

Department of Education
SPTVE
SHIELDED METAL ARC
WELDING (SMAW)10
Single Pass Fillet Weld in Flat Position
Quarter 2: Week 3 Module



Albert B. Sierra
Writer

Gerry V. Domalanta
Validator

Dr. Valentina A. Ballesteros
Quality Assurance Team Chair



Schools Division Office – Muntinlupa City

Student Center for Life Skills Bldg., Centennial Ave., Brgy. Tunasan, Muntinlupa City
(02) 8805-9935 / (02) 8805-9940



EXPECTATIONS

At the end of the lesson, the learner is expected to:

1. identify the procedures of single pass fillet weld,
2. enumerate the procedures of single pass fillet weld and
3. draw the working drawing of single pass fillet weld in flat position.



PRE-TEST

Direction: Encircle the letter of the correct answer.





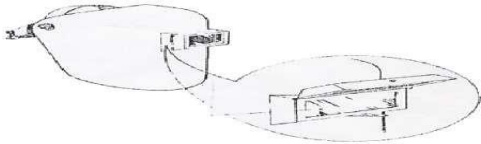
1. Use _____ electrode and tack weld the metal to form a T-joint.
A. 6010
B. 6011
C. 6013
D. 7018
2. . What is the specified length of tack welds on fillet welds?
A. 5 mm
B. 10 mm
C. 15 mm
D. 20 mm
3. Metal to be welded should be tack welded in _____.
A. Both edge of the plate
B. Both end and the center of the joint
C. Center and edge of the joint.
D. Center of the joint
4. Refers to the layers of beads which has been deposited in the base metal.
A. Arc rays
B. Pass
C. Puddle
D. Ripple
5. Frequently used in all kinds of work, which may be single fillet lap joint or doble fillet.
A. Butt joint
B. Corner joint
C. Lap joint
D. Tee joint
6. A fillet weld is a weld type in the cross-sectional shape of a _____.
A. Circle
B. Rectangle
C. Square
D. Triangle
7. What is the recommended amperage setting in welding single pass fillet?
A. 85
B. 90
C. 95
D. 100
8. In stringer bead in flat fillet weld of the same thickness plate, the work angle is always.
A. 30 degrees
B. 45 degrees
C. 60 degrees
D. 70 degrees
9. Travel angle for single pass fillet weld is usually set at an angle of _____.
A. 45 degrees
B. 60 degrees
C. 70 degrees
D. 85 degrees
10. Welding fillet, the normal arc length is _____.
A. $1/16 - 1/8$ inch.
B. $1/8 - 3/16$ inch.
C. $1/4 - 3/8$ inch.
D. $5/16 - 1/2$ inch.



LOOKING BACK

In the previous lesson, you have learned the different Personal Protective Equipment used in welding. Now let us see if you still remember these PPEs.

Directions: Match the name of the Personal Protective Equipment (PPE) in column A with the correct pictures in column B. Write the letter of your answer on a blank provided before each item.

A		B
	_____ 1. Respirator	 A
	_____ 2. Welding helmet	 B
	_____ 3. Safety shoes	 C
	_____ 4. Welding gloves	 D
	_____ 5. Protective cover all	 E



BRIEF INTRODUCTION

Single Pass Fillet Weld in Flat Position

To weld a single pass fillet weld in flat position. The bead should not exceed the required size and of equal leg lengths, profile not concave nor convex, with fine ripples and welded plates perpendicular to each other.

Material/supplies:

- 2pcs. Mild Steel plates 10mm X 50mm X 200mm
- 4pcs. E-6013- 3.25mm/Æ

Tools and Equipment:

Chipping	Steel brush	Welding gloves	Welding apron
Welding helmet/shield	Portable grinder	Fillet gauge	
AC or DC welding machine with accessories			

Procedures:

1. Wear the appropriate Personal Protective Equipment (PPE) before welding.
2. Prepare the tools, equipment and materials needed.
3. Set up the welding machine and adjust the correct current amperage settings. 95 amps. 85-100 amperes (range of adjustments)
4. Use E6013 electrode and tack weld the metal to form a T-joint. Tack both end and at the center of the joint.

Note: The tacking of at least 10mm long and with acceptable weld is necessary.

5. Clamp firmly the workpiece to the welding positioner, and clean the joint to be welded.

6. Strike the arc at the starting point and hold the rod at correct angles then shorten the arc at the finishing points and fill the crater with molten metal.

