	Welding preparation procedure sheet		company: NLR		date: 14/01/2009	
	Fill in by hand.		engineer: Jv Es		location: M.T	
Step	Action	Monitoring	Value	**Result**	Comment First weld	√
1.	Record Model FM1/FM2/QM	Primary TCS-			~~Page~~	V
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-4.2	C		Microfitting union elbow FCLV-6MMW-9	V
3.	Record drawing number tube 2/weld connector type/assy description	ET5998-07-3.3	B.		Coldorbit heater	V
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 3.	Type C -		V
5.	Pre-weld qualification required for this type (A..M) today ?		yes			V
6.	(in case former is yes) Verify # of weld samples available of both sides					V
7.	Weld situation identification iss 6.4 Page number of weld in Box weld procedure AMSTR-NLR-21		page 44		bottom figure	V
8.	Were ends of sections properly closed before welding	Closed (y/n)	yes			V
9.	Visual inspection of clean end caps to close tubes	Clean/dirty	N/A			V
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth				check cold orbit heater cleanliness	V
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)		oke		#126 14/01/2009	V
12.	Take picture of set-up and record picture time as on photo	Picture time	11:49	JAN.14.2009	~~Fig~~	V.
13.	Record spot weld parameters		11:53 11:55.	12:27	Spot weld wire change	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	~~Yes~~	NO	~~check~~ post weld at end of day	
15.	Close tube ends after welding		yes		with plastic in between.	
16.	Visual inspection weld	Oke/not oke	oke	photo	#127 - 130	V
17.	End welding preparation sheet					V

13:38 13:42 – 13:43 – 13:43

	Welding preparation procedure sheet		company: NLR		date: 14/01/09	
	Fill in by hand.		engineer: J. v Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-			✓
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-4.3 C				✓
3.	Record drawing number tube 2/weld connector type/assy description	ET5998-06 4.2 C				✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type F			✓
5.	Pre-weld qualification required for this type (A..M) today ?	yes			performed 13:35.	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	pag 53 bottom				✓
8.	Were ends of sections properly closed before welding	Closed (y/n)	N/A		packed clean swagelok	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth		N/A		13:46 13:47	
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)		oke		~~#131~~ ~~#132~~	✓
12.	Take picture of set-up and record picture time as on photo	Picture time	JAN.14.2009 12:33.		~~#125~~ 12:33	
13.	Record spot weld parameters				N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	No			✓
15.	Close tube ends after welding				= bag ? yes	✓
16.	Visual inspection weld	Oke/not oke			~~12:33~~	✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 14/01/09	
	Fill in by hand.		engineer: J.v. Es		location: JMT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-			
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06	-22.2B (2x)		Microfit elbow	
3.	Record drawing number tube 2/weld connector type/assy description	ET998-06	-04.1 C		Microfit Elbow 6mm 6LV-CMM-91	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type F.			✓
5.	Pre-weld qualification required for this type (A..M) today ?		yes.		performed.	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					.
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 44 top figure				✓
8.	Were ends of sections properly closed before welding	Closed (y/n)			properly packed	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty	oke			✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth		N/A		13:56 (2x)	
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)	ok.	changed see PR-021-		~~#123~~ ~~#134~~	✓
12.	Take picture of set-up and record picture time as on photo	Picture time	JAN.14.2009	12:20	~~#124~~ ~~#125~~	✓
13.	Record spot weld parameters					
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				
15.	Close tube ends after welding			12:30	⇐ weld to COH directly.	✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 14/07/2009	
	Fill in by hand.		engineer: J. VEs		location: ITT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-			
2.	Record drawing number tube 1/weld connector type/assy description				Assembly top page 44	✓
3.	Record drawing number tube 2/weld connector type/assy description				Assembly bottom p. 44	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 6	Type F.		
5.	Pre-weld qualification required for this type (A..M) today ?	performed				✓
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	P. 45 top.				✓
8.	Were ends of sections properly closed before welding	Closed (y/n)			yes.	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth				14:10 JAN. 14.2009.	
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				# ~~135~~ 137 = 14:15.	✓
12.	Take picture of set-up and record picture time as on photo	Picture time			14:12 ... 14:10	
13.	Record spot weld parameters				# 136 #135	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	Yes.			✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 14/09/2008	
	Fill in by hand.		engineer: J. v. Es		location: AT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-			
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-19.19		+ ~~Swagelok~~ Microfit	Condenser return	V
3.	Record drawing number tube 2/weld connector type/assy description	E 5998-06-19.13		reducing T	Condenser return	V
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type M	Type 13	Made by NLR	V
5.	Pre-weld qualification required for this type (A..M) today ?		M	13	ET5998-06-22.6	V
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 49				V
8.	Were ends of sections properly closed before welding	Closed (y/n)			in bag + caps	V
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			at start day + case before	V
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				#150 16:24	V
12.	Take picture of set-up and record picture time as on photo	Picture time			#150 16:24	V
13.	Record spot weld parameters				16:16 (2x)	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	NO			
15.	Close tube ends after welding					V
16.	Visual inspection weld	Oke/not oke			16:29	V
17.	End welding preparation sheet					V

