WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales
Gwasanaethu Canolbarth a De Orllewin Lloegr a Chymru

Company Directive

STANDARD TECHNIQUE : CA1U/2

Relating to the Jointing of Paper Insulated Concentric and Triple Concentric Mains Cable

This standard technique document contains all the approved jointing techniques relating to paper insulated concentric and triple-concentric cable.

Also included are Special Requirements relating to these types of cable.

This document shall be implemented in conjunction with the appropriate General Requirements contained in the latest issue of ST: CA1C/4.

This ST has not been written as a training document. It is not intended to be exhaustive in content and you must refer to your supervisor if you require training or instruction.

You shall work safely and skilfully, utilising the training/instruction you have already received, relating to the contents of this document and its cross-references.

You must make sure that you understand your job instructions and that you have the necessary tools and equipment for the job.

Author: **Peter White**

Implementation Date: **June 2012**

Approved by:

Policy Manager

Date: 1 June 2012

ST: CA1U/2 JOINTING PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC MAINS CABLE

1. INTRODUCTION

This standard technique document contains all the approved jointing techniques relating to paper insulated concentric and triple-concentric cable.

Also included are Special Requirements relating to these types of cable.

This document shall be implemented in conjunction with the appropriate General Requirements contained in the latest issue of ST: CA1C/4, including:

1. General Cleanliness and Accident Prevention

2. General Jointing Procedures - Dead Cables

3. General Jointing Procedures and Safety Precautions - Live Cables

Note: - Resin encapsulated joints must not be broken down.

If the need arises to undertake a PILC Concentric or Triple Concentric joint configuration (i.e. non-standard) not covered within the Standard Technique the Policy Manager, Avonbank is to be consulted.

CONTENTS

CONTENTS – Continued.

Safe Working on Paper Insulated Concentric Mains Cables

Jointing techniques associated with paper insulated concentric mains cables are not applicable in every part of the Company's area and, in those places where they are applicable; they are not always practised frequently.

The jointing procedures for twin concentric cables have been written as "live" techniques, but those for triple concentric cables are **dead working** only.

Safety is paramount and, although it would appear to be simple to require all work to be carried out with the cable dead, the methods of proving a concentric cable dead, requires the cable to be re-energised several times.

Normally it would be expected that the outer conductor of a twin or triple concentric cable will be a neutral or earth and that intermediate and inner cores will be phases, **but this must not be assumed.** If it is found that this is not the case, the supervisor must be consulted before any further work takes place.

The basic safety considerations are: -

1. **Outer Concentric Stranded Conductor**
   Is the outer concentric conductor alive or dead? If it is found to be alive, this is an abnormal situation and the supervisor must be consulted before any further work takes place.

2. **Intermediate Concentric Stranded Conductor**

   Establish whether there is an intermediate concentric conductor. If there is, the cable is triple concentric then the jointing shall be carried out dead, (after the phases and neutral have been identified). If there is no intermediate concentric conductor, the cable is twin concentric.

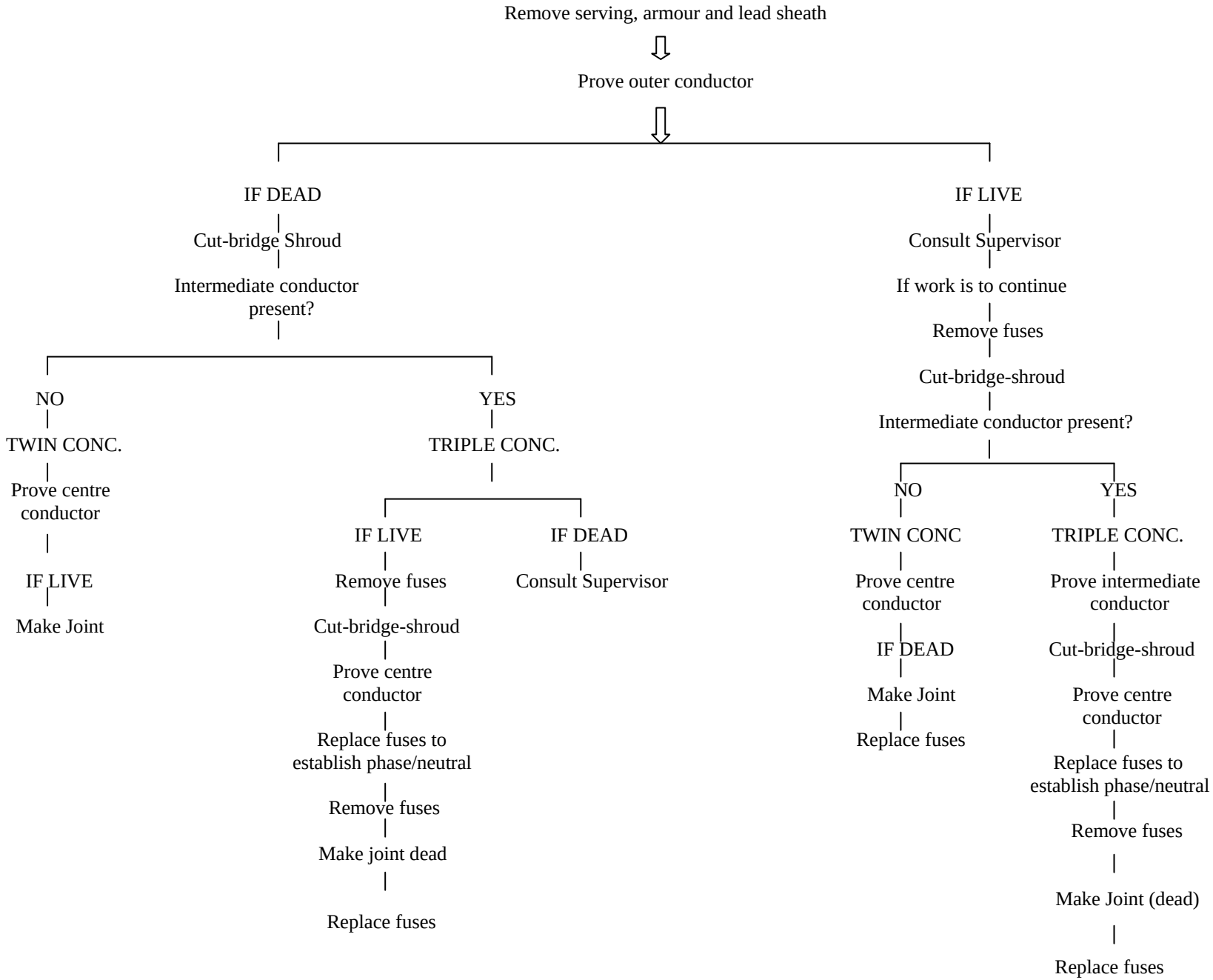
   If the intermediate conductor is found to be dead as well as the outer conductor, this may be an abnormal situation and the supervisor must be consulted before further work takes place.

3. **Centre Round Stranded Conductor**

   This conductor would normally be expected to be live, but there is a possibility that it may be the neutral with one of the concentric conductors as a phase. In this event, the supervisor must be consulted before any work takes place.

The flow diagram on Page 5 summaries the procedure to be followed in establishing which conductors are alive or dead in a twin or triple concentric cable before making a joint.

All work must be in accordance with the jointing procedures and techniques referred to in this Standard Technique document.


Remove serving, armour and lead sheath
Prove outer conductor
IF DEAD
Cut-bridge Shroud
Intermediate conductor present?
NO
TWIN CONC.
Prove centre conductor
IF LIVE
Make Joint
YES
TRIPLE CONC.
IF LIVE
Remove fuses
Cut-bridge-shroud
Prove centre conductor
Replace fuses to establish phase/neutral
Remove fuses
Make joint dead
Replace fuses
IF DEAD
Consult Supervisor
IF LIVE
Consult Supervisor
If work is to continue
Remove fuses
Cut-bridge-shroud
Intermediate conductor present?
NO
TWIN CONC
Prove centre conductor
IF DEAD
Make Joint
Replace fuses
YES
TRIPLE CONC.
Prove intermediate conductor
Cut-bridge-shroud
Prove centre conductor
Replace fuses to establish phase/neutral
Remove fuses
Make Joint (dead)
Replace fuses

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.801

SPECIAL REQUIREMENTS FOR JOINTING OF PILC CONCENTRIC CABLES

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

SPECIAL REQUIREMENTS SR 1

CUTTING LOW VOLTAGE PILC CONCENTRIC CABLES

General

All cables must be assumed to be live unless proved dead, using an approved indicator.

The provision of General Requirement 3, in ST: CA1C/4, applies when working on concentric cables which are live.

The method of cutting PILC concentric cables is detailed overleaf in 7.801.

JOINTING PROCEDURE 7.801

Actions		General Requirements (ST: CA1C/4)
	Refer to Drawing **LVJ 7.801.1, 7.801.2** whilst undertaking this Jointing Procedure	
1.	Mark the outer serving at the positions it is to be removed.	4
2.	Apply binders of PVC tape.	
3.	Remove serving, armour and bedding from cable, to correct dimensions.	10
4.	Apply armour bond	22
5.	Fit temporary earth continuity device to the lead sheath.	11
6.	Remove the lead sheath	13
7.	Shroud lead sheath and earthed metalwork. See Drawing LVJ 7.801.1, Fig 1.	--
8.	Apply hemp ties to the belt papers, 20mm from lead termination.	--
9.	**WEARING RUBBER GLOVES**, remove belt papers and tear against ties.	--
10.	Using a test lamp, between exposed conductor and lead sheath, check whether conductor is alive or dead.	--
	IF LIVE, REMOVE FUSES AND PROVE DEAD	
11.	Using a nylon wedge, lift the wires of the outer conductor, one at a time and cut half the number at the centre line of the joint. See Drawing LVJ 7.801.1, Fig 2.	--
12.	Form the cut wires into bunches and place to side of joint. See Drawing LVJ 7.801.1, Fig 2.	--
13.	Bridge across the gap with connectors and conductor appropriate to the cable size. See Drawing LVJ 7.801.1, Fig 3.	43

Note: - For conductor sizes for bridges, see Special Requirement SR 2.

Actions		**General Requirements (ST: CA1C/4)**
14.	Cut the remaining wires and turn back along the lead sheath.	--
15.	Shroud the exposed conductor. See Drawing LVJ 7.801.2, Fig 4.	21
16.	Apply hemp ties to the insulation, 25mm each side of the centre line.	--
17.	**WEARING RUBBER GLOVES**, carefully remove the paper insulation by tearing against the ties.	--
18.	Establish whether this is an intermediate or centre conductor.	--
	If centre conductor, proceed as "Twin Concentric", - from 19.	--
	If intermediate conductor, proceed as "Triple Concentric" – from 22.	--
	Twin Concentric	
19.	Using a test lamp between exposed conductor and lead sheath, prove whether conductor is live or dead.	--
	Note: If conductor is not live when expected to be live or not dead when expected to be dead, the supervisor must be informed before jointing proceeds.	
20.	Using core croppers, or insulated junior hacksaw, cut the core on the centre line.	--
21.	Insulate both ends of the cut core, using adhesive backed rubber patches. See Drawing LVJ 7.801.3	--
	Triple Concentric	
22.	Using a test lamp between the exposed conductor and lead sheath, prove whether conductor is live or dead.	--
	IF LIVE, REMOVE FUSES AND PROVE DEAD.	

Actions		**General Requirements (ST: CA1C/4)**
23.	Using a nylon wedge, lift the wires of the outer conductor, one at a time and cut half the number at the centre line of the joint. See Drawing LVJ 7.801.2, Fig 5.	--
24.	Form the cut wires into bunches and place to side of joint, see Drawing LVJ 7.801.2, Fig 5.	--
25.	Bridge across the gap with connectors and conductor appropriate to the cable size. See Drawing LVJ 7.801.2, Fig 5. For conductor sizes for bridges, see Special Requirement S2.	--
26.	Cut the remaining wires and turn back along the lead sheath.	--
27.	Shroud the exposed intermediate conductor. See Drawing LVJ 7.801.2, Fig 6.	21
28.	Apply hemp ties to the insulation of the centre core, 5mm each side of the centre line.	--
29.	Carefully expose the conductor where it is to be cut.	--
30.	Using a test lamp between the exposed conductor and lead sheath, prove whether conductor is live or dead. **IF LIVE, REMOVE FUSES AND PROVE DEAD** **Note:** If Conductor is not live when expected to be live or not dead when expected to be dead, the supervisor must be informed before jointing proceeds.	--
31.	Using core croppers, or insulated junior hacksaw, cut the core on the centre line.	--
32.	Insulate both ends of the cut core, using adhesive backed rubber patches. See Drawing LVJ 7.801.3.	11

Fig 1

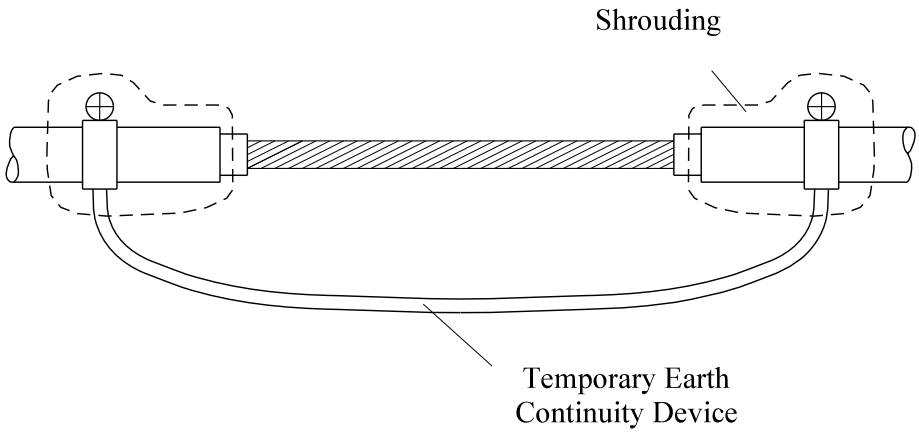

Fig 2

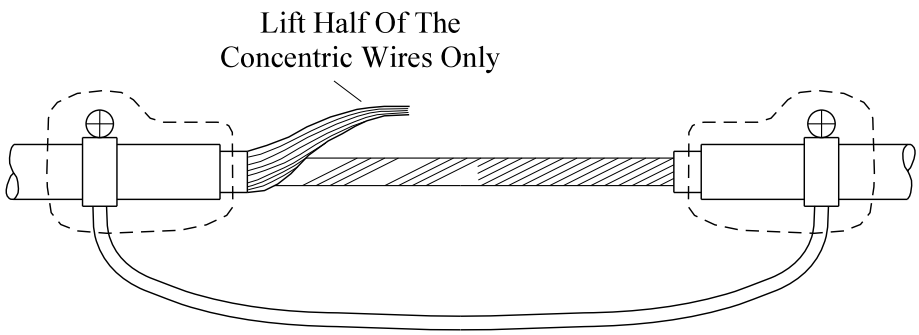

Fig 3

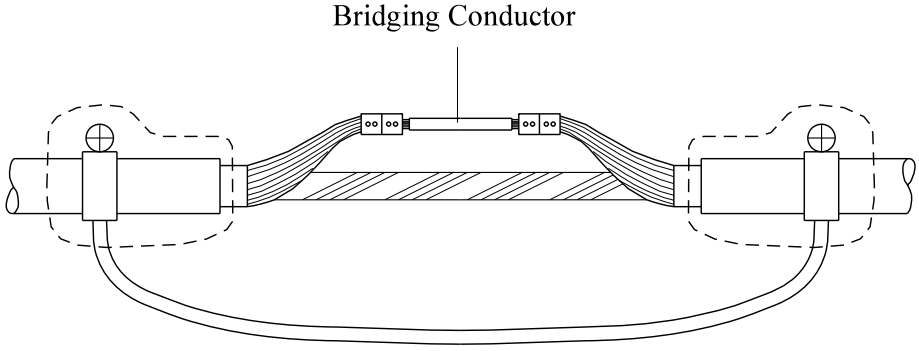

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Fig 4

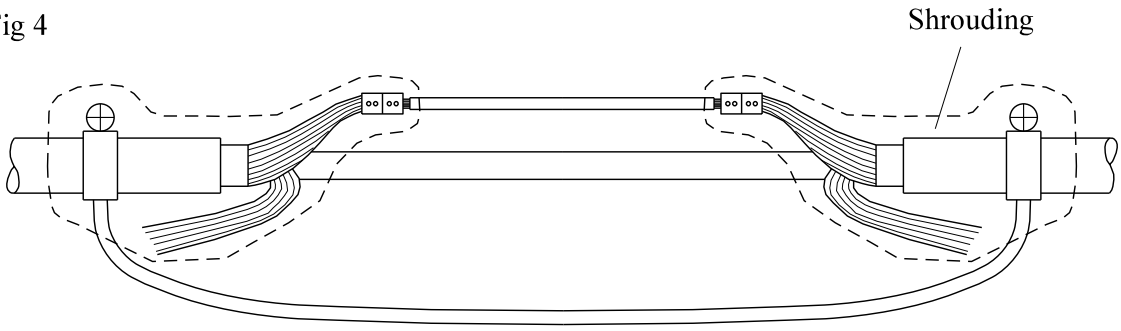


Fig 5

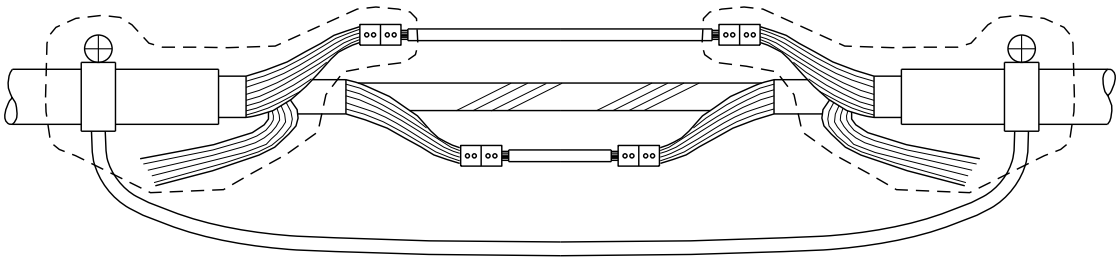
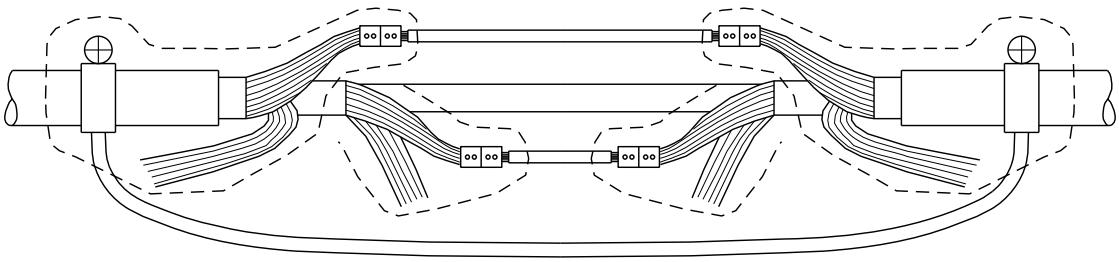


Fig 6



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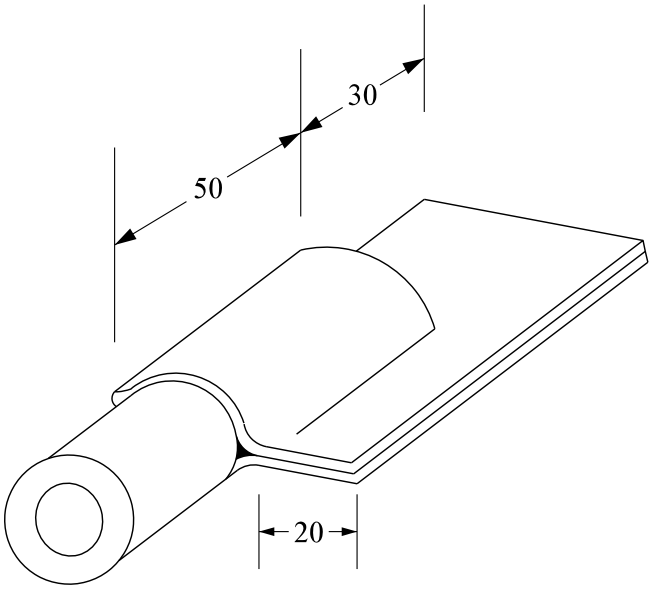
All dimensions in mm



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Title OPENING AND CUTTING PILC CONCENTRIC CABLES CORE INSULATION PATCH DIMENSIONS

Drg. No. LVJ 7.801.3

Rev No

SPECIAL REQUIREMENT SR 2

BRIDGING OF PILC CONCENTRIC CONNECTORS

When the outer and intermediate conductor of a PILC concentric cable is cut, a gap is produced between the cut ends. The size of bridge conductors must be equivalent to or larger than the existing conductor.

