

DYNA DRL-300CDI RPM LIMITER

Introduction

The DRL-300CDI RPM Limiter is designed to work with small engine CDI Ignitions equipped with a grounding type kill switch. This includes most dirtbikes and snowmobiles, excluding Arctic Cat. Arctic Cat models, while equipped with a kill switch, use a different method for killing the spark, and are not compatible with this device.

As shipped, it is set up to work for most single cylinder applications. By changing the settings, the DRL-300CDI can be used to limit up to 8 cylinder engines. The installation detailed below requires a basic understanding of wiring. A wiring diagram for your vehicle would also be helpful, and can be found in most shop manuals. Please read the directions completely before installing the product.

Installation

Installation of this product will require an ohmmeter and the tools to splice a wire. The wiring diagram for a typical dirtbike installation (1997 Suzuki RM250) is shown below. It is intended for use as a general wiring reference only. The wire colors of other makes and models will vary, but the procedure is the same. There are four wires to be connected to make the rev limiter functional:

Black- This is the ground wire, and should be connected to a good ground point on the frame of the bike, preferably at the coil.

Red- This is connected to the vehicles battery. If the vehicle is not equipped with a battery, a 9V battery can be used. To do this, connect the red wire from the rev limiter to the (+) terminal on the 9V battery. Connect the (-) terminal on the battery to ground. However you power the rev limiter, do not allow the voltage on the power source to fall below 8V, or the rev limiter will not function properly.

Blue- This is connected to the vehicle's kill switch. Find the wire(s) that goes from the kill switch to the ignition. If there are two wires, one of these wires is grounded inside the ignition. To determine which wire is grounded, touch one probe of your ohmmeter to a ground point either on the bikes frame, or on the ignition coil. Then touch the other probe of the ohmmeter to the wires coming from the ignition box to the kill switch. One wire will have a very low resistance to ground (make sure kill switch is open or both wires will read continuity to ground).

The other wire is the kill switch signal wire, and is the one to connect the DRL-300CDI blue wire to. If there is only one wire to the kill switch, that is the wire to connect the blue wire to.

The switch is located inside the box, right below where the wires exit. To open the box, unscrew the four cover screws. The switch is labeled to identify which position is ON. A copy of the above chart is affixed to the inside of the lid.

Using the above settings, the rev limiter will function from 6000 to 12,000 RPM. The rev limit is set by turning the dial on the end of the box to the desired RPM.

If an rpm limit is required that does not fall within the 6000 to 12,000 rpm range, the entire range can be shifted up or down by changing the switch settings.

For example, a single cylinder engine with one pickup being triggered by the flywheel will generate two pulses every two crankshaft revolutions. If the switches are set for one pulse every 2 revs, the limiter will "think" the engine is turning twice as fast it really is, and limit at half the RPM. The adjustment range will then become 3000 to 6000 RPM.

Using the same example, if the switches are set for 3 pulses per rev, the limiter will think the engine is only turning two thirds (2/3) as fast as it actually is. The adjustment range will then become 9000 to 18,000 RPM.

To determine the new RPM range, as well as all the values in between, divide the new setting you selected by the actual number of pulses per 2 revolutions for your engine. This is the the adjustment factor. Now multiply the setting on the dial by this adjustment factor to get the new RPM limit.

Example: New switch setting = 1
 ---- X 6000 rpm = 3000 rpm
 Actual number of pulses = 2

Example: New switch setting = 3
 ---- X 6000 rpm = 9000 rpm
 Actual number of pulses = 2

Testing

In order to safely test the installation of the rev limiter, set the knob to the lowest RPM. Test the limiter in first gear by slowly revving the engine until it begins to limit. If the limiter appears to work properly, increase limiting RPM by turning the knob clockwise in small increments until you reach the desired RPM.