	Welding preparation procedure sheet		company: NLR		date: 14/01/2009	
	Fill in by hand.		engineer: J. v Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-			V
2.	Record drawing number tube 1/weld connector type/assy description	5990.07	4.3c	rev E	Pre-heater	V
3.	Record drawing number tube 2/weld connector type/assy description	5990.07	4.3b	rev E	Pre-heater	V
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N			+ Microfilt reducing T by NLR	V
5.	Pre-weld qualification required for this type (A..M) today ?				ET 5990-06-22.6 rev B	
6.	(in case former is yes) Verify # of weld samples available of both sides				~~157~~	.
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 48.			#161 #162 weld page 47	
8.	Were ends of sections properly closed before welding	Closed (y/n)	yes		17:00 17:00 (2x)	V
9.	Visual inspection of clean end caps to close tubes	Clean/dirty	yes			V
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					V
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)					
12.	Take picture of set-up and record picture time as on photo	Picture time			#158 - #160 weld page 48	V
13.	Record spot weld parameters				# 155 - 157 16:45 - (2x)	N/A
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	yes			
15.	Close tube ends after welding					V
16.	Visual inspection weld	Oke/not oke				V
17.	End welding preparation sheet					V

	Welding preparation procedure sheet		company: NLR		date: 15/01/09	
	Fill in by hand.		engineer: J. v. E		location: MT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TCB-P	-	19.2	Assy page 57	✓
2.	Record drawing number tube 1/weld connector type/assy description	ET5990-06-19.1		Rev.	C	✓
3.	Record drawing number tube 2/weld connector type/assy description	Swagelok		Tribow	6 mm	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type C	Elbow	6 mm	✓
5.	Pre-weld qualification required for this type (A..M) today ?		yes		Pre weld performed	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 57			
8.	Were ends of sections properly closed before welding	Closed (y/n)			pump yes	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			tubes new tubes	
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth				clean check with purge for is seals	✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)					
12.	Take picture of set-up and record picture time as on photo	Picture time			14:46 15 JAN 09	
13.	Record spot weld parameters				N/A	oke
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	yes		post 6 sample made	✓
15.	Close tube ends after welding				bag	-
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 15/01/2009	
	Fill in by hand.		engineer: J.v Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM		-	TTCB-P	~~OPS HX side~~	
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-		19.4	~~AMS~~ Pump assy B	
3.	Record drawing number tube 2/weld connector type/assy description	ET5998-06-		4.2 4.3	Swagelok Elbow Swagelok Tribow	√
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type C			
5.	Pre-weld qualification required for this type (A..M) today ?		yes.			
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21			page 58		
8.	Were ends of sections properly closed before welding	Closed (y/n)			cleaned before	√
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			welding with Argon	√
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					√
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				(2x) 14:34+ (2x welds)	
12.	Take picture of set-up and record picture time as on photo	Picture time			14:43 15/JAN/09	√
13.	Record spot weld parameters				N/A.	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	NO		post weld sample performed	
15.	Close tube ends after welding				bags.	√
16.	Visual inspection weld	Oke/not oke				√
17.	End welding preparation sheet					√

