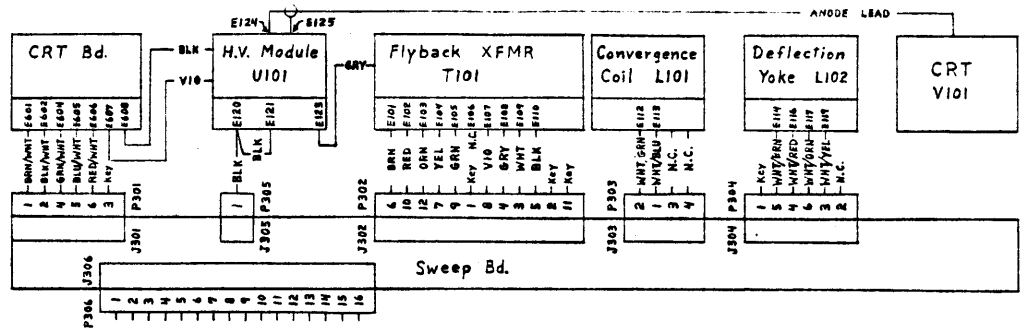
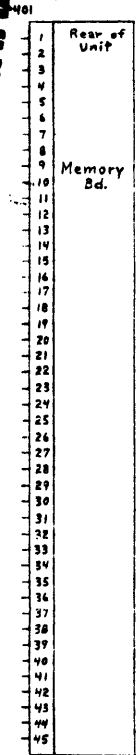
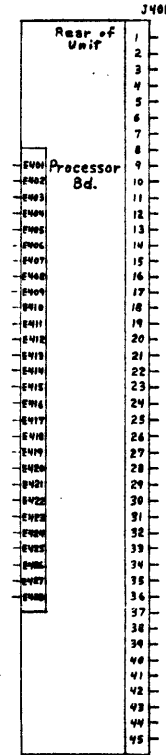
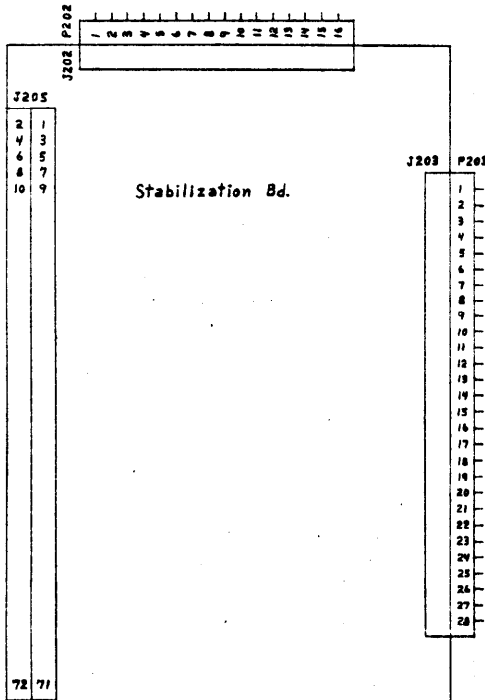
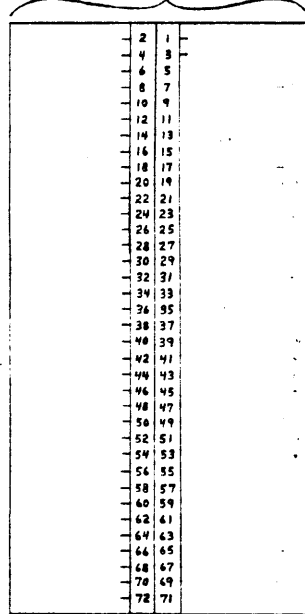
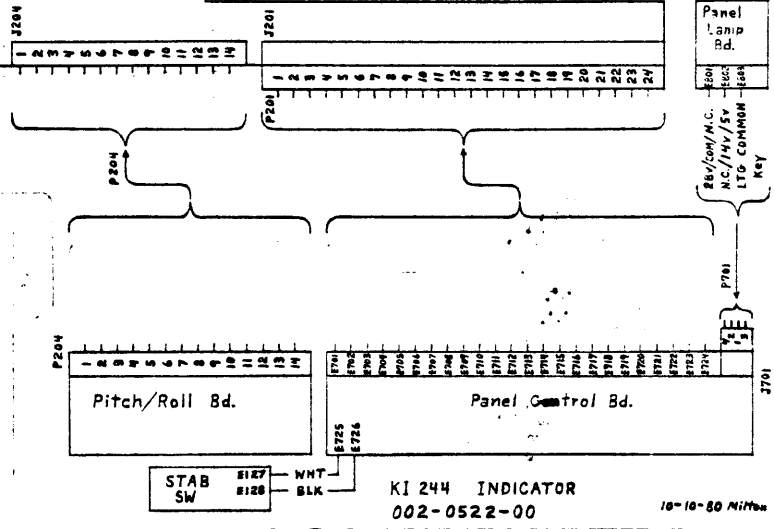


