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CITATION 8
INTELLIGENCE KIT

FIELD SECURE MODE
OPERATING INSTRUCTIONS

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Following this system will allow the battery to completely cycle, thus lengthening battery life. The life of the battery may shorten if the Citation is stored for an extended period of time without use. Do not charge the battery for more than 24 hours at each interval.

4.) Be sure to install the mag-mount antenna base on a metal object when in use. This will allow for proper operation of the antenna system, giving the operator the best possible performance from the receiver.

5.) There are no user-serviceable parts in the Citation. If for some reason the unit needs service, please return it to the factory.

6.) In cassette recording, the type and brands of cassettes you use have a great influence on the quality of your recordings. Therefore, it is advantageous to purchase the highest quality cassettes available. Chromium dioxide (CrO₂) and metal tapes generally provide better fidelity than normal ferric oxide tapes.

7.) If the Citation does not work, check the FUSES (E and F, Figure 1) located on the control panel. AC-.5A (E - Figure 1) is a .5 Amp fuse for the 110 VAC line. DC-1A (F - Figure 1) is a 2 Amp fuse for the 12 VDC line. If the fuses continue to blow, do not use the unit. Contact the factory for service.

NOTE:

This manual contains excerpts taken directly from the Marantz Model PMD 201/221 Owner's Manual.

CHARGING and CARING FOR THE INTERNAL BATTERY

The Citation 8's internal battery is charging whenever the unit is connected to 110 VAC. The unit will charge with the PWR switch ON or OFF. If the Citation's PWR switch is ON and the unit is operating, the battery will charge at a slower rate than if the PWR switch is OFF. The Citation 8 WILL NOT charge during external 12 VDC operation.

Low battery condition is indicated on the Citation 8 via the PWR LED as well as the RSSI/Battery Condition meter. The PWR LED will automatically blink when the unit is in a low battery state. The meter will read approximately 4.5 (See the section on the RSSI/Battery Meter for complete meter operating instructions). Once the PWR LED begins to flash on and off you should plan to change your power source to either 12 VDC or 110 VAC to ensure non-interrupted operation. A fully charged battery will supply an average operating time of 6 hours. Operating time will vary due to the length of time the recorder is in operation.

Once the unit enters a low battery condition, it will continue to operate for at least one hour - then the Citation 8 will shut off completely.

The internal battery must be fully charged immediately once the unit has either entered the low battery condition, or if the unit has shut down due to the battery being fully depleted.

NOTE: IF THE CITATION 8 REACHES THE "SHUT DOWN" POINT, IMMEDIATELY PLUG THE UNIT INTO 110 VAC, TURN THE POWER SWITCH OFF, AND RECHARGE THE BATTERY. IF THE POWER SWITCH STAYS IN THE ON POSITION AND THE CITATION 8 IS NOT CONNECTED TO 110 VAC, THE UNIT WILL CONTINUE ATTEMPTING TO DRAW A SMALL AMOUNT OF CURRENT OFF THE INTERNAL BATTERY, EVEN THOUGH THE RECEIVER WILL BE NONOPERATIONAL. THIS MAY PERMANENTLY DAMAGE THE INTERNAL BATTERY AND WILL VOID THE UNIT'S WARRANTY.

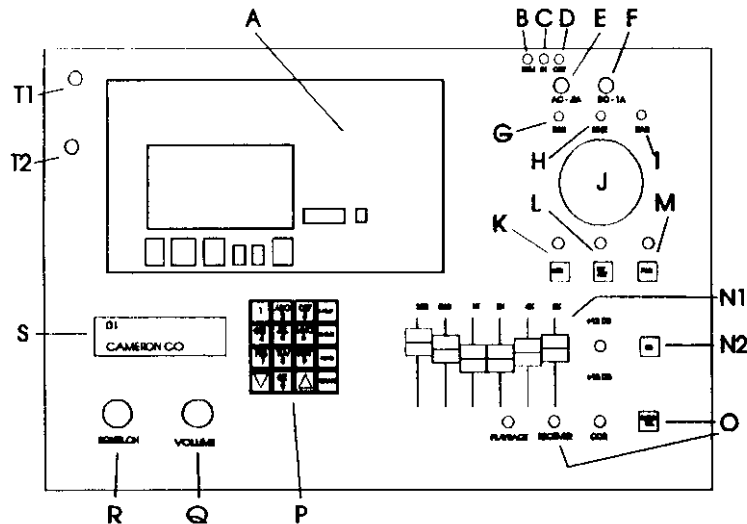
The internal battery should also be "cycled" at a minimum of once every month. Cycle the battery by allowing the Citation to operate until the PWR LED begins to blink, indicating that the battery is low. Then charge the battery for a minimum of 10 hours. By cycling the battery, you will insure proper operation and increase the battery life.

NOTE: DO NOT CHARGE THE INTERNAL BATTERIES IN THE CITATION 8 FOR MORE THAN 24 HOURS DURING EACH CHARGE CYCLE. CHARGING FOR LONGER THAN 24 HOURS MAY CAUSE DAMAGE TO THE INTERNAL BATTERY.

