MGTC Electrical Circuits

The EXU Supplement

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January 2019

Version 1.1

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Revision Log

This is a working document, as such changes will be made as new information emerges, enhancement to improve the readability or errors are found. Below is a list of these updates.

January 2019 – Version 1.0- Initial Issue

September 2020 – Version 1.1 Updates

- Removed 3 entries in the Appendix item – Used Wire Numbers and Colors by Wire Number. Numbers 42, 49 and 56 – no longer used.
- Added Appendix items Colors Used in Circuits, by Color and by Circuit
- Added wiring diagram to appendex

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Introduction

Background

This is a supplement to the document titled "MGTC Electrical Circuits", covering just the 1949 MGTC EXU model. The TC was upgraded, electronically to comply with various country (mostly the United States) laws and regulations regarding automobiles. Among these were electrical turn signals, sealed headlights, and license plate illumination lights.

For ease of use, I've included all the circuits of the EXU in this document even if they are identical to the non-EXU model.

Circuits that Are the Same

- Charging and Auxiliary Power
- Ignition
- Ignition Warning Light
- Petrol Pump
- Screenwiper Motor

Circuits that New or Revised

- Headlights
- Side and Tail Lights
- Horn
- Dash / Panel Lights and Clock
- Petrol Warning Light
- Map Lights
- Directional Indicator Lights and Stop Lights

Circuits that Have Been Eliminated

- Fog Lamp
- Stop Lights (Now integrated in with the Directional Indicators)
- Inspection Sockets

Again, I do not profess to be any form of expert on electronics. All the information I am presenting here is extracted from numerous. Should you find an error, please let me know at TCStormer01@Gmail.com and I will update the document.

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Nomenclatures

Some notes regarding labeling of item:

- In all cases "Left" is the passenger side, "Right" is driver's side.
- LH is Left Hand, RH is Right Hand
- Sw is Switch
- w/ stands for With
- The names Generator and Dynamo are interchangeable. I have chosen to use Generator
- Lamp and Light are interchangeable. I have chosen to use Light, except for the D-Lamp name.

References

No Author Listed. 1954, *The Instruction Manual for the MG Series "TC" Midget*

Ball, Kenneth. 1968, *MG Autobook One*

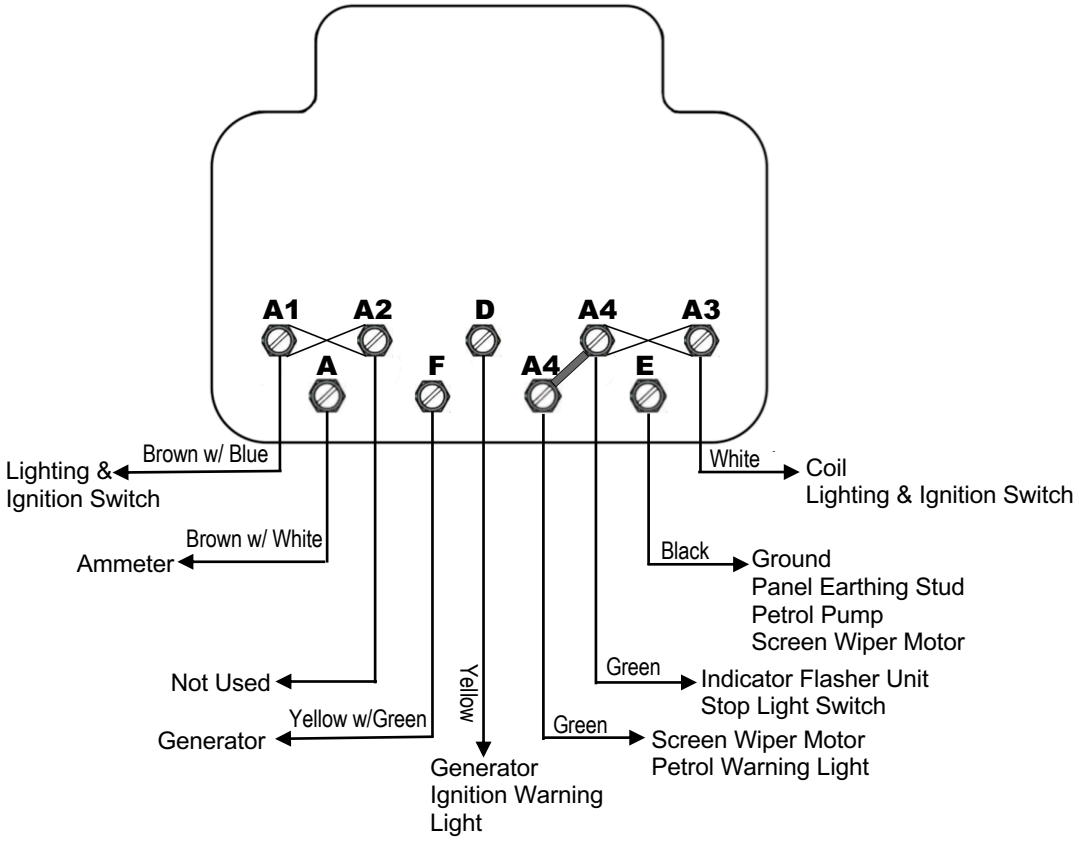
Blower, W. E. 1952, *The MG Workshop Manual From "M" Type to "T.F. 1500"*

Multiple Circuit Components

Five of the components are used in multiple circuits. Since each circuit description only deals with the wiring that is used by just that circuit, I'm including an overall look of all the connections used by each of these components.

