

XYZ 53 STS Manual

Thank you for purchasing a XYZ 53 STS engine

Please read this Service Manual thoroughly and use the engine correctly (For safety reasons, please contact you the dealer to using the engine if there is something about it that you do not understand.).

Model: XYZ 53 STS

Ignition: DC-CDI (4.8 – 6 V)

Fuel model number: 93# or higher octane value

Cooling: Air cooled

Lubricate Oil: Two Cycle Oil

Mixing Ratio: 25-40 : 1

Max output : 5.5HP

Rpm Range: 1900- 9000rpms

Spark Plug : NGK CM-6

Propeller: 20x8 , 22x8 , 22x10 (Two Blade)

Bore x Stroke: 34 mm x 29 mm

Net Weight: 1.2 kg (Includes Ignition & muffler)

Warning!

1. This gasoline engine is just designed for the model airplane , please don't use in on the other occasion.
2. We are obligated to having products which make the defect to offer the service.
3. 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 possible hazards.
4. Modifications or use of the engine for other than its intended purpose is prohibited.

SAFETY PRECAUTIONSΔ

- These safety precautions are to prevent you and those in the vicinity from incurring harm or damage. Make sure to observe these precautions and to constantly strive to ensure safety.
 - Safe use of the engine is your personal obligation and responsibility. Constantly take care to act with good judgment as you enjoy your hobbies.
1. Have a special designed engine test bench for your engine ,if don't ,please mounted it on your model aircraft for breaking-in
 2. Mount the engine correctly
 3. Provide adequate air flow and cooling for the engine
 4. Provide adequate air flow and cooling for the exhaust
 5. Use an approved propeller and spinner
 6. Drill the propeller correctly
 7. Balance the propeller correctly
 8. Tighten the propeller bolts correctly and check them regularly

5. Check all batteries
6. Check servo functions
7. Check to see that the ignition switch is OFF
8. Check pressure (6-8 bar) system of retract (if applicable)
9. Check all linkages for play
10. Check your wheels for possible damage and easy running
11. Check the wing mounting for tight fit and proper attachment
12. Check the canopy for tight fit and proper attachment
13. When starting the engine one person (minimum) has to hold the model

Trouble Shooting Problem

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

The low needle on the carburetor is probably too lean. Go back to the recommended settings and adjust your carburetor from there. This problem may also indicate a dirty carburetor or faulty ignition.

The engine runs rough and is vibrating strongly.

Balance the propeller. Check the ignition timing. Check your plumbing for air/fuel leaks.Check your spark plug for carbon and check the spark plug gap. Check the motor mount to be sure it is rigid. Check to make sure the engine is mounted on a level surface so that the crankcase is free of tension. Check the engine and propeller bolts.

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

Check the carburetor settings. Check to see if the propeller is too large. Verify that you havethe correct muffler system. Check to see if the engine is overheating. Check the ignition timing. Check the spark plug for defect. Verify you have the correct gasoline, oil, and have mixed them with the correct ratio.

Malfunction and Elimination:

- After install the engine doesn't start up. Please check whether the power supply the joint connecting is right or not, if not, please connect it correct.
- Check whether the voltage is right or not (4V-6.8V) .
- Check whether the Hall parts link is right or not.
- Check the Hall part outputs polarity.
- The rotation is abnormal after start up engine.
- Check battery or power supply shall not less than 4v.
- Check whether the ignition's automatic advance angle is match with your engine or not (please contact with after service of our company).
- Engine doesn't work steady
- Check the each on-line connects whether plug-in is firm or not, the credibility has already had no short circuit.
- Lighting the front line connects whether ground is good or not.(shield hull and spark to fill and light a front line to shield a layer whether the contact is good)
Checking the spark fills to insulate whether intact, whether electrode cleft is normal or not.

Pilots check list

We strongly recommend checking the following agenda for your own safety before starting!

