CALIBRATION PROCEDURES: (CONT)

CALIBRATION: (CONT)

2. Connect high range 50 to 600 psi gaging element to quick disconnect after pressure gage on hose.

3. Make sure pressure regulator is closed. Open valve on nitrogen tank. Tank pressure on regulator gage shall read above 500 psi. If below 500 psi, replace tank.

4. Make sure vent valve is closed. Slowly open regulator while observing pressure on gaging element, pressure shall not exceed 200 psi on gaging element or standard pressure gage. Open vent valve to release pressure.

5. Open pressure regulator slowly, to bring pressure reading on standard pressure gage to first actual reading listed in Table 1. If system is over-pressurized, open vent valve to lower pressure below value in Table 1. Close vent valve, and open regulator slowly to bring pressure reading on gage to first actual reading listed in Table 1.

TABLE 1

LOW RANGE GAGING ELEMENT (10 TO 150 PSI)		HIGH RANGE GAGING ELEMENT (50 TO 600 PSI)	
ACTUAL	TOLERANCE	ACTUAL	TOLERANCE
10 PSI	8 TO 12 PSI	60 PSI	54 TO 66 PSI
30 PSI	28 TO 32 PSI	100 PSI	94 TO 106 PSI
50 PSI	48 TO 52 PSI	120 PSI	114 TO 126 PSI
70 PSI	68 TO 72 PSI	140 PSI	134 TO 146 PSI
100 PSI	96 TO 104 PSI	160 PSI	154 TO 166 PSI
130 PSI	126 TO 134 PSI	180 PSI	174 TO 186 PSI
150 PSI	146 TO 154 PSI	200 PSI	194 TO 206 PSI

6. Check pressure on standard pressure gage and on gaging element. Tap both gages with finger to reduce any mechanical friction in gages.

7. With desired pressure readings on standard gage and gaging element, record readings. Repeat procedure for remaining values in Table 1.

8. When check is complete, close regulator and tank valves. Open vent valve, and remove gaging element.

9. Install low range gaging element 10 to 150 psi onto test equipment and repeat steps 1 through 8 using values in Table 1.

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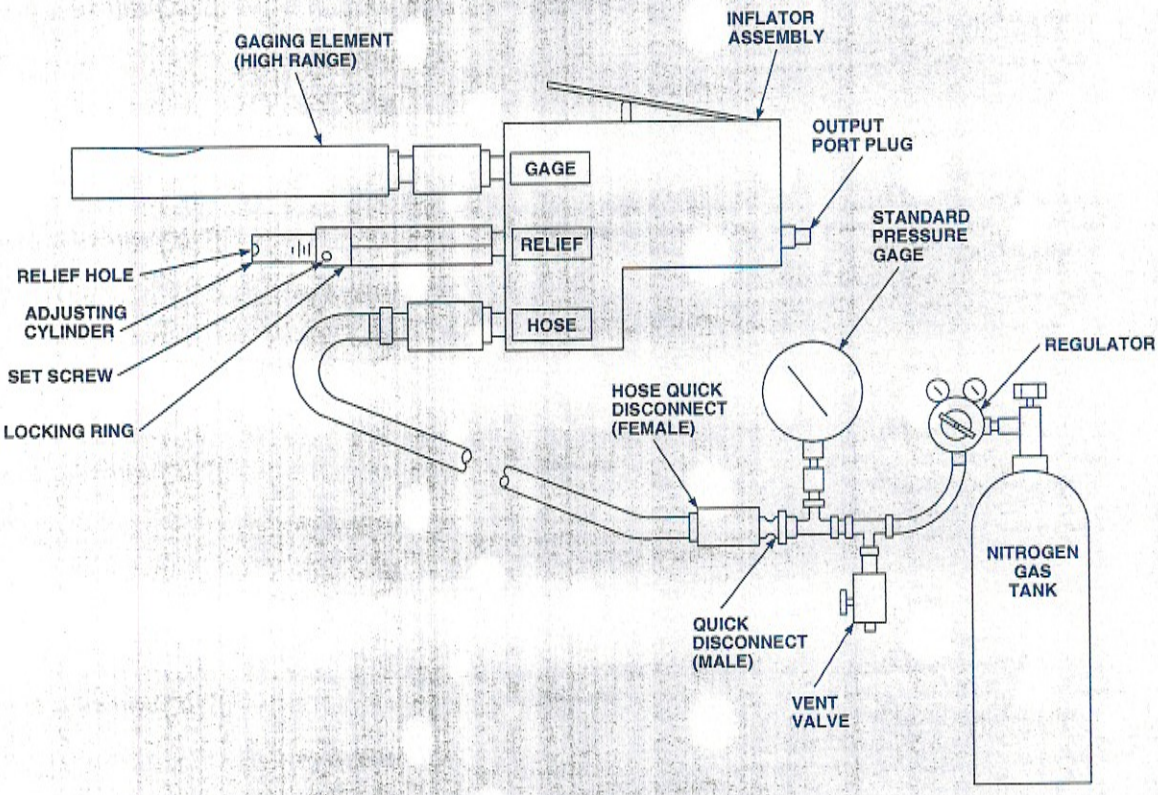
FIGURE C-63. TIRE INFLATOR, M85352/1 (SHEET 3 OF 4)

CALIBRATION PROCEDURES: (CONT)

ADJUSTMENT AND CALIBRATION OF RELIEF VALVE

1. Set up test equipment as shown in figure below for adjustment and calibration of inflator assembly relief valve.



2. Remove adapter from output side of inflator assembly and install plug. Install high range gaging element, 50 to 600 psi, to inflator assembly.

3. Close vent valve and open valve on nitrogen tank. Open pressure regulator until 200 psi is read on standard pressure gage and gaging element.

4. Using proper hex head wrench, loosen allen head set screw an relief valve locking ring. Screw relief valve adjusting cylinder in or out, until valve relief hole begins to leak pressure, tighten set screw on locking ring.

5. Open vent valve and release pressure. Close vent valve and retest valve for pressure leakage at the same valve as in step 4.

6. Open vent valve to release pressure, remove all test equipment.

7. Install limited use calibration sticker, stating calibration limited to 200 psi maximum pressure.

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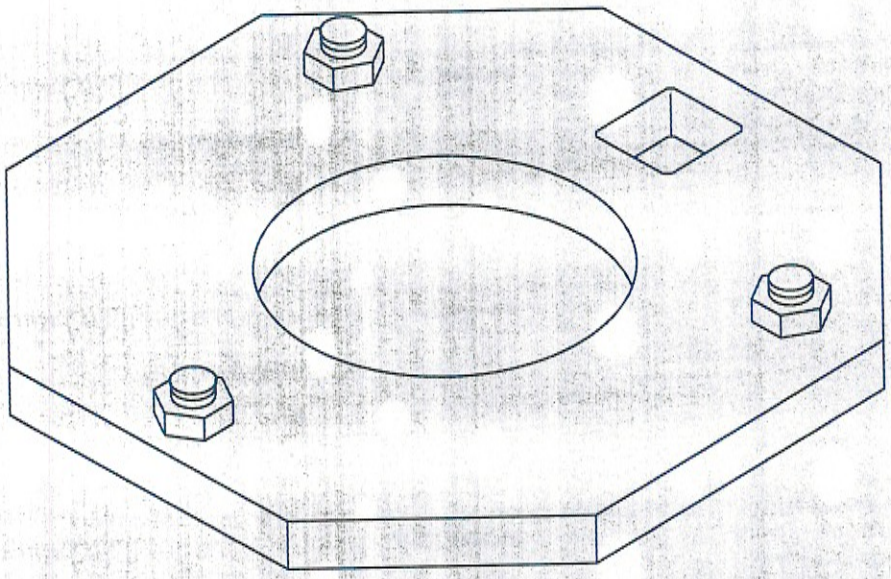
FIGURE C-63. TIRE INFLATOR, M85352/1 (SHEET 4 OF 4)



DESCRIPTION: The torque reactor is a machined 0.500 inch steel plate, 6.12 inches square. A 2.670–inch diameter hole thru center of reactor provides access for 70700–20687–101 wrench to reach nut. There are three equally spaced holes that mate with hole pattern on flange. The torque reactor is used to remove and install the nut that retains the flange against shoulder of input or output shafts.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

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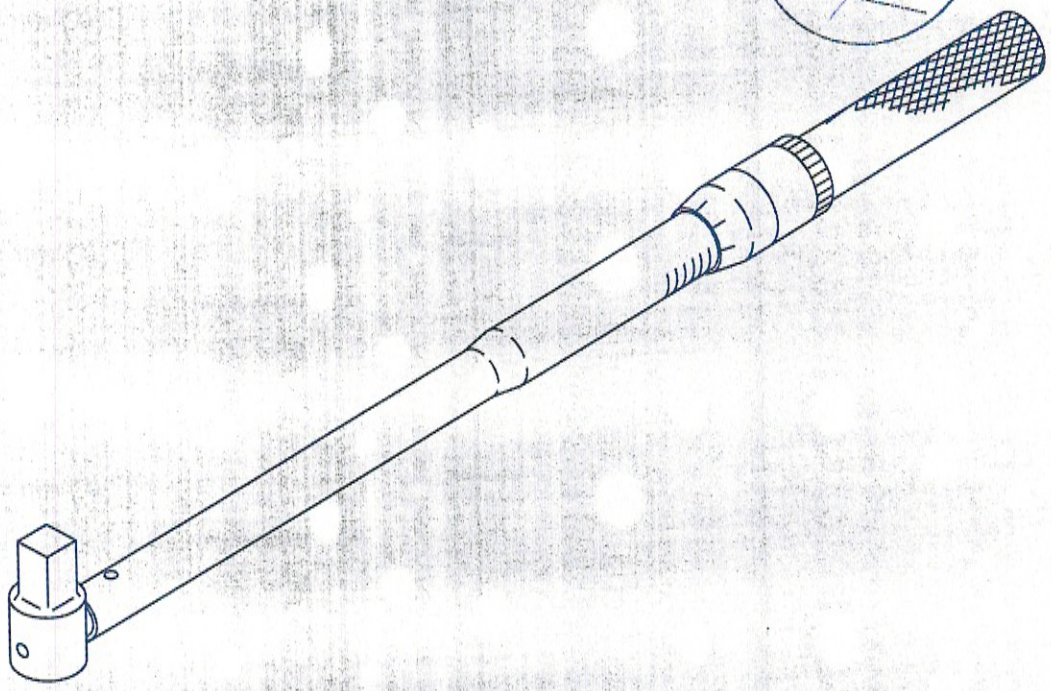
5A

FIGURE C-64. TORQUE REACTOR, 70700-20688-041



DESCRIPTION: The torque wrench is used to torque pylon attach bolts. The torque wrench is a click type wrench with a torque range of 700 to 1600 inch–pounds in 10–pound graduations.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS:

FREQUENCY

Torque wrenches will be calibrated every 24 weeks regardless of being used or not.

EQUIPMENT REQUIRED

- Model 10 torque wrench tester, Chatillon, or similar equipment, provided it has required measuring capabilites.

CLEANING MATERIALS

- Isopropyl Alcohol, Item 72, Appendix D
- Machinery Towel, Item 211, Appendix D

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FIGURE C-65. TORQUE WRENCH, PYLON FOLD, 28420 (SHEET 1 OF 2)

CALIBRATION REQUIREMENTS: (cont)

CALIBRATION PROCEDRES
Cleaning / Inspection

1. Clean torque wrench using isopropyl alcohol, Item 72, Appendix D. Wipe dry with machinery towel, Item 211, Appendix D.
2. Inspect torque wrench for any defects or damage. NONE ALLOWED.

Calibration

1. Set up torque wrench tester to zero.
2. Select five equally spaced calibration points on the torque wrench including zero and full scale. Record these values on a calibration work sheet.

NOTE

Acceptable tolerance is ±3% of calibration setting on torque wrench as shown in calibration work sheet example.

CALIBRATION DATA SHEET

TORQUE WRENCH/DRIVER

RANGE: 50–in. lbs ☐

ft lbs ☐

CALIBRATION SETTING	ACTUAL READING	ACCEPTANCE TOLERANCE	ADJUSTED VALUE
10		9.7–10.3	
20		19.4–20.6	
30		29.1–30.9	
40		38.8–41.2	
50		48.5–51.5	

EXAMPLE CALIBRATION WORK SHEET

3. Attach torque wrench to appropriate input on torque tester.
4. Pull torque wrench in a clockwise direction until torque wrench indicates first pre–selected calibration point. Record actual readings on calibration work sheet.
5. Remove torque wrench from torque tester and verify torque wrench zero. Adjust torque wrench to zero if required and note adjustment on calibration work sheet.
6. If torque wrench has been adjusted to zero, repeat steps 3 through 5.
7. Check remaining torque wrench calibration points and record on calibration work sheet.
8. Install calibration label on torque wrench after calibration acceptance, identified by acceptance stamp, date of calibration, and scheduled calibration due date.

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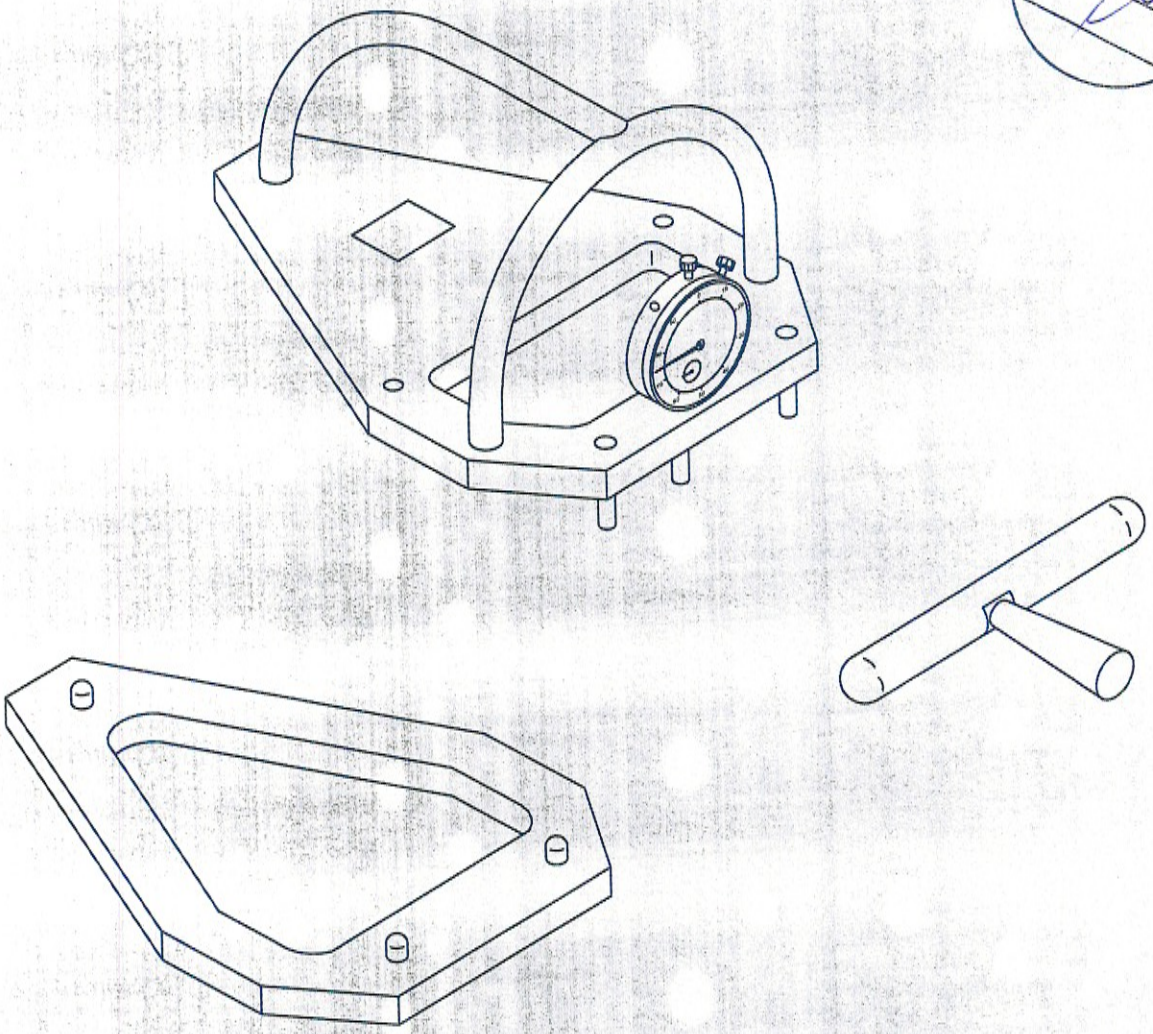
FIGURE C-65. TORQUE WRENCH, PYLON FOLD, 28420 (SHEET 2 OF 2)



