*Section 5 deleted in its entirety.

# List of Effective Pages

* The asterisk indicates pages changed, added, or deleted by the current change.

# Record of Revisions

RETAIN THIS RECORD IN THE FRONT OF THE MANUAL. ON RECEIPT OF REVISIONS, INSERT REVISED PAGES. THEN ENTER DATE INSERTED AND INITIAL.

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SECTION 1
OVERVIEW
1.1 Service Manual Organization

Overview Section 1
Roll Centering Section 2
Functional Ground Tests Section 3
Simulator Operation Section 4
Pilot's Operating Handbooks Section 5
Heading Interconnect Drawings Section 6
System Interconnect Drawings Section 7
System Specifications Section 8
Glossary Section 9

1.2 Purpose

This manual provides flight line service information for the following S-TEC MEGGITT rate based autopilots:

System 20/30/30 ALT
System 40/50
System 55/55X/550
System 60-1/60-2
System 65
System 60 PSS

1.3 Required Test Equipment

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>P/N</th>
</tr>
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<tbody>
<tr>
<td>Flight Line Autopilot Tester</td>
<td>95101</td>
</tr>
<tr>
<td>Breakout Box</td>
<td>9524</td>
</tr>
<tr>
<td>Adapter Cable</td>
<td>39198</td>
</tr>
<tr>
<td>Adapter Cable</td>
<td>39199</td>
</tr>
<tr>
<td>Extender Assembly</td>
<td>01264</td>
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1.4 Service Philosophy

The first objective is to determine if the installed autopilot system is functioning properly on the ground. This is accomplished by performing the functional ground test for that particular system. No external test equipment is required.

The second objective is to isolate a failure to a system component. The equipment listed in section 1.3 is designed to aid in this effort. The Flight Line Autopilot Tester (P/N 95101) is used to simulate some of the major system components. It is shown in Fig. 1-1 and contains the following, each removable from a suitcase for remote use about the aircraft:

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool, Roll Centering Adjustment</td>
<td>95101-1</td>
</tr>
<tr>
<td>Simulator, Heading System *</td>
<td>95101-2</td>
</tr>
<tr>
<td>Simulator, Servo, Roll/Pitch/Trim</td>
<td>95101-3</td>
</tr>
<tr>
<td>Simulator, Altitude Transducer</td>
<td>95101-4</td>
</tr>
<tr>
<td>Simulator, Turn Coordinator</td>
<td>95101-5</td>
</tr>
<tr>
<td>Cable Assembly, Extension for 95101-2 (6406/52D54)</td>
<td>39307</td>
</tr>
<tr>
<td>Cable Assembly, Extension for 95101-2 (6443)</td>
<td>39308</td>
</tr>
<tr>
<td>Cable Assembly, Extension for 95101-3</td>
<td>39309</td>
</tr>
<tr>
<td>Cable Assembly, Extension for 95101-4</td>
<td>39310</td>
</tr>
<tr>
<td>Cable Assembly, Extension for 95101-5</td>
<td>39311</td>
</tr>
<tr>
<td>Service Manual, Flight Line</td>
<td>87104</td>
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* Simulates only the following Heading Systems:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Type</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-TEC</td>
<td>DG</td>
<td>6406</td>
</tr>
<tr>
<td>S-TEC</td>
<td>HSI</td>
<td>6443</td>
</tr>
<tr>
<td>EDO AIRE</td>
<td>DG</td>
<td>52D54</td>
</tr>
</tbody>
</table>

The Breakout Box (P/N 9524), Adapter Cables (P/N 39198 & 39199), and Extender Assembly (P/N 01264) are used to measure autopilot system power, signals, and continuity. They are connected as shown in Fig. 1-2.

The third objective is to determine if the system is functioning properly in flight. This is accomplished by performing the flight procedures contained in the respective Pilot's Operating Handbook (POH). However, for return of aircraft to service, refer to the Aircraft Flight Manual Supplement (AFMS).

1.5 Technical Support

PH  800-872-7832
FAX 940-325-8808
Fig. 1-1. Flight Line Autopilot Tester
**Fig. 1-2. Breakout Connections**
SECTION 2
ROLL CENTERING
2.0 Roll Centering

The Roll Centering Adjustment should be performed routinely to ensure optimal A/P system performance.

2.1 Ground Roll Centering Adjustment

1. Level the A/C.
2. Set the A/P Master Switch to the ON position.
3. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.
4. Tune the Navigation Receiver to a non-receiving VOR frequency so that the Left/Right needle is centered.

Note: If no heading system (DG or HSI) is installed, proceed to step 6.
5. Center the Heading Bug (DG) or Course Pointer (HSI) under the lubber line.
6. Engage the A/P NAV mode (LO TRK mode for System 20/30).
7. Insert the Roll Centering Adjustment Tool (P/N 95101-1) into the A/P bezel hole as shown in Fig. 2-1, until it makes contact with the Roll Centering Potentiometer.
8. Adjust the Roll Centering Potentiometer in small increments to null A/C control wheel movement - allow time between adjustments for the A/P system to stabilize.

2.2 In-Flight Roll Centering Adjustment (optional)

2.2.1 A/P is a Radio Coupler

1. Fly the A/C to smooth air and trim for level flight.
2. Set the A/P Master Switch to the ON position.
3. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.
4. Tune the Navigation Receiver to a VOR frequency.
5. Select the course using the OBS (DG) or Course Pointer (HSI).

Note: If the heading system is an HSI, proceed to step 7.
6. Set the Heading Bug to match the selected course.
7. Engage the NAV mode and wait until the A/P has intercepted the course.
8. Insert the Roll Centering Adjustment Tool (P/N 95101-1) into the A/P bezel hole as shown in Fig. 2-1, until it makes contact with the Roll Centering Potentiometer.
9. Adjust the Roll Centering Potentiometer in small increments to obtain a centered Left/Right needle - allow time between adjustments for the A/P system to stabilize.
2.2.2 A/P is a Radio Tracker

1. Fly the aircraft to smooth air and trim for level flight.

2. Set the A/P Master Switch to the ON position.

3. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.

4. Tune the Navigation Receiver to a VOR frequency.

5. Select the course using the OBS.

6. Fly the A/C onto the selected course such that the Left/Right needle is centered.

7. Engage the A/P NAV mode (LO TRK mode for System 20/30).

8. Insert the Roll Centering Adjustment Tool (P/N 95101-1) into the A/P bezel hole as shown in Fig. 1-1, until it makes contact with the Roll Centering Potentiometer.

9. Adjust the Roll Centering Potentiometer in small increments to obtain a centered Left/Right needle - *allow time between adjustments for the A/P system to stabilize.*
Fig. 2-1a. System 20/30

STEP 1: REMOVE SCREW

STEP 2: INSERT TOOL
**Fig. 2-1b. System 40/50/60-1/60-2**

STEP 1: REMOVE SCREW

STEP 2: INSERT TOOL
Fig. 2-1c. System 55/55X/550
Fig. 2-1d. System 65

INSERT TOOL
SECTION 3
FUNCTIONAL GROUND TESTS
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3.2 Functional Ground Test for System 30 .......................................................... 3-5
3.3 Functional Ground Test for System 30 ALT .................................................. 3-7
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3.11 Functional Ground Test for System 65 .......................................................... 3-31
3.12 Functional Ground Test for System 60 PSS ............................................... 3-35
3.1 Functional Ground Test for System 20

**Power-Up Test**

1. Set the Battery Master Switch to the ON position.
2. Set the Avionics Master Switch to the ON position.
3. Set the A/P Master Switch to the ON position.
4. Verify that RDY, ST, HD, LO TRK, and HI TRK all annunciate on the A/P for 7 seconds, and then extinguish.
5. Verify that within 3 minutes RDY alone becomes annunciated on the A/P.
6. Verify that the Low Voltage Flag on the A/P is out of view.

**Stabilizer Channel Test**

7. Center the A/P TURN CMD knob under its index.
8. Engage the A/P ST mode.
9. Turn the A/P TURN CMD knob to the left.
10. Verify that the A/C control wheel turns to the left.
11. Center the A/P TURN CMD knob under its index.
12. Verify that the A/C control wheel stops.
13. Turn the A/P TURN CMD knob to the right.
14. Verify that the A/C control wheel turns to the right.
15. Center the A/P TURN CMD knob under its index.
16. Verify that the A/C control wheel stops.

*Note: If the A/P is not equipped with a Heading System, proceed to step 34.*

**Heading Channel Test**

17. Center the HDG bug under the lubber line.
18. Engage the A/P HDG mode.
19. Turn the HDG bug to the left.
20. Verify that the A/C control wheel turns to the left.
21. Center the HDG bug under the lubber line.
22. Verify that the A/C control wheel stops.
23. Turn the HDG bug to the right.

24. Verify that the A/C control wheel turns to the right.

25. Center the HDG bug under the lubber line.

26. Verify that the A/C control wheel stops.

**Navigation Channel Test with Heading System (DG or HSI) Installed**

27. Tune the Navigation Receiver to the local VOR frequency.

28. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% leftward deflection of the Left/Right needle from center.

29. Engage the A/P LO TRK or HI TRK mode.

30. Verify that the A/C control wheel turns to the left.

31. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% rightward deflection of the Left/Right needle from center.

32. Verify that the A/C control wheel turns to the right.

33. Adjust the OBS (DG) or Course Pointer (HSI) for a centered Left/Right needle to stop the A/C control wheel.

*Note: Proceed to step 41.*

**Navigation Channel Test with No Heading System Installed**

34. Tune the Navigation Receiver to the local VOR frequency.

35. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

36. Engage the A/P LO TRK or HI TRK mode.

37. Verify that the A/C control wheel turns to the left.

38. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.

39. Verify that the A/C control wheel turns to the right.

40. Adjust the OBS for a centered Left/Right needle to stop the A/C control wheel.

**A/P Disconnect Test**

41. Press and hold the A/P Push Mode Switch for 3 seconds, or press the optional Remote Disconnect Switch.

42. Verify that RDY flashes on the A/P and the audible alert sounds for 5 seconds, after which RDY alone remains annunciated and the audible alert ceases.

**END OF TEST**
### 3.2 Functional Ground Test for System 30

#### Power-Up Test

1. Set the Battery Master Switch to the ON position.
2. Set the Avionics Master Switch to the ON position.
3. Set the A/P Master Switch to the ON position.
4. Verify that RDY, ALT, ST, HD, LO TRK, HI TRK, TRIM UP, and TRIM DN all annunciate on the A/P.
5. Verify that the TRIM UP annunciation extinguishes after 2 seconds.
6. Verify that RDY, ST, HD, LO TRK, HI TRK, and TRIM DN annunciations all extinguish after 7 seconds.
7. Verify that the ALT annunciation extinguishes after 10 seconds.
8. Verify that within 3 minutes RDY alone becomes annunciated on the A/P.
9. Verify that the Low Voltage Flag on the A/P is out of view.

#### Stabilizer Channel Test

10. Center the A/P TURN CMD knob under its index.
11. Engage the A/P ST mode.
12. Turn the A/P TURN CMD knob to the left.
13. Verify that the A/C control wheel turns to the left.
14. Center the A/P TURN CMD knob under its index.
15. Verify that the A/C control wheel stops.
16. Turn the A/P TURN CMD knob to the right.
17. Verify that the A/C control wheel turns to the right.
18. Center the A/P TURN CMD knob under its index.
19. Verify that the A/C control wheel stops.

**Note:** *If the A/P is not equipped with a Heading System, proceed to step 37.*

#### Heading Channel Test

20. Center the HDG bug under the lubber line.
21. Engage the A/P HDG mode.
22. Turn the HDG bug to the left.
23. Verify that the A/C control wheel turns to the left.
24. Center the HDG bug under the lubber line.

