

# PARTS FOR 1982 MODEL MOTORS

PART NAME	#24000 Fox 40 Bush.	#24100 Fox 40 B B	#24500 Fox 45 Bush.	#24600 Fox 45 B B
Crankcase	14501-A 16.00	14601-A 20.00	14501-A 16.00	14601-A 20.00
Cylinder Head	14542 8.00	14542 8.00	14542 8.00	14542 8.00
Cyl. Head Button	14043 5.50	14143 5.50	14543 5.50	14643 5.50
Cylinder Liner	14083 12.00	14083 12.00	14583 12.00	14583 12.00
Piston	14084-A 10.00	14084-A 10.00	14584-A 10.00	14584-A 10.00
Wrist Pin	14006 2.00	14006 2.00	14506 2.00	14506 2.00
Wrist Pin Keepers (Pkg of 3)	14040 1.00	14040 1.00	14040 1.00	14040 1.00
Piston Ring	24018 2.50	24018 2.50	24518 2.50	24518 2.50
Connecting Rod	14507-A 9.00	14507-A 9.00	14507-A 9.00	14507-A 9.00
Crankshaft	14508-A 14.00	14608-A 22.00	14508-A 14.00	14608-A 22.00
Crankshaft Stud	14518 2.50		14518 2.50	
Crankshaft for Clockwise Rotation	14528-A 16.00	14628-A 24.00	14528-A 16.00	14628-A 24.00
Thrust Washer	14529 3.50	26009 4.50	14529 3.50	26009 4.50
Thrust Washer Wedgelock		26005 2.25		26005 2.25
Rear Cover	14611 8.00	14611 8.00	14611 8.00	14611 8.00
Prop Nut (Pkg of 2)	13512 1.25	13512 1.25	13512 1.25	13512 1.25
Prop Washer - ea.	13513 1.25	13513 1.25	13513 1.25	13513 1.25
Screw & Gasket Set	14514 1.75	14514 1.75	14514 1.75	14514 1.75
Ball Bearing - Rear		26042 12.00		26042 12.00
Ball Bearing - Front		26043 9.00		26043 9.00
Muffler - Conventional	90252 12.95	90252 12.95	90252 12.95	90252 12.95

## RADIO CONTROL CARBURETOR

Fox 40's  
Use A Carb

Fox 45's  
Use B Carb

Carburetor-Comp.w/sc.&gask.	24051 24.95	24051 24.95	26051 24.95	26051 24.95
Throttle Casting	24060 10.00	24060 10.00	26160 10.00	26160 10.00
Rotating Barrel	24061 10.00	24061 10.00	26161 10.00	26161 10.00
Idle Stop Screw & Spring	23662 2.00	23662 2.00	23662 2.00	23662 2.00
Low Speed Mixture Needle	24063A 2.00	24063A 2.00	24063A 2.00	24063A 2.00
High Speed Mixture Needle	24064 2.00	24064 2.00	24064 2.00	24064 2.00
Servo Arm	24066 2.00	24066 2.00	24066 2.00	24066 2.00
Friction Clip for L.S. Needle	24067 1.50	24067 1.50	24067 1.50	24067 1.50
Friction Clip for H.S. Needle	24068 1.50	24068 1.50	24068 1.50	24068 1.50
¼-32 Carb. Nut (Pk. of 2)	26070 1.00	26070 1.00	26070 1.00	26070 1.00
#10-32 Knurled Nut (Pk. of 2)	21670 1.50	21670 1.50	21670 1.50	21670 1.50
Jet Assembly w/Fuel Nipple	24071 14.00	24071 14.00	24071 14.00	24071 14.00
Cam Screw	24072 2.00	24072 2.00	24072 2.00	24072 2.00
Fuel Nipple	24073 2.00	24073 2.00	24073 2.00	24073 2.00
Mounting Screws & Gasket	24075 1.50	24075 1.50	24075 1.50	24075 1.50

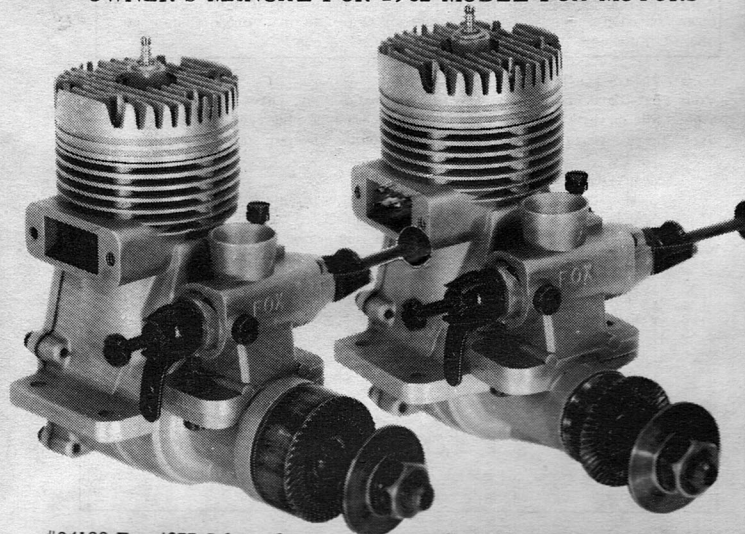


MANUFACTURING CO.