DESCRIPTION: The trim tab adjustment set is required to adjust the trailing edge trim tab when setting main rotor blade pretrack.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

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5A

FIGURE C-66. TRIM TAB ADJUSTMENT SET, 70700-20308-041

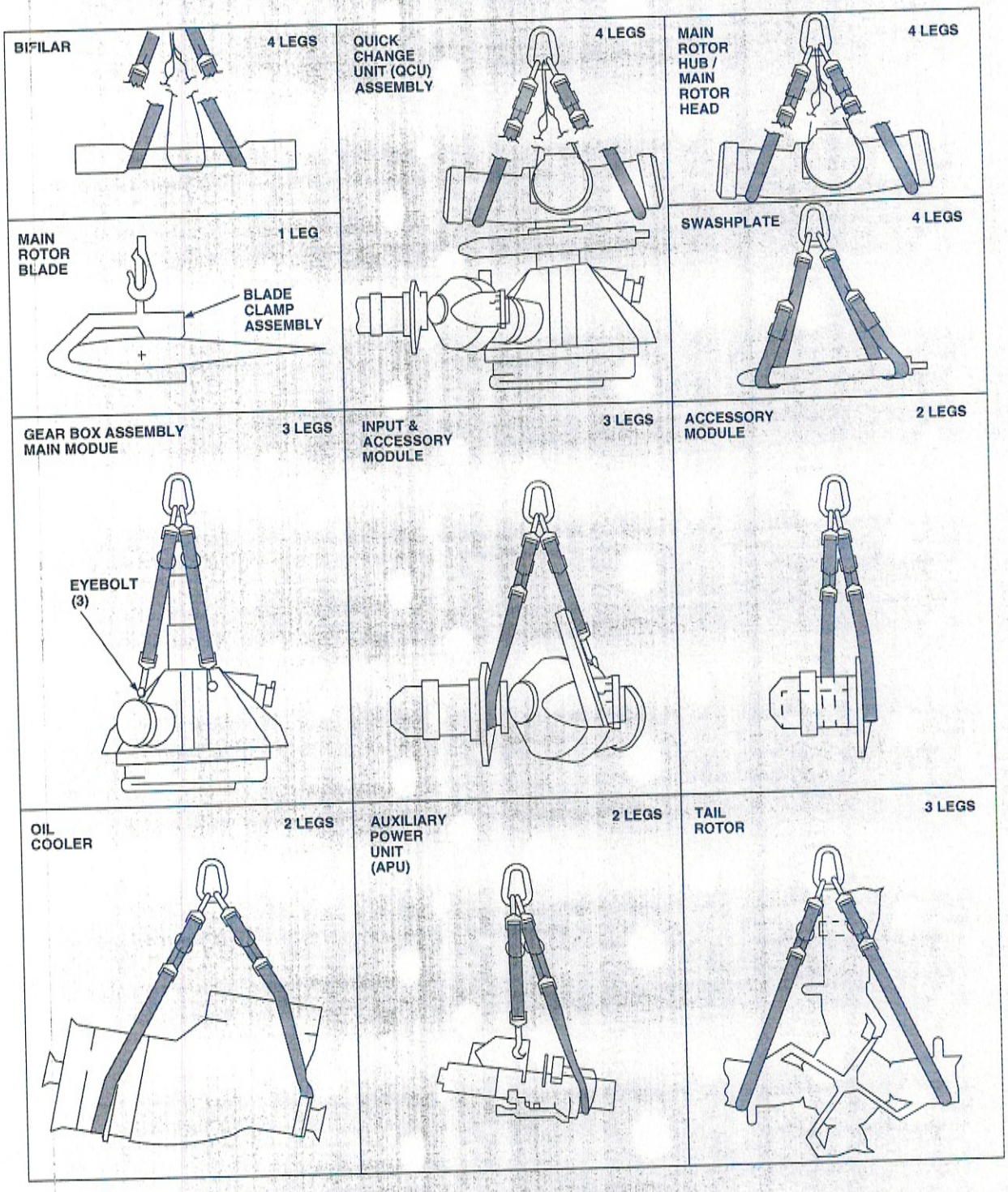

FIGURE C-67. UNIVERSAL HOISTING SLING ASSEMBLY, 70700-20320-045 (SHEET 1 OF 2)

DESCRIPTION: The universal hoisting sling assembly is used to remove and install components on helicopters. The universal hoisting sling assembly is adaptable to items being lifted by removing one or more straps (legs) to adjust for the different components.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

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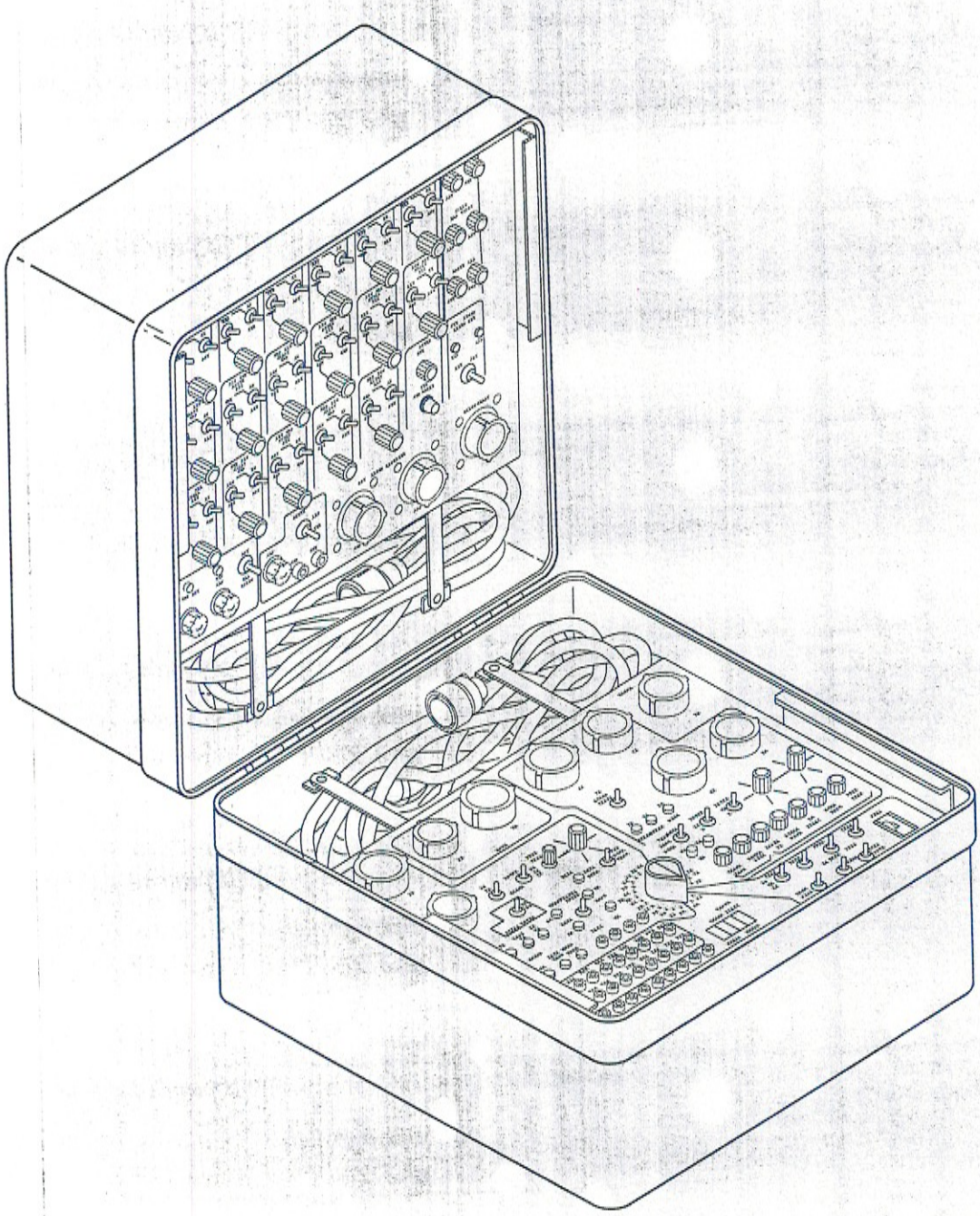
FIGURE C-67. UNIVERSAL HOISTING SLING ASSEMBLY, 70700-20320-045 (SHEET 2 OF 2)



DESCRIPTION: The VIDS bench test set is a two part instrument comprised of a simulator and a unit tester. The simulator is primarily a system tester. The simulator provides the power, switches, variable resistors and indicators to operate and test the VIDS. The switches and variable resistors mounted to the front panel allow for operator selection and control of the simulated sensor signal outputs normally provided by helicopter engine sensors. The outputs of the VIDS that normally provide warning information to the aircraft annunciator panel are displayed on the simulator.

An interconnect cable to the unit tester routes power and LAMP TEST parameters to the unit tester. By the same interconnect cable, AC excitation signals are routed to the simulator.

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FIGURE C-68. VIDS BENCH TEST SET, 100-601165-000 (SHEET 1 OF 2)

DESCRIPTION: (CONT)

The unit tester provides power, inputs, switches, controls, indicators, and a digital monitor to operate and test each unit of the VIDS independently. A test point field on the unit tester front panel permits measurement of power supply and regulated voltages.

POWER REQUIREMENTS: 115 VAC, 400 Hz ±5 Hz
28 VDC, ± 0.5 VDC

CALIBRATION REQUIREMENTS:

FREQUENCY

The VIDS bench test set must be calibrated every 24 weeks regardless of being used or not, using same calibration procedure as in Figure 69, VIDS test set.

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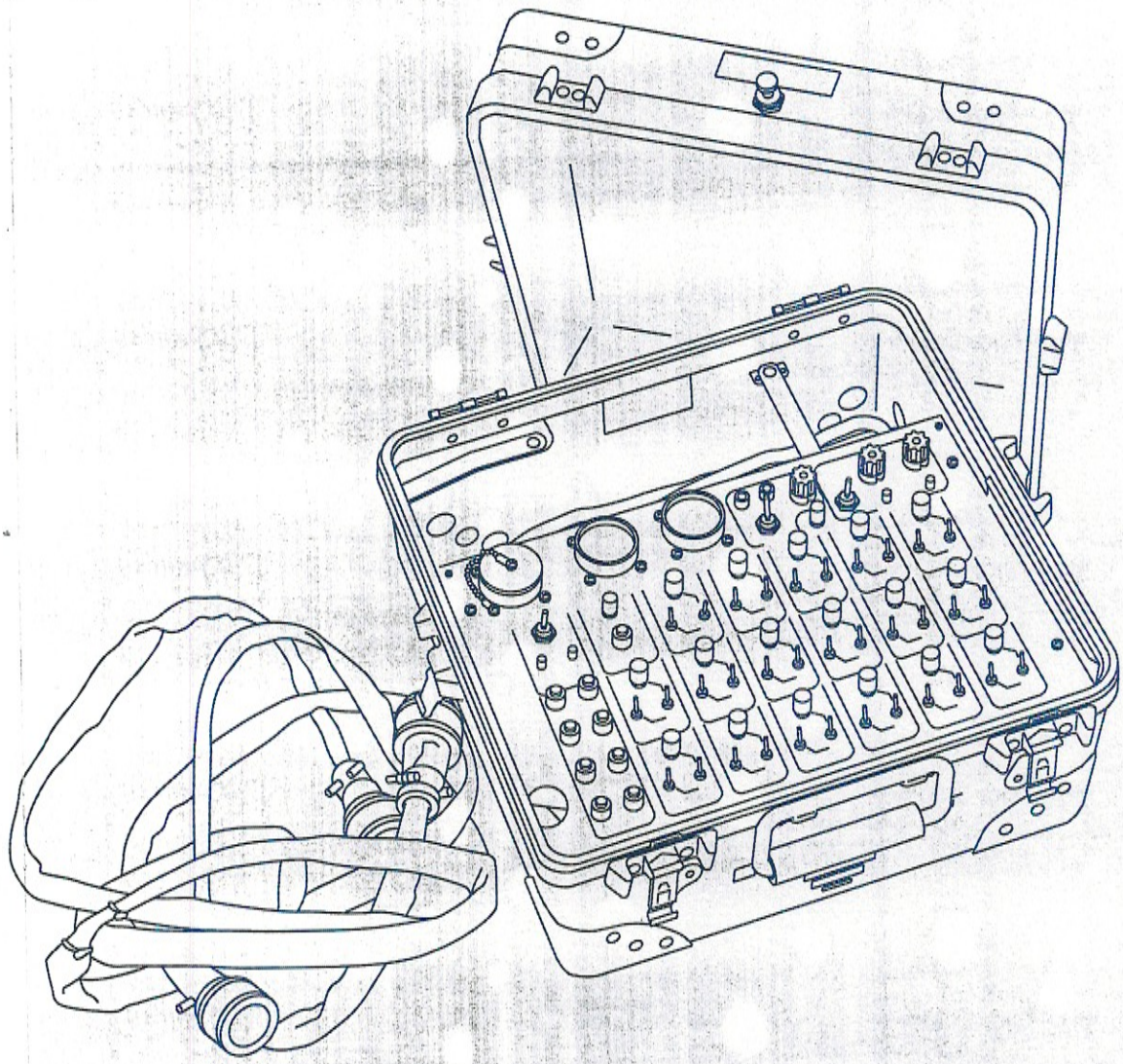
FIGURE C-68. VIDS BENCH TEST SET, 100-601165-000 (SHEET 2 OF 2)



DESCRIPTION: The VIDS line test set provides the necessary power, simulated signals, and signal control in order to operate and test the Vertical Instument Display System (VIDS). It also provides the VIDS with simulated signals for all indicators.

POWER REQUIREMENTS: 115 Volts AC ±1.0, Single phase 400 ±5.0 Hz
28 Volt DC ±0.5

FB1046_1
8A

FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 1 OF 12)

CALIBRATION REQUIREMENTS:

FREQUENCY

The VIDS line test set must be calibrated every 24 weeks regardless of being used or not.

EQUIPMENT REQUIRED

- Hewlett Packard 5300 Series Counter, frequency .001%
- Fluke 8500 or 8800 Series Digital Multimeter, DCV 0.01%, ACV 1%, OHMS 0.1%
- North Atlantic 225 Phase Angle Voltmeter (PAV), phase sensitive nulls @ 400 Hz, voltage 1%
- Gertsch RT7 Ratiotrans, 400 Hz ratio 0.001%
- Ectron 1100 Thermocouple Simulator / Calibrator, 40 mV nominal 0.05% CH / AL thermocouple
- Sikorsky TS–1028 400 Hz Filter or CMS T–750477 Oil Pressure Excitation Test Box, Simulate sensor
- Thermocouple lead wire Ch to Cu, A1 to Cu, approximate 4' length
- Variac 400 Hz, adjust voltage
- Sikorsky TS–1058 VIDS Test Set, provide connections
- Sikorsky TCDC–005 Test Cable, provide bench 28 VDC
- Sikorsky TC400–013 Test Cable, provide bench 115V, 400 Hz
- Oscilloscope Monitor, waveforms only
- DC Power Supply adjustable 5 VDC with 25 mA current limit, lamp test
- Cables and adaptors as required, make connections

CALIBRATION PROCEDURES

INSPECT

Check test set for damaged and missing knobs, switches, dirt or any physical damage.

