Automated Test & Verification System

ATV Remote Tagger - *R/T*

User Guide

Version 2.3

Allied Analogic, Inc

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1. Overview

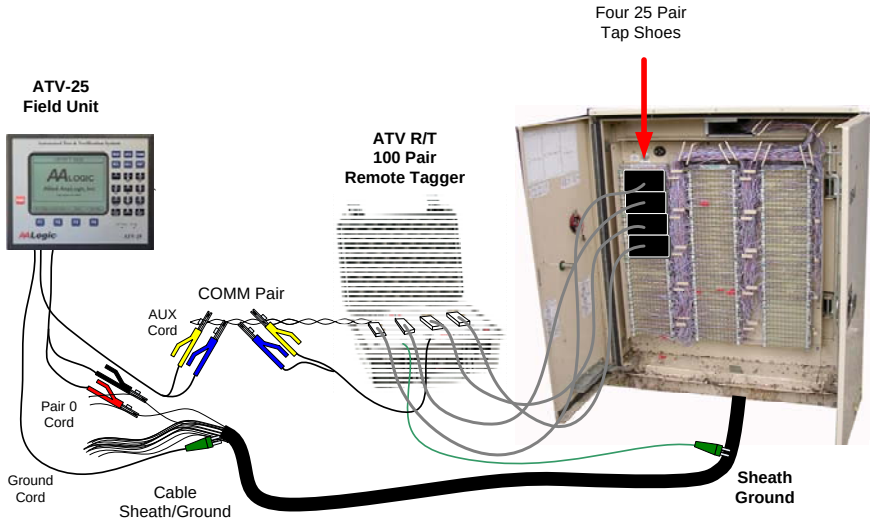
The ATV R/T is a remote tagging unit capable of testing 25, 50, 75 or 100 cable pairs in 25 pair modules. The ATV R/T works with the ATV-25 test set to tag pairs from a known location to an unknown location.

The ATV R/T is connected to the pairs to be tagged at a central office or other location where the pairs can be accessed using modular connectors or tap shoes. This is the remote unit. The ATV-25 is used at the site where the identity of the pairs is unknown. This is the local unit.

The ATV-25 and the ATV R/T use a spare, vacant pair to communicate with each other. The AUX cords at the ATV-25 and the ATV R/T are connected to the vacant pair. The ground cords at the ATV-25 and the ATV R/T must be connected to the cable sheath and there must be sheath continuity between the ATV-25 and the ATV R/T for proper operation.

The ATV R/T can operate in tagging mode or in remote tone mode when standard tagging is not possible.

A typical connection is shown in the figure below.



ATV-25
100 Pair Tagging with
ATV *R/T*

2. Document Conventions

The following conventions are used in this document.

ⓘ Useful Tips

☑ Important checkpoints

3. Specifications

Dimensions:

Length	13”
Width	16.5”
Height	6.7”
Weight	12 lbs
Power Supply	12VDC @ 1.3A minimum

4. Glossary of Terms

The following terms describe the ATV R/T or the ATV-25 features and functions. These terms also explain many of the display and test results.

Term	Definition
Ω	Symbol for ohms, the unit of measure for resistance.
AC Charger Adapter	The AC to 12VDC charger adapter provided with the ATV-25. This charger should be used to charge the ATV-25 at the end of a work period or when the ATV-25 indicates a low battery condition.
ANAC	ANAC refers to an Automatic Number Announcement Circuit. Some central offices have this equipment installed. A DTMF ANAC can send the assigned number to the ATV-25 using DTMF digits. This is the most efficient way to retrieve phone numbers if available. An ANAC can also voice-announce the assigned number. A DTMF digit can be heard just before the voice announcement if the DTMF response is available.
ANI	ANI refers to Automatic Number Identification. Most offices have some form of ANI. An ANI may not be able to respond with DTMF digits as required for ANAC assigned number retrieval.
ANR	Assigned Number Retrieval – an automatic process to retrieve the telephone number assigned to a telephone line. This is accomplished using Caller ID or a DTMF ANAC process.
Auto Power Cord	An optional power cord that connects from a 12VDC power connector on a vehicle to the power connector on the ATV-25. This cord can be used to charge the ATV-25 from a vehicle.
Aux Pair Cord	This cord is used for various test functions such as automatic number retrieval using caller ID. The cord has yellow and blue clips and a blue connector boot. This cord can be used in place of the PR0 cord if needed.
Bridge	A modular connector, usually 25 pair, designed to make a permanent or

