SKYWATCH®

Traffic Advisory System

SKY497 Installation Manual

This manual contains installation instructions and recommended flightline maintenance information for the SKY429 Traffic Advisory System. This information is supplemented and kept current by Change Notices and Service Bulletins published by BFGoodrich Avionics Systems.

BFGoodrich
Aerospace

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ABOUT THIS MANUAL

Chapter 1 –General Information

This chapter includes equipment specifications and a functional description. It describes the various hardware configurations and includes a list of items furnished and items required but not supplied with the equipment.

Chapter 2 - Installation

This chapter contains instructions for unpacking the equipment and inspection for in-shipment damage. It also includes information required to locate, assemble and install the equipment.

Chapter 3 –Installation Checkout

This chapter contains instructions for doing post-installation and return to service checkout of the SKY497 using the BFGoodrich Avionics Systems TT391 Flightline Tester.

Chapter 4 –Maintenance

This chapter contains general flightline maintenance procedures. It includes periodic maintenance and troubleshooting; instructions for calibrating the directional antenna and instructions for the return of defective components.

Appendix A –Signal and Cable Characteristics

This appendix defines the electrical characteristics of all input and output signals.

Appendix B –Installation Checkout Using The TCAS-201 Ramp Test Set

This appendix contains instructions for doing post-installation and return to service checkout of the SKY497 using the IFR Systems TCAS-201 Ramp Test Set (with TCAS I firmware).

Appendix C –Installation Checkout Using The TIC T-49C Flightline Tester

This appendix contains instructions for doing post-installation and return to service checkout of the SKY497 using the TIC T-49C Flightline Tester.

Appendix D –Using The Terminal Device

This appendix contains instructions for using the Terminal Device for installation, testing or troubleshooting of the SKY497.

Appendix E –Installation Checkout Using an Alternate Display

This appendix contains instructions for doing post-installation and return to service checkout of the SKY497 using an Alternate Display.

LIST OF EFFECTIVE PAGES

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NOTE

A vertical line in the outer margins of the page indicates the portion of the text affected by the change. Changes to illustrations (other than diagrams and schematics) are identified with a miniature pointing hand. Shading is used to highlight the area of diagrams and schematics containing a change.

Total number of pages in this publication consists of the following:

Page No.	Change No.	Page No.	Change No.
Title Page	0	4-1 thru 4-20	0
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INSERT LATEST CHANGED PAGES DESTROY SUPERSEDED PAGES.

Those responsible for maintaining this publication should ensure that all previous changes have been received and incorporated.

FOREWORD

This manual provides information intended for use by persons who, pursuant to current regulatory requirements, are qualified to install this equipment. Because installations vary depending on a particular aircraft, this manual is intended as a guideline. Standard installation practices prescribed in FAA Advisory Circular No. 43.13 must be followed. If further information is required, contact:

BFGoodrich Avionics Systems
Attn: Field Service Engineering
5353 52nd Street, S.E.
Grand Rapids, MI USA 49512
Tel. (800) 453-0288 or (616) 949-6600

We welcome your comments concerning this manual. Although every effort has been made to keep it free of errors, some may occur. When reporting a specific problem, please describe it briefly and include the manual part number, the paragraph/figure/table number, and the page number. Send your comments to:

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REVISION C HIGHLIGHTS

Revision C is a republication. This republication completely replaces the exiting book. Materials for the alternate display and the configuration jumper's have been added in addition to new and revised material of the SKY497. Discard previous editions of the old publication.

This revision will be kept current by change notices, replace changed pages with the corresponding numbered page. A new list of effective pages will be issued with each change. The list shall reflect the current changes in addition to the tabulation of all previous changes, thus providing a complete history of the manual.

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CHAPTER 1
GENERAL INFORMATION

1.1 INTRODUCTION

This section contains a functional description of the SKY497, describes the various hardware and software configurations, outlines the main features of the system, and provides a system block diagram.

NOTES

1. This section provides installation information for the BFGoodrich Avionics Systems SKY497 using the WX-1000/SKY497 Display.
2. The SKY497 does not track intruder aircraft approaching at a closure rate greater than 900 knots.
3. The SKY497 can be interfaced to an alternate display device (i.e., MFD, weather radar indicator), contact BFGoodrich Avionics Systems Field Service Engineering at 1-800-453-0288 or 1-616-949-6600 for approved displays and software version required for the TRC497.
4. The SKY497 can be interfaced to a weather radar indicator in place of the WX-1000/SKY497 display, by using the BFGoodrich Avionics Systems RGC250 (Radar Graphics Computer). Refer to the RGC250 Installation Manual for details.
5. An alternate display device can be used in place of the WX-1000/SKY497 display as the primary means of displaying traffic information. Refer to manufacturer instructions for installation details.
6. When an alternate display device is installed the service menu can not be accessed, therefore a terminal device (i.e., laptop) is required for post-installation checkout (refer to appendix E).

1.2 FUNCTIONAL DESCRIPTION

The BFG Avionics Systems SKY497 is an airborne traffic advisory system that advises the flight crew where to look for aircraft that may pose a collision threat. It is intended for use by corporate and general aviation aircraft. SKY497 alerts the flight crew to nearby transponder equipped aircraft and assists the pilot in the visual acquisition of aircraft that may represent a danger.

Traffic information, out to a selected range of either 2 or 6 nautical miles, is graphically displayed on the CRT. Using shapes (i.e., Traffic Advisory = solid circle; Other Traffic = open diamond) and text, the display shows the relative position of threat aircraft.

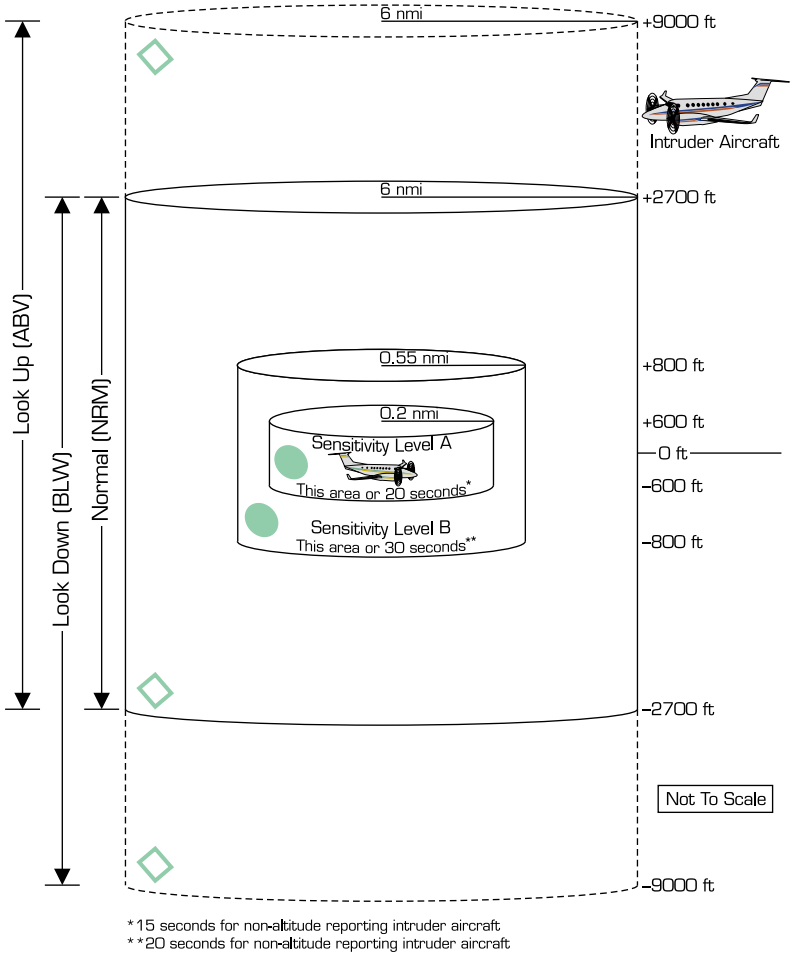


Figure 1-1. Surveillance Zone

1.3 PHYSICAL DESCRIPTION

The SKY497 System consists of the following main components:

