

NOTES

1. VU REFERS TO TEP1(e) PRACTICE (1VU = 30.48mm VERTICAL HEIGHT)
2. FOR INSTALLATION INSTRUCTIONS SEE DRAWING MCX 0490 SHEET 4.
3. THE POSITION OF CABLE LOOP TO BE AGREED WITH THE OVERSEEING ORGANISATION.
4. THE POSITION OF CABLES TO BE AGREED WITH THE OVERSEEING ORGANISATION.
5. THIS DRAWING IS CONCEPTUAL ONLY, ACTUAL EQUIPMENT MAY VARY.

ITEM 10 - GLAND PLATE
MATERIAL : GALVANISED STEEL 5 THK

DETAIL 'A' - 1 OFF

J	NOTES UPDATED, NOTE 5 ADDED ADDRESS BLOCK REVISED	DCB 11.03
H	NOTES 3 & 4 REVISED	DWE 01.02
G	'FRONT' LABELS ADDED, DIMS REV ITEMS 15 & 16 ADDED	DCB 25.4.97
F	ITEMS 15 & 16 REVISED	LI/8.12.95
A	INITIAL ISSUE	MAM/6.88
ISSUE	AMENDMENTS	APPD/DATE
DRN PJS	CHKD DF	SCALE NTS
DATE 19.5.93	DATE 2.5.93	
DRG. NO.	SHT. NO.	
MCX 0490	1/5	

HIGHWAY CONSTRUCTION DETAILS

TITLE INSTALLATION DRAWING
TERMINATION ARRANGEMENT FOR FIBRE OPTIC CABLES
WITHIN TRANSMISSION STATIONS AND CONTROL OFFICE BUILDINGS

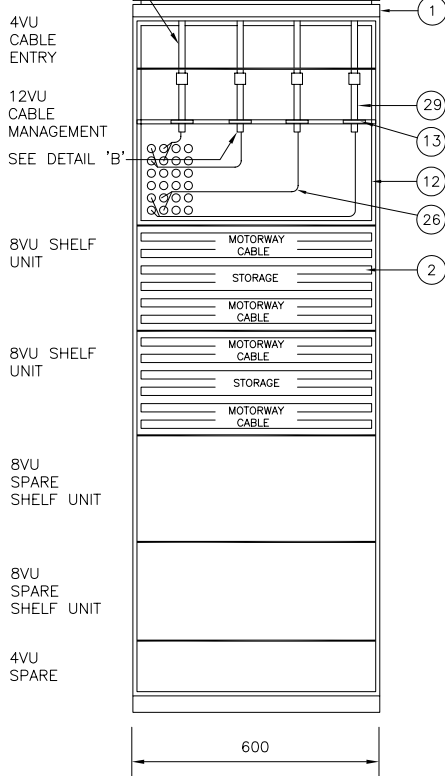
ORIGINAL DRAWING SIZE: 297 x 420
ALL DIMENSIONS ARE IN MM
TOLERANCE ± UNLESS OTHERWISE STATED
THIRD ANGLE PROJECTION DO NOT SCALE

(REV. J)

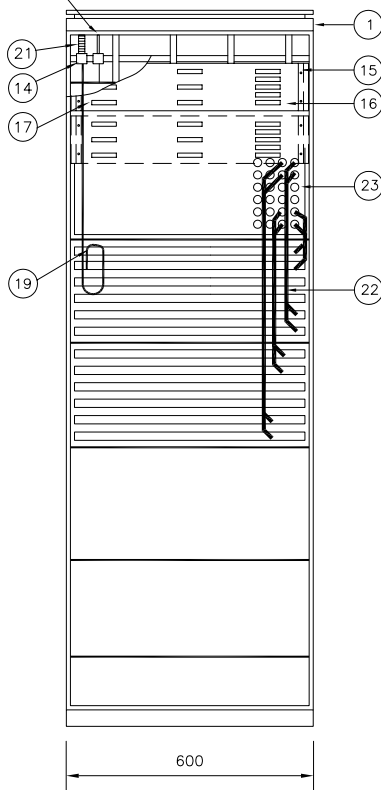
This drawing was generated on computer and must not be manually updated

