

SECTION 6 — ELECTRICAL SYSTEM

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Specifications

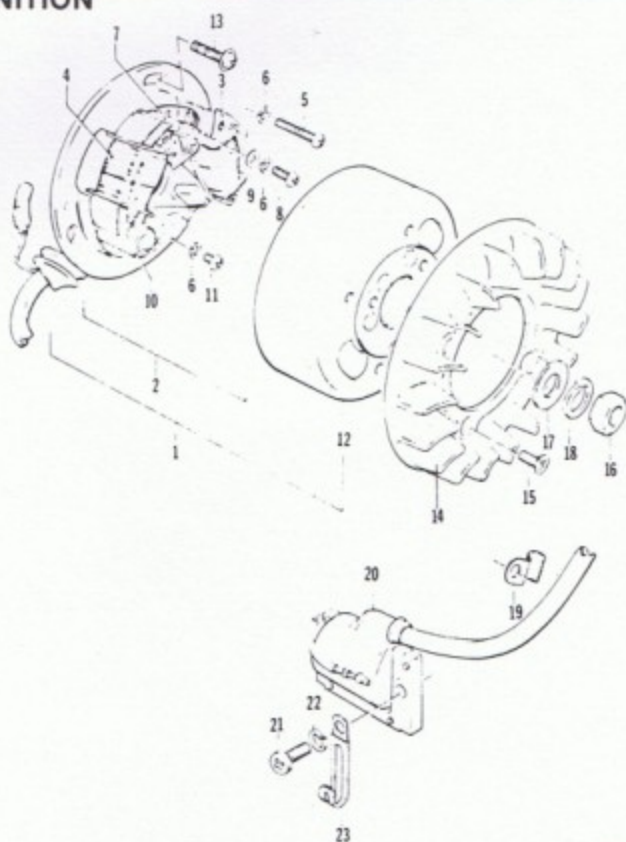
ITEM	VALUE
Spark Plug	NGK BR6HS
Spark Plug Gap — mm	0.5 - 0.7
— in.	0.020 - 0.028
Spark Plug Cap Resistance	5K ohms
Ignition System	Magneto/Point
Contact Point Gap — mm	0.3 - 0.4
— in.	0.012 - 0.016
Excitor Coil Resistance	2.65 ohms \pm 10%
Ignition Coil — Primary Resistance	1.7 ohms \pm 20%
— Secondary Resistance	5.1 K ohms \pm 20%
Condenser Resistance	10 K ohms \pm 10%
Condenser Capacity	0.18 microfarad
Ignition Timing — Degree	20° BTDC
— mm	1.728
— in.	0.070
Lighting System	12V/30W @ 3000 rpm
Lighting Coil Resistance	0.8 ohm \pm 10%

Fig. 6-1

MAGNETO IGNITION

KEY

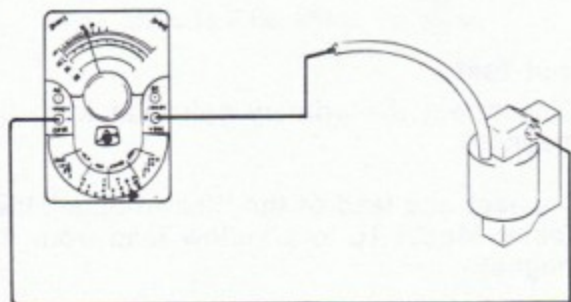
1. Magneto Assy.
2. Stator
3. Lighting Coil
4. Primary Coil
5. Screw
6. Lock Washer
7. Point Assy.
8. Screw
9. Washer
10. Condenser
11. Screw
12. Rotor
13. Screw
14. Fan
15. Screw
16. Nut
17. Washer
18. Lock Washer
19. Clamp
20. Coil Assy.
21. Screw
22. Lock Washer
23. Clamp



Coil

1. Disconnect the primary coil wire from the stop switch harness.
2. Using a multitester, move the selector to the X1K position. Touch the leads and zero the meter.
3. Measure the secondary winding resistance by connecting one tester lead to the high tension wire and the other lead to ground. Standard value is 5100 ohms \pm 20%.

