

MANDATORY

SERVICE BULLETIN

DATE: November 19, 2008

Service Bulletin No. 581A
Engineering Aspects are
FAA Approved

NOTE 1: Lycoming has not reprinted Revisions 2 and 3 of Precision Airmotive Service Bulletin No. PRS-107.

SUBJECT: Reprint of Precision Airmotive MANDATORY Service Bulletin Nos. PRS-107, Rev. 4 and PEX-1, Rev. 1

NOTE 1: This bulletin does **not** apply if the Fuel Injection Servo has the letter "G" marked on the regulator hex plug and Precision Airmotive gasket P/N 2577258 has been installed.

MODELS AFFECTED:

Engines Shipped From Lycoming:

All new, overhauled, rebuilt, or repaired (L)IO, AIO, HIO, IGO, IVO, (L)TIO, AEIO series engines with either a Precision Airmotive or Bendix RSA-5 or RSA-10 series Fuel Injection Servo, or a Precision Airmotive Silverhawk EX Fuel Injection Kit shipped from Lycoming between August 22, 2006 and April 2, 2008.

Spares Shipped From Lycoming:

All new, overhauled, or rebuilt Precision Airmotive or Bendix RSA-5 or RSA-10 series Fuel Injection Servos shipped from Lycoming between August 22, 2006 and April 2, 2008.

All Precision Airmotive Silverhawk EX Fuel Injection Kits shipped from Lycoming between August 22, 2006 and April 2, 2008.

Spares Containing Precision Gasket P/N 365533:

All new, overhauled, rebuilt, or repaired Precision Airmotive RSA-5 or RSA-10 series Fuel Injection Servos, or Precision Airmotive Silverhawk EX Fuel Injection Kits, whether provided by Lycoming or others, that had Precision gasket P/N 365533 replaced after August 22, 2006.

NOTE 2: The fuel injection servo model can be found on the fuel injector servo identification plate.



ISSUED			REVISED			PAGE NO.	REVISION
MO	DAY	YEAR	MO	DAY	YEAR		
03	13	08	11	19	08	1 of 11	A

TIME OF COMPLIANCE:

Engines shipped from Lycoming between August 22, 2006 and March 3, 2008 and installed with RSA-5 or RSA-10 series Fuel Injection Servos or Silverhawk EX Fuel Injection Kit:

- Follow Section C of PRS-107, Rev. 4 or PEX-1, Rev. 1 until terminating action, per section G, is accomplished.

Engines shipped from Lycoming between March 4, 2008 and April 2, 2008 and installed with RSA-5 or RSA-10 series Fuel Injection Servos or a Silverhawk EX Fuel Injection Kit:

- These engines were initially inspected at Lycoming for security of the hex plug Precision P/N 383493, but due to the nature of the issue, every Servo must be checked again just prior to the first flight.
- Follow Section C of PRS-107, Rev. 4 or PEX-1, Rev. 1 until terminating action, per section G, is accomplished.

Spare RSA-5 or RSA-10 Fuel Injection Servos or Silverhawk EX Fuel Injection Kits that contain Precision gasket P/N 365533 must use new gasket P/N 2577258.

- Follow Section C of PRS-107, Rev. 4 or PEX-1, Rev. 1 until terminating action, per section G, is accomplished.

Lycoming has learned that all new, overhauled, rebuilt, or repaired engines with a Precision Airmotive or Bendix RSA-5, RSA-10 series fuel injection servo, or a Precision Airmotive Silverhawk EX Fuel Injection Kit installed since August 22, 2006 may have a loose brass hex plug. A loose plug will allow a leak which may have an effect on engine performance. If the plug completely falls out of the regulator cover, a loss of engine power will result.

Precision Airmotive MANDATORY Service Bulletin Nos. PRS-107, Rev. 4 and PEX-1, Rev. 1 are reprinted in their entirety as follows. Lycoming requires compliance with all elements of these Service Bulletins and with the additional notes listed below.

These reprints are current at the time Lycoming Service Bulletin No. 581A is issued. However, when complying with this Service Bulletin, insure that compliance is in accordance with the latest revisions of Precision Airmotive MANDATORY Service Bulletins No. PRS-107, and PEX-1.

IF, AFTER INSPECTING THE PLUG, IT IS FOUND TO BE LOOSE, DO NOT FLY YOUR AIRCRAFT UNTIL PRECISION SERVICE BULLETINS HAVE BEEN COMPLIED WITH.