1. Check the propeller bolts for tightness
2. Check that the spinner is firmly attached
3. Check the propeller for possible damage
4. Check to be sure you have the throttle position at idle

9. Properly mount your ignition to avoid overheating
10. Use the correct battery and regulator (if applicable) for your ignition
11. Use the correct switch for your ignition
12. Use an appropriate fuel tank, plumbing lines, and installation
13. Use the appropriate fuel for break in and after break in (gas and oil)
14. Insure adequate filtering of your fuel
15. Maintain your engine properly, keeping it clean, etc.
16. Use a pre-flight check list before flying your model
17. Secure your model properly when starting
18. Adjust your carburetor correctly
19. Insure that your spark plug is in good condition and is secured correctly
20. Insure that your ignition wires are not frayed and are protected
21. Insure that your ignition cap is securely mounted
22. Keep all people behind the line of the propeller
23. Do not put anything (i.e., fingers, body parts, objects, et al) into the rotating propeller
24. Keep children away. All spectators should be kept a safe distance away from the running engine.
25. Wear proper apparel. Do not wear loose clothing, gloves, neckties, jewelry, or neck straps for your radio which may get caught in the moving propeller.
26. Always wear eye protection when starting the engine.
27. Do not operate this engine if you are under the influence of any drugs, alcohol or medication that could affect your ability to use the engine properly.

IGNITION UNIT MOUNTING

1. Make sure to install the power switch.
2. Push the spark plugs cap all the way over the spark plugs.(use gloves)
3. **Fixate the unit within the fuselage far away from the receiver by cable ties.**

FUEL AND PIPING

For gasoline, please use either regular or high octane, for cars. (The octane number should be 93 or higher).

For oil, use a high-performing mixed lubrication type of 2-cycle engine oil (FB grade or ISO EGC grade) and make the fuel volume ratio 1(oil) to 25-40(gasoline).

For fuel piping. Do not use a silicon tube. Clip the weight so that it does not come off when the engine is running.

1. Fuel tank capacity of 300-400cc
2. Carburetor
3. Weight
4. Filter mesh, 300 or more
5. Fuel pipe gasoline-resistant rubber or vinyl tube type with inner diameter of 2.5-3mm
6. Fuel pipe gasoline-resistant rubber tube
7. Air vent pipe
8. Fuel head 100mm or less

ITEMS TO CONFIRM BEFORE STARTING THE ENGINE

●Please determine the propeller to use in keeping with the airplane's size, gross weight. And flight characteristics. If necessary, consult with someone who has the proper experience.

Temperature: -20~85°C

Relative humidity: 80%

Introductions for Use:

Caution: If the power voltage is more than 7V, it will destroy the Ignition. If it is larger than 10V, it will cause explosion.

Please read it carefully in order to make the Ignition running steady and make gasoline engine fully exert its performance. Also please following the below to operate it.

●To make sure whether the battery power is match or not, and to insure have enough Current capacity.

- Please use resistance Spark Plugs in order to reduce theelectromagnetic interference.
- Demand adopting shielding line links the hall parts can better to eliminate electromagnetic interference.
- To cause interference please separate high voltage ignition line and Hall Transducer.
- It adopts negative pulse ready to ignite, to make sure Hall Transducer please insure to output for the anode, otherwise lighting firearms doesn't work.
- Install Spark Plugs cap exactly and to be made shielding steel casing and Spark plugs good and secure.
- When installing, please pay attention not to install electronic igniters on engine directly, so as to avoid high temperature make the ignition doesn't work normally.

The electronic igniter system shall have a distance with the receiver.system in order to prevent a destruction achieved.

28	53sts-28	Carburetor	1
29	53sts-29	Carburetor gasket	1
30	53sts-30	leaf valve	1
31	53sts-31	leaf valve gasket	1
32	53sts-32	Crankcase comp	1
33	53sts-33	Crankcase comp	1
34	53sts-34	Bolt	4
35	53sts-35	Muffler B	1

CDI Ignition OWENERS'MANUAL

Features of product:

This CDI is a kind of electronic automatic Advance angle igniters, which are specially designed for use of gasoline engine in the model planes.

It adopts PLC microprocessor automatic advance angle control, accurate ignition time can make gasoline engine fully exert its performance, and effectively prevent engine from sharking, and have a power polarity prevent

Specification:

Input voltage: DC 4.8v-6v

Output voltage: $\geq 20KV$

Consume Current: $\leq 500Ma$

- Fuel pump for gasoline
- Electric starter device
- Make sure that during the fueling process. The fuel does not come in contact with the battery or the fuel that has overflowed does not come in contact with the muffler.
- Make sure there is no loosening off or abnormalities with the tightening, etc., of each part of the engine and model.
- Are there any problems with the linkage(in terms of its direction and actuation stroke)?
- Has the battery been sufficiently charged?
- Are there any propeller abnormalities(scratches, deformation . etc)?
- Re-tighten the muffler(for starting an engine from the second try on).
- Make sure that the fuel pipe and the wiring of the DC ignition unit and the like do not pass through the engine's muffler body and that the wiring and fuel pipe are not interferences.

