



AUSTRALIAN RAIL TRACK CORPORATION LTD

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Discipline
Engineering Standard - NSW

Category
Signalling

Title
**Power Supply Units for Signalling Equipment
- DC (Unfiltered) Units.**

Reference Number
SPS 27 - (RIC Standard: SC 09 10 04 00 SP)

Document Control

Status	Date	Prepared	Reviewed	Endorsed	Approved
Issue 1 Revision 3	May 05	Standards and Systems	Standards Engineer	GM Infrastructure Strategy & Performance	Safety Committee
		Refer to Reference Number	H Olsen	M Owens	Refer to minutes of meeting 12/08/04

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Document Approval

The technical content of this document has been approved by the relevant ARTC engineering authority and has also been endorsed by the ARTC Safety Committee.

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About This Standard

This Specification describes the specific requirements for unfiltered DC Power Supply Units to be manufactured and supplied to ARTC or to Contractors to ARTC, for Signalling applications.

Document History

Primary Source – RIC Standard SC 09 10 04 00 SP Version 3.0

List of Amendments –

ISSUE	DATE	CLAUSE	DESCRIPTION
1.1	01/09/2004		Reformatting to ARTC Standard
1.2	14/03/2005	Disclaimer	Minor editorial change
1.3	06/05/2005	All	Document reformatted

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1. Introduction

This Specification describes the specific requirements for unfiltered DC Power Supply Units to be manufactured and supplied to ARTC or to Contractors to ARTC, for Signalling applications.

Specification SPS 22 shall form part of this Specification.

2. Applicable Documents

2.1. ARTC Specifications

This Specification refers to the following ARTC Specifications:

Specification. SPS 05: Ratings of Components for Construction Requirements

Specification. SPS 22: Power Supply Units for Signalling Equipment-General Requirements

3. Types of Units

Power supply input voltage requirements:

120VAC50H and the expected voltage variation 95V-130V

Power supply output requirements

Types of (Unfiltered) Power Supply Units covered by this Specification shall be as follows:

ARTC IDENTITY	ITEM DESCRIPTION	OLD(SRA) ID	SPECIFICATION
DC401	Power Supply Unit-DC Unfiltered12V, 1A DC		SPS 27
DC402	Power Supply Unit-DC unfiltered 24V, 5A DC(superseded twin channel unit)	(Store 107)	SPS 27
DC403	Power Supply Unit-DC Unfiltered 50V, 0.2A (10VA)	(Store 87)	SPS 27
DC404	Power Supply Unit-DC unfiltered 50V, 2.5A DC	(Store 103)	SPS 27

4. Electrical Requirements

Components shall conform to the requirements of Specification SPS 05.

4.1. Rating

The rating of the units shall be as specified and the whole of the equipment shall be capable of supplying continuously, and (if applicable) with one or other of the transformer sets inoperative, the maximum voltage and the current required for the unit.

4.2. Input Voltage

The input voltage for ARTC type DC403 shall be as per the drawing M08-435. The input voltages for the remaining items shall be as per Specification SPS 22.

4.3. Output Voltage

The output voltage of the equipment at the nominal input shall be within the nominal voltage - 5% at full load. (Refer to Specification SPS 22 for load Regulation requirements)

4.4. Transformer

The transformer shall comply with AS 2374.

The primary windings shall be provided with tappings to suit input voltages as per Specification SPS 22. The transformer primaries shall be wound with a minimum of 20 B&S gauge wire or equivalent.

The secondaries shall be provided with an additional tappings such that the output voltage of the unit can be increased by 10% above rated value at full load.

The magnetising current shall not exceed the following values :

for 12V/1A unit :	40mA
for 24V/5A unit :	100mA,
for 24V/15 A unit :	250mA,
for 50V/2.5A unit :	200mA,
for 50V/0.2A unit :	40mA.

4.5. Rectifier

The rectifier shall have a minimum Peak Inverse Voltage rating of 1KV.

4.6. Termination

Transformer input and output tappings shall be terminated external to the units on "Klippon" BK series terminal blocks or equivalent. Each termination shall be clearly and permanently identified.

The 50V/0.2A and 12V/1A unit shall have Klippon type "BK6" terminal blocks or equivalent.

The 24V/5A and 50V/2.5A unit shall have terminal blocks Klippon type BK or equivalent for the input and output terminals which shall be external to the unit when mounted to the standard rack (refer drawing M08-429 for RSA standard rack).