SEE NOTE 4

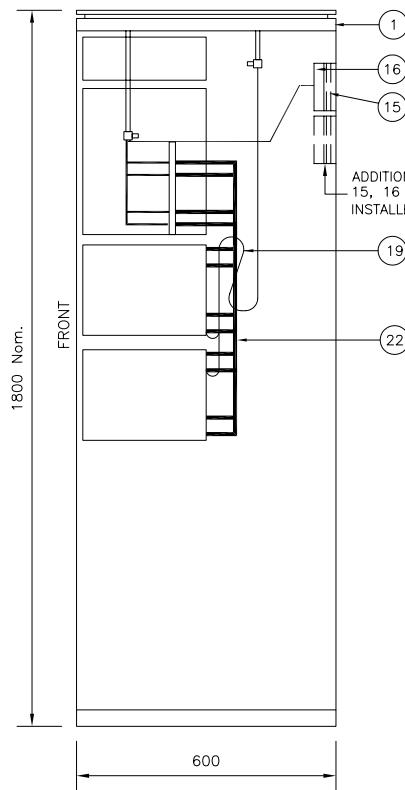
FRONT VIEW



REAR VIEW

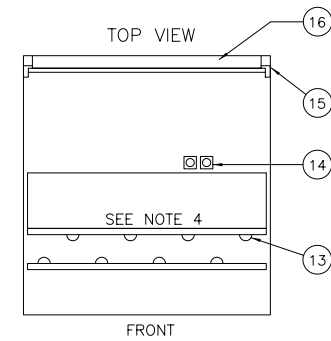


SIDE VIEW

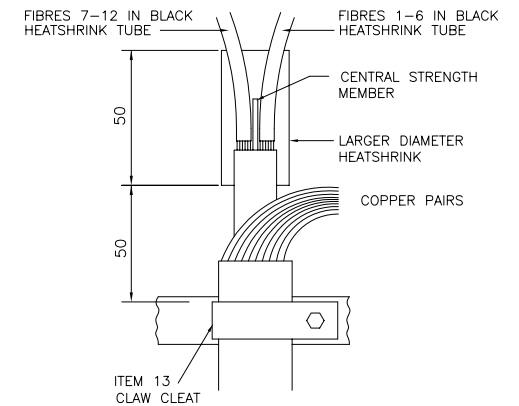


ADDITIONAL ITEMS
15, 16 & 17 TO BE
INSTALLED AS REQUIRED

TOP VIEW



DETAIL 'B'



ITEM 13 - CLAW CLEAT

J	NOTES UPDATED, NOTE 5 ADDED ADDRESS BLOCK REVISED	DCB 11.03
H	NOTES 3 & 4 REVISED	DWE 01.02
G	FRONT LABELS ADDED, DIMS REVISED ADDITIONAL ITEMS 15 & 16 ADDED	DCB 25.4.97
F	CLAW CLEAT MOUNT SHOWN	LI/8.12.95
A	INITIAL ISSUE	MAM/6.88
ISSUE	AMENDMENTS	APPD/DATE
DRN	PJS	CHKD DF
DATE	24.5.93	DATE 2.6.93
DRG. NO.	MCX 0490	
SCALE	NTS	
SHT. NO.	2/5	

NOTES

1. VU REFERS TO TEP1(e) PRACTICE (1VU = 30.48mm VERTICAL HEIGHT)
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3. THE POSITION OF CABLE LOOP TO BE AGREED WITH THE OVERSEEING ORGANISATION.
4. THE POSITION OF CABLES TO BE AGREED WITH THE OVERSEEING ORGANISATION.
5. THIS DRAWING IS CONCEPTUAL ONLY. ACTUAL EQUIPMENT MAY VARY.

(REV. J)

