SHINWA
MOTOR DRESSER FET

by FRANK MASI

I LOVE TOYS! I love to play with them; and I especially love to buy them. Unfortunately, toys can sometimes be a little more costly than my budget allows. Of course, I get them anyway, but I feel guilty later—even more so when I realize that I didn't really need them to begin with.

The new Motor Dresser FET from Shinwa* is just such an item. Don't get me wrong; the Motor Dresser delivers what it promises—a visual indication of motor timing; variable motor speed with a dual-range tachometer; and a measurement of no-load motor current—but besides the tach and the ammeter, the rest of its features don't tell you a heck of a lot. If you're in the market for a device that will give you an idea of the kind of shape your motors are in, then you could do a lot worse than to pick up the new Motor Dresser!

To get maximum performance from an electric motor, it's critical that you maintain it properly, clean it with a good motor spray between runs, change the brushes when they become worn or discolored, and keep the bearings or bushings clean and properly lubricated. But what if you do all this and still get dusted by a driver with comparable skills and the same motor as you? Then perhaps you need to learn how to tune your motor for better performance on specific tracks and traction situations. I know what you're thinking: "That's all fine and dandy, but I don't have the slightest idea how an electric motor works, let alone the know-how to make one run better." Enter the Shinwa Motor Dresser (isn't that a Bruce Lee movie?), which is the latest offering in Shinwa's line of electric racing equipment.

GETTIN' DRESSED!

The Motor Dresser is a fairly compact (approximately 12x4x3 inches) unit that's designed to give you an idea of how well your motor performs and the changes you can make.

Brushes, springs and timing all affect a motor's characteristics. The Motor Dresser is not, I repeat, *not* a dynamometer. A true dyno measures torque and rpm under load, and the Shinwa uses a no-load method

Shinwa's new Motor Dresser FET features dual-range tachometer, fully proportional FET speed control, dual-scale ammeter and break-in timer.

to determine rpm and amp draw ratings.

The Motor Dresser FET will perform the same three main functions as its predecessor; it has a tachometer that reads in the standard revolutions per minute (rpm), a DC current ammeter that shows the amp draw of the test motor as it relates to the speed at which it's being run, and a motor-timing meter (Shinwa calls it a "timing-point meter") to help you determine the right end-bell position for optimum efficiency. What separates this FET model from the previous Motor Dresser is its Mosfet motor-voltage control, which allows greater accuracy and smoother speed settings for testing and break-in, and the new Shinwa has a variable timer that automatically shuts off the unit.

To operate the Motor Dresser, you must first make your own lead wires and connectors—one for the power input and another for the motor-output terminal (two lead wires with alligator clips on their ends are more than sufficient for this). Although making my own leads was hardly a traumatic experience, I think that *the least* Shinwa could have done was include some wire for this purpose.

The instructions recommend that, to test and break-in your motor, you use a battery with the same voltage as the one you'll eventually run it with, so use any spare 6- to 20-cell pack.

Once you've determined which battery is best for you, charge it as you would if you were going to run it in your car, and then hook it up to the power-input connectors, being sure to note the correct polarity. Now take the motor

Too-Cool Tuning Tool

you wish to test and attach the Shinwa's magnetic pickup to the shaft on which you'd put a pinion gear, and put the motor—shaft down—into the Dresser's "Christmas tree," stand-like motor holder. The pickup magnet is what allows the Motor Dresser's tachometer to determine rpm.

To protect your motor from being damaged, the instructions tell you to set the speed control to zero before you turn on the unit; if you don't, the start-up amp draw may damage both the Motor Dresser and your expensive motor.

PRIMARY FUNCTIONS

Of the Motor Dresser's three primary functions, I usually find myself consulting its tachometer first.

● **The tachometer** uses a dual scale that allows you to select either a low (0 to 20,000rpm) range, or a high (0 to 50,000rpm) range. The lower range is useful when you're performing slower-rpm operations such as break-in and timing-point adjustment; and the higher setting gives an overall rpm rating for you speed-freaks.

I found the tachometer very useful when selecting brush and spring combinations (especially for stock motors), but always remember that the tach should be used with the unit's ammeter, because the relationship between rpm and amp draw will determine a motor's power curve. Trust me on this one; I tuned a stock motor to have a low amp draw and high rpm to see how it would work in my off-road car, and boy, what a dog this motor was out of the corners! So take my advice, and use the ammeter with the tachometer.

● **The ammeter.** It's important to note that most motors, stock and modified, should be drawing around 2 to 3.5 amps at most. If a motor tests out at more than 3.5 amps, it should be adjusted to a lower rating. Any motor that pulls 4 amps or more on a no-load ammeter should be checked for shorts and other damage. The instruc-

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tions for the Motor Dresser are very specific on this point: running a motor that draws in excess of 4 amps for extended periods can damage the Shinwa as well as the motor.

● **The timing-point meter** has four scales: one for stock, or 8-minute motors; one for high-speed, or 6-minute motors; another for high torque, or 4-minute motors; and one for modifieds. All four scales may be set by means of the timing-adjustment knob located below the meter itself.

If the tachometer and the ammeter are the highlights of the Motor Dresser, then the timing-point meter is the disappointment. Like the one in the previous Shinwa, its value remains a mystery to me. Theoretically, this feature is supposed to find a motor's optimum timing point (or zero degrees) and let you advance from this setting. The best use I could make of it was to use it to give a starting point from which to advance or retard timing—by rotating the end bell—when I was running a motor in the Motor Dresser.

Because of the perplexing nature of the timing-point meter, I decided to conduct a mini-survey of Shinwa owners in my area, and of the dozen or so I spoke with, not one had been able to figure out exactly what it was supposed to do! I'm not alone!

The break-in timer belongs exclusively to the new Motor Dresser FET. Consisting of an illuminated on/off switch and adjustment pot (which can be set anywhere between 30 minutes to an hour), the timer will automatically cut off the power to the test motor. Unfortunately, if you plan to run your motors for 30 to 60 minutes to break them in, then

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plan to have your commutator cut afterwards, as most motor manufacturers recommend short break-in periods—around 5 minutes (with a shot of motor spray every minute or so while it's running) at 3 or 4 volts. The purpose of this is to allow the removal of surface irregularities on the brush, between it and the commutator. Actual break-in occurs when the motor is run in the car under load after just a few minutes. Running without load won't accomplish this.

GETTIN' CHARGED!

Just to show you that the Shinwa engineers are always thinking of ways to improve their products, the Motor Dresser can actually be used as a battery charger and discharger.

To charge batteries on the Shinwa, you must first replace the battery you were using to test your motors with a 12V power source (a car battery or a regulated power supply). Next, in place of the motor, hook-up the battery you want to charge; set the FET motor speed control so that the built-in ammeter reads 1.5, and charge away. (Remember to use the break-in timer or an auxiliary timer.)

Finally, to discharge a battery with the Motor Dresser, hook your pack up as if you were going to test a motor, but instead of a motor, connect a 0.1-ohm 10W resistor. While the battery is discharging, use a voltmeter to monitor the voltage to prevent cell reversal.

So there you have it. I found some of the new Shinwa Motor Dresser FET's features quite useful, but others fell short of my expectations. The bottom line is that only you can decide whether its benefits are worth the investment.

*Here's the address of the company featured in this article:
Shinwa; *distributed by Pacific Trading Co., P.O. Box 3593, Mission Viejo, CA 92690.* ■