



TM 800

INSTRUCTION MANUAL

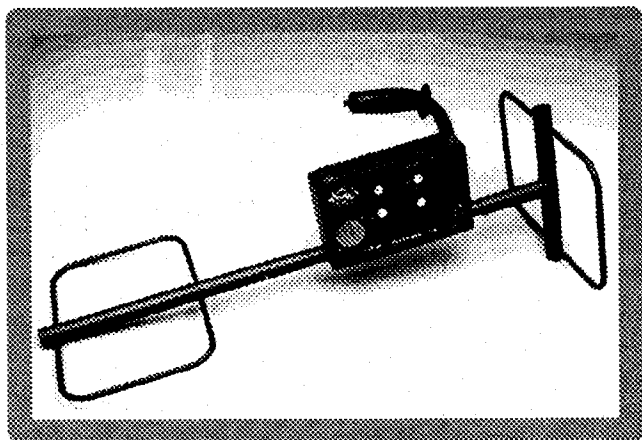




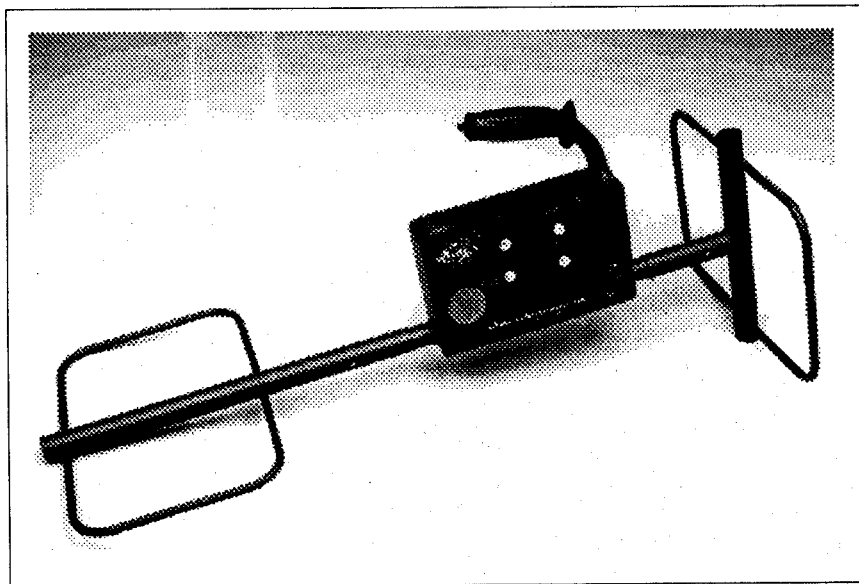
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Assembly Instructions

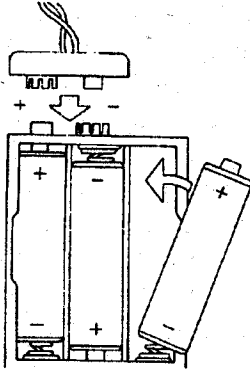
Remove all parts from the shipping carton, and assemble as shown.





Batteries

Install the batteries into the battery holder as shown:



Battery Installation

Place flat end or bottom of battery against battery holder spring. Then push top of battery down and into place.

The Battery Compartment is located on the control panel directly above the Headphone Jack. Remove thumbnuts, attach battery pack to battery lead, replace battery door and thumbnuts.

Six Alkaline AA batteries are recommended for the TM 800.

Battery life will vary significantly with temperature, the number of targets detected, and the type of battery used.

An optional rechargeable battery, P/N 512-0014 nicad, suggested retail \$24.95, and charger P/N 509-0016, suggested retail \$9.95, can be purchased for the TM 800.

