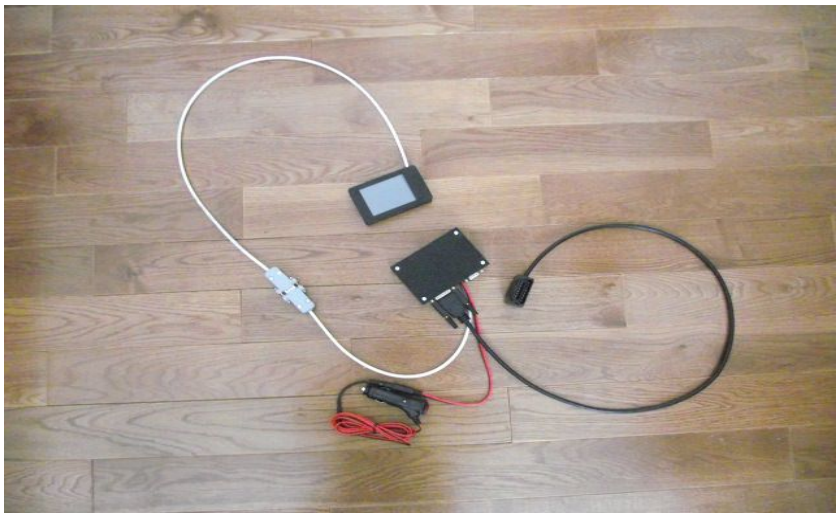
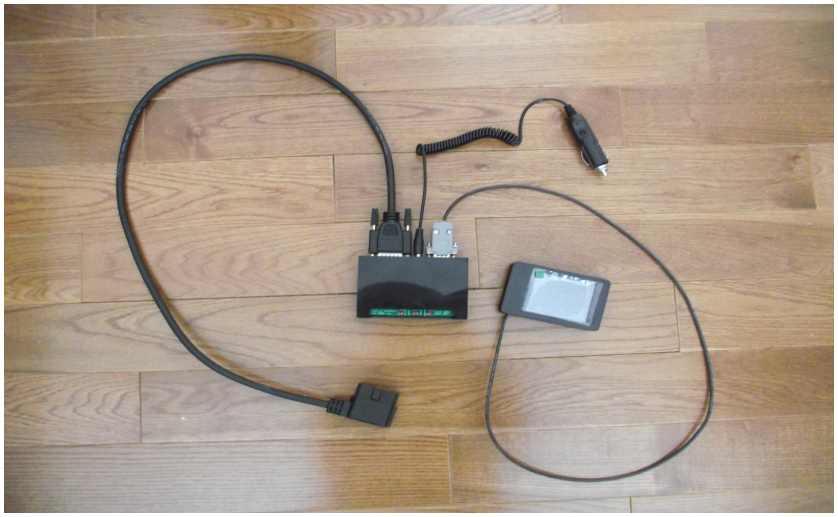
Touchscreen scantool for Mitsubishi 3000GT / GTO / Dodge Stealth

The scantool has come in three variations as seen here.





What is it and what can it do?

It's a device that can communicate with all eight computers found on our 3S vehicles, and works with all year models (1991-1999). It's designed to work with OBD1 cars (1991-1993), and OBD2/MUT cars (1994-1999), just a different cable is required to be hooked up depending on the car you want to communicate with. If your car has been modified with a Jester ECU or Chrome ECU, it is supported as well.

A list of computers that it can communicate to are as follows: Engine, Automatic Transmission, SRS (Airbag), ABS, Digital/Automatic Climate Control, Electronic Control Suspension (ECS), ETACS, and Cruise Control.

This scantool was designed based on the interactions between the 3S vehicle and the factory Mitsubishi scantools (MUT2 and MUT3). In addition, some people have reversed engineered the factory engine ECU software and discovered fuel trims which are absent from the factory scantool, these extras have been added onto this device. If you have the factory service manual, you can use this scantool in place of the DRB2, MUT2 or MUT3 scantool. The procedures will stay the same, sometimes you may have to turn the ignition key off and moving the ignition key to the first position in order to communicate with various computers, or do a weird cruise control switch interaction before communicating with the cruise computer.

