7715DF

MicroFAST Installation Tool

User Manual
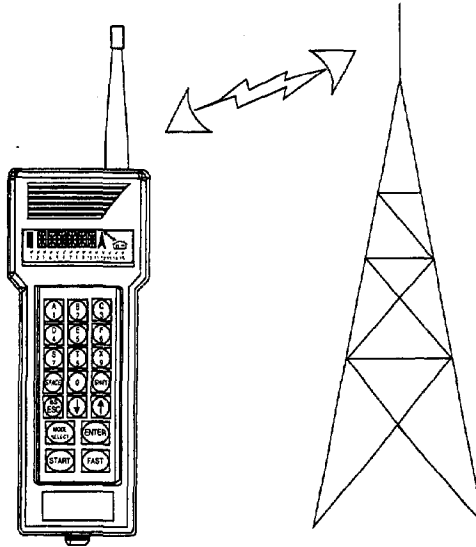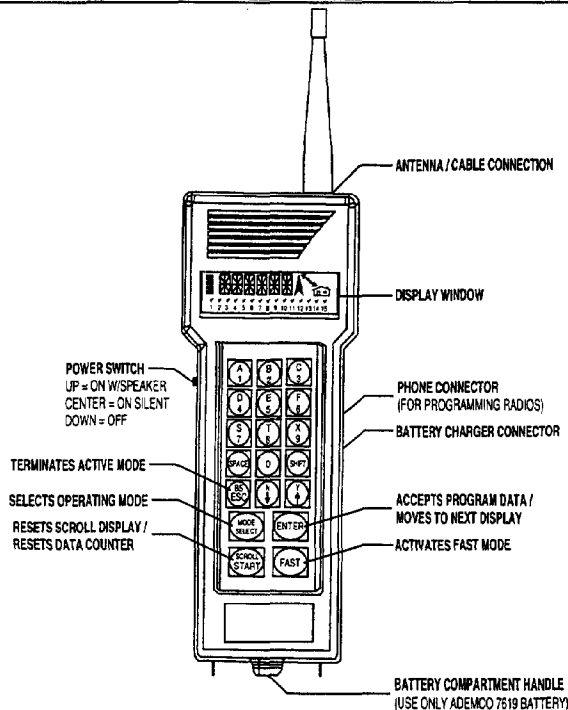

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(Quick Start Procedures are provided in the next section)

Introduction

The 7715DF MicroFAST Installation Tool is a battery powered hand held Receiver/Transmitter with a liquid crystal display and an integral keypad for use in installing alarm radios. Combining the receive and transmit functions in a single unit enables the installer to quickly determine the optimum location for the alarm radio by confirming both the up and down links to nodes, AlarmNet mini-repeaters or node extender.

The 7715DF includes an antenna, switchable signal filter (7715FIL), rechargeable nicad battery pack, battery charger, and an interface cable for programming the AlarmNet 7720 series and 7820 radios.

Description

The Power Switch is located on the upper left side, and has three positions.

OFF	Maximum down position (towards bottom of unit).
ON SILENT (no speaker)	Center position. The 7715DF is operational, but the speaker is off. This feature conserves battery power when it is not necessary to listen to the received message.
ON W/SPEAKER	Maximum up position (towards the display). The 7715DF is operational, including the speaker. This position is useful in identifying the source of an interference. Since the speaker is located on the bottom of the 7715DF it is best not to rest the unit on a flat surface.

> **Regardless of which ON position is selected, the 7715DF shuts down within a pre-programmed time to conserve battery power (see CUSTOM Submode "SLEEP").**
>
> **Some battery power, however, is used in the "SLEEP" mode, so it is recommended that the 7715DF's power be turned OFF when the unit enters SLEEP mode or is not in use.**

The Antenna/Cable Connector is a TNC type that mates directly with the antenna supplied. An optional TNC to N adapter (Ademco 7715AD) is available, allowing the user to test the integrity of the installed radio's cable/antenna combination.

The Battery Charger Connector is located on the right side of the unit. This connector mates with the battery charger supplied with the unit.

The Modular Phone Connector (RJ4-4), is located on the right side of the unit, above the charger connector. It mates with one end of the cable supplied for use when the 7715DF emulates the ADEMCO 7720P Programmer.

GENERAL DESCRIPTION

The Alphanumeric Keypad allows access to and selection of all operational modes and submodes of the 7715DF.

The Liquid Crystal Display (LCD) displays the following information:

- Operational mode selected.
- Direction of link (up or down to nodes, mini-repeaters or node extenders) by a blinking arrowhead.
- Real time received signal strength.
- Channel number.
- Received signal strength on a 0 to 10 scale.
- Tick marks for successful link.
- Cable/antenna test, Good-Bad.
- Various entry instructions as described throughout the manual.

7715DF Display:
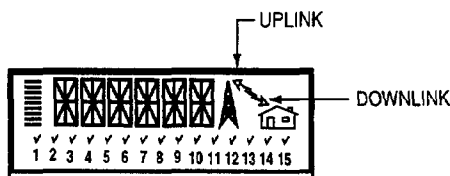
The operational temperature range of the 7715DF is from 0°C (32°F) to 50°C (122°F). The characteristics of the liquid crystal display (LCD) result in a faded display at the low end of the temperature range. This reduces the visibility of the display characters.

The following procedures will help you quickly set up and use the 7715DF. For expanded explanations on any of these procedures, refer to the respective sections found later in this manual.

Setting Up the 7715DF

1. Charge the battery
    a. Plug the charger into an AC outlet.
    b. Connect the charger to the 7715DF.
    c. Charge the battery for at least 8 hours before using the 7715DF.

2. Check the battery condition.
    a. Remove the charger form the 7715DF.
    b. Turn the unit on using the power switch and wait for it to power up (about 5 sec.).
    c. Press [MODE SELECT] until the screen displays BATTRY, then press [ENTER].
    d. The screen displays CHECK. Press [ENTER].
    e. A fully charged battery should display T99R99.
    f. Press [ESC] twice to return to the main menu BATTRY display.

3. Enter the Channel that will be used.
    a. Press [MODE SELECT] until the screen displays CUSTOM, then press [ENTER].
    b. Press the UP arrow button until the screen displays CH NUM, then press [ENTER].
    c. Enter the channel number for your area (for AlarmNet users, refer to the Channel and Odd/Even Setting Table on the next page; for Private System users, press [shift] "E" then enter the channel number 1-14 for the system). Press [ENTER].