	Welding preparation procedure sheet		company: NLR		date: 15/01/09	
	Fill in by hand.		engineer: J. & Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM		-		DPS radiator side	
2.	Record drawing number tube 1/weld connector type/assy description	ET.5998-06	19.3			
3.	Record drawing number tube 2/weld connector type/assy description		-06 22.7 -06 22.72			
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type C			
5.	Pre-weld qualification required for this type (A..M) today ?				performed	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		52 bottom			
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)					✓
12.	Take picture of set-up and record picture time as on photo	Picture time			14:39 14:49	✓
13.	Record spot weld parameters				N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No			performed	✓
15.	Close tube ends after welding				bag	✓
16.	Visual inspection weld	Oke/not oke			+ fit check	✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLK		date: 15/01/2009	
	Fill in by hand.		engineer: J. v Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-	APS	+ DPS 4 mm	
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06	19	9. rvc.	HX sections.	
3.	Record drawing number tube 2/weld connector type/assy description	Swagelok Swagelok	22 5 22 4	(4mm) reducing	elbow Eribow	√
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type B	Type 2		√
5.	Pre-weld qualification required for this type (A..M) today ?					
6.	(in case former is yes) Verify # of weld samples available of both sides		/			
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 51 page 52		2 times the same sequence	√
8.	Were ends of sections properly closed before welding	Closed (y/n)			ultrasonic cleaning	
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			of tubes/couplings	oke
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth			16:02 - 16:06	spot weld	√
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)			16:06 16:14	16.27 16:25 16:23 16:14 16:18 16:21	
12.	Take picture of set-up and record picture time as on photo	Picture time			~~14:39 14:49~~	
13.	Record spot weld parameters				N/A.	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No			perform yes	√
15.	Close tube ends after welding				bag	
16.	Visual inspection weld	Oke/not oke				√
17.	End welding preparation sheet					√

Performed after misalignment. (too long tube). ~~repair~~

	Welding preparation procedure sheet		company: NLR		date: 16/01/2009	
	Fill in by hand.		engineer: J. vEs.		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		DPS - HX side.	v
2.	Record drawing number tube 1/weld connector type/assy description	ET5990-06-19.9 rev c				v
3.	Record drawing number tube 2/weld connector type/assy description	Scoagclok 22,5 4mm elbow 22,4 reducing tribow				v
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 2			v
5.	Pre-weld qualification required for this type (A..M) today ?	Need to be done				
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pag 53	Repair cut new coupling		
8.	Were ends of sections properly closed before welding	Closed (y/n)			bag	v
9.	Visual inspection of clean end caps to close tubes	Clean/dirty		Piece lost weld		v
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth			1 gas cap.	during welding Piece	
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				trashed.	
12.	Take picture of set-up and record picture time as on photo	Picture time			Rejected.	
13.	Record spot weld parameters			pic	15.26 just before	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No			blue cap went of.	
15.	Close tube ends after welding					
16.	Visual inspection weld	Oke/not oke				
17.	End welding preparation sheet					

	Welding preparation procedure sheet		company: NLR		date: 16-01-2009	
	Fill in by hand.		engineer: J. VEs		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-V	-		DPS – back side	✓
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-	19.9 rev c		second tone (first did not fit)	✓
3.	Record drawing number tube 2/weld connector type/assy description		22.5	4 mm elbow		✓ failed as cap blew off
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	yes	22.4 reducing tribow (2 welds)		
5.	Pre-weld qualification required for this type (A..M) today ?		TypeB	Type 2		
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pag 52 top.			
8.	Were ends of sections properly closed before welding	Closed (y/n)			cleanliness	
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			checked afterwards	✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				15:48 15:50	✓
12.	Take picture of set-up and record picture time as on photo	Picture time				✓
13.	Record spot weld parameters				N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				
15.	Close tube ends after welding					oke
16.	Visual inspection weld	Oke/not oke				oke
17.	End welding preparation sheet				fit check performed successful	oke

	Welding preparation procedure sheet		company: NLR		date: 16/01/2009	
	Fill in by hand.		engineer: J. v Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Accu fill tube	√
2.	Record drawing number tube 1/weld connector type/assy description				section	√
3.	Record drawing number tube 2/weld connector type/assy description				+ DPS radiator section	√
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	type 3	type c		√
5.	Pre-weld qualification required for this type (A..M) today ?				performed	√
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 60 61			changed added DPS-rad section	√
8.	Were ends of sections properly closed before welding	Closed (y/n)				√
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				√
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					√
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				see pictures	√
12.	Take picture of set-up and record picture time as on photo	Picture time			17:48 17:49 17:53 17:56 17:59 18:02	√
13.	Record spot weld parameters					
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No			yes	√
15.	Close tube ends after welding					√
16.	Visual inspection weld	Oke/not oke				√
17.	End welding preparation sheet					√

