

# Care and Operation of your THIMBLE-DROME Strato-Bug ENGINE

Keep this engine immaculately clean, use **Thimble-Drome Glow Fuel** and it will maintain its easy starting and fine running characteristics.

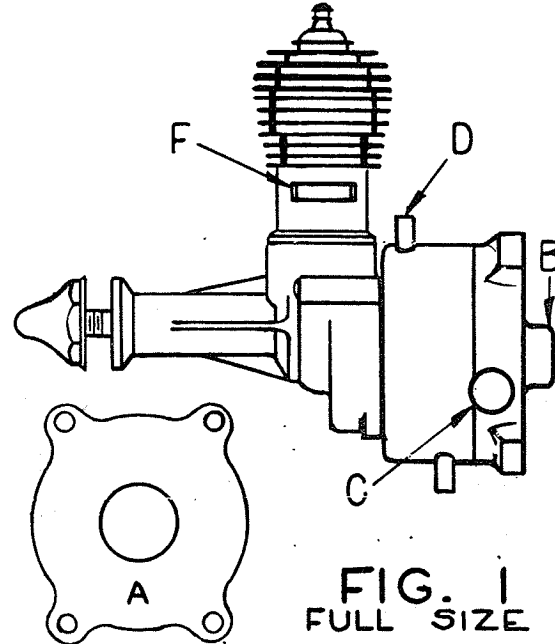
This engine is precisely fitted at the factory for **immediate, easy starting** and immediate flight. A break-in period in the ordinary sense is not necessary. In fact, a slow, easy break-in is not desirable. Most of these engines will develop full power within one minute of running time. Do not run it slow the first few runs. Lean it out and let it wind up, the faster the better. The first run may be rough and slightly erratic for about one minute.

Elimination of break-in is **not** attained through loose or sloppy fitting but through very precise fitting, together with super fine wearing surfaces.

## (A) PREPARATION FOR RUNNING

1. Mount the engine in the plane or if you want to give it some running first, mount it on a narrow board, about 2" wide and fasten the other end of the board in a vise or nail it to something. **Do not hold the engine directly in a vise.** The 4 ears at the rear of the tank are for mounting. Use the template, A, Fig. 1, to drill mounting holes and breather hole. **The screened opening B, Fig. 1, in the rear is the air intake hole and must be left open.**
2. Place propeller on the shaft with the flat side of the blades toward engine. **Do not over tighten the propeller nut or you will break the crankshaft in the threads. Just snug it up. Crankshaft breakage is not guaranteed,** as it is invariably caused by stresses of overtightening nut which is entirely unnecessary. Easy crankshaft breakage in crackups is caused by impact stresses added to stresses of overtightening which add up to the breaking point.
3. For filling the tank use a Thimble-Drome filler cap on your fuel can. This has a fine stainless steel filter and will assure you that no dirt gets in the engine.

4. Procure a 1½ volt dry cell battery, # 6 or equivalent, and connect it with 2 flexible insulated wires to a glow plug clip as shown in the diagram A & B, Fig. 2. Do not use a stronger battery. If you do the plug will burn out. The connections should be soldered to insure good contact and taped to prevent bare ends of wire from getting together and "shorting" the battery. Be sure the battery is a good one. Your dealer sells batteries, wires, and glow plug clips.

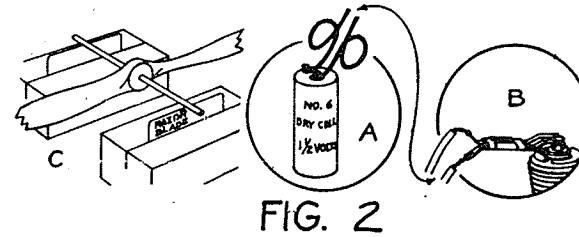


## (B) STARTING THE STRATO-BUG ENGINE

No matter how expert you are with small engines you will have better luck with this one if you follow directions exactly as listed and do each operation in the exact order given.

