

SECTION 3

STARTING AND GROUND CHECKING

LIST OF CHAPTERS

Note.—A list of contents appears at the beginning of each chapter.

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Chapter 1

PREPARING FOR SERVICE
(completely revised)

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General

1. This chapter describes those operations which must be carried out before a newly installed power plant is started. For a detailed description of the unpacking and installation procedures reference should be made to Sect.2 of this Volume and A.P.101B-2401-1 respectively.

Preliminary examination

2. Once the unit has been installed, remove the forward end cover and carefully examine the engine and the auxiliaries for any sign of damage incurred during transit or installation. Ensure that all blanking caps have been removed.

3. Carefully examine all pipe runs to ensure that they are correctly connected and that all unions are securely tightened and locked. Examine all drain connections to ensure that they are clear and that all drain pipes have an uninterrupted fall from the power plant to the exit point.

4. A general examination should be made of all harness runs for security, kinking and signs of chafing. Ensure that identification labels have not been damaged or removed.

Checking the engine oil sump level

5. New power plants are normally stored without oil in the lubrication system and it is essential, therefore, that the oil sump is filled before any attempt is made to start or cycle a newly installed power plant.

6. The total quantity of oil required to fill a completely dry power plant is approximately six pints.

7. After the initial filling of the oil sump of a newly installed power plant, the engine must be dry-cycled (Chap.2) for two thirty-second periods to ensure that the amount of oil absorbed by the filter and cooler has not subsequently lowered the oil level.

8. To check the oil sump level remove the oil filler cap to allow the oil in the U tube to revert to ambient pressure and static level, then view the sight glass in the re-oil filler tube. If the level indicated is below the high mark replenish as necessary.

9. To replenish, slowly pour oil into the filler tube. Allow time for the oil to run down the tube and for the air in the sump to be displaced through the breather then re-check the level on the sight glass.

10. When satisfied that the level in the filler tube has settled at the HIGH OIL LEVEL mark, screw the filler cap on.

Bleeding the hydraulic system

11. New power plants are normally stored with the hydraulic system fully primed and there should be no necessity to re-prime the pump on initial installation. If, however, some portion of the hydraulic equipment has been disconnected or the fluid drained off, then the pump must be re-primed before any attempt is made to start the power plant. For detailed information reference should be made to Sect.5, Chap.5.

Bleeding and de-inhibiting the fuel system

12. Before any attempt is made to start a newly installed power plant, the fuel system must be de-inhibited and bled. Both these requirements can be fulfilled in a single operation as described in the following paragraphs. A bleed pipe and a suitable container are the only items of ground equipment required.

- (1) Ensure that the l.p. fuel cock is CLOSED.
- (2) Sever the locking wire and, with a 2 B.A. spanner, unscrew the bleed nipple in the fuel pump governor access plug one complete turn.
- (3) Push the bleed pipe over the nipple taking care to ensure that the free end of the pipe is located in a suitable container.
- (4) Move the GROUND-FLIGHT-CHARGE battery switch on the flight engineer's panel to FLIGHT.
- (5) Select the No.1 and 2 tank group cross feed cock, on the flight engineer's panel, to OPEN. The associated electro-magnetic indicator should show ON LINE.
- (6) Select the No.1 tank booster pump switch, on the flight engineer's panel, to ON.
- (7) Move the l.p. fuel cock switch, on the a.a.p.p. control panel to OPEN and check that the associated electro-magnetic indicator shows white.
- (8) Watch the flow of fuel into the container, when it is completely free from air bubbles and inhibiting oil tighten the bleed screw, switch off the boost pump, close the low pressure fuel cock and wire lock the bleed screw. Bleeding off one gallon of fuel is normally sufficient to ensure that the system has been completely bled and de-inhibited.

13. To complete the de-inhibiting operation and remove the small quantity of inhibiting oil remaining in the pipe from the fuel pump to the burner, proceed as follows:-

- (1) Select the l.p. fuel cock to OPEN.

(2) Move the a.a.p.p. wet cycle switch, located in the port tail boom, to OFF.

(3) Select the a.a.p.p. master switch to START and depress the starter push switch. The starter switch must be held in for at least two seconds before it will be retained magnetically.

(4) On completion of the wet cycle, wait approximately four minutes for the fuel to drain from the engine and then move the wet cycle switch to ON. Re-select the master switch to BLOW-OUT and depress the starter push switch to initiate a dry cycle and complete the drying out process.