If you do not already have a hard copy of the factory service manual, I suggest downloading from here:

http://www.3sg.org/manuals

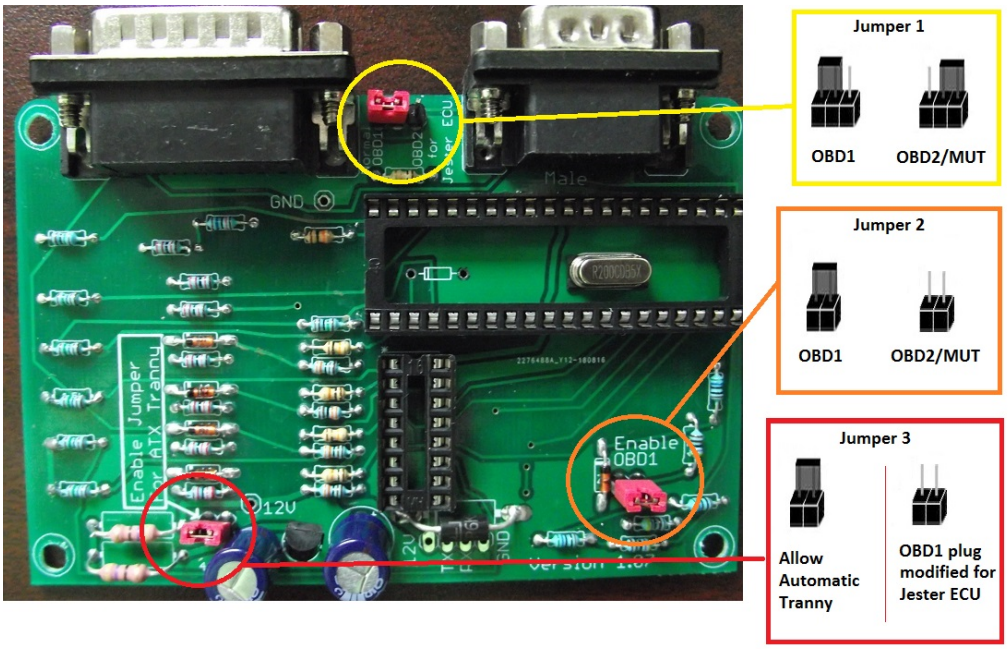
https://www.3sx.com/tech-manuals-service-technical-reference

http://www.ninjaperformance.com/service_manuals.php

http://my3kgt.insel.de/gt-files/techdocs/

Everytime you switch to a different car or switch cables, please revisit the jumper information and revisit the configuration menu for which engine ECU protocol to use.

Jumper Information



Depending on the scantool variation that you have, your jumpers are either are accessible externally, or internally.

Red jumpers are used here to make them more easily identifiable in this picture above.
You must verify all three jumpers are in the correct position if you make changes to your car (ie. Jester ECU/Chrome ECU), or changing cables (OBD1 vs OBD2/MUT).

Jumper 1: If your car engine ECU is OBD1 (91-93), place the jumper to the left as shown in the picture above. If your car engine ECU is OBD2 or M.U.T. (94-99) place the jumper to the right.

Jumper 2: If your car engine ECU is OBD1 (91-93), connect the two pins together with a jumper. If your car engine ECU is OBD2 or M.U.T. (94-99) remove the jumper.

