CARE AND OPERATION OF YOUR
Thimble-Drome
"O-FORTY-FIVE" RACER

(A) ASSEMBLY:

1. Remove hub nut from spin start wheel.
2. Remove wheel. If it sticks tap it lightly on the inside.
3. Point cylinder toward cylinder hole in body, and filler and vent tubes toward proper holes, then lower unit into place in car body. If it sticks just before the axles drop in place a little thumb pressure will snap it in. It will lift or snap out in the same way.
4. Place engine pan and spring clip in place and put in the screws. The clip goes between screw head and pan.
5. Replace spin-start wheel and hub cap.
6. Putting on front wheels needs no explanation.
7. The bridle is put on with the loops down and locked as shown in Figure 4.

(B) PREPARATION FOR RUNNING:

1. Get a new or thoroughly cleaned oil can and slip a piece of 1/8" neoprene tubing on the spout. This will be used for filling the fuel tank.
2. Mount a center post (such as No. 426 shown on the parts list) or other suitable device, in the center of the space where the car is to be run. If this must be portable, mount the center bearing on a heavy metal plate (about 15 lbs.).
3. Attach a cord or flexible steel cable to the center post. The other end is attached to the bridle of the car.
4. Procure a 1 1/2 volt dry cell battery No. 6, or equivalent, and attach two wires to the battery as shown in Figure 2. This battery is for starting only. Attach the other ends of the wires to suitable clips as shown in Figure 3, or to a double contact Spitfire glow plug clip which you can obtain from your local hobby store.

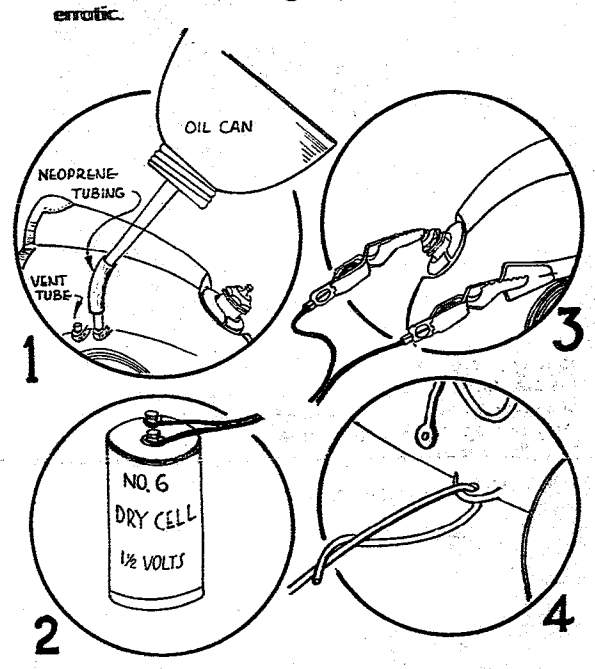
(C) PRECAUTIONS:

You are now ready to run your car. These cars are properly made and engineered and if the following precautions are heeded it will start and run, and give satisfactory service.

1. Be sure the battery is good. Do not let the two terminals get together and form a short circuit as this will kill the battery.
2. Do not dis-assemble the engine as this is unnecessary and there are very delicate parts which can be damaged by improper handling.
3. **Use only Thimble-Drome Fuel** as this is the finest possible for this engine and contains proper lubrication for the engine, gears, and bearings.

Precautions—(continued)

4. **Keep fuel** and fuel containers scrupulously **clean** at all times and wipe hands free of any grit before refueling. The orifice of the fuel jet measures only thirteen thousandths of an inch in diameter and even fine particles of dirt may not pass through.
5. Follow starting directions to the letter as the fuel adjustment is very critical on small engines and it is impossible under production to make them so that all will operate on the same needle valve setting.
6. Do not open needle valve until ready to crank. Keep closed at all times when not in use.
7. First 25 runs (breaking in period) engine may run erratic.