This can be checked using an insulated conductor sizing gauge.

Given below are tables to show the appropriate bridge conductor size and mechanical connector to be used: -

OUTER CONDUCTOR – NEUTRAL

CONDUCTOR SIZE (sq in)	BRIDGE SIZE COPPER PVC/PVC (mm^2)*	CONNECTOR
0.06	35	UST 95
0.1	35	UST 95
0.15	70	UST 95
0.2	70	UST 185
0.3	120	UST 185

See Drawing LVJ 7.801.2.

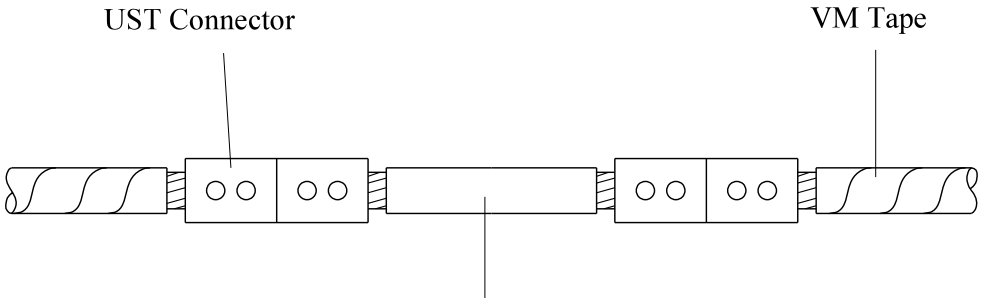
*Two bridges are used in each application.

INTERMEDIATE CONDUCTOR –PHASE

CONDUCTOR SIZE (sq in)	BRIDGE SIZE (WAVECON CONDUCTOR) (mm^2)*	CONNECTOR
0.06	95	UST 95
0.1	185	UST 185
0.15	185	UST 185
0.2	185	UST 185
0.3	300	UST 300

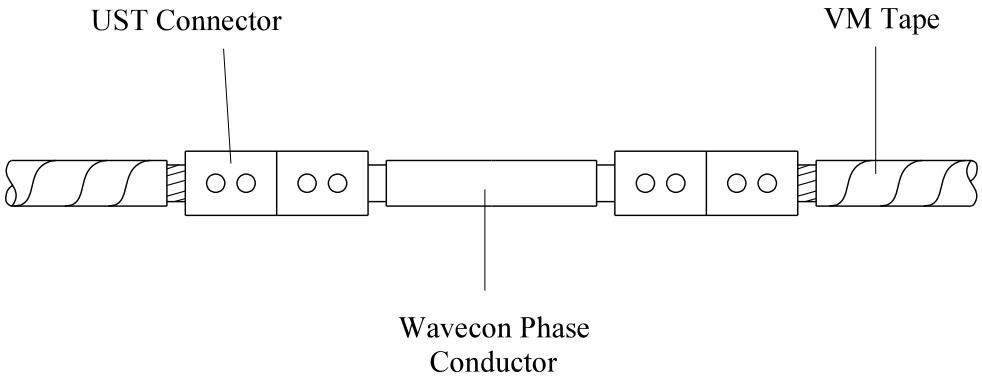
See Drawing LVJ 7.801.2.

Bridging Of Outer Conductor



Note :- Connectors To Be Shrouded
Where Approppiate

Bridging Of Intermediate Conductor



Note - Connectors To Be Shrouded

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Drg. No. LVJ 7.801.4 | Rev No

SPECIAL REQUIREMENT SR 3

INSULATING PILC TWIN AND TRIPLE CONCENTRIC CABLES

1. GENERAL

This Special Requirement details the methods of insulating the outer, intermediate and centre cores of PILC twin and triple concentric cables.

2. PILC TWIN CONCENTRIC CABLE

2.1 Straight joints and stop ends.

1. Form the bare outer copper wires into a conductor and apply a PVC tape binder to the end.

2. Apply a heat shrink tube of suitable size, over the centre core. See Drawing LVJ 7.801.5, Fig 3.

3. Apply two heat shrink tubes of suitable size, over the bunched wires of the outer conductor. See Drawing LVJ 7.801.5, Fig 3.

4. Starting on the lead sheath, apply a half lap layer of "VM" tape extending onto the heat shrink tubes by 25mm and returning to the lead sheath, thus giving a minimum of two half lap layers. See Drawing LVJ 7.801.5, Fig 3.

   ENSURE THAT THE CONDUCTORS ARE COMPLETELY INSULATED.

2.2 Service Joints

It is necessary to insulate the outer copper wires if the neutral and earth are not combined and the service cable is split-concentric. The wires may remain bare when the neutral and earth are combined.

1. Form the outer copper wires into two bunches and bridge in accordance with the jointing procedure.

2. Starting on the lead sheath, apply a half lap layer of "VM" tape to a position 5mm from the connector and returning to the lead sheath, thus giving a minimum of two half lap layers. See Drawing LVJ 7.801.5, Fig 1.

   ENSURE THAT THE CONDUCTOR IS COMPLETELY INSULATED.

3. PILC TRIPLE CONCENTRIC CABLE

3.1 Straight Joints and Stop Ends

Note: the cable must be dead before this procedure is undertaken.

1. Form the bare outer and intermediate copper wires into conductors and apply PVC tape binders to the core ends.

2. Apply a heat shrink tube of suitable size over the centre core. See Drawing LVJ 7.801.5, Fig. 4.

3. Apply two heat shrink tubes of suitable size, over the bunched wires of the outer conductor. Apply two heat shrink tubes of suitable size over the bunched wires of the intermediate conductor. See Drawing LVJ 7.801.5, Fig. 4.

4. Starting on the paper insulation of the intermediate conductor, apply a half lap layer of "VM" tape extending onto the heat shrink tube by 25mm and returning onto the paper insulation, thus giving a minimum of two half lap layers. See Drawing LVJ 7.801.5, Fig. 4.

5. Starting on the lead sheath, apply a half lap layer of "VM" tape to the outer conductor extending onto the heat shrink tube by 25mm and returning onto the lead sheath, thus giving a minimum of two half lap layers. See Drawing LVJ 7.801.5, Fig. 4.

ENSURE THAT THE CONDUCTORS ARE COMPLETELY INSULATED.

3.2 Service Joints

Note: the cable must be dead before this procedure is undertaken.

1. Form the bare intermediate copper wires into a conductor and apply a PVC tape binder to the core end.

2. Starting on the paper insulation of the intermediate conductor, apply a half lap layer of "VM" tape extending onto the heat shrink tube by 25mm and returning onto the paper insulation, thus giving a minimum of two half lap layers. See Drawing LVJ 7.801.5, Fig. 2.

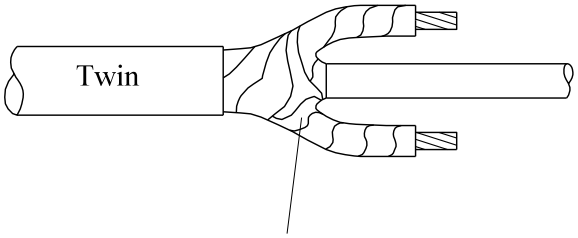
3. Form the bare outer copper wires into a conductor and apply a PVC tape binder to the core end.

4. Starting on the lead sheath, apply a half lap layer of "VM" tape to the outer conductor extending onto the heat shrink tube by 25mm and returning onto the lead sheath, thus giving a minimum of two half lap layers. See Drawing LVJ 7.801.5, Fig 2.

ENSURE THAT THE CONDUCTORS ARE COMPLETELY INSULATED.

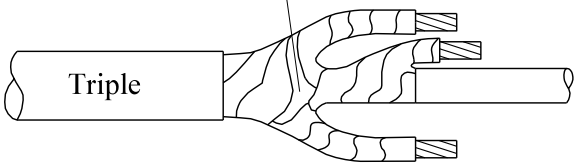
Service Joint

Fig 1



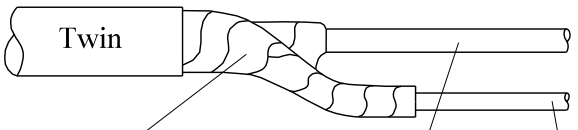
Two Half Lapped Layers
Of VM Tape

Fig 2



Straight / Stop End Joint

Fig 3



Centre

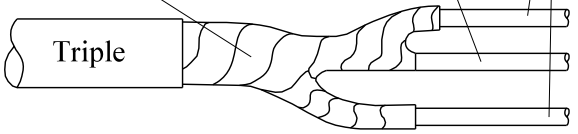
Outer

One Layer Of
Heat Shrink Tube

Two Half Lapped Layers
Of VM Tape

Two Layers Of
Heat Shrink Tube

Fig 4



Inner

Centre

Outer

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC MAINS CABLES

JOINTING PROCEDURE 7.802

THREE CORE WAVECON – PILC CONCENTRIC MAINS CABLE STRAIGHT JOINT

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.802

JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	**TO**	**STRAIGHT JOINT**
95W	Up to 95 PILC Concentric	PCS1
	Up to 185 PILC Concentric	PCS2
185W	Up to 185 PILC Concentric	PCS3

Key: - 95W = 95mm² Wavecon
185W = 185mm² Wavecon
300W = 300mm² Wavecon

JOINTING PROCEDURE 7.802

JOINT KIT MATERIALS

KIT REF.	SHELL	RESIN		CONNECTORS		EARTH BOND	EARTH TAIL
	1585	5 litre	6.5 litre	UST 95	UST 185	LEVB O8	LVCU 1700/5
PCS1	1	1	2	2		1	1
PCS2	1	1	2		2	1	1
PCS3	1	1	2		2	1	1

ADDITIONAL ITEMS FOR EACH JOINT

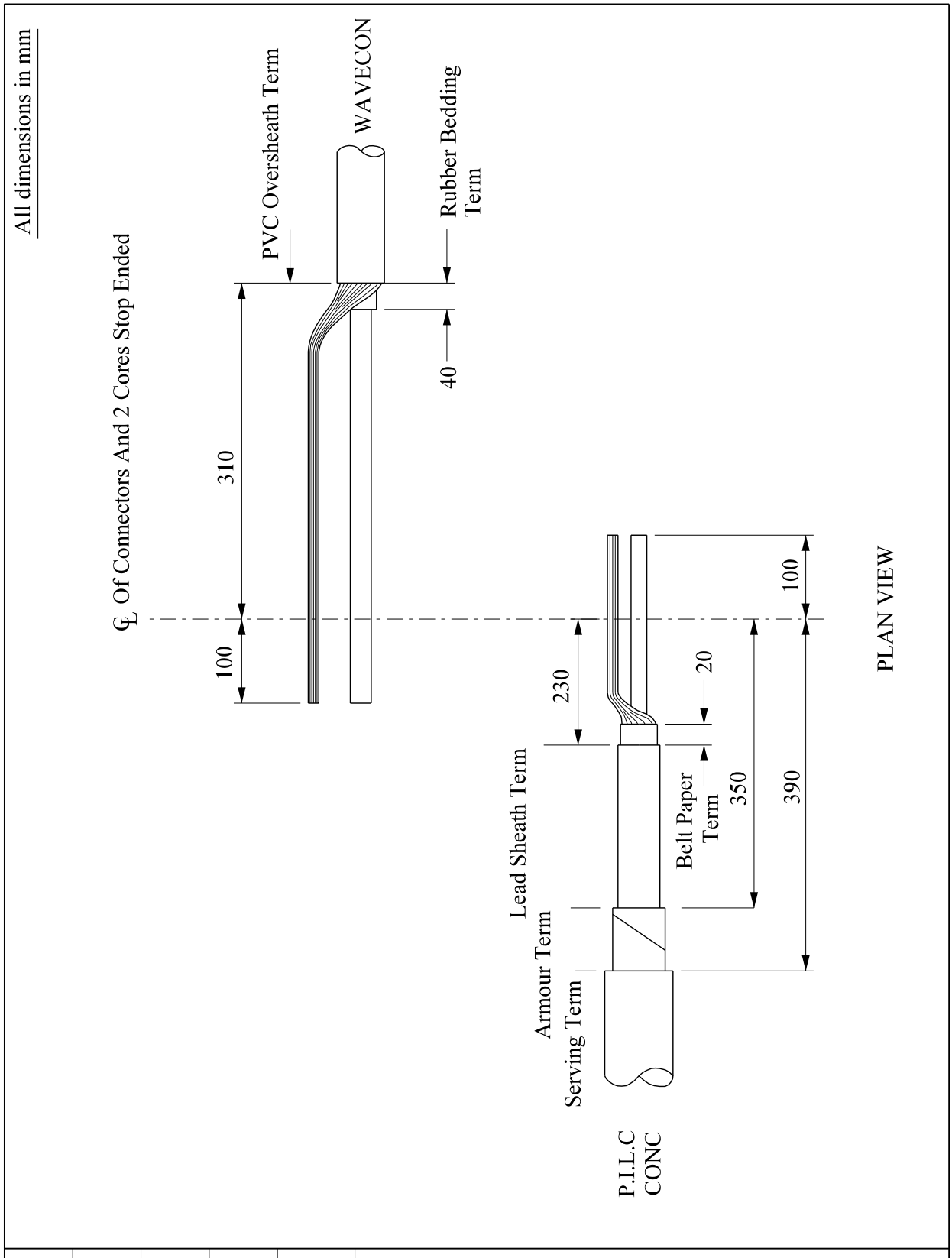
Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
16 swg tinned copper wire
Heatshrink tube
Whipping thread
PVC tape
35mm² PVC sheathed (green/yellow) copper
'VM' tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 – Part I of the LV Mains Jointing Manual.

JOINTING PROCEDURE 7.802

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated.)
	Refer to Drawing **LVJ 7.802.1, 7.802.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cables	4
	PILC CONCENTRIC - Preparation	
2.	Open and cut cable in accordance with Special Requirement 1 - 7.801	7.801
3.	Carry out moisture test	19
4.	Apply core protection	7.801
5.	Apply armour bond	22
6.	Apply lead sheath bond	23
	WAVECON CABLE - Preparation	
7.	Open and cut cable	14
8.	Prepare neutral/earth wires for jointing	17
	COMPLETION OF JOINT	
9.	Set core in joint position	27
10.	Connect a 35mm² neutral/earth bond to lead sheath bond including copper earth tail	23
11.	Connect and insulate neutral/earth wires to neutral core including 35mm² neutral/earth bond	29/30
12.	Remove temporary earth connection applied in 7	--
13.	Apply temporary shrouding	21

Actions		**General Requirements (ST: CA1C/4)** (Except where otherwise stated.)
14.	Make and insulate phase connection	29/30
15.	Stop end remaining two Wavecon cores	14
16.	Remove temporary shrouding applied in 13	--
17.	Abrade and build up oversheaths	32
18.	Thoroughly degrease the joint	35
19.	Apply mastic water blocks to lead sheath and copper earth tail	33
20.	Remove temporary binders	--
21.	Prepare and fit shell, ensuring 15mm clearance	36
22.	Mix and pour resin	37



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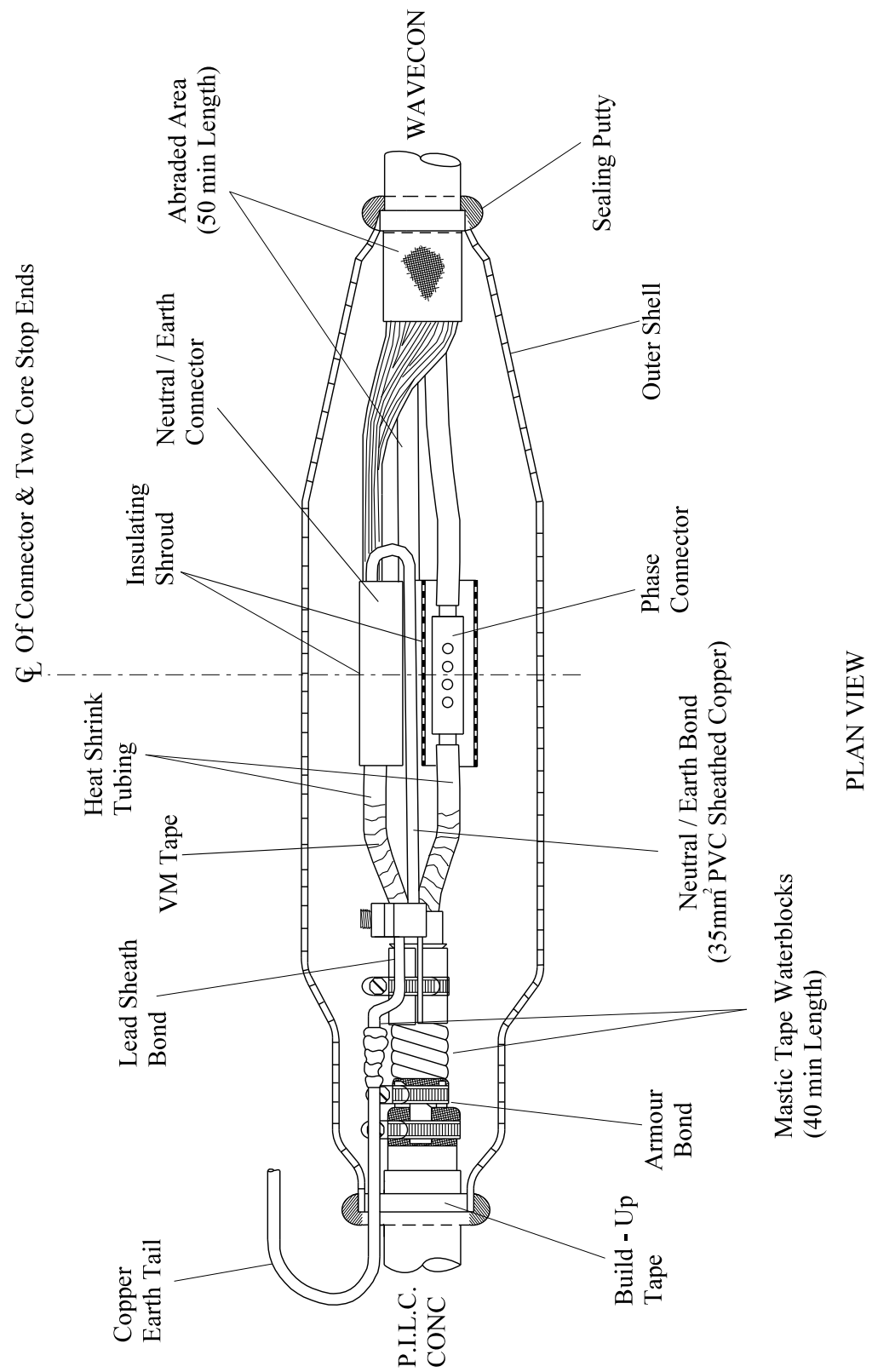
Title THREE CORE WAVECON - PILC
TWIN CONCENTRIC STRAIGHT JOINT
STRIPPING DIMENSIONS

Drg. No. LVJ 7.802.1

Rev No

All dimensions in mm



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Title: THREE CORE WAVECON - P.I.L.C
CONCENTRIC MAINS STRAIGHT JOINT
GENERAL LAYOUT

Drg. No. LVJ 7.802.2

Rev No

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC MAINS CABLE

JOINTING PROCEDURE 7.803

THREE CORE WAVECON – PILC TRIPLE CONCENTRIC MAINS CABLE STRAIGHT JOINT

DEAD JOINTING ONLY

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.803

JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	**TO**	**STRAIGHT JOINT**
95W	Up to 95 PILC Concentric	PCS 4
	Up to 185 PILC Concentric	PCS 5
185W	Up to 185 PILC Concentric	PCS 6

Key: - 95W = 95mm² Wavecon
185W = 185mm² Wavecon
300W = 300mm² Wavecon

JOINTING PROCEDURE 7.803

JOINT KIT MATERIALS

KIT REF.	SHELL	RESIN		CONNECTORS		EARTH BOND	EARTH TAIL
	1584	5 litre	6.5 litre	UST 95	UST 185	LEVB 08	LVCU 1700/5
PCS 7	1	3	2	3		1	1
PCS 8	1	3	2		3	1	1
PCS 9	1	3	2		3	1	1

ADDITIONAL ITEMS FOR EACH JOINT

Insulation patches
Black cotton tape
Sealing putty
Cable ties
Shell support
16 s.w.g. tinned copper wire
Heatshrink tube
Whipping thread
PVC tape
35mm² PVC sheathed (green/yellow) copper
'VM' tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 – Part I of the LV Mains Jointing Manual.

