

SERVICE BULLETIN REVISION NOTICE

ENGINE — FUEL AND CONTROL — OPERATING PROCEDURES FOR V2500 SOFTWARE
LOADER (SOFTWARE LOADER AND DATA ENTRY PLUG (DEP) READER)

Turbojet Engine Service Bulletin No. V2500-ENG-73-0238 Revision No. 2 dated June 14, 2019

Revision History

Original Issue December 19, 2014

Revision 1 dated February 16, 2015

Revision 2 dated June 14, 2019

Reason for the Revision

To add SD Card, Tool Nos. 1018294-1, 1018294-3, 1018294-4, 1018294-6, 1018294-7, and 107829.

To add a new EEC Software Loader and DEP Reader, Tool No. IAE2P16613 and Operating Instructions.

To update the Summary Section to add the new EEC Software Loader and DEP Reader, Tool No. IAE2P16613.

To modify the Necessary Tools table.

To update the electrical power source supply range.

To add certified engine softwares SCN21/AA and SCN23/AC.

To add V2500-D5 engine model to Engine Models Applicable section.

To add EEC 150-40 to the V2500-A1 engine model and EEC 150-20 and 115-40 to the V2500-D5 engine model.

To add Reference 10, V2500 A1/A5 AMM and Reference 11, V2500 A5 AMM to this Service Bulletin.

To add Reference 12, V2500-D5 Series Engine Manual to this Service Bulletin.

Effect of Revision on Prior Compliance

None.

This is a Complete Revision (Not Applicable to the SGML version)

The contents are in accordance with the list of effective pages. All pages have the current revision number. Technical changes are marked with black bars.

MODEL APPLICATION

V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5

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BULLETIN ISSUE SEQUENCE

V2500 Series 73-0238

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LOADER (SOFTWARE LOADER AND DATA ENTRY PLUG (DEP) READER)

MODEL APPLICATION

V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5,
V2533-A5, V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE

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Compliance Category

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Summary

The purpose of this Service Bulletin is to incorporate a new EEC software Loader and DEP reader (ESL), Tool No IAE2P16613 capable of supporting SCN21/AA, SCN22/AB, and SCN23/AC. Reprogrammed DEP configurations will be required to be wired (pinned) using even parity for SCN22/AB and SCN23/AC with Standard A5 and SelectTwo™ A5 engines. This tool is also capable of retrieving EEC Fault Dump for all engine models, thrust ratings and configurations.

Planning Information

Effectivity Data

Engine Models Applicable

V2500-A1 (Fault Dump Operation only)

Engine Serial Nos. All Engines installed with EEC 150-20 or EEC 150-40.

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5

Engine Serial Nos. All Engines installed with EEC 150-20 and EEC 150-40.

V2500-D5 (Fault Dump Operation only)

Engine Serial Nos. All Engines installed with EEC 150-20 and EEC 150-40.

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Condition: The existing EEC software loader and DEP reader, Tool Numbers IAE2P16552, and IAE2P16552-A with TDS Ranger are no longer being produced. This is due to the TDS Ranger going out of production. It is being replaced by the Siemens SIMATIC ITP1000 tablet resulting in a new ESL, Tool No. IAE2P16613.
2. Background: In addition to the hardware modification, software improvements were incorporated in the new ESL. Thus, new operating instructions have been added to this Service Bulletin while maintaining the instructions for the previous models.
3. Objective: Introduce a new EEC Software Loader and DEP reader, Tool No. IAE2P16613.

NOTE: Fault dump can be retrieved using any ESL regardless of software version.

4. Substantiation: None.
5. Effects of Bulletin on:
 - Removal/Installation: Not Affected
 - Disassembly/Assembly: Not Affected.
 - Cleaning: Not Affected.
 - Inspection/Check: Not Affected.
 - Repair: Not Affected.
 - Testing: Not Affected.
6. Supplemental Information
 - None.

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Description

The software loaders introduced in this bulletin will support DEP wiring checks and install versions of software such as SCN21/AA, SCN22/AB, and SCN23/AC into an Electronic Engine Control (EEC).

This Service Bulletin contains the following information:

1. How to modify the existing Software Loader and DEP Reader, Tool No. IAE2P16552 to IAE2P16552-A. See Part A of Accomplishment Instructions.
2. How to use Software Loader and DEP Reader, Tool No. IAE2P16552, IAE2P16552-A, and IAE2P16613. See Part B of Accomplishment Instructions.

Compliance

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Accomplish based upon experience with the prior configuration.

Approval Data

The part number changes and/or part modifications specified in the Accomplishment Instructions and Material Information sections of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model(s) given.

The aircraft Type Certificate (TC) holder has been informed of this change.

Manpower

1. In Service
..... Not Applicable.
2. At Overhaul
..... Not Applicable.

Weight and Balance

1. Weight Change
None.
2. Moment Arm
No Effect.
3. Datum
Engine Front Mount Centerline (Power Plant Station (PPS) 100)

Electrical Load Data

This Service Bulletin has no effect on the aircraft electrical load.

Software Accomplishment Summary

Not Applicable.

References

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. ATA Locator — 73-00-00.
2. V2500 Standard Practices and Processes, P&W Ref. PN 2A4414, Chapter/Section 70-09-00, Marking of Parts.
3. V2500 A1/A5 Series Engine Manual, P&W Ref. PN 2A4407, Chapter/Section 71-00-00 and 72-00-32.
4. IAE V2500 Service Bulletin V2500-ENG-72-0285 (Engine — Conversion — Provide Instructions To Change The V2500-A5 Engine Rating By Modifying The Data Entry Plug).
5. IAE V2500 Service Bulletin V2500-ENG-73-0189 (Engine — Fuel And Control — To Provide A New Electronic Engine Control (EEC) With A5 SCN18/W Software).
6. IAE V2500 Service Bulletin V2500-ENG-73-0197 (Engine — Fuel And Control — To Provide A New Electronic Engine Control (EEC) With A5 SCN19/X Software).
7. IAE V2500 Service Bulletin V2500-ENG-73-0208 (Engine — Fuel And Control — Provide A New Electronic Engine Control (EEC) With A5 SCN20A/Z Software).
8. IAE V2500 Service Bulletin V2500-ENG-73-0222 (Engine — Fuel And Control — Provide A New Electronic Engine Control (EEC) With SCN21/AA Software).
9. IAE V2500 Service Bulletin V2500-ENG-73-0236 (Engine — Fuel And Control — Provide A New Electronic Engine Control (EEC) With A5 SCN22/AB Software).
10. V2500 A1/A5 Aircraft Maintenance Manual (AMM), Chapter/Section 73-21-01.
11. V2500 D5 Aircraft Maintenance Manual (AMM), Chapter/Section 73-21-34.
12. V2500-D5 Series Engine Manual, P&W Ref. PN 2A4416, Chapter/Section 72-00-32.

Other Publications Affected

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. V2500 A1/A5 Series Engine Manual, P&W Ref. PN 2A4407, Chapter/Section 71-00-00 Cleaning, Inspection and Repair, to add the new part.

Interchangeability of Parts

Not Applicable.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (No)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

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Material Information

Material — Price and Availability

Not Applicable.

Industry Support Program

Not Applicable.

The material data that follows is for each engine.

None.