RF95 Control Box

What's New or Changed: A4 to Indicator Flasher Unit, E to Panel Earthing Stud in lieu of Horn Push and Dipper Switch



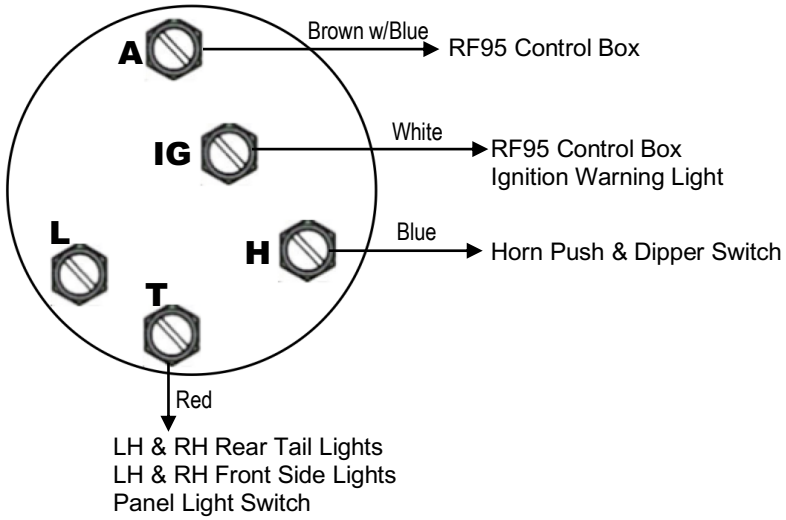
Lighting & Ignition Switch (L&IS)

Power enters the switch at connection A (Input) and exits through IG (Ignition), H (Headlights) and T (Tail and Side Lights). Connection L (Lighting) is not used.

When the key is turned on a connection is made between A and IG, which then connects to terminal A3 on the RF95 Control Box. All "Ignition On" circuits are controlled by this connection.

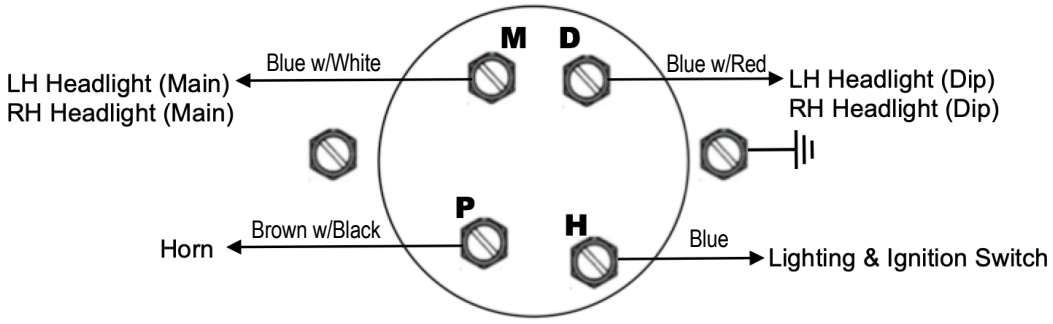
Setting the switch to S (Side / Tail) will create a connection between A and T. When set to H (Headlights) this connects A to both H and T.

What's New or Changed: T connection is now a single line to Front Side Lights and Rear Tail Lights



Horn Push & Dipper Switch (HP&DS)

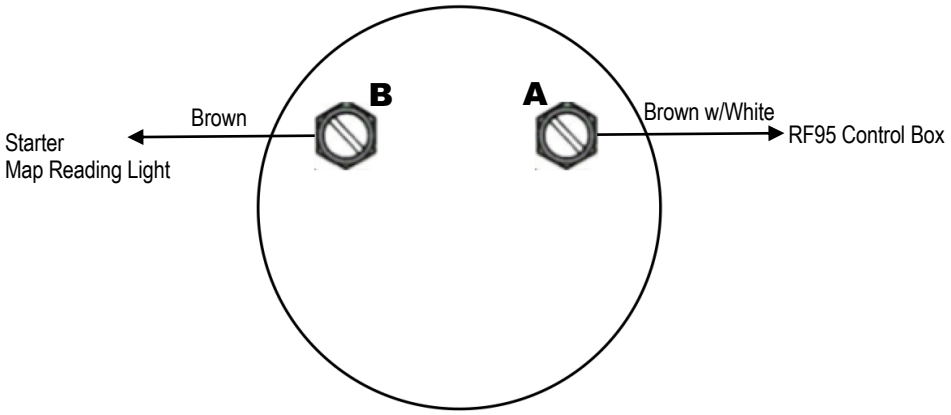
What's New or Changed: Grounds directly to Panel, Horn connection ("P") now Brown w/Black



Ammeter

Note the labeling of B and A is consistent in all the wiring diagrams.

What's New or Changed: Elimination of connection B to Inspection Lamp Socket



Panel Earthing Stud

The Panel Earthing Stud is new to the EXU; it replaces the ground connections from the Inspection Light Socket.

Map Reading Lights
LH Relay Unit
Dash / Panel Lights
Directional Indicator Switch
RF95 Control Box