Note: Weld at 70° travel angle and 45° work angle.

7. Remove the slag with a chipping hammer and clean the bead using steel brush.

Note: Use clear goggles/face shield when chipping. The direction of chipping should be away from you.

8. Properly clean the metal for inspection.

9. Visually check the following:

- Plate alignment and squareness
- Bead weave pattern
- Weld defects such as porosity, undercut, overlaps
- Bead connection

WORKING DRAWING



Figure 11. Fillet Weld Flat Position



ACTIVITIES

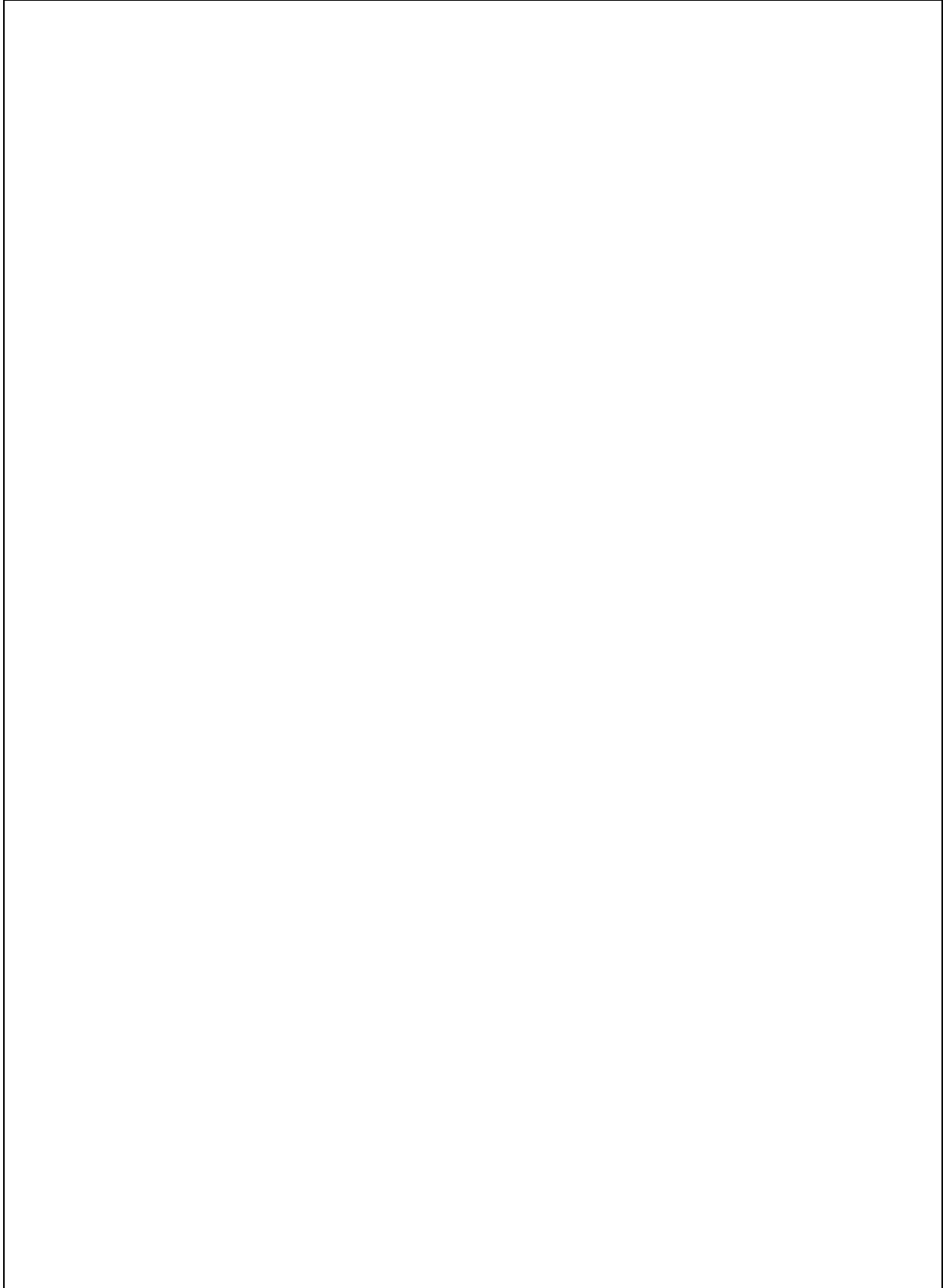
Activity 1.

