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INTEGRATED ELECTRONIC SAFE SHIFTING SYSTEM

Patents Pending

INSTRUCTIONS

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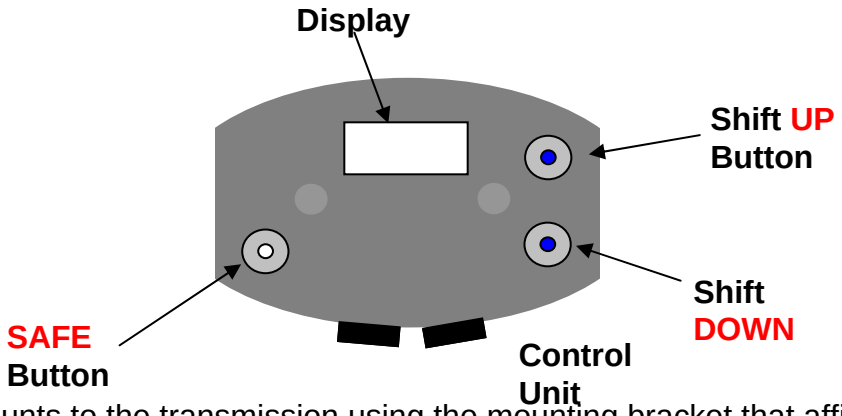
System Overview

Thank you for purchasing SHIFT

SHIFT system replaces conventional mechanical shifter mechanism with a completely electronically controlled system that incorporates automatic shift points without requiring additional components. ***SHIFT is to be used for off road use only!***

SHIFT's components are comprised of a **Control Unit**, **Actuator**, and **Mounting bracket**.

Control Unit:
The Control Unit incorporates a Display, shift control Buttons, and wiring Harness. Display is used to show gear selection and allows for system and shift point setup. Control buttons allow for manual gear selection.



Actuator:
The actuator mounts to the transmission using the mounting bracket that affixes to the tail shaft housing using existing housing bolts. Only use specified supplied bracket for brand, type, and model of transmission. Actuator incorporates a Shift Rod that attaches to transmission shift lever.

Safety Features:
SAFE Button- SAFE Button must be pressed in conjunction with Shift Up or Down button to shift **Into** or **From** Reverse or Park.

Shift Lock - RPM based feature causes system to Lock Out from going from Park to Reverse or from Neutral to Reverse if the engine rpm is above 2500 (non adjustable). If you try to shift with RPM to high Display will indicate **RPM2HIGH**

Reverse Lock Out- RPM based feature causes system to Lock Out from going into Reverse for a set period (3 seconds) after engine rpm has gone above set point (5000 rpm minimum) even if engine rpm has gone back under Shift Lock rpm (2500).). If you try to shift with before lock period has expired Display will indicate **REVLOCK.**

Reverse Lock Out protects from accidentally shifting into Reverse after car has crossed finish line even if user pressed the correct buttons!

