

Timeline diagram showing the sequence of events:

- Start of experiment
- B
- C
- D
- E
- F
- G
- H
- End of experiment

A double-headed arrow is positioned between the tick marks for D and E.

Sumitomo Electric Wiring Systems,INC.-Components Division

PROCESS FLOW DIAGRAM

PRODUCT : Various Metal Stamping Parts

PROCESS: Metal Stamping

KEY CONTACT/DEPT. LOC. Debbie Gillenwater/L. Roth -QA Dept.
PHONE (270) 237-5418-X8563 & 8201 FAX (270) 237-4663

SUPPLIER APPROVALS:
General Plant Manager/Approve:

Manufacturing Manager/Approve:

Supplier/Loc. SEWS-Scottsville#5

Mfg. Sup.: K. Chapman

Prepared By: Dean Karteskind QA Engineer

04.10.14	Revised set-up operation & characteristics	D. Gillenwater
02.25.14	Revised terminology to match PEMENCP	D. Gillenwater
12.13.13	Remove sections 110, 120 and 150.	L. R. J. F. D. G.
5.12.11	Remove In-Line Terminal Clean/Supervisor Audit	L. Roth, K. Chapman
8/31/06	Removed the name of cleaning sub-contractor	D. Karteskind
4/1/05	GLOBAL QUALITY & ORG UPDATES	D. Karteskind, K.
2/17/05	FORMAT CHANGES/UPDATED INFO	D. Karteskind
2/8/00	ISSUED WITH FORMAT CHANGES	T. DAY
8/04/98	ISSUED W/ FORMAT CHANGES/UPDATES	T. GRAVIL, D. LYONS,
DATE	CHANGE POINTS	CORE/DEV. TEAM

Quality Manager/Approve: *K. Chapman*
Customer Approval if required: *Debbie Gillenwater*



OPER #

CI #

OPERATION DESCRIPTION

PROCESS FLOW

KEY CHARACTERISTICS

0010

#

Raw Material Receiving
(Metal Coils)



Red Tag Procedure

Reject

0020

#

Raw Material Receiving
Inspection



Packaging
Identification
Visual Inspection

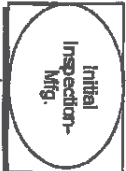
Per Inspection Instruction Sheet-Receiving
Per Inspection Instruction Sheet-Receiving
Per Inspection Instruction Sheet-Receiving

Visual Comparison Against Packing List
Shipping-Receiving

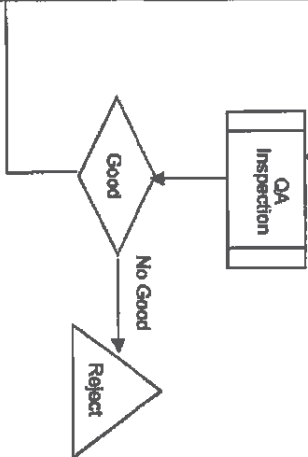
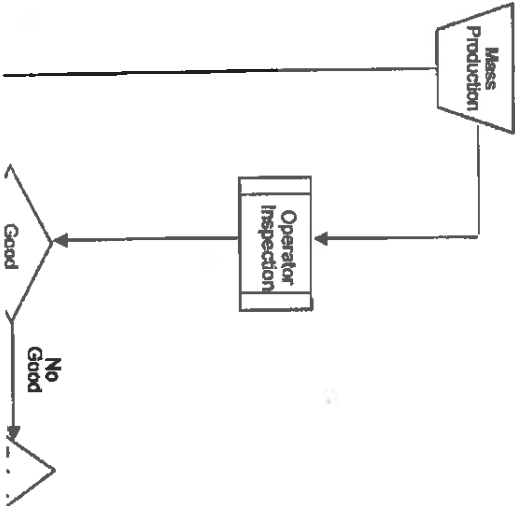
Sumitomo Electric Wiring Systems,INC.-Components Divison

PART NO ASSY'D		PART NO REC'D		OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STEP	OPERATOR
OPER #	CI #	OPERATION DESCRIPTION			PROCESS FLOW					KEY CHARACTERISTICS	
		Characteristics								Per Inspection Instruction Sheet-Receiving	
		Reject				Reject				Red Tag Procedure	
										Deliver to Raw Material Storage	
0030		Raw Material Storage					Raw Material Storage			Per Raw Material Lot Control Sheet	
										Deliver to Metal Stamping Area	
0040		Metal Stamping Loading Raw Material								Per Raw Material Lot Control Sheet Per Shop Order and Barcode confirmation	

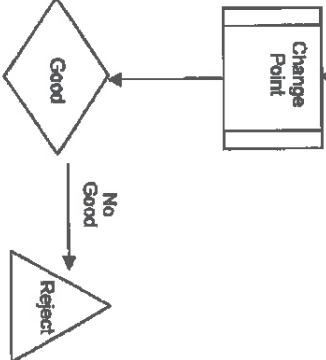
Sumitomo Electric Wiring Systems,INC.-Components Division

PART ASSEMBY	PART REEL	OPERATION	INSPECTION	OPERATION/ INSPECTION	STORAGE	DELAY	TRANSPORTATION	OPERATION STEP	OPERATOR
OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW				KEY CHARACTERISTICS		
0050		Metal Stamping Die/Machine Set-up Machine/Die PM Raw Material Machine Number Tool / Die Number Safety Checks Material Straightener Raw Material Vision System In-Line / Vision Inspection System Winder Set-Up					Per Shop Order & Barcode scanning Per Maintenance Schedule Per Shop Order & Barcode scanning Per Production Schedule Per Shop Order Per Daily Machine Check Per Material Straightener set-up Per Raw Material Vision set-up Per In-Line Inspection Set-Up and Vision System Set-up Per Winder Set-Up Sheet		
0060		Manufacturing Initial Inspection (Start Up)					# Part Appearance/Dimension/Function per Visual Inspection and Terminal Inspection Sheets		

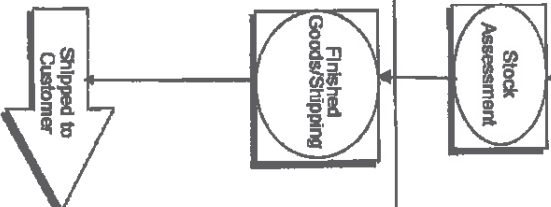
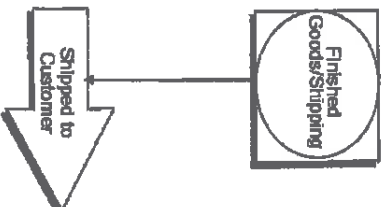
Sumitomo Electric Wiring Systems,INC.-Components Division

 PART ASSYD	 PART RECD	 OPERATION	 INSPECTION	 OPERATION/ INSPECTION	 STORAGE	 DELAY	 TRANSPORTATION	 OPERATION STEP	 OPERATOR				
OPER #	CI #	OPERATION DESCRIPTION				PROCESS FLOW				KEY CHARACTERISTICS			
0070	#	Quality Assurance Inspection (Mass Production)								# Part Appearance/Dimension/Function per Visual Inspection and Terminal Inspection Sheets Per Red Tag Procedure Per Defective Terminal Procedure, Backtrack & Recall Procedure			
0080		Metal Stamping Production Checks (Manufacturing)								# Part Appearance/Dimension/Function per Visual Inspection and Terminal Inspection Sheets # Part Appearance/Dimension/Function per Visual Inspection Sheets Stop Production- Make Adjustments, Reverify or Die Sent to Maintenance			

