

ELECTRONICS

P. C. Electronics 2522 Paxson Lane Arcadia CA 91007-8537 USA

©2013

Tel: 1-626-447-4565 m-th 8am-5:30pm pst (UTC - 8) Tom (W6ORG) & Mary Ann (WB6YSS)

Web site: <http://www.hamtv.com>

Email: ATVinfo@hamtv.com



Packaged TXA5-RCb 1.5 Watt 70cm ATV Transmitter

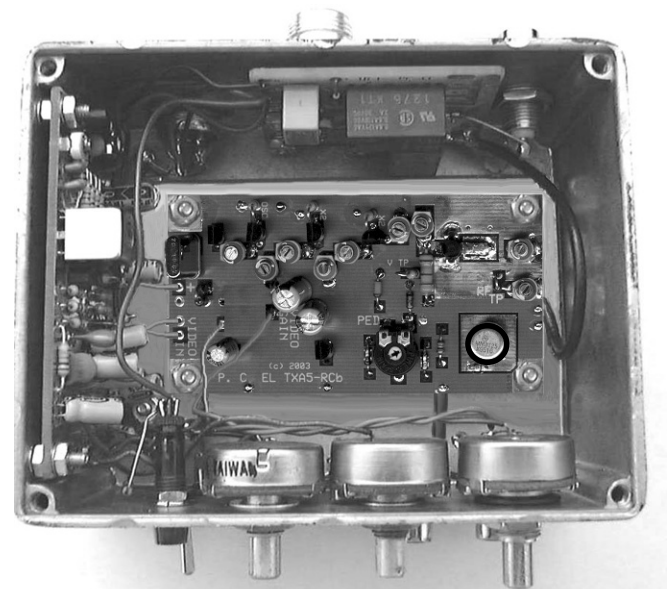


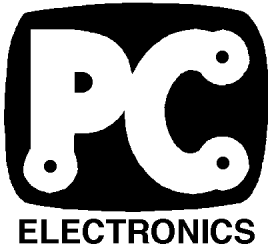
The TXA5-RCb 1.5 Watt 70cm ATV transmitter board, along with the FMA5 sound subcarrier generator and TR-1b T/R relay boards can be packaged in a small 4.7x3.7x2.1" CAB234 die cast aluminium box for base or portable use. At the home shack, it may be used with the TVC-4G downconverter with its 13.8 Vdc and antenna input switched by the TR-1b in this box. The small box also makes it perfect for public service events, field day, etc., it can easily be externally battery powered and clipped to a belt or back pack for portable operation.

Construction procedure:

Yes, it's tight but worth it. All the boards and parts listed will fit within the Hammond 1590C die cast aluminum box if care is taken and the mounting sequence followed.