Note. . .

After three consecutive starts, dry or wet cycles, a period of not less than thirty minutes must elapse before any attempt is made to re-energize the starter, otherwise the starter/generator may be seriously overheated.

Functional equipment checks

14. The only functional checks required following initial installation are, firstly to initiate a successful start, and secondly to check the output of the motorised air pump. Details of the procedure for starting the power plant will be found in A.P.101B-2401-1 and Chap.2 of this Section.

15. The checks on the motorised air pump should be carried out concurrently with the initial start, as detailed in the following paragraphs. The equipment required consists of a manometer and a Schrader valve adapter.

(1) Fit the Schrader valve adapter to the pipe from the manometer and then connect the pipe to the Schrader valve on the power plant re-oil valve tray.

(2) Select the starting sequence for the power plant and check that a manometer reading of not less than 2 in. Hg. is obtained.

Note. . .

The manometer reading must be taken the moment the engine starts to revolve, otherwise in the event of a faulty non-return valve in the P₂ line, the manometer will record P₂ pressure rather than delivery pressure.

(3) In the event of the air pump failing to achieve the output specified, a careful check should be made of the P₂ non-return valve, the aircraft electrical supply and the electrical portion of the pump. If no other fault can be detected then a replacement pump must be fitted (Sect.5, Chap.3).



Chapter 2

STARTING AND GROUND CHECKING

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Introduction

1. This chapter describes the procedures for ground starting, running and checking the power plant, but personnel concerned with the running and checking of engines should also be acquainted with the information contained in the appropriate sections of A.P.4745A, Vol. 1.

Precautions

2. The following precautions must be observed before any attempt is made to start or during any period of ground running. Failure to do so may result in injuries to personnel and/or damage to the power plant.

- (1) The area immediately outboard of the a.a.p.p. exhaust in the port tail boom, must be kept clear of personnel and equipment whilst the power plant is being started or run.
- (2) The aircraft battery terminals, if disconnected, must not be reconnected with the a.a.p.p. master switch set to START, BLOW-OUT or SUMP HEATER otherwise inadvertent firing of the fire extinguisher bottle will take place.
- (3) Before attempting a start, care should be taken to ensure that there is no possibility of loose debris being drawn into the air intake.
- (4) If there is any likelihood of the power plant being run during sand or dust storms then a sand filter must be fitted. For more detailed information on the use of this equipment reference should be made to A.P.4547A, Vol. 1.

STARTING THE ENGINE**Preliminaries before starting**

3. Before starting a newly installed power plant or one which has been inhibited or has had certain components removed for servicing, the appropriate procedure and checks described in Chap. 1 must be carried out. Particular care must be taken in this respect with regard to the lubrication system.

4. If the ambient temperature is below 0 deg. C. the sump heater must be selected and any attempt to start delayed, until the sump heater warning light is extinguished.

Starting procedure

5. The power plant may be started using either a boost pump or a gravity feed, depending on the fuel state of No. 1 and 2 tank group; both starting procedures are given in the following paragraphs.
6. If the tank group is more than half full:—
 - (1) Select the GROUND-FLIGHT-CHARGE battery switch, on the flight engineer's panel, to the GROUND position.
 - (2) Move the l.p. fuel cock switch on the a.a.p.p. control panel to the OPEN position and check that the associated electro-magnetic indicator shows white.
7. If the tank group is less than half full:—
 - (1) Select the GROUND-FLIGHT-CHARGE battery switch, on the flight engineer's panel, to the FLIGHT position.

(2) Select the No. 1 fuel tank booster pump switch, on the flight engineer's panel, to the ON position.

(3) Select the No. 1 and 2 tank group cross feed cock OPEN and check that the associated electro-magnetic indicator shows ON LINE.

(4) Move the l.p. cock switch, on the a.a.p.p. control panel, to the OPEN position and check that the associated electro-magnetic indicator shows white.

8. Check that the fluorescent stripe on the electro-magnetic indicator associated with the a.a.p.p. generator switch is in the horizontal position indicating that the generator is off-line.

9. Move the a.a.p.p. master switch to the START position, wait until the oil pressure warning light illuminates and then depress the starter push switch. The starter switch must be held in for at least two seconds before it will be retained magnetically.

