**ON A/C ALL

TASK 21−60−00−810−803
FLT COMPT DUCT HOT (Caution) − Fault Isolation

1. General

A. This fault isolation procedure is for when the FLT COMP DUCT HOT caution light on the caution and warning panel (CAWP) is on. It is for when the FLT COMP DUCT HOT caution light has come on one time or came on more than one time .

NOTE: The acronyms FD (flight deck) and FLT COMPT (flight compartment) are interchangeable.

B. The caution light comes on when a flight compartment zone supply over temperature event is detected. Refer to the general sections of the fault messages shown below for a more detailed description of the conditions that set the applicable CDS message.

C. The audio and radio control display unit (ARCDU) can show one or more of the related central diagnostic system (CDS) messages that follow:

– 7111 − FD OVR TMP1
– 7112 − FD OVR TMP2
– 7113 − FD OVR TMP3
– 7114 − FD OVR TMP4
– 3601 − FD BYP VLV
– 4404 − ECU DIG CH 2

D. The fault logic definitions for the system monitor faults and the related component faults are as follows:

(1) The system fault code 7111 FD OVT TMP1 is set when one of the two conditions that follow occurs for more than 15 seconds:

– A temperature that is hotter than 170°F (76.7°C) is sensed by one of the two sensing elements of the FD zone duct temperature−sensor and the FD duct over−temperature switch is open
– The FD duct over−temperature switch is open and the two sensing elements of the FD zone duct temperature−sensor have failed out of range (fault code 3D01 or 3D0B).

This system monitor shuts down the ACM to try to clear the over temperature condition.

(2) The system fault code 7112 FD OVT TMP2 is set when the condition that follows occurs for more than 5 seconds:

– A temperature that is from 190°F (87.8°C) to 210°F (98.9°C) is sensed by each of the two sensing elements of the FD zone duct temperature−sensor.

This system monitor shuts down the ACM to try to clear the over temperature condition. This system monitor is inhibited if the two sensing elements of the FD zone duct temperature−sensor have failed out of range (fault code 3D01 or 3D0B). This system monitor is also inhibited if any of the two fault codes 7111 or 7113 are active.

(3) The system fault code 7113 FD OVT TMP3 is set when the condition that follows occurs for

more than 5 seconds:

– A temperature that is hotter than 210°F (98.9°C) is sensed by one of the two sensing elements of the FD zone duct temperature−sensor.

This system monitor shuts down the ACM to try to clear the over temperature condition. This system monitor is inhibited if the two sensing elements of the FD zone duct temperature−sensor have failed out of range (fault code 3D01 or 3D0B).

(4) The system fault code 7114 FD OVT TMP4 is set when the conditions that follow occur together for more than 20 seconds:

– A minimum of one more FD duct over temperature condition was sensed by any of the other system fault monitors 7111, 7112 or 7113

– The FD turbine shutoff valve (TSOV) was closed by the other system fault monitor(s) (7111, 7112 or 7113) to shutdown the air cycle machine (ACM)

– The fault monitor(s) (7111, 7112 or 7113) remain active

– The temperature of the FD zone duct is hotter than 190°F (87.8°C) or the FD over−temperature switch stays open.

When this system fault set, the pack flow control and shutoff valve (PFCSOV) is commanded closed. The fault code 7114 will cause the CABIN PACK HOT caution light to come on if the CABIN DUCT HOT caution light is not commanded on by the electronic control unit (ECU). This is an indication that the FD over temperature event caused the loss of the two ACMs. The loss of the two ACMs is also shown when the FLT COMPT DUCT HOT and the CABIN DUCT HOT caution lights come on at the same time.

2. Job Set−Up Information

Subtask 21−60−00−946−096

REFERENCE	DESIGNATION
AMM TASK 21−25−06−160−801	Cleaning of the Temperature Sensor
AMM TASK 21−51−31−000−801	Removal of the Pack Bypass Valve
AMM TASK 21−51−31−000−802	Removal of the Pack Bypass Valve Filter
AMM TASK 21−51−31−160−801	Cleaning of the Pack Bypass Valve Filter
AMM TASK 21−51−31−400−801	Installation of the Pack Bypass Valve
AMM TASK 21−51−31−400−802	Installation of the Pack Bypass Valve Filter
AMM TASK 21−52−01−000−802	Removal of the Pack Flow Control and Shut−off Valve Filter
AMM TASK 21−52−01−160−801	Cleaning of the Pack Flow Control and Shut−off Valve Filter
AMM TASK 21−52−01−400−802	Installation of the Pack Flow Control and Shut−off Valve Filter
AMM TASK 21−61−00−710−803	Operational Test of the ECS Temperature Control

