



SERVICE BULLETIN

LANDING GEAR - BRAKE CONTROL UNIT REPLACEMENT

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This service bulletin supersedes SB505-32-0006

1. PLANNING INFORMATION

A. SB EFFECTIVITY

Aircraft affected:

MODEL	SN
EMB-505 'Phenom 300'	50500004 thru 50500215, 50500219, 50500220, 50500222 thru 50500224, 50500227, 50500229, 50500236, and 50500238.

In-production effectivity:

EMB-505 "Phenom 300" aircraft SN 50500216 thru 50500218, 50500221, 50500225, 50500226, 50500228, 50500230 thru 50500235, 50500237, 50500239 thru 50500242 and on, have an equivalent modification factory-incorporated.

B. CONCURRENT REQUIREMENTS

None.

C. REASON

(1) HISTORY

- (a) Instances of CAS message ANTISKID FAIL, followed by BRK FAIL triggered during engines start with brake pedals applied have been reported.
- (b) Instances of CAS message BRK FAIL spuriously triggered have been reported during aircraft power-up and landing gear extension.



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- (c) Instances have also been reported of clunking noise during main landing retraction due to the wheels abrupt deceleration.
- (d) It has been noticed that the spurious BCU FAIL message has been recorded in the CMC log file, which leads to unnecessary removals of BCU.

(2) OBJECTIVE

To replace the current Brake Control Unit installed with a new improved one.

(3) EXPECTED BENEFITS

- (a) BCU logic changed in order to prevent brake failures annunciation during engines start-up.
- (b) BCU logic changed in order to avoid spurious failures detection during aircraft power-up and landing gear extension.
- (c) The pre-retract braking logic has been changed in order to gradually decelerate the wheels during landing gears retraction in order to avoid the clunking noise.
- (d) The following improvements were incorporated:
 - Improved BCU failures indication in order to avoid unnecessary removals;
 - Robustness of the brake pedals monitors;
 - System response and annunciation under failures.

(4) REVISION HISTORY

None.

D. DESCRIPTION

This service bulletin consists of the replacement of the BCU currently installed (PN DAP00100-03, or PN DAP00100-04, or PN DAP00100-05, or PN DAP00100-06, or PN DAP00100-07) with a new improved one, bearing PN DAP00100-09, and a modification to the electrical connector P1749.

To gain access to the work area, it is necessary to remove access panel 241CZ.



The modifications and improvements are described below.

E. COMPLIANCE

Embraer recommends that this bulletin be accomplished on the next suitable maintenance action.

F. APPROVAL

The technical aspects of this Service Bulletin are approved by: ANAC - Agência Nacional de Aviação Civil.

This service bulletin was approved based on the airplane's original Embraer delivery configuration or as modified by other Embraer-approved documents.

G. ESTIMATED MANPOWER

This estimate is for direct labor only, performed by experienced personnel, and does not include the time to plan, prepare, or inspect the work.

It is assumed that all the tools, parts, and other means are promptly available when necessary.

This estimate does not include the sealant, paint, or adhesive curing time.

- Access opening: 0.5 man-hours.
- Modification: 1.5 man-hours.
- Access closure: 0.5 man-hours.
- Test: 1.5 man-hours.

H. WEIGHT AND BALANCE

- Change in basic weight: None.
- Change in basic moment: None.



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I. ELECTRICAL LOAD DATA

Not changed.

J. SOFTWARE ACCOMPLISHMENT SUMMARY

The Software Accomplishment Summary has been completed to meet the requirements of RTCA document DO-178B, Software Considerations in Airborne Systems and Equipment Certification.

K. REFERENCES

- AMM 505/() Aircraft Maintenance Manual PART II - 06-41-00 - DIMENSIONS AND AREAS.
- AMM 505/() Aircraft Maintenance Manual PART II - 20-00-00 - STANDARD PRACTICES-AIRFRAME.
- AMM 505/() Aircraft Maintenance Manual PART II - 24-41-00 - ELECTRICAL POWER.
- AMM 505/() Aircraft Maintenance Manual PART II - 32-41-01 and 32-63-00 - LANDING GEAR.
- SWPM 505/() Standard Wiring Practices Manual - 20-21-20 - STANDARD PRACTICES-AIRFRAME.

