Wildlife Materials International, Inc.

THE DOG RECOVERY UNIT:
HOW IT WORKS

Welcome to technology that helps you find your dog after the hunt. Users of radio monitoring equipment tell us they won't release their dogs without it. A dog recovery unit saves time, gas, vehicle wear, money and sleep. Most of all, this equipment gives you peace of mind and the security of knowing you'll come home with your dog.

Many situations make radio-locating equipment invaluable. Dogs don't know the hunt is over, or maybe they're having too much fun to come in. With a dog recovery unit, a hunter can get them out of the woods faster, so that the dogs don't harass other animals and displease natural resource managers, landowners and the public at large. After a competition hunt in another state, a dog owner can get to work on time Monday morning, eliminating a long search for a lost dog and the need to spend extra nights in a motel or make return trips. If a hunter has to go home without the dog, he must rely on someone else to find the dog and then pay the dog's shipping bills back home.

Every day hunters tell us about finding dogs injured on a highway, snagged in barbed wire, snake bit in a swamp, dogs that have fallen into holes and off cliffs, or been hit by a train. And unfortunately, theft of hunting dogs is on the rise. Sometimes the dog is found alive and goes right back to hunting. Or, sadly, the dog may be dead. But in either case, the owner gets relief from worry by knowing what has happened to a valuable dog.

WHAT IS A DOG RECOVERY UNIT?

A locating system consists of three items:

1. --A **transmitter, mounted on a collar** worn by the dog, sends out a beeping signal, which the dog cannot hear.
2. --A handheld **receiver** picks up the collar's beeping signal.
3. --A Yagi directional **antenna**, usually with 3 elements, also held by the handler, magnifies the collar signal and pinpoints the dog's direction. The antenna is required because it pinpoints the exact location of the dog. A coaxial cable (4 or 6 feet, your choice) connects the antenna to the receiver face.

HOW DOES A DOG RECOVERY UNIT WORK?

Remove the transmitter magnet just before buckling a transmitter collar on the hunting dog. Test the collar's signal with your receiver; you'll want to insure that the collar is working properly. Tune for the best signal and release your dog.

To find your dog, assemble the antenna, attach the cable to the receiver's antenna jack, and turn on the receiver, then dial the channel/frequency on which your dog's specific frequency number is programmed. Slowly turn in a complete circle, holding the antenna in front of you with its main boom parallel to the ground. As you turn, signal strength will increase then decrease. Move toward the strongest signal, where your dog is located. In case the dog veers off, take more readings as you go. After locating the dog, stop his collar signal by replacing the magnet. Use your receiver to verify that the collar is off. Finally, turn your receiver off, fold the antenna and store equipment safely.

HOW CAN I IMPROVE MY RADIO TRACKING SKILLS?

Please read the instructions several times if necessary!

Practice with the equipment, starting off **slowly**. Place a working transmitter **in a known location within a hundred yards** of you. After you have located the transmitter with a receiver, gradually increase your distance from the transmitter collar. Have a friend hide the collar a **few hundred yards away**. On the first try, make sure your friend does not hide it two counties and several hollows away! **Attach the transmitter collar to a dog only after you feel comfortable with the way a recovery unit works.** Hunters tell us experience has been their best teacher.

Contact us with your questions. We'll be happy to answer them and offer suggestions. Now included with receiver instructions are **troubleshooting directions** for times when your equipment misbehaves. If you did not get troubleshooting information with your receiver, please let us know.

WHAT IS A FREQUENCY RANGE?

A frequency range is an airway on which radio signals are broadcast. There are many radio frequencies, established and governed by the Federal Communications Commission. All sorts of users (police, river barge operators, falconers, TV stations, airports, etc.) broadcast radio signals on these radio waves. A full frequency range consists of 1000 points, or more exactly, 1000 Kilohertz (KHz).

