



COMMUNICATIONS INTERNATIONAL, INC.

Rev 2.0 6/6/04

If you have determined that the White module (U2 (STM901-30) driving the Final PA has failed...

MARKII kit contains the following:

1	1ea	PA assembly board
2	1ea	Aluminum Spacer w/ four holes
3	4ea	3/16 #4/40 screws (for Q2 on MARK II)
4	2ea	1/2" #4 metric torq screws (for fastening Mark II Board & Spacer)
5	1ea	FCC Label for placement on exterior of PA housing

Please see [B3521R3A.pdf](#) or [19D902757G5](#) Mastr III PA schematic for the proper installation of this replacement module.

The fan kit 188D6127G1 assembly supplied from MA/Com is required for this module for warranty to be valid. The PA will exceed heat tolerance & fail without this fan kit.

Disconnect ALL power & control cable from the Mastr III Power Supply

Remove U2 (STM901-30) from Power Amplifier Board A1...being careful to not damage the lands on the remaining board.

Disconnect P101 from J101. (the small gold connector from the BNC input from the MIII exciter)
This aids in the installation of the MARK II module.

Apply heat sink compound "sparingly" to the bottom of the Aluminum Spacer Plate of the MARKII RF board. It has been proven that less is better with regards to heat sink compound. Apply only a slight amount, but sufficient to cover the surface.

Align spacer plate so both holes in the circuit board of the MARK II module align for mounting. Slowly screw down each side until snug (No more than 1ft/lbs torque).

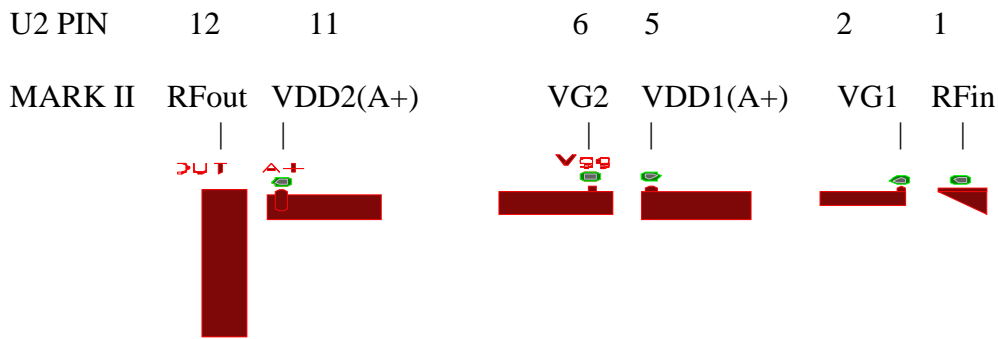
Place spacer & Module into position where the U2 (STM901-30) module was previously. Mount assembly using the 4 ea. #4-40 screws. Secure all screws snug (No more than 1ft/lbs torque).

Insert the module under the small hard-line coax P 101 into position & mount using all 4 screws.

Be certain no excessive heat sink compound is across any connections

Solder the 5 connections from the MARK II module to the pins on the Power Amp using proper RF practice. Stripped Cat5 cable lead cut to about 400 mils can be used to make your leads.

Use the following U2 pin connections with the MARKKII PA.



It is suggested to make your pin leads bent on a 45 degree angle and soldered in the following manner making sure leads which protrude off board do not touch its own ground plane.

Ex.



After inspecting that all leads are secure and all flux, etc. is cleaned off board, you are now ready for testing.

Reconnect P101 to J101

Turn R1, R2, R3, R4, R204, and R48 fully counterclockwise (down approx 20 turns)
(R2, & R3 will now have no effect)

With all power & control cables disconnected & digital ohmmeter negative on ground:

Connect 28VDC supply only (no control or drive cables)

Turn 28VDC supply on (*do not transmit yet*)

Set Digital power PA pot on Mastr III at **97**

Shut off Power Supply & connect all cables from PA to Mastr III

Turn Supply back on

Adjust R48 while monitoring base of Q5 (the Final) to **.675** VDC

Now apply PTT (Transmit) (Note: RF Power level is low... This is normal at this point of procedure!)
While monitoring TP1, you should not have any control voltage.