Sumitomo Electric Wiring Systems, INC.-Components Division

 PART AS ASST	 PART AS RECD	 OPERATION	 INSPECTION	 OPERATION/ INSPECTION	 STORAGE	 DELAY	 TRANSITION	 OPERATION STEP	 OPERATOR
OPER #	CI #	OPERATION DESCRIPTION	PROCESS FLOW						KEY CHARACTERISTICS
									Per Red Tag Procedure Per Defective Terminal Procedure, Backtrack & Recall Procedure
0090		QA / Set Up Critical Defect Inspection Prior to Change Point							# Part Appearance/Dimension/Function per Global Quality Standard Per Red Tag Procedure Per Defective Terminal Procedure, Backtrack & Recall Procedure
0100		Finished Product Packing / Labeling							Per Operator Check Sheet
0130		Finished Goods Storage							Per BPCS Electronic System

Sumitomo Electric Wiring Systems,INC.-Components Division

 PART AS ASS'D		 PART AS REC'D		 OPERATION		 INSPECTION		 OPERATION/ INSPECTION		 STORAGE		 DELAY		 TRANSPORTATION		 OPERATION STEP		 OPERATOR			
OPER #	CI #	OPERATION DESCRIPTION				PROCESS FLOW										KEY CHARACTERISTICS					
0140		Warehouse Stock Assessment														Per Weekly Stock Assessment Sheet					
0160		Shipping Finished Goods														Shipping Label Per BPCS Electronic System					
0170		Annual Layouts														Per Customer Drawing/Request					



SUMITOMO ELECTRIC WIRING SYSTEMS, INC.

PROCESS F.M.E.A

PROCESS RESPONSIBILITY: KELLY CHAPMAN / KELLY WILSON / ALAN BOMAR

5/28/2014	Updated RI 0020 clarified: Press-side automated camera system	M. Ryan, L. Roth	
4/10/2014	Added Raw Material Camera System, added Manufacturing Manager/above signature line	D. Gillemwater, K. Chapman, K. Wilson, C. Skute	
2/25/2014	Revised process terminology to match PFMEA/Control Plan and Process Flow. Added annual layout	D. Gillemwater	
11/15/2013	Removed non applicable sections 110, 120 and 150 and updated detection ratings.	D. Gillemwater, J. Freal, K. Chapman, K. Wilson, B. Blankenship	
10/31/2012	Added missing information to recommended actions column	L. Roth, D. Gillemwater, K. Chapman	
5/13/2011	UPDATED AND REVISED	L. Roth, K. Chapman, K. Wilson	
3/28/2010	UPDATED AND REVISED	D. Gillemwater, L. Roth, K. Chapman, K. Wilson	
6/1/2009	ADDED CUT / CRUSHED TERMINAL WINDING DEFECT IN STEP 80 AND HORIZONTAL WINDER. Updated current controls with previous recommended controls and process responsibility. (blue color update)	D. Gillemwater, K. Chapman, K. Wilson	
5/31/2007	UPDATED AND REVISED	D. Karleskint, L. Roth, D. Gillemwater, K. Wilson	
8/28/2006	REMOVED THE NAME OF THE CLEANING SUB-CONTRACTOR	D. Karleskint, L. Roth, D. Gillemwater, K. Wilson	
8/30/2006	REDUCED OCCURRENCE OF DEFORMED TERMINALS (DUE TO CLAIM COUNTERMEASURE)	D. Karleskint, L. Roth, D. Gillemwater, K. Wilson	
8/4/2005	ISSUED WITH INFORMATION UPDATES & CHANGES	D. Karleskint, L. Roth, D. Gillemwater, K. Wilson	
2/11/2005	UPDATED AND REVISED	D. Karleskint, L. Roth, D. Gillemwater	
2/6/2001	ISSUED WITH INFORMATION UPDATES & CHANGES	T. Gravil	
6/28/2000	ISSUED WITH INFORMATION UPDATES & CHANGES	T. Gravil, M. Imigay, R. Hernandez, A. Broach, K. Wilson, T. Wix	
11/8/1999	ISSUED WITH FORMAT CHANGES/UPDATED INFO		
HISTORY DATE		CHANGE POINTS	
VARIOUS		CORREDEY, TEAM	

PROCESS NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECT (S) OF FAILURE	C AUSE	POTENTIAL FAILURE	CURRENT PROCESS CONTROLS	RECOMMENDED ACTIONS	RESPONSIBILITY AT RISK	ACTIONS TAKEN	S E C T I O N
0010	RAW MATERIAL RECEIVING (METAL COILS)	1. WRONG MATERIAL	1. PROCESSING PROBLEMS	1	INCORRECT MATERIAL PART NUMBER SHIPPED BY SUPPLIER.	2. P. SUPPLIER CONFIRMS MATERIAL QUANTITY OR WEIGHT AND CREATES PACKING LIST. D. RECEIVING ASSOCIATE CONFIRMS BOL AGAINST PACKING LIST (CONFIRMS EACH UNIT). MATERIAL IS BARCODE SCANNED INTO SYSTEM AGAINST OPEN PURCHASE ORDER.	3. B. NONE			
		2. WRONG QUANTITY	2. SHORTAGE AND/OR OVERAGE OF RAW MATERIAL.	1	2. INCORRECT QUANTITY SHIPPED BY SUPPLIER.	2. P. SUPPLIER CONFIRMS MATERIAL QUANTITY OR WEIGHT AND CREATES PACKING LIST. D. RECEIVING ASSOCIATE CONFIRMS BOL AGAINST PACKING LIST (CONFIRMS EACH UNIT). MATERIAL IS BARCODE SCANNED INTO SYSTEM AGAINST OPEN PURCHASE ORDER.	3. B. NONE			
		3. DAMAGED MATERIAL	3. DAMAGED COILS	2	3. IMPROPER HANDLING AT POINT OF SHIPMENT AND/OR TRANSPORTATION	3. VISUAL CHECK USING WORK INSTRUCTIONS AND VISUAL AIDS (WIL: BSW-RECPLOW)	6. 2. NONE			

