TWINMAX™
The Electronic Carburettor Balancer
Restores the power, response and smoothness of your engine !

THE BENEFITS OF CORRECT CARBURETTOR BALANCE

With use, the chain of cables, rods and linkages that connect the throttle to the carburettors will stretch and change their tolerances which results in the carburettor sliders or butterflys operating at slightly different times from one another. This produces an imbalance in the carburation of the engine due to unequal amounts of air entering the cylinders at any given time. Carburettor balance, or synchronisation, is essential for the efficient running and longevity of your engine. Any imbalance in the timing, or amount of, throttle opening amongst the carburettors on your engine will result in reduced performance, poor throttle response, excessive fuel consumption, increased vibration and increased stress on the crankshaft and bearinqs.

Regular balancing of your carbs with the TWINMAX will ensure your engine performs at its best at all times.

- ***Use with virtually any machine!***
- ***Suitable for fuel injection systems***
- ***Use with any number of cylinders***
- ***Absolutely Accurate***
- ***Electronic - no moving parts***
- ***No Mercury or springs or weights***
- ***Unit not position sensitive***
- ***Compact***
- ***Portable***
- ***Easy to use***

THE ADVANTAGES OF THE TWINMAX BALANCER

Other balancers use either dial gauges or tubes containing mercury or spring loaded weights with one gauge per cylinder and any adjustments to the carburettors are made according to the readings on each of these gauges. This means that not only is there the potential for errors to due to the moving parts of each gauge, it is very difficult to ensure that each gauge gives exactly the same reading on a given amount of vacuum, due to variances in manufacturing tolerances, friction differences, volumes of mercury or tension of springs.

The **TWINMAX** is different. The **TWINMAX** works by comparing the vacuum present on either side of a single pressure sensor and shows this difference as a meter reading. The carburettor being calibrated at that time is then adjusted until there is no deviation on the meter! No potential errors and only one reading to make at any time!

Synchronising carburettors with the TWINMAX is simple, quick and gives professional level accuracy every time !

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TWINMAX™
made in by
Selectronic

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THE ADVANTAGES OF CORRECT CARBURETTOR BALANCE

Carburettor balance, or synchronisation, is essential for the efficiency and longevity of your engine. Any imbalance in the timing, or amount, of throttle opening amongst the carburettors on your engine will result in reduced performance, poor response, excessive fuel consumption, increased vibration and increased stress on the crankshaft and bearings. With the **TWINMAX**, all these problems can be eliminated resulting in a responsive and smooth motor

USING THE TWINMAX

Carburettor synchronisation is easy to achieve provided you can use a small spanner, a screwdriver and a pair of pliers! The theory is simple – each carburettor has either a sliding valve (known as a slider) or a twisting valve (known as a butterfly valve). When the throttle is used a combination of cables and rods (depending on the machine) is activated, opening or closing the valves in the carburettors and regulating the volume of petrol/air mixture allowed into the engine. If these valves do not begin to open at exactly the same time and by precisely the same amounts the motor will be unbalanced or unsynchronised. This causes vibration, poor fuel consumption, poor throttle response, reduced performance and can stress crankshafts and bearings.

Regular use of the **TWINMAX** eliminates these problems and leaves you with a beautifully running engine!

NOTES ON CARBURETTOR BALANCING

It is important to note that the engine should be in a good state of tune before using the **TWINMAX** if the full benefits are to be gained. Ensure all plugs, points, ignition components, valve clearances, air filter and oil are all serviceable.

Depending on the engine concerned, your carburettors may have stubs covered with a rubber cap or screw or they may have blanking screws on the side of the inlet, in which case remove these and replace them with one or other of the brass adaptors supplied; finger tight is fine.
If there are any balance pipes between your carbs, remove and blank them off.

If your motor has rubber connecting hoses between the carb and the engine, hypodermic needles may be used – push them through the rubber into the airflow and connect the ends to the pipes of the **TWINMAX**. These holes will self-seal when the needle is withdrawn.

