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Book Descriptions:

3m dynatel 2273 manual espa ol

Operator's Manual You have just purchased one of the finest, most advanced locating Please read, understand and follow all safety information contained in these instructions A. Transmitter Battery Installation. Remove cap from receiver handle. C. Cleaning. Output is limited to 10 watts at. Output is limited to 10 watts at Transmitter Connections. Perform a battery test. The continuity of the circuit will be In two person active induction mode sweeps, one person holds the transmitter and. A. Directional Peak Dir Pk. Figure 1 If the target path is to the right of the Power frequencies refer to 50 or 60 Hz signals, and their harmonics, that can be traced Populate as many fields as possible from Additional Applications. A. Aerial Faults Toning Short Red clip to Tip; Black clip to ring. Locator Software Upgrades A. Product Description Read Range 3M iD Markers Transmitter Specifications. New products are added daily, so check back frequently. Upload a Gerber file and make a few selections to place a custom PCB order. We are working diligently to get this fixed. Thank you for your patience. Please Login or Register. We are working diligently to get this fixed. Thank you for your patience. New products are added daily, so check back frequently. Upload a Gerber file and make a few selections to place a custom PCB order. Electronic Components. You may have to register before you can post click the register link above to proceed. To start viewing messages, select the forum that you want to visit from the selection below. Information such as a preprogrammed identification number, facility data, application type, placement date and other details can all be read, stored and downloaded to your PC for enhanced resource management with this revolutionary equipment. When used in conjunction with a handheld GPS device the ability to transmit path and marker coordinates multiplies the potential to the mapping industry. Visit our website at for more application notes and product information. <http://www.apotekatia.ba/fajlovi/combat-mission-normandy-manual-pdf.xml>

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It has not been evaluated for other uses or locations. If this equipment is used in a manner not specified by 3M, the protections provided by the equipment may be impaired. Explanation of Signal Word Consequences. Warning Indicates hazardous situation which if not avoided, could result in death or serious injury. ! Caution Indicates hazardous situation which if not avoided, could result in minor or moderate injury. Explanation of Product Safety Label Symbols Do not throw away in normal trash. F Warning Risk of electric shock. Use appropriate safety procedures. DO NOT USE ON CABLES CARRYING IN EXCESS OF 600 VOLTS RMS Rev G 5 6. WARNING This WARNING applies to the use of the Direct Connect Cables and the Transmitter. Connect the black lead to ground rod. There are three transmitter options 3 Watt, 5 Watt, or 12 Watt. This instruction manual will include all features. All instructions are applicable to all products, unless noted. The 12watt transmitter option offers additional power output levels for improved induction performance and 8 khz low frequency induction for shallow facilities, such as risers. Output Power up to 12 Watts for the 12watt transmitter is achieved using the supplied external power source. In order to demonstrate all available functions, the illustrations depict the 2273MEiD receiver unit and the 2250E and 2273E 12watt transmitters. The 2250ME receiver may vary from the illustrations shown Rev G 7 3. Quick Start A. Transmitter Battery Installation Loosen the six screws on the battery compartment cover on the bottom of the transmitter. Caution To reduce the risks associated with fire and explosion Do not short, excessively heat, or dispose of batteries in fire. Install batteries with

proper polarity. Do not charge batteries Do not use leaking batteries To reduce the risks associated with environmental contamination Dispose of batteries and electronic components in accordance with all regulations. Ensure batteries are installed with correct polarity. <http://coko-sochi.ru/userfiles/combat-mission-normandy-manual.xml>

