

Section 8

LUBRICATION

Oil has four purposes. It cools, cleans, seals and lubricates. Briggs & Stratton engines are lubricated with a gear driven splash oil slinger or a connecting rod dipper.

OIL

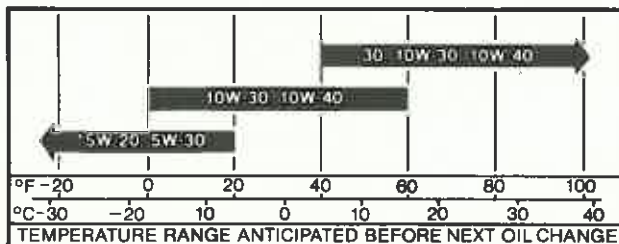
Capacity Chart

BASIC MODEL SERIES	CAPACITY	
	PINTS	LITERS
ALUMINUM		
6, 8, 9, 11 cu. in. Vert. Crankshaft	1-1/4	.6
6, 8, 9 cu. in. Horiz. Crankshaft	1-1/4	.6
10, 13 cu. in. Vert. Crankshaft	1-3/4	.8
10, 13 cu. in. Horiz. Crankshaft	1-1/4	.6
14, 17, 19 cu. in. Vert. Crankshaft	2-1/4	1.1
14, 17, 19 cu. in. Horiz. Crankshaft	2-3/4	1.3
22, 25 cu. in. Vert. Crankshaft	3	1.4
22, 25 cu. in. Horiz. Crankshaft	3	1.4
CAST IRON		
9, 14, 19, 20 cu. in. Horiz. Crank.	3	1.4
23, 24, 30, 32 cu. in. Horiz. Crank.	4	1.9

Oil Recommendations

Use a high quality detergent oil classified "For Service SC, SD, SE or MS." Detergent oils keep the engine cleaner and retard the formation of gum and varnish deposits. Nothing should be added to the recommended oil.

RECOMMENDED SAE VISCOSITY GRADES



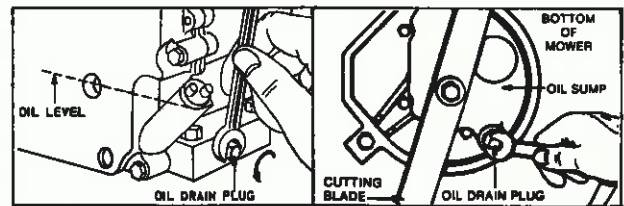
*If not available, a synthetic oil may be used having 5W-20, 5W-30 or 5W-40 viscosity.

Change Oil (Crankcase)

Change oil after first 5 hours of operation. Thereafter change oil every 25 hours of operation; more often under dirty operating conditions. Remove oil

drain plug, Fig. 1, Ill. 1 or 2 and drain oil while engine is warm. Replace drain plug. Remove oil fill plug or cap and refill with new oil of proper grade. Replace oil fill plug or cap. Check oil level regularly — at least after five hours of operation.

BE SURE OIL LEVEL IS MAINTAINED.



Ill. 1 Horizontal

Ill. 2 Vertical

Fig. 1 — Change Oil Crankcase

Check Oil (6 to 1 Gear Reduction Models) 6, 8, 60000, 80000, 100000, 130000

Remove the oil plug in lower half of gear cover every 100 hours of operation to check the oil level. Fig. 2.

Add SAE 10W-30 oil at upper oil fill plug until oil runs out of lower hole. Replace both plugs.

NOTE: Filler plug has vent hole and must be placed in top opening.

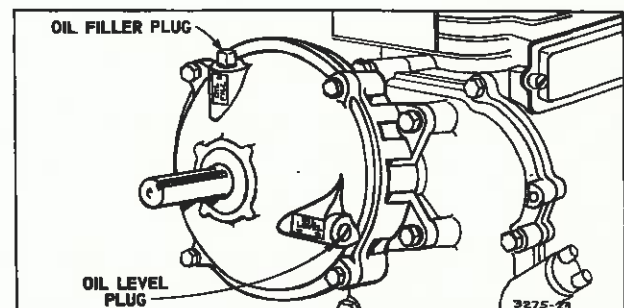


Fig. 2 — Check Oil Level

LUBRICATION

Extended Oil Fill and Dipsticks

**Check Oil (Gear Reduction)
Aluminum Engines
Models 140000, 170000, 190000**

Remove drain plug in bottom of gear case cover and drain oil every 100 hours of operation. Fig. 3. Replace plug. To refill, remove oil check plug and oil fill plug and pour oil (same grade as used in crankcase) into filler hole until it runs out level check hole. Replace both plugs. Oil fill plug has a vent hole and must be installed on top of gear case cover.