NOTE 3

For affected Fuel Injection Servos shipped from Lycoming as a spare or an engine component, contact Precision Airmotive. Contact information for Precision Airmotive is:

Precision Airmotive Corporation
 14800 40th Avenue, N.E.
 Marysville, WA 98271
 Tel: (360) 651-8282
 Fax: (360) 651-8080

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	2 of 11	A	



14800 40th Avenue NE
 MARYSVILLE, WASHINGTON 98271
 FAA-PMA FACILITY #PQ111NM

MANDATORY Service Bulletin Fuel Systems

Bulletin No.: PRS-107
 Revision No: 4
 Date: 7/16/08

ENGINEERING ASPECTS OF THIS
 BULLETIN ARE FAA APPROVED

SUBJECT: HEX PLUG 383493 COMING LOOSE FROM REGULATOR COVER

NOTE: THE FAA SEATTLE AIRCRAFT CERTIFICATION OFFICE HAS APPROVED THIS BULLETIN AS AN ALTERNATE METHOD OF COMPLIANCE TO EMERGENCY AD 2008-06-51 ON APRIL 16, 2008.

A. EFFECTIVITY:

All aircraft and engines with RSA-5 or RSA-10 series Fuel Injection Servos which have had a new, rebuilt, overhauled, or repaired servo installed since August 22, 2006.

This bulletin does NOT apply if:

- 1) The gasket (part number 365533) under the regulator hex plug was shipped by Precision Airmotive prior to August 22, 2006.
- 2) The servo has the letter "G" marked on the regulator hex plug and gasket part number 2577258 has been installed.
- 3) The servo contains a regulator hex plug gasket manufactured by an FAA-PMA approved source other than Precision Airmotive. Continued airworthiness instructions for those non Precision Airmotive gaskets should be obtained from the manufacturer.

NOTE: If there is any doubt about whether one of the above three exceptions apply, this service bulletin is mandatory and must be complied with.

NOTE: This service bulletin applies to all Precision Airmotive AND all Bendix RSA-5 and RSA-10 series Fuel Injection Servos unless one of the above three exceptions apply.

B. REASON:

Precision Airmotive has recently learned of two incidents relating to its RSA fuel injection servos. In both cases the brass hex plug p/n 383493 on the cover of the regulator was found hanging from the safety wire, out of the hole, with damaged threads. In one instance the condition was found on the ground while troubleshooting a lean running condition. In the second instance the occurrence is believed to have happened in the air while flying at cruise power. The aircraft in the latter instance experienced a significant loss of power and misfiring while in flight. An off airport landing was made, resulting in considerable damage to the aircraft. The servos in these incidents had between 200 and 300 hours TSN. Precision Airmotive issued a Safety Alert on 3/3/08 requiring inspection of these plugs for looseness. Precision has now received additional reports of loose plugs on RSA-5 and RSA-10 servos on various different aircraft models. Precision Airmotive has determined that the gasket p/n 365533 located between the hex plug p/n 383493 and the servo regulator cover can shrink from engine heat which can cause the hex plug to lose torque against the regulator cover. The material in these gaskets was changed beginning August 22, 2006, and the gaskets that have been identified as experiencing shrinkage were all comprised of the new gasket material.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	3 of 11	A	

This bulletin identifies affected servos and provides information for immediate inspection and repair.

C. COMPLIANCE:

IMMEDIATE ACTION REQUIRED PRIOR TO NEXT FLIGHT: Unless already accomplished in accordance with PRS-107 Rev 1, PRS-107 Rev 2, PRS-107 Rev 3, or FAA AD 2008-06-51, immediately inspect all aircraft or engine with RSA-5 or RSA-10 series servos which have had a new, rebuilt, overhauled, or repaired servo installed after August 22, 2006 that cannot be confirmed to have had gasket p/n 2577258 installed under the hex plug, to determine if the brass regulator hex plug is loose.

CONTINUED ACTION REQUIRED: Until terminating action is accomplished (see section G) continue periodic inspections to determine if the hex plug is loose.

1. If the plug HAS NOT BEEN re-torqued per section F, such inspections must occur at every oil change or every 50 hours of engine run time, whichever comes first.
2. If the plug HAS BEEN re-torqued per section F, such inspections must occur at every annual inspection or every 120 hours of engine run time, whichever comes first.

WARNING
THESE PERIODIC INSPECTIONS MUST BE CONTINUED UNTIL TERMINATING ACTION PER SECTION G BELOW IS ACCOMPLISHED.

