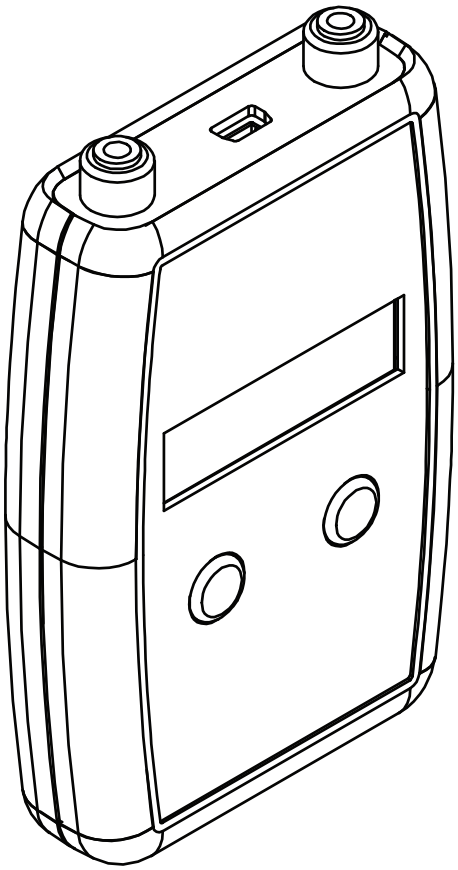
ACS

ALCOHOL COUNTERMEASURE SYSTEMS



AUTOMOTIVE
DIAGNOSTIC TOOL

Instruction Manual

IMPORTANT SAFETY INFORMATION – READ FIRST

⚠ *WARNING!*

- This manual is intended for authorized service technicians only
- Read the entire manual before operating the Automotive Diagnostic Tool
- Failure to follow safety instructions can result in damage to the device and personal injury
- Do not attempt to measure amperage or AC voltage
- Before testing any wires, it is important to ground the device to avoid sustaining electrical shock. To ground the device, insert the **black alligator grounding clamp** into black receptor on diagnostic tool, then connect the clamp to ground source
- Do not attempt to measure voltage that may be over +50V DC
- Keep device wires away from vehicle components that move or that become excessively hot

Contents

Introduction

The Automotive Diagnostic Tool can be used during the installation of an alcohol interlock to determine the function (power, ignition, start) of the wires in the vehicle main harness, measure tach signal or locate the best position for the Digital Tach Sensor (DTS), or simulate a tach signal to perform tests when an alcohol interlock registers a “Tach Fault”.

