FORM Q-120
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part I — Fabrication

PROCEDURE SPECIFICATION NUMBER: _____

NOTE: Procedure Specification Form Q-120 for Class II vessels consists of three parts. Part I, Fabrication, shall be completed for each separately fabricated reinforced plastic vessel part. It shall specify the materials, ply sequence, ply orientation, and procedure used to fabricate the part. Part I must be accompanied by Parts II and III.

Essential design variables shall be established during design. Any deviation during fabrication must be so noted and qualified by the Design Engineer.

I. FABRICATION IDENTIFICATION DATA

A. Vessel Identification

Fabricator Name: _____ Fabricator Vessel No.: _____
Name of User: _____ User Vessel Number: _____

B. Vessel Part Identification

Part Name or Number: _____ Date Fabricated: _____
Fabricator Procedure No.: _____ Procedure Date: _____
(Ref. RQ-110 and Appendix 1, 1-100)

C. Registered Engineer Certifying the Design _____

II. ESSENTIAL DESIGN VARIABLES (To be established during design)

A. Materials for Vessel Part

Fiber Reinforcements	Manufacturer	Mfg. No.	Material Type (Glass, etc.)	Material Form (Mat, etc.)
1. Material No. 1				
2. Material No. 2				
3. Material No. 3				

Resin System	Manufacturer	Mfg. No.	Material Type (Epoxy, etc.)
1. Resin			
2. Catalyst			
3. Promoter			

B. Part Fabrication

1. Liner (if applicable)
   a. Composite Liner (if applicable)
      Ply No. _____ to Ply No. _____
      Thickness _____
   b. Thermoplastic Liner (if applicable)
      Material _____ Manufacturer _____ Mfg. No. _____
      Thickness _____ Bonding Method _____

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part I — Fabrication (Cont'd)

2. Laminate Construction: _____
(filament wound, contact molded, or both)

Number of Plies _____ Total Thickness _____

Ply Sequence and Orientation (No. 1 ply is next to joined parts)

Ply No.	Fiber Material No.	Fiber Orientation	Reference Axis

(Use additional sheets if necessary)

3. Cure Method _____ Post Cure _____ °F (°C) _____ hr _____

4. Design Barcol Hardness _____ ± _____

5. Design Percent Fiber by Weight (Filament Wound) _____ % ± _____ %

6. Design Percent Fiber by Weight (Contact Molded) _____ % ± _____ %

7. Filament Winding: Bandwidth _____ Spacing _____

8. Fillers/Pigments:

Material	Use	Location

III. ENGINEERING CONSTANTS

Documentation of Lamina Properties: Material Property Data Report No. _____

IV. QUALIFICATION

Part _____ for Vessel No. _____

Date Fabricated: _____ Date Tested: _____

Design Report No.: _____

Acceptance Test Report No.: _____

ASME Section X _____ _____
Edition and Addenda (if applicable) Date — Code Case No.

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part I — Fabrication (Cont'd)

A. Identification of Materials Used in Fabrication

1. Reinforcements — Batch Number

a. Material No. 1					
b. Material No. 2					
c. Material No. 3					
2. Resin					
3. Catalyst					
4. Promoters					

B. Resin Data (for each batch number)

1. Batch No.					
2. Resin Viscosity					
3. Promotion Rate (ppm)					
4. Catalyst Rate (ppm)					
5. Gel Time (min.)					

C. Fabrication Compliance [see RF-110(c)]

List and explain any variations from the essential design variables listed in Section II above. The Fabricator shall document as part of his Quality Control System (Appendix 1) that the essential variables established for design are complied with during fabrication.

1.

2.

3.

(Use additional sheets if necessary)

D. Results of Quality Checks (RQ-140)

1. Visual check per ASME Section V, Article 28

2. Thickness and Dimensional Checks

3. Barcol Hardness Check

4. Thermoplastic Liner Integrity

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part I — Fabrication (Cont'd)

E. Qualification Test (Attach Acceptance Test Report)

Passed: _____ Failed: _____

F. Certification

We certify that the statements made in Part I of this Specification are correct.

