

SECTION III

BODY ELECTRICAL

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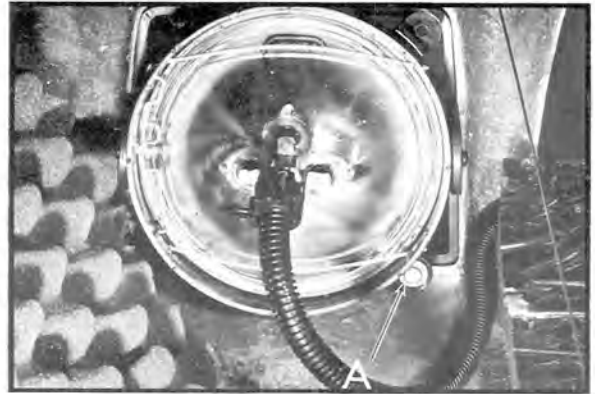
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BODY ELECTRICAL

Headlight Adjustment

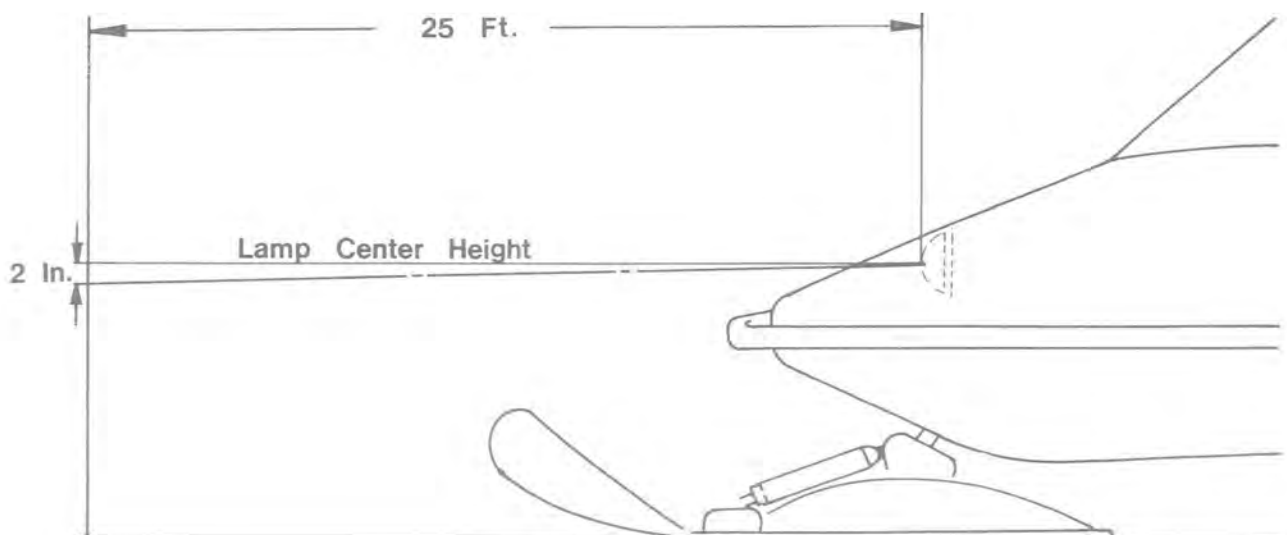
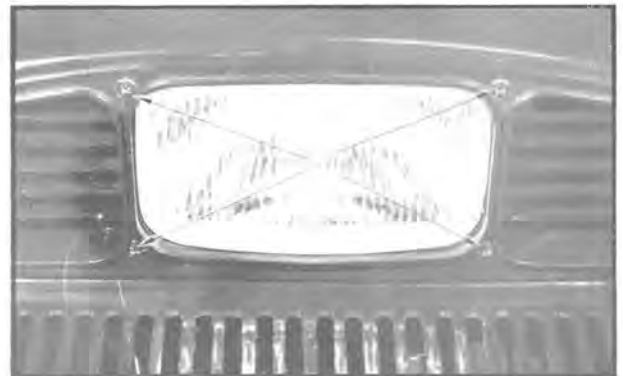
Headlights on all models can be adjusted to raise or lower the light beam by adjusting the lamp according to the specifications below.

- A. Snowmobile on a level surface with hood securely latched.
- B. Rider(s) seated.
- C. Headlight on high beam circuit.
- D. Adjust screw (A).
- E. The center of the brightest spot should have a 2" drop from center of headlight lens at 25'.



Headlamps on models equipped with rectangular lamp can be adjusted to raise or lower lamp beam and also adjust beam right or left.

- A. Equal turns on the two upper or two lower screws control vertical beam adjustment.
- B. Equal turns on the two left or two right screws control horizontal beam adjustment.
- C. Initial adjustment is 2" drop at 25' with brightest spot straight ahead or in line with chassis.



Light Circuit Tests

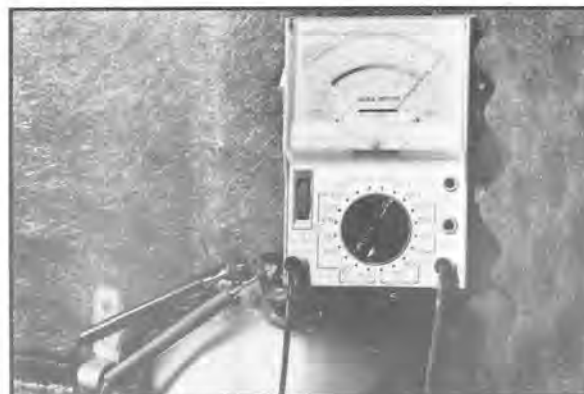


Polaris Multitester (Part No. 2870335)

III - 2

FILAMENT CONTINUITY TEST

Adjust the Multitester (PN 2870335) to Ohms x 1 scale. Disconnect wire harness from headlamp. Connect the black test lead of the Multitester to the left terminal of the headlight. The red test lead is connected to the right terminal to check high beam filament and to the other center terminal to check the low beam filament. Zero to one ohm resistance (full deflection of Multitester needle to the right) indicates a lamp in good working condition.



ALTERNATOR OUTPUT TESTS

CAUTION: Before performing this test, be sure the Multitester selector is set to the 100 ACV scale to prevent damage to the tester.

1. Disconnect the alternator connector from the engine.
2. Insert red tester lead into one yellow wire coming from the engine alternator.
3. The black tester lead must be grounded to either the engine or the brown wire at connector block.
4. Start engine; observe AC voltage reading on Multitester; slowly increase engine speed to 3,000 RPM. The voltage should read approximately 20 volts. Readings of 15-45 volts are considered normal.

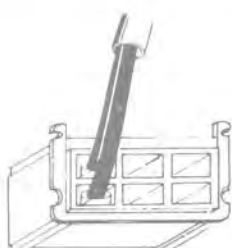


NOTE: On lighting systems with two yellow wires at the connector block, each yellow wire must be checked separately as in steps above. If output on one or both sides is zero or low, the lighting coil must be replaced.

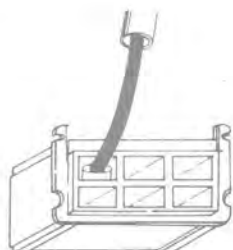
NOTE: On all 140 watt twin cylinder systems alternator output is checked with test leads connected to both yellow wires from the engine.



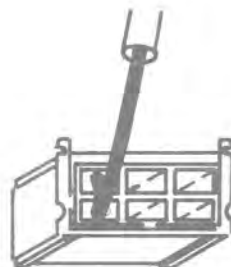
LIGHTING SYSTEM IDENTIFICATION



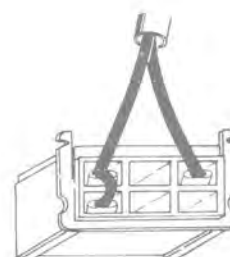
Yellow Wires
75 Watt
Single and Twin Cylinders



Yellow Wire
90/120 Watt
Twin Cylinders



Yellow Wires
120 Watt
Three Cylinders



Yellow Wires
140 Watt
Twin Cylinders

BODY ELECTRICAL

Light Circuit Tests

REGULATOR TESTING

CAUTION: Before performing this test, be sure the Multitester selector is set to the 25 ACV scale to prevent damage to the tester.

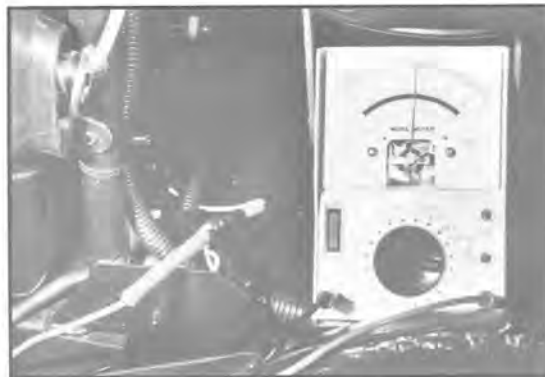
1. Insert one test probe as shown under plastic terminal protector from the voltage regulator. Ground the other probe to the regulator heat sink.

NOTE: This test must be taken with the headlight connected and in working order.

2.  Start engine; let idle; slowly increase engine speed to 3,000 RPM while observing Multitester scale. Voltage on the ACV scale should not exceed 15 volts. High voltage indicates a defective regulator, a poorly grounded regulator, a broken or loosely connected wire to the regulator (11 - 15 ACV acceptable).

3. Regulated voltage can also be checked at the headlamp as shown. Connect black test lead to ground and red test lead to either hi or lo beam terminal.

NOTE: Hi/lo beam switch must be in proper position for circuit being tested, headlamp harness connected and lamp in good condition. Proceed as outlined in step 2.



ALTERNATE METHODS FOR REGULATOR TESTING

1. Disconnect regulator from circuit; start the engine. If lights come on, the regulator is at fault.
CAUTION: With regulator disconnected, run engine for short period only or damage may result to lights or lighting circuit.
2. Disconnect regulator from circuit. Adjust Multitester to Ohms x 1 scale and zero the meter. Check between the regulator lead wire (yellow) and ground on engine. A reading of 120 ohms $\pm$ 10% is normal.
NOTE: If reading is high, check for secure, clean connections at voltage regulator mounting.

BODY ELECTRICAL

Seat Wire Harness Troubleshooting and Repair

If a shorted underseat wire harness is suspected, proceed as follows:

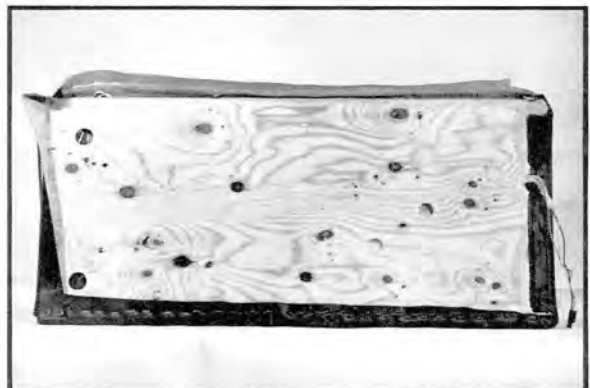
1. Remove the taillight lens, the two taillight bulbs, and the brake bulb. Disconnect the seat wire harness as shown. Attach the black test lead of the Multitester to the brown wire of the seat harness. Attach the red test lead to the orange wire (brakes). If the meter remains to the left, the circuit is not shorted. Repeat this procedure on the yellow wire (taillights).



2. If the wire harness is shorted, the meter will move to the right as shown.



3. To replace a shorted wire harness under the seat, first remove the staples on one side and approximately halfway on the back as shown.



BODY ELECTRICAL

Seat Wire Harness Troubleshooting and Repair

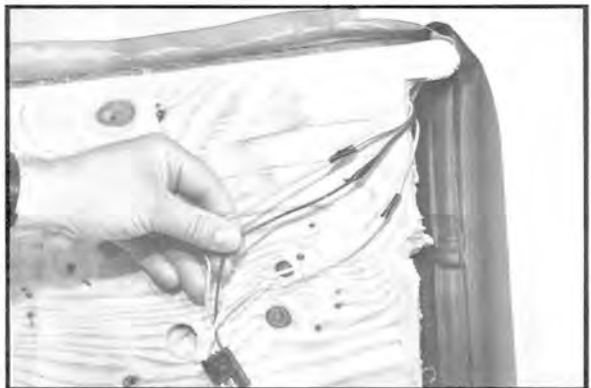
4. At the rear of the seat, pull the wire from between the plywood and foam. Cut the wire and splice as shown. Solder the connections and cover with electrical tape.



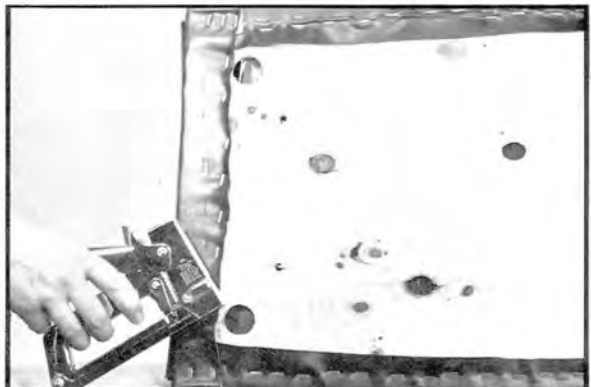
5. Carefully push the new wire between the seat board and foam as shown.



6. Cut and splice the new wire to the three-prong connector at the front of the seat.



7. Using a hand staple gun, re-staple the cover to the seat board.

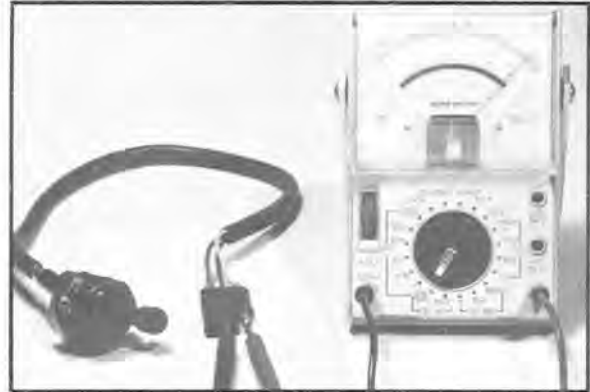


BODY ELECTRICAL

Switch Continuity Tests

HI/LO BEAM SWITCH CONTINUITY TEST

Adjust the Multitester to Ohms $\times 1$ scale. With the hi/lo switch disconnected, check continuity between the yellow wire and the green wire, switch in low beam position. The Multitester should read zero ohms resistance (full deflection to the right). Turn switch to high beam position and the Multitester should change from zero ohms resistance to infinite ohms resistance (no deflection to the right). Next, check between the yellow wire and red wire, switch in high beam position. The Multitester should read zero ohms resistance, and when switched to low beam position, the Multitester should read infinite ohms resistance. If any of the above tests fail, the switch is defective.



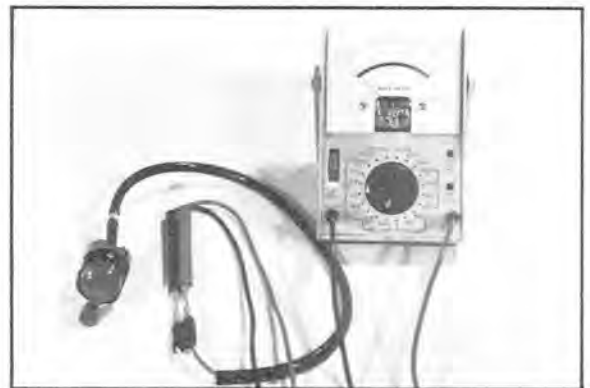
IGNITION SWITCH CONTINUITY TEST

Adjust the Multitester to the Ohms $\times 1$ scale. The switch in the "on" position is open. When the test probes are connected as shown, there should be no deflection of the Multitester needle. If the needle shows deflection, the ignition switch is shorted and must be replaced.



KILL SWITCH CONTINUITY TEST

Adjust the Multitester to the Ohms $\times 1$ scale. The kill switch in the "run" position is normally open. With the test probes attached as shown, there should be no deflection of the Multitester needle. Meter deflection indicates a defective switch.



BODY ELECTRICAL

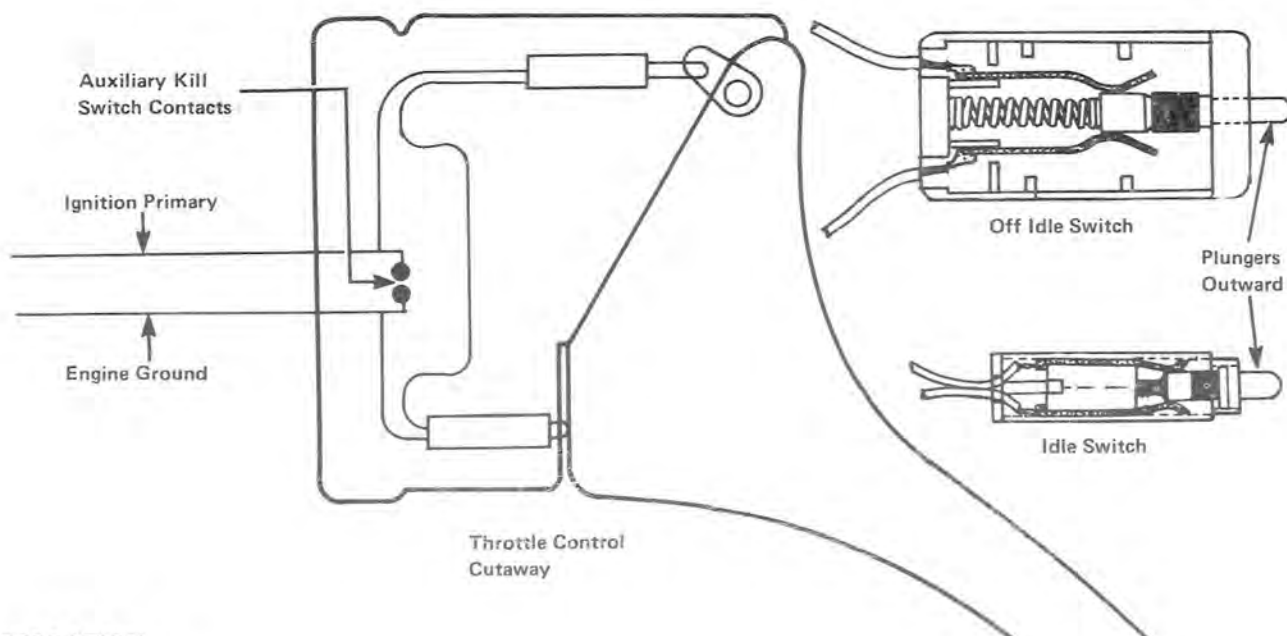
Guidelines for Lighting Circuit Diagnosis

The following procedures for lighting circuit problem diagnosis is designed to aid the serviceman in locating system failures with a minimum amount of time loss. The tests below should be performed in the order given; refer to the pages listed in this section for procedure explanation.

1. Headlamp Filament Continuity — Page 3.
2. Alternator Output Tests — Page 3.
3. Regulator Testing — Page 4.
4. Seat Wire Harness. Disconnect between seat and gas tank; start engine. If lights come on, problem is in seat wire harness. Proceed as outlined on pages 5 and 6.
5. Hi/Lo Beam Switch Continuity Test — Page 7.
6. Headlamp Wire Harness. Check for open circuit or shorted circuit. Use Multitester in Ohms x 1 position, top scale.
CAUTION: Checks taken in Ohms position are made with the engine stopped.

NOTE: On models equipped with a light-off switch, this switch must also be checked with Multitester or by bypassing switch.

Speed Control Assurance Operation and Adjustment



OPERATION

The speed control assurance consists of two series connected switches. If one or both switch plungers are positioned inward, the circuit is open and the engine will run.

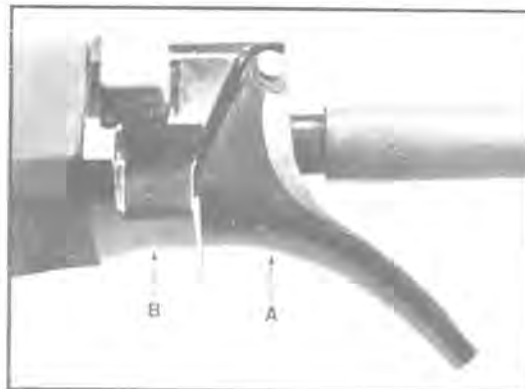
At idle, with the throttle lever properly adjusted, the bottom switch circuit is open (plunger inward). The top switch circuit is now closed (plunger outward). The speed control circuit is open, allowing the engine to run.

As the throttle lever is actuated to an off idle position, the top switch circuit is opened (plunger in) and the bottom switch circuit is closed (plunger out). The speed control circuit is still open, allowing the engine to run.

In the event the carburetor or controls malfunction and allow the throttle cable to become slack, the circuit will close (both switch plungers out), grounding the ignition system and in turn causing the engine to stop.

ADJUSTMENT

The throttle lever free play should at all times be adjusted to provide a .010"-.030" clearance between throttle lever (A) and throttle block (B). This clearance is controlled by the throttle cable sleeve(s) and the idle speed screw(s). If the idle speed screw(s) is adjusted inward and the cable sleeve(s) is not adjusted to take up the throttle lever to throttle block clearance, the engine may misfire or kill upon initial throttle opening.



⚠ After any idle speed adjustments are made, the throttle lever to throttle block clearance must be checked and adjusted.

NOTE: When above adjustments are made on models which have more than one carburetor, refer to the Carburetion Section on adjustments for proper carburetor synchronization.

BODY ELECTRICAL

Speed Control Assurance Testing and Replacement

TESTING

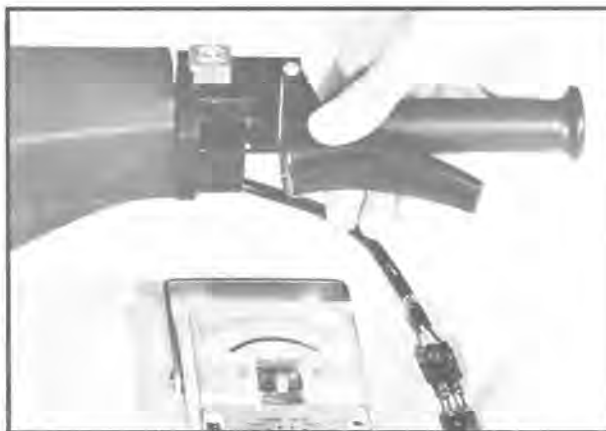
The speed control assurance switches can be tested with the Multitester in the Ohms x 1 position. For Tests 1, 2, and 3, disconnect the switch harness from main wire harness. Zero the ohmmeter and connect the two ohmmeter test leads to the two switch wires.

Test 1 — Open Circuit — Run

With the auxiliary shut-off switch in the "on" position, the ohmmeter needle should read infinite ohms resistance. As the throttle lever is moved from an idle position to an off idle position, the meter should remain at an infinite ohms reading. If the needle fluctuates and throttle lever to throttle block clearance is adjusted properly, the switch assembly needs to be replaced.

Test 2 — Closed Circuit — Kill

The two speed control switches must make a complete circuit to kill the engine. To check the switches, pull the throttle lever out away from throttle block. With switch plungers outward and the auxiliary shut-off switch in the "on" position, the ohmmeter must read zero ohms resistance or switch assembly needs to be replaced.



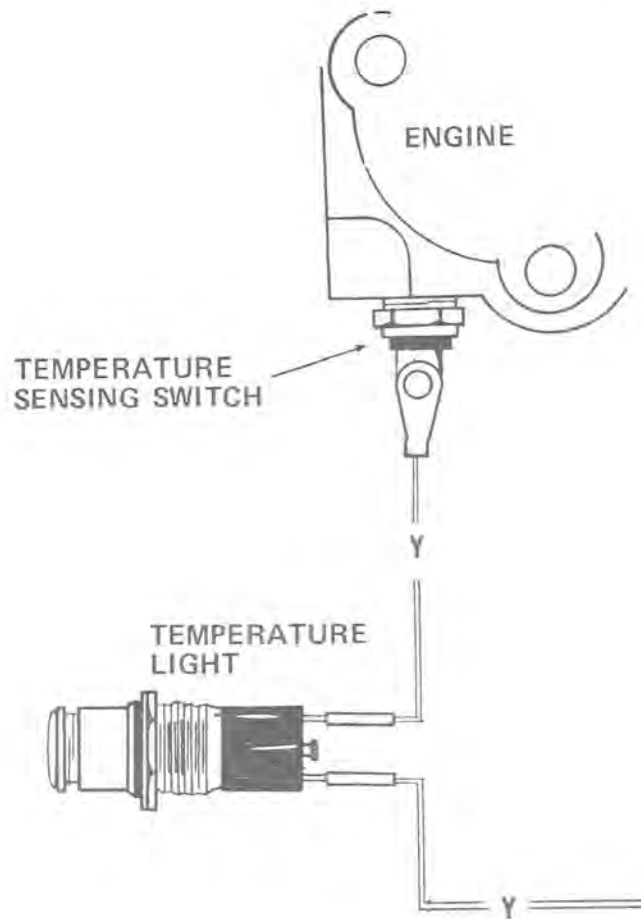
Test 3 — Auxiliary Shut-Off

Needle should read zero ohms in "off" position(s) and infinite ohms in "on" position. If not, the switch assembly needs replacement.

REPLACEMENT

Auxiliary shut-off and speed control assurance switches are connected and replaced as a unit. The unit is replaced from the back side of throttle block. To gain access to the switches and attaching screws, the handlebar pad and/or the throttle block backing plate are removed. The auxiliary shut-off portion of switch slides out. The two speed control assurance switches are fastened with screws. Remove the two screws and switches, noting their placement in the throttle block. Replace assembly and check operation.

BODY ELECTRICAL
Coolant High Temperature Indicator Tests



The indicator light is controlled by a temperature/warning switch installed into the engine cooling system. When engine coolant temperature reaches approximately 205° F, the switch closes, completing the current flow from the wire harness through the indicator light and to ground. The system should be tested periodically for proper operation.

LAMP CIRCUIT TEST

⚠ Remove wire from temperature sensing switch located under the thermostat housing. With the engine idling, ground the wire to the engine. The temperature warning light on the console should light. If not, replace bulb (GE 1889) or inspect wiring for shorts or open circuit.

TEMPERATURE SENSING SWITCH TEST

The temperature/warning switch is normally open. Using the Multitester (PN 2870335) in Ohms x 1 scale, with the lamp wire disconnected, contact one test probe to the switch terminal and the other test probe to engine ground. The meter needle should not deflect, indicating a normal open switch.

BODY ELECTRICAL

Tachometer and Speedometer Installation — Gemini and Apollo

TACHOMETER KIT INSTALLATION

1. Cover instrument panel with template and tape to hold it in place.
NOTE: On Apollo models with star decal, use center of right star for centering tachometer hole.
2. Center-punch or scribe tachometer hole center.
3. Drill 3" diameter hole in instrument panel.
4. Install and secure tachometer to hood using hardware provided in kit.
5. Fasten terminal connector from tachometer to receptacle near headlight. Wire harness routing and connections are shown in figure 1.



Figure 1

SPEEDOMETER KIT INSTALLATION

1. Cover instrument panel with template and tape to hold it in place.
NOTE: On Apollo models with star decal, use center of left star for centering speedometer hole.
2. Center-punch or scribe speedometer hole center.
3. Drill 3" diameter hole in instrument panel.
4. Install and secure speedometer to hood using hardware provided in kit.
5. Remove muffler and the mounting nuts from the drive shaft flange. Insert the small end of the drive bushing into the drive shaft. Tap lightly to ensure it is seated properly, figure 2.
NOTE: Some models may have drive bushing installed.
6. Insert the square key drive extension into the drive bushing.
7. Secure the angle drive with the longer bolts provided in kit, figure 3.
8. Route the cable along the bulkhead brace between the muffler and the engine. Secure cable to nosepan using the wire harness clip. Route cable to speedometer using the wire harness clips to secure cable to hood. Refer to figures 1 and 3 for proper routing and fastening. Use tie straps to secure any loose wires.



Figure 2

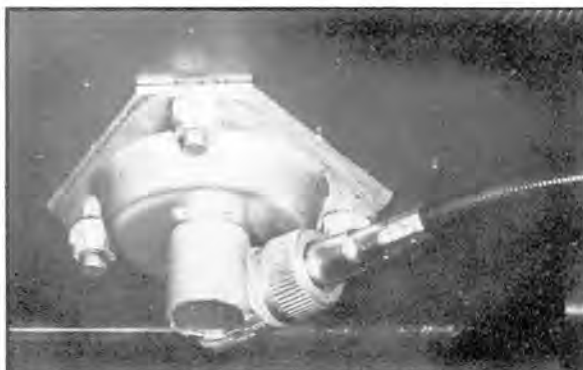
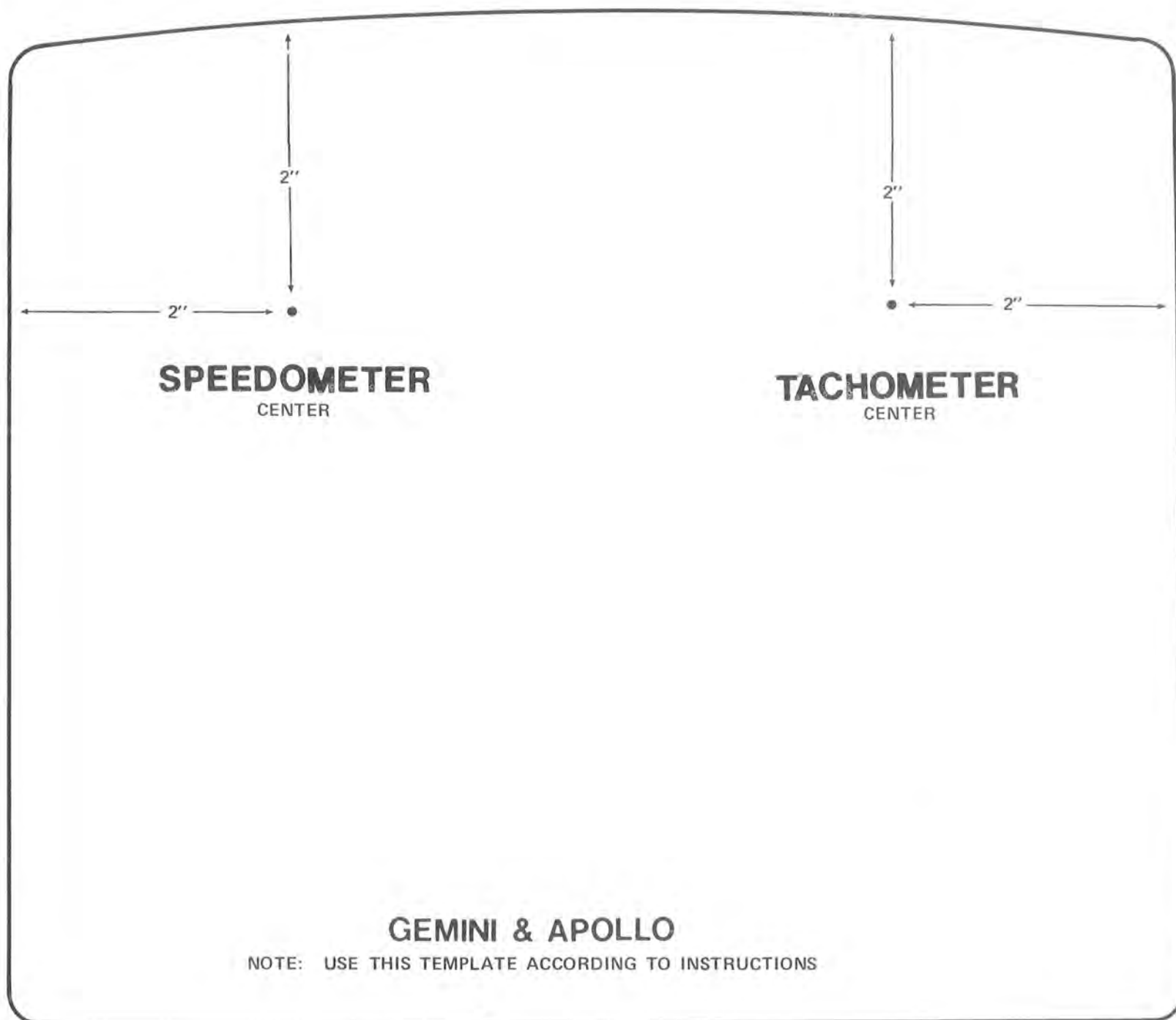
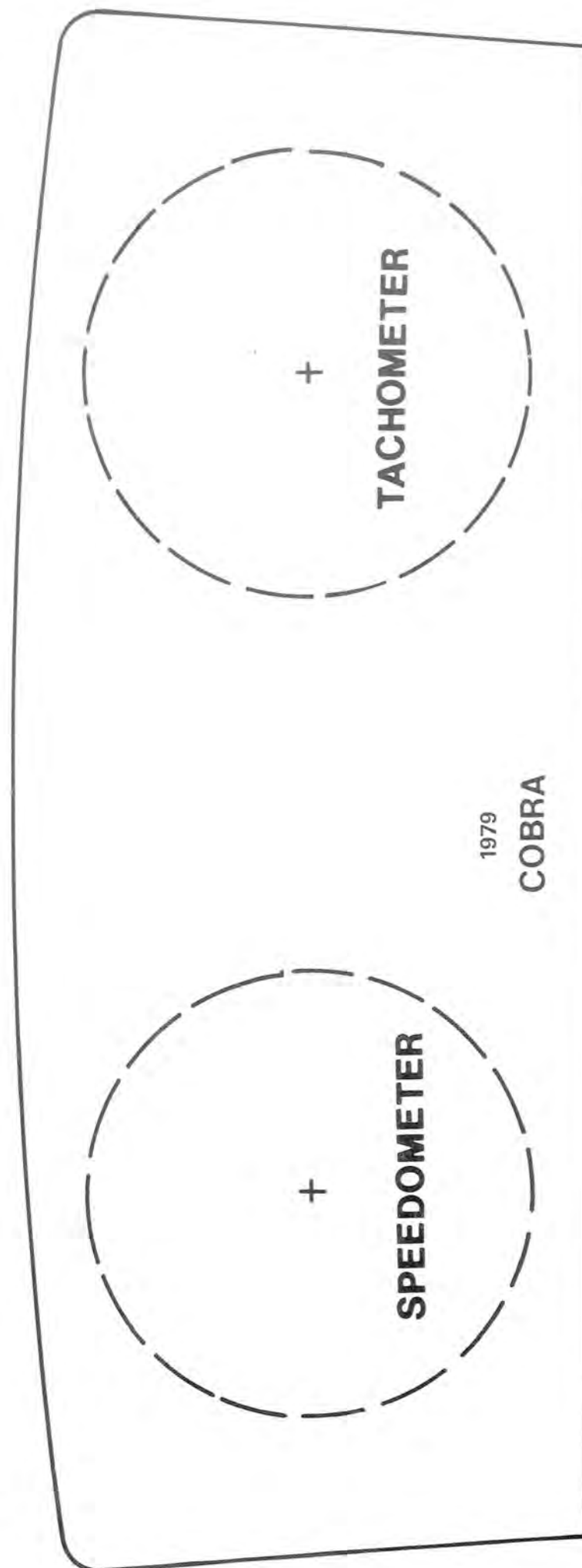
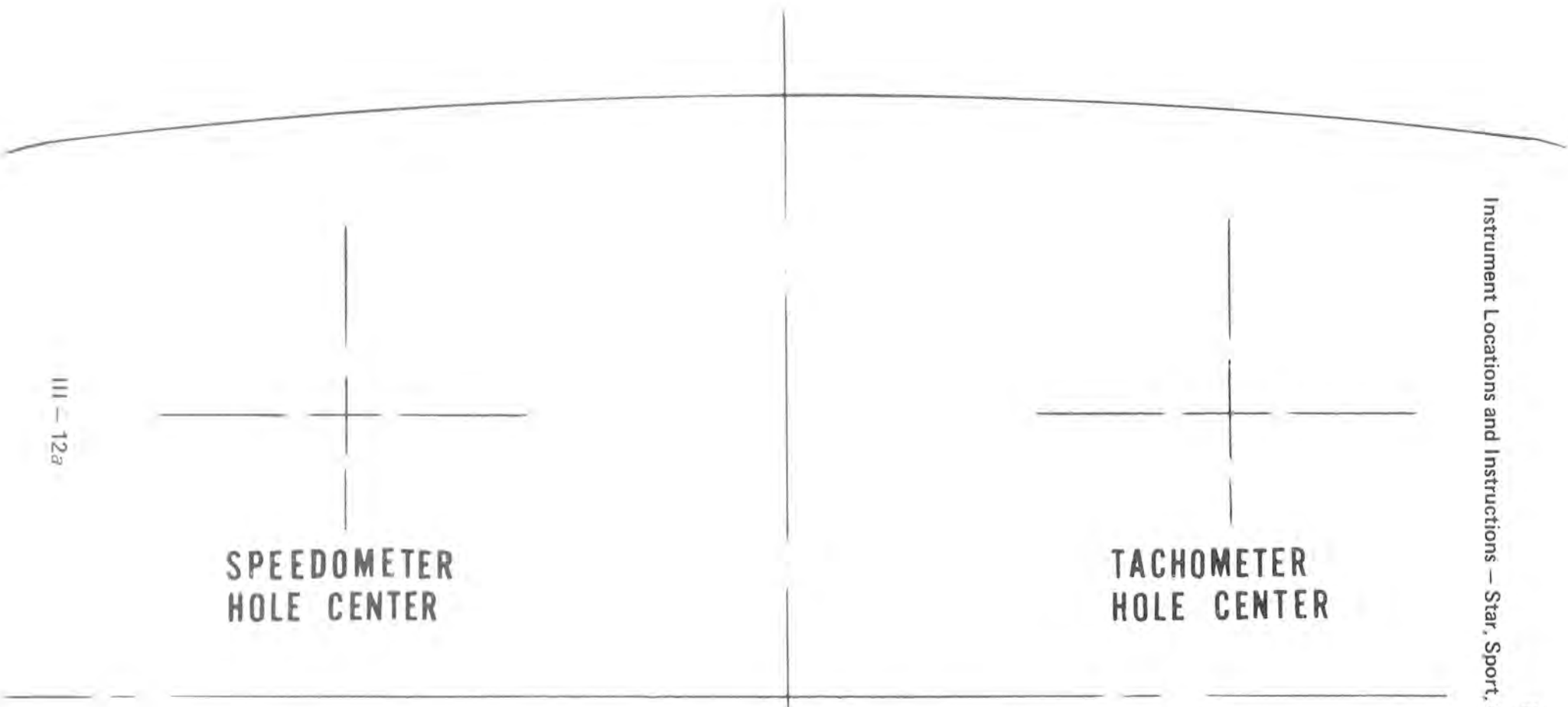


Figure 3







Template: Instrument locations for Star, Sport, Sprint and Long Track Models

Refer to page 12*b* for procedures.

Note: The wire harness connectors for console mounted instruments are located just behind the console as part of the existing wire harness.

BODY ELECTRICAL

Tachometer and Speedometer Installation – Star, Sport, Sprint and Long Track

TACHOMETER KIT INSTALLATION

1. Cover instrument panel with template and tape to hold it in place. (Page 12a, make photo copy)
2. Scribe tachometer hole center. (Figure 1)
3. Drill 3" diameter hole in instrument panel.
4. Install and secure the tachometer to the instrument panel.
5. The main harness has a connector provided. This connector is located just behind the console. Make this connection.

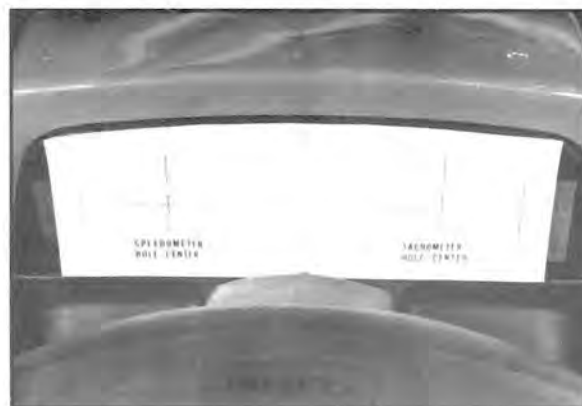


Figure 1

SPEEDOMETER KIT INSTALLATION

1. Cover instrument panel with template and tape to hold it in place. (Page 12a, make photo copy)
2. Scribe speedometer hole center and drill 3" diameter hole in instrument panel.
3. Install and secure the speedometer head to hood using hardware provided.
4. Open the adjuster bolt jam nut locking tabs (A, figure 2). Loosen the jam nut, (B, figure 2) remove the adjuster bolt (C, figure 2) and actuating arm (D, figure 2).
5. Remove the two brake caliper attaching nuts (E, figure 2) and install the square key drive extension into drive shaft.
6. Install the angle drive assembly onto the square key and caliper attaching bolts. Fasten with attaching nuts and torque to 30 ft./lbs.
7. With the brake lever bottomed on handlebar and the caliper helix shaft turned in, install the actuating arm, locking tab, jam nut, and adjuster bolt.
8. Insert a .015" feeler gauge (figure 3) between the brake disc and movable brake pad. Release brake lever and turn the adjuster bolt finger-tight. Set the jam nut and bend locking tabs. Reinstall the actuating arm return spring. (Refer to Section VIII for further brake adjustment information.)
9. The main harness has a connector provided. This connector is located just behind the console. Make this connection.



Figure 2



Figure 3

Tachometer and Speedometer Installation — Galaxy and 1979 Cobra

TACHOMETER KIT INSTALLATION

1. 1979 Cobra models — Cover instrument panel with template and tape to hold it in place.
Galaxy models — Locate the center of the right side tachometer cut-out reference circle.
2. Center-punch or scribe tachometer hole.
3. Drill 3" diameter hole in instrument panel.
4. Install and secure tachometer to hood using hardware provided in kit.
5. Fasten terminal connector from tachometer to receptacle near headlight. Wire harness routing and connections are shown in figure 1.



Figure 1

SPEEDOMETER KIT INSTALLATION

1. 1979 Cobra models — Cover instrument panel with template and tape to hold it in place.
Galaxy models — Locate the center of the left side speedometer cut-out reference circle.
2. Center-punch or scribe speedometer hole.
3. Drill 3" diameter hole in instrument panel.
4. Install and secure speedometer to hood using hardware provided in kit.
5. Remove muffler and the mounting nuts from the drive shaft flange. Insert the small end of the drive bushing into the drive shaft. Tap lightly to ensure it is seated properly, figure 2.
NOTE: Some models may have the drive bushing installed.
6. Insert the square key drive extension into the drive bushing.
7. Secure the angle drive with the longer bolts provided in kit.
NOTE: Because of the dual application angle drive provided for some Cobra models, it becomes necessary to note rotation viewed from the cable take-off end. Rotation must be clockwise. To achieve proper cable rotation it may be necessary to remove the rubber dust cap. Normally the brass threaded end will be used on the Cobra. Install dust cap on end not in use, figure 3.
8. Route the cable along the bulkhead brace between the muffler and the engine. Secure cable to nosepan using the wire harness clip. Route cable to speedometer using the wire harness clips to secure cable to hood. Refer to figure 1 for proper routing and fastening. Use panduit straps to secure any loose wires.

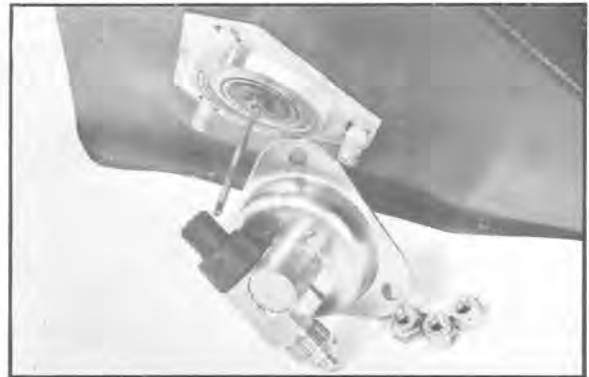


Figure 2



Figure 3

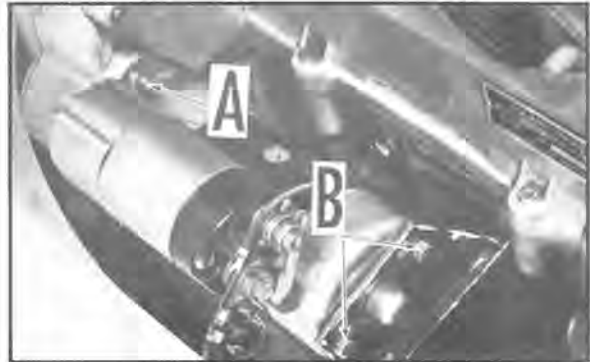
BODY ELECTRICAL

1978 Cobra 440 Electric Start Installation

1. Remove the hood, exhaust system, and air silencer.
2. Remove the voltage regulator and bend the bracket flush with the tunnel. The air silencer bracket also must be bent flush to the tunnel.
3. Disconnect main wire harness, headlamp connections, seat wire harness connector located between seat and fuel tank, main connection at engine, ignition switch, auxiliary kill switch, brakelight switch, and hi/lo beam.
4. Loosen the fuel tank front hold-down spring. Fasten a 3-foot piece of soft small diameter wire to the connection between the seat and fuel tank. Then slide the old seat wire harness out. The soft wire will be used to pull the new wire harness back under the fuel tank.
5. Tie a loop in the starter rope near the recoil starter and remove the recoil handle and eye bolt.
6. Disconnect and plug fuel line at fuel filter.
7. Install new wire harness. The soft wire which was connected to the seat wire harness can now be used to pull the new seat harness under the gas tank. The tank may be raised slightly to aid in installation of the seat wire harness.
8. Remove ignition switch, replacing with kit switch.
9. Connect brakelight and ignition switch wires.

CRANKING MOTOR INSTALLATION

1. Remove the flywheel cranking motor cover plate located on the front side of engine blower housing.
2. Install two studs (A) (PN 3080011) into the blower housing using Loctite (PN 2870326) on threads. NOTE: Metric threads go into housing.
3. Loosen the two crankcase attaching studs (approximately 3/8") located on either side and beneath the drain plug on the front lower crankcase half.
4. Remove the two cranking motor thru studs (B) from the motor terminal end.
5. Install the starter mount support bracket (PN 2450016) to the motor terminal end with thru studs (do not tighten at this time).
6. Assemble the cranking motor and support mount to engine using nuts and washers provided.
7. Tighten cranking motor to engine, support bracket to motor terminal end and support mount to crankcase studs in this order.



RING GEAR INSTALLATION

1. Remove the four starter cup and six flywheel fan attaching capscrews, remove the cup and fan from flywheel.
2. Install ring gear (beveled side of teeth toward cranking motor) to fan using bolts and lock washers provided. IMPORTANT: Use Loctite or peen protruding thread on inside of ring gear to prevent loosening during operation. Torque to 20 ft./lbs.
3. Reinstall fan assembly and starter cup to flywheel.
4. Reinstall blower housing.

RECTIFIER-CIRCUIT BREAKER INSTALLATION

Secure the rectifier and circuit breaker to the mounting bracket. Mount the assembly on the left side of steering hoop next to the steering post as shown, using flex locknuts and pop rivets provided.

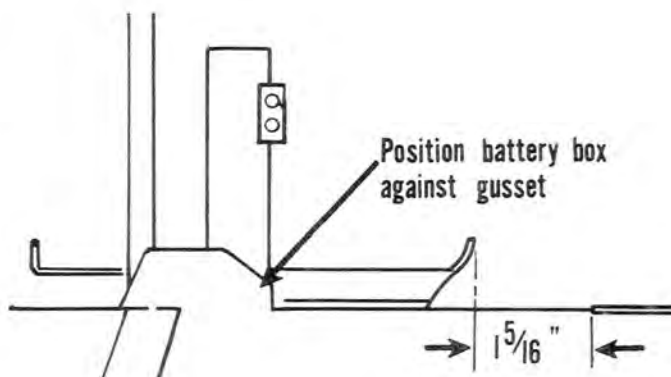


STARTER ROPE BRACKET

Mount the recoil starter rope bracket to the steering hoop using three pop rivets.
NOTE: Center bracket in console recoil opening.

BATTERY BOX INSTALLATION

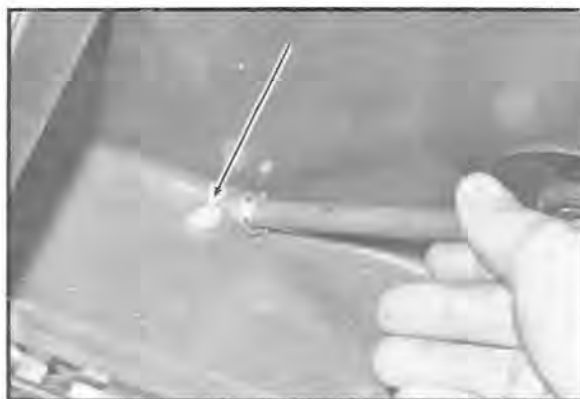
1. Position the battery box with the narrowed end rearward according to drawing.
2. Locate and center punch the four box mounting holes using the box base as a template.
3. Bore four 1/4" diameter holes through chassis and remove suspension from machine.
4. Install four 1/4-20 x 1/2" hex socket button head capscrews into underside of chassis and through battery box. Secure with 1/4" locking nuts. NOTE: Position brakelight wires and seat harness beneath the rear of box base narrowed end.
5. Reinstall suspension into chassis.
6. Install the voltage regulator on the "L" bracket provided on the right-hand side of battery box. The brown wire coming from the harness should be installed under one side of the regulator mount bolt.
⚠ CAUTION: All regulator mounting contact surfaces should be clean and unpainted.
7. Install wiring harness, referring to schematic for proper terminal connections.



BATTERY

⚠ CAUTION: It is important that the sealed end of the vent tube be opened or cut off to allow battery to vent properly.

1. Activate battery. Refer to instructions provided in battery shipping box.
2. Secure battery in battery box, vented end rearward.
3. Drill 7/16" hole in chassis, as shown, for overflow tube. Install overflow. Lock with two nuts, then place overflow plastic tube inside steel tube. Cut off excess tube below running board.



BODY ELECTRICAL

1978 Cobra 440 Electric Start Installation

4. A. Install positive 40" cable (small end) to battery with circuit breaker wire. Route cable between engine and motor mount plate, fastening large cable end to cranking motor terminal provided.
- B. Install blue solenoid starter wire to solenoid and into engine connector block blue wire.
5. Install short 17" cable to battery negative terminal, connecting opposite end to lower blower housing bolt.
6. Install fuel line, recoil handle, and muffler.

PRE-START CHECK

1. Inspect all wire connections for proper placement and routing.
2. Use panduit straps to secure loose wiring.
3. Test start system.
4. Install air silencer and hood.

OPERATION

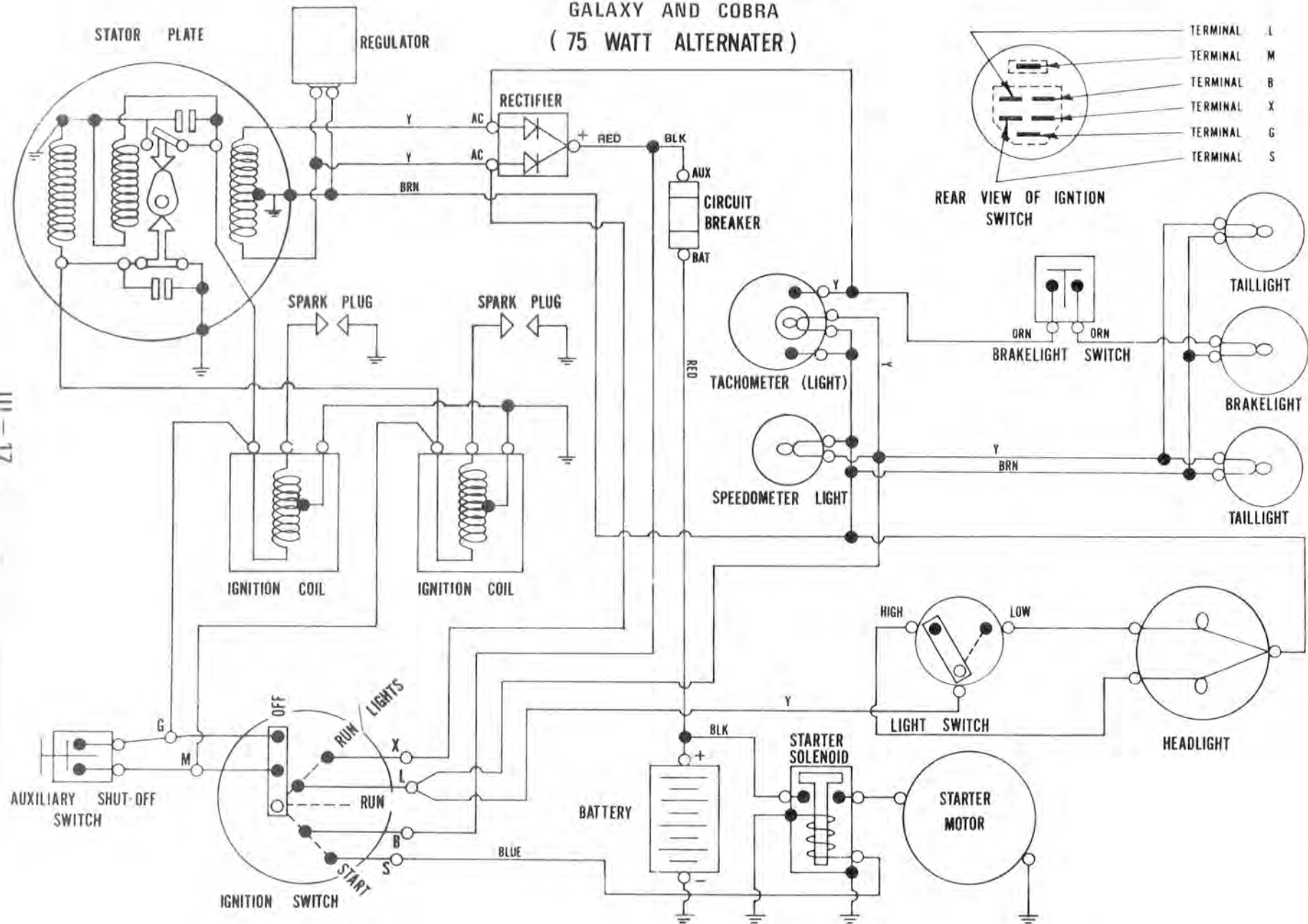
1. Never operate the cranking motor continuously for more than 30 seconds. If the engine fails to start, allow a 30 second cool-down period between cranking intervals.
2. To allow maximum charging of the battery during daylight riding, always operate the snowmobile with the ignition switch in the "lights off" or "run" position. If the machine is ridden only at night with frequent starter use, it may be desirable to maintain a higher state of battery charge using an auxiliary low amperage charger. If additional charging is required, the connections from auxiliary charger can be made at the starter motor. Connect positive charger lead to large cable on starter motor solenoid. Connect negative charger lead to engine (ground).

MAINTENANCE

1. The battery electrolyte level is visible through the plastic case; maintain the electrolyte at the specified level indicated. In the event additional electrolyte is required, it may be brought to the proper level with clean tap water. Always operate the machine after adding water or charge the battery for 10 minutes at 4 amperes with a portable charger.
-  **USE EXTREME CARE TO AVOID SPILLAGE AND SKIN CONTACT WITH ELECTROLYTE. FLUSH ANY SPILLAGE WITH WATER.**
2. Keep the battery terminals clean and free of corrosion. After cleaning with baking soda (NaHCO_3), apply a light coat of petroleum grease to the cable connections.
-  **CAUTION:** Whenever performing any maintenance on the system or near the battery, always remove the negative (—) ground cable fastened to the engine first; then remove the battery cable connections. Whenever installing the battery, always make the negative (—) indicated connection last.

SCHEMATIC DIAGRAM

GALAXY AND COBRA
(75 WATT ALTERNATER)



BODY ELECTRICAL
Galaxy and Cobra Electric Start Wiring Schematic

BODY ELECTRICAL

Galaxy and 1979 Cobra Electric Start Installation

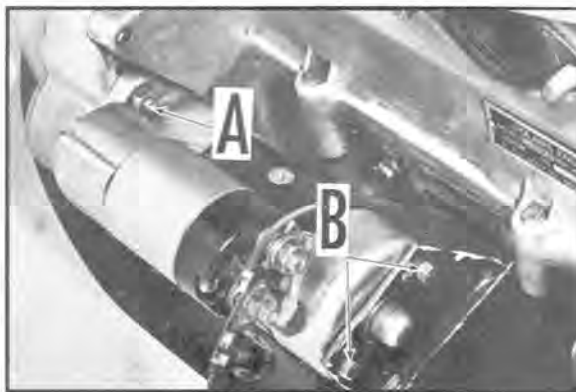
PROCEDURE

1. Remove the hood, exhaust system, and air silencer.
2. Disconnect main wire harness, headlamp connections, seat wire harness connector located between seat and fuel tank, main connection at engine, ignition switch, auxiliary kill switch, brakelight switch, and hi/lo beam.
3. Remove the fuel tank front hold-down spring. Fasten a 3-foot piece of soft small diameter wire to the connection between the seat and fuel tank. Then slide the old seat wire harness out. The soft wire will be used to pull the new wire harness back under the fuel tank.
4. Install new wire harness. The soft wire which was connected to the seat wire harness can now be used to pull the new seat harness under the fuel tank. The tank may be raised slightly to aid in installation of the seat wire harness. Install new fuel tank hold-down spring (long leg to battery side).

CRANKING MOTOR INSTALLATION

NOTE: 340 models follow steps 1 and 2 only.
Cobra 440 models follow steps 1 through 7 only.
Galaxy 440 models follow steps 1, 2, 8, 9, and 10 only.

1. Remove the flywheel cranking motor cover plate located on the front side of engine blower housing.
2. Install two studs (A) into the blower housing using Loctite (PN 2870326) on threads.
NOTE: Metric threads go into housing. (Install cranking motor on 340 models.)
3. Loosen the two crankcase attaching studs (approximately 3/8") located on either side and beneath the drain plug on the front lower crankcase half.
4. Remove the two cranking motor thru studs (B) from the motor terminal end.
5. Install the starter mount support bracket to the motor terminal end with thru studs (do not tighten at this time).
6. Assemble the cranking motor and support mount to engine using nuts and washers provided.
7. Tighten cranking motor to engine, support bracket to motor terminal end and support mount to crankcase studs, in this order.



8. Install and tighten cranking motor to engine.
9. Remove two crankcase bolts (one upper and one lower). Position crankcase legs of starter motor bracket, insert and torque crankcase bolts.
10. Install starter motor attaching "L" support bracket and secure to starter motor thru studs. Install and tighten the bolts which join the support bracket halves.



RING GEAR INSTALLATION

1. Remove the four starter cup and six flywheel fan attaching capscrews, remove the cup and fan from flywheel.
2. Install ring gear (beveled side of teeth toward cranking motor) to fan using bolts and lock washers provided. IMPORTANT: Use Loctite or peen protruding thread on inside of ring gear to prevent loosening during operation. Torque to 20 ft./lbs.
3. Reinstall fan assembly and starter cup to flywheel.
4. Reinstall blower housing.

CONSOLE GROUP

Remove the ignition switch and replace with kit switch. Secure the rectifier and circuit breaker as shown.



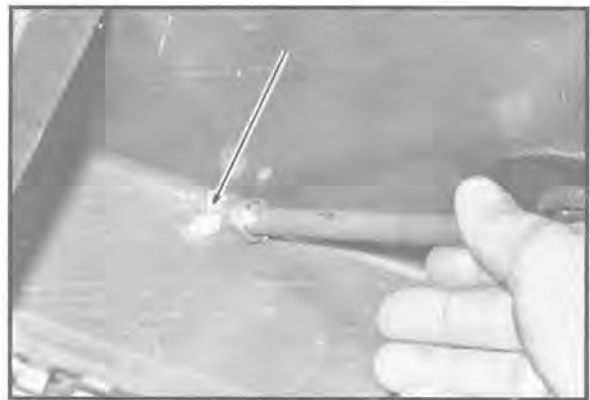
BATTERY BOX AND BATTERY INSTALLATION

1. Place the battery box and uprights onto the two bolts provided in the tunnel. Note the long upright must be installed on the right side bolt and the short upright must be installed on the left side. Secure the box and uprights with the two 1/4" flex lock nuts provided in kit.

⚠ CAUTION: Before proceeding with battery activation it is important that the sealed end of plastic vent tube be opened or cut to allow the battery to vent properly.

2. Activate battery, referring to specific activation instructions provided in battery shipping box.
3. Install the battery in battery box, vented end rearward. The padded top strap will interlock with the short upright on left side. Secure the strap to the right side upright with bolt provided in kit.

4. Drill 7/16" hole in chassis. Install and secure the steel over-flow tube. Place the plastic over-flow tube inside the steel tube and cut any excess tubing flush with running board.



WIRING GROUP

1. Complete the installation of wire harness, referring to schematic diagram (III - 17) for wire color and proper connections.
2. Insert the blue solenoid wire to engine connector block. Note as the main wire harness block and engine block are connected, the blue wires must meet.
3. Install long positive cable (small end) and red circuit breaker wire to battery positive terminal. Route the positive cable and blue solenoid wire between the engine and engine mount plate and fasten to starter motor solenoid.
4. Install short negative cable to battery and connect the opposite end to lower blower housing bolt.

BODY ELECTRICAL

Galaxy and 1979 Cobra Electric Start Installation

PRE-START CHECK

1. Install the exhaust system and inspect all wire connections for proper placement and routing.
2. Use panduit straps to secure loose wiring.
3. Test start system.
4. Install air silencer and hood.

OPERATION

1. Never operate the cranking motor continuously for more than 30 seconds. If the engine fails to start, allow a 30 second cool-down period between cranking intervals.
2. To allow maximum charging of the battery during daylight riding, always operate the snowmobile with the ignition switch in the "lights off" or "run" position. If the machine is ridden only at night with frequent starter use, it may be desirable to maintain a higher state of battery charge using an auxiliary low amperage charger. If additional charging is required, the connections from auxiliary charger can be made at the starter motor. Connect positive charger lead to large cable on starter motor solenoid. Connect negative charger lead to engine (ground).

MAINTENANCE

1. The battery electrolyte level is visible through the plastic case; maintain the electrolyte at the specified level indicated. In the event additional electrolyte is required, it may be brought to the proper level with clean tap water. Always operate the machine after adding water or charge the battery for 10 minutes at 4 amperes with a portable charger.



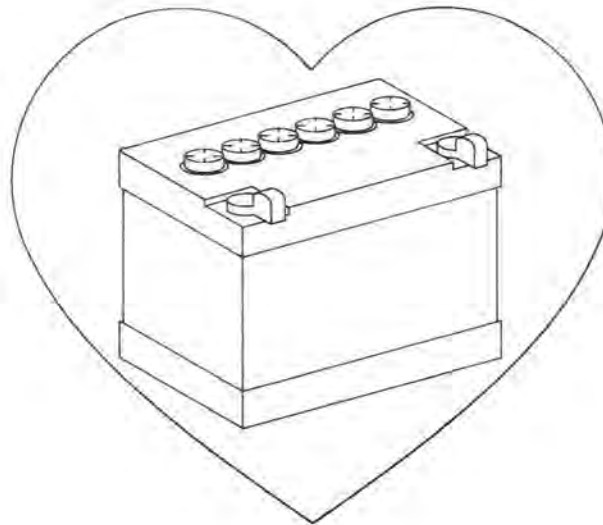
USE EXTREME CARE TO AVOID SPILLAGE AND SKIN CONTACT WITH ELECTROLYTE. FLUSH ANY SPILLAGE WITH WATER.

2. Keep the battery terminals clean and free of corrosion. After cleaning with baking soda (NaHCO_3), apply a light coat of petroleum grease to the cable connections.



CAUTION: Whenever performing any maintenance on the system or near the battery, always remove the negative (-) ground cable fastened to the engine first; then remove the battery cable connections. Whenever installing the battery, always make the negative (-) indicated connection last.

The battery is the heart of any electric-start system; therefore, its condition is critical to all electric-start functions. Long storage periods and high vibrations which are encountered in all snowmobile applications make periodic battery inspections and service essential.



The following items must be inspected and adjusted on a regular basis, or whenever this type machine enters for preventive maintenance.

1. Battery Connections:



CAUTION: Whenever performing any maintenance on the electric-start system or near the battery, always first remove the negative (—) ground cable.

If battery connections and cable ends show any signs of corrosion, they must be separated, cleaned with a soda solution, and shined with a wire brush. This will ensure a resistance-free, good connection. After cleaning and tightening, the cable connection should be coated with a petroleum grease or jelly to help retard corrosion.

2. General Battery Cleanliness:

The battery box or holder and battery top should always be kept free from film, dirt, or corrosion. If any of these are evident, the battery should be removed, cleaned with a soda solution, and rinsed with warm water. Keep the battery cell caps tight while washing the battery. If the soda solution should enter the battery cells, it will neutralize the electrolyte causing early battery failure. If the battery box shows signs of corrosion or rust, it should be removed, cleaned, and repainted.

3. Battery Mountings:

The battery should be positioned to provide adequate clearance on its four sides and top. The battery uprights must be kept tight enough to keep the battery from sliding in its holder. However, they should not be tightened to the point where the battery's plastic case is placed under a severe strain.



CAUTION: Whenever installing the battery connections, always make the negative (—) ground connection last.

4. Electrolyte Level:

The battery electrolyte level is visible through the plastic case. When the electrolyte is low, it may be brought to the indicated level with distilled water. Do not overfill the battery. Overfilling will cause a loss of electrolyte, resulting in early battery failure and poor performance. After adding water, always operate the machine or charge the battery for a period of ten minutes at 4 amps. This will mix the water with the electrolyte to keep it from freezing.

BODY ELECTRICAL

Battery Testing

INSPECTION

Make a visual inspection of the battery. If the battery shows signs of abuse, such as a cracked or badly worn case, it should be replaced.

HYDROMETER TESTS

The lead-acid storage battery used in snowmobile application is a device for converting chemical energy into electrical energy.

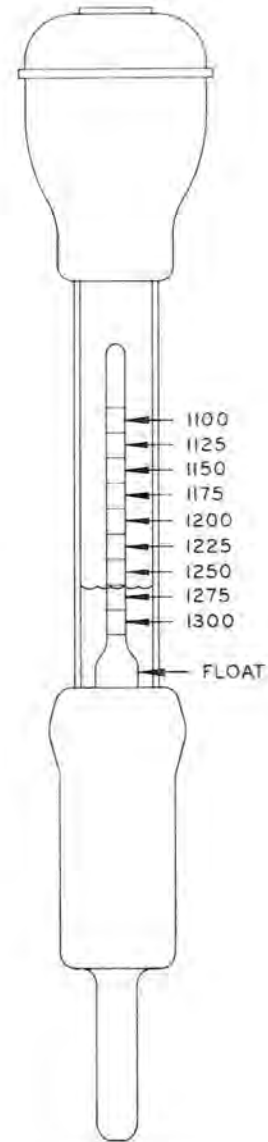
The hydrometer measures the percentage of acid in the battery electrolyte in terms of specific gravity. As the battery drops from a charged to a discharged condition, the acid leaves the electrolyte and enters the plates which are supported in the battery. This causes a decrease in the specific gravity of the electrolyte. With the hydrometer, a test can be made indicating battery condition or state of charge. Hydrometer readings must never be taken after water has been added. For accurate hydrometer readings, the added water must be mixed with electrolyte by charging at 4 amps for 30 minutes.