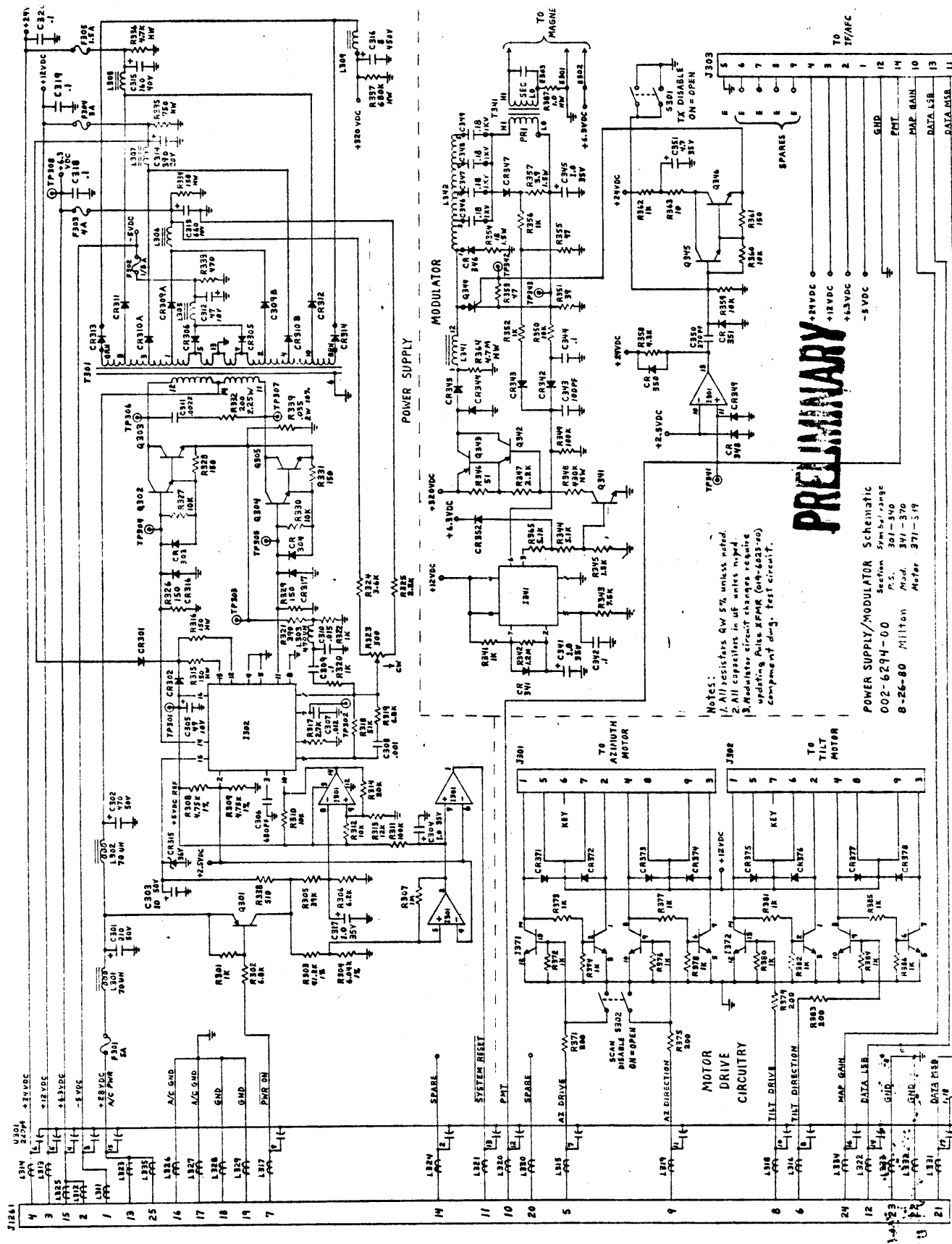


J244/P205  
I/O CONN FLTR ASSY



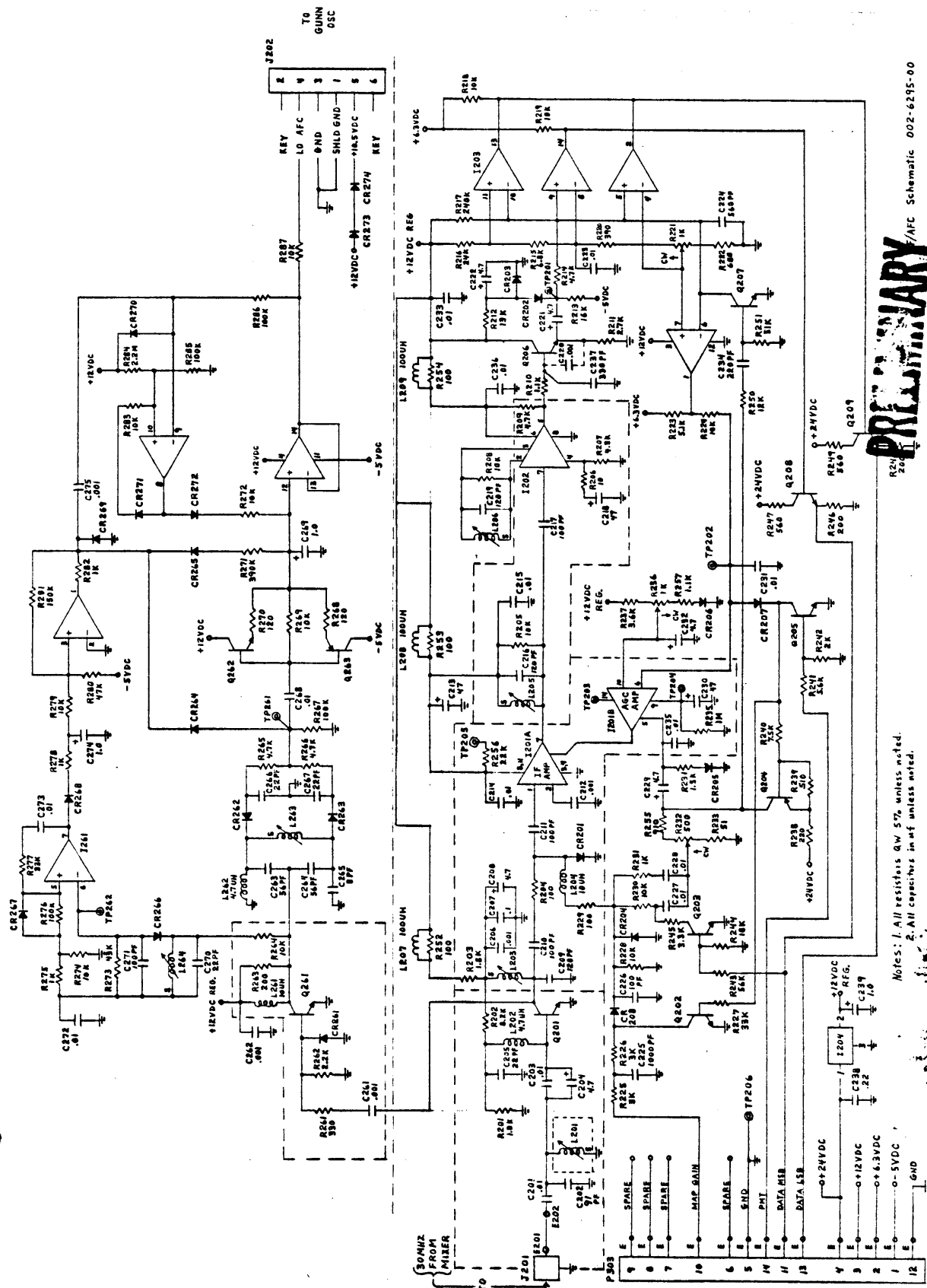
**PRELIMINARY**





Notes:  
 1. All resistors QW 5% unless noted.  
 2. All capacitors in  $\mu$ F unless noted.  
 3. Modulator circuit changes require updating Ailes XPMR (04-6023-00) component dwg. Test circuit.

POWER SUPPLY/MODULATOR Schematic  
 002-6294-00 Section 57m/bul range  
 P.S. 301-310  
 8-26-80 Milton Mod. 371-370  
 Motor 371-379



# PRELIMINARY

WIRE GROUP NEAREST  
MOTOR SHAFT  
BI01

P301  
4 GRY  
8 RED  
9 BLK  
3 YEL  
6 KEY  
1 GRY  
5 RED  
7 BLK  
2 YEL

J301

P.S./MODULATOR BD.

J1261

KA 126 SCHEMATIC 10-6-80 Milton  
002-0521-00

Note: All resistors QW.

CR401A & CR401B are a matched set.  
Symbol CR401 on E/M 071-1220-00/01.

WIRE GROUP NEAREST  
MOTOR SHAFT  
BI02

P302  
1 GRY  
5 RED  
6 BLK  
2 YEL  
7 KEY  
4 GRY  
8 RED  
9 BLK  
3 YEL

J302

PULSE XMFR

RED  
BRN  
BLK  
E302  
E301  
E301

J303

P303

14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1

-5VDC  
+6.3VDC  
+12VDC  
+24VDC  
GND  
SPARE  
"  
"  
MAP GAIN  
DATA MSB  
GND  
DATA LSB  
PMT  
E201  
E202  
E203  
E204  
E205  
E206  
E207  
E208  
E209  
E210  
E211  
E212  
E213  
E214

IF/AFC BD.

P201

J201

P202

J202

2 KEY  
4  
5  
3  
1 KEY  
6

LO AFC (WHT)  
+10.5VDC (RED)  
GND (BLK)

GUNN OSC.  
WG103

AT101  
C101  
C102  
E101  
E102  
E103

PRELIMINARY

PHASED ARRAY ANTENNA

DUPLEXER

TR  
LIMITER  
WG101

MIXER ASSY WG102

C401 1000PF  
C402 1000PF  
CR401A L401 22 OH  
CR401B L402 22 OH  
C403 100 OH  
C404 100 OH  
R401 100 5%  
R402 100 5%  
TP401  
TP402  
TP403  
MIXER TEST

TS0046-2

APPENDIX B  
PRELIMINARY INSTRUCTION BOOK  
16



**KWX 56  
WEATHER RADAR**

**INSTALLATION MANUAL  
006-0191-00**

**REV. 0,      DECEMBER, 1980**

**PRELIMINARY**

KING  
KWX 56  
WEATHER RADAR

section i  
general information

1.1 introduction

This manual contains information relative to the physical, mechanical, and electrical characteristics as well as installation procedures and operational characteristics for the KWX 56 Weather Radar System.

1.2 description of equipment

The KWX 56 TSO'd X-band Color Weather Radar System features a 160 nautical mile weather avoidance range plus the weather penetration advantages of X-band. The KWX 56 system is composed of the KI 244 Indicator and KA 126 Antenna/Receiver/Transmitter.

Digital storage of the weather picture and TV-like presentation give the KWX 56 the advantages of a bright, non-fading display with excellent contrast in all lighting conditions. Weather systems are displayed as 3 colors depicting rainfall intensity overlaid with range rings. Bearing marks at dead ahead and 20 degrees on either side aid the pilot in judging the bearing of storms and necessary heading changes.

The flat-plate antenna is fully stabilized to compensate for aircraft pitch and roll.

Display ranges 10, 20, 40, 80 and 160 nautical miles are selected by a rotary switch. The range of each range ring is annunciated with numeric characters.