25. Verify that the A/C control wheel stops.

26. Turn the HDG bug to the right.

27. Verify that the A/C control wheel turns to the right.

28. Center the HDG bug under the lubber line.

29. Verify that the A/C control wheel stops.

**Navigation Channel Test with Heading System (DG or HSI) Installed**

30. Tune the Navigation Receiver to the local VOR frequency.

31. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% leftward deflection of the Left/Right needle from center.

32. Engage the A/P LO TRK or HI TRK mode.

33. Verify that the A/C control wheel turns to the left.

34. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% rightward deflection of the Left/Right needle from center.

35. Verify that the A/C control wheel turns to the right.

36. Adjust the OBS (DG) or Course Pointer (HSI) for a centered Left/Right needle to stop the A/C control wheel.

*Note: Proceed to step 44.*

**Navigation Channel Test with No Heading System Installed**

37. Tune the Navigation Receiver to the local VOR frequency.

38. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

39. Engage the A/P LO TRK or HI TRK mode.

40. Verify that the A/C control wheel turns to the left.

41. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.

42. Verify that the A/C control wheel turns to the right.

43. Adjust the OBS for a centered Left/Right needle to stop the A/C control wheel.

**Altitude Channel Test**

44. Apply fore and aft pressure to the A/C control wheel to sense its freedom of movement.

45. Engage the A/P ALT mode.
46. Apply fore and aft pressure to the A/C control wheel to verify its reduced freedom of movement.

**Trim Channel Test**

47. Apply maximum aft pressure to the A/C control wheel.

48. Verify that:
   a. After 3 seconds, TRIM DN becomes annunciated on the A/P and the audible alert sounds a steady tone.
   b. After 7 seconds, TRIM DN flashes and the audible alert becomes periodic.

49. Apply maximum fore pressure to the A/C control wheel.

50. Verify that:
   a. After 3 seconds, TRIM UP becomes annunciated on the A/P and the audible alert sounds a steady tone.
   b. After 7 seconds, TRIM UP flashes and the audible alert becomes periodic.

**A/P Disconnect Test**

51. Press and hold the A/P PUSH MODE Switch for 3 seconds, or press the optional Remote Disconnect Switch.

52. Verify that RDY flashes on the A/P and the audible alert sounds for 5 seconds, after which RDY alone remains annunciated and the audible alert ceases.

END OF TEST

### 3.3 Functional Ground Test for System 30 ALT

**Power-Up/Altitude Channel Tests**

1. Apply fore and aft pressure to the A/C control wheel to sense its freedom of movement.

2. Push the ALT HOLD ON/OFF Switch to the ON state.

3. Verify that ON, ALT, TRIM UP, and TRIM DN all annunciate on the ALT HOLD ON/OFF Switch.

4. Verify that the TRIM UP annunciation extinguishes after 2 seconds.

5. Verify that the TRIM DN annunciation extinguishes after 7 seconds.

6. Verify that the ALT annunciation extinguishes after 10 seconds.

7. Apply fore and aft pressure to the A/C control wheel to sense its reduced freedom of movement.

**Trim Channel Test**

8. Apply maximum aft pressure to the A/C control wheel.

9. Verify that:
a. After 3 seconds, TRIM DN becomes annunciated on the ALT HOLD ON/OFF Switch and the audible alert sounds a steady tone.

b. After 7 seconds, TRIM DN flashes and the audible alert becomes periodic.

10. Apply maximum fore pressure to the A/C control wheel.

11. Verify that:

   a. After 3 seconds, TRIM UP becomes annunciated on the ALT HOLD ON/OFF Switch and the audible alert sounds a steady tone.

   b. After 7 seconds, TRIM UP flashes and the audible alert becomes periodic.

**A/P Power-Down Test**

12. Push the ALT HOLD ON/OFF Switch to the OFF state.

13. Verify that all annunciations on the ALT HOLD ON/OFF Switch are extinguished.

END OF TEST

### 3.4 Functional Ground Test for System 40

**Power-Up Test**

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.

3. Set the A/P Master Switch to the TEST position.

4. Verify that the following are all annunciated on the A/P:

   STB HDG NAV

   APR REV

5. Verify that the RDY lamp is illuminated on the A/P.

6. Set the A/P Master Switch to the ON position.

7. Verify that all of the annunciations and the RDY lamp are extinguished.

8. Verify that within 3 minutes the RDY lamp becomes illuminated on the A/P.

9. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.

**Stabilizer Channel Test**

10. Center the A/P TURN CMD knob under its index.

11. Engage the A/P STB mode.

12. Turn the A/P TURN CMD knob to the left.
13. Verify that the A/C control wheel turns to the left.
14. Center the A/P TURN CMD knob under its index.
15. Verify that the A/C control wheel stops.
16. Turn the A/P TURN CMD knob to the right.
17. Verify that the A/C control wheel turns to the right.
18. Center the A/P TURN CMD knob under its index.
19. Verify that the A/C control wheel stops.

*Note: If the A/P is not equipped with a Heading System, proceed to step 41.*

**Heading Channel Test**

20. Center the HDG bug under the lubber line.
21. Engage the A/P HDG mode.
22. Turn the HDG bug to the left.
23. Verify that the A/C control wheel turns to the left.
24. Center the HDG bug under the lubber line.
25. Verify that the A/C control wheel stops.
26. Turn the HDG bug to the right.
27. Verify that the A/C control wheel turns to the right.
28. Center the HDG bug under the lubber line.
29. Verify that the A/C control wheel stops.

**Navigation Channel Test with Heading System (DG or HSI) Installed**

30. Tune the Navigation Receiver to the local VOR frequency.
31. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% leftward deflection of the Left/Right needle from center.
32. Engage the A/P NAV mode.
33. Verify that the A/C control wheel turns to the left.
34. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% rightward deflection of the Left/Right needle from center.
35. Verify that the A/C control wheel turns to the right.
36. Engage the A/P REV mode.
37. Verify that the A/C control wheel turns to the left.

38. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% leftward deflection of the Left/Right needle from center.

39. Verify that the A/C control wheel turns to the right.

40. Adjust the OBS (DG) or Course Pointer (HSI) for a centered Left/Right needle to stop the A/C control wheel.

*Note: Proceed to step 52.*

**Navigation Channel Test with No Heading System Installed**

41. Tune the Navigation Receiver to the local VOR frequency.

42. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

43. Engage the A/P NAV mode.

44. Verify that the A/C control wheel turns to the left.

45. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.

46. Verify that the A/C control wheel turns to the right.

47. Engage the A/P REV mode.

48. Verify that the A/C control wheel turns to the left.

49. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

50. Verify that the A/C control wheel turns to the right.

51. Adjust the OBS for a centered Left/Right needle to stop the A/C control wheel.

**A/P Disconnect Test**

52. Press the A/P ON/OFF Mode Switch, or the optional Remote Disconnect Switch.

53. Verify that:
   a. All of the annunciations are extinguished.
   b. The RDY lamp is illuminated.

**END OF TEST**

### 3.5 Functional Ground Test for System 50

#### Power-Up Test

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.
3. Set the A/P Master Switch to the TEST position.

4. Verify that the TRIM UP and TRIM DN lamps are illuminated on the A/P.

5. Verify that the TRIM UP lamp extinguishes after 2 seconds, and the re-appears after 4 seconds.

6. Verify that the TRIM DN lamp extinguishes after 7 seconds.

7. Verify that the following are all annunciated on the A/P:
   
   STB   HDG   NAV
   
   APR   ALT   REV

8. Verify that the RDY lamp is illuminated on the A/P.

9. Set the A/P Master Switch to the ON position.

10. Verify that all of the annihilations and lamps are extinguished.

11. Verify that within 3 minutes the RDY lamp becomes illuminated on the A/P.

12. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.

Stabilizer Channel Test

13. Center the A/P TURN CMD knob under its index.

14. Engage the A/P STB mode.

15. Turn the A/P TURN CMD knob to the left.

16. Verify that the A/C control wheel turns to the left.

17. Center the A/P TURN CMD knob under its index.

18. Verify that the A/C control wheel stops.

19. Turn the A/P TURN CMD knob to the right.

20. Verify that the A/C control wheel turns to the right.

21. Center the A/P TURN CMD knob under its index.

22. Verify that the A/C control wheel stops.

Note: If the A/P is not equipped with a Heading System, proceed to step 44.

Heading Channel Test

23. Center the HDG bug under the lubber line.

24. Engage the A/P HDG mode.

25. Turn the HDG bug to the left.
26. Verify that the A/C control wheel turns to the left.

27. Center the HDG bug under the lubber line.

28. Verify that the A/C control wheel stops.

29. Turn the HDG bug to the right.

30. Verify that the A/C control wheel turns to the right.

31. Center the HDG bug under the lubber line.

32. Verify that the A/C control wheel stops.

**Navigation Channel Test with Heading System (DG or HSI) Installed**

33. Tune the Navigation Receiver to the local VOR frequency.

34. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% leftward deflection of the Left/Right needle from center.

35. Engage the A/P NAV mode.

36. Verify that the A/C control wheel turns to the left.

37. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% rightward deflection of the Left/Right needle from center.

38. Verify that the A/C control wheel turns to the right.

39. Engage the A/P REV mode.

40. Verify that the A/C control wheel turns to the left.

41. Adjust the OBS (DG) or Course Pointer (HSI) for a 100% leftward deflection of the Left/Right needle from center.

42. Verify that the A/C control wheel turns to the right.

43. Adjust the OBS (DG) or Course Pointer (HSI) for a centered Left/Right needle to stop the A/C control wheel.

**Note: Proceed to step 55.**

**Navigation Channel Test with No Heading System Installed**

44. Tune the Navigation Receiver to the local VOR frequency.

45. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

46. Engage the A/P NAV mode.

47. Verify that the A/C control wheel turns to the left.

48. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.
49. Verify that the A/C control wheel turns to the right.

50. Engage the A/P REV mode.

51. Verify that the A/C control wheel turns to the left.

52. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

53. Verify that the A/C control wheel turns to the right.

54. Adjust the OBS for a centered Left/Right needle to stop the A/C control wheel.

**Altitude Channel Test**

55. Apply maximum fore and aft pressure to the A/C control wheel to sense its freedom of movement.

56. Engage the A/P ALT mode.

57. Apply fore and aft pressure to the A/C control wheel to verify its reduced freedom of movement.

**Trim Channel Test**

58. Apply maximum aft pressure to the A/C control wheel.

59. Verify that:
   
   a. After 3 seconds, the TRIM DN lamp becomes illuminated on the A/P.  
   b. After 7 seconds, the TRIM DN lamp flashes.

60. Apply fore pressure to the A/C control wheel.

61. Verify that:
   
   a. After 3 seconds, the TRIM UP lamp becomes illuminated on the A/P.  
   b. After 7 seconds, the TRIM UP lamp flashes.

**A/P Disconnect Test**

62. Press the A/P ON/OFF Mode Switch, or the optional Remote Disconnect Switch.

63. Verify that:
   
   a. All of the annunciations are extinguished.  
   b. The TRIM UP and TRIM DN lamps are extinguished.  
   c. The RDY lamp is illuminated.

**END OF TEST**
3.6 **Functional Ground Test for System 55**

**Power-Up Test**

1. Set the Battery Master Switch to the ON position.
2. Set the Avionics Master Switch to the ON position.
3. Set the A/P Master Switch to the ON position.
4. Verify that the following all annunciate on the A/P for 10 seconds, and then extinguish:
   
   HDG  RDY  NAV  CWS  APR  FAIL  REV  TRIM  △  ALT  GS  VS  +18

5. Verify that within 3 minutes RDY alone becomes annunciated on the A/P.
6. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.