While PTT is on, slowly adjust R204 clockwise until a voltage appears on TP1 (about 0.200 VDC).
Now, you have activated the knee voltage on the 22Volt regulator switch. This is needed to bias up the transistors with small signal conditions to settle in without a load, since LDMOS is very sensitive to break in voltage.

Adjust R1 **slowly (over at least a 20 second period)** to **4.7VDC** (approx 10 turns)

Adjust R4 **slowly (over at least a 20 second period)** to **4.8VDC** (approx 10 turns)

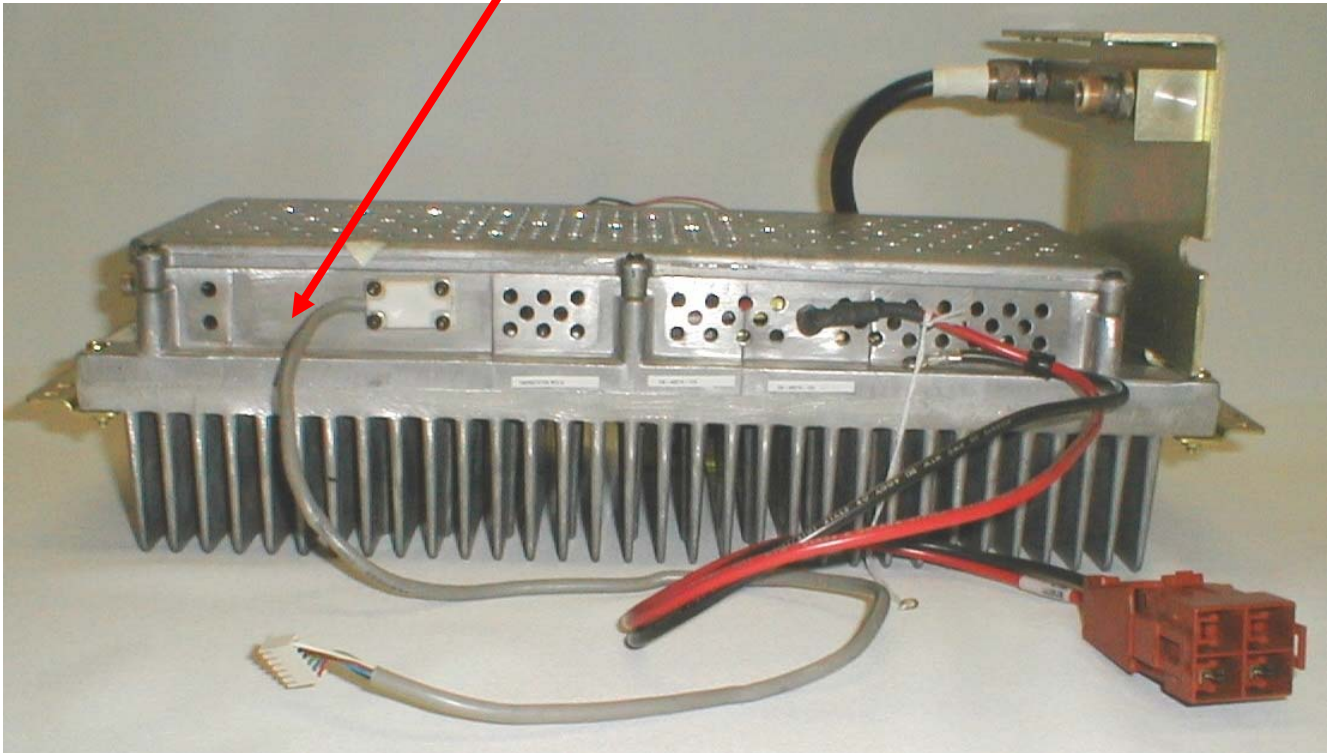
Adjust R204 to approx **11 Amps** or **100 watts** while monitoring current and power.

