

## **Company Directive**

### **STANDARD TECHNIQUE : CA1D/4**

#### **Relating to the Procedures for making Low Voltage Mains Cable Straight Joints**

This Standard Technique Document contains all the approved LV mains cable straight joints, which shall be implemented in conjunction with the appropriate General Requirements contained in 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: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE STRAIGHT JOINTS**

## **INTRODUCTION**

This Standard Technique Document contains all the approved LV Mains cable straight joints, which shall be implemented in conjunction with the appropriate General Requirements contained in 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 Mains Straight Joint configuration (i.e. non-standard) not covered within this Standard Technique the Policy Manager, Avonbank, is to be consulted.

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**Note: - Any reference to hybrid equally applies to plain concentric.**

**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.101**

**THREE CORE WAVECON – WAVECON 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 Jointing Manual**

## JOINTING PROCEDURE 7.101

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	TO	STRAIGHT JOINT
95W	95W	MS1
	185W	MS2
	300W	MS3
185W	185W	MS2
	300W	MS3
300W	300W	MS3

**Note: - 70mm<sup>2</sup> and 120mm<sup>2</sup> Wavecon used in South Wales will be sized as 95mm<sup>2</sup> (70) and 185mm<sup>2</sup> (120).**

Key: - 95W = 95mm<sup>2</sup> Wavecon  
185W = 185mm<sup>2</sup> Wavecon  
300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.101

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS				EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	BCNE 3	LVCU 1700/5
MS1	1				2	3			2	1
MS2		1		1	2		3		2	1
MS3			1	3	2			3	2	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
Tinned copper braid (15 x 1.5)  
16 swg tinned copper wire  
PVC tape  
De-solvit 1000FD  
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 7.101

### Actions

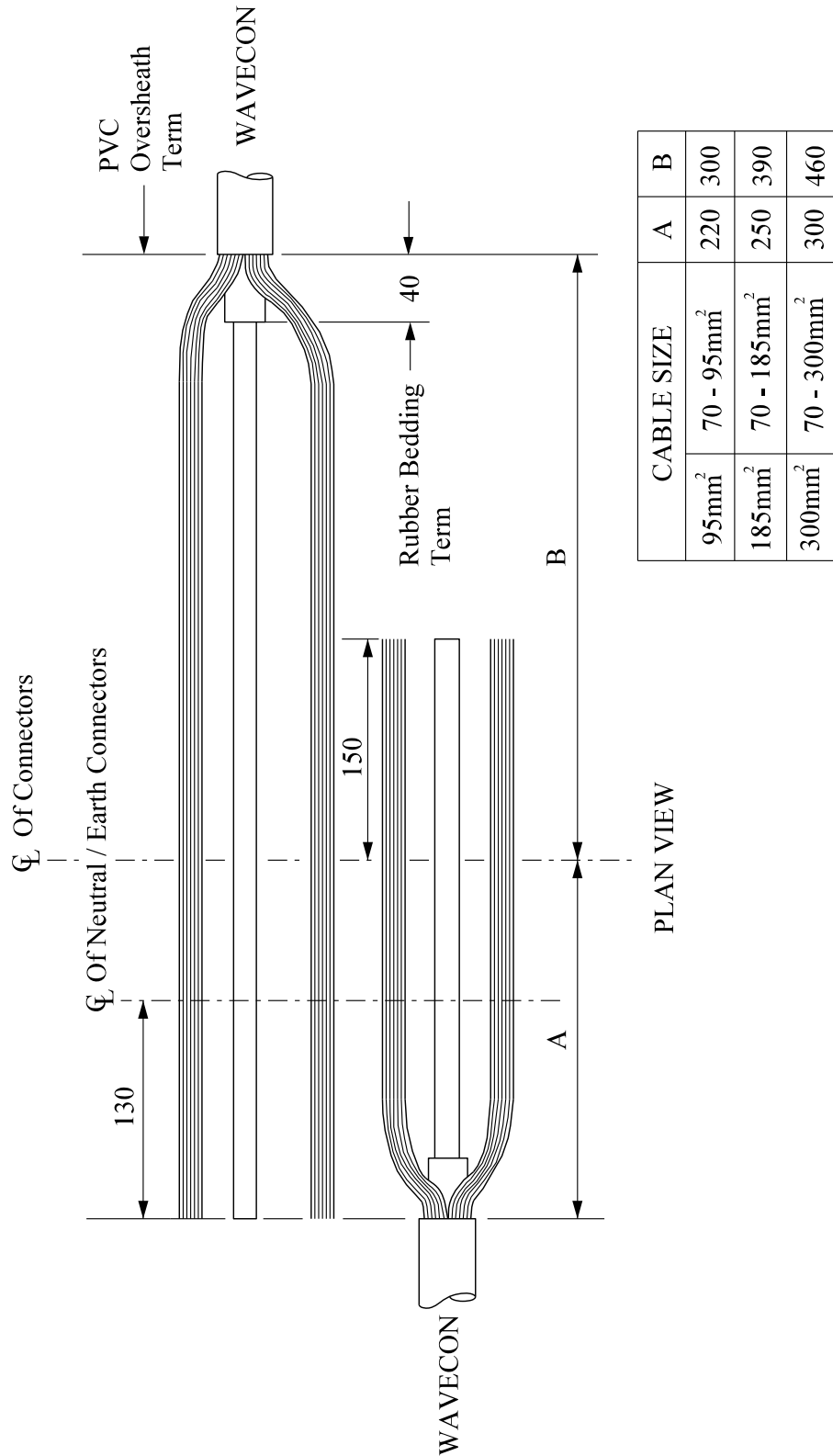
### General Requirements (ST: CA1C/4)

Refer to Drawings **LVJ 7.101.1, 7.101.2** whilst undertaking this Jointing Procedure.


1.	Set up and mark cables	4
2.	Open and cut cables in accordance with General Requirement 6.14	14
3.	Prepare neutral/earth wires for jointing	8
4.	Set cores in joint position	27
5.	Connect neutral/earth wires on far side of joint including equalisation bond	29
6.	Remove temporary earth connection applied in 2	--
7.	Apply temporary shrouding	21
8.	Make and insulate phase connections	29/30
9.	Remove temporary shrouding applied in 7	--
10.	Connect remaining neutral/earth wires including equalisation bond and copper earth tail	29
11.	Form neutral/earth wires into their final positions	--
12.	Abrade and build up oversheaths	32
13.	Thoroughly degrease the joint	35
14.	Apply mastic waterblock to copper earth tail	33
15.	Remove temporary binders	--
16.	Prepare and fit shell ensuring 15mm clearance	36
17.	Mix and pour resin	37

All dimensions in mm

NOTE:- Where The Jointing Of Dissimilar Size Cables Is Required All The Dimensions Will Be Taken To The Largest Cable Size

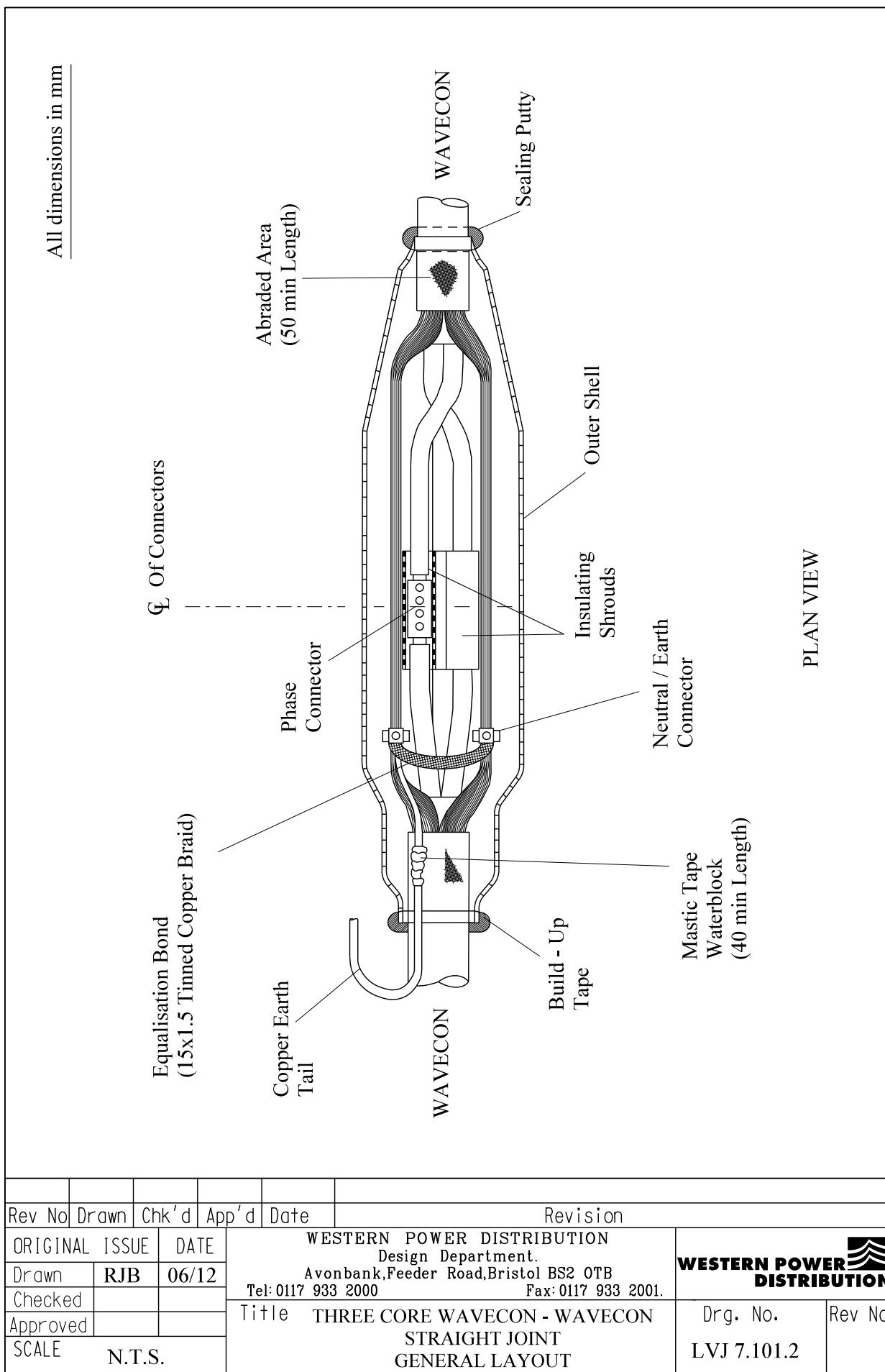


NOTE:- Crossing Of Cores Will Be Undertaken In The Long Side Of The Joint ie 'B' Dimension.

Rev No	Drawn	Chk'd	App'd	Date	Revision	
ORIGINAL ISSUE		DATE	WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.			 <b>WESTERN POWER DISTRIBUTION</b>
Drawn	RJB	06/12	Title THREE CORE WAVECON-WAVECON STRAIGHT JOINT STRIPPING DIMENSIONS			
Checked			Drg. No.			Rev No
Approved			LVJ 7.101.1			
SCALE		N.T.S.				

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.102**

**THREE CORE WAVECON – WAVECON THREE CORE  
MAINS CABLE STRAIGHT JOINT INCLUDING SERVICES**

**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**

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## JOINTING PROCEDURE 7.102

### JOINT KIT REFERENCES

MAINS CABLE		JOINT KIT REFERENCES		
FROM	TO	ST JT WITH HYBRID SERVICES		
		1 x 1 ph	2 x 1 ph	1 x 3 ph
95W	95W	MSS 1	MSS 4	MSS 7
	185W	MSS 2	MSS 5	MSS 8
	300W	MSS 3	MSS 6	MSS 9
185W	185W	MSS 2	MSS 5	MSS 8
	300W	MSS 3	MSS 6	MSS 9
300W	300W	MSS 3	MSS 6	MSS 9

**Note: - 70mm<sup>2</sup> and 120mm<sup>2</sup> Wavecon used in South Wales will be sized as 95mm<sup>2</sup> (70) and 185mm<sup>2</sup> (120).**

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 185W = 185mm<sup>2</sup> Wavecon  
 300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.102

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS							EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95 T1	USB 185T1	USB 300T1	BCNE 3	LVCU 1700/5
MSS 1	1				2	3			1			3	1
MSS 2		1		1	2		3			1		3	1
MSS 3			1	3	2			3			1	3	1
MSS 4	1				2	3			2			3	1
MSS 5		1		1	2		3			2		3	1
MSS 6			1	3	2			3			2	3	1
MSS 7	1				2	3			3			3	1
MSS 8		1		1	2		3			3		3	1
MSS 9			1	3	2			3			3	3	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 Tinned copper braid (15 x 1.5)  
 16 swg tinned copper wire  
 PVC tape  
 Emery cloth  
 De-solvit 1000FD  
 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 7.102

### Actions

### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.102.1, 7.102.2** whilst undertaking this Jointing Procedure.

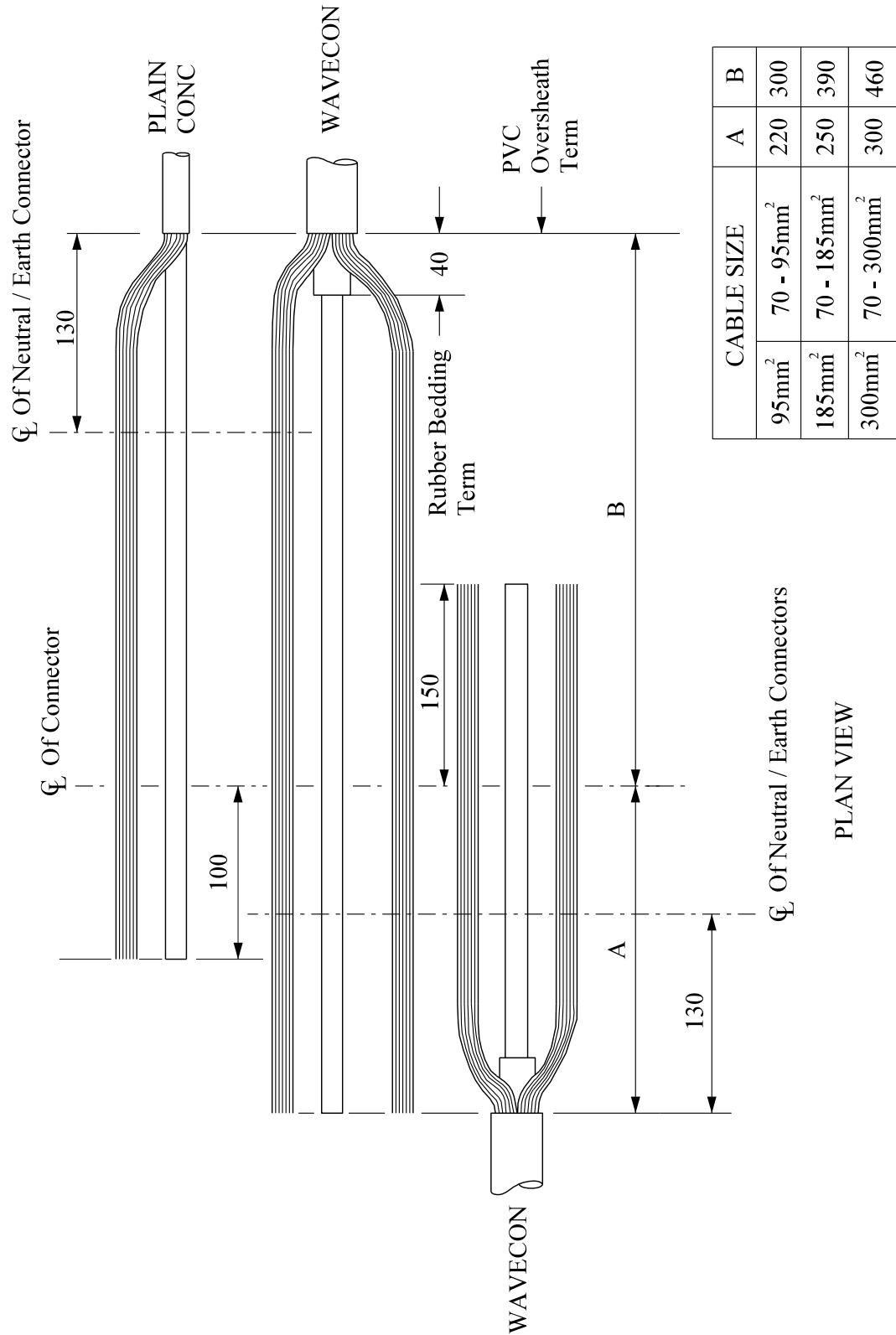
1.	Set up and mark cables	4
	<b>WAVECON CABLE - Preparation</b>	
2.	Open and cut the cables in accordance with General Requirement 6.14	14
	<b>PVC SERVICE CABLE - Preparation</b>	
3.	Open and cut the cable(s) in accordance with General Requirement 6.17	17
	<b>COMPLETION OF JOINT</b>	
4.	Prepare neutral/earth wires for jointing	8
5.	Set cores in joint position	27
6.	Connect neutral/earth wires on far side of joint including equalisation bond	29
7.	Remove temporary earth connection applied in 2	--
8.	Connect neutral/earth wires of service cable(s)	2
9.	Apply temporary shrouding	21
10.	Make and insulate phase connections	29/30
11.	Remove temporary shrouding applied in 9	--
12.	Connect remaining neutral/earth wires including equalisation bond and copper earth tail	29
13.	Form neutral/earth wires into their final positions	--
14.	Abrade and build up oversheaths	32

## **JOINTING PROCEDURE 7.102 – Continued**


<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
15. Thoroughly degrease the joint	35
16. Apply mastic waterblock to copper earth tail	33
17. Remove temporary binders	--
18. Prepare and fit shell ensuring 15mm clearance	36
19. Mix and pour resin	37

NOTE:- Where The Jointing Of Dissimilar Size Cables Is Required All The Dimensions Will Be Taken To The Largest Cable Size.

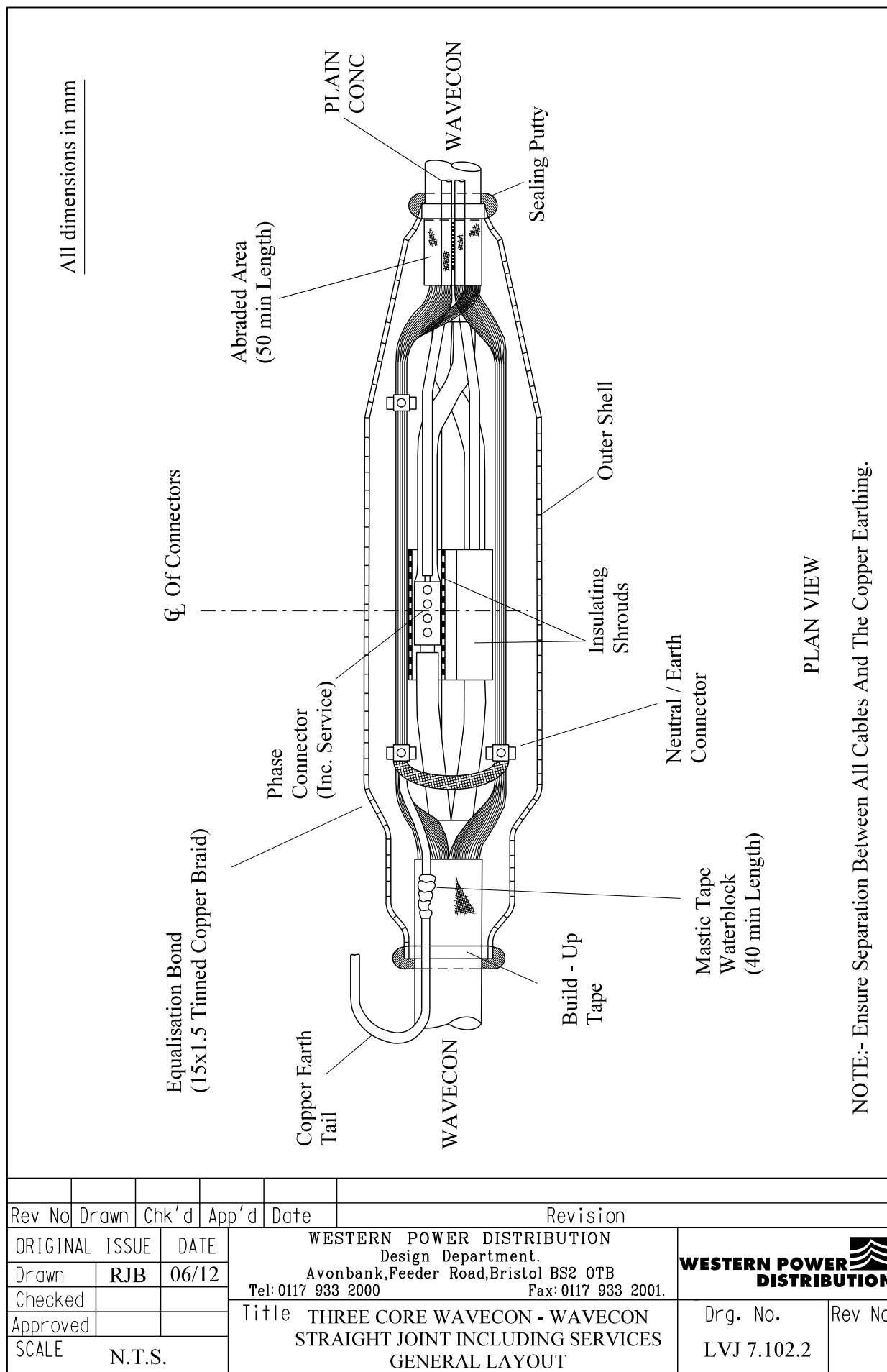
All dimensions in mm



NOTE:- Crossing Of Cores Will Be Undertaken In The Long Side Of The Joint ie 'B' Dimension.