Always remove batteries when storing the units for long periods of time Rev G 7 8 B. Receiver Battery Installation Remove cap from receiver handle. Attach battery holder to the PP3 connector in the receiver handle, and slide holder into the handle. Replace the cap. 8 AA LR6 size Alkaline Batteries 1. Twist cap to open battery compartment. 2. Slide battery compartment out of handle.! Caution To reduce the risks associated with fire and explosion Do not short, excessively heat, or dispose of batteries in fire. Always remove batteries when storing the units for long periods of time. The receiver batteries are tested for two seconds every time the unit is turned on. The bar graph on the screen will fill to the relative battery level. It is also used to measure the fault resistance to earth. Fault Locate 2273ME units only In this mode, the transmitter sends two alternating locating frequencies 577 Hz and 33 KHz as well as fault signals 10 and 20 Hz. Input voltage level 918 VDC. Only on 5watt and 12watt transmitters. G. Maximum Transmitter Output An external 12V DC source is required for 12Watt Output Maximum setting using a 12watt transmitter or 5 watt output Maximum setting using a 5watt transmitter. The indicator flag will flash when the transmitter is in maximum output mode. Note The external DC source does not charge the internal batteries.! WARNING To reduce the risk associated with hazardous voltage Potential for electric shock exists when handling connection cables while the transmitter is ON. Make all connections prior to powering on the unit. Turn transmitter OFF before handling connection cables. Voltage greater than 240 volts will damage equipment and could cause personal injury or death. Make all connections before turning on the transmitter. Follow standard procedures for reducing the voltage. Do not change or modify this product in any way. H.

Rechargeable Battery The 3M Dynatel Sealed GelCell Battery 2200RB can be used as an auxiliary battery in 3M Dynatel Transmitters 2200 Series. When the rechargeable battery is plugged in, normal output, high output, and maximum output are available. When the rechargeable battery is connected to the transmitter, the alkaline batteries are bypassed. Note The internal batteries must be at least 5.4 volts. Do not remove the alkaline batteries from the transmitter when using the rechargeable battery. Rechargeable battery, or cigarette lighter adapter cable, is required for Maximum output level. When the third ring is dotted and xpnd appears below the speaker icon, the receiver is in Expander mode. The function of each key is shown above the key on the display screen. The functions will change, depending on the operation mode of the receiver. Alternate languages can be uploaded to the receiver using the 3M Dynatel PCTools software. All the available frequencies are listed in four groups Left to Right Active, Power, Passive, and Auxiliary. Use one of the following three methods to produce a trace signal on the target pipe or cable. A. Direct Connect Method. Connect the black lead to ground rod. Metal contact must be made between the red clip and the transformer cabinet or meter box. The continuity of the circuit will be measured. Always use the lowest frequency available for example, Rev G 21 Hz. Lower frequencies are less likely to bleed over to other cables in the same area, and are very good for tracing over long distances. If there is no tone and the transmitter indicates that there is an open circuit OL in the display this could be an indication of a poor ground, or an openended cable or pipe. Use one of the higher frequencies available, at high or maximum power output level. If it is an openended cable or pipe, the receivers response will decrease suddenly at the site of the clear or severed end.

<http://www.drupalitalia.org/node/67607>

Note In the ohms mode, the transmitter can detect voltage as well as ohms. If a low voltage is detected, the display will alternate between displaying ohms and volts. When displaying volts, the flag over the V will be visible. When the voltage magnitude is sufficient to impair the accuracy of the

ohms measurement, only voltage will be displayed. Note that the number that flashes alternately with the selected frequency is called the relative current. This provides a good return path for the tracing signal. Press again to select 8 khz, 33 khz or 133 khz. This method uses the internal coil of the transmitter to generate a magnetic field. This is the least preferred method of applying a signal on a target conductor because it can easily be picked up by other nontarget conductors in the area. Higher induction outputs are needed for detecting deeper depths and longer ranges. The 3M Dynatel Advanced Locator 2200M Series 3 Watt transmitters provides two induction frequencies 33 khz and 133 khz. The 12 Watt transmitter provides three induction frequencies 8 khz, 33 khz and 133 khz. The 8 khz low frequency induction helps in locating shallow facilities, such as risers 12 Watt transmitter only. The following sections review Nonsweeping and Sweeping Area methods used with the Induction Mode. The NonSweeping method is utilized when a specific target requires path tracing. The transmitter remains stationary inline over the target and the path is traced. The Sweeping method is utilized when a designated area needs to be swept for nonspecific targets, for example, all the buried pipes or conductors in the designated area. Remove any cables from the output jack. Align the Induction Direction arrows on the transmitter with the target conductor. Turn on the transmitter, select the frequency and select high output or max output level for best signalto noise ratio. Trace the signal path with the receiver using the Induction Peak mode.