- Transmitter Receiver Computer
- Display
- Directional Antenna, NY164, or equivalent (e.g., NY156)

SKY497 is an active system that operates as an aircraft-to-aircraft interrogation device. The SKY497 equipment interrogates transponders in the surrounding airspace similar to ground based radars. When replies to these active interrogations are received, the responding aircraft's range, altitude, and closure rates are computed to plot traffic location and predict collision threats. Figure 1-1 shows the SKY497 surveillance zone for intruding aircraft. A simplified block diagram of the main components and their relationships is shown in figure 1-2.

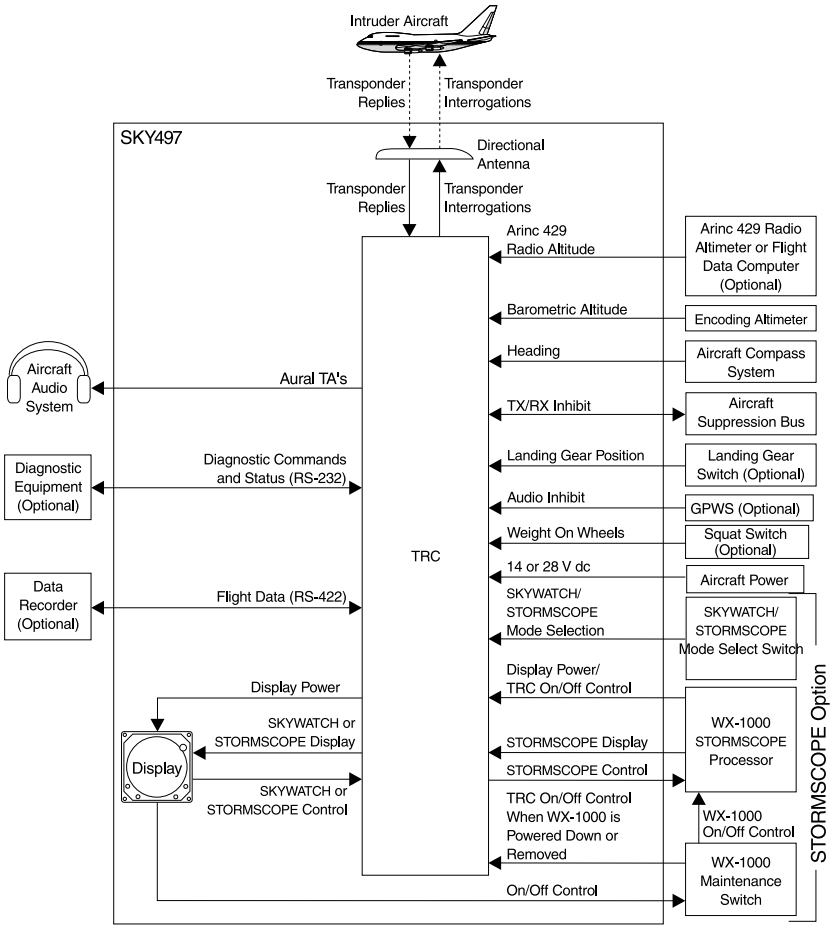


Figure 1-2. Main Components

The following table identifies the components which make-up the configurations.

Table 1-1. SKY497 Configuration

COMPONENT	PART NUMBER
WX-1000/SKY497 Display	78-8060-5900-x*
Directional Antenna	
NY164	805-10890-001
TRC497 Transmitter Receiver Computer	805-10800-001

* Dash numbers identify different versions (refer to paragraph 1.4.1).

1.3.1 TRC497 Transmitter Receiver Computer P/N 805-10800-xxx

The TRC is mounted in a mounting tray supplied with the installation kit (see table 1-2). The standard tray (figure 1-3) will meet the requirements for fixed wing aircraft. A ruggedized version of the tray (figure 1-4) is required for rotorcraft installations.

To meet different space requirements, the I/O signal connector (P1) will accommodate either a straight or right-angle backshell. TRC installation kits (see table 1-2) include either a straight backshell or right-angle backshell (see figure 1-5).

Table 1-2. TRC Installation Kit P/N 817-10800-xxx

KIT P/N	DESCRIPTION	QUANTITY	PART NUMBER
817-10800-002	For Installation on Fixed-Wing Aircraft with Straight Backshell Consists of:		
	Mounting Tray Assembly		805-10870-001
	4.75 In. Straight Backshell		613-10042-001
	I/O Connector, 100-Position, Female, (Mil-C-38999 Series III)	1	605-10205-001
	(Includes #22D Crimp Terminals)		
	Spare Terminals for I/O Connector	10	M39029/56-348
	Power Connector, 3-Position, Straight Plug	1	MS3126F12-3S
	(Includes #16 Crimp Terminals)		
	Spare Terminals for Power Connector (M39029/32-247)	2	607-10018-001
817-10800-003	For Installation on Fixed-Wing Aircraft with Right-Angle Backshell Consists of:		
	Mounting Tray Assembly		805-10870-001
	Right-Angle Backshell		613-10043-001
	I/O Connector, 100-Position, Female, (Mil-C-38999 Series III)	1	605-10205-001
	(Includes #22D Crimp Terminals)		
	Spare Terminals for I/O Connector	10	M39029/56-348
	Power Connector, 3-Position, Straight Plug	1	MS3126F12-3S
	(Includes #16 Crimp Terminals)		
	Spare Terminals for Power Connector (M39029/32-247)	2	607-10018-001
817-10800-004	For Installation on Rotorcraft with Straight Backshell Consists of:		
	Mounting Tray Assembly		805-10870-003
	4.75 In. Straight Backshell		613-10042-001
	I/O Connector, 100-Position, Female, (Mil-C-38999 Series III)	1	605-10205-001
	(Includes #22D Crimp Terminals)		
	Spare Terminals for I/O Connector	10	M39029/56-348
	Power Connector, 3-Position, Straight Plug	1	MS3126F12-3S
	(Includes #16 Crimp Terminals)		
	Spare Terminals for Power Connector (M39029/32-247)	2	607-10018-001
817-10800-005	For Installation on Rotorcraft with Right-Angle Backshell Consists of:		
	Mounting Tray Assembly		805-10870-003
	Right-Angle Backshell		613-10043-001
	I/O Connector, 100-Position, Female, (Mil-C-38999 Series III)	1	605-10205-001
	(Includes #22D Crimp Terminals)		
	Spare Terminals for I/O Connector	10	M39029/56-348
	Power Connector, 3-Position, Straight Plug	1	MS3126F12-3S
	(Includes #16 Crimp Terminals)		
	Spare Terminals for Power Connector (M39029/32-247)	2	607-10018-001