CALIBRATION

Connect the VIDS TEST SET power cables to bench 28 VDC and 115V 400 Hz power using TCDC–005 Test Cable and TC400–013 Test Cable respectively.

Set VIDS TEST SET INPUT POWER to ON position and then note 115 VAC and 28 VDC indicator lamps illuminate.

Connect TS–1058 VIDS TEST SET to TEST SET No. 1 connector with VIDS TEST SET to SDC cable.

Press VIDS TEST SET LAMP TEST and then note the nine (9) WARNING lamps and two (2) SUPPLY OVERLOAD lamps illuminate.

Connect the powered equipment to bench power, set POWER to ON position and then allow at least a thrity (30) minute warmup.

ROTOR SPEED

1. Connect COUNTER and OSCILLOSCOPE inputs to VIDS TEST SET SIGNAL bnc connector.
2. Set VIDS TEST SET ROTOR SPEED controls:
   a. NOR / CAL to CAL
   b. HI / LO to HI
   c. variable to full CW
3. Set VIDS TEST SET SIGNAL switch to 1 position.
4. Set VIDS TEST SET ROTOR SPEED controls and note outputs are within specified tolerance of Table 1.

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FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 2 OF 12)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURE (CONT)
ROTOR SPEED (CONT)

TABLE 1

NOR/CAL	HI/LO	VARIABLE	COUNTER (Hz)
CAL	HI	full CW	11,245.1 to 11,247.1
CAL	LO	full CW	0 (no output)
NOR	LO	full CW	12,200 to 18,000
NOR	LO	full CCW	0 (no output)

5. Leave set-up for next test.

ENGINE % RPM #1 and #2

1. Set VIDS TEST SET SIGNAL switch to 2 position.
2. Set VIDS TEST SET ENGINE % RPM #1 controls:
   a. NOR / CAL to CAL
   b. HI / LO to HI
   c. variable to full CW
3. Set VIDS TEST SET ENGINE % RPM #1 controls and note outputs are within specified tolerance of Table 2.

TABLE 2

NOR/CAL	HI/LO	VARIABLE	COUNTER (Hz)
CAL	HI	full CW	1,332.5 to 1,334.5
CAL	LO	full CW	0 (no output)
NOR	LO	full CW	1,830 to 2,030
NOR	LO	full CCW	0 (no output)

4. Set VIDS TEST SET SIGNAL to position 3.
5. Repeat from step (2) for ENGINE % RPM #2.
6. Leave set-up for next test.

GAS GEN SPEED #1 and #2

1. Set VIDS TEST SET SIGNAL switch to 4 position.
2. Set VIDS TEST SET GAS GEN SPEED #1 controls:
   a. NOR / CAL to CAL
   b. HI / LO to HI
   c. variable to full CW
3. Set VIDS TEST SET GAS GEN SPEED #1 controls and note outputs are within specified tolerance of Table 3.

FB1046_3
6A

FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 3 OF 12)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURE (CONT)
GAS GEN SPEED #1 and #2 (CONT)

TABLE 3

NOR/CAL	HI/LO	VARIABLE	COUNTER (Hz)
CAL	HI	full CW	2,134.3 to 2,136.3
CAL	LO	full CW	0 (no output)
NOR	LO	full CW	2,400 to 2,480
NOR	LO	full CCW	0 (no output)

4. Move cable from VIDS TEST SET No. 1 and then reconnect to #2.
5. Repeat from Step (2) for GAS GEN SPEED #2.
6. Remove the COUNTER and OSCILLOSCOPE from the set-up.

TORQUE #1 and #2

1. Set VIDS TEST SET SIGNAL switch to 5 position.
2. Connect DIGITAL MULTIMETER input to VIDS TEST SET SIGNAL bnc.
3. Set VIDS TEST SET TORQUE #1 controls:
   a. NOR / CAL to CAL
   b. HI / LO to HI
   c. variable to full CW
4. Set VIDS TEST SET TORQUE #1 controls and note outputs are within specified tolerance of Table 4.

TABLE 4

NOR/CAL	HI/LO	VARIABLE	DIGITAL MULTIMETER (DCV)
CAL	HI	full CW	3.6963 to 3.7037
CAL	LO	full CW	-1 to +1 mV
NOR	LO	full CW	5.4150 to 5.8150
NOR	LO	full CCW	-3 to +3 mV

5. Set VIDS TEST SET SIGNAL to 6 position.
6. Repeat from Step (3) for TORQUE #2.
7. Leave set-up for the next test.

FUEL QUANTITY #1 and #2

1. Move VIDS TEST SET cable from No. 2 to No. 1 connector.
2. Set VIDS TEST SET SIGNAL switch to 7 position.

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FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 4 OF 12)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURE (CONT)
FUEL QUANTITY #1 and #2 (CONT)

3. Set VIDS TEST SET FUEL QUANTITY #1 controls:

   a. NOR / CAL to CAL

   b. HI / LO to HI

   c. variable to full CW

4. Set VIDS TEST SET FUEL QUANTITY #1 controls and note outputs are within specified tolerance of Table 5.

TABLE 5

NOR/CAL	HI/LO	VARIABLE	DIGITAL MULTIMETER (DCV)
CAL	HI	full CW	6.120 to 6.130
CAL	LO	full CW	−1 to +1 mV
NOR	LO	full CW	7.630 to 8.030
NOR	LO	full CCW	−10 to +10 mV

5. Move VIDS TEST SET cable from No. 1 to No. 2 connector.

6. Repeat from Step (3) for FUEL QUANTITY #2.

7. Leave set-up for the next test.

ENGINE OIL TEMP #1 and #2

1. Move VIDS TEST SET cable from No. 2 to No. 1 connector.

2. Set VIDS TEST SET SIGNAL switch to 8 position.

3. Set VIDS TEST SET ENGINE OIL TEMP #1 controls:

   a. NOR / CAL to CAL

   b. HI / LO to HI

   c. variable to full CW

4. Set VIDS TEST SET ENGINE OIL TEMP #1 controls and note outputs are within specified tolerance of Table 6.

TABLE 6

NOR/CAL	HI/LO	VARIABLE	DIGITAL MULTIMETER (OHMS)*
CAL	HI	full CW	150.2 to 151.0
CAL	LO	full CW	75.3 to 75.9
NOR	LO	full CW	170.0 to 190.0
NOR	LO	full CCW	73.6 to 77.6

* Compensate for lead resistance.

5. Move VIDS TEST SET cable from No. 1 to No. 2 connector.

6. Repeat from Step (3) for ENGINE OIL TEMP #2.

7. Leave set-up for the next test.

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FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 5 OF 12)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURE (CONT)
MAIN TRANSMISSION OIL TEMP

1. Set VIDS TEST SET SIGNAL switch to 9 position.
2. Set VIDS TEST SET MAIN TRANSMISSION OIL TEMP controls:
   a. NOR / CAL to CAL
   b. HI / LO to HI
   c. variable to full CW
3. Set VIDS TEST SET MAIN TRANSMISSION OIL TEMP controls and note outputs are within specified tolerance of Table 7.

TABLE 7

NOR/CAL	HI/LO	VARIABLE	DIGITAL MULTIMETER (OHMS)*
CAL	HI	full CW	234.16 to 234.96
CAL	LO	full CW	86.70 to 87.30
NOR	LO	full CW	270.0 to 290.0
NOR	LO	full CCW	84.0 to 90.0

* Compensate for lead resistance.

ENGINE OIL PRESS #1 and #2

1. Set VIDS TEST SET controls:
   a. SIGNAL to OFF
   b. ENG / XSMN to ENG
2. Set VIDS TEST SET ENGINE OIL PRESS #1 controls:
   a. NOR / CAL to CAL
   b. HI / LO to HI
   c. variable to full CW
3. Connect the test set-up shown in View A.
4. Adjust the VARIAC for approximately 10 VAC Digital Multimeter indication.
5. Set PAV to INPHASE and AUTO ranging modes.
6. Adjust the RATIOTRANS as required for PAV INPHASE null indication and note setting is within 0.48467 and 0.48667.
7. Set PAV to QUAD and then note reading is less than 42 mV.
8. Set VIDS TEST SET ENGINE OIL PRESS #1 HI / LO to LO.
9. Set PAV to INPHASE and adjust the RATIOTRANS as required for PAV null indication and note setting is within 0.59751 and 0.59951.
10. Set PAV to QUAD and then note reading is within –148 and –178 mV.
11. Set VIDS TEST SET ENGINE OIL PRESS #1 CAL / NOR to NOR.

FB1046_6
6A

FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 6 OF 12)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURE (CONT)
ENGINE OIL PRESS #1 and #2 (CONT)

12. Set PAV to INPHASE and adjust the RATIOTRANS as required for PAV null indication and note setting is within 0.39900 and 0.40100.
13. Set VIDS TEST SET ENGINE OIL PRESS #1 variable to full CCW.
14. Set PAV to INPHASE and adjust the RATIOTRANS as required for PAV null indication and note setting is within 0.59751 and 0.59951.
15. Move VIDS TEST SET cable from No. 1 to No. 2 connector.
16. Repeat from Step (4) for ENGINE OIL PRESSURE #2.
17. Leave set–up for the next test.

TRANSMISSION OIL PRESSURE

1. Set VIDS TEST SET ENG / XSMN switch to XSMN position.
2. Set VIDS TEST SET TRANSMISSION OIL PRESSURE controls:
   a. NOR / CAL to CAL
   b. HI / LO to HI
   c. variable to full CW
3. Set PAV to INPHASE and AUTO ranging modes.
4. Adjust the RATIOTRANS as required for PAV INPHASE null indication and note setting is within 0.46015 and 0.46215.
5. Set PAV to QUAD and then note reading is less than 42 mV.
6. Set VIDS TEST SET TRANSMISSION OIL PRESSURE HI / LO to LO.
7. Set PAV to INPHASE and adjust the RATIOTRANS as required for PAV null indication and note setting is within 0.59751 and 0.59951.
8. Set PAV to QUAD and then note reading is within –148 and –178 mV.
9. Set VIDS TEST SET TRANSMISSION OIL PRESSURE CAL / NOR to NOR.
10. Set PAV to INPHASE and adjust the RATIOTRANS as required for PAV null indication and note setting is within 0.39900 and 0.40100.
11. Set VIDS TEST SET TRANSMISSION OIL PRESSURE variable to full CCW.
12. Set PAV to INPHASE and adjust the RATIOTRANS as required for PAV null indication and note setting is within 0.59751 and 0.59951.

WARNING LAMPS

1. Connect VIDS TEST SET to connector No. 1.
2. Set VIDS TEST SET LAMPS switch to ON and note listed lamps illuminate:
   a. LOW OIL PRESS #1
   b. HI OIL TEMP #1
   c. LO ROTOR SPEED
   d. ENG OUT No. 1
   e. HI TGT #1

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FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 7 OF 12)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURE (CONT)

WARNING LAMPS (CONT)

3. Move VIDS TEST SET cable from No. 1 to No. 2 connector.

4. Repeat Step (2) for #2 lamps.

TURBINE GAS TEMP #1 AND #2

1. Set VIDS TEST SET INTEGRAL LIGHTING switch to INT position.

2. Connect OSCILLOSCOPE and Digital Multimeter input across VIDS TEST SET ILL binding posts.

3. Hold VIDS TEST SET ILL toggle switch up and then note OSCILLOSCOPE display of a symmetrical and noise free sinewave of 11.3 to 17.0 Vpp amplitude.

4. Release the VIDS TEST SET ILL switch.

5. Connect test set–up shown in View B.

6. Set VIDS TEST SET TURBINE GAS TEMP #1 controls:

   a) NOR / CAL to CAL

   b) HI / LO to HI

   c) variable to full CW

7. Set VIDS TEST SET TURBINE GAS TEMP #1 controls, measure output and note value is within specified tolerance of Table 8.

TABLE 8

NOR/CAL	HI/LO	VARIABLE	DIGITAL MULTIMETER (mVDC)
CAL	HI	full CW	33.69 to 33.89
CAL	LO	full CW	–0.05 to +0.05
NOR	LO	full CW	41.3 to 51.3
NOR	LO	full CCW	–0.15 to +0.15

8. Move VIDS TEST SET cable from No. 1 to No. 2 connector.

9. Repeat Step 6 for #2.

VOLTAGE MEASUEMENTS

1. On initial checks or for troubleshooting perform the measurements of APPENDIX A.

CONTINUITY MEASUREMENTS

1. On initial checks or for troubleshooting perform the measurements of APPENDIX B.

OVERLOAD LAMPS

1. On initial checks or for troubleshooting perform the measurements of APPENDIX C.

Set all POWER to OFF.

Disconnect the set–up.

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FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 8 OF 12)

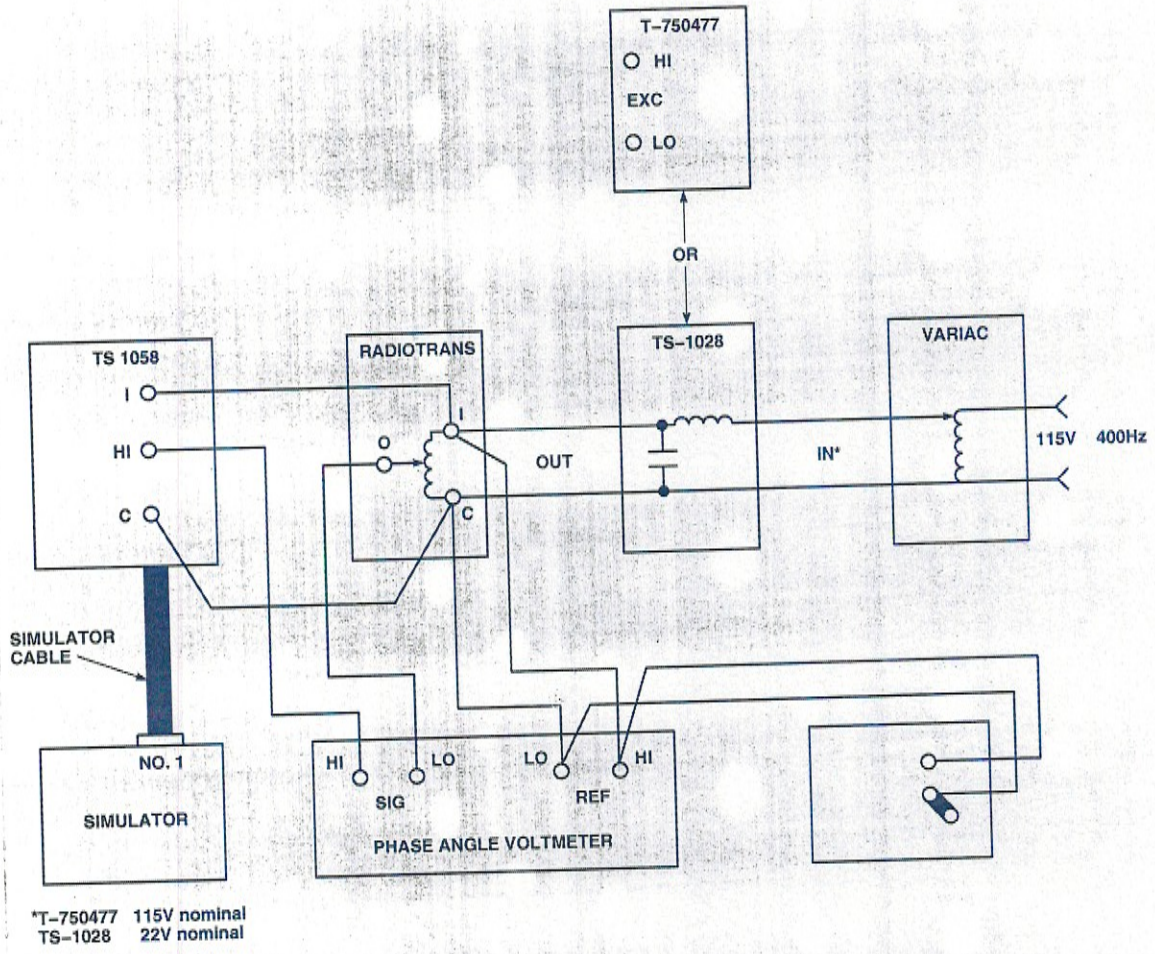
CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURE (CONT)
OVERLOAD LAMPS (CONT)

Secure all test equipment.