The function switch provides the following modes of operation: OFF, StandBy, TEST, WX and MAP. In StandBy mode the display and transmitter circuits are disabled with the magnetron heater remaining on. The TEST mode activates all circuitry including the transmitter and also puts a pattern on the display to verify all weather colors. The WX mode is the normal weather mode with green for light precipitation, yellow for moderate, and red for heavy. The MAP mode is used for terrain mapping. In this mode the variable gain control is functional. The gain is adjustable from the automatic setting down to -16dB. Display colors are changed in the MAP mode as follows green to blue, yellow stays the same, and red magenta.

Indicator brightness is adjustable over a wide range to accommodate varying ambient light conditions while automatically maintaining equal brightness between the three display colors.

A unique feature called Extended Sensitivity Time Control or Extended STC increases the displayed intensity of storms outside the normal STC range to more accurately represent the storm intensity. Extended STC relates the storm intensity to its distance and assigns a corresponding color. As a result, the display presents a more accurate picture of storm intensity.

The KWX 56 Weather Radar uses the KI 244 Indicator which features a 5-inch rectangular CRT, and uses 4.7 inches in the aircraft radio stack.

The KA 126 is equipped with a 10 inch or 12 inch phased array antenna. A full 160 nautical mile TSO'd performance is obtained with the 10 inch antenna. Increased performance can be obtained by using the 12 inch diameter array where radome space will allow. For installations that require operation above 25,000 feet, a pressurized antenna is available. This antenna requires a hose connection to the cabin atmosphere.

The KA 126 Antenna/Receiver/Transmitter uses only 2.5 amperes of 27.5VDC to power the total system. No 400Hz power is required.

The stabilization feature, although its utilization (and interconnect) is optional, accepts pitch and roll output signals from vertical gyros having DC, 400Hz or other AC pitch outputs. However, some vertical gyros were not designed with auxiliary outputs, and others may have operational restrictions which might limit stabilization usage to certain conditions. It is advisable to investigate interface possibilities prior to system installation.

KING  
KWX 56  
WEATHER RADAR

technical characteristics

WEATHER RADAR SYSTEM

SPECIFICATIONS

CHARACTERISTICS

|                    |                                                                                                                                                                                   |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display Ranges:    | Selectable 10nm, 20nm, 40nm, 80nm, 160nm                                                                                                                                          |
| Performance Index: | 112.07dB 12 inches Antenna<br>(Nominal per D0-134)<br>109.25dB 10 inches antenna<br>(Nominal per D0-134)                                                                          |
| Avoidance Range:   | 200nm 12 inch phased array<br>170nm 10 inch phased array<br>Based on ARINC standards using measured<br>digital radar performance and general aviation<br>installation techniques. |
| Power Requirement: | 27.5VDC $\pm$ 10% 2.8 amperes maximum                                                                                                                                             |
| Panel Lighting:    | Optional 5VAC/DC or 13.75/27.5VDC Light<br>dimmer.                                                                                                                                |

KA 126 ANTENNA/RECEIVER/TRANSCIVER

SPECIFICATIONS

CHARACTERISTICS

|                         |                                                                   |
|-------------------------|-------------------------------------------------------------------|
| Output Frequency:       | 9375 $\pm$ 30MHz (X-band)                                         |
| Pulsewidth:             | 3.75 microseconds (nominal)                                       |
| PRF:                    | 109pps (nominal)                                                  |
| Noise Factor:           | 8.0dB nominal                                                     |
| Receiver Sensitivity:   | -109dBm minimum detectable signal                                 |
| STC:                    | Effective to 25nm                                                 |
| Peak Power Output:      | 7.5KW nominal, 6.0KW minimum                                      |
| Intermediate Frequency: | 30MHz                                                             |
| Scan Sector:            | 90° (nominal)                                                     |
| Scan Rate:              | 13 looks per minute (nominal)                                     |
| Beam Tilt:              | $\pm$ 12 degrees (nominal)                                        |
| Stabilization           | $\pm$ 30° for all combinations of pitch, roll and<br>manual tilt. |
| yro Excitation          | 10 to 134VRMS 400-10KHz                                           |
| itch and roll inputs    | 30 to 220 mv/degree                                               |

KING  
KWX 56  
WEATHER RADAR

| SPECIFICATION         | CHARACTERISTIC                                                                              |
|-----------------------|---------------------------------------------------------------------------------------------|
| Horizontal Beamwidth: | 7.8° (nominal) for 12 inches antenna<br>9.0° (nominal) for 10 inches antenna                |
| Antenna Gain:         | 26.8dB (nominal) 12 inch antenna<br>25.3dB (nominal) 10 inch antenna                        |
| Altitude:             | 25,000 feet unpressurized versions<br>50,000 feet pressurized versions                      |
| Temperature:          | -55°C to +70°                                                                               |
| Cooling:              | Natural Convection                                                                          |
| Size:                 | Base 10 inch diameter, see installation drawing for antenna clearances.                     |
| Weight:               | 9.5 pounds                                                                                  |
| Mounting:             | Hard mounted on rear                                                                        |
| TSO:                  | C63b Class 7 B2AMXXXXXABABA<br>Env. Cat. of D0-160<br>pressurized antenna<br>D2AMXXXXXABABA |

KI 244 INDICATOR

| SPECIFICATIONS       | CHARACTERISTICS                                                               |
|----------------------|-------------------------------------------------------------------------------|
| Presentation:        | TV-like PPI display with range rings and bearing marks.                       |
| Colors:              | WX: Green, Yellow, Red<br>MAP: Blue, Yellow, Magenta                          |
| Display Size:        | 4.25 x 3.20 (5 " diag. CRT)                                                   |
| Display Storage:     | 65,536 bit Digital Storage                                                    |
| Scan:                | TV type raster                                                                |
| Range marks:         | Distance annunciated on screen                                                |
| Bearing marks:       | Center and 20° either side.                                                   |
| Red Level (contour): | 16dB above MDS (Nominal) within STC range                                     |
| Extended STC:        | Modifies targets from end of STC to maximum display range.                    |
| CONTROLS:            | OFF/STBY/TEST/WX/MAP; TILT; 10/20/40/80/160nm;<br>BRIGHT/MAPGAIN; STAB ON/OFF |
| Map Gain:            | 16dB nominal manual gain reduction                                            |
| Altitude:            | 20,000 feet                                                                   |
| Temperature:         | -15°C to +55°C                                                                |

KING  
KWX 56  
WEATHER RADAR

SPECIFICATION

CHARACTERISTIC

|         |                                                           |
|---------|-----------------------------------------------------------|
| Size:   | 4.7 inches high Silver Crown tray 11.5 inches deep        |
| Weight: | 8.3 pounds with mounting tray                             |
| TSO:    | C63b class 7 A1B1/A/KS/XXXXXXZBABA<br>ENV. CAT. OF D0-160 |

1.4 units and accessories supplied

The KWX 56 Weather Radar System is comprised of the KI 244 Indicator (KPN 066-3065-00/03) and the KA 126 Antenna/Receiver/Transmitter (KPN 071-1220-00/02). The KI 244 Indicator is available with either 5V AC/DC Lighting or 13.75/28.5VDC Lighting configurations in black or gray face panels. Three antenna configurations are offered. Depending on the space limitations and performance of the air frame, a 12 inch pressurized or unpressurized 10 inch or 12 inch antenna is offered.

For installations in aircraft with ceilings above 25,000 feet a pressurized system must be used. Since the antenna is pressurized by venting humid cabin air into the wave guide, a means should be used to remove the moisture before it can condense on the cold inner antenna surfaces. It is therefore recommended that a desiccator be installed. King offers such a desiccator (KPN 071-1245-00) and refill crystals (KPN 016-1158-00).

Installation kits are included with each unit that include all required connectors and templates. Harness wire must be supplied by the installation agency.