10. Normally the engine will achieve a self-sustaining speed within ten seconds and the starter push switch will then be released automatically. If however, the engine is slow to light-up the starter switch will be retained for a longer period. In the event of the engine failing to reach a self-sustaining speed within thirty seconds, a time switch will release the push switch and cut out the starter motor.

Subsequent attempts to start

11. After any failure to start, but particularly after a failure to light-up, a draining period of not less than three minutes must be allowed to elapse before attempting to re-start, otherwise the accumulation of fuel in the main air casing and combustion chamber may cause excessive jet pipe temperatures.

Failure to start

12. If, after two attempts, the engine fails to start, a defect should be suspected, and investigated in accordance with the fault diagnosis chart given in Chap. 3.

Note . . .

After three consecutive starts, dry or wet cycles, a period of not less than thirty minutes must elapse before any attempt is made to re-energise the starter, otherwise the starter/generator may be seriously overheated.

GROUND RUNNING CHECKS

13. The initial ground run should be conducted with the forward end cover removed so that any leaks may be immediately detected and rectified.

(1) Check that the oil pressure warning light is extinguished within six or seven seconds of the start being initiated. If the warning light continues to glow after the engine reaches

self-sustaining speed the power plant must be shut down immediately and the cause investigated.

(2) When the engine reaches its maximum governed speed check that the jet pipe temperature stabilises within the maximum figure laid down in the Operating Limitations.

Note . . .

During the a.a.p.p. starting sequence it is possible that the unit, whilst accelerating up to its maximum governed speed, may momentarily record a jet pipe temperature considerably in excess to the maximum quoted in the Operating Limitations. Such j.p.t. readings, provided that their duration is less than ten seconds, can be disregarded.

(3) Select the spring loaded a.a.p.p. generator switch to the ENGAGE position, allow the switch to return to NORMAL, and check that the magnetic indicator associated with the switch shows ON LINE. Utilising the a.a.p.p. generator, in conjunction with the aircraft batteries, start one of the aircraft main engines and carefully observe the a.a.p.p. jet pipe temperature gauge. Should the j.p.t. reading exceed the Operating Limitations, the power plant must be shut down immediately and the cause investigated.

(4) Select the appropriate control to operate the aircraft rear freight doors, utilising the a.a.p.p. hydraulic pump (A.P.4745A). Check the power plant jet pipe temperature gauge and ensure that the j.p.t. reading remains within the maximum figure laid down in the Operating Limitations.

(5) Make a careful visual examination of the engine looking particularly for evidence of gas, fuel and oil leaks.

STOPPING THE ENGINE

14. The procedure for stopping the engine is as follows:—

(1) Ensure that all electrical and hydraulic loads are removed, select the spring loaded a.a.p.p. generator switch to OFF and TRIM, allow the switch to return to NORMAL and then check that the associated magnetic indicator is in the horizontal position.

Note . . .

Except in emergency conditions, the power plant must not be shut down until all electrical and hydraulic loads have been removed, otherwise the subsequent thermal shock may severely damage the turbine rotor.

(2) Move the a.a.p.p. master switch to the OFF position.

(3) Select the l.p. fuel cock switch to the CLOSED position and check that the associated electro-magnetic indicator shows BLACK.

DRY CYCLING THE ENGINE

15. The dry cycling procedure detailed in the following sub-paragraphs, will isolate the h.p. fuel cock actuator, the motorised air pump and the ignition system and, at the same time, energise the starter/generator for thirty seconds. The procedure is normally utilised to assist in drying out the engine following a wet cycle or a false start.

- (1) Move the GROUND-FLIGHT-CHARGE battery switch, on the flight engineer's panel, to the GROUND position.
- (2) Select the master switch on the a.a.p.p. panel, to the BLOW-OUT position and depress the starter push switch. The starter switch must be held in for at least two seconds before it will be retained magnetically.

WET CYCLING THE ENGINE

16. Selection of the wet cycling procedure, for de-inhibiting purposes, will isolate the motorised air pump and ignition system and simultaneously, energise the h.p. fuel cock actuator and starter/generator for thirty seconds.

- (1) Select the wet cycle switch, in the port tail boom, to the OFF position.
- (2) Carry out the normal starting procedure detailed in para. 5.

Note . . .

Do not forget to return the wet cycle switch to the ON position after completing the wet cycle procedure, otherwise subsequent attempts to start will prove abortive.



