

***R1***

OPERATING INSTRUCTIONS

***NEWFORCE***

*by*

**C.SCOPE**

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# **R1 - RAPID GET YOU GOING INSTRUCTIONS**

## **ASSEMBLY**

- Assemble stems and adjust for length.
- Use the 25cm (10 inch) search head.
- Twist surplus head lead around stem, allowing enough cable for free movement of the search head. (Push the cable into the cable slots in the lower stem to hold it firm).
- Connect search head to detector.
- Insert batteries.

## **SET-UP**

- Rotate the right hand control clockwise to turn the unit on. It also acts as the volume control. Initially set it to the 3 o'clock position. This switches the unit on. The display will light up and show an option of "PROGRAM" mode or "MANUAL" mode.

<b>PROGRAM</b>
<b>MANUAL</b>

- Press the ENTER push-button. The display will show 5 possible programs to choose from, with "COIN INLAND" highlighted.
- Press the ENTER push-button to select this program.
- The R1 is now ready to use.

## **SEARCHING**

- Keep the search head at a constant height above the ground, i.e. do not allow the search head to swing higher at the right and left edges of your swing.

## **PINPOINTING**

- When you hear a tone from the loudspeaker, you have found a target.
- Keep the head close to the ground & move it away from the target.
- Hold the PINPOINT push-button.
- Sweep the head over the target area.
- The sound will be loudest when the head is directly above the target.

## **CONTROLLING THE DETECTOR**

- To adjust the settings on the detector first press the ENTER button to activate the MENU system. You can still detect normally in this mode.
- Use the MENU/SCROLL control to highlight an option and then press ENTER to select it.
- To return to the full search screen keep pressing ENTER until it appears.
- For more details on individual menu options read the instruction manual.

**IF A PROBLEM IS ENCOUNTERED REFER TO THE FULL INSTRUCTIONS**

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# **INTRODUCTION**

To protect your investment complete both sections of the enclosed guarantee card and return to C-Scope. **This is particularly important in order to obtain the additional parts guarantee.** Please retain the original packing box. In the event that your detector should ever require to be serviced, this packaging will be most suitable for postal protection.

C-Scope detectors are recognised as the finest detectors available. They are designed with lasting quality, high technology, and above all, value for money. The only way to realise this value is to carefully study and understand this instruction manual. You will then be able to obtain all the advantages designed into your detector. It is also strongly recommended that you experiment with the detector's operation in air using various test samples, in order to learn to identify and understand the detector's capabilities and responses. Always remember that becoming a good metal detectorist is like becoming a good photographer or fisherman, that is, although it is an advantage to buy the best equipment, having bought it, patience and hours of practice are needed to become proficient.

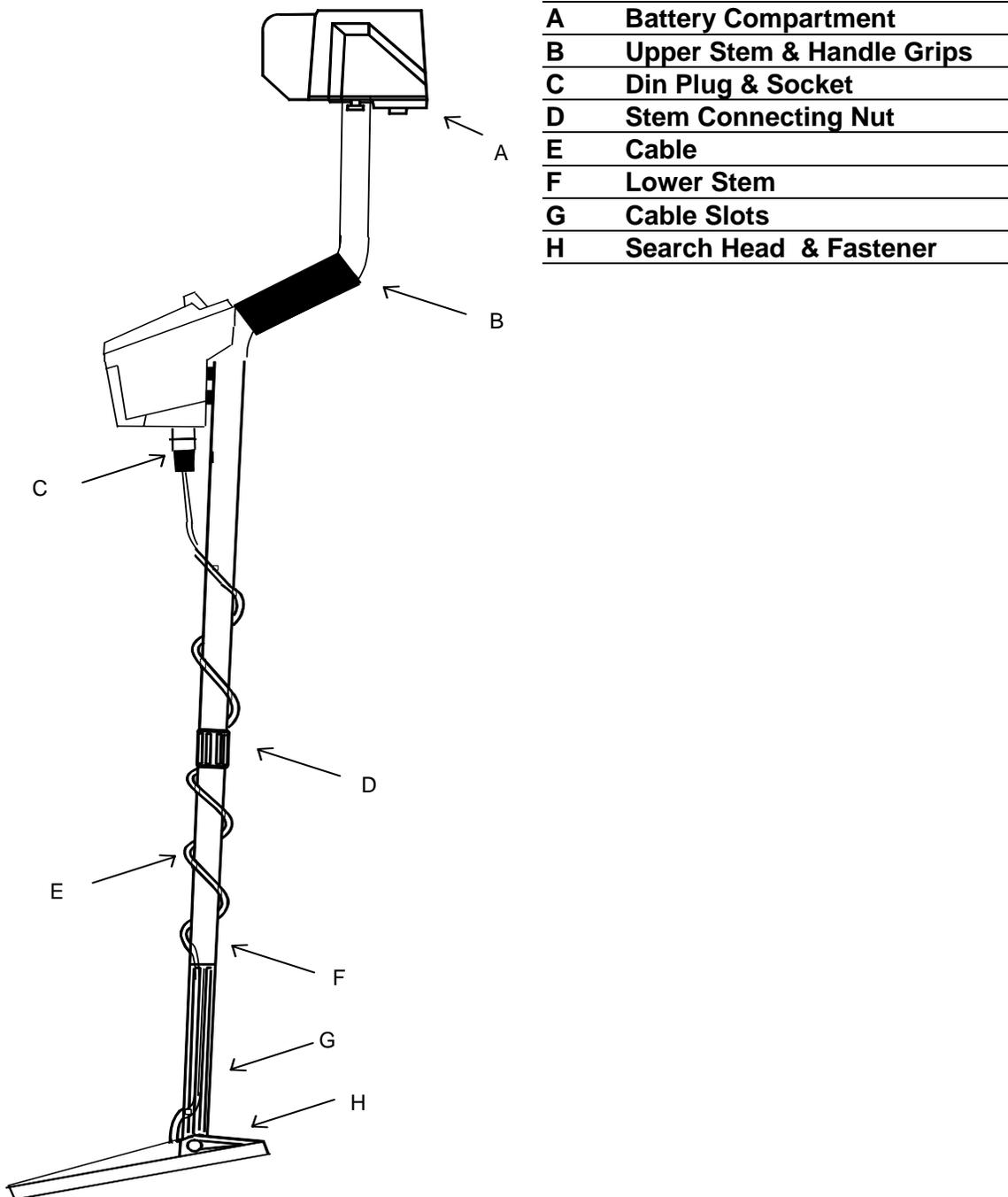
If the detector is not working as detailed in this manual then please refer to the Troubleshooting Page.