Directions: Arrange the correct welding procedures of single pass fillet weld in flat position. Write 1 on the blank for the first procedure, 2 for the second procedure and 3 to 9 for the succeeding procedure.

- _____ Visually check the following:
- _____ Use E6013 electrode and tackweld the metal to form a T-joint.
- _____ Strike the arc at the starting point and hold the rod at correct angles then shorten the arc at the finishing points and fill the crater with molten metal.
- _____ Prepare the tools, equipment and materials needed.
- _____ Clamp firmly the workpiece to the welding positioner and clean the joint to be welded.
- _____ Properly clean the metal for inspection.
- _____ Wear the appropriate Personal Protective Equipment (PPE) before welding.
- _____ Set up the welding machine and adjust the correct current amperage settings. 95 amps. 85-100 amperes (range of adjustments)
- _____ Remove the slag with a chipping hammer and clean the bead using steel brush.

Activity 2.

Directions: Draw the illustration/working drawing of multi pass weld in flat position. See figure 11.





REMEMBER

The welding steps and procedures are very important or required to follow completely because it serves as a guide of a welder for the effective welding in accordance with welding procedure specification, or WPS.



CHECK YOUR UNDERSTANDING

Directions: Enumerate the welding procedures on how to weld single pass fillet weld in flat position.

- 1) _____

- 2) _____

- 3) _____

- 4) _____

- 5) _____

- 6) _____

- 7) _____

- 8) _____

- 9) _____



POST TEST

Direction: Encircle the letter of the correct answer.

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A. Arc rays
B. Pass
C. Puddle
D. Ripple
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A. 85
B. 90
C. 95
D. 100
3. What is the specified length of tack welds on fillet welds?
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B. Both end and the center of the joint
C. Center and edge of the joint.
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A. Circle
B. Rectangle
C. Square
D. Triangle
7. Travel angle for single pass fillet weld is usually set at an angle of _____.
A. 45 degrees
B. 60 degrees
C. 70 degrees
D. 85 degrees
8. Frequently used in all kinds of work, which may be single fillet lap joint or double fillet.
A. Butt joint
B. Corner joint
C. Lap joint
D. Tee joint
9. Use _____ electrode and tack weld the metal to form a T-joint.
A. 6010
B. 6011
C. 6013
D. 7018
10. In stringer bead in flat fillet weld of the same thickness plate, the work Angle is always.
A. 30 degrees
B. 45 degrees
C. 60 degrees
D. 70 degrees

<p>Post-test</p> <p>1. B 2. C 3. B 4. A 5. B 6. D 7. C 8. D 9. C 10. B</p>	<p>Checking your understanding</p> <p>1. Wear the appropriate Personal Protective Equipment (PPE) before welding. 2. Prepare the tools, equipment and materials needed. 3. Set up the welding machine and adjust the correct current amperage settings. 95 amps, 85-100 amperes (range of adjustments) 4. Use E6013 electrode and tack weld the metal to form a T-joint. Tack both end and at the center of the joint. 5. Clamp firmly the workpiece to the welding positioner, and clean the joint to be welded. 6. Strike the arc at the starting point and hold the rod at correct angles. Thenshorten the arc at the finishing points and fill the crater with molten metal. 7. Remove the slag with a chipping hammer and clean the bead using steel brush. 8. Properly clean the metal for inspection. 9. Visually check the following: *Plate alignment and squareness *Bead weave pattern *Weld defects such as porosity, *Beadconnection</p>	<p>Key to Corrections:</p> <p>Pre-test</p> <p>1. C 2. B 3. B 4. B 5. D 6. D 7. C 8. B 9. B 10. A</p> <p>Looking Back</p> <p>1. D 2. A 3. E 4. C 5. B</p> <p>Activity Act.1</p> <p>A. 9 B. 4 C. 6 D. 2 E. 5 F. 8 G. 1 H. 3 I. 7</p>
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References

- *K12 Basic Education Curriculum, Grade 10 SMAW LM Final Check and verified page 49-50*
- Public Technical Vocational High Schools, Competency-Based Learning material, SMAW NCI, (Department of Education 2008)