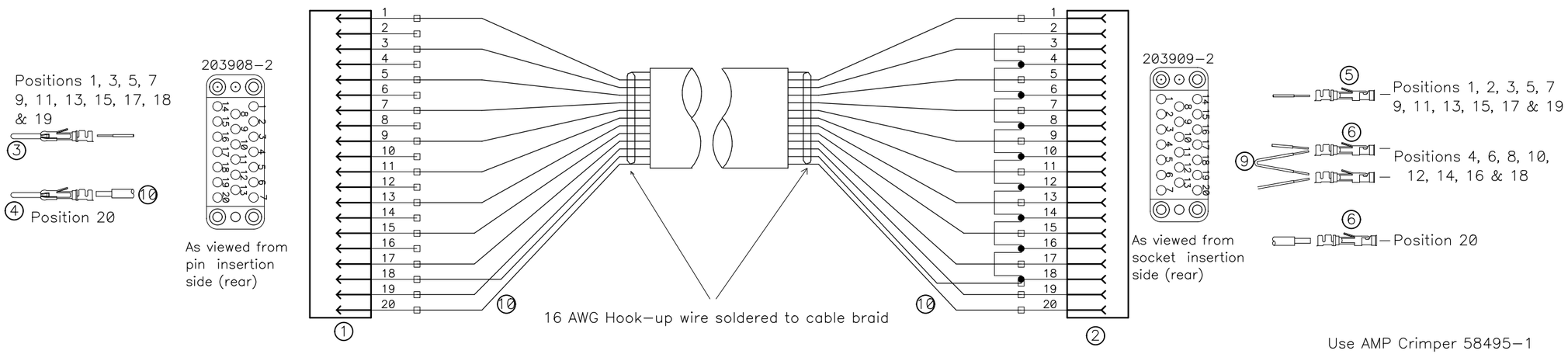
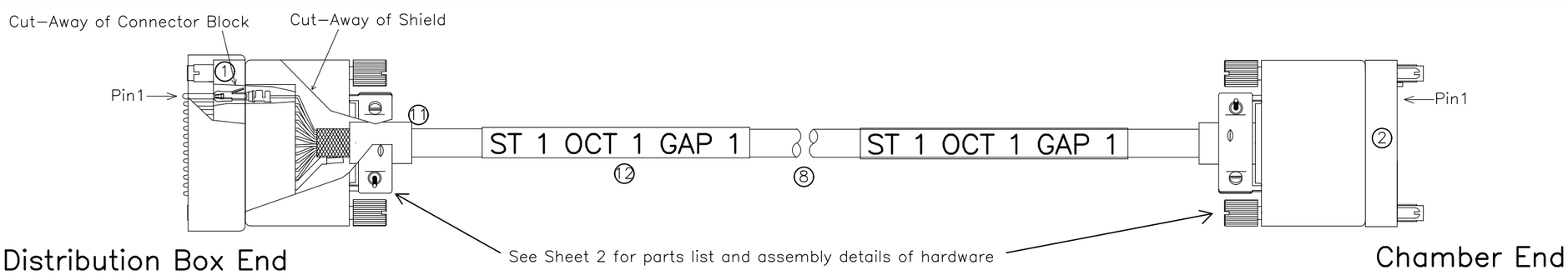
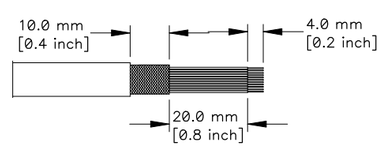
ITEM	QTY	MANUFACTURER	DESCRIPTION	PART #	Source	Cat #	Cost/ea
1	1	AMP (Div of Tyco)	Block Connector, 20 Pin, HV rated, Male	203908–2	Newark Electronics		12.00
2	1	AMP (Div of Tyco)	Block Connector, 20 Pin, HV rated, Female	203909–2	Newark Electronics		12.00
3	11	AMP (Div of Tyco)	Pin, Type III, for 20–24 AWG Wire	66103–1	Newark Electronics	50F575	.60
4	1	AMP (Div of Tyco)	Pin, Type III, for 16–18 AWG Wire	66099–1	Newark Electronics	50F676	.60
5	11	AMP (Div of Tyco)	Socket, Type III, for 20–24 AWG Wire	66105–1	Newark Electronics	50F576	.80
6	9	AMP (Div of Tyco)	Socket, Type III, for 16–18 AWG Wire	66101–1	Newark Electronics	50F573	.80
8	1	General Wire Prod.	Custom 11 Cond. Shielded HV Cable	001–21919 Rev B	Newark Electronics		.45/ft
9	9	Belden	Hook–up Wire, 22 AWG, Treflon, Green, 31mm (1.2 in) long	83026–100–5	Newark Electronics	02F5834	.02
10	2	Belden	Hook–up Wire, 16 AWG, Teflon, Green, 25.4 mm (1 in) long	83030–100–5	Newark Electronics	02F5420	.04
11	2	Nalgene	PVC Tubing, Clear, 19mm (3/4") long, 3/8" ID, 1/2" OD	8000–0120	Fischer Scientific	14–176–36	.02
12	2		Cable Label, see sheet 3 for text				





Connector Position	Color of HV Cable Wires
1	Brown
3	Red
5	Orange
7	Yellow
9	Green
11	Blue
13	Violet
15	Gray
17	Black
18	White
19	White & Blue

