Installation Instructions For

Lingenfelter Launch Control Module

Adjustable Launch Controller & RPM Limiter

For GM LSx Series Engines

NOW With Timing Retard Mode

PN: L460015297

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Parts List

#	Part number	Description
1	LNC-001R	LPE Launch Controller with timing retard function
1		48” trigger wire harness *(part of PN LNC-001R)*
2		hook & loop tape, 3.5” length
2	AV16037	self-tapping screw
1	L920010000	LPE decal
1		instructions

Optional Items

- momentary switch
- relay
- toggle switch
- noise suppression diode (for use with line-locks & other solenoids - L450080000)
- MPH activated switch to disable the launch control once you are moving (L460050000)
- LED for indicator light
  - Red 12 vdc LED with 30 cm leads (L450030000)
  - Green 12 vdc LED with 30 cm leads (L450040000)

Specifications:

- 40 MHz 16-bit automotive qualified processor with eight channel Enhanced Time Module.
- Each coil drive circuit has a dedicated timer to keep the timing accurate over the full RPM range.
- Independent coil drive provides Sequential Ignition Kill when RPM limiting is active.
- Reverse battery protection.
- Both of the activation inputs have active clamps and optical isolation to suppress electrical noise from external solenoids (such as trans brake and line lock).
- Digital filter provided in software to further isolate electrical noise on the activation inputs.
- Both **Ground Activation** and **+12 Volt Activation** inputs are provided to work with existing vehicle wiring. Both activation wires may be connected together to enable activation. This allows for the use of a momentary switch for activation.
- The LNC-001 can be adjusted from 1500 rpm to 9,900 rpm in 100 rpm increments by the two 10 position rotary switches found inside the module.
- True plug-and-play design for ease of installation and removal.
- Fully encapsulated (potted) construction for added durability.
- Rated for operation at up to 185 degrees F (85 degrees C).
- 90 day warranty (from date of purchase).
  - **DO NOT** place in direct exposure to exhaust manifolds, turbocharger turbine housings or other underhood items that are high temperature heat sources (radiated heat sources). The warranty does not cover damage due to melted enclosures or wiring due to improper installation.
  - **Do NOT** submerge Controller in liquid or directly wash unit with liquid of any type! (Do NOT spray when washing vehicle!)

LNC-001R description:

Sometimes referred to as a 2-step or launch controller, the LNC-001 can be used to provide consistent launch rpm off the line in drag racing and standing start road racing applications. In turbocharged applications the use of the LNC-001 also allows the engine to build more boost off the line during the launch.

The LNC-001 can also be used as an adjustable individual cylinder rpm limiter, providing reliable and fast acting spark based engine rpm limit control. This is especially useful in vehicles that have auxiliary fuel control systems where it is not possible to make sure that both the factory ECM/PCM and the auxiliary systems both turn off fuel at exactly the same time (if the two don't completely cut fuel at the same time, instead of having an RPM limiter you will likely go dangerously lean, risking severe engine damage).

With the new Timing Retard function, the LNC-001 can now also be used to retard timing by up to 10 degrees. This can be used to retard the timing when you trigger a nitrous oxide system or to retard the timing off the line to build boost in turbocharged vehicle applications (with or without the launch control RPM active).

The Timing Retard function can be used by itself or while the launch control rpm limit function is active.

If you are an existing LNC-001 customer that purchased your LNC-001 before the Timing Retard function was introduced, you can send your LNC-001 in for a software update and then you will have the new feature as well. If you are not sure if you have this feature, check the case of your LNC-001. On one side should be a stamp for the batch code. Next to it will be an "R" stamped on the case if you have the "Retard" function version (see page 13 for image indicating locations of markings).

Please note - although launch controllers like the LNC-001 are often referred to as 2-step controllers, they are not true 2-step controllers. A 2-step has a high and a low rpm limit function with a switch of some type enabling one setting or the other. The LNC-001 only has one rpm limit setting so if you are using the LNC-001 as a launch control rpm limiter, you will need to use the factory ECM/PCM as the engine maximum rpm limiter (engine speed governor).

WARNINGS:

Because the LNC-001 acts by disabling spark to individual cylinders (and not fuel like the production RPM limiters), it is not meant for use on the street or for use on cars equipped with catalytic converters. The LNC-001 is only for use on race vehicles on the race track. Failure to follow these precautions can result in premature catalyst failure.

DO NOT operate the engine with the LNC-001 active for extended periods of time. Because of the raw fuel entering the exhaust, a risk of backfiring exists if you do so.

Red LED:

- Comes on solid on start-up (power on) in standard mode
- Comes on blinking on start-up (power on) in Programming mode
- When active RPM is reached, LED will blink (even if activation wire is not triggered)

Green LED:

- Comes on solid when activation wire is triggered (on whenever powered up in RPM limiter mode)
- Blinks retard count on start-up (power up) when Retard Mode enabled.