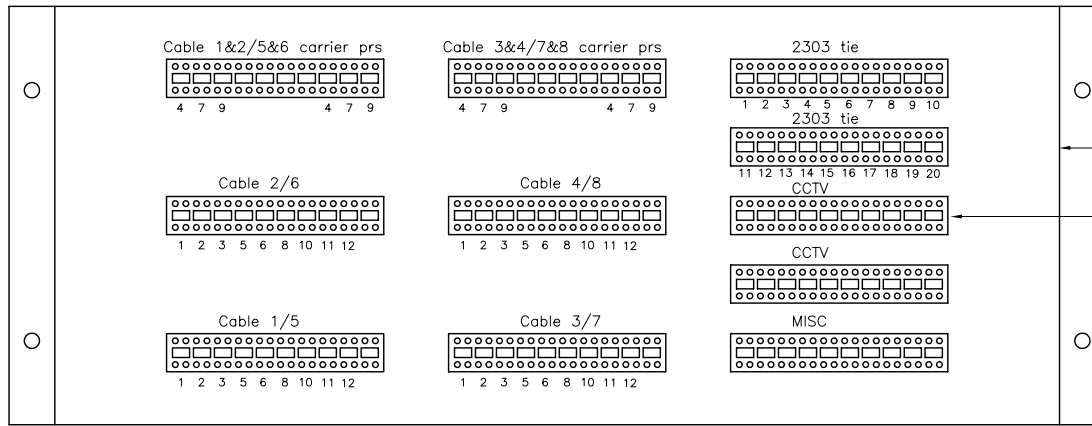
This drawing was generated on computer and must not be manually updated

HIGHWAY CONSTRUCTION DETAILS

TITLE INSTALLATION DRAWING
TERMINATION ARRANGEMENT FOR FIBRE OPTIC
COMMUNICATIONS CABLES AT SITES WITHOUT COMPUTER FLOORING

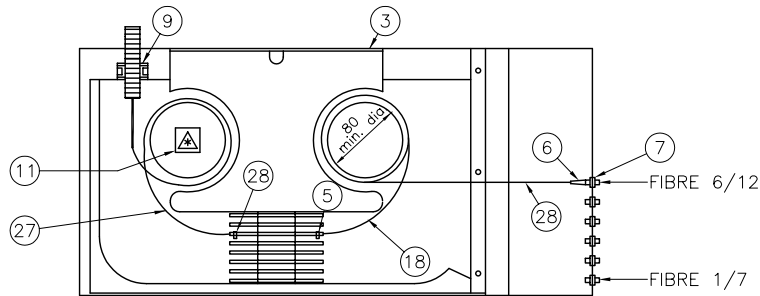
ORIGINAL DRAWING SIZE: 297 x 420
ALL DIMENSIONS ARE IN MM
TOLERANCE ± UNLESS OTHERWISE STATED
THIRD ANGLE PROJECTION DO NOT SCALE

DRN PJS CHKD DF SCALE
DATE 24.5.93 DATE 2.6.93 NTS
SHT. NO.
2/5

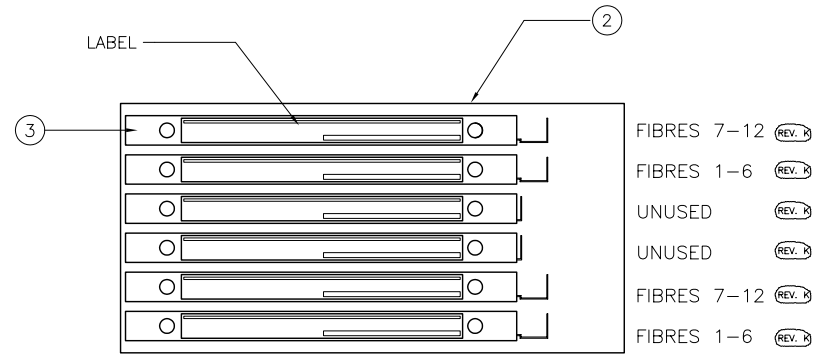


COPPER DISTRIBUTION FRAME

15 WAY 19" IDC FRAME (ITEM 16)
ON 3U ADAPTOR BRACKETS (ITEM 15)
FITTED WITH 11 IDC CONNECTORS (ITEM 17)



FIBRE DISTRIBUTION TRAY - PLAN
(See Note 3)



SPLICE AND CONNECTOR SHELF UNIT
FOR FIBRE OPTIC CABLES

NOTES

- FOR INSTALLATION INSTRUCTIONS SEE DRAWING MCX 0490 SHEET 4.
- FOR COMPONENT LIST SEE DRAWING MCX 0490 SHEET 5.
- THE FIBRE DISTRIBUTION TRAY, ITEM 3, SHALL BE EQUIPPED WITH CONNECTORISED PIGTAILS ON EACH FIBRE.
- THIS DRAWING IS CONCEPTUAL ONLY. ACTUAL EQUIPMENT MAY VARY.