L. PUBLICATIONS AFFECTED

- AIPC 505/() Aircraft Illustrated Parts Catalog - 32-41-01 - LANDING GEAR.



2. MATERIAL INFORMATION

A. MATERIAL - PRICE AND AVAILABILITY

(1) MATERIAL AVAILABLE FROM EMBRAER

The BCU Brake Control Unit PN DAP00100-09 required for the accomplishment of this bulletin should be procured from Embraer as spare part. See [Item 2.C.\(1\)\(a\)](#).

B. INDUSTRY SUPPORT INFORMATION

(1) WARRANTY COVERAGE

(a) Parts

The new Brake Control Unit (BCU) PN DAP00100-09 will be provided on an exchange basis, free of charge, by Embraer.

(b) Labor

Embraer will compensate 4.0 man-hours for the SB incorporation if it is performed in an Embraer-authorized service center.

(c) Expiration

The terms expressed in the warranty coverage will be valid for 24 months after the SB issue date.

C. MATERIAL NECESSARY FOR EACH AIRCRAFT

The expendable or consumable parts presented in the AMM Tasks referred to in this bulletin, which are necessary for its accomplishment, should be procured from the operator's inventories or ordered as spares (Examine the operator's inventories to make sure all materials are available).

(1) MATERIAL TO BE PROCURED

(a) Parts

The part below should be procured from Embraer as spare part.



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NEW PN	DESCRIPTION	OLD PN	QTY	DISP/ Notes
DAP00100-09	BCU - Brake Control Unit	DAP00100-03 or DAP00100-04 or DAP00100-05 or DAP00100-06 or DAP00100-07	01	3/ ^[1]

1. Send the removed BCU to Embraer at one of the addresses indicated below:

DISPOSITION: 3 = Replace part bearing OLD PN with part bearing NEW PN

NOTE: Send the removed BCUs to Embraer, at one of the addresses that follow:

Embraer (USA)
2250 Outer Loop Bldg#6 dock 701
Louisville, KY 40219 USA
Phone: +1 502 961 4541
Facsimile: +1 502 961 4878

Embraer (France)
Bât. Eddington Paris Nord 2
33 rue des Vanesses
BP 58294 Villepinte
95958 Roissy CDG Cedex
France
Phone: (+33 1) 49 38 4400
Facsimile: (+33 1) 49 38 4401

Embraer (Brazil)
Avenida Brigadeiro Faria Lima, 2170, Putim
CEP 12227-901 – São José dos Campos
São Paulo, Brasil
Phone: (+55 12) 3927-1000
Facsimile: (+55 12) 3927 6600 Ext. 1448



D. MATERIAL NECESSARY FOR EACH SPARE

None.

E. REIDENTIFIED PARTS

None.

F. TOOLING - PRICE AND AVAILABILITY

None.



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3. ACCOMPLISHMENT INSTRUCTIONS

The steps below outline the general accomplishment instructions.

The detailed sequence is included in the respective figure, when necessary.

- A. Make sure that the aircraft is safe for maintenance. Refer to [AMM TASK 20-00-00-910-801-A/200](#) - Aircraft Maintenance Safety Procedures.
- B. Remove BCU (Brake Control Unit) PN DAP00100-03, or PN DAP00100-04, or PN DAP00100-05, or DAP00100-06, or PN DAP00100-07, as applicable, according to [AMM TASK 32-41-01-000-801-A/400](#) - Brake Control Unit - Removal. Refer to [Figure 1](#).
- C. Send the removed BCU to one of the addresses presented in [Item 2.C.\(1\)](#)
- D. Carry out the electrical modification on the BCU electrical connector P1749 according to [Figure 2](#) and [SWPM 20-21-20](#) - Contact Insertion and Removal Tools - Maintenance Practices.
- E. Install BCU PN DAP00100-09 according to [AMM TASK 32-41-01-400-801-A/400](#) - Brake Control Unit - Installation. Refer to [Figure 1](#).
- F. Do the test of the electrical modification as follows:
 - (1) Energize the aircraft with an external DC power supply [AMM TASK 24-41-00-860-801-A/200](#) - Energization of the Aircraft with an External DC Power Supply - Aircraft/System Configuration.
 - (2) Make sure the aircraft is in the WOW configuration (ground). If necessary, simulate the on-ground configuration [AMM TASK 32-63-00-860-802-A/200](#) - Air/Ground (Weight-on-Wheels) System - Ground Configuration.
 - (3) Make sure the CAS messages BRK FAIL or ANTISKID FAIL are not displayed on the CAS window on the Primary Flight Display (PFD)
 - (4) Get access to the BCM (Brake Control Module) by opening the access panel 194EL. Refer to [AMM TASK 06-41-00-800-801-A/100](#) - Fuselage Access Doors and Panels.
 - (5) Disconnect the electrical connector P0793 (RH Pressure Transducer) from BCM (Brake Control Module). Refer to [Figure 3](#).



