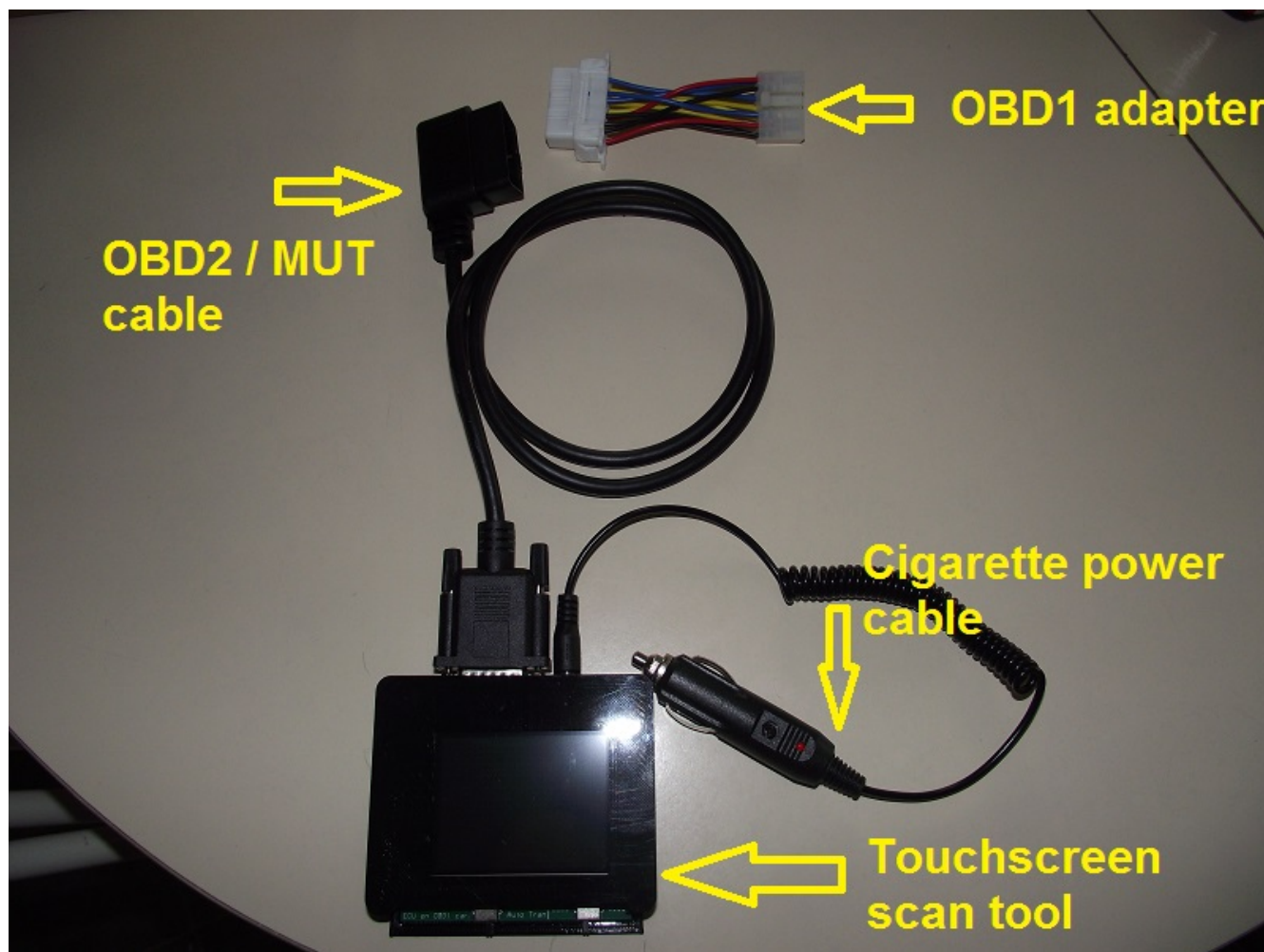


## **Touchscreen Scan tool for Mitsubishi 3000GT / GTO / Dodge Stealth.**



### **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 scan tool was designed based on the interactions between the 3S vehicle and the factory Mitsubishi scan tools (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 scan tool, these extras have been added onto this device. If you have the factory service manual, you can use this

scan tool in place of the DRB2, MUT2 or MUT3 scan tool. 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>

