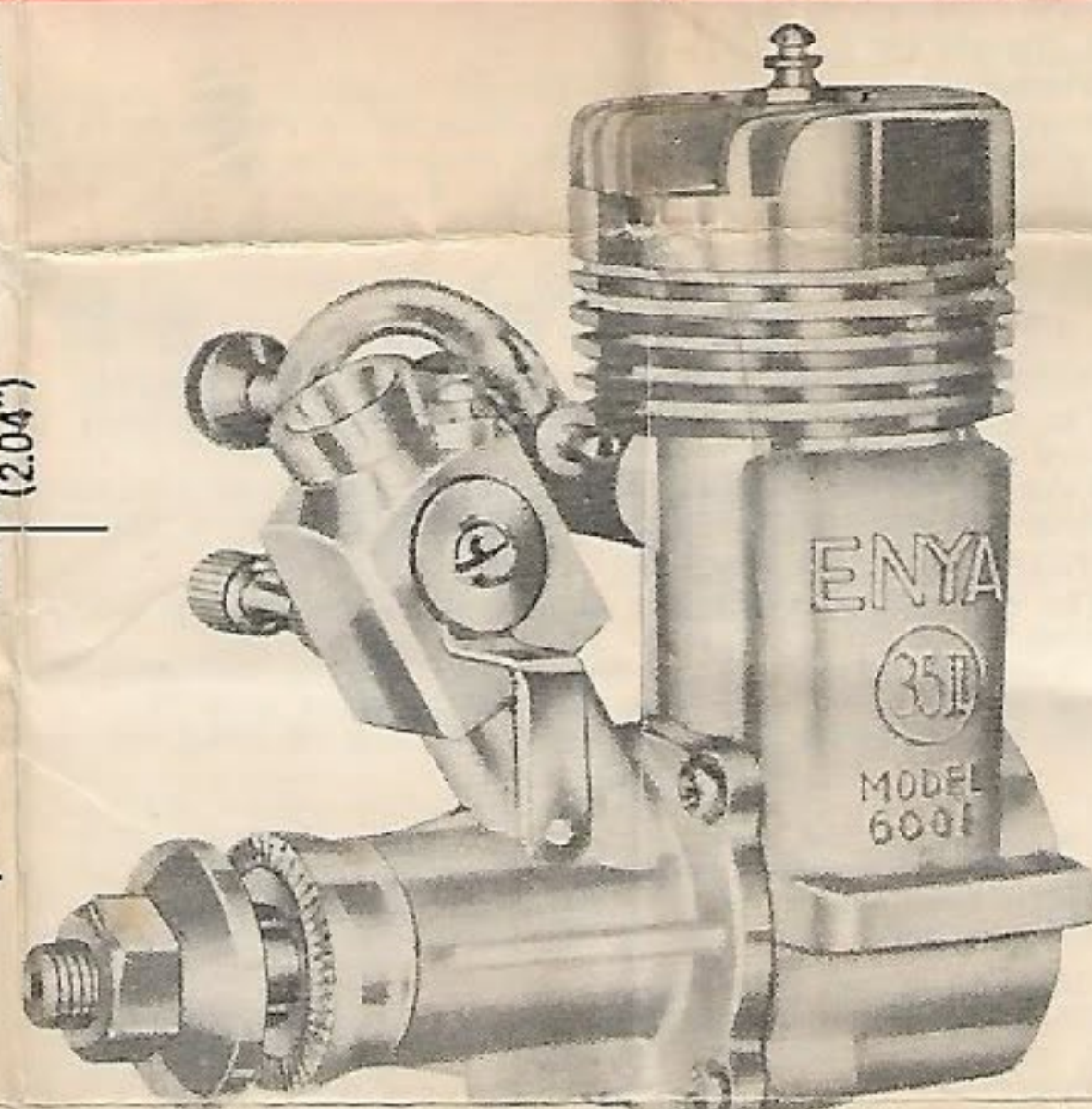
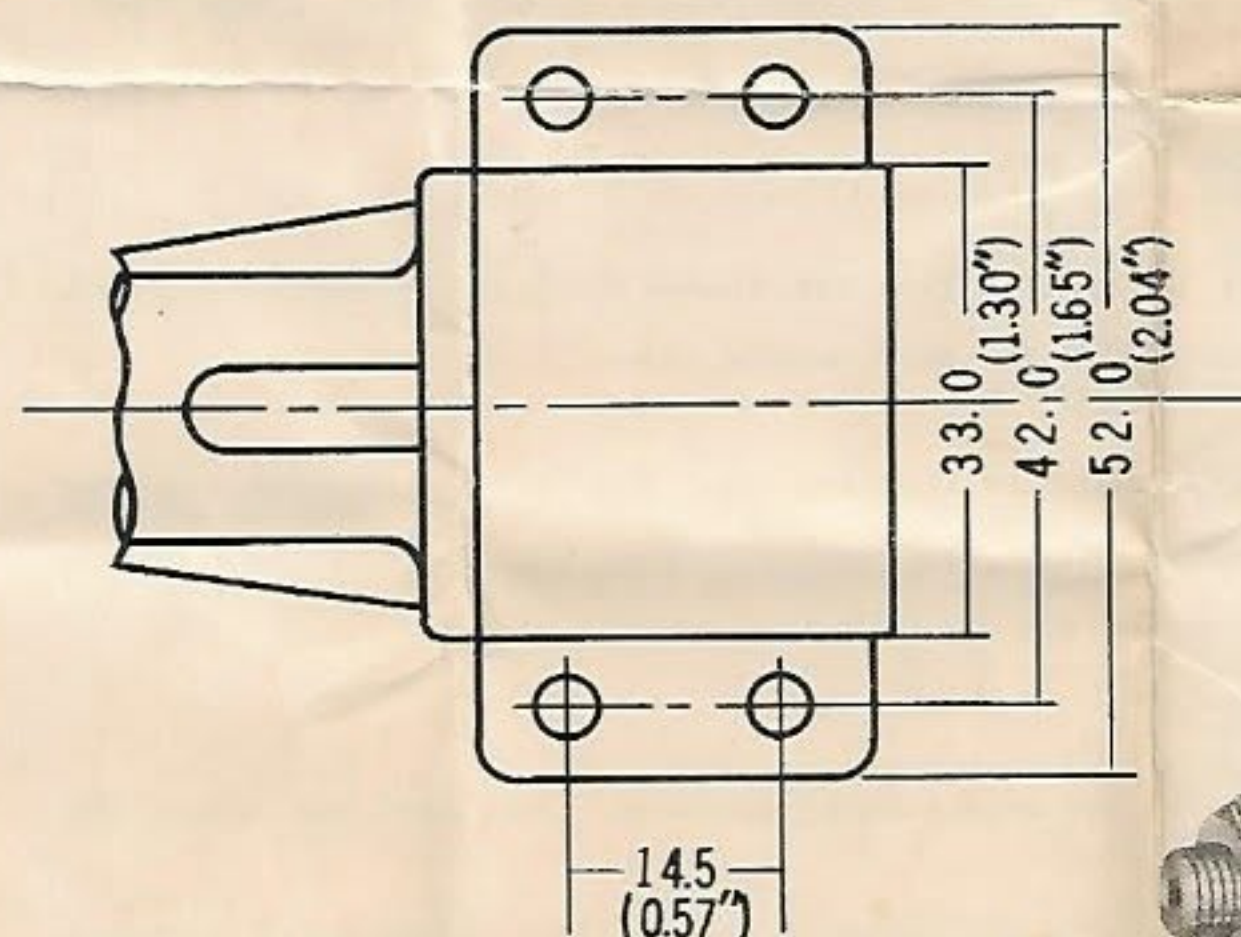


