



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

### CAUTION

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



### IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

**WATER AND MOISTURE:** Appliance should not be used near water (near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

**POWER SOURCES:** The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**GROUNDING OR POLARIZATION:** Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

**POWER CORD PROTECTION:** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**SERVICING:** The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

### SAFETY INSTRUCTIONS (EUROPEAN)

The conductors in the AC power cord are colored in accordance with the following code.

**GREEN & YELLOW—Earth    BLUE—Neutral    BROWN—Live**

**U.K. MAIN PLUG WARNING:** A molded main plug that has been cut off from the cord is unsafe. **NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAIN PLUG INTO A POWER SOCKET.**

### LIMITED WARRANTY

Your Carvin product is guaranteed against failure for ONE YEAR unless otherwise stated. Vacuum tubes are guaranteed for 90 days. Carvin will service and supply all parts at no charge to the customer providing the unit is under warranty. Shipping costs are the responsibility of the customer. **CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN.** A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY. Carvin assumes no responsibility for horn drivers or speakers damaged by this unit. This warranty does not cover, and no liability is assumed, for damage due to: natural disasters, accidents, abuse, loss of parts, lack of reasonable care, incorrect use, or failure to follow instructions. This warranty is in lieu of all other warranties, expressed or implied. No representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products. **CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

When RETURNING merchandise to the factory, you may call for a return authorization number. Describe in writing each problem. If your unit is out of warranty, you will be charged the current FLAT RATE for parts and labor to bring your unit up to factory specifications.

### HELP SECTION

RF Interference

If you encounter receiving interference (from other than an operating TV station), often it can be eliminated by adjusting the receiver's squelch control, as described in this manual.

Please note that wireless frequencies are shared with other audio services. According to Federal Communications Commission regulations, "Wireless microphone operations are unprotected from interference from other licensed operations within the band. If any interference is received by any Government or non-Government operation, the wireless microphone must cease operation..."

If you need assistance with operation or frequency selection, please contact Carvin's service department.

## CARVIN WIRELESS OPERATING FREQUENCIES

Application	Freq. Code	Freq. (MHz)
• Traveling frequencies (Normally work anywhere in the U.S.A. and Canada, but as a result tend to be crowded)	T2	169.505
	T3	170.245
	T8	171.905
• For use only where there is no channel 7:	8G	175.800
	7I	176.200
• For use only where there is no channel 8:	8D	181.200
	8M	183.200
	8S	184.200
• For use only where there is no channel 9:	9F	187.600
	9Q	189.800
• For use only where there is no channel 10:	10C	193.000
	10J	194.400
	10W	196.800
• For use only where there is no channel 11:	11G	199.800
	11S	202.200
• For use only where there is no channel 12:	12L	207.000
	12S	208.200
	12V	208.600
• For use only where there is no channel 13:	13B	210.800
	13Q	213.800
<b>Multi-channel Systems</b>		
Following are groupings of frequencies suggested for multi-channel wireless systems.		
• For use where TV channels 7, 9, 11 and/or 13 are operating: 8D-8M-8S-10C-10J-10W-12L-12S-12V Traveling frequencies T2, T3 and/or T8 may be used with any of the above frequencies except for: 8D, 8M and 10C. Interference may result from the use of these frequency combinations.		
• For use where TV channels 8, 10 and/or 12 are operating: 7G-7I-9F-9Q-11G-11S-13Q or 7G-7I-9F-11G-11S-13B-13Q		
Traveling frequencies T2, T3 and/or T8 may be used with any of the above frequencies with no interference problems.		