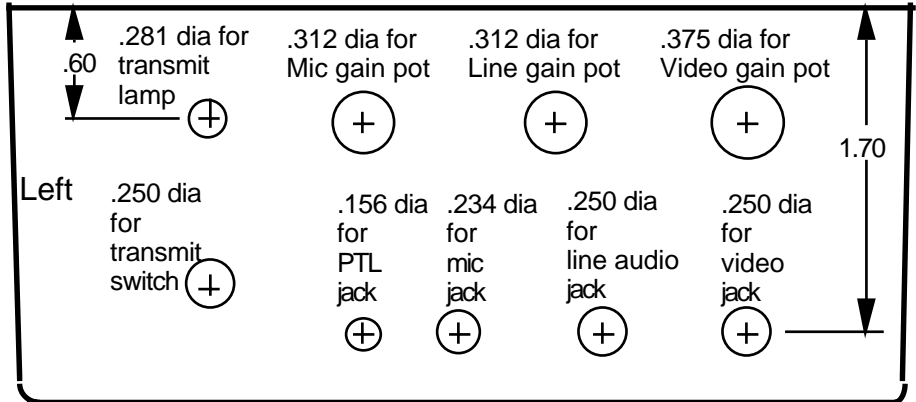
1. Drill out the box using the templates. Check that all parts fit properly in the holes. Clean box with isoprophyl alcohol then paint and letter the outside surfaces.
2. Mount the lower row of front panel connectors, toggle switch, rear panel BNC and N jacks. Put in the board mounting screws (but use a single nut instead of two). A ground lug is used under each of two of the TXA5-RCb nuts closest to the FMA5 instead of a lock washer.
3. Before mounting the DC power jack, prewire the leads:
Sockets 1 and 3 1" #22 buss - solder to gnd lug
Sockets 2 and 4 2" #22 red
4. Solder 1" buss wires (4) on the RCA jack center & ground lug.
5. Solder a 3" #22 green wire to the Mic jack center lug
6. Solder a 1" buss wire from the bottom lug of the toggle switch to the adjacent ground lug. Also solder one side of a 100 ohm 1/4 watt resistor to this same ground lug -long ground lead
7. Solder 6" & 1.5" black #22 wires to toggle switch center lug
Solder, other end of the 1.5" lead to the PTL jack center lug..
8. Remove 100 ohm video gain pot from TXA5-RCb, 50K mic gain pot and 10K line audio gain pot on FMA5 board.
9. Solder the RG174 coax between the boards:
4" from TXA5RCb A antenna output top side to TR-1b T pad.
5.5" from TXA5RCb S sound input to FMA5 out bottom pads.
10. Solder twisted 4" long yellow and blue #22 wires from top of TXA5-RC center (blue) and CW (yellow) pads to the respective 100 ohm video gain panel pot terminals.
11. Solder 3.5" #22 green wire from 10K line audio panel pot center lug to respective solder pad on FMA5 board.
12. Solder 3" green twisted pair from 50K mic gain pot center and CCW lugs to respective solder pads on FMA5 board.
13. Solder on TR-1b board +TX pads: 3" #22 red to FMA5 +, 5" #22 red to TXA5-RCb + and a 4" #22 red. Solder 1" buss to R pad. Solder the black lead from the toggle switch to the PTL pad. Solder the red lead from pin 4 of the DC power jack to the +R solder pad and then mount the board. Solder the N center pin to the board and the R buss wire to the BNC center - carefully angle the iron so as not to melt the relay cases.
14. Solder wire from the mic jack to the M pad on the FMA5 board.
15. Mount the TXA5-RCb board then the FMA5 - no top nuts necessary on the bottom two FMA5 mounting screws, no room.
16. Mount the transmit lamp and connect the 4" red wire from the TR-1b board +TX to one side, 100 ohm resistor to the other.
17. Mount the panel pots. Solder the 4 buss wires from the RCA jacks to their respective CW and CCW (gnd) lugs.
18. Dress the wires and check everything for shorts.
19. Make DC power cable - use a fuse holder in + lead from pin 2.



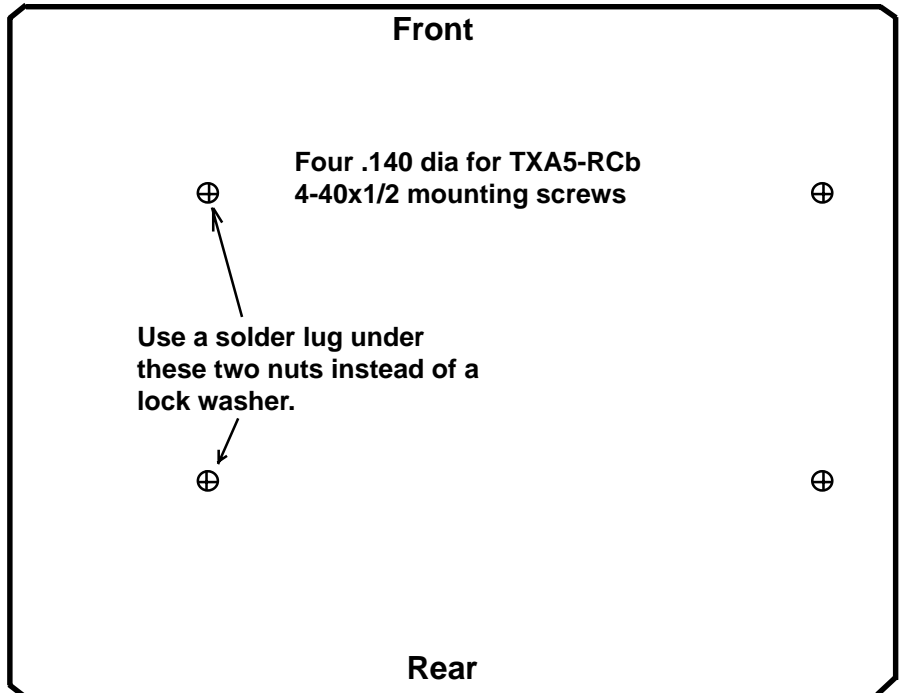


Packaged TXA5-RCb 1.5 Watt 70cm ATV Transmitter cont.