AMS Tracker Thermal Control Subsystem

Doc.Id. AMSTR-NLR-PR-021-SH01

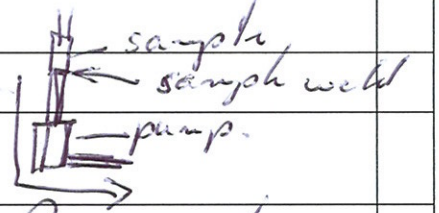
Issue Issue 1.0AMSTR-NLR-PR-021-SH01

* Additional test pre-weld is made with 6 mm inlet tube (was 10 mm during weld qual) – oke pre 14:42 14:39

	Welding preparation procedure sheet		company: NLR		date: 19/01/2009	
	Fill in by hand.		engineer: J.v.E.		location: MT	
Step	Action	Monitoring	Value	Result	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Dead end weld	
2.	Record drawing number tube 1/weld connector type/assy description	EP3995-06-	19.7, 19.8, 19.3		Accu to inlet pipe	√
3.	Record drawing number tube 2/weld connector type/assy description		+ swagelok couplings		section 10 mm	√
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 8.	Type H		√
5.	Pre-weld qualification required for this type (A..M) today ?	15:54	yes	2X	pres 11:51 – 12:04 JAN 19 2009 + with 6 mm inlet	
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pag 62 63		Larger section attached see p62	√
8.	Were ends of sections properly closed before welding	Closed (y/n)		end closed	+ section packed	√
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				√
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth			Spot weld section with APS, DPS + Accu on base plate		
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)			in vertical position. 14:07	14:09 14:12	
12.	Take picture of set-up and record picture time as on photo	Picture time		Purge	with 6 LPM Argon gas 14:13	
13.	Record spot weld parameters JAN 19 2009 14.51 – 14:52 + 14.55		14:10 to 14:45	for 15 minutes → spot weld. 8 LPM increase		
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/~~No~~ 15:54.		~~2X~~ 1X	zie * on top pre	
15.	Close tube ends after welding				keep purged	*
16.	Visual inspection weld weld pres 15:02 – 15:09	Oke/not oke	oke			* √
17.	End welding preparation sheet			Fit check + little adjustment tubing oke.		√

AMS Tracker Thermal Control Subsystem

Page 1 of 2
Doc.Id. AMSTR-NLR-PR-021-SH01
Issue Issue 1.0AMSTR-NLR-PR-021-SH01

	Welding preparation procedure sheet		company: NLR		date: 19/01/2009	
	Fill in by hand.		engineer: J.v.Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	—	-		Add test back	✓
2.	Record drawing number tube 1/weld connector type/assy description	N/A			pressure pump.	
3.	Record drawing number tube 2/weld connector type/assy description	N/A				
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	typeg			
5.	Pre-weld qualification required for this type (A..M) today ?					
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21					
8.	Were ends of sections properly closed before welding	Closed (y/n)			Pump section	
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			pump cleaned	✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth				with capillary purge after cutting	
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				17:22	
12.	Take picture of set-up and record picture time as on photo	Picture time				
13.	Record spot weld parameters				lower weld.	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				
15.	Close tube ends after welding					
16.	Visual inspection weld	Oke/not oke			Too high back pressure	
17.	End welding preparation sheet				17:28 Jan. 19 2009.	