## **FEATURES**

- Twin Microprocessor control system
- Large Backlit Liquid Crystal Display
- CASSY – Computer Aided Search SYstem
- RADAR – Real Time Ground Radar Display
- High speed target analyser (ID)
- Target Pin Point
- Audio Discrimination
- Program Storage Facility
- Full range discrimination
- 15cm and 25cm diameter lightweight search heads
- Continuous Battery Monitor
- Recharge Socket
- Headphone Socket
- Independent volume Control

Switch on the R1 and the opening screen tells you that it is all ready to go, select program mode and there's nothing to adjust except the volume. The R1 is optimised and automatic. There are two powerful computers, each carrying out one million operations every second. The first carries out all of the signal and target analysis. The second controls the user interface. This takes the data produced by the first processor and presents it to the user on the display. The twin processor design enables the R1 to carry on detecting whilst the user changes settings. This makes it particularly easy to set the correct discrimination levels and see the effect of different modes. The R1 features a unique Ground Radar display allowing the user to see the signal being processed by the detector. Any adjustments are made using the simple to operate MENU driven interface. A single button press gives access to the MENU. A straightforward rotary control is used to select the item you wish to change, a press of a button alters the setting – what could be easier?

# R 1



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## **ASSEMBLY**

Open the carton and remove the main housing assembly. Twist the plastic stem lock, located at the end of the upper stem to allow the lower stem to be inserted. Adjust for length and rotate the lower stem to wrap the cable around the stems and take up any slack. Allowing enough cable for free movement of the search head, push the cable into the cable slots in the lower stem to hold it firm. Turn the stem lock to fix it at the desired position.

## **BATTERIES**

The R1 is powered by eight AA batteries or a single 12v rechargeable pack from C-Scope. It is advisable to use standard alkaline batteries to start with. You can then evaluate the sort of use you give the detector and decide whether the investment in rechargeables is justified.

The batteries should be fitted in the holder which is located in the battery compartment. To fit new batteries first check the power switch on the unit is switched to OFF. Then loosen the two captive screws located in the battery cover (do not fully remove these from the cover) and remove the cover. Inside is the battery holder. Lift out the holder and detach the connector if it is already fitted. Load it with the eight batteries ensuring that each battery is inserted the correct way round, (direction of batteries alternating). Roll each individual battery to ensure it is located correctly and making proper contact. Replace the connector making sure that it is firm and well seated, and put the loaded holder into the housing. Fit the cover and tighten the two captive screws finger tight.

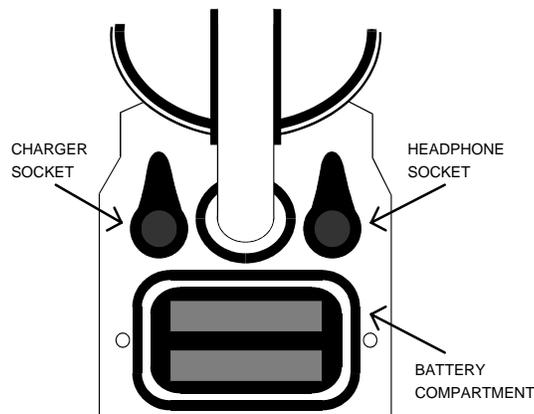
Once fitted the battery type should be set by selecting the Battery option on the Setup menu. This ensures that the battery condition is correctly displayed

Note: Batteries should not be left in the detector for long periods where they could leak, so remember to remove them at the end of a day's searching.

## **BATTERY CONDITION**

The battery condition is continuously monitored and displayed. New or fully charged batteries should cause the entire battery display to be filled. If the battery symbol is empty then the batteries should be replaced, or recharged if rechargeable batteries are fitted.

*Battery Compartment*



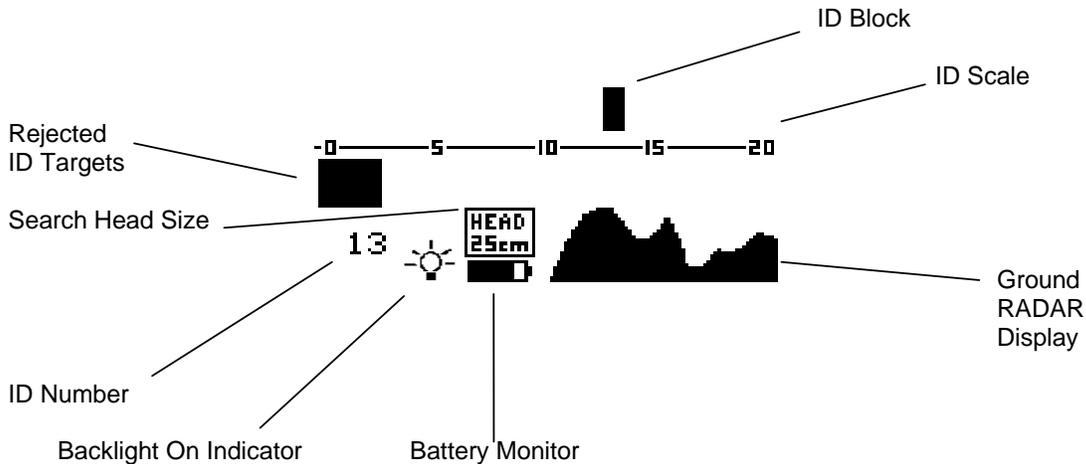
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The battery symbol gives a good representation of battery condition. This means that as the batteries drain, the symbol will gradually empty. Generally when the battery is half full you are about halfway through the charge, or life, of that battery pack. The amount of time varies depending on a number of factors including battery type, make, outside temperature and detector settings.

