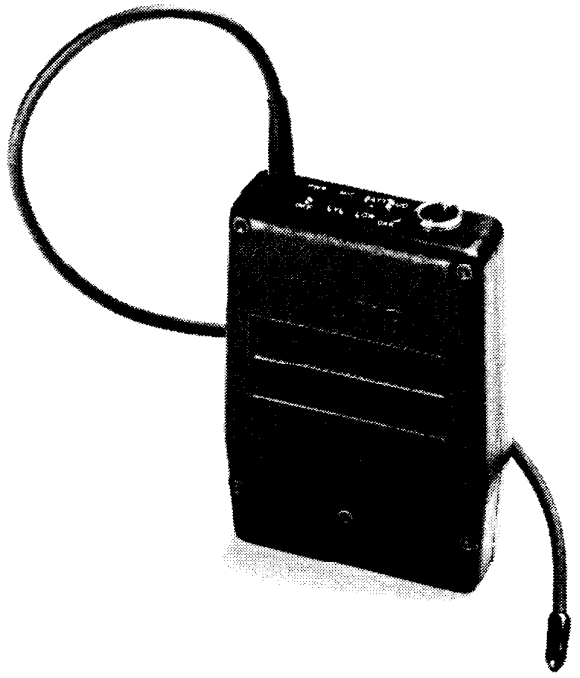
Vega Model T-25 and T-26
VHF Wireless Bodypack Transmitter
Owner's Manual



099-0049C

Contents

Controls and Indicators

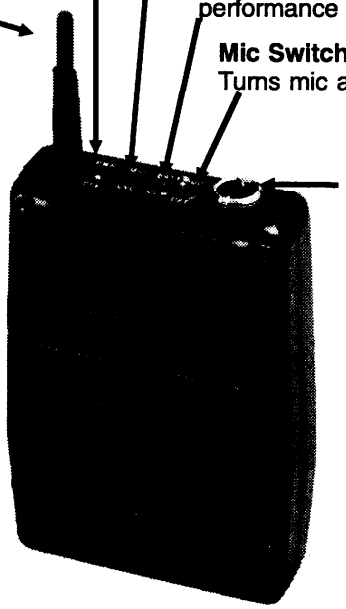
Power Switch: Turns power on/off.

Antenna:
Rugged strain-relief boot improves reliability by eliminating troublesome connectors; antenna wire constructed of insulated metallized Kevlar® fibers for extended service life.

Mic Level:
For transmitter preamplifier gain adjustment. Adjusted with a small screwdriver. Approximately 33 dB of range.

Audio Peak/Low Battery LED:
Flashes on audio peaks, and illuminates when the battery is low. When illuminated, about 15 minutes of useful operation remain before serious performance degradation will occur.

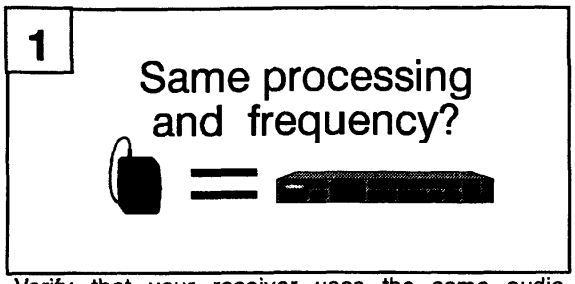
Mic Switch:
Turns mic audio on/off while maintaining the RF link.



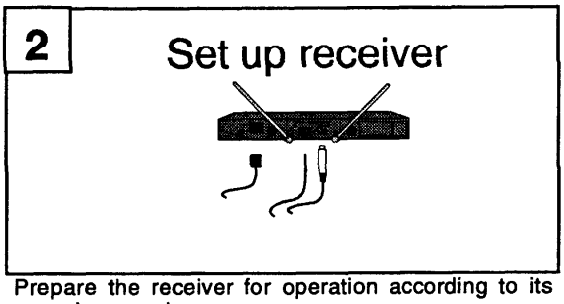
Microphone Connector:
Allows connection of a wide variety of lavalier condenser microphones. See page 6 for additional information.

Battery Compartment:
Bottom slides open to insert 9-volt battery. A pull tab is provided for ejecting the used battery.

