Lucas

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RITA ELECTRONIC IGNITION SERVICING INSTRUCTIONS

PART A

FAILURE OF ENGINE TO RUN

Check h.t. leads are clean and dry, and connections are tight.
Check l.t. connections to ignition coils, RITA unit, ballast resistor, pick-up, isolating diodes (where appropriate), and ignition swtich, and in-line and earch connections are tight.
Check pick-up coil is not loose on pick-up poles, and that pick-up assembly is secured rigidly to the base plate.
Check reluctor rotates when engine is cranked and that the air gap is correctly set.
Remove spark plugs, clean, set gaps and replace, or renew plugs if necessary. Disconnect any rev. counter connections to the ignition coil circuit.

1 Check battery terminal voltage

Connect a voltmeter (0-20V) across the battery. A reading of 12V or more should be indicated.

2 Check supply to RITA unit

(a) Connect a voltmeter (0-20V) to RITA unit black (negative) and red/black (positive) leads without breaking their circuit connections. Switch on the ignition and check voltmeter indicates the battery voltage measured in test 1. If the same reading is obtained and the machine is fitted with a starter motor proceed to test 2(c), but if no motor is fitted proceed to test 3(a). If a different voltmeter reading is obtained proceed to test 2(b).

(b) Disconnect in turn each run of cable between the RITA unit black and red/black supply leads and the battery, and check its continuity by connecting an ohmmeter to each cable end. Also check the ignition switch is closed in the 'on' position. Rectify faulty wiring, connections or ignition switch.

(c) Keeping the same voltmeter connections as in test 2(a) switch on the ignition, operate the starter motor, and

observe the voltmeter reading. Switch off the ignition. If the voltmeter indicates less than 9V during cranking, check the battery-to-earth lead and its connections to the battery and machine frame. Otherwise proceed to test 3(a).

3 Check ignition coil l.t. circuit

(a) Remove the spark plugs and, with h.t. leads still connected, rest the plugs on the cylinder head. Disconnect the RITA unit white/black lead from the '-' terminal of the appropriate coil or, on systems which have parallel coils, from the isolating diodes heat sink. Short the same coil '-' terminal or the isolating diodes heat sink whichever is appropriate either to earth (negative earth systems) or to the battery negative terminal (positive earth systems). Alternate the ignition switch between the 'on' and 'off' positions (negative earth systems) or make and break a number of times the shorting lead connection to the battery negative terminal (positive earth systems). Check sparks occur at all plugs each time the ignition is switched off or the shorting lead connection is broken.

If sparks are not obtained at all plugs proceed to test 3(b). Otherwise reconnect white/black lead, and on machines with series connected ignition coil systems proceed to test 4(a): where parallel-connected coils are fitted proceed first to test 3(d) and then, if no diode faults are discovered, to test 4(a).

(b) Where the positive supply to the ignition coil(s), ballast resistor and RITA unit is wired exactly as shown in the wiring diagrams, check either the continuity of the coil link cables and their terminations (series-connected coils) or the fly-lead terminations of each coil (parallel-connected coils).

Where the positive supply to the ignition (coil(s) etc. is wired other than shown, the following tests are also required. On series-connected coil systems check the continuity of the wiring between the '+' terminal of the

appropriate coil and either the ignition switch (negative earth systems) or earth (positive earth systems). On parallel-connected coil systems check the continuity of the supply cable between the positive common coil connection and the ignition switch.
Rectify any faulty wiring or connections. If checks were satisfactory, proceed to test 3(c).

(c) Disconnect the l.t. connections or fly-leads of each ignition coil in turn and connect an ohmmeter across the l.t. terminals ('+' and '-') or fly-leads (double-ended coils). If no continuity exists, the coil primary winding is open-circuit and the coil must be renewed.
Should continuity be obtained, connect the ohmmeter between the coil can or fixing bracket and either l.t. terminal or lead. Any continuity that may be registered indicates the coil primary winding is shorted to the can. In which case renew the faulty coil.
In the case of a machine having an ignition system which incorporates parallel connected double-ended coils, and where the cause of failure to operate has not been discovered in tests 3(b) or 3(c), proceed to test 3(d).

(d) Check that the isolating diode mounting bracket (heat-sink) is not touching the machine frame, and that each diode is securely fixed to the mounting bracket. Check in turn each of the isolating diodes and its fly-lead as follows.
Disconnect the fly-lead of the diode to be tested from its associated in-line connector. Connect an ohmmeter across the diode fly-lead and check continuity is obtained. If continuity is not obtained renew faulty fly-lead or termination, otherwise proceed as follows.
Connect a 1.5W bulb and a 12V d.c. supply in series with the diode and fly-lead, and then repeat the test with the connections to the diode and fly-lead reversed. A faulty diode will cause the bulb in both tests either to light or to remain extinguished. In this event the complete isolating diode must be renewed. Reconnect diode after

test. Alternatively each diode may be checked using a battery-powered ohmmeter, but since the forward resistance of a diode varies with the voltage applied, no definite meter readings can be quoted. However, a faulty diode will produce either infinite readings or near-zero readings in both directions.

Note: Ohmmeters of the type incorporating a hand-driven generator must never be used to check a diode.

4 Check ballast resistor circuit and RITA unit

(a) With the ignition switch in the 'on' position, alternately disconnect and reconnect the RITA unit white/blue lead at the ballast resistor.

Note: On positive earth systems, take care not to let white/blue lead short to earth.

Check whether sparks occur at all plugs each time this connection is broken. Switch off the ignition and remake the connection. If sparks were obtained at all plugs proceed to test 4(d). If sparks were not obtained at all plugs then proceed either to test 4(c) if the positive supply to the ignition coil, ballast resistor and RITA unit is wired exactly as shown in the wiring diagrams: or to test 4(b) if the positive supply to these units is wired differently.

(b) Check the terminations and continuity of cable runs between the ballast resistor and earth (positive earth systems) or ignition switch (negative earth systems) with an ohmmeter.

If the terminations and wiring are in order proceed to test 4(c), otherwise renew faulty termination or wiring.

(c) Disconnect the ballast resistor and check the continuity or resistance (9.5) of the resistor with an ohmmeter. If continuity or a resistance reading of 9.5 is obtained the RITA unit is faulty. Verify by substituting a new unit.

(d) Disconnect RITA unit white/brown lead and switch on the ignition. Connect the RITA unit white/brown lead to a

good earth point (negative earth systems) or the battery negative supply line (positive earth systems) and check sparks occur at all plugs each time connection is made.

If no sparks are obtained at the plugs, renew RITA unit.

If sparks are obtained, leave the RITA unit white/brown lead disconnected and proceed to test 5

5 Check pick-up circuit

Disconnect RITA unit brown lead and check continuity of cable runs between points at which RITA unit leads (brown and brown/white) were connected and the corresponding pick-up lead terminations. If continuity is obtained and the pick-up lead terminations are in order then the pick-up is faulty and should be renewed.

PART B

MISFIRE CONDITIONS

1 Irregular misfire

Proceed as for failure of engine to run, Part A.

2 Regular misfire

(a) Remove the spark plugs and, with h.t. leads still connected, rest the plugs on the cylinder head. Operate the ignition switch and observe plug(s) not sparking. Check h.t. leads of plug(s) not firing are clean and dry, and connections are tight. Clean and reset gap(s) of plugs not firing or renew if necessary.

If plug(s) still misfire when ignition switch is operated once more, proceed either to test 2(b) (series-connected ignition coil circuits) or to test 2(c) (parallel-connected ignition coil circuits).

(b) Remove leads from ignition coil associated with plug(s) not sparking. Connect an ohmmeter between coil can and either the '+' or '-' terminal. Any continuity indicates the primary winding is shorting to the can, and the faulty coil must be renewed.

(c) When misfiring occurs on machines having parallel-connected ignition coils, it is necessary to check both parallel l.t. circuits.

Disconnect both l.t. fly-leads of each ignition coil and

check terminations.

Connect an ohmmeter between the l.t. fly-leads of each coil and check for continuity. If no continuity exists, the primary winding is open-circuit and the coil must be renewed.

If continuity is obtained, check for no continuity between either l.t. fly-load and the fixing bracket of each coil. Any continuity indicates the primary winding is shorted to the coil can, and the coil must be renewed.

If no continuity exists and both isolating diodes are securely fixed to their mounting bracket, then one of the isolating diodes or its fly-lead is faulty. Check in turn each diode and fly-lead as in Part A test 3(d).

Please note that all amplifiers have a standard production number - 48016 - and that any 'specials' will carry a colour code on the side of the box.

For example the only change to date is on the BMW 90/s, all other BMW's and other makes of road going machines are standard.

Some racing machines are colour coded and must be adhered to.

COLOUR CODE

Road Machines

BMW 90/s - Green Panel. DUCATI 750 TRIUMPH TWINS. YELLOW PANEL.

Racing Machines (ONLY)

Norton Racer. Twin Cylinder - Black box with yellow panel

Weslake Twin Cylinder - Natural die cast box with yellow panel

Mistral Engineering

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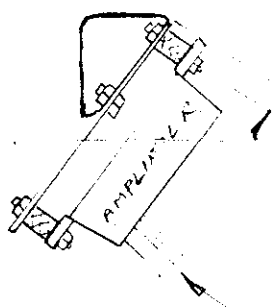
FITTING INSTRUCTIONS - BSA ROCKET 3

DISMANTLING

1. Remove Points Cover and Battery Cover.
2. Disconnect Coils. (Leave HT leads in Place).
3. Remove the wires from the three contact breakers and take out the contact breaker plate as a complete assembly. Remove the auto-advance unit from the taper in the camshaft using the 5/16th U.N.F. extractor thread.

