



AIRCRAFT
MAINTENANCE MANUAL

TCAS - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to do the check of TCAS II or TCAS 2000, as applicable.
- 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
34-43-00-700-801-A	TCAS - OPERATIONAL TEST	ALL



AIRCRAFT
MAINTENANCE MANUAL

TASK 34-43-00-700-801-A

EFFECTIVITY: ALL

2. TCAS - OPERATIONAL TEST

A. General

- (1) This task gives the procedures to do the Operational Test of TCAS II or TCAS 2000, as applicable.

B. References

REFERENCE	DESIGNATION
AMM SDS 23-51-00/1	
AMM SDS 23-81-00/1	
AMM SDS 31-51-00/1	
AMM SDS 34-15-00/1	
AMM SDS 34-22-00/1	
AMM SDS 34-31-00/1	
AMM SDS 34-43-00/1	
AMM SDS 34-51-00/1	
AMM SDS 34-52-00/1	
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
S.B.145-34-0033	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

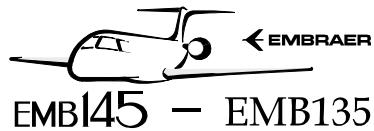
Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Cockpit



EMB145 – EMB135

AIRCRAFT
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I. Preparation

SUBTASK 841-002-A

- (1) Energize the aircraft with the External DC Power Supply ([AMM TASK 20-40-01-860-801-A/200](#)).
- (2) Make sure that the TCAS system has the Extended Range Feature as follows:
 - (a) On RMU1, push the PGE function key.
Result:
1 The System 1 Page Menu is shown.
 - (b) Push the line select key near MAINTENANCE.
Result:
1 The Maintenance Data System 1 page is shown.
 - (c) Push the line select key near RMU SETUP.
Result:
1 The RMU Setup System 1 page is shown.
 - (d) Make sure that the TCAS RANGE 80/120 option is installed and that it is set to ENABLE.
NOTE: If the option is disabled, push the line select key near TCAS RANGE 80/120 to enable it.
 - (e) Push the line select key near RETURN TO RADIOS.
Result:
1 The Radios Page is shown.
- (3) (Aircraft with Extended Range Feature) Do the previous procedure again for RMU2 to make sure that the TCAS RANGE 80/120 option is ENABLED.
- (4) (Aircraft with Extended Range Feature) On RMU1, on the Radios page, push the line select key near RANGE.
- (5) (Aircraft with Extended Range Feature) On RMU1, turn the TUNE knob and make the range value on RMU1 and MFD1 change to: 6, 12, 20, 40, 80 and 120.
- (6) (Aircraft without Extended Range Feature) On RMU1, turn the TUNE knob and make the range value on RMU1 and MFD1 change to: 6, 12, 20 and 40.
- (7) (Aircraft with Extended Range Feature) On RMU2, turn the TUNE knob and make the range value on RMU2 and MFD2 change to: 6, 12, 20, 40, 80 and 120.
- (8) (Aircraft without Extended Range Feature) On RMU2, turn the TUNE knob and make the range value on RMU2 and MFD2 change to: 6, 12, 20 and 40.
- (9) On the overhead panel, set the BATT1 and BATT2 switches to the OFF position.
- (10) Put the aircraft in the flight configuration (AIR) as follows:
 - (a) Aircraft on the ground.
 - (b) On the circuit breaker panel, open the AIR/GND A, B, C, and D circuit breakers.
Circuit breaker location tips:

- AIR/GND A: DC BUS1/LDG GEAR/AIR/GND A.
- AIR/GND B: ESSENTIAL DC BUS1/LDG GEAR/AIR/GND B.
- AIR/GND C: DC BUS2/LDG GEAR/AIR/GND C.
- AIR/GND D: ESSENTIAL DC BUS2/LDG GEAR/AIR/GND D.

Result:

- 1 Make sure that the AIR/GND FAIL caution message is shown on the EICAS.

(11) Make sure that the Systems below are serviceable and on:

- Airborne Audio System ([AMM SDS 23-51-00/1](#)).
- Radio Management System ([AMM SDS 23-81-00/1](#)).
- Aural Warning System ([AMM SDS 31-51-00/1](#)).
- ADC System ([AMM SDS 34-15-00/1](#)).
- EFIS ([AMM SDS 34-22-00/1](#)).
- Radio Altimeter System ([AMM SDS 34-31-00/1](#)).
- TCAS II or TCAS 2000 ([AMM SDS 34-43-00/1](#)).
- DME System ([AMM SDS 34-51-00/1](#)).
- Mode-S Transponder ([AMM SDS 34-52-00/1](#)).