The following assemblies are used in the KWX 56 system.

| <u>Description</u>                            | <u>King Part Number</u> |
|-----------------------------------------------|-------------------------|
| KA 126 Non-pressurized 12 inch Antenna        | 071-1220-00             |
| KA 126 Non-pressurized 10 inch Antenna        | 071-1220-01             |
| KA 126 Pressurized 12 inch Antenna            | 071-1220-02             |
| KA 126 " " " "                                | <del>071-1220-03</del>  |
| KA 126 Installation Kit:                      | 050-1853-00             |
| Connector Sub-min f37p                        | 030-2348-03             |
| Hood and Level Assembly                       | 030-2351-02             |
| Template                                      | 047-5777-01             |
| KI 244 Radar Display BLK W/14/28VDC Lighting  | 066-3065-00             |
| KI 244 Radar Display BLK W/5VDC Lighting      | 066-3065-01             |
| KI 244 Radar Display GRAY W/14/28VDC Lighting | 066-3065-02             |
| KI 244 Radar Display GRAY W/5VDC Lighting     | 066-3065-03             |
| KI 244 Installation Kit                       | 050-1852-00             |
| Connector 72 Contact                          | 030-2410-00             |
| Screws                                        |                         |

1.5 equipment required; but not supplied

|                                        |                                                  |
|----------------------------------------|--------------------------------------------------|
| Desiccant Chamber (See Figure 2-6) KIT | <del>050-1853-01</del><br><del>071-1245-00</del> |
| Desiccant Refill                       | 016-1158-00                                      |
| TUBING                                 | 090-0236-02                                      |

Installation Parts not supplied or available from King

Hardware  
Installation Kit  
Shims

KING  
KWX 56  
WEATHER RADAR

License requirements

The transmitter, as installed in the aircraft, requires an Aircraft Radio Station License. This license is obtained by filing FCC Form 404. The KWX 56 may be operated for up to 30 days without a station license, after filing the FCC Form 404 and while awaiting the receipt of the station license, providing a copy of the FCC Form 404 is kept in the aircraft.

This equipment has been type accepted by the FCC and entered on their list of type accepted equipment as King KA 126 and must be identified as King KA 126 on your FCC Form 404, Aircraft Radio Station License Application.

KING  
KWX 56  
WEATHER RADAR

section ii  
installation

2.1 general

Suggestions and factors to consider before installing the KWX 56 Weather Radar System in an aircraft are given in this section. Refer to Figure 2.5 for the KWX 56 interconnect diagrams.

2.2 unpacking and inspecting equipment

Exercise extreme care when unpacking the equipment. Make a visual inspection of the unit for evidence of damage incurred during shipment. If a claim for damage is to be made, save the shipping container to substantiate the claim. The claim should be promptly filed with the transportation company. It would be advisable to retain the container when all equipment has been removed, in the event that equipment storage or reshipment should become necessary.

2.3 equipment Installation

2.3.1 HARNESS CONSIDERATIONS

- A. When fabricating the interconnect harness, care needs to be used in selecting the gyro input pin. Follow the notes on the harness drawing (Figure 2.5), especially for the gyro connection. If a series resistor needs to be added do so with care. Avoid crushing the resistor with the wire bundle.
- B. Route the harness to avoid ADF or COMM antennas and bundles. Avoid sharp edges that could cut the insulation.
- C. Do not route harness in such a way that it could be struck by the antenna flat plate.

2.3.2 ANTENNA/RECEIVER/TRANSMITTER INSTALLATION

- A. The KA 126 is designed to be rigidly mounted in the nose sections of the aircraft. If the nose section is not accessible, pod mounting is possible. The bulkhead or antenna mounting plate must be very close to perpendicular to the aircraft center line. The selected location must have adequate clearance for the full antenna sweep and tilt range (See Figure 2-1). The nose section need not be pressurized but if the aircraft is to be operated at altitudes greater than 25,000 feet a pressurized antenna must be used. The radome needs a minimum transmissivity of 90 percent. (See dot Advisory Circular No. 43-14 for radome considerations.)

NOTE

It is crucial to the performance of the KWX 56 weather radar system that care be taken in alignment of the aircraft with respect to the KA 126 unit.

- B. Using the template (KPN 047-5772-01) horizontal  $\pm 1/2^\circ$  to the flight line of the aircraft mark the center of the 4 mounting holes. Drill holes with 17/64" bit.
- C. Mount the KA 126 with 4-1/4 X 20 screws and lock washers.
- D. Using the leveling surfaces on the base of the KA 126 (See Figure 2-2) shim the unit until it is mounted dead ahead  $\pm 1/2^\circ$ .

NOTE

If the unit is shimmed exercise caution not to bind or distort the base casting.

- E. Check the antenna for clearance in all extreme positions.
- F. If used, mount desiccant chamber rigidly to air frame.

KING  
KWX 56  
WEATHER RADAR

3.3 KI 244 INDICATOR INSTALLATION

- A. Carefully plan the location of the KI 244 before any panel alterations are made. Be sure of adequate depth behind the panel for the mounting rack and harness. Avoid area of high heat sources such as heaters. Shaded or darker areas of the panel are preferred to locations of direct sunlight. The compass safe distance is 9 inches. Don't route the harness with ADF Cables or antenna.
- B. After determining the location of the KI 244 indicator, refer to Figure 2-3 for the mounting hole dimensions.
- C. Install the tray using the 4 mounting holes in the front and attach the rear to a structural member by means of a rigid support.
- D. Secure the harness to the mounting rack.
- E. Slide the KI 244 into the mounting tray. Secure the indicator. Use a 3/32m hex wrench to tighten the locking device located on the lower front of the unit (See Figure 2-3).

2.4 post installation check

2.4.1 TEST EQUIPMENT REQUIRED

Tilt Table.

2.4.2 STABILITY ALIGNMENT PROCEDURE

NOTE

TO ASSURE GOOD QUALITY PERFORMANCE THE FOLLOWING ALIGNMENT IS IMPORTANT.

- A. Remove the gyro from the aircraft and place it on a tilt table.
- B. Remove, with a pin prick, the King Logo from the KI 244 to expose the alignment adjustments. (See Figure 2-4 for Identification).
- C. Verify  $4.0 \pm 0.4$  VDC volts at TP 902. If incorrect verify that the gyro excitation voltage requirements are met. (See interconnect drawing Figure 2-5).
- D. Set tilt table (gyro) for  $0^\circ$  roll and  $0^\circ$  pitch adjust R901 and R903 until the LED corresponding to each is just turning on or flickering.
- E. Set the table for  $20^\circ$  roll and  $0^\circ$  pitch adjust R904 for the transition points on its LED.
- F. Adjust the table for  $0^\circ$  roll and  $10^\circ$  pitch and adjust R902 until its LED is just turning on or flickering.
- G. Repeat steps D, E, and F until all LEDs turn on at the correct roll or pitch angle.
- H. Clip the King Logo into the KI 244.
- I. Re-Install the gyro in the aircraft. Verify that the gyro is aligned with the aircraft axis.

2.4.3 IN FLIGHT ADJUSTMENTS

Slight errors in the alignment of the KA 126 or gyro with the airframe can and should be eliminated. Large errors ( $3^\circ$  or more) should be corrected on the ground. If a large error is detected check the excitation voltage and roll and pitch settings. Trying to correct large errors in flight can cause the KA 126 antenna to travel into its mechanical stops.

Errors and nonrepeatability of the alignment can be introduced by the gyro. Many factors have an effect on the gyro and therefore, its output accuracy can vary up to 10%. Vertical gyro precession may be experienced during take offs and prolonged maneuvers. The antenna stabilization may have a  $3^\circ$  to  $5^\circ$  or for up to five minutes after the maneuver due to the precession. Be careful not to confuse this or with alignment errors.

KING  
 MAX 54  
 WEATHER RADAR

1. Mechanical Alignment Check

1. Fly to an altitude in excess of 3,000 feet at  $0^{\circ}$  roll and  $0^{\circ}$  pitch.  
~~40~~
2. Select the 30 mile range.
3. Turn off the stabilization.
4. Adjust the tilt until the center of the terrain line is located on <sup>20 NM</sup> range ring. Note the elevation reading.
5. If the terrain line is skewed, the mechanical alignment to the aircraft is in error (See Figure 2-4). The KA 126 is not aligned with the axis of the aircraft.
6. Use the tilt control to ascertain the amount of error. Move the edge of the pattern in or out to align it with the range ring. Note the tilt switch setting. The difference between this reading and the tilt reading, when the center of the terrain line is aligned to the range ring, is the amount of error. Errors of more than  $2^{\circ}$  must be corrected. Return to the ground and slightly rotate the KI 126 into alignment. Errors of less than  $2^{\circ}$  can usually be tolerated.

