

The MGA With An Attitude

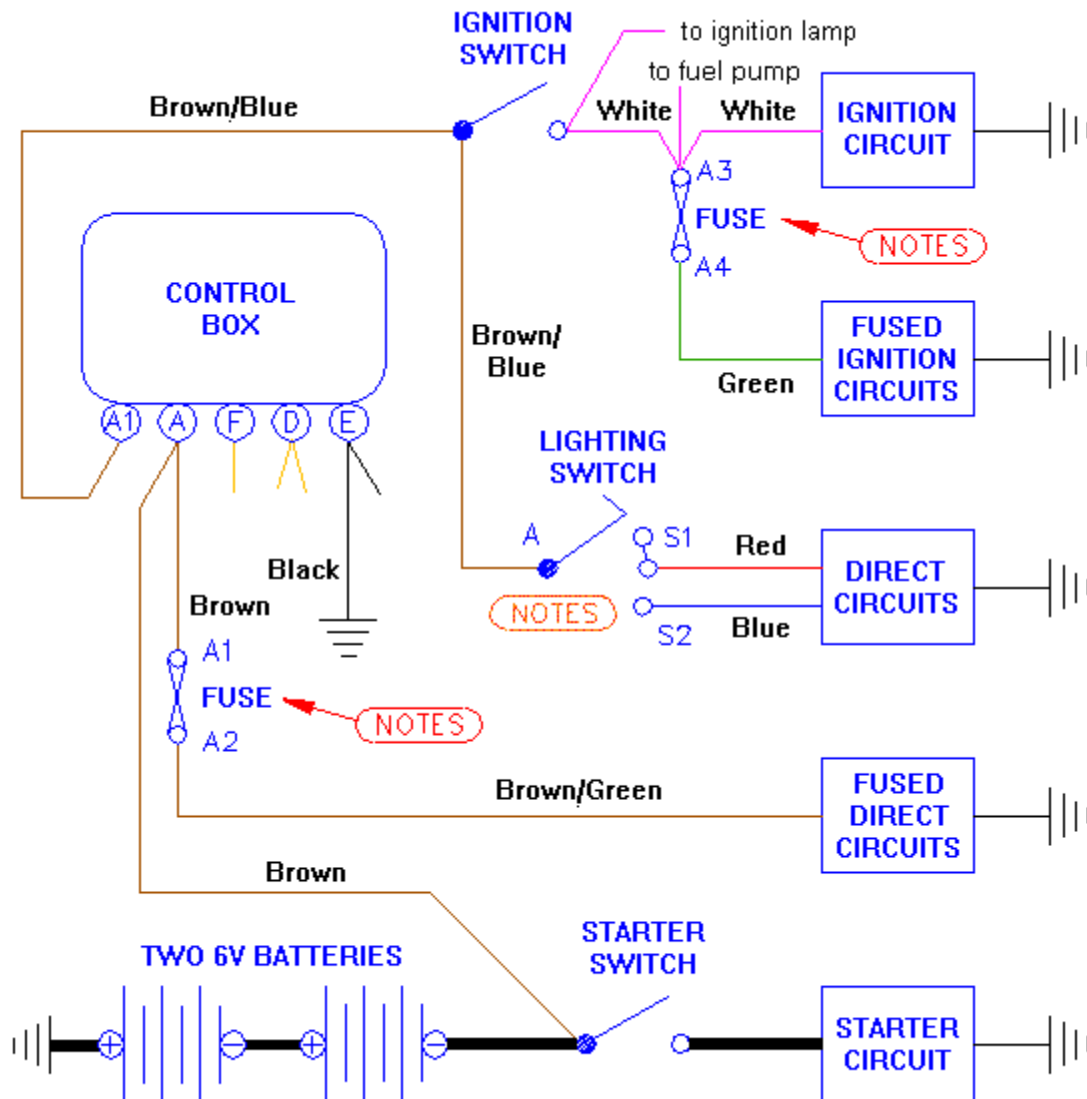
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SIMPLIFIED WIRING DIAGRAMS - ET-101

BASIC CIRCUITS

Shown below is the MGA primary electrical load diagram. The control box is part of the charging circuit. That box and each of the five boxes at the right have a link to an expanded view of those circuits. Additionally there is [wire color code and trouble-shooting information](#) on a previous page. From here you may step through all of the wiring diagrams in sequence by picking the green arrows at the bottom of each page.



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ABBREVIATIONS For Electrical Diagrams

Some special abbreviations in my web pages are made up on the fly. For instance, in an early paragraph of a tech article I might refer to **Lighting Switch** or **Brake Switch** (capitalization as a proper name of a device). Then later in the same tech article I might use **LS** or **BS** for the same device reference. In other words, the abbreviation is "**Defined Elsewhere On The Page**". I do use such abbreviations in electrical schematics, but the use is usually obvious depending on what is connected. Following is a list of abbreviations you may find in the electrical diagrams.