Term	Definition
Module	temporary bridge connection to a module in a cable.
CALL	The CALL button accesses the Voice Monitor, DSL Monitor, and Talk Pair functions.
CFG	The CFG button displays the Configuration menu for System, CO, Location, User, and Reference Pair.
Cinch Connector	This connector is located on the bottom of the ATV-25 and is a 50-pin Cinch connector for 25 cable pairs.
ColRev Busy	POTS busy voltage measured Tip to Ring and Tip to Ground. The voltages are reversed from normal busy POTS.
ColRev Busy TR	POTS busy voltage was measured Tip to Ring but the voltage is reversed from normal busy POTS.
ColRev Idle	POTS idle voltage was measured Tip to Ring and Tip to Ground. The voltages are reversed from normal POTS.
ColRev Idle TR	POTS idle voltage was measured Tip to Ring but the voltage is reversed from normal POTS.
Function Keys	The keys located below the LCD display labeled **[F1]** through **[F4]**. The functions of these keys are indicated on the bottom row of the display above the keys.
Ground Cord	This is a permanently attached cable with a green boot on the clip. This cord must be connected to the cable sheath and ground for all operations. Care should be taken to ensure that the sheath, cable ground, and ground cord are properly connected. **Always** check the ground immediately if unexpected results are obtained.
Idle	POTS idle voltage detected from Ring to ground and Tip to Ring
Idle Ring	POTS idle voltage found Ring to ground but not Tip to Ring.
Idle Tip	POTS idle voltage found Tip to ground but not Tip to Ring.
Idle TR	POTS idle voltage found Tip to Ring but not Tip to ground or Ring to ground.
Jump Keys	Jump keys are the six blue keys in the upper right corner of the front panel. These keys are always active and allow the user to access the various features of the ATV-25 quickly.
Length Error	A balanced, vacant pair that exceeds the Length Deviation limit for the selected reference pair.
Loop Current Error	The measured loop current is less than 20 mA or is greater than 49 mA.
Loss	The attenuation of a signal in a pair. The loss generally increases as the frequency increases and as the line gets longer. Loss measurements require a signal source. The amplitude and source impedance of the signal should be known. The received amplitude is measured and the loss calculated. Loss is indicated in decibels (dBm).
Modular Connector	A connector used to make connections for multiple pairs, usually 25, in a cable. A modular connector may be in a splice or a cable termination such as the CO or cross connect box.

