A GUIDE FOR PREPARING PROCEDURE TRAINING AIDS

FEBRUARY 1982

FOCUS ON THE TRAINING ASPECT

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Technical Memorandum 82-2

A GUIDE FOR PREPARING
PROCEDURE TRAINING AIDS

William R. Terrell

Training Analysis and Evaluation Group

February 1982

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Evaluation
**Title:** A Guide for Preparing Procedure Training Aids

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**Performing Organization Name and Address:**
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**Abstract:**
This report presents a blueprint for constructing procedural training aids (PTAs). The package is designed for use by subject matter experts and does not require the support of graphic artists or instructional designers.
20. ABSTRACT (continued)

The report describes the materials and equipment needed, gives directions for preparing PTAs. An example of a PTA developed by a subject matter expert in a field setting using the TAEG guidelines is included.
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SECTION I

INTRODUCTION

A Procedure Training Aid (PTA) is a type of instructional material designed by the Training Analysis and Evaluation Group (TAEG) to guide a student in learning to perform equipment-related procedures from memory or with a simple checklist. This type of instructional material has been formally evaluated.\(^1\)\(^,\)\(^2\) The evaluations essentially found that proficiency in learning procedural tasks was achieved in significantly less time when compared with traditional materials.

Since procedure learning is pervasive in Navy training, it is expected that instructional programs will benefit from employing the PTA technique in designing instructional materials.\(^3\)

However, the potential for utilizing the PTA throughout Navy schools and training squadrons in those situations where production support resources are limited is diminished due to various difficulties. The PTA relies heavily on visual illustrations and graphic design for its effectiveness. The actual production of page layouts is tedious and time consuming. Also many instructors and subject matter experts (SMEs) do not have access to the graphic art and materials support required to design and produce PTAs. In view of these realities, a simplified guide was needed to facilitate the production of PTAs locally by SMEs.

In response to this need, TAEG developed a technique composed of guidelines, examples, and materials which enable SMEs to produce these learning aids without special graphics or instructional design support. The technique is described in the present report. It was field-tested at Helicopter Antisubmarine Squadron One (HS1), a fleet readiness squadron at Naval Air Station, Jacksonville, Florida. HS1 personnel demonstrated the effectiveness of the guidelines by locally producing the PTA for the Initial Control Setting of the AQS-13E SONAR in the SH-3H aircraft.


\(^3\)The Chief of Naval Education and Training (CNET) tasked the TAEG during 1981 to assist in incorporating the PTA into the new Procedures for Instructional Systems Development. The TAEG-designed format model was selected for inclusion in this current version (NAVEDTRA 110A of 18 September 1981).
PURPOSE OF THIS REPORT

This report presents a blueprint for constructing procedure training aids. The package is designed for use by SMEs and does not require the support of graphic artists or instructional designers. Emphasis is placed on explicit directions for each step in the sequence with accompanying examples. Master copies of repetitious directions and commonly used elements are provided. The result is a process that can be used in schools, training squadrons, and other local activities not supported with special instructional system development (ISD) resources (people and/or equipment).

ORGANIZATION OF THIS REPORT

In addition to this introduction, the report contains one other section and four appendices. Section II describes the materials and equipment needed and gives directions for preparing PTAs. Four types of pages are described: Information, Paraphrase, Road Map, and Paper Mock-up. Directions are included for (1) identifying common elements, (2) using copies of common elements as building blocks in constructing master pages, and (3) adding detailed equipment information to the master pages to complete the layouts. Appendices A, B, and C contain camera ready art for making self-adhesive boxes, darts, and directions to be used in constructing PTAs. Appendix D contains an example of a PTA developed by a subject matter expert in a field setting using the TAEG guidelines which are the subject of this report.
SECTION II

GUIDELINES FOR PREPARING PAGES OF THE PROCEDURE TRAINING AID

The Procedure Training Aid has four page styles which are repeated throughout the module: (1) Information Page, (2) Paraphrase Page, (3) Road Map Page, and (4) Paper Mock-up Page.

The Information Page contains the initial instruction for each step in the procedure. Included on the page are the illustrations and verbal information related to each step. Key words which the student should remember are underlined. The Paraphrase Page is an exercise following each Information Page. It is an exact duplicate of the Information Page except that all underlined words are replaced with blanks. The student is instructed to mentally fill in the blanks. Where unable, the student is directed to read the Paraphrase Page and to re-study the Information Page for those elements that could not be completed. The Road Map Page helps the student recall a chain of steps. Three to seven steps are connected by arrows and numbered in order of occurrence in the procedure. The student is instructed to trace the procedure and recall the action at each step. Then the student is instructed to use the mock-up, an enlarged overview of the equipment, to practice tracing the procedure without the aid of arrows or other information.

Each of the page styles has common elements which are repeated in each use of that type of page throughout the module. Mass-production of master pages including all common elements simplifies and speeds the authoring process and results in a more uniform appearing document. Guidelines for preparing and using master pages for each of the page styles are presented separately.

INFORMATION PAGE

The elements found on the Information Page and the procedure for preparing a master page are described next. Also included are suggestions on how to prepare materials which may be attached to master pages in order to simplify the authoring process.