Necessary Tools

Select the correct tool number, SD card, and software version from the table below.

| TOOL NUMBER | DESCRIPTION | REMARKS |
|------------------------|---|---|
| IAE2P16552 | Engine Software Loader and DEP Reader | 1. The ESL can be modified to IAE2P16552-A in accordance with this Service Bulletin procedure on-site. OR 2. The ESL can be modified to IAE2P16613 by sending back to the vendor. |
| IAE2P16552-A | Engine Software Loader and DEP Reader | The ESL can be modified to IAE2P16613 by sending back to the vendor. |
| IAE2P16613 | Engine Software Loader and DEP Reader | The current ESL (new) |
| PWA107828-3 | ESL Reprograming Software (SD Card) | It is required to modify IAE2P16552 to IAE2P16552-A |
| 1018294-1 or PWA107829 | Flight Software (SD Card) includes SCN18, SCN19, SCN20/A | It supports IAE2P16552 only |
| 1018294-3 | Flight Software (SD Card) includes SCN18, SCN19, SCN20/A and SCN21/AA | It supports IAE2P16552 only |
| 1018294-4 | Flight Software (SD Card) includes SCN18, SCN19, SCN20/A, SCN21/AA and SCN22/AB | It supports IAE2P16552 and IAE2P16552-A only |

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| TOOL NUMBER | DESCRIPTION | REMARKS |
|-------------|---|-----------------------------|
| 1018294-6 | Flight Software (SD Card) includes SCN21/AA and SCN22/AB | It supports IAE2P16613 only |
| 1018294-7 | Flight Software (SD Card) includes SCN21/AA, SCN22/AB, and SCN23/AC | It supports IAE2P16613 only |

NOTE: For the price and availability of above tooling and the vendor information for the modification of IAE2P16552/-A, contact IAE Program Office through your local IAE Representative.

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

Accomplishment Instructions

Part A:

1. This section describes the procedure on how to modify and update the software loader and DEP reader to revise the capability of the DEP reader, for engines incorporating SCN22/AB, ESL, Tool No. IAE2P16552 to IAE2P16552-A.

Section 1 — Modify the software loader

- A. Make sure that no cables are connected to the TDS Ranger, Software Loader and DEP Reader.
- B. Prepare the TDS Ranger for operations as follows: Depress the green power button on the TDS Ranger and hold it until the word "Booting" appears at the bottom of the screen. The "V2500 Front End Program" screen will be displayed.

NOTE: The TDS Ranger should be fully charged before use.

- C. At the "V2500 Front End Program" screen, use the "D-Pad" to highlight "Install Update to Ranger." Depress the "Enter Key." A pop up screen will appear with the words, "Please open the top of this device, insert the Program Update SD card and hit OK."
- D. Loosen the screw at the top of TDS Ranger.
- E. Remove the black lid from the TDS Ranger.
- F. If the SD slot already has an SD card installed, remove the SD card.

CAUTION: MAKE SURE THAT ORIGINAL SD CARD IS PROVIDED IN A CLOSED ELECTROSTATIC DISPATCH BAG, IS UNDAMAGED AND HAS THE CORRECT PART NUMBER. HANDLE WITH CAUTION. DO NOT EXPOSE TO STRONG MAGNETIC FIELDS, EXTREME TEMPERATURE, DUST OR WATER, ETC.

- G. Insert the Reprogramming SD Card, PN PWA107828-3 (or any larger number which stands for the latest revision), into slot labeled "SD."
- H. Use the "D-Pad" to highlight "OK." Depress the "Enter Key."
- I. When the words "Press any key to continue" appear at the bottom of the log file, press any key to continue. The TDS Ranger has been successfully updated with the appropriate software standard.
- J. Remove the SD card and place the black lid on top of the TDS Ranger and tighten the screw.
- K. To shutdown the TDS Ranger, depress the green power button on the TDS Ranger and hold it until a countdown begins, then let it go. It should take approximately 3 seconds for the countdown to begin. If you hold the power button too long, the TDS Ranger will reset itself. At the "Power Menu", use the "D-Pad" on the TDS Ranger to highlight "Shutdown." Depress the "Enter Key" to shutdown.
- L. Reidentify the Software Loader and DEP Reader Tool No. IAE2P16552 to IAE2P16552-A. Use appropriate marking method to engrave the new part number. See Reference 2, Standard Practices Manual, Chapter Section 70-09-00.

NOTE: The following section is not required, unless the Service Bulletin for the desired software standard does not appear in the drop down menu during EEC software loading selection.

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Section 2 — Load Software into TDS Ranger

- A. Make sure that no cables are connected to the TDS Ranger.
- B. Prepare the TDS Ranger for operations as follows: Depress the green power button on the TDS Ranger and hold it until the word "Booting" appears at the bottom of the screen. The "V2500 Front End Program" screen will be displayed.

NOTE: The TDS Ranger should be fully charged before use.
- C. At the "V2500 Front End Program" screen, use the "D-Pad" to highlight "Install Update to Ranger." Depress the "Enter Key." A pop up screen will appear with the words, "Please open the top of this device, insert the Program Update SD card and hit OK."
- D. Loosen the screw at the top of TDS Ranger.
- E. Remove the black lid from the TDS Ranger.
- F. If the SD slot already has an SD card installed, remove the SD card.

CAUTION: MAKE SURE THAT ORIGINAL SD CARD IS PROVIDED IN A CLOSED ELECTROSTATIC DISPATCH BAG, IS UNDAMAGED AND HAS THE CORRECT PART NUMBER. HANDLE WITH CAUTION. DO NOT EXPOSE TO STRONG MAGNETIC FIELDS, EXTREME TEMPERATURE, DUST OR WATER, ETC.
- G. Insert the appropriate Reprogramming SD Card into slot labeled "SD."
- H. Use the "D-Pad" to highlight "OK." Depress the "Enter Key."
- I. When the words "Press any key to continue" appear at the bottom of the log file, press any key to continue. The TDS Ranger has been successfully updated with the appropriate software standard.
- J. Place the black lid on top of the TDS Ranger and tighten the screw.
- K. To shutdown the TDS Ranger, depress the green power button on the TDS Ranger and hold it until a countdown begins, then let it go. It should take approximately 3 seconds for the countdown to begin. If you hold the power button too long, the TDS Ranger will reset itself. At the "Power Menu", use the "D-Pad" on the TDS Ranger to highlight "Shutdown." Depress the "Enter Key" to shutdown.

Part B

- 1. This section describes the procedure on how to use the Software Loader and DEP Reader, Tool No. IAE2P16552, IAE2P16552-A, and IAE2P16613 for:
 - A. Installing EEC Software (Table 1 and Table 2)
 - (1) This procedure provides instructions for downloading software to the EEC, this procedure can be accomplished on-wing, off-wing (engine stand), or on an uninstalled EEC.
 - B. Testing Cables and Equipment (Table 3 and Table 4)
 - (1) Instructions to check/troubleshoot the software loader assembly via internal self-tests
 - C. DEP Electrical Wiring Test (Table 5 and Table 6)
 - (1) Instructions to evaluate DEP configurations for automated results and error feedback via the handheld display

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D. Retrieving Fault Dump Files (Table 7 and Table 8)

- (1) Instructions for using an engine support program which captures fault information stored within EEC memory.

Part C:

1. Equipment and setup procedures.

NOTE: The latest software standard may be loaded directly over any prior approved software standard. It is not required to load all the interim software standards.

NOTE: Reprogramming assistance regarding proper use of ESL, Tool No. IAE2P16552, IAE2P16552-A, and/or IAE2P16613 is available from your local IAE representative.

NOTE: Reprogramming the EEC will clear the fault memory. Fault dump will be automatically stored in the TDS Ranger device or Siemens SIMATIC ITP1000 tablet that is included with ESL, IAE2P16552, IAE2P16552-A, or IAE2P16613 and may be retrieved at a later time.

NOTE: Disassembly of the EEC is not required.

NOTE: Data integrity check of the supplied software is performed as part of the reprogramming procedure.

NOTE: A bit-for-bit memory verification test is included as part of the reprogramming procedure.

NOTE: No functional, thermal cycle or vibration testing is required for units reprogrammed in accordance with this Service Bulletin.

NOTE: The EEC can be programmed at room ambient conditions or while it is installed on the engine.

NOTE: You can use ESL, Tool No. IAE2P16552-A or IAE2P16613 to load SCN22/AB EEC software in the following procedures.

CAUTION: DO NOT ATTACH YELLOW Y CABLE CONNECTORS TO THE TDS RANGER TOOL NO. IAE2P16552 OR IAE2P16552-A UNTIL INSTRUCTED OR SOFTWARE LOADING WILL NOT BE SUCCESSFUL.