Term	Definition
Open	No pair is connected or the pair is less than 30 feet.
PR0 Cord	This cord is used for single pair testing. The cord has red and black clips and has a red connector boot.
POTS Busy Voltage	POTS busy voltage is defined as -7VDC to -30VDC
POTS Idle Voltage	POTS voltage is defined as -32VDC to -58VDC.
POTS Loss	POTS Loss refers to a measurement of the loss in a pair when connected to a 1004Hz, mW (milliwatt) tone source. POTS Loss is measured by calling a predefined number at the central office. The called number will answer and connect a 1004Hz tone at 1 mW to the line. The received amplitude is measured and the loss is calculated. POTS Loss is indicated in dBm.
POTS Noise	POTS Noise refers to a measurement of noise on a pair when connected to a *quiet termination* at the central office. POTS Noise is measured by calling a predefined number at the central office. The called number will answer the line and connect a quiet termination to the line. The noise is measured on the line for metallic and longitudinal (power influence or noise ground). Noise measurements may be indicated in dBm and should be a negative value such as -70 dBm.
Power Connector	A connector located on the left side of the ATV-25 used to connect an external power source to charge the internal batteries.
Rapid Test	The Rapid Test is a pre-programmed test that quickly scans the selected pairs for DC voltage and Open pair length. A Reference Pair is measured or entered and the test compares the length of the pair to the Reference Pair. Pairs are flagged as errors if the length exceeds the Length Deviation limit or exceed the Balance limit.
RCL	The RCL button Recalls previously stored test results.
Res Fault	Resistance Fault limit is used to indicate a Short or Ground. Any resistance measurement below this limit is considered a pair fault.
RG or RG	Abbreviation for a measurement or connection between the Ring and ground/sheath of a pair.
RGnd	Indicates a fault condition where the Ring of the pair is grounded.
Ring Battery	DC voltage of ±2.0 volts or more was found from Ring to ground.
Ring Gnd	Resistance was found Ring to Ground that is less than the selected Resistance Fault limit.
Ring Open	No connection was found on the Ring to ground or the length was less than 30 feet.
RMT	The RMT button displays the USB Remote screen.
Short	Resistance was found Tip to Ring that is less than the specified Resistance Fault Limit.
Smplx Battery	Simplex DC Voltage was detected on the Tip to Ground **and** Ring to Ground. The voltages were within ± 2VDC of each other.

Term	Definition
Smplx Tone	Simplex tone is used to identify cable pairs using the Tone Search function or a tone probe. Simplex tone is tone from Tip to Ground and Ring to Ground simultaneously. The tone is in phase and equal amplitude so that a customer listening on the line will hear minimal or no tone.
Spectral Plot	The Spectral Plot scans frequencies from a selected start frequency and increments 255 steps by the selected step size. The maximum frequency is approximately 2.2 MHz.
Talk/Wait Cord	This optional cord allows the ATV-25 to provide a talk circuit. The cord has two black clips and a black connector boot.
Tap Shoe Cable	A cable designed to make a temporary connection from a distribution frame, terminal block, or splicing module for testing purposes. The cable usually has a female, 50 pin Chinch connector on one end and a custom connector on the other.
TG or TG	Abbreviation for a measurement or connection between the Tip and ground/sheath of a pair.
TGnd	Indicates a pair condition where the Tip of the pair is grounded.
Tip Battery	DC voltage of ±2.0 volts or more was found from Tip to ground.
Tip Gnd	Resistance was found Tip to Ground that is less than the selected resistance Fault Limit.
Tip Open	No connection was found on the Tip to ground or the length was less than 30 feet. A connection of at least 30 feet was found on the Ring.
TR or TR	Abbreviation for a measurement or connection between the Tip and Ring of a pair.
TR Battery	DC voltage of ±2.0 volts or more was found from Tip to Ring.
TR Noise	The measured TR (metallic) noise exceeds the selected Noise TR limit.
TriPlex	I unique method of sending tone on a pair that minimizes coupling to adjacent pairs.
Unbalanced	The Tip distance and Ring capacitive distances are not equal. The variance exceeds the selected Balance limit.
USB Cable (A to B)	This cord is provided to connect the ATV-25 to a standard PC USB connector. This is a standard USB cable.
USB Connector	This connector on the left side of the ATV-25 that connection to a PC using a USB cable.
Vacant	A non-working, capacitively balanced pair with 30 or more feet of cable.
Vacant Pair Test	The Vacant pair test is a pre-programmed test for non-working pairs. The Vacant test does limited voltage tests, resistive tests, capacitive balance, and optional reference pair comparison.
Working Pair Test	The Working pair test is a pre-programmed test for working and Vacant pairs. The test measures voltages, resistances, capacitances, and loop current (loop current is measured for idle POTS pairs).

5. Getting Started

5.1 Cords

The following cords are provided with the ATV R/T.