OPERATING NOTES:

- 1.) Keep the Citation dry. If it does get wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits and cause extensive damage.
- 2.) Handle the Citation with care. Dropping the unit may damage circuit boards, the recorder, and the case, rendering the unit inoperable.
- 3.) It is advisable under extended storage conditions that the Citation's internal battery be allowed to fully discharge down to the low battery indication and then be immediately fully recharged before the Citation is stored again. This procedure should be carried out once every month.

FIGURE 1
TOP PANEL COMPONENTS AND CONTROLS



- A - Tape Recorder (Marantz 201 Standard)
- B - REM : Plugged - for expansion
- C - IN : Cable to LINE IN Jack on recorder
- D - OUT : Cable to LINE OUT Jack on recorder
- E - AC-5A : Fuse on AC IN line (.5 amp)
- F - DC-1A : Fuse on DC IN line (2 amp)
- G - RSSI : Received Signal Strength Indicator output jack for use with internal RSSI meter or optional external meter
- H - LINE : LINE OUT Jack for secondary recorder/ amplifier
- I - EAR : Earphone output jack for private listening
- J - Internal Speaker
- K - SCR : Descrambler On/Off switch and LED indicator (Optional)
- L - INT ANT : Switch and LED indicator toggles activity between external antenna jack and internal lid antenna.
- M - PWR : Power On/Off Switch w/ LED indicator. LED also blinks when unit is in Low Internal Battery condition
- N1 - Equalizer Controls (6 Band Graphic) : to enhance audio reception and playback. Enhancements will NOT be passed to recorder.
- N2 - EQ : Equalizer On/Off switch and LED

- indicator
- O - RCDR SEL : Recorder/Audio Monitor Function Select Switch w/ LED Indicators. Each press of the switch changes the primary source of the monitored audio, as well as changes the use of the recorder. From Tape Playback mode, to Record/Monitor the Receiver mode, to Record/Monitor the Receiver using COR (Carrier Operated Relay) mode, and back to Tape Playback mode.
- P - Keypad : Used to change channels. See KEYPAD, Figure 2.
- Q - Volume : Controls the output volume of the speaker or the earphone.
- R - Squelch : Controls the receiver squelch circuit
- S - LCD Information Display : Displays receiver information See KEYPAD, Figure 2.
- T1 - 4.5 VDC Recorder Power Cable - supplies power to Tape Recorder
- T2 - Recorder Power Cable Holder - Holds the 4.5 VDC cable from T1 when not connected to tape recorder.

The purpose of the RSSI meter is to give a visual indication of how to achieve better reception via receiver antenna configuration and placement. In order to improve signal reception:

- a.) When using the Internal Antenna, rotate the Citation in a circular pattern to increase the received signal to its best point.
- b.) With an External Antenna, physically move the antenna's placement. If the antenna is installed on a vehicle, move the entire vehicle to achieve better RSSI.

It is important to remember that ANY increase in the meter reading, no matter how little, will be a marked improvement in signal strength. The majority of movement in the meter during the course of a normal operation will be between 0.5 and 3 on the meter scale. That relates to approximately a 1 microvolt swing in reception. And every 1/10 of a microvolt increase in signal is a significant improvement. While it is true that the better the signal the more the needle will move toward the right of the scale, the needle does not have to move very far to the right to reflect a change in a signal from one that is "in the mud" and unusable to one that is intelligible, and then to one that is crystal clear.

TO MEASURE THE INTERNAL BATTERY CONDITION....

Press the **BATTERY TEST BUTTON** (B - Figure 4). The meter scale reflects the following information:

<u>METER READS..</u>	<u>BATTERY VOLTAGE IS..</u>	<u>DESCRIPTION</u>
0 - 2	Less than 9.7 VDC	Unit in Shut Down Mode
2 - 4.5	9.7 to 11.5 VDC	Low Battery Condition
4.5 - 8.5	11.5 to 13.8 VDC	Normal Operating Range
8.5 - 9	13.8 to 14.4 VDC	Full Charge

TO MEASURE A 9 VDC BATTERY

- 1.) Turn the Citation 8's PWR switch OFF.
- 2.) Hold a 9 VDC battery against the 9 VDC BATTERY TEST CONTACTS (C - Figure 4) found on the meter. Be sure to observe polarity of the battery to the indications on the contacts. If polarity is reversed the meter will not be damaged, however you will not get any battery strength indication.
- 3.) The meter will reflect the battery strength under load simulation of a body worn transmitter. A good battery will read between 8 and 9 on the meter (relates directly to 8 or 9 volts).

INTERNAL STORAGE COMPARTMENT

The internal storage compartment lid is opened by pressing down on the stem of the fastener (located in the middle of the right side of the compartment lid). This will release the catch and the lid may then be opened.

