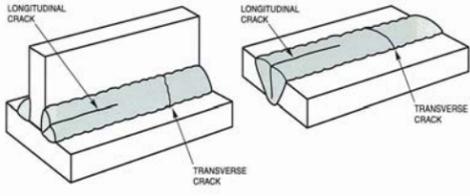
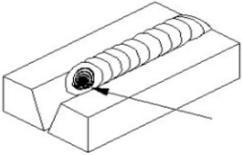
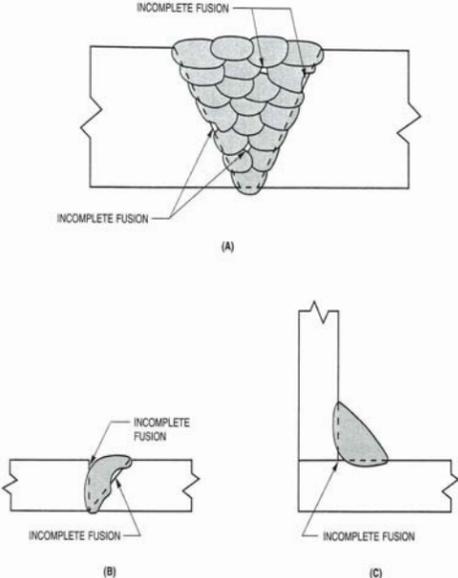
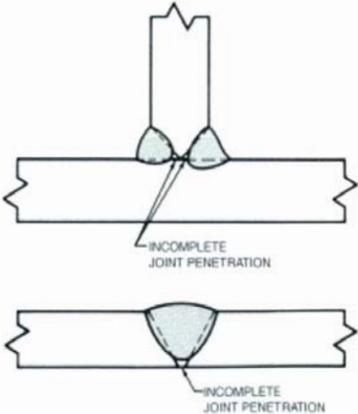
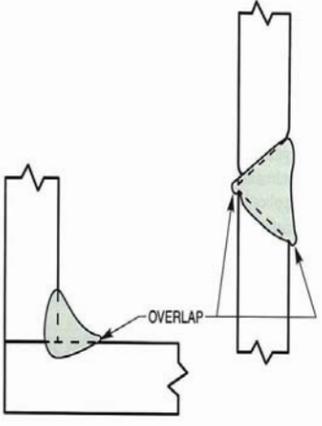
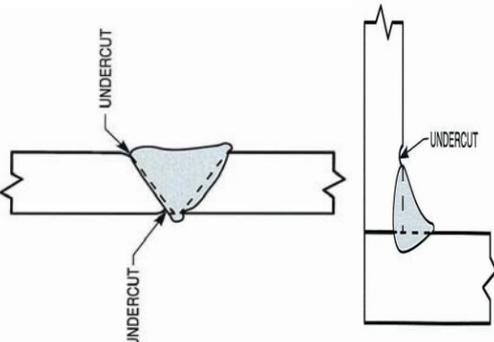
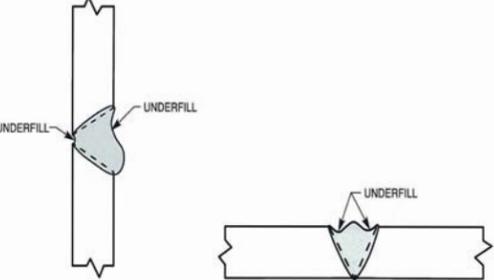
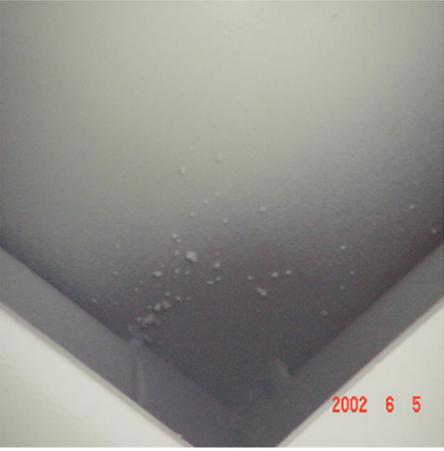
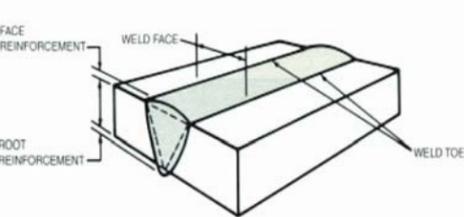