Cord	Description
	AUX cord – Used for Tagging and Caller ID Assigned Number Retrieval.
	AC Power Cord – this charger supplies 12VDC at 1.3A to the ATV R/T. Other external, well regulated, 12VDC sources with the correct plug may be used. The plug is a 5 mm barrel connector with the center connector positive (+). External sources should be capable of 1A continuous current.
	Ground cord – This must be connected to cable sheath or cable ground.

5.2 Maintenance

The ATV R/T may be cleaned with a damp cloth and mild cleaner such as a window cleaner. The ATV R/T is only water resistant with the lid closed and latched. Avoid exposing the ATV R/T to rain or other sources of water when the lid is open.

5.2.1 Calibration

The ATV R/T does not require periodic calibration.

5.2.2 Repairs

The ATV R/T may be returned to the manufacturer for repairs. Contact the sales representative or Allied Analogic, Inc. directly to obtain a Return Authorization code.

5.2.3 Replacement Parts and Accessories

Replacements for damaged cords or power supply are available from the manufacturer or sales representative.

6. General Testing Information

The following general information applies to all testing with the ATV R/T and ATV-25. Observe safety precautions at all times.

6.1 Test Connections

Ensure that tap shoes, test cords, and the ground cords are in good condition and free of contaminants or debris. Contaminants and debris can affect most measurements.

Inspect the test cords for damaged conductors, bent or broken needles, or damaged RJ 45 connectors. Replacement cords may be ordered from the representative or the manufacturer.

A 25 pair connection is typically made by using a tap shoe or a bridging module. The ATV R/T supports one to four 25 pair connections using cinch type connections.

Tap shoe Connected to a Module

Cinch Connector Connects to the ATV R/T

The 25 pair cinch cables are used to connect to central office frames, cross connect boxes, or modular bridge connectors. These cables usually vary from region to region. The cinch connector is typically used for the test set connection. Cables are available from a variety of vendors that are specific to the deployed equipment.

6.2 Ground Connection

All Tests require a good ground and sheath continuity for correct results. Care must be taken to ensure that the green ground clip is connected directly to the cable sheath/ground or to a ground as close as practical to the sheath. Connect to ground bars in central offices.

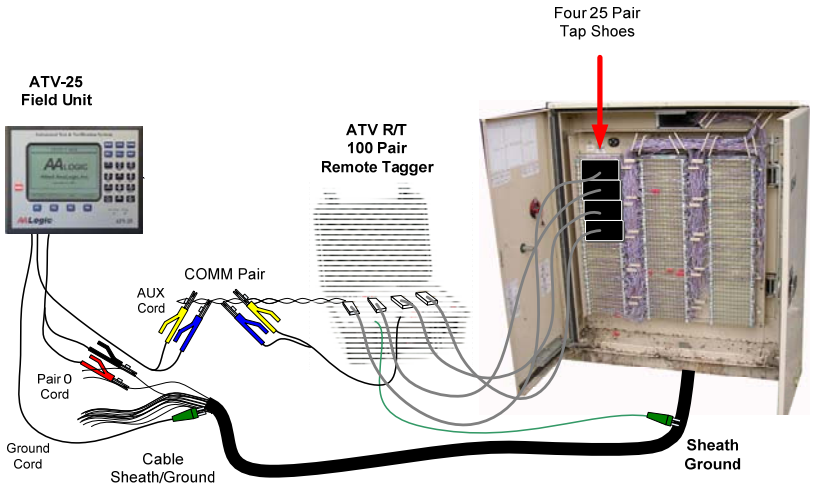
☑ Bonding vacant pairs to the sheath can improve the ground conditions when the sheath integrity is poor.

Always conduct preliminary tests to ensure the ground connection is satisfactory before starting tagging. The effects of poor ground and/or poor bonding include:

- Pairs not found
- Multiple pairs found
- High values of power influence noise
- Erratic or incorrect open distance readings
- Incorrect DC voltage measurements

7. Remote Pair Tagging

The figure below shows a typical setup for remote pair tagging using the ATV-25 and the ATV R/T.