Fig. 6-2



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Condenser

Insulation Resistance

1. Insert a piece of paper between the breaker point contact surfaces.
2. Remove the condenser and isolate it from the stator plate.
3. Set the condenser tester at the insulation resistance measuring range.
4. Connect the positive to the black wire of the condenser; then connect the negative lead to the condenser housing. The needle will rise sharply and gradually settle back. Use the reading where the needle stabilizes. Condenser resistance should be 10,000 ohms \pm 10%. If the reading is less, the condenser must be replaced.
5. Discharge the condenser by touching the black tester lead to the condenser housing.

Capacity

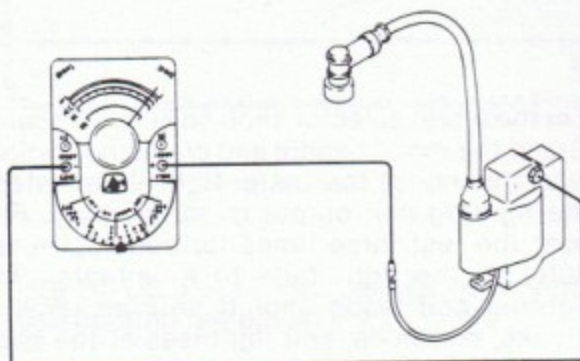
The only test that can be made with the Arctic Multitester is a condenser resistance test. If the shop is equipped with a Merc-O-Tronic or Graham-Lee coil and condenser tester, check the condenser capacity by setting the tester selection knob in the "condenser capacity" position. With the condenser on an insulated surface, connect one of the leads to the housing and the other lead to the condenser terminal. The capacity reading must be 0.18 microfarad.

Using the same connections as above, rotate the selector knob to the "series resistance" position. A normal condenser will have a meter reading of less than one ohm. A reading over one ohm indicates high series resistance and requires condenser replacement.

Using the same connections as above, rotate the selector knob to the "condenser leakage" position. A good condenser at room temperature will have a reading between 20 megohms and infinity. A shorted condenser will cause the needle of the meter to point to the extreme right. If the condenser fails any of the above tests, the condenser must be replaced.

4. Set the selector on the X1 setting and zero the meter.
5. Measure the primary winding resistance by connecting one tester lead to the primary coil wire; then connect remaining lead to ground. Standard value is 1.7 ohm \pm 20%.

Fig. 6-3

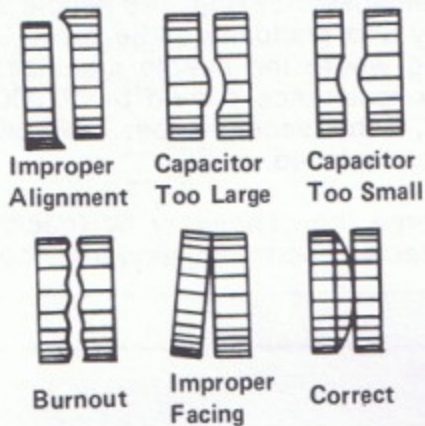


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Contact Points

1. Remove the contact points.
2. File the burned or burred point surfaces; then clean contacts with benzene or other suitable solvent.
3. Make sure contact points mate well with each other; apply grease to point pivot shaft; then install points.

Fig. 6-4



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4. When adjusting the points, set the point gap at 0.3-0.4 mm (0.012-0.016 in.).

Lighting Coil

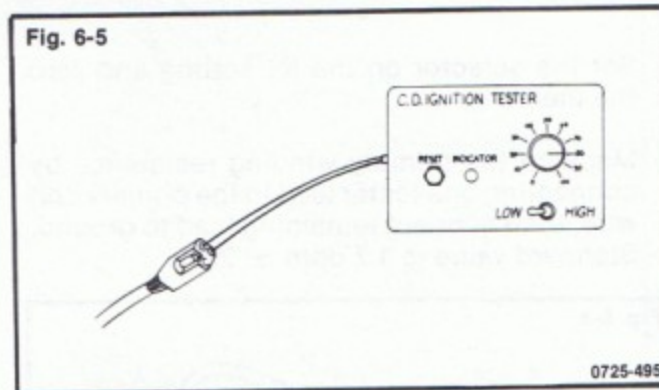
Ohmmeter Test

1. Set the selector of the multimeter on the X1 setting; then zero the meter.
2. Connect one lead to each of the yellow wires in the engine harness. The standard lighting coil resistance is 0.8 ohm \pm 10%.

