

STONE'S

J. Stone & Company, Ltd., Deptford, London

Leaflet Number
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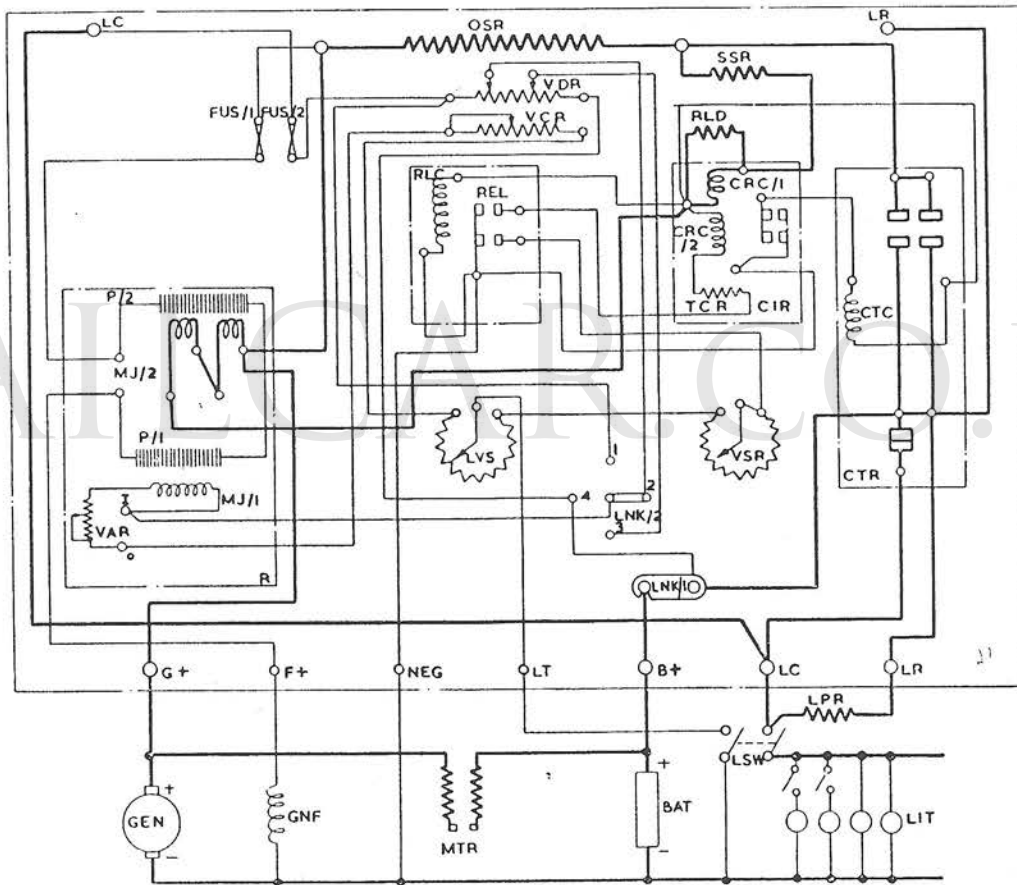
TRAIN LIGHTING EQUIPMENT FEATURING DUAL REGULATION



SINGLE BATTERY TRAIN LIGHTING SYSTEM

"TONUM" CONTROL PANEL

Type S.80/T2 or S.300/T2



WIRING DIAGRAM

SCHEDULE OF EQUIPMENT

BAT	BATTERY	MJ/2	REG. EXCITATION COIL (CURRENT SIDE)
CIR	CUT-IN RELAY	MTR	MOTORING RESISTANCE
CRC	CUT-IN RELAY COIL	OSR	OUTPUT SELECTING RESISTANCE
CTC	CONTACTOR COIL	P/1	CARBON PILE OF REG. (VOLTAGE)
CTR	CONTACTOR	P/2	CARBON PILE OF REG. (CURRENT)
FUS/1	FIELD FUSE	R	LILIPUT DUAL REGULATOR
FUS/2	VOLTAGE DIVIDING FUSE	REL	REGULATOR RELAY
GEN	GENERATOR	RLC	REGULATOR RELAY COIL
GNF	GENERATOR FIELD	RLD	RELAY DIVERTER
LIT	LIGHTS	SSR	SERIES SWAMP RESISTANCE
LNK/1	BATTERY ISOLATING LINK	TCR	TEMPERATURE COMPENSATING RES.
LNK/2	VOLTAGE DIVIDING LINK	VAR	VOLTAGE ADJUSTING RESISTANCE
LPR	LAMP RESISTANCE	VCR	VOLTAGE CALIBRATING RESISTANCE
LVS	LAMP VOLTAGE SELECTOR	VDR	VOLTAGE DIVIDING RESISTANCE
MJ/1	REG. EXCITATION COIL (VOLTAGE SIDE)	VSR	VOLTAGE SELECTING RESISTANCE