Both ends of cable

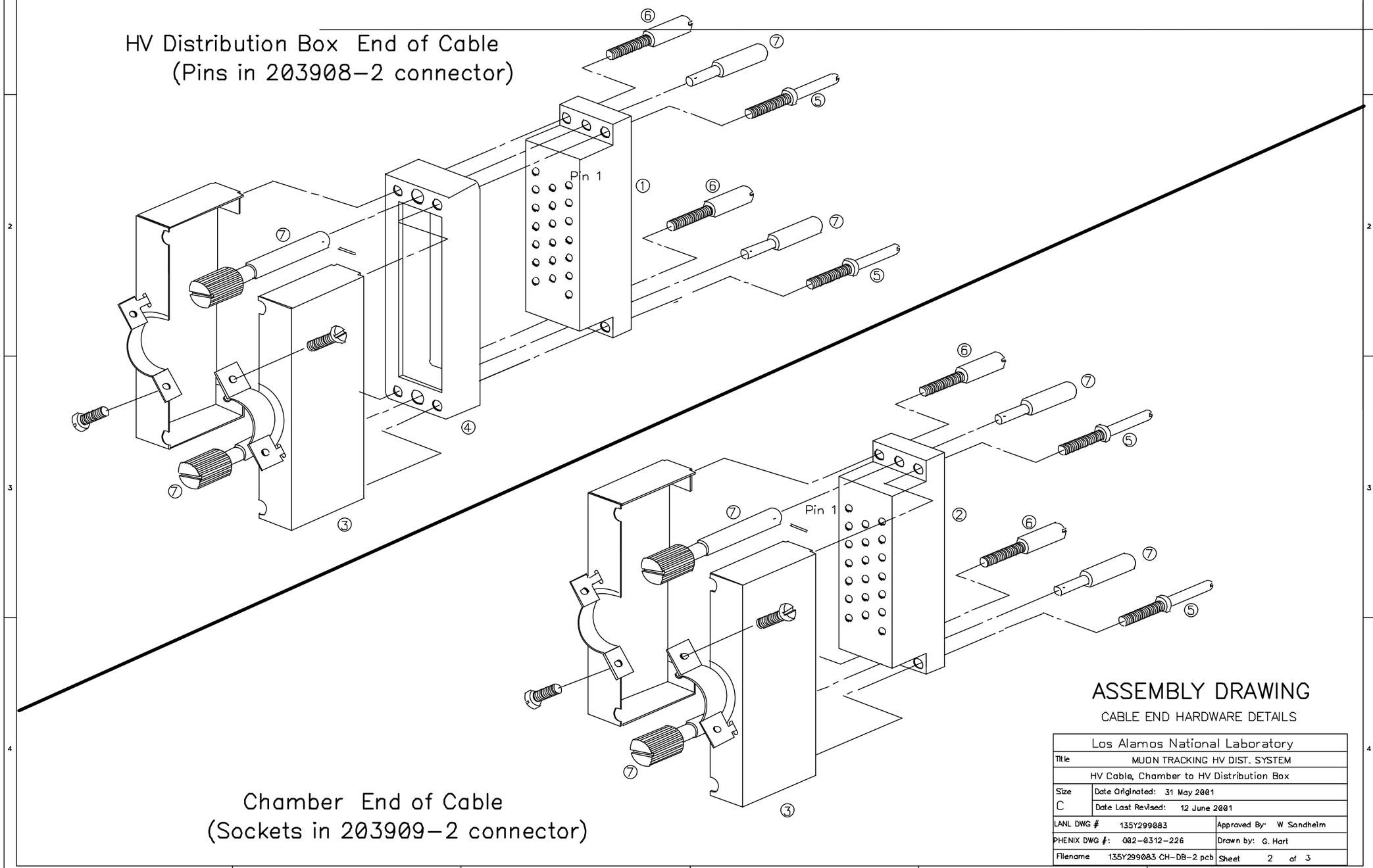


ASSEMBLY DRAWING

SCHEMATIC & CABLE WIRING DETAILS

Los Alamos National Laboratory			
Title	MUON TRACKING HV DIST. SYSTEM		
HV Cable, Chamber to HV Distribution Box			
Size C	Date Originated: 31 May 2001		
	Date Last Revised: 10 Sept 2001		
LANL DWG #	135Y299083	Approved By:	W. Sondheim
PHENIX DWG #:	002–0312–226	Drawn by:	G. Hart
Filename	135Y299083 CH–DB–1.pcb	Sheet	1 of 3

ITEM	QTY	MANUFACTURER	DESCRIPTION	PART #	Source	Cat #	Cost/ea
1	1	AMP (Div of Tyco)	Block Connector, 20 Pin, HV rated, Male	203908-2	See SHEET 1		
2	1	AMP (Div of Tyco)	Block Connector, 20 Pin, HV rated, Female	203909-2	See SHEET 1		
3	2	AMP (Div of Tyco)	Shield Kit, Short, M-Series, Two-Piece, with screws & clamps	200517-2	Digi-Key	200517-2-ND	11.00
4	1	AMP (Div of Tyco)	Pin Hood, Internal, M-Seris	202434-4	Newark Electronics		7.00
5	4	AMP (Div of Tyco)	Guide Pin, for Type M Connectors	200833-2	Newark Electronics	50F656	1.00
6	4	AMP (Div of Tyco)	Guide Socket, for Type M Connectors	200835-2	Newark Electronics	50F657	1.43
7	4	AMP (Div of Tyco)	Jackscrew Kit, Female, For type M connector	200867-1	Newark Electronics	50F659	2.62



ASSEMBLY DRAWING

CABLE END HARDWARE DETAILS

Los Alamos National Laboratory		
Title	MUON TRACKING HV DIST. SYSTEM	
HV Cable, Chamber to HV Distribution Box		
Size C	Date Originated: 31 May 2001	
	Date Last Revised: 12 June 2001	
LANL DWG # 135Y299083		Approved By: W Sandheim
PHENIX DWG #: 002-0312-226		Drawn by: G. Hart
Filename 135Y299083 CH-DB-2 pcb		Sheet 2 of 3

Cable Label	Length
ST 1 OC 1 GAP 1	23 M (75.5 Ft)
ST 1 OC 1 GAP 2	23 M (75.5 Ft)
ST 1 OC 1 GAP 3	23 M (75.5 Ft)
ST 1 OC 2 GAP 1	23 M (75.5 Ft)
ST 1 OC 2 GAP 2	23 M (75.5 Ft)
ST 1 OC 2 GAP 3	23 M (75.5 Ft)
ST 1 OC 3 GAP 1	23 M (75.5 Ft)
ST 1 OC 3 GAP 2	23 M (75.5 Ft)
ST 1 OC 3 GAP 3	23 M (75.5 Ft)
ST 1 OC 4 GAP 1	23 M (75.5 Ft)
ST 1 OC 4 GAP 2	23 M (75.5 Ft)
ST 1 OC 4 GAP 3	23 M (75.5 Ft)
ST 1 OC 5 GAP 1	23 M (75.5 Ft)
ST 1 OC 5 GAP 2	23 M (75.5 Ft)
ST 1 OC 5 GAP 3	23 M (75.5 Ft)
ST 1 OC 6 GAP 1	23 M (75.5 Ft)
ST 1 OC 6 GAP 2	23 M (75.5 Ft)
ST 1 OC 6 GAP 3	23 M (75.5 Ft)
ST 1 OC 7 GAP 1	23 M (75.5 Ft)
ST 1 OC 7 GAP 2	23 M (75.5 Ft)
ST 1 OC 7 GAP 3	23 M (75.5 Ft)
ST 1 OC 8 GAP 1	23 M (75.5 Ft)
ST 1 OC 8 GAP 2	23 M (75.5 Ft)
ST 1 OC 8 GAP 3	23 M (75.5 Ft)