2. Setup of Software Loader and DEP Reader, Tool No. IAE2P16552 (or) IAE2P16552-A

A. Make sure the power switch for Tool No. IAE2P16552 (or) IAE2P16552-A is in the OFF position.

B. Make sure that no cables are connected to the TDS Ranger.

C. Prepare the TDS Ranger for operation as follows:

- (1) Depress the green power button on the TDS Ranger and hold it until the word "Booting" appears at the bottom of the screen. The "V2500 Front End Program" screen will be displayed.

D. Connect Red Z and Blue X cables as labeled to Tool No. IAE2P16552 (or) IAE2P16552-A and EEC at J1, J3, J7 and J9 connectors.

E. Connect Software Loader and DEP Reader Tool No. IAE2P16552 (or) IAE2P16552-A to an external power source 100-240VAC, 50-60Hz.

F. Install EEC Software

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3. Install EEC Software for Tool No. IAE2P16552 (or) IAE2P16552-A

NOTE: The center of the "D-Pad" or the "Enter Key" can be used interchangeably throughout the following procedure.

Table 1 — Installing EEC Software (Tool No. IAE2P16552 (or) IAE2P16552-A)

| Step | Action | Result(s) | Additional Information |
|------|--|---|---|
| 1 | Move the main power switch, labeled "AC POWER INPUT" on Tool No. IAE2P16552 (or) IAE2P16552-A, to the ON position. | The orange "AC PWR ON" light will become illuminated. | The orange light means the equipment is powered and ready for use. |
| 2 | Connect Yellow Y Cable to Tool No. IAE2P16552 (or) IAE2P16552-A and TDS Ranger as labeled. | | System set up is complete. |
| 3 | a) Use the "D-Pad" on the TDS Ranger and highlight "Go to Engine Support Program" b) Depress the "Enter Key." | The "V2500 Engine Support Programs" screen will be displayed. | At this screen there will be three options: 1) V2500 Loader. 2) DEP Tester. 3) Administrative Functions. |
| 4 | a) Use the "D-Pad" on the TDS Ranger and highlight "V2500 Loader." b) Depress the "Enter Key." | The "V2500 Data Loader" screen will be displayed. | At this screen there will be two options: 1) Load Software. 2) Test equipment and cables. |
| 5 | a) Use the "D-Pad" on the TDS Ranger and highlight "Load Software." b) Depress the "Enter Key." | The "Document Property Rights" Notice will be displayed. | |
| | NOTE: You must agree to the terms and conditions or it is not permitted to use this device | | |
| 6 | a) To agree to the terms and conditions, use the "D-Pad" to highlight the check box, and depress the "Enter Key" b) Use the "D-Pad" to highlight continue, and depress the "Enter Key." | The "V2500 Data Loader" screen will be displayed with instructions to: 1) Connect all Cables 2) Ensure main power switch is in the ON position. | Cables should already be connected by this time. |

| Step | Action | Result(s) | Additional Information |
|------|---|---|--|
| 7 | a) Use the "D-Pad" on the TDS Ranger and highlight "Continue." b) Depress the "Enter Key." | The TDS Ranger will perform an "integrity check. If the check is acceptable, the "V2500 Data Loader Screen" will be displayed with fields to enter Service Bulletin, EEC Serial Number, and Trim Checksum Number. | If cables are not connected properly, a screen will appear which will instruct you to "check cable connections. Check cable connections and select "Retry. If problems persist, disconnect all cables and return to the beginning of this section. |
| | NOTE: During integrity check, red "28 VDC EEC PWR" light will become illuminated providing 28VDC to the EEC. While red light is illuminated, do not connect or disconnect cables at the EEC. | | |
| 8 | a) Use the "D-Pad", "Tab Key" and "Key Pad" on TDS Ranger to select a Service Bulletin for the desired software standard, enter last 4 digits of EEC Serial Number and the Trim Checksum Value. b) Use the "D-Pad" on the TDS Ranger to highlight "Continue." c) Depress the "Enter Key." | The "V2500 Data Loader Screen" will be displayed with a blue progress bar, indicating that the software load is in progress. On EEC-40 units, software loading should take approximately 5 – 7 minutes. For EEC-20 units, software loading may take more than 20 minutes. | If the "Incorrect checksum value" appears in red after selecting "Continue", re-enter the correct trim checksum number. |
| | NOTE: The trim checksum value can be obtained from relevant software bulletin. NOTE: DURING SOFTWARE LOAD, RED "28 VDC EEC PWR" LIGHT WILL BECOME ILLUMINATED PROVIDING 28VDC TO THE EEC. WHILE RED LIGHT IS ILLUMINATED, DO NOT DISCONNECT CABLES FROM THE EEC. NOTE: IF SERVICE BULLETIN FOR DESIRED SOFTWARE STANDARD IS NOT AVAILABLE IN THE DROP DOWN MENU, GO TO SECTION 8 TO LOAD SOFTWARE INTO THE TDS RANGER. CAUTION: DEPRESSING ANY KEY DURING SOFTWARE LOAD WILL CAUSE THE SYSTEM TO ABORT. IF THIS OCCURS, TURN OFF POWER, DISCONNECT ALL CABLES AND RETURN TO THE BEGINNING OF THIS SECTION. | | |

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| Step | Action | Result(s) | Additional Information |
|------|--|--|---|
| 9 | <p>a) Wait for the software load to finish before pressing any buttons.</p> <p>b) After software load is successful, make note of new PN for EEC. This must be scribed on the EEC. Use a ballpoint pen or equivalent to put the last three digits of the new Hamilton Sundstrand hardware part number in the software "S/W NO." column of the identification plate, and the date in the "DATE" column of the software identification plate</p> <p><u>NOTE:</u> The EEC PN can be obtained from relevant SOFTWARE BULLETIN.</p> | When loading is complete, "Loading successful" will be displayed with the new part number for the EEC. | If "software load failed" is displayed, verify cable connections and retry. |
| 10 | <p>a) Use the "D-Pad" to highlight "Finish."</p> <p>b) Depress the "Enter Key."</p> | The "V2500 Engine Support Programs" screen will be displayed. | Loading has been successful. |

4. Shut down After Installation of EEC Software for Tool No. IAE2P16552 (or) IAE2P16552-A.

- A. Make sure the power switch for Tool No. IAE2P16552 (or) IAE2P16552-A is in the OFF position and disconnect power cable.
- B. Disconnect Red Z Cable, Blue X Cable and Yellow Y Cable from Tool No. IAE2P16552 (or) IAE2P16552-A, EEC and TDS Ranger.
- C. To shut down the TDS Ranger, depress the green power button on the TDS Ranger and hold it until the countdown begins, then let it go. It should take approximately 3 seconds for the countdown to begin. If you hold the power button too long, the TDS Ranger will reset itself.
- D. At the "Power Menu", use the "D-Pad" on the TDS Ranger to highlight "Shutdown".
- E. Depress the "Enter Key" to shutdown the TDS Ranger.
- F. Recording Instructions:
A record of accomplishment is required.

5. Install the EEC Software for Tool No. IAE2P16613

NOTE: Siemens SIMATIC ITP1000 tablet can be connected to the loader at any time during the procedure. No sequence is required unlike the TDS Ranger.

NOTE: To load SCN23/AC software and all later versions, ESL, Tool No. IAE2P16613 must be used.