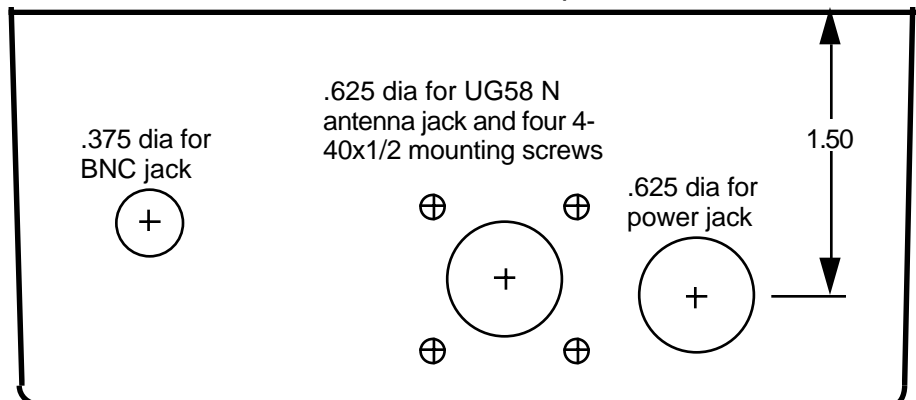
Front view from outside, top cover removed



Bottom view from outside



Rear view from outside, top cover removed

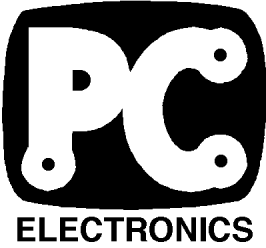


Chassis Layout

Cut out the drill templates here and on the next page, and place over the respective Hammond 1590C aluminum box sides. Align with the edges and hold in place with tape or a rubber cement. Center punch through the paper, or poke a hole through the paper, then place on the box and mark with a pencil. Measure the distances to the alignment reference holes and correct if necessary before drilling.

Drill all holes with a .140 dia drill first, check alignment again, then finish with the larger drills. Debur all holes.

Check all parts for fit, then clean the box with isopropyl alcohol prior to painting. Spray paint the outside surfaces of the box and cover. After drying, rub on letters can be applied and then a coat of clear paint. Again, after complete drying, assemble all the parts and wire per the sequential procedure on the previous page.



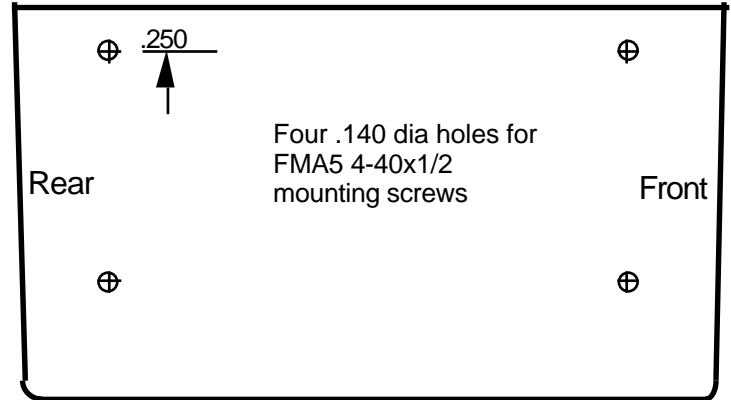
Packaged TXA5-RCb 1.5 Watt 70cm ATV Transmitter cont.

Parts list for packaging the ATV transmitter:

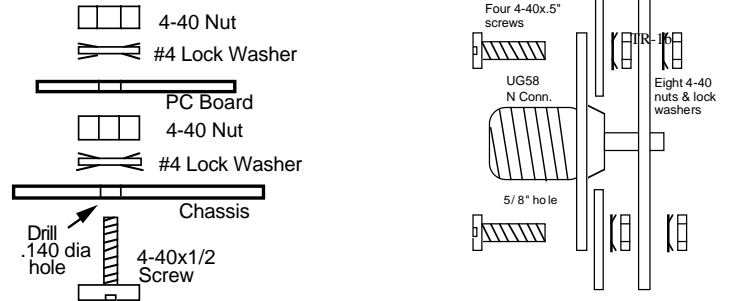
RS part numbers = Radio shack, the alternates after are from Mouser - call: 1-800-346-6873