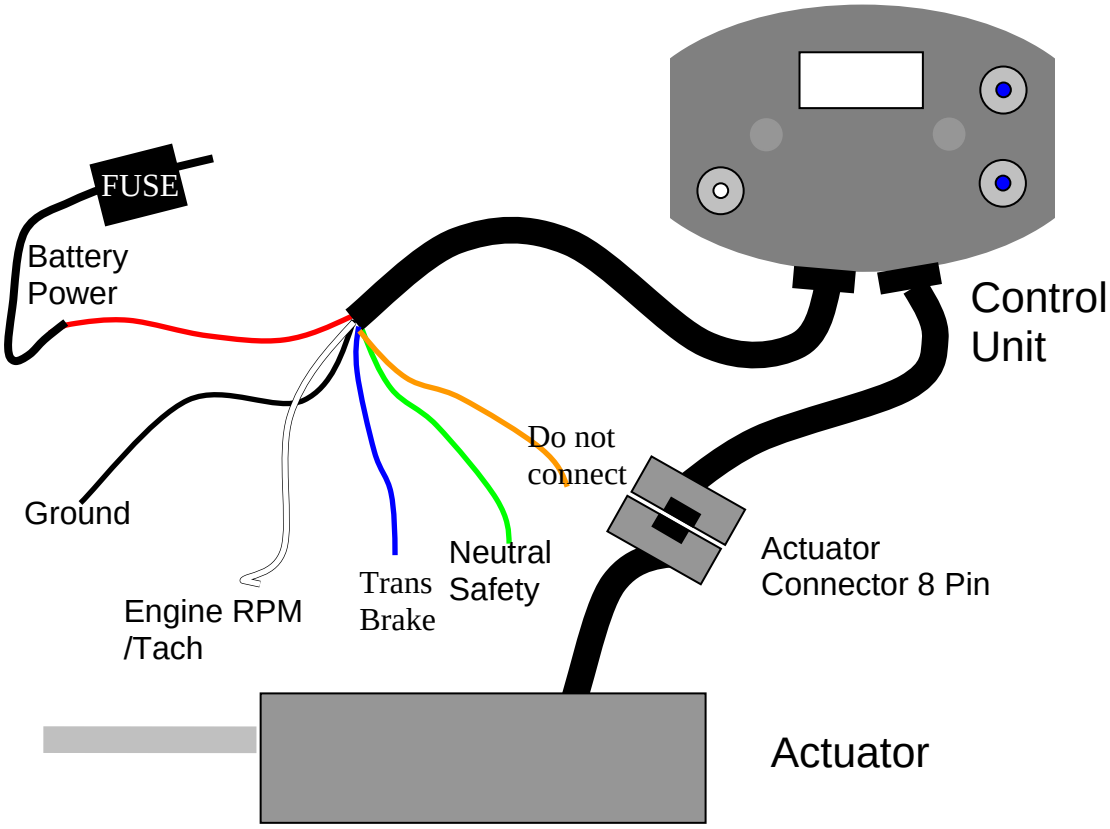
Instructional Videos:

There are instructional videos that are highly recommended for viewing for additional information on the installation and use of your SHIFT system. These videos are available on the www.AltronicsInc.com web site.

INSTALLATION

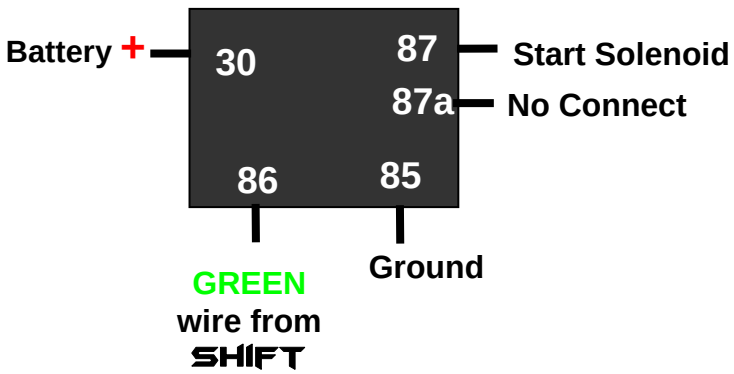
System Wiring

System must have a minimum of 12 Volts for optimum performance



1) Power to the SHIFT must be supplied from the battery of the car. 12 or 16 volt batteries are compatible. Connect **RED** wire with in-line (3 amp) fuse to the (+) **12-16** volts directly off of battery disconnect or isolated power lug. **Do not** branch from power lug supplying multiple loads. System must have a minimum of 12 volts for optimum performance.
2) **BLACK** wire (Ground) should be attached to the (-)**Negative** Terminal of Battery or common system chassis ground point.
3) Connect the **WHITE** wire ***(Tach/Engine Rpm)*** to the DIGITAL rpm signal output of MSD or similar ignition system. **DO NOT** Connect to Ignition Coil. For ignition system without digital RPM system contact Altronics for proper adapter.
4) Connect the **BLUE** wire to trans brake (only if shifting on TIME, if shifting on RPM DO NOT CONNECT.
5) Connect the **GREEN** (Neutral Safety) wire to pin 86 of the relay. **Do NOT hook GREEN wire directly to starter. You MUST use relay!**

Starter Neutral Safety relay wiring



Mounting Control Unit

Control unit can be mounted on standard 5 bolt pattern steering wheels, dash, console, or any other location that is driver accessible. When mounting to steering wheel you must provide additional strain relief to the cables by fastening them with a cable tie or hold down to the wheel.