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The Induction Peak mode of the receiver is a mode in which the upper antenna of the receiver is tuned to minimize distortion from the magnetic field of the transmitter. Use Induction Peak mode when sweeping distance between the transmitter and receiver is m 25 60 feet. Beyond 20 m 60 feet you can also use the Special single Peak or Directional Peak modes. Special single Peak can be used for maximum detection depth and range needed for deep conductors and metal pipes, but would require increased sweep distance separation between the transmitter and receiver. The induction frequency can be changed by pressing the Frequency button on the transmitter. For best results, the receiver should be at least 7.6 m 25 feet away from the transmitter to begin tracing the target path and have the gain set between 7884% when starting the sweep. This is used to establish a baseline gain threshold prior to starting a sweep. When crossing a target pipe or cable, the bar graph will close and the signal strength and audio response will increase. Attempting to trace the target close to the transmitter may lead to false indications due to the receiver detecting the large magnetic field radiating from the transmitter. B. Sweeping Active Induction Mode Locating Sweeping an area with the 3M Dynatel Advanced Locator 2200M Series allows the location of multiple metallic cables and pipes buried in an area without direct connect or coupler access to the cable or pipe. This approach is effective before any excavation takes place. Note that when specific buried objects need to be identified, its important to use the direct connect or coupler method for applying the signal. This will help limit the applied locate signal to a specific facility that provides more position and depth Rev G 23 24 accuracy along with an effective identification.

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There are two main types of no access or blind Induction Sweeps; Passive Sweeps These require only the use of the Receiver with passive frequency detection capability. Active Sweeps These require both the Receiver and Transmitter with Induction capability. This method refers to using a 3M Dynatel Advanced Locator Transmitter as the signal source through induction, instead of relying on passive frequencies that may exist on the buried conductor or metal pipe. Active Induction allows for detecting buried cables and metal pipes in the absence of passive signals and at deep depths and short sections. Dynatel transmitters provide a choice of induction frequencies and output levels. The Dynatel 2200M Series 3 Watt transmitters provides two induction frequencies 33 khz and 133 khz. Other passive sources exist, such as Cathodic Protection, LF and CATV cable with NTSC TV CRT turned on. Walk in a grid pattern over the sweep area holding the receiver as shown in the following

illustration. Stop when there is a response increase, locate the position of the maximum signal, follow the conductor path all the way out of the sweep area while putting location marks on the ground. Resume the sweep until another cable or pipe is detected, or the whole area is completely swept. Switch to another available passive frequency in the receiver and sweep again. D. Oneperson Active Induction Mode Sweeps Oneperson active induction mode sweeps require that the transmitter be set on the ground over the suspected path of the buried infrastructure. The receiver is used to detect signals induced by the transmitter on buried long conductors. Proper placement Rev G 25 and orientation is key to maximize the induced signal in the buried cable or metallic pipe enough to be detectable by the receiver along each path in the swept area. Note that no signal is induced onto a conductor whose path is perpendicular to the Induction Direction indication.

