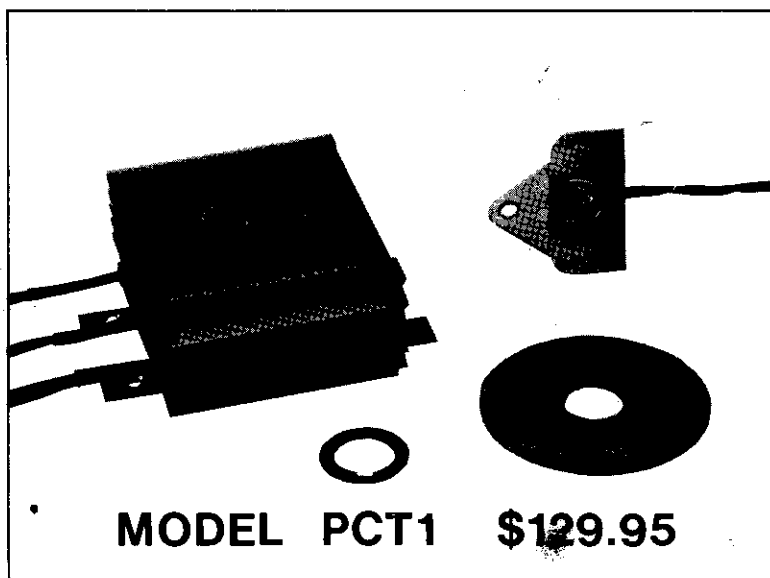


POINTLESS CAPACITOR DISCHARGE IGNITION



FOR
TRIUMPH **Norton** 

FROM



ELECTRONICS CORPORATION

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GENERAL DESCRIPTION

The SEBRING Electronic Power/Ignition System is a reliable, compact solid-state system that is designed and built to provide precise service under the most exacting conditions. . . whether dirt, street or racing.

This Power/Ignition system consists of: 1) a magnetic timing disc/pick up assembly, 2) a small electronics package and 3) instructions.

Power, taken directly from the alternator, is controlled and conditioned for all necessary circuits as follows:

- 1) one +12 V.D.C. circuit for all lighting and accessory power requirements, = equal to stock.
- 2) one controlled ignition circuit (CDI) - - connects to a 12 V dual-plug coil (Honda or Harley) which must be purchased separately.

Redesigned timing disc and circuit now includes a full 24° advance with an adjustable RPM transfer selection at time of installation. A timing light must be used for final check out.

Installation is relatively simple. You can install it yourself, or have your dealer/mechanic install it for you. Normal installation time is approximately two hours.

Once it is properly installed and set up, the SEBRING Electronic Power/Ignition System should never require any further checking, cleaning, adjustment, or periodic replacement. It's guaranteed, for one year. . . it should last as long as your bike.

FEATURES

- **No Points** — to clean, adjust, lubricate or replace — EVER
- **Redesigned** — Timing disc and circuit now includes a full 24° advance
- **Full 30Kv Output Voltage:** — Idle to well over 10,000 RPM
- **Easier Starting** — Powerful, fast rise-time spark will fire right through most plug fouling conditions
- **Longer Plug Life** — Shorter duration spark reduces plug maintenance
- **Accurate Timing** — No erratic firing due to worn or faulty points
- **Ignition curve** — Easily adjustable for peak power in competition applications
- **Efficient** — Takes less power than conventional systems
- **Short-Circuit Proof** — Not damaged by accidental shorts, grounds, or opens
- **Guaranteed** — one full year
- **All Solid State** — Rugged, reliable, gas, oil, & water-proof
- **ATTRACTIVE PACKAGE** — for the show bike enthusiast

SEE YOUR LOCAL DEALER OR ACCESSORY SHOP FOR FURTHER INFORMATION

- INSTALLATION INSTRUCTIONS -

SEBRING MODEL PCT1, POWER/IGNITION SYSTEM

FOR **TRIUMPH**

Norton

BSA

GENERAL DESCRIPTION:

The Sebring Model PCT1, incorporating unique patented circuits, provides for the power and ignition control for the above listed bikes.