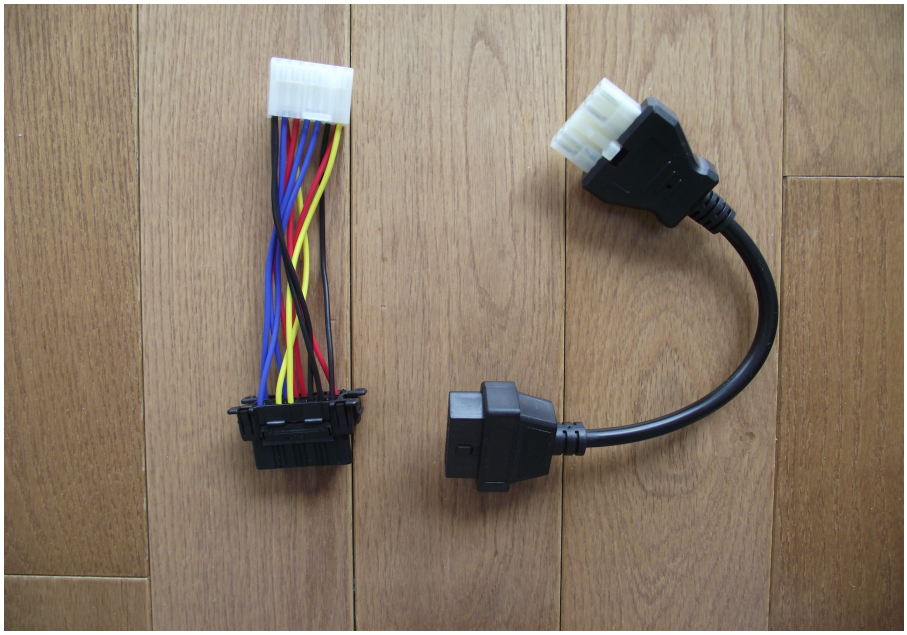
Jumper 3: If your OBD1 plug was modified for the Jester Chrome ECU, then remove this jumper. If your OBD1 plug is unmodified and you have an automatic transmission ECU, then connect the two pins together with a jumper.

Cables and adapters

If your car was originally equipped with a factory OBD1 port (12pin), and still uses the original engine ECU (1991-1993), the OBD1 cable will meet all your needs.

If your car was originally equipped with a factory OBD1 port (12pin), and now uses a Jester/Chrome engine ECU with modified OBD1 port, then the OBD1 cable will meet all your needs. The Jester/Chrome kit comes with a “OBD1 to OBD2 adapter”, do not use that, put it away, as it does not have all the necessary wires for communicating with other computers found on the car.

Below are pictures of OBD2 to OBD1 adapters that are used on more recent models. The multi-color adapter can do everything including Chrome support, and the solid black adapter does not support ETACS nor Chrome.



Cables and adapters continued...

If your car is equipped with a factory OBD2/MUT port (16 pin), this OBD2/MUT cable will meet all your needs.

Power requirement

Included is a cigarette power adapter with a DC jack. This needs to be plugged into a free cigarette power outlet on the car. Take note, some computers such as SRS ECU, Engine ECU require the ignition key to be in position 2, and some require you to start at position 1 (ie. 91-95 ABS ECU, AC Climate ECU, ETACS).

Fuse information

The cigarette power plug has a built in glass fuse rated at 3 Amps. You can use any between the sizes of 0.5 Amps to 3 Amps. To access the glass fuse, the tip needs to be rotated anti-clock wise direction.

Environment temperature requirement

Do not store the scantool in the vehicle and then immediately use on a hot summer day, or weather below freezing (32F or 0C). If the item is stored in a hot car, and you require to use it, allow the device to cool down and reach ambient temperature before use. If the device was stored in a freezing temperatures and you need to use, put the item a zip lock freezer bag and allow the device to reach ambient temperature. The purpose of the zip lock freezer bag is to prevent condensation from reaching the electronics while it warms up.

Digital Automatic Climate Control

Connecting requirements: If you're in ACC2 or ignition position 2 prior to navigating to the Climate Control Menu, you will be required to go back to ACC1 / ignition position 1. The diagnostic mode will be activated at ACC1, and when you move to ACC2 the climate control ECU will see this mode, and communicate with the scantool. An A/C HEX ID of 9000 or higher indicates you're connected, all zeros means no connection.

Sensors (with corresponding DTC Code for easier identification):

Room Sensor (Code 11) – interior temperature (sensor located on the ceiling near the back).

Air Inlet Sensor (Code 13) -- incoming air from outside.