Table 2— Installing EEC Software (Tool No. IAE2P16613)

| Step | Action | Result(s) | Additional Information |
|------|---|--|--|
| 1 | Connect Engine Software Loader and DEP Reader Tool No. IAE2P16613 to an external power source 100-240VAC, 50-60Hz. | | Ensure the power switch on the Software Loader is in the OFF position at this time. |
| 2 | Connect test cables to Tool No. IAE2P16613 as follows: a) PZ to "Z" b) PX (blue cable) to the "X" c) PY to "Y" | | Ensure all connectors are hand tight and locked. Do NOT use the brown cable for this procedure. |
| 3 | Disconnect connectors J1, J3, J7 and J9 on the EEC in accordance with Reference 3, EM, Chapter/Section 72-00-32 or Reference 10, AMM Task 73-21-01-000-801-A. | | |
| 4 | Connect the other end of test cables to the EEC as follows: a) P1 (blue cable) to J1 b) P3 to J3 c) P7 (blue cable) to J7 b) P9 to J9 | | Ensure all connectors are fully engaged and tightened by hand. If electrical connector pliers are used, use them very gently. |
| 5 | Move the main power switch, labeled "AC POWER INPUT" on the Engine Software Loader and DEP Reader Tool No. IAE2P16613, to the ON position. | The orange "AC PWR ON" light will become illuminated | The orange light indicates the equipment is powered and ready for use. Note that the EEC is not powered at this time yet. |
| 6 | Connect Yellow Y Cable RS232 (serial data) connector, the USB, and the power cable with the Poka Yoke to the Siemens SIMATIC ITP1000 tablet as labeled. | | There are two USB ports side by side. For this procedure, use the USB port closer to the RS232 (serial data port) connector on the tablet. |
| 7 | Open the black rubber cover on the Siemens SIMATIC ITP1000 tablet located above the power button and Insert the SD Card, Tool No. 1018294-6 or 1018294-7. | | The -6 SD card is for SCN21/AA and SCN22/AB only. The -7 SD card is for SCN21/AA, SCN22/AB, and SCN23/AC. |

| Step | Action | Result(s) | Additional Information |
|--|--|---|--|
| 8 | Press the POWER button at the top right corner of the Siemens SIMATIC ITP1000 tablet. | "Document Property Rights" notice screen with a dialogue box will be displayed. | You must agree to the "Document Property Rights" or it is not permitted to use this device. |
| 9 | a) Check the dialogue box by touching the screen. b) The on screen "Continue" button becomes active. c) Press the "Continue" button. | The IAE Main Menu screen with the following five options will be displayed: a) V2500 Loader b) Engine Preservation c) DEP Reader d) Administrative Functions e) Exit | The "Exit" button will restart the tablet. |
| 10 | a) "V2500 Loader" will be highlighted automatically. b) Press the "V2500 Loader" button. | The "V2500 Data Loader" screen will be displayed with the following options: a) LOAD SOFTWARE b) TEST EQUIPMENT AND CABLES | The "Cancel" key will take you back to the Main Menu screen. |
| 11 | a) "LOAD SOFTWARE" will be highlighted automatically b) Press "LOAD SOFTWARE" button. | The "V2500 Data Loader" screen will be displayed with instructions to: a) Connect all Cables b) Ensure main power switch is in the ON position. | All the test cable should be connected and the power switch on the loader should be ON at this time. |
| 12 | a) The "Continue" button will be highlighted automatically. b) Press the "Continue" button. | The system will perform an integrity check. If the check passes, the "V2500 Data Loader" screen will be displayed. | The "Back" key will take you to the previous screen. The "Cancel" key will take you to the main menu screen. |
| <p><u>NOTE:</u> If any one of the cables are not connected properly, error message "An error occurred while trying to read at 9600 bps, check cable connections" will be displayed. Check cable connections and select "Retry". If the problem persists, disconnect all cables and return to the beginning of the task.</p> <p><u>NOTE:</u> During integrity check, red "28VDC EEC PWR" light will become illuminated providing 28VDC to the EEC. While red light is illuminated, do not connect or disconnect cables at the loader and EEC.</p> | | | |

| Step | Action | Result(s) | Additional Information |
|------|---|---|---|
| 13 | a) Fill out the Service Bulletin Number, EEC SN, and Trim Checksum. b) Press the "Continue" button. | "SOFTWARE LOADING IN PROGRESS" bar will be displayed. | During software load, red "28VDC EEC PWR" light will become illuminated providing 28VDC to the EEC while red light is illuminated, do not disconnect cables from the EEC. |
| | <p><u>NOTE:</u> The trim checksum value can be obtained from the relevant software bulletin.</p> <p><u>NOTE:</u> If "Incorrect checksum value" appears in red after selecting "Continue", re-enter the correct checksum and repeat step 12 again.</p> | | |
| 14 | After loading is completed, "Loading Successful" page will be displayed. | Follow the on screen prompt to re-identify the EEC with the new PN. | On EEC model 150-40, software loading will take approx. 5-7 minutes. For EEC model 150-20, software loading may take approximately 20 minutes. |
| 15 | Use a ballpoint pen or equivalent to put the last three digits of the new Hamilton Sundstrand hardware part number in the software "S/W NO." column of the identification plate, and the date in the "DATE" column. | | Note that the last three digits are the Software Change Notice (SCN) numbers. It is NOT the software PN. |
| 16 | Press the "Finish" button. | The IAE Main Menu screen will be displayed. | Software load is completed. Ensure the power switch on the Software Loader is in the OFF position at this time. |

6. Shut down after installation of EEC software for ESL, Tool No. IAE2P16613

NOTE: Removing the SD card from the tablet is optional.

- A. Turn the power switch OFF on Engine Software Loader and DEP Reader Tool No. IAE2P16613, and disconnect power cable.
- B. Turn Siemens SIMATIC ITP1000 Tablet power OFF using the power button on the right upper corner of the tablet.
- C. Disconnect Red PZ Cable, Blue PX Cable, and Yellow PY Cables from Engine Software Loader and DEP Reader Tool No. IAE2P16613, EEC, and Siemens SIMATIC ITP1000 Tablet.
- D. Put back all the protective caps on the receptacles (on the loader) and connectors (on the test cables).

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- E. Reconnect previously disconnected EEC harness connectors to EEC receptacles, J1, J3, J7, and J9, as specified in Reference 10, AMM Task 73-21-01-400-801-A.

NOTE: The following procedures, Part C, Steps 7 through 12, (Equipment and Cable Test) are optional.

CAUTION: ALL CABLES ARE CONNECTED TO SOFTWARE LOADER, TOOL NO. IAE2P16552, IAE2P16552-A, OR IAE2P16613 FOR THIS TEST. IF CABLES ARE CONNECTED TO EEC, TEST WILL FAIL.

CAUTION: DO NOT ATTACH YELLOW Y CABLE CONNECTORS TO THE TDS RANGER, PN IAE2P16552, OR IAE2P16552-A UNTIL INSTRUCTED OR CABLE TEST WILL FAIL.

7. Setup for Equipment and Cable Self-Test for Tool No. IAE2P16552 (or) IAE2P16552-A.
 - A. Make sure the power switch for ESL, Tool No. IAE2P16552 (or) IAE2P16552-A is in the OFF position.
 - B. Make sure that no cables are connected to the TDS Ranger.
 - C. Prepare the TDS Ranger for operation as follows:
 - (1) Depress the green power button on the TDS Ranger and hold it until the word "Booting" appears at the bottom of the screen. The "V2500 Front End Program" screen will be displayed.
 - D. Connect Red Z cable as labeled to Tool No. IAE2P16552 (or) IAE2P16552-A at connectors Z, J9W and J3W.
 - E. Connect Blue X cable as labeled to Tool No. IAE2P16552 (or) IAE2P16552-A at connectors X, J7W and J1W.
 - F. Connect Tool No. IAE2P16552 (or) IAE2P16552-A to an external power source 100-240VAC, 50-60Hz.
8. Test cables and equipment for Tool No. IAE2P16552 (or) IAE2P16552-A.

NOTE: The center of the "D-Pad" or the "Enter Key" can be used interchangeably throughout the following procedure.