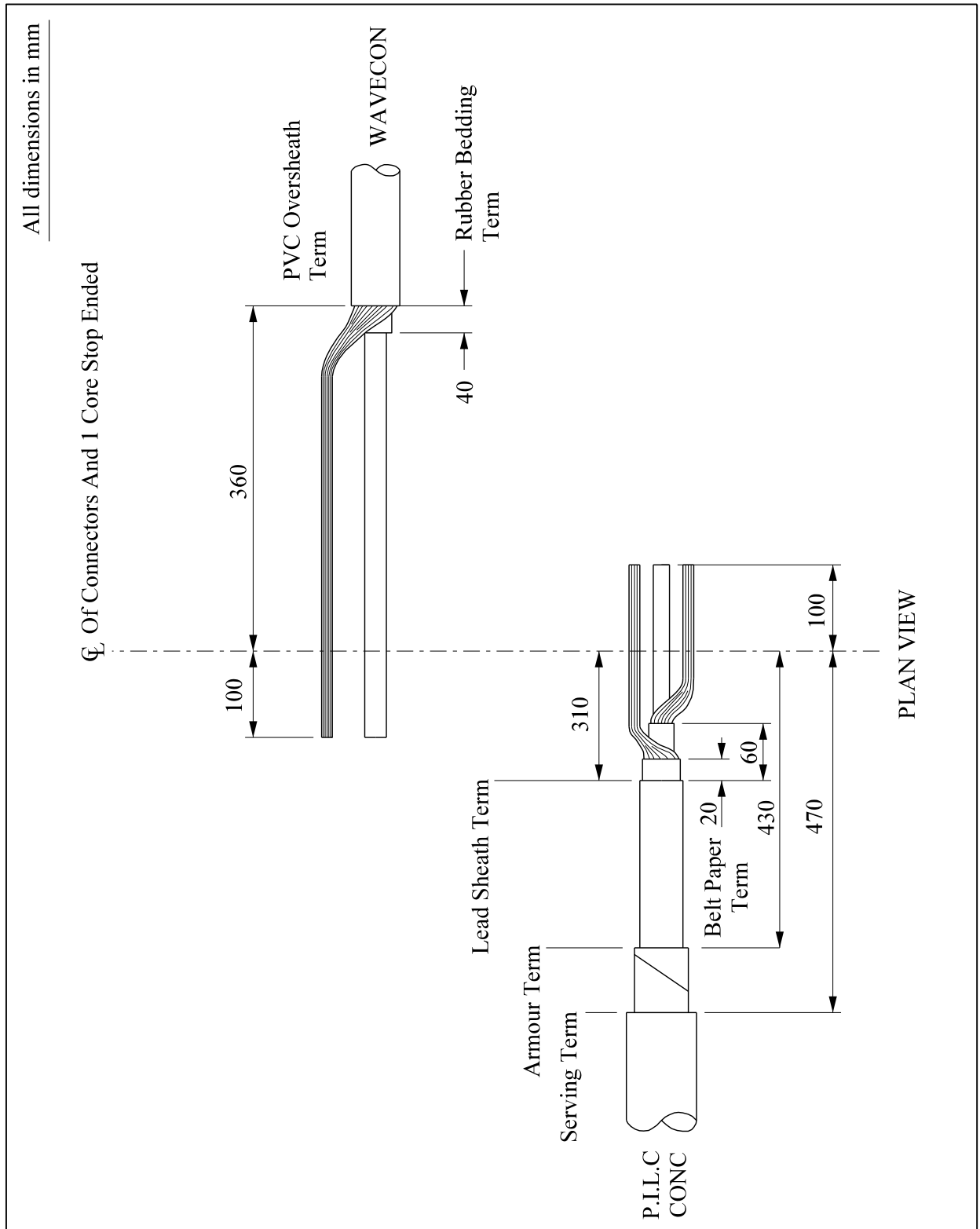
JOINTING PROCEDURE 7.803

DEAD JOINTING ONLY

	Actions	General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.803.1, 7.803.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cables	4
	PILC CONCENTRIC - Preparation	
2.	Open and cut cable in accordance with Special Requirement SR 1- 7.801	7.801
3.	Carry out moisture test	19
4.	Apply core protection	7.801
5.	Apply armour bond	22
6.	Apply lead sheath bond	23
	WAVECON CABLE - Preparation	
7.	Open and cut cable	14
8.	Prepare neutral/earth wires for jointing	17
	COMPLETION OF JOINT	
9.	Set cores in joint position	
10.	Connect a 35mm² neutral/earth bond to lead sheath bond including copper earth tail	23
11.	Connect and insulate neutral/earth wires to the neutral core including 35mm² neutral/earth bond	29/30
12.	Remove temporary earth connection applied in 7	--
13.	Apply temporary shrouding	21

JOINTING PROCEDURE 7.803 – Continued

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated.)
14.	Make and insulate phase connections	29/30
15.	Stop end remaining Wavecon core	14
16.	Remove temporary shrouding applied in 13	--
17.	Abrade and build up oversheaths	32
18.	Thoroughly degrease the joint	35
19.	Apply mastic water blocks to lead sheath and copper earth tail	33
20.	Remove temporary binders	--
21.	Prepare and fit shell, ensuring 15mm clearance	36
22.	Mix and pour resin	37



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Title THREE CORE WAVECON - PILC
TRIPLE CONCENTRIC STRAIGHT JOINT
STRIPPING DIMENSIONS

Drg. No. LVJ 7.803.1

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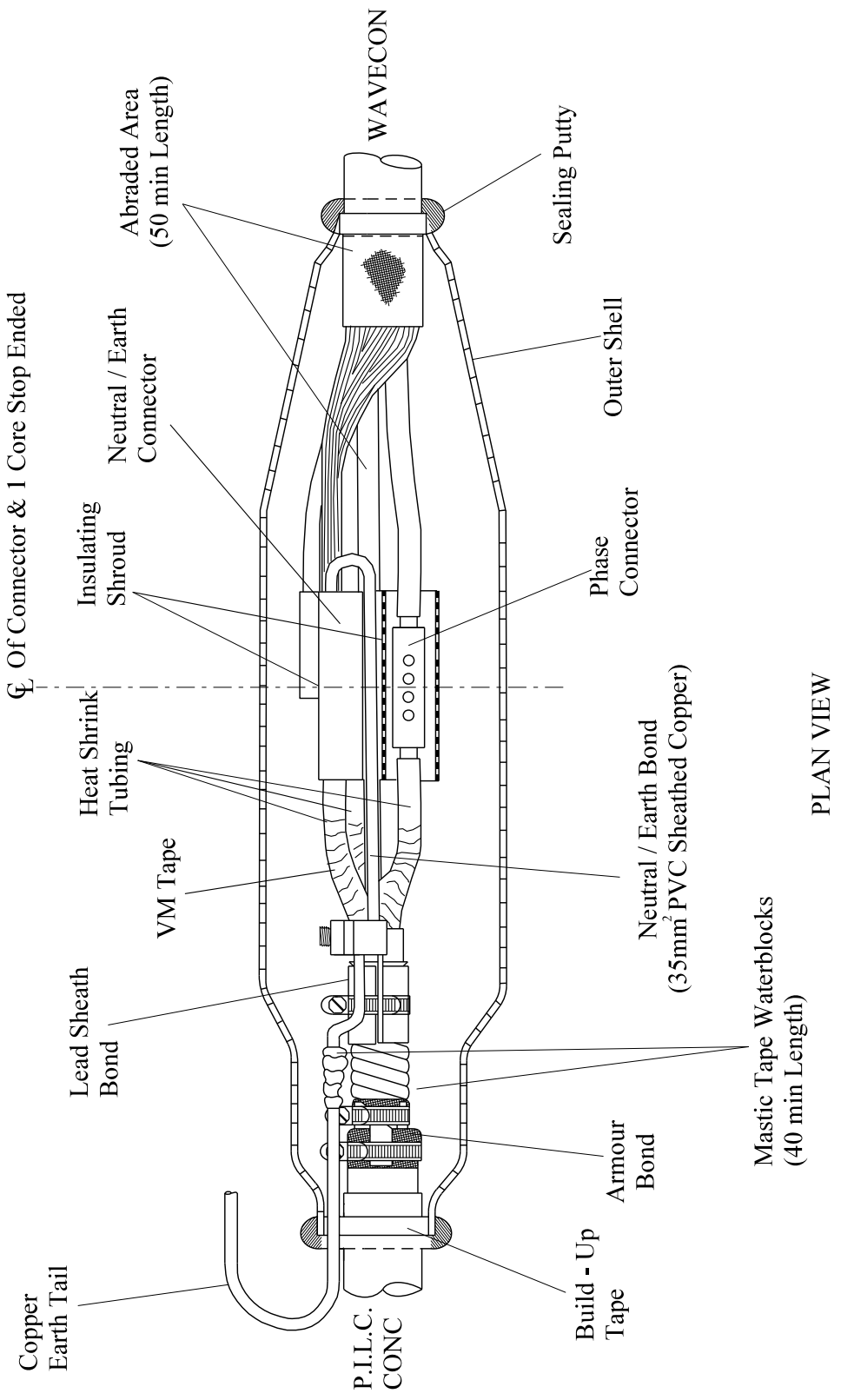
All dimensions in mm



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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLES

JOINTING PROCEDURE 7.804

FOUR CORE WAVECON - PILC CONCENTRIC MAINS CABLE STRAIGHT JOINT

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.804

JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	**TO**	**STRAIGHT JOINT**
95W	Up to 95 PILC Concentric	PCS 10
	Up to 185 PILC Concentric	PCS 11
185W	Up to 185 PILC Concentric	PCS 12

Key: - 95W = 95mm² Wavecon
185W = 185mm² Wavecon
300W = 300mm² Wavecon

JOINTING PROCEDURE 7.804

JOINT KIT MATERIALS

KIT REF.	SHELL	RESIN		CONNECTORS		EARTH BOND	EARTH TAIL
	1585	5 litre	6.5 litre	UST 95	UST 185	LVEB 08	LVCU 1700/5
PCS 10	1	1	2	2		1	1
PCS 12	1	1	2		2	1	1
PCS 13	1	1	2		2	1	1

ADDITIONAL ITEMS FOR EACH JOINT

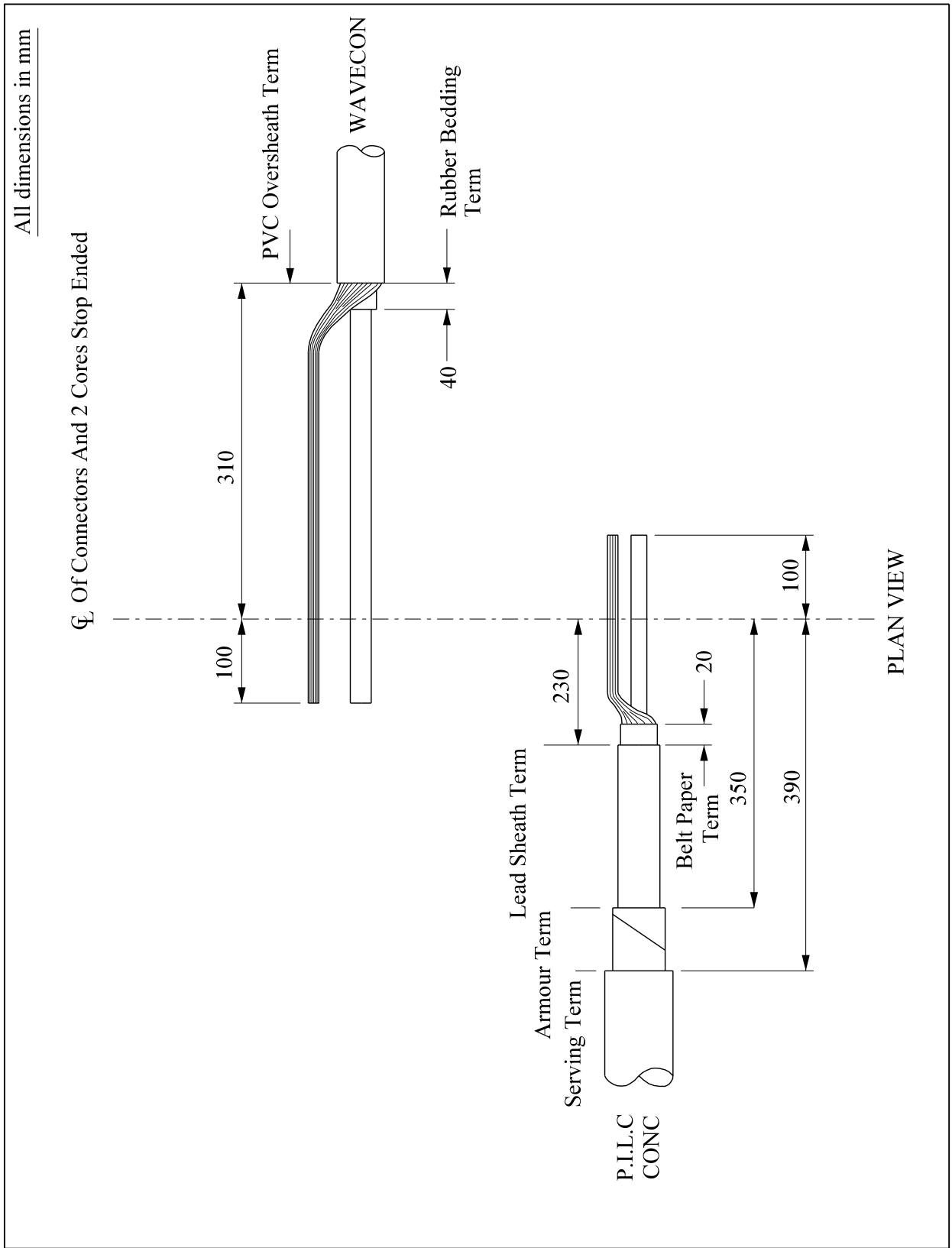
Insulation patches
Black cotton tape
Sealing putty
Cable ties
Shell support
16 s.w.g. tinned copper wire
Heatshrink tube
Whipping thread
PVC tape
35mm² PVC sheathed (green/yellow) copper
'VM' tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Mains Jointing Manual.

JOINTING PROCEDURE 7.804

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.804.1, 7.804.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cables	4
	PILC CONCENTRIC - Preparation	
2.	Open and cut cable in accordance with Special Requirement SR 1 - 7.801	7.801
3.	Carry out moisture test	19
4.	Apply core protection	7.801
5.	Apply armour bond	22
6.	Apply lead sheath bond	23
	WAVECON CABLE - Preparation	
7.	Open and cut cable in accordance with General Requirement 6.14	14
8.	Prepare earth wires for jointing	17
	COMPLETION OF JOINT	
9.	Set cores in joint position	27
10.	Connect earth wires to lead sheath bond including copper earth tail	23
11.	Apply temporary shrouding	21
12.	Make and insulate neutral connection	29-30
13.	Make and insulate phase connection	29-30
14.	Stop end two remaining Wavecon cores	14

Actions		**General Requirements (ST: CA1C/4)** (Except where otherwise stated.)
15.	Remove temporary shrouding applied in 11	
16.	Abrade and build up oversheaths	32
17.	Thoroughly degrease the joint	35
18.	Apply mastic water blocks to lead sheaths and copper earth tail	33
19.	Prepare and fit shell, ensuring 15mm clearance	36
20.	Mix and pour resin	37



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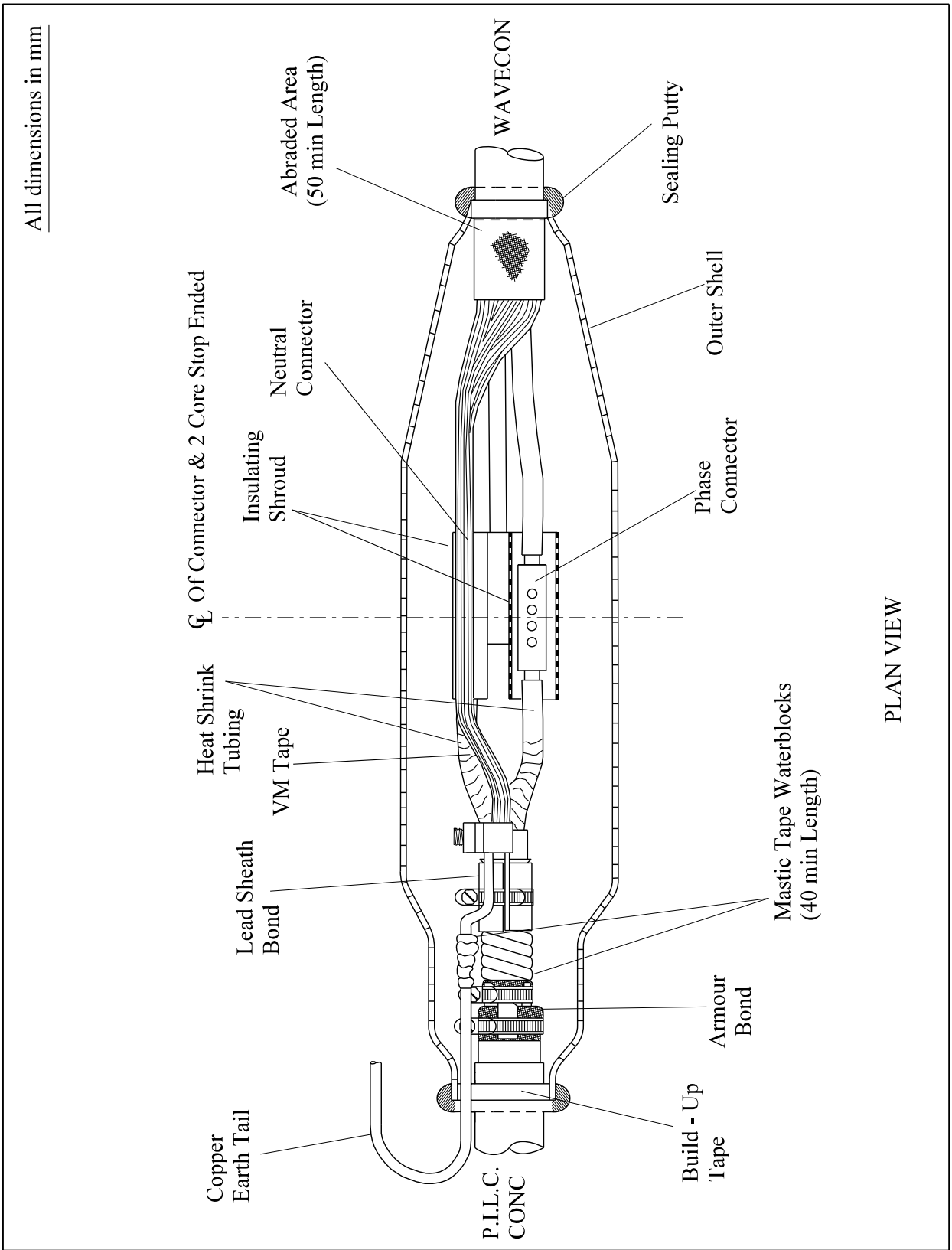
Drg. No. LVJ 7.804.1

Rev No

All dimensions in mm



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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.805

FOUR CORE WAVECON - PILC TRIPLE CONCENTRIC MAINS CABLE STRAIGHT JOINT

(DEAD JOINTING ONLY)

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Jointing Manual

JOINTING PROCEDURE 7.805

JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	**TO**	**STRAIGHT JOINT**
95W	Up to 95 PILC Concentric	PCS 14
	Up to 185 PILC Concentric	PCS 15
185W	Up to 185 PILC Concentric	PCS 16

Key: - 95W = 95mm² Wavecon
185W = 185mm² Wavecon
300W = 300mm² Wavecon

JOINTING PROCEDURE 7.805

JOINT KIT MATERIALS

KIT REF.	SHELL	RESIN		CONNECTORS		EARTH BOND	EARTH TAIL
	1586	5 litre	6.5 litre	UST 95	UST 185	LVEB 08	LVCU 1700/5
PCS 14	1	3	2	3		1	1
PCS15	1	3	2		3	1	1
PCS 16	1	3	2		3	1	1

ADDITIONAL ITEMS FOR EACH JOINT

Insulation patches
Black cotton tape
Sealing putty
Cable ties
Shell support
16 s.w.g. tinned copper wire
Heatshrink tube
Whipping thread
PVC tape
35mm² PVC sheathed (green/yellow) copper
'VM' tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 – Part I of the LV Mains Jointing Manual.

