

# SANDMONSTER INSTRUCTION MANUAL



# INDEX

<b>PARTS IDENTIFICATION AND ASSEMBLY.....</b>	<b>1-3</b>
<b>TUNING.....</b>	<b>4</b>
<b>EXPLANATION OF CONTROLS:</b>	
<b>SENSITIVITY.....</b>	<b>5-6</b>
<b>TRIGGER SWITCH.....</b>	<b>7-8</b>
<b>TOGGLE.....</b>	<b>9-11</b>
<b>T-HOLD (THRESHOLD).....</b>	<b>12-13</b>
<b>METER.....</b>	<b>13-15</b>
<b>SEARCH METHODS.....</b>	<b>16-17</b>
<b>MOTION.....</b>	<b>18</b>
<b>NON-MOTION TARGET LOCATION.....</b>	<b>19-20</b>
<b>BATTERIES</b>	
<b>STANDARD.....</b>	<b>21-22</b>
<b>RECHARGEABLE.....</b>	<b>23-24</b>
<b>ACCESSORIES</b>	
<b>TEN-INCH LOOP.....</b>	<b>25</b>
<b>HEADPHONES.....</b>	<b>25</b>
<b>BACK-PACK.....</b>	<b>26</b>
<b>TRANSIT CASE.....</b>	<b>27</b>
<b>GLOSSARY OF TERMS.....</b>	<b>28-31</b>

**ASSEMBLY  
AND  
PARTS IDENTIFICATION**

1. Remove all parts from case.
2. Assemble instrument as shown in figures 1 thru 3.

2

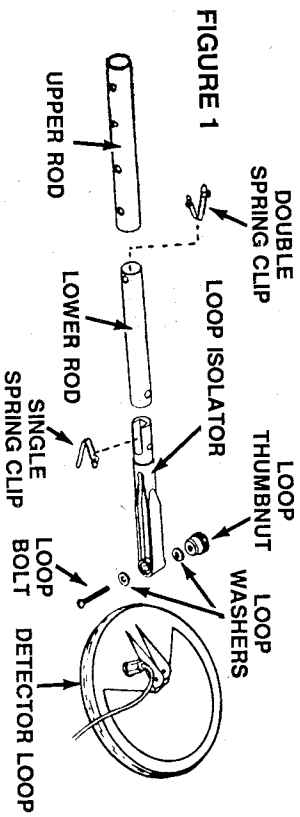
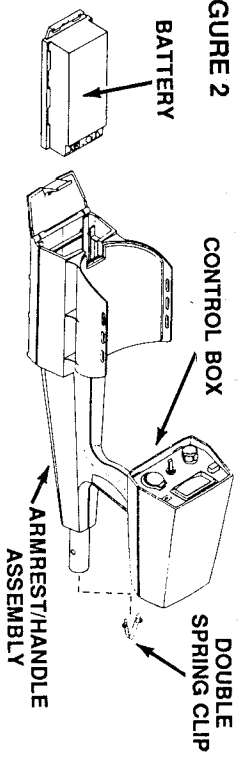
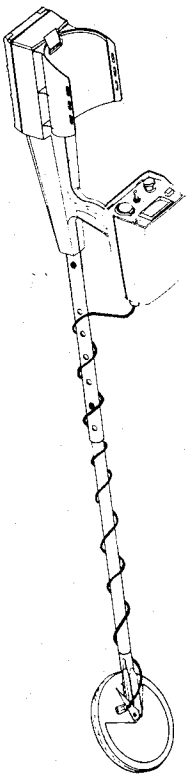


