



GSA INTERNATIONAL

Certificate of Compliance

Certificate: 1066166

Master Contract: 201067

Project: 1149757 (Edition 2)

Date Issued: January 9, 2001

Issued to: **Chalmit Lighting A Division of Hubbell Lighting Ltd.**
388 Hillington Road
Glasgow, G52 4BL
UNITED KINGDOM
Attention:

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'



Issued by: D. Adams, P. Eng.

Authorized by: Patricia Pasemko
Operations Manager

PRODUCTS

PRODUCTS

3428 - 03 FIXTURES AND FITTINGS - For Hazardous Locations

3428 - 83 FIXTURES AND FITTINGS - For Hazardous Locations - To US Requirements

Ex e II T4, Tamb -20 °C to + 45 °C , IP 67 ; Class I, Division 2, Group ABCD, T4

Model _ 720 Control Gear Box, Rated 200-254 V, 50 Hz, or 600 Vmax, 60 Hz, up to 1000W.

Ex n II T3

500 Control gear enclosures, Rated 200-254 V, 50 Hz, or 600 Vmax, 60 Hz, up to 1000W.

- Model 502 Control Gear Box, rated 200-254 V, 50 Hz; or 600 Vmax, 60 Hz, up to 1000 W.

Ex nR IIC Temp Code – See chart

Model 503 Lighting Fixture, rated 200-254 V, 50 Hz; or 600 Vmax, 60 Hz, up to 2000 W.

Catalogue Number	Wattage	Ambient Temperature
503-600S-WAB-XXX	600 W HPS	T3 @ 60°C
		T4 @ 40°C
503-1000S-WAB-XXX	1000 W HPS	T3 @ 60°C
		T4 @ 40°C
503-2000T-WAB-XXX	2000 Watt Tungsten Halogen	T2 @ 40°C

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.



GSA INTERNATIONAL

Page 2

Certificate: 1066166

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Project: 1149757

Date: January 9, 2001

APPLICABLE REQUIREMENTS

- CSA Standard C22.2 No-M1991 - General Requirements - Canadian Electrical Code Part II.
- C22.2 _ 94 - Specialty Purpose Enclosures
- 213-M1987 - Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations.
- CAN/CSA E79-0-95 - Electrical apparatus for explosive gas atmospheres. PART 0: General requirements.
- E79-15-95 - Electrical apparatus for explosive gas atmosphere, Type of Protection 'n'.
- UL 2279 - UL Standard for Safety for Electrical Equipment for Use in Class I, Zone 0,1,2 Hazardous Locations.



GSA INTERNATIONAL

Supplement to Certificate of Compliance

Certificate: 1066166

Master Contract: 201067

*The products listed, including the latest revision described below,
are eligible to be marked in accordance with the referenced Certificate.*

Product Certification History

Project	Date	Description
1066166	April 10, 2000	Original Certification of 500 Series and 720 Control Boxes
1149757	January 9, 2001	Update to Report 1066166 to include minor report corrections and factory addition of Pickering, Ontario.

Certificate of Compliance

Certificate: 1066166

Master Contract: 201067

Project: 1149757 (Edition 2)

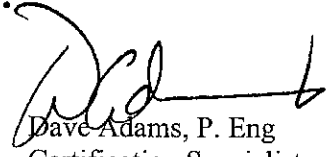
Date Issued: January 9, 2001

Issued to: **Chalmit Lighting**
A Division of Hubbell Lighting Ltd.
388 Hillington Rd
Glasgow, G52 4BL
United Kingdom


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with adjacent indicator "C" and "US".*



Issued by:


Dave Adams, P. Eng
Certification Specialist

Authorized by:


John Verwey, P.Eng.
Operations Manager

CLASS

3428 - 03 FIXTURES AND FITTINGS - For Hazardous Locations

3428 - 83 FIXTURES AND FITTINGS - For Hazardous Locations - To US Requirements

PRODUCTS

Ex e II T4, Tamb -20 °C to + 45 °C , IP 67 ; Class I, Division 2, Group ABCD, T4

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Certificate: 1066166

Master Contract: 201067

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CSA INTERNATIONAL

Descriptive and Test Report

Standards Development

QMI Management Systems Registration

Certification and Testing

MASTER CONTRACT: 201067

REPORT: 1066166

PROJECT: 1149757

Edition 1: April 10, 2000; Project 1066166 - Edmonton
Issued by Scott Friel, P. Eng; Reviewed By : Dave Adams, P.Eng.

Edition 2: January 9, 2001; Project 1149757 - Edmonton
Issued by Dave Adams, P.Eng.; Reviewed by W.W Shao, P.Eng.
Pages Replaced: (All)

Certificate of Compliance has been Re-Issued.

Contents: Certificate of Compliance - Pages 1 to 2
Supplement to Certificate of Compliance - Page 1
Description and Tests - Pages 1 to 6
Figures - Figs 1 to 2

CLASS

3428 - 03 FIXTURES AND FITTINGS - For Hazardous Locations

3428 - 83 FIXTURES AND FITTINGS - For Hazardous Locations - To US Requirements

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We Answer With Solutions™

1707-94 Street, Edmonton, AB, Canada T6N 1E6

Telephone: 780.450.2111 Fax: 780.461.5322 www.csa-international.org

MARKINGS

- (1) Submitter's name, trademark, or the CSA file number (adjacent the CSA Mark).
- (2) Catalogue / Model designation.
- (3) Complete electrical rating (amps, hertz, and volts).
- (4) Date code / Serial number traceable to month and year of manufacture.
- (5) Hazardous Location designations.
- (6) Temperature code.
- (7) Maximum ambient.
- (8) CSA Enclosure type.
- (9) The CSA Mark with C/US indicator.
- (10) The following bilingual cautions:
 - “WARNING - EXPLOSION - HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2” and, “AVERTISSEMENT - RISQUE D’EXPLOSION -LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIAL INACCEPTABLE POUR LES EMBLEMES DE CLASSE I, DIVISION 2.”