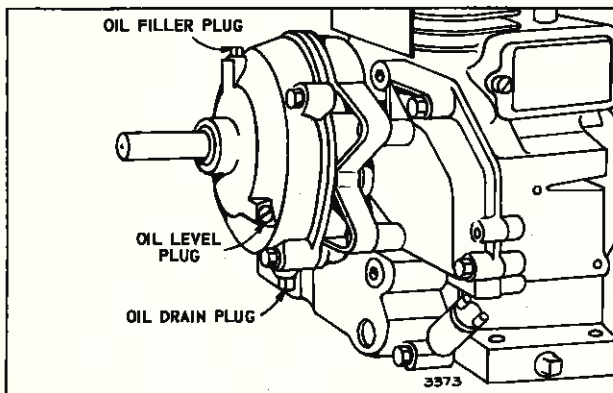


Fig. 3 — Check Oil Level

Change Oil (Gear Reduction) Cast Iron Engines

The reduction gears are lubricated by engine crankcase oil. Remove drain plug from gear case cover to drain oil remaining in gear case. See Fig. 4.

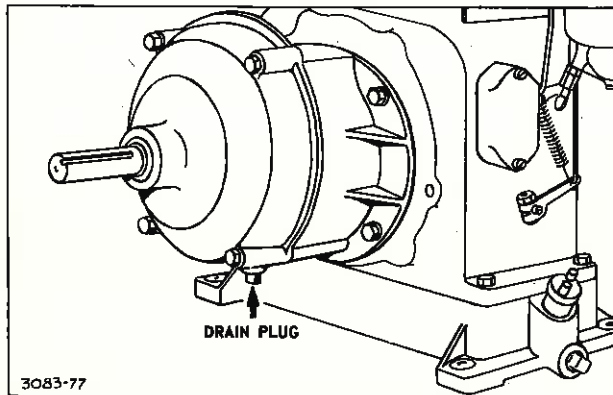


Fig. 4 — Change Oil

EXTENDED OIL FILL AND DIPSTICKS

When installing the extended oil fill and dipstick assembly, the tube must be installed so the "O" ring seal is firmly compressed. To do so, push the tube downward toward the sump, then tighten blower

housing screw, which is used to secure the tube and bracket. When the cap and dipstick assembly is fully depressed or screwed down, it seals the upper end of the tube. See Fig. 5.

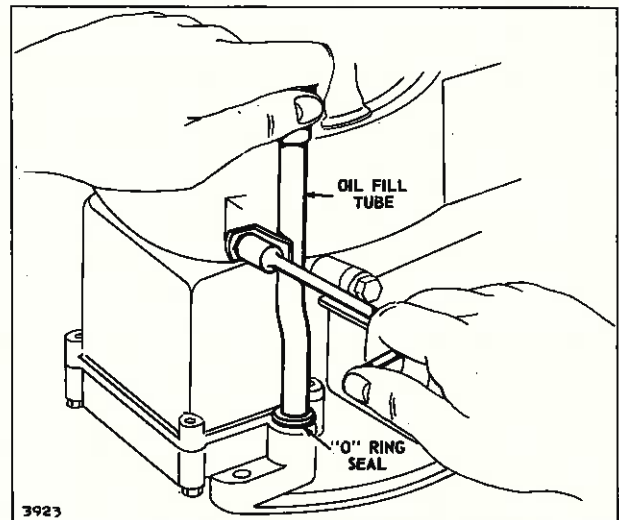


Fig. 5 — Extended Oil Fill and Dipstick

A LEAK AT THE SEAL BETWEEN THE TUBE AND SUMP, OR AT THE SEAL AT THE UPPER END OF THE DIPSTICK CAN RESULT IN A LOSS OF CRANKCASE VACUUM, AND A DISCHARGE OF SMOKE THROUGH THE MUFFLER.