Settings:

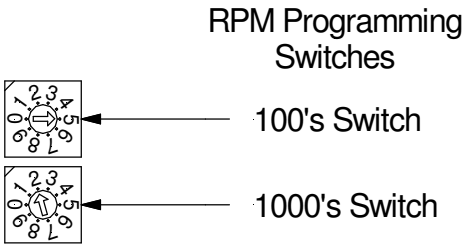
- Controlled by two (2) ten position switches
  - Two (2) switches for selecting 1000 rpm and 100 rpm scale
  - View module with wires exiting top, and 0 at 12 o'clock on RPM selector switches

Notes:

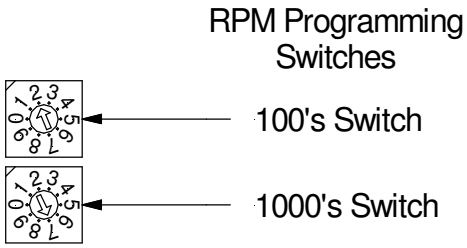
- The LNC-001 will not trigger at RPM levels below 1500 rpm
- **Changes to the rpm switch point settings must be done with the ignition off**
  - The switch positions are only read on start up

Example settings:

- 2500 rpm activation point for launch control
  - Left (X000) rpm switch on position 2
  - Right (0X00) rpm switch on position 5



- 7200 rpm activation point for RPM limiter
  - Left (X000) rpm switch on position 7
  - Right (0X00) rpm switch on position 2



Programming Instructions

IMPORTANT – If power is removed while in the process of changing operating modes the new settings may become corrupt. On power up the LNC-001 will check for valid settings and will default back to Normal Operating mode if an error has occurred.

NOTE – The Operating Mode will only be changed if both Programming switches are set at 0 when power is applied. Once in Programming mode, if you do not select a spark retard amount and complete the programming/ setup, the vehicle **WILL NOT START**.

Operating modes explained:

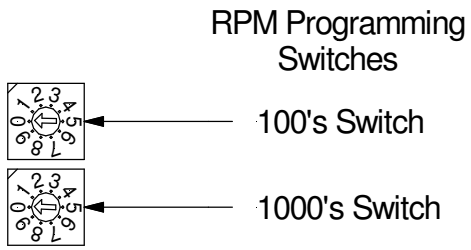
Normal Mode – This is the default factory configuration. When operating in Normal Mode the LNC-001 functions only as a RPM Limiting device. Either the Ground or +12V activation input may be used to for the RPM Limiting function. The Green LED will illuminate when either Activation Input is ON.

Retard Mode – This is an optional operating mode that provides an Ignition Timing Retard function. Up to 10 degrees of timing retard can be applied. When configured for Retard Mode the Yellow, +12V Activation input controls the RPM Limiting function and the Green, Ground Activation input controls the Retard function. The Ignition retard is only active when the Ground Activation input is ON and the engine RPM is above 3,000 RPM. The Retard may be activated while the RPM Limiter is active. When the LNC-001 is configured for Retard Mode the Green LED will blink once for each degree of Timing Retard programmed when power is first applied. If the Green LED does NOT blink Retard Mode is NOT active. You will notice a slight delay on startup when you have enabled retard mode. This is normal operation and is the time it takes to flash the spark retard count on the green LED.

NOTE – To change the amount of Timing Retard applied the LNC-001 must be returned to Normal Operating mode before programming the new setting. Please see instructions below for more details.

To Enter/Exit Ignition Retard Mode:

1 – Set both Programming switches to 0



2 – Turn Power on to the LNC-001 controller.

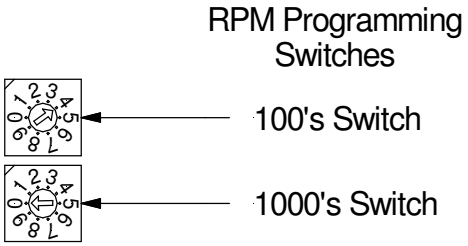
3 – Red LED will blink once per second for 15 seconds.

A – If the LNC-001 is in Retard Mode, the Operating Mode will automatically switch to Normal Mode and the Red and Green LED's will blink continuously until power is removed. At this time the LNC-001 is configured for Normal Operating Mode.

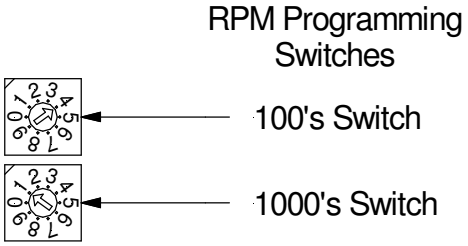
B – When entering Retard Mode of operation the Red LED will begin to blink 5 times per second. Do NOT move the 1000's programming switch until the desired Retard setting has been selected.

Setting The Spark Timing Retard Value:

1 – Set the 100's RPM programming switch to the desired setting. The actual setting will be the switch setting + 1. Example to set 5 degrees of retard you would set the 100's switch to 4.