Remove the six battery cell caps. With the hydrometer, draw a separate sample from each cell and record readings. The readings should not vary more than .025 specific gravity (referred to as 25 points) between cells. If cells vary 25 points or more, there is likely internal damage to the battery and it should be replaced.

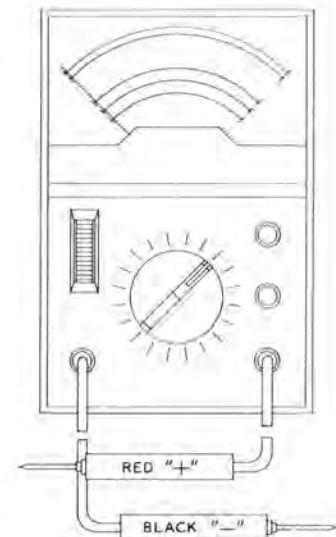
Specific Gravity Readings	State of Charge
1.260 – 1.280	Fully charged
1.220 – 1.240	3/4 charged
1.180 – 1.200	1/2 charged
1.160 – 1.170	1/4 charged
1.110 – 1.120	Discharged

VOLTAGE TESTS

If the hydrometer tests indicate a good, fully charged battery and you feel the battery is still at fault, you can further test the battery with a Multitester. Check to see that the battery caps are in place and tight. Set the Multitester to the 25 DC volt position. Place the red test lead to the positive (+) indicated battery terminal and the black test lead to the negative (–) indicated terminal. Battery voltage should read from 11-13 volts. Crank the engine for 15 seconds, wait 15 seconds and read battery voltage. Reading should remain between 11 and 13 volts or battery is defective and should be replaced. If while cranking the engine the meter needle drops to 9 volts or less, the problem could be in the cranking motor.



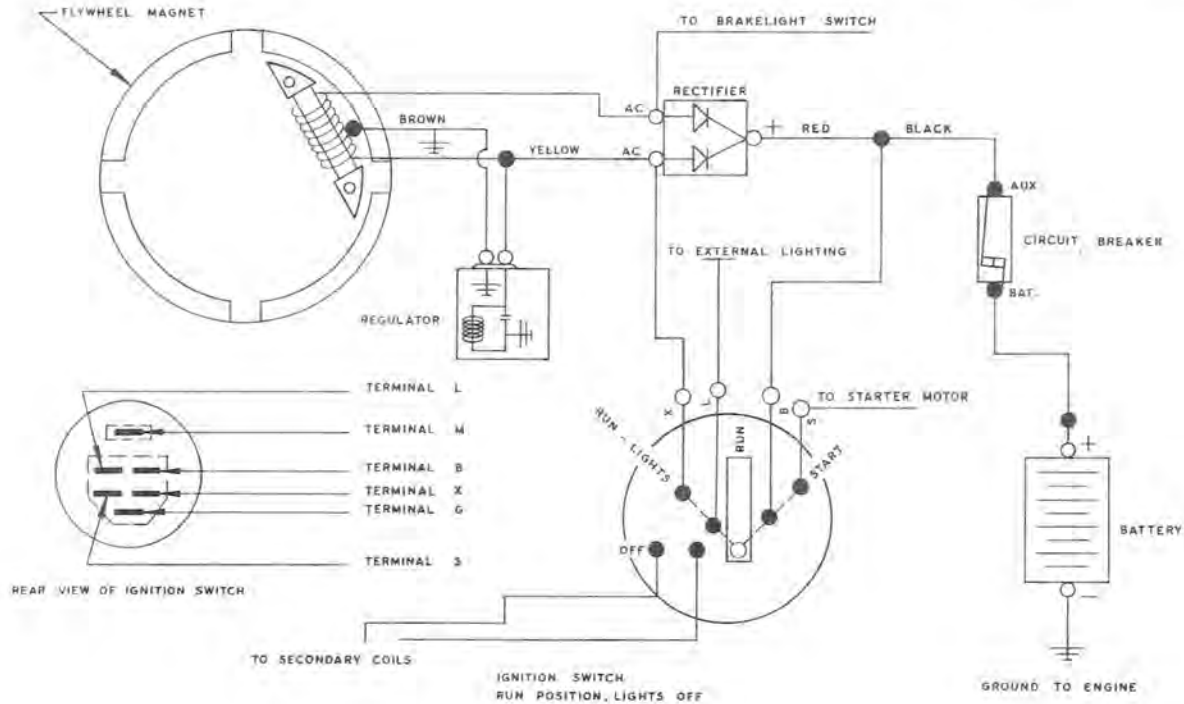
Hydrometer



Multitester

BODY ELECTRICAL

Charging System Operation



Before proceeding with any test procedures, you must have a basic understanding of how the Polaris charging system functions. Using the charging system diagram above, follow the current flow from the engine to the battery. Note the ignition switch position in the diagram. This "Run" position allows maximum alternator output to the battery. With the switch in the "Run/Lights" position (circuit completed between "X" and "L"), the majority of the alternator output is used for external lighting.

The lighting coil and flywheel magnets produce the current necessary to charge the battery. Because the lighting coil is influenced by the north/south poles of the spinning flywheel magnets, the voltage produced is first in one direction, then in the other, much like a piston moves back and forth in a cylinder. This type of current flow is called alternating current (referred to as "AC").

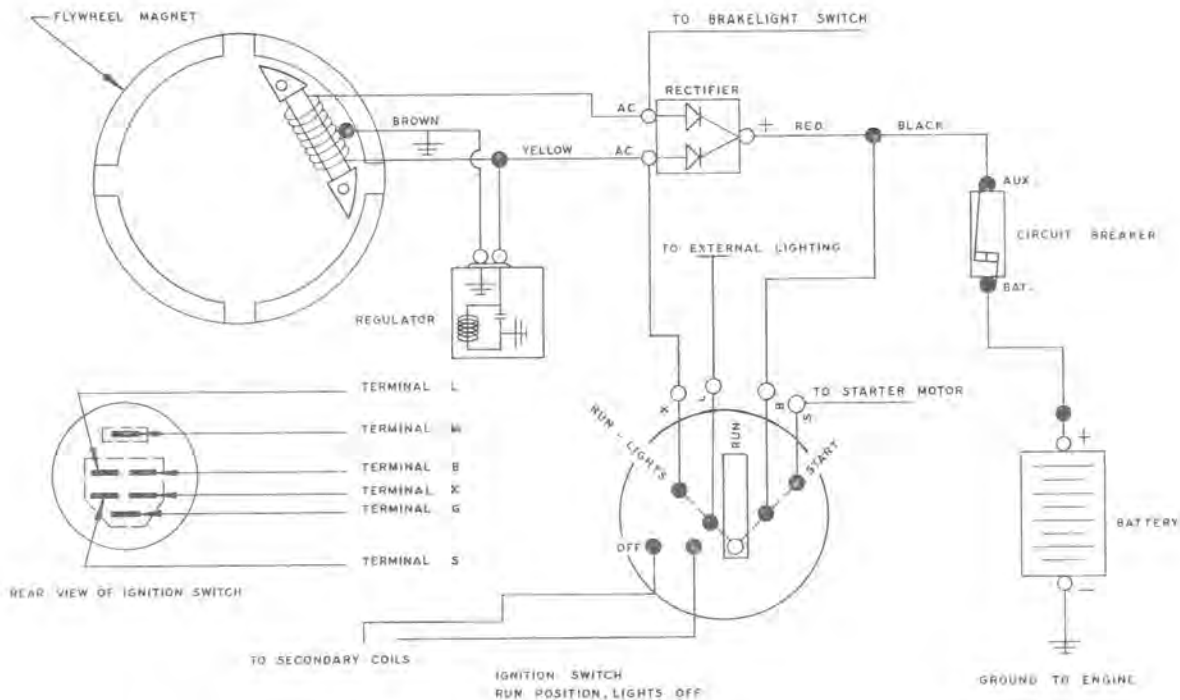
Since AC voltage cannot be utilized or stored in the battery, it is changed to direct current (referred to as "DC"). DC voltage travels through a wire in one direction only. The change from AC to DC takes place in the rectifier. The rectifier has two diodes which are fed by the two yellow wires from the lighting coil. These diodes, or check valves, allow current to flow freely in one direction only. From the plus (+) side of the rectifier this DC voltage flows through the circuit breaker and into the storage battery.

The voltage regulator is a control device which siphons excess alternator output voltage to ground. The regulator limits voltage to 11-15 volts, which in turn protects voltage-sensitive components from damage.

The circuit breaker is an overload switch which protects components from stored battery energy. Should a short occur in the system, the circuit breaker will overheat and break the current flow from the battery.

BODY ELECTRICAL

Charging System Testing

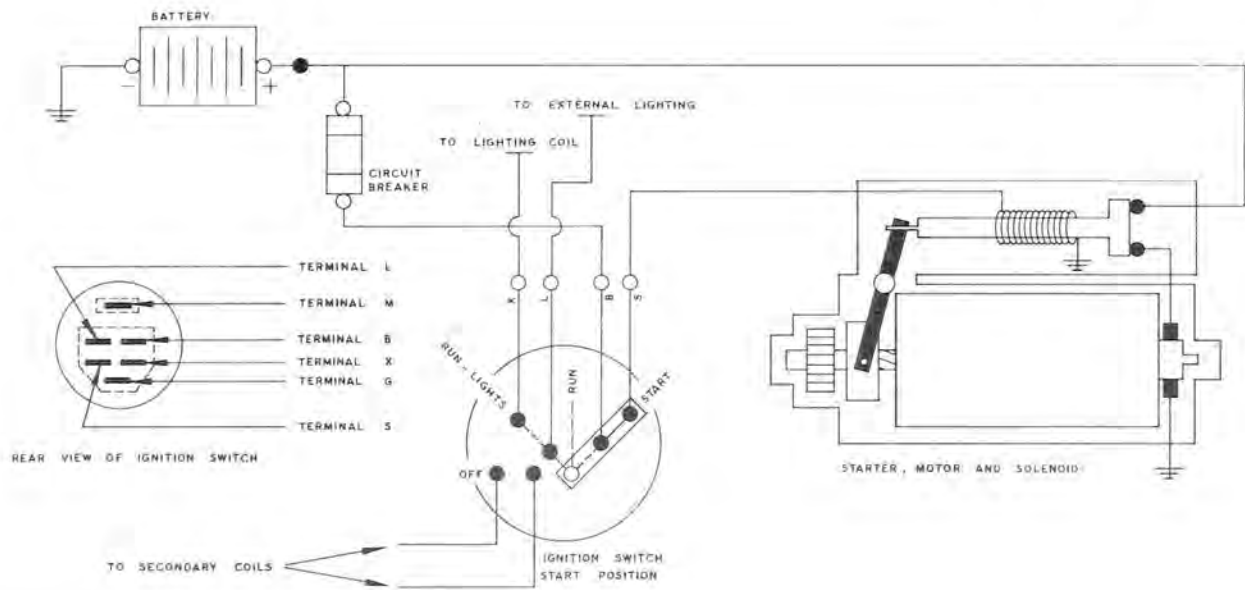


All the components which are briefly described on the preceding page work in conjunction to maintain battery voltage and state of charge. If one or more of these components fails to function properly, the battery will suffer. The tests for these components are as follows:

1. **Alternator Output Tests:**
Refer to light circuit testing in this section.
2. **Voltage Regulator Tests:**
Refer to light circuit testing in this section.
3. **Rectifier Tests:**
The rectifier has two diodes which are tested separately and must allow current flow in one direction only. Remove rectifier connections. Set the Multitester to the Ohms x 1 position. Place one test lead on the plus (+) indicated rectifier terminal and the other test lead to the AC indicated terminal. Note the reading obtained, reverse the test leads and again note reading. If both readings are very low or very high, the rectifier is defective. A good diode will give one low reading and one high reading.
4. **Circuit Breaker Test:**
The circuit breaker is tested with the Multitester in the Ohms x 1 position. Remove the circuit breaker connections and check between the two terminals. Readings should be zero ohms resistance. If a high reading is obtained, the circuit breaker is defective.
5. **Ignition Switch Tests:**
The ignition switch can also be tested using the Multitester in Ohms x 1 position. Check between designated terminals with wires removed. Example: Key in "Run/Lights" position, check resistance between terminals "X" and "L" (terminal identification letters are noted on rear view of ignition switch in above diagram). Multitester should read zero ohms resistance. When switch is turned to any other position, the meter should read infinite ohms resistance. If partial opens or shorts are noted, the switch should be replaced.
6. **Wire Connections:**
Due to the low alternator output amperage, it is essential that all connections between the stator plate and the battery be clean, tight, resistance-free connections.

BODY ELECTRICAL

Cranking System Operation



The components which make up the cranking system are shown above.

The battery is the sole source of electrical energy for the cranking system. Satisfactory starter motor life and performance are highly dependent upon battery condition and state of charge.

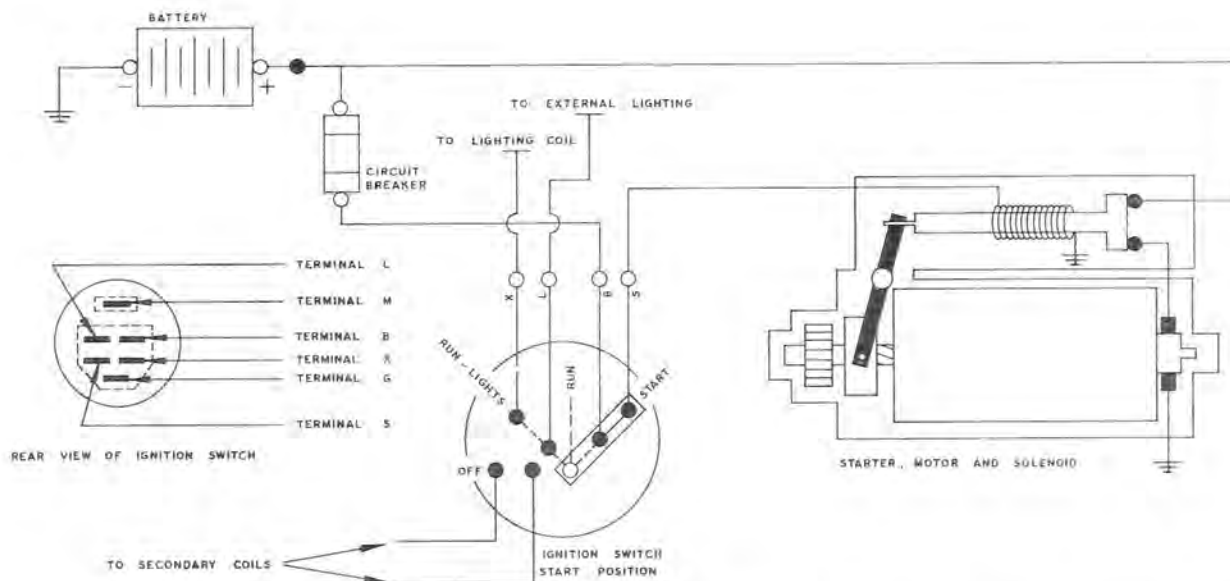
The ignition switch when turned to the start position completes the circuit between the battery and starter motor solenoid.

The solenoid is a magnetic switch. As current flows through the ignition switch contacts and through the solenoid windings, two things happen in rapid sequence. The solenoid plunger shifts the pinion gear into mesh with the engine flywheel ring gear. Also, the battery is connected directly to the starter motor through large contacts in solenoid.

The cranking motor converts the battery electrical energy into a mechanical energy which is necessary to crank the snowmobile engine. The cranking motor is a high horsepower unit which requires high battery current to operate and should never be used for more than a 30-second interval.

BODY ELECTRICAL

Cranking System Testing



The power supply for the cranking system is the battery. Therefore, the first step in testing the cranking system is to test the battery as outlined on the battery testing page in this section. With the battery tested and fully charged, proceed to test the cranking system circuitry and individual components.

SOLENOID DOES NOT ENGAGE

1. Large Battery Cables and Connections:

Adjust the Multitester to the 25 DC volt scale. Place the red test lead to the battery side of circuit breaker and the black test lead to engine ground. The reading must be the same as a battery voltage reading (from + side to - side of battery). If the reading is not the same, excessive resistance is present between the engine ground to the - side of battery or between the battery side of the circuit breaker and the + side of battery. Check for corroded, loose connections and frayed or burned wires. Replace or repair as needed.

2. Circuit Breaker:

Set Multitester to the 25 DC volt scale. Connect the red test lead to the auxiliary side of circuit breaker and the black test lead to engine or battery ground. Readings should be the same as battery voltage reading. If not, the circuit breaker is defective and must be replaced. The circuit breaker should also be checked for ohms resistance. Zero ohms resistance readings are normal; high readings indicate poor contact connection in circuit breaker and it should be replaced.



CAUTION: To prevent damaging the Multitester, all resistance checks must be taken with engine stopped and battery (source of power) disconnected.

3. Wire from Circuit Breaker to Ignition Switch:

Set Multitester to the 25 DC volt scale. Place red test lead on B terminal of ignition switch (terminal identification letters are noted on rear view of ignition switch in above diagram) and black test lead to engine ground. Reading should be the same as battery voltage. If not, check for corroded, loose connections and frayed or burned wires. Replace or repair as needed.

4. Ignition Switch:

Adjust Multitester to the 25 DC volt scale. Place red test lead to S terminal and black test lead to engine or battery ground. Rotate ignition switch to the start position. Reading should be the same as battery voltage reading. If not, replace the ignition switch.

BODY ELECTRICAL

Cranking System Testing

5. Wire from Ignition Switch to Starter Motor Solenoid:

Set Multitester to the 25 DC volt scale. Place red test lead to the small terminal of starter motor solenoid and black test lead to engine or battery ground. Rotate the ignition switch to start position and note reading. Reading must be the same as battery voltage. If not, repair or replace wires as needed.

NOTE: Check for a good connection at main engine terminal block.

6. Starter Motor Mountings:

The starter motor is also a part of the solenoid circuit. Be sure the starter motor solenoid and starter motor are securely fastened and grounded to the engine.

If the above systems checks are okay, the problem is in the starter motor solenoid, which is a sealed unit and must be replaced.

SOLENOID ENGAGES/STARTER MOTOR TURNS/ENGINE DOES NOT TURN

Remove starter motor. Inspect flywheel ring gear condition. If teeth are missing or excessively worn, replace flywheel ring gear. Disassemble starter motor and inspect solenoid to pinion gear linkage; worn or bent linkage should be replaced. If inspections are okay, replace starter motor pinion gear assembly.

SOLENOID ENGAGES/STARTER MOTOR DOES NOT TURN

1. Solenoid:

A. Set Multitester to the 25 DC volt scale. Place red test lead on the large terminal at starter motor solenoid (battery side) and black test lead to engine or battery ground. Rotate ignition switch to start position and note reading.

B. Leave Multitester on the 25 DC volt scale. Place red test lead on the large solenoid terminal (starter motor side) and black test lead to engine or battery ground. Rotate ignition switch and note reading.

If readings from tests A and B are not equal, replace solenoid assembly. If readings are equal, the problem lies in the starter motor.

2. Starter Motor:

Disassemble starter motor and observe the following:

A. Brush Inspection:

Brushes must slide freely in brush holder. Brushes worn to 1/4" or less must be replaced. Brush contact to armature commutator must be resistance free. If the commutator bars require sanding, use commutator sandpaper only.

B. Bushing Inspection:

Check rear cover and gear case cover bushings. Excessive bushing to armature shaft clearance will allow the armature to interfere with the field coils. Replace these parts as signs of excessive wear appear.

C. Field Coil Tests:

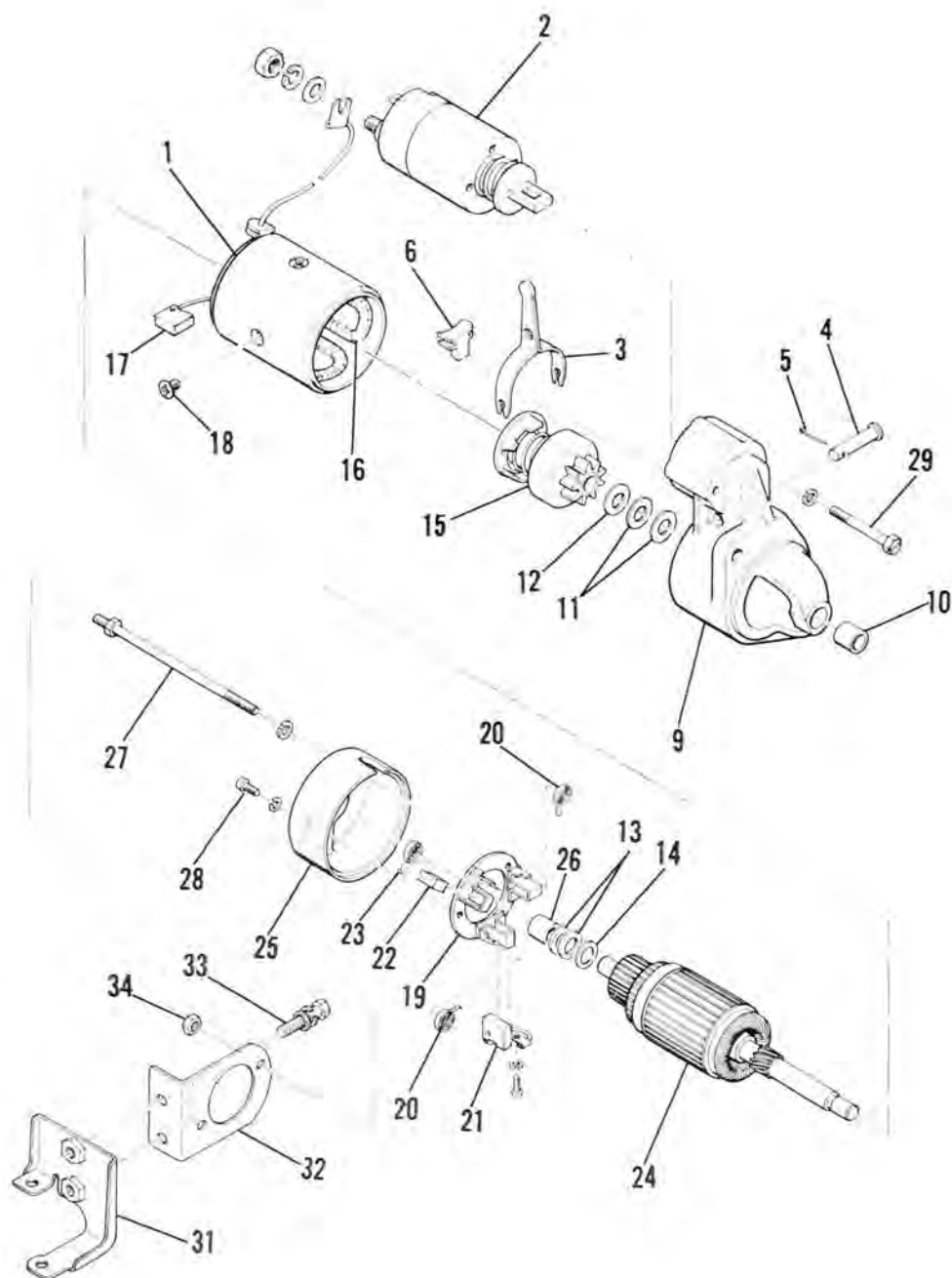
Set Multitester to Ohms x 1 position. Check continuity between the large field coil solenoid wire and the insulated brush. Readings must be zero ohms resistance. Also, check field coil windings which may be shorted to the case. Place one test lead to large solenoid wire and the other test lead to field coil case; readings must be infinite (open circuit). Field coils which do not pass these two tests must be replaced.

D. Armature Short Circuit Tests:

With the armature installed in a growler, place a thin strip of steel on the armature. With the growler on, slowly rotate the armature one full turn. If the steel strip does not vibrate, the armature is not shorted. If the steel strip does vibrate, the armature has a short circuit and must be replaced.

BODY ELECTRICAL

Cranking Motor Exploded View



1 — Field Coil Housing

2 — Solenoid

3 — Shift Lever

4 — Lever Pin

5 — Split Pin

6 — Dust Cover

9 — Gear Case

10 — Gear Case Bushing

11 — Thrust Washer

12 — Thrust Washer

13 — Thrust Washer

14 — Thrust Washer

15 — Pinion Assembly

16 — Field Coils

17 — Brush (+) Insulated

18 — Pole Core Set Screw

19 — Brush Holder Assembly

20 — Brush Spring

21 — Brush (—) Grounded

22 — Brake

23 — Brake Spring

24 — Armature Assembly

25 — Rear Cover Assembly

26 — Rear Cover Bushing

27 — Starter Thru Bolts

28 — Rear Cover Attaching Screw

29 — Solenoid Attaching Bolt

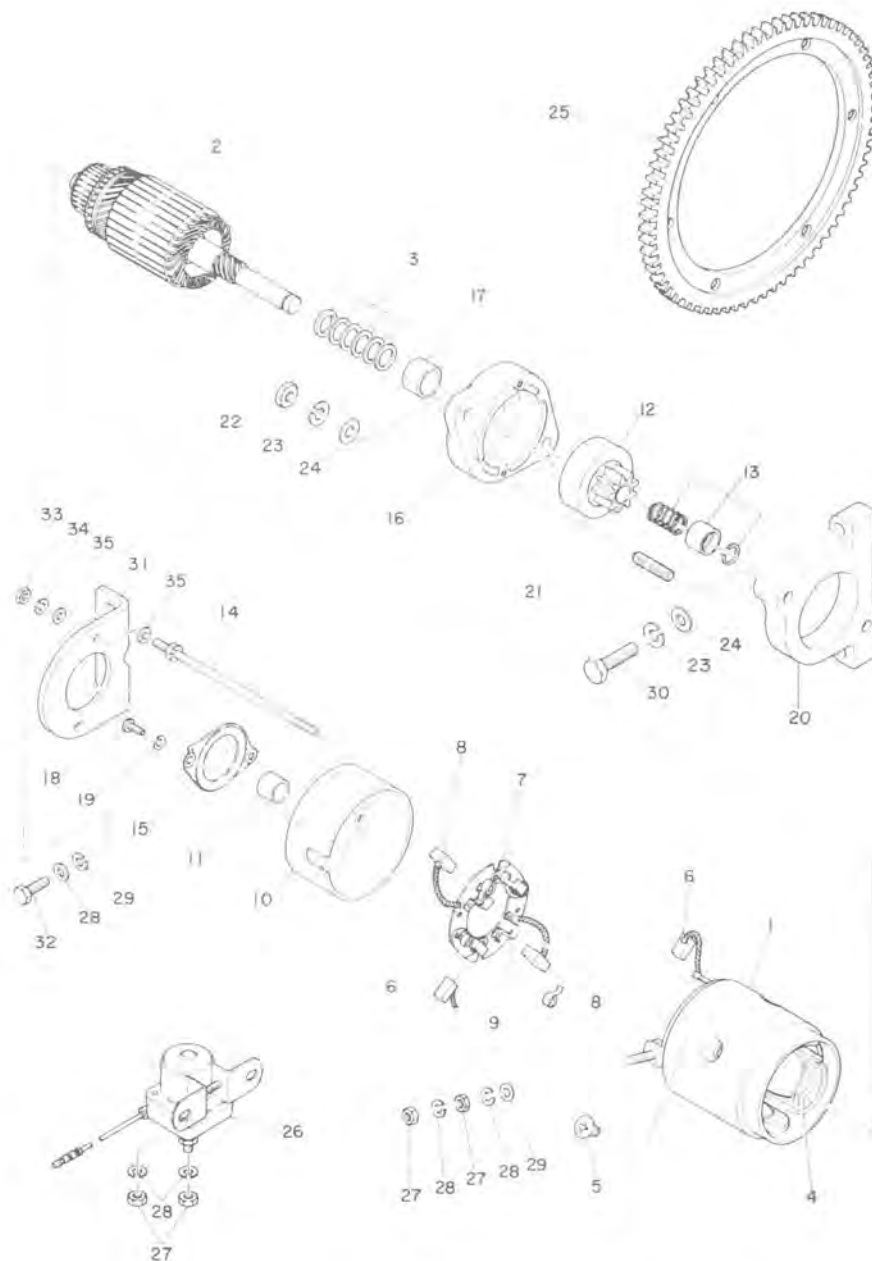
31 — Engine Bracket

32 — Starter Bracket

33 — Starter to Engine Bracket Bolt

34 — Bracket to Starter Attaching Nut

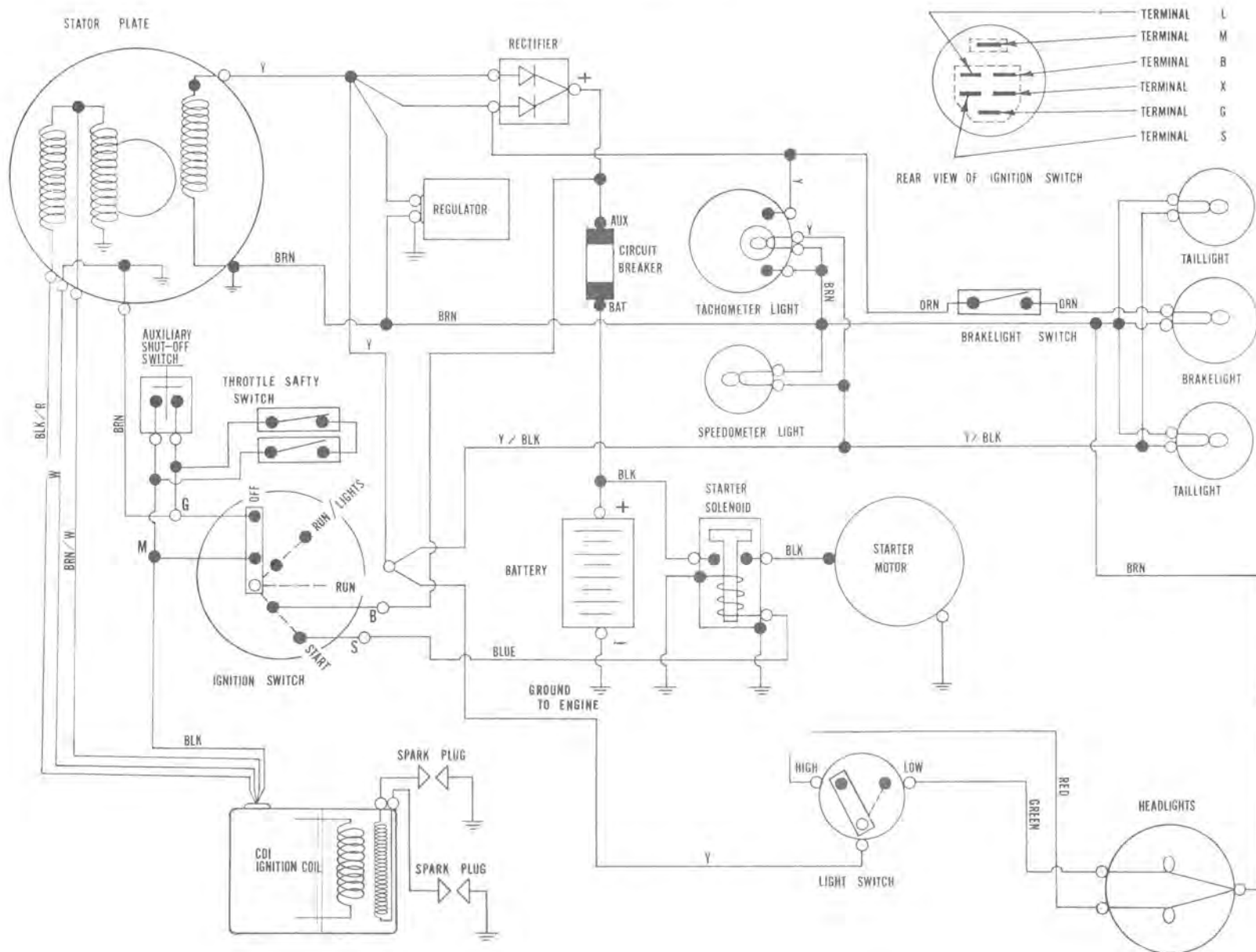
Cranking Motor Exploded View — Drive Clutch Ring Gear Version



- | | | |
|-------------------------|------------------------------|------------------------------|
| 1 — Field Coil Housing | 13 — Pinion Stopper Set | 25 — Ring Gear |
| 2 — Armature Assembly | 14 — Through Bolt | 26 — Solenoid |
| 3 — Washer Kit | 15 — Dust Cover | 27 — Nut |
| 4 — Field Coil | 16 — Front Cover | 28 — Spring Washer |
| 5 — Pole Core Set Screw | 17 — Front Cover Bushing | 29 — Washer |
| 6 — Brush (+) | 18 — Screw | 30 — Bolt |
| 7 — Brush Holder | 19 — Spring Washer | 31 — Engine Mounting Bracket |
| 8 — Brush (—) | 20 — Engine Mounting Bracket | 32 — Bolt |
| 9 — Brush Spring | 21 — Stud | 33 — Nut |
| 10 — Rear Cover | 22 — Nut | 34 — Spring Washer |
| 11 — Rear Cover Bushing | 23 — Spring Washer | 35 — Washer |
| 12 — Pinion Assembly | 24 — Washer | |

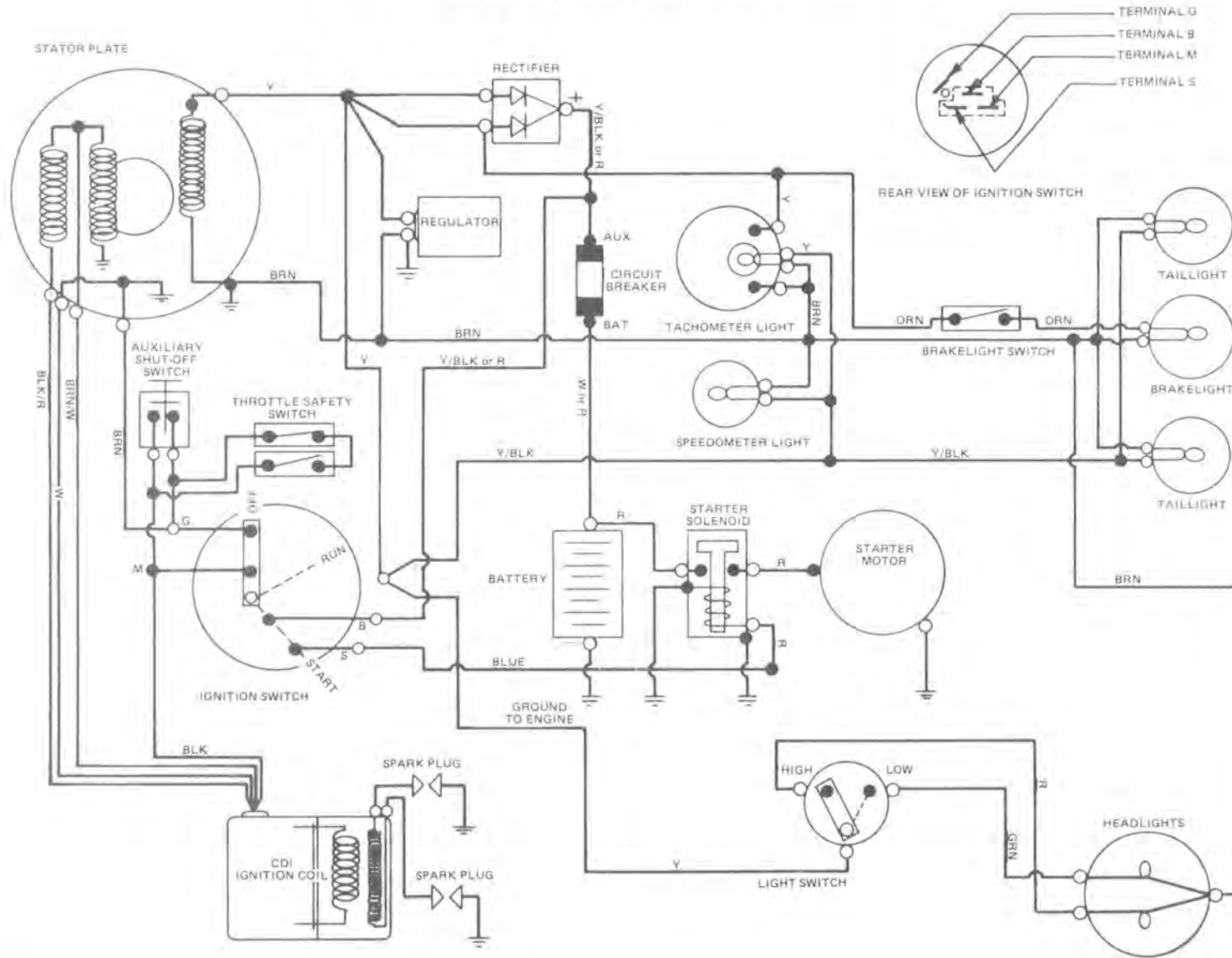
SCHEMATIC DIAGRAM

1981 CUTLASS SS ELECTRIC START EC 44-2PM 3300
(120 WATT ALTERNATOR)



SCHEMATIC DIAGRAM

SPORT, SPRINT, SS, TRAIL INDY ELECTRIC START EC442PM
(120 WATT ALTERNATOR)



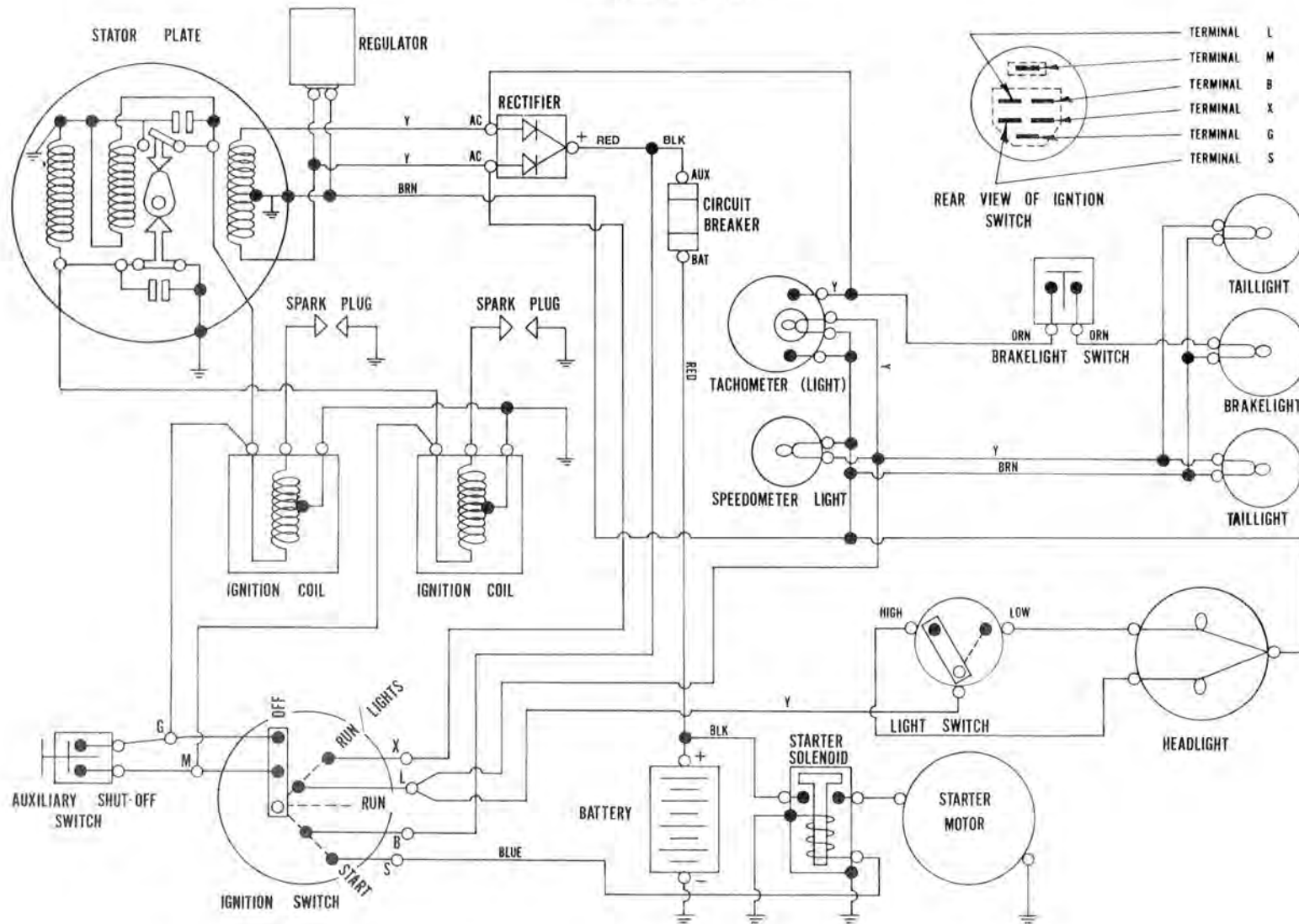
BODY ELECTRICAL

1983 to Current Electric Start Wiring Schematic — Sport, SS, Sprint
1984 to Current Electric Start Wiring Schematic — Trail Indy

SCHEMATIC DIAGRAM

1979 - 340 - 440 COBRA
(75 WATT ALTERNATOR)
(ELECTRIC START)

EC - 34PM - G4
EC - 44PM - 01

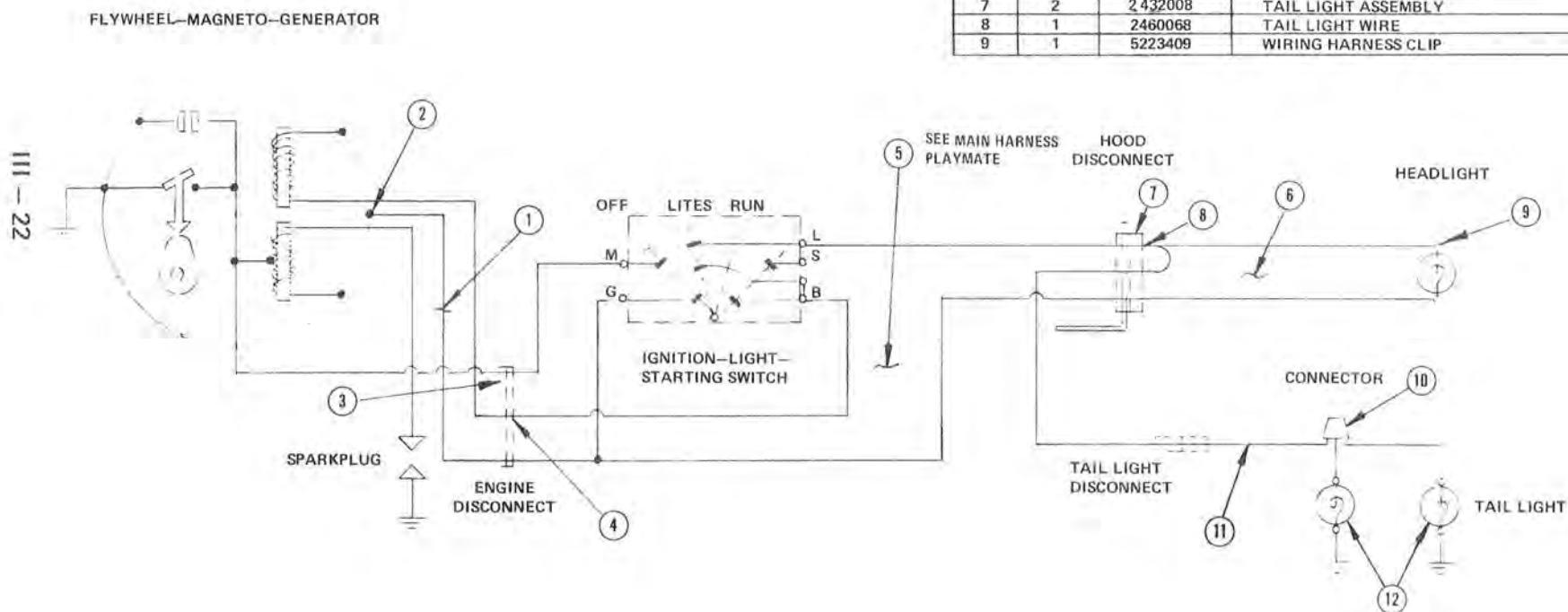


1979 Cobra 340 and 440 Electric Start Wiring Schematic

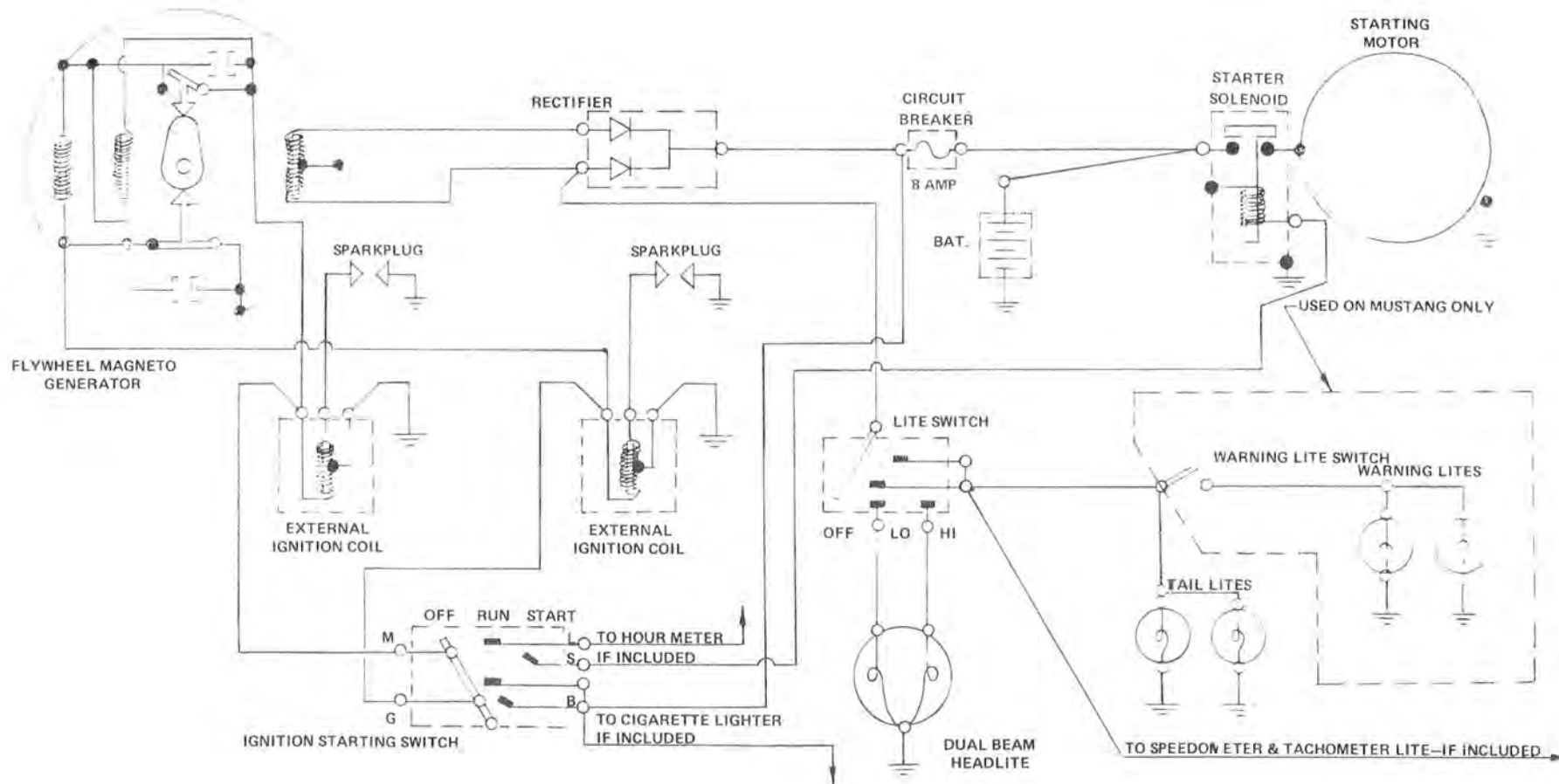
BODY ELECTRICAL

WIRING SCHEMATIC (PLAYMATE)

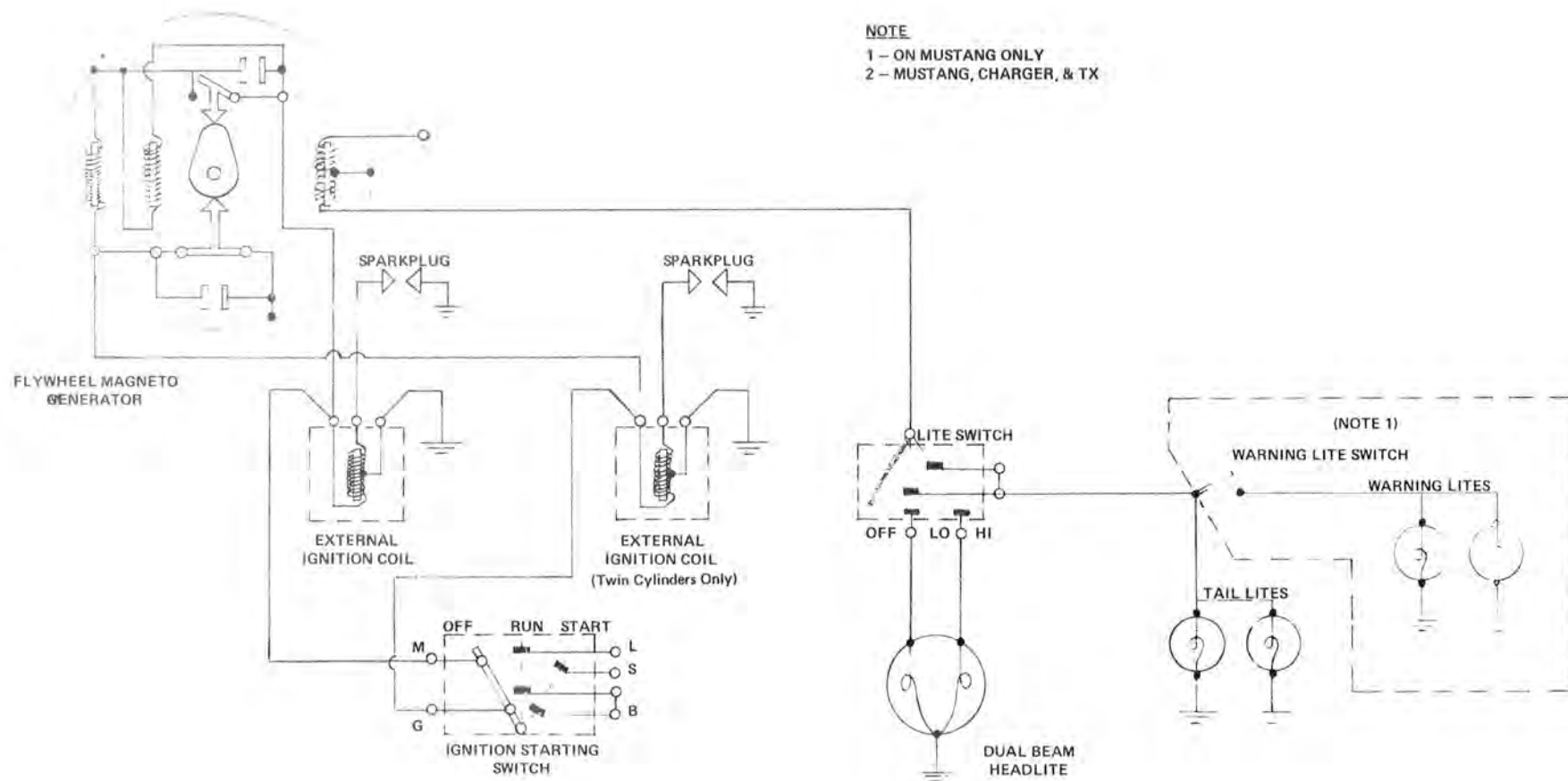
ITEM	REQ.	PART NO.	DESCRIPTION
1	1	2460071	ENGINE CONNECTOR ASSEMBLY
2	1	4110003	IGNITION-LITE SWITCH
3	1	2460070	MAIN HARNESS
4	1	2460069	HEADLIGHT HARNESS
5	1	4030008	HEADLIGHT
6	1	4020023	CONNECTOR
7	2	2432008	TAIL LIGHT ASSEMBLY
8	1	2460068	TAIL LIGHT WIRE
9	1	5223409	WIRING HARNESS CLIP



WIRING SCHEMATIC (MUSTANG – CHARGER – ELECTRIC START)



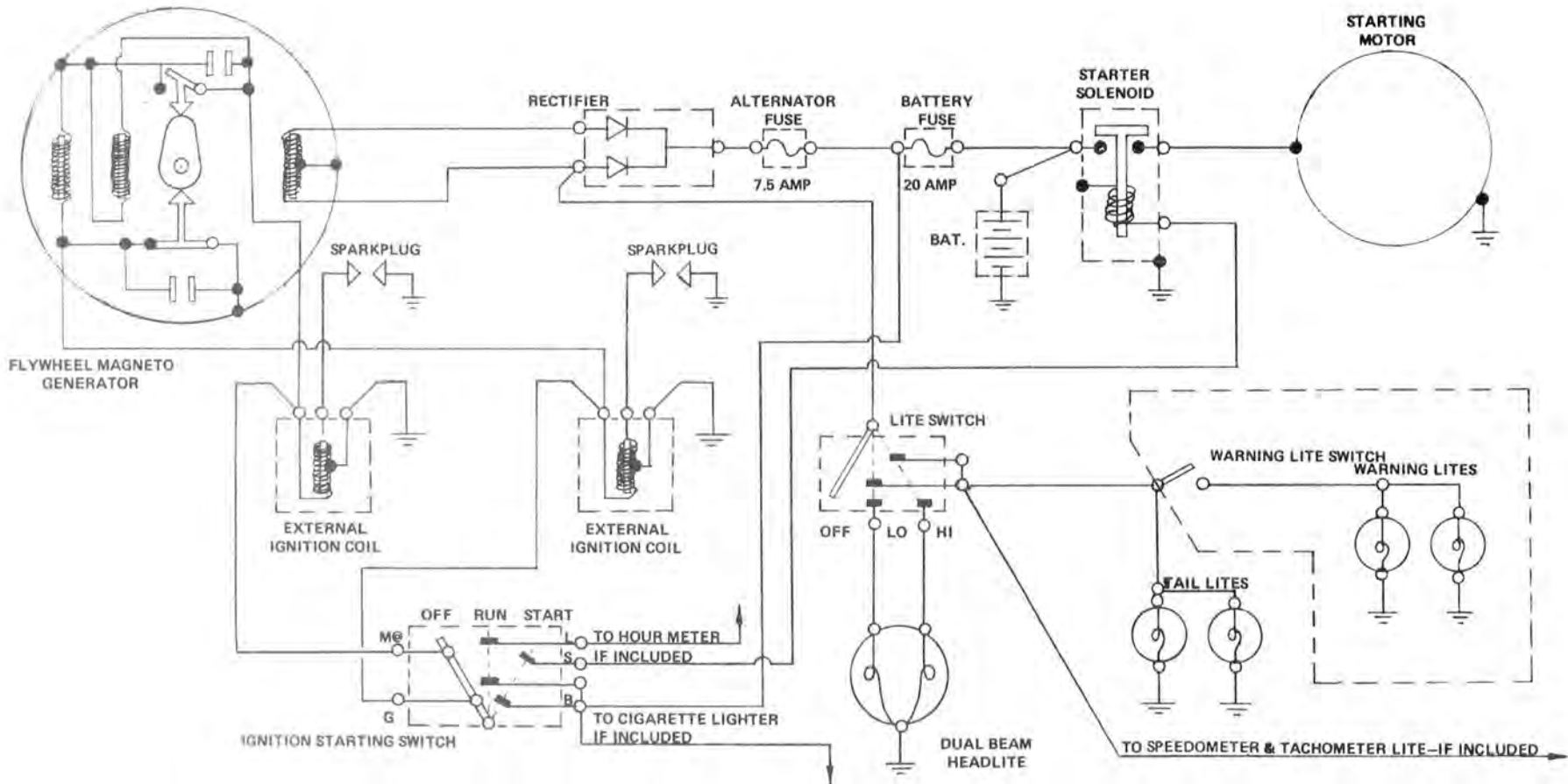
WIRING SCHEMATIC (MUSTANG - CHARGER - TX - MANUAL START)



NOTE
1 — ON MUSTANG ONLY
2 — MUSTANG, CHARGER, & TX

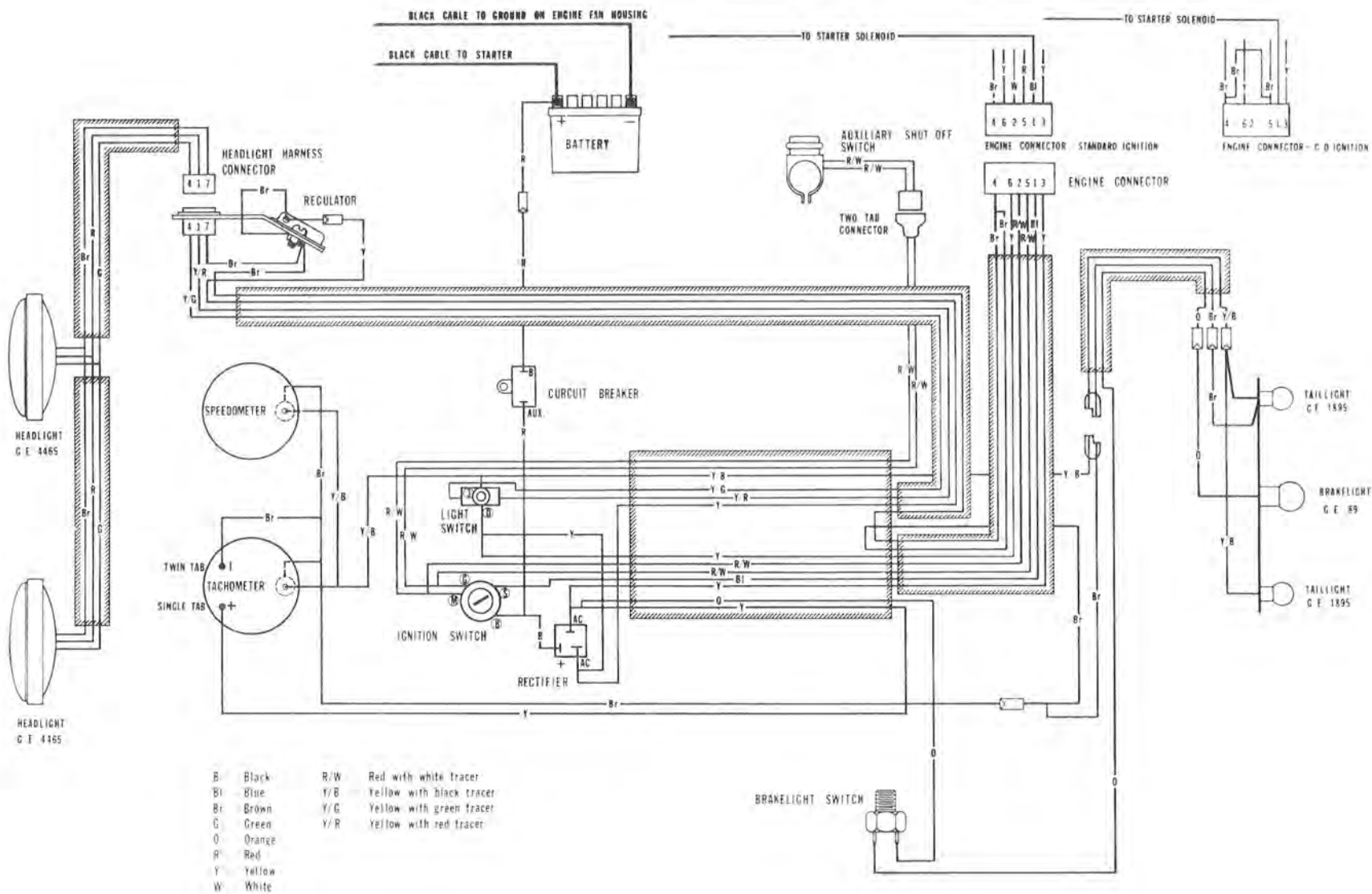
WIRING SCHEMATIC (VOYAGER)

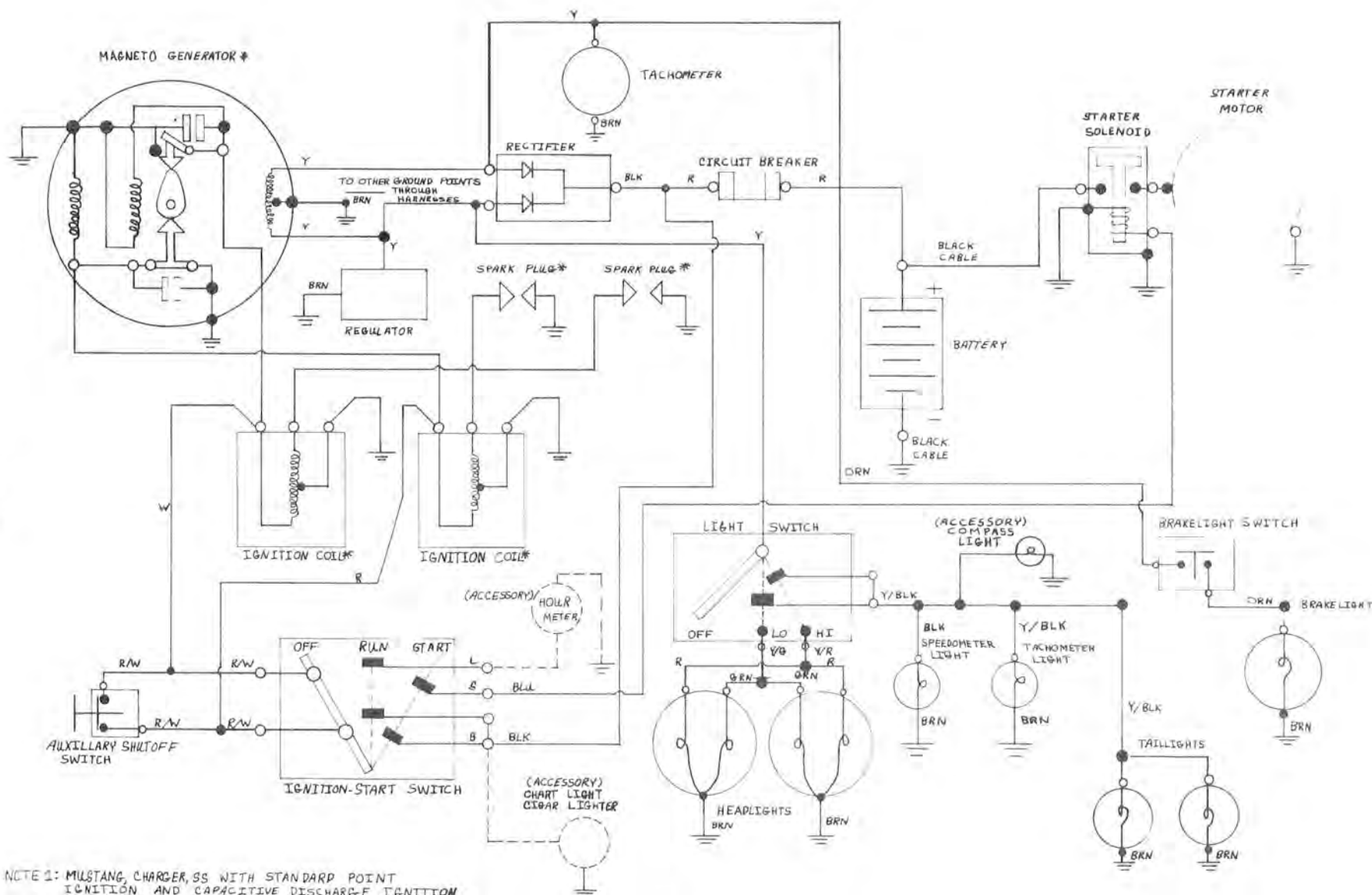
111 - 25



BODY ELECTRICAL 1972 Wiring Diagram — Mustang, Charger

WIRING DIAGRAM



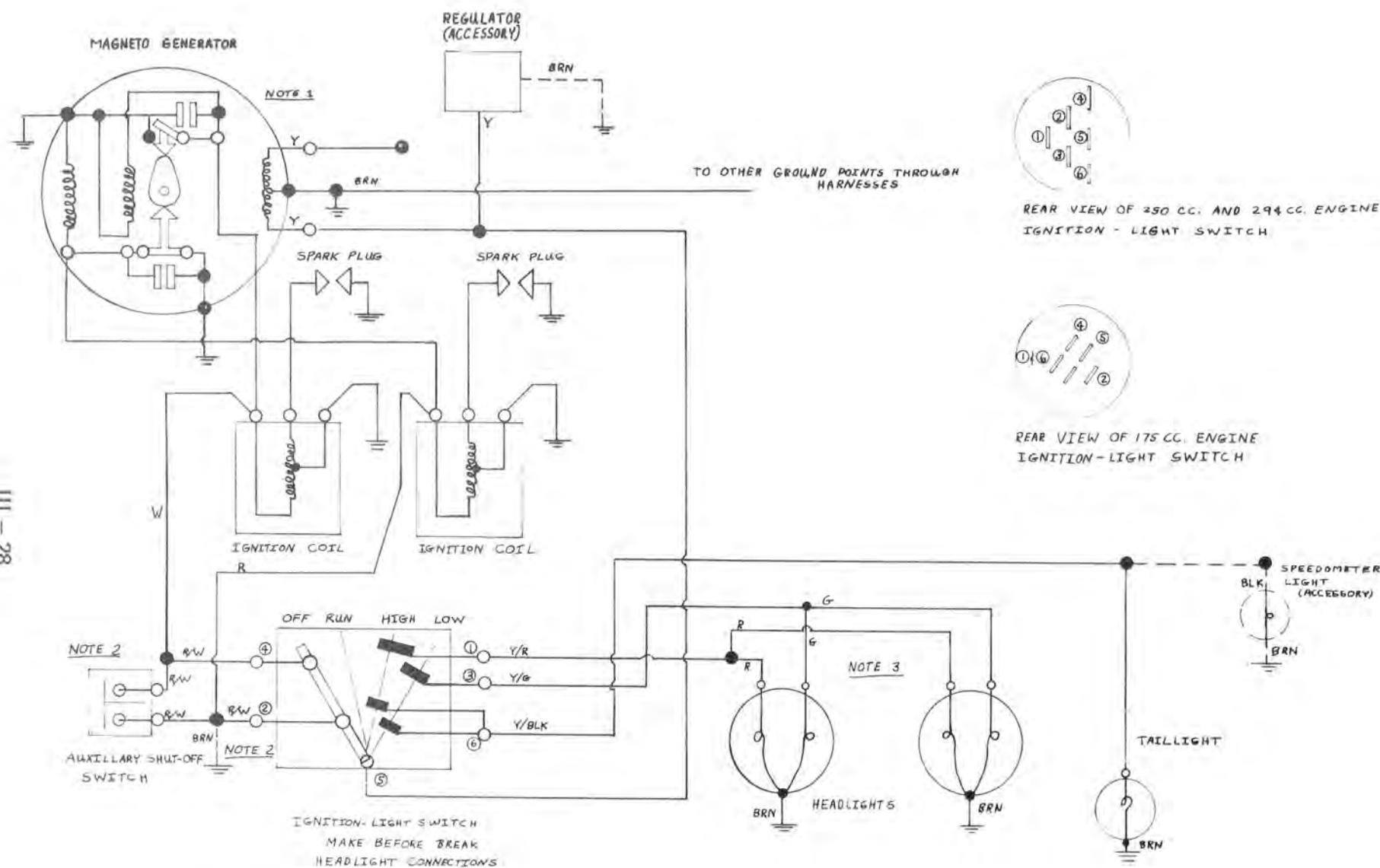


MUSTANG, CHARGER WIRING SCHEMATIC

NOTE 1: MUSTANG, CHARGER, SS WITH STANDARD POINT IGNITION AND CAPACITIVE DISCHARGE IGNITION AS PER NOTE 2. TX 335 AS PER NOTE 2.