weld qual 6 mm dead end weld requested

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J.v.Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-			✓
2.	Record drawing number tube 1/weld connector type/assy description	Swagelok tot		Section connecting DPS		
3.	Record drawing number tube 2/weld connector type/assy description	standard tube.		to Acc Peltier to pump		
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N Type 3	Type C	6 welds		
5.	Pre-weld qualification required for this type (A..M) today ?	yes		10:15	performed.	✓
6.	(in case former is yes) Verify # of weld samples available of both sides				20-JAN. 2009	
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 55				
8.	Were ends of sections properly closed before welding	Closed (y/n)			clean check oke	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)		I	II III	oke see proc	✓
12.	Take picture of set-up and record picture time as on photo	Picture time	10:09	10:13 10:16		✓
13.	Record spot weld parameters		IV	V VI		✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	10:26	10:28 10:32		✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J v E		location: MT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Preheater 6mm	
2.	Record drawing number tube 1/weld connector type/assy description				connector 2	
3.	Record drawing number tube 2/weld connector type/assy description					
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N Type C		Type 3		
5.	Pre-weld qualification required for this type (A..M) today ?	yes	performed		10:15.	
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		P79	bottom left		✓
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)					✓
12.	Take picture of set-up and record picture time as on photo	Picture time			10:36	✓
13.	Record spot weld parameters				N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	no			✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J.v.Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TICB-P	-		Phreheater section	
2.	Record drawing number tube 1/weld connector type/assy description	ET 5998-06-19,10			to HX inlet tube	
3.	Record drawing number tube 2/weld connector type/assy description		NLR coupling to		05316 (not yet incorrect)	
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	~~NLR~~ Type 2	Type 9 L	11:30	
5.	Pre-weld qualification required for this type (A..M) today ?					
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	pag 79	right		11:15 JAN 20 2009 11:23	
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				11:27, 11:25	✓
12.	Take picture of set-up and record picture time as on photo	Picture time				✓
13.	Record spot weld parameters				N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	NO			✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		DPS dead-end weld	✓
2.	Record drawing number tube 1/weld connector type/assy description				XPS to assy	
3.	Record drawing number tube 2/weld connector type/assy description				to accu	
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N Type 1		Type A	4 mm dead end	
5.	Pre-weld qualification required for this type (A..M) today ?		yes	13:22	performed	oke
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pg 67			✓
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth			/ pre-purge DPS 13.25 - 13:27	13:27 (part)	✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				oke 13:36	✓
12.	Take picture of set-up and record picture time as on photo	Picture time				✓
13.	Record spot weld parameters			(1) (2)	13:30 (2x) 13:31 13:40	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	NO			✓
15.	Close tube ends after welding				(2x) not needed closed	✓
16.	Visual inspection weld	Oke/not oke			with section	✓
17.	End welding preparation sheet				☺	✓

	Welding preparation procedure sheet		company: NLR		date: 20-01-2009	
	Fill in by hand.		engineer: J.v.Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		DPS Radiator	
2.	Record drawing number tube 1/weld connector type/assy description				side dead end welds	
3.	Record drawing number tube 2/weld connector type/assy description				4 mm (2x)	
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 1	Type A		✓
5.	Pre-weld qualification required for this type (A..M) today ?	Yes			13:22	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					✓
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pag 67			
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				purge in advance 14:27 14:32	✓
12.	Take picture of set-up and record picture time as on photo	Picture time		welding →	14:44 14:48 (1)	✓
13.	Record spot weld parameters				14:53 (2)	.
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	NO			
15.	Close tube ends after welding				not needed (☺)	☒
16.	Visual inspection weld	Oke/not oke			~~[illegible]~~ Yes	✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J.v.E.		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TCB-P	-			✓
2.	Record drawing number tube 1/weld connector type/assy description				APS dead end	✓
3.	Record drawing number tube 2/weld connector type/assy description				welded 4 mm	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type A	Type A		✓
5.	Pre-weld qualification required for this type (A..M) today ?	yes			15:59 + 13:22 (2x)	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					✓
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 75	74		First APS weld (before Peltier to APS 6 mm weld)	✓
8.	Were ends of sections properly closed before welding	Closed (y/n)	yes			✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				15:06 pre-purge 5 min.	
12.	Take picture of set-up and record picture time as on photo	Picture time				✓
13.	Record spot weld parameters				15:13 15:15	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	yes	(1)	welding 15:18	
15.	Close tube ends after welding			(2)	welding 15:23	
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet			post weld performed 15:59		✓