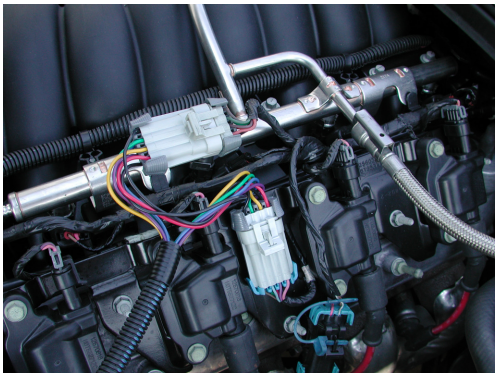
2 – Once you have set the desired degrees of Timing Retard move the 1000's RPM programming switch to a non-zero position. At this time the Timing Retard setting is saved.



4 – The Green LED will now blink a pattern to show the Timing Retard setting (for above example, 5 blinks to indicate 5 degrees of retard).

5 – Turn power off. Set the desired 2-Step RPM and the LNC-001 is ready for operation in Retard Mode.

Installation:



- Make sure the ignition is off before beginning installation.
- Do NOT mount the LNC-001 directly on top of the engine or near the exhaust manifolds due to heat concerns.
- Do NOT mount the LNC-001 in the line of site of high temperature objects such as exhaust manifolds, turbine housings etc. If needed, put a heat shield in between the heat source and the module to protect the plastic case.
- Do NOT install within 6" of nitrous solenoids or other devices with strong magnetic fields.
- If you have relocated coil packs, do not run the high voltage spark plug wires along side the low voltage coil pack wires. Keep the wires as far apart as possible and, if they do have to intersect, have them intersect at right angles.
- Disconnect the pack connectors on each side of the engine and then plug the LNC-001 wiring harnesses in between on each side. It does not matter which bank of cylinders each side of the LNC-001 harness connects to.

- The only wiring that is required is for the trigger wire(s) depending on how you want to enable the device. See pages 7,8,9,10 & 11 for specific wiring diagrams. The possible connection methods are:
  - ground activation wire (green) - connect this wire to a source that supplies a ground path when you want the LNC-001 to become active
  - +12 volt activation wire (yellow) - connect this wire to a source that supplies +12 volts when you want the LNC-001 to become active (i.e. brake light switch, line-lock solenoid)
  - switch connected in between the ground activation wire and the +12 volt activation wire (green wire connected to yellow wire through a switch, usually a momentary switch)
  - ground activation wire connected to +12 volt activation wire (green connected to yellow) for standard rpm limiter operation (LNC-001 always active)
- Set the desired RPM switch activation point using the two ten position rotary switches for the 1000 rpm increment (X000) and the 100 rpm increment (0X00), as labeled on page 3.

The LNC-001 is designed for use on all GM LS series engine applications (LS1, LS6, LS2, LS7, LQ4 and other Gen III and IV GM V8 applications along with other GM V8 engines using the same ignition coil system) including the following vehicles:

- 1997-2004 C5 Corvette
- 2005-2008 C6 Corvette (including Z06)
- 1998-2002 LS1 V8 equipped Camaro and Firebird
- 2004-2006 Pontiac GTO
- 2004-2006 Cadillac CTS-V
- 1999-2008 GM CK trucks (Tahoe, Yukon, Escalade, H2, Sierra, Silverado, Avalanche) with the 4.8, 5.3, 6.0 and 6.2L Gen III and IV V8 engines (will not work on 305 & 350 Vortec engines)
- 2003-2006 Chevrolet SSR
- 2006-2007 Trailblazer SS and other S/T body trucks with the 4.8, 5.3 and 6.0L Gen III & IV GM V8 engines

The LNC-001 should function on the following vehicles/engines but has not yet been tested on them:

- CK trucks with 8.1L V8 engines (L19) with individual coil ignitions
- front wheel drive 5.3L LS4 Gen IV V8 equipped cars (Impala SS, Grand Prix & Monte Carlo)