Dimensions for Mounting holes are 2.69”

Installing shift lever

*****This section must be completed for *SHIFT* system to operate properly*****

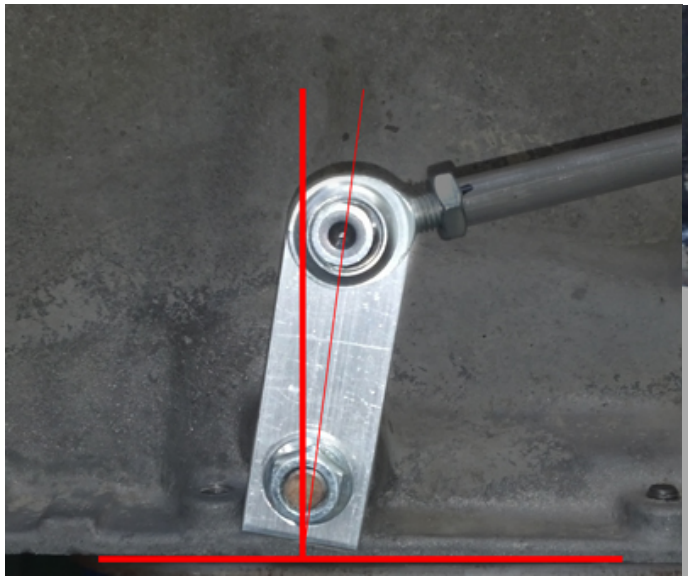
Shift Lever: Install supplied shift lever. For transmissions with one piece shift lever and rod, the entire assembly must be replaced. If transmission has two piece lever assembly only the shift lever plate needs to be changed. See below for you specific transmission type. USE ONLY SUPPLIED SHIFT LEVER PLATE!

Shift Levers

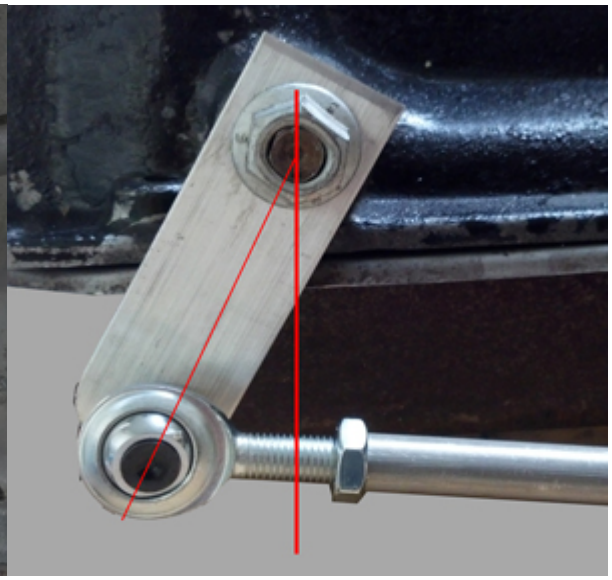
For high mount actuators levers should face up and for low mount face down. Transmission shields may need to be trimmed to clearance lever when in Park positions (high mount).

Power Glide transmissions: If you transmission has a 1 piece shift lever it must be replaced with a TCI part #748400 two piece assembly. Only use shift lever supplied by Altronics that came with your *SHIFT* system. Do **NOT** use the TCI lever plate.

Turbo 350 and 400 transmissions: Shift lever plates are flat but still must have the correct side facing out. When orientated properly the shift lever will be at the 1 O’clock position when in PARK for high mount and 7 O’clock for low mount .