TERMINATING ACTION: Accomplishment of the terminating action per section G is required to eliminate the repetitive inspections required above. Once section G has been completed, no further action is required.

D. INSPECTION:

WARNING
DO NOT FLY YOUR AIRCRAFT UNTIL THE REGULATOR HEX PLUG HAS BEEN INSPECTED.

Determining if the plug is loose requires more than just a visual inspection. The inspection should be accomplished by attempting to move the plug with a single finger. Do not use a wrench or apply significant torque to the plug. If the plug does not move, it is acceptable.

WARNING
IF THE PLUG IS LOOSE, DO NOT FLY YOUR AIRCRAFT UNTIL THE ISSUE IS RESOLVED AS SET FORTH IN THIS SERVICE BULLETIN.

E. ACTION IF HEX PLUG IS NOT FOUND LOOSE.

1. Enter in the Engine log book the date in which the plug was inspected per PRS-107 Revision 4 and indicate that the plug was NOT loose.
2. Continued action is required per section C. In order to eliminate the need for continued inspection, proceed as directed in section G.

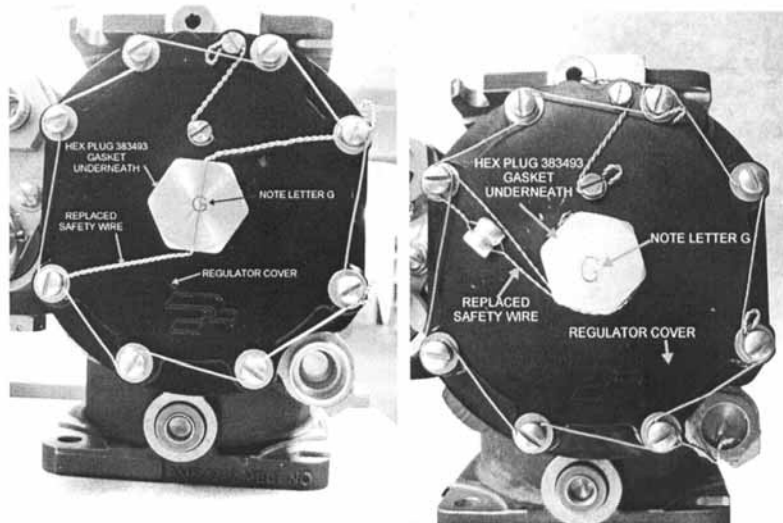
ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	4 of 11	A	

F. ACTION IF HEX PLUG IS FOUND LOOSE:

NOTE: If replacement gasket p/n 2577258 gasket is available, install it per section G. If replacement gasket is not available, remove, inspect, and reinstall plug and gasket per this section.

1. Carefully cut and remove the safety wire that spans between the hex plug 383493 and regulator cover only.
2. Remove hex plug while ensuring that gasket 365533 that is behind the plug is not lost. The gasket may be slightly stuck to regulator cover.
3. Examine the threads on the hex plug and regulator cover for damage. Threads should not show signs of excessive wear. The hex plug outer diameter threads should also measure within .7400-.7500 inches. If the condition of the threads is suspect, please contact Precision Airmotive Product Support.
4. If the threads on either the hex plug or regulator cover are excessively worn or don't measure within the aforementioned dimensions the servo must be removed and sent to Precision Airmotive or an authorized repair station for repair.
5. If the threads on both the hex plug and the regulator cover are acceptable, inspect the gasket 365533 for tears and other damage. If the gasket is damaged acquire a new gasket from Precision Airmotive distribution.
6. With an acceptable hex plug, an acceptable regulator cover, and an acceptable gasket, install the gasket over the hex plug and install plug into the regulator cover. Torque the hex plug to 90-100 in-lbs.
7. The hex plug must be safety wired with .015 thru .025 inch diameter wire to the regulator cover as shown in the photos on the next page. The wire shall pass thru the plug such that it pulls the plug in the tightened direction and does not rest on the corners of the hex on the plug (it is acceptable to wrap under the corners of the hex plug). These photos are just two examples of acceptable safety methods. Other safety wire methods such as those described in FAA AC 43-13-1B (or latest revision) are also acceptable.
8. Ensure that any other safety wire on the servo that may have been damaged when removing the hex plug safety wire is replaced.
9. Enter in the engine log book the date in which the plug was inspected, torqued, and safety wired per this Service Bulletin PRS-107 Revision 4.
10. Continued action is required per section C. In order to eliminate the need for continued inspection, proceed as directed in section G.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	5 of 11	A	



Note: The safety wire through the hex plug shown in the left hand photo is .025” wire wrapped around regulator screws under existing wire. It does not go through the holes in the screws. The safety wire through the hex plug shown in the right hand photo is .015” wire which passes through the regulator screw hole. This is the normal safety wire method used at the factory.

