LYCOMING

652 Oliver Street
Williamsport, PA. 17701 U.S.A.

Telephone +1 (800) 258-3279 U.S. and Canada (Toll Free)
Telephone +1 (570) 323-6181 (Direct)
Facsimile +1 (570) 327-7101

www.lycoming.com

SERVICE INSTRUCTION

DATE: June 28, 2016

Service Instruction No. 1506A
(Supersedes Service Instruction No. 1506)
Engineering Aspects are
FAA Approved

SUBJECT: Replacement of Impulse Coupling Magnetos on Four-Cylinder Engines

MODELS AFFECTED: Lycoming O, IO, AEIO-360 or O, IO, AEIO-320 series engines presently equipped with impulse coupling magnetos.

TIME OF COMPLIANCE: At owner's discretion

REASON FOR REVISION: Added engine models to "MODELS AFFECTED"; clarified details in the text of this Service Instruction

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

This Service Instruction contains instructions to replace impulse coupling magnetos on affected four-cylinder Lycoming engine models with a left retard breaker magneto, a right plain magneto, and an ignition vibrator. This replacement changes the configuration from an impulse coupling to a shower of sparks type configuration (Figure 1).

If the engine has only one impulse coupling magneto on the left side of the engine, with a plain magneto on the right side of the engine, a retard breaker magneto must be installed on the left side of the engine. Necessary parts are identified in Table 1.

If the engine has two impulse coupling magnetos, a retard breaker magneto must be installed on the left side of the engine, and a plain magneto must be installed on the right side of the engine. Necessary parts are identified in Tables 1 and 2.

NOTICE: It could be necessary to contact the airframe manufacturer for possible modifications to the aircraft wiring harness.

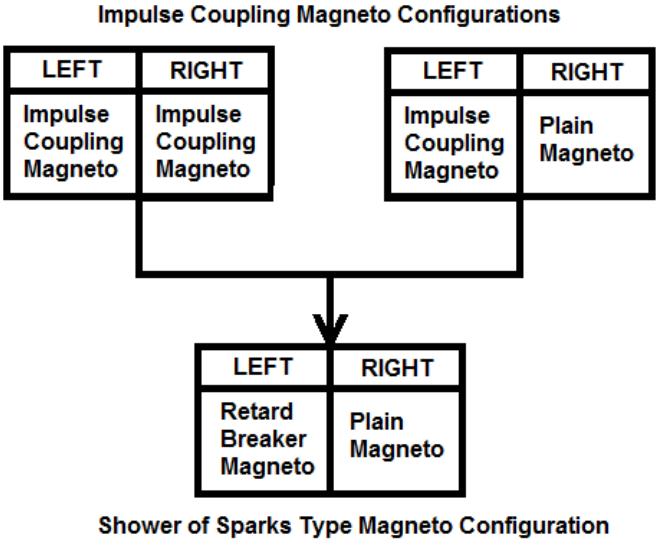

Figure 1
Conversion of Impulse Coupling Magneto Configurations to Shower of Sparks Type Magneto Configuration (View from Rear of Engine)

General Aviation Manufacturers Association

ISSUED			REVISED			PAGE NO.	REVISION
MO	DAY	YEAR	MO	DAY	YEAR	1 of 3	A
09	15	01	06	28	16		

Table 1
Parts Necessary for Installation of Retard Breaker Magneto on Left Side of Engine

P/N	Description	Qty
31C-12	Stud - 0.3125-18 x 1.50 Long	2
STD-1410	Nut - 0.3125-18 Plain	2
STD-475	Washer - 0.3125 Lock - Int. Teeth	2
66M21195	Clamp - Magneto	2
68C19622	Gear - Magneto	1
MS9245-44	Cotter Pin - 0.09 Dia. x 0.625 Long	1
STD-713	Cotter Pin - 0.09 Dia. x 0.75 Long	
LW-12681	Gasket - Magneto	1

NOTICE: For the retard breaker magneto, refer to the latest revision of Service Instruction No. 1443 for a complete listing of approved Slick magnetos.