Top Mount



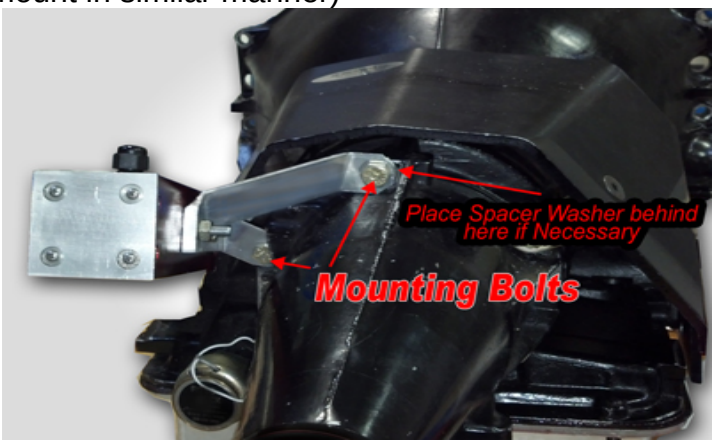
Bottom Mount

Mounting Actuator

Only use supplied bracket for appropriate transmission model. Remove the two bolts from transmission tail section to hold bracket. If transmission has a shield with a shield bracket on only one of the mounting hole locations use included washer on other mounting hole to evenly space bracket from housing. Hold actuator to bracket using the two studs on actuator. Actuator body temperature should not exceed 150ºF. Check with IR temperature gun.

UNDER NO CIRCUMSTANCES SHOULD YOU MODIFY BRACKET, ACTUATOR, MOUNTING LOCATION, OR SHIFT RODS! Call Altronics if you have an issue.

Power Glide - Dragster Mount shown below (other types mount in similar manner)

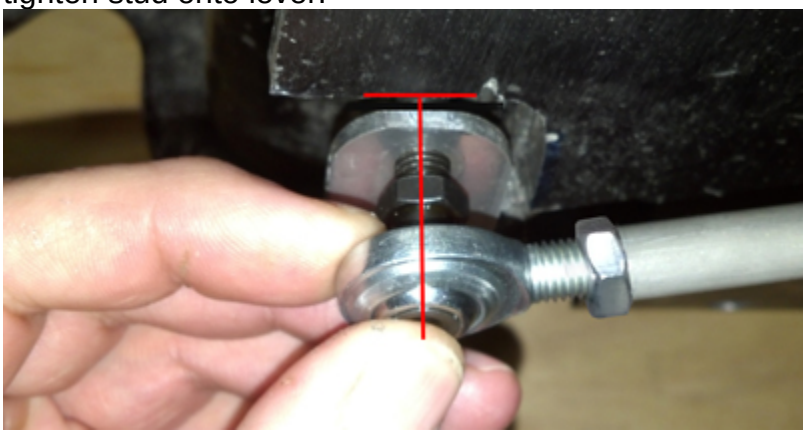


T400 – Bottom Mount (other types mount in similar manner)

Adjusting Actuator Shift Rod

Before connecting actuator shift rod to transmission shift lever, power SHIFT ON and put SHIFT in NEUTRAL.

Now move transmission shift lever into NEUTRAL. Adjust Rod End length so the stud on Rod End is lined up with shift lever hole. Once adjusted, check each gear position to verify each is aligned. Now tighten stud onto lever.



Final Check: shift SHIFT through each gear verifying smooth shifts with no binding or hesitation. You should be able to feel a slight bit of play in ball joint at each position. If there is tension at each position the adjustment is not correct. Loosen lock nut and turn shift rod shaft to until tension is gone.

PROGRAMMING

SHIFT must be programmed by entering ***Setup*** Mode for appropriate transmission type, number of gears, shift pattern, and shift points.

To enter ***Setup*** Mode press both the SAFE and SHIFT UP Buttons at the same time when the "SHIFT by Altronics" message appears on display just after power up.

Number of Cylinders:
Display will show ***#Cyl->X*** Use the UP and Down buttons to select the number of cylinders your motor has and then press the SAFE button to confirm.

