



Congratulations on the purchase of your new ZDZ engine! These are extremely powerful engines and require the utmost attention to safety! Please read all enclosed information. We wish you many enjoyable flights.

This is a generalized manual for all ZDZ engines provided as a courtesy by Troy Built Models, Inc. and some content may change without notice. Please refer to the website or the provided engine manual for more details.

Propeller sizes

*these are a few of the recommended break-in propeller sizes and (after break-in sizes):

ZDZ 40SE or RE- 18x12, 20x8, 20x10(20x10), 19x10-3 blade
ZDZ 50NG- 20x10, 22x8(22x8, 22x10, 23x8), 20x10-3 blade
ZDZ 60RV- 22x10, 23x10(22x12, 24x8), 22x10-3
ZDZ 80RV- 24x10, 26x8(26x8, 26x10), 24x10-3
ZDZ 80 Twin- 24x10, 26x8 (24x12, 26x10), 24x10-3
ZDZ 90 J- 27x10, 27x12, 28x10, (28x12) 25x10-3, 25x12-3, (26x10-3, 26x12-3)
ZDZ 80 Inline- 24x10(24x12, 26x8), 24x10-3
ZDZ 100 Inline- 24x12(26x8, 26x10), 25x10-3
ZDZ 100NG- 26x10(26x12, 27x10), 25x10-3
ZDZ 120 and 120R2 inline- 28x10(30x10), 26x13-3
ZDZ 160 Champion and 160R2 inline- 30x10, 31x10(30x14, 32x10), 28.5x12-3, (29x12-3)
ZDZ 180 J- 30x12, 31x12, 30x14, 32x12, 29x12-3 (30x12-3)
ZDZ 210 J and 210 JR2 inline- 34x10, 34x12, (34x14, 36x10, 31x12-3, 32x12-3)
ZDZ 420 J- 39x12 (39x16, 39x18, 40x16, 40x18) 34x14-3, (36x16-3)

Propeller Bolts

All six propeller bolts in conjunction with the central prop bolt and locking nuts **MUST BE USED**.

It is **VERY IMPORTANT** to measure the length of the bolts in relationship to the propeller thickness and Spinner Backplate (if used) to prevent the bolts from bottoming out in the drive hub. The 6 propeller bolts **MUST BE CHECKED OFTEN** for tightness especially if using a wooden propeller. Prop bolts must have at least 10mm of engagement into drive hub. Loose bolts will shear off present an extremely dangerous situation as well as voiding repair and or replacement of the drive hub.

Spark Plugs

Stock spark plug(s) are the NGK BPMR6F resistor type. The gap should be set to 0.016-0.018" . Output voltage is 22Kv and care must be taken when the ignition system is connected to a power source.

Ignition System

We recommend the Ignition system battery be a minimum of 1400ma for single units and 1800ma for twin units. A separate battery pack and a heavy duty switch harness must be used. You should never share a receiver battery to power the ignition system unless using a Wike R/C IBEF unit. Isolate the ignition system from vibration and direct engine heat. Be sure the braided high voltage cable does not wear against any surface due to vibration. Input voltage must not exceed 7.0V for the ZDZ ignition units.

Always refer to the ignition label for proper input voltages as these specs change frequently! The hall sensor should be installed referencing the left edge of the hall sensor bracket to align with the small scribe mark on the front of the engine. This is the correct timing setting and should never be altered.

Fuel Mix

For the first 4 gallons use a high quality non-synthetic oil such as the Pennzoil Air Cooled Oil at a ratio of 32:1(4.0oz/gal). We then recommend switching to a high quality synthetic oil at a mix ratio of 40:1(3.2oz/gal) for the life of the engine. The 40:1 mix ratio is the after break-in ZDZ recommended ratio for the life of the engine. Thinner mix ratios cannot be tolerated and will void any existing warranties.

Use a high quality pump grade gasoline only of 91-94 octane for best results. Do not use Coleman camping fuel (white gas), racing fuels or leaded Aviation grade fuels.

Recommended Starting Procedure for rotary valve equipped ZDZ Engines

ZDZ engines that use a rotary valve with fixed induction timing must use a unique starting procedure as compared to their piston ported or reed valve inducted counterparts. The starting procedure described below is most commonly referred to as the "5, 5 and 1" method. It is the preferred way to start a ZDZ engine once the carb has been primed.