To latch the fastener again, simply close the lid and depress the stem of the fastener once again.

the audio response heard will be flat across all bands.

b.) ON - LED is ON

Equalizer circuit is added to the **PLAYBACK ONLY** of the tape deck, or to the incoming reception being **MONITORED** through the audio system. Only the speaker or earphone audio is altered. The recording section of the tape deck is not effected, therefore a **TAPE BEING RECORDED WILL BE PRESERVED AS ORIGINALLY RECEIVED WITHOUT ANY ENHANCEMENT.**

2.) With the EQ in the ON position, the 6 sliding **EQUALIZER CONTROLS** (N1 - Figure 1) are operational and will alter the monitored audio (receiver or playback). The controls will adjust frequency response at 250 Hz, 500 Hz, 1 KHz, 2 KHz, 4 KHz, and 8 KHz.

3.) Set all 6 of the slide controls to the center position.

4.) Adjust each control either up or down to set the audio response for optimum listening according to the operator's preference. The slide controls can change the response of the monitored audio +/- 12 db from the center 0db position.

LINE OUT

The female RCA/Phone type **LINE OUT JACK** (H - Figure 1) gives an additional line level output from the receiver for use with an external tape recorder, external audio amplifier, equalizer, etc.

RSSI /BATTERY STRENGTH METER

The **RSSI/BATTERY STRENGTH METER** (Figure 4), located in the lid of the briefcase, can supply the user with an RSSI reading (Received Signal Strength Indicator) from an operating transmitter, it can show the condition of the internal battery inside the Citation, or it can give the condition of a 9 VDC battery (under load).

Make sure the meter cable is connected to the **RSSI** (G - Figure 1) jack on the control panel.

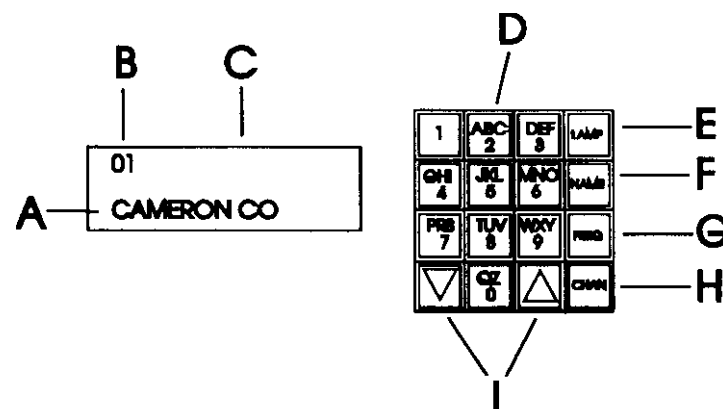
TO MEASURE RSSI.....

- 1.) Tune the receiver to the operating frequency of a active transmitter.
- 2.) The meter reading will increase the stronger the incoming signal is. The weaker the signal, the lower the meter reading will be.

Meter Reading Examples:

Meter @ 0.5 Usable signal - may be slightly noisy.
 Meter @ 1 Incoming signal should open the receiver at critical squelch point.
 Signal is approximately 0.2 microvolts.
 Meter @ 3.5 Incoming signal should open the receiver at its full squelch point
 (control set fully clockwise). Signal is approximately 1.0 microvolts.

**FIGURE 2
KEYPAD AND LCD DISPLAY**



A - ALPHA/NUMERIC CHANNEL NAME

B - NUMERIC CHANNEL NUMBER : Channel number, from 00 to 99

C - BLANK

D - DATA ENTRY PAD : Use the 0-9 keys to select the operating channel number

E - LAMP KEY : Toggles the illumination for the LCD display on or off.

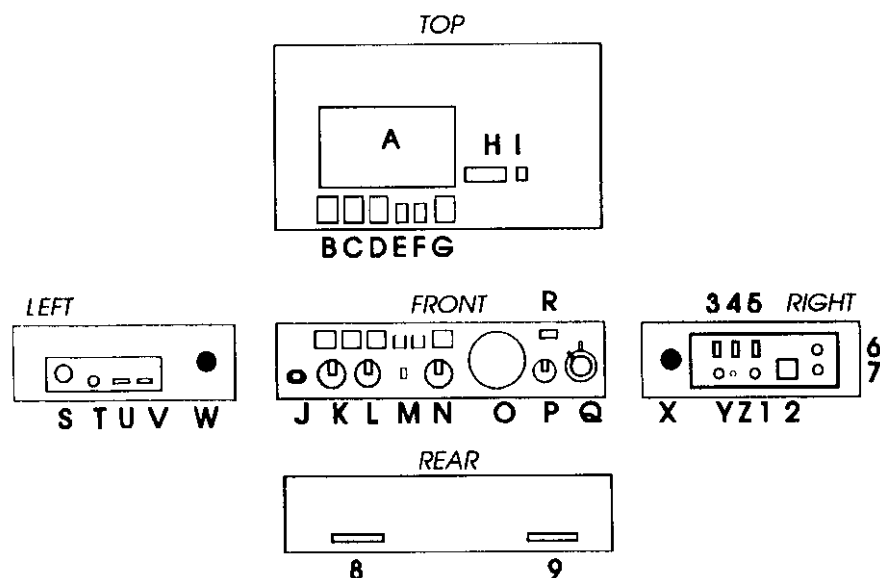
F - NAME KEY : Disabled

G - FREQ KEY : Disabled

H - CHAN KEY : Used to select a channel number with direct access.