Each Information Master Page (see figure 1) contains the following elements:

1. space for the title of the equipment
2. generic name for the sections of the equipment
3. space for the specific name of the section of the equipment discussed on this page
4. generic name for the steps of the procedure
5. space for the specific names of the steps of the procedure discussed on this page
6. box with space for the statement of purpose for the steps discussed on this page
7. overview illustration of the equipment
Figure 1. Elements of The Information Page
8. space for close-up illustration of the specific segment of the equipment discussed on this page
9. space for boxed information for each step or related note in the procedure discussed on this page
10. space for darts showing the relationships among steps or notes, overall illustrations, and close-up illustrations.

The author should prepare an Information Master Page which includes all of the common elements that are repeated on each Information Page throughout the Procedure Training Aid. Figure 1 illustrates the selection and arrangement of common elements on the Information Page.

An Information Page is developed for each step or group of steps in the procedure. All specific information required to complete these pages may be attached or typed directly onto the Information Master Page. For example, the close-up illustration of the specific section of the equipment discussed on this page is attached directly below the overall illustration. Steps and notes may be typed directly onto the Information Page and enclosed in individually drawn boxes. The procedure may be more efficient, however, if the steps and notes are typed onto pre-prepared and mass-produced boxes (see figure 2) which may be cutout and attached to the Information Page. This method permits the author to move the boxes about the page for best arrangement. Another advantage is that typing errors result in a discarded box rather than ruining a whole page. The procedure may be speeded by printing the boxes on self-adhesive label stock. See appendix A for a master copy for reproducing boxes.

Figure 2. Boxed Spaces Page
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Darts may be drawn directly onto the Information Page. Errors, however, would ruin the entire page. Pre-prepared and mass-produced darts (see figure 3) could be cutout as needed and attached to the Information Page. This method permits the author to move the darts about the page for the most effective alignment. This procedure may be speeded by printing the darts on self-adhesive label stock. See appendix B for the master copy for reproducing darts.

Figure 3. Dart Page
The Paraphrase Page is a duplication of the Information Page except that all underlined words are eliminated (see figure 4). White self-adhesive correction tape, white typewriter correction fluid, and white acrylic paint are effective materials for eliminating underlined words from a copy of the Information Page.

**Figure 4. Paraphrase Page**
ROAD MAP PAGE

Each Road Map Master Page (see figure 5) will contain the following common elements:

1. specific instructions on how to use the Road Map Page
2. space for a list of steps discussed on this page
3. space for an illustration of the section and the immediate context of the equipment within which the step would be performed
4. although not a common element, each Road Map will have a tracing of the steps to be performed
5. specific instructions to go to the mock-up and perform actions.

Figure 5. Elements of the Road Map Page
A Road Map Master Page is provided in appendix C. The master page includes all elements repeated throughout the Procedure Training Aid. The list of steps may be typed directly onto the Road Map Page and the photograph or drawing of the illustration may be attached directly onto the Road Map Page. The last step from the previous Road Map Page should be indicated with a dashed line. The actual tracing of the path of the steps to be performed on the current Road Map Page should be a solid line drawn onto the illustration or displayed with graphic tape. The tone and width of the tracing should be determined by experimenting with each illustration. Use the material that shows up best. Each step in the tracing should be numbered in the order of occurrence in the procedure.

PAPER MOCK-UP PAGE

The Paper Mock-up is a display of the complete equipment which the student is responsible for manipulating. The illustration should be large enough that the individual controls may be touched as the student traces the steps in the procedure. The Mock-up should fold out in a manner that will permit the student to use it at appropriate times throughout the text (see figure 6).

CHECKLIST

If a checklist is used in performing the procedure on the equipment, an exact duplicate of the checklist should be included on the Paper Mock-up. Also a photocopy of the actual checklist should be placed at the beginning of the module.
Initial Control Settings with SDC:

1. POWER switch (azimuth and range indicator)..............OFF (EXTINGUISHED)
2. TEST switch A (azimuth and range indicator)..................0
3. TEST switch B (azimuth and range indicator)..................0
4. Y/T THRESHOLD switch (azimuth and range indicator)........OFF
5. CEEAR INTENSITY control (azimuth and range indicator).....FULL CDU
6. GMT INTENSITY control (azimuth and range indicator)......FULL CDU
7. VIDEO MAIN control (azimuth and range indicator).........FULL CDU
8. AUDIO MAIN control (azimuth and range indicator).........FULL CDU
9. RANGE SCALE-KNOP switch (sonar receiver)....................8
10. FM/FM switch (sonar receiver)..................................2
11. MODE switch (sonar receiver)..................................PASSIVE
12. CEEAR POSITION control (sonar receiver)......................A3 SEL
13. MODE switch (recorder)...........................................OFF
14. RANGE RATE control (recorder)..................................0
15. PULSE switch (recorder)............................................
16. CONTRAST control (recorder)....................................MIN/0
17. PULSE circuit breaker (sonar transmitter)....................STBY
18. SDC PROGRAM SELECTOR switches, channels A through D...OFF
19. SDC (MATTERN CHANNEL SELECTOR switch)......................OFF
20. SDC STBY switch......................................................ON
21. TRACK SEL switch (Transmitter selector panel-1)..........ION
22. H/S OFF switch (Transmitter selector panel-1).............OFF
23. R/W ON control (Transmitter selector panel-1).............3/16 TO 1/8
24. IF/PW SDC control (Rec master/master 1 panel).............MIN
25. AMPL SEL switch (ICS master control 1 panel).................MIN
26. MIC SEL switch (ICS master control panel)....................0.15
27. Receiver selector panel switches..............................OFF
28. SOUN switch (receiver selector panel).........................55
29. L-OPR switch (SONAR ICS transmitt selector panel)...........1PK
30. R-OPR switch (SONAR ICS transmitt selector panel)..........1PK
31. PILOT/SOUNAR ICS switch (SONAR ICS transmitt selector panel).....VOICE ICS
32. U/F 2 switch (cockpit console).................................500K
33. PANEL LIGHTS knob (sonar operator's console)..............AS DESIRED
34. POWER switch (ABCD monobusy receiver panel)............POWER
35. A,B,C,D channel switches (monobusy receiver panel).........1,2,3,4
36. POWER switch (EFGH monobusy receiver panel)..............POWER
37. E,F,G,H channel switches (monobusy receiver panel).........S,4,7,8
38. A/F, B/F, C/F, D/F pushbuttons (SDC SOUN SEL panel)........A,F,G,H
39. Hover indicator.....................................................ON
40. ROLL DRIFT control (cable angle control panel)............MIN/MAX
41. PITCH DRIFT control (cable angle control panel)............MIN/MAX
Figure 6. Mock-up Page
APPENDIX A

