



SERVICE INSTRUCTION M20-115A

Date: March 27, 2008

SUBJECT:#1 TO ADVISE OWNERS OF PRECISION AIRMOTIVE LLC SERVICE BULLETIN NO. PRS-107 REV. 2 (ATTACHED)

SUBJECT:#2 TO ADVISE OWNERS OF PRECISION AIRMOTIVE LLC SERVICE BULLETIN NO. PEX-1 REV. 1 (ATTACHED)

SUBJECT:#3 TO ADVISE OWNERS OF PRECISION AIRMOTIVE LLC SERVICE INFORMATION LETTER NO. RS-87 (ATTACHED)

MODELS/ SN AFFECTED: M20E, M20F, M20J, M20M with Fuel Injected Lycoming Engines that are equipped with RSA-5 or RSA-10 series Fuel Injection Servos. Also any Mooney Aircraft equipped with Silverhawk EX-5VA1 or EX-10VA1 series Fuel Injection Servos.

TIME OF COMPLIANCE: MANDATORY: Immediate Action Required Prior to Next Flight
INSPECT PER, AND COMPLY WITH PRECISION AIRMOTIVE LLC Service Bulletin PRS-107 REV. 2, Service Bulletin PEX-1 Rev 1 and Service Information Letter SIL RS-87.

INTRODUCTION: 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 3/3/2008 requiring inspection of these plugs for looseness. PRECISION AIRMOTIVE 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. The attached PRECISION AIRMOTIVE Service Bulletins PRS-107 REV. 2 and PEX-1 details the inspection steps to be taken and applicable procedures. The attached PRECISION AIRMOTIVE Service Instruction RS-87 covers the New regulator plug gasket and torque values for RSA-5 and RSA-10 Fuel Injection Servos.

INSTRUCTIONS: Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PRS-107 REV. 2 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PEX-1 REV. 1 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE INFORMATION LETTER #RS-87 (Attached)

WARRANTY: Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PRS-107 REV. 2 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PEX-1 REV. 1 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE INFORMATION LETTER #RS-87 (Attached)

REFERENCE DATA: Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PRS-107 REV. 2 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PEX-1 REV. 1 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE INFORMATION LETTER #RS-87 (Attached)

PARTS LIST: Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PRS-107 REV. 2 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE BULLETIN #PEX-1 REV. 1 (Attached)
Refer to PRECISION AIRMOTIVE LLC SERVICE INFORMATION LETTER #RS-87 (Attached)

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

MANDATORY Service Bulletin Fuel Systems

ENGINEERING ASPECTS OF THIS
BULLETIN ARE FAA APPROVED

Bulletin No.: PRS-107

Revision No: 2

Date: 3/21/08

SUBJECT: **HEX PLUG 383493 COMING LOOSE FROM REGULATOR COVER**

NOTE: **THIS BULLETIN RELATES TO EMERGENCY AD 2008-06-51**

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 under the regulator hex plug (part number 365533) was shipped by Precision Airmotive prior to August 22, 2006.
- 2) The servo was manufactured/rebuilt/overhauled/repared by Precision Airmotive after March 21, 2008, or overhauled/repared by someone other than Precision Airmotive after December 31, 2008.
- 3) The servo has the letter "G" marked on the regulator hex plug. This indicates that a new gasket (part number 2577258) was installed.
- 4) 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 four exceptions apply, this service bulletin is mandatory and must be complied with.

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.

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 engine with RSA-5 or RSA-10 servos which have had a new, rebuilt, overhauled, or repaired servo installed between August 22, 2006 and December 31, 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.
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.

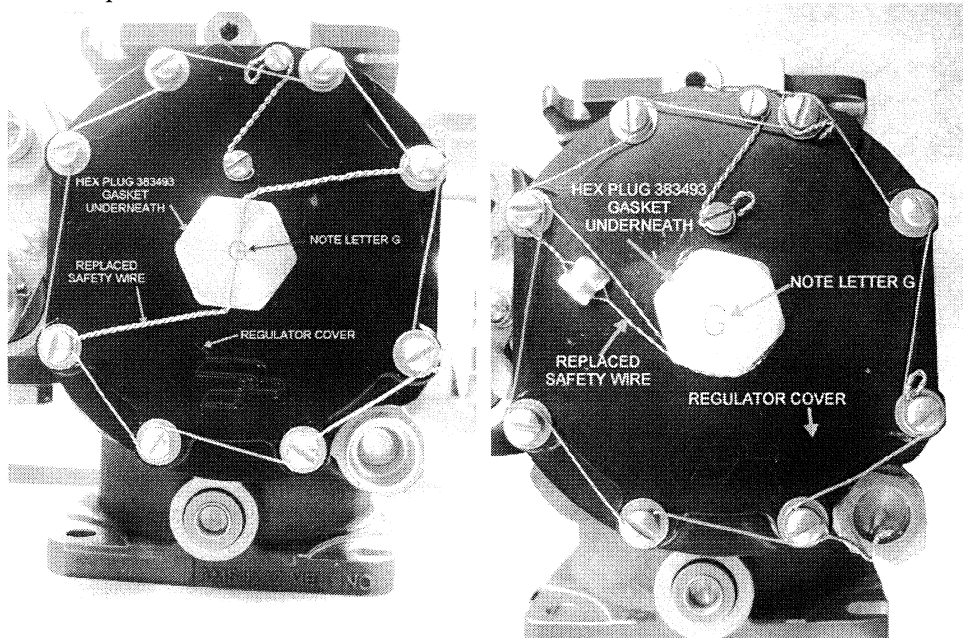
E. ACTION IF HEX PLUG IS **NOT FOUND LOOSE.**