Basic Circuits

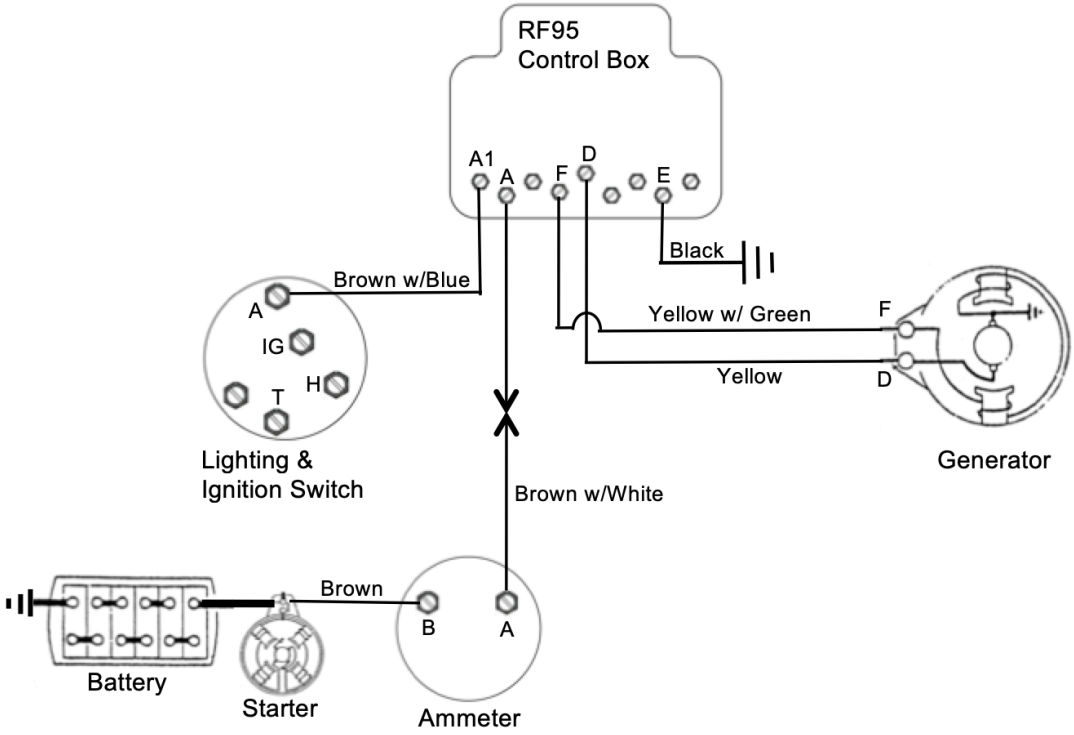
The Charging and Auxiliary Power Circuits

Power Source: Battery and/or Generator

Ignition On or Off: On
Switch Settings: N/A

What's New or Changed: None

Refer to the MGTC Electrical Circuits document for a detail description of this circuit.



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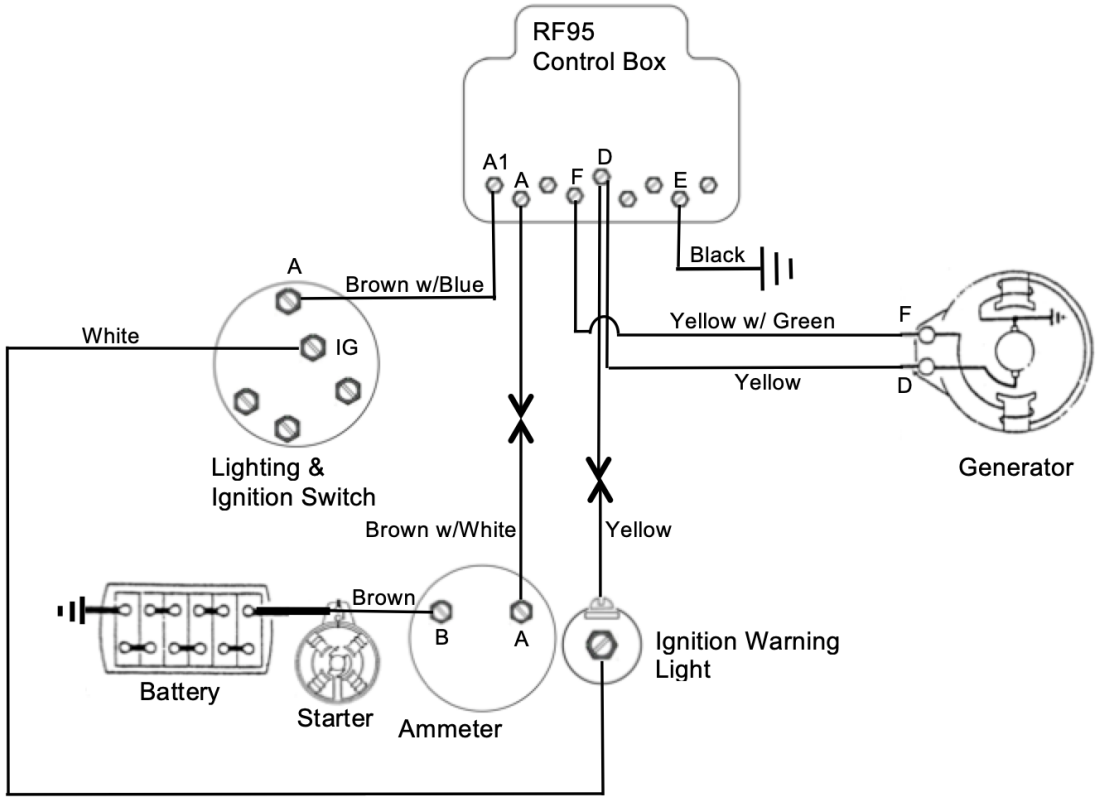
The Ignition Warning Light Circuit

Power Source: Battery and/or Generator

Ignition On or Off: On
Switch Settings: N/A

What's New or Changed: None

Refer to the MGTC Electrical Circuits document for a detail description of this circuit.