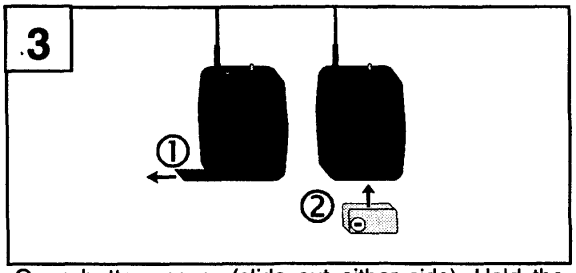
Quick Start



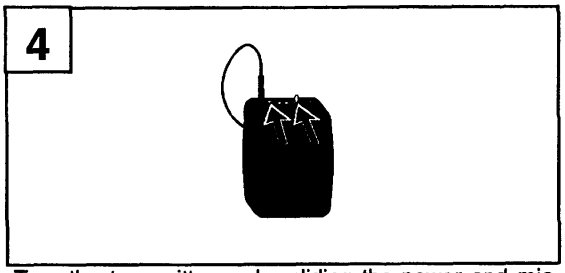
Verify that your receiver uses the same audio processing (DYNEX®III) and frequency as the transmitter.



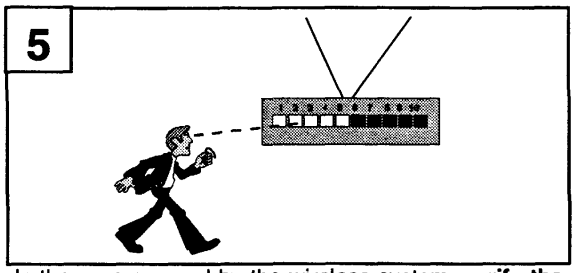
Prepare the receiver for operation according to its owner's manual.



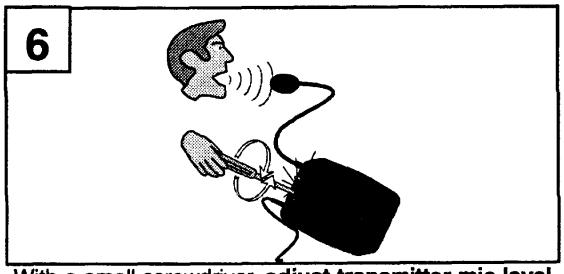
Open battery cover (slide out either side). Hold the battery-removal pull tab out of the way. Insert the battery (negative "–" terminal at bottom). Hold the battery-removal pull tab against the battery and slide the cover back in place. **CAUTION**: The battery's negative terminal always must be at bottom.



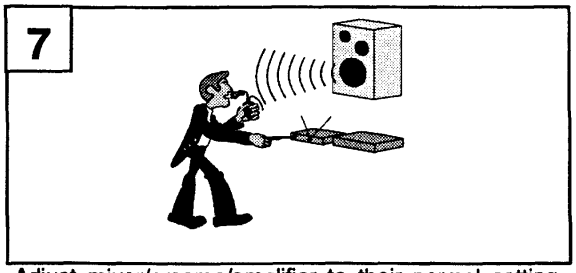
Turn the transmitter on by sliding the power and mic audio switches to their on positions as shown above.



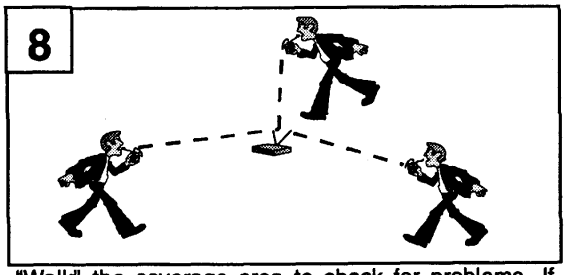
In the area covered by the wireless system, **verify the receiver** is receiving by observing its indicators (see receiver instructions for details).



With a small screwdriver, **adjust transmitter mic level** so the receiver's audio level LED flashes only when speaking very loudly. If it flashes frequently, turn it counterclockwise. If it doesn't flash at all, turn it clockwise.



Adjust mixer/preamp/amplifier to their normal setting. Speak into mic. **If necessary, adjust receiver's audio output level** until wireless system volume matches wired system volume (see receiver instructions for details).



"Walk" the coverage area to check for problems. If there is a problem, check mic batteries (fresh?); ensure receiver antennas aren't touching each other or any metal objects; ensure the path between the transmitter and receiver is clear of obstructions. See "In case of Difficulty" section for details.