1. Enter in the Engine log book the date in which the plug was inspected per PRS-107 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.
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 PRS-107.
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.
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/rebuilt/overhauled/repared 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/repared 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 PRS-107.

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. A Service Information Letter will be 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**.

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

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.

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
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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
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WARNING
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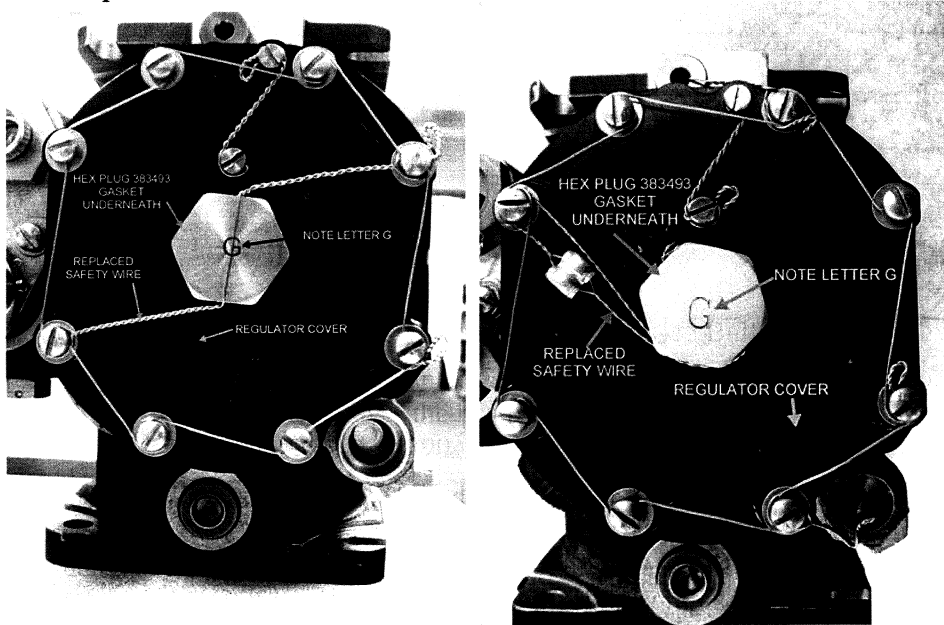
E. ACTION IF HEX PLUG IS **NOT FOUND LOOSE.**

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.

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.

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.



Service Information Letter - Fuel Systems

SIL RS-87

SMALL RECIPROCATING ENGINES

RSA-5 and RSA-10

Issued: 3/24/08

Page 1 of 1

SUBJECT: New regulator plug gasket and increased torque for all RSA-5 and RSA-10 Fuel Injection Servos.

PURPOSE: To advise the field of availability of the new regulator hex plug gasket, part number 2577258.

- A. EFFECTIVITY: This Service Information Letter is applicable to all RSA-5 and RSA-10 servos.
- B. DESCRIPTION: Precision Airmotive LLC has released a new regulator plug gasket, part number 2577258 and increased the torque on the regulator plug. This gasket replaces the 365533 gasket currently in use. Current stocks should be returned to Precision Airmotive for replacement. After June 30, 2008 the 365533 gasket MUST NO LONGER BE INSTALLED.
- C. DETAILED INSTRUCTIONS
During overhaul or repair a 2577258 gasket is to be installed in place of the 365533 gasket. The regulator plug torque will be 90-100 in-lbs.

Change hex plug gasket from 365533 to 2577258				Revise torque to 90-100 in-lbs (10.17-11.30 N-M)	
Model	Manual	IPL Figure	Item	Fits & Clearances Figure	Item
RSA-5AD1	15-381G CHG 1	6	10	802	6,5
RSA-5AB1	15-419D	4	10	802 (sheet 2)	Fig 4,5
RSA-10AD1	15-433D	4	10	802	4,5
RSA-10ED1	15-458G CHG 1	4	10	802	Fig 4,5
RSA-10DB1	15-471E REV 1	4	10	802	Fig 4,5
RSA-10DB2	15-542C	4	10	802	Fig 4,5
RSA-10ED2	15-700A	4	10	802 (sheet 2)	Fig 4,5
RSA-5AD2	15-900A CHG 3	4	10	802	4-5