Cable Label	Length
ST 2 OC 1 GAP 1	27.1 M (88.9 Ft)
ST 2 OC 1 GAP 2	27.1 M (88.9 Ft)
ST 2 OC 1 GAP 3	27.1 M (88.9 Ft)
ST 2 OC 2 GAP 1	23.1 M (75.8 Ft)
ST 2 OC 2 GAP 2	23.1 M (75.8 Ft)
ST 2 OC 2 GAP 3	23.1 M (75.8 Ft)
ST 2 OC 3 GAP 1	18.1 M (59.4 Ft)
ST 2 OC 3 GAP 2	18.1 M (59.4 Ft)
ST 2 OC 3 GAP 3	18.1 M (59.4 Ft)
ST 2 OC 4 GAP 1	14.1 M (46.3 Ft)
ST 2 OC 4 GAP 2	14.1 M (46.3 Ft)
ST 2 OC 4 GAP 3	14.1 M (46.3 Ft)
ST 2 OC 5 GAP 1	10.1 M (33.1 Ft)
ST 2 OC 5 GAP 2	10.1 M (33.1 Ft)
ST 2 OC 5 GAP 3	10.1 M (33.1 Ft)
ST 2 OC 6 GAP 1	11.1 M (36.4 Ft)
ST 2 OC 6 GAP 2	11.1 M (36.4 Ft)
ST 2 OC 6 GAP 3	11.1 M (36.4 Ft)
ST 2 OC 7 GAP 1	15.1 M (49.5 Ft)
ST 2 OC 7 GAP 2	15.1 M (49.5 Ft)
ST 2 OC 7 GAP 3	15.1 M (49.5 Ft)
ST 2 OC 8 GAP 1	32.1 M (105.3 Ft)
ST 2 OC 8 GAP 2	32.1 M (105.3 Ft)
ST 2 OC 8 GAP 3	32.1 M (105.3 Ft)

Cable Label	Length
ST 3 OC 1 GAP 1	24.2 M (79.4 Ft)
ST 3 OC 1 GAP 3	24.2 M (79.4 Ft)
ST 3 OC 2 GAP 1	20.2 M (66.3 Ft)
ST 3 OC 2 GAP 3	20.2 M (66.3 Ft)
ST 3 OC 3 GAP 1	15.2 M (49.9 Ft)
ST 3 OC 3 GAP 3	15.2 M (49.9 Ft)
ST 3 OC 4 GAP 1	11.2 M (36.7 Ft)
ST 3 OC 4 GAP 3	11.2 M (36.7 Ft)
ST 3 OC 5 GAP 1	7.2 M (23.6 Ft)
ST 3 OC 5 GAP 3	7.2 M (23.6 Ft)
ST 3 OC 6 GAP 1	8.2 M (26.9 Ft)
ST 3 OC 6 GAP 3	8.2 M (26.9 Ft)
ST 3 OC 7 GAP 1	12.2 M (40 Ft)
ST 3 OC 7 GAP 3	12.2 M (40 Ft)
ST 3 OC 8 GAP 1	29.2 M (95.8 Ft)
ST 3 OC 8 GAP 3	29.2 M (95.8 Ft)

Each cable will have two Labels, one on each end.

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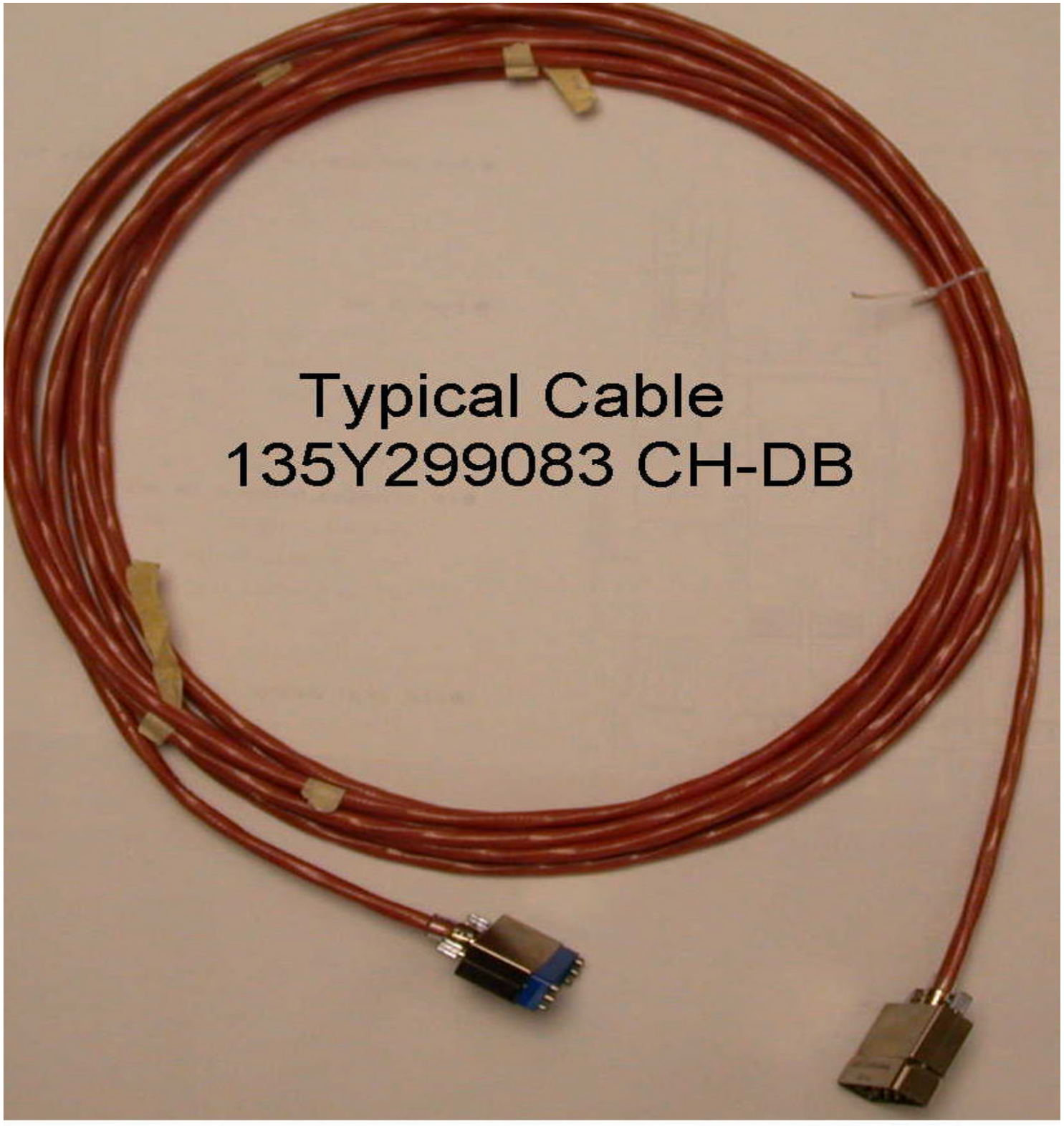
Location shown on Sheet 1

