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Document No. 82046-STC27- 05

Revision D

**Instructions for Continued Airworthiness
for
ST3400H Helicopter Terrain Awareness & Warning System
Installed in
Eurocopter Models: AS350, B, BA, B1, B2, B3, C, D, D1**

Prepared By:

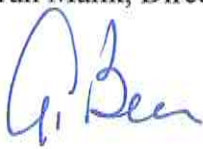


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7.15.14

PROPRIETARY DATA

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REVISION SHEET

| REV | Date | Section(s) | DESCRIPTION OF CHANGE |
|------------|-------------|--------------------------|---|
| D | 7/09/2014 | Cover Page 2 | Updated to add all Model Numbers Updated applicability |
| C | 6/26/2014 | Cover Page 1.1 2.1 | Updated to Remove Aircraft Serial Number Reference |
| B | 09/04/13 | 1.3 2.1 2.17 | Updated Limitation section to reflect FAR Standards Added Dates to Reference Documents Updated to clarify the role of FAA for future revisions of ICA |
| A | 09/03/10 | All | Initial Release |

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1. INTRODUCTION

1.1 Scope

This document identifies the Instructions for Continued Airworthiness for the Eurocopter AS350B2, modified by the installation of Sandel ST34300H HTAWS.

1.2 Document Control

This document shall be released, archived, and controlled in accordance with the Sandel document control system. When this document is revised, refer to Section 2.15 for information on how to gain FAA acceptance or approval and how to notify customers of changes.

1.3 Airworthiness Limitations Section

The Airworthiness Limitations section is FAA approved and specifies inspections and other maintenance required under CFR 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved

There are no additional Airworthiness Limitations associated with this Supplemental Type Design change.

1.4 Permission to Use Certain Documents

Permission is granted to any corporation or person applying for approval of a Sandel ST3400H- (xxxx) to use and reference appropriate STC documents listed in the approved Master Drawing List, to accomplish the Instructions for Continued Airworthiness and show compliance with STC engineering data. This permission does not construe suitability of the documents. It is the responsibility of the applicant to determine the suitability of the documents for the ICA.

1.5 Definitions

The following terminology may be used within this document:

AC: Advisory Circular
ACO: Aircraft Certification Office
AEG: Aircraft Evaluation Group
CFR: Code of Federal Regulations
DER: Designated Engineering Representative
FAA: Federal Aviation Administration
HTAWS: Helicopter Terrain Awareness and Warning System
IAW: In Accordance With
ICA: Instructions for Continued Airworthiness
MFD: Multi-Function Display unit
PMI: Primary Manufacturing Inspector
POI: Primary Operations Inspector
STC: Supplemental Type Certificate
TC: Type Certification or Type Certificate
TSO: Technical Standard Order

2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

2.1 Introduction

| | |
|--|--|
| Content, Scope, Purpose and Arrangement: | This document identifies the Instructions for Continued Airworthiness for the modification of the aircraft by installation of the Sandel ST3400H HTAWS. |
| Applicability: | See cover page. |
| Definition of Abbreviations: | See Section 1.6 |
| Precautions: | None |
| Units of measurement: | None |
| Retention: | This document, or the information contained within, will be included in the aircraft's permanent records. |
| Referenced documents: | <p>Sandel Doc. 82046-IM ST3400H Installation Manual, Rev. A (5/24/2010) or latest approved revision.</p> <p>Sandel Doc. 82046-STC27-01 Master Drawing List, Rev. A (8/11/2010) or later FAA approved revision.</p> <p>Sandel Doc. 82046-AMLSTC27-01 Master Drawing List, Rev. A (7/19/2013) or later FAA approved revision.</p> <p>Sandel Doc. 82046-PG ST3400H Pilots Guide, Rev. A (08/06/2010) or latest approved revision.</p> |

2.2 Description of Alteration

A single ST3400H installed in the right side instrument panel (see appendix B for details). The ST3400H is a self-contained HTAWS (Helicopter Terrain Awareness Warning System) and meets the FAA requirements for Helicopter Terrain Awareness and Warning System (HTAWS). It includes an advanced HTAWS computer, graphics symbol generator and Sandel's high brightness display engine built within a standard 3-inch instrument chassis. It includes Radar altimeter features and can be used to directly replace an existing Radar altimeter indicator. It has the optional capabilities of acting as a primary or secondary traffic indicator, showing traffic in standard TCAS format overlaid on terrain when connected to an external traffic detection system.

