Welding Quality Control Plan

Mo/Yr

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Your Dept:								
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1.0 Organization

1.1 Welding Firm/Fabricator
Your Company

1.2 Name of QCM hired by Contractor
N/A

1.3 Quality Control Firm
Your Company

1.4 Certified Inspector
Your Inspector, CWI xxxxxxxx

1.5 Certified Welder
Your Welder CVT #xx-xxxx

1.6 Organizational chart showing QCM, all subcontractors performing welding, QC firms and personnel and NDT firms and personnel:
Your Org Chart

2.0 Qualifications/Certifications

2.1 Copy of AISC Category III Certification:
See attached

2.2 Name, qualifications and copies of certifications for the following individuals:

2.2.1 QCM: Your Record

2.2.2 QC Inspector: Your Inspector, CWI #xxxxxxxx

2.2.3 Assistant QC Inspectors: N/A

2.3 [redacted]

2.4 [redacted]

3.0 QC Procedures

3.1 Methods and Frequencies of Inspections:
[redacted]
(Replace with your requirements)

3.2 See Quality Control Manual for written description of the quality system and methods of documentation.

3.3 Daily inspection reports are filed that include [redacted]

3.4 Documentation of welding process and filler metals is included [redacted]

3.5 The latest addition of the AWS Structural Welding Code is used for all production welding.

3.6 Standard procedures are used for performing non-critical repair welds.

4.0 WPS and PQR

4.1 Pre-Qualified Welding Procedure Specifications (WPS):
See applicable WPS

4.2 [redacted]

4.3 Name of independent third party who performed or witnessed qualification tests:
Your Name

4.4 [redacted]

4.5 [redacted]

5.0 NDT Other Than Visual Procedures

5.1 [redacted]

5.2 [redacted]

5.3 [redacted]

5.4 [redacted]

5.5 [redacted]

Visual and mechanical inspections are performed according to AWS D1.1 Structural Welding Code, applicable building code(s) and Customer specifications.

DAILY REPORT

Contractor's Name:			
Contractor's Address:			
Contract No:		Date:	
Report No:			
Description and Location of Work:			
Weather:	☐ Clear ☐ P. Cloudy ☐ Cloudy	Temperature:	Min_____ Max_____
Rainfall:	_____ inches		

[redacted]

a.

b.

c.

d.

[redacted]

1. [redacted]

2. [redacted]

3. [redacted]

4. [redacted]

5. [redacted]

Your Logo

6. [redacted]			
CONTRACTOR'S VERIFICATION			
The above report is [redacted]			
[redacted]		[redacted]	
	Signature		

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Resistance Spotwelding

Mo/Yr

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1.0 Scope

Provide a standard for achieving uniform resistance spotwelds.

2.0 Guidelines

2.1 AWS A3.0, Standard Welding Terms and Definitions
2.2 Your #, Your Doc
2.3 Your #, Spotwelding Log or equivalent
2.4 Your #, Workmanship Standards
2.5 AMS-W-6858, Welding, Resistance, Spot and Seam

3.0 Equipment

3.1 Non-magnetic Jigs or Fixtures
3.2 Spotwelding equipment of sufficient capacity to achieve the required workmanship standards

4.0 Materials

4.1 Alcohol, [redacted]
4.2 Clean Cloth or Towel

5.0 Requirements

5.1 Base Metal Cleanliness

Material to be spotwelded must meet the applicable workmanship standard (Your #).

5.2 Component Cleanliness

Items may be used if they appear [redacted] The surface to be welded must [redacted]

5.3 Welding Machines

The welding machine(s) must consist of a suitable source of electrical energy, means of adequately cooling the electrodes, and a means of [redacted] It must not be possible to [redacted]

5.4 Fitup

Mating parts assembled for welding must be designed and processed to fit so that before the first and each successive weld is made the surfaces to be joined by the weld are [redacted]

5.5 Jigs and Fixtures

All tooling that is required to locate welds or assist in the assembly of welded parts that passes through the magnetic field during the welding operation must [redacted]

5.6 Machine Qualification

Daily tests must be conducted according to 5.10 or according to the applicable manufacturing procedure to determine if [redacted]