A/M Damper (Code 31) – Blend air damper potentiometer input (0-100%). 0% = max cold, 100%=max hot.

Mode Damper (Code 32) – Mode selection damper potentiometer input (0-100%). Low value indicates face position. High value indicates DEF. Position.

Evaporator Sensor (Code 21) –also known as air thermal sensor.

Coolant (Code 15) – On older cars this is just an on / off coolant switch. Newer vehicles indicates actual coolant temperature.

Photo Sensor (Code 25) – 0 mv when it's dark, or something is covering the dash photo sensor. Voltage climbs higher is the brightness increases.

Diagnostic Tests:

Test Fan Off – air flow off.
Test Fan Low – air flow is set low speed.
Test Fan Medium – air flow is set to medium speed.
Test Fan High – air flow is set to maximum speed.
A/M Test 0% -- max cool temperature setting.
A/M Test 50% -- mid range temperature setting.
A/M Test 100% -- max heat temperature settings.
Blow on Face – change air flow position to face.
Blow on Feet – change air flow position to feet.
Defroster – activate Defroster mode.
A/C Clutch off – turn off air conditioning.
A/C Clutch on – turn on air conditioning.
Fresh air in – adjust air flow mode to outside air.
Recirculate air – adjust air flow mode to recirculate interior air.

Scan DTC codes:

Code 11: Interior temperature sensor circuit is open (unconnected).
Code 12: Interior temperature sensor circuit is shorted.
Code 13: Air Inlet sensor circuit is open (unconnected).
Code 14: Air Inlet sensor circuit is shorted.
Code 21: Air temperature sensor is open (unconnected).
Code 22: Air temperature sensor is shorted.
Code 31: Blended air damper potentiometer circuit indicates short or open.
Code 32: Mode selection damper potentiometer circuit indicates short or open.
Code 41: Blend air damper motor is defective.
Code 42: Mode selection damper motor is defective.

Clear DTC codes:

Codes can be cleared, if they reappear again, then the original problem still exists.

Automatic Transmission ELC-4A/T

Connecting: If the HEX ID is all zeros, then you're not connected, or the ATX jumper is not shorted (enabled). By default, the ATX jumper is off (not shorted), and is attached to just one pin. The reason this is off by default is because the Jester ECU modification for 1st generation vehicles uses the ATX OBD1 pin for 12 volts. The HEX ID is generally F004, or F025 (1998+).

Sensors:

PG-A (r/min) – Pulse Generator A.

PG-B (r/min) – Pulse Generator B.

Ignition signal – Revolutions per minute.

Speed sensor (Code 38) – vehicle speed.

DCCSV duty cycle (Code 49) -- Torque converter clutch

Throttle position sensor (Code 11) – TPS sensor in millivolts.

FLD temperature sensor – fluid / oil temperature.

Inhibitor switch – Park/Neutral, Reverse, Drive, Gear 2, Gear 1 (Low).

Overdrive switch – ON or OFF.

A/C Relay (Code 26) – ON or OFF.

Accelerator switch (Code 24) – ON or OFF.

K/D Servo switch – Kickdown servo switch

Idle position switch – ON or OFF.

Shift position (Code 27) -- Gear position1,2,3,4.

PCSV – Pressure control solenoid valve

DCCSV (r/min) (Code 47) – Torque converter clutch

P/E/Hold switch – Power / Economy / Hold Switch.

