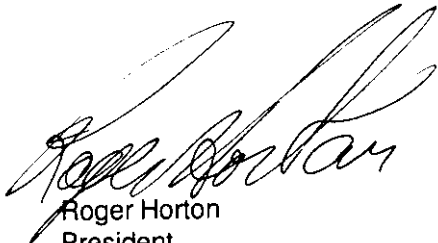


Changes to TAD M10

As IC M57741M is being discontinued, it will be replaced with IC M67741M on all future production models of the TAD M10.



Roger Horton
President

RESISTORS			RESISTORS		
PART	DESCRIPTION		PART	DESCRIPTION	
R 301	176-04720-12	CR 10 4K7	R 335	176-04701-12	CR 10 47R
R 302	176-01030-12	CR 10 10K	R 336	176-01001-12	CR 10 10R
R 303	176-08210-12	CR 10 820	R 337	176-04701-12	CR 10 47R
R 304	176-04710-12	CR 10 470	R 338	176-01020-12	CR 10 1K0
R 305	176-01530-12	CR 10 15K	R 339	176-06802-12	CR10 6R8
R 306	176-06820-12	CR 10 6K8	R 340	176-06802-12	CR10 6R8
R 307	176-02230-12	CR 10 22K	R 341	176-02201-12	CR 10 22R
R 308	176-01030-12	CR 10 10K	R 342	176-02201-12	CR 10 22R
R 309	176-01510-12	CR 10 150	R 343	176-02202-12	CR 10 2R2
R 310	176-03310-12	CR 10 330	R 344	176-08210-12	CR 10 820
R 311	176-04720-12	CR 10 4K7	R 345	176-02202-12	CR 10 2R2
R 312	176-01530-12	CR 10 15K	R 347	176-02230-12	CR 10 22K
R 313	176-02230-12	CR 10 22K	R 348	176-00001-12	CR 10 0R
R 314	176-00001-12	CR 10 0R	R 349	176-04710-12	CR 10 470
R 317	176-02220-12	CR 10 2K2	R 350	176-01020-12	CR 10 1K0
R 318	176-04710-12	CR 10 470	R 351	176-00001-12	CR 10 0R
R 319	176-02210-12	CR 10 220	R 352	176-04730-12	CR 10 47K
R 320	176-01040-12	CR 10 100K	R 353	176-04730-12	CR 10 47K
R 321	176-04710-12	CR 10 470	R 354	176-01030-12	CR 10 10K
R 322	176-02220-12	CR 10 2K2	R 355	176-02230-12	CR 10 22K
R 323	176-01030-12	CR 10 10K	R 356	176-02220-12	CR 10 2K2
R 324	176-04701-12	CR 10 47R	R 357	176-01010-12	CR 10 100
R 325	176-04710-12	CR 10 470	R 358	176-04730-12	CR 10 47K
R 326	176-04710-12	CR 10 470	R 359	176-04730-12	CR 10 47K
R 327	176-00001-12	CR 10 0R	R 360	176-04730-12	CR 10 47K
R 328	176-01020-12	CR 10 1K0	R 361	176-04701-12	CR 10 47R
R 329	176-04720-12	CR 10 4K7	R 362	176-04730-12	CR 10 47K
R 330	176-01020-12	CR 10 1K0	R 363	176-04730-12	CR 10 47K
R 331	176-01010-12	CR 10 100	R 364	176-04720-12	CR 10 4K7
R 332	176-01010-12	CR 10 100	R 366	176-01010-12	CR 10 100
R 333	176-03910-12	CR 10 390	R 369	176-04730-12	CR 10 47K
R 334	176-02220-12	CR 10 2K2	R 370	176-03340-12	CR 10 330K