ASSEMBLY

Screw the Pickup Backplate on to the engine using the bottom screw and the L.H. screw. The Backplate should be in the middle of its adjustment slots and it may be necessary to use the extra washers supplied in the kit. Fit the Reluctor, finger tight only into the camshaft taper and set the 0.2-0.3 mm. gap. It is unnecessary to slacken the pivot screw to adjust the air gap. Set the engine at 38° B.T.D.C. using the timing mark and turn the Reluctor in the taper until it traps the 5 mm. timing spacer as shown on the diagram. Lock up the centre bolt of the Reluctor and the 2 bolts holding the plate and check the air gap with feeler gauges.



DRILLING POSITION FOR 1st HOLE APPROX. 50mm (2"). SET CHECK CLEARANCE TO BATTERY CARRIER, FRAME & OUTER COVER.

AMPLIFIER ASSEMBLY TO TOOLBOX.

(1/4" OR 6.5mm. DRILL IS REQUIRED.

Drill the top of the toolbox between the Rectifier and the Flasher Unit to accept the mounting bracket for the diode-pairs. The spades on the diodes to face towards the back of the motorcycle. Use the M5 screws, washers and nuts supplied.

WIRING

Remove the spade connections from the 3-condensers. Connect the single Black-Red and Black-white to the Brown and White-Brown from the amplifier. Tape the joints to ensure that they do not pull apart. Insulate the ends of the double White-Yellow, the double Black-Red and the double Black-White. Join the Black from the amplifier to the single White-Yellow. Wire the coils in PARALLEL as shown in the diagram, the amplifier is connected to a coil positive terminal, all the coils' positive terminals are interconnected and one is earthed to the frame making sure that a good contact is made using the Red-Black links supplied. The coils' negative terminals are connected to the diode pairs with the Black links supplied, check the diode pair numbers with the diagram.

Join the Black wire of the pickup to the Red-Black contact breaker wire and the White wire of the pick-up to the White-Black contact breaker wire. Use the terminal stud, which is designed to insulate each pair of eyelets from each other and from the baseplate.

Run the engine and adjust the fully advanced (38°) timing, using a stroboscope at 6,500 R.P.M. It is only necessary to take a spot reading and this is achieved more easily with an assistant.

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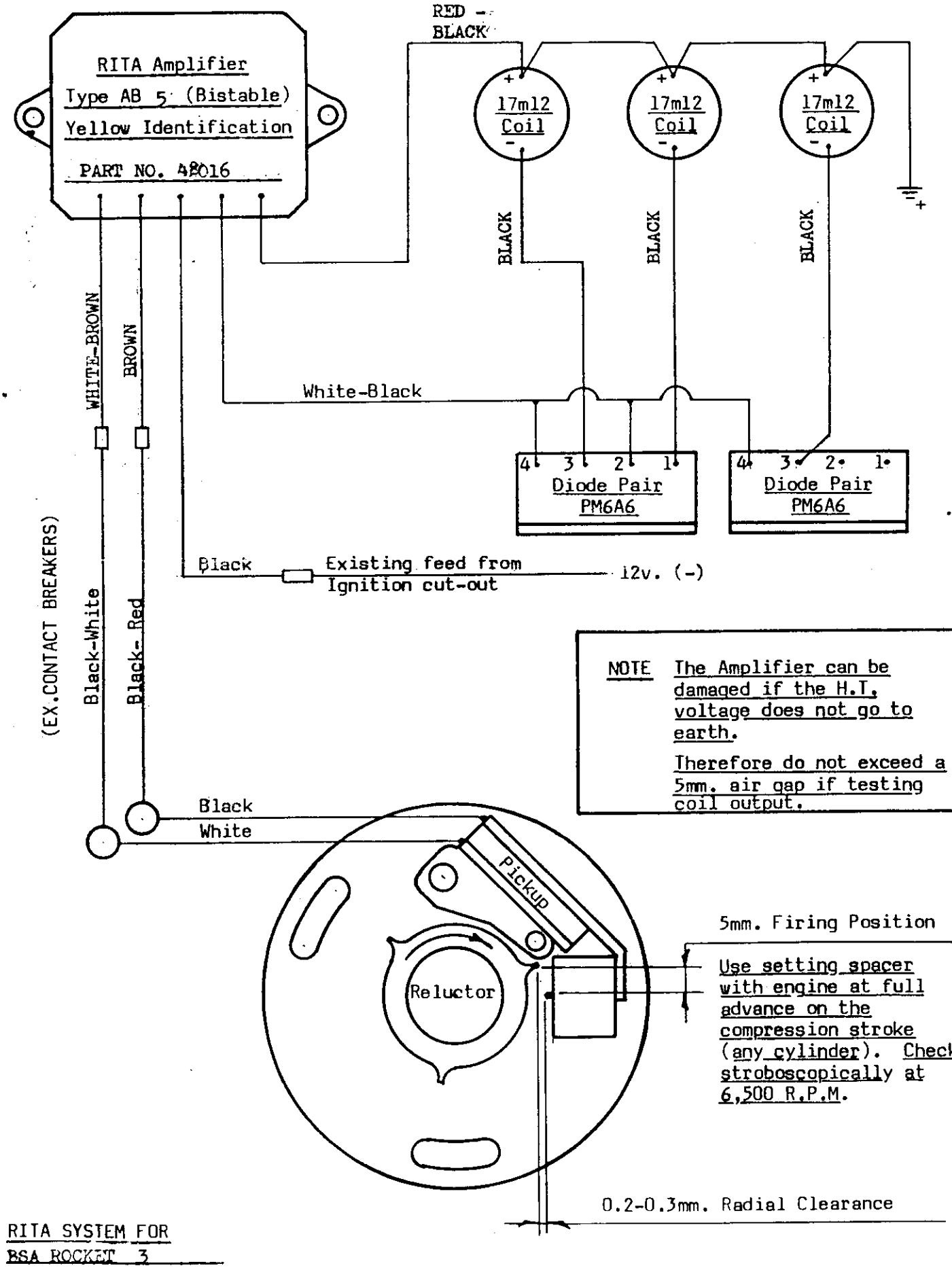

NOTE The Amplifier can be damaged if the H.T. voltage does not go to earth.

Therefore do not exceed a 5mm. air gap if testing coil output.

RITA SYSTEM FOR
BSA ROCKET 3
Issue 3. May 1983

Mistral Engineering

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FITTING INSTRUCTIONS FOR BSA TWINS ISSUE 2 November 1981

Dismantling (Oil in Frame Model)

Remove the seat, air filter covers and elements and the battery.
Remove the panels to the rear of the air filter by taking out the $\frac{1}{4}$" bolts inside the filter casting. Then remove the 2 x 5/16th bolts holding the casting to the frame and replace them with the longer ones supplied. Take off all the wiring connectors from the coils and condensers. Remove the contact breaker plate assembly and the advance/ retard unit.

Assembly

Mount the diode pair via centre hole, by bolting in a position which allows the wires to be free and not strained. The aluminium mounting bracket does not have to be earthed or have a heat sink. NB DRILL ¼" HOLE IN TRIANGULAR PLATE BEHIND O.F. FILLER & MOUNT DIODE PAIR UNDERNEATH
N.B. The diode pair looks similar to a replacement rectifier used on some machines, but internally it is entirely different and neither component should be interchanged.
Fit the amplifier brackets on to the extension of the longer bolts through the air filter. Ensure that there is 4 mm. minimum clearance from the frame, mudguard and chainguard to the amplifier. Pass the amplifier harness to the diode pair avoiding sharp edges and rubbing points. The battery can now be replaced, but do not connect up until the wiring is completed. Ensure that the aluminium amplifier case is earthed.
The air filters can now be re-assembled. Note that on models with a plastic extension tube fitted to the elements, this must be removed. Bend back the metal retaining lug and push the plastic extension out of the filter.
Screw the pick-up backplate on to the engine in the middle of its adjustment slots, in the position shown on the diagram. Fit the reluctor into the camshaft taper and set the 0.2-0.3 mm. air gap. Note that it is unnecessary to slacken the pivot screw to adjust the air gap; only slacken the clamp screw on the slotted hole in the pick-up. It is necessary to cut off one of the lugs on the case to clear the pick-up. Set the engine on the fully advanced timing marks and turn the backplate to trap the 5 mm. timing spacer as shown.

Note For earlier BSA Twins in non-oil carrying frame, it will be necessary to find an alternative mounting position for the amplifier.

Wiring

The pick-up wires from the rita amplifier are prepared to connect with the bullet connectors, on the old contact breaker wires and should be wired as shown in the diagram. Note the arrangement of metal and fibre washers before removing them to fit contact breaker wire eyelets, This is to ensure both pairs of eyelets are isolated from each other and the plate.
The remainder of the wiring is connected as shown in the diagram. Type or clip wires toframe members when possible.
Run the engine and adjust the fully advanced timing position using a stroboscope. A flash reading at 6,500 RPM is necessary as there is a slight increase in advance all the way up the range of RPM.