BOX PAGES

The sample box pages in this appendix may be used as camera ready art for printing self-adhesive box pages.
APPENDIX B
DART PAGE

The sample dart page contained in this appendix may be used as camera ready art for printing self-adhesive darts.
APPENDIX C

ROAD MAP PAGE

The sample Road Map Page contained in this appendix may be used as camera ready art for printing Road Map Pages.
With your finger, trace the steps
Recall (1) how to perform, (2) systems response
Look up answers if you need help
Keep practicing until you can describe steps without error or hesitation

Step through all items
Touch where each action and response takes place
Recall exact action for each item
APPENDIX D

PROCEDURE TRAINING AID

This appendix contains an example of a Procedure Training Aid. It is a self-paced, independent study module designed to guide students in learning to perform the procedures in the initial control setting for the AQS-13E SONAR in the SH-3H helicopter. The training aid was constructed in the HSI fleet readiness squadron by a subject matter expert utilizing the guidelines and materials provided in this report.

Though it has not been formally evaluated, HSI students and instructors report great satisfaction with this training aid. Instructors report that prior to use of the training aid, beginning students required 20 minutes to perform the control setting checklist for the first time. With use of the training aid the same procedure is performed for the first time in less than one minute. Student reactions include favorable comments regarding the use of visual information in the training aid. They also remarked that the opportunity to practice the checklist on the paper mock-up gave them a lot of confidence in their ability to perform the procedure on the first trial in the helicopter.

4This Procedure Training Aid was prepared by AW1 Robert E. Pulos of HSI, Jacksonville, Florida. Technical consultation was provided by Paul Scott, Richard Braby, and William Terrell of the Training Analysis and Evaluation Group.
PROCEDURE TRAINING AID FOR THE LEARNING OF INITIAL CONTROL SETTING FOR THE AQS-13E SONAR IN THE SH-3H AIRCRAFT

Prepared by

AW1 Robert E. Pulos
Helicopter Antisubmarine Squadron One
Jacksonville, Florida

NOTE: The Procedure Training Aid contained in this appendix retains its original page numbers. It has not been renumbered to conform to the page number sequence of this technical memorandum.
# AQS-13E INITIAL CONTROL SETTING WITH SDC

## INTRODUCTION

**Learning Objective**

When you complete this package you will be able to:

1. describe each item in the NATOPS SH-3H Sonar Initial Control Setting with SDC Checklist, using the checklist and the paper mock-up of the senso station.

2. perform each item on the SH-3 Aircraft, without hesitation, error, or omission.

**Why Learn This Procedure**

NATOPS requires use of the Checklist each time a mission is flown.

**Resources Required**

In addition to this booklet, you will need:

1. paper mock-up of the SH-3H Sensor Station

2. NATOPS SH-3H Sensor System Preflight Checklist

3. SH-3H Aircraft (used only in the final phase of lesson).

**Senso System Description**

Figure 1. shows the locations and names of the panels and equipment in the Sensor Operators Console.

Figure 2. shows the configuration of the Sonar Detecting-Ranging Set (AQS-13E).
SONAR DETECTING - RANGING SET (AQS-13E)

Figure 2
Initial Control Setting with SDC.