IMPORTANT: The letter “G” shown in the photos is to be stamped ONLY if the new gasket, part number 2577258 has been installed.

G. TERMINATING ACTION:

1. Carefully cut and remove the safety wire that spans between the hex plug 383493 and regulator cover only.
2. Remove hex plug.
3. Examine the threads on the hex plug and regulator cover for damage. Threads should not show signs of excessive wear. The hex plug outer diameter threads should also measure within .7400-.7500 inches. If the condition of the threads is suspect, please contact Precision Airmotive Product Support.
4. If the threads on either the hex plug or regulator cover are excessively worn or don’t measure within the aforementioned dimensions the servo must be removed and sent to Precision Airmotive or an authorized repair station for repair.
5. If the threads on both the hex plug and the regulator cover are acceptable, obtain a new gasket, part number 2577258 from Precision Airmotive. Discard the 365533 gasket.
6. Stamp or scribe the letter “G” onto the face of the hex plug as shown in the sample photos. This shall be done with the plug removed from the servo. DO NOT stamp the plug with it installed in the servo.

NOTE: The “G” marked on the hex plug indicates that the new 2577258 gasket has been installed. All servos manufactured/rebuilt/overhauled/repared after June 30, 2008 must use the new 2577258 gasket and must be marked with the “G” on the regulator hex plug.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	6 of 11	A	

7. With an acceptable hex plug, and an acceptable regulator cover, install the 2577258 gasket over the hex plug and install plug into the regulator cover. Torque the hex plug to 90-100 in-lbs.
8. Safety wire the plug as described in section F, paragraph 7.
9. Ensure that any other safety wire on the servo that may have been damaged when removing the hex plug safety wire is replaced.
10. Enter in the engine log book the date the 2577258 gasket was installed per this Service Bulletin PRS-107 Revision 4.

H. SECTION IV – WARRANTY INFORMATION:

If your servo was manufactured or rebuilt by Precision Airmotive during this time period, Precision will provide a reimbursement to the aircraft owner of up to \$100 per servo for resolution of this problem. A listing of the serial numbers manufactured or rebuilt by Precision Airmotive during this time may be found on our website at www.precisionairmotive.com. Please note that this listing is NOT a complete list of servos that may contain this gasket. Servos overhauled or repaired by other repair stations during this time period may also contain this part and must comply with this bulletin.

Contact Information: Precision Airmotive LLC
 Product Support Department
 (360)651-8282

PARTS AVAILABILITY: As of March 21, 2008, gasket part number 365533 is no longer available from Precision Airmotive. The new gasket, part number 2577258 is available and should be used in place of 365533. Service Information Letter RS-87 has been published with instructions for use.

NOTE: All servos overhauled or repaired by repair stations after June 30, 2008 MUST use the new 2577258 gasket. After this date the 365533 gasket MAY NO LONGER BE INSTALLED.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	7 of 11	A	

MANDATORY Service Bulletin Fuel Systems

Bulletin No.: PEX-1
 Revision No: 1
 Date: 3/24/08

SUBJECT: HEX PLUG 383493 COMING LOOSE FROM REGULATOR COVER

A. EFFECTIVITY:

All aircraft and engines with a Silverhawk EX-5VA1 or EX-10VA1 series Fuel Injection Servo which was manufactured or repaired between August 22, 2006 and March 21, 2008. This bulletin does NOT apply if the servo has the letter "G" marked on the regulator hex plug. This indicates that a new gasket (part number 2577258) was installed.

B. REASON:

Precision Airmotive has recently learned of two incidents relating to its RSA fuel injection servos. In both cases the brass hex plug p/n 383493 on the cover of the regulator was found hanging from the safety wire, out of the hole, with damaged threads. In one instance the condition was found on the ground while troubleshooting a lean running condition. In the second instance the occurrence is believed to have happened in the air while flying at cruise power. The aircraft in the latter instance experienced a significant loss of power and misfiring while in flight. An off airport landing was made, resulting in considerable damage to the aircraft. The servos in these incidents had between 200 and 300 hours TSN. Precision Airmotive issued a Safety Alert on 3/3/08 requiring inspection of these plugs for looseness. Precision has now received additional reports of loose plugs on RSA-5 and RSA-10 servos on various different aircraft models. Precision Airmotive has determined that the gasket p/n 365533 located between the hex plug p/n 383493 and the servo regulator cover can shrink from engine heat which can cause the hex plug to lose torque against the regulator cover. All Silverhawk servos use these same gaskets. The material in these gaskets was changed beginning August 22, 2006, and the gaskets that have been identified as experiencing shrinkage were all comprised of the new gasket material.

