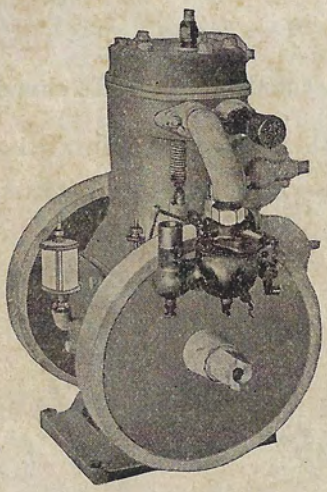
INSTRUCTION
and REPAIR BOOK

FOR THE

5 H. P. Type V Model BB

Cushman Engine



Equipped with water circulating pump
or hopper cooler

Effective January 1, 1926

CUSHMAN MOTOR WORKS
Lincoln, Nebraska,

No. 149
2-1-26 3M

MADE IN U.S.A.

IMPORTANT INSTRUCTIONS

for ordering parts

Give engine number, model and type.

Give catalog number and name of each part ordered.

Specify how shipment is to be made.

Repairs are handled on cash basis.

All collection charges are paid by this company on orders for more than $1.00 net.

Send cash with order and save C. O. D. charges.

Parcel Post C. O. D. shipments are insured. When damage or loss occurs, so indicate on the carrier's receipt before signing. Return receipt to us and we will file claim for your account.

RETURN GOODS

Any parts returned to factory for repair, duplication, exchange or credit, must be PREPAID.

Don't forget to mark your name and address on returned shipments.

PRICES

Prices are subject to change without notice. All parts are sold F. O. B. factory.

Instructions for Care and Operation of 5 HP Type V Model BB Cushman Engine

This engine is of an extremely advanced design in stationary gas engine practice and we therefore earnestly recommend the user to carefully study and observe the following statements that he may better get the full value of the superior construction in the every day use of the engine.

BEFORE STARTING ENGINE

See that the gasoline tank is filled with a good grade of clean gasoline and be sure that the stop cock is turned on so that gasoline will flow from gasoline tank into the carburetor.

Check the supply of oil in crank case by means of the bayonet oil gauge. The level should show somewhere between the two marks on the gauge and preferably near the high one.

If necessary to add oil, pour thru elbow on inspection plate.

Screw sight feed oiler into elbow on crank case inspection plate and fill with a good grade of oil and regulate to drop about 10 drops per minute.

See that the water connection to the circulating pump of the engine is properly made so that water will circulate freely when pump is operating.

Check the battery box connections and the wires to the engine to be sure none are loose or out of place.

TO START ENGINE

Retard spark by placing the timer lever in its lowest position. Close switch on battery box. Turn engine over briskly by means of starting crank placing palm of left hand over air intake of carburetor for first few turns in order to draw in a good rich charge of gasoline. The engine should start on the second or third revolution. Now advance the timer by raising the lever to its highest position. If engine should be inclined to knock a little when this is done, lower the lever to a point where the knock disappears. Turn on the sight feed oiler and adjust the governor tension screw to obtain the desired speed.

COOLING

The cooling system comprises of a water jacketed cylinder, and cylinder head, a belt driven centrifugal circulating pump, an auxiliary water tank and a cooling coil.

The circulating pump is built in a unit and is fastened to the lower water connection of the cylinder jacket by means of a flanged connection. It is driven by a round belt running from crank shaft pulley to pump pulley. The proper tension of belt can be maintained by loosening the cap screws which hold pump to cylinder and raising pump unit in slotted

holes provided. The water is taken in thru the pipe connections in the pump and discharged thru the pipe connection on cylinder head. When used on sprayer outfits these two connections are so connected to the cooling coil and auxiliary tank of sprayer to give a continuous circulation of water which keeps the cylinder at a good operating temperature.

If the engine at any time runs abnormally hot the cooling system should be checked over carefully at once as great damage can be done to cylinder and piston by allowing engine to run hot.

If the pump fails to work at normal speeds the pump runner may be broken or the passages may be clogged. In either case the pump case cover may be removed and a thorough examination made. In cool weather be sure to drain the water from the cylinder jacket and pump by means of the little drain cock underneath the pump case.

Hopper cooling system can be supplied on special orders.