 - “WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS” and, “ AVERTISSEMENT - RISQUE D’EXPLOSION - AVANT DE DECONNECTER L’EQUIPEMENT, COUPER LE COURANT OU S’ASSURER QUE L’EMPLACEMENT EST DESIGNE NON DANGEREUX.”

NOTE: French Markings for products with CSA Mark are optional.

Jurisdictions in Canada may require markings to be also in French. It is the responsibility of the Customer to provide bilingual marking, where applicable, in accordance with the requirements of the Provincial Regulatory Authorities. It is the responsibility of the Customer to determine this requirement and have bilingual wording added to the "Markings".

REQUIRED METHOD OF MARKING:

The marking shall be permanent, such as a 0.5-mm thick metal nameplate secured by drive pins or screws in bottomed holes.

720 Control Gear Box

1. Special conditions for safe use must be in the installation instructions; The control gear box must not be mounted such that the cable entry plate is uppermost; The control gear box must not be used in circuits with Ignitors that may subject the internal components to high voltages.

ALTERATIONS ; 500 and 502 Control Gear

1. The current through the capacitors, when using spring leaf terminals, shall not exceed 2A
2. Thermal protection is not consider acceptable unless it is CSA approved for Zone II.

FACTORY TESTS

Dielectric:

The equipment at the conclusion of manufacture, prior to shipment, shall withstand for one minute without breakdown, the application of the following ac potentials:

- (1) 1000 Vac plus twice the rated voltage between low voltage circuits and non-current carrying parts.
- (2) 1000 Vac plus twice the rated voltage between low voltage circuits and other low voltage or extra-low voltage circuits if such circuits leave or enter the enclosure.
- (3) 500 Vac between extra-low voltage circuits and non current carrying parts if such circuits leave or enter the enclosure.

Each transformer, before assembly into the equipment, shall withstand for one minute without breakdown, the application of the following Ac potentials, between each winding and the core with all other windings grounded to the core:

- (1) 1000 Vac plus twice the rated voltage for windings rated over 30 Vac.
- (2) 500 Vac for windings rated 30 Vac and less.

NOTES:

- (1) As an alternative, potentials 20 percent higher may be applied for one second.
- (2) The required dielectric strength test may be made by applying a dc potential, providing it is 1.414 times the ac test potential.
- (3) Capacitors in the extra-low voltage circuits may be disconnected during the dielectric test.
- (4) The dielectric test between extra-low voltage circuits and non current carrying parts may be waived on grounded limited energy (Class 2) circuits.

WARNING:

The factory test(s) specified may present a hazard of injury to personnel and/or property, and should be performed by persons knowledgeable of such hazards, and under conditions designed to minimize the possibility of injury.

DESCRIPTION : 500 Control Gear Enclosures

This report records the results of the test and examination carried out by BASEEFA N^o 81(N)214 on the types 500 control gear enclosures.

1. The enclosures are of welded stainless steel construction to drawing D765 issue 2 5.5.81. A lid, fitted with a double neoprene gasket of thickness 3mm and 4mm, is bolted to the enclosure, the fasteners being tightened to a torque of 2lb ft. Two CSA approved cable glands are to be fitted to each enclosure. Cables 13.5mm diameter sealed at the ends with epoxy resin were fitted to the glands.
2. Igniters The igniters are to be CSA (NRTL/C or ULC) suitable for use in Ex n II, with no arcing or sparking or heating elements. The igniters are to be of the SIP type which do not subject the ballast to high voltages. The pulse starting voltage is less than or equal to 5kV.
3. Ballasts : A CSA (NRTL/C or ULC) approved Ballast must be used, maximum 200-254 Volt 50 Hz, maximum, 600 V 50 or 60 Hz. The ballast must have a Tw 130 °C and T change 55 °C to 74 °C. With no arcing or sparking or heating elements.
4. Capacitors Capacitors which are marked for Tc 90 °C or Tc 85 °C may be used.

- 5. Terminal Arrangements The Weidmuller MK6 terminal block is CSA approved. The MK6 terminals have a maximum current rating of 26A and are limited to 105°C.

The Hylec PA range are the pinch screw type manufactured from polyamide (limited to 80°C). The manufacturer has declared a CTI of 550 for this series (declaration held on report 97(C)0858/1) and the creepage and clearance distances are in excess of the requirements. Ferrules are fitted to conductors before they enter the terminals. Current ratings are as follows:

Type	Max current (A) (limiting temperature 80 °C)
PA35WP	6
PA27WP	10
PA44WP	16
PA76WP	32

Supply cables may be looped using cross connection combs on the MK6 terminals (limiting temperature 105 °C), or alternatively (and for the Hylec PA range) by using short lengths of cable to link terminals. Where two cables are inserted into a terminal way they are first crimped together using a suitable tag.

Lampholder, ignitor and ballast terminals may be pinch screw or pressure plate type. When pinch screw terminals are used ferrules are fitted to cables.