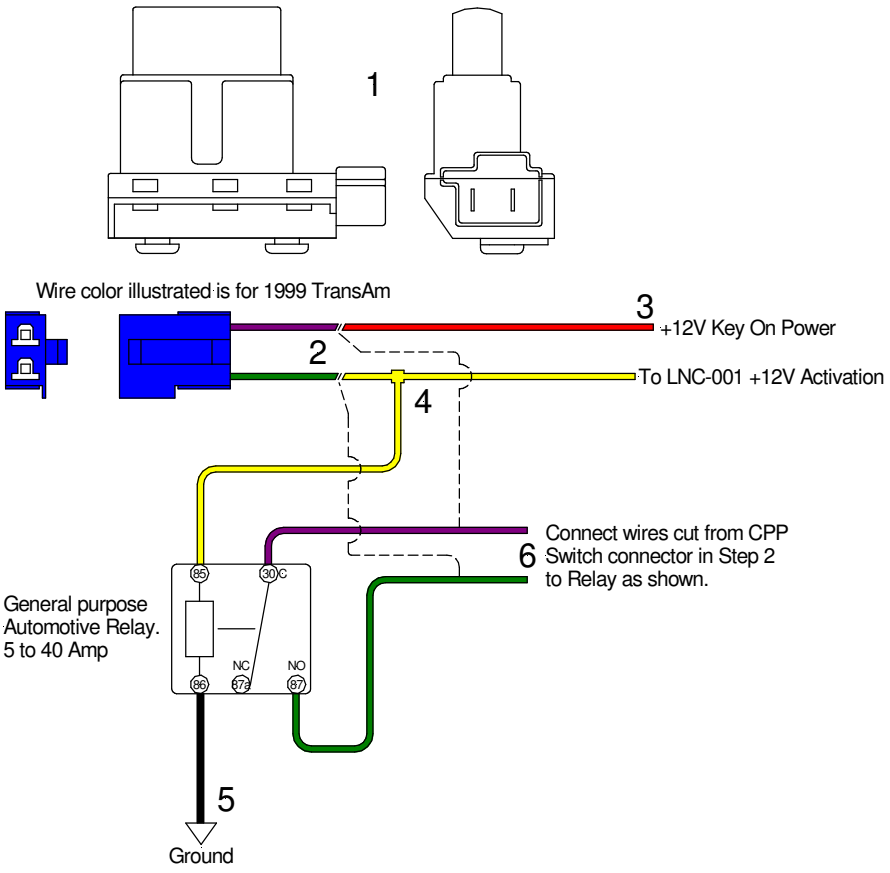
The LNC-001 should also function with these products but has not yet been tested with them:

- aftermarket coils for the LS series engines (such as the MSD coils) used with GM ECM/PCM.
- aftermarket engine management systems and ignition systems (Accel, BigStuff3, Motec, FAST, MSD, etc.) that run the production GM coils.

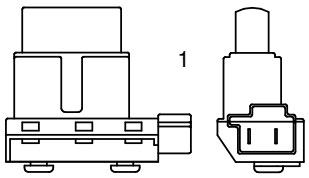
Important Information - you must use Noise Suppression Ignition Wires with this Controller. The LNC-001R Controller contains High Frequency Digital Electronics and will NOT function correctly without Suppression Wires!

1998-2002 F-Body and 1998-2005 Corvette Factory Clutch Switch Diagram