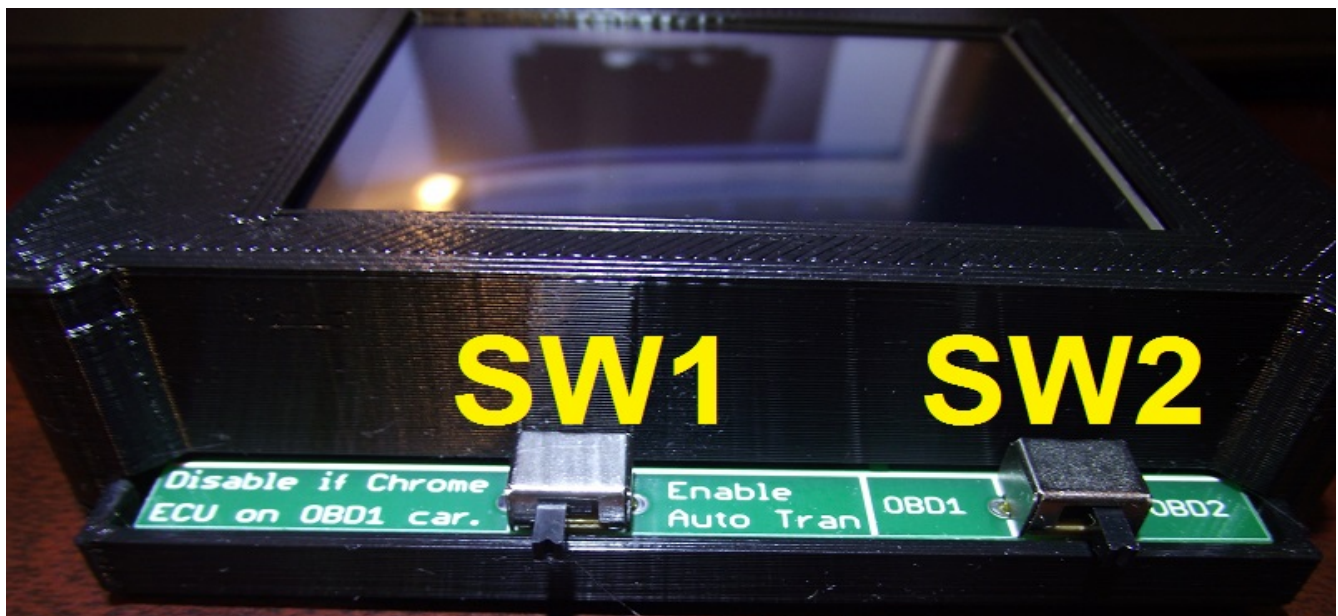
<https://www.3sx.com/tech-manuals-service-technical-reference>

[http://www.ninjaperformance.com/service\\_manuals.php](http://www.ninjaperformance.com/service_manuals.php)

<http://my3kgt.inse1.de/gt-files/techdocs/>

## **SWITCHES – FOUND ON OLDER MODELS ONLY.**

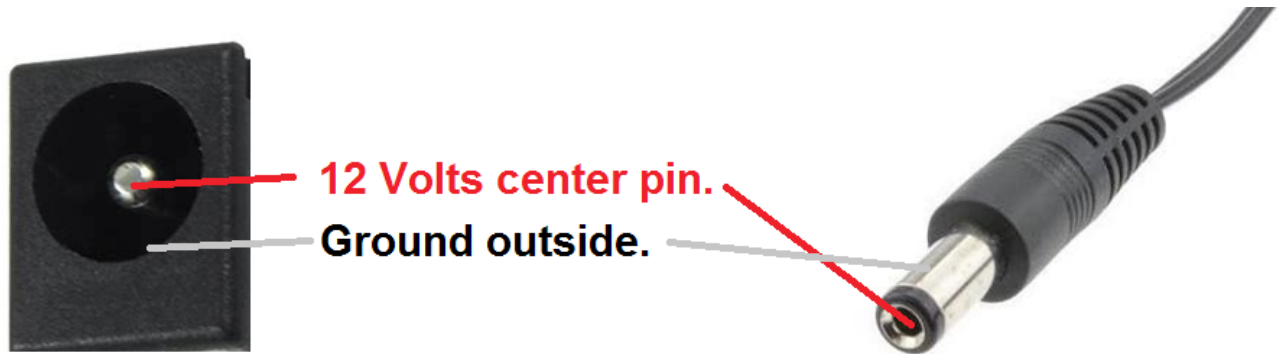
The latest version has no switches, it uses relays inside to do this automatic change over for you, lucky you! For those with older models, this section is for you.