NOTE 2: DIAGRAM DOES NOT SHOW CAPACITOR DISCHARGE IGNITION PARTS AND WIRING. STANDARD IGNITION PARTS SHOWN WITH (*).

BODY ELECTRICAL 1972 Wiring Schematic — Colt

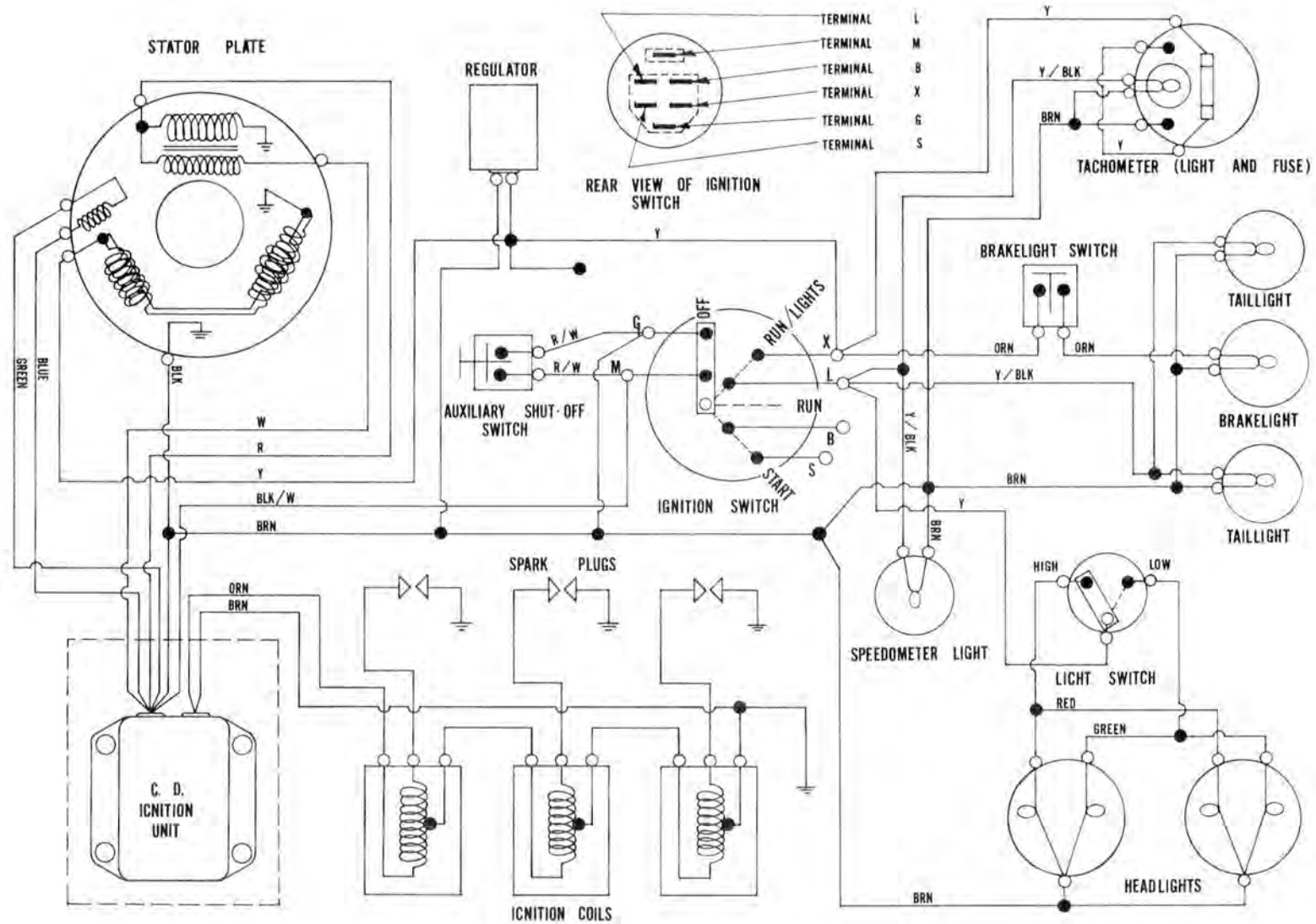


COLT WIRING SCHEMATIC

- NOTE 1 175 CC. ENGINE HAS A SINGLE RED ALTERNATOR LEAD AND A BROWN EXTERNAL GROUND LEAD.
- NOTE 2 175 CC. ENGINE AND 250 CC. ENGINE HAVE A SINGLE INTERNAL IGNITION COIL AND A WIRE GROUNDED THROUGH IGNITION SWITCH OR SHUT-OFF SWITCH SHUT OFF ENGINE.
- NOTE 3 S. COLT HAS SINGLE HEADLIGHT.

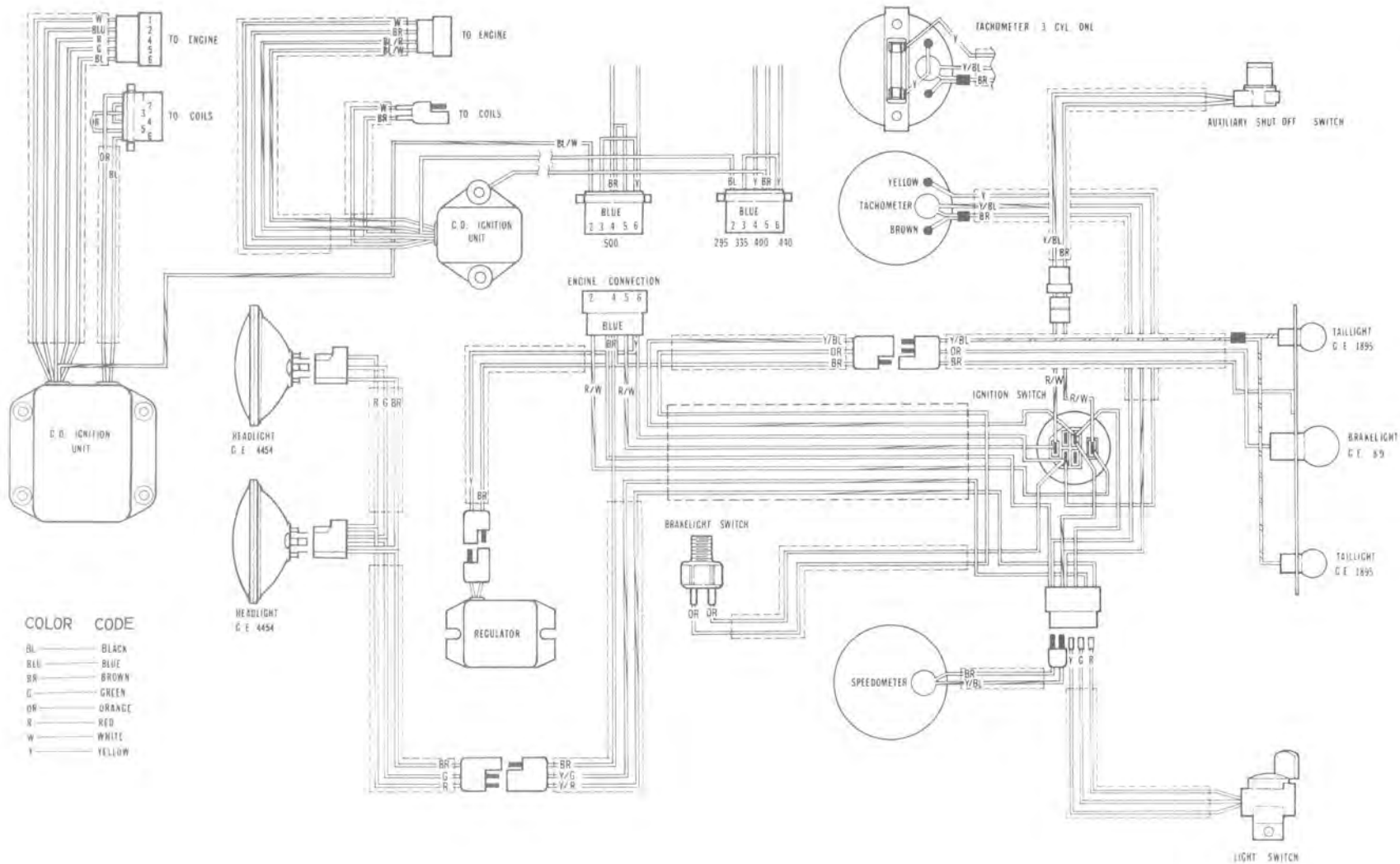
SCHEMATIC DIAGRAM

1973 CONSUMER TX
(140 WATT ALTERNATOR, 3 CYL.)



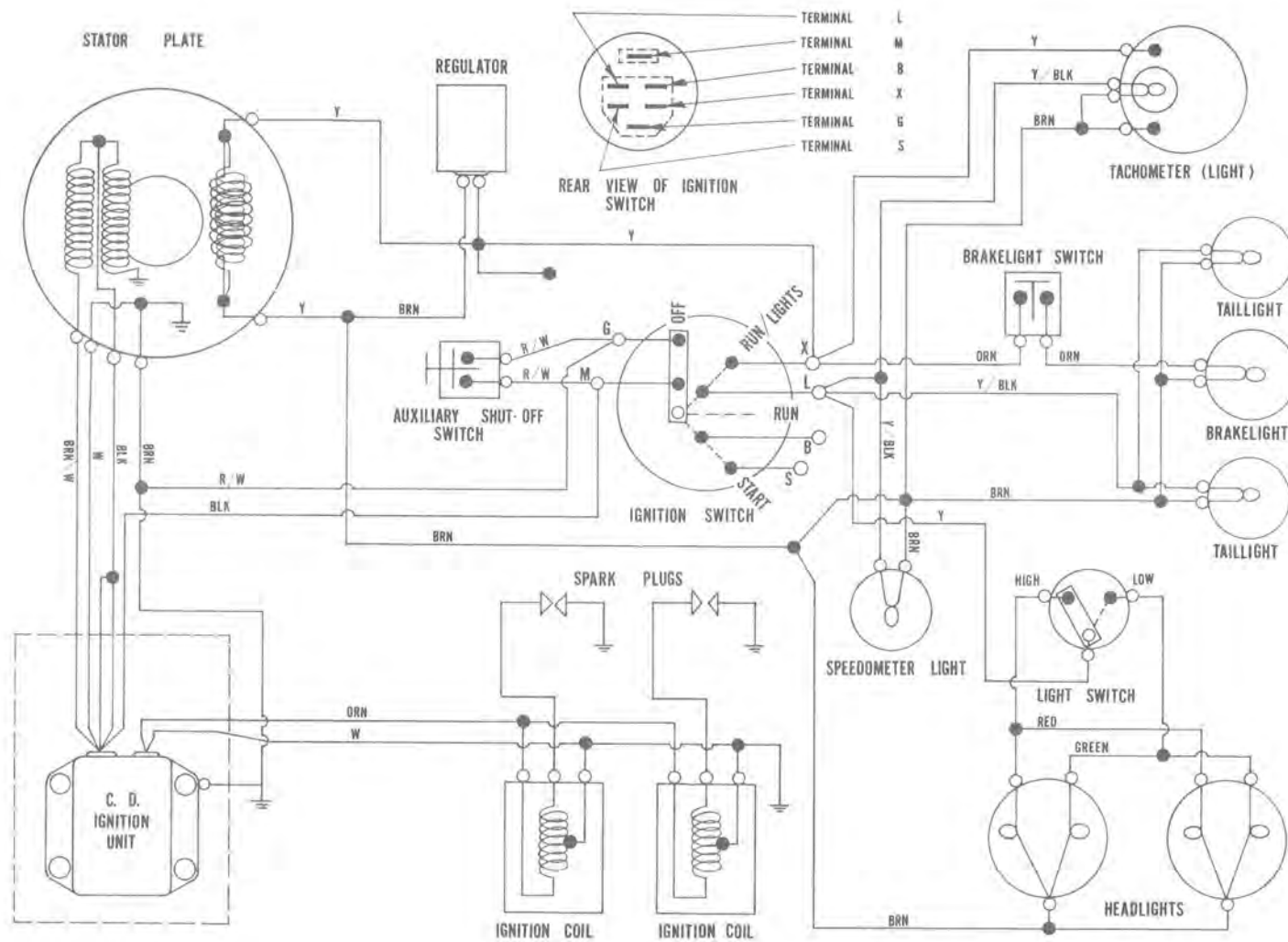
BODY ELECTRICAL
1973 Wiring Diagram — Consumer TX

WIRING DIAGRAM
CONSUMER TX



SCHEMATIC DIAGRAM

1973 CONSUMER TX
(140 WATT ALTERNATOR, 2 CYL.)

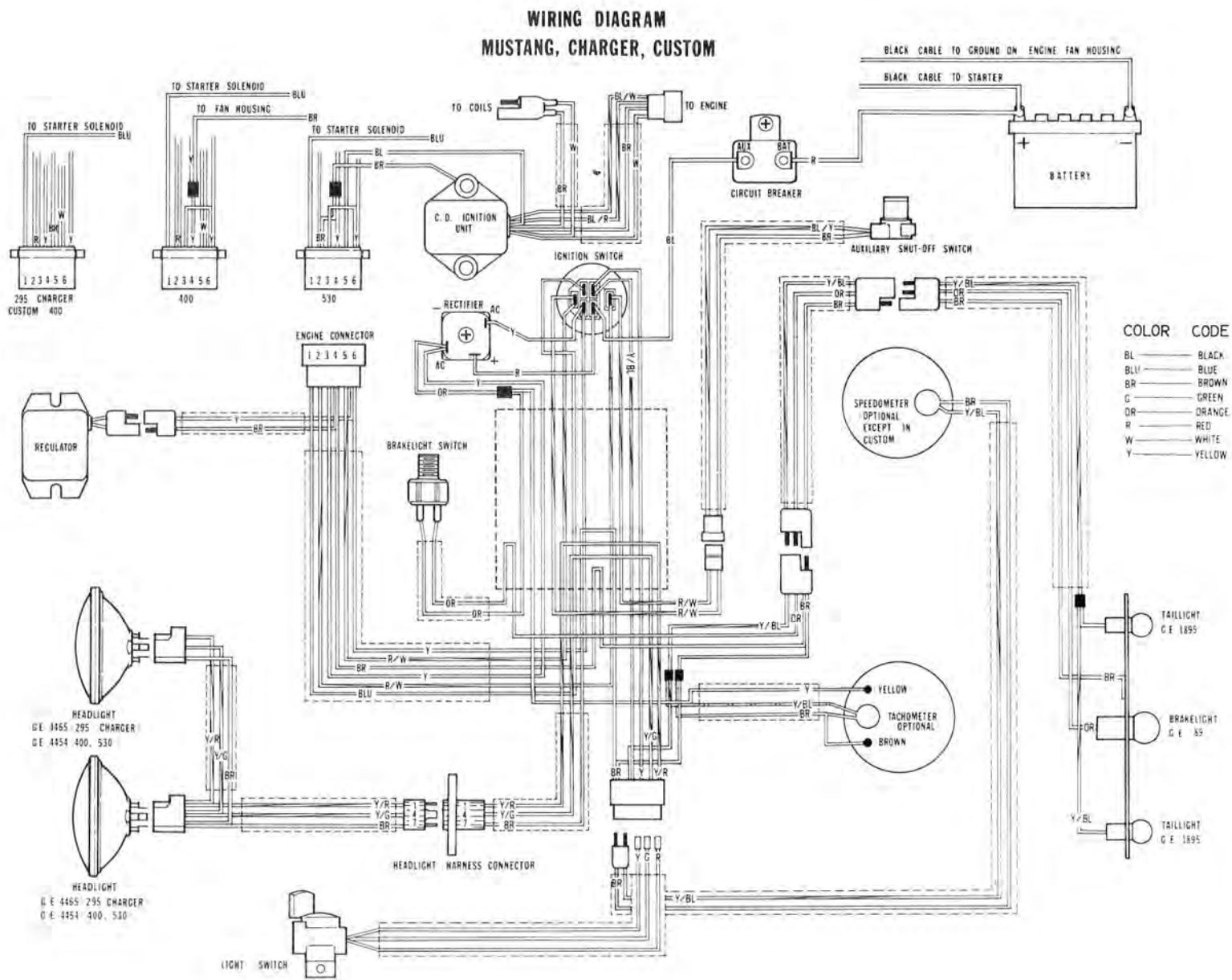


1973 Schematic Diagram — Consumer TX

BODY ELECTRICAL

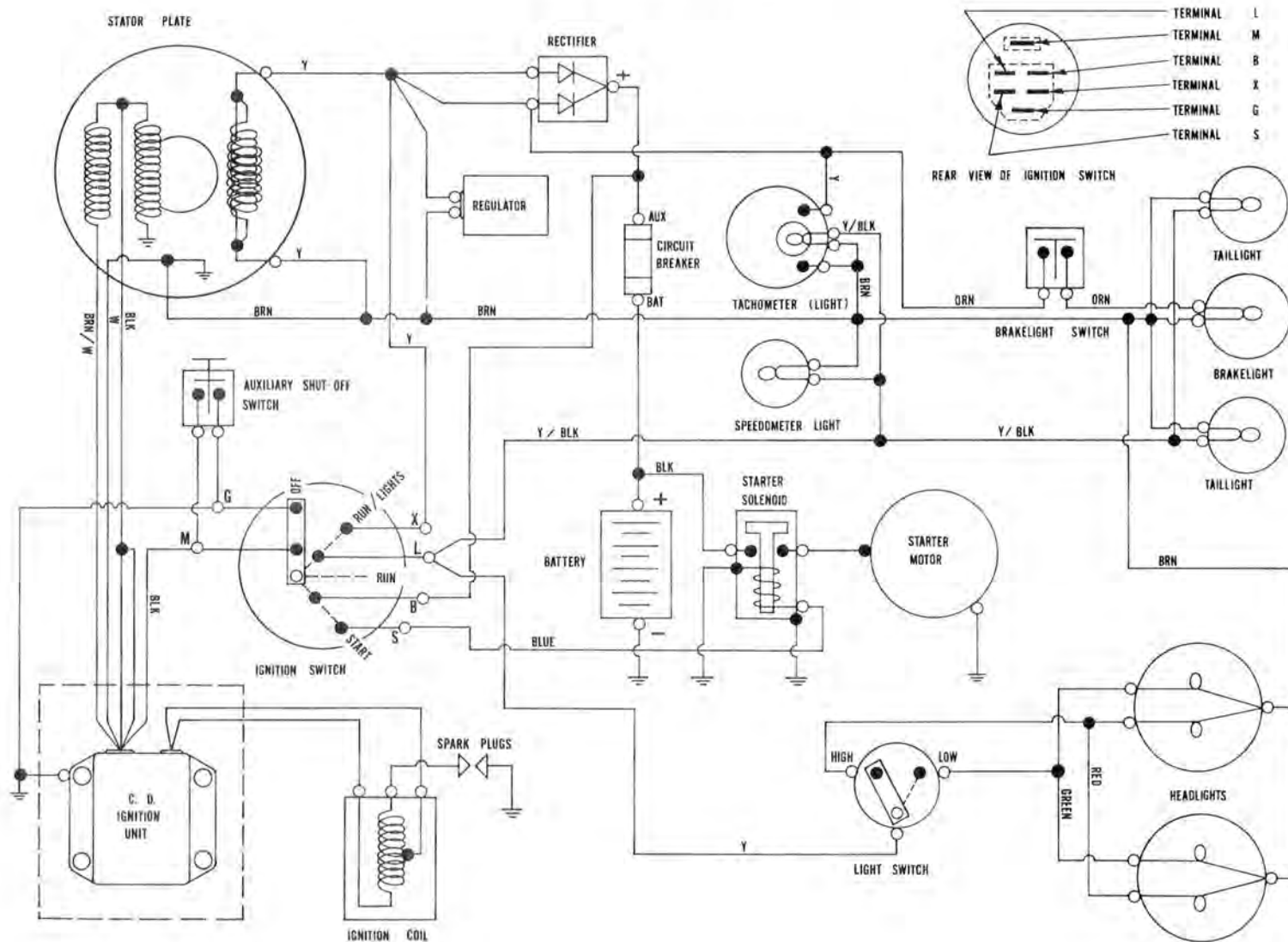
BODY ELECTRICAL

1973 Wiring Diagram — Mustang, Charger, Custom



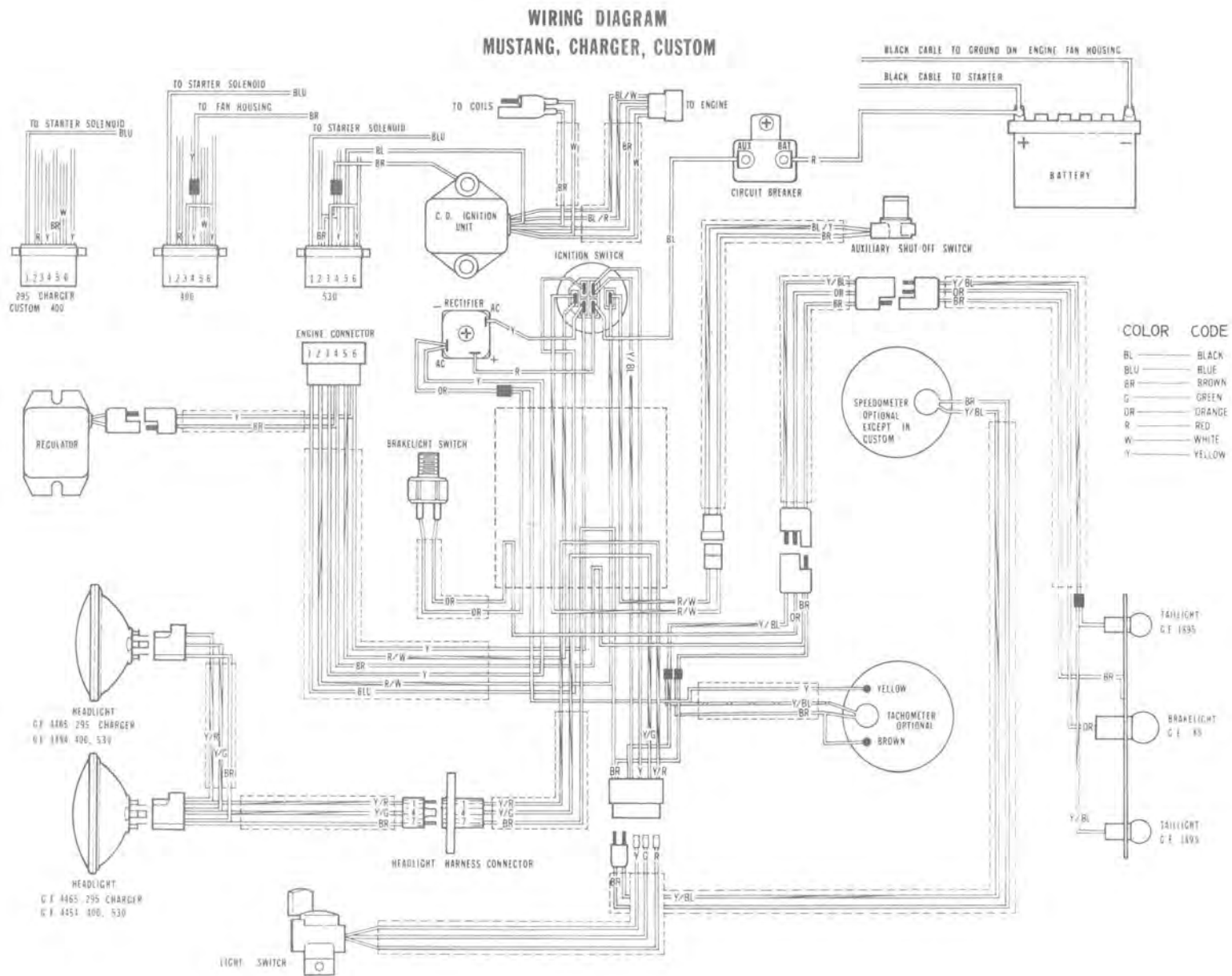
SCHEMATIC DIAGRAM

1973 - 530 CHARGER, 530 MUSTANG
(140 WATT ALTERNATER)



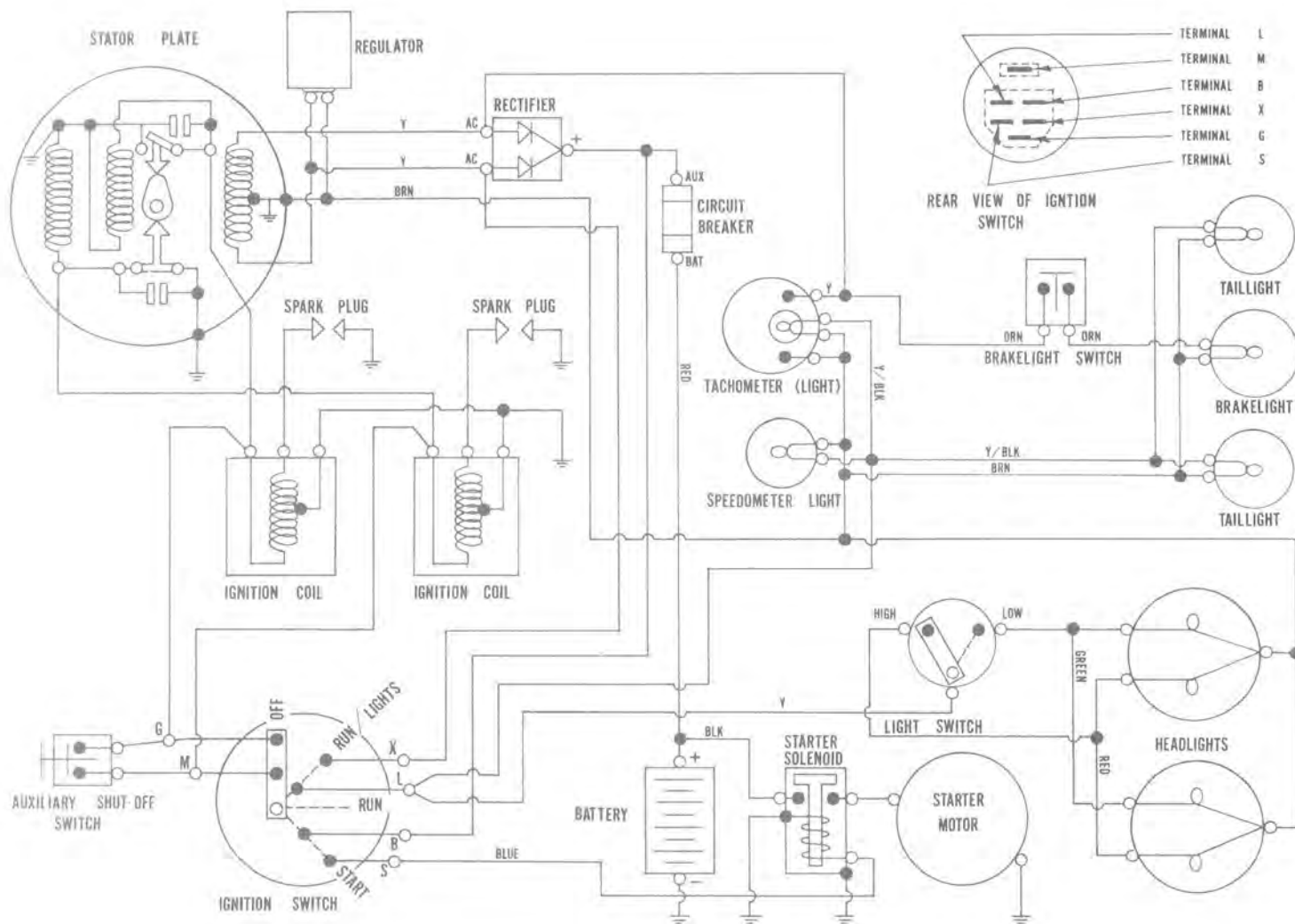
BODY ELECTRICAL
1973 Schematic Diagram - Charger, Mustang

BODY ELECTRICAL
1973 Wiring Diagram — Mustang, Charger, Custom



SCHEMATIC DIAGRAM

1973 - 295 CHARGER, 398 CUSTOM
(75 WATT ALTERNATER)

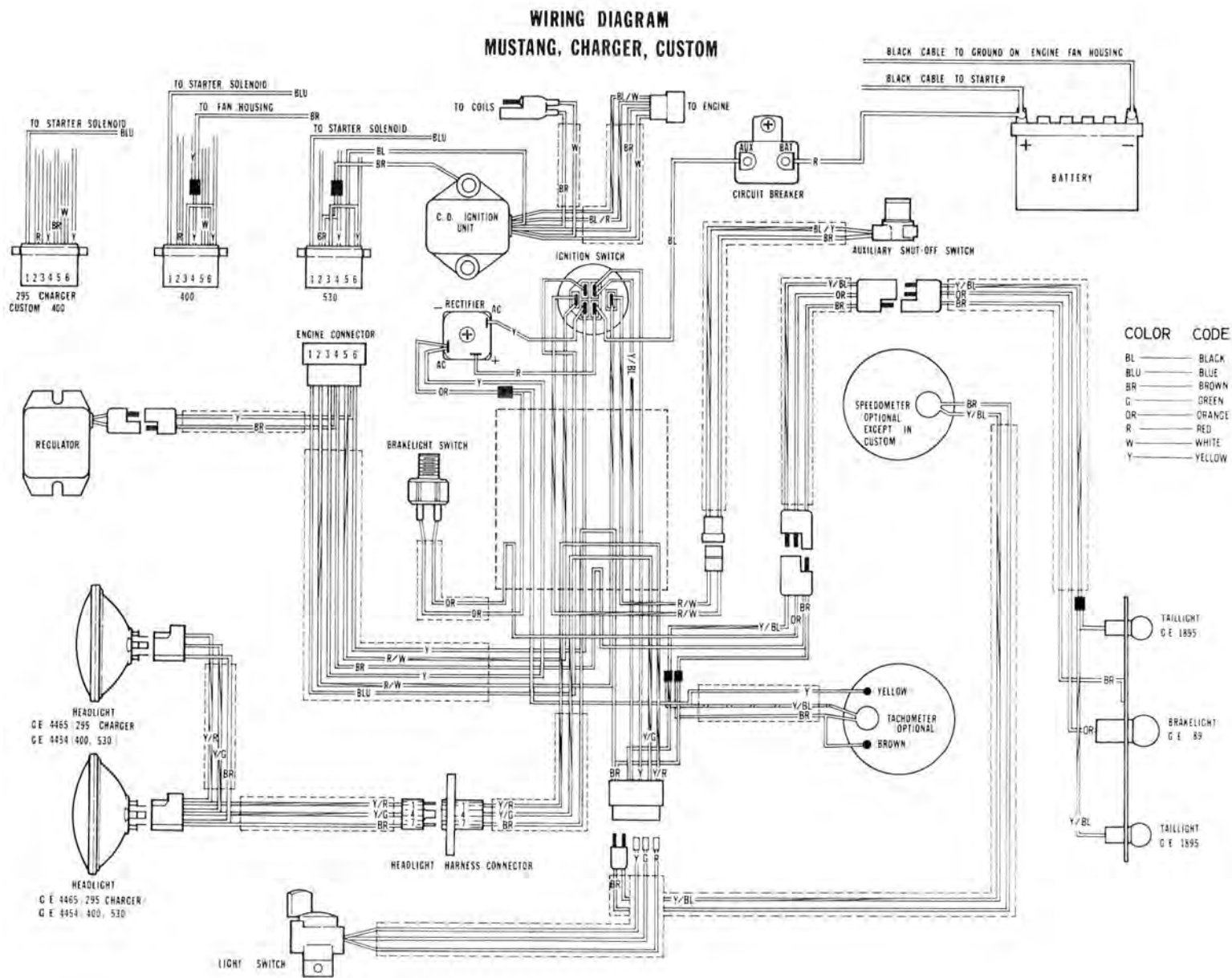


1973 Schematic Diagram — Charger, Custom

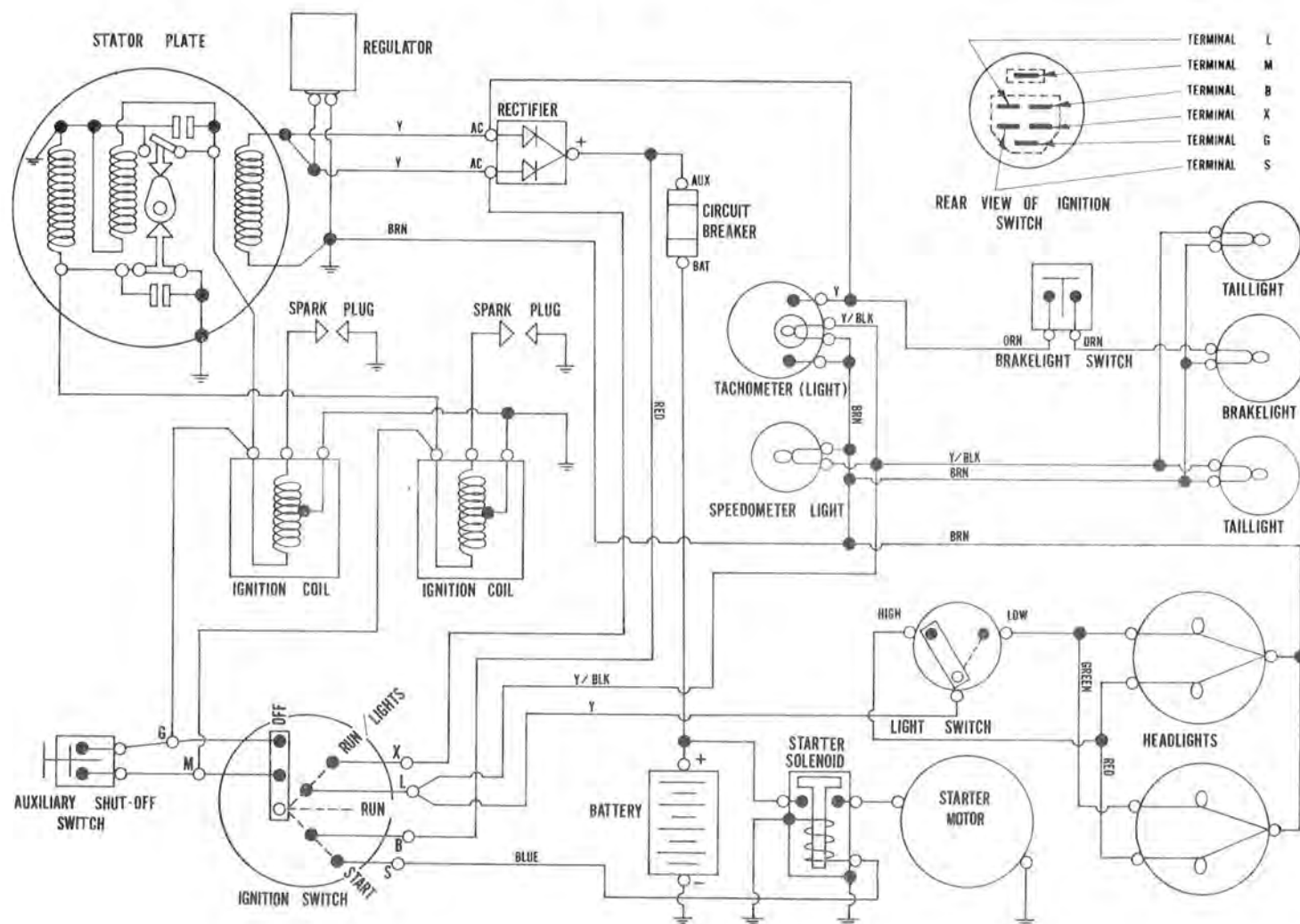
BODY ELECTRICAL

BODY ELECTRICAL

1973 Wiring Diagram — Mustang, Charger, Custom



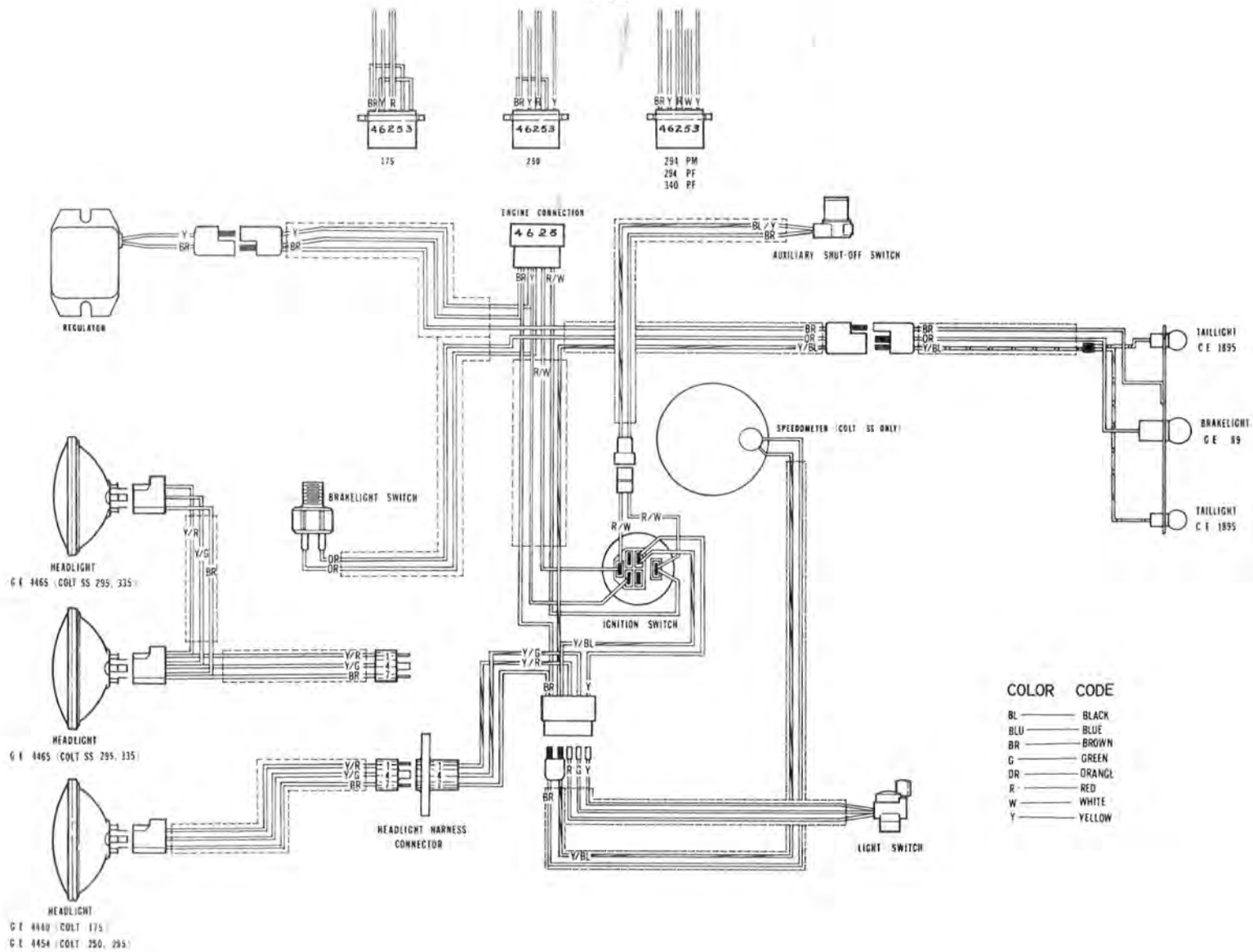
SCHEMATIC DIAGRAM 1973 - 398 CHARGER, 398 MUSTANG (140 WATT ALTERNATOR)



BODY ELECTRICAL

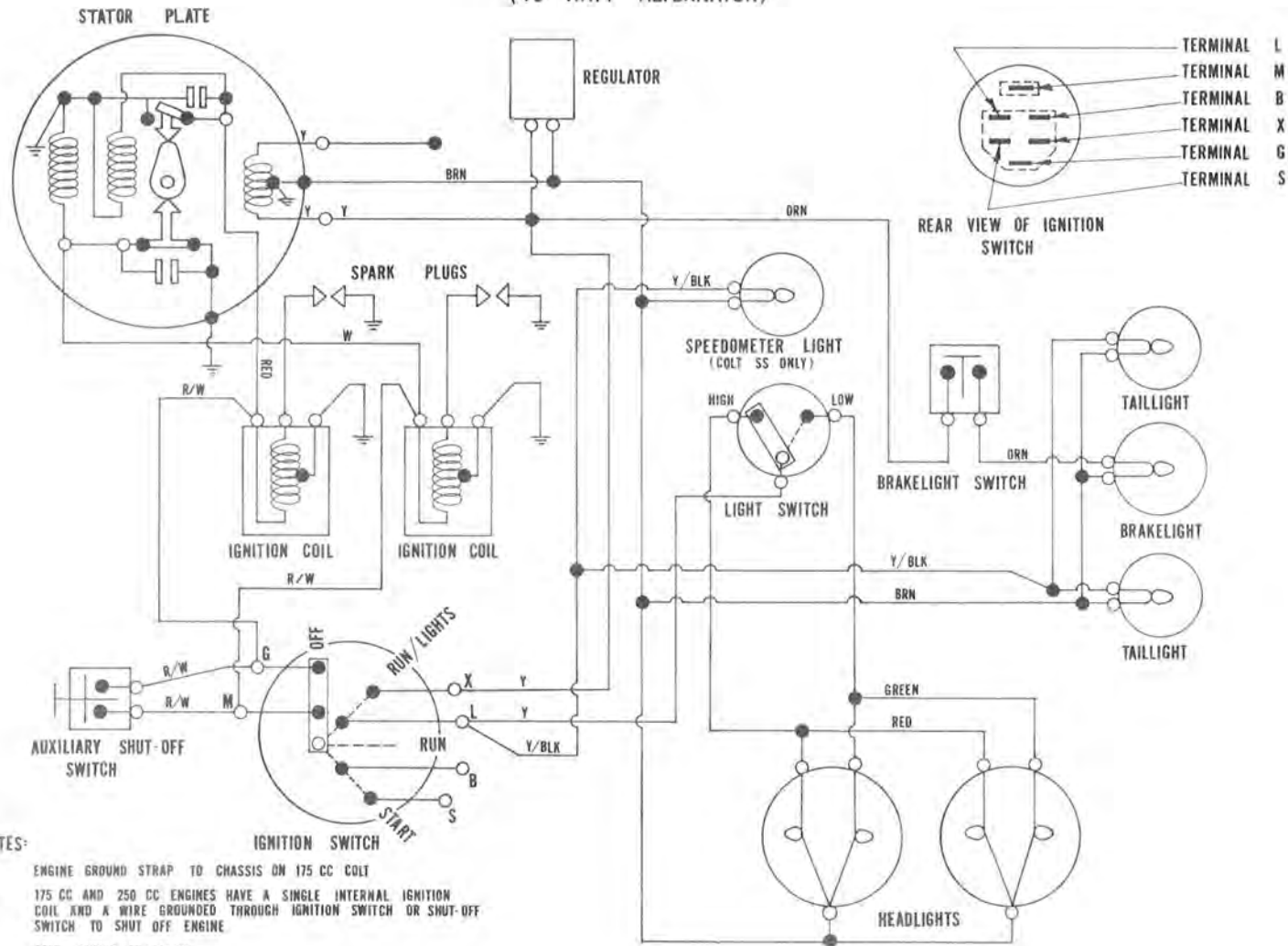
1973 Wiring Diagram – Colt

WIRING DIAGRAM COLT



SCHEMATIC DIAGRAM

1973 COLT
(75 WATT ALTERNATOR)



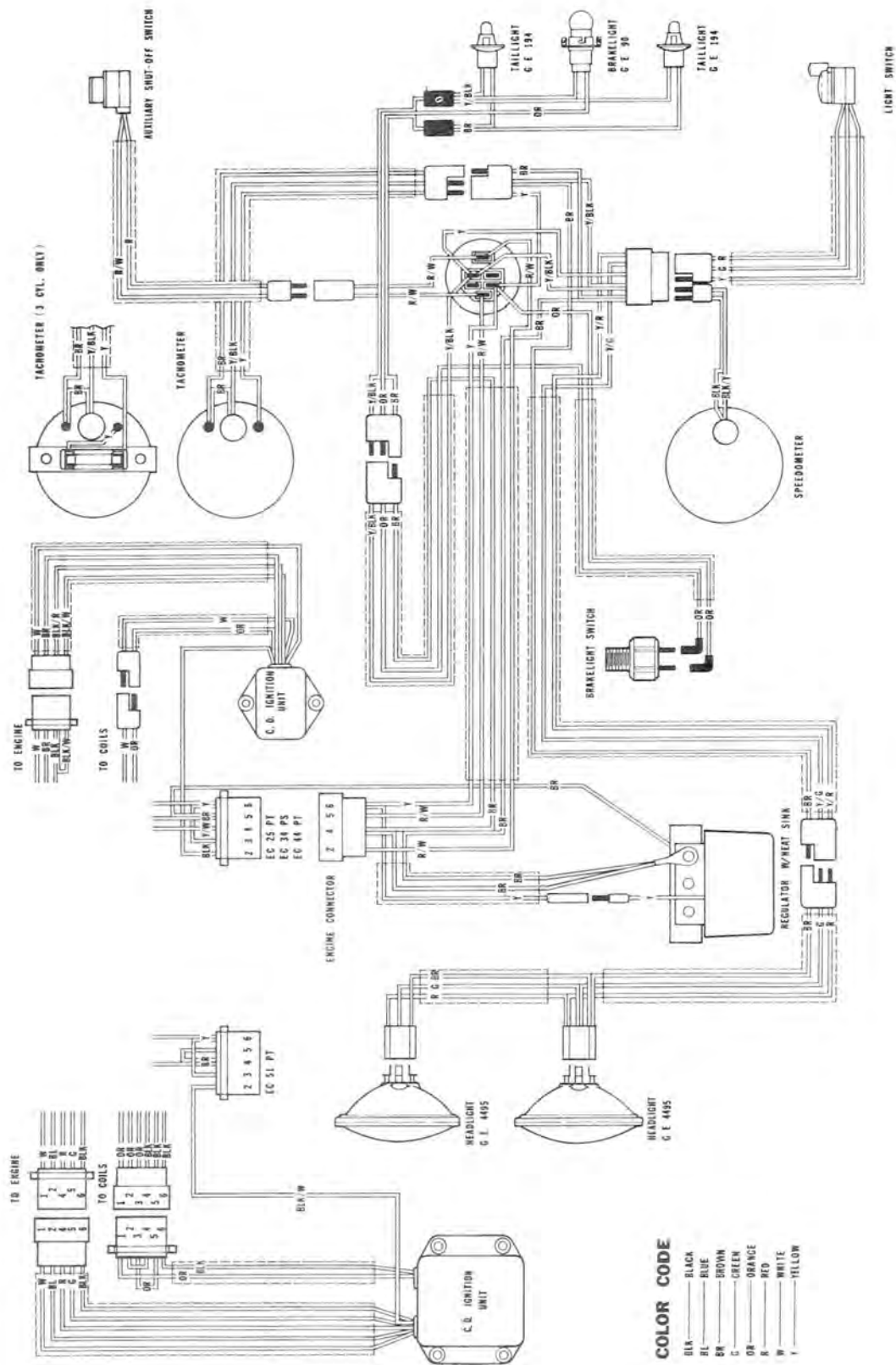
NOTES:

1. ENGINE GROUND STRAP TO CHASSIS ON 175 CC COLT
2. 175 CC AND 250 CC ENGINES HAVE A SINGLE INTERNAL IGNITION COIL AND A WIRE GROUNDED THROUGH IGNITION SWITCH OR SHUT-OFF SWITCH TO SHUT OFF ENGINE
3. COLT—SINGLE HEADLIGHT
COLT SS—TWIN HEADLIGHTS

BODY ELECTRICAL

1974 Wiring Diagram — Consumer TX

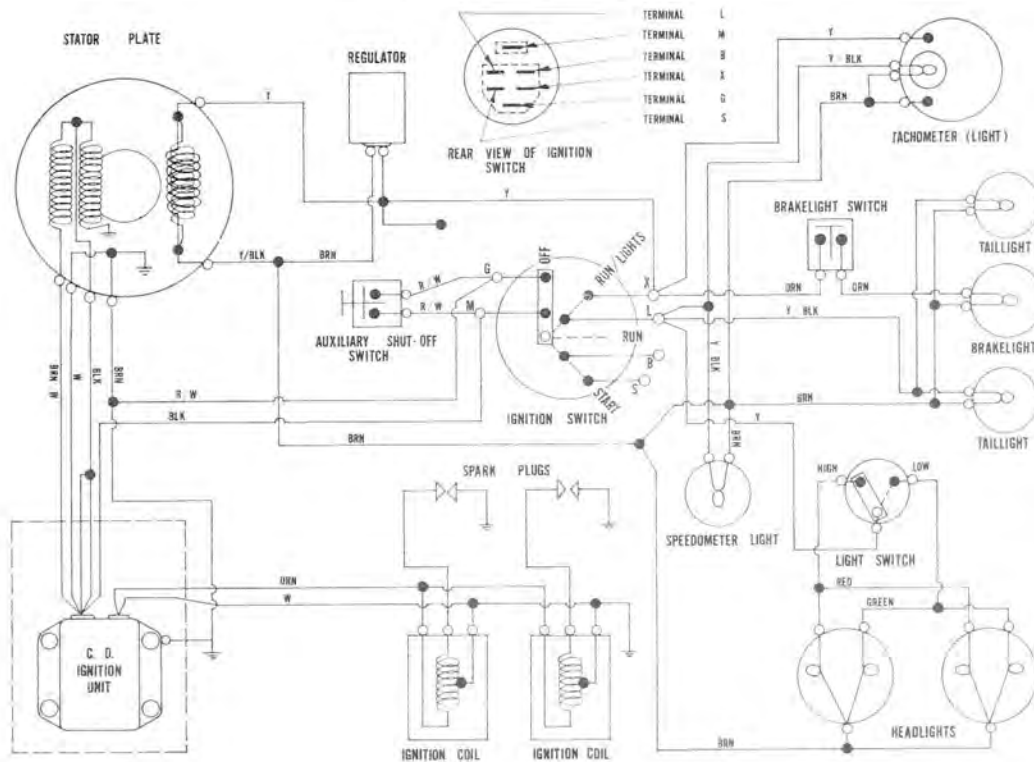
WIRING DIAGRAM CONSUMER TX



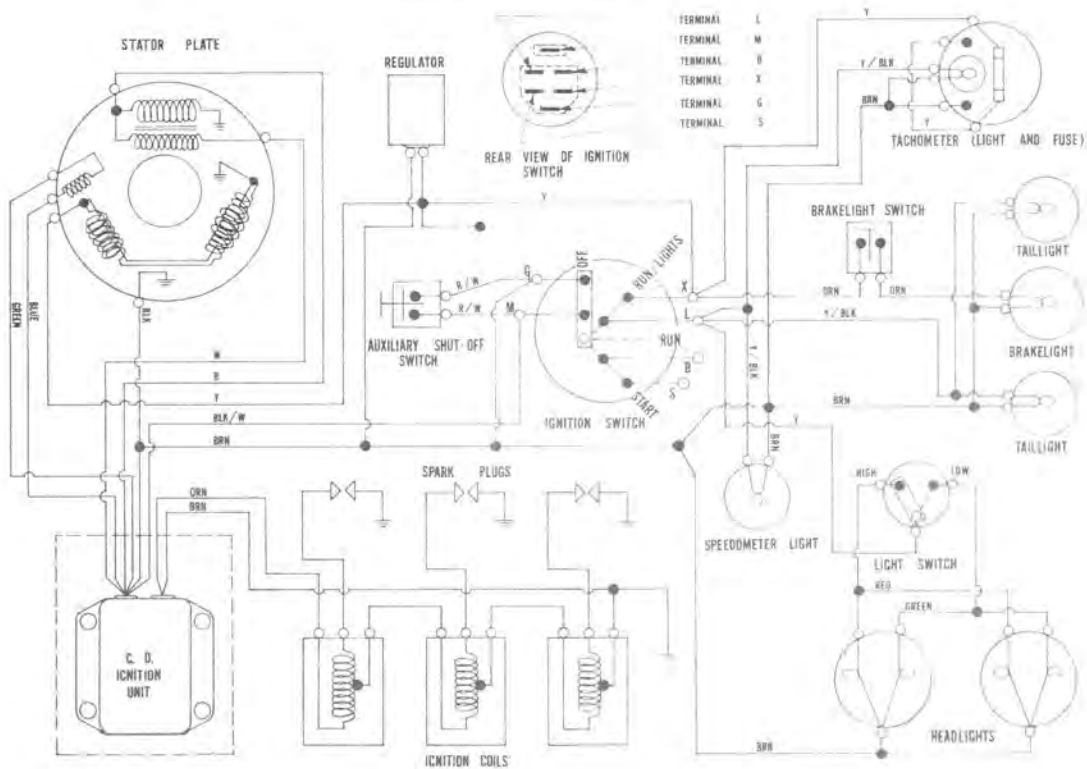
BODY ELECTRICAL
1974 Wiring Schematic — Consumer TX

WIRING SCHEMATIC

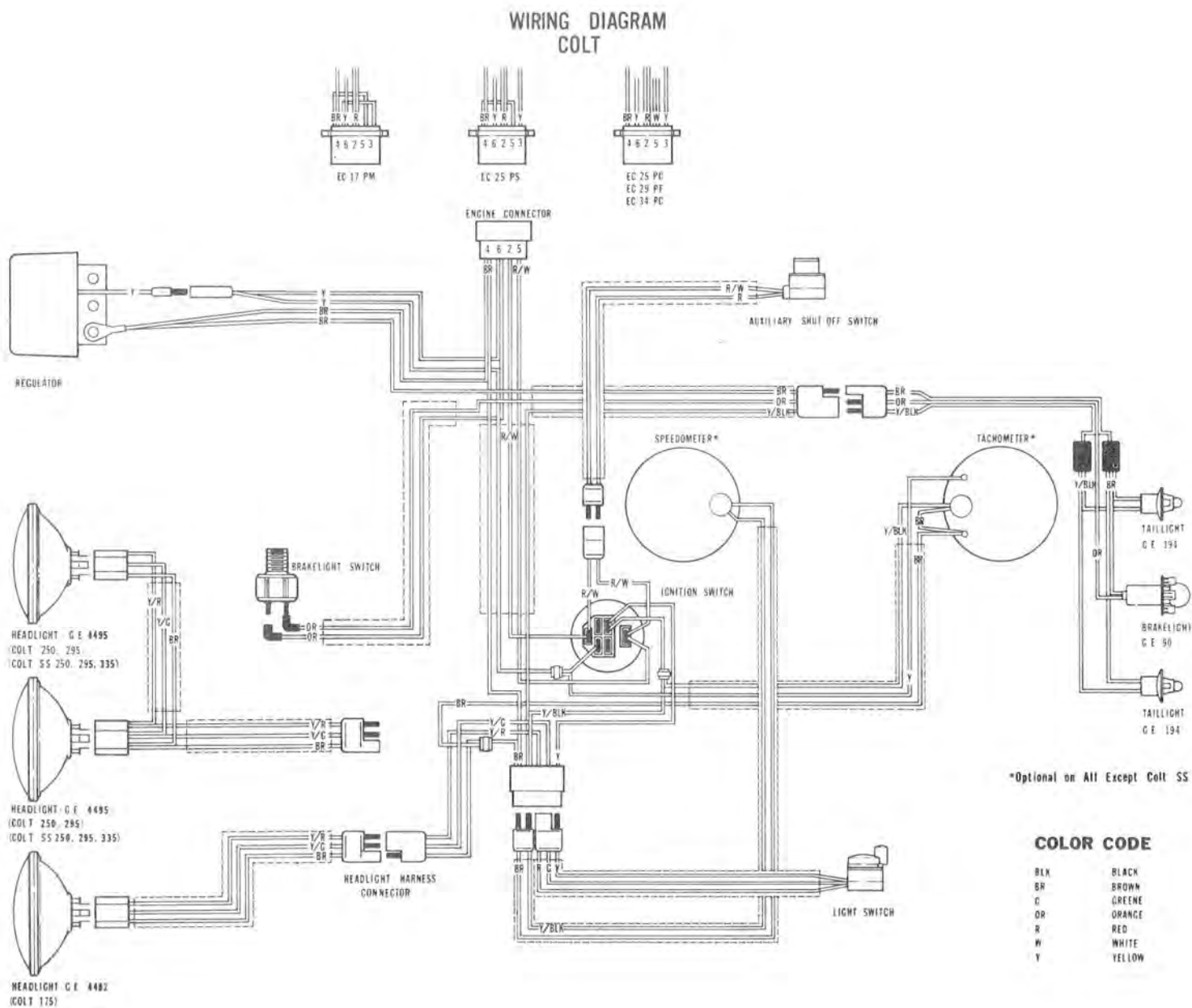
1974 CONSUMER TX
 (140 WATT ALTERNATOR, 2 CYL.)



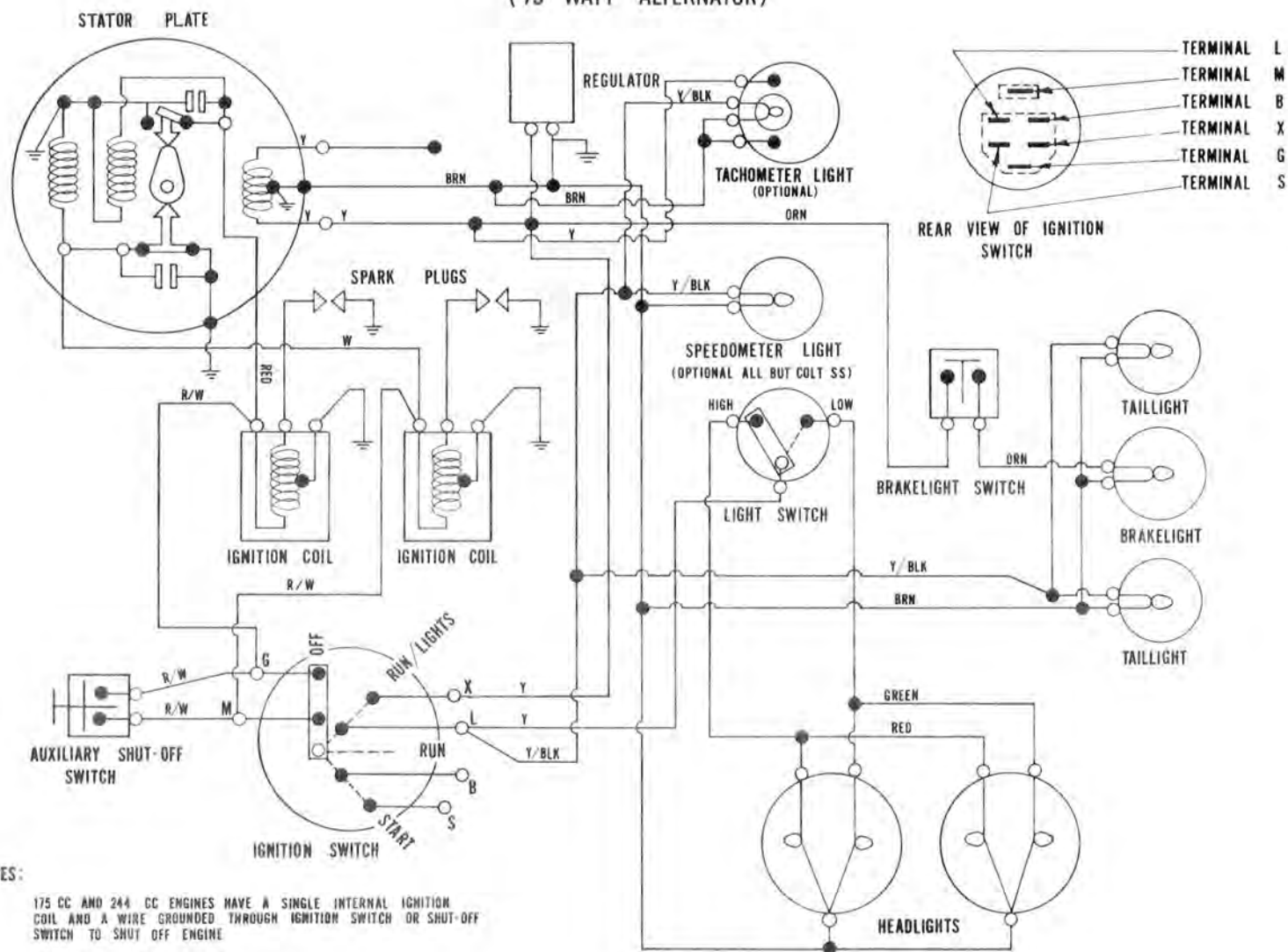
1974 CONSUMER TX
 (140 WATT ALTERNATOR, 3 CYL.)