All three parts of the dog recovery unit (receiver, antenna, transmitter collar) must work in harmony on one frequency. For dog hunters, we usually provide equipment that works on the **216 or 217 or 219 frequency ranges**. We also custom build on **some** other frequencies, depending on your request and our licensing restrictions. Custom building does not usually cost more but it takes longer and there is a no-return policy. To avoid conflicts, we do not put dog hunters on frequency ranges that are traditionally used by wildlife researchers, such as the 150, 151, and 218 frequencies.

On the identification tag of each transmitter collar, its exact frequency is printed. For instance, if the collar says "219.568," all parts of the dog recovery unit are programmed to the **219**-frequency range. The collar's specific number on that range is **.568**.

If you hunt with a buddy and want **to help find** his radio collared dogs, **please let us know the specific numbers of his collar frequencies.** This information allows us to place your collars at least 10 points or KHz away from his collars and thus avoid interference from them. At the same time you'll be able to pick up his collar signals.

Or perhaps you want to **avoid** the transmitter collar signals of another hunter in your area. **If you provide us with his collar frequency numbers,** we will happily program your equipment so that you can miss picking up his radio signals.

We ask that hunters provide this information because our records are incomplete. We know only what a hunter has purchased from us. And often, an order is placed by a spouse or under a company name. We have no way of knowing what other manufacturers have sold, or what equipment has been traded in the field.

The transmitter frequency number is determined by the crystal at its heart. We purchase only HIGH IMPACT CRYSTALS for all our transmitter collars. The **High Impact crystal withstands 20,000 Gs of force**, or takes considerable abuse and keeps on working. Other manufacturers use the standard impact crystal, which withstands only 4,000 Gs of force.

Our **receivers** are structured to pick up radio signals over a small or medium or complete part of a frequency. For instance, the economy TRX-3S Receiver has 3 channels, usually separated by 30 blank spaces or KHz. The TRX-10S Receiver is also limited, with 10 channels ending by .760 and with 30 blank spaces or KHz between each channel. Our middle model the TRX-64S Receiver has no blank spaces between its 64 channels, so it is continuously tuned. It will pick up signals over 640 KHz out of the possible 1000 KHz. Our best TRX-1000 Receiver is continuously tuned and can pick up any signal over the complete 1000 KHz range.

HOW MUCH SIGNAL RANGE WILL MY UNIT GET?

There is no absolute answer to this question. Signal distance is influenced by many variables: the equipment's construction and its condition after wear, how the operator uses the equipment, the dog's way of hunting, weather conditions, the time of year, and most important of all, the type of terrain the dog is released in.

Signal range is determined by **both** the receiver's ability to pick up a signal **and** the transmitter collar's ability to send a signal. Also, an antenna cable that has been pinched in a vehicle door, a worn cable connector, or a bent antenna element can reduce the signal range. If your range drops suddenly, check the coax cable and its BNC connectors.

Receiver models will vary in their ability to pick up a signal. Wildlife Materials offers four grades of receiver quality: the three-dog TRX-3 Receiver, an economy TRX-10S; the midrange, higher quality TRX-64S; and the finest quality TRX-1000S.

Transmitter collar models will vary in their ability to send a signal. Most of our transmitter collars have a standard 2-8 mile signal range, **depending on tracking conditions**. Our High-powered Rechargeable Collar (#HNCM-3975) and our Magnum Convertible Collar (#HLPM-3190/3280) offer a long signal range of 3-12 miles, depending on tracking conditions. Our transmitter models using the new three-stage circuit board will have an increased signal range.

Weather conditions can affect the signal. If it's snowing, raining or foggy, a veil comes between the dog's transmitter signal and your handheld receiver. Moisture caused by these conditions can cut the signal range. Moreover, if a dog is standing **in** swamp or creek water, the signal will be cut. If a dog is moving **on the other side of a lake**, the signal range will improve. **All our transmitter collars are hermetically sealed for complete waterproofing.** Receivers are weather resistant, especially since their circuit boards are coated with epoxy. However, **no receiver made here or elsewhere is guaranteed waterproof.** We urge hunters to cover the receiver or use it from inside a vehicle when moisture is present.