Date: _____ Signed: _____
(Fabricator)

By: _____

Certificate of Authorization No.: _____ Expires: _____

CERTIFICATION BY SHOP INSPECTOR
OF QUALIFICATION OF DESIGN AND FABRICATION PROCEDURE

Procedure Specification of _____ at _____
for _____ process of fabricating vessel(s) described in
_____ Design Specification and _____
(User) (Fabricator)

Design Report number _____

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by _____ of _____ have inspected the components described in Part I of the Procedure Specification and have examined the Quality Control records documenting its fabrication and state that, to the best of my knowledge and belief, the Fabricator has fabricated the vessel component(s) in accordance with this Procedure Specification and the requirements of Section X of the ASME Boiler and Pressure Vessel Code, Fiber-Reinforced Plastic Pressure Vessels.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the design or procedure covered by the Fabricator's Design Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or loss of any kind arising from or connected with this inspection.

Date _____ Commission _____
(National Board Authorized Inspector Number)

_____
(Authorized Inspector's signature)

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part II — Assembly

PROCEDURE SPECIFICATION NUMBER: _____

NOTE: Procedure Specification Form Q-120 for Class II vessels consists of three parts. Part II, Assembly, shall be completed for each secondary lay-up required to join two or more separately fabricated parts. It shall detail the materials, dimensions, and ply sequences of the secondary overlay. Part II, if applicable, must be accompanied by Parts I and III.

Essential design variables shall be established during design. Any deviation during fabrication must be so noted and qualified.

I. ASSEMBLY IDENTIFICATION DATA

A. Vessel Identification

Fabricator Name: _____ Fabricator Vessel No.: _____
Name of User: _____ User Vessel Number: _____

B. Secondary Bond Joint Identification

Fabricator Procedure No.: _____ Procedure Date: _____
Bond to Join Vessel Part A: _____ to Vessel Part B: _____

II. ESSENTIAL DESIGN VARIABLES

A. Materials for Secondary Overlay

Fiber Reinforcements	Manufacturer	Mfg. No.	Material Type (Glass, etc.)	Material Form (Mat, etc.)
1. Material No. 1				
2. Material No. 2				
3. Material No. 3				

Resin System	Manufacturer	Mfg. No.	Material Type (Epoxy, etc.)
1. Resin			
2. Catalyst			
3. Promoter			

B. Surface Preparation

1. Method _____

2. Distance From Mating Joint: Part A _____ in.
Part B _____ in.

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part II — Assembly (Cont'd)

C. Overlay Construction

1. Interior Surface (if applicable)

a. Number of Plies _____ Thickness _____

b. Length of Overlay (do not include taper): Part A _____ Part B _____

c. Ply Sequence and Orientation (No. 1 ply is next to joined parts)

Ply No.	Fiber Material No.	Fiber Orientation	Reference Axis

(Use additional sheets if necessary)

d. Overlay Termination: Taper over a distance of _____

e. Percent Fiber Content by Weight _____

f. Barcol Hardness _____

2. Exterior Surface

a. Number of Plies _____ Thickness _____

b. Length of Overlay (do not include taper): Part A _____ Part B _____

c. Ply Sequence and Orientation (No. 1 ply is next to joined parts)

Ply No.	Fiber Material No.	Fiber Orientation	Reference Axis

(Use additional sheets if necessary)

d. Overlay Termination: Taper over a distance of _____

e. Percent Fiber Content by Weight _____

f. Barcol Hardness _____

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part II — Assembly (Cont'd)

III. QUALIFICATION

Secondary Overlay to Join Part A: _____ to Part B: _____

Design Report No. _____ Test Report No. _____

ASME Section X _____ _____
Edition and Addenda (if applicable) Date — Code Case No.