**Heading Channel Test**

7. Center the HDG bug under the lubber line.
8. Engage the A/P HDG mode.
9. Turn the HDG bug to the left.
10. Verify that the A/C control wheel turns to the left.
11. Center the HDG bug under the lubber line.
12. Verify that the A/C control wheel stops.
13. Turn the HDG bug to the right.
14. Verify that the A/C control wheel turns to the right.
15. Center the HDG bug under the lubber line.
16. Verify that the A/C control wheel stops.

**Navigation Channel Test**

*Note: If the heading system is an HSI, this test cannot be performed. In that case, proceed to step 33.*

17. Tune the Navigation Receiver to the local VOR frequency.
18. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.
19. Engage the A/P NAV mode.
20. Verify that the A/C control wheel turns to the left.
21. Engage the A/P HDG mode to stop the A/C control wheel.
22. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.

23. Engage the A/P NAV mode.

24. Verify that the A/C control wheel turns to the right.

25. Engage the A/P REV mode.

26. Verify that the A/C control wheel turns to the left.

27. Engage the A/P HDG mode to stop the A/C control wheel.

28. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

29. Engage the A/P REV mode.

30. Verify that the A/C control wheel turns to the right.

31. Engage the A/P HDG mode to stop the A/C control wheel.

32. Adjust the OBS for a centered Left/Right needle.

Altitude Channel Test

33. Move the A/C control wheel until the elevator is in the neutral position.

34. Engage the A/P ALT mode.

35. Command a pitch up using the A/P ALT/VS modifier knob.

36. Verify that the A/C control wheel moves in the aft direction.

37. Engage the A/P VS mode to stop the A/C control wheel.

38. Engage the A/P ALT mode.

39. Command a pitch down using the A/P ALT/VS modifier knob.

40. Verify that the A/C control wheel moves in the fore direction.

41. Engage the A/P VS mode to stop the A/C control wheel.

Vertical Speed Channel Test

42. Command a pitch up using the A/P ALT/VS modifier knob.

43. Verify that the A/C control wheel moves in the aft direction.

44. Engage the A/P ALT mode to stop the A/C control wheel.

45. Engage the A/P VS mode.

46. Command a pitch down using the A/P ALT/VS modifier knob.

47. Verify that the A/C control wheel moves in the fore direction.
48. Engage the A/P ALT mode to stop the A/C control wheel.

Trim Channel Test

*Note: If the A/P is equipped with autotrim, proceed to step 53.*

49. Apply maximum aft pressure to the A/C control wheel.

50. Verify that:

   a. After 3 seconds, TRIM \(\downarrow\) becomes annunciated on the A/P and the audible alert sounds.
   
   b. After 7 seconds, TRIM \(\downarrow\) flashes and the audible alert ceases.

51. Apply maximum fore pressure to the A/C control wheel.

52. Verify that:

   a. After 3 seconds, TRIM \(\uparrow\) becomes annunciated on the A/P and the audible alert sounds.
   
   b. After 7 seconds, TRIM \(\uparrow\) flashes and the audible alert ceases.

*Note: Proceed to step 77.*

53. Set the A/P Trim Master Switch to the ON position.

54. Apply maximum aft pressure to the A/C control wheel.

55. Verify that:

   a. After 3 seconds, the A/C trim wheel begins to run nose down with increasing speed, and TRIM \(\downarrow\) becomes annunciated on the A/P.
   
   b. After 7 seconds, TRIM \(\downarrow\) flashes.

56. Apply maximum fore pressure to the A/C control wheel.

57. Verify that:

   a. After 3 seconds, the A/C trim wheel begins to run nose up with increasing speed, and TRIM \(\uparrow\) becomes annunciated on the A/P.
   
   b. After 7 seconds, TRIM \(\uparrow\) flashes.

58. Apply aft pressure to the A/C control wheel until the A/C trim wheel stops.

59. Press either fore or aft on both segments of the A/P Manual Electric Trim Switch, and then release.

60. Verify that the A/P disconnects as follows:

   RDY flashes on the A/P and the audible alert sounds for 5 seconds, after which RDY alone remains annunciated.
61. Press aft and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

62. Verify that the A/C trim wheel runs nose up at full speed and TRIM flashes.

63. Press and hold the A/P Disconnect/Trim Interrupt Switch.

64. Verify that the A/C trim wheel stops.

65. Release the A/P Disconnect/Trim Interrupt Switch.

66. Verify that the A/C trim wheel resumes running nose up at full speed.


68. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

69. Press fore and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

70. Verify that the A/C trim wheel runs nose down at full speed and TRIM flashes.

71. Press and hold the A/P Disconnect/Trim Interrupt Switch.

72. Verify that the A/C trim wheel stops.

73. Release the A/P Disconnect/Trim Interrupt Switch.

74. Verify that the A/C trim wheel resumes running nose down at full speed.

75. Release the A/P Manual Electric Trim Switch.

76. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

END OF TEST

A/P Disconnect Test

77. Press the A/P Disconnect/Trim Interrupt Switch.

78. Verify that RDY flashes on the A/P and an audible alert sounds for 5 seconds, after which RDY alone remains annunciated and the audible alert ceases.

END OF TEST

3.7 Functional Ground Test for System 55X

Power-Up Test

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.

3. Set the A/P Master Switch to the ON position.
4. Verify that the following all annunciate on the A/P for 10 seconds, and then extinguish:

   HDG  RDY  NAV  CWS  APR  FAIL  GPSS  REV  TRIM  ALT  GS  VS  +16

5. Verify that within 3 minutes RDY alone becomes annunciated on the A/P.

6. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.

**Heading Channel Test**

7. Center the HDG bug under the lubber line.

8. Engage the A/P HDG mode.

9. Turn the HDG bug to the left.

10. Verify that the A/C control wheel turns to the left.

11. Center the HDG bug under the lubber line.

12. Verify that the A/C control wheel stops.

13. Turn the HDG bug to the right.

14. Verify that the A/C control wheel turns to the right.

15. Center the HDG bug under the lubber line.

16. Verify that the A/C control wheel stops.

**Navigation Channel Test**

*Note: If the heading system is an HSI, this test cannot be performed. In that case, proceed to step 33.*

17. Tune the Navigation Receiver to the local VOR frequency.

18. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

19. Engage the A/P NAV mode.

20. Verify that the A/C control wheel turns to the left.

21. Engage the A/P HDG mode to stop the A/C control wheel.

22. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.

23. Engage the A/P NAV mode.

24. Verify that the A/C control wheel turns to the right.

25. Engage the A/P REV mode.

26. Verify that the A/C control wheel turns to the left.
27. Engage the A/P HDG mode to stop the A/C control wheel.

28. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

29. Engage the A/P REV mode.

30. Verify that the A/C control wheel turns to the right.

31. Engage the A/P HDG mode to stop the A/C control wheel.

32. Adjust the OBS for a centered Left/Right needle.

**Altitude Channel Test**

33. Move the A/C control wheel until the elevator is in the neutral position.

34. Engage the A/P ALT mode.

35. Command a pitch up using the A/P ALT/VS modifier knob.

36. Verify that the A/C control wheel moves in the aft direction.

37. Engage the A/P VS mode to stop the A/C control wheel.

38. Engage the A/P ALT mode.

39. Command a pitch down using the A/P ALT/VS modifier knob.

40. Verify that the A/C control wheel moves in the fore direction.

41. Engage the A/P VS mode to stop the A/C control wheel.

**Vertical Speed Channel Test**

42. Command a pitch up using the A/P ALT/VS modifier knob.

43. Verify that the A/C control wheel moves in the aft direction.

44. Engage the A/P ALT mode to stop the A/C control wheel.

45. Engage the A/P VS mode.

46. Command a pitch down using the A/P ALT/VS modifier knob.

47. Verify that the A/C control wheel moves in the fore direction.

48. Engage the A/P ALT mode to stop the A/C control wheel.

**Trim Channel Test**

*Note: If the A/P is equipped with autotrim, proceed to step 53.*

49. Apply maximum aft pressure to the A/C control wheel.
50. Verify that:
   a. After 3 seconds, TRIM \(\downarrow\) becomes annunciated on the A/P and the audible alert sounds.
   b. After 7 seconds, TRIM \(\downarrow\) flashes and the audible alert ceases.

51. Apply maximum fore pressure to the A/C control wheel.

52. Verify that:
   a. After 3 seconds, TRIM \(\uparrow\) becomes annunciated on the A/P and the audible alert sounds.
   b. After 7 seconds, TRIM \(\uparrow\) flashes and the audible alert ceases.

*Note: Proceed to step 77.*

53. Set the A/P Trim Master Switch to the ON position.

54. Apply maximum aft pressure to the A/C control wheel.

55. Verify that:
   a. After 3 seconds, the A/C trim wheel begins to run nose down with increasing speed, and TRIM \(\downarrow\)
      becomes annunciated on the A/P.
   b. After 7 seconds, TRIM \(\downarrow\) flashes.

56. Apply maximum fore pressure to the A/C control wheel.

57. Verify that:
   a. After 3 seconds, the A/C trim wheel begins to run nose up with increasing speed, and TRIM \(\uparrow\)
      becomes annunciated on the A/P.
   b. After 7 seconds, TRIM \(\uparrow\) flashes.

58. Apply aft pressure to the A/C control wheel until the A/C trim wheel stops.

59. Press either fore or aft on both segments of the A/P Manual Electric Trim Switch, and then release.

60. Verify that the A/P disconnects as follows:
    RDY flashes on the A/P and the audible alert sounds for 5 seconds, after which RDY alone remains
    annunciated.

61. Press aft and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

62. Verify that the A/C trim wheel runs nose up at full speed and TRIM flashes.

63. Press and hold the A/P Disconnect/Trim Interrupt Switch.

64. Verify that the A/C trim wheel stops.
65. Release the A/P Disconnect/Trim Interrupt Switch.

66. Verify that the A/C trim wheel resumes running nose up at full speed.


68. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

69. Press fore and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

70. Verify that the A/C trim wheel runs nose down at full speed and TRIM flashes.

71. Press and hold the A/P Disconnect/Trim Interrupt Switch.

72. Verify that the A/C trim wheel stops.

73. Release the A/P Disconnect/Trim Interrupt Switch.

74. Verify that the A/C trim wheel resumes running nose down at full speed.

75. Release the A/P Manual Electric Trim Switch.

76. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

END OF TEST

A/P Disconnect Test

77. Press the A/P Disconnect/Trim Interrupt Switch.

78. Verify that RDY flashes on the A/P and an audible alert sounds for 5 seconds, after which RDY alone remains annunciated and the audible alert ceases.

END OF TEST

3.8 Functional Ground Test for System 550

Power-Up Test

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.

3. Set the A/P Master Switch to the ON position.

4. Verify that the following all annunciate on the A/P for 10 seconds, and then extinguish:

   HDG RDY NAV CWS APR FAIL GPSS REV TRIM  \(\uparrow\) ALT GS VS +30

5. Verify that within 3 minutes RDY alone becomes annunciated on the A/P.

6. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.
Heading Channel Test

7. Center the HDG bug under the lubber line.
8. Engage the A/P HDG mode.
9. Turn the HDG bug to the left.
10. Verify that the A/C control wheel turns to the left.
11. Center the HDG bug under the lubber line.
12. Verify that the A/C control wheel stops.
13. Turn the HDG bug to the right.
14. Verify that the A/C control wheel turns to the right.
15. Center the HDG bug under the lubber line.
16. Verify that the A/C control wheel stops.