Chapter 3

FAULT DIAGNOSIS

INTRODUCTION

1. The principal purpose of this chart is to outline the sequence of checks that should be applied to a power plant in order to isolate the source of any particular fault in the shortest possible time.

2. In the event of a fault arising, carry out the check sequence indicated against the symptom experienced, until a positive result is obtained and then carry out the remedy suggested. In those instances where faults are indicated by a single instrument the instrument should be checked first. Defective components should not be dismantled in the process of fault diagnosis, the extent of minor repair work is specified in Sect. 5.

3. If it is necessary to disconnect the pipes of the fuel or oil systems all possible precautions must be taken to prevent the ingress of foreign matter. Similarly, all apertures resulting from the removal

of components must be immediately and adequately blanked off.

4. Cross references are given in the chart to indicate the Section and Chapter of this Volume which contain the relevant procedures for rectification. Where associated publications are concerned the relevant A.P. numbers are also given.

WARNING . . .

The electrical energy stored in the capacitor of the high energy ignition unit is potentially lethal. Before starting any work which involves handling components of the ignition system the l.f. supply to the unit must be disconnected and at least one minute allowed to elapse to permit the stored energy to dissipate.

FAULT DIAGNOSIS CHART — GROUND RUNNING CONDITIONS

<i>Symptom</i>	<i>Check-sequence</i>	<i>Failure indicates</i>	<i>Remedy</i>
1. Engine fails to rotate	Check battery voltage	Aircraft batteries discharged	Refer to (A.P.4745A, Vol. 1)
	Check aircraft supply to starter/generator for continuity and voltage at a.a.p.p. bulkhead terminal block	Aircraft wiring faulty	
	Check a.a.p.p. harness for continuity and voltage at starter/generator terminals	A.a.p.p. harness faulty	Check connections and replace harness if necessary (Sect. 5, Chap. 4)
	Check starter/generator with 'Megger'. Examine brushes and commutator	Starter/generator failed	Replace starter/generator (Sect. 5, Chap. 4)
2. Engine rotates but fails to light-up	Remove blower and oil cooler assembly and turn engine by hand	Engine seized	Return to M.U.
	Check that master switch is correctly set and that the wet cycle switch is in the ON position	Starting sequence incorrect	Refer to A.P.4745A, Vol. 1
	Energise ignition system and check that the igniter plug is audible	Igniter plug failed	Renew igniter plug (Sect. 5, Chap. 4)
	Check igniter cable for continuity and insulation	Faulty igniter cable	Replace igniter cable (Sect. 5, Chap. 4)
	Check aircraft supply at high energy ignition unit	Aircraft wiring faulty	Refer to A.P.4745A, Vol. 1
		Supply correct indicates a faulty high energy ignition unit	Replace high energy ignition unit (A.P.4745A, Vol. 1)
	If the aircraft is stationed 4000 ft. or more above sea level. Check for air pressure at the air pump Schrader valve connection		
	If no air pressure:—		
	Check aircraft supply to air pump motor, for voltage and continuity, at a.a.p.p. bulkhead plug	Aircraft wiring faulty	Refer to A.P.4745A, Vol. 1
	Disconnect a.a.p.p. harness at air pump motor and check for continuity and voltage	A.a.p.p. harness faulty	Check connections and replace harness if necessary (Sect. 5, Chap. 4)
	Check air pump motor with 'Megger'	Air pump motor failed	◀Replace air pump assembly▶ (Sect. 5, Chap. 3)
	Remove air pump inlet filter and check for presence of dirt	Air pump inlet filter choked	◀Replace air pump inlet filter element▶ (Sect. 5, Chap. 3)
	Disconnect air pump delivery pipe at pump outlet and check for pressure	Air pump failed	Replace air pump assembly (Sect. 5, Chap. 3)

