

# **Chapter 74**

# **IGNITION**

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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Maintenance Program FAC2-M200

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FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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Maintenance Program FAC2-M200

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FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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Maintenance Program FAC2-M200

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## **74      IGNITION**

### **74-00    GENERAL**

See Chapter 24-00 for a description of the following components: Starter, Ignition Switch, Start Relay, Spark Booster, Master Switch and Master Relay.

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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## 74-10 IGNITION POWER SUPPLY

All aircraft employ an electronic spark booster located to the left of the flight instrument panel, just behind and below SW3. When the ignition switch, SW3, is placed in the 'START' position power is supplied to pin 'VIN' of the booster via the vendor supplied wire and five amp fuse (designated 'F7'). The output of the booster appears at pins # 1 & 3. Pin #1 is fed via wire # 29 to wire 57-S18 (057-S18), the main left magneto wire. Pin #3 is fed directly via wire # 110 (0110) to the boost I/P of the left hand magneto. Note, except during the start sequence wire #29 (029) is disconnected from the circuit via a relay internal to the spark booster. Ground for the booster is provided via wire # 32 (032) at the left magneto, (this is done to minimize the noise from the booster). If the function of the booster is in doubt fuse 'F7' can be checked with an ohmmeter.

The basic ignition circuit is given in Figure 74-10-01 below. For a complete schematic see Chapter 24.

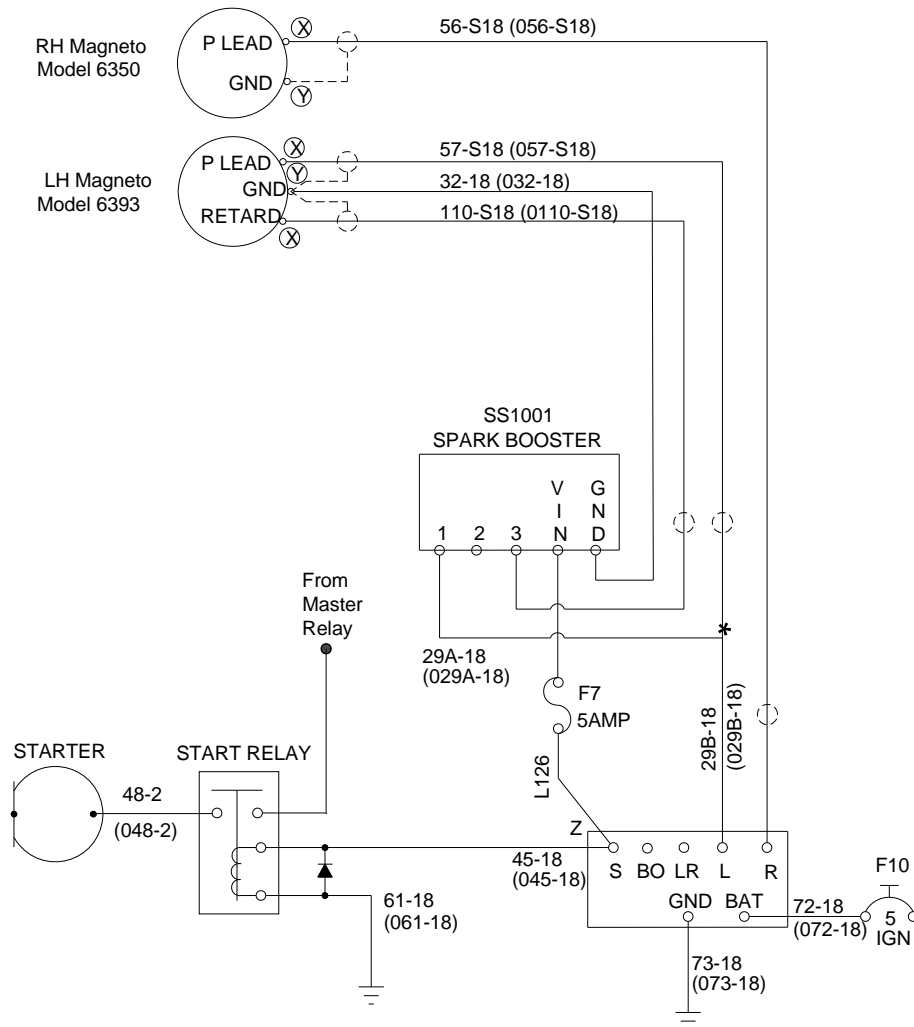


Figure 74-10-01 Basic Ignition Circuit

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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## **74-12 “SLICK START” IGNITION SPARK BOOSTER**

All aircraft employ an electronic spark booster located to the left of the flight instrument panel, just behind and below SW3. When the ignition switch, SW3, is placed in the ‘START’ position power is supplied to pin ‘VIN’ of the booster via the vendor supplied wire and five amp fuse (designated ‘F7’). The output of the booster appears at pins # 1 & 3. Pin #1 is fed via wire # 29 to wire 57-S18 (057-S18), the main left magneto wire. Pin #3 is fed directly via wire # 110 (0110) to the boost I/P of the left hand magneto. Note, except during the start sequence wire #29 (029) is disconnected from the circuit via a relay internal to the spark booster. Ground for the booster is provided via wire # 32 (032) at the left magneto, (this is done to minimize the noise from the booster). If the function of the booster is in doubt fuse ‘F7’ can be checked with an ohmmeter.

