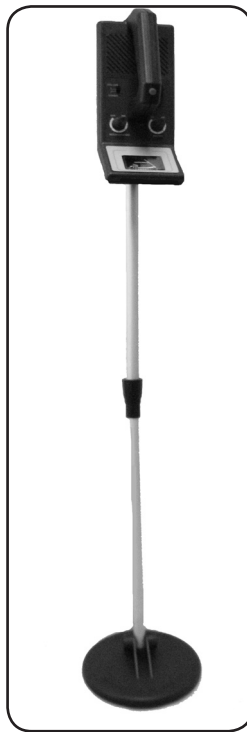


CHICAGO
Electric[®]Power Tools

6-FUNCTION METAL DETECTOR

Model 43150

SET UP AND OPERATING INSTRUCTIONS



Visit our website at <http://www.harborfreight.com>



**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

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For technical questions or replacement parts, please call 1-800-444-3353.

Revised Manual 10c

SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if

not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.

General Power Tool Safety Warnings



WARNING Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference. The term "power tool" in the warnings refers to your battery-operated (cordless) power tool.

1. Electrical safety

Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

2. Personal safety

- a. Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
- b. Do not overreach. Keep proper footing and balance at all times.

This enables better control of the power tool in unexpected situations.

3. **Power tool use and care**
 - a. **Do not use the power tool if the switch does not turn it on and off.** *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*
 - b. **Remove the batteries from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
 - c. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*
 - d. **Maintain power tools. Check for misalignment or binding of parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*
4. **Service**
 - a. **Have your power tool serviced by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the power tool is maintained.*

Metal Detector Safety Warnings

1. Maintain labels and nameplates on the tool. These carry important safety

information. If unreadable or missing, contact Harbor Freight Tools for a replacement.

2. Handle Tool carefully at all times. Dropping Tool can cause damage to circuit boards and housing, which can cause tool malfunction or failure.
3. Position batteries in proper polarity and do not install batteries of different types, charge levels, or capacities together.
4. Wear ANSI-approved safety goggles and heavy-duty work gloves when assembling and digging holes.
5. **Consult local regulations before using detector, digging, or taking any findings.** Obtain property owner's permission before detecting on their property.
6. **Only use and store in normal temperature environments.** Extremes in temperature can shorten effectiveness of electronic devices and melt or damage plastic parts.
7. **Avoid electrical shock.** Any metal detector may discover underground power lines, explosives or other items which when struck could cause personal injury. Do not use this product in areas where there might be underground electric lines or pipes buried at shallow depths. Never search in military zones where bombs or other explosives may be buried. Avoid striking any line known or suspected to be carrying electric power. Do not search any pipeline, particularly if it could contain a flammable gas or liquid. In areas of uncertain conditions, use reasonable caution before using the Tool. If there

is any question about a condition being safe or unsafe, do not operate the Tool.

8. **Keep the Metal Detector away from any lights, TVs, computers, and mobile telephones.** These can all cause electromagnetic interference.
9. **Only the Search Coil (27) and plastic section of the Lower Leg (26) are water proof.** Do not immerse the unit any further into water beyond the plastic section of the Lower Leg.
10. **Keep the Tool clean.** Wipe the housing after each use. The search coil is washable and can be fully submerged. Never submerge the control housing. Protect the control housing from rain, blowing surf and heavy mist. Disassemble the Leg and wipe it clean after use in sandy areas.
11. **Use the right tool for the job.** There are certain applications for which this tool was designed. Do not modify this tool and do not use this tool for a purpose for which it was not intended.
12. **This product is not a toy.** Keep it out of reach of children.
13. **People with pacemakers should consult their physician(s) before use.** Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. In addition, people with pacemakers should:
 - Avoid operating alone.
 - Properly maintain and inspect to avoid electrical shock.

14. **WARNING:** This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, et seq.)
15. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



SAVE THESE INSTRUCTIONS.

