

INSTRUCTION MANUAL

FOX 19 FOX 25 FOX 29 FOX 35 FOX 59

SPECIFICATIONS

	Fox 19	Fox 25	Fox 29	Fox 35	Fox 59
TYPE	2 CYCLE SHAFT ROTARY GLOW				
Weight	4¾ oz.	4½ oz.	6¼ oz.	6 oz.	11 oz.
Power	3/8	3/8	1/2	1/2	7/8
Rated RPM	12,000	10,000	10,000	10,000	10,000
Bore	.650	.738	.738	.800	.920
Stroke	.600	.600	.700	.700	.900
Displacement	.199	.256	.299	.352	.599
Fuel Variation	15 in.	15 in.	15 in.	15 in.	15 in.
Compression Ratio	6:1	6:1	6:1	6:1	6:1

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Part No.	Description	Price
1901	Crankcase	\$3.50
1902	Cylinder Head	2.00
1903	Cylinder & Piston (sold in pairs only)	4.00
1904	Wrist Pin	.75
1905	Connecting Rod (fits 19 & 25)	2.00
1906	Crankshaft (fits 19 & 25)	3.50
1907	Rear Cover (fits 19 & 25)	1.00
2901	Crankcase	\$3.50
2902	Cylinder Head	2.00
2903	Cylinder & Piston (sold in pairs only)	4.00
2904	Head Gasket only	.10
2910	Screws & Gaskets	.75
1905	Wrist Pin (fits 19 & 25)	2.00
1906	Connecting Rod (fits 19 & 25)	2.00
1	Crankcase (6 Head Screws)	\$4.50
2	Cylinder Head (fits No. 1 only)	2.00
3	Cylinder & Piston for 29	4.00
4	Cylinder & Piston for 35	4.00
5	Wrist Pin (fits 25 & 29)	.75
6	Wrist Pin for 35	.75
7	Connecting Rod	2.00
8	Crankshaft	3.50
9	Thrust Washer (fits all Fox Motors)	.35
3901	Crankcase	\$6.00
9	Thrust Washer (fits all Fox Motors)	.50
12	Prop Nut (fits all Fox Motors)	.10
13	Prop Washer (fits all Fox Motors)	.10
5905	Crankshaft	6.00
5907	Rear Cover	2.00
5908	Cylinder & Piston	8.00

Part No.	Description	Price
1909	Head Gasket only	\$.10
1910	Screws & Gaskets	.25
9	Thrust Washer (fits all Fox Motors)	.50
10	Needle Valve Assembly (fits 19, 25, 29, 35)	1.00
12	Prop Nut (fits all Fox Motors)	.10
13	Prop Washer (fits all Fox Motors)	.10
16	Needle only (fits 19, 25, 29, 35)	.50
1906	Crankshaft (fits 19, 25)	\$3.50
1907	Rear Cover (fits 19, 25)	1.00
9	Thrust Washer (fits all Fox Motors)	.50
10	Needle Valve Assembly (fits 19, 25, 29, 35)	1.00
12	Prop Nut (fits all Fox Motors)	.10
13	Prop Washer (fits all Fox Motors)	.10
16	Needle only (fits 19, 25, 29, 35)	.50
10	Needle Valve Assembly (fits 19, 25, 29, 35)	\$1.00
11	Rear Cover	1.50
12	Prop Nut (fits all Fox Motors)	.10
13	Prop Washer (fits all Fox Motors)	.10
14	Screw & Gasket Set	.25
15	Head Gasket only	.10
16	Needle only (fits 19, 25, 29, 35)	.50
17	Radial Mounting Plate	.75
5910	Cylinder Head	\$3.50
5911	Connecting Rod	2.50
5912	Wrist Pin	1.50
5913	Needle Valve Assembly	1.50
5914	Screw & Gasket Set	.75
5915	Head Gasket only	.25
5916	Carburetor Needle only	.75

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INSTALLATION

Fox Motors should be mounted securely on hardwood beams or against a hardwood firewall. An overly flexible mount will allow the motor to vibrate excessively, cause poor running and eventually tearing the plane apart. Unbalanced props will do this too. Location of the fuel tank is very important in a stunt model in order that the motor speed will remain fairly constant through the maneuvers. The ideal location is close in back of the motor with the jet in the needle valve body in line with the center line of the tank in both the side view and top views. The fuel outlet tube and the fuel line must have an inside diameter of at least 3/32 of an inch; otherwise the restriction will cause large fluctuations of motor speed. In time corrosion will partially clog the fuel outlet tube. Run a wire in it occasionally to keep it clean.

If the motor is cowled, provision should be made for cool air to circulate past the crankcase as well as past the cylinder fins, as a considerable portion of the heat is dissipated there. Free flight models should have the top of the tank about the same height as the needle valve.

OPERATION NOTES:

Fox Motors are purposely fit quite tight as we have found this results in a longer lasting, better performing motor. They are run about five minutes at the factory, which isn't enough to break them in completely, although they will fly an airplane. For the break-in period use one size smaller prop than usual and keep the motor running quite rich. Also, it is highly recommended that the fuel have added castor oil. The piston will assume the appearance of having numerous small scores. This is typical of the material used and is no cause for alarm. No model airplane motor should be run leaner than the point of maximum power. Since the motor gets leaner through the flight the trick is to set it rich enough at the beginning, so that the plane runs out of fuel before the motor starts to sag. A few very lean runs can completely ruin the motor. The amount of dust and dirt sucked into the motor while running is a major cause of motor wear. For this reason, use caution to keep motor covered whenever there is danger of sand or grit getting into the motor, and do not run it in dusty weather unless necessary.