BODY ELECTRICAL 1974 Wiring Diagram — Colt



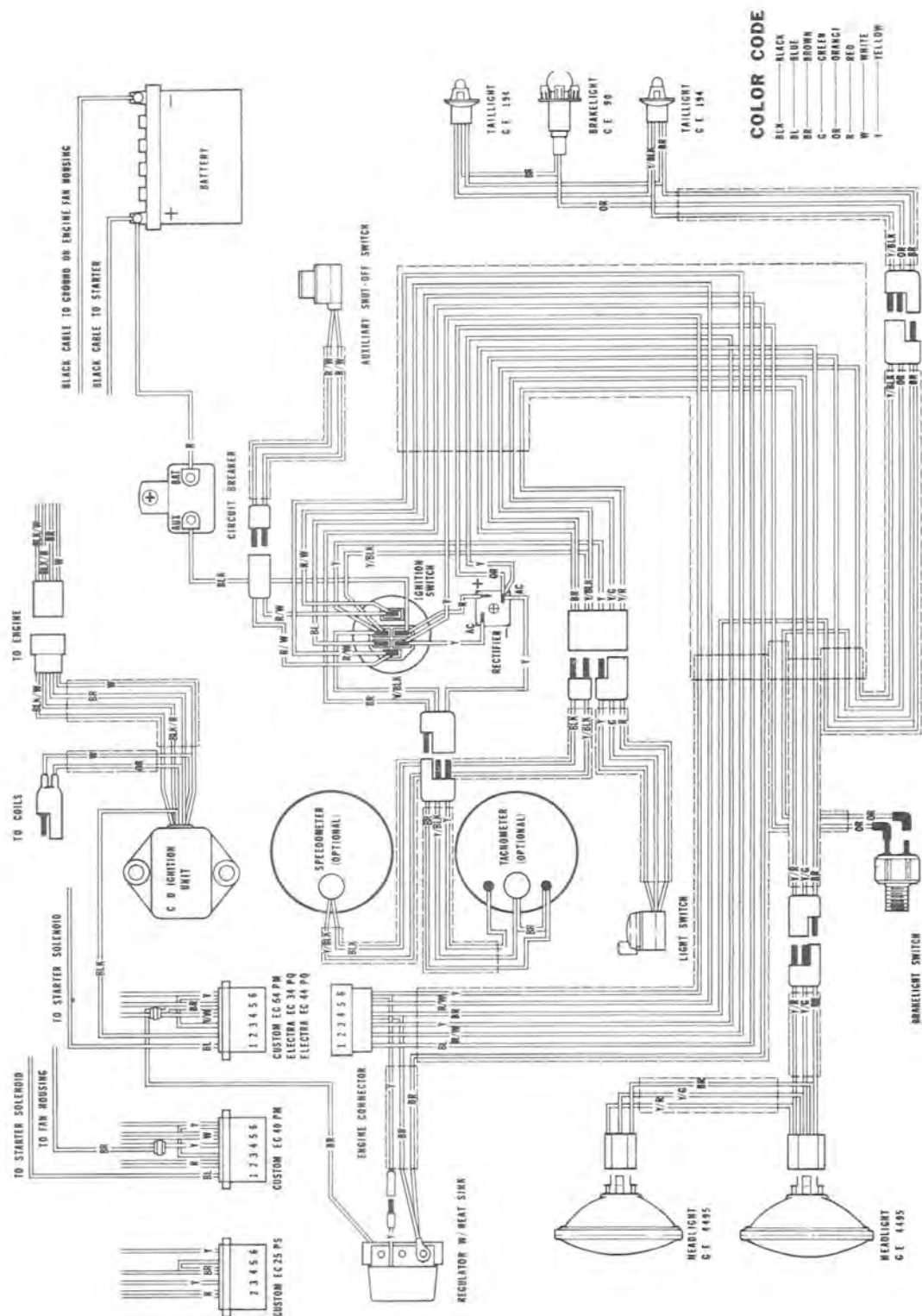
SCHEMATIC DIAGRAM 1974 COLTS & 250 CUSTOM (75 WATT ALTERNATOR)



NOTES:

1. 175 CC AND 244 CC ENGINES HAVE A SINGLE INTERNAL IGNITION COIL AND A WIRE GROUNDED THROUGH IGNITION SWITCH OR SHUT-OFF SWITCH TO SHUT OFF ENGINE
2. 175 COLT HAS SINGLE HEADLIGHT

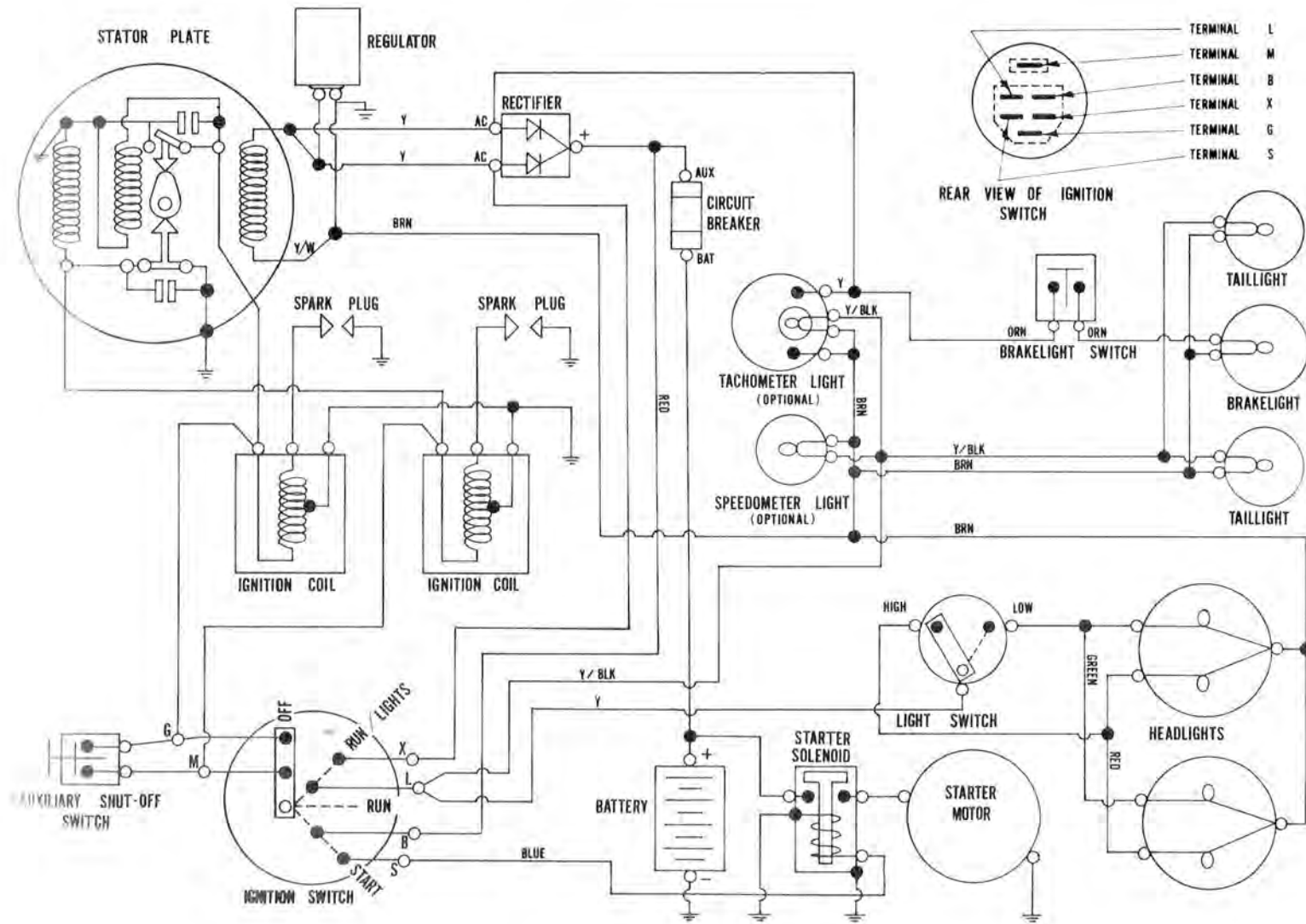
1974 Wiring Diagram — Electra, Custom



SCHEMATIC DIAGRAM

1974 400 CUSTOM

(140 WATT ALTERNATOR)



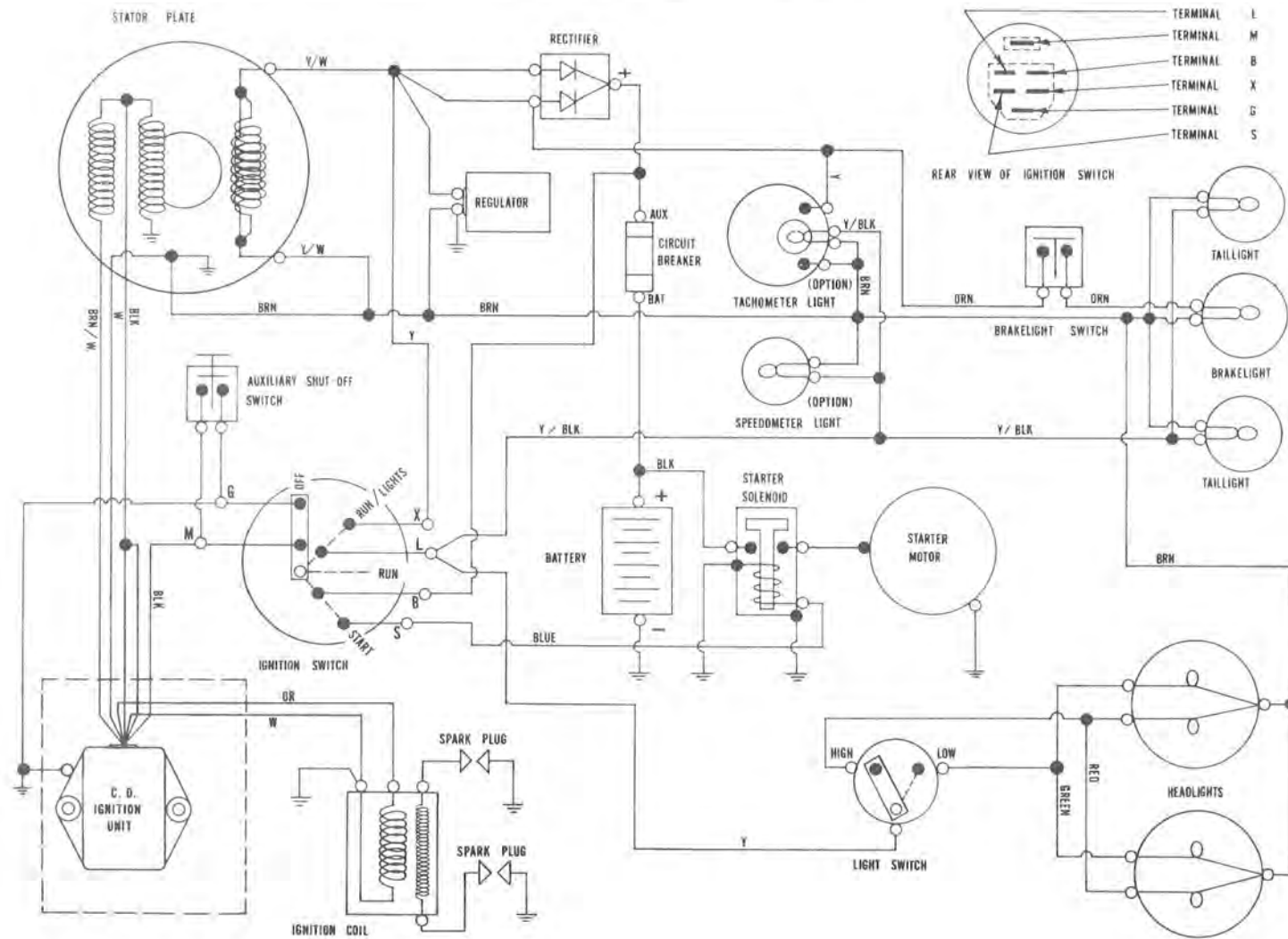
BODY ELECTRICAL
1974 Schematic Diagram — Custom

1974 Wiring Diagram — Electra, Custom



SCHEMATIC DIAGRAM

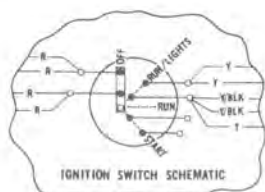
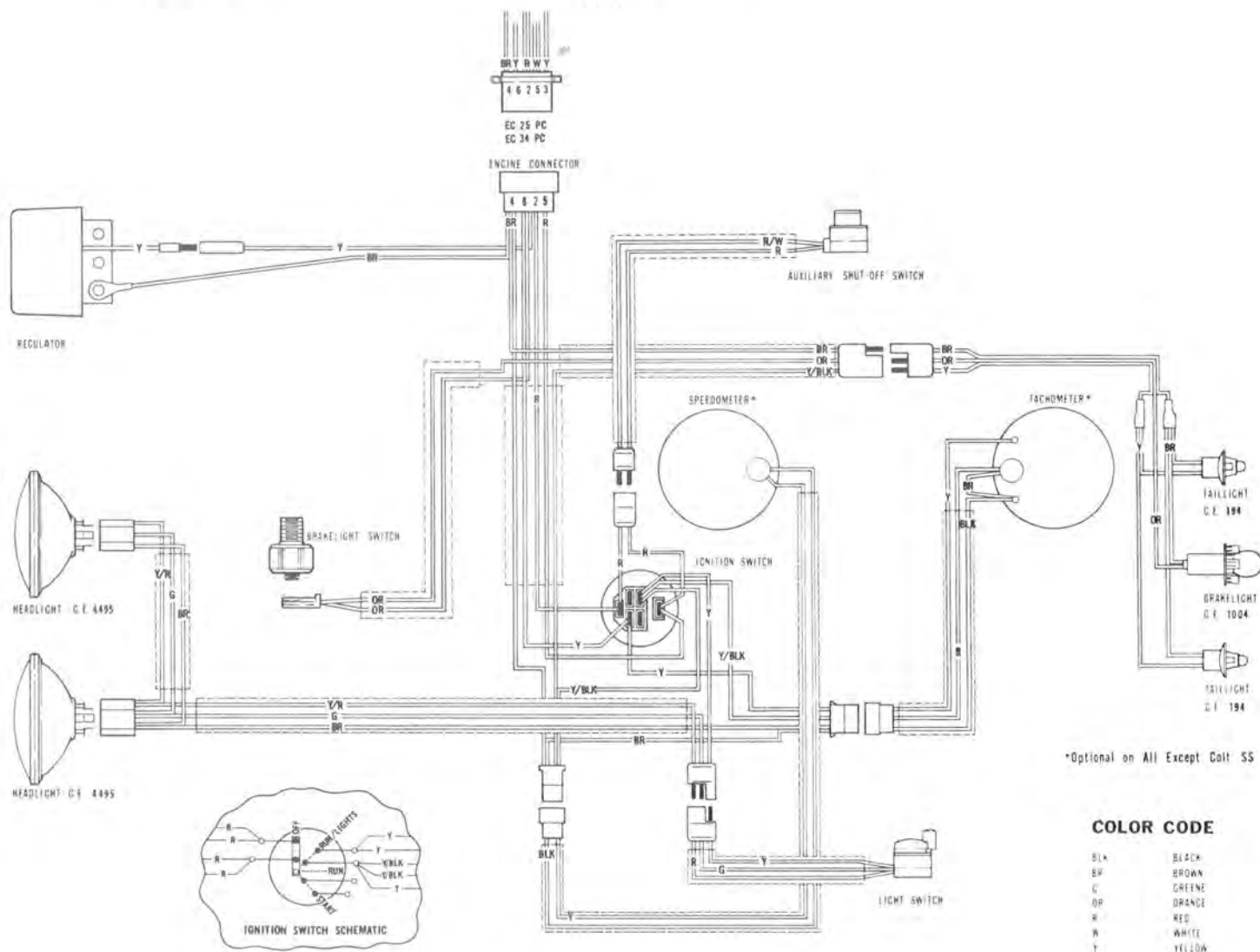
1974 - 340, 440 ELECTRA & 530 CUSTOM
(140 WATT ALTERNATER)



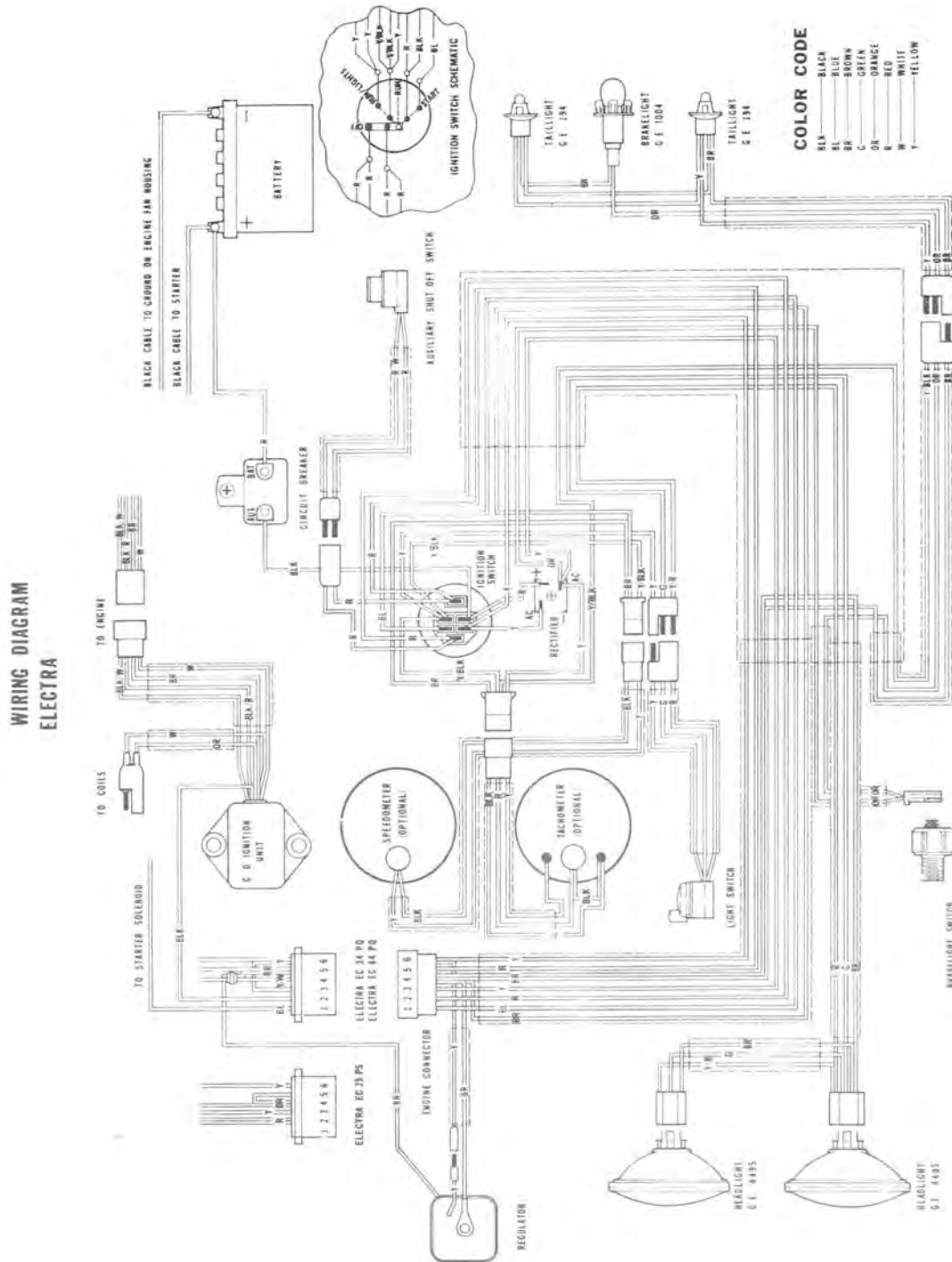
1974 Schematic Diagram - Electra, Custom
BODY ELECTRICAL

1975

WIRING DIAGRAM COLT

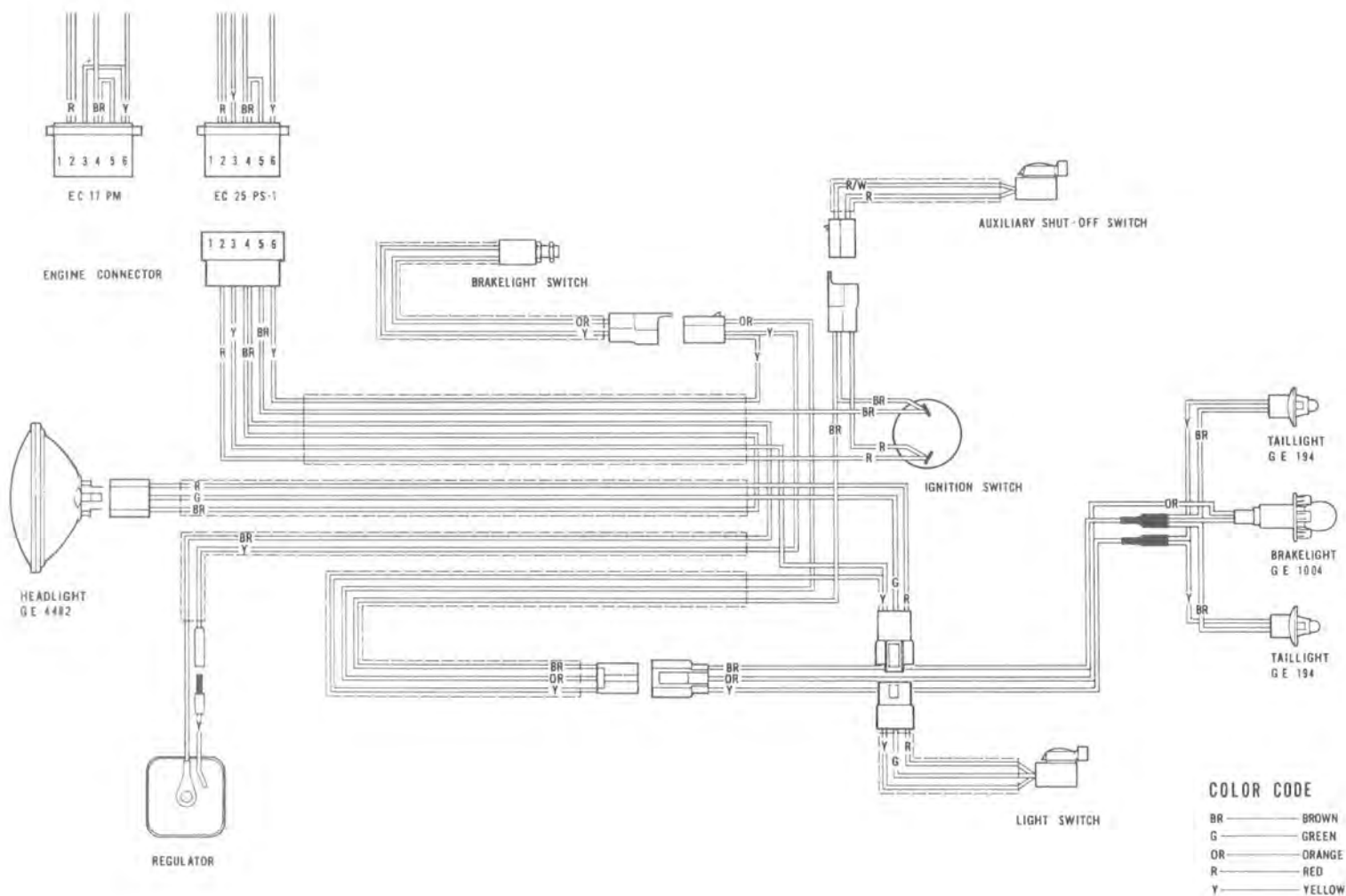


BODY ELECTRICAL
1975 Wiring Diagram — Electra



1975

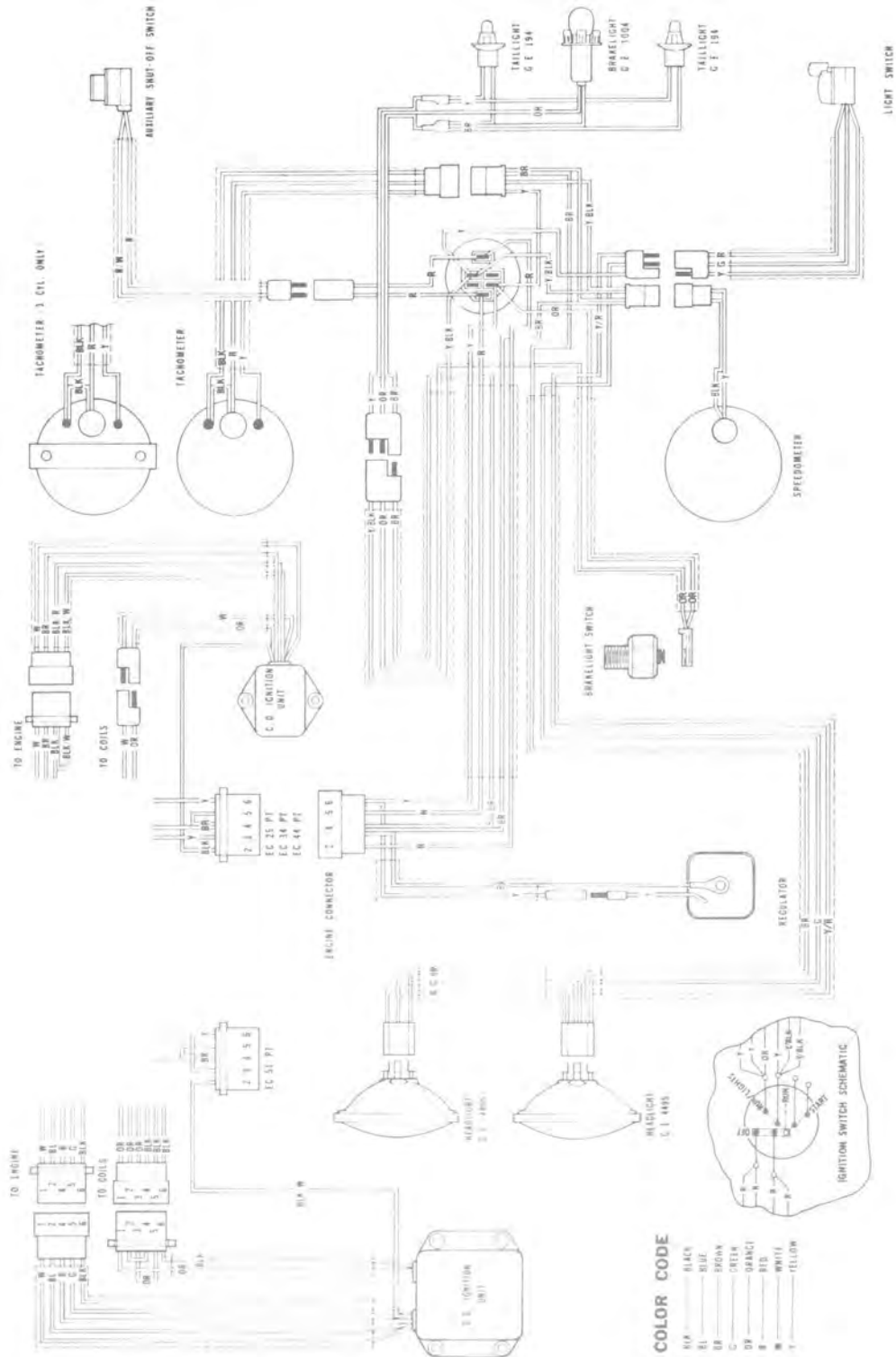
WIRING DIAGRAM TC



BODY ELECTRICAL
1975 Wiring Diagram — Consumer TX

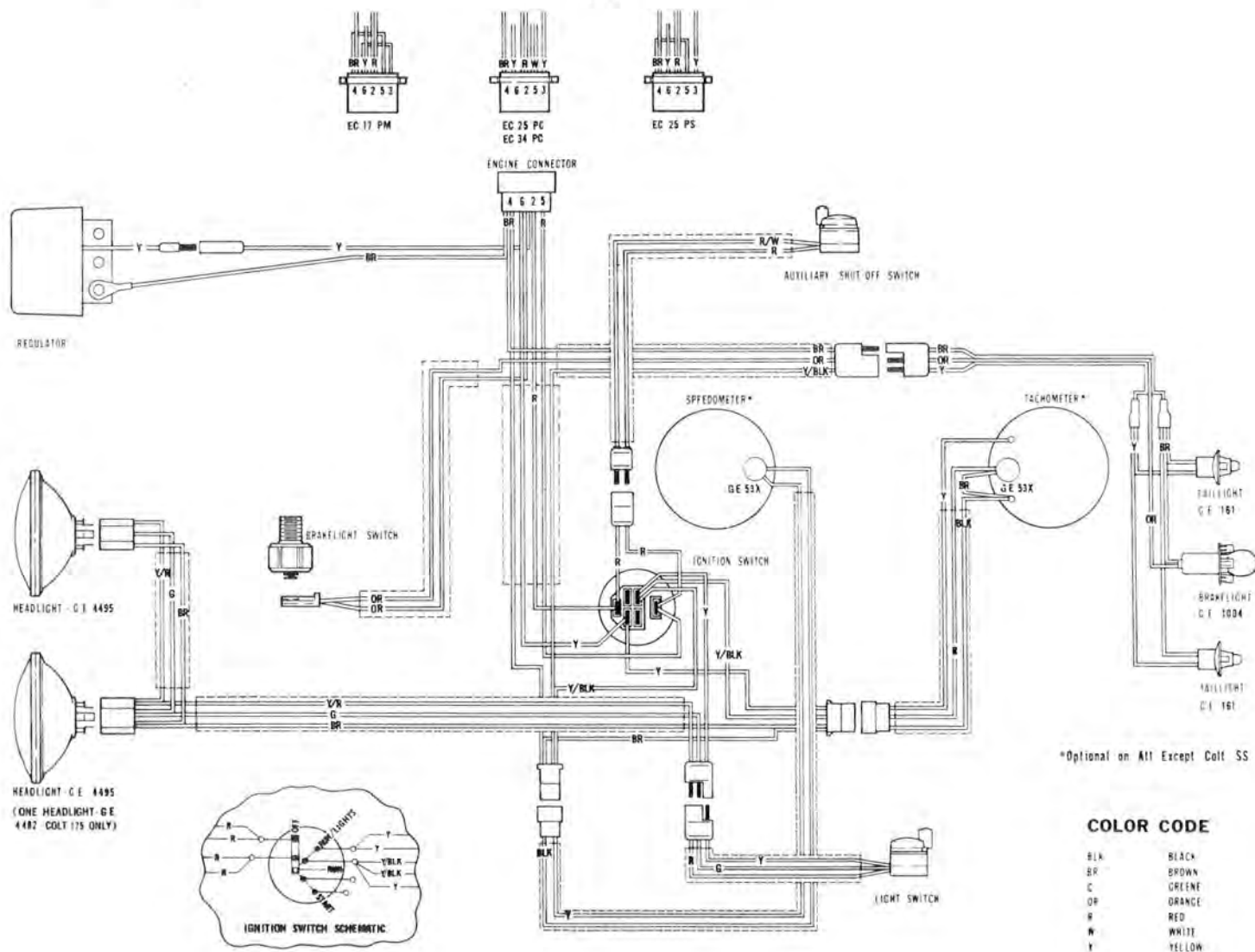
WIRING DIAGRAM
CONSUMER TX

1975



1976

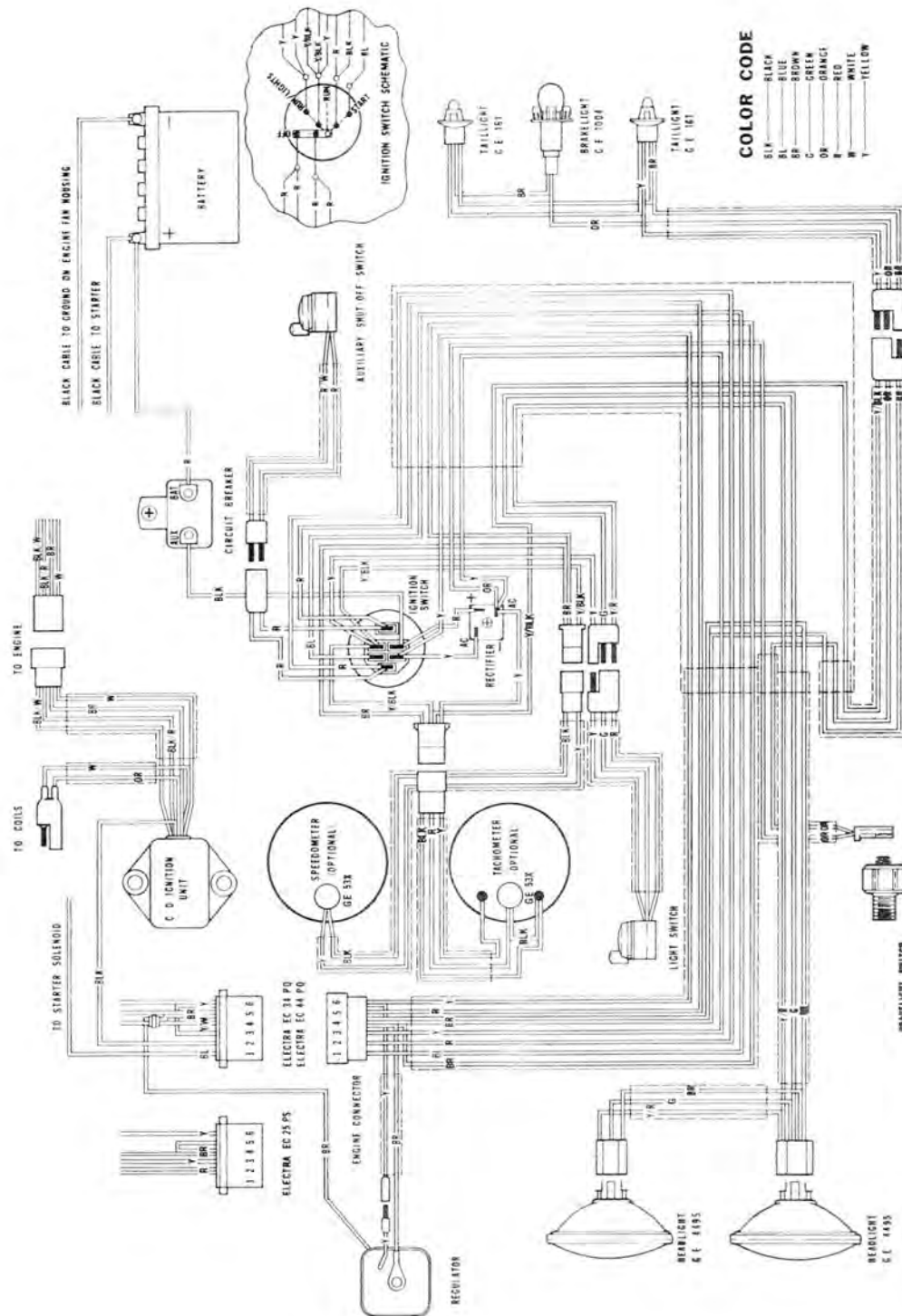
WIRING DIAGRAM COLT



BODY ELECTRICAL 1976 Wiring Diagram — Electra

1976

WIRING DIAGRAM ELECTRA

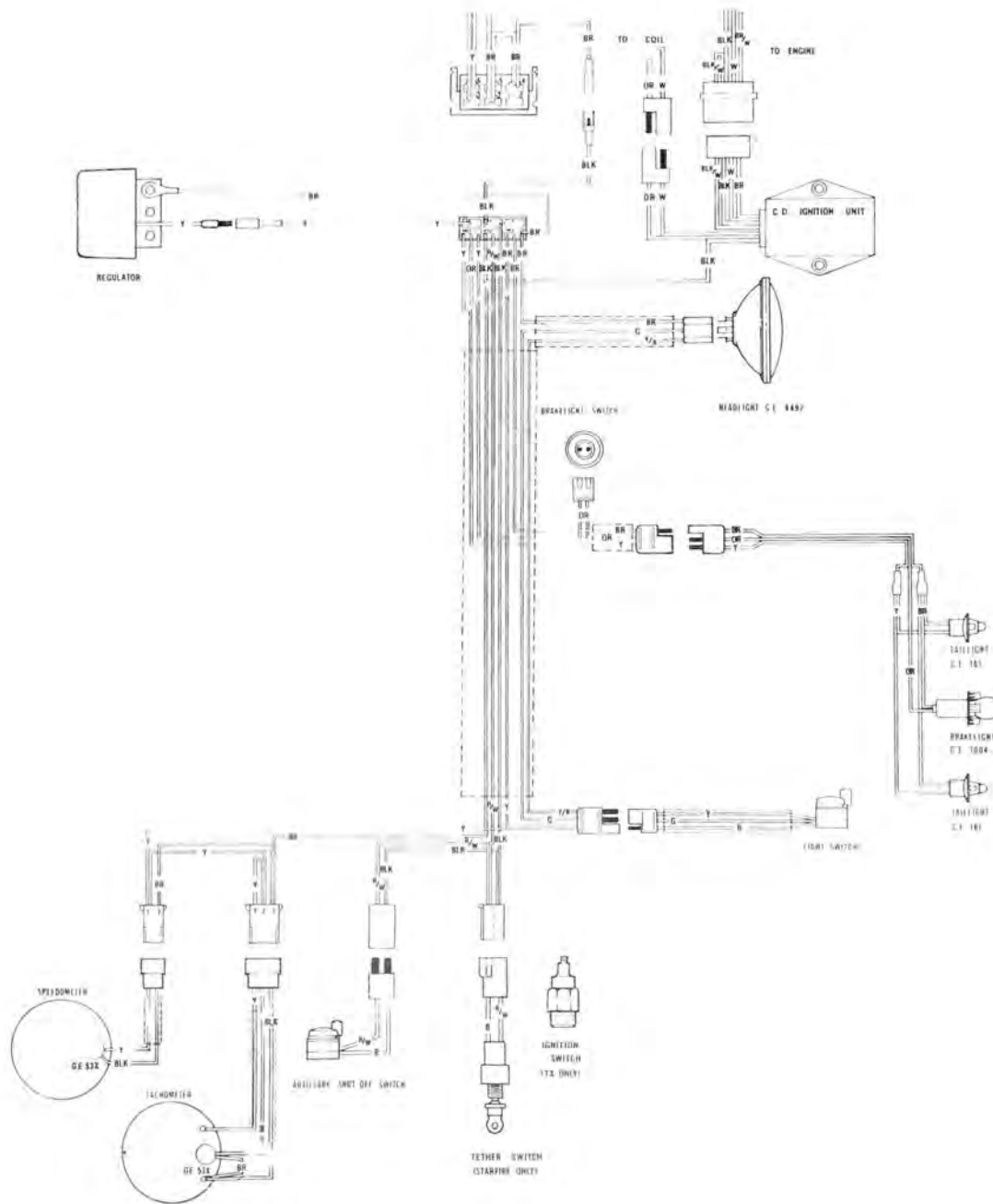


BODY ELECTRICAL

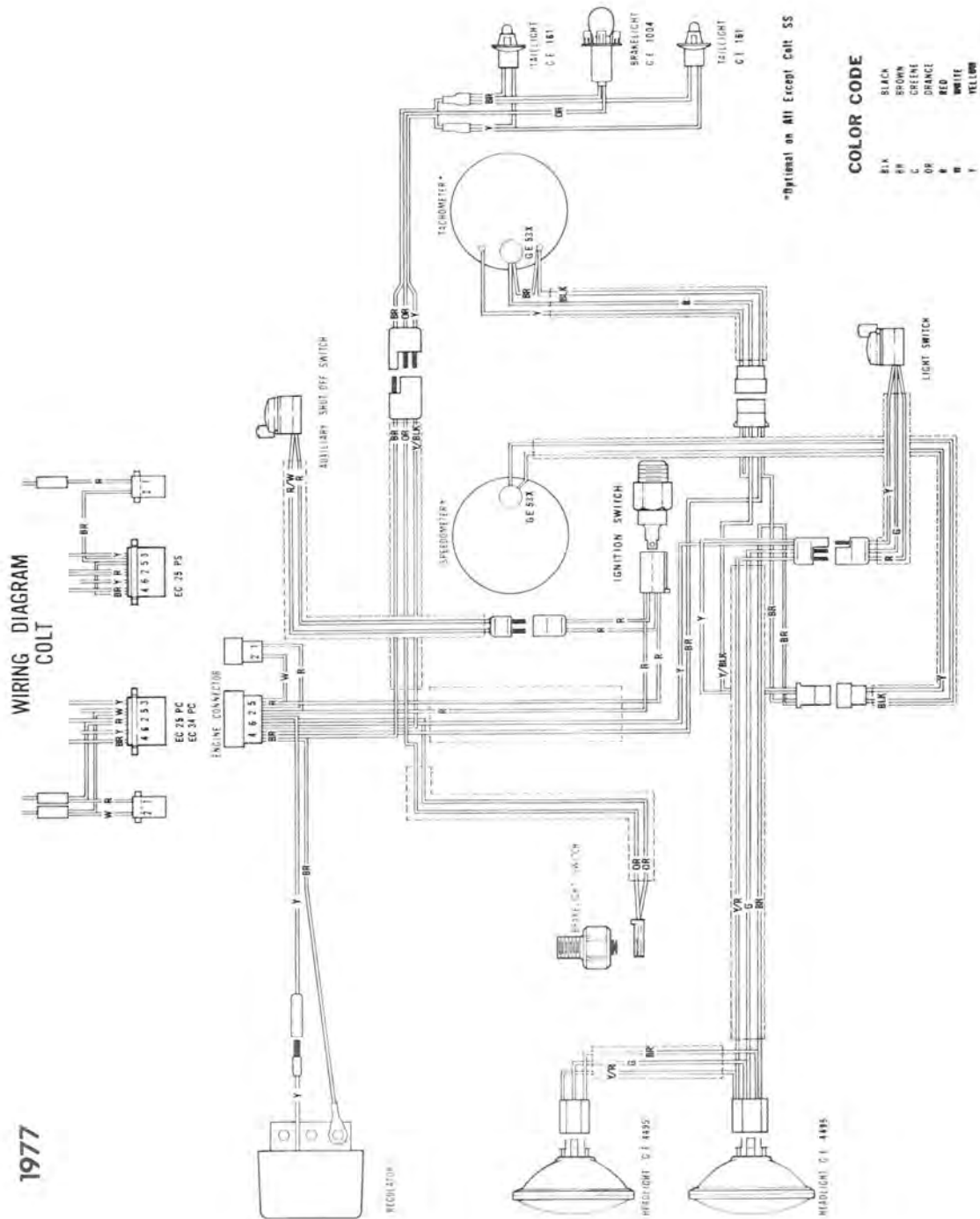
1976 Wiring Diagram — TX, Starfire

1976

WIRING DIAGRAM TX—STARFIRE



BODY ELECTRICAL 1977 Wiring Diagram — Colt, Colt SS

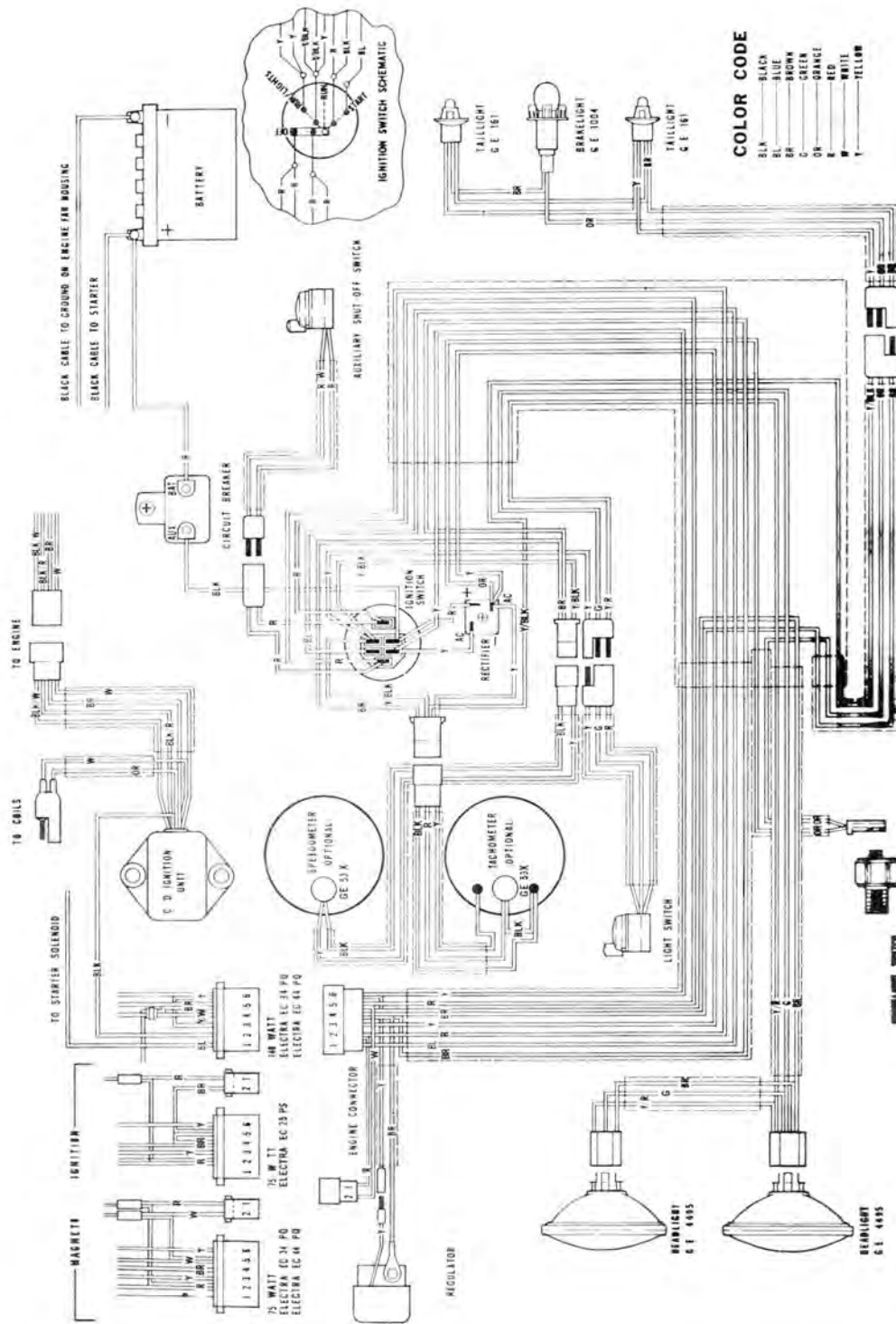


BODY ELECTRICAL

1977 Wiring Diagram — Electra

WIRING DIAGRAM ELECTRA

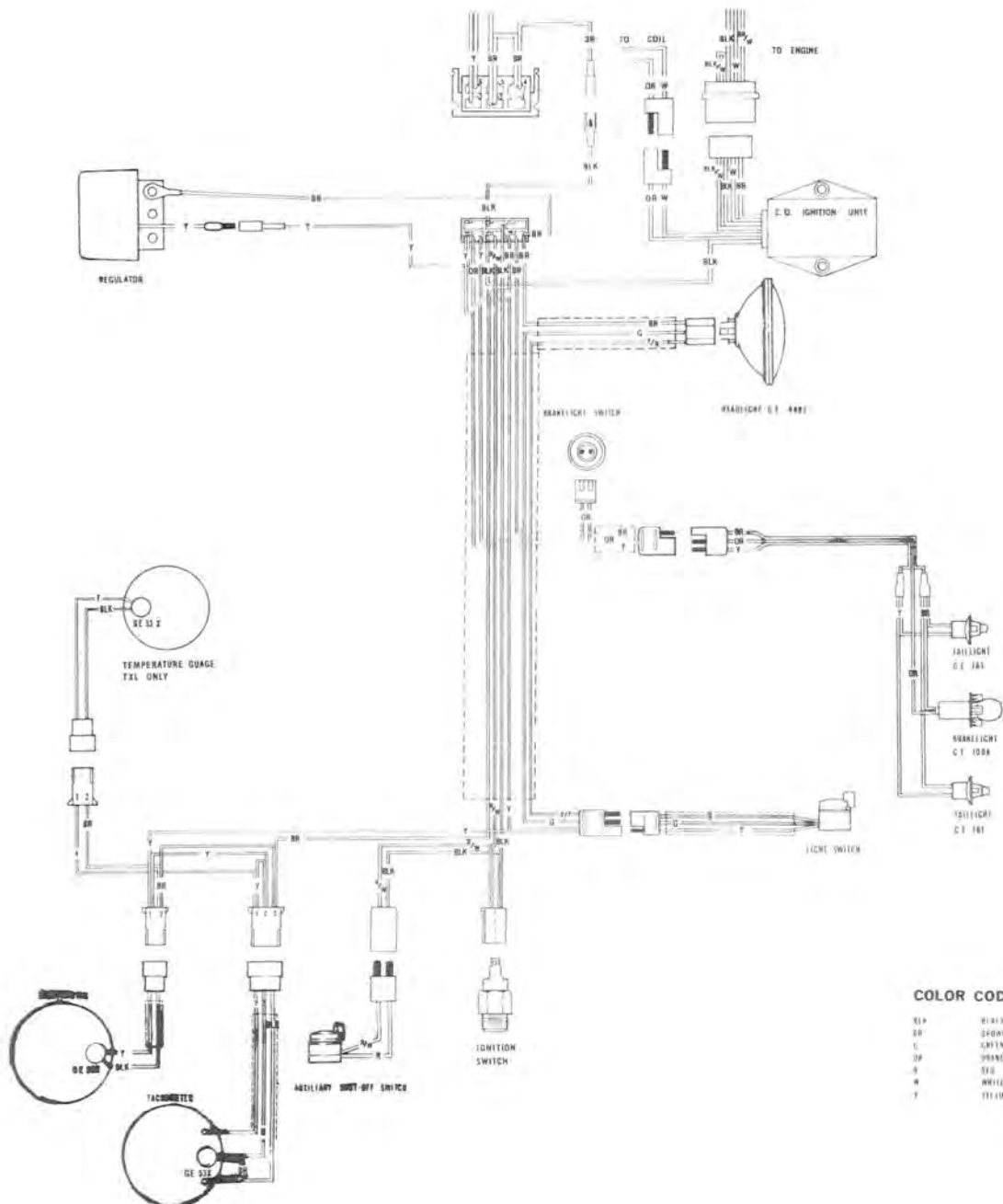
1977



BODY ELECTRICAL
1977 Wiring Diagram — TX, TX-L

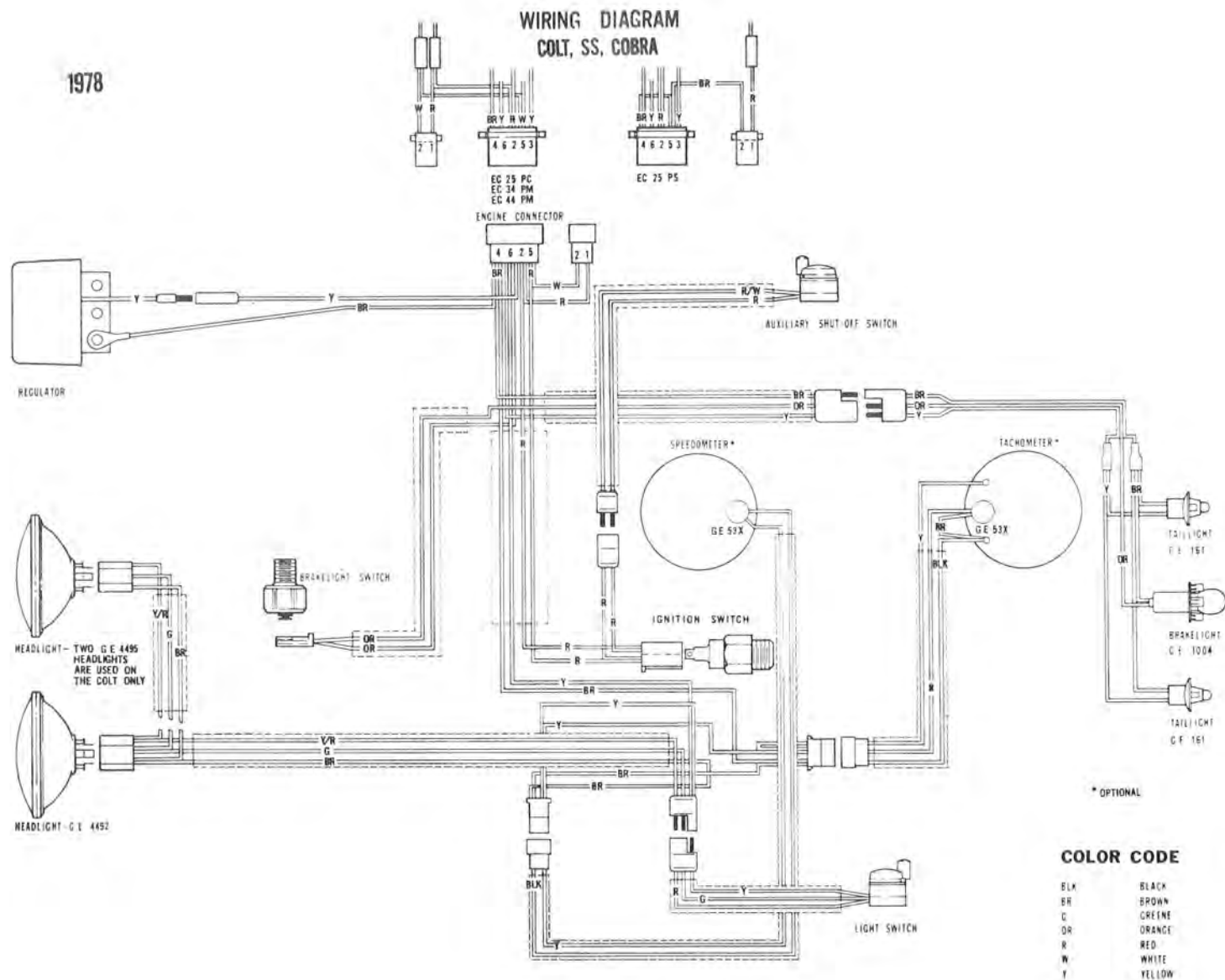
1977

WIRING DIAGRAM
TX & TXL



BODY ELECTRICAL

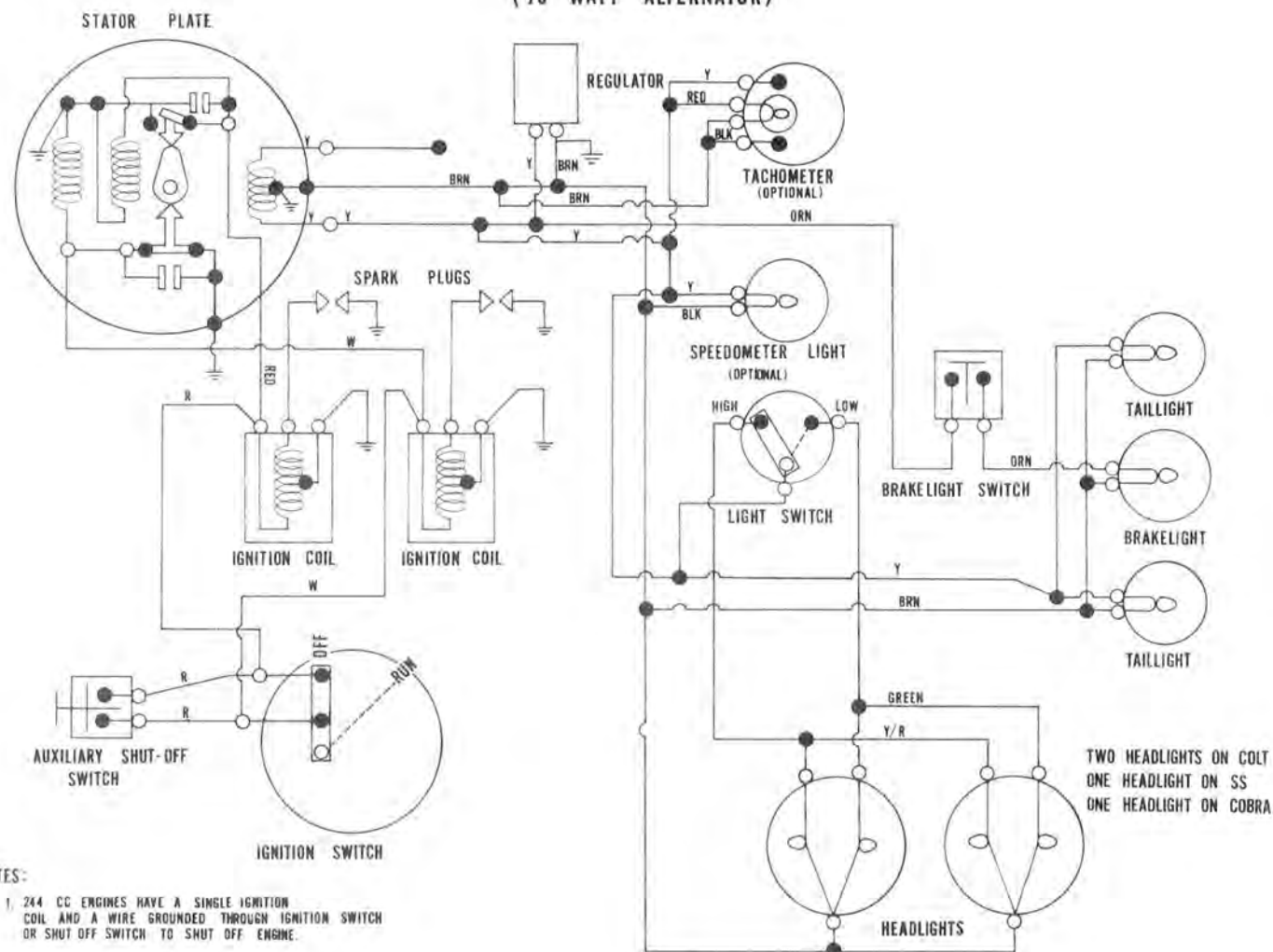
1978 Wiring Diagram — Colt, S/S 340, Cobra



SCHEMATIC DIAGRAM

78 COLT - SS - COBRA

(75 WATT ALTERNATOR)

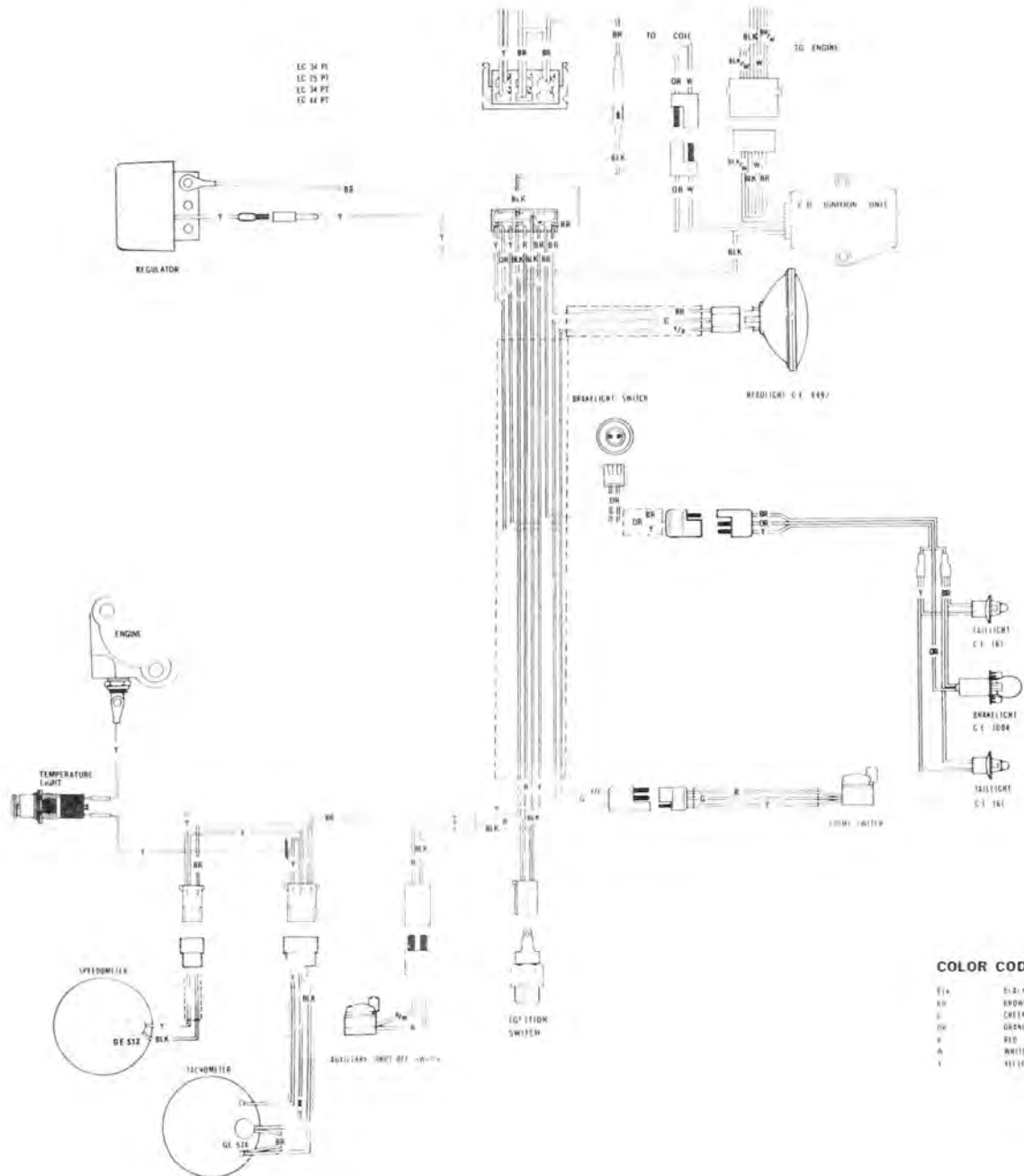


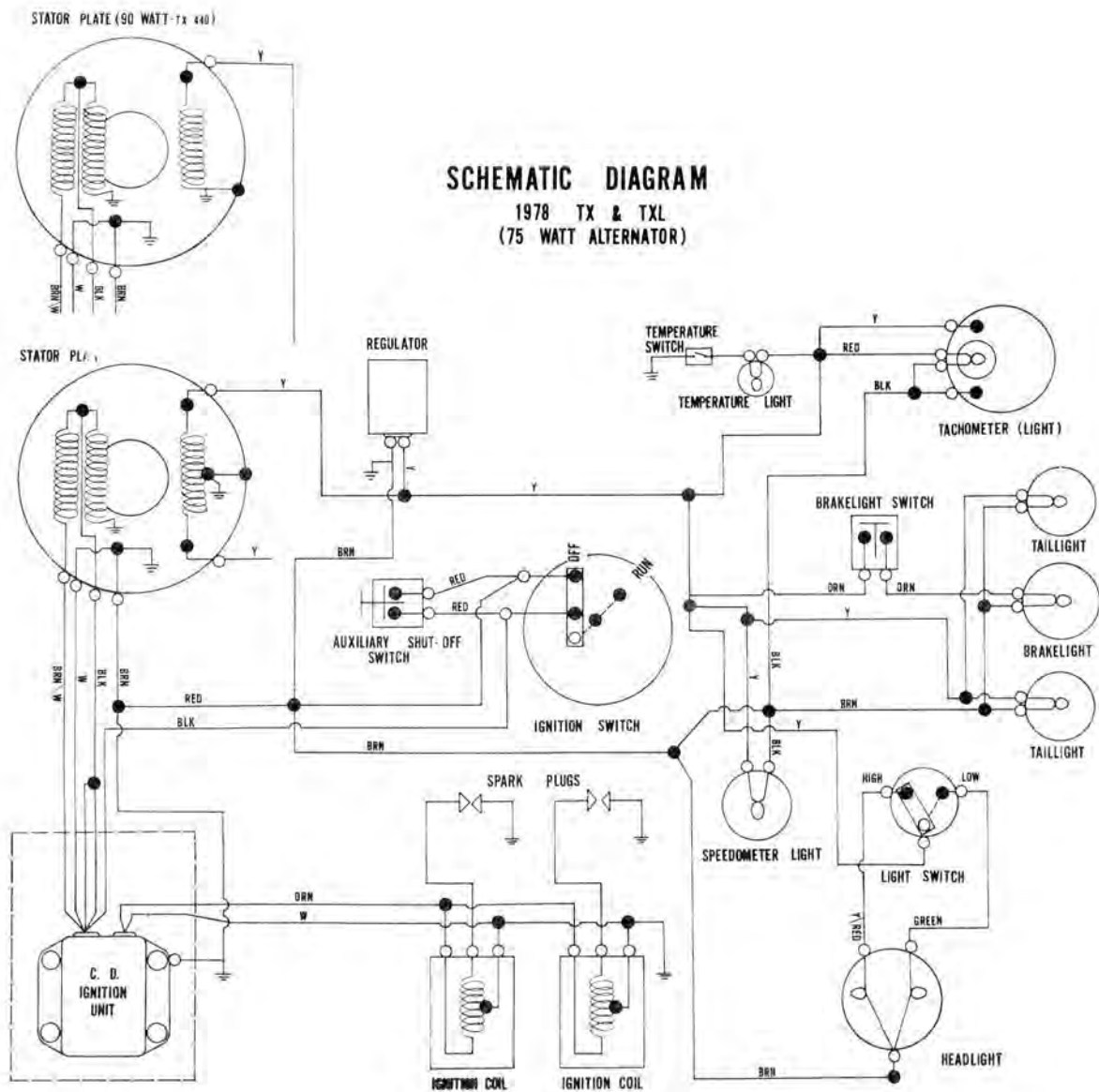
BODY ELECTRICAL

1978 Wiring Diagram — TX, TX-L

WIRING DIAGRAM TX & TXL

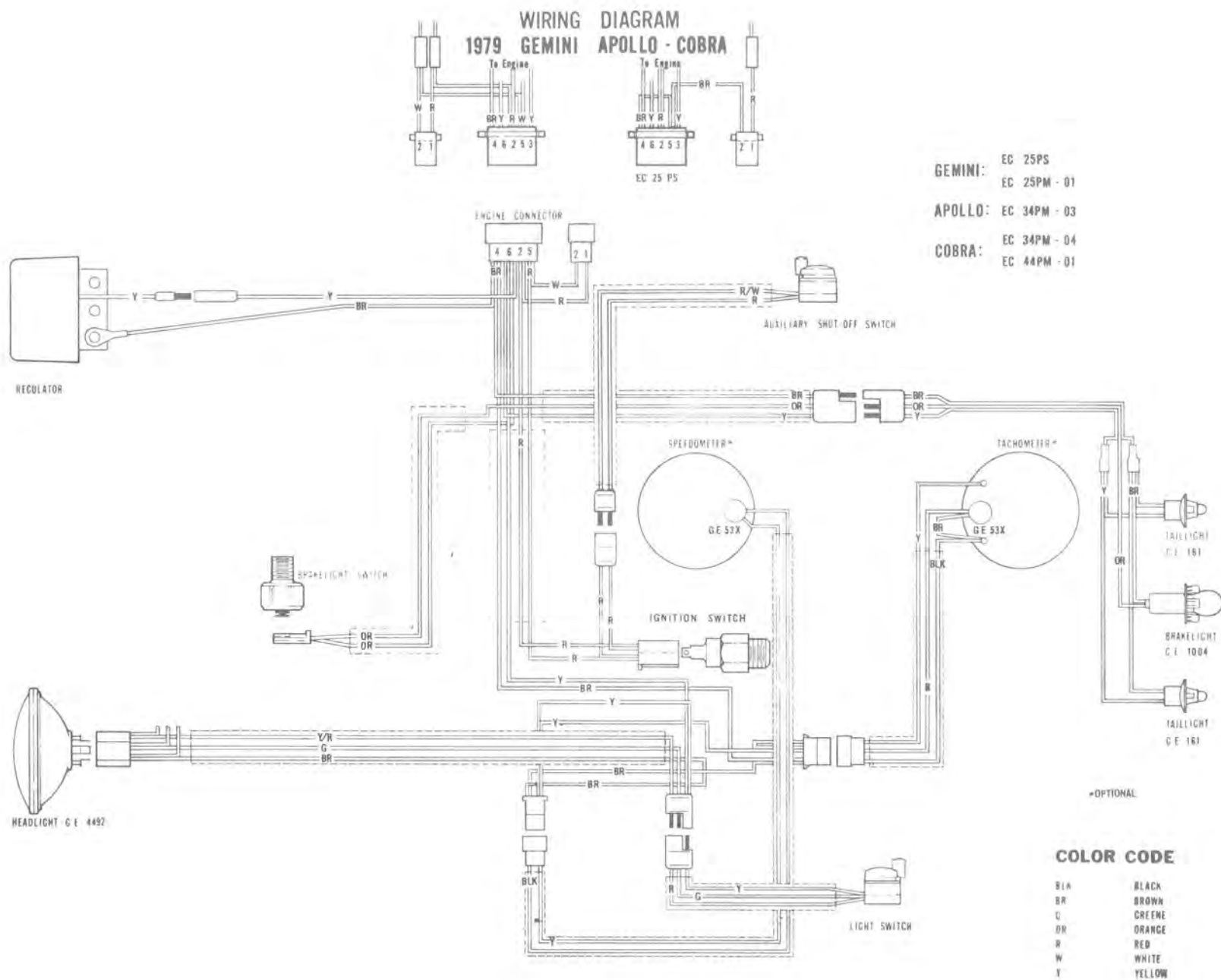
1978





BODY ELECTRICAL
1978 Schematic Diagram - TX, TX-L

BODY ELECTRICAL 1979 Wiring Diagram — Gemini, Apollo, Cobra

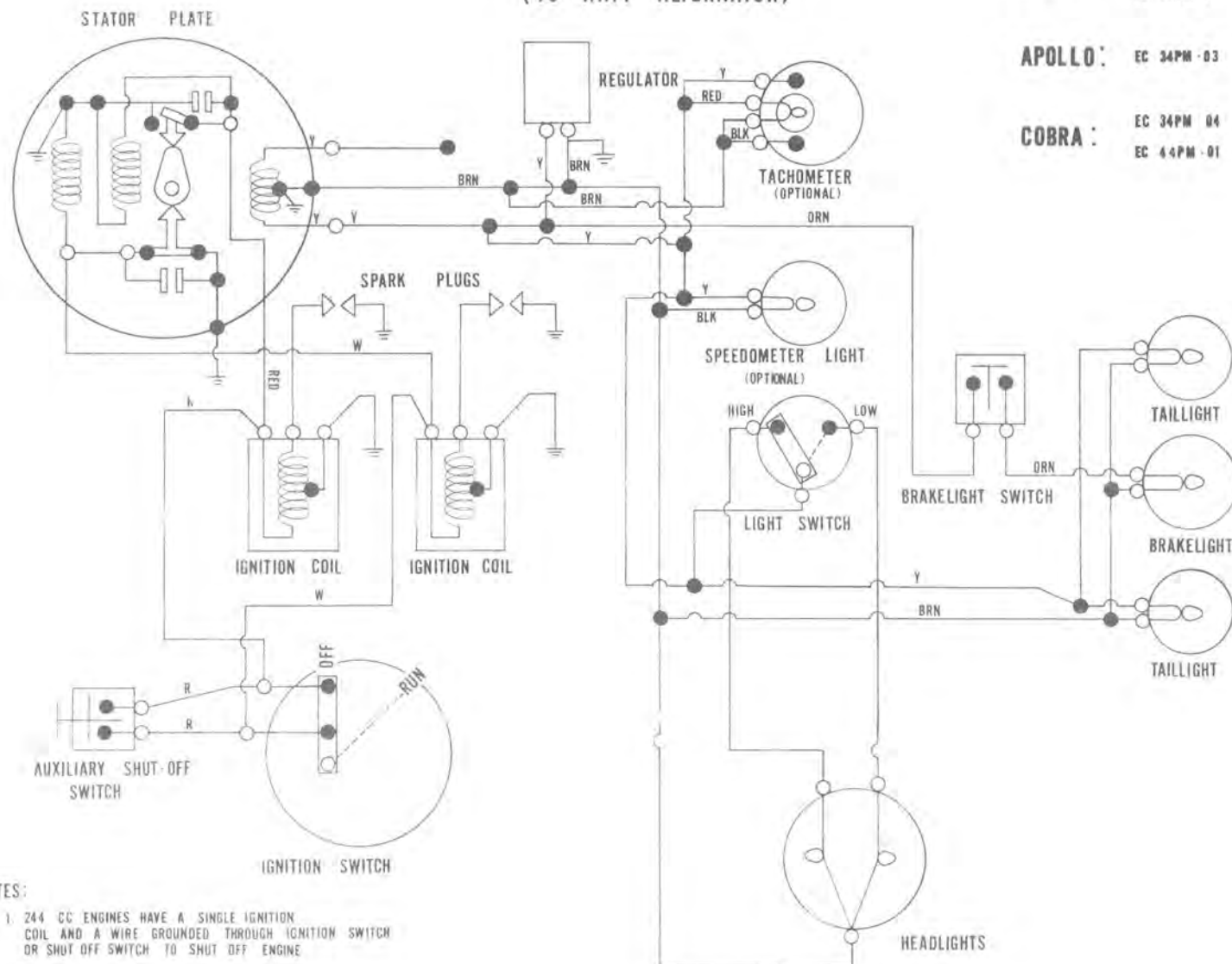


SCHEMATIC DIAGRAM **1979 GEMINI APOLLO - COBRA** **(75 WATT ALTERNATOR)**

GEMINI : EC 25PS
 EC 25PM - 01

APOLLO : EC 34PM - 03

COBRA : EC 34PM 04
 EC 44PM - 01



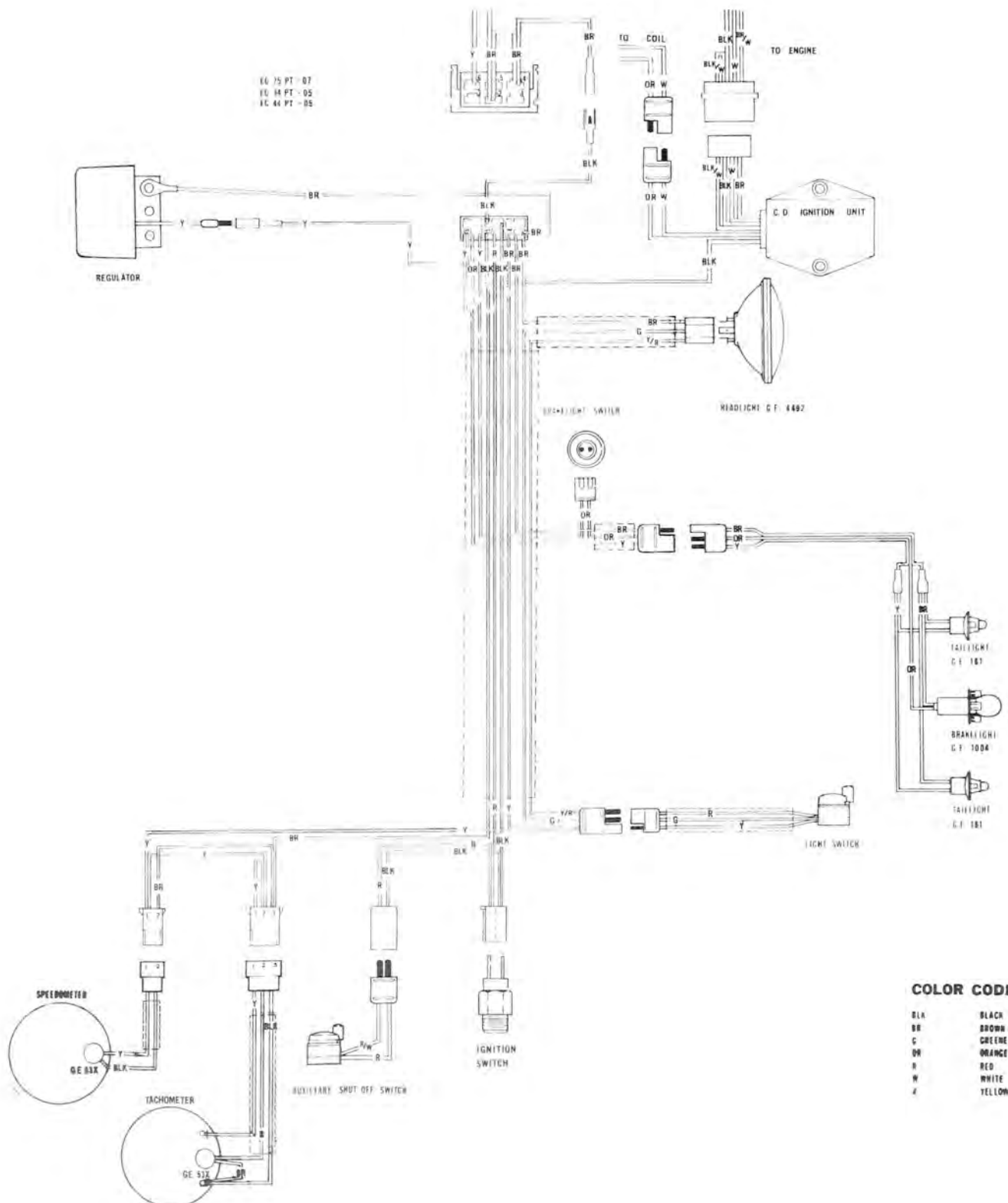
NOTES:

1. 244 CC ENGINES HAVE A SINGLE IGNITION COIL AND A WIRE GROUNDED THROUGH IGNITION SWITCH OR SHUT OFF SWITCH TO SHUT OFF ENGINE

1979 Wiring Diagram – TX

WIRING DIAGRAM

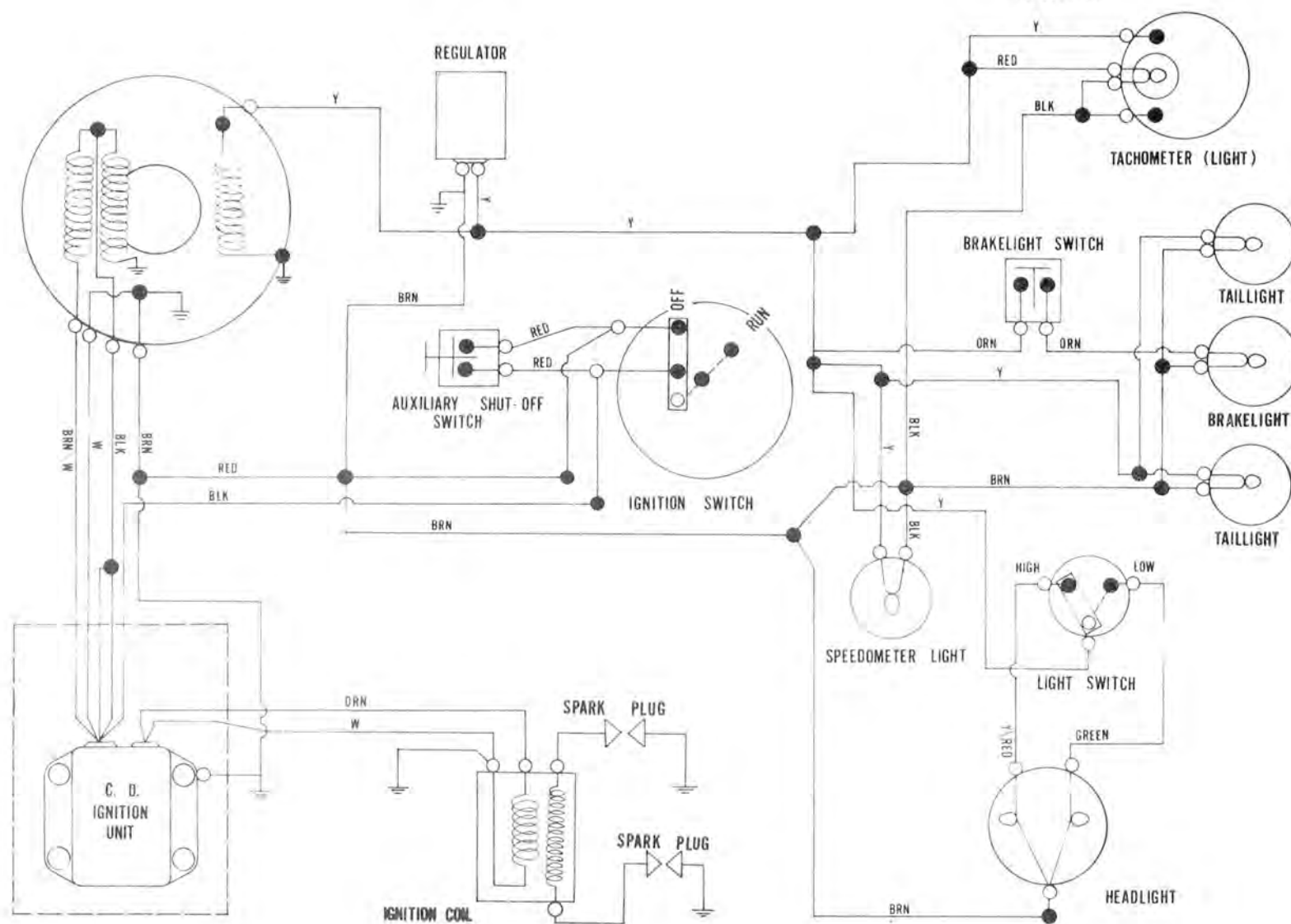
1979 TX MODELS



SCHEMATIC DIAGRAM

1979 TX MODELS
(90 WATT ALTERNATOR)

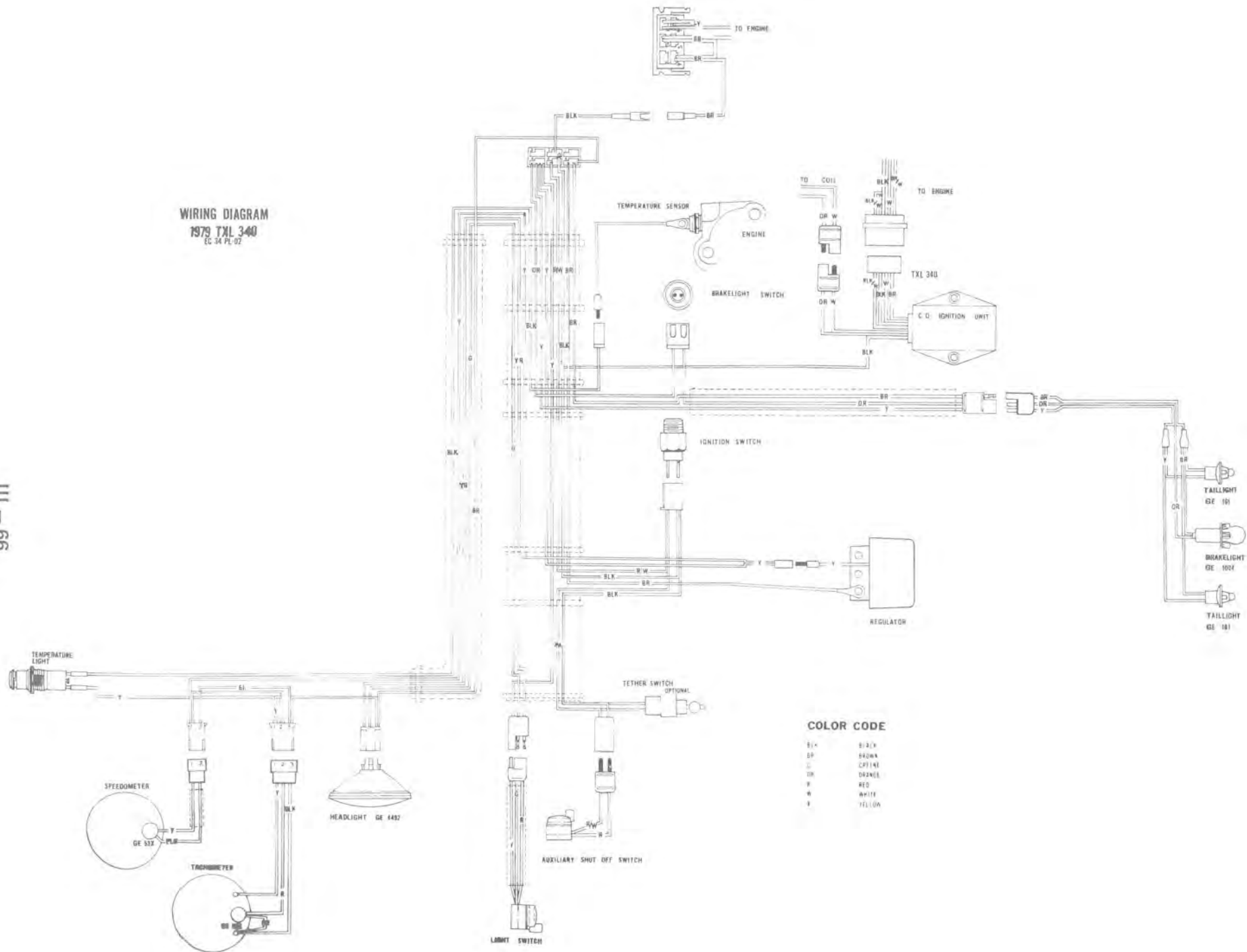
TX EC 25PT - 07
EC 34PT - 05
EC 44PT - 05



BODY ELECTRICAL
1979 Schematic Diagram - TX

BODY ELECTRICAL 1979 Wiring Diagram — TX-L

WIRING DIAGRAM
1979 TXL 340
EC 14 PL 07



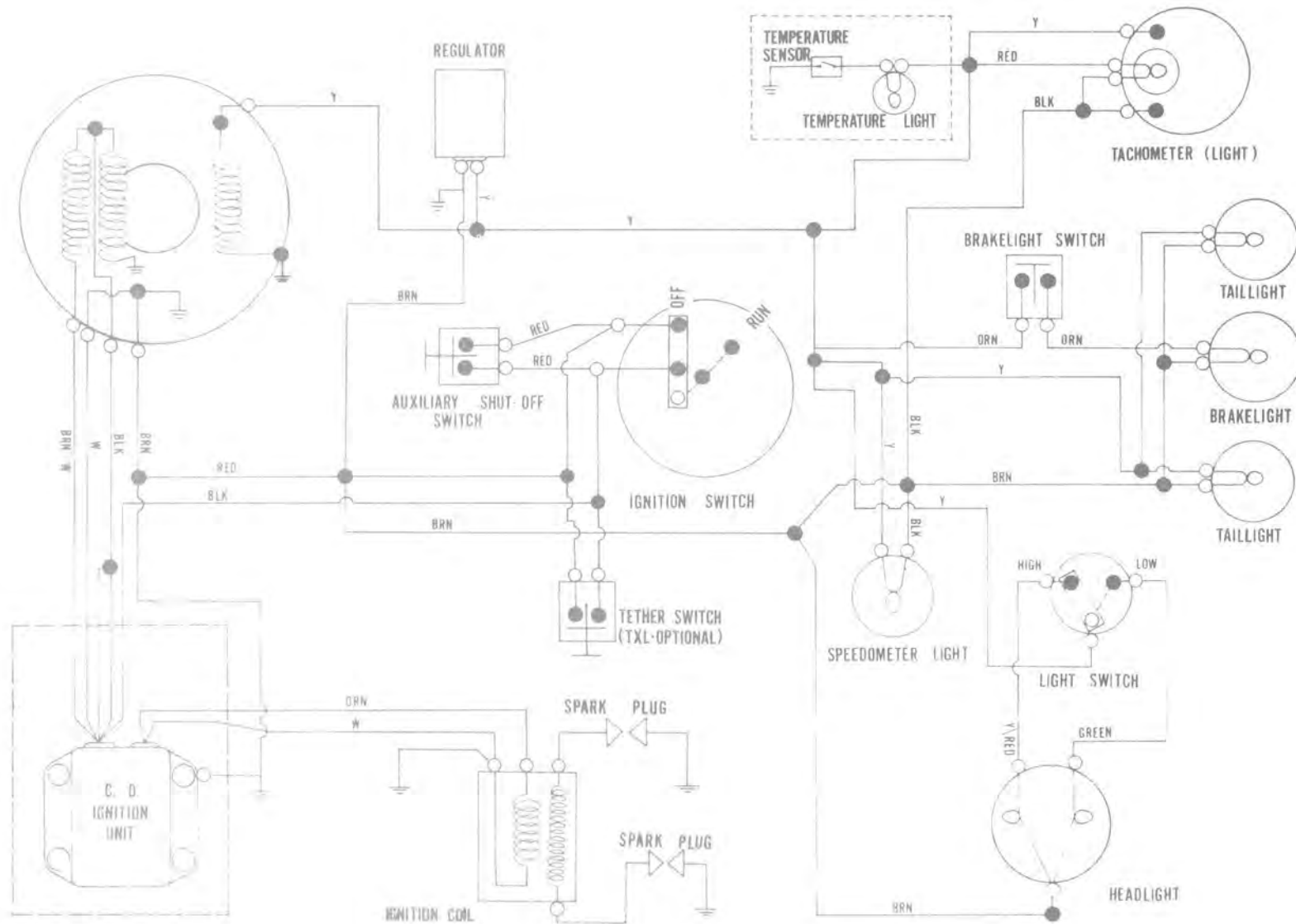
COLOR CODE

BLK	BLACK
BR	BROWN
G	GREEN
OR	ORANGE
P	PINK
W	WHITE
Y	YELLOW

SCHEMATIC DIAGRAM

1979 TXL 340
(90 WATT ALTERNATOR)

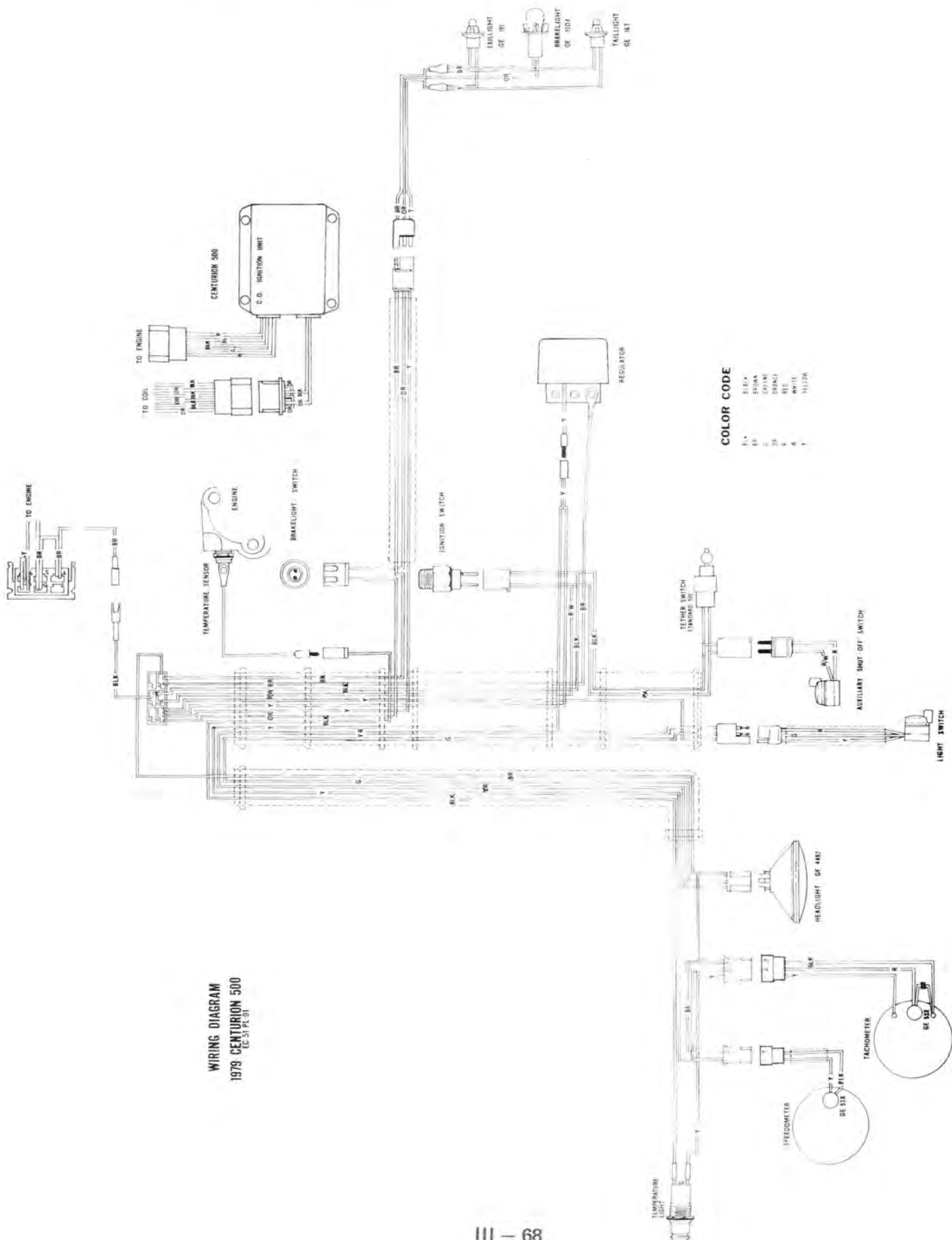
TXL EC 34PL-02



BODY ELECTRICAL
1979 Schematic Diagram — TX-L

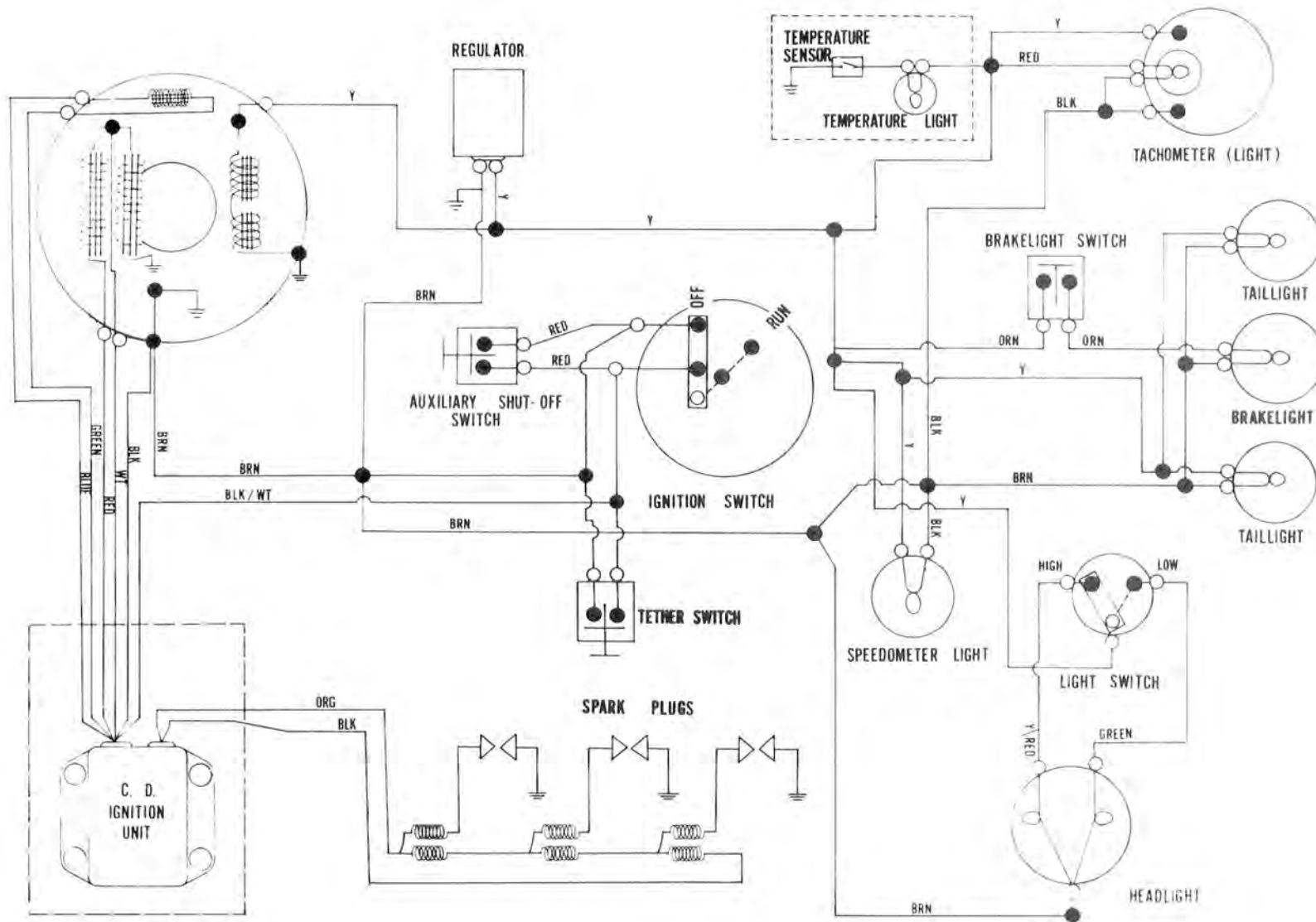
BODY ELECTRICAL

1979 Wiring Diagram — Centurion



SCHEMATIC DIAGRAM

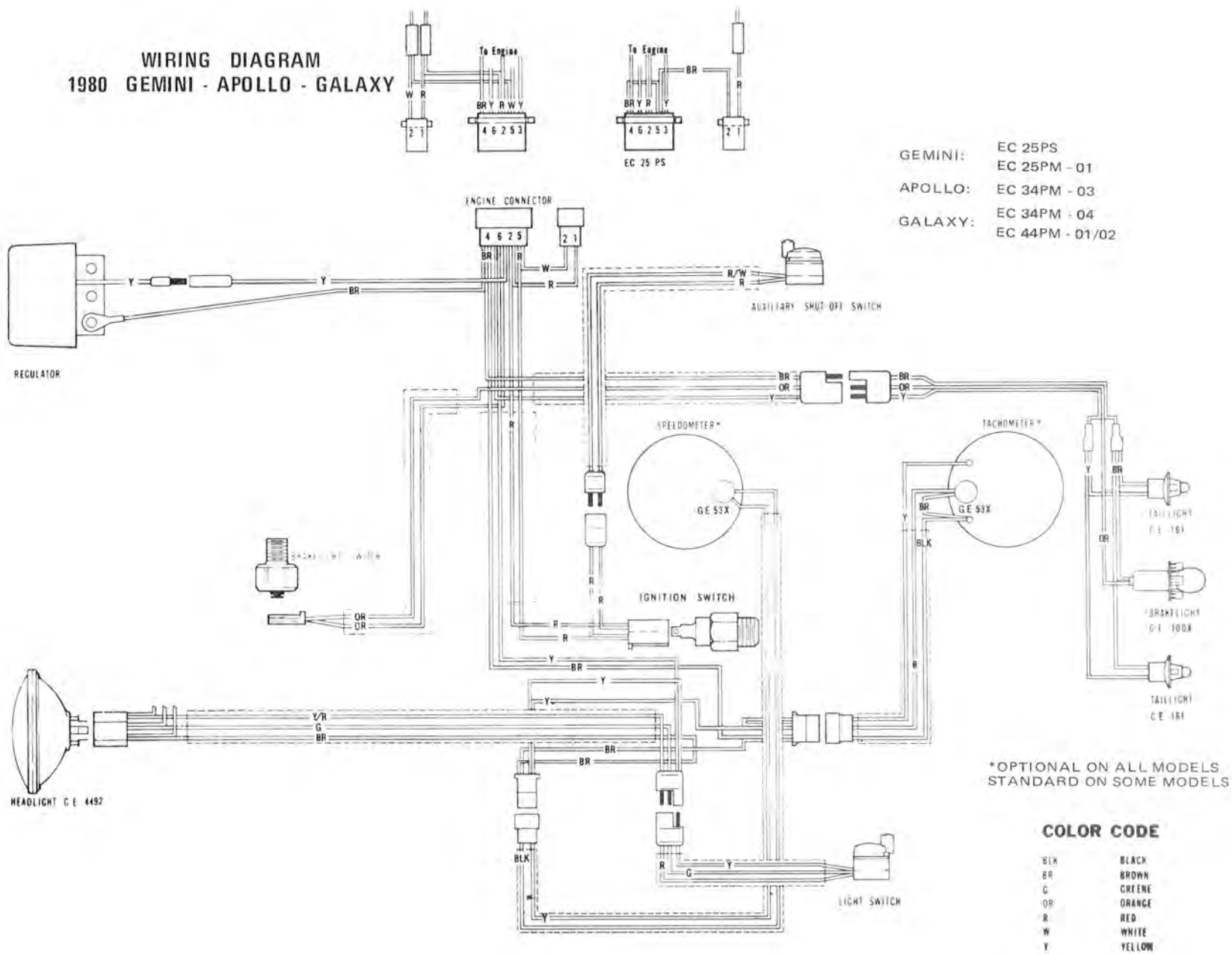
1979 CENTURION 500 EC 51 PL
(120 WATT ALTERNATOR)



BODY ELECTRICAL
1979 Schematic Diagram - Centurion

BODY ELECTRICAL
1980 Wiring Diagram -- Gemini, Apollo, Galaxy

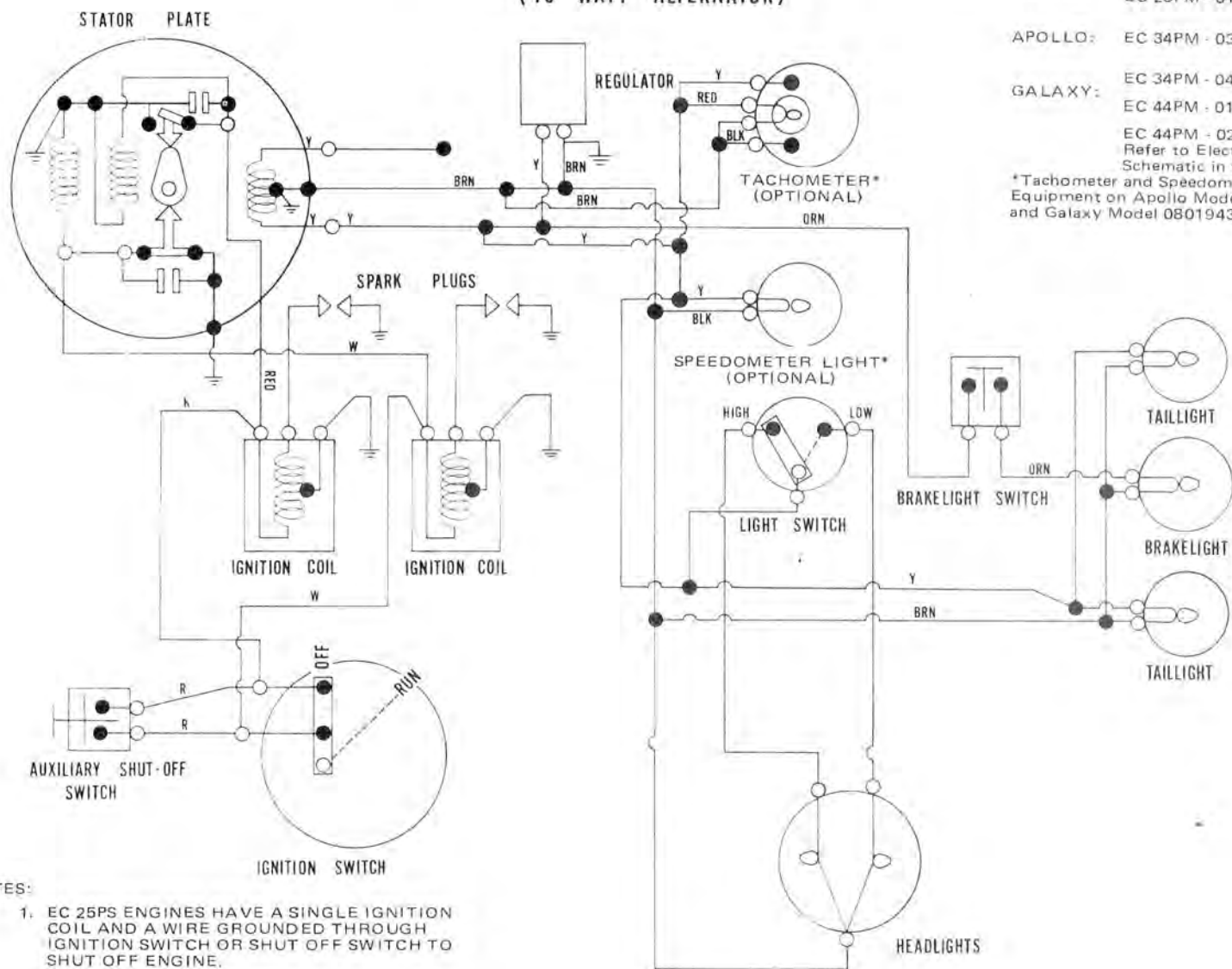
WIRING DIAGRAM
1980 GEMINI - APOLLO - GALAXY



SCHEMATIC DIAGRAM

1980 GEMINI - APOLLO - GALAXY

(75 WATT ALTERNATOR)



GEMINI: EC 25PS
EC 25PM - 01

APOLLO: EC 34PM - 03

GALAXY: EC 34PM - 04
EC 44PM - 01
EC 44PM - 02 (Electric Start - Refer to Electric Start Wiring Schematic in this Section)

*Tachometer and Speedometer Standard Equipment on Apollo Model 0801238 and Galaxy Model 0801943

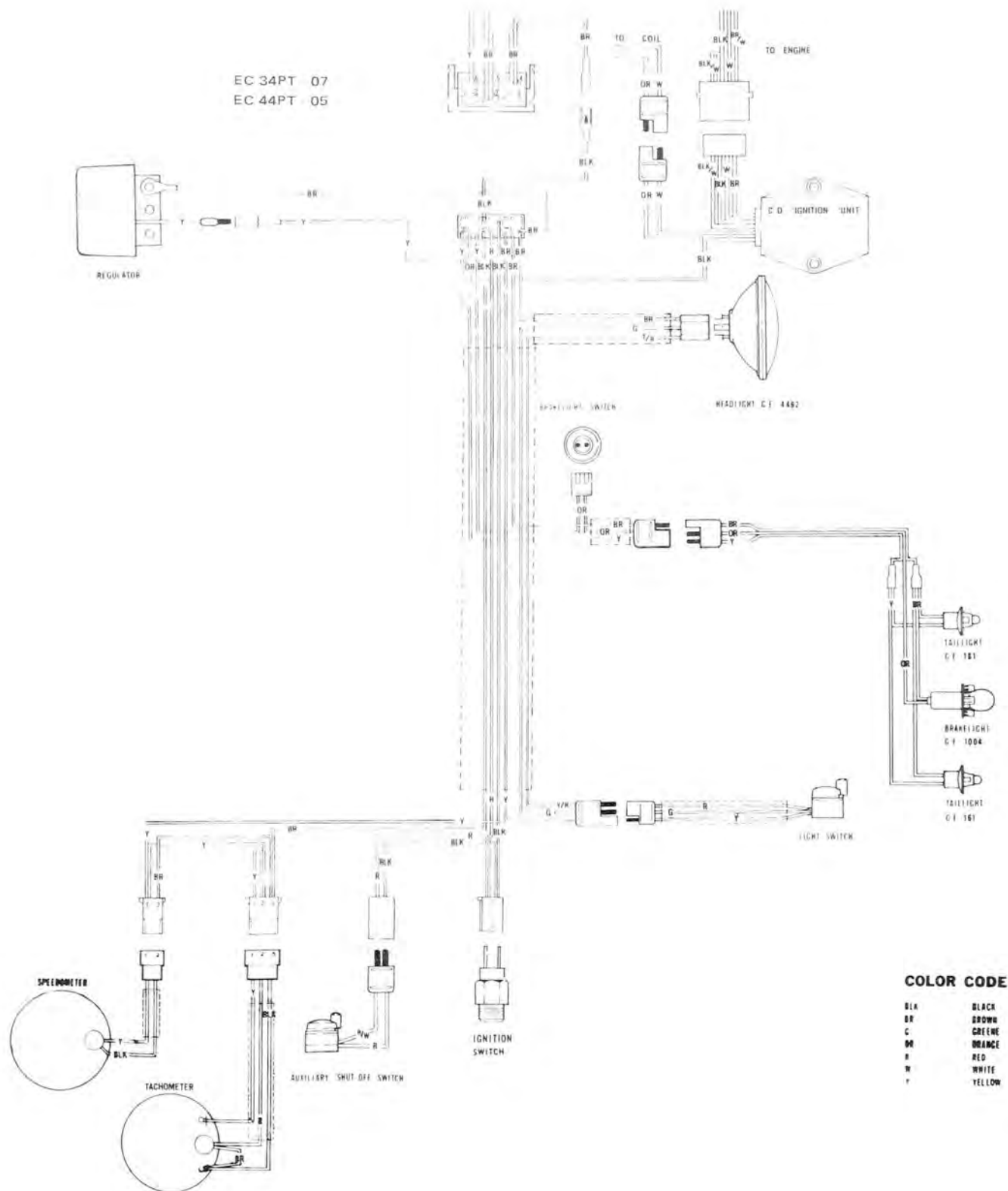
NOTES:

1. EC 25PS ENGINES HAVE A SINGLE IGNITION COIL AND A WIRE GROUNDED THROUGH IGNITION SWITCH OR SHUT OFF SWITCH TO SHUT OFF ENGINE.

BODY ELECTRICAL

1980 Wiring Diagram — TX, TX-C

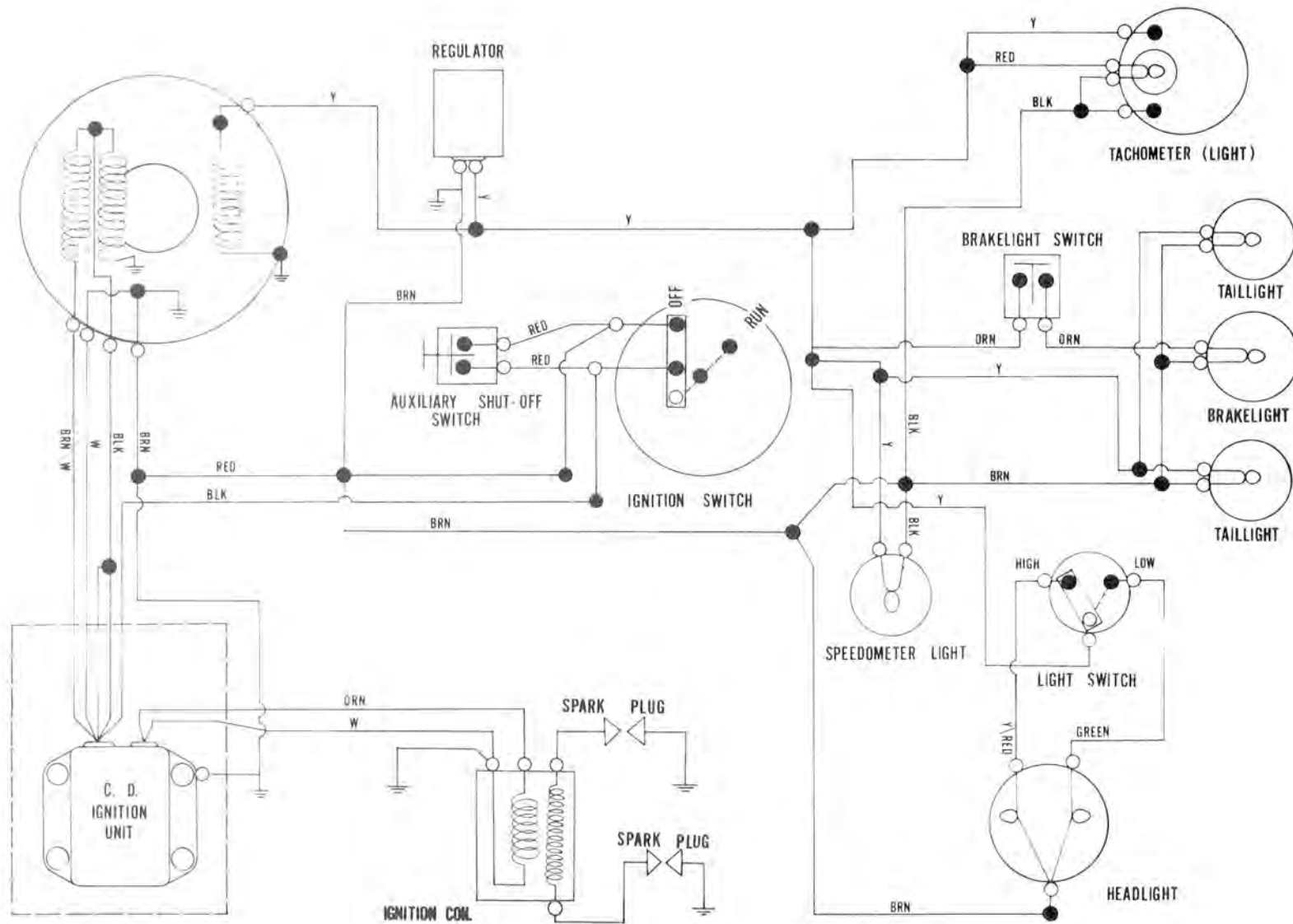
WIRING DIAGRAM 1980 TX - TX-C



SCHEMATIC DIAGRAM

1980 TX - TX-C
(90 WATT ALTERNATOR)

EC 34PT - 07
EC 44PT - 05

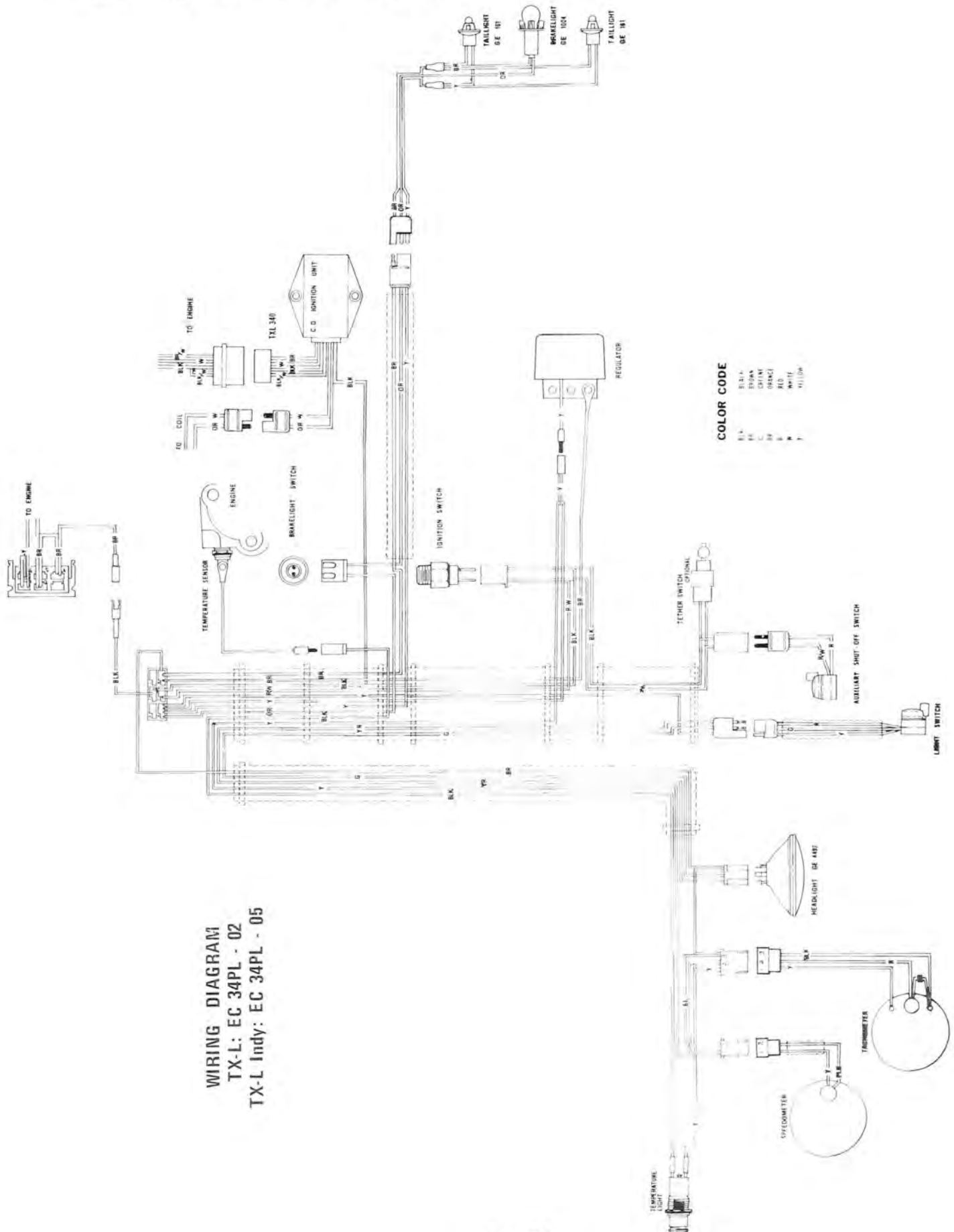


BODY ELECTRICAL
1980 Schematic Diagram - TX, TX-C

BODY ELECTRICAL

1980 Wiring Diagram — TX-L, TX-L Indy

WIRING DIAGRAM
TX-L: EC 34PL - 02
TX-L Indy: EC 34PL - 05



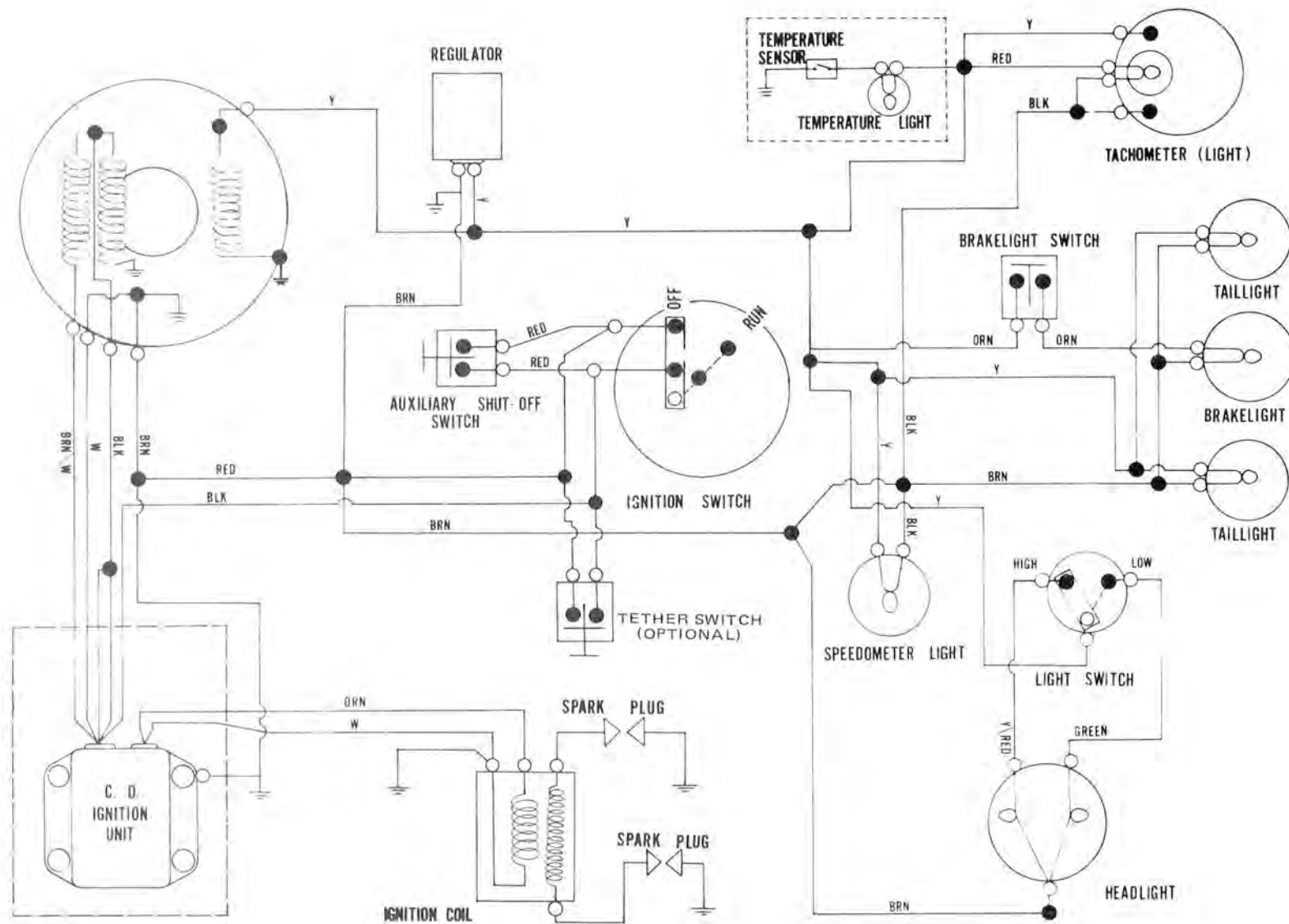
SCHEMATIC DIAGRAM

1980 TX-L - TX-L Indy

(90 WATT ALTERNATOR)

TX-L: EC 34PL - 02

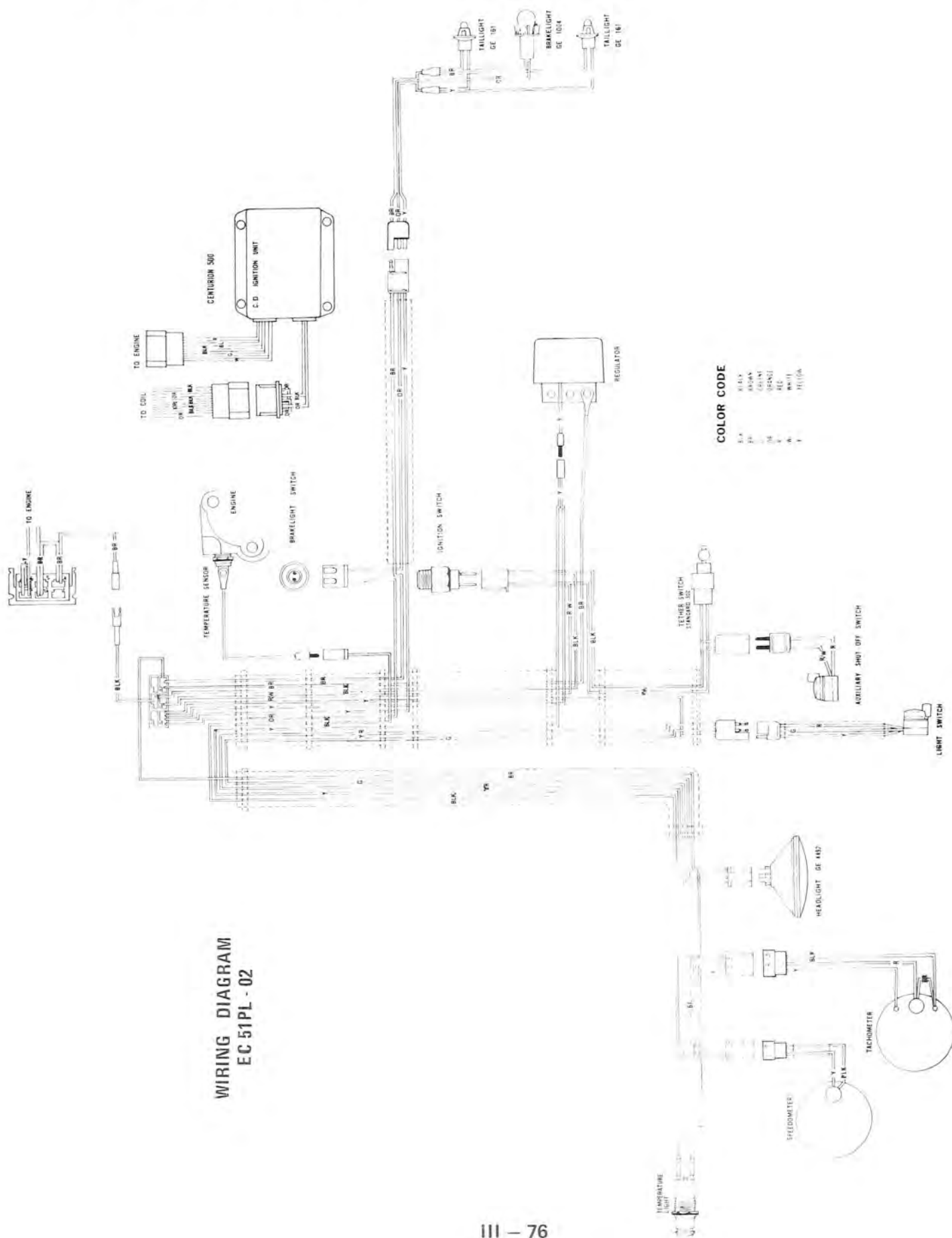
TX-L Indy: EC 34PL - 05



BODY ELECTRICAL

1980 Wiring Diagram — Centurion

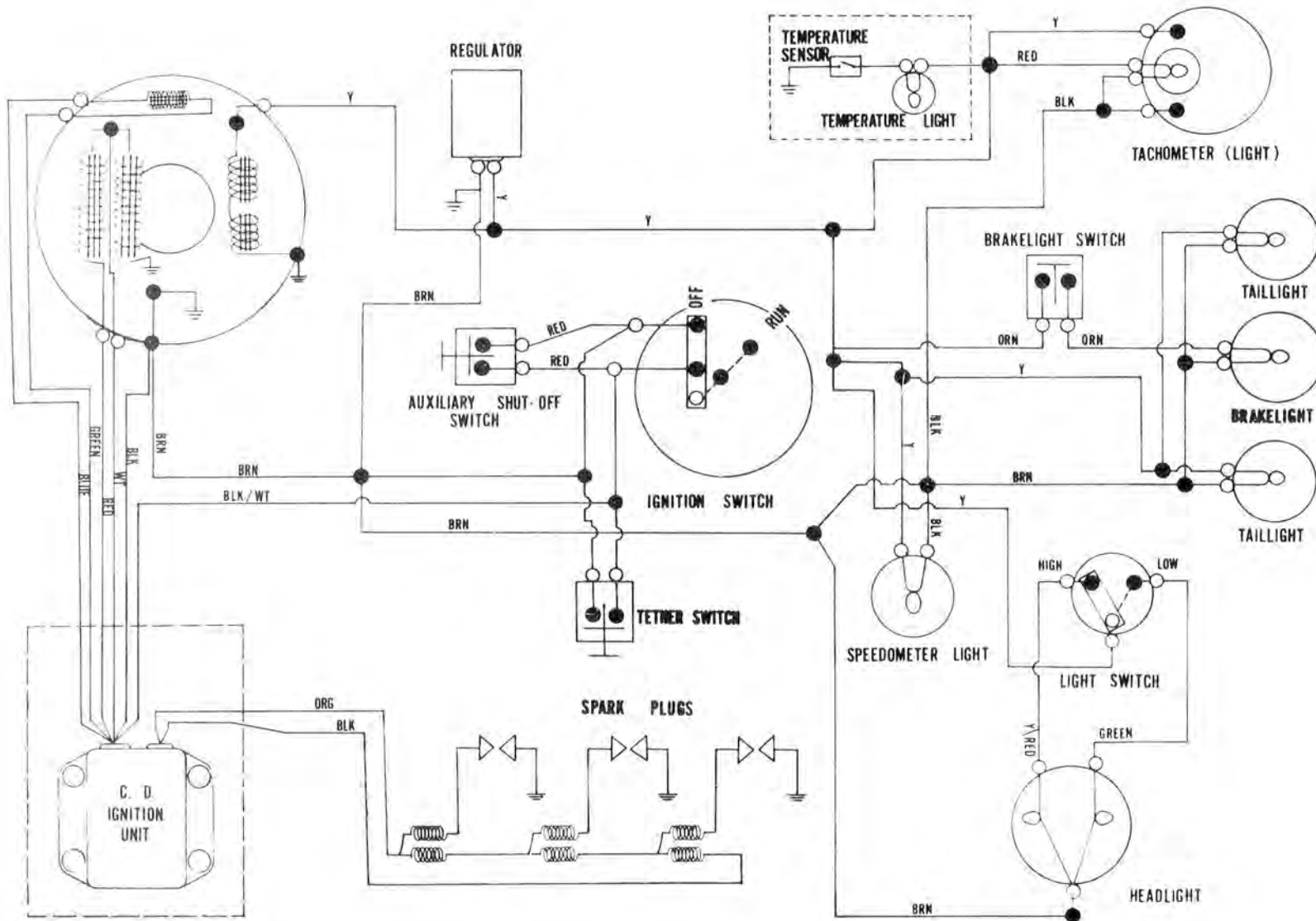
WIRING DIAGRAM EC 51PL - 02



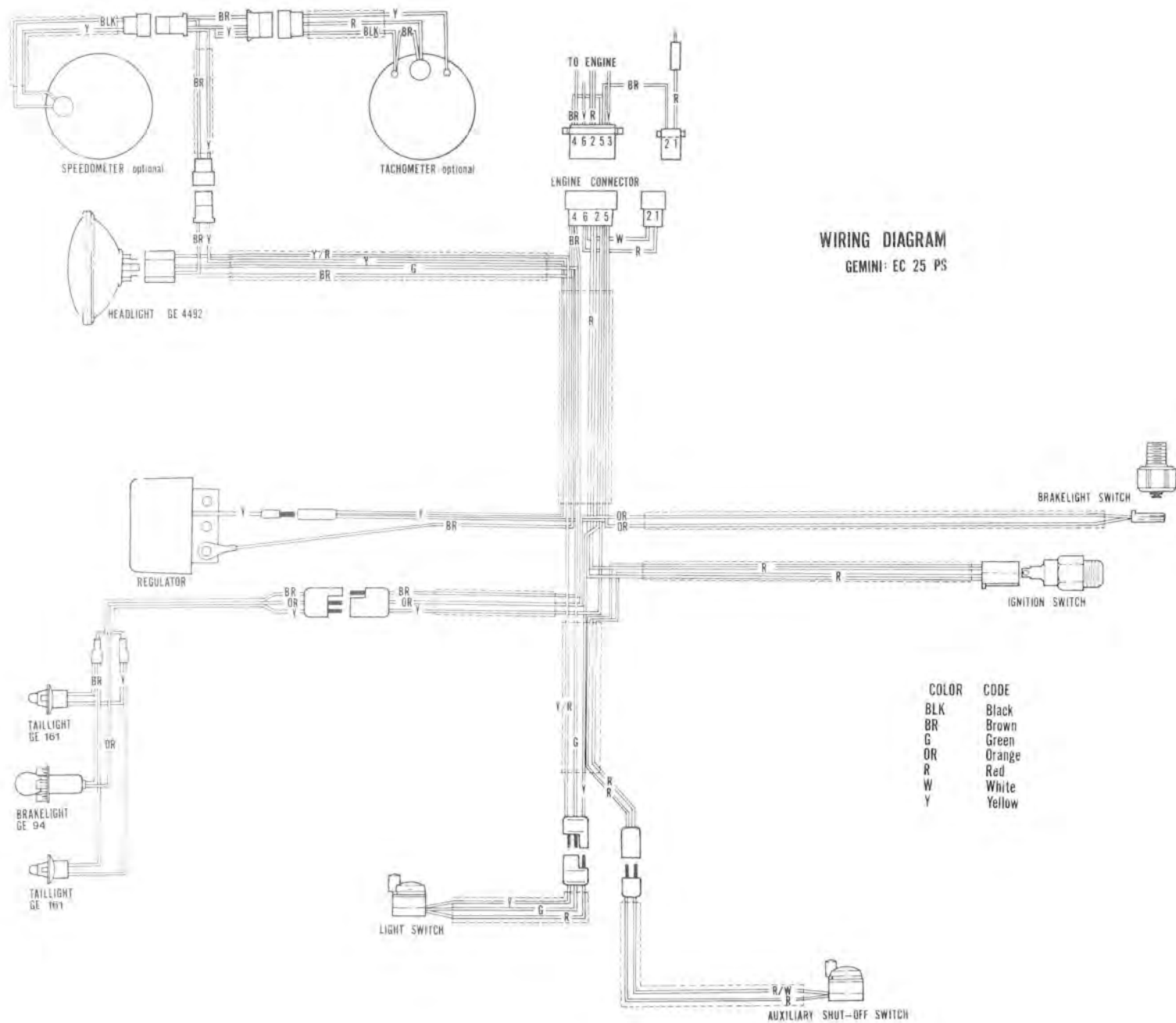
SCHEMATIC DIAGRAM

1980 CENTURION
(120 WATT ALTERNATOR)

EC 51PL-02



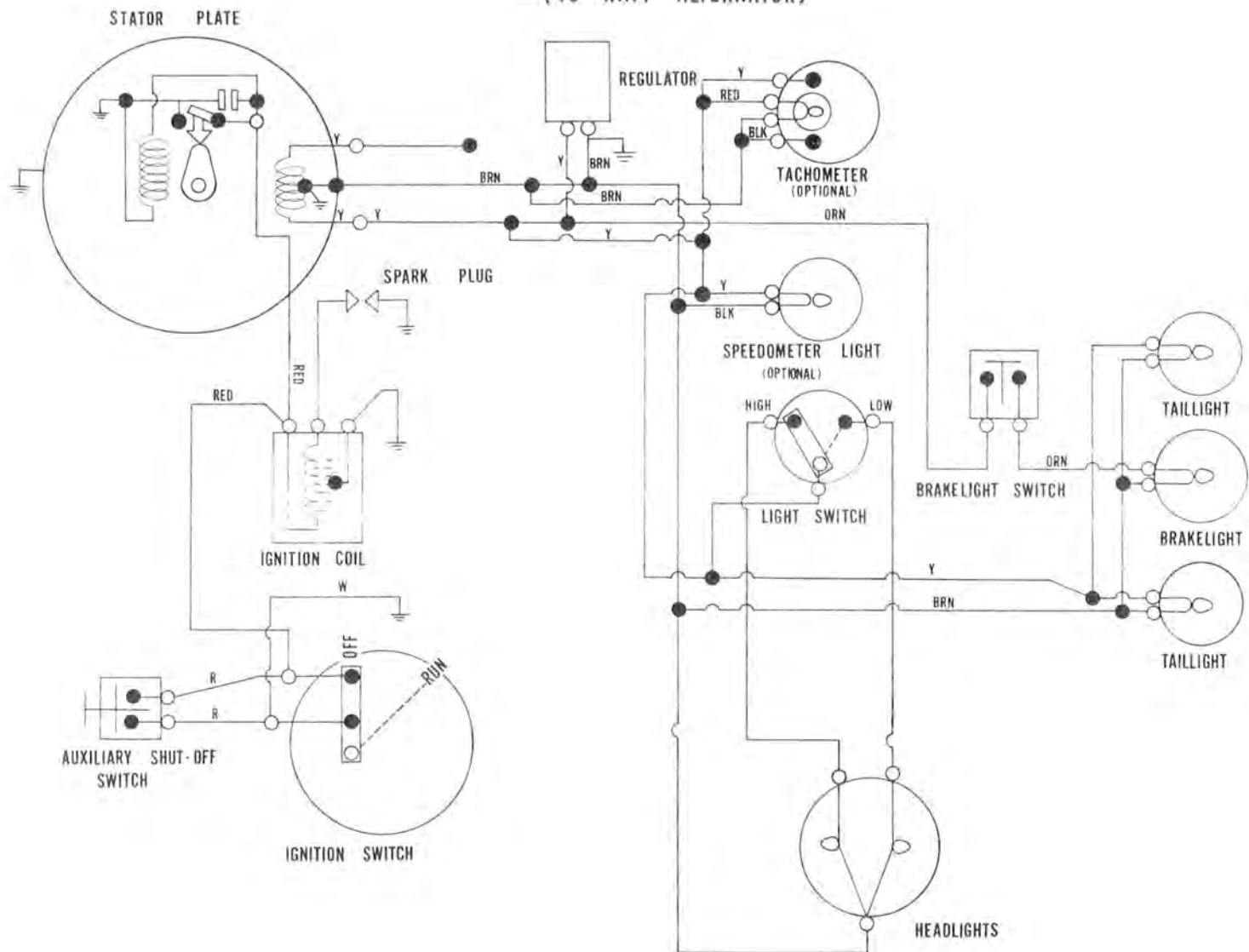
BODY ELECTRICAL 1981 and 1983 Wiring Diagram — Gemini



SCHEMATIC DIAGRAM

GEMINI: EC 25 PS

(75 WATT ALTERNATOR)



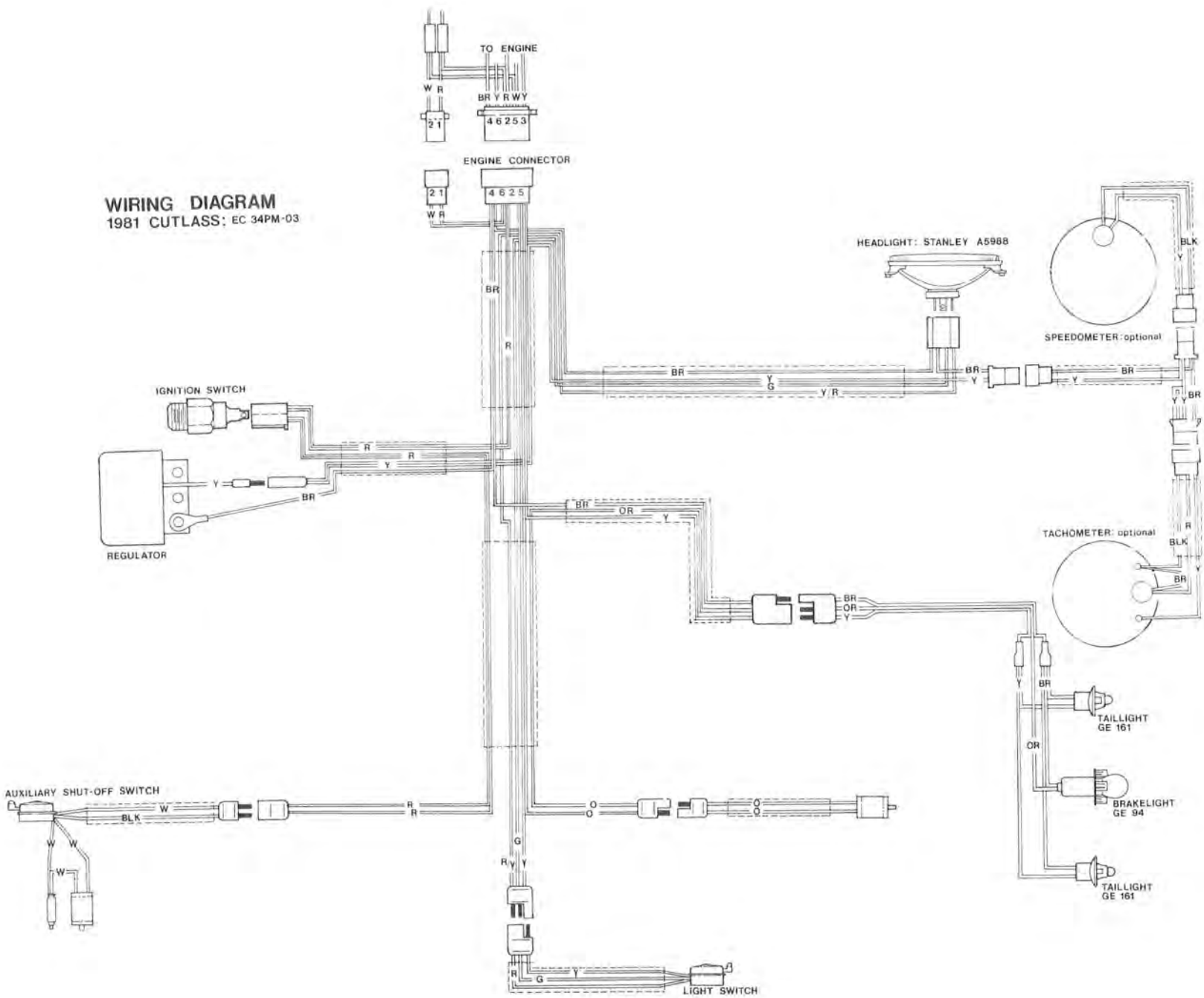
1981 and 1983 Schematic Diagram — Gemini