(REV. X)

This drawing was generated on computer and must not be manually updated

HIGHWAY CONSTRUCTION DETAILS

TITLE INSTALLATION DRAWING
TERMINATION ARRANGEMENT FOR FIBRE OPTIC CABLES
WITHIN TRANSMISSION STATIONS AND CONTROL OFFICE BUILDINGS

ORIGINAL DRAWING SIZE: 297 x 420
ALL DIMENSIONS ARE IN MM
TOLERANCE ± UNLESS OTHERWISE STATED
THIRD ANGLE PROJECTION DO NOT SCALE

K	NOTE 3 REVISED, SHELF UNIT DETAIL NOTATION REVISED	MS 06.05
J	NOTES UPDATED, NOTE 4 ADDED ADDRESS BLOCK REVISED	DCB 11.03
H	ADDRESS & LOGO REVISED COPYRIGHT NOTICE REMOVED	DWE 02.02
G	NOTES REVISED IDC BLOCK NOS. ADDED	DCB 25.4.97
F	FIBRE DISTRIBUTION TRAY CHANGED	LI/8.12.95
A	INITIAL ISSUE	MAM/6.88
ISSUE	AMENDMENTS	APPD/DATE
DRN	PJS	CHKD DF
DATE	21.5.93	DATE 2.6.93
DRG. NO.	MCX 0490	
		SCALE NTS
		SHT. NO. 3/5

INSTALLATION INSTRUCTIONS

GENERAL

The enclosure in which the fibre optic cables shall be terminated is a multi-purpose lockable cabinet 600 x 600mm x 1800mm high which can house equipment in transmission equipment practice TEP1(e) format and, with suitable adapter brackets, 19" equipment practice format. The cabinet can provide matrix termination for a maximum of 8 motorway cables; however, it will only be equipped in accordance with site requirements, as specified by the Overseeing Organisation. This Installation drawing shows the cabinet equipped to terminate 4 motorway cables. All connectors, fibre pigtails, in-line adaptors and patch-cords shall be supplied by an approved company and shall be provided with a Certificate of Conformance, certifying their performance to be within the connector manufacturers specification. Transmission loss tests are defined in HA specification TRG 1055.

REV. N

CABINET INSTALLATION

In transmission station buildings, the cabinet shall be located over a full floor tile in a position agreed by the Overseeing Organisation. The front of the cabinet shall be in line with the edge of the floor tile. A 150 x 200mm hole shall be cut in the floor tile to allow cable entry and pig-tail exit. The cabinet shall be secured by bolting the cabinet to the floor tiles. The motorway cables enter the building under the floor where they shall be glanded off and the armour wires terminated as indicated on drawing MCX 0490 sheet 1. Earth bonding shall be provided between the transmission station earth, the cable gland point and the cabinet earth bolt. The inner sheaths containing the fibres and copper pairs are brought through the floor tile and the base of the cabinet and secured with the cable cleats. A 1 metre diameter loop of cable shall be provided under the floor. This loop shall be located in a position agreed by the Overseeing Organisation.

REV. N

In locations where a "suspended" or "computer" floor exists, as in transmission station buildings, cable entry and glanding shall be from under the floor and the cabinet shall be equipped in the configuration as shown on drawing MCX 0490 sheet 1. In locations where under-floor access is not possible, provision shall be made for glanding off the cable and terminating the armour wires external to the cabinet. Bonding shall be provided between the armour wire termination point, the cabinet earth point and the earthing system. In such locations top entry to the cabinet will be required and the cabinet shall be equipped as shown on drawing MCX 0490 sheet 2. The cabinet shall be located and secured in a position agreed with the Overseeing Organisation.

CABLE PREPARATION (INTERNAL TO CABINET)

Four metres of cable, internal to the cabinet is required for the termination process. The cable shall be secured with a claw cleat to the horizontal bar within the cable management shelf.

The sheath protecting the copper pairs and fibres shall be stripped back to a point just beyond the cleat. The copper pairs shall be cleaned and dressed to the copper distribution frame with either waxed lacing twine or tie wraps. The sheath containing the fibres shall then be stripped back to a point 50 mm from the cleat.