	Welding preparation procedure sheet		company: NLR		date: ~~19/01/2009~~ 20/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCR-P	-			
2.	Record drawing number tube 1/weld connector type/assy description	ET5998.06-19.5	Lot pump section section 7 ~~[illegible]~~ pag 53 bottom			✓
3.	Record drawing number tube 2/weld connector type/assy description				+ DPS ~~[illegible]~~ NX side section.	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	type 3	Type C	see pic 16:29 for result.	✓
5.	Pre-weld qualification required for this type (A..M) today ?	yes				✓
6.	(in case former is yes) Verify # of weld samples available of both sides					✓
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pag 67/68.		changed first pump to + pag 53	
8.	Were ends of sections properly closed before welding	Closed (y/n)			Section was closed	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			additional cleaning check performed after welding	✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				see picture	✓
12.	Take picture of set-up and record picture time as on photo	Picture time				✓
13.	Record spot weld parameters			16:23	16:14 16:19	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				✓
15.	Close tube ends after welding				bag.	✓
16.	Visual inspection weld	Oke/not oke			16:19 oke	✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 20/09/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Peltier section	
2.	Record drawing number tube 1/weld connector type/assy description				to DPS HX-side	√
3.	Record drawing number tube 2/weld connector type/assy description					√
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 7	Type 6		
5.	Pre-weld qualification required for this type (A..M) today ?		yes		17:16	
6.	(in case former is yes) Verify # of weld samples available of both sides		~~yes~~			
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 71		purge through HX side tube	
8.	Were ends of sections properly closed before welding	Closed (y/n)				√
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				√
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					√
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				due	√
12.	Take picture of set-up and record picture time as on photo	Picture time			17:06 17.05	
13.	Record spot weld parameters				16:49 16:48	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				
15.	Close tube ends after welding					√
16.	Visual inspection weld	Oke/not oke				√
17.	End welding preparation sheet					√

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J.v.Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-10	-	Fill/	Inlet tube	✓
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-19 6				✓
3.	Record drawing number tube 2/weld connector type/assy description			to swagelok 6mm		✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type3	Type C		✓
5.	Pre-weld qualification required for this type (A..M) today ?		performed		10:15.	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	Not shown	see picture		. 17:21	✓
8.	Were ends of sections properly closed before welding	Closed (y/n)			new tube	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				through pumpinlet	✓
12.	Take picture of set-up and record picture time as on photo	Picture time			17:27	✓
13.	Record spot weld parameters				N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No		No		✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J v Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TRB-P.	-		Condenser left	
2.	Record drawing number tube 1/weld connector type/assy description	ET3990-06-19.23	to NLR coupling 22.6		pump section	
3.	Record drawing number tube 2/weld connector type/assy description				~~2 welds~~	
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	~~Type 12~~ Type 3	~~Type L~~ Type C	~~11 30~~ 10.15	
5.	Pre-weld qualification required for this type (A..M) today ?		yes			
6.	(in case former is yes) Verify # of weld samples available of both sides				pump not installed	
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 89	bottom		weld ①	√
8.	Were ends of sections properly closed before welding	Closed (y/n)				√
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				√
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					√
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)					
12.	Take picture of set-up and record picture time as on photo	Picture time			① 19:57 (w/d)	√
13.	Record spot weld parameters				② 20:04	√
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	yes.			√
15.	Close tube ends after welding					
16.	Visual inspection weld	Oke/not oke				√
17.	End welding preparation sheet					√

	Welding preparation procedure sheet		company: NLR		date: 20/01/2009	
	Fill in by hand.		engineer: J.v.Es		location: MT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Pump section	✓
2.	Record drawing number tube 1/weld connector type/assy description				welding	✓
3.	Record drawing number tube 2/weld connector type/assy description			5 ~~6~~	~~7~~ welds	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Types	Type C		✓
5.	Pre-weld qualification required for this type (A..M) today ?			performed	10:15	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					✓
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	pag 76				✓
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth				17:45-17:54	
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)			Inlet via fill tube outlet via pump inlet (pump section not installed)		
12.	Take picture of set-up and record picture time as on photo	Picture time				
13.	Record spot weld parameters			weld 1) 17:56 2) 18:20 3) 18:32 18:19		
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No		4) 18:38 5) 18:44		✓
15.	Close tube ends after welding			~~weld~~ 17:56		
16.	Visual inspection weld	Oke/not oke				
17.	End welding preparation sheet					

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		HX to standard	✓
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-19.11			tube → finally	✓
3.	Record drawing number tube 2/weld connector type/assy description		to HX		to connect pre-heater	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Types	TypeE.		✓
5.	Pre-weld qualification required for this type (A..M) today ?		yes			✓
6.	(in case former is yes) Verify # of weld samples available of both sides					✓
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 81 bottom			✓
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				Inlet 6 mm outlet 6 mm	✓
12.	Take picture of set-up and record picture time as on photo	Picture time			15:04	✓
13.	Record spot weld parameters				N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke			little concavity	✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J.v.Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		HX to Swagelok	
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-2~~2.6~~ 4.2			Connectors (1x)	
3.	Record drawing number tube 2/weld connector type/assy description		~~04~~.			
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type D	Type 4		
5.	Pre-weld qualification required for this type (A..M) today ?		yes			
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pag 81 botton		~~problem is 4mm inlet and outlet so 4mm outlets are connected to create larger outlet purge flow.~~	
8.	Were ends of sections properly closed before welding	Closed (y/n)		√		
9.	Visual inspection of clean end caps to close tubes	Clean/dirty		√		
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth			√		
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)			√		
12.	Take picture of set-up and record picture time as on photo	Picture time			15:10	
13.	Record spot weld parameters					√
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No		NO		√
15.	Close tube ends after welding					√
16.	Visual inspection weld	Oke/not oke			oke small concavity	√
17.	End welding preparation sheet					√