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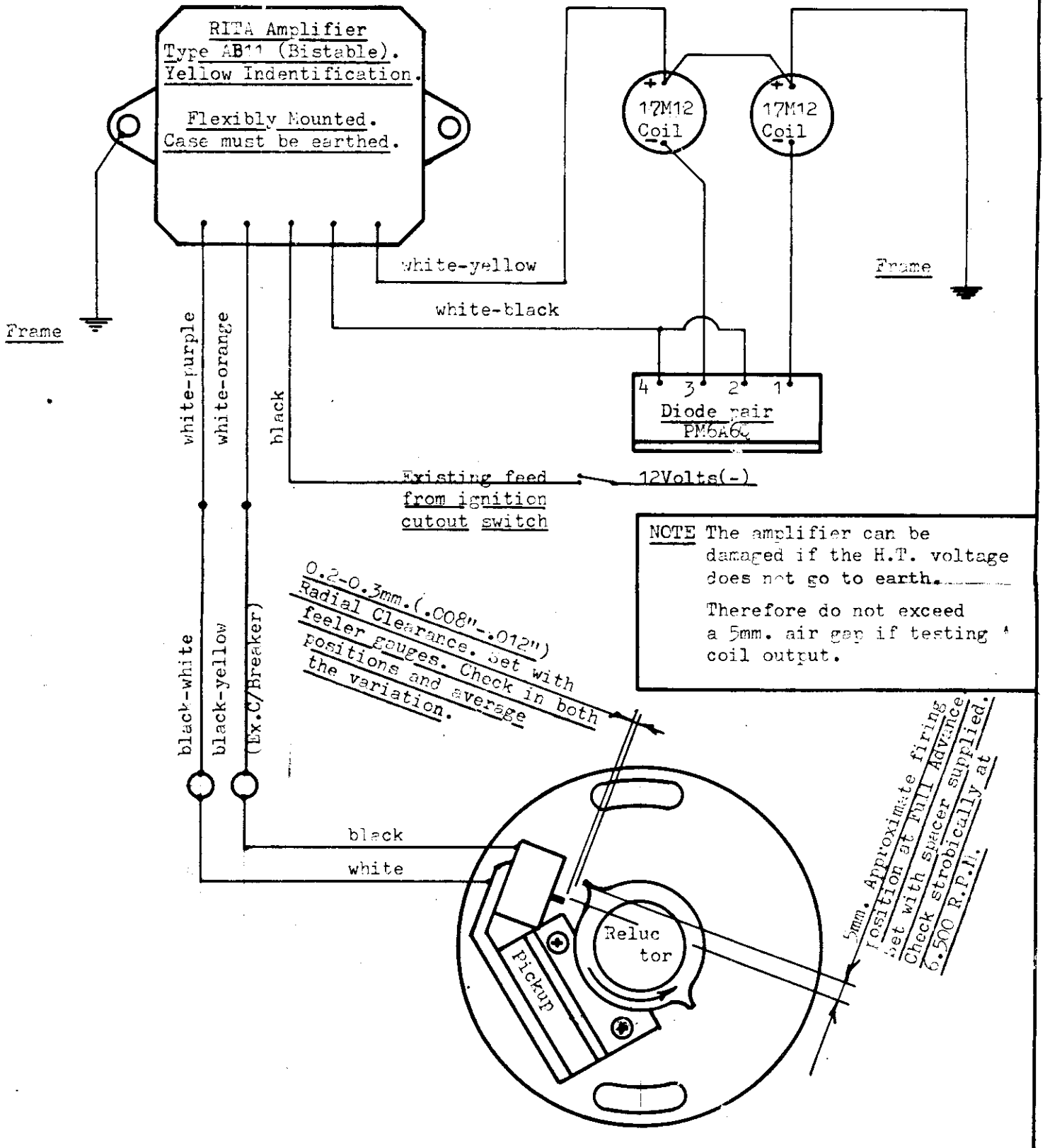

NOTE The amplifier can be damaged if the H.T. voltage does not go to earth.

Therefore do not exceed a 5mm. air gap if testing coil output.

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MAGNETO REPLACEMENT UNIT FITTING INSTRUCTIONS

1. Mount coil(s) and amplifier on machine so they are not directly exposed to the weather, make sure the amplifier is not liable to touch easily any fixed parts.

2. Install wiring as shown in diagram taking care to ensure wires will not chaff or be trapped when petrol tanks, etc are replaced.

3. Remove magneto.

4. If an automatic advance/retard device is fitted this will have to be locked solid by, say electric welding, or replaced with a plain pinion.

5. Ensure pinion and nut will fit onto tapered shaft and seat properly. Old parts which have been damaged should be repaired or replaced to prevent damage.

6. Fit magneto replacement unit to engine.

7. Set crankshaft at maximum ignition advance position.

8. Set magneto replacement unit shaft with reluctor 5.5mm from pickup using spacer supplied. Check that rotation direction is correct.

9. Fit pinion and nut on to shaft. Remove timing spacer before tightening nut. Do not tap pinion to lock on to shaft as bearing damage will result causing premature failure. (Bearing life will normally be indefinite).

10. With crankshaft at maxium advance check reluctor - pickup gap is 5.5mm by moving pickup plate with pillar studs slackened off.

11. Secure pillar studs, replace covers etc and start engine.

12. If timing marks exist ignition can be checked using a stroboscope at 6000 r.p.m.

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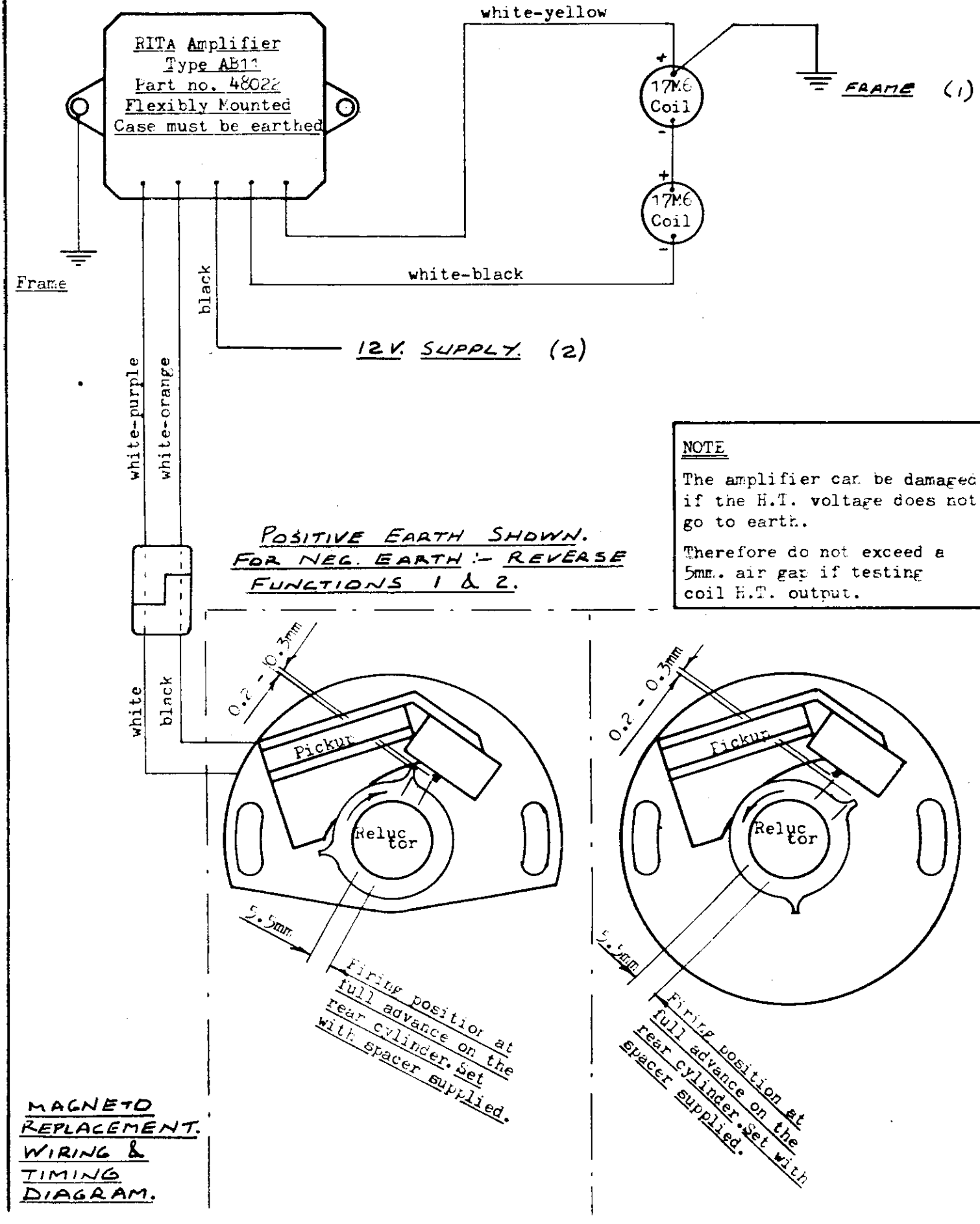

NOTE

The amplifier can be damaged if the H.T. voltage does not go to earth.

Therefore do not exceed a 5mm. air gap if testing coil H.T. output.

MAGNETO REPLACEMENT. WIRING & TIMING DIAGRAM.

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FITTING INSTRUCTIONS FOR
NORTON COMMANDO WITH EXISTING 6 VOLT COILS

A. AMPLIFIER MOUNTING

1. Remove seat and petrol tank.
2. Remove wiring from condensers, coils and ballast resistor. (Please note that ballast and condensers are no longer required).
3. Remove coil bracket.
4. Drill two holes 6.5 mm ($\frac{1}{4}$in.) dia. at 50 mm. (2 in.) centres lengthways on centre line of coil mounting bracket.
5. Fit amplifier bracket to coil bracket.
6. Remove coils in order to replace the bracket in position.
7. Fix and tighten up in position.