Navigation Channel Test

*Note: If the heading system is an HSI, this test cannot be performed. In that case, proceed to step 33.*

17. Tune the Navigation Receiver to the local VOR frequency.
18. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.
19. Engage the A/P NAV mode.
20. Verify that the A/C control wheel turns to the left.
21. Engage the A/P HDG mode to stop the A/C control wheel.
22. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.
23. Engage the A/P NAV mode.
24. Verify that the A/C control wheel turns to the right.
25. Engage the A/P REV mode.
26. Verify that the A/C control wheel turns to the left.
27. Engage the A/P HDG mode to stop the A/C control wheel.
28. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.
29. Engage the A/P REV mode.
30. Verify that the A/C control wheel turns to the right.
31. Engage the A/P HDG mode to stop the A/C control wheel.
32. Adjust the OBS for a centered Left/Right needle.

**Altitude Channel Test**

33. Move the A/C control wheel until the elevator is in the neutral position.

34. Engage the A/P ALT mode.

35. Command a pitch up using the A/P ALT/VS modifier knob.

36. Verify that the A/C control wheel moves in the aft direction.

37. Engage the A/P VS mode to stop the A/C control wheel.

38. Engage the A/P ALT mode.

39. Command a pitch down using the A/P ALT/VS modifier knob.

40. Verify that the A/C control wheel moves in the fore direction.

41. Engage the A/P VS mode to stop the A/C control wheel.

**Vertical Speed Channel Test**

42. Command a pitch up using the A/P ALT/VS modifier knob.

43. Verify that the A/C control wheel moves in the aft direction.

44. Engage the A/P ALT mode to stop the A/C control wheel.

45. Engage the A/P VS mode.

46. Command a pitch down using the A/P ALT/VS modifier knob.

47. Verify that the A/C control wheel moves in the fore direction.

48. Engage the A/P ALT mode to stop the A/C control wheel.

**Trim Channel Test**

*Note: If the A/P is equipped with autotrim, proceed to step 53.*

49. Apply maximum aft pressure to the A/C control wheel.

50. Verify that:

   a. After 3 seconds, TRIM \(\downarrow\) becomes annunciated on the A/P and the audible alert sounds.

   b. After 7 seconds, TRIM \(\downarrow\) flashes and the audible alert ceases.

51. Apply maximum fore pressure to the A/C control wheel.
52. Verify that:
   a. After 3 seconds, TRIM \( \swarrow \) becomes annunciated on the A/P and the audible alert sounds.
   b. After 7 seconds, TRIM \( \swarrow \) flashes and the audible alert ceases.

   **Note:** Proceed to step 77.

53. Set the A/P Trim Master Switch to the ON position.

54. Apply maximum aft pressure to the A/C control wheel.

55. Verify that:
   a. After 3 seconds, the A/C trim wheel begins to run nose down with increasing speed, and TRIM \( \swarrow \)
      becomes annunciated on the A/P.
   b. After 7 seconds, TRIM \( \swarrow \) flashes.

56. Apply maximum fore pressure to the A/C control wheel.

57. Verify that:
   a. After 3 seconds, the A/C trim wheel begins to run nose up with increasing speed, and TRIM \( \swarrow \)
      becomes annunciated on the A/P.
   b. After 7 seconds, TRIM \( \swarrow \) flashes.

58. Apply aft pressure to the A/C control wheel until the A/C trim wheel stops.

59. Press either fore or aft on both segments of the A/P Manual Electric Trim Switch, and then release.

60. Verify that the A/P disconnects as follows:
   
   RDY flashes on the A/P and the audible alert sounds for 5 seconds, after which RDY alone remains
   annunciated.

61. Press aft and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

62. Verify that the A/C trim wheel runs nose up at full speed and TRIM flashes.

63. Press and hold the A/P Disconnect/Trim Interrupt Switch.

64. Verify that the A/C trim wheel stops.

65. Release the A/P Disconnect/Trim Interrupt Switch.

66. Verify that the A/C trim wheel resumes running nose up at full speed.


68. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.
69. Press fore and maintain pressure on both segments on the A/P Manual Electric Trim Switch.

70. Verify that the A/C trim wheel runs nose down at full speed and TRIM flashes.

71. Press and hold the A/P Disconnect/Trim Interrupt Switch.

72. Verify that the A/C trim wheel stops.

73. Release the A/P Disconnect/Trim Interrupt Switch.

74. Verify that the A/C trim wheel resumes running nose down at full speed.

75. Release the A/P Manual Electric Trim Switch.

76. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

END OF TEST

A/P Disconnect Test

77. Press the A/P Disconnect/Trim Interrupt Switch.

78. Verify that RDY flashes on the A/P and an audible alert sounds for 5 seconds, after which RDY alone remains annunciated and the audible alert ceases.

END OF TEST

3.9 Functional Ground Test for System 60-1

Power-Up Test

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.

3. Set the A/P Master Switch to the TEST position.

4. Verify that the following are all annunciated on the A/P:

   RDY       REV
   HDG       NAV       APR
   CAP
   FAIL       SOFT

5. Set the A/P Master Switch to the ON position.

6. Verify that all of the annunciations are extinguished.

7. Verify that within 3 minutes RDY alone becomes annunciated on the A/P.

8. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.
Heading Channel Test

9. Center the HDG bug under the lubber line.
10. Engage the A/P HDG mode.
11. Turn the HDG bug to the left.
12. Verify that the A/C control wheel turns to the left.
13. Center the HDG bug under the lubber line.
14. Verify that the A/C control wheel stops.
15. Turn the HDG bug to the right.
16. Verify that the A/C control wheel turns to the right.
17. Center the HDG bug under the lubber line.
18. Verify that the A/C control wheel stops.

Navigation Channel Test

Note: If the heading system is an HSI, this test cannot be performed. In that case, proceed to step 35.

19. Tune the Navigation Receiver to the local VOR frequency.
20. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.
21. Engage the A/P NAV mode.
22. Verify that the A/C control wheel turns to the left.
23. Engage the A/P HDG mode to stop the A/C control wheel.
24. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.
25. Engage the A/P NAV mode.
26. Verify that the A/C control wheel turns to the right.
27. Engage the A/P REV mode.
28. Verify that the A/C control wheel turns to the left.
29. Engage the A/P HDG mode to stop the A/C control wheel.
30. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.
31. Engage the A/P REV mode.
32. Verify that the A/C control wheel turns to the right.
33. Engage the A/P HDG mode to stop the A/C control wheel.
34. Adjust the OBS for a centered Left/Right needle.

**A/P Disconnect Test**

35. Press the A/P Disconnect Switch.

36. Verify that the A/P disconnects as follows:

   RDY flashes on the A/P for 5 seconds, and then it alone remains annunciated.

### 3.10 Functional Ground Test for System 60-2

**Manual Excessive G-Force Test**

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.

3. Set the A/P Master Switch to the TEST position.

4. Verify that the following are all annunciated on the A/P:

   - RDY
   - FD
   - REV

   - HDG
   - NAV
   - APR

   - VS
   - ALT
   - GS

   - SEL
   - CAP
   - DSABL

   - FAIL
   - SOFT
   - TRIM

5. Verify that the UP and DN Switches on the A/P are both illuminated.

6. Center the HDG bug under the lubber line.

7. Engage the A/P HDG mode.

8. Apply fore and aft pressure to the A/C control wheel to sense its freedom of movement.

9. Engage the A/P ALT mode.

10. Apply fore and aft pressure to the A/C control wheel to verify its reduced freedom of movement.

11. Press and hold the A/P UP Switch while maintaining a grasp on the A/C control wheel.

12. Verify that the pitch servo disengages after 1/2 second, by sensing the increased freedom of A/C control wheel movement in the fore and aft directions.

13. Release the A/P UP Switch.

14. Verify that the pitch servo immediately re-engages, by sensing the reduced freedom of A/C control wheel movement in the fore and aft directions.

15. Press and hold the A/P DN Switch while maintaining a grasp on the A/C control wheel.
16. Verify that the pitch servo disengages after 1/2 second, by sensing the increased freedom of A/C control wheel movement in the fore and aft directions.

17. Release the A/P DN Switch.

18. Verify that the pitch servo immediately re-engages, by sensing the reduced freedom of A/C control wheel movement in the fore and aft directions.

**Power-Up Test**

19. Set the A/P Master Switch to the ON position.

20. Verify that all of the annunciations and illuminations are extinguished.

21. Verify that within 3 minutes RDY alone becomes annunciated on the A/P.

22. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.

**Heading Channel Test**

23. Engage the A/P HDG mode.

24. Turn the HDG bug to the left.

25. Verify that the A/C control wheel turns to the left.

26. Center the HDG bug under the lubber line.

27. Verify that the A/C control wheel stops.

28. Turn the HDG bug to the right.

29. Verify that the A/C control wheel turns to the right.

30. Center the HDG bug under the lubber line.

31. Verify that the A/C control wheel stops.

**Navigation Channel Test**

*Note: If the heading system is an HSI, this test cannot be performed. In that case, proceed to step 48.*

32. Tune the Navigation Receiver to the local VOR frequency.

33. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

34. Engage the A/P NAV mode.

35. Verify that the A/C control wheel turns to the left.

36. Engage the A/P HDG mode to stop the A/C control wheel.

37. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.

38. Engage the A/P NAV mode.
39. Verify that the A/C control wheel turns to the right.

40. Engage the A/P REV mode.

41. Verify that the A/C control wheel turns to the left.

42. Engage the A/P HDG mode to stop the A/C control wheel.

43. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

44. Engage the A/P REV mode.

45. Verify that the A/C control wheel turns to the right.

46. Engage the A/P HDG mode to stop the A/C control wheel.

47. Adjust the OBS for a centered Left/Right needle.

Altitude Channel Test

48. Move the A/C control wheel until the elevator is in the neutral position.

49. Engage the A/P ALT mode.

50. Press and hold the A/P UP Switch.

51. Verify that the A/C control wheel moves in the aft direction.

52. Release the A/P UP Switch.

53. Press and hold the A/P DN Switch.

54. Verify that the A/C control wheel moves in the fore direction.

*Note: There will be a slight delay in this movement as the A/C control wheel decelerates aft to the null.*

55. Release the A/P DN Switch.

56. Engage the A/P VS mode to stop the A/C control wheel.

Vertical Speed Channel Test

57. Press and hold the A/P UP Switch.

58. Verify that the A/C control wheel moves in the aft direction.

59. Release the A/P UP Switch.

60. Press and hold the A/P DN Switch.

61. Verify that the A/C control wheel moves in the fore direction.

*Note: There will be a slight delay in this movement as the A/C control wheel decelerates aft to the null.*

62. Release the A/P DN Switch.
63. Engage the A/P ALT mode to stop the A/C control wheel.

**Trim Channel Test**

*Note: If the A/P is equipped with autotrim, proceed to step 68.*

64. Apply maximum aft pressure to the A/C control wheel.

65. Verify that:
   a. After 3 seconds the A/P DN Switch illuminates, TRIM annunciates, and the audible alert sounds a steady tone.
   b. After 7 seconds the A/P DN Switch flashes, TRIM flashes, and the audible alert becomes periodic.

66. Apply maximum fore pressure to the A/C control wheel.

67. Verify that:
   a. After 3 seconds the A/P UP Switch illuminates, TRIM annunciates, and the audible alert sounds a steady tone.
   b. After 7 seconds the A/P UP Switch flashes, TRIM flashes, and the audible alert becomes periodic.

*Note: Proceed to Step 92.*

68. Set the A/P Trim Master Switch to the ON position.

69. Apply maximum aft pressure to the A/C control wheel.

70. Verify that after 3 seconds the A/C trim wheel begins to run nose down with increasing speed.

71. Apply maximum fore pressure to the A/C control wheel.

72. Verify that after 3 seconds the A/C trim wheel begins to run nose up with increasing speed.

73. Apply aft pressure to the A/C control wheel until the A/C trim wheel stops.

74. Press either fore or aft on both segments of the A/P Manual Electric Trim Switch, and then release.

75. Verify that the A/P disconnects as follows:
   
   RDY flashes on the A/P for 5 seconds, and then it alone remains annunciated.