FIGURE 2



**ASSEMBLED**

**3**




**FIGURE 3**



# TUNING



## STARTUP SEQUENCE

1 Set SENS to 



2 Squeeze and hold Trigger thru Step 

3  Loop up  Push Toggle up.  
Air  
Wait for "Beep".

4  Loop on ground  Push Toggle down.  
Ground  
Wait for "Beep".

5  Release Trigger

Ready



Search  
Overlapping each Sweep

## SEARCH SEQUENCE

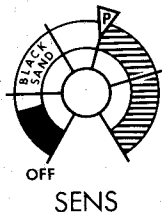
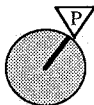
T-Hold	Search (Trigger Centered)	Pinpoint (Trigger Squeezed)
Button Out	Silent Search	To Pinpoint, squeeze and hold Trigger, and X target. The loudest volume and lowest number on bottom meter scale indicates target center. With loop in air, squeeze and release Trigger to reset after pinpointing.
Button In	Audible Threshold	

# SENSITIVITY

## STARTUP SEQUENCE

1

Set SENS to



1. The Sensitivity Control turns the instrument On and Off, increases or decreases detector sensitivity, and compensates for highly conductive ground such as black sand or salt water.
2. If highly mineralized ground or radio interference cause erratic behavior, such as sounding when loop is away from ground or metal and meter needle jumping, reducing the sensitivity control will improve operation. As a general rule PRESET works well for average conditions.

## Sensitivity continued. . .

3. Use this simple procedure for correctly setting the sensitivity. After ground balancing, (startup sequence steps 2-5), find an area free of targets. Sweep the loop as you would while searching and turn the sensitivity knob clockwise until the detector responds to the ground. Back the knob off (counterclockwise) to just below where the instrument responds to the ground. This setting gives good results under most conditions.
4. For extremely high ground mineralization, black sand or salt set the sensitivity control to the area marked Black Sand.
5. The instrument should be ground balanced (startup sequence steps 3-5) after drastic sensitivity adjustments.
6. The Depth Meter readings will vary with each change of the sensitivity control. Refer to the section describing the METER for more information.

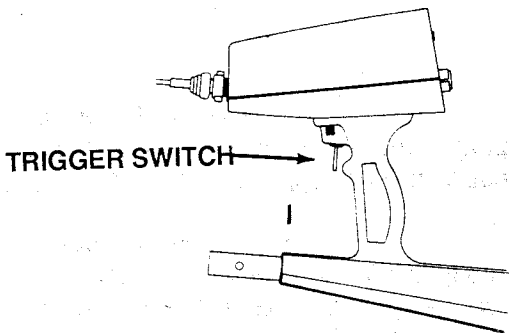


## TRIGGER SWITCH

2

Squeeze and hold Trigger thru Step

5

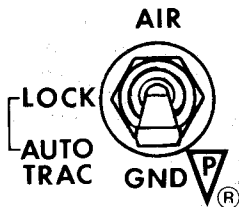


1. The Trigger Switch changes the detectors operating mode, retunes or resets the detector after adjustments are made and switches the meter from Ferrous/ Non-Ferrous indications to depth reading, which is non-motion target locating.
2. Mode changing: whenever the Trigger Switch is squeezed and held or pushed forward the mode changes from motion (search) to non-motion target location mode.

## Trigger Switch continued. . .

3. Retuning resetting: squeeze and release the trigger switch with the loop at waist level. This must be done after any control has been adjusted.
4. Meter Switching: when the trigger switch is squeezed and held the meter readings change from indicating Ferrous/Non-Ferrous to indicating target depth.
5. The mode and meter changes activated by squeezing and holding the trigger are locked into place when the trigger switch is pushed forward to lock.
6. The trigger switch should be squeezed and held or pushed forward to lock throughout the startup sequence.

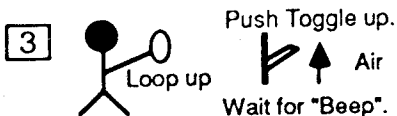
# TOGGLE



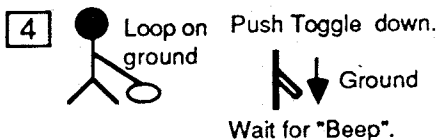
1. The TOGGLE switch balances the detector to ignore ground mineralization.
2. The detector needs to be balanced for ground mineralization every time you begin to search an area.
3. The AIR position prepares the instrument to be balanced.
4. The GND or ground position actually balances for ground mineralization and if left in this position as recommended will automatically track with changing ground mineralization.
5. Occasionally inconsistent ground mineralization will cause erratic behavior of the

instrument due to this ground track feature.