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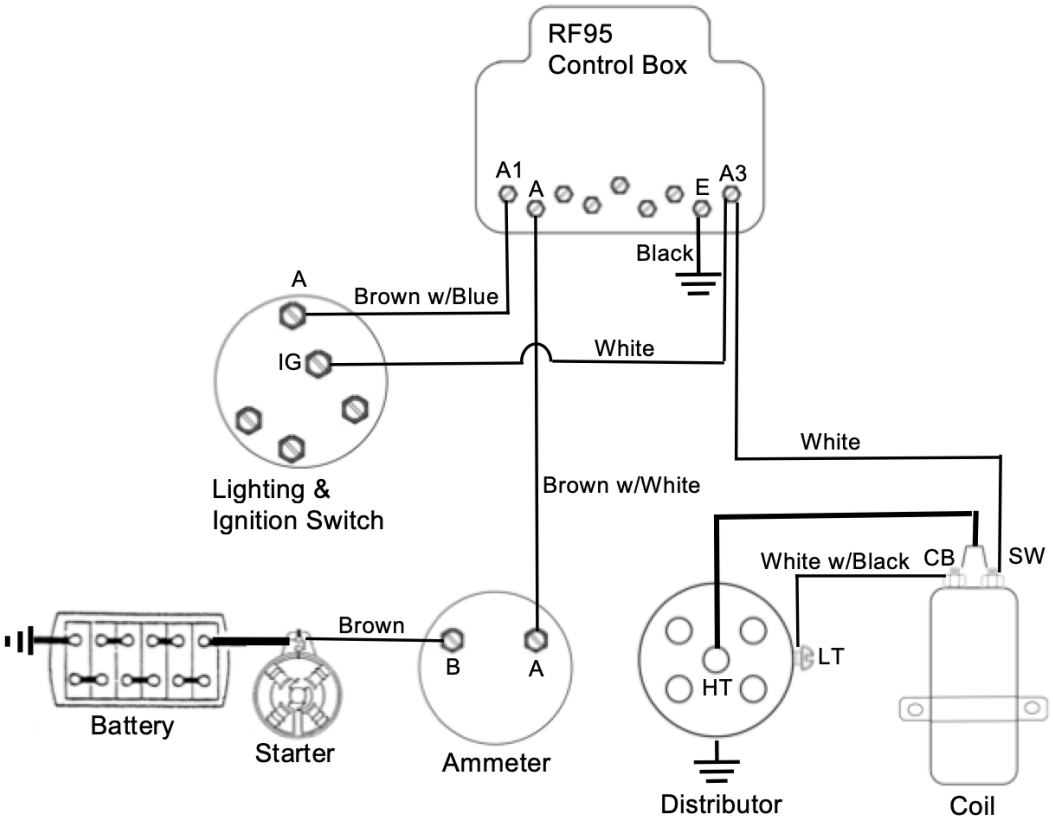
Ignition Circuit

Power Source: Battery and/or Generator

Ignition On or Off: On
Switch Settings: N/A

What's New or Changed: None

Refer to the MGTC Electrical Circuits document for a detail description of this circuit



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Headlights

Power Source: Battery and/or Generator

Ignition On or Off: Either
Switch Settings: Lighting & Ignition Switch: H
Horn Push & Dipper Switch: D or H