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Cold orbit heater	V
2.	Record drawing number tube 1/weld connector type/assy description	ET5998	-06-		to HX.	V
3.	Record drawing number tube 2/weld connector type/assy description				Inconel 625 to 316L standard tube 6 mm ~~8~~ mm	V
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 5	Type E		V
5.	Pre-weld qualification required for this type (A..M) today ?		yes			V
6.	(in case former is yes) Verify # of weld samples available of both sides					V
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 01 top			V
8.	Were ends of sections properly closed before welding	Closed (y/n)				
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				V
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth				no picture	
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				purge via ~~6~~ 4 mm outlet & via 6 mm	
12.	Take picture of set-up and record picture time as on photo	Picture time				
13.	Record spot weld parameters				N/A.	
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No		NO		
15.	Close tube ends after welding					V
16.	Visual inspection weld	Oke/not oke			oke little concave surface	V
17.	End welding preparation sheet					V

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J.v. Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Pump outlet	v
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-4.2	Rev e		welding	√
3.	Record drawing number tube 2/weld connector type/assy description	ET5998-06-4.1	Rev c		to pump outlets	v
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N Type g	Type I			v
5.	Pre-weld qualification required for this type (A..M) today ?		yes		performed	v
6.	(in case former is yes) Verify # of weld samples available of both sides					.
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21	page 75	top picture			v
8.	Were ends of sections properly closed before welding	Closed (y/n)				v
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				v
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					v
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				17:45	v
12.	Take picture of set-up and record picture time as on photo	Picture time			weld 1 17:49	right side
13.	Record spot weld parameters				weld 2 17:54	left side
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	yes			v
15.	Close tube ends after welding					v
16.	Visual inspection weld	Oke/not oke			right is little more blueish then the rest	V
17.	End welding preparation sheet				left is better	v

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	~~ET5998~~	-	TTCB-P	Peltier tube	✓
2.	Record drawing number tube 1/weld connector type/assy description	See ET 5998-06-04			to HX section	✓
3.	Record drawing number tube 2/weld connector type/assy description				via Swageloh	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 7	Type G	elbow	✓
5.	Pre-weld qualification required for this type (A..M) today ?		yes			✓
6.	(in case former is yes) Verify # of weld samples available of both sides					✓
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 83 bottom		Pre-heater not installed.	✓
8.	Were ends of sections properly closed before welding	Closed (y/n)			→ 6mm outlet	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				purge through filt tube via pumps ?	
12.	Take picture of set-up and record picture time as on photo	Picture time			out via preheater outlet HX.	
13.	Record spot weld parameters					✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke			18:01 18:05	✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v.Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Pump inlet	✓
2.	Record drawing number tube 1/weld connector type/assy description	EET5998-06-4.1		Rev c	welding	✓
3.	Record drawing number tube 2/weld connector type/assy description		-06-4.2	Rev c	-connected to pump inlet	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N Type 15	Type O			✓
5.	Pre-weld qualification required for this type (A..M) today ?		yes *	*	Full qualification is performed	✓
6.	(in case former is yes) Verify # of weld samples available of both sides				See 10:41 (all samples.)	
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 75 bottom picture			✓
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				outlet HX preheater closed!	
12.	Take picture of set-up and record picture time as on photo	Picture time			18:09	✓
13.	Record spot weld parameters					✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				✓
15.	Close tube ends after welding				18:26 topweld	result
16.	Visual inspection weld	Oke/not oke			18:27 bottomweld	✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Pre-heater section	✓
2.	Record drawing number tube 1/weld connector type/assy description				to HX section	✓
3.	Record drawing number tube 2/weld connector type/assy description				(~~[illegible]~~ SS316L to Swagelok coupling)	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 3	Type C	Purge through	✓
5.	Pre-weld qualification required for this type (A..M) today ?				2 * 4 mm ⇒ 6 mm	
6.	(in case former is yes) Verify # of weld samples available of both sides				outlet (hydraulic)	
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 84		see 18:31.	✓
8.	Were ends of sections properly closed before welding	Closed (y/n)				✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty				✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				~~[illegible]~~ 18:31	✓
12.	Take picture of set-up and record picture time as on photo	Picture time				✓
13.	Record spot weld parameters					✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		Evaporator	√
2.	Record drawing number tube 1/weld connector type/assy description				return lines	√
3.	Record drawing number tube 2/weld connector type/assy description				4 mm to swagelok	√
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 2	Type B		√
5.	Pre-weld qualification required for this type (A..M) today ?		yes		HX top outlet	
6.	(in case former is yes) Verify # of weld samples available of both sides				picture.	
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 87 page 88		changed ~~flow thru~~	
8.	Were ends of sections properly closed before welding	Closed (y/n)			cleaned	√
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			well before spot welding	
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					√
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)				purge via one as inlet ~~outlet~~	
12.	Take picture of set-up and record picture time as on photo	Picture time			outlet via the other for both	
13.	Record spot weld parameters				N/A	√
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No				√
15.	Close tube ends after welding				21:47 frontside ok	
16.	Visual inspection weld	Oke/~~not oke~~			21:34 top	√
17.	End welding preparation sheet					√