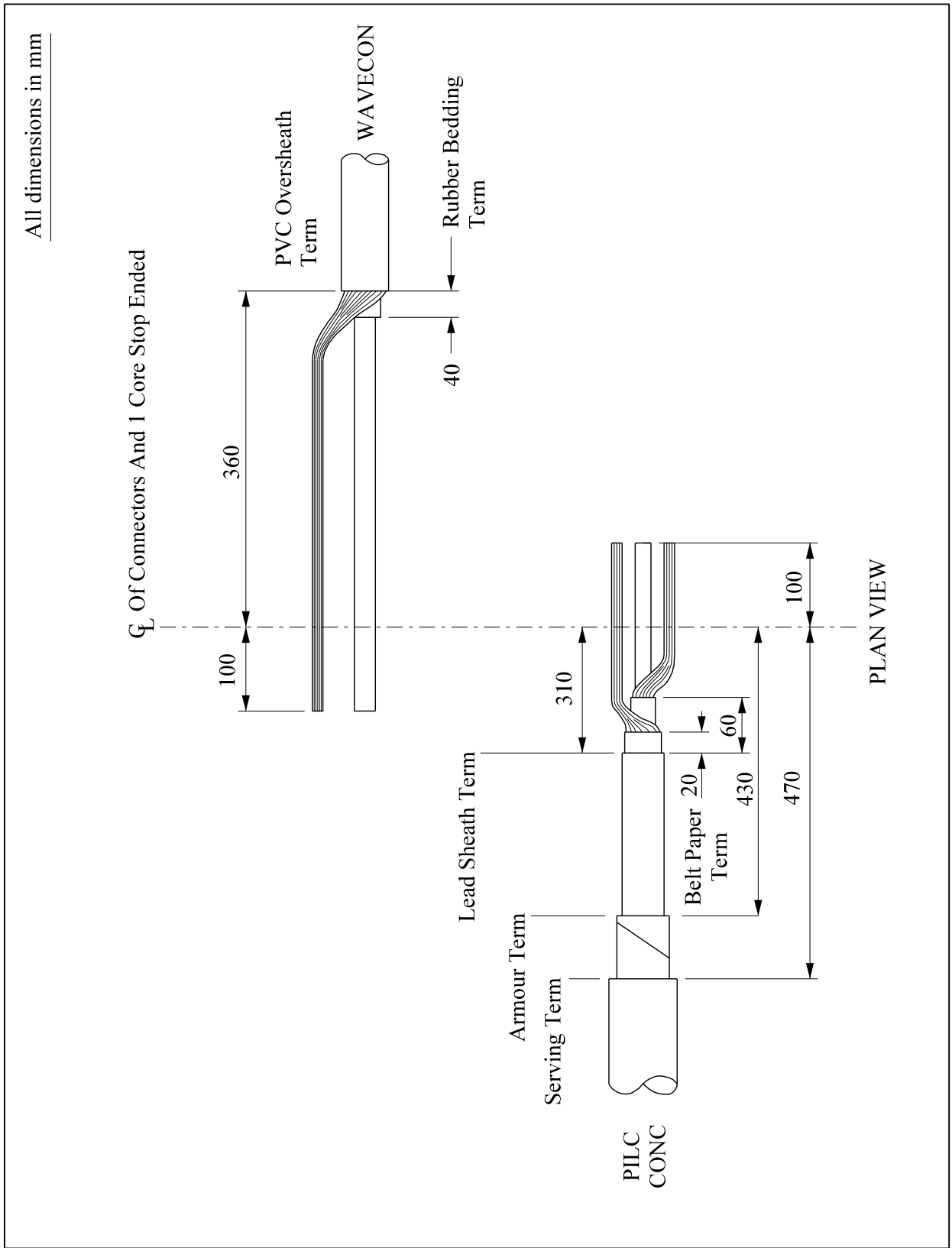
JOINTING PROCEDURE 7.805

DEAD JOINTING ONLY

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.805.1, 7.805.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cables	4
	PILC CONCENTRIC - Preparation	
2.	Open and cut cable in accordance with Special Requirement SR 1 - 7.801	7.801
3.	Carry out moisture test	19
4.	Apply core protection	7.801
5.	Apply armour bond	22
6.	Apply lead sheath bond	23
	WAVECON CABLE - Preparation	
7.	Open and cut cable in accordance with General Requirement 6.14	14
8.	Prepare earth wires for jointing	17
	COMPLETION OF JOINT	
9.	Set cores in joint position	27
10.	Connect earth wires to lead sheath bond including copper earth tail	23
11.	Apply temporary shrouding	21
12.	Make and insulate neutral connection	29-30
13.	Make and insulate phase connection	29-30

JOINTING PROCEDURE 7.805 – Continued

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated.)
14.	Stop end remaining Wavecon core	14
15.	Remove temporary shrouding applied in 11	--
16.	Abrade and build up oversheaths	32
17.	Thoroughly degrease the joint	35
18.	Apply mastic water blocks to lead sheaths and copper earth tail	33
19.	Prepare and fit shell, ensuring 15mm clearance	36
20.	Mix and pour resin	37



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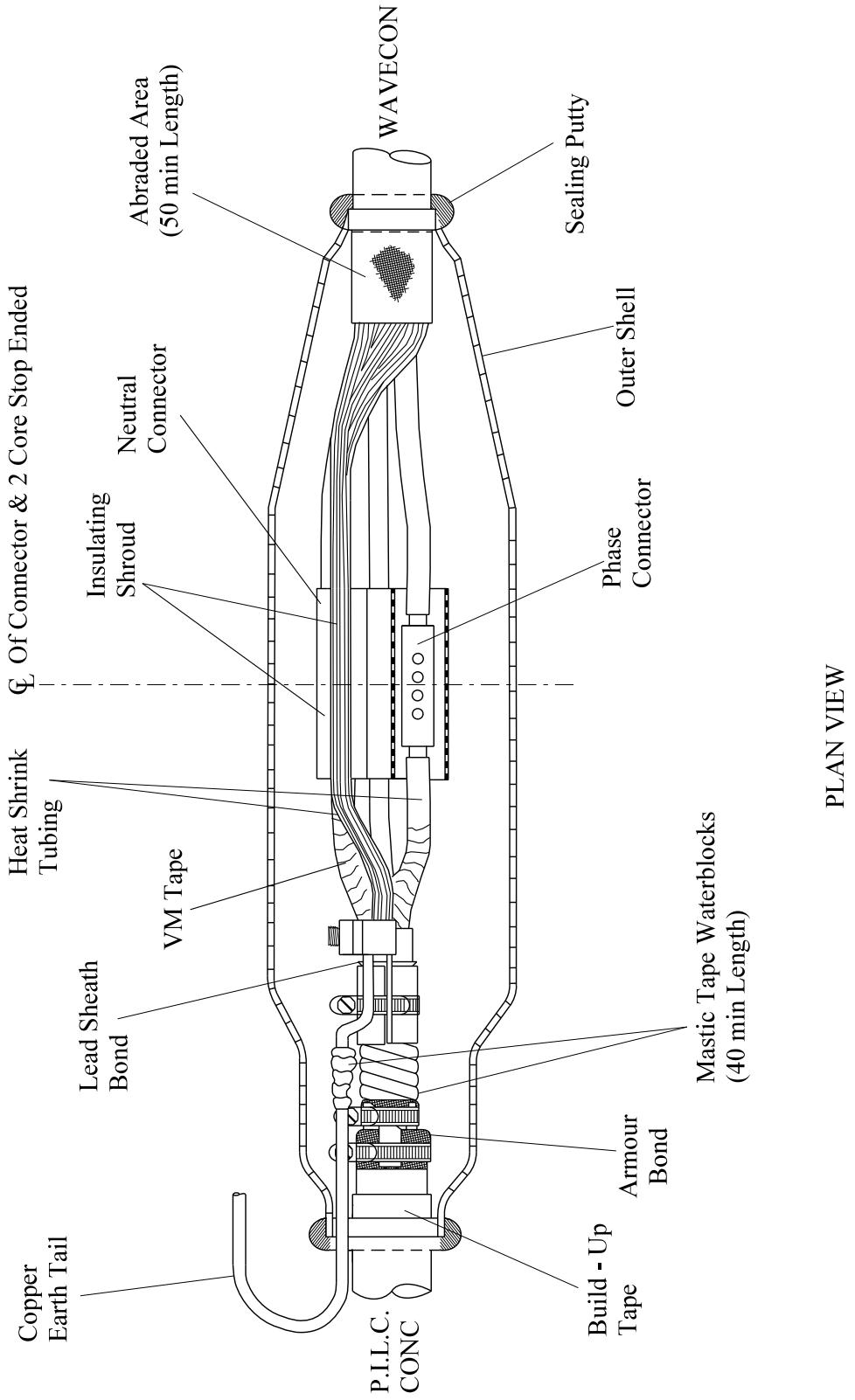
Title FOUR CORE WAVECON - PILC TRIPLE CONCENTRIC STRAIGHT JOINT STRIPPING DIMENSIONS

Drg. No. LVJ 7.805.1

Rev No

All dimensions in mm



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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.806

PILC CONCENTRIC CNE MAINS CABLE STOP END

(DEAD JOINTING ONLY)

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.806

MATERIALS LIST

CABLE SIZE – 50/120mm² PILC Concentric

Description	Quantity
Shell 1581	1
Resin	16 litre (2 x 5 + 1 x 6.5)
Connector BCNE 3	1
Connector MSIP 50/185	1
Connector 70mm² Line Tap	1
Earth Rod	1
Earth Bond LVEB 08	1
Copper Earth Tail LVCU 1700/5	1

185/300mm² Pilc Concentric

Shell 1580	1
Resin	19 litre (3 x 6.5)
Connector BCNE 3	1
Connector MSIP 185/300	1
Connector70mm² Line Tap	1
Earth Rod	1
Earth Bond LVEB 08	1
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

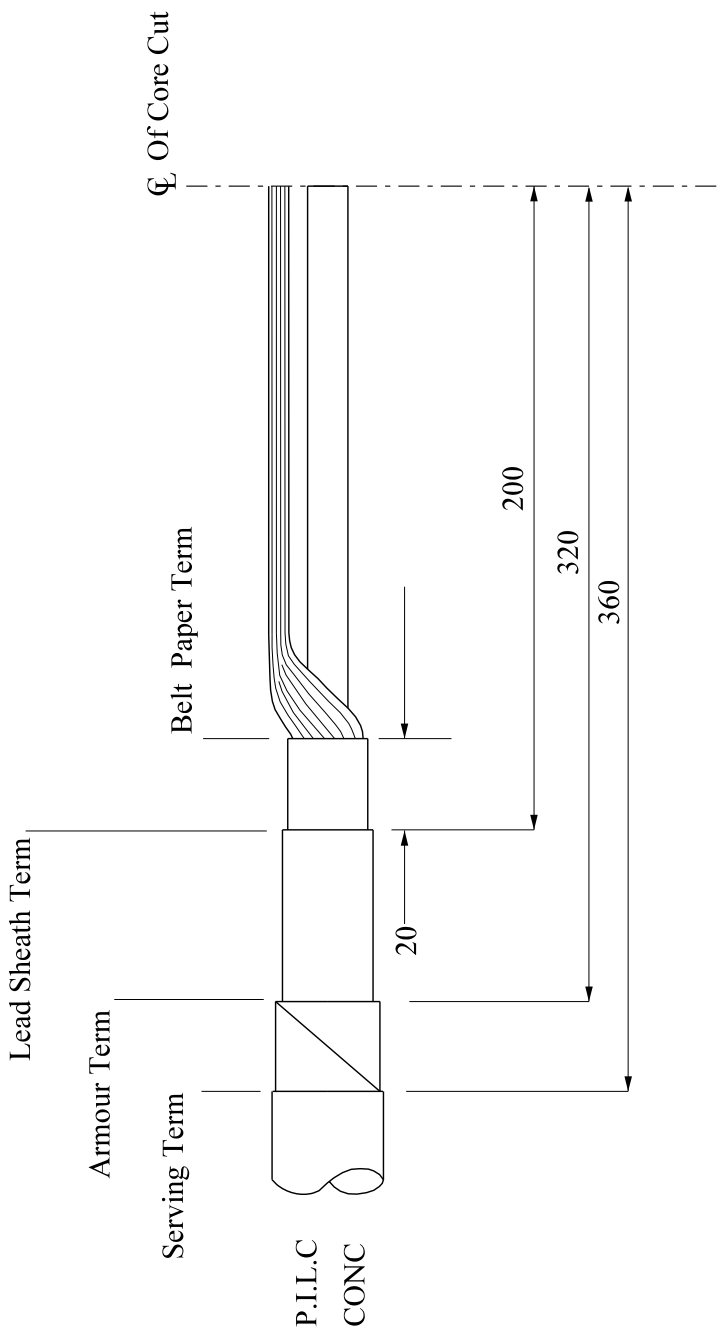
Insulation patch
Black cotton tape
Sealing putty
Shell support
Cable ties
Heatshrink tube
Whipping thread
PVC tape
35mm² sheathed (green/yellow) copper
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Mains Jointing Manual.

JOINTING PROCEDURE 7.806

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.806.1, 7.806.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
2.	Install earth rod and connect copper earth tail	34
3.	Open and cut cable in accordance with Special Requirement SR 1- 7.801	7.801
4.	Carry out moisture test	19
5.	Apply core protection	7.801
6.	Apply armour bond	22
7.	Apply lead sheath bond	23
8.	Set cores in joint position	27
9.	Connect a 35mm² neutral/earth bond to neutral core	29
10.	Connect 35mm² neutral/earth bond to lead sheath bond including copper earth tail	23
11.	Build up oversheath	32
12.	Thoroughly degrease the joint	35
13.	Apply mastic water blocks to lead sheath and copper earth tail	33
14.	Prepare and fit shell, ensuring 15mm clearance	36
15.	Mix and pour resin	37

All dimensions in mm



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Drg. No. LVJ 7.806.1

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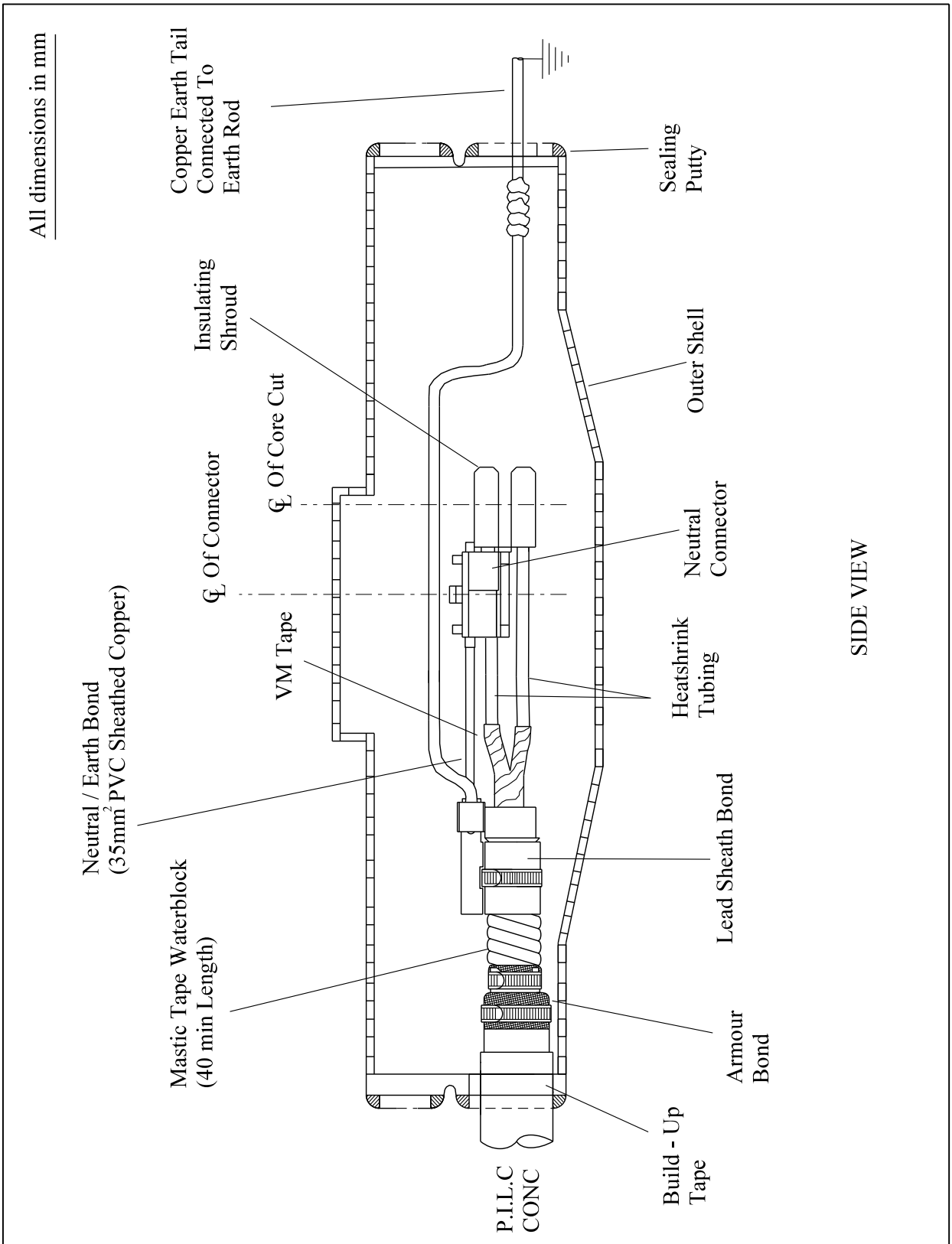

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Drg. No. LVJ 7.806.2

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.807

PILC CONCENTRIC MAINS CABLE STOP END

(DEAD JOINTING ONLY)

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.807

MATERIALS LIST

CABLE SIZE – 50/120mm² PILC Concentric

Description	Quantity
Shell 1581	1
Resin	16 litre (2 x 5 + 1 x 6.5)
Connector 70mm² Line Tap	1
Earth Bond LVEB 08	1
Earth Rod	1
Copper Earth Tail LVCU 1700/5	1

185/300mm² PILC Concentric

Shell 1580	1
Resin	19 litre (3 x 6.5)
Connector 70mm² Line Tap	1
Earth Bond LVEB 08	1
Earth Rod	1
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

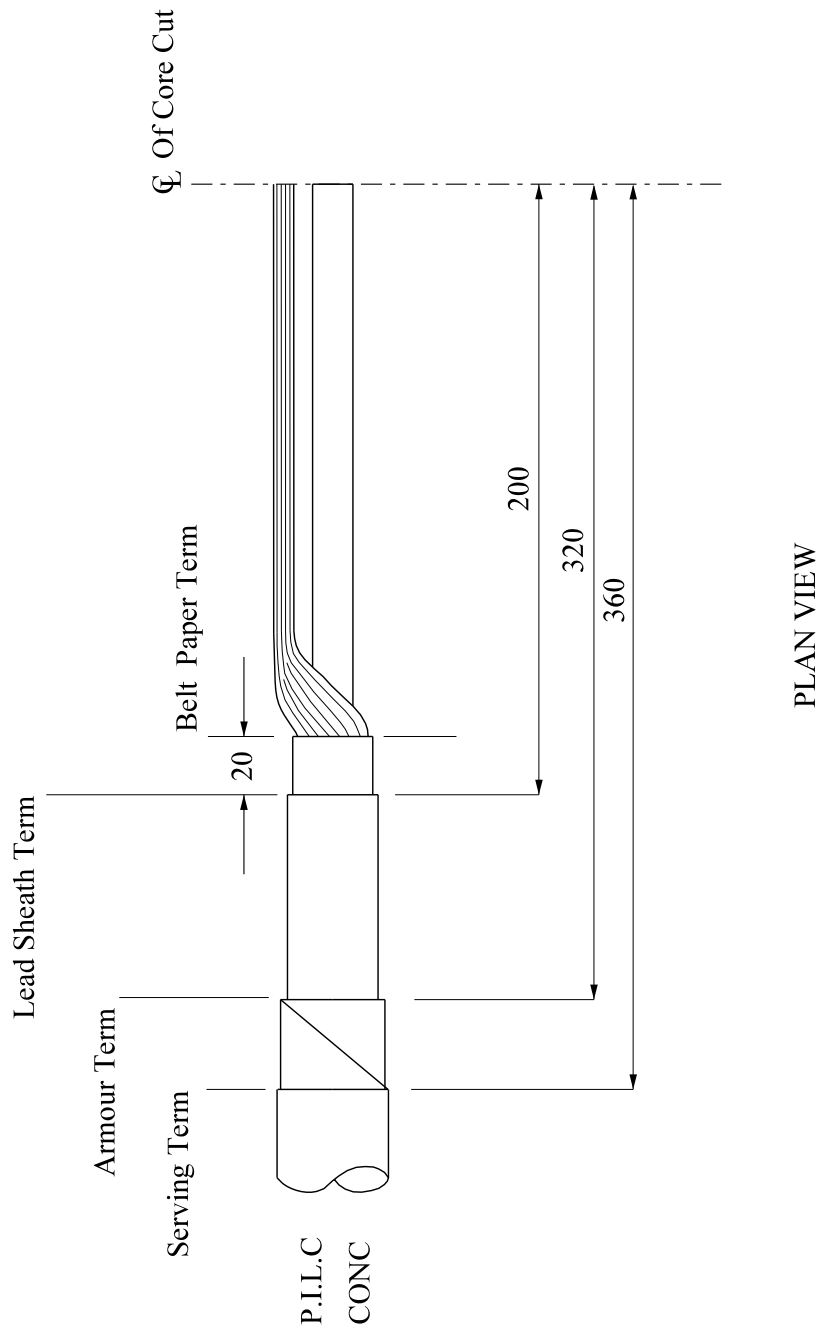
Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
Heatshrink tube
Whipping thread
PVC tape
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Mains Jointing Manual.