PROCESS NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECT ON FAILURE	SEVERITY	CAUSE	CONTROL	RECOMMENDED ACTIONS	PERFORMED DATE	ACTION TAKEN	DATE	STATUS	DATE	STATUS
0050	METAL STAMPING DIE / MACHINE SET-UP	1. WRONG DIE SELECTION 2. PROPER MACHINE SET-UP	1. PRODUCE WRONG TERMINAL 2. OUT-OF-SPEC TERMINAL	2	1. INCORRECT SHOP ORDER INFORMATION 2. INCORRECT PROCESS PARAMETER SETTINGS	1. PRESSURE CHANGE/OVER CHECK SHEET AND AUTOMATIC INSPECTION SYSTEM 2. PRESSURE CHANGE/OVER CHECK-SHEET (SETUP) OPERATOR (DIE MAN/IT), ENTER AND CONFIRM SET POINTS ON PRESS LINE CHECK-SHEET (OPERATOR), PERFORM DIMENSIONAL CHECKS BEFORE STARTING PRODUCTION, AUTOMATIC INSPECTION SYSTEM	4	18	NONE				
		3. IMPROPER RAW MATERIAL VISION SYSTEM SET-UP (When use in line)	4. VISUAL DEFECT TERMINAL, SHIPPED TO CUSTOMER	5	4. INCORRECT INSPECTION SYSTEM PARAMETER SETTINGS	4. ENTER AND CONFIRM SET POINTS PER PRESS LINE CHECK-SHEET, VALIDATE IN-LINE SETTINGS WITH CONTROLLED TERMINAL SAMPLES, AUTOMATED PROGRAM IS PASSWORD PROTECTED BY ENGINEERING	3	45	NONE				
		4. IMPROPER IN-LINE / VISION SYSTEM SET-UP	4. OUT-OF-SPEC TERMINAL, SHIPPED TO CUSTOMER	5	4. INCORRECT INSPECTION SYSTEM PARAMETER SETTINGS	4. ENTER AND CONFIRM SET POINTS PER PRESS LINE CHECK-SHEET, VALIDATE IN-LINE SETTINGS WITH CONTROLLED TERMINAL SAMPLES, AUTOMATED PROGRAM IS PASSWORD PROTECTED BY ENGINEERING	3	54	NONE				
		5. IMPROPER WINDER SET-UP OR CRUSHED TERMINALS	5A. BENT / DEFORMED / CUT OR CRUSHED TERMINALS	4	5A. INCORRECT WINDER TENSION 5B. MATERIAL GUIDE POSITION	5A. TENSION SETTING LOCKED PER ENGINEERING, WORK INSTRUCTION FOR WINDER SET-UP	7	56	NONE				
		6. LOOSE WINDINGS		4	6A. INCORRECT WINDER TENSION 6B. INCORRECT GUIDE ARM POSITION 6C. REEL QUALITY	6A. VISUAL COMPARISON PER WINDER OPER - A 6B. VISUAL COMPARISON PER THE PACKING JIG/STAND 6C. VISUAL COMPARISON PER WINDER OPER - A	6	48	NONE				
		7. DAMAGED REEL		4	7C. DAMAGED SENSOR POSITION	7A. VISUAL COMPARISON PER WINDER OPER - A 7B. TENSION CONTROL 7C. VISUAL COMPARISON PER THE PACKING JIG/STAND	6	48	NONE				
		8. INCORRECT QUANTITY		4	8D. INCORRECT PROGRAM PARAMETER	8A. VISUAL COMPARISON PER WINDER OPER - A 8B. CONVEYOR SPEED 8C. VISUAL CHECK 8A-SET 8D. CHANGE/OVER PRESSURE CHECK-SHEET	6	48	NONE				
		9. NO INTERLEAF PAPER	9A. BENT / DEFORMED TERMINALS	4	9A. PAPER JUNK, PAPER TEAR OR END OF PAPER ENTERED	9A. AUTOMATIC PROGRAM FOR WINDER (PARAMETERS SET BY ENGINEERING) 9B. VISUAL COMPARISON EACH REEL, PER APPLICABLE STANDARD	2	24	NONE				
		10. INCORRECT PAPER LENGTH (TRANSVERSE WINDER ONLY)	10A. INTERLOCKING TERMINALS	5	10A. INCORRECT PARAMETERS ENTERED	10A. AUTOMATIC PROGRAM FOR WINDER (PARAMETERS SET BY ENGINEERING) 10B. VISUAL COMPARISON EACH REEL, PER APPLICABLE STANDARD	3	30	NONE				

PROCESS NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECT(S) OF FAILURE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
0090	#	MANUFACTURING INITIAL INSPECTION (Start-Up)	1. DEFORMED, BENT, CRACKED, ETC.) 2. SLIVERS / BURRS ON TERMINALS. 3. TERMINAL DIMENSIONALLY OUT OF SPECIFICATIONS	1. DEFECTIVE TERMINAL SHIPPED TO CUSTOMER 2. SHORT CIRCUIT - ELECTRICAL FAILURE	7																								
0070	#	QUALITY ASSURANCE INSPECTION (MASS PRODUCTION)	1. DEFORMED, BENT, CRACKED, ETC.) 2. SLIVERS / BURRS ON TERMINALS. 3. TERMINAL DIMENSIONALLY OUT OF SPECIFICATIONS	1. DEFECTIVE TERMINAL SHIPPED TO CUSTOMER 2. SHORT CIRCUIT - ELECTRICAL FAILURE	7																								
0080	#	METAL STRAPPING PRODUCTION CHECKS (MANUFACTURING)	1. DIMENSIONAL DEFECTS 2. OUT-OF-GAGE STRAPPED PART	1. DIE WEAR AND CONDITION 2. IMPROPER ADJUSTMENTS	7																								

PROCESS NUMBER	PROCESS FUNCTION	POTENTIAL FAILURE MODE	POTENTIAL EFFECTS OF FAILURE	SEVERITY	CAUSE	CONTROL	DETECT	RECOMMENDED ACTIONS	RECOMPLETION DATE	ACTIONS TAKEN	DATE	BY	APP	REV
0090	QA/SETUP CRITICAL DEFECT INSPECTION PRIOR TO CHANGE POINT	1. TERMINAL DIMENSIONALLY OUT OF SPECIFICATIONS 2. SLUGS / BURRS ON TERMINALS 3. CRACKS / DIE MARKS	1. CONTACT GAP, INSERTION, RETENTION, SEPARATIONS-PART FAILURE 2. SHORT CIRCUIT- ELECTRICAL FAILURE 3. CRACKS / DIE MARKS	7	1. INCORRECT DIE SETTING 2. MATERIAL VARIABILITY	1. FUNCTIONAL / DIMENSIONAL CHECK WITH GAUGES / TERMINAL INSPECTION SHEET PER GLOBAL QUALITY STANDARD 2. VISUAL INSPECTION PER GLOBAL QUALITY STANDARD WITH MICROSCOPE 3. DIE PAI SC-SCALE (Saves Run-in Time, N. Adams)	5	70	NONE					
0100	FINISHED PRODUCT PACKING / LABELING	1. IMPROPER REEL / BOX LABELING 2. INCORRECT QUANTITY / PART NUMBER 3. INCORRECT BOX QUANTITY 4. WINDING DEFECTS	1. WRONG TERMINAL 2. INCORRECT SHIPMENT QUANTITY 3. INCORRECT BOX QUANTITY 4. DAMAGED REEL	7	1. OPERATOR ERROR 2. ELECTRONIC SCANNING SYSTEM-SPCS 3. OPERATOR ERROR 4. SHIPPING LABEL PRESENT, CORRECT, CLEAR, LEGIBLE 5. IMPROPER JOINT LENGTH	1. ELECTRONIC SCANNING SPCS SYSTEM 2. VISUAL INSPECTION PER TERMINAL CRITICAL CHECK SHEET 3. CONFIRMATION PER PRESS LINE CHECK SHEET 4. CHANGE-OVER CHECK SHEET, 2A, AUTOMATED WINDER PROGRAM 5. SCAN BAR-CODE LABEL AND VERIFY ACCEPTANCE 6. SCAN EACH REEL TO THE FINISHED GOOD BOX 7. CONFIRMATION OF PROPER JOINT LENGTH PER INSTRUCTION WORK INSTRUCTION	6	84	NONE					
0130	FINISHED GOODS STORAGE	PARTS SCAN TO WRONG LOCATION	DELAY IN PICKING PARTS	3	OPERATOR ERROR	WEEKLY CYCLE COUNT AND INVENTORY REPORT	6	64	NONE					
0140	WAREHOUSE STOCK ASSESSMENT	INCORRECT PHYSICAL QUANTITIES VERSUS ELECTRONIC SYSTEM	DELAY IN PICKING PARTS	3	OPERATOR ERROR	WEEKLY CYCLE COUNT AND INVENTORY REPORT	6	64	NONE					
0160	SHIPPING FINISHED GOODS	1. INCORRECT ADDRESS LABEL 2. INCORRECT AND LABEL	1. NOT MATCH PACKAGING LIST 2. DOES NOT MATCH BOX LABEL 3. CUSTOMER CAN NOT IDENTIFY THEIR PART	2	1. FAILURE TO MATCH SHIPPING LABEL TO PACKAGING LABEL 2. OPERATOR ERROR / BOX LABEL ERROR 3. LABEL DID NOT PRINT PROPERLY	1. VISUAL 2. VISUAL CHECK 3. AVG LABEL AUTOMATED GENERATED PFC/BOX LABEL SCAN PER DRAWING	6	48	NONE					
0170	ANNUAL LAYOUTS	PRODUCT NOT MEET CUSTOMER DRAWING	DISSEMION OUT OF SPEC	2	DIE CONDITION, DIE PROCESSING		6	48	NONE					