SPECIFICATIONS

Electrical Input	6 AA Batteries (not included)
Earphone Jack	3.5 mm mini-jack Socket
Functions	Battery Check Light; Ferrous Metal Detector; Tune Adjuster; One-Touch Auto Tone; Volume Control

UNPACKING

When unpacking, make sure the item is intact and undamaged. If any parts are missing or broken, call Harbor Freight Tools at 1-800-444-3353.

INSTRUCTIONS FOR PUTTING INTO USE



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

WARNING

TO PREVENT SERIOUS INJURY

FROM ACCIDENTAL OPERATION:

Turn the Power Switch of the tool off and remove the batteries before assembling or making any adjustments to the tool.

Note: For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

Components & Controls

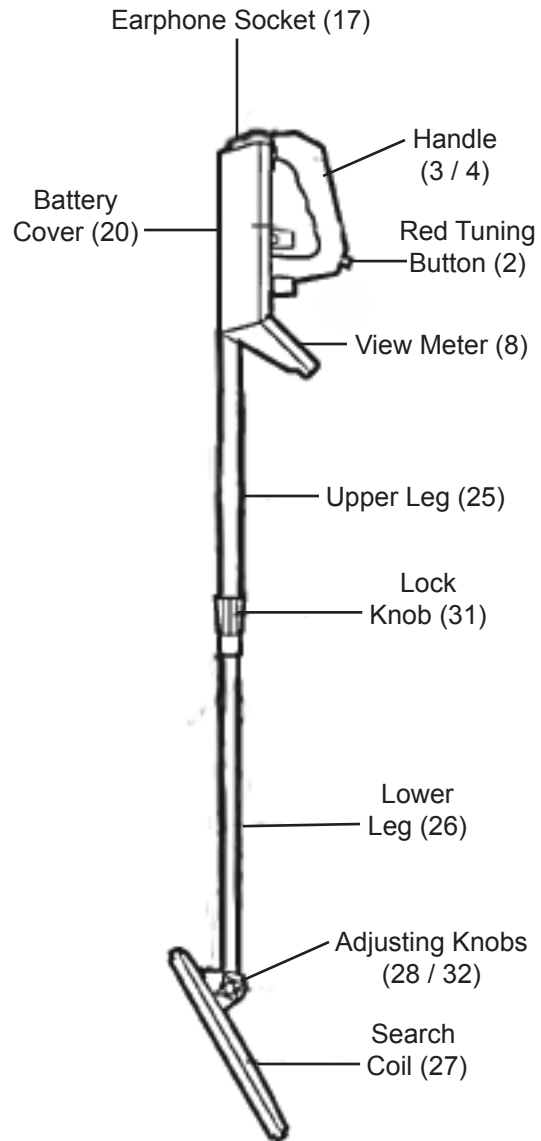


Figure 1

OPERATING INSTRUCTIONS



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Tool Set Up

WARNING TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Turn the Power Switch of the tool off and remove the batteries before adjusting tool or installing accessories.

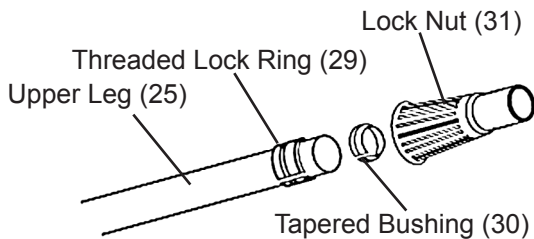


Figure 2

Note: When adjusting the length of the Metal Detector, be careful to keep the plastic Tapered Bushing (30) in place with the smaller end toward the smaller end of the Lock Nut (31).