Table 3 — Test Cables and Equipment (Tool No. IAE2P16552 (or) IAE2P16552-A)

| Step | Action | Result(s) | Additional Information |
|------|--|---|--|
| 1 | Move the main power switch, labeled "AC POWER INPUT" on Tool No. IAE2P16552 (or) IAE2P16552-A, to the ON position. | The orange "AC PWR ON" light will become illuminated. | The orange light means the equipment is powered and ready for use. |
| 2 | Connect Yellow Y Cable to Tool No. IAE2P16552 (or) IAE2P16552-A and TDS Ranger as labeled. | | System set up is complete. |

| Step | Action | Result(s) | Additional Information |
|------|--|---|---|
| 3 | a) Use the "D-Pad" on the TDS Ranger and highlight "Go to Engine Support Program" b) Depress the "Enter Key." | The "V2500 Engine Support Programs" screen will be displayed. | At this screen there will be three options: 1) V2500 Loader. 2) DEP Tester. 3) Administrative Functions. |
| 4 | a) Use the "D-Pad" on the TDS Ranger and highlight "V2500 Loader." b) Depress the "Enter Key." | The "V2500 Data Loader" screen will be displayed. | At this screen there will be two options: 1) Load Software. 2) Test equipment and cables. |
| 5 | a) Use the "D-Pad" on the TDS Ranger and select "Test Equipment and Cables." b) Depress the "Enter Key." | The "Data Loader Cable Test Screen" will be displayed with instructions to connect cables. | Cables should already be connected by this time. If not, connect them now. |
| 6 | a) Use the "D-Pad" on the TDS Ranger and select "Continue." b) Depress the "Enter Key." | The "Data Loader Cable Test Screen" will be displayed with instructions to press start and shake cables during 30 seconds test. | |
| 7 | a) Use the "D-Pad" on the TDS Ranger and select. "Start." b) Depress the "Enter Key." | A blue progress bar will begin to move from left to right across the screen. Test takes 30 seconds. | Shake cables during 30 seconds test to ensure there are no intermittent faults with the cables and equipment. |
| 8 | Wait for Equipment and Cable Test to finish. | The words "Data Loader Cable Test Passed" will be displayed. | If the words "Test Failed" appear, ensure cables are properly connected and retry. |
| 9 | a) Use the "D-Pad" on the TDS Ranger and select "Finish." b) Depress the "Enter Key." | The "V2500 Engine Support Programs" screen will be displayed. | Equipment and cable Test was successful. If desired, the test can be repeated by selecting "Repeat Test." |

9. Shut Down After Equipment and Cable Test for Tool No. IAE2P16552 (or) IAE2P16552-A.

- A. Make sure the power switch for Tool No. IAE2P16552 (or) IAE2P16552-A is in the OFF position and disconnect power cable.
- B. Disconnect Red Z Cable, Blue X Cable and Yellow Y Cable from Tool No. IAE2P16552 (or) IAE2P16552-A and TDS Ranger.
- C. To shutdown the TDS Ranger, depress the green power button on the TDS Ranger and hold it until the countdown begins, then let it go. It should take approximately 3

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seconds for the countdown to begin. If you hold the power button too long, the TDS Ranger will reset itself.

- D. At the "Power Menu", use the "D-Pad" on the TDS Ranger to highlight "Shutdown."
- E. Depress the "Enter Key" to shutdown the TDS Ranger.

10. Setup for Equipment and Cable Self-Test for ESL, Tool No IAE2P16613.

- A. Make sure the power switch on Engine Software Loader and DEP Reader, Tool No. IAE2P16613 is in the OFF position.
- B. Remove all the protective caps from the receptacles and connectors.
- C. On the loader, connect the Red PZ cable to the Z receptacle, the Blue PX cable to the X receptacle and the Yellow PY cable to the Y receptacles as labeled on Engine Software Loader and DEP Reader, Tool No. IAE2P16613.
- D. On the loader at the EQUIPMENT AND CABLE TEST panel: Connect the Red P3 and P9 connectors to the Red J3W and J9W receptacles respectively as labeled on Engine Software Loader and DEP Reader, Tool No. IAE2P16613.
- E. On the loader at the EQUIPMENT AND CABLE TEST panel: Connect the Connect Blue P1 and P7 connectors to the Blue J1W, and J7W receptacles respectively as labeled on Engine Software Loader and DEP Reader, Tool No. IAE2P16613.
- F. Connect Engine Software Loader and DEP Reader, Tool No. IAE2P16613 to an external power source 100-240VAC, 50-60Hz.
- G. Connect the Siemens SIMATIC ITP1000 tablet to the Yellow PY test cable.

11. Test Cables and Equipment for ESL, Tool No. IAE2P16613.

- A. Test the integrity of the equipment and test cables for ESL, Tool No. IAE2P16613 as shown in Table 4.

Table 4— Test Cables and Equipment (Tool No. IAE2P16613)

| Step | Action | Result(s) | Additional Information |
|------|--|--|---|
| 1 | Move the main power switch, labeled "AC POWER INPUT" on Engine Software Loader and DEP Reader, Tool No. IAE2P16613 to the ON position. | The orange "AC PWR ON" light will become illuminated. | The orange light means the equipment is powered and ready for use. |
| 2 | Press the power button on the Siemens SIMATIC ITP1000 Tablet at right upper corner. | The "Document Property Rights" screen with a dialogue box will be displayed. | You must agree with the "Document Property Rights" to use the device. |

| Step | Action | Result(s) | Additional Information |
|------|---|--|--|
| 3 | a) Check the dialogue box. b) Press the "Continue" button. | IAE Main Menu screen will be displayed with the following options: a) V2500 Loader b) Engine Preservation c) DEP Reader d) Administrative Functions e) Exit | The "Exit" button will restart the tablet. |
| 4 | Press the "V2500 Loader". | A new screen with three options will be displayed: a) LOAD SOFTWARE b) TEST EQUIPMENT AND CABLES c) Cancel | "Cancel" key will take you back to the IAE Main Menu screen. |
| 5 | Press the "TEST EQUIPMENT AND CABLES" button. | A new screen with instructions to connect the cable will be displayed. | Cables should already be connected at this time. If not, connect them now. |
| 6 | Press the "Continue" button. | A new screen with instructions to press start and shake cables during the test will be displayed. | Cancel button will take you back to the Main Menu. |
| 7 | Press "Start" button. | "EQUIPMENT AND CABLE TEST IN PROGRESS" with a progress bar will be displayed. | Bend and shake the cables gently during this test. Avoid sharp bends to the cable. Sharp bend can damage conductors. |
| 8 | Wait for the test to finish before pressing any button. | "Data loader cable test passed" message will be displayed at the end of the test. | If the test fails, check all connectors for looseness, and retry. |
| 9 | If finished, press "Finish" button. | IAE Main Menu screen will be displayed. | Equipment and Cable Test was successful. |
| 10 | Press "Repeat Test" button if you want to do the test again. | This button will take you back to step 8 screen. | |

12. Shut Down After Equipment and Cable Test for ESL, Tool No. IAE2P16613

- A. Turn the power switch OFF on Engine Software Loader and DEP Reader Tool No. IAE2P16613, and disconnect power cable.
- B. Turn Siemens SIMATIC ITP1000 Tablet power OFF using the power button on the right upper corner of the tablet.

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C. Disconnect Red PZ Cable, Blue PX Cable and Yellow PY Cables from Engine Software Loader and DEP Reader, Tool No. IAE2P16613 and Siemens SIMATIC ITP1000 Tablet.

13. Data Entry Plug (DEP) Electrical Wiring Test for ESL, Tool No. IAE2P16552 (or) IAE2P16552-A.

NOTE: After rewiring the DEP to desired engine variant; refer to the latest Reference 4, Service Bulletin V2500-ENG-72-0285 for instructions. An electrical wiring test of DEP is required. See Table 5 for details.