☐ Prototype ☐ Pre-launch

Page 1 of 5

PART / PROCESS NUMBER	PROCESS NAME / OPERATION DESCRIPTION	Resource	MACHINE IDENTIFICATION	NO.	PRODUCT	PROCESS	OPERATION CLASS	PRODUCTION PROCESS / OPERATION / FUNCTION	EXAMINATION / INSPECTION / TEST	UNIT OF MEASUREMENT	TIME	UNIT OF MEASUREMENT	REMARKS
		Set-up Operator	FORUM Barcode Scanner			Material Confirmation		Confirm Material matches Shop Order requirement.	MICS Scan (Shop Order vs. pallet label)	Per Pallet	Each time	MICS Barcode Scan System	Stop Setup. Notify Supervisor or Engineer. Refer to Repair / Hold Procedure as needed
0050	Media Stamping Dielective Set-Up	Machine Maintenance				Preventive Maintenance		Per Preventive & Production Maintenance Program	Per Work Order	Each M/C	Per Procedure	FORUM Work Order	Notify Supervisor / Maintenance as necessary.
	Die Maintenance					Preventive Maintenance		Per TMM-Territorial PIR Frequency	Die Trouble Report & Repair Record	Each Die	Per Procedure	FORUM Die Trouble Report	Notify Supervisor / Engineer as needed.
	Set-up Operator					Material Confirmation		Confirm Pallet Tag vs. die specific Press Line Check Sheet	Visual	1st Coil	Each Setup	FORUM Territorial Inspection Sheet	Notify Supervisor / Engineer as needed.
	Set-up Operator	Catapult / Micrometer				Dimensional Confirmation		Measure per Die specific Press Line Check Sheet. 1. Thickness 2. Width	Measurement	1st Coil	Each Setup	FORUM 1. Territorial Inspection Sheet	Notify Supervisor / Engineer as needed. 1. Reject / Hold Tag Procedure 2. Return to supplier as needed 3. Initiate PIR as needed
	Set-up Operator					Visual Confirmation		1) No Damage 2) No Discoloration	Visual	Per Pallet	Each Time	WIT: MSW-PAVIA/TIMEAS INSPEC	Notify Supervisor / Engineer / SQA as needed. 1. Reject / Hold Tag Procedure 2. Return to supplier as needed 3. Initiate PIR as needed
	Set-up Operator	Forklift				Place Material on Rotarian		Center slide front to back, left to right	Visual	Each pallet	Each Time	WIT: PIG Rotarian Work Instruction	Notify Supervisor / Engineer as needed.
	Set-up Operator					Set Material Straightener (if applicable)		Set straightener per work instruction	Visual	Each Setup	Each Setup	WIT: MSW-Material Straightener	Notify Supervisor / Engineer as needed.
	Set-up Operator	Rum Material Inspection (where applicable)				Set Raw Material Inspection system		Select correct program	Per Work Instruction	Each Raw Material	Each Setup	WIT: MSW-Manual Vision System	Notify Supervisor / Engineer as needed.
	Set-up Operator	Die Cart			Media Stamping die	Die Number Confirmation		Confirm correct Die is selected	Visual comparison of Shop Order to Die Number/Die rack/book	Each Die	Each Setup	FORUM Change Over Check Sheet	Notify Supervisor / Engineer as needed.
	Set-up Operator	Die Cart				Set Die in Press		Position Die / Clamp	Per Work Instruction	Each Die	Each Setup	WIT: MSW-Press Operation	Notify Supervisor / Engineer as needed.
	Set-up Operator					Set Process Parameters		1) Feed Unit Release Angle 2) Die Height 3) Feed Length 4) Material Thickness Dial (as applicable) 5) Scrap Monitor Cuts	Per work instruction	Each Die	Each Setup	FORUM Press Line Changeover Check Sheet (Die specific)	Adjust and requalify as needed per standard.
	Set-up Operator	Inspection Systems (In-line & Offline)				Set Inspection Systems (In-Line & US)		1) Select correct Inspection system per Die Specific Presetline Checklist 2) Connect and Power system 3) Select correct program	Per Die specific press line checklist	Each Die	Each Setup	WIT: MSW-ADPS4, MSW - Changing In-line Work Number FORUM Presetline Check Sheet	Notify Supervisor / Engineer as needed.

Sumitomo Electric Wiring Systems, Inc

Gage Linearity Study

4/27/2015

1

Study Date 4/27/2015

Company Part No.: Weight

Gage ID 329079

Part No.

Gage Desc Force Gage

Part Desc Weight (grams)

NIST No.:

Characteristic Weight

Study Type Linearity & Bias

Use Range Method for Bias No

Appraiser L. Roth

☒ Approved

MSA Version

4

Part Reference Values

Specification Limits

	1	2	3	4	5
	10	20	50	100	500.002
1	10	20	50	100	500
2	10	20	50	100	500
3	10	20	50	100	500.01
4	10	20	50	100	500
5	10	20	50	100	500
6	10	20	50	100.001	500
7	10	20	50	100	500
8	10	20	50	100	500
9	10	20	50	100	500.01
10	10	20	50.001	100	500
11	10	20	50	100	500
12	10	20	50	100	500
Avg. Bias/Part	0.000000	0.000000	0.000083	0.000083	-0.000333
Predicted Bias	0.000064	0.000056	0.000033	-0.000006	-0.000314

Min

Max

Pp (or Ppk) Target

6-Sigma Proc Var

T
R
I
A
L
S

	Coefficient	DF	t Stat	t Critical	
Goodness of Fit	0.007161	Intercept	0.000072	58.000000	.26164 2.00172 OK
Standard Error	0.001706	Slope	-0.000001	58.000000	-.64679 2.00172 OK
SE % of TV		Upper Fitted Confidence Limit at worst point			0.000498 OK
SE % of Tol		Lower Fitted Confidence Limit at worst point			-0.000509 OK

Gage Linearity Study

Bias

	1	2	3	4	5
1	0.000000	0.000000	0.000000	0.000000	-0.002000
2	0.000000	0.000000	0.000000	0.000000	-0.002000
3	0.000000	0.000000	0.000000	0.000000	0.008000
4	0.000000	0.000000	0.000000	0.000000	-0.002000
5	0.000000	0.000000	0.000000	0.000000	-0.002000
6	0.000000	0.000000	0.000000	0.001000	-0.002000
7	0.000000	0.000000	0.000000	0.000000	-0.002000
8	0.000000	0.000000	0.000000	0.000000	-0.002000
9	0.000000	0.000000	0.000000	0.000000	0.008000
10	0.000000	0.000000	0.001000	0.000000	-0.002000
11	0.000000	0.000000	0.000000	0.000000	-0.002000
12	0.000000	0.000000	0.000000	0.000000	-0.002000

