TITLE

AUTO FLIGHT - TRANSMITTAL OF INNOVATIVE SOLUTIONS AND SUPPORT INC SL2220_2 STANDBY
DISPLAY WITH AUTOTHROTTLE SW UPDATE RELEASE 9.1

EFFECTIVITY

MODEL	SERIAL NUMBERS
B200GT	BY-393 thru BY-460
B200CGT	BZ-3 thru BZ-9
B300	FL-1234 thru FL-1322
B300C	FM-98 thru FM-110

REASON

Innovative Solutions and Support Inc. has released Service Letter SL2302_2, which provides an update
for the autothrottle software to version 9.1.

DESCRIPTION

This service document transmits Innovative Solutions and Support Inc. Service Letter SL2302_2. Refer to
the Innovative Solutions and Support Inc. SL2302_2 for detailed information about the changes.

COMPLIANCE

INFORMATIONAL. This service document is for informational purposes only.

A service document published by Textron Aviation may be recorded as *completed* in an aircraft log
only when the following requirements are satisfied:

1) The mechanic must complete all of the instructions in the service document, including the intent
therein.

2) The mechanic must correctly use and install all applicable parts supplied with the service
document kit. Only with written authorization from Textron Aviation can substitute parts or rebuilt
parts be used to replace new parts.

3) The mechanic or airplane owner must use the technical data in the service document only as
approved and published.

4) The mechanic or airplane owner must apply the information in the service document only to
aircraft serial numbers identified in the *Effectivity* section of the document.

5) The mechanic or airplane owner must use maintenance practices that are identified as acceptable
standard practices in the aviation industry and governmental regulations.

No individual or corporate organization other than Textron Aviation is authorized to make or apply any
changes to a Textron Aviation-issued service document or flight manual supplement without prior written
consent from Textron Aviation.

Textron Aviation is not responsible for the quality of maintenance performed to comply with this document,
unless the maintenance is accomplished at a Textron Aviation-owned Service Center.

CONSUMABLE MATERIAL

No specialized consumable materials are required to complete this service document.

TOOLING

Refer to the Innovative Solutions and Support Inc Service Letter SL2302_2, Tooling, for tooling information.

REFERENCES

Innovative Solutions and Support Inc Service Letter SL2302_2 (latest revision)

PUBLICATIONS AFFECTED

None

ACCOMPLISHMENT INSTRUCTIONS

1. Complete the attached Innovative Solutions and Support Inc Service Letter SL2302_2.

2. Make an entry in the airplane logbook that states compliance and method of compliance with this service document.

    NOTE: Textron Aviation recommends that compliance with all service documents is reported to a maintenance tracking system provider.
    - Complete a record of compliance. (Maintenance Transaction Report, Log Book Entry, or other record of compliance.)
    - Put a copy of the completed record of compliance in the airplane logbook.
    - Send a copy of the completed record of compliance to the maintenance tracking system provider used.

**Innovative
Solutions & Support**

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CAGE CODE: 0EUW0

SERVICE LETTER

I. IS&S STANDBY DISPLAY WITH AUTOTHROTTLE SOFTWARE UPDATE: RELEASE 9.1

    A. IS&S is releasing updated software for the IS&S ThrustSense® Standby Display System installed in King Air B200 and B300 aircraft equipped with Proline-Fusion avionics. This software update provides new features as well as operational improvements to increase usability and support additional functionality.

II. PLANNING INFORMATION

    WARNING: FAILURE TO CORRECTLY IMPLEMENT ANY INSTRUCTION GIVEN HERE, AS AMENDED FROM TIME TO TIME BY INNOVATIVE SOLUTIONS & SUPPORT, MAY ENDANGER HEALTH OR SAFETY.

    A. EFFECTIVITY

        1. This software update is applicable to the following components:

            a. Standby Display with Autothrottle System - B300 series, 9K-88129-25

            b. Standby Display with Autothrottle System - B200 series, 9K-88129-23

            c. Standby Display Unit (SDU), 9D-84180-7

            d. Remote Standby Controller (RSC), 9B-84181-7

        2. This Service Letter is required to be performed for those operators who are equipped with the following equipment:

            a. SDU 9D-84180-7 Mod 'A'

            b. RSC 9B-84181-7 Mod 'B'

            c. If the retained equipment in the aircraft has not been upgraded to Release 9.1 status then this Service Letter is applicable to ensure that the SW version match between the SDU and RSC. The configuration module needs to match the applicable configuration in Table 2.

