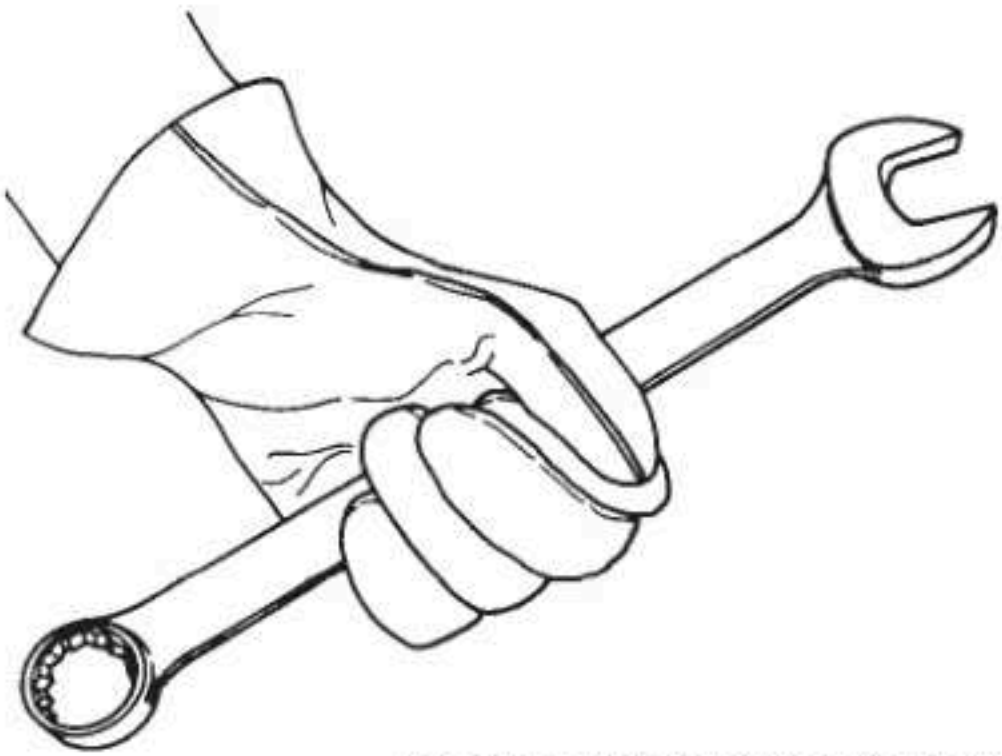
SUPPLEMENT 444, 500 & EARLY 600

SERVICE MANUAL



This Manual To Be Used With The 600, 600D, 610, 611 Service Manual. Publication Number 6556276.

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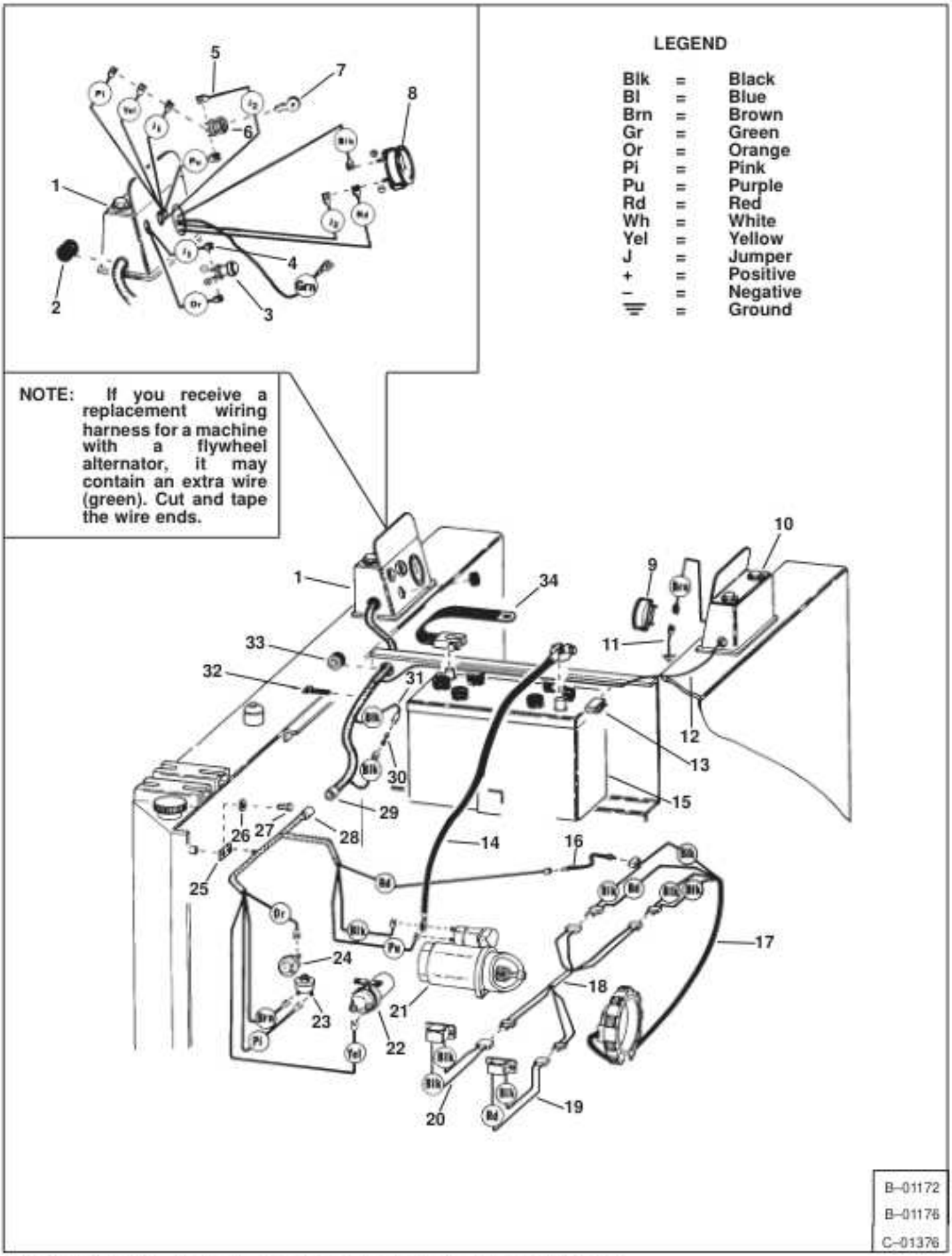