1. Close the carburetor needle valve, C, Fig. 1, by turning it clockwise till it stops. **Do not force it.**
2. Slip the filler hose of your pump or fuel can over the filler tube, D, Fig. 1, pump in fuel till it overflows. Do not use gasoline. **Use Thimble-Drome Glow Fuel in the blue can.** Do not use Nitro Benzene fuels with the shoe polish odor. They will ruin your engine.
3. Connect the battery by snapping the clip on the glow plug B, Fig. 2.
4. Open the needle valve (counter clockwise) 5 full turns.
5. Turn the propeller to the position so that the exhaust ports F, Fig. 1, are wide open. Squirt 5 or 6 drops of fuel into the cylinder through one of the port openings. This is called priming.

6. Flip the propeller over snappily with the finger tip to start. Use a Thimble-Drome Finguard to protect your fingers.
7. When the engine starts it will be running very rich and slow. Immediately start slowly closing the needle valve clockwise until the engine breaks into 2 cycle operation, then adjust it so that it runs smoothly.
8. This engine will not lean out or "come in" during flight. Adjust the needle to peak performance before turning the plane loose.
9. Should the engine start backwards, stop it by putting finger over propeller nut and putting pressure on propeller or closing needle valve. As soon as it stops flip it again. It is likely to start in either direction. If it does, there is nothing wrong with it. The direction it starts is mostly chance. Harder flipping in the correct direction or very easy flipping in the reverse direction may help. Do not send it to the factory for repair if it starts backward as there is nothing we can do to correct this.



## (C) FAILURE TO START

1. Turn the propeller over a few times and see if fuel bubbles at the gasket between the crank case and tank. If it does then tighten the four screws in the rear of the tank. Do not overtighten them or damage will result. Just about ½ turn each will do the job, or ½ turn after you feel it start to tighten.
2. If the engine coughs and spits a bit of fuel spray from the exhaust it is too rich. Close needle valve and crank until the engine starts. It will die immediately, then open the needle valve four turns and flip it over again to start.
3. If it starts up with lots of power and dies immediately it is too lean. Open the needle valve a half turn, prime the engine, and crank it over again.
4. If engine fires with a burst of power then dies repeatedly after each time it is primed, and this is not cured by opening the needle valve more, the fuel jet is stopped up. If the engine has not been run for some time it is likely that it is only stopped up with castor oil. Choke the engine by holding a finger over the intake, B, Fig. 1, and flip the propeller over 3 or 4 times. This will re-

move the castor oil and the engine should start. If the same symptoms re-occur, the jet possibly has dirt in it and this should be blown out as per next paragraph.

5. Stopped up fuel line or jet. Remove the needle valve. Blow in to the filler tube, D, Fig. 1, with high pressure air such as available at service stations. Never blow in the venturi screened opening, B, Fig. 1.
6. If the engine acts like it is not getting enough fuel and blowing out the jet does no good the next step is to take the tank apart, wash both halves in clean gasoline, and blow out all holes in the rear half of tank with high pressure air; especially the fuel pick up hole.
7. If the engine refuses to fire at all screw the glow plug out and connect it to the clip. If the little coil inside does not get red hot, it is either burnt out or the battery is dead, or the connections are made incorrectly. Replace the battery or the plug, or correct the connections. **Glow plugs are never guaranteed.** Do not return the engine to the factory for a burnt out glow plug because the cost to you will be excessive. Buy one from your dealer.
8. Weak cranking sometimes retards starting. Crank with a snap.
9. If you are not using Thimble-Drome Glow Fuel, try it. **Never use gasoline or gasoline type fuels.**
10. Very heavy priming is often required for starting. These engines do not flood out as easily as most. Unless it is actually spitting out raw fuel it may need more priming even though you have already primed it as much as most engines will stand.
11. If the plug, battery, and connections are known to be good, and if the jet has been checked for stoppage, and if the fuel is known to be the correct kind, yet the engine will not fire at all, it is possible there is dirt or a piece of foreign matter under the reed valve. This is very unlikely unless the venturi screen has been removed. If the venturi screen has been removed you may expect this trouble. Refer to Operating Tips, Par. 8 to correct this trouble.

## (D) OPERATING TIPS

1. **EXTREMELY IMPORTANT**—Do not tighten screws too much that hold tank and engine together. If overtightened, damage will result.
2. Be very careful to start needle valve straight to prevent cross threading. If it starts to turn hard, do not force it as it is starting crooked. Remove and start straight.