For future reference, please record your system information here (the serial numbers appear inside the battery compartment of each transmitter, and on the bottom of each receiver):

Operating Frequency

Freq. Code \_\_\_\_\_ Frequency \_\_\_\_\_ . \_\_\_\_\_ MHz

Receiver Model \_\_\_\_\_ Serial Number \_\_\_\_\_

Transmitter Model \_\_\_\_\_ Serial Number \_\_\_\_\_

### ACCESSORIES

**PWS-RMA** Rack-mount antenna kit brings antenna inputs to the front of receiver for ease of setup.

**PWS-VPC** Vinyl pouch with belt clip holds UniPak.

**PWS-WSC** Foam windscreen for handheld transmitter.

**PWS-WRP** Water-resistant pouch for UniPak transmitter.

**PWS-STC** Stand clamp for handheld, 5/8"-27 threads.

**PWS-XLR** Connecting cable for UniPak transmitter with an XLR-type input connector, for Lo-Z mics with XLRM-type output terminations.

**PWS-PAK** UniPack™ transmitter

**PWS-MIC** Handheld microphone

**PWS-GTR** 1/4" instrument cable

**PWS-HWM** Headset mic

**PWS-LPM** Lapel condenser mic



**INTRODUCTION**

Thank you for choosing a Carvin professional wireless system. You have joined thousands of other satisfied customers who have chosen our products because of their quality, performance and reliability. This Carvin wireless microphone system is the successful result of years of design and manufacturing experience.

This professional wireless system includes a receiver and either a body-pack or a handheld transmitter on a specific crystal-controlled frequency.

The receiver features true diversity reception. Two antennas feed two completely independent RF sections on the same frequency; automatic logic circuitry continuously compares and selects the superior received signal, providing better sound quality and reducing the possibility of interference and dropouts. The receiver is made to be mounted in a standard 19" rack (1U).

The versatile UniPak™ body-pack transmitter has both low- and high-impedance inputs plus a bias connection, for use with dynamic and electret condenser microphones, as well as Hi-Z instrument pickups. Both the handheld and UniPak transmitters use internal 9-volt batteries and have Off/Standby/On switches, battery condition indicators, and battery-save switches.

Please note that in multiple-system applications there must be a transmitter-receiver combination on a separate frequency for each input desired (only one transmitter for each receiver). Because the wireless frequencies are in or near VHF TV frequencies, only certain wireless frequencies are useable in a particular geographical area. Also, only certain of the available operating frequencies may be used together. (Frequency selection information will be found on the back cover.)

**INSTALLATION AND OPERATION**

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

This device complies with INDUSTRY CANADA R.S.S. 210, en conformité avec IC: RSS-210/CNR210. Operation is subject to the following conditions: 1) This device may not cause harmful interference and 2) this device must accept any interference received, including interference which may cause undesired operation.

**CAUTION!** Electrical shock can result from removal of the receiver cover. Refer servicing to qualified service personnel. No user-serviceable parts inside. Do not expose to rain or moisture.

The circuits inside the receiver and transmitter have been precisely adjusted for optimum performance and compliance with federal regulations. Do not attempt to open the receiver or transmitter. To do so will void the warranty, and may cause improper operation.

**RECEIVER INSTALLATION LOCATION**

For best operation the receiver should be at least 3 ft. above the ground and at least 3 ft. away from a wall or metal surface to minimize reflections. The transmitter should also be at least 3 ft. away from the receiver, as shown in figure A. Keep antennas away from noise sources such as motors, automobiles, and neon lights, as well as large metal objects.

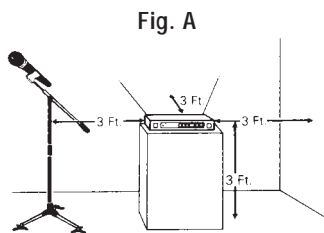


Fig. A

**RECEIVING INSPECTION—read before getting started**

INSPECT YOUR WIRELESS SYSTEM FOR ANY DAMAGE which may have occurred during shipping. If any damage is found, please notify the shipping company and CARVIN immediately.

SAVE THE CARTON & ALL PACKING MATERIALS. In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection during shipment. CARVIN and the shipping company are not liable for any damage caused by improper packing.