5.7 Control Adjustments

When adjustment of the daily qualification weld schedule is desirable, the settings may be varied by [redacted] from the qualified values, or by [redacted] when only one qualified setting is adjusted. Production welds must be made within [redacted] of the settings used on qualification test specimens. If satisfactory welding cannot be maintained within these limits of adjustment, welding [redacted]

5.8 Test vs. Production Conditions

Results of tests must represent production parts. The welding conditions should be replicated in parts and materials used for weld tests. For example, [redacted]

5.9 Weld Acceptance Criteria

Test and production welds:

Delamination of or expulsion of any base material is [redacted]

Peel Test Requirements:

Your #

Pull Test Requirements:
Your #

5.10 Test Frequency (Item 1, 2, and 3 apply)

1.)
2.)
3.)

6.0 Definitions

6.1 Peel Test

A mechanical test in which the members are gripped and pulled apart perpendicular to each other to determine

6.2 Shear Test

A mechanical test in which the members are gripped and pulled apart in parallel to each other to determine

6.3 Member

Individual items to be joined in a welding process.

7.0 Workmanship

The quality of the welded assembly is determined according to

Arc Welding

Mo/Yr

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1.0 Scope

Provide a standard for achieving [redacted]

2.0 Guidelines

2.1 AWS A3.0, Standard Welding Terms and Definitions
2.2 AWS D1.1 Structural Welding Code

3.0 Equipment

3.1 Jigs and Fixtures
3.2 Arc welding equipment

4.0 Materials

4.1 AWS Welding Electrodes

5.0 Requirements

5.1 Component Cleanliness

The surfaces to be welded must [redacted]

5.2 Welding Equipment

The welding equipment must [redacted]

5.3 Fitup

Mating parts assembled for welding must [redacted]

5.4 Weld Log

The weld log should be located near the machine and must [redacted]

5.5 Control Adjustments

When adjustment of the weld schedule is desirable, the settings may be varied by [redacted] from the qualified values or by [redacted] when only one qualified setting is adjusted. Production welds must be made within [redacted] of the settings used on qualification test specimens. If satisfactory welding cannot be maintained within these limits of adjustment, welding must [redacted]

6.0 Workmanship

The quality of the welded assembly is determined according to the contract specified workmanship standard. Adherence to applicable federal, state, local and environmental, health and safety requirements is mandatory.

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Arc Welding Procedure Specification

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Used On	Contract#:		Your Company Name			
Prepared By:						
Approved:						
			WELDING PROCEDURE SPECIFICATION			
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1.0 SCOPE

This welding procedure is valid using conditions and variables according to AWS D1.1. The Company establishes appropriate safety and health practices for each project. The user needs a significant knowledge of welding and must be certified prior to production welding using this procedure.

2.0 SUPPORTING DOCUMENTS

2.1 AWS A2.4, Standard Symbols for Welding, Brazing and Nondestructive Examination
2.2 AWS A3.0, Standard Welding Terms and Definitions
2.3 AWS A5.X, Filler Metal Specification
2.4 AWS D1.1 Structural Welding Code

3.0 PROCEDURES

3.1 Pre-Qualified Welding Procedure
3.2 Procedure Qualification Record
3.2 Welding Procedure Specification

3.1 PRE-QUALIFIED WELDING PROCEDURE

Material	[redacted]				
Welding Process	SMAW				
Manual or Machine	Manual				
Position of Welding	1F Flat, 2F Horizontal (replace with your position)				
Filler Metal Specification	[redacted]				
Shielding Gas	N/A		Flow Rate	N/A	
Single or Multiple Pass	Single (?)				
Single or Multiple Arc	Single (?)				
Welding Current	TBD				
Polarity	TBD				
Welding Progression	[redacted]				
[redacted]				Travel Speed	Joint Detail
TBD	TBD	TBD	TBD	TBD	Corner Joint, Fillet Weld All Around ¼"(?)