Whenever you switch from an OBD1 car (1991-1993) to OBD2/MUT car (1994-1999) you will have to move the switch (SW2) to the corresponding type. The software will remind you to adjust this switch when connecting to the engine ECU.

A special note for OBD1 cars equipped with Jester / Chrome engine ECU (ie. A flashable 1998-1999 ECU). These type of cars typically have their OBD1 datalink connector modified and have repurposed the communication pin reserved for automatic transmission ECU, and this causes a conflict. To solve this problem, move the SW1 switch to the left position to disable communication to the automatic transmission ECU. Also these cars no longer communicate as OBD1, and the switch SW2 should be moved to the right position (OBD2).

## 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. Note some cars the cigarette power outlet may have corroded slightly and are not provided enough current and voltage to operate the device correctly. If you decide to use a different method to power up, make sure it has the center pin that provides 12 volts DC (not AC). If the voltage is under 12 volts DC, you may experience trouble communicating with the OBD2/MUT engine ECU, and ABS ECU. If using a battery bank outside from your vehicle, be sure to connect the ground to the vehicle ground, otherwise it won't work correctly. The DC jack specification (size) is 2.1mm x 5.5mm. It's best to have the power jack inserted into the touchscreen scan tool **BEFORE** plugging in the power, because if you insert sloppily the built-in fuse inside the cigarette plug will burn up. There is reverse voltage protection built into the scan tool, but it only works when no OBD1/OBD2 cable is attached to the vehicle. So if you're using your own power source and uncertain about the voltage polarity, disconnect the OBD cable from the scan tool and try it out. If you plan to update the software on the scan tool and looking to use your own DC Jack power temporarily, then 7V DC to 16V DC will work for this purpose.

## 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 scan tool 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.

## Engine Computer ECU

Connecting requirements: Turn ignition key to ACC2 or ignition position 2 to power on the engine computer module. Choose OBD1 protocol if your vehicle has a 12pin communication port (found on 1991-1993 Dodge Stealth / Mitsubishi 3000GT). If your vehicle has been upgraded with a Jester / Chrome ECU or flashable ECU then you need to choose the MUT protocol. Generally speaking, if your vehicle is 1994 and newer it will be the MUT protocol, however, 1996-1997 USA vehicles are an exception they only communicate in OBD2/MUT mode.

### Sensors and ECU data information:

Front O2 – A narrow band O2 sensor, normal values are between 0 and 1 volts, at idle the values should bounce up and down. A low voltage indicates a lean condition, and a high voltage indicates a richer condition with respect to a 14.7 AFR. Not equipped on some vehicles.

Rear O2 – A narrow band O2 sensor, normal values are between 0 and 1 volts, at idle the values should bounce up and down. A low voltage indicates a lean condition, and a high voltage indicates a richer condition with respect to a 14.7 AFR.

Fuel Trim – this value is constantly moving as it makes minor tweaks based on O2 sensor data. This information is not found on the factory scan tool, and may not be 100% accurate for your vehicle.

Fuel Low – a fuel trim that affects low airflow between 0 Hz and 94-106 Hz based on O2 sensor feedback. Any value above 100 means fuel is being added, and any value below 100 means fuel is being subtracted. On 1991-1993 ECUs, the fuel trim limits are 81 to 120, and 1994+ vehicles the limits are different, I believe they are 72 to 139. Any extreme limits could indicate a problem, such as an air intake leak, bad O2, or bad fuel pressure, bad tune, etc. A value of 104 is 4 above the normal, and represents 1% extra fuel. Also this information is not found on the factory scan tool, and may not be 100% accurate for your vehicle.

Fuel Middle - a fuel trim that affects middle airflow between 94-106 Hz and 170-182 Hz based on O2 sensor feedback. Any value above 100 means fuel is being added, and any value below 100 means fuel is being subtracted. On 1991-1993 ECUs, the fuel trim limits are 81 to 120, and 1994+ vehicles the limits are different, I believe they are 72 to 139. Any extreme limits could indicate a problem, such as an air intake leak, bad O2, or bad fuel pressure, bad tune, etc. A value of 96 is 4 below the normal, and represents 1% less fuel. Also this information is not found on the factory scan tool, and may not be 100% accurate for your vehicle.