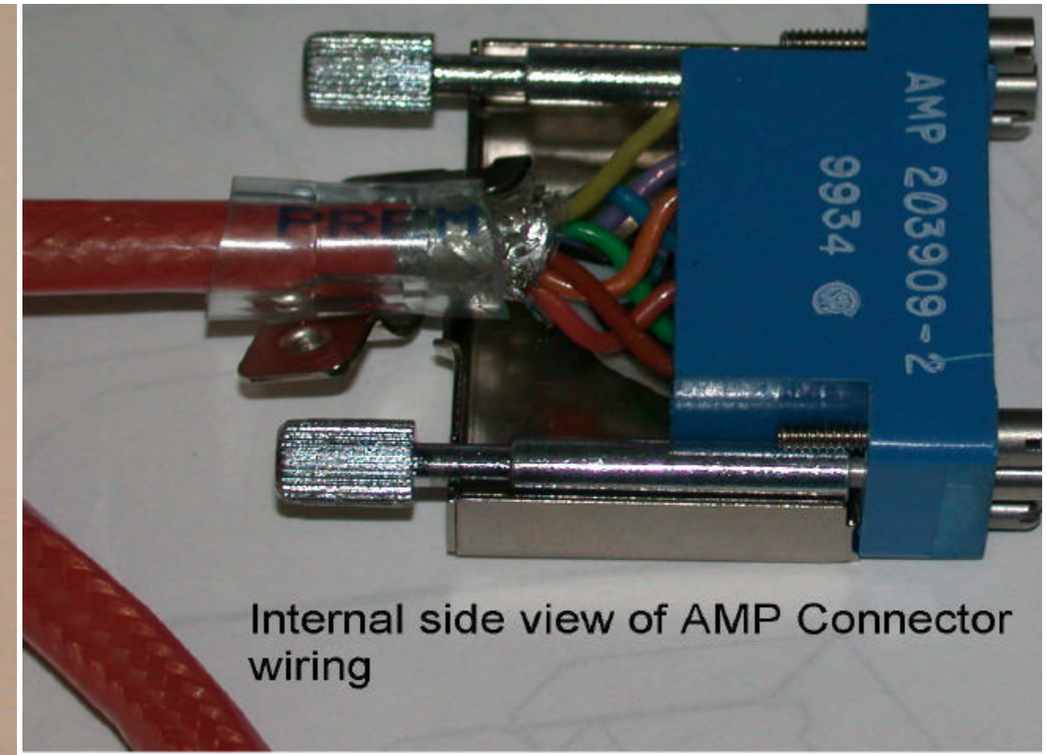
Total number of cables = 64

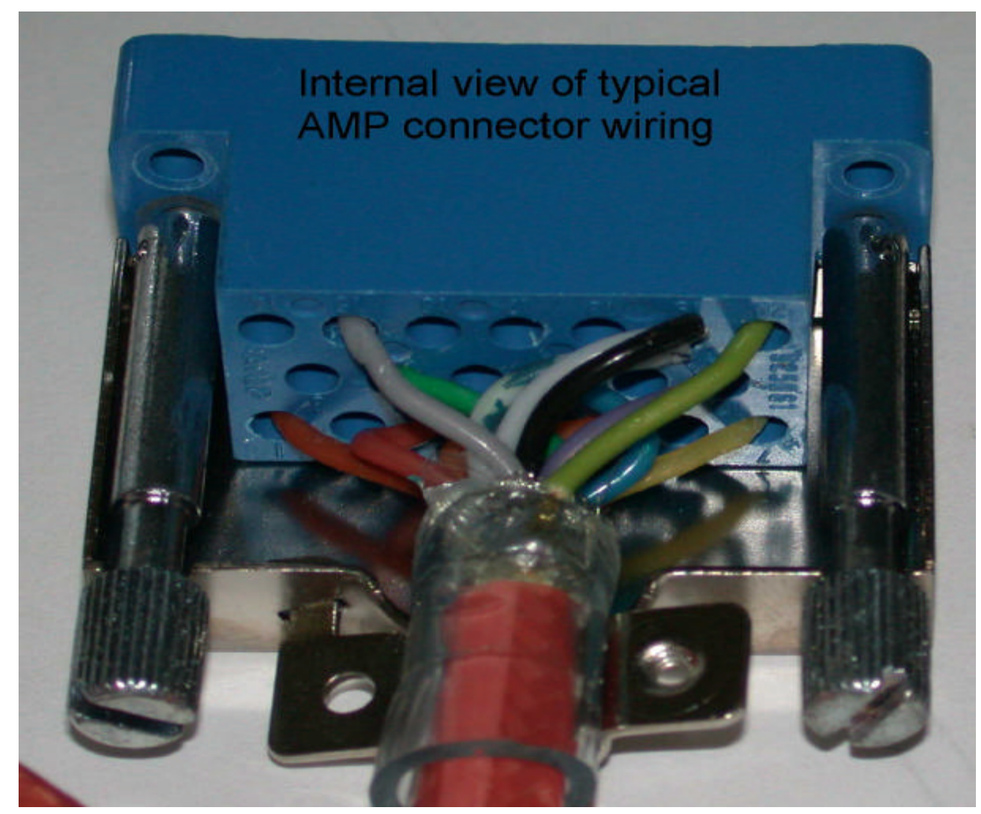
ASSEMBLY DRAWING

Labels & Cable Lengths

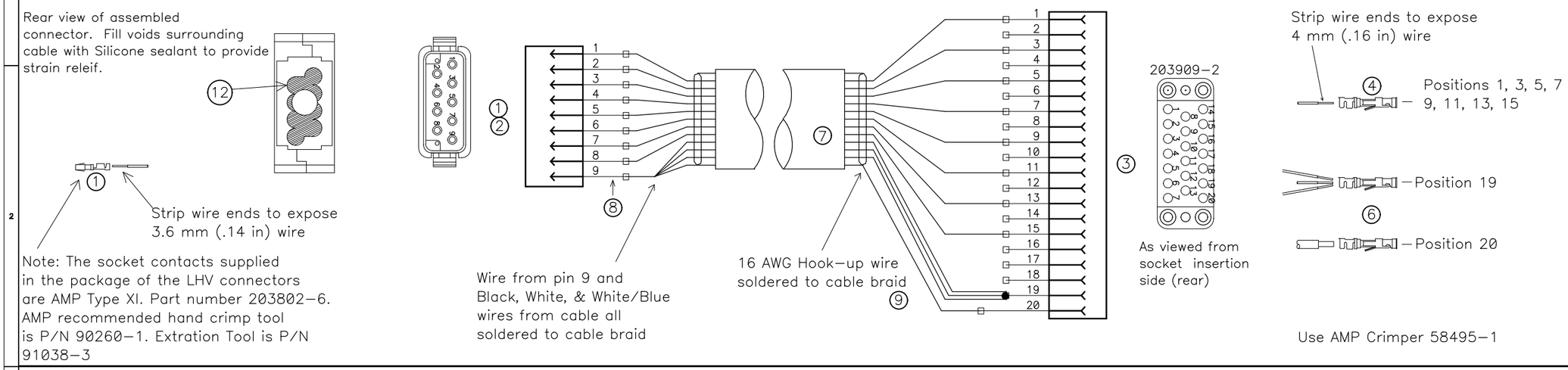
Los Alamos National Laboratory			
Title	MUON TRACKING HV DIST. SYSTEM		
HV Cable, Chamber to HV Distribution Box			
Size C	Date Originated: 31 May 2001		
	Date Last Revised: 26 Sept 2001		
LANL DWG #	135Y299083	Approved By:	W. Sondheim
PHENIX DWG #:	002-0312-226	Drawn by:	G. Hart
Filename	135Y299083 CH-DB-3.pcb	Sheet	3 of 3

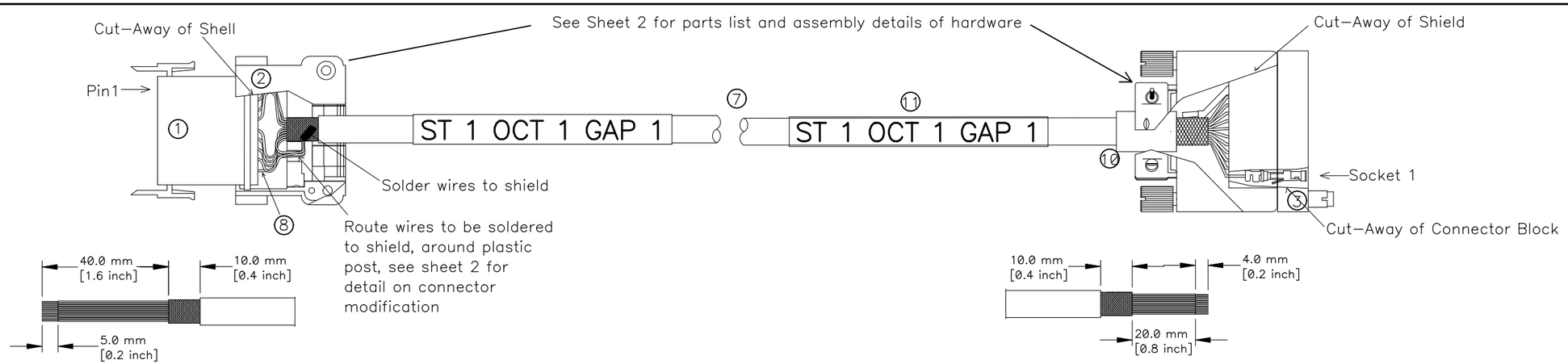

Typical Cable
135Y299083 CH-DB


AMP 203909-2
9934
Internal side view of AMP Connector wiring


Internal view of typical
AMP connector wiring

ITEM	QTY	MANUFACTURER	DESCRIPTION	PART #	Source	Cat #	Cost/ea
1	1	AMP (Div of Tyco)	LGH 9 Pin HV Connector Kit (includes sockets)	443161–1	Discontinued		
2	1	AMP (Div of Tyco)	LGH Strain Relief Kit (Includes hardware)	443162–1	Discontinued		
3	1	AMP (Div of Tyco)	Block Connector, 20 Pin, HV rated, Female	203909–2	Newark Electronics		12.00