**TIP!** To maximise battery life:

- 1) Ensure that the backlight  symbol is not showing on the display.
- 2) Keep volume control set as low as possible.
- 3) Use Headphones.

## ***THE FEATURES IN DETAIL***



### **GROUND RADAR SIMULATOR**

This unique continuously scrolling RADAR is a view of the signal received by the R1 circuit. It can be used as an additional tool to analyse any signals. It is also a useful Pin Pointing aid. It is visible in both full screen search mode and when the first level menus are displayed. The sensitivity of the RADAR display is controlled by the Pin Point Gain setting.

### **SEARCH HEAD SIZE**

This displays the size of the currently fitted head. If no head is fitted or under certain head fault conditions the display will show '???'.

### **BATTERY**

This shows the currently fitted type, set by the operator when the batteries are fitted. The symbol shows the condition of the battery. For alkaline batteries a full, completely black symbol, indicates a voltage of 13volts. An empty symbol is around 8volts. For rechargeable batteries the upper level is reduced to 10.4V.

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## **ID DISPLAY**

The ID, (Identifier), numbers in the lower lefthand side correspond to the position of the ID block on the line at the top of the display. When the R1 has no signal or the signal is too weak or confusing to identify the display will show '??'. The ID line at the top of the screen will show a block in the relative position when the R1 successfully analyses a signal. The left hand end of the display is Iron , further right is Silver paper (aluminium foil, new 10p, old 10p bottle cap and £1.. The solid blocks below the number line indicate ID ranges that will be rejected by the R1. The Sensitivity of the ID display is controlled by the Motion Gain Setting.

Typical responses to common targets are (your detector may vary slightly):

<b>Object</b>	<b>ID No.</b>
Ground	0
Iron	1,2,3
Foil	8
Ring Pull	11
Hammered Silver Sixpence	10

<b>Object</b>	<b>ID No.</b>
Old 10p Coin	11
Bottle Cap	13
£1 Coin	15
Cartwheel 1d	19
New 10p Coin	9

# ***THE CONTROLS AND WHAT THEY DO***

## **ON/OFF VOLUME**

This rotary control is used to turn the unit on and off and adjust the volume level of the audio.

## **MENU/SCROLL**

This rotary control is used in conjunction with the ENTER button to access the menu system which is used to control the R1. It has two functions. The first is to highlight the desired menu option. The second is to adjust the value of a setting up or down.

## **ENTER**

The ENTER push button is used to confirm highlighted menu selections. Once a menu option has been highlighted then pressing the ENTER button will select that option. If a value is being set then pushing the ENTER button will store that value. When no menus are displayed pushing the ENTER key will display the menus.

## **PIN POINT**

Whilst this button is pressed the detector will switch into Pin Point, non-motion, mode. It will return to normal, motion, mode as soon as the button is released. The 'RADAR' display is reset everytime the Pin Point button is released.

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# MENU SYSTEM

## DISCRIMINATION

DISCRIM	SET	
SENSITIVITY	LEARN REJ	
AUDIO	LEARN ACC	
PROGRAMS	EDIT	
SET UP	BACK	

This range of functions allows you to reject or ignore unwanted signals generated by items such as pull tabs. It can also act as a Notch Accept or a Notch Reject. There are four options to set the discrimination level to give maximum flexibility and ease of setting. A black block under the line of ID numbers indicates that a signal with that number will give no audio sound, the ID display will still show the signal. NOTE: Ensure that there is no other metal near the search head when setting the Discrimination by sweeping objects over the head. It is also advisable to reduce the sensitivity slightly when setting the Discrimination using Learn Reject or Accept to reduce the chance of any unwanted signals. Once set the sensitivity may be increased again.

### SET

DISCRIM	SET	
SENSITIVITY	LEARN REJ	
AUDIO	LEARN ACC	
PROGRAMS	EDIT	
SET UP	BACK	DONE

In this mode the MENU/SCROLL control acts as a conventional Discrimination control. Turning the control clockwise increases the discrimination level. This is indicated by the black squares under the I.D. numbers on the display. Iron is to the left (5 and below) and copper is to the right (15 and above). Sweep a sample of the item you want to ignore over the search head while adjusting the control until it is rejected. When satisfied press the ENTER button to store the setting. NOTE: ID 0 cannot be cleared with this control. This is the ground discrimination block. To alter ID 0 use DISCRIM EDIT, (see below).

### LEARN REJECT

DISCRIM	SET	
SENSITIVITY	LEARN REJ	
AUDIO	LEARN ACC	
PROGRAMS	EDIT	
SET UP	BACK	DONE

Learn Reject allows you to 'teach' the R1 to reject one or more targets that are swept over the search head. Once Learn Reject is selected the sample or samples are swept several times over the head. The R1 will then set the disc block at the sample ID point so that any objects with the same ID as the sample will be rejected.

**TIP!** This can be used as a Notch Reject facility. First use Discrim Set to accept all signals, then use Learn Reject to set the specific ID points of objects to be ignored.