A Word to Vega Users

In selecting Vega wireless microphones, you are in the company of audio professionals worldwide. Leadership for over 30 years has made "Vega" synonymous with wireless microphones. Our equipment provides superb sound quality, outstanding performance, and the durability needed for years of successful operation.

Unpacking

Verify the number of boxes shown as "shipped" has been received in good condition. Unpack and save cartons for storage or reshipping. If, for any reason, you do not find the equipment to be completely satisfactory, please immediately contact your Vega dealer or the Vega factory.

Should service ever be required, remember your authorized Vega service dealer knows your equipment best. They have the training and test equipment necessary to restore your equipment to its peak performance.

Please feel free to contact either your authorized Vega dealer or the Vega factory for information or assistance at any time.

Compatibility

Vega Model T-25/T-26s are equipped with DYNEX®III audio processing and may only be used with receivers also incorporating DYNEX®III processing. T-25/T-26s are not compatible with receivers from other manufacturers.

Even though they incorporate DYNEX®III audio processing, T-25/T-26s are part of Vega's commercial/industrial product line. Accordingly, while they are technically compatible with Vega's high-end professional products, overall system performance will be limited by the T-25/T-26s, not by the higher performance high-end equipment.

T-25/T-26s are designed to work in the 169 to 216 MHz VHF range. The transmitter frequency must be precisely matched to the frequency of the associated receiver. The receiver's frequency is marked on its case. The transmitter's frequency is marked on the data label on its side. If the transmitter and receiver frequencies are not precisely the same, the frequency of one of the units must be changed. It is usually easier to change the frequency of the receiver; however, it is advisable to return both units to the factory or authorized service location when changing frequencies, to ensure the best results. Because of the very high performance of these units and the specialized test equipment required to adjust them properly, users should not try to change frequency themselves.

If two or more systems are used at the same location, proper frequency selection and spacing are required to avoid possible interference. Vega offers a free frequency-coordination service for purchasers of its equipment. Frequencies are selected by computer to avoid any possible interference from other wireless systems and broadcast stations. To take advantage of this free service, contact the Vega factory or your local sales representative.

Operating Instructions

Warning! Only authorized technicians should open Vega equipment. Unauthorized internal adjustments or repairs can damage your equipment and void your warranty. If internal adjustments or repairs are needed, contact the factory or the nearest Vega authorized service center.

(1) Verify that the receiver and the T-25/T-26 are on the exact same frequency.

(2) Prepare the receiver for operation in accordance with its instruction manual.

(3) Verify the T-25/T-26's battery is fresh and the microphone is connected correctly.

To Install the Battery

Slide battery compartment cover on the bottom of the unit out either side of the case. Hold the battery-removal tab out of the way. Insert the battery; **always insert the battery's smaller positive terminal into the battery compartment first.** Hold the battery-removal pull tab against the battery and slide the cover back in place. Turn the transmitter "on" by means of the indented power switch on the panel.

To Connect the Lemo-Plug Microphone (T-26s only)

Align the Lemo plug, on the end of the mic cable, with its mating connector on the transmitter. Push in; the plug is seated when a slight "click" is heard. To remove the mic plug, grasp the barrel of the Lemo connector with your thumb and forefinger, and pull straight out. The barrel of the Lemo connector is spring-loaded and will release a locking mechanism inside the connector.

CAUTION: Do not twist the connector when removing the mic from the transmitter, and do not pull on the mic cable.

(4) Place the transmitter in a pocket or attach to clothing with the belt clip (supplied). Keep the antenna as high and vertical as possible.