RESISTORS			RESISTORS		
PART #	DESCRIPTION		PART #	DESCRIPTION	
R 436	176-03330-12	CR 10 33K	R 452	076-31020-22	RD25S 1K OHM
R 437	176-03330-12	CR 10 33K	R 453	176-01010-12	CR 10 100
R 438	176-00001-12	CR 10 0R	R 454	176-01030-12	CR 10 10K
R 439	176-01520-12	CR 10 1K5	R 480	176-01020-12	CR 10 1K0
R 440	176-00001-12	CR 10 0R	VR 301	150-45638-01	C VR 22K OHM
R 441	176-06801-12	CR 10 68R	VR 302	150-45638-12	C VR 47K OHM
R 442	176-00001-12	CR 10 0R	VR 303	150-45638-04	C VR 470 OHM
R 443	176-00001-12	CR 10 0R	VR 304	150-45638-09	C VR 10K OHM
R 444	176-01001-12	CR 10 10R	VR 305	150-45638-10	C VR 22K OHM
R 445	176-02220-12	CR 10 2K2	VR 306	150-45638-09	C VR 10K OHM
R 446	176-04740-12	CR 10 470K	VR 307	150-45638-09	C VR 10K OHM
R 449	176-02210-12	CR 10 220			
MISC.			MISC.		
PART #	DESCRIPTION		PART #	DESCRIPTION	
X 301	050-42387-01	12.5 MHz REF X-TAL	XF 301	050-41318-01	21P15B X-TAL IF FILTER
X 302	050-45748-01	22.055MHz IF X-TAL	CF 301	050-41205-01	KBF455R-15A
CERAMIC FILTER			CERAMIC FILTER		
PART #	DESCRIPTION		PART #	DESCRIPTION	
J 301	002-48169-01	RF MINI JACK	CN 308	102-48992-30	C 30P FLEX CONN
J 302	002-48169-01	RF MINI JACK	W1-W2	002-48141-03	COAX CABLE
J 303	002-48169-01	RF MINI JACK		060-44566-01	SYNTH SHIELD
CN 301	002-48338-03	EH 3P CONN		060-43066-02	HEAT SINK
CN 302	002-48338-04	EH 4P CONN		060-41040-01	GROUND TAB
CN 303	002-48338-03	EH 3P CONN		060-41851-01	TRANS. FIN
CN 304	002-48338-02	EH 2P CONN		080-63005-01	M3X5 PAN SCREW
CN 305	002-48338-03	EH 3P CONN		082-03000-01	M3 NUT
CN 306	002-48337-03	PH 3P CONN		085-07030-21	EARTH LUG
CN 307	002-48337-03	PH 3P CONN			

PA UNIT 55-141-01					
IC	PART#	DESCRIPTION			
IC 501	078-01072-01	M67741M (138-174 mhz)			
DIODES	PART#	DESCRIPTION	DIODES	PART#	DESCRIPTION
D 501	078-50253-01	"MI407, RF SW"	D 504	078-50169-01	1SS133
D 502	N/C		D 505	078-50410-01	"GP-30B, PROTECTION"
D 503	078-50253-01	"MI407, RF SW"	D 508	278-50524-11	"DSK10C, PROTECTION"
INDUCTORS	PART#	DESCRIPTION	INDUCTORS	PART#	DESCRIPTION
L 501	050-42030-01	COIL 4T4D	L504	050-42030-01	COIL 4T4D
L 502	050-42030-01	COIL 4T4D	L 505	050-42030-01	COIL 4T4D
L 503	050-42030-01	COIL 4T4D	L 506	050-41933-01	RFC
CAPACITORS	PART#	DESCRIPTION	CAPACITORS	PART#	DESCRIPTION
C 501	075-10351-03	"1n0, 50V"	C 510	075-33133-13	33p CH 500V
C 502	074-10744-71	"10u/16v, ELECT"	C 511	075-18133-13	18p CH 500V
C 503	074-10744-71	"10u/16v, ELECT"	C 512	075-15133-13	15p CH 500V
C 504	075-10351-03	"1n0, 50V"	C 513	075-15133-13	15p CH 500V
C 505	075-22133-13	22p CH 500V	C 515	075-22133-13	22P ch 500V
C 506	075-33133-13	33p CH 500V	C 516	075-10451-03	"10n, ZV-ECKF1H"
C 507	075-15133-13	15p CH 500V	C 517	075-10351-03	"1n0, 50V"
C 508	075-10351-03	"1n0, 50V"	C 520	075-10351-03	"1n0, 50V"
C 509	075-22133-13	22p CH 500V	C521, 522	175-10452-08	100
			C 531	072-10451-96	"10n, 50V"
RESISTORS	PART#	DESCRIPTION	RESISTORS	PART#	DESCRIPTION
R 501	276-35601-12	"56R, AR20"	R 503	076-34730-22	"47K, RD25S"
R 502	276-31810-12	"180, AR20"			
MISC	PART#	DESCRIPTION	MISC	PART#	DESCRIPTION
	002-48172-04	"COAX, TX FROM J301"	CN 501	002-30763-01	4P-4P ASSY.
	002-48172-04	"COAX, RX TO J302"	CN 502	002-30524-04	3P-3P ASSY.