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## LEARN ACCEPT

DISCRIM	SET	
SENSITIVITY	LEARN REJ	
AUDIO	LEARN ACC	
PROGRAMS	EDIT	
SET UP	BACK	DONE

Learn Accept allows you to 'teach' the R1 to accept one or more targets that are swept over the search head. Once Learn Accept is selected the sample or samples are swept several times over the head. The R1 will then clear the disc setting at the sample ID point so that any objects with the same ID as the sample will be accepted. Care should be taken to ensure that you do not 'Learn Accept' ground, ID 0.

**TIP!** This can be used as a Notch Accept or Token hunting facility. First use Discrim Set to ignore all signals. Then use Learn Accept to clear the specific ID points of the objects to be found.

## EDIT

DISCRIM	SET	
SENSITIVITY	LEARN REJ	
AUDIO	LEARN ACC	
PROGRAMS	EDIT	
SET UP	BACK	DONE

This function enables you to set or reset the Discrimination at any desired point within the entire range. Once selected a flashing block, (cursor), will appear under the 0 at the left hand edge of the display. Pressing the ENTER button will toggle the block at the current cursor position between ACCEPT and REJECT. Rotating the MENU/SCROLL control will move the cursor. Rotate the control to the desired ID position and press the ENTER key to either set (REJECT) or clear (ACCEPT) the block. **When you have finished rotate the MENU/SCROLL control clockwise until DONE is highlighted in the lower right hand corner of the display, then press ENTER.**

## SENSITIVITY

DISCRIM	MOTION GAIN	
SENSITIVITY	PIN -PT GAIN	
AUDIO	TUNE	
PROGRAMS		
SET UP	BACK	

These functions set the sensitivity of the R1 to signals.

## MOTION GAIN

DISCRIM	MOTION GAIN	
SENSITIVITY	PIN -PT GAIN	
AUDIO	TUNE	
PROGRAMS		
SET UP	BACK	

This sets the sensitivity of the audio signal and the ID display in normal search or MOTION mode. The level is set by rotating the MENU/SCROLL control, the current level is indicated by the bargraph and number on the display. Once the desired level has been set by rotating

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the MENU/SCROLL control press then ENTER button to store the setting. NOTE: This setting has no effect on the RADAR display or audio level in Pin Point mode.  
**TIP!** This level should be set as high as possible without the R1 spuriously sounding off.

## PIN - PT GAIN

DISCRIM	MOTION GAIN	
SENSITIVITY	PIN -PT GAIN	
AUDIO	TUNE	
PROGRAMS		
SET UP	BACK	

This sets the sensitivity of the Pin Point, or NON-MOTION, mode. When Pin-Pt Gain is selected the R1 automatically selects Pin Point mode to aid setting the level. Once the desired level has been set by rotating the MENU/SCROLL control press then ENTER button to store the setting. This setting also alters the sensitivity of the RADAR display. NOTE: This setting has no effect on the normal MOTION search mode.

## TUNE

DISCRIM	MOTION GAIN	
SENSITIVITY	PIN -PT GAIN	
AUDIO	TUNE	
PROGRAMS		
SET UP	BACK	

This sets the threshold or background tone. This is only audible with Silent Search turned off. As soon as Tune is selected then Silent Search will be turned OFF so that the background tone will be heard. Once the desired level has been set by rotating the MENU/SCROLL control press the ENTER button to store the setting.

## AUDIO

DISCRIM	DISCRIM	
SENSITIVITY	SIL SEARCH	
AUDIO	MODE	
PROGRAMS		
SET UP	BACK	

This range of functions control how the audio information about buried targets is presented.

## DISCRIMINATION

DISCRIM	DISCRIM	PIN -PT OFF
SENSITIVITY	SIL SEARCH	PIN -PT ON
AUDIO	MODE	MOTION OFF
PROGRAMS		MOTION ON
SET UP	BACK	

This enables or disables Audio Discrimination for both Motion and Pin Point modes. Audio Discrimination gives the operator an indication of the composition of the target by varying the pitch/tone of the audio signal. For all modes, highlight the desired option by rotating the MENU/SCROLL control and then press the ENTER button. Note: Pin Point and Motion Audio Discrimination can be set independently.

### PIN - PT OFF

This turns Audio Discrimination OFF for Pin Point Mode.

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## PIN - PT ON

This turns Audio Discrimination ON for Pin Point Mode. This gives a continuous pitch change across the entire ID range. IE a low tone for iron and a corresponding increase in pitch for more valuable metals.

## MOTION OFF

This turns Audio Discrimination OFF for Motion Mode.

## MOTION ON

This turns Audio Discrimination ON for Motion Mode. In this mode bad signals such as Iron will give a low tone. Good signals will give the normal tone.

**NOTE:** No tone will be heard if the object has been rejected by the ID.

**TIP!** Best results will be obtained in this mode if Silent Search is On.

## SILENT SEARCH

DISCRIM	DISCRIM	OFF
SENSITIVITY	SIL SEARCH	ON
AUDIO	MODE	
PROGRAMS		
SET UP	BACK	

Silent search will suppress the background tone set by the TUNE setting. In this mode audio will only be heard if there is buried object. The rest of the time the audio will be silent. Use the MENU/SCROLL control to highlight the desired option, ON or OFF, and then press the ENTER button. **NOTE:** Adjusting the TUNE level will automatically turn Silent Search off.

## OFF

Turns Silent Search OFF. In this mode, a constant background tone will be heard. The level of this tone is set by the SENSITIVITY - TUNE option.

## ON

Turns Silent Search ON. In this mode, no background tone is heard.

## MODE

DISCRIM	DISCRIM	ANALOG
SENSITIVITY	SIL SEARCH	DIGITAL
AUDIO	MODE	
PROGRAMS		
SET UP	BACK	

This function alters the way in which the audio tone is generated. It only affects normal Motion search mode. Use the MENU/SCROLL control to highlight the desired option, then press the ENTER button.