For such areas after completing the AIR and GND balance push the toggle to the lock position eliminating the tracking feature.

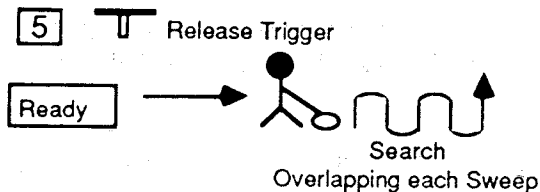


6. Hold the loop in the air away from the ground and known metals.
7. Push the toggle up to the AIR position and wait for detector to beep.



8. Now place the loop flat on the ground and push the toggle down to the GND position. Hold the loop stationary and wait for the detector to beep.

## TOGGLE continued. . .



9. You may now release the trigger switch and search.
10. Keep the loop as close to the ground as possible sweeping it from side to side overlapping each pass by at least 50%.
11. The loop must be in motion to detect metal.

## T-HOLD



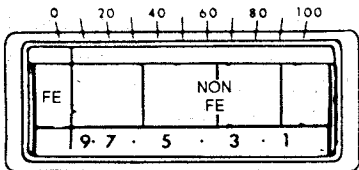
<b>SEARCH SEQUENCE</b>	
T-Hold	Search (Trigger Centered)
Button Out	Silent Search
Button In	Audible Threshold

1. The T-HOLD allows selection of either silent or audio search.
2. When this button is out the detector is silent until a target is detected.

T-HOLD continued. . .

3. When this button is in the detector will operate with a continuous hum or background tone that will increase when a target is detected.
4. Select either position based on personal preference.

## METER



1. The METER indicates the following information:
2. (FE) Ferrous/NON-Ferrous scale shows whether a target is made of iron (FE) ferrous or non iron (NON FE).
3. Reference scale at the very top of the meter indicates the targets response in terms of number between 0-100.

4. Most objects of the same metal content, shape and size will register at the same number on the 0-100 reference scale consistently. This allows an item to be logged and recognized whenever the METER needle indicates that reference number.
5. The Depth Reading scale along the bottom of the meter indicates the depth of targets approximately coin sized from surface to nine inches.
6. The METER indicates (FE)/(NON FE) unless the trigger is squeezed and held or pushed forward to lock. At this point the meter changes to Depth Reading until the trigger is released or returned to the center position.
7. The METER usually indicates Fe/NON Fe after one or two sweeps with the loop.
8. The METER will continue showing this indication until another target is detected or the trigger is squeezed and released.

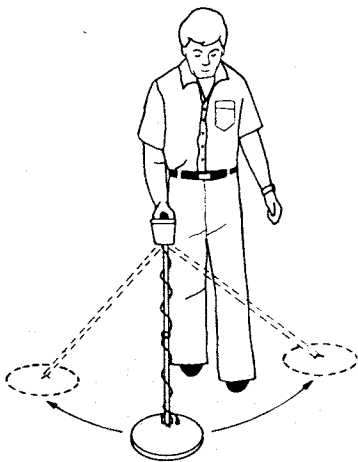


9. Squeezing and releasing the trigger switch will reset the METER needle to "0".
10. The Depth Meter is calibrated to read depth (in inches) on targets approximately coin size with the sensitivity set at PRESET.
11. The sensitivity control will change depth indications. The user can judge approximate depth on sensitivity settings other than PRESET as follows.
12. Add 1" to the depth meter reading for each clockwise division above PRESET on the sensitivity control.
13. Subtract 1" from the depth meter reading for each counter clockwise division below PRESET .
14. Keep in mind that this is only an approximation and will be less accurate towards the extreme ends of the depth scale. For more accurate readings set the sensitivity control to PRESET.

## SEARCH METHODS

After the STARTUP SEQUENCE there are several important search methods required for Proper Target Location.