ENYA 45 and 35-II

Throttle Valve Type Engines

MANICATA'S FILES COLLECTION

ENGINE MOUNT (Actual size)



DISTINCTIVE FEATURES

ENYA 45 TV-type and 35-II TV-type engines are designed and produced for high class R/C planes, and are equipped with the ENYA Special Throttle Valve for precise speed control.

They perform perfectly at all speeds from an exceptionally powerful high speed to a whispering idle. Moreover, they are of very sturdy and dependable construction and will give long service.

PRINCIPLE OF THE ENYA SPECIAL THROTTLE VALVE

1. High Speed

The throttle valve is opened widely. The greater part of the fuel is supplied by the main jet, through the main needle valve. The mixture is adjusted by the main needle valve.

2. Idle running

When approximately 90% of the throttle valve port is closed by the throttle lever, the main jet is shut off completely and the idle jet just under the throttle valve comes into operation. The mixture can be accurately adjusted by the idling mixture adjusting needle valve. The idling speed is also adjustable by the idling speed adjusting screw. The optimum idling speed is 2,000~2,500 r.p.m.

As the suction of the crank case is very strong and the size of the idle jet is extremely small while the engine is idling, the mixture scarcely suffers from any change of fuel pressure caused by the maneuvers of plane. (dive, spiral dive, etc.)