Table 2
Parts Necessary for Installation of Plain Magneto on Right Side of Engine

P/N	Description	Qty
31C-12	Stud - 0.3125-18 x 1.50 Long	2
66GP-0SANN	Magneto - Plain	1
STD-1410	Nut - 0.3125-18 Plain	2
STD-475	Washer - 0.3125 Lock - Int. Teeth	2
66M21195	Clamp - Magneto	2
68C19622	Gear - Magneto	1
MS9245-44	Cotter Pin - 0.09 Dia. x 0.625 Long	1
STD-713	Cotter Pin - 0.09 Dia. x 0.75 Long	
LW-12681	Gasket - Magneto	1

The following procedures can be used to replace a left impulse coupling magneto with a left retard breaker magneto, or to replace a right impulse coupling magneto with a right plain magneto, respectively.

Replacement of a Left Impulse Coupling Magneto with a Left Retard Breaker Magneto

1. Remove and discard the impulse coupling magneto, two nuts, two washers, two clamps, gear, cotter pin, magneto adapter, and two gaskets from the two studs on the accessory housing (Figure 2).
2. Remove and discard the two studs from the left side of the accessory housing (Figure 2) and install two new studs P/N 31C-12 (Figure 3) to the specified driven height of 0.94 to 0.98 in. (24 to 25 mm). If a minimum drive torque of 25 in.-lb. (2.8 Nm) cannot be reached, install the next larger size oversize studs.
3. Select the correct replacement retard breaker magneto based on ignition timing (Figure 3).
4. Install a new retard breaker magneto, two new nuts, two new washers, two new clamps, a new gear, new cotter pin, and new magneto gasket (refer to Table 1) on the new studs on the left side of the accessory housing (Figure 3).
5. Install a new ignition vibrator (such as a Slick Start) per the manufacturer's instructions.
6. Record the left retard breaker magneto installation in compliance with this Service Instruction in the engine logbook.

Replacement of a Right Impulse Coupling Magneto with a Right Plain Magneto

1. Remove and discard the impulse coupling magneto, two nuts, two washers, two clamps, gear, cotter pin, magneto adapter, and two gaskets from the studs on the accessory housing (shown on the left side only in Figure 2 example).
2. Remove and discard the two studs from the right side of the accessory housing (shown on left side in Figure 2) and install two new studs P/N 31C-12 (Figure 3) to the specified driven height of 0.94 to 0.98 in. (24 to 25 mm). If a minimum drive torque of 25 in.-lb. (2.8 Nm) cannot be reached, install the next larger size oversize studs.
3. Install a new plain magneto, two new nuts, two new washers, two new clamps, a new gear, new cotter pin, and new magneto gasket (refer to Table 2) on the two new studs on the right side of the accessory housing (Figure 3).
4. Install a new ignition vibrator (such as a Slick Start) per the manufacturer's instructions.
5. Record the right plain magneto installation in compliance with this Service Instruction in the engine logbook.

Replacement of impulse coupling magnetos will require an FAA Form 337 for the airframe. Alternatively, a Slick Start ignition vibrator can be installed under a Supplemental Type Certificate (STC), which comes with the Slick Start ignition vibrator, and can be obtained by contacting Champion Aerospace, LLC, 1230 Old Norris Road, Liberty, South Carolina 29657, U.S. (Telephone +1 (864) 843-1162).