Rev No	Drawn	Chk'd	App'd	Date	Revision		
ORIGINAL ISSUE		DATE		<div>WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000      Fax: 0117 933 2001.</div> <div>WESTERN POWER DISTRIBUTION</div>			
Drawn	RJB	06/12					
Checked							
Approved							
SCALE		N.T.S.		Title		Drg. No.	Rev No
				THREE CORE WAVECON - WAVECON STRAIGHT JOINT INCLUDING SERVICES STRIPPING DIMENSIONS		LVJ 7.102.1	

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.103**

**THREE CORE WAVECON – CONSAC 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 Jointing Manual**

## JOINTING PROCEDURE 7.103

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	TO	STRAIGHT JOINT
95W	95C	MS4
	185C	MS 5
	240C	MS 6
185W	95C	MS 5
	185C	MS 5
	240C	MS 6
300W	95C	MS 6
	185C	MS 6
	240 C	MS 6

Key: - 95W = 95mm<sup>2</sup> Wavecon  
95C = 95mm<sup>2</sup> Consac  
185W = 185mm<sup>2</sup> Wavecon  
185C = 185mm<sup>2</sup> Consac  
240C = 240mm<sup>2</sup> Consac  
300W = 300mm<sup>2</sup> Wavecon

**Note: - 240mm<sup>2</sup> Consac is only to be found in the Midlands Region of WPD.**

## JOINTING PROCEDURE 7.103

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS						EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	TA1	TA2	BCNE 3	LVCU 1700/5
MS 4	1				2	3			1		1	1
MS 5		1		1	2		3			1	1	1
MS 6			1	3	2			3		1	1	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
16 swg tinned copper wire  
Heatshrink tubing  
Whipping thread  
'H' metal  
Abrasive metal  
PVC 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 7.103

### Actions

### General Requirements (ST: CA1C/4)

Refer to Drawings **LVJ 7.103.1, 7.103.2** whilst undertaking this Jointing Procedure.

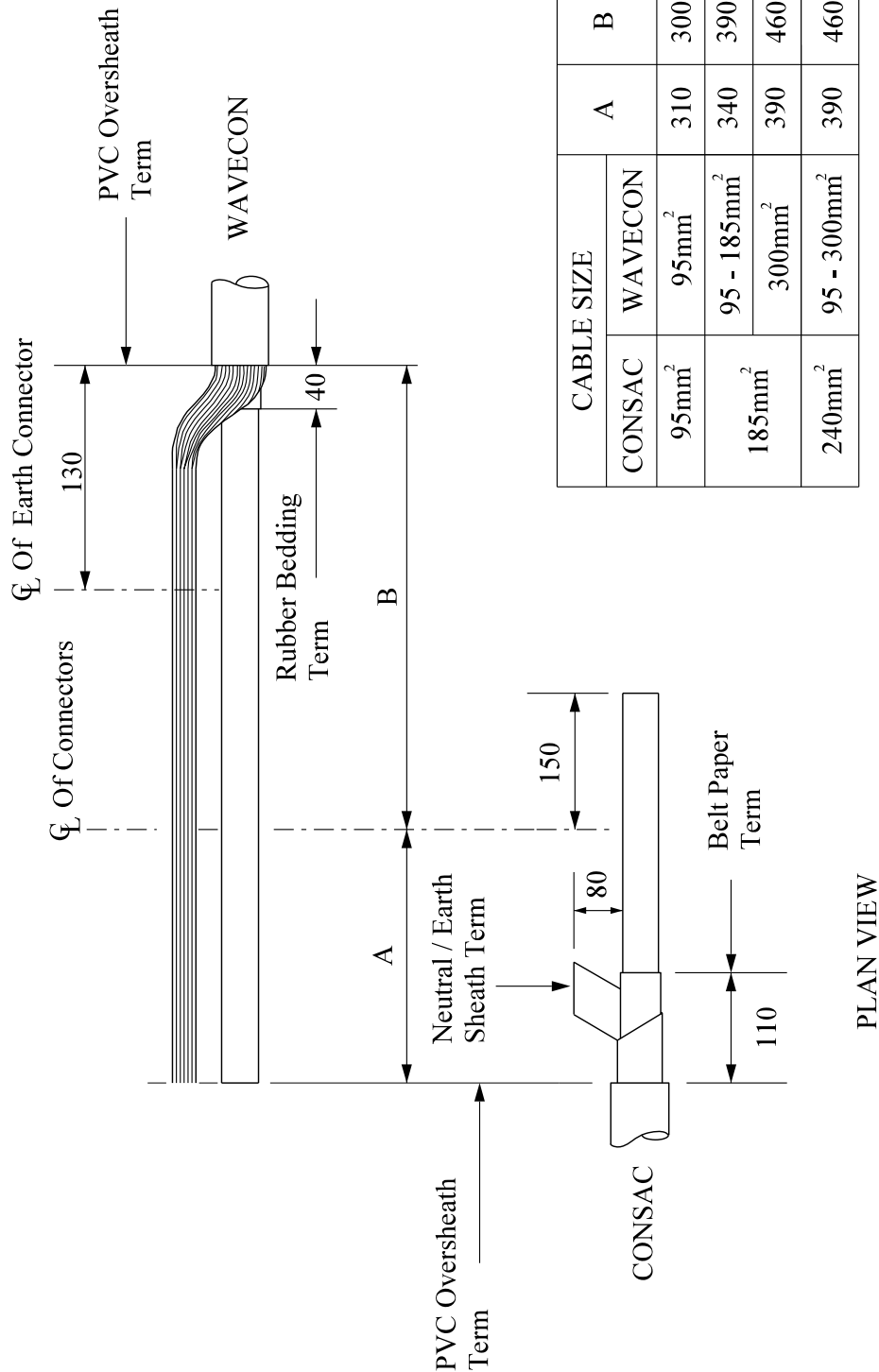
1.	Set up and mark cables	4
<b>CONSAC CABLE - Preparation</b>		
2.	Open and cut cable in accordance with General Requirement 6.15	15
3.	Carry out moisture test	19
4.	Prepare neutral/earth sheath for jointing	--
5.	Apply core protection	25
<b>WAVECON CABLE - Preparation</b>		
6.	Open and cut cable in accordance with General Requirement 6.14	14
7.	Prepare neutral/earth wires for jointing	8
<b>COMPLETION OF JOINT</b>		
8.	Set cores in joint position	27
9.	Connect neutral/earth wires to neutral/earth sheath	29
10.	Remove temporary earth connections applied in 2 and 6	--
11.	Apply temporary shrouding	21
12.	Make and insulate phase connections	29/30
13.	Remove temporary shrouding applied in 11	--
14.	Form neutral/earth wires and neutral/earth sheath into their final position	31
15.	Connect copper earth tail to neutral/earth wires	29

## **JOINTING PROCEDURE 7.103 – Continued**


<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
16. Abrade and build up oversheaths	32
17. Thoroughly degrease the joint	35
18. Apply mastic water blocks to copper earth tail and Consac PVC oversheath termination	33
19. Remove all temporary binders	--
20. Prepare and fit shell ensuring 15mm clearance	36
21. Mix and pour resin	37

All dimensions in mm

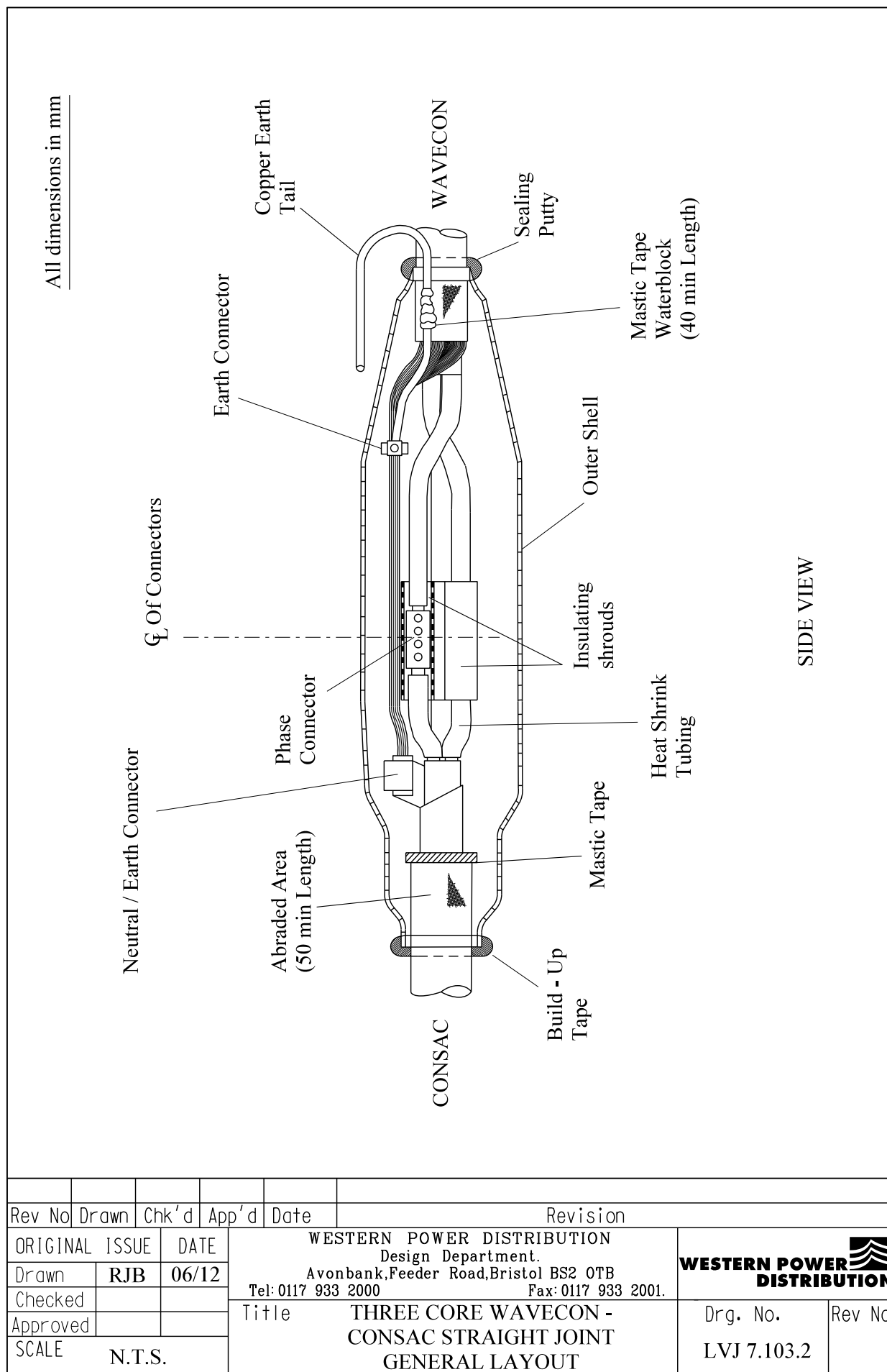
NOTE:- Where Jointing Of Dissimilar Size Cables Is Required  
All The Dimensions Will Be Taken To The Largest Cable Size.



NOTE:- Crossing Of Cores Will Be Undertaken In The Long Side Of The Joint ie 'B' Dimension.

Rev No	Drawn	Chk'd	App'd	Date	Revision		
ORIGINAL ISSUE		DATE	WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.			 <b>WESTERN POWER DISTRIBUTION</b>	
Drawn	RJB	06/12	Title				
Checked			THREE CORE WAVECON - CONSAC STRAIGHT JOINT STRIPPING DIMENSIONS			Drg. No. LVJ 7.103.1	Rev No
Approved							
SCALE		N.T.S.					

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ORIGINAL ISSUE		DATE		<div>WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000      Fax: 0117 933 2001.</div>	
Drawn	RJB	06/12		<div><div>WESTERN POWER DISTRIBUTION</div><div>DRG. No. LVJ 7.103.2</div><div>Rev No.</div></div>	
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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.104**

**THREE CORE WAVECON – CONSAC MAINS CABLE  
STRAIGHT JOINT INCLUDING SERVICES**

**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 7.104

### JOINT KIT REFERENCES

MAINS CABLE		JOINT KIT REFERENCES		
FROM	TO	ST JT WITH HYBRID SERVICES		
		1 x 1ph	2 x 1ph	1 x 3ph
95W	95C	MSS 10	MSS 13	MSS 16
	185C	MSS 11	MSS 14	MSS 17
	240C	MSS 12	MSS 15	MSS 18
185W	95C	MSS 11	MSS 14	MSS 17
	185C	MSS 11	MSS 14	MSS 17
	240C	MSS 12	MSS 15	MSS 18
300W	95C	MSS 12	MSS 15	MSS 18
	185C	MSS 12	MSS 15	MSS 18
	240C	MSS 12	MSS 15	MSS 18

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 95C = 95mm<sup>2</sup> Consac  
 185W = 185mm<sup>2</sup> Wavecon  
 185C = 185mm<sup>2</sup> Consac  
 300W = 300mm<sup>2</sup> Wavecon

**Note: - 240mm<sup>2</sup> Consac is only to be found in the Midlands Region of WPD.**

## JOINTING PROCEDURE 7.104

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS									EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95TI	USB 185TI	USB 300TI	TA1	TA2	BCNE 3	LVCU 1700/5
MSS 10	1				2	3			1			1		1	1
MSS 11		1		1	2		3			1			1	1	1
MSS 12			1	3	2			3			1		1	1	1
MSS 13	1				2	3			2			1		1	1
MSS 14		1		1	2		3			2			1	1	1
MSS 15			1	3	2			3			2		1	1	1
MSS 16	1				2	3			3			1		1	1
MSS 17		1		1	2		3			3			1	1	1
MSS 18			1	3	2			3			3		1	1	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 16 swg tinned copper wire  
 Heatshrink tubing  
 Whipping thread  
 'H' metal  
 Abrasive metal  
 PVC tape  
 Emery cloth  
 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 7.104

### Actions

### General Requirements (ST: CA1C/4)

Refer to Drawings **LVJ 7.104.1, 7.104.2** whilst undertaking this Jointing Procedure

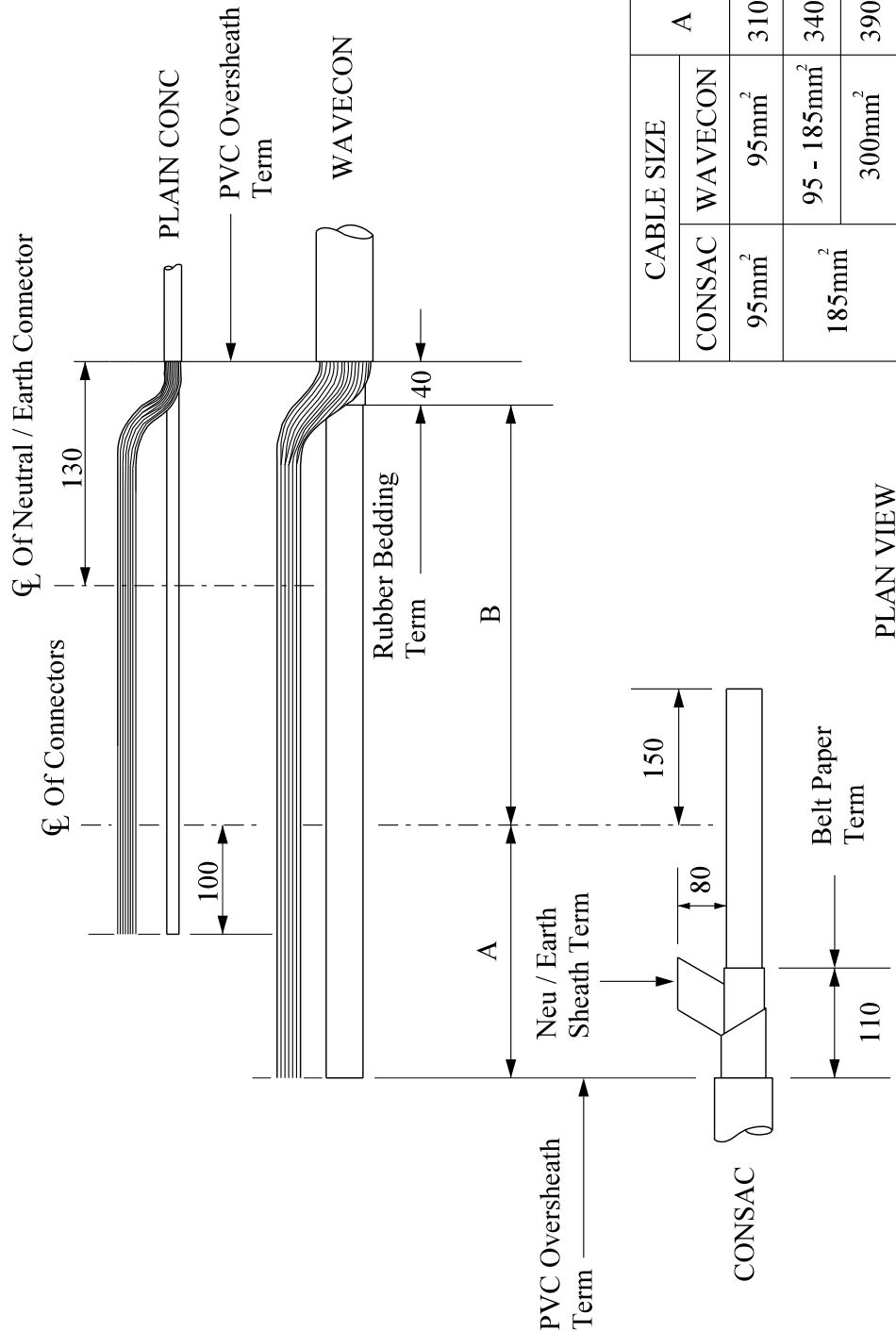
1.	Set up and mark cables	4
	<b>CONSAC CABLE - Preparation</b>	
2.	Open and cut the cable	15
3.	Carry out moisture test	19
4.	Prepare neutral/earth sheath for jointing	--
5.	Apply core protection	25
	<b>WAVECON CABLE - Preparation</b>	
6.	Open and cut the cable	14
	<b>PVC SERVICE CABLE - Preparation</b>	
7.	Open and cut the cable(s)	17
	<b>COMPLETION OF JOINT</b>	
8.	Prepare neutral/earth wires for jointing	8
9.	Set cores in joint position	27
10.	Connect Wavecon neutral/earth wires to neutral/earth sheath	29
11.	Remove temporary earth connections applied in 2 and 6	--
12.	Connect neutral/earth wires of service cable(s)	29
13.	Apply temporary shrouding	21
14.	Make and insulate phase connections	29/30

## **JOINTING PROCEDURE 7.104 – Continued**

<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
15. Remove temporary shrouding applied in 13	--
16. Form neutral/earth wires and neutral/earth sheath into their final position	31
17. Connect copper earth tail to neutral/earth wires	29
18. Abrade and build up oversheaths	32
19. Thoroughly degrease the joint	35
20. Apply mastic water blocks to copper earth tail and Consac PVC oversheath termination	33
21. Remove all temporary binders	--
22. Prepare and fit shell ensuring 15mm clearance	36
23. Mix and pour resin	37

NOTE:- Where The Jointing Of Dissimilar Size Cables Is Required All The Dimensions Will Be Taken To The Largest Cable Size.


All dimensions in mm



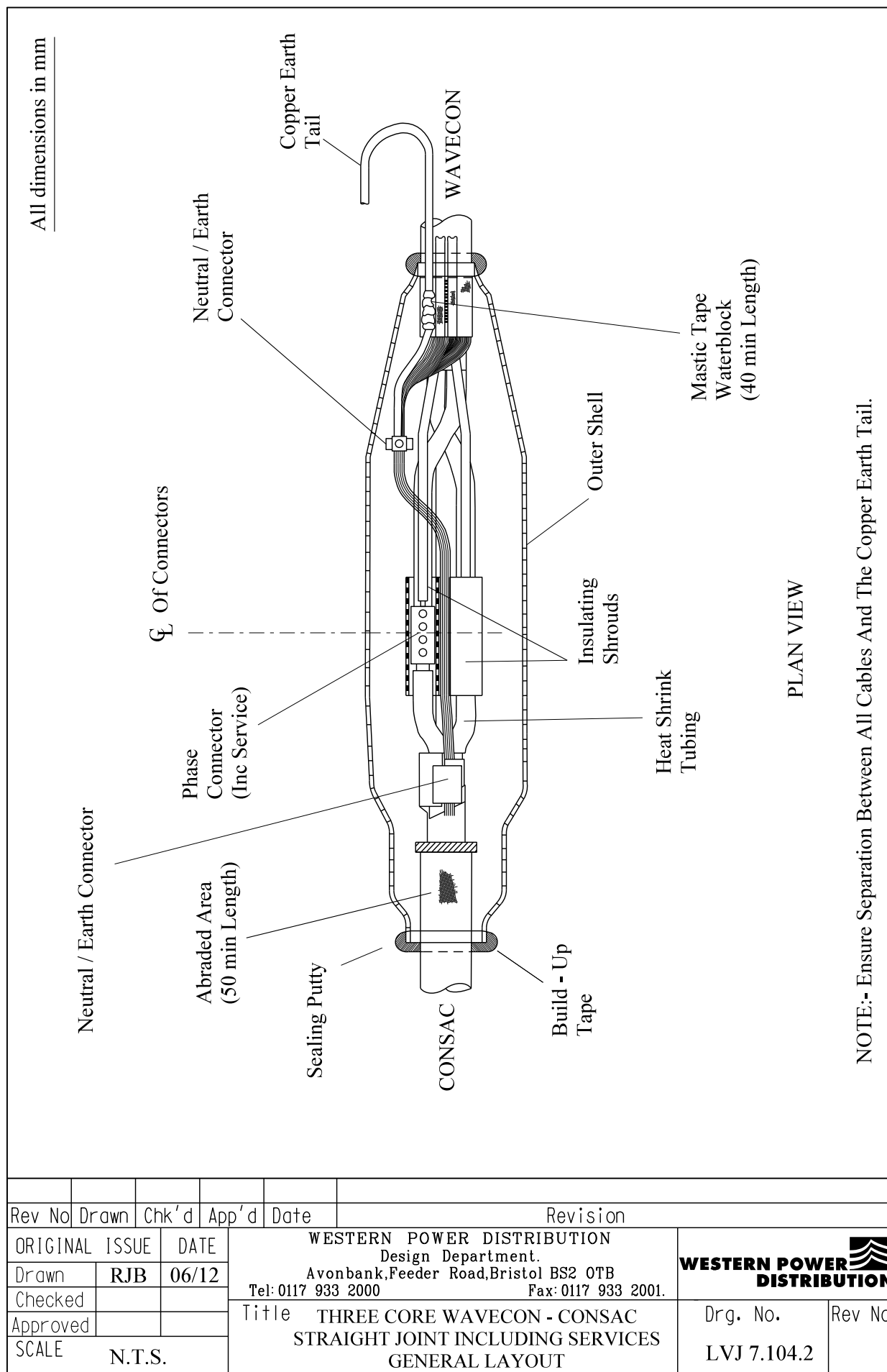
CABLE SIZE		A	B
CONSAC	WAVECON	310	300
95mm <sup>2</sup>	95mm <sup>2</sup>	310	300
185mm <sup>2</sup>	95 - 185mm <sup>2</sup>	340	390
	300mm <sup>2</sup>	390	460
240mm <sup>2</sup>	95 - 300mm <sup>2</sup>	390	460

PLAN VIEW

NOTE:- Crossing Of Cores Will Be Undertaken In The Long Side Of The Joint ie 'B' Dimension.