2.3 Control, Operating Information

The ST3400H is configurable and controllable to provide the information needed at any point in the flight. Configuring the ST3400H refers to selecting the data for a given display. For example, the TAWS system can be inhibited. Controlling the ST3400H refers to tailoring the display to suit the immediate situation. For example, the pilot may decide to adjust the range to a different setting.

For detailed operation instructions refer to the ST3400H Pilots Guide.

2.4 Servicing Information

The ST3400H contains no field serviceable components. In the event of system failure, return the unit to the Sandel Avionics. Prior to shipping back to the factory contact customer service to obtain an RMA number. Sandel Avionics Customer Service can be reached at (760) 727-4900 Monday through Friday 6:00AM to 5:00PM PST.

2.5 Periodic Maintenance Instructions

Maintenance is on condition. The ST3400H design includes a pilot initiated self test and automatic internal failure detection logic. A thorough self-test is executed automatically upon application of power to the unit, and built-in test is continuously executed. Detected errors are communicated to the user by presentation on the display. Operation of the ST3400H is not permitted unless an inspection as described in this section has been completed within the preceding 12 calendar months. Conduct a visual inspection on the ST3400H and associated interface wiring harness to insure installation integrity:

1. Inspect the unit for security of attachment.
2. Inspect all buttons for legibility.
3. Inspect the display screen and clean if necessary.
4. Inspect condition of wiring, routing and attachment/clamping.
5. Inspect knob operation.

2.5.1 Cleaning the Front Panel

The front bezel, keypad, and display can be cleaned with a soft cotton cloth dampened with “Edmund Scientific TECH SPEC Lens Cleaner” or equivalent. Care should be taken to avoid scratching the surface of the display.

2.5.2 Display Light Source

The display light source is rated by the manufacturer as having a usable life of 80,000 hours. This life may be more or less than the rated time depending on the operating conditions of the ST3400H. Over time, the backlight may dim and the display may not perform as well in direct sunlight conditions. The user must determine by observation when the display brightness is not suitable for its intended use. Contact the Sandel Customer Service if the light source requires service.

2.6 Troubleshooting Information

If the ST3400H fails to properly operate, consult a local authorized Sandel dealer for repair. The ST3400H contains no user serviceable components.

2.7 Removal and Replacement Information

For removal and replacement of the ST3400H and configuration module, if equipped, refer to appendix A of this document.

If the ST3400H is removed for repair and reinstalled, or removed and replaced with a different ST3400H, follow the applicable checkout ground test procedure(s) contained in the ST3400H Installation Manual supplied with the shipment of each ST3400H.

2.8 Adjustment and Test

Refer to the ST3400H Installation Manual supplied with the shipment of each ST3400H.

2.9 Diagrams

Refer to Appendix B of this document for drawings and point to point wiring diagrams applicable to this installation.

2.10 Special Inspection Requirements

2.10.1 Hard Landing

1. Inspect the unit for security of attachment including rear connectors.
2. Perform functional ground check in accordance with Sandel ST3400H Installation Manual.

2.10.2 Lightning Strike

1. Visually inspect condition of unit and wiring.
2. Perform functional ground check in accordance with Sandel ST3400H Installation Manual.

2.11 Application of Protective Treatments

None.

2.12 Data Relative to Structural Fasteners

None.

2.13 Special Tools

None

2.14 Weight and Balance

The weight and moment added/removed by this installation is as follows:

| ADD/ REM | Part Number | Description | Qty | Unit Wt. (Lbs) | Total Wt. (Lbs) | Arm Y (Inch) | Moment (Inch-lb) |
|----------------|-----------------|-----------------|-------|----------------------|-----------------------|-----------------|---------------------|
| ADD | ST3400H | HTAWS | 1 | 2.77 | 2.77 | 34.20 | 94.74 |
| ADD | 61062 | 3 ATI Clamp | 1 | .16 | .16 | 39.00 | 6.24 |
| ADD | 32062 | Connector | 1 | .08 | .08 | 29.00 | 2.32 |
| ADD | 32063 | Connector | 1 | .10 | .10 | 29.00 | 2.90 |
| ADD | 32111 | Connector | 1 | .05 | .05 | 29.00 | 1.45 |
| ADD | 7277-2-5 | Circuit Breaker | 1 | .05 | .05 | 42.00 | 2.10 |
| ADD | M22759/16-22-9 | Wire | 3 ft | | | | |
| ADD | M22759/20-20-9 | Wire | 6 ft | .57 | .57 | 39.00 | 22.23 |
| ADD | M27500/22TG2T14 | Wire | 42 ft | | | | |
| TOTALΔ: | | | | | 3.78 | 34.91 | 131.98 |

Total added weight = 3.78lb

2.15 Additional Instructions

If any work has been done on the aircraft that could affect the system wiring or interconnected equipment, verify the ST3400H operates properly. Follow the applicable checkout ground test procedure(s) contained in the ST3400H Installation Manual supplied with the shipment of each ST3400H.