JOINTING PROCEDURE 7.807

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.807.1, 7.807.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
2.	Install earth rod and connect copper earth tail	34
3.	Open and cut cable in accordance with Special Requirement SR 1-7.801	7.801
4.	Carry out moisture test	19
5.	Apply core protection	7.801
6.	Apply armour bond	22
7.	Apply lead sheath bond	23
8.	Connect copper earth tail to lead sheath bond	23
9.	Build up oversheath	32
10.	Thoroughly degrease the joint	35
11.	Apply mastic water blocks to lead sheath and copper earth tail	33
12.	Prepare and fit shell, ensuring 15mm clearance	36
13.	Mix and pour resin	37

All dimensions in mm



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Title: P.I.L.C. CONCENTRIC STOP END STRIPPING DIMENSIONS

Drg. No. LVJ 7.807.1

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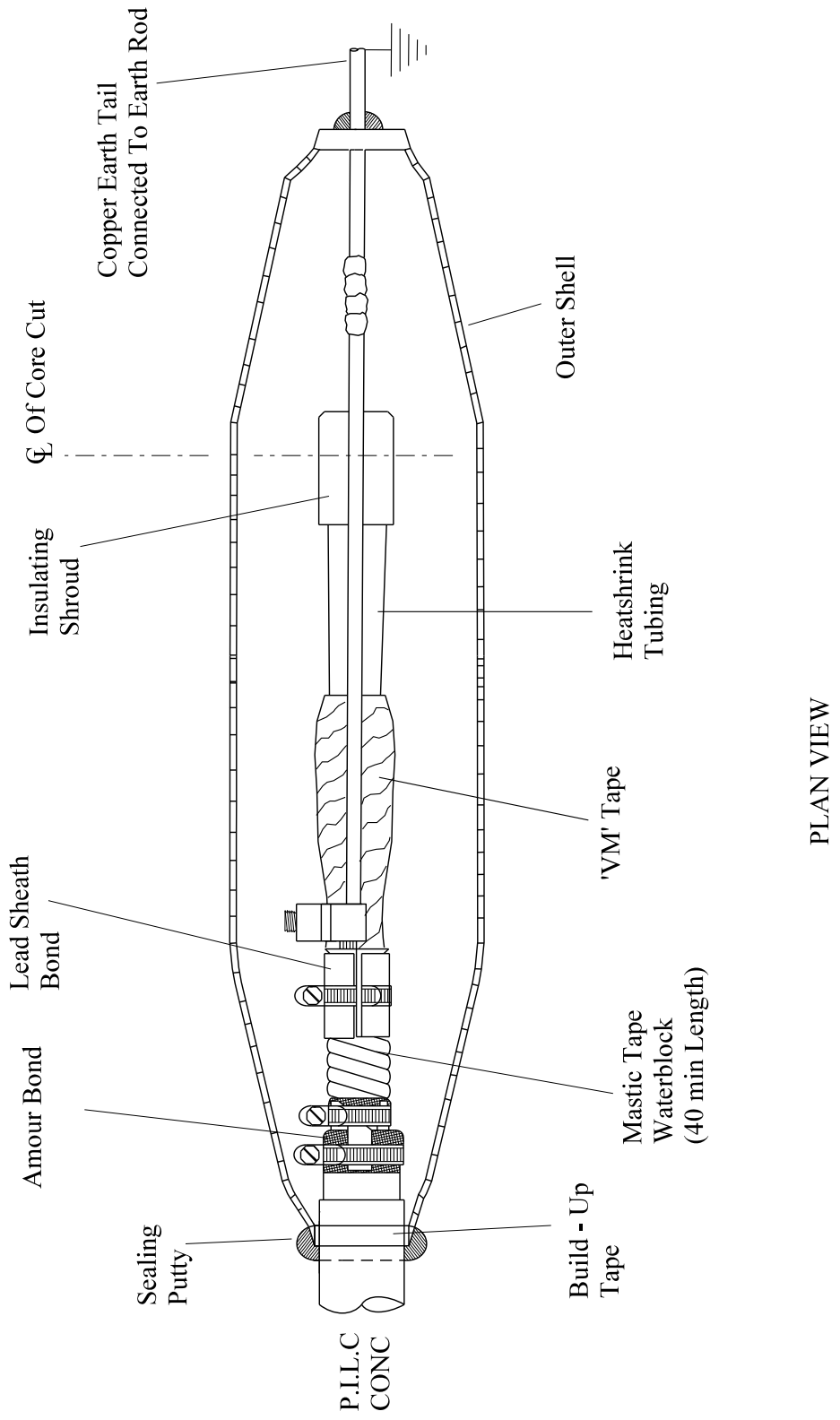

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC MAINS CABLE

JOINTING PROCEDURE 7.808

PILC TRIPLE CONCENTRIC CNE MAINS CABLE STOP END

DEAD WORKING ONLY

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.808

MATERIALS LIST

CABLE SIZE – 50/120mm² PILC Concentric

Description	Quantity
Shell 1581	1
Resin	16 litre (2 x 5 + 1 x 6.5)
Connector BCNE 3	1
Connector MSIP 50/185	1
Connector 70mm² Line Tap	1
Earth Rod	1
Earth Bond LVEB 08	1
Copper Earth Tail LVCU 1700/5	1

185/300mm² Pilc Concentric

Shell 1580	1
Resin	19 litre (3 x 6.5)
Connector BCNE 3	1
Connector MSIP 185/300	1
Connector 70mm² Line Tap	1
Earth Rod	1
Earth Bond LVEB 08	1
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

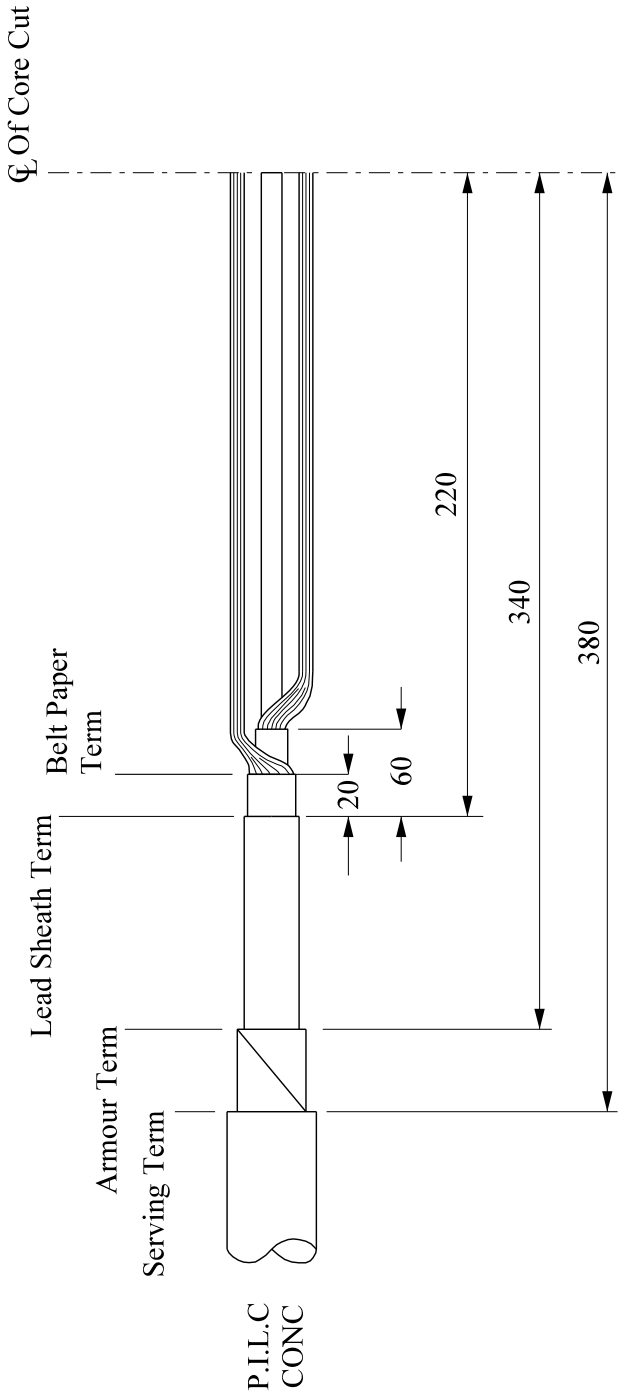
Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
Heatshrink tube
Whipping thread
PVC tape
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Mains Jointing Manual.

JOINTING PROCEDURE 7.808

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.808.1, 7.808.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
2.	Install earth rod and connect copper earth tail	34
3.	Open and cut cable in accordance with Special Requirement SR 1- 7.801	7.801
4.	Carry out moisture test	19
5.	Apply core protection	S3
6.	Apply armour bond	22
7.	Apply lead sheath bond	23
8.	Set cores in joint position	27
9.	Connect a 35mm² neutral/earth bond to neutral core	29
10.	Connect a 35mm² neutral/earth bond to lead sheath bond including copper earth tail	23
11.	Build up oversheath	32
12.	Thoroughly degrease the joint	35
13.	Apply mastic water blocks to lead sheath and copper earth tail	33
14.	Prepare and fit shell, ensuring 15mm clearance	36
15.	Mix and pour resin	37

All dimensions in mm



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Title: P.I.L.C. TRIPLE CONCENTRIC MAINS STOP END - CNE STRIPPING DIMENSIONS

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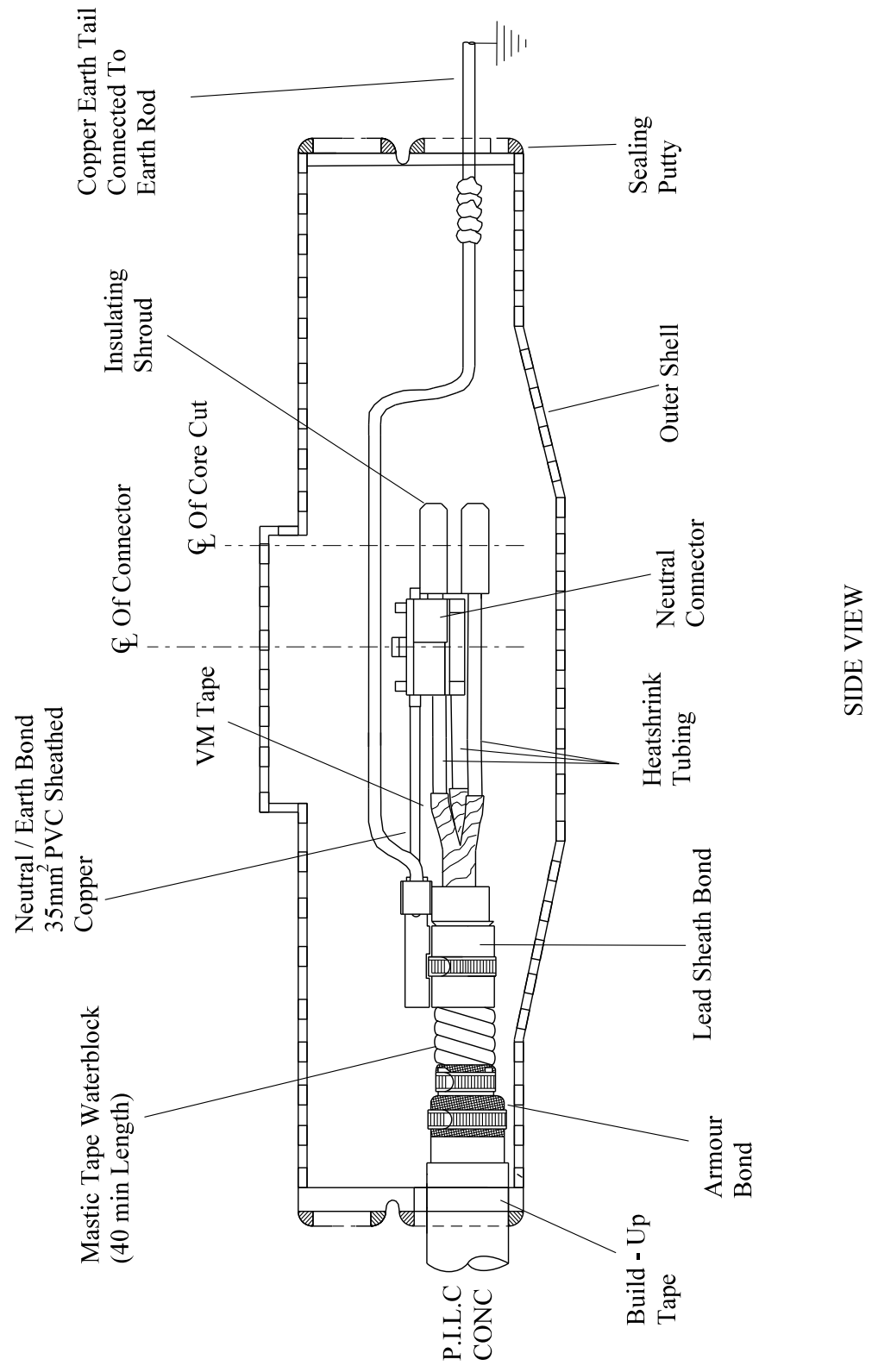
All dimensions in mm



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Title: P.I.L.C. TRIPLE CONCENTRIC CNE STOP END - GENERAL LAYOUT

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.809

PILC TRIPLE CONCENTRIC MAINS CABLE STOP END

DEAD WORKING ONLY

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Jointing Manual

JOINTING PROCEDURE 7.809

MATERIALS LIST

CABLE SIZE – 50/120mm² PILC Concentric

Description	Quantity
Shell 1581	1
Resin	16 litre (2 x 5 + 1 x 6.5)
Connector 70mm² Line Tap	1
Earth Bond LVEB 08	1
Earth Rod	1
Copper Earth Tail LVCU 1700/5	1

185/300mm² PILC Concentric

Shell 1580	1
Resin	16 litre (3 x 6.5)
Connector 70mm² Line Tap	1
Earth Bond LVEB 08	1
Earth Rod	1
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

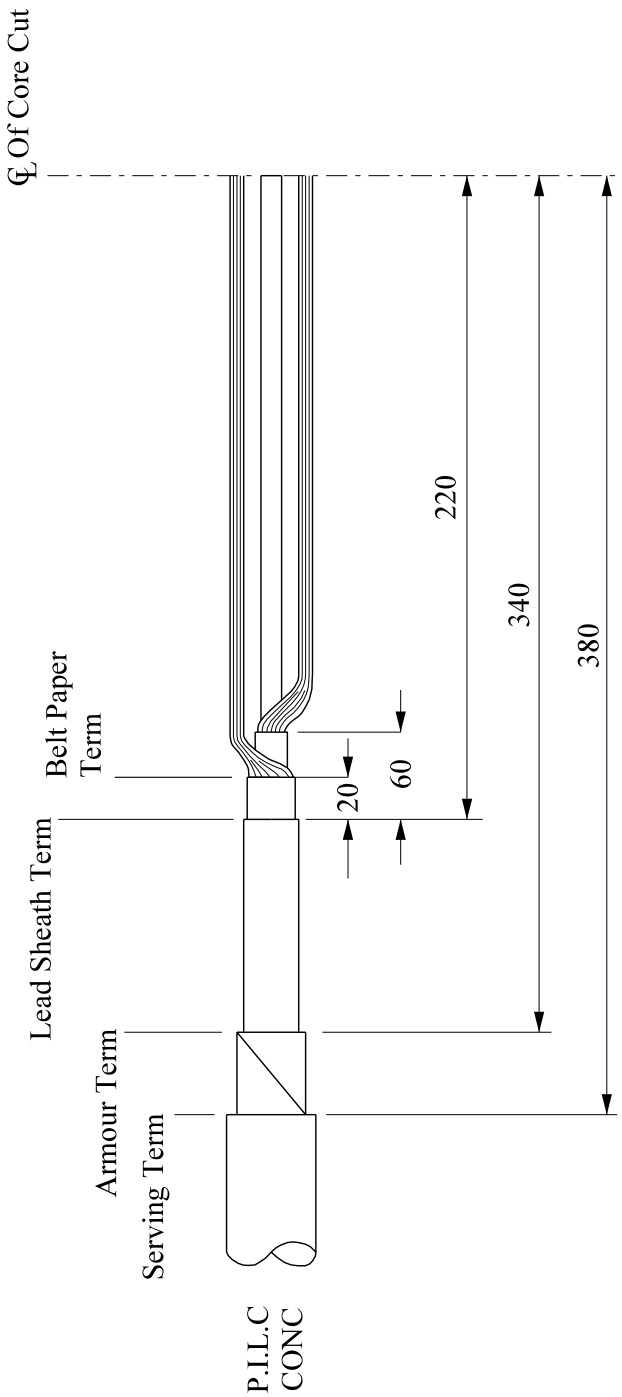
Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
Heatshrink tube
Whipping thread
PVC tape
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Mains Jointing Manual.