76. Press aft and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

77. Verify that the A/C trim wheel runs nose up at full speed and TRIM flashes.

78. Press and hold the A/P Disconnect/Trim Interrupt Switch.

79. Verify that the A/C trim wheel stops.

80. Release the A/P Disconnect/Trim Interrupt Switch.

81. Verify that the A/C trim wheel resumes running nose up at full speed.
82. Release the A/P Manual Electric Trim Switch.

83. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

84. Press fore and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

85. Verify that the A/C trim wheel runs nose down at full speed and TRIM flashes.

86. Press and hold the A/P Disconnect/Trim Interrupt Switch.

87. Verify that the A/C trim wheel stops.

88. Release the A/P Disconnect/Trim Interrupt Switch.

89. Verify that the A/C trim wheel resumes running nose down at full speed.

90. Release the A/P Manual Electric Trim Switch.

91. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

END OF TEST

A/P Disconnect Test

92. Press the A/P Disconnect/Trim Interrupt Switch.

93. Verify that the A/P disconnects as follows:

   RDY flashes on the A/P for 5 seconds, and then it alone remains annunciated.

END OF TEST

3.11 Functional Ground Test for System 65

Manual Excessive G-Force Test

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.

3. Apply fore and aft pressure to the A/C control wheel to sense its freedom of movement.

4. Press and hold the A/P UP Switch while maintaining a grasp on A/C control wheel.

5. Verify that the pitch servo engages by sensing the reduced freedom of A/C control wheel movement in the fore and aft directions.

6. Release the A/P UP Switch.

7. Verify that the pitch servo disengages by sensing the increased freedom of A/C control wheel movement in the fore and aft directions.

8. Press and hold the A/P DN Switch while maintaining a grasp on A/C control wheel.

9. Verify that the pitch servo engages by sensing the reduced freedom of A/C control wheel movement in the fore and aft directions.
10. Release the A/P DN Switch.

11. Verify that the pitch servo disengages by sensing the increased freedom of A/C control wheel movement in the fore and aft directions.

**Power-Up Test**

12. Verify that within 3 minutes RDY becomes annunciacted on the A/P Remote Annunciator.

13. Verify that the Low Voltage Flag on the Turn Coordinator is out of view.

14. Press the FD/AP Switch on the A/P Control Head to turn ON the A/P.

**Heading Channel Test**

15. Center the HDG bug under the lubber line.

16. Engage the A/P HDG mode.

17. Turn the HDG bug to the left.

18. Verify that the A/C control wheel turns to the left.

19. Center the HDG bug under the lubber line.

20. Verify that the A/C control wheel stops.

21. Turn the HDG bug to the right.

22. Verify that the A/C control wheel turns to the right.

23. Center the HDG bug under the lubber line.

24. Verify that the A/C control wheel stops.

**Navigation Channel Test**

*Note: If the heading system is an HSI, this test cannot be performed. In that case, proceed to step 41.*

25. Tune the Navigation Receiver to the local VOR frequency.

26. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.

27. Engage the A/P NAV mode.

28. Verify that the A/C control wheel turns to the left.

29. Engage the A/P HDG mode to stop the A/C control wheel.

30. Adjust the OBS for a 100% rightward deflection of the Left/Right needle from center.

31. Engage the A/P NAV mode.

32. Verify that the A/C control wheel turns to the right.
33. Engage the A/P REV mode.
34. Verify that the A/C control wheel turns to the left.
35. Engage the A/P HDG mode to stop the A/C control wheel.
36. Adjust the OBS for a 100% leftward deflection of the Left/Right needle from center.
37. Engage the A/P REV mode.
38. Verify that the A/C control wheel turns to the right.
39. Engage the A/P HDG mode to stop the A/C control wheel.
40. Adjust the OBS for a centered Left/Right needle.

**Altitude Channel Test**

41. Move the A/C control wheel until the elevator is in the neutral position.
42. Engage the A/P ALT mode.
43. Press and hold the A/P UP Switch.
44. Verify that the A/C control wheel moves in the aft direction.
45. Release the A/P UP Switch.
46. Press and hold the A/P DN Switch.
47. Verify that the A/C control wheel moves in the fore direction.

*Note: There will be a slight delay in this movement as the A/C control wheel decelerates aft to the null.*
48. Release the A/P DN Switch.
49. Engage the A/P VS mode to stop the A/C control wheel.

**Vertical Speed Channel Test**

50. Press and hold the A/P UP Switch.
51. Verify that the A/C control wheel moves in the aft direction.
52. Release the A/P UP Switch.
53. Press and hold the A/P DN Switch.
54. Verify that the A/C control wheel moves in the fore direction.

*Note: There will be a slight delay in this movement as the A/C control wheel decelerates aft to the null.*
55. Release the A/P DN Switch.
56. Engage the A/P ALT mode to stop the A/C control wheel.
Trim Channel Test

Note: If the A/P is equipped with autotrim, proceed to step 61.

57. Apply maximum aft pressure to the A/C control wheel.

58. Verify that:
   a. After 3 seconds both TRIM and DN annunciate on the A/P Control Head, and the audible alert sounds a steady tone.
   b. After 7 seconds both TRIM and DN flash, and the audible alert becomes periodic.

59. Apply maximum fore pressure to the A/C control wheel.

60. Verify that:
   a. After 3 seconds both TRIM and UP annunciate on the A/P Control Head, and the audible alert sounds a steady tone.
   b. After 7 seconds both TRIM and UP flash, and the audible alert becomes periodic.

Note: Proceed to step 85.

61. Set the A/P Trim Master Switch to the ON position.

62. Apply maximum aft pressure to the A/C control wheel.

63. Verify that after 3 seconds the A/C trim wheel begins to run nose down with increasing speed.

64. Apply maximum fore pressure to the A/C control wheel.

65. Verify that after 3 seconds the A/C trim wheel begins to run nose up with increasing speed.

66. Apply aft pressure to the A/C control wheel until the A/C trim wheel stops.

67. Press either fore or aft on both segments of the A/P Manual Electric Trim Switch, and then release.

68. Verify that the A/P disconnects as follows:
   a. RDY flashes on the A/P Remote Annunciator for 5 seconds, and then it alone remains annunciated.
   b. ON alone remains annunciated on the A/P Control Head.

69. Press aft and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

70. Verify that the A/C trim wheel runs nose up at full speed and TRIM flashes on the A/P Control Head.

71. Press and hold the A/P Disconnect/Trim Interrupt Switch.

72. Verify that the A/C trim wheel stops.

73. Release the A/P Disconnect/Trim Interrupt Switch.

74. Verify that the A/C trim wheel resumes running nose up at full speed.
75. Release the A/P Manual Electric Trim Switch.

76. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

77. Press fore and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

78. Verify that the A/C trim wheel runs nose down at full speed and TRIM flashes on the A/P Control Head.

79. Press and hold the A/P Disconnect/Trim Interrupt Switch.

80. Verify that the A/C trim wheel stops.

81. Release the A/P Disconnect/Trim Interrupt Switch.

82. Verify that the A/C trim wheel resumes running nose down at full speed.


84. Verify that the A/C trim wheel stops and the TRIM annunciation is extinguished.

END OF TEST

A/P Disconnect Test

85. Press the A/P Disconnect/Trim Interrupt Switch.

86. Verify that the A/P disconnects as follows:
   a. RDY flashes on the A/P Remote Annunciator for 5 seconds, and then it alone remains annunciated.
   b. ON alone remains annunciated on the A/P Control Head.

END OF TEST

3.12 Functional Ground Test for System 60 PSS

Manual Excessive G-Force Test

1. Set the Battery Master Switch to the ON position.

2. Set the Avionics Master Switch to the ON position.

3. Set the A/P Master Switch to the TEST position.

4. Verify that the following are all annunciated on the A/P:
   VS    ALT    GS    TRIM

5. Verify that the UP and DN Switches on the A/P are both illuminated.

6. Apply fore and aft pressure to the A/C control wheel to sense its freedom of movement.

7. Engage the A/P ALT mode.

8. Apply fore and aft pressure to the A/C control wheel to verify its reduced freedom of movement.
9. Press and hold the A/P UP Switch while maintaining a grasp on the A/C control wheel.

10. Verify that the pitch servo disengages after 1/2 second, by sensing the increased freedom of A/C control wheel movement in the fore and aft directions.

11. Release the A/P UP Switch.

12. Verify that the pitch servo immediately re-engages, by sensing the reduced freedom of A/C control wheel movement in the fore and aft directions.

13. Press and hold the A/P DN Switch while maintaining a grasp on the A/C control wheel.

14. Verify that the pitch servo disengages after 1/2 second, by sensing the increased freedom of A/C control wheel movement in the fore and aft directions.

15. Release the A/P DN Switch.

16. Verify that the pitch servo immediately re-engages, by sensing the reduced freedom of A/C control wheel movement in the fore and aft directions.

**Power-Up Test**

17. Set the A/P Master Switch to the ON position.

18. Verify that all of the annunciations and illuminations are extinguished.

**Altitude Channel Test**

19. Move the A/C control wheel until the elevator is in the neutral position.

20. Engage the A/P ALT mode.

21. Press and hold the A/P UP Switch.

22. Verify that the A/C control wheel moves in the aft direction.

23. Release the A/P UP Switch.

24. Press and hold the A/P DN Switch.

25. Verify that the A/C control wheel moves in the fore direction.

*Note: There will be a slight delay in this movement as the A/C control wheel decelerates aft to the null.*

26. Release the A/P DN Switch.

27. Engage the A/P VS mode to stop the A/C control wheel.

**Vertical Speed Channel Test**

28. Press and hold the A/P UP Switch.

29. Verify that the A/C control wheel moves in the aft direction.

30. Release the A/P UP Switch.
31. Press and hold the A/P DN Switch.

32. Verify that the A/C control wheel moves in the fore direction.

*Note: There will be a slight delay in this movement as the A/C control wheel decelerates aft to the null.*

33. Release the A/P DN Switch.

34. Engage the A/P ALT mode to stop the A/C control wheel.

Trim Channel Test

*Note: If the A/P is equipped with autotrim, proceed to step 39.*

35. Apply maximum aft pressure to the A/C control wheel.

36. Verify that:
   a. After 3 seconds the A/P DN Switch illuminates, TRIM annunciates, and the audible alert sounds a steady tone.
   b. After 7 seconds the A/P DN Switch flashes, TRIM flashes, and the audible alert becomes periodic.

37. Apply maximum fore pressure to the A/C control wheel.

38. Verify that:
   a. After 3 seconds the A/P UP Switch illuminates, TRIM annunciates, and the audible alert sounds a steady tone.
   b. After 7 seconds the A/P UP Switch flashes, TRIM flashes, and the audible alert becomes periodic.

*Note: Proceed to Step 63.*

39. Set the A/P Trim Master Switch to the ON position.

40. Apply maximum aft pressure to the A/C control wheel.

41. Verify that after 3 seconds the A/C trim wheel begins to run nose down with increasing speed.

42. Apply maximum fore pressure to the A/C control wheel.

43. Verify that after 3 seconds the A/C trim wheel begins to run nose up with increasing speed.

44. Apply aft pressure to the A/C control wheel until the A/C trim wheel stops.

45. Press either fore or aft on both segments of the A/P Manual Electric Trim Switch, and then release.

46. Verify that the A/P disconnects as follows:
   All annunciations are extinguished.

47. Press aft and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

48. Verify that the A/C trim wheel runs nose up at full speed.
49. Press and hold the Pitch Disconnect/Trim Interrupt Switch.