At this point, the amp is ready to be fielded. Place cover back on unit and remember, any digital pot setting above 95 will yield upward of 120 Watts and is not recommended nor warrentied if users go above 100 Watts of operation.

Installation of Identifying Label

FCC and Industry Canada Regulations **require** the installation of the label provided prior to operating the unit.

Communications International, Inc.
Mark II Upgrade Kit
FCC ID: SA8MARKII-CII-DMD
IC ID: 5363A-MARKIICA



Unit is ready for operation.

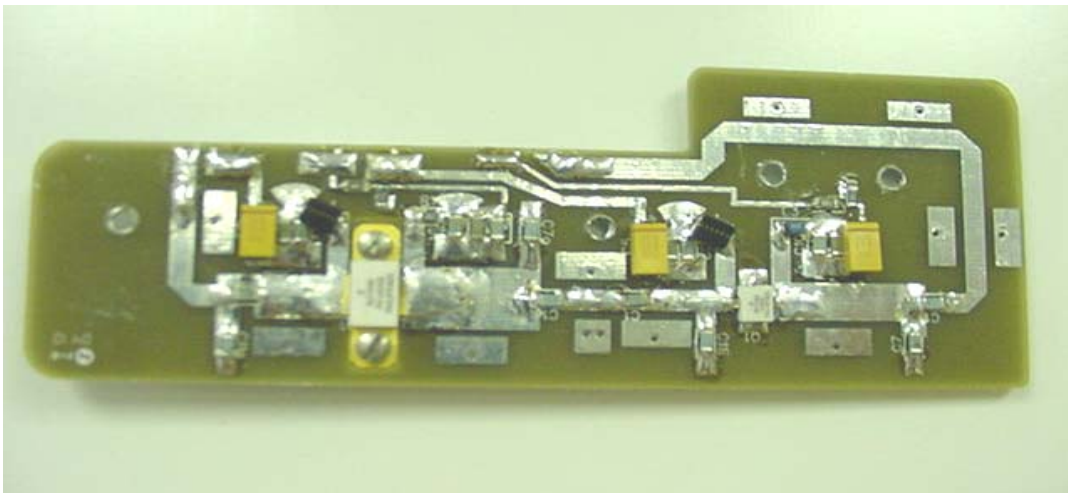
COMMUNICATIONS INTERNATIONAL, INC.

6/3/2004

Pricing of the Mark II PA module

Master III Amplifier Replacement Kit - II stage

- | | |
|--|--------|
| 1. Mark II - 1-9 unit price | \$495 |
| 2. Mark II - 10 units or above | \$450 |
| 3. Mark II installed in your PA | \$795 |
| 4. Mark II installed in your PA with other problems ...
(may include replacement with entire amplifier) | \$1495 |



CII offers the following warranty on the options above.

Option 1,2:

90 day warranty on parts and materials only. Each module sold from CII has been inspected, tested and burned in to produce 100 Watts before leaving the factory. CII only recommends this option to experienced communication houses who have the proper resources and experienced personnel to perform installation and test.

However, if our module fails to operate during a customer installation, CII will request the customer ship back the MARK-II PA board for diagnostics to determine the problem and recommend a fix on a case by case basis.

Option 3: 90 day warranty parts and labor. Shipping responsibility of customer.

Option 4: 90 day warranty parts and labor. Shipping responsibility of customer.

This Mark II Upgrade Kit complies with Part 90 of the FCC Rules and Regulations and Spectrum Management and Telecommunications Policy RSS-119 of Industry Canada.

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WARNING! Changes or modifications not expressly approved by the manufacture could void the user's authority to operate the equipment.