REFERENCE	DESIGNATION
AMM TASK 21−61−01−000−801	Removal of the Environmental Control System Electronic Control Unit
AMM TASK 21−61−01−400−801	Installation of the Environmental Control System Electronic Control Unit
AMM TASK 45−00−21−742−801	Retrieval of Data from the Central Diagnostic System − Environmental Control System (ECS) Air Conditioning
AMM TASK 45−00−21−743−801	Erase the Data from the Central Diagnostic System − Environmental Control System (ECS) Air Conditioning
FIM TASK 21−60−00−810−853	FD BYP VLV (Status) − Fault Isolation
FIM TASK 21−60−00−810−856	ECU DIG CH 1 (CH 2) (Status) − Fault Isolation
FIM TASK 21−60−00−810−870	FD OVR TMP1, 7111 (Status) − Fault Isolation
FIM TASK 21−60−00−810−871	FD OVR TMP2, 7112 (Status) − Fault Isolation
FIM TASK 21−60−00−810−872	FD OVR TMP3, 7113 (Status) − Fault Isolation
FIM TASK 21−60−00−810−873	FD OVR TMP4, 7114 (Status) − Fault Isolation
WM TASK 21−61−00−1	Temperature Control and Indication System

3. Fault Confirmation

Subtask 21−60−00−810−006

A. Confirm the fault as follows:

(1) Do the retrieval of the CDS fault indications for the environmental control system (ECS) (Refer to AMM TASK 45−00−21−742−801).

(2) Record present and historical faults linked to the event in the appropriate maintenance logbook. Include the operational hours for historical faults.

(3) Erase the data from the CDS (Refer to AMM TASK 45−00−21−743−801).

(4) Do the operational test of the environmental control system (ECS) temperature control (Refer to AMM TASK 21−61−00−710−803).

(a) If the FLT COMPT DUCT HOT caution light does not come on, no maintenance procedure is necessary. Do the Close Out.

(b) If the FLT COMPT DUCT HOT caution light does come on, or came on more than one time, do the CDS fault indication retrieval again (Refer to AMM TASK 45−00−21−742−801 . Do the fault isolation.

4. Fault Isolation

Subtask 21−60−00−810−005

A. Isolate the fault as follows:

(1) Refer to the fault isolation procedures given in the fault isolation flowchart (Refer to FIM21−60−00−997−804.

(2) If the message shown in 7111 − FD OVR TMP1, do the fault isolation for this message (Refer to FIM TASK 21−60−00−810−870).

(3) If the message shown in 7112 − FD OVR TMP2, do the fault isolation for this message (Refer to FIM TASK 21−60−00−810−871).

(4) If the message shown in 7113 − FD OVR TMP3, do the fault isolation for this message (Refer to FIM TASK 21−60−00−810−872).

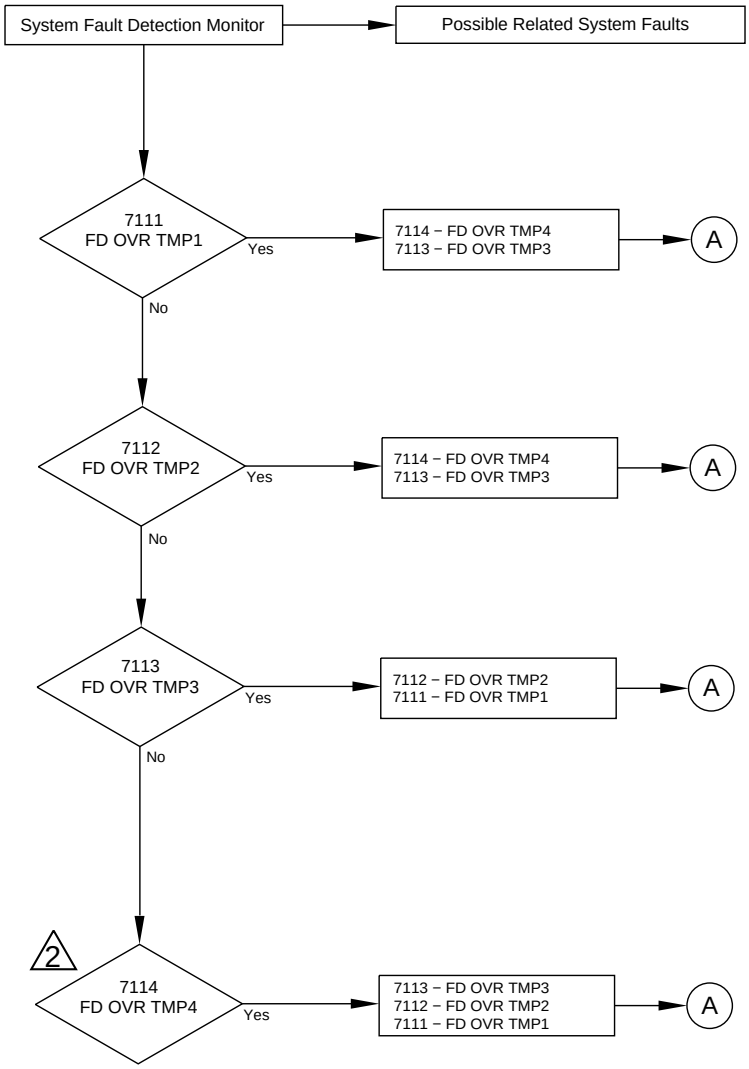
(5) If the message shown in 7114 − FD OVR TMP4, do the fault isolation for this message (Refer to FIM TASK 21−60−00−810−873).