NOTE
DIMENSIONS ARE IN INCHES (MILLIMETERS)

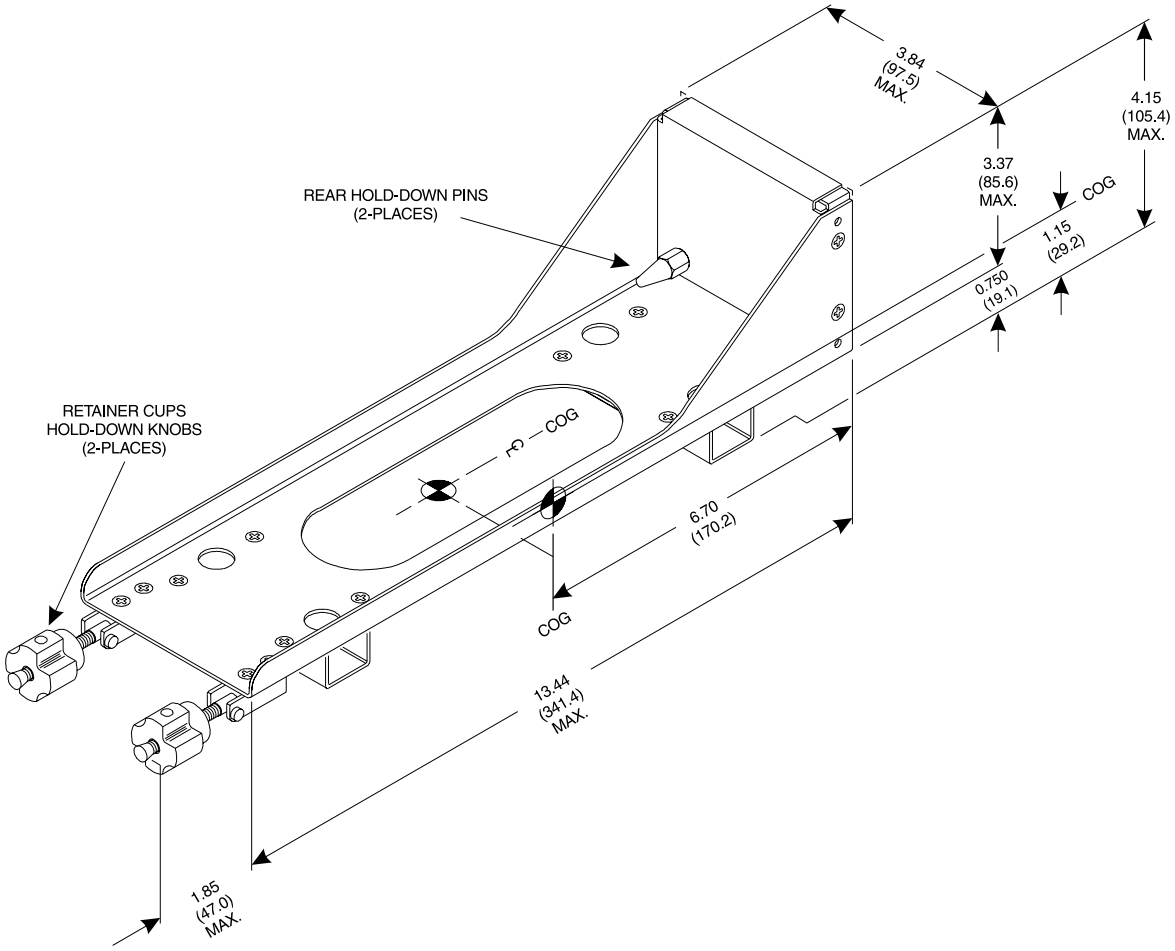


Figure 1-3. Standard TRC Mounting Tray (P/N 805-10870-001)

NOTE
DIMENSIONS ARE IN INCHES (MILLIMETERS)

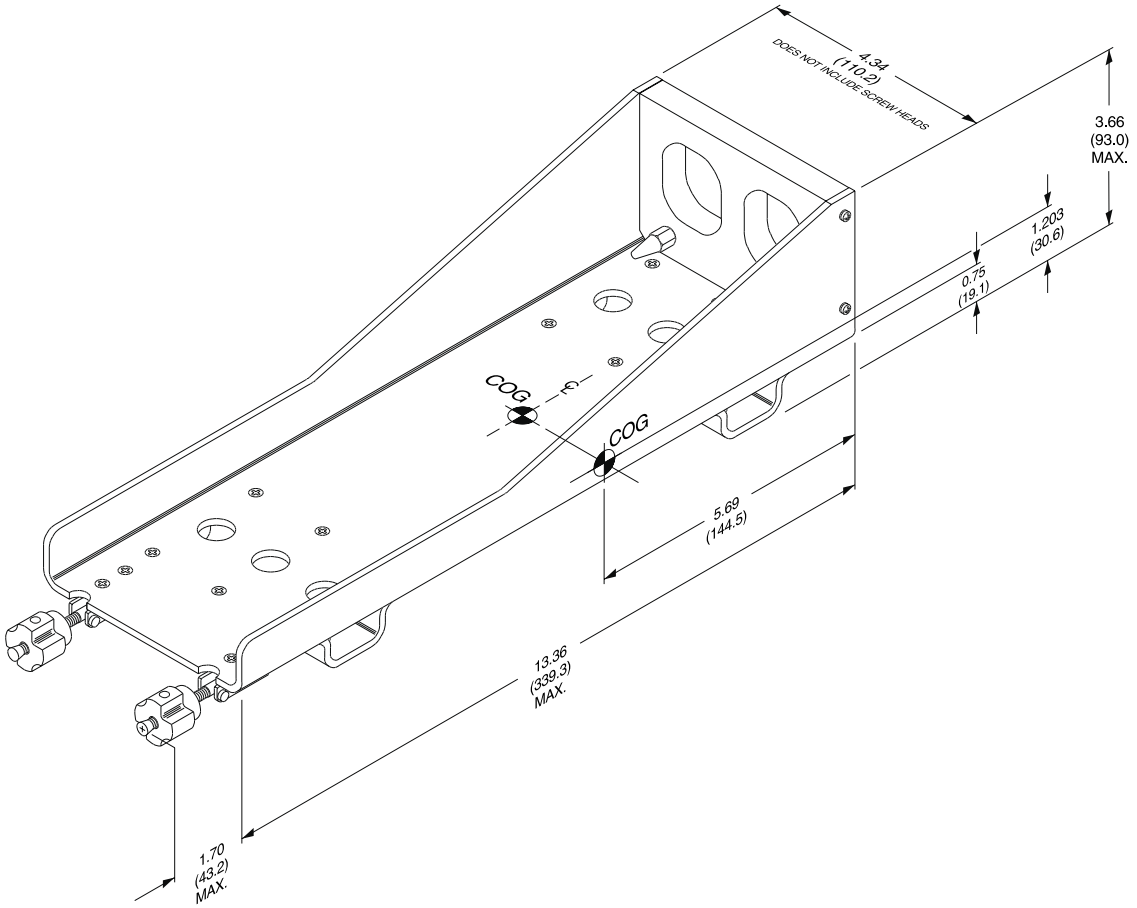
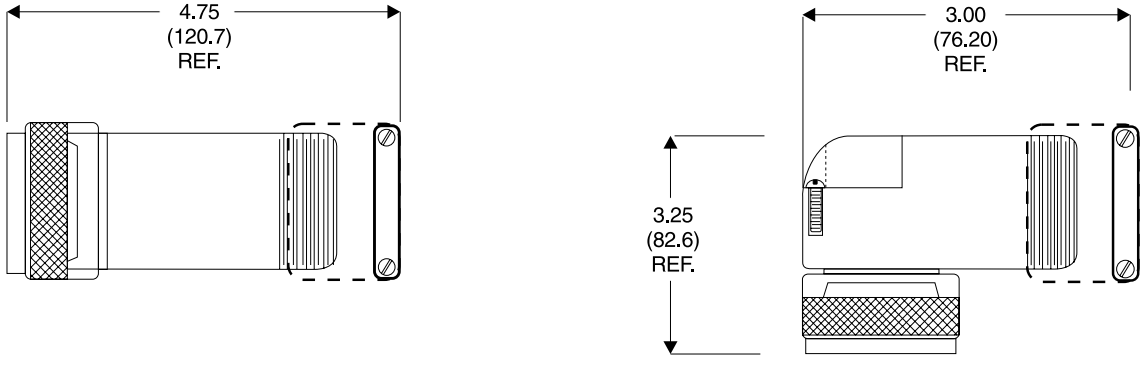


