Installation Instructions for
SBII 800 MHz Filter Conversion Kit
Part# 89-89A-05041-3/5/10/15/18/10-18/15-18

Manual Part Number
7-9424

8625 Industrial Parkway, Angola, NY 14006 Tel: 716-549-4700 Fax: 716-549-4772 sales@birdrf.com www.birdrf.com

Warranty

This warranty applies for one year from shipping date.

TX RX Systems Inc. warrants its products to be free from defect in material and workmanship at the time of shipment. Our obligation under warranty is limited to replacement or repair, at our option, of any such products that shall have been defective at the time of manufacture. **TX RX Systems Inc.** reserves the right to replace with merchandise of equal performance although not identical in every way to that originally sold. **TX RX Systems Inc.** is not liable for damage caused by lightning or other natural disasters. No product will be accepted for repair or replacement without our prior written approval. The purchaser must prepay all shipping charges on returned products. **TX RX Systems Inc.** shall in no event be liable for consequential damages, installation costs or expense of any nature resulting from the purchase or use of products, whether or not they are used in accordance with instructions. This warranty is in lieu of all other warranties, either expressed or implied, including any implied warranty or merchantability of fitness. No representative is authorized to assume for **TX RX Systems Inc.** any other liability or warranty than set forth above in connection with our products or services.

TERMS AND CONDITIONS OF SALE

PRICES AND TERMS:
Prices are FOB seller's plant in Angola, NY domestic packaging only, and are subject to change without notice. Federal, State and local sales or excise taxes are not included in prices. When Net 30 terms are applicable, payment is due within 30 days of invoice date. All orders are subject to a $100.00 net minimum.

QUOTATIONS:
Only written quotations are valid.

ACCEPTANCE OF ORDERS:
Acceptance of orders is valid only when so acknowledged in writing by the seller.

SHIPPING:
Unless otherwise agreed at the time the order is placed, seller reserves the right to make partial shipments for which payment shall be made in accordance with seller's stated terms. Shipments are made with transportation charges collect unless otherwise specified by the buyer. Seller's best judgement will be used in routing, except that buyer's routing is used where practicable. The seller is not responsible for selection of most economical or timeliest routing.

CLAIMS:
All claims for damage or loss in transit must be made promptly by the buyer against the carrier. All claims for shortages must be made within 30 days after date of shipment of material from the seller's plant.

SPECIFICATION CHANGES OR MODIFICATIONS:
All designs and specifications of seller's products are subject to change without notice provided the changes or modifications do not affect performance.

RETURN MATERIAL:
Product or material may be returned for credit only after written authorization from the seller, as to which seller shall have sole discretion. In the event of such authorization, credit given shall not exceed 80 percent of the original purchase. In no case will Seller authorize return of material more than 90 days after shipment from Seller's plant. Credit for returned material is issued by the Seller only to the original purchaser.

ORDER CANCELLATION OR ALTERATION:
Cancellation or alteration of acknowledged orders by the buyer will be accepted only on terms that protect the seller against loss.

NON WARRANTY REPAIRS AND RETURN WORK:
Consult seller's plant for pricing. Buyer must prepay all transportation charges to seller's plant. Standard shipping policy set forth above shall apply with respect to return shipment from TX RX Systems Inc. to buyer.

DISCLAIMER

Product part numbering in photographs and drawings is accurate at time of printing. Part number labels on TX RX products supersede part numbers given within this manual. Information is subject to change without notice.

Manual Part Number 7-9424
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Version Number	Version Date
1	07/24/06

Symbols Commonly Used

WARNING

ESD Elecrostatic Discharge

CAUTION or ATTENTION

Hot Surface

High Voltage

Electrical Shock Hazard

Use Safety Glasses

Important Information

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Drawings

GENERAL DESCRIPTION

These instructions are for rebanding 800 Mhz Signal Booster II systems in the field. Caution should be taken not to drop the filters or sharply bump the tuning rods located on the top of the filters, doing so could result in de-tuning of the filters. The conversion process consists of replacing the original filters with new ones, adding a signal sampler if required, replacing the Tee-connector as well as several critical length cables. If there are any questions or concerns regarding the installation of this rebanding kit, please contact the customer service department at (716) 549-4700 extension 5044.

Types of 800 MHz SB II Re-banding kits

There are two types of rebanding kits available for the 800 MHz SB II system. Which type of kit you use will depend on whether your unit originally shipped from the factory with 18 MHz bandwidth duplexer assemblies (called 18 MHz systems) or with either 3/5/10/15 MHz bandwidth preselectors (called Non-18 MHz systems). The correct type of rebanding kit to use for your particular SB II system will be determined by the TXRX Sales Department at the time you place your order for the re-banding kit.

Procedure for Non-18 MHz Systems

Re-banding kits for systems that originally left the factory as Non-18 MHz systems will consist of replacement filters which have the new desired bandwidth, new tee-connectors, and several critical length cables. The filters are pre-tuned at the factory so the position of the tuning rods should not be changed. The conversion process consists of simply replacing the old filters, tee-connectors and cables with the new ones. A simplified block diagram for a Non-18 MHz SB II system is shown in **Figure 1**. The parts to be swapped out are indicated.

All work should be performed by a qualified electronics technician familiar with the communications system. Refer to the system drawings at the back of this manual as a guide to the correct placement of assemblies and cables. Follow the instructions listed below in a step-by-step fashion.

1) Open the signal booster enclosure and turn OFF the AC power. Disconnect or turn OFF any battery back-up DC input.

2) Disconnect three cables from the two filters on the right side of the cabinet. Disconnect the cables at the filter. Two of cables run to a tee-connector and one of the cables runs to the card cage.

3) Disconnect the signal sampler from the filter. The right side filters should be ready for removal at this point.

4) Disconnect three cables from the two filters on the left side of the cabinet. Disconnect the

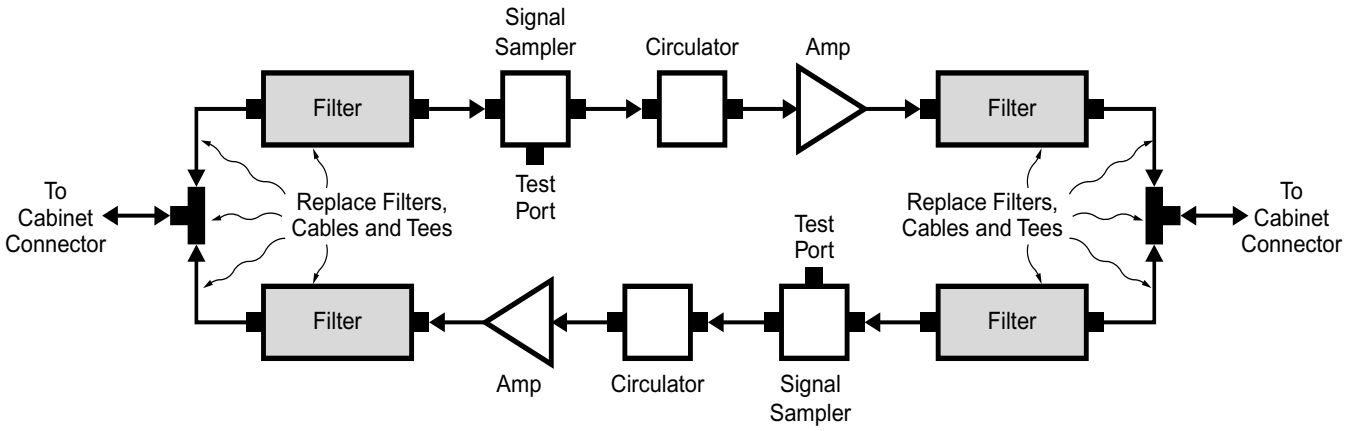


Figure 1: Simplified block diagram of the Non-18 MHz SB II system.

cables at the filter. Two of cables run to a tee-connector and one of the cables runs to the card cage.

NOTE

Rebanding 3 MHz systems. SB II systems with an original 3 MHz bandwidth use an extra filter in series with the preselector on the left side of the cabinet. This extra filter is mounted horizontally at the top of the cabinet. If you are rebanding a 3 MHz system to a higher bandwidth system then the extra filter will be removed permanently. Disconnect and discard the cable between the left side preselector and the extra filter.

5) Disconnect the signal sampler from the left side filter. The two left side filters should be ready for removal at this point.

6) Remove the screws which hold the filter mounting plates to the cabinet mounting panel and remove the filter assemblies from the cabinet. Use care when removing the filters so as not to damage any of the cables that are dangling in the cabinet.

NOTE

Rebanding 3 MHz systems. The extra filter should be removed from the cabinet first to provide additional room to maneuver the remaining filters out of the cabinet.

7) Install the replacement filters in reverse order making sure that the mounting plates are firmly attached to the cabinet.

8) Reconnect three cables to the two filters on the right side of the cabinet. Reconnect the cables at the filter. Two of the cables run to a tee-connector and one of the cables runs to the card cage.

9) Reconnect the signal sampler to the right side filter.

10) Reconnect three cables to the two filters on the left side of the cabinet. Reconnect the cables at the filter. Two of the cables run to a tee-connector and one of the cables runs to the card cage.

11) Reconnect the signal sampler to the left side filter.

12) Verify that all filters and cables have been reinstalled properly, the booster should look exactly as it did before installing the rebanding kit.

13) Energize the booster and verify correct operation.

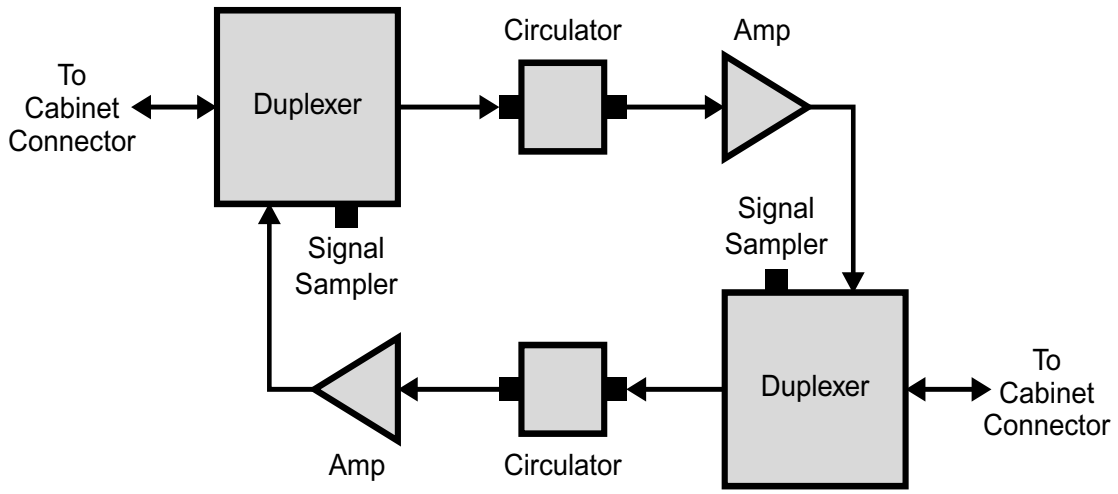


Figure 2: Simplified block diagram of the 18 MHZ SB II system.

Procedure for 18 MHz Systems

Re-banding kits for systems that originally left the factory as 18 MHz systems will consist of replacement filters which have the new desired bandwidth, new tee-connectors, several critical length cables, as well as a signal sampler. The filters are pretuned at the factory so the position of the tuning rods should not be changed. The conversion process consists of simply replacing the old filters (duplexer assemblies) with new filters, adding tee-connectors, cables, and signal samplers. In addition, the circulators will be attached to the cabinet mounting plate instead of the duplexer assemblies. A simplified block diagram for a 18 MHz SB II system is shown in **Figure 2**. Note that the original duplexer assembly has the tee-connector, critical length cables, and signal sampler built-in. The re-banding kit includes these parts as individual assemblies.

All work should be performed by a qualified electronics technician familiar with the communications system. Refer to the system drawings at the back of this manual as a guide to the correct placement of assemblies and cables. Follow the instructions listed below in a step-by-step fashion.

1) Open the signal booster enclosure and turn OFF the AC power. Disconnect or turn OFF any battery back-up DC input.

2) Disconnect and discard the 3 cables connected to the right and left side duplexer assembly. Including the thru-hole connectors at the bottom of the cabinet.

3) Disconnect and discard the remaining cable connected to the right and left side circulators.

4) Remove the mounting screws for the right and left side duplexer assemblies and remove them, with the attached circulators from the cabinet. Use care when removing the duplexer assemblies so as not to damage any of the cables that are still in the cabinet.

5) Remove the circulators from the duplexer assemblies, they will be re-used.

6) Install the right and left side replacement filters (two on each side) making sure that the mounting plates are firmly attached to the cabinet.

7) Install the tee-connectors and associated cables to the bottom connectors on the right and left side filters. Refer to the appropriate system drawing in the rear of this manual to make sure you have the correct cables going to the correct ports. These are length sensitive cables so it is important to connect them correctly. Install the 2 thru-hole connectors at the bottom of the cabinet.

8) Attach the card cage to the right and left filters with the supplied cables.

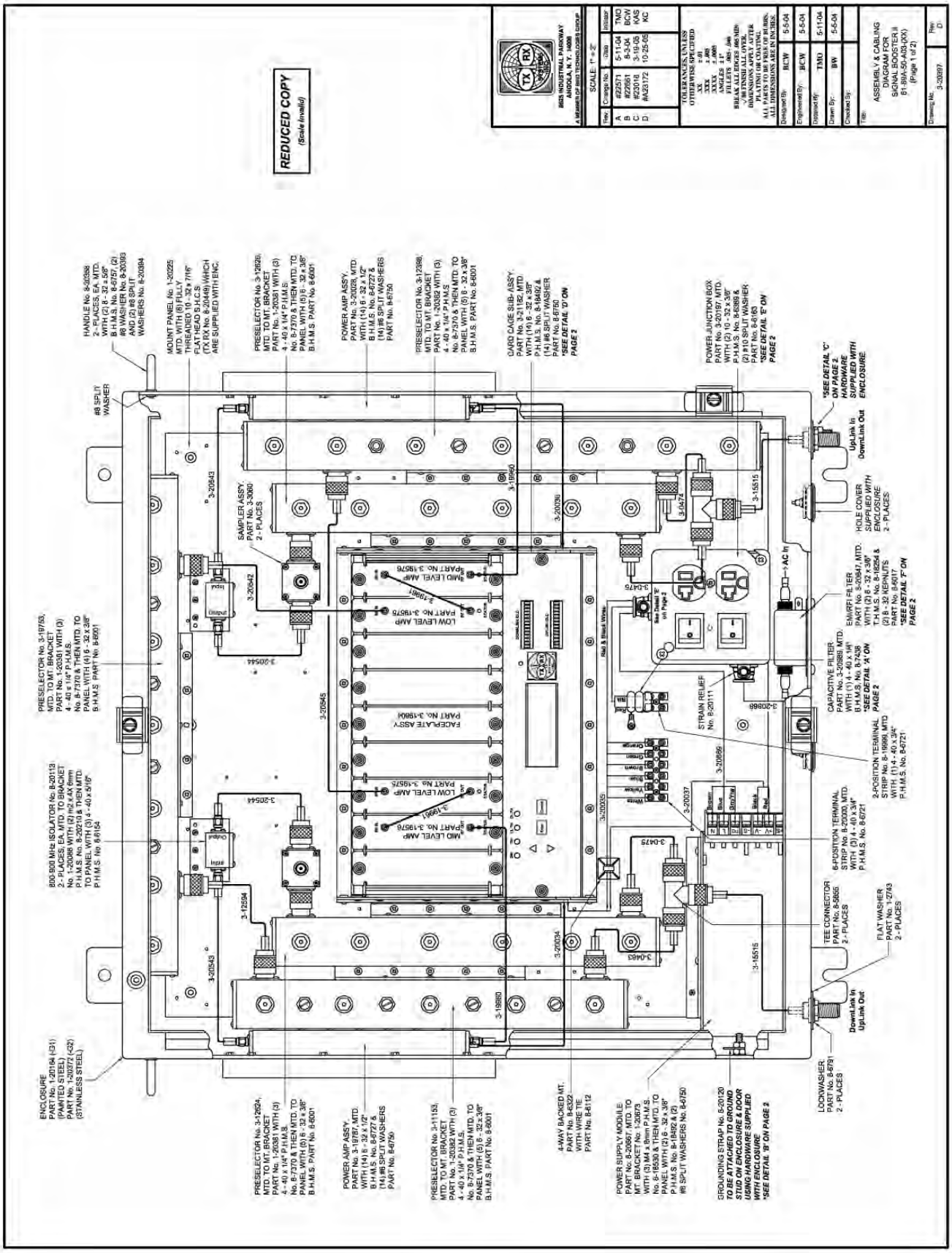
9) Attach the signal samplers to the filters as shown in the drawing.

10) Install the two circulators on the cabinet mounting plate as shown in the drawing.

11) Install cables from the circulators to the power amps and from the circulators to the signal samplers.

12) Verify that all filters and cables have been installed properly. The booster should now look like the system drawing.