To order, contact your local Dealer or telephone Toll Free:
1-800-547-6911



Features

Autotune Circuit

The major improvement in the design of White's new double-box detector, the TM 800, is the incorporation of SAT or "self-adjusting threshold", commonly referred to as "Autotune". What this feature does is to maintain a smooth operating threshold, or background hum, while the detector is operated. Previous models required the pressing of the reset button frequently to correct upward to downward drifts in the intensity of the background threshold hum. This hum would drift up or down as the ground mineralization changed from place to place during the searching procedure. Although large changes in ground mineralization would require correction with the ground balance control, small variations in ground mineralization can be overcome with the SAT circuit. If the sound was allowed to "drift" uncorrected, the performance of the detector was hindered. Important depth was lost and deep targets obscured. Two speeds of SAT are available, depending on the severity of ground mineralization (iron content).

Ground Reject Circuit

A feature unique to White's Electronic's Double-Box detectors is its Ground Reject Circuit. As in other White's detectors, they have the ability to cancel out iron mineralization and thus decrease the ground interference with the resultant increase in detection depth.

Dual Operating Modes

The new TM 800 has the ability to detect both metal targets in the ground as well as voids or holes in the ground (caves). This is accomplished without the need for "nulling". The nulling

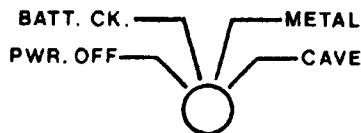
Features continued.....

procedure used on previous models was a tedious procedure, not understood by many users. Consequently it was frequently improperly utilized. The TM 800 nulling is done at the factory and incorporated automatically when the mode switch is used to select either Metal or Cave operation.

The TM 800 is simpler, smoother, and quieter to operate and thus is able to incorporate higher sensitivity with the resultant greater detection depths.



Description of Panel Controls



MODE

Mode Switch

PWR OFF - The first position on the Mode switch is the Power Off setting. Be sure to use this setting when the detector is not in use or the batteries will lose their power.

BATT. CK. - The second position is Batt. Ck. This position should be used each time the detector is prepared for use to read the condition of the battery pack. When the Mode switch is set at this position the battery condition can be read from the meter.

METAL - The other two positions are used to set the detector for the type of searching that will be performed. The first is the Metal. It is used where solid metal targets are being searched for. For example, gold or silver bars, an iron chest or a septic tank lid. This mode will give the greatest ground penetration and should be the mode of choice where depth is a concern. In this mode, the ground cancelling capability of the detector is being utilized.

CAVE - The second mode position is the Cave position. In this position, the detector is not cancelling the mineralization in the ground, and thus is very sensitive to ground mineralization changes. Since holes or voids in the ground represent a sharp decrease in ground mineralization, they would be sensed by the detector by an increase in sound or audible signal. A decrease in

Panel Controls continued.....

sound would, of course, indicate an increase in mineralization. This mode, therefore, is designed to detect caves or holes in the ground where possible metal targets might be hidden. The depth capability in this mode is less than that available in the Metal mode.



Tone Adjust

This control adjusts the audio tone or volume of the background noise, or as it is commonly called, the "threshold". It should be adjusted to give a barely audible tone. It should be adjusted toward the MIN (minimum) setting when using headphones and further to the right or clockwise when being used in a high noise environment. A setting near the lower end of the "NORMAL" band range will usually be appropriate. Generally, the lower the tone setting the better.

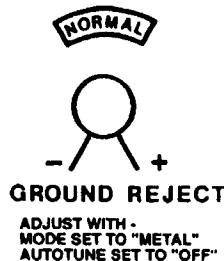


Sensitivity

This control adjusts the sensitivity or detection depth of the detector. The best position is in the "NORMAL" band of the control for most searching situations. This will provide more than adequate depth with the least amount of interference. If ground

Panel Controls continued.....

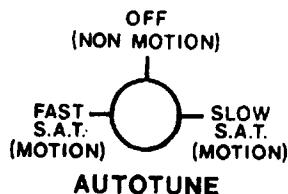
or environmental noises, such as radio or electrical signals cause erratic behavior (extreme fluctuations in the threshold hum or tone), the sensitivity control should be set toward the MIN setting. If greater depths are required, the sensitivity control may be set further clockwise. Great caution should be used, however, when increasing the sensitivity control beyond the NORMAL range. If the detector operates erratically, due to the use of too high a sensitivity setting, the response from deeper targets will be obscured. The optimum setting is one which gives smooth operation allowing deep targets to be heard clearly.