ATV-25
100 Pair Tagging with
ATV *R/T*

7.1 Remote Location

Determine the remote tagging location. The remote location should meet these criteria:

1. Pairs can be accessed using 25 pair tap shoes. The ATV-25 and ATV R/T support tagging one, two, three, or four 25 pair groups at a time. This allows for equipment with tap shoes that connect to 25 pair, 50 pair, or 100 pair.
2. Cables that connect from the cable pairs to the Chinch-25 connectors must be available.
3. Access to ground and/or sheath is available. The sheath and ground bond should be confirmed for best results.
4. Access to 110Vac power or an optional external battery pack must be used for power.

7.2 ATV R/T Connections

The following steps are used to connect the ATV R/T for remote tagging.

Locate the ATV R/T so that it is within reach of the tap shoes and the power source.

1. Connect the power source and turn the ATV R/T on. Ensure the power indicator light is on. The power cord may be secured to the case to prevent accidental removal.
2. Connect the ground cord. A good ground/sheath connection is essential.
3. Identify the communications pair. The communications pair should be a non-working, balanced pair that is long enough to reach the field test location. The communications pair should not be in the count of the pairs to be tagged.

Connect the AUX cord to the PR0 connector on the ATV-25. Ensure the ATV-25 ground cord is connected to the same location that will be used for the ATV R/T. Use the OpenMeter to locate a vacant, balanced pair that goes to the field test site. When a pair is located, use the Ohmmeter to ensure there are no resistive faults TR, TG, or RG. Unplug the AUX cord from the ATV-25 and connect it to the COMM connector on the ATV R/T.

The ATV R/T is now ready for tagging operations. The ATV R/T sends 577Hz, simplex tone on the AUX pair to aid in locating the pair at the field test site.

ⓘ The tap shoe connection(s) will have to be changed after the currently connected pairs have been tagged. There is no need to move the communications pair.

☑ The ground cord may need to be moved when moving the tap shoes from one cable to another.

7.3 ATV-25 Remote Tagging Operation

Follow these steps to start tagging at the field test site using the ATV-25.

1. Connect the ATV-25 to the cable sheath/ground.
2. Turn on the ATV-25. The ATV-25 can operate on battery power for approximately 10 hours from a full charge. It may be operated with the AC power supply attached if necessary.
3. Connect the AUX and PR0 cords to the connectors on the ATV-25. The Talk cord may also be connected if a talk circuit is needed.

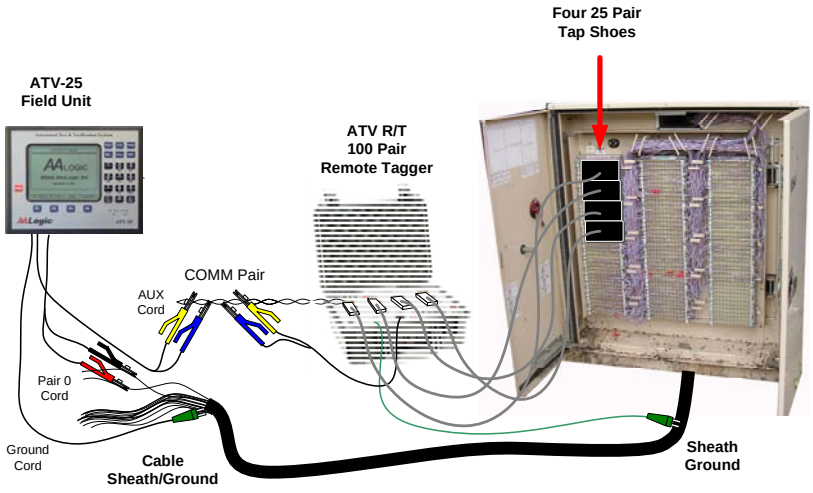
   > To use the talk battery, connect the talk cord to the ATV-25 and press [CALL], [F3] Talk. Verify the talk indicator appears on the top right of the display. Connect the talk clips to the talk pair and the headset/butt set to the lugs on the block of the talk cord. The operator at the far end connects the headset/butt set directly to the talk pair. The talk circuit is complete.