I - UP/DOWN ARROW KEYS : Used to change channel number one channel at a time, either up or down.

FIGURE 3
MARANTZ RECORDER CONTROLS



A	Cassette Tape Compartment	R	Tape Speed Select Switch
B	Stop/Eject Button	S	4.5 VDC Power Input Jack
C	Record Button	T	External Speaker Jack
D	Play Button	U	External/Internal Speaker Switch
E	Review/Rewind Button	V	Tape Selector Switch
F	Cue/Fast Forward Button	W	Hold Down Peg
G	Pause Button	X	Hold Down Peg
H	Tape Counter and Reset Button	Y	External Microphone Input Jack
I	Memory Rewind Switch (PMD 221)	Z	Remote Microphone On/Off Input Jack
J	Headphone Jack for Playback Only	1	Telephone/Aux Input Jack
K	Tape Deck Volume Level Control	2	RJ11 Telephone Input Jack
L	Tone Control	3	Internal Mic Attenuation Select Switch
M	Monitor Switch (PMD 221)	4	Auto Noise Cancelling Select Switch
N	Pitch Control	5	Input Source Selector Switch
O	VU Meter	6	Line In Jack
P	Record Level Mode Select Switch	7	Line Out Jack
Q	Manual Record Level Control Knob	8	Retainer Slots - Clips for Battery Lid
		9	Retainer Slots - Clips for Battery Lid

REMOVING THE TAPE DECK FOR EXTERNAL USE

The Marantz tape recorder can easily be removed from the Citation 8, allowing it to be used in a variety of other recording needs. It is held down to the control panel via four brackets, one on each side and two in the rear.

TO REMOVE THE RECORDER...

- 1.) Turn the Citation 8's PWR switch OFF.
- 2.) Disconnect the four cables leading to the Marantz from the Citation's control panel:
 - a.) 4.5 VDC RECORDER POWER CABLE (T1 - Figure 1) connected to 4.5 VDC POWER INPUT JACK (S - Figure 3). When this cable is removed from the recorder, it must be inserted into the RECORDER POWER CABLE HOLDER grommet (T2 - Figure 1).
 - b.) REM (B - Figure 1) cable connected to REMOTE MICROPHONE ON/OFF INPUT JACK (Z - Figure 3).
 - c.) IN (C - Figure 1) cable connected to LINE IN JACK (6 - Figure 3).
 - d.) OUT (D - Figure 1) cable connected to LINE OUT JACK (7 - Figure 3).
- 3.) Completely loosen the two screws found on each of the two side brackets attached to the HOLD DOWN PEGS (W and X - Figure 3) on the recorder. Turn the screws counter-clockwise to remove them from the control panel, but do NOT remove the screws from the brackets.
- 4.) Remove the brackets from the recorder by lifting them up slightly, then sliding them off the PEGS.
- 5.) Push all EQUALIZER CONTROLS (N1 - Figure 1) to their lowest (-12db) position.
- 6.) Gently slide recorder towards the front of the Citation. This will release the two rear hold down brackets which were inserted into the RETAINER SLOTS (8 and 9 - Figure 3). Do not loosen or remove these brackets from the control panel.
- 7.) Once the recorder has cleared the rear brackets, lift the unit off the control panel.

TO REPLACE THE RECORDER:

- 1.) Align the rear hold down brackets with the RETAINER SLOTS in the recorder and gently slide the tape deck slots over the brackets.
- 2.) Replace side brackets onto the recorder's HOLD DOWN PEGS, and screw brackets onto the control panel. Make sure screws line up exactly with the holes in the panel BEFORE you attempt to replace them. Cross threading these screws may cause damage that will not allow the recorder to be held securely to the control panel. Use a small screw driver to tighten the screws down snugly to the control panel.
- 3.) Replace all four cables into their correct jacks on the recorder.

USING THE 6 BAND GRAPHIC EQUALIZER

- 1.) Select the mode of operation for the equalizing system by positioning the EQ (N2 - Figure 1) switch in one of the following positions:

- a.) OFF - LED is OFF
Equalizer is disconnected from the receiver monitor and/or playback circuit and

to fast forward, and the **REVIEW/REWIND** (E - Figure 3) buttons to rewind the tape. Press the **STOP/EJECT** button to end fast forward or rewind.

10.) The tape deck is equipped with a tape search feature that allows you to scan sections of the tape while the deck is in the play mode by partially depressing either the **FAST-F** or **REWIND** buttons. You will hear a loud high-pitched squeal through the audio source if the tape has any thing recorded on it. When the tape reaches a blank section, the squeal stops.

NOTE: TAKE CAUTION IF USING A HEADSET WHILE OPERATING THE TAPE SEARCH FEATURE - MAKE SURE TO ADJUST THE VOLUME DOWN BEFORE PROCEEDING.

11.) The **PITCH** (N - Figure 3) control found on the front panel of the recorder operates only during playback. This control is used to slightly vary tape speed, thus altering the sound of the prerecorded tape. Normal speed is indicated when the **PITCH** control is set to the center (click) position.