SAVE YOUR INVOICE. It will be required for warranty service if needed in the future.

SHIPMENT SHORTAGE. If you find items missing, they may have been shipped separately. Please allow several days for the rest of your order to arrive before inquiring.

RECORD THE SERIAL NUMBER on the enclosed warranty card or below on this manual for your records. Keep your portion of the card and return the portion with your name and comments to us.

**OUTPUT CONNECTIONS**

There are two audio outputs on the back of the receiver: balances (220 mV) and unbalanced (350 mV). Use shielded audio cable for the connection between the receiver and the mixer. If the input of the mixer is a 1/4" jack, connect a cable from the 1/4" unbalanced audio output on the back of the receiver to the mixer. If the input of the mixer is an XLR-type input, connect a cable from the balanced XLR-type audio output on the back of the receiver to the mixer.

The two isolated audio outputs permit simultaneous feeds to both unbalanced and balanced inputs. For example, both a guitar amp and a mixer can be driven by the receiver.

**ANTENNAS**

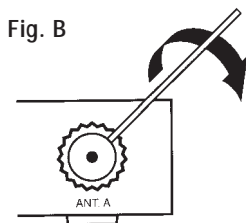
Assemble the two whip antennas to the special connectors provided. Screw the whips into the threaded side holes at the rear of the connector (Fig. B).

Attach the antennas to the antenna input jacks. The antennas are normally positioned in the shape of a "V" (45° from vertical) for best reception.

Do not try to move the antenna rod after the connector shell has been tightened down. Always loosen the connector shell completely before repositioning the rod.

If there is not sufficient space above the receiver and/or if the receiver is installed in a metal cabinet, the antennas can be mounted in the threaded holes in the back of the connectors so the antennas will stick straight out from the back of the receiver. Use one set of threaded holes or the other; do not attempt to bend the antenna rods. (The optional accessory PWS-RMA rack-mount antenna kit brings antenna inputs to the front of the receiver.)

Fig. B



**POWER CONNECTIONS**

Connect the provided AD1205A AC adapter to the DC power input on the back of the receiver.

<b>Operating Freq.</b>	VHF high band, 169 MHz to 216 MHz	<b>RF Power Output</b>	50 mW max
<b>Frequency Stability</b>	±0.005%, single-frequency crystal-controlled	<b>Spurious Emissions</b>	Under federal regulations
<b>Modulation Mode</b>	FM	<b>Dynamic Range</b>	≥90 dB
<b>Max Deviation</b>	±30 kHz, traveling freq. ±15 kHz	<b>Input Connections</b>	High impedance, low imp, bias
<b>Operating Range</b>	200' minimum	<b>Battery</b>	9V (NEDA type 1604) alkaline
<b>Operating Temp</b>	40° F (4° C) to 110° F (43° C)	<b>Current Consumption</b>	30 mA typical
<b>Freq. Response</b>	100 Hz to 15 kHz	<b>Battery Life</b>	Approx. 15 hours in "H" position Approx. 20 hours in "L" position
<b>RECEIVER</b>		<b>Dimensions</b>	2.56" W x 4.33" H x 1.00" D
<b>Receiving System</b>	Dual independent receivers, automatic switching diversity reception	<b>Net Wt (no battery)</b>	2.8 oz (78 grams)
<b>Image Rejection</b>	≥60 dB	<b>Accessories Included</b>	Hi-Z input cable
<b>Signal-to-noise THD</b>	.80 dB at 10 kHz deviation (IEC-weighted) ≤1% (10 kHz deviation @ 1 kHz)	<b>PWS-MIC HANDHELD TRANSMITTER</b>	
<b>Sensitivity</b>	10 µV for 60 dB S/N (IEC-weighted)	<b>Polar Pattern</b>	Unidirectional
<b>Audio Output</b>		<b>RF Power Output</b>	50 mW max
Unbalanced	350 mV (at 1 kHz, ±10 kHz deviation, 10k ohm load)	<b>Spurious Emissions</b>	Under federal regulations
Balanced	220 mV (at 1 kHz, ±10 kHz deviation, 10k ohm load)	<b>Dynamic Range</b>	≥90 dB
<b>Output Conn.</b>		<b>Microphone Element</b>	PWS-DYM
Unbalanced	1/4" phone jack	<b>Battery</b>	Audio-Technica dynamic
Balanced	XLRM-type	<b>Current Consumption</b>	30 mA typical
<b>Power Supply</b>	12-18V DC, 350 mA, with provided AC adapter	<b>Battery Life</b>	Approx. 15 hours in "H" position Approx. 20 hours in "L" position
<b>Dimensions</b>	16.93" (430.0 mm) W x 1.92" (48.8 mm) H x 7.28" (185.0 mm) D	<b>Dimensions</b>	9.50" long, 2.10" dia.
<b>Weight</b>	5.5 lbs (2.5 kgs)	<b>Net Wt (no battery)</b>	12.7 oz (360 grams)
<b>Accessories</b>	Two whip antennas, rack mount adapters, AD1205A AC adapter	<b>Accessory Included</b>	Stand clamp