5. Close Out

Subtask 21−60−00−941−002

A. Make sure that the CAWP FLT COMP DUCT HOT caution light is not on.

B. Remove all tools, equipment and unwanted materials from the work area.



NOTES

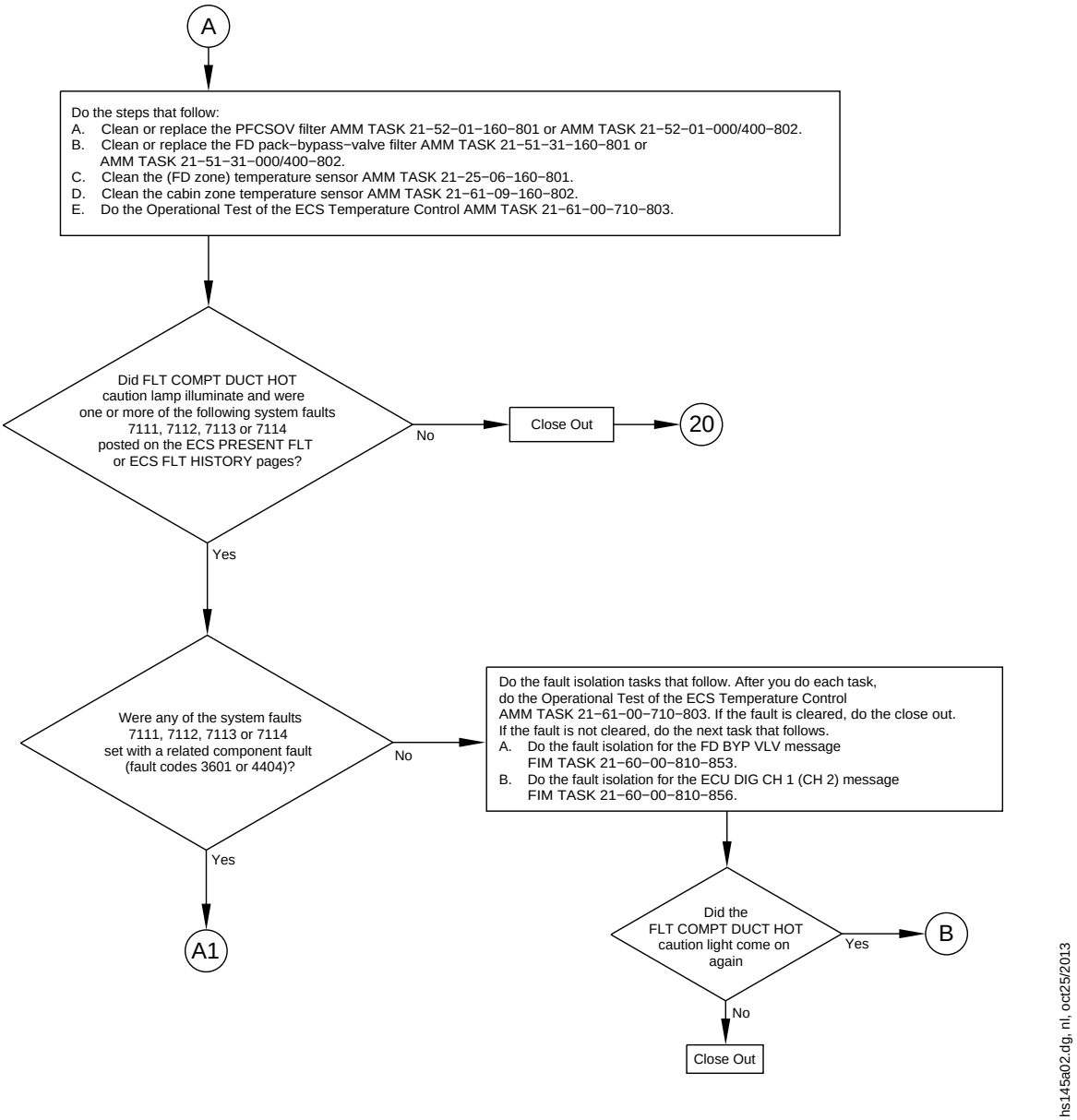
1. Examine the ECS PRESENT FLT and ECS FLT HISTORY pages for the system monitor and the related component faults listed above. If the FLT COMPT DUCT HOT caution light or the CABIN PACK HOT caution light is not ON, the applicable CDS faults for this event will be on the ECS FLT HISTORY pages.

