

CHAPTER

74

IGNITION

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GENERAL

The engine ignition system consists of two magnetos, set of shielded high tension cables and spar plugs.

EFFECTIVITY: All

74-00-00

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ENGINE IGNITION

DESCRIPTION AND OPERATION

The engine ignition system consists of two magnetos (Fig. 74-1, item 7), shielded high tension cables (8) and spark plugs (9;10).

The magnetos are controlled by magneto switch that is upon the console under the instrument panel. The magnetos are fixed to the rear engine wall. The connection of magnetos is issued in section 91-20-00.

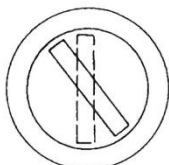
The ignition sequence of engine cylinders is 1-4-5-2-3-6. Cylinder numbering is issued in Fig. 74-1.

The engine is equipped with the electric starter. The starter motor connection is issued in section 91-20-00.

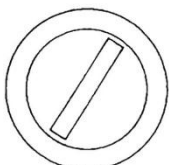
Position of magneto switch:



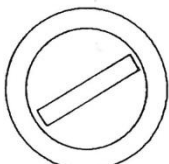
- engine ignition **OFF**



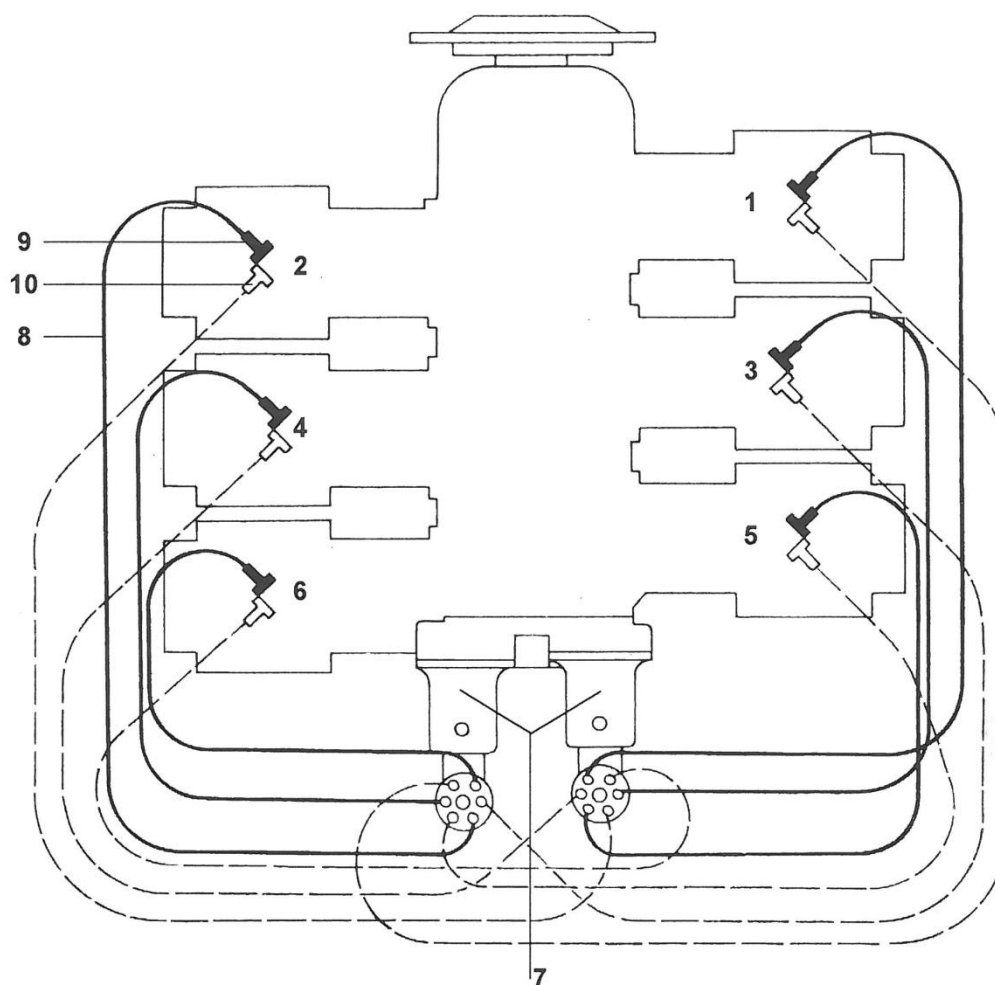
- L, R engine ignition magneto **ON**



- **BOTH** engine ignition magnetos **ON**



- both magnetos on and starter motor drives the engine, when released the spring returns magneto switch to BOTH position



- 1; 2; 3; 4; 5; 6 ... engine cylinders numbering
- 7 ... magneto (L, R)
- 8 ... high tension cables
- 9 ... upper spark plugs
- 10 ... bottom spark plugs