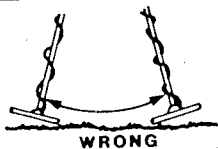
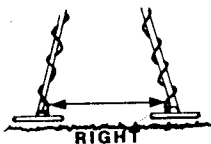
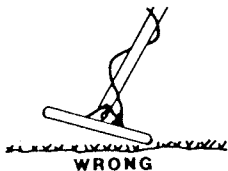
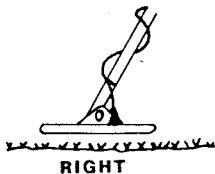
Rod adjustment: this adjustment is made by squeezing the double button spring clip on the rod and aligning them with the proper adjustment holes for your height.



## Search Methods continued. . .

When the rod is properly adjusted the detector is adjusted for sweeping in a tight semi-circle. Always overlap your sweeps at least 50%.

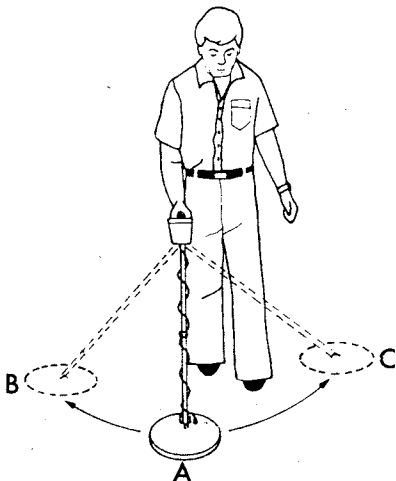
Keep the loop parallel to the ground at all times.



# MOTION

During normal searching, the loop must always be in motion in order to detect metal.

This instrument is considered a slow sweep detector. Ideal sweep speed from center to right to left and back to center should take approximately four seconds.



From position A to B to C and back to A should take approximately four seconds.

## **NON-MOTION**

<p><b>Pinpoint (Trigger Squeezed)</b></p>
---

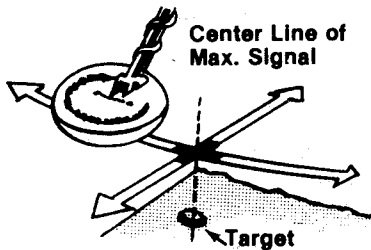
<p>To Pinpoint, squeeze and hold Trigger, and X target. The loudest volume and lowest number on bottom meter scale indicates target center. With loop in air, squeeze and release Trigger to reset after pinpointing.</p>
---

Once a target has been detected, to determine its exact location squeeze and hold in the trigger.

This changes the instrument detection mode from motion to non-motion so that the loop can be held stationary over the target and it will continue to detect.

Additionally the meter changes from indicating FE/NON FE to indicating target depth.

While holding in the trigger, "X" the target noting that the loudest tone and the lowest depth indication along the bottom of the meter indicates the center of the target.



Before continuing to search raise the loop to waist level and squeeze and release the trigger switch.

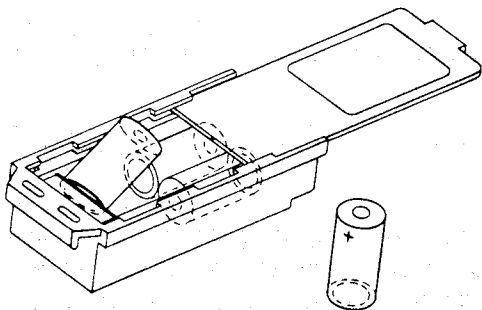
This resets for further searching.

## STANDARD BATTERIES

The standard battery pack holds four Alkaline batteries. **Alkaline batteries are the only disposable batteries recommended for this instrument.** To insert these batteries, proceed as follows:

1. Remove the battery holder from the instrument and hold with the label side up.
2. Grasp the tab at the bottom of the battery pack just below the label.
3. Gently pull the tab towards you slightly and slide down, exposing the battery compartment.
4. Install the two batteries nearest the battery door. Make sure the + and - terminals are positioned according to the diagram inside the battery compartment. The second two batteries will require firm pressure against the foam contact using your thumb and index finger. Once installed, close the battery compartment door.