2. 7114 System Fault Detection Monitor will be displayed with any of the fault codes 7111, 7112 or 7113. If this occurs, the PFCSOV is commanded closed and results in a Dual PACK Shutdown.

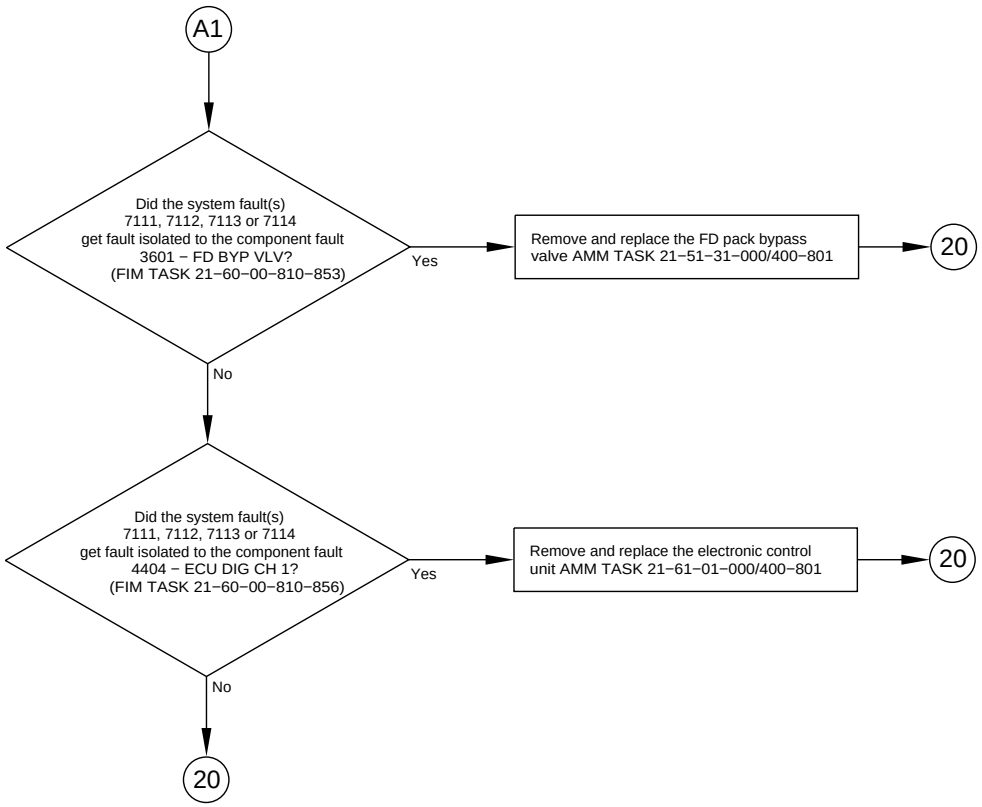
hs145a01.dg, nl, oct25/2013

FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 1 of 9)

Fault Isolation for System Level Fault Code 7111 − FD OVT TMP1 (FIM TASK 21−60−00−810−870)
And/Or
Fault Isolation for System Level Fault Code 7112 − FD OVT TMP2 (FIM TASK 21−60−00−810−871)
And/Or
Fault Isolation for System Level Fault Code 7113 − FD OVT TMP3 (FIM TASK 21−60−00−810−872)
And/Or
Fault Isolation for System Level Fault Code 7114 − FD OVT TMP4 (FIM TASK 21−60−00−810−873)