4	8	AMP (Div of Tyco)	Socket, Type III, for 20–24 AWG Wire, .071" OD	66105–1	Newark Electronics	50F576	.80
6	2	AMP (Div of Tyco)	Socket, Type III, for 16 AWG Wire, .088" Dia	66101–1	Newark Electronics	50F573	.80
7	1	General Wire Prod.	Custom 11 Cond. Shielded HV Cable	001–21919 Rev B	Newark Electronics		.45/ft
8	1	Belden	Hook–up Wire, 22 AWG, Teflon, Green, 70 mm (2.7 in) long	83026–100–5	Newark Electronics	02F5834	.05
9	1	Belden	Hook–up Wire, 16 AWG, Teflon, Green, 35 mm (1.4 in) long	83030–100–5	Newark Electronics	02F5420	.05
10	1	Nalgene	PVC Tubing, Clear, 19mm (3/4") long, 3/8" ID, 1/2" OD	8000–0120	Fischer Scientific	14–176–36	.02
11	2		Cable Label, see sheet 3 for text				
12	1/8 oz	GC Electronics	Silicone Sealant/Adhesive, Electronic Grade, Clear, 3 oz Tube	19–155	Newark Electronics	00Z1554	.30





9 Pin LGH Connector Position	Color of HV Cable Wires
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Violet
8	Gray
9	Black
9	White
9	White & Blue
9	Shield Braid