This one unit, when properly installed, provides power for lighting and accessories plus having the advantages of a modern solid state C.D. Ignition system. A study of the attached wiring diagram indicates the simplicity of the wiring necessary for a complete, reliable system. In light of these facts you may wish to completely rewire your bike. However, if you are not familiar with your bikes' electrical system, then someone with proper training, experience and tools should be contacted for assistance.

SPECIAL NOTE:

Application of the PCT1 Unit requires selection of the enclosed disc as follows:

- 1.) The letter N on the face of the Timing Disc designates part is for Norton application only.
- 2.) The letter T on the face of the Timing Disc designates part is for Triumph and BSA applications.

Since the following information and instructions are written to cover a group of bikes, with specific application notes in some areas, it is suggested these instructions be read several times before proceeding with the installation. Note the specific application to your bike and generally formulate your next step accordingly.

The location for mounting of the control unit involves individual preference dependent on styling.

However, choose a location where air can circulate freely around the unit - **do not** enclose it in an airtight compartment - **do not** mount it close to the cylinder fins or exhaust manifold.

Suggestions include under seat or battery box area, etc.

Four mounting lugs, with hole pattern on $3\frac{1}{2} \times 1\frac{1}{2}$ inch centers, are provided for mounting in any suitable position; vertical, horizontal, etc., without affecting performance. The use of 10-32 hardware plus locking washer is recommended to prevent loosening due to vibration.

Alternators of the 2 or 3 wire type require only the application of the instructions. Normally 6 volt systems may be converted by installation of the Model PCT1 and changing of the light bulbs. (Does not require changing stator).

Five wire alternators, (E.T. SYSTEMS), **require** the alternator stator be changed to the 2 or 3 wire type. (Rotor must be repositioned per instructions).

The accessory power circuit (+12 volt - negative ground, converted by installation of the PCT1 Unit) may be used as a batteryless system or with a 12 volt

battery. (See options, wiring diagram). Also check legal requirements for your state. The batteryless configuration will not operate turn signals or other high current accessories. Total accessory load must **not** exceed the alternator power rating of 120 watts. (10A. x 12V. = 120 W.)

The Model PCT1 Ignition Circuit requires the use of a 12 volt dual-plug coil, (Honda or Harley). This coil is to be purchased separately. Single cylinder bikes may use stock 12V single ended coils. (See wiring diagram).

CAUTION: The Ignition circuit, (green and white wires), must at all times be isolated from +12 V.D.C. This includes switch circuits which must be separate or of the two pole type with circuits isolated.

All circuits, (except magnetic pick-up leads), require #18 gauge wire or heavier with all connections soldered or made using a good quality crimp type solderless connector.

It is suggested a separate ground wire be installed from the headlamp ground back to the main frame ground. Do not depend on the fork tube bearings to carry the ground return current.

Since the Model PCT1 is self protected for shorts, grounds or open circuits, the only fuse necessary is with application of the optional battery circuit. (See wiring diagram).

TIMING DISC & PICK-UP INSTALLATION:

- 1.0 Drain and remove the primary chain case cover. Check your service manual for possible obstructions (eg. chain tensioner, etc.). Unbend the tab washer, which locks the rotor nut, and remove the nut and washer from the mainshaft. Check mainshaft end-play to prevent future damage to Magnetic Pick-up.
- 2.0 Determine the type of alternator stator system, (Two or three wire versions proceed to paragraph #3). Five wire alternators (E.T. SYSTEMS) will require changing the alternator stator to the two or three wire type. The rotor may be retained if in good condition but **must** be relocated as follows:
 - a.) Remove the rotor, remove the locating pin from the backing plate.
 - b.) Reinstall the rotor on the mainshaft using a woodruff key. (Ref. service manual. Purpose - establish timing reference to mainshaft.)
 - c.) Install 2 or 3 wire stator, (replacing 5 wire type), and check for clearance (stator - rotor air gap). (See service manual).