3. Medium speed

You can run the engine at any speed you desire by controlling the throttle valve, and the engine will always be supplied with a slightly rich mixture. Between the full open and the idling positions of the throttle valve, the fuel flow through the main jet is regulated by the tapered groove machined on the surface of the throttle valve. This groove is designed and machined so as to consistently correspond to the opening of the throttle valve port.

SPECIFICATIONS

	Type	Displacement cu. in.	Weight oz.	Max. Power h.p.	Speed Range r.p.m.
ENYA 35-II TV	Glow Shaft Rotary Valve	0.357 (5.85cc)	10.0	0.6	2,000~14,000
ENYA 45 TV	Glow Shaft Rotary Valve	0.449 (7.36cc)	10.0	0.7	2,000~14,000

ENYA METAL PRODUCTS CO., LTD.
553 ARAICHO NAKANOKU TOKYO JAPAN.

OPERATING INSTRUCTIONS

BREAKING IN

Breaking in is very important. Read the instructions in the general catalogue for ENYA engines.

FUEL

The standard mixing ratio of components is as follows:

	No. 1	No. 2
Methanol Alcohol	80 ~ 85%	70 ~ 75%
Nitro-Methane	0	10 ~ 5%
Castor Oil	20 ~ 15%	20%

ENYA 45 TV-type and 35-II TV-type engines operate satisfactorily on most kinds of high quality fuel made for model glow plug engines. The idling performance is sometimes influenced by the fuel, and it is recommended that you try several different kinds of fuel so as to get the best results.

Fuel containing too much castor oil (more than 20%) or nitro benzene (more than 10%) sometimes impairs the idling performance.

GLOW PLUGS

Almost all of the 1/4 - 32 thread standard glow plugs are suitable for ENYA 45 TV and 35-II TV engines. If you want to get the best possible idling performance, it is recommended that you try several different gauges of glow plugs because selection of the proper plug for a particular engine is very crucial. ENYA Glow Plugs Nos. 3 and 5 are suitable for ENYA T.V. Engines.

PROPELLERS

The proper sizes of propellers for R/C planes are as follows:

ENYA 45 TV-type	12" dia. x 5" pitch
ENYA 35-II TV-type	12" dia. x 5" pitch or 11" dia. x 5" pitch

PREPARATIONS BEFORE STARTING THE ENGINE

The preparations to start ENYA 45 TV-type and 35-II TV-type engines are almost the same as those for ENYA standard type engines.

1. Take care that the fuel tank is not too low as compared with the main needle valve.
2. Make sure that the idling opening of the throttle valve is correct.

STARTING THE ENGINE

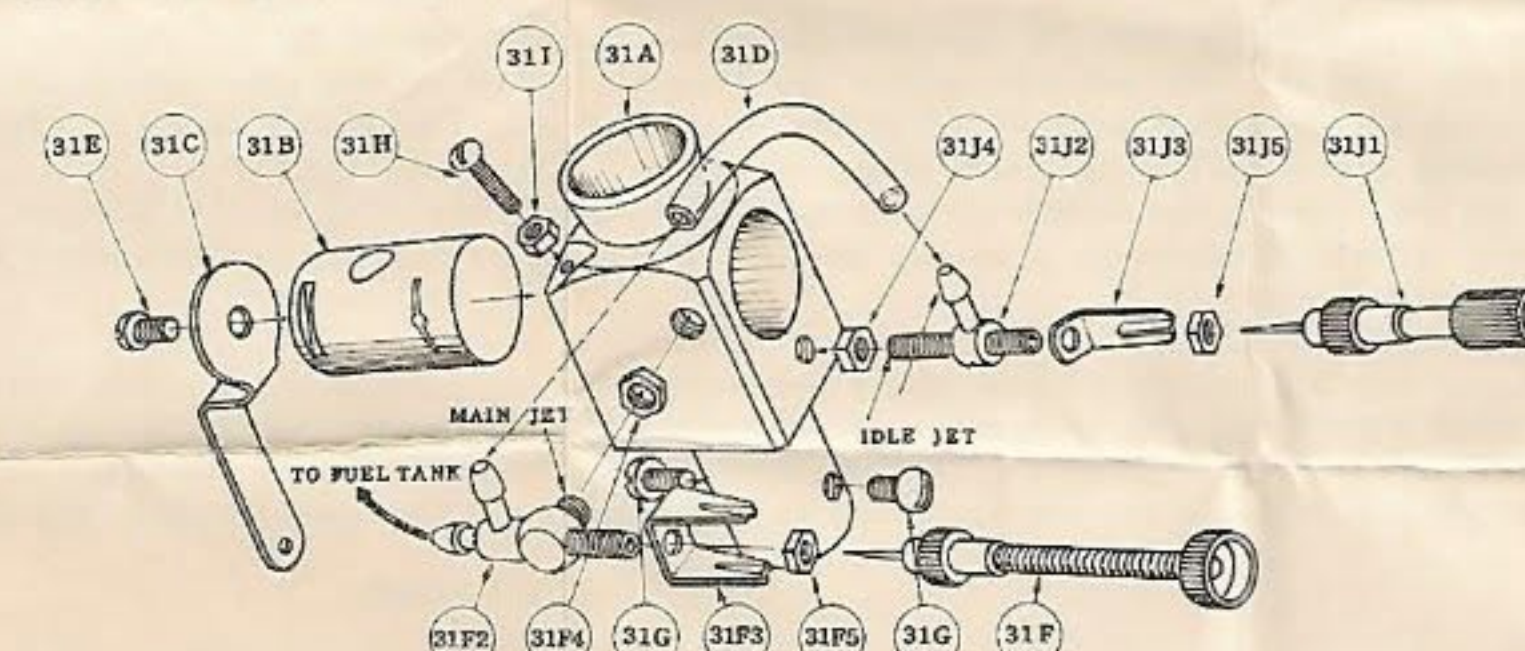
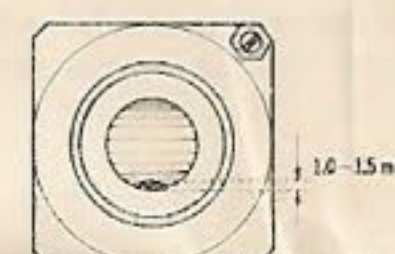
The starting methods are almost the same as for ENYA standard type engines. Pay close attention to the following.