For brand new engines, a richer low speed needle setting of approx. 2-1/2 turns out is required for initial fuel draw.

Step 1

With the Choke completely closed and the Ignition system OFF, advance the throttle to full open,

Flip the prop smartly 5 times.

Step 2

Open the Choke completely, Leave the ignition system in the OFF position, leave the throttle at full

open, and flip the prop smartly 5 more times.

Step 3

Reduce the throttle completely and advance the trim to a mid to high setting, turn the ignition system ON, 1 smart Flip and the engine will start!

Notes:

The use of baffles and spoilers in a cowled installation is a **MUST and any failures associated with overheating will not be warranted.*

**The use of a IR temperature gun (Pyrometer) is highly recommended. Typical Cylinder Head Temperature (CHT) measured between the top 2 fins on the front of the cylinder immediately following a flight and should range from 180-210F. Higher temperatures are indicative of a problem and must be resolved!!*

Warranties for DL, MT, DA, RCS, ZDZ, SV, Moki, and more.

TBM now offers many brands of engines. TBM has an engine repair facility now at 2095 Global Ct., Sarasota, FL 34240. Always call before sending the engine in for repair.

Desert Aircraft does all its own service and warranty work in Tucson Arizona. The DA warranty is for 3 years of parts and service. Here is their contact information:

Desert Aircraft

1815 South Research Loop

Tucson, Arizona 85710

U.S.A

Phone: 520.722.0607

Fax: 520.722.5622

Email: info@desertaircraft.com

Only the following engines sold by TBM does TBM provide the warranty on at this time:

- Aerovate (2 years)
- RCS-SV 2-strokes (2 years)
- RCS 4-strokes made in Hungary (2 years)
- DL (2 years)
- Rotomotor (2 years)
- ZDZ (42 months)

The above engines have specific warranties as indicated covering **parts and labor** for factory defects. The TBM Service Dept. makes the decision as to whether or not an engine is eligible for warranty consideration. The customer must send the engine in for us to thoroughly inspect and/or bench run, and communicate with the engine manufacturer as to the specific failure. Only then would a warranty situation be determined. The warranties do not cover customer abuse.

Typical issues not covered under warranty would be sheared propeller bolts and any associated damages, stuck piston rings, scuffed pistons and/or scored cylinders from overheating due to improper fuel, oil or mixture ratios, incorrect needle valve settings, improper air baffles, insufficient air extraction, a restrictive or improper exhaust system, too large of a propeller, an engine modified from its original factory configuration or improper carburetor throttle and/or choke lever installation, if required. The parts are covered by the manufacturers. The labor is paid for by TBM. These manufacturers do not provide us any reimbursement for labor. TBM must pay for this labor from proceeds from the sale of the engine. Thus we can only extend this warranty at no charge if the engine was purchased from TBM. If you purchased the engine from China or another source, we will do our best to help you, but we cannot guarantee free labor.

Shipping costs are not covered under any warranty. You may drop off the engine at our repair facility.

First and foremost, if you have a problem with an engine, call TBM and we will do our best to resolve the issue over the phone. If we suspect that a simple part needs to be replaced, we will send you the part. In order for you to obtain the part at no charge, we must file a claim with the factory, so we need documentation from you to substantiate the claim. This substantiation may be in the form of a photo, or we may need the suspected part sent to us. If we cannot resolve the issue over the phone, send the engine in for us to thoroughly inspect and/or bench run, and communicate with the engine manufacturer as to the specific failure. Shipping costs are not covered under warranty. If there is ever a cost involved other than shipping, we will offer an estimate and we will wait for your acceptance before repairs are performed.

There is a very limited warranty on any manufacturer's ignition. If ignitions are exposed to more than 6v they can stop working. Since there is no way to tell if the ignition was operated with a higher voltage, then there is no warranty on it.

All engine warranties are transferable and remain in effect only from the original date of sale from TBM. A copy of the original TBM purchase receipt may be required, and/or the sale to the original owner must be traceable through our records at TBM for warranty consideration.



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