13) Energize the booster and verify correct operation.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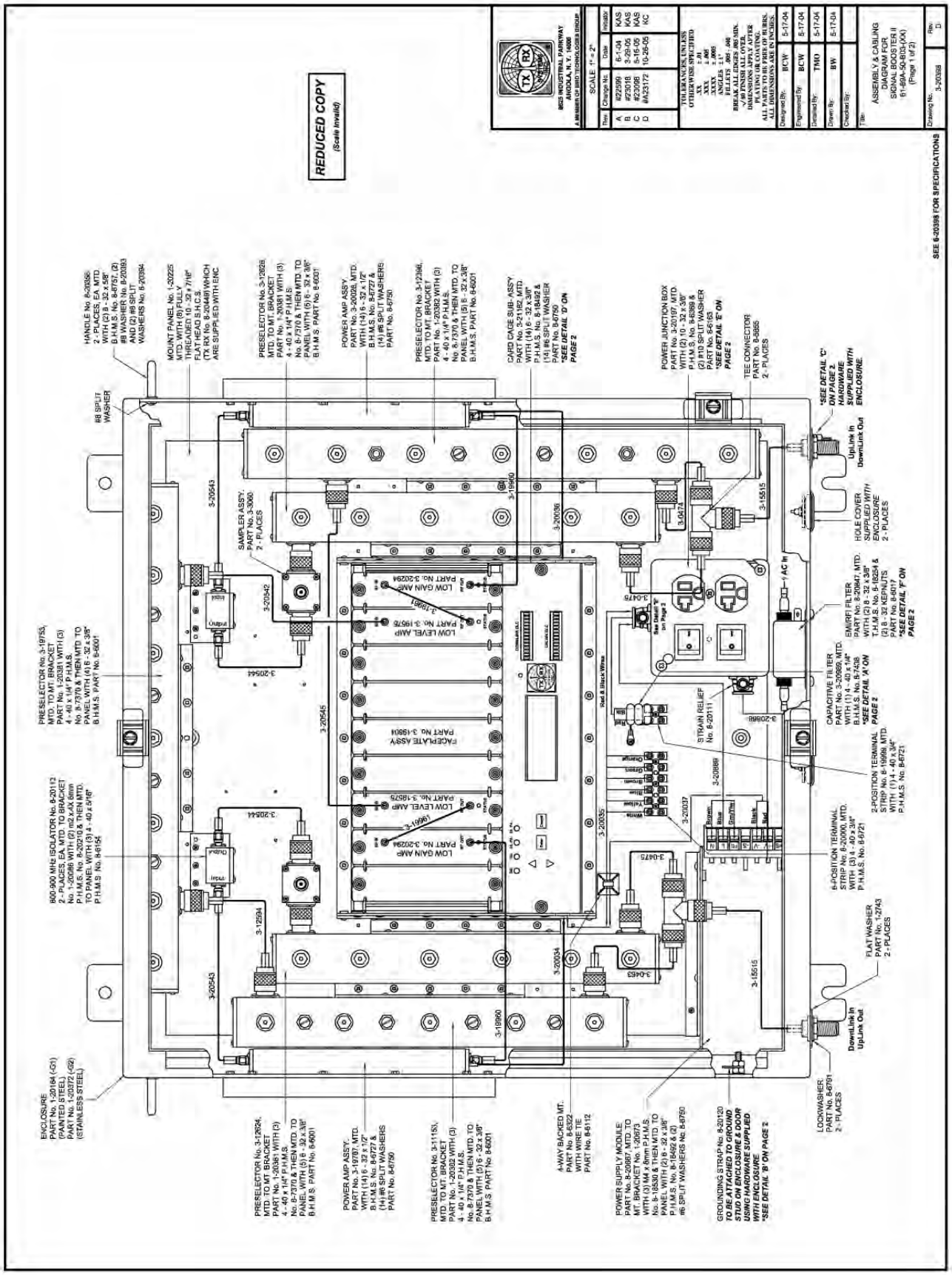
TX RX SYSTEMS INC.
8625 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A Member of the TXRX Technologies Group
SCALE: 1" = 2"
Rev. Change No. Date Initials
A #22571 5-11-04 TMD
B #22661 8-3-04 BCW
C #23016 3-16-05 KAS
D #A23172 10-25-05 KG
TOLERANCES, UNLESS OTHERWISE SPECIFIED
XX ±.01
XXX ±.005
ANGLES ±1°
FILLETS .125 RAD.
BREAK ALL EDGES .005 MIN. .015 MAX.
DIMENSIONS APPLY AFTER FINISH ALL OVER.
ALL PARTS TO BE FREE OF BURRS.
ALL DIMENSIONS ARE IN INCHES.
Designed By: BCW 5-5-04
Engineered By: BCW 5-5-04
Designed By: TMD 5-11-04
Drawn By: BW 5-5-04
Checked By:
Title: ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER II 81-89A-50-A03-(XX) (Page 1 of 2)
Drawing No. 3-20997 Rev. D
HANDLE No. 8-20398 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-6077 (2) #8 WASHER No. 8-20393 AND (2) #8 SPLIT WASHERS No. 8-20394
MOUNT PANEL No. 1-20225 MTD. WITH (8) FULLY THREADED 10 - 32 x 7/16" FLAT HEAD S.H.C.S. (TORX No. 8-20449) WHICH ARE SUPPLIED WITH ENC.
#8 SPLIT WASHER
PRESELECTOR No. 3-19763, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (4) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
800-900 MHz ISOLATOR No. 8-20113 2 - PLACES, EA. MTD. TO BRACKET No. 1-20086 WITH (2) M2 x 4X 6mm P.H.M.S. No. 8-20210 & THEN MTD. TO PANEL WITH (3) 4 - 40 x 5/16" P.H.M.S. No. 8-6154
ENCLOSURE PART No. 1-20194 (-J31) (PAINTED STEEL) PART No. 1-20372 (-G2) (STAINLESS STEEL)
PRESELECTOR No. 3-12624, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (6) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
POWER AMP ASSY., PART No. 3-19787, MTD. WITH (14) 8 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #8 SPLIT WASHERS PART No. 8-6750
PRESELECTOR No. 3-11153, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
GROUNDING STRAP No. 8-20120 TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING ANTENNA HARDWARE SUPPLIED WITH ENCLOSURE *SEE DETAIL 'B' ON PAGE 2
LOCKWASHER PART No. 8-6791 2 - PLACES
DownLink In UpLink Out
4-WAY BACKED MT. PART No. 8-8322 WITH WIRE TIE PART No. 8-8112
POWER SUPPLY MODULE PART No. 8-20667, MTD. TO MT. BRACKET No. 1-20073 WITH (3) M4 x 8mm P.H.M.S. No. 8-18492 & (4) #4 SPLIT WASHERS No. 8-6750 & THEN MTD. TO PANEL WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-18492 & (2) #8 SPLIT WASHERS No. 8-6750
PRESELECTOR No. 3-12626, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
POWER AMP ASSY., PART No. 3-20028, MTD. WITH (14) 8 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #8 SPLIT WASHERS PART No. 8-6750
PRESELECTOR No. 3-12388, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
CARD CAGE SUB-ASSY., PART No. 3-21185, MTD. WITH (19) 8 - 32 x 3/8" P.H.M.S. No. 8-18492 & (14) #6 SPLIT WASHER PART No. 8-6750 *SEE DETAIL 'D' ON PAGE 2
SAMPLER ASSY., PART No. 3-3080 2 - PLACES
3-19760
3-20543
3-20542
3-20544
3-20545
3-19880
3-12594
3-20034
3-20035
3-20036
3-10474
3-15515
3-0475
3-0473
3-0463
LOW LEVEL AMP PART No. 3-19575
MID LEVEL AMP PART No. 3-19576
FACEPLATE ASSY PART No. 3-19804
3-19961
3-19962
Input
Output
Blue
Blue/Yellow
Black
Red
Orange
Green
Brown
White
Yellow
Red & Black Wires
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-6886 & (2) #10 SPLIT WASHER PART No. 8-6163 *SEE DETAIL 'E' ON PAGE 2
*SEE DETAIL 'C' ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE
UpLink In DownLink Out
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
→ AC In
EMI/RFI FILTER PART No. 3-20947, MTD. WITH (2) 8 - 32 x 3/8" T.H.M.S. No. 8-18254 & (2) 8 - 32 KEPNUTS PART No. 8-6017 *SEE DETAIL 'F' ON PAGE 2
CAPACITIVE FILTER PART No. 3-20988, MTD. WITH (1) 4 - 40 x 1/4" B.H.M.S. No. 8-7438 *SEE DETAIL 'A' ON PAGE 2
STRAIN RELIEF No. 8-20111
3-20866
3-20868
3-20037
2-POSITION TERMINAL STRIP No. 8-19998, MTD. WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
2-POSITION TERMINAL STRIP No. 8-20000, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
6-POSITION TERMINAL STRIP No. 8-20001, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
TEE CONNECTOR PART No. 8-2855 2 - PLACES
FLAT WASHER PART No. 1-2743 2 - PLACES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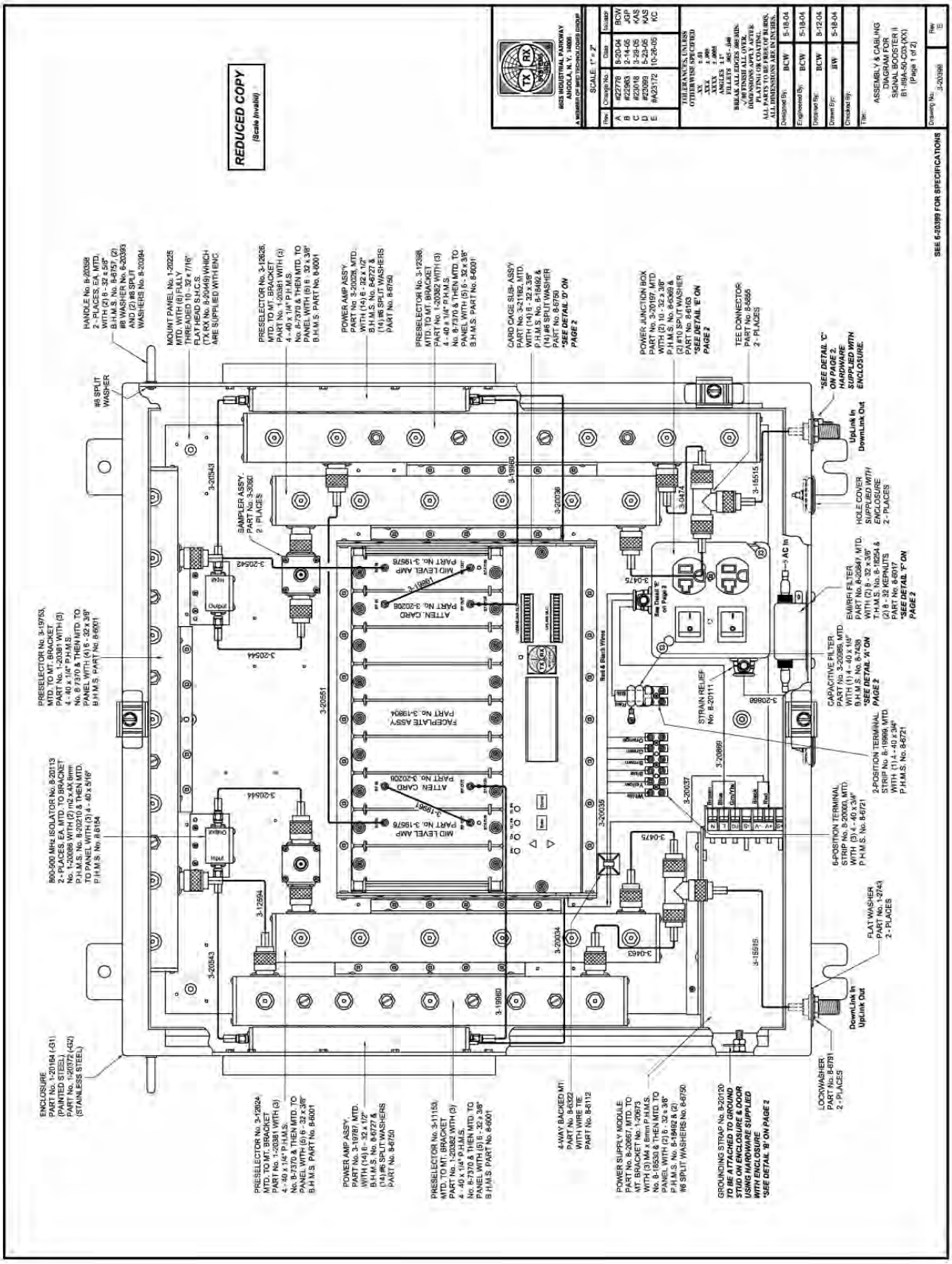
TX RX SYSTEMS INC.
8025 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A DIVISION OF EAST COAST GROUP
SCALE 1" = 2"
Rev Change No. Date Initials
A #20590 8-1-04 KAS
B #20618 3-29-05 KAS
C #23098 5-16-05 KAS
D #A23172 10-26-05 KC
TOLERANCES, UNLESS OTHERWISE STATED
FRACTIONS ± 1/64
XXX ± .005
XXXX ± .0005
ANGLES ± 1°
FILLETS .005 - .045
BREAK ALL EDGES .005 MIN.
ALL MACHINE FINISHES 63
DIMENSIONS APPLY AFTER PLATING OR COATING.
ALL PARTS TO BE FREE OF BURRS, SHARP EDGES AND CORNERS.
Designed By: BCW 5-17-04
Engineered By: BCW 5-17-04
Detailed By: TMD 5-17-04
Drawn By: BW 5-17-04
Checked By:
Title:
ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER II 61-89A-50-803-(XX) (Page 1 of 2)
Drawing No. 3-20398 Rev. D
SEE 6-20398 FOR SPECIFICATIONS
ENCLOSURE PART No. 1-20184 (-01) (PAINTED STEEL) PART No. 1-20387 (-02) (STAINLESS STEEL)
HANDLE No. 8-20356, 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x 5/8" B.H.M.S. No. 8-8757, (2) #8 WASHER No. 8-20393 AND (2) #8 SPLIT WASHERS No. 8-20394
MOUNT PANEL No. 1-30225 MTD. WITH (8) FULLY THREADED 10 - 32 x 7/16" FLAT HEAD B.H.C.S. (TX RX No. 8-20449) WHICH ARE SUPPLIED WITH ENC.
#8 SPLIT WASHER
PRESELECTOR No. 3-19755, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (4) 6 - 32 x 3/8" B.H.M.S. PART No. 8-6001
PRESELECTOR No. 3-12626 MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (4) 6 - 32 x 3/8" B.H.M.S. PART No. 8-6001
POWER AMP ASSY. PART No. 3-20028, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-6730
PRESELECTOR No. 3-12394, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (3) 6 - 32 x 3/8" B.H.M.S. PART No. 8-6001
CARD CAGE SUB-ASSY. PART No. 5-21182, MTD. WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-18492 & (14) #6 SPLIT LOCKWASHER PART No. 8-8730 *SEE DETAIL 'D' ON PAGE 2
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-6589 & (2) #10 SPLIT WASHER PART No. 8-6163 *SEE DETAIL 'E' ON PAGE 2
TEE CONNECTOR PART No. 8-8885 2 - PLACES
*SEE DETAIL 'C' ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
UpLink In DownLink Out
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
SAMPLER ASSY. PART No. 3-3060 2 - PLACES
3-20543
3-20542
3-20544
3-20545
3-19960
3-20036
3-0473
3-15515
LOW GAIN AMP PART No. 3-20294
LOW LEVEL AMP PART No. 3-19576
FACEPLATE ASS'Y PART No. 3-19604
Red & Black Wires
3-0475
See Detail 'F' on Page 2
AC In
EMI/RFI FILTER PART No. 8-20941, MTD. WITH (2) 6 - 32 x 3/8" T.H.M.S. No. 8-18254 & (2) 8 - 32 KEPNUTS PART No. 8-8017 *SEE DETAIL 'F' ON PAGE 2
STRAIN RELIEF No. 8-20111
3-20868
CAPACITIVE FILTER PART No. 3-20969, MTD. WITH (1) 4 - 40 x 1/4" B.H.M.S. No. 8-6728 *SEE DETAIL 'A' ON PAGE 2
2-POSITION TERMINAL STRIP No. 8-19999, MTD. WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
3-20869
3-20037
Brown
Blue
Green/Yel
Black
Red
3-0472
3-0465
3-15516
8-POSITION TERMINAL STRIP No. 8-20000, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
FLAT WASHER PART No. 1-2743 2 - PLACES
DownLink In UpLink Out
LOCKWASHER PART No. 8-8701 2 - PLACES
800-900 MHz ISOLATOR No. 8-20112 2 - PLACES, EA. MTD. TO BRACKET PART No. 1-20386 WITH (2) #4-40 x 6mm P.H.M.S. No. 8-20273 & (2) #4 LOCKWASHERS MTD. TO PANEL WITH (3) 4 - 40 x 5/16" P.H.M.S. No. 8-8154
PRESELECTOR No. 3-12624, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
POWER AMP ASSY. PART No. 3-19797, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-6730
PRESELECTOR No. 3-11153, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 6 - 32 x 3/8" B.H.M.S. PART No. 8-6001
4-WAY BACKED MT. PART No. 8-8322 WITH WIRE TIE PART No. 8-8112
POWER SUPPLY MODULE PART No. 8-20987, MTD. TO MT. BRACKET No. 1-20973 WITH (3) M4 x 8mm P.H.M.S. No. 8-18530 & THEN MTD. TO PANEL WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-19492 & (2) #6 SPLIT WASHERS No. 8-8760
GROUNDING STRAP No. 8-20120 TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE *SEE DETAIL 'B' ON PAGE 2
SEE 6-20398 FOR SPECIFICATIONS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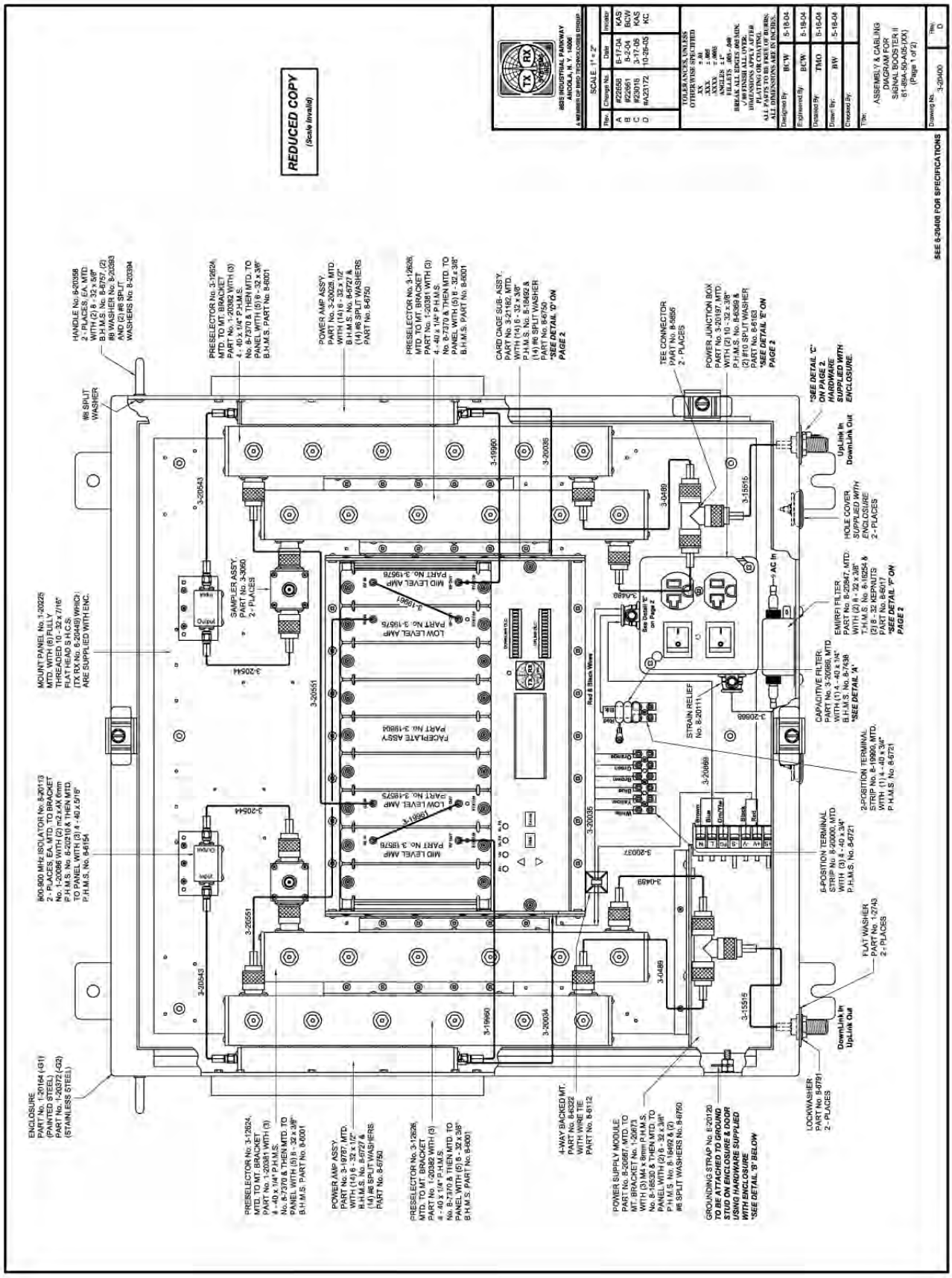
TX RX SYSTEMS INC.
8025 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A MEMBER OF MID-TECHNOLOGIES GROUP
SCALE: 1" = 2"
Rev. Change No. Date Initials
A #22778 9-20-04 BCW
B #23063 3-14-05 JCP
C #23018 3-23-05 KAS
D #23099 5-23-05 KAS
E #A23172 10-26-05 KC
TOLERANCES, UNLESS OTHERWISE SPECIFIED
X ± .5
XX ± .25
XXX ± .005
ANGLES ± 1°
FINISH 125
BREAK ALL EDGES AND MIN. .06" FILLET ALL OVER.
PAINT ALL EXPOSED SURFACE PLATING OR COATING.
ALL PARTS TO BE FREE OF BURRS.
ALL DIMENSIONS ARE IN INCHES.
Designed By: BCW 5-18-04
Engineered By: BCW 5-18-04
Drawn By: BCW 8-12-04
Drawn By: BW 5-18-04
Checked By:
Title:
ASSEMBLY & CABLING
DIGITAL MATRIX
SIGNAL BOOSTER II
81-1850-50-C01-(RX)
(Page 1 of 2)
Drawing No.: 3-20398
Rev: E
SEE 6-20399 FOR SPECIFICATIONS
ENCLOSURE
PART No. 1-20164 (-01)
(PAINTED STEEL)
PART No. 1-20172 (-02)
(STAINLESS STEEL)
800-900 MHz ISOLATOR No. 8-20113
2 - PLACES, EA. MTD. TO BRACKET
No. 1-20086 WITH (2) m2 x .4 x 8mm
P.H.M.S. No. 8-18210 & THEN MTD. TO
PANEL WITH (4) 6 - 32 x 5/16"
P.H.M.S. No. 8-6154
PRESELECTOR No. 3-19753,
MTD. TO MT. BRACKET
PART No. 1-20361 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (4) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
3-20544
3-20542
3-20543
3-20551
3-20544
3-12694
3-19860
3-20034
3-20035
3-20037
3-20869
3-20868
3-20736
3-19961
3-15515
3-0472
3-0475
3-0463
3-15515
#6 SPLIT WASHER
HANDLE No. 8-20358
2 - PLACES, EA. MTD.
WITH (2) 8 - 32 x 5/8"
B.H.M.S. No. 8-8757, (2)
#6 WASHER No. 8-20393
AND (2) #6 SPLIT
WASHERS No. 8-20394
MOUNT PANEL No. 1-20225
MTD. WITH (6) FULLY
THREADED 10 - 32 x 7/16"
FLAT HEAD S.H.C.S.
(TX RX No. 8-20449) WHICH
ARE SUPPLIED WITH ENC.
PRESELECTOR No. 3-12626,
MTD. TO MT. BRACKET
PART No. 1-20361 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (6) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
POWER AMP ASSY.
PART No. 3-20229, MTD.
WITH (14) 6 - 32 x 1/2"
B.H.M.S. No. 8-6727 &
(14) #6 SPLIT WASHERS
PART No. 8-6750
PRESELECTOR No. 3-12388,
MTD. TO MT. BRACKET
PART No. 1-20362 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (5) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
CARD CAGE SUB-ASSY
PART No. 3-21162, MTD.
WITH (14) 8 - 32 x 3/8"
P.H.M.S No. 8-18492 &
(14) #6 SPLIT WASHER
PART No. 8-6750
*SEE DETAIL 'D' ON
PAGE 2
POWER JUNCTION BOX
PART No. 3-20197, MTD
WITH (2) 10 - 32 x 3/8"
P.H.M.S. No. 8-6368 &
(2) #10 SPLIT WASHER
PART No. 8-6103
*SEE DETAIL 'E' ON
PAGE 2
TEE CONNECTOR
PART No. 8-6855
2 - PLACES
*SEE DETAIL 'C'
ON PAGE 2.
HARDWARE
SUPPLIED WITH
ENCLOSURE.
UpLink In
DownLink Out
HOLE COVER
SUPPLIED WITH
ENCLOSURE
2 - PLACES
EMI/RFI FILTER
PART No. 8-20847, MTD.
WITH (2) 8 - 32 x 3/8"
P.H.M.S. No. 8-18554 &
(2) #8 SPLIT WASHERS
PART No. 8-6917
*SEE DETAIL 'F' ON
PAGE 2
5 AC In
CAPACITIVE FILTER
PART No. 3-20385, MTD.
WITH (1) 4 - 40 x 1/4"
P.H.M.S. No. 8-7439
*SEE DETAIL 'A' ON
PAGE 2
STRAIN RELIEF
No. 8-20111
2-POSITION TERMINAL
STRIP No. 8-19868 MTD.
WITH (1) 4 - 40 x 3/4"
P.H.M.S. No. 8-6721
6-POSITION TERMINAL
STRIP No. 8-20087 MTD.
WITH (3) 4 - 40 x 3/4"
P.H.M.S. No. 8-6721
FLAT WASHER
PART No. 1-2743
2 - PLACES
DownLink In
UpLink Out
LOCKWASHER
PART No. 8-8791
2 - PLACES
4-WAY BACKED MT
PART No. 8-8322
WITH WIRE TIE
PART No. 8-8112
POWER SUPPLY MODULE
PART No. 8-20867, MTD. TO
MTG. BRACKET No. 1-20361
WITH (3) M4 x .8mm P.H.M.S.
No. 8-18530 & THEN MTD. TO
PANEL WITH (2) 6 - 32 x 3/8"
P.H.M.S. No. 8-19492 & (2)
#6 SPLIT WASHERS No. 8-8750
GROUNDING STRAP No. 8-20120
TO BE ATTACHED TO GROUND
STUD ON ENCLOSURE & DOOR
USING HARDWARE SUPPLIED
WITH ENCLOSURE
*SEE DETAIL 'B' ON PAGE 2
PRESELECTOR No. 3-12624,
MTD. TO MT. BRACKET
PART No. 1-20361 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (6) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
POWER AMP ASSY.
PART No. 3-19787, MTD.
WITH (14) 6 - 32 x 1/2"
B.H.M.S. No. 8-6727 &
(14) #6 SPLIT WASHERS
PART No. 8-6750
PRESELECTOR No. 3-11153,
MTD. TO MT. BRACKET
PART No. 1-20362 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (5) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
MID LEVEL AMP
PART No. 3-19578
ATTEN. CARD
PART No. 3-20206
FACEPLATE ASSY
PART No. 3-19804
Red & Black Wires
Input
Output
SAMPLER ASSY.
PART No. 3-20361
2 - PLACES
Red Detail 'E' on Page 3
Blue
Green
Yellow
Orange
Brown
Black
Red
SEE 6-20399 FOR SPECIFICATIONS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TX RX
TXRX SYSTEMS INC.
8828 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A DIVISION OF TXRX TECHNOLOGIES GROUP
SCALE 1" = 2"
Rev Change No. Date Initials
A #22658 8-17-04 KAS
B #22685 8-23-04 BJW
C #23018 3-17-05 KAS
D #A23172 10-26-05 KC
TOLERANCES, UNLESS OTHERWISE SPECIFIED
X ± .06
.XX ± .02
.XXX ± .005
ANGLES ± 1°
FILLETS .061-.045
BREAK ALL EDGES .005 MIN.
.030 MAX. ALL OVER.
UNLESS OTHERWISE NOTED
PLATING OR COATING.
ALL PARTS TO BE FREE OF BURRS.
ALL PARTS MARKED ARE ESD SENSITIVE.
Designed By: BCW 5-18-04
Engineered By: BCW 5-18-04
Drawn By: TMO 5-18-04
Checked By: BW 5-18-04
Title:
ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER II 81-89A-50-A05-(XX) (Page 1 of 2)
Drawing No. 3-20400
Rev D
SEE 8-20406 FOR SPECIFICATIONS
ENCLOSURE PART No. 1-20164 (-G1) (PAINTED STEEL) PART No. 1-20372 (-G2) (STAINLESS STEEL)
800-900 MHz ISOLATOR No. 8-20113 2 - PLACES, EA. MTD. TO BRACKET No. 1-20086 WITH (2) m2 x .4X 6mm P.H.M.S. No. 8-20210 & THEN MTD. TO PANEL WITH (3) #4 - 40 x 5/16" P.H.M.S. No. 8-8154
MOUNT PANEL No. 1-20225 MTD. WITH (8) FULLY THREADED 10 - 32 x 7/16" FLAT HEAD S.H.C.S. (TX RX No. 8-20445) WHICH ARE SUPPLIED WITH ENC.
HANDLE No. 8-20358 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x 5/8" B.H.M.S. No. 8-8757, (2) #8 WASHER No. 8-20393 AND (2) #8 SPLIT WASHERS No. 8-20394
#8 SPLIT WASHER
PRESELECTOR No. 3-12624, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-8001
POWER AMP ASSY. PART No. 3-20028, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-8727 & (14) #6 SPLIT WASHERS PART No. 8-8750
PRESELECTOR No. 3-12626, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-8001
CARD CAGE SUB- ASSY. PART No. 3-21182, MTD. WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-19492 & (14) #6 SPLIT WASHER PART No. 8-8750 *SEE DETAIL 'G' ON PAGE 2
TEE CONNECTOR PART No. 8-9856 2 - PLACES
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-8369 & (2) #10 SPLIT WASHER PART No. 8-8163 *SEE DETAIL 'E' ON PAGE 2
*SEE DETAIL 'C' ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
UpLink In DownLink Out
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
AC In
EMI/RFI FILTER PART No. 8-20947, MTD. WITH (2) 8 - 32 x 3/8" T.H.M.S. No. 8-19254 & (2) 8 - 32 KEPNUTS PART No. 8-8017 *SEE DETAIL 'F' ON PAGE 2
CAPACITIVE FILTER PART No. 3-20666, MTD. WITH (1) 4 - 40 x 3/4" B.H.M.S. No. 8-8738 *SEE DETAIL 'A'
STRAIN RELIEF No. 8-20111
2-POSITION TERMINAL STRIP No. 8-19999, MTD. WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
6-POSITION TERMINAL STRIP No. 8-20000, MTD WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
FLAT WASHER PART No. 1-2743 2 - PLACES
DownLink In UpLink Out
LOCKWASHER PART No. 8-8791 2 - PLACES
4-WAY BACKED MT. PART No. 8-8322 WITH WIRE TIE PART No. 8-8112
POWER SUPPLY MODULE PART No. 8-20667, MTD. TO MT. BRACKET No. 1-20672 WITH (3) M4 x 8mm P.H.M.S. No. 8-19630 & THEN MTD. TO PANEL WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-8727 & (2) #8 SPLIT WASHERS No. 8-8750
GROUNDING STRAP No. 8-20120 TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE *SEE DETAIL 'B' BELOW
SAMPLER ASSY. PART No. 3-3960 2 - PLACES
MID LEVEL AMP PART No. 3-19578
LOW LEVEL AMP PART No. 3-19575
FACEPLATE ASSY PART No. 3-19804
Red & Black Wires
See Detail 'E' on Page 2
3-20544
3-20551
3-20543
3-19960
3-20035
3-20034
3-0489
3-15915
3-20037
3-20668
3-20686
Blue
Green
Yellow
Orange
Brown
Black
Red
Input
Output