(D) STARTING THE NEW ENGINE:

1. Close the needle valve by turning to the right, or clockwise, until the needle seats gently. Do not force.
2. The left rear axle is hollow and is the venturi tube for the carburetor. Hold the car on its side, left side up, and drop exactly 6 drops of fuel into this tube. Then give the right wheel a turn or two. Set car upright again.
3. Fill tank with Thimble-Drome fuel as shown in Figure 1. Tank is full when it overflows at vent tube.
4. Open the needle valve 1 3/4 turns to the left (counter-clockwise).
5. Connect the battery as shown in Figure 3.
6. Wind the starter cord, or piece of fish line, on the starter wheel, and give it a pull. **Do not spin the engine too rapidly.** Just an easy smooth pull is sufficient. If after a few seconds the engine hasn't started open the needle valve 1/2 turn more and spin again. Repeat if necessary.
7. When the engine starts remove the battery wires and adjust the needle valve to best running position.
8. Hook bridle to cable.
9. Launch with a light toss, just enough to keep the car tight on the end of the cable until it digs in for itself.

(E) STARTING A HOT ENGINE:

1. Proceed as before in paragraph D-1.
2. Proceed as per paragraph D-3.
3. Open the needle valve to the point where the engine previously ran best, plus 1/3 turn. This will vary from 1 ¼ turns to 2 turns.
4. Give the right rear wheel a **quick** flip with the fingers to start, or use the cord.
5. If the engine is new it may run hot. Let it rest 2 or 3 minutes between runs. Over-hot engine will not start easily.

(F) STARTING A COLD ENGINE THAT HAS BEEN BROKEN IN:

Same as for new engine, except needle valve setting. Open needle to best running position, plus ½ turn.

(G) FAILURE TO START:

1. Dead or weak battery—make sure battery is good.
2. Dead glow plug. You will rarely have glow plug trouble if you use the same type of plug furnished with this car (Spitfire) and apply the proper voltage (1 ½ volts). To test, remove the plug and connect it to the battery. If there is a bright cherry glow both plug and battery are O.K. A very dull faint glow denotes a weak battery. No glow means a dead plug or battery. When replacing plug just tighten it snugly—do not force.
3. Mixture too lean. Failure to fire or sporadic firing with very little smoke indicates a lean mixture. Open needle valve another quarter to half turn. Further failure may indicate a clogged up carburetor jet.
4. Flooded or Over Choking: Flooding is caused by opening needle valve too far. Before the engine will run it must be flushed. If it is firing occasionally with an excess of smoke the engine may be started by closing the needle valve a half turn and giving the engine a few spins with the cord. Excess flooding to the point where the motor will not turn over easily, or where there is no firing, will necessitate a thorough flushing. This can best be done by the following method: Close needle valve. Rock engine back and forth till it turns over freely without force. Turn car over so that cylinder points straight down and spin the engine 3 or 4 times with the cord. You may then open needle valve to the correct position and start the engine.
5. A new engine may in some cases start firing but will not keep running under its own power. Starting on a motor pulley or similar means is recommended in this case. The engine will take off after it warms up good. After being started it may die after only a few laps. Let it cool about two minutes, then start it again. The most obstinate cases will only take a half dozen tries before it is ready to roll. This trouble is caused by a snug fit of piston to cylinder. Only patience is required as this trouble is all over after the first full run.
6. Engine gummed up or corroded inside from use of improper fuels.
7. If using another fuel, try Thimble-Drome.