OTHER FEATURES OF THE TAPE DECK

1.) The cassette recorder comes with a tape counter to mark the location of a specific section of tape. Press the reset button on the right to set the counter to 000 at the beginning of the tape. Then, as the tape plays or records, note the counter reading at the point(s) to which you want to return.

2.) **NOTE: IT IS ADVISABLE TO USE A BULK TAPE ERASER TO INSURE PROPER AND COMPLETE ERASING OF ANY AND ALL TAPES PRIOR TO THEIR USE IN THE CITATION.**

3.) Cassettes have a built-in device to automatically prevent erasure of a tape by recording over it. **THIS PROTECTION DEVICE, HOWEVER, DOES NOT PREVENT ERASURE USING A BULK TAPE ERASER.** The cassette has two small plastic tabs on the back edge. If you break off the Side A tab, you cannot record on Side A. There is a separate tab for Side B. If, however, you later want to record on a side after you have removed the tab, cover the tab hole with a piece of plastic adhesive tape. **CAUTION:** Never try to force the **RECORD** key down if you have removed the tab for that side. You can damage the tape mechanism.

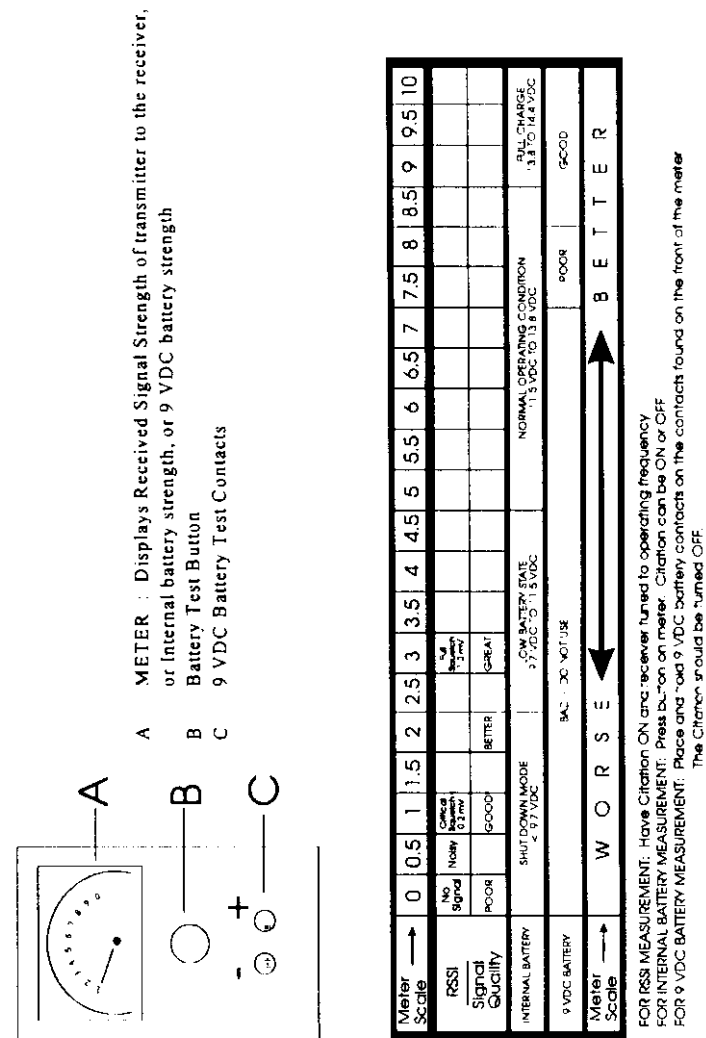
4.) Dirt or particles of the tape coating can accumulate on the tape heads and the other parts that the tape touches as it moves. This material can greatly reduce the performance of your unit, so you should clean these parts after every 10 hours of operation.

- Disconnect any external power source that is connected to the Citation, and make sure the **PWR** switch is in the "OFF" position.
- Press the **STOP/EJECT** button to open the cassette compartment door.
- Press the **PLAY** key. The tape head/motion assembly moves forward into view. Use a cotton swab dipped in tape head cleaning fluid or denatured alcohol to clean the parts. Clean both the tape heads, the rubber rolling wheels, and the capstan pin along the rubber wheel. **NOTE: Never touch the front surface of either of the tape heads with any metallic object.**

5.) Tape heads and guides also become magnetized over a period of time and should be demagnetized periodically using a commercial head demagnetizer.

NOTE: PLEASE REFER TO THE OPERATOR'S MANUAL FOR THE MARANTZ RECORDER FOR FURTHER INFORMATION

FIGURE 4
RSSI / BATTERY STRENGTH METER



CITATION 8 SYNTHESIZED INTELLIGENCE KIT

DESCRIPTION

The Tactical Technologies Inc. CITATION 8 Synthesized Briefcase Intelligence Kit is a multipurpose system designed for portable receiving and/or recording of covert intelligence gathering operations.

The receiver is a highly sensitive narrow band synthesized VHF-FM receiver with a 100 channel memory that operates in the 150-174 MHz range (optional equipment can operate in the 138-162 MHz or the 215-240 MHz ranges).

