

## APU POWER PLANT - MAINTENANCE PRACTICES

*EFFECTIVITY: AIRCRAFT WITH APU T-62T-40C14*

### 1. General

- A. This section gives the procedures for the APU ground starting/shutdown.
- B. The procedures in this section are given in the sequence below. The tasks identified with (◆) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	DESCRIPTION	EFFECTIVITY
49-13-00-910-802-A	APU - START	AIRCRAFT WITH APU T-62T-40C14
49-13-00-910-803-A	APU - SHUTDOWN	AIRCRAFT WITH APU T-62T-40C14

TASK 49-13-00-910-802-A

EFFECTIVITY: AIRCRAFT WITH APU T-62T-40C14

## 2. APU - START

### A. General

(1) This task gives the necessary instructions to start the APU on the ground.

### B. References

REFERENCE	DESIGNATION
AMM MPP 49-02-00/200	- MAINTENANCE PRACTICES
AMM TASK 12-11-01-600-801-A/300	FUEL-TANK PRESSURE REFUELING - SERVICING
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 26-10-00-700-801-A/500	-
AMM TASK 26-10-00-700-802-A/500	-

### C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
225		Cockpit

### D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 054	DC Ground Power Unit (GPU)	APU start procedures	

### E. Auxiliary Items

Not Applicable

### F. Consumable Materials

Not Applicable

### G. Expandable Parts

Not Applicable

### H. Persons Recommended

QTY	FUNCTION	PLACE
1	APU start	Cockpit
1	To monitor the APU start cycle	APU

### I. Preparation

SUBTASK 841-002-A

**WARNING: BEFORE YOU DO THE TASK, OBEY THE SAFETY PRECAUTIONS GIVEN IN (AMM MPP 49-02-00/200) TO PREVENT INJURY TO PERSONS AND DAMAGE TO MATERIAL.**

- (1) Make sure that these circuit breakers, on the circuit breaker panel, are closed:
  - APU - Control.
  - APU - Fire Det.
  - APU - Fire Ext.
  - APU - Fuel SOV.
- (2) Energize the aircraft with the GPU ( [AMM TASK 20-40-01-860-801-A/200](#)) or batteries.
- (3) **NOTE:** Before you energize the aircraft with the batteries, make sure that the GPU is not connected.

**NOTE:** To know the battery voltage, set the Avionics Master 1/2 pushbuttons to the ON position and read the value on the MFD. The minimum necessary voltage for APU start is 23.5 V. In cold soak conditions, do a check on the battery temperature. If the battery is colder than -20°C, make it warm before use.

Energize the aircraft with batteries as follows:

**WARNING: DO NOT TOUCH THE PROBES IMMEDIATELY AFTER AIRPLANE POWER UP. DURING FADEC INITIALIZATION ITS SENSORS ARE HEATED FOR 20 SECONDS AND IF YOU TOUCH THEM, THEY CAN CAUSE INJURIES.**

- (a) On the electrical panel (overhead panel), set the BATT1 and BATT2 rotary switches to AUTO (Figure 201).
- (b) Make sure that the APU GEN pushbutton, on the electrical panel (overhead panel), is set to ON (Figure 201).
- (4) On the exterior lights panel (overhead panel), set the navigation lights to the ON position (Figure 201).
- (5) On the EICAS display, read the fuel quantity (LH and RH tanks) (Figure 201). Fill as necessary ( [AMM TASK 12-11-01-600-801-A/300](#)).

**CAUTION: DAMAGE TO THE FUEL PUMP WILL OCCUR IF IT OPERATES WITH NO FUEL (DRY OPERATION). THUS, LOOK TO KNOW THE FUEL LEVEL IN THE FUEL TANKS BEFORE YOU TURN ON THE FUEL PUMP.**

- (6) On the fuel control panel, set the left or right PUMP SEL rotary switch to A, B, or C to select one electrical fuel pump and set the TANK 1 or 2 PUMP PWR rotary switch to ON to turn on the selected pump (Figure 201).

**NOTE:** If the LH tank fuel pump is to be used, open the fuel crossfeed valve.

- (7) Do the test of the fire detection system (AMM TASK 26-10-00-700-801-A/500 or AMM TASK 26-10-00-700-802-A/500, as applicable).
- (8) Make sure that the AVIONICS MASTER 1/2 pushbuttons are set to the OFF position (released).

J. APU - Starting Procedure Figure 201

SUBTASK 910-002-A

**WARNING: DURING THE START PROCEDURES, MAKE SURE THAT THERE IS A TECHNICIAN (EXTERNAL OBSERVER) WITH A FIRE EXTINGUISHER (CO<sub>2</sub>) ADJACENT TO THE AIRCRAFT TO MONITOR THE APU OPERATION. USE THE REAR INTERPHONE SYSTEM (RAMP) FOR COMMUNICATIONS BETWEEN THE COCKPIT AND THE EXTERNAL OBSERVER.**

**CAUTION:** • EMBRAER AND HAMILTON SUNDSTRAND DO NOT RECOMMEND APU OPERATION DURING THE AIRCRAFT DEICING/ANTI-ICING PROCEDURE. IF THE APU IS KEPT IN OPERATION DURING THE DEICING/ANTI-ICING PROCEDURE, DAMAGE CAN OCCUR TO IT. IF THE APU OPERATION IS VERY NECESSARY, MAKE SURE THAT THE APU BLEED VALVE IS CLOSED, PACKS ARE SET TO OFF, AND THE DEICING/ANTI-ICING FLUID WILL NOT BE APPLIED DIRECTLY TO OR NEAR THE APU AIR INLET.