1. POWER switch (azimuth and range indicator) ............... OFF (EXTINGUISHED)
2. TEST switch A (azimuth and range indicator) ............ 0
3. TEST switch B (azimuth and range indicator) ............ 0
4. MTI THRESHOLD switch (azimuth and range indicator) ....... OFF
5. CURSOR INTENSITY control (azimuth and range indicator) ...... FULL CCW
6. CRT INTENSITY control (azimuth and range indicator) ...... FULL CCW
7. VIDEO GAIN control (azimuth and range indicator) ...... FULL CCW
8. AUDIO GAIN control (azimuth and range indicator) ...... FULL CCW
9. RANGE SCALE-KYDS switch (sonar receiver) .................. 8
10. FREQUENCY switch (sonar receiver) ......................... 2
11. MODE switch (sonar receiver) ................................ PASSIVE
12. CURSOR POSITION control (sonar receiver) ............... AS SET
13. MODE switch (recorder) ........................................ OFF
14. RANGE RATE control (recorder) ................................ 0
15. PULSE switch (recorder) ........................................ M
16. CONTRAST control (recorder) ................................ MIDPOSITION
17. POWER circuit breaker (sonar transmitter) ............... UP (ON)
18. SDC PROCESS MODE selector switches channels A thru D ............ OFF
19. SDC DOWNLINK CHANNEL SELECT switches ................. 00
20. SDC SENSOR switch ........................................... Q13 (PP1)
21. TRANS SEL switch (transmitter selector panel) ............... ICS
22. ICS ON/OFF switch (transmitter selector panel) .......... ON
23. RAD VOL control (transmitter selector panel) .......... 3/4 TO FULL CW
24. INTPH VOL control (ICS master control panel) .......... MIDPOSITION
25. AMPL SEL switch (ICS master control panel) ............... NORM
<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Setting</th>
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<tbody>
<tr>
<td>26.</td>
<td>MIC SEL switch (ICS master control panel)</td>
<td>COLD</td>
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<td>27.</td>
<td>Receiver selector panel switches</td>
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<td>28.</td>
<td>SONO switch (receiver selector panel)</td>
<td>ON</td>
</tr>
<tr>
<td>29.</td>
<td>L-OPR switch (SONAR ICS transmit selector panel)</td>
<td>ICS</td>
</tr>
<tr>
<td>30.</td>
<td>R-OPR switch (SONAR ICS transmit selector panel)</td>
<td>ICS</td>
</tr>
<tr>
<td>31.</td>
<td>PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel)</td>
<td>PILOTS ICS</td>
</tr>
<tr>
<td>32.</td>
<td>UHF 2 switch (cockpit console)</td>
<td>COMM</td>
</tr>
<tr>
<td>33.</td>
<td>PANEL LIGHTS knob (sensor operators console)</td>
<td>AS DESIRED</td>
</tr>
<tr>
<td>34.</td>
<td>POWER switch (ABCD sonobuoy receiver panel)</td>
<td>POWER</td>
</tr>
<tr>
<td>35.</td>
<td>A,B,C,D channel switches (sonobuoy receiver panel)</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RESPECTIVELY</td>
</tr>
<tr>
<td>36.</td>
<td>POWER switch (EFGH sonobuoy receiver panel)</td>
<td>POWER</td>
</tr>
<tr>
<td>37.</td>
<td>E,F,G,H channel switches (sonobuoy receiver panel)</td>
<td>5,6,7,8</td>
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<td>RESPECTIVELY</td>
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<tr>
<td>38.</td>
<td>A/E, B/F, C/G, D/H pushbuttons (SDC SONB SEL panel)</td>
<td>A,B,C,D</td>
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<tr>
<td></td>
<td></td>
<td>ILLUMINATED</td>
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<tr>
<td>39.</td>
<td>Hover indicator</td>
<td>C MODE</td>
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<td>40.</td>
<td>ROLL DRIFT control (cable angle control panel)</td>
<td>MIDPOSITION</td>
</tr>
<tr>
<td>41.</td>
<td>PITCH DRIFT control (cable angle control panel)</td>
<td>MIDPOSITION</td>
</tr>
</tbody>
</table>
AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group  AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM
1. POWER switch (azimuth and range indicator)........... OFF (EXTINGUISHED)
2. TEST switch A (azimuth and range indicator).......................... 0
3. TEST switch B (azimuth and range indicator)............................ 0

Purpose: Prevent damage to Sonar due to voltage fluctuations during engine starts. Set normal operation BITE configuration.

1.1 ACTION: If Sonar POWER switch light ON... THEN press SONAR POWER switch and release.

1.2 RESPONSE: ON light goes out.

2.1 ACTION: Set TEST switch A to 0.

3.1 ACTION: Set TEST switch B to 0.

NOTE:
Upper switches advance counters, lower switches retard counters.
AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group  AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM
1. POWER switch (azimuth and range indicator) ........ (_____)
2. TEST switch A (azimuth and range indicator) ....................
3. TEST switch B (azimuth and range indicator) ....................

Purpose: Prevent damage to Sonar due to voltage fluctuations during engine starts. Set normal operation BITE configuration.

1.1 ACTION: If Sonar POWER switch light ___. THEN press SONAR POWER switch and release.

1.2 RESPONSE: ON light goes ___.

2.1 ACTION: Set TEST switch A to ___.

3.1 ACTION: Set TEST switch B to ___.

NOTE: Upper switches counters, lower switches counters.
AQS-13E INITIAL CONTROL SETTINGS with SDC

Panel/Group  AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM
4. MTI THRESHOLD switch (azimuth and range indicator) .......... OFF

**Purpose:** Disable Moving Target Indicator (MTI).

**4.1 ACTION:**
Turn MTI switch OFF.
Panel/Group: AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM

4. MTI THRESHOLD switch (azimuth and range indicator)...........

**Purpose:** Disable Moving Target Indicator (MTI).
* With your finger, trace the steps
* Recall (1) how to perform, (2) systems response
* Look up answers if you need help
* Keep practicing until you can describe steps without error or hesitation

**ROAD MAP**

1. POWER
2. Test Switch A
3. Test Switch B
4. MTI THRESHOLD Switch

**GO TO PAPER MOCK-UP**

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item
Panel/Group: AZIMUTH AND RANGE INDICATOR

CHECKLIST

ITEM
5. CURSOR INTENSITY control (azimuth and range indicator).... FULL CCW
6. CRT INTENSITY control (azimuth and range indicator)........ FULL CCW
7. VIDEO GAIN control (azimuth and range indicator)........... FULL CCW
8. AUDIO GAIN control (azimuth and range indicator)............ FULL CCW

Purpose: To set intensity and gain controls to minimum.