Caution owners not to overfill the sump or crankcase with oil when using the extended filler and dipstick. The dipstick is marked "DO NOT OVERFILL." Excessive oil will cause a smoking condition, as the engine attempts to discharge the surplus oil.

Various styles of extended Oil Fill and Dipsticks are shown in Figs. 6, 7, 8 and 9.

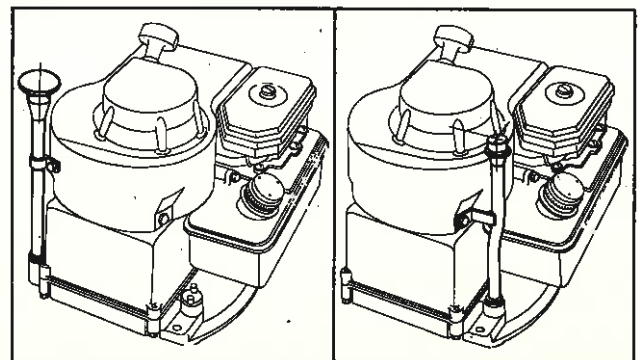


Fig. 6 — Model Series 92000, 100000, 110000, 130000

LUBRICATION Breathers

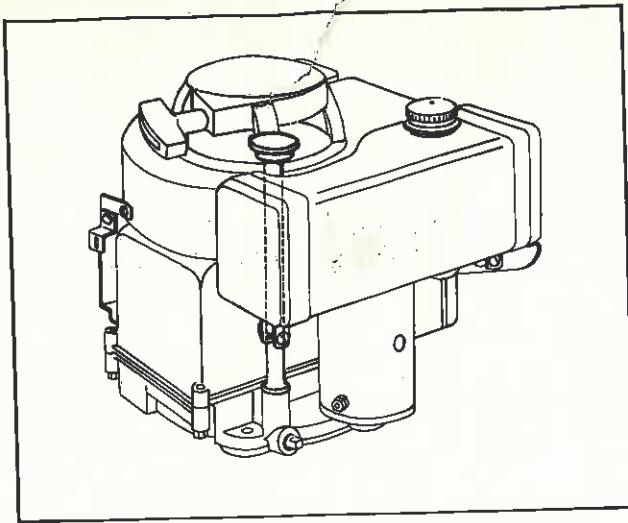


Fig. 7 — Model Series 146700, 170700, 190700, 251000

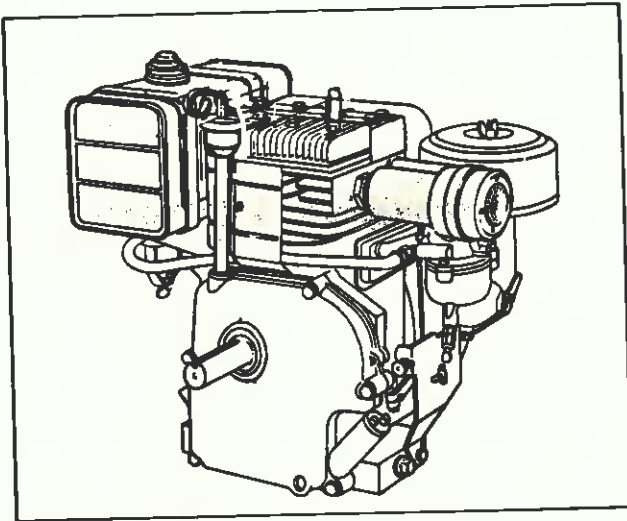


Fig. 8 — Model Series 170400, 190400

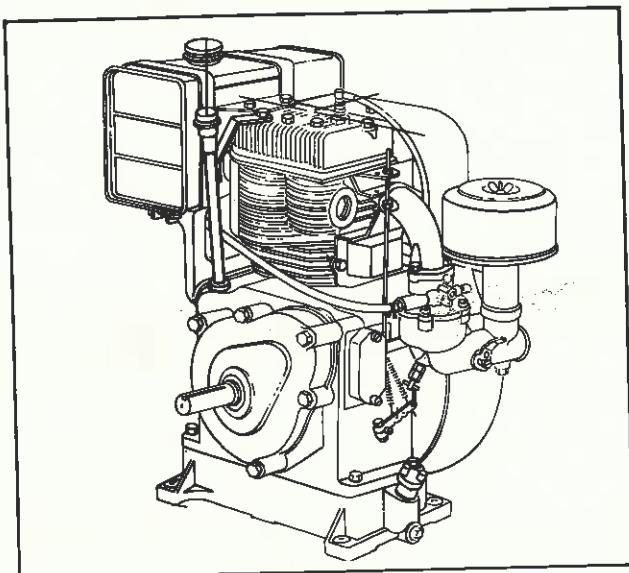


Fig. 9 — Model Series 300000, 320000

It is the breather's function to maintain a vacuum in the crankcase. The breather has a fibre disc valve, which limits the direction of air flow caused by the piston moving back and forth. Air can flow out of the crankcase, but the one way valve blocks the return flow, thus maintaining a vacuum in the crankcase.

A partial vacuum must be maintained in the crankcase to prevent oil from being forced out of engine, at the piston rings, oil seals, breaker plunger and gaskets.