B = Blower (heater control fan switch knob)
BS = Brake Switch
CB = Control Box
E = Earth (ground connection)
E, 1/4, 1/2, 3/4, F = Fuel gauge markings
EC = Engine Compartment
F = Fog light (switch knob)
G = Ground (same as Earth)
GRD = Ground (same as Earth)
H2O = Water
HB = High Beam
HL = Head light
I = Ignition (ignition switch knob)
L = Lighting (light switch)
LB = Low Beam (sometimes Light Bulb)
LH = Left Hand
Light= illumination that you can see (any color)
Lamp = a lighting fixture assembly (or a bulb)
Lamp = Portable lighting device (flash light, torch)
M = Map (map light knob)
M = Motor (wipers or heater)
OFF = Off
ON = On
P = Panel (panel light dimmer switch knob)
RH = Right Hand
TL = Tail Light
TS = Turn Signal or Turn Switch
W = Wipers (wiper switch knob)

Common terminal designations on electrical devices:

+ or - = Battery terminal reference for device polarity.
1, 2, E = Terminals an wiper motor
1, 2, 3, 4, 5, 6, 7, 8 - Terminals on the TS relay unit
A, A1 = Primary power (battery) on control box or lighting switch
A1, A2, A3, A4 = Fuse box connections
B or BAT = Battery (fuel gauge, flasher unit)
CB = Contact Breaker (ignition coil or distributor)
D = Dynamo on control box and generator
E = Earth (electrical ground anywhere)
F = Field (control box and generator)
F = Flasher or Fuse (turn signal switch input terminal)
FP = Fuel Pump
I or IGN = Ignition
L = Left (or Lamp)
P = Pilot (as in pilot lamp, indicator light, flasher unit)
R = Right

S1, S2 = Lighting switch terminals
SW = Switch (ignition coil)
T = Tank (fuel gauge)

Primary Wire Color Codes:

B = **B**lack
G = **G**reen
N = brow**N**
P = **P**urple
R = **R**ed
U = bl**U**e
W = **W**hite
Y = **Y**ellow

Upper and Lower case together represent a single odd color such as:

Lg = Light **g**reen (possibly **LG** as L is not a color)

Gy = **G**ray

Pk = **P**ink (or possibly K = pin**K**)

There will be lots more of these if you look at later model car schematics.

Multi-color wires have compound color codes with the first letter being the primary color (solid) and the second letter being the secondary color (stripe), such as:

NU = brow**N** with a bl**U**e stripe

ULg = bl**U**e with Light **g**reen stripe

LgU = Light **g**reen with bl**U**e stripe.



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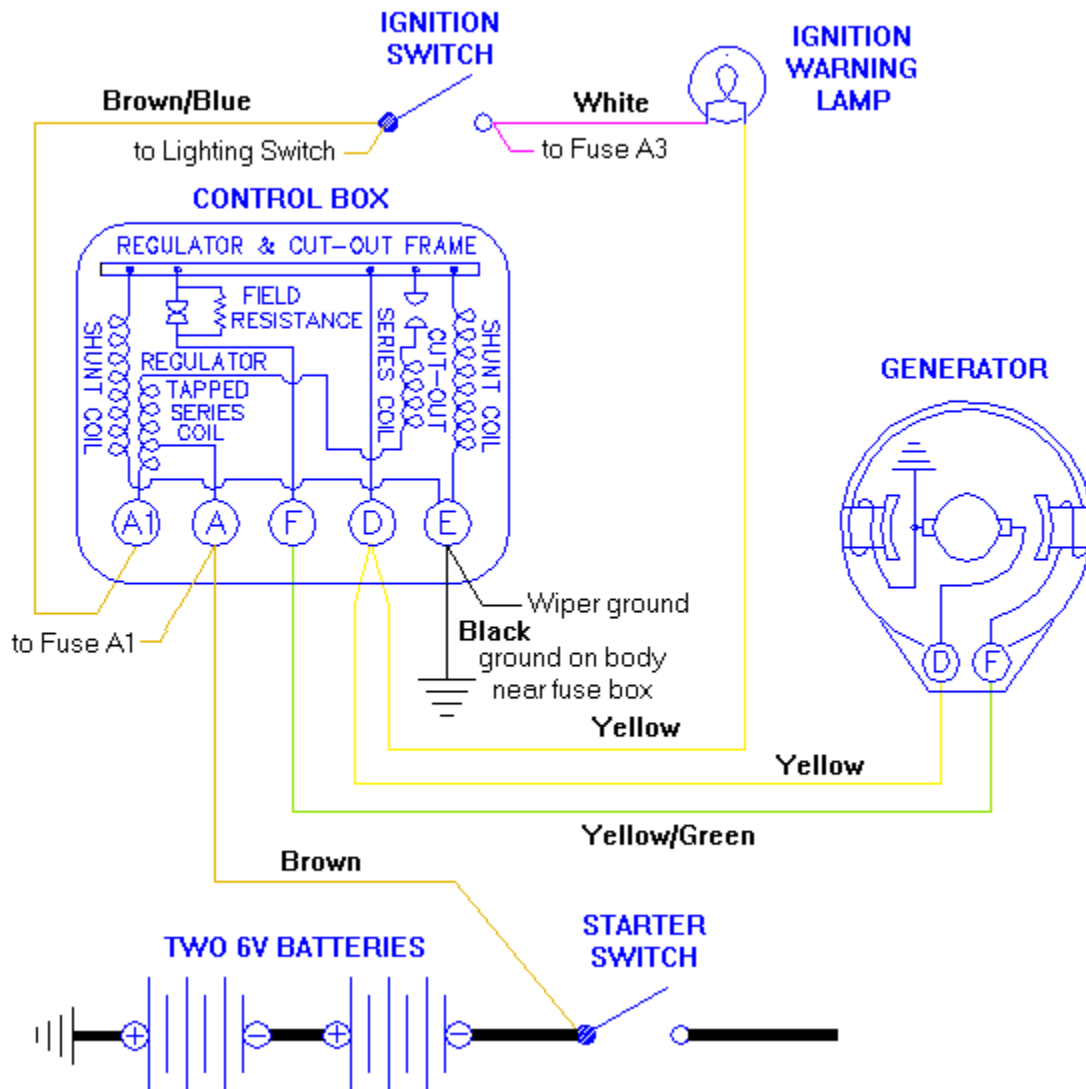
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SIMPLIFIED WIRING DIAGRAMS - ET-101B