- 3.0 Determine the full advance position ("BTDC" for your machine. (eg., TRI 38° BTDC; NORTON 28° BTDC, etc.). Rotate the mainshaft to this position, (ref. service manual). The timing mark on the face of the rotor, which is opposite the keyway, should be at approximately 6:00 o'clock for Triumphs and BSA, and approximately 2:00 o'clock for Nortons. Extend this timing mark thru a reference line from the center of the mainshaft, the aforementioned timing mark and onto the molded plastic of the stator. Use of a scribe or 3 cornered file is suggested, (gently please). This mark on the stator becomes your reference for full advance position when final timing is accomplished by use of a timing lite.
- 4.0 Place the Spacer Washer, the Timing Disc, (special required for Nortons), with plastic bushing in place and the rotor nut on the mainshaft. The rotor nut should fit closely into the Timing Disc center hole. If the nut does not fit, then obtain a new one from your local Triumph - Norton dealer. Tighten the nut just enough to hold the Timing Disc loosely in place against the face of the rotor. (Ref. assy. dwg. Fig. 2)
- 5.0 Carefully align the timing line on the Timing Disc with the aforementioned timing line of the rotor, (par. #3). To assist in precise alignment, a scribe or other pointed tool can be used through the small hole in the Timing Disc. Tighten the rotor nut being sure that the timing lines do not move out of alignment.
- 6.0 Using the plastic shoulder bushings in the Timing Disc as a guide, mark or lightly centerpunch the rotor to locate the holes to be drilled for the Timing Pins. Locating can be accomplished by twirling the #25 drill bit in the bushings so that the drill point will mark the rotor face. Remove the rotor nut, Timing Disc and Spacer Washer;

Note: The following operation is best performed in a drill press; however, entirely satisfactory results can be obtained by leaving the rotor in place and using an electric hand drill. Care must be used to align the drill straight into the face of the rotor.
- 7.0 Care exercised at this time will insure future alignment of parts in paragraph #8. Using the #25 drill bit, drill (two holes) into the aluminum face of the rotor. The drill will feed easily for about the first ¼ inch and then will stop quickly when the hardened steel magnet is contacted. **Do not** try to drill further. After using the #25 drill use the flat-ended drill bit to mill out the remaining aluminum in the bottom of each hole to expose the surface of the pole magnet. Carefully clean the holes and rotor of any chips. Replace the rotor, if removed for drilling on the mainshaft.
- 8.0 Insert the Timing Pins into the holes drilled in the rotor face. The short pin is to be installed in the most counter clockwise hole for all applications. The pins should slip easily into place and be in contact with the magnet. Place the plastic shoulder bushings onto the face of the Timing Disc. Place the rotor nut through the washer and disc and hang the Spacer Washer on the back of the Timing Disc. Mount this assembly onto the rotor and then position the Timing Disc so that the Timing Pins and Plastic Bushings fit into the proper holes. Tighten the rotor nut. (Ref. assy. dwg.). Fig. 2
- 9.0 The Magnetic Pick-up Assembly mounts in a previously unused hole at the leading or forward edge of the stator. Before installing this assembly, clean off the area around the hole so that none of the plastic flashing of the stator winding will be between the pick-up spacer and the stator laminations. Position the Pick-up Assembly as shown. **Do not tighten.** Slowly and carefully, so as not to damage the pick-up coil, rotate the mainshaft until the longer pin and the pick-up coil are aligned. Check for a small air gap as shown. Add or subtract washers until pick-up coil has approximately .020" (twenty thousandths inch) air gap. (Ref. assy. dwg. Fig. 1 & 2)
- 10.0 Use the plain ¼ x 28 nut for a trial fit and carefully tighten the pick-up mounting bolt. Recheck the air gap. It will probably be decreased since the stator laminations will compress slightly as the bolt is tightened. The ideal condition is when a .020" (twenty thousandths inch) feeler guage or wire will just fit between the longer pin and the face of the pick-up coil when the bolt is tight. When the air gap is correct, (approx. .020"), replace the plain nut with the **locking** nut provided, and final tighten the Pick-up Assembly into place. Recheck the final air gap and then rotate the engine through several revolutions to check for interference.
- 11.0 The pick-up wires should be routed along with the alternator wire out of the primary case. Slide the neoprene boot from the nipple toward alternator, dress leads through boot. Using care so as not to damage any of the wires or insulation, enlarge remaining grommet with a round pointed tool. Remove tool and insert pick-up wires thru the grommet. Replace the boot on nipple and dress pick-up wires close to alternator wires; secure near alternator body using plastic cable ties. Be sure all wires will remain clear of the chain and rotor nut.
- 12.0 Primary covers with inspection hatch cover and timing indicator pointer will require that the pointer be slightly shortened and reshaped to clear the Timing Disc. On later model 650's, it will also be necessary to remove approximately 1/8 inch of excess material from the round projection, (inside the hatch cover area leading edge), to sufficiently clear pick-up assembly under heat expansion and vibration conditions. **Do not** reinstall primary cover until initial timing is accomplished with strobe lite.
- 13.0 Some Triumphs and BSA's require slight modifications to the interior of the primary chain case cover to provide sufficient clearance for the Magnetic Pick-up Assembly. This area will require care and is important for protection of the Pick-up Assembly.

