

Owner's Manual & Safety Instructions

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.

21c

Metal Detector



67378

Visit our website at: <http://www.harborfreight.com>
Email our technical support at: productsupport@harborfreight.com

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.





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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠ WARNING

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

WARNING SYMBOLS AND DEFINITIONS

	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	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses 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

- 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.
- 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

- 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.
- 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.
- 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.
- 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

- 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

- Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
- Handle Tool carefully at all times. Dropping Tool can cause damage to circuit boards and housing, which can cause the tool malfunction or failure.
- Do not mix old and new batteries. Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries. Position batteries in proper polarity. Do not use swollen or leaking batteries.
- 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 and black section of the Lower Leg are waterproof.** Do not immerse the unit beyond the black 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. 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	Sensitivity Adjuster; Metal-Type Discriminator; All-Metal Indicator; Tone Adjuster; Volume Control; Target Locator; Low Battery Indicator; Auto Ground Balance; Mode Selector

SETUP - BEFORE USE



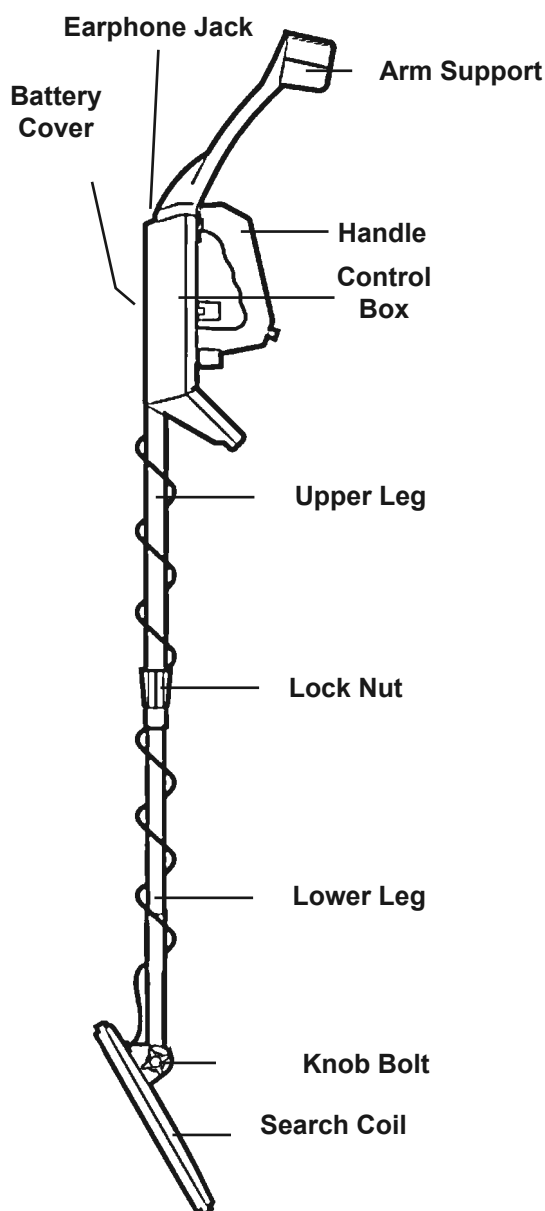
Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

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



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.

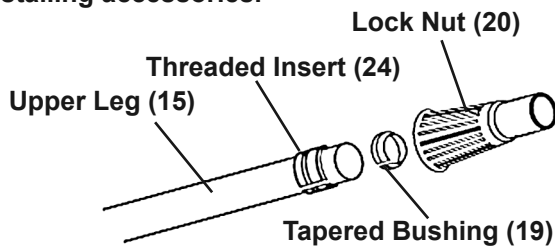


Figure A

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

1. To attach the two legs, slide the Threaded Insert over the end of the Upper Leg, making sure that the tabs inside the Insert lock into the cut-outs at the end of the leg. Insert the tapered end of the Tapered Bushing into the Lock Nut and lightly

thread the Nut over the Threaded Insert. Slide the Lower Leg 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 Coil Pivot and Knob Bolt and tilt it. Position the Search Coil so that it is parallel to the ground when holding the unit by the Handle with your arm in the Arm Support.
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 (26) off of the back of the Control Box.
2. Insert six AA batteries (sold separately), aligning polarities as indicated.
3. 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: Replace batteries when the LOW BATT light turns on in the View Meter.

Headphones

1. Insert headphone (sold separately) jack into Earphone socket.
2. To protect your hearing, set the On/Off/Volume Control to OFF before using the earphones, then adjust the level to the lowest setting before you begin listening.
3. Do not listen at extremely high volume levels. Extended high volume listening can lead to permanent hearing loss.
4. Do not wear headphones while operating your detector near high-traffic areas. Pay attention to traffic safety.