Rev No	Drawn	Chk'd	App'd	Date	Revision
ORIGINAL ISSUE		DATE		WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.	
Drawn	RJB	06/12		 <b>WESTERN POWER DISTRIBUTION</b>	
Checked					
Approved					
SCALE		N.T.S.			
Title				THREE CORE WAVECON - CONSAC STRAIGHT JOINT INCLUDING SERVICES STRIPPING DIMENSIONS	Drg. No. LVJ 7.104.1
					Rev No

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.105**

**THREE CORE WAVECON – PILC  
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 Jointing Manual**

## JOINTING PROCEDURE 7.105

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	TO	STRAIGHT JOINT
95W	Up to 95 PILC	MS 7
	Up to 185 PILC	MS 8
	Up to 300 PILC	MS 9
185W	Up to 185 PILC	MS 8
	Up to 300 PILC	MS 9
300W	Up to 300 PILC	MS 9

Key: - 95W = 95mm<sup>2</sup> Wavecon  
185W = 185mm<sup>2</sup> Wavecon  
300W = 300mm<sup>2</sup> Wavecon



## JOINTING PROCEDURE 7.105

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS			EARTH BOND	EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	LVEB 08	LVCU 1700/5
MS 7	1				2	4			1	1
MS 8		1		1	2		4		1	1
MS 9			1	3	2			4	1	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
16 swg tinned copper wire  
Heatshrink tubing  
Whipping thread  
PVC tape  
35mm<sup>2</sup> PVC sheathed (green/yellow) copper  
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 7.105

### Actions

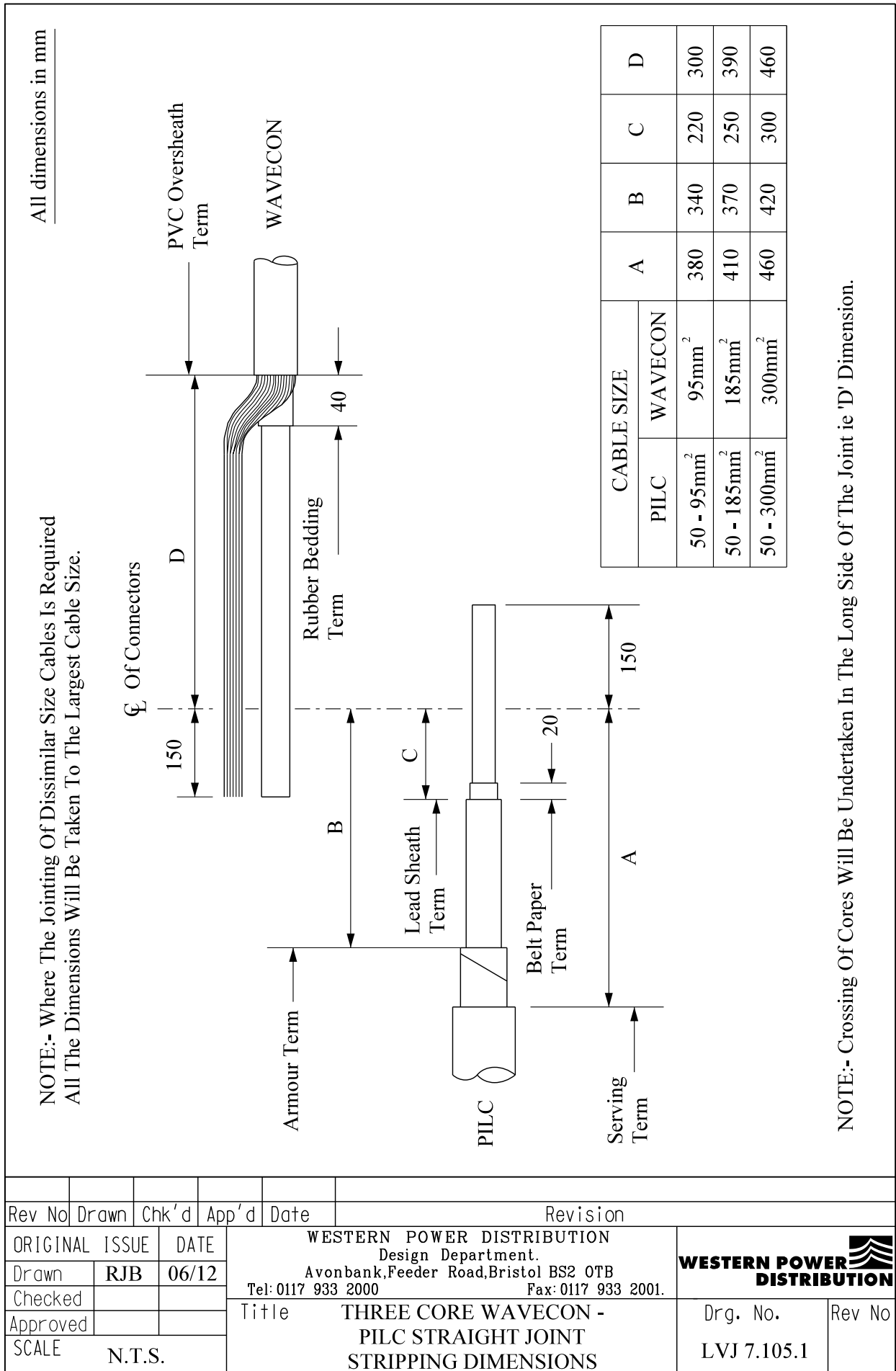
### General Requirements (ST: CA1C/4)


Refer to Drawing **LVJ 7.105.1, 7.105.2** whilst undertaking this Jointing Procedure

1.	Set up and mark cables	4
<b>PILC CABLE - Preparation</b>		
2.	Open and cut the cable	16
3.	Carry out moisture test	19
4.	Apply core protection	25
5.	Apply armour bond	22
6.	Apply lead sheath bond	23
<b>WAVECON CABLE – Preparation</b>		
7.	Open and cut the cable	14
8.	Prepare neutral/earth wires for jointing	8
<b>COMPLETION OF JOINT</b>		
9.	Set cores in joint position	27
10.	Connect 35mm <sup>2</sup> neutral/earth bond to lead sheath bond including copper earth tail	23
11.	Connect neutral/earth wires and 35mm <sup>2</sup> neutral/earth bond to neutral core and insulate	29/30
12.	Remove temporary earth connection applied in 7	--
13.	Apply temporary shrouding	21
14.	Make and insulate phase connections	29/30
15.	Remove temporary shrouding applied in 13	--

## **JOINTING PROCEDURE 7.105 – Continued**

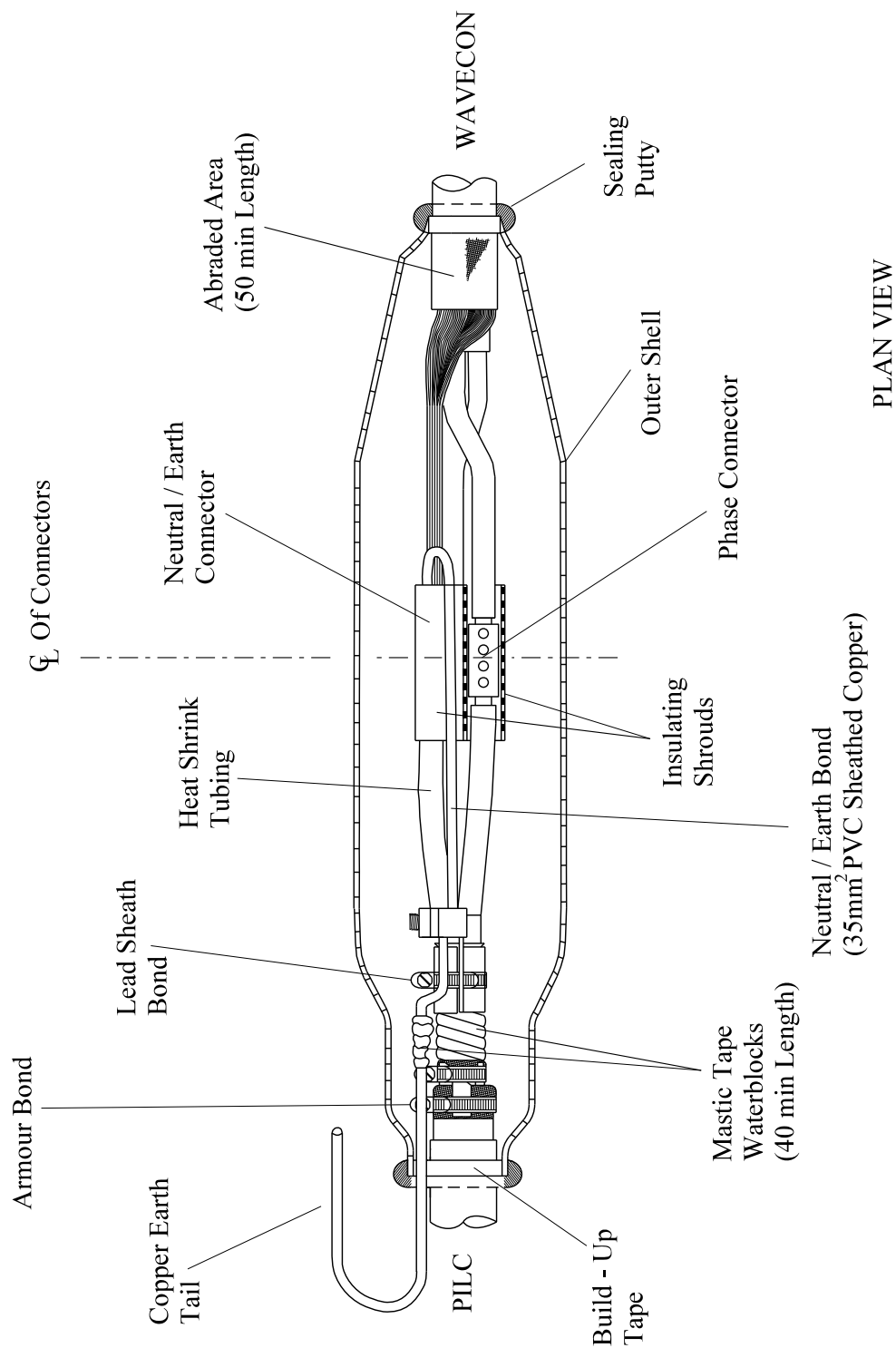
<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
16. Abrade and build up oversheaths	32
17. Thoroughly degrease the joint	35
18. Apply mastic water blocks to lead sheath and copper earth tail	33
19. Remove temporary binders	--
20. Prepare and fit shell ensuring 15mm clearance	36
21. Mix and pour resin	37



Rev No	Drawn	Chk'd	App'd	Date	Revision						
ORIGINAL ISSUE		DATE		<div>WESTERN POWER DISTRIBUTION Design Department. Avonbank, Feeder Road, Bristol BS2 0TB Tel: 0117 933 2000      Fax: 0117 933 2001.</div> <div>WESTERN POWER DISTRIBUTION</div>							
Drawn	RJB	06/12									
Checked											
Approved											
SCALE		N.T.S.		Title		THREE CORE WAVECON - PILC STRAIGHT JOINT STRIPPING DIMENSIONS		Drg. No.  LVJ 7.105.1		Rev No	

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All dimensions in mm



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ORIGINAL ISSUE		DATE		WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel:0117 933 2000 Fax:0117 933 2001.	
Drawn	RJB	06/12		Title THREE CORE WAVECON - PILC STRAIGHT JOINT GENERAL LAYOUT	
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Approved				Drg. No. LVJ 7.105.2	
SCALE		N.T.S.		Rev No	

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.106**

**THREE CORE WAVECON – PILC MAINS CABLE  
STRAIGHT JOINT INCLUDING SERVICES**

**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 7.106

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES		
FROM	TO	ST JT WITH HYBRID SERVICES		
		1 x 1ph	2 x 1ph	1 x 3ph
95W	Up to 95 PILC	MSS 19	MSS 22	MSS 25
	Up to 185 PILC	MSS 20	MSS 23	MSS 26
	Up to 300 PILC	MSS 21	MSS 24	MSS 27
185W	Up to 185 PILC	MSS 20	MSS 23	MSS 26
	Up to 300 PILC	MSS 21	MSS 24	MSS 27
300W	Up to 300 PILC	MSS 21	MSS 24	MSS 27

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 185W = 185mm<sup>2</sup> Wavecon  
 300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.106

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS							EARTH BOND	EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95TI	USB 185TI	USB 300TI	BCNE 3	LVEB 08	LVCU 1700/5
MSS 19	1				2	4			1			1	1	1
MSS 20		1		1	2		4			1		1	1	1
MSS 21			1	3	2			4			1	1	1	1
MSS 22	1				2	4			2			1	1	1
MSS 23		1		1	2		4			2		1	1	1
MSS 24			1	3	2			4			2	1	1	1
MSS 25	1				2	4			3			1	1	1
MSS 26		1		1	2		4			3		1	1	1
MSS 27			1	3	2			4			3	1	1	1

#### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 16 swg tinned copper wire  
 Heatshrink tubing  
 Whipping thread  
 PVC tape  
 35mm<sup>2</sup> PVC sheathed (green/yellow) copper  
 Emery cloth  
 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.**

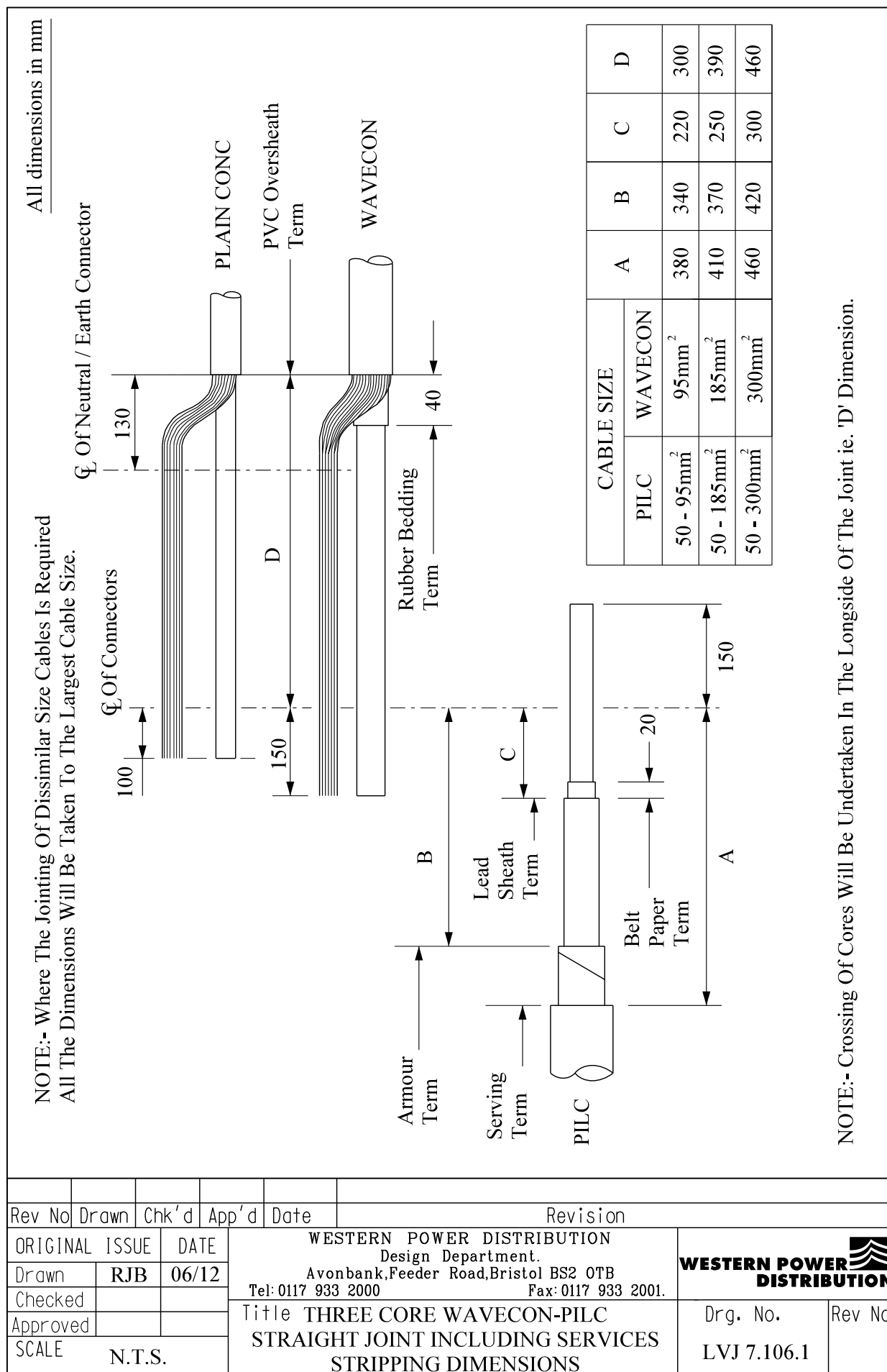


## JOINTING PROCEDURE 7.106

Actions	General Requirements (ST: CA1C/4)
Refer to Drawing <b>LVJ 7.106.1, 7.106.2</b> whilst undertaking this Jointing Procedure	
1. Set up and mark cables	4
<b>PILC CABLE - Preparation</b>	
2. Open and cut the cable	16
3. Carry out moisture test	19
4. Apply core protection	25
5. Apply armour bond	22
6. Apply lead sheath bond	23
<b>WAVECON CABLE – Preparation</b>	
7. Open and cut the cable	14
<b>PVC SERVICE CABLE - Preparation</b>	
8. Open and cut the cable(s)	17
<b>COMPLETION OF JOINT</b>	
9. Prepare neutral/earth wires for jointing	8
10. Set cores in joint position	27
11. Connect 35mm <sup>2</sup> neutral/earth bond to lead sheath bond including copper earth tail	23
12. Connect neutral/earth wires and 35mm <sup>2</sup> neutral/earth bond to neutral core and insulate	29/30
13. Remove temporary earth connection applied in 7	--
14. Apply temporary shrouding	21

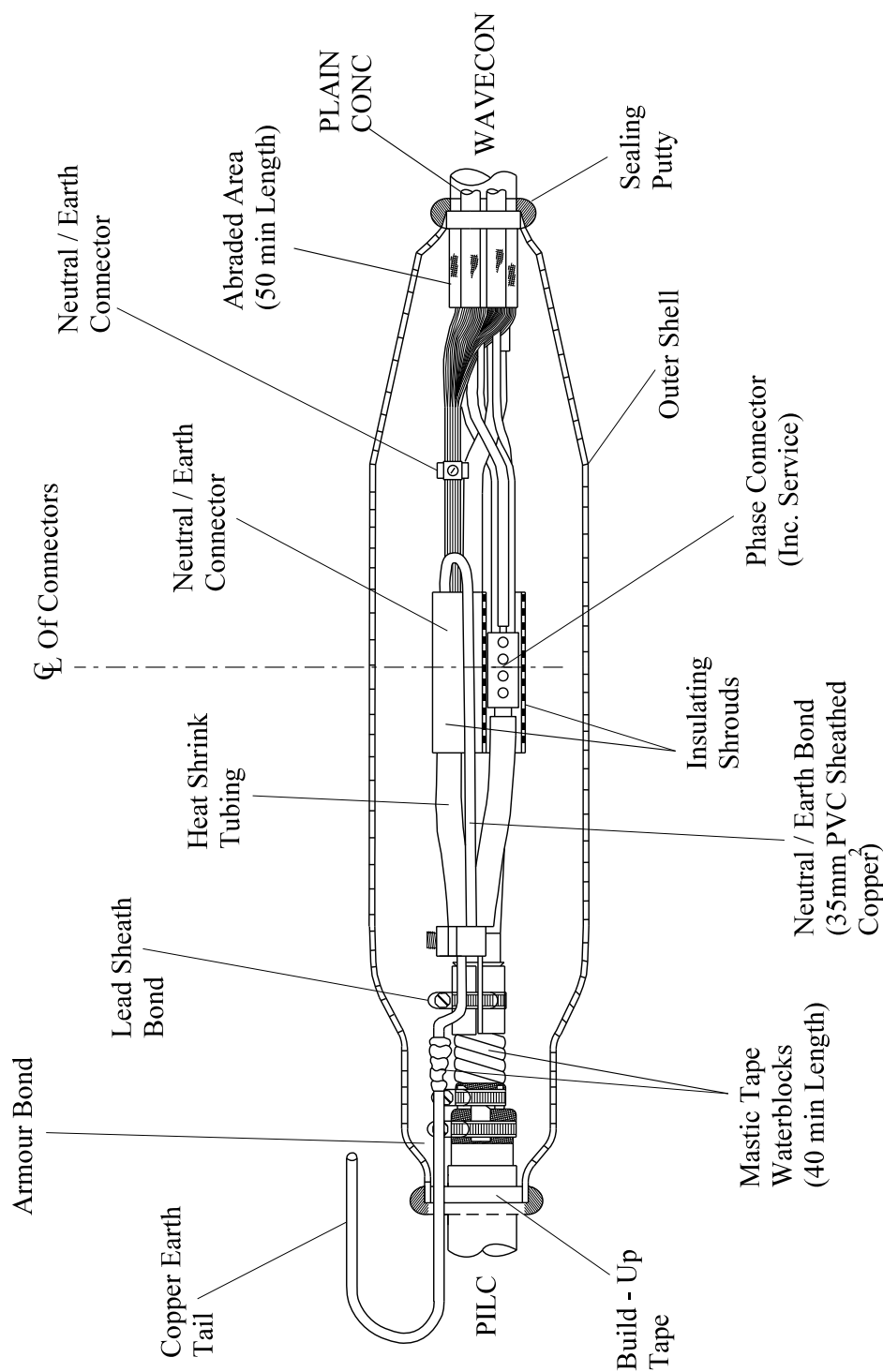
## **JOINTING PROCEDURE 7.106 – Continued**

<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
15. Make and insulate phase connections	29/30
16. Remove temporary shrouding applied in 14	--
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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All dimensions in mm



PLAN VIEW

NOTE:- Ensure Separation Between All Cables.