'Heatshrink' tubing shall be shrunk down on the first six loose tubed fibres (fibres 1-6) from the point where the inner sheath terminates ensuring that its length is sufficient to extend 100mm into the flexible conduit. The remaining loose tubed fibres shall also be 'Heatshrink' tubed in a similar manner. The central strength member shall be cut back and 50mm of larger 'Heatshrink' tubing shrunk down over the fibre protection sheath, the central strength member and the two sets of tubed fibres. The two sets of fibres shall be fed into the relevant fibre distribution trays.

FIBRE TERMINATION

The loose tubing shall be removed at 65mm from the flexible conduit end and the fibres sleeved with an appropriately coloured length of PTFE tubing (coloured as loose tubes). This protects the fibre while still retaining flexibility. At least 2500mm of fibre shall be available within the tray. The PTFE tubing shall be inserted into the loose tube for 50-100mm to provide some mechanical coupling between the two tubes. The PTFE tubing shall extend into the spliced protector. The sleeved fibres shall be secured within the Foam Cassettes. 1.5-2.0 metres of secondary tubed fibre shall be provided prior to the fusion splice. Numbered collets shall be fitted to the fibres and fibre numbering shall commence from the front of the tray. Pigtails to connectors shall be supplied with 1.5m of secondary coated fibre secured in the second foam mandrill.

REV. N

NOTE On early BICC cable it is not practical to secondary tube the fibre due to the small diameter of the loose tube. In this instance the loose tube shall be either routed directly into the spliced protector or over sleeved.

TERMINATION OF COPPER PAIRS

The copper distribution frame (CDF) is equipped with insulation displacement connectors (IDC) of a type suitable for 0.9mm dia. conductors. A second CDF is fitted directly above the first when more than four motorway cables are to be terminated. IDC connections shall only be made by using the correct installation tool. The cables shall be terminated in the positions indicated on drawing MCX 0490 sheet 3. Remake loops, equivalent in length to one terminal block, shall be provided for re-termination purposes. A 20 pair 1/0.5mm cable shall be run between the CDF 2303 blocks and 2303/2304 cabinet. Connections as drawing MCX 0542 sheet 3. Connector blocks shall be fitted with the jumpering guides lowermost. Permanent cabling is connected into the top row terminations on each block.

LABELLING

Laser radiation warning labels shall be fitted to the shelf unit cover plates and to the fibre trays as illustrated on drawing MCX 0490 sheet 3. Labels shall be in accordance with BS 5499-5. The fitting of supplementary warning labels to identify laser classification shall be the responsibility of the specialist equipment contractor installing the transmission system. All fibre and copper terminations shall be clearly labelled.

REV. N

VARIATIONS

No installation shall vary from the above configuration without prior approval from HA Transmission Section.

All fibres external to the termination trays shall be orange COF 3.2mm 'ruggedised'. Each fibre shall exit the tray/s at the rear and shall be supported by the fibre pigtail support clamp.

This drawing was generated on computer and must not be manually updated

HIGHWAY CONSTRUCTION DETAILS

TITLE INSTALLATION DRAWING
TERMINATION ARRANGEMENT FOR FIBRE OPTIC CABLES
WITHIN TRANSMISSION STATION AND CONTROL OFFICE BUILDINGS

ORIGINAL DRAWING SIZE: 297 x 420
ALL DIMENSIONS ARE IN MM
TOLERANCE ±1 UNLESS OTHERWISE STATED
THIRD ANGLE PROJECTION DO NOT SCALE

N	PARAGRAPHS 2 & 3 REVISED FIBRE TERMINATION PARA. REVISED	MS 06.05
M	FINAL PARAGRAPH REVISED	DCB 11.03
L	NOTES GENERALLY UPDATED ADDRESS BLOCK REVISED	DWE 08.03
K	NOTES REVISED	DWE 01.02
J	GENERALLY UPDATED	DCB 25.4.97
H	TEXT CHANGED (FOAM CASSETTES)	LI/8.12.95
A	INITIAL ISSUE	MAM/6.88
ISSUE	AMENDMENTS	APPD/DATE
DRN	PJS	CHKD DF
DATE	21.5.93	DATE 2.6.93
DRG. NO.	MCX 0490	
		SHT. NO. 4/5