PROPELLERS:

Fox 19's perform most efficiently at 11,000 to 13,000 R.P.M. Fox 25's, 29's, 35's and 59's perform most efficiently at 9,000 R.P.M. to 11,000 R.P.M. The diameter of the prop should be varied until the motor runs at the proper speed. The pitch is selected on the basis of the flying speed of the model; that is a large slow flying model would use less pitch than a small fast one.

	Fox 19	Fox 25	Fox 29	Fox 35	Fox 59
Radio Control and Free Flight	10 Dia. 3½ Pitch	10 Dia. 4 Pitch	11 Dia. 4 Pitch	11 Dia. 4 Pitch	13 Dia. 5 Pitch
Control Line Stunt & Sport	9 Dia. 4 Pitch	9 Dia. 5 Pitch	10 Dia. 5 Pitch	10 Dia. 6 Pitch	11 Dia. 7 Pitch

GLOW PLUGS:

The glow plug is by far the most delicate part of your motor, and a little consideration of its limitations will pay dividends in better performance and longer plug life.

A glow plug is essentially a small electric heat coil of platinum wire, mounted so that it is exposed to the inside of the motor. Failure usually results from one of three causes:

1. short circuit
2. open circuit
3. failure of the insulation to hold compression.

The short circuit is usually caused by flaws in the plug, over which you have little control.

The open circuit is usually caused by overheating. This in turn can result from either too much starting voltage, too lean a needle valve setting, or a fuel containing too much Nitromethane.

Insulation failures are aggravated by heat and pressure. Cranking out a flood raises the effective cylinder pressure. Too lean a needle valve setting or too hot a fuel causes overheating.

There are many brands of ¼-32 plugs available with both short and long threads. Both will fit, but only the long types will position the coil in the proper place. The short thread plug will run ragged and in addition incurs the risk of stripping the threads in the head.

FUEL:

Modern model airplane glow fuel is expected to do much more than just burn. It must also lubricate, cool and ignite at just the right time. To accomplish all this, several ingredients are blended together in proportions varying from brand to brand.

Generally these fall into three categories:

Base-Methanol is almost universally used, and yields most of the power and cooling.

Lubricants—Natural castor oil and synthetics. Natural castor oil is the best lubricant but has a tendency to gum up the motor and produce carbon deposits. Some synthetics have a powerful detergent action and when blended with natural castor oil keep the motor clean, without too great a loss of lubricity. These are quite expensive ingredients and many commercial mixes contain considerably less than is generally desirable for maximum motor life and performance.

Ignition—The heat and pressure of the modern glow motor is sufficient to ignite methanol alone, but usually an amount of nitromethane is added to encourage the fuel to fire sooner. The more nitromethane, the sooner the mix fires. As weather variations cause considerable variation in the ignition point, no fuel can be right for all weather conditions and all motors. A mix containing a little nitromethane is called a mild fuel, and one containing a lot is called a hot fuel. Fox Fuel is a blend which we have found to be the best for average conditions.

DIS-ASSEMBLY:

The unnecessary disassembling of a motor is not recommended. When a motor is disassembled and reassembled there is little chance of getting every microscopic groove and ridge in the piston and cylinder to match as before, therefore they must wear in again. This results in harder starting, and loss of power.

If it becomes necessary to disassemble the motor proceed as follows:

1. Rotate the crankshaft until the piston is at bottom dead center.
2. Remove the rear cover screws and lift out the rear cover.
3. Remove the cylinder head screws and lift out the cylinder head.
4. Place a glow plug washer on top of the piston so it extends 1/32" into the exhaust port. Then rotate crankshaft ½ turn. This will force the cylinder liner up so that it can be lifted out.
5. While holding the crankshaft as far in as possible, slip the connecting rod off the crankpin. The piston assembly can now be lifted out.
6. The crankshaft can now be removed.

To reassemble the motor reverse this procedure, replacing all screws and gaskets.

CLEANING THE MOTOR:

A motor loaded with dirt can be cleaned as follows:

1. Remove the glow plug and rear cover.
2. Place motor in a container of clean carbon tet or solvent and swish around.
3. While swishing around, rotate crankshaft slowly until motor is clean.
4. Dry, then lubricate all moving parts with fuel mixture.

Replace the rear cover.

REPAIR POLICY:

Major repairs on Fox Motors should be made at the factory. All motors received are put through the following process:

1. Motors are dis-assembled, washed and parts inspected.
2. Motors are reassembled, replacing screws and gaskets, and any other worn or damaged parts.
3. Motors are test run.
4. Motors are packaged and returned C.O.D. All factory repaired motors are guaranteed to run like new!

Charge for this service depends upon condition of motor. In no event will it be more than eight dollars plus mailing costs for 19, 25, 29 and 35; and twelve dollars for the 59.

We will accept motors only on the condition that they receive the full treatment.

Send all the engine parts either whole or dis-assembled.

No advance estimates can be given. No discounts can be allowed dealers. Please mail the motor yourself to reduce the possibility of any misunderstandings.

Enclose or attach any correspondence, and show your Name and Address **PLAINLY**. (PRINTING BEST).