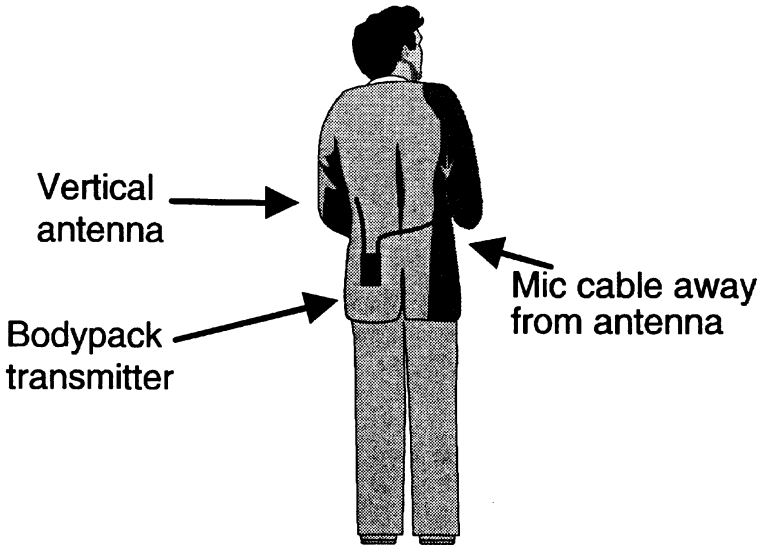


Figure 1
Typical Transmitter Placement

(5) Turn the T-25/T-26 "on," and position it in the approximate center of the area to be covered by the wireless system. Verify that the receiver is correctly receiving the signal from the T-25/T-26.

(6) Turn the T-25/T-26 "MIC" switch "on."

(7) Adjust the T-25/T-26 mic level control, if necessary. When speaking or singing loudly, the LED indicator on the transmitter control panel should flash on the loudest voice peaks. This indicates that the transmitter is at approximately the point where soft gain compression is occurring in the microphone preamplifier. If the system is correctly set up, the compression point will be reached only rarely. Setting the mic level correctly maximizes the system signal-to-noise ratio while ensuring optimum audio quality. If the mic level is set too high, thumps or pops due to overload may occur; if set too low, the system might "noise-up" at times. Also, if necessary, adjust the receiver output level.

(8) Audio phasing, if important, should also be checked at this time. Because of differences in lavalier microphones, it is not possible to be sure that two different types of microphones have the same phase. If the console or recorder does not have a phasing switch, it might be necessary to reverse the wiring in the audio cable from the receiver or use a phase-reversing adapter.

(9) It is always advisable to "walk" the coverage area to ensure that there are no areas of poor coverage. Signal "dropouts" (little or no signal in small areas) are indicated by the extinguishing of the "TX" or squelch indicator on the receiver and by a brief "fizzing" sound in the audio (which might or might not be followed by a silent period due to squelched audio). If a "dropout" area occurs, the antenna can usually be repositioned to eliminate the problem. Frequently, a change of just a few inches in location will solve the problem completely.

To Use a Different Microphone

Handhelds

The T-25/T-26 is designed to operate with lavalier microphones; however, with a Model 114 adapter cable, many standard wired handheld microphones may also be used.

Low-Output Dynamic Microphones

Because the audio circuits in the transmitter have been optimized for use with lavalier electret (condenser) microphones, certain types of low-output dynamic microphones may not be able to drive the transmitter adequately. In these cases, it may be necessary to use an impedance-matching transformer at the microphone or an internally powered condenser microphone. The T-25/T-26 cannot phantom-power wired handheld microphones.

Lavalier Electrets

Most lavalier microphones are of the electret condenser type. The T-25/T-26 specifically includes circuitry to accommodate either positive or negative bias, two- or three-wire microphones. However, most lavalier electrets are equipped with electronics modules containing voltage-regulator circuitry (or a battery compartment) and a transformer for the line output. Many are designed for phantom-powering through the microphone cable. When used with the T-25/T-26 transmitter, it is almost always necessary to detach the electronics module and interface the electret element directly to the transmitter circuitry. Please contact Vega or your Vega sales representative if assistance in determining correct connections is required.

Lemo Connector Assembly (T-26s only)

(1) Slide the threaded clamp, then the collet, over the end of the cable; the slotted end of the collet should face away from the cable end.

(2) Strip approximately 1/2 inch (12 mm) of outer insulation. Open a small hole in the shield where the outer insulation has been stripped; work the center conductor(s) through the small hole in the shield.

(3) Strip the center conductor(s) approximately 1/8 inch (3 mm). Tin the center conductor(s); also tin the end of the shield.

(4) Solder a 3/4-inch (18 mm) piece of 24-gauge bus wire into pin 4 of the insert. Bend the bus so it comes out of the center of the insert in the direction of the cable.

(5) Position the mic cable so the center conductor(s) will slip into their respective pins. Solder the shield to the bus wire; trim away any excess shield. Solder the center conductors into their respective pins.