Fig. 45 Electrical Circuitry (Rectifier – Regulator Module, Two Unit) (Later M–600, VF4D Engine)

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WISCONSIN ENGINE SERVICE (M–600)

RESTORING COMPRESSION

On a new engine or on one which has been out of operation for some time, the oil may have drained off the cylinders so that compression will be weak. This may cause difficulty in starting. To remedy this condition, remove the spark plug and pour about a fluid ounce of engine oil through the spark plug hole into each cylinder.

Turn the engine over several times by hand to distribute the oil over the cylinder walls. Then replace the spark plug and compression should be satisfactory.

TEMPERATURE	VISCOSITY
Below 0° F	SAE 5W–20W
0° F to +15°F	SAE 10W
+15° F to +40°F	SAE 20–20W
+40° F to +120° F	SAE 30

Fig. 65 Oil Specifications

GOVERNOR ADJUSTMENT

The control rod between the governor and carburetor must be adjusted to the proper length, or the governor action will be faulty. With the engine at rest, the governor spring will hold the flyweights in, and the control rod must be of such length as to hold the carburetor throttle wide open at this point. The accuracy of this adjustment can be tested by disconnecting the control rod from the governor lever, then pushing the rod toward the carburetor as far as it will go. This will open the throttle wide. The governor lever should then be moved as far as possible in the same direction; all of this being done with the rod disconnected from the lever. Holding both parts in the above position, the rod should be screwed into the swivel block on the carburetor, until the bent end of the rod will register with the hole in the lever.

Then, screw the rod in two more turns. Insert the rod into the hole in the governor lever and insert the cotter pin. With the governor lever pushed toward the carburetor as far as it will go, there should be about 0.0625 inch clearance between the throttle lever and the stop pin on the carburetor. The clearance will cause the lever to bounce back from the stop pin, rather than jam against the pin, when a load is suddenly applied to the idling engine.

The governor lever is furnished with 12 holes (Fig. 66) for attaching the governor spring. For operation in a Bobcat using model VF4 Wisconsin engine, the spring should be hooked into the No.10 hole in the arm. This would set the engine speed to 2400 RPM under load. For Bobcats using model VH4 Wisconsin engine, the No. 12 hole should be used. This would set the engine speed to 2800 RPM under load (Fig.67).

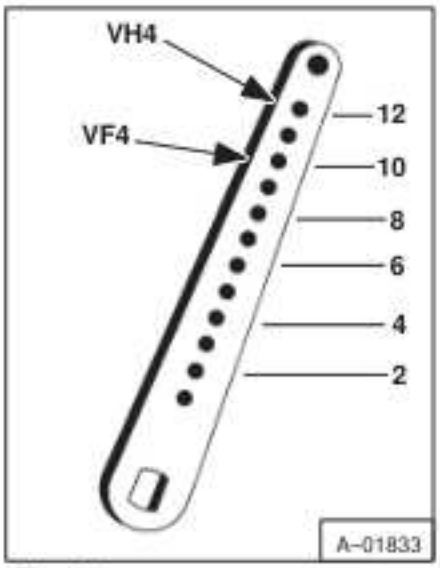


Fig. 66 Governor Lever

RPM		HOLE No.
Load	No Load	
1400	1525	4
1500	1650	5
1600	1725	5
1700	1850	6
1800	1950	7
1900	2025	7
2000	2150	8
2100	2225	8
2200	2350	9
2300	2425	9
2400	2550	10
2500	2625	10
2600	2750	11
2700	2850	12
2800	2925	12

Fig. 67 Governor Adjustment Scale

STORAGE OF ENGINES

Clean the exterior of the engine completely

To protect the cylinders, pistons, rings and valves from rusting and sticking, a half and half mixture of kerosene and engine oil should be injected into the pipe tap opening on the intake manifold while the engine is warm and running at moderate speed. About a quarter pint is necessary, or enough so a heavy bluish smoke will appear at the exhaust. Shut the engine off. The fogging operation will give a coating of oil on the above mentioned parts, protecting them from the atmosphere.