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Result: The CAS message "ANTISKID FAIL" shall be displayed on the CAS window on the Primary Flight Display (PFD).

- (6) Open the circuit breaker BRAKE - RHCBP (EMERGENCY BUS) of the BCU.
 - (7) Reconnect the electrical connector P0793 (RH Pressure Transducer) of the BCM (Brake Control Module). Refer to [Figure 3](#).
 - (8) Close the circuit breaker BRAKE - RHCBP (EMERGENCY BUS) of the BCU.
 - (9) Make sure that the CAS messages BRK FAIL or ANTISKID FAIL are not displayed on the CAS window on the Primary Flight Display (PFD) after one minute.
 - (10) If the test was successfully completed, go to [Step 3.G.](#), otherwise go to [Step 3.D.](#)
- G. Close the access panel 194EL. Refer to [AMM TASK 06-41-00-800-801-A/100](#) - Fuselage Access Doors and Panels.
- H. Restore the aircraft to its normal condition. Refer to [AMM TASK 20-00-00-910-801-A/200](#) - Aircraft Maintenance Safety Procedures.
- I. Enter the accomplishment of this bulletin in the applicable documents.
- J. Fill out the "Service Bulletin Implementation and Evaluation" form and click on "Submit by Email" button. To find the form, log in to the FlyEmbraer portal (<http://www.flyembraer.com>) and go to: "Technical Publication > Technical Data > Service Bulletin > Front Matter > SB505 - SERVICE BULLETIN IMPLEMENTATION AND EVALUATION FORM".

You can also fill out the attached form and send it by mail or e-mail to the addresses given in this form.