Fig. 74-1 Engine ignition

REPAIRS

Fault	Possible reason	Remedy
Faulty engine ignition.	Faulty spark plugs.	Check gap in electrodes of spark plugs to be within 0,40 to 0,55 mm (0,016 to 0,022 in). Adjust electrode gap. Replace spark plugs if their electrodes are excessively burned.
	Short circuit in high tension cables (Fig. 91-3, item B3; B4).	Remove short circuit replace high tension cables with faulty insulation.
	Faulty magneto switch (Fig. 91-3, item. B2).	Check the serviceability of magneto switch by ohmmeter. The circuit is open BOTH position and closed in OFF and pertinently in L and R positions.
Starter contactor cannot connect.	Cut-off fuse STARTER 2 A (up to S/N 0045 incl.).	Detect reason of short circuit, repair it, and replace fuse.
	STARTER circuit breaker is OFF (from S/N 0046 incl.).	Detect reason of short circuit, repair it, and circuit breaker ON.
	Faulty starter contactor (Fig. 91-3, item B5).	Set magneto switch to START position and measure the voltage at the starter contactor solenoid. If it is equal to voltage of board network replace the contactor.

EFFECTIVITY: All

MAINTENANCE

SERVICING

INTERCHANGING OF SPARK PLUGS

NOTE

The magneto arrangement causes single direction sparking of the spar plugs. Half of the spark plugs spark from center electrodes to external electrodes while the other half sparks from the external electrodes to center electrodes. The spark pug interchanging prevents burning of only one electrode and carbon deposition. The process may increase spark plug life time three times.

Procedure of spark plug interchanging:

Interchange spark plugs gradually between cylinders 1 and 6; 2 and 5; 3 and 4 while interchanging the upper spark plug with bottom spark plug and vice versa. The cylinder numbering is issued in Fig. 74-1.

Example:

Interchange upper spark plug of cylinder No. 1 with bottom spark plug of cylinder No. 6 and bottom spark plug of cylinder No. 1 with upper spark plug of cylinder No. 6 etc.

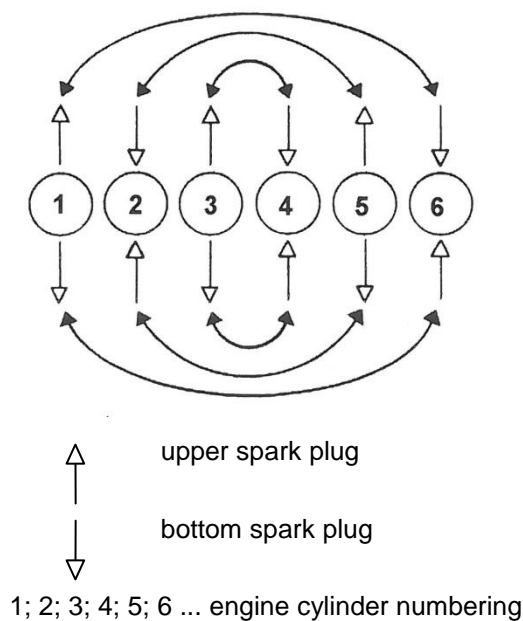


Fig. 74-2 Interchanging spark plugs

INSPECTION / CHECK

NOTE

Maintain during ignition system check the instructions issued in Engine Operation Manual while taking in mind the instructions and recommendations issued as follows.

CHECK OF HIGH TENSION CABLE ENDS

Clean the high tension cable ends, spark plug walls and ceramic end pieces with dry clean rag or with rag soaked in methyl ethyl ketone if deposits are detected.

CHECK OF SPARK PLUG ELECTRODES

- a) Check if the spark plug electrode gap is 0,40 to 0,55 mm (0,016 to 0,022 in). Adjust the electrode gap if necessary. Use suitable wire for gap check.
- b) Replace spark plugs with excessively burned electrodes, i.e. when the external electrodes are burned to half of their thickness and internal electrodes are oval.

Recommendation

In operation use CHAMPION 38 E spark plugs.
Tighten the spark plugs with 47,5 Nm (35 lbft, i.e. 420 lbft in) torque.

CHECK OF MAGNETO SERVICEABILITY

NOTE

The instructions for SLICK magneto operation are issued in L-1363 Magneto Maintenance and Overhaul Manual.

- a) Make sure the breaker contacts are smooth, i.e. without cavities, clean, and with correct gap.
- b) Check oil quantity in breaker area. Clean the space if necessary with lint free, clean, dry rag.
- c) Grease breaker felt according to magneto manufacturer instructions.
- d) Check ignition point according to procedure issued in Operation Manual of Lycoming Engine, part 5. MAINTENANCE.