## OPERATING TIPS (Cont.)

3. When using wrench on cylinder be sure it is all the way on. If it is not, the tip may slip through the port and put a burr on the cylinder which usually ruins it. Piston will then be tight. This damage is not guaranteed.
4. Never put a bar through the ports to hold or turn cylinder. Never take hold of cylinder with pliers. Use your wrench on cylinder and another wrench (or pliers) on cylinder head. Extra wrenches can be secured from your dealer or direct from factory.
5. Always empty the fuel tank on your last run by running the engine until it quits. Never put the engine away with fuel in it.
6. After the last run, oil the engine with a light oil (SAE 10 is good) and wrap it with cloth or otherwise protect it from dust or dirt.
7. If the engine gets dirt in it through crack-up, or otherwise, do not run it until it is thoroughly cleaned. Take it apart, wash it, oil it, and re-assemble.
8. Do not tamper with the reed valve assembly unless it is known that dirt is in the reeds. This is a very critical part of the engine and tampering can do no good. If foreign matter becomes lodged under the reeds it may be taken out by lifting the end of the reed and picking the part out with a fine piece of wire or splinter of wood, or washing out with fuel or gasoline. The reed is springy but caution must be exercised in lifting the end because if the reeds are bent too far they will take a permanent set and the engine will not run.
9. If the engine gets tight it is not frozen up. Do not send to factory. A new engine will sometimes tighten up a few times, especially after slow runs. This is more likely to happen and will occur more often to an engine that is properly fitted and has properly smooth wearing surfaces. Do not run it tight. This is caused from a shellac like deposit on the cylinder wall. Screw the head off. **Remove the cylinder** and scour the inside wall very lightly with a bit of fine or medium steel wool. Wash, oil and replace. The engine will then turn over freely and run good. **Never** use sandpaper, emery cloth, abrasives of any kind, or scrapers. Such methods will ruin the cylinder. Many fuels cause excess shellacking. Use Thimble-Drome glow fuel to minimize this trouble.
10. Erratic running may be caused by an unbalanced propeller, or by a tight piston fit caused by shellacking of the cylinder. Refer to Par. 9 and 15 this section.
11. A 6"-3 pitch propeller will develop maximum thrust with this engine.
12. Do not tighten head too firmly. Set it up very lightly. Allow the engine to cool before removing head so it will loosen easier. Too much pressure against the exhaust ports to hold the cylinder from turning may force the cylinder out of round or even turn a burr into the bore. A new cylinder is usually required to remedy such damage.
13. Always use a well balanced propeller. To check balance, mount propeller on razor blades as shown in Fig. 2. Sandpaper the heavy blade without spoiling airfoil section.
14. **If the plane requires the engine to be mounted with the cylinder pointed down or pointed to the right or left, do not turn the tank over. Remove the 4 screws which hold the tank and crankcase together. Pull the crankcase off of the nose of the tank, turn it to the required position and replace the screws. Do not rotate back half of tank to a different position or carburetor will not pick up fuel.**
15. The first time you start your engine the excess castor oil from the exhaust may be dark colored for a few seconds, but will clear up immediately. All engines do this if they have never been run before. This is due to excessive wear during the first few seconds as the wearing surfaces polish in.
16. This engine will run at full power in either direction and may be used on a pusher plane using a standard propeller.

## SPECIFICATIONS

Wt.—1 1/2 oz. Bore—.406", Stroke—.386", Displacement—.0499 cu. in. Mounting—radial, Overall height—2 7/16", Length—2 3/4", Width—1 1/8", Shaft size—1/8", Piston—no rings, Intake Valve—reed, Rotation—right or left.

R.P.M., using Thimble-Drome Glow Fuel, and 6"—3 pitch propeller—15,000 to 16,000, according to weather.

## WARRANTY

This engine is guaranteed against defects in materials and workmanship for 30 days from date of purchase. Glow Plugs are never guaranteed because of their delicate nature. No other guarantee is made or implied. If engine is returned to the factory within warranty, include 50c to cover cost of handling and return postage. **Do not take engine back to your dealer. No engine will be returned unless 50c is included.**

## FACTORY REPAIR SERVICE

Minor repairs, examinations, or adjustments—\$1.00 plus parts. Complete overhaul (guaranteed new engine performance)—\$2.75, including parts. On all COD shipments, purchaser pays postage and COD fees.

