C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. ENVIRONMENT:
   1.1 OPERATING TEMP: +60°C TO -30°C
2. PHYSICAL:
   1.1 WEIGHT: 3.9 LB. MAX. 3.1 LB. MIN. (DEPENDING ON CONFIGURATION).

△3 SYSTEM NAMEPLATE (APPROX. LOCATION)

4 SYMBOL ⊕ DENOTES APPROX. CENTER OF GRAVITY.

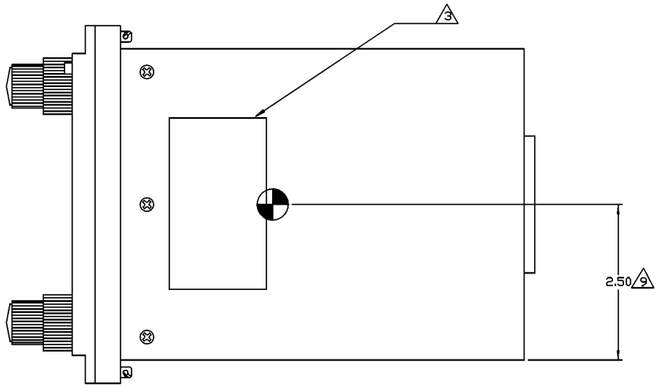
△5 1/4 TURN FASTENERS STUD PER MIL-F-25173 LOCATION PER MS25212.

△6 FOR C-5000 SYSTEM INTERFACE CONNECTOR MATES WITH P/N ODD62F00Y0C-914.1 CABLE PLUG (WED P/N 129-215344-01) THIS CABLE PLUG HAS TWO MALE JACK SCREWS.
MFG BY: POSITRONIC INDUSTRIES, INC.
SPRINGFIELD, MO.

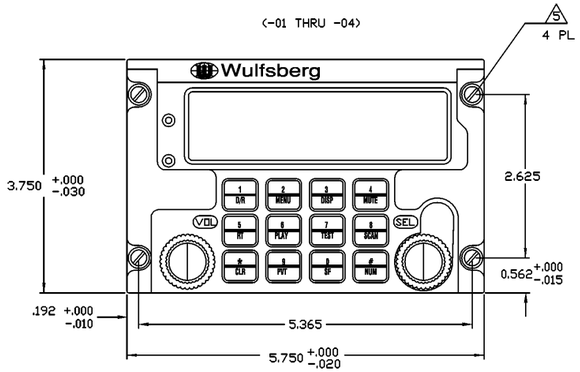
△7 FOR FLEXCOMM (RT-30,RT-118,RT-138,RT-138F,RT-406F,RT-450) AND RT-9600,RT-9600F,RT-7200 INSTALLATIONS.
CONNECTOR MATES WITH P/N ODD62F00Y60C-914.2 CABLE PLUG (WED P/N 129-215344-02) THIS CABLE PLUG HAS ONE EACH MALE/FEMALE JACK SCREWS, MALE NEAR PIN 1.
MFG BY: POSITRONIC INDUSTRIES, INC.
SPRINGFIELD, MO.

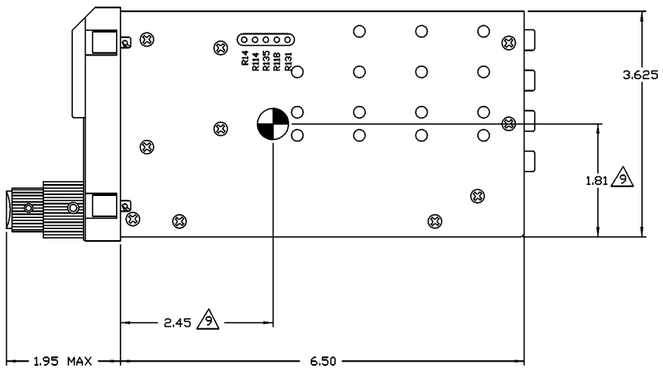
8 IT IS RECOMMENDED THAT CABLE PLUGS P501, P502, P503 BE SPECIAL MARKED IN SOME MANNER TO ASSURE PROPER TRANSCEIVER INTERFACE CONNECTION.

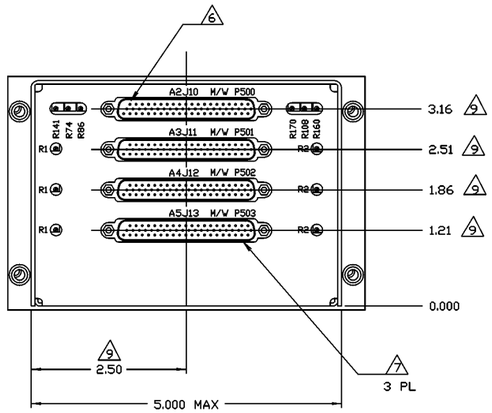
△9 DIMENSIONS SHOWN FOR REFERENCE ONLY.



(-01 THRU -04)







(-11 THRU -14)

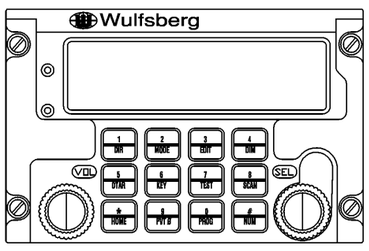


Figure 3-1. C-5000 Envelope Drawing (Sheet 1 of 1)
Dwg No. 154-031300, Rev. F

NOTES:

1. ⊕ DENOTES APPROX. CENTER OF GRAVITY

2.

FLAVOR	WEIGHT
400-015525-0101	16.2 LBS. ± .4 LBS.
400-015525-0201	17.2 LBS. ± .4 LBS.
400-015525-0301	17.2 LBS. ± .4 LBS.
400-015525-0401	17.2 LBS. ± .4 LBS.
400-015525-0501	19.7 LBS. ± .4 LBS.
400-015525-0611 THRU -0711	18.0 LBS. ± .4 LBS.
400-015525-0811 THRU -1311	17.8 LBS. ± .4 LBS.
400-015525-1411 THRU -2511	18.5 LBS. ± .4 LBS.

3. AMBIENT OPERATING TEMPERATURE RANGE: -30°C TO +60°C

4. MAXIMUM OPERATING ALTITUDE: 51,000 FT. ABOVE M.S.L.

5. MATING CONNECTORS:
   J101 MATES WITH WED P/N 129-216657-01
   J102 MATES WITH WED P/N 129-016857-01 OR -02
   J103 MATES WITH WED P/N 129-016858-01 OR -02

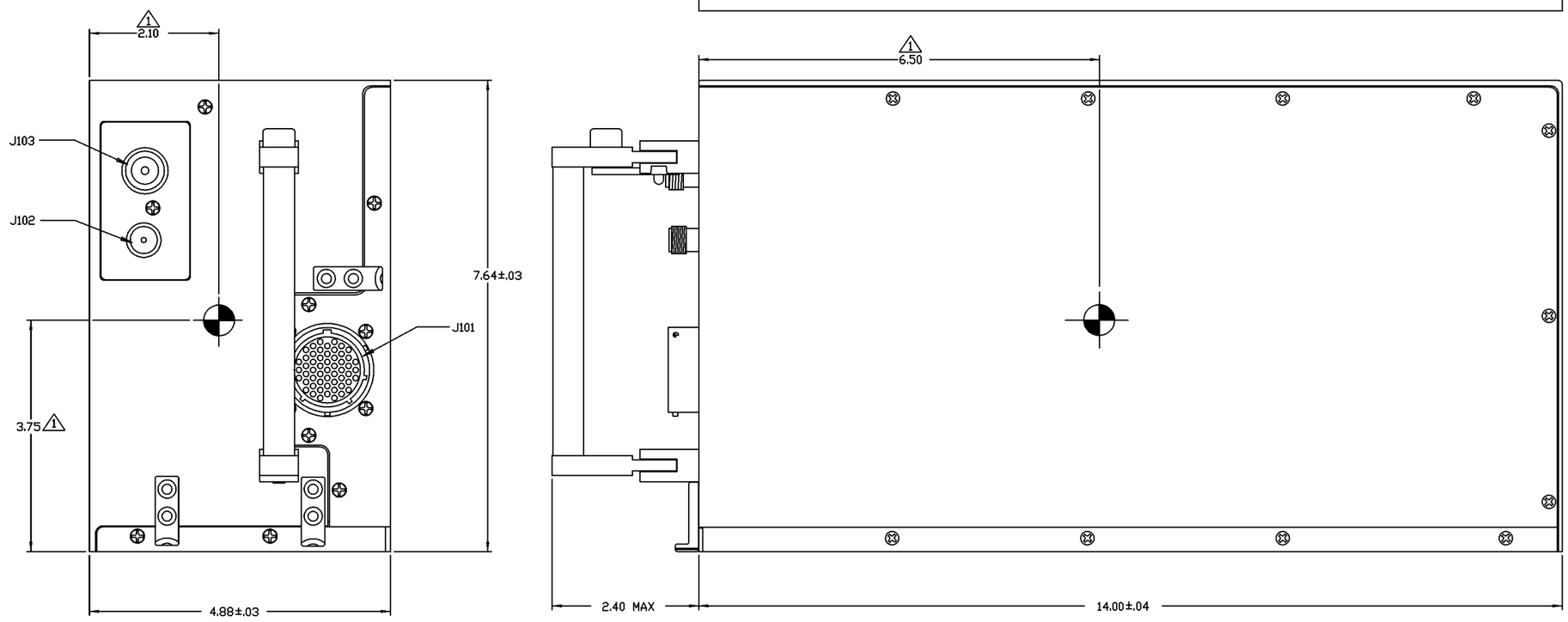


Figure 3-2. RT-5000 Envelope Drawing (Sheet 1 of 1)
Dwg No.154-015525, Rev D

NOTES:

1. PIECE MARK WITH P/N, DASH NO., AND CURRENT REV LETTER IN 12 HIGH CHARACTERS BLK PER PCS-125. LOCATE APPROX. AS SHOWN.
2. CRIMP RIVET AS SHOWN TO RETAIN IT IN PLACE.
3. APPLY ITEM 8 TO ITEM 6 THREADS.
4. WEIGHT: 1.5 LBS. ± .4 LBS.

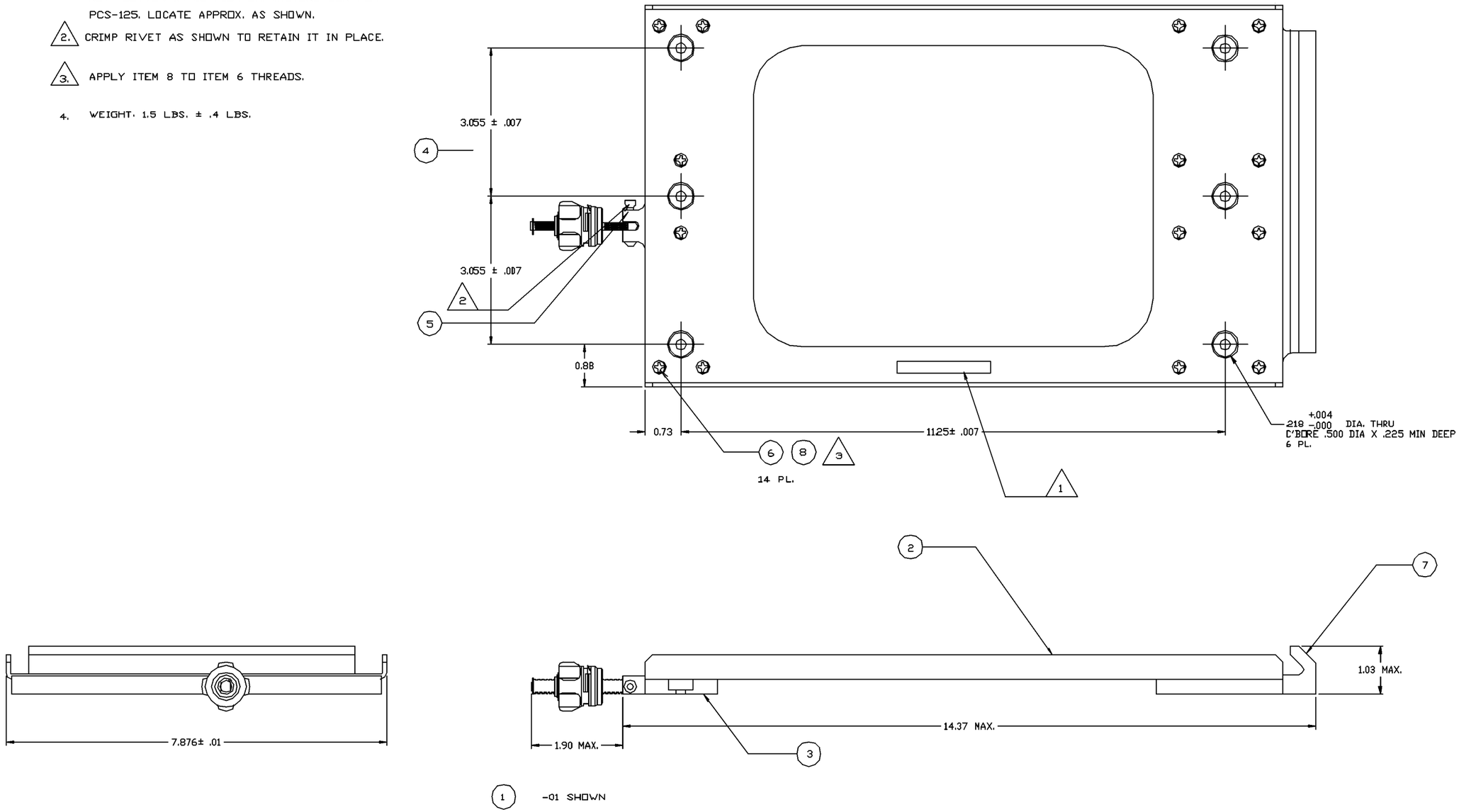


Figure 3-3. RT-5000 Tray Horizontal Mount (Sheet 1 of 1)
Dwg No. 300-316835, Rev D

NOTES:

1. PIECE MARK WITH P/N, DASH NO., AND CURRENT REV. LETTER IN .12 HIGH CHARACTERS BLK PER PCS-125. LOCATE APPROX. AS SHOWN.
2. CRIMP RIVET AS SHOWN TO RETAIN IT IN PLACE.
3. APPLY ITEM 8 TO ITEM 6 THREADS.
4. MAX. WEIGHT: 1.5 LBS.
5. LOCATE PMA LABEL <ITEM 9> APPROX. AS SHOWN, FARSIDE.

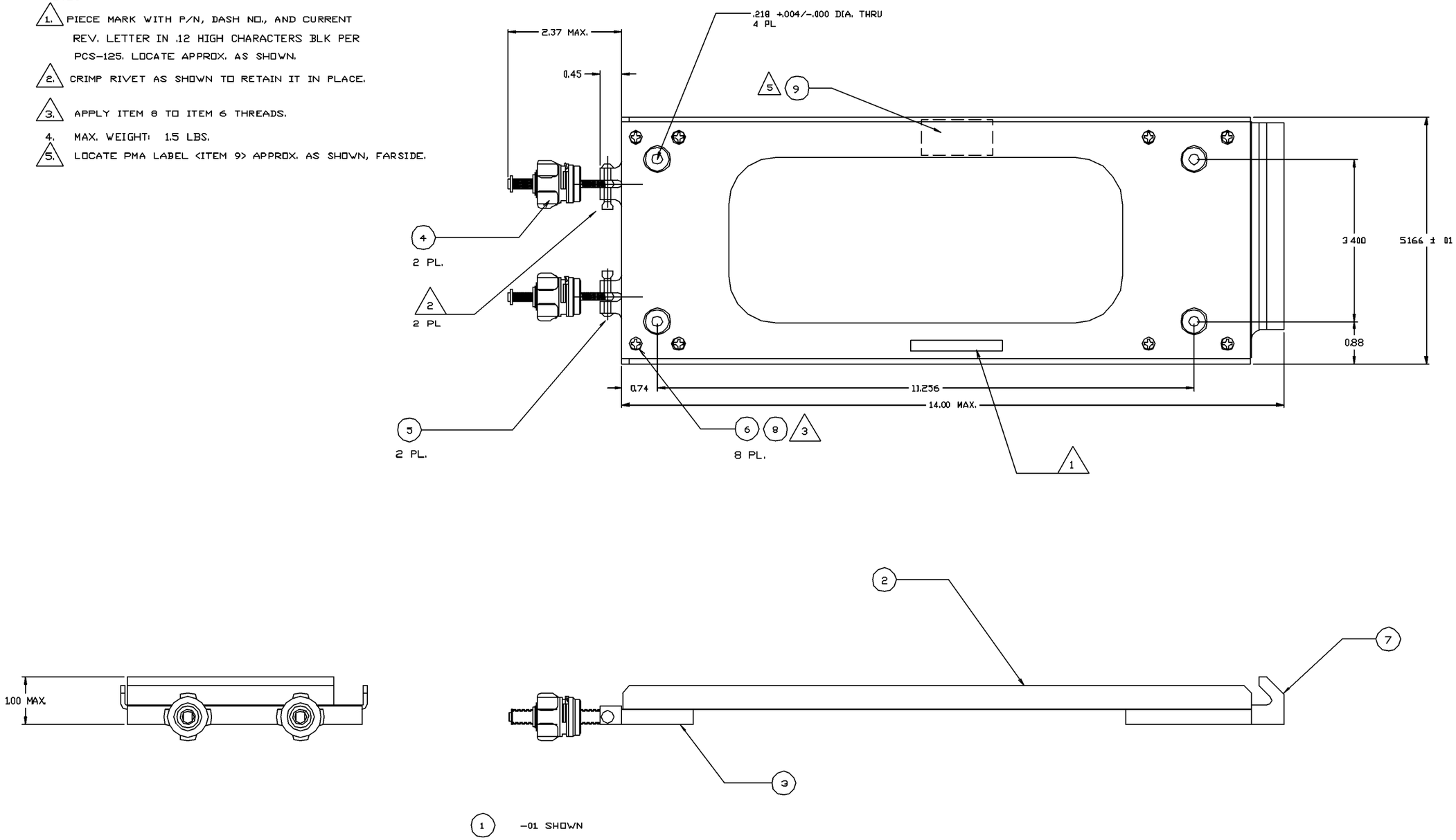


Figure 3-4. RT-5000 Tray Vertical Mount (Sheet 1 of 1)
Dwg No. 300-316605, Rev F

Wulfsberg Electronics Division
A Chelton Group Company
Prescott, AZ 86301 U.S.A.