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3.2 PROCEDURE QUALIFICATION RECORD

MATERIAL SPECIFICATION:	[redacted]
WELDING PROCESS:	Shielded Metal Arc Welding (SMAW)
MANUAL or MACHINE:	Manual
TENSILE STRENGTH, psi:	N/A
POSITION OF WELD:	1F Flat, 2F Horizontal (?)
GUIDED BEND TESTS:	N/A
ELECTRODE SPEC:	[redacted]
RADIOGRAPHIC EXAM NO:	N/A
ELECTRODE CLASS:	[redacted]
PRE-HEAT/POST-HEAT TEMP:	N/A
WELDER'S NAME:	Your Name

VISUAL INSPECTION (Class B Inspector)

APPEARANCE:	[redacted]
UNDERCUT:	None detected
POROSITY:	None detected

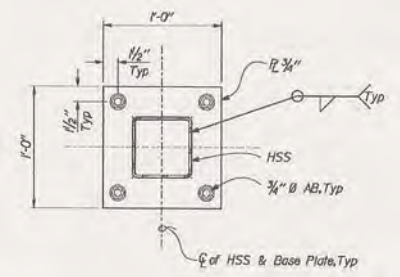
WELDING PROCEDURE

PASS NO:	[redacted]

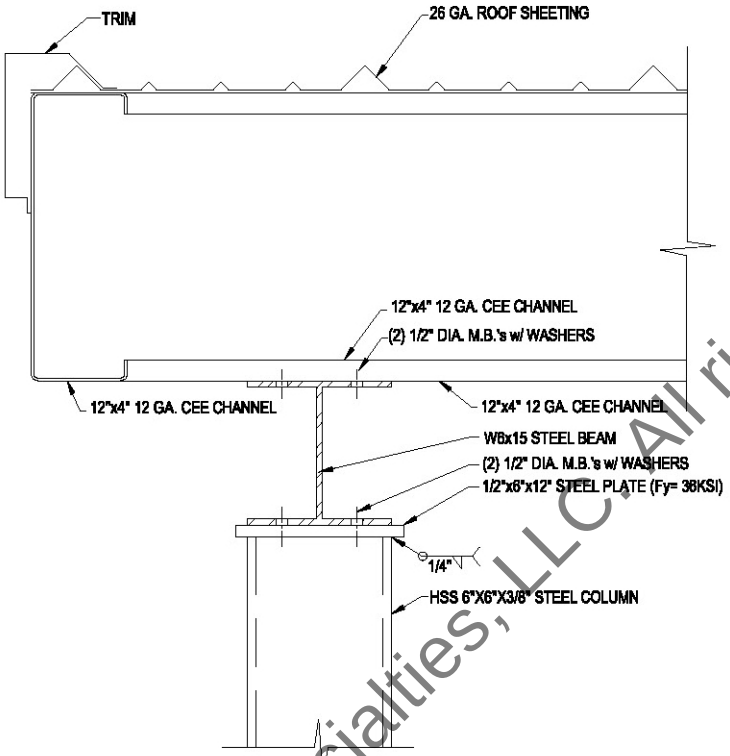
3.3 WELDING PROCEDURE SPECIFICATION

PROCESS:	[redacted]
BASE METAL: (replace with your metal)	
BASE METAL THICKNESS RANGE:	1/2" to 3/4" (?)
WELD METAL THICKNESS RANGE:	1/4" (?)
MAXIMUM WELD BEAD THICKNESS:	[redacted]
GAS:	N/A
POLARITY:	TBD (Straight Polarity?)
TARGET AMPERES:	TBD

3.4 WELDING PARAMETERS:



Replace with Your images



NOTE 1)
VT[redacted]

NOTE 2):
[redacted]

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EDGE JOINT-1

Mo/Yr

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1.0 APPLICATION

This welding procedure is valid using conditions and variables outside the ranges listed in SAE-AMS-STD-2219 at paragraph 5.3.2 for Class C welds. The following SAE-AMS-STD-2219 paragraphs have been tailored to fit the application stated herein:
5.4.2.1 penetrant test; and 5.4.3.2 weld penetration.