Ground Reject

This control is adjusted only when the detector is used in the METAL position on the MODE switch. It is adjusted to cancel out the iron mineralization in the ground and allow for the deepest available penetration. A setting clockwise toward the (+) sign is used for higher mineralization and a setting counterclockwise toward the (-) sign would be sufficient for lower iron mineralized soils. The method for adjusting this control will be covered in the section on OPERATION of the unit. Again, it should be noted that this procedure is only needed when the detector is in the METAL position on the MODE switch. When using the detector to search for voids or caves, the GROUND REJECT control should be set in the NORMAL range. It should also be noted that the AUTOTUNE control, which will be discussed in the next section, should be set in the OFF or (NON MOTION) position while the GROUND REJECT control is adjusted.

Panel Controls continued.....



Autotune

This control is used to set the Autotune function of the detector. As mentioned earlier, the Autotune capability of the TM 800 allows the threshold hum or tone of the detector to remain smooth or constant regardless of small changes in the ground mineralization and during the upward or downward drift of the signal. There are three positions on this control.

FAST SAT - This position is used when the ground mineralization is high or when the changes in ground mineralization occur rapidly. If the GROUND REJECT control must be set beyond the NORMAL range toward (+), then this SAT setting should probably be used. If the threshold hum is too erratic to search comfortably, then this FAST SAT would also be more appropriate. It must be noted that the detection must be kept in motion when using this position on the AUTOTUNE control. Standing still over the target will cause the target signal to fade away.

SLOW SAT - This position is used in lesser mineralized areas. You will soon be able to decide which of the two motion positions gives the best results for your particular searching needs. As in the FAST SAT, the detector must be kept in motion when passing it over the target. When stopping over the target, the signal will fade more slowly than when using the FAST SAT position. Either of these SAT modes are the preferred methods of searching.

Panel Controls continued.....

OFF - In this position, the SAT or motion Autotune function of the TM 800 is not functioning. This is the position used when adjusting the GROUND REJECT control to compensate for the iron mineralization in the ground. However, it can be used as a searching mode as well. If the ground mineralization does not change too rapidly and there is no external interference from radio signals etc., then you can search in the OFF position. In this position the loop does not have to be kept in motion when passing over the target. You can stand over the target without the target signal fading away. It can be valuable to help pinpoint the center of a deep target. When using this position, however, it will be necessary to press and release the reset button on the end of the handle to keep the threshold hum constant and free from upward or downward drift. If, therefore, the sound increases or decreases while searching, press the button to return the detector to normal tone. This requires skill and experience, and it is therefore recommended that the user operate in one of the two SAT position.

Pushbutton Control

This button is located on the tip of the carrying handle. As mentioned it is used in the OFF or NON-MOTION position on the AUTOTUNE control to reset the threshold hum when it drifts up or down. It therefore does the job manually, that the SAT positions do automatically. When the button is depressed and released momentarily with the loop over a target, the signal from the target will be reduced in intensity and magnitude and thus be easier to pinpoint. As will be described later, this button is also used to adjust the GROUND REJECT control to eliminate the effect of ground mineralization. When depressing the button, do not do so quickly. Depress, hold for a second, and then release for the best results.

Headphone Jack

The speaker is automatically turned off when headphones are plugged in. Maximum detection depth and longest battery life are achieved through the use of headphones. Most standard model headphones will function correctly with this model.



Operation of the detector in the Metal Mode.

1) Set the TONE ADJUST, SENSITIVITY, AND GROUND REJECT control knobs to the center of the NORMAL band range. Set the AUTOTUNE control to one of the SAT positions, depending on the degree of ground mineralization.

2) Turn the MODE control to the BATT. CK position and check the meter to determine conditions of battery pack. Then turn the MODE switch to the METAL position. The detector will operate in most all locations with the controls set in the NORMAL band range as above. However, if you wish to check the ground conditions to see if ground balancing is necessary use the following procedure.

GROUND REJECT PROCEDURE

1) Set the AUTOTUNE control to the OFF (non-motion) position. Note: Stay away from all metallic objects cars, pipe, concrete re-bar, etc. Remove all significant metal from your body. . . . belt buckles, car keys, watches, knives, etc.