Apply "CALIBRATED" status label.

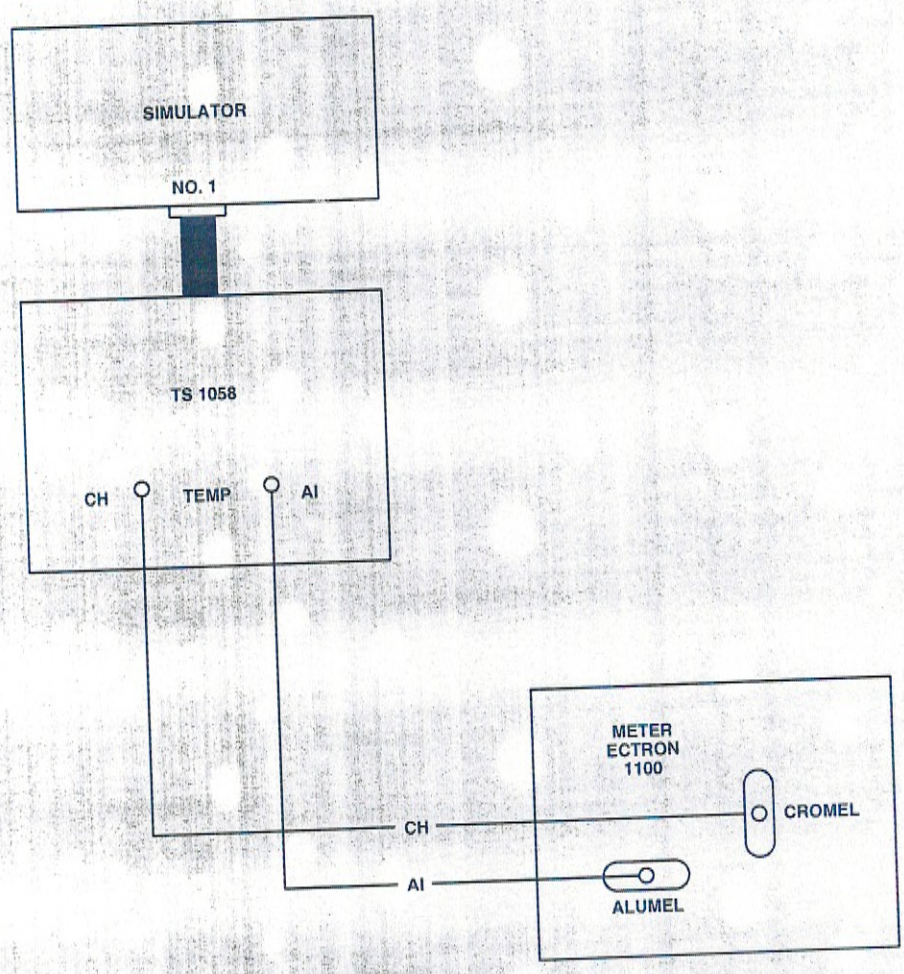
If VIDS TEST SET failed calibration, return to manufacturer.



VIEW A
ENGINE OIL PRESSURE SET–UP

FB1046_9
8A

FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 9 OF 12)



VIEW B
TURBINE GAS TEMPERATURE SET-UP

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FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 10 OF 12)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURE (CONT)

CONNECTIONS*		MEASURE
HI	LO	
P3–V	No. 1–EE	26 to 30 VDC (LAMP TEST depressed)
No. 1–AA	No. 1–BB	26 to 30 VDC
No. 2–AA	No. 2–BB	26 to 30 VDC
P3–M	P3–L	26 to 30 VDC
P3–M	P3–K	26 to 30 VDC
No. 1–CC	No. 1–DD	110 to 120 VAC
No. 2–CC	No. 2–DD	110 to 120 VAC
P3–P	P3–N	110 to 120 VAC**
No. 1–FF	No. 1–HH	4 to 6 VAC
No. 1–GG	No. 1–HH	4 to 6 VAC
No. 2–FF	No. 2–GG	4 to 6 VAC
No. 2–FF	No. 2–HH	4 to 6 VAC
P3–R	P3–S	4 to 6 VAC

Set INTEGRAL LIGHTING to INT.
* P3 is INTERCONNECT
** POWER–ON (0 VAC when POWER–SIM only)

APPENDIX A
VOLTAGE MEASUREMENTS

FB1046_11
SA

FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 11 OF 12)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURE (CONT)

CONNECTIONS*		CONDITIONS FOR CONTINUITY
HI	LO	
No. 1–EE	P3–U	LAMP TEST depressed
No. 1–p	No. 1–EE	SIMULATOR–OFF ROTOR OVERSPEED RESET depressed
No. 2–p	No. 2–EE	SIMULATOR–OFF ROTOR OVERSPEED RESET depressed
P3–c	No. 2–J	- - - - - - - - - - - - - - - - - - - -
P3–d	No. 2–W	- - - - - - - - - - - - - - - - - - - -
P3–g	No. 2–H	- - - - - - - - - - - - - - - - - - - -
P3–h	No. 2–G	- - - - - - - - - - - - - - - - - - - -
P3–i	No. 1–G	- - - - - - - - - - - - - - - - - - - -
P3–j	No. 1–H	- - - - - - - - - - - - - - - - - - - -
P3–k	No. 1–i	- - - - - - - - - - - - - - - - - - - -
P3–m	No. 1–W	- - - - - - - - - - - - - - - - - - - -
P3–n	No. 2–j	- - - - - - - - - - - - - - - - - - - -
P3–v	No. 2–K	- - - - - - - - - - - - - - - - - - - -
P3–w	No. 2–J	- - - - - - - - - - - - - - - - - - - -

* P3 is INTERCONNECT

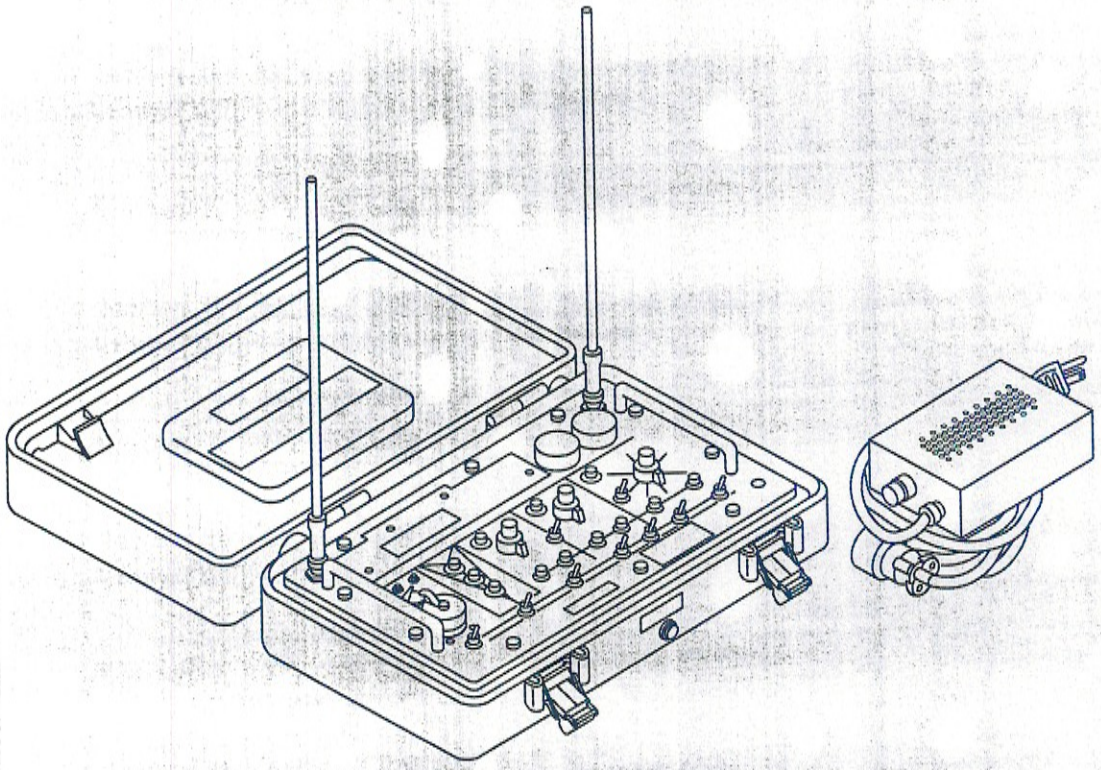
APPENDIX B
CONTINUITY MEASUREMENTS

APPENDIX C
OVERLOAD LAMPS

1. Connect POWER SUPPLY, set for 5 VDC with 25 mA current limit, across No. 1 pins U and EE (lo).
2. Note LAMP SUPPLY OVERLOAD No. 1 illuminates.
3. Press OVERLOAD switch to the left and note lamp extinguishes.
4. Repeat from (1) for No. 2 pins and pressing the switch to the right to extinguish the lamp.

FB1046_12
SA

FIGURE C-69. VIDS LINE TEST SET, 100-601164-000 (SHEET 12 OF 12)



DESCRIPTION: The VOR / ILS / MB / RAMP TEST SET, 972Q–4 provides outputs that allow checking of the VOR, ILS, and MB (marker beacon) avionic systems while they are installed in the helicopter.

POWER REQUIREMENTS: 115 volt AC or 230 volt AC, and 8 volt DC rechargable battery.

CALIBRATION REQUIREMENTS:

FREQUENCY

VOR / ILS / MB ramp test set must be calibrated every 48 weeks regardless of being used or not.

FB1047_1A
SA

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 1 OF 11)

CALIBRATION REQUIREMENTS: (CONT)

EQUIPMENT REQUIRED

- Hewlett Packard 8902A Measuring Receiver no direct substitute
- Hewlett Packard 11722A or 11792A Sensor used with item 1
- Aircraft Radio Type H16 Standard Course Checker VOR bearing 0.1 deg
- Sikorsky TS–2000 VOR Test Box
- Dranetz 305 / 3007 Phasemeter 30 Hz phase 0.1 deg
- Sikorsky TS–1034 Antenna Coupler couple antenna RF to item 1
- Fluke 8000A Dmm VDC 0.1% VAC 0.5%
- Sikorsky TS–6442 Power Supply 15 vdc for item 4
- Khron Hite 6900 Distortion Analyzer audio frequency distortion

CALIBRATION PROCEDURES

INSPECTION

- Inspect Test Set / Battery Charger for physical damage, (switches, antenna's, etc.), and repair as required.

CALIBRATION

1. Set all TEST SET POWER switches to ON (battery operation).

NOTE:

GREEN BATTERY lamp shall be illuminated for V+ AND V– positions of the CHECK switch.

For TEST SETS with lighted GLIDE SLOPE, LOC and VOR VAR buttons only, depress and note flashing indicator. Depress to set OFF after test.

2. Set all TEST SET POWER switches to OFF.
   - Connect test set–ups as shown in Views A or B and View C.

NOTE:

View C set–up is used for VOR module only.

   - Set the TEST SET ATTEN to 0 db position.

NOTE:

TEST SET operation from either internal batteries or BATTERY CHARGER is acceptable. Re–charge batteries as required after use.

MKR BCN MODULE

1. Connect TEST SET J1 (MKR BCN) output to SENSOR with a short cable.
2. Connect RECEIVER MODULATION OUTPUT to DISTORTION ANALYZER input.
3. Set PWR and MKR BCN power switch in the ON position.
4. Press on RECEIVER:
   a. (BLUE) , (AUTOMATIC OPERATION)
   b. (FREQ) , (7), (5), (MHz)
5. Press RECEIVER (RF POWER) and LOG / LIN for dBm scaling.
6. Note reading is –20dBm minimum.
7. Depress RECEIVER (FREQ) button.

FB1047_2
GA

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 2 OF 11)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURES: (CONT)
CALIBRATION (CONT)
MKR BCN MODULE (CONT)

8. Note RECEIVER 74.99625 to 75.00375 MHz indication.
9. Depress and hold TEST SET MKR BCN WHITE button.
10. Press RECEIVER (AM) and (PEAK± / 2) buttons and note 90 to 100% indication.
11. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 2940 to 3060 Hz indication.
12. Note DISTORTION ANALYZER distortion indication of 15% maximum.
13. Depress and hold TEST SET MKR BCN BLUE button.
14. Press RECEIVER (AM) button and note 90 to 100% indication.
15. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 392 to 408 Hz indication.
16. Note DISTORTION ANALYZER distortion indication of 15% maximum.
17. Depress and hold TEST SET MKR BCN YELLOW button.
18. Press RECEIVER (AM) button and note 90 to 100% indication.
19. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 1274 to 1326 Hz indication.
20. Note DISTORTION ANALYZER distortion indication of 15% maximum.
21. Set all TEST SET MKR BCN switches to OFF and disconnect SENSOR.

LOC MODULE

1. Connect TEST SET J3 (GS/VOR/LOC) output to SENSOR with a short cable.
2. Connect RECEIVER MODULATION OUTPUT to DISTORTION ANALYZER input.
3. Set PWR and LOC power switch in ON position and FREQ SW to 108.1.
4. Press on RECEIVER:
   a. (BLUE) , (AUTOMATIC OPERATION)
   b. (FREQ), (1), (0), (8), (.), (1), MHz)
5. Press RECEIVER (RF POWER) and LOG/LIN for dBm scaling.
6. Note reading is –10 dBm minimum.
7. Depress RECEIVER (FREQ) button.
8. Note RECEIVER 108.0973 to 108.1027 MHz indication.
9. Set LOC FREQ SW to 108.15 position.
10. Press on RECEIVER if required to tune:
    a. (FREQ), (1), (0), (8), (.), (1), (5), (MHz)
11. Note RECEIVER 108.1473 to 108.1527 MHz indication.

FB1047_3
6A

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 3 OF 11)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURES: (CONT)
CALIBRATION (CONT)
LOC MODULE (CONT)

12. Set LOC to OC and hold 150 Hz DELETE ON.
13. Press RECEIVER (AM) and (PEAK ± / 2) buttons and note approximate 20% indication. Record value.
14. Press the RECEIVER (SHIFT), (AUDIO FREQ) and note 89.1 to 90.9 Hz indication.
15. Note DISTORTION ANALYZER indication of 5% maximum.
16. Release 150 Hz DELETE and hold 90 Hz DELETE to ON.
17. Press RECEIVER (AM) button and note approximate 20% indication. Record value.
18. Subtract Step (13) from (17) and note computed value is 0 within 0.5.
19. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 148.5 to 151.5 Hz indication.
20. Note DISTORTION ANALYZER indication of 5% maximum.
21. Press RECEIVER (AM) button.
22. Set LOC COURSE switch, hold DELETE switch ON and note % AM indication differences are within specified tolerances of TABLE 1.