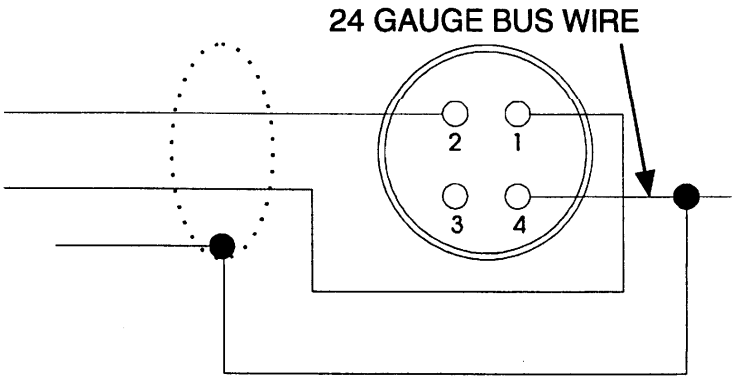
(6) On those mics with pins 1 and 3 tied together, use 24-gauge bus wire between the pins. This forms a bar to which the center conductor is soldered.

(7) Slide the collet into place on the insert. Make sure the alignment key on the collet fits into the key way on the insert.

(8) Slide the shell into position. Then slide the clamp over the collet and tighten. The bus is held tightly against the cable by the clamping action of the collet; this ensures a strong mating of the cable and connector.

T-26 Mic Connections

Pin 1..... + Mic bias
Pin 2..... Audio
Pin 3..... –Mic bias
Pin 4..... Ground or Common



Assembly of Tini "Q-G" (Mini-XLR) Connector (T-25s only)

1.) Disassemble the connector by unscrewing the black plastic backshell, metal cable clamp assembly, and the internal plastic connector block.

2.) Slide the plastic backshell and strain-relief assembly over the cable sheath. If necessary, lubricate the sheath to permit free motion of the backshell (silicone lubricant is best; Vaseline can be used if applied sparingly).

3.) Next, slide the small black plastic connector block over the cable sheath. The round end with three slots goes towards the backshell and away from the connector end of the cable.

4.) Press the connector pin assembly out of the metal main connector shell by gently pushing it backwards towards the threaded end of the shell with a pencil eraser or similar tool.

5.) Strip approximately 5/16 inch (8 mm) of the sheath away from the cable shield.

For very small cables, the shield may be small enough to solder directly to the connector pins after the center conductors are extracted. In this case, do not strip the shield. Using a small sharp tool (such as the end of a small test probe), separate the shield braid and pull out the insulated cable conductors. Then twist the shield to form a small single-conductor stranded wire.

For larger cables, trim the shield to a 1/16 inch (1.5 mm) exposed length by stripping approximately 1/4 inch (6 to 6.5 mm) of the shield from the end of the cable. Then strip a short length of #24 AWG insulated wire back approximately 1/4 inch (6.5 mm). Wrap this wire around the exposed shield on the cable and solder it carefully to the shield.

6.) Strip the insulated cable conductors back 0.1 to 0.125 inch (2.5 to 3.0 mm), twist the conductors, and sparingly tin the leads with solder. Cut the shield or shield wire to proper length, strip if necessary, and tin.

7.) Making sure that the backshell and connector block are still properly in place, carefully solder the wires to the appropriate connector pins. Do not use excessive solder and make sure that there are no pin-to-pin shorts. If available, use small lengths of sleeving (about 0.125 inch or 3 mm long) over the wires as additional protection from shorting.

8.) After a final inspection for shorts, carefully stick the connector pin block into the metal connector shell. The side of the pin block with the flat section and closed-end groove must align with the black plastic release button on the metal shell.

9.) When the pin block is fully seated, slide the small plastic connector block down into the metal shell, also aligning the flat portion of the release button. The two small prongs on the block should slide freely into the two small grooves in the pin block.

10.) Install the metal cable clamp over the cable sheath (spread the slot in the clamp slightly, if necessary). Stick the clamp over the sheath, aligning the small metal locating tab opposite the slot, with the slot in the threaded portion of the metal shell.

11.) When the assembly is properly fitted together, compress the tabs on the cable clamp to grip the cable sheath securely. **NOTE:** The metal clamp should not touch the exposed cable shield.