March 14, 2023

SL2302_2

3. This Service Letter is not mandatory but a recommended upgrade to operators equipped with the following IS&S equipment and SW:

    a.   SDU 9D-84180-7 Mod '-'

    b.   RSC 9B-84181-7 Mod 'A'

    c.   SW Release 8.1 or earlier

B. REASON

1. Software Release 9.1 provides the following improvements:

> **Note:** Please make sure AFMS and Pilot's Guide have been reviewed for changes affecting the ThrustSense Autothrottle operation.

- Added support for Autothrottle GUARD mode (requires Feature Activation).
- Updated Data Log download and sequencing of logs in the RSC and SDU.
- Updated MACH display indication logic.
- Improved GUARD mode logic and functionality.
- Improved Autothrottle Torque Sync logic during ITT mode.
- Updated display of Autothrottle annunciations to be the same whether selected MACH mode is active or not.

C. DESCRIPTION

1. The table below identifies the software versions addressed by this Service Letter.

Table 1   Software Versions (Release 9.1)

LRU	CSCI	DESCRIPTION	COMMENT
SDU	7H-13905-17A	SDU OFP	Updated (9.1)
	7H-13904-15	SDU Service	Updated (9.1)
	7H-09848-07	SDU Bootstrap	No change
RSC	7H-13908-09	RSC OFP	Updated (9.1)
	7H-13907-09	RSC Service	Updated (9.1)
	7H-13226-03	RSC Bootstrap	No change
ICM	7H-13982-XX	Config File	Aircraft dependent

2. The following table identifies the latest Configuration Files.

Table 2 ICM Configuration Revisions (Release 9.1)

ICM P/N	CONFIG FILE	DESCRIPTION

ICM P/N	CONFIG FILE	DESCRIPTION
9B-13964-300	7H-13982-3H	King Air B300 series, PT6A-60A, 15000 lb MTOW, AFM 434-590169-0003
9B-13964-301	7H-13982-5D	King Air B300 series, PT6A-60A, 16500 lb MTOW, AFM 434-590170-0003
9B-13964-304	7H-13982-7C	King Air B300 series, PT6A-67A, 16500 lb MTOW, AFM 434-590170-0003, AFMS 130-590031-501
9B-13964-306	7H-13982-9C	King Air B300 series, PT6A-60A, 16500 lb MTOW, AFM 434-590170-0003, AFMS 130-590031-0681 for Kit 130-4050 (Extended Nose)
9B-13964-200	7H-13982-11F	King Air B200 series, PT6A-52, 12500 lb MTOW, AFM 434-590168-0003
9B-13964-202	7H-13982-13D	King Air B200 series, PT6A-52, 12500 lb MTOW, AFM 434-590168-003, AFMS AFMS-B250-1 for STC SA02131SE (BLR Ultimate Performance Package)
9B-13964-305	7H-13982-15B	King Air B300 series, PT6A-67A, 17500 lb MTOW, AFM 434-590170-0003, AFMS 130-590031-501 and 130-590031-531, (Extended Range)
9B-13964-302	7H-13982-17B	King Air B300 series, PT6A-60A, 17500 lb MTOW, AFM 434-590170-0003, AFMS 130-590031-0643
9B-13964-203	7H-13982-19B	King Air B200 series, PT6A-52, 13420 lb MTOW, AFMS AFM-006-4 for STC SA11103SC (Centex Halo 250)
9B-13964-204	7H-13982-21C	King Air B200 series, PT6A-52, 14000 lb MTOW, AFMS AFM-006-4HFG for High Flotation Landing Gear STC SA11103SC (Centex Halo 275)
9B-13964-307	7H-13982-23B	King Air B300 series, PT6A-60A, 16310 lb MTOW, AFMS 339-024-AFMS_B300 for STC SA03025CH (Weather Modification)
9B-13964-308	7H-13982-25A	King Air B300 series, PT6A-60A, 15000 lb MTOW, AFM 434-590169-0003, AFMS 14-350-106 for STC SA02559SE (Raisbeck 5-Blade Propellers)
9B-13964-205	7H-13982-27A	King Air B200 series, PT6A-52, 12500 lb MTOW, AFM 434-590168-0003, AFMS AFMS-B250-2 for STC SA02131SE (BLR Ultimate Performance Package), AFMS 11-B200GT-116 for multiple Raisbeck STCs (EPIC Platinum Package)
9B-13964-206	7H-13982-29	King Air B200 series, PT6A-52, 12500 lb MTOW, AFM 434-590168-0003, AFMS AFMS-B250-2 for STC SA02131SE (BLR Ultimate Performance Package), AFMS 11-52-106 for STC SA2698NM-S (Raisbeck Swept Blade Turbofan Propellers)