CHARGING CIRCUIT

Shown below is the MGA battery charging circuit diagram. This circuit is drawn as the car was originally equipped with positive earth electrical system and two 6 volt batteries. One 12 volt battery may be substituted in place of the two 6 volt batteries. To switch the electrical system over to negative earth, reverse the polarity of the battery (batteries), and momentarily short across the A and F terminals of the control box to re-polarize the generator field coils.



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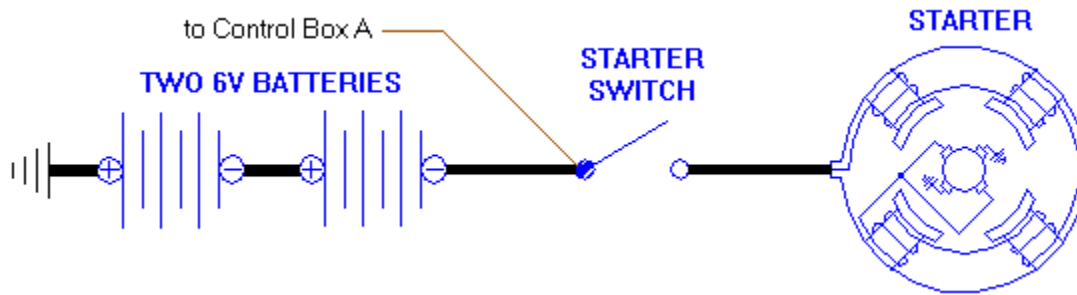
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SIMPLIFIED WIRING DIAGRAMS - ET-101C

SIMPLE STARTER

Shown below is the MGA starter circuit diagram. They don't get much simpler than this. The starter is not polarity sensitive, so if you reverse the battery, it can be negative earth just as well as positive earth.



At 08:00 AM 4/16/2009 -0600, David Lentinello wrote:

"What is the order to the wiring for the starter switch and starter. Does the battery cable bolt on to the starter switch to the left, right or center??? Brown black cable"

There are only two terminals on the starter switch. It is a simple continuity switch, so the terminals are interchangeable. The brown wire connects to the terminal holding the battery cable.

For cleanest routing you might think to put the battery cable nearest the inner fender, and the starter cable on the inboard terminal (closer to the starter motor). However, it is sometimes convenient to use the front end of the main battery cable as a connecting point for a battery charger or jumper cable. It is difficult to reach (without shorting something) when located nearest the inner fender. I like to put the main battery cable on the inboard terminal where it will be more convenient to connect a jumper cable or battery charger clip. That leaves the starter cable alone connected to the outboard switch terminal (closest to the inner fender).

Notice that the starter has internal ground. That means the starter housing has to ground on the engine back plate, and the engine has to be grounded to the chassis. Do not forget the engine grounding strap that needs to run across the left engine mount.



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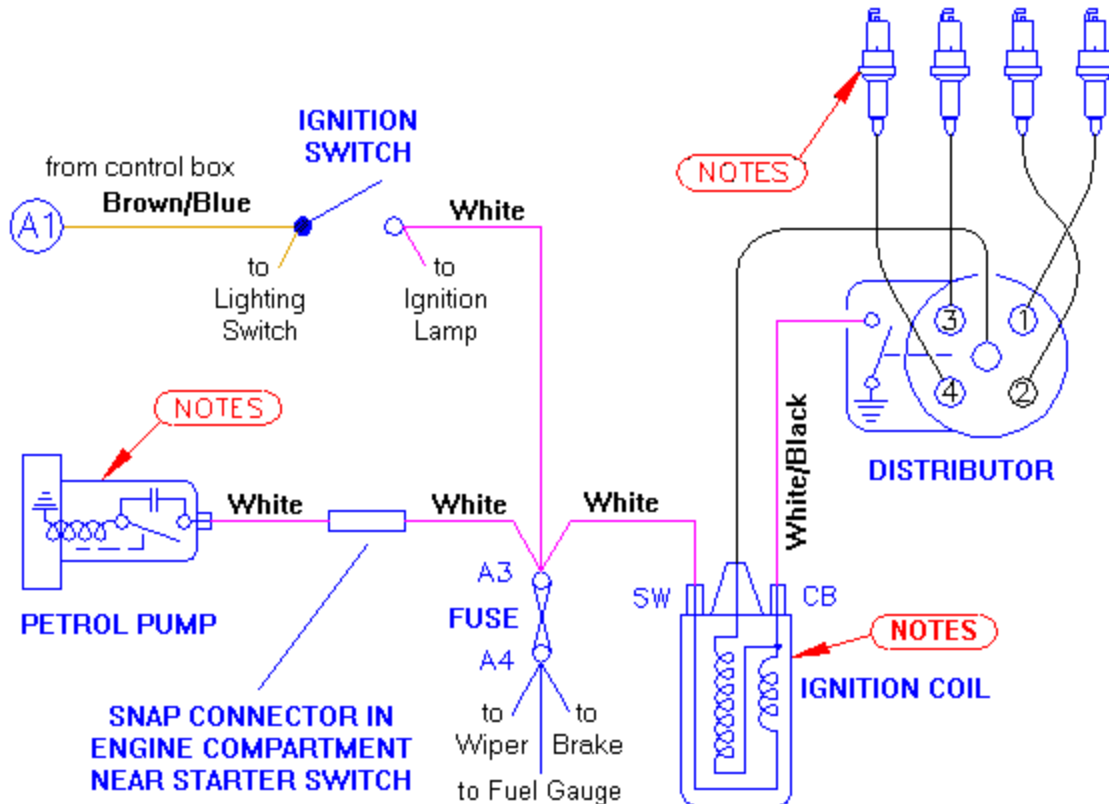
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SIMPLIFIED WIRING DIAGRAMS - ET-101D