For your records, you may wish to record the following information.

Serial No. \_\_\_\_\_ Invoice Date \_\_\_\_\_

# FRONT & REAR PANEL CONTROLS

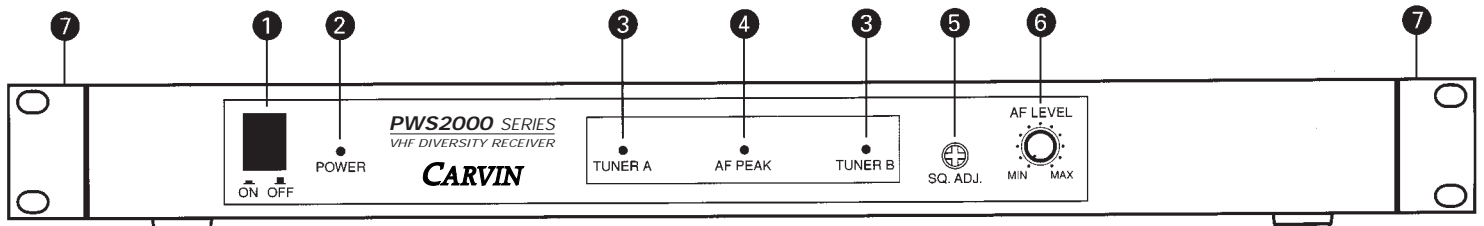


Fig. C

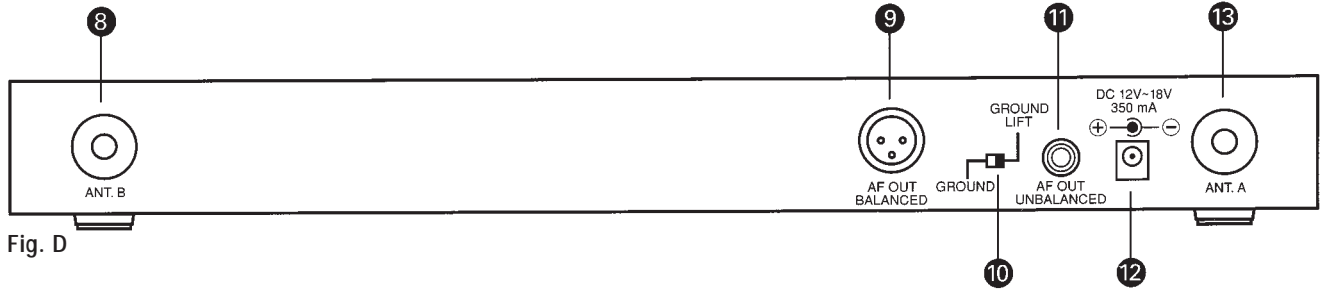


Fig. D

## FRONT PANEL CONTROLS AND FUNCTIONS

1. **POWER SWITCH:** Press switch on, and the "power" indicator will light.
2. **POWER INDICATOR.**
3. **TUNER OPERATION INDICATORS:** Indicates when maximum transmitter modulation without distortion has been reached.
5. **SQUELCH CONTROL:** Adjusts the level of noise-muting circuit (preset at factory but can be adjusted as circumstances warrant).
6. **AF LEVEL CONTROL:** Adjusts level at both audio output jacks. Does not affect AF Peak indicator.
7. **MOUNTING ADAPTERS:** For mounting the receiver in any standard 19" rack. Attach to receiver with screws supplied.

## REAR PANEL CONTROLS AND FUNCTIONS

8. **TUNER "B" ANTENNA JACK:** Antenna connector for tuner "B." Attach the antenna directly, or extend it with an antenna cable.
9. **BALANCED AUDIO OUTPUT JACK:** XLRM-type connector. A standard 2-conductor shielded cable can be used to connect the receiver output to a balanced aux-level input on a mixer.
10. **GROUND LIFT SWITCH:** Disconnects the ground pin of the balanced output (9) from ground. Normally, the switch should be to the left (ground connected). If hum caused by a ground loop occurs, slide switch to the right.
11. **UNBALANCED AUDIO OUTPUT JACK:** 1/4" phone jack. Can be connected to an unbalanced aux-level input of a mixer or tape recorder.