B. WIRING INSTRUCTIONS FOR AMPLIFIER, COILS AND LEAD TO PICK-UP

1. Locate ignition feed, which was connected to old ballast, (colour of wire - white/blue, or later model, white/yellow) and connect this wire to black wire from amplifier.
2. Connect the white-yellow from amplifier to positive (+) terminal on one of the coils.
3. Also connect the two red wires which are in a double lucar on the existing loom to the same terminal on coil position (+).
   If these wires are not available in the loom connect link wire provided from coil positive terminal to earth on machine.
4. Connect the negative (-) of that coil (with link wire supplied) to the positive (+) of second coil.
5. Connect negative (-) of second coil to the white/black wire from amplifier.
6. Connect white/orange wire from amplifier to the black/yellow wire of contact breaker.
7. Connect the white/purple wire from amplifier to the black/white wire.

C. PICK-UP AND RELUCTOR MOUNTING

1. Remove plugs and rest on cylinder head connected to H.T. leads.
2. Remove contact breaker plate and auto advance unit.
3. Fit pick-up plate in middle of adjustment slots with the terminal post in the most convenient position to connect C/B wires.
4. Fit reluctor to camshaft taper (finger tight only) and turn engine to bring pole of pick-up and reluctor in line. Set 0.2-0.3 mm. (0.008"-0.012") air gap. It is only necessary to slacken the outer screw and it will pivot for adjustment.
5. Turn the engine to 28° B.T.D.C. and turn the reluctor to just trap the timing spacer (see 5 mm. dimension on diagram). Tighten centre bolt and turn engine to re-check the 0.2-0.3 mm. air gap in both positions of the reluctor.
6. Connect the black-white C/B wire to white of pick-up and the black-yellow to the black wire of the pick-up. The terminal post is designed to insulate each pair of eyelets from each other and from the backplate.
7. Switch on and kick the engine over. If plugs are sparking, re-assemble tank etc. strobe engine at 2,000 r.p.m. and set to 20° at this speed. Also take a flash reading at high r.p.m. to see that the timing is 28° at 6-6,500. The picture may fluctuate at this speed due to cam chain slackness and torsional oscillation of the camshaft. This check is only practicable with a second person to assist.

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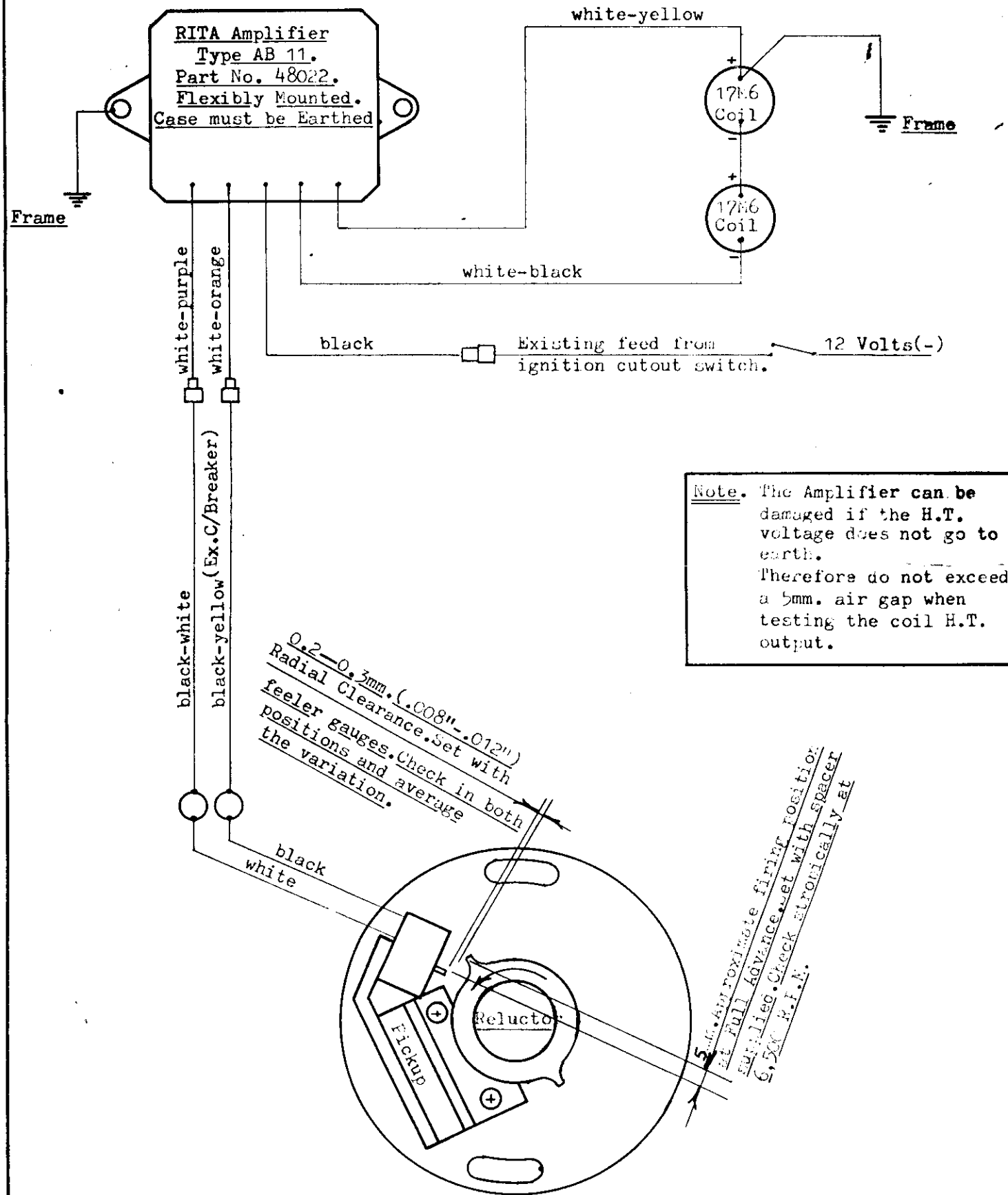

Note. The Amplifier can be damaged if the H.T. voltage does not go to earth.
Therefore do not exceed a 5mm. air gap when testing the coil H.T. output.

RITA System for NORTON COMMANDO

August 1979.

Mistral Engineering

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FITTING INSTRUCTIONS FOR PRE 1971 TRIUMPH 650 c.c. UNIT TWINS

Issue 2. Dec. 81.

Dismantling

Remove the battery. Take off all the wiring connectors from the coils and condensers. Remove the contact breaker plate assembly and the advance/retard unit.

Assembly

N.B. These instructions assume originality and a certain amount of improvisation maybe needed to make all the components fit properly.

Fit the diode pair to a coil bracket using the hole drilled $\frac{1}{4}$".

N.B. The diode pair looks like a replacement rectifier used on some machines but internally is entirely different and the two components should not be interchanged.

Mount the amplifier by drilling 2 x $\frac{1}{4}$" holes in the rear mudguard below the battery carrier.

Pass the amplifier harness up to the diode pair avoiding sharp edges and rubbing points. The battery can now be replaced, but do not connect up until the wiring is completed.

Fit the reluctor into the camshaft taper with the key peg engaged in the reluctor keyway and tighten the centre bolt. Fit the pick-up plate in the retard position as shown on the diagram and nip up the two pillar bolts. At this stage the pick-up wires are run out through the back of the timing case, under the right-hand side of the engine and plugged into the appropriate amplifier wires. The battery can now be replaced, but do not connect until the wiring has been completed.

Wiring

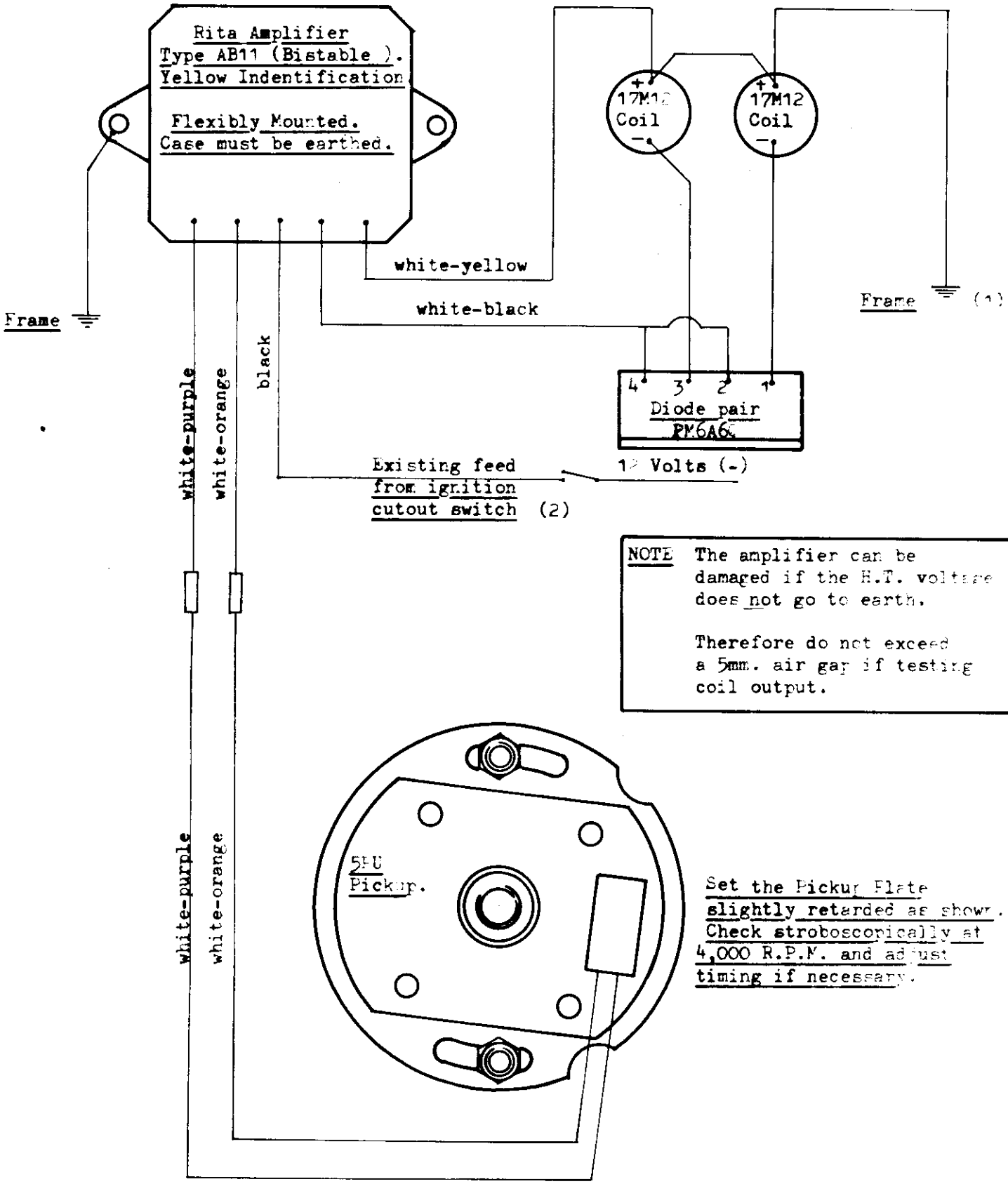
The wires for the diode pair are prepared with end connections to plug in to the original wiring removed from the coils and condensers. Since the original connections are not all required for the RITA circuit, it is necessary to insulate the ends of the female lucars that are not required in order that they do not short to earth on the frame.