2. Automatic Stabilization Check

1. Fly to an altitude in excess of 3,000 feet.
2. Place the KI 244 in the <sup>40</sup>30 mile mode.
3. Turn on the automatic stabilization.
4. While flying level ( $0^{\circ}$  roll), adjust the tilt control until center of the terrain line is located on the ~~third~~ range ring. Use Figure 2-4 to compare the KI 244 display.  
~~20 NM~~
5. Use the tilt control to find the amount of error (degrees of tilt required to adjust the ends of the terrain band to the range ring). If the error is greater than 3 degrees, recalibration on the ground is required. If the error is less than 3 degrees, adjust the roll offset (RSC1) until the error is eliminated (Fig. 2-4).
6. Fly in a  $20^{\circ}$  right roll. Use Figure 2-4 for comparison. Note if the terrain line moves more than 3 degrees (using the tilt as before). Errors of less than 3 degrees can be corrected by adjusting the roll gain (RSC4) until the error is corrected. Errors of more than 3 degrees, call for a recalibration on the ground. Trying to adjust for the large error could cause the antenna to travel into its mechanical stops.

KING  
KWX 56  
WEATHER RADAR

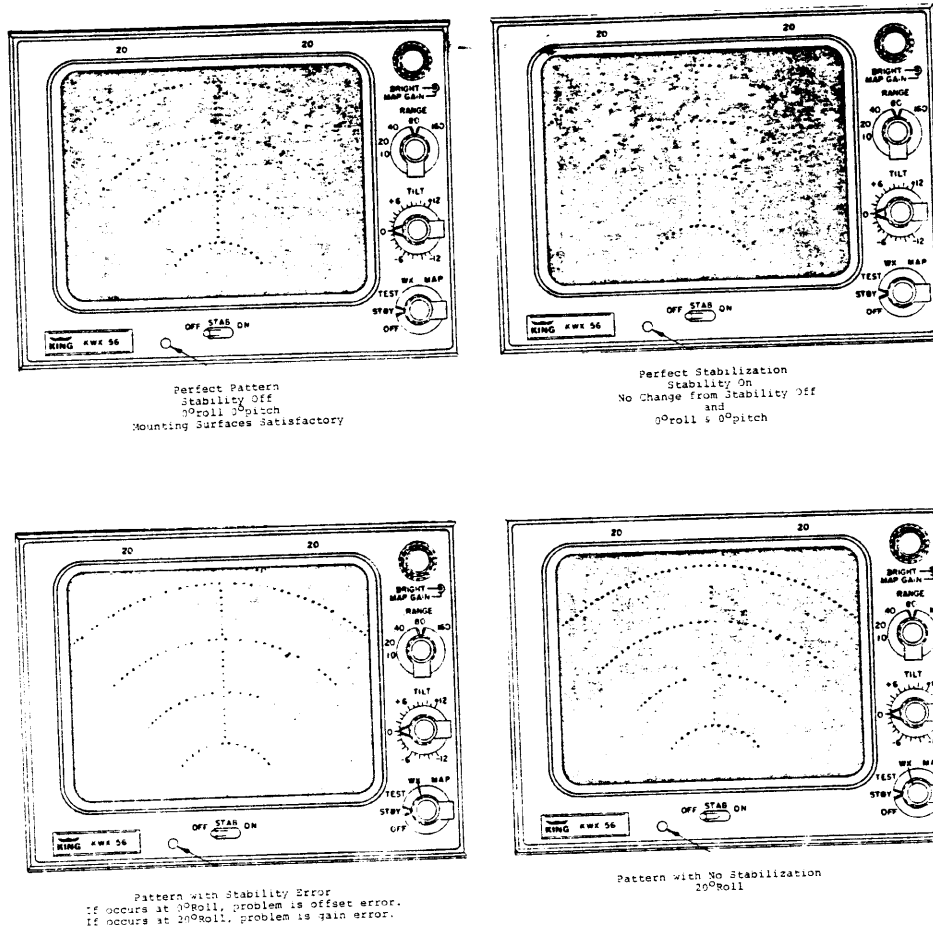


FIGURE 2-1 VIDEO ALIGNMENT PATTERNS

KONG  
 KUX 54  
 WEATHER RADAR

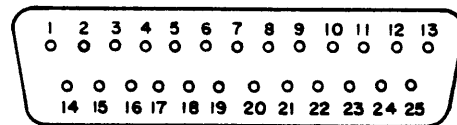


FIGURE 2-2 KA 126 CONNECTOR P1261/J1261 NO KEYING  
 PIN VIEW OF MALE OR SOLDER CUP VIEW OF FEMALE CONNECTOR

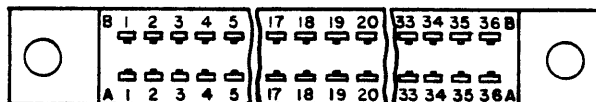


FIGURE 2-3 KI 244 CONNECTOR P2441 NO KEYING  
 CABLE TERMINATION, SOLDER EYELET  
 VIEW OF FEMALE CONNECTOR

1  
KONG  
JUX 5A  
WEATHER RADAR

FIGURE 2-4 KA 126 ANTENNA/RECEIVER/TRANSMITTER  
UNIT OUTLINE AND MOUNTING DRAWING

KING  
NOV 64  
WEATHER RADAR

FIGURE 2-5 KI 244 OUTLINE AND MOUNTING DRAWING

KTIG  
KIX 54  
WEATHER RADAR

FIGURE 2-6 KIX 56 INTERCONNECT  
(Sheet 1 of 2)

KING  
KWX 56  
WEATHER RADAR

section iii  
operation

3.1 general

It is recommended that the aircraft engines be started before applying power to the Weather Radar. This procedure will increase the solid state circuitry reliability. The radar is turned on by rotating the mode control clockwise from the detented OFF position to STBY, TEST, WX, or MAP. If STBY is selected the display will not light up nor will the transmitter be operational. In TEST, WX or MAP the display will light up and the transmitter will become operational after 60 seconds. The 60 sec. warmup condition is annunciated in the lower left hand corner of the display. It is recommended that on initial turn-on the TEST mode be selected to adjust the BRIGHTNESS control for optimum viewing for the cockpit lighting conditions. After the warmup period the TEST pattern will appear and should be examined to verify that all colors are present. After examining, the TEST pattern it is recommended that the WX mode be momentarily selected to verify that ground targets are present, if the aircraft is on the ramp. Finally the STBY mode should be selected until the radar is needed.

WARNING

NEVER OPERATE THE WEATHER RADAR ON THE GROUND WHEN PERSONNEL ARE FORWARD OF THE AIRCRAFT WINGS AND WITHIN 5 FEET OF THE AIRCRAFT NOSE. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN PERMANENT DAMAGE TO THE EYES AND OTHER BODY ORGANS.

The KI 244 has four modes of operation; STBY, TEST, WX and MAP. In STBY the display, antenna and transmitter are disabled but the magnetron heater is kept on. IN TEST all circuitry is activated including the transmitter. A test pattern shows bands of all three colors. The WX mode is the normal weather mode with light precipitation depicted as green, moderate as yellow and heavy as red. The MAP mode is used for terrain mapping in conjunction with the MAP GAIN control. The colors are changed as follows green to blue, yellow stays the same, and red to magenta.

The displayed range of the KI 244 can be set at nautical miles, 20, 40, 80 or 160. This enables the pilot to select the displayed distance for most optimum viewing of the weather conditions that exist. There are four range calibration rings on each range setting with numerical read-out of their range in nautical miles. In addition to the range rings, bearing markers are positioned dead ahead and 20 degrees to either side of the aircraft heading for use in judging the storm bearing and necessary heading changes. Since the KWX 56 is designed as a weather radar, it cannot be used as collision avoidance radar and should not be expected to.

Proper tilt adjustment is one of the most important factors in obtaining optimum value from a weather radar. Too high will pass the majority of the radar beam above the storm cell, particularly when the storm is a great distance. Too low an antenna tilt will clutter the indicator with ground returns. Optimum tilt is obtained by adjusting the antenna to obtain a slight amount of ground clutter. The maximum distance at which ground clutter can be obtained will depend greatly on the terrain and aircraft altitude.