For 24V/15A DC units shall have terminals consisting of 6mm brass studs on 25mm centres protruding 40mm from the insulating material and each shall be identified as shown on the drawing M08-801. Separate internal terminals shall be provided for the AC input terminations and the indicator outputs (if applicable) and the outgoing DC supplies.

4.7. Indications

Refer to Specification SPS 22.

LED indicators shall be provided through the front of the case. The lamps shall be mounted separate from and not inhibit the removal of the unit cover

5. Mechanical Requirements

Refer to Specification SC 091000 00 SP.

5.1. Housing

No housing shall be provided for 50V/0.2A DC(ARTC type DC403) and 12V/1A DC units.

Power supplies units with ratings 25VA to 150VA shall be totally enclosed in sheet metal cases to suit rack mounting, with removable covers providing ready access to all the enclosed equipment for replacement.

In case of power supply units greater than 150VA, it shall be designed for panel mounting. Two 30mm bushed holes shall be provided in the base for cable entry.

5.2. Labelling

Labelling on the terminals and power supply unit to be provided as appropriate.

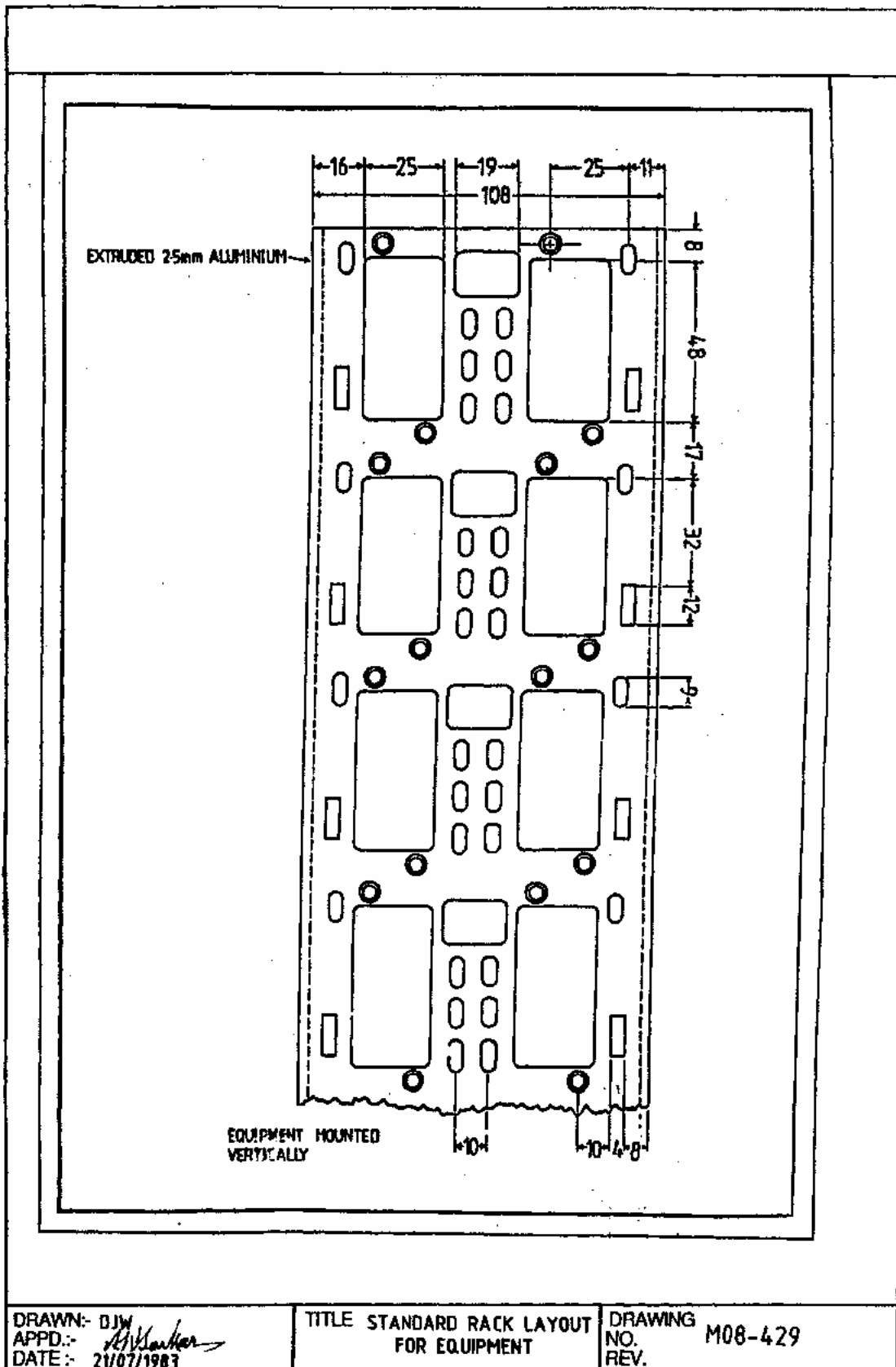
Drawings

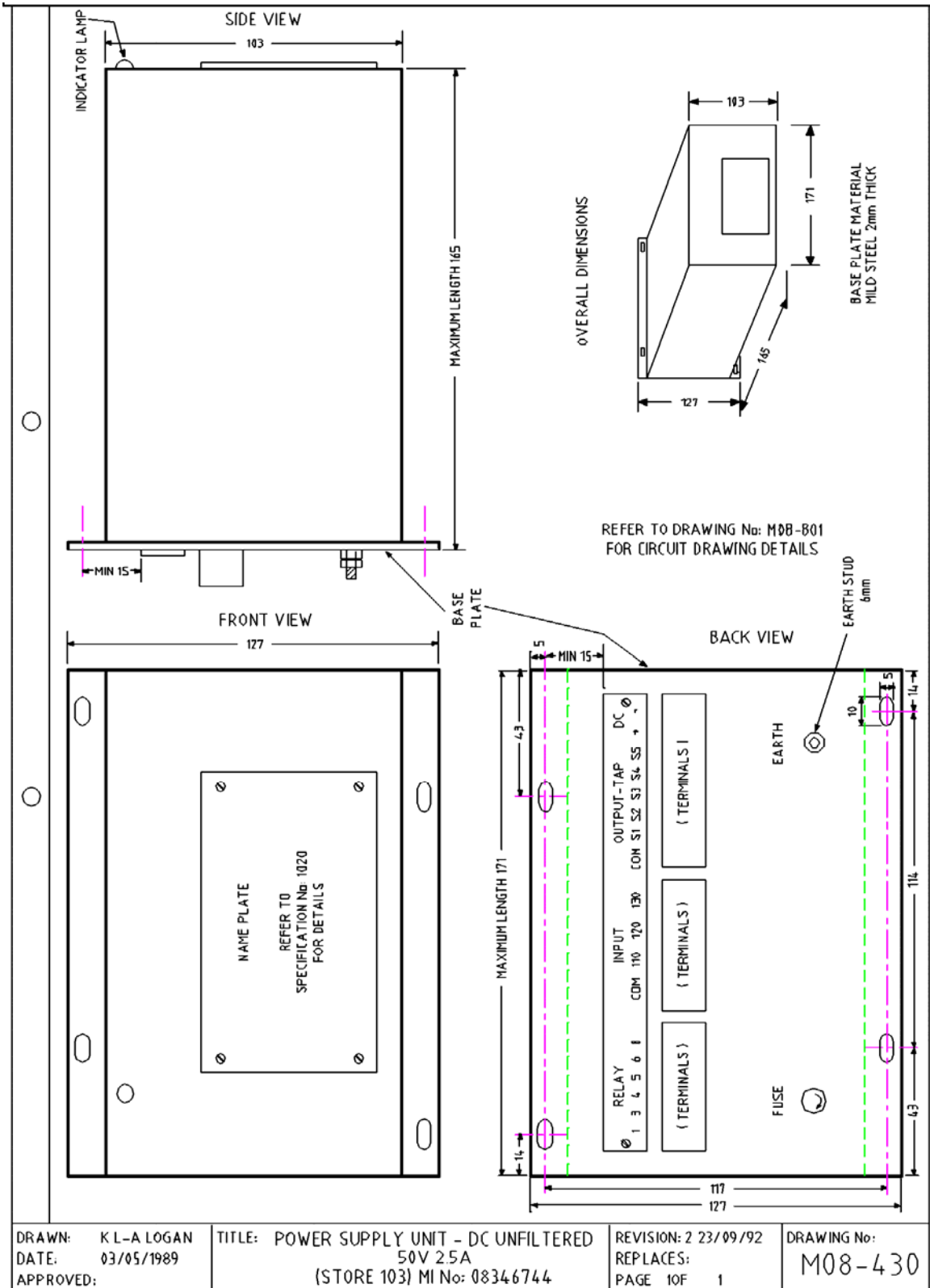
M08-429 – Standard rack layout for DC Power Supply equipment