Functions and Indicators

On/Off/Volume - Turns on power to the unit and sets the sound level.

SENS - Sets the sensitivity level of the unit. Zero setting is the lowest level and 10 is the highest. For general use, set the sensitivity to a higher position. In a mineralized area, or area with electrical interference, a lower setting may be more effective.

MODE - Sets the unit to three modes: DISC, ALL METAL and TONE.

Target Button - It is used with ALL METAL mode to pinpoint a target object's location.

DISC/TONE - Adjustment knob for metal identification.

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

- DISC, ALL METAL, and TONE are motion modes. You have to move the Search Coil to find your target object.
- Target Mode is for pinpointing the location of the item when the item is below the surface.



Figure B

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 25-cent 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 electromagnetic interference. See Figure C.

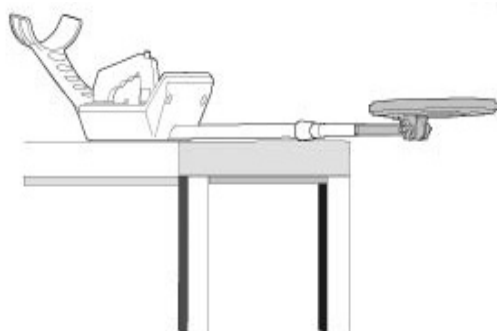


Figure C

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

Turn on the Metal Detector and set the VOLUME dial to the middle position. Set the MODE switch to the middle (ALL METAL). See Figure D.

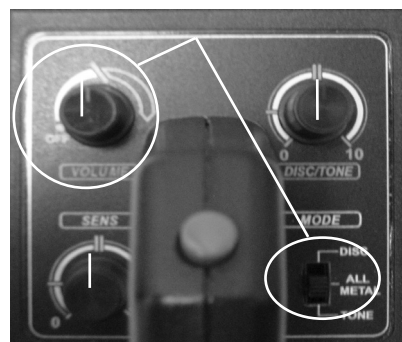


Figure D

Sweep the metal samples 2 to 3 inches or more above the center of the Search Coil. The Metal Detector will respond to each with a “DI” tone and the pointer on the View Meter will swing to the right.

NOTE: Be sure to move the samples, as the Detector is in motion mode. Otherwise the Detector will not respond.

NOTE: Adjusting the SENS dial from “0” to “10” will increase the Detector’s sensitivity.

Use the DISC/TONE dial to search for specific metals by having it not detect (“differentiate”) other kinds of metals.

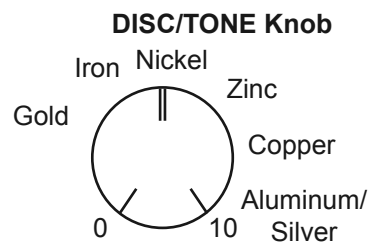


Figure E

For example, when the DISC/TONE dial is set to “0” the Detector will respond to ANY metal object with a “DI” tone and the meter will swing to the right.

1. To adjust the settings to PREVENT the unit from detecting **iron metals**, set the VOLUME and SENS dials at midpoint.
2. Then set MODE switch to DISC and the DISC/TONE dial to about “9 o'clock.” See Figure F.

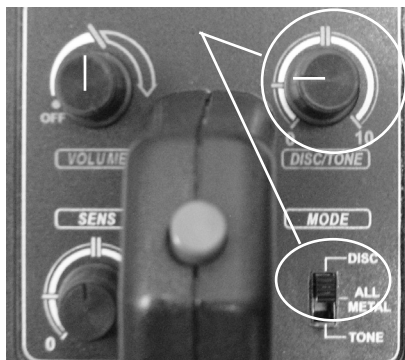


Figure F

3. As a test, sweep the iron nail sample 2 to 3 inches above the search coil. The unit will NOT respond (the meter pointer won't swing and the unit is silent.) Sweeping the other samples should produce the “DI” tone and make the pointer move.
4. To have the unit differentiate **nickel metals**, set the DISC/TONE to about “11 o'clock.” See Figure G. Sweep the nickel in front of the Search Coil; the unit will not respond to the nickel or to the iron nail. But it will respond the other samples.

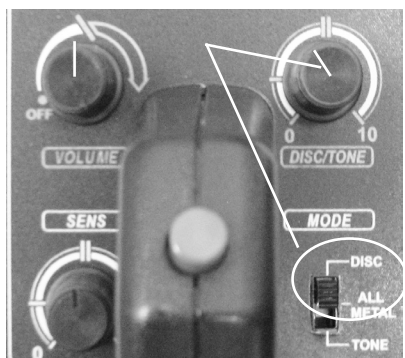


Figure G

5. To prevent the **zinc penny** from being detected, set the DISC/TONE dial to about “1 o'clock” See Figure H.

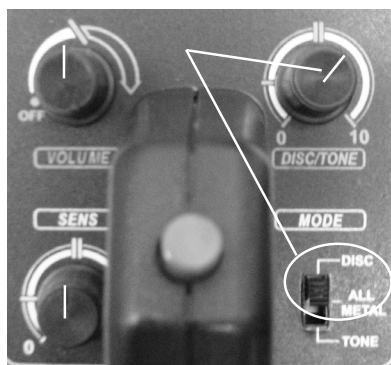


Figure H

By now, only the silver quarter should be detected.