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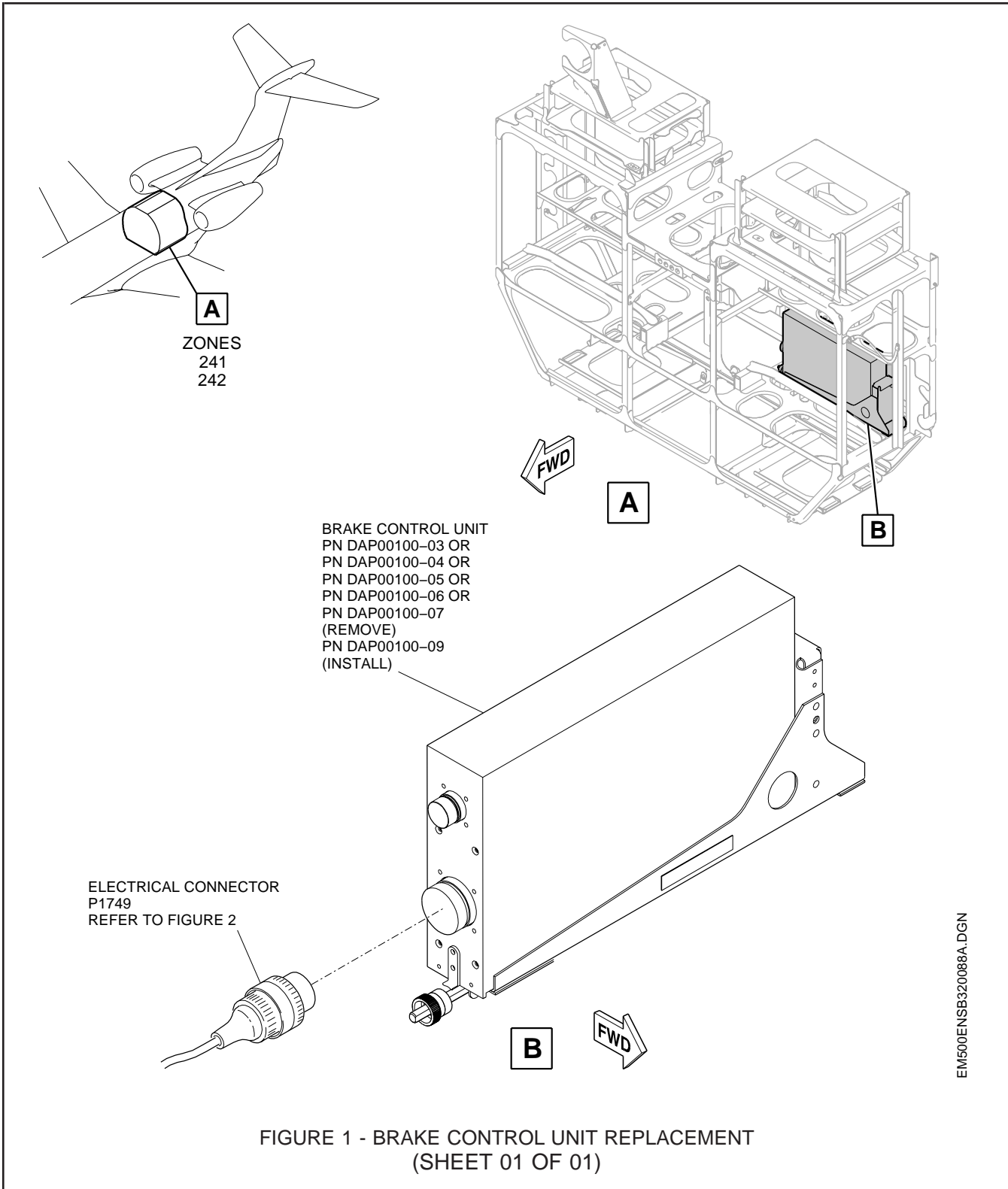
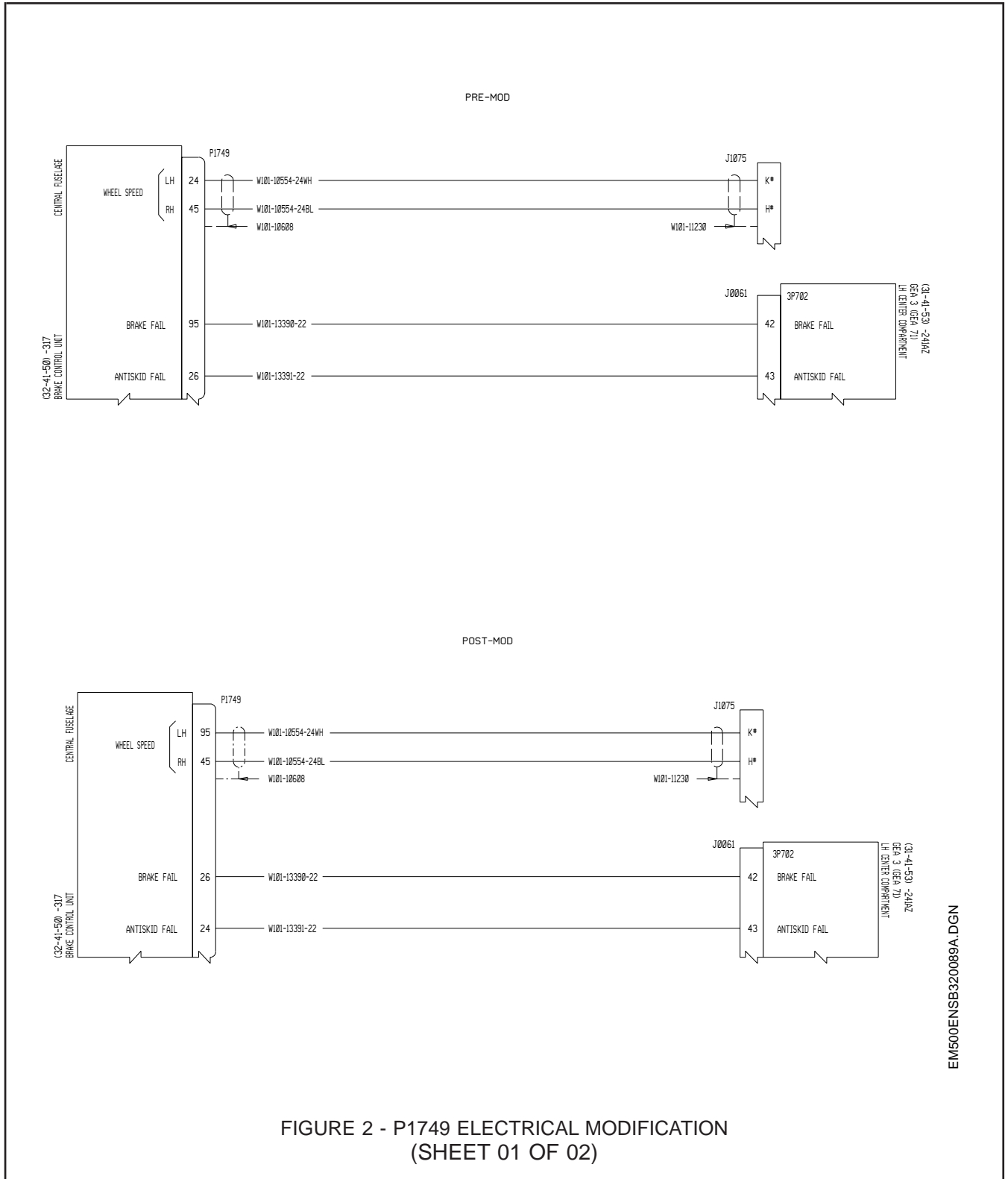