12.) Finally, screw the backshell onto the threaded portion of the metal connector shell. Tighten securely with your fingers. If pliers are used, be very careful not to over-tighten the backshell, because it will break.

T-25 Mic Connections

Pin 1.....+ Mic bias
Pin 2.....+ Mic bias via source resistor
Pin 3.....Ground via load resistor
Pin 4.....Ground or common

Trouble Shooting

Most users of Vega equipment enjoy years of trouble-free operation from their wireless microphones. As with all electronic devices, however, problems may be encountered eventually. If you experience difficulty with your Vega wireless-microphone system within the first year of operation, it will be repaired under warranty (see below). Service for older units may also be obtained from Vega; contact the factory or your sales representative for information.

The majority of difficulties with Vega wireless microphones are not due to equipment failure. This equipment is fully tested before leaving the factory and is inherently reliable. In most instances, problems are due to equipment application.

The following paragraphs describe the most commonly encountered application problems. If you are having difficulties with Vega equipment, please review this information and take any necessary corrective action prior to returning the equipment for repair.

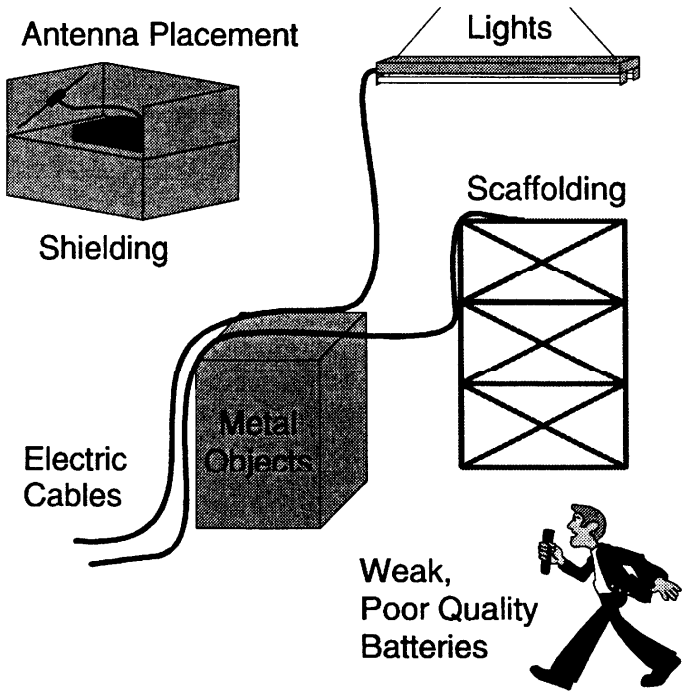


Figure 2.
Common sources of transmitter problems.

Battery

The most common problems with wireless-microphone systems are those related to the batteries. Vega recommends that only new, fresh Duracell MN1604 or "Eveready" Energizer No. 522 alkaline batteries be used. No other batteries tested by Vega have been found to provide equal life and equivalent reliability.

Regular "9-volt" carbon cells have much shorter lifetimes (two to three hours for a fresh unit, perhaps less than one hour for a unit which has been on a rack for a year or so). Cheap "bargain" cells may not work at all, because they often are really 7 volts instead of 9 volts, and may not be able to supply the required current.

Rechargeable cells ("ni-cads") are sometimes used in wireless equipment. The units commonly sold are almost always 7.2 volts instead of 9 volts and provide only a few minutes of operation. The only acceptable rechargeable battery known to Vega is the Varta, which is a true 9-volt design. Even here, the usable life (usually two to three hours) will be much less than for a Duracell.

Battery contacts must be clean and unbroken. The battery tension spring in the transmitter (opposite to the battery contacts) must also be intact. Inserting the batteries in backwards is practically impossible, but the attempt will likely damage the transmitter's battery contacts. Some "9-volt" batteries sold are larger (or smaller) than standard and either might fail to work or might damage the contacts when inserted. Damage to the contacts usually requires a return to the factory or authorized service center.

Exhausted batteries will cause numerous problems, including distortion, audible squeals and howls, poor range, and off-frequency operation. It is strongly recommended that the battery be checked prior to each use, and that it be replaced if there is any question about its condition. It is also good practice to replace the battery with a fresh unit in the event of any sort of problem with the system, because a low battery might affect system operation in subtle ways.