5. If the "C" cell batteries are installed backwards, the instrument will not operate.
6. When storing the standard battery pack for a prolonged period of time, remove the batteries from the holder. Standard batteries will corrode, damaging the holder.
7. Install the battery holder contact terminal end first.





## **Rechargeable Batteries**

Rechargeable Nickel Cadmium batteries are included with this instrument. These can be recharged up to 1000 times and should last between 8-10 hours after a full charge. Charge the Rechargeable Batteries before their first use.

### **Recharge the Batteries:**

1. If the batteries have not been recharged for more than two months. (Batteries slowly lose their charge when stored.)
2. NOTE: Charge the batteries only as necessary. Unnecessary recharging shortens the life of the battery pack.

NOTE: Batteries will last longer when headphones are used.

### **Operating the Charger**

1. Remove the battery pack from the instrument.
2. Insert the charger plug into the battery pack.
3. Plug the charger into an electrical outlet.
4. The pack will be fully charged within 10 hours.

## **Cautions about Batteries**

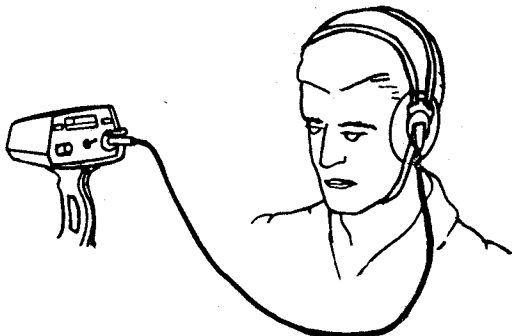
1. The battery pack should not be left on the charger more than 24 hours.
2. Do not dispose of batteries in a fire.
3. Protect the battery pack from being shorted. Burns may result and the battery pack may be damaged.
4. The rechargeable battery system, (charger and pack), has a specific charger current. Do not attempt to mix other chargers or packs with this system. Batteries may explode if a charger current is too high.
5. Non-rechargeable batteries may explode if they are recharged.
6. Store batteries in a cool, dry place.
7. An absolute discharge may damage the rechargeable battery. Avoid completely draining the rechargeable battery.
8. The rechargeable battery pack is a sealed unit with no customer serviceable parts. Opening it may damage the unit and will void the warranty.

## TEN INCH LOOP

The ten inch loop is installed and used just as the standard eight inch.

The ten inch loop will produce better depth of detection than the standard eight, however, may not be quite as sensitive to very small targets.

## HEADPHONE



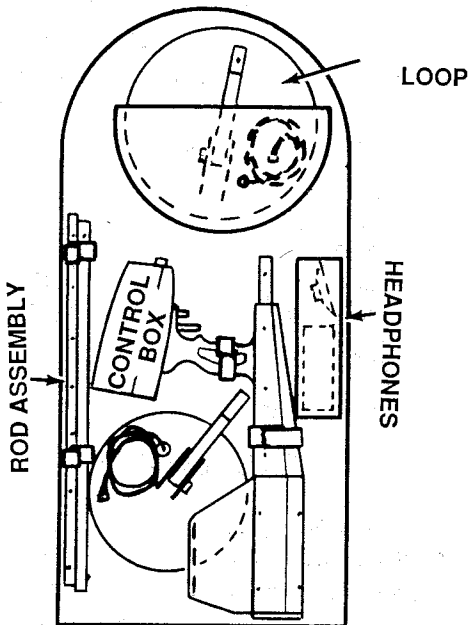
Headphones allow for a quieter search and extend battery life.

Plug Headphones into the control box as shown.

Headphones are designed to fit beneath most helmets.