Ground mapping by tilting the antenna down can be performed under certain conditions, particularly during over-water flights where coast lines and islands are apparent. When using the MAP mode, the Map contrast control is used to adjust the prominence of ground features.

Should the vertical gyro supplying pitch information to the Weather Radar fail, the display may become unusable because of erratic or unsuitable tilting of the antenna. If this should happen the STAB ON/OFF switch should be turned off to disable the gyro inputs and allow normal use of the tilt control.

The pilot's guide should be consulted for a more thorough description of operating procedures for the weather radar and information on the interpretation of weather and ground returns.

WARNING

NEVER OPERATE THE WEATHER RADAR ON THE GROUND WHEN PERSONNEL ARE FORWARD OF THE AIRCRAFT WINGS AND WITHIN 5 FEET OF THE AIRCRAFT NOSE. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN PERMANENT DAMAGE TO THE EYES AND OTHER BODY ORGANS.

KING  
KX 54  
WEATHER RADAR

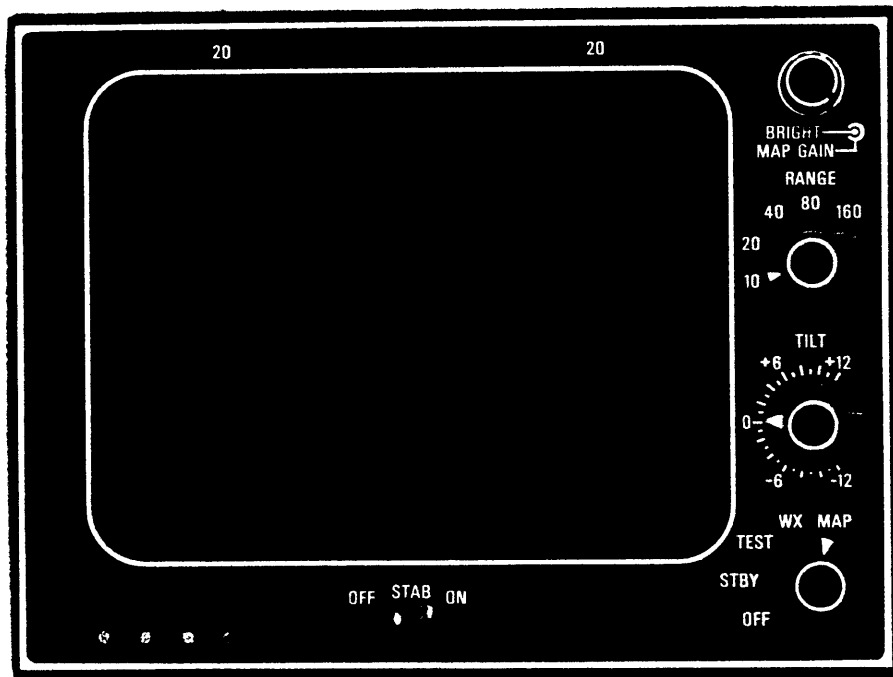
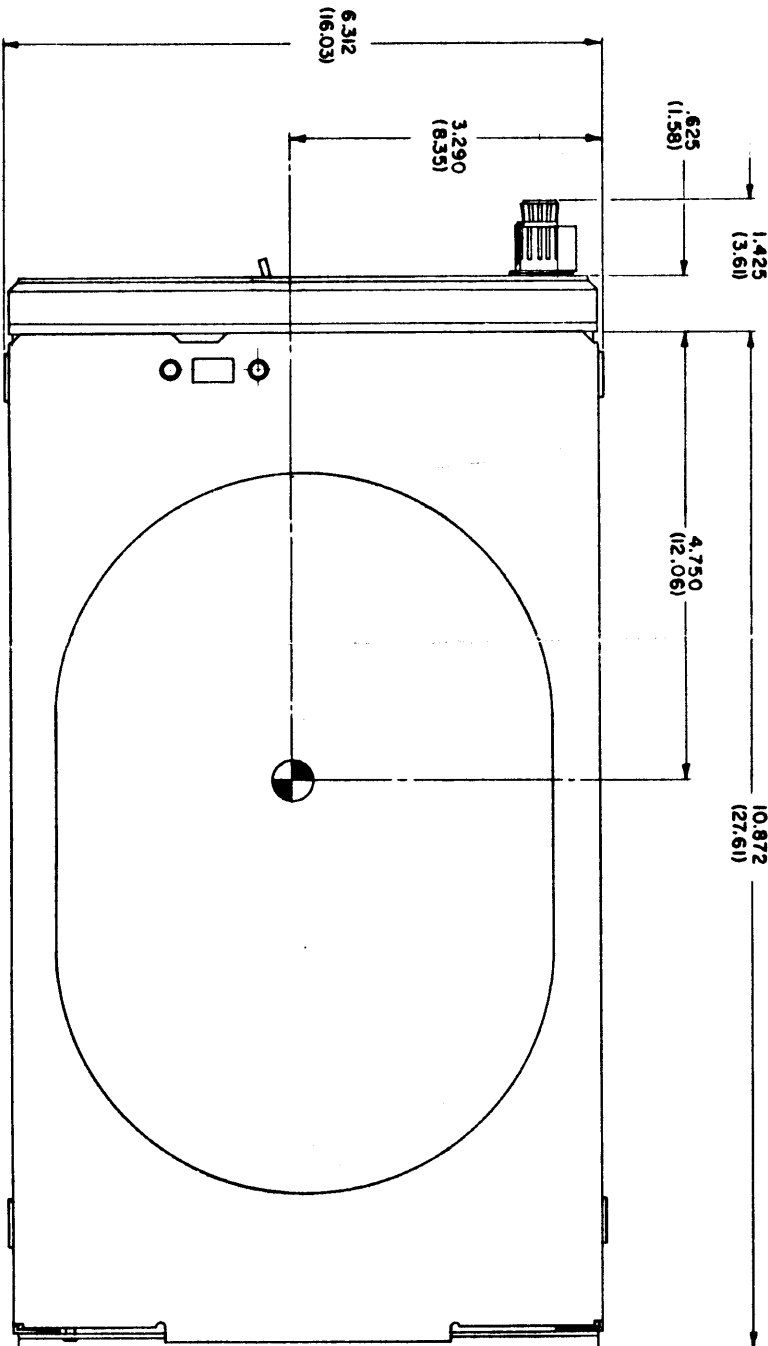
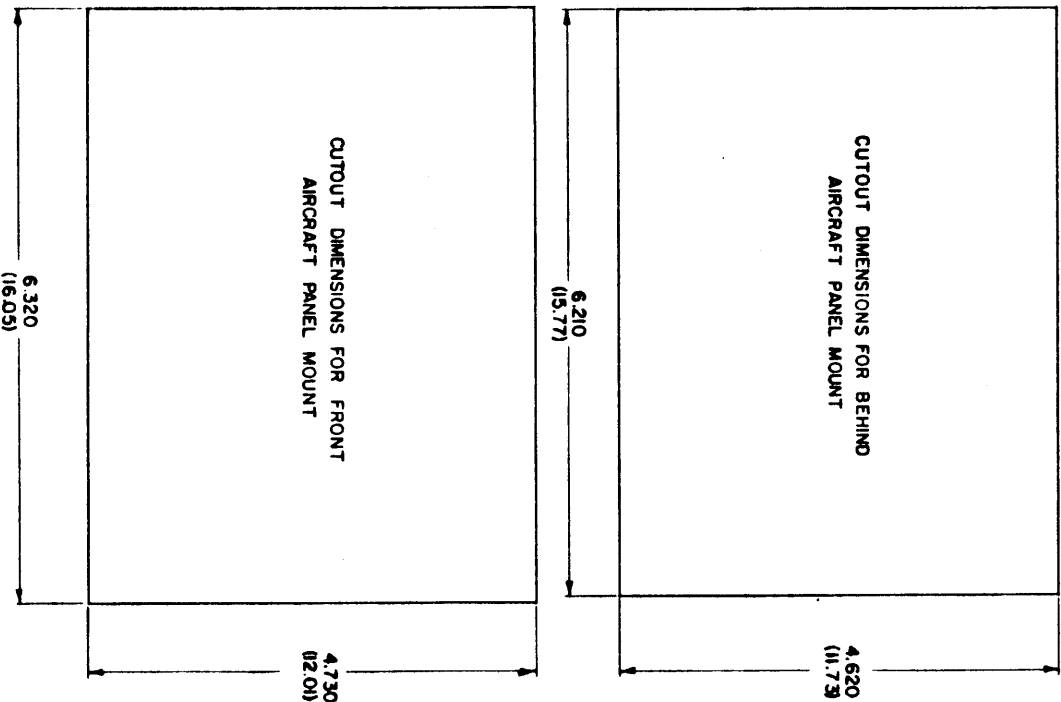
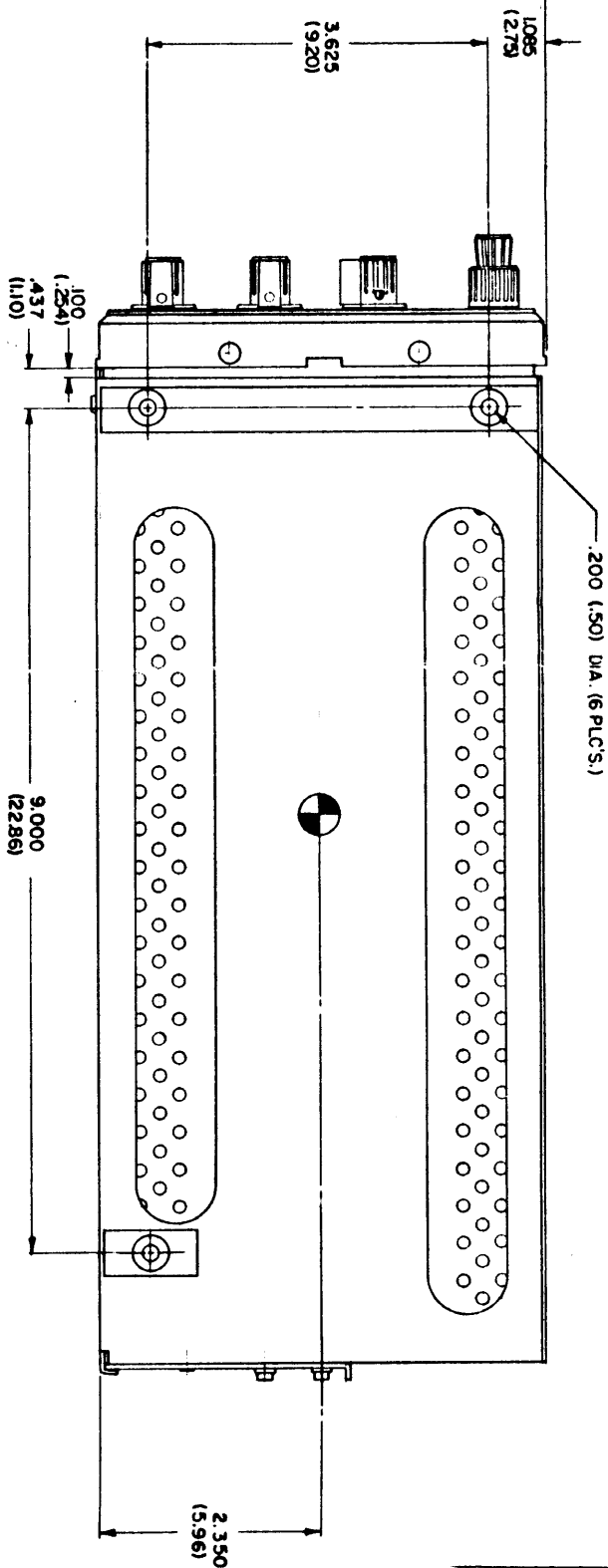
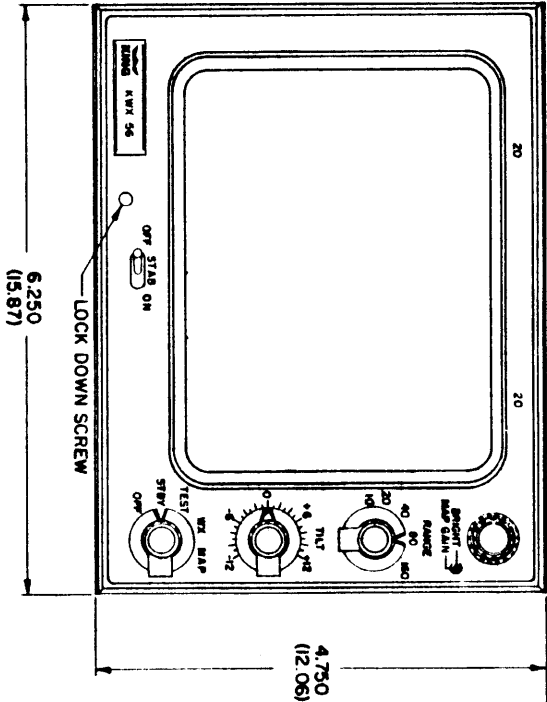