LUBRICATION

There is only one place to oil and that is the crank case. Lubrication is effected by the splash system. Oil is furnished to connecting rod bearing, piston, main bearings, cam and valve mechanism and governor mechanism by means of the splash from the lower end of connecting rod.

The oil reservoir can be readily examined by removing the six cap screws which hold the inspection plate. It takes about one pint of oil to fill this reservoir to the proper height. It should be such a level as will allow the connecting rod to dip from ⅛" to ¼" deep into the oil. This level is indicated by the marks on the bayonet oil gauge.

Oil can be added to the crank case by removing the sight feed oiler and pouring in thru elbow or by removing pipe plug from case on opposite side.

The purpose of the sight feed oiler is merely to keep the oil level constant at all times and should be adjusted to drop accordingly. This will vary with different engines and will have to be determined by experience of the user.

The oil used should be a good grade of motor oil similar in grade and weight to Gargoyle Mobiloil A. In extreme cold weather an oil of lighter body should be used such as Mobiloil Artic. Your oiling problem is important and we recommend that you give it careful consideration as upon it rests the life of your engine.

IGNITION

The ignition is furnished by a dry cell battery operating in a "make and break" system. The timer is of standard design and can be easily adjusted by removing the cover. The points should be adjusted to break to a gap of .020" or about the thickness of an old dime. A little light oil on the breaker arm bearing and the cam contact of the timer now and then will do no harm and keep it in good working condition.

Advance and retard is effected by means of lever and can be adjusted to suit different loads. Heavy loads may not stand as much advance as light ones.

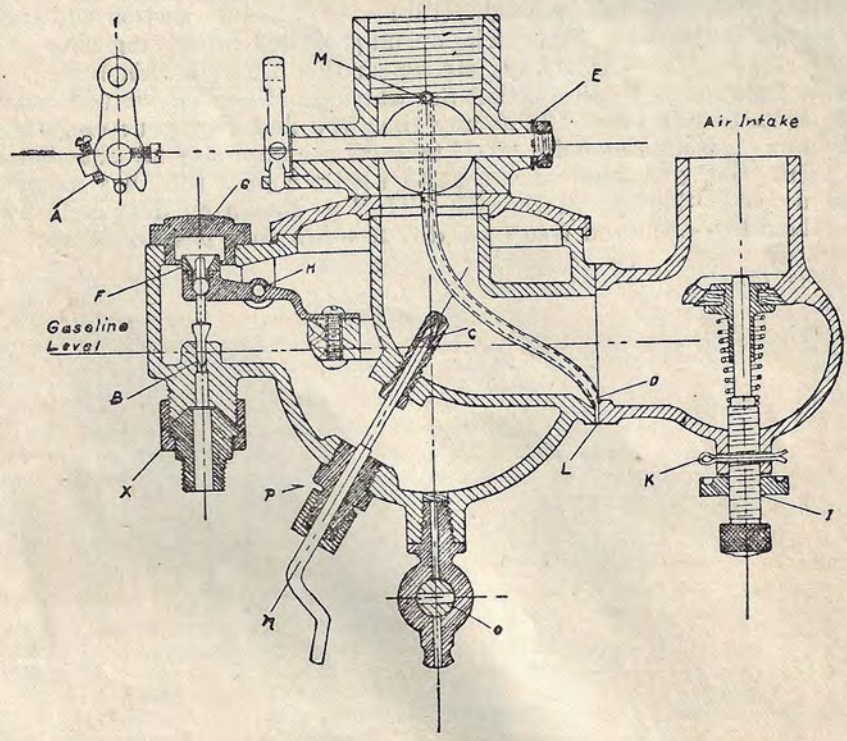
When equipped with magneto see special magneto instructions enclosed.

CARBURETOR

(Operation, Care and Adjustment)

Cut of carburetor gives exact detail of the special Schebler carburetor as fitted to our engine. The simple principle of operation is that the gasoline goes in from the gasoline tube to the check valve opening at "B." The gasoline fills up the bowl until it gets up high enough to raise the cork float, and the raising of this float connected to the pivot arm at "H" presses down the float valve so that it shuts off further flowing in of the gasoline at "B."