Drain the oil from the crankcase.

Drain the fuel system.

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ONAN ENGINE SERVICE (444)

ENGINE OIL

Refer to the chart below for correct type of oil to use in the engine. Use a viscosity recommended when temperature at time of starting is as indicated in the chart. Use oil Service Classification SC, SD or SE.

Replace oil & filter after every 50 hours of loader operation. To replace oil remove the crankcase drain plug at the rear end of the engine, below the oil fill tube.

After draining, replace the plug and refill with 3 quarts of oil recommended in the chart.

TEMPERATURE	OIL VISCOSITY
Below 0°F	SAE 5W
0°F to 30°F	SAE 10W
30°F to 90°F	SAE 30
Above 90°F	SAE 50

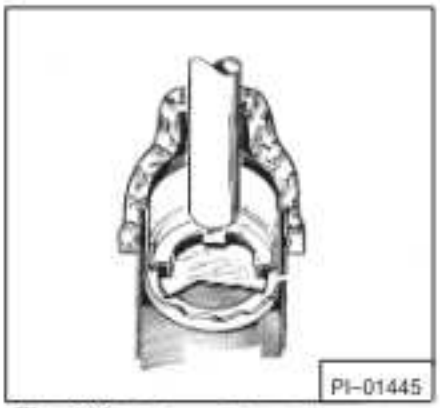


Fig. 100 Crankcase Breather

CRANKCASE BREATHER (Fig. 100)

Lift off the rubber breather cap. Carefully pry the valve from the cap; or press hard, with both thumbs on top of the cap and your fingers below, to release the valve from the rubber cap. Wash the fabric flapper type check valve in solvent. Dry and install it, with the perforated disc toward the engine.

GOVERNOR & SPEED CONTROL

The governor engine speed is 3000 RPM maximum, no load.

Before making a governor adjustment, run the engine about 15 minutes to reach the normal operating temperature.

The speed at which the engine operates is determined by the tension applied to the governor spring. Increasing spring tension increases engine speed. Decreasing spring tension decreases engine speed.

CARBURETOR ADJUSTMENT

To adjust the idle jet needle (Fig. 101), turn the idle adjusting needle IN until the engine loses speed. Then turn it OUT until the engine runs smoothly. A hunting condition at no–load can sometimes be corrected by an idle adjustment.

NOTE: Make the adjustment when the engine is running at normal operating temperature and no–load.

CARBURETOR RECONDITIONING (Gasoline)

Carburetor maintenance should consist of regular cleaning. Some gasolines have a tendency toward formation of gum deposits inside the carburetor which can usually be removed by soaking in alcohol or acetone. A fine, soft wire may be used to clean the jets.

Figure 102 shows the carburetor breakdown. When reconditioning the carburetor always use a repair kit. Refer to the Bobcat Parts Book.

Be sure the float is not damaged. If necessary to reset the float level, use a small screwdriver to bend the lip of the float. With the carburetor casting inverted and the float resting lightly against the needle in its seat, there should be 0.3125 inch (1/4 inch with styrofoam plastic float) clearance between the bowl cover gasket and the free end of the float (side opposite the needle seat) (Fig. 191).

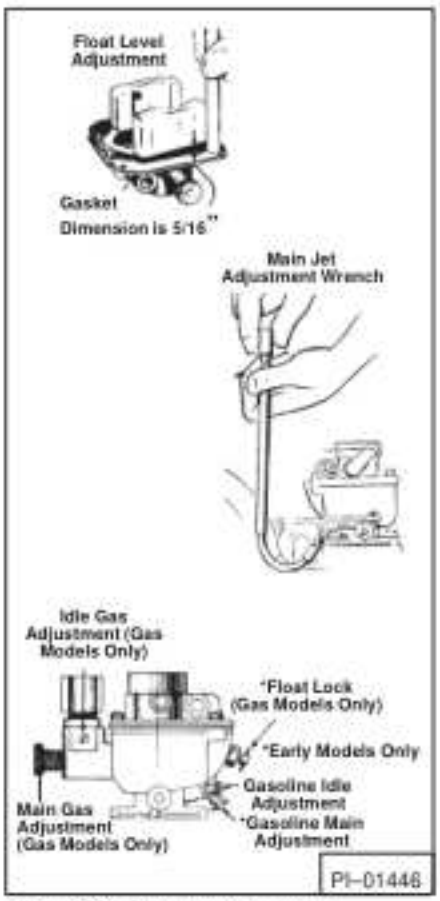


Fig. 101 Carburetor Adjustment

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