CARE OF YOUR ENGINE AND OPERATING TIPS

1. **OILING.** No oiling is required as it is all automatic. Only the front wheels of your car need oiling.
2. The lever on top is the exhaust cutout. Straight back is muffled; to the corner is open. In handling the engine be careful not to damage this lever as it cannot be replaced without removing the cylinder.
3. **The cylinder should never be removed unless absolutely necessary. If removed, your engine may not operate properly again until the cylinder and piston are replaced by new ones.** Do not tighten cylinder down too firm, just screw it up snug.
4. In case the fuel line gets clogged up the sediment will be found in the jet nozzle. This should rarely happen as the fuel screen should stop all impurities. If, however, it does happen, remove the engine from the car. Screw out the jet which is opposite the needle valve. Blow out the jet **from the nozzle end,** letting the dirt come out through the larger hole in the side. This can be done at any service station, but **hold the jet tight** or it may be blown out of your hand and become lost. When replacing the jet, back the needle valve out a little. Seat the jet firmly so the seat will seal. Do not use a cheap screw driver for this operation as the tip may bend and ruin the screw driver slot. **Keep fuel and containers absolutely clean at all times.**
5. **Never put your car away without running out all of the fuel.** If you do, the fuel will vaporize, leaving only heavy castor oil in the jet. The next time you try to start it you will have trouble. Always let the engine run until the fuel is exhausted before putting away.
6. **Never remove the carburetor from the crankcase unless absolutely necessary.** The valve reeds will not give any trouble but they are so delicate that disturbing them will void any guarantee from the factory on your engine. Nevertheless, should you find it desirable or necessary to remove these they must be handled with **extreme caution. They must not be bent or kinked.** They must be replaced in exactly the same position as they were. In replacing reeds with new ones put the **thick one** in **first** with the **purple side to the back up plate.** Put the thin one in with the **purple side against the other reed.** Replace the carburetor carefully and hold it in place until locked up with the union nut. **Do not nick or scratch the reed seat** on the carburetor.
7. If the fuel tank should be removed do not tighten the venturi tube down until after the engine has been replaced in the body of the car. This allows the tank to turn in order to line up the filler and vent tubes properly.
8. This car can be run on a 35 foot track only if a very light cable is used. Also, it must be run at full speed, and a hard throw is necessary in launching it on the larger circles.
9. **Your car will run backward as well as forward. The engine runs equally well either direction.**

Care of Your Engine—(continued)

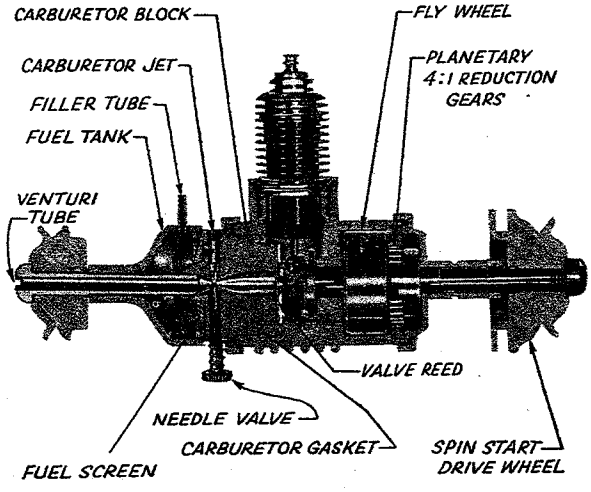
10. This car will run from about 8 miles per hour up to approximately 30 miles per hour. Slow speeds cannot be achieved on a large circle because the car will pull in. For fast speed—after starting engine turn the needle valve to the right (clockwise) until the engine reaches top speed before launching. For slow speed—turn needle valve to left until engine runs very sluggishly before launching.
11. The factory requests that you please try to get your parts and supplies from your dealer. If, however, you can not obtain them you may send direct to the factory. Our parts and repair department will give you 24 hour service.
12. **If the carburetor or cylinder has been removed from the crankcase your guarantee will become immediately void.** If you void your guarantee **do not be unfair with your dealer** by insisting he make good something he is going to be stuck with. Instead, send the unit back to the factory where you will get **quick service and a fair deal.**

GUARANTEE

All Thimble-Drome products are guaranteed for thirty days against defective parts and workmanship. Defective products will be repaired or replaced free of charge. No other guarantee is made or implied. This guarantee does not cover damage from abuse, accident, or ordinary wear. **Guarantee is void if engine is disassembled,** unless evidence of defect is conclusive in our opinion. Note: Some cars sent to us as defective have nothing the matter with them. Failure of such cars to start is due to conditions beyond our control, and is usually due to improper handling, fuel, or lack of understanding by the owner. Such cars will be returned to the owner with a full report of our tests and a small charge to cover costs of testing, making a report, packing, and return postage will be made.

SPECIFICATIONS

Wt. of car—15½ oz. Wt. of power unit less wheels—4.4 oz. Wt. of flywheel ¾ oz. Bore ⅜", Stroke .416, Displacement .0459 cubic inches, overall height 2 7/16", length 4⅝", width 1½", shaft size ¼", gears—planetary, ratio 4:1, piston—lap, intake valve—reed, engine speeds in excess of 20,000 rpm, rotation—right or left.