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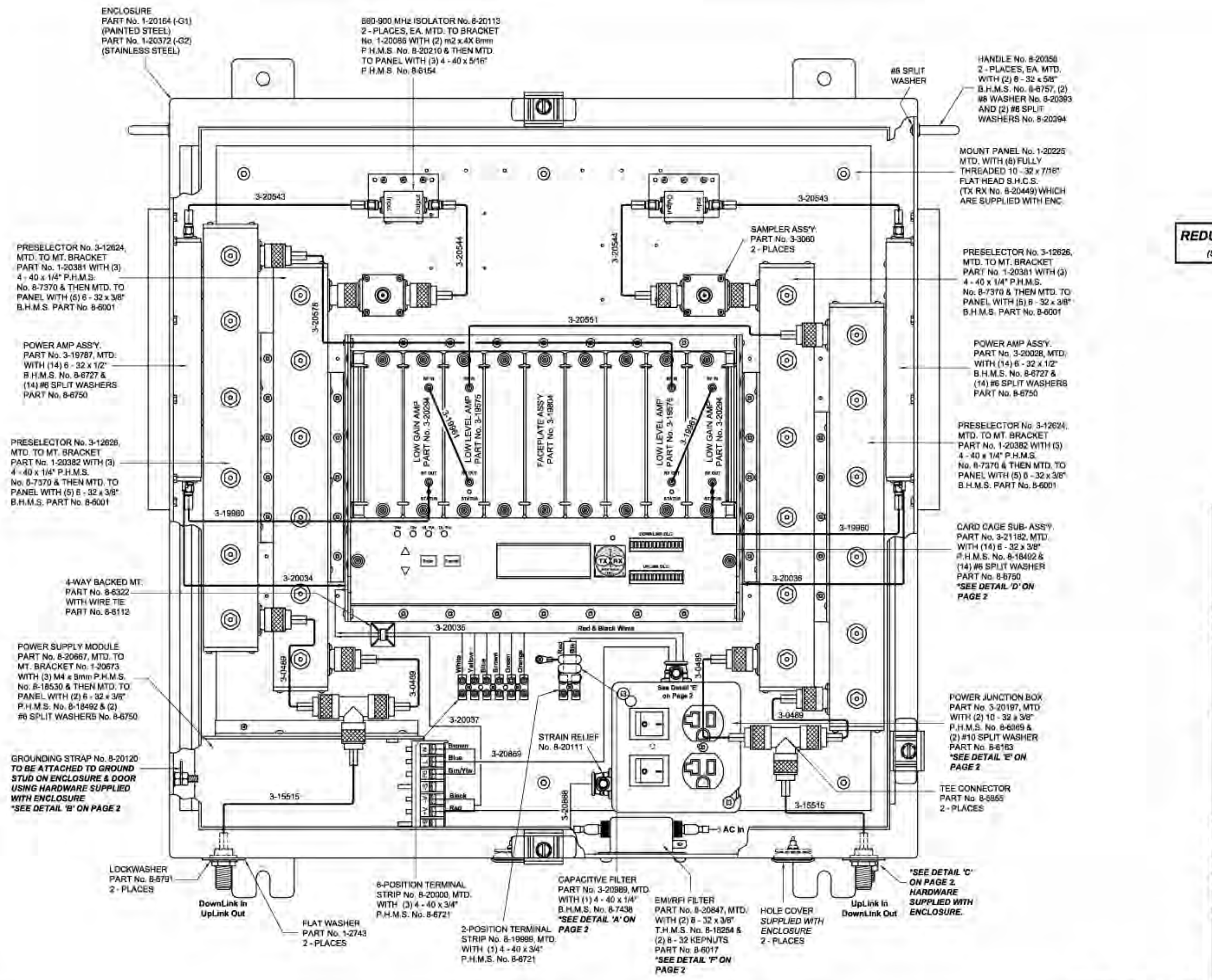


SEE 8-20401 FOR SPECIFICATIONS

8625 INDUSTRIAL PARKWAY
ANGOLA, N. Y. 14006
A MEMBER OF BIRD TECHNOLOGIES GROUP

SCALE: 1" = 2"

Rev.	Change No.	Date	Initials
A	#23098	5-16-05	KAS
B	#A23172	11-14-05	KC

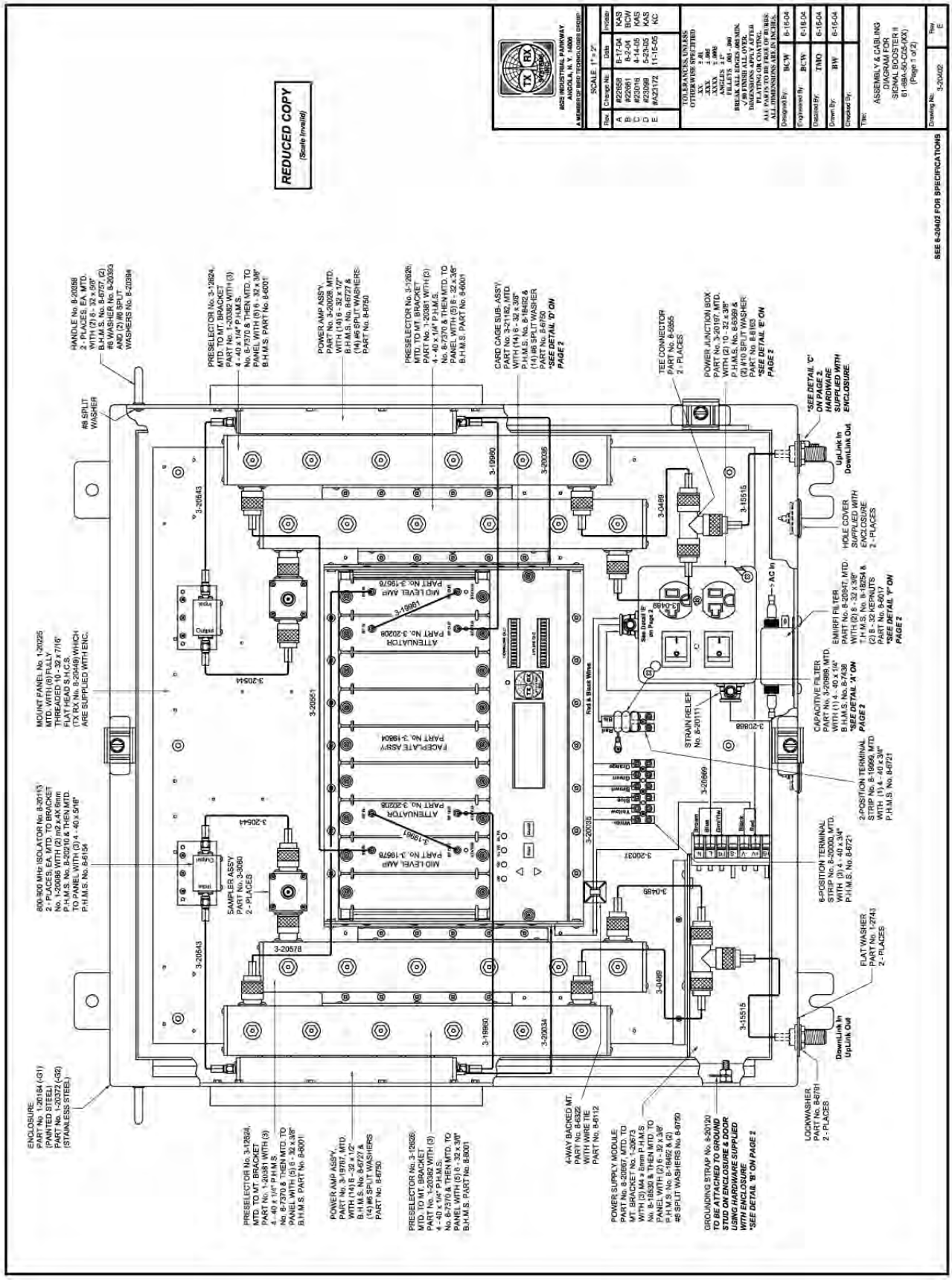
TOLERANCES, UNLESS
OTHERWISE SPECIFIED
.XX ±.01
.XXX ±.005
.XXXX ±.0005
ANGLES ±1°
FILLETS .005 - .040
BREAK ALL EDGES .005 MIN.
√80 FINISH ALL OVER.
DIMENSIONS APPLY AFTER
PLATING OR COATING.
ALL PARTS TO BE FREE OF BURRS.
ALL DIMENSIONS ARE IN INCHES.