## BACKPACK

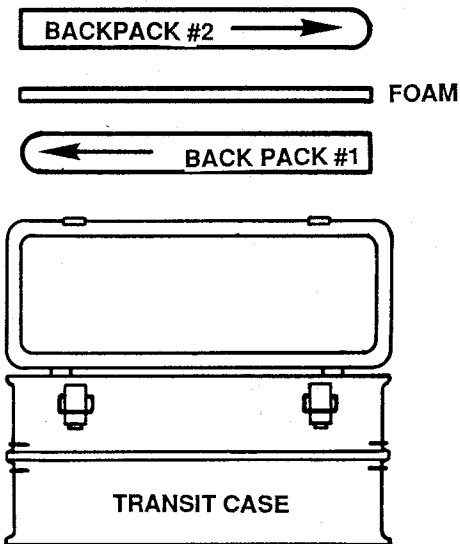
Use velcro straps to secure Control Box and Rod Assembly.



## TRANSIT CASE

The Transit Case should be used whenever instruments are being stored for extended periods or transported.

BACK PACKS should be facing opposite directions in Transit Case see diagram.



## GLOSSARY OF TERMS

**Alkaline Battery:** Type of non-rechargeable battery that has the ability to sustain longer periods of current drain and greater storage life than standard carbon-zinc type.

**Air Balance:** Tuning procedure that prepares for GND (ground balance).

**Air Test:** Testing or experimenting the response of a metal detector to various objects with the loop positioned away from the ground.

**Audio:** Volume or tone produced by a speaker or other sound emitting device.

**Audio Response:** See AUDIO

**AutoTrac:** A feature that monitors GND (ground) balance and makes corrections to it as ground mineralization changes.

**Bench Test:** "Air Test" Testing or experimenting the response of a metal detector to various objects with the loop positioned away from the ground.

**Detect:** Response to a metal target.

**Clevis:** Loop isolator, short plastic section between rod assembly and loop.

**Control Box:** Part of instrument that houses the controls or knobs.

**False Signals:** Erratic or unstable tones, beeps and/or display indications that are not caused by the detection of metal—interference.

**FE:** Ferrous, made of iron.

**Frequency:** The number of complete alternating current cycles produced by the transmit oscillator per second.

**GND (Ground):** Dirt or the surface of the earth.

**Ground Balance:** The cancellation of ground mineralization to ignore the masking effect ground minerals have over metal.

**Indicate:** Advise, proclaim, or point out.

**Loop:** (Search Coil) Circular plastic housing containing multiple windings.

**Metal:** Metallic substances; iron, foil, nickel, aluminum, gold, brass, lead, zinc, copper, silver, etc.

**Mineral:** Ferric oxide (iron) or other such non-organic substance, naturally occurring in the ground.

**Mineralized Ground:** Any soil that contains conductive or non conductive components, Minerals.

**Motion Mode:** An AUDIO MODE that requires loop motion to respond to metal targets.

**Non-Ferrous:** Not of iron; metals of the precious class (copper, silver, gold, etc.)

**NON-FE:** Non-Ferrous/ not made of iron.

**Non-Motion:** Mode that does not require loop motion to respond to metal.

**Overlap:** Refers to the amount of loop sweep advance, not being greater than the loop physical diameter.

**PRESET:** (Pre-Selected)

**Pinpoint:** Finding the target's exact location with respect to the loop's physical center.

**Reset:** Clear for further search.

**Retune:** (Reset) Clear for further search.

**Search:** Looking for metal with a metal detector see SWEEP.

**Silent Search:** Mode or option that is completely quiet until metal is detected. No AUDIBLE THRESHOLD.

**SENS:** (Sensitivity) Capacity or degree to which an instrument responds.

**Slow Motion:** A description of loop speed required to operate a motion mode.



**Stability:** Ability of a metal detector to maintain smooth operation without false signals, interference.

**Start-up Sequence:** Turning an instrument on and preparing to search, TUNING.

**Sweep:** Loop movement from side to side.

**Target:** Any object buried in the ground or used in an AIR TEST that causes a metal detector to respond.

**Tuning:** Setting or calibrating an instrument in preparation for searching.

**Rod:** Aluminum shaft connecting the control box to the loop.



1011 Pleasant Valley Rd. Sweet Home, Oregon 97386

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