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. SPECIFICATIONS:
   - 1.1 ELECTRICAL
     - 1.1.1 FREQUENCY RANGE: LOW SPLIT: 29.7 – 400 MHz; HIGH SPLIT: 400 – 960 MHz
     - 1.1.2 IMPEDANCE: 50 OHMS
     - 1.1.3 VSWR: 2.5:1 MAX
     - 1.1.4 RF POWER: LOW SPLIT 15W DSBAM; HIGH SPLIT: 25W CW
     - 1.1.5 POLARIZATION: VERTICAL
     - 1.1.6 RADIATION PATTERN: OMNIDIRECTIONAL IN AZIMUTH
     - 1.1.7 SPEC. GAIN: 30 MHz: –14 dBi; 88 MHZ: –6 dBi; 108–174 MHZ: 0.0 dBi AV; 220–960 MHZ: 0.0 dBi AV
   - 1.2 MECHANICAL:
     - 2.2.1 WEIGHT: 2.7 LBS MAX
     - 2.2.2 FINISH: –01 (GLOSS WHITE EPOXY TO DEF STAN 80–161.); –02 (MATT BLACK EPOXY TO DEF STAN 80–161.)
   - 1.3 ENVIRONMENTAL, DESIGNED TO MEET:
     - 2.3.1 TEMPERATURE: –55° C TO +70° C
     - 2.3.2 VIBRATION: MIL–E–5400, CURVE IIIB
     - 2.3.3 ALTITUDE: 40,000 FT
     - 2.3.4 SHOCK: MIL–STD–810E; METH.516.4; PROC. I(20G,11ms)

2. LABEL MUST SHOW THE FOLLOWING INFORMATION:
   ANTENNA AT–560
   WULFSBERG ELECTRONICS DIVISION
   P/N: 121–040130–01 (WHT) OR 121–040130–02 (BLK)
   S.N. (SERIAL NO. TO BE SUPPLIED BY MFR.)
   MFR. NAME AND PART NUMBER

3. INSTALLATION: IT IS RECOMMENDED THAT SQUARE CLEARANCE HOLES (WITH RADIUSED CORNERS) FOR THE CONNECTORS BE USED IN THE AIRCRAFT SKIN TO AVOID WEAKENING THE METAL AROUND THE SCREW HOLES. THE INSTALLER MAY DESIRE TO USE THE FOLLOWING SIZES.
   J3 (N CONN): 1.125
   J2 (TNC CONN): 0.75
   J1 (10 PIN CONN): 1.125
   MOUNT ANTENNA WITH NO. 10 SCREWS.

   WIRE PER SIGNAL DIAGRAM 152–140132

4. DIMENSIONS SHOWN FOR REFERENCE ONLY.

5. THIS AREA TO BE PAINT FREE.

6. APPROVED VENDOR: CHELTON ELECTROSTATICS;

WED DASH NO.	COLOR	VENDOR P/N
–01	WHT	12–190–9
–02	BLK	12–190–9P4

7. SUPPLIED WITH A SILICONE RUBBER CONDUCTIVE GASKET. REPLACEMENT GASKET W.E.D. P/N: 146–040133–01.

8. SUPPLIER TO FURNISH TEST DATA SHEETS WITH EACH SHIPMENT.

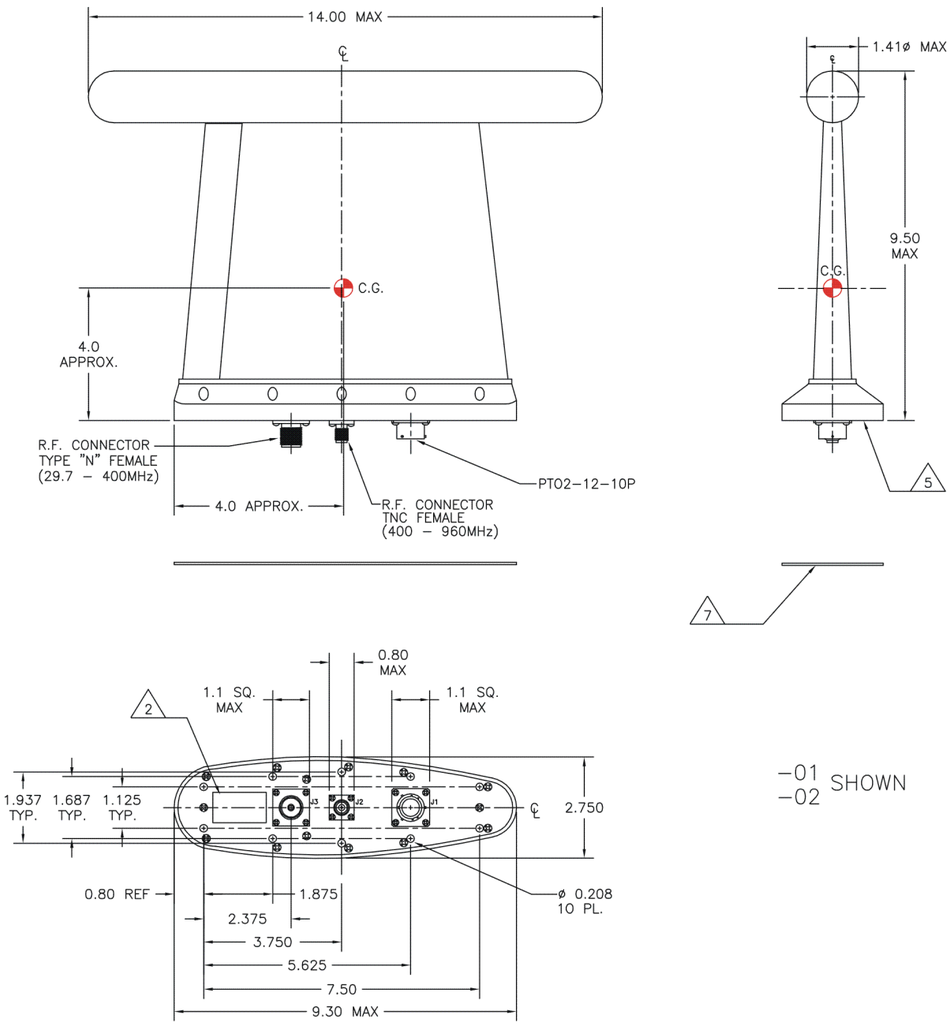


Figure 3-5. AT-560 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-040130, Rev C

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. (WARNING, PERFORMANCE IS MARGINAL BELOW 50 MHz. FOR IMPROVED PERFORMANCE IN THE 30 – 50 MHz REGION. SEE THE AT-550 OR AT-5000 ANTENNA).

2. SPECIFICATIONS:
   - 2.1 ELECTRICAL
     - 2.1.1 FREQUENCY RANGE: LOW SPLIT: 29.7 – 400 MHz; HIGH SPLIT: 400 – 960 MHz
     - 2.1.2 IMPEDANCE: 50 OHMS
     - 2.1.3 VSWR: 2.5:1 MAX
     - 1.1.4 RF POWER: LOW SLIT 25W DSBAM; HIGH SPLIT: 25W CW
     - 2.1.5 POLARIZATION: VERTICAL
     - 2.1.6 RADIATION PATTERN. OMNIDIRECTIONAL IN AZIMUTH
     - 2.1.7 SPEC GAIN: 30 MHz: –21 dBi; 60 MHZ: –21 dBi; 88 MHZ: –12 dBi; 108–174 MHZ: –3 dBi AV; 225–960 MHZ: 0.0 dBi AV
   - 2.2 MECHANICAL:
     - 2.2.1 WEIGHT: 2.7LBS (1.22kg) MAX
     - 2.2.2 FINISH: EPOXY PAINT GLOSS PER DEF. STAN. 80-161. WHITE (-01); BLACK (-02)
   - 2.3 ENVIRONMENTAL, DESIGNED TO MEET:
     - 2.3.1 TEMPERATURE. –55° C TO +70° C
     - 2.3.2 VIBRATION. MIL-E-5400, CURVE IIIB
     - 2.3.3 ALTITUDE. 40,000 FT
     - 2.3.4 SHOCK: MIL-STD-810E; METH.516.4; PROC (20G,11ms)
     - 2.3.4 CSD: COMPASS SAFE DISTANCE IS LESS THAN 12 INCHES.

3. LABEL MUST SHOW THE FOLLOWING INFORMATION:
   ANTENNA: AT-160
   WULFSBERG ELECTRONICS DIVISION
   P/N: 121-040129-01 (WHT) OR 121-040129-02 (BLK)
   S.N.. (SERIAL NO. TO BE SUPPLIED BY MFR.)
   MFR.. NAME AND MFR. PART NUMBER

4. INSTALLATION REQUIRES A 1.38 DIA. MIN. CLEARANCE HOLE IN THE AIRCRAFT SKIN FOR THE FEMALE "N" CONNECTOR MOUNTED ON THE ANTENNA. A .94 DIA. HOLE IS ALSO REQUIRED TO CLEAR THE FEMALE "TNC" CONNECTOR. THE INSTALLER MAY DESIRE TO USE LARGER HOLES TO CLEAR THE MALE CABLE CONNECTORS OR TO ALLOW FOR HOLE LOCATION TOLERANCES. MOUNT ANTENNA WITH NO. 10 SCREWS

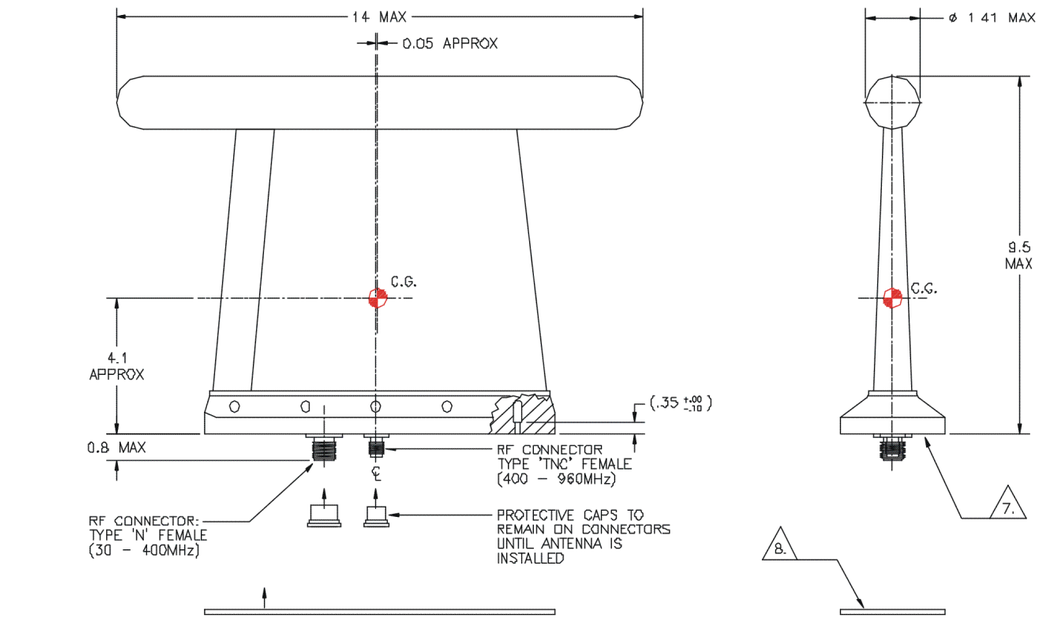
5. DIMENSIONS SHOWN FOR REFERENCE ONLY.

6. APPROVED VENDORS: CHELTON, INC

WED DASH NO	COLOR	VENDOR P/N
-01	WHT	12-334
-02	BLK	12-334 P4

7. ALUMINUM BASEPLATE, UNPAINTED, MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME. ANTENNA SHOULD BE MOUNTED ON NEAR FLAT SURFACE USING R.F. GASKET.

8. SUPPLIED WITH RUBBER CONDUCTIVE RF GASKET: WED P/N: 146-040129-01



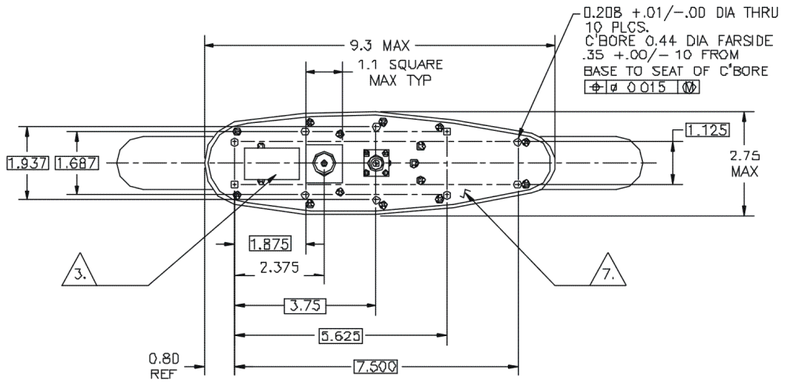


Figure 3-6. AT-160 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-040129, Rev C

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1 SPECIFICATIONS

1.1 ELECTRICAL

1.1.1	FREQUENCY RANGE:	29.7 – 88MHz 108 – 174MHz 225 – 400MHz 400 – 960MHz
1.1.2	IMPEDANCE:	50 OHMS (NOMINAL)
1.1.3	VSWR:	≤ 2.5:1 ALL BANDS
1.1.4	RF POWER	LOW SPLIT: 15W DSBAM HIGH SPLIT: 25W CW
1.1.5	POLARIZATION:	ESSENTIALLY VERTICAL (WHEN MOUNTED VERTICALLY)
1.1.6	RADIATION PATTERNS:	OMNIDIRECTIONAL IN AZIMUTH (NOMINAL)
1.1.7	SPEC. GAIN:	30MHz −15dBi 88MHz −7.5dBi 118–174MHz −3dBi ave 225–960MHz 0 dBi ave
1.1.8	CONNECTORS	RF 29.7–400MHz N-TYPE FEMALE RF 400–960MHz TNC FEMALE DC PTD2–12–10P

1.2 MECHANICAL

1.2.1	WEIGHT:	3.5LBS MAX
1.2.2	FINISH.	GLOSS WHITE EPOXY TO DEF STAN. 80–161 OTHER FINISHES ARE AVAILABLE
1.2.3	C.S.D.:	COMPASS SAFE DISTANCE LESS THAN 12 INCHES.

1.3 ENVIRONMENTAL, DESIGNED TO MEET

1.3.1	TEMPERATURE	-55° C TO +70° C
1.3.2	VIBRATION	MIL–E–5400, CURVE IIB
1.3.3	ALTITUDE	55,000 FT
1.3.4	SHOCK:	MIL–STD–810E; METH.516.4; PROC. I(20G, 11ms)

2. LABEL MUST SHOW THE FOLLOWING INFORMATION:
ANTENNA AT–5000
WULFSBERG ELECTRONICS DIVISION
P/N: 121–040045–01 (WHT) OR 121–040045D–02 (BLK)
S/N: (SERIAL NUMBER TO BE SUPPLIED BY MANUFACTURER).
MFR. NAME AND PART NUMBER

3. INSTALLATION:
IT IS RECOMMENDED THAT SQUARE CLEARANCE HOLES (WITH RADIUSED CORNERS) FOR THE CONNECTORS, BE USED IN THE AIRCRAFT SKIN TO AVOID WEAKENING THE METAL AROUND THE SCREW HOLES. THE INSTALLER MAY DESIRE TO USE THE FOLLOWING SIZES FOR CONNECTOR CLEARANCES:

J1 (TNC CONN.):	0.75" SQUARE
J2 (N–TYPE CONN.):	1.125" SQUARE
J3 (10 PIN, PTD2–12–10P, DC CONN.)	1.125" SQUARE

MOUNT ANTENNA WITH 6 – NO. 10 SCREWS.
WIRE PER SIGNAL DIAGRAM 152–140131

4 DIMENSIONS SHOWN FOR REFERENCE ONLY

5. ALLUMINUM ALLOY BASEPLATE TO REMAIN UNPAINTED BY INSTALLER. BASEPLATE FINISHED BY MANUFACTURER WITH PROTECTIVE TREATMENT CHROMATE FILM CONVERSION TO DEF STAN 03–18. MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME.