1. To attach the two legs, slide the Threaded Lock Ring (29) over the end of the Upper Leg (25), making sure that the tabs inside the Lock Ring lock into the cut-outs at the end of the leg. Insert the tapered end of the Tapered Bushing (30) into the Lock Nut (31) and lightly thread the Nut over the Lock Ring (29). Slide the Lower Leg (26) into the Lock Nut. To take the slack off the cord, rotate the Lower Leg, enabling the cord to wind

around the two Legs. Rotate the Nut counterclockwise to lock the Legs.

2. To adjust the length of the Legs, turn the Lock Nut in a clockwise direction, slide the Lower Leg to the desired extension length and turn the Nut counterclockwise to secure the Legs together.
3. To adjust the angle of the Search Coil, loosen the Adjusting Knobs (28, 32) and tilt it. Position the Search Coil so that it is parallel to the ground when holding the unit by the Handle (3, 4).
4. If needed, re-adjust the length of the Metal Detector after adjusting the position of the Search Coil.

Batteries

1. Make sure the On/Off/Volume control is set to OFF. Slide the Battery Cover (20) off of the back of the Control Box and insert six AA batteries (sold separately), aligning polarities as indicated. Replace the Battery Cover.

Note: Use only fresh batteries of the required size and type. Do not mix old and new batteries, different types (standard, alkaline, or rechargeable), or rechargeable batteries of different capacities.

Always remove old or weak batteries. Batteries can leak chemicals that can destroy electric parts.

If you do not plan to use the detector for a week or more, remove the batteries.

Dispose of spent batteries according to your local, state and federal regulations.

Note: You can extend battery life by using earphones, which require less power than the built-in speaker.

Note: To check the battery power, set the Mode Switch to BATT TEST. If the dial on the View Meter does not fluctuate on the BATT TEST range, replace batteries. See Figure 3.



Figure 3

Headphones

1. Insert headphone (sold separately) jack into Earphone Socket (17). See Figure 1.
2. **To protect your hearing, set the Volume Control dial to OFF before using the earphones.** Then turn on and adjust the level to the lowest setting before wearing the earphones.
3. Do not listen at MAX level. Extended high volume listening can lead to permanent hearing loss.
4. Do not wear headphones while operating your detector near high-traffic areas. **Be safe and pay attention to traffic.**

Functions and Indicators

VOLUME - Sets the sound level.

TUNE - Sets the sensitivity level of the unit. **NOTE:** Set to the lowest setting when away from any metal objects.

MODE - Sets the unit to two modes: OPERATE and BATT TEST.

Red Tuning Button - Press this button and set the TUNE dial to 0 to properly balance the Detector.

DISCRIMINATION - Adjustment knob for metal-type identification.

View Meter - Registers signal strength when a metal is detected.

NOTE: The Metal Detector must be properly balanced before testing or operation. To balance the Metal Detector, slide the MODE Switch to OPERATE and press the Red Tuning Button (2) on the Handle. Rotate the TUNE dial until the indicator on the View Meter (8) reads "0". Release the Red Tuning Button.

If the indicator is slightly to the left or right of the "0," readjust the TUNE dial until the Metal Detector is properly balanced. You will hear a clear "hum, hum" tone.

IMPORTANT! The above balance adjustment may have to be made multiple times during use. This does not mean the Metal Detector is malfunctioning.

Before Getting Started

Before beginning an outside search, you must test the unit with samples of metal. Use the following:

- an iron nail
- a five-cent coin (nickel)
- a one-cent penny (zinc coin, after 1982)
- a silver quarter

Place the Metal Detector on a wooden or plastic table with the Search Coil face up. Make sure the table is away from TVs, computers, or any device that can cause interference. See Figure 4.

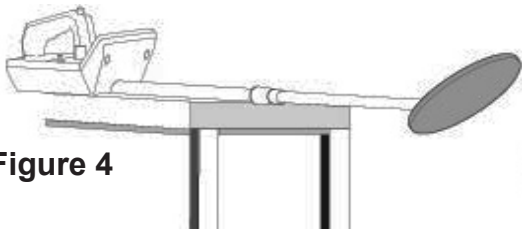


Figure 4

NOTE: Be sure to remove any watches, rings, or other metal objects on your fingers and hands.