Coefficient
Lower Upper

Avg. Bias	-0.000033	-0.000472	0.000405	DF	59.000000	EV % of TV
Standard Error	0.000219	Acceptable		Std. Dev	0.001697	EV % of Tol

UNCERTAINTY SETUP

Uncertainty Contributor	Type	Plus or Minus	Probability Distribution	Based On	DF	Include
Linearity						
Linearity Bias Corrected	A	0.008314	Rectangular	Maximum Residual	20.9	Yes
Only Bias corrected	A	0.008333	Rectangular	Maximum Residual	20.9	No
Uncorrected	A	0.008	Rectangular	Maximum Residual	20.9	No
Bias, corrected or not	A	0.000219	Normal(1)	Std. Err of Avg. Bia	59	Yes
Resolution	A	0	Rectangular	From Gage Table	Infinite	Yes
Repeatability or GRR	A	0.00175	Normal(1)	Pooled Std. Dev.	55	Yes

UNCERTAINTY BUDGET

Uncertainty Contributor	Type	Plus or Minus	Probability Distribution	Divisor	Sensitivity Coefficient	Uncertainty Contribution	DF	1
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t for 95% Confidence _____
Coverage Factor k _____ 2

Combined Uncertainty _____ 0
Expanded Uncertainty _____ 0



Gage Linearity Study

4/27/2015

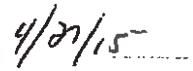
3

Comments

Approved by

A handwritten signature in black ink, appearing to read "Leroy" followed by a stylized monogram or initials.

Date

A handwritten date in black ink, "4/27/15", followed by a horizontal line.



Production Part Approval Dimensional Test Results

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS	PART NUMBER: 8240-0424
SUPPLIER/VENDOR CODE:	PART NAME: TER-US280FM-SN
NAME OF INSPECTION FACILITY:	DESIGN RECORD CHANGE LEVEL: EU5T-14474-EA E5 12/03/13
Sumitomo Electric Wiring Systems Plt. 5	ENGINEERING CHANGE DOCUMENTS NA

ITEM	DIMENSION / SPECIFICATION	SPECIFICATION / LIMITS		TEST DATE	QTY. TESTED	ORGANIZATION MEASUREMENT RESULTS (DATA)					OK	NOT OK
1	4.20	-0.20	0.20	4/19/16	5	4.17	4.19	4.21	4.21	4.19	O	
2	1.25	-0.15	0.15			1.30	1.34	1.38	1.36	1.38	O	
3	4.70	-0.20	0.20			4.67	4.67	4.68	4.69	4.68	O	
4	1.125	-0.15	0.15			1.04	1.08	1.10	1.06	1.10	O	
5	4.30	-0.20	0.20			4.26	4.26	4.25	4.26	4.26	O	
6	2.95	-0.20	0.20			2.94	2.95	2.94	2.94	2.94	O	
7	19.20	-0.30	0.30			19.11	19.07	19.08	19.08	19.07	O	
8	9.60	-0.20	0.20			9.53	9.52	9.52	9.53	9.53	O	
9	6.60	-0.20	0.20			6.59	6.63	6.62	6.62	6.62	O	
10	3.50	-0.20	0.20			3.49	3.50	3.51	3.50	3.51	O	
11	1.40	-0.20	0.20			1.35	1.35	1.35	1.34	1.34	O	
12	1.20	-0.20	0.20			1.18	1.20	1.18	1.20	1.19	O	
13	2.50	-0.20	0.20			2.53	2.52	2.52	2.52	2.52	O	
14	2.00	-0.20	0.20			2.02	2.02	2.03	2.03	2.03	O	
15	14.60	-0.30	0.30			14.61	14.60	14.61	14.60	14.60	O	
16	3.50	-0.20	0.20			3.41	3.44	3.44	3.44	3.43	O	
	3.50	-0.20	0.20			3.35	3.39	3.40	3.44	3.43	O	
17	2.20	-0.20	0.20			2.28	2.28	2.28	2.28	2.29	O	
18	3.00	-0.20	0.20			3.03	3.03	3.03	3.03	3.03	O	
	NOTE: 1. PARTS CONFORM TO ALL APPLICABLE SECTION OF SAE/USCAR-2 REV5, SAE/USCAR-12 REV2, SAE/USCAR-21, FORD SDS VER 21. 2. MAXIMUM MATING FORCE FOR SINGLE UNSEALED SN TERMINAL IS 5.7N SN/Ag IS 6.9N. MAXIMUM MATING FORCE FOR SINGLE SEALED SN TERMINAL IS 6.7N. SN/Ag IS 8.2N. 3. CAVITY SPECIFICATIONS, SEE SHEET #2. 4. TERMINAL CRIMP IS TO FULFILL: A) USCAR2 REV5 SEALED CONNECTOR SYSTEM ENVIRONMENTAL 5.9.7 B) SDS 3.2 NOTE 3, FULL FORCES REQUIREMENTS C) USCAR21 REV 2.0 REQUIREMENTS EXCEPT 4.2.5, 9.B 5. # INDICATES NOT PPAP APPROVED. 6. GREASE TYPE IS NYE 7683.											
19						correct						
20						correct						
21						correct						
22						correct						
23						correct						
24						correct						

Blanket statements of conformance are unacceptable for any test results.

SIGNATURE	TITLE	DATE
Tammy Lonas	PPAP Operator	4/19/2016



Production Part Approval Dimensional Test Results

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS	PART NUMBER: 8240-0424
SUPPLIER/VENDOR CODE:	PART NAME: TER-US280FM-SN
NAME OF INSPECTION FACILITY:	DESIGN RECORD CHANGE LEVEL: EU5T-14474-EA E5 12/03/13
Sumitomo Electric Wiring Systems Plt. 5	ENGINEERING CHANGE DOCUMENTS NA

ITEM	DIMENSION / SPECIFICATION	SPECIFICATION / LIMITS	TEST DATE	QTY. TESTED	ORGANIZATION MEASUREMENT RESULTS (DATA)					OK	NOT OK
1	4.20	-0.20 0.20	4/19/16	5	4.17	4.16	4.15	4.17	4.18	O	
2	1.25	-0.15 0.15			1.29	1.33	1.31	1.31	1.30	O	
3	4.70	-0.20 0.20			4.64	4.65	4.65	4.64	4.64	O	
4	1.125	-0.15 0.15			1.11	1.06	1.08	1.10	1.05	O	
5	4.30	-0.20 0.20			4.27	4.27	4.26	4.26	4.26	O	
6	2.95	-0.20 0.20			2.94	2.95	2.96	2.96	2.96	O	
7	19.20	-0.30 0.30			19.12	19.13	19.13	19.11	19.11	O	
8	9.60	-0.20 0.20			9.55	9.54	9.54	9.54	9.55	O	
9	6.60	-0.20 0.20			6.56	6.55	6.54	6.56	6.54	O	
10	3.50	-0.20 0.20			3.49	3.48	3.49	3.48	3.48	O	
11	1.40	-0.20 0.20			1.35	1.35	1.34	1.35	1.34	O	
12	1.20	-0.20 0.20			1.20	1.20	1.19	1.20	1.19	O	
13	2.50	-0.20 0.20			2.48	2.47	2.48	2.48	2.48	O	
14	2.00	-0.20 0.20			2.03	2.03	2.03	2.02	2.04	O	
15	14.60	-0.30 0.30			14.61	14.60	14.61	14.60	14.61	O	
16	3.50	-0.20 0.20			3.32	3.40	3.44	3.44	3.40	O	
	3.50	-0.20 0.20			3.34	3.35	3.40	3.44	3.38	O	
17	2.20	-0.20 0.20			2.33	2.33	2.33	2.33	2.32	O	
18	3.00	-0.20 0.20			3.03	3.03	3.03	3.03	3.04	O	
NOTE:											
19	1. PARTS CONFORM TO ALL APPLICABLE SECTION OF SAE/USCAR-2 REV5, SAE/USCAR-12 REV2, SAE/USCAR-21, FORD SDS VER 21.				correct						
20	2. MAXIMUM MATING FORCE FOR SINGLE UNSEALED SN TERMINAL IS 5.7N SN/AG IS 6.9N. MAXIMUM MATING FORCE FOR SINGLE SEALED SN TERMINAL IS 6.7N. SN/AG IS 8.2N.				correct						
21	3. CAVITY SPECIFICATIONS. SEE SHEET #2.				correct						
22	4. TERMINAL CRIMP IS TO FULFILL: A) USCAR2 REV5 SEALED CONNECTOR SYSTEM ENVIRONMENTAL 5.9.7 B) SDS 3.2 NOTE 3. FULL FORCES REQUIREMENTS C) USCAR21 REV 2.0 REQUIREMENTS EXCEPT 4.2.5. 9.B				correct						
23	5. # INDICATES NOT PPAP APPROVED.				correct						
24	6. GREASE TYPE IS NYE 7683.				correct						