For all terminals, insulating materials are not used to maintain contact pressure.

*or CSA/CUL Certified equivalent.

- 6. Cable Glands CSA (NRTL/C or ULC) approved cable gland is to be used. Where compacted extruded cables (fully filled cable) is not available glands must be installed according to manufacturers instructions.

DESCRIPTION: Model Series 720 Ex e Gear Box

Model No 720 Ballast Enclosure for use with 250 W or 400 W MBFU (HPMV) lamps; Model No 721 600 W HPS Control Gear Box, is for use 150 W, 250 W, 400 W, 600W high pressure sodium discharge lamp; Model 722 Control Gear Box for use with 250W or 400W MBI Lamps. Either enclosure comprises a two part fabricated stainless steel enclosure. The cover is secured to the base by means of three screws and two hinge assemblies and is sealed by a silicone rubber gasket. The box was tested to meet IP 67 .

- 1. The ignitors are to be CSA (NRTL/C or ULC)suitable for use in Ex n II, with no arcing or sparking or heating elements. The ignitors are to be of the SIP type which do not subject the ballast to high voltages. The pulse starting voltage is less than or equal to 5kV.
- 2. A CSA (NRTL/C or ULC)approved ballast must be used, maximum 200-254 , 50 Hz, maximum 600 V, 50 or 60 Hz. The ballast must have a Tw of 130 °C and Tchange 55 °C to 75 °C, with no arcing or sparking or heating elements.
- 3. Capacitors which are marked for Tc 90 °C or Tc 85 °C may be used.
- 4. Both internal and external grounding facilities are provided. Weidmuller EK4 or Weidmuller SAK 6NB are acceptable grounding arrangements.
- 5. Provision is made for the fitting of suitable cable entry devices or blanking plugs which shall be CSA approved (NRTL/C or ULC) and capable of maintaining the minium IP 54 rating.

Drawing

Number	Issue	Date	Description
D1185	5	15.2.94	General Assembly (Figure 1)
5590	4	5.9.89	Label
5702	-	18.7.89	Cover Detail (Figure 2)
5635	-	28.10.88	Label Internal
5594	4	5.9.89	Label
5634	3	5.9.89	Label

TESTS

Bas Ex 89C3315 X was used for testing of te 720 Enclosures. The 720 was subjected to the test for ingress protection classification IP67 according to the requirements of IEC 529 : 1976.

BAS Nox 81(N)129 for 500 control gear enclosures.

Ingress of Dust:

In view of the construction of the equipment it was deemed unnecessary to perform the dust test for classification 6, as the requirements for second numeral 7 were more stringent.

Ingress of Moisture:

The samples were submerged in a water tank to a depth of 1.3m. The head of water above the highest point of the enclosure was for type 500 0.82m and for type 502 was 0.71m. Each sample was left submerged for a period of 30 minutes.

The Ballasts and components used will not have a Tchange greater than 75 °C at a 45 °C ambient will be 120 °C which is within acceptable limits of T4.

No further testing was deemed necessary.

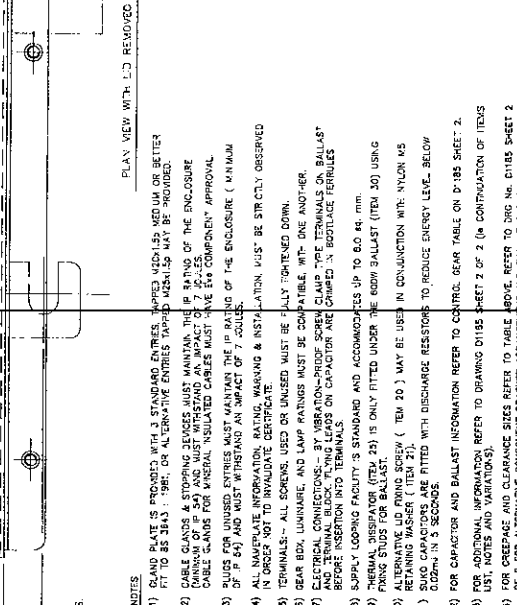
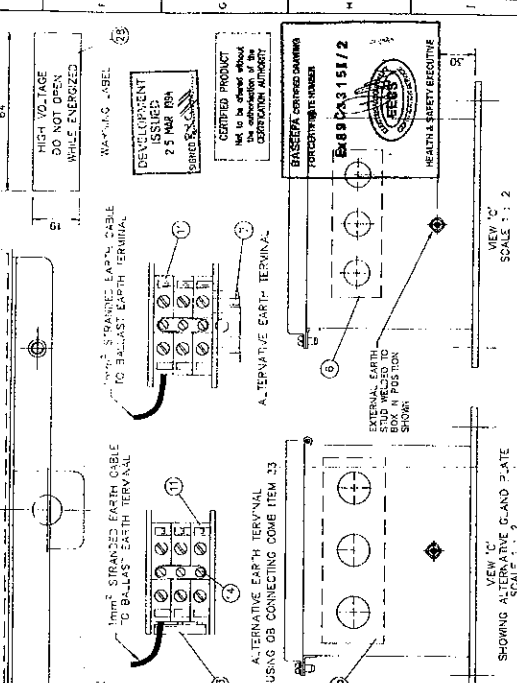
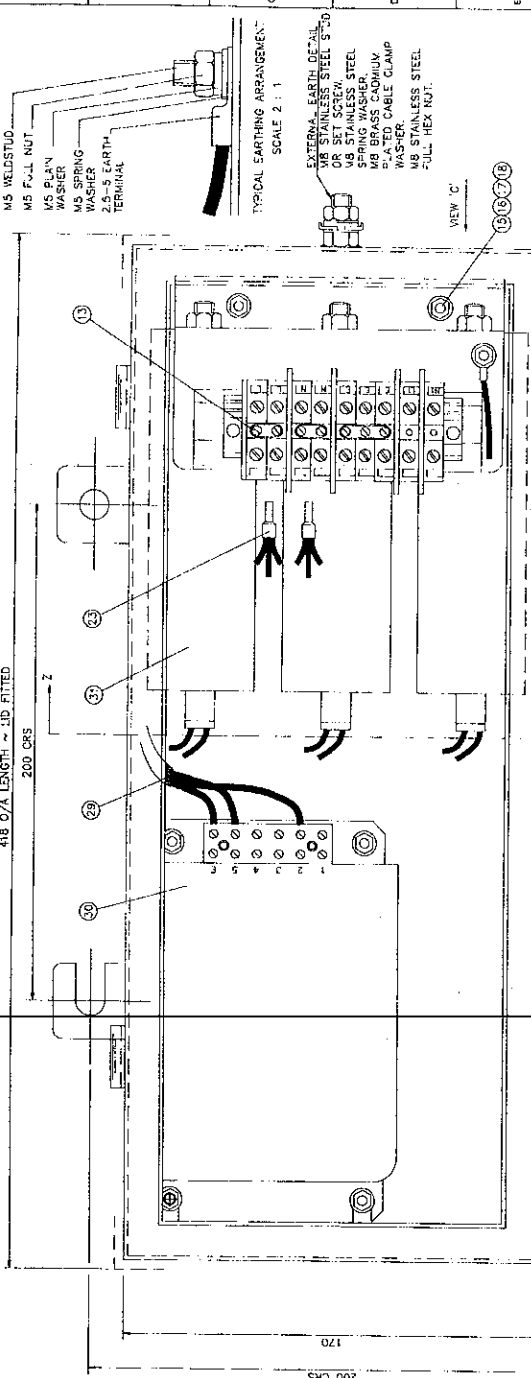
Project 1149757 Edition 2:

This project covered minor corrections to the Report. Previous testing is considered representative. No further testing is deemed necessary.

DRAWING NUMBER/SHEET NUMBER
D1185 SHEET 1 OF 2

REMOVE ALL BURRS & SHARP EDGES

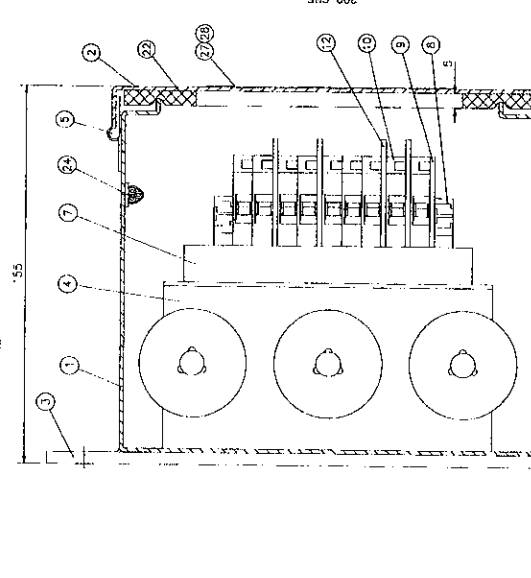
IF IN DOUBT ASK!
418 Ø/A LENGTH ~ JD FITTED
200 CHS



NOTES

- 1) GROUND PLATE IS PROVIDED WITH 3 TERMINALS. OTHER TERMINALS USED TO BE USED OR EITHER FIT TO BE 3AS - 1981 OR ALTERNATIVE ENTIRE REPAIR WORKING CAN BE RECOVERED.
- 2) CABLE CLASPS & SPRING WASHERS MUST BE COMPATIBLE WITH THE MATERIALS OF THE ENCLOSURE (MINIMUM OF IP 64) AND MUST WITHSTAND AN IMPACT OF 10 N BY THE BALLAST.
- 3) PLUGS FOR UNUSED ENTRIES MUST MAINTAIN THE IP RATING OF THE ENCLOSURE (MINIMUM OF IP 64) AND MUST WITHSTAND AN IMPACT OF 7 N.
- 4) ALL NAMEPLATE INFORMATION, RATING, WARNING & INSTALLATION MUST BE STRICTLY OBSERVED IN ORDER NOT TO INVALIDATE CERTIFICATE.
- 5) TERMINALS - ALL SCREWS USED OR UNUSED MUST BE FULLY TIGHTENED DOWN.
- 6) GEAR BOX, LUMINAIRE, AND LAMP RATINGS MUST BE COMPATIBLE WITH ONE ANOTHER.
- 7) ELECTRICAL CONNECTIONS - BY VIBRATION-PROOF SCREEN CLAMP TYPE TERMINALS ON BALLAST BEFORE INSERTION INTO TERMINALS.
- 8) SUPPLY LOOPING FACILITY IS STANDARD AND ACCOMMODATES UP TO 8.0 m.
- 9) THERMAL DISCONNECT (ITEM 23) IS ONLY FITTED UNDER THE 60W BALLAST (ITEM 30) USING PLYING STUDS FOR BALLAST.
- 10) ALTERNATIVE LD FILING SCREW (ITEM 20) MAY BE USED IN CONJUNCTION WITH NYLON M5 RETAINING WASHER (ITEM 27).
- 11) 100 µF 250V 5 SCREWS FITTED WITH DISCHARGE RESISTORS TO REDUCE ENERGY LEVEL. BELOW 100 µF 250V 5 SCREWS.
- 12) FOR CAPACITOR AND BALLAST INFORMATION REFER TO CONTROL GEAR TABLE ON P.185 SHEET 2.
- 13) FOR ADDITIONAL INFORMATION REFER TO DRAWING D1185 SHEET 2 OF 2 (A CONFIGURATION OF ITEMS LIST, NOTES AND VARIATIONS).
- 14) FOR CREPAGE AND CLEARANCE SIZES REFER TO TABLE ABOVE, REFER TO DRG NO. D1185 SHEET 2 OF 2 FOR ALTERNATIVE COMPONENT BRACKET ARRANGEMENT AND CHALUIT CAPACITOR ARRANGEMENT.
- 15) WARNING LABEL ITEM 26 IS NOT FITTED WHEN NAMEPLATE ITEM 27 HAS THE FOLLOWING STATEMENT 'DO NOT OPEN WHILE ENERGIZED'.
- 16) STAINLESS STEEL NAMEPLATES CAN BE SPOTWELDED ON TO THE JD OR ATTACHED USING SILICONE SEALANT.