Reverse Lock Out:
Display will show ***RL->5000*** use the UP and Down buttons to select the RPM to enable reverse lock up and then press the SAFE button to confirm. Minimum RPM is 5000. See Reverse Lock Out Definition.

Shift Method:
Display will show ***Select Shift Method->RPM u***se the UP and Down buttons to select to shift on **RPM** or **TIME(TIME shift Not available in initial release)** and then press the SAFE button to confirm

Select RPM!

Gear Shift Points:
1st Gear:
Display will show ***1GS->XXXX u***se the UP and Down buttons to select RPM value to shift from first to second gear and then press the SAFE button to confirm.

2nd Gear: (for 3 speed trans)
Display will show 2***GS->XXXX u***se the UP and Down buttons to select RPM value to shift from second to third gear and then press the SAFE button to confirm.

Continue for additional gears if appropriate.

OPERATING

Display will indicate current gear position:

P Park – Park Gear Position
R Revrse – Reverse Gear Position
N Neutrl – Neutral Gear Position
1 First – First Gear Position
2 Second – Second Gear Position
3 Third – Third Gear Position (If applicable)
4 Fourth – Fourth Gear Position (If applicable)

MANUAL OPERTATION

PARK – When in the Park Position you must hold the SAFE Button and Press Shift DOWN Button together to go into Reverse.

When in Park Position Press Shift UP Button to view Engine RPM, Press Shift DOWN Button to show PARK.

REVERSE - When in the Reverse Gear Position you must hold the SAFE Button and Press Shift UP or DOWN Button together to go into PARK or NEUTRAL.

NEUTRAL - When in the Neutral Gear Position you must hold the SAFE and Press Shift UP to go into REVERSE. Press Shift DOWN Button FIRST.

FIRST - When in the First Gear Position Press Shift UP to go into SECOND. Press Shift DOWN Button NEUTRAL.

SECOND to Final Gear – Use Shift UP or Shift DOWN Buttons to select desired gear.

AUTOMATIC SHIFT OPERATION

*****Verify ***SHIFT*** is reading correct Engine RPM by putting system in Park Gear Position and pressing Shift UP Button with engine running, Display will indicate current engine rpm*****

SHIFT will automatically shift transmission on programmed RPM or TIME(First Gear only) for each shift First through Final gear position. ***SHIFT*** can only be manually shifted into NEUTRAL, REVERSE, and PARK gear positions!

Shift on RPM:
With ***SHIFT*** in FIRST gear Position, increasing engine rpm above programmed first gear shift point will cause system to shift into SECOND gear Position.

When in SECOND gear position, again increase engine above programmed second gear shift point will cause system to shift into THIRD gear Position. This will continue for additional gears if programmed. (3 or more speed transmissions only!)

Shift on TIME:
If first gear shift point is programmed on TIME, then system will shift from FIRST to SECOND gear position after programmed amount of time has elapsed from release of transbrake.

TECHNICAL SUPPORT

Email: Tech@AltronicsInc.com

When sending a unit in for repair or update: Fill out a "Service Form" which is available from the Technical Support Section of our website-> www.AltronicsInc.com

WARRANTY

The SHIFT by ALTRONICS INC is warranted for 1 Year against any defect in materials and workmanship from date of purchase. ALL WARRANTIES AND GUARANTEES ARE VOID if the SHIFT enclosures are opened or altered or is equipment is connected to system that is not supplied or authorized by Altronics Inc.

ALTRONICS INC shall not be liable for injury, consequential, or other types of damages resulting from the use or misuse of the SHIFT.

SHIFT is to be used for off road purposes only!

Error Codes

Error Message	Possible Problem	Possible Solution
Low Voltage	Low Battery	Check battery voltage. 12 Volt Minimum
E1	Can't move into Park	Check adjustment shift rod- Check Detent Force
E2 -3	Gear adjustment off	Check adjustment shift rod- Check Detent Force
E6	Can't move into gear position	Check adjustment shift rod- Check Detent Force

Email Tech@AltronicsInc.com with Error Code to resolve error code issues.