MODIFICATIONS:
5.4.2.1 penetrant testing is not performed
5.4.3.2 penetration is not complete since the purpose of the weld is to provide an electrical connection

SAE-AMS-STD-1595 identifies minimum and maximum metal thickness range for application of this weld procedure. Metal thickness ranges outside the qualified limits require additional welder and procedure qualification. This procedure is applicable to [redacted]

2.0 REFERENCED DOCUMENTS (to the extent specified herein)

2.1 SAE-AMS-STD-2219, Fusion Welding for Aerospace Applications, Modified
2.2 AWS A 2.4, Standard Symbols for Welding, Brazing and Nondestructive Examination
2.3 SAE-AMS-STD-1595, Qualification of Aircraft, Missile and Aerospace Fusion Welders
2.4 Your #, Manufacturing Control Document
2.5 ASTM B 160, Nickel Sheet, Bar and Rod

3.0 SUPPORTING DOCUMENT

3.1 AWS A 3.0, Standard Welding Terms and Definitions

4.0 APPLICABLE DOCUMENTS (incorporated herein)

4.1 Welding Procedure Qualification Test Record
4.2 Welding Procedure Specification

WELDING PROCEDURE QUALIFICATION TEST RECORD

MATERIAL SPECIFICATION:

[redacted]

WELDER'S NAME:

VISUAL INSPECTION (Class C Inspector)

APPEARANCE:

[redacted]

TEST DATE:

WITNESSED BY:

WELDING PROCEDURE

PASS NO:

[redacted]

WELDING PROCEDURE SPECIFICATION

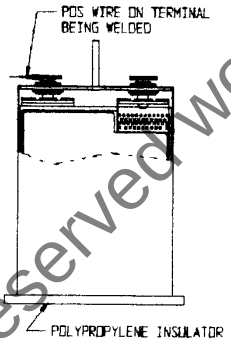
PROCESS: [redacted]

BASE METAL: ASTM B 160, Group IIIA

BASE METAL THICKNESS RANGE: [redacted]

BACKING: N/A

BACKING MATERIAL: [redacted]



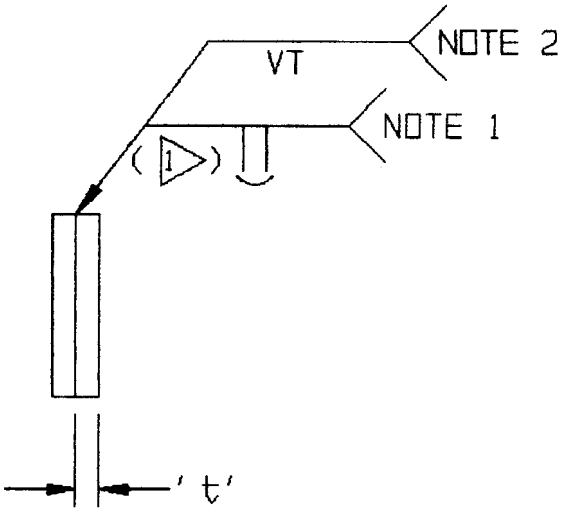
[redacted]

SINGLE OR MULTIPLE ELECTRODE: Single

SINGLE OR MULTIPLE PASS: [redacted]

WELDING PARAMETERS:

Figure 1



NOTE 1)

[redacted]

NOTE 2)

VT IAW SAE-AMS-STD-2219 and the following exceptions:

[redacted]

NOTE:

[redacted]

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EDGE JOINT-2

Mo/Yr

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1.0 APPLICATION

This welding procedure is valid using conditions and variables outside the ranges listed in SAE-AMS-STD-2219 at paragraph 5.3.2 for Class B welds. The following paragraphs of SAE-AMS-STD-2219 have been tailored to fit the application stated herein:
5.2.3 fit-up; 5.4.2.1 penetrant test; and 5.4.3.2 weld penetration.

MODIFICATION:
5.2.3 Fit-up tolerance is controlled by tooling
5.4.2.1 Penetrant testing is not performed
5.4.3.2 Penetration is not complete

SAE-AMS-STD-1595 identifies minimum and maximum metal thickness range for application of this weld procedure. Metal thickness ranges outside the qualified limits require [redacted] This procedure does not address [redacted] The user needs a significant knowledge of welding, and must be certified IAW [redacted]

2.0 REFERENCED DOCUMENTS (to the extent specified herein)

2.1 SAE-AMS-STD-2219, Fusion Welding for Aerospace Applications, Modified
2.2 AWS A 2.4, Standard Symbols for Welding, Brazing and Nondestructive Exam.
2.3 SAE-AMS-STD-1595, Qualification of Aircraft, Missile and Aerospace Fusion Welders
2.4 Your #, Manufacturing Control Document
2.5 MIL-T-8606, Tubing Specification
2.6 AWS A 5.9, Filler Metal Specification