Microphone Problems

A few electret microphones are sensitive to RF energy and require special precautions to operate properly with wireless transmitters. This includes several types of Sony microphones, some Beyer and AKG units, most types of Audio-Technica microphones, and several others. If the sound quality of a microphone changes drastically when its position with respect to the transmitter changes, RF susceptibility is likely the cause. Contact the Vega factory or your sales representative if assistance is required.

The wires in lavalier electret microphone cables are usually very small. After a period of heavy use, the conductors might fray, resulting in intermittent failure or severe noise. Of course, an outright break might also occur, but this is usually easy to identify and correct. It is advisable to have a spare microphone available that is known to be in good working condition (it does not need to be a high-quality unit). With a spare microphone, it becomes easy to localize problems due to bad microphone cables by merely substituting the spare for the suspected unit.

General

Always contact the Vega factory or your sales representative before returning equipment for repair. Often, the problem can be resolved by telephone, avoiding downtime for unnecessary returns. However, should repairs be necessary, Vega will promptly correct the problem and return the unit. Return of both the transmitter and receiver is recommended, allowing Vega to perform a complete checkout and test of the entire system. This can be especially helpful for elusive or intermittent problems.

Warranty (Limited)

All Vega wireless products are guaranteed against malfunction due to defects in materials and workmanship for a period of one year, beginning at the date of original purchase. If such a malfunction occurs, the product will be repaired or replaced (at our option) without charge during the one-year period, if delivered to the Vega factory. If delivered prepaid to the Vega factory or an authorized warranty service center, the unit will be returned prepaid. Warranty does not extend to finish, appearance items, or malfunction due to abuse or operation under other than the specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Vega or its authorized service agencies will void this guarantee. Information on authorized service agencies is available from the Vega factory.

Important

Be sure the exact return address and a description of the symptoms are enclosed inside the package with your equipment.

It is also advisable to return both the transmitter and receiver for a full system performance test when practical.

Factory Service Center

Vega
9900 E. Baldwin Place
El Monte, CA 91731-2294
(818) 442-0782

Vega FaxBack (Fax Library)

You may automatically retrieve information including more detailed procedures, schematics, and other Vega products from our fax library. It is available 24 hours a day from Vega's FaxBack system. Simply call (818) 444-2017 or 800 274-2017, then follow the voice instructions.

Claims

No liability will be accepted for damages directly or indirectly arising from the use of our materials or from any other causes. Our liability shall be expressly limited to replacement or repair of defective materials.

Specifications

Model T-25/T-26 Transmitter

Frequency Range:	150-174 MHz, 174-216 MHz
Power Output:	50 mW
Spurious Radiation:	45 dB below carrier, minimum; typically 55 to 60 dB below carrier
Audio Input:	–35 dBm (14 mV) to –3 dBm (0.55 V) for full deviation (gain pot range is 32 dB)
Input Impedance:	3.2 kΩ, minimum
Microphone Bias:	Accepts most positive- or negative-bias electret microphones
Controls:	Power on/off, mic on/off, mic gain
Indicator:	Audio-compression and low-battery LED (single)
Modulation Limiting (Compressor):	Per FCC requirements: "soft" compressor action, 25 dB range (minimum); typically system distortion is less than 0.4% at 25 dB compression
Mic Connector:	T-25: Four-pin miniature XLR (Tini "Q-C") T-26: Four-pin Lemo (Type 304)
Antenna:	1/4-wavelength flexible whip, permanently attached
Battery:	9 V heavy-duty alkaline (Duracell MN1604 or Everyready Energizer recommended)
Dimensions:	3.8 in (9.7 cm) long, 2.8 in (7.1 cm) wide, 1.0 in (2.5 cm) thick
Weight:	5 oz (145 g), including battery

Overall System Performance

Working Range:	Up to 1000 ft under ideal conditions; usually somewhat less in typical applications
Emission/Modulation:	Direct FM, crystal-controlled, 60F3 or 54F3
System Frequency Response:	45 Hz to 15 kHz, ±1.5 dB; 100 Hz to 10 kHz, ±0.75 dB
System Harmonic Distortion:	0.5%, maximum, below transmitter limiting; 0.2% typical at 1 kHz
System Ultimate S/N:	100 dB (flat) minimum (104 dB typical A-weighted), excluding microphone electronics and/or element noise

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