- 1 TXA5-RCb ATV transmitter board, P. C. Electronics
- 1 FMA5 sound subcarrier board, P. C. Electronics
- 1 TR-1b T/R relay board, P. C. Electronics
- 1 UG-58 N chassis jack, P. C. Electronics
- 1 100 Ohm carbon pot, P. C. Electronics
- 1 Hammond 1590C die cast aluminum box, 546-1590C
- 1 10K line audio pot, RS 271-1715, 31VA401
- 1 50K mic gain pot, RS 271-1716, 31VA405
- 1 UG1094 BNC chassis jack, RS 278-105
- 1 4 pin chassis power jack, RS 274-002
- 1 4 pin power plug, RS 274-001
- 1 Inline fuse holder, RS 270-1217
- 1 1 Amp 3AG fuse, RS 270-1005, 504-AGC-1
- 2 RCA phone jack, 161-1052
- 1 Mini mic jack, 16PJ012
- 1 Sub-mini PTL jack, 16PJ100
- 3 Knob, builders choice, ME 450-6015 - shown in pix
- 1 Toggle switch, RS 275-612, ME 108-MS550K
- 1 Lamp, RS 272-331
- 1 100 Ohm 1/4 watt resistor, RS 271-1311, 29SJ250-100
- 12 4-40x1/2" pan head screws, RS 64-3011, 5721-440-1/2
- 22 4-40 nuts, RS 64-3018, 5721-440
- 20 #4 internal tooth lock washers
- 2 #4 solder lug, 534-7311
- 4 Rubber bumpers, RS 64-2346, 517-SJ-5007BK
- Misc #22 hookup and buss wire, #18 for DC power leads

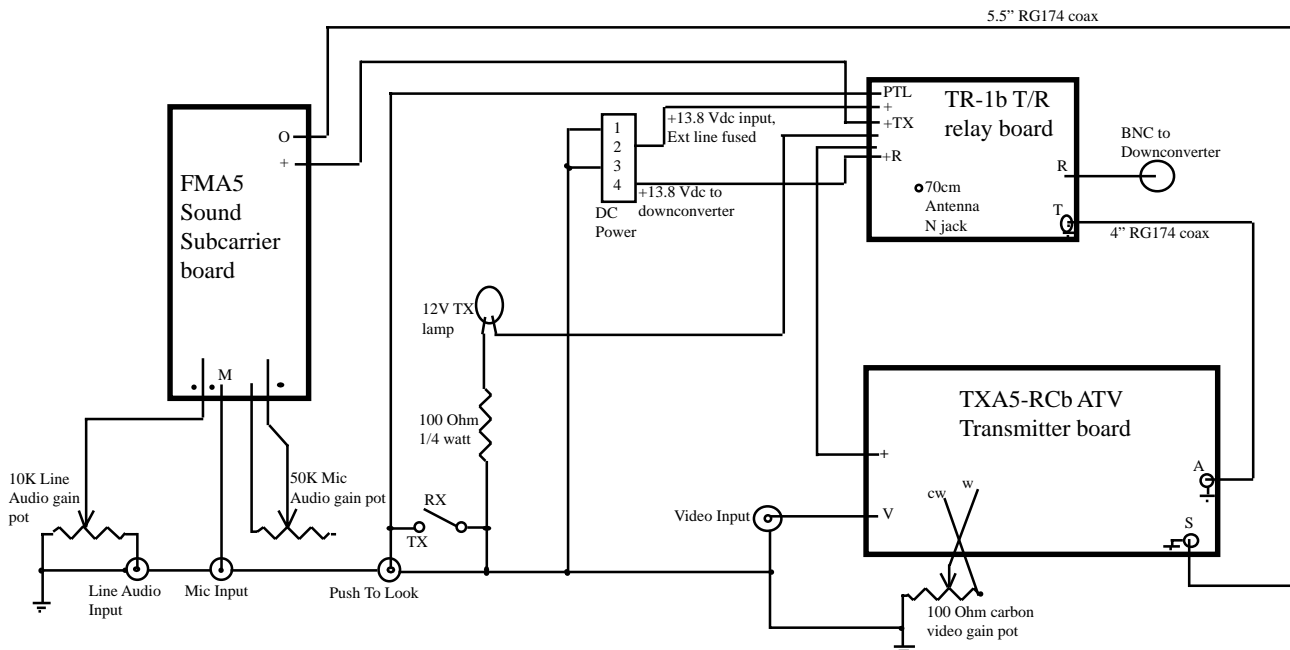
Left Side view from outside, top cover removed