Fuel High - a fuel trim that affects high airflow greater than 170-182 Hz on O2 sensor feedback. Any value above 100 means fuel is being added, and any value below 100 means fuel is being subtracted. On 1991-1993 ECUs, the fuel trim limits are 81 to 120, and 1994+ vehicles the limits are different, I believe they are 72 to 139. Any extreme limits could indicate a problem, such as an air intake leak, bad O2, or bad fuel pressure, bad tune, etc. A value of 92 is 8 below the normal, and represents 2% less fuel. Also this information is not found on the factory scan tool, and may not be 100% accurate for your vehicle.

Visit [www.stealth316.com/2-fueltrims.htm](http://www.stealth316.com/2-fueltrims.htm) to understand how the fuel trims are used during closed loop and full throttle operation.

Cat. Bnk1 O2 – Catalytic Converter Bank 1 O2 (narrow band) voltage, ranges between 0 and 1 volts.  
Cat. Bnk2 O2 – Catalytic Converter Bank 2 O2 (narrow band) voltage, ranges between 0 and 1 volts.  
Used to measure the efficiency of the catalytic converter only. There should be a small difference between the two O2 voltages to indicate a functioning converter.

Rear F. Trim – Rear Fuel Trim, not present on 1991-1993 vehicles. Uses the other O2 sensor for controlling a separate fuel trim. Again this information is not found on the factory scan tool, and may not be 100% accurate for your vehicle.

Rear F. Low – Rear Fuel Low trim, operates similarly to the Fuel Low trim described earlier.

Rear F. Middle – Rear Fuel Middle trim, operates similarly to the Fuel Middle trim described earlier.

Rear F. High – Rear Fuel high trim, operates similarly to the Fuel High trim described earlier.

Throttle – Throttle Position Sensor reading from 0% to 100%. Generally if the TPS is below 10% it will trigger a bad TPS sensor warning by the computer. Typical values are 10-13% at idle. If the throttle cable is set too tight, the TPS value will be high at idle.

Airflow – airflow signal in Hz from the MAF, if you have a piggyback fuel controller added, it will often intercept this value and under report the numbers.

Coolant – engine coolant temperature reported to the engine ECU, not to be confused with dash coolant temperature which is a separate sensor. 91-93 and 94-99 cars have different sensors, be sure to correctly choose which sensor your car has in the config menu, as there are minor difference. Note a bad coolant temp sensor often gives a very cold reading, making it very difficult for the engine to start in warm weather.

Air Intake – air intake temperature reported inside the MAF.

Timing – engine timing as reported by the engine computer.

Engine RPMS – the engine speed measured in revolutions per minute, this can differ from the dash.

Knock sum – the amount of knock counts during a short interval – the engine knock sensor and fuel octane directly influence this number. A higher value is bad. Generally any value above 8, the engine timing will be reduced. A defective knock sensor sends a repeated pattern of 5,6,7,8, 5,6,7,8 ...

Peak Knock – the knock sum event can be missed, so the peak knock just keeps the highest reading stored for you to view.

Inj Bank – Fuel injector pulse, measured in milliseconds.

Inj Bank1 – Fuel injector pulse on bank 1, measured in milliseconds.

Injector DC – Injector duty cycle, valid range is between 0 and 100%. This value is calculated based on engine RPM and injector duty cycle and may not be entirely accurate because of data latency, but nevertheless it gives you an idea of you're maxing out your injector or not.

Battery – the voltage estimated at the battery, it tends to be 0.5 volts higher than what is measured at the engine ECU voltage.

ECU – the voltage reported at the engine ECU.

Baro – barometer sensor reading from the MAF sensor.

IAC position – Idle Air stepper motor position steps.

Car Speed – the vehicle speed, note this is not supported on 1991-1997 3S vehicles.

Engine Load – the higher the engine load, the harder the engine is working.

Idle Switch – Idle switch is either on or off. If the throttle cable is not correctly tighten, the car will buck at low throttle input. When the idle switch is activated, the engine ECU will attempt to idle the engine so it will not stall out.

Engine ECUID: a hexadecimal representation of your engine ECU ID. This information can be used by the programmer to support other Mitsubishi vehicles by plugging this information into a real factory scan tool.

The following data below are different between Mitsubishi vehicles, this is where the ECUID comes in handy. The Dodge Stealth ES/ RT/ RT TT, Mitsubishi 3000GT SL VR4 are supported.

Crank signal – when the crank angle sensor detects TDC, it will be indicated here.

Park/Neut. SW – Park / Neutral switch on automatic transmissions.

Power Str. SW – Power steering switch.

A/C Switch – Air Conditioning Switch.