4. Use an amplifier probe, if needed, to locate the communications pair. Connect the clips on the AUX cord to the communications pair.
5. Turn the ATV-25 on.
6. Press the [RMT] key.
7. Select the groups you want to tag. Use the [2] or [8] keys to select a group, use the [5] key to toggle the group on or off.
8. Press [F1] Start. Wait for the ATV-25 to connect to the ATV R/T. If the connection is not successful, verify the connections to the communications pair.
9. Place the PR0 clip(s) on the pair to tag and press [F1] Start. The pair number, 1 through 100 depending on the modules selected, will be displayed and a distinctive tone will be played.
10. If the pair is not found, an error tone will be played. Recheck the connection of the PR0 clip(s) to the pair and press [F1] Start. If the pair is still not found, press the [F4] key to use the Open Meter and check the pair. From the OpenMeter, press [9] to

return to tagging.

8. Remote Tone

The figure below shows a typical setup for remote tone using the ATV-25 and the ATV R/T.



ATV-25
Remote Tone with ATV *R/T*

8.1 Remote Location

Determine the remote location that will be used for remote tone. The remote location should meet these criteria:

1. Pairs can be accessed using 25 pair tap shoes. The ATV-25 and ATV R/T support sending tone on any one of 100 pairs connected to the ATV R/T.
2. Cables that connect from the cable pairs to the Chinch-25 connectors must be available.
3. Access to ground and/or sheath is available. The sheath and ground bond should be confirmed for best results.
4. Access to 110Vac power or an optional external battery pack must be used for power.

8.2 ATV R/T Connections

The following steps are used to connect the ATV R/T for remote tone.

1. Locate the ATV R/T so that it is within reach of the tap shoes and the power source.
2. Connect the power source and turn the ATV R/T on. Ensure the power indicator light is on. The power cord may be secured to the case to prevent accidental removal.
3. Connect the ground cord. A good ground/sheath connection is essential.
4. Identify the communications pair. The communications pair should be a vacant, balanced pair that is long enough to reach the field test location and it should not be in the count of the pairs to be toned.

Connect the AUX cord to the PR0 connector on the ATV-25. Ensure the ATV-25 ground cord is connected to the same location that will be used for the ATV R/T. Use

the OpenMeter to locate a vacant, balanced pair that goes to the field test site. When a pair is located, use the Ohmmeter to ensure there are no resistive faults TR, TG, or RG. Unplug the AUX cord from the ATV-25 and connect it to the COMM connector on the ATV R/T.

The ATV R/T is now ready for remote tone operation. The ATV R/T sends 577Hz, simplex tone on the AUX pair to aid in locating the pair at the field test site.

ⓘ The tap shoe connection(s) will have to be changed after the currently connected pairs have been tagged. There is no need to move the communications pair.

☑ The ground cord may need to be moved when moving the tap shoes from one cable to another.

8.3 ATV-25 Remote Tone Operation

Follow these steps to start tagging at the field test site using the ATV-25.

1. Connect the ATV-25 to the cable sheath/ground.
2. Turn on the ATV-25. The ATV-25 can operate on battery power for approximately 10 hours from a full charge. It may be operated with the AC power supply attached.
3. Connect the AUX and PR0 cords to the connectors on the ATV-25. The Talk cord may also be connected if a talk circuit is needed.

   To use the talk battery, connect the talk cord to the ATV-25 and press [CALL], [F3] Talk. Verify the talk indicator appears on the top right of the display. Connect the talk clips to the talk pair and the headset/butt set to the lugs block of the Talk cord. The operator at the far end connects the headset/butt set to the talk pair. The talk circuit is complete.

4. Use an amplifier probe, if needed, and locate the communications pair. Connect the clip(s) on the AUX cord to the communications pair.
5. Turn the ATV-25 on.
6. Press the [RMT] key.
7. Select the groups you want to tag. Use the [2] or [8] keys to select a group, use the [5] key to toggle the group on or off.
8. Press [F1] Start. Wait for the ATV-25 to connect to the ATV R/T. If the connection is not successful, verify the connections to the communications pair.
9. Press [F2] ID Tone.
10. Press [0] enter the pair number to send tone on, and press [#/ENT] key.