Starting the engine By Starter

- Close the choke lever and open the throttle valve 10%to 15%.
- Pressing the tip of the starter to the engine's spinner. Press the start switch for 1-2 second and let the engine rotating until saw some fuel flew out from choke .
- Switch on your ignition
- If the engine has made an explosive sound. Suspend the starting operation and start by opening the choke lever and rotating the engine using the starter. (Opening or closing the choke lever during engine operation is prohibited.)
- If the engine will not start, leave the choke lever in the open position and

rotate the engine by pressing the starter for 1-2 second. If the engine still not starts, repeat this operation 2 or 3 times.

(A)Points in starting

- During the first start up operation, does the fuel reach the carburetor? If the fuel reaches the carburetor, the choke should be open position.
- Is the ignition switch on ?
- If there is absolutely no explosive sound, remove the spark plugs and check it.
- If the spark plugs became wet condition by over choking, dry it out, open the choke, and restart.

(B)Cautions in starting

- One person must restrain the fuselage during the start up operation. (Thus start up is prohibited).
- With the spark plugs removed when using the starter for rotation or rotating the propeller by hand Make sure the ignition switch has been turned off.
- Rotation should be left. Confirm the direction of motor rotation in advance

ADJUSTMENTS AFTER ENGINE START UP

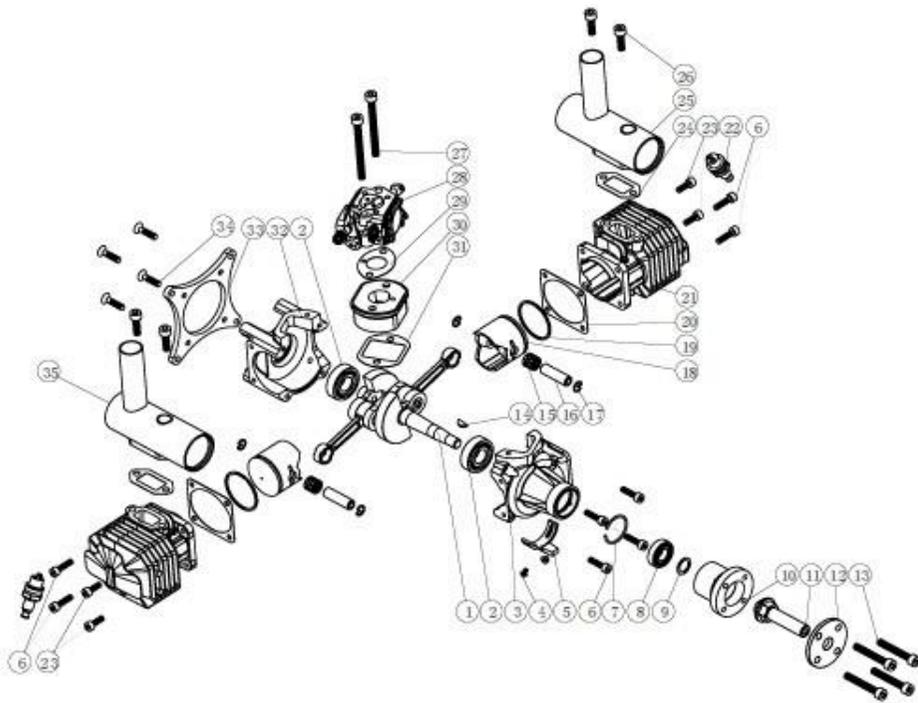
(A)ADJUSTING THE IDLING

- After engine start up, set the idling at about . Turn the L needle in (to reduce fuel), and search for the position for the max. Engine speed from that position, turn the L needle about **1 1/2 circle**, set the idling speed with the idle screw or the transmitter.

(B)ADJUSTING NUMBER OF ROTATIONS AT FULL THROTTLE

- Achieve full throttle slowly. When the engine speed stabilizes, turn the H needle in and out to locate the position for the max rpm.