A signal will travel best over flat open country. We test all our equipment in these **line-of-sight** conditions. Some uniformity of performance can be determined on this level. People can agree on what flat open country is, while one person's hill is another person's mountain.

If you release your dog in **rugged terrain**, you can expect the signal range to be cut down by natural obstacles, sometimes dramatically. That's why we recommend the High-powered Rechargeable Collar and the Magnum Convertible Collar for up-and-down terrain. These two collars give you more distance to play with. Timber stands, dense foliage, mountains and swamps form barriers that prevent the signal from going directly to the receiver. Moreover, these barriers are **walls that a signal can bounce off, confusing you about the direction of your dog.**

HOW DO I DEAL WITH SIGNAL BOUNCE?

Signal bounce is a normal feature of radio equipment use in rugged terrain. We cannot change this fact, but we can suggest ways to meet the challenge. Imagine that you are in a valley, looking for your dog. A signal comes over a mountain toward you and may bounce off the mountain wall behind you before reaching your receiver. So you decide that the dog is behind you, when in reality the dog is located in front of you. Frustrating!

To combat signal bounce, the user should go to a **high altitude** such as a ridge, where the best signal range will occur. Then turn the receiver's gain control knob or volume to **low**. Take **several** readings from **different** positions on the ridge. It’s important to change the scenery behind you. If there is a big rock behind you, shift positions before you take another reading. Your dog is located at the place where two or more signals **cross**. This radio tracking method is called **TRIANGULATION**.

WHAT IS SWAMPING AND HOW DOES AN ATTENUATOR HELP?

Swamping is another characteristic of radio equipment use. Swamping occurs when the dog's transmitter signal surrounds the hunter, coming to the receiver equally from all directions. Turn the receiver's gain control knob **down as far as possible while still getting needle movement**; if swamping continues, you are very close to your dog. It may be impossible to pinpoint the dog's exact location under these conditions. All Wildlife receivers now have an ATTENUATOR to help reduce this problem. The attenuator shortens or weakens the signal so that it can be received better. When you are swamped, turn ON the ATTENUATOR switch (may be marked ATT. or ATTEN. on receiver face) increase the gain's volume if necessary, and go in the direction where the signal is strongest.

But remember to turn OFF your ATTENUATOR as your dogs move out to a greater distance again. If the attenuator remains on while your receiver is trying to bring in a signal from a long way, you will not be able to get any signal. When we receive calls from owners of equipment who cannot get any signal range, the first question we ask is, "Have you turned off your ATTENUATOR?"

Hunters have been dealing with swamping for a long time. If your receiver does not have an attenuator, just **detach the antenna cable** from your receiver. The antenna's ability to magnify a signal is not needed when you are close to your dog and the collar signal swamps the receiver.

WHAT IS BLEED OVER?

Bleed over is interference from another radio signal that is **too close.** Because the receiver is bringing in two or more signals at the same time, your signal reception suffers.

Bleed over can occur when your animals' collars are placed too close together on your frequency range. For instance, you may have collars with frequencies **217.555 and 217.558**. To avoid such interference, we will space your collars so that they are at least 10 points or **10 KHz apart**. You will need to help out by letting us know the frequency numbers of any collars you want to pick up or to miss.

Bleed over also occurs when one dog is in a holding box on the truck bed (with transmitter collar operating) while you search for another loose dog. The nearby signal is too close **to your receiver** while trying to bring in the signal from far away; you may hear the nearby signal in the background, even if your collar frequencies are 100 KHz apart. In this circumstance, the user often cranks up the receiver volume, which encourages distortion.

Bleed over can be stopped by placing a magnet on the collar of the dog inside the truck box. Also, keep the receiver's gain/volume control knob **as low as possible** for best signal reception.