What's New or Changed: Main Beam Warning Light, Panel Earth Stud

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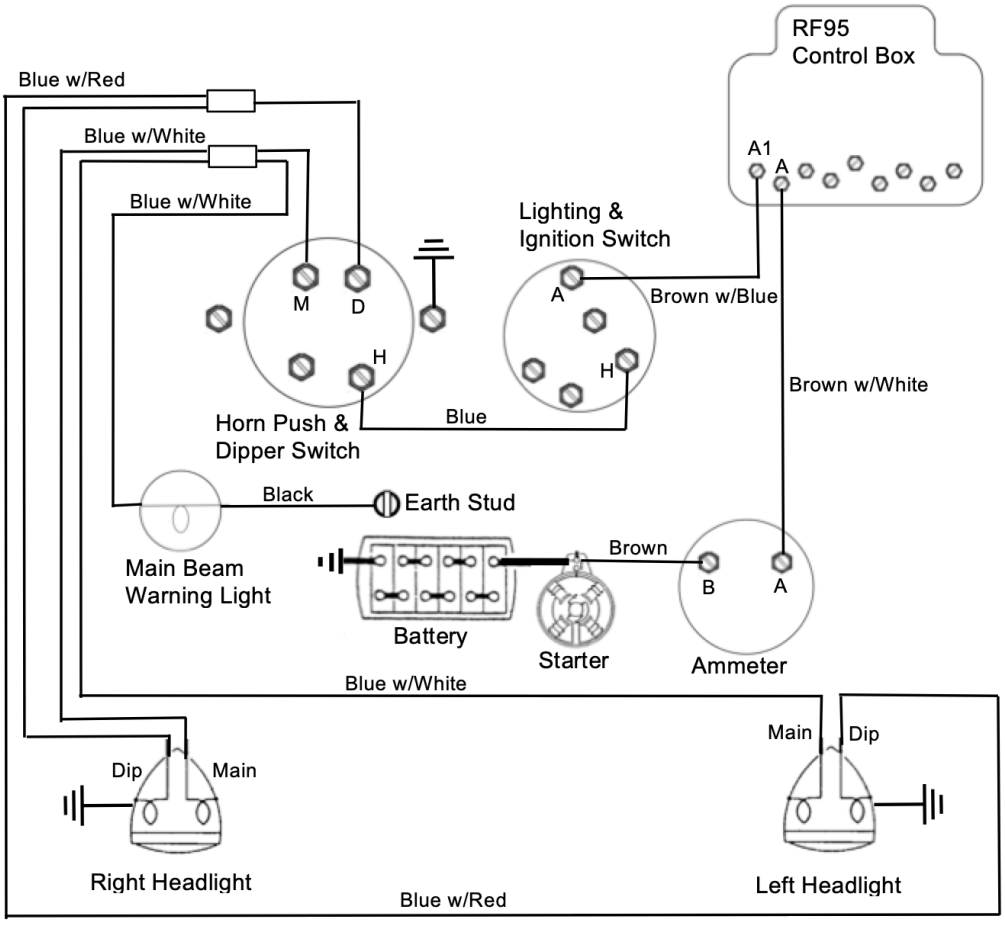
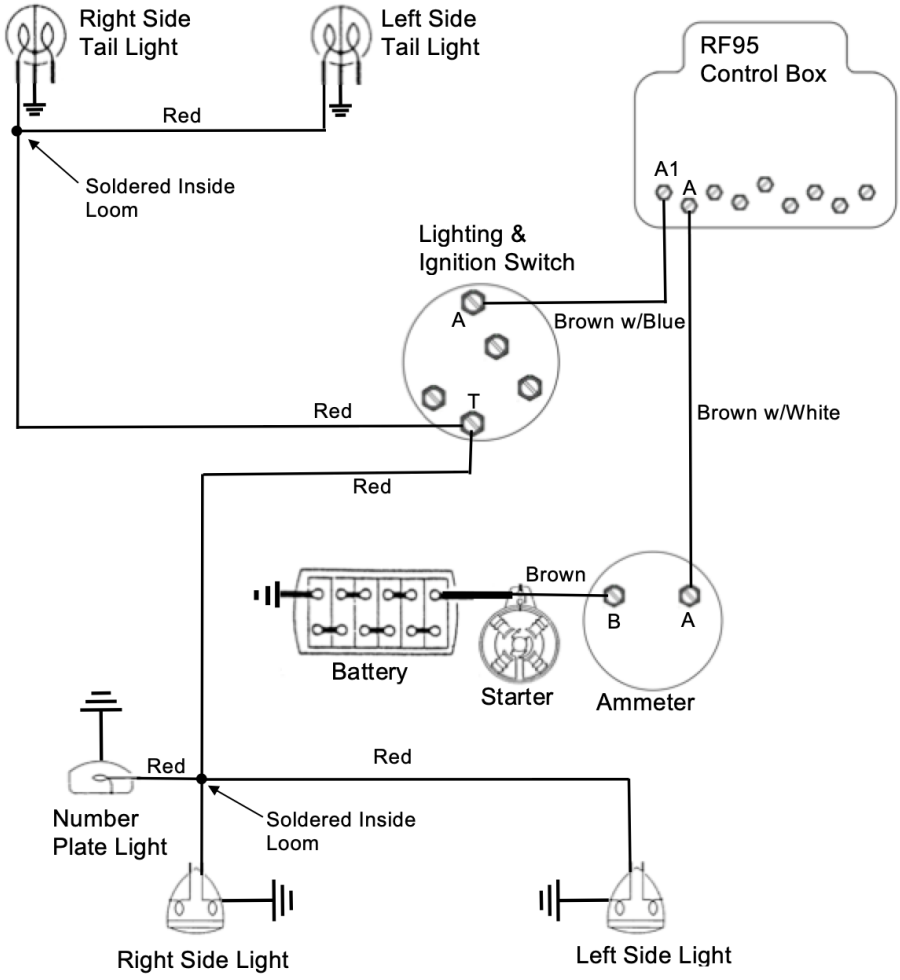


Side and Tail Lights

Power Source: Battery and/or Generator

Ignition On or Off: Either
Switch Settings: Lighting & Ignition Switch: S or H

What's New or Changed: Multiple Tail Lights, Number Plate Light, Single wire from the Lighting & Ignition Switch to both Front Side Lights and Rear Tail Lights.



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Horn

Power Source: Battery

Ignition On or Off: Either
Switch Settings: Horn Push & Dipper Switch: Horn Button Pushed

What's New or Changed: Multiple Horns, New Color Scheme, Direct Connect to Battery, Fuse

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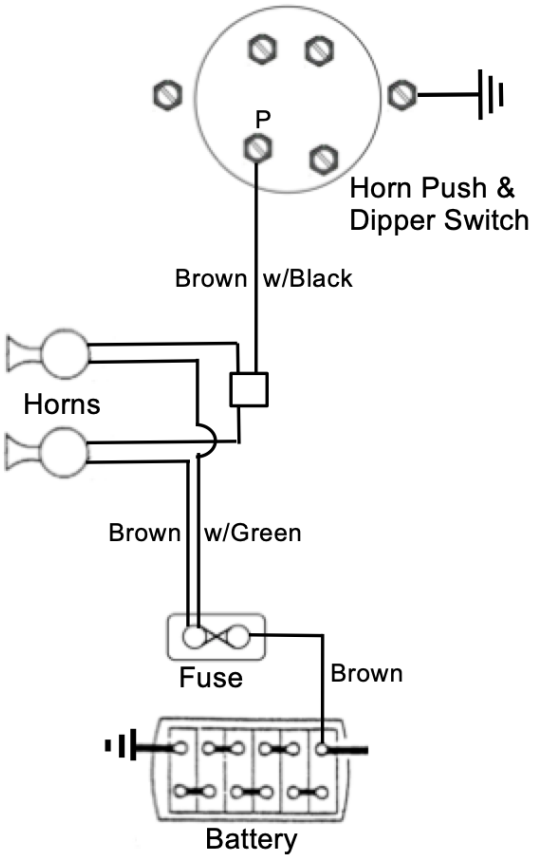

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Dash / Panel Lights and Clock

Power Source:	Dash/Panel Lights:	Battery and/or Generator
	Clock:	Battery
Ignition On or Off:	Either	
Switch Settings:		
	Dash / Panel Lights:	
	Lighting & Ignition Switch:	S or H
	Dash Light Switch:	On
	Clock:	N/A