Figure 1-4. Ruggedized TRC Mounting Tray (P/N 805-10870-003)

NOTE
DIMENSIONS ARE IN INCHES (MILLIMETERS)



STRAIGHT
BACKSHELL
P/N 613-10042-001

SPLIT ELBOW
90° BACKSHELL
P/N 613-10043-001

Figure 1-5. P1 Connector Dimensions (Reference Only)

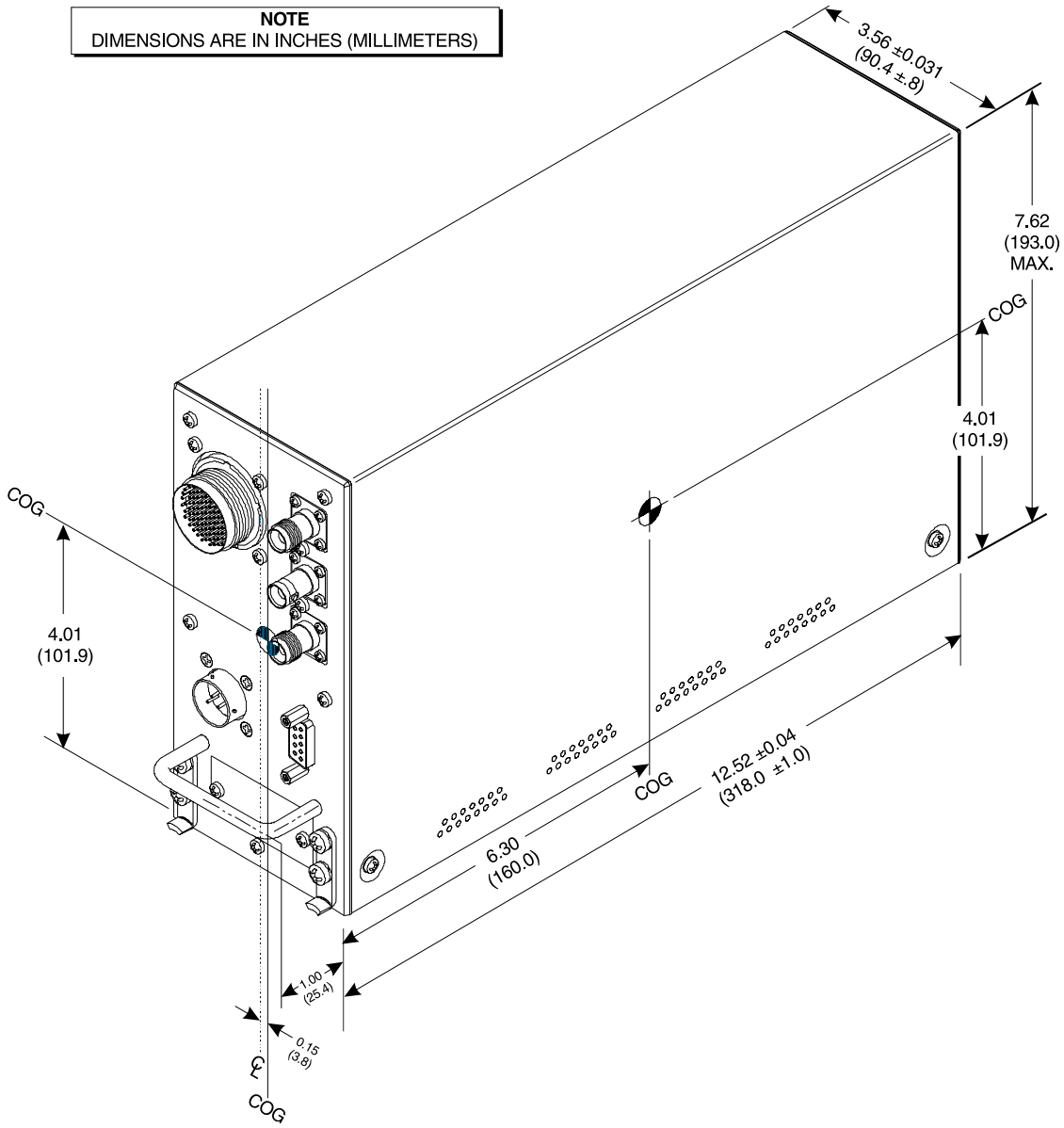


Figure 1-6. TRC497 Transmitter Receiver Computer (TRC)

1.3.2 Display

The SKY497 can be used with a WX-1000/SKY497 display, an alternate display device or both. When interfaced to both displays (WX-1000/SKY497 display and alternate display), display functions are independent from each other. When installing an alternate display device the service menu cannot be accessed, even if a WX-1000/SKY497 display is installed, therefore a terminal device (i.e., laptop) is required for post-installation checkout (see appendix E).

The SKY497 is designed to transmit traffic information to the alternate display device via our ARINC-429 bus interface. Refer to display manufacturer instructions for installation details.

WX-1000/SKY497 Display P/N 78-8060-5900-x. To operate with SKYWATCH, existing WX-1000 displays must conform to TSO-C113. If the equipment tag on the back of the unit (see figure 1-7) does not identify SKYWATCH and TSO-C113, return the display to the factory for modification. To schedule workload and ensure a quick turn around, a return authorization will be required. Call BFG Avionics Systems Customer Service (1-800-453-0288 or 1-616-949-6600) for details.