12. **DC POWER INPUT:** For the provided AD1205A AC adapter, or other 12-18V DC source. (Receiver requires 350 mA.)
13. **TUNER "A" ANTENNA JACK:** Antenna connector for tuner "A." Attach the antenna directly, or extend it with an antenna cable.

## TRANSMITTER SETUP

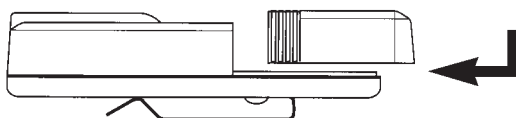
### BATTERY SELECTION

An alkaline 9-volt battery is recommended.

UniPak™ Transmitter Battery Installation:

1. Slide off the battery cover as shown in Figure E.
2. Carefully insert a fresh 9-volt alkaline battery, observing correct polarity as marked inside the battery compartment. The transmitter housing is designed to prevent incorrect installation of the battery. Do not force the battery in.
3. Replace the battery cover (Fig. F).

Fig. F



### BATTERY CONDITION INDICATOR:

The red battery condition indicator (Fig. I/J) should light strongly with a fresh battery. As the battery weakens, the indicator will grow dimmer. When the indicator becomes very dim or goes out, there is little life left in the battery. Replace it at once for continued operation of the transmitter.

### BATTERY-SAVE SWITCH

All transmitters feature battery-save switches (Fig. E/G). As supplied, the switch is set in the "H" (high) position for maximum range. Switching to the :L: (low) position increases battery life by reducing power. (Note: Effective range decreases when the switch is set at the :L: position.)

The UniPak transmitter is supplied with a Hi-Z cable. The cable is wired for use with guitars or other high-impedance sources.