FAULT DIAGNOSIS CHART—GROUND RUNNING CONDITIONS

<i>Symptom</i>	<i>Check-sequence</i>	<i>Failure indicates</i>	<i>Remedy</i>
3. Engine lights-up but fails to accelerate to governed speed	Remove the P ₂ non-return valve and check operation	Non-return valve failed	Renew non-return valve (Sect. 5, Chap. 3)
	Check drain manifold for presence of fuel		
	If inhibiting oil present	Fuel system inhibited	De-inhibit fuel system (Sect. 3, Chap. 1)
	If no fuel present:—		
	Check aircraft supply to burner actuator for continuity and voltage at a.a.p.p. bulkhead plug	Aircraft wiring faulty	Refer to A.P.4745A, Vol. 1
	Check a.a.p.p. harness for continuity and voltage at burner actuator	A.a.p.p. harness faulty	Check connections and replace harness if necessary (Sect. 5, Chap. 4)
	Remove burner actuator and test	Actuator failed	Renew burner actuator (Sect. 5, Chap. 4)
	If fuel present		
	Check l.p. cock	L.p. cock and/or aircraft wiring faulty	Refer to A.P.4745A, Vol. 1
	Check-sequence fails to reveal fault	Suspect faulty fuel pump	Renew fuel pump (Sect. 5, Chap. 3)
	Check l.p. cock selected	Starting sequence incorrect	Refer to A.P.4745A, Vol. 1
	Check fuel tank contents and/or booster pump selected	Starting sequence incorrect	
	Check air intake and exhaust for obstruction	Blanks, cleaning rag or tools left in ducting	Remove
	Check aircraft supply to starter/generator for continuity and voltage, at a.a.p.p. bulkhead terminal block	Aircraft batteries discharged	Refer to A.P.4745A, Vol. 1
	Check a.a.p.p. harness for continuity and voltage at starter/generator terminals	Aircraft wiring faulty	
	Check starter/generator with 'Megger', examine brushes and commutator	A.a.p.p. harness faulty	Check connections and renew harness if necessary (Sect. 5, Chap. 4)
	Disconnect low pressure fuel supply pipe at fuel pump and check fuel flow into a calibrated container with stop watch	Starter/generator faulty	Renew starter/generator (Sect. 5, Chap. 4)
	Check burner actuator traverse with slave lead and battery	Low pressure fuel filter choked	Renew filter element (Sect. 5, Chap. 3)
	Check oil sump	Aircraft fuel supply line obstructed	Refer to A.P.4745A, Vol. 1
		Burner actuator faulty	Fit replacement burner actuator (Sect. 5, Chap. 4)
		Incorrect grade of oil	Drain engine oil sump and refill with correct grade of oil (Sect. 5, Chap. 2 and Sect. 3, Chap. 1)

<i>Symptom</i>	<i>Check-sequence</i>	<i>Failure indicates</i>	<i>Remedy</i>
4. Engine surges during acceleration	Remove blower and oil cooler assembly and turn the engine by hand	Engine partially seized	Return to M.U.
	Check-sequence fails to indicate fault	Suspect faulty fuel pump	Renew fuel pump (Sect. 5, Chap. 3)
	After previous attempted starts or wet cycles check fuel drain valve	Steady fuel drain indicates insufficient time allowed for engine to drain If no fuel at drain valve after attempted starts or wet cycles suspect fuel drain valve blocked	Wait approximately 10 minutes for excessive fuel to drain from the engine Remove fuel drain valve and clean (Sect. 5, Chap. 3)
	Check that there is no load applied to the engine during acceleration period	Controls incorrectly operated	Refer to A.P.4745A, Vol. 1
5. Engine surges during steady running	Check-sequence fails to reveal fault	Suspect faulty fuel pump	Fit replacement fuel pump (Sect. 5, Chap. 3)
	Check air intake and exhaust for obstruction	Blanks, tools or cleaning rag left in the ducting	Remove
	No other symptom apparent	Suspect faulty fuel pump	Fit replacement fuel pump (Sect. 5, Chap. 3)
6. ◀Low oil pressure	Check engine oil sump	Oil level incorrect	Replenish (Sect. 3, Chap. 1)
		Incorrect grade of engine oil	Drain and replenish (Sect. 5, Chap. 2 and Sect. 3, Chap. 1) ▶
	Check all pipes, unions etc. for security	Oil leakage from pipes or connections	Tighten connections and/or renew pipes (Sect. 5, Chap. 2)
	Check aircraft supply to oil pressure transmitter, at a.a.p.p. bulk-head plug	Aircraft wiring faulty	Refer to A.P.4745A, Vol. 1
	Check oil pressure transmitter	Oil pressure transmitter faulty	Fit replacement oil pressure transmitter (Sect. 5, Chap. 2)
	Check oil cooler and supply and return pipes for obstruction	Oil cooler and/or supply and return pipes blocked	Fit replacement oil cooler and/or pipes (Sect. 5, Chap. 2)
	Check-sequence fails to reveal fault	Suspect internal oil system defect	Return to M.U.
	Check air intake and exhaust for obstructions	Blanks, tools or cleaning rag left in ducting	Remove
	Calibrate jet pipe temperature gauge and exhaust thermocouple	Jet pipe temperature gauge and thermocouple incorrectly calibrated	Refer to A.P.4745A, Vol. 1
7. Jet pipe temperature exceeds operating limitations during steady running no-load conditions		Jet pipe temperature gauge and/or thermocouple and harness faulty	Fit replacement assemblies as necessary (Sect. 5, Chap. 4)