SECTION 2 - 2



ITEM NO.	DESCRIPTION	MATERIAL	REMARKS
1	BODY	6mm THK STAINLESS STEEL	
2	FRONT STRAP	1.6mm THK STAINLESS STEEL	
3	COMPONENT FRINGE BRACKET	1.6mm THK STAINLESS STEEL	
4	NET OF FRAME	2.0mm THK STAINLESS STEEL	
5	GROUND PLATE	8.0mm THK STAINLESS STEEL	
6	TERMINAL END BRACKET	POLYAMIDE	
7	TERMINAL END BRACKET	POLYAMIDE	
8	TERMINAL END BRACKET	POLYAMIDE	
9	TERMINAL END BRACKET	POLYAMIDE	
10	TERMINAL END BRACKET	POLYAMIDE	
11	TERMINAL END BRACKET	POLYAMIDE	
12	TERMINAL END BRACKET	POLYAMIDE	
13	TERMINAL END BRACKET	POLYAMIDE	
14	TERMINAL END BRACKET	POLYAMIDE	
15	TERMINAL END BRACKET	POLYAMIDE	
16	TERMINAL END BRACKET	POLYAMIDE	
17	TERMINAL END BRACKET	POLYAMIDE	
18	TERMINAL END BRACKET	POLYAMIDE	
19	TERMINAL END BRACKET	POLYAMIDE	
20	TERMINAL END BRACKET	POLYAMIDE	
21	TERMINAL END BRACKET	POLYAMIDE	
22	TERMINAL END BRACKET	POLYAMIDE	
23	TERMINAL END BRACKET	POLYAMIDE	
24	TERMINAL END BRACKET	POLYAMIDE	
25	TERMINAL END BRACKET	POLYAMIDE	
26	TERMINAL END BRACKET	POLYAMIDE	
27	TERMINAL END BRACKET	POLYAMIDE	
28	TERMINAL END BRACKET	POLYAMIDE	
29	TERMINAL END BRACKET	POLYAMIDE	
30	TERMINAL END BRACKET	POLYAMIDE	
31	TERMINAL END BRACKET	POLYAMIDE	
32	TERMINAL END BRACKET	POLYAMIDE	
33	TERMINAL END BRACKET	POLYAMIDE	
34	TERMINAL END BRACKET	POLYAMIDE	

ITEM	POSITION	CREPAGE	CLEARANCE
MANS TERMINAL ASSEMBLY (ITEM No 4)			22.0
'L' & 'N' TERMINALS TO SIDE OF BODY (ALTERNATIVE COMPONENT BRACKET, ITEM No 49)			33.0
'L' & 'N' TERMINALS TO SIDE OF BODY (ALTERNATIVE COMPONENT BRACKET, ITEM No 49)			25.0

Chalmers
CHALMERS & MITCHELL LTD
100 HILTON ROAD
SCOTLAND, G8 1HL
TELEPHONE: 041-882-5555 TELEFAX: 77078

DATE	BY	DATE	BY
15-2-84	DRG	15-2-84	DRG
04-11-83	DRG	04-11-83	DRG
02-09-83	DRG	02-09-83	DRG
02-09-83	DRG	02-09-83	DRG
01-12-82	DRG	01-12-82	DRG
27-10-82	DRG	27-10-82	DRG
27-10-82	DRG	27-10-82	DRG

TITLE: No. 720 SERIES EXP CONTROL GEAR BOX
DRAWING NUMBER/SHEET NUMBER: D1185 SHEET 1 OF 2

WITHOUT OUR PERMISSION THE DRAWING WHICH IS OUR COPYRIGHT, MAY NOT BE REPRODUCED OR MADE AVAILABLE TO THIRD PARTIES.
AUTHORISATION IS GIVEN TO REPRODUCE THIS DRAWING FOR INTERNAL PURPOSES ONLY.