Designed By:	BCW	5-16-05
Engineered By:	BCW	5-16-05
Detailed By:	KAS	5-23-05
Drawn By:	BW	5-16-05
Checked By:		

Title:

ASSEMBLY & CABLING
DIAGRAM FOR
SIGNAL BOOSTER II
61-89A-50-B05-(XX)
(Page 1 of 2)

Drawing No. 3-20401
Rev. B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8525 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A MEMBER OF BIRD TECHNOLOGIES GROUP
SCALE 1" = 2"
Rev | Change No. | Date | Initials
A #22558 8-17-04 KAS
B #22661 8-24-04 BCW
C #23076 4-14-05 KAS
D #23099 5-23-05 KAS
E #A23172 11-15-05 KC
TOLERANCES, UNLESS OTHERWISE SPECIFIED
XX ± .06
XXX ± .030
ANGLES ± 1°
FINISH 125 MIC. (AA)
BREAK ALL EDGES .005 MIN.
√ 250 FINISH ALL OVER.
INTERPRET PER ANSI Y14.5M-1982
PLATING OR COATING.
ALL PARTS TO BE FREE OF BURRS.
ALL DIMENSIONS ARE IN INCHES.
Designed By: BCW 6-16-04
Engineered By: BCW 6-16-04
Drawn By: TMO 6-16-04
Checked By: BW 6-16-04
Title:
ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER 4 61-68A-50-CDS-(XX) (Page 1 of 2)
Drawing No: 3-20402 Rev E
SEE 8-20402 FOR SPECIFICATIONS
ENCLOSURE PART No. 1-20184 (-01) (PAINTED STEEL) PART No. 1-20372 (-02) (STAINLESS STEEL)
MOUNT PANEL No. 1-20225 MTD. WITH (8) FULLY THREADED 10 - 32 x 7/16" FLAT HEAD S.H.C.S. (TX RX No. 8-20446) WHICH ARE SUPPLIED WITH ENC.
HANDLE No. 8-20366 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x 5/8" B.H.M.S. No. 8-6737, (2) #6 WASHER No. 8-20393 AND (2) #6 SPLIT WASHERS No. 8-20394
#6 SPLIT WASHER
800-900 MHz ISOLATOR No. 8-20113 2 - PLACES, EA. MTD. TO BRACKET No. 1-20086 WITH (2) m2 x 4X 6mm P.H.M.S. No. 8-20210 & THEN MTD. TO PANEL WITH (3) 4 - 40 x 5/16" P.H.M.S. No. 8-6134
SAMPLER ASS'Y PART No. 3-3090 2 - PLACES
PRESELECTOR No. 3-12624, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
POWER AMP ASSY. PART No. 3-19797, MTD. WITH (14) 8 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-6750
PRESELECTOR No. 3-12626, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
GROUNDING STRAP No. 8-20120 TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE *SEE DETAIL "B" ON PAGE 2*
4-WAY BACKED MT. PART No. 8-8322 WITH WIRE TIE PART No. 8-8112
POWER SUPPLY MODULE PART No. 8-20567, MTD. TO MT. BRACKET No. 1-20673 WITH (3) M4 x 8mm P.H.M.S. No. 8-18530 & THEN MTD. TO PANEL WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-6737 & (2) #8 SPLIT WASHERS No. 8-8759
LOCKWASHER PART No. 8-8781 2 - PLACES
FLAT WASHER PART No. 1-2743 2 - PLACES
6-POSITION TERMINAL STRIP No. 8-20000, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
2-POSITION TERMINAL STRIP No. 8-19999, MTD WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
CAPACITIVE FILTER PART No. 3-20888, MTD. WITH (4) 4 - 40 x 1/4" B.H.M.S. No. 8-7438 *SEE DETAIL "A" ON PAGE 2*
STRAIN RELIEF No. 8-20171
SMURFI FILTER PART No. 8-20947, MTD. WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-18254 & (2) 8 - 32 KEPNUTS PART No. 8-6017 *SEE DETAIL "F" ON PAGE 2*
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
TEE CONNECTOR PART No. 8-6895 2 - PLACES
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-6399 & (2) #10 SPLIT WASHER PART No. 8-8163 *SEE DETAIL "E" ON PAGE 2*
CARD CAGE SUB-ASS'Y PART No. 3-21162, MTD WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-18492 & (14) #6 SPLIT WASHER PART No. 8-8759 *SEE DETAIL "D" ON PAGE 2*
POWER AMP ASSY. PART No. 3-20028, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-8750
PRESELECTOR No. 3-12626, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-6001
SEE DETAIL "C" ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
Up/Link In
Down/Link Out
AC In
MID LEVEL AMP PART No. 3-19576
ATTENUATOR PART No. 3-20208
FACEPLATE ASS'Y PART No. 3-19804
Red & Black Wires
3-20578
3-20544
3-20541
3-20643
3-19960
3-20035
3-20034
3-20037
3-0489
3-15515
3-20869
3-20888
3-19961
3-19962
3-19963
3-19964
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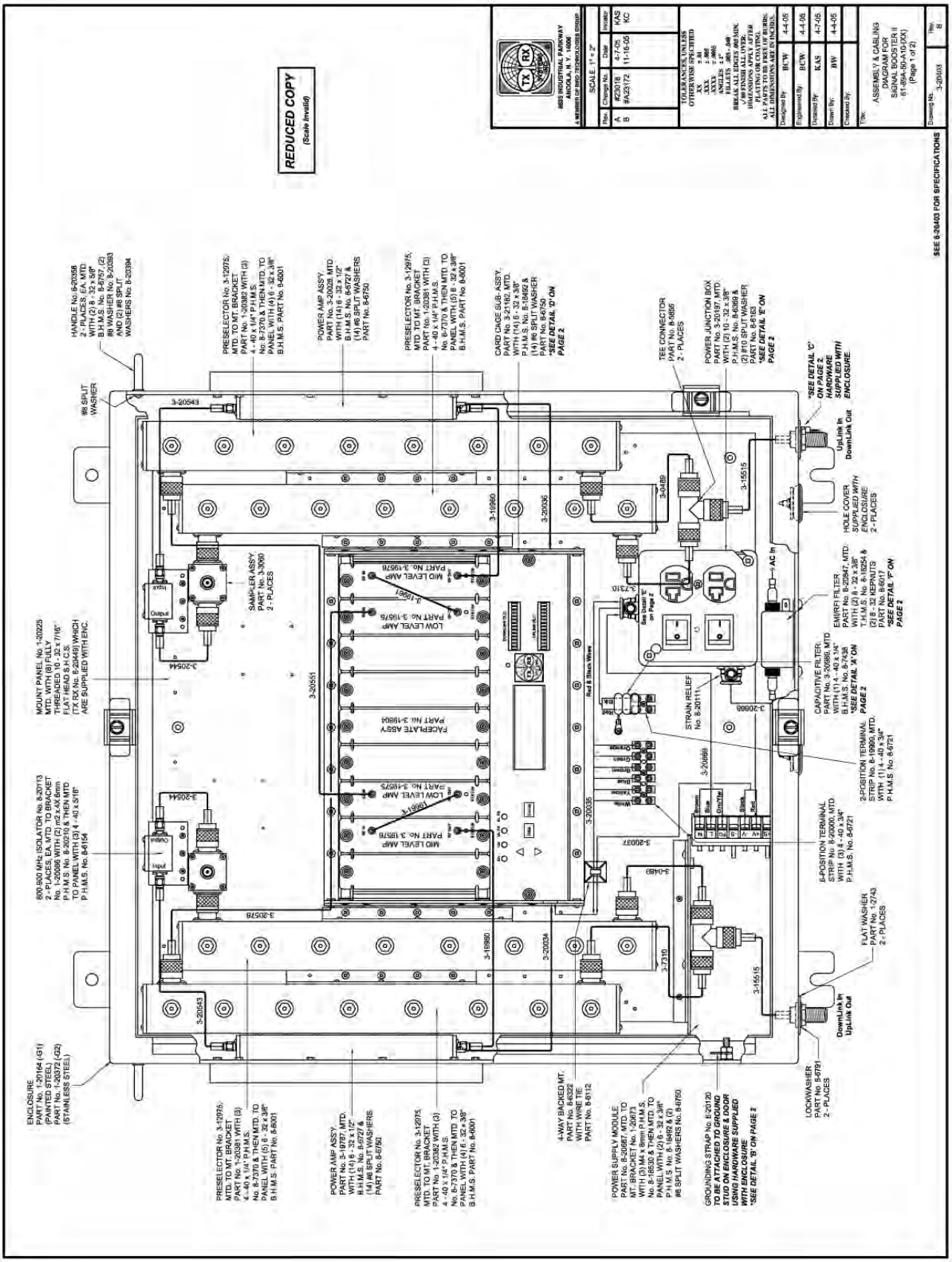
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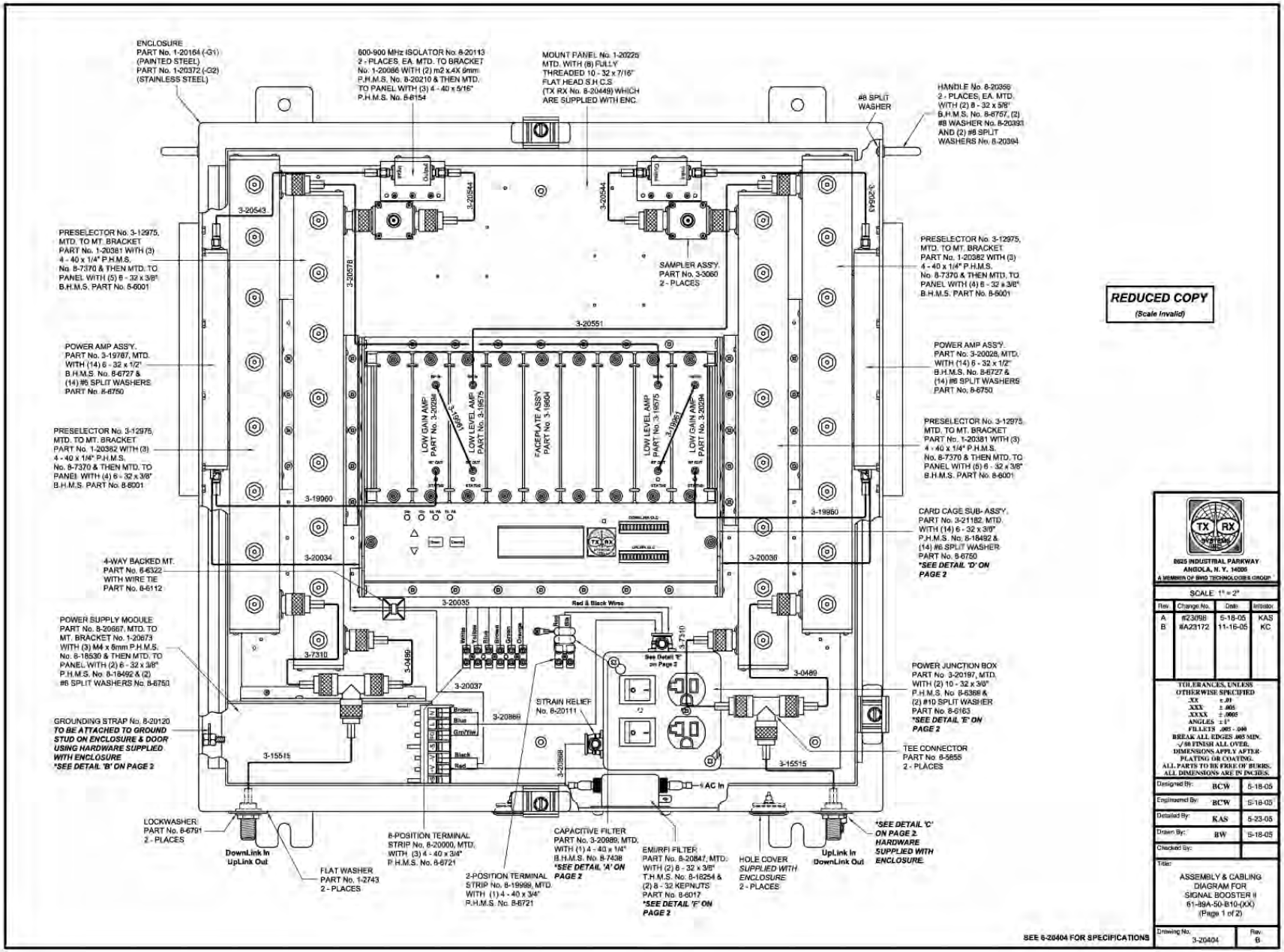
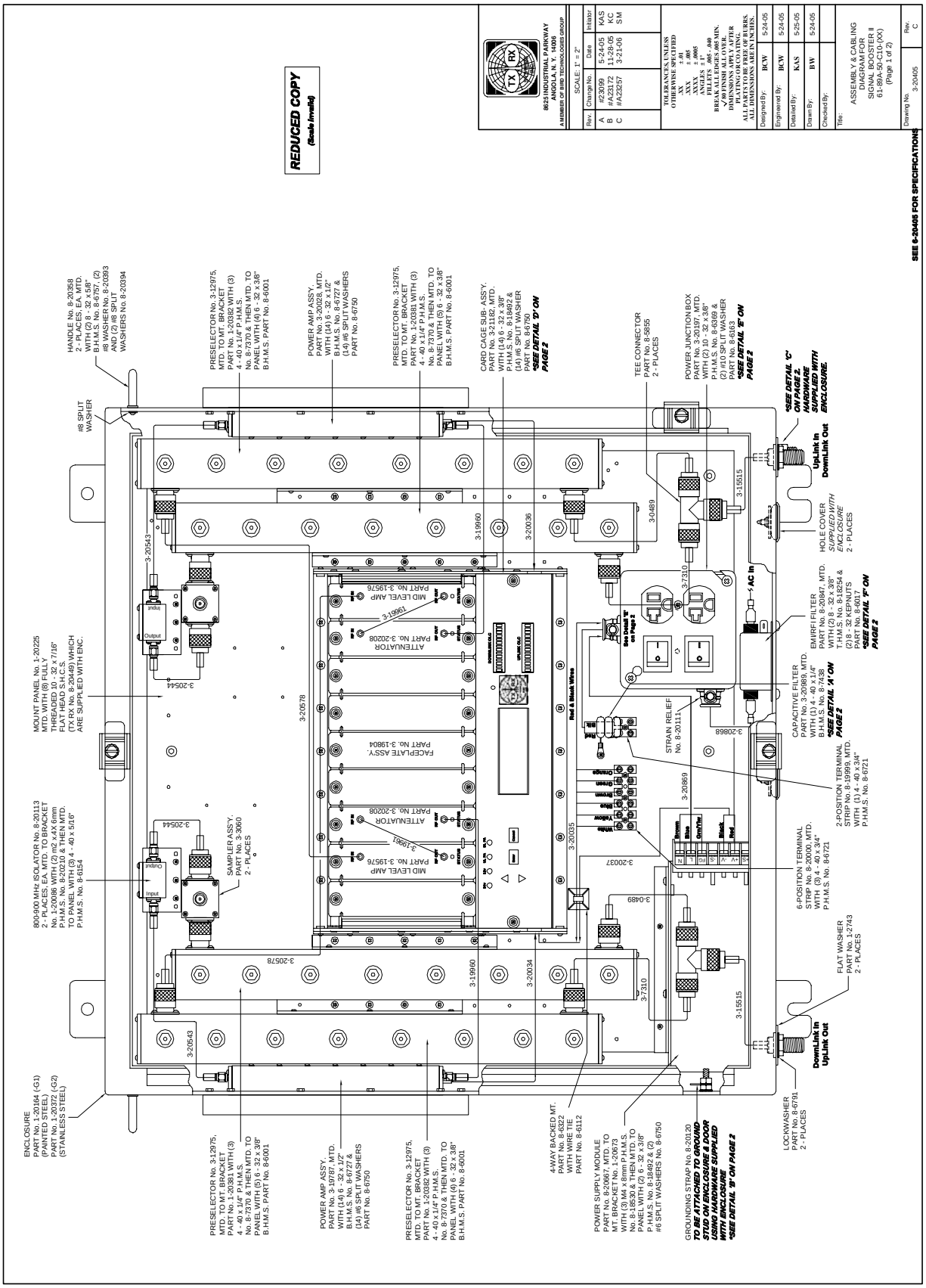
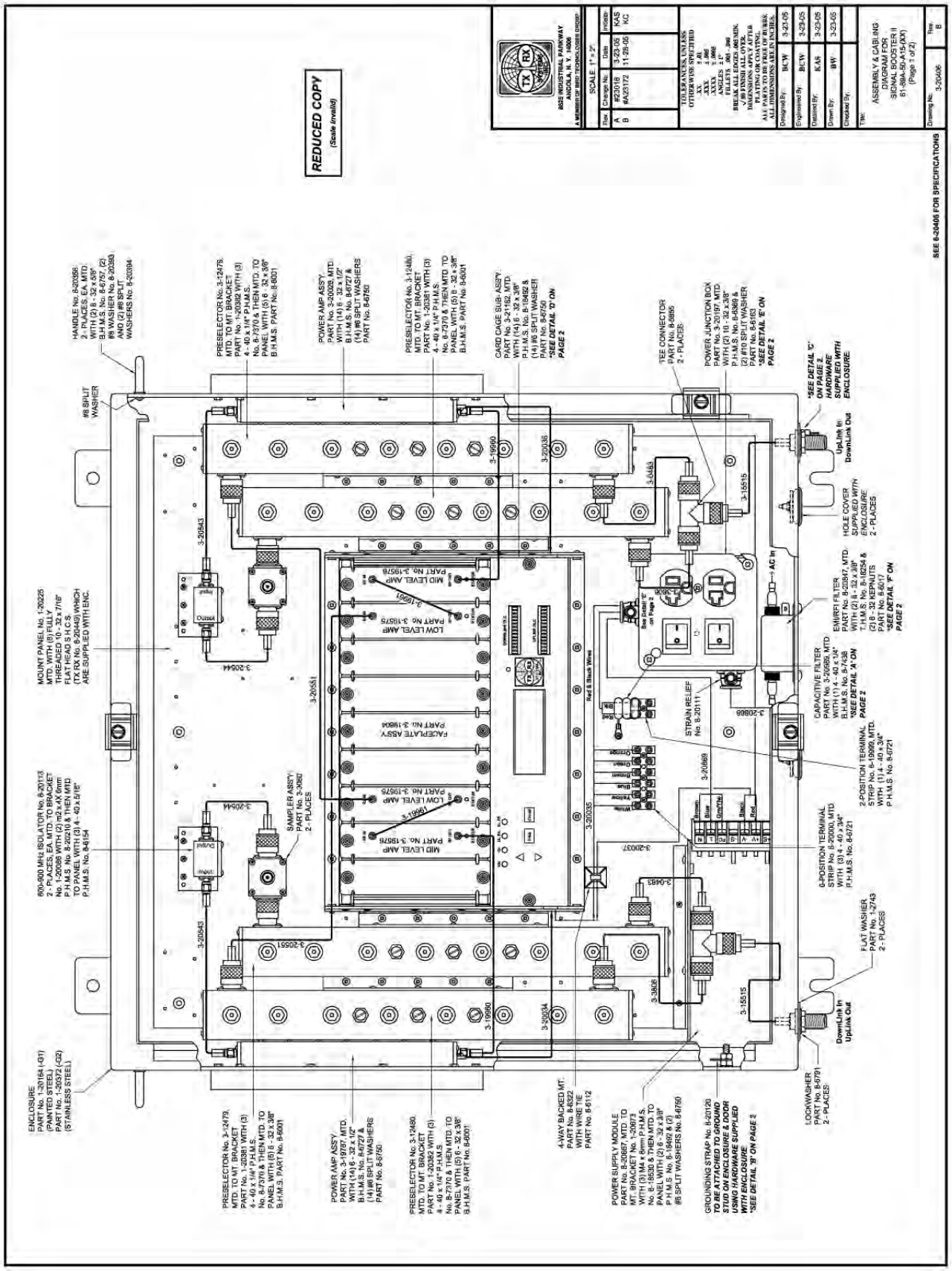
TX RX
ASSEMBLY & CABLING DIAGRAM FOR SERIES 1000 TRANSCEIVER
81-894-50A10 (SX)
(Page 1 of 2)
SEE 6-30403 FOR SPECIFICATIONS
ENCLOSURE
PART No. 1-20164 (-G1)
(PAINTED STEEL)
PART No. 1-20372 (-G2)
(STAINLESS STEEL)
MOUNT PANEL No. 1-20225
MTD. WITH (8) FULLY
THREADED 10 - 32 x 7/16"
FLAT HEAD S.H.C.S.
(TX ONLY No. 8-20446) WHICH
ARE SUPPLIED WITH ENC.
800-900 MHz ISOLATOR No. 8-20713
2 - PLACES, EA. MTD. TO BRACKET
No. 1-20086 WITH (2) m3 x .4X 6mm
P.H.M.S. No. 8-20210 & THEN MTD.
TO PANEL WITH (3) 4 - 40 x 5/16"
P.H.M.S. No. 8-8494
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20381 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (5) 8 - 32 x 3/8"
B.H.M.S. PART No. 8-8001
POWER AMP ASS'Y.
PART No. 3-19767, MTD.
WITH (14) 6 - 32 x 1/2"
B.H.M.S. No. 8-8727 &
(14) #6 SPLIT WASHERS
PART No. 8-8750
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20382 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (4) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-8001
GROUNDING STRAP No. 8-20120
TO BE ATTACHED TO GROUND
STUD ON ENCLOSURE & DOOR
USING HARDWARE SUPPLIED
WITH ENCLOSURE
*SEE DETAIL 'B' ON PAGE 2
POWER SUPPLY MODULE,
PART No. 8-20087, MTD. TO
MT. BRACKET No. 1-20673
WITH (3) M4 x 8mm P.H.M.S.
No. 8-16530 & THEN MTD. TO
PANEL WITH (2) 6 - 32 x 3/8"
P.H.M.S. No. 8-16492 & (2)
#6 SPLIT WASHERS No. 8-8750
LOCKWASHER
PART No. 8-8791
2 - PLACES
FLAT WASHER
PART No. 12743
2 - PLACES
DownLink In
UpLink Out
5-POSITION TERMINAL
STRIP No. 8-20067, MTD.
WITH (3) 8 - 40 x 3/4"
P.H.M.S. No. 8-8721
4-WAY BACKED MT.
PART No. 8-8322
WITH WIRE TIE
PART No. 8-8112
2-POSITION TERMINAL
STRIP No. 8-19969, MTD.
WITH (1) 4 - 40 x 3/4"
P.H.M.S. No. 8-8721
CAPACITIVE FILTER,
PART No. 3-20986, MTD
WITH (1) 4 - 40 x 1/4"
B.H.M.S. No. 8-7438
(3) 8 - 32 x 3/8" P.H.M.S.
PART No. 8-8017
*SEE DETAIL 'A' ON PAGE 2
EMI(RFI) FILTER
PART No. 8-20847, MTD.
WITH (2) 8 - 32 x 3/8"
P.H.M.S. No. 8-8254 &
(2) #10 SPLIT WASHERS
PART No. 8-8163
*SEE DETAIL 'E' ON PAGE 2
HOLE COVER
SUPPLIED WITH
ENCLOSURE
2 - PLACES
STRAIN RELIEF
No. 8-20111
POWER JUNCTION BOX
PART No. 3-20197, MTD.
WITH (2) 10 - 32 x 3/8"
P.H.M.S. No. 8-8369 &
(2) #10 SPLIT WASHER
PART No. 8-8163
*SEE DETAIL 'E' ON PAGE 2
TEE CONNECTOR
PART No. 8-5655
2 - PLACES
*SEE DETAIL 'C' ON PAGE 2
HARDWARE SUPPLIED WITH ENCLOSURE
UpLink In
DownLink Out
HANDLE No. 8-20358
2 - PLACES, EA. MTD.
WITH (2) 8 - 32 x 5/8"
B.H.M.S. No. 8-8757, (2)
#8 WASHER No. 8-20393
AND (2) #8 SPLIT
WASHERS No. 8-20394
#8 SPLIT
WASHER
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20382 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (4) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-8001
POWER AMP ASS'Y.
PART No. 3-20028, MTD.
WITH (14) 6 - 32 x 1/2"
B.H.M.S. No. 8-8727 &
(14) #6 SPLIT WASHERS
PART No. 8-8750
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20381 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (5) 8 - 32 x 3/8"
B.H.M.S. PART No. 8-8001
CARD CAGE SUB-ASSY.
PART No. 3-21182, MTD.
WITH (14) 6 - 32 x 3/8"
P.H.M.S. No. 8-16492 &
(14) #6 SPLIT WASHER
PART No. 8-8750
*SEE DETAIL 'D' ON PAGE 2
SAMPLER ASSY
PART No. 3-3060
2 - PLACES
MID LEVEL AMP
PART No. 3-19576
LOW LEVEL AMP
PART No. 3-19575
FACEPLATE ASS'Y
PART No. 3-19804
Red & Black Wires
Blue Beam 'B' on Page 2
Orange
Green
Brown
Blue
Violet
Yellow
Black
Red
Brown
Blue
Orange/Red
Black
Red
Violet
Yellow
Green
Orange
Input
Output
3-20543
3-20544
3-20578
3-20551
3-19960
3-20036
3-20034
3-7310
3-20037
3-0489
3-15515
3-20606
3-20869
3-20543
3-20544
3-20578
3-19960
3-7310
3-15515
3-0489
3-20606
3-20869
3-20037
3-20036
3-20034
SEE 6-30403 FOR SPECIFICATIONS
SCALE 1" = 2"
Rev. Change No. Date Initials
A #20018 4-7-05 KAS
B #A23172 11-16-05 KC
TOLERANCES, UNLESS
OTHERWISE SPECIFIED
XX ± .04
XXX ± .005
XXXX ± .0005
ANGLES ± 1°
FINISH 125 µin
BREAK ALL EDGES .005 MIN.
√ MARKING ALL OVER.
DIMENSIONS APPLY AFTER
FINISHING BUT BEFORE PLATING.
ALL PARTS TO BE FREE OF BURRS.
ALL DIMENSIONS ARE IN INCHES.
Designed By BCW 4-4-05
Engineered By BCW 4-4-05
Detailed By KAS 4-7-05
Drawn By: BW 4-4-05
Checked By:
Title:
ASSEMBLY & CABLING
DIAGRAM FOR
SERIES 1000 TRANSCEIVER
81-894-50A10 (SX)
(Page 1 of 2)
Drawing No. 3-20403 Rev. B