Checking Breathers

If the fiber disc valve is stuck or binding, the breather cannot function properly and must be replaced. A .045" (1.1 mm) wire gauge should not enter the space between the fiber disc valve and body. (A spark plug wire gauge may be used.) Check as shown in Fig. 10. NOTE: The fiber disc valve is held in place by an internal bracket which will be distorted if pressure is applied to the fiber disc valve. Therefore, do not apply force when checking with wire gauge.

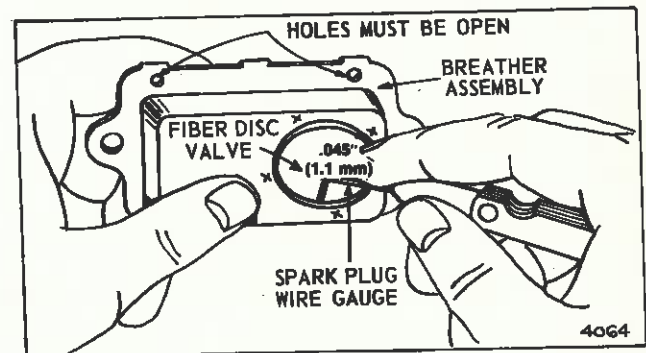


Fig. 10 — Checking Breather

If breather is removed for inspection, or valve repair, a new gasket should be used when replacing breather. Tighten screws securely to prevent oil leakage.

Most breathers are now vented through the air cleaner, to prevent dirt from entering the crankcase. Check to be sure venting elbows or tube are not damaged and seal properly.

Various breather assemblies are illustrated in Fig. 11.

LUBRICATION

Oil Dipper and Slinger

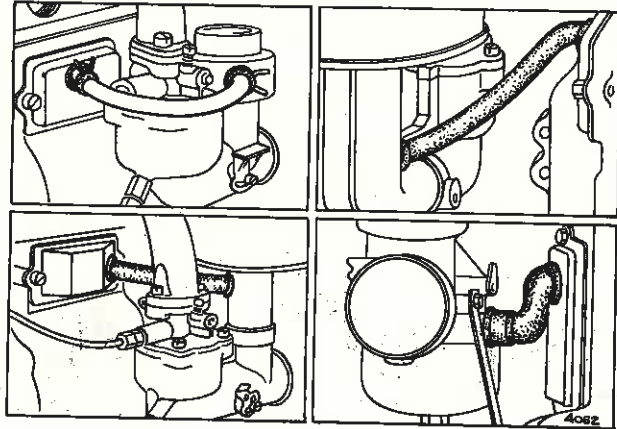
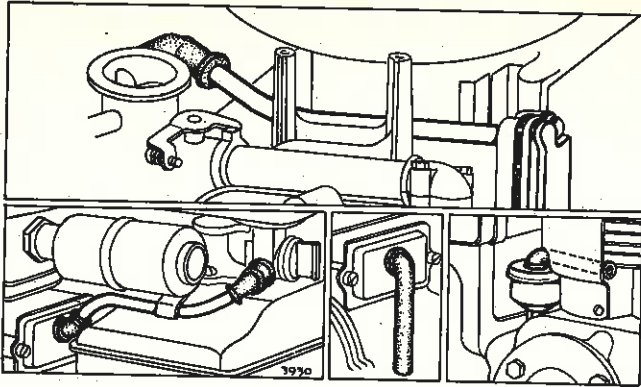