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PHONE 501-646-1656

JANUARY 1982

## OWNER'S MANUAL FOR 1982 MODEL FOX MOTORS



#24100 Fox 40BB Schneurle  
#24600 Fox 45BB Schneurle

#24000 Fox 40 Bushing Schneurle  
#24500 Fox 45 Bushing Schneurle

### MESSAGE FROM DUKE FOX

We are very proud of our Fox 40 and Fox 45 motors and we want yours to give you the best possible service. Please read this Owner's Manual in its entirety and follow our instructions to the best of your ability. If you have any questions not covered here, please feel free to call us at 501-646-1656.

### NOTE

The Fox 40 and the Fox 45 differ only in the bore size. The cylinder, piston, wrist pin, and head button are different for the two motors. All other parts are the same. The bushing and ball bearing versions differ only in the crankcase, crankshaft and thrust washers. Most parts of the 1982 series will not interchange with pre-1980 models.

### SUITABLE MODELS

These motors are primarily intended to power sport type radio control model airplanes, and are also suitable for scale, free flight, and control line models. With auxiliary cooling provisions, they are suitable for model helicopters and model boats.

### INSTALLATION

Your Fox motor should be mounted in the most rigid and secure manner possible. If the airplane design calls for a firewall mount, we recommend the #50404 Fox one piece metal mount as it is very rigid. If your airplane is designed for hardwood beam type mounts, be sure they are well braced between the two beams. A plywood firewall alone without cross bracing and gussets just does not do the job right. A flimsy motor mount could result not only in structural damage due to vibration, but can damage the engine due to foaming of the fuel.

### PROPELLERS TO USE

Your Fox 40 or Fox 45 seems happiest running in the 12,000 to 16,000 RPM range. We suggest you use a 10-6 or 10-7 narrow blade propeller for average size five pound radio control models. For very large models, try an 11-4 or 11-5, and for small, racing type models use a 9-7 or 9-8 propeller. Only maple, cherry, or other hardwood propellers should be used. Gum wood or other soft wood propellers will mash down and could possibly come off in flight. Tighten your propeller nut very tight. We dislike plastic propellers because they usually vibrate more than wood, and will hurt you worse if you should accidentally put your hand in it.

### WARNING

Always keep clear of the propeller. It is possible for a propeller to cut a finger off, or for a piece to come off and put an eye out.

### FUEL TANK INSTALLATION

Fuel bottle should be positioned parallel with the thrust line and with the tank centerline in line with the needle valves. The brass tube through the stopper must be radiused on the ends to avoid cutting the tubing. The flopper tube inside the tank should be the softest possible surgical tubing .075 ID minimum and cut to a length so the weight is about 3/4" forward of the tank rear. The fuel line should be routed so in no place is it higher than the needles and should be .075 ID minimum.

### FUEL TO USE

For normal warm weather flying Fox Gold Star fuel works fine. If, with takeoff setting and full throttle your motor slows down when the battery is disconnected from the glow plug, additional nitro is indicated. Duke's fuel contains 10% nitro and Missile Mist fuel contains 25% nitro. Any of these fuels can be mixed to obtain the desired results. If you use another brand fuel, be sure it contains a minimum of 12% castor oil and a total oil content of 18 to 22%.

### WARNING

Model airplane fuel is both flammable and extremely poisonous. Use the same safety precautions that you would with a can of gasoline or a bottle of poison.



#### WARNING

There is always the possibility you may lose control of your model. Do not fly in any location where your model might strike people or do property damage should this occur.

#### GLOW PLUGS TO USE

Your Fox 40 and Fox 45 should be fitted with Fox Long Thread Glow Plugs. For a good idle on throttle type motors, the idle bar type plug seems better. However, these motors work surprisingly well on the cheaper standard variety.

#### TO START YOUR FOX MOTOR

1. Mount your motor securely on a mount that does not put a strain on the lugs. #4-40 screws are the size to use.
2. Close the throttle - adjust the idle stop screw (the one on the top), so you can see a hairline opening in the intake when the throttle is pushed closed.
3. Holding the throttle shut, screw the low speed needle (the one on the exhaust side) in until it is snug, then back out 2 turns.
4. Screw the high speed needle in until it is snug, then back out 2½ turns.
5. Set throttle at 1/3 open position, connect the glow plug wire and crank counterwise with a quick, snappy flipping motion. If it does not start in a few flips, try choking it a turn or two. It should start and run at these settings.

#### WARNING

A model airplane motor can get hot enough to cause a serious burn. Do not touch the motor right after it has been running.