A. Identification of Materials Used in Assembly

1. Reinforcements	Batch Number				
a. Material No. 1					
b. Material No. 2					
c. Material No. 3					
2. Resin					
3. Catalyst					
4. Promoters					

B. Resin Data (for each batch number)

1. Batch No.					
2. Resin Viscosity					
3. Promotion Rate (ppm)					
4. Catalyst Rate (ppm)					
5. Gel Time (min.)					

C. Fabrication Compliance [see RF-110(c)]

List and explain any variations from the essential design variables listed in Section II of this form (Part II). The Fabricator shall document as part of his Quality Control System (Appendix 1) that the essential variables established for design are complied with during fabrication.

1.

2.

3.

(Use additional sheets if necessary)

D. Certification

We certify that the statements made in Part II of this Specification are correct.

Date: _____ Signed: _____
(Fabricator)

By: _____

Certificate of Authorization No.: _____ Expires: _____

(07/17)

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part II — Assembly (Cont'd)

CERTIFICATION BY SHOP INSPECTOR OF QUALIFICATION OF DESIGN AND FABRICATION PROCEDURE

Procedure Specification of _____ at _____

for _____ process of fabricating vessel(s) described in

_____ Design Specification and _____
(User) (Fabricator)

_____ Design Report number _____

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by _____ of _____ have inspected the assembly joint of the components described in Part II of the Procedure Specification and have examined the Quality Control records documenting this assembly and state that, to the best of my knowledge and belief, the Fabricator has assembled the components to satisfy the requirements of Section X of the ASME Boiler and Pressure Vessel Code, Fiber-Reinforced Plastic Pressure Vessels.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the design or procedure covered by the Fabricator's Design Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or loss of any kind arising from or connected with this inspection.

Date _____ Commission _____
(National Board Authorized Inspector Number)

_____
(Authorized Inspector's signature)

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part III — Summary

PROCEDURE SPECIFICATION NUMBER: _____

NOTE: Procedure Specification Form Q-120 for Class II vessels consists of three parts. Part III, Summary, shall compile the various fabrication procedures used to fabricate the individual parts of the vessel and then join them into a completed vessel assembly. Part III must be accompanied by Parts I and II.

A. VESSEL IDENTIFICATION

Fabricator Name: _____ Fabricator Vessel No.: _____

Name of User: _____ User Vessel Number: _____

B. SUMMARY OF FABRICATION PROCEDURES (Part I)

No.	Part Identification	Fabricator's Procedure No.
1		
2		
3		
4		
5		
6		

C. SUMMARY OF ASSEMBLY PROCEDURES (Part II)

No.	Part A	to	Part B	Fabricator's Procedure No.
1				
2				
3				
4				
5				
6				

D. QUALIFICATION

We certify that the statements made in Part III of this Specification are correct.

Date: _____ Signed: _____
(Fabricator)

By: _____

Certificate of Authorization No.: _____ Expires: _____

ASME Section X _____ _____
Edition and Addenda (if applicable) Date Code Case No.

FORM Q-120 (CONT'D)
PROCEDURE SPECIFICATION FOR CLASS II VESSELS
(Revision C — 2017)
Part III — Summary (Cont'd)

CERTIFICATION BY SHOP INSPECTOR
OF QUALIFICATION OF DESIGN AND FABRICATION PROCEDURE

Procedure Specification of _____ at _____
for _____ process of fabricating vessel(s) described in
_____ Design Specification and _____
(User) (Fabricator)

Design Report number _____

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by _____
of _____
have witnessed the tests by which the design of the vessel(s) and the fabrication procedure have been qualified and state that, to the best of my knowledge and belief, these tests and the fabrication procedure employed in constructing the vessel(s) satisfy the requirements of Section X of the ASME Boiler and Pressure Vessel Code, Fiber-Reinforced Plastic Pressure Vessels.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the design or procedure covered by the Fabricator's Design Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or loss of any kind arising from or connected with this inspection.

Date _____ Commission _____
(National Board Authorized Inspector Number)

_____
(Authorized Inspector's signature)