



AUSTRALIAN RAIL TRACK CORPORATION LTD

This document has been adopted by the ARTC with the permission of the NSW Government and will continue to apply under the authority of the ARTC General Manager Infrastructure, Strategy & Performance until further notice

Discipline
Engineering Standard - NSW

Category
Signalling

Title
Power Supply Units for Signalling Equipment - DC Track Feeds

Reference Number
SPS 29 - (RIC Standard: SC 09 10 06 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

Disclaimer

Australian Rail Track Corporation has used its best endeavors to ensure that the content, layout and text of this document is accurate, complete and suitable for its stated purpose. It makes no warranties, express or implied, that compliance with the contents of this document shall be sufficient to ensure safe systems of work or operation. Australian Rail Track Corporation will not be liable to pay compensation in respect of the content or subsequent use of this document for any other purpose than its stated purpose or for any purpose other than that for which it was prepared except where it can be shown to have acted in bad faith or there has been willful default.

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.

Document Supply and Control

The Primary Version of this document is the electronic version that is available and accessible on the Australian Rail Track Corporation Internet and Intranet website.

It is the document user's sole responsibility to ensure that copies are checked for currency against the Primary Version prior to its use.

Copyright

The information in this document is Copyright protected. Apart from the reproduction without alteration of this document for personal use, non-profit purposes or for any fair dealing as permitted under the Copyright Act 1968, no part of this document may be reproduced, altered, stored or transmitted by any person without the prior written consent of ARTC.

About This Standard

This Specification describes the specific requirements for "Power Supply Unit-DC Track Circuit Feeds" to be manufactured and supplied to ARTC, for Signalling applications.

Document History

Primary Source – RIC Standard SC 09 10 06 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

Contents

1.	Introduction.....	6
2.	Applicable Documents.....	6
2.1.	ARTC Specifications	6
3.	Types of Units	6
4.	Electrical Requirements	6
4.1.	Rating.....	6
4.2.	Transformer.....	7
4.3.	Rectifier	7
4.4.	Terminations	7
5.	Mechanical Requirements.....	7
5.1.	Case Details.....	7
5.1.1	Automatic Track Rectifier Sets.....	7
5.1.2	A.C./D.C. Track rectifier Sets.....	7
5.2.	Labelling.....	7
	Drawings attached:.....	8

1. Introduction

This Specification describes the specific requirements for "Power Supply Unit-DC Track Circuit Feeds" to be manufactured and supplied to ARTC, for Signalling applications.

The provisions of Specification. SPS 22 shall form part of this Specification.

2. Applicable Documents

2.1. ARTC Specifications

This Specification refers to the following Specifications:

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

Specification SPS 05 Ratings of Components Construction Requirements

3. Types of Units

Item DC601: Automatic Track Rectifier Sets.

Automatic rectifier units, operating with one or two primary batteries, shall have output voltage between 1.0V and 2.5 Volts at 1Amp rated load.

Typical designs for the units are as shown in drawings M08-439 & M08-440.

In service the combined battery/rectifier supply will be used to supply a fluctuating load at a voltage with the specified range. The rectifier unit shall be designed so that once adjusted for the particular battery voltage in use it will automatically compensate for changes in load conditions with the drain from the battery remaining within the specified range.

Item DC602: A.C/D.C. Track Rectifier Sets.

Transformer rectifier sets consisting of a double wound transformer and a bridge rectifier as per drawings M08-437 and M08-438. The transformer secondary winding shall be tapped giving 2V-3V-1V between taps. The secondary connections shall be brought out to a terminal block to allow the rectifier to be connected so as to obtain 1V to 6V output at 1Amp rated load as per requirement.

4. Electrical Requirements

4.1. Rating

The load current to be supplied by the unit will fluctuate over the range 100mA to 1A. For automatic track rectifier units the rectifier unit shall be designed to carry the major portion of the load and at all times the drain on the primary battery shall not exceed 10mA nor be less than 3.0mA. Some form of adjustment to allow the drain on the battery to be preset within these limits would be preferable. Under no circumstances shall the rectifier unit be capable of passing a charging current into the batteries.

If a control winding is provided, resistance shall not exceed 0.3 Ohm and circuitry shall be provided so that when the load is removed a charging current is not

circulated through the battery.

Input Voltage: As per specification SPS 22.

4.2. Transformer

Refer to specification SPS 05. The transformer shall comply with AS 2374.

The transformer shall be of a double wound type with the primary winding of 20 gauge B&S wire or the equivalent. Magnetisation current shall not exceed 30mA.

4.3. Rectifier

Refer to Specification SPS 05.

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

4.4. Terminations

The input and output terminals of panel mounting units shall consist of 6mm x 40mm brass studs projecting 25mm above the insulating material in which they are held and mounted at 25mm centres.