HOW DO I TUNE A COLLAR INTO MY RECEIVER?

Turn the receiver's **tune knob** to the strongest beeping sound, or to the strongest needle movement, or to the sound most pleasant to your ear. Keep in mind that each person's hearing varies, and that a hard-of-hearing person may like a lower pitched beep.

The collar's frequency number will help you find the best signal reception. Let's say your collar's frequency 217.34**5.** Now **match** the frequency's **last number** to its rightful place on the receiver's TUNE dial.

Turn the tune knob so that it points straight up to **"O"**. If your collar frequency is .34**9**, turn the TUNE control all the way right to **"+"**. If your collar's frequency is **.**34**1**, turn the TUNE knob all the way left to **"-". ".** If your collar's frequency is .**343**, turn the TUNE knob to the spot between **"-"** and **"0".**

ARE THERE OTHER WAYS TO GET GOOD SIGNAL RECEPTION?

Radio equipment will be influenced by electrical power lines**.** A dog recovery unit is still good although static has occurred. The solution is to move away from the lines. You'll be able to track your signal more easily.

Some hunters assume that something is wrong if a collar signal does not come in **exactly** at its frequency, say 217.**345.** If your signal reception is not as good as you'd like, try moving the last number up (to .34**6** or .34**7**) or down (to 34**4** or .34**3**). Or you can retune the transmitter signal with the tune knob. The transmitter crystal determines the frequency. When mixed with other electronic components during manufacture, it is normal for the frequency number to shift one or two points.

Best signal reception occurs when the hunter's antenna **elements match the position of** the dog's **collar antenna**. Since the dog can't be seen, it's important to **play with the equipment.** Usually a moving dog's antenna will be sticking up in the air, but if the dog is resting, injured or trapped, the collar antenna may be horizontal. Turn the wrist so that the antenna elements go from horizontal to vertical. See where the best signal reception comes in.

WHICH TRANSMITTER COLLAR IS RIGHT FOR ME?

Before choosing a transmitter collar, consider your dog's **weight**, its **way of hunting**, the **usual terrain** you hunt in, and the availability of **access roads** around your hunting areas.

WEIGHT: We offer collars for heavier dogs like coonhounds and bear dogs, medium sized dogs like foxhounds and bird dogs, and small running dogs like beagles. Our rule of thumb is: No more that **4%** of the animal's **total body weight should go into whatever the dog is carrying.** This insures that the dog will be comfortable and equipment weight will not hinder the dog's performance. An ID plate can be riveted on to our transmitter collar (comes with D ring) to eliminate the weight of a regular collar.

WAY OF HUNTING: If your dog stays close during the hunt, a collar with a standard range will work fine. If your dog hunts wide, or if he pursues game that run many miles in a short time, look for a collar with a longer signal range.

TERRAIN: Radio signals travel best over flat, open country. As you move in rugged terrain with hills, timber stands, rock bluffs and swamps, these natural obstacles will cut down the collar's signal range. The signal must go a longer distance around the obstacles, rather than following a straight line to your receiver. Even dense foliage or a cornfield will affect the signal. In winter, when trees are bare and crops are harvested, your signal range should improve.

ACCESS ROADS: What is the maximum distance you will ever get from your dog? If your access roads are poor and your dog has a large wilderness to hunt in, a longer range collar is a smart buy. On the other hand, if your access roads are good and you can stay within a few miles of your dog at all times, a standard range will work fine. The new Magnum Convertible 2-in-1 collar allows you to **choose** either a standard signal range or a long range, depending on the dog you hunt and the terrain your dog will be released in.

In our transmitters, we use **three different battery types**. Each battery type has advantages and maintenance requirements.

SEALED LITHIUM battery collars will last a set number of hours (Superlife: 16,000 hrs; Standard: 7,000 hrs; Lightweight: 4,000 hrs; Ultralight: 2,000 hrs).