50. Verify that the A/C trim wheel stops.

51. Release the Pitch Disconnect/Trim Interrupt Switch.

52. Verify that the A/C trim wheel resumes running nose up at full speed.


54. Verify that the A/C trim wheel stops.

55. Press fore and maintain pressure on both segments of the A/P Manual Electric Trim Switch.

56. Verify that the A/C trim wheel runs nose down at full speed.

57. Press and hold the Pitch Disconnect/Trim Interrupt Switch.

58. Verify that the A/C trim wheel stops.

59. Release the Pitch Disconnect/Trim Interrupt Switch.

60. Verify that the A/C trim wheel resumes running nose down at full speed.


62. Verify that the A/C trim wheel stops.

END OF TEST

A/P Disconnect Test

63. Press the A/P OFF Switch.

64. Verify that all annunciations are extinguished.

END OF TEST
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SIMULATOR OPERATION
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4.1 Operating Procedure for Heading System Simulator (P/N 95101-2)

This procedure applies to the following Heading Systems:

<table>
<thead>
<tr>
<th>MFG</th>
<th>TYPE</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-TEC</td>
<td>DG</td>
<td>6406</td>
</tr>
<tr>
<td>S-TEC</td>
<td>HSI</td>
<td>6443</td>
</tr>
<tr>
<td>EDO AIRE</td>
<td>DG</td>
<td>52D54</td>
</tr>
</tbody>
</table>

1. Set the A/P Master Switch to the OFF position.

2. Set the Avionics Master Switch to the OFF position.

3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Heading System.

   Note: For the 6443 HSI, only the topmost DB-25 connector needs to be disconnected.

5. Identify which one of the following Extender Cables is to be used:

   P/N 39307 (for use with 6406/52D54)
   P/N 39308 (for use with 6443)

6. Plug the proper end of the Extender Cable into the A/P cable harness, in place of the actual Heading System.

7. Plug the other end of the Extender Cable into the proper Heading System Simulator connector (6406, 6443, or 52D54).

8. Connect the black lead Pin Plug from the Heading System Simulator to Airframe Ground.

   Note: This Pin Plug may be inserted into an Airframe Ground Pin Jack on S-TEC Breakout Box P/N 9524, if used. Otherwise, rely on the Pin Jack Alligator Clip supplied.

9. Set the Heading Error Selector Switch on the Heading System Simulator to 0°.

10. Turn the A/C control wheel until the ailerons are in the neutral position.

11. Center the HDG bug under the lubber line.

12. Set the Battery Master Switch to the ON position.

13. Set the Avionics Master Switch to the ON position.

14. Set the A/P Master Switch to the ON position.

15. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.

16. Engage the A/P HDG mode.

17. Adjust the A/P roll centering as required to null any lateral A/C control wheel movement.

18. Turn the A/C control wheel until the ailerons are in the neutral position.

19. Set the Heading Error Selector Switch on the Heading System Simulator to the 10° RT TO HDG position.
20. Verify that the A/C control wheel turns to the right.

21. Set the Heading Error Selector Switch on the Heading System Simulator back to the 0° position.

22. Verify that the A/C control wheel stops.

23. Set the Heading Error Selector Switch on the Heading System Simulator to the 10° LT TO HDG position.

24. Verify that the A/C control wheel turns to the left.

25. Set the Heading Error Selector Switch on the Heading System Simulator back to the 0° position.

26. Verify that the A/C control wheel stops.

*Note: 45° may be selected instead of 10° in steps 19 and 23.*

### 4.2 Operating Procedure for Servo Simulator (P/N 95101-3)

#### 4.2.1 Roll Servo

##### 4.2.1.1 Heading System Installed

1. Set the A/P Master Switch to the OFF position.
2. Set the Avionics Master Switch to the OFF position.
3. Set the Battery Master Switch to the OFF position.
4. Disconnect the A/P cable harness from the Roll Servo.
5. Plug the proper end of Extender Cable P/N 39309 into the A/P cable harness, in place of the actual Roll Servo.
6. Plug the other end of the Extender Cable into the Servo Simulator connector.
7. Center the HDG bug under the lubber line.
8. Set the Battery Master Switch to the ON position.
9. Set the Avionics Master Switch to the ON position.
10. Set the A/P Master Switch to the ON position.
11. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.
12. Engage the A/P HDG mode.
13. Verify that the voltage at the Servo Simulator SOL jack relative to the SOL GND jack is approximately:
   - 12 VDC (A+ = 14VDC)
   - 24 VDC (A+ = 28 VDC)
14. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately 0 VDC.
15. Turn the HDG bug to the right.
16. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is positive.

17. Center the HDG bug under the lubber line.

18. Turn the HDG bug to the left.

19. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is negative.

4.2.1.2 No Heading System Installed and A/P with STB Mode

1. Set the A/P Master Switch to the OFF position.

2. Set the Avionics Master Switch to the OFF position.

3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Roll Servo.

5. Plug the proper end of Extender Cable P/N 39309 into the A/P cable harness, in place of the actual Roll Servo.

6. Plug the other end of the Extender Cable into the Servo Simulator connector.

7. Center the A/P TURN CMD knob under its index.

8. Set the Battery Master Switch to the ON position.

9. Set the Avionics Master Switch to the ON position.

10. Set the A/P Master Switch to the ON position.

11. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.

12. Engage the A/P STB mode.

13. Verify that the voltage at the Servo Simulator SOL jack relative to the SOL GND jack is approximately:

   12 VDC (A+ = 14VDC)
   24 VDC (A+ = 28 VDC)

14. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately 0 VDC.

15. Turn the A/P TURN CMD knob to the right.

16. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is positive.

17. Center the A/P TURN CMD knob under its index.

18. Turn the A/P TURN CMD knob to the left.

19. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is negative.
4.2.2 Pitch Servo

4.2.2.1 Heading System Installed

1. Set the A/P Master Switch to the OFF position.
2. Set the Avionics Master Switch to the OFF position.
3. Set the Battery Master Switch to the OFF position.
4. Disconnect the A/P cable harness from the Altitude Transducer.
5. Plug the proper end of Extender Cable P/N 39310 into the A/P cable harness, in place of the actual Altitude Transducer.
6. Plug the other end of the Extender Cable into the Altitude Transducer Simulator connector.
7. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.
8. Disconnect the A/P cable harness from the Pitch Servo.
9. Plug the proper end of Extender Cable P/N 39309 into the A/P cable harness, in place of the actual Pitch Servo.
10. Plug the other end of the Extender Cable into the Servo Simulator connector.
11. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.
12. Set the Battery Master Switch to the ON position.
13. Set the Avionics Master Switch to the ON position.
14. Set the A/P Master Switch to the ON position.
15. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.
16. Engage the A/P HDG mode.
17. Center the HDG bug under the lubber line to null lateral movement of the A/C control wheel.
18. Engage the A/P ALT mode.
19. Verify that the voltage at the Servo Simulator SOL jack relative to the SOL GND jack is approximately:
   12 VDC (A+ = 14VDC)
   24 VDC (A+ = 28 VDC)
20. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately 0 VDC.
21. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH UP position.
22. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is positive.
23. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH DN position.
24. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is negative.

25. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

26. Set the Trim Command Selector Switch on the Servo Simulator to the TRIM UP position.

27. Verify that after a 3 second delay, the A/P annunciates TRIM UP.

28. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

29. Verify that the TRIM UP annunciation is extinguished.

30. Set the Trim Command Selector Switch on the Servo Simulator to the TRIM DN position.

31. Verify that after a 3 second delay, the A/P annunciates TRIM DN.

32. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

33. Verify that the TRIM DN annunciation is extinguished.

4.2.2.2 No Heading System Installed and A/P with STB Mode

1. Set the A/P Master Switch to the OFF position.

2. Set the Avionics Master Switch to the OFF position.

3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Altitude Transducer.

5. Plug the proper end of Extender Cable P/N 39310 into the A/P cable harness, in place of the actual Altitude Transducer.

6. Plug the other end of the Extender Cable into the Altitude Transducer Simulator connector.

7. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

8. Disconnect the A/P cable harness from the Pitch Servo.

9. Plug the proper end of Extender Cable P/N 39309 into the A/P cable harness, in place of the actual Pitch Servo.

10. Plug the other end of the Extender Cable into the Servo Simulator connector.

11. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

12. Set the Battery Master Switch to the ON position.

13. Set the Avionics Master Switch to the ON position.

14. Set the A/P Master Switch to the ON position.

15. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.
16. Engage the A/P STB mode.

17. Center the A/P TURN CMD knob under its index to null lateral movement of the A/C control wheel.

18. Engage the A/P ALT mode.

19. Verify that the voltage at the Servo Simulator SOL jack relative to the SOL GND jack is approximately:

- 12 VDC (A+ = 14VDC)
- 24 VDC (A+ = 28 VDC)

20. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately 0 VDC.

21. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH UP position.

22. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is positive.

23. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH DN position.

24. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is negative.

25. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

26. Set the Trim Command Selector Switch on the Servo Simulator to the TRIM UP position.

27. Verify that after a 3 second delay, the A/P annunciates TRIM UP.

28. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

29. Verify that the TRIM UP annunciation is extinguished.

30. Set the Trim Command Selector Switch on the Servo Simulator to the TRIM DN position.

31. Verify that after a 3 second delay, the A/P annunciates TRIM DN.

32. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

33. Verify that the TRIM DN annunciation is extinguished.

### 4.2.2.3 Pitch Only A/P

1. Set the A/P Master Switch to the OFF position.

2. Set the Avionics Master Switch to the OFF position.

3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Altitude Transducer.

5. Plug the proper end of Extender Cable P/N 39310 into the A/P cable harness, in place of the actual Altitude Transducer.

6. Plug the other end of the Extender Cable into the Altitude Transducer Simulator connector.
7. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

8. Disconnect the A/P cable harness from the Pitch Servo.

9. Plug the proper end of Extender Cable P/N 39309 into the A/P cable harness, in place of the actual Pitch Servo.

10. Plug the other end of the Extender Cable into the Servo Simulator connector.

11. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

12. Set the Battery Master Switch to the ON position.

13. Set the Avionics Master Switch to the ON position.

14. Set the A/P Master Switch to the ON position.

15. Wait until the A/P has completed its power-up self-test.

16. Engage the A/P ALT mode.

17. Verify that the voltage at the Servo Simulator SOL jack relative to the SOL GND jack is approximately:
   - 12 VDC (A+ = 14VDC)
   - 24 VDC (A+ = 28 VDC)

18. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately 0 VDC.

19. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH UP position.

20. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is positive.

21. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH DN position.

22. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is negative.

23. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

24. Set the Trim Command Selector Switch on the Servo Simulator to the TRIM UP position.

25. Verify that after a 3 second delay, the A/P annunciates TRIM UP.

26. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

27. Verify that the TRIM UP annunciation is extinguished.

28. Set the Trim Command Selector Switch on the Servo Simulator to the TRIM DN position.

29. Verify that after a 3 second delay, the A/P annunciates TRIM DN.

30. Set the Trim Command Selector Switch on the Servo Simulator to the NEUTRAL position.

31. Verify that the TRIM DN annunciation is extinguished.
4.2.3 Trim Servo

1. Set the A/P Master Switch to the OFF position.
2. Set the Avionics Master Switch to the OFF position.
3. Set the Battery Master Switch to the OFF position.
4. Disconnect the A/P cable harness from the Trim Servo.
5. Plug the proper end of Extender Cable P/N 39309 into the A/P cable harness, in place of the actual Trim Servo.
6. Plug the other end of the Extender Cable into the Servo Simulator connector.
7. Set the Battery Master Switch to the ON position.
8. Set the Avionics Master Switch to the ON position.
9. Set the A/P Master Switch to the ON position.
10. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.
11. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately 0 VDC.
12. Press AFT and hold the Manual Electric Trim Switch to command TRIM UP.
13. Verify that the voltage at the Servo Simulator SOL jack relative to the SOL GND jack is approximately:
   - 12 VDC (A+ = 14VDC)
   - 24 VDC (A+ = 28 VDC)
14. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately:
   - 12 VDC (A+ = 14VDC)
   - 24 VDC (A+ = 28 VDC)
16. Press FORE and hold the Manual Electric Trim Switch to command TRIM DN.
17. Verify that the voltage at the Servo Simulator MOTOR 1 jack relative to the MOTOR 2 jack is approximately:
   - -12 VDC (A+ = 14VDC)
   - -24 VDC (A+ = 28 VDC)

4.3 Operating Procedure for Altitude Transducer Simulator (P/N 95101-4)

4.3.1 Heading System Installed

1. Set the A/P Master Switch to the OFF position.
2. Set the Avionics Master Switch to the OFF position.
3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Altitude Transducer.

5. Plug the proper end of Extender Cable P/N 39310 into the A/P cable harness, in place of the actual Altitude Transducer.

6. Plug the other end of the Extender Cable into the Altitude Transducer Simulator connector.

7. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

8. Set the Battery Master Switch to the ON position.

9. Set the Avionics Master Switch to the ON position.

10. Set the A/P Master Switch to the ON position.

11. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.

12. Engage the A/P HDG mode.

13. Center the HDG bug under the lubber line to null lateral movement of the A/C control wheel.

14. Engage the A/P ALT mode.

15. Move the A/C control wheel until the elevator is in the neutral position.

16. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH DN position.

17. Verify that the A/C control wheel moves in the FORE direction.

18. Set the Pitch Command Selector Switch on the Altitude Transducer back to the ENG A/P ALT MODE position.

19. Verify that the A/C control wheel stops.

20. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH UP position.

21. Verify that the A/C control wheel moves in the AFT direction.

22. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

23. Verify that the A/C control wheel stops.

4.3.2 No Heading System Installed and A/P with STB Mode

1. Set the A/P Master Switch to the OFF position.

2. Set the Avionics Master Switch to the OFF position.

3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Altitude Transducer.
5. Plug the proper end of Extender Cable P/N 39310 into the A/P cable harness, in place of the actual Altitude Transducer.

6. Plug the other end of the Extender Cable into the Altitude Transducer Simulator connector.

7. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

8. Set the Battery Master Switch to the ON position.

9. Set the Avionics Master Switch to the ON position.

10. Set the A/P Master Switch to the ON position.

11. Wait until RDY alone becomes annunciated on the A/P display, upon completion of the power-up self-test.

12. Engage the A/P STB mode.

13. Center the A/P TURN CMD knob under its index to null lateral movement of the A/C control wheel.

14. Engage the A/P ALT mode.

15. Move the A/C control wheel until the elevator is in the neutral position.

16. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH DN position.

17. Verify that the A/C control wheel moves in the FORE direction.

18. Set the Pitch Command Selector Switch on the Altitude Transducer to the ENG A/P ALT MODE position.

19. Verify that the A/C control wheel stops.

20. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH UP position.

21. Verify that the A/C control wheel moves in the AFT direction.

22. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

23. Verify that the A/C control wheel stops.

4.3.3 Pitch Only A/P

1. Set the A/P Master Switch to the OFF position.

2. Set the Avionics Master Switch to the OFF position.

3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Altitude Transducer.

5. Plug the proper end of Extender Cable P/N 39310 into the A/P cable harness, in place of the actual Altitude Transducer.

6. Plug the other end of the Extender Cable into the Altitude Transducer Simulator connector.
7. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

8. Set the Battery Master Switch to the ON position.

9. Set the Avionics Master Switch to the ON position.

10. Set the A/P Master Switch to the ON position.

11. Wait until the A/P has completed its power-up self-test.

12. Engage the A/P ALT mode.

13. Move the A/C control wheel until the elevator is in the neutral position.

14. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH DN position.

15. Verify that the A/C control wheel moves in the FORE direction.

16. Set the Pitch Command Selector Switch on the Altitude Transducer to the ENG A/P ALT MODE position.

17. Verify that the A/C control wheel stops.

18. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the PITCH UP position.

19. Verify that the A/C control wheel moves in the AFT direction.

20. Set the Pitch Command Selector Switch on the Altitude Transducer Simulator to the ENG A/P ALT MODE position.

21. Verify that the A/C control wheel stops.

4.4 Operating Procedure for Turn Coordinator Simulator (P/N 95101-5)

4.4.1 Heading System Installed

1. Set the A/P Master Switch to the OFF position.

2. Set the Avionics Master Switch to the OFF position.

3. Set the Battery Master Switch to the OFF position.

4. Disconnect the A/P cable harness from the Turn Coordinator.

5. Connect the proper end of Extender Cable P/N 39311 into the A/P cable harness, in place of the actual Turn Coordinator.

6. Connect the other end of the Extender Cable into the Turn Coordinator Simulator connector.

7. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the NOT RDY position.

8. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 0% position.

9. Turn the A/C control wheel until the ailerons are in the neutral position.
10. Center the HDG bug under the lubber line.

11. Set the Battery Master Switch to the ON position.

12. Set the Avionics Master Switch to the ON position.

13. Set the A/P Master Switch to the ON position.

14. Wait 30 seconds for the A/P to complete its power-up self-test.

15. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the RDY position.

16. Verify that RDY becomes annunciated on the A/P display.

17. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the NOT RDY position.

18. Verify that RDY becomes extinguished on the A/P display.

19. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the RDY position.

20. Engage the A/P HDG mode.

21. Adjust the HDG bug slightly as required to null any A/C control wheel creep.

22. Turn the A/C control wheel until the ailerons are in the neutral position.

23. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 50% RT position.

24. Verify that the A/C control wheel turns to the left.

25. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 0% position.

26. Verify that the A/C control wheel stops.

27. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 50% LT position.

28. Verify that the A/C control wheel turns to the right.

29. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 0° position.

30. Verify that the A/C control wheel stops.

**Notes:**

1. 75% or 90% may be selected instead of 50% in steps 23 and 27.

2. Turning the HDG bug sufficiently to the right will cause the A/C control wheel to stop in step 24.

3. Turning the HDG bug sufficiently to the left will cause the A/C control wheel to stop in step 28.

4. Setting the % Std Rate Turn Selector Switch to the VARY position enables custom turn rate selection using the Vary Adjust Pot. The scale is ± 1 VDC for a std rate turn (3°/sec), as measured at the TURN RATE jack relative to the TURN RATE REF jack. The voltage polarity is negative for a right turn, and positive for a left turn.
4.4.2 No Heading System Installed and A/P with STB Mode

1. Set the A/P Master Switch to the OFF position.
2. Set the Avionics Master Switch to the OFF position.
3. Set the Battery Master Switch to the OFF position.
4. Disconnect the A/P cable harness from the Turn Coordinator.
5. Connect the proper end of Extender Cable P/N 39311 into the A/P cable harness, in place of the actual Turn Coordinator.
6. Connect the other end of the Extender Cable into the Turn Coordinator Simulator connector.
7. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the NOT RDY position.
8. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 0% position.
9. Turn the A/C control wheel until the ailerons are in the neutral position.
10. Center the A/P TURN CMD knob under its index.
11. Set the Battery Master Switch to the ON position.
12. Set the Avionics Master Switch to the ON position.
13. Set the A/P Master Switch to the ON position.
14. Wait 30 seconds for the A/P to complete its power-up self-test.
15. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the RDY position.
16. Verify that RDY becomes annunciated on the A/P display.
17. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the NOT RDY position.
18. Verify that RDY becomes extinguished on the A/P display.
19. Set the Gyro Tach Selector Switch on the Turn Coordinator Simulator to the RDY position.
20. Engage the A/P STB mode.
21. Adjust the A/P TURN CMD knob slightly as required to null any A/C control wheel creep.
22. Turn the A/C control wheel until the ailerons are in the neutral position.
23. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 50% RT position.
24. Verify that the A/C control wheel turns to the left.
25. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 0% position.
26. Verify that the A/C control wheel stops.
27. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 50% LT position.

28. Verify that the A/C control wheel turns to the right.

29. Set the % Std Rate Turn Selector Switch on the Turn Coordinator Simulator to the 0° position.

30. Verify that the A/C control wheel stops.

Notes:

1. 75% or 90% may be selected instead of 50% in steps 23 and 27.

2. Turning the HDG bug sufficiently to the right will cause the A/C control wheel to stop in step 24.

3. Turning the HDG bug sufficiently to the left will cause the A/C control wheel to stop in step 28.

4. Setting the % Std Rate Turn Selector Switch to the VARY position enables custom turn rate selection using the Vary Adjust Pot. The scale is ± 1 VDC for a std rate turn (3°/sec), as measured at the TURN RATE jack relative to the TURN RATE REF jack. The voltage Polarity is negative for a right turn, and positive for a left turn.
SECTION 6
HEADING INTERCONNECT DRAWINGS
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NOTES:
1. SANDEL INDICATOR MUST BE CONFIGURED FOR KING KCS-55/55A HEADING SYSTEM.
SECTION 7
SYSTEM INTERCONNECT DRAWINGS
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1. FIELD FABRICATED WIRING TO BE 22 GA. MINIMUM (UNLESS OTHERWISE NOTED) AND MUST MEET OR EXCEED THE REQUIREMENTS OF MIL-W-22759/16. ALL WIRING TO BE ROUTED & SECURED IN ACCORDANCE WITH AOA3.13-1A, CHAPTER 11, SECTION 7.
2. REFER TO RADIO MANUFACTURER'S SERVICE AND/OR INSTALLATION INFORMATION FOR SPECIFIC INTERCONNECT INFORMATION.
3. REMOVE JUMPER ACROSS PINS 20 & 21 OF THE TURN COORDINATOR/ROLL COMPUTER CONNECTOR WHEN OPTIONAL, DIRECTIONAL GYRO OR A HEADING SYSTEM IS BEING INSTALLED.
4. WHEN A HEADING SYSTEM IS INSTALLED, REFER TO HEADING SYSTEM INTERCONNECT DETAILS (DMC NO. 10114) & HEADING SYSTEM MANUFACTURERS SERVICE AND/OR INSTALLATION INTERCONNECT INFORMATION. REFER TO DMC NO. 0570 FOR MODIFICATION REQUIREMENTS TO ROLL BOARD OF TURN COORDINATOR/ROLL COMPUTER.
5. THE A/P DISCONNECT IS AN OPTIONAL COMPONENT, IF THE A/P DISCONNECT IS NOT USED CAP OFF THE ENDS OF THE WIRES MARKED "A/P DISCONNECT" & TIE BACK INTO WIRING BUNDLE.
6. A REMOTELY MOUNTED ADBLE ALARM (PITCH ALERT: S-TEC P/N 8547) IS REQUIRED TO PROVIDE AN AUDIBLE "ELEVATOR OUT OF TRIM" INDICATION WHEN THE PITCH COMPUTER IS LOCATED OUTSIDE THE CABIN AREA.
7. ATTACH 5279 SOCKETS TO WIRE (WHERE APPLICABLE) USING DMC M22520/2-01 CRIMPING TOOL & DMC M22520/2-06 INSERT.
8. PIN 42 TO END ENABLES GPS TRACK GAIN SETTING. USE ONE SET OF CONTACTS ON THE EXTERNAL AP SELECT SWITCH FOR NAV/GPS. THIS CONNECTION IS REQUIRED WHEN INTERFACING TO GPS RECEIVER.