Place the transmitter in the upright bottom on ground position for directional optimization when aligned with the Induction Direction shown on the label on the transmitter. Tip the transmitter over towards the front, and lay it on its front surface, for multidirectional wide area induction. Note that no signal is induced onto a conductor whose path is directly under the transmitter. Select the Induction Peak IndPk mode and 133 khz frequency on the receiver. When in close proximity to the transmitter in induction mode, there is a direct signal from the induction antenna in the transmitter to the receiver through the air. Sweeping Sweeping can be done at close distances between the transmitter and receiver. Attempting to trace the target close to the transmitter may lead to false indications due to the receiver detecting the large magnetic field radiating from the transmitter. Induction Peak mode cancels the air signal coming directly from the transmitter induction antenna to the receiver. Increasing the sweep distance between the transmitter and receiver reduces the direct air signal and allows for sensing deeper conductors and sections of metal pipes. Special single Peak can be used for maximum detection depth and range needed for deep conductors and metal pipes, but would require increased sweep distance separation between the transmitter and receiver. 7. Receiver Modes A. Directional Peak Dir Pk In Dir Pk mode, four peak antennas are used to analyze the magnetic field pattern. The bar graph indicates signal strength and the directional arrows sense the edges of the magnetic field. As the antenna moves off the target path, the speaker volume decreases and the bar graph opens. Use the bar graph and the numeric signal strength value to locate the exact target path.

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Left of Target Path Directly Over Target Path Right of Target Path Rev G 27 Once the target path has been located, the arrows at the top of the screen will indicate the location of the target path in relationship to the receiver. Use the maximum numerical signal strength to target the cable or pipe. B. Directional Null DirNull In DirNull mode, as the operator approaches the cable or pipe, the numerical signal strength will increase then fall sharply as the receiver crosses the target cable or pipe. The bar graph fills from both sides toward the middle and the receiver speaker volume decreases. As the antenna moves off the target path, the bar graph opens, the signal strength increases, and the speaker volume increases. Gain adjust is automatic in DirNull mode. The center of the DirNull screen provides a compass view of the target path. For example Figure 1 If the target path is to the right of the receiver, and running parallel to the operator, the right arrow will display. Figure 2 If the target path is to the left and in front of the operator not running parallel to the receiver the arrow will point toward the top left side of the screen. Figure 3 When the receiver crosses the target path, a solid line will appear, instead of arrows, indicating the target path and its orientation to the receiver handle. Before marking target path, always use directional peak or special peak mode to verify location Rev G 27 28 C. Special Peak Spl Pk Special Peak Mode turns on only the peak antenna closest to the ground. Special Peak Mode is used in applications such as very deep cables or pipes, or when the signal is too weak for directional peak tracing. Left or Right of

Target Path D. Induction Peak Ind Pk Directly Over Target Path If you cannot make a direct connection, or use the 3M DynaCoupler clamp to apply a locating signal on the target, use the induction method. Left or Right of Target Path E.

Expanded Mode Directly Over Target Path When the third ring of the speaker icon is dotted or broken and xpnd appears below the speaker icon, the receiver is in Expanded mode. This mode is used for pinpointing a target cable or pipe. The area of response of the receiver narrows, allowing the locator to detect very small signal changes. The depth to the target cable or pipe is displayed in the units specified in the receiver set up menu. The bold current reading is a relative current measurement. The milliamp reading is an actual current measurement. There are two options for measuring depth. Live depth is a continuous measurement. 1Shot Depth is an averaging of the depth reading over a short period of time. When in 1Shot mode, the unit will average the depth reading for three seconds, and then display the result on the screen. The screen and memory location will populate with the current information. All export receivers default to 50 Hz. An attempt should be made to improve the ground. c. No tone from the transmitter indicates a poor, or no ground. The transmitter will display OL in this instance. An attempt should be made to improve the ground. Watch the receiver screen and listen to the signal. The bar graph will close when the unit detects a signal, and the arrows will reverse. Make a complete circle around the transmitter. Return to each point in the circle that the receiver detected Rev G 33 15. Measure the depth and current of each point to identify the target path. The depth of the target path should be as expected and the relative current should compare to the relative current that is alternately flashing with the frequency value on the transmitter. Note The relative current reading will decrease steadily as the locator moves away from the transmitter. Note In order to measure the depth and current accurately, the operator must pinpoint the target pipe or cable, and the receiver handle should be inline with the target path.