## ANALOG

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The audio signal comes straight from the R1 receiver circuit. It allows the operator to listen to the true signal level and can allow the experienced user to 'understand' signals better. It does have the disadvantage that smaller, deeper objects give fainter signals.

## DIGITAL

The audio signal is directly controlled by the R1 computer. In this mode the audio signal is either on or off. This means that a deep object will give the same audio volume as a shallow object. This can make the initial location of an object easier and more positive but does not convey any other information.

## PROGRAMS

DISCRIM	GR'ND TYPE	
SENSITIVITY	OPTIONS	
AUDIO	RECALL	
PROGRAMS	STORE	
SET UP	BACK	

These functions allow the operator to store and recall the set up of the R1. Up to two programs can be stored. A program will store all of the current settings including Discrimination, Sensitivity, Frequencies etc. It will not store the Display Contrast and Brightness settings. These are stored separately and retrieved automatically at turn on. Once Store or Recall is selected rotate the MENU/SCROLL control to highlight the Program to be stored or recalled and then press the ENTER button. The R1 comes with the first three programs preset to commonly used settings. The COIN INLAND Program is set for high sensitivity to precious metals, the ALL METAL Program for deep seeking of all metals and COIN BEACH Program for Beach use.

## GROUND TYPE

DISCRIM	GR'ND TYPE	INLAND
SENSITIVITY	OPTIONS	BEACH
AUDIO	RECALL	
PROGRAMS	STORE	
SET UP	BACK	

This allows the operator to select between use on normal inland sites or wet sand sites such as the beach. Use the MENU/SCROLL control to highlight the desired option and then press the ENTER button.

## INLAND

This will set the R1 ground reject circuit to normal ground conditions.

## BEACH

This will set the R1 ground reject circuit to cope with the extreme conditions found on wet sand. NOTE: As beach conditions are so variable some adjustment of the GROUND ADJ setting may be required.

## OPTIONS

DISCRIM	GR'ND TYPE	DEFAULT
SENSITIVITY	OPTIONS	LAST
AUDIO	RECALL	MANUAL OFF
PROGRAMS	STORE	MANUAL ON
SET UP	BACK	

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This allows the operator to select which settings are restored when the R1 is switched on. Highlight the desired choice using the MENU/SCROLL control and then press the ENTER button.

### **DEFAULT (setting)**

This will tell the R1 to load the factory default settings every time it is switched on.

### **LAST (setting)**

If MANUAL mode is selected (see below) this will tell the R1 to switch on with exactly the same settings as when it was last used. This enables you to turn the R1 off when digging for deep targets and then switch it back on and resume your searching without having to readjust the detector.

### **MANUAL OFF**

This turns the manual mode off so when you turn on the R1 you are presented with a short-cut to the easy to use manufacturer defined programs of:

**COIN INLAND** for general purpose searching on most sites i.e. those not affected by very high mineralisation or salt deposits.

**ALL METAL** for very deep searching of all metals (no discrimination).

**COIN BEACH** for general purpose searching on the beach or highly mineralised sites.

### **MANUAL ON**

This turns the opening selection screen off so that when you turn on the R1 you are immediately in the searching mode. Experienced users of the R1 may prefer this setting.

### **RECALL**

DISCRIM	GR'ND TYPE	COIN INLAND
SENSITIVITY	OPTIONS	ALL METAL
AUDIO	RECALL	COIN BEACH
PROGRAMS	STORE	USER 1
SET UP	BACK	USER 2

Recalls all settings from the program selected from the list (see also MANUAL OFF above).

### **STORE**

DISCRIM	GR'ND TYPE	USER 1
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SENSITIVITY	OPTIONS	USER 2
AUDIO	RECALL	
PROGRAMS	STORE	
SET UP	BACK	

Stores all current settings into the program selected, either USER 1 or USER 2.

## **SETUP**

DISCRIM	DISPLAY	
SENSITIVITY	GROUND ADJ	
AUDIO	FREQUENCY	
PROGRAMS	BATTERY	
SET UP	BACK	

### **DISPLAY**

DISCRIM	DISPLAY	CONTRAST
SENSITIVITY	GROUND ADJ	BRIGHTNESS
AUDIO	FREQUENCY	
PROGRAMS	BATTERY	
SET UP	BACK	

These options allow the display settings to be adjusted. These settings are stored when the R1 is switched off and will be restored when it is turned back on. To select, highlight the desired option by rotating the MENU/SCROLL control and then press the ENTER button.

### **CONTRAST**

This option sets the contrast level or viewing angle of the display. Once set it shouldn't require adjustment. However, if the R1 is used at dawn or dusk when the sun is low in the sky then some adjustment may be required to improve the visibility of the display. The desired level should be set by rotating the MENU/SCROLL control and then pressing the ENTER button when satisfied, this will store the setting.

### **BRIGHTNESS**

This option sets the brightness level of the backlight. In normal daylight the backlight is not required and it should be set to 0. At night or in conditions of poor light the backlight level should be adjusted by rotating the MENU/SCROLL control and then pressing the ENTER button when satisfied, this will store the setting. **IMPORTANT NOTE:** The backlight consumes a lot of power compared with the low consumption circuitry of the rest of the R1. For this reason to ensure long battery life the backlight should only be used where necessary and the brightness level kept to a minimum. The brighter the backlight the more

power it uses and the shorter the battery life will be. When the backlight is on the  symbol appears on the display to prevent inadvertent use.