Rev No	Drawn	Chk'd	App'd	Date	Revision
ORIGINAL ISSUE		DATE		WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel:0117 933 2000 Fax:0117 933 2001.	
Drawn	RJB	06/12		 <b>WESTERN POWER DISTRIBUTION</b>	
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Approved				Title THREE CORE WAVECON-PILC STRAIGHT JOINT INCLUDING SERVICES GENERAL LAYOUT	
SCALE		N.T.S.		Drg. No. LVJ 7.106.2	
				Rev No	

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.107**

**THREE CORE WAVECON – FOUR CORE  
WAVECON 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 Jointing Manual**

## **JOINTING PROCEDURE 7.107**

### **JOINT KIT REFERENCES**

<b>CABLE SIZE</b>		<b>JOINT KIT REFERENCES</b>
<b>FROM 3/4 CORE</b>	<b>TO 3/4 CORE</b>	<b>STRAIGHT JOINT</b>
95W	95W	MS 10
	185W	MS 11
	300W	MS 12
185W	185W	MS 11
	300W	MS 12
300W	300W	MS 12

**Note: - 70mm<sup>2</sup> and 120mm<sup>2</sup> Wavecon used in South Wales will be sized as 95mm<sup>2</sup> (70) and 185mm<sup>2</sup> (120).**

Key: - 95W = 95mm<sup>2</sup> Wavecon  
185W = 185mm<sup>2</sup> Wavecon  
300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.107

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS				EARTH TAIL
	1586	1585	1584	5 lt	6.5 lt	UST 95	UST 185	UST 300	BCNE 3	LVCU 1700/5
MS 10	1				2	4			1	1
MS 11		1		1	2		4		1	1
MS 12			1	3	2			4	1	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
16 swg tinned copper wire  
PVC tape  
De-solvit 1000FD  
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 7.107

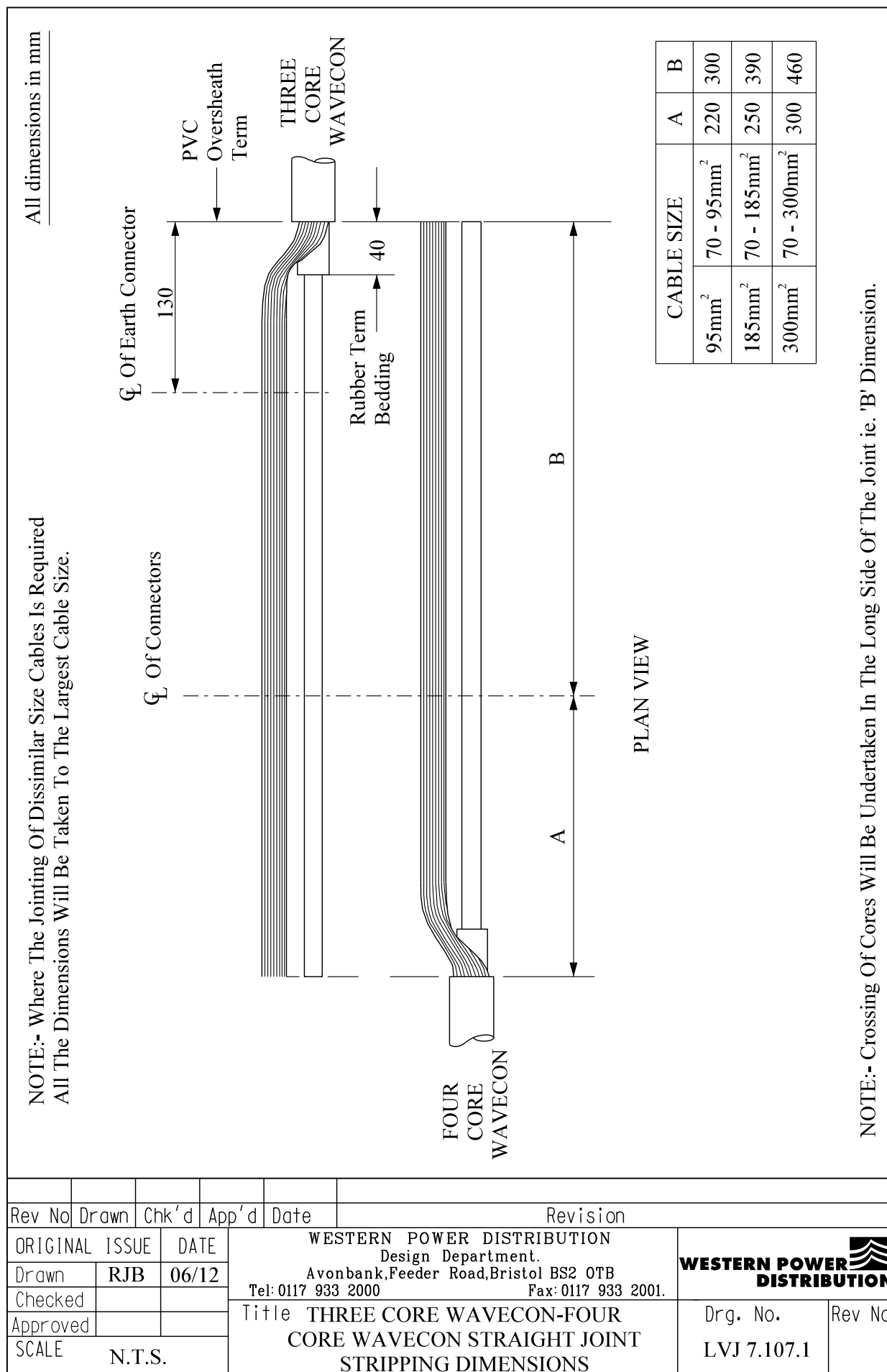
### Actions


### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.107.1, 7.107.2** whilst undertaking this Jointing Procedure

1.	Set up and mark cables	4
2.	Open and cut the cables	14
3.	Prepare neutral/earth and earth wires for jointing	8
4.	Set cores in joint position	27
5.	Connect neutral/earth wires to neutral core and insulate	29/30
6.	Remove temporary earth connection applied in 2	--
7.	Connect earth wires to neutral/earth wires including copper earth tail	29
8.	Apply temporary shrouding	21
9.	Make and insulate phase connections	29/30
10.	Remove temporary shrouding applied in 8	--
11.	Form neutral/earth wires into their final positions	--
12.	Abrade and build up oversheaths	32
13.	Thoroughly degrease the joint	35
14.	Apply mastic waterblock to copper earth tail	33
15.	Remove temporary binders	--
16.	Prepare and fit shell ensure 15mm clearance	36
17.	Mix and pour resin	37

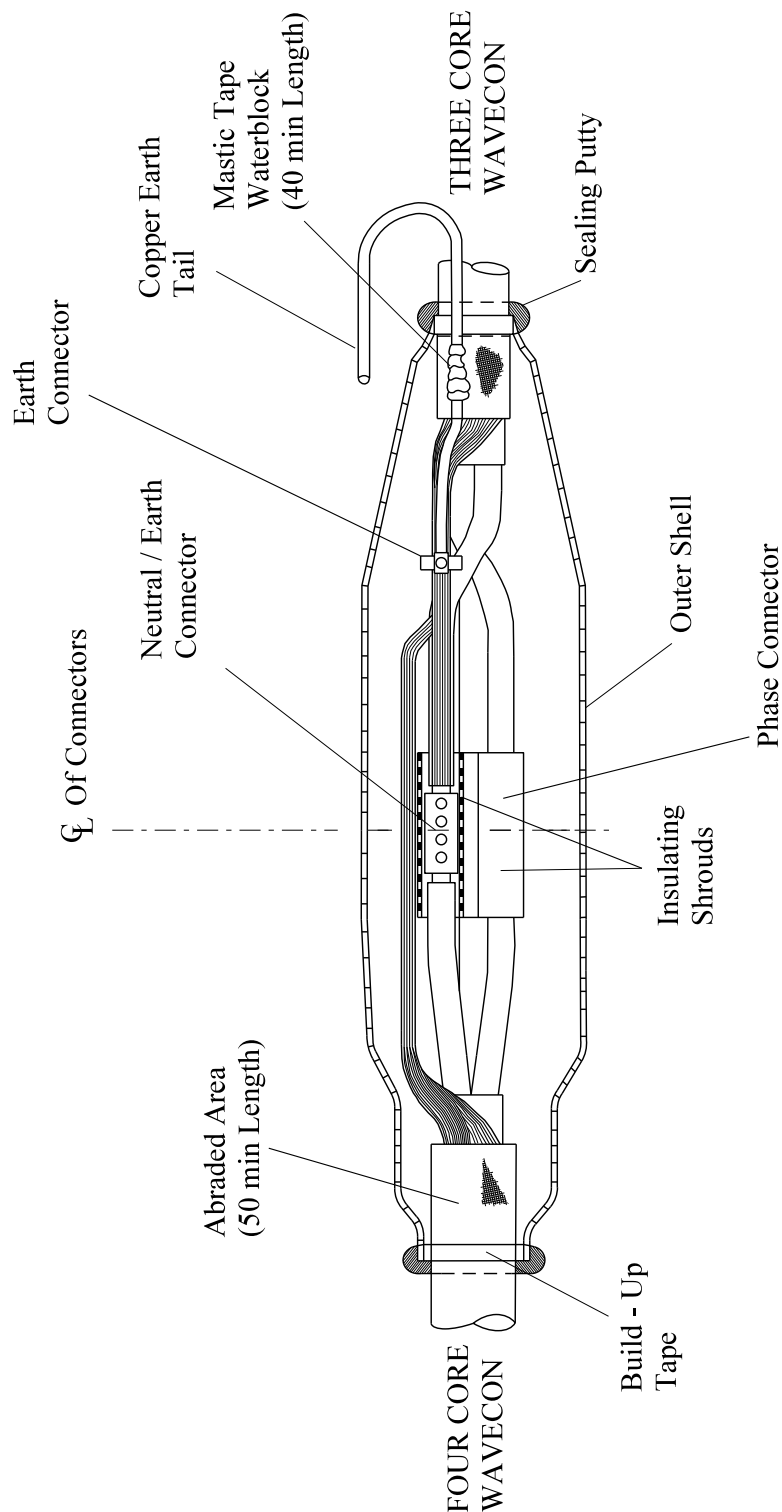





Rev No	Drawn	Chk'd	App'd	Date	Revision
ORIGINAL ISSUE		DATE		<div>WESTERN POWER DISTRIBUTION Design Department. Avonbank, Feeder Road, Bristol BS2 0TB Tel: 0117 933 2000      Fax: 0117 933 2001.</div> <div></div>	
Drawn	RJB	06/12			
Checked					
Approved					
SCALE		N.T.S.		Title THREE CORE WAVECON-FOUR CORE WAVECON STRAIGHT JOINT STRIPPING DIMENSIONS	
				Drg. No. LVJ 7.107.1	
				Rev No	

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All dimensions in mm



PLAN VIEW

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Drawn	RJB	06/12		 <b>WESTERN POWER DISTRIBUTION</b>	
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Approved					
SCALE		N.T.S.		Title	
				THREE CORE WAVECON- FOUR CORE WAVECON STRAIGHT JOINT GENERAL LAYOUT	
				Drg. No. LVJ 7.107.2	
				Rev No	

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.108**

**THREE CORE WAVECON – FOUR CORE WAVECON  
MAINS CABLES STRAIGHT JOINT INCLUDING SERVICES**

**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 7.108

### JOINT KIT REFERENCES

MAINS CABLE		JOINT KIT REFERENCES		
FROM 3/4 CORE	TO 3/4 CORE	ST JT WITH HYBRID SERVICES		
		1 x 1ph	2 x 1ph	1 x 3ph
95W	95W	MSS 28	MSS 31	MSS 34
	185W	MSS 29	MSS 32	MSS 35
	300W	MSS 30	MSS 33	MSS 36
185W	185W	MSS 29	MSS 32	MSS 35
	300W	MSS 30	MSS 33	MSS 36
300W	300W	MSS 30	MSS 33	MSS 36

**Note: - 70mm<sup>2</sup> and 120mm<sup>2</sup> Wavecon used in South Wales will be sized as 95mm<sup>2</sup> (70) and 185mm<sup>2</sup> (120).**

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 185W = 185mm<sup>2</sup> Wavecon  
 300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.108

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS							EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95TI	USB185TI	USB 300TI	BCNE 3	LVCU 1700/5
MSS 28	1				2	4			1			2	1
MSS 29		1		1	2		4			1		2	1
MSS 30			1	3	2			4			1	2	1
MSS 31	1				2	4			2			2	1
MSS 32		1		1	2		4			2		2	1
MSS 33			1	3	2			4			2	2	1
MSS 34	1				2	4			3			2	1
MSS 35		1		1	2		4			3		2	1
MSS 36			1	3	2			4			3	2	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation Patch  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 16 swg tinned copper wire  
 PVC tape  
 Emery cloth  
 De-solvit 1000FD  
 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 7.108

### Actions

### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.108.1, 7.108.2** whilst undertaking this Jointing Procedure

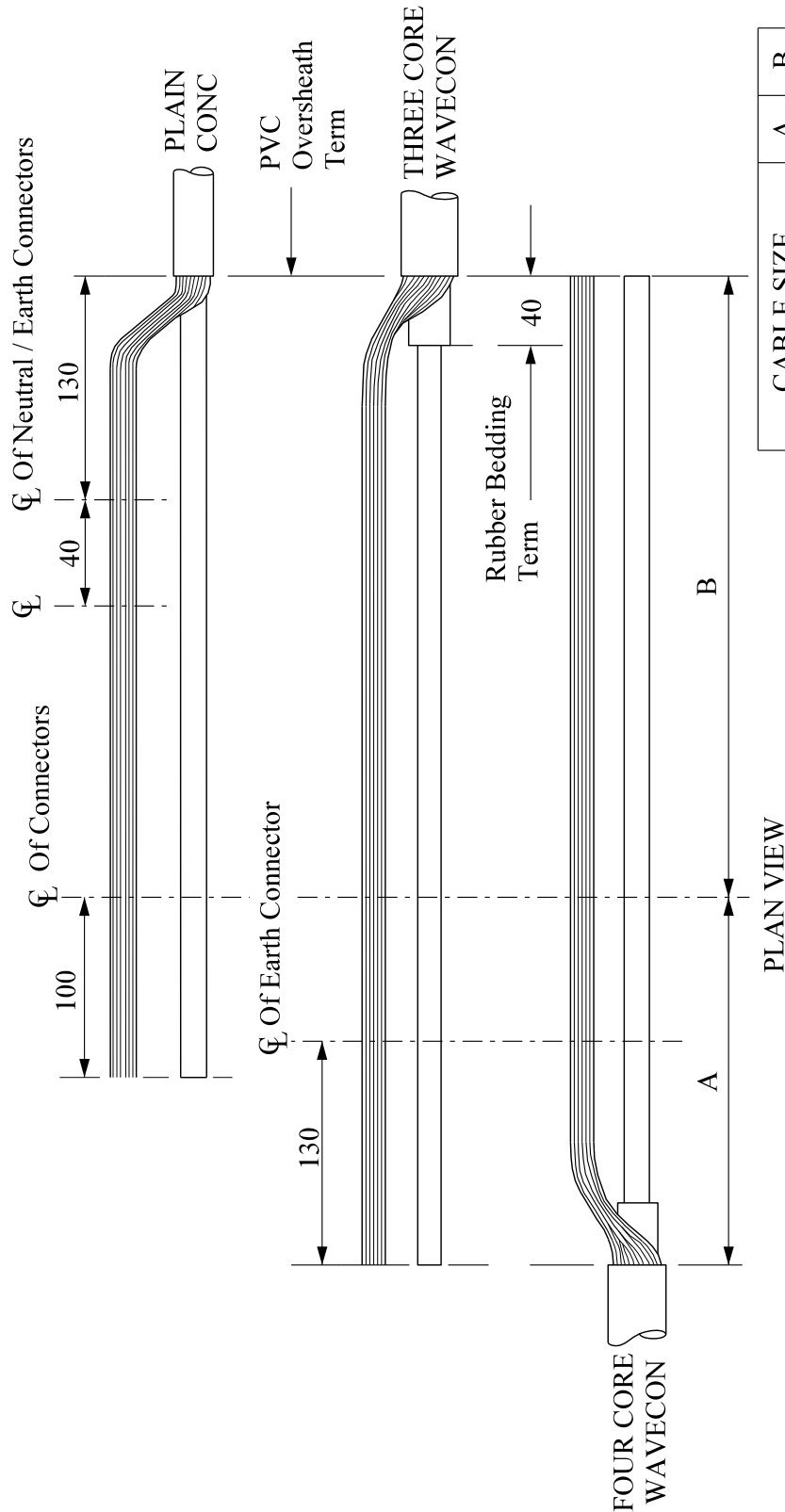
1.	Set up and mark cables	4
	<b>WAVECON CABLE - Preparation</b>	
2.	Open and cut the cables	14
	<b>PVC SERVICE CABLE – Preparation</b>	
3.	Open and cut the cable(s)	17
	<b>COMPLETION OF JOINT</b>	
4.	Prepare neutral/earth and earth wires for jointing	8
5.	Set cores in joint position	27
6.	Connect Wavecon neutral/earth wires to neutral core and insulate	29/30
7.	Remove temporary earth connection applied in 2	--
8.	Connect the Wavecon earth wires to the Wavecon neutral/earth wires	29
9.	Connect neutral/earth wires of service cable(s) including copper earth tail	29
10.	Apply temporary shrouding	21
11.	Make and insulate phase connections	29/30
12.	Remove temporary shrouding applied in 10	--
13.	Form neutral/earth wires into their final positions	--
14.	Abrade and build up oversheaths	32
15.	Thoroughly degrease the joint	35

## **JOINTING PROCEDURE 7.108 - Continued**

<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
16. Apply mastic waterblock to copper earth tail	33
17. Remove temporary binders	--
18. Prepare and fit shell ensuring 15mm clearance	36
19. Mix and pour resin	37


NOTE:- Where The Jointing Of Dissimilar Size Cables Is Required All Dimensions Will Be Taken To The Largest Cable Size.

All dimensions in mm



CABLE SIZE		A	B
95mm <sup>2</sup>	70 - 95mm <sup>2</sup>	220	300
185mm <sup>2</sup>	70 - 185mm <sup>2</sup>	250	390
300mm <sup>2</sup>	70 - 300mm <sup>2</sup>	300	460

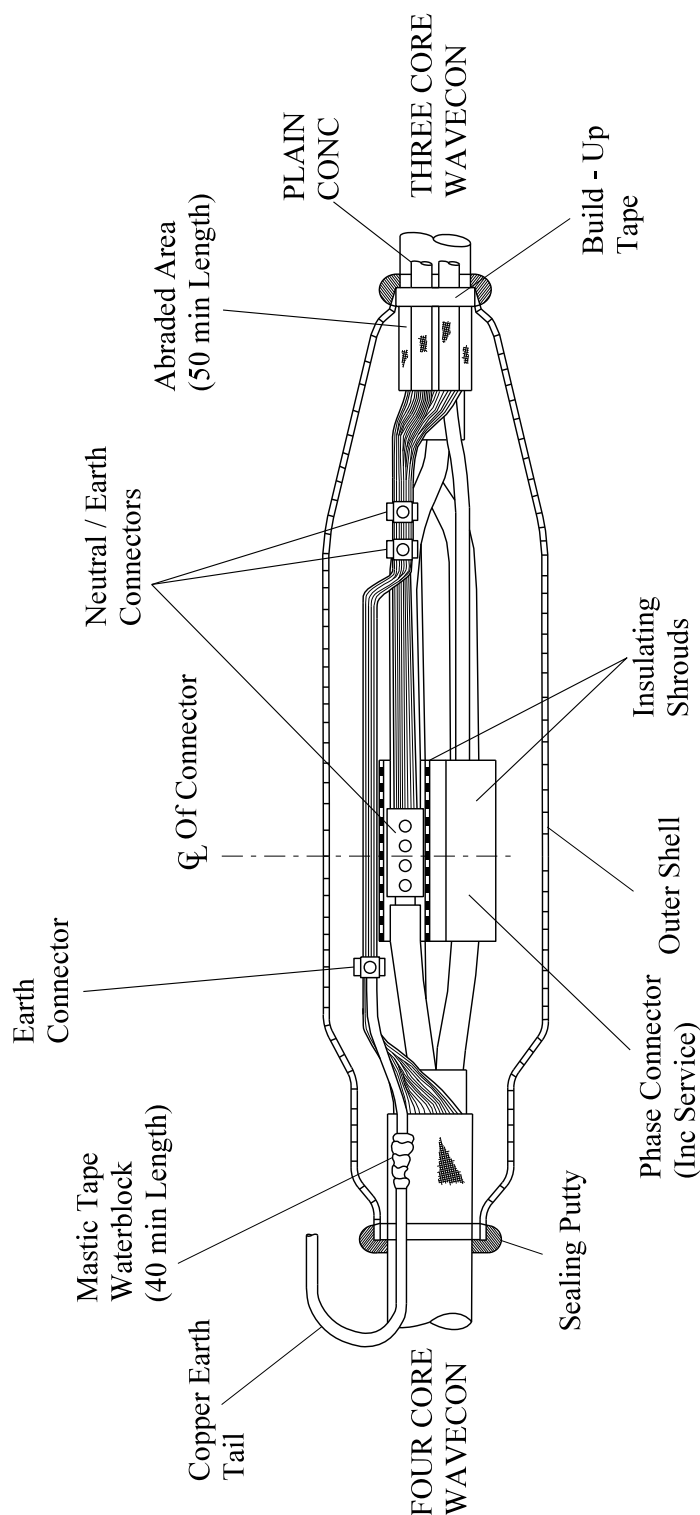
NOTE:- Crossing Of The Core Will Be Undertaken In The Long Side Of The Joint ie. 'B' Dimension

Rev No	Drawn	Chk'd	App'd	Date	Revision
ORIGINAL ISSUE		DATE		WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel:0117 933 2000 Fax:0117 933 2001.	
Drawn	RJB	06/12		 <b>WESTERN POWER DISTRIBUTION</b>	
Checked					
Approved					
SCALE		N.T.S.		Title THREE CORE WAVECON-FOUR CORE WAVECON STRAIGHT JOINT INCLUDING SERVICES STRIPPING DIMENSIONS	
				Drg. No. LVJ7.108.1	
				Rev No	

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All dimensions in mm



PLAN VIEW

NOTE:- Ensure Separation Between All Cables.