4. Set the Odd/Even bit.
    a. With CH NUM displayed, press the UP arrow button until the screen displays O/E, then press [ENTER].
    b. Enter 1 for Odd or 0 for Even (AlarmNet users refer to the Channel and O/E Setting Table on the next page), then press [ENTER].

5. Enter the Central Station Number that will be used.
    a. With O/E displayed, press the UP arrow button until the screen displays CS, then press [ENTER].
    b. Enter the 2-digit Central Station ID number, then press [ENTER]. For Private System users, refer to the Private System Channel/Central Station Table on the next page to determine the central station number based on the channel in use.

6. Return to the main menu CUSTOM display by pressing [ESC].

QUICK START PROCEDURES

AlarmNet Channel and Odd/Even Setting Table

CITY	CHANNEL	ODD/EVEN	CITY	CHANNEL	ODD/EVEN
New York	A	Even	Atlanta	A	Even
Philadelphia	A	Odd	Minneapolis	A	Even
Washington	A	Even	Detroit	A	Even
Miami	A	Even	St. Louis	A	Even
Chicago	A	Odd	Boston	A	Odd
Houston	E, P=2, S=2	Odd	Phoenix	D	Even
Dallas	A	Even	Maine	A	Even
San Francisco	A	Odd	Memphis	E, P=10, S=10	Odd
Los Angeles	B	Even	Nashville	E, P=14, S=14	Odd
Tampa	E, P=2, S=2	Odd	Las Vegas	E, P=3, S=3	Even

Private System Channel/Central Station Table

| Channel	CS Number	Channel	CS Number
1	08	8	40
2	10	9	48
3	18	10	50
4	20	11	58
5	28	12	60
6	30	13	68
7	38	14	70

NOTE: Central Station numbers are pre-defined based on the channel in use. Refer to this table when programming the Central Station ID number.

Using FAST Mode

Before continuing, make sure the battery is fully charged, and that the correct Channel Number and Odd/Even setting has been programmed (see Setting Up the 7715DF previously described).

1. **Entering Downlink Mode**

   a. Turn the unit on and wait for it to power up (about 5 sec.), then press the [FAST] button.

   b. The 7715DF automatically enters downlink mode. In downlink mode, the display shows a tower and a house with an arrow pointing down toward house The display indicates the towers heard by 7715DF by a dot above the numbers or a dot and a check mark above the numbers. The check mark indicates that the signal strength is acceptable according to the parameters set in the CUSTOM mode.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
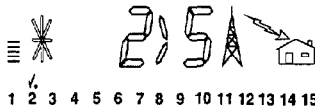
2. **Entering the (downlink) Mini-Repeater, NX Extender, or Subscriber Mode**
   a. While in Downlink Mode (step 1), press the DOWN arrow button.
   b. This mode is indicated by an "R", "N", or "S" in the display where:
      R = Alarmnet Mini-Repeater; N = 7720 NX node extender; S = Subscriber
      The next 4 characters, ranging from 0000-9999, represent the 4-digit account number of the NX Extender, Mini Repeater or Subscriber.
      The last character is the received signal strength ranging from 0-A.
      The dot over a number indicates the number of extenders or mini-repeaters heard.
      A check mark indicates the signal strength is greater than the minimum assigned.

   ≡R12A38A🏠

   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

3. **Entering Uplink Mode**
   a. If in Downlink Mode, press ESC to display D LINK, otherwise, press the FAST button, then press ESC to display D LINK.
   b. With D LINK displayed, press the UP arrow until the screen displays U LINK, then press ENTER.
   c. Select the type of radio being used: 1 = 7720, 2 = 7820. Press ENTER.
   d. The display will show a tower and a house with an arrow pointing to the tower. The display indicates the towers hearing the 7715DF transmission by a dot above the numbers and check mark to indicate reception at signal strength greater than that set in Custom mode.

   ≡✳ 2)A🏠

   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

4. **Entering the (uplink) Mini-Repeater or NX Extender Mode**
   a. While in Uplink Mode (step 3b above), press the DOWN arrow button.
   b. This mode is indicated by an "R" or "N" in the display following the asterisk:
      R = Alarmnet Mini-Repeater; N = 7720 NX network extender
      The second character displays "M" or a space:
      M = message heard by 7720NX that reports to user's central station
      Space = message heard by 7720NX reports to a central station other than user's
      The third character indicates accessability to the 7720NX by the user:
      Y = user has access; N = user does not have access
      The last character (following the ">" symbol) is the received signal strength (0-A).
      The dot over a number indicates the number of extenders or mini-repeaters that heard the 7715DF signal. A check mark indicates the signal strength is greater than the minimum assigned.

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   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
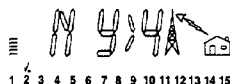
QUICK START PROCEDURES

Programming the Radio

1. Turn on the 7715DF and connect it to the radio. Power up the radio.

2. Press MODE SELECT until the screen displays PROGRAM, then press ENTER.

3. The 7715DF displays ECP RADIO Y/N? If the radio is using ECP mode, press Shift + UP arrow (Y), then press ENTER. If the radio is using zone mode, press Shift + DOWN arrow (N), then press ENTER.

4. The 7715DF screen now goes blank and operates similar to a 7720P program tool. Press Shift + X. The screen displays REBOOT Y/N? Press Shift + UP arrow (Y), then press ENTER and wait until the Pittway banner appears. Press ENTER again. The unit is now in programming mode.

Using Install Mode

1. Power up the radio and wait about 6 minutes for the end of the power-up sequence. The radio's yellow LED will flash about once per second when the radio is ready.

2. Turn on the 7715DF, then press MODE SELECT until the screen displays INSTAL. Press ENTER.

3. The screen displays CUSTOMER ID. Enter the 6-digit customer ID in XXYYYY format, where XX = 2-digit central station ID and YYYY = 4-digit subscriber account number. Press ENTER. The screen displays CONNECT.

4. Connect the 7715DF to the radio, then press ENTER. The screen displays TX=1, TX=2, etc. and the green LED flashes, indicating the transmission of the diagnostic message. 7820 transmits 60 messages; 7720V2/7720PLUS transmits 30 messages.

5. After the messages have been transmitted, the screen displays DISCON. Disconnect the 7715DF from the radio and press any button. The screen displays WAIT. It usually takes several minutes before the node message is displayed on the 7715DF. Make sure you have determined a good downlink location first, so that you can successfully receive the message back from the network.