FIGURE 7-1-1 KI 244 INDICATOR UNIT



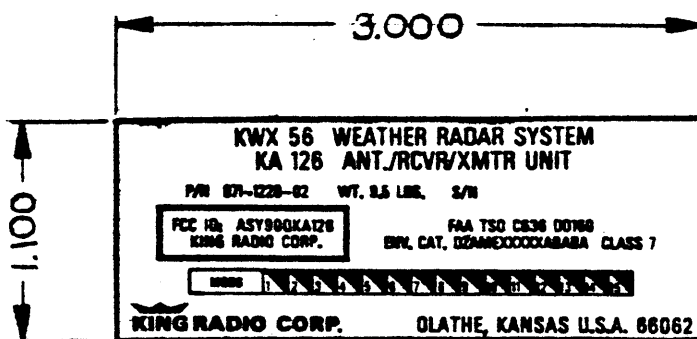
NOTES:  
1. DIMENSIONS IN ( ) ARE IN CENTIMETERS.  
2. WEIGHT: 8.3 LBS. (3.764 KG)

| NEXT ASSY         |    | UNIT |  | REQ |  | PART NO |  | SCALE |  | KING RADAR      |  |
|-------------------|----|------|--|-----|--|---------|--|-------|--|-----------------|--|
| DATE              | BY |      |  |     |  |         |  |       |  |                 |  |
| TOL. UNLESS NOTED |    |      |  |     |  |         |  |       |  | ELECT ENG. WATL |  |
| NAME              |    |      |  |     |  |         |  |       |  | OUTLINE B       |  |





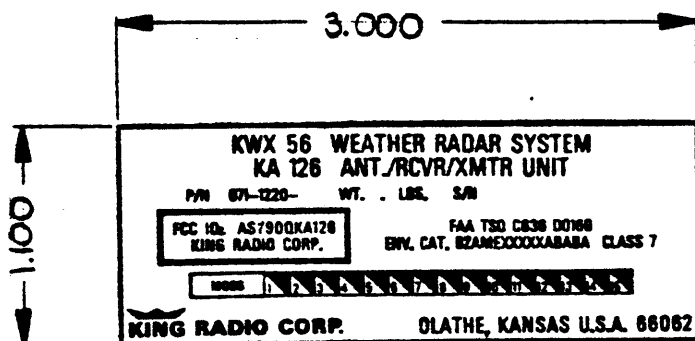
APPENDIX C  
IDENTIFICATION LABELS



## NOTES:

- 1.) MATERIAL TO BE .003 TO .005 SUB-SURFACE PRINTED VINYL, COATED WITH PERMANENT PRESSURE SENSITIVE ADHESIVE; WITH PROTECTIVE LINER.
- 2.) TAGS TO BE LAMINATED WITH MARKEM CORP. # 2064 OR EQUAL.
- 3.) LETTERS AND MODE BLOCK TO BE SILVER, UNIT NAME, NUMBER & LOGO TO BE BLUE, PER SAMPLE PROVIDED BY KING RADIO CORPORATION.
- 4.) BACKGROUND TO BE SEMI-GLOSS BLACK.
- 5.) ARTWORK: 003-1674-01.
- 6.) KING PART NUMBER 057-2368-01 WITH SERIAL NUMBER STAMPED CONSECUTIVELY AS REQUESTED BY PURCHASE ORDER.
- 7.) CUTTING DIE NO. 2368.