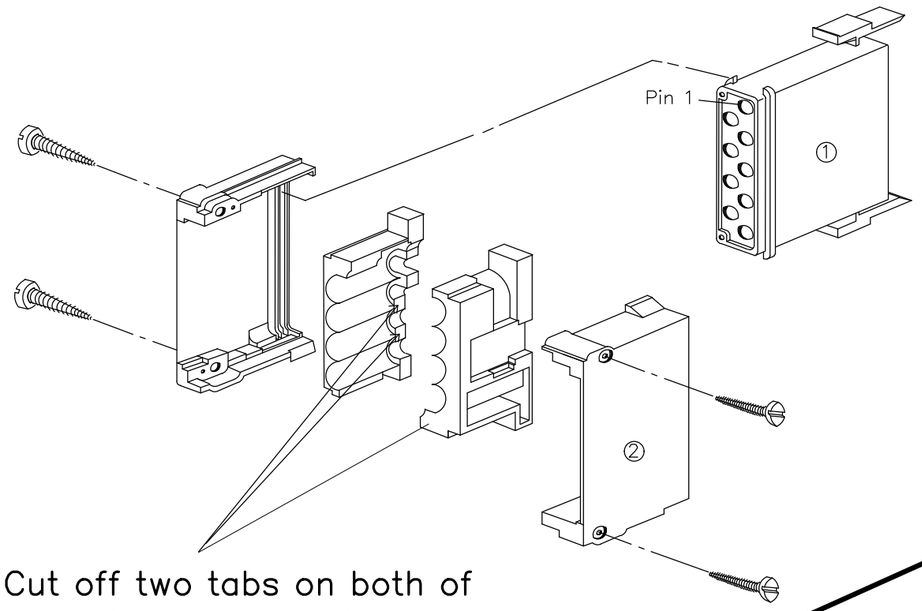
20 PIN Connector Position	Color of HV Cable Wires
1	Brown
3	Red
5	Orange
7	Yellow
9	Green
11	Blue
13	Violet
15	Gray
19	Black
19	White
19	White & Blue

ASSEMBLY DRAWING

SCHEMATIC & CABLE WIRING DETAILS

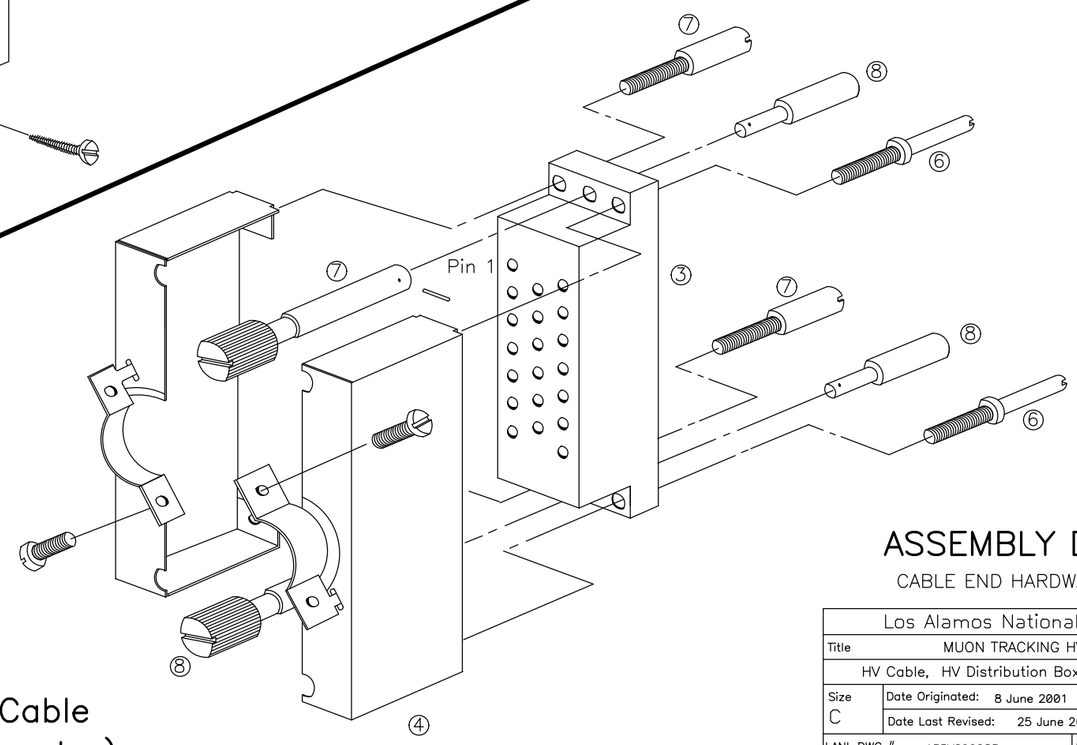
Los Alamos National Laboratory			
Title	MUON TRACKING HV DIST. SYSTEM		
HV Cable, Distribution Box to HV Power Supply			
Size C	Date Originated: 31 May 2001		
	Date Last Revised: 10 Sept 2001		
LANL DWG #	135Y299083	Approved By:	W. Sondheim
PHENIX DWG #:	002–0312–226	Drawn by:	G. Hart
Filename	135Y299083 DB–PS–1.pcb	Sheet	1 of 3

ITEM	QTY	MANUFACTURER	DESCRIPTION	PART #	Source	Cat #	Cost/ea
1	1	AMP (Div of Tyco)	LGH 9 Pin Connector Kit	443161-1	See SHEET 1		
2	1	AMP (Div of Tyco)	LGH 9 Pin Strain Relief Kit	443162-1	See SHEET 1		
3	1	AMP (Div of Tyco)	Block Connector, 20 Pin, HV rated, Female	203909-2	See SHEET 1		
4	1	AMP (Div of Tyco)	Shield Kit, Short, M-Series, Two-Piece, with screws & clamps	200517-2	Digi-Key	200517-2-ND	11.00
6	2	AMP (Div of Tyco)	Guide Pin, for Type M Connectors	200833-2	Newark Electronics	50F656	1.00
7	2	AMP (Div of Tyco)	Guide Socket, for Type M Connectors	200835-2	Newark Electronics	50F657	1.43
8	2	AMP (Div of Tyco)	Jackscrew Kit, Female, For type M Connectors	200867-1	Newark Electronics	50F659	2.62



HV Power Supply End of Cable
(9 Pin LGH Connector))

Cut off two tabs on both of
these inner clamp pieces
(to make room for cable)



HV Distribution Box End of Cable
(Sockets in 203909-2 connector)

ASSEMBLY DRAWING

CABLE END HARDWARE DETAILS

Los Alamos National Laboratory			
Title	MUON TRACKING HV DIST. SYSTEM		
HV Cable, HV Distribution Box to Power Supply			
Size C	Date Originated: 8 June 2001		
	Date Last Revised: 25 June 2001		
LANL DWG #	135Y299083	Approved By:	W. Sondheim
PHENIX DWG #:	002-0312-226	Drawn by:	G. Hart
Filename	135Y299083 DB-PS-2.pcb	Sheet	2 of 3