The air passage above "C" must be air tight. See that there is a good gasket on the intake manifold. There is a cork gasket under the lid of the carburetor to make an air tight connection at this point. If



SECTIONAL VIEW OF SCHEBLER CARBURETOR

See page 11 for complete list of parts.

this gasket becomes compressed or broken so that it does not make an air tight connection it will cause hard starting and misfiring. DO NOT USE RUBBER GASKET.

Now, with the gasoline standing at the proper level as shown by the cross line, you will note that it is a little below the level of the opening of the needle feed valve at "C." When the engine piston goes down

on the suction stroke, it pulls a big suction of air through the air intake passage past "C" and takes in vapor form a quantity of gasoline with it into the cylinder.

The amount of this charge is regulated by screwing the carburetor needle either out or in for larger or smaller opening. The usual point of operation is from one-third to three-quarters of one turn open.

In any carburetor there is some condensation of the gasoline after it is sprayed through the nozzle. This is more noticeable in cold weather as the gasoline spray collects on the walls of the passage and runs down the sides to the bottom. It is, therefore, often noticeable that gasoline will be dripping slightly from the Schebler carburetor at the drain "L" which the Schebler company leave on their carburetors for this purpose. We make a special attachment to as far as possible save this waste gasoline and prevent this drip. We run a little copper tube from the point "M," which is an opening in the main intake passage above the throttle. This little tube runs down direct and has its suction end right at the low drain point "L." The opening of this tube being above the throttle valve, there is always strong suction through this little tube and its function is to pick up all the waste gasoline that would tend to drip down to this point. If at any time you find that your carburetor is dripping gasoline at point "L," take off the auxiliary air chamber at the point "D" and make sure that this little copper tube has its point right down in the hole at the point "L," as shown on drawing. This tube should be open and free from dirt to allow easy passage of air.

Repair List for 5 H.P. Vertical Type V Model BB Engine

IMPORTANT INSTRUCTION—It is very important that you DO NOT OMIT the DASH in the following numbers. For example 6 No. A-136. Telegraph order should be written Six number A dash one three six.

CYLINDER

Part No.	NAME OF PART	Price
1-23	Intake and exhaust connection—used with 3-28	$ .75
3-28	Intake pipe—flanged	1.00
73	Spark Plug	.75
P100	Priming cup-dole	.60
A-136	Valve spring retainer pin	.05
A-137	Cylnder head stud and nut, each	.10
A-140	Valve guide	.25
A-141	Valve, intake, exhaust	.75
A-142	Valve spring	.15
A-143	Valve retainer	.10
A-144	Water inlet and outlet flange gasket	.05
A-145	Intake and exhaust connection gasket	.15
A-181	Intake and exhaust connection stud and nut-outer	.10
A-186	Intake and exhaust connection stud and nut-inner	.10
3-203	Intake and exhaust connection	.75
AV-203	Intake pipe	1.00
A-209	Cylinder head gasket	.25
A-210	Hand hole cover and oil sump gasket	.05
A-221	Hand hole cover	.75

MAIN BEARING HOUSING

A-308	Cylinder head	3.75
3-A401	Cylinder assembled with valves and studs	35.00
A-1016	Cylinder water outlet flange	.60
A-101	Main bearing cover gasket	.05
A-102	Main bearing cover felt	.10
A-129	Gear housing felt	.10
A-201	Crank shaft main bearing retainer	1.50
A-202	Main bearing cover	1.50
A-207	Gear housing gasket	.05
1-246	Main bearing	6.80
A-307	Gear housing	3.00
A-1017	Main bearing cover spacer	1.00

CAM

A-119	Cam pivot pin, nut and cotter	.75
A-121	Cam bushing, each	.15
A-122	Cam gear	2.25
A-123	Inlet valve rocker arm with bushing	.75
A-124	Exhaust valve rocker arm with bushing	.75
A-125	Valve rocker arm bushing	.15
A-126	Valve rocker arm pivot, nut and cotter	.75
A-127	Valve tappet	.75
A-128	Valve tappet adjusting screw and nut	.10
A-159	Cam retainer washer	.05
A-194	Cam with bushing	2.00

PISTON AND CONNECTING ROD

46	Piston pin	.75
3-103	Piston ring, each	.50
A-114	Connecting rod bushing, C. E. reamed	1.00
A-115	Connecting rod shims—set	.35
A-A116	Connecting rod bolt and nut	.25