SCALE: 1:1 (UNLESS OTHERWISE STATED)

DIMS: IN mm

TOLERANCE: SEE TABLE ABOVE

SURFACE TOUGHNESS: SEE TABLE ABOVE

FINISH: SEE TABLE ABOVE

ALTERNATIVE EARTH ARRANGEMENT ADDED, DRG 15-2-84
REVISED AS PER EIA, ITEM 2 OF 1-3-89, NOTES REVISED 02-09-89
CABLE CLASPS, SPRING WASHERS, IN BOX CLASPS, 02-09-89
BAYLE REMOVED, 27-10-82
NAME & LD FILING ALIGNED, 27-10-82
CHANGE: 27-10-82

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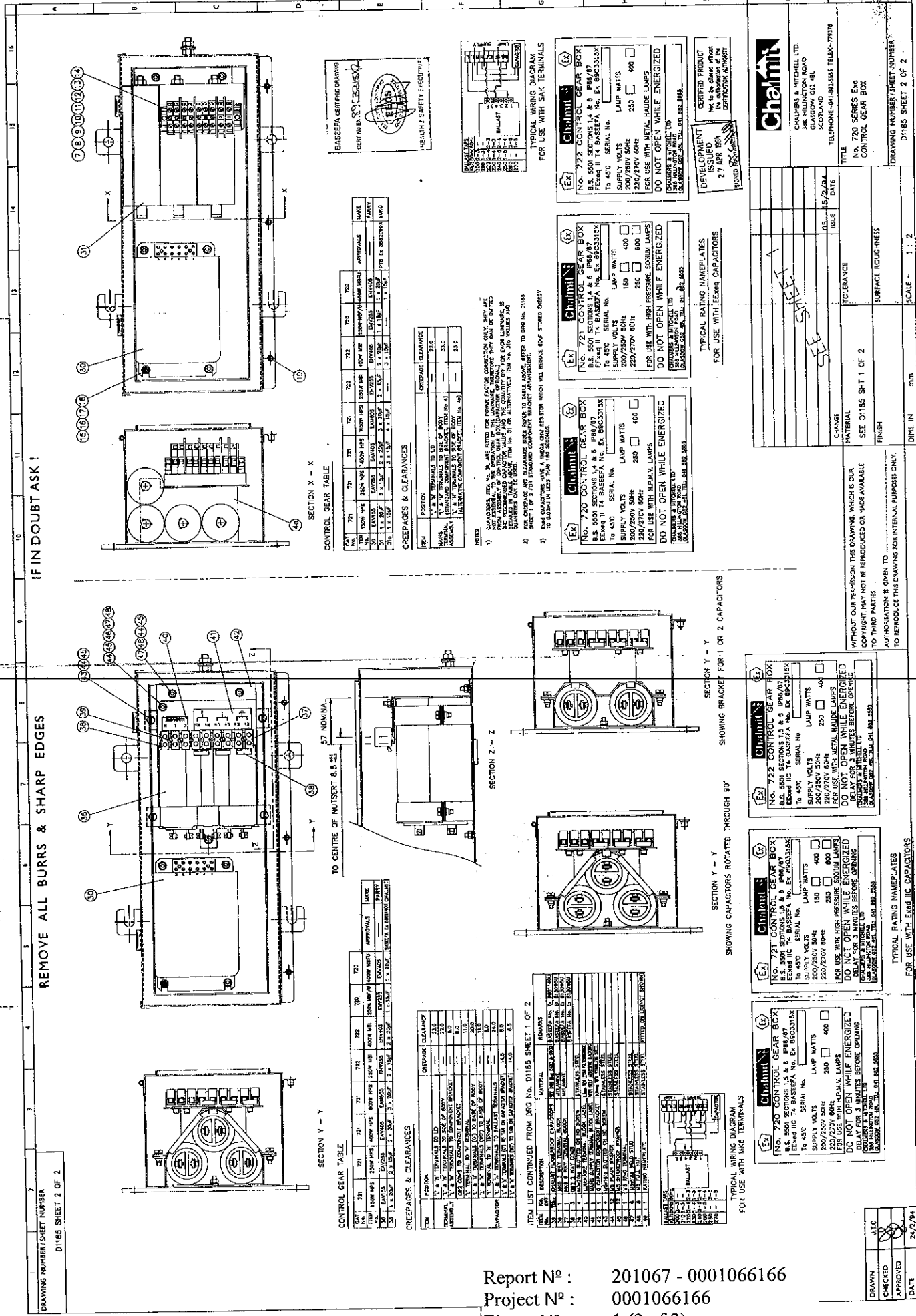
Report No: 201067 - 0001066166
Project No: 0001066166
Figure No: 1 (1 of 2)

DRAWN: J.T.C.
CHECKED: J.T.C.
APPROVED: J.T.C.
DATE: 27-10-88
SEE DRG: 27-10-88

DRAWING NUMBER/SHEET NUMBER
D1185 SHEET 2 OF 2

REMOVE ALL BURRS & SHARP EDGES

IF IN DOUBTASK!