A/C Relay – Air Conditioning Relay.

IGN. Adj. Sig. - Ignition Adjustment Signal – used to set idle.

MAF Reset – Mass Air Flow signal reset.

Elec. Load SW – Electrical Load Switch – activates during heavy electrical demands

Exhaust SW – Exhaust toggle switch status.

Tank – Fuel tank pressure sensor (on 1998+ vehicles).

MDP – Manifold pressure sensor (on 1996+ vehicles).

VICS steps – only on DOHC non-turbo vehicles.

EGR Temp – only on California specification vehicles.

### **Diagnostic Tests:**

Test Fuel Pump – turns on fuel pump for 5 seconds.

Test EGR Solenoid – activates EGR solenoid (California models)

Purge Solenoid – activates Purge solenoid

Turbo WG Solenoid – activates turbocharger wastegate solenoid

VICS Motor – activates non-turbo DOHC VICS (air intake motor)

Fuel Press. Soln. - activates fuel pressure solenoid.

Test Injector 1 – disables fuel injector 1 for 5 seconds. You should see the RPMS drop slightly at idle.



Test Injector 2 - disables fuel injector 2 for 5 seconds. You should see the RPMS drop slightly at idle.  
Test Injector 3 - disables fuel injector 3 for 5 seconds. You should see the RPMS drop slightly at idle.  
Test Injector 4 - disables fuel injector 4 for 5 seconds. You should see the RPMS drop slightly at idle.  
Test Injector 5 - disables fuel injector 5 for 5 seconds. You should see the RPMS drop slightly at idle.  
Test Injector 6 - disables fuel injector 6 for 5 seconds. You should see the RPMS drop slightly at idle.  
Test Exhaust Mode – on turbo models the rear exhaust valve should operate between sport / cruise.  
Set Timing 10.5 – used for setting engine idle, ignition timing is set to 10.5 degrees.  
Rad. Fan High – only 1994+ models, this activates the radiator fan into high mode.  
Rad. Fan Low - only 1994+ models, this activates the radiator fan into low mode.  
F/P Speed Change – only on turbo models, switches the fuel pump low voltage / high voltage

### **Scan DTC Codes**

Choose the engine ECU model in your car.

91-95 DTC SCAN

96-99 USA Scan

96-99 Euro/Jap Scan

### **Clear DTC Codes**

1996-1999 USA cars should choose OBD2 car. 1996-1999 non-USA cars such as Euro and Jap cars that has no OBD2 support should choose non-OBD2 car. 1991-1995 cars by default should also pick non-OBD2 car.

Non-OBD2 car

OBD2 car

## **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 scan tool. 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 as 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 SW1 is not in the left position (enabled). 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 position 1,2,3,4.

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: 1<sup>st</sup> gear ratio incorrect  
Code 52: 2<sup>nd</sup> gear ratio incorrect  
Code 53: 3<sup>rd</sup> gear ratio incorrect  
Code 54: 4<sup>th</sup> 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 3<sup>rd</sup> gear or 2<sup>nd</sup> gear or low gear)  
Code 82: Pulse generator B is open. (Fail-safe 3<sup>rd</sup> gear or 2<sup>nd</sup> gear or low gear)  
Code 83: Shift control solenoid valve A is open or short. (Fail-safe 3<sup>rd</sup> gear)  
Code 84: Shift control solenoid valve B is open or short. (Fail-safe 3<sup>rd</sup> gear)  
Code 85: Pressure control solenoid valve is open or short. (Fail-safe 3<sup>rd</sup> gear, or 2<sup>nd</sup> gear or low gear)  
Code 86: Gear ratio is incorrect. (Fail-safe 3<sup>rd</sup> gear, or 2<sup>nd</sup> 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 scan tool 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 scan tool.
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)