ENCLOSURE
PART No. 1-20164 (-G1)
(PAINTED STEEL)
PART No. 1-20372 (-G2)
(STAINLESS STEEL)
600-900 MHz ISOLATOR No. 8-20113
2 - PLACES, EA. MTD. TO BRACKET
No. 1-20086 WITH (2) m2 x.4X 6mm
P.H.M.S. No. 8-20210 & THEN MTD.
TO PANEL WITH (3) 4 - 40 x 5/16"
P.H.M.S. No. 8-8154
MOUNT PANEL No. 1-20225
MTD. WITH (8) FULLY
THREADED 10 - 32 x 7/16"
FLAT HEAD S.H.C.S.
(TX /RX No. 8-20449) WHICH
ARE SUPPLIED WITH ENC.
#8 SPLIT
WASHER
HANDLE No. 8-20399
2 - PLACES, EA. MTD.
WITH (2) 8 - 32 x 5/8"
B.H.M.S. No. 8-6757, (2)
#8 WASHER No. 8-20393
AND (2) #8 SPLIT
WASHERS No. 8-20394
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20381 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (5) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
SAMPLER ASS'Y.
PART No. 3-3060
2 - PLACES
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20382 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (4) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
REDUCED COPY
(Scale Invalid)
POWER AMP ASS'Y.
PART No. 3-19787, MTD.
WITH (14) 6 - 32 x 1/2"
B.H.M.S. No. 8-6727 &
(14) #6 SPLIT WASHERS
PART No. 8-6750
POWER AMP ASS'Y.
PART No. 3-20028, MTD.
WITH (14) 6 - 32 x 1/2"
B.H.M.S. No. 8-6727 &
(14) #8 SPLIT WASHERS
PART No. 8-6750
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20382 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (4) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
PRESELECTOR No. 3-12975,
MTD. TO MT. BRACKET
PART No. 1-20381 WITH (3)
4 - 40 x 1/4" P.H.M.S.
No. 8-7370 & THEN MTD. TO
PANEL WITH (5) 6 - 32 x 3/8"
B.H.M.S. PART No. 8-6001
CARD CAGE SUB- ASS'Y.
PART No. 3-21182, MTD.
WITH (14) 6 - 32 x 3/8"
P.H.M.S. No. 8-18492 &
(14) #6 SPLIT WASHER
PART No. 8-6750.
*SEE DETAIL 'D' ON
PAGE 2*
4-WAY BACKED MT.
PART No. 8-6322
WITH WIRE TIE
PART No. 8-6112
POWER SUPPLY MODULE
PART No. 8-20667, MTD. TO
MT. BRACKET No. 1-20873
WITH (3) M4 x 6mm P.H.M.S.
No. 8-18530 & THEN MTD. TO
PANEL WITH (2) 6 - 32 x 3/8"
P.H.M.S. No. 8-18492 & (2)
#6 SPLIT WASHERS No. 8-6750
GROUNDING STRAP No. 8-20120
*TO BE ATTACHED TO GROUND
STUD ON ENCLOSURE & DOOR
USING HARDWARE SUPPLIED
WITH ENCLOSURE
SEE DETAIL 'B' ON PAGE 2
POWER JUNCTION BOX
PART No. 3-20197, MTD.
WITH (2) 10 - 32 x 3/8"
P.H.M.S. No. 8-6366 &
(2) #10 SPLIT WASHER
PART No. 8-6163
*SEE DETAIL 'E' ON
PAGE 2*
TEE CONNECTOR
PART No. 8-5858
2 - PLACES
LOCKWASHER
PART No. 8-6791
2 - PLACES
DownLink In
UpLink Out
FLAT WASHER
PART No. 1-2743
2 - PLACES
8-POSITION TERMINAL
STRIP No. 8-20000, MTD.
WITH (3) 4 - 40 x 3/4"
P.H.M.S. No. 8-6721
2-POSITION TERMINAL
STRIP No. 8-19999, MTD.
WITH (1) 4 - 40 x 3/4"
P.H.M.S. No. 8-6721
CAPACITIVE FILTER
PART No. 3-20089, MTD.
WITH (1) 4 - 40 x 1/4"
B.H.M.S. No. 8-7438
*SEE DETAIL 'A' ON
PAGE 2*
EMI/RFI FILTER
PART No. 8-20847, MTD.
WITH (2) 8 - 32 x 3/8"
T.H.M.S. No. 8-18254 &
(2) 8 - 32 KEPNUTS
PART No. 8-6017
*SEE DETAIL 'F' ON
PAGE 2*
HOLE COVER
SUPPLIED WITH
ENCLOSURE
2 - PLACES
UpLink In
DownLink Out
*SEE DETAIL 'C'
ON PAGE 2.
HARDWARE
SUPPLIED WITH
ENCLOSURE.
STRAIN RELIEF
No. 8-20111
AC In
Red & Black Wires
SEE 6-20404 FOR SPECIFICATIONS
8625 INDUSTRIAL PARKWAY
ANGOLA, N. Y. 14006
A MEMBER OF BMD TECHNOLOGIES GROUP
SCALE 1" = 2"
Rev. A: Change No. #23098, Date 5-18-05, Initiator KAS
Rev. B: Change No. #A23172, Date 11-16-05, Initiator KC
TOLERANCES, UNLESS
OTHERWISE SPECIFIED
.XX ± .01
.XXX ± .005
.XXXX ± .0005
ANGLES ± 1°
FILLETS .005 - .030
BREAK ALL EDGES .005 MIN.
√ 90 FINISH ALL OVER.
DIMENSIONS APPLY AFTER
PLATING OR COATING.
ALL PARTS TO BE FREE OF BURRS.
ALL DIMENSIONS ARE IN INCHES.
Designed By: BCW 5-18-05
Engineered By: BCW 5-18-05
Detailed By: KAS 5-23-05
Drawn By: BW 5-18-05
Checked By:
Title:
ASSEMBLY & CABLING
DIAGRAM FOR
SIGNAL BOOSTER II
61-99A-50-B10-(XX)
(Page 1 of 2)
Drawing No. 3-20404
Rev. B