## DAMAGE NOT GUARANTEED

- Burrs at ports caused by wrench. (Sec. D, Par. 3.)
- Crankshaft breakage. (Sec. A, Par. 3.)
- Conrod pulled loose from forcing a tight engine.
- Tight piston. (Sec. D, Par. 9.)
- Fuel shutoff as described, Sec. D, Par. 16.
- Glow plug failure. (Sec. C, Par. 6.)
- Failure or tightness due to cheap fuels, or nitro benzene fuel. (Sec. B, Par. 2.)
- Crash damage or operator inflicted damage.

## PARTS ORDERS

Purchase parts from your dealer. If not available, order direct from factory. No COD's please. Send remittance with your order. On orders less than \$2.00 add 35c handling charge. In California, add 3% sales tax.

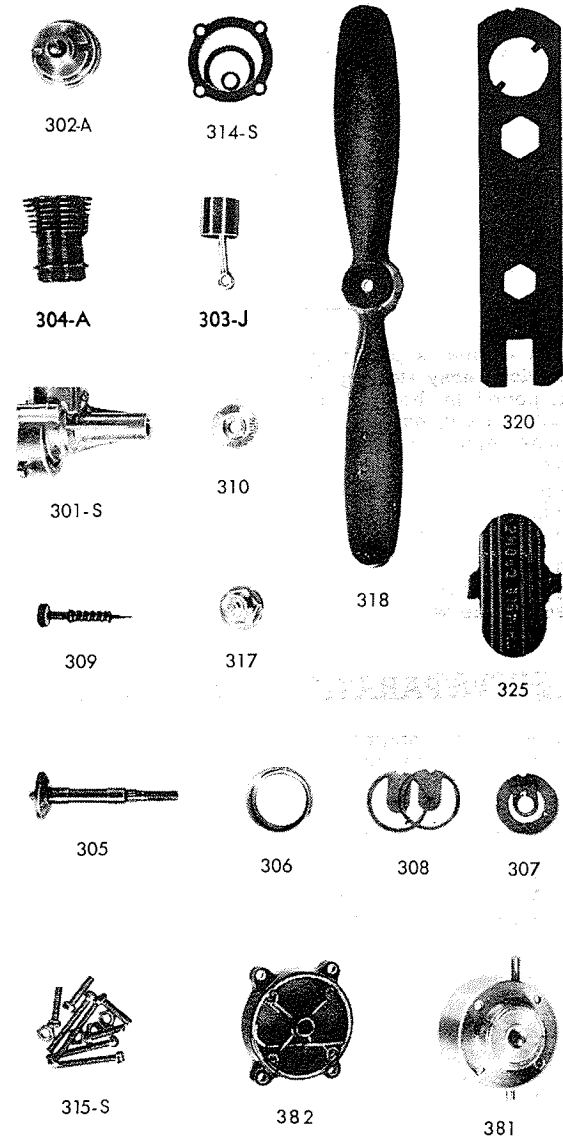
Prices and design of parts subject to change without notice.

## ENGINE PARTS LIST

### For .049 Strato-Bug

301-S	Crankcase .....	\$1.25
302-A	Glow Head .....	.65
303-J	Piston & Rod .....	1.50
304-A	Cylinder .....	1.50
305	Crankshaft .....	1.75
306	Reed Housing .....	.25
307	Reed Back Plate .....	.25
308	Set of Reeds .....	.50
309	Needle Valve & Spring .....	.60
310	Propeller Drive Washer .....	.15
314-S	Gasket .....	.20
315-S	Set of Screws .....	.15
317	Propeller Nut .....	.20
318	Propeller—6"-3 pitch .....	.20
320	Wrench .....	.25
325	Finguard .....	.25
381	Front half of tank with reed valve assembly .....	1.50
382	Rear tank section with jet .....	1.00

## When Ordering Engine Parts, Use Catalog Number



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