Fig. 11 — Breather Assemblies

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OIL DIPPER

Aluminum Alloy and Cast Iron Engines

In the splash system, the dipper dips into the oil reservoir in base of engine. It has no pump or moving parts. Install connecting rod and dipper per engine model as shown in Fig. 12.

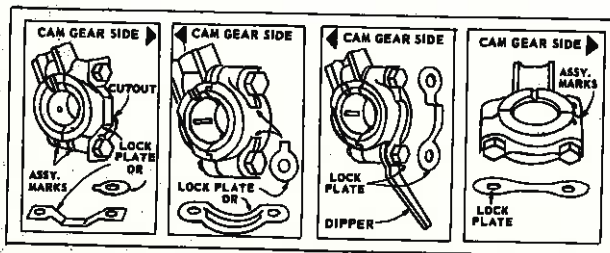


Fig. 12 — Connecting Rod Installation
Horizontal Crankshaft Engines

OIL SLINGER

Aluminum Alloy Engines

The oil slinger is driven by the cam gear. Old style slingers using a die cast bracket assembly have a steel bushing between the slinger and the bracket. Replace bracket on which the oil slinger rides if worn to a diameter of .49" (12.4 mm) or less. Replace steel bushing if worn. Fig. 13. Illus. 1. Newer style oil slingers have a stamped steel bracket. Unit is one assembly. Fig. 13. Illus. 2 and Fig. 14. Spring washer is used only on Models 100900-130900. Inspect gear teeth, old and new style; replace if worn.

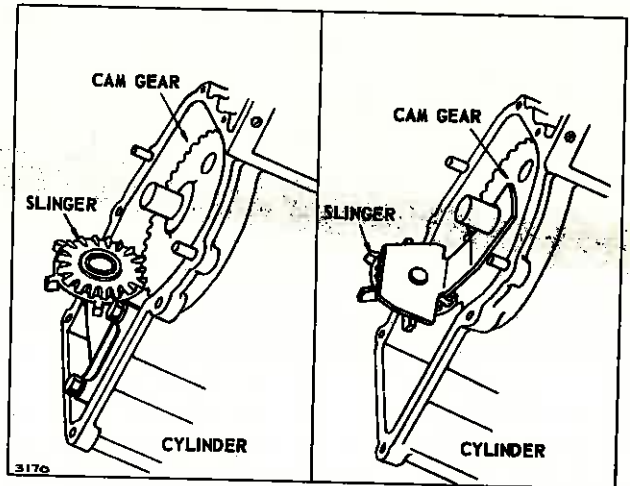


Illustration 1

Illustration 2

Fig. 13 — Oil Slinger and Bracket

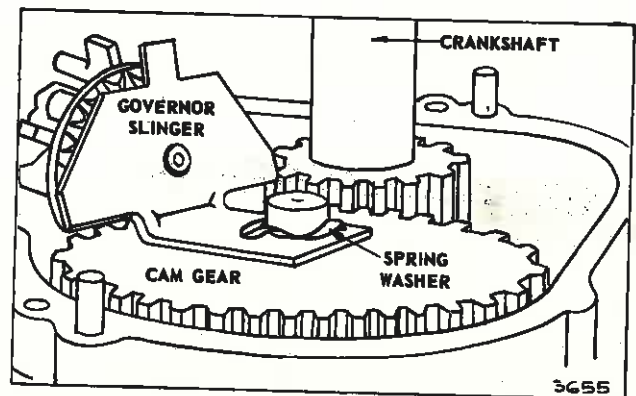


Fig. 14 — Oil Slinger and Bracket
Vertical Crankshaft Engines