REDUCED COPY
(Scale Invalid)
8625 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A MEMBER OF EMS TECHNOLOGIES GROUP
SCALE: 1" = 2"
Rev. Change No. Date Initiator
A #23099 5-24-05 KAS
B #A23172 11-28-05 KC
C #A23257 3-21-06 SM
TOLERANCES UNLESS OTHERWISE SPECIFIED
XX ± .01
XXX ± .005
XXXX ± .0005
ANGLES ± 1°
FINISH 125 RMS - .040
BREAK ALL EDGES .005 MIN.
✓ 89 FINISH ALL OVER.
INTERPRET DIMENSIONS & TOLERANCES PER ASME Y14.5M
ALL PARTS TO BE FREE OF BURRS, LOOSE CHIPS AND FOREIGN MATERIAL
Designed By: BCW 5-24-05
Engineered By: BCW 5-24-05
Detailed By: KAS 5-25-05
Drawn By: BW 5-24-05
Checked By:
Title:
ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER II 61-9424-5(-01) (XX) (Page 1 of 2)
Drawing No. 3-20405 Rev: C
SEE 6-20405 FOR SPECIFICATIONS
ENCLOSURE PART No. 1-20164 (-G1) PAINTED STEEL) PART No. 1-20272 (-G2) (STAINLESS STEEL)
800-900 MHz ISOLATOR No. 8-20113 2 - PLACES, EA. MTD. TO BRACKET No. 3-20080, WITH (2) 4-40 x 5/16" P.H.M.S. No. 8-20210 & THEN MTD. TO PANEL WITH (3) 4 - 40 x 5/16" P.H.M.S. No. 8-6154
MOUNT PANEL No. 1- 20225 MTD. WITH (8) FULLY THREADED (1) 32 x 7/16" FLAT HEAD S.H.C.S. (TX RX No. 8-20449) WHICH ARE SUPPLIED WITH ENC.
#8 SPLIT WASHER
HANDLE No. 8-20358 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x 5/8" P.H.M.S. No. 8-6757 (2) #8 WASHER No. 8-20393 AND (2) #8 SPLIT WASHERS No. 8-20394
PRESELECTOR No. 3-12975, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (4) 6 - 32 x 3/8" B.H.M.S. PART No. 8-6001
POWER AMP ASSY. PART No. 3-19787, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-6750
PRESELECTOR No. 3-12975, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 6 - 32 x 3/8" B.H.M.S. PART No. 8-6001
CARD CAGE SUB- ASS'Y. PART No. 3-21182, MTD. WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHER PART No. 8-6750
SEE DETAIL "D" ON PAGE 2
TEE CONNECTOR PART No. 8-5855 2 - PLACES
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-6369 & (2) #10 SPLIT WASHER PART No. 8-6373
SEE DETAIL "E" ON PAGE 2
SEE DETAIL "C" ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
UpLink In
DownLink Out
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
SAMPLER ASS'Y. PART No. 3-3060 2 - PLACES
MID LEVEL AMP PART No. 3-19576
ATTENUATOR PART No. 3-20208
FACEPLATE ASS'Y. PART No. 3-19804
3-19961
3-20578
3-20544
3-20543
3-19960
3-20036
3-20035
3-20034
3-20037
3-7310
3-15515
3-0489
3-0488
3-20688
3-20869
AC In
EMI/RFI FILTER PART No. 8-20847, MTD. WITH (2) 8 - 32 x 3/8" T.H.M.S. No. 8-18254 & (2) #8 SPLIT WASHERS PART No. 8-6017
SEE DETAIL "A" ON PAGE 2
SEE DETAIL "F" ON PAGE 2
CAPACITIVE FILTER PART No. 3-20869, MTD. WITH (3) 4 - 40 x 1/4" B.H.M.S. No. 8-7438
STRAIN RELIEF No. 8-20111
2-POSITION TERMINAL STRIP No. 8-19084, MTD. WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
6-POSITION TERMINAL STRIP No. 8-20000, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
FLAT WASHER PART No. 1-2743 2 - PLACES
LOCKWASHER PART No. 6791 2 - PLACES
DownLink In
UpLink Out
4-WAY BACKED MT. PART No. 8-6522 WITH WIRE TIE PART No. 8-6112
POWER SUPPLY MODULE PART No. 8-20867, MTD. TO MT. BRACKET PART No. 3-20873 WITH (3) M4 x 8mm P.H.M.S. No. 8-18530 & THEN MTD. TO PANEL WITH (2) 6 - 32 x 3/8" P.H.M.S. No. 8-18492 & (2) #6 SPLIT WASHERS No. 8-6750
GROUNDING STRAP No. 8-20120 *TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE* *SEE DETAIL "B" ON PAGE 2*
Red & Black Wires
Orange
Green
Yellow
Blue
Brown
Black
Red
Grn/Yel
Input
Output
Isolator
Isolator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8025 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A MEMBER OF EMS TECHNOLOGIES
SCALE 1" = 2"
Rev
Change No.
Date
Initials
A
#A20518
3-23-05
KAS
B
#A20172
11-28-06
KC
TOLERANCES, UNLESS OTHERWISE SPECIFIED
ANGLES ± 1°
FILLETS .040 - .060
BREAK ALL EDGES .005 MIN. .020 MAX. ALL OVER.
INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994
ALL PARTS TO BE FREE OF BURRS, LAY PATTERNS AND FOREIGN MATERIAL
Designed By:
BCW
3-23-05
Engineered By:
BCW
3-29-05
Checked By:
KAS
3-23-05
Drawn By:
MW
3-23-05
Title:
ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER II 81-88A-50-A15-(XX)
(Page 1 of 2)
Drawing No.
3-20406
Rev.
E
SEE 8-20405 FOR SPECIFICATIONS
ENCLOSURE PART No. 1-20164 (-01) (PAINTED STEEL) PART No. 1-20372 (-02) (STAINLESS STEEL)
600-800 MHz ISOLATOR No. 8-20113 2 - PLACES, EA. MTD. TO BRACKET No. 1-20098 WITH (2) m2 x 4X 6mm P.H.M.S. No. 8-20210 & THEN MTD. TO PANEL WITH (3) 4 - 40 x 5/16" P.H.M.S. No. 8-4154
MOUNT PANEL No. 1-20225 MTD. WITH (8) FULLY THREADED 10 - 32 x 7/16" FLAT HEAD S.H.C.S. (TX RX No. 8-20445) WHICH ARE SUPPLIED WITH ENC.
HANDLE No. 8-20365 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x .5/8" B.H.M.S. No. 8-8757, (2) #8 WASHER No. 8-20393 AND (2) #8 SPLIT WASHERS No. 8-20394
#8 SPLIT WASHER
PRESELECTOR No. 3-12479, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-8001
POWER AMP ASSY. PART No. 3-20028, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-8727 & (14) #6 SPLIT WASHERS PART No. 8-8750
PRESELECTOR No. 3-12480, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 8 - 32 x 3/8" B.H.M.S. PART No. 8-8001
CARD CAGE SUB-ASSY. PART No. 3-21162, MTD. WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-19492 & (14) #6 SPLIT WASHER PART No. 8-8750 *SEE DETAIL 'D' ON PAGE 2
TEE CONNECTOR PART No. 8-8895 2 - PLACES
POWER JUNCTION BOX PART No. 3-20197, MTD WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-8969 & (2) #10 SPLIT WASHER PART No. 8-8763 *SEE DETAIL 'E' ON PAGE 2
*SEE DETAIL 'C' ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
UpLink In DownLink Out
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
AC In
EMI/RFI FILTER PART No. 8-20347, MTD. WITH (2) 8 - 32 x 3/8" T.H.M.S. No. 8-18254 & (2) 8 - 32 KEPNUTS PART No. 8-8017 *SEE DETAIL 'F' ON PAGE 2
CAPACITIVE FILTER PART No. 3-20569, MTD WITH (1) 4 - 40 x 3/4" B.H.M.S. No. 8-7438 *SEE DETAIL 'A' ON PAGE 2
STRAIN RELIEF No. 8-20111
2-POSITION TERMINAL STRIP No. 8-19999, MTD. WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
6-POSITION TERMINAL STRIP No. 8-20000, MTD WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
FLAT WASHER PART No. 1-2743 2 - PLACES
DownLink In UpLink Out
LOCKWASHER PART No. 8-8791 2 - PLACES
4-WAY BACKED MT. PART No. 8-8322 WITH WIRE TIE PART No. 8-6112
POWER SUPPLY MODULE PART No. 8-20667, MTD. TO MT. BRACKET No. 1-20673 WITH (3) M4 x 6mm P.H.M.S. No. 8-19530 & THEN MTD. TO PANEL WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-8762 & (2) #8 SPLIT WASHERS No. 8-8750
GROUNDING STRAP No. 8-20120 TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE *SEE DETAIL 'B' ON PAGE 2
SAMPLER ASSY. PART No. 3-3082 2 - PLACES
LOW LEVEL AMP PART No. 3-19575
MID LEVEL AMP PART No. 3-19576
FACEPLATE ASSY PART No. 3-19804
Red & Black Wires
Blue
Blue/Wht
Red
Orange
Green
Yellow
Violet
Brown
Black
3-19900
3-20036
3-20543
3-20544
3-20551
3-19961
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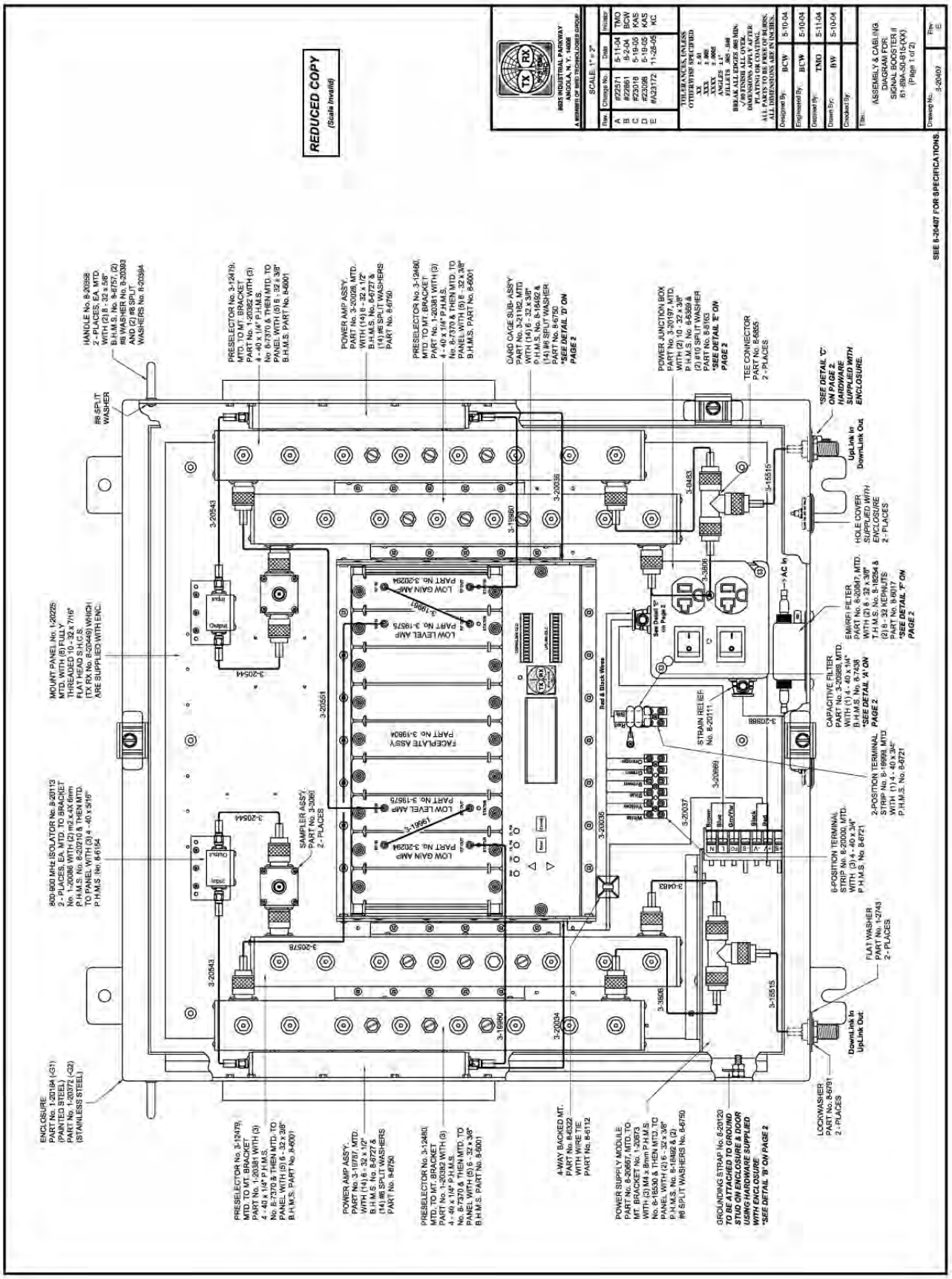
3-3806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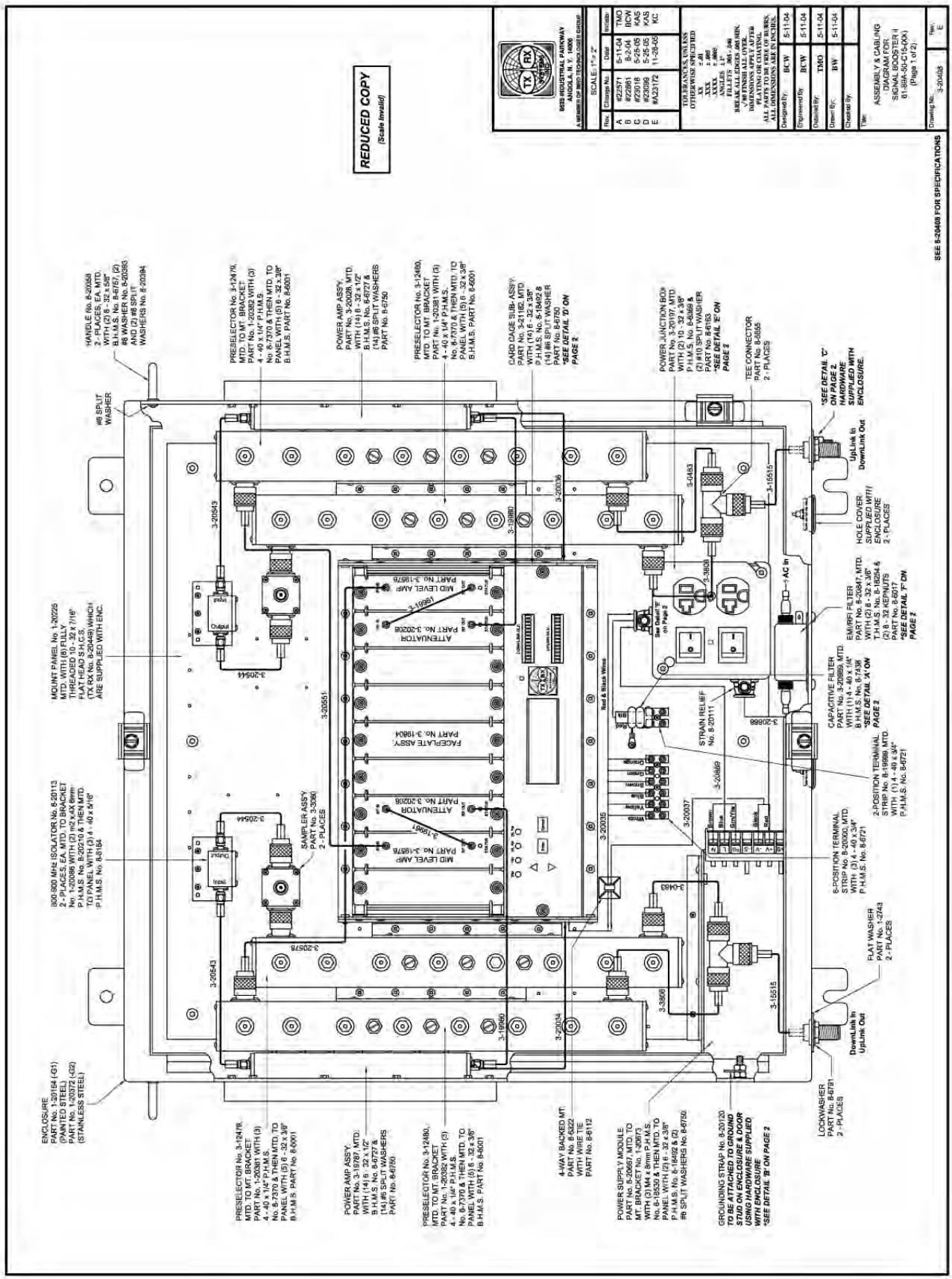
SEE 8-20407 FOR SPECIFICATIONS.
ASSEMBLY & CABLING DIAGRAM FOR: SIGNAL BOOSTER II 61-89A-50-815-(XX)
(Page 1 of 2)
8-20409
ENCLOSURE PART No. 1-20184 (-G1) (PAINTED STEEL) PART No. 1-20372 (-G2) (STAINLESS STEEL)
MOUNT PANEL No. 1-20225 MTD. WITH (8) FULLY THREADED 10 - 32 x 7/16" FLAT HEAD S.H.C.S. (TX RX No. 8-20449) WHICH ARE SUPPLIED WITH ENC.
#8 SPLIT WASHER
HANDLE No. 8-20599 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x 5/8" B.H.M.S. No. 8-8757, (2) #8 WASHER No. 8-20393 AND (2) #8 SPLIT WASHERS No. 8-20394
PRESELECTOR No. 3-12479, MTD. TO MT. BRACKET PART No. 1-20382 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 6 - 32 x 3/8" B.H.M.S. PART No. 8-8001
POWER AMP ASSY. PART No. 3-20026, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-8727 & (14) #6 SPLIT WASHERS PART No. 8-8750
PRESELECTOR No. 3-12480, MTD. TO MT. BRACKET PART No. 1-20381 WITH (3) 4 - 40 x 1/4" P.H.M.S. No. 8-7370 & THEN MTD. TO PANEL WITH (5) 6 - 32 x 3/8" B.H.M.S. PART No. 8-8001
CARD CAGE SUB-ASSY PART No. 3-21182, MTD WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-18492 & (14) #6 SPLIT WASHER PART No. 8-8750 *SEE DETAIL 'D' ON PAGE 2
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-8589 & (2) #10 SPLIT WASHER PART No. 8-8163 *SEE DETAIL 'E' ON PAGE 2
TEE CONNECTOR PART No. 8-8855 2 - PLACES
*SEE DETAIL 'C' ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
UpLink In DownLink Out
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
AC In
EMI/RFI FILTER PART No. 8-20941, MTD. WITH (2) 6 - 32 x 3/8" T.H.M.S. No. 8-18254 & (2) 8 - 32 KEPNUTS PART No. 8-8017 *SEE DETAIL 'F' ON PAGE 2
CAPACITIVE FILTER PART No. 3-20988, MTD. WITH (1) 4 - 40 x 1/4" P.H.M.S. No. 8-7340 *SEE DETAIL 'A' ON PAGE 2
STRAIN RELIEF No. 8-23111
2-POSITION TERMINAL STRIP No. 8-19999, MTD WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
6-POSITION TERMINAL STRIP No. 8-20000, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-8721
FLAT WASHER PART No. 1-2743 2 - PLACES
LOCKWASHER PART No. 8-8791 2 - PLACES
DownLink In UpLink Out
4-WAY BACKED MT. PART No. 8-8322 WITH WIRE TIE PART No. 8-8112
GROUNDING STRAP No. 8-20120 TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE *SEE DETAIL 'B' ON PAGE 2
POWER SUPPLY MODULE PART No. 3-20073, MTD. TO MT. BRACKET No. 1-20373 WITH (3) M4 x 8mm P.H.M.S. No. 8-18530 & THEN MTD. TO PANEL WITH (2) 6 - 32 x 3/8" P.H.M.S. No. 8-18492 & (2) #6 SPLIT WASHERS No. 8-8750
SAMPLER ASSY. PART No. 3-3060 2 - PLACES
800-900 MHz ISOLATOR No. 8-20113 2 - PLACES, EA. MTD. TO BRACKET No. 1-20086 WITH (2) m2.4 x 6mm P.H.M.S. No. 8-20210 & THEN MTD. TO PANEL WITH (3) 4 - 40 x 3/16" P.H.M.S. No. 8-8154
LOW GAIN AMP PART No. 3-20254
LOW LEVEL AMP PART No. 3-19575
FACEPLATE ASS'Y PART No. 3-19804
Red & Black Wires
See Detail 'E' on Page 2
Input
Output
Blue
Brown
Black
Red
Green/Yellow
3-20544
3-20543
3-20578
3-20551
3-20035
3-20037
3-20038
3-20004
3-19980
3-19981
3-19961
3-20669
3-0483
3-0806
3-15515
3-20588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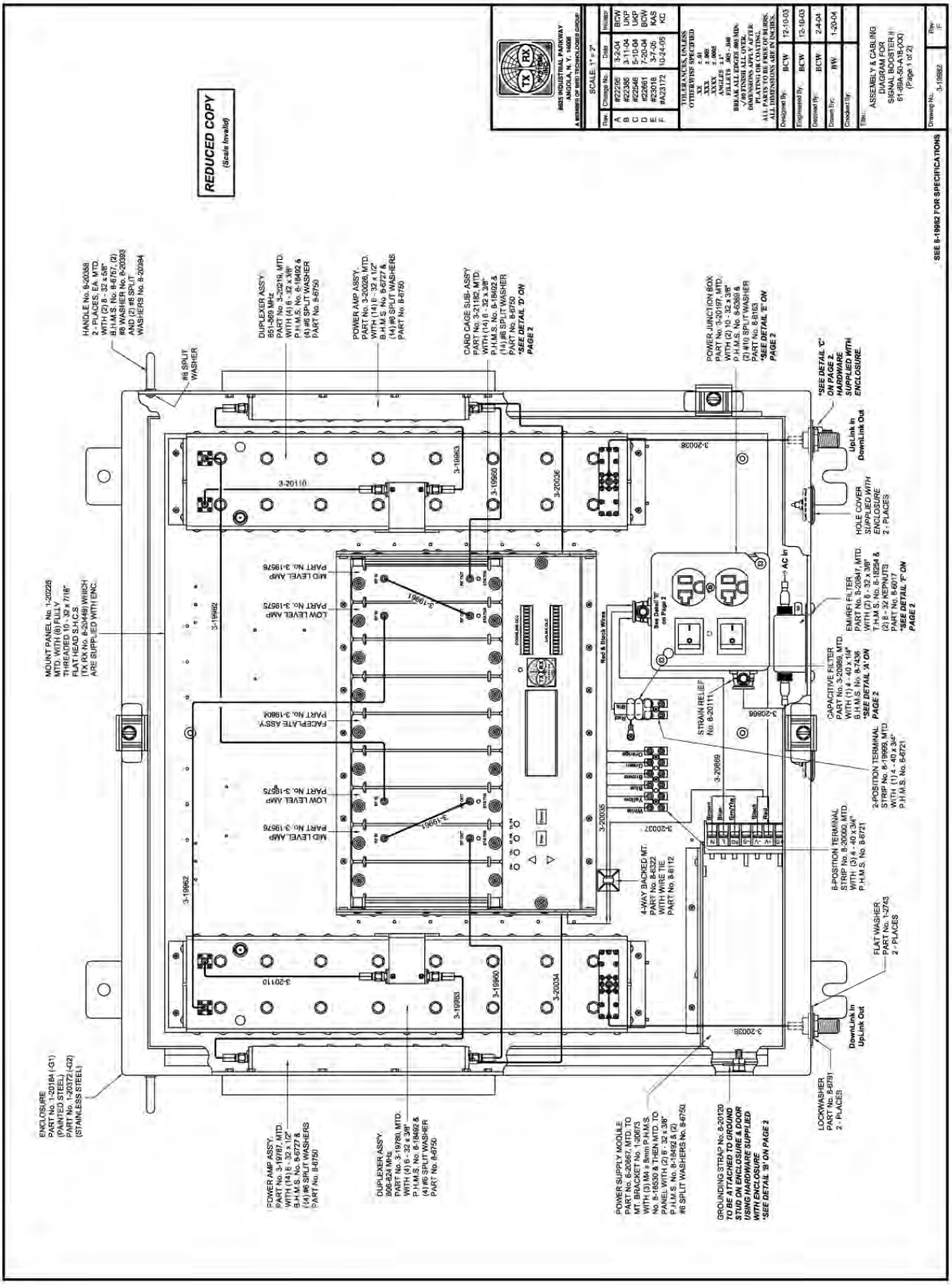
SEE 5-20468 FOR SPECIFICATIONS
SCALE: 1" = 2"
ASSEMBLY & CABLING
SIGNAL BOOSTER I
81-884-50-C15-(XX)
(Page 1 of 2)
ENCLOSURE
MOUNT PANEL
POWER SUPPLY MODULE
POWER AMP ASSY.
PRESELECTOR
ATTENUATOR
FACEPLATE ASSY.
MID LEVEL AMP
SAMPLER ASSY
CAPACITIVE FILTER
EMI/RFI FILTER
POWER JUNCTION BOX
CARD CAGE SUB-ASSY
HANDLE
#6 SPLIT WASHER
TEE CONNECTOR
STRAIN RELIEF
HOLE COVER
UpLink In
DownLink Out
AC In
LOCKWASHER
FLAT WASHER
GROUNDING STRAP
4-WAY BACKED MT.
6-POSITION TERMINAL
2-POSITION TERMINAL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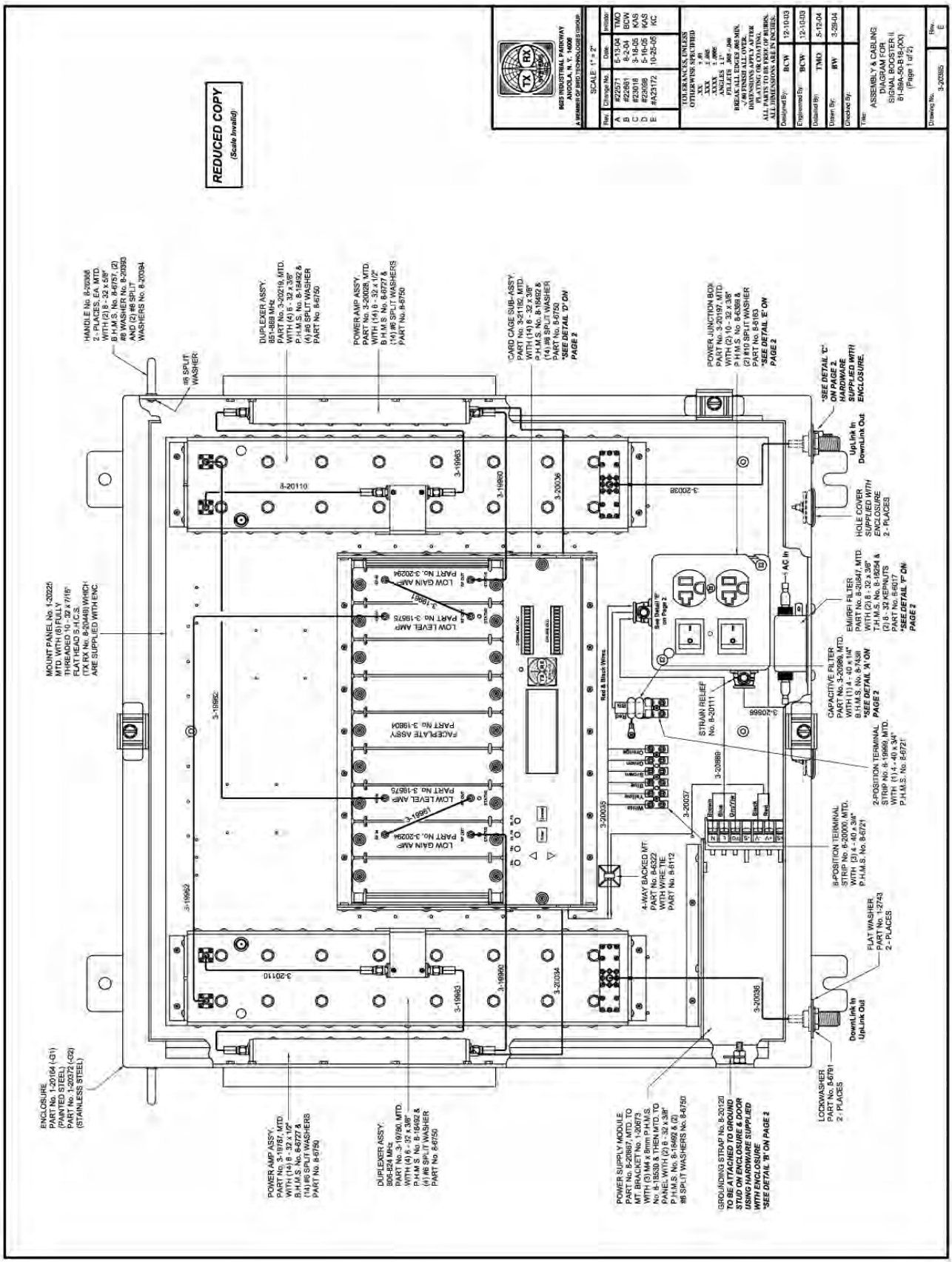
TX RX
SYSTEMS INC.
8625 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A DIVISION OF BIRD TECHNOLOGIES GROUP
SCALE: 1" = 2"
Rev. Change No. Date Initials
A #22286 3-2-04 BCW
B #22386 3-11-04 UKP
C #22546 5-5-04 UKP
D #22661 7-20-04 BCW
E #23018 3-7-05 KAS
F. #A23172 10-24-05 KC
TOLERANCES, UNLESS OTHERWISE SPECIFIED
X ± .06
XX ± .030
XXX ± .0060
ANGLES ± 1°
FINISH ALL OVER 125 -.040
BREAK ALL EDGES .005 MIN. .010 MAX.
DIMENSIONS ARE AFTER PLATING OR COATING.
ALL PARTS TO BE FREE OF BURRS.
ALL DIMENSIONS ARE IN INCHES.
Designed By: BCW 12-10-03
Engineered By: BCW 12-10-03
Drawn By: BCW 2-4-04
Checked By: RW 1-20-04
Title: ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER II 61-89A-50-A18-(XX) (Page 1 of 2)
Drawing No. 3-19982
File:
SEE 5-19982 FOR SPECIFICATIONS
HANDLE No. 9-20358 2 - PLACES, EA. MTD. WITH (2) 8 - 32 x 5/8" B.H.M.S. No. 8-6767, (2) #8 WASHER No. 8-20393 AND (2) #8 - 32 SPLIT WASHERS No. 8-20394
#6 SPLIT WASHER
DUPLEXER ASSY. 851-869 MHz PART No. 3-20219, MTD. WITH (4) 6 - 32 x 3/8" P.H.M.S. No. 8-19492 & (4) #6 SPLIT WASHER PART No. 8-6750
POWER AMP ASSY. PART No. 3-20026, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-6750
CARD CAGE SUB-ASSY PART No. 3-21182, MTD. WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-19492 & (14) #6 SPLIT WASHER PART No. 8-6750 *SEE DETAIL 'D' ON PAGE 2
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-6388 & (2) #10 SPLIT WASHER PART No. 8-8163 *SEE DETAIL 'E' ON PAGE 2
*SEE DETAIL 'C' ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
UpLink In
DownLink Out
3-20038
3-20036
3-19963
3-19960
3-20110
MOUNT PANEL No. 1-20226 MTD. WITH (10) 10 - 32 x 7/16" THREADED, 10° - 32 x 7/16" FLAT HEAD S.H.C.S. (TX RX No. 8-20448) WHICH ARE SUPPLIED WITH ENC.
3-19962
MID LEVEL AMP PART No. 3-19576
LOW LEVEL AMP PART No. 3-19575
FACEPLATE ASS'Y. PART No. 3-19804
LOW LEVEL AMP PART No. 3-19575
MID LEVEL AMP PART No. 3-19576
3-19961
3-19957
3-19959
3-19958
Red & Black Wire
See Detail 'E' on Page 2
AC In
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
EMI/RFI FILTER PART No. 5-20841, MTD. WITH (2) 6 - 32 x 3/8" T.H.M.S. No. 8-18284 & (2) 8 - 32 KEPNUTS PART No. 8-6017 *SEE DETAIL 'F' ON PAGE 2
STRAIN RELIEF No. 8-20111
CAPACITIVE FILTER PART No. 3-20869, MTD. WITH (1) 4 - 40 x 1/4" S.H.M.S. No. 8-1436 *SEE DETAIL 'A' ON PAGE 2
3-20866
3-20869
2-POSITION TERMINAL STRIP No. 8-19999, MTD. WITH (1) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
3-20037
3-20035
Orange
Brown
Red
Yellow
Green
Blue
Violet
Gray
White
Brown
Black
Red
Green/Yellow
Black
4-WAY BACKED MT. PART No. 8-6323 WITH WIRE TIE PART No. 8-6112
8-POSITION TERMINAL STRIP No. 8-20060, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
FLAT WASHER PART No. 1-2743 2 - PLACES
LOCKWASHER PART No. 8-6791 2 - PLACES
DownLink In
UpLink Out
ENCLOSURE PART No. 1-20184 (-01) (PAINTED STEEL) PART No. 1-20372 (-02) (STAINLESS STEEL)
POWER AMP ASSY. PART No. 3-19781, MTD. WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-6750
DUPLEXER ASSY. 806-824 MHz PART No. 3-19780, MTD. WITH (4) 6 - 32 x 3/8" P.H.M.S. No. 8-19492 & (4) #6 SPLIT WASHER PART No. 8-6750
GROUNDING STRAP No. 8-20120 TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE *SEE DETAIL 'B' ON PAGE 2
POWER SUPPLY MODULE PART No. 8-20667, MTD. TO MT. BRACKET No. 1-20673 WITH (4) 6 - 32 x 3/8" P.H.M.S. No. 8-19530 & THEN MTD. TO PANEL WITH (2) 6 - 32 x 3/8" P.H.M.S. No. 8-19492 & (2) #6 SPLIT WASHERS No. 8-6750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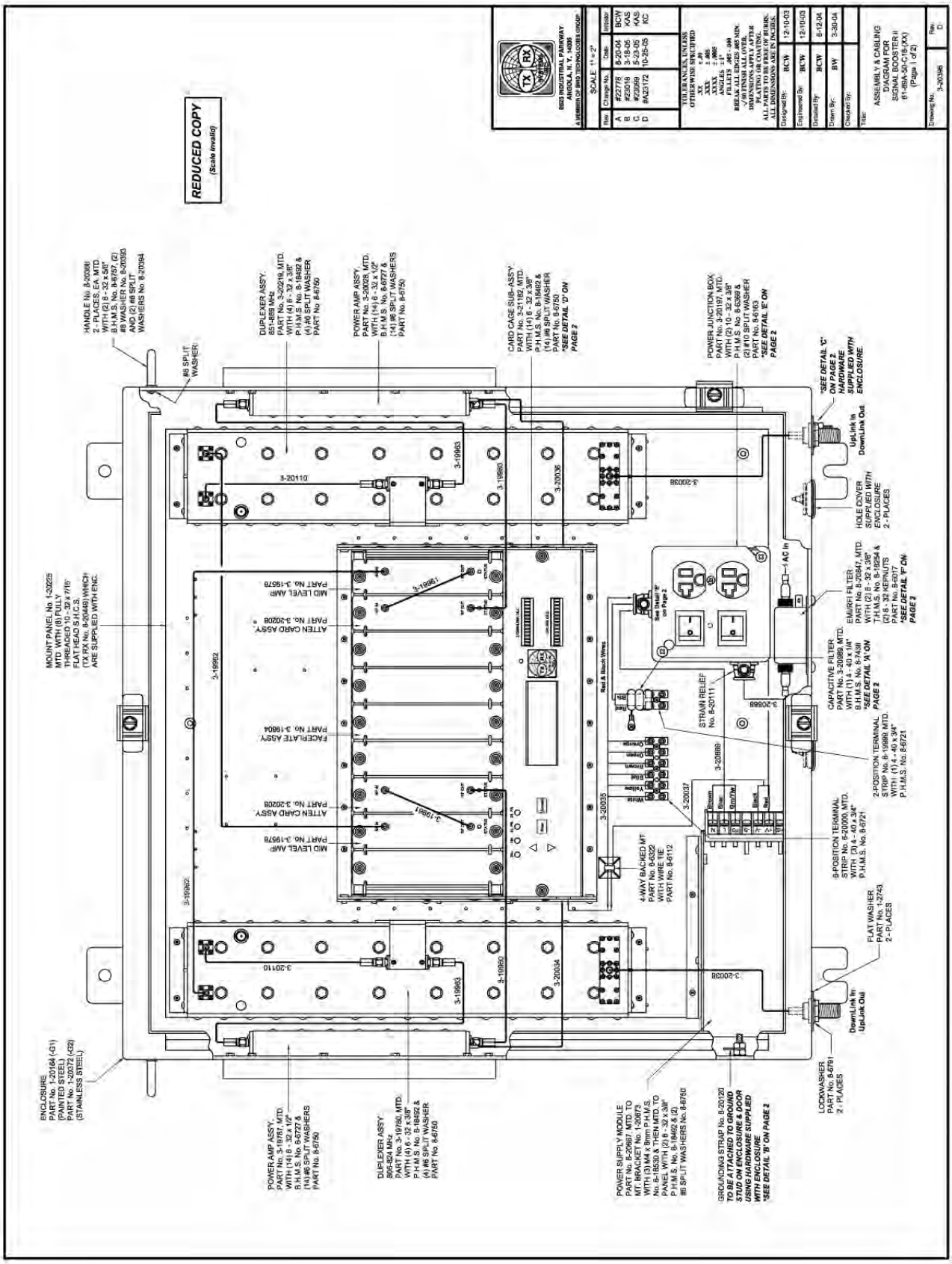
TX RX
TXRX SYSTEMS INC.
8800 INDUSTRIAL PARKWAY
ANGOLA, NEW YORK 14006
A MEMBER OF BIRD TECHNOLOGIES GROUP
SCALE: 1" = 2"
Rev. Change No. Date: Initials:
A #22571 5-13-04 TMO
B #22661 6-2-04 BCW
C #23018 9-16-05 KAS
D #23088 5-16-06 KAS
E #A23172 10-05-06 KC
UNLESS OTHERWISE SPECIFIED
XX ±.01
XXX ±.005
ANGLES ±1°
FILLETS .060 - .090
BREAK ALL SHARP EDGES MAXIMUM .010 RADIUS
DIMENSIONS APPLY AFTER PLATING OR COATING
ALL PLATING OR COATING MUST BE FREE OF LUMPS AND BUBBLES
ALL DIMENSIONS ARE IN INCHES.
Designed By: BCW 12-10-03
Engineered By: BCW 12-10-03
Detailed By: TMD 5-12-04
Drawn By: BW 3-29-04
Checked By:
Title:
ASSEMBLY & CABLING
DIAGRAM FOR
SIGNAL PROCESSOR II
81-9BA-50-B1B-(XX)
(Page 1 of 2)
Drawing No. 3-20365
Rev. E
HANDLE No. 8-20306
2 - PLACES, EA. MTD.
WITH (2) 8 - 32 x 5/8"
FLAT HEAD S.H.C.S.
P.H.M.S. No. 8-6727 (2)
#8 WASHER No. 8-20939
AND (2) #8 SPLIT
WASHERS No. 8-20394
#8 SPLIT
WASHER
DUPLEXER ASSY.
851-868 MHz
PART No. 3-20219, MTD.
WITH (4) 8 - 32 x 7/8"
P.H.M.S. No. 8-15492 &
(4) #8 SPLIT WASHER
PART No. 8-6750
POWER AMP ASSY.
PART No. 3-20028, MTD.
WITH (14) 8 - 32 x 1/2"
P.H.M.S. No. 8-6727 &
(14) #8 SPLIT WASHERS
PART No. 8-6750
CARD CAGE SUB-ASSY.
PART No. 3-21192, MTD.
WITH (14) 8 - 32 x 3/8"
P.H.M.S. No. 8-15492 &
(14) #8 SPLIT WASHER
PART No. 8-6750
SEE DETAIL 'D' ON PAGE 2
POWER JUNCTION BOX
PART No. 3-20197, MTD.
WITH (2) 10 - 32 x 3/8"
P.H.M.S. No. 8-6389 &
(2) #10 SPLIT WASHER
PART No. 8-6163
SEE DETAIL 'E' ON PAGE 2
SEE DETAIL 'C' ON PAGE 2
HARDWARE SUPPLIED WITH ENCLOSURE.
Up/Link In
Down/Link Out
HOLE COVER
SUPPLIED WITH ENCLOSURE
2 - PLACES
MOUNT PANEL No. 1-20226
MTD. WITH (8) FULLY
THREADED 10 - 32 x 7/16"
FLAT HEAD S.H.C.S.
(TX RX No. 8-20448) WHICH
ARE SUPPLIED WITH ENC.
LOW GAIN AMP
PART No. 3-20294
LOW LEVEL AMP
PART No. 3-19575
FACEPLATE ASSY
PART No. 3-19804
LOW LEVEL AMP
PART No. 3-19575
LOW GAIN AMP
PART No. 3-20294
Red & Black Wires
Red Detail 'F' on Page 2
AC In
EMI/RFI FILTER
PART No. 8-21647, MTD.
WITH (2) 8 - 32 x 3/8"
T.H.M.S. No. 8-19254 &
(2) 8 - 32 KEPNUTS
PART No. 8-6017
SEE DETAIL 'F' ON PAGE 2
CAPACITIVE FILTER
PART No. 3-20084, MTD.
WITH (1) 4 - 40 x 1/4"
B.H.M.S. No. 8-7438
SEE DETAIL 'A' ON PAGE 2
STRAIN RELIEF
No. 8-20111
2-POSITION TERMINAL
STRIP No. 8-19999, MTD.
WITH (1) 4 - 40 x 3/4"
P.H.M.S. No. 8-6721
8-POSITION TERMINAL
STRIP No. 8-20000, MTD.
WITH (3) 4 - 40 x 3/4"
P.H.M.S. No. 8-6721
4-WAY BACKED MT.
PART No. 8-6220
WITH WIRE TIE
PART No. 8-6112
Brown
Blue
Grn/Ylw
Black
Red
FLAT WASHER
PART No. 1-2743
2 - PLACES
LOCKWASHER
PART No. 8-6781
2 - PLACES
DownLink In
UpLink Out
ENCLOSURE
PART No. 1-20164 (-031)
(PAINTED STEEL)
PART No. 1-20372 (-022)
(STAINLESS STEEL)
POWER AMP ASSY.
PART No. 3-19787, MTD.
WITH (14) 8 - 32 x 1/2"
B.H.M.S. No. 8-6727 &
(14) #8 SPLIT WASHERS
PART No. 8-6750
DUPLEXER ASSY.
806-824 MHz
PART No. 3-19780, MTD.
WITH (4) 8 - 32 x 3/8"
P.H.M.S. No. 8-15492 &
(4) #8 SPLIT WASHER
PART No. 8-6750
POWER SUPPLY MODULE
PART No. 8-20867, MTD. TO
MT. BRACKET No. 1-20873
WITH (3) M4 x 8mm P.H.M.S.
No. 8-19539 & THEN MTD. TO
PANEL WITH (2) 8 - 32 x 3/8"
P.H.M.S. No. 8-6727 &
#8 SPLIT WASHERS No. 8-6750
GROUNDING STRAP No. 8-20120
TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH EACH PIECE
SEE DETAIL 'B' ON PAGE 2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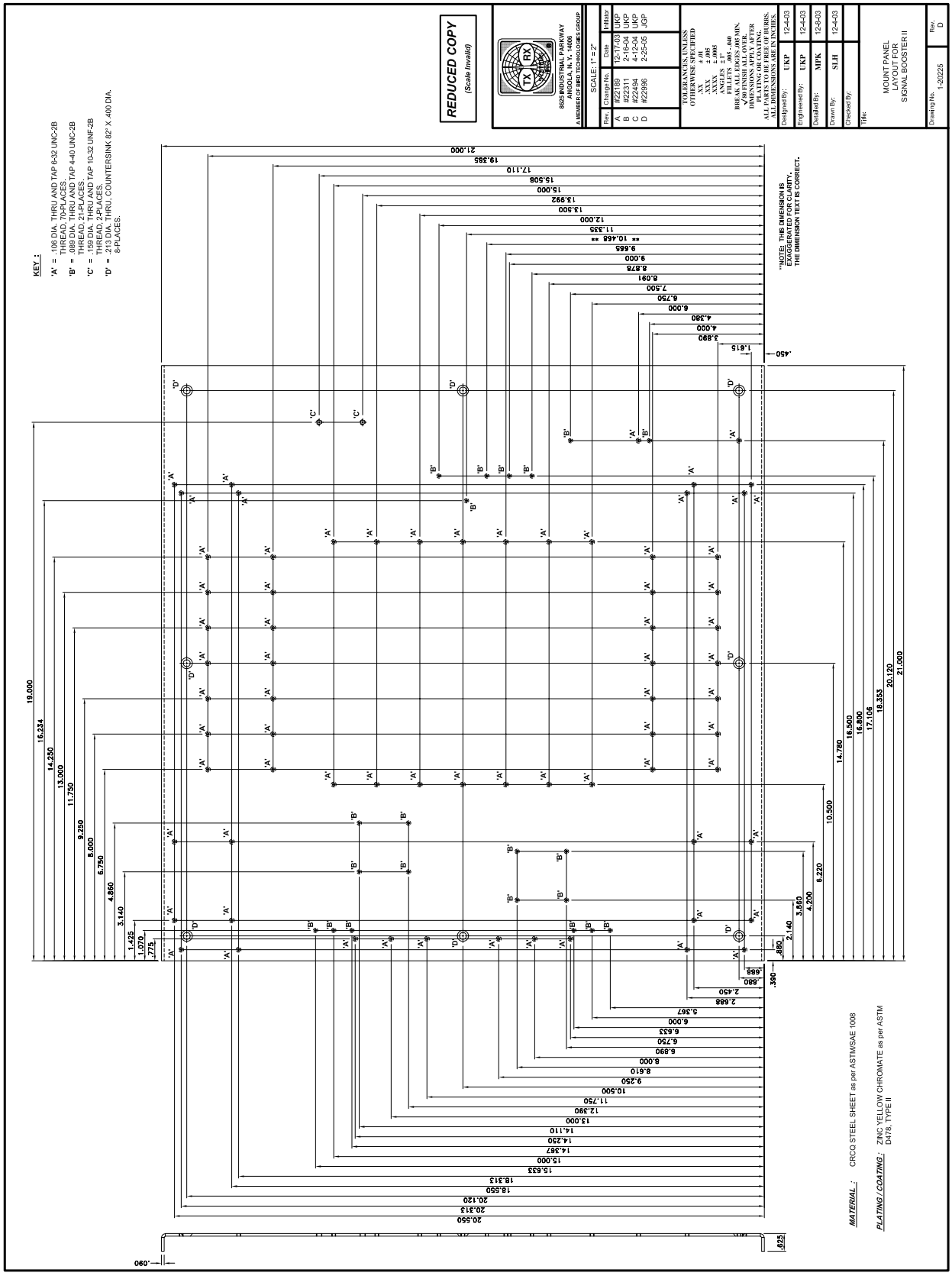
TX RX SYSTEMS INC.
8825 INDUSTRIAL PARKWAY
ANGOLA, N. Y. 14006
A DIVISION OF BIRD TECHNOLOGIES GROUP
SCALE 1" = 2"
Rev | Change No. | Date | Initials
A | #23778 | 8-20-04 | BCW
B | #23019 | 3-18-05 | KAS
C | #23099 | 5-23-05 | KAS
D | #A23172 | 10-25-05 | KC
TOLERANCES, UNLESS OTHERWISE SPECIFIED
XX ±.01
XXX ±.005
ANGLES ±1°
FILLETS .005 - .010
BREAK ALL EDGES .005 MIN.
MATERIAL: ALUMINUM
DIMENSIONS APPLY AFTER PLATING OR COATING
ALL PART NUMBERS ARE IN BOLD FACE
ALL DIMENSIONS ARE IN INCHES.
Designed By: BCW | 12-10-03
Engineered By: BCW | 12-10-03
Detailed By: BCW | 8-12-04
Drawn By: BW | 3-30-04
Checked By:
Title: ASSEMBLY & CABLING DIAGRAM FOR SIGNAL BOOSTER II 61-854A-50-C15-(XX) (Page 1 of 2)
Drawing No. 3-20395 | Rev. D
HANDLE No. 8-20999, 2 - PLACES, EA MTD WITH (2) 8 - 32 x 5/8" B.H.M.S. No. 8-8757, (2) #8 WASHER No. 8-20993 AND (2) #8 SPLIT WASHERS No. 8-20994
#8 SPLIT WASHER
DUPLEXER ASSY. 851-869 MHz PART No. 3-20219, MTD. WITH (4) 6 - 32 x 3/8" P.H.M.S. No. 8-18492 & (4) #6 SPLIT WASHER PART No. 8-6750
POWER AMP ASSY. PART No. 3-20028, MTD. WITH (14) 8 - 32 x 1/2" B.H.M.S. No. 8-6777 & (14) #6 SPLIT WASHERS PART No. 8-6750
CARD CAGE SUB-ASSY. PART No. 3-21182, MTD. WITH (14) 6 - 32 x 3/8" P.H.M.S. No. 8-18492 & (14) #6 SPLIT WASHER PART No. 8-6750 *SEE DETAIL 'D' ON PAGE 2*
POWER JUNCTION BOX PART No. 3-20197, MTD. WITH (2) 10 - 32 x 3/8" P.H.M.S. No. 8-6369 & (2) #10 SPLIT WASHER PART No. 8-6759 *SEE DETAIL 'E' ON PAGE 2*
SEE DETAIL 'C' ON PAGE 2. HARDWARE SUPPLIED WITH ENCLOSURE.
UpLink In
DownLink Out
HOLE COVER SUPPLIED WITH ENCLOSURE 2 - PLACES
MOUNT PANEL No. 1-20225 MTD WITH (8) FULLY THREADED 10 - 32 x 7/16" FLAT HEAD S.H.C.S. (TX RX SYSTEMS PART NUMBER) ARE SUPPLIED WITH ENC.
3-19992
3-19982
3-19983
3-19980
3-20110
3-20036
3-20038
3-20034
3-20035
3-20037
3-20888
3-20668
MID LEVEL AMP PART No. 3-19578
ATTEN CARD ASSY. PART No. 3-20208
FACEPLATE ASSY. PART No. 3-19804
ATTEN CARD ASSY. PART No. 3-20208
MID LEVEL AMP PART No. 3-19578
Red & Black Wires
See Detail 'F' on Page 2
4 AC In
EMI/RFI FILTER PART No. 8-20847, MTD. WITH (2) 8 - 32 x 3/8" T.H.M.S. No. 8-18254 & (2) 8 - 32 KEPNUTS PART No. 8-6017 *SEE DETAIL 'F' ON PAGE 2*
STRAIN RELIEF No. 8-20111
CAPACITIVE FILTER PART No. 3-20869, MTD. WITH (1) 4 - 40 x 1/4" B.H.M.S. No. 8-7438 *SEE DETAIL 'A' ON PAGE 2*
2-POSITION TERMINAL STRIP No. 8-19998, MTD. WITH: (1) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
6-POSITION TERMINAL STRIP No. 8-20000, MTD. WITH (3) 4 - 40 x 3/4" P.H.M.S. No. 8-6721
4 WAY BACKED MT. PART No. 8-6322 WITH 4 WIRES PART No. 8-6112
FLAT WASHER PART No. 1-2743 2 - PLACES
LOCKWASHER PART No. 8-6791 2 - PLACES
Down/Link In
UpLink Out
ENCLOSURE PART No. 1-20164 (-G1) (PAINTED STEEL) PART No. 1-20372 (-G2) (STAINLESS STEEL)
POWER AMP ASSY. PART No. 3-19787, MTD WITH (14) 6 - 32 x 1/2" B.H.M.S. No. 8-6727 & (14) #6 SPLIT WASHERS PART No. 8-6750
DUPLEXER ASSY. 806-824 MHz PART No. 3-19780, MTD. WITH (4) 6 - 32 x 3/8" P.H.M.S. No. B-18492 & (4) #6 SPLIT WASHER PART No. 8-6750
POWER SUPPLY MODULE PART No. 5-20867, MTD. TO MT. BRACKET No. 1-20873 WITH (3) M4 x 8mm P.H.M.S. No. 8-18530 & THEN MTD. TO PANEL WITH (2) 8 - 32 x 3/8" P.H.M.S. No. 8-18492 & (2) #8 SPLIT WASHERS No. 8-6750
GROUNDING STRAP No. 8-20120 *TO BE ATTACHED TO GROUND STUD ON ENCLOSURE & DOOR USING HARDWARE SUPPLIED WITH ENCLOSURE. SEE DETAIL 'B' ON PAGE 2*