Fig. I

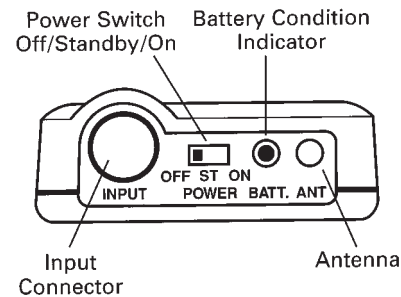


Fig. J

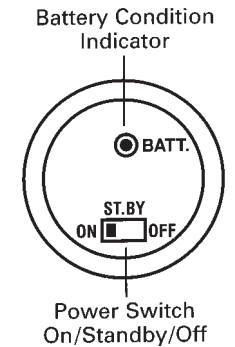
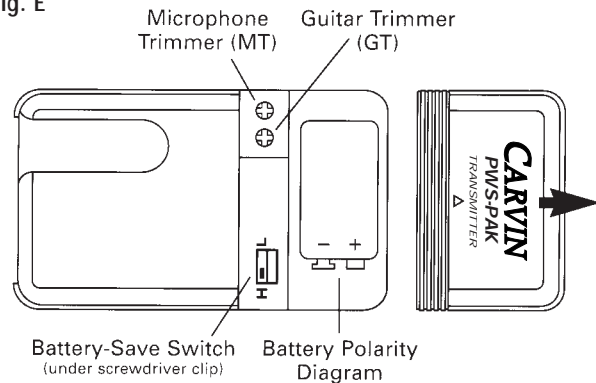


Fig. E



### HANDHELD TRANSMITTER BATTERY INSTALLATION:

1. While holding the upper part of the transmitter body just below the ball-screen, unscrew the lower body cover and slide it downward to expose the battery compartment.
2. Lift the white "battery keeper" arm, and insert a 9V battery. Be certain to observe correct polarity as marked inside the battery compartment (Fig. G). The transmitter housing is designed to prevent incorrect installation of the battery. Do not force the battery in.
3. Replace the lower body cover. Do not overtighten.

Fig. G

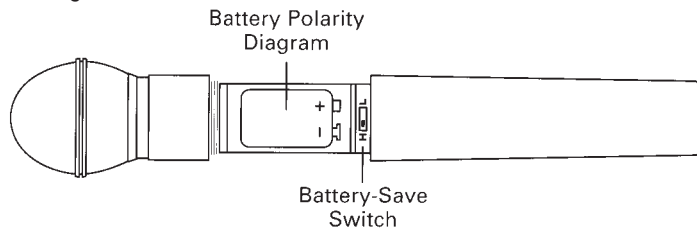
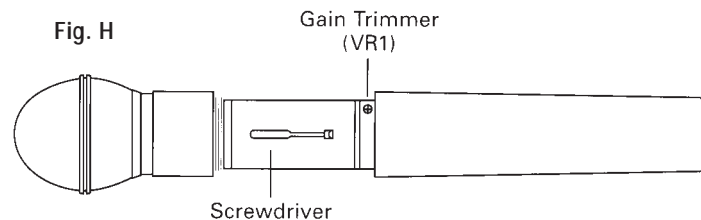


Fig. H



## SYSTEM OPERATION

Check the frequency of the system against the chart on page 7 to ensure you have the proper frequency for your area. The frequency is marked on the back panel of the receiver.

Turn down the AF Level control of the receiver as well as the mixer. Switch on the receiver only. Do not switch on the transmitter yet.

### RECEIVER ON...

The power indicator will light up and one of the diversity indicator LEDs (A or B) will light, even though the transmitter is not on.

### TRANSMITTER ON...

The transmitters have a 3-position power switch. When the switch is set to "Standby," the transmitter produces both RF and audio. With the switch "Off," there is minimum noise output due to a special muting system.

### RECEIVER SQUELCH

The squelch control on the front panel of the receiver is preset at the factory, but can be adjusted if you must use the system in an area with considerable RF interference. If there is audio output from the receiver when your transmitter is off, adjust the squelch control so the system will receive the signal from your transmitter but "squelch" or eliminate the unwanted background RF noise. This adjustment can cause a reduction in useable range of the wireless transmitter, so set the control to the lowest position that reliably mutes the unwanted RF signals.

### INPUT LEVEL ADJUSTMENT

Input trimmer controls in the transmitters enable you to use microphones or guitars with different sensitivities, or to adjust for different acoustic levels. Caution! The small trimmer controls are delicate; use only the supplied screwdriver. Do not force the trimmers beyond their normal 260° range of rotation. Return the screwdriver to its storage clip when not in use.