Board Mounting Detail

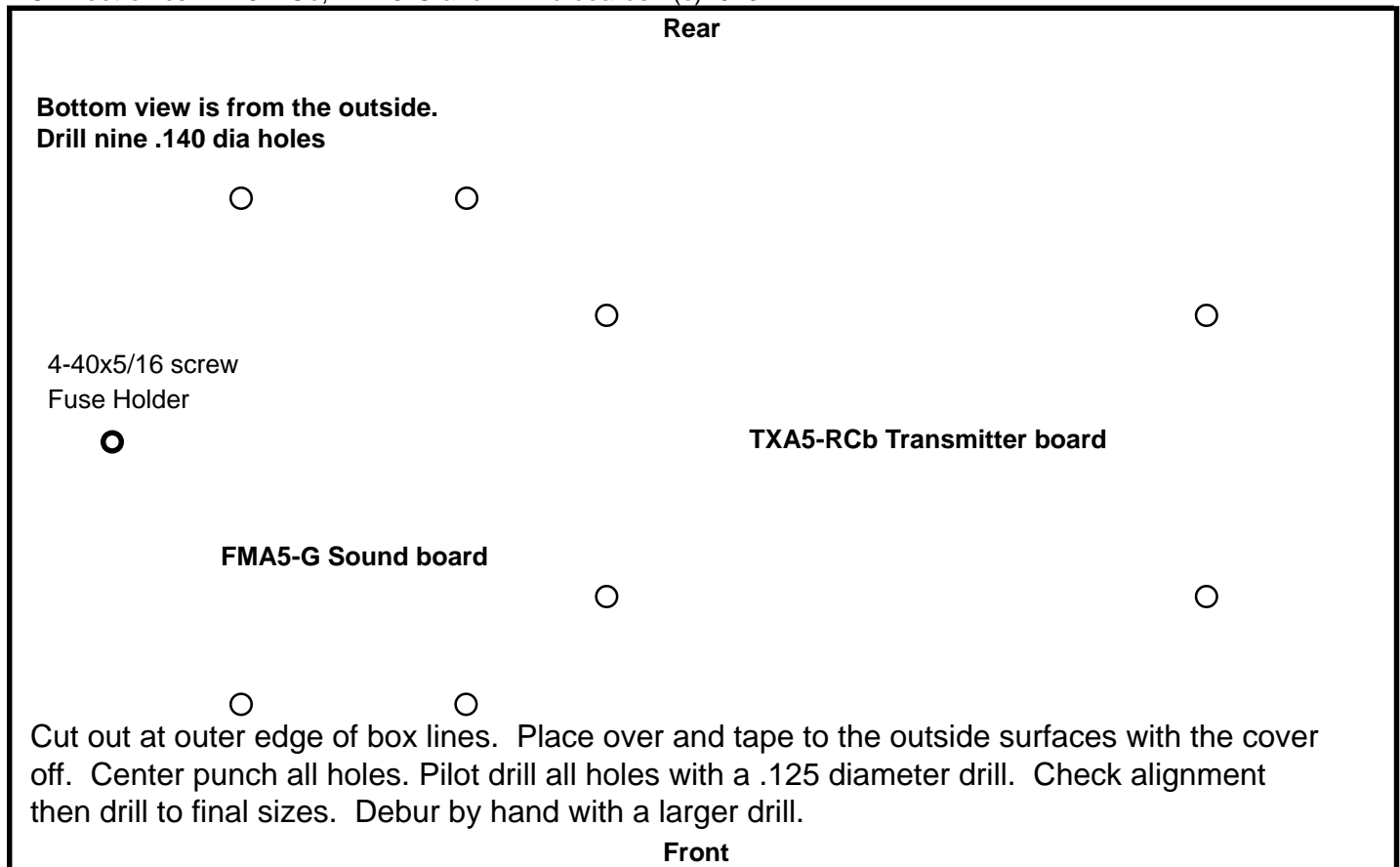


Place screw through hole in chassis, drop on lock washer or solder lug, then finger tighten the nut. Then place the PC board on the nuts and check for fit. Push down on the board near the mounting hole while tightening with a screwdriver to lock in the alignment. Then put on the final lock washer and nut.



1 Watt ATV Transmitter drill drawing using a Hammond 1590D die cast aluminum box.

P.C. Electronics TXA5-RCb, FMA5-G and TR-1b boards. (c)2013



Parts list is the same as with the smaller Hammond box on the previous page.