Therefore tape over the single female lucar on the white-yellow. Connect the amplifier wires as shown on the diagram, i.e. black to double white-yellow (or white-blue on some models). Tape round the joint of the plastic sleeves to avoid them pulling apart. Connect the wiring as shown in the diagram ensuring the wires are not trapped or liable to chafe.

Run the engine and adjust the fully-advanced timing position using a stroboscope. A flash reading at 5,000 R.P.M. is necessary as there is a slight increase in advance up to this speed.

AB11

ELECTRICAL ENGINEERING, 51a CLIFTON PORT ROAD, LONDON, N 9AP TEL : 01-[illegible] 2657



RITA System for Triumph Twin, using AB11 amplifier and 5PU Pickup.
Positive Earth shown. For Negative Earth, reverse functions 1 and 2.

February 1982

Mistral Engineering

ISSUE 4. DEC. 86

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FITTING INSTRUCTIONS FOR PRE 1971 TRIUMPH 650 c.c. UNIT TWINS

Dismantling

Remove the battery. Take off all the wiring connectors from the coils and condensers. Remove the contact breaker plate assembly and the advance/retard unit.

Assembly

N.B. These instructions assume originality and a certain amount of improvisation may be needed to make all the components fit properly.

Mount the amplifier by drilling 2 x¼" holes in the rear mudguard below the battery carrier.

Note The amplifier will not work correctly unless the aluminium case is earthed.

Pass the amplifier harness up to the coils avoiding sharp edges and rubbing points. The battery can now be replaced, but do not connect up until the wiring is completed.

Screw the Pickup Backplate onto the engine in the middle of its adjustment slots, in the position shown in the diagram. Fit the Reluctor into the camshaft taper and set the 0.2-0.3 air gap. Note that it is unnecessary to slacken the pivot screw to adjust the air gap; only slacken the clamp screw on the slotted hole in the pickup.

Set the engine on the fully advanced timing marks and turn the backplate to trap the 5 mm timing spacer as shown.

Wiring

The wires from the RITA amplifier are prepared with end connections to plug in to the original wiring removed from the coils and condensers. Since the original connections are not all required for the RITA circuit, it is necessary to insulate the end of the female Lucars that are not required in order that they do not short to earth on the frame.

Therefore tape over the single female lucar on the white-yellow. Connect the amplifier wires as shown on the diagram, i.e. black to double white-yellow (or white-blue on some models). Tape round the joint of the plastic sleeves to avoid them pulling apart. Connect the wiring as shown in the diagram ensuring the wires are not trapped or liable to chafe.

Run the engine and adjust the fully advanced timing position using a stroboscope. A flash reading at 6,500 RPM is necessary as there is a slight increase in advance all the way up the range of RPM.

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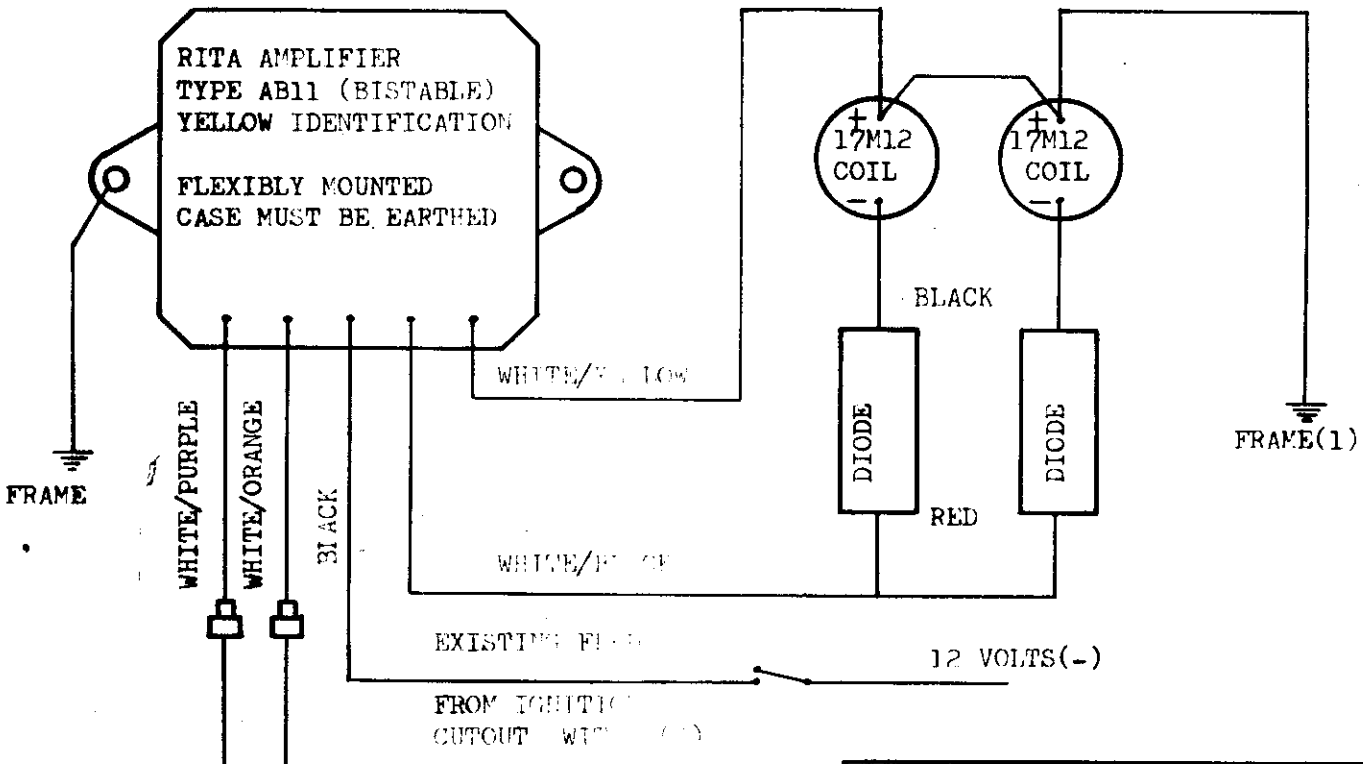
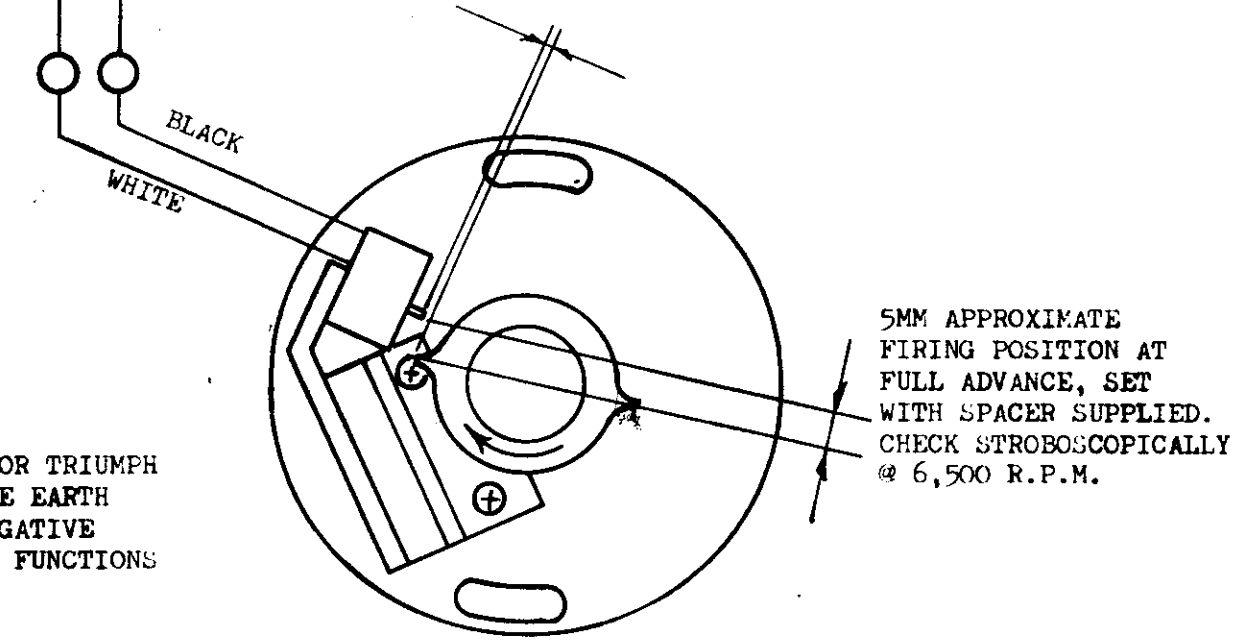


NOTE THE AMPLIFIER CAN BE DAMAGED IF THE H.T. VOLTAGE DOES NOT GO TO EARTH. THEREFORE DO NOT EXCEED A 5MM AIR GAP IF TESTING COIL OUTPUT.