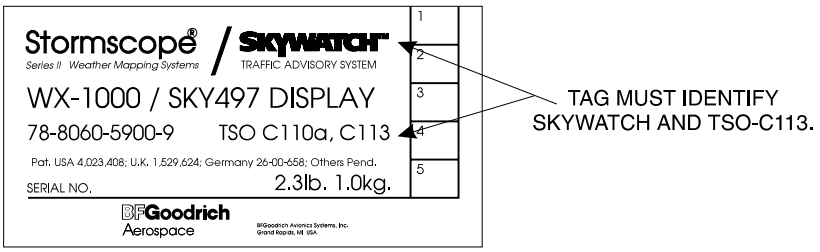


Figure 1-7. WX-1000/SKY497 Display Equipment Tag

The display unit mounts in a standard 3ATI panel cutout. All connections to the display are made through a single 25-position male D-subminiature connector on the back panel. Figure 1-8 depicts the indicator dimensions. The last digit of the part number identifies the different versions (refer to paragraph 1.4.1). Table 1-3 lists the contents of an installation kit supplied with each unit.

Table 1-3. WX-1000/SKY497 Display Installation Kit P/N 817-10802-001

QUANTITY	PART NUMBER	DESCRIPTION
4	26-1001-6374-5	Screw, Machine, 6-32 x 3/4 in. Phillips Pan Head, Black Oxide
1	M24308/2-283F	Connector, 25 Position Recpt. Shell
1	26-1006-2426-6	Connector Backshell, DB25
2	26-1006-1089-3	Connector Lock Post Assembly
25	M39029/63-368	Connector Socket, Screw Machine

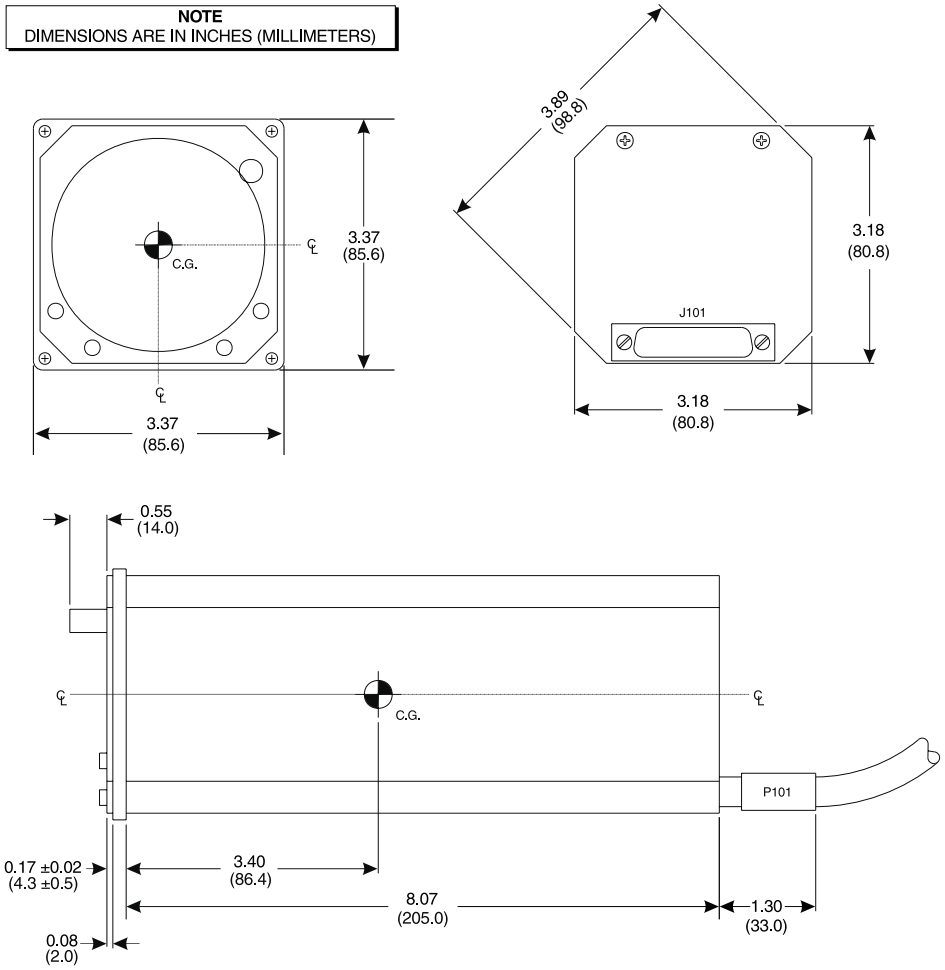


Figure 1-8. WX-1000/SKY497 Display

1.3.3 NY-164 Directional Antenna P/N 805-10890-001

The directional antenna is a teardrop-shaped antenna. Connections are made through two TNC and one BNC connector. The antenna is sealed against environmental extremes and is non-repairable. To ensure a tight seal between the airframe and antenna, an O-ring seal (i.e., an O-ring groove for an MS28775-044 O-ring) has been incorporated into the design. An O-ring is supplied with each antenna. To fit specific airframes, a special adapter plate is also required. The adapter plate is included in the installation kit shipped with each system. Refer to table 1-4 for a list of installation kits associated with various airframes. For aircraft not listed, contact the aircraft manufacturer for information relative to the radius of the area where the antenna is to be mounted. Table 1-5 lists the contents of each installation kit. The installation kits differ only in the size of the special airframe adapter plate. Figure 1-9 depicts the antenna dimensions.

Table 1-4. Airframe Installation Kits

MANUFACTURER	AIRFRAME	INSTALLATION KIT PART NUMBER
AEROSPATIALE	ATR-42	817-10009-001
AGUSTA	A109	817-10009-006
BAE/RAYTHEON	HAWKER 400, 600, 700, 800, and 1000	817-10009-004
BEECH	BEECHJET, KING AIR 90, 100, 200, 300, and 350 BARON 33, 35, 36, 55, 58, BE-99, 1300, & 1900C/D	817-10009-001 817-10009-002
BELL	206, 407, 427	817-10009-006
CANADAIR	CHALLENGER 600 and 601	817-10009-005
CESSNA	CITATION III, VI, VII CITATIONJET, CITATION I, II, V 182, 210, 337, 401, 414, 425, 441	817-10009-001 817-10009-004 817-10009-006
COMMANDER	114	817-10009-006
DASSAULT	FALCON 10, 20, 50 FALCON 900	817-10009-001 817-10009-005
DEHAVILLAND	Dash 7/8	817-10009-001
EMBREAR	EMB 110, 120	817-10009-001
EUROCOPTER	EC135	817-10009-006
FAIRCHILD	METROLINER, METROLINER III, MERLIN	817-10009-001
FOKKER	F28	817-10009-003
GULFSTREAM	G-I, G-II, and G-III	817-10009-001
IAI	WESTWIND 1125	817-10009-001
LEARJET	LEARJET 31, 35, 36, 55, and 60	817-10009-004
MITSUBISHI	MU-2 Marquise	817-10009-002
MOONEY	M20	817-10009-006
PILATIS	PC-12	817-10009-001
PIPER	CHEYENNE 400LS NAVAJO MIRAGE, MALIBU SARATOGA, SENECA	817-10009-001 817-10009-002 817-10009-005 817-10009-006
SAAB	SF-340	817-10009-001
SABRELINER	SABRE 65	817-10009-001
SHORTS	360	817-10009-001
SIKORSKY	S-76	817-10009-006
SOCATA	TBM-700 TB20	817-10009-001 817-10009-006