### **GROUND ADJUST**

DISCRIM	DISPLAY	
SENSITIVITY	GROUND ADJ	
AUDIO	FREQUENCY	
PROGRAMS	BATTERY	
SET UP	BACK	

The default setting of 50 is a good general setting and should be adequate for most sites. However, a fine adjustment is provided to allow the operator to adjust the R1 to give

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optimum performance on a particular site. The level is adjusted by rotating the MENU/SCROLL control. An incorrect setting will result in a fluctuating signal on the RADAR display and frequent '0' targets on the ID display. To find the optimum ground setting, raise and lower the head above an area of ground free from any targets then adjust the ground setting for minimum audio fluctuation and ID indications. An alternative method is to set the Pin Point gain to 8 and then lower the head to an area of ground free from any targets. If the audio level increases then decrease the ground setting, if it decreases, (goes quiet), then increase the ground setting.

NOTE: If BEACH is selected then an incorrect ground setting will result in frequent ID targets in the range 3 to 6 depending on beach conditions. Adjust the ground setting as described above.

## FREQUENCY

DISCRIM	DISPLAY	LOW
SENSITIVITY	GROUND ADJ	MIDDLE
AUDIO	FREQUENCY	HIGH
PROGRAMS	BATTERY	
SET UP	BACK	

This can be used to change the operating frequency of the R1. Three frequencies are provided. Generally the middle frequency should be used but the others can be used if interference from other metal detectors is experienced. Use the MENU/SCROLL control to highlight the desired frequency and the press the ENTER key to store the setting. NOTE: the frequency does not change until the ENTER key is pressed.

## BATTERY

DISCRIM	DISPLAY	RECHARGE
SENSITIVITY	GROUND ADJ	ALKALINE
AUDIO	FREQUENCY	
PROGRAMS	BATTERY	
SET UP	BACK	

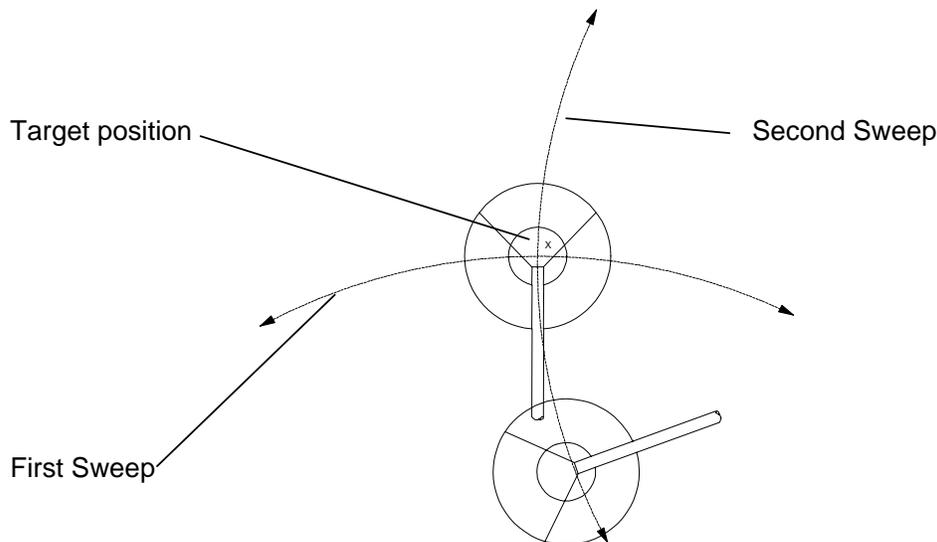
This option allows the selection of either rechargeable batteries or alkaline batteries. It is used to ensure that the battery monitor accurately shows the state of charge of the batteries. Use the MENU/SCROLL control to highlight the desired battery type and then press the ENTER key to store the setting.

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# **GENERAL HINTS**

## ***Pin Pointing***

Move the search head to one side of the target. Press and hold the Pin Point button. Sweep the search head over the target slowly whilst monitoring the RADAR display. The target is directly below the centre of the search head when the signal is largest. If the RADAR signal is too broad then either move the head closer to the target and release and press the Pin Point button, or simply raise the search head slightly off of the ground whilst sweeping the head over the target. Make a mental note of the position of the maximum signal then turn through 90 degrees and repeat the above procedure. Again make a mental note of the position of maximum signal. The point at which both signals are maximum is the position of the target. Dig carefully to avoid damaging your find.



## ***Detection Range***

Your R1 is a top performance detector but adverse soil conditions can significantly reduce the depth of detection.

Detection ranges will vary depending on the size of the object, the length of time an object has been buried, and the type of ground the object is buried in.

The best ground conditions are well compacted soils and coins can be found at the greatest depth if the object has been buried for some time and the coin has interacted with the salts in the ground, thereby appearing larger to the detector. The worst conditions for detecting are on loosely compacted or freshly dug ground or when the object has only recently been buried. In these conditions detection range will be reduced. 90% of all artefacts are found within 15cm of the surface.

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## ***Determining the Target Size***

An operator who is familiar with their instrument will be able to do an excellent job of determining object size, shape and depth before he digs. This technique is learned from careful analysis of the RADAR and audio signal coming from the detector. Each time a signal is heard, listen for any peculiar characteristics it may have, determine over how large an area you get a detector signal, and try to 'outline' the object before you dig.

After digging up the object, compare the object size, shape, depth and position in the ground with signal information you received before digging. After careful analysis of many signals you will learn to 'read' the hidden target before digging.