2.16 Overhaul Period

The system does not require overhaul at a specific time period. The Pilot initiated test, Power on self-test and continuous BIT will monitor the health of the ST3400H. If the unit(s) indicates an internal failure, the unit may be removed and replaced.

2.17 ICA Revision and Distribution

To revise this ICA, if the project is updated with a Major Type Change, the AEG would be involved for revision; a letter must be submitted to the ACO along with the revised ICA. The ACO will obtain AEG acceptance, and approve any revision to the Airworthiness Limitations Section 1.4. Once the original project document is accepted by the FAA-AEG, then minor changes to the system ICA is the responsibility of the TC or STC holder. After FAA acceptance/approval, Sandel will release the revised ICA for customer use, and provide any required notification of the revision. The latest revision of this document will be available on the Sandel website (www.sandel.com). A Sandel Service Information letter or Service Bulletin as appropriate, describing the ICA revision, will be sent to dealers if the revision is determined to be significant.

2.18 Assistance

Flight Standards Inspectors or the certificate holder's PMI have the required resources to respond to questions regarding this ICA. In addition, the customer may refer questions regarding this equipment and its installation to the manufacturer, Sandel Avionics. Sandel customer assistance may be contacted Monday through Friday, 6:00AM to 5:00PM PST via telephone 760-727-4900 or email from the Sandel web site at www.sandel.com.

2.19 Implementation and Record Keeping

Modification of an aircraft and issuance of a new or amended Type Certificate (TC) Data Sheet or a Supplemental Type Certificate (STC) obligates the aircraft operator to include the maintenance information provided by this document in the operator's Aircraft Maintenance Manual and the operator's scheduled aircraft maintenance program.

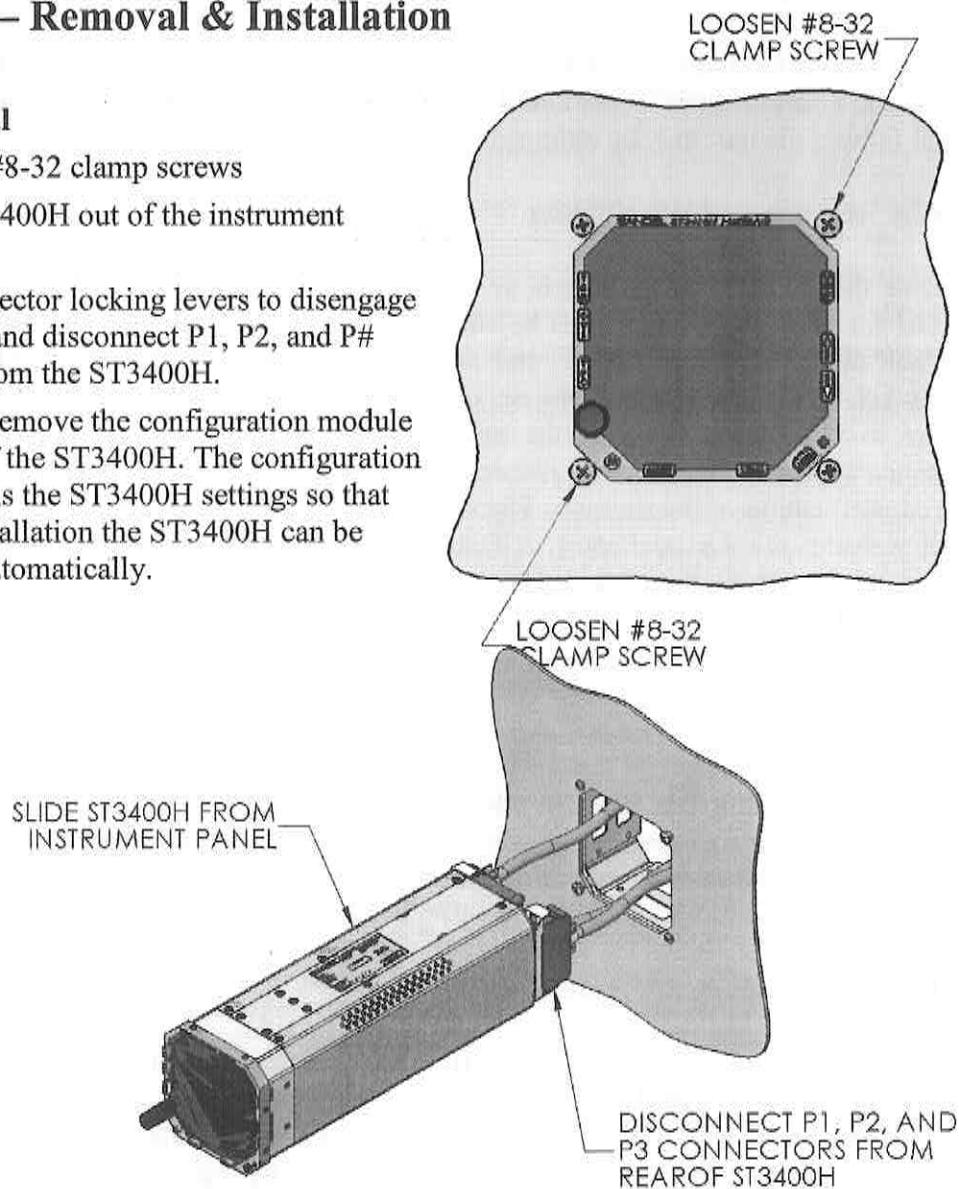
Line Replaceable Unit (LRU) part numbers and other necessary part numbers contained in the installation data package should be placed into the aircraft operators' appropriate airplane Illustrated Parts Catalog, as required.