Note: Please contact IS&S if your respective ICM P/N is not listed or if the description does not match your aircraft configuration.

D. APPROVAL

1. This Service Letter provides software updates that fall under the FAA category of TSO Minor Change and STC Major Change.

E. MANPOWER

1. Modification will require 1.0 hour with the unit on aircraft. See Section G. for equipment required.

F. MATERIAL COST and AVAILABILITY

1. Software available from IS&S at a cost of $0.00.

2. *Optional Mach Mode Feature Activation (IS&S order number: 9K-14504-1) – not required for OEM installations.*

3. *Optional Guard Mode Feature Activation (IS&S order number: 9K-14533-1)*

4. Balance of warranty is not affected.

G. TOOLING

1. A Windows PC equipped with an RS-485 interface and the IS&S Service Tool, Software 7P-13938-13 or higher, is required to perform the data loading process.

2. Data Loader adapter: Textron part number PR00145715. The adapter harness is intended for use with a StarTech ICUSB422 USB to RS-485 converter. Other 2-wire RS-485 interfaces may be used but may not work correctly. Adapters must be self-procured. See PR00145715 Diagram for the pin assignment of the maintenance connector used for data loading.

3. Follow the details outlined in this Service Bulletin, as well as those outlined in the IS&S Operations and Installation Manual, 1D-88129.

H. WEIGHT AND BALANCE DATA

1. Not applicable.

I. ELECTRICAL LOAD DATA

1. Not applicable.

J. REFERENCES

1. IS&S Operation and Installation Manual, 1D-88129, rev 23.

K. OTHER PUBLICATIONS AFFECTED

1. Pilot's Guide ThrustSense™ Standby with Autothrottle, 1D-13793, Rev 12.

2. Aircraft Flight Manual Supplement, 1D-13792 Rev 4.

3. Instructions for Continued Airworthiness, 1D-13791 Rev 5.

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<u>CAUTION:</u>

Read this entire Service Letter before beginning the software loading procedures. Strict compliance with the instructions given will ensure successful completion of this software upgrade.

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III.   ACCOMPLISHMENT INSTRUCTIONS

Data load IS&S Standby Display with Autothrottle System in accordance with IS&S Operation and Installation manual 1D-88129 Appendix B, or by following the procedure below.

A. Software Update Procedures:

1. Attach ground power for use in the data loading procedure to conserve STBY battery power.

2. Connect the laptop to the aircraft maintenance port using the PR00145715 harness. Open the Service Tool 7P-13938-13 and select the connected COM port in the "**PC COM Port**" field. Once the correct port is selected the "**Receive ON**" button will turn green.

3. Loading software to the Standby Display Unit (SDU), turn ON the ESIS switch to start the SDU and within 30 seconds, press the MENU button and use the Multi-Function Knob (MFK) to scroll to the "**Service Mode**" option. Press the MFK to select Service Mode entry.

4. When prompted on the SDU, cycle power by turning the ESIS switch OFF then ON.

5. The Remote Standby Controller (RSC) must **NOT** be in Service Mode to load software to the SDU.

6. On the SDU, use the MFK to highlight the "**Dataload**" option and press the MFK. Then highlight "**Firmware**" and press the MFK to prepare the SDU to receive the software load.