6. When the message is displayed, the screen shows the node that heard the message with a dot (and check mark if signal strength is above that set in Custom mode), the average signal strength, and the repeat count.

Connecting the Antenna

Remove the antenna from the box, and screw it clockwise onto the antenna connector (do not over tighten).

First Time Charging of the Battery

1. Check that the power switch is in the OFF position (max. down position).

2. Remove the battery charger from the box. Connect the plug on the end of the charger to the charger connector on the 7715DF.

3. Plug the charger into a 120V, 60Hz, AC outlet, and allow the battery to charge for at least 8 hours.

4. After at least 8 hours, remove the 7715DF from the charger connector and remove the charger from the AC outlet.

5. Slide the 7715DF's power switch to the ON NO SPEAKER or ON WITH SPEAKER position.

   Repeatedly press the [MODE SELECT] key until "BATTRY" appears on the display, then press the [ENTER] key. "CHECK" will be displayed. Press [ENTER] again and the display will indicate the percent charge state of the battery (for example: "T99R99" indicates a battery voltage of 8 or more volts. See "BATTRY" Mode section for a detailed description of the "BATTRY" mode). Place the power switch in the OFF position.

6. For subsequent charging of the battery, the charge time will depend on the percent charge remaining in the battery. This can be monitored as indicated in step 5 above. Since, during charging, all of the high current circuits of the 7715DF are shut down, the 7715DF can be left in the ON NO SPEAKER position, CHARGE mode; then pressing any key except [ESC] will update the battery capacity measurement. Pressing [ESC] exits the charge mode, but not the charging.

> The battery cannot be overcharged, even if the charger is left connected to an AC source.

ANTENNA AND BATTERY SETUP

Replacing the Battery Pack

✓ **The 7715DF's battery is a custom "battery pack" and should not be altered in any way or replaced by any type of battery other than an Ademco No. 7619.**

Make sure that the power switch is in the OFF (maximum down) position.

1. Loosen the two bottom knurled screws at the rear of the 7715DF, using a screwdriver or small coin.

2. Remove the battery compartment cover from the bottom of the unit by pulling on its handle, and remove the battery by pulling on its pull-tab.

3. Install the new battery (only Ademco No. 7619) in the direction indicated on the battery. Wrap the battery pull-tab around the battery.

✓ **If the battery is installed incorrectly, the 7715DF will not operate, and the battery will not receive a charge; no damage will occur to the battery or the 7715DF, however.**

4. Replace the battery compartment cover and tighten its two holding screws.

5. Connect the plug on the end of the battery charger to the charger connector on the right side of the 7715DF. Plug the charger into a 120V, 60Hz AC outlet and allow the battery to charge for at least 8 hours.

6. After at least 8 hours, unplug the 7715DF from the charger connector and remove the charger from the AC outlet.

7. The battery can be tested as described in the "BATTRY" Modes section.

Slide the power switch to the desired ON position (e.g., ON NO SPEAKER or ON WITH SPEAKER). The window displays "7715DF."

After a few seconds (assuming no key has been pressed), the display will indicate:

- Software Version (VX.X)

- Channel Number (A-E),

  where (A-E) indicates the primary and secondary channel pair (see CUSTOM Mode "CH NUM" section for a listing of the primary and secondary pairs). The default set at the factory is "A" or primary channel 2, secondary channel 10 (the 7715DF generally receives via the primary channel and transmits via the secondary).

The receive/transmit functions of the 7715DF will be OFF. If any key is pressed, the first main operational mode "FAST" is displayed on the LCD.

Pressing the UP arrow and MODE SELECT keys scrolls the main operational modes in ascending order (1, 2, 3, etc., with wrap around); pressing the DOWN arrow key scrolls them in descending order (3, 2, 1, x etc.).

The main operational modes are as follows:

- FAST Mode (Field Alarm Signal Test)
  D LINK displays downlink activity between 7715DF and network
  STAT displays stored statistics from either D LINK or U LINK modes
  U LINK displays uplink activity between 7715DF and network
- PROGRAM Mode
  ECP (Y/N) prompt selects type of radio to be programmed
  Emulates 7720P Programming Tool
- STATUS Mode
  Shows status of AlarmNet nodes in your network
- CUSTOM Mode
  Displays the 7715DF programming options one at a time
  Allows changes to 7715DF parameters
- CABLE Mode
  Checks 7715DF antenna cable connection
- BATTERY Mode
  Checks 7715DF battery condition
- INSTALL Mode
  Assists Installer in the installation of all one-way AlarmNet products

Press the ENTER key while the desired mode is being displayed to activate that mode.

If a selected mode requires that the receive/transmit function be on, it is automatically activated and automatically shut down after terminating the mode.

Enter this mode from the main menu by either pressing the [ENTER] key while the LCD displays "FAST" or by pressing the [FAST] key. "D LINK," the first of three submodes is displayed. The three submodes are as follows:

D LINK: Down link mode:
          • Listen to a node
          • Listen to an AlarmNet mini-repeater or node extender
STAT: Down or up link statistics mode
U LINK: Up link mode

Press the down or up arrow keys to scroll to each of these mode displays. Press [ENTER] to activate the displayed mode

Press the [ESC] key to exit any of these modes and return to the main menu.

D LINK (Down Link) Mode

Enter this mode from the FAST menu by pressing [ENTER] while the display shows "D LINK." Pressing the [FAST] key while the main menu is displayed will also activate D LINK mode.

D LINK mode can either listen to a node (default display), or can listen to an AlarmNet mini-repeater or node extender by pressing the down arrow key once in D LINK mode.

DOWN LINK MODE
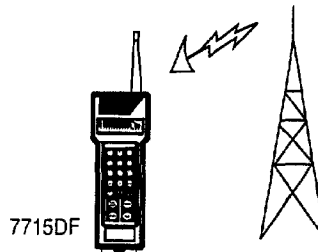
7715DF

The 7715DF listens to messages from the nodes (master stations), and identifies the node it heard from as well as the signal strength and number of messages received. this information can be reviewed in the "stat" submode.