14.0 Norton primary covers require removal of the degree plate to prevent interference with timing pins. If you have the necessary tools and ability, you may wish to modify the degree plate so that it may be reinstalled.

WIRING:

A careful study of the included wiring diagram should be made at this time. Insure that good connections are made throughout the system. Use solder connections or good quality solderless connectors. Insulate all splice joints with electrical tape or heat shrink tubing.

ALTERNATOR WIRING - MODEL PCT1:

If the bike alternator has two wires, then these two wires should be connected to the two YELLOW wires of the PCT1 Unit. If the alternator has three wires, find the color scheme used, as listed in the following table, column 1, 2, 3, or 4. Connect the wire listed in Row A to one of the YELLOW wires of the Unit. Connect the two wires listed in Row B to the remaining YELLOW wire of the PCT1 Unit.

ROW	1	2	3	4
A	Light Green	Light Green	Green/White	White/Green
B	Mid Green Dark Green	Green/Yellow Dark Green	Green/Yellow Green/Black	Green/Yellow Green/Black

Alternators with five wire stators require the stator be changed. (Ref. TIMING DISC & PICK-UP INSTALLATION INSTRUCTIONS, par. #2.0).

12 VOLT OUTPUT WIRING - MODEL PCT1:

The BLACK wire from the PCT1 Unit is the NEGATIVE (-) return lead and is to be connected to the ground wiring terminal on the main frame of the bike. If the optional battery is used, the NEG. (-) battery connection is made at this terminal.

The RED wire from the PCT1 provides POSITIVE (+) 12 V.D.C. for powering the lighting and accessory circuits, and is to be connected to the following:

- 1.) thru the fuseholder to the POS. (+) battery terminal (fuse 10 A MAX.; do not install fuse until system has been completed and checked out).
- 2.) the HOT side of the brake switch
- 3.) the HOT side of the horn switch
- 4.) the HOT side of the light switch

Caution: The +12 VOLT D.C. power, (Red wire and associated wiring), must not be connected into the Ignition Circuit in any manner. A study of the wiring diagram illustrates two circuits completely isolated from each other. (Except for the common negative (-) ground on the single ended coil used with single cylinder bikes). This concept must be followed throughout your wiring procedure.

IGNITION COIL PRIMARY WIRING - MODEL PCT1

The Green and White wires from the PCT1 Unit provide a high voltage pulse to the ignition coil primary each time the plugs are to fire.

- 1.) The GREEN wire is to be connected to either primary wire of the 12 V dual-plug ignition coil for the twin cylinder models (or to the

ground side of the single ended coil for the single cylinder models. (Ref. wiring diagram).