6.1 ACTION:
Turn CRT INTENSITY control fully counter clockwise.

7.1 ACTION:
Turn VIDEO GAIN control fully counter clockwise.

8.1 ACTION:
Turn AUDIO GAIN control fully counter clockwise.
AQS-13E Sonar Power Off Check

Panel/Group: AZIMUTH AND RANGE INDICATOR

CHECKLIST

<table>
<thead>
<tr>
<th>ITEM</th>
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<tbody>
<tr>
<td>5. CURSOR INTENSITY control (azimuth and range indicator)</td>
<td>FULL</td>
</tr>
<tr>
<td>6. CRT INTENSITY control (azimuth and range indicator)</td>
<td>FULL</td>
</tr>
<tr>
<td>7. VIDEO GAIN control (azimuth and range indicator)</td>
<td>FULL</td>
</tr>
<tr>
<td>8. AUDIO GAIN control (azimuth and range indicator)</td>
<td>FULL</td>
</tr>
</tbody>
</table>

**Purpose:** To set intensity and gain controls to minimum.

5.1 ACTION: 
Turn CURSOR INTENSITY control fully clockwise.

7.1 ACTION: 
Turn VIDEO GAIN control fully clockwise.

8.1 ACTION: 
Turn AUDIO GAIN control fully clockwise.
AQS-13E Sonar Power Off Check

Panel/Group  SONAR RECEIVER
CHECKLIST
ITEM
9.  RANGE SCALE-KYDS switch (sonar receiver).................... 8
10. FREQUENCY switch (sonar receiver)............................ 2
11. MODE switch (sonar receiver)............................ PASSIVE
12. CURSOR POSITION control (sonar receiver).................. AS SET

Purpose: Ensure proper mode, frequency, and range scale for starting power on preflight checks.

9.1 ACTION:
Turn RANGE KYD switch to 8 KYD position.

10.1 ACTION:
Turn FREQUENCY switch to 2.

11.1 ACTION:
Turn mode switch to PASSIVE.

12.1 CURSOR POSITION as set.
AQS-13E Sonar Power Off Check

Panel/Group SONAR RECEIVER
CHECKLIST
ITEM
9. RANGE SCALE-KYDS switch (sonar receiver).................................
10. FREQUENCY switch (sonar receiver)...........................................
11. MODE switch (sonar receiver)..................................................
12. CURSOR POSITION control (sonar receiver)..............................

Purpose: Ensure proper mode, frequency, and range scale for starting power on preflight checks.

9.1 ACTION:
Turn RANGE KYD switch to KYD position.

10.1 ACTION:
Turn FREQUENCY switch to...

11.1 ACTION:
Turn mode switch to...

12.1 CURSOR POSITION

---

16
ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 5: CURSOR INTENSITY control
6: CRT INTENSITY control
7: VIDEO GAIN
8: AUDIO GAIN
9: RANGE SCALE KYDS switch
10: FREQUENCY switch
11: MODE switch
12: CURSOR POSITION control

GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item
<table>
<thead>
<tr>
<th>Item</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. MODE switch (recorder)</td>
<td>OFF</td>
</tr>
<tr>
<td>14. RANGE RATE control (recorder)</td>
<td>0</td>
</tr>
<tr>
<td>15. PULSE switch (recorder)</td>
<td>9</td>
</tr>
<tr>
<td>16. CONTRAST control (recorder)</td>
<td>MIDPOSITION</td>
</tr>
</tbody>
</table>

**Purpose:** Set MPR controls for preflight

13.1 **ACTION**

Turn MODE switch to **OFF** position.

14.1 **ACTION**

Set RANGE RATE control knob to **0**.

15.1 **ACTION**

Set PULSE switch to **medium** pulse.

16.1 **ACTION:**

Set CONTRAST control to **MIDPOSITION**.
Panel/Group: MULTI PURPOSE RECORDER
CHECKLIST

ITEM
13. MODE switch (recorder)..............................................
14. RANGE RATE control (recorder)...................................
15. PULSE switch (recorder)............................................
16. CONTRAST control (recorder).................................

Purpose: Set MPR controls for preflight

13.1 ACTION
Turn MODE switch to ___ position.

14.1 ACTION
Set RANGE RATE control knob to ___.

15.1 ACTION
Set PULSE switch to ___ pulse.

16.1 ACTION:
SET CONTRAST control ___
ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 13: MODE switch ..........................
14: RANGE RATE control .....................
15: PULSE switch ...........................
16: CONTRAST control ....................

GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item

21/22
Panel/Group  SONAR TRANSMITTER

CHECKLIST
ITEM
17. POWER circuit breaker (sonar transmitter) .................... UP (ON)

Purpose: To provide power to sonar transmitter.

NOTE
Power circuit breaker should have been checked UP (ON) during interior preflight.

IF
Unsure of power circuit breaker position, THEN recheck it UP (ON).
Panel Group: SONAR TRANSMITTER

CHECKLIST

ITEM

17. POWER circuit breaker (sonar transmitter).................... _ ( )

**Purpose:** To provide power to sonar transmitter.

**NOTE**

Power circuit breaker should have been checked _ (OK) during interior preflight.

