

# SUPRASTICK

## Toyota Supra MKII Installation Manual – Firmware Version 3.0

### Warnings:

*Before proceeding you are obligated to read and agree to the terms and conditions attached to this manual.*

*Misuse of this product may cause injury or death.*

*Incorrect installation may cause damage to your vehicle and may void the warranty.*

### Tools Required:

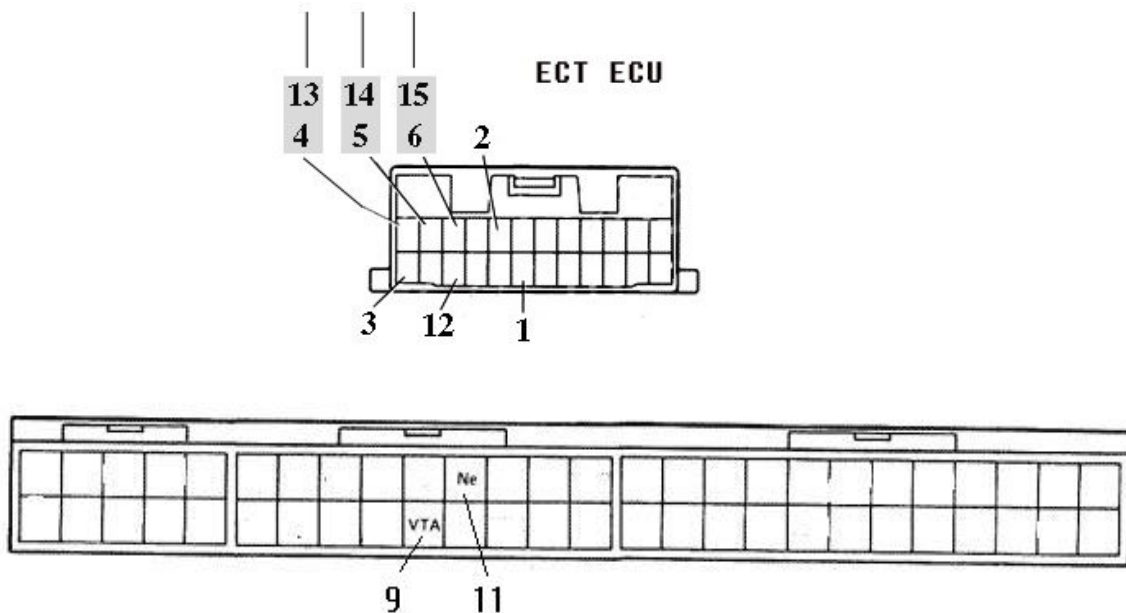
Wire cutter / crimper  
Soldering iron / solder  
12 volt momentary buttons (optional)  
SPST switch (optional)  
voltmeter

### Installation

For questions or technical support, email [tech@latentsolutions.com](mailto:tech@latentsolutions.com)

1. Remove the passenger's side kick panel, glove box, and inner glove box cover.

The car's engine ECU is located on the upper left of the glove box opening.  
The ECT ECU is located behind the passenger's right lower kick panel.



**2. Wiring Diagram:** All connections should be spliced except Sol 1, Sol 2, and Sol L which require the 3 wires to be cut.

Wire Color	Number	Description
Black	1	Ground
White	2	Manual / Auto Selector (12 volts = man, 0 volts = auto)
Red	3	Ignition +
Light Blue	4	Sol 1 (ECT ECU Side of cut wire)
Tan	5	Sol 2 (ECT ECU Side of cut wire)
Yellow	6	Sol L (ECT ECU Side of cut wire)
Orange	7	Upshift (12 volts = shift)
Light Green	8	Downshift (12 volts = shift)
Dark Green	9	Throttle Position
Brown	10	Shift Light (12 volts output when rpm > programmed shift light rpm)
White/Brown	11	RPM
White/Blue	12	Brake Signal
Pink	13	Sol 1 (Tranny Side of cut wire)
Gray	14	Sol 2 (Tranny Side of cut wire)
Dark Blue	15	Sol L (Tranny Side of cut wire)
Purple		Unit Test Signal

**Stealth Install:**

The white Manual / Auto selector lead may be wired to the #2 in the wiring diagram and use the ECT switch next to the gear shifter for mode selection, or any 12 volt switch and source.

**3. Initial Tests**

After connecting all of the SupraStick wires, but before replacing the kick panels and glove box, start by turning the car's ignition to on (do not start the car). The SupraStick unit will click twice. Select manual shifting mode. Shift up and down through the gears. You should hear a distinctive click in the SupraStick box and in the tranny for each shift. You may verify the following voltages on wires 13-15 for each gear.

Gear	Wire	Voltage	Gear	Wire	Voltage	Gear	Wire	Voltage	Gear	Wire	Voltage
1	d.blue	0	2	d.blue	0	3	d.blue	0	4	d.blue	0
	gray	0		gray	12		gray	12		gray	0
	pink	12		pink	12		pink	0		pink	0

Start the car, and put SupraStick into the normal automatic mode. Connect a test light or a voltmeter between the Unit Test Signal Wire and +12 volts. You will see continuity when any of the following conditions are true:

- Upshift Signaled
- Downshift Signaled
- Brake Applied
- Throttle > 5%
- RPM between 1100 and 1400 rpm

Once you have completed the tests to your satisfaction and reinstalled the kick panels and glove box the installation is complete.

