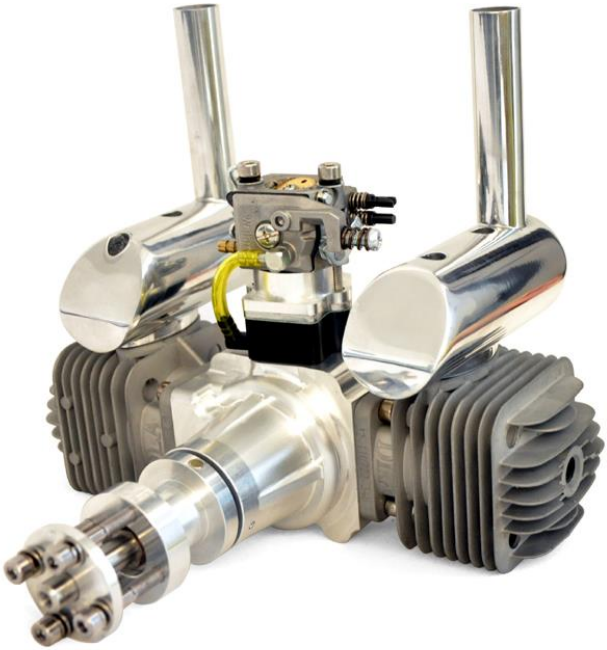
DLA64

TOP-LEVEL GASOLINE ENGINE

USER MANUAL



Manufactured by FeiaoModel

www.dlaengine.com

User Manual

Thank you for purchasing the DLA series engine. Please read all of the instructions below before starting your engine. Pay particular attention to the Instructions regarding “Safety”.

About DLA engines

Your DLA engine has been specifically designed, developed and manufactured from proprietary components for giant scale modeling. It is very powerful, extremely lightweight, and easy to adjust and operate. Given proper care, this engine should provide years of outstanding wear and performance.

The main components of the engine, such us the spark plug, ignition system, bearing and carburetor are all imported from world famous manufacturers. The crankcases which are machined from aluminum alloy make the engines wear and damage resistant. Besides excellent fit and finish, precise bearing alignment is assured, which is critical to proper and safe engine performance. The carburetor is manufactured by Walbro. Make a note of the model number. Repair parts are readily available at most lawn repair shops.

The reliable auto advancing CDI ignition system enables easy starting and excellent performance. This ignition provides a very strong “spark”, yet is fully shielded to insure radio system is protection from R/F noise.

TECHNICAL DATA

Performance:

7.2HP/8500rpm
Idle speed:1700RPM
Static Thrust:
15.6Kg at 100 meters Altitude; 13.8Kg at 1800 meters
Propellers: 23X, 24X8

Spark Plug: DLA CM6; Gap: 0.018” – 0.020”

Parameter:

Displacement: 64cc
Bore and Stroke: 37mm x 30mm
Ratio of compression: 7.8:1
Lubrication Ratio：Break-in: 25:1~30:1 After break-in- 40:1~50:1
Weight: Engine/mufflers - 975g, Ignition module -100g

Safety Instructions READ BEFORE STARTING!!

WARNING!

This engine is not a toy! Serious injury and /or death can occur from its misuse! READ and become familiar with this entire instruction manual. LEARN the engine's applications, limitations, and potential hazards. DLA is not responsible for any loss, injury or damage resulting from the miss-use of its products.

1. Keep all spectators at least 30 feet away from the engine while it is operating.
2. Do not place or throw anything (e.g. fingers, body parts, objects, et al) into the rotating propeller.
3. Do not wear loose clothing, gloves, neckties, jewelry, or neck straps, which may get caught in the spinning, propeller.
4. Always wear eye protection when starting the engine.
5. Inspect engine mount bolts, firewall integrity, and aircraft before operating the engine.
6. Turn off the engine before making any adjustments.
7. Never use a damaged propeller. Insure the proper is the size specified in this manual.
8. Always use the correct length propeller bolts and make sure they are tight before every flight. Use **thread-locking compound if necessary**
9. Remember that gasoline/mixture is highly flammable and must be handled with extreme caution. Do not smoke while running or operating the engine.Keep engine fuel in a safe place, away from any sparks, excessive heat, or anything which could ignite the fuel.
10. Do not run the engine near loose material such as dirt,

gravel, power cords, ropes, sand, etc. Loose material can be drawn into the spinning prop causing injury or damage.