COMPONENT LIST FOR FIBRE OPTIC DISTRIBUTION CABINET

ITEM	DESCRIPTION	SUPPLIER (SEE NOTE 2)	PART NUMBER
1	General Purpose Cabinet (0.6x0.6x1.8m high) with TEP1(e) mounts	Rider Fenn & Ridgeway/Eurocraft	
2	Splice & Connector Shelf Unit		
3	Fibre Distribution Tray With Splice Holder		
5	Splice Protector (Appropriately Coloured As Hard Tube)	Majortec	FDJ 500+col
(REV. L) 6	FC/PC Optical Connector	Seiko/ITT	FC/PC
(REV. L) 7	FC/PC Optical In-line Adapter	Seiko/ITT	
9	12.5mm Conduit Clamp	Kopex	
10	Cable Gland Plate, as drawing MCX 0490 sheet 1 detail 'A'		
(REV. L) 11	Laser Warning Label To BS 5499-5.	Focal Displays Ltd.	W29
12	Cable Management Shelf		
13	Claw Cleat		
14	25mm Flexible Conduit + Cleat	BICC (see note 3)	
15	IDC Frame Support Bracket - 1 pair 3U	Rider Fenn & Ridgeway/Eurocraft	
16	15 Way IDC Back Mount Frame, 19"	ADC Comms./Krone/RS Components	QDF 20
17	10 Pair IDC Connector Block (Suitable For 0.9mm dia. Conductors)	Kenton Research	QDF-E
18	Secondary Coated Fibre Pigtail	K-Tech /AB Stratos /Mikon /ITT	
19	Fibre Pigtail Support Clamp	RS Components	
20	Multi-Pair Tie Cable 6pr Cream		CW 1293
21	25mm dia. Flexible Plastic Conduit	(see note 3)	
22	12.5mm dia. Flexible Plastic Conduit	Kopex	
23	12.5mm dia. Flexible Plastic Conduit Glands	Kopex	
(REV. L) 24	40mm Brass Gland To BS 6121-1:2005 with Earth Tag	BICC /CMP /Hawk	EIW 40 (see MCX 0486)
25	Restraining Clamp (Only On Special Order)		
26	Suitable Size Heatshrink Tube - Black	RS Components	
27	0.7mm (Outside Diameter) PTFE Tube + Colour		TWT28A
28	Suitable Size Marker Collets, Numbered 0 to 9	RS Components	
29	Suitable Size Cable Markers	Critchley Ltd.	K TYPE
30	10mm ² Green & Yellow Earth Wire		
31	0.5mm ² PVC "Jumper" Wire	(see note 3)	
32	Protective Rubber Sleeves		

NOTES

- Fully equipped cabinets may be obtained from Nexans, Orpington OR Splice UK, Bradford.
- If alternative items are used, the contractor shall demonstrate their suitability prior to installation commencing.
- Items supplied by CCTV or Transmission Equipment Contractor.

This drawing was generated on computer and must not be manually updated

L	ITEMS 6, 7, 11 AND 24 REVISED.	DWE 02.06
K	ITEMS 10, 16, 17 & 19 REV	MS 06.05
J	ITEMS 2,3,10,12 & 24 REVISED NOTE 1 REV. ADDRESS BLOCK REV	DCB 11.03
H	ADDRESS & LOGO REVISED COPYRIGHT NOTICE REMOVED	DWE 02.02
G	ITEMS 1, 9, 10,15, 16, 17 REVISED NOTE 1 REVISED	DCB 25.4.97
F	ITEMS 4, 8 & 9 DELETED	LI/8.12.95
A	INITIAL ISSUE	MAM/6.88
ISSUE	AMENDMENTS	APPD/DATE
DRN	PJS	CHKD DF
DATE	21.5.93	DATE 4.6.93
DRG. NO.	SCALE	
	NTS	
	SHT. NO.	
	5 of 5	

HIGHWAY CONSTRUCTION DETAILS

TITLE
INSTALLATION DRAWING
TERMINATION ARRANGEMENT FOR FIBRE OPTIC CABLES
WITHIN TRANSMISSION STATIONS AND CONTROL OFFICE BUILDINGS

ORIGINAL DRAWING SIZE: 297 x 420
ALL DIMENSIONS ARE IN MM
TOLERANCE ± UNLESS OTHERWISE STATED
THIRD ANGLE PROJECTION DO NOT SCALE

DRN PJS
DATE 21.5.93
CHKD DF
DATE 4.6.93
DRG. NO. **MCX 0490**

SCALE
NTS
SHT. NO.
5 of 5

MCX 0491 – 0508
NOT USED