FIGURE 1 - BRAKE CONTROL UNIT REPLACEMENT
(SHEET 01 OF 01)



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EM500ENSB320089A.DGN



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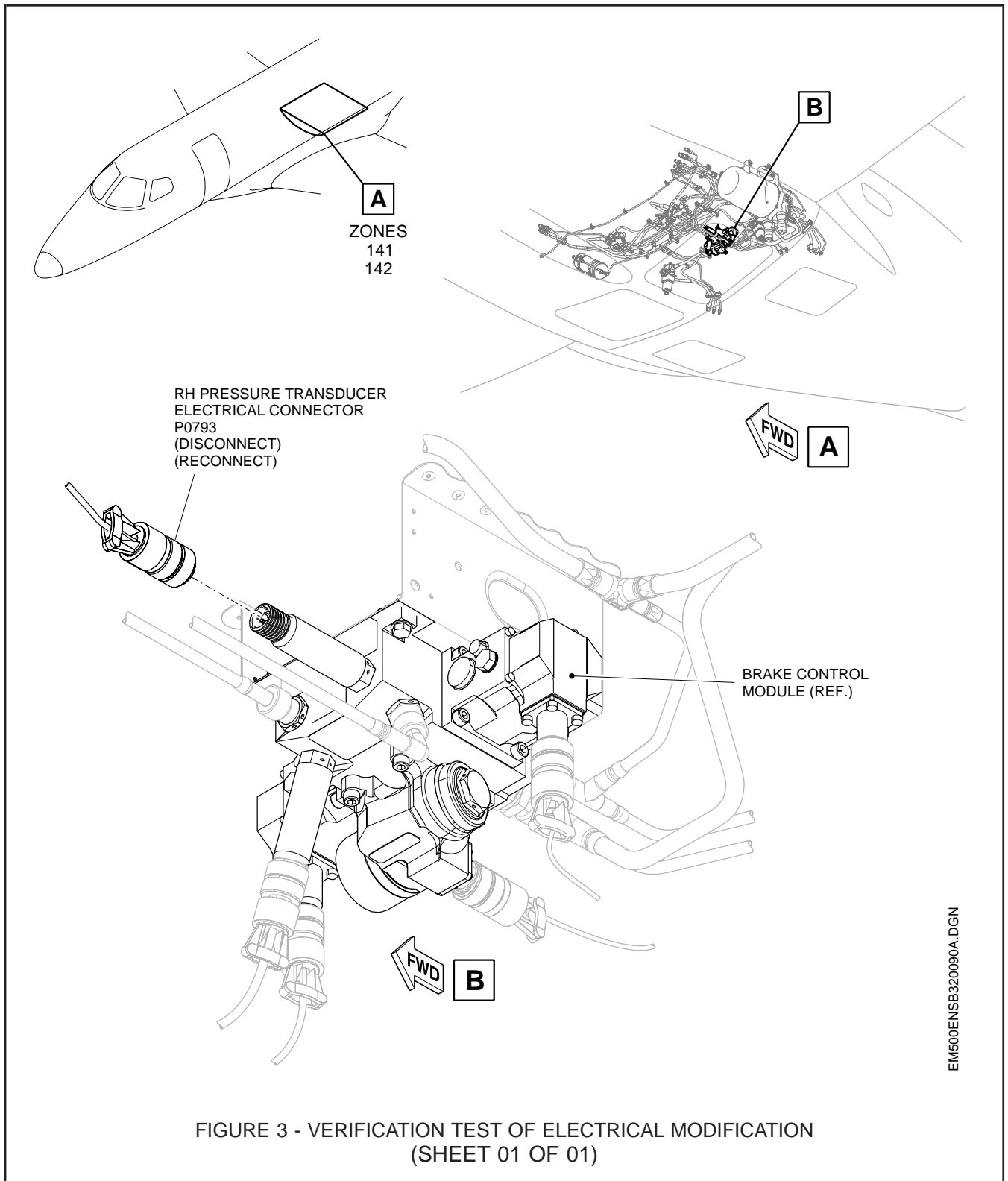
HOOK-UP CHART