Remark: Spot welding top side difficult - 21:34 result oke

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v. Es		location: MT.	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM		-	TTCB-P		✓
2.	Record drawing number tube 1/weld connector type/assy description				condenser ~~[illegible]~~ outlet 4 mm	✓
3.	Record drawing number tube 2/weld connector type/assy description				tubes	✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 2	Type B		✓
5.	Pre-weld qualification required for this type (A..M) today ?			yes	performed	✓
6.	(in case former is yes) Verify # of weld samples available of both sides					
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		page 93			✓
8.	Were ends of sections properly closed before welding	Closed (y/n)			cleaned	✓
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			tubes before	✓
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					✓
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)		page 93		see pic 22:08.	✓
12.	Take picture of set-up and record picture time as on photo	Picture time			(1) 22:08	✓
13.	Record spot weld parameters				(2) 22:17 N/A	✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No		yes		✓
15.	Close tube ends after welding					✓
16.	Visual inspection weld	Oke/not oke				✓
17.	End welding preparation sheet					✓

	Welding preparation procedure sheet		company: NLR		date: 21/01/2009	
	Fill in by hand.		engineer: J. v Es		location: MT	
Step	Action	Monitoring	Value	**Result**	Comment	√
1.	Record Model FM1/FM2/QM	TTCB-P	-		HX to NLR coupling side	✓
2.	Record drawing number tube 1/weld connector type/assy description	ET5998-06-22.6				✓
3.	Record drawing number tube 2/weld connector type/assy description					✓
4.	Identify weld type (check with CCY) (A...N) See table 3_1	A...N	Type 11	Type k		✓
5.	Pre-weld qualification required for this type (A..M) today ?		yes			✓
6.	(in case former is yes) Verify # of weld samples available of both sides					✓
7.	Weld situation identification Page number of weld in Box weld procedure AMSTR-NLR-21		pag 81 bottom			✓
8.	Were ends of sections properly closed before welding	Closed (y/n)				
9.	Visual inspection of clean end caps to close tubes	Clean/dirty			4 mm exit ~~was~~ showed larger concavity.	
10.	Clean tubes sections on outside with IPA (Iso-Propyl-Alcohol) with lint-free cloth					
11.	Check purge set-up is according to AMSTR-NLR-21 (check filter)		22:31		4 mm exits ⇒ therefore combined 2 2x4 outlet purge test performed	
12.	Take picture of set-up and record picture time as on photo	Picture time				
13.	Record spot weld parameters					✓
14.	Last weld of this type? if yes perform post-weld sample after this weld	Yes/No	yes			✓
15.	Close tube ends after welding				23:07 result	✓
16.	Visual inspection weld	Oke/not oke			23:08	✓
17.	End welding preparation sheet					✓

Decided to perform weld SS316L NLR to Inconel nominal diameter concavity ± 5.4 mm little small