3.0 SUPPORTING DOCUMENT

3.1 AWS A 3.0, Standard Welding Terms and Definitions

4.0 APPLICABLE DOCUMENTS (incorporated herein)

4.1 Welding Procedure Qualification Test Record
4.2 Welding Procedure Specification

WELDING PROCEDURE QUALIFICATION TEST RECORD

MATERIAL SPECIFICATION: SS 304L, MIL-T-8606, Group IIA

WELDING PROCESS: [redacted]

RADIOGRAPHIC EXAM NO:

FILLER METAL CLASS: ER308L

SHIELDING GAS: Argon, 25 CFH

SINGLE or MULTIPLE PASS: [redacted]

WELDER'S NAME:

POSTHEAT TREATMENT: N/A

VISUAL INSPECTION (Class B Inspector)

APPEARANCE: [redacted]

UNDERCUT: [redacted]

TEST DATE:

WITNESSED BY:

WELDING PROCEDURE

PASS NO: [redacted]

WELDING PROCEDURE SPECIFICATION

PROCESS:
BASE METAL:

BASE METAL THICKNESS RANGE: 0.020"/0.120"
WELD METAL THICKNESS RANGE:

INTERPASS TEMPERATURE: N/A
POSTWELD HEAT-TREATMENT: N/A
TECHNIQUE:

GAS: Argon, industrial grade; Gas nozzle size: #7 with lens;
Flow rate: 25-30 CFH

WELDING PARAMETERS

CURRENT:

WELDING PARAMETERS:

Figure 1

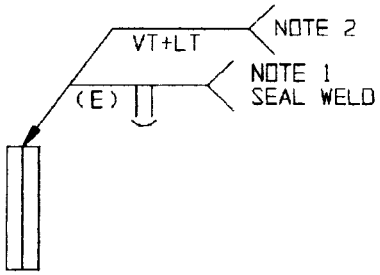
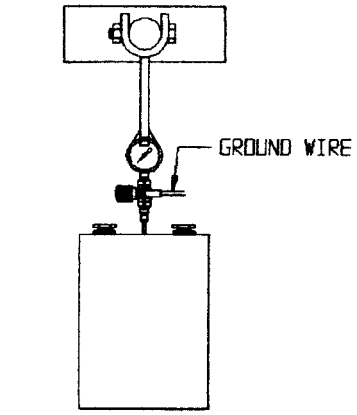
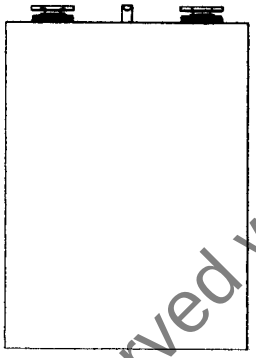


FIGURE 2:



NOTE: ISOLATE CELL CASE FROM TABLE

FIGURE 3:



NOTE 1) [redacted]

NOTE 2) [redacted]

LT IAW Your #

NOTE 3) [redacted]

NOTE: [redacted]

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EDGE JOINT

CORNER-FLANGE WELD

Mo/Yr

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1.0 APPLICATION

This welding procedure is valid using conditions and variables outside the ranges listed in SAE-AMS-STD-2219 at paragraph 5.3.2 for Class B welds. The following paragraphs of SAE-AMS-STD-2219 have been tailored to fit the application stated herein:
5.2.3 Fit-up; 5.3.5.3 tack-welds; 5.4.2.1 penetrant test; and 5.4.3.2 weld penetration.
MODIFICATIONS:
5.2.3 [redacted]
5.3.5.3 [redacted]
5.4.2.1 [redacted]
5.4.3.2 [redacted]

SAE-AMS-STD-1595 identifies minimum and maximum metal thickness range for application of this weld procedure. Metal thickness ranges outside the qualified limits require [redacted] This procedure does not address all of the safety problems associated with its use. It is the responsibility of Your Co to establish appropriate safety and health practices. The user needs a significant knowledge of welding, and must be certified IAW [redacted]