SPARK AND FUEL

Shown below is the MGA ignition circuit diagram. This circuit is not fused. The snap connector for the fuel pump wire is located in the right rear corner of the engine bay.



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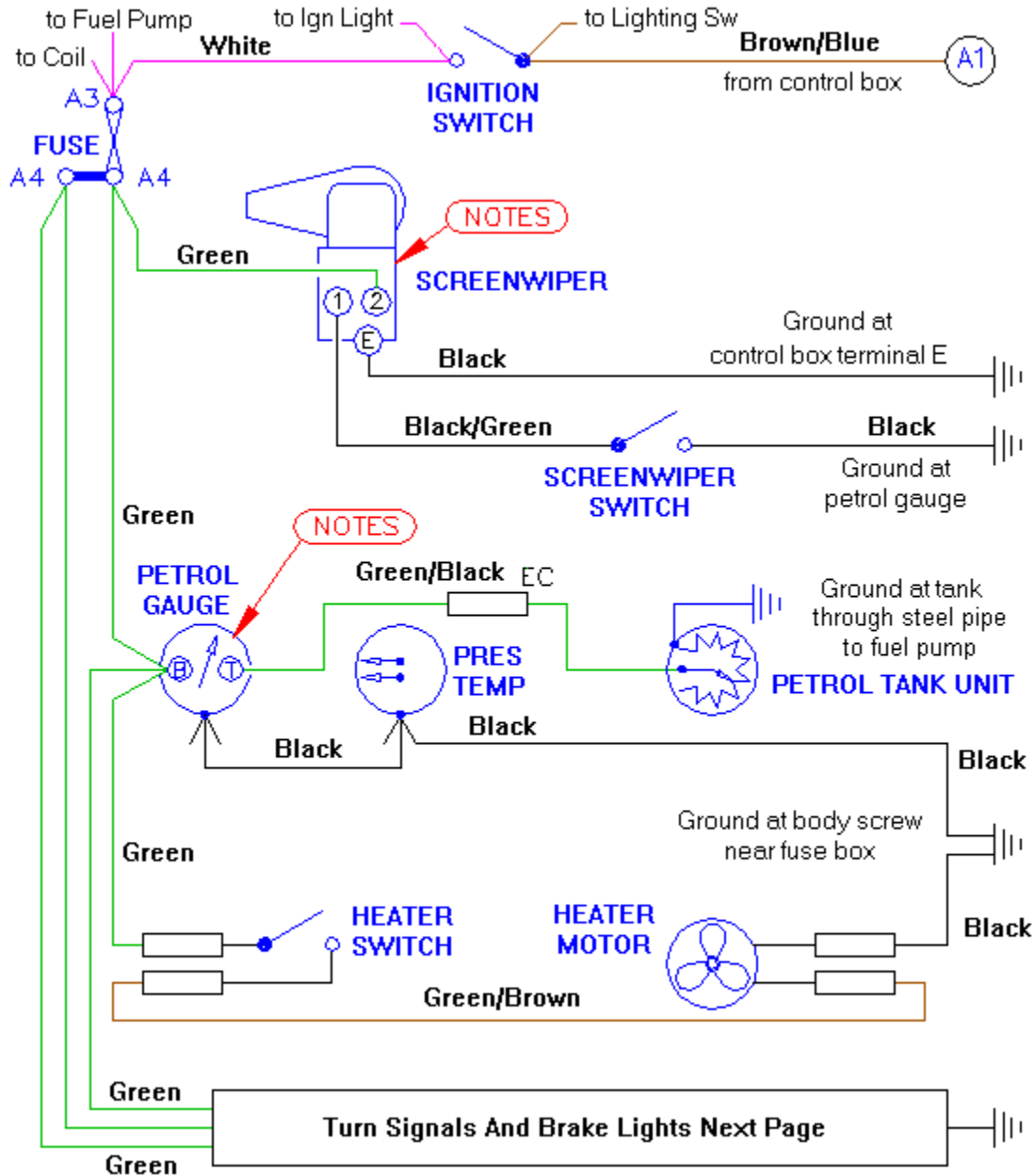
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SIMPLIFIED WIRING DIAGRAMS - ET-101E

SWITCH ON AND FUSED

Shown below is the MGA fused ignition circuit diagram. The turn signal and brake light circuits are shown on the next page. The "NOTES" arrows are linked to comments on debugging functional problems.



For no heater (or no fresh air box), delete heater switch and heater motor but retain the four snap connectors on the harness.