Set Mode Switch to OPERATE and VOLUME dial to mid-point. The Metal Detector may sound a tone or be silent. If not already done, adjust the balance of the Metal Detector. (See the “NOTE” under “Functions And Indicators” on previous page.)

Once Detector is balanced, perform a test of a sample to adjust the controls to differentiate (“discriminate”) between ferrous (iron) metals and non-ferrous (metals).

1. To find ferrous metals (to “discriminate” iron), set the DISCRIMINATION dial to MIN. See Figure 5.



Figure 5

2. Hold the iron nail sample close to the Search Coil. The indicator on the View Meter will swing to the **left** and the “hum, hum” tone will be **lighter**.
3. Bring the other coins close to the Search Coil. The indicator will swing to the **right** and the “hum, hum” sound will become **louder**.
4. To find non-ferrous metals (such as nickel), set DISCRIMINATION dial to midpoint setting. See Figure 6.



Figure 6

5. Reset the balance of the Metal Detector.
6. Bring the nickel coins close to the Search Coil. The indicator will move to the **left** and the sound will get **softer**. Bring the silver coins close to the Search Coil. The indicator will move to the **right** and the sound will get **louder**. The midpoint is the discrimination setting for nickel.

7. For easy reference:

For ferrous metals, the indicator will always move to the **left** and the sound will grow **softer** when the DISCRIMINATION dial is set to any location.

For silver, the indicator will move to the **right** and the sound will get **louder** when the DISCRIMINATION dial is set to any location.

When DISCRIMINATION is set to MIN, only **ferrous** metals will make the indicator move to the **left**. All other samples will make the indicator move to the right.

When DISCRIMINATION is set to MAX, only **silver-based** metals will make the indicator move to the **right**. All other samples will make the indicator move to the left.

Different metals have their own discrimination position. This is important to know, as all metals appear in the form of alloys and their composition can be complicated.

Use the above sample test as a general reference guide to help determine the composition of

a buried metal. By turning the DISCRIMINATION dial from MIN to MAX, you can determine the type of a buried item.

From MIN to MAX, the order of metals goes:

- Iron
- Nickel
- Gold
- Brass
- Zinc,
- Copper
- Silver (Aluminum)

NOTE: The discrimination position of aluminum is close to silver.

8. **NOTE:** When DISCRIMINATION is set to MIN, the Metal Detector does have greater sensitivity as compared to when it is set at MAX setting.

General Operating Instructions

Once all the proper tests and adjustments have been made, the Metal Detector is ready to be used outdoors.

NOTE: Make sure Metal Detector is properly balanced before use.

NOTE: Be sure to keep the angle between the Search Coil and the Detector's Lower Leg at about 140°. See Figure 7.

