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RPM 2 Shift

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RPM 2 Shift Instructions

Digital Delay, the company that invented and patented the Crossover, and the Driver’s Reaction Tester, designed two new RPM shift boxes especially for racers, who, due to the 2003 NHRA and IHRA rule changes, need a separate RPM switch to shift their vehicle. These new units called RPM 1 Shift and RPM 2 Shift can be set to shift the vehicle at any RPM between 3000 and 9900. The RPM 2 Shift allows a second shift point to be entered, for vehicles with 3 speed transmissions.

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The Terminal Strip

+12VDC Terminal: Connect the +12VDC terminal to a switched +12 Volt source with enough amperage capable of driving the shift solenoid. (Recommended 10 Ga. or larger wire)

NO Terminal: Connect the NO (normally open) terminal to shift solenoids that require 12 volts to shift. (Recommended 10 Ga. or larger wire)

NC Terminal: Connect the NC (normally closed) terminal to shifter that requires the removal of 12 volts to shift. (Recommended 10 Ga. or larger wire)

Ground Terminal: Connect the Ground terminal to the Neg. terminal on the battery or to a good steel ground, not aluminum. (Recommended 14 Ga. or larger wire)

Tach Terminal: Connect the Tach terminal to the Tach output on the ignition. The Tach terminal must be connected for proper operation of the unit. (Recommended 16 Ga. or larger wire)

Shift Select Button

The shift select button is located to the right of the screen. This button is used to display the first and second shift point settings. Each time this button is pressed the RPM 2 Shift will toggle between the two shift points. This is the only function of the shift select button. To the right of the display are also two small red LEDs. Check which LED is lit, to know which shift point is currently being displayed.

Setting the Shift Point

To enter a new shift point for the first shift, first check that the SHIFT 1 LED is lit. If the SHIFT 2 LED is lit, use the shift select button to switch to the first shift. Next use the two change number buttons located below the screen to change the shift point. The left button will change the left number and the right button will change the right number on the screen. The left number represents thousands of RPM while the right number represents hundreds of RPM. For example if the desired RPM setting was 6800, the left number would be set to 6 and the right number would be set 8. To enter a shift point for the Second shift, use the shift select button to display the second shift point. Next use the two change number buttons located below the screen to change the shift point. The left button will change the left number and the right button will change the right number on the screen. The left number represents thousands of RPM while the right number represents hundreds of RPM. For example if the desired RPM setting was 7500, the left number would be set to 7 and the right number would be set 5.

Note: If only one shift is desired, turn off the second shift by setting the second shift point to zero.

Testing the Shifter

To test the shifter, press and hold down either of the change number buttons. After about two seconds the shift output will turn on and the shifter solenoid should activate. If the shifter solenoid fails to operate disconnect all wires going to both of the N.O. and N.C. outputs. Then using a test light or voltmeter, verify the N.C. terminal has voltage and the N.O. terminal does not. Next press and hold either of the change number buttons for about 2 seconds. Then without releasing the change number button check the N.O. and N.C. outputs again. The N.O. terminal should now have voltage while the N.C. terminal should not. If both the N.O. and the N.C. outputs pass this test, the problem is with the shifter solenoid or the wires going from the RPM 2 Shift box to the shifter solenoid. If either N.O. or N.C. output fails to operate please call Digital Delay at 563-324-1046.

Initial Features Setup

Note: When shipped the number of cylinders is set to 8 and repeat is turned off. If these are the desired settings, no setup is required.

Setting the Number of Cylinders

To set the Number of Cylinders, hold down the right change number button and then turn the unit on. Once on, release the right change number button and the unit will display the current setting for number of cylinders. If a different setting is desired use the right change number button to set the desired number of cylinders. Once the number of cylinders is set, the power must be turned off and then back on to exit setting number of cylinders mode and re-enter normal running mode.

Note: Cylinder settings of 4, 5, 6, 8, 10, and 12 are available.

Understanding the Repeat Feature

After the first shift has completed and with the repeat feature turned on, the RPM 2 Shift will simulate a standard MSD RPM Switch, each time the engine RPM goes above the second shift point the output will activate until the RPM drops back down below the second shift point. If the second shift point is turned off (00 RPM) the RPM 2 Shift will repeat the first shift point. When the repeat feature is turned off, the RPM 2 Shift will cycle through the two shift points only once until the unit is reset. This can save air, for vehicles using air shifters, by not reactivating the shifter when the shift RPM is reached again at the end of the track. An example with the repeat feature turned off, when the RPM reaches the first shift point the output will turn on and stay on until the RPM drops back below the first shift point. Then when the engine RPM reaches the second shift point the output will turn on and stay on until the RPM drops back below the second shift point. If the RPM then again goes above the second shift point the output will not reactivate until the unit is reset. The unit automatically resets any time the engine RPM goes below 2500 RPM.

Setting the Repeat Feature

To turn on or off the repeat feature, hold down the left change number button then turn on power to the unit. Once on, release the left button. The display will now be showing either a one for on (1 = on) or a zero for off (0 = off). Use the left change number button to toggle the repeat feature on and off. After setting the repeat feature, power to the unit must be turned off and then back on to exit repeat feature and enter into normal run mode.

Features and Specifications

Features:

- Microprocessor controlled timing
- Discrete I/O (input - output) construction
- Retains all numbers even with power disconnected from unit
- Large LCD (liquid crystal display)
- Works on 4, 5, 6, 8, 10, and 12 cylinder engines
- Programmable repeat feature

Specifications:

- Input Voltage Range: 10 to 18 Volts DC (16 Volt compatible)
- Operating Temperature Range: 0 to 150 degrees F.
- Tach and RPM Switch Range: 3000 to 9900 in 100 RPM increments
- Two Separate Output Each rated at 15 Amps.
 - NO (normally open)
 - NC (normally closed)

Wiring