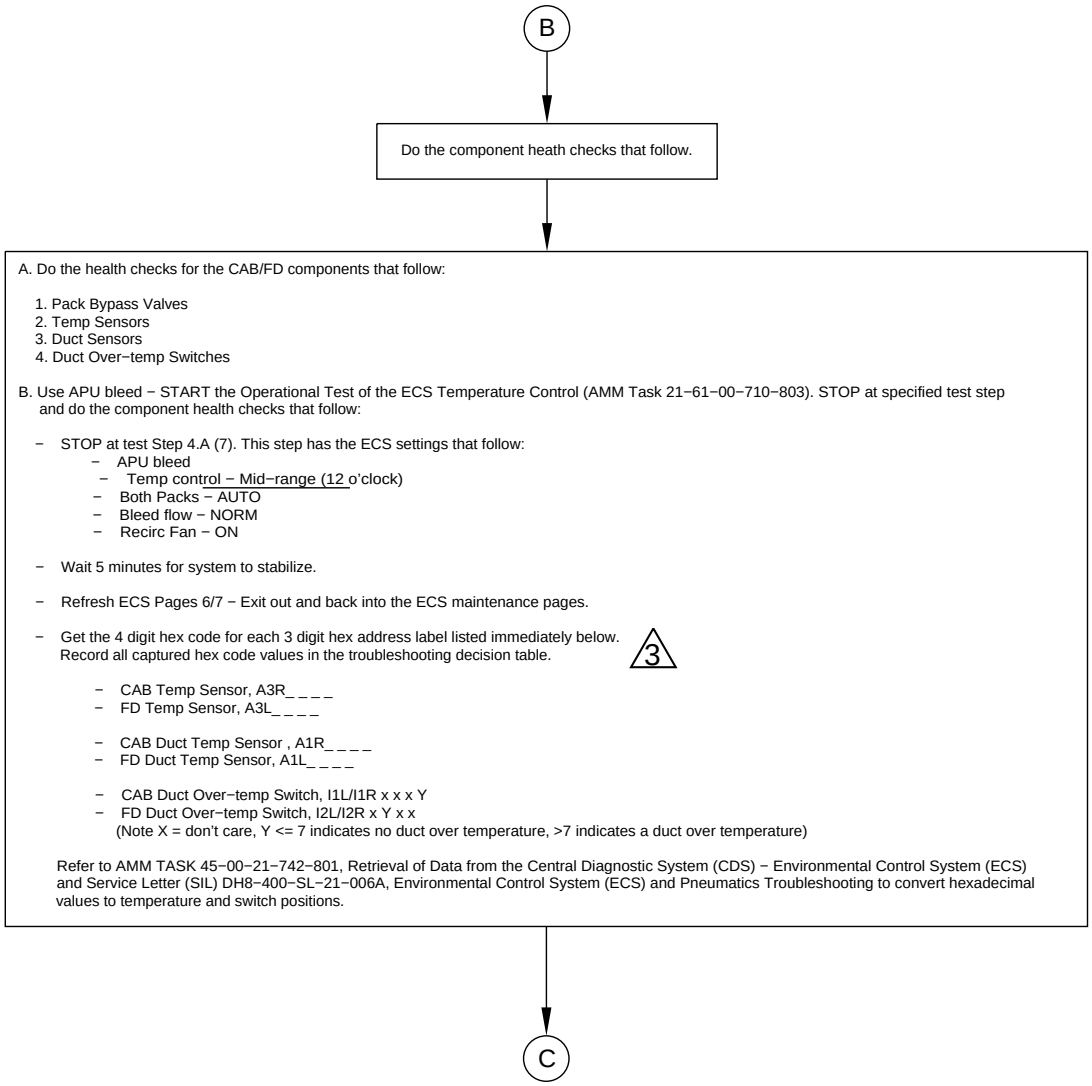


FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 2 of 9)



hs145a03.dg, nl, oct25/2013

FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 3 of 9)