Rack mounting units shall require "Klippon" BK or an equivalent type of terminals.

The input and output terminals shall be fixed on individual terminal strips mounted separately from each other and so located as to be readily accessible.

5. Mechanical Requirements

Refer to Specification SPS 22.

5.1. Case Details

5.1.1 Automatic Track Rectifier Sets.

The complete unit shall be suitable for panel mounting, as per the attached drawing M08-439 or M08-440.

5.1.2 A.C./D.C. Track rectifier Sets.

The transformer, rectifier and terminal strips shall be mounted on a metal base plate suitable for panel or standard rack mounting as detailed in drawing M08-437. The assembly shall not exceed 100mm in height. No covers are required on the units.

5.2. Labelling

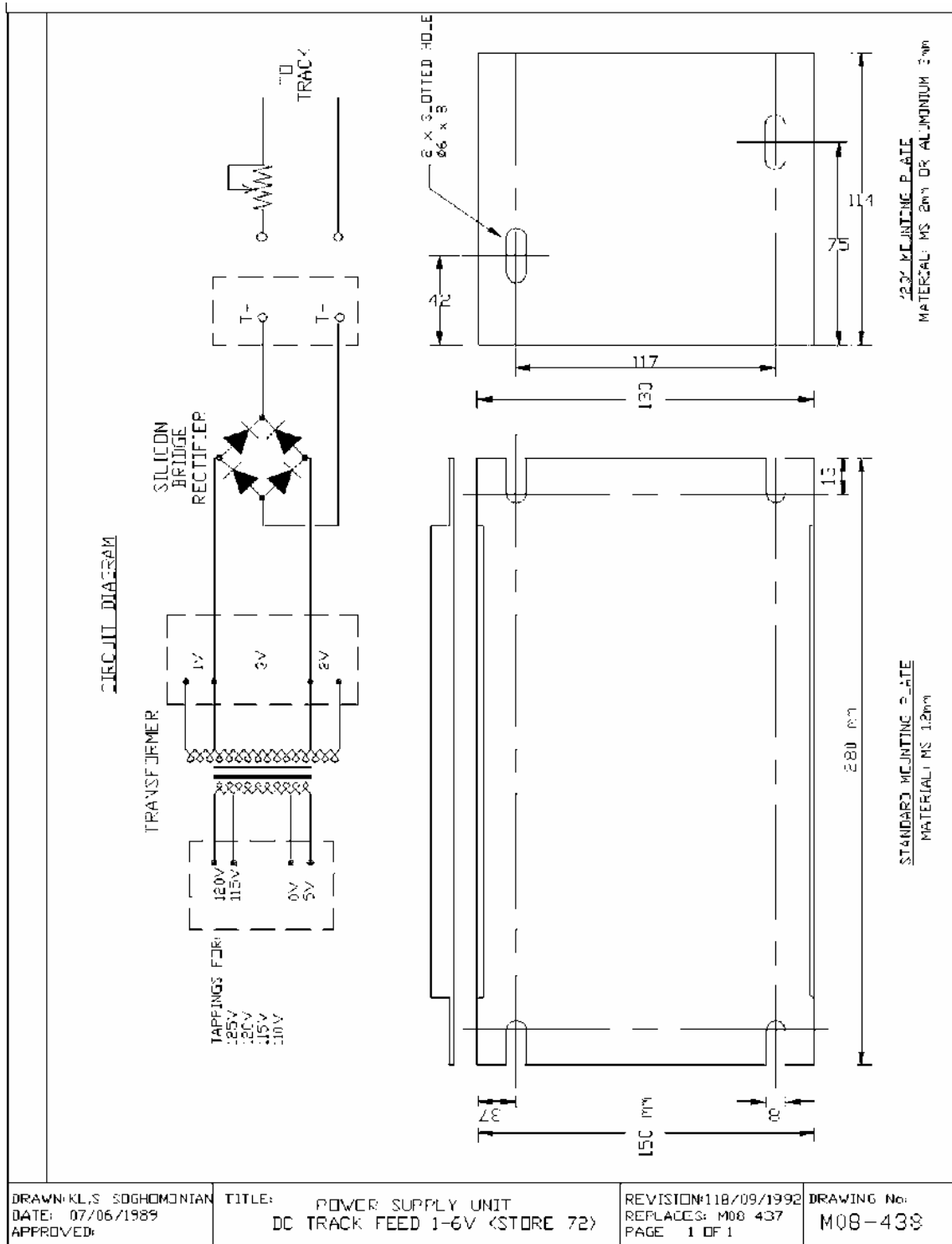
Refer to Specification SPS 22.