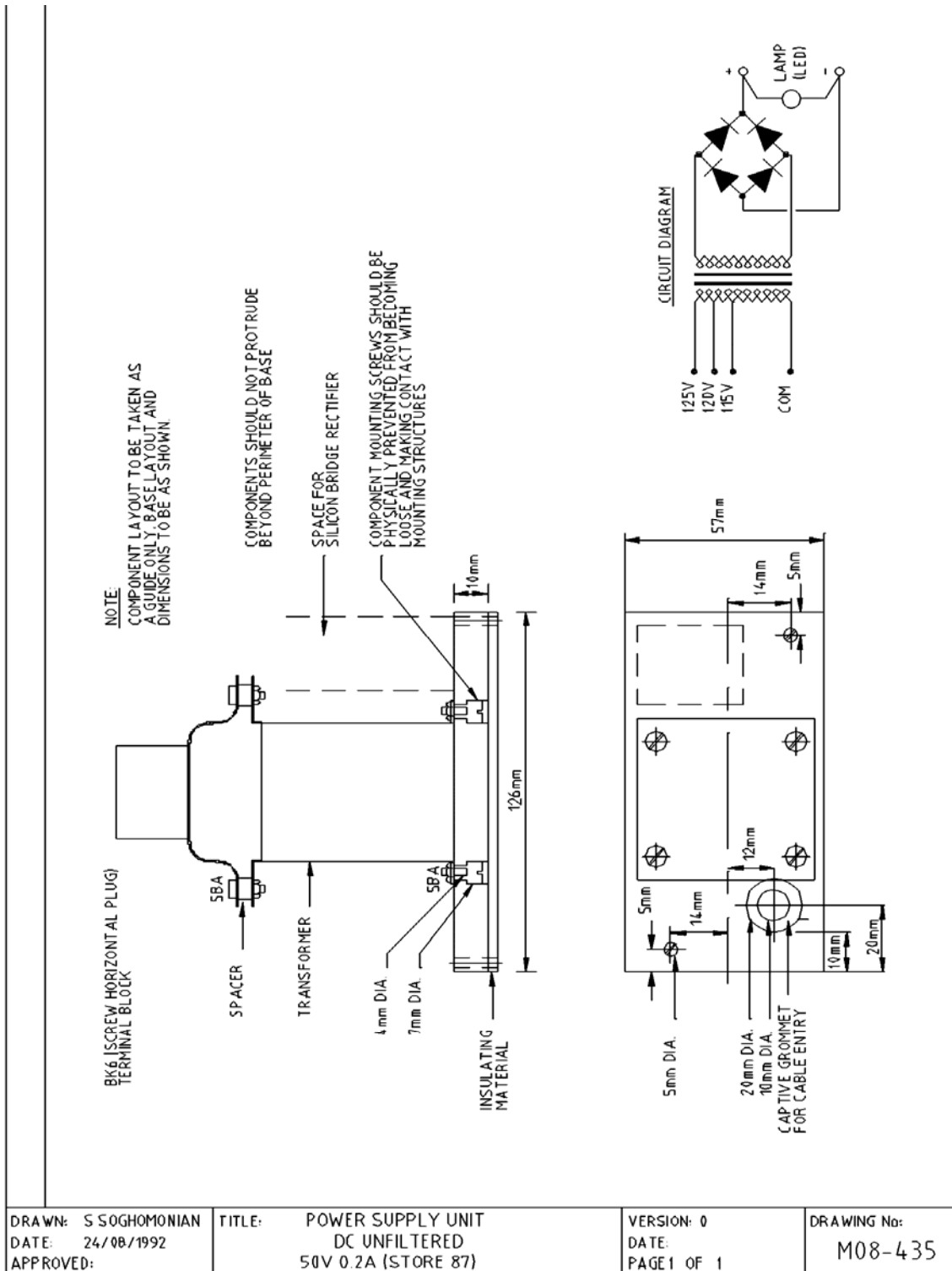
M08-430 - Power Supply Unit, DC unfiltered 50V 2.5A (Store 103)

M08-435 - Power Supply Unit, DC unfiltered 50V 0.2A (Store 87)

M08-801 - Power Supply Unit, DC unfiltered General circuit diagram







DRAWN: S SOGHOMONIAN
 DATE: 24/08/1992
 APPROVED:

TITLE: POWER SUPPLY UNIT
 DC UNFILTERED
 50V 0.2A (STORE 87)

VERSION: 0
 DATE:
 PAGE 1 OF 1

DRAWING No:
 M08-435