Part No.	NAME OF PART	Price
A-117	Connecting rod bushing P. E.	.50
A-118	Piston pin lock screw and washer	.15
A-A206	Connecting rod with bolts and bushings—reamed	6.50
3-302	Piston	4.00
3-A302	Piston and connecting rod assembled	14.00

CRANK SHAFT

A-104	Timing gear	1.50
A-108	Flywheel key	.15
A-110	Flywheel nut	.30
A-111	Flywheel washer	.10
A-301	Crank shaft	12.00
A-A301	Crank shaft with gear	14.00
A-304	Flywheel	10.00
A-304H	Flywheel	10.00

GOVERNOR

A-105	Governor weight pin	.05
A-107	Governor spacer	1.00
AV-110	Throttle operating lever	.50
AV-111	Throttle operating link	.35
AV-113	Governor adjusting nut bracket	.15
A-146	Governor weight	.35
A-151	Throttle operating lever hub	.25
A-153	Governor spring	.25
A-154	Governor spring adjusting screw	.15
A-155	Governor spring adjusting screw nut	.15
A-162	Governor pivot lever and shaft	.50
A-163	Governor sliding sleeve finger	.25
A-185	Governor weight spider	.25
A-A185	Governor weight spider with weights	1.00
A-1013	Governor sliding sleeve	.75

TIMER

1-62	Timer lever	.30
A-130	Igniter gear	2.25
A-131	Igniter gear bushing	.20
A-132	Igniter gear stud	.50
A-135	Igniter gear housing gasket	.05
A-139	Igniter gear housing felt	.05
A-208	Igniter gear housing	1.50
1-503	Timer and gear housing assembled	10.00
1--504	Timer assembled	3.25
1-505	Timer plate with breaker post	.50
1-506	Timer breaker post	.25
1-507	Timer breaker bearing	.35
1-508	Timer breaker bar	.05
1-A508	Timer breaker bar assembled with point	1.25
1-509	Timer breaker spring	.25
1-510	Timer breaker shoe	.25
1-511	Timer fibre	.30
1-512	Timer wire connector	.05
1-513	Timer cover	.35
1-514	Timer cam	1.00
1-515	Time cam bolt	.35
1-516	Timer breaker bar point	.25
1-517	Timer adjusting screw and point	.50
A-1002	Timer retainer washer	.10
A-1008	Timer lever ratchet spring	.15
A-1009	Timer lever ratchet spring washer	.05

WATER PUMP

Part No.	NAME OF PART	Price
49	Pump cover	.75
49X	Pump cover screw	.05
2-50	Pump runner	.75
2-52	Pump shaft	.50
55	Pump stuffing nut	.25
59X	Pump bushing set screw	.05
72	Drain cock	.25
129A	Pump shaft bushing	.30
A-220	Pump case	2.50
A-A220	Pump case assembled, including cover, runner, shaft, drain cock	6.50
264	Pump cover gasket	.05
276	Pump packing (3 rings)	.10
A-1014	Pump drive pulley	1.50
A-1015	Pump shaft pulley	1.50
A4-338	Belt with coupling	1.25
1-518	Belt coupling	.35
	Grease cup 000 (pump)	.15
	⅜" St. L (oil cup)	.10
	½" L (pump)	.10
	½"x1½" nipple (pump)	.10

MISCELLANEOUS

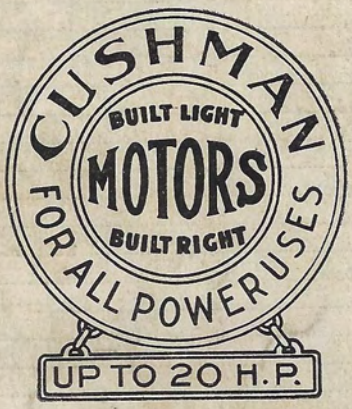
A3-70	Oil cup—Mich X48A3	2.00
3-70A	Oil cup, body glass 2¼"x2⅛"	.50
3-70B	Oil cup, feed glass ¾"x¾"	.20
3-70C	Oil cup feed shank with glass	.75
3-74	Gas tube with A6 and C31 (Special 54")	1.75
2-86	Gas tube elbow A6	.20
3-86	Nut for Dole fittings	.05
1-87	Gas tube shut-off cock C31	.75
A-112	Starting crank jaw	1.50
2-158	Muffler pipe with cap	.40
6-185	Starting crank	1.50
AV-187	Oil gauge assembly	1.00
A-190	Muffler cap	.25
A3-251	Oil level indicator with cap	.15
AV-301	Base	4.50
	⅛" T	.15
	⅛x1¼" nipple (vertical)	.10
	⅛x1½" nipple (horizontal)	.10
	⅛" plug for cylinder and oil gauge	.05
	1" expansion plug (cylinder)	.05
	¾" pipe plug (cylinder)	.05
	⅜" street L for oil cup	.10
	Cam gear and timing gear key No. 6 Woodruff	.05
D149	16T sprocket	2.50