**IF**

Unsure of power circuit breaker position. THEN recheck it _ (OK).
Purpose: Disable sonobuoy processing mode.

18. SDC PROCESS MODE selector switches channels A thru D........... OFF

18.1 ACTION
Turn PROCESS MODE selector switches full CCW to OFF.
**Panel/Group**  SONAR DATA COMPUTER

**CHECKLIST**

**ITEM**

18. SDC PROCESS MODE selector switches channels A thru D........

**Purpose:** Disable sonobuoy processing mode.

18.1 ACTION

Turn PROCESS MODE selector switches full CCW to ___.

---

**AQS-13E INITIAL CONTROL SETTINGS**
AQS-13E INITIAL CONTROL SETTINGS

**Panel/Group**  
SONAR DATA COMPUTER

**CHECKLIST**

**ITEM**

19. SDC DOWNLINK CHANNEL SELECT switches ................................ 00
20. SDC SENSOR switch ................................................................. Q13 (PPI)

**Purpose:** Set downlink to null channel. Set SDC to Q13 mode of operation.

19.1 ACTION  
Set DOWNLINK CHANNEL SELECT switches to 00.

20.1 ACTION  
Turn SENSOR switch to Q13(PPI) position.
**AQS-13E INITIAL CONTROL SETTINGS**

**Panel/Group**  SONAR DATA COMPUTER

**CHECKLIST**

**ITEM**

19. SDC DOWNLINK CHANNEL SELECT switches...........................

20. SDC SENSOR switch...........................................

**Purpose:** Set downlink to null channel. Set SDC to Q13 mode of operation.

---

19.1 ACTION
Set DOWNLINK CHANNEL SELECT switches to ___.

20.1 ACTION
Turn SENSOR switch to ____ position.
With your finger, trace the steps
Recall (1) how to perform, (2) systems response
Look up answers if you need help
Keep practicing until you can describe steps without error or hesitation

Item 18: SDC PROCESS MODE SELECTOR switches
19: SDC DOWNLINK CHANNEL SELECT switches
20: SDC SENSOR switch

GO TO PAPER Mock-up
- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item
AQS-13B SONAR

Panel/Group TRANSMITTER SELECTOR
CHECKLIST
ITEM
21. TRANS SEL switch (transmitter selector panel) ............... ICS
22. ICS ON/OFF switch (transmitter selector panel) ............... ON
23. RAD VOL control (transmitter selector panel) ....... 3/4 to FULL CW

Purpose: Set ICS controls to normal position.
Panel/Group  TRANSMITTER SELECTOR

CHECKLIST

ITEM

21. TRANS SEL switch (transmitter selector panel) ................ ICS
22. ICS ON/OFF switch (transmitter selector panel) .................
23. RAD VOL control (transmitter selector panel) ...... _ _ to FULL _

Purpose: Set ICS controls to normal position.

21.1 ACTION
Ensure _ switch set on ICS.

22.1 ACTION
Ensure ICS _ switch set on _ position.

23.1 ACTION
Turn _ _ to _ _ clockwise.
Panel/Group: ICS MASTER CONTROL

CHECKLIST

ITEM
24. INTPH VOL control (ICS master control panel) .......... MIDPOSITION
25. AMPL SEL switch (ICS master control panel) .......... NORM
26. MIC SEL switch (ICS master control panel) .......... COLD

Purpose: Set ICS controls to normal position.

24.1 ACTION
Turn INTPH VOL clockwise 1/2 turn.

25.1 ACTION
Ensure AMPL SEL switch set to NORM.

26.1 ACTION
Ensure MIC SEL switch set to COLD(up).
**Panel/Group**
ICS MASTER CONTROL

**CHECKLIST**

**ITEM**
24. INTPH VOL control (ICS master control panel)..............
25. AMPL SEL switch (ICS master control panel)..................
26. MIC SEL switch (ICS master control panel)..................

**Purpose:** Set ICS controls to normal position.

24.1 ACTION
Turn INTPH VOL clockwise ______.

25.1 ACTION
Ensure ______ switch set to ______.

26.1 ACTION
Ensure ______ switch set to ______.
ROAD MAP

- With your finger, trace the steps
- Recall (1) how to perform, (2) systems response
- Look up answers if you need help
- Keep practicing until you can describe steps without error or hesitation

Item 21: TRANS SEL switch (transmitter selector panel)..............
22: ICS ON/OFF switch (transmitter selector panel)..............
23: RAD VOL control (transmitter selector panel)...
24: INTPH VOL control (ICS master control panel)...........
25: AMPL SEL switch (ICS master control panel)..............
26: MIC SEL switch (ICS master control panel)..............

GO TO PAPER MOCK-UP

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item
Panel/Group  RECEIVER SELECTOR PANEL.

CHECKLIST

ITEM

27. Receiver selector panel switches.............................. OFF
28. SONO switch (receiver selector panel).......................... ON

Purpose: Disable all radio; sonar, data link, ADF, and sonobuoy audio. Enable sonar audio.

27.1 ACTION
Ensure all RECEIVER SELECTOR PANEL switches are turned OFF(down).

28.1 ACTION
Turn #3 SONO switch ON(up).
Panel/Group  RECEIVER SELECTOR PANEL

CHECKLIST

ITEM

27. Receiver selector panel switches..............................

28. SONO switch (receiver selector panel).........................

Purpose: Disable all radio; sonar, data link, ADF, and sonobuoy audio. Enable sonar audio.