8.3.1 Send Tone

1. Press [F1] Start. The ATV R/T will start sending tone on the selected pair.
2. Press [F1] again to stop sending tone.
3. Press [7] or [9] to change the Mode or Frequency
4. Press the left [3] or right [5] arrow keys to send tone on the next lower or next higher pair. Repeat step 10 above to enter a specific pair number.

8.3.2 Verify Pair Test

1. Connect the PR0 clips to the toned pair and press [F3] to test the pair.
2. The results will be displayed on the screen and an indication tone is played. The results indicates if the PR0 clips are connected to the same pair the ATV R/T is sending tone on. The results include OK, color reverse (reverse polarity), open (ring

and tip), tip open, and ring open. **Check PR** may also be displayed if the condition of the pair will not allow the system to determine the continuity status.

3. Correct any errors, if necessary, and press [F3] Pair Test to retest the pair.

9. Pair Identification Tips

The following information is provided to help make pair identification more productive.

9.1 Filtered Tone Probes

Tone probes that have a filter for 577Hz or 1004Hz tone are highly recommended for all tone operations. The time required to locate a pair can be reduced by 75% or more. The primary advantage is in the reduction of noise. Only the identification tone should be heard with the filter on. Many of these probes also have a gain control. This allows the user to turn the gain down to determine which of several pairs is the correct one.

9.2 Tone Probe Headset

A headset connected to the tone probe can be very helpful in noisy environments. Many probes have a connector to allow the user to connect a headset or earpiece directly to the amplifier probe.

9.3 Bonds and Grounds

Most identification procedures will benefit by keeping the bonds and grounds in place. The noise will be reduced making it easier to hear the identification tone.

- Simplex tone, Tip Ground, Ring Ground tone, and Tri-Plex tone all send tone referenced to ground. These tone modes will be harder to identify if the ground or bonds are missing.
- Ensure the bonds are maintained in open cases when working in more than one location at the same time. This helps ensure that all locations have the ground reference needed to identify the tone.
- Tying some of the vacant pairs to sheath/ground can help resolve problems when the sheath continuity and grounding are poor or suspected to be a problem.

9.4 Working pairs

- Simplex tone is the best to use on working pairs. The tone is balanced Ring to Ground and Tip to Ground. This is also called quiet tone as the tone is typically not heard or very low. This tone mode will cause the least disturbance on the pair.
- It is imperative to maintain all grounds and bonds to reduce adding disturbances on working pairs.
- Use the Verify function on working pairs instead of shorting or grounding pairs to confirm the pair when using remote tone. This will minimize disturbances on the pair.

9.5 Cross-Coupled Tone

Cross-coupled tone can make it difficult to identify a pair using tone sources. This can occur when the cable is wet or if there are problems with grounds and bonds.

- The tone may be easier to detect using Tip to Ring (metallic) tone.

- The ATV-25 and ATV R/T have a tone mode called Tri-Plex. This tone method is designed to minimize the amount of tone coupled to adjacent pairs. The tone probe will have to be very close or touching the pair when using Tri-Plex.
- Cross-coupled tone can sometimes be reduced by tying vacant pairs in the cable to the sheath/ground. This increases the grounding and dissipates some of the coupling.

10. Troubleshooting

10.1 Searching for Remote Message

The ATV-25 will display this message if it is unable to detect the ATV R/T on the communications pair. The likely problems are:

- The AUX cord clips are not properly connected to the communication pair. Recheck the connection.
- The AUX cord is not connected to the correct pair. Use an amplifier probe and locate the correct pair.
- The AUX cord on the ATV-25 is not plugged into the AUX jack. Check the connection and correct it if necessary.
- The ground between the ATV-25 and the ATV R/T must be connected. The ground is not present or not adequate. Check the ground connection at the ATV-25 and ensure it is connected to the cable sheath. The ground connection may be faulty at the ATV R/T if no problems are found at the ATV-25.
- The ATV R/T power has been disconnected or the power switch is turned off. Check the ATV R/T and correct the problem.