Listen to a Node

In this mode, the 7715DF will receive on the channel that was programmed and stored in the "CUSTOM" mode (default channel set at the factory is "A;" that is, 2 on RX, 10 on TX), and displays the following:

Bar Graph:	Indicates received signal strength, updated every 0.1 seconds. The more bars displayed, the greater the received signal strength.
Asterisk:	A segment of the asterisk increments each time a message is received. (The message count for each node is set to zero upon entering the down link submode. A count of the number of messages is kept until the count reaches 15. Pressing the $\boxed{\text{START}}$ key resets the counter to zero.)
House/Tower Icons:	Indicates communication from the tower to the installation site by the blinking down arrow.
Node Number:	Node 1-15 from which the message was received. The node numbers 1 through 15 are also displayed at the bottom.
Signal Strength:	Displayed on a scale of 0-10, where 10 is displayed in hex as "A". A moving average of the received signal strength of each node, updated with each message received is also kept. Also see Check Mark description.
Check mark/Dot:	As a correctly decoded message from a node is heard, a dot above the transmitting node number blinks for a second, and then turns steadily on. A check mark appears above a node number if the average signal strength of the message received from the node is equal to or greater than the value stored in the "CUSTOM" mode "RSSI" option (default value set at the factory is 3) **and** at least four messages have been received from that node.

A typical display would appear as "2>5", where 2 is the node number and 5 is the signal strength of the received message. Refer to the following diagram.

These statistics can be viewed in "STAT" mode upon exiting down link mode.

TYPICAL DISPLAY IN THE DOWN LINK MODE (Listening to Node)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
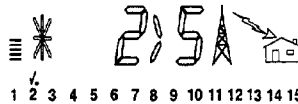
- The arrow indicates the direction of the link, i.e., Node (master station) to the 7715DF.
- The numeral "2" indicates the node heard by the 7715DF.
- The numeral "5" and the lighted bar graph segments indicate the signal strength heard by the 7715DF. The bar graph is updated once every 0.1 seconds.
- The asterisk segments blink in rotation each time the 7715DF receives a message.
- The dot above the small numeral "2" blinks when the 7715DF hears the node, and stops blinking one second later. A check appears with the dot if the 7715DF hears at least four messages from the node with an average signal strength equal to or greater than the minimum value programmed.

If excessive interference, such as voices or random noise, is heard in FAST mode, remove the antenna and connect the switchable signal filter (7715FIL) to the 7715DF. Connect the antenna to the switchable signal filter. Set the filter switch to the "N" position to listen to a node or the "R-E" position to listen to an AlarmNet mini-repeater or the node extender.

Listen to AlarmNet Mini-Repeater or Node Extender

Enter this mode by pressing the DOWN arrow key while in the "D LINK" mode. This mode is indicated by an "R," "N," or "S" in the display as follows.

First character: Indicates the type of device heard as follows:

R = Alarmnet mini-repeater

N = 7720NX node extender

S = subscriber

Next 4 characters: Ranging from 0000-9999, indicates the ID of a subscriber, a 7720NX number, or a 7720NX with a different central station number. If the four characters include a letter, they indicate the hex number identifying an AlarmNet mini-repeater.

Last character: Ranging from 0-A, indicates the received signal strength.

A typical text window would appear as "R12A38", where "R" indicates Alarmnet mini repeater, "12A3" the mini-repeater number, and "8" the signal strength of the received signal.

The dot over a number indicates the number of extenders or mini-repeaters heard. A check mark indicates the signal strength is greater than the minimum programmed in "CUSTOM" mode.

TYPICAL DISPLAY IN THE DOWN LINK MODE
(Listening to AlarmNet Mini-Repeater or Node Extender


```
1  2  3  4  5  6  7  8  9  10 11 12 13 14 15
```
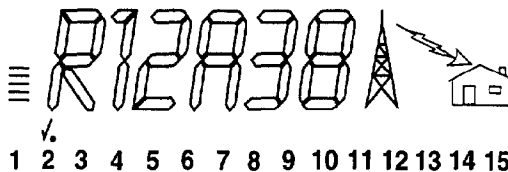
The "D LINK" repeater-extender mode can be used to check that a subscriber's installation is functioning by triggering an alarm causing the subscriber and repeaters to generate traffic which will be displayed in this mode. It is not recommended for listening to 7720NX's or Alarmnet mini-repeaters to determine site suitability due to the unpredictable nature of traffic from these devices.

STAT (Down or Up Link Statistics) Mode

Enter this mode from the FAST menu by pressing the ENTER key while "STAT" is displayed. This mode displays the statistics of the information collected in the up and down link FAST modes. This mode will not activate if data is not accumulated during the up or down link modes.

Upon entering the "STAT" mode, the LCD displays the fifteen node numbers at the bottom. A dot is placed above a node number if the node was heard from during the up or down link mode. The statistics displayed correspond to the node indicated by the blinking dot. The statistics for the lowest node that was heard from are displayed initially.

Statistics for the other nodes can be accessed by repeatedly pressing the ENTER key.

Two numbers are displayed on the LCD (e.g., "15+ 8"). Their meaning depends on whether "STAT mode was accessed after the down link or the up link mode.
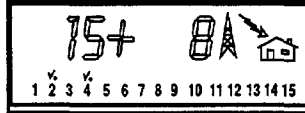
TYPICAL "STAT" DISPLAY AFTER DOWN LINK MODE

STAT mode after Down Link mode:

First number: The number of messages received from the blinking node (e.g. 15+)

Second number: The average signal strength of the last four messages received from the node. A check mark next to the dot for a received node indicates that node had an average signal strength equal to or greater than the minimum programmed value (default = 3) (e.g. 8).

STAT mode after Up Link mode:

First number: The number of acknowledgments received from the blinking node. If the number of messages received exceeds 15, the LCD displays 15+.

Second number: The average signal strength at which the nodes received the messages transmitted by the 7715DF. The signal strength is scaled in order to account for the difference between the transmitted powers of the 7715DF and the radio (7720 or 7820) being installed. A check mark appears if the repeat count is greater than the minimum programmed value (factory-set default is 30).

The "STAT" mode can be cleared and new statistics accumulated by pressing the START key during the down link or up link mode.

Subsequently (after the START key has been pressed), if no data is accumulated, the display will indicate "STAT" if the "STAT" mode is accessed.

> **If the last mode selected before exiting is the repeater-extender down link mode, no entries will be made in the "STAT" mode.**

Pressing the ESC key exits the "STAT" mode.

U LINK (Up Link) Mode

This mode allows the installer to determine how well the 7715DF is heard by AlarmNet. WHEN USING THIS MODE, HOLD THE 7715DF NEAR THE BOTTOM (THE END OPPOSITE THE ANTENNA), AWAY FROM THE BODY AND IN A VERTICAL POSITION.