Pressure sensitive switches and an informative LCD display highlight the Citation 8's control panel. The unit's software features a "FIELD SECURE" mode that eliminates the numeric frequency information from the LCD display and leaves only the channel number and the assigned alpha/numeric name. Frequencies are programmed into the memory prior to field operations. The Citation is then placed into "FIELD SECURE" mode, leaving the programmed frequency list protected from additions or subtractions.

The recording system comes with a high quality Marantz PMD 201 cassette recorder, and the monitoring system is enhanced with Tactical Technologies Inc's own 6 Band Graphic Equalizer. Equalization of the received audio can be monitored during initial reception, or during playback of a recording. The equalization will NOT be recorded via the on-board Marantz, thus retaining the integrity of the original recording.

The kit is designed so that when used in combination with any of Tactical Technologies Inc's VHF voice transmitters, an agent can set up the unit to operate automatically and unattended while he/she continues surveillance operations. Thus the system can operate in a one-agent only situation.

As an option, the CITATION 8 can be equipped with descrambling. This will permit decoded receiving/recording of a scrambled transmission from a compatibly scrambled Tactical Technologies Inc transmitter or repeater.

A storage compartment is included in the kit to house accessories (110 VAC cord, Earphone, Cassette Tape, 12 VDC Cigarette Lighter Adaptor) as well as a variety of Tactical Technologies Inc voice transmitters and extra batteries.

GENERAL OPERATIONS

INITIAL SETUP

POWER

- 1.) Select one of the three possible power sources you will be using during operations.
 - a.) Internal Rechargeable Battery Pack.No additional setup is required. Check to make sure battery is fully charged. See

will cause the tape recorder to pause until the receiver detects carrier from the transmitter. If a blank tape is in the deck and the record and play buttons are depressed, the recorder will begin to record automatically once the receiver detects carrier from the transmitter. When carrier is lost, the recorder will stop recording.

NOTE: THE "SQUELCH" CONTROL MUST BE SET TO THE CRITICAL SQUELCH POSITION, OR AT A POINT OF GREATER SQUELCH (CLOCKWISE ROTATION OF THE SQUELCH CONTROL), FOR THE RCVR/COR SYSTEM TO OPERATE PROPERLY. ANY WHITE NOISE DETECTED BY THE RCVR/COR CIRCUIT WILL TURN ON THE RECORDER PREMATURELY!!!

NOTE: WHEN OPERATING IN THE "COR" POSITION, IF THE RECEIVED SIGNAL IS MOMENTARILY LOST, THE RECORDER WILL CONTINUE TO OPERATE FOR A SHORT PERIOD OF TIME. THIS IS TO PREVENT STOP/START INTERRUPTIONS OF THE RECORDING.

14.) Use the **PAUSE** (G - Figure 3) key on the cassette deck to temporarily stop the recording. Press it again to resume recording.

15.) To end the recording session, press the **STOP/EJECT** button on the tape deck.

PLAYBACK OF PRERECORDED TAPE

1.) Press the **STOP/EJECT** button on the cassette deck to open the cassette compartment lid. Insert a prerecorded tape into the slot on the compartment lid so that the open edge of the cassette faces up. Close the cassette holding compartment lid on the deck.

NOTE: Be sure to check the setting of the TAPE SELECTOR switch on the left side of the recorder and compare it to the type of cassette you are using.

2.) Set the **RCDR SEL** switch to the "PLAYBACK" position.

3.) Set the **VOLUME** control to the center position.

4.) Press the **PLAY** button on the cassette deck.

5.) Your Citation will now play back any prerecorded tape through the internal speaker.

6.) Adjust the volume control to operator preference once playback has begun.

7.) If you prefer private listening, insert the male phone jack from any earphone set into the **EAR** jack on the Citation's control panel. This will disconnect the external speaker. The volume control will now control the audio level in your earphone.

NOTE: The HEADPHONE (J - Figure 3) jack on the front panel of the recorder may also be used for private listening of a prerecorded tape through any stereo headphones. To adjust the volume through this connection, use the LEVEL (K - Figure 3) control on the front panel of the recorder.

8.) Press the **STOP/EJECT** button to stop the tape.

9.) To scan the tape to find a particular selection, use the **CUE/FAST FORWARD** (F - Figure 3)

NOTE: DO NOT CHANGE THE SPEED SELECT SWITCH DURING RECORDING!

6.) The switch settings on the right side of the Marantz Recorder should be set as follows:

- | | |
|--|--------------|
| a.) INPUT SOURCE (5 - Figure 3): | Line |
| b.) AUTO NOISE CANCELLING - ANC (4 - Figure 3): | Normal |
| c.) INTERNAL MIC ATTENUATION (3 - Figure 3): | Any position |

7.) If a Marantz 221 is installed in your Citation, the **MONITOR SWITCH** (M - Figure 3) found on the front of the Marantz may be placed in the **SOURCE** position to monitor the receiver before it is recorded, or the **TAPE** position to monitor the signal actually recorded on the tape. When the Monitor switch is set to **SOURCE**, howling may occur. At that time, lower the monitoring volume.