Cable Label	Length
ST 1 OC 1 GAP 1	1.8 M (71 in)
ST 1 OC 1 GAP 2	1.8 M (71 in)
ST 1 OC 1 GAP 3	1.8 M (71 in)
ST 1 OC 2 GAP 1	1.8 M (71 in)
ST 1 OC 2 GAP 2	1.8 M (71 in)
ST 1 OC 2 GAP 3	1.8 M (71 in)
ST 1 OC 3 GAP 1	1.8 M (71 in)
ST 1 OC 3 GAP 2	1.8 M (71 in)
ST 1 OC 3 GAP 3	1.8 M (71 in)
ST 1 OC 4 GAP 1	1.8 M (71 in)
ST 1 OC 4 GAP 2	1.8 M (71 in)
ST 1 OC 4 GAP 3	1.8 M (71 in)
ST 1 OC 5 GAP 1	1.8 M (71 in)
ST 1 OC 5 GAP 2	1.8 M (71 in)
ST 1 OC 5 GAP 3	1.8 M (71 in)
ST 1 OC 6 GAP 1	1.8 M (71 in)
ST 1 OC 6 GAP 2	1.8 M (71 in)
ST 1 OC 6 GAP 3	1.8 M (71 in)
ST 1 OC 7 GAP 1	1.8 M (71 in)
ST 1 OC 7 GAP 2	1.8 M (71 in)
ST 1 OC 7 GAP 3	1.8 M (71 in)
ST 1 OC 8 GAP 1	1.8 M (71 in)
ST 1 OC 8 GAP 2	1.8 M (71 in)
ST 1 OC 8 GAP 3	1.8 M (71 in)

Cable Label	Length
ST 2 OC 1 GAP 1 & 2	1.8 M (71 in)
ST 2 OC 1 GAP 3 OCT 2 GAP 1	1.8 M (71 in)
ST 2 OC 2 GAP 2 & 3	1.8 M (71 in)
ST 2 OC 3 GAP 1 & 2	1.8 M (71 in)
ST 2 OC 3 GAP 3 OCT 4 GAP 1	1.8 M (71 in)
ST 2 OC 4 GAP 2 & 3	1.8 M (71 in)
ST 2 OC 5 GAP 1 & 2	1.8 M (71 in)
ST 2 OC 5 GAP 3 OCT 6 GAP 1	1.8 M (71 in)
ST 2 OC 6 GAP 2 & 3	1.8 M (71 in)
ST 2 OC 7 GAP 1 & 2	1.8 M (71 in)
ST 2 OC 7 GAP 3 OCT 8 GAP 1	1.8 M (71 in)
ST 2 OC 8 GAP 2 & 3	1.8 M (71 in)

Cable Label	Length
ST 3 OC 1 GAP 1 & 3	1.8 M (71 in)
ST 3 OC 2 GAP 1 & 3	1.8 M (71 in)
ST 3 OC 3 GAP 1 & 3	1.8 M (71 in)
ST 3 OC 4 GAP 1 & 3	1.8 M (71 in)
ST 3 OC 5 GAP 1 & 3	1.8 M (71 in)
ST 3 OC 6 GAP 1 & 3	1.8 M (71 in)
ST 3 OC 7 GAP 1 & 3	1.8 M (71 in)
ST 3 OC 8 GAP 1 & 3	1.8 M (71 in)

Each cable will have two Labels, one on each end.

.