2.0 REFERENCED DOCUMENTS (to the extent specified herein)

2.1 SAE-AMS-STD-2219, Fusion Welding for Aerospace Applications, Modified
2.2 AWS A2.4, Standard Symbols for Welding, Brazing and Nondestructive Examination
2.3 SAE-AMS-STD-1595, Qualification of Aircraft, Missile and Aerospace Fusion Welders
2.4 Your #, Manufacturing Control Document,
2.5 AWS A5.9, Filler Metal Specification
2.6 ASTM A 480 A/480M, Steel Plate, Sheet and Strip Specification
2.7 ASTM A167, Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet and Strip

3.0 SUPPORTING DOCUMENT

3.1 AWS A3.0, Standard Welding Terms and Definitions

4.0 APPLICABLE DOCUMENTS (incorporated herein)

4.1 Welding Procedure Qualification Test Record
4.2 Welding Procedure Specification

WELDING PROCEDURE QUALIFICATION TEST RECORD

MATERIAL SPECIFICATION: [redacted]

WELDING PROCESS: GTAW

MANUAL or MACHINE: [redacted]

RADIOGRAPHIC EXAM NO:

FILLER METAL CLASS: ER 308L

SHIELDING GAS: [redacted]

WELDER'S NAME:

VISUAL INSPECTION (Class B inspector)

APPEARANCE: [redacted]

UNDERCUT: [redacted]

TEST DATE:

WITNESSED BY:

WELDING PROCEDURE

PASS NO: [redacted]

WELDING PROCEDURE SPECIFICATION

PROCESS: [redacted]

BASE METAL: [redacted]

Type 304L, Group IIA

BASE METAL THICKNESS RANGE: 0.015"/0.018" nominal

WELD METAL THICKNESS RANGE: [redacted]

BACKING: [redacted]

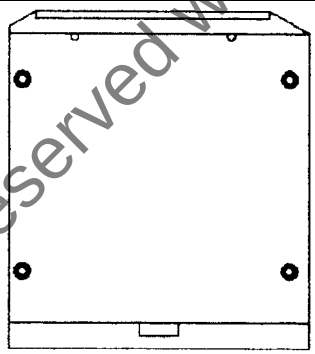


FIGURE 2

SINGLE OR MULTIPLE ELECTRODE: Single

SINGLE OR MULTIPLE PASS: [redacted]

TARGET AMPERES: 7

WELDING PARAMETERS:

Figure 1

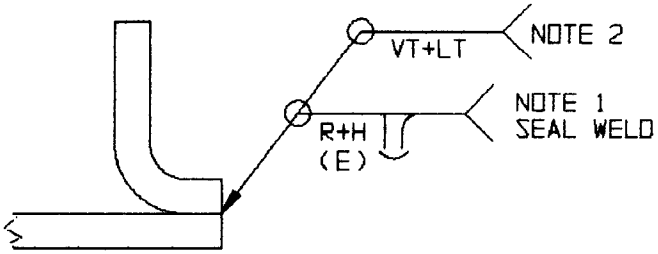
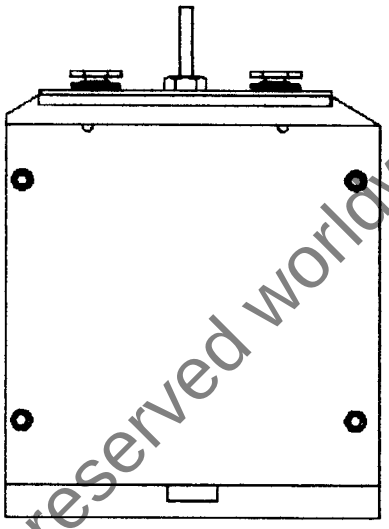


FIGURE 3



NOTE 1) [redacted]

NOTE 2) [redacted]

NOTE: [redacted]

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SQUARE-GROOVE WELD
3 PIECE "T" JOINT

Mo/Yr

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1.0 APPLICATION

This welding procedure is valid using conditions and variables outside the ranges listed in SAE-AMS-STD-2219 at paragraph 5.3.2 for Class C welds. The following paragraphs of SAE-AMS-STD-2219 have been tailored to fit the application stated herein:
5.2.3 fit-up; 5.4.1 visual inspection; 5.4.2.1 penetrant test; 5.4.3.2 weld penetration; 5.4.4.1 incomplete fusion; and Table 5-4 thinnest member.
MODIFICATIONS:

5.2.3 [redacted]

5.4.1 [redacted]

5.4.2.1 [redacted]

5.4.3.2 [redacted]

5.4.4.1 [redacted]

Table 5-4 [redacted]

SAE-AMS-STD-1595 identifies minimum and maximum metal thickness ranges for application of this weld procedure. Metal thickness ranges outside the qualified limits require [redacted] This procedure does not address all of the safety problems associated with its use. It is the responsibility of Your Co to establish appropriate safety and health practices. The user needs a significant knowledge of welding, and must be certified IAW [redacted]

2.0 REFERENCED DOCUMENTS (to the extent specified herein)

2.1 SAE-AMS-STD-2219 Fusion Welding for Aerospace Applications, Modified
2.2 AWS A2.4 Standard Symbols for Welding, Brazing and Nondestructive Examination
2.3 SAE-AMS-STD-1595 Qualification of Aircraft, Missile and Aerospace Fusion Welders
2.4 Your #, Manufacturing Control Document
2.5 ASTM B 160, Nickel Sheet, Rod and Bar

3.0 SUPPORTING DOCUMENT

3.1 AWS A 3.0 Standard Welding Terms and Definitions

4.0 APPLICABLE DOCUMENTS (incorporated herein)

4.1 Welding Procedure Qualification Test Record
4.2 Welding Procedure Specification

WELDING PROCEDURE QUALIFICATION TEST RECORD

MATERIAL SPECIFICATION: ASTM B 160, Group IIIA

WELDING PROCESS: [redacted]

RADIOGRAPHIC EXAM NO:

FILLER METAL CLASS: ERNi-1 Alloy 61

SHIELDING GAS: Argon, 60 CFH

SINGLE OR MULTIPLE PASS: [redacted]

WELDER'S NAME:

VISUAL INSPECTION (Class C inspector)

APPEARANCE: [redacted]

UNDERCUT: [redacted]

TEST DATE:

WITNESSED BY:

WELDING PROCEDURE

PASS NO: 1

ELECTRODE SIZE: [redacted]

WELDING PROCEDURE SPECIFICATION

PROCESS: GTAW, manual

BASE METAL: [redacted]

BACKING: N/A

BACKING MATERIAL: N/A

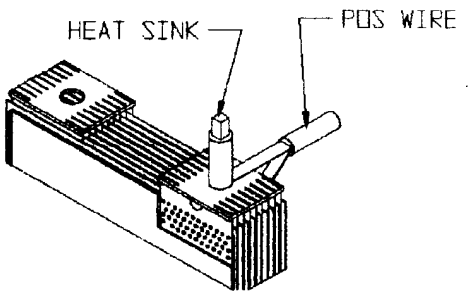
ALLOWABLE JOINT DESIGN: [redacted]

SINGLE OR MULTIPLE ELECTRODE: Single

SINGLE OR MULTIPLE PASS: Optional

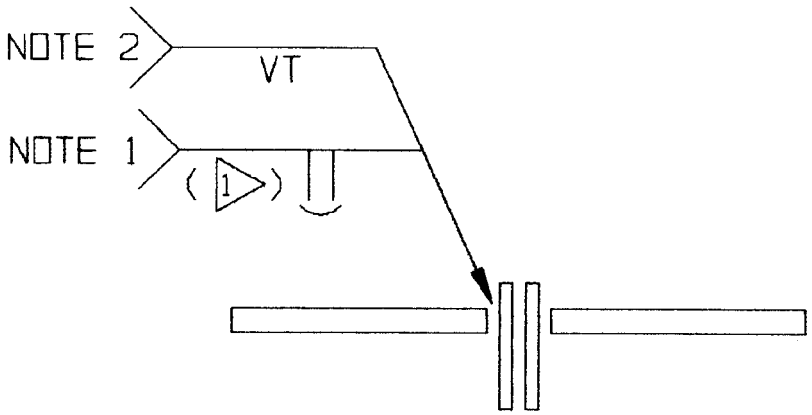
FILLER METAL SPECIFICATION: [redacted]

FIGURE 2:



WELDING PARAMETERS:

Figure 1



NOTE 1)

[redacted]

NOTE 2)

[redacted]

NOTE:

[redacted]

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