80 Starting

CHAPTER 80

LIST OF PAGE EFFECTIVITY

CHAPTER SECTION SUBJECT	PAGE	DATE
80-EFFECTIVITY/CONTENTS	1	Nov 2/73
80-00-00	1	Nov 2/73
80-10-00	101	Nov 2/73
	201	Nov 2/73

CHAPTER 80 - STARTING

TABLE OF CONTENTS

"END"

GENERAL - DESCRIPTION AND OPERATION

Duke series aircraft are equipped with a 24-volt starter which engages with the accessory drive gear. The starter is located on the top forward end of each engine.

When the ignition switch is placed in the START position, current is supplied by the battery bus which energizes the applicable starter relay providing current to the starter.

"END"

TROUBLESHOOTING
STARTER SYSTEM

	TROUBLE		*PROBABLE CAUSE*		*REMARKS*
1.	Both starters inoperative.	a.	Circuit breaker tripped in starter switch circuit.	a.	Check for short circuit; reset.
		b.	Battery relay inoperative.	b.	Check continuity of battery system.
		c.	Low battery.	c.	Test battery. If low, replace or start with external power.
		d.	Loose connections or open circuit between battery relay and left starter relay.	d.	Check connections and continuity.
2.	One starter inoperative.	a.	Starter relay inoperative.	a.	Check relay terminal connections and continuity of solenoid energizing circuit. If energizing circuit is closed and relay does not operate, replace relay.
		b.	Poor ground at starter.	b.	Test continuity from armature lead to ground. Repair if necessary.
		c.	Open circuit.	c.	Check continuity to starter.
		d.	Defective starting motor.	d.	Check brushes, springs, condition of commutator; replace if necessary.

"END"

CRANKING - MAINTENANCE PRACTICES

STARTER LUBRICATION

No lubrication is required on the starting motor except at overhaul.

STARTER REMOVAL

a. Open engine cowling.
b. Disconnect and tape starter lead.
c. Remove starter mounting nuts.
d. Lift starter up and aft to remove.

STARTER INSTALLATION

a. Place starter into position and install mounting nuts and cap screws. Tighten securely.
b. Connect starter lead.
c. Fasten engine cowling.

STARTER CIRCUIT CHECKS

a. The starter circuit wiring should be inspected at regular intervals to determine that all connections are clean and tight and that the insulation is sound.

b. The starter circuit should be checked to determine if there is excessive resistance in the circuit. This test is made with a low reading voltmeter while cranking the engine.

1. The voltage loss from the battery positive terminal to the starter terminal should not exceed 0.3 volts.
2. The voltage loss from the battery ground terminal to the starter frame should not exceed 0.1 volt.

If there are greater voltage losses than indicated above, additional checks should be made to locate the high resistance connections.

STARTER BRUSHES

The starter brushes should slide freely in their holders and make full contact on the commutator. The brushes should be replaced when they have worn to one half their original length (approximately 1/4 inch). Proper brush spring tension with new brushes installed is 32 to 40 ounces. This tension is measured with a scale hooked under the brush spring near the brush and the reading taken just as the spring leaves the brush.

"END"