

Section 6 - Job Audit

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Job Identity:
Customer: Wendell Mechanical Stamping Truckama
Shop Order Number: N.P. W2810
Part Number: 90316.01 - ASM
Part Description: C 520 1 R 4 id Head Restraint Lock Post
Base Metal Specifications: J 2340 400XF 1 J 2340 340 XF
Filler Metal Specification (if required): ER 70-S-C Cu.
Welding Process(es): GMAW

Question #	Job Audit Question	Related WSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
6.1	Has the welding operation identified the process control equipment necessary to monitor, control and provide feedback on all essential process variables as listed in the applicable Process Tables?	1.8 5.1 5.2			Parameters locked in software limited access to maintenance	Pass
6.2	Has the logic been established to effectively identify and address process or equipment faults?	5.1			Software identifies faults	Pass
6.3	Are over rides or resets logs maintained?	5.1.2			Program into software	
6.4	Are weld faults audible, visible and does the line shut down?	5.1.3			Program to Stop	
6.5	If the weld cycle is interrupted, is the part controlled or contained until dispositioned by appropriate personnel?	2.7 5.1.4			Part(s) dispositioned as per O.A.	
6.6	Are the meters and feed back controls calibrated per established frequencies?	5.1.5 3.3			Software control of parameters	
6.7	If applicable, is there an inter-locking of the previous operation and has the quality of parts been verified?	5.1.6				N/A

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Job Identity:
 Customer: Ward Precision & Stampings - Toluca
 Shop Order Number: W2810
 Part Number: 92316-01 ASM
 Part Description: C.570 IR 4W Wgged Recharge Hook Post
 Base Metal Specifications: 12340 430 XF & 12320 340 XF
 Filler Metal Specification (if required): ER 70-5 654
 Welding Process(es): GMAW

Question #	Job Audit Question	Related WSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
6.8	Are there secure backups of all programs and procedures (electronic preferred)?	5.1.7		Robot	Weld Parameters of Compound 5.2.2 and backing Pass	Pass
6.9	Are high/low limit alarms established by actual data.	5.1.8 5.1.1			Software detects limit. Pass	Pass
6.10	Have process variables been defined and developed by data and shown to be statistically capable?	5.1.9			PPAP submission Capability - Weld Length Pass	Pass
6.11	Is there acceptable traceability (sequence/date coding)?	5.1.10 5.1.11 2.3 2.7			Traceability by W.D. number Pass	Pass
6.12	Is there traceability of all process and tooling changes?	4.1 5.1.11 5.4			Maintenance logs of cell Pass	Pass
6.13	Are there documented welding procedures for each weld location and each process variable?	5.1.12 1.5 1.10			Weld Procedures of cell. Pass	Pass
6.14	Is there a documented change over procedure (filler material, fixtures)?	1.5 5.1.13 3.6			M.P. 90358-03 of cell Pass	Pass
6.15	Is there a documented start-up and shut-down procedure?	1.5 1.10 5.1.14			M.P. 90358-03 of cell Pass	Pass

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Job Identity: Welding Machine & Stamping - Indiana
 Customer: 400 2910
 Shop Order Number: 90816-01 - AAM
 Part Number: 520 1R 4W. Head Restraint back fast.
 Base Metal Specifications: 2320 40 XF 13340 340 XF
 Filler Metal Specification (if required): ER 70.5-6CA
 Welding Processes: GM AW.

Question #	Job Audit Question	Related WSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
6.16	Are process control parameters monitored at established frequencies?	5.2			Process Parameters for Audit not established	FAIL
6.17	Are there documented reaction plans with appropriate levels of containment to both out of control and out of tolerance process parameters and provide documented evidence that reaction plans are followed?	5.3 1.21 5.6 1.8 2.7	Non Conforming Procedure (welding machine & stamping)		Non Conforming Procedure	Pass
6.18	How does the organization handle changes to process control parameters after initial customer approval and how do you notify your customer?	1.6 5.4 1.22 1.16	No changes without Change Control Request/Approval process			N/A
6.19	Are In-Process and Final Tests performed at established frequencies?	1.8 5.5	as per Weld Control Plan		Control Plan	Pass
6.20	Are weld quality requirements clearly defined per customer specifications?	1.9 5.6	Each part may have one or more requirements determined by the welding specification. Parts must meet each requirement. List requirements below and validate.			
6.20.1	Test Type: <u>Weld Length</u>					
	Test Method: <u>Measure & Copy</u>					
	Test Frequency and Quantity: <u>2x shift/1hr</u>					
	Specification: <u>10 min</u>					
6.20.2	Test Type: <u>Weld Throat</u>					
	Test Method: <u>Weld Section</u>					
					<u>3x shift</u>	<u>Pass</u>
					<u>16.79 / 17.01</u>	<u>Pass</u>
					<u>17.70 / 17.96</u>	<u>Pass</u>

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Job Identity:

Customer: Danaher Machine & Stamping - Indiana
 Shop Order Number: K.P. W 2816
 Part Number: 90316-01 AOM.
 Part Description: Dead Restraint Left Post
 Base Metal Specifications: A 1300 400 X 6 7 1 2846 340 XF.
 Filler Metal Specification (if required): ER-70-S-6Cu.
 Welding Process(es): GMAW.

