**ON A/C ALL

TASK 24−20−00−810−801
#1 AC GEN (Caution) − Fault Isolation

1. General

A. The Fault Isolation procedure is for when the #1 AC GEN caution light on the Caution and Warning Panel (CAWP) is on.

B. The #1 AC GEN caution light in the CAWP comes on when the related AC Generator Control Unit (GCU) senses a condition that follows:

– If a source fault is sensed, the AC generator line contactors K1 and K2 will not connect the AC GEN 1 to the 115 V AC left bus and the 115 V AC right bus.

– The AC generator rotating frequency is more than 300 Hz and the GCU has tripped the generator (for other than the overcurrent fault).

– The AC GCU has issued a command to close the line contactor K1 but the line contactor K1 has not closed in less than 100 millisecond.

– The status relay K1 logic is interrupted for more than 500 millisecond.

NOTE: The #1 AC GEN caution light will also come on for the conditions which are not malfunctions that follow:

– The AC generator toggle switches are set to the OFF position.

– External AC power is energizing the Left and the Right AC buses.

– The AC generator rotating frequency is less than 300 Hz and the engine RPM value is less than 600 rpm. Example: The condition lever is below MIN 850 detent.

C. The Electrical Power Control Unit (EPCU) can show the related Continuous Built−In Test (CBIT) fault review codes:

– 25

– 27.

D. Refer to the Fault Tree for the overview of the task (Refer to Figure 201).

2. Job Set−Up Information

Subtask 24−20−00−946−003

A. Reference Information

REFERENCE	DESIGNATION
AMM20−30−11−760−801	Electrical Test of the Aircraft Wiring
AMM24−00−00−910−801	Electrical/Electronics Safety Precautions
AMM24−21−00−710−801	Operational Test of the AC Variable Frequency Generation System

REFERENCE	DESIGNATION
AMM24−21−01−000−801	Removal of the AC Generator
AMM24−21−01−400−801	Installation of the AC Generator
AMM24−21−06−000−801	Removal of the Generator Control Unit (GCU)
AMM24−21−06−400−801	Installation of the Generator Control Unit (GCU)
AMM24−21−06−740−801	Self Test of the AC Generator Control Unit (GCU)
AMM24−31−11−742−801	Retrieval of Data from the Electrical Power Control Unit (EPCU)
FIM24−20−00−810−801	EPCU Fault Code 25. No. 1 AC Generator Feeder (Status) − Fault Isolation
FIM24−21−06−810−801	EPCU Fault Code 27. No. 1 AC Generator Control Unit (GCU) (Status) − Fault Isolation
FIM73−20−00−810−881	A/C Generator Chip Detector − Fault Isolation.
WM20−16−40	Maintenance Practices − Terminating and Splicing Copper and Aluminium Feeder Cables
WM24−21−00	AC Variable Frequency System
WM24−21−01	AC Variable Frequency System (With Galley AC Outlet Options)

3. Job Set−Up

Subtask 24−20−00−910−013

WARNING: OBEY ALL THE SAFETY PRECAUTIONS WHEN YOU DO MAINTENANCE ON OR NEAR ELECTRICAL/ELECTRONIC EQUIPMENT. IF YOU DO NOT DO THIS, YOU CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO THE EQUIPMENT.

A. Obey all the electrical/electronics safety precautions (Refer to AMM24−00−00−910−801).

Subtask 24−20−00−810−028

B. Before you carry out the Fault Isolation procedure, inspect all the connectors and contactors for the recessed pins, signs of pittings or arching, corrosion, discoloration (heat damage), fluid contamination or presence of foreign materials and physical damage. If damage is found, repair the damage.

4. Fault Confirmation

Subtask 24−20−00−810−001

A. Do the fault confirmation as follows:

(1) Check the #1 AC Generator magnetic chip detector prior to performing any action (Refer to FIM73−20−00−810−881).

(2) Do an operational test of the AC variable frequency generation system (Refer toAMM24−21−00−710−801).

(3) If the #1 AC GEN caution light does not come on, then no maintenance procedure is necessary. Do the Close Out.