KEY :
'A' = .106 DIA. THRU AND TAP 6-32 UNC-2B THREAD, 70-PLACES.
'B' = .089 DIA. THRU AND TAP 4-40 UNC-2B THREAD, 21-PLACES.
'C' = .159 DIA. THRU AND TAP 10-32 UNF-2B THREAD, 2-PLACES.
'D' = .213 DIA. THRU, COUNTERSINK 82° X .400 DIA. 8-PLACES.
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TX RX
8625 INDUSTRIAL PARKWAY
ANGOLA, N.Y. 14006
A MEMBER OF BIRO TECHNOLOGIES GROUP
SCALE: 1" = 2"
Rev. Change No. Date Initials
A #22169 12-17-03 UKP
B #22211 2-24-04 UKP
C #22494 4-12-04 UKP
D #22996 2-25-05 JGP
TOLERANCES, UNLESS OTHERWISE SPECIFIED
X ± .01
XX ± .005
XXX ± .005
XXXX ± .0005
ANGLES ± 1°
FILLETS .005 - .040
BREAK ALL EDGES .005 MIN. .040 MAX. (.010 TYP.)
DIMENSIONS APPLY AFTER PLATING OR COATING.
ALL DIMENSIONS ARE IN INCHES.
ALL DIMENSIONS ARE IN INCHES.
Designed By: UKP 12-4-03
Engineered By: UKP 12-4-03
Detailed By: MPK 12-4-03
Drawn By: SLH 12-4-03
Checked By:
Title: MOUNT PANEL LAYOUT FOR SIGNAL BOOSTER II
Drawing No. 1-20225
Rev: D
**NOTE: THIS DIMENSION IS EXAGGERATED FOR CLARITY. THE DIMENSION TEXT IS CORRECT.
MATERIAL : CRCQ STEEL SHEET as per ASTM/SAE 1008
PLATING / COATING : ZINC YELLOW CHROMATE as per ASTM D478, TYPE II