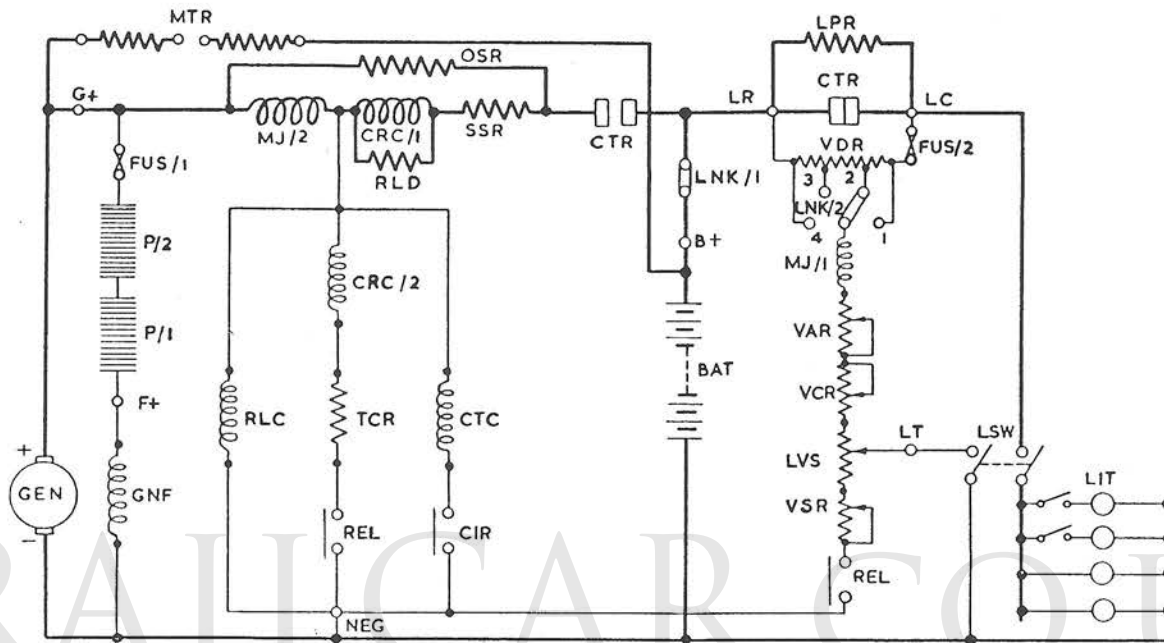
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SINGLE BATTERY TRAIN LIGHTING SYSTEM

“TONUM” CONTROL PANEL

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SCHMATIC DIAGRAM

SCHEDULE OF EQUIPMENT

BAT	Battery.	MJ/2	Regulator Excitation Coil (Current Side).
CIR	Cut-in Relay.	MTR	Motoring Resistance.
CRC	Cut-in Relay Coil.	OSR	Output Selecting Resistance.
CTC	Contactor Coil.	P/1	Carbon Pile of Regulator (Voltage).
CTR	Contactor.	P/2	Carbon Pile of Regulator (Current).
FUS/1	Field Fuse	R	Liliput Dual Regulator.
FUS/2	Voltage Dividing Fuse.	REL	Regulator Relay.
GEN	Generator.	RLC	Regulator Relay Coil.
GNF	Generator Field.	RLD	Relay Diverter.
LIT	Lights.	SSR	Series Swamp Resistance.
LNK/1	Battery Isolating Link.	TCR	Temperature Compensating Resistance.
LNK/2	Voltage Dividing Link.	VAR	Voltage Adjusting Resistance.
LPR	Lamp Resistance.	VCR	Voltage Calibrating Resistance.
LVS	Lamp Voltage Selector.	VDR	Voltage Dividing Resistance.
MJ/1	Regulator Excitation Coil (Voltage Side).	VSR	Voltage Selecting Resistance.

COMPONENTS

LILIPUT DUAL REGULATOR TYPE L/T2.—See Index.

OUTPUT SELECTING RESISTANCE (OSR).

A calibrated series coil diverter is fitted according to the requisite generator output. Shunts can be provided to cover a wide range of generator output, all being clearly marked with the operating current value.

VOLTAGE SELECTING RESISTANCES.

Adjustable resistances are provided with access from the front of the panel for the following adjustments to be made :—

(a) **Voltage Selector Resistances (VSR).**

For selection of limiting voltage with lights " Off " to suit the type of battery.

(b) **Lamp Voltage Selector Resistance (LVS).**

For selection of limiting voltage with lights " On."

(c) **Voltage Dividing Resistance (VDR).**

This is provided with a link and four tapping points in order that the most acceptable conditions of battery re-charge and lamp voltage regulation may be obtained. The link is positioned on the panel between the Resistances VSR and LVS. Position 1 will give the best lamp voltage regulation, while position 4 gives the best battery charging at all lamp loads. Positions 2 and 3 give intermediate results, position 2 being generally recommended.

TEMPERATURE COMPENSATING RESISTANCE (TCR).

The Temperature Compensating Resistance serves to ensure the consistent performance, independent of temperature variation, of the Regulator Voltage Coil ; it usually absorbs two-thirds of the Generator Voltage. This resistance is of the card type and wound with wire of negligible temperature co-efficient.

REGULATOR RELAY TYPE UM.—See Index.

AUTOMATIC CUT-IN RELAY TYPE UR.—See Index.

CUT-IN CONTACTOR TYPE U.80.—See Index.

CUT-IN CONTACTOR TYPE U.300.—See Index.

BATTERY ISOLATING LINK.

The Battery Isolating Link is now a standard fitting on all our equipments ; on the Tonum Generator Control Panels Type S.80/T2 and S.300/T2, one isolating link has been fitted to each panel.

The Link, made from heavy brass, permits all apparatus to be isolated from the battery ; thus, during routine inspections, under stationary conditions, examination and cleaning of the equipment, contacts, etc., may be carried out without risk of damage to any part of the installation.

FUSES.

Two fuses are provided and mounted on the front of the panel :—

A field fuse (FUS/1) to protect Generator field and the system against failure of " cut-in."

An additional fuse (FUS/2) is also provided for the protection of the Voltage Dividing Resistance (VDR) in the event of the lamp resistance becoming open circuited.

These fuses are of different sizes to avoid confusion in replacement.

TERMINALS.

The terminals, of the standard Admiralty pattern, are located in line at the edge of the panel for convenient cable connection from either open run or conduit entry, with alternative arrangements for connecting the Lamp Resistance in either of two positions.

RANGE OF APPLICATION.

Panel Type	Generator Output
S.80/T2	9-40 amperes 20-30 amperes
S.300/T2	40-150 amperes