TABLE 1

STEP	COURSE	DELETE	%AM
1	LEFT	90 Hz	28 Nominal
2	LEFT	150 Hz	12 Nominal
Step 1 minus Step 2 = 13.5 to 17.5			
3	RIGHT	150 Hz	28 Nominal
4	RIGHT	90 Hz	12 Nominal
Step 3 minus Step 4 = 13.5 to 17.5			

23. Press RECEIVER 300 Hz HP AND 3 KHz LP FILTERS to ON (all other filters OFF).
24. Hold 90 Hz and 150 Hz DELETE switches ON.
25. Set 1020 Hz to ON and note 5 to 20% indication.
26. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 995 to 1045 Hz indication (DELETE switches held ON).
27. Note DISTORTION ANALYZER indication of 10% maximum (DELETE switches held ON).
28. Set all TEST SET LOC switches to OFF and disconnect SENSOR.

FB1047_4 GA

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 4 OF 11)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURES: (CONT)
CALIBRATION (CONT)
GS MODULE

1. Connect TEST SET J3 (GS / VOR / LOC) output to the SENSOR with a short cable.
2. Connect RECEIVER MODULATION OUTPUT to DISTORTION ANALYZER input.
3. Set PWR and GLIDESLOPE power switch in the ON position and FREQ. SW to 334.70.
4. Press on RECEIVER:
   a. (BLUE), (AUTOMATIC OPERATION)
   b. (FREQ), (3), (3), (4), (.), (7), (MHz)
5. Press RECEIVER (RF POWER) and LOG / LIN for dBm scaling.
6. Note reading is –20 dBm minimum.
7. Depress RECEIVER (FREQ) button.
8. Note RECEIVER 334.6916 TO 334.7084 MHz indication.
9. Set GLIDESLOPE FREQ SW to 334.55 position.
10. Press on RECEIVER if required to tune:
    a. (FREQ), (3), (3), (4), (.), (5), (5), (MHz)
11. Note RECEIVER 334.5416 TO 334.5584 MHz indication.
12. Press RECEIVER (RF POWER) and LOG / LIN for dBm scaling.
13. Note reading is –20 dBm minimum.
14. Set GLIDESLOPE to OC and hold 150 Hz DELETE ON.
15. Press RECEIVER (AM) and (PEAK ± / 2) buttons and note approximate 40% indication. Record value.
16. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 89.1 to 90.9 Hz indication.
17. Note DISTORTION ANALYZER indication of 5% maximum.
18. Release 150 Hz DELETE and hold 90 Hz DELETE to ON.
19. Press RECEIVER (AM) button and note approximate 40% indication. Record value.
20. Subtract Step (15) from (19) and note computed value is 0 within 1.
21. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 148.5 to 151.5 Hz indication.
22. Press RECEIVER (AM) button.

FB1047_5A

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 5 OF 11)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURES: (CONT)

CALIBRATION (CONT)

GS MODULE (CONT)

23. Set GLIDESLOPES COURSE switch, hold DELETE switch ON and note % AM indication differences within specified tolerances of TABLE 2.

TABLE 2			
STEP	COURSE	DELETE	%AM
1	UP	90 Hz	49 Nominal
2	UP	150 Hz	31 Nominal
Step 1 minus Step 2 = 15 to 20			
3	DOWN	150 Hz	49 Nominal
4	DOWN	90 Hz	31 Nominal
Step 3 minus Step 4 = 15 to 20			

24. Set all TEST SET GLIDESLOPE switches to OFF and disconnect SENSOR.

VOR MODULE

1. Connect TEST SET J3 (GS / VOR / LOC) output to SENSOR with a short cable.
2. Connect RECEIVER MODULATION OUTPUT to DISTORTION ANALYZER input.
3. Set PWR and VOR power switch in the ON position and FREQ. SW to 108.00.
4. Press on RECEIVER:
   a. (BLUE), (AUTOMATIC OPERATION)
   b. (FREQ), (1), (0), (8), (MHz)
5. Press RECEIVER (RF POWER) and LOG / LIN for dBm scaling.
6. Note reading is –10 dBm minimum.
7. Depress RECEIVER (FREQ) button.
8. Note RECEIVER 107.9973 to 108.0027 MHz indication.
9. Set VOR FREQ SW to 108.05 position.
10. Press on RECEIVER if required to tune:
    a. (FREQ), (1), (0), (8), (.), (0), (5), (MHz)
11. Note RECEIVER 108.0473 to 108.0527 MHz indication.

FB1047_6A
SA

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 6 OF 11)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURES: (CONT)
CALIBRATION (CONT)
VOR MODULE (CONT)

12. Press RECEIVER (AM), (PEAK ± / 2) buttons and 3 KHz LP FILTER to ON.
13. Note indication of 27.0 to 33.0%.
14. Press RECEIVER (SHIFT), (AUDIO FREQ) and note 29.7 to 30.3 Hz indication.
15. Depress and hold DELETE 30 Hz REF and note DISTORTION ANALYZER reading of 7% maximum.
16. Press RECEIVER AM button, 15 KHz LP AND 300 Hz HP FILTERS to ON (all other filters OFF).
17. Note indication of 27.0 to 33.0%.
18. Depress and hold DELETE 30 Hz REF and 30 Hz VAR and then note DISTORTION ANALYZER reading of 3% maximum.
19. Press RECEIVER (SHIFT), (AUDIO FREQ).
20. Press and hold DELETE 30 Hz REF and 30 Hz VAR and note 9860 to 10060 Hz indication of RECEIVER.
21. Press the RECEIVER 300 Hz HP and 3 KHz LP FILTERS to ON (all other filters OFF).
22. Set 1020 Hz to ON and note 970 to 1070 Hz indication.
23. Press RECEIVER (AM) button and note 5 to 15% indication.
24. Set 1020 Hz switch to OFF.
25. Press RECEIVER AM button, and all FILTERS OFF.
26. Leave present set–up for next test.

VOR MODULE BEARING

1. Add VIEW C set–up if not already done.
2. Set STANDARD COURSE CHECKER controls:
   a. CAL / DEV to center position
   b. FUNCTION to SET INPUT (RED LINE)
   c. READOUT to NORM
   d. COURSE to ZERO
3. Preset STANDARD COURSE CHECKER INPUT pot approximately 3/4 full CW and adjust VOR TEST BOX GAIN and / or STANDARD COURSE CHECKER INPUT pot for "RED LINE" meter reading on COURSE CHECKER.
4. Set STANDARD COURSE CHECKER FUNCTION to NOTE METER READING and note the reading.
5. Set STANDARD COURSE CHECKER FUNCTION to EQUALIZE 9960 and adjust 9960 pot for indication of Step 4.
6. Set FUNCTION to ADJUST PHASE–BAL and adjust PHASE pot to bring meter indication one–half way from present indication toward zero.
7. Set COURSE to 180 and adjust BALANCE pot to bring meter indication one–half way from present indication toward zero.

FB1047_7
SA

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 7 OF 11)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURES: (CONT)

CALIBRATION (CONT)

VOR MODULE BEARING (CONT)

8. Set COURSE to 0 and repeat from STEP 6 until adjustment is not required.

9. Set STANDARD COURSE CHECKER READOUT to EXT and adjust VOR TEST BOX PHASE control for TEST BOX "CAL PHASE" label reading on the PHASEMETER.

10. Set STANDARD COURSE CHECKER FUNCTION to READ COURSE ERROR.

11. Set VOR BEARING "to" switch and note the PHASEMETER indications are within TABLE 3 tolerances.

TABLE 3

VOR BEARING	PHASEMETER
000	359.3 to 000.7
045	044.0 to 046.0
090	089.0 to 091.0
135	134.0 to 136.0
180	179.0 to 181.0
225	224.0 to 226.0
270	269.0 to 271.0
315	314.0 to 316.0

12. Set STANDARD COURSE CHECKER controls:

a. CAL / DEV to CAL

b. FUNCTION to EQUALIZE 9960

c. 9960 pot to full CW

13. Set VOR BEARING to 0 TO.

14. Adjust VOR TEST BOX GAIN control for exact 1 VAC reading on Dmm.

15. Set STANDARD COURSE CHECKER CAL / DEV to DEV.

16. Record Dmm mVAC indication.

17. Compute Step 16 times TEST BOX label VAC value and note result is 900 to 1020.

NOTE:

Result is p–p deviation in Hz of 9960 Hz carrier.

18. Set all TEST SET VOR switches to OFF and disconnect SENSOR.

FB1047_8

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 8 OF 11)

CALIBRATION REQUIREMENTS: (CONT)
CALIBRATION PROCEDURES: (CONT)
CALIBRATION (CONT)
RF OUTPUT LEVEL

1. Connect TEST SET J3 (GS / VOR / LOC) output to SENSOR with a short cable.
2. Set PWR and LOC power switch in the ON position and FREQ switch to 108.1.
3. Press on RECEIVER:
   a. (BLUE), (AUTOMATIC OPERATION)
   b. (FREQ), (1), (0), (8), (.), (1), (MHz)
4. Press RECEIVER (RF POWER) and LOG / LIN for dBm scaling.
5. Note reading is –10 dBm minimum.
6. Press on RECEIVER:
   a. (SHIFT), (TUNED RF LEVEL)
   b. (RATIO)
7. RECEIVER display should be 0.000 REL nominal.

NOTE:

Allow time for RECEIVER to display result. If RECAL indication is displayed press CALIBRATE button.

8. Step TEST SET ATTN (0–10 dB /) from 0 to 10 and note display agrees with setting within 0.2 dB / step.
9. Set TEST SET ATTN to 0.
10. Step TEST SET ATTN (0–100 dB /) from 0 to 100 and note display agrees with setting within 2 dB / step.

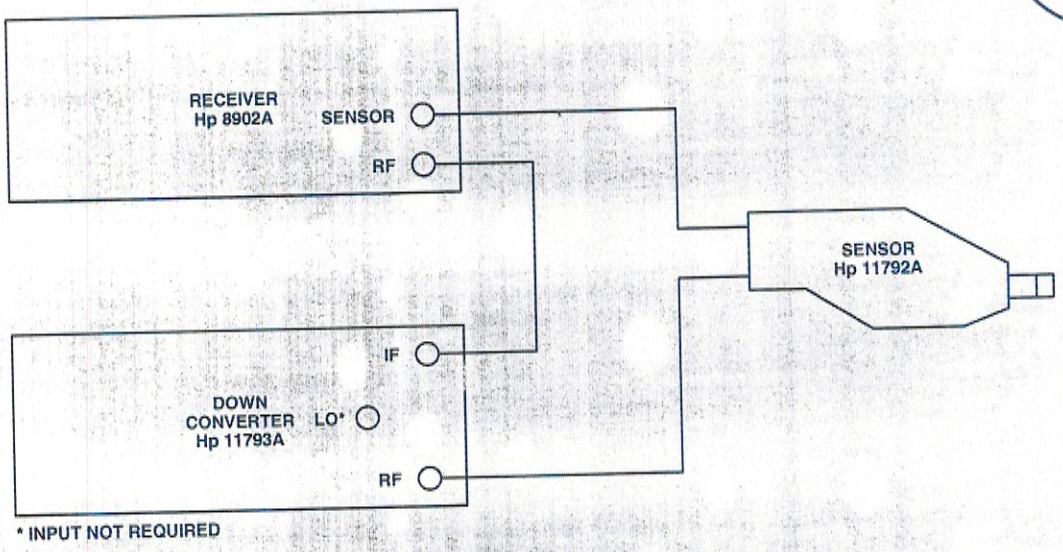
NOTE:

Allow time for RECEIVER to display result at each step. If RECAL indication is displayed press CALIBRATE button.

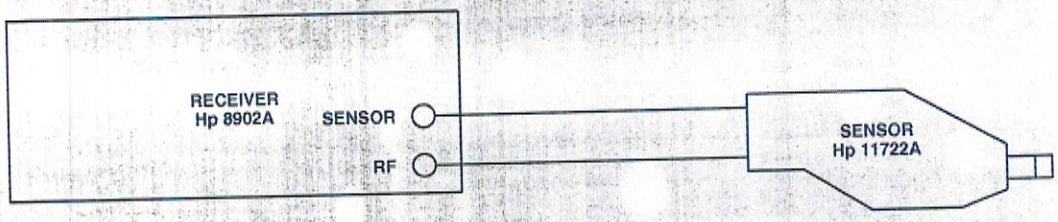
11. Set all TEST SET LOC switches to OFF and disconnect the SENSOR.
12. Set all power to OFF.
13. Secure all test equipment.
14. Apply applicable calibration label.

FB1047_9
5A

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 9 OF 11)



VIEW A
RECEIVER SET-UP



VIEW B
RECEIVER SET-UP

FB1047_10
8A

FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 10 OF 11)

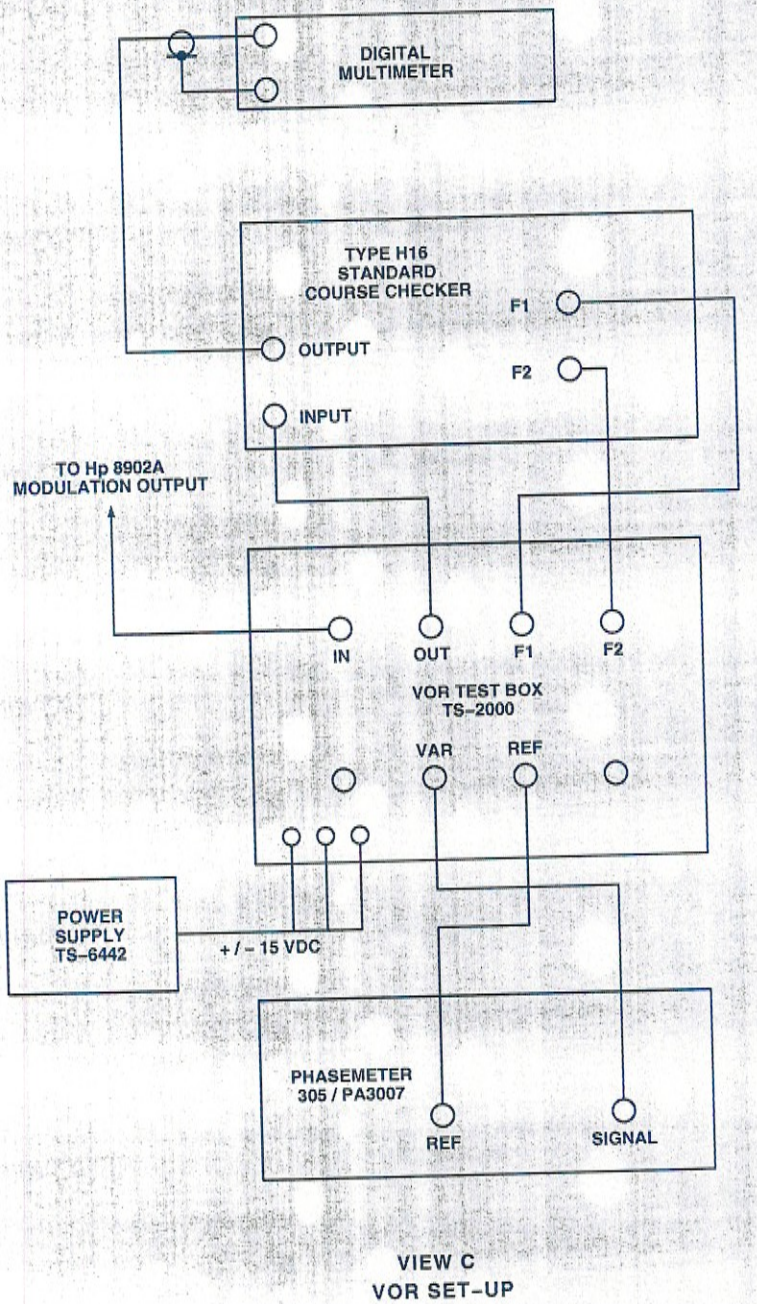
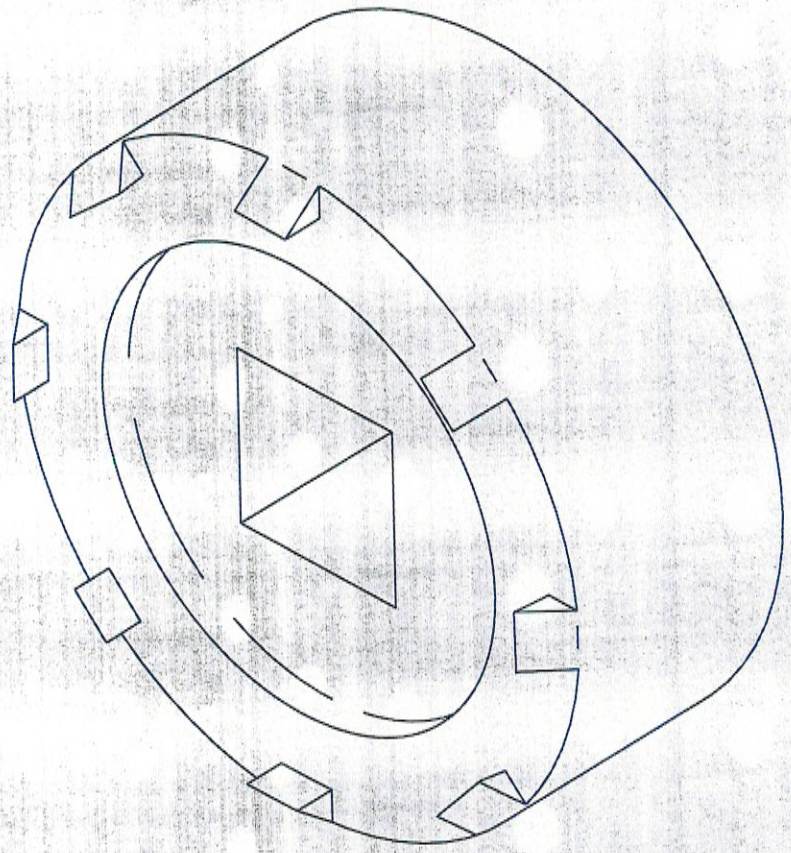