Uplinking to a Node

Enter this mode from the FAST menu by pressing the ENTER key while the LCD displays "U LINK". Exit by pressing the ESC key.

Upon entering this mode, "7720/7820 (1/2)" is displayed (scrolling). Enter the model number of the radio being installed (i.e., 7720 or 7780) by pressing 1 or 2 as appropriate, then press ENTER. This is necessary since the 7715DF transmits at a lower power level than the 7720 and 7820, thus the signal level heard at the node must be scaled by the 7715DF to compensate for this difference.

In U LINK mode, the 7715DF transmits a status message every two seconds (for the time programmed in "CUSTOM" mode "TRANSMIT TIME" option) and listens for a response from the nodes. Upon receiving a response, the 7715DF examines the message to determine the signal strength at which the message was received.

"UP LINK" MODE
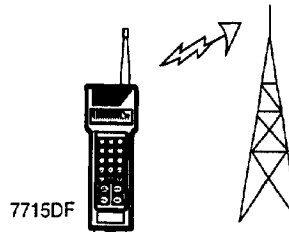
7715DF

The 7715DF transmits a message to the nodes (master stations). The node or nodes evaluate the message and each reports back to the 7715DF its node number, and the signal strength and number of messages it received. This information can be reviewed in the "stat" mode.

The up link display is similar to the down link display:

Asterisk: Upon transmitting a message, all eight outer segments of the asterisk light up momentarily. Afterward, a segment of the asterisk increments each time a message is received.

House/Tower Icons: Indicates communication from the tower to the installation site by the blinking up arrow.

Node Number: Node 1-15 from which the message was received. The node numbers 1 through 15 are also displayed at the bottom.

Signal Strength: Displayed on a scale of 0-10, where 10 is displayed in hex as "A". A moving average of the signal strength at which each node hears the 7715DF signal, updated with each message sent is also kept. Also see Check Mark description.

Check Mark/Dot: As a correctly decoded message from a node is heard, a dot above the transmitting node number blinks for a second, and then turns steadily on indicating adequate signal strength. A check mark appears above a node number if the signal strength received by the node is equal to or greater than the value stored in the "CUSTOM" mode "TX PASS" option (default value set at the factory is 3).

> **The node processes messages in the order they are received; thus it may be necessary to wait several minutes before a response from the node is sent to the 7715DF.**

A typical display would appear as "2>A," where 2 indicates node 2, and A (hex 10) indicates the strength at which the message was received at the node.

TYPICAL DISPLAY IN THE "UP LINK" MODE (Uplinking to Node)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
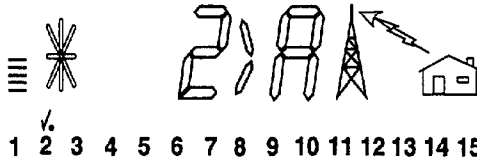
- The arrow indicates the direction of the link, i.e., 7715DF to the node (master station).
- The "2" indicates the node (1-15) that heard the 7715DF.
- The letter "A" indicates the signal strength (0-A) heard by the node from the 7715DF.
- The asterisk blinks each time a message is sent by the 7715DF and blinks a segment in rotation each time a message is received.
- The dot above the small numeral "2" blinks when the 7715DF hears the node and stops blinking after one second. A check appears if the signal strength is equal to or greater than the minimum value (the factory-set default is 3).
- The letter "m" appears to the right of the asterisk if the acknowledgment for the 7715DF message was received from a "mini".

The 7715DF stores the number of messages and a moving average value of the signal strength at which the message was received. This information can be viewed in the "STAT" mode as described in the previous STAT Mode section.

Uplinking to AlarmNet Mini-Repeater or Node Extender

Enter this mode by pressing the DOWN arrow while in the "U LINK" mode. This mode is indicated by an "R" on the display. This mode enables the user to determine if there are suitable Alarmnet mini-repeaters, or 7720NXs, accessible by a 7720 or 7820 to be installed at that location.

In this mode, the 7715DF transmits a status message every two seconds. The repeater or extender will respond with information regarding signal quality and availability. This information is displayed as an alphanumeric as follows:

First character: Indicates whether the response is an Alarmnet mini-repeater or a 7720NX as follows: R = AlarmNet mini-repeater; N = 7720NX

Second character: Identifies the message source as follows:
M = message heard by 7720NX that reports to user's central station
space = 7715DF was heard by an Alarmnet mini or a 7720NX of another a central station

Third character: Indicates accessibility to the 7720NX as follows:
Y = user has access to a 7720NX (an Alarmnet mini is always accessible).
N = the 7720NX is not accessible.
L = indicates access may be limited.

Character after ">":   Indicates the signal strength, in the range of 0-A, at which the responding device heard the 7715DF.

A typical display window would appear as "N Y>4", where "N" indicates that the 7715DF was heard by a 7720NX. The blank space indicates that the 7715DF was heard by an Alarmnet mini or a 7720NX of another central station. The "Y" indicates access to the device that heard it. The ">4" indicates that the 7715DF was heard with a signal strength of 4.

Dots and checks are placed in locations 1-4 (bottom row of display) for the best 4 repeater's that were contacted. If less than 4 were contacted only that number of dots will be displayed. Check marks are displayed only for repeater's that "heard" the 7715DF with a signal strength equal to or greater than the minimum set in the "CUSTOM" mode. The factory default is 3.

TYPICAL DISPLAY IN THE "UP LINK" MODE
(Uplinking to AlarmNet Mini-Repeater or Node Extender)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
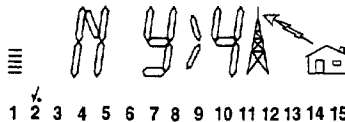
> ✓ To conserve battery power, the 7715DF stays in the up link mode for a time period as programmed in the "CUSTOM" mode, with a maximum of 3 min. (default value set at the factory is 1 min.) The up link mode can be terminated any time by pressing the ESC key.

If the STAT submode was accessed after the U LINK submode, each of the 4 possible repeater's will be displayed by a scrolling alpha numeric. The first three are as described above. The ">" is a separator, with the following two indicating the central station number of the repeater. The stopped scroll with a field of 6 alphanumeric characters identifies a mini, subscriber, or 7720NX number in the first 4 characters ranging from "0000-9999" or 4 "X"'s. Four "x"'s iindicates a 7720NX with a different central station number. The fifth character ranging from "0-A" indicates as above, the signal strength that the responding device heard from the 7715DF. The last character indicates the number of repeats.