JOINTING PROCEDURE 7.809

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.809.1, 7.809.2** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
2.	Install earth rod and connect copper earth tail	
3.	Open and cut cable in accordance with Special Requirement SR 1-7.801	7.801
4.	Carry out moisture test	19
5.	Apply core protection	S3
6.	Apply armour bond	22
7.	Apply lead sheath bond	23
8.	Connect copper earth tail to lead sheath bond	23
9.	Build up oversheath	32
10.	Thoroughly degrease the joint	35
11.	Apply mastic water blocks to lead sheath and copper earth tail	33
12.	Prepare and fit shell, ensuring 15mm clearance	36
13.	Mix and pour resin	37

All dimensions in mm



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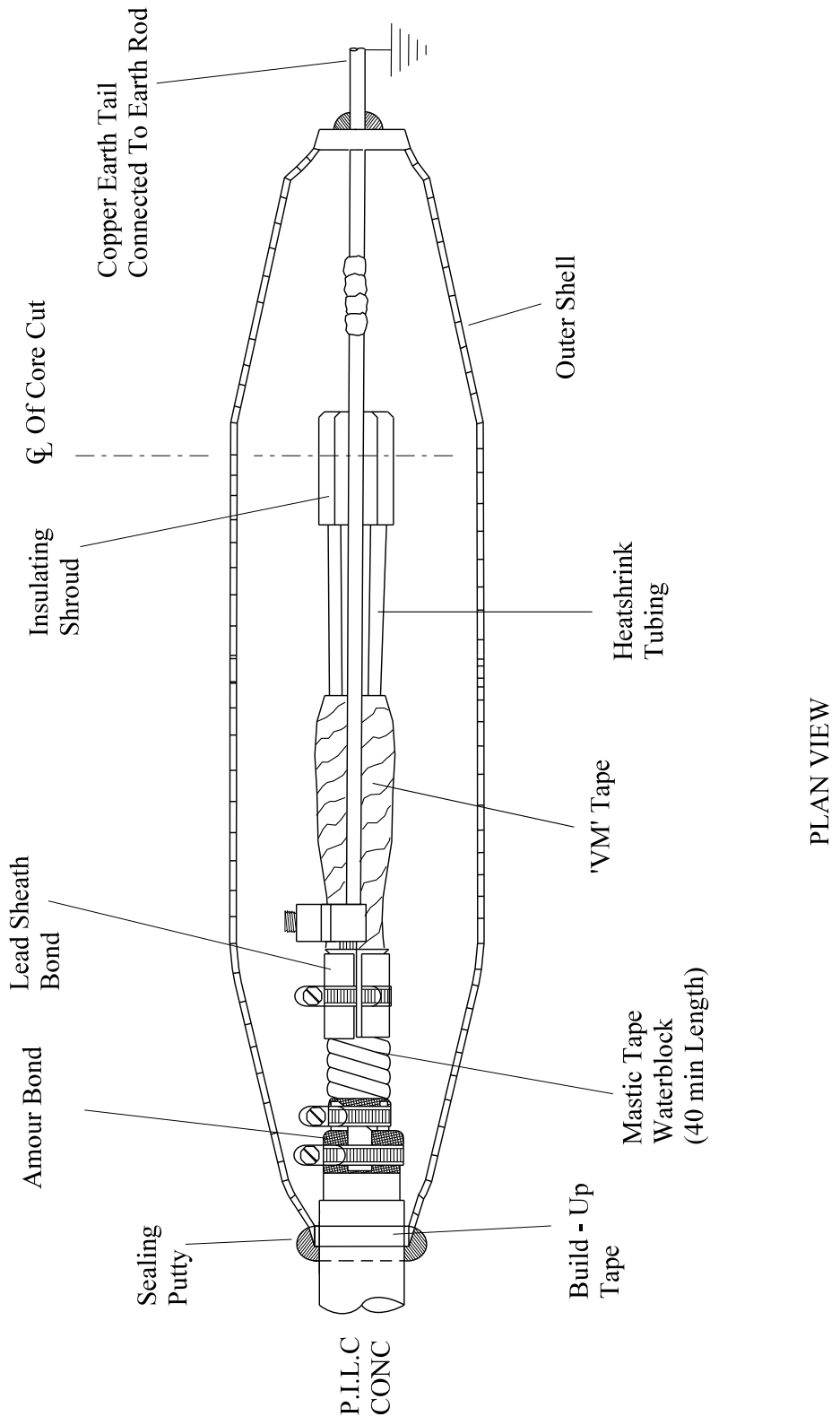

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.810

PILC CONCENTRIC CNE MAINS CABLE SERVICE BRANCH JOINT

DEAD WORKING ONLY

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.810

MATERIALS LIST

CABLE SIZE – 50/95mm² PILC Concentric

Description	Quantity
Shell 1588	1
Resin	25 litre (5 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 95	4
Earth Bond Kit LVEB 08	2
Copper Earth Tail LVCU 1700/5	1

120/185mm² PILC Concentric

Shell 1588	1
Resin	25 litre (5 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 185	4
Earth Bond Kit LVEB 08	2
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
Heatshrink tube
Whipping thread
PVC tape
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

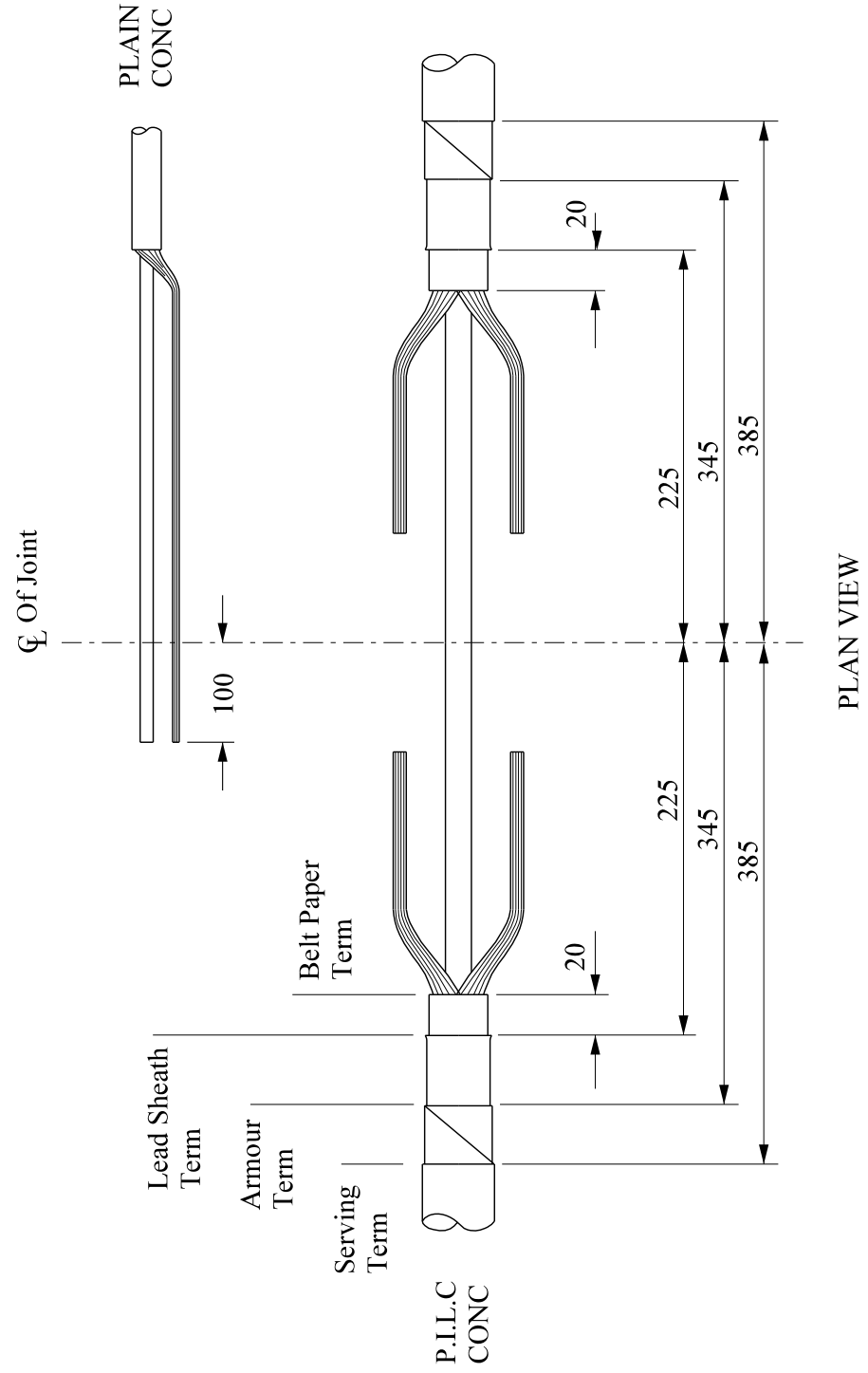
Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Jointing Manual.

JOINTING PROCEDURE 7.810

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.810.1, 7.810.2, 7.810.3** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
	PVC SERVICE CABLE - Preparation	
2.	Open and cut cable	17
3.	Prepare neutral/earth wires for jointing	8
	PILC CONCENTRIC CABLE	
4.	Open and cut cable in accordance with Special Requirement SR 1- 7.801	7.801
	Do not cut the centre core	
5.	Carry out moisture test	19
6.	Apply core protection	7.801
7.	Apply armour bonds	22
8.	Apply lead sheath bonds	23
	COMPLETION OF JOINT	
9.	Connect a 35mm² earth wire to lead sheath bonds including the copper earth tail	29
10.	Remove temporary earth continuity bond applied in 4	--
11.	Taking one half of the main cable neutral wires at a time:-	
	(a) Make a bridging conductor of the appropriate size	7.801
	(b) Connect the bridging conductor to half of the main cable	29

Actions		**General Requirements (ST: CA1C/4)**
	neutral wires at the opposite end of the joint to the service cable entry	
	(c) At the service entry end connect the bridging conductor to half of the main neutral wires including the service neutral/earth wires of one service cable and the neutral/ earth bond	29
12.	Connect 35mm² neutral/earth bond to the 35mm² earth wire	29
13.	Repeat 11 for the remaining half of neutral wires on the opposite side of the joint	
14.	Make phase connection(s)	29
15.	Abrade and build up oversheaths	32
16.	Thoroughly degrease the joint	35
17.	Apply mastic water blocks to lead sheaths and copper earth tail	33
18.	Prepare and fit shell, ensuring 15mm clearance	36
19.	Mix and pour resin	

All dimensions in mm



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Drg. No. LVJ 7.810.1

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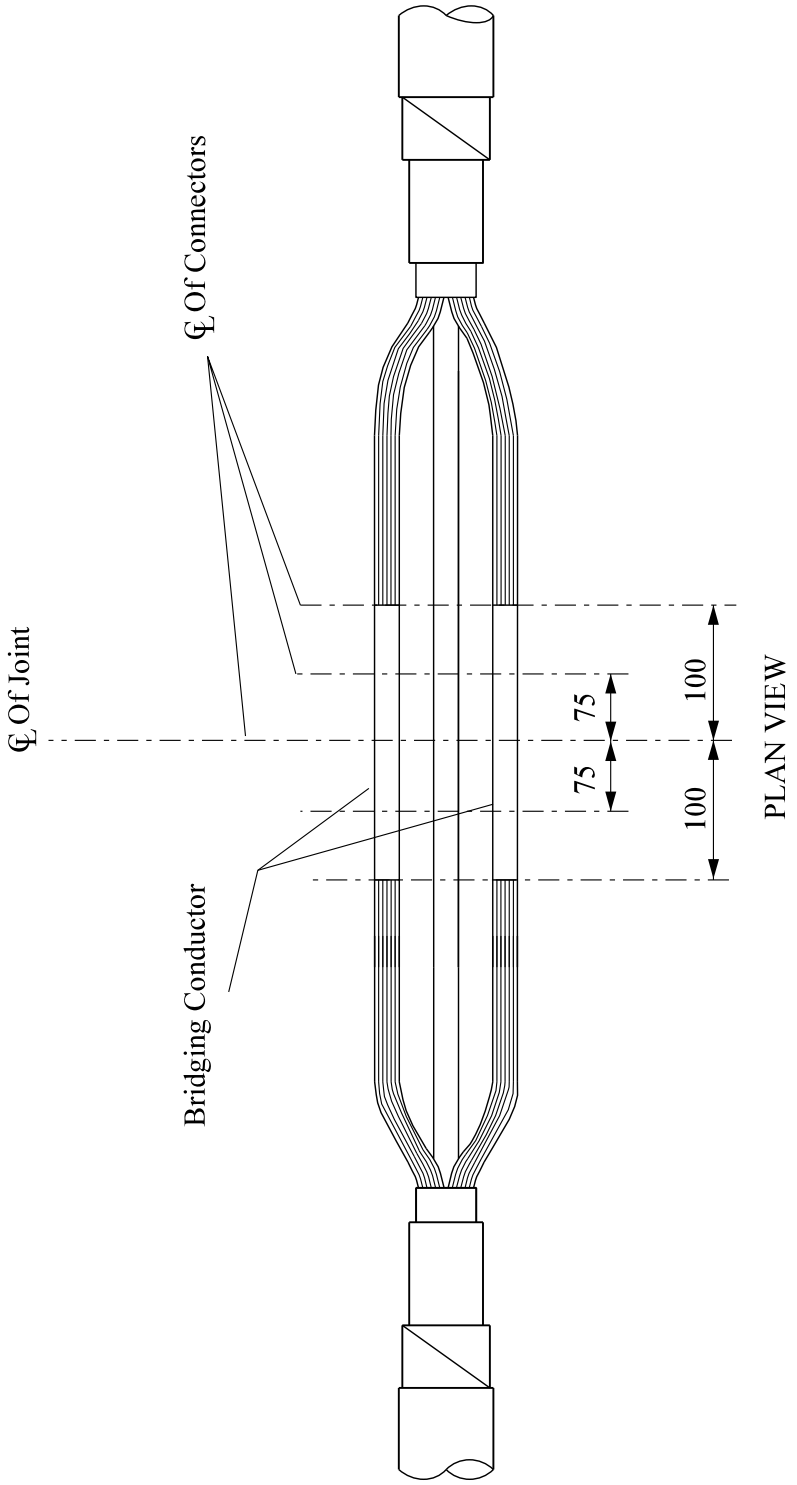
All dimensions in mm



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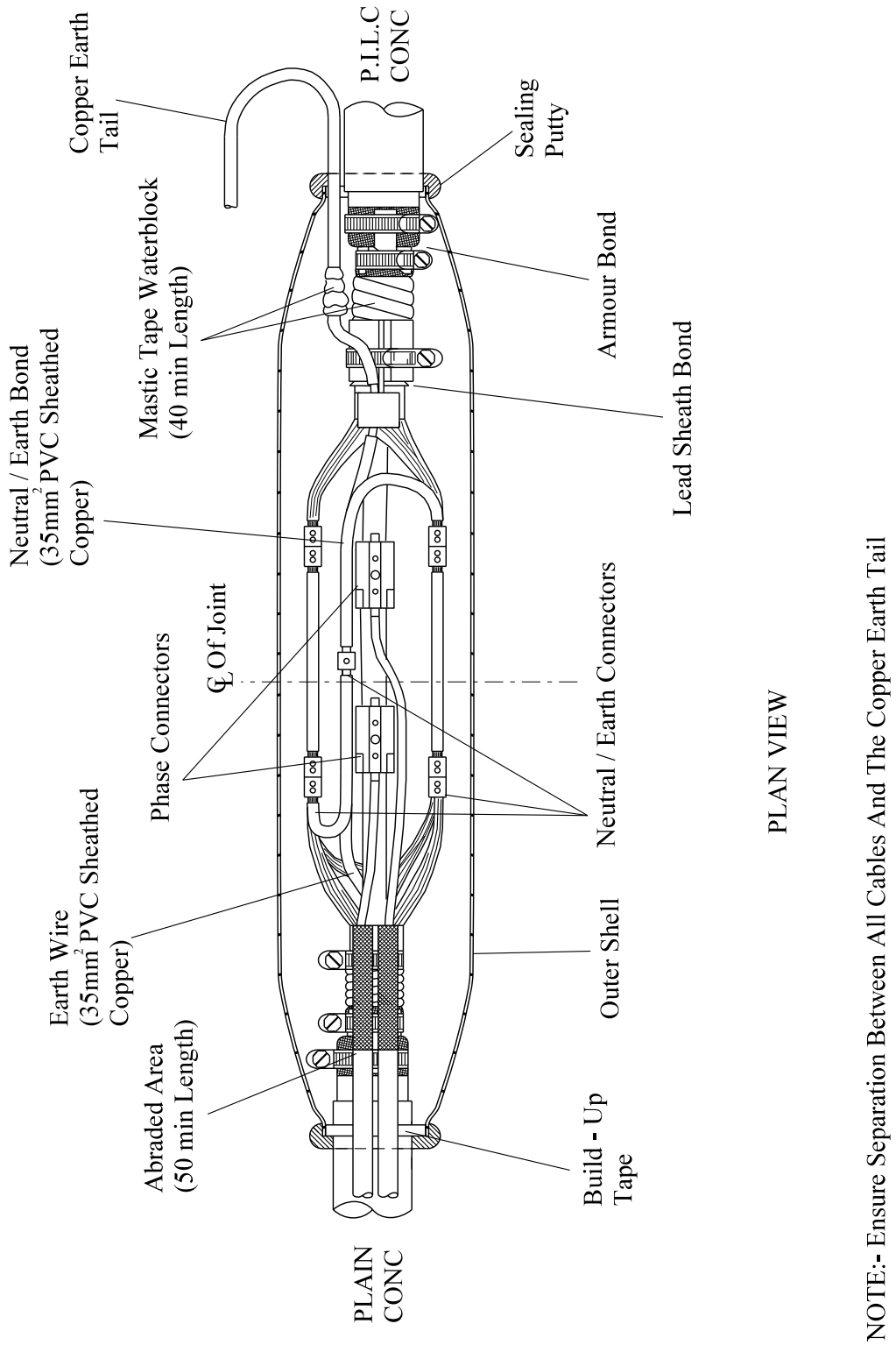
All dimensions in mm



PLAN VIEW

NOTE:- Ensure Separation Between All Cables And The Copper Earth Tail

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.811

PILC CONCENTRIC MAINS CABLE
SERVICE BRANCH JOINT

DEAD WORKING ONLY

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Jointing Manual

JOINTING PROCEDURE 7.811

MATERIALS LIST

CABLE SIZE – 50/95mm² PILC Concentric

Description	Quantity
Shell 1588	1
Resin	25 litre (5 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 95	4
Earth Bond Kit LVEB	2
Copper Earth Tail LVCU 1700/5	1

120/185mm² PILC Concentric

Shell 1588	1
Resin	25 litre (5 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 95	4
Earth Bond Kit LVEB	2
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

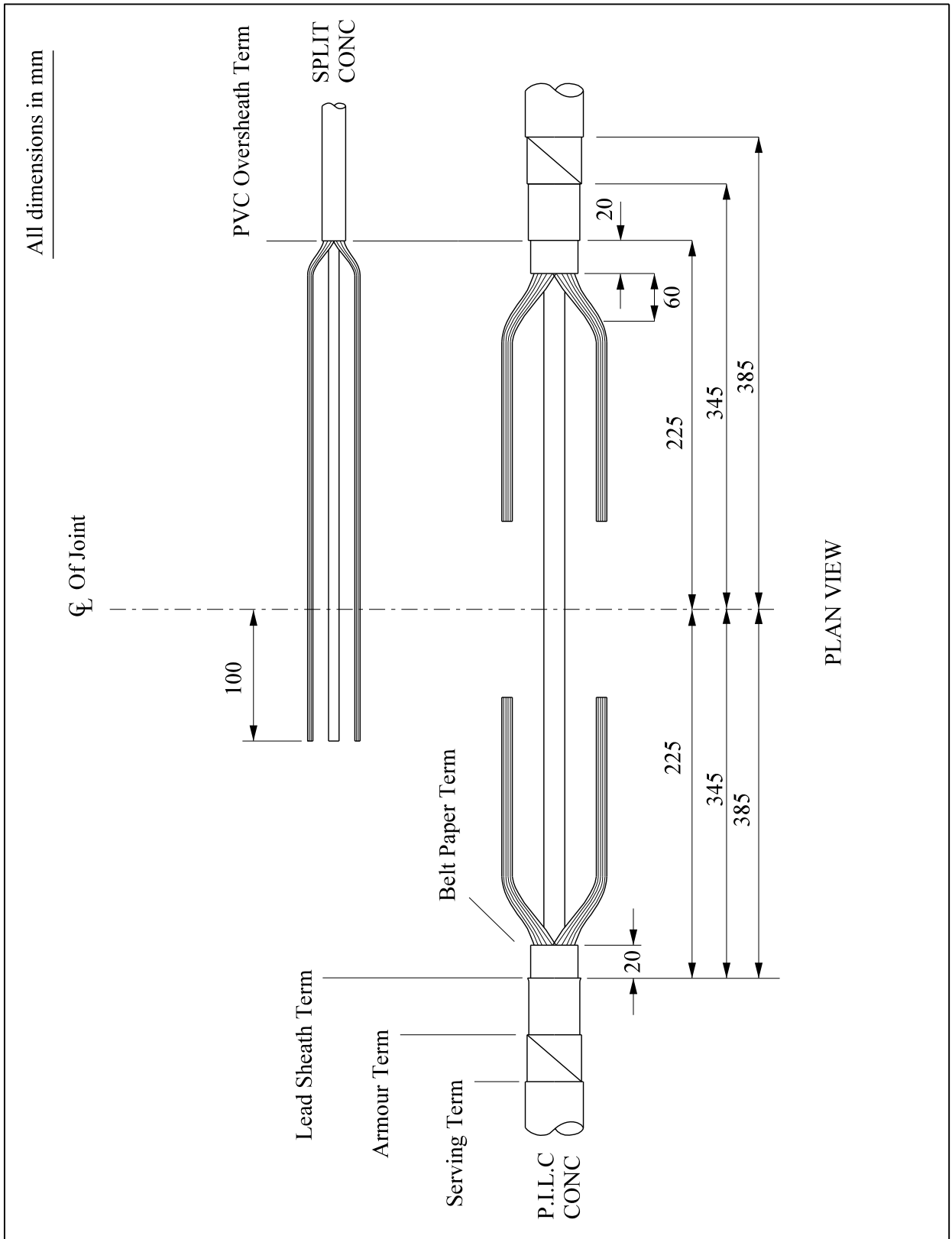
Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
Heatshrink tube
Whipping thread
PVC tape
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Jointing Manual.

