<table>
<thead>
<tr>
<th>Defect Type</th>
<th>Defect Description/ Visual Appearance</th>
<th>Was this type of Defect Found during the Audit?</th>
<th># of Defects Found or Total Defective Length of Weld in (in/mm)</th>
<th>Sketch/Photo</th>
<th>Typical Causes</th>
<th>NCO’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cracks (Longitudinal or Transverse)</td>
<td>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)</td>
<td></td>
<td></td>
<td><img src="image1.jpg" alt="Sketch" /></td>
<td>Current Too High. Travel Speed too Low. Combination of high current and low travel speed</td>
<td></td>
</tr>
<tr>
<td>Crater Cracks</td>
<td>Occur in the crater of the weld when welding in improperly terminated. Crater Cracks are found in the starts or stops of the weld metal</td>
<td></td>
<td></td>
<td><img src="image2.jpg" alt="Sketch" /></td>
<td>Improper Electrode manipulation. Improper parameter tapering at the weld stop</td>
<td></td>
</tr>
<tr>
<td>Unconsumed Weld Wire</td>
<td>Weld Wire sticking out of the weld metal</td>
<td></td>
<td></td>
<td><img src="image3.jpg" alt="Sketch" /></td>
<td>Poor workmanship</td>
<td></td>
</tr>
<tr>
<td>Incomplete Fusion</td>
<td>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</td>
<td></td>
<td></td>
<td><img src="image4.jpg" alt="Sketch" /></td>
<td>Improper weld joint preparation. Improper electrode manipulation. Current too low. Travel speed too high</td>
<td></td>
</tr>
<tr>
<td>Incomplete Joint Penetration</td>
<td>A joint root condition in a groove weld in which weld metal does not extend through the joint thickness</td>
<td></td>
<td></td>
<td><img src="image5.jpg" alt="Sketch" /></td>
<td>Improper weld joint preparation. Improper electrode manipulation. Current too low. Voltage too high. Travel speed too high</td>
<td></td>
</tr>
<tr>
<td>Irregular bead profile</td>
<td>Underfill, valleys, sharp notches at root face, undercuts and surface ripples</td>
<td></td>
<td></td>
<td><img src="image6.jpg" alt="Sketch" /></td>
<td>Poor weld bead spacing. Poor wettability due to incorrect weld parameters, such as low voltage or high travel speed</td>
<td></td>
</tr>
</tbody>
</table>

Note: SQE must review the GE Acceptance Criteria for the part while filling out this Inspection Checklist.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
<th>Travel speed too high. Voltage too high. Travel speed too high. Combination of these variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overlap (Roll Over/Cold Roll)</td>
<td>The protrusion of weld metal beyond the weld toe or weld root</td>
<td>Welds in joint too narrow a joint angle or initial joint gap. Improper bead spacing can result in a valley, between beads with too narrow a gap or side walls with too narrow a joint angle.</td>
</tr>
<tr>
<td>Slag Inclusion</td>
<td>A discontinuity consisting of slag entrapped in weld metal or at the weld interface</td>
<td>Typically caused by contamination on the base metal or filler metal. Too high a weld travel speed, loss of shielding, arc length too long.</td>
</tr>
<tr>
<td>Surface Porosity</td>
<td>Gas bubbles frozen in the solidified weld metal</td>
<td>Wears in joint too narrow a joint angle or initial joint gap. Improper bead spacing can result in a valley, between beads with too narrow a gap or side walls with too narrow a joint angle.</td>
</tr>
<tr>
<td>Undercut</td>
<td>Is a groove melted into the base metal adjacent to the weld toe or weld root and left unfilled by weld metals</td>
<td>Current too high, voltage too high. Travel speed too high. Combination of these variables.</td>
</tr>
<tr>
<td>Underfill</td>
<td>Is a condition in which the weld face or root surface of a groove weld extends below the adjacent surface of the base metal</td>
<td>Travel speed too high. Poor electrode manipulation. Current too low.</td>
</tr>
<tr>
<td>Spatter</td>
<td>Globular drops of weld metal that are deposited on the weld or base material during welding, which do not form part of the weld</td>
<td>Arc Blow. Incorrect parameters such as current too high, voltage to high or both.</td>
</tr>
<tr>
<td>Excessive weld Reinforcement</td>
<td>In groove welds, weld reinforcement is weld metal in excess of the quantity required to fill a joint</td>
<td>Welder applied more weld metal then what was required.</td>
</tr>
</tbody>
</table>
### Fillet Weld Leg
- **Undersized**: Weld leg is not the correct height or width, not in compliance with drawing, or weld legs are unequal.
- **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.
- **Welder applied more weld metal then what was required**.

### Fillet Welds too Concave
- Weld is concave in nature has sunken in or underfill weld appearance.
- **Welder did not apply enough weld metal per the requirement**.

### Total Number of Defects
- SQE NAME: _________________________________ DATE:__________
- SUPPLIER NAME: _______________________________
- GE PO #: _____________ UNIT #:_____ MLI #:_____

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**Figure 1**

**EXAMPLES OF GOOD AND BAD BEADS**

- **Welding Current Too Low**
- **Welding Current Too High**
- **Arc Too Long (Voltage Too High)**
- **Welding Speed Too Fast**
- **Welding Speed Too Slow**
- **Proper Current Voltage & Speed**

- Overlapping bead has poor penetration.
- Excessive pilling up of weld metal.
- Slow up progress.
- Wasted electrodes and productive time.
- Excessive spatter to be cleaned off.
- Undercutting along edges weakens joint.
- Irregular deposit.
- Wasted electrodes and productive time.

- Bead very irregular with poor penetration.
- Weld metal not properly shielded.
- An insufficient weld.
- Wasted electrodes and productive time.
- Bead too small, with contour irregular.
- Not enough weld metal in the cross section.
- Weld not strong enough.
- Wasted electrodes and productive time.

- Excessive pilling up of weld metal.
- Overlapped without penetration at edges.
- Too much time consumed.
- Wasted electrodes and productive time.
- A smooth, regular, well formed bead.
- No undercutting, overlapping or piling up.
- Uniform in cross section.
- Excellent weld at minimum material and labor cost.