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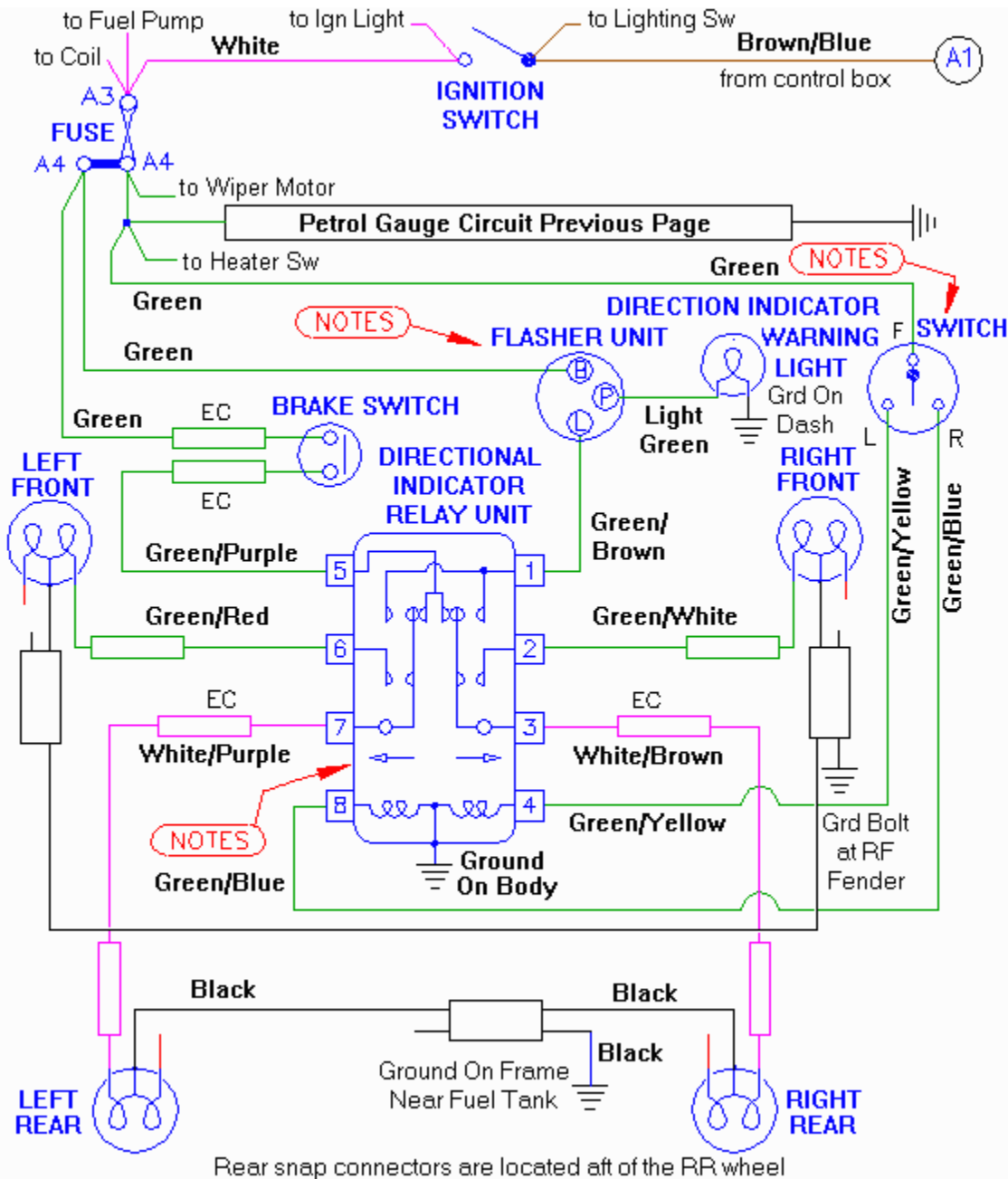
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SIMPLIFIED WIRING DIAGRAMS - ET-101F

SWITCH ON AND FUSED - 1500

Shown below is more of the MGA fused ignition circuit diagram. This page shows the brake light and turn signal circuits for the MGA 1500. This model uses just one filament in the rear lamps for both brake light and turn signal, so it incorporates a relay box to switch the bulb out of the brake light circuit and into the turn signal circuit when you operate the switch on the dash. Snap connectors labeled EC are in the engine compartment near the starter switch.