J. TCAS Operational Test Procedures ([Figure 501](#)) ([Figure 502](#)) ([Figure 503](#))

SUBTASK 710-002-A

(1) Do the test below:

- (a) Push the TCAS button, on MFD 1, on the Instrument Panel.

Result:

- 1 The MFD shows the TCAS window.

- (b) Open the TCAS circuit breaker (Location tip for TCAS II: 115 V AC BUS/TCAS; Location tip for TCAS 2000: DC BUS 1/NAV/TCAS), on the Circuit Breaker Panel, in the Cockpit.

Result:

- 1 The PFDs and MFDs show the TCAS FAIL indication (amber).

- (c) Close the TCAS circuit breaker.

Result:

- 1 The TCAS FAIL indication (amber) goes out of view, on the PFDs and MFDs.

(2) Set the RMU to the ATC/TCAS window:

- (a) Set the ATC/TCAS window to the TA/RA mode.

Result:

- 1 The TCAS window, on the MFD, shows a white TA ONLY indication.

- (b) Set the ATC/TCAS window to the TA ONLY mode.

Result:

- 1 The TCAS window, on the MFD and PFD, shows a white TA ONLY indication.

- (c) Set the ATC/TCAS window to the ATC ALT or ATC ON mode.

Result:

- 1 The TCAS window, on the MFD and the PFD, shows a white TCAS OFF indication.

- (3) Do the self-test of the system as follows:

- (a) On the RMU, set the ATC/TCAS window to the TA/RA mode.

- (b) Push and hold for 7 seconds the RMU TST function key.

Result:

- 1 On the RMU, the ATC/TCAS window shows TEST and SYS TEST (amber).

- 2 The MFDs and PFDs show TCAS TEST (white).

NOTE: If the TCAS is defective, the MFDs and PFDs show TCAS FAIL (amber).

- 3 The Aural Warning gives out the TCAS TEST aural annunciation.

- 4 (This step is not applicable to aircraft with AWU P/N: 80-0694-2-5 or aircraft PRE-MOD S.B.145-34-0033 and PRE-MOD S.B. 145-34-0046 with TCAS Processor P/N: 7517900-55001 MOD A or P/N: 7517900-71002) The Master Warning lights will flash and the associated sound will be activated.

- 5 The MFDs show a Traffic test pattern, which permits the check of each type of intruder symbol:

- Hollow blue diamond.
- Solid blue diamond.
- Solid amber circle.
- Solid red square.

- 6 On the PFDs, the VSI shows red and green arc zones.

- (c) At the end of the test cycle:

Result:

- 1 The RMU shows a green ATC PASS indication.

NOTE: If the Transponder is defective, the RMU shows ATC ERROR (amber).

- 2 The Aural Warning gives the TCAS TEST PASS aural annunciation.

NOTE: If the TCAS is defective, the TCAS FAIL aural warning is heard, and the MFD and PFD show an amber TCAS FAIL indication.

- (4) Do a one-by-one subsystem failure test with the related circuit breakers as follows:

