CHAPTER

80

STARTING

CHAPTER 80 - STARTING
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SPECIAL NOTE

WITHIN THIS MANUAL ALL REFERENCES TO LEFT AND RIGHT, CLOCKWISE AND COUNTERCLOCKWISE, FRONT AND REAR, ARE AS VIEWED FROM THE REAR OF THE AIRPLANE.

WITHIN THE ENGINE/PROPELLER MANUALS ALL SUCH REFERENCES ARE AS VIEWED FROM THE ACCESSORY GEARBOX/SPINNER BULKHEAD.

BECAUSE THE PIAGGIO P180 AVANTI IS CONFIGURED WITH "PUSHER" PROPELLERS, THE ENGINES ARE INSTALLED WITH THE ACCESSORY GEARBOX TOWARDS THE FRONT OF THE AIRPLANE; THEREFORE, IN THIS MANUAL ALL REFERENCES TO LEFT AND RIGHT, CLOCKWISE AND COUNTERCLOCKWISE, FRONT AND REAR (WHEN APPLIED TO ENGINE AND PROPELLER COMPONENTS) WILL BE THE OPPOSITE TO THE SAME REFERENCES IN THE ENGINE/PROPELLER MANUALS.

FOR EXAMPLE, ACCORDING TO THIS MANUAL, THE ENGINE ACCESSORY GEARBOX IS AT THE FRONT OF THE ENGINE; THE ENGINE MANUALS CONSIDER THE ACCESSORY GEARBOX TO BE THE REAR OF THE ENGINE.

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STARTING - DESCRIPTION AND OPERATION

1. Description

A. System

Engine starting requires:

- a mass airflow through the engine
- fuel delivered to the combustion chamber in a form suitable for combustion, i.e. finely atomized
- ignition of the fuel/air mixture in the combustion chamber.

The required airflow through the engine is induced by rotating the compressor (via the engine accessory gearbox) using a combined electrical starter-generator. Power for the starter motor is provided by either an external Ground Power Unit (GPU) or the aircraft battery.

Refer to the P&WC Engine Maintenance Manual Chapter 73 for the description, operation and Maintenance Practices of the engine fuel and control system. Refer to P&WC Engine Maintenance Manual Chapter 74 for the ignition system.

B. Components

The components of the engine cranking system comprise the starter-generator and the starter control electrical circuit.

(1) Starter-Generator

This is a lightweight combination starter motor and DC generator, with integral cooling fan, clamped to a QAD adaptor mounted on N° 1 pad of the engine accessory gearbox. The unit is coupled to the gearbox via a constant mesh splined drive. A detailed description is given in Chapter 24 - Electrical Power, together with Maintenance Practices.

(2) Electrical Circuit (Refer to Fig. 1)

Starter motor operation is initiated by selecting the START switch in the flight compartment to ON. This energizes the starter relay, closing the relay contacts to connect the GPU or aircraft battery to the starter connection of the starter-generator. Returning START switch to the OFF position terminates starter operation.

TO BE ISSUED LATER

Fig. 1 - Starting Circuit - Schematic

STARTER SWITCH - MAINTENANCE AND PRACTICES

1. General

A. Two starter switches are installed on the engine/fuel control panel in Zone 213. The maintenance practices procedure for one is given.

2. Start Switch - Removal

A. Fixtures, Test and Support Equipment

Covers/Caps/Plugs	Not specified

B. Referenced Information

C. Procedures

NOTE: This procedure is applicable to both the left and right hand installation. Data for the right hand procedure is given between parentheses.

(1) Open, tag and safety these circuit breaker(s).

Pilot CB panel:
L ENG START
R ENG START

(2) Remove the four screws that attach the engine/fuel control panel to the center pedestal.
(3) Carefully remove the engine/fuel control panel sufficiently to get access to the start switch.
(4) Disconnect the L START (R START) switch and remove from the engine/fuel control panel.
(5) Put caps on all line ends and electrical connectors.

3. Start Switch - Installation

A. Procedure

NOTE: This procedure is applicable to both the left and right hand installation. Data for the right hand procedure is given between parentheses.

(1) Remove caps from all line ends and electrical connectors.
(2) Install and connect the L START (R START) on to the engine/fuel control panel.
(3) Install the engine/fuel control panel on to the center control pedestal.
(4) Attach the panel with the four screws.

(5) Remove the safety tags and close the/these circuit breaker(s).