6 ANTENNA SHOULD BE INSTALLED ON FLAT SURFACE USING RF GASKET WED P/N: 146–040046–01.

7. GASKET TO BE ORDERED SEPARATELY FROM ANTENNA.

8. SUPPLIER TO FURNISH TEST DATA SHEETS WITH EACH SHIPMENT.

9. PLASTIC PROTECTIVE CONNECTOR CAPS TO REMAIN FITTED ON CONNECTORS UNTIL ANTENNA IS INSTALLED.

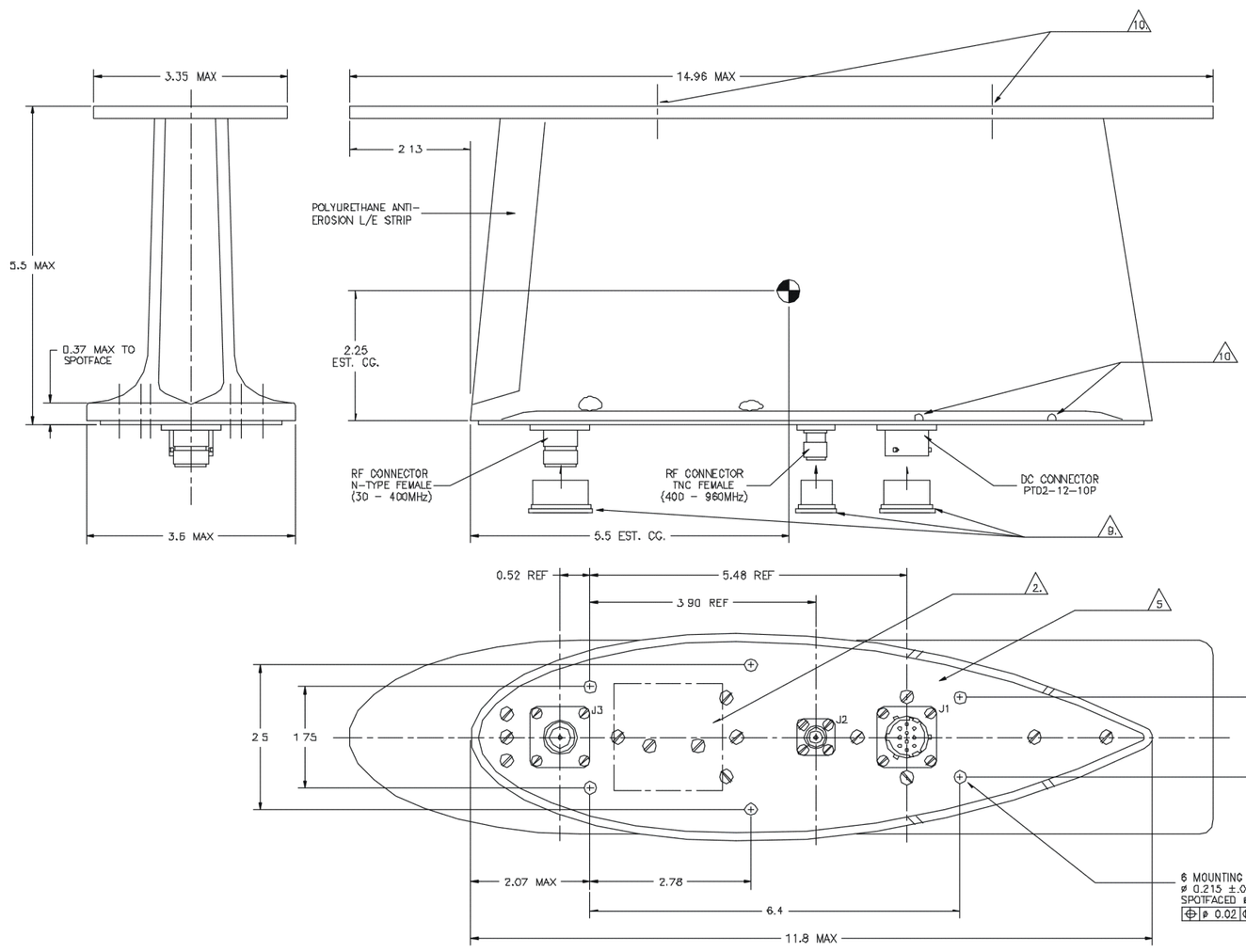
10. DRAINAGE

10.1 WHEN ANTENNA IS INSTALLED ON THE TOP SURFACE OF AIRCRAFT, i.e UPRIGHT MOUNTING AS DEPICTED.:
- 10.1.A DRAIN HOLES IN THE TOP PLATE OF ANTENNA SHOULD BE SEALED USING PLUGS 8021–0137, SUPPLIED WITH KIT, WET ASSEMBLED WITH THIOKOL OR SIMILAR SEALING COMPOUND.
- 10.1.B DRAIN SLOTS IN ANTENNA FLANGE AT MOUNTING FACE MUST NOT BE OBSTRUCTED.

10.2 WHEN THE ANTENNA IS MOUNTED ON THE UNDERSIDE OF THE AIRCRAFT, i.e.: INVERTED MOUNTING:
- 10.2.A DRAIN HOLES IN THE TOP OF THE ANTENNA PLATE MUST NOT BE OBSTRUCTED
- 10.2.B DRAIN SLOTS IN ANTENNA FLANGE AT MOUNTING FACE SHOULD BE SEALED BY APPLYING A SMALL FILLET OF THIOKOL (OR SIMILAR SEALING COMPOUND)

11. APPROVED VENDOR:
CHELTON(ELECTROSTATICS) LTD.

WED DASH NO.	VENDOR P/N	COLOR
–01	12–224	WHITE
–02	12–224 P4	BLACK



–01, –02 SHOWN

Figure 3-7. AT-5000 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-040045, Rev A

Wulfsberg Electronics Division
A Chelton Group Company
Prescott, AZ 86301 U.S.A.

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1 SPECIFICATIONS
- 1.1 ELECTRICAL
  - 1.1.1 FREQUENCY RANGE: LOW SPLIT: 29.7 – 400 MHz
    HIGH SPLIT 400 – 960 MHz
  - 1.1 2 IMPEDANCE: 50 OHMS
  - 1.1.3 VSWR: 2.5:1 MAX
  - 1.1.4 RF POWER: LOW SPLIT 15W DSBAM
    HIGH SPLIT 25W CW
  - 1.1.5 POLARIZATION: VERTICAL
  - 1.1.6 RADIATION PATTERN: OMNIDIRECTIONAL IN AZIMUTH
  - 1.1 7 SPEC GAIN: 30 MHz: –14 dBi
    88 MHZ –6 dBi
    108–174 MHZ: 0.0 dBi AV
    220–960 MHZ: 0.0 dBi AV
- 1.2 MECHANICAL:
  - 2.2 1 WEIGHT: 2 7 LBS MAX
  - 2.2.2 FINISH: WHITE PER FED–STD–595
- 1.3 ENVIRONMENTAL, DESIGNED TO MEET:
  - 2.3 1 TEMPERATURE –55 C° TO +70 C°
  - 2.3 2 VIBRATION MIL–E–5400, CURVE IIIB
  - 2.3.3 ALTITUDE: 40,000 FT
  - 2.3.4 SHOCK: MIL–STD–810E; METH.516.4; PROC.I (20G,11ms)

△2 LABEL MUST SHOW THE FOLLOWING INFORMATION:
ANTENNA AT–550
WULFSBERG ELECTRONICS DIVISION
P/N: 121–017850–01
S.N. (SERIAL NO. TO BE SUPPLIED BY MFR.)
MFR. NAME AND PART NUMBER

3 INSTALLATION IT IS RECOMMENDED THAT SQUARE CLEARANCE HOLES (WITH RADIUSED CORNERS) FOR THE CONNECTORS BE USED IN THE AIRCRAFT SKIN TO AVOID WEAKENING THE METAL AROUND THE SCREW HOLES. THE INSTALLER MAY DESIRE TO USE THE FOLLOWING SIZES.
J2 (N CONN): 1.125
J1 (TNC CONN): 0.75
J3 (10 PIN CONN): 1 125
MOUNT ANTENNA WITH NO. 10 SCREWS

WIRE PER SIGNAL DIAGRAM 152–117922.

4 DIMENSIONS SHOWN FOR REFERENCE ONLY

△5 THIS AREA TO BE PAINT FREE

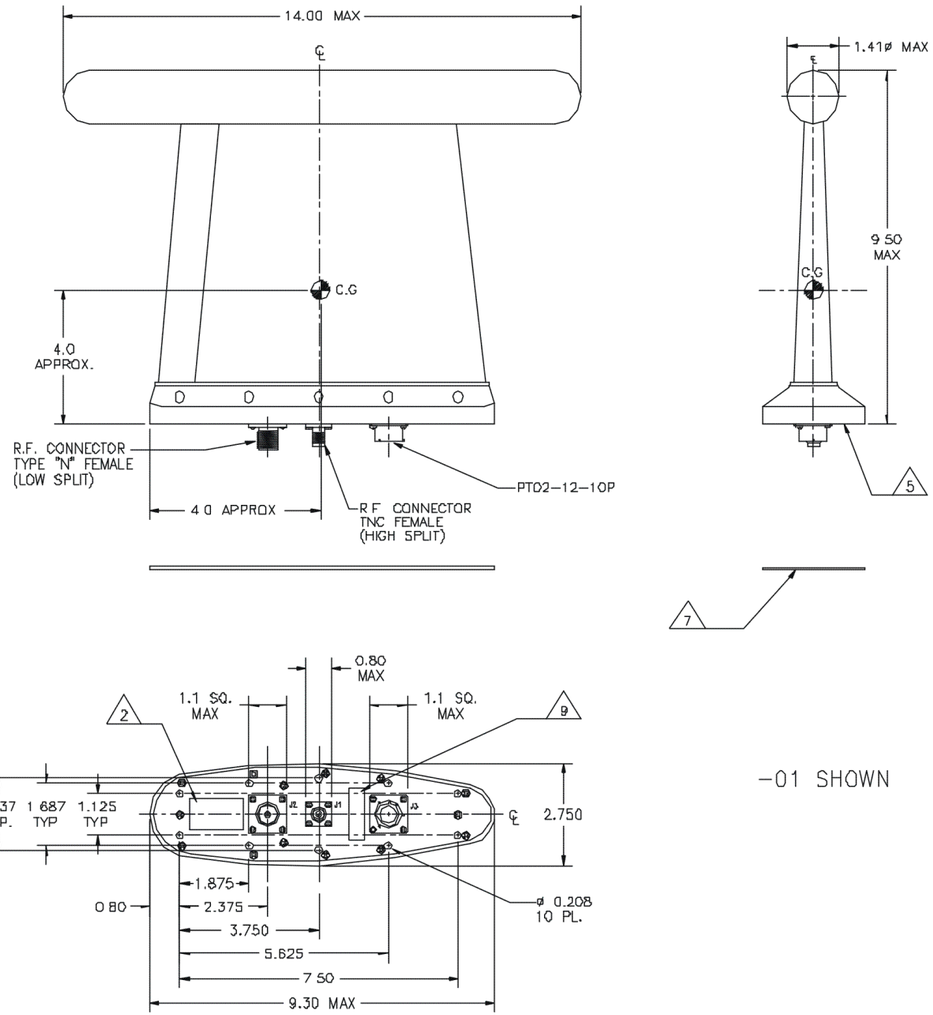
6. APPROVED VENDOR: DAYTON–GRANGER INC., P/N: 720058 (–01)

△7. SUPPLIED WITH A SILICONE RUBBER CONDUCTIVE GASKET.
D.G. P/N: 540446, REPLACEMENT GASKET W.E.D. P/N: 146–017850–01.

8 SUPPLIER TO FURNISH TEST DATA SHEETS WITH EACH SHIPMENT

△9 PMA LABEL 057–05858–0007 TO BE APPLIED BY:
WULFSBERG ELECTRONICS DIVISION

10. IMPORTANT: CONNECT ANTENNA TO APPROPRIATE LOGIC CONVERTER. BE SURE BOTH ANTENNA AND LOGIC CONVERTER ARE MANUFACTURED BY THE SAME MANUFACTURER.



–01 SHOWN

Figure 3-8. AT-550 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-017850, Rev E

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1 (WARNING, PERFORMANCE IS MARGINAL BELOW 50 MHz. FOR IMPROVED PERFORMANCE IN THE 30 – 50 MHz REGION. SEE THE AT–550 OR AT–5000 ANTENNA).

2 SPECIFICATIONS:

2.1 ELECTRICAL

2.1 1 FREQUENCY RANGE'	LOW SPLIT: 29.7 – 400 MHz HIGH SPLIT 400 – 960 MHz
2.1.2 IMPEDANCE:	50 OHMS
2.1 3 VSWR	2 5:1 MAX
1.1.4 RF POWER:	LOW SLIT 25W DSBAM HIGH SPLIT 25W CW
2.1.5 POLARIZATION:	VERTICAL
2.1 6 RADIATION PATTERN	OMNIDIRECTIONAL IN AZIMUTH
2.1.7 SPEC. GAIN:	30 MHz: –21 dBi 60 MHZ: –21 dBi 88 MHZ –12 dBi 108–174 MHZ: –3 dBi AV 225–960 MHZ: 0.0 dBi AV

2.2 MECHANICAL:

2.2 1 WEIGHT	2.7LBS (1 22kg) MAX
2.2.2 FINISH:	WHITE PER FED–STD–595

2.3 ENVIRONMENTAL, DESIGNED TO MEET:

2.3.1 TEMPERATURE:	–55° C TO +70° C
2.3 2 VIBRATION	MIL–E–5400, CURVE IIIB
2.3.3 ALTITUDE:	40,000 FT
2.3.4 SHOCK:	MIL–STD–810E; METH.516.4; PROC. (20G,11ms)
2.3.5 CSD:	COMPASS SAFE DISTANCE IS LESS THAN 12 INCHES.

△3 LABEL MUST SHOW THE FOLLOWING INFORMATION
ANTENNA: AT–150
WULFSBERG ELECTRONICS DIVISION
P/N: 153–017822–01 (FOR DAYTON GRAINGER)
S.N.: (SERIAL NO. TO BE SUPPLIED BY MFR.)
MFR: NAME AND MFR. PART NUMBER

4 INSTALLATION REQUIRES A 1.38 DIA MIN CLEARANCE HOLE IN THE AIRCRAFT SKIN FOR THE FEMALE "N" CONNECTOR MOUNTED ON THE ANTENNA. A 94 DIA. HOLE IS ALSO REQUIRED TO CLEAR THE FEMALE "TNC" CONNECTOR. THE INSTALLER MAY DESIRE TO USE LARGER HOLES TO CLEAR THE MALE CABLE CONNECTORS OR TO ALLOW FOR HOLE LOCATION TOLERANCES. MOUNT ANTENNA WITH NO 10 SCREWS

5. DIMENSIONS SHOWN FOR REFERENCE ONLY.

6 APPROVED VENDORS' DAYTON–GRANGER INC., P/N 72D057

△7. ALUMINUM BASEPLATE, UNPAINTED, MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME ANTENNA SHOULD BE MOUNTED ON NEAR FLAT SURFACE USING R.F. GASKET.

△8. SUPPLIED WITH A SILICONE RUBBER CONDUCTIVE GASKET REPLACEMENT GASKET W.E.D. P/N: 146–017822–01.

△9. PMA LABEL 057–05859–0008 TO BE APPLIED BY WULFSBERG ELECTRONICS DIVISION.