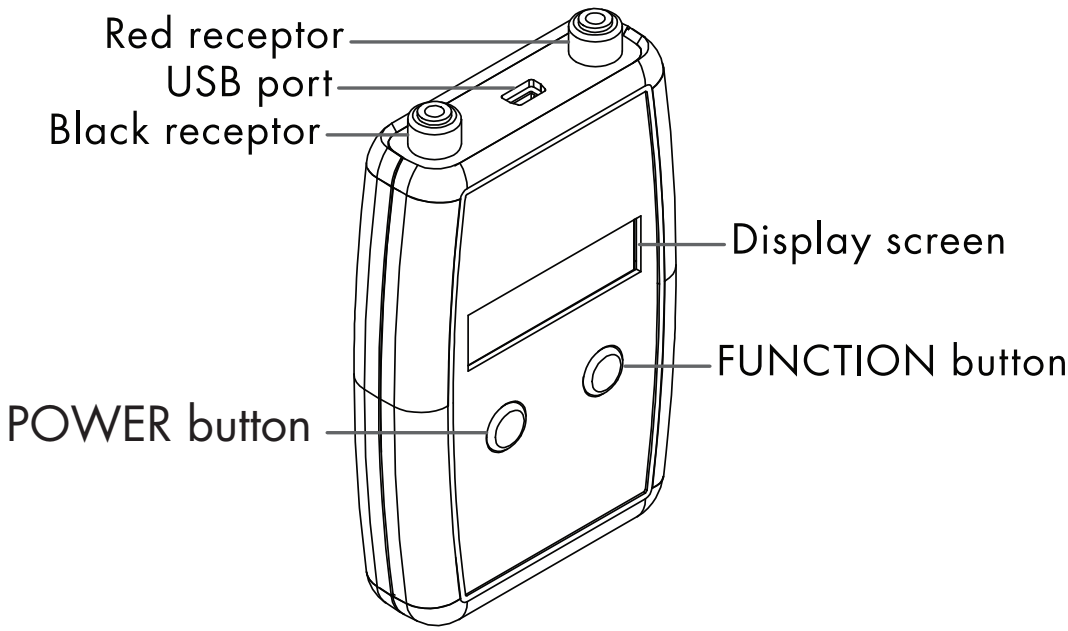
Contact information

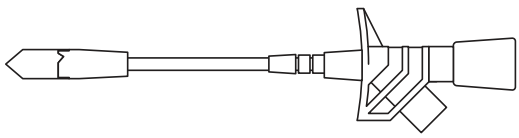
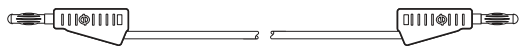
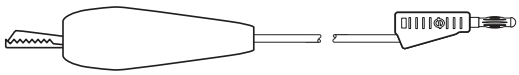
For assistance, contact your jurisdictional program manager.

Alcohol Countermeasure Systems Corp
60 International Boulevard
Toronto, Ontario M9W 6J2 CANADA
info@acs-corp.com
acs-corp.com

Parts included

Automotive Diagnostic Tool
79-008867



Red multimeter probe 22-000827	**Red test lead** 27-000144
	
Black alligator grounding clamp 13-001122	**Tach sensor** 79-007855
	

Device function

Basic function

- To turn on the device, press and hold the **POWER** (left) button for three seconds
- When on, pressing the **POWER** button without holding will turn a back light on/off
- Use the **FUNCTION** (right) button to scroll to the desired function
- To turn off, press and hold the **POWER** button for three seconds

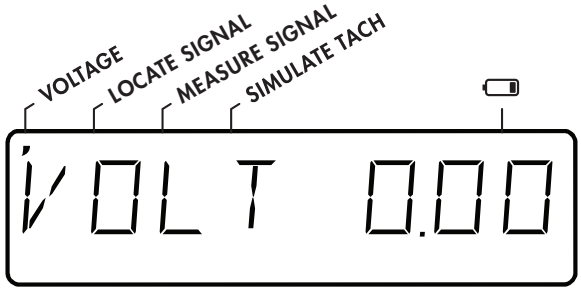
> ***NOTE:***
>
> The device has an auto-off feature that will shut it down after it has been left idle for five minutes.

Device function cont'd

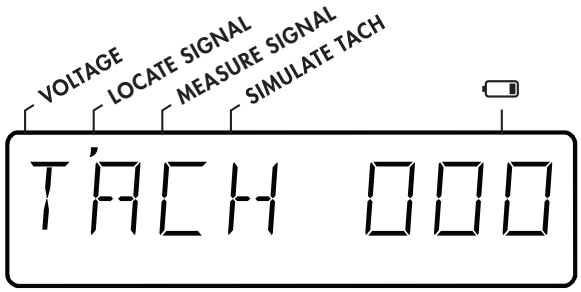
Display

Functions

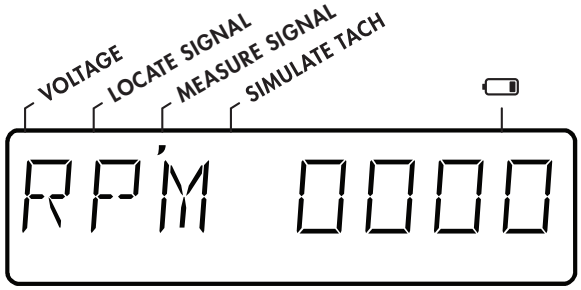
Functions are shown on the display with text and comma indicators that line up with function names on the label:



VOLTAGE
Indicated by VOLT X.XX and comma position 1

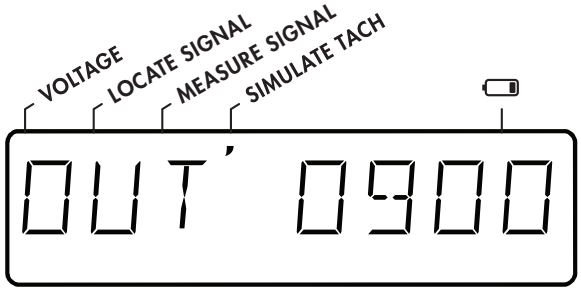


LOCATE SIGNAL
Indicated by TACH XXX and comma position 2



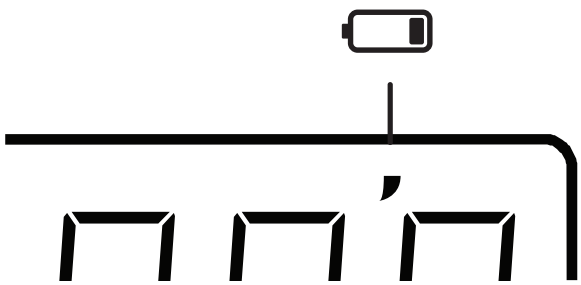
MEASURE SIGNAL
Indicated by RPM XXXX and comma position 3

Device function cont'd



SIMULATE TACH
Indicated by OUT 0900 or OUT 2250 and comma position 4

Other indicators



Indicates low battery

Batteries

The device takes two AA, 1.5V alkaline batteries.

Testing vehicle wire voltage

⚠ *WARNING!*

Before performing any test, it is important to ground the device to avoid sustaining electrical shock. To ground the device, insert the **black alligator grounding clamp** into the black receptor on the diagnostic tool, then connect the clamp to a ground source.

1. Turn on the device and press the **FUNCTION** button until reaching the **VOLTAGE** function, indicated on the display by “VOLT 0.00” and comma position 1.

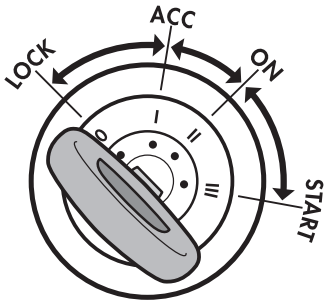
2. Connect the **red multimeter probe** to the device via the red test lead. Press the base of the probe to expose contact. Insert the wire to be tested against the exposed contact and release the base. This should pinch the wire.

🗎 *NOTE:*

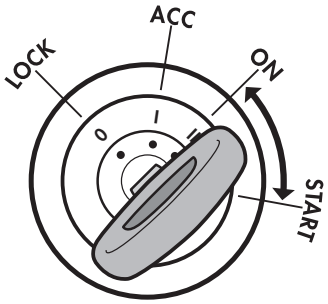
It is important to make sure the probe has sufficiently pinched the wire in order to get a reading. If voltage is not displayed on the device, wiggle the probe or attempt pinch again.

Determining vehicle wire function

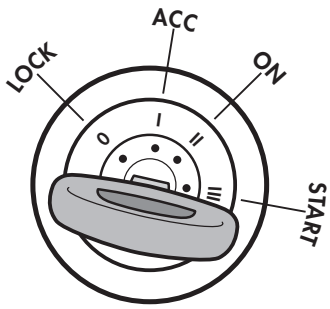
In the vehicle main wire harness, individual wire function may be determined based on the following readings:



The POWER wire (continuous un-switched source wire) will register at approximately +12 or +24 volts in any key position



The IGNITION wire (non-continuous switched source wire) will register at approximately +12 or +24 volts only when the key is in the “ON” and “START” positions



The START wire will register at +12 or +24 volts only when the key is in the “START” position

The ground wire will not register any voltage under any circumstances

Locating tach signal on alternator

If a tach signal wire cannot be found or the signal is weak, it may be necessary to determine the best location to fasten the permanent Digital Tach Sensor (DTS) on the alternator:

1. Turn on the device and press the **FUNCTION** button until reaching the **LOCATE SIGNAL** function, indicated on the display by “TACH 000” and comma position 2.