8.) On the Marantz 221, with the **MEMORY REWIND SWITCH** (I - Figure 3) set to the **ON** position, the tape travel stops when the **TAPE COUNTER** (H - Figure 3) reaches "999". Reset the tape counter via the button found next to the counter.

9.) Press the **RECORD** (C - Figure 3) and **PLAY** (D - Figure 3) buttons on the cassette deck simultaneously.

10.) Your Citation will now record all transmissions from your transmitter.

11.) No record level adjustment is required as long as the **REC MODE** control on the front panel of the recorder is set to the "ALC" position. Manual operation of the record level is possible by selecting either the "LIMITER" or the "MANUAL" positions.

MANUAL RECORDING LEVEL OPERATION: This mode of operation will permit manual control of the recording level for maximum dynamic range. Set the **REC MODE** control to the "MANUAL" position. During operation, adjust the **MANUAL RECORD LEVEL CONTROL KNOB** (Q - Figure 3) while watching the **VU METER** (O - Figure 3) found on the front panel of the recorder. Ordinarily, the VU meter needle deflection should be as large as possible. If the VU meter needle stays on the right side of the scale, the level is too high and results in distorted sound. Conversely, if the VU meter needle stays on the left side of the scale, the level is too low and a poor signal to noise ratio will result.

LIMITER RECORDING LEVEL OPERATION: This mode allows manual setting of the recording level while an internal limiter circuit automatically prevents overload distortion resulting from sudden level peaks. Set the **REC MODE** control to the "LIMITER" position after setting the recording level desired with the control placed in the "MANUAL" position. See section on "MANUAL RECORDING LEVEL OPERATION" for proper procedures.

NOTE: TACTICAL TECHNOLOGIES SUGGESTS THAT ALL RECORDINGS BE MADE WITH THE "REC MODE" CONTROL PLACED IN THE "ALC" POSITION.

12.) For operator attended recording, set the **RCDR SEL** switch to the "Receiver" position. This allows the **RECORD** and **PLAY** buttons on the tape deck to power up the tape deck and record instantaneously and continuously as soon as the **RECORD** and **PLAY** buttons are depressed.

13.) For unattended recording, set the **RCDR SEL** switch to the "COR" position. This position

section entitled "CHARGING AND CARING FOR THE INTERNAL BATTERY"

b.) External 12 VDC power source.

Connect the 4 pin female connector found on the 12VDC cigarette lighter cable to the male connector found on the left outside panel of the Citation 8 case. The male and female connectors are keyed (via a flat spot on the cable end) so that they will only align in one position. Locate the correct alignment configuration, and push the cable end connector into the panel mounted connector on the case. Lock the connectors together by rotating the sleeve on the cable end clockwise to thread it onto the panel mounted connector. Hand tighten only.

c.) 110 VAC power source.

Connect the 4 pin female connector found on the 110 VAC cable to the male connector found on the left outside panel of the Citation 8 case. The male and female connectors are keyed (via a flat spot on the cable end) so that they will only align in one position. Locate the correct alignment configuration, and push the cable end connector into the panel mounted connector on the case. Lock the connectors together by rotating the sleeve on the cable end clockwise to thread it onto the panel mounted connector. Hand tighten only.

2.) Turn power on by pushing the **PWR** switch (M - Figure 1). The LED indicator should illuminate and the LCD display should come on, indicating that the unit is operational under the selected power source. This LED indicator above the **PWR** switch will also indicate the status of the internal battery system. The LED will be on constantly if the internal battery is charged. The LED will begin to blink when a low battery condition is met.

CHANNEL AND DISPLAY SELECTION

The **LAMP** (E - Figure 2) key toggles the LCD displays illumination on and off. It is advisable to use the Lamp sparingly during internal battery operations in an effort to conserve battery life.

SELECT THE OPERATING CHANNEL ...

1.) **SELECT A CHANNEL TO BE MONITORED**

A.) Press the **CHNL** (H - Figure 2) key. A blinking cursor will appear at the first digit of the **NUMERIC CHANNEL NUMBER** (B - Figure 2) on the display. Enter a two digit channel number from 00 to 99. Or.....

B.) Press the **UP ARROW** or the **DOWN ARROW** (I - Figure 2) keys to scroll through the channel numbers. Stop at the desired channel.

The numeric channel designator will always be on. Your tech office may have programmed in an Alpha/Numeric name for the channel as well.

The Citation 8 retains "last active channel frequency information" in its memory at all times. When changing channels from an active, programmed channel to a blank, non-active channel, the synthesizer will keep the receiver tuned to the last active frequency until a new frequency is either programmed in, or a channel is selected which has been preprogrammed. So even though the display may be on a blank channel, the receiver may still be tuned to an active channel. This operation is normal.