Rev No	Drawn	Chk'd	App'd	Date	Revision
ORIGINAL ISSUE		DATE		WESTERN POWER DISTRIBUTION Design Department. Avonbank, Feeder Road, Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.	
Drawn	RJB	06/12		 <b>WESTERN POWER DISTRIBUTION</b>	
Checked					
Approved					
SCALE N.T.S.				Title THREE CORE WAVECON-FOUR CORE WAVECON STRAIGHT JOINT INCLUDING SERVICES GENERAL LAYOUT	
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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.109**

**FOUR CORE WAVECON – FOUR CORE WAVECON  
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 Jointing Manual**

## JOINTING PROCEDURE 7.109

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	TO	STRAIGHT JOINT
95W	95W	MS 13
	185W	MS 14
	300W	MS 15
185W	185W	MS 14
	300W	MS 15
300W	300W	MS 15

Key: - 95W = 95mm<sup>2</sup> Wavecon  
185W = 185mm<sup>2</sup> Wavecon  
300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.109

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS				EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	BCNE 3	LVCU 1700/5
MS 13	1				2	4			2	1
MS 14		1		1	2		4		2	1
MS 15			1	3	2			4	2	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patches  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
Tinned copper braid (15 x 1.5)  
16 swg tinned copper wire  
PVC tape  
De-solvit 1000FD  
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 7.109

### Actions

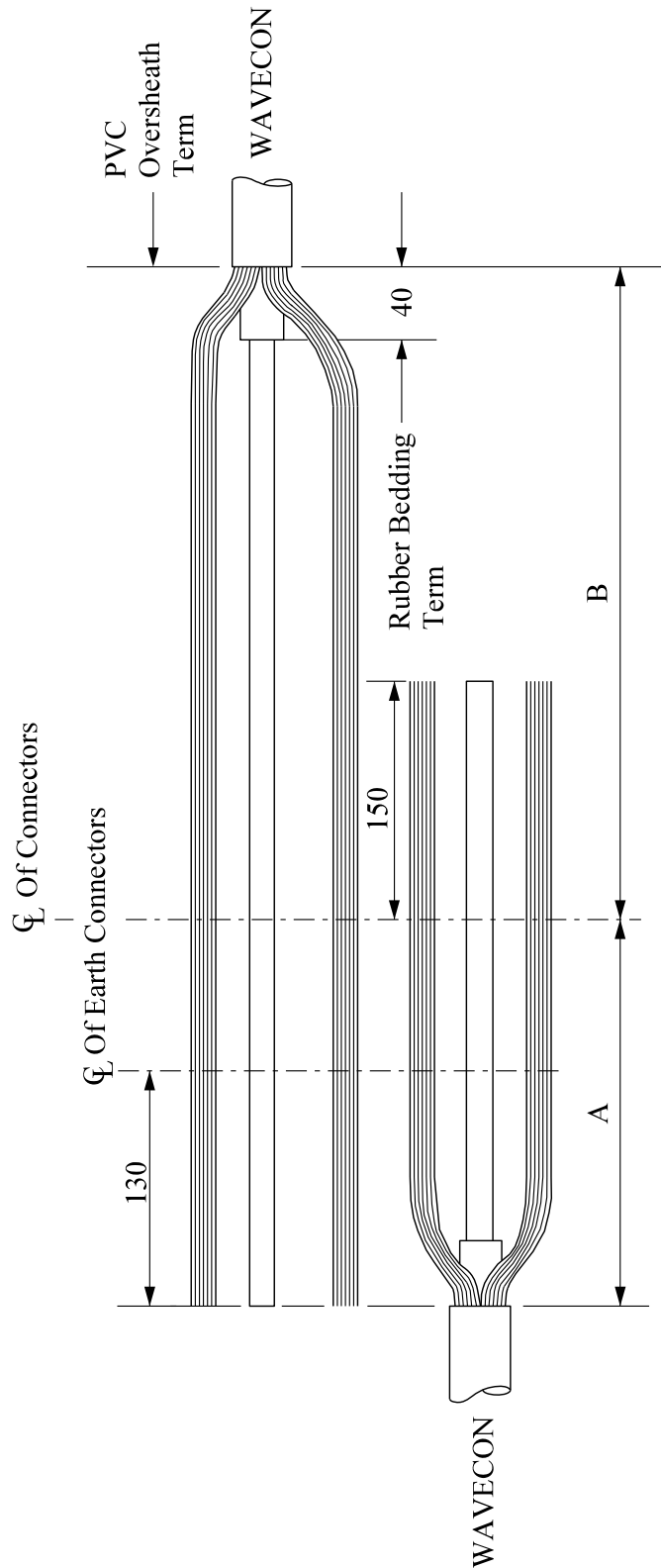
### General Requirements (ST: CA1C/4)

Refer to Drawings **LVJ 7.109.1, 7.109.2** whilst under taking this Jointing Procedure

1.	Set up and mark cables	4
2.	Open and cut the cables	14
3.	Prepare earth wires for jointing	8
4.	Set cores in joint position	27
5.	Connect earth wires on far side of joint including equalisation bond	28
6.	Apply temporary shrouding	21
7.	Make and insulate neutral connection	29/30
8.	Make and insulate phase connections	29/30
9.	Remove temporary shrouding applied in 6	--
10.	Connect remaining earth wires including equalisation bond and copper earth tail	29
11.	From earth/wires into their final position	--
12.	Abrade and build up oversheaths	32
13.	Thoroughly degrease the joint	35
14.	Apply mastic waterblock to copper earth tail	33
15.	Remove temporary binders	--
16.	Prepare and fit shell ensuring 15mm clearance	36
17.	Mix and pour resin	37

All dimensions in mm

NOTE:- Where The Joining Of Dissimilar Size Cables Is Required All The Dimensions Will Be Taken To The Largest Cable Size.



PLAN VIEW

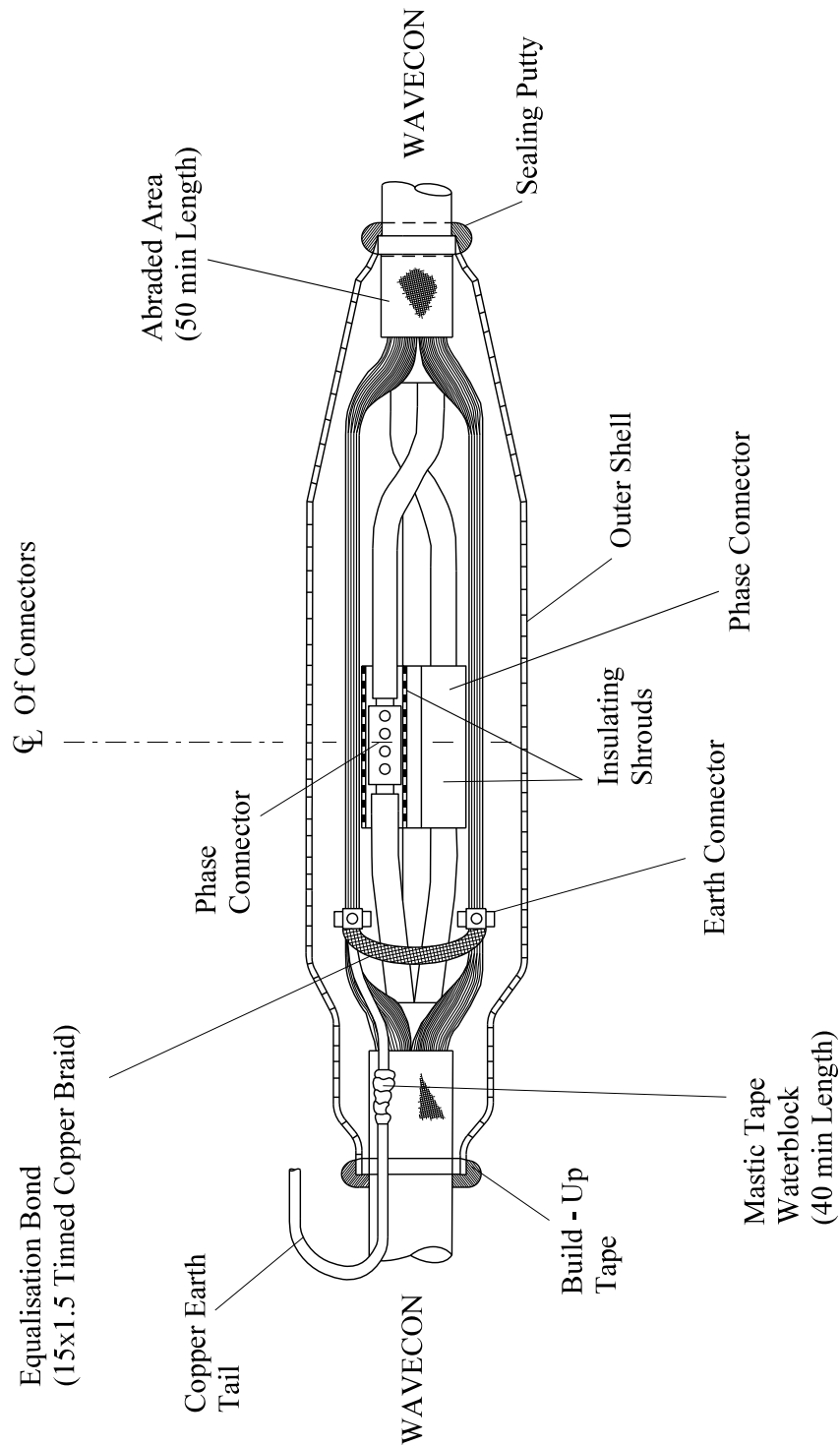
CABLE SIZE		A	B
95mm <sup>2</sup>	95mm <sup>2</sup>	220	300
185mm <sup>2</sup>	95 - 185mm <sup>2</sup>	250	390
300mm <sup>2</sup>	95 - 300mm <sup>2</sup>	300	460

NOTE:- Crossing Of Cores Will Be Undertaken In The Long Side Of The Joint ie. 'B' Dimension

Rev No	Drawn	Chk'd	App'd	Date	Revision
ORIGINAL ISSUE		DATE		<div>WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000      Fax: 0117 933 2001.</div> <div>WESTERN POWER DISTRIBUTION</div>	
Drawn	RJB	06/12			
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Approved					
SCALE		N.T.S.		Title	
				FOUR CORE WAVECON-WAVECON STRAIGHT JOINT STRIPPING DIMENSIONS	
				Drg. No. LVJ 7.109.1	
				Rev No	

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All dimensions in mm



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Drawn	RJB	06/12			
Checked					
Approved					
SCALE		N.T.S.	Title FOUR CORE WAVECON-WAVECON STRAIGHT JOINT GENERAL LAYOUT		
			Drg. No. LVJ 7.109.2		Rev No

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.110**

**FOUR CORE WAVECON – FOUR CORE WAVECON  
MAINS CABLE STRAIGHT JOINT INCLUDING SERVICES**

**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 7.110

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES		
FROM	TO	ST JT WITH SPLIT CONC SERVICES		
		1 x 1ph	2 x 1ph	1 x 3ph
95W	95W	MSS 36	MSS 39	MSS 42
	185W	MSS 37	MSS 40	MSS 43
	300W	MSS 38	MSS 41	MSS 44
185W	185W	MSS 37	MSS 40	MSS 43
	300W	MSS 38	MSS 41	MSS 44
300W	300W	MSS 38	MSS 41	MSS 44

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 185W = 185mm<sup>2</sup> Wavecon  
 300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.110

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS							EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95TI	USB185TI	USB 300TI	BCNE 3	LVCU 1700/5
MSS 36	1				2	4			2			2	1
MSS 37		1		1	2		4			2		2	1
MSS 38			1	3	2			4			2	2	1
MSS 39	1				2	4			3			2	1
MSS 40		1		1	2		4			3		2	1
MSS 41			1	3	2			4			3	2	1
MSS 42	1				2	4			4			2	1
MSS 43		1		1	2		4			4		2	1
MSS 44			1	3	2			4			4	2	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation Patches  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 Tinned copper braid (15 x 1.5)  
 16 swg tinned copper wire  
 PVC tape  
 Emery cloth  
 Desolvit 1000FD  
 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 7.110

### Actions

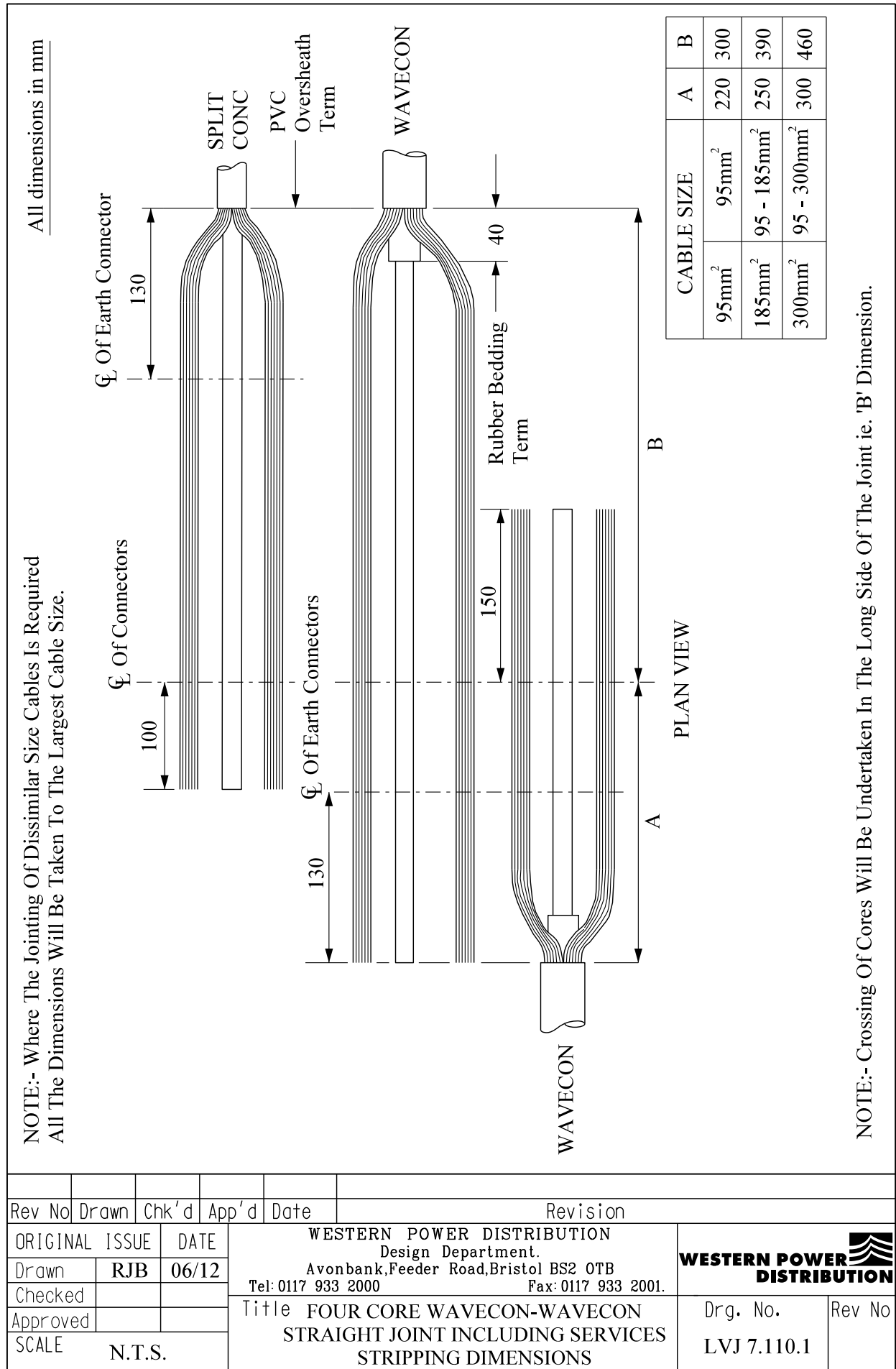
### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.110.1, 7.110.2** whilst undertaking this Jointing Procedure

1.	Set up and mark cables	4
	<b>WAVECON CABLE – Preparation</b>	
2.	Open and cut the cables	14
	<b>PVC SERVICE CABLE – Preparation</b>	
3.	Open and cut the cable(s)	17
	<b>COMPLETION OF JOINT</b>	
4.	Prepare earth wires for jointing	8
5.	Set cores in joint position	27
6.	Connect earth wires on far side of joint including equalisation bond	29
7.	Connect earth wires of service cable	29
8.	Apply temporary shrouding	21
9.	Make and insulate neutral connections	29/30
10.	Make and insulate phase connections	29/30
11.	Remove temporary shrouding applied in 8	--
12.	Make remaining earth wire connection including equalisation bond and copper earth tail	29
13.	Form earth wires into their final position	--
14.	Abrade and build up oversheaths	32

## **JOINTING PROCEDURE 7.110 – Continued**

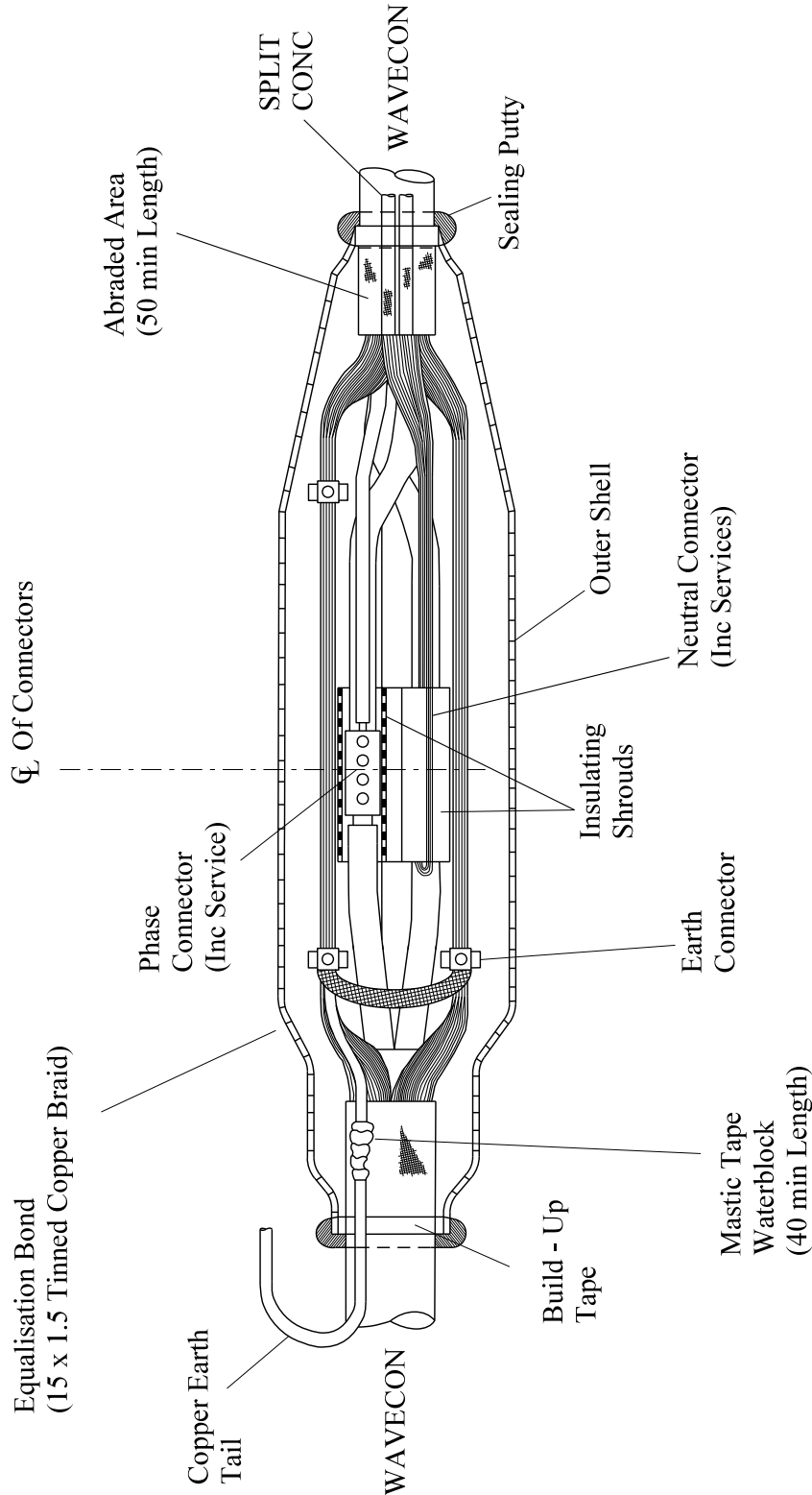
<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
15. Thoroughly degrease the joint	35
16. Apply mastic waterblock to copper earth tail	33
17. Remove temporary binders	--
18. Prepare and fit shell ensure 15mm clearance	36
19. Mix and pour resin	37



Rev No	Drawn	Chk'd	App'd	Date	Revision	
ORIGINAL ISSUE	DATE	WESTERN POWER DISTRIBUTION Design Department. Avonbank, Feeder Road, Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.				
Drawn	RJB 06/12					
Checked						
Approved						
SCALE	N.T.S.	Title FOUR CORE WAVECON-WAVECON STRAIGHT JOINT INCLUDING SERVICES STRIPPING DIMENSIONS				Drg. No. LVJ 7.110.1 Rev No


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All dimensions in mm



PLAN VIEW

NOTE:- Ensure Separation Between All Cables.