(4) If the #1 AC GEN caution light comes on, switch off the #2 AC generator. Check and record that the #1 AC generator powers the #2 AC bus. Do the Fault Isolation.

5. Fault Isolation

Subtask 24−20−00−810−002

NOTE: When you do a check for the ground faults, you must do the check with the airframe ground and the connector backshell shield ground points.

A. If the #1 AC generator powers the #2 AC bus, do the steps that follow:

(1) Check the wiring for the ground faults and isolation resistance between the #1 AC GCU and the CAWP (Refer to WM24−21−00 or WM24−21−01 and AMM20−30−11−760−801):

2421−P15−1 (#1 AC GCU)	3312−P3 (CAWP)
J	34

(2) If the wiring is unserviceable, repair the wiring. Do the Close Out.

B. If the #1 AC generator does not power the #2 AC bus, do the steps that follow:

(1) Do the self test of the #1 AC GCU (Refer to AMM24−21−06−740−801). If the self test does not pass, remove and replace the #1 AC GCU (Refer to AMM24−21−06−000−801 and AMM24−21−06−400−801). Do the Close Out.

(2) If the fault continues, check the Point of Regulation (POR) wiring for the continuity, ground faults and isolation resistance between the #1 AC Contactor Box (ACCB) and the #1 AC GCU (Refer to WM24−21−00 or WM24−21−01 and AMM20−30−11−760−801):

2421−P1−1 (#1 ACCB)	2421−P15−1 (#1 AC GCU)
55	H−
69	K−
54	M−

(3) If the wiring is unserviceable, repair the wiring. Do the Close Out.

(4) If the fault continues, remove and replace the #1 AC GCU (Refer to AMM24−21−06−000−801 and AMM24−21−06−400−801). Do the Close Out.

(5) If the fault continues, check the wiring for the continuity, ground faults and isolation resistance between the #1 AC GCU and the #1 AC generator (Refer to WM24−21−00 or WM24−21−01 and AMM20−30−11−760−801):

2421−P16−1 (#1 AC GCU)	2421−P2 (#1 AC Generator)
C	3
D	4
E	5
A	1
B	2

2421−P15−1 (#1 AC GCU)	2421−P1 (#1 AC Generator)
V	6
E−	5
D−	4
C−	3
B−	2
A−	1

(6) If the wiring is unserviceable, repair the wiring. Do the Close Out.

(7) If the fault continues, check the resistance value of the current sense transformers, field windings and PMG of the #1 AC generator (Refer to WM24−21−00 or WM24−21−01 and AMM20−30−11−760−801):

2421−P15−1 (#1 AC GCU)	2421−P15−1 (#1 AC GCU)
V	E−
D−	C−
B−	A−

2421−P16−1 (#1 AC GCU)	2421−P16−1 (#1 AC GCU)
A	B
C	D
D	E
C	E

(8) If the resistance value is not within the limit, remove and replace the #1 AC generator (Refer to AMM24−21−01−000−801 and AMM24−21−01−400−801). Do the Close Out.

(9) If the fault continues, check the feeder cable integrity (Refer to WM20−16−40). Repair as necessary.

(10) If the fault continues, check the wiring for the continuity, ground faults and isolation resistance between the #1 AC generator terminal (T1, T2 and T3) and the #1 ACCB connector 2421−P4−1 (pin A, B and C) (Refer to WM24−21−00 or WM24−21−01 and AMM20−30−11−760−801).

(11) If the wiring is unserviceable, repair the wiring. Do the Close Out.

(12) If the fault continues, check the wiring for the continuity, ground faults and isolation resistance between the #1 ACCB connector 2421−P9−1 (pin C, E and F) and #2 ACCB connector 2421−P9−2 (pins C, E and F) (Refer to WM24−21−00 or WM24−21−01 and AMM20−30−11−760−801).

(13) If the wiring is unserviceable, repair the wiring. Do the Close Out.

(14) If the fault continues, retrieve the data from the EPCU (Refer to AMM24−31−11−742−801).

(15) If the fault code 25 is recorded, do the fault isolation for the EPCU fault code 25 (Refer to FIM24−21−00−810−801). Do the Close Out.