11. Engine installation

1. Each engine comes with a firewall mounting plate drilled with four holes for #10 size screws.
2. Spacers are required to keep the cooling fins away from the firewall where the firewall is larger than the engine plate.
3. Throttle return springs must be left in place To insure the engine does not speed excessively without a positive control installed
4. After you have connected the return spring to the throttle servo you may unhook it（do not remove it）, since it acts as a spacer for the butterfly. The butterfly will work loose by removing the return spring.
5. The ignition battery should be mounted externally, near the cowl, at least twelve inches from the receiver or throttle servo that connects to the receiver.
6. The carburetor needs at least 1 1/2" (38mm) of clearance between the intake and the bottom of the cowl. If there is less than 1 1/2", make an opening in the cowl below the carb at least as large as the carb intake diameter.
7. A long, narrow, screw driver is recommended to drill small holes in the cowl for adjusting the needle valves, since the carburetor must often be adjusted differently with the cowl on as compared to off.
8. These engines burn between one and two ounces of fuel per minute. Therefore, a 32 ounce or larger tank is recommended. The engines are equipped with a diaphragm pump carburetor making tank location not critical relative to the carburetors fuel entry position. Place the tank on the aircraft's center of gravity (CG). Then aircraft trim changes during flight will not be necessary from a full to an empty tank.

FUEL:

Insure clean 87 Octane gasoline is used for your DLA engines. Higher-octane fuel burns slower and will not generate more power and may cause the engine to run slower and overheat. Fuel/oil Ratio for initial use/break-in should be 25:1~30:1, after

break-in, normal ratio is 40:1~50:1,

Note: Damage caused by fuel additives, such as nitro, over-lean carburetor settings, over-advanced timing, and over-heating as a result of improper fuel/oil mixing and use of any fuel that is NOT recommended shall void the warranty.

Ignition system

DLA Ignition connection details:

- Working voltage: 6.6V~8.4V (7.4V，2S). A Li-Po battery is recommended). The red cable is positive (+), while the black is negative (-).
- Connect the battery to the DLA ignition module using one of the small red connectors provided. There are two small red connector extensions; One has a “Futaba” type connector and another has two bare ends for installing your own battery connector.
- The two other connectors on the module are connected as follows: One female (large connector) can be used for an RPM sensor. The remaining male (small) connector is plugged into the “Hall Sensor” on the engine.

Propeller selection and installation

Make sure the prop, spinner and prop bolts tight before each flight! Loose prop bolts allow prop movement which will shear the bolts.

Selection:

The following props are recommended:

18X8, 18X10, 19X8, 20X8.

Only use propeller sizes that are recommended above for your engine. The propeller blades must be of the same length.

Installation:

1. Use a drill press to drill your propeller from the rear.
2. A drill guide is recommended, the propeller washer may be used as a drill template by attaching the propeller washer onto the propeller using a bolt and nut in the center-bore.
3. Keep your propeller balanced.
4. Use thread-locking compound as necessary.

Engine starting procedure:

1. Fill the tank with fresh filtered fuel.
2. Insure receiver and ignition batteries are charged, receiver and transmitter are on, and throttle is set to low.
3. Close the choke and turn on the ignition switch.
4. Rubber stick is recommended to start the engine.
5. Flip the prop through its compression stroke until the engine fires. Once the engine stops (it will not run very long with a full choke), turn off the ignition and open the choke.
6. Switch the ignition back on and flip the propeller again until the engine starts.
7. Allow the engine to warm up for 15 or 20 seconds before advancing the throttle.

Carburetor Tuning and Care:

The use of a tachometer is highly recommended. “Never attempt to adjust the needles while the engine is running!”