M10 VHF TRANSCEIVER SPECIFICATIONS

GENERAL

FCC ID: HTC-M-10A

Channel Capacity	Any Number from 1 to 396, in 4-99 channel banks
Frequency Determination	Synthesized, EEPROM Controlled, 5KHz or 6.25KHz steps
Frequency Range	138 - 174 MHz
Bandwidth	36 MHz
Frequency Stability	±.00025%
Operation	Simplex or Semi-duplex
Modulation	11K25F3E
Emission Designator	11K25F3E
Antenna Impedance	50 ohms
Temperature Range	-30 to +60 Degrees C (-22 to +140 Degrees F)
Power Requirements	DC 13.6V ± 10% negative ground @ 6 Amps
Channel Programming	Field Programmable or by Cloning radio to radio, or by IBM software program
CTCSS Tones	38 Standard Tones + 12 extra(50 tones)
DCS	83 Standard + Complementary
Dimensions	50Hx140Wx182L mm (2"Hx5.5"Wx7.3"L)
Weight	1.4 kg (3lbs)

RECEIVER

Sensitivity	0.25 uV for -12dB SINAD
Adj. Channel Selectivity	Better than 70dB at 25KHz
Spurious Attenuation	Better than 70dB
Image Rejection	Better than 70dB
Intermod Attenuation	Better than 65dB
Hum and Noise Level	Better than -45dB
Audio Output	5 Watts at 3.2 ohm load
Audio Response	+1, -3dB from 6dB/oct. de-emphasis (300 - 3,000Hz)
Audio Distortion	3% at 4 watt output
Standby Current	250 mA
Current at 5W Audio	750 mA

TRANSMITTER

Power	Adjustable Lo 1-10W HI 15-30Watts
Duty Cycle	Intermittent
Spurious & Harmonic	Better than 70dB below carrier
FM Noise	-40dB
Modulation	3% at 60% modulation

ACCESSORIES

STANDARD ACCESSORIES

1. Up/Dn Microphone (DM3S)
2. Power Cable
3. Mounting Bracket
4. Hardware

may indicate a fault in the radio.

TX EXCITOR OUTPUT POWER CHECK

1. Connect a Power Meter (full scale 1W) to J301 on the Main PCB.
2. Activate the PTT switch.
3. Check that the output power is about 200 mW on CH-01, CH-02, and CH-05 on the Power Meter.

TRANSMITTER OUTPUT POWER ADJUSTMENT

1. Set the channel to CH-02(the centre of the frequency band).
2. Connect a Spectrum Analyzer and a Power Meter (full scale more than 50W) to the antenna connector.
3. Activate the PTT switch.
4. Turn VR301 clockwise until TX power reaches a maximum(APC off).
5. Check that the output is more than 30W.
6. Adjust VR301 to give an output of 30W.
7. Check that conducted spurious and harmonics are better than -70dB below the carrier.
8. Set the channel to CH-03(Low TX Power)
9. Adjust VR302 for 10W TX output.

FREQUENCY DEVIATION ADJUSTMENT

1. Set the channel to CH-02
2. Connect a Deviation Meter to the antenna connector through a T-coupler.
3. Apply a 1KHz audio frequency at 50mV

RMS to pin 1 of the 8 pin microphone connector (CN101)

4. Activate the PTT switch.
5. Adjust VR304 to give a deviation of $\pm 2.50\text{KHz}$ ($\pm 100\text{Hz}$) on the meter. This sets the deviation limit.
6. Then decrease the audio to the microphone connector down to 3mV RMS and adjust VR303 to give a deviation $\pm 2.0\text{KHz}$ ($\pm 100\text{Hz}$).
7. Change the channel to CH-03 and adjust VR305 to give a deviation (audio and CTCSS tone) of $\pm 2.5\text{KHz}$ ($+0\text{Hz}/-100\text{Hz}$)
8. Change the channel to CH-04 and adjust VR307 to give a deviation (audio and DCS tone) of $\pm 2.5\text{KHz}$ ($+0\text{Hz}/-100\text{Hz}$)

AUDIO OUTPUT POWER

1. Set the channel to Ch-02.
2. Connect an Audio Milivoltmeter and Oscilloscope across an 8 ohm dummy load. Also connect a Signal Generator (1KHz modulation at 60% deviation) of -47dBm(1mV) output to the antenna connector.
3. Check that the audio level reads more than 4V RMS at maximum volume and more than 3.4 RMS with no visible distortion.

BEEP ADJUSTMENT

1. Adjust VR305 on the Main PCB to give a reasonable audio level when depressing one of the keys on the front panel. The "BEEP" tone may be turned off in the "GLOBAL" Dealer Program section. This deletes the "BEEP" tone in any of the "NORMAL" radio modes. It does not delete the "BEEP" tones in the "DEALER Programming" modes.