5MM APPROXIMATE FIRING POSITION AT FULL ADVANCE, SET WITH SPACER SUPPLIED. CHECK STROBOSCOPICALLY @ 6,500 R.P.M.

RITA SYSTEM FOR TRIUMPH TWIN, POSITIVE EARTH SHOWN. FOR NEGATIVE EARTH REVERSE FUNCTIONS 1 & 2.

Mistral Engineering

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FITTING INSTRUCTIONS - 750 c.c. TRIUMPH TRIDENT T.150

Dismantling

1. Remove Points Cover and Battery Cover. Remove the Battery and Battery Carrier which is held by 3 bolts.
2. Disconnect Coils. (Leave H.T. leads in place).
3. Remove the nut from the bottom mudguard bolt and remove the bolt from the back of the oil tank where the coil bracket stay is attached.
4. Remove the wires from the three contact breakers and take out the contact breaker plate as a complete assembly. Remove the auto-advance unit from the taper in the camshaft using the 5/16th U.N.F. extractor thread.

Assembly.

Screw the Pickup Backplate on to the engine using the bottom screw and the L.H. screw. The Backplate should be in the middle of its adjustment slots and it may be necessary to use the extra washers supplied in the kit. Fit the Reluctor, finger tight only, into the camshaft taper and set the 0.2-0.3 mm. gap. It is unnecessary to slacken the pivot screw to adjust the air gap. Set the engine at 38° B.T.D.C. using the timing mark and turn the Reluctor in the taper until it traps the 5 mm. timing spacer as shown on the diagram. Lock up the centre bolt of the Reluctor and the 2 bolts holding the plate and check the air gap with feeler gauges.

Fit the Amplifier using the bottom mudguard bolt into the thread in the amplifier bracket and the nut and bolt on the back of the oil tank. Ensure that the case of the amplifier is earthed with the link supplied. Pass the amplifier wires up to the coils, avoiding rubbing points and sharp corners. The battery carrier and battery can now be re-assembled but do not connect the battery until the wiring is complete.

Attach the two diode pairs, as a sub-assembly, to the coil mounting plate. Drill a 5 mm. clearance hole in the plate 20 mm. ($\frac{3}{4}$") from the back edge and 15 mm. ($\frac{5}{8}$") from the left hand edge. Secure the diode pairs using the M5 screw, nut and washers which are fitted to the diode pairs when received.

Wiring

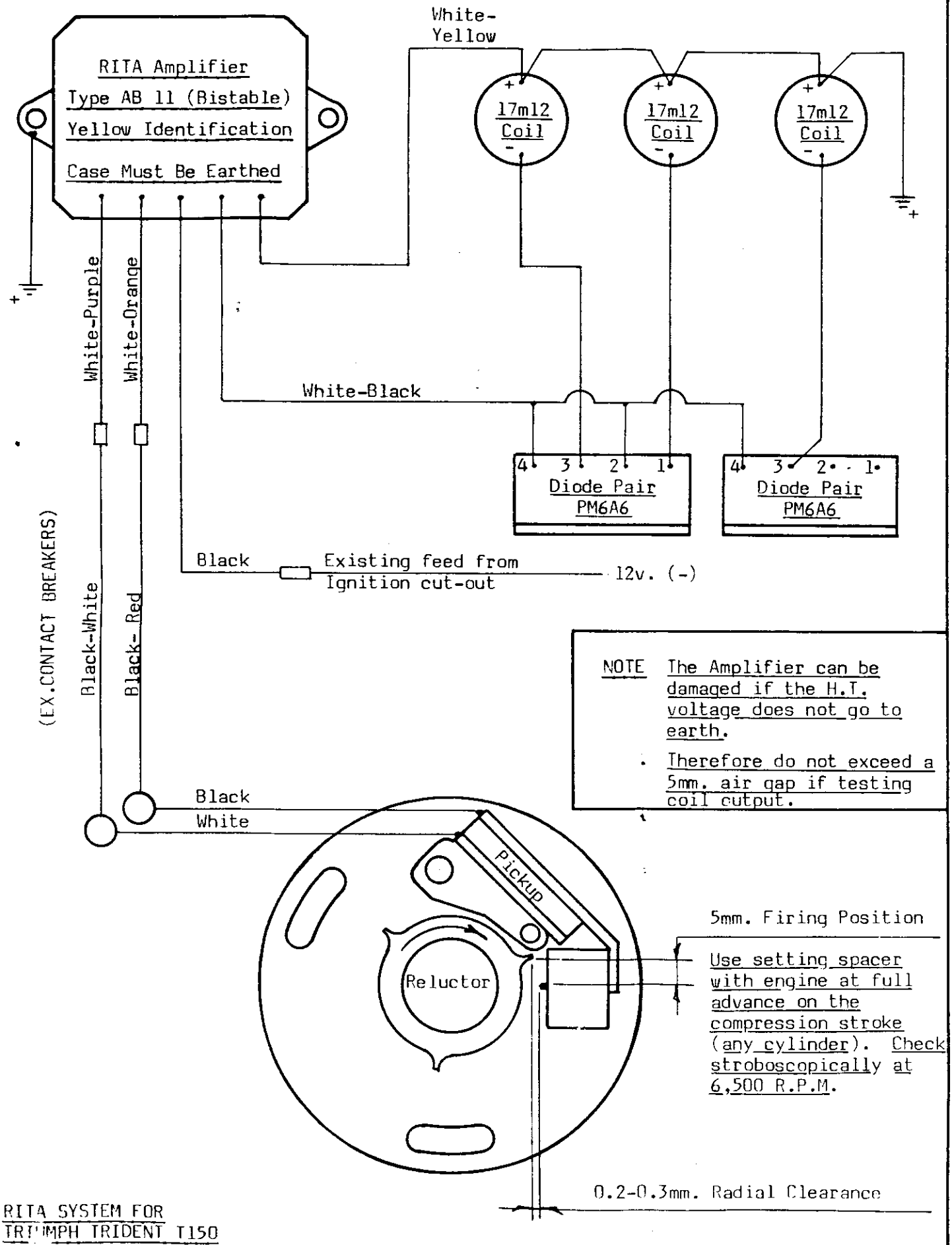
Remove the spade connections from the 3 condensers. Connect the single Black-Red and Black-White to the White-Orange and White-Purple from the amplifier. Tape the joints to ensure that they do not pull apart. Insulate the ends of the double White-Yellow, the double Black-Red and the double Black-White. Join the Black from the amplifier to the single White-Yellow. Wire the coils in PARALLEL as shown in the diagram, the amplifier is connected to a coil positive terminal, all the coils' positive terminals are interconnected and one is earthed to the frame making sure that a good contact is made using the White-Yellow and Red-Black links supplied. The coils' negative terminals are connected to the diode pairs with the White-Black links supplied, check the diode pair numbers with the diagram.

Join the Black wire of the pickup to the Red-Black contact breaker wire and the White wire of the pick-up to the White-Black contact breaker wire. Use the terminal stud, which is designed to insulate each pair of eyelets from each other and from the baseplate.

Run the engine and adjust the fully advanced (38°) timing, using a stroboscrope at 6,500 R.P.M.

It is only necessary to take a spot reading and this is achieved more easily with an assistant.

BISTABLE AB11
ISSUE 3 MAY 1983.



NOTE The Amplifier can be damaged if the H.T. voltage does not go to earth.

Therefore do not exceed a 5mm. air gap if testing coil output.

RITA SYSTEM FOR
TRIUMPH TRIDENT T150

Mistral Engineering

63a Turner Road, London, E17 3JG Tel: 01-521 1180

FITTING INSTRUCTIONS FOR RITA IGNITION ON TRIUMPH 650 & 750 TWINS WITH OIL-CARRYING SPINE FRAME (1971-1978)

Dismantling

ISSUE 2 Dec.198

Remove the seat, air filter covers and elements and the battery.
Remove the panels to the rear of the air filter by taking out the ¼" bolts inside the filter casting. Then remove the 2 - 5/16th bolts holding the casting to the frame and replace them with the longer ones supplied. Take off all the wiring connectors from the coils and condensers. Remove the contact breaker plate assembly and the advance/retard unit.