1 - Locate CPP (Clutch Position Switch) and unplug 2-wire connector.
2 - Cut wires appox. 3" back from connector.
3 - Find +12 volt Key On power source and connect to one wire of CPP connector.
4 - Splice two wires onto remaining CPP connector wire and connect one wire to #85 on Relay. The extra wire will be used for LNC-001 Launch Controller activation.
5 - Connect terminal #86 on Relay to Ground.
6 - Connect wires cut from CPP Switch connector to Terminals #30 and #87 as shown. Wire color may vary for model/year.



Manual Transmission with Linelock



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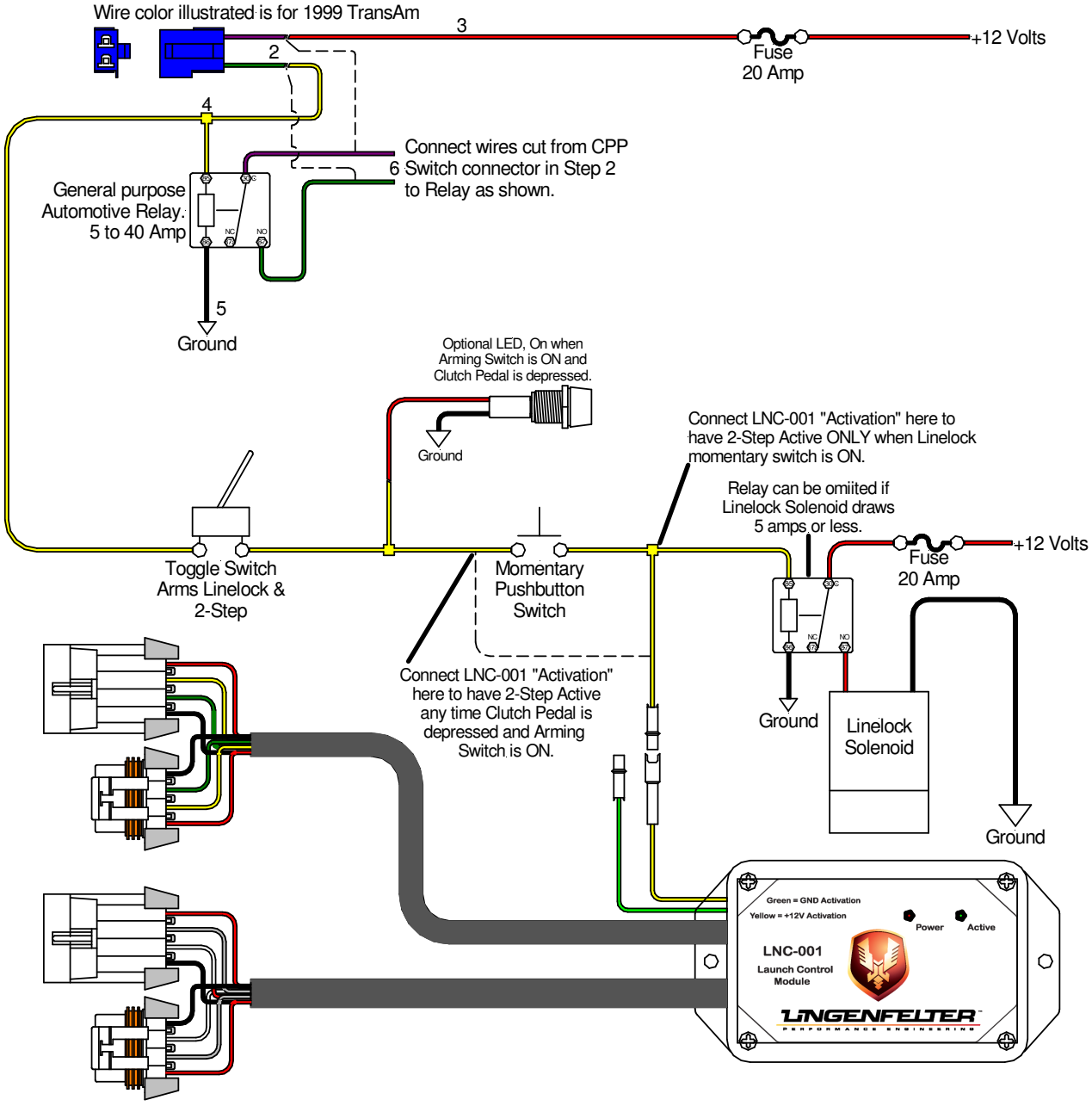
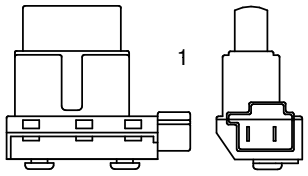