Code	Mode Code	Item	Amount
0	53sts-0	Oilpump pipe	1
1	53sts-1	Crank Connecting rod	1
2	53sts-2	Bearing	2
3	53sts-3	Crankcase comp	1
4	53sts-4	Bolt	2
5	53sts-5	Hall support	1
6	53sts-6	Bolt	8
7	53sts-7	Steel cable baffle ring	1
8	53sts-8	Bearing	1
9	53sts-9	Wave washer	1
10	53sts-10	Hub	1
11	53sts-11	Shaft	1
12	53sts-12	Hub washer	1
13	53sts-13	Bolt	4
14	53sts-14	Semicircular spline	1
15	53sts-15	Needle roller Bearing K081112	2
16	53sts-16	Piston pin	2
17	53sts-17	Piston pin clamping spring	4
18	53sts-18	Piston	2
19	53sts-19	Piston ring	2
20	53sts-20	Cylinder gasket	2
21	53sts-21	Cylinder	2
22	53sts-22	Spark plug CM6	2
23	53sts-23	Bolt	4
24	53sts-24	Muffler gasket	2
25	53sts-25	Muffler A	1
26	53sts-26	Bolt	4
27	53sts-27	Bolt	2



PARTS LIST

To order replacement parts for the **XYZ 53 STS**, use the order numbers in the Replacement Parts Lists that follow. Replacement parts are available only as listed. Replacement parts are not available from Product Support, but can be purchased from hobby shops or mail order/Internet order firms. If you need assistance locating a dealer to purchase parts

- From the position of the max. engine speed, open the H needle **1 1/2 circle**(to increase fuel)to make the setting. In general, consider 100rpm to be the difference between the max. Engine speed and the set engine speed.After making the setting, return to idling. Accelerate rapidly and confirm that there are no problems with acceleration. If acceleration is poor, open the L needle an additional 1 / 8th(45 degree) and confirm that acceleration is smooth. In this case, the idling will be low, so use the idle screw or transmitter to adjust it.
- This engine has had the carburetor set at the standard position at the time of factory manufacture. Thus, no calibration is normally necessary. In keeping , if poor acceleration or insufficient speed at full throttle or the like result, make adjustments in conformance with the main points of adjustment after engine start up. However, the idling change depending on the size of the propeller used, which will make adjustment using the idle screw or transmitter necessary.

Engine Break In

1. Different from a glow engine, this engine does not require any special brake in.
2. After 5-10 tanks(2-3 hours), adjust the carburetor's L and H needles if necessary.
3. After about 5 hours' running. The max engine speed will be slightly increased from initial Max speed, owing to the engine having been conditioned.
4. Use a high Octane unleaded fuel (98 Octane is ideal) We suggest starting the break in process of the engine on a test stand; for approximately one hour. This time should be used to get familiar with the engine. Do not run the engine at full throttle for more than ten seconds during this test stand break in. The reason for this is that you are not getting the normal cooling effect that you would if the engine was in a model that was flying.

Note:

For break-in a smaller propeller is recommended.

Important:

1. Remember that when the engine running ever person must stay behind the line of the rotating propeller; never to the side or the front!
2. The engine needs 12-20 hours running time for the break in process to be 100% complete.

Engine Cooling

A proper cooling system is vital for any engine. An air cooled engine requires an appropriately sized air intake. Also to keep this air cooling process working the incoming air must be exhausted. Further, the exhaust air outlet should be four times (4X) the size of the cool air intake.

Example:

- . 10 square inches of air intake area would require
- . 40 square inches of exhaust air outlet area

It is up to you to insure that the air flows freely to, over, and away from, the hot cylinder(s) and muffler(s). Please refer to Engine Installation for motor box considerations, and to the following tips on baffling.

STOPPING THE ENGINE

To stop the engine, either use the transmitter to achieve full closed throttle or turn the battery switch off. When you have stopped the engine and not operating the engine, make sure to keep the battery switch off.

ENGINE RUNNING TIME

1. Because this engine uses a battery for power supply, the engine's continuous running time will depend on battery capacity. Please refer to the table on the right for guidelines

MAINTENANCE

To ensure safe use of the engine, make sure of the items specified in the table below.

Warranty**● Scope of Application**

This warranty applies only to the engines and parts manufactured by Jinnuo Machinery and sold directly or through by distributors.

● Limit of Warranty

This warranty shall apply only to trouble resulting from material defects and inferior assemblies that Jinnuo Machinery acknowledges.

● Method and Limit of Compensation

- 1) Repair or replacement through the distributors, etc.
- 2) Jinnuo Machinery and its distributors shall not provide compensation for incidental loss to engine purchasers resulting from trouble.

● Terms of Warranty

The term of warranty shall be three (3) months from the date of purchase, within one year from the date of manufacture.

● The warranty shall not cover the following, even if occurring during the term of warranty.

- 1) Any faults, failures caused from neglect of this OWNER'S MANUAL for proper operation and maintenance.
- 2) Dismantled or modified engines and parts.
- 3) Expendable parts
- 4) Trouble resulting from submersion in water, from fire or other natural disasters or calamities.
- 5) Engines installed with parts are not genuine.