FIGURE C-70. VOR/ILS/MB RAMP TEST SET, 972Q-4 (SHEET 11 OF 11)



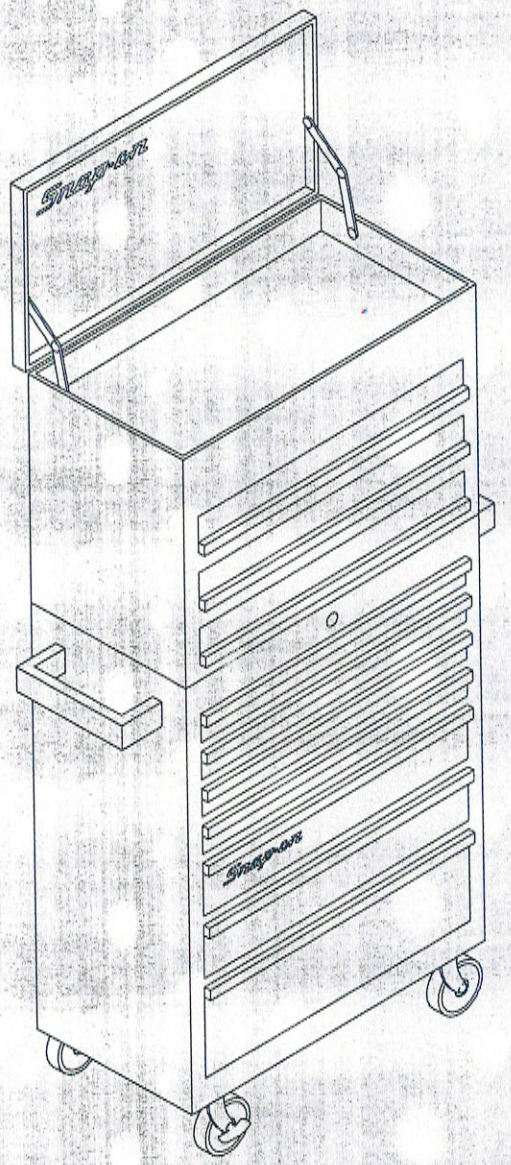
DESCRIPTION: The tail drive flange wrench is used with torque reactor, 70700–20688–102, to remove and install nut that retains the input or output flanges on tail drive shafts, tail gear box input, and rotor brake output flange.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB1048B
6A

FIGURE C-71. TAIL DRIVE FLANGE WRENCH, 70700-20687-102



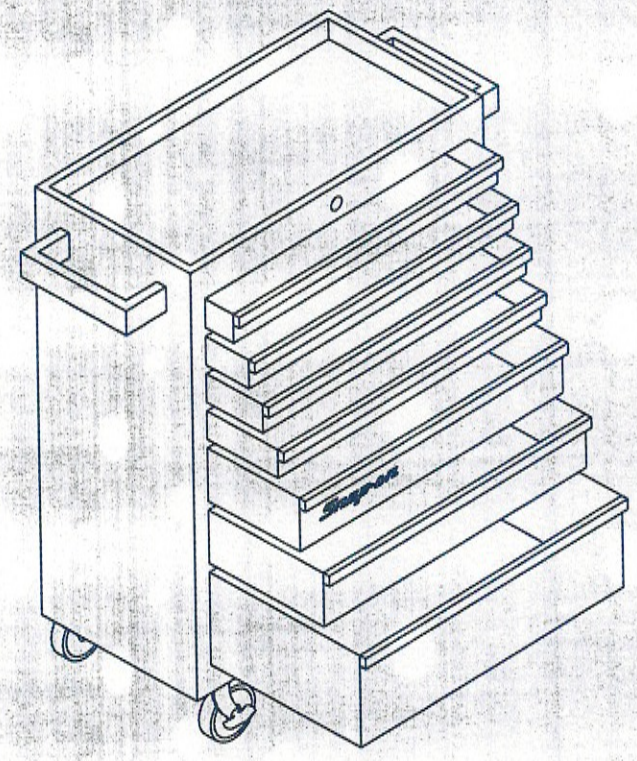
DESCRIPTION: The aircraft mechanic's toolkit contains tools required to support all requirements of the helicopter.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2072A
SA

FIGURE C-72. AIRCRAFT MECHANIC'S TOOLKIT



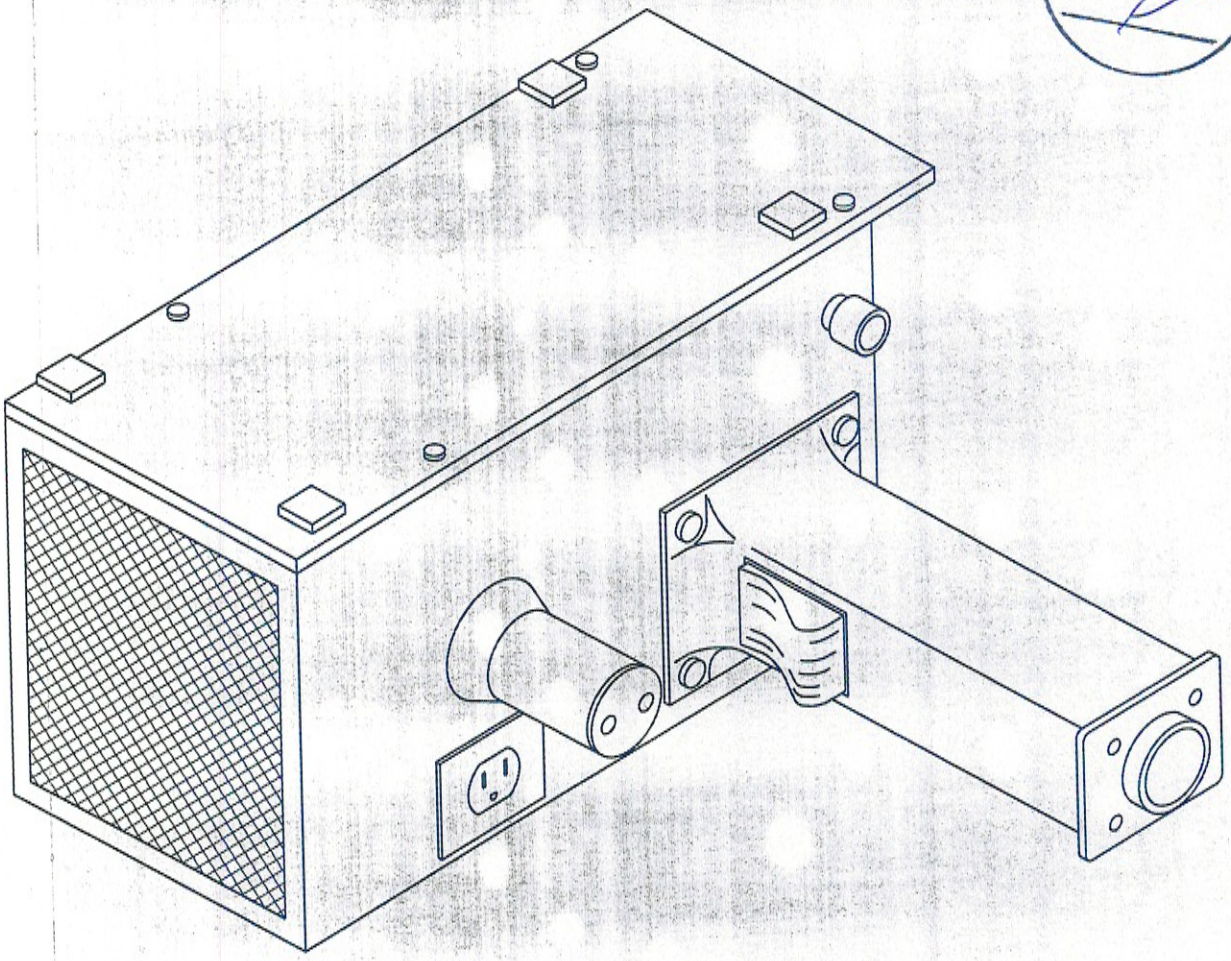
DESCRIPTION: The airframe repairer's toolkit contains tools required to support all requirements to maintain and repair helicopter airframe.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2073A
SA

FIGURE C-73. AIRFRAME REPAIRER'S TOOLKIT, SIK-AF-92



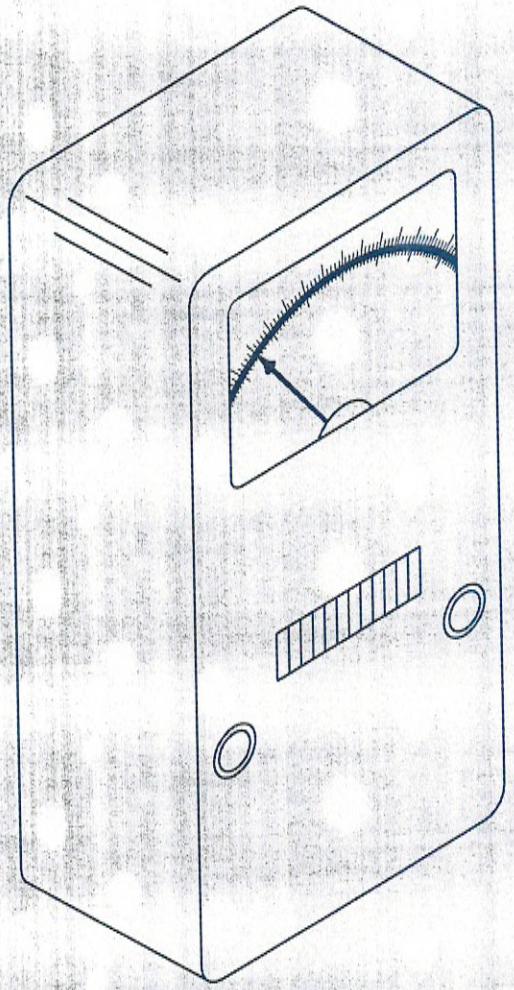
DESCRIPTION: The simulator is a handheld, portable source of pulsed radar frequency energy. Powered by two self–contained rechargeable batteries, a trigger switch on handgrip energizes the simulator.

POWER REQUIREMENTS: Two rechargeable, size D type batteries.

CALIBRATION REQUIREMENTS: Not Applicable

FB2074
5A

FIGURE C-74. SIMULATOR, SM-C-877251



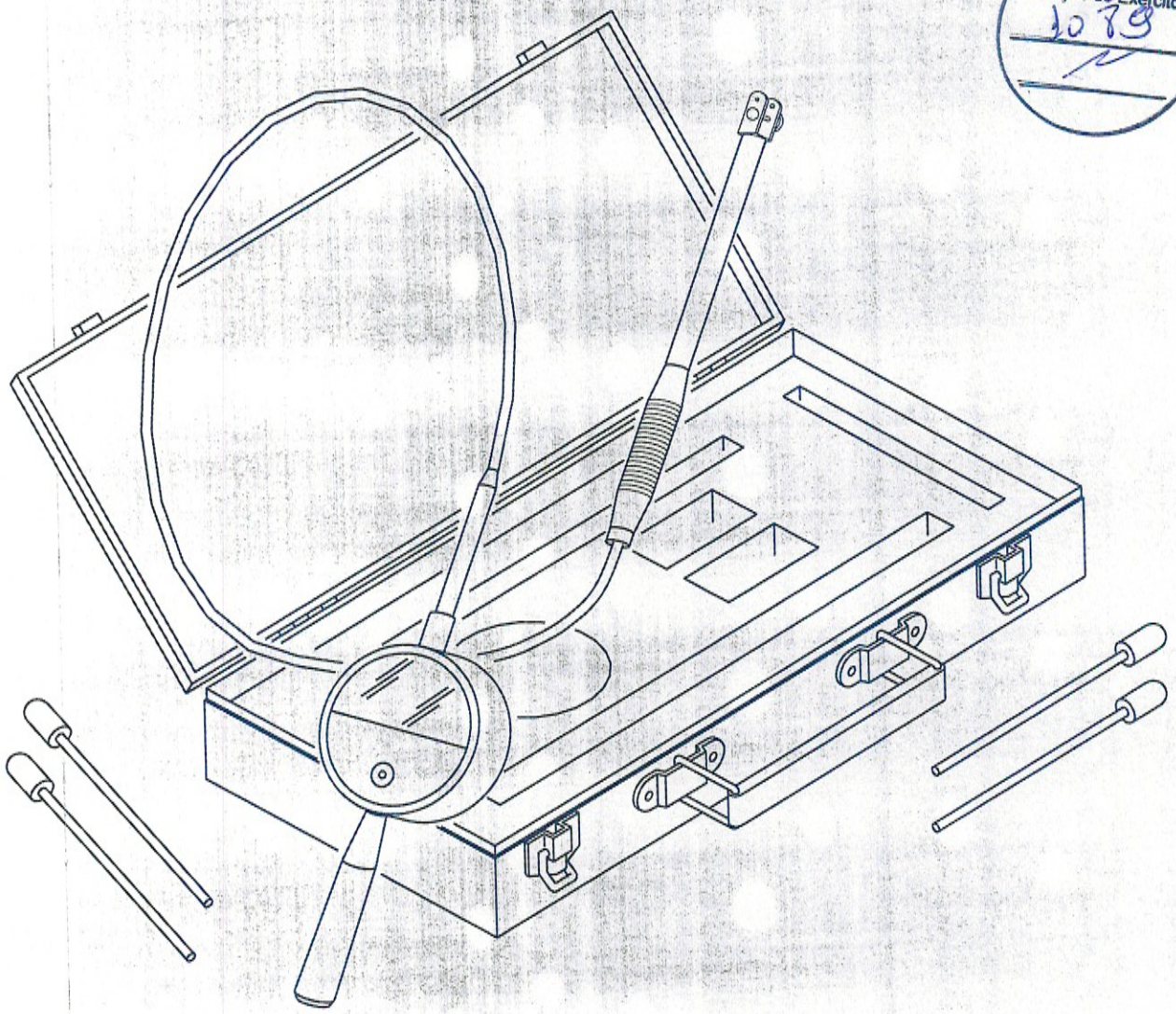
DESCRIPTION: The temperature meter is designed to provide accurate temperature measurements over the range of –50°F to +70°F (–45°C to +21°C). A total of three separate thermistor probes can be attached to allow readings from three separate locations up to 150 feet away.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2075
SA