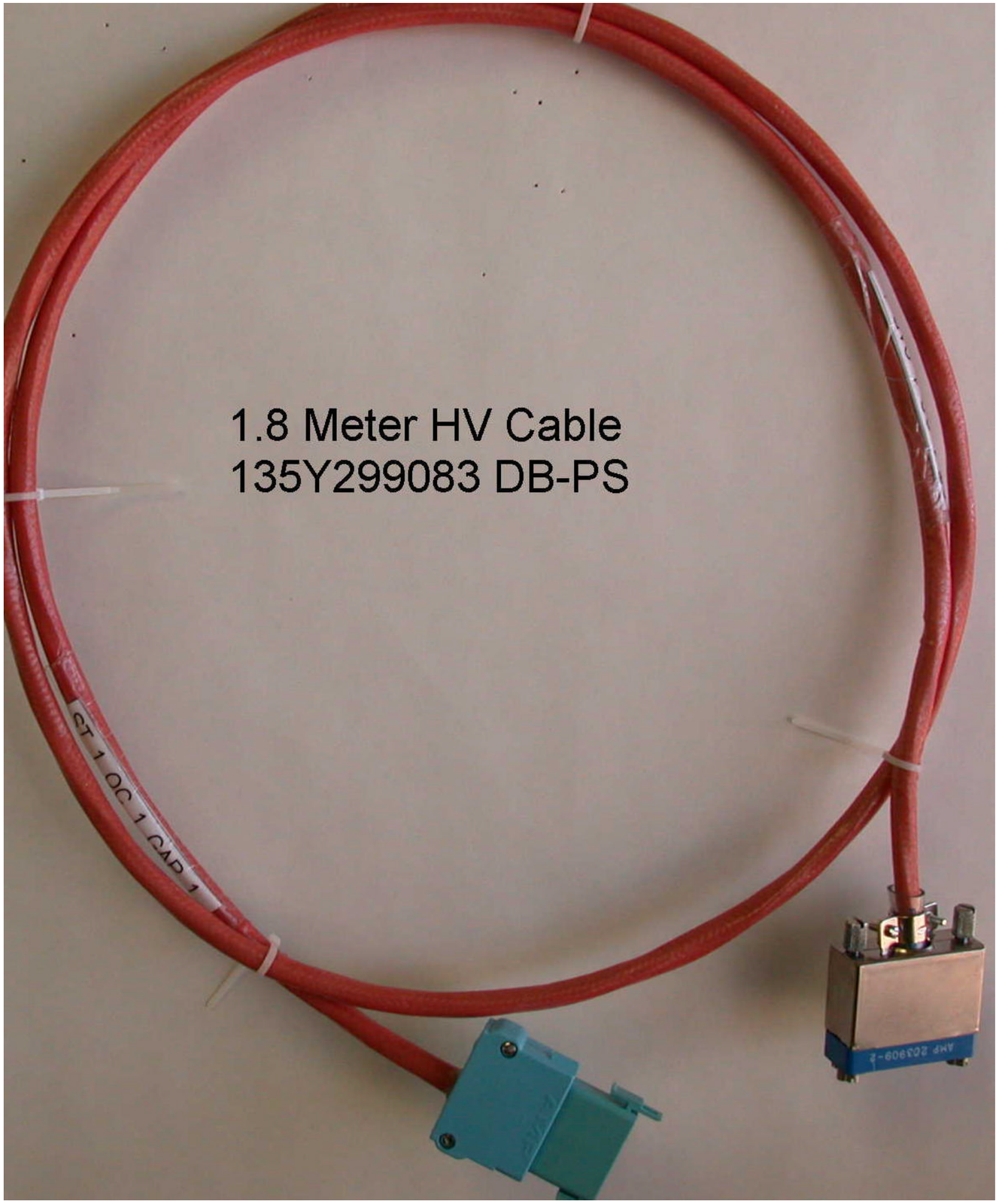
Location shown on Sheet 1

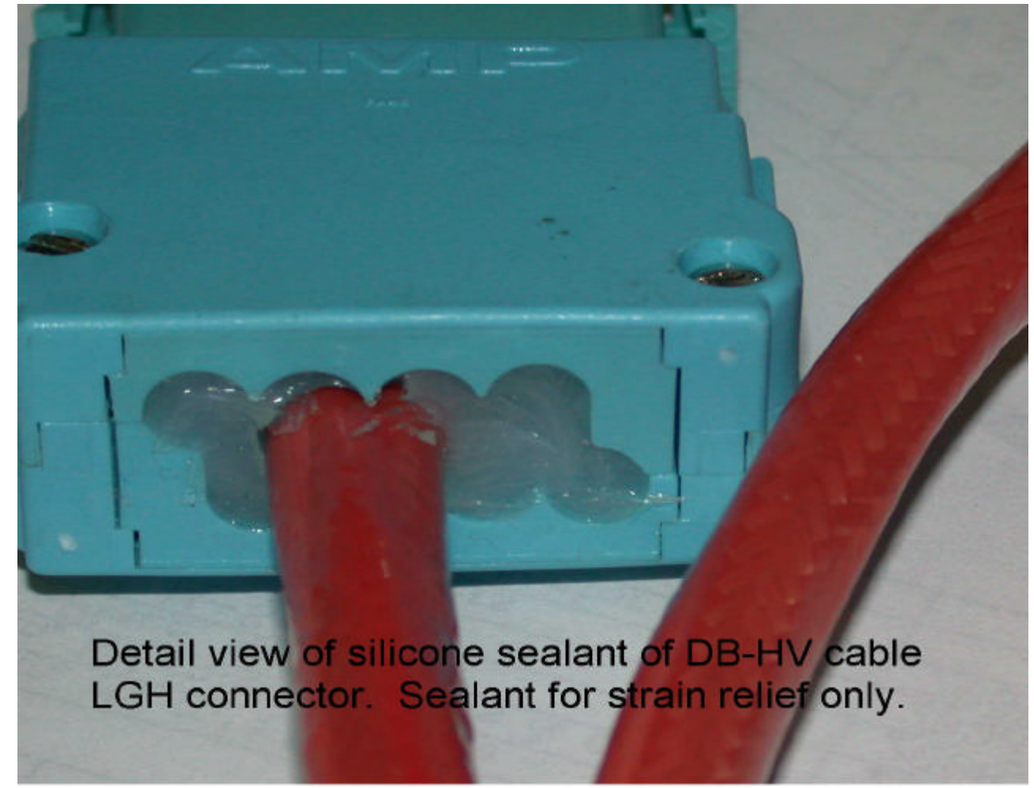
Total number of cables = 44

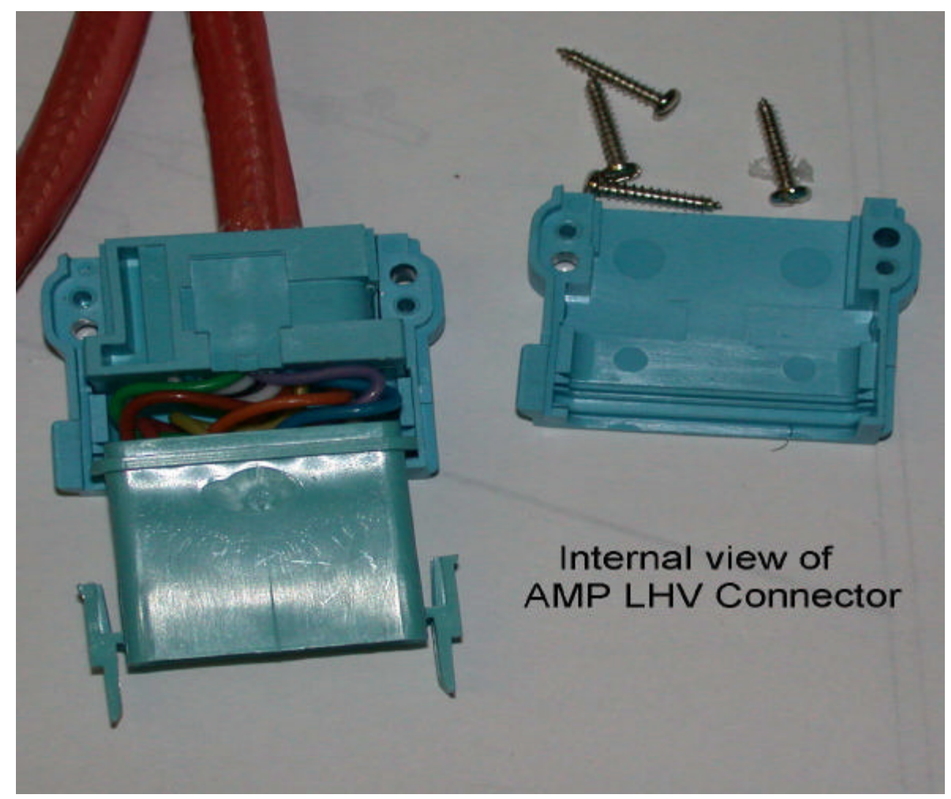
ASSEMBLY DRAWING

Labels & Cable Lengths

Los Alamos National Laboratory			
Title	MUON TRACKING HV DIST. SYSTEM		
Cable, Distribution Box to HV Power Supply			
Size C	Date Originated: 31 May 2001		
	Date Last Revised: 26 Sept 2001		
LANL DWG #	135Y299083	Approved By:	W. Sondheim
PHENIX DWG #:	002-0312-226	Drawn by:	G. Hart
Filename	135Y299083 DB-PS-3.pcb	Sheet	3 of 3


1.8 Meter HV Cable
135Y299083 DB-PS
CT 1 OC 1 CAP 1


Detail view of silicone sealant of DB-HV cable
LGH connector. Sealant for strain relief only.


Internal view of
AMP LHV Connector