MISCELLANEOUS CAP SCREWS

Part No.	NAME OF PART	Price
	Main bearing cover 5/16-18x1 Hex	.05
	Connecting rod bolt and nut 3/8-24 Hex	.25
	Gear housing 5/16-18x3/4 Fil. Head	.05
	Water inlet and outlet flange 3/8-16x3/4 Hex	.05
	Hand hole cover 7/16-14x3/4 Hex	.05
	Throttle operating lever hub 10-24x3/4 Fil. Head	.05
	Base 7/16-14x1 1/4 Hex	.10
	Cam retainer 3/8-24x3/4 S. A. E. Hex	.05
	Ignition gear housing 5/16-18x3/4 Fil Head	.05
	Ignition gear stud 1/4-20x1/2 headless	.05
	Timer lever 8-32x1/4 R. H. machine	.05
	Timer cam 1/4 Hex. nut	.05
	Timer lever ratchet spring 8-32x3/8 R. H. machine	.05
	Pump shaft bushing 1/4x5/16 headless	.05
49X	Pump case cover 12-24x5/8 R. H. machine brass	.05
A-118	Piston pin lock screw 5/16	.15
A-119	Cam pivot pin and nut 1/2-20 Hex	.75
A-126	Valve rocker arm, pivot and nut 1/2-20 Hex	.75
A-128	Valve tappet adjusting screw and nut 5/16-24 S. A. E. Hex	.10
A-137	Cylinder head stud and nut 3/8-16 Hex. nut	.10
A-181	Intake and exhaust connection stud and nut 5/16x1 3/16	.10
A-186	Intake and exhaust connection stud and nut 5/16x1 5/8	.10
1-240	Intake and exhaust connection stud and nut 5/16x2	10

SCHEBLER CARBURETOR PARTS

	Part No.	Price
CARBURETOR ASSEMBLED COMPLETE	2-92	$12.50
Carburetor assembled completed—flanged throttle	3-92	12.50
Air valve complete with choker	1-AN	4.50
Bowl complete	BB	9.00
Throttle complete	2-CC	4.00
Throttle complete—flanged	3-CC	4.00
Leather air valve disk	A	.30
Bowl casting	B	6.00
Spray nozzle	D	.20
Needle valve	E	.20
Cork float	F	.50
Float valve	H	.20
Float lever	J	.20
Throttle disk	K	.10
Lid	L	2.00
Air valve adjusting screw	M	.20
Cork gasket for lid	N	.10
Air valve spring	O	.10
Throttle lever with screws	AV-112	.60
Throttle casting	R	3.00
Throttle casting—flanged	3-R	3.00
Throttle lever adjusting screw	S	.10
Drain cock	T	.50
Bowl cap	U	.30
Lock nut for adjusting screw	W	.10
Needle valve connection	X	.20
Throttle lever lock screw	1	.10
Throttle cap screw	2	.10
Air valve casting	1-3	3.00
Float washer and screw	4	.20
Air valve cap screw	5	.10
Float valve retainer nut	6	.10
Float lever screw	7	.10
Throttle shaft with disk screws	8	.30
Throttle shaft with disk screws	1-8	.30
Throttle shaft washer	9	.10
Throttle shaft lock nut	10	.10
Flusher pin	11	.20
Flusher spring	12	.10
Gasoline union nut	13	.25
Gasoline union nipple	14	.25
Economy tube	15	.10
Throttle shaft spring washer	16	.05
Float lever screw nut	17	.10
Throttle shaft collar	18	.10


CUSHMAN
BUILT LIGHT
MOTORS
BUILT RIGHT
FOR ALL POWER USES
UP TO 20 H.P.