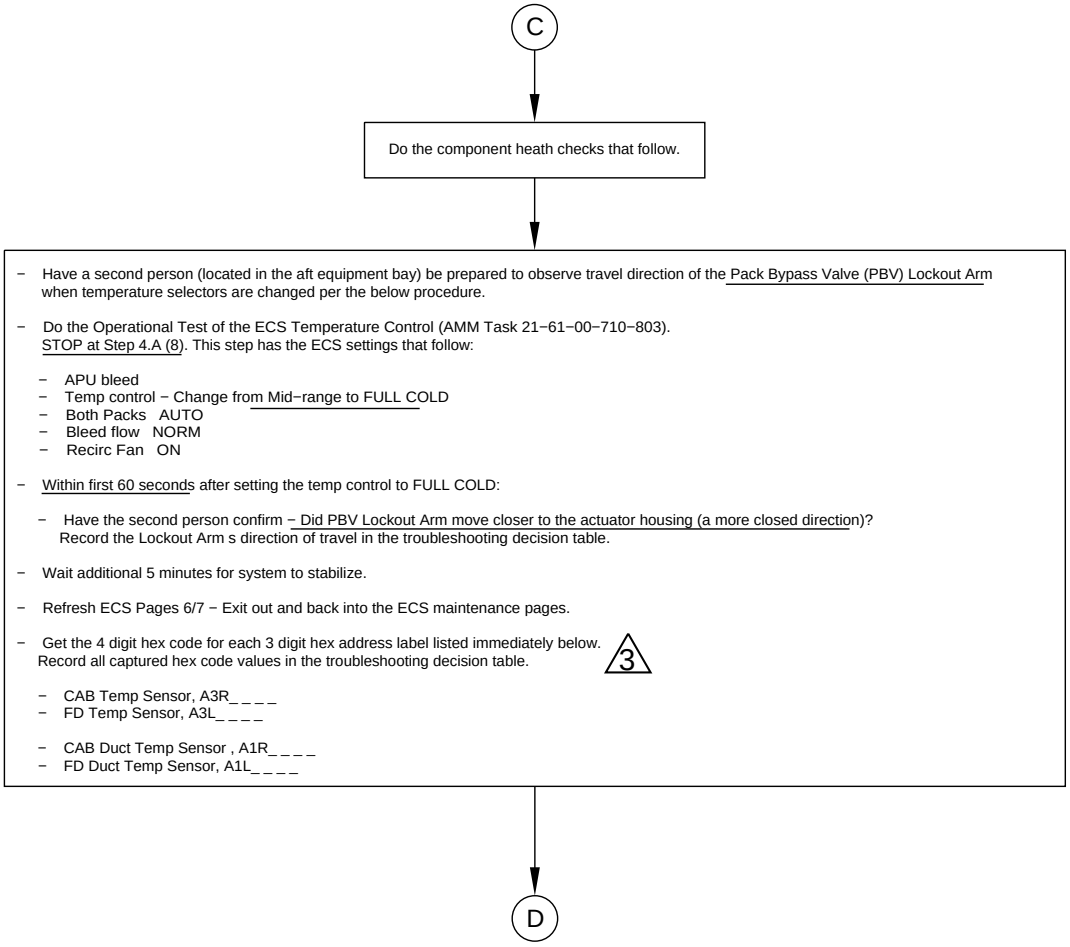


NOTES

3. The hex address label is the first 3 characters. The next 4 characters is a snapshot of the component s hexadecimal value (frozen in time) when the ECS Maintenance Pages are exited and re−entered.
4. De Havilland Aircraft of Canada Limited (De Havilland Canada) Hex Program may be used as a tool to assist.

hs145a04.dg, nl/hs, may22/2020

FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 4 of 9)



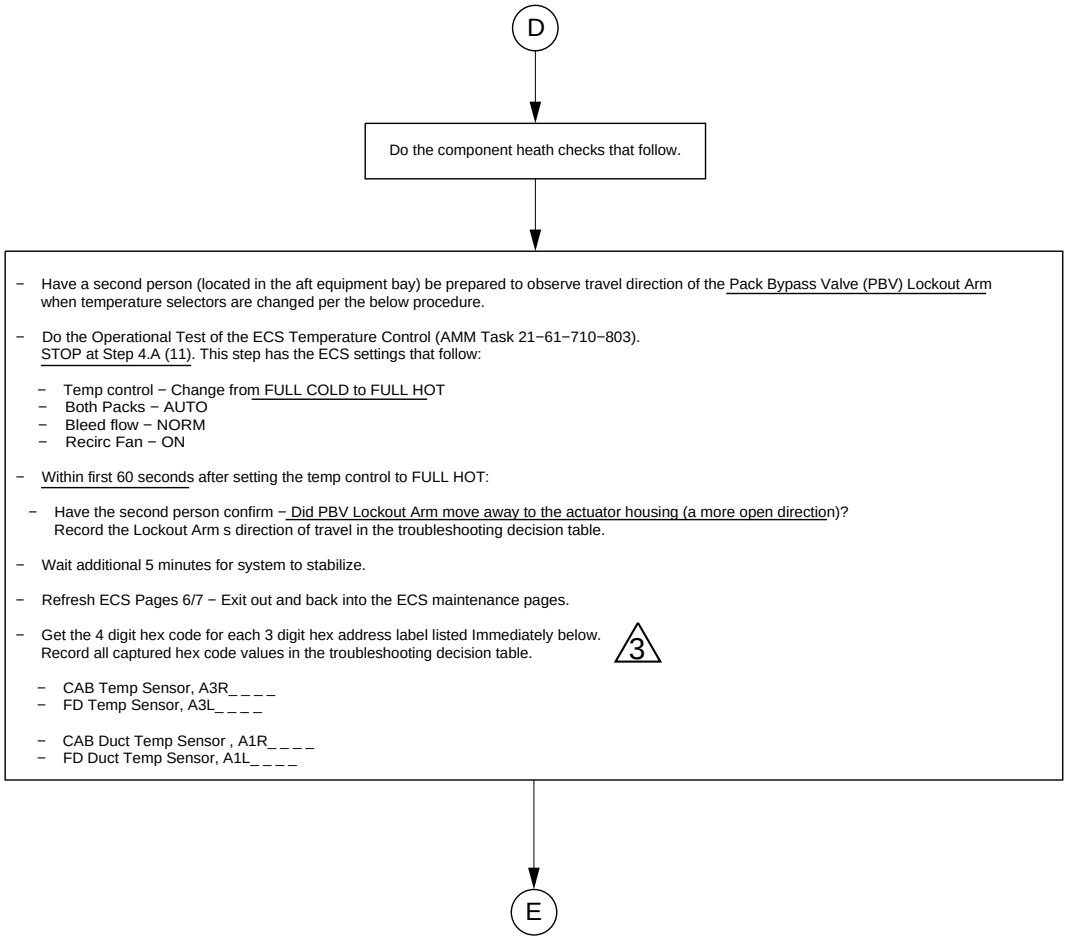
NOTES

3 The hex address label is the first 3 characters. The next 4 characters is a snapshot of the component s hexadecimal value (frozen in time) when the ECS Maintenance Pages are exited and re−entered.