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ORIGINAL ISSUE		DATE	WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.			 <b>WESTERN POWER DISTRIBUTION</b>	
Drawn	RJB	06/12					
Checked							
Approved							
SCALE N.T.S.			Title FOUR CORE WAVECON-WAVECON STRAIGHT JOINT INCLUDING SERVICES GENERAL LAYOUT			Drg. No. LVJ 7.110.2	Rev No

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.111**

**FOUR CORE WAVECON – FOUR CORE WAVECON CNE  
MAINS CABLE STRAIGHT JOINT INCLUDING SERVICES**

**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 7.111

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES		
FROM	TO	ST JT WITH HYBRID SERVICES		
		1 x 1 ph	2 x 1 ph	1 x 3 ph
95W	95W	MSS 45	MSS 48	MSS 51
	185W	MSS 46	MSS 49	MSS 52
	300W	MSS 47	MSS 50	MSS 53
185W	185W	MSS 46	MSS 49	MSS 52
	300W	MSS 47	MSS 50	MSS 53
300W	300W	MSS 47	MSS 50	MSS 53

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 185W = 185mm<sup>2</sup> Wavecon  
 300W = 300mm<sup>2</sup> Wavecon



## JOINTING PROCEDURE 7.111

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS							EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95TI	USB185TI	USB 300TI	BCNE 3	LVCU 1700/5
MSS 45	1				2	4			2			1	1
MSS 46		1		1	2		4			2		1	1
MSS 47			1	3	2			4			2	1	1
MSS 48	1				2	4			3			1	1
MSS 49		1		1	2		4			3		1	1
MSS 50			1	3	2			4			3	1	1
MSS 51	1				2	4			4			1	1
MSS 52		1		1	2		4			4		1	1
MSS 53			1	3	2			4			4	1	1

#### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 16 swg tinned copper wire  
 Heatshrink tubing  
 Whipping thread  
 PVC tape  
 Emery cloth  
 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 Jointing Manual.**

## JOINTING PROCEDURE 7.111

### Actions

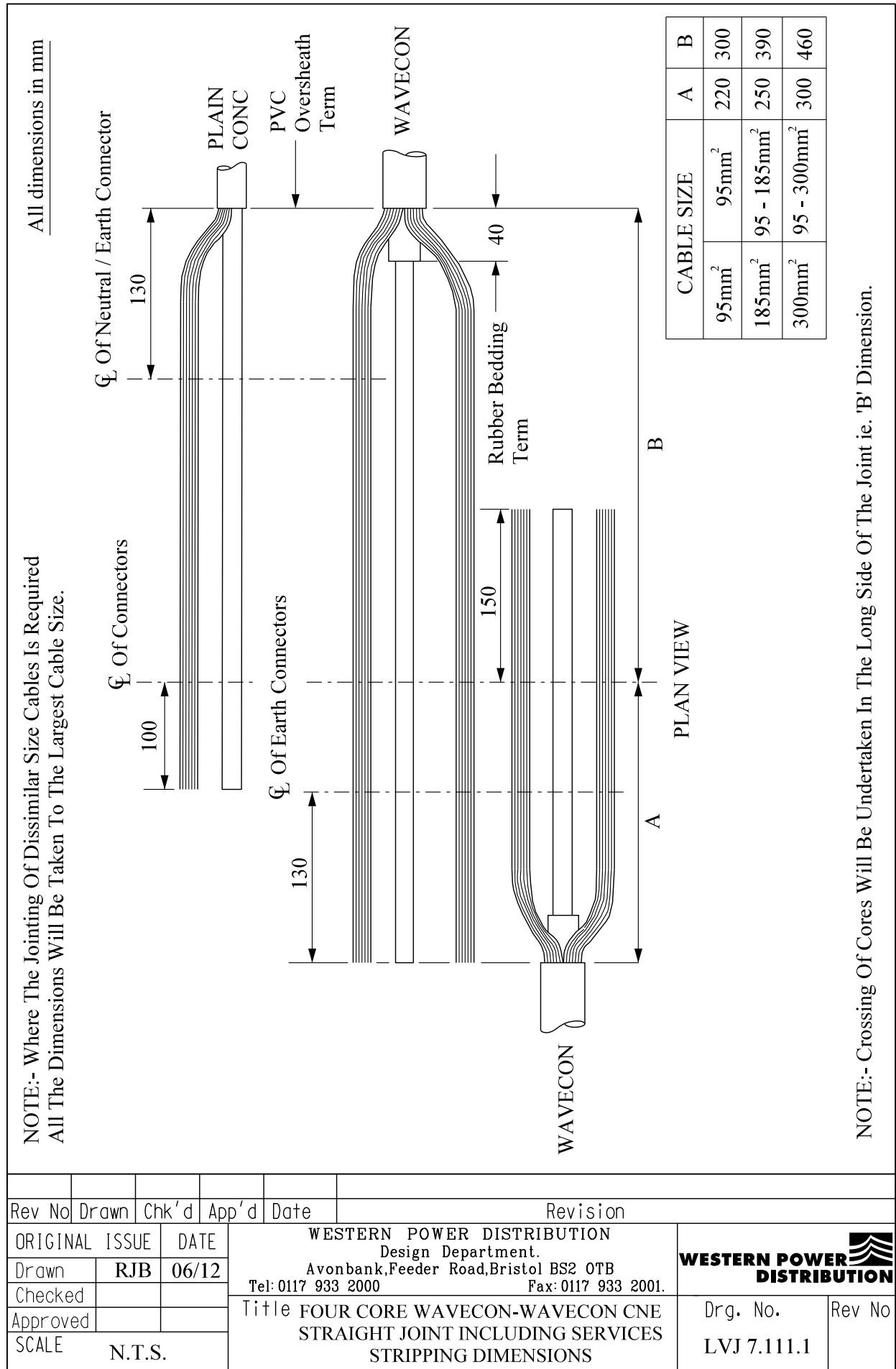
### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.111.1, 7.111.2** whilst undertaking this Jointing Procedure

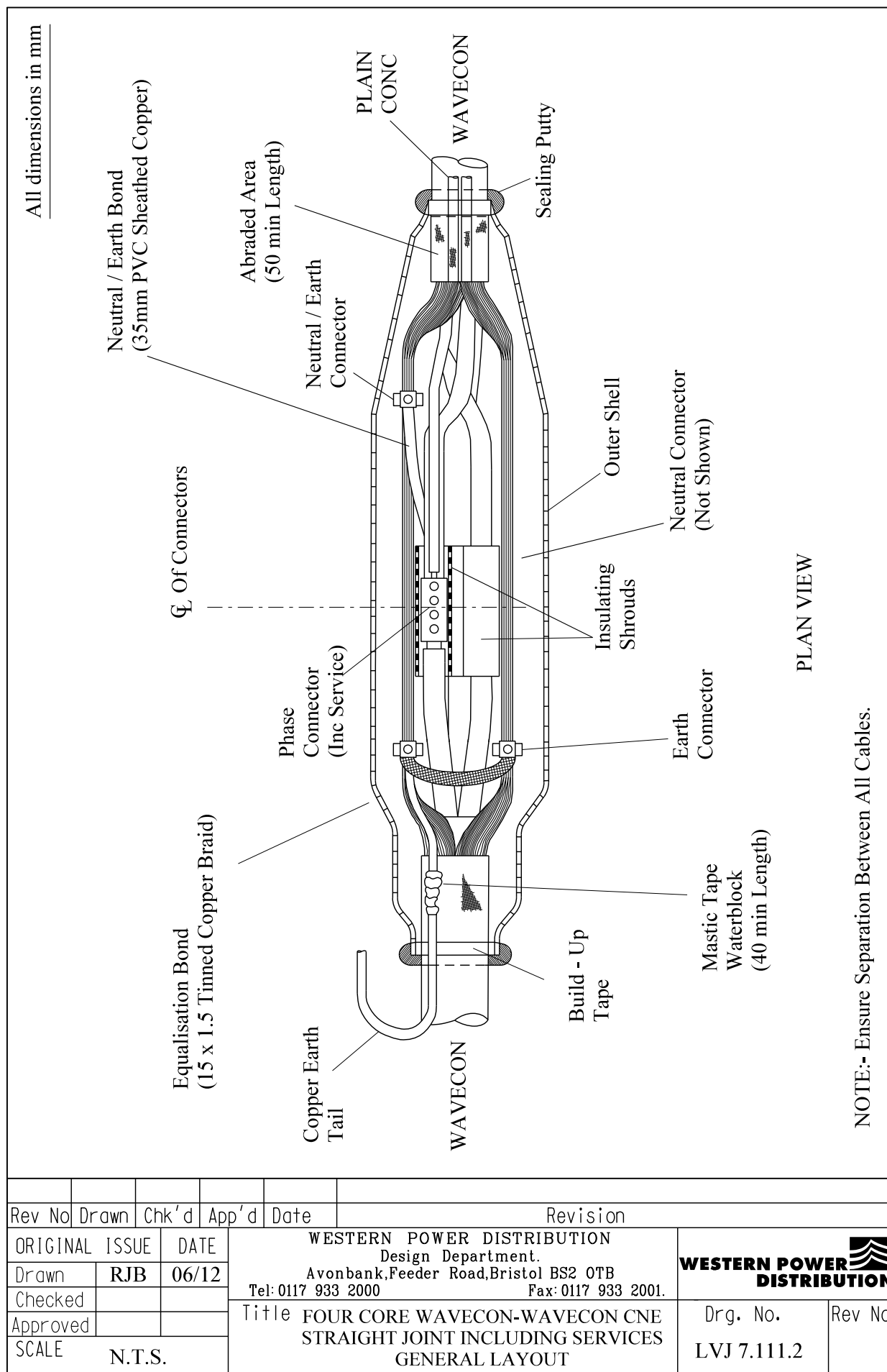
1.	Set up and mark cables	4
	<b>WAVECON CABLE – Preparation</b>	
2.	Open and cut the cables	14
	<b>PVC SERVICE CABLE – Preparation</b>	
3.	Open and cut the cable	17
	<b>COMPLETION OF JOINT</b>	
4.	Prepare earth wires for jointing	8
5.	Set cores in joint position	27
6.	Connect earth wires on far side of joint including 35mm <sup>2</sup> copper neutral/earth bond and equalisation bond	29
7.	Connect neutral/earth wires of service cable(s)	29
8.	Make and insulate neutral connections including 35mm <sup>2</sup> neutral/earth bond	29/30
8.	Apply temporary shrouding	21
10.	Make and insulate phase connections	29/30
11.	Remove temporary shrouding applied in 8	--
12.	Make remaining earth wire connection including equalisation bond and copper earth tail	29
13.	Form neutral/earth wires into their final position	--
14.	Abrade and build up oversheaths	32

## **JOINTING PROCEDURE 7.111 – Continued**

<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
15. Thoroughly degrease the joint	35
16. Apply mastic waterblock to copper earth tail	33
17. Remove temporary binders	--
18. Prepare and fit shell ensure 15mm clearance	36
19. Mix and pour resin	37



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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.112**

**FOUR CORE WAVECON – PILC 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 Jointing Manual**

## JOINTING PROCEDURE 7.112

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCES
FROM	TO	STRAIGHT JOINT
95W	Up to 95 PILC	MS 16
	Up to 185 PILC	MS 17
	Up to 300 PILC	MS 18
185W	Up to 185 PILC	MS 17
	Up to 300 PILC	MS 18
300W	Up to 300 PILC	MS 18

Key: - 95W = 95mm<sup>2</sup> Wavecon  
185W = 185mm<sup>2</sup> Wavecon  
300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.112

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS			EARTH BOND	EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	LVEB 08	LVCU 1700/5
MS 16	1				2	4			1	1
MS 17		1		1	2		4		1	1
MS 18			1	3	2			4	1	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
16 swg tinned copper wire  
Heatshrink tubing  
Whipping thread  
PVC 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 7.112

### Actions

### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.112.1, 7.112.2** whilst undertaking this Jointing Procedure

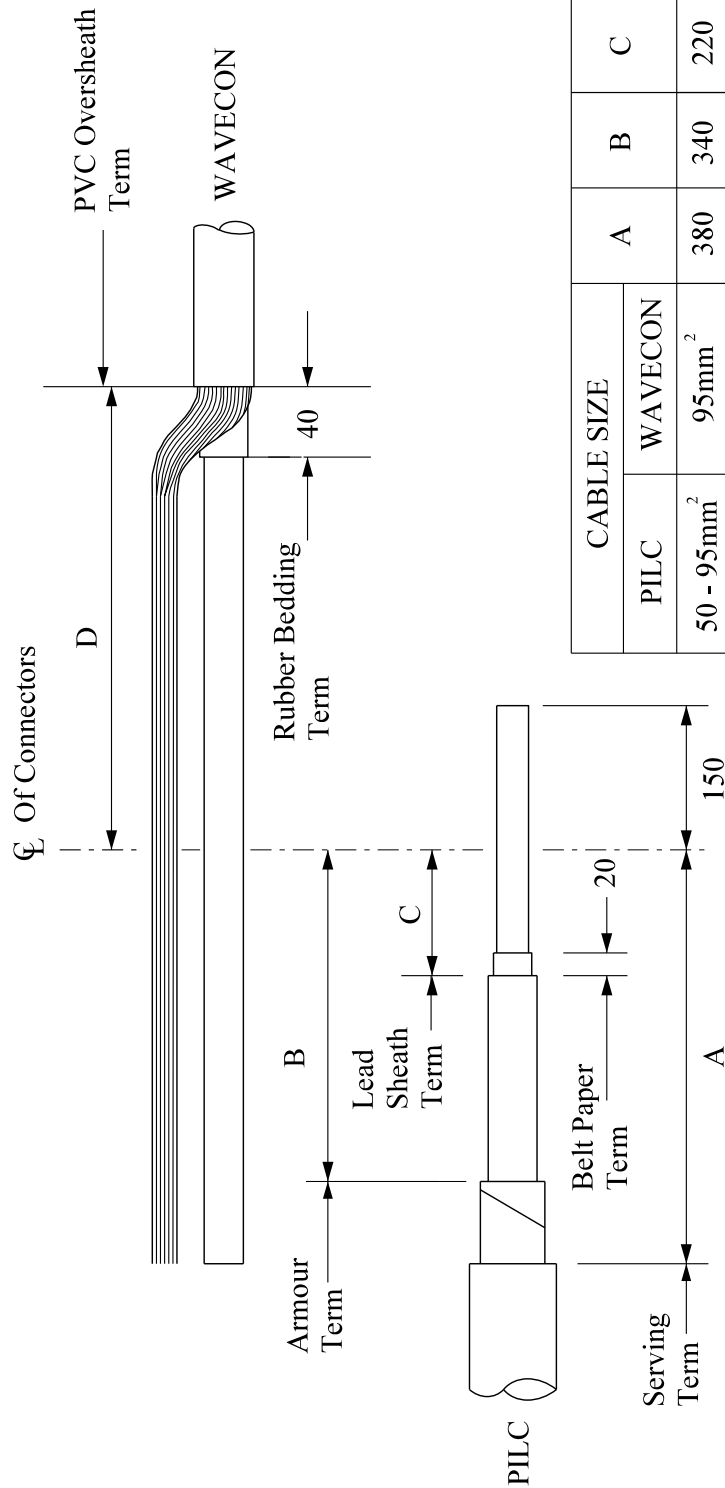
1.	Set up and mark cables	4
<b>PILC CABLE – Preparation</b>		
2.	Open and cut the cable	16
3.	Carry out moisture test	19
4.	Apply core protection	25
5.	Apply armour bond	22
6.	Apply lead sheath bond	23
<b>WAVECON CABLE – Preparation</b>		
7.	Open and cut the cable	14
8.	Prepare earth wires for jointing	8
<b>COMPLETION OF JOINT</b>		
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 connections	29/30
14.	Remove temporary shrouding applied in 11	--
15.	Abrade and build up oversheaths	32
16.	Thoroughly degrease the joint	35

## **JOINTING PROCEDURE 7.112 – Continued**

<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
17. Apply mastic water blocks to lead sheath and copper earth tail	33
18. Remove temporary binders	--
19. Prepare and fit shell ensuring 15mm clearance	36
20. Mix and pour resin	37


NOTE:- Where The Jointing Of Dissimilar Size Cables Is Required All The Dimensions Will Be Taken To The Largest Cable Size.

All dimensions in mm



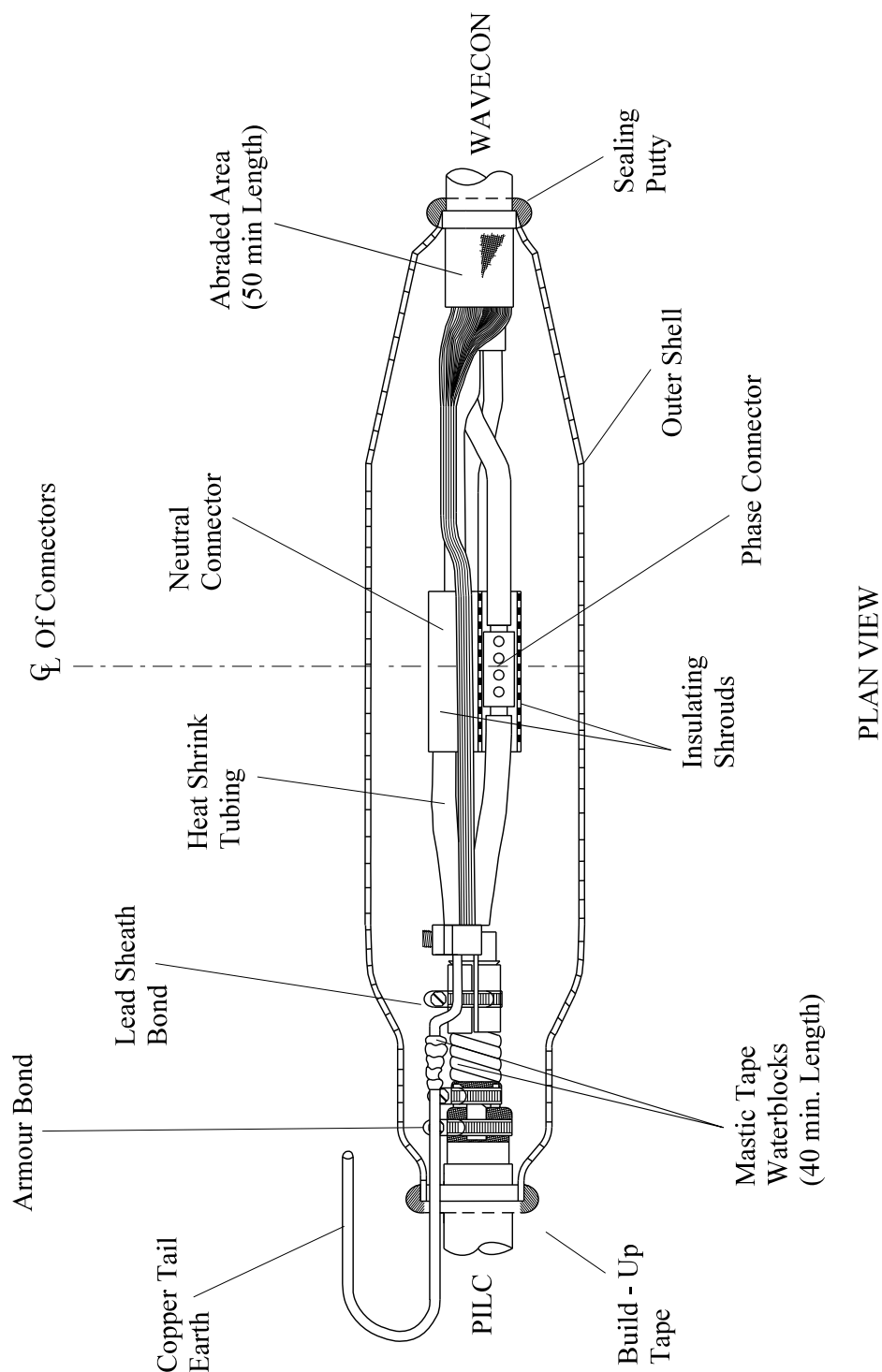
CABLE SIZE		A	B	C	D
PILC	WAVECON				
50 - 95mm <sup>2</sup>	95mm <sup>2</sup>	380	340	220	300
50-185mm <sup>2</sup>	185mm <sup>2</sup>	410	370	250	390
50-300mm <sup>2</sup>	300mm <sup>2</sup>	460	420	300	460

NOTE:- Crossing Of Cores Will Be Undertaken In The Long Side Of The Joint ie. 'D' Dimension.