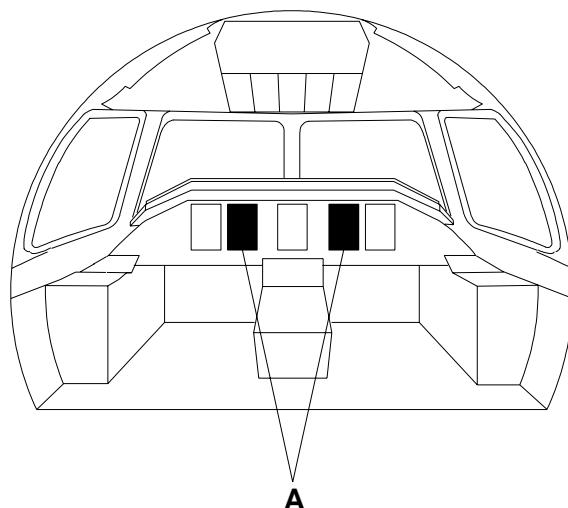
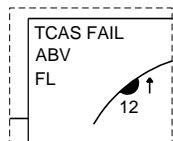
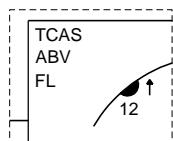
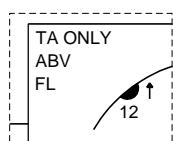
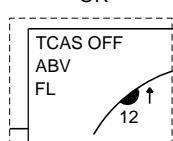
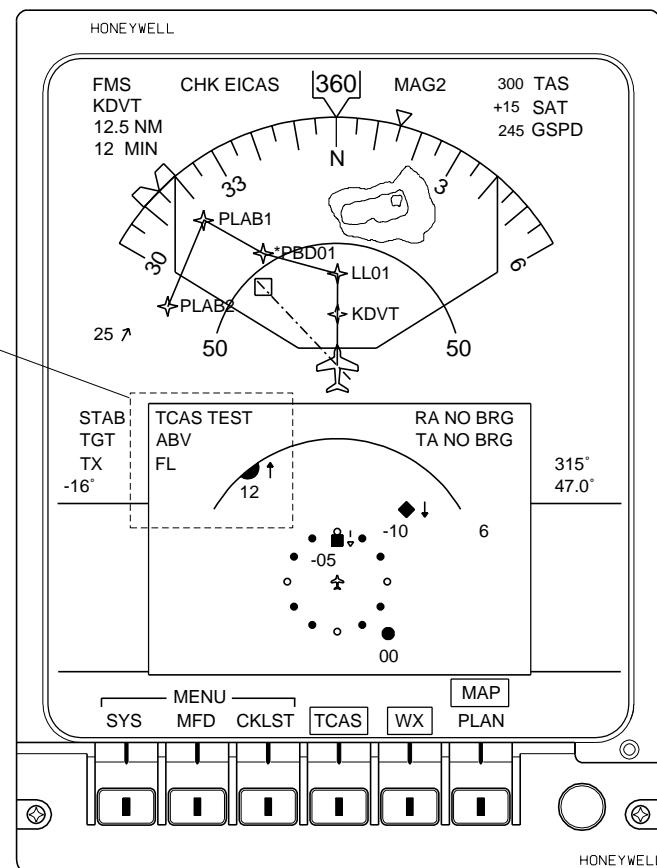
- (a) (Aircraft equipped with two transponders) On the RMU, set the ATC/TCAS window to XPDR #1.

- (b) On the reversionary panels, make sure that the ADC pushbuttons are not pushed (striped bars off).
- (c) On the RMU, set the ATC/TCAS window to the TA/RA mode.
Result:
 - 1 The TCAS window, on the MFD and PFD, shows a white TA ONLY indication.
- (d) Open the ADC 1 circuit breaker (Location tip: ESSENTIAL DC BUS 1/NAV ADC 1).
Result:
 - 1 The MFDs show a white TCAS OFF indication.
 - 2 The PFDs show a white TCAS OFF indication.
- (e) Close the ADC 1 circuit breaker.
Result:
 - 1 The white TA ONLY replaces TCAS OFF, on the MFDs and PFDs.
- (f) Open the ADC 2 circuit breaker (Location tip: DC BUS 2/NAV/ADC 2).
Result:
 - 1 The MFDs show a white TA ONLY indication.
 - 2 The PFDs show a white TA ONLY indication.
- (g) Close the ADC 2 circuit breaker.
Result:
 - 1 TA ONLY stays, on the MFDs and PFDs.
- (h) Open RA (Radio Altimeter) 1 and 2 (if installed) circuit breakers (Location tip for RA 1: DC BUS 1/NAV/RA 1; Location tip for RA 2: DC BUS 2/NAV/RA 2).
Result:
 - 1 The MFDs show an amber TCAS FAIL indication.
 - 2 The PFDs show an amber TCAS FAIL indication.
- (i) Close RA (Radio Altimeter) 1 and 2 (if installed) circuit breakers.
Result:
 - 1 The amber TCAS FAIL indication goes out of view, on the MFDs and PFDs.

K. Follow-on

SUBTASK 842-002-A

- (1) To put the aircraft in the ground configuration again, do as follows:
 - (a) On the circuit breaker panel, close the AIR/GND A, B, C, and D circuit breakers in 10 seconds maximum.
Result:
 - 1 Make sure that the AIR/GND caution message is not shown on the EICAS.
- (2) Deenergize the aircraft ([AMM TASK 20-40-01-860-801-A/200](#)).