2. Insert the tach sensor into the USB port on top of the device.

3. Place the tach sensor on the top of the alternator to determine where the strongest signal is and move the sensor around if it is still showing a weak or no signal at all. This will be the point that the permanent DTS needs to be fastened.

Measuring tach signal from vehicle wire

⚠ *WARNING!*

Before performing any test, it is important to ground the device to avoid sustaining electrical shock. To ground the device, insert the **black alligator grounding clamp** into black receptor on diagnostic tool, then connect the clamp to ground source.

To determine if there is a good signal from the tach signal wire, perform the following steps:

1. Turn on the handset and press the **FUNCTION** button until reaching the **MEASURE TACH** function, indicated on the display by “RPM 000” and comma in position 3.

2. Connect the **red multimeter probe** to the red receptor on the device.

3. With the vehicle running, pinch the tach wire with the **red multimeter probe.**

4. The tach reading will be given on the display. (Make sure to rev engine over 1000 RPM to see if tach signal is rising and signal does not drop or disappear.)

Simulating tach signal

In the case that the alcohol interlock registers a “Tach Fault”, the Automotive Diagnostic Tool can be used to provide a simulated tach signal to the alcohol interlock ECU. This can help determine if the problem is with the alcohol interlock itself or with the vehicle’s tach signal (either in the wiring or the DTS).

⚠ *WARNING!*

Before performing any test, it is important to ground the device to avoid sustaining electrical shock. To ground the device, insert the **black alligator grounding clamp** into black receptor on diagnostic tool, then connect the clamp to ground source.

1. Turn on the device and press the **FUNCTION** button until “OUT 0900” or “OUT 2250” appears on display (comma position 4).

2. OUT 0900 simulates a tach signal as if the engine was idling. OUT 2250 simulates a tach signal as if the engine was revving. To switch between the two, press the **POWER** button while in this mode.

3. Cut the tach signal wire and connect red multimeter probe to wire leading to alcohol interlock ECU.

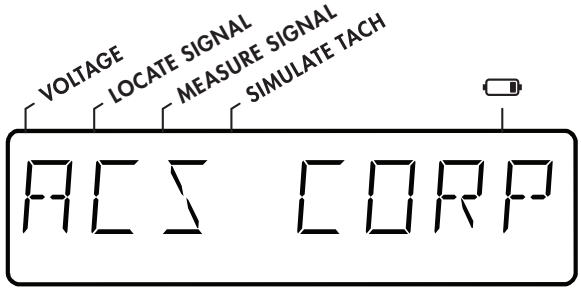
⚠ *CAUTION!*

Do not use this function with the alcohol interlock ECU still connected to a vehicle tach source. This may result in damage to the device.

4. If the alcohol interlock registers the simulated tach signal, the problem is with the vehicle's tach signal. If the alcohol interlock does not register the simulated tach signal, the problem is with the ECU.

Troubleshooting

The "ACS CORP" message may flash on the display as a result of excessive EMI. Move the device out of direct contact with sources of EMI (e.g., spark plug / ignition coil wires), and wait for the screen to return to normal.



If the Automotive Diagnostic Tool is malfunctioning, send back to ACS for maintenance or replacement.

Replacement parts

To order a new device or replacement parts, contact ACS and refer to the appropriate part number(s) below:

Part name	Part number
Automotive Diagnostic Tool	79-008867
Red multimeter probe	22-000827
Red test lead	27-000144
Black alligator grounding clamp	13-001122
Tach sensor assembly with mini USB connector	79-007855

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ALCOHOL COUNTERMEASURE SYSTEMS

IRM-ENG-60-000196-B