Blanket statements of conformance are unacceptable for any test results.

SIGNATURE	TITLE	DATE
Tammy Lonas	PPAP Operator	4/19/2016

No. 2-3F4471-10 (6)

SHINSHO CORPORATION NAGOYA SHITEN

DATE 2016-07-20

CUSTOMER
SUMITOMO ELECTRIC WIRING SYSTEMS, IN

[illegible]

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Tim Huke 4/20/2015

PART Name/Desc: **TER-US280FM-SN**

Design Rec. Change level/date:

PART NO (s): **8240-0424**EU5T-14474-EA Δ DS 12/3/13Mold #: **TD076-M**

Eng. Change Documents: NA

CAVITY #↓

SE1	4.30		2.95		19.20		SE2	4.30		2.95		19.20	
	+0.20	-0.20	+0.20	-0.20	+0.30	-0.30		+0.20	-0.20	+0.20	-0.20	+0.30	-0.30
1	4.21		2.91		19.09			4.22		2.90		19.10	
2	4.21		2.91		19.07			4.20		2.90		19.06	
3	4.20		2.90		19.08			4.24		2.90		19.09	
4	4.21		2.91		19.08			4.23		2.90		19.08	
5	4.22		2.91		19.08			4.22		2.90		19.07	
6	4.21		2.91		19.10			4.21		2.90		19.06	
7	4.21		2.91		19.08			4.21		2.90		19.08	
8	4.21		2.91		19.09			4.23		2.90		19.08	
9	4.21		2.91		19.07			4.23		2.90		19.09	
10	4.21		2.91		19.08			4.23		2.90		19.15	
11	4.21		2.91		19.08			4.23		2.90		19.11	
12	4.21		2.91		19.08			4.22		2.90		19.09	
13	4.21		2.91		19.09			4.23		2.90		19.06	
14	4.24		2.90		19.06			4.21		2.90		19.06	
15	4.21		2.91		19.08			4.23		2.90		19.11	
16	4.21		2.91		19.06			4.21		2.90		19.07	
17	4.21		2.91		19.09			4.22		2.90		19.06	
18	4.21		2.91		19.07			4.22		2.90		19.09	
19	4.21		2.91		19.06			4.22		2.90		19.07	
20	4.21		2.91		19.06			4.22		2.90		19.07	
21	4.21		2.91		19.08			4.22		2.90		19.06	
22	4.21		2.91		19.08			4.22		2.90		19.08	
23	4.21		2.91		19.07			4.23		2.90		19.06	
24	4.21		2.91		19.08			4.23		2.90		19.11	
25	4.21		2.91		19.07			4.22		2.90		19.08	
26	4.21		2.91		19.09			4.23		2.91		19.06	
27	4.24		2.90		19.10			4.22		2.90		19.06	
28	4.21		2.91		19.06			4.23		2.90		19.10	
29	4.21		2.91		19.06			4.23		2.90		19.09	
30	4.21		2.91		19.06			4.23		2.90		19.07	

CPK DATA

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Tim Huke 4/20/2015

PART Name/Desc: **TER-US280FM-SN**

Design Rec. Change level/date:

PART NO (s): **8240-0424**

EU5T-14474-EA

12/3/13

Mold #: **TD076-M**

Eng. Change Documents: NA

CAVITY #↓

SE1	4.30		2.95		19.20		SE2	4.30		2.95		19.20	
	+0.20	-0.20	+0.20	-0.20	+0.30	-0.30		+0.20	-0.20	+0.20	-0.20	+0.30	-0.30
31	4.21		2.91		19.07			4.24		2.90		19.12	
32	4.21		2.91		19.15			4.24		2.90		19.09	
33	4.22		2.91		19.06			4.24		2.90		19.08	
34	4.21		2.91		19.09			4.24		2.90		19.08	
35	4.21		2.91		19.12			4.24		2.90		19.09	
36	4.22		2.91		19.08			4.24		2.90		19.12	
37	4.21		2.91		19.07			4.23		2.90		19.06	
38	4.21		2.91		19.09			4.25		2.90		19.12	
39	4.21		2.91		19.08			4.22		2.90		19.06	
40	4.21		2.91		19.07			4.25		2.90		19.17	
41	4.21		2.91		19.09			4.23		2.90		19.08	
42	4.21		2.91		19.09			4.23		2.90		19.07	
43	4.21		2.91		19.09			4.24		2.90		19.08	
44	4.21		2.91		19.08			4.24		2.90		19.06	
45	4.21		2.91		19.08			4.22		2.90		19.11	
46	4.21		2.91		19.08			4.22		2.90		19.07	
47	4.21		2.91		19.07			4.23		2.90		19.06	
48	4.21		2.91		19.07			4.23		2.90		19.18	
49	4.21		2.91		19.07			4.23		2.90		19.06	
50	4.21		2.90		19.17			4.24		2.91		19.06	
51	4.21		2.91		19.07			4.23		2.90		19.07	
52	4.24		2.91		19.10			4.23		2.90		19.06	
53	4.21		2.91		19.08			4.21		2.90		19.09	
54	4.21		2.91		19.08			4.22		2.90		19.06	
55	4.21		2.91		19.08			4.23		2.90		19.08	
56	4.21		2.91		19.08			4.24		2.90		19.06	
57	4.21		2.91		19.07			4.21		2.91		19.11	
58	4.21		2.91		19.06			4.24		2.90		19.09	
59	4.21		2.91		19.06			4.24		2.90		19.06	
60	4.21		2.91		19.08			4.24		2.90		19.06	

CPK DATA

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ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)

Tested by/Date: Tim Huke 4/20/2015

PART Name/Desc: **TER-US280FM-SN**

Design Rec. Change level/date:

PART NO (s): **8240-0424**

EU5T-14474-EA

12/3/13

Mold #: **TD076-M**

Eng. Change Documents: NA

CAVITY #↓

SE1	4.30		2.95		19.20		SE2	4.30		2.95		19.20	
	+0.20	-0.20	+0.20	-0.20	+0.30	-0.30		+0.20	-0.20	+0.20	-0.20	+0.30	-0.30
61	4.21		2.91		19.11			4.25		2.90		19.08	
62	4.21		2.91		19.06			4.23		2.90		19.06	
63	4.21		2.91		19.06			4.23		2.90		19.11	
64	4.21		2.91		19.09			4.23		2.90		19.07	
65	4.21		2.91		19.06			4.24		2.90		19.13	
66	4.21		2.91		19.07			4.25		2.90		19.15	
67	4.21		2.91		19.10			4.24		2.90		19.06	
68	4.21		2.91		19.07			4.22		2.90		19.06	
69	4.21		2.91		19.07			4.23		2.90		19.08	
70	4.21		2.91		19.07			4.22		2.90		19.08	
71	4.22		2.91		19.08			4.23		2.90		19.07	
72	4.21		2.91		19.07			4.23		2.90		19.08	
73	4.21		2.91		19.06			4.21		2.90		19.09	
74	4.21		2.91		19.08			4.23		2.90		19.06	
75	4.21		2.91		19.08			4.23		2.90		19.08	
76	4.21		2.91		19.11			4.23		2.90		19.12	
77	4.21		2.91		19.02			4.24		2.90		19.07	
78	4.21		2.91		19.09			4.24		2.90		19.06	
79	4.21		2.91		19.07			4.24		2.90		19.09	
80	4.21		2.91		19.08			4.22		2.90		19.07	
81	4.21		2.91		19.09			4.24		2.90		19.09	
82	4.21		2.91		19.09			4.24		2.90		19.13	
83	4.22		2.91		19.07			4.23		2.90		19.07	
84	4.21		2.91		19.07			4.23		2.90		19.06	
85	4.21		2.91		19.06			4.25		2.91		19.07	
86	4.21		2.91		19.07			4.23		2.91		19.06	
87	4.21		2.91		19.08			4.24		2.91		19.07	
88	4.21		2.91		19.09			4.26		2.91		19.06	
89	4.21		2.91		19.08			4.26		2.91		19.09	
90	4.21		2.91		19.09			4.25		2.91		19.12	

CPK DATA

Page 4 of 4

ORGANIZATION: SUMITOMO ELECTRIC WIRING SYSTEMS (PLT.5)
 PART Name/Desc: **TER-US280FM-SN**
 PART NO (s): **8240-0424**
 Mold #: **TD076-M**

Tested by/Date: Tim Huke 4/20/2015
 Design Rec. Change level/date: EU5T-14474-EA Δ D6 12/3/13
 Eng. Change Documents: NA

CAVITY #↓

SE1	4.30		2.95		19.20			SE2	4.30		2.95		19.20		
	+0.20	-0.20	+0.20	-0.20	+0.30	-0.30			+0.20	-0.20	+0.20	-0.20	+0.30	-0.30	
91	4.21		2.91		19.08				4.26		2.91		19.14		
92	4.21		2.91		19.09				4.24		2.92		19.06		
93	4.21		2.91		19.06				4.24		2.91		19.08		
94	4.21		2.91		19.08				4.25		2.91		19.10		
95	4.21		2.91		19.07				4.23		2.91		19.06		
96	4.21		2.91		19.06				4.25		2.91		19.07		
97	4.21		2.91		19.09				4.24		2.91		19.10		
98	4.21		2.91		19.08				4.23		2.92		19.07		
99	4.21		2.91		19.08				4.23		2.91		19.09		
100	4.21		2.91		19.06				4.23		2.92		19.12		

average	4.21	2.91	19.08	4.23	2.90	19.08
minimum	4.20	2.90	19.02	4.20	2.90	19.06
maximum	4.24	2.91	19.17	4.26	2.92	19.18
range	0.04	0.01	0.15	0.06	0.02	0.12
std dev	0.01	0.00	0.02	0.01	0.00	0.03
LSL	4.10	2.75	18.90	4.10	2.75	18.90
NOM	4.30	2.95	19.20	4.30	2.95	19.20
USL	4.50	3.15	19.50	4.50	3.15	19.50

CPK 6.597052999 27.0124277 3.257509946 3.729567124 10.40797895 2.354197952



Part Submission Warrant

Part Name TER-US280FM-SN Cust. Part Number 1853390
Shown on Drawing No. EU5T-14474-EA Org. Part Number 8240-0424
Engineering Drawing Change Level D6 Date 03/12/2013
Additional Engineering Changes N/A Dated N/A
Safety and/or Government Regulation ☐ Yes ☒ No Purchase Order No. N/A Weight (kg) 0.06
Checking Aid No. N/A Checking Aid Engineering Change Level N/A Dated N/A

ORGANIZATION MANUFACTURING INFORMATION

Sumitomo Wiring Systems (USA), Inc. / SEWS
Organization Name & Supplier/Vendor Code
7500 Viscount Blvd. Suite 192 / 2687 Old Gallatin Rd.
Street Address
El Paso, TX 79925 / Scottsville KY. 42164 US
City Region Postal Code Country

CUSTOMER SUBMITTAL INFORMATION

AEES, INC.
Customer Name/Division
N/A
Buyer/Buyer Code
Automotive
Application

MATERIALS REPORTING

Has customer-required Substances of Concern information been reported?

☒ Yes ☐ No ☐ n/a

Submitted by IMDS or other customer format:

IMDS ID: 463637835 / 1

Are polymeric parts identified with appropriate ISO marking codes?

☐ Yes ☐ No ☒ n/a

REASON FOR SUBMISSION (Check at least one)

- ☐ Initial Submission
☐ Engineering Change(s)
☒ Tooling Transfer, Replacement, Refurbishment, or additional
☐ Correction of Discrepancy
☐ Tooling Inactive > than 1 year

- ☐ Change to Optional Construction or Material
☐ Supplier or Material Source Change
☐ Change in Part Processing
☐ Parts Produced at Additional Location
☐ Other - please specify below

REQUESTED SUBMISSION LEVEL (Check one)

- ☐ Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.
☐ Level 2 - Warrant with product samples and limited supporting data submitted to customer.
☒ Level 3 - Warrant with product samples and complete supporting data submitted to customer.
☐ Level 4 - Warrant and other requirements as defined by customer.
☐ Level 5 - Warrant with product samples and complete supporting data reviewed at supplier's manufacturing location

SUBMISSION RESULTS

The results for ☒ dimensional measurements ☒ material and functional tests ☐ appearance criteria ☒ statistical process package

These results meet all design record requirements: ☒ Yes ☐ NO (If "NO" - Explanation Required)

Mold / Cavity / Production Process TD076-M / SE1-SE2 / STAMPING

DECLARATION

I affirm that the samples represented by this warrant are representative of our parts which were made by a process that meets all reduction Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of 150,000 / 8 hours. I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from this declaration below.

EXPLANATION/COMMENTS:

Is each Customer Tool properly tagged and numbered?

☐ Yes ☐ No ☒ n/a

Organization Authorized Signature

J. Vargas

Date April 28, 2015

Print Name Javier Vargas/ Veronica de Santiago

Phone No. (915) 843-3000

FAX No. (915) 843-3001

Title Q.A Supervisor / PPAP Coordinator

E-mail j.vargas@us.sws.co.jp / s.veronica@us.sws.co.jp

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition: ☐ Approved ☐ Rejected ☐ Other

Customer Signature _____ Date _____

Print Name _____ Customer tracking number (optional) _____

4st Apr 2016

Sumitomo Wiring Systems Ltd

Components Group QA

QA 1

Approved	Confirmed	Prepared
M.Nakashima	Y.Horiuchi	H.Kotera
04-Apr-16	04-Apr-16	04-Apr-16

CustomersPresence of joint in a reel1. Information

In case of reel terminal, terminal material is cut at material replacement or for quality check and joined with another terminal material with wire to fulfill specified packing quantity.
This is to inform of how terminal materials are joined and indication of presence of joint section in the reel.