Tuning

Note: The Low-speed mixture adjustment was set at the factory to be 1-1/2 turns. If the low speed is too rich, the RPM will drop gradually until the engine stops. Lean the low needle (L) a little at a time (1/4 turn) until a constant idle RPM is achieved.

1. Using a tachometer tune the engine with the high needle (H) until the motor runs 100-200 RPM less than the maximum RPM. Now richen slightly on the high needle (H).

2. **Caution**: Be sure to use the correct fuel/oil mix (shown above) for break-in.

3. Allow the engine to run at idle for 60 seconds. Verify the idle RPM remains constant.

4. Check the low-to-high transition with a quick throttle advance. The engine should sound like it is making a quick and steady increase in power.

Care:

If you use a filter, your carburetor screen will need to be cleaned periodically with clean gasoline. Check the choke and throttle plates periodically to insure the screws have not worked loose and they work freely.

Trouble Shooting:

Problem 1. The engine will not start.

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Solution:

1. Remove the spark plug connectors and spark plug. If flooding is suspected, disconnect the battery from the ignition module.

2. Rotate the engine to a position where the fuel runs out of the cylinder then clean the residual fuel from the surrounding areas.

3. Re-install plugs and connect spark plug connectors. Attempt a restart of the engine.

4. If there was no evidence of engine flooding, check ignition module for proper operation:

- TURN OFF THE IGNITION MODULE AND DISCONNECT THE BATTERY.

- Remove the plug connectors and rotate the engine without the plugs attached. Listen for a “snapping” sound in each of the plug connector boots. At night, the spark can easily be seen inside the boot-cap!

- If there is no sound/spark, check battery voltage and be sure it is charged.

- Check the hall sensor on the front of the engine and be sure the two screws are securely holding the sensor bracket to the propeller bushing. Insure the small magnet is still in the propeller bushing and passes directly under the sensor head as the propeller is rotated.

- If the engine fails to start, contact the place of purchase for further analysis/action or ship the engine back to the Service Center for repair.

Problem 2. The engine starts after being choked but then stops soon after.

Solution:

The low needle on the carburetor is probably too lean.

1. Close the (L) low-end needle valve then adjust out 1-1/2 turns, to factory setting.

2. Re-start the engine and readjust the L- end until a smooth idle is achieved, with a reliable transition to high throttle.

Generally if the motor stutters or coughs in the mid range or when the throttle is advanced, the low end needle is too rich and possibly even the high end needle may need adjusting.

Problem 3. The engine runs rough.

Solution:

1. Check the propeller for proper balance.
2. Check the ignition timing.
3. Check fuel lines for air/fuel leaks.
4. Check the spark plug for carbon and proper plug gap (0.018 – 0.020”).
5. Check the engine mount to be sure it is rigid and mounted on a level surface.
6. Check the engine and propeller bolts.

Problem 4. The engine doesn't reach a normal RPM at full throttle.

Solution:

Check:

A. Carburetor settings.
B. Propeller/Pitch is too large.
C. Engine is overheating.
D. Ignition timing.
E. Defective Spark plug.

Verify:

A. Correct muffler system.
B. Correct fuel and fuel/oil mixture is being used.

DLA WARRANTY POLICY

DLA engines include a limited TWO YEAR WARRANTY ON MATERIALS AND WORKMANSHIP to the original purchaser.

This warranty does not cover the following:

- Damage caused by improper handling, operation, modifications, or maintenance.
- Damage caused by a crash.
- Damage caused by using improper fuel, fuel/oil mixture, additives or batteries.
- Damage incurred during transit to Service Center.
- Attempted repair by the owner.

If you purchased this engine from Ron's Model & Woodworks, contact them for further instructions and advice. Do not attempt to repair yourself as this will void the warranty.

You may also ship the engine back to the manufacturer:

Company: Xi'an FeiaoModel Co., Ltd.
Address: 506 XitieGongcheng Building,
NO.205 Jinhuabei Road,
Xi'an, Shaanxi, 710032, China
Tel: 0086-29-68965278 / 82197815
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