4. De Havilland Canada Hex Program may be used as a tool to assist.

hs145a05.dg, nl/ns, may22/2020

FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 5 of 9)



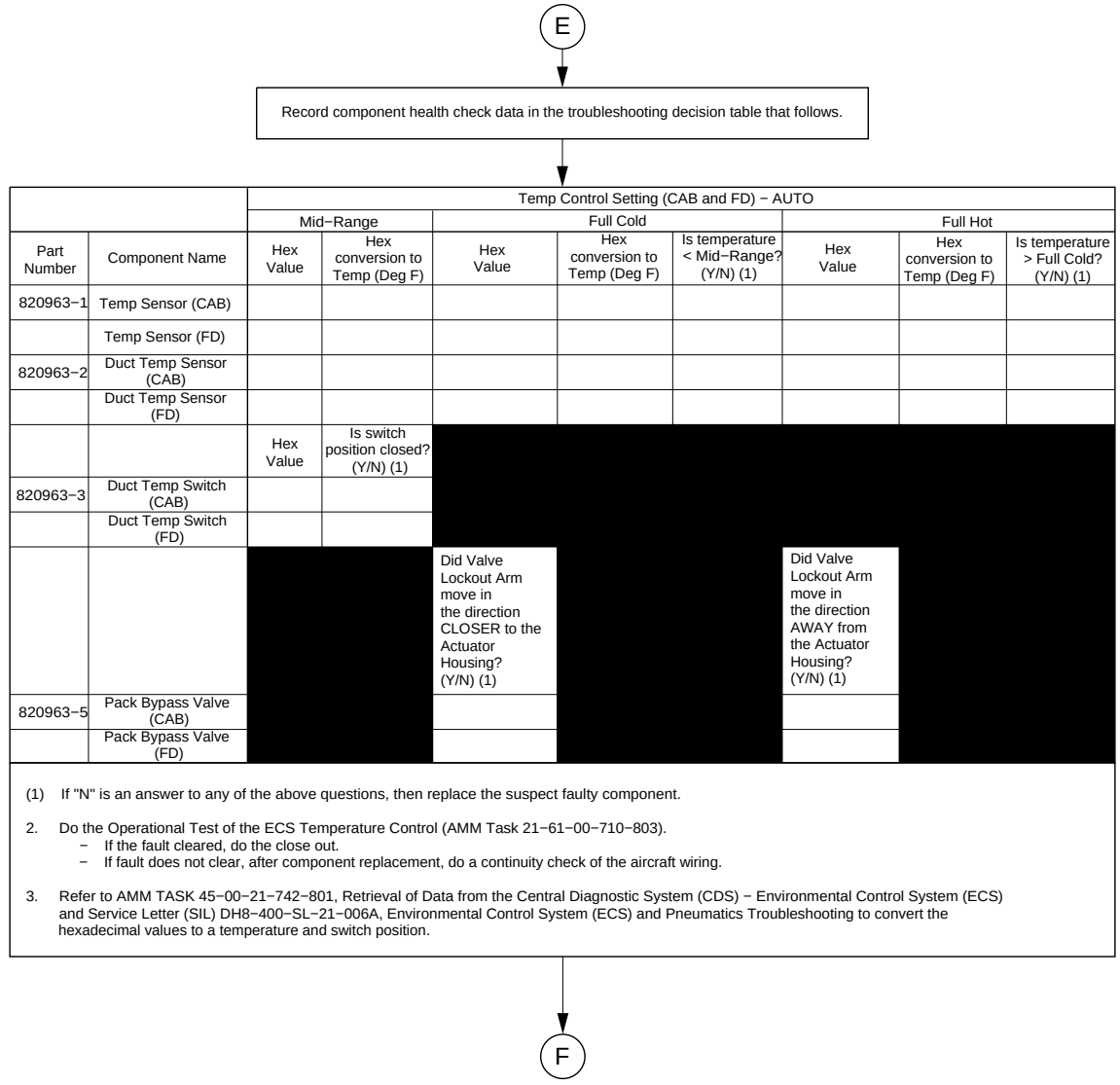
NOTES

3 The hex address label is the first 3 characters. The next 4 characters is a snapshot of the component s hexadecimal value (frozen in time) when the ECS Maintenance Pages are exited and re−entered.