Table 1-5. Directional Antenna Installation Kit 817-10009-xxx

KIT PART NUMBER	SUPPLIED PARTS *		
	PART NUMBER	DESCRIPTION	QUANTITY
817-10009-001	800-10066-001	Special Adapter Plate, 40 Inch Radius	1
817-10009-002	800-10066-002	Special Adapter Plate, 63 Inch Radius	1
817-10009-003	800-10066-004	Special Adapter Plate, 80 Inch Radius	1
817-10009-004	800-10066-003	Special Adapter Plate, 32 Inch Radius	1
817-10009-005	800-10066-005	Special Adapter Plate, 47 Inch Radius	1
817-10009-006 (No Adapter Plate)	100-10022-001*	Screw, 10-32 x 1 PPH SS (MS51958-67)	4
	101-10027-001*	Stop Nut, 10-32 (MS21044C3)	4

* Hardware supplied with all kits.

NOTE
DIMENSIONS ARE IN INCHES (MILLIMETERS)

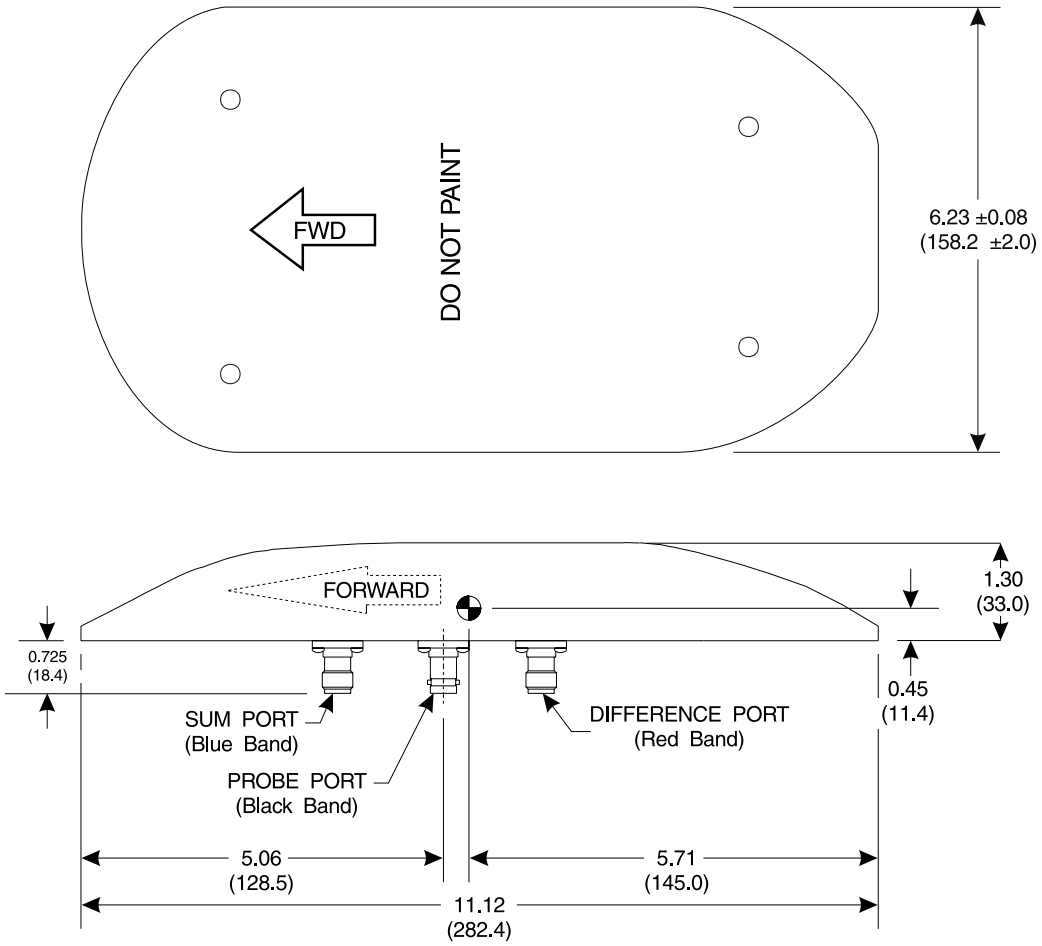


Figure 1-9. NY164 Directional Antenna

1.4 SPECIFICATIONS

1.4.1 WX-1000/SKY497 Display

PART NUMBER DEFINITION:

78-8060-5900-8 (Black Bezel)
78-8060-5900-9 (Gray Bezel)

SIZE:

Height: 3.37 inches (8.56 centimeters)
Width: 3.37 inches (8.56 centimeters)
Depth: 8.24 inches (20.92 centimeters)

WEIGHT:

2.3 lb (1.0 kg)

OPERATING TEMPERATURE:

-20 to +55 degrees Celsius (-4 to +131 degrees Fahrenheit)

STORAGE TEMPERATURE:

-55 to +70 degrees Celsius (-67 to +158 degrees Fahrenheit)

OPERATING ALTITUDE:

55,000 feet (Maximum)

TSO COMPLIANCE:

C110a & C113

RTCA COMPLIANCE:

DO-160C F1-CA(NBM)XXXXXXZXXXZUAXXXXXX

POWER REQUIREMENTS:

+15/-15 V dc, 0.7 A (Maximum)

1.4.2 Transmitter Receiver Computer (TRC)

PART NUMBER:	805-10800-001 - TRC497, ARINC-429		
SIZE:	12.52 inches (31.90 centimeters) Deep 3.56 inches (9.04 centimeters) Wide 7.62 inches (19.36 centimeters) High		
WEIGHT:	8.94 lb (4.06 kg) Not Including Mounting Tray 9.82 lb (4.45 kg) With Standard Mounting Tray 10.95 lb (4.97 kg) With Ruggedized Mounting Tray		
OPERATING TEMPERATURE:	-55 to +70 degrees Celsius (-67 to +158 degrees Fahrenheit)		
STORAGE TEMPERATURE:	-55 to +85 degrees Celsius (-67 to +185 degrees Fahrenheit)		
OPERATING ALTITUDE:	55,000 feet (Maximum)		
COOLING:	Conduction and Forced Air (Internal Fan) Convection		
POWER REQUIREMENTS:	11 to 34 V dc, 70 Watts (Maximum)		
TRACKING CAPABILITY:	Up to 30 intruder aircraft (displays only the 8 highest priority aircraft)		
SURVEILLANCE RANGE:	Horizontal tracking radius: 11 nmi Maximum Relative altitude tracking range: ±10,000 ft maximum		
DISPLAY RANGES:	Horizontal display ranges: 2 & 6 nmi Relative altitude display ranges: ±2,700 ft (normal mode) +9,000 ft to -2,700 ft (above mode/look up) +2,700 ft to -9,000 ft (below mode/look down)		
RANGE ACCURACY:	± 0.05 nmi (Typical)		
BEARING ACCURACY:	5° RMS (Typical), 30° Peak Error		
ALTITUDE ACCURACY:	±200 ft		
CERTIFICATION: *	USA	(FAA)	TSO C147 (Refer to FSAW 98-04B for Flight Standards Service policy concerning follow-on field approvals.)
	UK	(CAA)	VC01164
	Germany	(LBA)	10.941/1 NTSO
	Italy	(ENAC)	00/PC/002/MAE
	Denmark	(DCAA)	72-2003-2
	France	(DGCA)	E.IM.016
RTCA COMPLIANCE:	Software DO178-B Level D DO-160D Category F2XBAB[(SBM)(UFF1)]XXXXXXZBABA(UUX)L[XXXX]XXX		