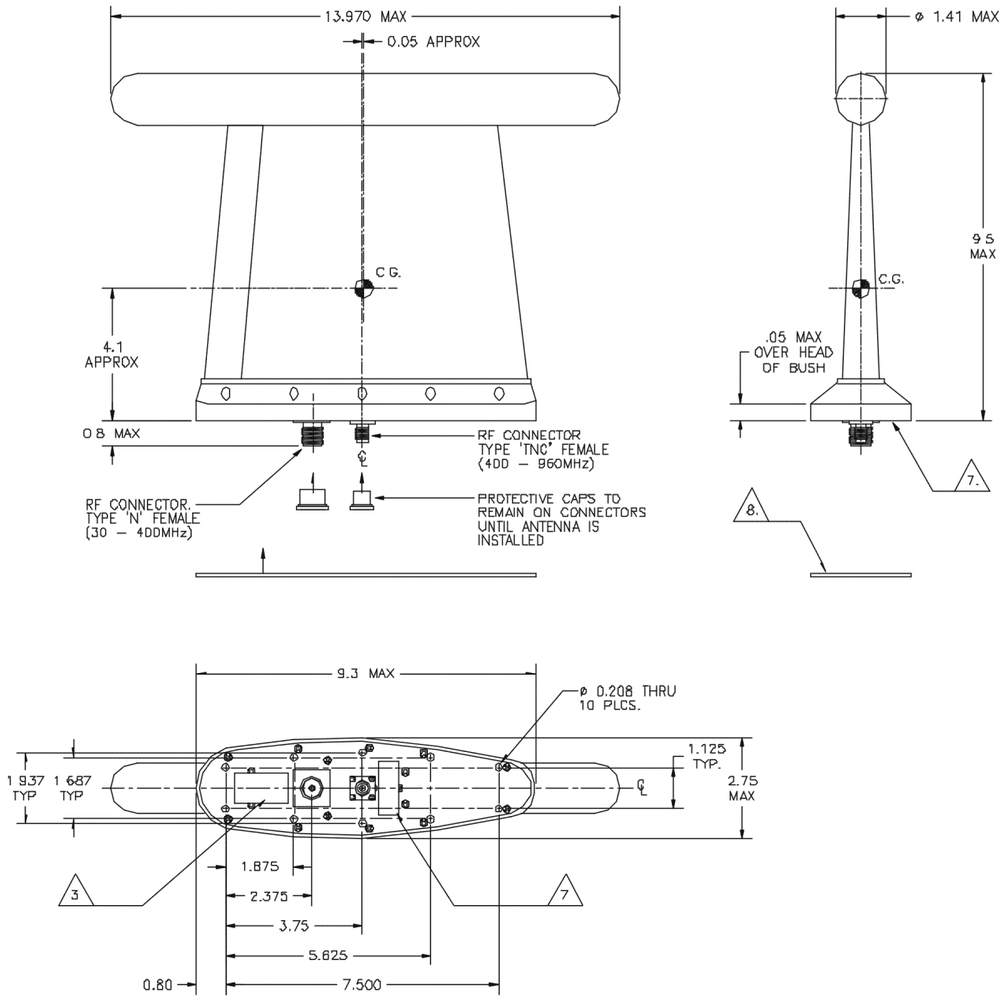


Figure 3-9. AT-150 Envelope Drawing (Sheet 1 of 1)
Dwg No. 153-017822, Rev D

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. SPECIFICATIONS:
   - 1.1 ELECTRICAL:
     - 1.1.1 FREQUENCY RANGE: 29.7 – 400 MHz
     - 1.1.2 VSWR: 30 – 88 MHz 2.5:1 MAX
       108 – 117 MHz 3.0:1 MAX
       118 – 174 MHz 2.5:1 MAX
       225 – 400 MHz 2.5:1 MAX
     - 1.1.3 RADIATION PATTERN: OMNIDIRECTIONAL IN AZIMUTH
     - 1.1.4 POLARIZATION: VERTICAL
     - 1.1.5 IMPEDANCE: 50 OHMS
     - 1.1.6 POWER: 20 WATTS (CW)
     - 1.1.7 GAIN: –11dBi AT 30 MHz MIN
       –6 dBi AT 88 MHz MIN
       0 dBi AT 108 – 174 MHz AVG
       +2 dBi AT 225 – 400 MHz AVG
   - 1.2 MECHANICAL:
     - 1.2.1 WEIGHT: 4.77 LBS (2.17 KG) MAX.
     - 1.2.2 MATERIAL: GLASS REINFORCED PLASTIC OUTER SHELL
     - 1.2.3 FINISH: SKYDROL RESISTANT GLOSS WHITE EPOXY (DEF. STAN. 80–161). WITH ANTI–EROSION STRIP ON LEADING EDGE. NO DECAL
     - 1.2.4 CONNECTORS: RF PORT: TYPE 'N' FEMALE:
       LOGIC PORT (DC CONN.):
       IT CANNON CONNECTOR KPT–00–A–12–10P M/W
       MATING PLUG KPT–06–A–12–10S OR EQUIV
   - 1.3 ENVIRONMENTAL:
     - 1.3.1 TEMPERATURE: –54° C TO +71° C OPERATING
       –62° C TO +85° C NON OPERATING
     - 1.3.2 VIBRATION: MIL–STD–810C, METHOD 514.2, FIG. 514.2–2 CURVE M
     - 1.3.3 ALTITUDE: 50, 000 FEET
     - 1.3.4 SHOCK: MIL–STD–810C, METHOD 516.2 PROC. 1, FIG. 516.2–2
     - 1.3.5 SIDE LOAD: 3.25 P.S.I. (PROOF) 4.0 P.S.I. (ULTIMATE)
2. C.S.D.: COMPASS SAFE DISTANCE IS LESS THAN 12 INCHES
3. REFER TO WEEDS DATA BASE FOR CURRENT VENDOR INFORMATION.
4. THIS ANTENNA MUST BE USED WITH WULFSBERG P/N 153–016586–01 LOGIC CONVERTER, (FC–50) OR EQUIVALENT
5. LABEL MUST SHOW THE FOLLOWING INFORMATION:
   WULFSBERG ELECTRONICS DIVISION
   ANTENNA AT–50
   W.E.D. P/N 121–016587–01
   SERIAL NO._____(SERIAL NO. TO BE SUPPLIED BY VENDOR)
   MANUFACTURERS NAME AND P/N.
6. INSTALLATION KIT COMPRISING 2 BLANKING PLUGS (CHELTON P/N 8021–138) AND INSTRUCTION LEAFLET IS INCLUDED WITH EACH ANTENNA
7. WITH ANTENNA INSTALLED ON TOP SURFACE, IE. UPRIGHT MOUNTING, AS DRAWN, DRAIN HOLES AT SMALLER END OF ANTENNA SHOULD BE PLUGGED USING PLUGS (CHELTON P/N 8021–138) AND RTV. DRAINAGE HOLES IN ANTENNA BASE FLANGE AT MOUNTING FACE MUST NOT BE OBSTRUCTED.
8. WITH ANTENNA INSTALLED ON UNDERSIDE OF AIRCRAFT, IE. INVERTED MOUNTING, DRAIN HOLES AT SMALLER END OF ANTENNA MUST NOT BE OBSTRUCTED. DRAIN HOLES AT ANTENNA BASE FLANGE SHOULD BE PLUGGED USING PLUGS (CHELTON P/N 8021–138) AND RTV. BASE FLANGE AT MOUNTING FACE SHOULD BE SEALED BY APPLYING A SMALL FILLET OF RTV.
9. ALUMINUM ALLOY BASEPLATE MUST REMAIN UNPAINTED. MANUFACTURER CHROMATE FILM CONVERSION TO DEF. STAN. 03–18. MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME. ANTENNA SHOULD BE MOUNTED ON A FLAT SURFACE USING CONDUCTIVE GASKET, WULFSBERG P/N: 146–016959–01. GASKET NOT INCLUDED. MUST BE ORDERED SEPARATELY FROM ANTENNA.
10. SUPPORTING DOCUMENTS: SIGNAL DIAGRAM, 152–116585
11. DIMENSIONS SHOWN FOR REFERENCE ONLY
12. INSTALLATION REQUIRES A 1.0 DIAMETER MIN CLEARANCE HOLE IN THE AIRCRAFT SKIN FOR THE FEMALE "N" CONNECTOR MOUNTED ON THE ANTENNA. THE INSTALLER MAY DESIRE TO USE A LARGER HOLE TO CLEAR THE MALE "N" CABLE CONNECTOR OR TO ALLOW FOR HOLE LOCATION TOLERANCE. MOUNT ANTENNA WITH NO. 10 SCREWS.
    - 12.1 INSTALLATION ALSO REQUIRES A 1.14 DIAMETER MIN CLEARANCE HOLE ON THE AIRCRAFT SKIN FOR THE DC CONNECTOR.
13. PROTECTIVE CAPS TO REMAIN FITTED UNTIL ANTENNA IS INSTALLED.

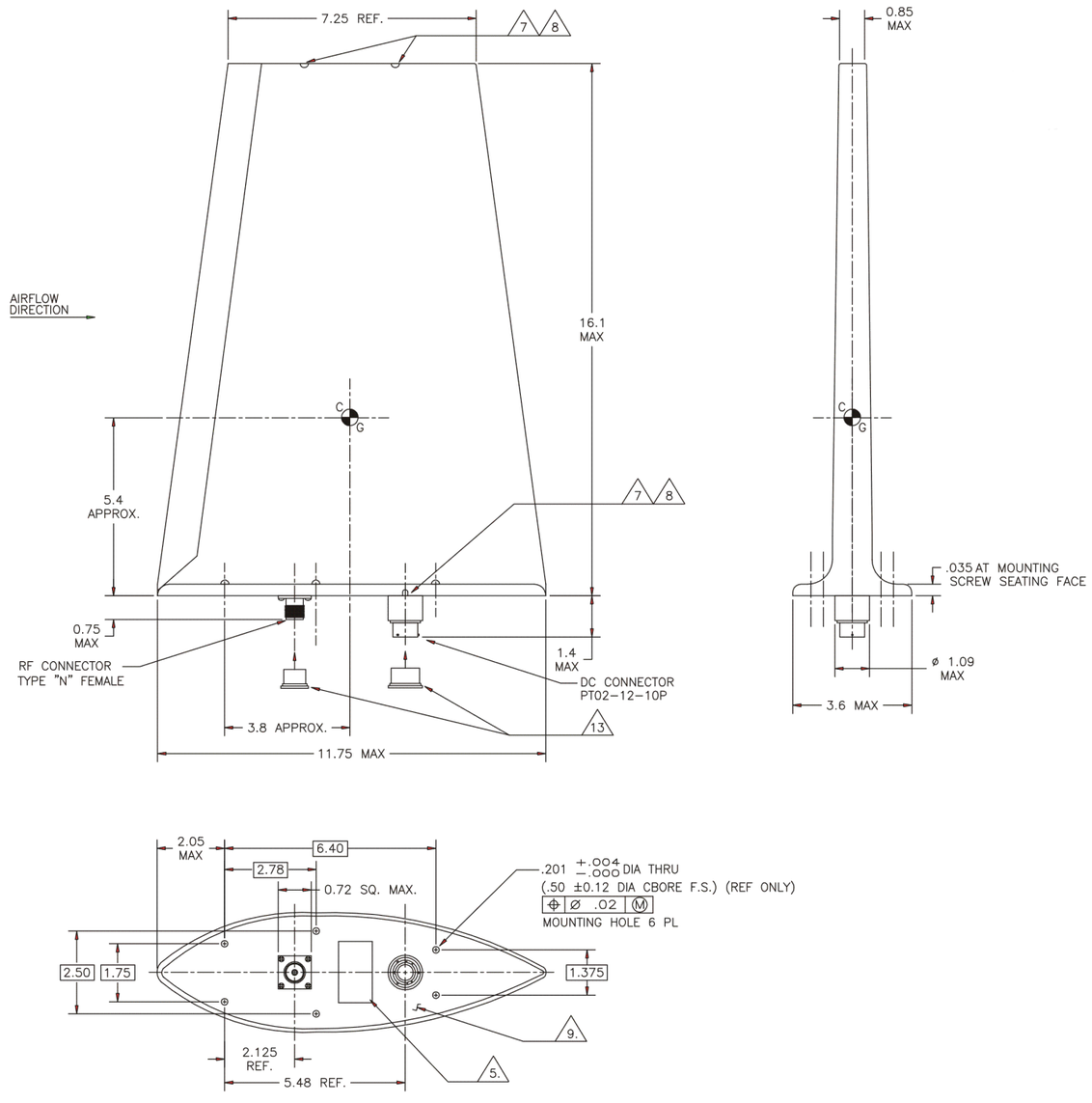


Figure 3-10. AT-50 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-016587, Rev G

Wulfsberg Electronics Division
A Chelton Group Company
Prescott, AZ 86301 U.S.A.

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. SPECIFICATIONS:

1.1 ELECTRICAL

1.1.1	FREQUENCY RANGE:	29.7 – 400 MHz
1.1.2	VSWR: 2.5:1 MAX	2.5:1 MAX
1.1.3	RADIATION PATTERN:	OMNIDIRECTIONAL
1.1.4	POLARIZATION:	VERTICAL
1.1.5	IMPEDANCE:	50 OHMS
1.1.6	POWER:	15 WATTS (CW)
1.1.7	GAIN:	−14dBi AT 30 MHZ MIN −7dBi AT 88 MHz MIN −3dBi AT 108 – 174 MHz AVG 0dBi AT 225 – 400 MHz AVG

1.2 MECHANICAL

1.2.1	WEIGHT:	3.1 LBS MAX (1.35 KG)
1.2.2	MATERIAL:	GLASS REINFORCED PLASTIC OUTER SHELL S.S. TUBE
1.2.3	FINISH:	SKYDROL RESISTANT EPOXY GLOSS WHITE, TO DEF. STAN. 80–161, WITH ANTI–EROSION STRIP ON LEADING EDGE. NO DECAL
1.2.4	CONNECTORS:	RF PORT: TYPE N FEMALE LOGIC PORT (DC CONN): BENDIX P/N: PTO2–12–10P OR ITT CANNON P/N: KPT–00–A–12–10P MATES WITH ITT CANNON PLUG: KPT–06–A–12–10S OR EQUIV

1.3 ENVIRONMENTAL:

1.3.1	TEMPERATURE:	OPERATING: −54° C TO +71° C NON–OPERATING: −62° C TO +85° C
1.3.2	VIBRATION:	MIL–STD–810C, METHOD 514.2, FIG 514.2–2, CURVE M
1.3.3	ALTITUDE:	50,000 FT
1.3.4	SHOCK:	MIL–STD–810C, METHOD 516.2, PROC 1 FIG 516.2–2
1.3.5	SIDE LOAD:	3.25 PSI (PROOF), 4.0 PSI (ULTIMATE)

2. CSD: COMPASS SAFE DISTANCE IS LESS THAN 12 INCHES

3. REFER TO WEEDS DATA BASE FOR CURRENT VENDOR INFORMATION.

WED DASH NO.	COLOR
−01	WHT
−02	BLK

4. THIS ANTENNA MUST BE USED WITH WED P/N 153–016586–01 LOGIC CONVERTER (FC–50) OR EQUIV

5. LABEL MUST SHOW THE FOLLOWING INFORMATION:
ANTENNA AT–51
WULFSBERG ELECTRONICS DIVISION
P/N: 121–016796–01 (WHT) OR 121–016796–02 (BLK)
SERIAL NO. ———— (SERIAL NO. TO BE SUPPLIED BY VENDOR)
MFR. NAME AND PART NUMBER

6. UNPAINTED ALUMINUM BASE MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME. IF ANTENNA FOOTPRINT SURFACE IS NOT FLAT, OPTIONAL CONDUCTIVE GASKET (WULFSBERG P/N 146–016960–01) MAY BE USED. (MUST BE ORDERED SEPARATELY.)

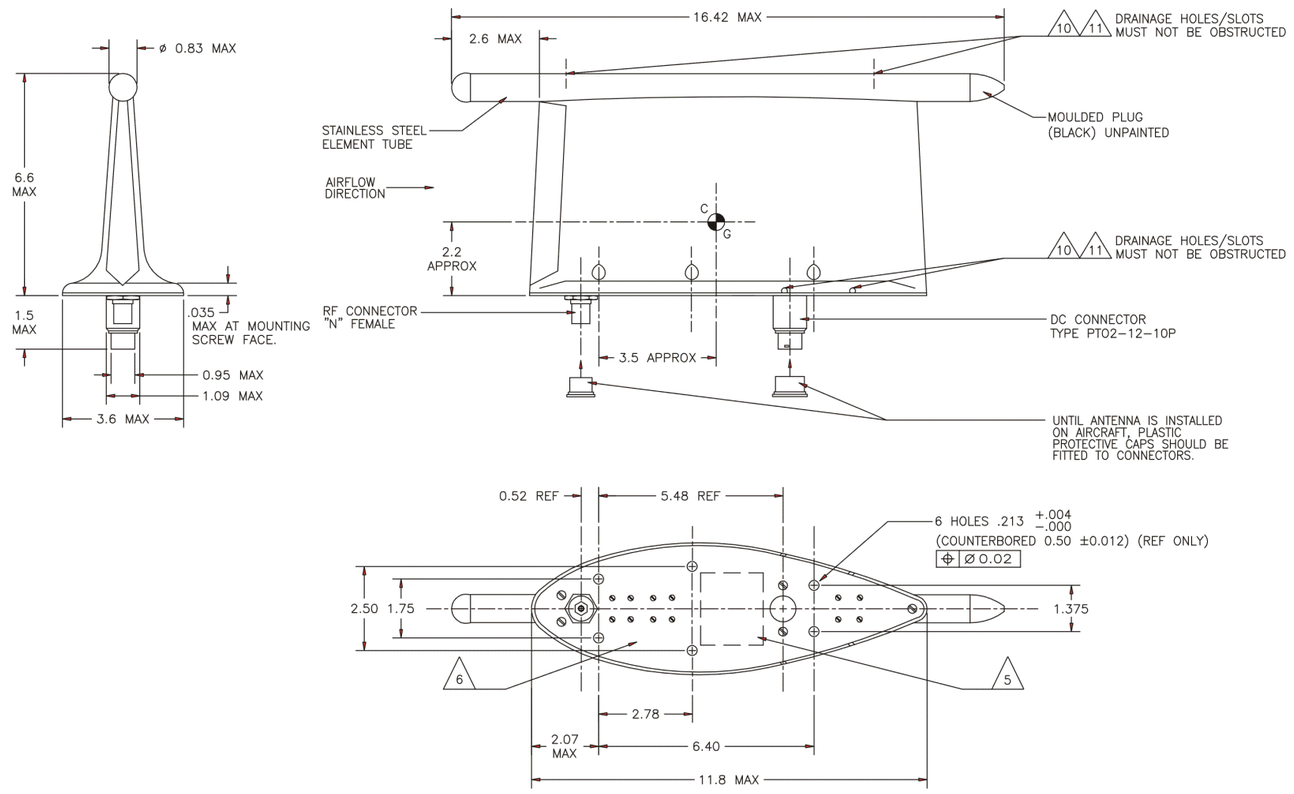
7. SUPPORTING DOCUMENTS: SIGNAL DIAGRAM 152–116585.

8. DIMENSIONS SHOWN FOR REF ONLY.

9. INSTALLATION REQUIRES A 1.0 DIA MIN CLEARANCE HOLE IN THE AIRCRAFT SKIN FOR THE FEMALE "N" CONNECTOR MOUNTED ON THE ANTENNA. THE INSTALLER MAY DESIRE TO USE A LARGER HOLE TO CLEAR THE MALE "N" CABLE CONNECTOR OR TO ALLOW FOR HOLE LOCATION TOLERANCE. MOUNT ANTENNA WITH NO. 10 SCREWS.
9.1 INSTALLATION ALSO REQUIRES A 1.14 DIA MIN CLEARANCE HOLE IN THE AIRCRAFT SKIN FOR THE DC CONNECTOR.

10. WITH ANTENNA INSTALLED ON TOP SURFACE, I.E. UPRIGHT MOUNTING, AS DRAWN. DRAIN HOLES AT SMALLER END OF ANTENNA SHOULD BE PLUGGED USING PLUGS (CHELTON P/N 8021–138) AND RTV. DRAINAGE HOLES IN ANTENNA BASE FLANGE AT MOUNTING FACE MUST NOT BE OBSTRUCTED.

11. WITH ANTENNA INSTALLED ON UNDERSIDE OF AIRCRAFT, I.E. INVERTED MOUNTING, DRAIN HOLES AT SMALLER END OF ANTENNA MUST NOT BE OBSTRUCTED. DRAIN HOLES AT ANTENNA BASE FLANGE SHOULD BE PLUGGED USING PLUGS (CHELTON P/N 8021–138) AND RTV. BASE FLANGE AT MOUNTING FACE SHOULD BE SEALED BY APPLYING A SMALL FILLET OF RTV.



−01 SHOWN

Figure 3-11. AT-51 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-016796, Rev F

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

(WARNING – PERFORMANCE IS MARGINAL BELOW 50 MHz. FOR IMPROVED PERFORMANCE IN THE 30 – 50 MHz REGION, SEE AT–50 OR AT–51 ANTENNAS.)

1. SPECIFICATIONS:

1.1 ELECTRICAL:

1.1.1 FREQUENCY RANGE:	29.7 – 400 MHz.
1.1.2 IMPEDANCE:	50 OHMS
1.1.3 VSWR:	2.5:1 AT 30–88 MHz MIN 5.0:1 AT 108–117 MHz MIN 2.5:1 AT 118–174 MHz AVG 2.0:1 AT 225–400 MHz AVG
1.1.4 POWER:	50 WATTS (CW).
1.1.5 POLARIZATION:	VERTICAL.
1.1.6 RADIATION PATTERN:	OMNIDIRECTIONAL IN AZIMUTH.
1.1.7 GAIN:	30 MHz: –22.5 dBi 88 MHz: –10 dBi 108 – 174 MHz: –2 dBi 225 – 400 MHz: +2 dBi

1.2 MECHANICAL:

1.2.1 WEIGHT:	4.0 LBS MAX (1.8KG).
1.2.2 SIDE LOADING:	3.25 P.S.I. (PROOF), 4.0 P.S.I. (ULTIMATE).
1.2.3 FINISH:	GLOSS WHITE EPOXY, TO DTD5555 WITH ANTI–EROSION STRIP ON LEADING EDGE. NO DECAL.

1.3 ENVIRONMENTAL:

1.3.1 TEMPERATURE:	–54° C TO +71° C OPERATING –62° C TO +85° C NON OPERATING.
1.3.2 VIBRATION:	MIL–STD–810C, METHOD 514.2, FIG. 514.2–2, CURVE H.
1.3.3 ALTITUDE:	50,000 FT.
1.3.4 SHOCK:	MIL–STD–810C, METHOD 5.16.2, PROC. 1, FIG. 516.2–2.
1.3.5 SIDE LOAD:	3.25 P.S.I. (PROOF), 4.0 P.S.I. (ULTIMATE)

2. LABEL MUST SHOW THE FOLLOWING INFORMATION:
ANTENNA AT–140
WULFSBERG ELECTRONICS DIVISION
W.E.D. P/N 121–016584–01
S/N———————— (SERIAL NO. TO BE SUPPLIED BY VENDOR)
MANUFACTURERS NAME AND P/N.