Table 5 — DEP Electrical Wiring Test (Tool No. IAE2P16552 (or) IAE2P16552-A)

| Step | Action | Result(s) | Additional Information |
|------|--|---|---|
| 1 | Move the main power switch, labeled "AC POWER INPUT" on the IAE Software Loader to the ON position. | The orange "AC PWRON" light will become illuminated. | The orange light means the equipment is powered and ready for use. |
| 2 | Depress and hold the green power button on the TDS Ranger until the word "Booting" appears at the bottom of the screen next to an arrow. | The "V2500 Front End Program" screen will be displayed. | If the unit was already on, a countdown screen will appear after approximately three seconds. Wait for the countdown to reach zero. Continue to hold green power button until the word "Booting" appears. If the unit was off, the words "Booting" should appear after approximately two seconds. |
| 3 | When the "V2500 Front End Program" screen is shown, connect Yellow Y Cable to IAE Software Loader and TDS Ranger as labeled. | | System set up is complete. |
| | NOTE: If Yellow Y Cable was already connected to TDS Ranger prior to Step 2, DEP test will not be successful. Disconnect Yellow Y Cable from TDS Ranger and return to Step 2. | | |
| 4 | a) Use the "D-Pad" on the TDS Ranger and highlight "Go to Engine Support Program." b) Depress the "Enter Key." | The "V2500 Engine Support Programs" screen will be displayed. | At this screen there will be three options: 1) V2500 Loader 2) DEP Tester 3) Administrative Functions |

| Step | Action | Result(s) | Additional Information |
|--|---|--|--|
| 5 | a) Use the "D-Pad" on the TDS Ranger and select "DEP Tester." b) Depress the "Enter Key." | The "Data Entry Plug Tester" screen will be displayed. | At this screen there will be two options: 1) Test Data Entry Plug 2) Data Entry Plug Tester Self-Test |
| 6 | a) Use the "D-Pad" on the TDS Ranger and select "Test Data Entry Plug." b) Depress the "Enter Key." | The "Document Property Rights" Notice will be displayed. | |
| NOTE: You must agree to the terms and conditions or it is not permissible to use this device. | | | |
| 7 | If you agree to the terms and conditions, use the "D-Pad" to highlight the check box and depress the "Enter Key." b) Use the "D-Pad" to highlight "Continue" and depress the "Enter Key." | The "Data Entry Plug Tester" screen will be displayed with instructions to 1) Install Data Entry Plug, and 2) Select Continue. | |
| 8 | a) Install Data Entry Plug on panel marked "Data Entry Plug Tester Interface" on IAE software loader. b) Use the "D-Pad" on the TDS Ranger and select "Continue." c) Depress the "Enter Key." | The "Data Entry Plug tester" screen will be displayed with radio buttons to select the applicable engine model. | |
| 9 | a) Use the "D-Pad" and "Key Pad" on the TDS Ranger to highlight applicable engine mode and DEP part number. b) Depress the "Enter Key" to turn the radio button black next to the appropriate engine model and DEP part number. c) Use the "D-Pad" on the TDS Ranger to select "Continue." d) Depress the "Enter Key." | The detected configuration of the Data Entry Plug will be displayed. | If the DEP wiring configuration is not recognized, "Unknown DEP jumper connection" will be displayed. Use the "D-Pad" to select Continue and depress the "Enter Key." Proceed to Step 12 below. Otherwise go to Step 10. |
| 10 | a) If the configuration displayed is the desired setting, use the "D-Pad" on the TDS Ranger to select "Yes." b) If the configuration displayed is not the desired settings, use the "D-Pad" on the TDS Ranger to select "No." c) Depress the "Enter Key" | a) If "Yes" is selected, DEP configuration will be displayed. Proceed to Step 11. b) If "No" is selected, you will be asked to enter the desired DEP setting. Proceed to Step 12. | |

| Step | Action | Result(s) | Additional Information |
|------|--|--|--|
| 11 | a) Use the "D-Pad" on the TDS Ranger to select "Finish." b) Depress the "Enter Key." | The "V2500 Engine Support Programs" menu will be displayed. | You should only be at Step 11 if the DEP was wired correctly and you selected "Yes" at Step 10. Otherwise, skip to step 12. |
| 12 | a) If an unknown DEP jumper connection was detected, or if the detected configuration was not the desired configuration, the words "Enter desired" will be displayed, followed by several empty boxes. b) Use the "D-Pad", "Enter Key", "Tab Key" and keypad to enter desired configuration. c) Use the "D-Pad" to select "Continue". d) Depress the "Enter Key." | The expected results will be displayed alongside the detected results. | When entering the Engine Serial Number, enter the serial number without a preceding "V." |
| 13 | a) Remove the Data Entry Plug from the panel marked "Data Entry Plug Tester Interface" on IAE Software Loader. b) For each row, on the TDS Ranger, that shows "Fail" in the right column, correct the wiring as necessary. c) Install the Data Entry Plug on the panel marked "Data Entry Plug Tester Interface" on IAE Software Loader. d) Use the "D-Pad" on the TDS Ranger to select the TDS Ranger to select Continue. e) Depress the "Enter Key." | The words "Do you want to retest this plug?" will be displayed. | It is possible to go back to the wiring display screen by using the "D-Pad" on the TDS Ranger to select "Back" and depressing the "Enter Key." |
| 14 | a) Use the "D-Pad" on the TDS Ranger to select "Yes." b) Depress the "Enter Key." | A screen will be displayed with instructions to select "DEP PN to be tested. Go back to Step 9 for instructions to continue with DEP test. | If "No" is selected, the "V2500 Engine Support Programs" menu will be displayed. |

14. Data Entry Plug (DEP) Electrical Wiring Test for ESL, Tool No. IAE2P16613.

NOTE: After rewiring the DEP to desired engine variant; refer to the latest Reference 4, Service Bulletin V2500-ENG-72-0285 for instructions. An electrical wiring test of DEP is required. See Table 6 for details.

NOTE: Make sure the power switch for Engine Software Loader and DEP Reader, Tool No. IAE2P16613 is in the OFF position.

Table 6 — DEP Electrical Wiring Test (Tool No. IAE2P16613)

| Step | Action | Result(s) | Additional Information |
|------|---|--|---|
| 1 | Connect Software and DEP Reader Engine Software Loader and DEP Reader Tool No. IAE2P16613 to an external power source 100-240VAC, 50-60Hz. | | Ensure the power switch on the Software Loader is in the OFF position at this time. |
| 2 | a) Connect Yellow" PY" Cable to Tool No. IAE2P16613 "Y" receptacle as labeled. b) Connect the RS232 (serial data) connector, the USB cable, and the black power cable to the Siemens SIMATIC ITP1000 Tablet. | | Use the USB Port closer to the Serial Data Port. |
| 3 | Move the main power switch, labeled "AC POWER INPUT" on Engine Software Loader and DEP Reader Tool No. IAE2P16613 to the ON position. | The orange "AC PWRON" light will become illuminated | The orange light indicates the equipment is powered and ready for use. |
| 4 | Press the power button on the Siemens SIMATIC ITP1000 Tablet at right upper corner. | The "Document Property Rights" screen with a dialogue box will be displayed. | You must agree with the "Document Property Rights" to use the device. |
| 5 | a) Check the dialogue box. b) Press the "Continue" button. | IAE Main Menu screen will be displayed with the following options: a) V2500 Loader b) Engine Preservation c) DEP Reader d) Administrative Functions e) Exit | The "Exit" key will restart the tablet. |
| 6 | Press the "DEP Reader" button. | A new screen with the following options will be displayed a) Read Data Entry Plug b) Data Entry Plug Reader Self-Test | "Cancel" will take you back to the main menu. |
| 7 | Press the "Read Data Entry Plug" button | A new screen will be displayed with instructions to install Data Entry Plug. | |

| Step | Action | Result(s) | Additional Information |
|------|--|--|---|
| 8 | a) Install the Data Entry Plug on Engine Software and DEP Reader, Tool No. IAE2P16613 labeled "DATA ENTRY PLUG TESTER INTERFACE" panel. b) Press the "Continue" button. | A new screen will be displayed with "Press to Select" button to select the applicable DEP P/N with corresponding engine model. | Ensure the DEP is firmly secured to the reader. |
| 9 | a) Press the " Press to Select" button. b) Select the applicable DEP PN c) Press "Continue" button. | The recent Engine Serial Number with its configuration will be displayed. | |
| 10 | a) If the configuration displayed is the desired setting, press "Yes". b) If the configuration displayed is NOT the desired settings, press "No". | a) If "Yes" is selected, "Data Entry Plug wired correctly" will be displayed. Proceed to Step 15. b) If "No" is selected, you will be asked to enter the desired DEP setting. Proceed to Step 11. | |
| 11 | a) Press the "Press to Select" buttons. b) Enter the desired information using the keypad and press "ok". c) Press the "Continue" button. | A table with the "Expected Result, Detected and P/F" columns will be displayed. | |
| 12 | If the test passes, go to step 15 below. | | Test completed. |
| 13 | If the test fails at step 11 above: a) Remove the Data Entry Plug from the panel marked "DATA ENTRY PLUG TESTER INTERFACE". b) For each row, on the Siemens SIMATIC ITP1000 Tablet, that shows "Fail" in the right column, correct the wiring as necessary. c) Install the Data Entry Plug back on the panel marked "DATA ENTRY PLUG TESTER INTERFACE". | "Do you want to reread this Plug?" will be displayed. | If you do not want to reread, press "No". |

| Step | Action | Result(s) | Additional Information |
|------|--|--|--|
| 14 | Press "Yes" and go to step 9 above. Repeat step 13 until the test passes. | If DEP is wired correctly "Data Entry Plug wired correctly" will be displayed. | |
| 15 | Press "Finish" button. | The Main Menu page will be displayed. | Ensure the power switch on the Software Loader is in the OFF position at this time. |