PARTS FOR .045 ENGINE, CAR, AND ACCESSORIES

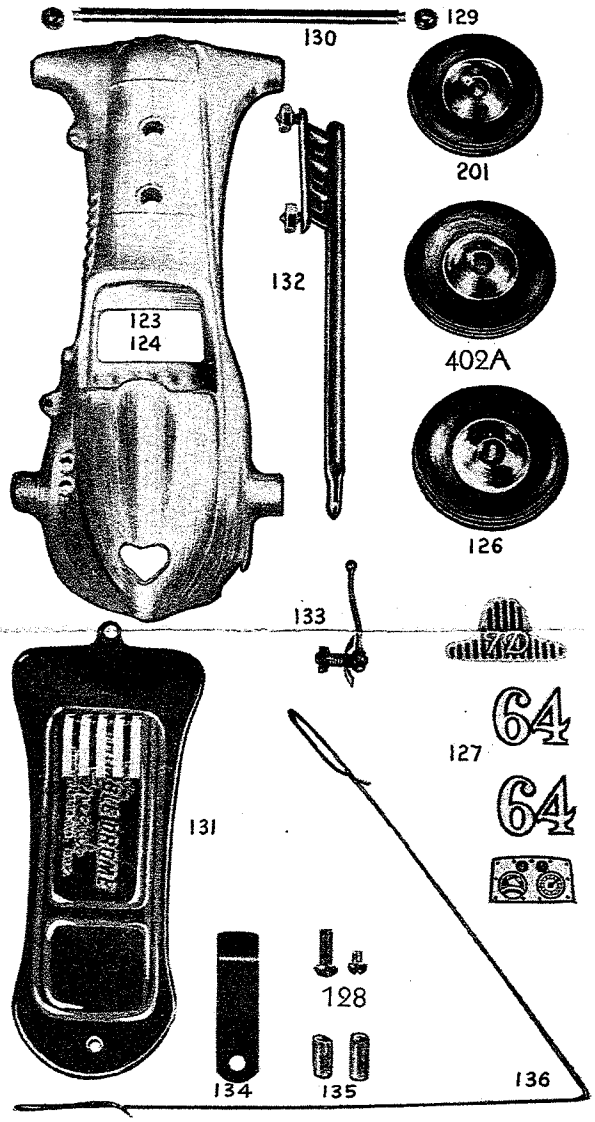
Number Catalogue	PART	Price List
101	Engine Block	$2.50
3*	Cylinder, Piston, and Rod Assembly	3.00
8*	Bypass	.40
6*	Cylinder Head	.60
102	Exhaust Cutout Lever	.40
25*	Cylinder Head Gasket	.05
103	Crankshaft	2.25
104	Flywheel	.50
105	Set, Spider Gears (3)	.75
106	Ring Gear	1.20
107	Drive Axle	2.00
108	Drive Axle Housing	.65
109	Needle Valve and Spring	.60
110	Carburetor Jet	.60
111	Venturi Tube	.90
112	Carburetor Block	1.50
113	Fuel Tank	.50
114	Set of Reeds (2)	1.00
115	Reed Back Plate	.20
116	Vent and Filler Tubes—set	.20
117	Carburetor Gasket	.10
118	Fuel Filter	.25
119	Set of Union Nuts	1.00
120	Tail Pipe	.50
121	Tail Pipe Lock Ring	.05
122	Anti Friction Spacer (for drive wheel)	.05
123	Casting—painted, decaled, drilled, tapped	1.50
124	Casting—chrome, decaled, drilled, tapped	3.50
125	Spin-Start Wheel	1.00
126	Spin-Start Wheel and Tire	1.15
127	Set of Decals	.20
128	Set of Screws	.05
129	Set of Hub Nuts (3)	.25
130	Front Axle	.50
131	Engine Pan	.75
132	Dummy Exhaust Pipe	.40
133	Hand Brake	.30
134	Spring Clip	.15
135	Venturi Stacks (pair)	.30
136	Bridle	.15
137	Cable Only (6 ft. made up)	.35
138	Set, Battery Wires (2)	.20
139	Nylon Cord and Handle for starting	.20
210	Front Tire	.15
410	Rear Tire	.15
416	Wheel Only	.15
201	Wheel with Front Tire	.30
402A	Wheel with Rear Tire	.30
426	Center Post	1.00
429	Neoprene Tube for Refueling (1 ft)	.15
*	Spitfire Glow Plug Clip	.15
*	Spitfire Glow Plug	.49