What's New or Changed: Removal of Inspection Sockets, Added Earth Stud

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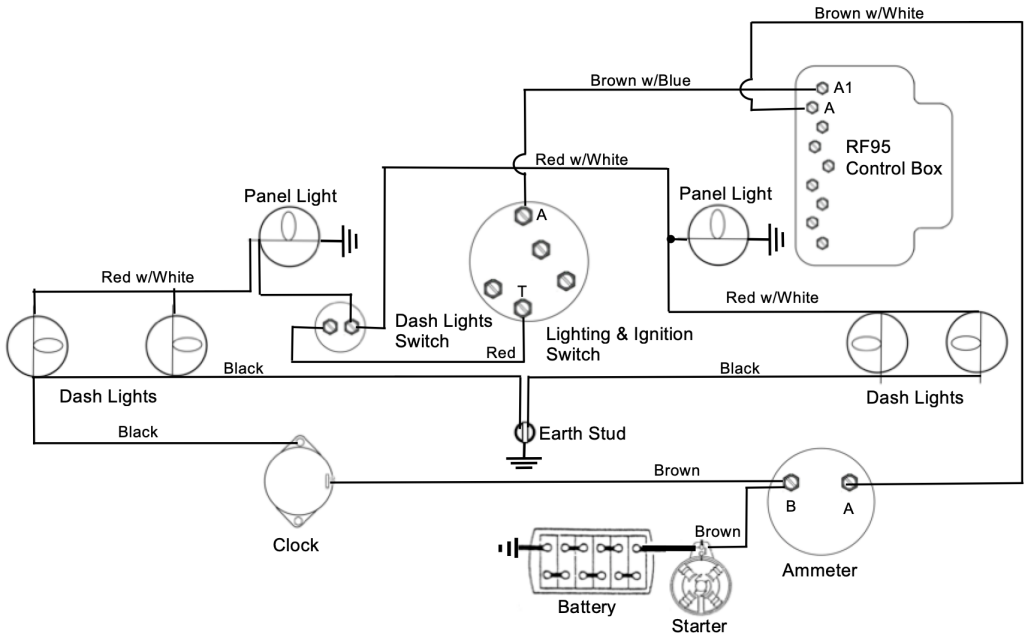
The wiring for the Clock is not shown on the general wiring diagram, so I'm assuming that it is the same as the Variation 3.

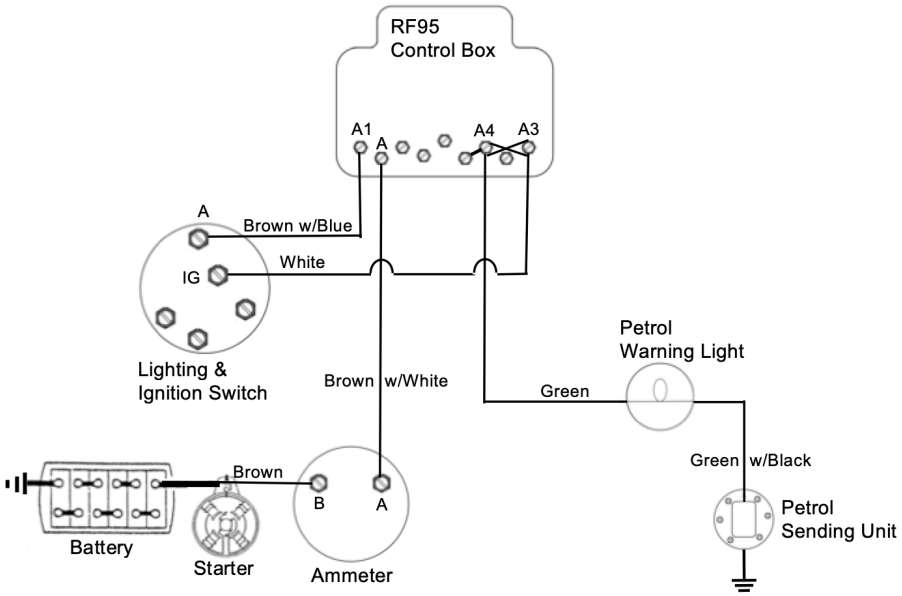


Petrol Warning Light

Power Source: Battery and/or Generator

Ignition On or Off: On
Switch Settings: N/A

What's New or Changed: Removal of Fog Light Switch and Fog Light



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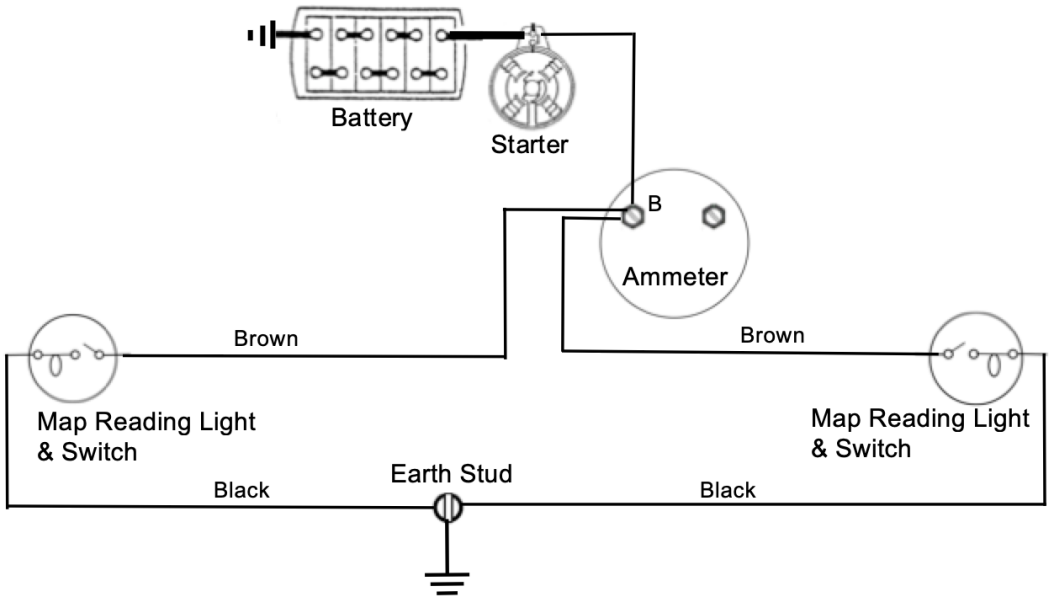
Map Lights