JOINTING PROCEDURE 7.811

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.811.1, 7.811.2, 7.811.3** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
	PVC SERVICE CABLE - Preparation	
2.	Open and cut cable	17
3.	Prepare neutral and earth wires for jointing	8
	PILC CONCENTRIC CABLE - Preparation	
4.	Open and cut cable in accordance with Special Requirement SR 1-7.801	7.801
	Do not cut the centre core	
5.	Carry out moisture test	19
6.	Apply core protection	7.801
7.	Apply armour bonds	22
8.	Apply lead sheath bonds	23
	COMPLETION OF JOINT	
9.	Connect a 35mm² earth wire to lead sheath bonds including service earth wires and copper earth tail	23
10.	Remove temporary earth continuity bond applied in 4	--
11.	Taking one half of the main cable neutral wires at a time:-	
	(a) Make a bridging conductor of the appropriate size	7.801

Actions		**General Requirements (ST: CA1C/4)** (Except where otherwise stated.)
	(b) Connect and insulate the bridging conductor to half of the main cable neutral wires at the opposite end of the joint to the service cable entry	29/30
	(c) At the service entry end connect and insulate the bridging conductor to the half of the main neutral wires including the service neutral wires of one service cable	29/30
12.	Repeat 11 for the remaining half of neutral wires on the opposite side of the joint	--
13.	Make phase connection(s)	29
14.	Abrade and build up oversheaths	32
15.	Thoroughly degrease the joint	35
16.	Apply mastic water blocks to lead sheaths and copper earth tail	33
17.	Prepare and fit shell, ensuring 15mm clearance	36
18.	Mix and pour resin	37



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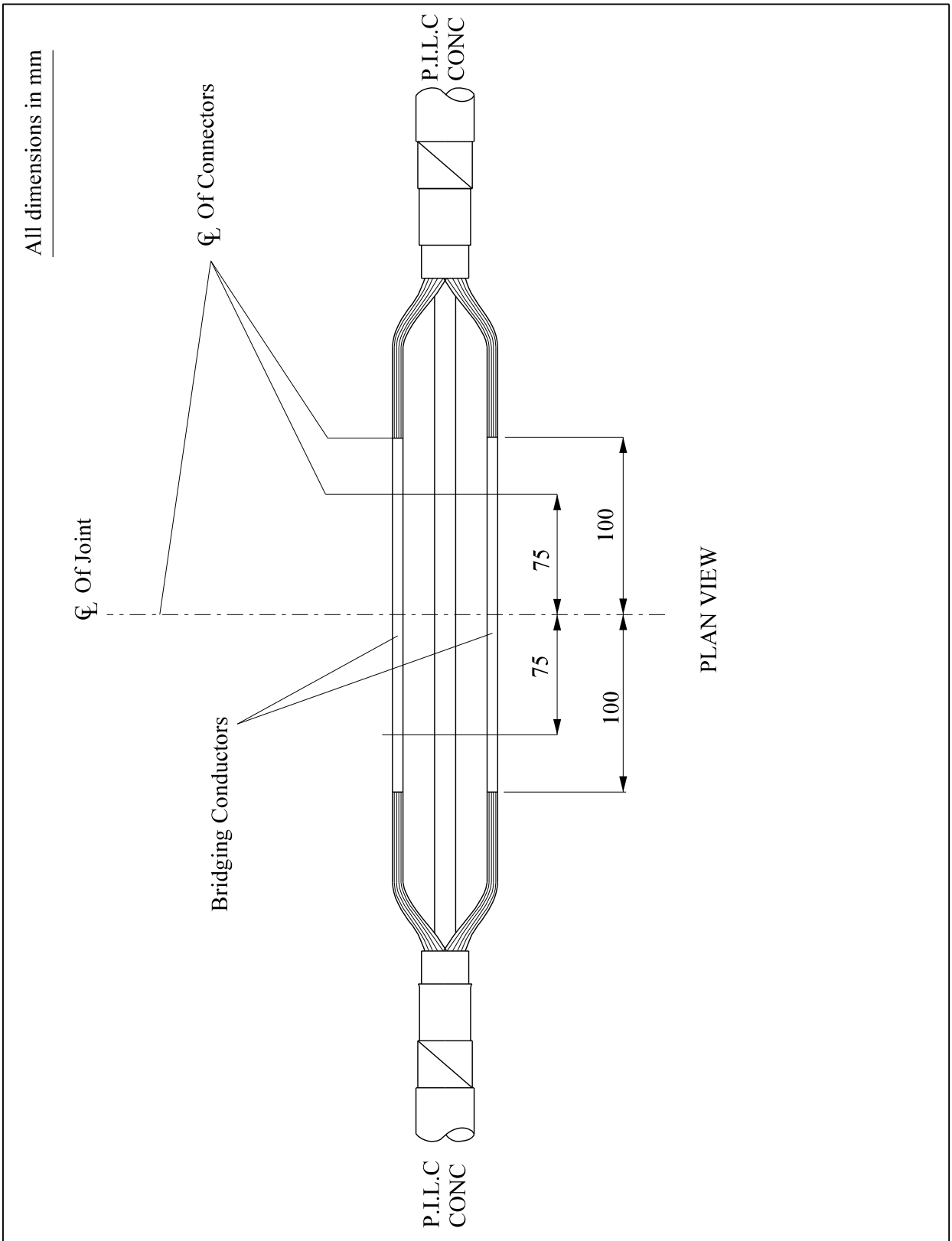

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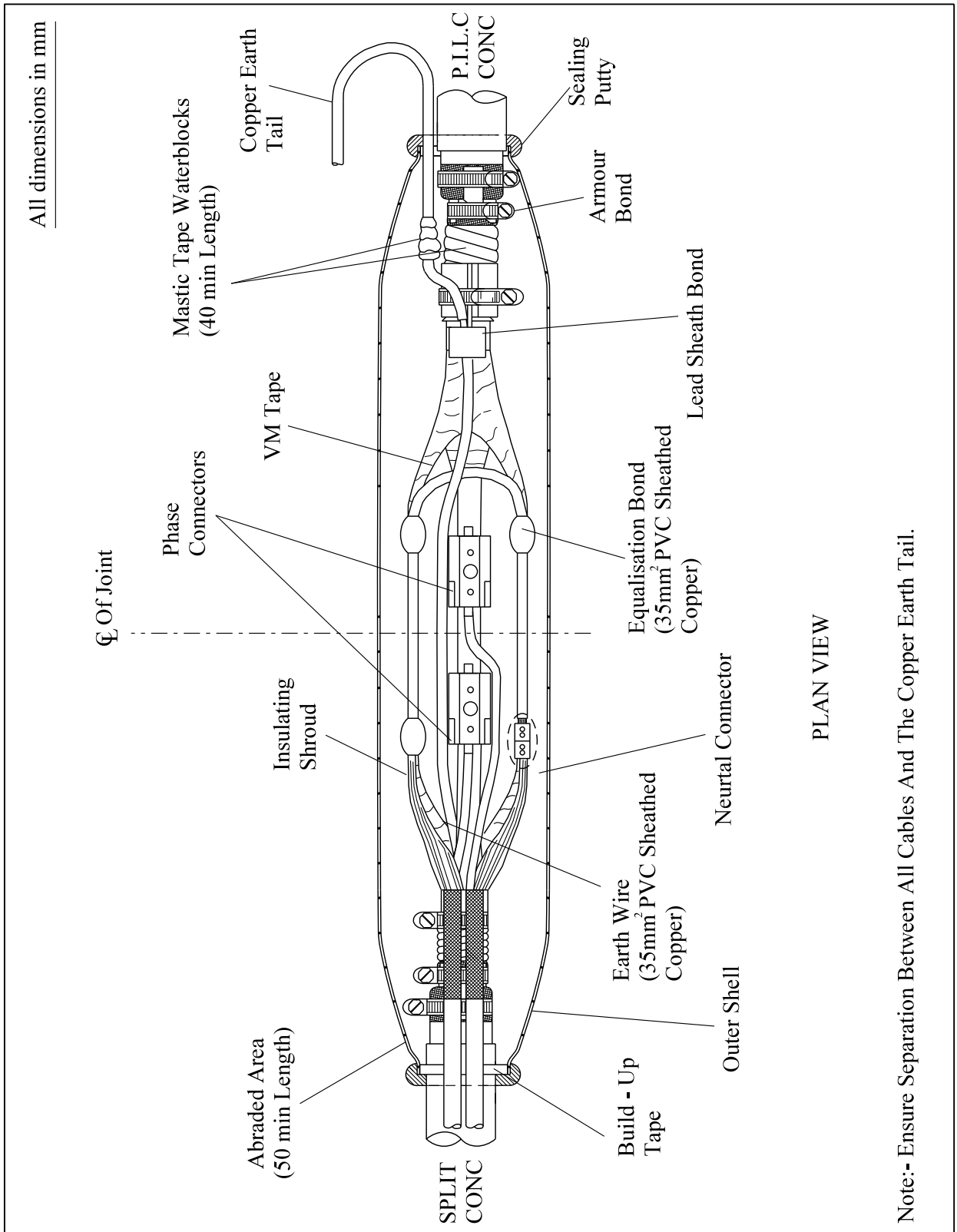

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.812

PILC TRIPLE CONCENTRIC CNE MAINS CABLE SERVICE BRANCH JOINT

DEAD WORKING ONLY

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Mains Jointing Manual

JOINTING PROCEDURE 7.812

MATERIALS LIST

CABLE SIZE – 50/95mm² PILC Concentric

Description	Quantity
Shell 1588	1
Resin	25 litre (5 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 95	6
Connector USB 95 T1	1
Earth Bond Kit LVEB	2
Copper Earth Tail LVCU 1700/5	1

120/185mm² PILC Concentric

Shell 1587	1
Resin	40 litre (8 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 95	6
Connector USB 95 T1	1
Earth Bond Kit LVEB	2
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
Heatshrink tube
Whipping thread
PVC tape
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Mains Jointing Manual.

JOINTING PROCEDURE 7.812

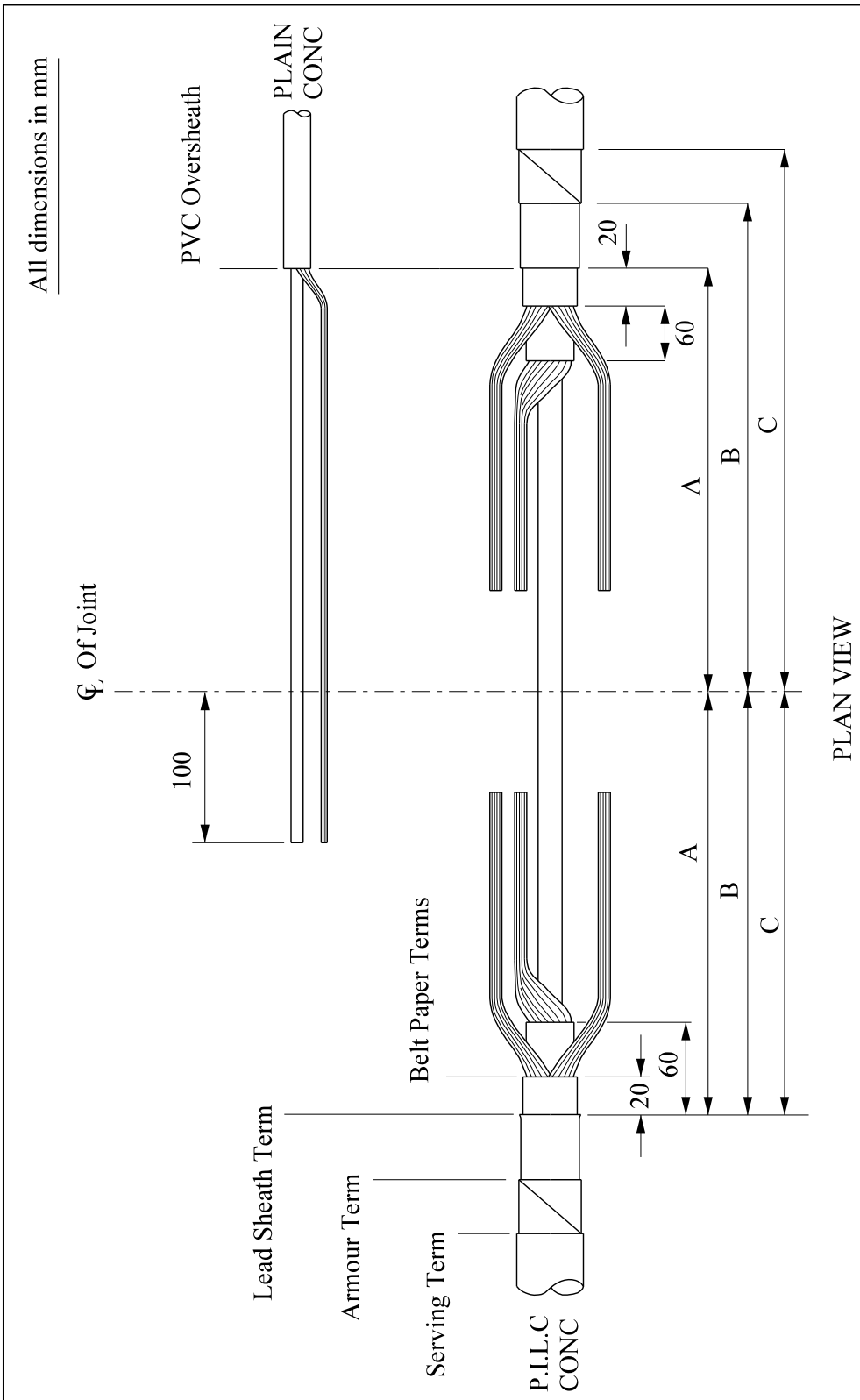
DEAD WORKING ONLY

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.812.1, 7.812.2, 7.813.3** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
	PVC SERVICE CABLE - Preparation	
2.	Open and cut cable	17
3.	Prepare neutral earth wires for jointing	8
	PILC CONCENTRIC CABLE - Preparation	
4.	Open and cut cable in accordance with Special Requirement SR 1-7.801	7.801
	Do not cut the centre core	
5.	Carry out moisture test	19
6.	Apply core protection	7.801
7.	Apply armour bonds	22
8.	Apply lead sheath bonds	23
	COMPLETION OF JOINT	
9.	Connect a 35mm² earth wire to the lead sheath bonds including service earth wires and the copper earth tail	
10.	Remove temporary earth continuity bond applied in 4	--

JOINTING PROCEDURE 7.812 - Continued

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated.)
11.	Taking one half of the main cable neutral wires at a time:-	
	(a) Make a bridging conductor of the appropriate size	7.801
	(b) Connect the bridging conductor to half of the main cable neutral wires at the opposite end of the joint to the service cable entry	29
	(c) At the service entry end connect the bridging conductor to half of the main neutral wires including the service neutral/earth wires of one service cable and the neutral/ earth bond	29
12.	Connect 35mm² neutral/earth bond to 35mm² earth wire	29
13.	Repeat 11 for the remaining half of neutral wires on the opposite side of the joint	--
14.	Make phase connection on centre core	29
15.	Using a bridging conductor of appropriate size, connect the intermediate conductor including the service	29/30 7.801
16.	Abrade and build up oversheaths	
17.	Thoroughly degrease the joint	35
18.	Apply mastic water blocks to lead sheaths and copper earth tail	33
19.	Prepare and fit shell, ensuring 15mm clearance	36
20.	Mix and pour resin	37

All dimensions in mm



Cable Size	A	B	C
Up to 0.15	225	345	385
Above 0.15 up to 0.3	275	395	435

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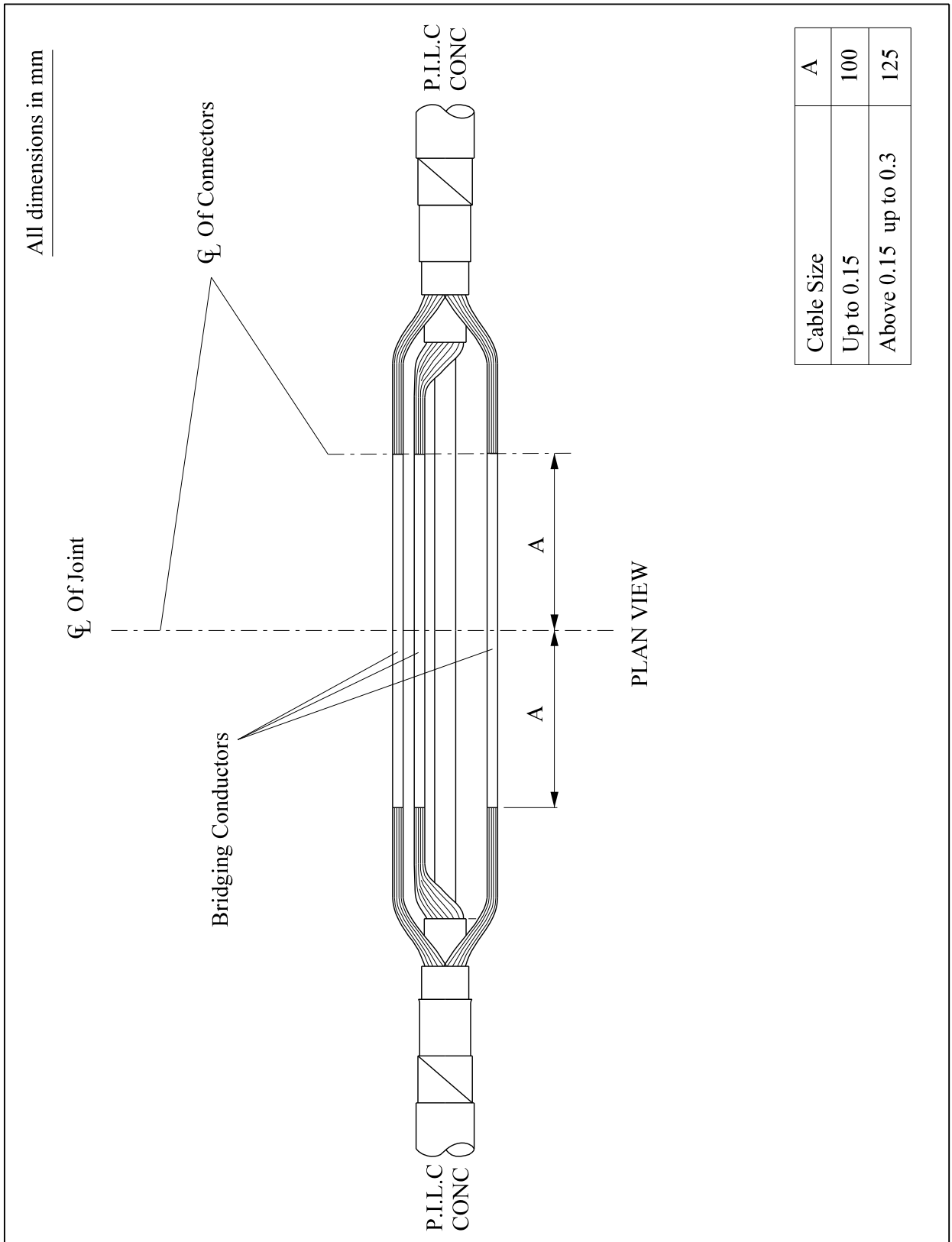