3. INSTALLATION REQUIRES A 1.0 DIA. MIN. CLEARANCE HOLE IN THE AIRCRAFT SKIN FOR THE FEMALE "N" CONNECTOR MOUNTED ON THE ANTENNA. THE INSTALLER MAY DESIRE TO USE A LARGER HOLE TO CLEAR THE MALE "N" CABLE CONNECTOR OR TO ALLOW FOR HOLE LOCATION TOLERANCE. MOUNT ANTENNA WITH NO. 10 SCREWS.

4. DIMENSIONS SHOWN ARE NOMINAL AND ARE FOR REFERENCE ONLY.

5. REFER TO WEEDS DATA BASE FOR CURRENT VENDOR INFORMATION.

6. UNPAINTED ALUMINUM BASE MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME. IF ANTENNA FOOTPRINT SURFACE IS NOT FLAT, OPTIONAL CONDUCTIVE GASKET (WED P/N 146–016961–01 MAY BE USED. (MUST BE ORDERED SEPARATELY.)

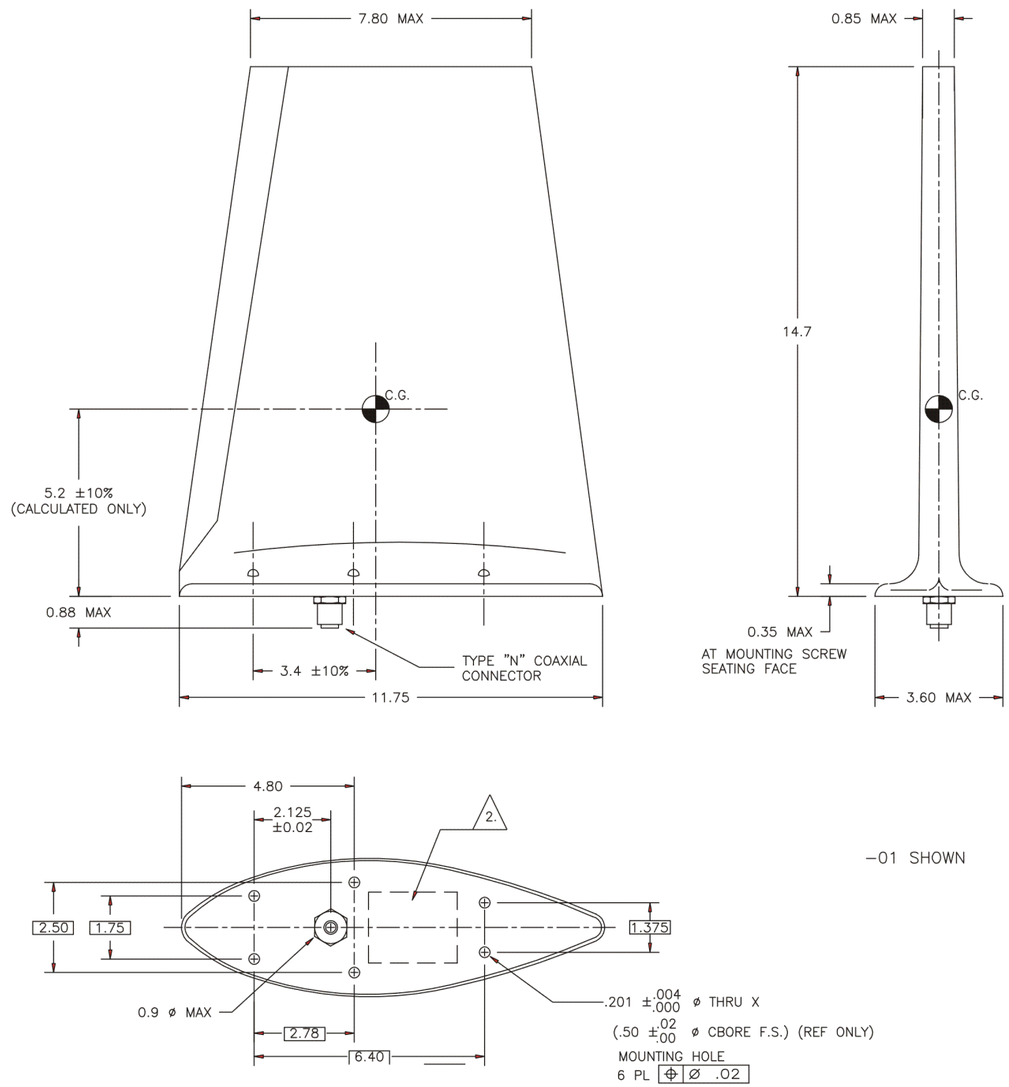
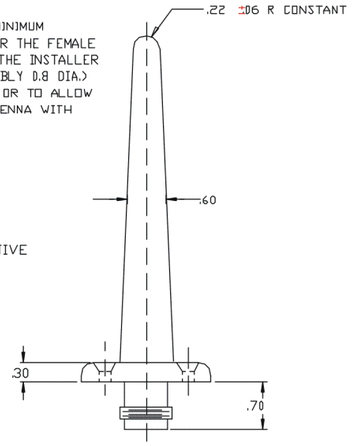


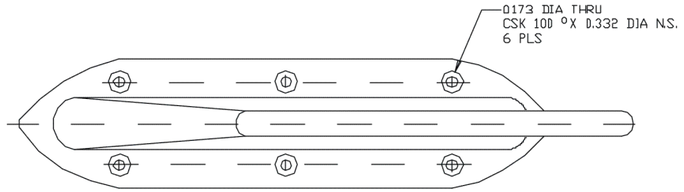
Figure 3-12. AT-140 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-016584, Rev F

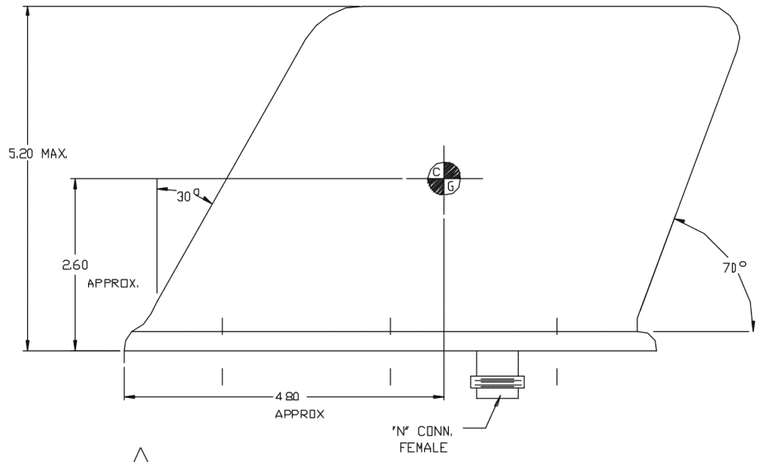
C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. RF CHARACTERISTICS:
   - 1.1 FREQUENCY — 400 - 960 MHz
   - 1.2 VSWR — 2.0 : 1 MAX
   - 1.3 POLARIZATION — VERTICAL
   - 1.4 RADIATION PATTERN — TYPICAL OF λ/4 STUB
   - 1.5 RF POWER — 100 WATTS
   - 1.6 IMPEDANCE — 50 OHMS
   - 1.7 EFFICIENCY — 90% MIN. 400 - 960 MHz
2. MECHANICAL CHARACTERISTICS:
   - 2.1 FINISH: WHITE GLOSS PAINT NON YELLOWING.
   - 2.2 WEIGHT: 0.75 LBS MAX
   - 2.3 RATED TO 600 KNOTS AT 25000 FT
   - 2.4 ANTENNA TO MEET RTCA DO-160C ENV. CAT. F2-XCCXXXXXXXXXXXXXXXX
3. IDENT PLATE MUST SHOW THE FOLLOWING INFORMATION:
   ANTENNA AT-400
   WULFSBERG ELECTRONICS DIVISION
   W.E.D. P/N 121-016821-01
   S/N _____(SERIAL NO. TO BE SUPPLIED BY VENDOR)
   MANUFACTURER'S NAME AND P/N
4. INSTALLATION REQUIRES A 0.635 DIAMETER MINIMUM CLEARANCE HOLE IN THE AIRCRAFT SKIN FOR THE FEMALE "N" CONNECTOR MOUNTED ON THE ANTENNA. THE INSTALLER MAY DESIRE TO USE A LARGER HOLE (POSSIBLY 0.8 DIA.) TO CLEAR THE MALE "N" CABLE CONNECTOR OR TO ALLOW FOR HOLE LOCATION TOLERANCE MOUNT ANTENNA WITH NO. 8 SCREWS.
5. APPROVED VENDORS:
   COMANT INDUSTRIES, INC.
   P/N CI285-5
6. FOR REFERENCE ONLY.
7. SUPPLIED WITH A SILICONE RUBBER CONDUCTIVE GASKET. REPLACEMENT P/N 146-016958-01.
8. DIMENSIONS SHOWN FOR REFERENCE ONLY.







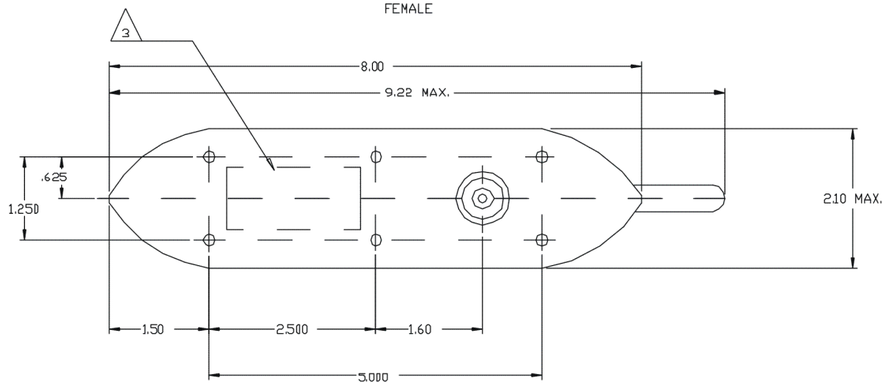


Figure 3-13. AT-400 Envelope Drawing (Sheet 1 of 1)
Dwg No. 121-016821, Rev B

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. FINISH MATT BLACK EPOXY TO DEF STAN 80-161.
2. DIMENSIONS ARE FOR REFERENCE ONLY.
3. PART TO BE LABLED WITH THE FOLLOWING:
   WULFSBERG ELECTRONICS DIVISION
   LOGIC CONVERTER FC-50
   W.E.D. P/N: 153-016586-01
   CHELTON P/N: 7-119PIN26GW
   SERIAL NO.: (TO BE SUPPLIED BY VENDOR)
4. WEIGHT: 1.65LBS (0.75KG) MAX.
5. THE COMPASS SAFE DISTANCE IS LESS THAN 12 IN.
6. CONNECTOR TYPES ARE EQUIVALENT:
   J1. KPTO2E-14-19P MATES WITH KPTO6E-14-19S
   J2 KPTO2E-8-33P MATES WITH KPTO6E-8-33S
   J3 KPTO2E-12-10S MATES WITH KPTO6E-12-10P
7. SPOTFACE TO REMAIN UNPAINTED
8. MOUNTING FACE UNPAINTED, TREATED WITH CHROMATE FILM CONVERSION TO DEF. STAN. 03-18. MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME.
9. SOURCE: CHELTON (ELECTROSTATICS) LTD.
   SOURCE P/N: 7-119PIN26GW

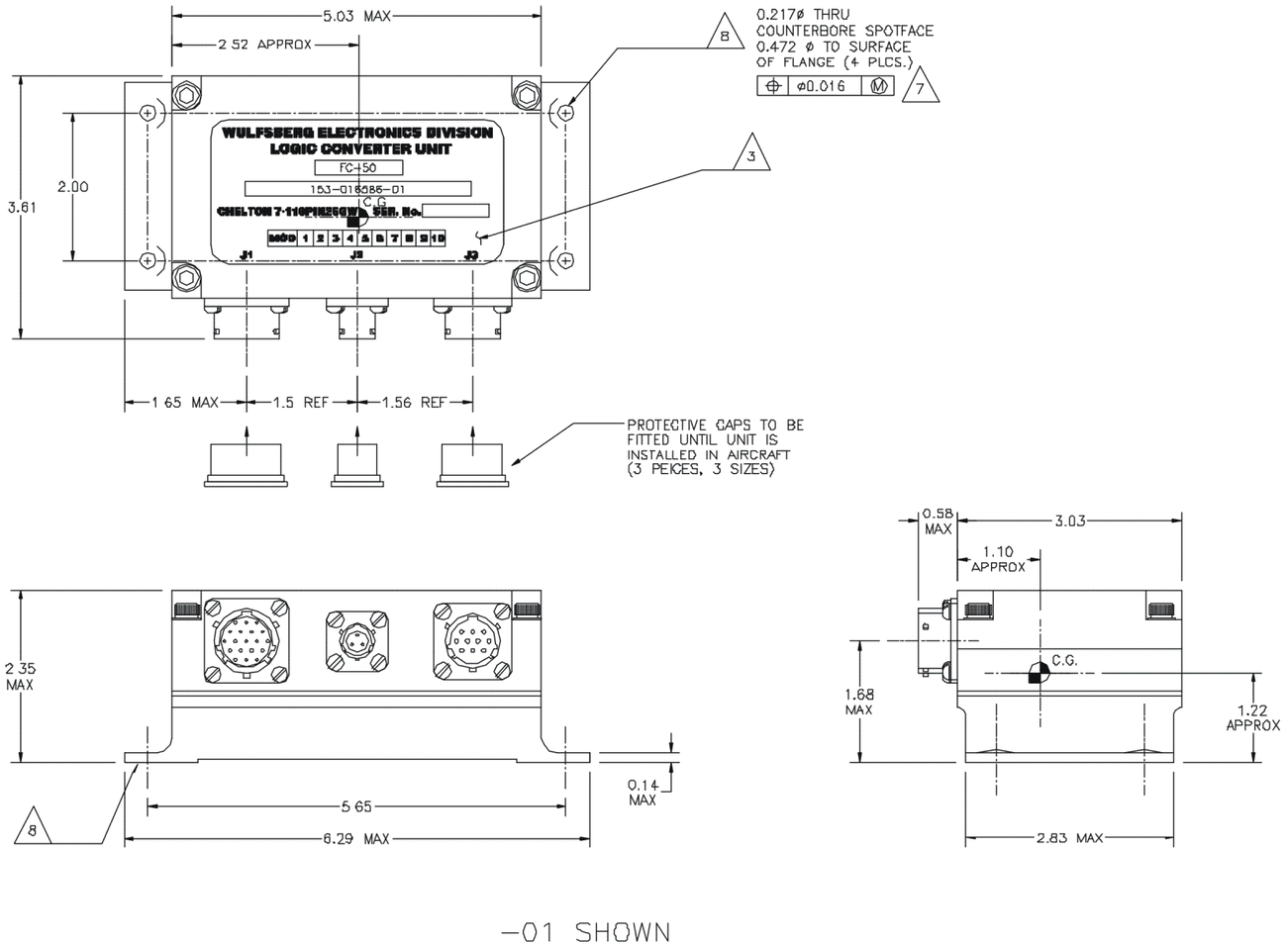
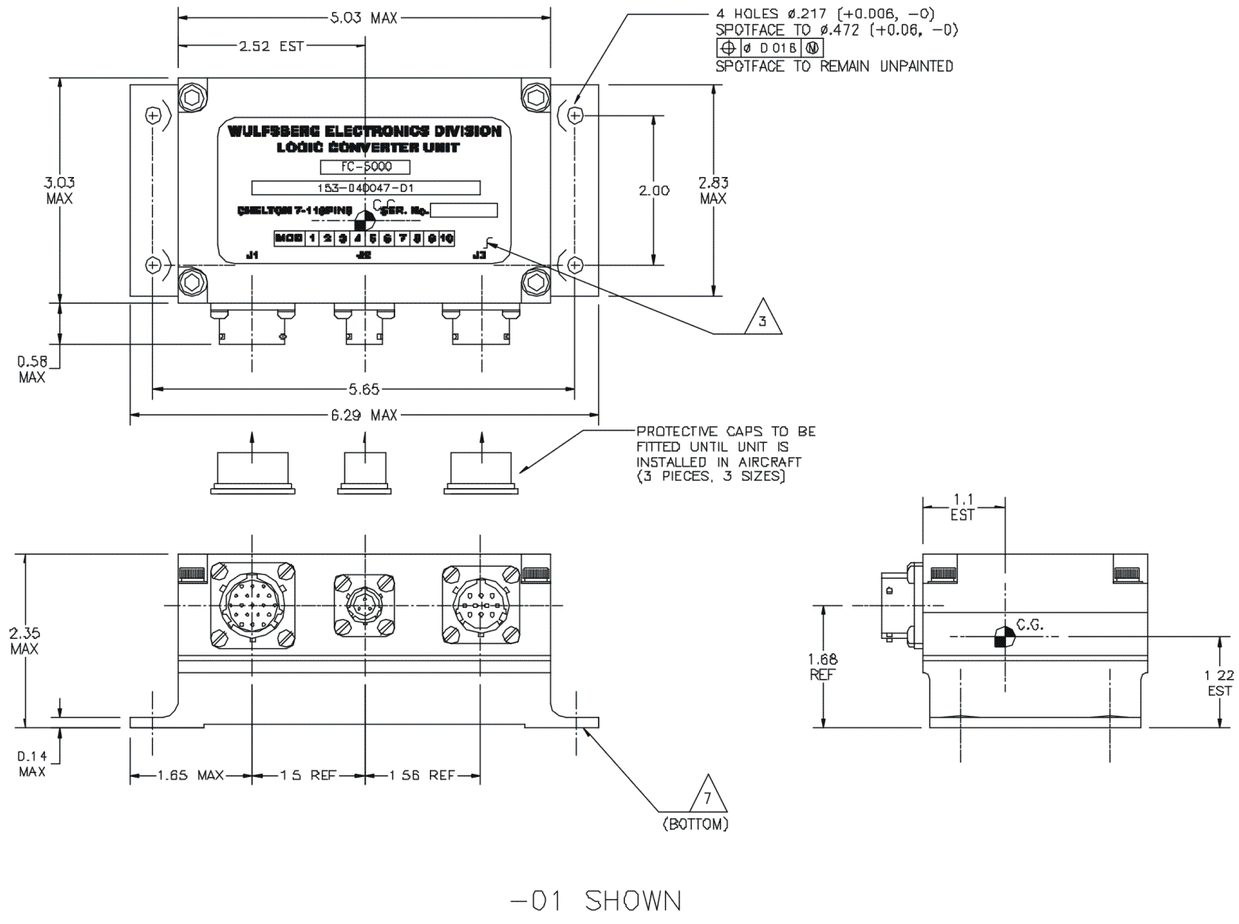