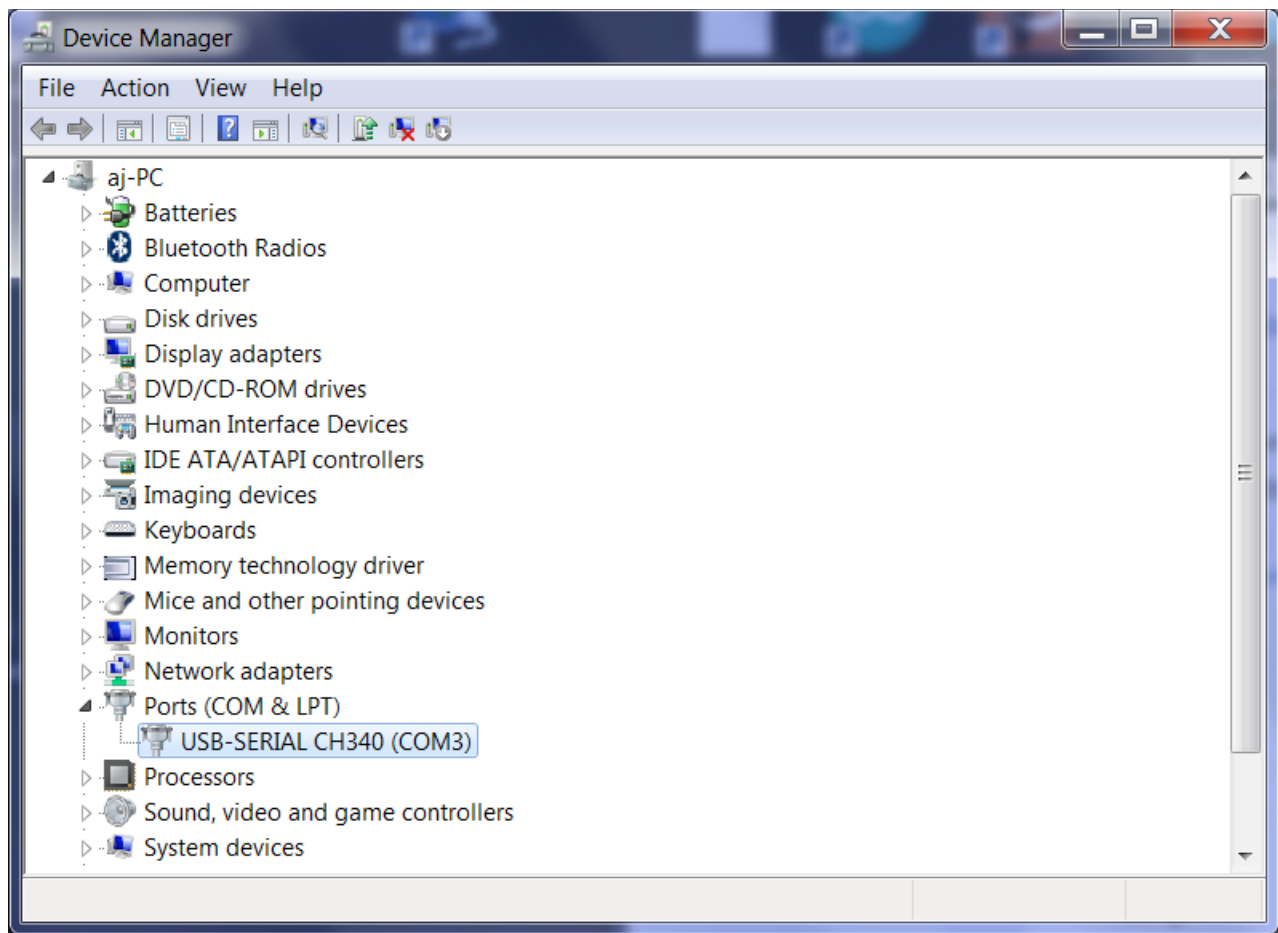
Seat Belt warning (no indication)

Seat belt tension timer (no indication)

**Software updates are available here:**  
<http://lcdbc.xp3.biz>



On the back of the touchscreen scan tool, you will find a black button, hold this button down during power up. If you did this successfully the screen will be a solid white color, and the unit is then waiting for a software update. Plug a USB mini cable (commonly found on dash camera, some cameras, tablet, or older cell phone) to the side of the unit and attach to your Windows PC. Use Windows device manager to verify that you have a valid USB Serial driver Ports (COM & LPT).



In the picture above we can see Windows Device Manager has found CH340 drivers, and has chosen COM3 as the port for communication. Follow the instructions contained the software update file to begin the update process.

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

## **Touch screen calibration**

Version 1.29 software now allows you to re-calibrate the touchscreen properly, if you have v1.28 it has a software bug, I suggest updating it now. When the unit powers up and brings you to the main menu, you can push the button the back of the unit to bring up the calibration. If you accidentally pressed this and do not want to make changes, just push the button on the back again to exit without saving. If you're not happy with the calibration you saved previously, you're welcome to try again. Best to use the plastic pen cap when doing the calibration (don't use a the wrong end).