WELD INSPECTION CHECK LIST

Note: SQE must review the GE Acceptance Criteria for the part while filling out this Inspection Checklist

Defect Type	Defect Description/ Visual Appearance	Was this type of Defect Found during the Audit?	# of Defects Found or Total Defective Length of Weld in (in/mm)	Sketch/Photo	Typical Causes	NCO's
Cracks (Longitudinal or Transverse)	Cracks are defined as fracture-type discontinuities characterized by a sharp tip and high ratio of length and width displacement. They can occur in weld metal or heat affected zone (HAZ)			 <p style="text-align: center;">Figure 21—Longitudinal vs. Transverse Cracks</p>	Current Too High. Travel Speed too Low. Combination of high current and low travel speed	
Crater Cracks	Occur in the crater of the weld when welding is improperly terminated. Crater Cracks are found in the starts or stops of the weld metal				Improper Electrode manipulation. Improper parameter tapering at the weld stop	
Unconsumed Weld Wire	Weld Wire sticking out of the weld metal				poor workmanship	
Incomplete Fusion	Failure of the weld metal to fuse completely at some portion of the weld zone or adjacent base metal. This includes incomplete fusion of consumable inserts			 <p style="text-align: center;">Figure 29—Incomplete Fusion</p>	Improper weld joint preparation. Improper electrode manipulation. Current too low. Travel speed too high	
Incomplete Joint Penetration	A joint root condition in a groove weld in which weld metal does not extend through the joint thickness			 <p style="text-align: center;">Figure 10—Incomplete Joint Penetration</p>	Improper weld joint preparation. Improper electrode manipulation. Current too low. Voltage too high. Travel speed too high	
Irregular bead profile	Underfill, valleys, sharp notches at root face, undercuts and surface ripples			See Figure #1 below	Poor weld bead spacing. Poor wettability due to incorrect weld parameters, such as low voltage or high travel speed	

Overlap (Roll Over/Cold Roll)	The protrusion of weld metal beyond the weld toe or weld root			 <p>The diagram shows two vertical bars with a weld joint. The weld metal is shown as a protrusion that does not fuse to the base metal, labeled 'OVERLAP'.</p> <p>Figure 17—Overlap</p>	Travel speed too slow. Welding electrodes too large for the parameters or position	
Slag Inclusion	A discontinuity consisting of slag entrapped in weld metal or at the weld interface			 <p>The photograph shows a weld joint with a dark, irregular inclusion of slag trapped within the weld metal.</p> <p>Figure 30—Slag Inclusions</p>	Welds in joint too narrow a joint angle or initial joint gap. In multipass welds, improper bead spacing can result in a valley, between beads with too narrow a gap or side walls with too narrow a joint angle	
Surface Porosity	Gas bubbles frozen in the solidified weld metal			 <p>The photograph shows a weld surface with numerous small, dark, circular pits, which are gas bubbles that have become trapped in the solidified metal.</p> <p>Figure 1—Scattered Porosity</p>	Typically caused by contamination on the base metal or filler metal. Too high a weld travel speed, loss of shielding, arc length too long	
Undercut	Is a groove melted into the base metal adjacent to the weld toe or weld root and left unfilled by weld metals			 <p>The diagram shows two views of a weld joint. In both, a groove has formed in the base metal adjacent to the weld toe, labeled 'UNDERCUT'.</p>	Current too high. Voltage too high. Travel speed too high. Combination of these variables	
Underfill	Is a condition in which the weld face or root surface of a groove weld extends below the adjacent surface of the base metal			 <p>The diagram shows two views of a weld joint. In both, the weld metal has not filled the groove, leaving a recessed area labeled 'UNDERFILL'.</p> <p>Figure 15—Underfill</p>	Travel speed to high. Poor electrode manipulation. Current too low	
Spatter	Globular drops of weld metal that are deposited on the weld or base material during welding, which do not form part of the weld			 <p>The photograph shows a dark, irregular deposit of weld metal on a surface, with a date stamp '2002 6 5' in the bottom right corner.</p>	Arc Blow. Incorrect parameters such as current too high, voltage to high or both.	
Excessive weld Reinforcement	In groove welds, weld reinforcement is weld metal in excess of the quantity required to fill a joint			 <p>The diagram shows a 3D view of a weld joint with labels: 'FACE REINFORCEMENT', 'WELD FACE', 'ROOT REINFORCEMENT', and 'WELD TOE'.</p> <p>Figure 31—Weld Reinforcement</p>	Welder applied more weld metal than what was required	