## **Programming**

The unit is programmable to suit your car's transmission and your own personal preferences. Enter the programming mode by pressing the Manual / Auto Selector 5 times within 5 seconds, ending with the manual mode on. The unit will flash the Unit Test Signal 3 times.

The following diagram describes how to program the unit. The program mode starts in the upper left corner. Downshift to move down one row, Upshift to move over a column. The Unit Test Signal will flash long flashes to indicate a new row selected, and short flashes to indicate a new column selected. Once you hit the end of a row or column, the next row or column signal will automatically loop back to the beginning of that respective row or column.

Example: To program a rev limit +300, stall speed 2500, and lockup delay disabled, enter the programming mode – the unit flashes 3 times in acknowledgement. Upshift once, the unit flashes 2 quick flashes. Downshift, the unit flashes 2 long flashes. Downshift, the unit flashes 3 long flashes. Upshift, the unit will flash quickly twice, Upshift, the unit will flash quickly 3 times, and Upshift, the unit will flash quickly 4 times. **You must wait for the flashes before shifting again.** Finally deselect the manual shifting mode to save the settings.

Upshift →

Downshift ↓ ←	<b>Normal Downshift Rev Limit</b> <i>(default)</i>	Downshift Rev Limit +300 RPM	Downshift Rev Limit +600 RPM	Downshift Rev Limit +900 RPM
	<b>Stall Speed 2500</b> <i>(default)</i>	Stall Speed 2000	Stall Speed 3000	Stall Speed 3500
	<b>Lockup Delay Normal</b> <i>(default)</i>	Lockup Delay +400 ms	Lockup Delay +800 ms	Lockup Delay Disabled <i>(if locked, will not unlock during shifts)</i>
	<b>Shift Light 5300 rpm</b> <i>(default)</i>	Shift Light 5600 rpm	Shift Light 5900 rpm	Shift Light 6200 rpm

## **Operation**

The system operates in two modes: Normal Automatic Mode and Manual Shifting Mode. You may switch between the modes at any time. Normal Auto mode operates identically to the stock system. No user intervention is required. Selecting Manual Shifting Mode places the driver in full control of all shifts – any shift the car makes will be in direct response to an up or downshift you command.

**Use extreme care, especially in low gears, not to over rev the transmission. You are responsible for shifting in manual shifting mode.**

The system **will** prevent accidental downshifts at an rpm that will redline the engine upon downshifting.

**Use extreme care downshifting at high rpm. The system is designed to the limits of the car and an experienced driver**

## **Tech Tips & F.A.Q.**

In Manual mode, SupraStick employs an aggressive lockup scheme in all 4 gears to improve shifting speed and deliver more power to the wheels. In first and second gears, with at least 30% throttle the system will be eligible for lockup, depending on engine rpm, throttle position, and stall speed setting.

You can delay lockup while shifting gears to help control wheel spin or traction loss by not releasing the shift button or lever upon shifting. **The system will wait for release before enabling lockup computation or allowing another shift.**

Stall Speed – this option in the programming mode affects the rpm at which the torque converter locks up. The actual rpm at which lockup begins and ends is based on the stall speed setting, current gear, and throttle position. **Programmed stall speed does not necessarily have to match your transmission's stall speed.**

Suprastick uses the brake signal input to disable torque converter lockup while the brakes are applied.

Lockup delay sets the “wait time” between shifts before the torque converter is allowed to lock up again. The default setting is the quickest setting that still unlocks the torque converter between shifts. Setting the lockup delay to “disabled” keeps the torque converter locked up during the shift sequence, **as long as all torque converter prerequisites are maintained.** This is recommended as a “race only” mode as it will put much more stress on the transmission.

**The system will fail to operate if the RPM wire is not connected.** If downshift rev protection is not desired (**not recommended**) connect this wire to ground to bypass RPM checking.

The rpm at which downshift is disabled at varies by gear. With the default setting the 4-3 limit is 4000 rpm, the 3-2 limit is 3600 rpm, and the 2-1 limit is 2900 rpm.

**PLEASE READ THESE WARRANTIES AND DISCLAIMERS CAREFULLY BEFORE INSTALLING AND USING THE SUPRASTICK. BY PURCHASING THE SUPRASTICK, YOU INDICATE YOUR AGREEMENT TO THESE WARRANTIES AND DISCLAIMERS. IF YOU ARE NOT AGREEABLE TO THESE WARRANTIES AND DISCLAIMERS, DO NOT INSTALL OR USE THE SUPRASTICK.**

### **Limited Warranty**

Latent Solutions warrants this product to be free from manufacturing defects in its original parts and workmanship under normal use and conditions (“manufacturing defect”) for a period of six (6) months from date of original purchase (“warranty”).

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### **Disclaimers of Warranties**

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As to the Installation Manual:

**WARNING:** READ AND UNDERSTAND **ALL** INSTRUCTIONS BEFORE INSTALLING THE SUPRASTICK.

**WARNING:** THE SUPRASTICK MAY NOT COMPLY WITH SOME JURISDICTION’S LAWS. PLEASE CHECK ALL APPLICABLE LAWS BEFORE INSTALLING OR USING THE SUPRASTICK TO ENSURE THAT YOU ARE IN COMPLIANCE WITH THE LAWS. LATENT SOLUTIONS WILL NOT BE HELD RESPONSIBLE FOR THOSE INDIVIDUALS WHO DO NOT FOLLOW THE APPLICABLE LAWS AS TO THE INSTALLATION AND USE OF THE SUPRASTICK.