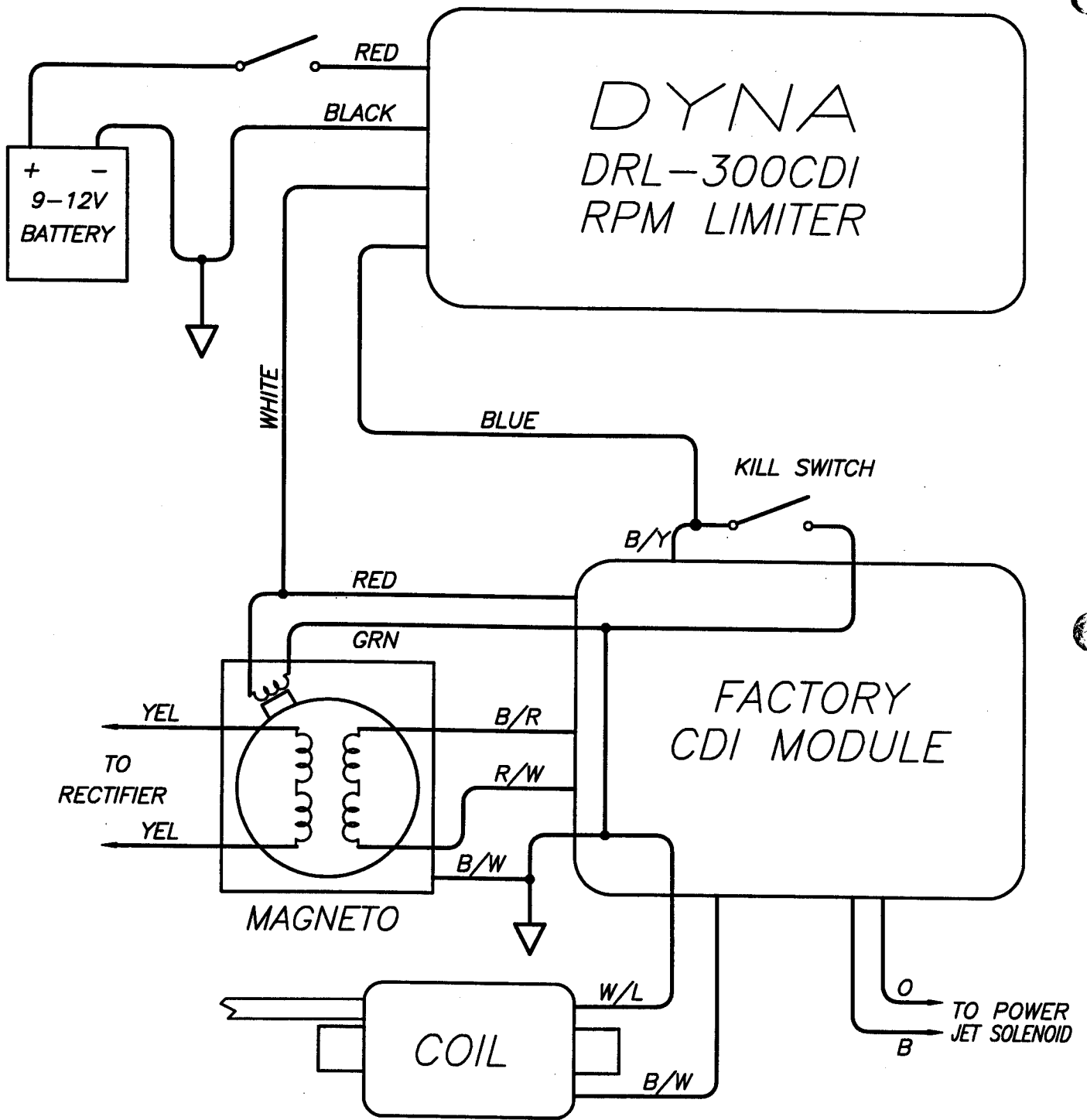
White- This is connected to the vehicle's magnetic trigger wire. There are two wires connected between the magnetic trigger and the ignition box. One of these wires is grounded inside the ignition box. Use an ohmmeter to find the wire that has a very low resistance to ground. Now connect the wire that is NOT grounded to the white wire on the rev limiter.

Setup and Operation

For most single cylinder applications, the rev limiter is already configured properly for a range of 6000-12000 RPM. If this is how you will use it, you can skip the rest of the Setup section, and proceed to the testing section.

Before using the rev limiter, the switches inside the rev limiter must be set to match your application. To do this, you must calculate the number of trigger signals the rev limiter will see in two complete engine revolutions. Count the number of teeth on the wheel that the magnetic trigger senses. If this wheel spins at engine speed, multiply the number of teeth by two to get the correct number of trigger pulses per 2 revolutions. If this wheel spins at half engine speed, the number of teeth is the correct number of trigger pulses per 2 revolutions. Using this number, find the appropriate switch setting in the following table.

Switch #			Pickup Pulses Per 2 Crankshaft Revs
1	2	3	
Off	Off	Off	1
Off	Off	On	2
Off	On	Off	3
Off	On	On	4
On	Off	Off	5
On	Off	On	6
On	On	Off	7
On	On	On	8



TYPICAL WIRING FOR DRL-300CDI.
 1997 SUZUKI RM250 SHOWN.
 OTHER MAKES AND MODELS VARY.