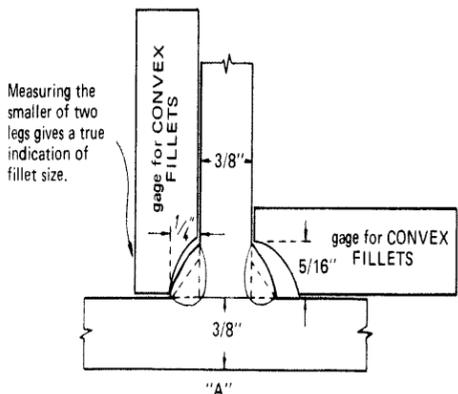
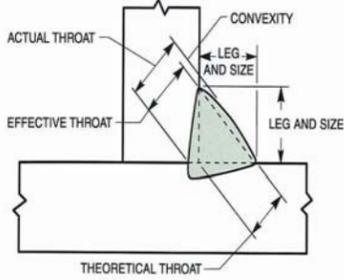
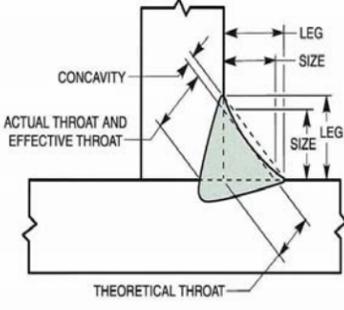
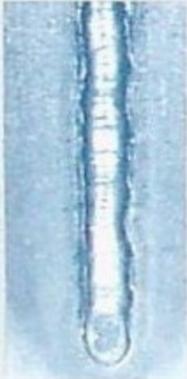
Fillet Weld Leg is Undersized	Weld leg is not the correct height or width, not in compliance with drawing, or weld legs are unequal		 <p>Measuring the smaller of two legs gives a true indication of fillet size.</p>	Welder did not apply enough weld metal per the requirement	
Fillet Welds too Convex	Weld is convex in nature has overfill or excessive weld appearance		 <p>Figure 32—Convex Fillet Weld</p>	Welder applied more weld metal than what was required	
Fillet Welds too Concave	Weld is concave in nature has sunken in or underfill weld appearance		 <p>Figure 34—Concave Fillet Weld</p>	Welder did not apply enough weld metal per the requirement	
Total Number of Defects		0	SQE NAME: _____ DATE: _____		
SUPPLIER NAME: _____		GE PO #: _____ UNIT # _____		MLI #: _____	

Figure #1

EXAMPLES OF GOOD AND BAD BEADS

					
<i>Welding Current Too Low</i>	<i>Welding Current Too High</i>	<i>Arc Too Long (Voltage Too High)</i>	<i>Welding Speed Too Fast</i>	<i>Welding Speed Too Slow</i>	<i>Proper Current Voltage & Speed</i>
					
Overlapping bead has poor penetration.	Excessive spatter to be cleaned off.	Bead very irregular with poor penetration.	Bead too small, with contour irregular.	Excessive piling up of weld metal.	A smooth, regular, well formed bead.
Excessive piling up of weld metal.	Undercutting along edges weakens joint.	Weld metal not properly shielded.	Not enough weld metal in the cross section.	Overlapped without penetration at edges.	No undercutting, overlapping or piling up.
Slow up progress.	Irregular deposit.	An inefficient weld.	Weld not strong enough.	Too much time consumed.	Uniform in cross section.
Wasted electrodes and productive time.	Wasted electrodes and productive time.	Excellent weld at minimum material and labor cost.			