Rev No	Drawn	Chk'd	App'd	Date	Revision
ORIGINAL ISSUE	DATE	WESTERN POWER DISTRIBUTION Design Department. Avonbank, Feeder Road, Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.			
Drawn	RJB	06/12	Title FOUR CORE WAVECON-PILC STRAIGHT JOINT STRIPPING DIMENSIONS		
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SCALE	N.T.S.				
					 Drg. No. LVJ 7.112.1 Rev No

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All dimensions in mm



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Drawn	RJB	06/12		<div>WESTERN POWER DISTRIBUTION</div> <div>DRG. No. LVJ 7.112.2</div> <div>Rev No.</div>	
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Approved					
SCALE		N.T.S.		<div>Title</div> <div>FOUR CORE WAVECON-PILC STRAIGHT JOINT GENERAL LAYOUT</div>	

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.113**

**FOUR CORE WAVECON – PILC MAINS CABLE  
STRAIGHT JOINT INCLUDING SERVICES**

**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 7.113

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCE		
FROM	TO	ST JT WITH SPLIT CONC SERVICES		
		1 x 1 ph	2 x 1 ph	1 x 3 ph
95W	Up to 95 PILC	MSS 54	MSS 57	MSS 60
	Up to 185 PILC	MSS 55	MSS 58	MSS 61
	Up to 300 PILC	MSS 56	MSS 59	MSS 62
185W	Up to 185 PILC	MSS 55	MSS 58	MSS 61
	Up to 300 PILC	MSS 56	MSS 59	MSS 62
300W	Up to 300 PILC	MSS 56	MSS 59	MSS 62

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 185W = 185mm<sup>2</sup> Wavecon  
 300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.113

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS							EARTH BOND	EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95TI	USB 185TI	USB 300TI	BCNE 3	LVEB 08	LVCU 1700/5
MSS 45	1				2	4			2			1	1	1
MSS 46		1		1	2		4			2		1	1	1
MSS 47			1	3	2			4			2	1	1	1
MSS 48	1				2	4			3			1	1	1
MSS 49		1		1	2		4			3		1	1	1
MSS 50			1	3	2			4			3	1	1	1
MSS 51	1				2	4			4			1	1	1
MSS 52		1		1	2		4			4		1	1	1
MSS 53			1	3	2			4			4	1	1	1

#### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 16 swg tinned copper wire  
 Heatshrink tubing  
 Whipping thread  
 PVC tape  
 Emery cloth  
 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 7.113

### Actions

### General Requirements (ST: CA1C/4)

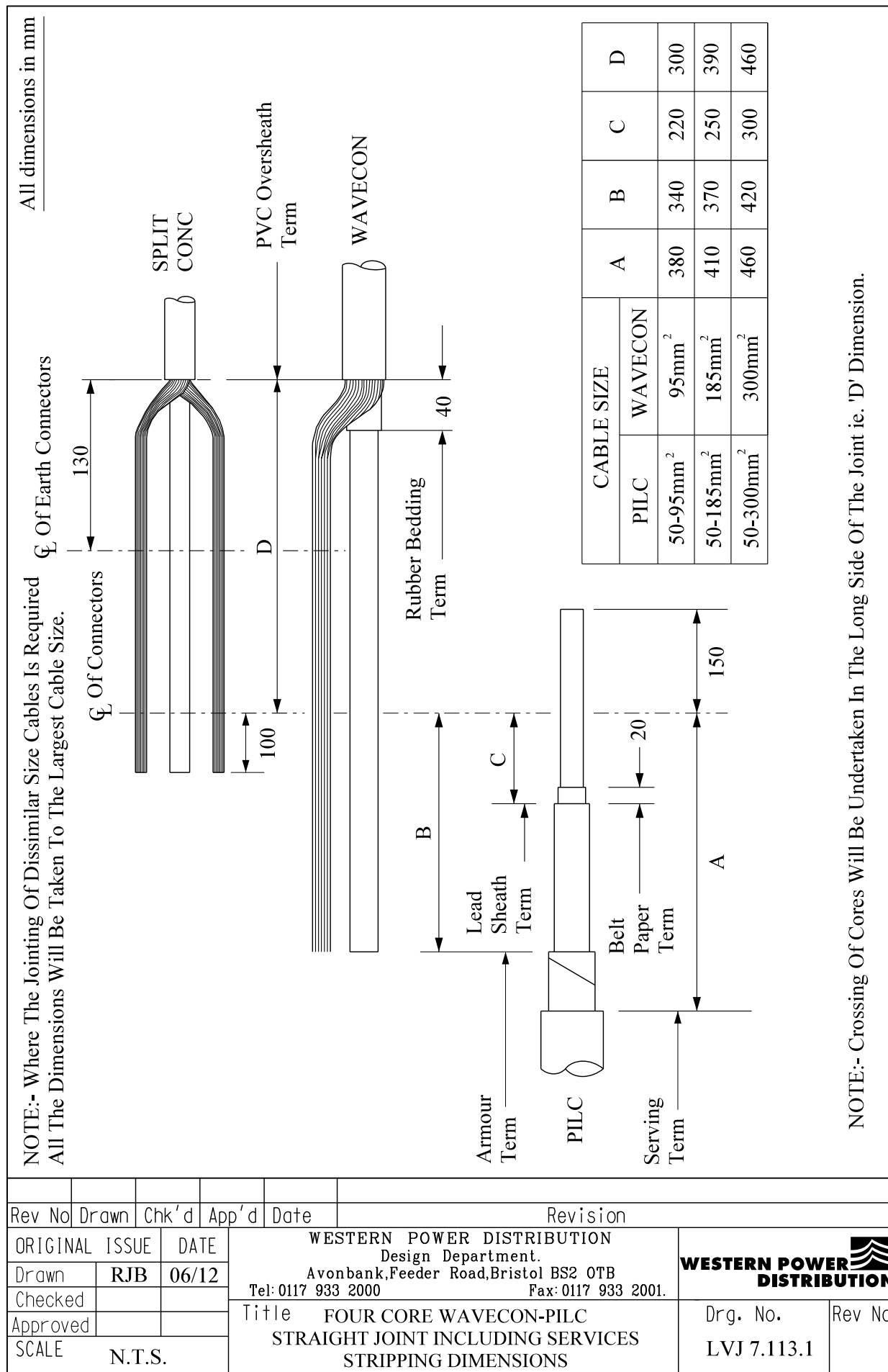
Refer to Drawings **LVJ 7.113.1, 7.113.2** whilst undertaking this Jointing Procedure


1.	Set up and mark cables	4
<b>PILC CABLE - Preparation</b>		
2.	Open and cut the cable	16
3.	Carry out moisture test	19
4.	Apply core protection	25
5.	Apply armour bond	22
6.	Apply lead sheath bond	23
<b>WAVECON CABLE – Preparation</b>		
7.	Open and cut the cable	14
<b>PVC SERVICE CABLE – Preparation</b>		
8.	Open and cut the cable(s)	17
<b>COMPLETION OF JOINT</b>		
9.	Prepare earth wires for jointing	8
10.	Set cores in joint position	27
11.	Connect Wavecon earth wires to lead sheath bond including copper earth tail	23
12.	Connect earth wires of service cable	29
13.	Apply temporary shrouding	21
14.	Make and insulate neutral connections	29/30



## **JOINTING PROCEDURE 7.113 – Continued**

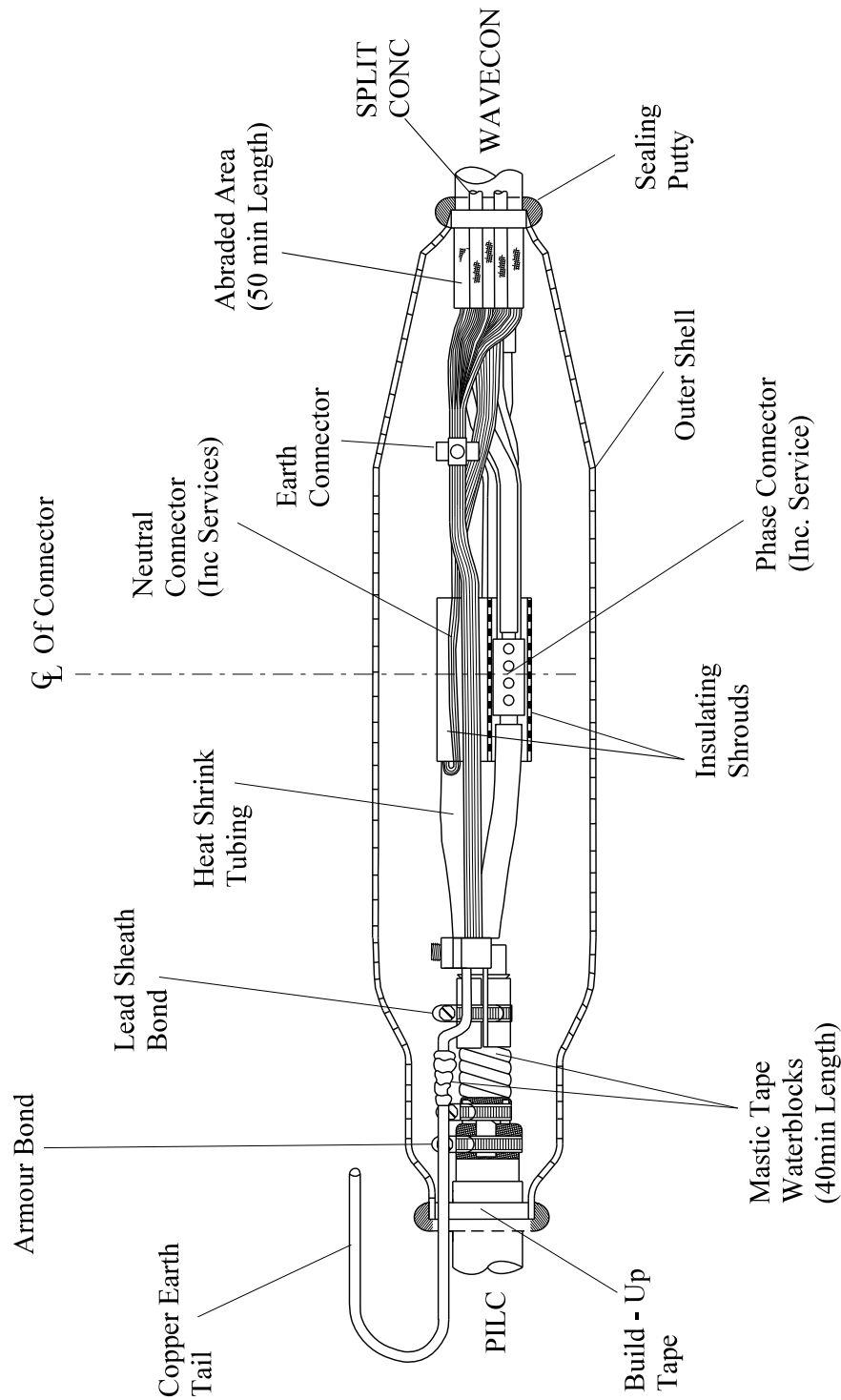
<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
15. Make and insulate phase connections	29/30
16. Remove temporary shrouding applied in 13	--
17. Form earth wires into their final position	--
18. Abrade and build up oversheaths	32
19. Thoroughly degrease the joint	35
20. Apply mastic water blocks to lead sheath and copper earth tail	33
21. Remove temporary binders	--
22. Prepare and fit shell ensuring 15mm clearance	36
23. Mix and pour resin	37



Rev No	Drawn	Chk'd	App'd	Date	Revision		
ORIGINAL ISSUE		DATE		WESTERN POWER DISTRIBUTION Design Department. Avonbank,Feeder Road,Bristol BS2 0TB Tel: 0117 933 2000 Fax: 0117 933 2001.		 <b>WESTERN POWER DISTRIBUTION</b>	
Drawn	RJB	06/12					
Checked							
Approved							
SCALE		N.T.S.		Title		Drg. No.	Rev No
				FOUR CORE WAVECON-PILC STRAIGHT JOINT INCLUDING SERVICES STRIPPING DIMENSIONS		LVJ 7.113.1	


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All dimensions in mm



PLAN VIEW

NOTE:- Ensure Separation Between All Cables.

Rev No	Drawn	Chk'd	App'd	Date	Revision
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Drawn	RJB	06/12			
Checked					
Approved					
SCALE		N.T.S.		Title      FOUR CORE WAVECON -PILC STRAIGHT JOINT INCLUDING SERVICES GENERAL LAYOUT	
				Drg. No. LVJ 7.113.2	
				Rev No	

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.114**

**FOUR CORE WAVECON – PILC CNE MAINS CABLE  
STRAIGHT JOINT INCLUDING SERVICES**

**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 7.114

### JOINT KIT REFERENCES

CABLE SIZE		JOINT KIT REFERENCE		
FROM	TO	ST JT WITH HYBRID SERVICES		
		1 x 1 ph	2 x 1 ph	1 x 3 ph
95W	Up to 95 PILC	MSS 63	MSS 66	MSS 69
	Up to 185 PILC	MSS 64	MSS 67	MSS 70
	Up to 300 PILC	MSS 65	MSS 68	MSS 71
185W	Up to 185 PILC	MSS 64	MSS 67	MSS 70
	Up to 300 PILC	MSS 65	MSS 68	MSS 71
300W	Up to 300 PILC	MSS 65	MSS 68	MSS 71

Key: - 95W = 95mm<sup>2</sup> Wavecon  
 185W = 185mm<sup>2</sup> Wavecon  
 300W = 300mm<sup>2</sup> Wavecon

## JOINTING PROCEDURE 7.114

### JOINT KIT MATERIALS

KIT REF.	SHELL			RESIN		CONNECTORS							EARTH BOND	EARTH TAIL
	1586	1585	1584	5 litre	6.5 litre	UST 95	UST 185	UST 300	USB 95TI	USB 185TI	USB 300TI	BCNE 3	LVEB 08	LVCU 1700/5
MSS	1				2	4			2			1	1	1
MSS		1		1	2		4			2		1	1	1
MSS			1	3	2			4			2	1	1	1
MSS	1				2	4			3			1	1	1
MSS		1		1	2		4			3		1	1	1
MSS			1	3	2			4			3	1	1	1
MSS	1				2	4			4			1	1	1
MSS		1		1	2		4			4		1	1	1
MSS			1	3	2			4			4	1	1	1

### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
 Black cotton tape  
 Sealing putty  
 Cable ties  
 Shell support  
 16 swg tinned copper wire  
 Heatshrink tubing  
 Whipping thread  
 PVC tape  
 Emery cloth  
 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 7.114

### Actions

### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.114.1, 7.114.2** whilst undertaking this Jointing Procedure

- |    |                        |   |
|----|------------------------|---|
| 1. | Set up and mark cables | 4 |
|----|------------------------|---|

#### **PILC CABLE – Preparation**

- |    |                         |    |
|----|-------------------------|----|
| 2. | Open and cut the cable  | 16 |
| 3. | Carry out moisture test | 19 |
| 4. | Apply core protection   | 25 |
| 5. | Apply armour bond       | 22 |
| 6. | Apply lead sheath bond  | 23 |

#### **WAVECON CABLE – Preparation**

- |    |                        |    |
|----|------------------------|----|
| 7. | Open and cut the cable | 14 |
|----|------------------------|----|

#### **PVC SERVICE CABLE – Preparation**

- |    |                  |    |
|----|------------------|----|
| 8. | Open and cut the | 17 |
|----|------------------|----|

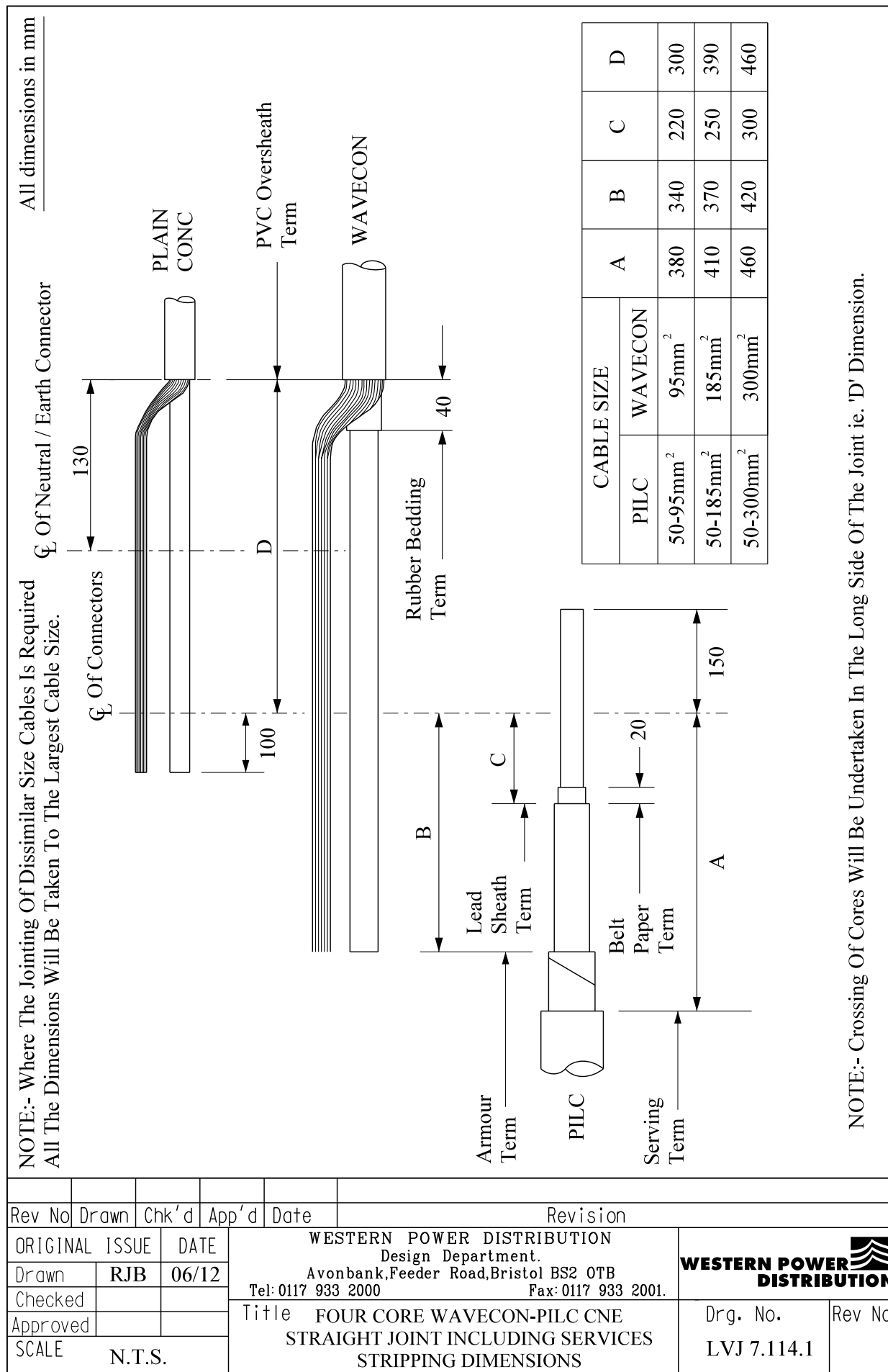
#### **COMPLETION OF JOINT**


- |     |   |       |
|-----|---|-------|
| 9.  | Prepare earth wires for jointing  | 8     |
| 10. | Set cores in joint position   | 27    |
| 11. | Connect Wavecon earth wires to lead sheath bond including 35mm <sup>2</sup> neutral/earth bond and copper earth tail. | 23    |
| 12. | Connect neutral/earth wires of service cable(s)   | 29    |
| 13. | Make and insulate neutral connections including 35mm <sup>2</sup> neutral/earth bond                                  | 29/30 |

## **JOINTING PROCEDURE 7.114 – Continued**

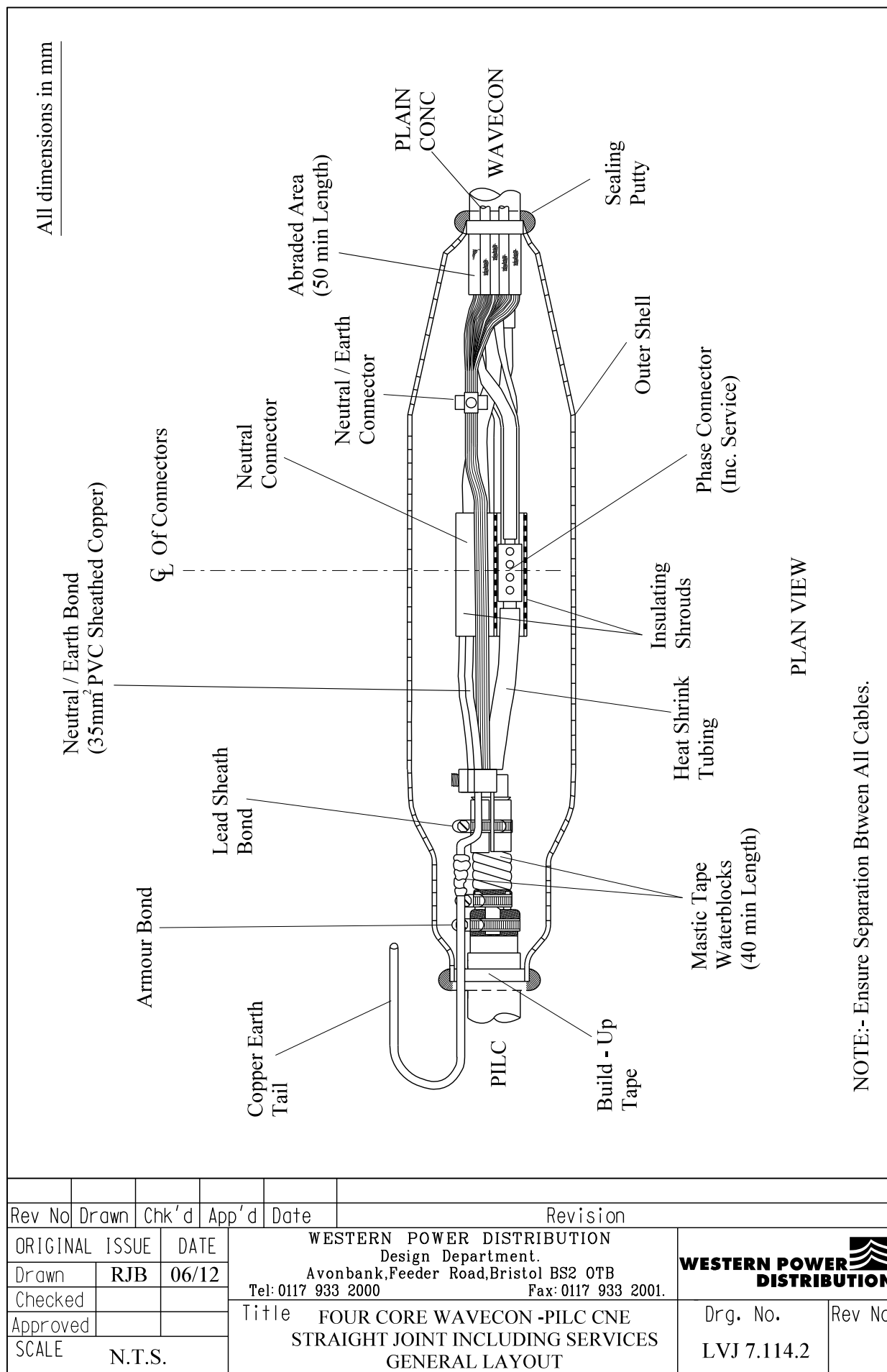
<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
14. Apply temporary shrouding	21
15. Make and insulate phase connections	29/30
16. Remove temporary shrouding applied in 14	--
17. Form neutral/earth wires into their final position	--
18. Abrade and build up oversheaths	32
19. Thoroughly degrease the joint	35
20. Apply mastic water blocks to lead sheath and copper earth tail	33
21. Remove temporary binders	--
22. Prepare and fit shell ensuring 15mm clearance	36
23. Mix and pour resin	37