4. De Havilland Canada Hex Program may be used as a tool to assist.

hs145a06.dg, nl/hs, may22/2020

FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 6 of 9)



		Temp Control Setting (CAB and FD) − AUTO							
		Mid−Range		Full Cold			Full Hot		
Part Number	Component Name	Hex Value	Hex conversion to Temp (Deg F)	Hex Value	Hex conversion to Temp (Deg F)	Is temperature < Mid−Range? (Y/N) (1)	Hex Value	Hex conversion to Temp (Deg F)	Is temperature > Full Cold? (Y/N) (1)
820963−1	Temp Sensor (CAB)								
	Temp Sensor (FD)								
820963−2	Duct Temp Sensor (CAB)								
	Duct Temp Sensor (FD)								
		Hex Value	Is switch position closed? (Y/N) (1)						
820963−3	Duct Temp Switch (CAB)								
	Duct Temp Switch (FD)								
				Did Valve Lockout Arm move in the direction CLOSER to the Actuator Housing? (Y/N) (1)			Did Valve Lockout Arm move in the direction AWAY from the Actuator Housing? (Y/N) (1)		
820963−5	Pack Bypass Valve (CAB)								
	Pack Bypass Valve (FD)								

(1) If "N" is an answer to any of the above questions, then replace the suspect faulty component.

2. Do the Operational Test of the ECS Temperature Control (AMM Task 21−61−00−710−803).
   - If the fault cleared, do the close out.
   - If fault does not clear, after component replacement, do a continuity check of the aircraft wiring.

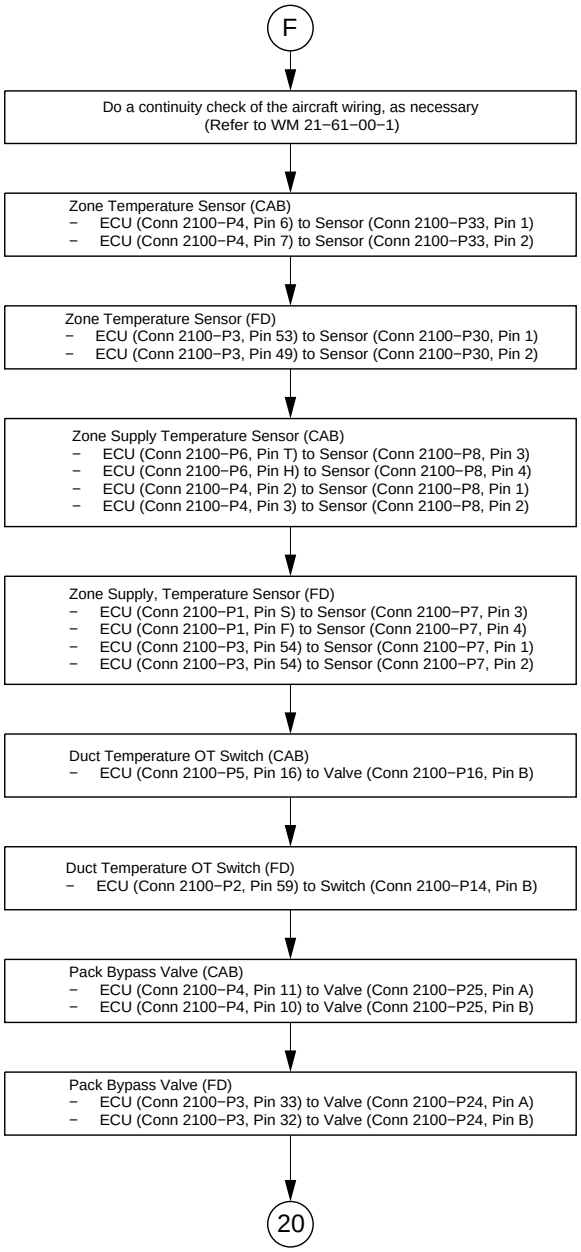
3. Refer to AMM TASK 45−00−21−742−801, Retrieval of Data from the Central Diagnostic System (CDS) − Environmental Control System (ECS) and Service Letter (SIL) DH8−400−SL−21−006A, Environmental Control System (ECS) and Pneumatics Troubleshooting to convert the hexadecimal values to a temperature and switch position.

hs145a07.dg, nl/ns, may22/2020

NOTES

4. De Havilland Canada Hex Program may be used as a tool to assist.

FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 7 of 9)



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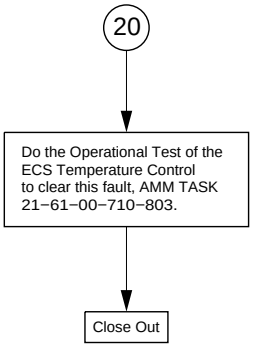
FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 8 of 9)



hs145a09.dg, nl, oct21/2013

FLT COMPT DUCT HOT (Caution) − Fault Isolation
Figure 203 (Sheet 9 of 9)