Merlin Systems, Inc. 10/04
INSTRUCTIONS

FMV, MINI-FMV, 1/3N FMV FALCONRY TRANSMITTER

The FMV transmitters are 3 volt, two-stage, multi-vibrator transmitters with a tarsal mount attachment. They are designed to operate using two (2) #392 silver oxide batteries for the FMV; two (2) #377 silver oxide batteries for the Mini-FMV; and a single 1/3N lithium battery for the 1/3N FMV. Any standard brand of batteries will operate these transmitters. Batteries are available in most stores selling cameras, calculators, hearing aids and other electronics equipment.

Avoid shock to transmitters from static electricity as this will damage the circuits.

To Operate:

1. **Insulate the Batteries: For FMV and Mini-FMV**, stack the two silver oxide batteries positive to negative **(SEE DIAGRAM)**. These designations are stamped on the batteries. Once stacked, slide the batteries into the small plastic sleeve provided or tape them together with a thin strip of electrical tape.

Note: The batteries must be placed in the plastic sleeve or taped to protect them from contacting the side of the brass bracket. If the bare batteries contact the bracket they may short circuit. The transmitter will still work but this greatly reduces the operating life of the batteries and the output power of the transmitter.

2. **Slide Batteries into Transmitter Bracket:** Once the batteries have been properly stacked and insulated, insert them into the brass battery bracket of the transmitter with the **positive side "UP"** toward the top of the bracket and the **negative side "DOWN"** toward the main body of the transmitter. For the 1/3N transmitter simply insert the single 1/3N battery into the bracket **positive (smooth) side "UP" toward the top of the bracket and away from the transmitter. (SEE DIAGRAM). Be sure the batteries fit snugly and make good contact with the brass bracket top and bottom.**

3. **Check Operation:** With the batteries in place, use a receiver to be sure the transmitter has been activated and is operating properly. When tuned properly you should hear a clear distinct pulsing signal or "beep" from the receiver. If you cannot hear the transmitter pulsing, double check to be sure the receiver is tuned to the transmitter frequency (this can drift with temperature and aging of the crystal. See attached specifications). If you still cannot hear the transmitter check the batteries and make sure they have been inserted properly and are making good contact top and bottom and that the contacts are free of dirt and/or corrosion.

Once operating, note where the transmitter is being received on the receiver. It can be useful to write it down for future reference.

4. **Secure Batteries in Bracket:** When the transmitter is operating properly, place the second, larger plastic sleeve over the battery bracket to hold the batteries in place or tape them in place with electrical tape to prevent their accidental dislodging during use. This is not necessary with the 1/3N, as the battery & bracket sleeve are one and the same.

Note: Transmitter frequency will drift slightly with temperature changes. If you are going to be using the transmitters in extreme temperatures it is advisable to allow them to reach ambient temperature and then re-check the frequency noting any changes. The receiver may also change receiving frequencies with temperature changes so be sure to check both receiver and transmitter at the temperature of intended use. The degree of drift should be similar and repeatable under similar temperature conditions.

5. **Check Screw-in Antenna:** The screw-in antenna should be securely tightened to the base of the transmitter. **Hand tighten only to avoid thread damage! A small drop of glue applied on the exterior of the antenna where it seats against the base of the transmitter housing will help prevent the antenna from unscrewing during use.** The glue seal can easily be broken when replacing the antenna. **Be careful not to glue the threads of the screw-in antenna.** The transmitter is now ready to be attached to the hawk or falcon.

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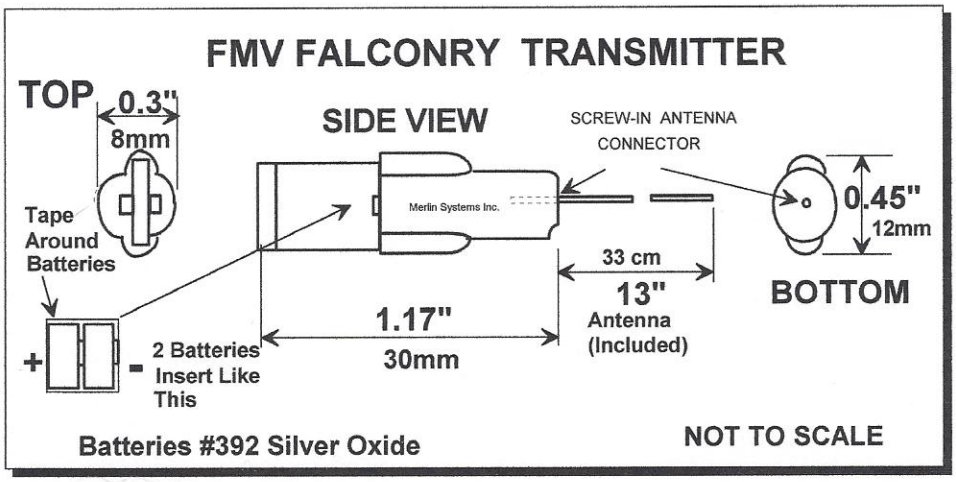

Part No.	Description
710-002-4	FMV Falconry Transmitter
030-004-4	13" Whip Antenna, 90 lb black nylon coated steel wire.

1.0 Description

The Merlin Systems FMV Falconry Transmitter is designed with a Tarsal Mount attachment slot. The external, screw-in whip antenna made from 90 lb., nylon coated, stainless steel wire is included and available as a spare part. Lighter weight antennas are also available. The transmitter is encapsulated in high-density, epoxy resin and operates on two type #392 silver oxide batteries which are inserted into the Battery Bracket. **Refer to the illustration above for battery orientation**. The transmitter operates on the 216 Mhz frequency range. Custom frequencies are available. The output level is 0 dBm into a 50 ohm load, and will achieve a range of up to 20 miles line-of-sight under ideal conditions. The transmitter will operate between 10 and 12 days on fresh batteries. The basic transmitter operates continuously, and cannot be shut off. To deactivate it, the batteries must be removed. A transmitter with a magnetic shutoff switch is available.

The frequency of the transmitter will change slighty with differences in temperature.

2.0 Physical Specifications

2.1 Size: 1.17" (30mm) X 0.45" (12mm) maximum width
2.2 Weight: 2.4 grams; 5.5 grams with batteries and antenna
2.3 Operating Temperature: -25°C to +50°C
2.4 Storage Temperature: -40°C to +50°C

3.0 Operating Characteristics:

3.1 Pulse Width: 40 Milliseconds ±15%
3.2 Beats per Minute: 48 ±15%
3.3 Output Power Level: 0 dBm into 50 ohm load
3.4 Operating Life: 10 - 12 days continuous
3.5 Frequency: See List above (numbers are maximums)
Accuracy: ±6.5 KHz @ 25°C (typical: ±2 KHz)
Frequency/Temperature: ±6.5 KHz @ -25°C and +70°C
Frequency Aging: ±1 KHz drift in one year

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