15. Shut down ESL, Tool No. IAE2P16613 after DEP Electrical Wiring Test

- A. Turn the power switch OFF on Engine Software Loader and DEP Reader, Tool No. IAE2P16613, and disconnect power cable.
- B. Turn Siemens SIMATIC ITP1000 Tablet power OFF using the power button on the right upper corner of the tablet.
- C. Disconnect Yellow PY Cables from Engine Software Loader and DEP Reader, Tool No. IAE2P16613 and Siemens SIMATIC ITP1000 Tablet.

16. Retrieving Fault Dump Files

- A. Retrieve fault dump files for Tool No. IAE2P16552 (or) IAE2P16552-A as shown in Table 7.

Table 7 — Retrieving Fault Dump Files (ESL, Tool No. IAE2P16552 (or) IAE2P16552-A)

| Step | Action | Result(s) | Additional Information |
|------|--|------------------------------|--|
| 1 | Unscrew the top cover of the TDS Ranger and install blank SD card in the slot labeled 'SD'. | | A blank SD card is recommended for this operation and SD card size cannot be larger than 2 GB. |
| 2 | Close top cover and tighten screw. | | Do not attach Yellow Y cable connectors to the Ranger or IAE2P16552 until instructed. |
| 3 | Turn on handheld TDS Ranger by pressing green power button (lower left). | Display will show "Booting". | IAE support page is displayed. |
| 4 | Check that the power switch on IAE2P16552 (or) IAE2P16552-A is in the OFF position. | | |
| 5 | Connect EEC cables - Connect Red Z, Blue X cables as labeled to IAE2P16552 (or) IAE2P16552-A and at EEC connectors J1, J3, J7, and J9. | | |

| Step | Action | Result(s) | Additional Information |
|------|---|--|--|
| 6 | Connect IAE2P16552 (or) IAE2P16552-A to an external power source. Use supplied power cord. | | Use the following current only or Unit damage can result: 100-240VAC, 50-60Hz |
| 7 | Connect Yellow Y cable as labeled to IAE2P16552 (or) IAE2P16552-A and TDS Ranger. Connect all Ranger inputs at this time. | | |
| 8 | Turn ON power to IAE2P16552 (or) IAE2P16552-A power switch to the ON position. | Yellow AC power ON light illuminates. | |
| 9 | Select 'Go to Engine Support Program' option. Use D-pad to highlight selection and press center D-pad button. | IAE Support Program screen is shown. | |
| 10 | Select Administrative Functions option. Using D-pad highlight Administrative Functions and press center D-pad button. Select OK to pop-up window. | Fault Dump, Display Usage Summary Report, Retrieve Usage Report, Enter Last Maintenance Date, or Exit Engine Support Program is displayed. | |
| 11 | Select Fault Dump option. Using D-pad highlight Fault Dump and press center D-pad button. | Enter Password screen is displayed. | Password: v2500admin |
| 12 | Enter password. Type in password then hit TAB to highlight Continue and press center D-pad button. | Free form descriptor and entry fields are displayed. | |
| 13 | Enter required information. Type applicable information, and use the TAB key to appropriate fields. | When completed TAB to Continue and press D-pad center button. | |
| 14 | Follow screen prompt to check all cables and ensure main power switch is in the ON position. | When completed TAB to Continue and press D-pad center button. | |
| 15 | Fault Dump is in Progress. | Screen displays message that a Fault dump is in progress which takes about 30 seconds. | |
| 16 | Fault Dump Completed. | Screen displays message that a Fault dump is completed and lists file names. | The files produced are xxx.dat files and are stored within the TDS Ranger hard drive. Make note of the file names for retrieval. |

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| Step | Action | Result(s) | Additional Information |
|---|---|---|---|
| 17 | To Return to Engine Support Page, press D-pad center button. | IAE Engine Support Program page is displayed. | |
| Retrieving Downloaded Files | | | |
| 1 | Select Administrative Functions option: Using D-pad highlight Administrative Functions and press center D-pad button. | Fault Dump and Exit Engine Support Program is displayed. | |
| 2 | Select Exit Engine Support Program: Using D-pad highlight Exit Engine Support Program and press center D-pad button. | Selection page for updates and retrieval is displayed. | |
| 3 | Select Data from Ranger option: Using D-pad highlight Retrieve Data from Ranger and press center D-pad button. | Selection page for retrieval options are displayed. | |
| 4 | Select Retrieve most recent Fault Dump option: Using D-pad highlight Retrieve most recent Fault Dump and press center D-pad button. | Pop-up Window advises to open device and insert SD card. Fault Dump Data is now written to the SD card for retrieval. | If this was completed earlier continue by pressing D-pad center button. |
| Shut Down Tool No. IAE2P16552 (or) IAE2P16552-A | | | |
| 1 | Turn OFF power to IAE2P16552 (or) IAE2P16552-A: Select IAE2P16552 (or) IAE2P16552-A power switch to the OFF position. | Yellow AC power ON light is OFF. | |
| 2 | Disconnect all cables. Remove Red Z Blue X and Yellow Y connections from EEC and Shut Down Tool No. IAE2P16552 (or) IAE2P16552-A. | | |
| 3 | Shutdown TDS Ranger. Depress and hold green power button until a countdown begins. Release button. | Power Menu is displayed use D-pad to select Shutdown and press center D-pad button. | |
| 4 | To confirm shutdown use D-pad to highlight YES button and press center D-pad button. | TDS Ranger powers down completely. | |
| 5 | Unscrew the top cover of the TDS Ranger and remove SD card in the slot for file recovery. | | Send files to IAE for decoding. |

17. Retrieve fault dump files for ESL, Tool No. IAE2P16613

A. Retrieve fault dump files for ESL, Tool No. IAE2P16613 as shown in Table 8.

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Table 8 — Retrieving Fault Dump Files (Tool No. IAE2P16613)

| Step | Action | Result(s) | Additional Information |
|------|---|--|---|
| 1 | Connect Engine Software Loader and DEP Reader Tool No. IAE2P16613 to an external power source 100-240VAC, 50-60Hz. | | Ensure the power switch on the Software Loader is in the OFF position at this time. |
| 2 | Connect test cables to Engine Software Loader and DEP Reader Tool No. IAE2P16613 as follows: a) PZ to red "Z". b) Blue cable PX to the blue "X". | | Do not use the brown cable for this procedure. |
| | Disconnect connectors J1, J3, J7, and J9 on the EEC as specified in Reference 10, or Reference 11. | | |
| 3 | Connect the other end of test cables to the EEC as follows: a) P3 to J3 b) P9 to J9 c) P1 (blue cable) to J1 d) P7 (blue cable) to J7 | | |
| 4 | Insert the SD Card, Tool No. 1018294-6 or 1018294-7 to the tablet. | | 1018294-6 is for SCN21/AA and SCN22/AB. 1018294-7 is for SCN21/AA, SCN22/AB, and SCN23/AC. |
| 5 | a) Connect Yellow "PY" Cable to Engine Software Loader and DEP Reader Tool No. IAE2P16613 to Yellow 'Y' receptacle as labeled. b) Connect the RS232 connector, the USB cable, and the black power cable to the Siemens SIMATIC ITP1000 Tablet. | | Make sure the SD card is installed at this time. |
| 6 | Move the main power switch, labeled "AC POWER INPUT" on Engine Software Loader and DEP Reader Tool No. IAE2P16613, to the ON position. | The orange "AC PWR ON" light will become illuminated. | The orange light indicates the equipment is powered and ready for use. |
| 7 | Press the POWER button at the top right corner of the Siemens SIMATIC ITP1000 tablet. | The "Document Property Rights" screen with a dialogue box will be displayed. | You must agree to the "Document Property Rights" in order to use the device. |