Power Ratio and Voltage Ratio to Decibel Conversion Chart

Loss or Gain	Power Ratio	Voltage Ratio
+9.1 dB	8.128	2.851
-9.1 dB	0.123	0.351

← - dB + →

Voltage Ratio	Power Ratio	dB	Voltage Ratio	Power Ratio
1	1	0	1	1
0.989	0.977	0.1	1.012	1.023
0.977	0.955	0.2	1.023	1.047
0.966	0.933	0.3	1.035	1.072
0.955	0.912	0.4	1.047	1.096
0.944	0.891	0.5	1.059	1.122
0.933	0.871	0.6	1.072	1.148
0.923	0.851	0.7	1.084	1.175
0.912	0.832	0.8	1.096	1.202
0.902	0.813	0.9	1.109	1.23
0.891	0.794	1	1.122	1.259
0.881	0.776	1.1	1.135	1.288
0.871	0.759	1.2	1.148	1.318
0.861	0.741	1.3	1.161	1.349
0.851	0.724	1.4	1.175	1.38
0.841	0.708	1.5	1.189	1.413
0.832	0.692	1.6	1.202	1.445
0.822	0.676	1.7	1.216	1.479
0.813	0.661	1.8	1.23	1.514
0.804	0.646	1.9	1.245	1.549
0.794	0.631	2	1.259	1.585
0.785	0.617	2.1	1.274	1.622
0.776	0.603	2.2	1.288	1.66
0.767	0.589	2.3	1.303	1.698
0.759	0.575	2.4	1.318	1.738
0.75	0.562	2.5	1.334	1.778
0.741	0.55	2.6	1.349	1.82
0.733	0.537	2.7	1.365	1.862
0.724	0.525	2.8	1.38	1.905
0.716	0.513	2.9	1.396	1.95
0.708	0.501	3	1.413	1.995
0.7	0.49	3.1	1.429	2.042
0.692	0.479	3.2	1.445	2.089
0.684	0.468	3.3	1.462	2.138
0.676	0.457	3.4	1.479	2.188
0.668	0.447	3.5	1.496	2.239
0.661	0.437	3.6	1.514	2.291
0.653	0.427	3.7	1.531	2.344
0.646	0.417	3.8	1.549	2.399
0.638	0.407	3.9	1.567	2.455
0.631	0.398	4	1.585	2.512
0.624	0.389	4.1	1.603	2.57
0.617	0.38	4.2	1.622	2.63
0.61	0.372	4.3	1.641	2.692
0.603	0.363	4.4	1.66	2.754
0.596	0.355	4.5	1.679	2.818
0.589	0.347	4.6	1.698	2.884
0.582	0.339	4.7	1.718	2.951
0.575	0.331	4.8	1.738	3.02
0.569	0.324	4.9	1.758	3.09

← - dB + →

Voltage Ratio	Power Ratio	dB	Voltage Ratio	Power Ratio
0.562	0.316	5	1.778	3.162
0.556	0.309	5.1	1.799	3.236
0.55	0.302	5.2	1.82	3.311
0.543	0.295	5.3	1.841	3.388
0.537	0.288	5.4	1.862	3.467
0.531	0.282	5.5	1.884	3.548
0.525	0.275	5.6	1.905	3.631
0.519	0.269	5.7	1.928	3.715
0.513	0.263	5.8	1.95	3.802
0.507	0.257	5.9	1.972	3.89
0.501	0.251	6	1.995	3.981
0.496	0.246	6.1	2.018	4.074
0.49	0.24	6.2	2.042	4.169
0.484	0.234	6.3	2.065	4.266
0.479	0.229	6.4	2.089	4.365
0.473	0.224	6.5	2.113	4.467
0.468	0.219	6.6	2.138	4.571
0.462	0.214	6.7	2.163	4.677
0.457	0.209	6.8	2.188	4.786
0.452	0.204	6.9	2.213	4.898
0.447	0.2	7	2.239	5.012
0.442	0.195	7.1	2.265	5.129
0.437	0.191	7.2	2.291	5.248
0.432	0.186	7.3	2.317	5.37
0.427	0.182	7.4	2.344	5.495
0.422	0.178	7.5	2.371	5.623
0.417	0.174	7.6	2.399	5.754
0.412	0.17	7.7	2.427	5.888
0.407	0.166	7.8	2.455	6.026
0.403	0.162	7.9	2.483	6.166
0.398	0.159	8	2.512	6.31
0.394	0.155	8.1	2.541	6.457
0.389	0.151	8.2	2.57	6.607
0.385	0.148	8.3	2.6	6.761
0.38	0.145	8.4	2.63	6.918
0.376	0.141	8.5	2.661	7.079
0.372	0.138	8.6	2.692	7.244
0.367	0.135	8.7	2.723	7.413
0.363	0.132	8.8	2.754	7.586
0.359	0.129	8.9	2.786	7.762
0.355	0.126	9	2.818	7.943
0.351	0.123	9.1	2.851	8.128
0.347	0.12	9.2	2.884	8.318
0.343	0.118	9.3	2.917	8.511
0.339	0.115	9.4	2.951	8.71
0.335	0.112	9.5	2.985	8.913
0.331	0.11	9.6	3.02	9.12
0.327	0.107	9.7	3.055	9.333
0.324	0.105	9.8	3.09	9.55
0.32	0.102	9.9	3.126	9.772

Return Loss vs. VSWR

Return Loss	VSWR
30	1.06
25	1.11
20	1.20
19	1.25
18	1.28
17	1.33
16	1.37
15	1.43
14	1.50
13	1.57
12	1.67
11	1.78
10	1.92
9	2.10

Watts to dBm

Watts	dBm
300	54.8
250	54.0
200	53.0
150	51.8
100	50.0
75	48.8
50	47.0
25	44.0
20	43.0
15	41.8
10	40.0
5	37.0
4	36.0
3	34.8
2	33.0
1	30.0

dBm = 10log P/1mW
Where P = power (Watt)

Insertion Loss

Input Power (Watts)

Insertion Loss	50	75	100	125	150	200	250	300
3	25	38	50	63	75	100	125	150
2.5	28	42	56	70	84	112	141	169
2	32	47	63	79	95	126	158	189
1.5	35	53	71	88	106	142	177	212
1	40	60	79	99	119	159	199	238
.5	45	67	89	111	134	178	223	267

Output Power (Watts)

Free Space Loss

Distance (miles)

Frequency (MHz)	.25	.50	.75	1	2	5	10	15
150	68	74	78	80	86	94	100	104
220	71	77	81	83	89	97	103	107
460	78	84	87	90	96	104	110	113
860	83	89	93	95	101	109	115	119
940	84	90	94	96	102	110	116	120
1920	90	96	100	102	108	116	122	126

Free Space Loss (dB)
Free space loss = 36.6 + 20log D + 20log F
Where D = distance in miles and F = frequency in MHz

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