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# Specification

**Battery Type:** 8 x AA, MN1500 or equivalent, Alkaline cells recommended.  
**Supply Voltage:** 12v DC (nominal), 13.8v DC (max)  
**Supply Current:** 55mA (no backlight)  
100mA (backlight full on)

**Battery Life:** 40 Hours normal detecting using Alkaline batteries and no backlight

**Battery Indicator:**

Alkaline:	Full 13.2V	Empty 8.5V
Rechargeable:	Full 10.8V	Empty 8.5V

**Audio Frequency:** 100Hz to 5.5kHz, 714Hz (nominal)

**Transmit frequency:** 6.097kHz, 6.250kHz, 6.410kHz

**Search Coils:** 25cm concentric  
15cm '2D'

**Detection Ranges:** (Typical in air performance, Motion mode)

Hammered 6d	20cm
£1 coin	30cm
'old' 10p	32cm
Cartwheel 1d	33cm

**Factory Program Settings.**

Setting	Coin Inland Program	All Metal Program	Coin Beach Program
<b>DISCRIM (reject)</b>	0-3	0	0-5,10
<b>MOTION GAIN</b>	14	14	12
<b>PIN POINT GAIN</b>	14	14	12
<b>AUDIO DISC</b>	PIN POINT OFF MOTION OFF	PIN POINT ON MOTION ON	PIN POINT OFF MOTION OFF
<b>SILENT SEARCH</b>	OFF	ON	ON
<b>AUDIO MODE</b>	ANALOG	DIGITAL	DIGITAL
<b>FREQUENCY</b>	LOW	LOW	LOW
<b>GROUND TYPE</b>	INLAND	INLAND	BEACH

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# MENU STRUCTURE

## DISCRIMination

SET  
LEARN REJect  
LEARN ACCEpt  
EDIT

## SENSITIVITY

MOTION GAIN  
PIN Point GAIN  
TUNE

## AUDIO

### DISCRIMination

PIN Point OFF  
PIN Point ON  
MOTION OFF  
MOTION ON

### SILent SEARCH

OFF  
ON

### MODE

ANALOG  
DIGITAL

## PROGRAMS

### GRouND TYPE

INLAND  
BEACH

### OPTIONS

DEFAULT  
LAST

### RECALL

COIN INLAND PROGRAM  
ALL METAL PROGRAM  
COIN BEACH PROGRAM  
USER PROGRAM 1  
USER PROGRAM 2

### STORE

USER PROGRAM 1  
USER PROGRAM 2

## SETUP

### DISPLAY

CONTRAST  
BRIGHTNESS

### GROUND ADJust FREQUENCY

LOW  
MIDDLE  
HIGH

### BATTERY

RECHARGEABLE  
ALKALINE

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## ***OPTIONAL ACCESSORIES from C-Scope***

### **Headphones:**

Headphones not only extend battery life but also improve sensitivity by reducing external noises. The headphones should be fitted with a standard stereo 6.35mm, (1/4 inch), jack plug. The headphone socket is located under the protective cap in the battery housing. (NOTE: Stereo mode must be selected on headphones fitted with a stereo/mono switch).

### **Rechargeable battery pack:**

A shrink wrapped pack of 8 rechargeable Nickel Cadmium batteries to replace the standard batteries and holder.

### **Battery charger:**

The C-Scope battery charger is designed to charge the rechargeable pack safely and efficiently.

## ***CHARGING BATTERIES***

A battery charge socket is provided for use with the C-Scope battery charger (see Accessories) and is located under the protective cap in the battery housing. (The smaller of the two sockets.) Inserting the charger will automatically remove the power from the detector so the charger must be removed to do a battery check. Do not attempt to recharge standard batteries. It will take approximately fourteen hours to fully recharge flat batteries with the C-Scope charging unit.

For further information, and a price list, for all C-Scope accessories please telephone (01233) 629181, e-mail: [info@cscope.co.uk](mailto:info@cscope.co.uk) or contact your local dealer.

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# ***THE IMPORTANCE OF THE RIGHT APPROACH***

Treasure hunting can be a profitable and rewarding hobby, if approached in a patient and diligent manner. Time spent researching to locate a worthwhile site for a search can be time wasted if your search is hasty and erratic. To achieve maximum results it is important then, to decide on your approach to any particular site in advance of the actual search.

Tactics will be decided by the type of site - it is more profitable to scan a small area thoroughly than to conduct a haphazard search of the total site. However, when the site is too far away for you to make several return visits, a plan should be adopted which gives maximum coverage, at the same time as indicating the most likely area for detailed search.

Your detector alone is not a guarantee of successful treasure hunting. Any detector needs an operator and for the best results the operator needs the right approach, attitude and technique. Too many beginners neglect the importance of pre-planning and research before using their detector in the field, and patience and technique during the actual search.

Your detecting should begin with some background work before the day of the actual search. The extent and thoroughness of your research will be one of the major factors in the success of your detecting. You should aim to get as complete an understanding as possible of the local history and geography.

The key to the choice of site is to think of people, where they congregated over the past few hundred years. What were their customs and pursuits? Where did they spend money? Where did they carry money? The answers are not Roman sites, nor are they associated with mystic treasure stories of crocks of gold. Rather, they are unassuming, undramatic places, like public footpaths and ancient rights of way, old houses and so on.

When you have chosen your site, allocate a whole day from early morning to early evening for the search. Make sure you have all the equipment you are likely to need. Your detector should be checked before starting out, and you should always carry a spare set of batteries. You will also need a strong, sharp trowel. It is also a good idea to have a set of lines and pins so that you can lay out your search area scientifically.

Most beginners make the mistake of rushing about hoping to chance upon a rare find. If for example there happened to be a valuable ring that was buried 15cm deep on the site you were searching, if you rushed about haphazardly and quickly on the site, the odds would be very much against you finding it. On the other hand, if you pegged out the area scientifically and searched slowly and thoroughly, the odds of finding the ring would be very much more in your favour.

Remember, **BE PATIENT** and **WORK SLOWLY**. Do not try to cover too large an area, restrict yourself to a small area and work through it thoroughly. Make a note of the position and the extent of the area, and then when you return you can start again further on without missing any ground or covering the same area twice.

It is also important to keep the detector head as close to the ground as possible. Ideally, you should 'iron' the ground with the search head of the detector, so that you do not lose any detection range. Similarly, if you work slowly and carefully you should be able to distinguish the faint signals as well as the clear-cut signals and further increase your finds.