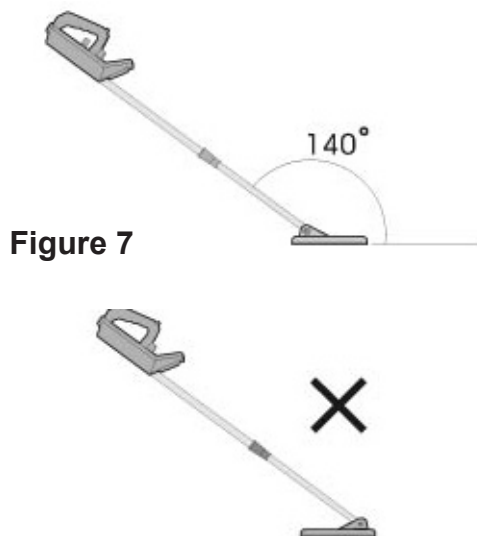


Figure 7

1. When first searching, set the Mode button to OPERATE.
2. Adjust the VOLUME to the desired level.

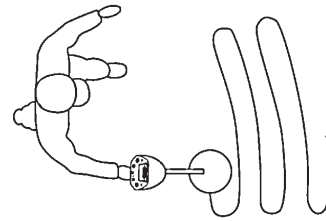


Figure 8

3. Sweep the Search Coil (27) slowly back and forth in an arc, keeping it about 1/2" to 2" from the ground. See Figure 8, above.
4. If you hear a beeping noise or see the needle jump to the right on the View Meter), you have located a metal object.
5. Use DISCRIMINATION dial to determine what kind of metal it is and whether you wish to dig out the item.
6. To prevent accidents, turn off the tool and remove the batteries after use. Clean, then store the tool indoors out of children's reach.

Tips for Searching in Different Environments

There are many factors which influence the sensitivity and accuracy of detecting objects, including the angle, depth, size and oxidation of the target object. Various soil or seawater conditions, and also electromagnetic and electrical interference surrounding the target can also affect readings. Other metal detectors in the area will also cause interference, so when there is more than one unit in use, be sure they are at least 10 yards apart. Some ways to help increase success are:

1. If there is interference from similar metal detectors in your searching area, lower the DISCRIMINATION and adjust the TUNE setting to stop the interference. You may also need to rebalance the Metal Detector.
2. If there is interference from electrical cables, TV, radio, or other electrical devices in your searching area, lower the DISCRIMINATION setting.
3. When searching in highly mineralized areas, the unit may sound even if there is no metal. Lower the DISCRIMINATION setting and increase the distance of the Search Coil from the ground until the false signal disappears. You may also need to rebalance the Metal Detector.
4. When searching in a trash area, set the DISCRIMINATION to the middle setting so that the unit can reject most invaluable metals such as nails, bottle caps, cans, and small pieces of iron.
5. Move all metal digging tools away from the Metal Detector when searching.

MAINTENANCE AND SERVICING



Procedures not specifically explained in this manual must be performed only by a qualified technician.

WARNING

TO PREVENT SERIOUS INJURY

FROM ACCIDENTAL OPERATION: Turn the Power Switch of the tool off and remove the batteries from the tool before performing any inspection, maintenance, or cleaning procedures.

Do not use damaged equipment. Have the problem corrected before further use.

Cleaning and Maintenance

1. **BEFORE EACH USE**, inspect the general condition of the tool. Check for loose hardware, misalignment or binding of parts, cracked or broken parts, damaged electrical wiring, and any other condition that may affect its safe operation.
2. Handle the Metal Detector gently and carefully. Dropping it can damage circuit boards and the case, and can cause the Detector to malfunction.
3. **AFTER USE**, wipe external surfaces of the tool with a damp clean cloth, then dry. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the detector.