Figure 3-14. FC-50 Envelope Drawing (Sheet 1 of 1)
Dwg No. 153-016586, Rev E

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

NOTES:

1. FINISH: MATT BLACK EPOXY TO DEF. STAN. 80-161.
2. DIMENSIONS ARE FOR REFERENCE ONLY
3. PART TO BE LABLED WITH THE FOLLOWING:
   WULFSBERG ELECTRONICS DIVISION
   LOGIC CONVERTER FC-5000
   W.E.D P/N 153-040047-01
   CHELTON P/N: 7-119PIN9
   SERIAL NO.: (TO BE SUPPLIED BY VENDOR)
4. WEIGHT: 1.65 LBS (0.75kg) MAX.
5. THE COMPASS SAFE DISTANCE IS LESS THAN 12 IN.
6. CONNECTOR TYPES ARE EQUIVALENT:
   J1 KPTO2E-14-19P MATES WITH KPTO6E-14-19S
   J2. KPTO2E-8-33P MATES WITH KPTO6E-8-33S
   J3 KPTO2E-12-10S MATES WITH KPTO6E-12-10P
7. SPOTFACES (4), HOLES (4)
   MOUNTING FACE UNPAINTED, TREATED WITH CHROMATE FILM CONVERSION TO DEF. STAN. 03-18 MUST MAKE GOOD ELECTRICAL CONTACT WITH AIRFRAME.
8. APPROVED SOURCE: CHELTON (ELECTROSTATICS) LTD.
   CHELTON P/N: 7-119PIN9

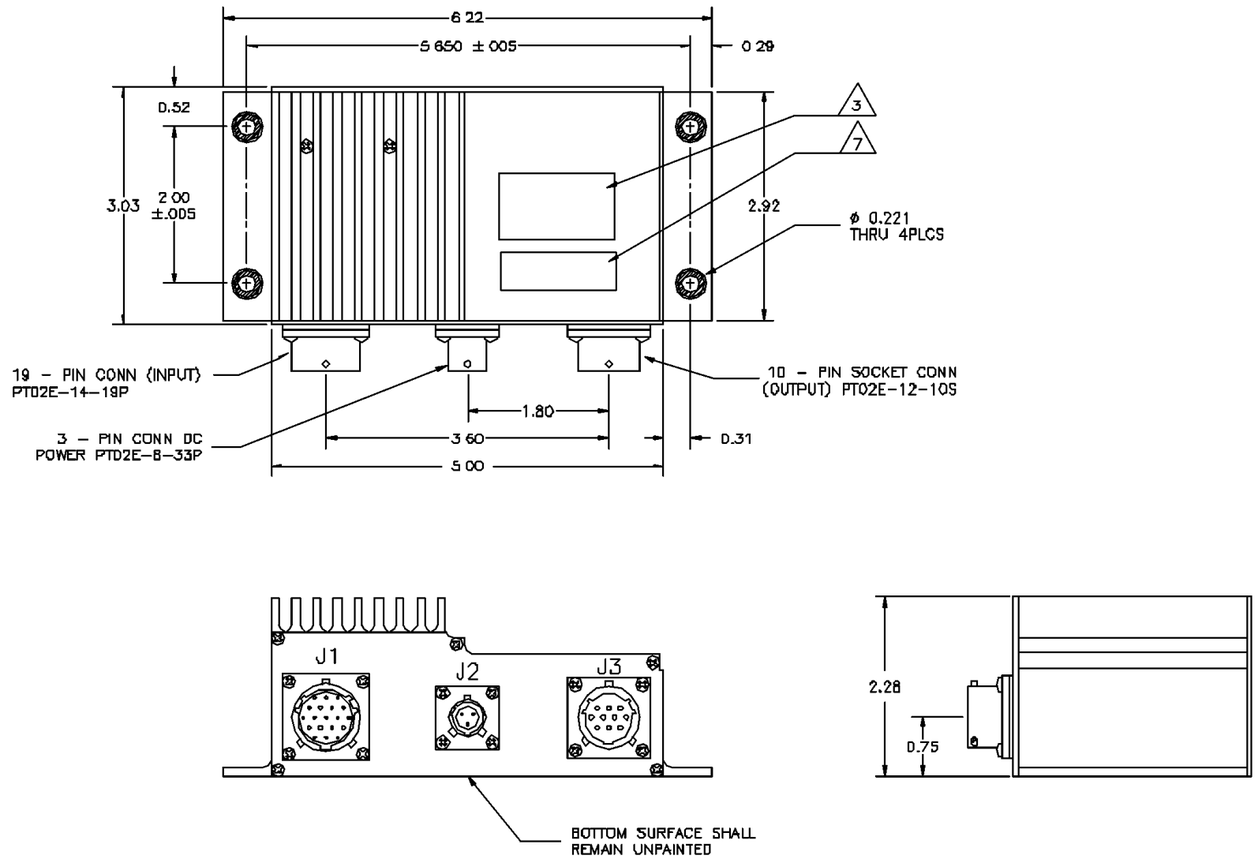


-01 SHOWN

Figure 3-15. FC-5000 Envelope Drawing (Sheet 1 of 1)
Dwg No. 153-040047, Rev A

NOTES

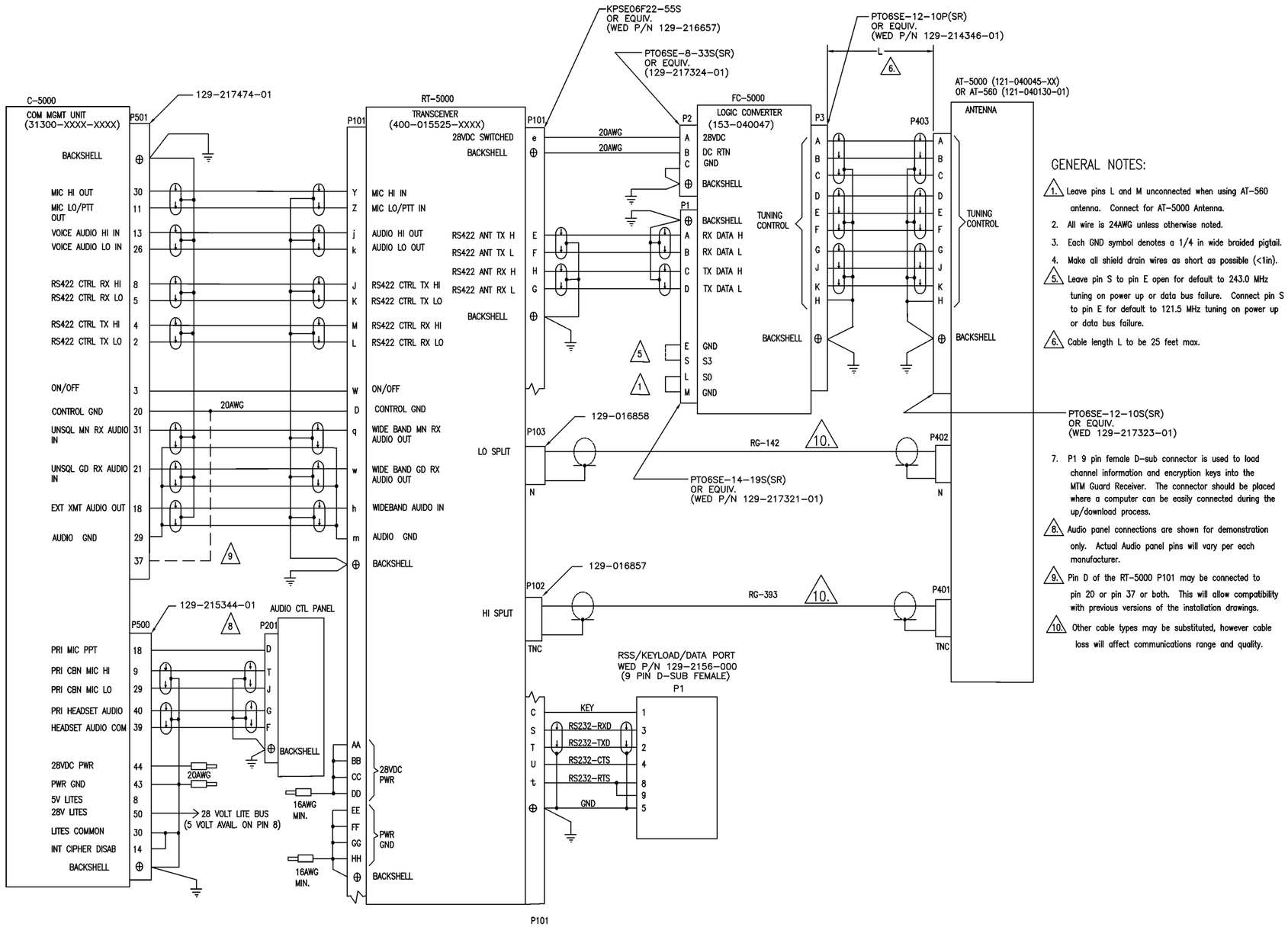
1. FINISH: WHITE PER FED-STD-595.
2. DIMENSIONS ARE FOR REFERENCE ONLY
3. PART TO BE LABELED WITH THE FOLLOWING:
   LOGIC CONVERTER FC-550
   WULFSBERG ELECTRONICS DIVISION
   P/N: 153-017851-01
   SERIAL NO: (TO BE SUPPLIED BY VENDOR)
   MFR. NAME: DAYTON-GRAINGER
   MFR. P/N: 720059
4. WEIGHT: 1.75 LBS MAX
5. THE COMPASS SAFE DISTANCE IS LESS THAN 12 INCHES.
6. CONNECTOR TYPES OR EQUIVALENT
   J1: PTO2E-14-19P MATES WITH PTO6SE-14-19S-(SR)
   J2: PTO2E-8-33P MATES WITH PTO6SE-8-33S-(SR)
   J3: PTO2E-12-10S MATES WITH PTO6SE-12-10P-(SR)
7. PMA LABEL D57-05859-0006, TO BE APPLIED BY WULFSBERG ELECTRONICS DIVISION.
8. APPROVED VENDORS. DAYTON-GRAINGER, INC.
9. REFERENCE: TEST PROCEDURE 65D-040069 UNIT TO MEET REQUIREMENTS OF THIS TEST.



-01 SHOWN

Figure 3-16. FC-550 Envelope Drawing (Sheet 1 of 1)
Dwg No. 153-017851, Rev D

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

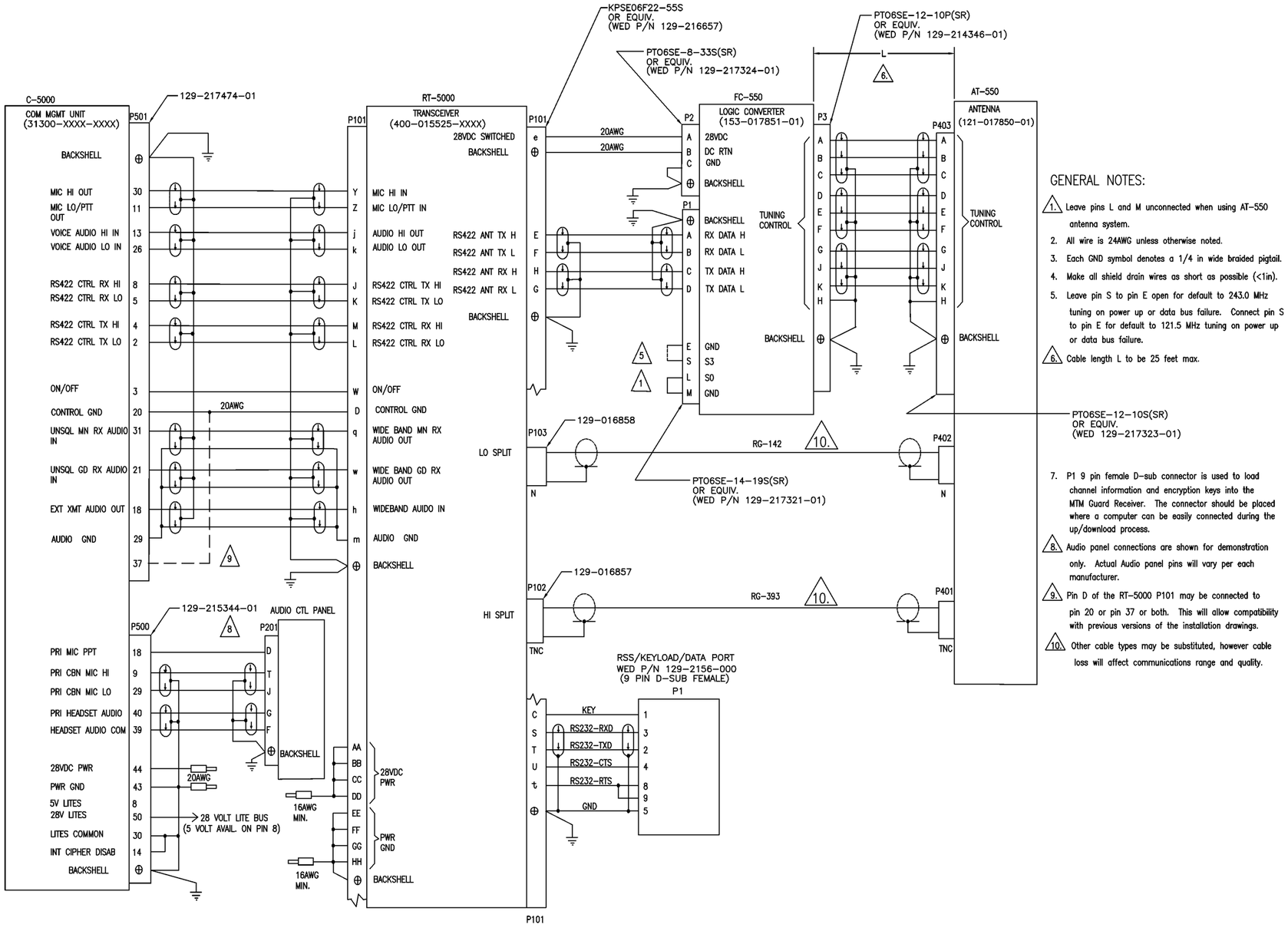


GENERAL NOTES:

1. Leave pins L and M unconnected when using AT-560 antenna. Connect for AT-5000 Antenna.
2. All wire is 24AWG unless otherwise noted.
3. Each GND symbol denotes a 1/4 in wide braided pigtail.
4. Make all shield drain wires as short as possible (<1in).
5. Leave pin S to pin E open for default to 243.0 MHz tuning on power up or data bus failure. Connect pin S to pin E for default to 121.5 MHz tuning on power up or data bus failure.
6. Cable length L to be 25 feet max.
7. P1 9 pin female D-sub connector is used to load channel information and encryption keys into the MTM Guard Receiver. The connector should be placed where a computer can be easily connected during the up/download process.
8. Audio panel connections are shown for demonstration only. Actual Audio panel pins will vary per each manufacturer.
9. Pin D of the RT-5000 P101 may be connected to pin 20 or pin 37 or both. This will allow compatibility with previous versions of the installation drawings.
10. Other cable types may be substituted, however cable loss will affect communications range and quality.

Figure 4-9a. Flexcomm II System Interconnect Drawing (Sheet 1 of 4)
Dwg No. 152-140131, Rev. D
For C-5000/RT-5000 System with AT-5000 or AT-560 Antenna System

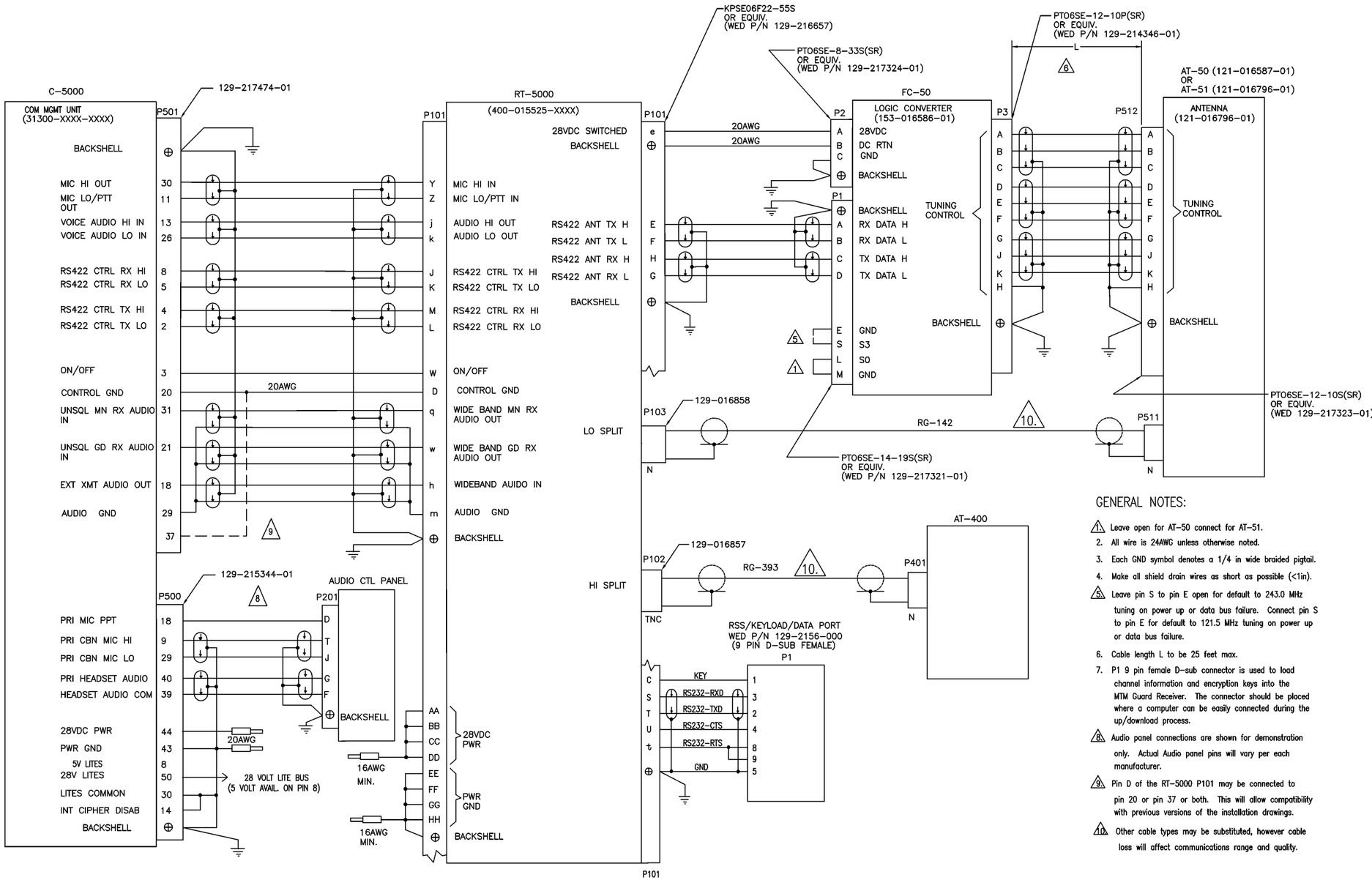
C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL



GENERAL NOTES:

1. Leave pins L and M unconnected when using AT-550 antenna system.
2. All wire is 24AWG unless otherwise noted.
3. Each GND symbol denotes a 1/4 in wide braided pigtail.
4. Make all shield drain wires as short as possible (<1in).
5. Leave pin S to pin E open for default to 243.0 MHz tuning on power up or data bus failure. Connect pin S to pin E for default to 121.5 MHz tuning on power up or data bus failure.
6. Cable length L to be 25 feet max.
7. P1 9 pin female D-sub connector is used to load channel information and encryption keys into the MTM Guard Receiver. The connector should be placed where a computer can be easily connected during the up/download process.
8. Audio panel connections are shown for demonstration only. Actual Audio panel pins will vary per each manufacturer.
9. Pin D of the RT-5000 P101 may be connected to pin 20 or pin 37 or both. This will allow compatibility with previous versions of the installation drawings.
10. Other cable types may be substituted, however cable loss will affect communications range and quality.