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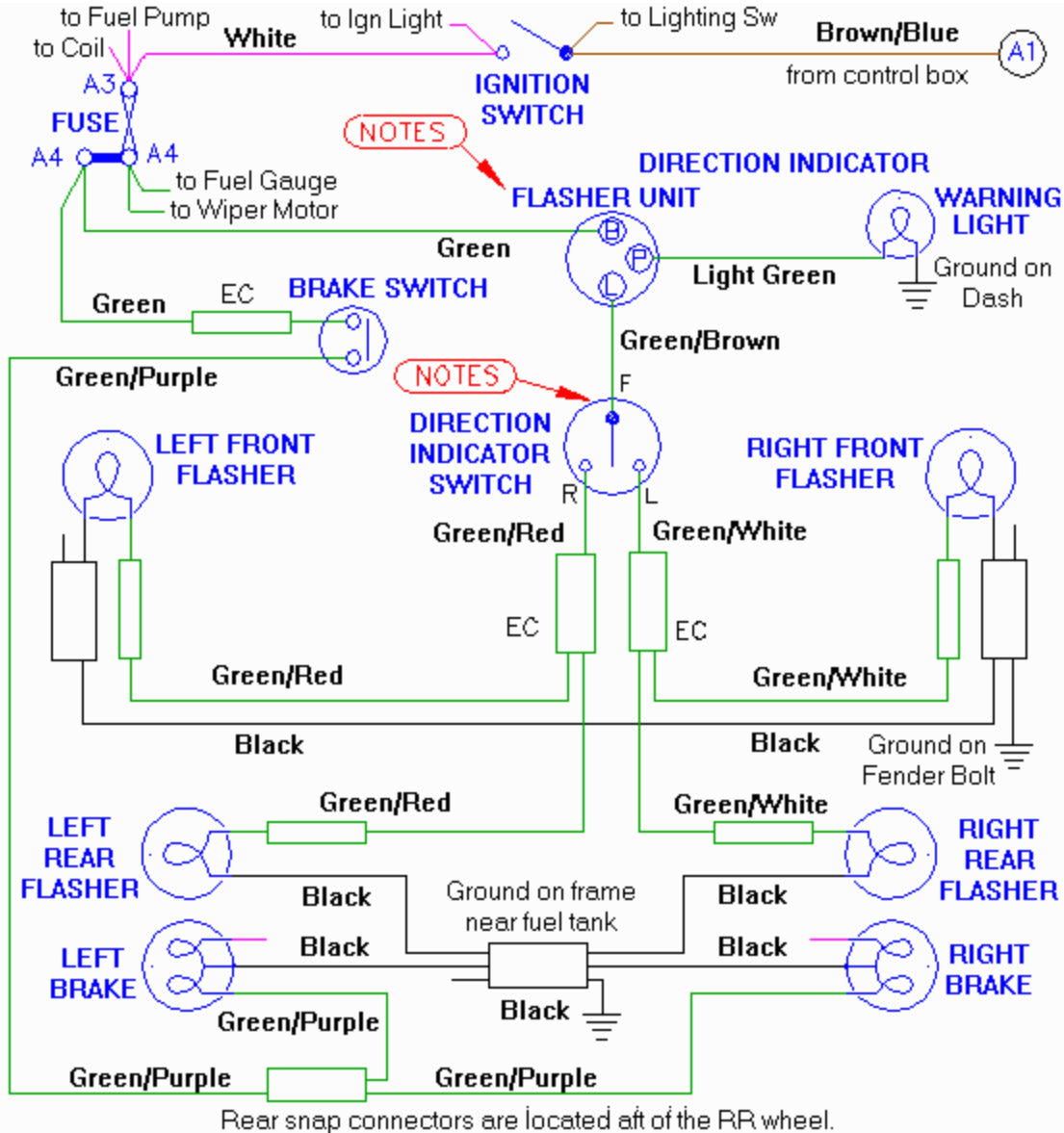
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SIMPLIFIED WIRING DIAGRAMS - ET-101G

SWITCH ON AND FUSED - 1600

Shown below is more of the MGA fused ignition circuit diagram. This page shows the brake light and turn signal circuits for the MGA 1600. This model uses separate bulbs for the brake light and rear turn signal, so it has a simpler circuit than the 1500 and does not use the relay box. Snap connectors labeled EC are in the engine compartment near the starter switch.



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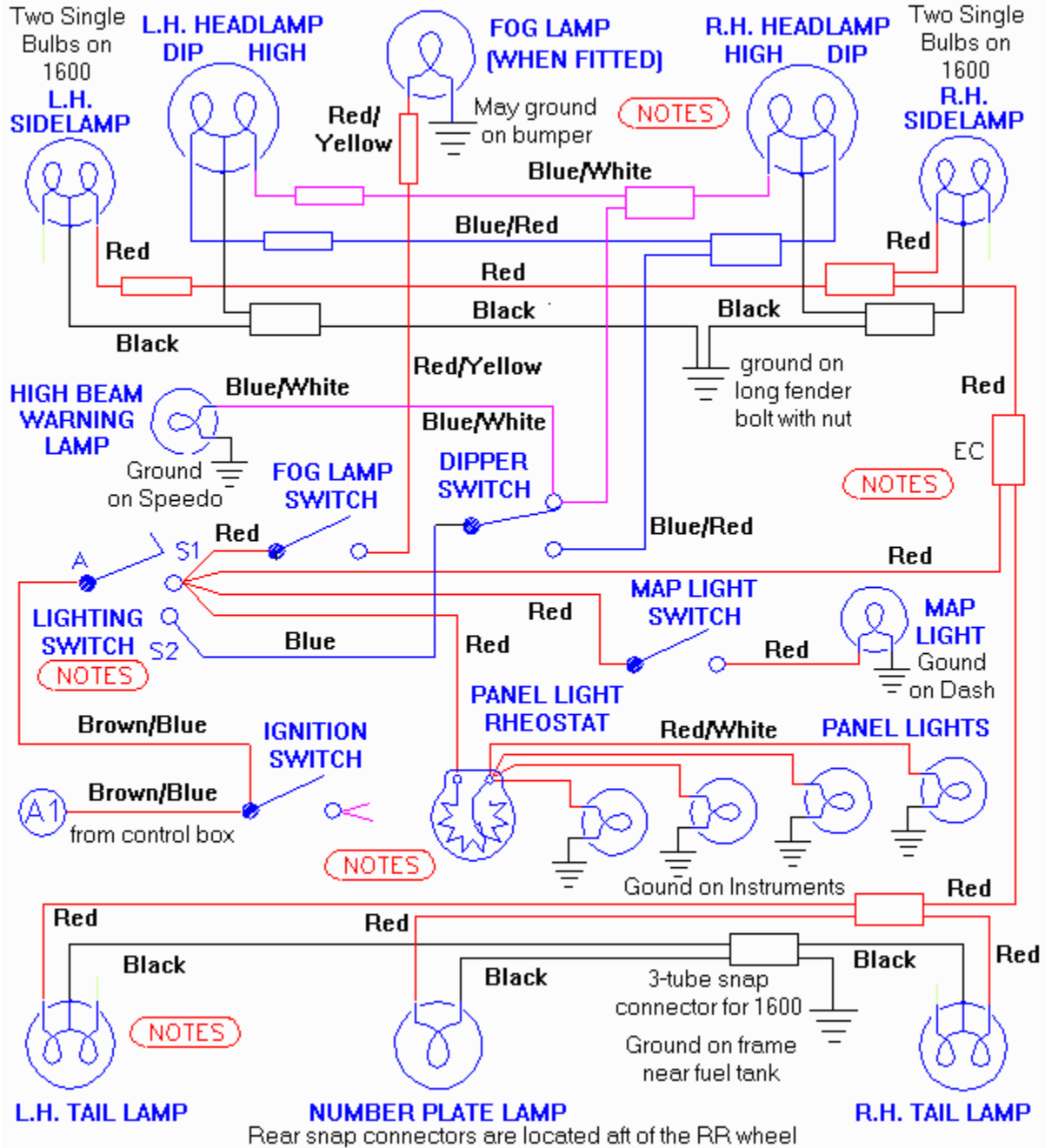
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SIMPLIFIED WIRING DIAGRAMS - ET-101H