27.1 ACTION
Ensure all switches are turned (down).

28.1 ACTION
Turn switch (up).
AQS-13E INITIAL CONTROL SETTINGS

Panel/Group: SONAR ICS TRANSMIT SELECTOR PANEL

CHECKLIST

ITEM

29. L-OPR switch (SONAR ICS transmit selector panel).............. ICS
30. R-OPR switch (SONAR ICS transmit selector panel).............. ICS
31. PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel)............................... PILOTS ICS

Purpose: To provide intercommunication between crewman and pilots.

28.1 ACTION
L-OPR switch in ICS (up).

29.1 ACTION
R-OPR switch in ICS (up).

30.1 ACTION
PILOTS/SONAR ICS switch in PILOTS ICS (up).
Panel/Group: SONAR ICS TRANSMIT SELECTOR PANEL.

ITEM
29. L-OPR switch (SONAR ICS transmit selector panel)..............
30. R-OPR switch (SONAR ICS transmit selector panel)..............
31. PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel)........................................

Purpose: To provide intercommunication between crewman and pilot.
With your finger, trace the steps
Recall (1) how to perform, (2) systems response
Look up answers if you need help
Keep practicing until you can describe steps without error or hesitation

Item 27: Receiver selector panel switches
28: SONO switch (receiver selector panel)
29: L-OPR switch (SONAR ICS transmit selector panel)
30: R-OPR switch (SONAR ICS transmit selector panel)
31: PILOTS/SONAR ICS switch (SONAR ICS transmit selector panel)

Step through all items
Go to paper mock-up

Step through all items
Touch where each action and response takes place
Recall exact action for each item
Panel/Group: COCKPIT CONSOLE

CHECKLIST

ITEM

32. UHF 2 switch (cockpit console)............................ COMM

**Purpose:** Set up UHF 2 for sonobuoy downlink commands.

**NOTE:**
Check with Pilot that UHF 2 is set to COMM.
Panel/Group: COCKPIT CONSOLE

CHECKLIST ITEM

32. UHF 2 switch (cockpit console)............................

**Purpose:** Set up UHF 2 for sonobuoy downlink commands.

**NOTE:**
Check with Pilot that UHF 2 is set to...
Panel/Group: SENSOR OPERATOR'S CONSOLE

CHECKLIST

ITEM

33. PANEL LIGHTS knob (sensor operators console)........... AS DESIRED

Purpose: To turn panel lights on for night operation and off for daylight operation.

33.1 ACTION
Adjust PANEL LIGHTS knob for desired intensity.
Panel/Group: SENSOR OPERATOR'S CONSOLE

CHECKLIST
ITEM
33. PANEL LIGHTS knob (sensor operators console)........

Purpose: To turn panel lights on for night operation and off for daylight operation.

33.1 ACTION
Adjust PANEL LIGHTS knob for intensity.
Panel/Group: ABCD SONOBUOY RECEIVER PANEL

CHECKLIST

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.</td>
<td>POWER switch (ABCD sonobuoy receiver panel)</td>
</tr>
<tr>
<td>35.</td>
<td>A,B,C,D channel switches (sonobuoy receiver panel)</td>
</tr>
</tbody>
</table>

**Purpose:**
Apply power to ABCD sonobuoy receiver panel. Prevent RF duplication alert on SDC RO bite check.

**34.1 ACTION**
Set POWER switch to POWER (UP).

**35.1 ACTION**
Turn A,B,C,D channel switches to 1,2,3,4 respectively.
### Panel/Group: ABCD SONOBUOY RECEIVER PANEL

#### CHECKLIST

<table>
<thead>
<tr>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>34. POWER switch (ABCD sonobuoy receiver panel)</td>
</tr>
<tr>
<td>35. A, B, C, D channel switches (sonobuoy receiver panel)</td>
</tr>
</tbody>
</table>

### Purpose:
Apply power to ABCD sonobuoy receiver panel. Prevent RF duplication alert on SBC RD bite check.

#### 34. ACTION
Set POWER switch to **UP**.

#### 35. ACTION
Turn A, B, C, D channel switches to **...** RESPECTIVELY.
Panel/Group: EFGH SONOBUOY RECEIVER PANEL

CHECKLIST

ITEM

36. POWER switch (EFGH sonobuoy receiver panel) .............. POWER

37. E,F,G,H channel switches (sonobuoy receiver panel) ........ 5,6,7,8 RESPECTIVELY

Purpose: Apply power to EFGH sonobuoy receiver panel. Prevent RF duplication on SDC RO bite check.

36.1 ACTION
Set POWER switch to POWER (UP).

37.1 ACTION
Turn E,F,G,H channel switches to 5,6,7,8 RESPECTIVELY.
Panel/Group: EFGH SONOBUOY RECEIVER PANEL

CHECKLIST

ITEM
36. POWER switch (EFGH sonobuoy receiver panel)............
37. E,F,G,H channel switches (sonobuoy receiver panel).....

RESPECTIVELY

Purpose: Apply power to EFGH sonobuoy receiver panel. Prevent RF duplication on SDC RO bite check.