When the battery fades, you will need to **ship the transmitter collar to us** so we can change the battery. This process usually takes at least two weeks so you must be willing to go without the collar for that time period. The US Dept. of Transportation requires that collars with considerable lithium (the Superlife #21100 and #31100 and the standard #2140 and #3140) be shipped by ground only. Such "hazardous material" collars may cost more to ship.

The sealed lithium battery collar is the oldest type of transmitter and a favorite of many hunters because it is usually low maintenance. This collar is subject to **lithium barrier** if stored without use for several months. In order to perform well, the battery requires stimulation and **exercise for at least 8 hours monthly**. If you hunt weekly, the battery will be automatically exercised. However, if you hunt only during the fall, be sure to run the collar for **8-10 hours monthly.**

RECHARGEABLE collars come with a recharger so that you can plug them in and charge after use. The hunter needs to **keep track of the hours used** in the field in order to recharge properly.

Users should **vary recharging time** so that a rechargeable battery will not develop **memory buildup**. If the battery is recharged repeatedly for 4 hours after each hunt, the battery will soon become good for only that amount of time. To take full advantage of the battery capacity, use your collar until a charge of, say, 16 hours or 10 hours or 7 hours is required. Proper recharging insures that the battery will last for years. Rechargeable-battery collars also need to be **returned to us for battery changes.**

CHANGEABLE-BATTERY collars, our newest design, offer convenience. The hunter can **change the battery, antenna and collar easily in the field.** Time is saved because the collar does not have to be sent to the factory for battery change. Hunters need to **keep track of the time the changeable battery has been used.** It's also important to **keep a spare battery on hand.** Hunters report that the changeable batteries are not always available in their areas. We sell the required batteries at a good price, and we ship them out within 2 days of your request, or the same day in emergencies. For longer freshness, changeable batteries should be refrigerated. One battery comes inside each transmitter; extras are sent in small coin envelopes. Keep batteries separate because contact can drain battery power.

WHAT IS ETHICAL USE OF A DOG RECOVERY UNIT?

This equipment is designed to locate valuable dogs **after the hunt**. A dog recovery unit offers many advantages by saving the user time, money, gas, vehicle wear and worry. Radio telemetry equipment gets dogs out of their woods before they harass other animals, and it helps protect wildlife habitat.

We do not manufacture this equipment to improve a hunter's kill ratio. We commend all individuals and sporting clubs that encourage a good sportsmanship ethic. During a hunt, fair play means matching human wits against the natural ability of the animal, without aid of outside devices. Please use radio-locating equipment to promote good sportsmanship.

WHAT ARE COMMON MISTAKES THAT USERS MAKE?

Some users forget to remove the transmitter's starting magnet just before releasing their dog. Others forget to put the magnet in the transmitter's recess after the hunt, causing the battery to run down.

Magnets are small, easily lost, and hard to buy elsewhere. Sometimes a hunter does not keep a backup magnet and a transmitter collar will continue to run down while the hunter searches for another one. This can be days if you need to order from a manufacturer.

Sometimes a changeable battery is inserted incorrectly, so that the transmitter will not work. Please check the engraving on the battery cap. If **"-"** is engraved on the cap, place the battery's **negative end toward** the cap. If **"+"** is engraved on the cap, place the battery's **positive end toward** the cap**.**

Some users forget to turn the receiver's ATTENUATOR switch OFF **when the dog moves out to a considerable distance.** The ATTENUATOR is for use during swamping, when your dog is close (within about 200 yards) even though you can't see him. The attenuator shortens or weakens a signal, so if it is on when the dog moves miles away, no signal may be received.

Equipment has come in for repair with metal identification plates riveted next to the antenna. This placement interferes with the spring-loaded metal antenna base and **can cause shorter signal range.** For best tracking results, the ID plate should not be attached under the antenna and its hidden spring.

Owners or local shop people have been known to try to change a sealed lithium battery in a collar. Lithium is dangerous because it can explode, so we urge hunters to send sealed battery collars to us for

changing. A mangled transmitter can void the warranty. In cases of extreme abuse, we reserve the right to deny repairs.