Figure 4-9b. Flexcomm II System Interconnect Drawing (Sheet 2 of 4)
Dwg No. 152-140131, Rev. D
For C-5000/RT-5000 System with AT-550 Antenna System

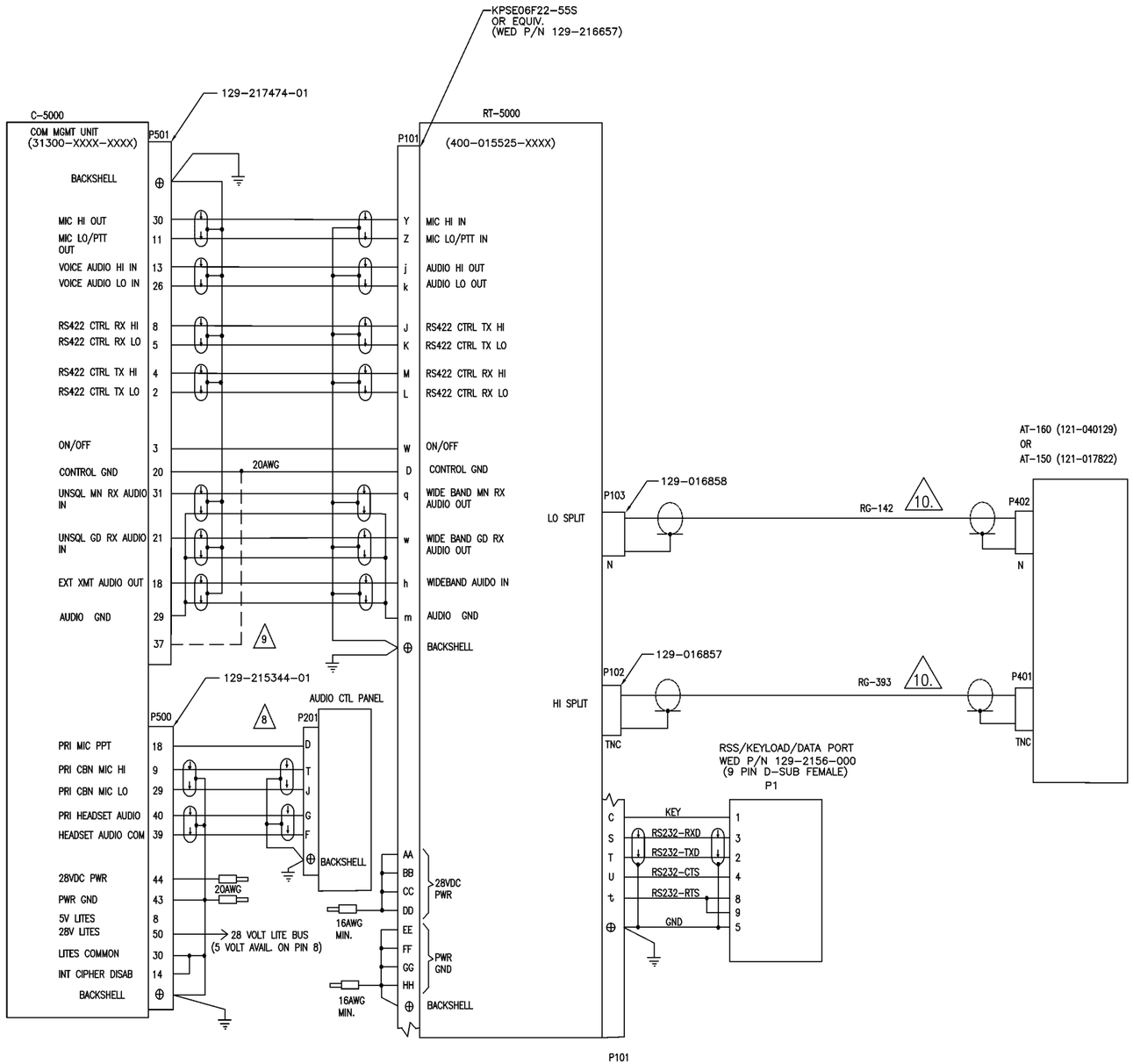


GENERAL NOTES:

1. Leave open for AT-50 connect for AT-51.
2. All wire is 24AWG unless otherwise noted.
3. Each GND symbol denotes a 1/4 in wide braided pigtail.
4. Make all shield drain wires as short as possible (<1in).
5. Leave pin S to pin E open for default to 243.0 MHz tuning on power up or data bus failure. Connect pin S to pin E for default to 121.5 MHz tuning on power up or data bus failure.
6. Cable length L to be 25 feet max.
7. P1 9 pin female D-sub connector is used to load channel information and encryption keys into the MTM Guard Receiver. The connector should be placed where a computer can be easily connected during the up/download process.
8. Audio panel connections are shown for demonstration only. Actual Audio panel pins will vary per each manufacturer.
9. Pin D of the RT-5000 P101 may be connected to pin 20 or pin 37 or both. This will allow compatibility with previous versions of the installation drawings.
10. Other cable types may be substituted, however cable loss will affect communications range and quality.

Figure 4-9c. Flexcomm II System Interconnect Drawing (Sheet 3 of 4)
Dwg No. 152-140131, Rev. D
For C-5000/RT-5000 System with AT-50 or AT-51 Antenna System

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL



GENERAL NOTES:

1. N/A
2. All wire is 24AWG unless otherwise noted.
3. Each GND symbol denotes a 1/4 in wide braided pigtail.
4. Make all shield drain wires as short as possible (<1in).
5. N/A
6. N/A
7. P1 9 pin female D-sub connector is used to load channel information and encryption keys into the MTM Guard Receiver. The connector should be placed where a computer can be easily connected during the up/download process.

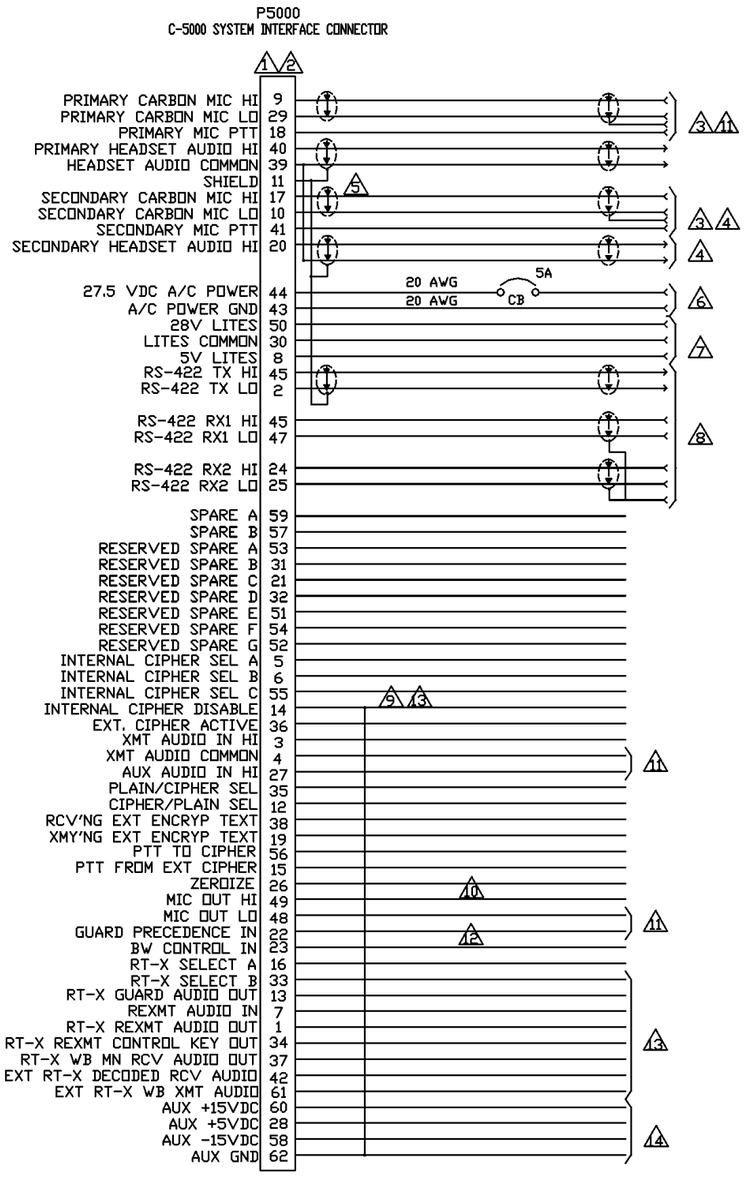
⚠6. Audio panel connections are shown for demonstration only. Actual Audio panel pins will vary per each manufacturer.

⚠9. Pin D of the RT-5000 P101 may be connected to pin 20 or pin 37 or both. This will allow compatibility with previous versions of the installation drawings.

⚠10. Other cable types may be substituted, however cable loss will affect communications range and quality.

Figure 4-9d. Flexcomm II System Interconnect Drawing (Sheet 4 of 4)
Dwg No. 152-140131, Rev. D
For C-5000/RT-5000 System with AT-160 or AT-150 Antenna System

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL



1. SEE 'INSTALLATION WIRING CONFIGURATIONS' SECTION OF INSTALLLATION MANUAL FOR PERTINENT ADDITIONAL INFORMATION TO THIS DIAGRAM.
2. P500 SYSTEM INTERFACE CONNECTOR
   GWS P/N 129-215344-01
   VENDOR: POSITRONICS P/N ODD62F00Y0C-914.1 OR EQUIVALENT. (THIS CONNECTOR HAS 2 MALE JACK SCREWS).
3. MIC LO AND PTT SHOULD BE CONNECTED TOGETHER AT THE MIC INTERFACE (AUDIO PANEL OR MIC JACK). ALTERNATELY, MIC LO SHOULD BE GROUNDED AT THE MIC INTERFACE AS MIC BIAS IS NOT PROVIDED UNLESS MIC LO IS DC GROUNDED.
4. SECONDARY MIC AND HEADSET AUDIO INTERFACE USED ONLY AS AN OPTION WITH TWO (OR 3) RADIO SYSTEMS CONTROLLED BY C-5000. SECONDARY INTERFACE PROVIDES INDEPENDENT ,SECOND CREW OPERATION OF ONE OF THE 2 OR 3 RADIO SYSTEMS. NOT ALL FUNCTIONS ARE SUPPORTED FOR THIS INTERFACE.
5. ONLY SHIELDS OF SIGNALS ORIGINATING FROM THE C-5000 SHOULD BE TERMINATED ON THIS PIN. SHIELDS OF SIGNALS ORIGINATING AT OTHER EQUIPTMENT AND TERMINATING AT THE C-5000 SHOULD ONLY BE TERMINATED AT THE OTHER EQUIPMENT.
6. AIRCRAFT POWER SHOULD BE SUPPLIED THRU APPROPRIATE CIRCUIT BREAKER AND CONSIDERATION GIVEN TO THE SEPARATELY POWERED RADIO TRANSCEIVER EQUIPMENT BEING CONTROLLED BY THE C-5000.
7. 5VDC, 5VRMS, 28VDC LIGHTING PROVIDED. CONNECT EITHER 5V OR 28V; NOT BOTH.
   NO POWER IS DRAWN FROM THE BUSS.
8. THESE PINS PROVIDE FOR BI-DIRECTIONAL DIGITAL DATA BUSS TO OTHER EQUIPMENT ON BOARD THE AIRCRAFT.
9. THIS PIN IS NORMALY GROUNDED UNLESS AN INTERNAL CIPHER MODULE (OR OTHER SPECIAL FUNCTION MODULE) IS INSTALLED IN WHICH CASE IT SHOULD BE SWITCHED.
10. THE ZEROIZE FUNCTION PROVIDES AN OUTPUT FROM THE C-5000 TO ENCRYPTION EQUIPMENT TO ERASE KEY VARIABLES. THE OUTPUT CAN BE CONFIGURED ONE OF TWO WAYS: NORMALY OPEN CIRCUIT WITH ACTIVE GROUND TO ZEROIZE OR NORMALLY OPEN WITH ACTIVE 27.5VDC FOR ZEROIZE. STANDARD CONFGURATION IS ACTIVE 27.5 VDC TO ZEROIZE. JUMPER A2JP8 ON THE SYSTEM INTERFACE BOARD CAN BE CHANGED FROM '1 TO 2' TO '2 TO 3' TO YIELD ACTIVE GROUND FOR ZEROIZE.
11. IF THE SYSTEM IS CONFIGURED WITH EXTERNAL ENCRYPYTION SYSTEMS CONNECTED TO THE SYSTEM INTERFACE, INTERNAL JUMPER CHANGES ON THE SYSTEM INTERFACE BOARD ROUTE THR PRIMARY MIC AUDIO THRU THE ENCRYPTION SYSTEM SUCH THAT WHEN THE ENCRYPTION EQUIPMENT IS REMOVED, MIC AUDIO IS LOST. JUMPERS IN THE AIRCRAFT HARNESS BETWEEN MIC OUT HI/LO AND XMT AUDIO IN HI/COMMON WILL RESTORE MIC AUDIO CONTINUITY WHEN THE ENCRYPTION EQUIPMENT IS REMOVED.
12. GROUNDING THIS PIN CAUSES ALL C-5000 MODES TO BE DISABLED AND THE SYSTEM IS CHANNELED TO THE PRECEDENCE PRESET MEMORY CHANNEL FOR BASIC TALK/LISTEN AS A EMERGENCY DEFAULT MODE.
13. RT-X SIGNALS RELATE TO RADIO SYSTEM 1, 2 OR 3 AS SELECTED BY THE CREW. SELECTION MAY BE FROM THE C-5000 KEYBOARD/KNOBS OR AN EXTERNAL SWITCH. RT-X CAN BE ONLY 1 OF THE 3 RADIO SYSTEMS. THE CORRESPONDING SIGNALS TO/FROM THE SELECTED RT RADIO SYSTEM ARE ROUTED TO THE INTERNAL CIPHER MODULE (OR SPECIAL FUNCTION MODULE) OR THE EXTERNAL SYSTEM INTERFACE TO BECOME THE RT-X SELECTED SIGNALS. INTERNAL/EXTERNAL SIGNAL ROUTING IS CONTROLLED BY EXTERNALY APPLIED GROUND OR SWITCHED GROUND TO THE 'INTERNAL CIPHER DISABLE'.
14. AUXILARY VOLTAGES FOR EXTERNAL LOADS (17 WATTS TOTAL MAX)
    INTERNAL JUMPERS REQUIRED TO ACTIVATE THE -15V AND +5V OUTPUTS.
15. MOTOROLA AND DVP/DES ARE REGISTERED TRADEMARKS OF MOTOROLA, INC.
16. GE AND VOICE GUARD ARE REGISTERED TRADE MARKS OF GENERAL ELECTRIC, INC.
17. THIS WIRING DIAGRAM IS FOR THE SYSTEM INTERFACE CONNECTOR (P500). SEE INSTALLATION WIRING DIAGRAM 147-0144991 FOR THE FLEXCOMM TRANSCEIVER INTERFACE CONNECTOR (P50X) AND 147-014992 FOR THE RT-9600(F) INTERFACE CONNECTOR (P50X). THE C-5000 CAN HAVE UP TO THREE TRANSCEIVER INTERFACES; P501, P502, P503 OR ANY COMBINATION OF THE THREE TRANCEIVERS.
18. ALL RT-138F,RT-406F AND RT-9600F TRANCEIVERS ARE INHERENTLY COMPATIBLE WITH DIGITAL VOICE ENCRYPTION SYSTEMS (12KBIT). TRANCEIVERS WITH P/N'S ENDING IN -X5X, X6X, X7X ARE SPECIALLY WIRED INTERNALY TO FACILITATE DIRECT CONNECTIONS TO MOTOROLA AND GE ENCRYPTION SYSTEMS. WHEN MOTOROLA, GE OR KY-58 ENCRYPTION SYSTEMS ARE WIRED TO THE C-5000 AS SHOWN, STANDARD F MODEL RADIOS MUST BE USED ie NON-X5X, -X6X, X7X.