BODY ELECTRICAL

BODY ELECTRICAL

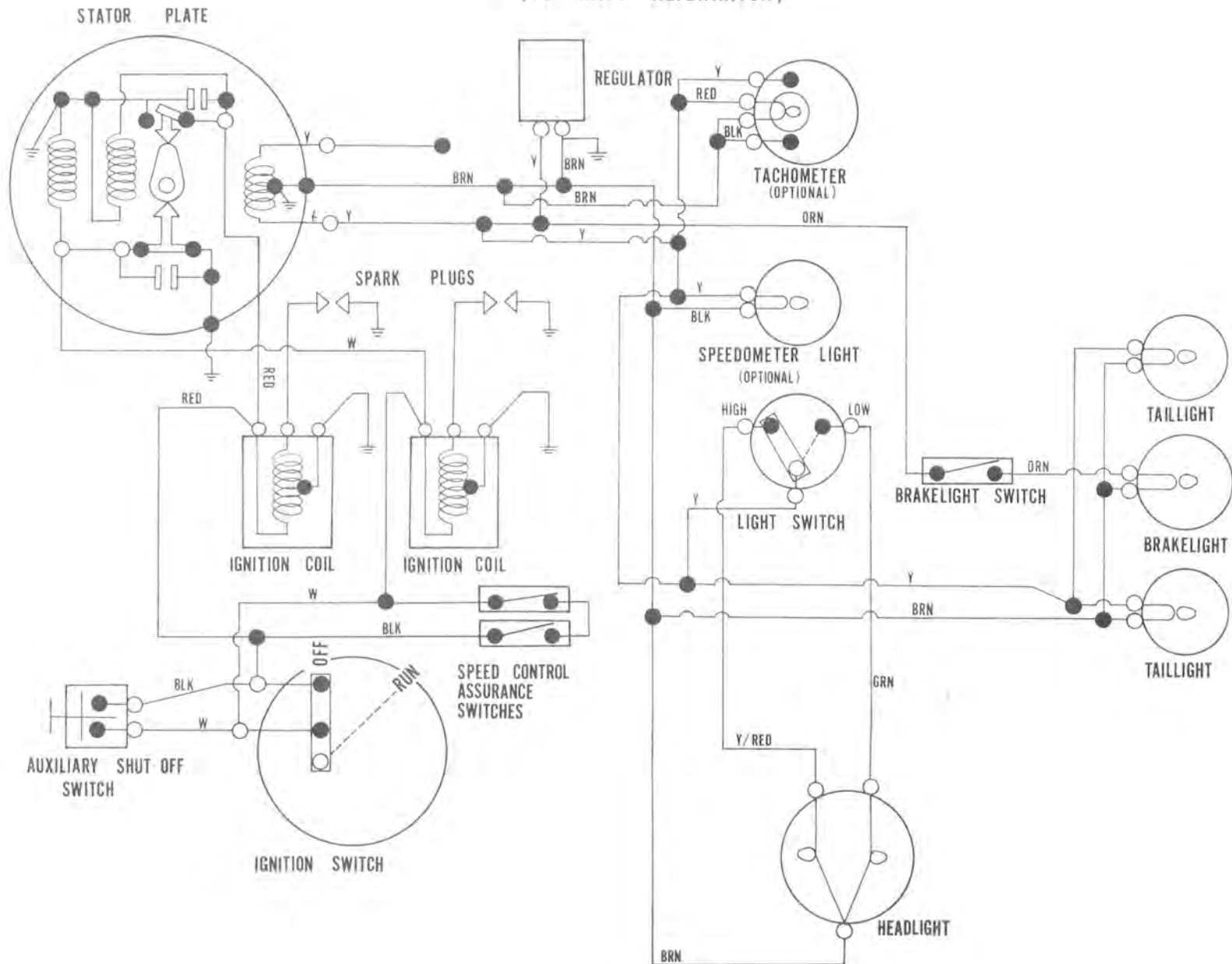
1981 Wiring Diagram – Cutlass

WIRING DIAGRAM
1981 CUTLASS: EC 34PM-03

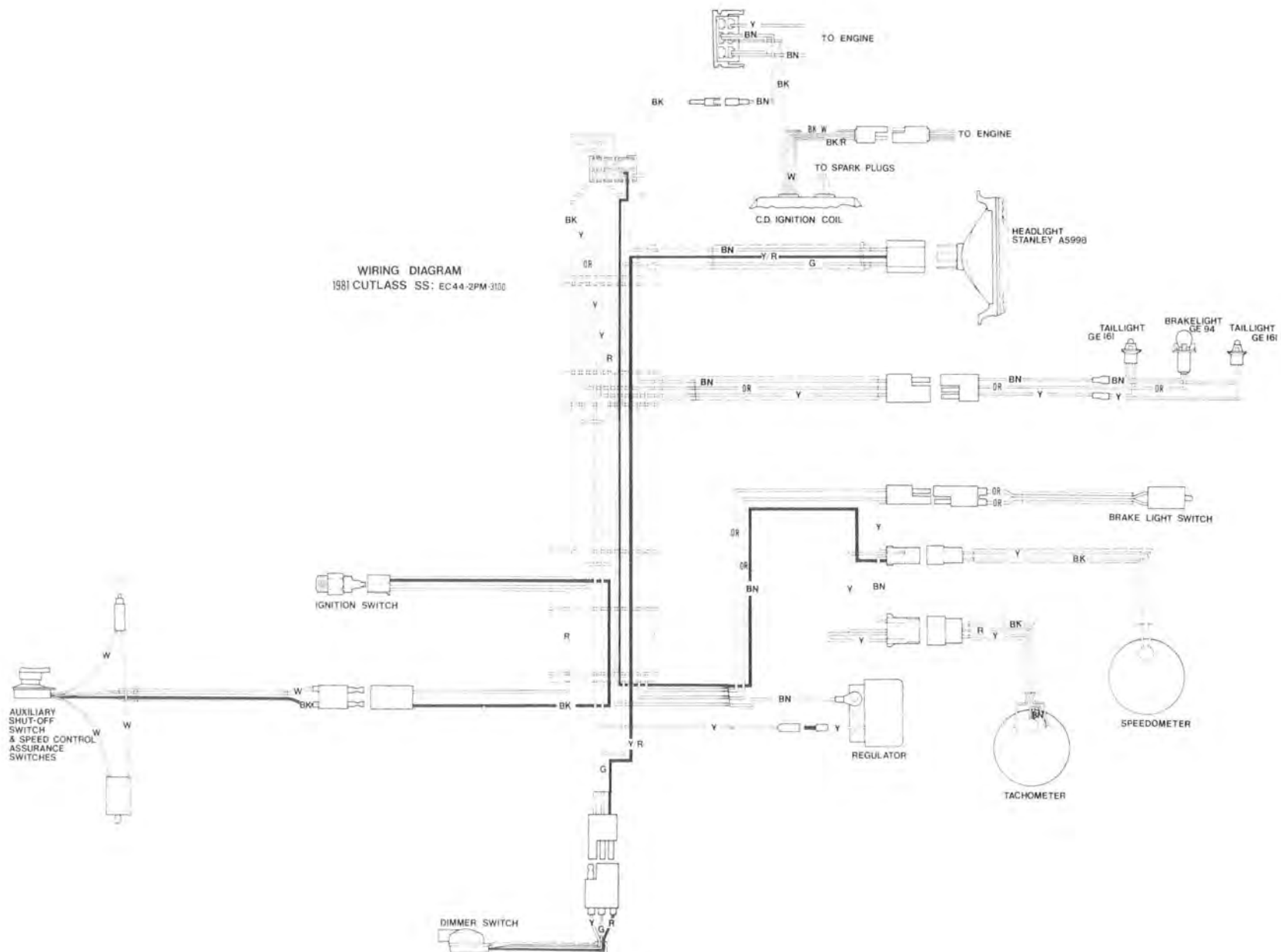


SCHEMATIC DIAGRAM

1981 CUTLASS : EC 34 PM-03
(75 WATT ALTERNATOR)

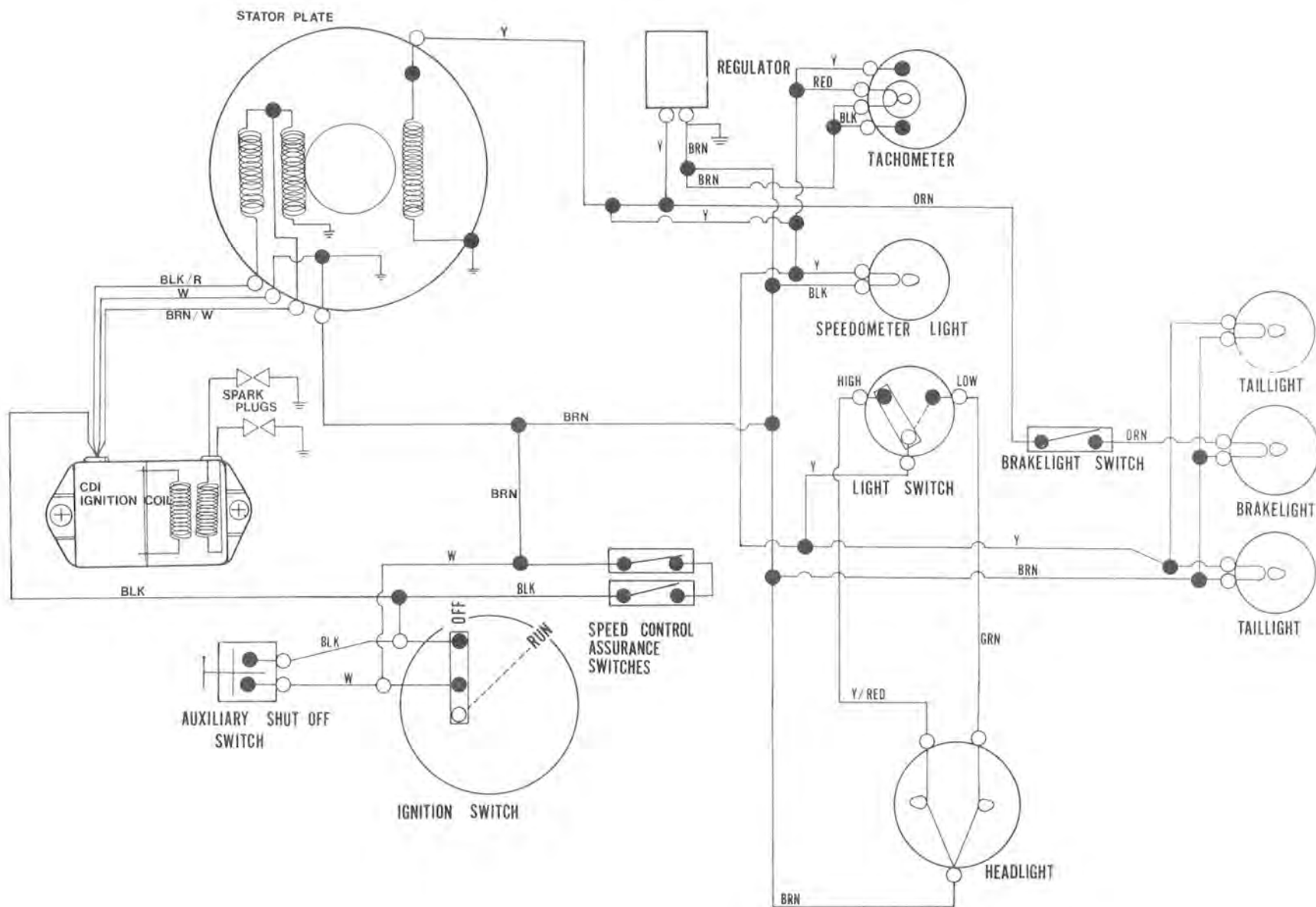


BODY ELECTRICAL 1981 Wiring Diagram — Cutlass SS

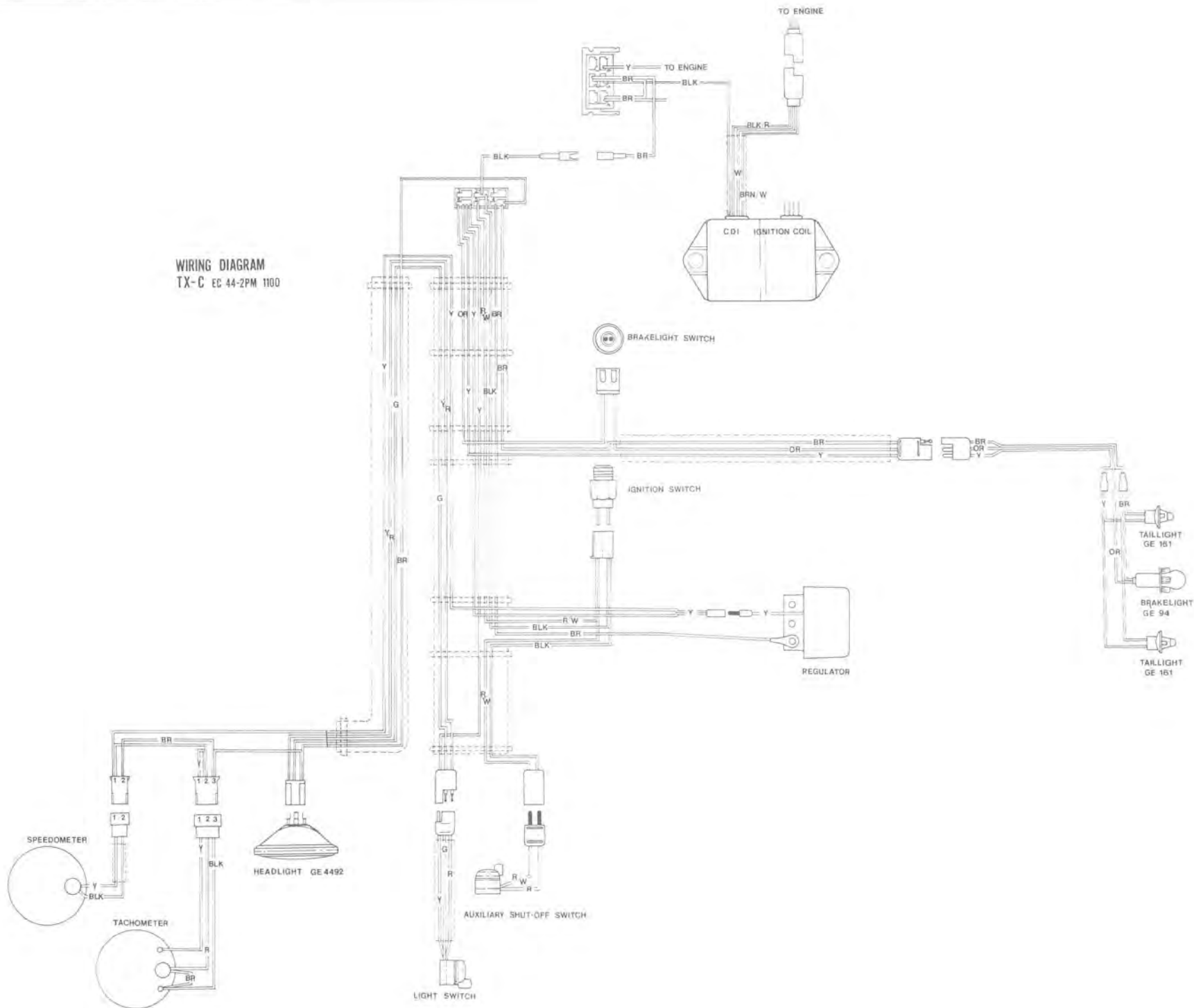


SCHEMATIC DIAGRAM

1981 CUTLASS SS EC44-2PM 3100
(120 WATT ALTERNATOR)

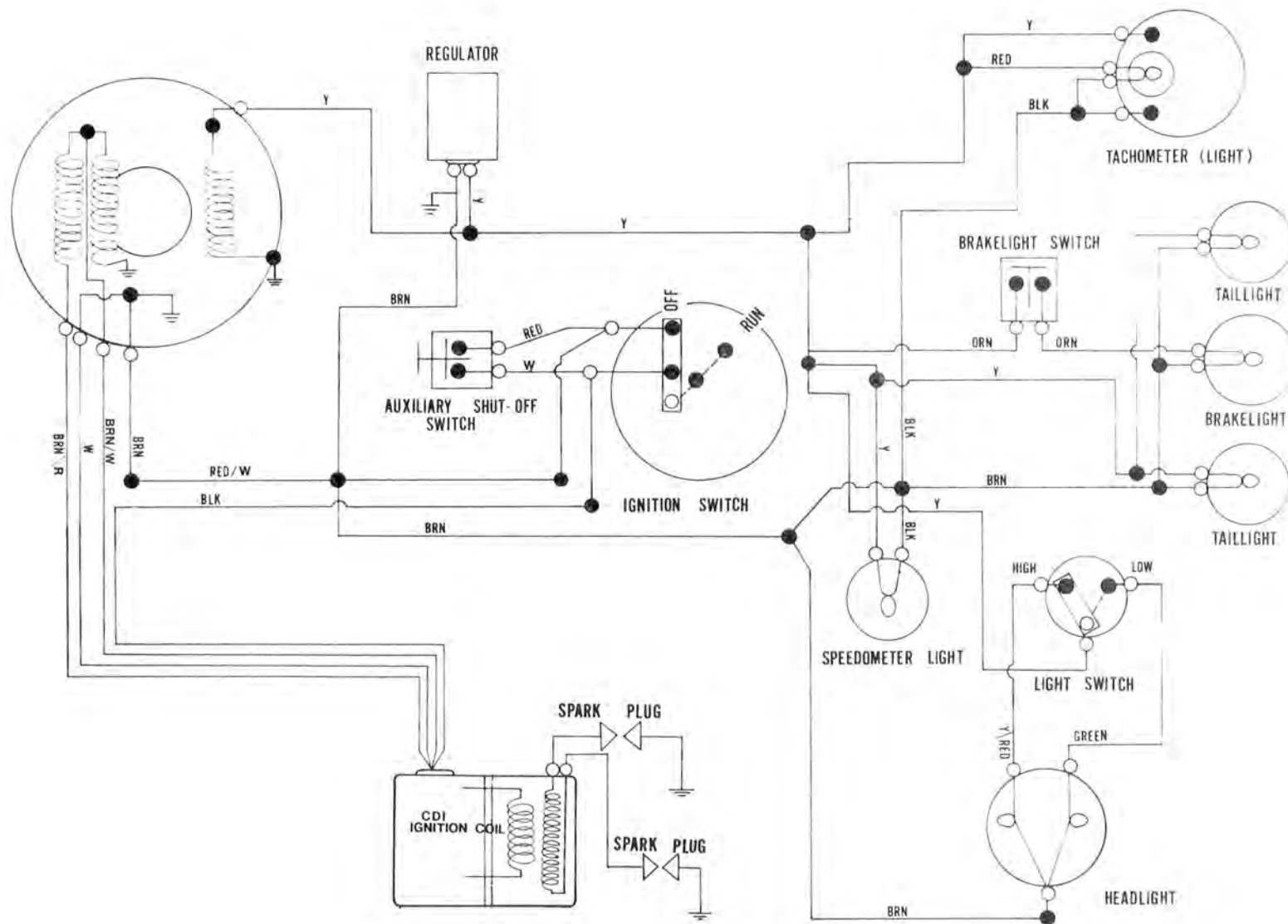


BODY ELECTRICAL



SCHEMATIC DIAGRAM

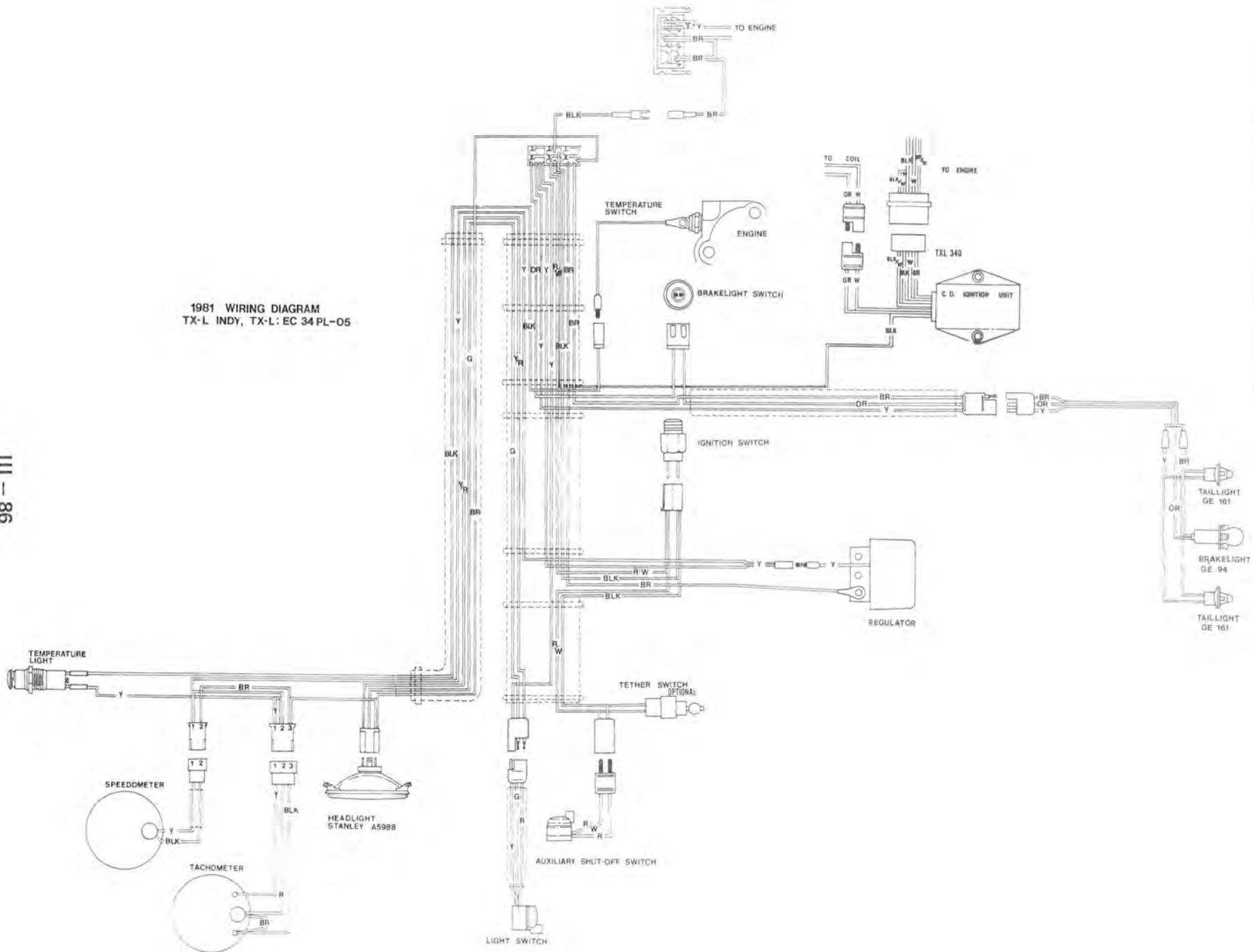
1981 TX-C EC 44-2PM 1100
(120 WATT ALTERNATOR)



BODY ELECTRICAL
1981 Schematic Diagram - TX-C

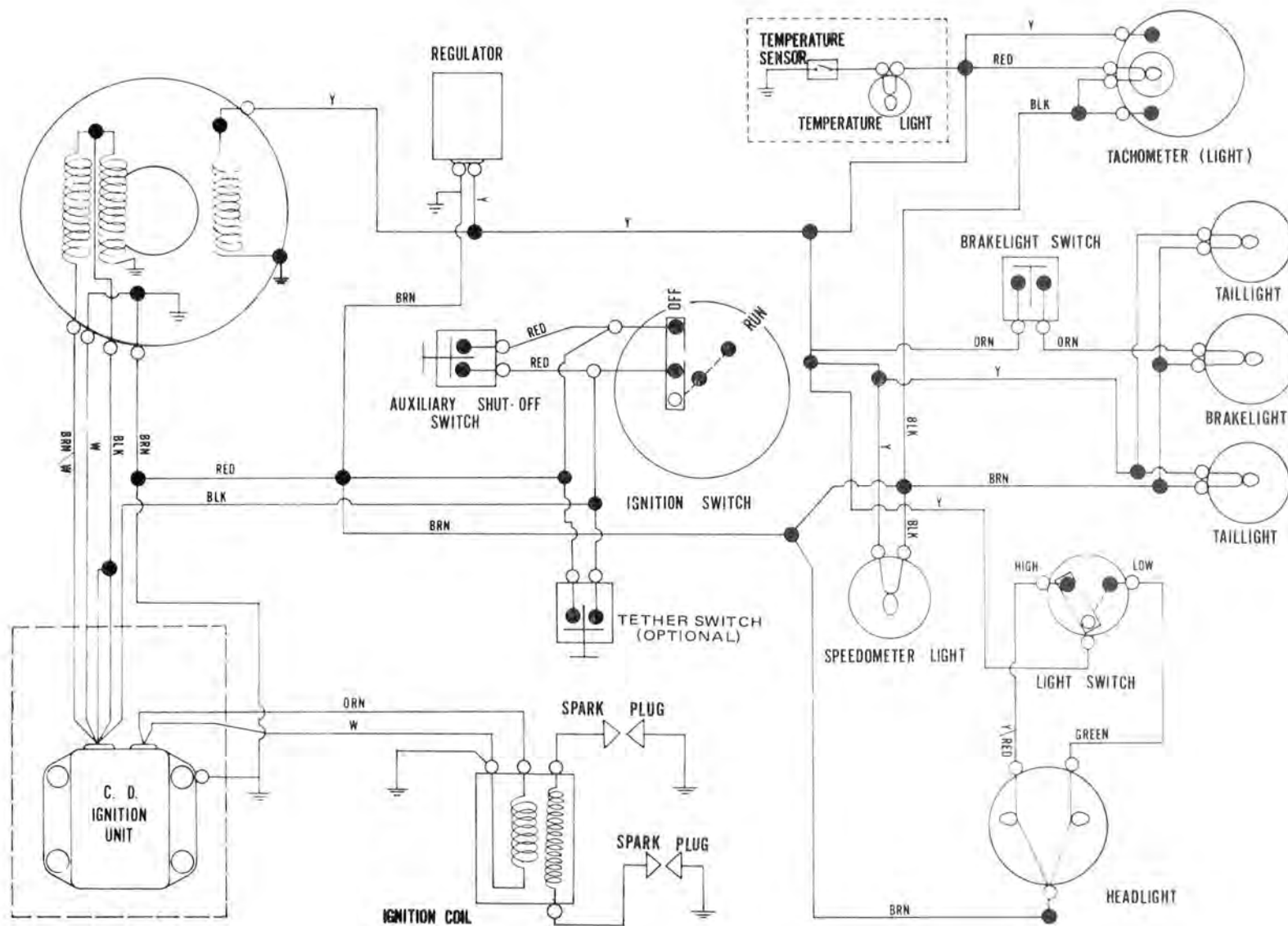
BODY ELECTRICAL 1981 Wiring Diagram — TX-L, TX-L Indy

1981 WIRING DIAGRAM
TX-L INDY, TX-L: EC 34 PL-05



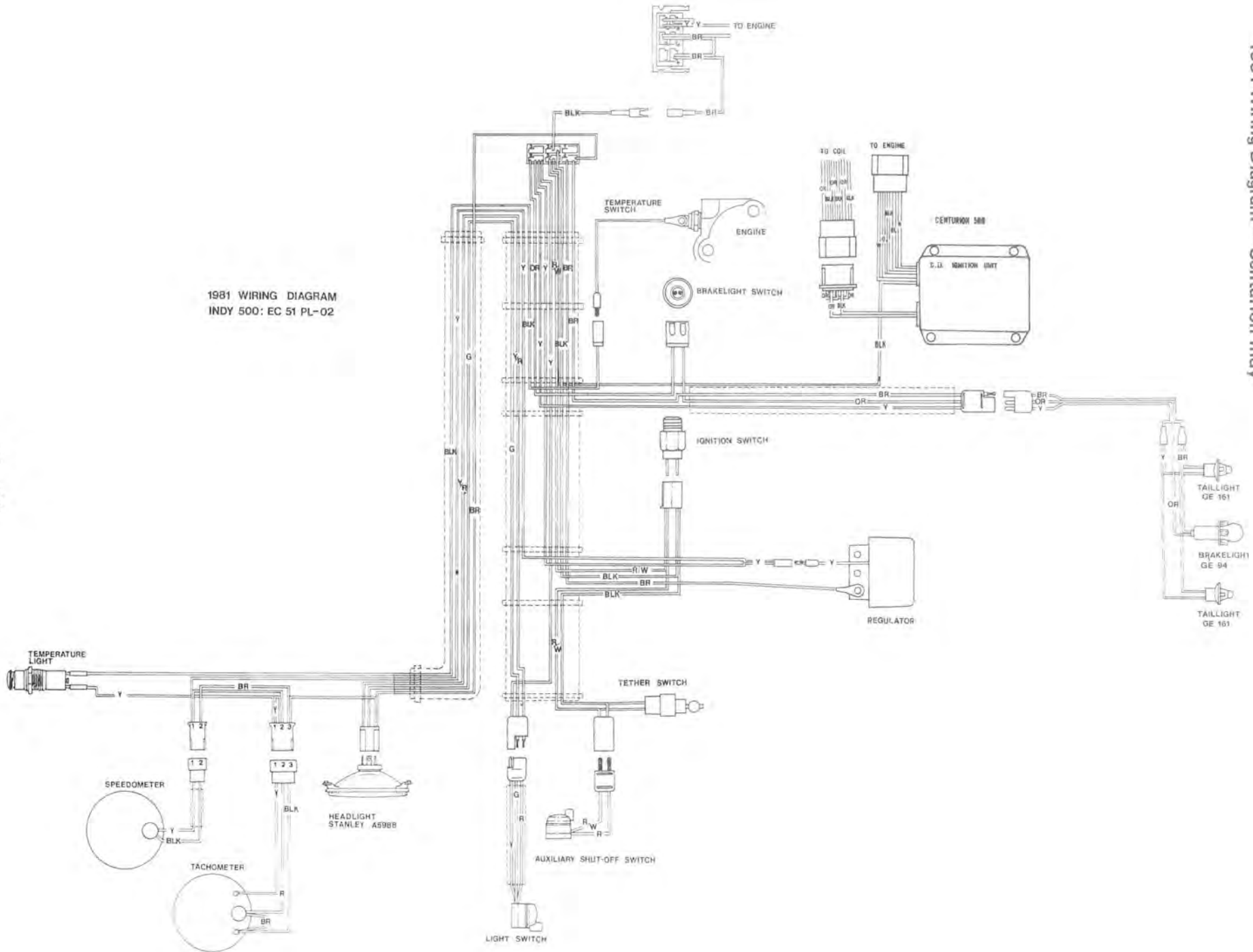
SCHEMATIC DIAGRAM 1981 TX-L; TX-L INDY

TX-L; TX-L INDY: EC 34PL-05



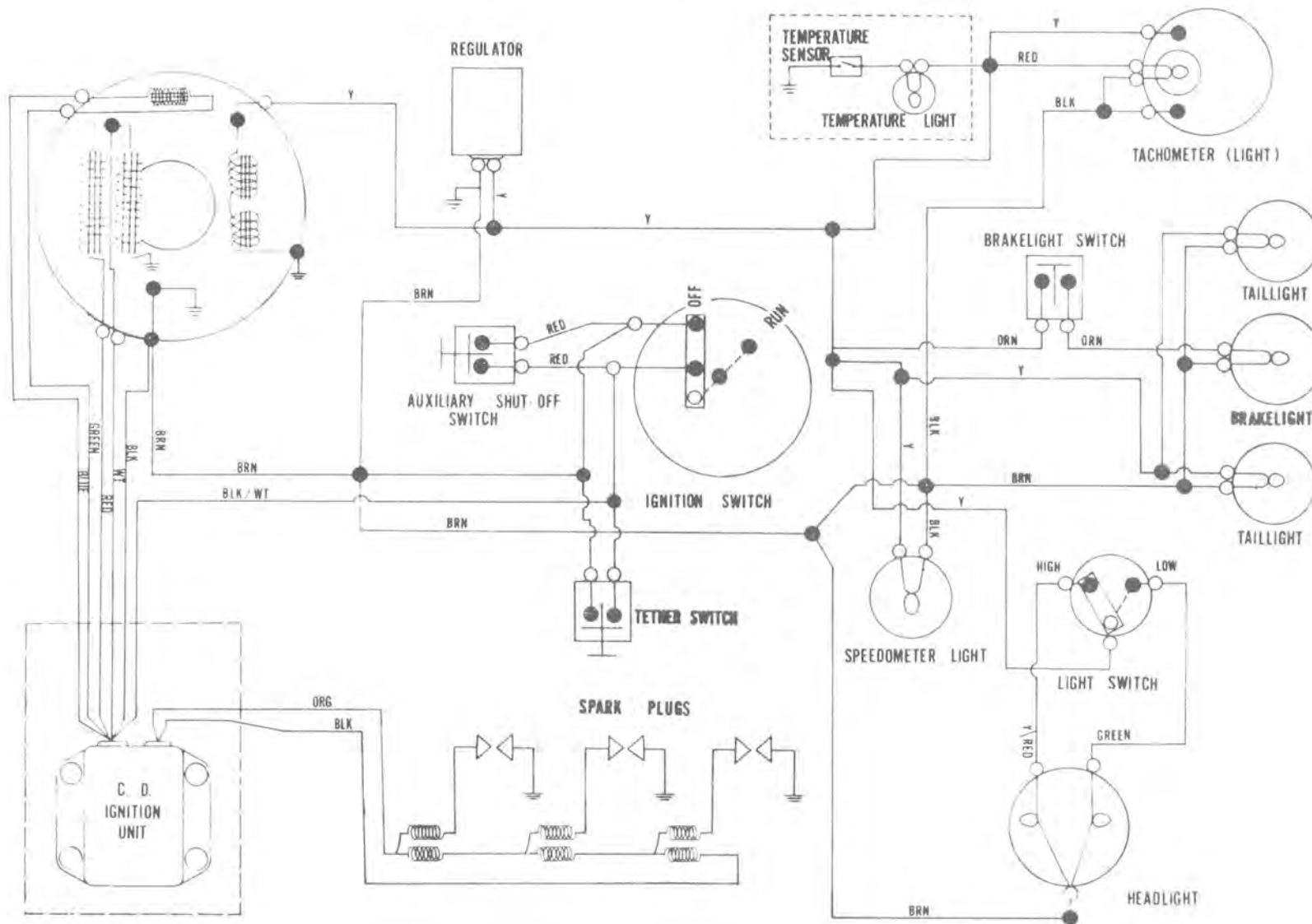
BODY ELECTRICAL
1981 Schematic Diagram — TX-L, TX-L Indy

BODY ELECTRICAL 1981 Wiring Diagram — Centurion Indy



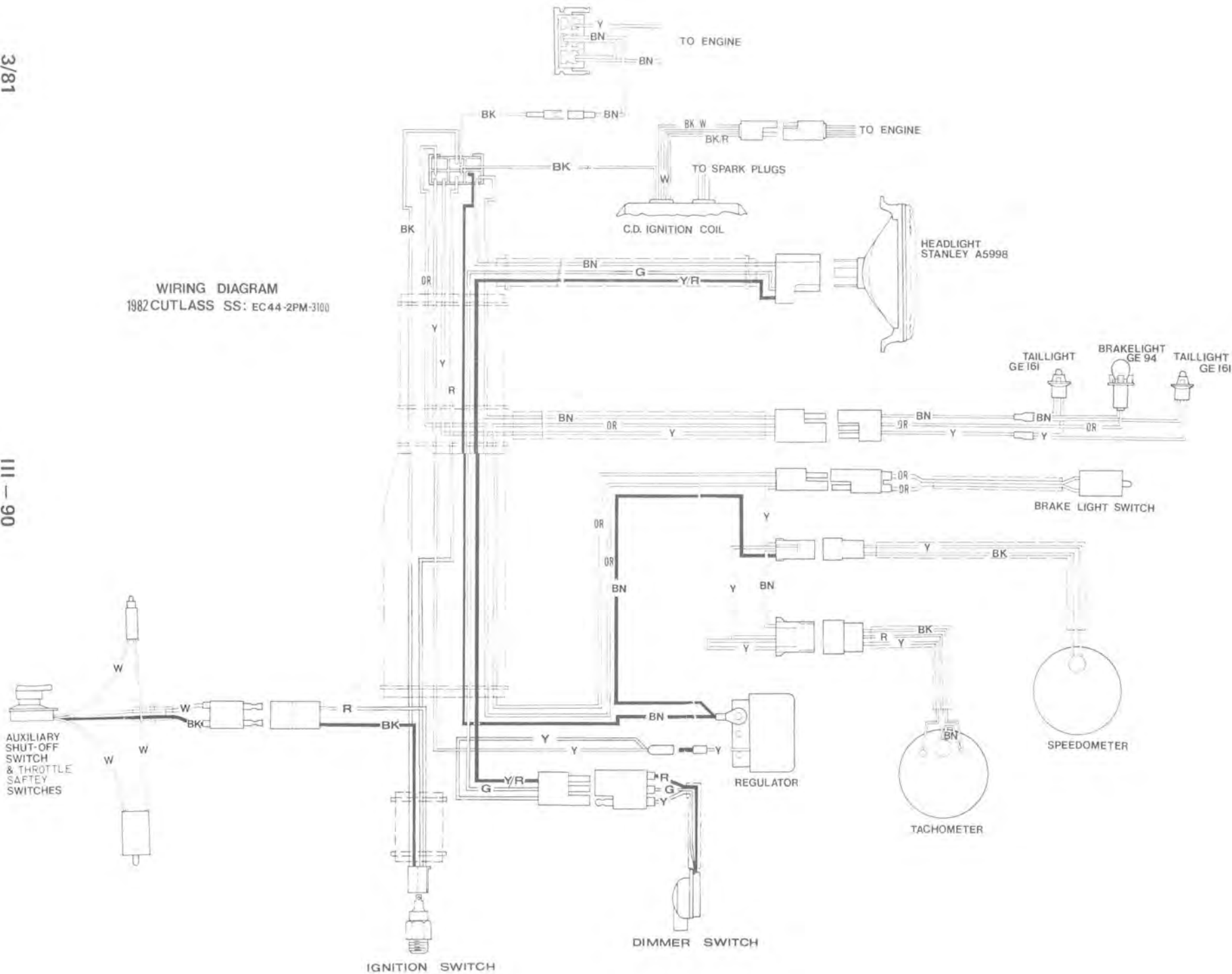
SCHEMATIC DIAGRAM 1981 INDY CENTURION

EC 51PL-02



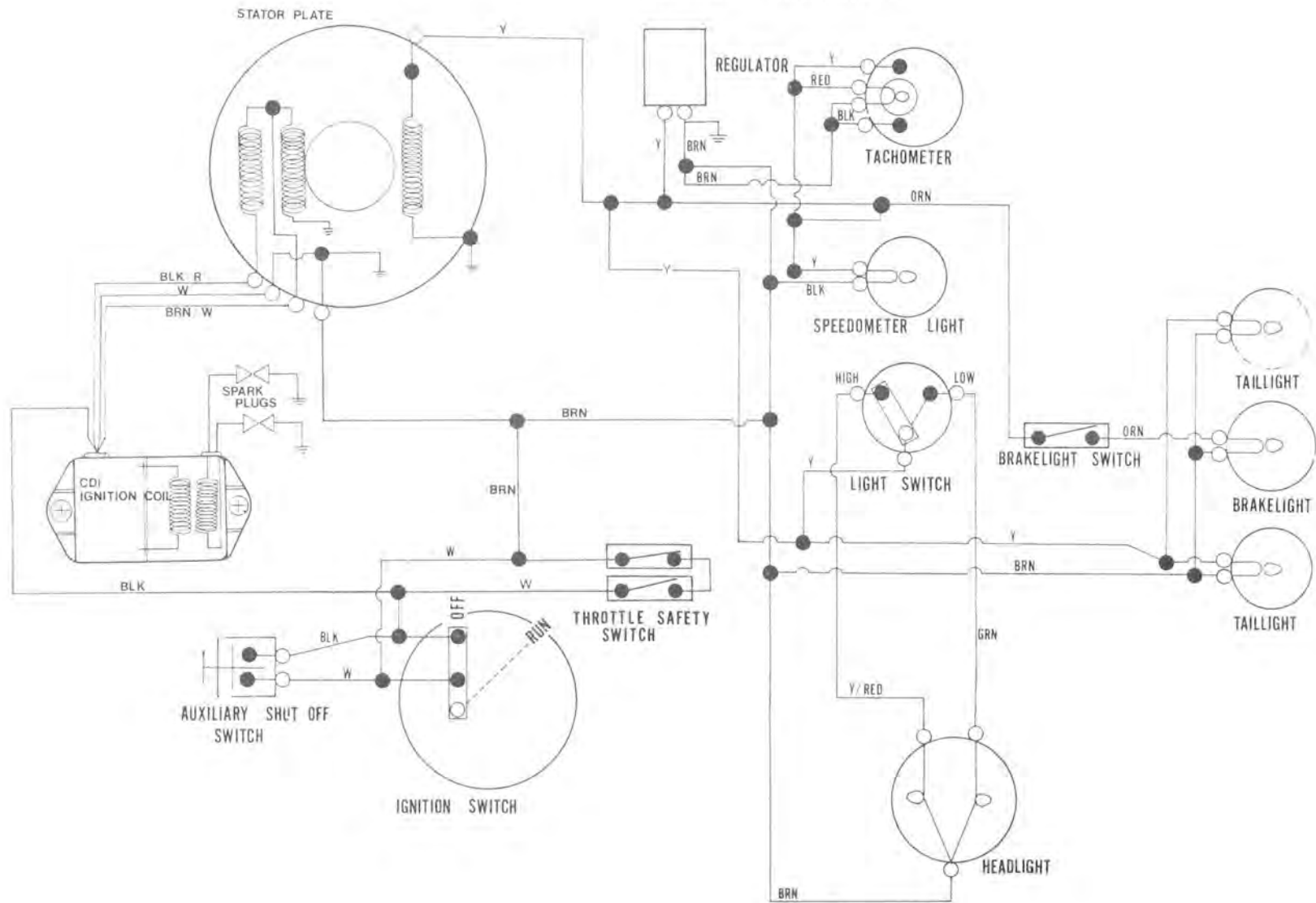
BODY ELECTRICAL 1982 Wiring Diagram — Cutlass SS

WIRING DIAGRAM
1982 CUTLASS SS: EC44-2PM-3100



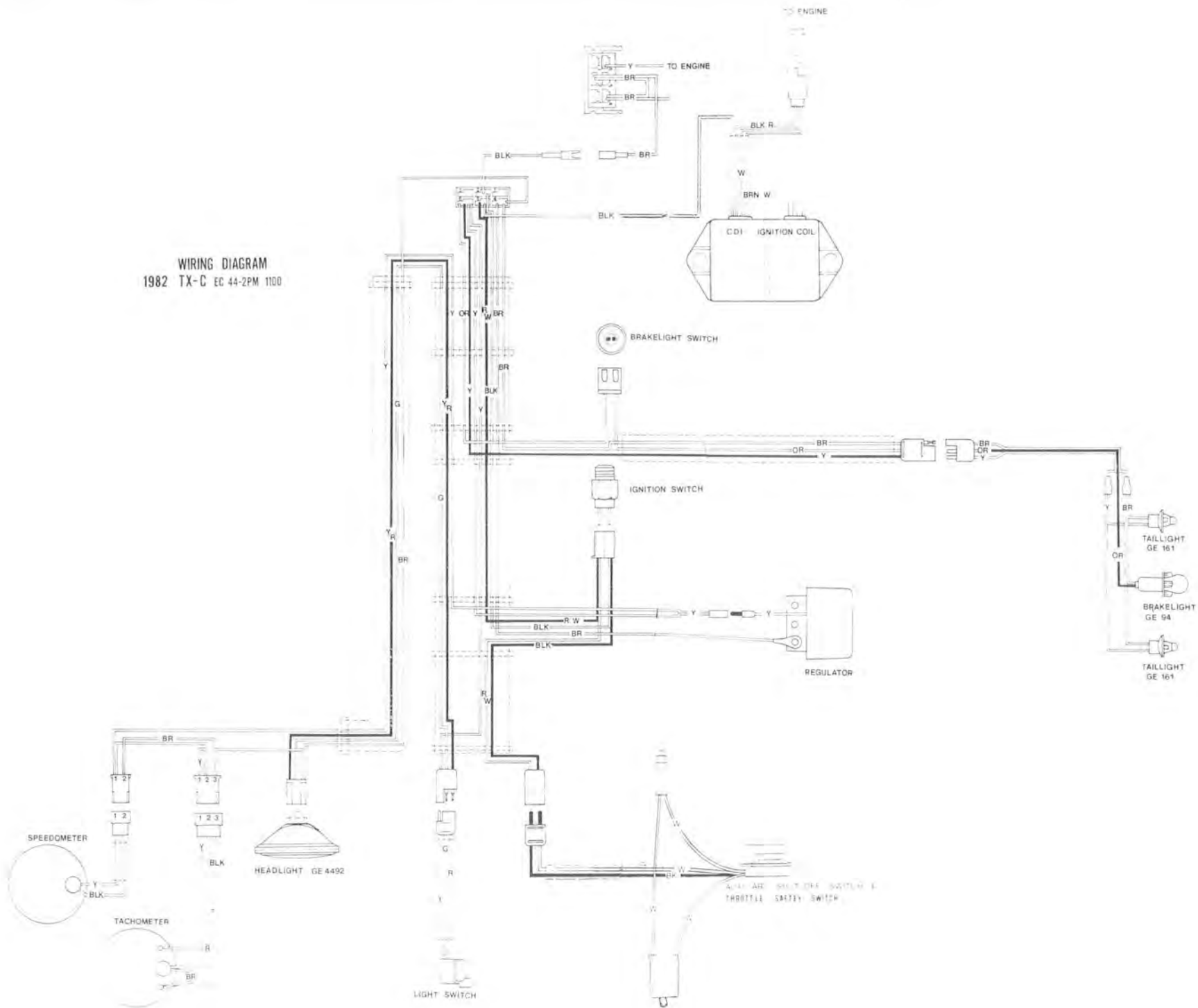
SCHEMATIC DIAGRAM

1982 CUTLASS SS EC 44-2PM 3100
(120 WATT ALTERNATOR)



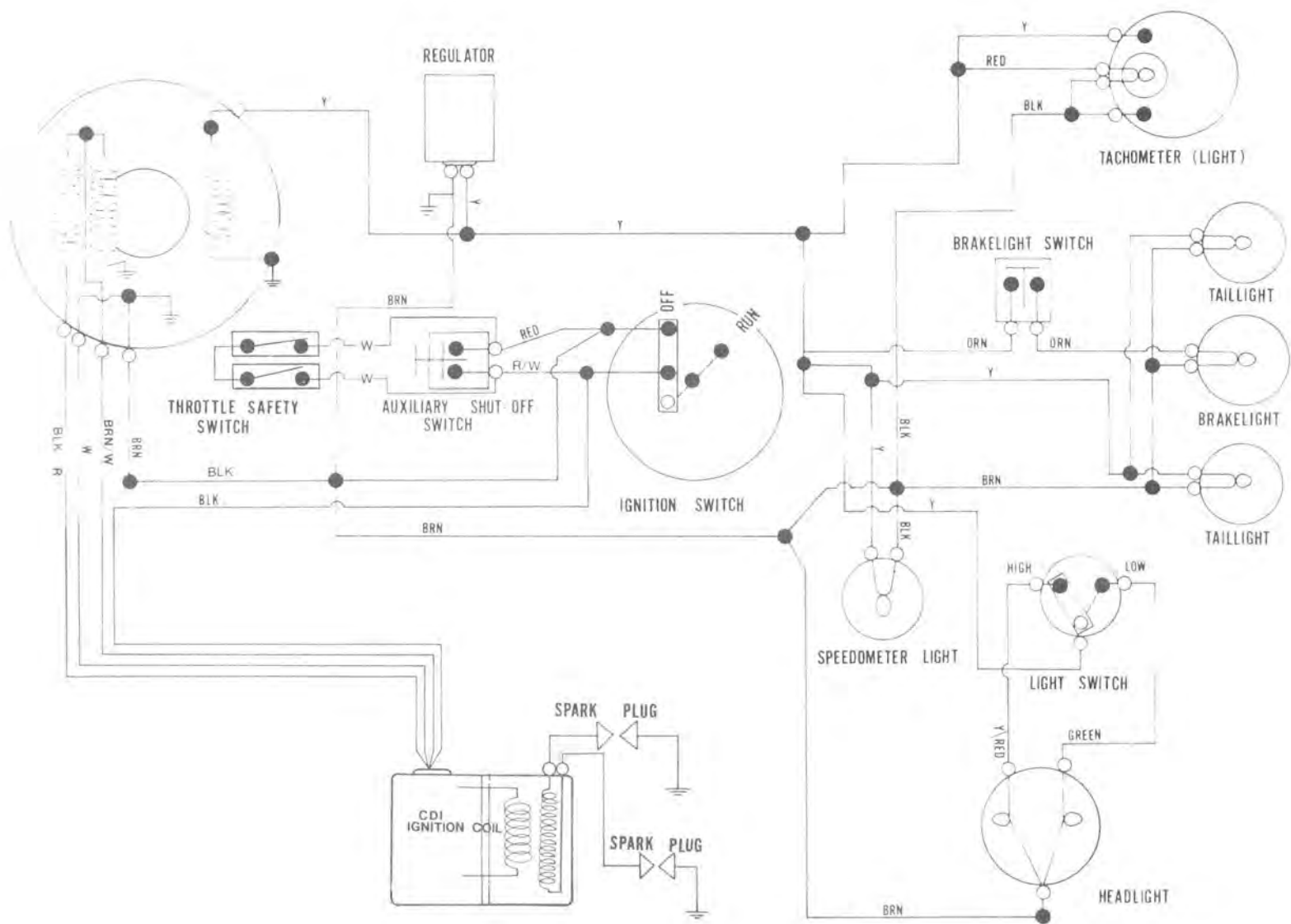
BODY ELECTRICAL 1982 Wiring Diagram — TX-C

WIRING DIAGRAM
1982 TX-C EC 44-2PM 1100



SCHEMATIC DIAGRAM

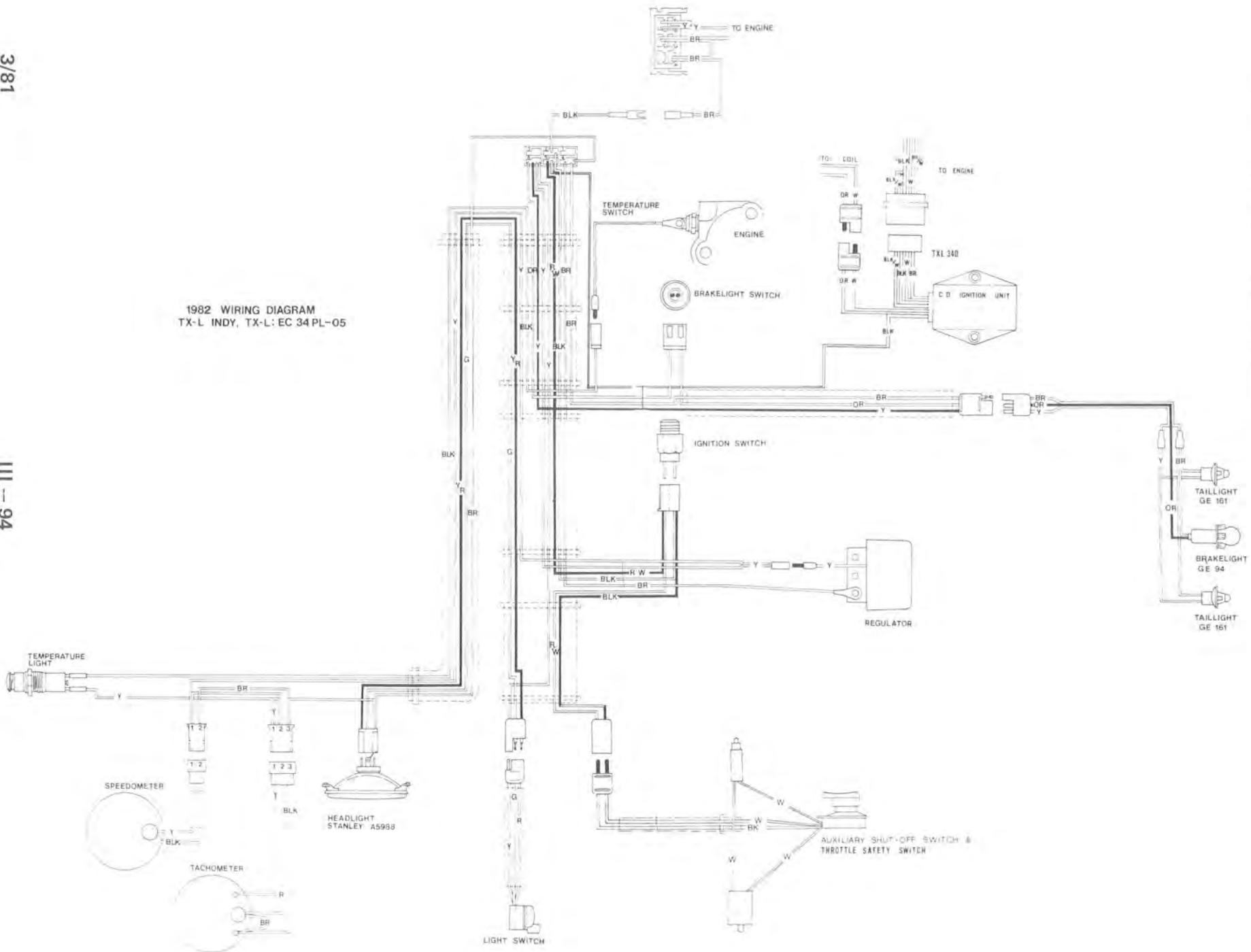
1982 TX-C EC 44-2PM 1100
(120 WATT ALTERNATOR)



BODY ELECTRICAL
1982 Schematic Diagram — TX-C

BODY ELECTRICAL 1982 Wiring Diagram — TX-L, TX-L Indy

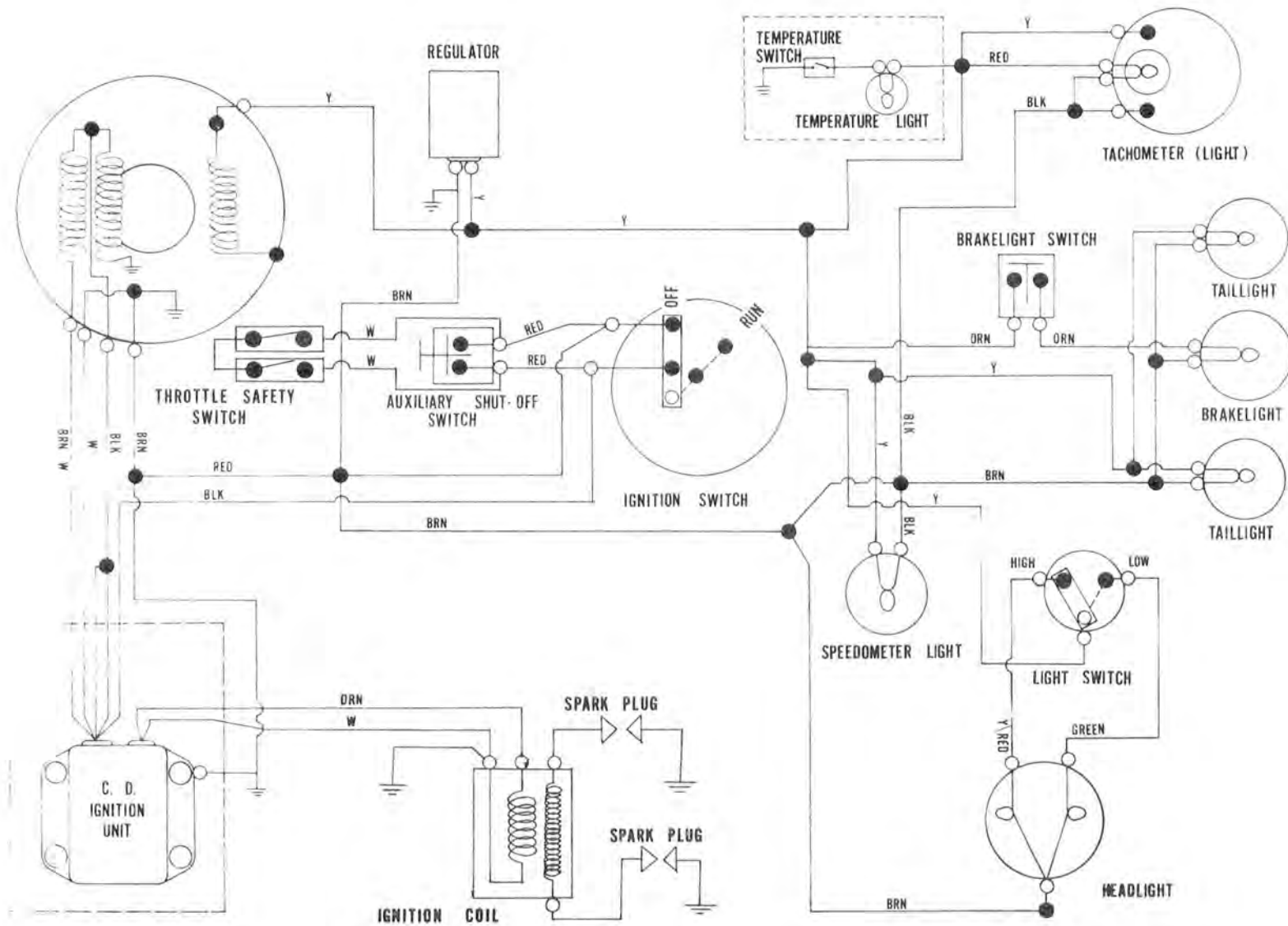
1982 WIRING DIAGRAM
TX-L INDY, TX-L: EC 34 PL-05



SCHEMATIC DIAGRAM

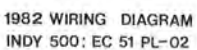
1982 TX-L; TXL INDY

TX-L; TX-L INDY: EC 34PL-05



BODY ELECTRICAL
1982 Schematic Diagram - TX-L, TX-L Indy

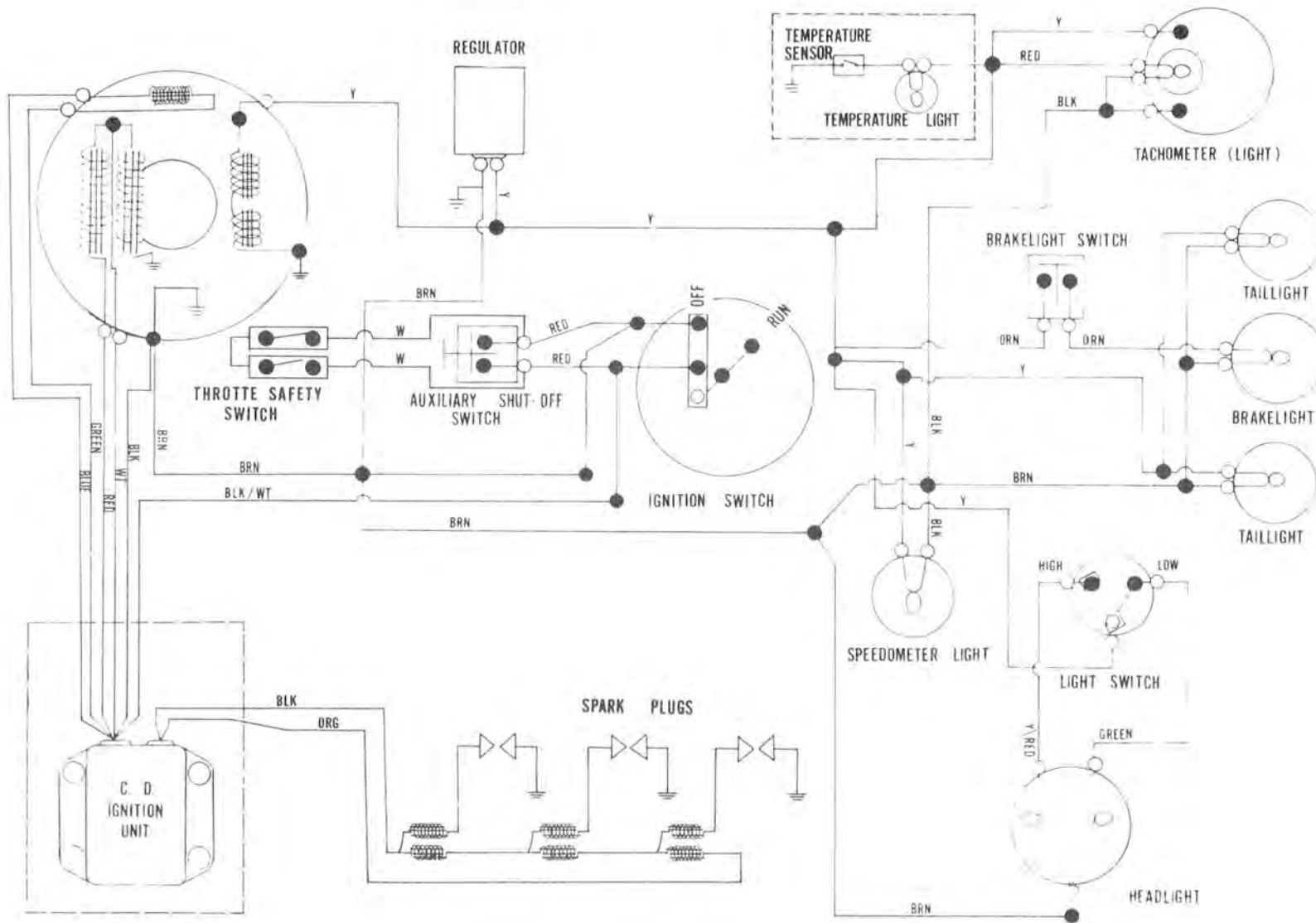
1982 Wiring Diagram – Centurion Indy



SCHEMATIC DIAGRAM

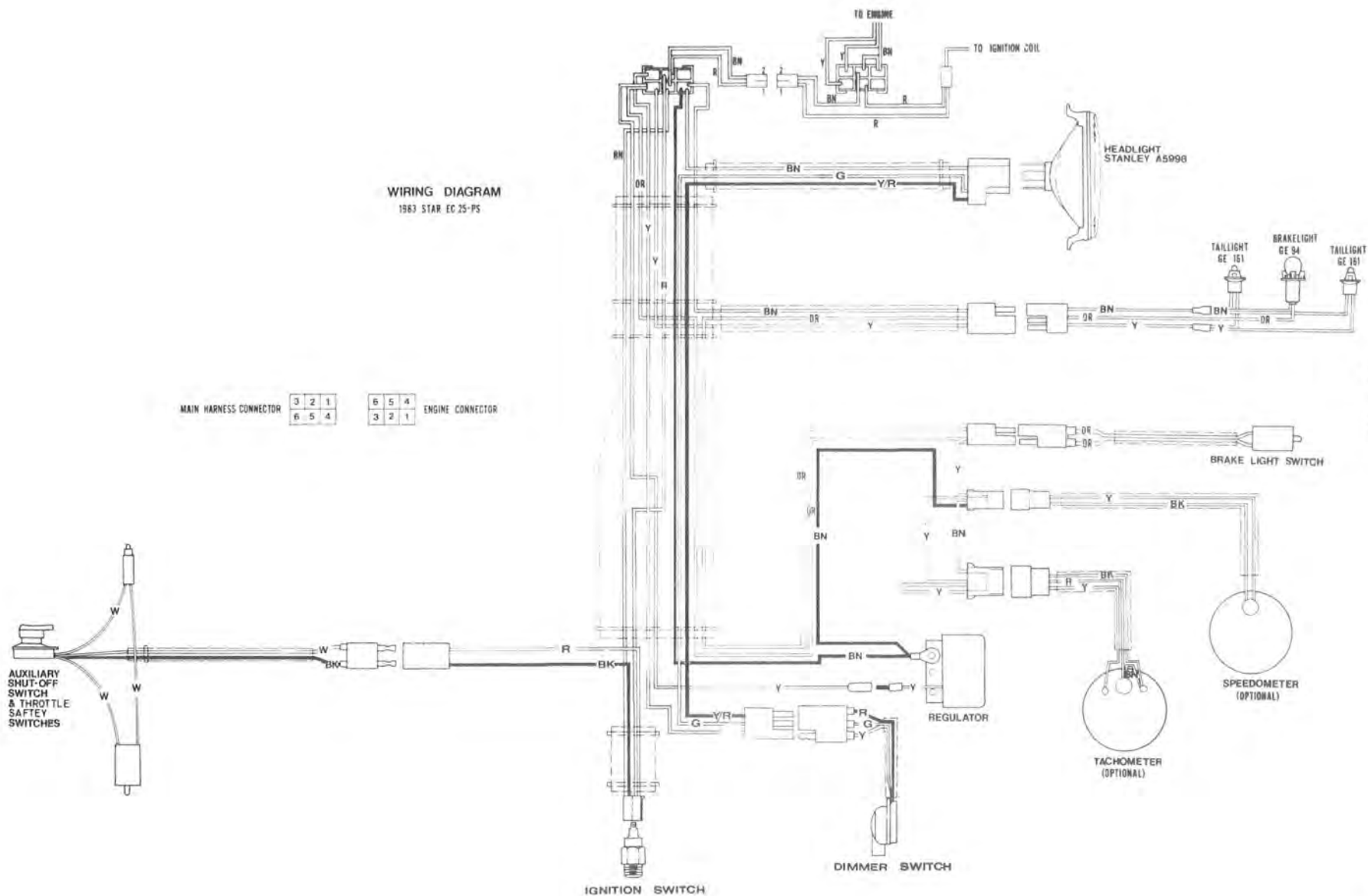
1982 INDY CENTURION

EC 51PL-02



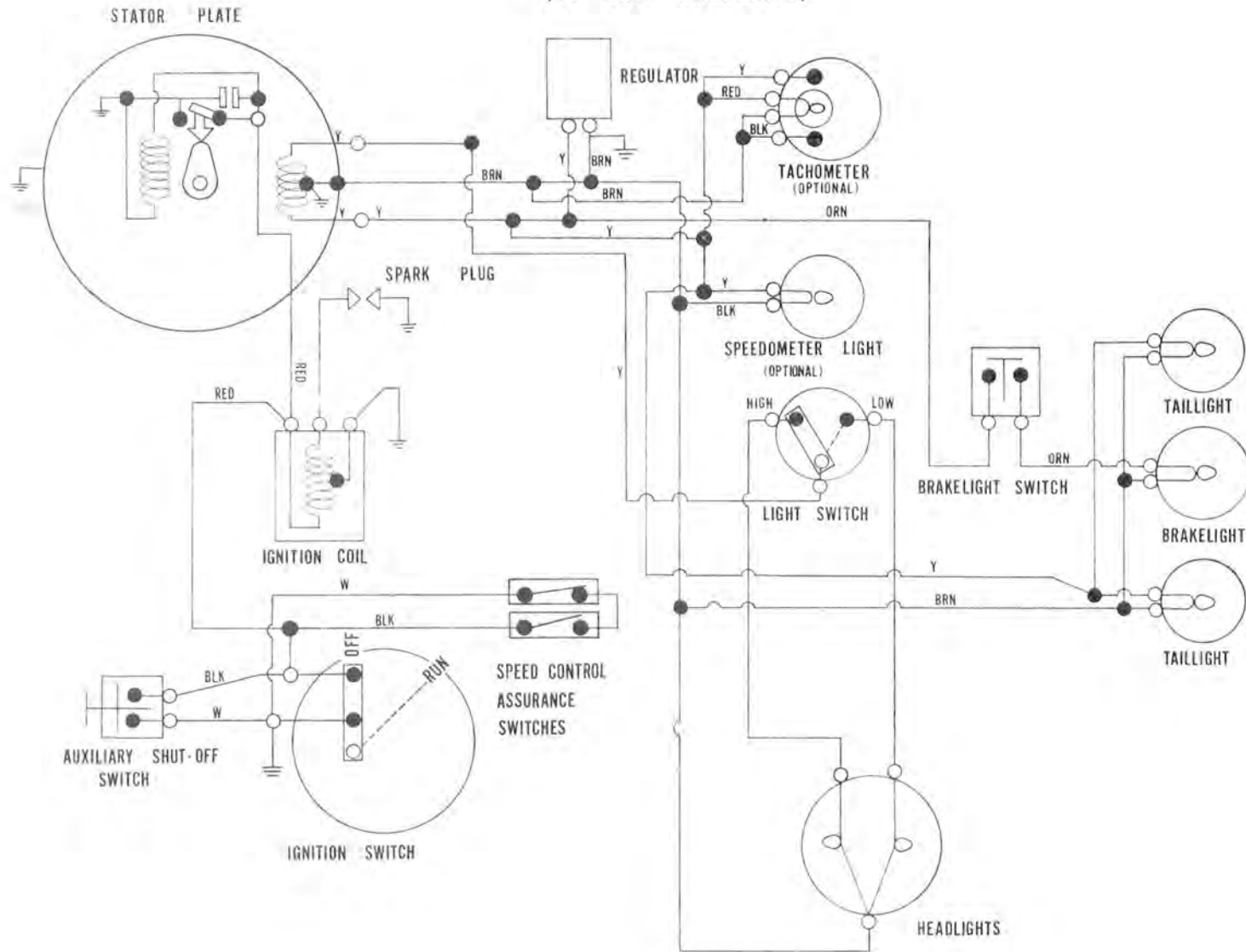
BODY ELECTRICAL
1982 Schematic Diagram — Centurion Indy