Diagnostic Test

Test PCSV – Activate Pressure Control Solenoid Valve Actuator

Scan DTC

Code 11: TPS is shorted
Code 12: TPS is open
Code 13: Improperly adjusted or defective TPS.
Code 14: Improperly adjusted TPS.
Code 15: Oil temperature sensor is open.
Code 16: Oil temperature sensor is short.
Code 17: Oil temperature sensor TM. Fail.
Code 21: Kickdown servo switch open.
Code 22: Kickdown servo switch short.
Code 23: Ignition pulse pickup cable is open.
Code 31: Pulse Generator A is open.
Code 32: Pulse Generator B is open.
Code 41: Shift control solenoid valve A is open.
Code 42: Shift control solenoid valve A is short.
Code 43: Shift control solenoid valve B is open.
Code 44: Shift control solenoid valve B is short.
Code 45: Pressure control solenoid valve is open.
Code 46: Pressure control solenoid valve is short.
Code 47: Torque converter clutch solenoid is open.
Code 48: Torque converter clutch solenoid is short.
Code 49: Torque converter clutch system is defective
Code 51: 1st gear ratio incorrect
Code 52: 2nd gear ratio incorrect
Code 53: 3rd gear ratio incorrect
Code 54: 4th gear ratio incorrect
Code 61: Torque reduction request line is short or open.
Code 62: Torque reduction request line is open.
Code 63: Torque reduction request line is short.

DTC (with associated Fail safe modes)

Code 81: Pulse generator A is open. (Fail-safe 3rd gear or 2nd gear or low gear)
Code 82: Pulse generator B is open. (Fail-safe 3rd gear or 2nd gear or low gear)
Code 83: Shift control solenoid valve A is open or short. (Fail-safe 3rd gear)
Code 84: Shift control solenoid valve B is open or short. (Fail-safe 3rd gear)
Code 85: Pressure control solenoid valve is open or short. (Fail-safe 3rd gear, or 2nd gear or low gear)
Code 86: Gear ratio is incorrect. (Fail-safe 3rd gear, or 2nd gear or low gear)

Clear DTC

Codes can be cleared, if they reappear again, then the original problem still exists.

Electronically Controlled Suspension

Connecting: No special requirement, powers up on ACC2 (ignition position 2). Communication speed is very slow and sluggish compared to the Engine ECU. If your HEX ID is all zeros, then you're not connected. A HEX ID of C003 is what you should expect when you connect successfully.

Sensors:

Steering angular velocity sensor 1: ON or OFF.
Steering angular velocity sensor 2: ON or OFF.

Turning steering wheel counterclockwise will produce this result:
Sensor 1: ON, ON, OFF, OFF
Sensor 2: ON, OFF, OFF, ON

Turning steering wheel clockwise will produce this result:
Sensor 1: ON, OFF, OFF, ON
Sensor 2: ON, ON, OFF, OFF

Speed sensors: reports vehicle speed from 0 mph to 87 mph, in increments of 6 mph.

G sensor: 0 to 5000 millivolts
Vehicle stationary: 2000 to 3000 millivolts
A voltage under 500 millivolts, or above 4500 millivolts is considered as defective sensor.

Throttle Position Sensor: 0 to 5000 millivolts.

Stop lamp switch sensor: Activated or not activated. Use your brakes to test.

Front Left Shock: Soft / Medium / Hard actuator setting

Front Right Shock: Soft / Medium / Hard actuator setting

Rear Left Shock: Soft / Medium / Hard actuator setting

Rear Right Shock: Soft / Medium / Hard actuator setting

Diagnostic Test

Test Shock Soft Mode – Activate all actuators and put them into soft mode.

Test Shock Medium Mode – Activate all actuators and put them into medium mode.

Test Shock Hard Mode – Activate all actuators and put them into hard mode.

Scan DTC (Fail safe mode)

Code 11: G sensor is defective (bad road detection disabled)
Code 21: Steering angular velocity sensor circuit is open. (Anti-roll control disabled)
Code 24: Vehicle speed sensor circuit is open. (Shock absorbers default to medium)
Code 61: Front right actuator is defective. (Shock absorbers default to hard)
Code 62: Front left actuator is defective. (Shock absorbers default to hard)
Code 63: Rear right actuator is defective. (Shock absorbers default to hard)
Code 64: Rear left actuator is defective. (Shock absorbers default to hard)

Clear DTC

Codes can be cleared, if they reappear again, then the original problem still exists.

SRS (Air bag)

Connecting: depending on the year model of your vehicle, the communication speed will be either super slow or fast. A HEX ID of all zeros means you are not connected. A HEX ID of 7000 or higher is what you will generally see. Some year model vehicles have two air bags, and therefore additional DTC codes available.