### UNIPAK TRANSMITTER

Slide the battery cover off the top part of transmitter and remove the screwdriver from its clip (Fig. E). Gently turn the "MT" (mic trimmer) and :GT" (guitar trimmer) controls to their full counter-clockwise positions.

### ADJUSTING MICROPHONE INPUT LEVEL:

With typically-loud acoustic input level to the microphone, carefully turn the MT control clockwise while watching the receiver's AF Peak indicator. Increase the MT control setting until the AF Peak indicator lights. This indicates that maximum transmitter modulation without significant distortion has been reached. (When using a guitar, return the MT control setting to minimum.)

### ADJUSTING GUITAR / INSTRUMENT INPUT LEVEL:

While playing at typically-loud levels, carefully turn the GT control clockwise while watching the receiver's AF Peak indicator. Increase the GT control setting until the AF Peak indicator lights. This indicates that maximum transmitter modulation without significant distortion has been reached. (When using a microphone, return the GT control setting to minimum.)

After adjusting input levels, return the screwdriver to its clip and reinstall the battery cover. No further transmitter gain adjustments should be needed, as long as the input device and the acoustic input level are not changed.

### HANDHELD TRANSMITTER

Unscrew the lower body cover and slide it downward, exposing the screwdriver and gain trimmer (Fig. H). Remove the screwdriver and gently turn this gain trimmer control to its full counter-clockwise position.

With acoustic input to the microphone at typically-loud levels, carefully turn the trimmer control clockwise while watching the receiver's AF Peak indicator. Increase the control setting until the AF Peak indicator lights. This indicates that maximum transmitter modulation without significant distortion has been reached.

Return the screwdriver to its clip and close and secure the lower body. (Make certain that the white "battery keeper" arm is inside the body.) No further transmitter adjustments should be needed, as long as the acoustic input does not change significantly.

### FREQUENCY SELECTION

Each transmitter/receiver system operates on a single factory-aligned, crystal-controlled frequency. Available frequencies are shown in the chart below.

Operating frequency is specified by a two- or three-character code, such as "T2" or "11G," in addition to the actual frequency in MHz. The frequency of each transmitter appears on a label on the outside of the unit. The frequency of the receiver appears on a label on the back of the unit and the frequency of each system appears on the outer carton. For future reference, please record them in the space provided.

Because most of these authorized frequencies are shared with TV broadcasting, frequency selection is largely dependent upon which TV broadcast channels are in operation where the wireless system is to be used.

## TEN TIPS TO OBTAIN THE BEST RESULTS

1. Use only fresh alkaline batteries. Do not use (carbon-zinc) batteries.
2. Position the receiver so that it has the fewest possible obstructions between it and the normal location of the transmitter. Line-of-sight is best.
3. The transmitter and receiver should be as close together as conveniently possible.
4. The receiver antenna should be in the open and away from any metal. If in a rack, have the unit on top or angle antennas outward away from the metal rack.
5. A receiver cannot receive signals from two transmitters at the same time.
6. The power switch on the transmitter has three positions: "Off," "Standby" and "On." In the middle "Standby" position, the transmitter sends only RF to the receiver; the audio source is turned off.
7. For best operation, adjust the guitar or mic trimmer only until the maximum output lights the AF Peak indicator (don't overmodulate).
8. If the AF Level control of the receiver is set too high, it may over-drive the input of the mixer or clip the output of the receiver, causing distortion. If the receiver output is set too low, the overall signal-to-noise ratio of the system may be reduced.  

Adjust the output level of the receiver so the highest sound pressure level going into the microphone causes no input overload in the mixer, and yet permits the mixer level controls to operate in their "normal" range (not set too high or too low). This provides optimum signal-to-noise for the entire system.
9. Turn the transmitter off when not in use. Remove the battery if the transmitter is not to be used for a period of time.
10. In multiple-system applications, set the battery-save switches on "L" (low) is possible, to reduce the chance of intermodulation problems.