* Listed are current certifications at time of publication, contact BFGoodrich Avionics Systems Field Service Engineering at 1-800-453-0288 or 1-616-949-6600 for latest certification information.

1.4.3 Directional Antenna

PART NUMBER:	805-10890-001
SIZE:	1.3 inches (3.25) cm high 6.23 in (15.82 cm) wide 11.12 in (28.24 cm) deep
WEIGHT:	2.3 lb (1.04 kg)
SPEED:	Rated to 600 knots (0.9 Mach) @ 25,000 feet.
FREQUENCY:	1030-1090 MHz
TSO CATEGORY:	C118
ENVIRONMENTAL CATEGORY:	DO-160C F2-AC(CLM)XSFDFSXXXXXXXL(2A)X
FINISH:	Gloss white Skydrol resistant polyurethane paint

1.5 INTERFACE

The electrical characteristics of all input and output signals are detailed in Appendix A.

1.6 EQUIPMENT REQUIRED NOT SUPPLIED

Antenna Sealant	For pressurized aircraft, use a sealant that meets the requirements of SAE AMS-S-8802 such as Flamemaster® CS3204 class B. For non-pressurized aircraft, use a non-corrosive sealant that meets the physical requirements of MIL-A-46146 such as General Electric RTV162.		
System Cables	The installer will supply all system cables. Cable requirements and fabrication are detailed in para 2.6.		
Connector Installation	Antenna Cables		See Table 2-2. Tool M22520/5-01 Die M22520/5-19 (EMTEQ Cable PFLX195-100) Die M22520/5-43 (EMTEQ Cable PFLX240-100) Die M22520/5-35 (EMTEQ Cable PFLX340-100) Die M22520/5-19 (ECS Cable 311601) Die M22520/5-61 (ECS Cable 311201) Die M22520/5-21 (ECS Cable 310801) Die 190318 (PIC Cable S33141) Die 190418 (PIC Cable S22089) Die 190618 (PIC Cable S55122)
	P1	Interconnect	Crimping Tool M22520/2-01 Positioner M22520/2-07 Insertion MS27495 A22M Removal MS27495 R22M

Connector Installation (Continued)			
	P8	Power	Crimping Tool M22520/1-01 Positioner M22520/1-02 Insertion MS24256A16 Removal MS24356R16
	P101	Display	Crimping Tool M22520/2-01 Positioner M22520/2-08 Insertion/Removal M81969/1-02
Circuit Breaker	For 14 V aircraft systems a 7.5 A circuit breaker is required and for 28 V systems a 5 A circuit breaker is required. The circuit breaker may be selected to match components of the individual aircraft.		
Switches	If the final configuration includes a WX-1000 *Stormscope* Weather Mapping System, two external switches will be required. A SPST switch will be required for the *SKYWATCH*/*Stormscope* display mode switch (SW1). A DPDT switch will be required for the WX-1000 maintenance switch (SW2). Any general purpose toggle switch (3 A @ 28 V dc) may be used.		
Miscellaneous Hardware	The installer must provide suitable hardware to attach the TRC Mounting Tray. The following stainless steel fasteners are recommended:		
	Channel Mount:	Four 8-32 UNC-2A pan head machine screws per ANSI B18.6.3. (Six are required for the ruggedized tray.) or Four 8-32 UNC-2A hex socket cap machine screws per ANSI/ASME B18.3. (Six are required for the ruggedized tray.) Four No. 8 helical spring lockwasher per ANSI/ASME B18.21.1. (Six are required for the ruggedized tray.)	
	Flat Mount	Eight 6-32 UNC-2A 100 degree flat head machine screws per B18.6.3.	
Oscilloscope	Required to verify SKY497 suppression pulse (100 µs ±5µs, +28 V dc).		
Flightline Tester	Either the BFG TT391 Flightline Tester, IFR Systems TCAS-201 (with TCAS I firmware) Ramp Test Set, or TIC T-49C Flightline Tester. The test set is required to do the post installation checkout.		
RS-232 Terminal Device (e.g., Laptop Computer)	Required only if using an alternate display, (see Appendix D for instructions). Terminal device is used for post installation checkout and troubleshooting.		

1.7 INSTALLATION APPROVAL

The SKY497 must be treated as a major alteration on F.A.A. form 337, if not installed under a type certificate or supplemental type certificate. Application for approval may be made at any F.A.A. Flight Standards District Office.

1.8 WARRANTY INFORMATION

The SKY497 Traffic Advisory System is warranted for two years from the date of installation (not to exceed 30 months from the date of shipment from BFGoodrich Avionics Systems) subject to the following limitations.

1.8.1 Warranty Statement

BFGoodrich Avionics Systems, (hereinafter called BFGAS), warrants each item of new equipment manufactured or sold by BFGAS to be free from defects in material and workmanship, under normal use as intended, for a period of 30 months from date of shipment by BFGAS to an authorized facility, or 24 months from date of installation by an authorized facility, whichever occurs first. No claim for breach of warranties will be allowed unless BFGAS is notified thereof, in writing, within thirty (30) days after the material or workmanship defect is found.

The obligation of BFGAS shall be limited to replacing or repairing at its factory the equipment found defective under terms of this warranty certificate; providing that such equipment is returned in an approved shipping container, transportation charges prepaid, to BFGAS, Grand Rapids, Michigan, or such other location as BFGAS may authorize. BFGAS reserves the right to have necessary repairs performed by an authorized agency.

This warranty shall not apply to any unit or part thereof which has not been installed or maintained in accordance with BFGAS instructions, or has been repaired or altered in any way so as to adversely affect its performance or reliability, or which has been subjected to misuse, negligence or accident.

This warranty is exclusive and is accepted by buyer in lieu of all other guaranties or warranties express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. Buyer agrees that in no event will BFGAS liability for all losses from any cause, whether based in contract, negligence, strict liability, other tort or otherwise, exceed buyer's net purchase price, nor will BFGAS be liable for any special, incidental, consequential, or exemplary damages.

BFGAS reserves the right to make changes in design or additions to or improvements in its equipment without the obligation to install such additions or improvement in equipment theretofore manufactured.