2) Hold the instrument at arms length at your side as if you were holding a suitcase (approximately 18 inches above the ground), and momentarily depress and release the tuner button on the handle. The threshold tone will be heard and the meter will indicate around 3. Raise the instrument approximately 6 inches more above the ground. If the tone changes little or none at all, the initial GROUND REJECT control setting (normal range) is adequate for searching in that particular area. Switch the AUTOTUNE control to one of the SAT positions and proceed to search. However, if the tone does change, leave the AUTOTUNE control in the OFF lposition and proceed to adjust the ground in the following manner:

Ground Reject Procedure continued.....

3) If the tone level and meter reading went DOWN when the instrument was raised, the GROUND REJECT control needs to be moved slightly in the counterclockwise direction. Lower the unit back to arm's length position, momentarily depress the Pushbutton control, and again raise the instrument 6 inches more above the ground. If the tone level and meter reading still go DOWN, then repeat this procedure until the tone level and meter reading remain more or less the same as the instrument raised 6 inches above the ground. If the tone level and meter reading go UP when the instrument is raised then you have turned the GROUND REJECT control too far to the left. Lower the detector, press and release the button, and correct the control by turning it slightly back to the right or clockwise. Raise the loop again about 6 inches and note if this has corrected the over balancing.

4) If in the beginning the tone and meter reading go UP, then just the opposite procedure as described above is required. Thus, adjust the GROUND REJECT control slightly in the clockwise direction. Again repeat this procedure until the tone level and meter reading change little or none at all as the instrument is raised 6 inches more above the ground. Thus to repeat . . . remember to press and release the reset button on the handle after each correction is made to the GROUND REJECT control and while the detector is held at arms length like a suitcase. Determine whether the sound increased or decreased when the detector is raised six inches and make the appropriate correction. Lower the loop and press and release the button. Continue with this procedure till there is little or no change in the tone when the loop is raised and lowered.

The ground reject procedure becomes more critical as the sensitivity is increased. The SENSITIVITY control need not be advanced past the NORMAL band range for most operations. If the GROUND REJECT procedure cannot be accomplished as set out above, try moving to a different location as you may be over a buried metal object.



Locating Buried Metal Objects

The most efficient way to search an area is to use a grid-like pattern over the area selected. Try to keep the grid lines no more than six feet apart. Make several passes in one direction, then turn 90 degrees and make several more passes to assure that you have not missed any buried object. The target will usually be pinpointed under the front loop.

Sometimes deeper targets will appear to locate closer toward the rear of the instrument. Usually this will be no more than 3 or 4 inches from the front loop even for the deepest targets.

The tone volume will increase and the meter will read higher when the instrument is passed over a buried metal object. When the target is close to the surface, the meter may go off scale and the tone will no longer increase. Remember, when searching in either of the SAT positions, the detector must be kept in motion when trying to find the center of the target. If the detector is stopped over the target, the sound of the signal will fade. You will soon get used to the procedure of "x-ing" over the target to aid in pinpointing its center.

When using the AUTOTUNE OFF position, a surface target can appear to be VERY large. This is normal. Now the target must be "narrowed down" to determine its location more accurately. Start to pass over the target from one direction. When the meter goes "off scale", momentarily depress the pushbutton control to bring the meter back on scale. Continue to cross the target in the same direction as started, momentarily depressing the pushbutton control to keep the meter pointer "on scale". There will be a point where the meter reading and speaker tone will "peak" out and start to drop back down. It is at this peak that the front loop is over the buried metal object. Thus pressing and

Ground Reject Procedure continued.....

releasing the pushbutton while the target is under the loop, will "shrink" the signal and make pinpointing easier. Thus, in the AUTOTUNE OFF position, the pushbutton is needed to pinpoint the target whereas in either of the SAT positions, the Autotune function pinpoints automatically.



Locating Voids or Caves

1) Set the MODE switch to the CAVE position.