#### BREAK-IN

No special break-in is required. Go ahead and install it in your airplane and fly. We do recommend you keep your carburetor set slightly rich at all times. In the interest of good compression and long life we have fitted your motor as tight as we dare. In the event yours is fit too close and you have trouble with the piston seizing (engine stops abruptly on lean), or the bearing binding (engine loses all power on lean), return it to us and state your problem and we will hone it out at no charge. You should be aware, however, that it takes about 1½ hours running time to seat the rings and in the case of bushing motors - the main bearing. For this period any motor is likely to stop at idle speed, and it is really futile to try to fine tune the idle until the motor has been run this amount of time.

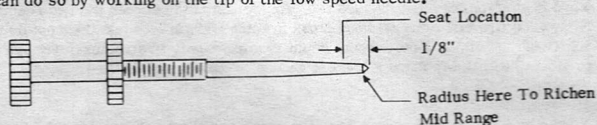
#### WARNING

Never fly a control line model within 200 feet of power lines. Death by electrocution is possible if your model comes near a power line. Direct contact is not necessary.

#### FINE TUNING YOUR MARK X CARBURETOR

The most reliable settings are those in which the lower half of the throttle range is as lean as possible without stalling and becomes slightly rich in the 3/4 to full throttle setting. Both needles screw in to lean and out to richen. For normal tank installations and flight conditions, we recommend that the low speed mixture adjustments be made for maximum RPM. The high speed is adjusted by screwing the high speed needle in until the motor obtains maximum RPM, then backing out until the motor slows down 200 RPM.

If after your Fox 40 or 45 is run in and you wish to alter the mixture contour, you can do so by working on the tip of the low speed needle.



If the motor will not get rich enough at high speed:

File 1/64 or so off the end at a 45 degree angle.

If the motor is lean at midrange:

Sand a radius on the edge shown.

If the mid-range can be made to work fine by screwing the needle in a bit too much for a good idle:

Try sanding the seat location but avoid removing metal toward the tip.

If you mess up you have not ruined an expensive part:

Try to get it working just exactly the way you want.

GOOD LUCK AND ENJOY YOUR FOX MOTOR - IT IS ONE OF THE FINEST BUILT ANYWHERE.

#### WHEN THINGS DON'T GO SO WELL:

##### MOTOR WON'T START -

Bad plug - replace.  
Fuel tank empty.  
Fuel line collapsed, leaky or off.

##### MOTOR WON'T KEEP RUNNING WITH GLOW PLUG HEATER OFF -

Bad plug.  
Too rich a setting.  
Water in your fuel.

##### MOTOR GOES LEAN AND QUILTS AFTER A COUPLE OF MINUTES FLYING -

Hole in flopper tube in tank.

##### MOTOR QUILTS ON SPINS AND STALL TURNS

Insufficient fuel in line to keep motor running and digest air bubble it picks up. Solution - Larger fuel line - Install filter - Set low speed needle richer.

##### NO NEEDLE VALVE SETTING SEEMS TO WORK

Fuel foaming due to vibration. Cushion tank in euratehane foam. In drastic cases change to a different shape tank.

##### GLOW PLUG BURNS OUT EVERY FLIGHT

Over-voltage on battery (plug should glow orange - not white).  
Element crumpled - Caused by cranking, case flooded or too close on squish band (cured by installing head button shim).

##### IN CASE OF CRASH - DO NOT TURN THE PROP OVER YET.

- 1st - Remove from rest of model.
- 2nd - Wash under hot water faucet.
- 3rd - Remove plug and rear cover and wash in stoddard solvent.
- 4th - Now check and see if it turns over freely. If so, it is probably not hurt.

OTHERWISE, CONTINUE TO DIS-ASSEMBLE

##### TO CONTINUE DIS-ASSEMBLY

Remove head screws - lift off head, head button, and lift out cylinder liner. Turn crank to bottom dead center and pull connecting rod back off crankpin - If it will come without forcing. If not, remove snap ring and fish out wrist pin. Then remove piston and rod will come. On bushing motors, the crank will slide out easily. On ball bearing motors, you must remove the thrust washer in order to release the taper lock. After removing the thrust washer, you can drive the crank back out with a wood or plastic mallet.

##### REASSEMBLY

Reassembly is straightforward, but watch these two trouble spots. The ball bearing motor must have the taper lock hard against the shoulder, and usually requires a new taperlock. To get the taper lock in position, insert the crank in the case, select a rod or shaft that will enter the crank hole, put it in a vise vertically, with the crank and case over it, then tap the taper lock against the crank shoulder.

Second point is to be sure to get the wrist pin snap ring firmly into the groove with the leg leaning inward. A snap ring that jumps out or catches in a port makes an awful mess.

##### FACTORY SERVICE

We want your Fox engine to perform well for you. Technical advice can be obtained directly from Duke Fox by phoning Area Code 501-646-1656. If your motor has become worn or crashed, and you desire our factory repair service, mail it directly to us. We will dis-assemble the motor, replace all necessary parts, test run and return the motor to you charges collect. It has not proven practical to make any sort of estimates. We will assure you, however, that our charges will never be more than 60% of the list price of a new motor.

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