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The technique of getting the best out of your detector is not learnt overnight. You need to get as much experience as possible so that you can recognise every kind of signal. Indeed, a good detector operator can often tell you what is being detected before it is unearthed.

### ***Search Head Position***

It is essential that the search head is kept close and parallel to the ground as in B. Do not hold the search head too high above the ground, or at an odd angle as in A, C, D as you will be apt to miss finds.

## ***SWEEPING TECHNIQUE***

For extremely small object searching, such as coins, rings, nuggets, etc. lower the search head to within 1 inch of the ground. Sweeping the coil from side to side in a straight line in front of you. Keep the coil at a constant height as you sweep from side to side. Move the head at a rate of 0.5 metre per second.

The optimum sweep rate must be determined by each operator. The detector should be held comfortably in the hand, with the head held as close to the ground as possible. As the detector is scanned from side to side in front of the operator, the search head should be advanced approximately two-thirds the diameter of the coil. This keeps the operator moving ahead, and it allows some overlapping of each sweep. This overlapping ensures that nothing will be missed. It is well to note here that the operator should not rush. This is one of the most common mistakes made by detector users. If you rush, you will not adequately cover the ground.

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## **CODE OF CONDUCT**

1. Do not trespass. Obtain permission before venturing on to any private land.
2. Respect the Country Code. Do not leave gates open when crossing fields, and do not damage crops or frighten animals.
3. Do not leave a mess. It is simple to extract a coin or other small objects buried a few inches under the ground without digging a great hole. Use a sharpened trowel or knife to cut a neat circle or triangle (do not remove the plug of earth entirely from the ground); extract the object; replace the soil and grass carefully and even you will have difficulty in finding the spot again.
4. Help to keep countryside tidy - and help yourself. Bottle tops, silver paper and tin cans are the last thing you should throw away. You could well be digging them up again next year. Do yourself and the community a favour by taking the rusty iron and junk you find to the nearest litter bin.
5. If you discover any live ammunition or any lethal objects such as an unexploded bomb or mine, do not touch it. Mark the site carefully and report the find to the local police.
6. Report all unusual historical finds to the landowner.
7. Familiarise yourself with the law relating to archaeological sites. Remember it is illegal for anyone to use a metal detector on a scheduled ancient monument unless permission has been obtained from the Historic Buildings and Ancient Monument Commission for England or the Secretary of State for the Environment in Scotland and Wales.
8. Remember that when you are out with your metal detector, you are an ambassador for our hobby. Do nothing that may give it a bad name.
9. The law relating to treasure finds must be followed. In the U.K. Details of the law can be obtained from the Department of Culture, Media & Sport (Tel: 0207 211 6200) who produce excellent literature to help you to understand how the law affects you and your hobby.

## **CARE OF YOUR DETECTOR**

### **Storage**

When not in use your detector should be stored in a dry warm environment. If it is not to be used for any length of time it is advisable to remove the batteries to avoid leakage which could cause serious damage. The working life of your detector will be shortened by careless use or neglect of the unit. Think of your detector as a scientific instrument. Your detector is designed to withstand rugged handling on any terrain, but misuse or lack of due attention will tell in the end. After using your detector in a hostile environment (salt water, sand, etc.) The exterior parts should be wiped clean with a damp cloth, paying particular attention to the head and stems, then carefully wipe dry. The search head securing bolt should be periodically removed and lubricated to prevent seizing.

.DO NOT use solvents or detergents on any part of the detector.

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# **TROUBLESHOOTING**

- (a) Check the condition of batteries under load using the battery monitor symbol. (See Battery Check Procedure).
- (b) Check that the search head is properly attached to the control box via the search head cable connector.
- (c) Interchange batteries and ensure batteries are correctly seated in the holder and that the battery connector is securely attached to the battery holder.

## **Oscillating Signal**

- (a) This could be due to poor battery connections. Ensure that they are tight and the batteries are securely clipped into place.
- (b) Loose search head cable connection - tighten.
- (c) Interference from a vehicle using a radio transmitter, or possibly a stationary source of electromagnetic radiation such as an electric fence or radio transmitter. If this occurs then reduce the sensitivity. If the problem persists then the best remedy is to wait until the transmission stops.

## **Intermittent Sound from Speaker**

- (a) This could be due to poor battery connections. Ensure that they are tight and the batteries are securely clipped into place.
- (b) Loose search head cable connection - tighten.
- (c) Ensure search head cable is pushed into the cable slots in the lower stem.
- (c) Radio interference (see above).

## **Poor or No Contrast on Display**

- (a) This could be due to poor battery condition. Ensure that batteries are in good condition.
- (b) The R1 internal storage could be corrupted. To reset the detector ensure the R1 is turned OFF, press and hold the ENTER button, turn the R1 ON wait 5 seconds. You will be asked if you wish to reset the detector. Use the MENU/SCROLL control to highlight YES then press the ENTER button. The R1 will then be reset to factory settings.

## **No Sound or Partial Sound from Headphones**

- (a) On headphones fitted with stereo/mono switch, ensure stereo is selected.
- (b) Ensure headphone connector is fully inserted into socket.
- (c) Try another set headphones or try headphones on another piece of equipment.

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## Further Information

If you experience any difficulty in operating your R1 or have any questions on the information in your R1 Operating Instructions Manual, please do not hesitate to phone our Customer Service Department on +44 (0)1233 629181 or e-mail: [info@cscope.co.uk](mailto:info@cscope.co.uk)

***Before returning a detector for repair to C-Scope ensure you have done the following:-***

- (a) Read the instructions thoroughly.
- (b) Tried new batteries and checked procedure outlined above.
- (c) Return your detector with a letter giving full details of fault.



This equipment conforms to the EMC Directive 89/336/EEC.  
System performance may be impaired by unusually strong electromagnetic fields.

# C.SCOPE

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