The basic ignition circuit is given in Figure 74-10-01. For a complete schematic see Chapter 24.

If the Spark Booster system fails it does not prevent the starting of the engine. The only indication that the system has failed is longer cranking time when starting the engine and/or the engine starts only after releasing the key from the start position

### Removal and Installation

- Step 1. Remove four wires at pins ‘1’, ‘2’, ‘VIN’ and ‘GND’.
- Step 2. Remove two bolts at base of the booster.

To install Spark Booster reverse above steps and carry out operational check.

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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## **74-14 MAGNETOS**

### **74-14-01 Left Hand Retard Breaker Magneto**

The retard breaker magneto incorporates two sets of breaker points and provides a fixed retard and long duration boosted spark for easier starting. A source of DC power and a starting vibrator are required to complete the installation (See sections 74-10 & 74-12).

#### *Retard Breaker Magneto Removal*

- Step 1. Ensure that the Ignition switch is in the 'OFF' position
- Step 2. 2C1 & 2C2: Gain access to the Battery through engine access panel CS2, and disconnect the ground lead from the battery. 2C3 & 2C4: Remove the two cowl halves, see 71-10.
- Step 3. In the 2C1 & 2C2 type aircraft gain access to the left hand magneto through engine access CP1 and CP2.
- Step 4. Remove the spark plug leads from the spark plugs as required.
- Step 5. Remove the cushion clamps and tie wraps as required.
- Step 6. For upper spark plug leads, remove the plug lead clamp on the rear wall of the engine baffle.
- Step 7. Disconnect the five electrical wires from the magneto. Label the wires for correct installation.
- Step 8. Remove the two nuts which secure the magneto to the accessory case, and remove the two hold down clamps.
- Step 9. Gently pull the magneto aft until it clears the accessory case.

#### *Retard Breaker Magneto Installation*

For instructions on installation and timing the magneto refer to Textron Lycoming Operators manual.

## **74-14-02 Right Hand Plain Magneto**

### Plain Magneto Removal

- Step 1. Ensure that the Ignition switch is in the 'OFF' position.
- Step 2. 2C1 & 2C2: Gain access to the Battery through engine access panel CS2, and disconnect the ground lead from the battery 2C3 & 2C4: Remove the two cowl halves, see 71-10.
- Step 3. In the 2C1 & 2C2 type aircraft gain access to the right hand magneto through engine access CS1 and CS2.
- Step 4. Remove the spark plug leads from the spark plugs as required.
- Step 5. Remove the Cushion clamps and tie wraps as required.
- Step 6. For upper spark plug leads, remove the plug lead clamp on the rear wall of the engine baffle.
- Step 7. Disconnect the electrical wire from the magneto.
- Step 8. Remove the two nuts which secure the magneto to the accessory case, and remove the two hold down clamps.
- Step 9. Gently pull the magneto aft until it clears the accessory case.

### Plain Magneto Installation

For instructions on installation and timing the magneto refer to Textron Lycoming Operators manual.

## **74-20 DISTRIBUTION**

The ignition system consists of two magnetos located at the rear of the engine on the accessory section, one ignition harness on each magneto, and two spark plugs located in each of the six cylinders.

FBA-2C1, FBA-2C2, FBA-2C3  
FBA-2C4, FBA-2C3T, FBA-2C4T

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## **74-21 SPARK PLUGS**

There are two massive electrode type spark plugs located in each cylinder.

### Spark Plug Removal

Step 1. 2C1 & 2C2: Gain access to the spark plugs through engine access as follows;  
Port Upper Plugs -open CP1                      Port Lower Plugs - open CP2  
Stbd Upper Plugs -open CS1                      Stbd Lower Plugs - open CS2  
2C3 & 2C4: Remove two cowl halves, see 71-10.

Step 2. If it is an upper plug, use compressed air to clean the area around the spark plug.

Step 3. Remove the Spark plug lead from the plug.

Step 4. Remove the spark plug from the cylinder. Plug the opening.