NON-FUSED - WITHOUT SWITCH ON

Shown below is the MGA direct circuitry. These circuits are not fused, presumably because a burned fuse would cause all of the lights to go out. The snap connectors labeled EC are located in the right rear corner of the engine bay. For the MGA 1600 the side lamps are single filament bulbs.



NOTICE: The lighting switch is directly adjacent to the fog lamp switch on the dash panel. The small red wire connecting lighting switch S1 terminal to the fog lamp switch may have both ends extending from the same location on the wiring harness, along with three other red wires which connect to the lighting switch. Any time the harness has been completely

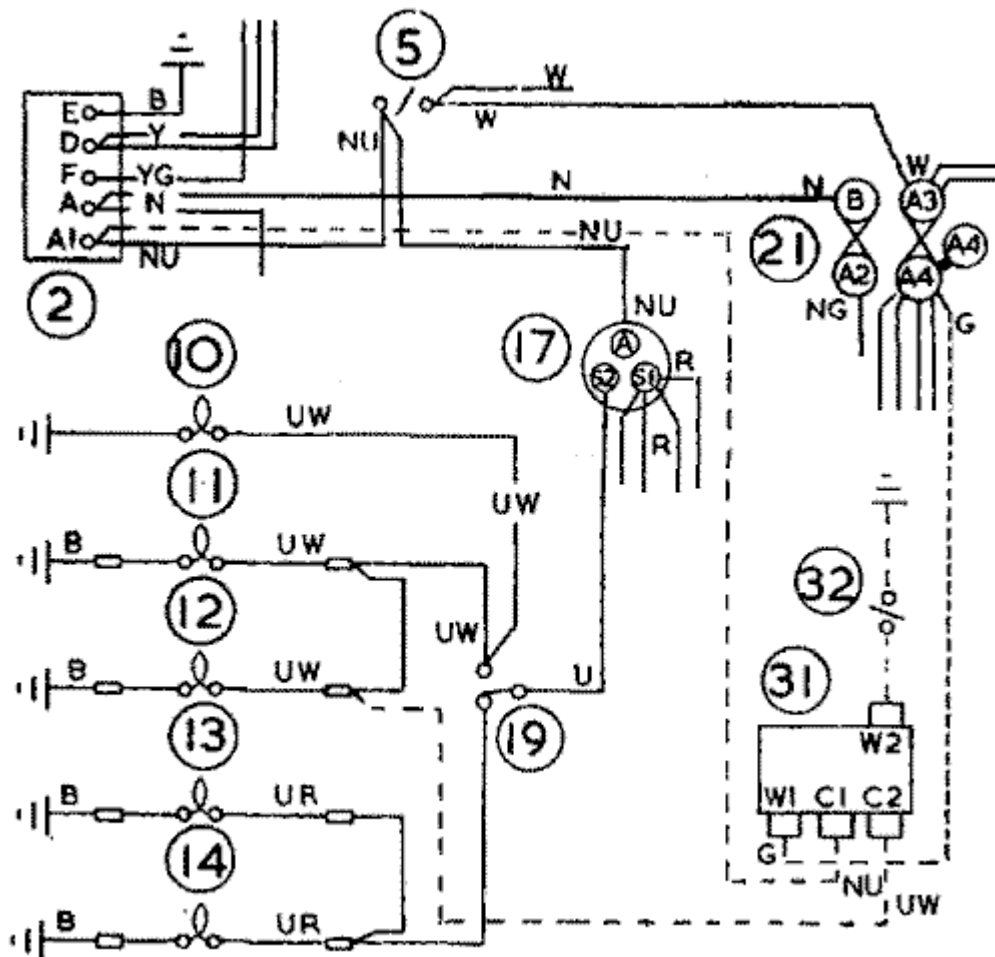
disconnected from the dash, you may need to use a continuity tester to determine which two of these five red wires are common. One of those common red wire ends then needs to be connected to the fog lamp switch.