On a lot of motorcycles, you may have to remove the fuel tank in order to obtain access to the throttle adjusters. Either sit the tank on the saddle or on a suitable table near the bike and run a length of fuel hose to the fuel feed hose or connector at the carburettors.

Ensure the engine is warmed up before commencing balancing.

BALANCING WITH THE TWINMAX

It is important on engines with more than two cylinders that you always balance all the cylinders against one which remains the reference or constant. Often there is one cylinder which is intended for this use - your manual will tell you this. It is suggested you use tube «A» for the reference cylinder.

For good results, the engine should be near running temperature. On an air-cooled engine or a motorcycle it is advisable to sit a fan in front of the engine/bike to keep the exhaust pipes and motor cooled. On bikes, beware of exhaust pipes getting very hot and blistering nearby plastic fairings etc. **Keep an eye on engine temperature!**

1. Ensure there is slack in the cable from the twistgrip or throttle pedal. If there is not a master idle screw, ensure all cable or rod adjusters have some free play – this makes sure that all carbs are sitting at idle ie; with their valves shut.

Position the **TWINMAX** conveniently on the bike such as on the saddle or on top of the frame and switch it on.

2. Connect the tubes to the carbs – one on the reference cylinder and the other on to one of the other carbs.

3. Turn the **SENSITIVITY** knob fully to **MAXI**.

4. Adjust the ZERO knob until the Meter needle is precisely through the middle of zero on the scale; this adjustment is very sensitive and is very important.

5. Turn the **SENSITIVITY** knob back to **MINI**.

6. Start the engine and allow it to settle to a steady tickover. Don't be afraid of blipping the throttle – this makes certain the throttles are properly seated on their stops.

7. Slowly turn the **SENSITIVITY** knob until a deviation shows on the scale. The less out of balance the two cylinders being tested are, the more you will have to turn the **SENSITIVITY** knob to show an imbalance on the scale.

8. If there is no preset reference cylinder, quickly check each cylinder with one tube and choose the cylinder with the minimum deviation from zero on the scale as the reference cylinder.

9. Adjust the idle/slow running screw on the carb being adjusted (not the reference carb) until the meter shows an **equal deviation** each side of zero. The meter is very sensitive so care must be taken to use small increments of adjustment. Blip the throttle each time you make an adjustment to ensure the throttles are properly settled.

10. Repeat for all cylinders.

Once all the carbs are balanced at idle, they must next be balanced on throttle opening. As before, balance each carb against the reference cylinder.
Note that the balance must be checked as the throttle is opening and the engine is accelerating, **NOT** as the throttle is being closed and the revs are dropping. With some practice, you will be able to do this efficiently, and you'll also be able to check the balance at a constant throttle opening.
You may find that a cylinder will balance fine on the opening up stage, but not on a constant opening; the skill lies in being able to interpret this and achieve a balance between one and the other.

11. Start with the **SENSITIVITY** knob about the middle of its' range. Run the engine and this time open the throttle gently and run the revs up to 3000 or 4000 rpm and make a note of any deviation on the scale; again, if it is not pronounced, increase the **SENSITIVITY**.

12. Now adjust the carb throttle actuator – this is either a cable adjuster or a screw acting onto a plate or rod and may be hidden inside the carburettor top. Be careful to make only small adjustments. Note that if there are locking nuts on the adjusters, doing these up will affect the setting so double check the results and blip the throttle to settle things out.

13. Repeat for all the cylinders.

14. Adjust the slack in the cable from the twistgrip/pedal to manufacturers specifications.

CHANGING THE BATTERY

The TWINMAX uses a standard 9V alkaline battery (IEC 6F22) to supply the electronics and the backlight lamp. The battery life is around 10 hrs due to the dial backlight.
To replace it, slide the battery lid, located at the rear of the instrument, towards the side, extract and disconnect the old battery. Put the new one in place and reverse the procedure.

WARRANTY

Subject to normal use, this product is guaranteed for a period of one year from date of purchase.

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