A typical display window would appear as "N Y7F1234>A 3". The first three characters are as explained above. The ">" is a separator. "7F" identifies the central station. "1234" is the subscriber ID. The "A" and "3" are the signal strength and repeat count respectively.

This mode emulates the ADEMCO 7720P programming tool and can be used to program the 7720 series and 7820 radios. Enter this mode by scrolling through the main menu of modes until PROG appears, then press ENTER.

The 7715DF displays a maximum of six characters. Further, the 7715DF does not display some of the characters displayed by the 7720P, which can display 32 characters. Thus it is necessary to scroll the long 7720P message on the 7715DF. Characters that cannot be displayed are replaced by spaces with a maximum of one space between words.

Upon entering the PROG mode, the 7715DF queries the installer if the radio being programmed is to be used in ECP mode by scrolling "ECP (Y/N)." If the radio is to be used in ZONE mode, enter "N." If the radio is to be used in ECP mode, enter "Y," and the PROG mode will be terminated upon completion of programming mode.

No= SHIFT, then DOWN arrow, then ENTER, in that order.

Yes = SHIFT, then UP arrow, then ENTER, in that order.

Other keys have the same meaning as on the 7720P except for:

Escape: On 7715DF press ESC. On 7720P press SHIFT, then ESC.

Backspace: On 7715DF press SHIFT, then BS. On 7720P press BS.
Start: The START key is not on the 7720P keypad.
Fast: The FAST key is not on the 7720P keypad. On the 7715DF, pressing the FAST key exits the mode. If the mode is exited this way, the installer will have to turn the radio off, then on before reprogramming it.

Following a "Y" or "N" entry, the 7715DF display will go blank. From this point on the 7715DF is used as the 7720P. If the radio to be programmed is in ZONE mode and already running, press SHIFT and then X to reboot the radio as would be done with the 7720P. The difference with the 7715DF is that when the radio reboots, the display on the 7715DF does not clear like the 7720P. If the radio is already running but is in ECP mode, power the radio off and then back on. If the radio is off, turn it on. Connection to the radio being programmed can be made at any time by inserting the RJ4-4 end of the coiled cable into the mating RJ4-4 connector located on the right-hand side of the 7715DF and the RJ6-4 end to the radio. Enter programming mode by pressing ENTER while the LEDs of the radio are flashing and proceed with the programming session as described in the radio's Installation Instructions.

While programming, the installer is prompted to respond to several questions by the radio. These questions are scrolled on the 7715DF display. In this and other modes, messages can be scrolled again by pressing the SHIFT and then the START key.

Following programming the radio, the PROG mode is terminated for ECP radios. For non-ECP radios, the 7715DF displays the status message as described below. Pressing ESC at this stage will terminate the "PROG" mode. Other functions of the 7720P can also be initiated using the 7715DF while the status message is being displayed. Pressing ESC while the status message is being displayed, or before or after programming the radio, terminates the programming mode.

Radio Status Message

This message appears after programming of the radio is completed. It can also be displayed by pressing shift-S after the display has gone blank while the 7715DF is connected to the programmed radio which is in programming mode. The status message normally displayed on a 7720P will scroll the following string on the 7715DF display with a pause of five times the scroll rate programmed and stored in the "CUSTOM" mode (default value set at the factory is 1250 ms) between each. The corresponding 7720P message is shown below it.

7720P DISPLAY:

1 2 3 4	TE	TM	BA	DC	FLT
WWWW	a	a	b	b	c

Z=WWWW(pause) TE=a(pause) TM=a(pause) BA=b(pause) DC=b(pause) FLT=c

The characters in the 7720P messages (W, a, b, and c) are modified whenever they assume a form that cannot be displayed on the 7715DF. W=p (telco restore) in the 7720P is replaced by R. b=^ (battery charging restored but not reported as restored) is also replaced by R.

STATUS MODE

This mode displays the active AlarmNet nodes in the network.

Enter this mode by pressing [ENTER] while the main menu displays "STATUS".

On entering the "STATUS" mode, the LCD displays "WAIT" until a message is heard.

Upon receiving a status message from the network, the LCD displays "DONE" and indicates which of the AlarmNet nodes are active as follows:

Check Mark = indicates active nodes
Dot   = the node number that transmitted the status message.

> Since status messages are transmitted infrequently, the installer may have to wait for a considerable period of time before a status message is received.

Pressing [ESC] terminates this mode.

Introduction

This mode allows the user to set various options for the 7715DF. These parameters are then stored in the 7715DF's memory (EEPROM). There are 12 programmable options:

- Scroll
- Contrast
- Channel Number
- Transmit Time
- Sleep Time
- RSSI

- AlarmNet/Private System
- User ID
- Network Flag
- Central Station Number
- Minimum RSSI (TX Pass)
- Receive Count (TX MSG)

Enter this mode by pressing [ENTER] while the main menu displays "CUSTOM."

The first option ("SCROLL") appears on the display. If this is the desired submode, press [ENTER]. If it is not, the other submodes can be accessed by pressing the UP or DOWN arrow until the desired submode is displayed, and then pressing [ENTER].

Exit CUSTOM mode by pressing [ESC] while any of the option titles are displayed.

Programming Prompts

SCROLL

SCROLL SPEED ESᵛ∧EN

Use this option to adjust the LCD scroll rate. Allowable values are 25 ms to 250 ms in steps of 25 ms (default =250ms). "ESᵛ∧EN" means that the 7715DF expects the UP arrow, DOWN arrow, ENTER or ESC key to be pressed:
(The test text "SCROLL SPEED" is scrolled to indicate the scroll rate.)

UP arrow	=	speeds up the scroll rate by 25 ms
DOWN arrow	=	slows the scroll rate by 25 ms
ENTER	=	store the scroll rate and exit
ESC	=	retain the previous scroll rate and exit.

Press any of these 4 keys to continue.

CNTRST (LCD Contrast)

ESᵛ∧EN

Use this option to adjust the LCD contrast. " ESᵛ∧EN " indicates that the 7715DF expects the UP or DOWN arrow keys, or the ENTER or ESC keys to be pressed.

UP arrow	=	darkens the display
DOWN arrow	=	lightens the display
ENTER	=	save the selected contrast and exit
ESC	=	retain the existing contrast and exit.