There are no sensor data, just fault code duration. The 7000 model only has one trouble period, this stores how many minutes (9999, or 7 days) has elapsed since it stored the DTC code, or set off the air bag light. The 700D model has a second trouble period.

There is an EEPROM that stores how many times the DTC code has been erased. This shows up as "DTC Erased Times".

DTC code

Code 11: G-sensor trouble 1 – front impact sensors are shorted.
Code 12: G-sensor trouble 2 – one of the front impact sensors are open.
Code 13: G-sensor trouble 3 – both front impact sensors are open.
Code 21: SQUIB trouble 1 – driver's air bag (SQUIB) are shorted, or is grounded.
Code 22: SQUIB trouble 2 – driver's air bag (SQUIB) is open.
Code 24: SQUIB trouble 1 – passenger's air bag (SQUIB) are shorted, or is grounded.
Code 25: SQUIB trouble 2 – passenger's air bag (SQUIB) is open.
Code 31: Condenser Voltage High – Capacitor voltage is higher than expected.
Code 32: Condenser Voltage Low – Capacitor voltage is lower than expected.
Code 33: Cranking trouble – with 45 seconds of cranking, the SRS ECU circuit detects a fault, crank signal shorted to some power supply circuit.
Code 34: Connector Unlocked – the lock switch is left open.
Code 41: Ignition voltage low 1 – Multipurpose Fuse #18 is blown.
Code 42: Ignition voltage low 2 – Multipurpose Fuse #11 is blown.
Code 43: SRS Lamp trouble 1 – the SRS warning light are open (blown), or is shorted to ground.
Code 44: SRS Lamp trouble 2 – the SRS ECU light drive transistor is open.
Code 45: SRS Diagnostic unit – Bad EEPROM or A/D converter is defective inside SRS ECU.

Clear DTC

Each time you clear a DTC, the SRS ECU keeps track of this, and stores it inside the EEPROM.

ABS (1991-1995)

The early model ABS computers have a special requirement when connecting -- it must enter into ABS diagnostic mode with the ABS light lit up on the dash. If you don't have the ABS light on your dash, you will have to turn the ignition key to IGN1, select ABS menu on the scantool, and then turn the ignition key to IGN2.

Retrieving ABS error codes are extremely slow, it takes the ABS module several seconds to transmit wave forms, and these wave forms are then converted into ABS codes with their meaning.

Performing ABS tests take approximately 2 seconds to transmit the request. AWD cars do not have a “Rear Solenoid + Valve Test”, so do not be alarmed if nothing happens when you perform this test, as it is meant for FWD cars only.

ABS (1996-1999)

The engine ECU and ABS ECU share the same diagnostic bus, and therefore it is only possible to do one or the other. What this means is that the scantool will be unable to communicate with engine ECU while you're examining / monitoring the ABS. And when you exit the ABS menu, it will take 5 seconds to break communication from the ABS ECU, and another 2-3 seconds to establish a new connection to the engine ECU.

Cruise Control

1. Go to Cruise Control menu on scantool.
2. Turn ignition key to position Ignition2.
3. Main Cruise switch OFF (coin tray).
4. Hold steering wheel cruise switch in COAST/SET position (bottom).
5. Flip Main Cruise switch ON (coin tray) using other hand.
6. You now have less than 1 second to move the steering wheel cruise switch to ACC/RES position (top).
7. If you're unsuccessful, repeat steps 3-6. It takes me several attempts to get the cruise control module to go into diagnostic mode successfully.

There are no diagnostic menus to request and view information in real time like the other ECU modules found on our vehicles. Instead Mitsubishi engineers decided to output some wave forms that represents error diagnostic codes, and input checking codes. Error diagnostic codes always start with Code 1 in front, such as Code 11,12,15,16 and 17. Input checking codes start with Code 2 in front, such as 21, 22, 23, etc. Wave forms take several seconds to convey information, so be patient.