Power Source: Battery

Ignition On or Off: Either
Switch Settings: Map Reading Light Switch: On

What's New or Changed: Removal of Inspection Light Socket, added Earth Stud

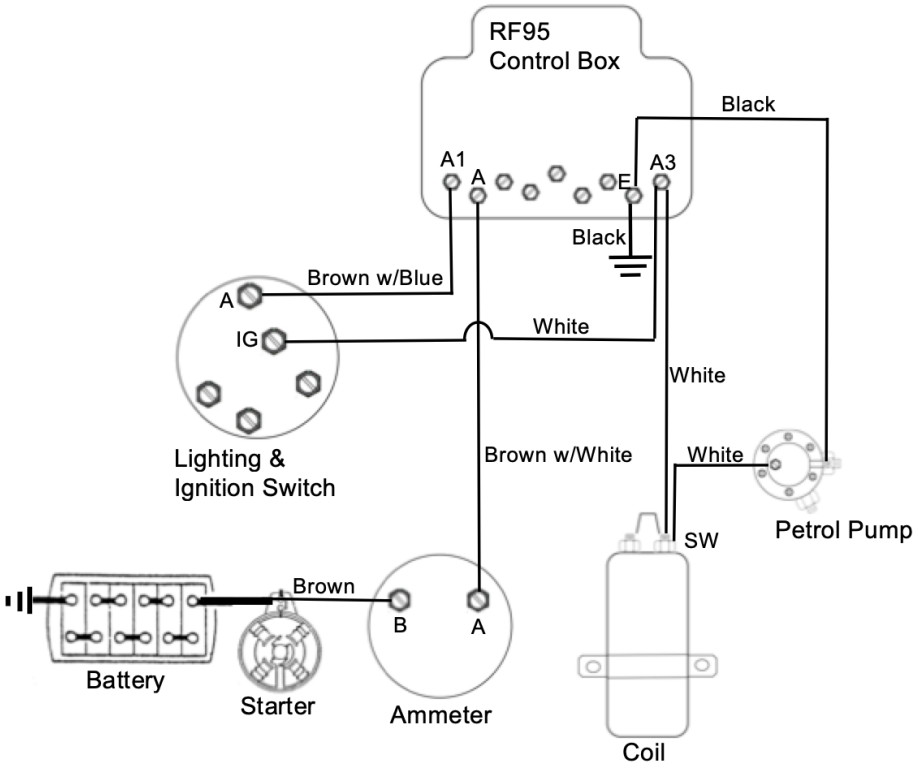


Petrol Pump

Power Source: Battery and/or Generator

Ignition On or Off: On
Switch Settings: N/A

What's New or Changed: None

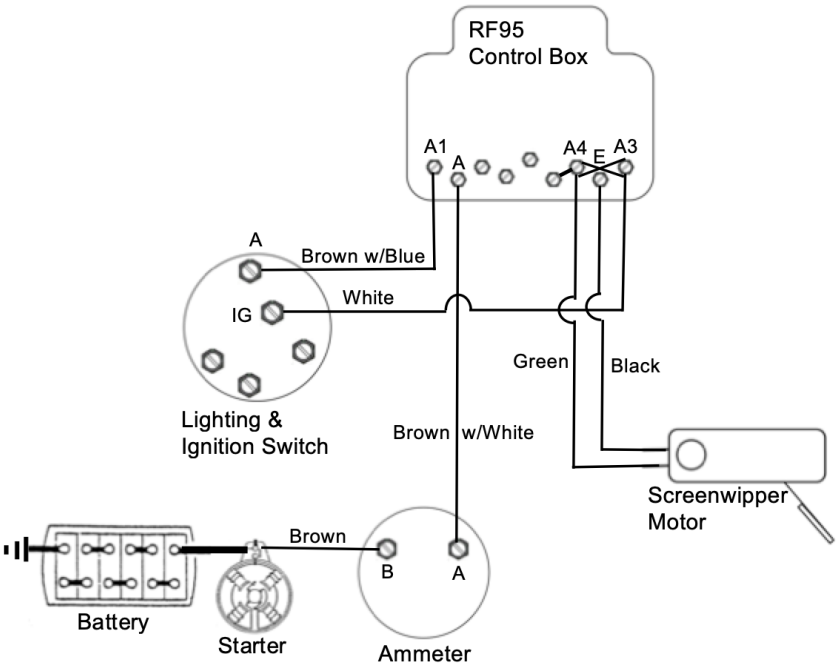


Screenwiper Motor

Power Source: Battery and/or Generator

Ignition On or Off: On
Switch Settings: Screenwiper Switch: On

What's New or Changed: None

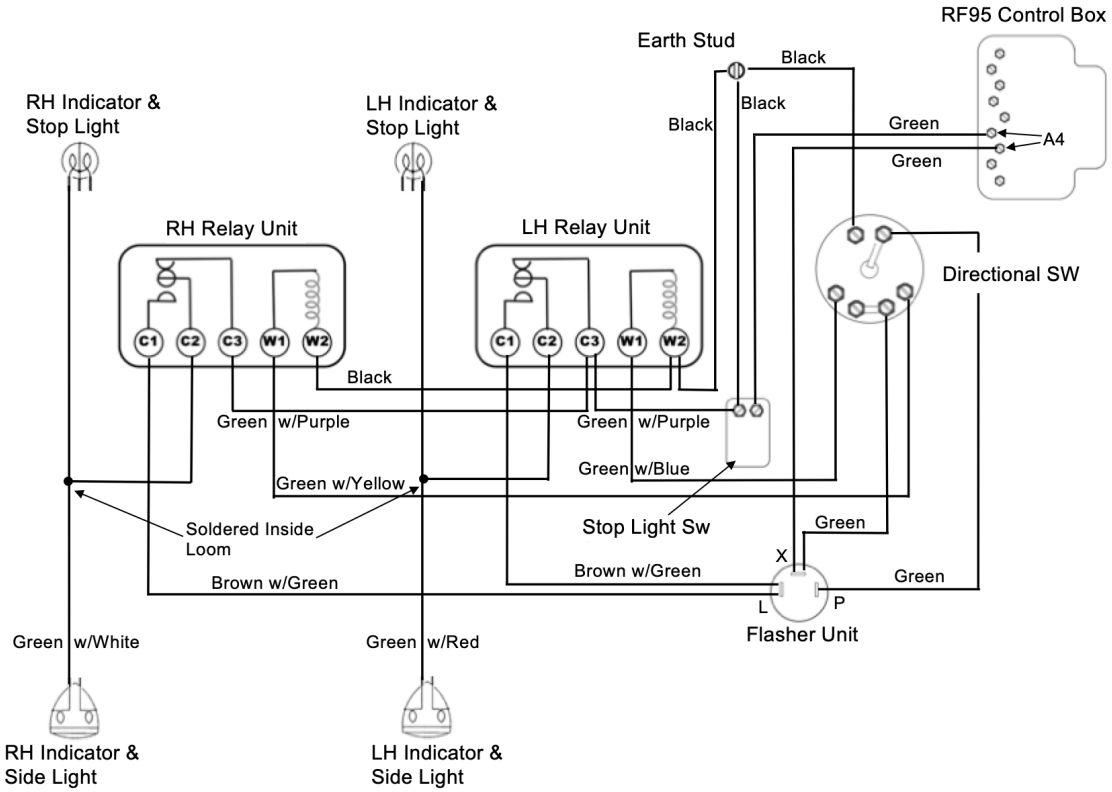


Directional Indicator Lights and Stop Lights

Power Source: Battery and/or Generator

Ignition On or Off: On
Switch Settings: Directional Switch: Left or Right Turn and/or
Stop Light Switch: Brakes Applied

What's New or Changed: The entire circuit is new



Appendix

Used Wire Numbers and Colors by Wire Number

Nbr		Color
1		Blue
2		Blue w/Red
4		Blue w/White
9		White
16		White w/Black
17		Green
18	(1)	Green w/Red
19	(1)	Green w/Yellow
20	(1)	Green w/Blue
21	(1)	Green w/White
22	(2)	Green w/Purple
24		Green w/Black
25		Yellow
29		Yellow w/Green
33		Brown
36		Brown w/ Blue
37		Brown w/White
38	(3)	Brown w/Green
40	(3)	Brown w/Black
41		Red
44		Red w/White
57		Black

(1) New Colors Added – Directional Indicators
(2) Existing Color used in new Circuit - Directional Indicators
(3) New Colors Added - Horn

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Colors Used in Circuits

By Color

Nbr	Color		Circuits
1	Blue		Headlights
2	Blue w/Red		Headlights (Dip)
4	Blue w/White		Headlights (Main)
9	White		Ignition Ignition Warning Light Petrol Pump
16	White w/Black		Ignition