FIGURE C-75. TEMPERATURE METER, 385-3L



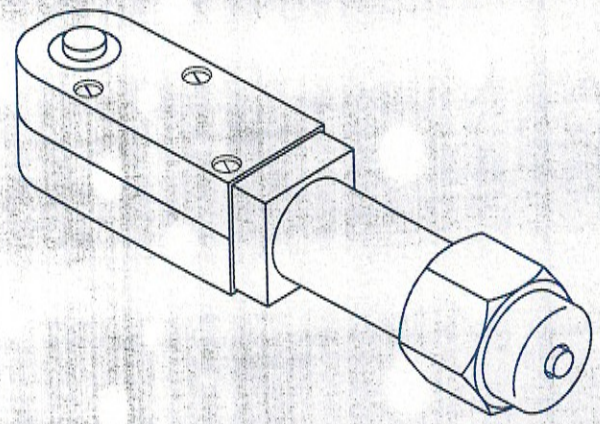
DESCRIPTION: The pyrometer is a handheld, dial type, temperature sensing device. This tool is used to accurately determine main rotor blade temperature on or off the helicopter. It may also be used to measure temperature anywhere on the helicopter where an accurate surface temperature determination is required. The pyrometer must be used with the type 4020 flexible extension arm, and type 4040 thermocouple.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2076
GA

FIGURE C-76. PYROMETER, 4000A



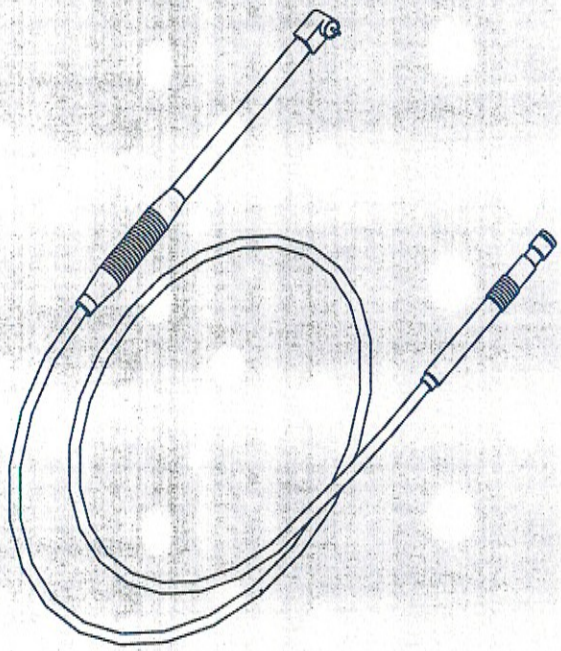
DESCRIPTION: The thermocouple is an accessory for the type 4000A pyrometer. It has a fine wire element in a retractory semi-swivel mounting for automatic self-alignment. A shield is provided to protect the fine wire tip. Use to maximum temperature 1200°F.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2077
GA

FIGURE C-77. THERMOCOUPLE, TYPE 4040



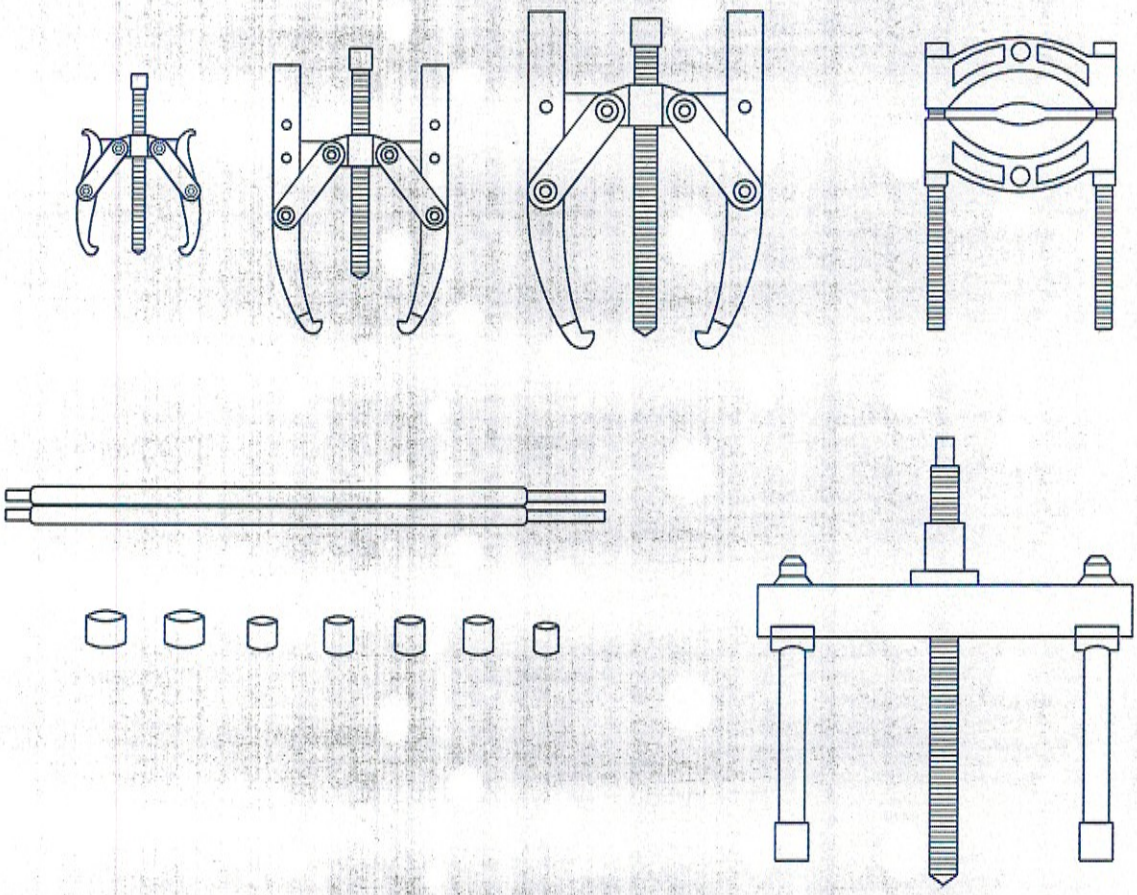
DESCRIPTION: The flexible extension arm is an accessory for type 4000A pyrometer. It has a flexible section, 36 inches long and rigid section 10 inches long. The flexible arm permits placing the thermocouple in hand to reach places and still hold the pyrometer in a convenient reading position.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2078
SA

FIGURE C-78. FLEXIBLE EXTENSION ARM, TYPE 4020



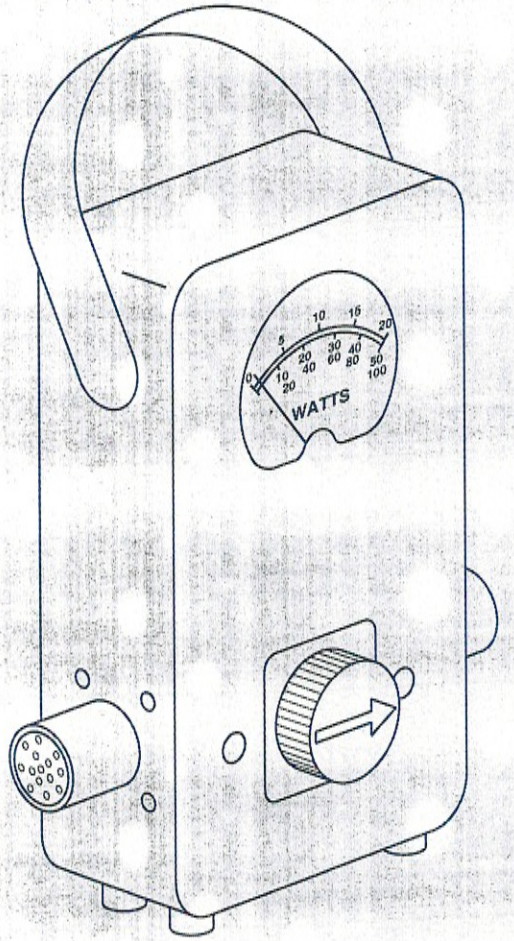
DESCRIPTION: The puller kit is used to remove and replace gears, bearings, wheels and any other press fit parts on the helicopter. Pullers are versatile in use, based on tonnage capacity required.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2091
GA

FIGURE C-79. PULLER SET, MECHANICAL, 1677



DESCRIPTION: The wattmeter is a portable insertion-type instrument. It accurately measures forward or reflected power in coaxial transmission lines under any load condition.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS:

FREQUENCY

Wattmeter must be calibrated every 12 weeks regardless of being used or not.

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SA

FIGURE C-80. WATTMETER, 43 (SHEET 1 OF 4)

CALIBRATION REQUIREMENTS: (CONT)

EQUIPMENT REQUIRED

- Bird 43 RF Wattmeter
- Bird 100H Element
  50B Element
  50C Element — Calibrated ±3%
  50D Element — 10 – 50W
  50E Element — 10 – 1000 MHz
- Bird 8135 Termination
- Fluke 853A Multimeter
  0–30μ A DC ± 0.5%
- Narda 766 Attenuators 3 & 10 dB 20W
- Amplifier Research 50W 1000 RF Power Amplifier
  10–1000 MHz 50W CW
- Sikorsky TS 7024 Dummy Element
- Weinschel GS–1 Connector Gage Set
- Current Source 0–30μ A DC
- Hewlett Packard 8640b Signal Generator
  1 mW 10–1000 Mhz CW

NOTE

Calibration limited to 10–500 MHz and 1000 MHz at 50 watts maximum.

CALIBRATION PROCEDURE

INSPECTION

Inspect WATTMETER for physical damage / cleanliness and repair / clean as required.

CALIBRATION

1. Adjust WATTMETER mechanical zero if required.
2. Verify WATTMETER type N connectors are within dimensional tolerances, see View A.
3. Perform calibration section 4, 5, or 6 as applicable.
   a. Section 4: Bird 43 without element.
   b. Section 5: Bird 43 with element.
   c. Section 6: Wattmeter

WATTMETER WITHOUT ELEMENT

1. Connect test set–up shown in View B.
2. Adjust current source for WATTMETER readings of Table 1 and note input current is within tolerance.

TABLE 1

WATTMETER	CURRENT (μ A)
100	29.4 to 30.6
80	26.2 to 27.4
60	21.6 to 22.8
40	16.0 to 17.2
20	9.23 to 10.4

FB2101_2
SA

FIGURE C-80. WATTMETER, 43 (SHEET 2 OF 4)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURES (CONT)

WATTMETER WITH ELEMENT

1. Perform Section 4 with element removed.
2. Perform Section 5 with element installed.

WATTMETER

1. Determine mid-frequency* range of WATTMETER as in note and connect test set-up as shown in View C using applicable equipment.

NOTE

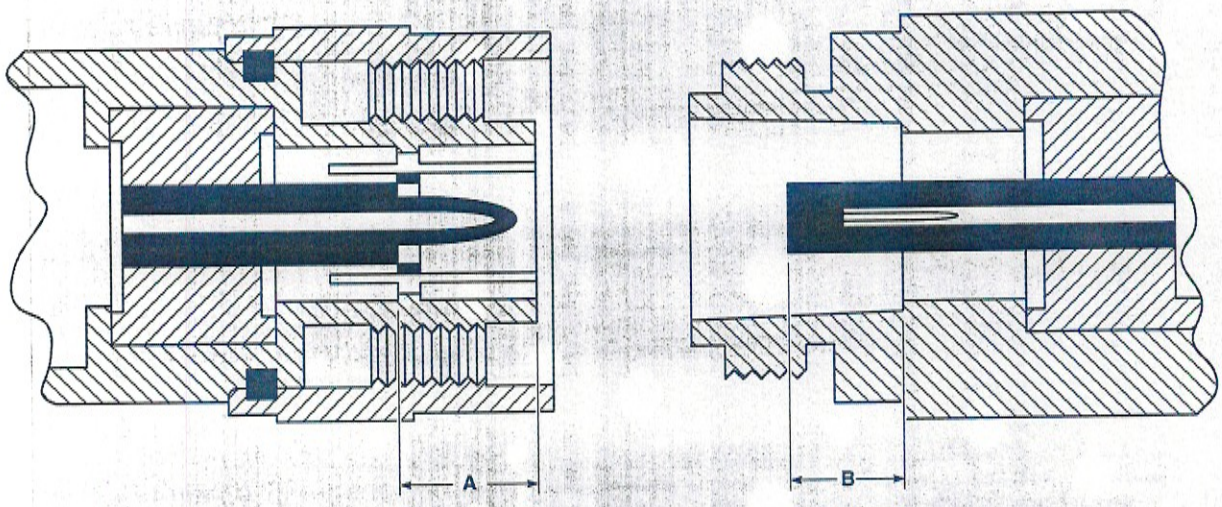
*500 MHz maximum; If frequency range of WATTMETER extends above 1000 MHz but not below, calibrate at 1000 MHz only.

2. Check scale linearity at cardinal points (50W maximum) to ±5% full scale using corrections for WATTMETER and standard wattmeter as required.
3. Check frequency response at low (10 MHz min) mid and high (500 MHz max) ends of frequency range at full scale power (50W Max). Tolerance is ±5% using corrections for WATTMETER and standard wattmeter as required.

NOTE

Check at 3 frequencies 500 MHz and below even if response extends above 500 MHz. If minimum frequency of WATTMETER is 1000 MHz, omit this test.