SECTION Y - Y

SECTION X - X

SECTION Z - Z

CONTROL GEAR TABLE

ITEM	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
QTY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DESCRIPTION	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER
APPROVALS																				
DATE																				

CREEPAGES & CLEARANCES

ITEM	POSITION	CREEPAGE	CLEARANCE
1	V, W, X TERMINALS TO END OF BODY	0.1	2.0
2	V, W, X TERMINALS TO COMPONENT BRACKET	0.1	0.1
3	END CORNER TO COMPONENT BRACKET	0.1	0.1
4	V, W, X TERMINALS TO END OF BODY	0.1	0.1
5	V, W, X TERMINALS TO END OF BODY	0.1	0.1
6	V, W, X TERMINALS TO END OF BODY	0.1	0.1
7	V, W, X TERMINALS TO END OF BODY	0.1	0.1
8	V, W, X TERMINALS TO END OF BODY	0.1	0.1
9	V, W, X TERMINALS TO END OF BODY	0.1	0.1
10	V, W, X TERMINALS TO END OF BODY	0.1	0.1
11	V, W, X TERMINALS TO END OF BODY	0.1	0.1
12	V, W, X TERMINALS TO END OF BODY	0.1	0.1
13	V, W, X TERMINALS TO END OF BODY	0.1	0.1
14	V, W, X TERMINALS TO END OF BODY	0.1	0.1
15	V, W, X TERMINALS TO END OF BODY	0.1	0.1
16	V, W, X TERMINALS TO END OF BODY	0.1	0.1
17	V, W, X TERMINALS TO END OF BODY	0.1	0.1
18	V, W, X TERMINALS TO END OF BODY	0.1	0.1
19	V, W, X TERMINALS TO END OF BODY	0.1	0.1
20	V, W, X TERMINALS TO END OF BODY	0.1	0.1

ITEM LIST CONTINUED FROM DRG NO. D1185 SHEET 1 OF 2

ITEM	DESCRIPTION	MATERIAL	QUANTITY
1	WASHER	STAINLESS STEEL	1
2	WASHER	STAINLESS STEEL	1
3	WASHER	STAINLESS STEEL	1
4	WASHER	STAINLESS STEEL	1
5	WASHER	STAINLESS STEEL	1
6	WASHER	STAINLESS STEEL	1
7	WASHER	STAINLESS STEEL	1
8	WASHER	STAINLESS STEEL	1
9	WASHER	STAINLESS STEEL	1
10	WASHER	STAINLESS STEEL	1
11	WASHER	STAINLESS STEEL	1
12	WASHER	STAINLESS STEEL	1
13	WASHER	STAINLESS STEEL	1
14	WASHER	STAINLESS STEEL	1
15	WASHER	STAINLESS STEEL	1
16	WASHER	STAINLESS STEEL	1
17	WASHER	STAINLESS STEEL	1
18	WASHER	STAINLESS STEEL	1
19	WASHER	STAINLESS STEEL	1
20	WASHER	STAINLESS STEEL	1

CONTROL GEAR TABLE

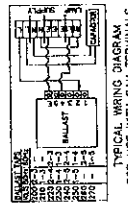
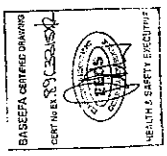
ITEM	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
QTY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DESCRIPTION	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER	WASHER
APPROVALS																				
DATE																				

CREEPAGES & CLEARANCES

ITEM	POSITION	CREEPAGE	CLEARANCE
1	V, W, X TERMINALS TO END OF BODY	0.1	2.0
2	V, W, X TERMINALS TO COMPONENT BRACKET	0.1	0.1
3	END CORNER TO COMPONENT BRACKET	0.1	0.1
4	V, W, X TERMINALS TO END OF BODY	0.1	0.1
5	V, W, X TERMINALS TO END OF BODY	0.1	0.1
6	V, W, X TERMINALS TO END OF BODY	0.1	0.1
7	V, W, X TERMINALS TO END OF BODY	0.1	0.1
8	V, W, X TERMINALS TO END OF BODY	0.1	0.1
9	V, W, X TERMINALS TO END OF BODY	0.1	0.1
10	V, W, X TERMINALS TO END OF BODY	0.1	0.1
11	V, W, X TERMINALS TO END OF BODY	0.1	0.1
12	V, W, X TERMINALS TO END OF BODY	0.1	0.1
13	V, W, X TERMINALS TO END OF BODY	0.1	0.1
14	V, W, X TERMINALS TO END OF BODY	0.1	0.1
15	V, W, X TERMINALS TO END OF BODY	0.1	0.1
16	V, W, X TERMINALS TO END OF BODY	0.1	0.1
17	V, W, X TERMINALS TO END OF BODY	0.1	0.1
18	V, W, X TERMINALS TO END OF BODY	0.1	0.1
19	V, W, X TERMINALS TO END OF BODY	0.1	0.1
20	V, W, X TERMINALS TO END OF BODY	0.1	0.1

NOTES

- 1) CHECK DRAWING FOR ANY CHANGES TO BE MADE TO THE DRAWING. CHECK THE DRAWING FOR ANY CHANGES TO BE MADE TO THE DRAWING. CHECK THE DRAWING FOR ANY CHANGES TO BE MADE TO THE DRAWING.
- 2) FOR OVERHAUL AND CLEARANCE REFER TO THESE AND REFER TO DRG NO. D1185 SHEET 1 OF 2.
- 3) FOR OVERHAUL AND CLEARANCE REFER TO THESE AND REFER TO DRG NO. D1185 SHEET 1 OF 2.