NOTE: The discrimination position of aluminum is similar to silver. So both metals will be detected at the same time. The discrimination position of gold is similar to the nickel setting.

The Metal Detector can also be adjusted to detect all metals, yet signal a specific metal differently from the others.

6. Set the MODE switch to TONE and the VOLUME and SENS dials to their halfway points.
7. Set the DISC/TONE dial to about “9 o'clock” (the iron setting). Sweep the nail 2-3 inches above the Search Coil. The unit will make a short “KO” sound and the meter will swing to the right. Sweeping any of the other samples will produce the “DI” sound.
8. Rotate the DISC/TONE dial to mark the other specific metals with the “KO” sound.

To use the Metal Detector to “target” specific metals, set the MODE switch to ALL METAL and the VOLUME and SENS dials to the middle.

9. Press the red TARGET Button (6) on the panel. Set the silver quarter about five inches from the center of the Search Coil. The unit will make a continuous long tone and the meter will swing to the right. See Figure I.

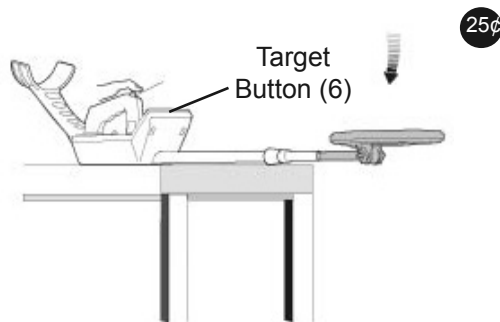


Figure I

10. Keeping the coin still, release the TARGET button. Wait two seconds, then press down the TARGET button again; the unit's sensitivity will be reduced.
11. **NOTE:** Even though the coin's location has not changed, when the unit's sensitivity is reduced the Metal Detector will stop sounding a tone.
12. Repeat the above operation, bringing the coin closer to the Detector and making it sound a tone. Once operating an outside search, you can use the TARGET button to determine the location of the metal.

GENERAL OPERATING INSTRUCTIONS

1. Once all the proper tests and adjustments have been made, the Metal Detector is ready to be used outdoors.
2. When first searching, set the Mode button to ALL METAL and SENS to the highest level.
3. Adjust the VOLUME to the desired level.

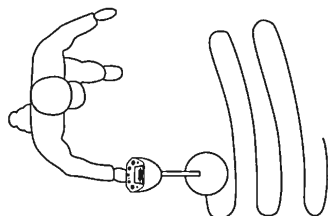


Figure J

4. Sweep the Search Coil (19) slowly back and forth in an arc, keeping it about 1/2" to 2" from the ground. See Figure I.
5. If you hear a beeping noise or see the needle jump to the right on the View Meter, you have located a metal object.
6. Use the TARGET button to pin-point the object. Then use the DISC or TONE modes to determine what kind of metal it is and whether you wish to dig out the item.
7. 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

1. 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:
 2. If there is interference from similar metal detectors in your searching area, lower the SENS setting to stop the interference.
 3. If there is interference from electrical cables, TV, radio, or other electrical devices in your searching area, lower the SENS setting.
 4. When searching in highly mineralized areas, the unit may sound even if there is no metal. Lower the SENS setting, set the DISC to high and increase the distance of the Search Coil from the ground until the false signal disappears. To set the DISC setting, place a test metal object in highly mineralized earth or wet sand and adjust the setting before beginning.
 5. When searching in a trash area, set the DISC to the middle setting so that the unit can reject most invaluable metals such as nails, bottle caps, cans, and small pieces of iron.
 6. Move all metal digging tools when searching.
 7. The SENS level is generally opposite the DISC setting. The higher the sensitivity level is, the worse the discrimination will be. You can lower the sensitivity to have better discrimination.