(16) If the fault code 27 is recorded, do the fault isolation for the EPCU fault code 27 (Refer to FIM24−21−06−810−801). Do the Close Out.

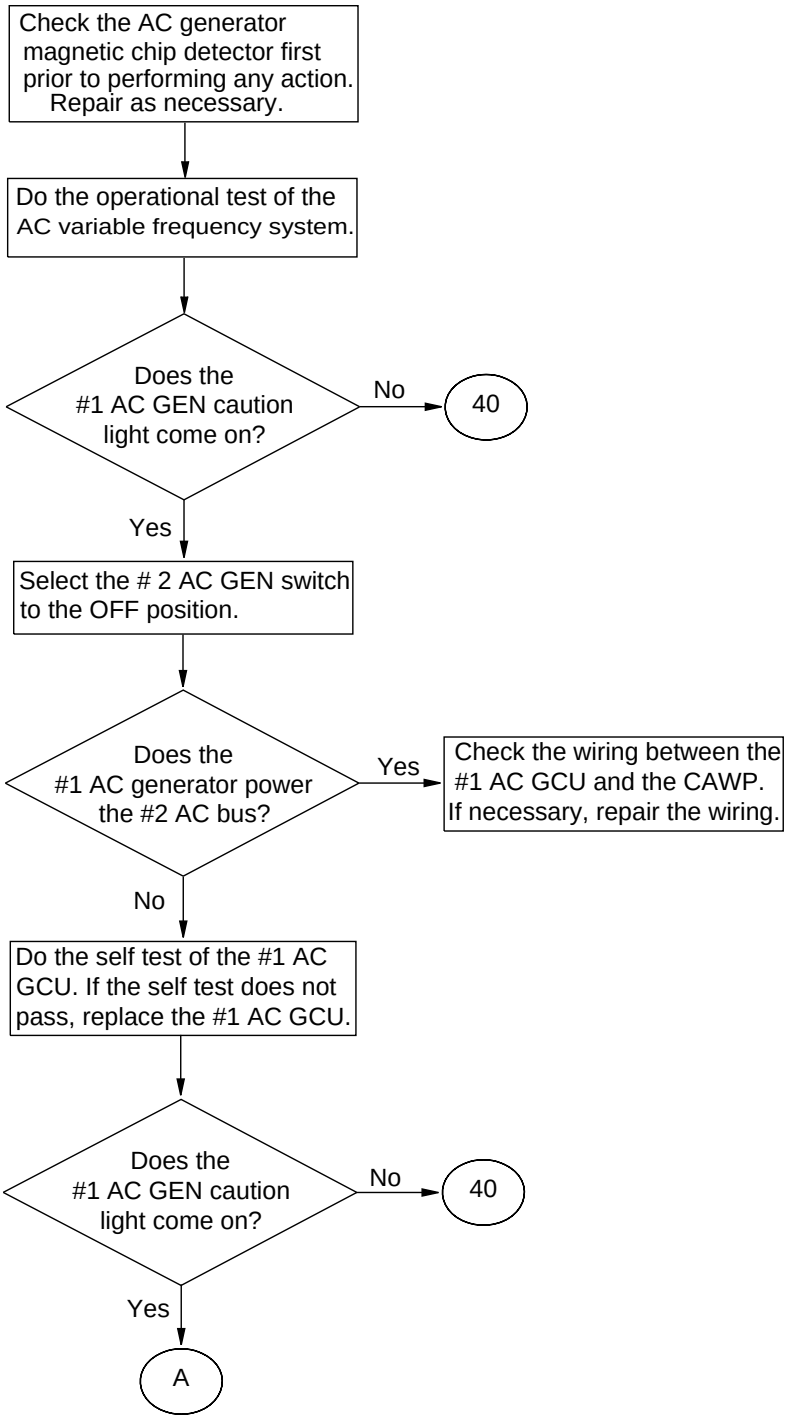
6. Close Out

Subtask 24−20−00−941−003

