SECTION 10 - ELECTRIC CLUTCH (44:11)

10.1 FUNDAMENTALS (44:11)

The electric clutch serves two functions in the operation of the mower. In addition to starting and stopping the power flow to the cutter blades, the clutch also acts as a brake to assist in stopping blade rotation when the PTO is switched off.

When energized, the magnetic coil in the clutch pulls the armature into contact with the rotor, which is attached to the engine crankshaft. The armature begins to rotate, turning the attached pulley, to drive the mower blades.

When the voltage is turned off, the magnet releases the armature. The armature is pulled against the brake cover by the armature springs. The pulley is quickly stopped by the brake, stopping the rotation of the mower blades. When a machine is new or after a clutch has been replaced, it needs to be burnished. Burnishing the clutch helps mate the surfaces of the rotor and armature. When burnishing a clutch, the engine should be run at 3/4 throttle. Then engage and disengage the PTO switch approximately 50 times. Never perform the burnishing procedure while cutting grass.

10.2 AIRGAP ADJUSTMENT (45:00)

When the clutch is disengaged, the air gap between the armature and rotor must be adjusted to fifteen thousandths of an inch, 0.015, for proper operation. The airgap adjustment is made at three nuts on the clutch. See Figure 10-1. There are three inspection windows, one next to each adjusting nut. See Figure 10-2. Place a 0.015 feeler gauge in the slot between the rotor and the armature. Tighten or loosen the adjusting bolt as needed to acheive the 0.015 inch airgap. Perform this operation at all three inspection windows. This adjustment should be done every 500 hours of operation or annually, whichever comes first. In cases where the machine is heavily used, airgap settings should be checked more often. Use the table in Figure 10-3 for reference when testing airgap settings.

If the air gap is too narrow, the clutch armature may drag when disengaged, resulting in premature failure.

If the air gap is too wide, the clutch will not engage as the magnet is not strong enough to overcome the brake spring force.

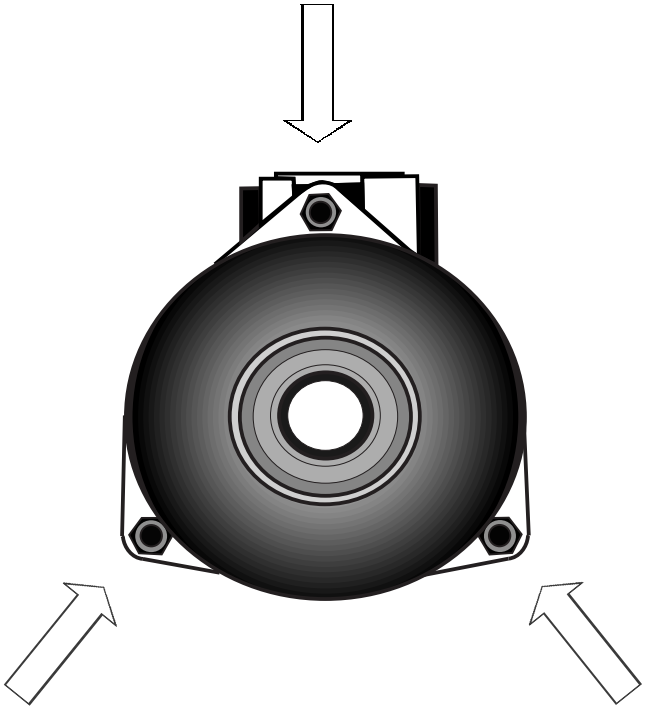

Figure 10-1 Adjustment Nuts

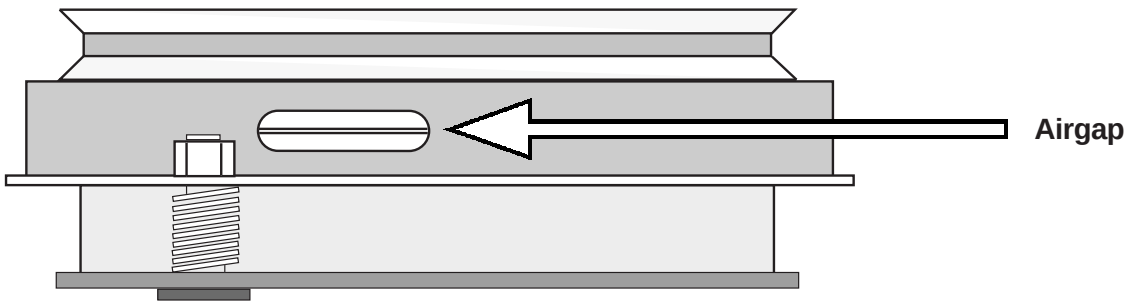

Figure 10-2 Adjustment Window

10.3 ELECTRICAL TESTING (45:38)

If an internal electrical fault exists in the clutch, it may interfere with engagement or it may slip under load. The resistance in the clutch coil should be checked against specifications. With the clutch at room temperature, approximately 70 degrees Fahrenheit, use an ohmmeter to confirm coil condition. Set the meter to ohms. Connect the meter at terminals "A" and "B". See Figure 10-4. Use the table in Figure 10-3 for proper specifications when testing coil resistance.