10.2 Multiple Pairs Found When Tagging

The following conditions may cause the Tagging function to report multiple pair finds.

- Four wire circuits can be electrically identical at the central office and other locations. The Tagger function may report two pairs in this case. It is necessary to remove the protector at the office or separate the two pair by other means to identify the correct pair.
- Shorts with adjacent pairs may cause the Tagger function to report multiple pairs. Using the Remote Tone function will allow sending tone on specific pairs and then using the Verify function or grounding/shorting the pair for confirmation.
- Missing grounds/bonds may prevent the proper operation of the Tagger and Verify functions. This causes problems in sending/receiving tone. Restoration of the grounds/bonds is recommended. Using the Remote Tone function and the TR or TriPlex tone modes is recommended if the grounds/bonds cannot be restored.

10.3 No Pairs are Found Using the Tagger Function

The following conditions may result in problems finding pairs using the Tagger function.

- The PR0 cord may be defective. Try using a different cord.
- The ground connection at the ATV-25 or the ATV R/T may be poor. The display of Searching for Remote indicates the ground between the two units is unacceptable for

control communications. This ground may not be adequate for proper tagging.

Improve the grounds/bonds and retest or use the Remote Tone function if the grounds cannot be restored.

- Cable pair defects may make prevent the Tagging function from working properly. This is usually only for a few pairs but can affect all pairs in some cases. Use the Remote Tone function.
- The ATV R/T may not be connected to the pairs being tagged. The ATV R/T allows modules to be disabled. Ensure the modules that are connected to the cable pairs at the ATV R/T are enabled. Press the [RMT] key on the ATV-25 to see the current settings.
- The ATV R/T may be connected to a different pair group. Use the Remote Tone function to identify the pair group connected to the ATV R/T.
- The ground used for the communications pair and the ground for the pairs being tagged are not connected together. This can happened if the communication pair is in a different cable from the pairs being tagged. Ensure that the sheath of both cables are bonded together.

10.4 Remote Tone is Not Present or Very Low

The Remote Tone transmission level is at 14Vpeak to peak. This tone is sufficient for most tone operations. The amplitude of the tone is affected by the length of the cable pairs, pair defects, pair gauge, condition of the grounds/bonds, and condition of the connection of the pairs to the ATV R/T.

- Check a different pair. Tone may not be heard if the connection to the pair at the ATV R/T is poor or the pair is defective.
- Try a different mode. Simplex, RG, and TG modes are referenced to ground and the tone may not be heard if the grounds/bonds are defective. TR and TriPlex tone modes have metallic tone and may be a better choice when grounding issues exist.
- Try a different frequency. Some probes are tuned to 577Hz, 1004Hz or other frequencies. The ATV R/T can transmit 577Hz and 1004Hz. Changing the frequency may make the tone audible.
- Changing the probe or the probe battery can also solve problems with picking up tone.

11. Support

Current information on the ATV R/T is available on the company website at www.aalogic.com. Additional support may be obtained by contacting you local sales representative or the manufacturer.

Replacement cords and power supplies are available for the ATV R/T. Contact your local sales representative or the manufacturer for availability and cost of these items.

12. Warranty

The ATV R/T is warranted against defects in materials and workmanship for a period of one year from the date of purchase. Contact your local sales representative or the manufacturer for a Return Authorization (RA) number and instructions on returning the product for service. Products cannot be processed unless accompanied by an RA number.

The user is responsible for determining the applicability of the product for any application. The manufacturer is not responsible for any damages, direct or consequential, resulting from the use of its products.

Users are required to follow all work safety procedures when using this product.

The manufacturer will determine, exclusively at its own discretion, where repairs or replacement of the product is required for any warranty claim. In no case will the liability of the manufacturer exceed the original purchase price of the product.

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