Manual Transmission with Linelock and Nitrous



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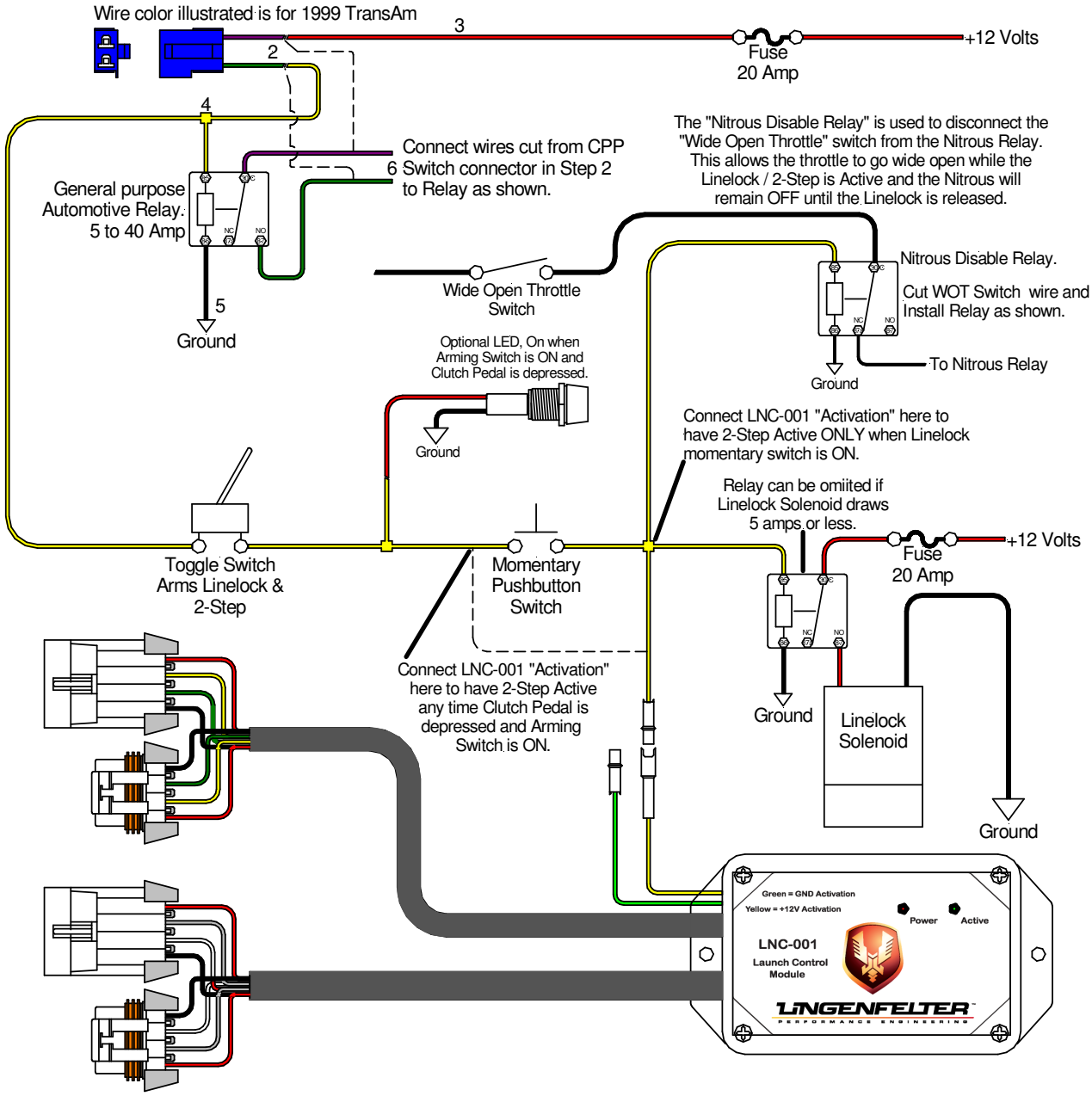
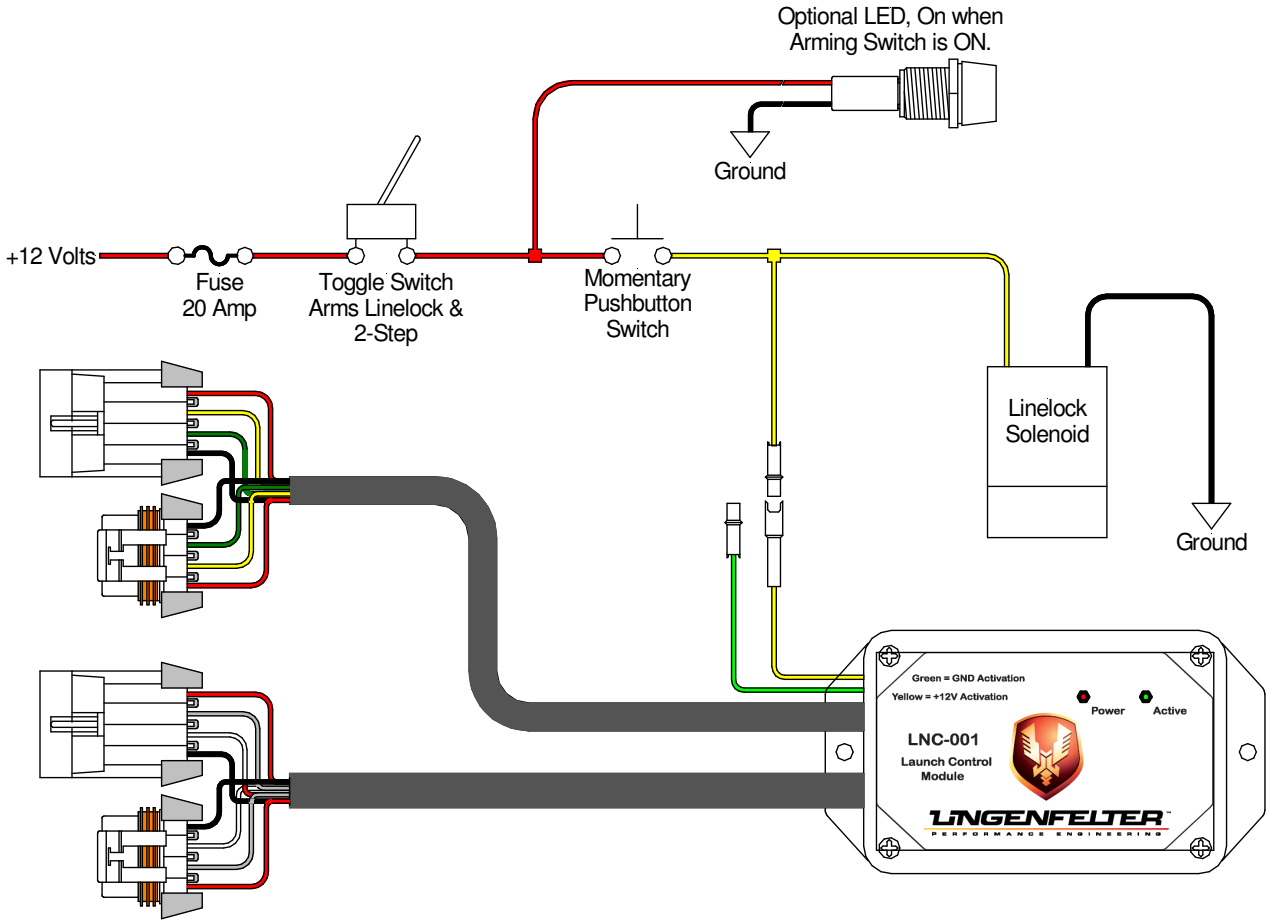
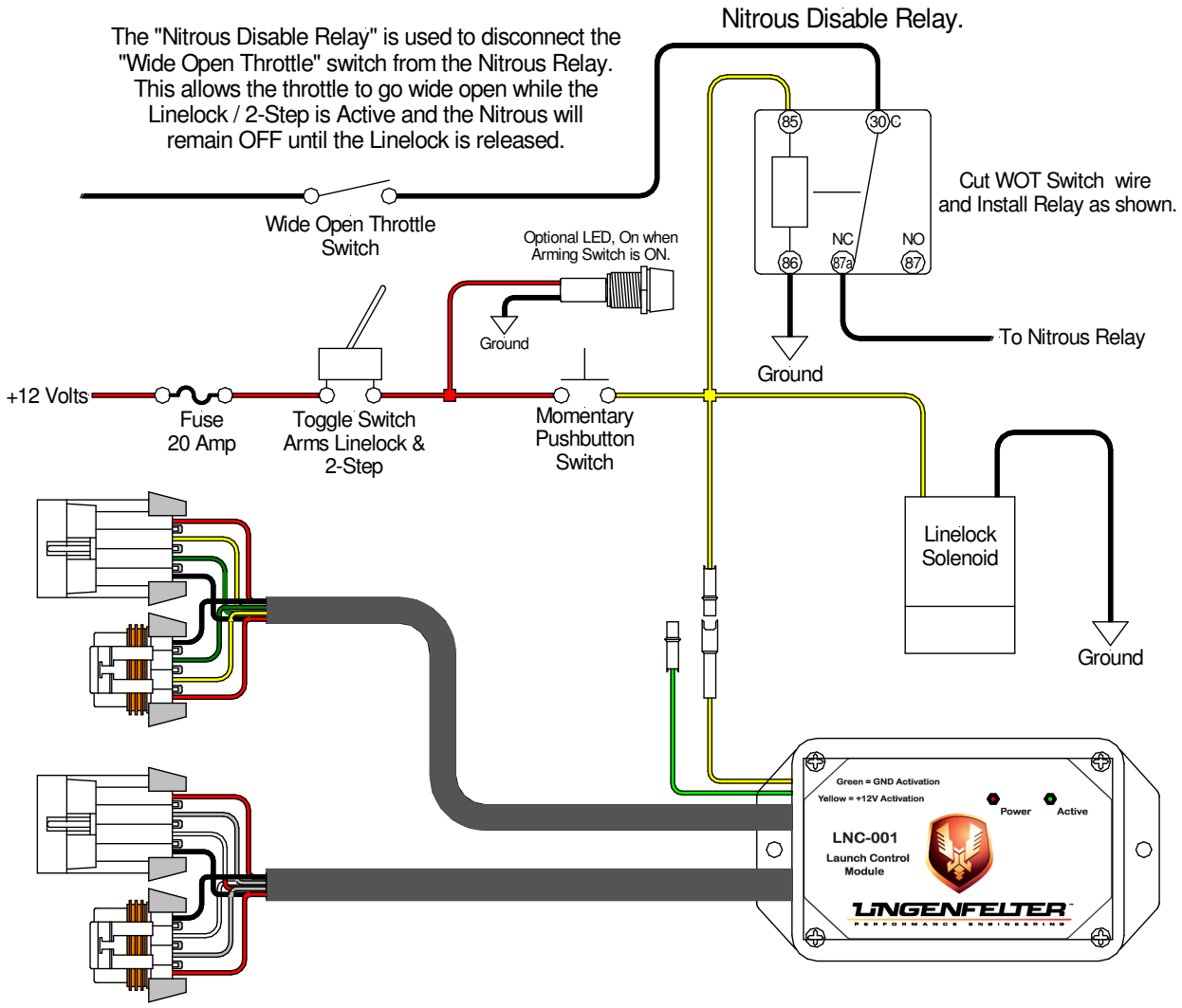