- 2.) The WHITE wire from the PCT1 Unit is to be connected through the ignition and/or kill switch to the remaining wire of the ignition coil primary. As mentioned before, the Ignition Circuit must at all times be isolated from +12 V.D.C.
- 3.) The Magnetic Pick-up Assembly is to be connected to the PCT1 Unit by means of the sheath cable (small Blue and Gray wires).
- 4.) Install the high tension spark leads to plug or plugs as required.

CHECKOUT PROCEDURES:

- 1.) Connect a timing light to either spark plug and remove the timing access cover so that ignition timing can be checked.
- 2.) Turn on the ignition switch and start the bike. With the engine idling, use the timing light to check the apparent position of the timing line on the disc with respect to the pointer or reference mark. Increase the engine RPM briefly to approximately 3000 RPM. The timing line should advance and be aligned with the timing pointer or reference timing mark.
- 3.) Timing and adjustment is accomplished by loosening, slightly, the small screws retaining the Magnetic Pick-up Assembly and sliding the coil up (to advance) or down (to retard) until the Timing line and pointer are aligned at 3000 RPM or higher. When final timing is accomplished, loctite small screws one at a time to prevent loss of timing or screws.
- 4.) If no advance occurs as engine RPM is increased, or if the range of adjustment is not adequate, then the two small (Blue and Gray) wires between the pick-up and Control Unit must be reverse connected and timing rechecked and adjusted as previously.
- 5.) Spark advance should occur at approximately 1800 - 2000 RPM for Triumphs and BSA's. (Approximately 2000 - 2500 for Nortons). If advance occurs outside this range, it may be necessary to adjust the length of the short timing pin due to variations in the rotor magnet surface. A shorter pin will increase the RPM at which advance occurs. This can be accomplished by removing and filing the end of the short pin, reinstall and check the advance point until it occurs at the proper RPM. A spare long pin is provided in case initial advance occurs at too high RPM.
- 6.) Check the function of the +12 V.D.C. accessory circuit by switching each in turn with the bike running.
- 7.) Install the fuse (10 A MAX.) into the optional battery circuit. Again check the accessory circuits.
- 8.) When checkout is complete, you are ready for primary cover refit. Replace oil supply previously drained from primary case.