BODY ELECTRICAL 1983 Star EC 25-PS



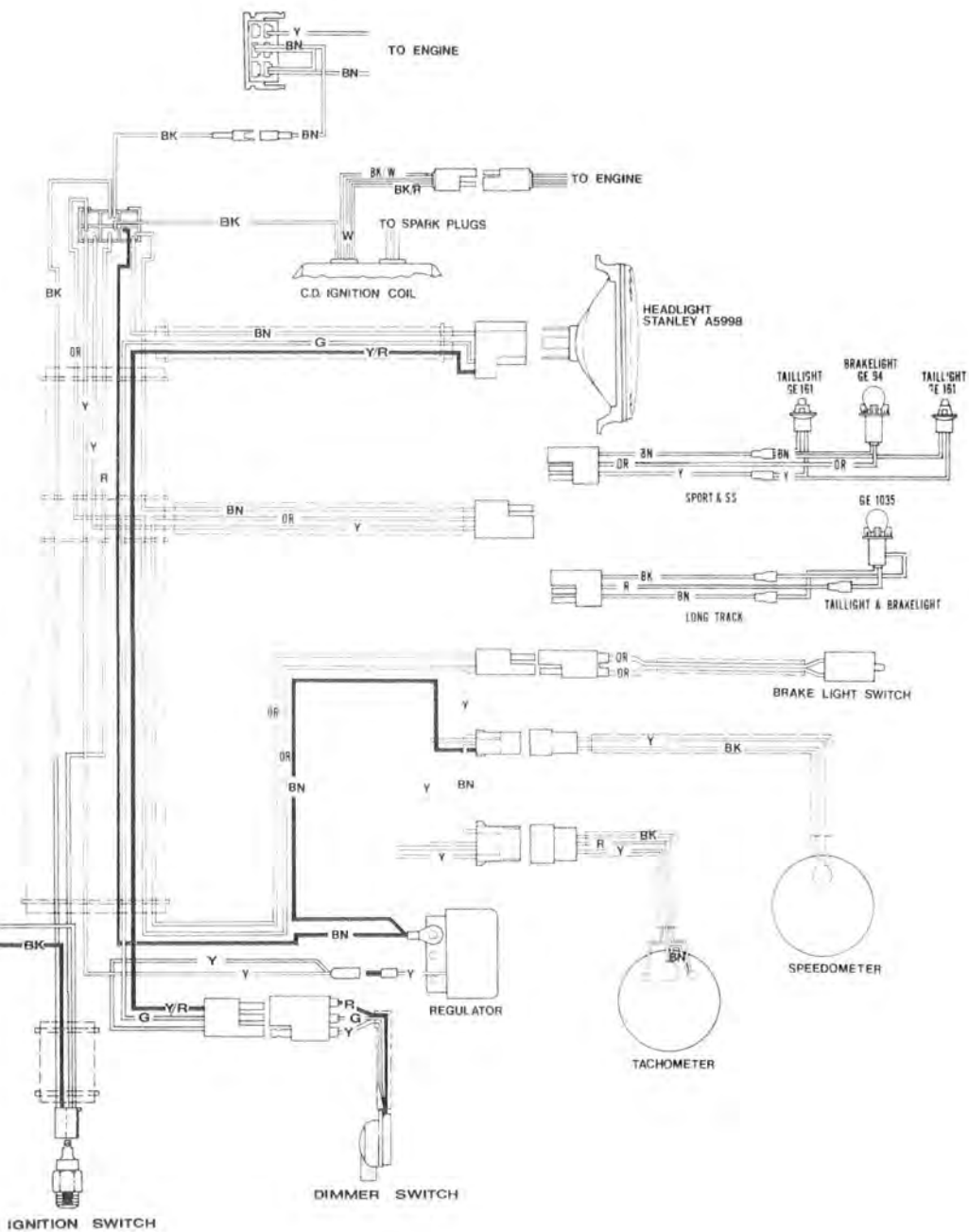
SCHEMATIC DIAGRAM

1983 STAR EC 25 PS
(75 WATT ALTERNATOR)



BODY ELECTRICAL
1983 Schematic Diagram - Star

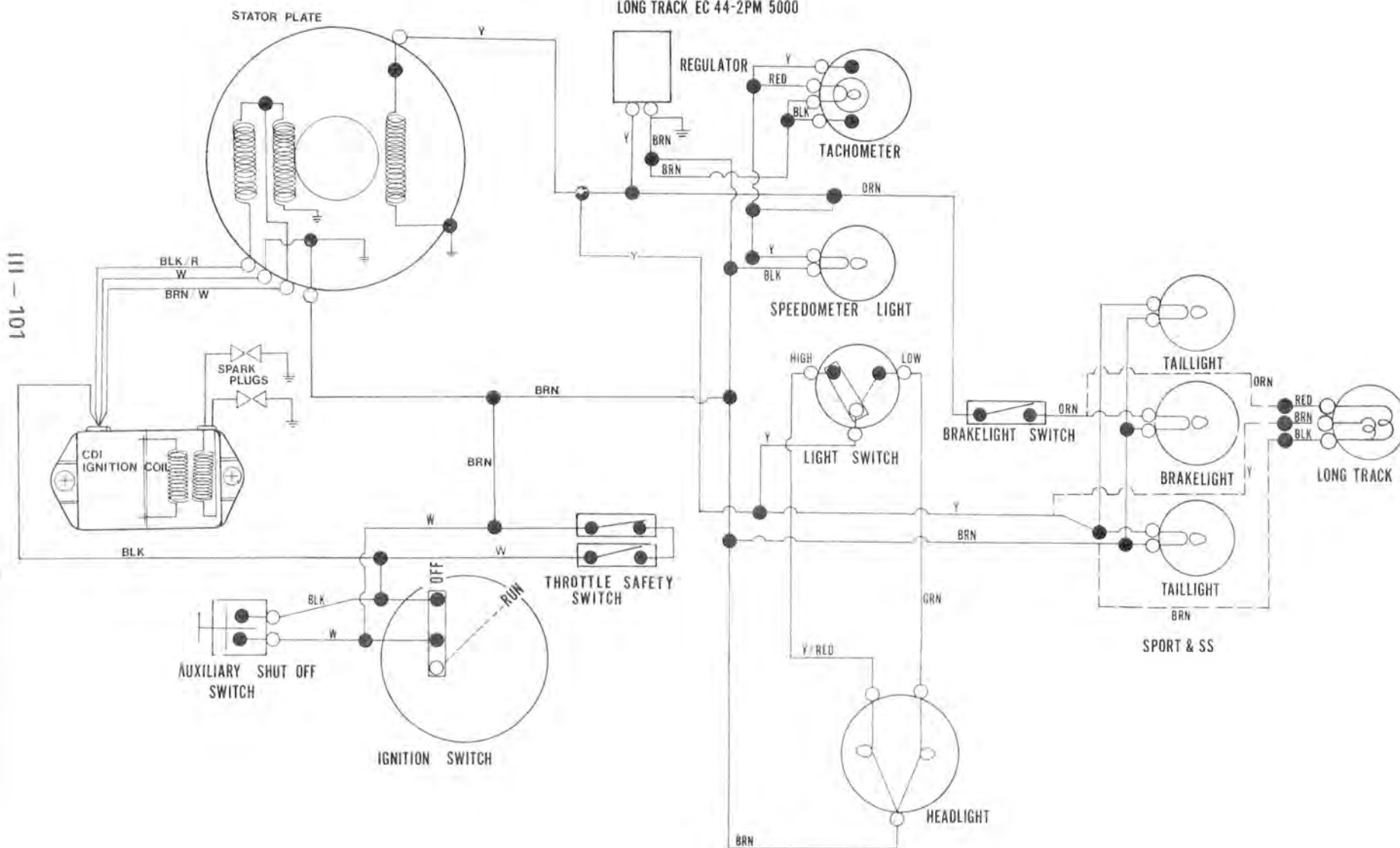
BODY ELECTRICAL 1983 Wiring Diagram — Sport, SS, and Long Track



WIRING DIAGRAM
1983 SPORT EC 44-2PM 5100
1983 SS EC 44-2PM 3100
1983 LONG TRACK EC 44-2PM 5000

SCHEMATIC DIAGRAM

(120 WATT ALTERNATOR)
SPORT EC 44-2PM 5100
SS EC 44-2PM 3100
LONG TRACK EC 44-2PM 5000



III - 101

1983 Schematic Diagram - Sport, SS, and Long Track

BODY ELECTRICAL

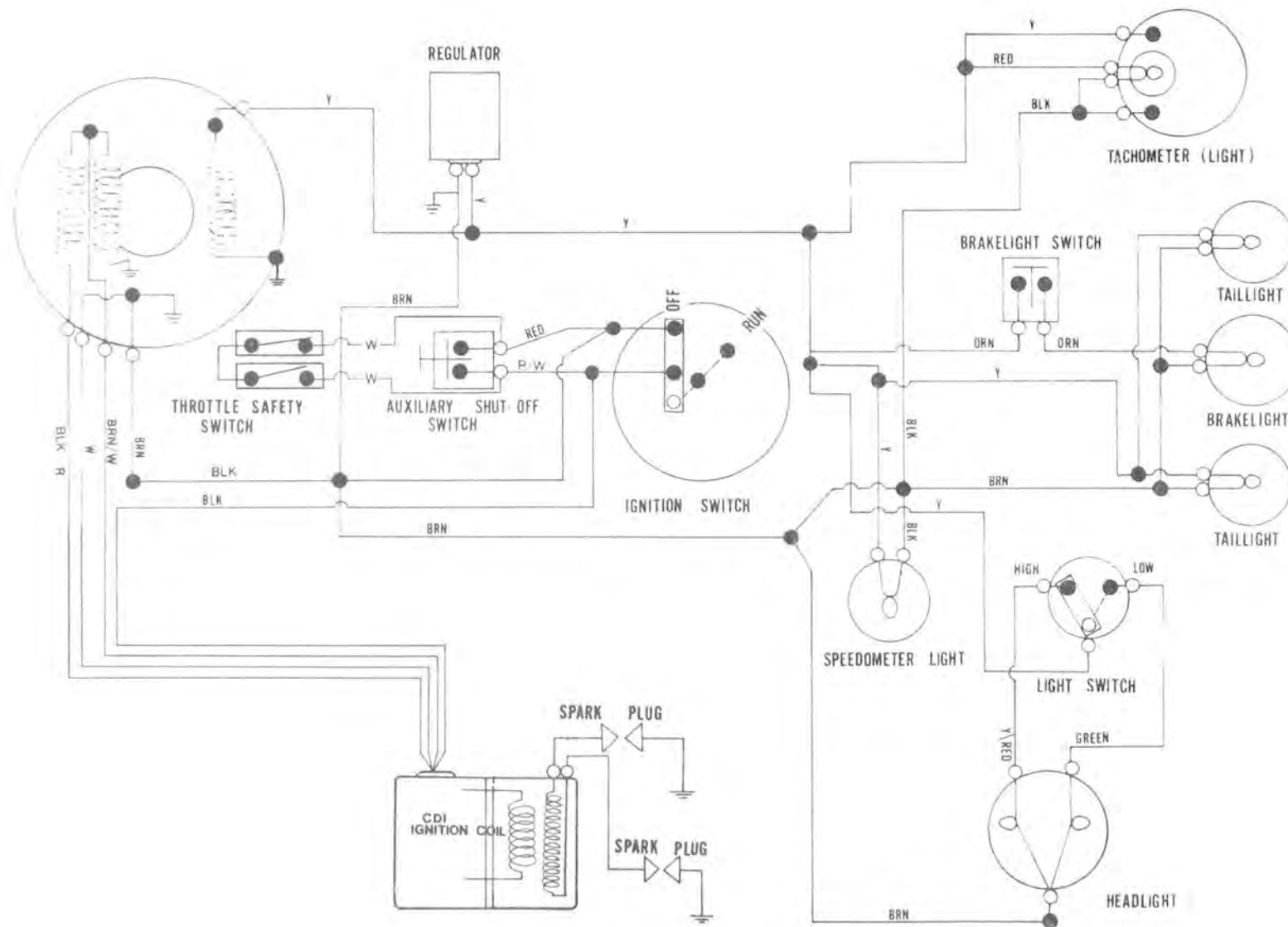
1983 Wiring Diagram — Indy Trail



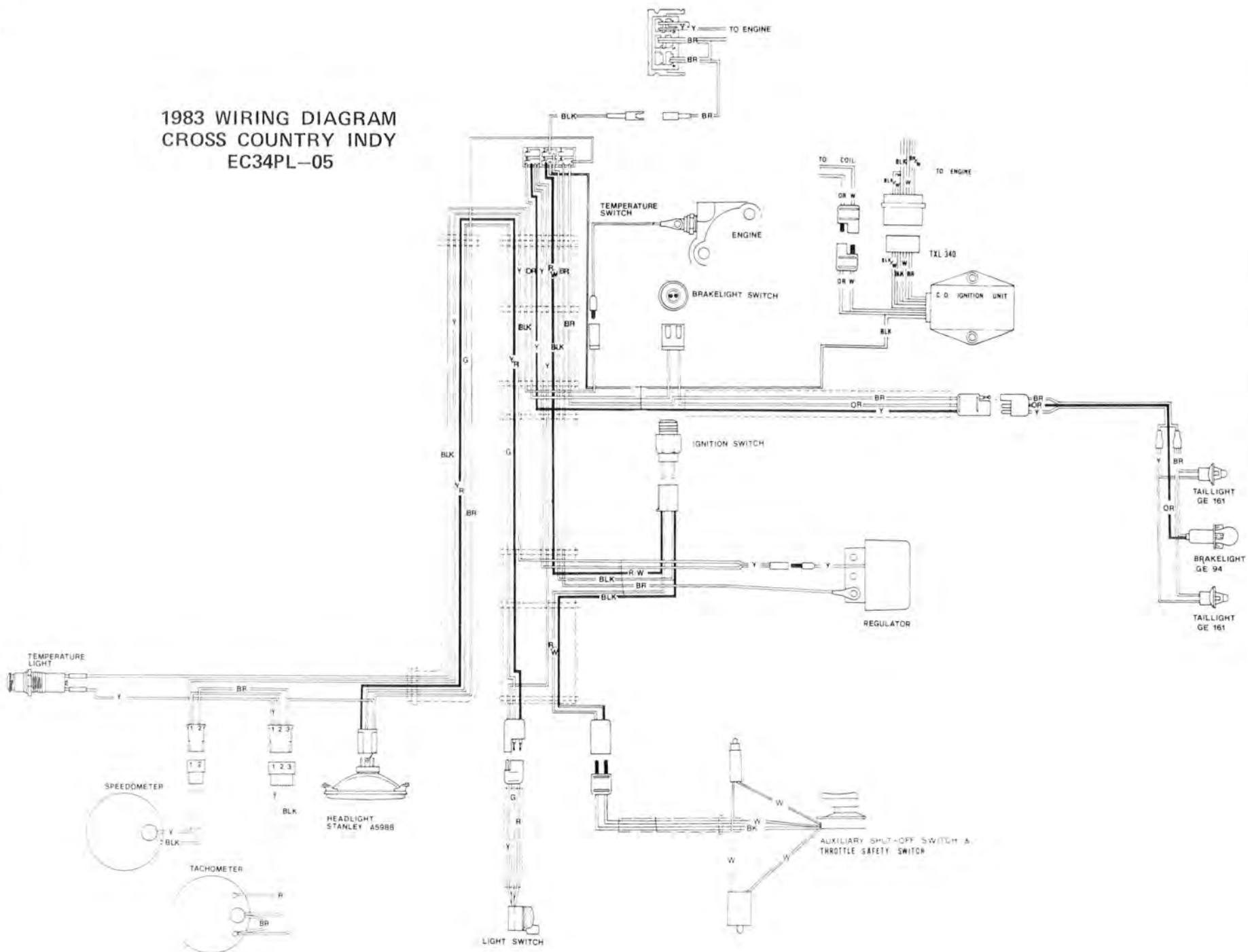
1983 TRAIL INDY
EC442PM-2100

SCHEMATIC DIAGRAM

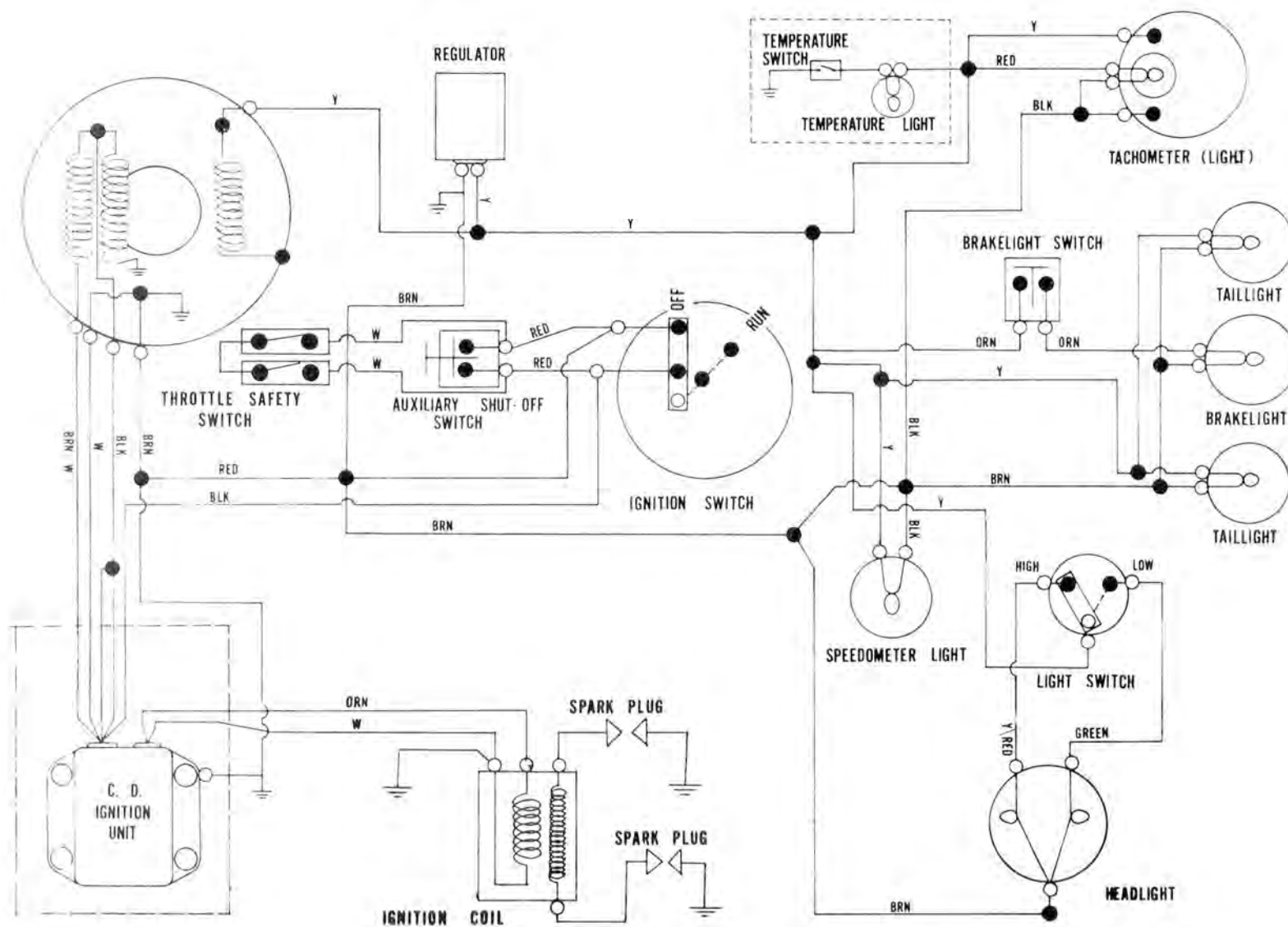
(120 WATT ALTERNATOR)



111-104



1983 CROSS COUNTRY INDY SCHEMATIC DIAGRAM
EC34PL-05

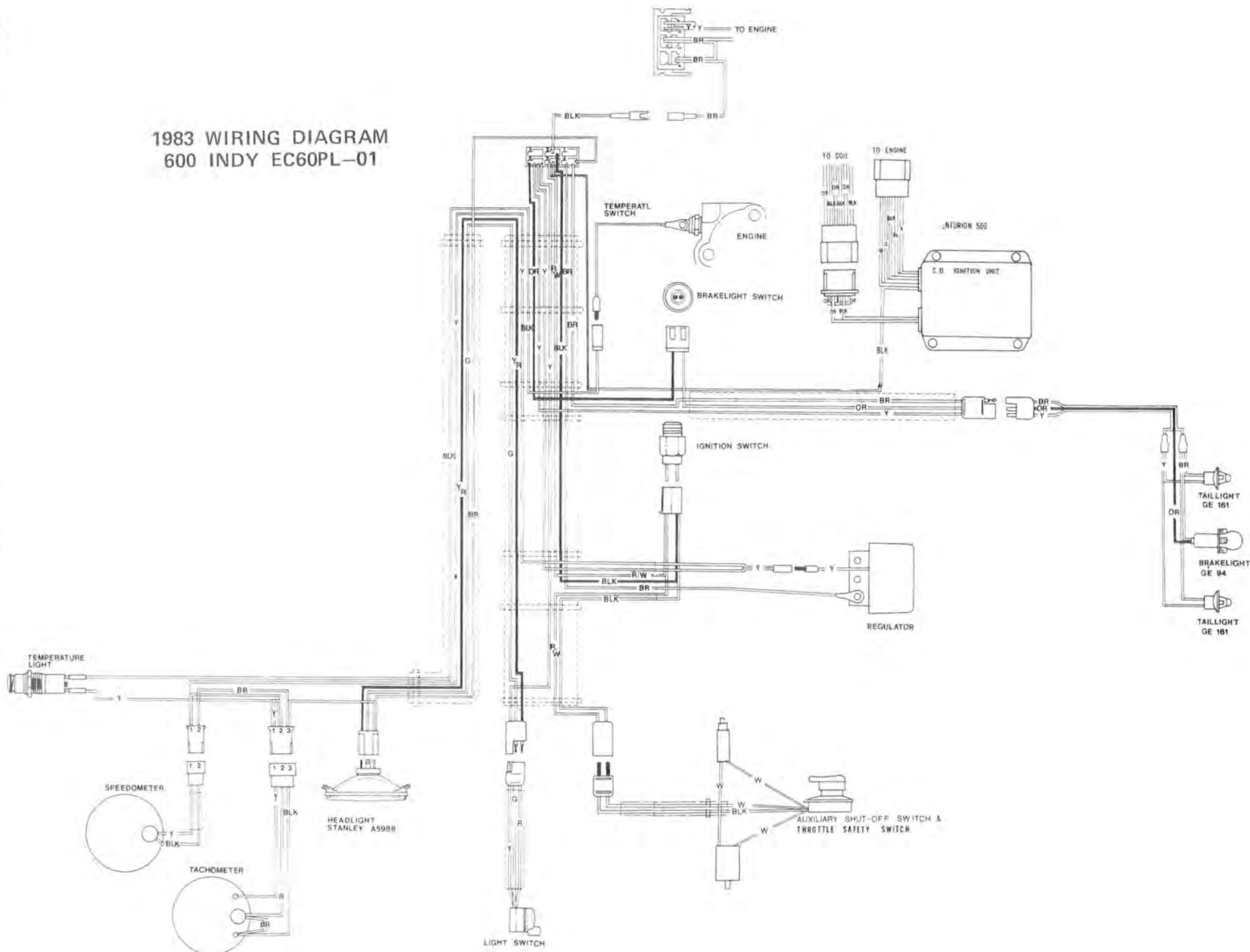


BODY ELECTRICAL
1983 Schematic Diagram — Indy Cross Country

BODY ELECTRICAL

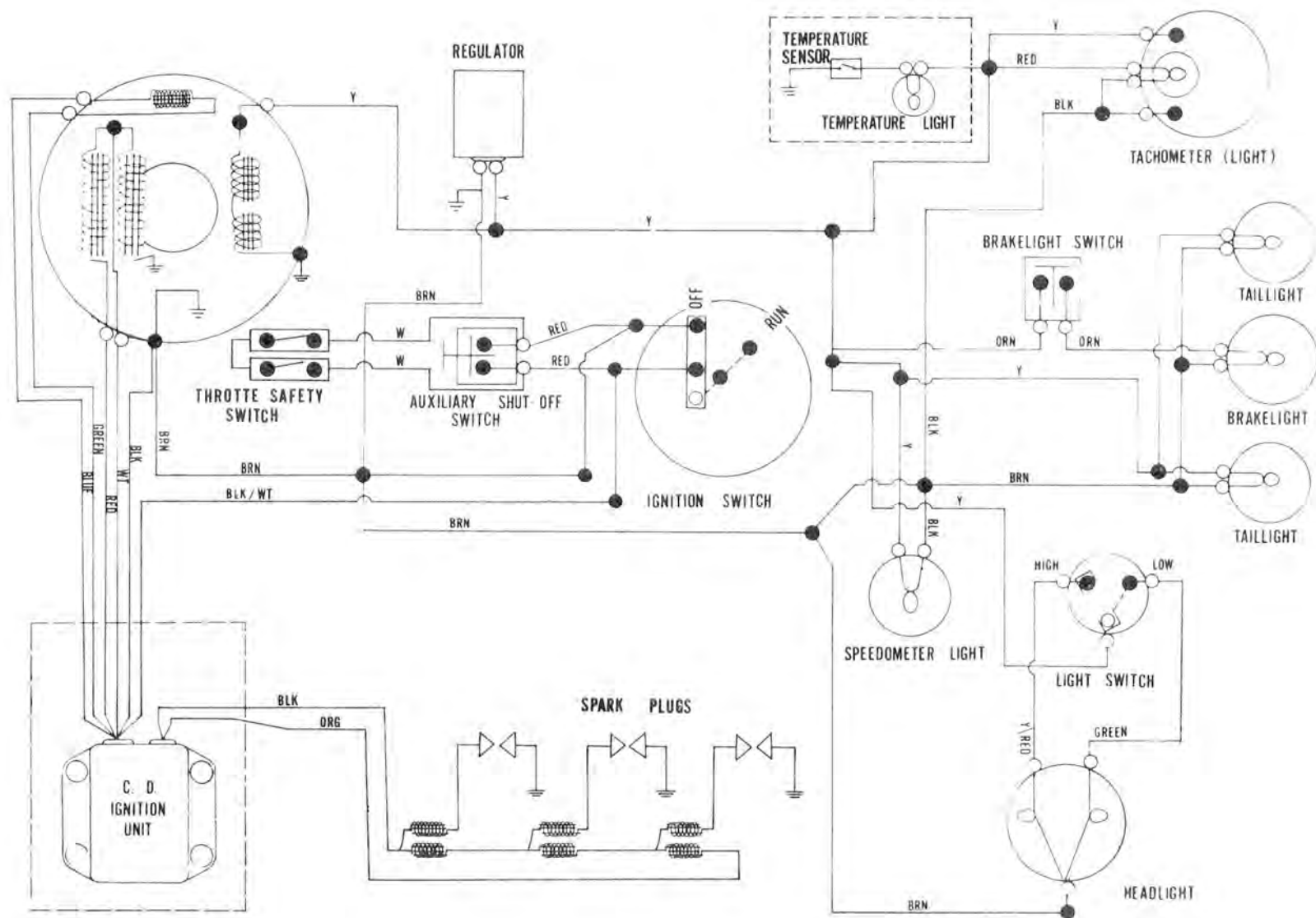
1983 Wiring Diagram — Indy 600

1983 WIRING DIAGRAM 600 INDY EC60PL-01



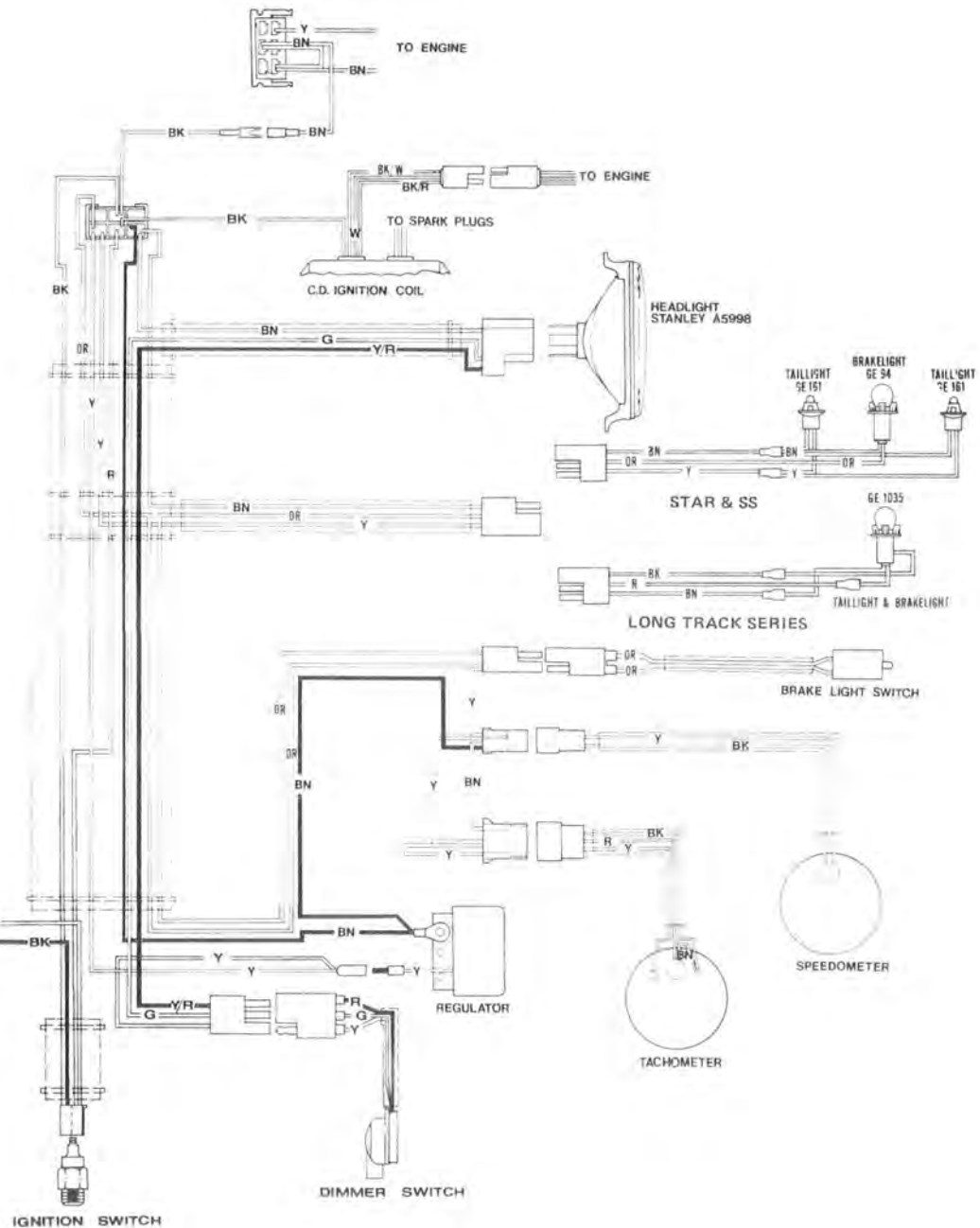
1983 600 INDY
EC60PL-01

SCHEMATIC DIAGRAM



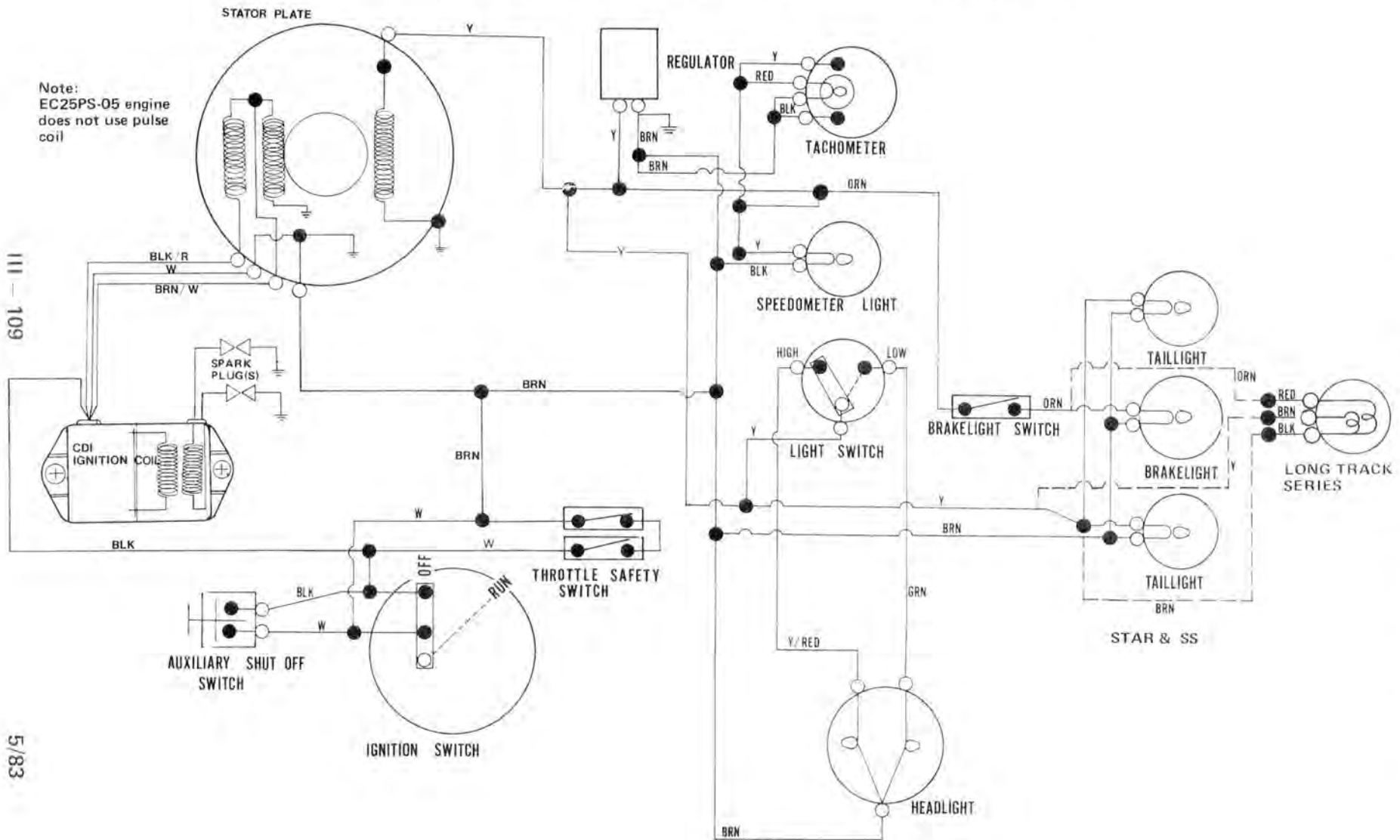
BODY ELECTRICAL
1983 Schematic Diagram — Indy 600

WIRING DIAGRAM
Star & Star Long Track EC25PS-05
SS EC44-2PM-3100
Long Track EC44-2PM-5000



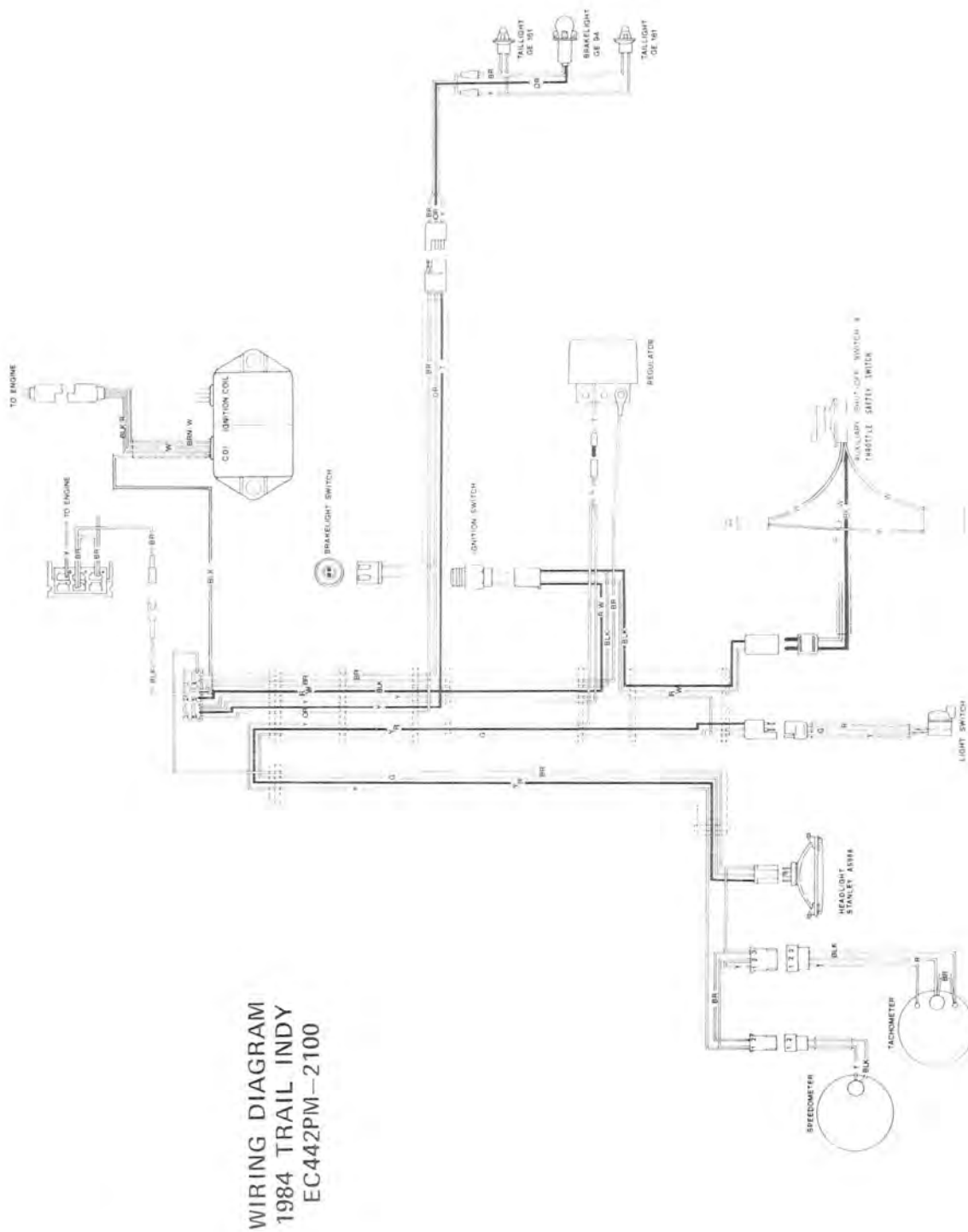
SCHEMATIC DIAGRAM

STAR & STAR LONG TRACK EC25PS-05 (100 WATT ALTERNATOR)
 SS EC44-2PM-3100 (120 WATT ALTERNATOR)
 LONG TRACK EC44-2PM-5000 (120 WATT ALTERNATOR)



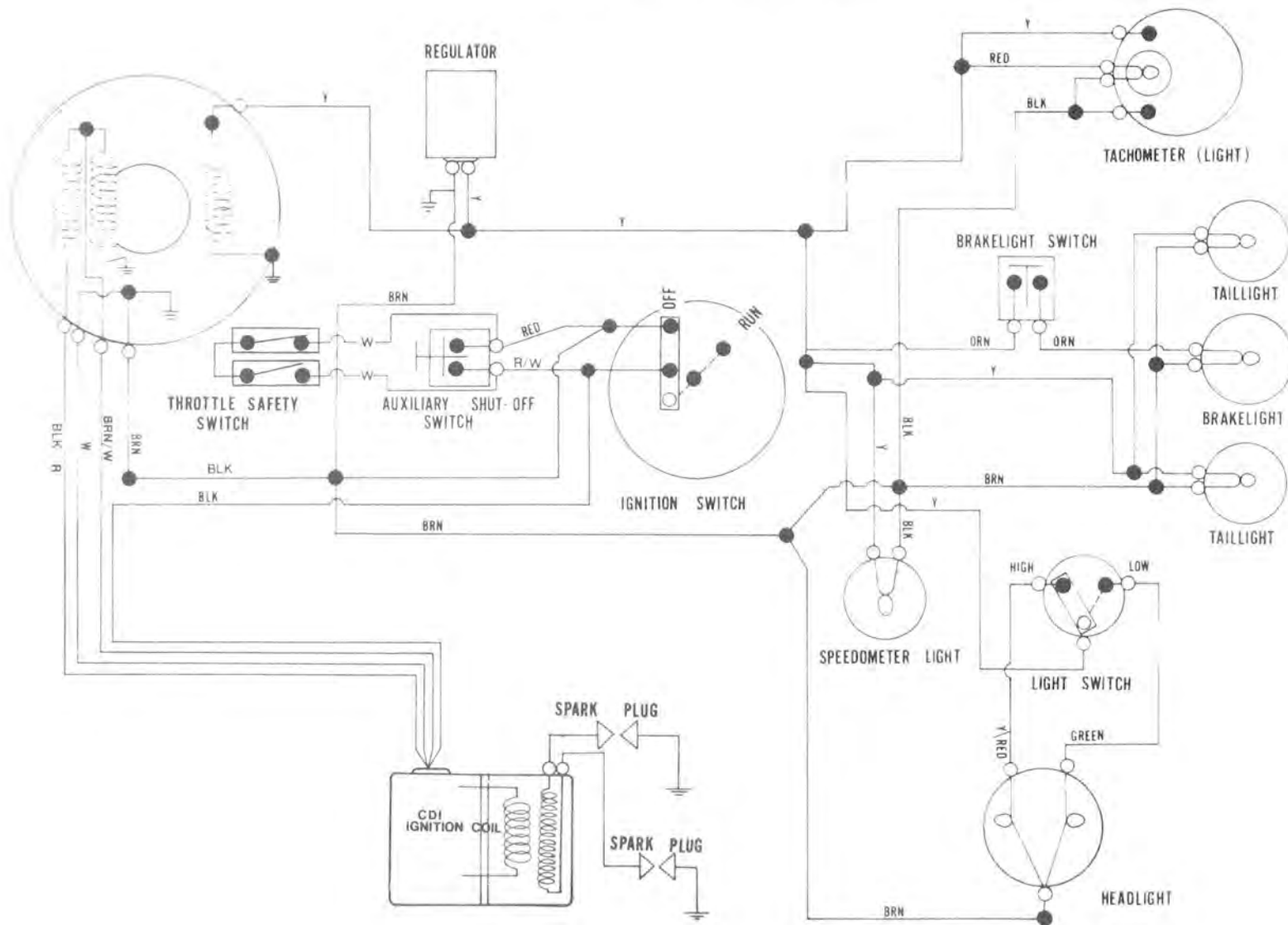
BODY ELECTRICAL

1984 Wiring Diagram — Trail Indy



SCHEMATIC DIAGRAM

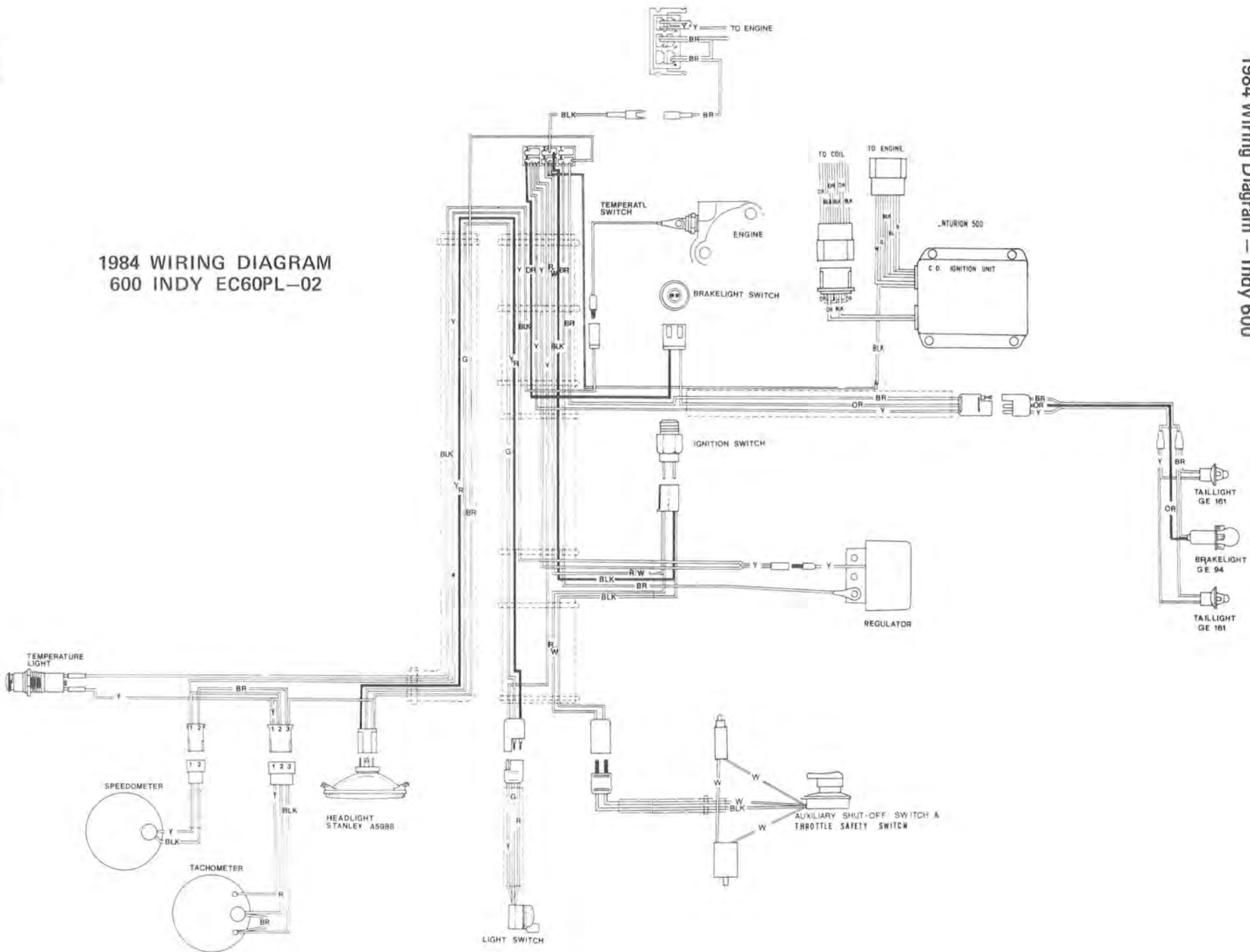
1984 TRAIL INDY
EC442PM-2100
(120 WATT ALTERNATOR)



BODY ELECTRICAL
1984 Wiring Schematic — Trail Indy

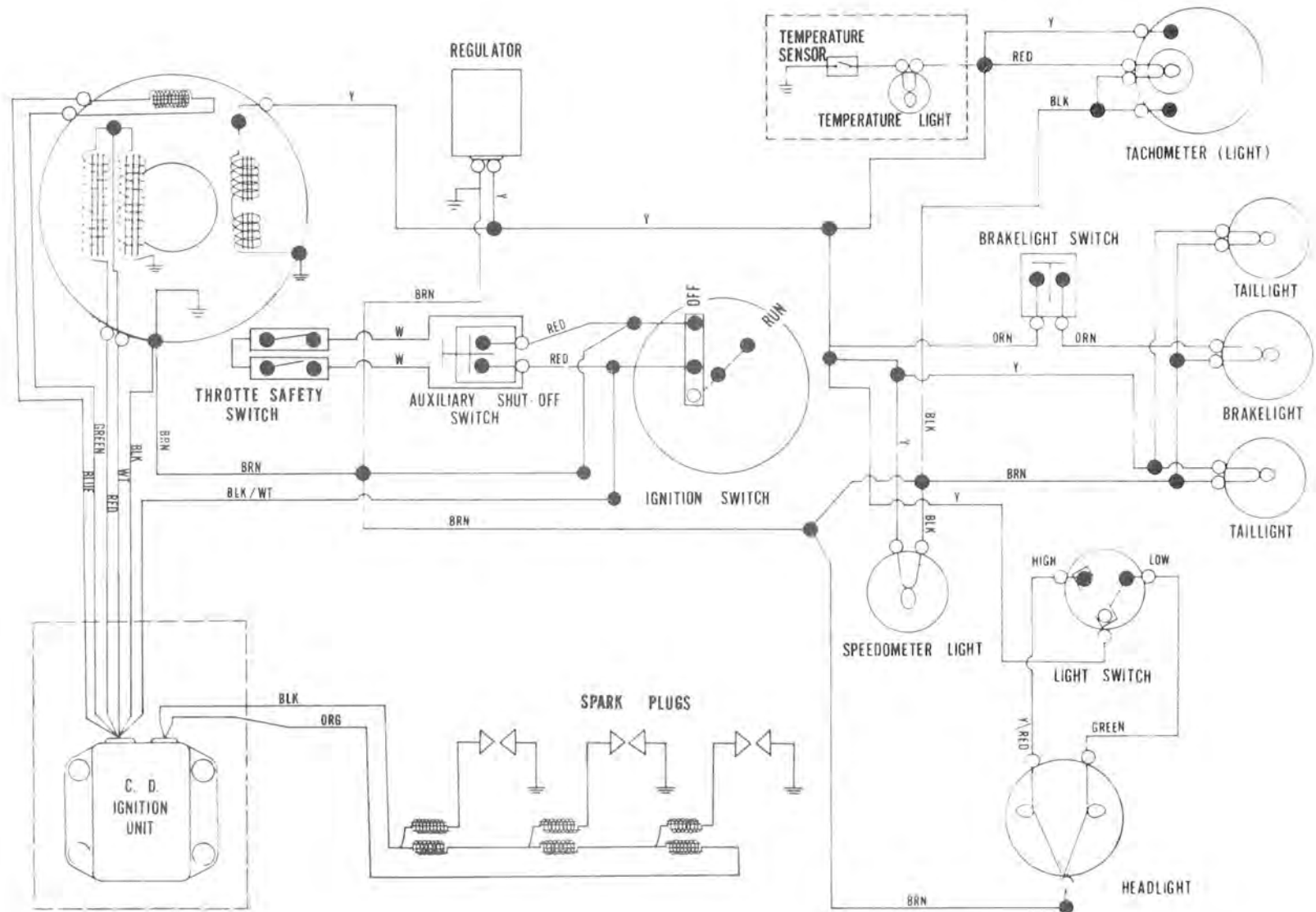
BODY ELECTRICAL

1984 Wiring Diagram — Indy 600



1984 600 INDY
EC60PL-02

SCHEMATIC DIAGRAM

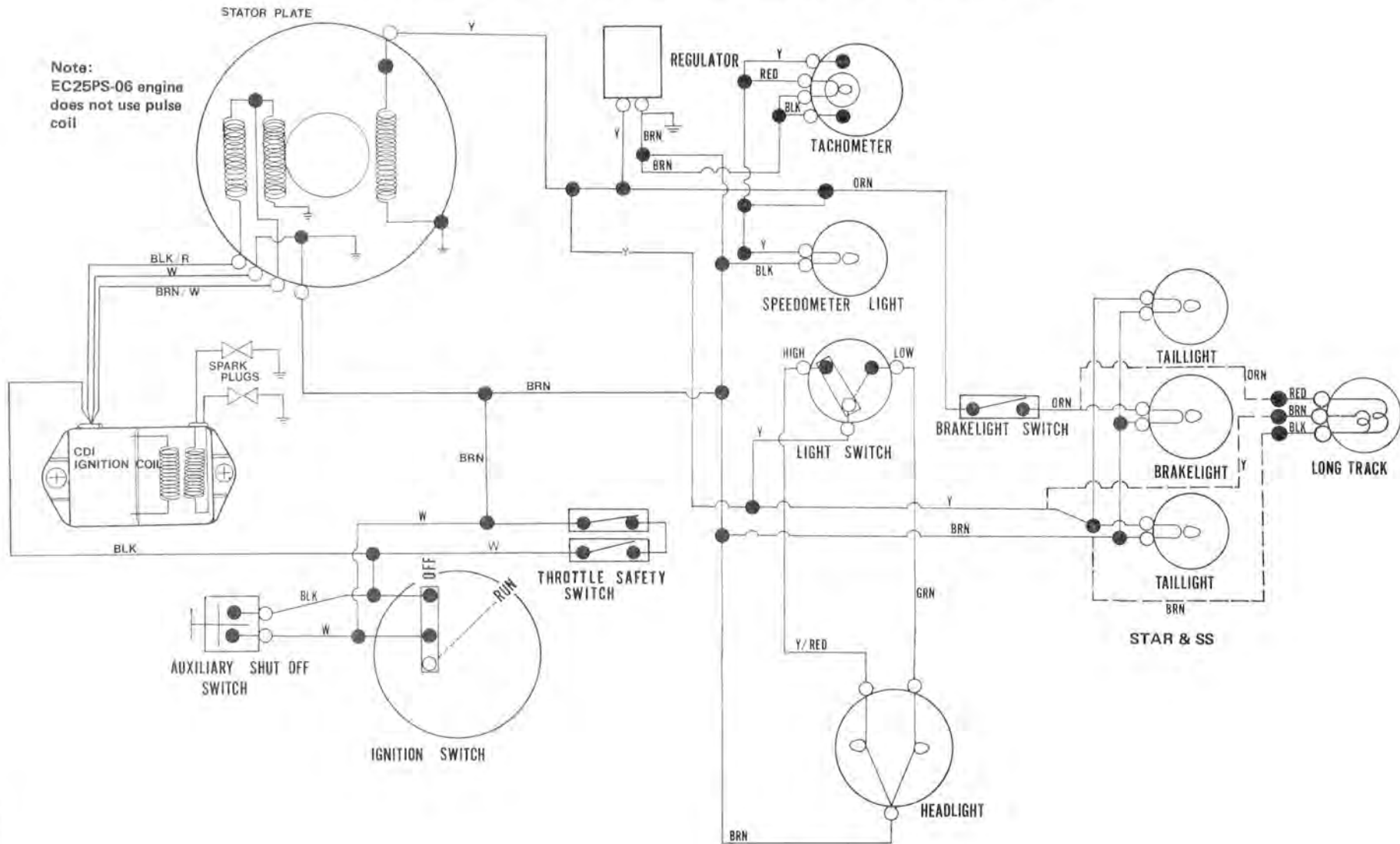


BODY ELECTRICAL
1984 Wiring Schematic - Indy 600

[illegible]

SCHEMATIC DIAGRAM

1985 STAR EC25PS-06 (100 WATT ALTERNATOR)
 SS EC44-2PM-3100 (120 WATT ALTERNATOR)
 LONG TRACK EC44-2PM-5000 (120 WATT ALTERNATOR)

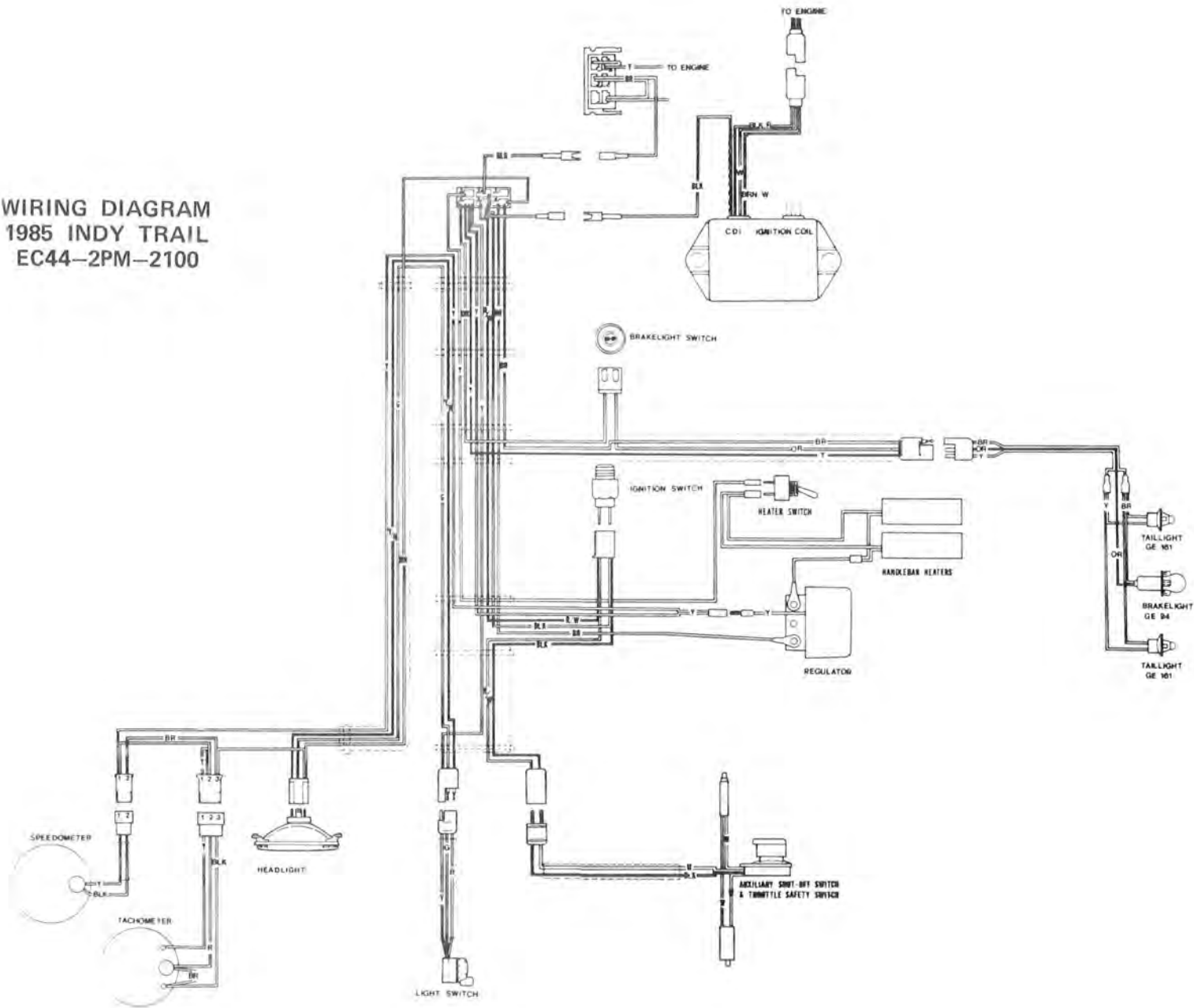


1985 Wiring Schematic — Star, SS and Long Track

BODY ELECTRICAL

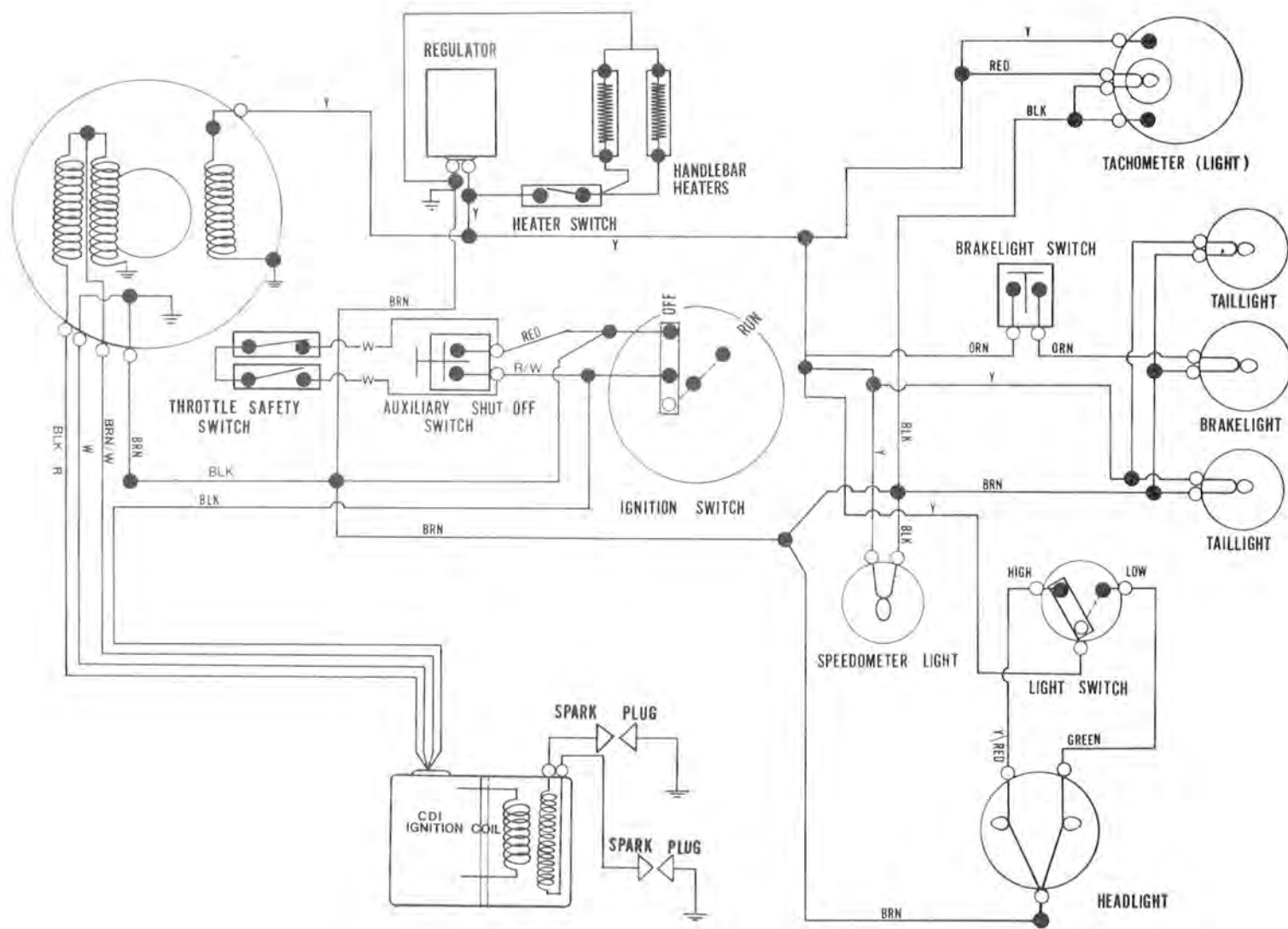
BODY ELECTRICAL 1985 Wiring Diagram — Indy Trail

WIRING DIAGRAM
1985 INDY TRAIL
EC44-2PM-2100



SCHEMATIC DIAGRAM

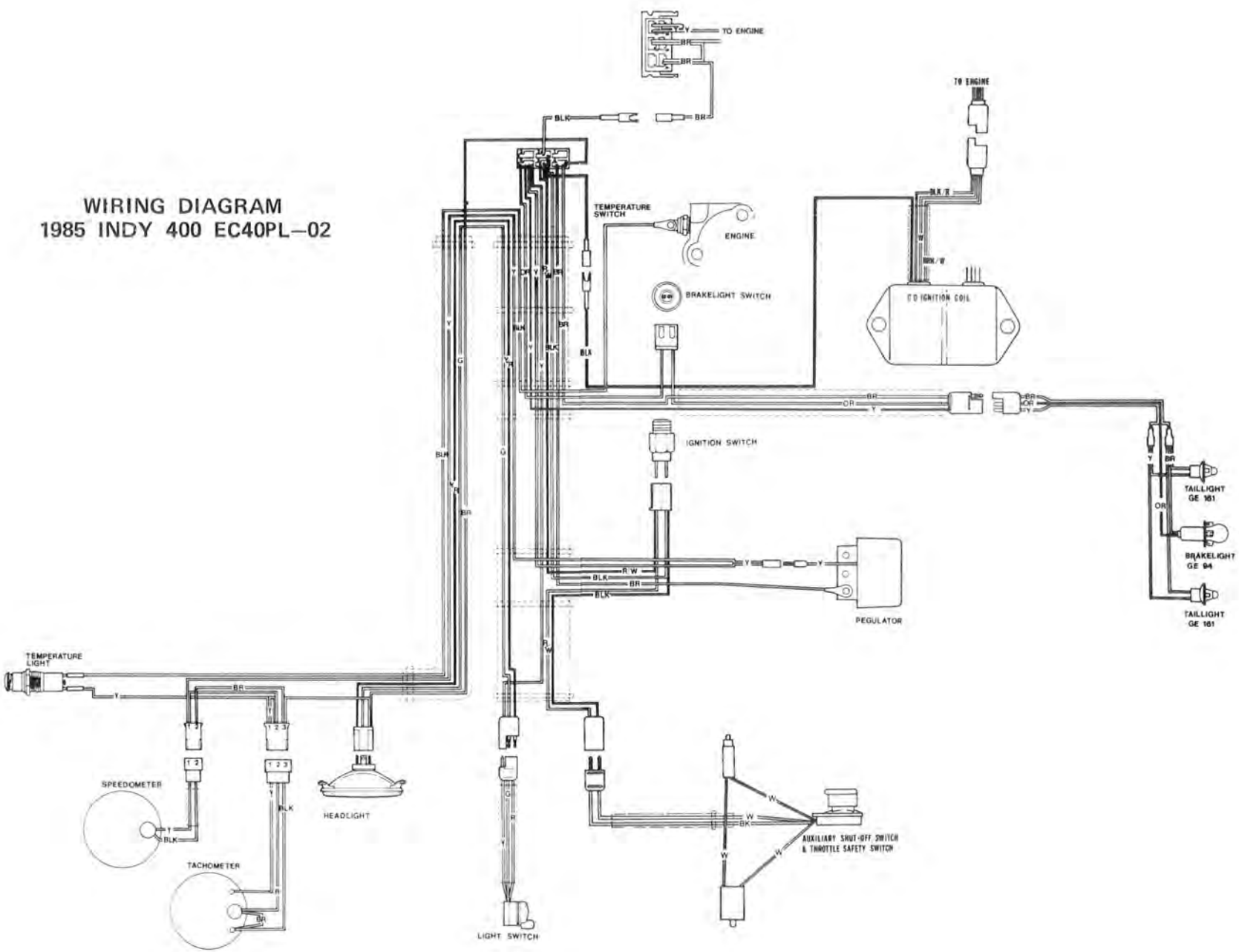
1985 INDY TRAIL
EC44-2PM-2100
(120 WATT ALTERNATOR)