Assembly

Mount the diode pair beneath the triangular plate behind the frame oil filler cap, if necessary drill a ¼" hole in the plate. The aluminium mounting bracket does not have to be earthed or have a heat sink.
N.B. The diode pair looks similar to a replacement rectifier used on some machines but internally is entirely different and neither component should be interchanged.
Fit the amplifier brackets on to the extension of the longer bolts through the air filter. Ensure that there is metal to metal contact between the bracket to which the amplifier case earth has been fitted, and the abutting face on the frame. These faces may be greased before assembly to prevent later corrosion. The amplifier will not work correctly unless earthed. Also ensure that there is 4 mm. minimum clearance from the frame, mudguard and chainguard to the amplifier. Pass the amplifier harness up to the diode pair avoiding sharp edges and rubbing points.

Fit the reluctor into the camshaft taper with the key peg engaged in the reluctor keyway and tighten the centre bolt. Fit the pick-up plate in the retarded position as shown on the diagram and nip up the two pillar bolts. At this stage the pick-up wires are run out through the back of the timing case, under the right-hand side of the engine and plugged into the appropriate amplifier wires. The battery can now be replaced, but do not connect until the wiring has been completed.

The air filters can now be re-assembled. Note that on models with a plastic extension tube fitted to the elements, this must be removed. Bend back the metal retaining lug and push the plastic extension out of the filter.

Wiring and Strobing

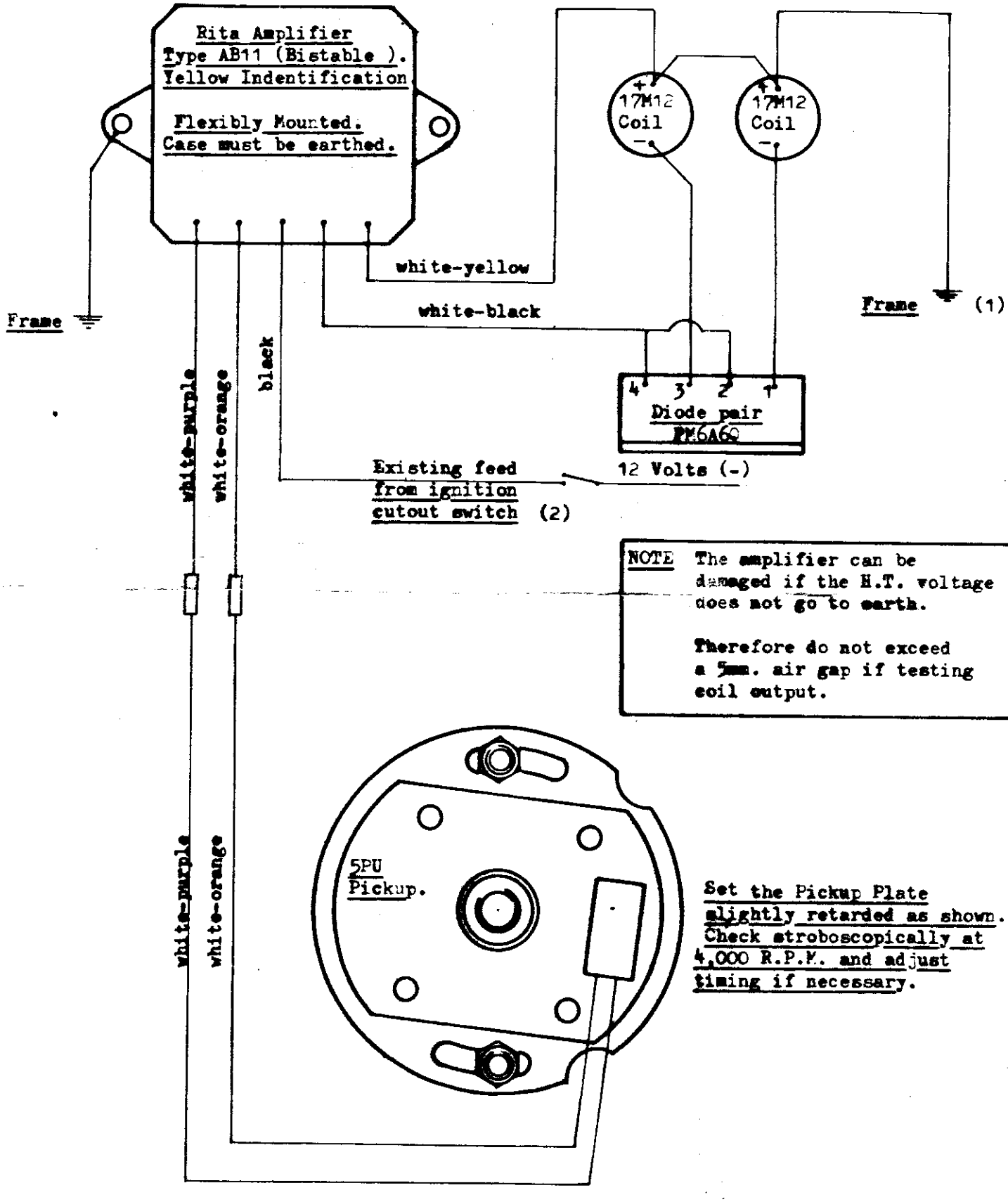
The wires from the RITA amplifier are prepared with end connections to plug in to the original wiring removed from the coils and condensers. Since the original connections are not all required for the RITA circuit, it is necessary to insulate the ends of the female lucars that are not required in order that they do not short to earth on the frame.

Therefore tape over the single female lucar on the white-yellow. Connect the amplifier wires as shown on the diagram, i.e. black to double white-yellow (or white-blue on some models). Tape round the joint of the plastic sleeves to avoid them pulling apart.
Wire up the system as shown in diagram.

Run the engine and adjust the fully-advanced timing position using a stroboscope. A flash reading at 5,000 R.P.M. is necessary as there is a slight increase in advance up to this speed.

AB11

...STRAL ENGINEERING, 63a TURNER ROAD, LONDON E17 3DB, England Tel. 01-521-1100



RITA System for Triumph Twin, using AB11 amplifier and 5PU Pickup.
Positive Earth shown. For Negative Earth, reverse functions 1 and 2.

February 1982

Mistral Engineering

ISSUE 4 DEC. 86

Unit B, 51a Carysfort Road, London, N16 9AF
Telephone: 01-254 2627

FITTING INSTRUCTIONS FOR RITA IGNITION ON TRIUMPH 650 & 750 TWINS WITH OIL-CARRYING SPINE FRAME (1971-1978)

Dismantling

Remove the seat, air filter covers and elements and the battery. Remove the panels to the rear of the air filter by taking out the ¼" bolts inside the filter casting. Then remove the 2 - 5/16th bolts holding the casting to the frame and replace them with the longer ones supplied. Take off all the wiring connectors from the coils and condensers. Remove the contact breaker plate assembly and the advance/retard unit.

Assembly

Fit the amplifer brackets onto the extension of the longer bolts through the air filter. Ensure that there is metal to metal contact between the bracket to which the amplifier case earth has been fitted, and the abutting face on the frame. These faces may be greased before assembly to prevent later corrosion. The amplifer will not work correctly unless earthed. Also ensure that there is 4 mm minimum clearance from the frame, mudguard and chainguard to the amplifier.

Pass the amplifier harness up to the coils avoiding sharp edges and rubbing points. The battery can now be replaced, but do not connect up until the wiring is completed.

The air filters can now be re-assembled. Note that on models with a plastic extension tube fitted to the elements, this must be removed. Bend back the metal retaining lug and push the plastic extension out of the filter. Screw the Pick-up backplate onto the engine in the middle of its adjustment slots, in the position shown on the diagram. Fit the Reluctor into the camshaft taper and set the 0.2-0.3 mm air gap. Note that it is unnecessary to slacken the pivot screw to adjust the air gap; only slacken the clamp screw on the slotted hole in the Pick-up.

Set the engine to the fully advanced timing marks on the alternator rotor and turn the backplate to trap the 5 mm timing spacer as shown.

