

# TECH TIME



## Upgrading

Tough not a difficult operation for the mechanically inclined some specialized tools were needed and others needed to be adapted or improvised where factory tools were not available.



In order to get to the top end of the motor, the seat, rear bodywork, floorboards and under seat storage tub must be removed. Yet, it's not necessary to drop the motor from the frame. Following the installation article from Scoot! issue #29 it's a simple matter of removing the stock components and replacing them with new ones. In summary, you will remove the exhaust system, airbox, cooling shrouds, carburetor, reed block, cylinder head, cylinder and piston. I needed to unbolt the oil injection tank from the frame but was able to leave the main feed attached to the motor. The new kit includes a fitting to allow the oil injection system to be retained.

## Project Malaguti: Pushing 50ccs to the Limit

By Mike Zorn

As indicated by the teaser in our last issue, Scoot! took on a project designed to explore the performance possibilities of a basic 50cc twist-and-go scooter. We started with a bone stock Malaguti F-10, a sporty looking entry-level scooter with a 50cc Minarelli air-cooled motor. This motor is found in many European scooters and used under license in many Chinese models, so many of the parts and modifications we cover will have applications to other brands of scooters. For our upgrade we received a kit from Martin Racing Performance containing a cylinder kit, expansion chamber, carburetor, and an upgraded transmission variator and clutch. This kit is similar to the kit explained in the tech article we published in issue #29 and we will use that article as our instructions for installation (as the kit came with none).

After setting up the bike the Scoot! staff passed it around for a couple of weeks to break it in and get a feel for its stock, err...capabilities. Granted, this class of scooter is probably better suited to carrying skinny teenagers or adults of smaller stature and we on the Scoot! staff will never be accused of skipping a meal, yet we found the acceleration to be sluggish and the top speeds (since you must ride with the throttle wide open all the time) to be in the low 30s. A trip to the Moto Italiano dynamometer showed an uninspiring 2.2 horsepower. The good news? It got pretty incredible gas mileage; I think we only put two tanks of gas in it during our entire preliminary tests, which included a whole scooter rally.



I used plenty of two-stroke oil when assembling the piston and cylinder and was careful to properly locate the piston rings on their locator pins and to install the piston right side up (arrow pointing to exhaust). I installed the cylinder head and torqued the nuts to 10 ft pounds and made sure I hadn't forgotten

the new base and head gaskets (!), installed the new reed block, cooling shrouds (I found these to be a tight fit on the new cylinder) and exhaust header (left the bolts loose until the pipe was installed). Some adaptation/minor fabrication was needed to adapt the Malaguti's throttle cable to the new Keihin copy carburetor. The stock carburetor comes with a curved ferrule pressed into the top that makes it easy for the cable to make the 90-degree turn, the new carb does not. I could have found this part at my local dirtbike shop or ordered one but I opted to cut the one off of the stock carb and adapt it to the new one. With the throttle cable functioning, I attached the new carburetor to the reed inlet and attached the feed from the oil injector to the vacuum hose from the petcock. The stock



airbox wouldn't work with this setup and the fit of the carb against the frame was too tight to squeeze on a foam filter so I opted to just run the carb open. With the motor back together I bolted up the new bracket and slick-looking expansion chamber to the exhaust header tightened the nuts and bolts and installed the springs that hold the pipe and header together.

After a quick check to make sure that all was bolted up I pulled the choke and gave it a couple of kicks. VROOOMAMAMMMAMAMMA! That sounded more like it! Time to put the bodywork back on and go for a ride. Due to the taller carburetor I needed to cut a clearance hole in the storage bin. A quick ride indicated that the bike was suddenly capable of exceeding the abilities of its speedometer, which was pegged in about three seconds. Looking at the old parts I can see why the poor thing struggled so hard before, the original carburetor was tiny, the exhaust very restrictive and the barrel featured a cast in restrictor in the exhaust port. Time to continue with the transmission upgrade.



The MRP kit comes with nearly all-new parts for the transmission, as before a simple off with the old and on with the new. An air impact wrench would have helped but I made do with a clutch holder, a large strap wrench and a breaker bar. I did not replace the belt at this time as it looked like new. Bolted back together it was time for a proper test ride.

I opted to add 1% oil into the tank to augment the injector pump as the fuel/air delivery/exhaust capabilities of the new components may exceed its ability to keep things lubed. The new carb does not have an automatic choke like the original so one must squeeze their hand through the oil tank access door to reach the knob, fortunately only when the motor and weather is cold and it lights up quickly and idles well. The carb comes jetted for this application (with a couple of spares) and I left everything as it was. The motor is quiet and docile at parking lot speeds but crack the throttle beyond that and all hell breaks loose as the rpm quickly wind up, the transmission really grabs and the pipe lets out a banshee wail. Can you say light switch power delivery. Pretty kooky on a bike that weighs less than the rider

### The Hard Numbers

Readers of part one (Scoot! #34) will recall that our "before" test on the Moto Italiano dyno gave us a less than stunning 2.2 horsepower and a top speed of 32 mph. A return trip for the "after" test gave us (are you ready for this) 7.6 horsepower and 70 (seven-zero!) mph. At this stage everything is set up straight out of the box. Stay tuned for future installments as we see how much more we can get out of this little beast.

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