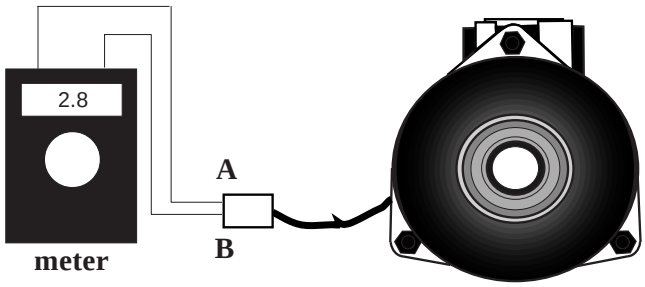

Figure 10-4 Ohms Testing

-NOTE-

As temperature increases, resistance increases, and current decreases. If the machine has been in operation, the clutch must be allowed to cool completely before testing is performed.

To test for current draw, begin by turning off the enigne. Disconnect the clutch connector from the wiring harness. Set the meter to test for amps (10 amp scale). Connect one meter lead to one wire in the clutch connector at "A". See Figure 10-5. Connect the other meter wire in the cooresponding wire in the mating connector "C". Place a short jumper wire between "B" and "D". Turn the ignition key to the on position. Do not start the engine. Engage the PTO switch. The clutch should have an amp draw of approximately 4.0 amps. If the meter reads significantly above or below 4.0 amps, there may be a shorted coil, faulty switch or battery causing the problem.

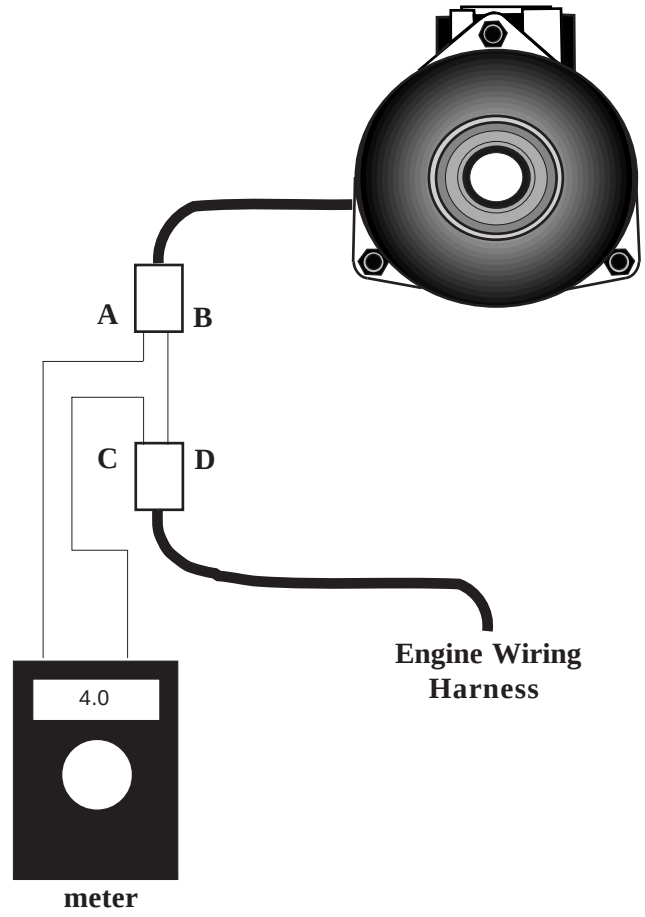

Figure 10-5 Current Draw Testing

The clutch assembly should be kept free from debris buildup. Debris can act as a blanket, not allowing heat to dissipate properly. Buildup in the pulley can also cause belt slippage, increasing heat, and decreasing belt life and blade stop time.

These simple checks and adjustments will help keep the electric clutch working at top performance for optimum life.

Manufacturer	Model	Resistance *	Airgap Setting	SCAG Models
Warner Electric	CVX	2.4 - 2.9 OHMS	0.015 inch	SW, SWZ, SSZ, STHM,
Warner Electric	MAG-STOP	2.3 - 2.7 OHMS	not adjustable	STT, STR, MAGNUM III
Ogura	MA-GT-EXM3X	2.8 - 3.2 OHMS	0.015 inch	SW, SWZ, SSZ, STHM,

* readings should be taken with the clutch at room temperature (70 degrees F)

Figure 10-3 Adjustment Table