This bulletin identifies affected servos and provides information for immediate inspection and repair.

C. COMPLIANCE:

IMMEDIATE ACTION REQUIRED PRIOR TO NEXT FLIGHT: Immediately inspect all aircraft or engines with Silverhawk EX-5VA1 or EX-10VA1 servos which manufactured or rebuilt between August 22, 2006 and March 21, 2008 to determine if the brass regulator hex plug is loose.

CONTINUED ACTION REQUIRED: Until terminating action is accomplished (see section G) continue periodic inspections to determine if the hex plug is loose.

1. If the plug HAS NOT BEEN re-torqued per section F, such inspections must occur at every oil change or every 50 hours of engine run time, whichever comes first.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	8 of 11	A	

2. If the plug HAS BEEN re-torqued per section F, such inspections must occur at every annual inspection or every 120 hours of engine run time, whichever comes first.

WARNING
THESE PERIODIC INSPECTIONS MUST BE CONTINUED UNTIL TERMINATING ACTION PER SECTION G BELOW IS ACCOMPLISHED.

TERMINATING ACTION: Accomplishment of the terminating action per section G is required to eliminate the repetitive inspections required above. Once section G has been completed, no further action is required.

D. INSPECTION:

WARNING
DO NOT FLY YOUR AIRCRAFT UNTIL THE REGULATOR HEX PLUG HAS BEEN INSPECTED.

Determining if the plug is loose requires more than just a visual inspection. The inspection should be accomplished by attempting to move the plug with a single finger. Do not use a wrench or apply significant torque to the plug. If the plug does not move easily, it is acceptable.

WARNING
IF THE PLUG IS LOOSE, DO NOT FLY YOUR AIRCRAFT UNTIL THE ISSUE IS RESOLVED AS SET FORTH IN THIS SERVICE BULLETIN.

E. ACTION IF HEX PLUG IS NOT FOUND LOOSE.

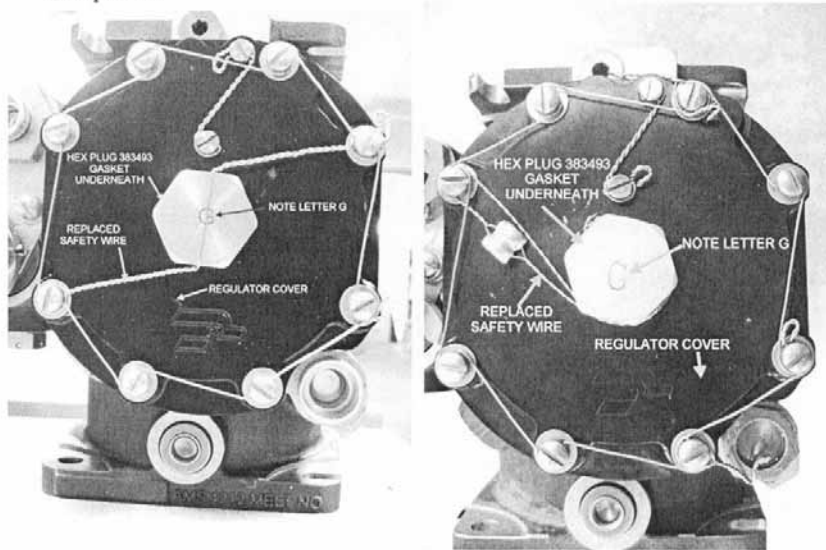
1. Enter in the Engine log book the date in which the plug was inspected per PEX-1 and indicate that the plug was NOT loose.
2. Continued action is required per section C. In order to eliminate the need for continued inspection, proceed as directed in section G.