-01 SHOWN

Figure 4-3. C-5000D Standard Installation Wiring Diagram (Sheet 1 of 1) (Dwg No 147-014995, Rev 6)

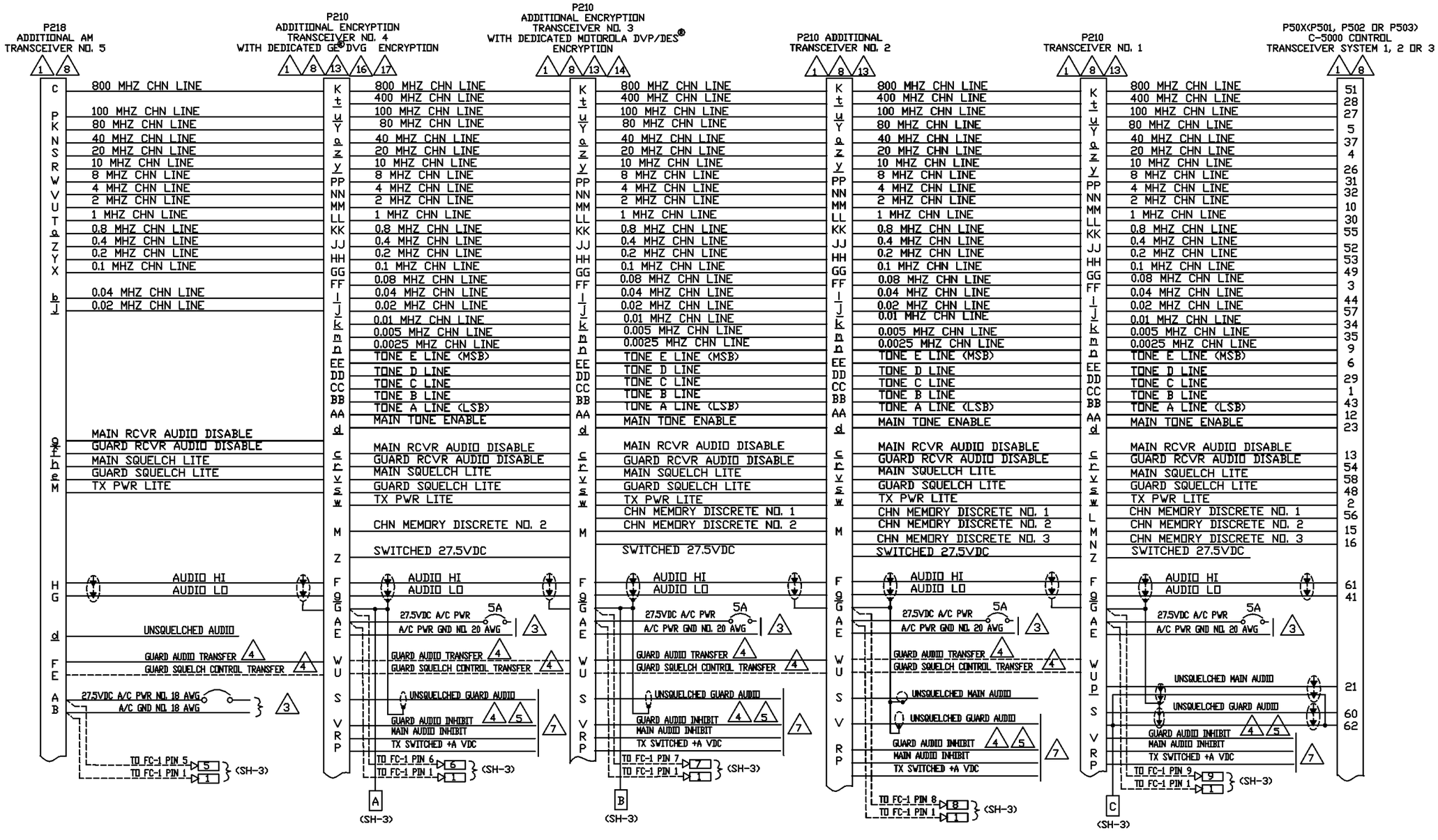


Figure 4-12b. FLEXCOMM Transceivers Installation Wiring Diagram (Sheet 2 of 3)
RT-30, RT-118, RT-138, RT-138F, RT-450 and RT-406F
(Dwg No 147-014991, Rev B)

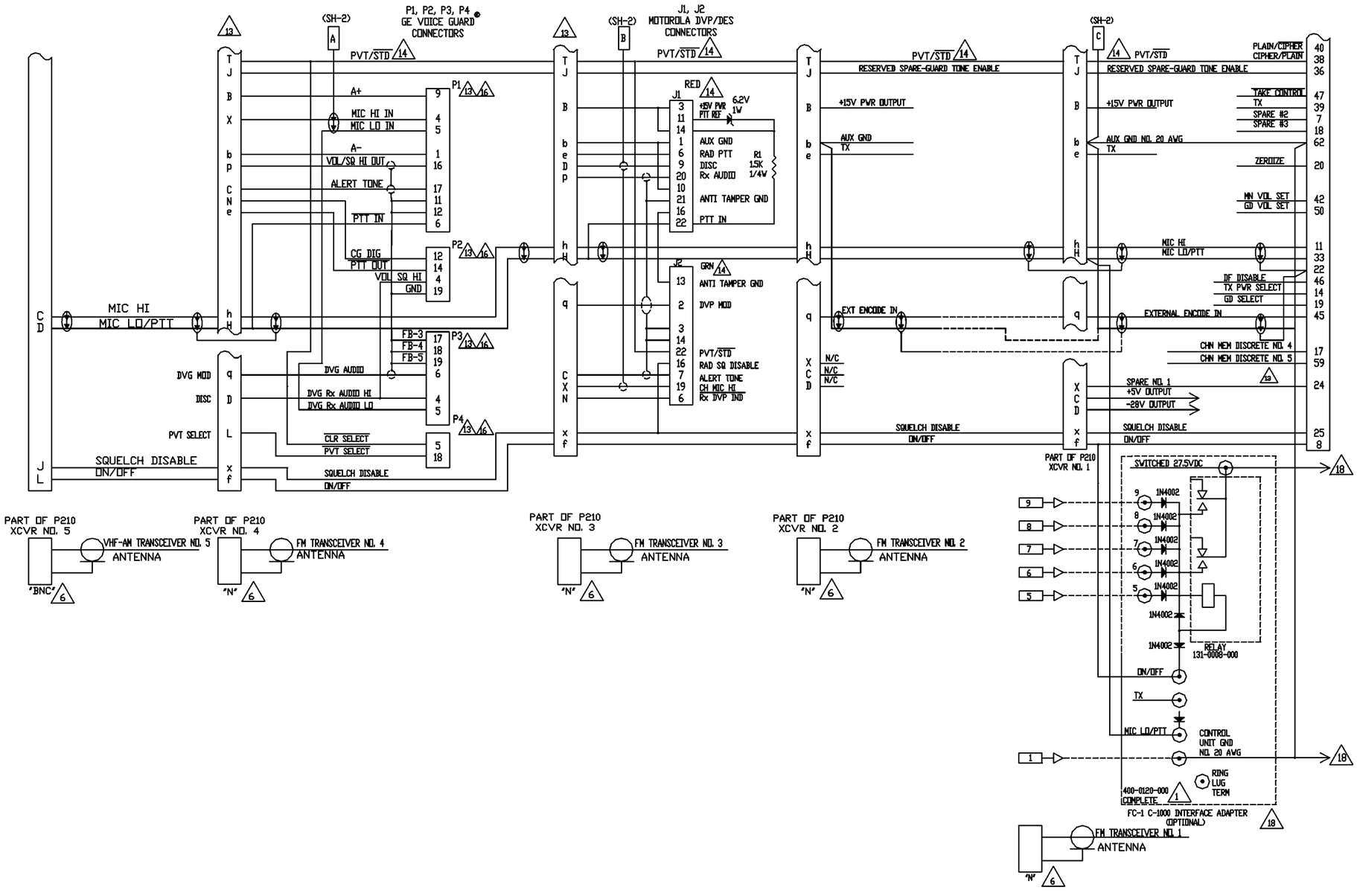
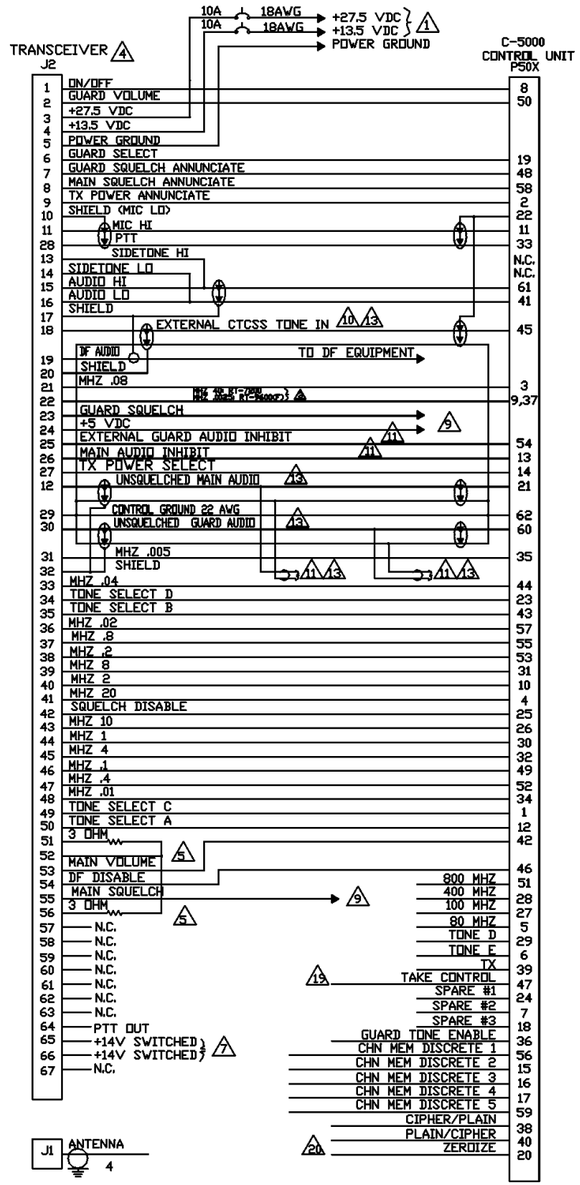


Figure 4-12c. FLEXCOMM Transceivers Installation Wiring Diagram (Sheet 3 of 3)
RT-30, RT-118, RT-138, RT-138F,RT-450 and RT-406F
(Dwg No 147-014991, Rev B)

C-5000 COMMUNICATION MANAGEMENT CONTROLLER INSTALLATION MANUAL

1. USE +13.75 VDC OR +27.5 VDC AT INSTALLERS OPTION. DO NOT CONNECT BOTH.
2. SEE "INSTALLATION WIRING CONSIDERATIONS" SECTION OF INSTALLATION MANUAL FOR PERTINENT ADDITIONAL INFORMATION TO THIS DIAGRAM.
3. CONNECT RT-9600(F) PIN 22 TO C-5000 PIN 9. CONNECT RT-7200 PIN 22 TO C-5000 PIN 37.
4. CABLE CONNECTORS
   TRANSCEIVER - DPXP-67-33S-0001
   (GLOBAL WULFSBERG IN-97A-2)
   (PROTRUDING XCVRS)
   DPX8-67-34S-0001
   (GLOBAL WULFSBERG IN-96A-2)
   (RECESSED XCVRS)
   CONTROL UNIT - (GLOBAL WULFSBERG P/N 129-215344-02)
   (PEDISTRONICS P/N 0DD62F00Y60C-9142)
   THIS CONNECTOR HAS A MALE JACK SCREW NEAR PIN 1 AND THE OTHER JACK SCREW IS FEMALE.
   P50X REPRESENTS ONE OF THREE INTERCONNECT PLUGS TO ONE OF THREE INDEPENDENT R/T INTERFACE MODULES CONTAINED IN THE C-5000 ANTENNA - UG-88 E/U (GLOBAL-WULFSBERG P-96).
5. THE THREE OHM POWER RESISTORS ARE A PART OF THE MOUNTING RACK ASSEMBLY.
6. GROUND WHEN DF FEATURE IS NOT USED AND LEAVE P50X PIN 46 NOT CONNECTED.
7. THESE PINS ARE CONNECTED TO THE INTERNAL RADIO BUSS VOLTAGE. LOADING SHOULD NOT EXCEED 500mA OF COMBINED CURRENT.
8. THIS CONFIGURATION PROVIDES MOTOROLA DVP/DES® DEDICATED TO THE RT-9600F.
   IT PRECLUDES THE C-5000 DISTRIBUTED MOTOROLA DVP/DES® FEATURE AS WELL AS CTCSS, DIGITAL CODED SQUELCH FUNCTIONS EITHER EXTERNAL TO OR PART OF THE C-5000.
9. CONNECT GUARD SQUELCH RT CONNECTOR PIN 23 AND MAIN SQUELCH PIN 55 TO GROUND AT THE RT CONNECTOR PIN 23 AND MAIN SQUELCH PIN 55 TO GROUND AT THE RT CONNECTOR PIN 29 OR THE C-5000 CONNECTOR P50X PIN 62.
10. "EXTERNAL CTCSS TONE IN" (PIN 18) PROVIDES A FLAT MODULATION SIGNAL PATH FROM THE CONTROL UNIT FOR CTCSS AND/OR DIGITAL CODED SQUELCH ENCODE SIGNALS AS WELL AS VOICE ENCRYPTION MODULATION INPUT TO THE R/T UNIT IF THESE FEATURES OF THE CONTROL UNIT ARE NOT USED, THIS INPUT MAY BE CONNECTED TO THE OTHER EXTERNAL EQUIPMENT REQUIRING A FLAT MODULATION INPUT TO THE R/T UNIT.
11. UNSQUELCHED MAIN AND GUARD AUDIO OUTPUTS MAY BE PARALLEL CONNECTED TO OTHER EXTERNAL EQUIPMENT. WHEN USED WITH THE MAIN AND GUARD AUDIO INHIBIT INPUTS, EXTERNAL SQUELCH CONTROL SYSTEMS CAN BE PROVIDED.
12. SEE INTERCONNECT DIAGRAM 147-014995 FOR COMPLETE C-5000 INTERCONNECT INFORMATION. THIS DRAWING ONLY INDICATES SPECIFIC CONNECTIONS TO THE RT-9600(F)/7200 R/T UNITS.
13. THESE LINES MAY BE SINGLE CONDUCTOR SHIELDED IN ORIGINAL INSTALLATIONS. UPDATE TO TWISTED SHIELDED PAIRS IS NOT REQUIRED.
14. DVP/DES® MODULE CONNECTORS, 1.5K OHM RESISTOR AND 6.2V ZENER DIODE ARE CUSTOMER SUPPLIED.
15. FOR PROPER RT-9600F DVP/DES® SYSTEM OPERATION OBSERVE THE FOLLOWING CONDITIONS:
   A) THE MOTOROLA DVP/DES® BOARD MUST HAVE R44 REMOVED.
   B) DO NOT ATTEMPT TO INTERFACE AN EXTERNAL DECODER TO THE RT-9600 MAIN RECEIVER OR GUARD RECEIVER.
   C) IT IS RECOMMENDED, BUT NOT NECESSARY, TO CHANGE C28 ON THE MOTOROLA DVP/DES® BOARD FROM A 1uF TO A 15uF DIPPED TANTALUM FOR IMPROVED TRANSMIT SIGNAL TO NOISE RATIO IN THE PVT MODE.
16. MOTOROLA AND DVP/DES ARE REGISTERED TRADEMARKS OF MOTOROLA, INC.
17. SPECIAL MARKING OF THE CABLE PLUG P50X FOR ROUTING TO RT INTERFACE SYSTEM 1 (P501), SYSTEM 2 (P502), AND SYSTEM 3 (P503) OF THE C-5000 IS RECOMMENDED TO ASSURE PROPER MATING OF THE SYSTEM 1, 2 OR 3 CONNECTIONS.
18. FOR INSTALLATIONS WITH THE MOTOROLA DVP/DES® MODULE CONNECTED DIRECTLY TO THE TRANSCEIVER AS SHOWN, RT-9600F TRANSCEIVERS WITH P/N'S ENDING IN -X5X, X6X, X7X MUST BE USED. SEE 147-014995 SYSTEM INTERFACE DIAGRAM FOR INTERFACE WITH MOTOROLA DVP/DES AT THE C-5000 WHICH ALLOWS SELECTIVE ENCRYPTION WITH ONE OF 3 RADIO SYSTEMS.
19. THE "TAKE CONTROL" PIN IS NORMALLY OPEN CIRCUITED. IN A DUAL C-5000 SYSTEM, WIRE THE TRANSCEIVER INTERFACE IN PARALLEL TO BOTH C-5000 UNITS. CONNECT THE "TAKE CONTROL" PIN FROM EACH C-5000 TO A SWITCH SUCH THAT ONE OR THE OTHER C-5000 IS ALWAYS SUPPLIED WITH A GROUND WHICH TAKES CONTROL AWAY FROM THE UNIT WITH THE GROUNDED PIN. WITH E TRANSCEIVER INTERFACES IN DUAL C-5000 SYSTEMS, 3 SEPARATE TAKE CONTROL SWITCHES ARE REQUIRED (ONE FOR EACH PAIR OF TRANSCEIVER INTERFACES).



20. THE ZEROIZE FUNCTION PROVIDES AN OUTPUT FROM THE C-5000 TO ENCRYPTION EQUIPMENT TO ERASE KEY VARIABLES. THE OUTPUT CAN BE CONFIGURED ONE OF TWO WAYS: NORMALLY OPEN CIRCUIT WITH ACTIVE GROUND TO ZEROIZE OR NORMALLY OPEN WITH ACTIVE 27.5VDC TO ZEROIZE. STANDARD CONFIGURATION IS ACTIVE GROUND TO ZEROIZE. JUMPER A*JP1 ON THE RT INTERFACE CAN BE MOVED FROM "1 TO 2" TO "2 TO 3" TO YIELD ACTIVE 27.5VDC FOR ZEROIZE.
21. PINS 17, 32 ARE REASSIGNED FOR USE WITH C-5000 IN THIS CONFIGURATION. CONTACT GWS CUSTOMER SERVICE FOR SERVICE BULLETIN AND MODIFICATIONS INSTRUCTIONS FOR THE RT-9600F.

Figure 4-14. Installation Wiring Diagram (Sheet 1 of 1)
RT-9600 / RT-9600F / RT-7200
(Dwg No 147-014992, Rev 4)