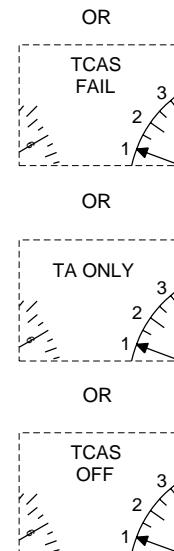
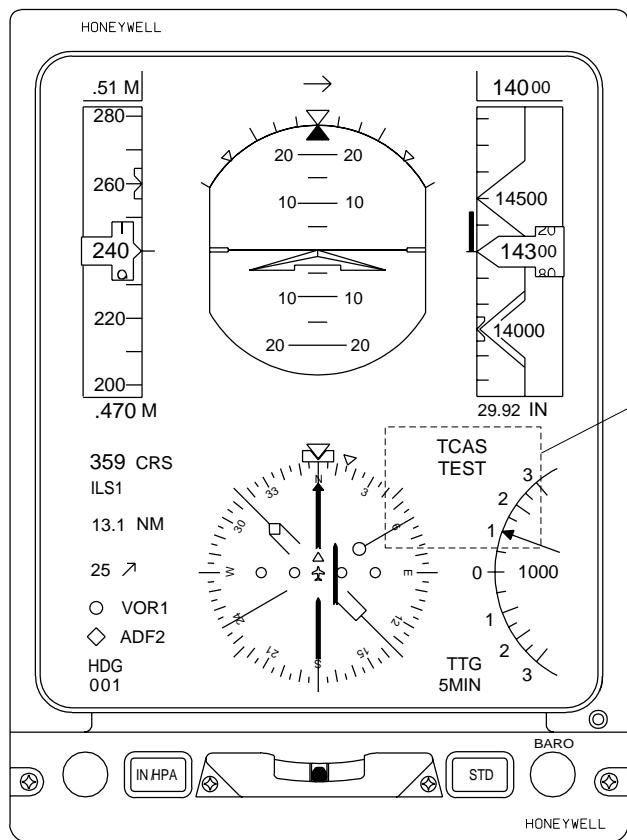
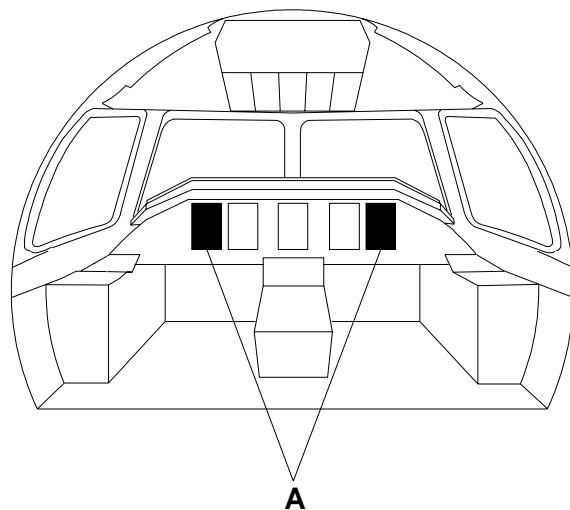
EFFECTIVITY: ALL
TCAS - MFD Display
Figure 501