F. ACTION IF HEX PLUG IS FOUND LOOSE:

1. Carefully cut and remove the safety wire that spans between the hex plug 383493 and regulator cover only.
2. Remove hex plug while ensuring that gasket 365533 that is behind the plug is not lost. The gasket may be slightly stuck to regulator cover.
3. Examine the threads on the hex plug and regulator cover for damage. Threads should not show signs of excessive wear. The hex plug outer diameter threads should also measure within .7400-.7500 inches. If the condition of the threads is suspect, please contact Precision Airmotive Product Support.
4. If the threads on either the hex plug or regulator cover are excessively worn or don't measure within the aforementioned dimensions the servo must be removed and sent to Precision Airmotive for repair.
5. If the threads on both the hex plug and the regulator cover are acceptable, inspect the gasket 365533 for tears and other damage. If the gasket is damaged acquire a new gasket from Precision Airmotive distribution.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	9 of 11	A	

6. With an acceptable hex plug, an acceptable regulator cover, and an acceptable gasket, install the gasket over the hex plug and install plug into the regulator cover. Torque the hex plug to 90-100 in-lbs.
7. The hex plug must be safety wired with .015 or .025 inch diameter wire to the regulator cover as shown in the photos below. The wire shall pass thru the plug such that it pulls the plug in the tightened direction and does not rest on the corners of the hex on the plug (it is acceptable to wrap under the corners of the hex plug). These photos are just two examples of acceptable safety methods. Other safety methods such as those described in FAA AC 43-13 are also acceptable.



Note: The safety wire through the hex plug shown in the left hand photo is .025” wire wrapped around regulator screws under existing wire. It does not go through the holes in the screws. The safety wire through the hex plug shown in the right hand photo is .015” wire which passes through the regulator screw hole. This is the normal safety wire method used at the factory.

IMPORTANT: The letter “G” shown in the photos is to be stamped ONLY if the new gasket, part number 2577258 has been installed.

8. Ensure that any other safety wire on the servo that may have been damaged when removing the hex plug safety wire is replaced.
9. Enter in the engine log book the date in which the plug was inspected, torqued, and safety wired per this Service Bulletin PEX-1.
10. Continued action is required per section C. In order to eliminate the need for continued inspection, proceed as directed in section G.

G. TERMINATING ACTION:

1. Carefully cut and remove the safety wire that spans between the hex plug 383493 and regulator cover only.
2. Remove hex plug.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	10 of 11	A	

3. Examine the threads on the hex plug and regulator cover for damage. Threads should not show signs of excessive wear. The hex plug outer diameter threads should also measure within .7400-.7500 inches. If the condition of the threads is suspect, please contact Precision Airmotive Product Support.
4. If the threads on either the hex plug or regulator cover are excessively worn or don't measure within the aforementioned dimensions the servo must be removed and sent to Precision Airmotive for repair.
5. If the threads on both the hex plug and the regulator cover are acceptable, obtain a new gasket, part number 2577258 from Precision Airmotive. Discard the 365533 gasket.
6. Stamp or scribe the letter "G" onto the face of the hex plug as shown in the sample photos. This shall be done with the plug removed from the servo. DO NOT stamp the plug with it installed in the servo.

NOTE: The "G" stamped on the hex plug indicates that the new 2577258 gasket has been installed. Servos manufactured or repaired before August 22, 2006 or after December 31, 2008 need not have this stamp. To minimize confusion in the immediate future, it is required that all servos manufactured/overhauled/repaired using the 2577258 gasket be stamped with a "G" on the hex plug until December 31, 2008.

7. With an acceptable hex plug, and an acceptable regulator cover, install the 2577258 gasket over the hex plug and install plug into the regulator cover. Torque the hex plug to 90-100 in-lbs.
8. Safety wire the plug as described in section F, paragraph 7.
9. Ensure that any other safety wire on the servo that may have been damaged when removing the hex plug safety wire is replaced.
10. Enter in the engine log book the date the 2577258 Gasket was installed per this Service Bulletin PEX-1.

H. **SECTION IV – WARRANTY INFORMATION:**

If your servo was manufactured or repaired by Precision Airmotive during this time period, Precision will provide a reimbursement to the aircraft owner of up to \$100 per servo for resolution of this problem. A listing of the serial numbers manufactured or repaired by Precision Airmotive during this time may be found on our website at www.precisionairmotive.com. Please note that this listing is NOT a complete list of servos that may contain this gasket. Servos repaired by other repair stations during this time period may also contain this part and must comply with this bulletin.

Contact Information: Precision Airmotive LLC
 Product Support Department
 (360)651-8282

PARTS AVAILABILITY: As of March 21, 2008, gasket part number 365533 is no longer available from Precision Airmotive. The new gasket, part number 2577258 is available and should be used in place of 365533.

ISSUED			REVISED			PAGE NO.	REVISION	S.B. 581
MO	DAY	YEAR	MO	DAY	YEAR			
03	13	08	11	19	08	11 of 11	A	