1. Close both needle valves before you fill the fuel tank with fuel. You need not close the idling mixture adjusting needle valve after you make adjustment with it.
2. The proper opening of needle valves for starting the engine are as follows:
Main needle valve 3~4 turns
Idling mixture adjusting needle valve 1/2 turns
3. Start the engine with the throttle valve opened widely.
4. Injection of several drops of fuel into the exhaust port will make starting easier.
5. After your engine starts, adjust the main needle valve to the best running position. You need not adjust the idling mixture adjusting needle valve for high speed running.

CONTROLLING SPEED

1. When the engine is reasonably warmed up at high speed, close the throttle valve. Then, the main jet is closed at the same time, and the idle jet comes into operation. The engine will slow down.
2. Adjust the idling mixture adjusting needle valve slowly and carefully until the engine runs at its highest speed. The best opening of this needle valve is usually 1/4~3/4 turns. The most suitable idling speed is 2,000~2,500 r.p.m. When the idling speed is too low or too high, make adjustment with the idling speed adjusting screw to get the best idling position of the throttle valve.
3. Open the throttle valve widely again. The engine will speed up to its highest power. Then let it snap shut. The engine should not stop. If it stops, raise the idling speed a little or enrich the idling mixture slightly.
4. If the engine has a tendency to stop when you open the throttle valve after a long period of correct idle running it means that either the fuel or the glow plug being used is not suitable. Try other brands of fuel or other gauges of plugs.
5. You can obtain any medium speed by adjusting the throttle lever. The mixture will always be maintained slightly rich.
6. After the engine is properly broken in, you can obtain a very slow idling running (1,500~2,000 r.p.m.) by proper adjustment. But it is recommended that you use a rather high idling speed when flying your R/C plane to avoid an unexpected engine stoppage during the flight.

IDLING OPENING



PARTS LIST OF ENYA SPECIAL THROTTLE VALVE

Part No.	Description of Part	Qty	Part No.	Description of Part	Qty
45 31	Throttle Valve Assembly	1 set	31F5	Spring Setting Nut	1
(35-II)			31G	Throttle Valve Body Setting Screw	2
31A	Throttle Valve Body	1	31H	Idling Speed Adjusting Screw	1
31B	Throttle Valve	1	31I	Locking Nut	1
31C	Throttle Valve Controlling Lever	1	31J	Idling Mixture Adjusting Needle	1
31D	Idling Fuel Feed Pipe	1		Valve Assembly	1 set
31E	Lever Setting Screw	1	31J1	Needle Valve	1
31F	Main Needle Valve Assem.	1 set	31J2	Spray Bar	1
31F1	Main Needle Valve	1	31J3	Needle Valve Setting Spring	1
31F2	Main Spray Bar	1	31J4	Spray Bar Locking Nut	1
31F3	Main Needle Valve Setting Spring	1	31J5	Spring Setting Nut	1
31F4	Main Spray Bar Locking Nut	1			

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