Wiring diagram information contained in the installation data package should be placed into the aircraft operators' appropriate aircraft Wiring Diagram Manuals, as required.

APPENDIX A – Removal & Installation

ST3400H – Removal

1. Loosen 2 ea #8-32 clamp screws
2. Slide the ST3400H out of the instrument panel.
3. Depress connector locking levers to disengage locking tabs and disconnect P1, P2, and P# connectors from the ST3400H.
4. If equipped, remove the configuration module at the back of the ST3400H. The configuration module retains the ST3400H settings so that during re-installation the ST3400H can be configured automatically.



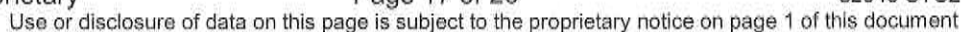
ST3400H Installation

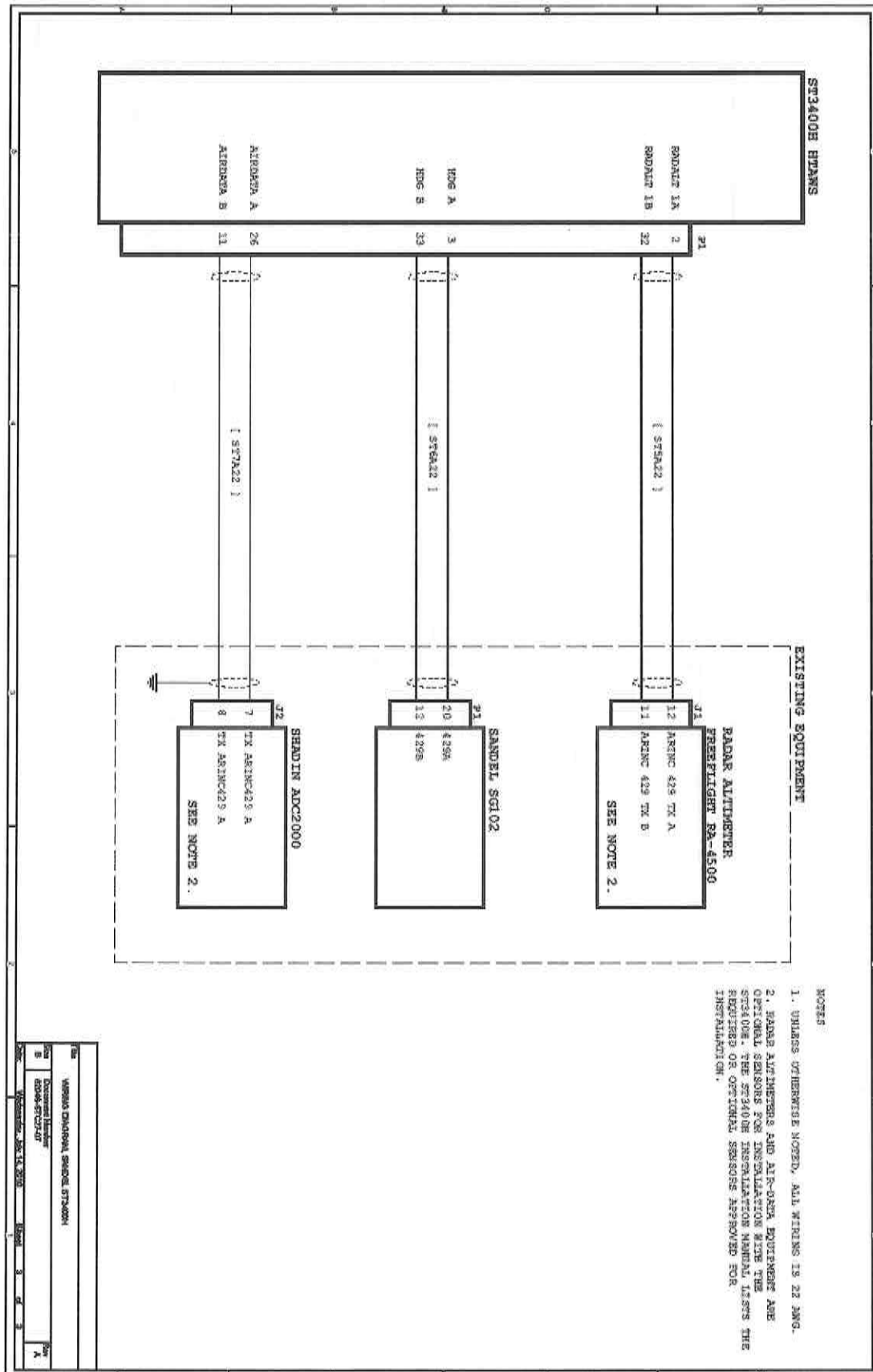
1. Connect P1, P2, and P3 connectors to the back of the ST3400H. Ensure that connectors are fully seated and that locking tabs are engaged.
2. Connect the configuration module (if supplied) to the CONFIG connector at the back of the ST3400H.
3. Slide the ST3400 into the instrument panel until the Bezel is firmly against panel.
4. Tighten #8-32 Clamp screws to secure unit.

APPENDIX B- Eurocopter AS350B2 Wiring and Installation

| | | | |
|---|------------------|------------------|--|