ADDITIONAL WIRING TO ADD PITCH SECTION

NOTES:
1. FIELD FABRICATED WIRING TO BE 22 GA. MINIMUM (UNLESS OTHERWISE NOTED) AND MUST MEET OR EXCEED THE REQUIREMENTS OF MIL-W-22759/16. ALL WIRING TO BE ROUTED & SECURED IN ACCORDANCE WITH AOA3.13-1A, CHAPTER 11, SECTION 7.
2. REFER TO RADIO MANUFACTURER'S SERVICE AND/OR INSTALLATION INFORMATION FOR SPECIFIC INTERCONNECT INFORMATION.
3. REMOVE JUMPER ACROSS PINS 20 & 21 OF THE TURN COORDINATOR/ROLL COMPUTER CONNECTOR WHEN OPTIONAL, DIRECTIONAL GYRO OR A HEADING SYSTEM IS BEING INSTALLED.
4. WHEN A HEADING SYSTEM IS INSTALLED, REFER TO HEADING SYSTEM INTERCONNECT DETAILS (DMC NO. 10114) & HEADING SYSTEM MANUFACTURERS SERVICE AND/OR INSTALLATION INTERCONNECT INFORMATION. REFER TO DMC NO. 0570 FOR MODIFICATION REQUIREMENTS TO ROLL BOARD OF TURN COORDINATOR/ROLL COMPUTER.
5. THE A/P DISCONNECT IS AN OPTIONAL COMPONENT, IF THE A/P DISCONNECT IS NOT USED CAP OFF THE ENDS OF THE WIRES MARKED "A/P DISCONNECT" & TIE BACK INTO WIRING BUNDLE.
6. A REMOTELY MOUNTED ADBLE ALARM (PITCH ALERT: S-TEC P/N 8547) IS REQUIRED TO PROVIDE AN AUDIBLE "ELEVATOR OUT OF TRIM" INDICATION WHEN THE PITCH COMPUTER IS LOCATED OUTSIDE THE CABIN AREA.
7. ATTACH 5279 SOCKETS TO WIRE (WHERE APPLICABLE) USING DMC M22520/2-01 CRIMPING TOOL & DMC M22520/2-06 INSERT.
8. PIN 42 TO END ENABLES GPS TRACK GAIN SETTING. USE ONE SET OF CONTACTS ON THE EXTERNAL AP SELECT SWITCH FOR NAV/GPS. THIS CONNECTION IS REQUIRED WHEN INTERFACING TO GPS RECEIVER.
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BACK OF 0.3905-( ) ALTITUDE HOLD SW

ALT HOLD C/B (5A) S-TEC P/N 4906
ALT HOLD PMU SW S-TEC P/N 3520

DATT Buss

PIEZO ALARM a
PIEZO ALARM b

ALT ENGR/DISENGAGE SW
S-TEC P/N 3532
SEE NOTE 2

NOTES:
1. FIELD FABRICATED WIRING TO BE 22 GA. MINIMUM (UNLESS OTHERWISE NOTED) & MUST MEET OR EXCEED THE REQUIREMENTS OF MIL-W-22759/16. ALL WIRING TO BE ROUTED & SECURED I/A/W A.C. 43-13-1A, CHAPTER 11, SECTION 7.
2. THE ALTITUDE ENGAGE/DISENGAGE SWITCH IS AN OPTIONAL COMPONENT. CONNECT TWO 22 GA WIRE TO Pins 8 & 9 OF THE ALTITUDE ENGR SWITCH & ROUTE TO CONTROL WHEEL CONNECT WIRES TO 3532 SWITCH.
3. WIRES 1 & 3 ARE JUMPED AS SHOWN. IF AN EXISTING ROLL AUTOPILOT IS INSTALLED IN THE AIRCRAFT, ROLL SOLENOID A1 MAY BE USED AS A PITCH MODE ENABLE BY PROVIDING A SWITCHED 12VDC TO PIN 3 OF THE PITCH COMPUTER. THIS WILL ENABLE THE ALTITUDE HOLD SYSTEM ONLY WHEN A CONTROL WHEEL IS MOVED TO A PITCH MODE. INSERT THE ROLL SOLENOID WIRE INTO PIN 3 IF THIS OPTION IS TO BE UTILIZED.
4. A REMOTELY MOUNTED AUDIBLE ALARM (PIEZO ALARM, S-TEC P/N 6547) IS REQUIRED TO PROVIDE AN AURAL ELEVATOR "OUT OF TRIM" INDICATION WHEN THE PITCH COMPUTER IS LOCATED OUTSIDE THE CABIN AREA.
5. ALL SOLDER CONNECTIONS OR SPLICES TO BE COVERED WITH HEAT SHRINK.

01261-( ) PITCH COMPUTER
39195-( ) CABLE ASSY.

ALT LED (WHT)
ALT SW (GRN)
YDVC (BLU)
PITCH A (RED)
ON LED (ORN)
UP LED (YEL)
SHIELD
ROLL SOL (RED)
(Blk)
HORN HI (WHT)
HORN LO (BLK/BLU)
SHIELD
A/C INST. DIMMER Rheostat (BLK)
PITCH SERVO

Solenoid (Red)
SOL ON (BLK)
Motor 1 (YEL)
Motor 2 (GRN)
UP SW (BLU)
ON SW (ORN)
SHIELD

LIST OF MATERIALS

DESCRIPTION

REV

DATE

APPROVED

M. KERRON

4-19-97

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M. KERRON

4-19-97

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M. KERRON

4-19-97

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MEGGITT AVIONICS/S-TEC FLIGHT LINE SERVICE MANUAL FOR RATE BASED AUTOPILOTS

1st Ed. May 11, 2001
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SYSTEM SPECIFICATIONS
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<th>Power Required</th>
<th>Weight</th>
<th>Dimensions</th>
<th>TSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmer/Computer, System 20/30</td>
<td>14/28 VDC</td>
<td>2.2 lb.</td>
<td>3.250 x 3.250 x 7.100 in.</td>
<td>C9c, C3d</td>
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<td>Programmer/Computer, System 40</td>
<td>14/28 VDC</td>
<td>2.1 lb.</td>
<td>3.340 x 3.340 x 8.200 in.</td>
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<td>Programmer/Computer, System 50</td>
<td>14/28 VDC</td>
<td>2.8 lb.</td>
<td>3.340 x 3.340 x 8.200 in.</td>
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<td>Programmer/Computer, System 55</td>
<td>14/28 VDC</td>
<td>2.7 lb.</td>
<td>6.350 x 1.500 x 9.460 in.</td>
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<td>Programmer/Computer, System 55X</td>
<td>14/28 VDC</td>
<td>2.7 lb.</td>
<td>6.350 x 1.500 x 9.460 in.</td>
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</tr>
<tr>
<td>Programmer/Computer, System 550</td>
<td>28 VDC</td>
<td>2.7 lb.</td>
<td>6.350 x 1.500 x 9.460 in.</td>
<td>C9c, C52a</td>
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<td>Programmer, System 60-1</td>
<td>14/28 VDC</td>
<td>1.8 lb.</td>
<td>3.343 x 3.343 x 5.200 in.</td>
<td>C9c, C52a</td>
</tr>
<tr>
<td>Programmer, System 60-2</td>
<td>14/28 VDC</td>
<td>1.8 lb.</td>
<td>3.343 x 3.343 x 5.200 in.</td>
<td>C9c, C52a</td>
</tr>
<tr>
<td>Programmer, System 65</td>
<td>14/28 VDC</td>
<td>0.60 lb.</td>
<td>2.00 x 2.00 x 5.124 in.</td>
<td>C9c, C52a</td>
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<td>Programmer, PSS</td>
<td>14/28 VDC</td>
<td>1.1 lb.</td>
<td>4.500 x 1.312 x 6.000 in.</td>
<td>C9c, C52a</td>
</tr>
<tr>
<td>Description</td>
<td>Power Required</td>
<td>Weight</td>
<td>Dimensions</td>
<td>TSO</td>
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<td>-------------------------------------------------</td>
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<td>--------</td>
<td>------------------</td>
<td>-----------------</td>
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<tr>
<td><strong>Roll Computer, System 60-1/60-2/65</strong></td>
<td>14/28 VDC</td>
<td>2.3 lb.</td>
<td>5.250 x 2.100 x 13.33 in.</td>
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<tr>
<td><strong>Pitch Computer, System 30/30 ALT</strong></td>
<td>14/28 VDC</td>
<td>1.1 lb.</td>
<td>3.250 x 1.812 x 5.800 in.</td>
<td>C9c</td>
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<td><strong>Pitch Computer, System 60-2/65/PSS</strong></td>
<td>14/28 VDC</td>
<td>3.0 lb.</td>
<td>5.250 x 2.100 x 13.33 in.</td>
<td>C9c, C52a</td>
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<tr>
<td><strong>Remote Annunciator, System 65</strong></td>
<td>14/28 VDC</td>
<td>0.90 lb.</td>
<td>3.420 x 1.600 x 6.500 in.</td>
<td>C9c, C52a</td>
</tr>
<tr>
<td><strong>Turn Coordinator</strong></td>
<td>14/28 VDC</td>
<td>1.8 lbs.</td>
<td>3.250 x 3.250 x 6.550 in.</td>
<td>C3b</td>
</tr>
<tr>
<td><strong>Absolute Pressure Transducer</strong></td>
<td>10 VDC, Supplied by Programmer/Computer</td>
<td></td>
<td>0-15 PSI Absolute</td>
<td>150% of Operating Maximum</td>
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<tr>
<td><strong>Roll/Trim Servo</strong></td>
<td>14/28 VDC</td>
<td>2.9 lbs.</td>
<td>3.880 x 3.750 x 7.250 in.</td>
<td>C9c</td>
</tr>
<tr>
<td><strong>Pitch Servo</strong></td>
<td>14/28 VDC</td>
<td>2.9 lbs.</td>
<td>3.880 x 3.750 x 7.250 in.</td>
<td>C9c</td>
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<thead>
<tr>
<th>Current Requirements, System 20</th>
<th>@14 VDC</th>
<th>@28 VDC</th>
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<tbody>
<tr>
<td>Average Operating Current:</td>
<td>1.0 Amp</td>
<td>0.5 Amp</td>
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<tr>
<td>Maximum Current:</td>
<td>3.0 Amp</td>
<td>2.0 Amp</td>
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<table>
<thead>
<tr>
<th>Current Requirements, System 30</th>
<th>@14 VDC</th>
<th>@28 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Operating Current:</td>
<td>1.0 Amp</td>
<td>0.5 Amp</td>
</tr>
<tr>
<td>Maximum Current:</td>
<td>5.0 Amp</td>
<td>3.0 Amp</td>
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<td>Average Operating Current:</td>
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SECTION 9
GLOSSARY
# Glossary

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<tr>
<th>Term</th>
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<td>Aircraft</td>
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<td>A+</td>
<td>Aircraft Power (14 VDC or 28 VDC)</td>
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<td>ACCEL</td>
<td>Acceleration</td>
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<td>Airplane Flight Manual</td>
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<td>AFMS</td>
<td>Airplane Flight Manual Supplement</td>
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<td>Alert</td>
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<td>Altitude</td>
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<td>Approach</td>
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<td>Aeronautical Radio, Incorporated</td>
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<td>C (CAP)</td>
<td>Capture Gain Condition, Course Captured</td>
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<td>Course Deviation Indicator</td>
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<td>Course</td>
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<td>CTRK DEV</td>
<td>Cross Track Deviation</td>
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