Cable Size	A
Up to 0.15	100
Above 0.15 up to 0.3	125

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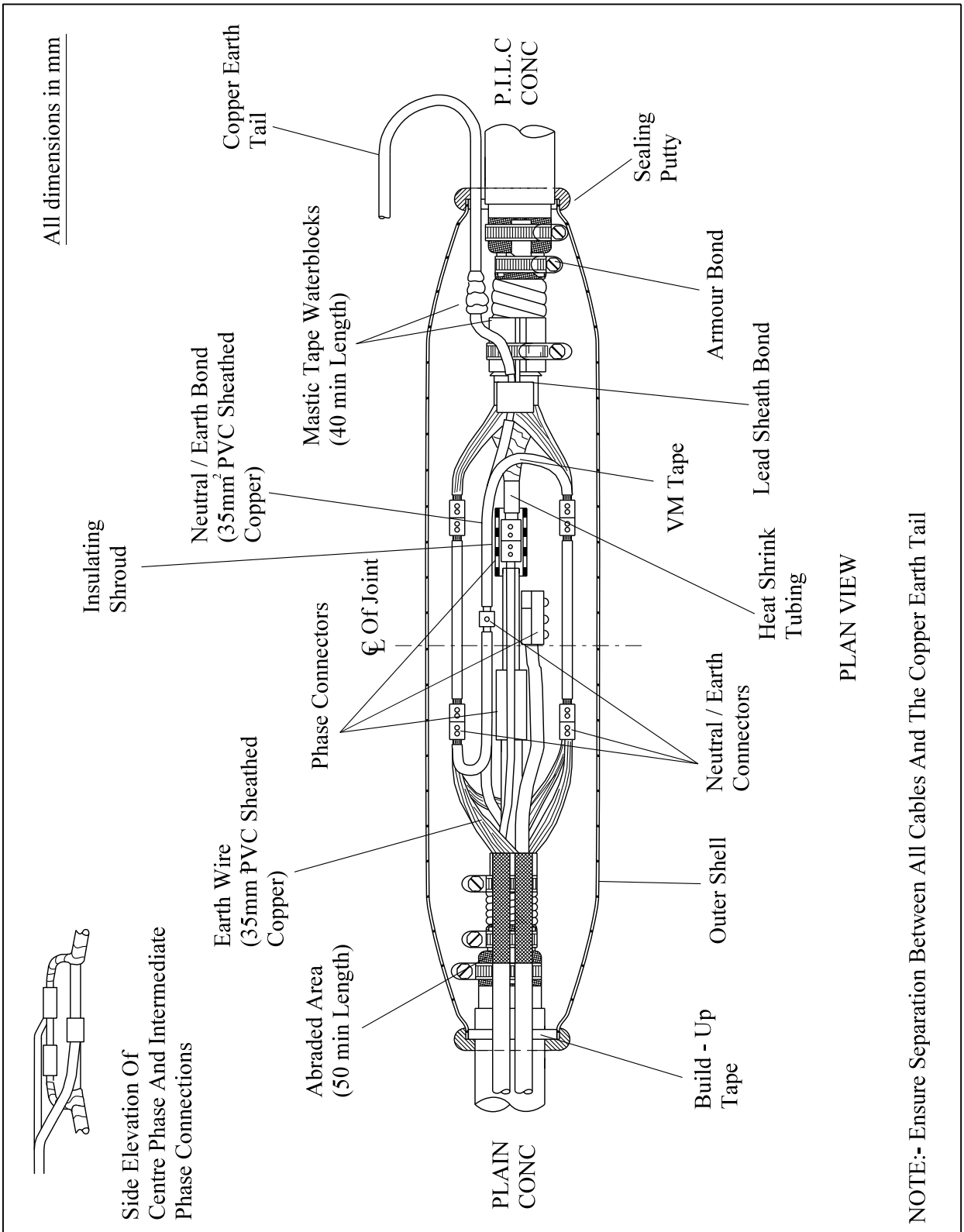

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ST: CA1U/2 PROCEDURES FOR JOINTING OF PAPER INSULATED CONCENTRIC AND TRIPLE-CONCENTRIC LV MAINS CABLE

JOINTING PROCEDURE 7.813

PILC TRIPLE CONCENTRIC MAINS CABLE SERVICE BRANCH JOINT

DEAD WORKING ONLY

This procedure is to be read in conjunction with the appropriate General Requirements ST: CA1C/4 Section 6 Pt 1 of the LV Jointing Manual

JOINTING PROCEDURE 7.813

MATERIALS LIST

CABLE SIZE – 50/95mm² PILC Concentric

Description	Quantity
Shell 1588	1
Resin	25 litre (5 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 95	6
Connector USB 95 T1	1
Earth Bond Kit LVEB	2
Copper Earth Tail LVCU 1700/5	1

120/185mm² Pilc Concentric

Shell 1587	1
Resin	40 litre (8 x 5)
Connector MSIP 50/185	1
Connector BCNE 3	1
Connector UST 95	6
Connector USB 95 T1	1
Earth Bond Kit LVEB	2
Copper Earth Tail LVCU 1700/5	1

ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch
Black cotton tape
Sealing putty
Cable ties
Shell support
Heatshrink tube
Whipping thread
PVC tape
'VM' tape
Denso tape
De-solvit 1000FD
De-solvit 1000
Workhorse dry wipes

Note: - Individual material item numbers (SHOPS) are to be found in Section 4 - Part I of the LV Mains Jointing Manual.

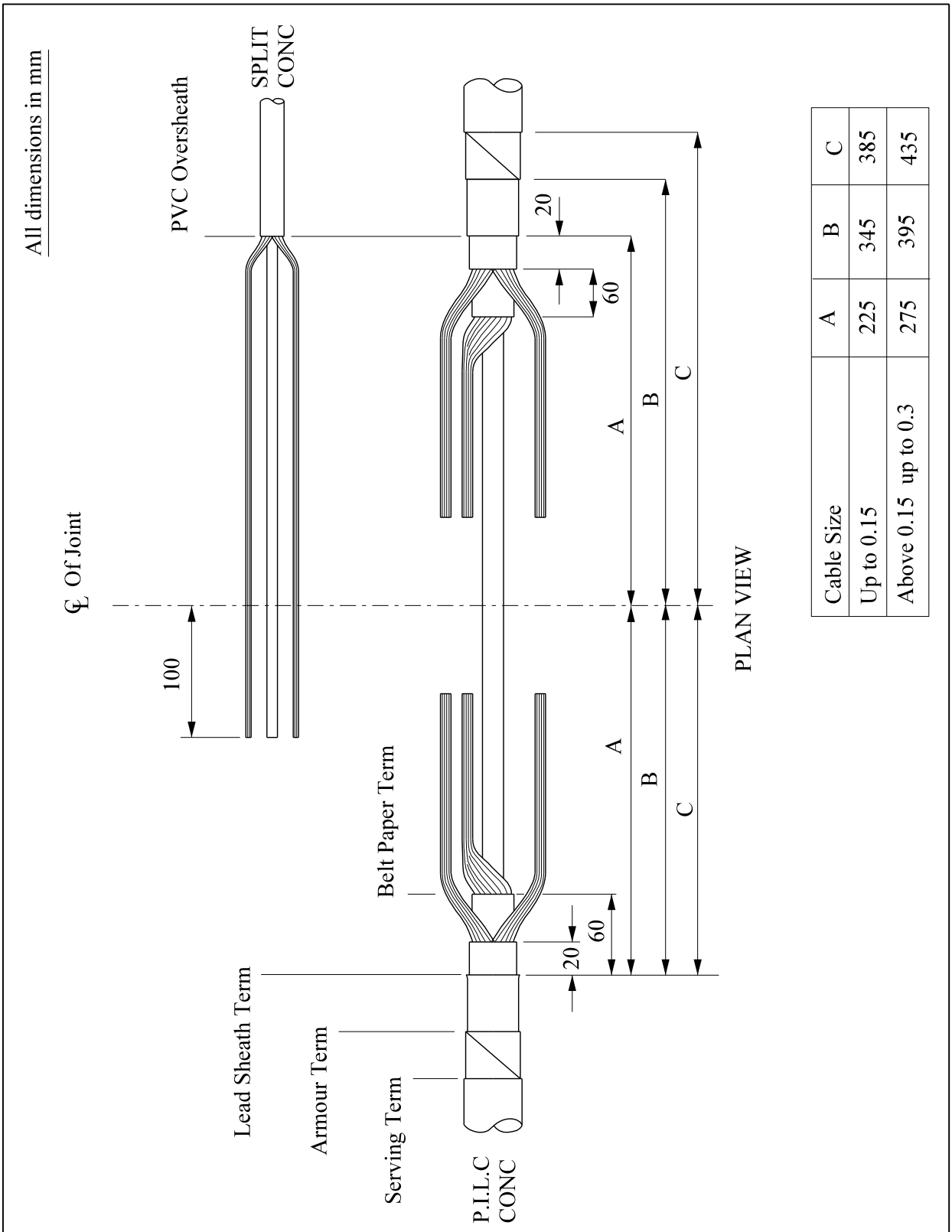
JOINTING PROCEDURE 7.813

DEAD WORKING ONLY

Actions		General Requirements (ST: CA1C/4) (Except where otherwise stated)
	Refer to Drawing **LVJ 7.813.1, 7.813.2, 7.813.3** whilst undertaking this Jointing Procedure	
1.	Set up and mark cable	4
	PVC SERVICE CABLE - Preparation	
2.	Open and cut cable	17
3.	Prepare neutral and earth wires for jointing	8
	PILC CONCENTRIC CABLE – Preparation	
4.	Open and cut cable in accordance with Special Requirement SR 1- 7.801	7.801
	Do not cut the centre core	
5.	Carry out moisture test	19
6.	Apply core protection	7.801
7.	Apply armour bonds	22
8.	Apply lead sheath bonds	23
	COMPLETION OF JOINT	
9.	Connect a 35mm² earth wire to lead sheath bonds including service earth wires and copper earth tail	23
10.	Remove temporary earth continuity bond applied in 4	--

Actions		**General Requirements (ST: CA1C/4)** (Except where otherwise stated.)
11.	Taking one half of the main cable neutral wires at a time:-	
	(a) Make a bridging conductor of the appropriate size	7.801
	(b) Connect and insulate the bridging conductor to half of the main cable neutral wires at the opposite end of the joint to the service cable entry	29/30
	(c) At the service entry end connect and insulate the bridging conductor to the half of the main neutral wires including the service neutral wires of one service cable	29/30
12.	Repeat 11 for the remaining half of neutral wires on the opposite side of the joint	--
13.	Make phase connection on centre core	29
14.	Using a bridging conductor of appropriate size, connect the intermediate conductor including the service and insulate	29/30 7.801
15.	Abrade and build up oversheath	32
16.	Thoroughly degrease the joint	35
17.	Apply mastic water block to lead sheaths and copper earth tail	33
18.	Prepare and fit shell, ensuring 15mm clearance	36
19.	Mix and pour resin	37

All dimensions in mm



Cable Size	A	B	C
Up to 0.15	225	345	385
Above 0.15 up to 0.3	275	395	435

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Title: PILC TRIPLE CONCENTRIC SERVICE BRANCH JOINT STRIPPING DIMENSIONS

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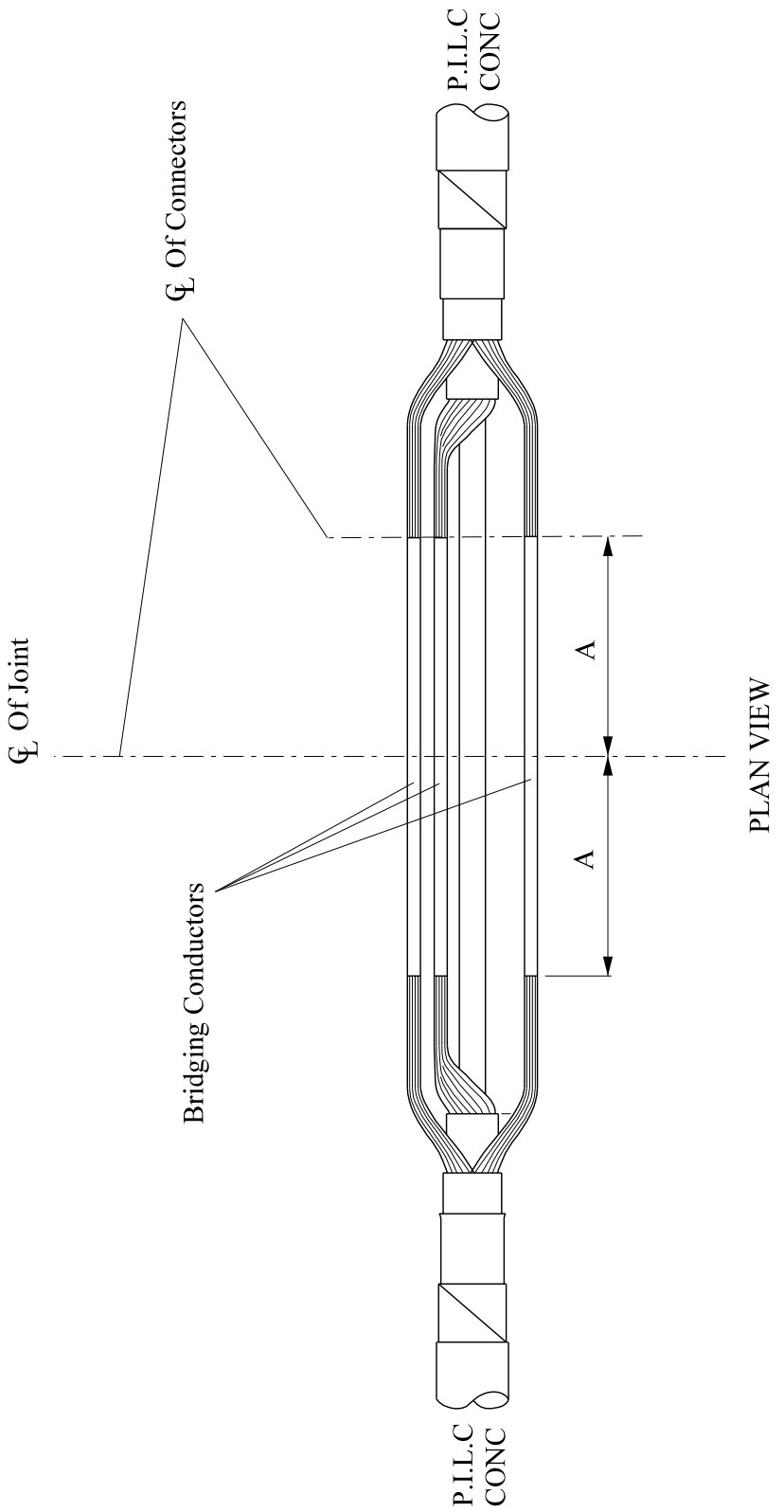
All dimensions in mm



Cable Size	A
Up to 0.15	100
Above 0.15 up to 0.3	125

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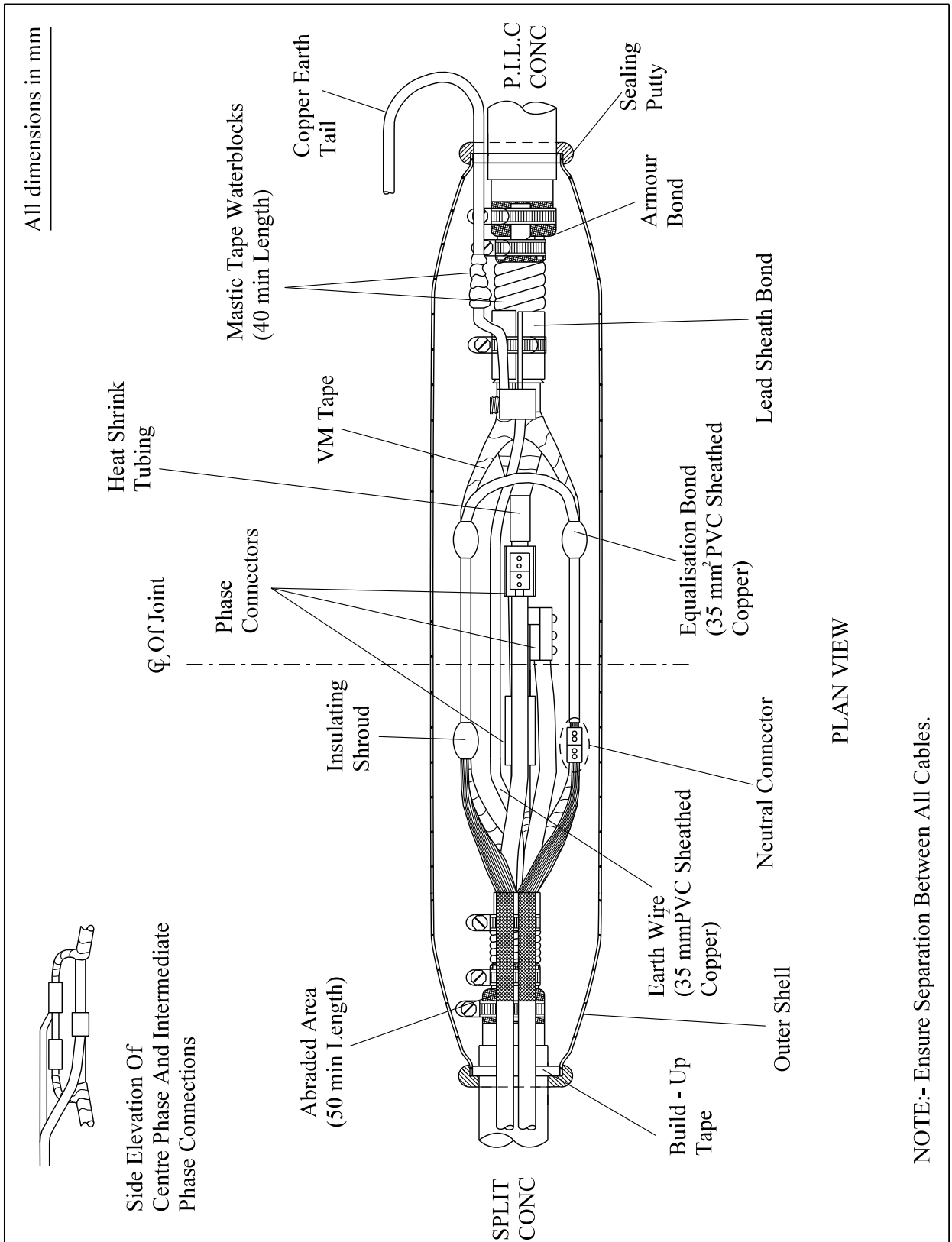
Title PILC TRIPLE CONCENTRIC SERVICE BRANCH JOINT CONNECTOR POSITION DIMENSIONS

Drg. No. LVJ 7.813.2

Rev No



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Rev No

APPENDIX A

SUPERSEDED DOCUMENTATION

This Standard Technique supersedes ST:CA1U/1 dated October 2001 which should now be withdrawn.

APPENDIX B

ASSOCIATED DOCUMENTATION

ST: CA1A, ST: CA1C/5, ST: CA1 D, ST: CA1E, ST: CA1F, ST: CA1G, ST: CA1H, ST: CA1I, ST: CA1W, ST: CA1X, ST: CA1Y, ST: CA1Z, ST: CA1AA, ST: CA1AB, ST: CA7A, ST: CA7B, ST: CA7C, ST: CA7D.

APPENDIX C

IMPACT ON COMPANY POLICY

None, as this document has just been updated to incorporate the latest ST: HS8H and other minor changes.

APPENDIX D

IMPLEMENTATION OF POLICY

This Standard Technique shall be communicated to all relevant WPD engineers and site staff at the next Team Briefing by the Team Manager.

APPENDIX E

KEY WORDS

PILC Concentric, PILC Triple Concentric.

APPENDIX F

DOCUMENT LAST REVIEWED

June 2012