| <p>REV. INFORMATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">A</td> <td style="width: 50%;">INITIAL REVISION</td> </tr> </table> | A | INITIAL REVISION | <p>NOTES: UNLESS OTHERWISE SPECIFIED.</p> <ol style="list-style-type: none"> 1. INTERPRET DRAWING PER MIL-STD-100. 2. USE EXISTING GROUNDS WHENEVER POSSIBLE. INSTALL NEW GROUNDS IF REQUIRED PER FAA DOC E8-AC43.13-1B/2A CHAPTER 11 PAR 452 (pg 188-1, 189-1 THRU 193). 3. ALL NEW INSTALLED SINGLE WIRING IS PER MIL-W-22759. 4. ALL NEW INSTALLED MULTIPIN AND SERIALIZED WIRING IS PER MIL-C-27509. 5. UNLESS OTHERWISE NOTED, ALL NEW INSTALLED WIRING IS 22 AWG. 6. IDENTIFY ALL NEW CABLES AND WIRE USING ONE OR COMBINATION OF METHODS AS PRACTICES (NUMBERS, DIRECT OR ROTARY WIRING) AND PRACTICES PER AC43.13-1B CHG 1 SECTION 16. 7. THE FAA POLICY STATEMENT NO. AIN-03-04, THE WIRING AND INSTALLATION WORKS THIS WORK OF 14 CFR 23.314(a) PAR 23.23 BY THE FOLLOWING GUIDELINES INCORPORATED IN MDL NO 82046-STC27-01, LATEST REVISION. <p>AC43.13-1B CHG 1:</p> <p>SEC 3 (11-31, -36); SEC 4 (11-49, -50); SEC 5 (11-66); SEC 6 (11-85); SEC 8 (11-96); SEC 9 (11-116 THRU 11-126); SEC 10 (11-135 THRU 11-139); SEC 11 (11-146, -147); SEC 12 (11-153); SEC 13 (11-165, -186, -197); SEC 16 (11-205 THRU 11-222); SEC 17 (11-230, -236).</p> |
| A | INITIAL REVISION | | |