### Spark Plug Installation

Step 1. Install spark plug in opening and torque to 420 inch pounds (35 foot pounds).

Step 2. Inspect the spark plug lead insulator for signs of arcing, cracks or other damage.  
Clean if required.

Step 3. Install the spark plug lead onto the spark plug.

Step 4. Carry out an engine run and magneto drop check to confirm operation of spark plug.

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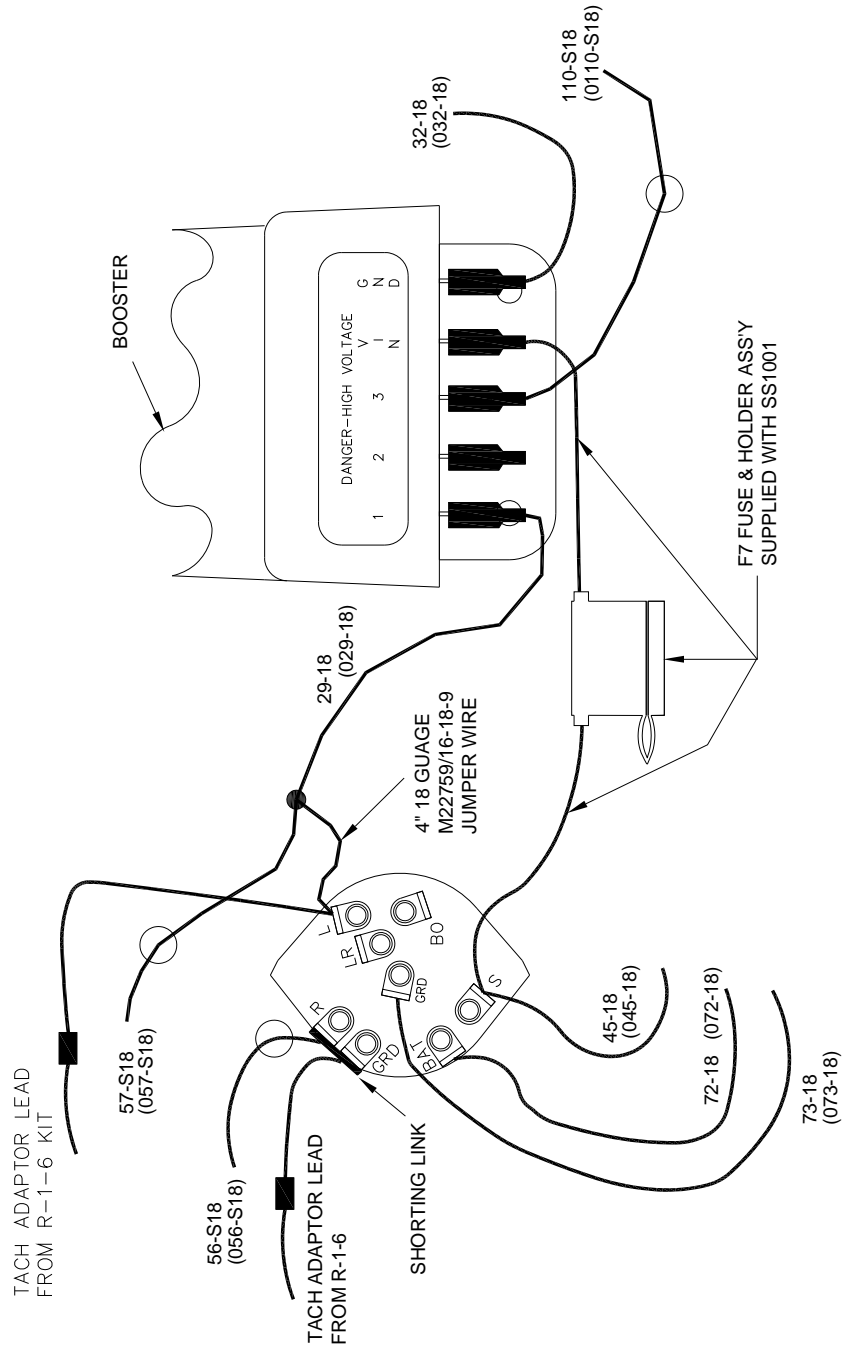
## **74-30 IGNITION SWITCHING**

For a complete description of the ignition switch and its function see Chapter 24, Section 24-00.  
For a mechanical view of the switch wiring see Figure 74-30-01 below.

### *Ignition Switch – Removal and Installation*

- Step 1. Remove the knurled nut from the front of the switch.
- Step 2. Remove the switch from the panel by pushing forward.
- Step 3. Remove the six screws securing the wires to the back of the switch.

To install the Start Switch reverse the above steps and carry out an operational check.



**Figure 74-30-01 Ignition Switch Wiring Details**