A. Do an operational test of the AC variable frequency generation system again (Refer to AMM24−21−00−710−801).

B. Make sure that the #1 AC GEN caution light on the CAWP is not on.

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



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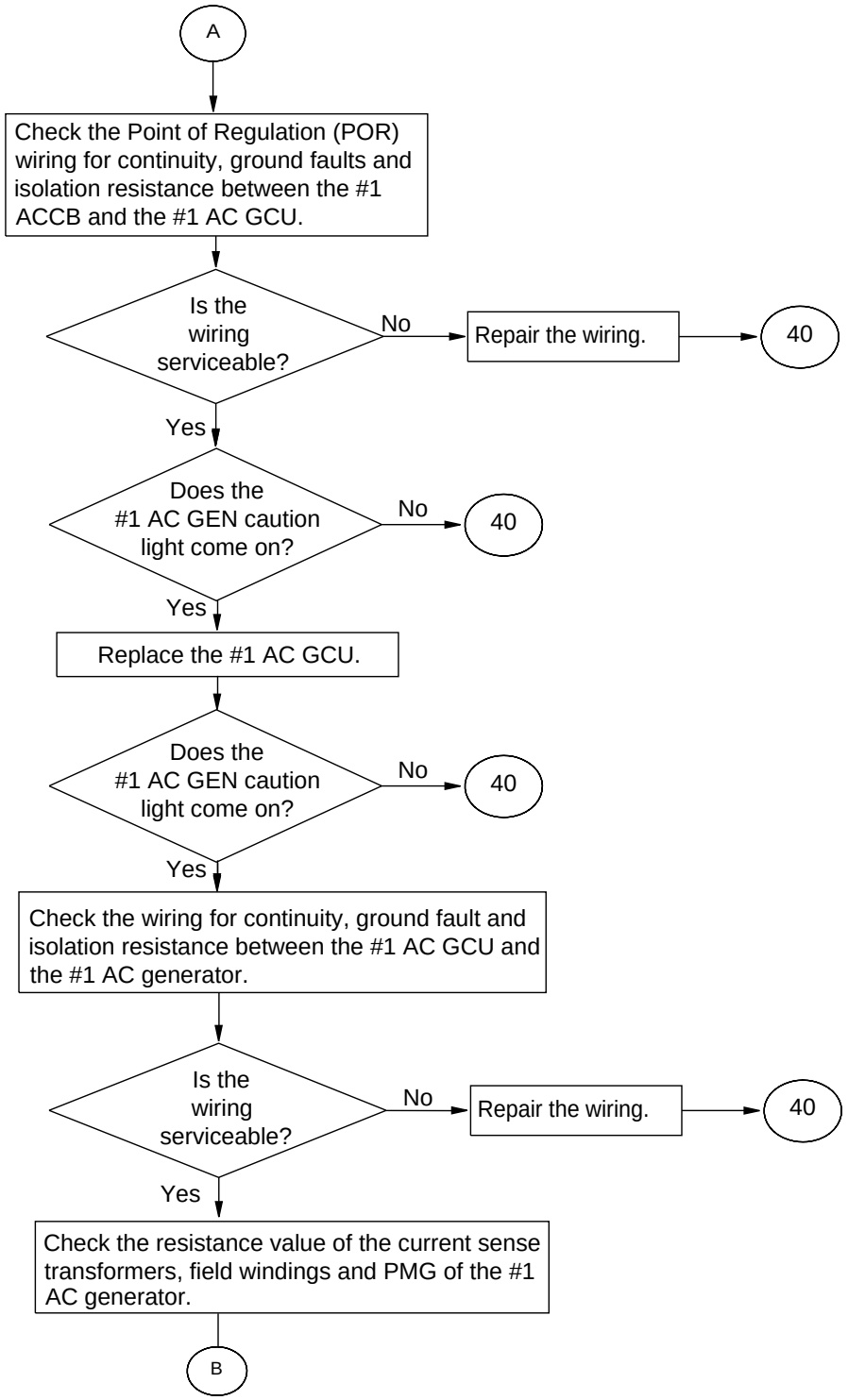
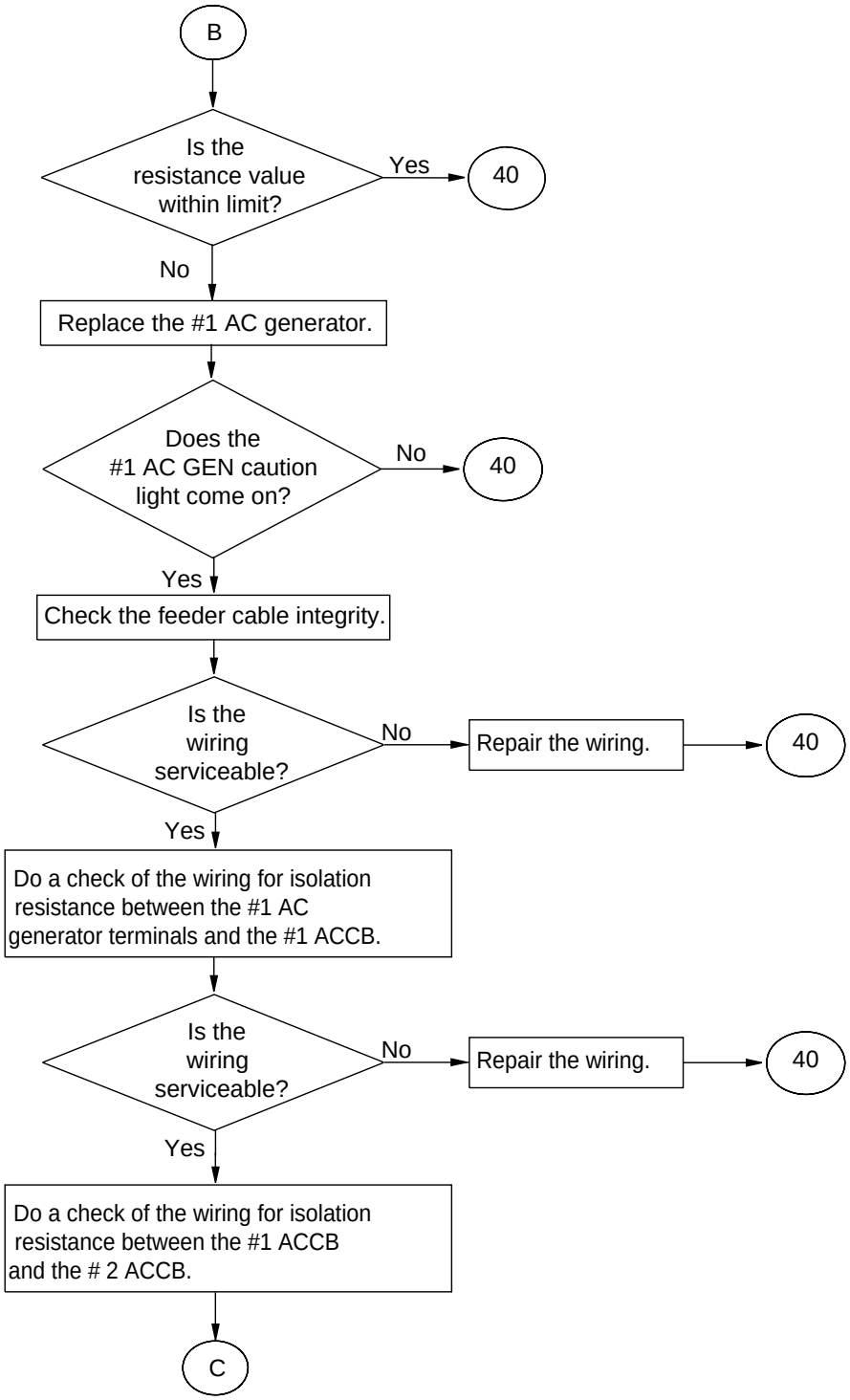
#1 AC GEN (Caution) − Fault Isolation
Figure 201 (Sheet 1 of 4)



#1 AC GEN (Caution) − Fault Isolation
Figure 201 (Sheet 2 of 4)