Press any of these 4 keys to continue.

> The remaining options prompt the user to enter numbers following a query by the 7715DF. To enter a decimal number, for example 15, press 1 followed by 5, followed by ENTER. To enter a hexadecimal number, press SHIFT followed by the number (A-F). The number entered is displayed on the screen. The user is allowed to back space.

Pressing SHIFT and then START will rescroll the query and the numbers that have been entered. Pressing ESC assumes that no data was entered, and the 7715DF exits the option.

CH NUM (Channel Number)

CHANNEL (A-E) (x)

Use this option to assign the channel A-E (default = A). Enter a valid number then press ENTER to accept entry. Press ESC to exit this option without changing the current channel. Press the UP arrow key to display the next prompt.

AlarmNet Users:
Refer to the Channel and Odd/Even Setting Table found in the Quick Start section for AlarmNet channel numbers in given cities. Pressing SHIFT, then A through D followed by ENTER will result in the following primary and secondary channel number assignments:

A:	Primary =	2,	Secondary =	10.
B:	Primary =	10,	Secondary =	2.
C:	Primary =	2,	Secondary =	2.
D:	Primary =	10,	Secondary =	10.

The primary channel is used on receive. The secondary is used to transmit.

Private System Users:
Pressing SHIFT, then "E" will prompt to enter a channel number (same channel for primary and secondary) by scrolling "CH NUMBER (1-14)". Enter the channel number in use in your area.

TRNSMT (Transmit Time)

TRANSMIT TIME (1-3) (1)

Use this option to set the amount of time (in minutes) the 7715DF will transmit signals while in uplink mode by entering 1, 2, or 3 (default = 1).

Press ENTER to accept the transmit time. Press ESC to retain the original value. To conserve battery power, it is recommended that the shortest time (i.e., 1 min) be used. Press the UP arrow key to display the next prompt.

SLEEP (Power Down Time)

POWER DOWN TIME (1-30) (10)

Use this option to set the timeout period after which the unit automatically powers down to sleep mode. Enter a number between 1 and 30 (min) (default = 10). Press ENTER to accept the power down time. Press ESC to retain the original time. Press the UP arrow key to display the next prompt.

RSSI

PRSS RSSI (0-10) (3)

Use this option to set the minimum acceptable received signal strength (RSSI) while in downlink mode by entering a number between 0 and 10 (default = 3). Press ENTER to accept the passing RSSI. Press ESC to retain the original value. Press the UP arrow key to display the next prompt.

NET/PV (AlarmNet/Private System)

ALARMNET/PRIVATE (1/0) (x)

Use this option to select the type of system. Enter 0 for private systems, or enter 1 for AlarmNet systems (default = x displayed). Press ENTER to accept the system type. Press ESC to retain the original value. Press the UP arrow key to display the next prompt. *Note:* In the private mode, node 0 is node 15.

USER ID

USER ID (SSS) (xyz)

Use this option to enter a 3 digit user ID, where xyz is the current ID. Enter a number from 000-999, then press ENTER to accept the ID. Press ESC to retain the original ID. Press the UP arrow key to display the next prompt.

O/E (Network Odd/Even Flag)

ODD/EVEN (1/0)

Use this option to set the network flag. Enter a 1 if the network is odd, or enter 0 if the network is even (default = 0, even). Refer to the Channel and Odd/Even Setting Table found in the Quick Start section for appropriate odd/even settings for your network. Press ENTER to accept the setting. Press ESC to retain current flag setting. Press the UP arrow key to display the next prompt.

CS (Central Station Number)

USER CS(XX) (01-7F)

Use this option to determine accessibility to 7720NX devices by entering the user's AlarmNet central station number (01-7F). For Private System users, refer to the Private System Channel/Central Station Table found in the Quick Start section to determine the Central Station number. Press ENTER to accept the number. There is no factory default number. Press the UP arrow key to display the next prompt.

TXPASS (Minimum RSSI)

PASS RSSI TX (0-10)

Use this option to set the minimum acceptable RSSI for 7X20 transmissions while in uplink mode by entering a number from 0 to 10 (default = 3). Press ENTER to store the number. Press ESC to retain the current value. Press the UP arrow key to display the next prompt.

TX MSG (Receive Count)

PASS MSG TX (0-60)

Use this option to set the minimum acceptable receive count (see INSTAL mode) for 7X20 transmissions by entering a number from 0 to 60 (default = 30). Press ENTER to store this number. Press ESC to exit without storing. Press the UP arrow key to display the first prompt ("SCROLL").

CABLE MODE

This mode enables the user to test the cable/antenna connected to the radio. In order to use this mode, an optional TNC male to N female adapter is required (ADEMCO 7715DFAD).

To Use the "CABLE" Mode:

1) Slide the 7715DF's power switch to the off position.

2) Remove the antenna cable to be tested from the radio.

3) Remove the 7715DF's antenna, and connect the TNC to N adapter.

4) Slide the 7715DF's power switch to the on position.

5) Using the UP arrow, DOWN arrow or the [MODE SELECT] key, scroll to the "CABLE" mode and press [ENTER].

6) Observe the LCD. A properly functioning cable/antenna is indicated by "GOOD", while a defective cable/antenna will display "BAD".

To exit this mode press [ESC], which returns to the main menu.

BATTERY MODE

This mode is accessed by pressing [ENTER] while the main menu displays "BATTRY". There are two submodes: "CHECK" and "CHARGE." The first is displayed upon entering the "BATTRY" mode. The second is displayed by pressing the UP or DOWN arrow keys. Each of these modes is accessed by pressing the [ENTER] key while it is being displayed.

Check

In this mode, the battery voltage is sampled every two seconds, and the result is displayed on the LCD as "TXXRXX" where TXX indicates the remaining battery power in the "U LINK" (or transmit) mode and RXX indicates the remaining battery power in the "D LINK" and all other modes. Zero percent indicates a battery voltage of 6 volts or less, while 99% indicates a battery voltage of 8 or more volts. Pressing any key except ESC repeats the battery test.

This mode is terminated by pressing [ESC], after which the LCD reverts to the display "CHECK". Pressing [ESC] again will terminate the "BATTRY" mode.