- REMOVE ALL DEICING/ANTI-ICING FLUID BUILD-UP BEFORE THE ENGINE OR THE APU STARTS. IF NOT, DAMAGE TO COMPONENTS CAN OCCUR.
- FOR THESE PROCEDURES, OBEY THE APU OPERATING LIMITATIONS GIVEN IN [AMM MPP 49-02-00/200](#).
- EGT TEMPERATURES HIGHER THAN THE LIMITS SHOWN IN ([AMM MPP 49-02-00/200](#)) OPERATING LIMITS CAUSE THE ESU TO AUTOMATICALLY STOP THE APU. IF THIS DOES NOT OCCUR IN 5 (FIVE) SECONDS FROM AN OVERTEMPERATURE CONDITION, THE APU MUST BE STOPPED MANUALLY.
- BEFORE YOU START THE APU, WAIT FOR A MINIMUM OF 30 SECONDS FROM THE TIME THAT YOU ENERGIZED THE AIRCRAFT.

- (1) Set the master switch to the ON position and momentarily move the APU master switch to the START position (Figure 201).
- (2) After the APU starts, set the AVIONICS MASTER 1/2 pushbuttons to ON.
- (3) **NOTE:** The APU ignition occurs and the start fuel valve opens at 3% RPM. As a result, the EGT will increase.

On the EICAS display, monitor the exhaust gas temperature (EGT) and speed (% RPM) (Figure 201).

- (4) Set the APU BLEED pushbutton as necessary.

**NOTE:** To extend the service life of the APU engine, warm up the APU for 3 to 5 minutes before you set the APU BLEED pushbutton to the ON position.

**NOTE:** If the APU stops automatically, the cause of the failure will be recorded on the CMC (Central Maintenance Computer) and shown at the MFD maintenance download.

K. Follow-on

*SUBTASK 842-002-A*

CAUTION: BEFORE YOU REMOVE THE EXTERNAL DC POWER SUPPLY, MAKE SURE THAT THE GPU PUSHBUTTON IS SET TO THE OFF POSITION (RELEASED).

- (1) If the GPU was used to energize the aircraft, deenergize it ( [AMM TASK 20-40-01-860-801-A/200](#)).

TASK 49-13-00-910-803-A

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### 3. APU - SHUTDOWN

#### A. General

- (1) This task gives the procedures to stop the APU (Normal/Emergency procedures).
- (2) The APU can be stopped from the APU control panel by two procedures: normal procedure with the STOP pushbutton, and abnormal procedure with the FUEL SHUTOFF switch, on the APU control panel.

#### B. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
225		Cockpit

#### C. Tools and Equipment

Not Applicable

#### D. Auxiliary Items

Not Applicable

#### E. Consumable Materials

Not Applicable

#### F. Expandable Parts

Not Applicable

#### G. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit

#### H. APU Normal Shutdown ([Figure 201](#))

##### *SUBTASK 910-003-A*

- (1) Set the APU BLEED pushbutton as necessary.

**NOTE:** To extend the service life of the APU engine, the APU must be shut down while under pneumatic load or immediately after the pneumatic load is removed.

**NOTE:** Do not remove power from the FADEC during shutdown. Power to the FADEC must stay on to permit fault message access.

- (2) Push the STOP pushbutton.
- (3) After the APU stops (5% RPM or less), set the master switch to the OFF position.
- (4) If applicable, move the TANK 1 or 2 PUMP PWR rotary switch to turn off the fuel pump.

- (5) If the batteries were used to energize the aircraft, set the BATT1 and BATT2 rotary switches, on the electrical panel (overhead panel), to OFF to deenergize it (Figure 201), as applicable.

I. APU Emergency Shutdown (Figure 201)

*SUBTASK 910-004-A*

- (1) If the APU FIRE message comes on, on the EICAS display, do as follows:
  - (a) Lift its guard and push the APU fuel-shutoff switch.
  - (b) Set the master switch to OFF and make sure that the EICAS shows the APU FUEL SOV CLSD message.
- (2) If the valve is not confirmed closed and the APU FIRE message stays on the EICAS display, do as follows:
  - (a) Set the TANK 1 or 2 PUMP PWR rotary switch to the OFF position.
  - (b) Set the fuel crossfeed valve to the Closed position, if applicable.
  - (c) After 30 seconds, if the APU FIRE message stays on the EICAS, lift its guard and push the APU FIRE EXTG switch.

J. Follow-on

*SUBTASK 842-003-A*

- (1) On the exterior lights panel (overhead panel), set the navigation lights to the OFF position.

## Figure 201



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