Error Diagnostic Codes:

Code 11: Vacuum pump assembly drive output system out of order.
Code 12: Vehicle speed signal system out of order.
Code 15: Control switch out of order – when SET or RESUME switch is kept on continuously for more than 60 seconds.
Code 16: Cruise control unit is broken.
Code 17: Throttle Position Sensor (TPS) or closed switch on TPS is out of order.

Input Checking Codes:

Code 21: SET switch activated
Code 22: RESUME switch activated
Code 23: Stop Light switch, brake pedal pressed.
Code 24: Vehicle speed more than 40 Km/h or 25 MPH.
Code 25: Vehicle speed less than 40 Km/h or 25 MPH.
Code 26: Clutch Pedal Switch activated for M/T. Park/Neutral position for A/T.
Code 27: CANCEL switch activated
Code 28: Throttle Position Sensor (TPS) voltage is 1.5V or more.
Code 29: TPS idle switch is OFF, accelerator pedal is depressed.

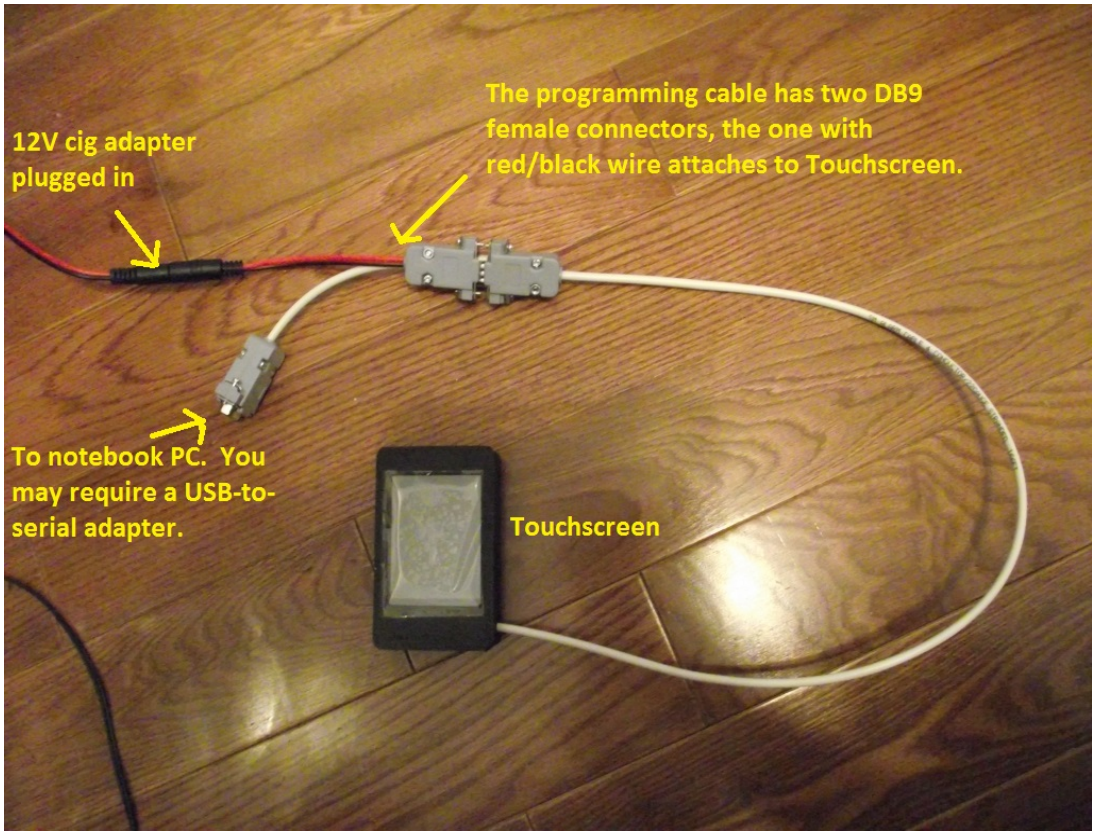
ETACS (Electronic Time and Alarm Control System)