7. On the 7P-13938-13 tool, click the "**Select Software**" button. A new window will appear. Navigate to where the new software is stored on the laptop and select the "**.uImage**" to load from the files downloaded. If multiple images are going to be loaded, they may all be selected one at a time to populate the "**Selected Software**" window. Once the software is selected each software indication will turn black and show the appropriate revision level.

8. On the PC, press the "**Dataload Software**" button.

9. Select the first desired software to be loaded and press "**Send**". A progress bar will fill as the software is being loaded on both the 7P tool and SDU screen.

10. Once software load is complete the software list on the right side of the SDU screen will update with the new software version number and a software load complete message will appear.

11. Repeat steps 8 and 9 until all required software images have been loaded, transmitted and the "**Complete**" indication is shown.

12. Turn OFF the Standby Display and Autothrottle System by setting the ESIS switch to OFF.

13. Loading software to the (RSC), turn ON the ESIS switch to start the Standby Display Unit (SDU) and within 30 seconds, press MENU button and use the Multi-Function Knob (MFK) to scroll to the "**Service Mode**" option. Press the MFK to select Service Mode entry.

14. When prompted on the SDU, cycle power by turning the ESIS switch OFF then ON.

15. Within 30 seconds of startup, click the "**Service Request**" button on the 7P tool to put the RSC in Service Mode. The RSC will enter service mode and a second aural tone will be heard within 20 seconds of clicking the "**Service Request**" button on the 7P tool.

16. Load software into the RSC be repeating steps 6 through 11 of the SDU software loading section.

17. If the Configuration File requires updating do NOT cycle power to the Standby Display and Autothrottle System as indicated in step 11. Go to Section B below.

18. Once all software loading is complete verify the loaded software versions by following the procedures in Section IV.

B. Configuration File Update Procedure:

1. Loading the Configuration File software, follow steps 12 and 13 of the RSC software loading section IF RSC is not already in Service Mode.

2. On the 7P tool, click the "**Load ICM Data**" button then click the "**Select ICM Config File**" button. Navigate to the desired config file (.bin) to be load. Select the proper file and click "**Open**".

3. The "**Transmit Config File**" button will turn black once a proper file is loaded. Click the "**Transmit Config File**" button and wait for a confirmation message from the 7P tool.

4. Verify the loaded ICM version by following the procedures in Section IV.

C. Mach Mode Feature Activation (Requires Activation Key)

1. Power cycle the RSC and SDU by switching ESIS Power OFF, then ON.

2. Within 30 seconds, press the MENU button and use the MFK to scroll to the "**Service Mode**" option. Press the MFK to select Service Mode entry.

3. When prompted on the SDU, cycle power by turning the ESIS switch OFF then ON.

4. Note the air data serial part number, "**AirData:**", located above the software part numbers window. This number is required by IS&S to generate the activation key for the Mach Mode.

5. Contact IS&S and obtain the required (alphanumeric) activation key. Refer to section V below.

6. Select "**Feature Act**" from the Service Menu to access the Feature Activation page.

7. Use the MFK to select "**Key Entry**".

8. Use the MFK to enter each digit of the activation key:

    (a) Rotate the MFK to adjust the value of each digit ('0' – '9', 'A' – 'F').

    (b) Press the MFK to advance to the next digit.

    (c) Press the A/T PWR button to move back to the previous digit if required.

9. When the last digit has been entered, verify that the Activation Key was accepted by display of "**Mach Mode Activated**".

10. Press the MENU button to exit the Feature Activation page.

11. Restart the RSC and SDU into Normal mode by switching the ESIS Power OFF, then ON.

12. Press the MENU button and select "**FEATURES…**" to verify that MACH mode is selected ON.

D. Guard Mode Feature Activation (Requires Activation Key)

1. Power cycle the RSC and SDU by switching ESIS Power OFF, then ON.

2. Within 30 seconds, press the MENU button and use the MFK to scroll to the "**Service Mode**" option. Press the MFK to select Service Mode entry.