Lower the tip of the receiver to the ground. Twist the receiver left and right while watching the signal strength. Occasionally, a signal will appear on adjacent cables or pipes. Compare the relative and actual current readings value that is under the relative current value and in ma units over each path to help determine the target path. Current readings will be significantly less on the adjacent cable compared to the target path. 19. As tracing proceeds, remember that the most powerful signal is near the transmitter. It may be necessary to readjust the gain as needed to ensure that there is adequate signal for the receiver to operate. The depth to the ADP is displayed in units, as specified in the receiver set up menu. Five Sonde depth readings can be saved with the time, and date measured. Note During a depth measurement, the display will exhibit when the received signal is too low, too high or erratic Rev G 35 12. Locating Buried Sheath Faults And Earth Return Faults 3M Dynatel Models 2273ME and 2273MEiD only. Note Remove disconnect both the nearend and farend grounding from the test section. Fault location will not work unless the nearend and farend grounds are disconnected. Move in direction of greenbanded leg of 3M Earth Contact Frame. Move in direction of redbanded leg of 3M Earth Contact Frame. Move back, inserting the Earth Contact Frame every few inches, until the arrows alternate back to green. Mark the point beneath the center of the Earth Contact Frame. Turn the Earth Contact Frame 90 degrees and insert into the ground over the previously marked point. Move the Earth Contact Frame to the left and right following the directions of the green and red indicator arrows. When the arrows reverse a third time, turn the Earth Contact Frame 90 degrees again. Pinpoint the fault by moving the Earth Contact Frame in the direction of the green and red arrows.

The fault is located beneath the center of the Earth Contact Frame when the arrows change from one side to the other this time Rev G 37 9. To verify the fault location, insert the 3M Earth Contact Frame s redandwhitestriped probe directly on the spot identified above. Pivot the Earth Contact Frame in a circle around the redandwhitestriped leg reinserting the greenbanded leg in the ground every few degrees of the circle See illustration below.. The arrow should always point toward the left

red indicating that the fault is directly below the red and white striped leg. 10. After a fault is located and pinpointed, move the Earth Contact Frame about one Earth Contact Frame width away from the fault and insert it in the ground with the green banded leg towards the fault. Compare the numeric signal level with the fault level reference signal indicated in the lower left box labeled Ref. If the reading is within 12 db of the reference signal, the operator has found the major fault. If the fault reading does not fall within 12 db of the reference signal reading, multiple faults may exist. The fault with the highest reading will be the primary fault. Note For additional information about locating buried sheath faults and earth return faults, please see the 3M publication Cable and Pipe Locating Techniques at Locating 3M Electronic Markers and 3M id Markers 3M Dynatel Models 2273MEiD, 2250MEiD and 1420E only. EModel Initial Configuration Attention All EModel Export id Locators must run the Initial Configuration setup found in the 3M Dynatel Locator PC Tools software. The 3M Dynatel PC Tools software is available free of charge at under the Software Updates section by clicking the Dynatel™ M Series Locator PC Tools link. A. Activating the 3M Marker Locate Feature In order to enable the electronic marker location feature of this receiver, you must identify the country in which the locator will be used.