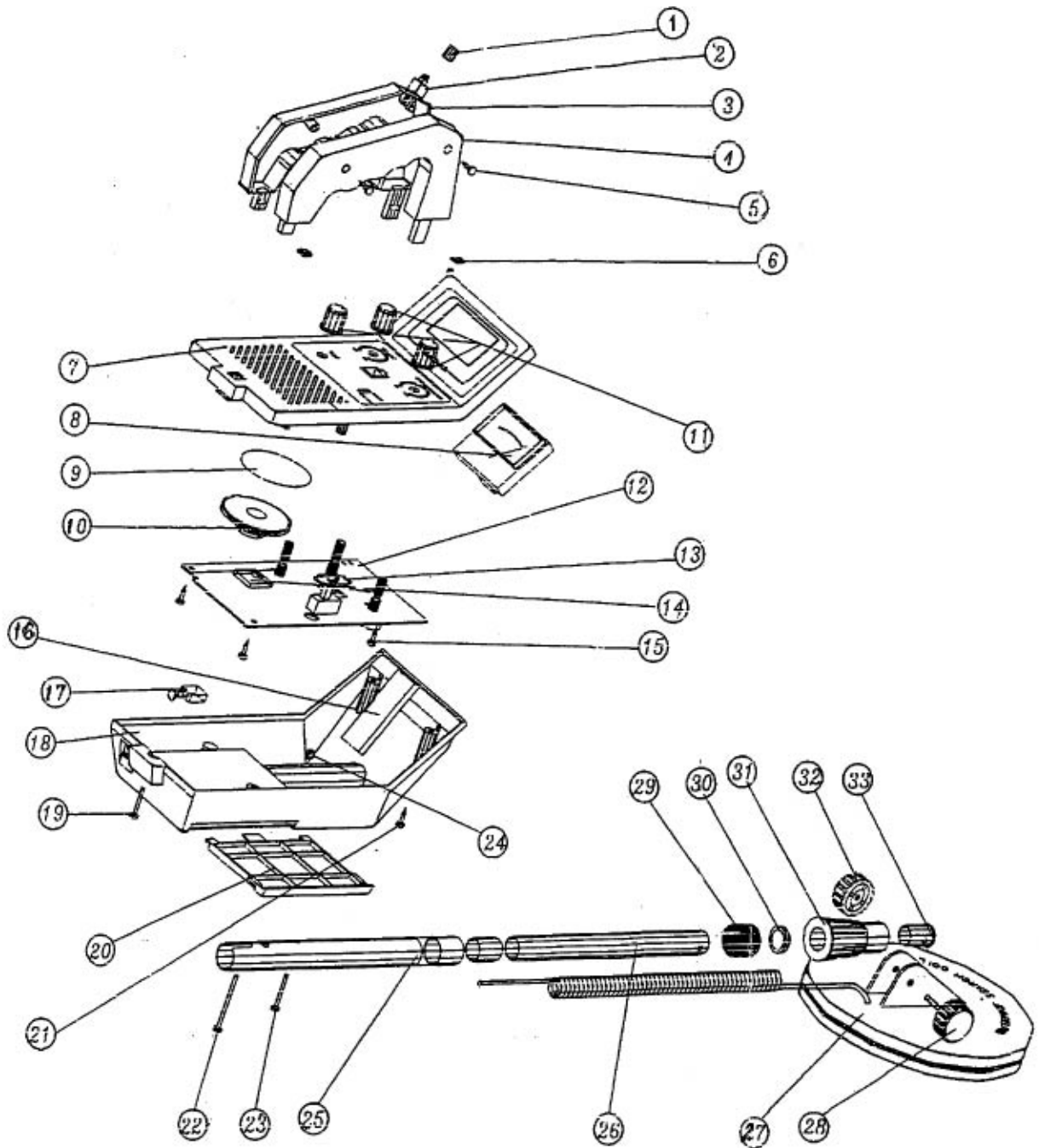
PARTS LIST

Part	Description	Qty	Part	Description	Qty
1	Button Cover	1	18	Control Box Base	1
2	Tuning Button	1	19	Screw (M3 x 20)	1
3	Left Handle Cover	1	20	Battery Cover	1
4	Right Handle Cover	1	21	Screw (St2.9 x 12)	1
5	Screw (ST2.9 x 12)	1	22	Screw (M3 x 40)	1
6	Nut (M3)	1	23	Screw (M3 x 25)	1
7	Control Box Lid	1	24	Nut (M3)	4
8	View Meter	1	25	Upper Leg	1
9	Speaker Bushing	1	26	Lower Leg	1
10	Speaker	1	27	Search Coil	1
11	Control Knobs	3	28	Right Adjusting Knob	1
12	PCB Board	1	29	Threaded Lock Ring	1
13	Lining Board	1	30	Tapered Bushing	1
14	Bushing	1	31	Lock Knob	1
15	Screw (St2.9 x 12)	1	32	Left Adjusting Knob	1
16	Bushing	1	33	Bushing	1
17	Earphone Socket	1			

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

ASSEMBLY DIAGRAM



Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.