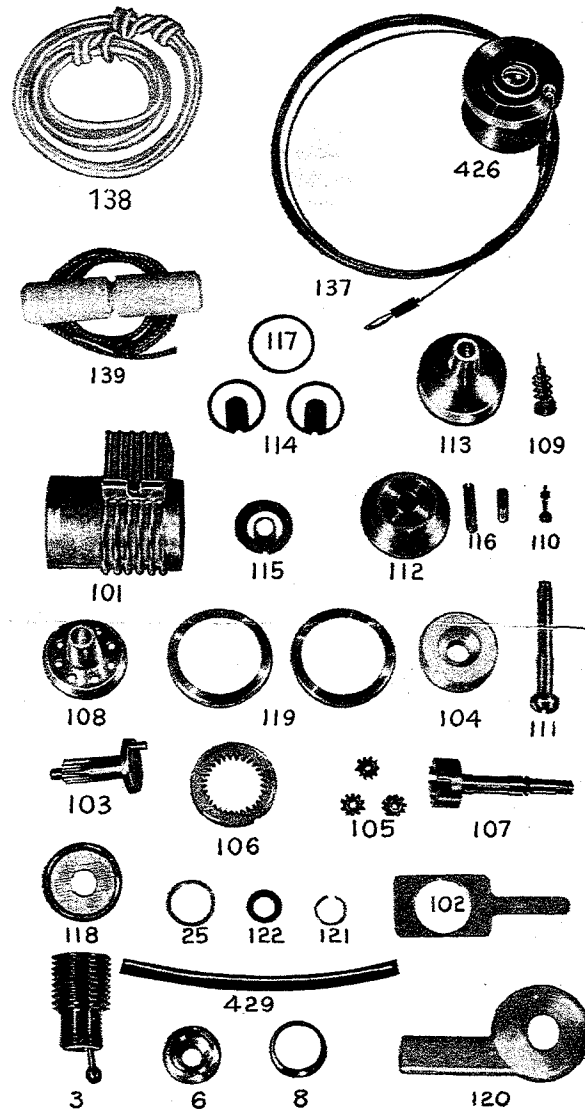
* Standard parts for Anderson's Spitfire .045 Engine.

L. M. COX MANUFACTURING CO.
730 Poinsettia P. O. Box 476 Santa Ana, Calif.

COMPLETE PARTS LIST—For Your Thimble-Drome O-Forty Five

Always Refer to Catalog Number





FACTORY SERVICE

Repairs, overhaul, checking, and testing will be charged for on a time and parts basis. Returned cars will be carefully examined, track tested, repackaged and shipped back with a full written report. **No refund of purchase price will be made under any conditions.**

WRITE FOR FREE CATALOG OF OTHER THIMBLE-DROME PRODUCTS

ALWAYS USE THIMBLE-DROME FUEL FOR EASIER STARTING, BETTER RUNNING

Do not take this unit back to your dealer for adjustment of guarantee or repairs. SEND IT DIRECT TO THE FACTORY.

READ YOUR GUARANTEE — If damage is not covered, the charges will be as follows:

Damage due to breakage, freezing, use of improper fuel, etc., will not exceed $2.25 plus postage.

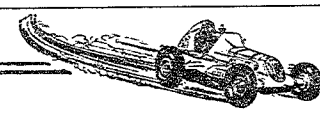
A complete overhaul of a worn out engine will not exceed $5.50 plus postage. A worn out condition can possibly result from abrasive material in the fuel or air as well as from natural wear.

The above prices include labor and parts and only apply when the owner sends the unit direct to the factory. Quick service is assured.

(Over)

L. M. COX MANUFACTURING CO.

P. O. Box 476 **Santa Ana, Calif.**



THIMBLE-DROME WARRANTY

All Thimble-Drome products are warranted for thirty days against defective parts and workmanship. Defective products will be repaired or replaced free of charge. No other guarantee is made or implied. This warranty does not cover damage from abuse, accident, or ordinary wear. Warranty void if engine is disassembled, unless evidence of defect is conclusive in our opinion.

Card must be signed by dealer at time of purchase and mailed within 10 days. This car or engine is not warranted unless this card is in our file.