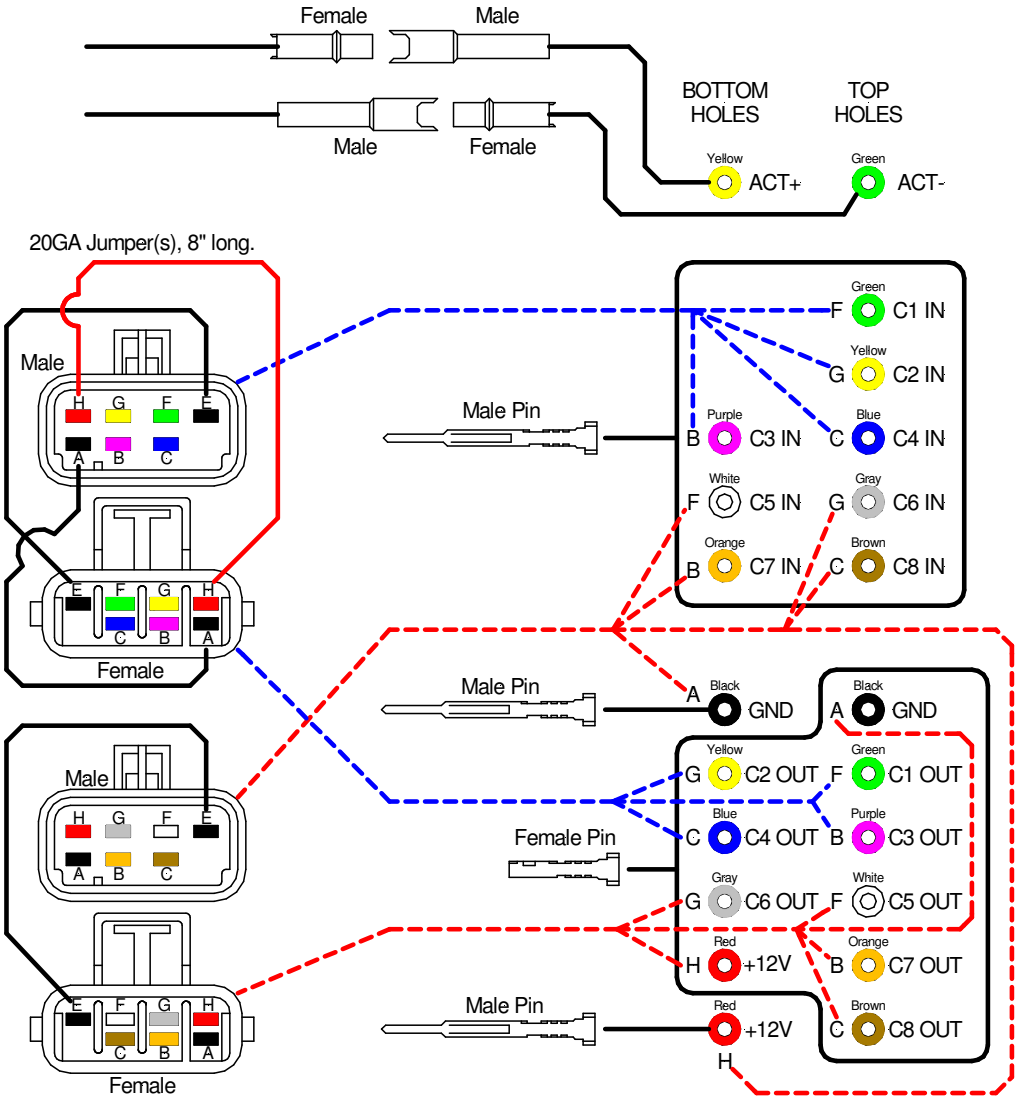
Automatic Transmission with Linelock



Automatic Transmission with Linelock and Nitrous

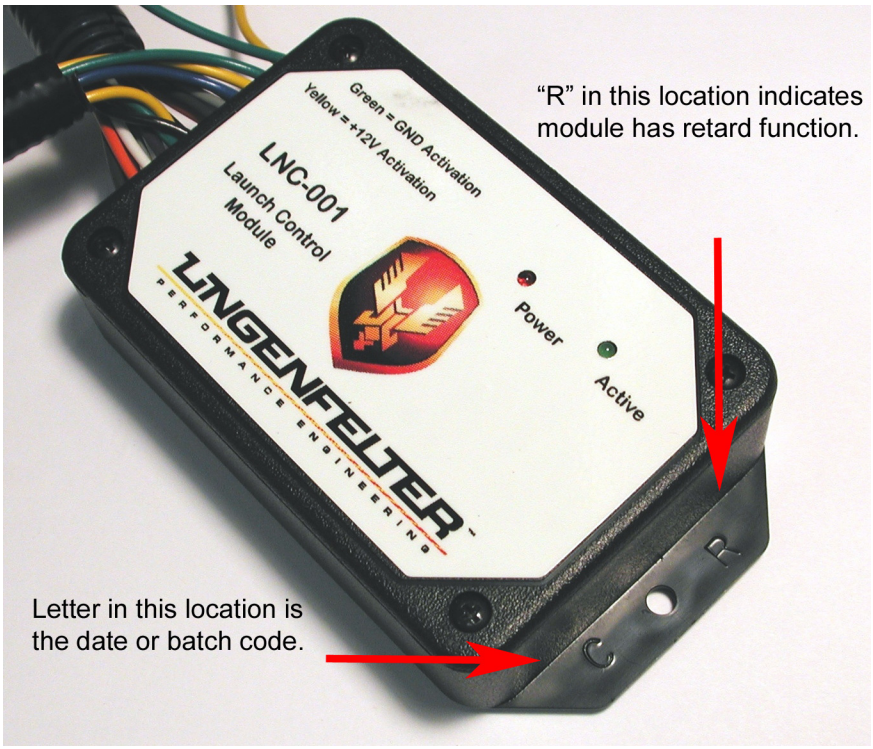


LNC-001 Wiring Diagram



Additional notes:

Location of markings on case showing the date code and the letter code for the Timing Retard Function (“R”):



It is the responsibility of the purchaser to follow all guidelines and safety procedures supplied with this product and any other manufactures product used with this product. It is also the responsibility of the purchaser to determine compatibility of this device with the vehicle and other components.

Lingenfelter Performance Engineering assumes no responsibility for damages resulting from accident, improper installation, misuse, abuse, improper operation, lack of reasonable care, or all previously stated reasons due to incompatibility with other manufacturer’s products.

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It is the purchaser’s responsibility to check the state and local laws and sanctioning body requirements pertaining to the use of this product for racing applications. Lingenfelter Performance Engineering does not recommend nor condone the use of its products for illegal street racing.

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