crankshaft.	Refer to the latest revision of the Table of Limits - SSP-1776 for bearing run-out tolerance Record the main bearing run-out measurement.*		or the main		e crankshaft place crankshaft
16.	Measure the polished dimensions on the main journals.	Refer to the late Table of Limits dimensions on to Record the dimensions.*	- SSP-1776 fo he main journ	or the als	with lim use	in journals hin acceptable its - crankshaft blace crankshaft
17.	Measure the polished dimensions on the pin journals.	Refer to the late Table of Limits dimensions on t Record the dime journals.*	- SSP-1776 fo he pin journal	or the s.	with lim use	journals hin acceptable its - crankshaft blace crankshaft
cran	he measurement or dimension is out of tolkshaft. Install the crankshaft per the applice of Limits - SSP-1776.			-		
18.	Complete a check of connecting rod parallelism.	Refer to the sect "Connecting Ro		Parallel	ism Me	easurement
	paranensin.	Parallelism/Squ	areness	Connecting I	Rod 1	
		Check" in this S Bulletin. Record		Connecting I	Rod 2	
		parallelism mea each connecting		Connecting I	Rod 3	
		Replace all conf	necting rods	Connecting I	Rod 4	
		not in compliand measurements in		Connecting I	Rod 5	
		revision of the S	Service Table	Connecting I	Rod 6	
		of Limits - SSP- (Reference 503)		Connecting I		
				Connecting I	Rod 8	

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	Engine Inspection Checklist After	Propeller S	trike for All Lyco	9 , ,
	Sequential Task	Additi	onal Information	Corrective Action Done/Comments
19.	Complete a check of connecting	Refer to the	e section "Connect	ing Squareness Measurement
	rod squareness.		elism/Squareness	Connecting Rod 1
			this Service Bulleti	n. Connecting Rod 2
		Record the	squareness ent for each connec	Connecting Rod 3
		rod.		Connecting Rod 4
		Replace all	connecting rods ne	ot in Connecting Rod 5
		compliance	with measuremen	ts in Connecting Rod 6
		the latest re	evision of the Servi mits - SSP-1776	Connecting Rod 7
		(Reference		Connecting Rod 8
NOT	TCE: The magnetic particle inspection Service Instruction No. SI-128		one by a certified t	technician as per the latest revision of
20.	Complete a magnetic particle inspect	ion on the	Record test	Use crankshaft
	crankshaft.		results.	Replace crankshaft
21.	Complete a magnetic particle inspect	ion on the	Record test	Replace all counterweight pins,
	crankshaft counterweights. Examine the counterweight bushing	hores in	results.	bushings, end plates and snap rings - regardless of their condition.
	both the counterweights and the cran			legardiess of their condition.
22.	Complete a magnetic particle inspect		Record test	Use camshaft
	camshaft.		results.	Replace camshaft
23.	Complete a magnetic particle inspect	ion on the	Record test	Replace connecting rod bolts and nuts
	connecting rods.		results.	-regardless of condition. Refer to the latest revision of Service Instruction
				No. SI-1458 for assembly instructions.
24.	Complete a magnetic particle inspect	ion on the	Record test	Use crankshaft gear
	crankshaft gear; examine the gear end		results.	Replace crankshaft gear
	latest revision of Service Bulletin No			
25.	Complete a magnetic particle inspect		Record test	Use Replace
	following internal parts made of steelAccessory drive gears	l :	results.	Accessory drive gears
	Accessory drive gearsMagneto drive gears			Magneto drive gears
	Idler and oil pump shafts			Idler and oil pump shafts
	 Shaft gears and impellers 			☐ Shaft gears and impellers
	• Piston pins			Piston pins
	 Connecting rods 			Connecting rods
	 Propeller shaft 			Propeller shaft
	 Stationary gear 			Stationary gear
	 Thrust bearing oil slinger 			Thrust bearing oil slinger
	• Pinion roller			Pinion roller
	• Pinion gear			Pinion gear
	• Pinion gear drive plate			Pinion gear drive plate
	Pinion cage Stationary coor drive plate			☐ ☐ Pinion cage ☐ ☐ Stationary gear drive plate
	Stationary gear drive plateSupercharger shaft gear (if eq	uinned)		Supercharger shaft gear
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	Engine Inspection Checklist After Propeller	Strike for All Lycoming Gear	red Engines (Cont.)
	Sequential Task	Additional Information	Corrective Action Done/Comments
26.	Complete the visual inspection and Fluorescent Penetrant Inspection (FPI) on the crankcase. Refer to the latest revision of Service Instruction No. SI-1285. Closely examine the forward crankcase bearing support and adjacent structure.	Record test results.	Use crankcase Replace crankcase
27.	Complete the visual inspection and FPI on the oil sump.	Record test results.	Use oil sump Replace oil sump
28.	Complete the visual inspection and FPI on the engine mounts and, if used, the lower mount rings (on helicopter engines).	Record test results.	Use engine mounts Replace engine mounts
29.	Complete the visual inspection and FPI on the accessory housing.	Record test results.	Use accessory housing Replace accessory housing
30.	Complete the visual inspection and FPI on the aluminum oil pump impeller.	Record test results.	Use impeller Replace impeller
NO	<u>FICE:</u> Counterweight rollers and bushings mu	st be replaced.	
31.	Complete the visual inspection and FPI on the tappets (not roller tappets) and lifters. Refer to the latest revision of Service Instruction No. SI-1011.	Record test results.	☐ Tappets/lifters acceptable ☐ Replace tappets/lifters
32.	Complete the visual inspection and FPI on the reduction gear housing	Record test results.	Use reduction gear housing Replace reduction gear housing
33.	Complete the visual inspection and FPI on the supercharger housing (if equipped)	Record test results.	☐ Use supercharger housing ☐ Replace supercharger housing
34.	Complete the visual inspection and FPI on the supercharger impeller	Record test results.	☐ Use supercharger impeller ☐ Replace supercharger impeller
35.	Examine each magneto in accordance with the magneto manufacturer's instructions.	Record test results.	Replace magneto
36.	Examine the pistons as per instructions in the applicable Lycoming manual and the latest revision of the Service Table of Limits - SSP-1776.	Record test results.	☐ Pistons acceptable ☐ Replace pistons