There is an assumption that a strong signal tells about the inner quality of the transmitter collar. This means only that the manufacturer has widened the pulse and increased its rate so that the beep can be heard more clearly. There is a tradeoff because a strong signal uses more battery power. **A quiet beep is more than adequate for tracking, and the transmitter's battery power is also conserved.**

Some users compare apples with oranges. For instance, it's unfair to evaluate a standard signal range collar with a high-powered transmitter collar. Each has different voltage, power output and ability.

SHOULD I MIX BRANDS?

If you buy a receiver from us and buy transmitter collars elsewhere, we are not responsible for the performance of the collars. Also, we cannot repair collars manufactured elsewhere because we do not have the schematics to do a good job. We strongly encourage you to purchase all equipment from one manufacturer. It saves many hassles! For instance, you may not know which part of the whole unit is malfunctioning, you will need to send items to different manufacturers, and you will not be able to test a complete unit.

WHAT WARRANTY DO YOU OFFER?

We guarantee what we manufacture, the **ELECTRONICS** in transmitters and receivers, for **FIVE YEARS** on parts and labor. Other items purchased elsewhere, such as batteries and cases, are guaranteed for ONE YEAR. Equipment traumatized by undue abuse is not covered.

WHY IS WILDLIFE MATERIALS A GOOD SOURCE OF RADIO EQUIPMENT?

Wildlife Materials has manufactured electronics for over **34** years, so **we will be here to back up our warranties.** All equipment is built and repaired at one facility, making service easily available. We build equipment for wildlife researchers to study endangered species. A second company called CARE TRAK International, Inc., previously a division of Wildlife Materials, provides radio equipment to locate Alzheimer's and other special needs patients who wander.

Dog hunters get the benefit of our continual search for advanced circuitry. We stay abreast of the fast-changing electronics market so that we can design equipment with the best capacity. For instance, the three-stage power of the new Magnum circuit board is the result of research and development. This superior circuit board is now being used in other transmitter models. The three-stage Magnum circuit board improves signal range and signal strength.

We also offer variety (4 receivers and 11 collars) to meet the **individual needs** of coon, fox, bear, deer, mountain lion, rabbit, and bird hunters. We are used to custom building to your specifications.

All our transmitter collars are **hermetically sealed for complete waterproofing.** The transmitter is placed in a metal can, backfilled with inert nitrogen gas and soldered shut. Glass-to-metal feedthroughs are used to connect the transmitter with battery. This process insures waterproofing.

All our collars carry the **high impact crystal** (the heart of an electronic unit), which **withstands 20,000 Gs of force**. This means that the equipment can take abuse and keep on working. Other manufacturers use the standard crystal, which withstands 4,000 Gs of force.

These features provide durability down the road. They are the reason we can offer an excellent warranty of **FIVE YEARS** on parts and labor in **ELECTRONICS**.

WHAT DO I DO WHEN MY UNIT MISBEHAVES?

If your locating unit does not work, cross-check equipment to find the problem item. Do this by trying your buddy's working receiver or antenna, or by asking a buddy to track a collar you suspect of malfunctioning. To discover the part that requires repair, you may need to send the whole unit (receiver, transmitter collar and antenna with cable) to us. Our sophisticated test consoles and test ranges can focus on the problem quickly.

When sending a unit to us, please include your name, shipping address, **phone number**, method of payment, and a **note that explains the exact misbehavior**. Detailed information helps our technicians to go quickly to the problem, saving time and your money. **If you request, we will contact you with a repair estimate for your approval.**

Thank you for choosing Wildlife Materials as a supplier of your radio recovery equipment.

Wildlife Materials International, Inc.

1202 Walnut Street Murphysboro, IL 62966 USA
Phone: 1-800-842-4537
FAX: 618-687-3539

34 Years Manufacturing Experience