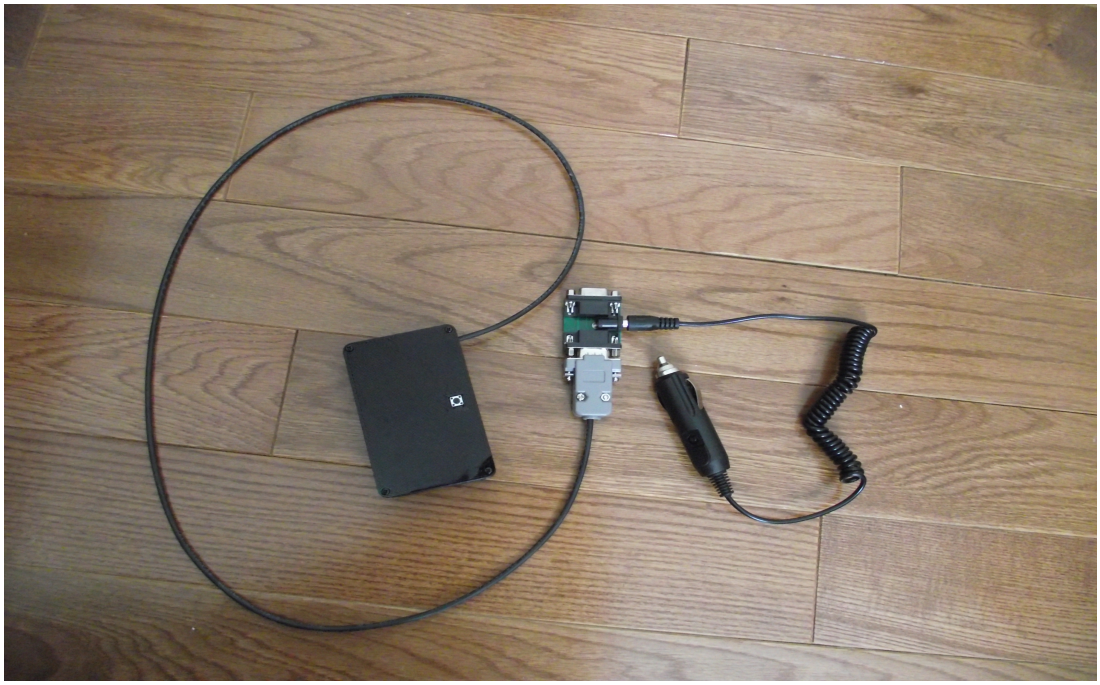
No codes, menus, or wave forms. Instead what you are observing most of the time is just a single pulse that goes from low to high briefly, the ETACS module is acknowledging that you pressed a button, such as the rear defroster, pop up headlight, etc.

ETACS checklist:
Ignition key positions : ACC, IGN1, IGN2
Rear Defroster switch
Pop-up headlights switch
Door switch
Door lock switch
Wiper Switch
Intermittent Wiper Delay
Washer switch fluid less than 0.6 seconds
Washer wiping 2-3 seconds if more than 0.6 seconds depressed
Prevent door lock, if key is left in ignition
Key Reminder

Dimming Lights (no indication)
Seat Belt warning (no indication)
Seat belt tension timer (no indication)

Software updates are available here:
http://lcdbc.xp3.biz
Only the first two scantool variations require the use of an adapter, hook up the adapter like in the photo below:





You will most likely require a USB-to-serial adapter if your notebook does not a have serial connector. On the back of the touchscreen scantool, you will find a black button, hold this button down during power up. If you did this successfully the screen will be white, and the unit is then waiting for a software update.

Follow the instructions contained the software update file to begin the update process.

The latest variation of the scantool now has a built-in USB-to-serial adapter inside and a USB-mini connector located on the side for software updates. The USB mini cable is not included, but you may already have one in your dash camera, camera, tablet or old cell phone.

If your PC does not have the USB340 driver already installed, do a google search for that, or use this link:

https://www.pcmatic.com/company/libraries/driver/detail.asp?driver=USB-SERIAL~CH340~(COM3).html