Unless Thimble-Drome fuel is used, damage may result. The factory will assume no responsibility if there is evidence of damage caused by the use of improper fuels.

L. M. COX MFG. CO.

Engine Model

DEALER'S NAME_____ (Please Print) .045_____

ADDRESS_____ .099_____

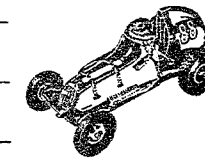
CITY_____ STATE_____ .15 _____

OWNER'S NAME_____ .199_____

ADDRESS_____

CITY_____ STATE_____

DATE PURCHASED_____



To Receive the Benefits of your warranty—

MAIL THIS CARD TODAY!

WARNING . . .

Should the engine become tight or locked from over-flooding do not try to crank it over by force. To do so may result in a broken crank pin or connecting rod, or both.

Such Damage Will NOT Be Covered by Guarantee.

To free the engine, close needle valve and rock drive wheel back and forth without pressure until excessive fuel is worked out and engine turns over freely. Then spin the engine over several times with the cord to flush thoroughly any excessive fuel. ALWAYS keep needle valve closed except when actually cranking or running. Do not use more than six drops of fuel to prime.

The screen in the venturi has been placed there for your protection. Removal of this screen will void your guarantee.

During break in period (about 25 runs) the engine may run slightly erratic. If it does, do not be concerned, just be patient.

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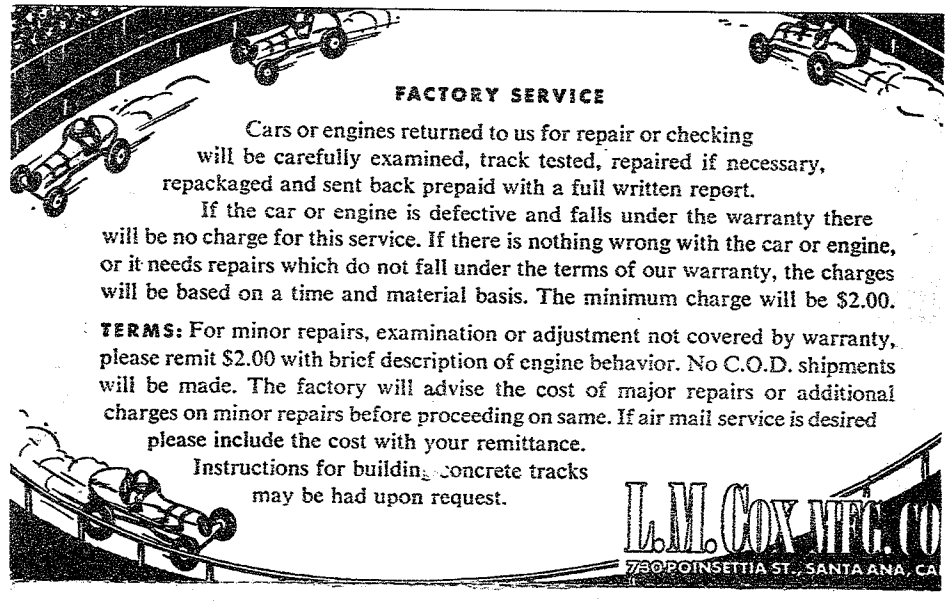

FACTORY SERVICE

Cars or engines returned to us for repair or checking will be carefully examined, track tested, repaired if necessary, repackaged and sent back prepaid with a full written report.

If the car or engine is defective and falls under the warranty there will be no charge for this service. If there is nothing wrong with the car or engine, or it needs repairs which do not fall under the terms of our warranty, the charges will be based on a time and material basis. The minimum charge will be $2.00.

TERMS: For minor repairs, examination or adjustment not covered by warranty, please remit $2.00 with brief description of engine behavior. No C.O.D. shipments will be made. The factory will advise the cost of major repairs or additional charges on minor repairs before proceeding on same. If air mail service is desired please include the cost with your remittance.

Instructions for building concrete tracks may be had upon request.

L.M. COX MFG. CO
730 POINSETTIA ST., SANTA ANA, CA

PLACE
STAMP
HERE

L. M. COX MFG. CO.

730 POINSETTIA STREET

SANTA ANA, CALIFORNIA