TYPICAL WIRING DIAGRAM FOR USE WITH SAK TERMINALS

Chalmers
 No. 722 CONTROL GEAR BOX
 B.S. 500 SECTIONS 1, 4 & 6 I.P.M./A/7
 EXHAUST 11 T4 BARSEFFA No. EX. 8003315X
 To 45°C SERIAL No. LAMP WATTS
 SUPPLY VOLTS 200/250V 50Hz 250 400
 220/270V 60Hz
 FOR USE WITH METAL HALIDE LAMPS
 DO NOT OPEN WHILE ENERGIZED
 FOR OVERHAUL REFER TO DRG NO. D1185 SHEET 1 OF 2

Chalmers
 No. 723 CONTROL GEAR BOX
 B.S. 500 SECTIONS 1, 4 & 6 I.P.M./A/7
 EXHAUST 11 T4 BARSEFFA No. EX. 8003315X
 To 45°C SERIAL No. LAMP WATTS
 SUPPLY VOLTS 200/250V 50Hz 150 400
 220/270V 60Hz
 FOR USE WITH METAL HALIDE LAMPS
 DO NOT OPEN WHILE ENERGIZED
 FOR OVERHAUL REFER TO DRG NO. D1185 SHEET 1 OF 2

Chalmers
 No. 720 CONTROL GEAR BOX
 B.S. 500 SECTIONS 1, 4 & 6 I.P.M./A/7
 EXHAUST 11 T4 BARSEFFA No. EX. 8003315X
 To 45°C SERIAL No. LAMP WATTS
 SUPPLY VOLTS 200/250V 50Hz 250 400
 220/270V 60Hz
 FOR USE WITH METAL HALIDE LAMPS
 DO NOT OPEN WHILE ENERGIZED
 FOR OVERHAUL REFER TO DRG NO. D1185 SHEET 1 OF 2

Chalmers
 DEVELOPMENT
 ISSUED FOR THE
 27 AIR BRN
 CERTIFICATION AUTHORITY

Chalmers
 TYPICAL RATING NAMEPLATES
 FOR USE WITH EEMIG CAPACITORS

Chalmers
 TYPICAL RATING NAMEPLATES
 FOR USE WITH EEMIG CAPACITORS

Chalmers
 CHALMERS & MITCHELL LTD
 1000 GLENROSS ROAD
 SCOTLAND
 TELEPHONE 01843 5555 TELEFAX 779789

Chalmers
 TITLE
 No. 720 SERIES EXH
 CONTROL GEAR BOX
 DATE
 ISSUE
 TOLERANCE
 FINISH
 SURFACE TOUGHNESS
 SCALE 1:2

Chalmers
 WITHOUT OUR PERMISSION THIS DRAWING WHICH IS OUR
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Chalmers
 TYPICAL RATING NAMEPLATES
 FOR USE WITH EEMIG CAPACITORS

Chalmers
 TYPICAL RATING NAMEPLATES
 FOR USE WITH EEMIG CAPACITORS

Report No: 201067 - 0001066166
 Project No: 0001066166
 Figure No: 1 (2 of 2)

CHECKED	DATE
APPROVED	24/7/84

REF. DRG.

IF IN DOUBT ASK!

ASSEMBLY METHOD



① TWO FEMALE HALVES OF HINGE LOCATED LONGITUDINALLY BY JIG, WITH LID FLANGE ABUTTING HINGE CURVE AND SPOTWELDED.

② 3.0 STAINLESS STEEL SPACER PLATE PLACED BETWEEN LID AND BOX, TWO MALE HALVES OF HINGE ENGAGED FULLY WITH FEMALES, AND HINGES SET TO OPEN POSITION.

③ CORRECT POSITION OF MALE HINGE HALVES MARKED WITH SCRIBED OUTLINE (SIMILARLY POSITION OF OPPOSITE FLANGE MARKED.)

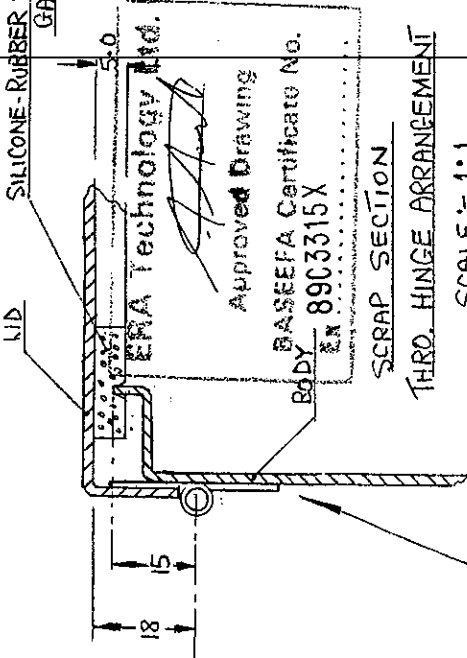
④ SPACER PLATE REMOVED AND LID OPENED TO 90° ANGLE. MALE HALVES OF HINGES SPOTWELDED IN MARKED POSITIONS (OPPOSITE FLANGE SIMILARLY SPOTWELDED.)

DRAWN	RAM
APPROVED	<i>[Signature]</i>
DATE	18-7-89

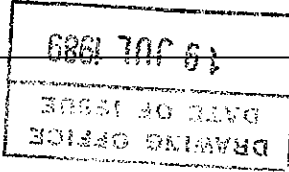
No. 5702

REMOVE ALL BURRS AND SHARP EDGES

ASSEMBLY METHOD



SCALE: 1:1



TITLE	HINGE ASSEMBLY ON SERIES
	Ex'e' CONTROL GEAR BOXES
TOL.	DIMS IN-- MILLIMETRES
SURFACE ROUGHNESS--	SCALE-- 1:1 AND N.T.S.
REF. DRGS.	D1185

CHANGE	ISSUE	DATE
MATERIAL--	STAINLESS - STEEL	
FINISH--	SELF	

TIME, MALLOCH 278/88 (12/88)