17	Green		Directional Indicators Petrol Warning Light Screenwiper Motor Stop Light
18	Green w/Red		Directional Indicators
19	Green w/Yellow		Directional Indicators
20	Green w/Blue		Directional Indicators
21	Green w/White		Directional Indicators
22	Green w/Purple		Directional Indicators Stop Light
24	Green w/Black		Petrol Warning Light
25	Yellow		Charging and Auxiliary Power Ignition Warning Light
29	Yellow w/Green		Charging and Auxiliary Power
33	Brown		Charging and Auxiliary Power Dash / Panel Lights and Clock Horn Map Lights
36	Brown w/Blue		Charging and Auxiliary Power
37	Brown w/White		Charging and Auxiliary Power
38	Brown w/Green		Directional Indicators Horn
40	Brown w/Black		Horn
41	Red		Dash / Panel Lights and Clock Side and Tail Lights
44	Red w/White		Dash / Panel Lights and Clock
57	Black		Earth on numerous circuits

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Colors Used in Circuits

By Circuit

Circuit		Nbr	Color
Charging and Auxiliary Power		25	Yellow
		29	Yellow w/Green
		33	Brown
		36	Brown w/Blue
		37	Brown w/White
Dash/ Panel Lights and Clock		33	Brown
		41	Red
		44	Red w/White
Directional Indicators		17	Green
		18	Green w/Red
		19	Green w/Yellow
		20	Green w/Blue
		21	Green w/White
		22	Green w/Purple
		38	Brown w/Green
Earth on numerous circuits		57	Black
Fog Lamp		42	Red w/Yellow
Headlights (Main and Dip)		1	Blue
		2	Blue w/Red
		4	Blue w/White
Horn		33	Brown
		38	Brown w/Green
		40	Brown w/Black
Ignition		9	White
		16	White w/Black
Ignition Warning Light		9	White
		25	Yellow
Map Light		33	Brown
Petrol Pump		9	White
Petrol Warning Light		17	Green
		24	Green w/Black
Screenwiper Motor		17	Green
Side and Tail Lights		41	Red
Stop Light		17	Green
		22	Green w/Purple

Wiring Diagram