Output Test

1. Disconnect the primary coil lead from the magneto.
2. Connect one lead of the Electro-Specialties Tester Model 1L to a yellow lead from the magneto.
3. Connect the other tester lead to the remaining yellow lead from the magneto.

Fig. 6-5



0725-495

4. Set the tester selector knob on 80 LOW scale. Grasp the recoil handle and crank the engine over quickly. If the tester light illuminates, the lighting coil output is satisfactory. Repeat the test three times for conclusive results. If the light fails to illuminate, the lighting coil leads should be checked for breaks, corrosion, and tightness at the connectors. If connectors are tight and free of corrosion, the lighting coil should be replaced.

Excitor Coil

1. Insert a piece of paper between the point contact surfaces.
2. Disconnect the wiring harness from the engine. Set the selector on the X1 setting and zero the meter.
3. Disconnect the wire from the ignition coil.
4. Connect one lead of the multitester to the black wire of the harness connector; connect the other lead to the brown wire of the harness connector. Standard excitor coil resistance is $2.65 \text{ ohms} \pm 10\%$.

Ignition Timing

1. Remove the four screws securing the cooling fan cover.

NOTE: Recoil can remain in position on cooling fan cover.

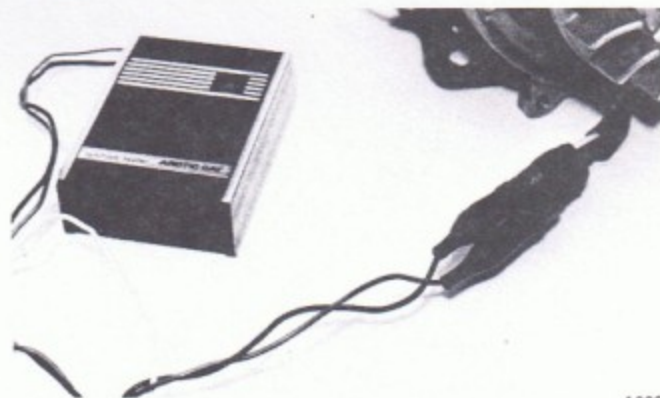
2. Using the Arctic dial indicator (p/n 0144-009), install indicator in cylinder head using the adapters provided.

Fig. 6-6



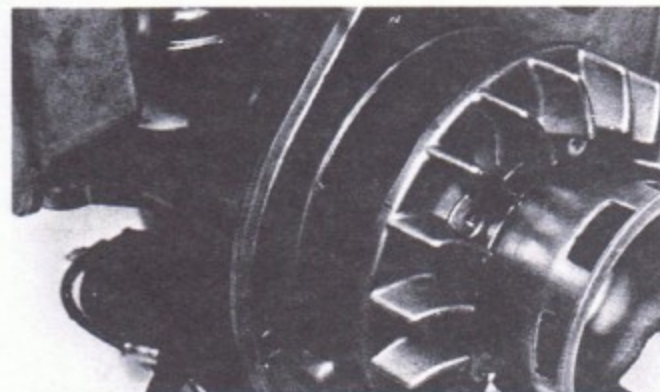
3. Connect the Arctic timing buzzer (p/n 0144-010) to the black lead and the brown lead of the engine wire harness.

Fig. 6-7



4. Rotate the engine to top dead center (TDC). Set the dial to the zero position of the indicator.
5. From the TDC position, rotate the flywheel clockwise 1.73 mm (0.070 in.). At this position, the ignition points should begin to open. Also, the long single mark on the flywheel must align with the pointer on the crankcase. A change in buzzer tone will identify the position when the points begin to open.

Fig. 6-8



NOTE: When timing the Kitty Cat engine, the engine is rotated clockwise from the TDC position to set the timing at 20° before top dead center (BTDC). Standard Kitty Cat engine rotation is counterclockwise.

6. If an adjustment is necessary, remove the three screws securing starter pulley to flywheel; then remove the four countersunk screws securing fan to flywheel. Remove pulley and fan.

7. Rotate flywheel until the points can be viewed through an opening in the flywheel. Using a long screwdriver, loosen the screw securing the ignition points to the stator plate. Using the adjustment slot, slightly move point position, tighten screw, and check timing.

8. Set timing at 20° BTDC which is 1.73 mm (0.070 in.) of piston travel BTDC.

9. Assemble engine components.