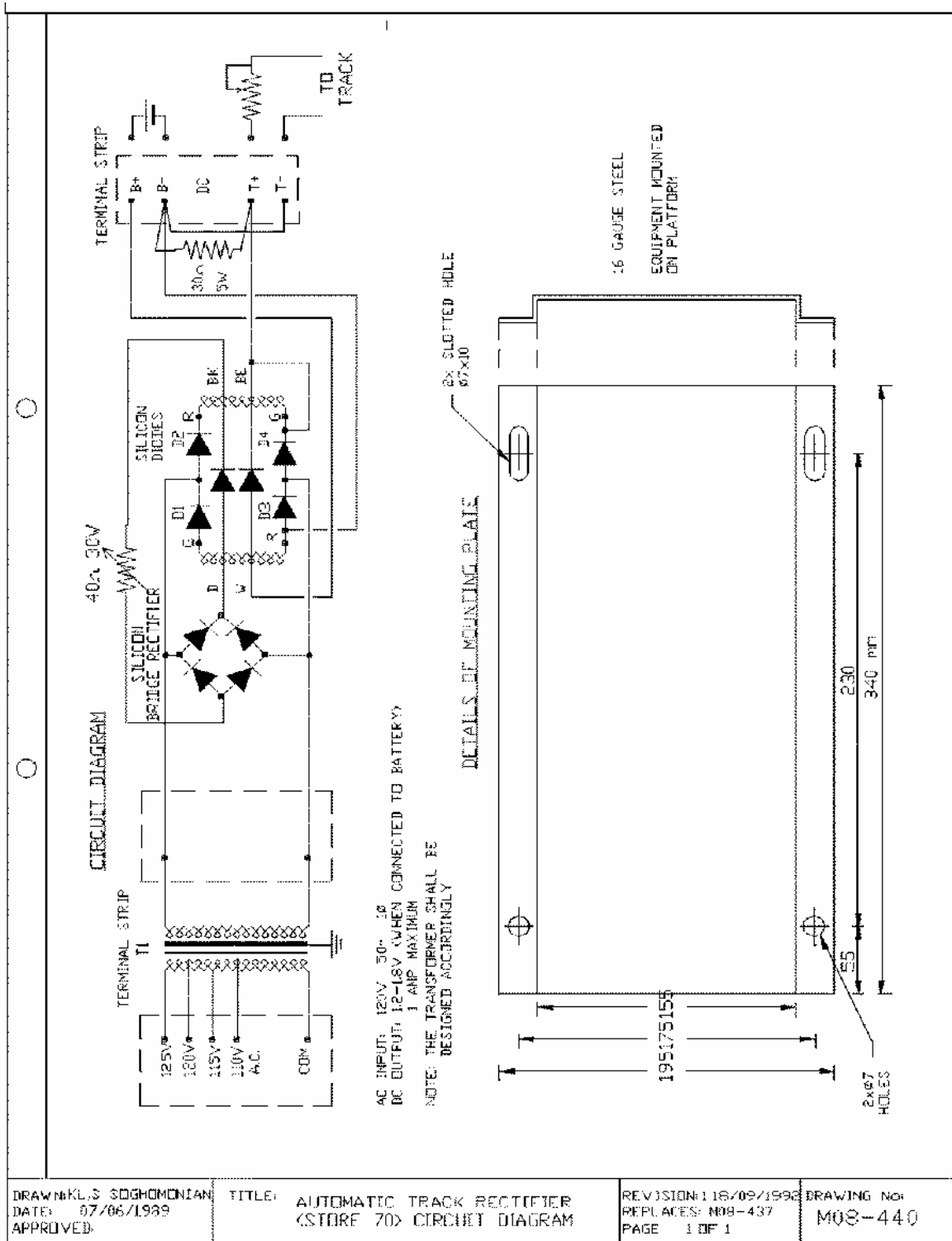
The input connections shall be labelled 120V input, the battery terminals shall be labelled B+ and B- and the track connections marked T+ and T-.

A label marked "Store No 72" shall be fixed to the A.C./D.C. Track Rectifier Sets and a label marked "Store No 70" shall be fixed to the Automatic Track Rectifier Sets.

Drawings attached:

- M08 438 : Power Supply Unit-DC Track Feed (Store 72)
- M08 439 : Power Supply Unit-DC Track Feed (Store 70), (Automatic Track Rectifier)
- M08 440 Power Supply Unit-DC Track Feed (Store 70 (Automatic Track Rectifier)





DRAWN: K.L.S. SOGHOMONIAN
 DATE: 07/06/1998
 APPROVED:

TITLE: AUTOMATIC TRACK RECTIFIER
 (STORE 70) CIRCUIT DIAGRAM

REVISION: 118/09/1998
 REPLACES: N08-437
 PAGE 1 OF 1

DRAWING NO: M08-440