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	Sequential Task	Additional Information	Corrective Action Done/Comments
37.	Refer to the latest revision of Service Bulletin No. SB-240 to identify any parts that must be replaced during engine assembly.	Record parts that must be replaced.	
38.	Install a new crankshaft gear retaining bolt and lockplate.	Refer to the latest revision of Service Bulletin No. SB-475.	
39.	Review the documents of all other engine- mounted accessories on the engine, propeller governor (if installed), etc. for instructions on what to do for components exposed to sudden engine stoppage.		
40.	Assemble and install the engine. Install the propeller and test the engine. Complete an operational check of the engine.	In accordance with instructions in the applicable Lycoming engine manuals, the latest revisions of the Service Table of Limits - SSP-1776 and Service Instruction No. SI-1427.	
41.	Record maintenance findings and any corrective action in the engine logbook.		
	AIRWORTHY PARTS: DITIONAL WORK/INSPECTIONS NECESSA	ARY:	

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Connecting Rod Parallelism/Squareness Check

NOTICE: The connecting rod parallelism and squareness gage (Figure 1) is necessary for this check.

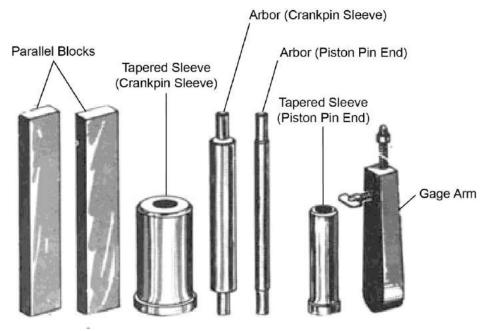


Figure 1
Connecting Rod Parallelism and Squareness Gage

- A. Verify that the bearing cap is assembled correctly and is tightened securely.
- B. Insert the tapered sleeves (Figure 2) of the Connecting Rod Parallelism and Squareness Gage in the bearing holes in the connecting rod.
- C. Pull arbors through the sleeves.
- D. Put the gage arm on the arbor.
- E. Turn the adjusting screw on the gage arm until it just contacts the arbor.
- F. Lock the adjusting screw with the wing nut.
- G. Make sure the adjusting screw just contacts the arbor.
- H. Remove the gage arm and place it on the other end of the arbor.
- Measure the distance between arbors.
 For exact parallelism or alignment, the distances measured on both sides are to be the same. Record the measurement.
- J. Remove the gage arm (Figure 2).
- K. Keep the sleeves and arbors in place.

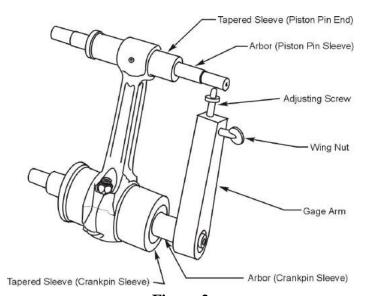


Figure 2
Parallelism Check of Connecting Rods

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- L. Put the parallel blocks (Figure 3) of the Connecting Rod Parallelism and Squareness Gage on the surface plate.
- M. Put the ends of the arbors on the parallel blocks.
- N. For the squareness or twist check, measure clearance at the four check points in Figure 3 where the arbors rest on the parallel blocks using a feeler gage. Record the measurement.
- O. Compare the clearance between each arbor and the parallel blocks against the values in the latest revision of the Service Table of Limits SSP-1776. If out of tolerance, replace the connecting rods and examine the crankshaft to make sure the crankshaft is not damaged.

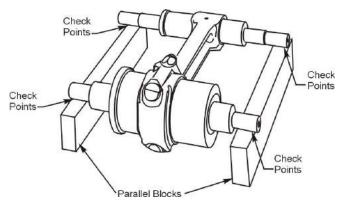


Figure 3
Squareness Check of Connecting Rods

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