Addendum February 2010:

First note is, there was not originally any "fat" red wire in the harness. Mine has all thin red wires. In recent reproduction harnesses the short red wire that runs from lighting switch S1 to the fog switch was changed to thicker gauge to help identify it separately from the others. This wire being "fat" is visually identified. However, installing four red wires into one terminal on the lighting switch then becomes nearly impossible. Solution here is to install one of the small wires onto the fog switch along with the "fat" wire (all being common on the same circuit). This leaves the lighting switch S1 terminal with one fat wire and two thin wires, and the fog switch input terminal with one fat wire and one thin wire.

Addendum April 2011:

Below is a composite of the Flash To Pass circuit diagram as shown in the 1600 and Twin Cam workshop manuals. It is explained in detail with another article [AT-113](#) in the Accessories section.



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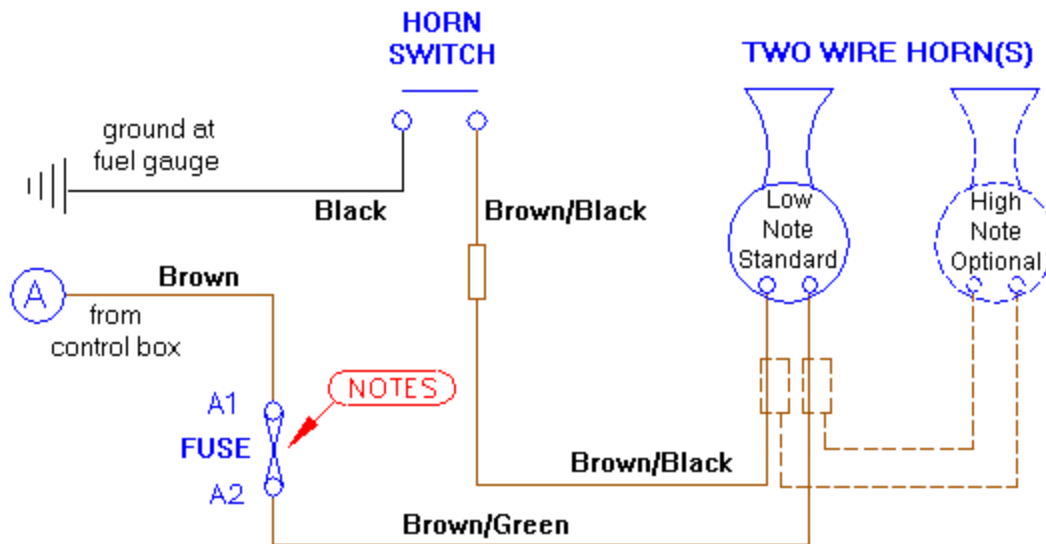
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SIMPLIFIED WIRING DIAGRAMS - ET-101I

FUSED - WITHOUT SWITCH ON

Shown below is the MGA direct fused circuitry. These circuits are fused and are live without the ignition being on. The stock MGA has only one circuit here, just the horn. When you are finished here you can poke the little house once or twice to take you back home, or continue with the green arrows to read more electrical notes.



NOTE: The short length of Brown/Black wire near the horn switch is part of the dash harness. The longer length is part of the main harness. The snap connector here is the only connection in the dash harness that is not connected to something in the dash assembly.



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SNAP CONNECTOR Count for MGA Cars - ET-101J

Here is a list and total of the snap connectors used in the MGA wiring harness.

#x = single tube - #xx = dual tube - #xxx = triple tube

LOCATION	Qty for 1500	Qty for 1600
Right Front Corner:		
Ground	1xx	1xx
Head Light	2xx	2xx
Parking Light	1xx	1xx
Turn Signal	1x	1x
Left Front Corner:		
Ground	1xx	1xx
Head Light	2x	2x
Parking Light	1x	1x
Turn Signal	1x	1x
Fog Lamp at Front	1x *	1x *
Horn at Front	0 **	0 **
Right Rear Corner		
Ground	1xx	1xxx
Parking Lights	1xx	1xx
Turn Signals	2x	2x
Brake Lights	0	1xx
Left Rear Corner:		
	none	none
Engine bay near starter switch:		
Fuel Pump	1x	1x
Fuel Sender	1x	1x
Parking Lights	1xx	1xx
Stop Lamp Switch	2x	1x
Turn Signals	2x	2xx
Horn Push (behind dash)	1x	1x
Heater Switch (behind dash)	2x	2x
Heater Motor (at heater box)	2x	2x
TOTAL	19x +8xx	16x +10xx +1xxx



Bullet End



Single Tube



Double Tube



Triple Tube

* For no fog lamp, delete the fog lamp but retain the snap connector on the harness to protect the bullet end. Dual fog lamps requires a relay and additional wiring (insufficient capacity in the small switched wire).

** For dual horns, +2xx

For no heater (or no fresh air box), delete the heater switch and heater motor but retain the four snap connectors on the harness to protect the bullet ends.



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