BODY ELECTRICAL
1985 Wiring Schematic — Indy Trail

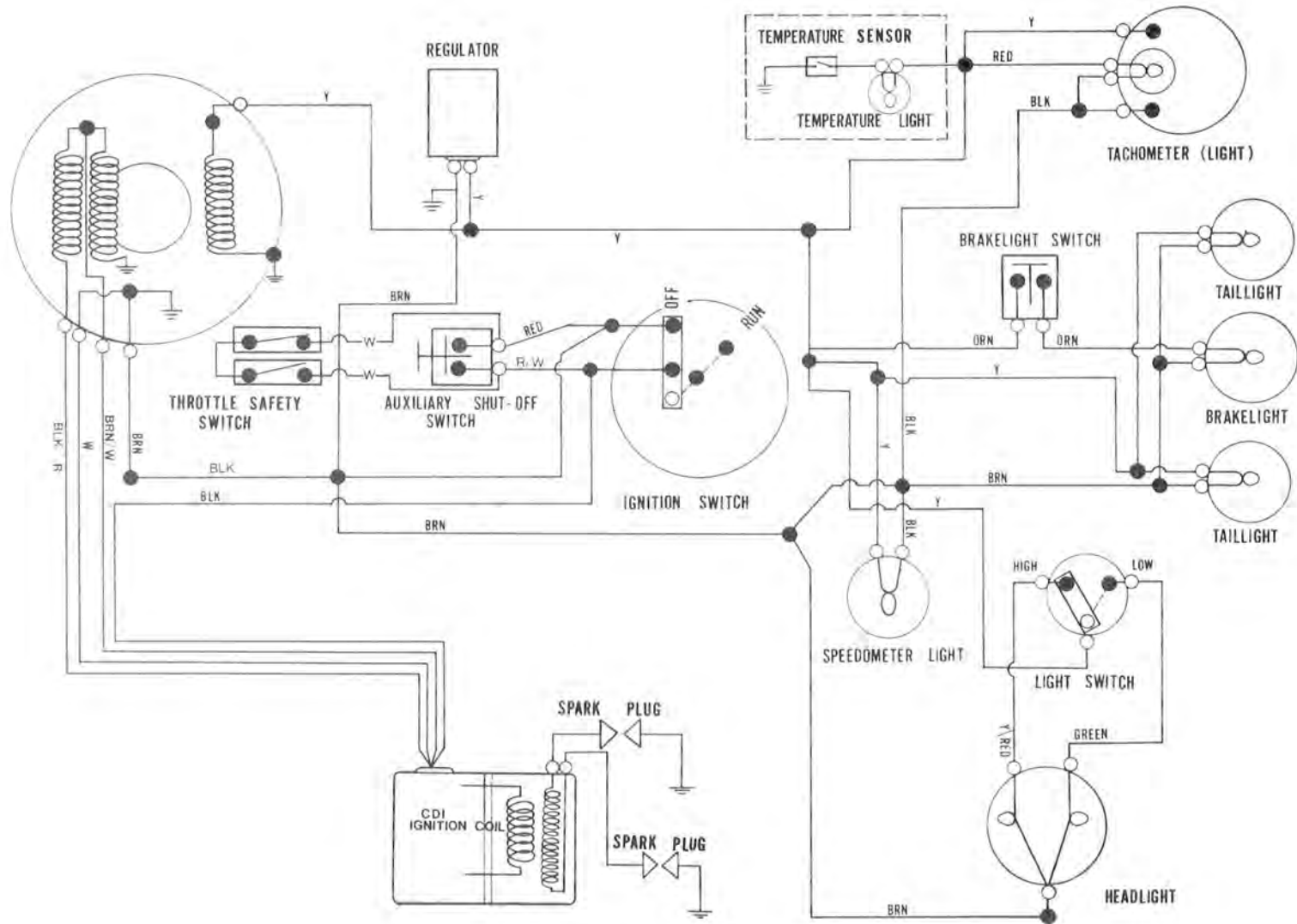
BODY ELECTRICAL
1985 Wiring Diagram — Indy 400

WIRING DIAGRAM
1985 INDY 400 EC40PL-02



SCHEMATIC DIAGRAM

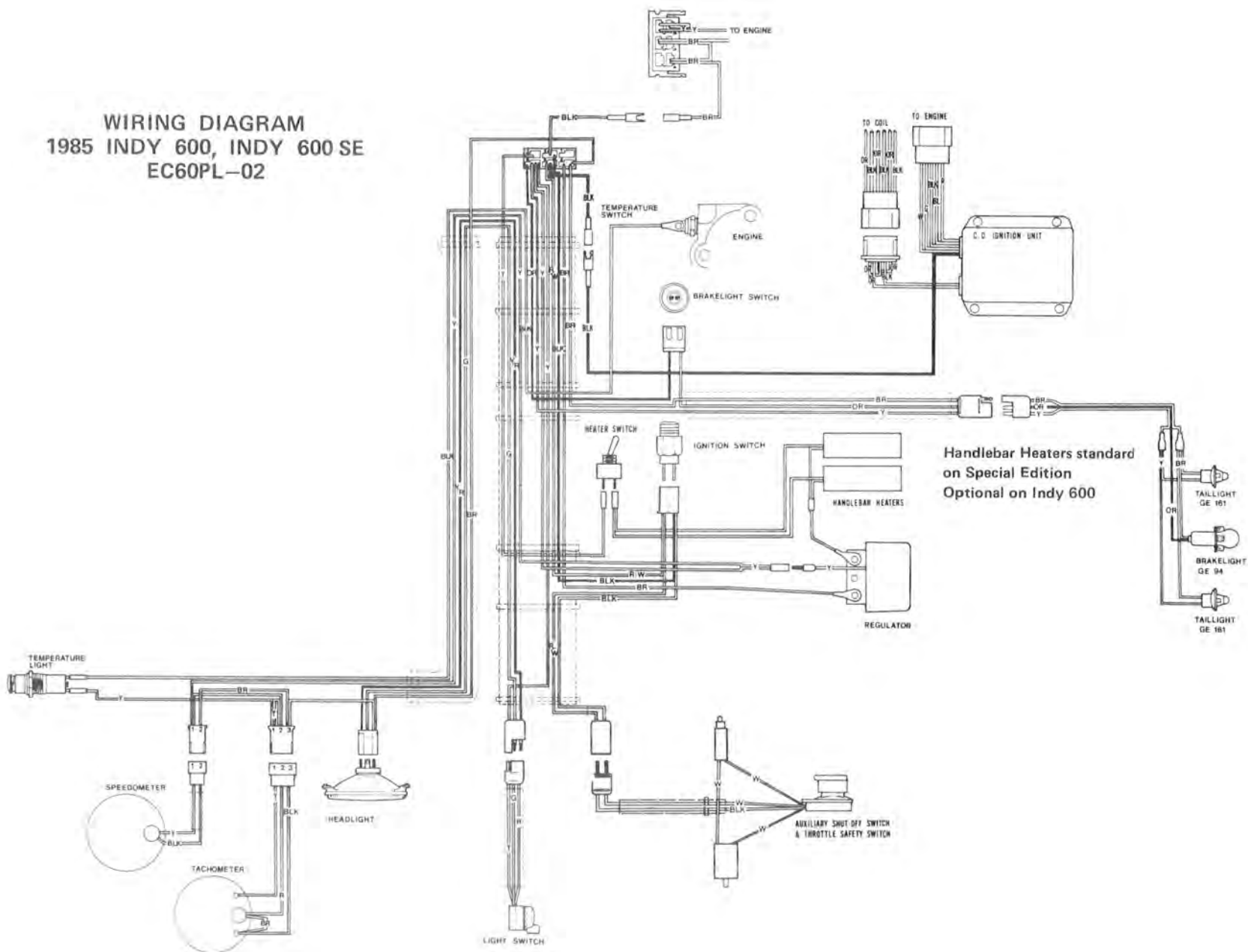
1985 INDY 400 EC40PL-02
(120 WATT ALTERNATOR)



BODY ELECTRICAL

1985 Wiring Diagram — Indy 600, Indy 600 SE

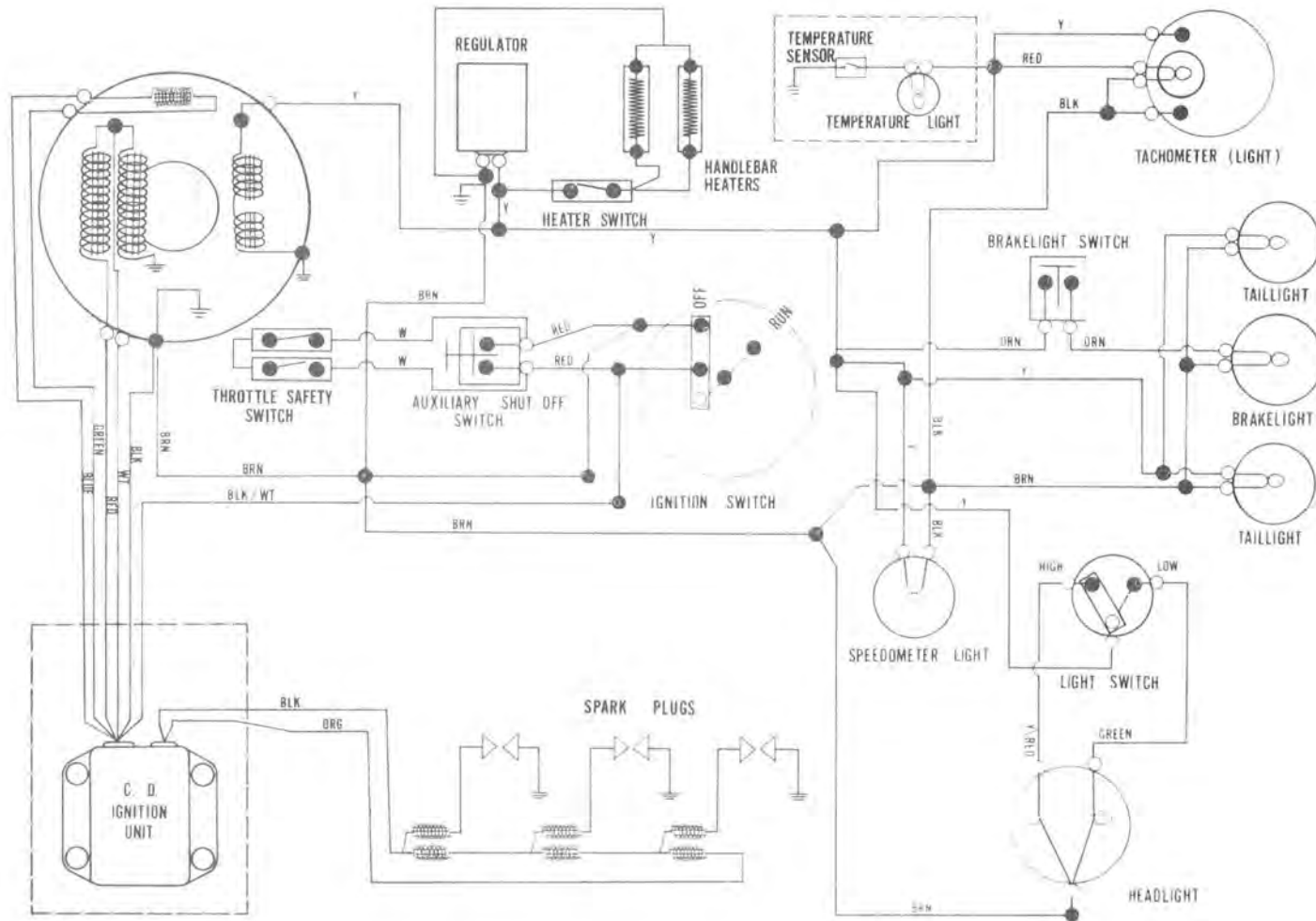
WIRING DIAGRAM
1985 INDY 600, INDY 600 SE
EC60PL-02



SCHEMATIC DIAGRAM

1985 INDY 600, INDY 600 SE
EC60PL-02
(120 WATT ALTERNATOR)

Handlebar Heaters standard on Special Edition
Optional on Indy 600

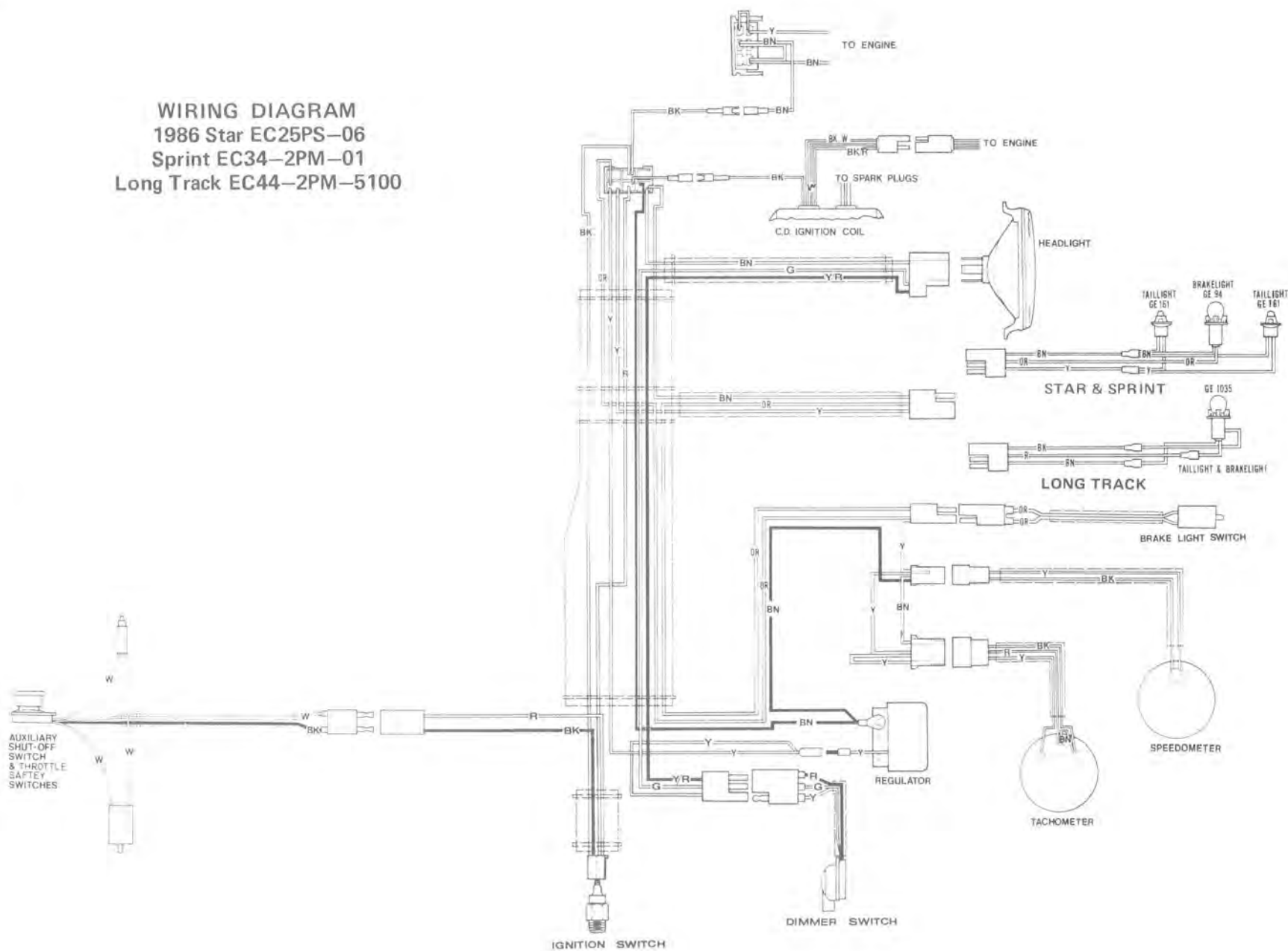


BODY ELECTRICAL
1985 Schematic Diagram — Indy 600, Indy 600 SE

BODY ELECTRICAL

1986 Wiring Diagram — Star, Sprint and Long Track

WIRING DIAGRAM
1986 Star EC25PS-06
Sprint EC34-2PM-01
Long Track EC44-2PM-5100



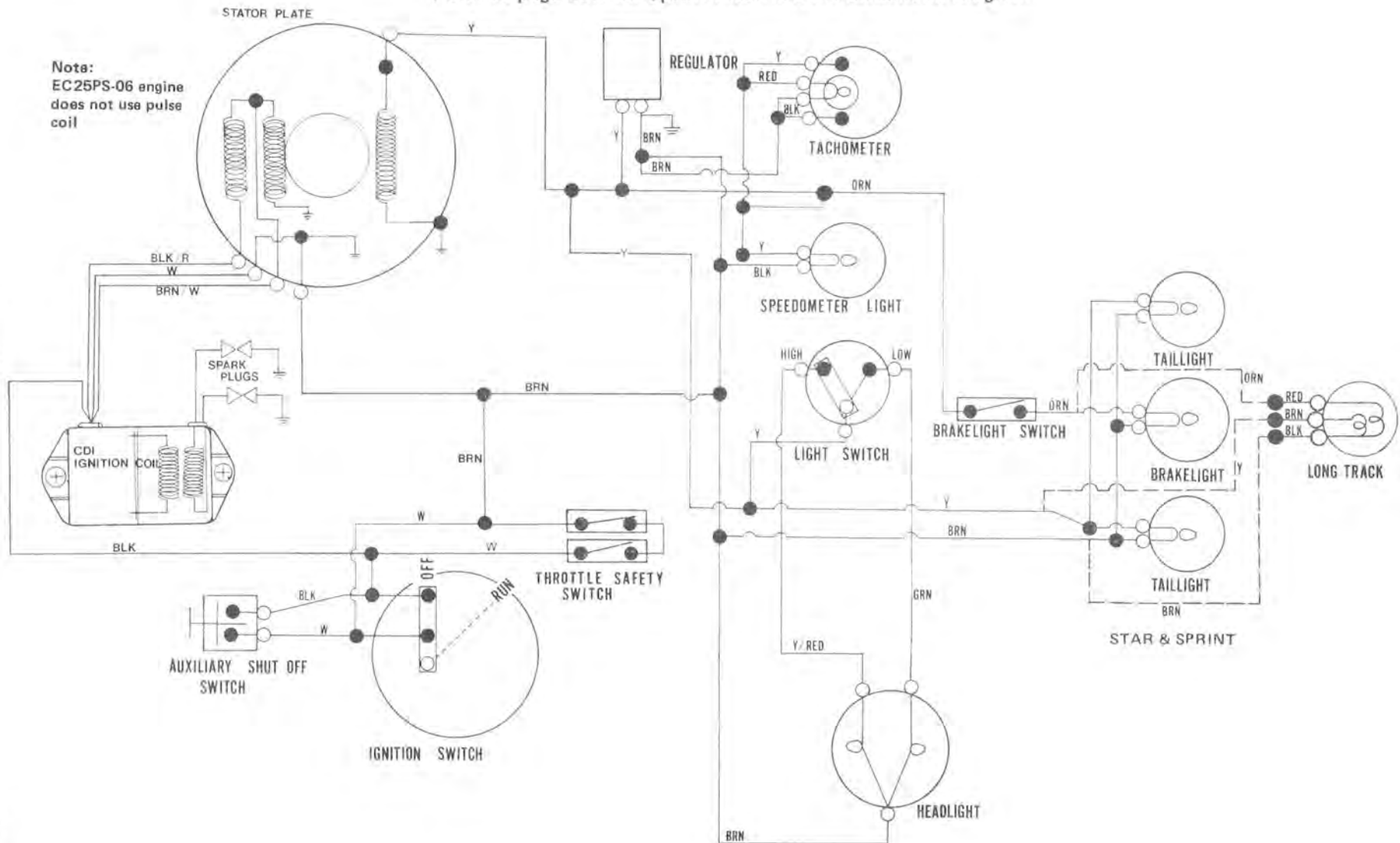
SCHEMATIC DIAGRAM

1986 STAR EC25PS-06 (100 WATT ALTERNATOR)

SPRINT EC34-2PM-01 (120 WATT ALTERNATOR)

LONG TRACK EC44-2PM-5000 (120 WATT ALTERNATOR)

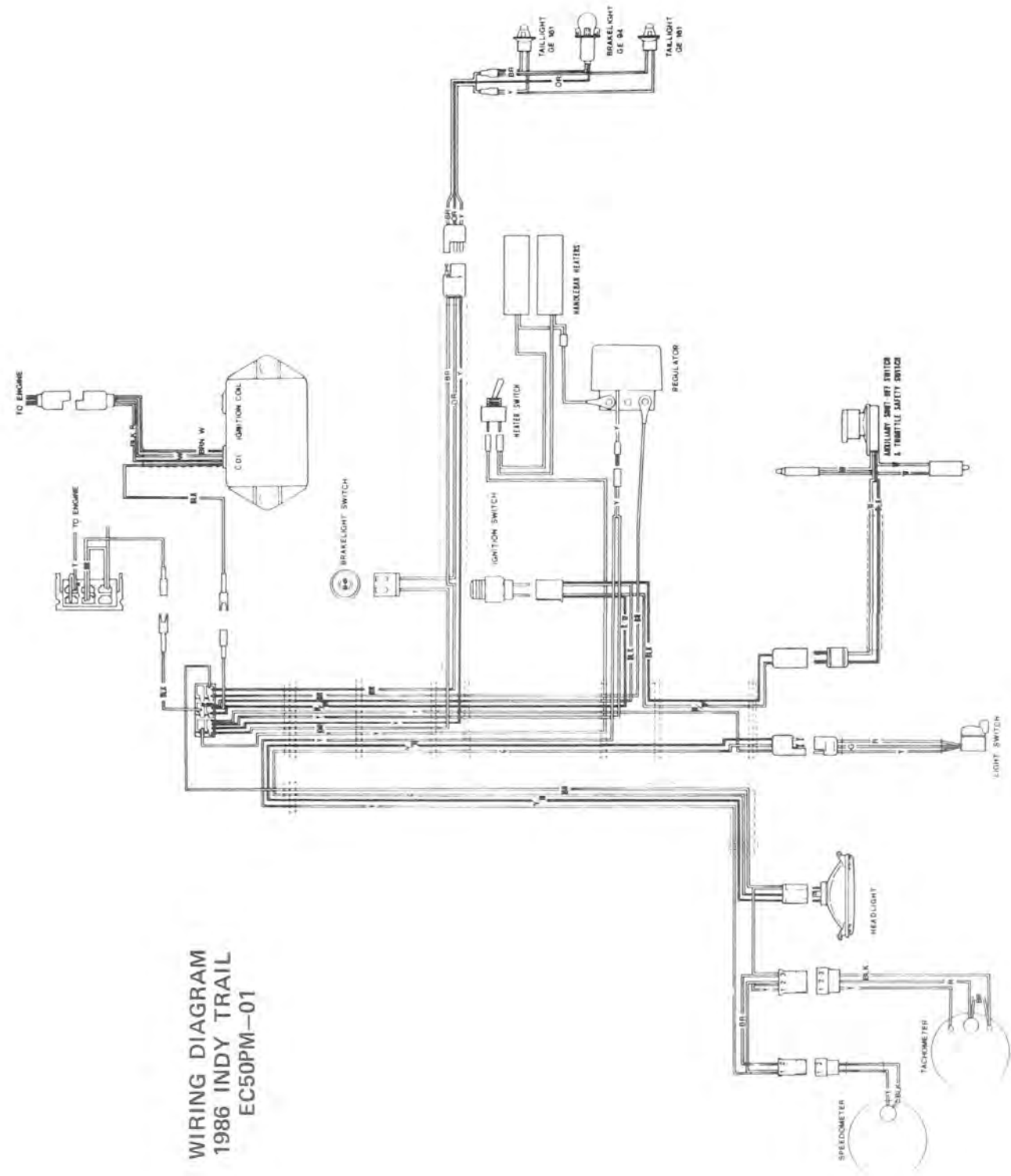
Refer to page 20K for Sprint Electric Start Schematic Diagram



1986 Wiring Schematic — Star, Sprint and Long Track

BODY ELECTRICAL

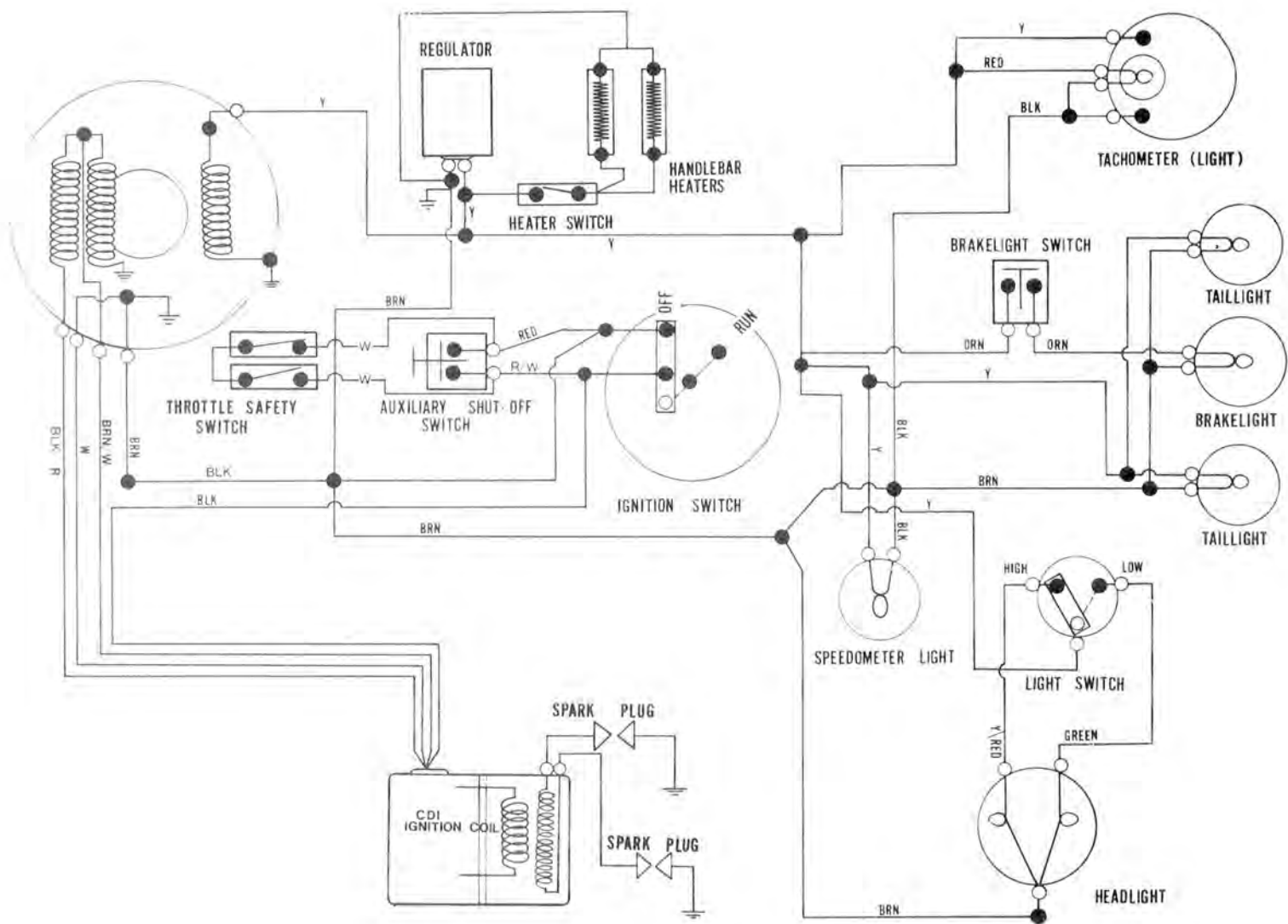
BODY ELECTRICAL
1986 Wiring Diagram — Indy Trail



WIRING DIAGRAM
1986 INDY TRAIL
EC50PM-01

SCHEMATIC DIAGRAM

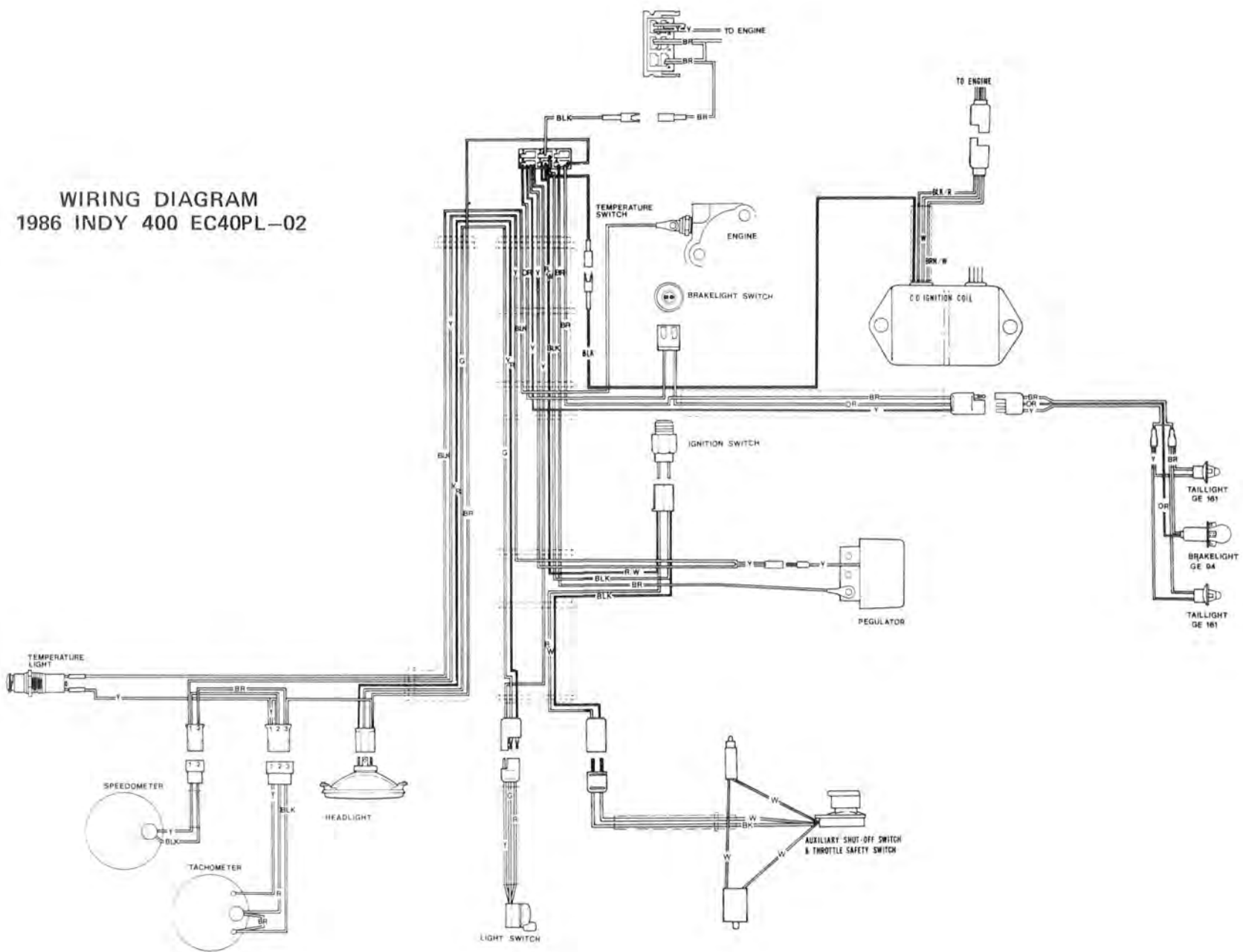
1986 INDY TRAIL
EC50PM-01
(120 WATT ALTERNATOR)



BODY ELECTRICAL
1986 Wiring Schematic - Indy Trail

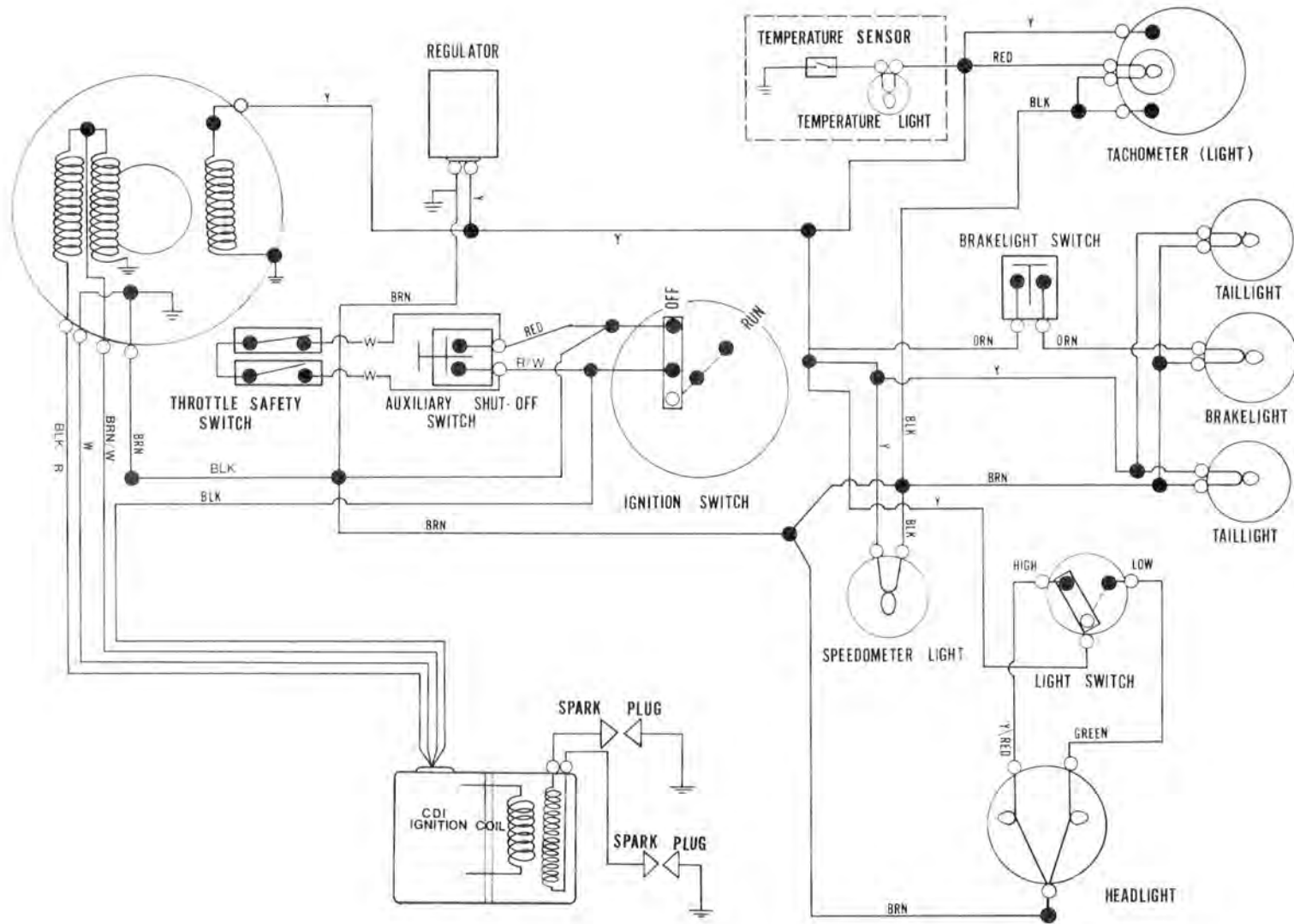
BODY ELECTRICAL
1986 Indy 400 Wiring Diagram — Indy 400

WIRING DIAGRAM
1986 INDY 400 EC40PL-02



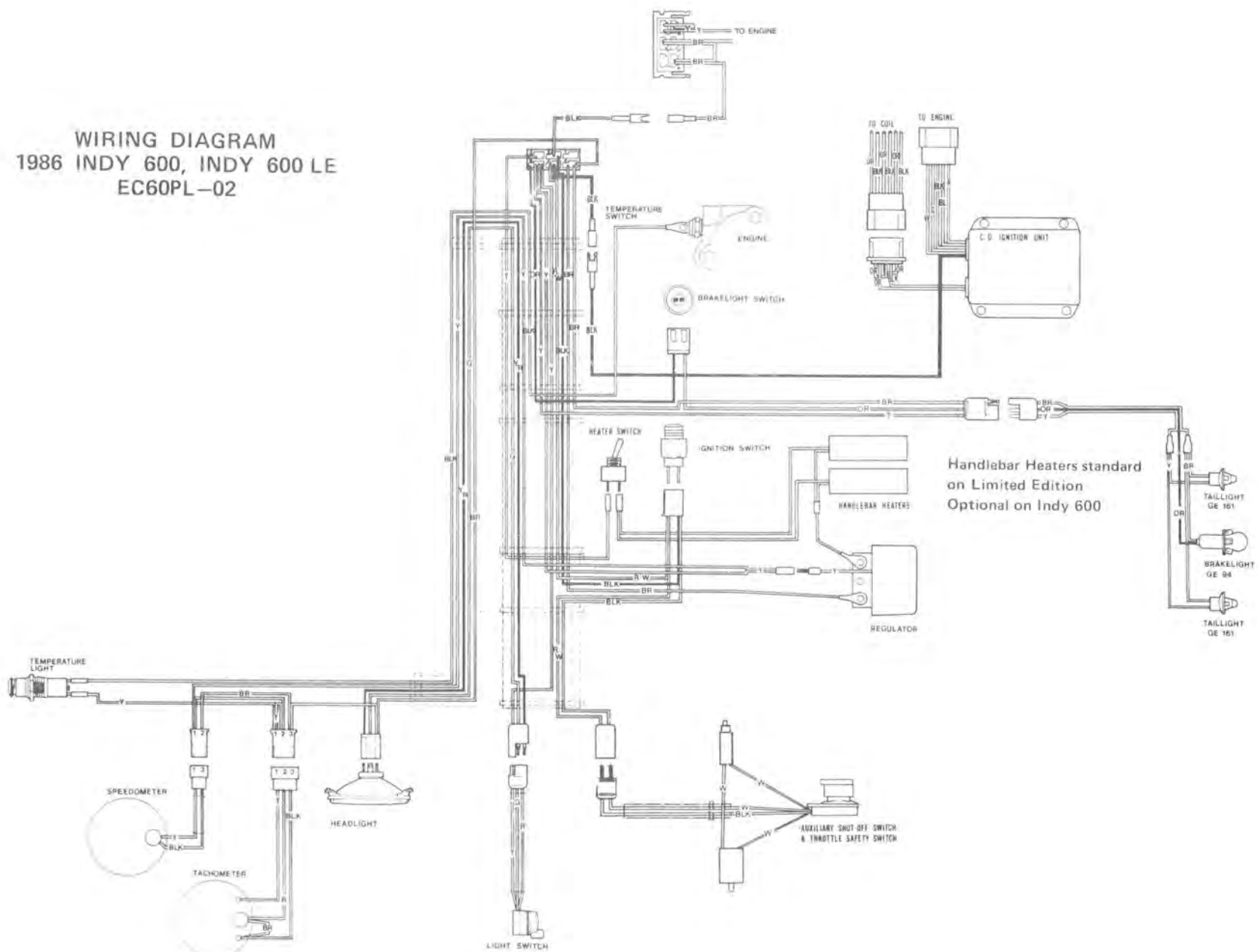
SCHEMATIC DIAGRAM

1986 INDY 400 EC40PL-02
(120 WATT ALTERNATOR)



BODY ELECTRICAL
1986 Wiring Diagram — Indy 600, Indy 600 LE

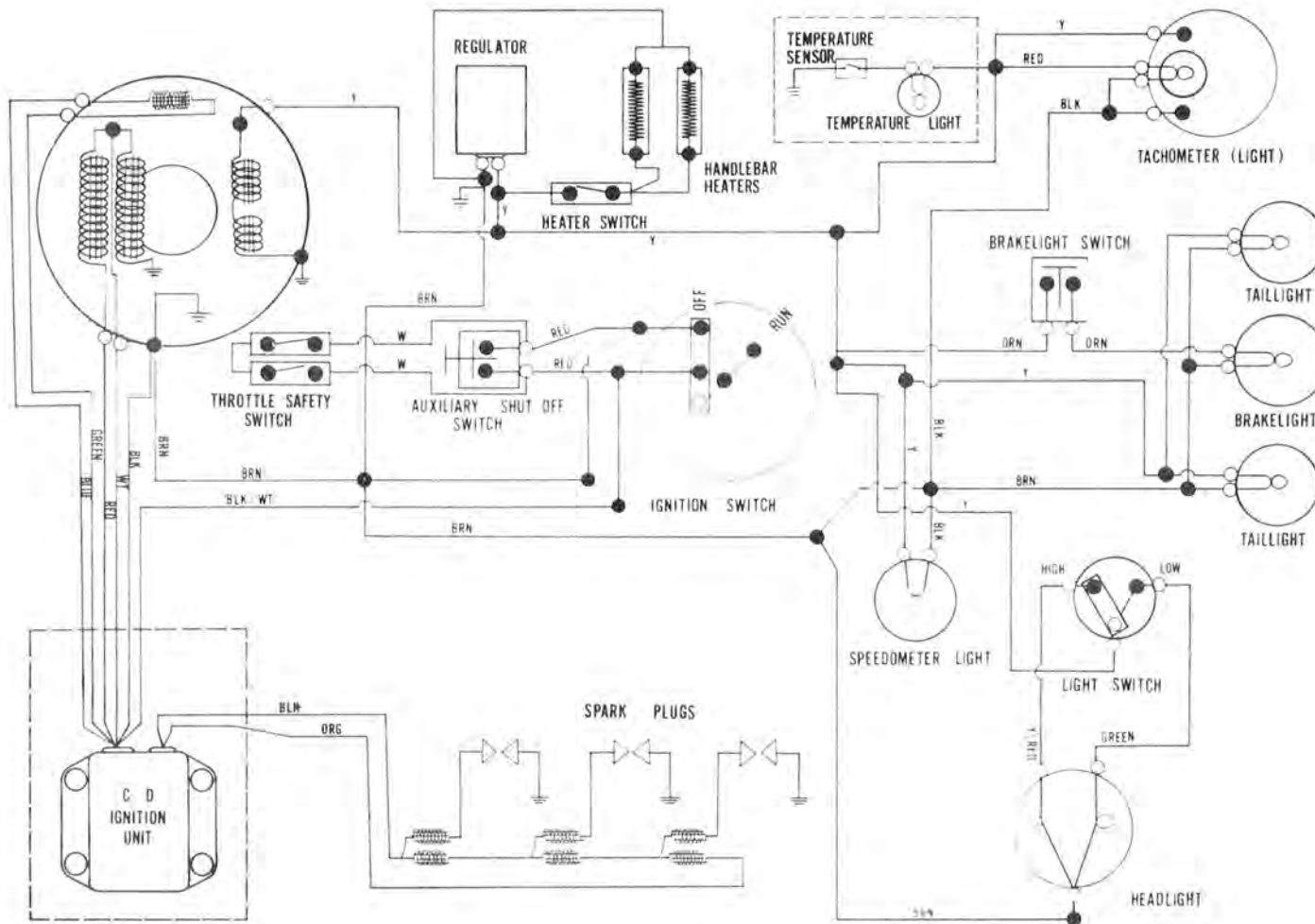
WIRING DIAGRAM
1986 INDY 600, INDY 600 LE
EC60PL-02



SCHEMATIC DIAGRAM

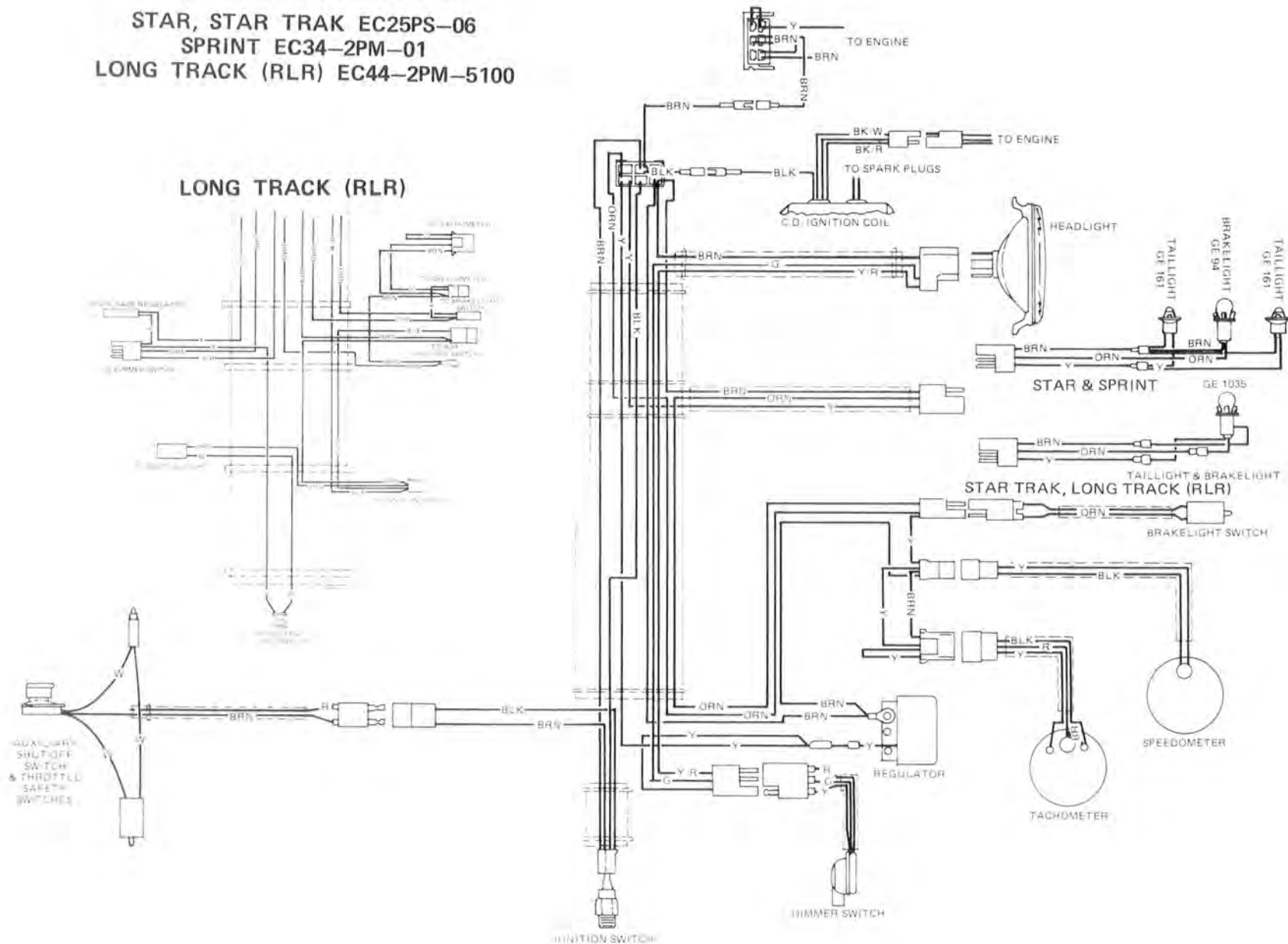
INDY 600, INDY 600 LE
EC60PL-02
(120 WATT ALTERNATOR)

Handlebar Heaters standard on Limited Edition
Optional on Indy 600



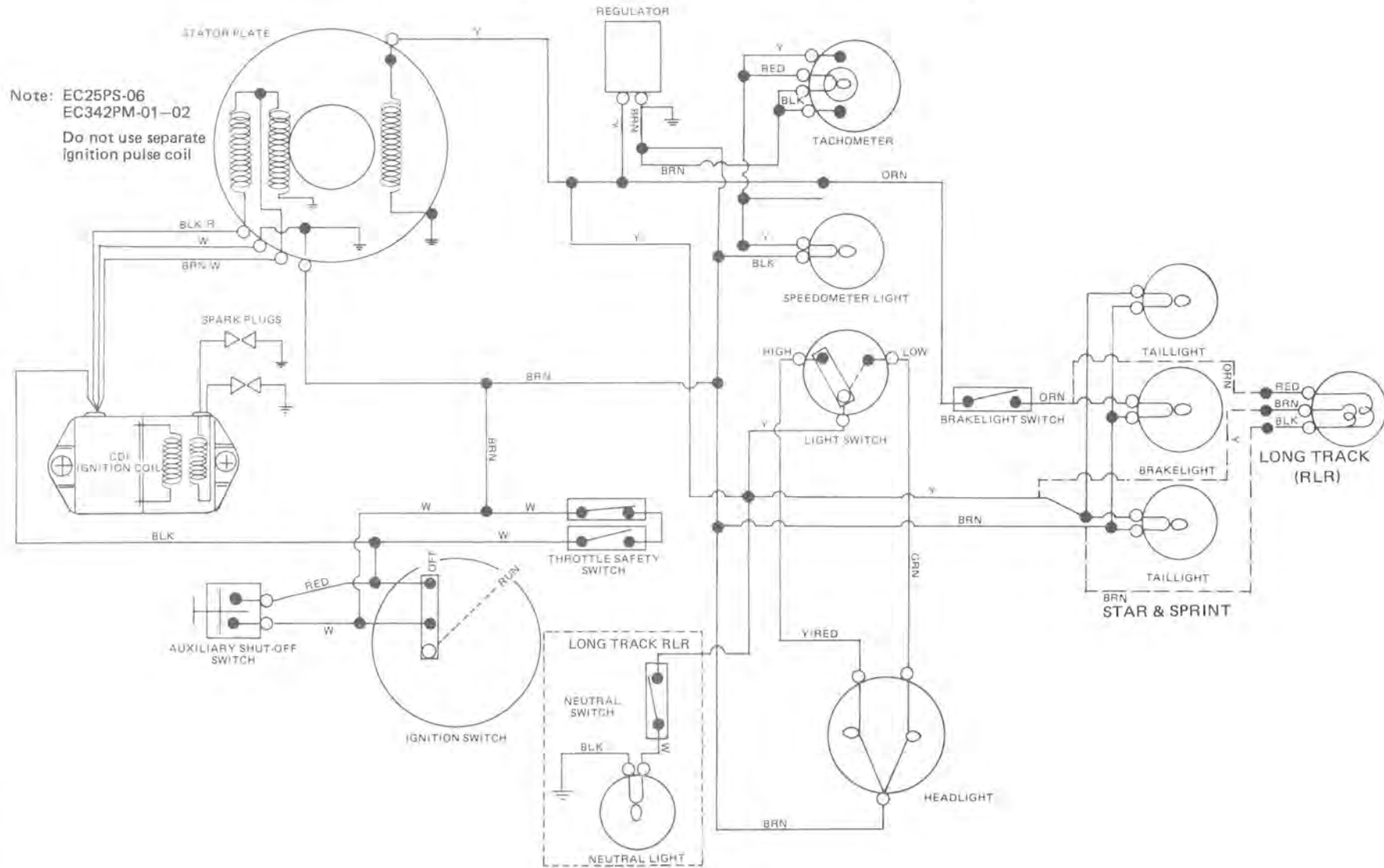
1987 WIRING DIAGRAM

STAR, STAR TRAK EC25PS-06
SPRINT EC34-2PM-01
LONG TRACK (RLR) EC44-2PM-5100



1987 SCHEMATIC DIAGRAM

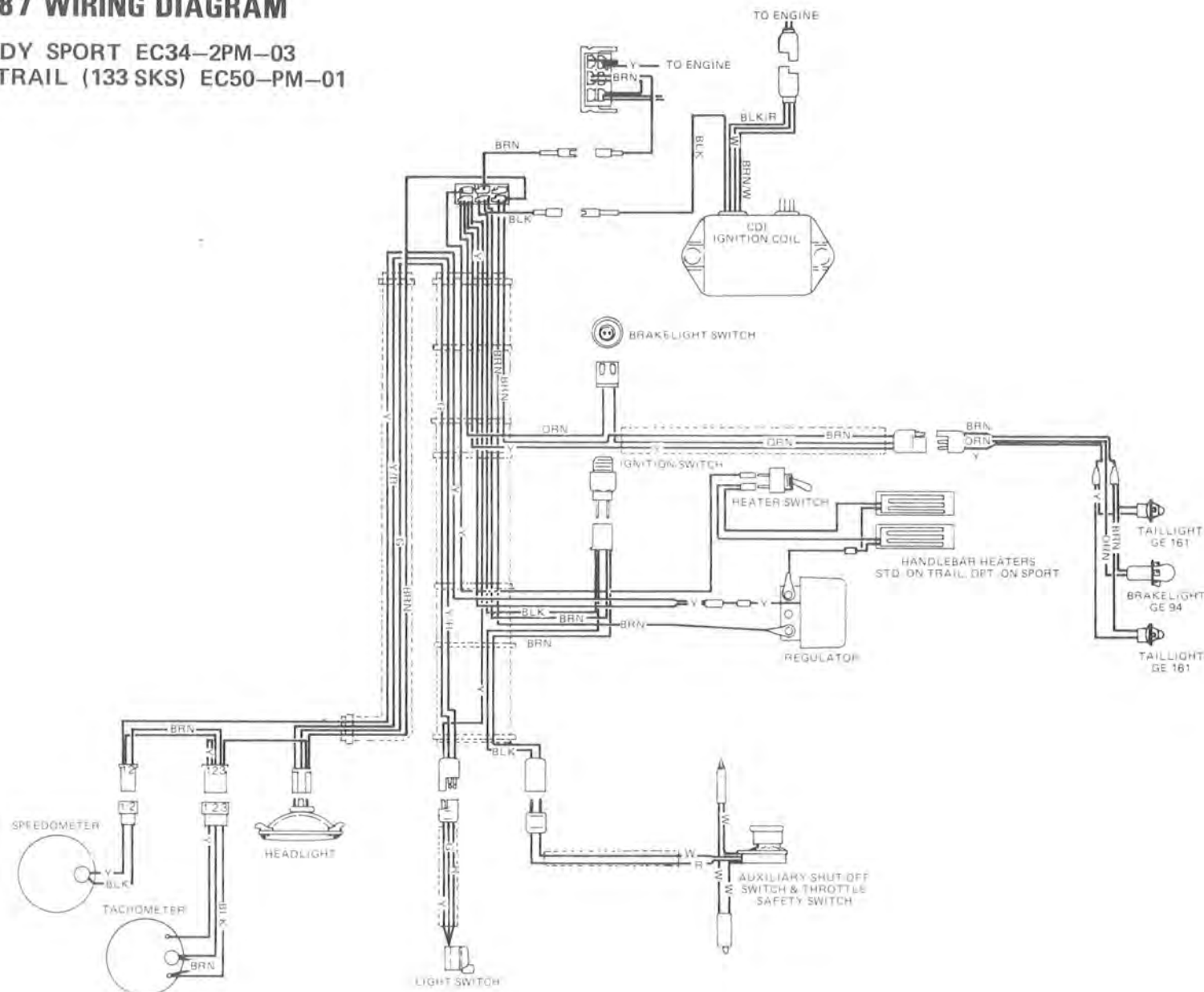
STAR, STAR TRAK EC25PS-06 (100 WATT ALTERNATOR)
 SPRINT EC34-2PM-01 (120 WATT ALTERNATOR)
 LONG TRACK (RLR) EC44-2PM-5100 (120 WATT ALTERNATOR)
 Refer to page 20k for Sprint Electric Start Schematic Diagram



1987 Wiring Schematic — Star, Star Trak, Sprint, Long Track (RLR)

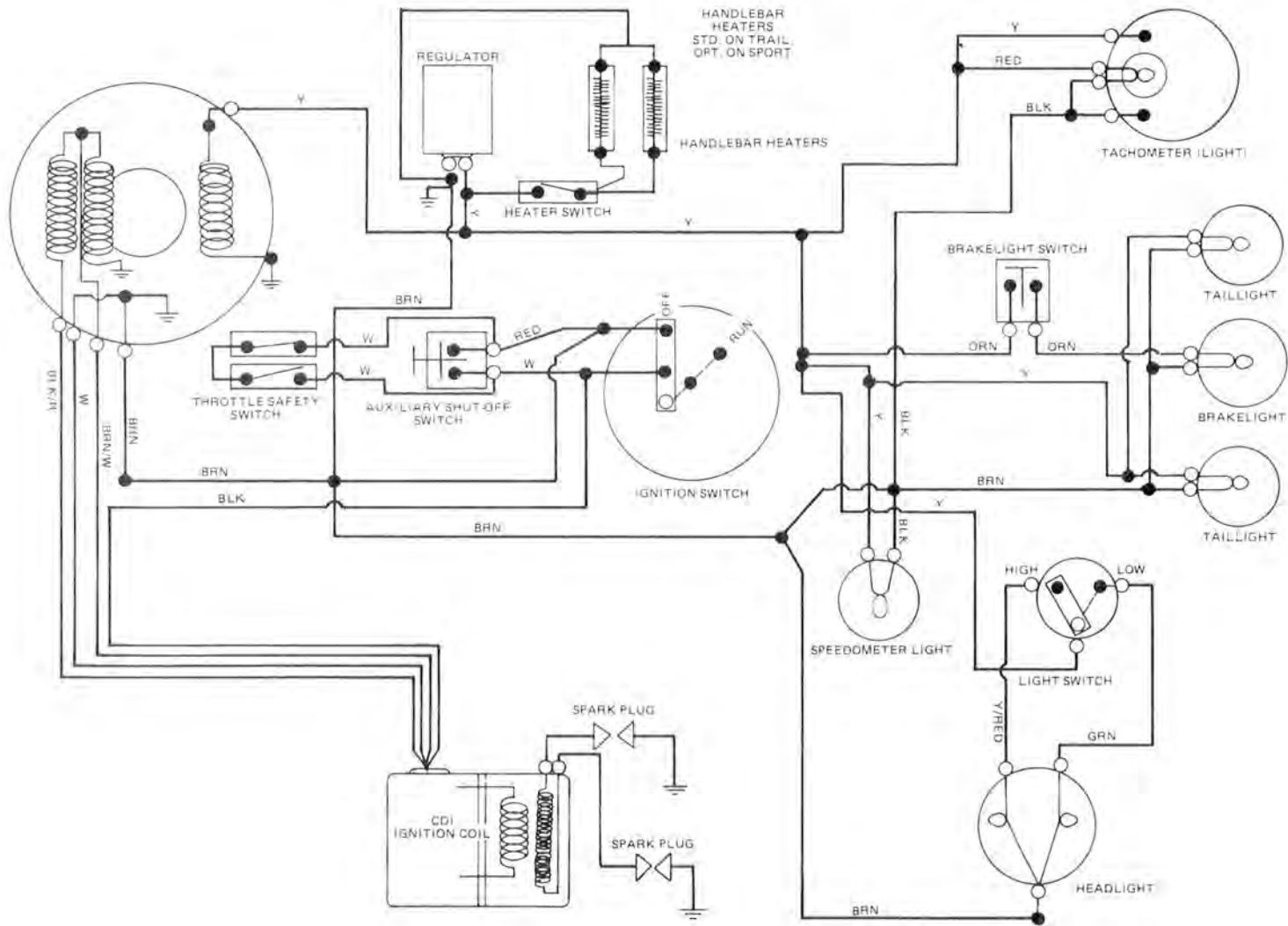
BODY ELECTRICAL

1987 WIRING DIAGRAM **INDY SPORT EC34-2PM-03** **INDY TRAIL (133 SKS) EC50-PM-01**



1987 SCHEMATIC DIAGRAM

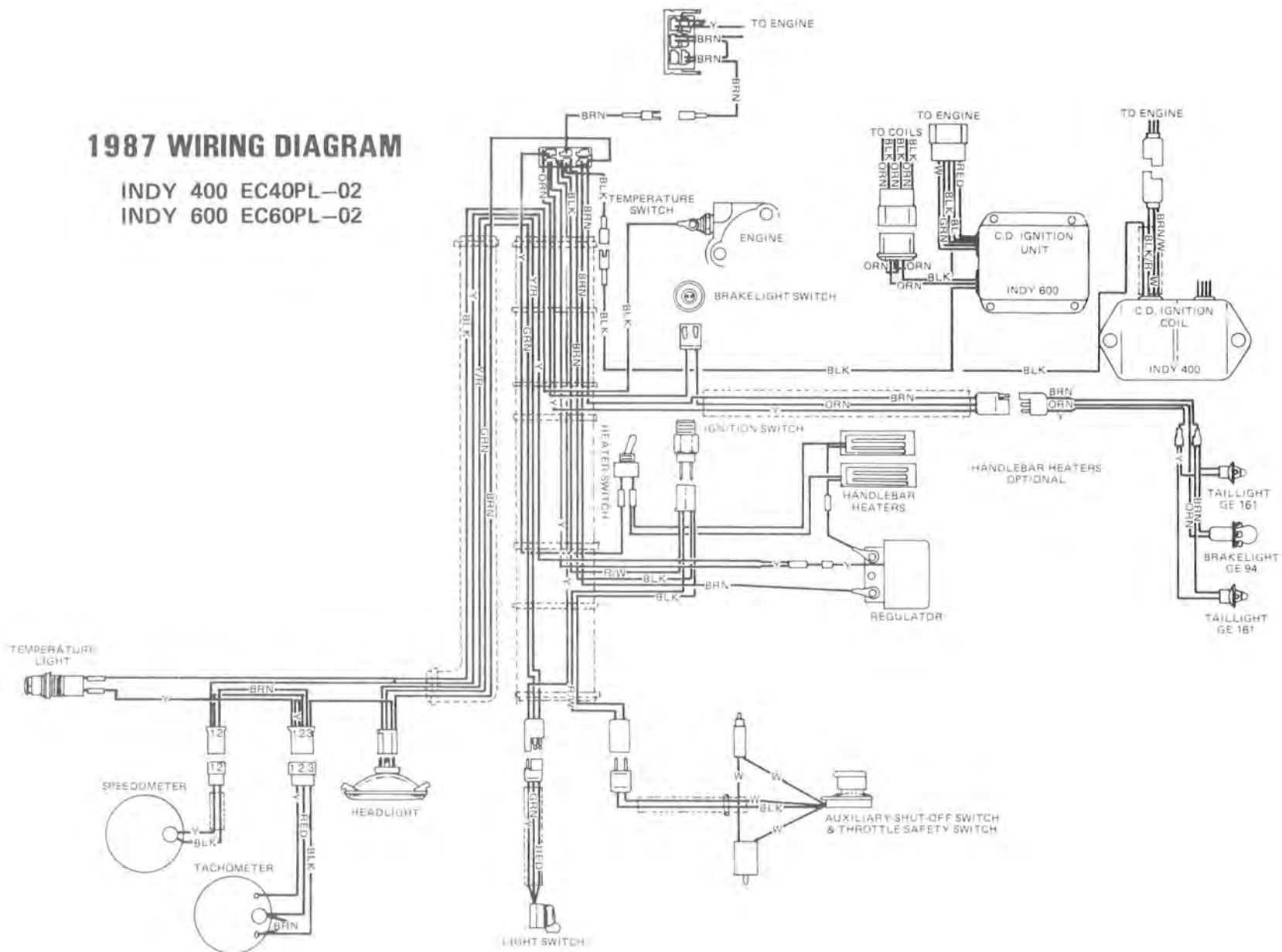
INDY SPORT EC34-2PM-03 (120 WATT ALTERNATOR)
 INDY TRAIL (133 SKS) EC50-PM-01 (120 WATT ALTERNATOR)
 Indy Trail Electric Start Schematic reference page 20k



BODY ELECTRICAL
1987 Wiring Diagram — Indy 400 (133 SKS), Indy 600

1987 WIRING DIAGRAM

INDY 400 EC40PL-02
 INDY 600 EC60PL-02

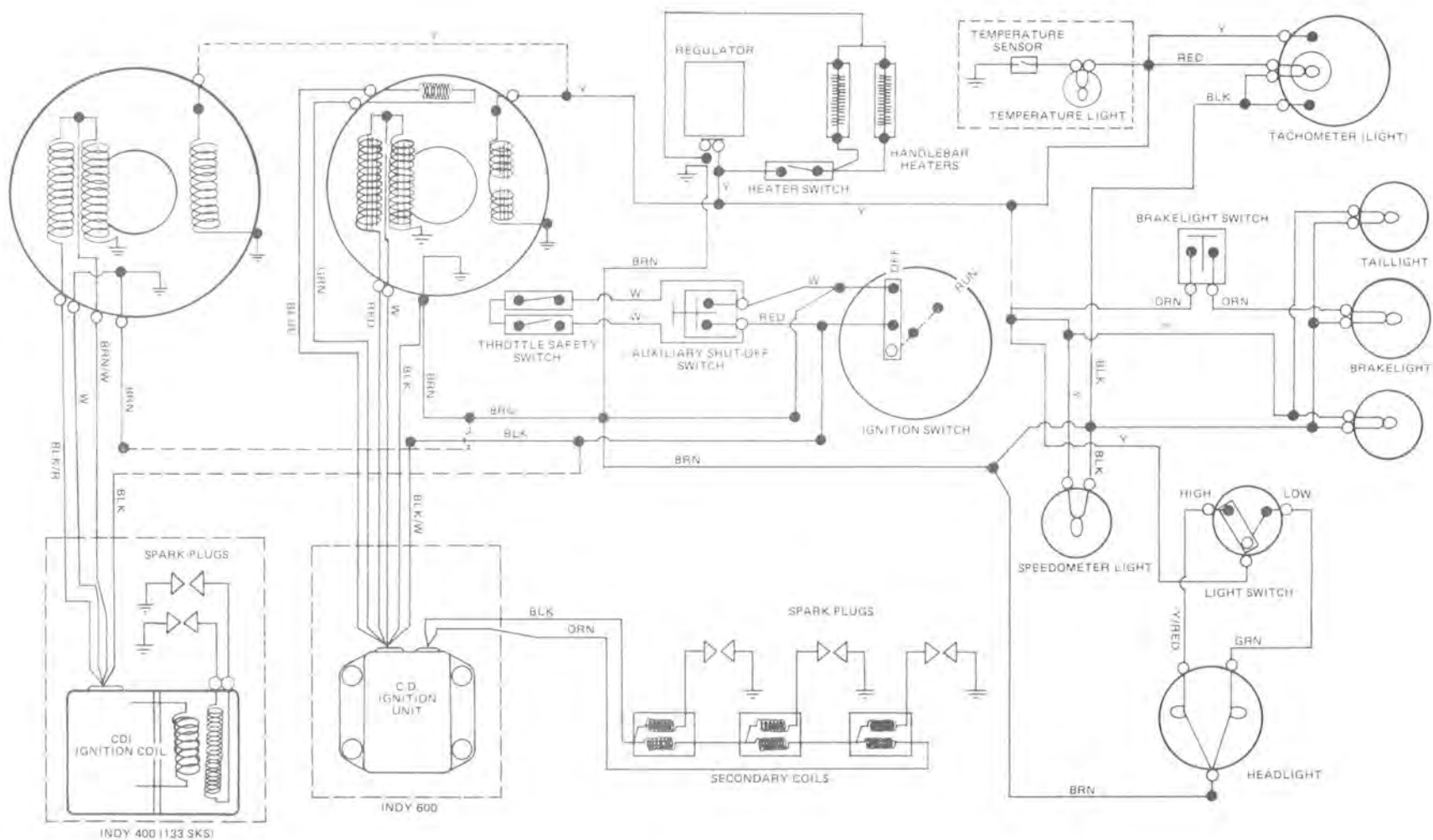


1987 SCHEMATIC DIAGRAM

INDY 400 (133 SKS) EC40PL-02 (120 WATT ALTERNATOR)

INDY 600 EC60PL-02 (120 WATT ALTERNATOR)

Handlebar heaters optional on both models



1987 Wiring Schematic — Indy 400 (SKS), Indy 600

BODY ELECTRICAL