1.8.2 Related Policies and Procedures

1. If the original registered owner of a SKY497 system sells the aircraft in which the system is installed during the warranty period, the remaining warranty may be transferred. Written notification of the transaction must be submitted by the initial recipient of the warranty to:

   ATTENTION: WARRANTY ADMINISTRATOR
   BFGoodrich Avionics Systems
   5353 52nd Street, S.E.
   Grand Rapids, MI 49588-0873
   U.S.A.

2. Equipment must be installed by a BFG Avionics Systems authorized dealer or installer. Installation of equipment by facilities not specifically authorized will void the equipment warranty.
3. Notice of a claimed product defect must be given to BFG Avionics Systems or a designated BFG Avionics Systems Service Agency within the specified warranty period.

4. A product which is defective in workmanship and/or material shall be returned to BFG Avionics Systems via any Authorized Dealer with transportation charges prepaid. After correction of such defects, the equipment will be returned to the Dealer, transportation prepaid by BFG Avionics Systems via surface transportation. Any other means of transportation must be paid by the customer.

   The risk of loss or damage to all products in transit shall be assumed by the party initiating the transportation of such products. All items repaired or replaced hereunder shall be warranted for the unexpired portion of the original warranty.
5. BFG Avionics Systems is in no way obligated or responsible for supporting or participating in the costs of the installation warranty. The entire responsibility lies with the BFG Avionics Systems Authorized Dealer making the installation. BFG Avionics Systems is only responsible for the product warranties outlined in paragraph 1.8.1.
6. BFG Avionics Systems cannot authorize warranty credit for troubleshooting of other systems in the aircraft in order to reduce noise interference with the SKY497 system.

CHAPTER 2
INSTALLATION

2.1 INTRODUCTION

The information and instructions provided in this section are directed toward fixed-wing aircraft. The complex nature of rotorcraft installations (e.g., antenna placement; composite versus metal blades, available ground plane, rotor mast interference, strike kits, etc.) requires that each installation be evaluated on a case-by-case basis. Before starting a rotorcraft installation, contact BFGoodrich Avionics Systems Field Service Engineering at 1-800-453-0288 or 1-616-949-6600.

NOTE

Installation instructions for the WX-1000 processor are detailed in the WX-1000 Installation Manual.

Installation must be made by qualified personnel, in conformance with applicable government regulations. This information furnished is for convenience only.

NOTE

Tolerances (unless otherwise indicated):

ANGLES ARE	± 1°
.00 TWO PLACE DECIMALS ARE	± .02
.000 THREE PLACE DECIMALS ARE	±. 010

2.2 UNPACKING, INSPECTION AND STORAGE

CAUTION

The display and TRC are sensitive to electrostatic discharge (ESD) and may be damaged if not handled correctly. Do not remove protective covers from electrical connectors during unpacking. Touching an exposed connector may cause electrostatic damage to equipment.

Carefully unpack the system and note any damage to shipping containers or equipment. Visually inspect each component for evidence of damage. Compare the equipment received with that noted on the packing list. Immediately report any missing items or evidence of damage to the carrier making the delivery. To justify a claim, retain the original shipping container and all packing materials.

Every effort should be made to retain the original shipping containers for storage. If the original containers are not available, a separate cardboard container should be prepared that is large enough to accommodate sufficient packing material to prevent movement. The ambient temperature of the storage area should not fall below -55 ℃ (-67 ℉) or rise above 85 ℃ (185 ℉).

2.3 ANTENNA LOCATION

Location is an important factor for maximum antenna performance. Optimum location for a particular aircraft type is usually available from the aircraft manufacturer. In selecting a location, consider the following:

Directional Antenna

The mounting site should be on the top forward fuselage, as close to the centerline as possible, and within -10° of the in-flight horizon (see figure 2-1). The optimum mounting point for maximum coverage is as far forward as possible without exceeding the -10° forward pitch. If necessary, consideration should be given to relocating other antennas to obtain the furthest forward location for the directional antenna. The antenna should be mounted on the aircraft with at least 20 dB isolation (about 30 inches) from other L-band frequency antennas and 24 inches from other antennas or obstructions. The ground-plane should be as large as possible, BFGoodrich Avionics Systems recommends a 30-inch ground-plane diameter.

The directional antenna can be bottom mounted only if a suitable top mount location is not available. Each bottom mount installation must be evaluated on a case-by-case basis. Before starting a bottom mount installation, contact BFGoodrich Avionics Systems Field Service Engineering at 1-800-453-0288 or 1-616-949-6600.

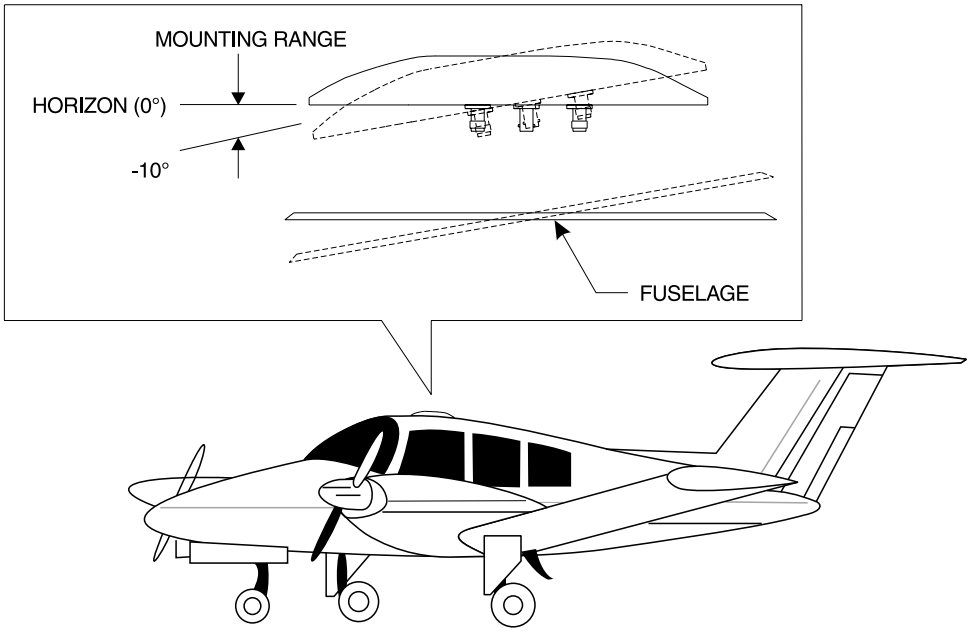


Figure 2-1. Directional Antenna Mounting Location

2.4 TRC LOCATION

Typically the TRC is installed in the electronics bay. In selecting a location, consider the following:

Cable Length

Cable runs should be as short as practicable in order to minimize potential electrical interference. Cable length to antennas must not exceed the values listed in table 2-1.

Cooling

While the TRC has no special cooling requirements, it should be mounted to permit adequate ventilation. Caution should be observed to not inhibit airflow from the rear mounted fan. Allow at least three inches (8 cm) of rear clearance.

Pressurized Aircraft

The TRC may mount inside or outside the pressure vessel. The TRC contains no batteries or potentially explosive components and will operate up to 55,000 ft.