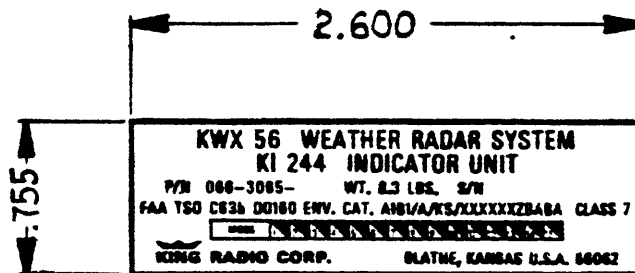
|                |      |   |  |  |  |  |  |  |  |                            |  |      |                 |             |       |  |  |       |  |   |  |
|----------------|------|---|--|--|--|--|--|--|--|----------------------------|--|------|-----------------|-------------|-------|--|--|-------|--|---|--|
| 011-1220-00/02 |      |   |  |  |  |  |  |  |  | KA 126                     |  |      |                 |             |       |  |  |       |  |   |  |
| NEXT ASSY.     |      |   |  |  |  |  |  |  |  | UNIT                       |  |      |                 |             |       |  |  |       |  |   |  |
| BY             |      |   |  |  |  |  |  |  |  | SCALE<br>FULL              |  |      |                 |             |       |  |  |       |  |   |  |
| DATE           |      |   |  |  |  |  |  |  |  | NAME<br>SERIAL TAG, KA 126 |  |      |                 |             |       |  |  |       |  |   |  |
| REV            | C.O. | N |  |  |  |  |  |  |  | ELEC ENG TOL UNLESS NOTED  |  |      |                 |             | MAT'L |  |  |       |  |   |  |
|                |      |   |  |  |  |  |  |  |  |                            |  |      | MECH ENG ± .010 |             |       |  |  | NOTED |  |   |  |
|                |      |   |  |  |  |  |  |  |  | DRN                        |  | DATE |                 | NUMBER      |       |  |  | SHT   |  | 1 |  |
|                |      |   |  |  |  |  |  |  |  | CHK                        |  | DATE |                 | 057-2368-01 |       |  |  | OF    |  | 1 |  |



## NOTES:

- 1.) MATERIAL TO BE .003 TO .005 SUB-SURFACE PRINTED VINYL, COATED WITH PERMANENT PRESSURE SENSITIVE ADHESIVE; WITH PROTECTIVE LINER.
- 2.) TAGS TO BE LAMINATED WITH MARKEM CORP. #2064 or EQUAL.
- 3.) LETTERS AND MOD BLOCK TO BE SILVER, UNIT NAME, NUMBER & LOGO TO BE BLUE, PER SAMPLE PROVIDED BY KING RADIO CORPORATION.
- 4.) BACKGROUND TO BE SEMI-GLOSS BLACK.
- 5.) ARTWORK: 003-1674-00.
- 6.) KING PART NUMBER 057-2369-00 WITH SERIAL NUMBER STAMPED CONSECUTIVELY AS REQUESTED BY PURCHASE ORDER.
- &.) CUTTING DIE NO. 2368.

|                |  |  |  |  |  |  |  |  |  |                           |      |             |  |  |       |  |  |  |  |     |
|----------------|--|--|--|--|--|--|--|--|--|---------------------------|------|-------------|--|--|-------|--|--|--|--|-----|
| 011-1220-00/02 |  |  |  |  |  |  |  |  |  | KA 126                    |      |             |  |  |       |  |  |  |  |     |
| NEXT ASSY.     |  |  |  |  |  |  |  |  |  | UNIT                      |      |             |  |  |       |  |  |  |  |     |
| BY             |  |  |  |  |  |  |  |  |  | SCALE                     |      |             |  |  |       |  |  |  |  |     |
|                |  |  |  |  |  |  |  |  |  | FULL                      |      |             |  |  |       |  |  |  |  |     |
| DATE           |  |  |  |  |  |  |  |  |  | NAME                      |      |             |  |  |       |  |  |  |  |     |
|                |  |  |  |  |  |  |  |  |  | SERIAL TAG, KA 126        |      |             |  |  |       |  |  |  |  |     |
| C.O. N°        |  |  |  |  |  |  |  |  |  | ELEC ENG TOL UNLESS NOTED |      |             |  |  | MAT'L |  |  |  |  |     |
|                |  |  |  |  |  |  |  |  |  | MECH ENG                  |      |             |  |  | NOTED |  |  |  |  |     |
| REV            |  |  |  |  |  |  |  |  |  | DRN                       | DATE | NUMBER      |  |  |       |  |  |  |  | SHT |
|                |  |  |  |  |  |  |  |  |  | CHK                       | DATE | 057-2368-00 |  |  |       |  |  |  |  | OF  |
|                |  |  |  |  |  |  |  |  |  |                           |      |             |  |  |       |  |  |  |  | 1   |
|                |  |  |  |  |  |  |  |  |  |                           |      |             |  |  |       |  |  |  |  | 1   |



## NOTES:

- 1.) MATERIAL TO BE .003 TO .005 SUB-SURFACE PRINTED VINYL, COATED WITH PERMANENT PRESSURE SENSITIVE ADHESIVE; WITH PROTECTIVE LINER.
- 2.) TAGS TO BE LAMINATED WITH MARKEM CORP. #2064 OR EQUAL.
- 3.) LETTERS AND MODE TO BE SILVER: UNIT NAME, NUMBER & LOGO TO BE BLUE PER SAMPLE PROVIDED BY KING RADIO CORPORATION.
- 4.) BACKGROUND TO BE SEMI-GLOSS BLACK.
- 5.) ARTWORK: 003-2369-00.
- 6.) KING PART NUMBER 057-2369-00 WITH SERIAL NUMBER STAMPED CONSECUTIVELY AS REQUESTED BY PURCHASE ORDER.
- 7.) CUTTING DIE NO. 2369.

|                |  |  |  |  |  |  |  |  |  |                           |  |      |  |             |       |  |  |     |  |   |  |
|----------------|--|--|--|--|--|--|--|--|--|---------------------------|--|------|--|-------------|-------|--|--|-----|--|---|--|
| 066-3065-00/03 |  |  |  |  |  |  |  |  |  | KI 244                    |  |      |  |             |       |  |  |     |  |   |  |
| NEXT ASSY.     |  |  |  |  |  |  |  |  |  | UNIT                      |  |      |  |             |       |  |  |     |  |   |  |
| BY             |  |  |  |  |  |  |  |  |  | SCALE                     |  |      |  |             |       |  |  |     |  |   |  |
|                |  |  |  |  |  |  |  |  |  | FULL                      |  |      |  |             |       |  |  |     |  |   |  |
| DATE           |  |  |  |  |  |  |  |  |  | NAME                      |  |      |  |             |       |  |  |     |  |   |  |
|                |  |  |  |  |  |  |  |  |  | SERIAL TAG, KI 244        |  |      |  |             |       |  |  |     |  |   |  |
| C.O.P.         |  |  |  |  |  |  |  |  |  | ELEC ENG TOL UNLESS NOTED |  |      |  |             | MAT'L |  |  |     |  |   |  |
|                |  |  |  |  |  |  |  |  |  | MECH ENG .010             |  |      |  |             | NOTED |  |  |     |  |   |  |
| REV            |  |  |  |  |  |  |  |  |  | DRN                       |  | DATE |  | NUMBER      |       |  |  | SHT |  |   |  |
|                |  |  |  |  |  |  |  |  |  | CHK                       |  | DATE |  | 057-2369-00 |       |  |  | OF  |  |   |  |
|                |  |  |  |  |  |  |  |  |  |                           |  |      |  |             |       |  |  |     |  | 1 |  |
|                |  |  |  |  |  |  |  |  |  |                           |  |      |  |             |       |  |  |     |  | 1 |  |

APPENDIX D  
PHOTOGRAPHS OF EQUIPMENT