ACTION	WIRE IDENTIFICATION	ITEM 1	PIN 1	CODE 1	ITEM 2	PIN 2	CODE 2	TYPE	EMC
MOD (PRE)	W101-10554-24WH	J1075	K#	CBM	P1749	24	CBG	EB	S
MOD (POST)	W101-10554-24WH	J1075	K#	CBM	P1749	95	CBG	EB	S
MOD (PRE)	W101-13390-22	J0061	42	CPP	P1749	95	CBG	AA	S
MOD (POST)	W101-13390-22	J0061	42	CPP	P1749	26	CBG	AA	S
MOD (PRE)	W101-13391-22	J0061	43	CPP	P1749	26	CBG	AA	S
MOD (POST)	W101-13391-22	J0061	43	CPP	P1749	24	CBG	AA	S

FIGURE 2 - P1749 ELECTRICAL MODIFICATION
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SERVICE BULLETIN IMPLEMENTATION AND EVALUATION FORM

The purpose of this form is to collect data that will be used to improve the quality of our Service Bulletins and Reliability Program.

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<i>S.B. Title:</i>	<i>S.B.: (Number / Rev.)</i>
<i>Operator:</i>	

SB Implementation Report	
<i>Aircraft Serial Number or Registration Number:</i>	<i>Incorporation Date:</i>
<i>Aircraft Flight Hours:</i>	<i>Aircraft Landings:</i>

POST-ACCOMPLISHMENT EVALUATION: <i>(Check applicable squares below)</i>		
ESTIMATED MANPOWER:	<input type="checkbox"/> OK	<input type="checkbox"/> NOT OK (Explain Below)
MATERIAL & KITS:	<input type="checkbox"/> OK	<input type="checkbox"/> NOT OK (Explain Below)
ACCOMPLISHMENT INSTRUCTIONS:	<input type="checkbox"/> OK	<input type="checkbox"/> NOT OK (Explain Below)
FIGURES:	<input type="checkbox"/> OK	<input type="checkbox"/> NOT OK (Explain Below)
SB GENERAL EVALUATION:	<input type="checkbox"/> OK	<input type="checkbox"/> NOT OK (Explain Below)

COMMENTS: <i>(Bulletin quality/ Difficulties found at the time of incorporation/ Suggested improvements/ Other)</i>

<i>Organization:</i>	<i>Fax:</i>	<i>Phone:</i>
<i>E-mail:</i>		
<i>Address:</i>	<i>Prepared by:(Name/Title)</i>	<i>Date:</i>