ADD THE ANTENNA

Select either the Internal Lid Antenna or the use of an External Antenna

FOR AN EXTERNAL MAGNETIC MOUNT ANTENNA

- a.) Push the female BNC connector attached to the cable end of the Mag Mount Antenna onto the male BNC connector found on the exterior of the Citation briefcase near the carry handle. Be sure to align the tabs on the male connector with the slots on the female connector for proper operation. Secure the two together by pressing the female connector firmly onto the male connector until it stops, then twist the female connector clockwise until you hear a click. The two connectors are then locked together.
- b.) Locate the antenna whip and make sure the silver screw connector is attached to the bottom of the whip. If it is not, first slide the whip through the hole in the silver screw connector, making sure the threaded portion of the connector is facing away from the antenna after insertion. Then screw the antenna assembly onto the magnetic base by turning the screw connector clockwise onto the base. Hand tighten only. **DO NOT OVER TIGHTEN THE ANTENNA TO THE BASE.**
- c.) Select the External Antenna Operation via the INT ANT selector switch found on the Citation's Control Panel (L - Figure 1). Observe the condition of the LED indicator above the INT ANT switch. If the LED is OFF, external antenna operation is selected. If the LED is ON, push the switch once to turn off the LED and set the unit in External Antenna mode.

FOR INTERNAL LID ANTENNA:

- a.) Select the Internal Antenna Operation via the INT ANT selector switch found on the Citation's Control Panel (L - Figure 1). Observe the condition of the LED indicator above the INT ANT switch. If the LED is ON, internal antenna operation is selected. If the LED is OFF, push the switch once to turn on the LED and set the unit in Internal Antenna mode.

Your Citation 8 is now ready to either receive a transmission, record a transmission received via the inboard receiver, or playback a prerecorded tape.

RECEIVING TRANSMISSIONS

- 1.) Select the Channel to be monitored - corresponding to the appropriate frequency for compatibility with your transmitter - via the KEYPAD.
- 2.) Set the RCDR SEL (O - Figure 1) switch to either the "Receiver" or the "COR" position. The corresponding LED indicators will scroll from one to another with each successive push of this switch. The LED's will indicate the condition of the Receiver/Recorder Select system.
- 3.) Adjust the VOLUME (Q - Figure 1) control to the center position. Alter the volume to operator preference once transmission has begun.
- 4.) Adjust the SQUELCH (R - Figure 1) control fully to the counter-clockwise position. The noise you hear coming from the audio system is called "White Noise". Turn the squelch control

clockwise until this white noise just disappears and the audio system is quiet. This is called the "Critical Squelch" point. Critical Squelch is the optimum point of squelch for the system. Squelch may then be adjusted to the operators preference at any time by turning the control clockwise to increase, or counter-clockwise to decrease the amount of squelch in the circuit.

- 5.) If receiving transmissions from a scrambled TACTICAL TECHNOLOGIES INC transmitter or repeater, set the SCR (K - Figure 1) switch to ON (corresponding LED is ON). If the transmission is not scrambled, set this switch to OFF.
- 6.) The Citation will now receive transmissions from your transmitter. Audio will be heard through the internal speaker.
- 7.) If you prefer private listening, insert the male mono phone jack from the supplied earphone into the EAR jack. This will disconnect the external speaker. The volume control will now control the audio level in your earphone.

RECORDING TRANSMISSIONS

- 1.) Complete the steps outlined above for Receiving Transmissions.
- 2.) Press the STOP/EJECT (B - Figure 3) button to open the CASSETTE TAPE COMPARTMENT (A - Figure 3). Insert a BULK ERASED blank cassette into the slot on the compartment lid so that the open edge of the cassette faces up and the full reel of tape is toward the left. Close the cassette compartment lid.

NOTE: TACTICAL TECHNOLOGIES INC. RECOMMENDS USING A BULK ERASED TAPE ANY TIME THE RECEIVER/RECORDING SYSTEM IS IN OPERATION. A BULK ERASED TAPE ASSURES THAT THE CASSETTE BEING USED IN THE OPERATION IS CLEAN AND FREE OF ANY UNWANTED PREVIOUSLY RECORDED MATERIAL, AND WILL ASSIST IN ACHIEVING THE OPTIMUM QUALITY IN RECORDING OPERATIONS. RECORDING QUALITY WILL VARY HOWEVER DUE TO TRANSMISSION AND RECEPTION CONDITIONS.

- 3.) Set the TAPE SELECTOR SWITCH (V - Figure 3) found on the left side of the recorder to match with the type of cassette being used. This selects the proper bias and internal recorder equalization to suit the most common types of cassette tapes.

NORM	normal ferric oxide tapes
CrO2	chromium dioxide and other tapes requiring 70ms EQ and high bias
METAL	metal tapes.

- 4.) Set the RECORD LEVEL MODE SELECT SWITCH (P - Figure 3) on the front panel of the recorder to the "ALC" position.
- 5.) Set the TAPE SPEED SELECT SWITCH (R - Figure 3) on the front panel of the recorder to either the "LOW" or "STANDARD" position. "STANDARD" position will set tape speed to 1 7/8 IPS and will give you 45 minutes of recording time per side from a C-90 cassette tape. The "LOW" position slows down the tape speed to 15/16 IPS and will provide 90 minutes of recording time per side from a C-90 tape.

NOTE: QUALITY OF THE RECORDING MAY DETERIORATE BY USING THE "LOW" TAPE SPEED POSITION.