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Drawn	RJB	06/12					
Checked							
Approved							
SCALE		N.T.S.		Title		Drg. No.	Rev No
				FOUR CORE WAVECON-PILC CNE STRAIGHT JOINT INCLUDING SERVICES STRIPPING DIMENSIONS		LVJ 7.114.1	

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.115**

**SINGLE CORE SOLIDAL AWA  
MAINS CABLE STRAIGHT 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 7.115

### MATERIALS LIST

#### CABLE SIZE – 600 Solidal

Item	Quantity
Shell 1581	1
Resin	16 lt (2 x 5lt + 1 x 6.5lt)
Connector MF7	1
Connector BCNE 3	2
Copper Earth Tail	1

#### 740 Solidal

Shell 1581	1
Resin	16 lt (2 x 5lt + 1 x 6.5lt)
Connector MF8	1
Connector BCNE 3	2
Copper Earth Tail	1

#### ADDITIONAL ITEMS FOR EACH JOINT

Insulation patch  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
Tinned copper braid (15 x 1.5)  
16 swg tinned copper wire  
PVC tape  
Emery cloth  
De-solvit 1000FD  
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 7.115

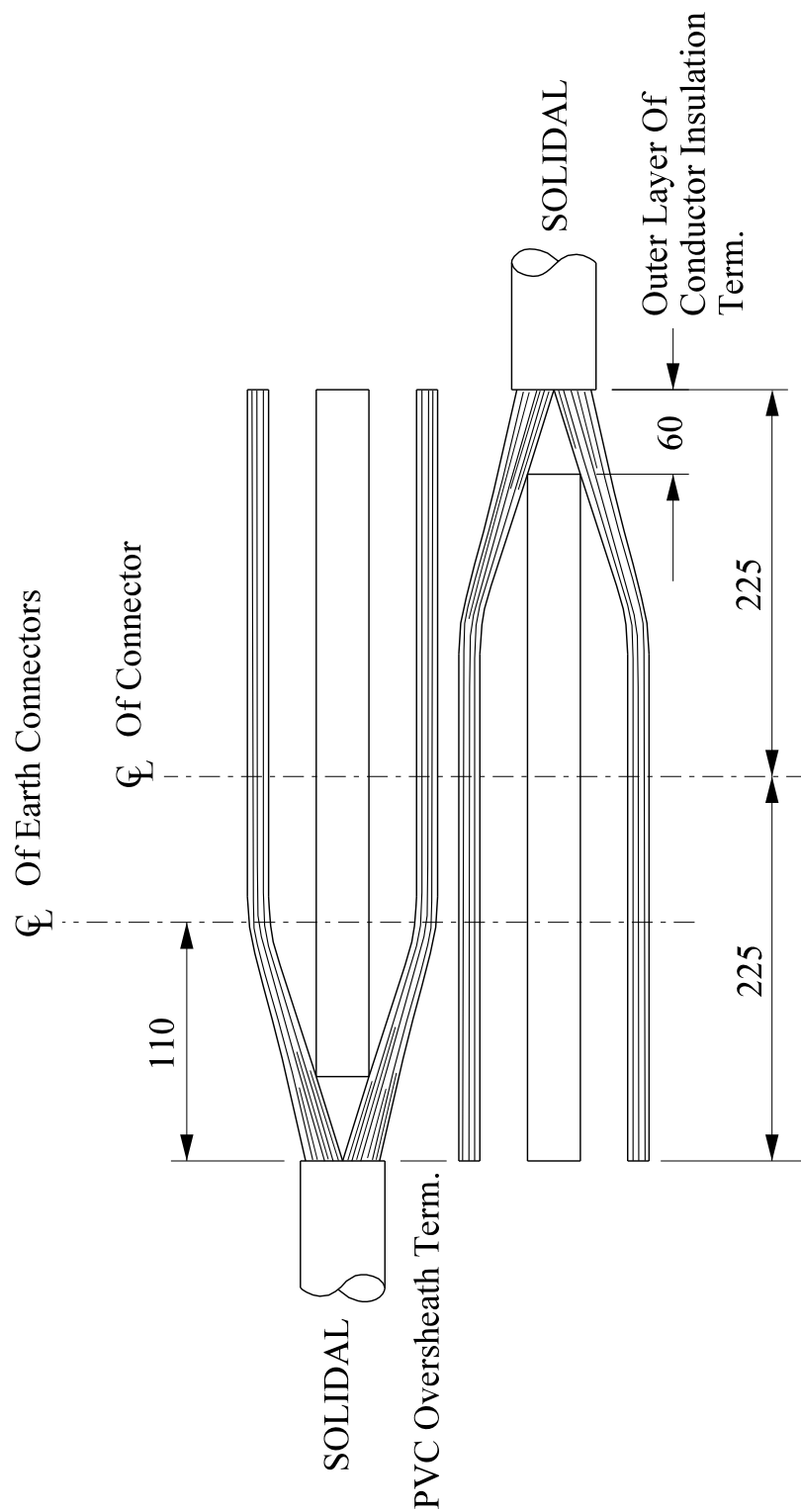
### Actions


### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.115.1, 7.115.2** whilst undertaking this Jointing Procedure

1.	Set up and mark cables	4
2.	Remove PVC oversheaths	6
3.	Prepare aluminium armour wires for jointing.	8
	<b>Note:</b> - The armour may be flat aluminium strip, treat as aluminium wire.	
4.	Abrade core insulation	--
5.	Make and insulate phase connection	29
6.	Connect aluminium armour wires including equalisation bond and copper earth tail	29
7.	Form aluminium armour wires into their final position	--
8.	Abrade and build up oversheaths	--
9.	Thoroughly degrease the joint	35
10.	Apply mastic water block to copper earth tail	33
11.	Remove temporary binders	--
12.	Prepare and fit shell ensuring 15mm clearance	36
13.	Mix and pour resin	37

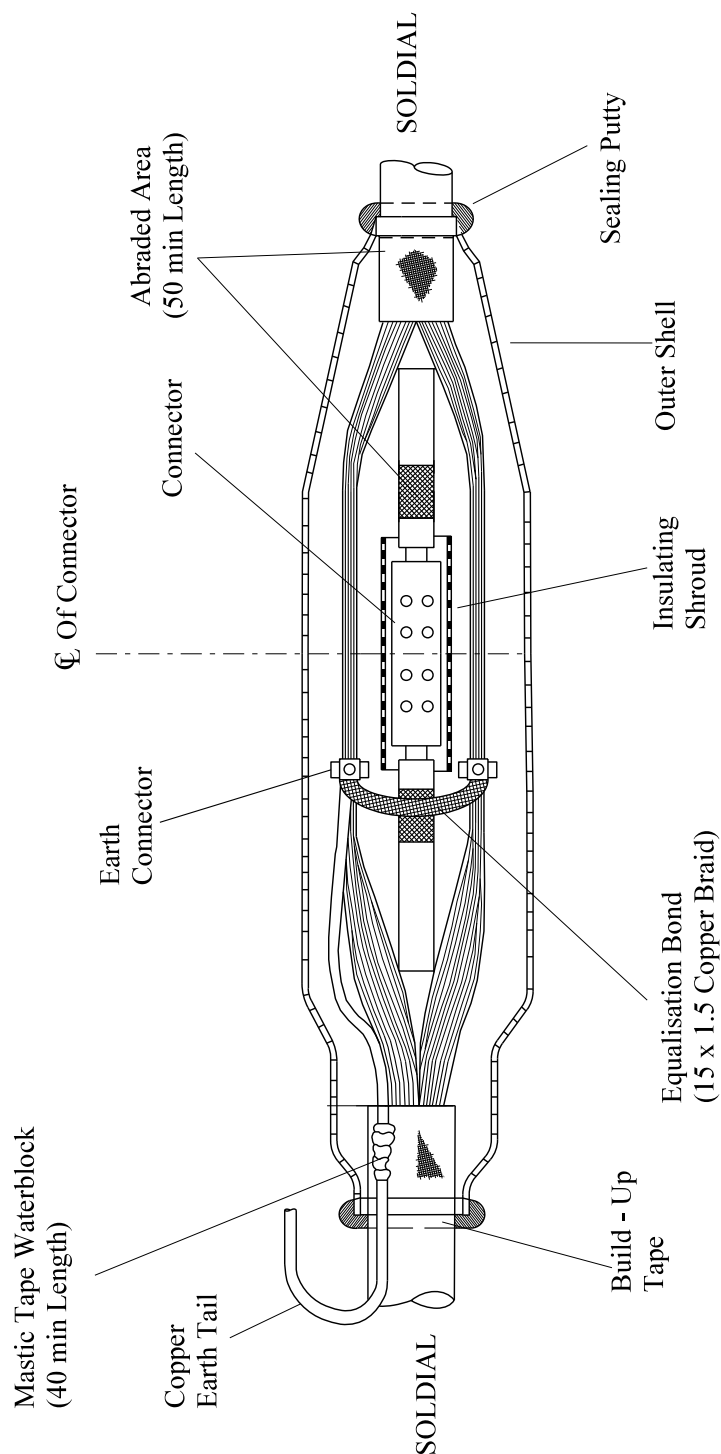
All dimensions in mm




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Drawn	RJB	06/12			
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Approved				Title	
SCALE		N.T.S.		SOLIDAL - SOLIDAL AWA SINGLE CORE STRAIGHT JOINT STRIPPING DIMENSIONS	
				Drg. No.	Rev No
				LVJ 7.115.1	

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PLAN VIEW

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Drawn	RJB	06/12				
Checked				<div>Title      SOLDIAL-SOLDIAL AWA SINGLE CORE STRAIGHT JOINT GENERAL LAYOUT</div> <div>Drg. No.      LVJ 7.115.2</div> <div>Rev No</div>		
Approved						
SCALE      N.T.S.						

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**ST: CA1D/4 PROCEDURES FOR MAKING LV MAINS CABLE  
STRAIGHT JOINT**

**JOINTING PROCEDURE 7.116**

**SINGLE CORE SOLIDAL AWA - PILC  
MAINS CABLE STRAIGHT 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 7.116**

### **MATERIALS LIST**

#### **CABLE SIZE – 600 Solidal - .75 PILC**

<b>Item</b>	<b>Quantity</b>
Shell 1581	1
Resin	16 lt (2 x 5lt + 1 x 6.5lt)
Connector MF7	1
Connector BCNE 3	2
Earth Bond LVEB 08	1
Copper Earth Tail	1

#### **ADDITIONAL ITEMS FOR EACH JOINT**

Insulation patch  
Black cotton tape  
Sealing putty  
Cable ties  
Shell support  
16 swg tinned copper wire  
Heatshrink tubing  
PVC tape  
35mm<sup>2</sup> PVC sheathed copper (green/yellow)  
Emery cloth  
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 7.116

### Actions

### General Requirements (ST: CA1C/4)

Refer to Drawing **LVJ 7.116.1, 7.116.2** whilst undertaking this Jointing Procedure

- |    |                        |   |
|----|------------------------|---|
| 1. | Set up and mark cables | 4 |
|----|------------------------|---|

#### **PILC CABLE – Preparation**

- |    |   |    |
|----|---|----|
| 2. | Remove serving, (armour if fitted) and bedding and thoroughly clean the lead sheath | 10 |
| 3. | Remove lead sheath  | 13 |
| 4. | Carry out moisture test   | 19 |
| 5. | Apply core protection   | 25 |
| 6. | Apply armour bond (where applicable)  | 22 |
| 7. | Apply lead sheath bond  | 23 |

#### **SOLIDAL CABLE – Preparation**

- |    |   |   |
|----|---|---|
| 8. | Remove PVC oversheath                       | 6 |
| 9. | Prepare aluminium armour wires for jointing | 8 |

**Note:** The armour may be flat aluminium strip treat as aluminium wire

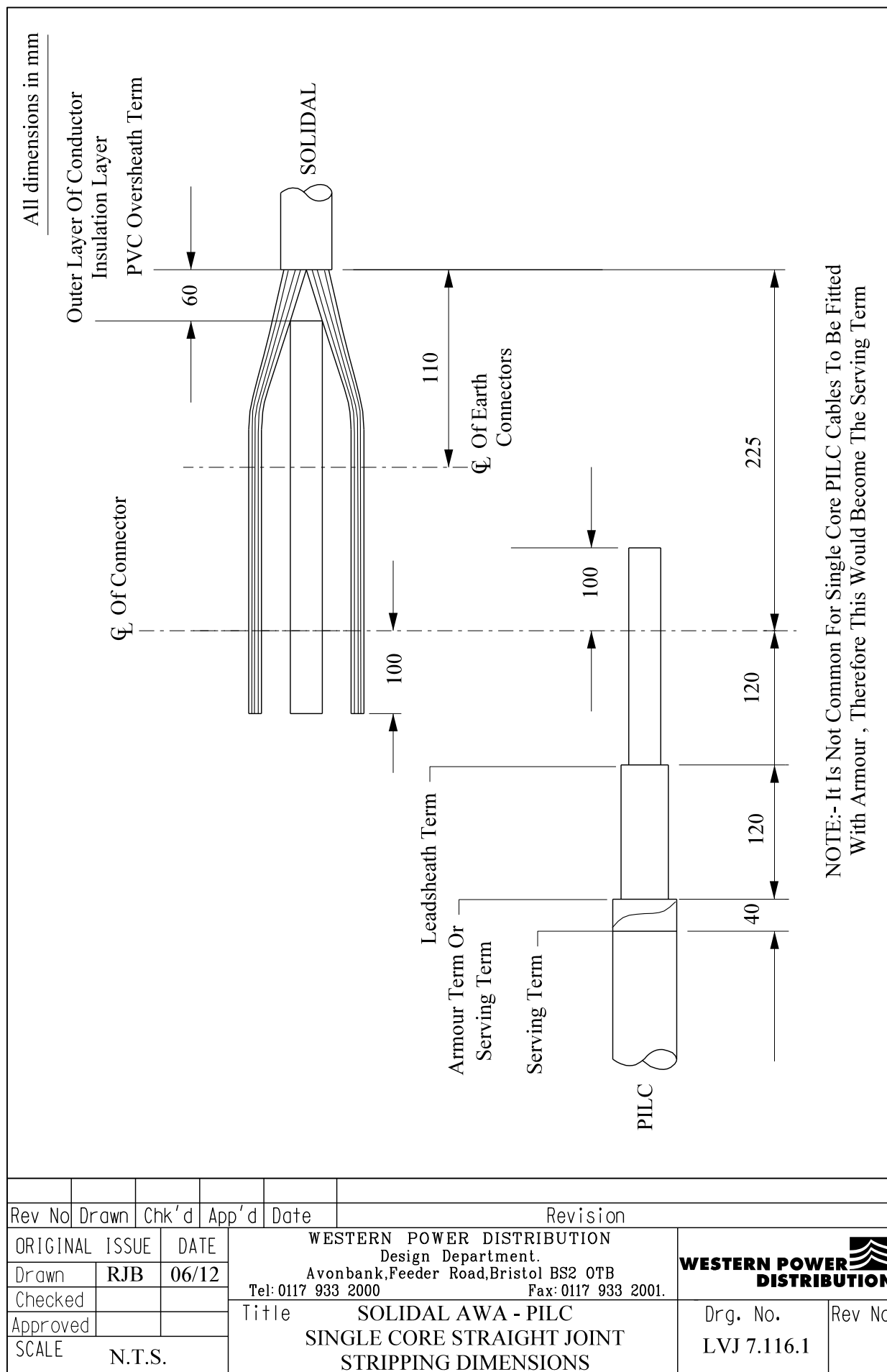
- |     |                        |    |
|-----|------------------------|----|
| 10. | Abrade core insulation | -- |
|-----|------------------------|----|

#### **COMPLETION OF JOINT**

- |     |  |    |
|-----|--|----|
| 11. | Make and insulate phase connection   | 29 |
| 12. | Connect aluminium armour wires to 35mm <sup>2</sup> earth wire                           | -- |
| 13. | Connect 35mm <sup>2</sup> earth wire to lead sheath bond including the copper earth tail | 29 |
| 14. | Form aluminium armour wires into their final position                                    | -- |
| 15. | Abrade and build up oversheaths  | 32 |

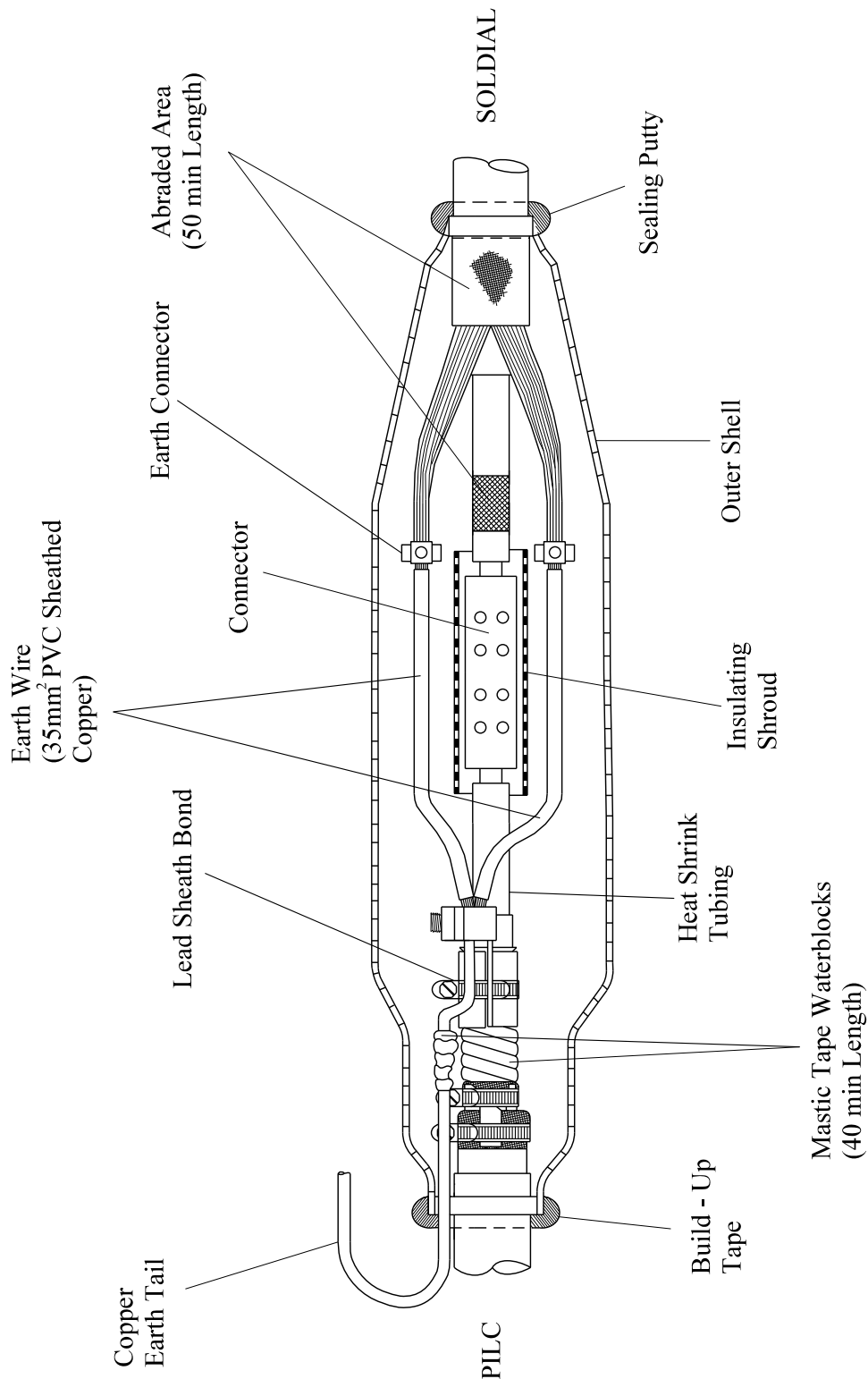
## **JOINTING PROCEDURE 7.116 – Continued**

<b>Actions</b>	<b>General Requirements (ST: CA1C/4)</b>
16. Thoroughly degrease the joint	35
17. Apply mastic water blocks to lead sheath copper earth tail	33
11. Remove temporary binder	--
12. Prepare and fit shell ensuring 15mm clearance	36
13. Mix and pour resin	37



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All dimensions in mm



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Checked					
Approved					
SCALE		N.T.S.		<div>Title</div> <div>SOLDIAL AWA - PILC SINGLE CORE STRAIGHT JOINT GENERAL LAYOUT</div> <div>Rev No</div>	

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## **APPENDIX A**

### **SUPERSEDED DOCUMENTATION**

This Standard Technique supersedes ST:CA1D/3 dated October 2001 which should now be withdrawn.

## **APPENDIX B**

### **ASSOCIATED DOCUMENTATION**

ST: CA1B, ST: CA1C/5, ST: CA1 D, ST: CA1E, ST: CA1F, ST: CA1G, ST: CA1H, ST: CA1I, ST: CA1U, 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**

LV Mains straight joints

## **APPENDIX F**

### **DOCUMENT LAST REVIEWED**

June 2012