Components Group Division 2

Metal Stamping Engineering Dept

Approved	Confirmed	Prepared
H.Nakazawa	Y.Takahashi	M.Aoki
04-Apr-16	04-Apr-16	04-Apr-16

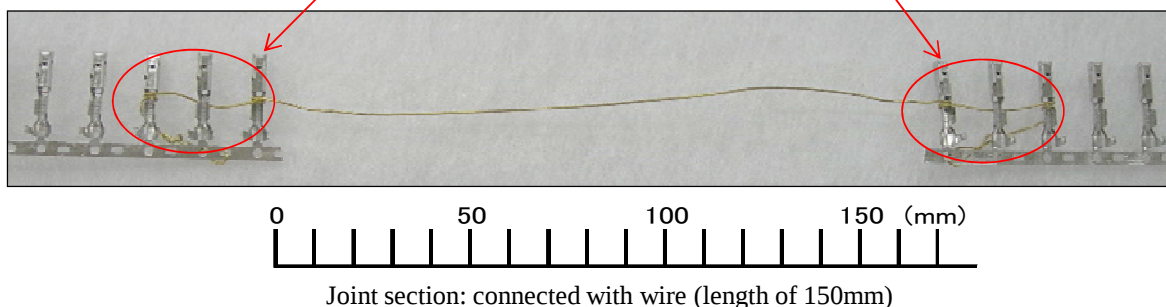
2. Range of application

All reel terminals supplied by SWS

3. Method and indication of reel joint

○Method of reel joint(Example)

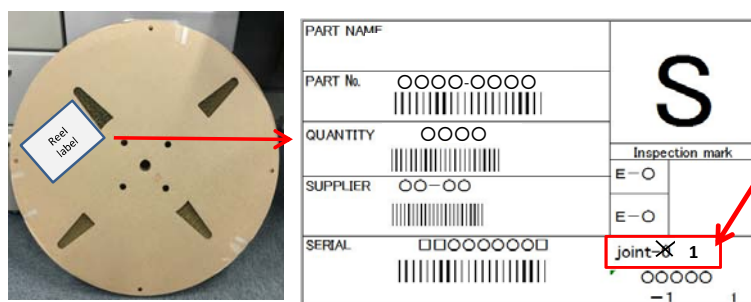
Terminals are bound with wire(Example)
Please scrap the terminals in the wire (these terminals are counted out from the reel)



○Indication of reel joint

If a reel terminal has a joint section, presence of joint section is indicated on the reel or reel label.
(it's not indicated on the box)

<Example: Paper flanges of a reel terminal> [Reel label]



It means presence/absence of joint section in the reel (a reel may have up to 2 joint sections)

- "joint 0 or joint" ... the reel has no joint section
- "joint 1" ... the reel has one joint section
- "joint 2" ... the reel has 2 joint sections

*Above identification means that the reel has 1 joint section.

	Caution There is identification on the reel if a reel has a joint section (e.g. on the reel label). Please check for identification before use of the reel.
	Caution The joint may come at any quantity of the terminals. Please make sure you will detect the joint before its entering the crimping tool. Please implement appropriate detection measures to avoid the joint entering the tool.
	Caution The joint will damage your crimping tool. SWS is rejecting any liability for damages to your crimping tool, if you do not handle the terminal reels with joint in the above stated way.

End

2016年4月4日

住友電装株式会社

部品事業本部 品質保証部

第1品質保証グループ

承認	確認	担当
中 島 2016/04/04	堀 内 2016/04/04	小 寺 2016/04/04

お客様各位

件名: 端子リール内ジョイントについてのご連絡

1. 連絡事項

連続端子の一部のリールでは材料交換及び品質確認時に端子をカットしており、その後の処置として正規収容数まで端子を巻き取る為にワイヤーを使用し端子間を繋ぎ合わせています。
そのジョイント方法と対象リールへの表示方法について以下のとおりご連絡しますので、ご周知の程宜しくお願い致します。

部品事業本部 第2事業部

プレス技術部

承認	確認	担当
中澤 2016.4.4	高橋 2016.4.4	青木 2016.4.4

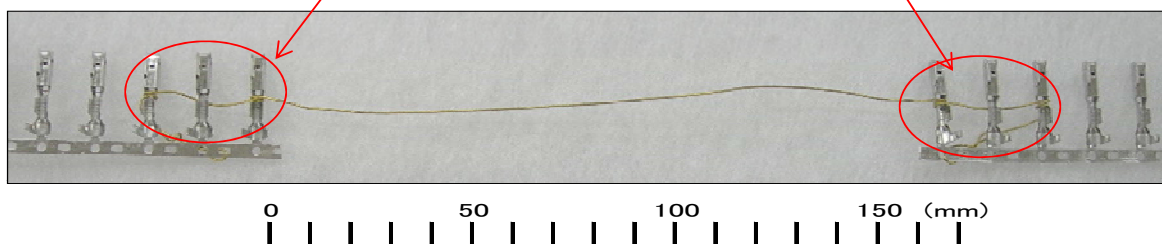
2. 適用部品

住友電装が供給する全ての連続端子に適用する。

3. ジョイント方法と表示方法について

○ジョイント方法(一例)

ワイヤーを端子に巻きつける(巻きつけ方法は一例です)
又、ワイヤーで巻きつけた端子は収容数にカウントしていませんので廃却して下さい。



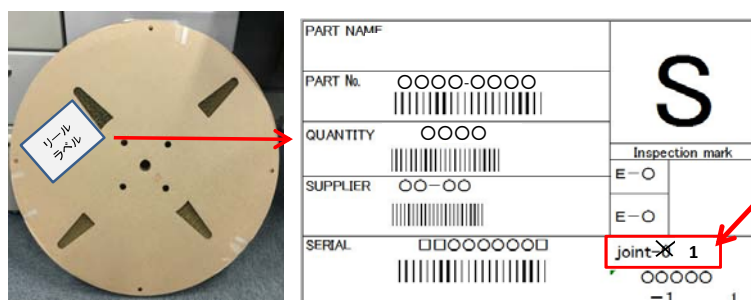
ジョイント部: ワイヤーで接続(約150mm程度)

○ジョイント有品への表示方法

リール内にジョイントを設けた際は、リール又はリールラベルにジョイントをお知らせする表示を行なっています。
(箱への表示は行っておりません)

<一例: 紙リールの連続端子>

【リールラベル】



リール内のジョイント有無を表示しています (Max joint2)

- ・「joint 0又は空白」…リール内にジョイントはありません。
- ・「joint 1」…リール内に1ヶ所のジョイントがあります。
- ・「joint 2」…リール内に2ヶ所のジョイントがあります。

※上記図はリール内に1ヶ所のジョイントがある事を示しています。

	注意 ジョイント部を含むリールには識別の表示があります。(リールラベル等) ご確認のうえ、ご使用下さい。
	注意 ジョイントは端子のいかなる位置にも発生します。 ジョイントが圧着機に入る前に検出できるようにしておいてください。 ジョイントが圧着機に入らないよう、適切な検出方法を実施してください。
	注意 ジョイントにより御社の圧着機が損傷することがあります。 ジョイントを上記のように扱わなかったことによる圧着機の損傷に対し 弊社は一切責任を負いません。