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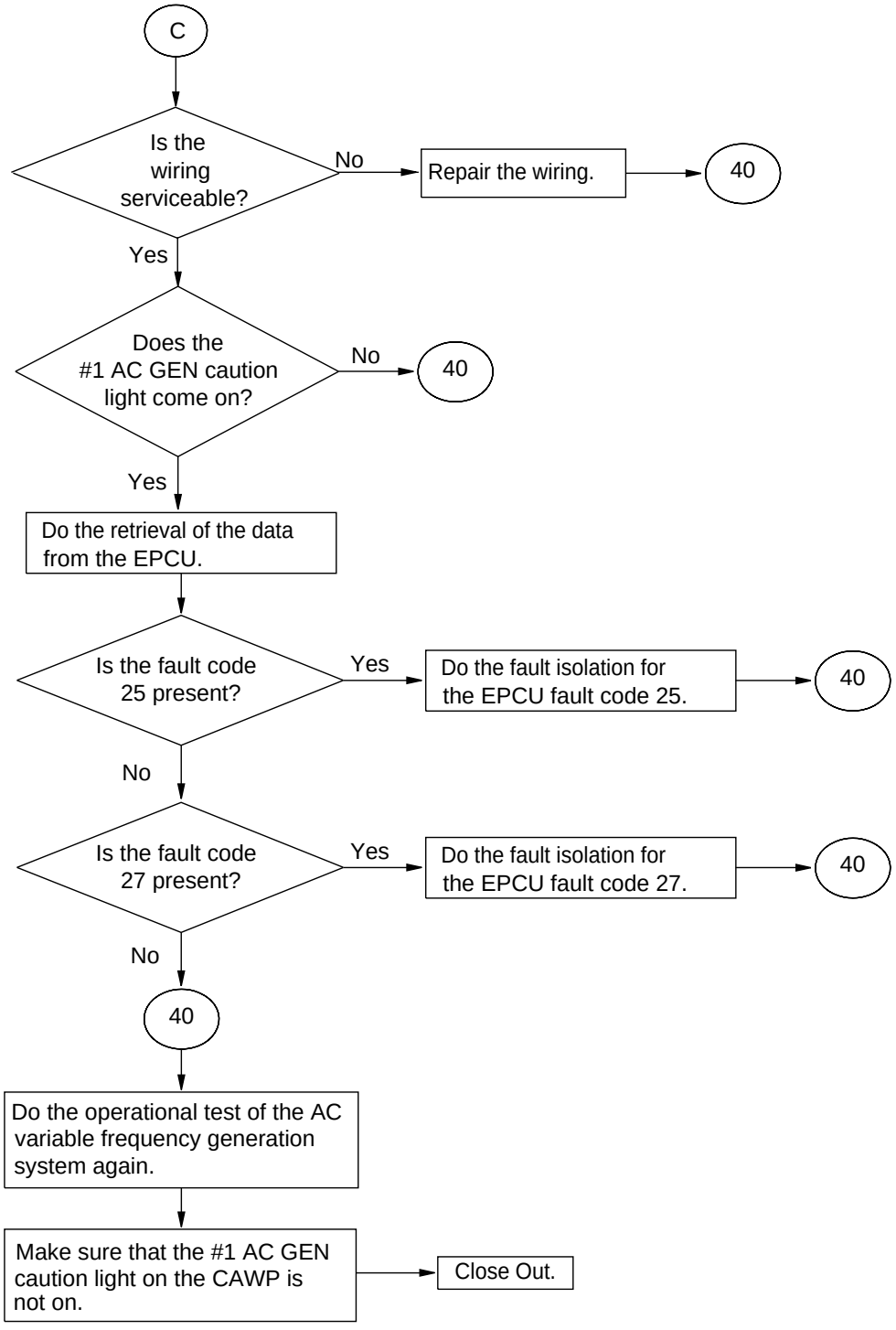
#1 AC GEN (Caution) − Fault Isolation
Figure 201 (Sheet 3 of 4)



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#1 AC GEN (Caution) − Fault Isolation
Figure 201 (Sheet 4 of 4)