WIRING DIAGRAM

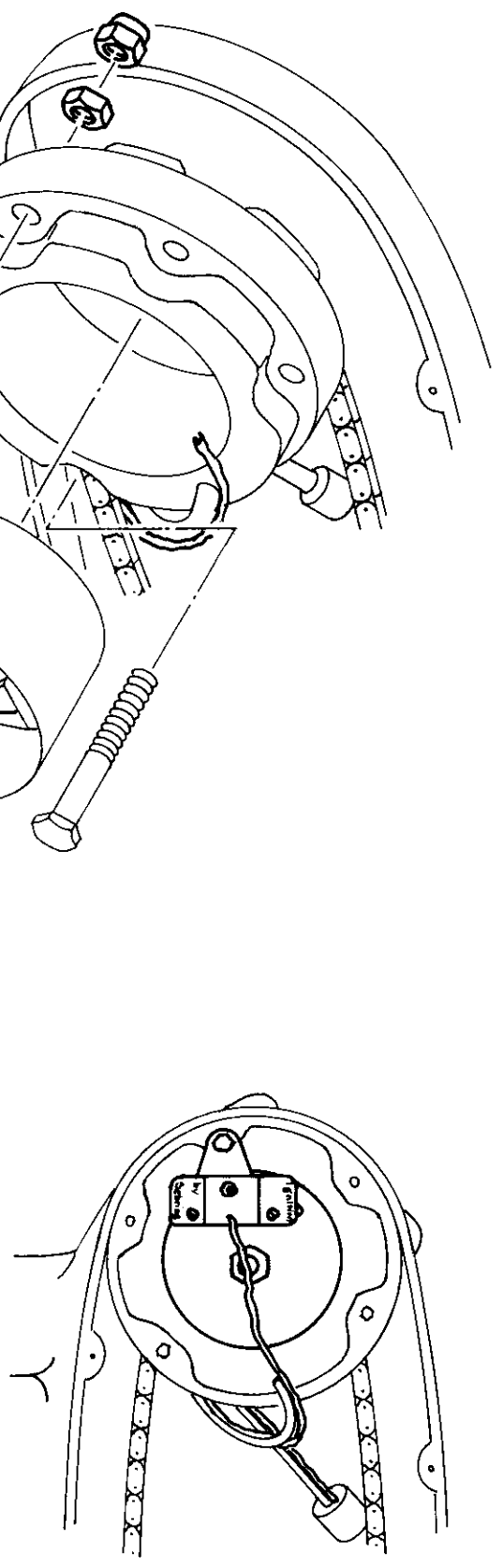


FIG. 3

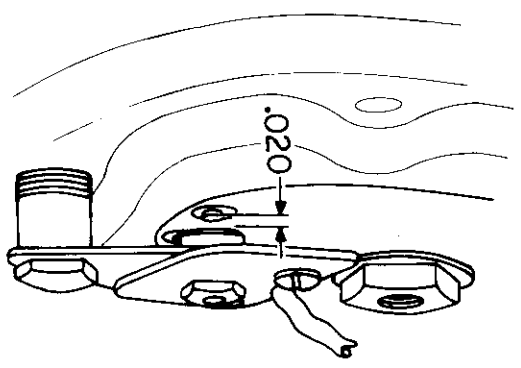


FIG. 1

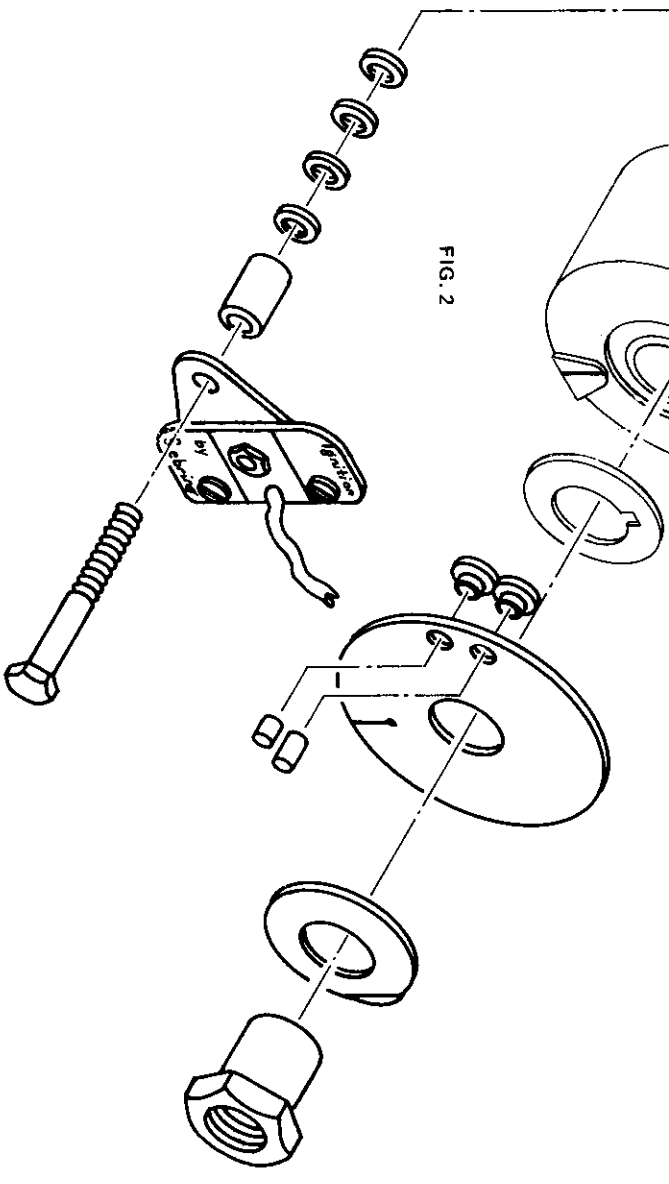


FIG. 2

ASSEMBLY DRAWING