4. Apply standard calibration label stamped "LIMITED USE".



A INCHES	B INCHES
0.233 ± 0.009	0.197 ± 0.010

VIEW A
TYPE N CONNECTORS

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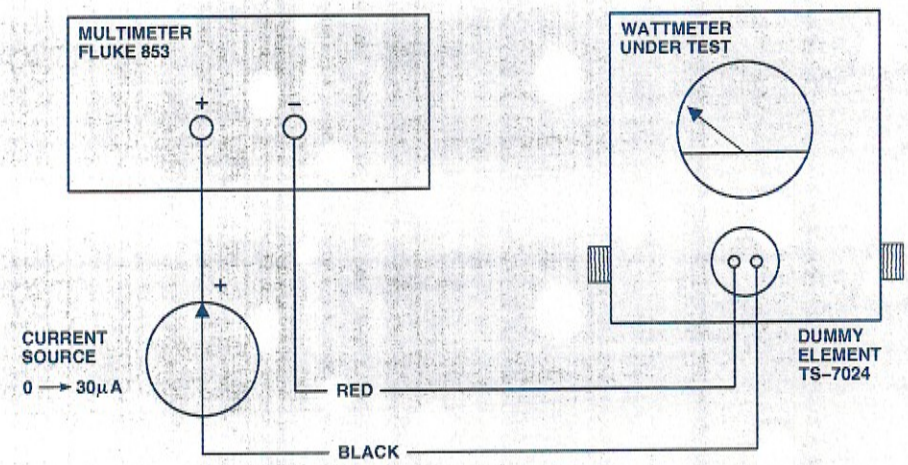
SA

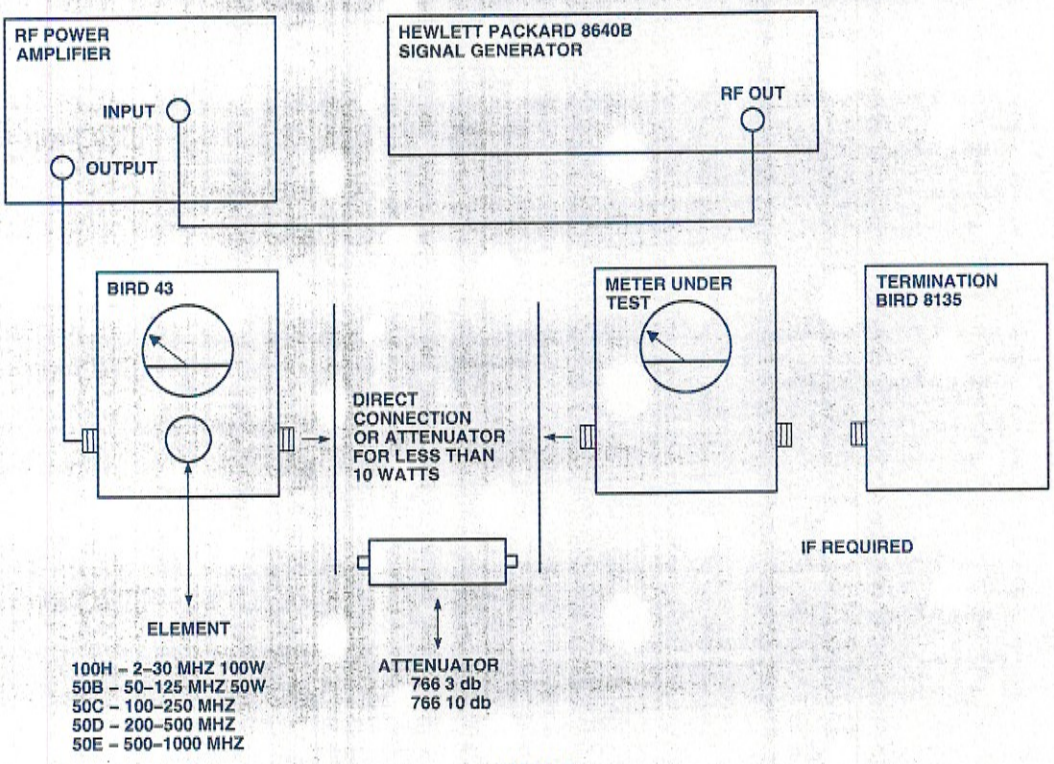
FIGURE C-80. WATTMETER, 43 (SHEET 3 OF 4)

CALIBRATION REQUIREMENTS: (CONT)

CALIBRATION PROCEDURES (CONT)



VIEW B



VIEW C

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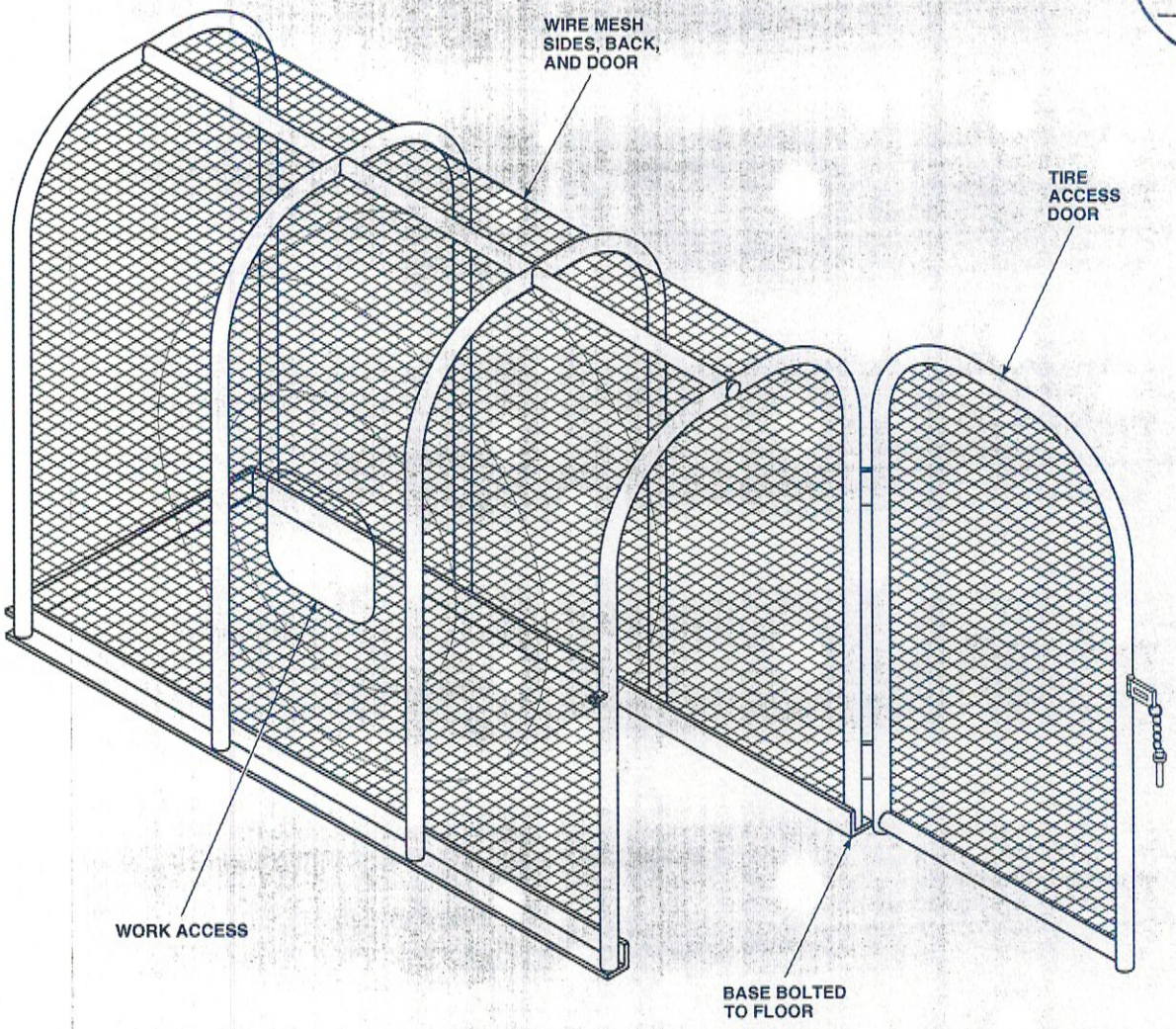
FIGURE C-80. WATTMETER, 43 (SHEET 4 OF 4)



DESCRIPTION: The aircraft tire inflation cage is a metal tubular structure, covered with wire mesh. It has a locking door and a work access to inflate tires. The aircraft tire inflation cage is used to prevent injury to personnel. The aircraft tire inflation cage must be anchored to the floor.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

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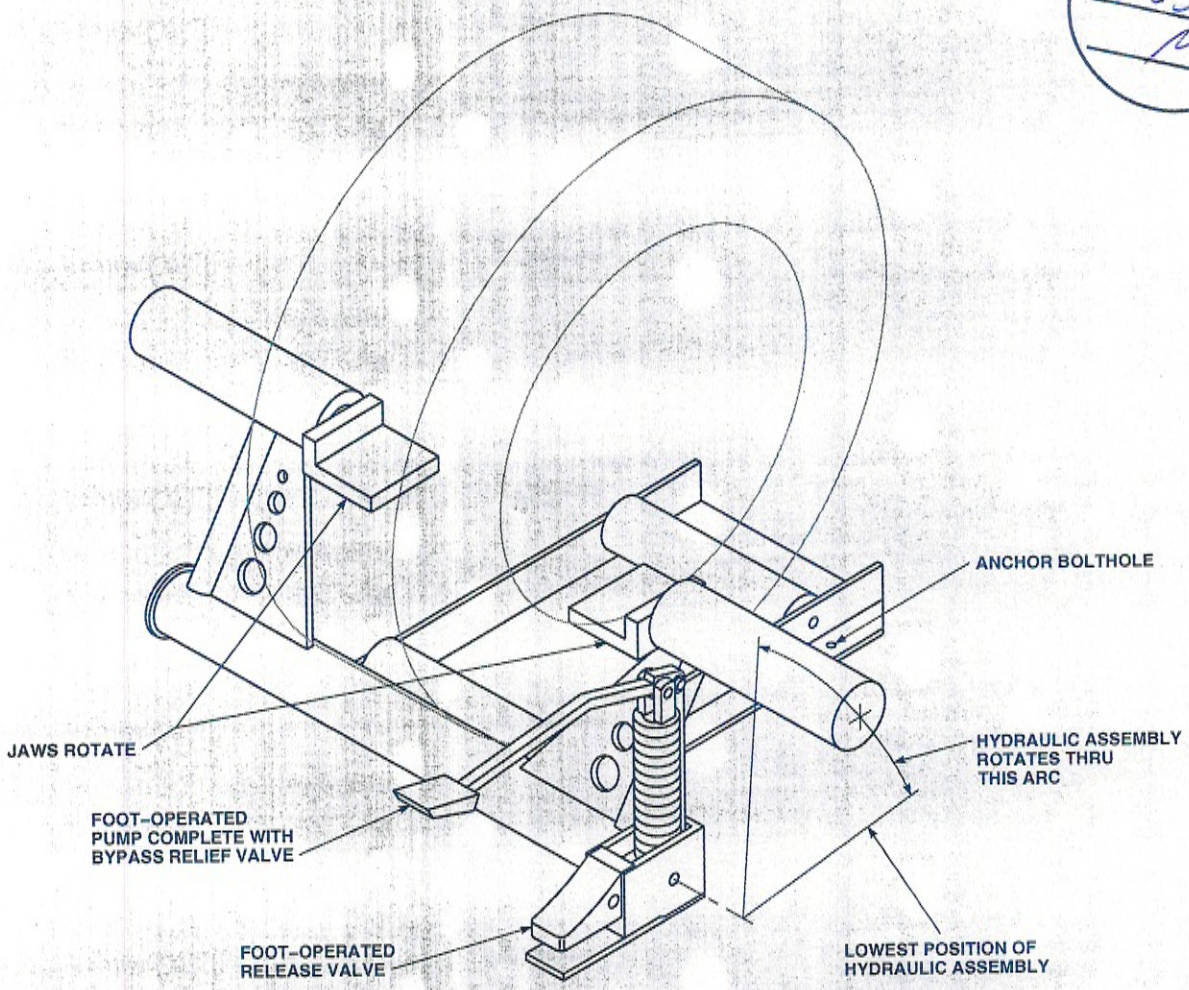
FIGURE C-81. AIRCRAFT TIRE INFLATION CAGE, 7201-010



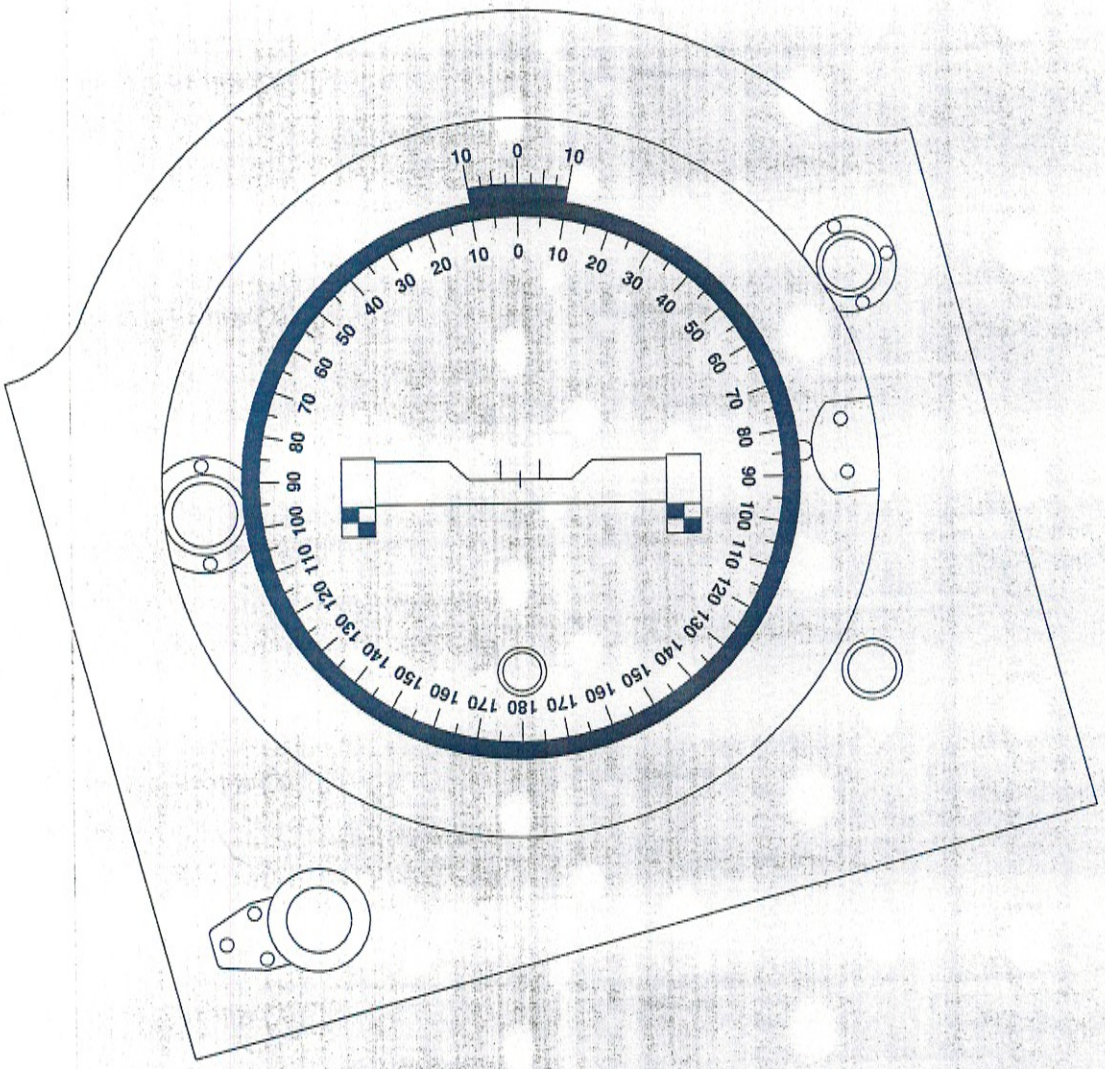
DESCRIPTION: The aircraft tire bead breaker is used to break the tire bead from the rim of a deflated wheel assembly. The aircraft tire bead breaker has a foot-operated hydraulic ram and release valve. It has a breaking capacity of 2000 pounds, on rims that range in size from 6-16-inches and tire widths of 9-inches. The aircraft tire bead breaker must be anchored to the floor.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FK1858B
CA

FIGURE C-82. AIRCRAFT TIRE BEAD BREAKER, 5033-010



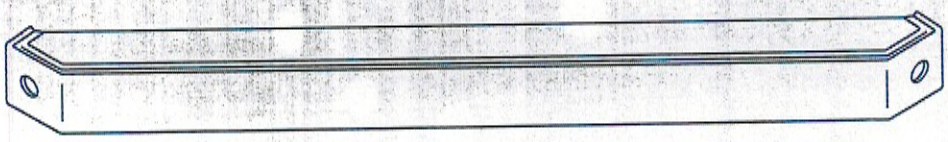
DESCRIPTION: The protractor may be used to measure propeller blade angle, control surface movement, or any other angle. It consists of an aluminum frame in which a steel ring and a disk are mounted. Spirit levels are mounted on both the frame and the disk, and locks are provided for locking the ring to the frame or the disk.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB4081
8A

FIGURE C-83. PROTRACTOR



DESCRIPTION: The locking strut is used to secure open the tail rotor pylon during maintenance.

POWER REQUIREMENTS: Not Applicable

CALIBRATION REQUIREMENTS: Not Applicable

FB2482
SA

FIGURE C-84. MAINTENANCE LOCK STRUT, 70700-20385-041