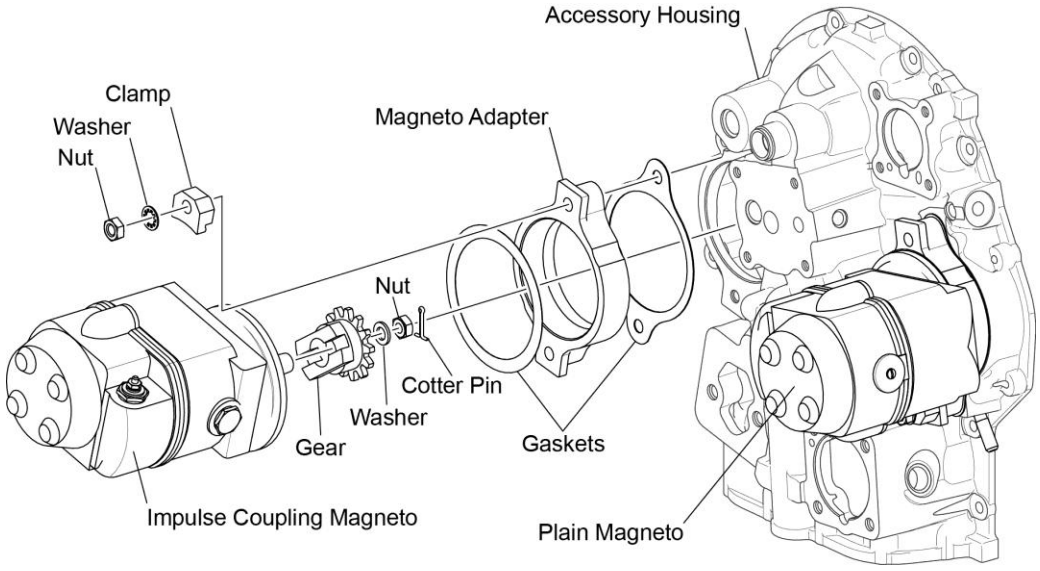

Figure 2
Impulse Coupling Magneto and Plain Magneto
- Example Impulse Coupling Magneto Configuration

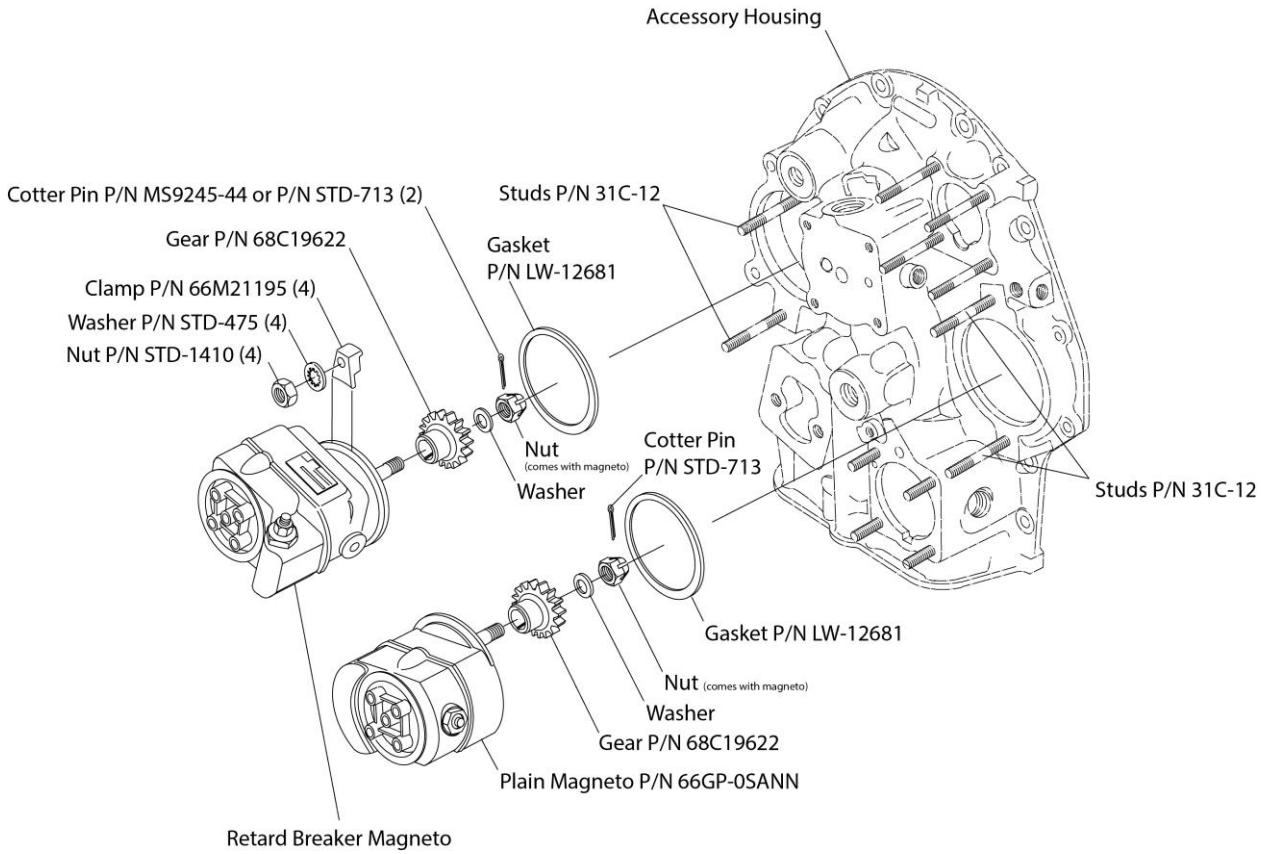

Figure 3
Retard Breaker Magneto and Plain Magneto - Shower of Sparks Type Magneto Configuration