Pilot CB panel:
L ENG START
R ENG START

(6) Remove all tools, materials and equipment from the work area. Make sure that the area is clean.

4. Start Switch - Inspection Check

A. Procedure

(1) Remove the start switch.
(2) Examine the start switch.
(a) Examine the switch and associated parts for corrosion and/or damage. Repair or replace the defective parts as necessary.
(3) Install the start switch.
(4) Examine the start switch for general condition and security of installation.

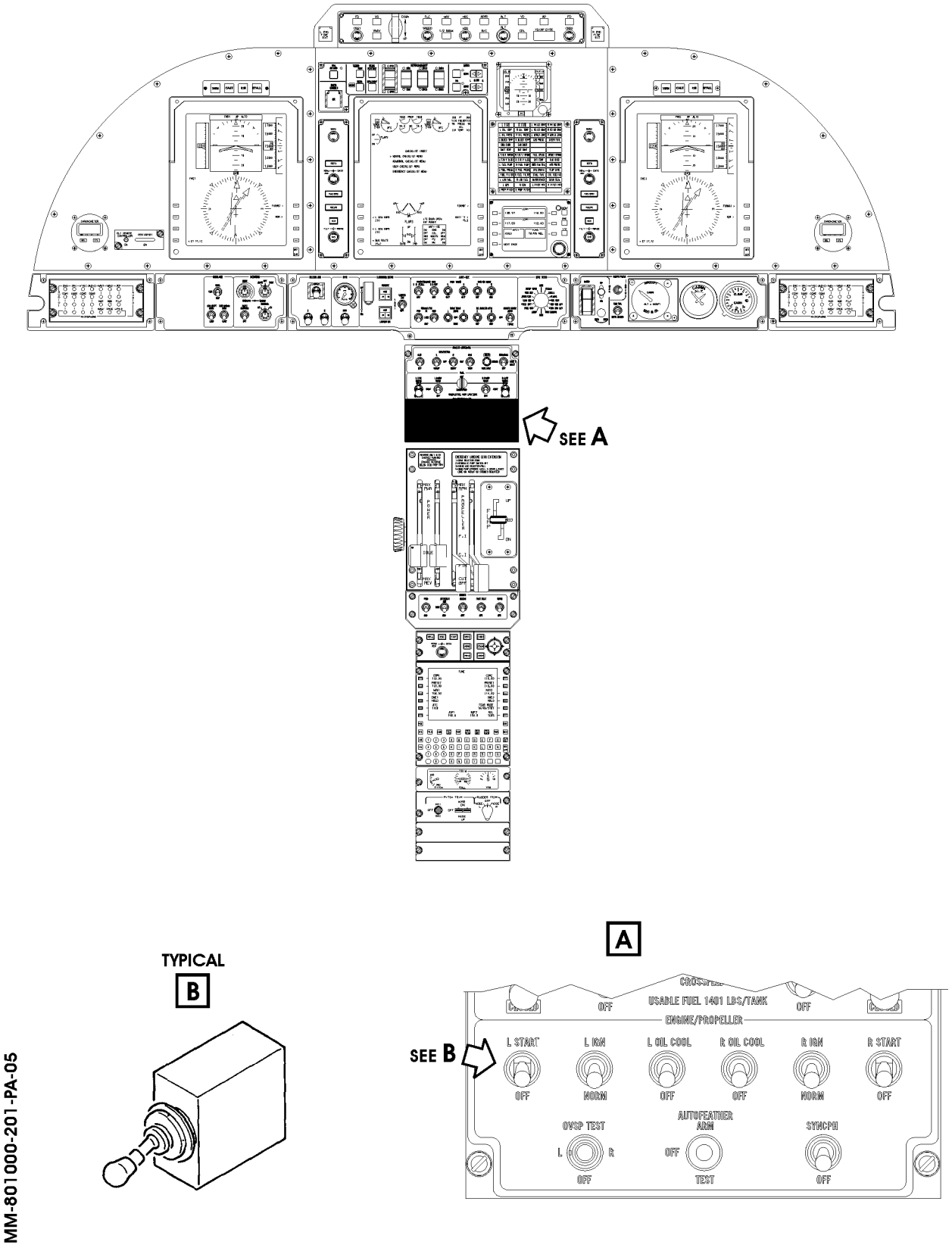

Fig. 201 - Start Switch - Maintenance Practices

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