36.1 ACTION
Set POWER switch to ___ (UP).

37.1 ACTION
Turn E,F,G,H channel switches to ___ RESPECTIVELY.
Panel/Group: SDC SONOBUOY SELECT PANEL

CHECKLIST

ITEM
38. A/E, B/F, C/G, D/H pushbuttons (SDC SONB SEL panel)...........A,B,C,D ILLUMINATED

Purpose: Select sonobuoy channels A, B, C, D for display

38.1
If A/E, B/F, C/G, D/H pushbuttons not illuminated A, B, C, D.............
THEN press and release individual pushbuttons as required until proper indications appear.
Panel/Group
SDC SONOBUOY SELECT PANEL

CHECKLIST

ITEM

38. A/E, B/F, C/G, D/H pushbuttons (SDC SONB SEL panel)........A,B,C,D ILLUMINATED

**Purpose:** Select sonobuoy channels A,B,C,D for display

38.1
If A/E, B/F, C/G, D/H pushbuttons not illuminated ________
THEN press and release individual pushbuttons as required until proper indications appear.
With your finger, trace the steps
Recall (1) how to perform, (2) systems response
Look up answers if you need help
Keep practicing until you can describe steps without error or hesitation

Item 34: POWER switch (ABCD sonobuoy receiver panel)
35: A,B,C,D channel switches
36: POWER switch (EFGH sonobuoy receiver panel)
37: E,F,G,H channel switches
38: A/E,B/F,C/G,D/H pushbuttons

NOTE:
Check with Pilot that UHF 2 is set to green.

GO TO PAPER MOCK-UP
Step through all items
Touch where each action and response takes place
Recall exact action for each item
Panel/Group: CABLE ANGLE CONTROL PANEL

CHECKLIST

ITEM

39. Hover indicator............................................. C MODE
40. ROLL DRIFT control (cable angle control panel).......... MIDPOSITION
41. PITCH DRIFT control (cable angle control panel).......... MIDPOSITION

Purpose: To ensure Hover Indicator in C MODE for cable Angle monitoring. To ensure ROLL DRIFT and PITCH DRIFT are set to null position.

39.1 IF Hover Indicator not in C MODE...

39.2 THEN Turn A,C,D knob until in "C" MODE

40.1 ACTION
Set ROLL DRIFT knob to MIDPOSITION (arrow straight up)

41.1 ACTION
Set PITCH DRIFT knob to MIDPOSITION (arrow straight up)
Panel/Group: CABLE ANGLE CONTROL PANEL

CHECKLIST

ITEM

39. Hover indicator

40. ROLL DRIFT control (cable angle control panel)

41. PITCH DRIFT control (cable angle control panel)

Purpose: To ensure Hover Indicator in C MODE for cable Angle monitoring, to ensure ROLL DRIFT and PITCH DRIFT are set to null position.

39.1 IF Hover Indicator not in _ MODE...

39.2 THEN Turn A,C,D knob until in " " MODE

40.1 ACTION
Set ROLL DRIFT knob to ___________(arrow straight up)

41.1 ACTION
Set PITCH DRIFT knob to ___________(arrow straight up)
• With your finger, trace the steps
• Recall (1) how to perform, (2) system response
• Look up answers if you need help
• Keep practicing until you can describe steps without error or hesitation

**ROAD MAP**

- Item 39: Rudder Indicator
- Item 40: Roll drift control
- Item 41: Pitch drift control

**GO TO PAPER MOCK-UP**

- Step through all items
- Touch where each action and response takes place
- Recall exact action for each item
Congratulations, you have learned to perform the 41 checklist items for the Sensor System Pre-Flight.

At this point you should assure mastery of the checklist by:

First, practicing the checklist on the Paper Mock-Up until you can go through all 41 of the items without hesitation.

Then, practice the checklist on one of the available aircraft until you feel prepared for a performance check by an instructor in the Cockpit Procedures Trainer.

Again CONGRATULATIONS on reaching this point in your training.
**Initial Control Setting with SDC.**

1. **POWER switch (azimuth and range indicator)........OFF (EXTINCTION)***
2. **TEST switch A (azimuth and range indicator)...............................0***
3. **TEST switch B (azimuth and range indicator)...............................0***
4. **MTI THRESHOLD switch (azimuth and range indicator)............OFF***
5. **CURSOR INTENSITY control (azimuth and range indicator)........FULL CCW***
6. **CRT INTENSITY control (azimuth and range indicator)........FULL CCW***
7. **VIDEO GAIN control (azimuth and range indicator)........FULL CCW***
8. **AUDIO GAIN control (azimuth and range indicator)........FULL CCW***
9. **RANGE SCALE-KVMD switch (sonar receiver)..............................OFF***
10. **FREQ CY switch (sonar receiver) .......................................2***
11. **MODE switch (sonar receiver) ..........................................PASSIVE***
12. **CURSOR POSITION control (sonar receiver) .........................AS SET***
13. **MODE switch (recorder) .........................................................***
14. **PULSE switch (recorder) .........................................................***
15. **CONTRAST control (recorder) ..............................................GEMI***
16. **POWER circuit breaker (sonar transmitter) .......................OFF***
17. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
18. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
19. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
20. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
21. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
22. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
23. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
24. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
25. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
26. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
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31. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
32. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
33. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
34. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
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38. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
39. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
40. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
41. **SIDE PPM'S MAKE selector switches channels A thru B ...........OFF***
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