FAULT DIAGNOSIS CHART — GROUND RUNNING CONDITIONS

<i>Symptom</i>	<i>Check-sequence</i>	<i>Failure indicates</i>	<i>Remedy</i>
8. Continuous drain from manifold whilst engine running	Remove blower and oil cooler assembly and turn engine by hand	Engine or auxiliaries partially seized	Return to M.U.
	If fuel drain:—		
	Disconnect burner drain pipe at burner drain union. Fit drain pipe and run unit	Fuel present indicates burner h.p. cock spindle seals failed	Fit replacement burner (Sect. 5, Chap. 3)
		No fuel present indicates fuel pump drive shaft inner seal failed	Fit replacement fuel pump (A.P.4617B, Sect. 5, Chap. 3)
	If engine oil drain:—		
	Disconnect hydraulic pump drain pipe. Fit slave drain pipe and run unit.	Engine oil present indicates hydraulic pump drive shaft outer seal failed	Fit replacement hydraulic pump (Sect. 5, Chap. 5)
9. Engine stalls when electrical and/or hydraulic load applied		No engine oil present indicates fuel pump drive shaft outer seal failed	Fit replacement fuel pump (Sect. 5, Chap. 3)
	If hydraulic fluid drain:—		
	Examine hydraulic couplings in central beam top tray	Hydraulic coupling faulty	Fit replacement hydraulic couplings (Sect. 5, Chap. 5)
		Hydraulic couplings satisfactory, indicates hydraulic pump drive shaft inner seal failed	Fit replacement hydraulic pump (Sect. 5, Chap. 5)
	Check air intake and exhaust for obstruction	Blanks, tools or cleaning rag left in ducting	Remove
	Disconnect low pressure fuel supply pipe at fuel pump and check fuel flow into calibrated container with stop watch	Low pressure fuel filter element and relief valve choked	Replace filter element and clean relief valve (Sect. 5, Chap. 4)
		Aircraft fuel supply line obstructed	Refer to A.P.4745A, Vol. 1
	Check burner actuator traverse with slave leads and battery	Burner actuator faulty	Fit replacement burner actuator (Sect. 5, Chap. 4)
	Remove blower and oil cooler assembly and turn engine by hand	Engine seized	Return to M.U.
	Check sequence fails to reveal fault	Suspect compressor and diffuser excessively dirty	Carry out compressor cleaning procedure (Sect. 4, Chap. 1)
		Suspect faulty fuel pump and/or temperature control	Fit replacement fuel pump and temperature control (Sect. 5, Chap. 3)

FAULT DIAGNOSIS CHART — GROUND RUNNING CONDITIONS

<i>Symptom</i>	<i>Check-sequence</i>	<i>Failure indicates</i>	<i>Remedy</i>
10. Power plant fails to accept electrical load. Jet pipe temperature remains within operating limitations	Check starter/generator with 'Megger'. Examine brushes and commutator	Starter/generator faulty	Replace starter/generator
	Check for continuity and voltage at a.a.p.p. bulk-head terminal block	A.a.p.p. harness faulty	Check connections and replace harness if necessary (<i>Sect. 5, Chap. 4</i>)
	Check-sequence fails to reveal fault	Suspect aircraft wiring faulty	Refer to <i>A.P.4745A, Vol. 1</i>
11. Power plant fails to accept hydraulic load. Jet pipe temperature remains within operating limitations	If satisfied that there is hydraulic fluid in the line, fit replacement hydraulic pump and re-apply load	Suspect fault in aircraft hydraulic system	Refer to <i>A.P.4745A, Vol. 1</i>