Charge

This mode can be used to monitor the charging of the battery and is similar to the "CHECK" mode, with the following differences: After sampling, the percent voltage is displayed as before and the 7715DF control circuit is shut down to conserve battery power. Pressing a key will awaken the control circuit. If the key pressed **is not** the [ESC] key, the battery levels are displayed again. If the key pressed **is** the [ESC] key, the mode will be terminated, following which the LCD reverts back to the display "CHARGE". Pressing the [ESC] key again will terminate the "BATTRY" mode.

INSTALL MODE

Enter this mode by pressing ENTER while the main menu displays "INSTAL".

✓ **Before initiating the INSTALL mode, the installer should check to see if the 7X20 has gone through its initialization cycle (which lasts approximately eight minutes after power has been applied to the 7X20).**

This mode allows the installer to evaluate how well the AlarmNet nodes are receiving the 7x20, as follows.

1. Upon accessing this mode, a prompt displays the currently stored six digit 7X20 CS ID and user ID by the LCD scrolling "CUSTOMER ID (CCSSSS.

    Enter the desired CS ID (two digits), followed by the user ID (four digits), then press ENTER to store a new six digit ID in the 7715DF. Pressing ESC will retain the previously stored value.

2. Next, the user is prompted to connect the serial ports of the 7715DF and the 7X20 by displaying "CONECT".

    After connecting (using the coiled cable) the 7715DF to the 7X20, press ENTER.

3. The 7715DF now attempts to place the 7X20 in its TEST mode, while the LCD displays "WAIT".

    If this attempt is not successful, the LCD displays "RETRY". An unsuccessful attempt indicates that the 7X20 battery is weak and should be recharged, or that the 7X20 was not in the idle state when the INSTALL mode was initiated.

    Pressing ESC at this stage exits the INSTALL mode.

4. After the 7715DF places the 7X20 in its test mode, the LCD displays "TX=xy," where xy is the number of 7X20 transmissions (this number starts at 1, and is incremented each time the 7X20 transmits.

    Pressing ESC at this stage will exit the INSTALL mode.

    The message count displayed on the LCD is approximately 30 for the 7720 and 60 for the 7820, although both transmit 60 messages.

After the 7X20 has transmitted, the 7715DF queries the master station for the number of 7X20 messages received, in the following manner.

1. First, the installer is prompted to disconnect the 7715DF from the 7X20 by displaying "DISCON" on the LCD. The installer should disconnect the 7715DF, go to a location on the site where the node is able to receive 7715DF transmissions (this location should first be determined using the FAST/DN LINK mode). Upon pressing any key, the 7715DF queries the node for 7X20 diagnostics.

    The 7715DF transmits this message every twelve seconds, for a maximum of eight minutes. Between each transmission, the 7715DF waits for a message containing the diagnostics.

2. Upon receipt of the diagnostic message, the 7715DF extracts the transmitting node, the repeat count and the signal strength from the message.

   The transmit node is displayed by placing a dot above the node number. The dot blinks if at least one 7X20 message was received by the node. If the field strength and repeat count meet the minimum requirements, a check mark is also placed above the node number. The signal strength (0-A) and repeat count are displayed as shown below. The 7715DF then enters receive mode to check for diagnostic messages from other nodes. The new data is displayed as described above.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Typical Diagnostic message **(signal strength acceptable)** • Dot indicates transmitting node • Check indicates signal strength is equal to or greater than that programmed • "5" indicates signal strength • "35" indicates repeat count	**Typical Diagnostic message** **(signal strength NOT acceptable)** • Dot indicates transmitting node • Missing check indicates signal strength is less than that programmed(this radio would fail install mode test; try different mounting location) • "5" indicates signal strength • "35" indicates repeat count

3. If a response was not received from the node, pressing the down arrow key will place the 7715DF into the extender mode, which allows the user to determine if there are suitable 7720NX's available for the Radio being installed. This is indicated by "RWAIT" on the display. It can take up to 10 minutes for the nodes to relay the information. If much more than 10 minutes have elapsed since the test was initiated, the INSTALL mode procedure should be repeated from the start.

**AlarmNet mini-repeaters do not support this mode.**

4. As messages are received by the 7715DF, data from the 4 best 7720NX's will be displayed by a 5-character display. The first character indicates whether the NX is from the user's central station: "M" = yes; "O" = no. The second indicates the signal strength that the responding NX heard from the subscriber with a range of "0-A". The ">" is a separator, the last two character's , a numeric ranging from 1-60 indicates the repeat count heard from the radio being installed.

A typical display window would appear as "M5>01", where "M" indicates that the NX heard is from the user's central station, and "5: is the signal strength the repeater heard the radio being installed. The ">" character is a separator, while "01" indicates the number of repeats from the radio.

As responses are heard, flashing dots are placed above the dots in locations for the 4 best repeater's. Checks are placed above the dots for the NX that meet the minimum installations requirements for both signal and repeat count.

INSTALL MODE

```
7720
 OR          TO
7820         RJ11
             CONN

        7715DF
```
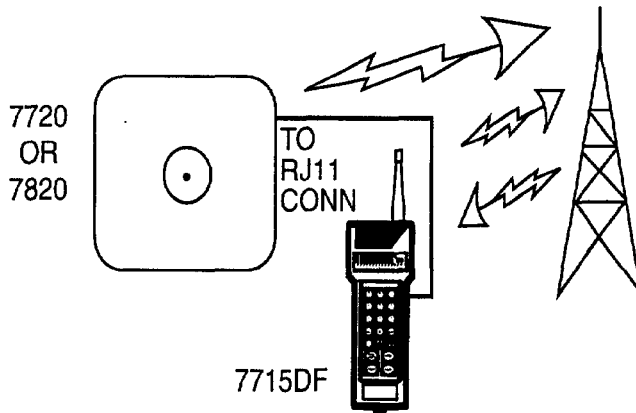
The 7715DF connects to the 7720/7820 via the supplied coiled cable, and places the 7720/7820 in its test mode, i.e., Sets up the 7720/7820 to transmit 60 test messages. The node (master station) evaluates the 7720/7820 test message and downlinks the repeat count and signal strength it received to the 7715DF.

NOTE: THE ANTENNA MUST BE CONNECTED TO THE RADIO.

The INSTALL mode can be terminated at any time by pressing the $\boxed{\text{ESC}}$ key, following which the display reverts to "INSTAL".

> **When the 7715DF is in any of its operational modes, the battery voltage is checked every 1.5 minutes. If the battery voltage is less than 6 volts the 7715DF is automatically powered down.**

– NOTES –

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