OR

OR

OR

OR

DET. B

DET. A

145AMM340007.MCE A

EFFECTIVITY: ALL

TCAS - PFD Display

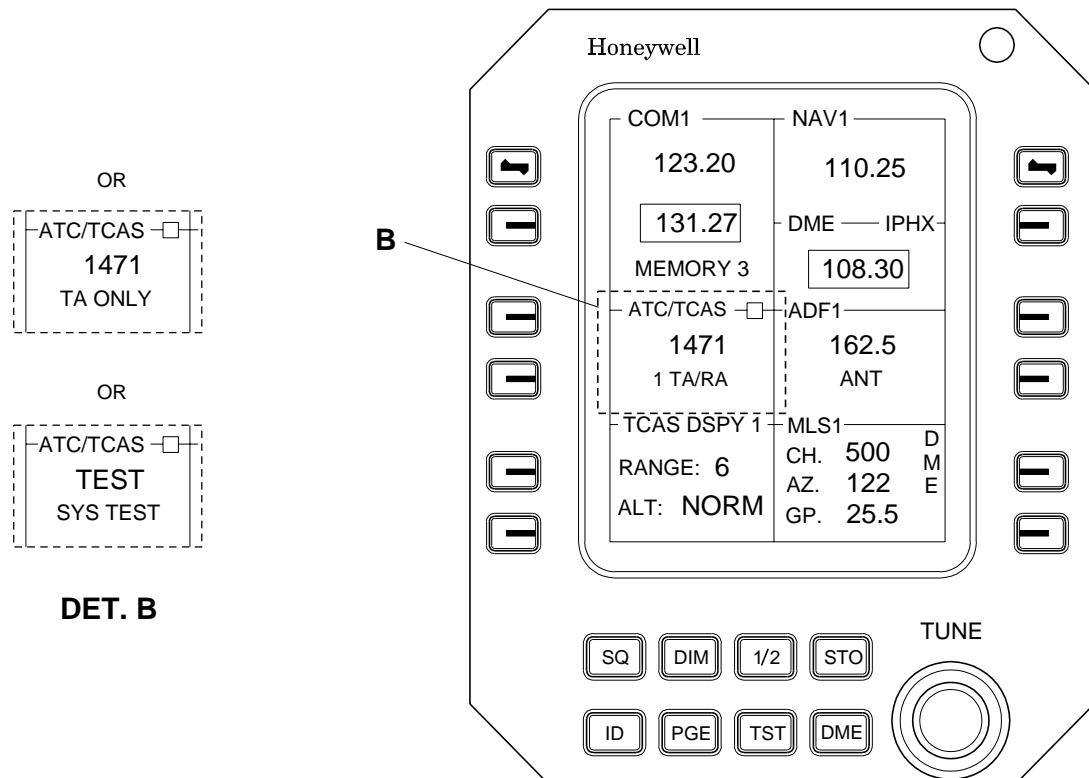
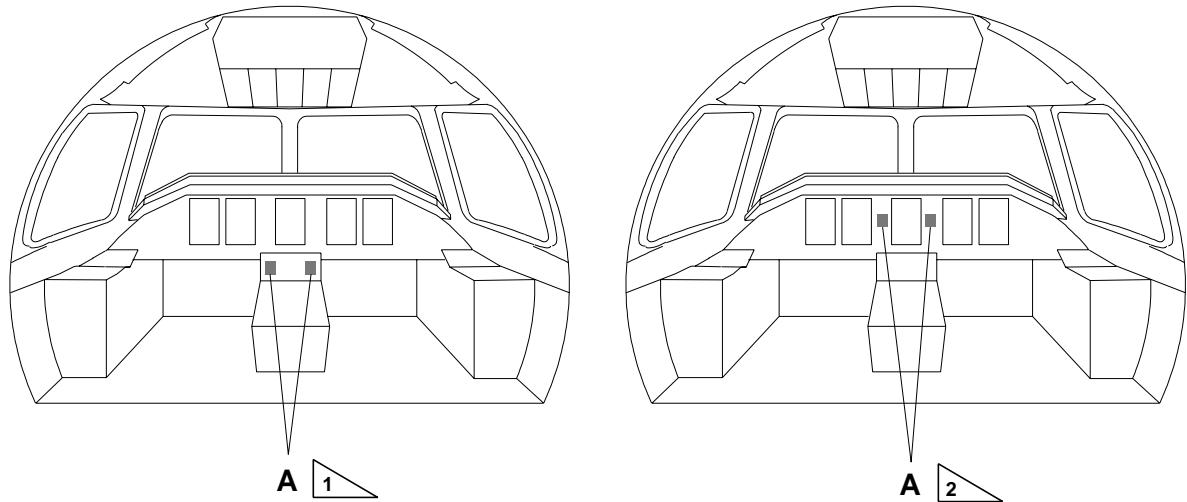
Figure 502



DET. B

DET. A

145AMM340006.MCE A

EFFECTIVITY: ALL
TCAS - RMU Display
Figure 503

AIRCRAFT WITH RMU INSTALLED ON CONTROL PEDESTAL.

AIRCRAFT WITH RMU INSTALLED ON MAIN INSTRUMENT PANEL.

145AMM340004.MCE A