| | |
|--|---|
| <p>Doc</p> <p>82046-STC27-07</p> <p>Document Number</p> <p>82046-STC27-07</p> <p>Revision</p> <p>1</p> <p>2</p> <p>3</p> | <p>WIRING DIAGRAM, SANDEL ST3400H</p> <p>Rev</p> <p>A</p> |
|--|---|





| NOTES: | | PARTS LIST | | |
|---|--|---|---|--|
| <p>1. ASSEMBLY DIMENSIONS.</p> <p>2. ALL AIRCRAFT AND EXTERNAL ELECTRICAL POWER MUST BE DISCONNECTED BEFORE STARTING THE CIRCUIT BREAKER AND POWER RECON INSTALLATION.</p> <p>3. PARALLEL ALL WIRING HARNESS PER SANDL AVIONICS WIRING DIAGRAM DRAWING NO. 82046STC27-05.</p> <p>4. INSTALL 5 AMP CIRCUIT BREAKER ITEM 5. APPLY LABEL "AWS"</p> <p>5. TERMINATE TO CIRCUIT BREAKER USING COPPER OR ALUMINUM CONFORMANCE WITH MIL-17728, MIL-C-225002 OR EQUIVALENT.</p> <p>6. SECURE NEW WIRING TO EXISTING WIRE HARNESS USING PLASTIC CABLE TIES (ITEM 10) SPACED APPROXIMATELY EVERY 6 INCHES, BUT NO GREATER THAN 18 INCHES. TIGHTEN WITH INSTALLATION TOOL MS8387-1, SETTING 6, OR EQUIVALENT.</p> <p>7. DO NOT ROUTE OR ATTACH CABLES TO FUEL LINES, PILOT STATIC LINES, HYDRAULIC LINES, ANY CARRIAGE LINES, MOVING SURFACES, CONTROL CABLES OR HEATED RIGGING.</p> | <p>8. QTY</p> <p>9. PART NO.</p> <p>10. DESCRIPTION</p> <p>11. DETAILS</p> <p>12. ITEM NO.</p> | <p>13. 1</p> <p>14. 320-63</p> <p>15. 320-62</p> <p>16. 321-11</p> <p>17. 610-62</p> <p>18. 7277-2-5</p> <p>19. M22759/16-22-9</p> <p>20. M22759/16-20-9</p> <p>21. M27500-27G2714</p> <p>22. MS3367-2-9</p> <p>23. DHS5-54-D</p> <p>24. TMSB-C</p> <p>25. MS3321-4-28</p> <p>26. ANP-40-D4</p> <p>27. AN635-632A</p> | <p>28. 32040H HTAWS</p> <p>29. CONNECTOR, D-15 HIGH DENSITY</p> <p>30. CONNECTOR, D-15 STANDARD DENSITY</p> <p>31. CONNECTOR, D-9 STANDARD DENSITY</p> <p>32. CLAMP, 34T</p> <p>33. KILCON, CIRCUIT BREAKER, 5 AMP</p> <p>34. CABLE, SINGLE CONDUCTOR, 22 GA</p> <p>35. CABLE, SINGLE CONDUCTOR, 20 GA</p> <p>36. CABLE, MULTIPLE CONDUCTOR/SHIELDED, 22 GA</p> <p>37. PLASTIC TIE W84975</p> <p>38. MOUNT, CABLE TIE</p> <p>39. MOUNT, CABLE TIE</p> <p>40. PHMS, Ø.138-32 X .62 BRASS</p> <p>41. WASHER, FLAT, #6 BRASS</p> <p>42. NUT, SELF-LOCKING, .139-32</p> | <p>43. 1</p> <p>44. 2</p> <p>45. 3</p> <p>46. 4</p> <p>47. 5</p> <p>48. 6</p> <p>49. 7</p> <p>50. 8</p> <p>51. 9</p> <p>52. 10</p> <p>53. 11</p> <p>54. 12</p> <p>55. 13</p> <p>56. 14</p> <p>57. 15</p> |

SANDEL ST3400H HELICOPTER INSTALLATION

82046-STC27-05

REV. D

DATE: 10/1/05

BY: [Signature]

FOR: [Signature]

APPROVED: [Signature]

DATE: 10/1/05

BY: [Signature]

FOR: [Signature]

APPROVED: [Signature]