2) Set the TONE ADJUST, SENSITIVITY and the GROUND REJECT controls to the NORMAL band range. You may readjust the TONE and SENSITIVITY controls to the optimum position for the location you are searching just as you did in the METAL mode.

3) Just as when searching for metals, you may use either the FAST SAT or SLOW SAT positions on the AUTOTUNE control, or you may use the OFF or non-motion position. Just as when searching for metals, use the one which gives the smoothest performance and is more comfortable for you. If the ground changes rapidly or you have difficulty keeping a smooth threshold, the SAT is the preferred position. If you are experienced in the use of a double-box, the AUTOTUNE OFF might suit your needs.

You should be aware, however, that when using the CAVE mode, any changes in elevation of the loop from the ground is critical and can cause false noises. Therefore, keep the detector as close to a constant elevation as possible.

When operating in the CAVE MODE, the detector will emit a positive signal or sound when passing over non-ferrous metals, such as gold or silver and will give the same response over a void in the ground such as a cave. Conversely, the detector will lose its threshold hum or go quiet when passing over ferrous metal (iron) and over heavy iron mineralization.

Since the ground is not being cancelled in this position, you should leave the GROUND REJECT control set at the



Simplified TM 800

Search for Metal Object

- 1) Set tone adjust to center of normal band
- 2) Set sensitivity to center of normal band
- 3) Set ground reject to center of normal band
- 4) Set autotune to off (nonmotion)
- 5) Turn power switch to Batt. Ck and note meter condition of battery
- 6) If battery is in good range turn mode switch to metal position
- 7) Hold detector at side like suitcase and raise and lower six inches. If the sound changes too much, refer to manual and adjust ground reject control to eliminate mineralization. If there is not much change, leave ground reject control at center of band.
- 8) Switch the Autotune to slow SAT, and proceed to search. If the threshold hum drifts up and down too much, switch the Autotune control to fast SAT and proceed to search.

Search for Cave

- 1) Set tone adjust to center of normal band
- 2) Set sensitivity to center of normal band
- 3) Set ground reject to center of normal band
- 4) Set autotune to either fast or slow SAT according to mineralization
- 5) Turn power switch to Batt. Ck. and note meter condition of battery
- 6) If battery is in good range turn mode switch to Cave position

Simplified TM 800 continued

- 7) Hold detector at side and begin to search
taking care to keep the detector level as possible,
and at as constant a distance from the ground
as possible



White's Electronics, Inc. Limited Warranty

If within one year (12 months) from the original date of purchase, your White's detector fails due to defects in either material or workmanship, White's Electronics will repair or replace at its option, all necessary parts without charge for parts or labor.

Simply return the complete detector to the dealer where you purchased it, or to your nearest Authorized Service Center. The unit must be accompanied by a detailed explanation of the symptoms of the failer. You must provide proof of date-of-purchase before the unit is serviced.

Items excluded from this warranty are non-rechargeable batteries, and other accessories.

The warranty is not registered unless the Warranty Registration Card is returned to the factory address soon after original purchase for the purpose of recording that date.

The warranty does not cover damage caused by accident, misuse, neglect, alterations, modifications, unauthorized service, or prolonged exposure to corrosive compounds, including saltwater.

Duration of any implied warranties (e.g., merchantability and fitness for a particular purpose) shall not be longer than the stated warranty. Neither the manufacturer or retailer shall be liable for any incidental or consequential damages. Some states, however, do not allow limitations on length of implied warranties, or the exclusion of incidental or consequential damages. Therefore, the above limitations and exclusions may not apply to you.

In addition, the stated warranty gives you specific legal rights, and you may also have other rights which vary from state-to-state.

THE FOREGOING IS THE ONLY WARRANTY PROVIDED BY WHITE'S AS THE MANUFACTURER OF YOUR METAL DETECTOR. ANY "EXTENDED WARRANTY" PERIOD BEYOND ONE YEAR, WHICH MAY BE PROVIDED BY A DEALER OR OTHER THIRD PARTY, ON YOUR DETECTOR, IS WITHOUT WHITE'S AUTHORITY, INVOLVEMENT, AND CONSENT AND WILL NOT BE HONORED BY WHITE'S.



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