This initial configuration is required for the 2273MEiD, 2250MEiD, and 1420E locator receiver models. Some countries do not allow all marker operating frequencies. WARNING It is unlawful to operate this unit in any country with a configuration setting that is not specific to that country. In order to prevent the user from operating this unit with a configuration setting that is not specific to the country where it is operated, this unit is equipped with configuration software for installing country specific configurations. 1. Download the 3M Dynatel Locator PC Tools software from dynatel and install it on your computer. Select the PC Com Port, from the drop down box, that is connected to the receiver. 8. Click OK. 9. Click Initial Configuration. 10. Click Download. 11. The prompt line will display Download Completed Successfully, when finished. If the selected type of utility marker is detected, a second audio tone will emit from the unit and the marker bar graph will fill. Five depth readings can be saved with the time, date, and its identification number. The display will instruct the operator to raise the unit 15.2 cm 6 inches from the ground Rev G 41 42 Note This 15.2 cm 6 inch rise must be exact for the depth reading to be accurate. The estimated depth of the marker from ground level will be displayed. When modifying the Descriptions right hand side of template information there are four options for editing that are presented a. UserEdit. b. Delete Row. c. Last 10 UserEdits. d. Show All lists common compressed terms. 15. Populate as many fields as possible from the dropdown list of common compressed terms available to conserve marker memory space, or choose UserEdit if a term is not found to meet the users requirements. Templates are limited to six Label and six Description fields 256 bits of data total Rev G 45 19. The following save screen will be displayed. Over Write Saves all modifications that have been made to the original template.

Rename Overwrites the old template with the new name and all modifications. Display will return to the template name field. Save New Creates a new template containing all information. Original template remains unchanged. Cancel Clears all modifications made to any unsaved template. 15. Writing 3M id Markers The Write Mode enables the user to write information into 3M id markers. The default setting is unlocked and note that a locked unit cannot be modified once locked. Note Once the marker data has been locked, the information contained on the marker is PERMANENT. Choosing to permanently lock the marker data is irreversible. Once the data is locked it can not be overwritten. The receiver tip should be lowered to the ground to reach maximum read depth Rev G 49 50 If more than one 3M id Marker of the same utility is detected, the receiver will read the first marker and display the data from the marker. The fourth yellow command key will be labeled Read Next. Press this key to extract the data from the other marker. All the information retrieved from the marker, including the date and time read, is saved into the Read History file of the receiver. Select from the following options. PDA The Serial Port is configured to only send information if the GPS device only has the ability to receive information. Press OK to send data to the GPS device. The data

acquired during this logging process can be uploaded to GIS mapping software. For more information and detailed instructions pertaining to specific GPS devices, refer to for GPS instruction sheet. D. Path Mapping with GPS The MSeries cable and pipe locators are compatible with handheld GPS devices and now have the ability to map the path of underground target facilities. While measuring the depth to the target, the technician can automatically log the coordinates of the path to the GPS device. These logged points contain the Trace template that can have valuable information regarding the facility owner, utility, size, etc.

and the method used to find the path frequency, current, and measured depth. In order to transmit the path information to a GPS device, the GPS has to have the ability to accept information on one of its com ports at 4800 Baud. Using the manual supplied with the GPS device, configure the com port of the GPS to communicate with the receiver Rev G 53 1. Creating Trace Templates The easiest way to create a Trace template is using the 3M Dynatel PC Tools software. Save and download the template to the receiver. Up to four Trace Templates can be stored on the Receiver. Each Trace template is limited to 132 user editable characters. The trace template appears in table format two columns with six lines. The first column is limited to 8 characters and the second column is limited to 14 characters. In addition to the 132 character table, the receiver will send a sequence number, the frequency, the measured depth of the conductor, and the current to the GPS. 2. Select Com Port Setting If the GPS device has the ability to send NMEA coordinates on its com port and has the ability to receive information at 4800 baud, set the receiver s com port to GIS. If the GPS device only has the ability to receive information, set the com port of the receiver to PDA mode. This information can be modified and confirmed. Press OK to send to GPS device. For more information refer to the software release notes at Rev G 53 54 19. Connection Diagrams Short Red clip to Tip; Black clip to ring. Figure Rev G 55 Cross Red clip to the crossed conductor of one pair; Black clip to the crossed conductor of the other pair. Figure 2 Ground Red clip to the faulted conductor; Black clip to ground. Note Cable Identification requires two DynaCouplers one at the Transmitter and one at the Receiver. 2. Clamp the DynaCoupler around the cable or both the tip and ring of a pair. It is designed to be a quick reference guide.

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