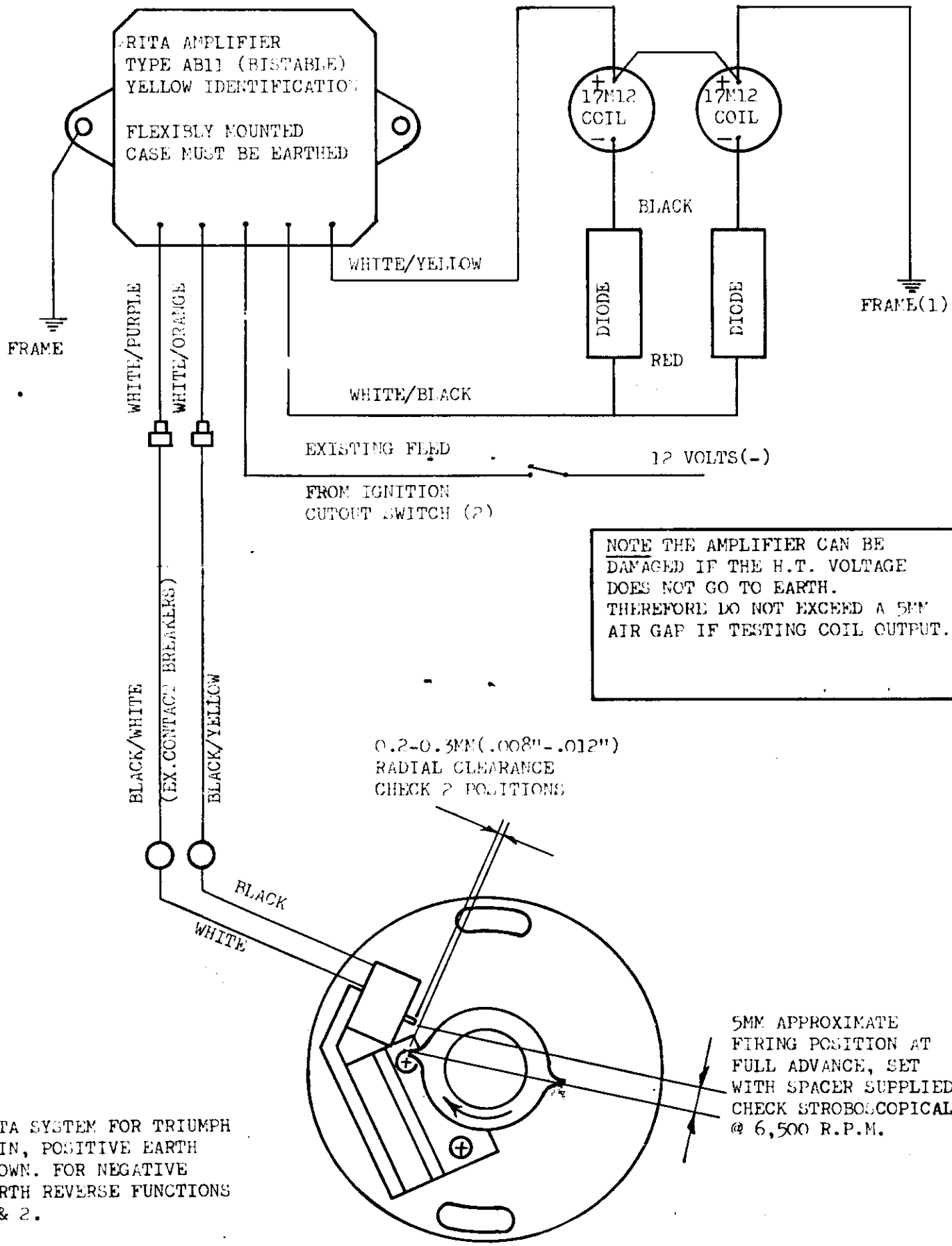
Wiring and Strobing

The wires from the RITA amplifier are prepared with end connections to plug in to the original wiring removed from the coils and condensers. Since the original connections are not all required for the RITA circuit, it is necessary to insulate the end of the female Lucars that are not required in order that they do not short to earth on the frame.

Therefore tape over the single female lucar on the white-yellow. Connect the amplifier wires as shown on the diagram, i.e. black to double white-yellow (or white-blue on some models). Tape round the joint of the plastic sleeves to avoid them pulling apart. Connect the wiring as shown in the diagram ensuring the wires are not trapped or liable to chafe.

Run the engine and adjust the fully advanced timing position using a stroboscope. A flash reading at 6,500 RPM is necessary as there is a slight increase in advance all the way up the range of RPM.

MISTRAL ENGINEERING,UNITB,51A CARYSFORT ROAD,STOKE NEWINGTON,LONDON N16 9AF TEL.01 254 2627



NOTE THE AMPLIFIER CAN BE DAMAGED IF THE H.T. VOLTAGE DOES NOT GO TO EARTH. THEREFORE DO NOT EXCEED A 5MM AIR GAP IF TESTING COIL OUTPUT.

RITA SYSTEM FOR TRIUMPH TWIN, POSITIVE EARTH SHOWN. FOR NEGATIVE EARTH REVERSE FUNCTIONS 1 & 2.

Mistral Engineering

TRIUMPH ONLY
BRITISH ONLY
$$ .75

Unit B, 91a Carysfort Road, London. N16 9AF
Telephone: 01-254 2627

FITTING INSTRUCTIONS - TRIUMPH DAYTONA 500 ISSUE 2 Dec. 81.

Dismantling

Remove the petrol tank. Take off all the wiring connectors from the coils and remove condensers. Remove the contact breaker plate assembly and the advance/retard unit.

Assembly

N.B. These instructions assume originality and a certain amount of improvisation maybe needed to make all the components fit properly.

1. Fit the diode pair to a coil bracket using the hole drilled $\frac{1}{4}$".
   N.B. The diode pair looks like a replacement rectifier used on some machines but internally is entirely different, and the components should not be interchanged.

2. Fit the amplifier to the lug from which the condenser pack has been removed. Ensure that there is metal to metal contact between the bracket to which the amplifier case earth has been fitted and the abutting face on the frame. These faces may be greased before assembly to prevent corrosion later.
   Note The amplifier will not work correctly unless the aluminium case is earthed.
   Bring the amplifier harness forward over the back of the amplifier and up to the diode pair avoiding sharp edges and rubbing points.

3. Fit the reluctor into the camshaft taper with the key peg engaged in the reluctor keyway and tighten the centre bolt. Fit the pick-up plate in the retarded position as shown on the diagram and nip up the two pillar bolts. At this stage the pick-up wires are run out through the back of the timing case, up the front frame tube and plugged into the appropriate amplifier wires.

Wiring

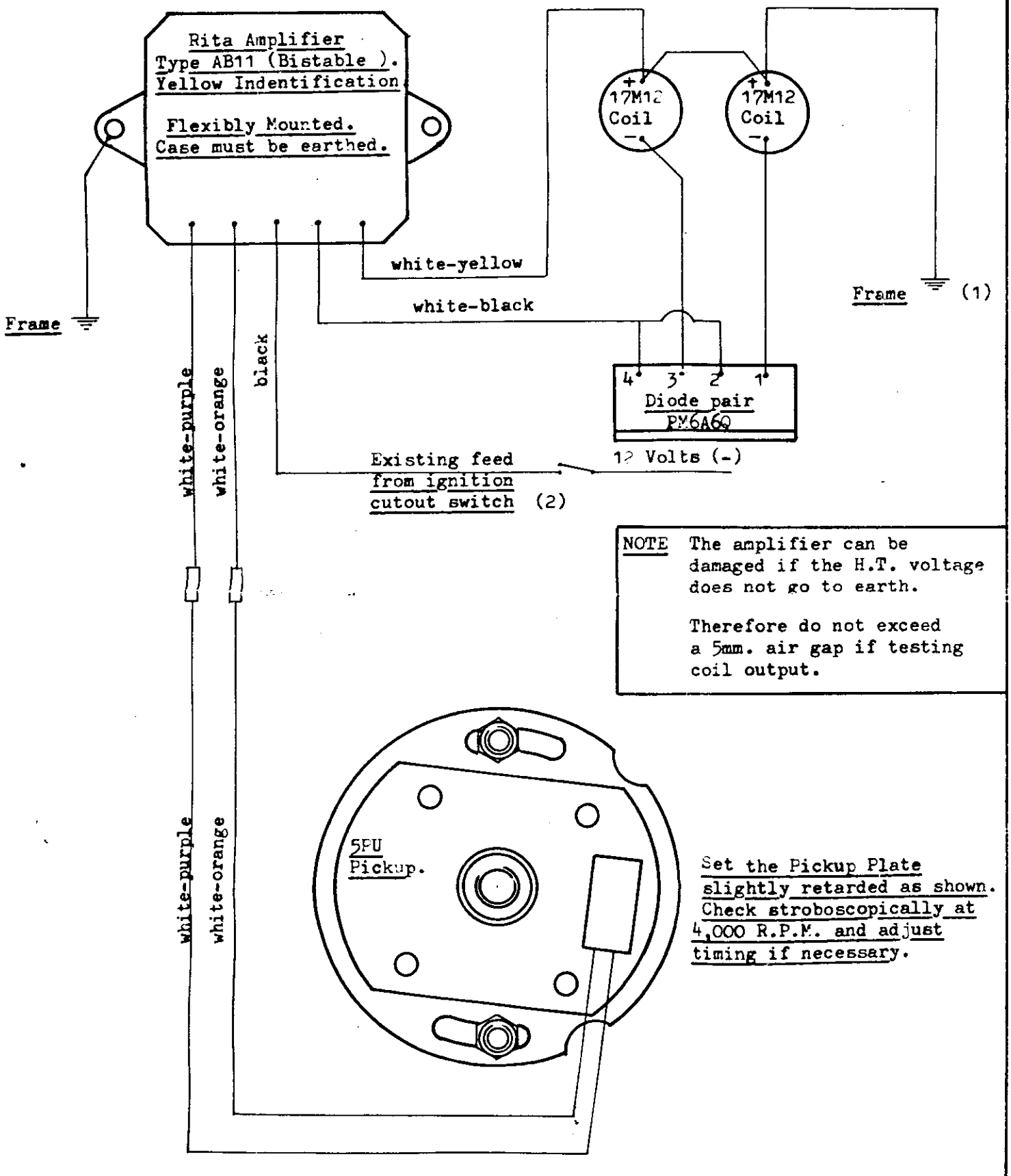
The wires for the diode pair are prepared with end connections to plug in to the original wiring removed from the coils. Since the original connections are not all required for the RITA circuit, it is necessary to insulate the ends of the female lucars that are not required in order that they do not short to earth on the frame.

Therefore tape over the single female lucar on the white-yellow. Connect the amplifier wires as shown on the diagram, i.e. black to double white-yellow (or white-blue on some models). Tape round the joint of the plastic sleeves to avoid them pulling apart.

Connect the wiring as shown in the diagram ensuring the wires are not trapped or liable to chafe.

Run the engine and adjust the fully-advanced timing position using a stroboscope. A flash reading at 5,000 R.P.M. is necessary as there is a slight increase in advance up to this speed.

AB11



RITA System for Triumph Twin, using AB11 amplifier and 5PU Pickup.
Positive Earth shown. For Negative Earth, reverse functions 1 and 2.

February 1982