| Step | Action | Result(s) | Additional Information |
|-----------------------------|---|---|--|
| 8 | a) Check the dialogue box. b) Press "Continue" button. | Main Menu with the following options will be displayed: a) V2500 Loader b) Engine Preservation c) DEP Reader d) Administrative Functions e) Exit | "Exit" will restart the tablet. |
| 9 | Press "Administrative Functions". | "Usage Summary Report, Fault Dump, Retrieve Data From Tablet, and Cancel" will be displayed. | "Cancel" will take you back to the IAE Main Menu screen. |
| 10 | Press "Fault Dump". | A new screen with blank fields will be displayed. Fully functional keyboard may get displayed. | You can leave the "Free form descriptor" field blank. |
| 11 | If the keyboard did not show automatically, double tap on each box. | Fully functional key board will be displayed for entering data. | |
| 12 | Press "Continue" button. | Connect all cables and ensure main power switch is in the ON position will be displayed. | All the cables should be connected and the power switch ON at this time. |
| 13 | Press the 'OK' button. | Fault Dump is in Progress will be displayed. | Fault dump takes approximately 30 seconds. |
| 14 | Fault Dump is Completed. | Screen displays message that the Fault dump is completed and lists file names. | The files produced are xxx.dat files and are stored within the Siemens SIMATIC ITP1000 tablet hard drive. Make note of the file names for retrieval. |
| 15 | Depress the on screen "OK" key. | The "Administrative Functions" will be displayed. | |
| 16 | Depress the on screen "Cancel" key. | It will take you back to the Main Menu screen. | |
| Retrieving Downloaded Files | | | |
| 1 | From the Main Menu screen, Press "Administrative Functions". | "Usage Summary Report, Fault Dump, Retrieve Data From Tablet, and Cancel" will be displayed. | "Cancel" will take you back to the IAE Main Menu screen. |

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| Step | Action | Result(s) | Additional Information |
|------|--|---|--|
| 2 | Press "Retrieve Data From Tablet". | Retrieve Data screen will be displayed with the following options: a) Retrieve most recent Fault Dumps b) Retrieve all Fault Dumps c) Retrieve Log Files d) Retrieve Software Load Summary e) Retrieve Usage Report f) Retrieve all Files | |
| 3 | Press "Retrieve most recent Fault Dump". | "Please insert a USB stick and hit Ok" will be displayed. | Make sure you inserted the USB stick to the tablet at this time. All memory sizes USB sticks are accepted. |
| 4 | Press "OK" button. | "The most recent Fault Dump files are copied" message will be displayed. | If either the USB stick is not properly inserted or if the USB is not inserted, "USB Stick not found" message will be displayed. |
| 5 | Press "OK". | The "Retrieve Data" screen will displayed. | You have successfully retrieved the data to the USB stick. |

18. Shut down Tool No. IAE2P16613 after retrieving fault dump

- A. Turn the power switch OFF on Engine Software Loader and DEP Reader Tool No. IAE2P16613, and disconnect power cable.
- B. Turn Siemens SIMATIC ITP1000 Tablet power OFF using the power button on the right upper corner of the tablet.
- C. Disconnect Red 'Z' Cable, Blue 'X' Cable and Yellow 'Y' Cables from Tool No. IAE2P16613, EEC, and Siemens SIMATIC ITP1000 Tablet.
- D. Reconnect previously disconnected EEC harness connectors to EEC receptacles, J1, J3, J7, and J9, as specified in Reference 10, AMM Task 73-21-01-400-801-A, Reference 11, AMM Chapter/Section 73-21-34, or Reference 3 or 12, EM, Chapter/Section 72-00-32.

19. Recording Instructions

- A. None.

Appendix

Added Data

Internal Reference Information

| Revision No. | Reference Document | Origination |
|--------------|--------------------|-------------|
| Original | EA14VC205 | PStO/IEL |
| 1 | EA15VC037 | PStO/CMS |
| 2 | EA19VC147 | EMA/RCM |

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, the following Technical Publications cross reference table is provided.

Technical Publications Cross Reference Table

| Publication | Engine Model(s) | IAE IETM Pub Ref | P&W Part Number |
|-------------------------|-----------------|------------------|-----------------|
| ENGINE MANUAL — A1, A5 | All | E-V2500-1IA | 2A4407 |
| CMM-EHC — A1, A5 | All | EHC-V2500-1IA | 2A4409 |
| CMM-FN — A1, A5 | All | FN-V2500-1IA | 2A4410 |
| CMM-MMC — A1, A5 | All | MECH-V2500-1IA | 2A4411 |
| CMM-THD — A1, A5 | All | THD-V2500-1IA | 2A4412 |
| TLM — A1, A5 | All | T-V2500-1IA | 2A4408 |
| ENGINE MANUAL — D5 | All | E-V2500-3IA | 2A4416 |
| CMM-EHC — D5 | All | EHC-V2500-3IA | 2A4418 |
| CMM-FN — D5 | All | FN-V2500-3IA | 2A4419 |
| CMM-MMC — D5 | All | MECH-V2500-3IA | 2A4420 |
| CMM-THD — D5 | All | THD-V2500-3IA | 2A4423 |
| TLM — D5 | All | T-V2500-3IA | 2A4417 |
| SPPM (SPM) — A1, A5, D5 | All | SPP-V2500-1IA | 2A4414 |
| EIPC — A1 | V2500-A1102Q00 | S-V2500-1IA | 2A4427 |

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IAE PROPRIETARY INFORMATION

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Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

| Publication | Engine Model(s) | IAE IETM Pub Ref | P&W Part Number |
|-------------|-------------------------|------------------|-----------------|
| EIPC — A5 | V2522/V2524/V2527M-AQ02 | S-V2500-6IA | 2A4428 |
| | V2522/V2524/V2527M-AQ03 | S-V2500-6IB | |
| | V2522/V2524/V2527M-SQ02 | S-V2500-6SA | |
| | V2522/V2524/V2527M-SQ03 | S-V2500-6SB | |
| | V2522/V2524/V2527M-SQ04 | S-V2500-6NA | |
| | V2522/V2524/V2527M-SQ05 | S-V2500-6NB | |
| | V2527/V2527E-AQ02 | S-V2500-7IA | |
| | V2527/V2527E-AQ03 | S-V2500-7IB | |
| | V2527/V2527E-SQ02 | S-V2500-7SA | |
| | V2527/V2527E-SQ03 | S-V2500-7SB | |
| | V2527/V2527E-SQ04 | S-V2500-7NA | |
| | V2527/V2527E-SQ05 | S-V2500-7NB | |
| | V2530-AQ02 | S-V2500-2IA | |
| | V2530-AQ03 | S-V2500-2IB | |
| | V2530-SQ02 | S-V2500-2SA | |
| | V2530-SQ03 | S-V2500-2SB | |
| | V2530-SQ04 | S-V2500-2NA | |
| | V2530-SQ05 | S-V2500-2NB | |
| | V2533-AQ02 | S-V2500-5IA | |
| | V2533-AQ03 | S-V2500-5IB | |
| | V2533-SQ02 | S-V2500-5SA | |
| | V2533-SQ03 | S-V2500-5SB | |
| | V2533-SQ04 | S-V2500-5NA | |
| | V2533-SQ05 | S-V2500-5NB | |
| EIPC — D5 | V2525/V2528-AQ02 | S-V2500-3IA | 2A4426 |
| | V2525/V2528-AQ03 | S-V2500-3IB | |
| | V2525/V2528-AQ04 | S-V2500-3IC | |