Question #	Job Audit Question	Related WSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
	Test Frequency and Quantity: <u>1 x Shop Inspection</u>		<u>1.5 min</u>		<u>3.610 AM</u>	<u>Pass</u>
	Specification: <u>1.5 min</u>				<u>3.250 AM</u>	<u>Pass.</u>

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Job Identity:

Customer: Mundson Machine Stamping - Indiana
 Shop Order Number: 650-452810
 Part Number: 90316-01-R3M
 Part Description: C. 520 1R. 4W. Head Restraint Hook Post.
 Base Metal Specifications: HSK20 J2340 Q80 XF j J2340 340 XF
 Filler Metal Specification (if required): ER 705.6 Cu.
 Welding Process(es): GMAW

Question #	Job Audit Question	Related WSA Question #	Customer or Internal Requirement	Job (Shop) Order or Reference Documentation Requirement	Actual Condition (Objective Evidence)	Pass / Fail / N/A
6.20.3	Test Type: <u>Destruct</u> Test Method: <u>Deflection: 71500</u> Test Frequency and Quantity: <u>1 per shift Future</u> Specification: <u>Pull/Tear Base Metals</u>		<u>As per Control Plan Quality Auditor Sheet</u>		<u>Photographs on Worksheet</u>	<u>Pass</u>
6.20.4	Test Type: Test Method: Test Frequency and Quantity: Specification:					

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PROCESS TABLE A- Arc Welding Processes

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All control of variables given below are subordinate to customer specific requirements.

The customer may have additional requirements, e.g., inspection testing, greater frequencies, etc. When performing the job audit, the auditor shall verify welding is conforming to the customer's requirements.

Dashes below indicate "not applicable".

X indicates an essential variable which shall be documented and controlled.

✓ indicates that procedure should be reviewed and documented when necessary.

Item #	Related WSA Question #	Category/Process Steps	Arc Stud/ Fastener Welding (SW)	Flux- Cored Arc Welding (FCAW)	Gas Metal Arc Welding (GMAW)	Submerged Arc Welding (SAW)	Shielded Metal Arc Welding (SMAW)	Plasma Arc Welding (PAW)	Gas Tungsten Arc Welding (GTAW)	Gas Metal Arc Braze Welding
1.0	1.7, 1.8	Arc welding specific essential variables which shall be addressed in the FMEA, control plan and welding procedures								
A1.1		Arc voltage		X	X ✓	X		X	X	X
A1.2		Amperage	X	X	X ✓	X	X	X	X	X
A1.3		Current type (AC/DCEN/DCEP)	X	X	X ✓	X	X	X	X	X
A1.4		Wire feed speed		X	X ✓	X		X ¹	X ¹	X
A1.5		Pulse setting variables specific to the OEM of the welding equipment must be documented and controlled.			X	X ✓		X	X	X
A1.6		Stud gun/torch position work angle, travel angle	X	X	X ✓	X	X	X	X	X
A1.7		Contact tip-to-work distance		X	X ✓	X		X	X	X
A1.8		Electrode-to-work distance					✓	X	X	X
A1.9		Lift height of stud	X							
A1.10		Fastener coating (determines current type)	X							
A1.11		Plunge control mode force or position	X							
A1.12		Flux classification and depth				X				
A1.13		Flux removal and reclamation plan				X				
A1.14		Gas flow pre-flow, post-flow, rate and type(s)	X ²	X ²	X ✓			X	X	X
A1.15		Electrode and/or filler metal type, diameter, and classification	X	X	X ✓	X	X	X ¹	X ¹	X
A1.16		Travel speed		X	X ✓	X	✓	X	X	X
A1.17		Gas nozzle size and type	X ²	X ²	X	X		X	X	X

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A1.18		Arc starting parameters		X	X	X	✓	X	X	X
A1.19		Arc end parameters		X	X	X		X	X	X
A1.20		Wire burrback settings		X	X	X				X
A1.21		Plunge depth	X							
A1.22		Arc time	X	X ³	X ³			X ³	X ³	
A1.23		Fastener geometry per material type	X							
A1.24		Nozzle cleaning and cleaners, replacement		✓	✓	✓		✓	✓	✓
A1.25		Tip changes		✓	✓	✓		✓	✓	✓
A1.26		Wire liners/conduits cleaning and replacing		✓	✓	✓				✓
A1.27		Drive roll changes		✓	✓	✓				✓
A1.28		Wire guide tube change		✓	✓	✓				✓
A1.29		Antispatter Application (spray/dip and equipment)		✓	✓	✓				✓
A1.30		Electrode and stud collet change	✓						✓	
A1.31		O rings in gas system maintenance	✓	✓	✓			✓	✓	✓
A1.32		Gas delivery and mixing system	X ²	X ²	X			X	X	X
A1.33		Flux delivery systems maintenance				✓				
A1.34		Flux removal (screens size and magnetic separators)				✓				
A1.35		Electrode sharpening						✓		
A1.36		Slag removal		X			X			
A1.37		Wire dereelers maintenance		✓	✓	✓				✓
A1.38		Wire brake adjustment		✓	✓	✓				✓
A1.39		Integrity of ground system	✓	✓	✓	✓	✓	✓	✓	✓

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x¹: Processes can be used both with and without filler metal.

x²: These welding processes are designated for either gas shielded, self shielded or gasless.

x³: Arc Spot welding applications only.

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