3. When prompted on the SDU, cycle power by turning the ESIS switch OFF then ON.

4. Note the air data serial part number, "**AirData:**", located above the software part numbers window. This number is required by IS&S to generate the activation key for the Guard Mode.

5. Contact IS&S and obtain the required (alphanumeric) activation key. Refer to section V below.

6. Select "**Feature Act**" from the Service Menu to access the Feature Activation page.

7. Use the MFK to select "**Key Entry**".

8. Use the MFK to enter each digit of the activation key:

   (a) Rotate the MFK to adjust the value of each digit ('0' – '9', 'A' – 'F').

   (b) Press the MFK to advance to the next digit.

   (c) Press the A/T PWR button to move back to the previous digit if required.

9. When the last digit has been entered, verify that the Activation Key was accepted by display of "**Guard Mode Activated**".

10. Press the MENU button to exit the Feature Activation page.

11. Restart the RSC and SDU into Normal mode by switching the ESIS Power OFF, then ON.

12. Press the MENU button and select "**FEATURES…**" to verify that Guard Mode is selected ON.

IV.   FUNCTIONAL TEST INSTRUCTIONS

1. Turn the ESIS switch to ON to start the Standby Display and Autothrottle System.

2. On the SDU, press the MENU button and use the MFK to select the "**PART NUMBERS**" screen.

3. Scroll through the part numbers by rotating the MFK and confirm that the software loaded in the system matches the software referenced in Section II.

4. Record the displayed software versions below:

Table 3 Software Part Numbers

SOFTWARE DESCRIPTION	DISPLAYED VERSION
SDU OFP	
SDU SERVICE	
SDU BOOT	
RSC OFP	
RSC SERVICE	
RSC BOOT	
CONFIG	

5. Cycle power to the Standby Display System by turning the ESIS switch OFF then ON.

6. Within 30 seconds, press the MENU button and use the MFK to scroll to the "**Service Mode**" option. Press the MFK to select Service Mode entry.

7. When prompted on the SDU, cycle power by turning the ESIS switch OFF then ON.

8. Press the MFK once in Service Mode to enter the A/T Config page. The "**Fric**" field will be highlighted.

9. Press the MFK to start the Friction Test.

10. Perform the Autothrottle Friction test and verify satisfactory performance of the power control lever movement forward and backward throughout the test. Note the values displayed at the conclusion of the test and verify that the Friction numbers are less than 45 and the Slip values are less than 10000.

Left FRIC Value _____   Right FRIC Value _____

Left SLIP Value _____   Right SLIP Value _____

☐ Pass   ☐ Fail

11. Perform the Override Friction test and verify the force required to override the Autothrottle is satisfactory.

☐ Pass   ☐ Fail

V. MATERIAL INFORMATION

    A. Order Documents, Materials or Return LRUs to:

        Innovative Solutions & Support, ATTN: Repairs
        Customer Services
        720 Pennsylvania Drive
        Exton, PA 19341 USA
        Phone: 610-646-9800   Fax: 610-646-0149

        Technical Support
            IS&S Product Support
            Phone: 610-646-9800
            E-mail: issproductsup@innovative-ss.com

    B. Mach Mode Feature Activation (once 9K-14504-1 purchase has been processed)

        Innovative Solutions & Support
        Contact: Jason Zywalewski
        720 Pennsylvania Drive
        Exton, PA 19341 USA
        Phone: 610-646-9800 ext.609; Business Hours: 8:00 AM to 5:00 PM EST
        Email: jzywalewski@innovative-ss.com

    C. Guard Mode Feature Activation (once 9K-14533-1 purchase has been processed)

        Innovative Solutions & Support
        Contact: Jason Zywalewski
        720 Pennsylvania Drive
        Exton, PA 19341 USA
        Phone: 610-646-9800 ext.609; Business Hours: 8:00 AM to 5:00 PM EST
        Email: jzywalewski@innovative-ss.com

Note: Please make sure to have the air data serial number available prior to calling IS&S for the MACH and or Guard mode feature activation. Instructions on how to obtain the air data serial number are covered under the Mach and Guard mode activation description within this document.