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 AND DIAGRAM

PLEASE READ THE FOLLOWING CAREFULLY

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Parts List

Part	Description	Qty
1	Mode Switch	1
2	Control Dials	3
3	Console Cover	1
4	Meter Cover	1
5	Adhesive Sticker	1
6	Target Button	1
7	Switch	1
8	Handle Section (Right)	1
9	Nut	1
10	Handle Section (Left)	1
11	Headphone Socket	1
12	Nut	1
13	Arm Support	1
14	Arm Support Pad	1
15	Upper Leg	1
16	Bolt	1
17	Bolt	1
18	Lower Leg	1

Part	Description	Qty
19	Tapered Bushing	1
20	Lock Nut	1
21	Coil Pivot	1
22	Knob Bolt	1
23	Search Coil	1
24	Threaded Insert	1
25	Cable (not shown in diagram)	1
26	Battery Cover	1
27	Bolt	2
28	Bolt	2
29	Nut	1
30	Housing	1
31	Bolt	1
32	PCB	1
33	Sensitivity Potentiometer	1
34	On/Off/Volume Potentiometer	1
35	Tone Potentiometer	1
36	View Meter	1

PLEASE READ THE FOLLOWING CAREFULLY

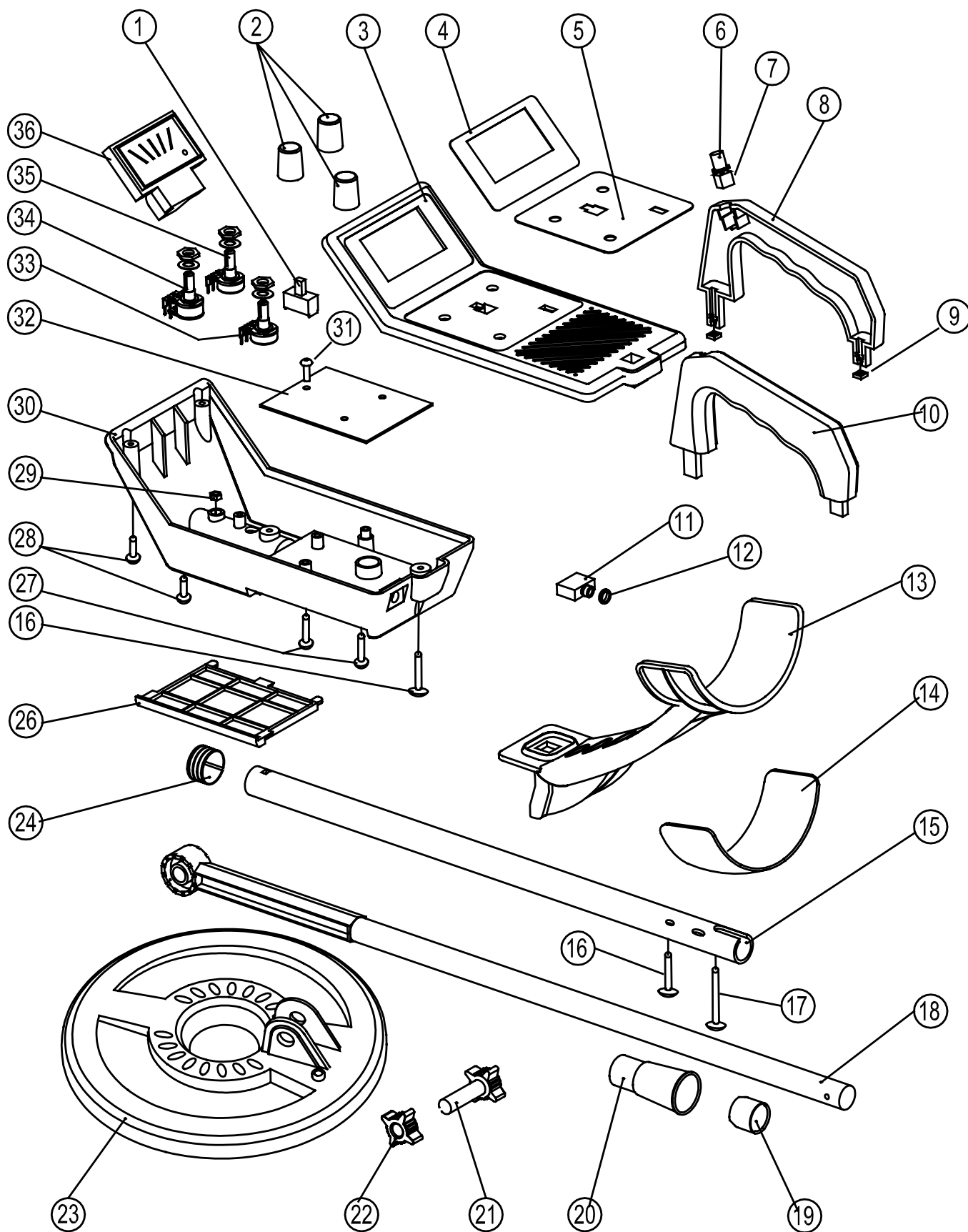
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Record Product's Serial Number Here: _____

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. Specify UPC 792363673785 when ordering parts.

Assembly Diagram



SAFETY

SETUP

OPERATION

MAINTENANCE

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.