applying load on the plunger until the curvature of the specimen is such that a 1/8 in. (3 mm) diameter wire cannot be inserted between the specimen and the die of Figure QW-466.1, or the specimen is bottom ejected if the roller type of jig (Figure QW-466.2) is used.

When using the wrap around jig (Figure QW-466.3), the side of the specimen turned toward the roller shall be the face for face-bend specimens, the root for root-bend specimens, and the side with the greater discontinuities, if any, for side-bend specimens.

When specimens wider than 1 1/2 in. (38 mm) are to be bent as permitted in Figure QW-462.2, the test jig mandrel must be at least 1/4 in. (6 mm) wider than the specimen width.

QW-163 ACCEPTANCE CRITERIA — BEND TESTS

The weld and heat-affected zone of a transverse weld-bend specimen shall be completely within the bent portion of the specimen after testing.

The guided-bend specimens shall have no open discontinuity in the weld or heat-affected zone exceeding 1/8 in. (3 mm), measured in any direction on the convex surface of the specimen after bending. Open discontinuities occurring on the corners of the specimen during testing shall not be considered unless there is definite evidence that they result from lack of fusion, slag inclusions, or other internal discontinuities. For corrosion-resistant weld overlay cladding, no open discontinuity exceeding 1/16 in. (1.5 mm), measured in any direction, shall be permitted in the cladding, and no open discontinuity exceeding 1/8 in. (3 mm) shall be permitted along the approximate weld interface.

QW-170 NOTCH-TOUGHNESS TESTS

QW-171 NOTCH-TOUGHNESS TESTS — CHARPY V-NOTCH

QW-171.1 General. Charpy V-notch impact tests shall be made when required by other Sections.

Test procedures and apparatus shall conform to the requirements of SA-370.

QW-171.2 Acceptance. The acceptance criteria shall be in accordance with that Section specifying impact requirements.

QW-171.3 Location and Orientation of Test Specimen. The impact test specimen and notch location and orientation shall be as given in the Section requiring such tests.

When qualifying pipe in the 5G or 6G position, the notch-toughness specimens shall be removed from the shaded portion of Figure QW-463.1(f).

QW-172 NOTCH-TOUGHNESS TESTS — DROP WEIGHT

QW-172.1 General. Drop weight tests shall be made when required by other Sections.

Test procedures and apparatus shall conform to the requirements of ASTM Specification E208.

QW-172.2 Acceptance. The acceptance criteria shall be in accordance with that Section requiring drop weight tests.

QW-172.3 Location and Orientation of Test Specimen. The drop weight test specimen, the crack starter location, and the orientation shall be as given in the Section requiring such tests.

When qualifying pipe in the 5G or 6G position, the notch-toughness specimens shall be removed from the shaded portion of Figure QW-463.1(f).

QW-180 FILLET-WELD TESTS

QW-181 PROCEDURE AND PERFORMANCE QUALIFICATION SPECIMENS

QW-181.1 Procedure. The dimensions and preparation of the fillet-weld test coupon for procedure qualification as required in QW-202 shall conform to the requirements in Figure QW-462.4(a) or Figure QW-462.4(d). The test coupon for plate-to-plate shall be cut transversely to provide five test specimen sections, each approximately 2 in. (50 mm) long. For pipe-to-plate or pipe-to-pipe, the test coupon shall be cut transversely to provide four approximately equal test specimen sections. The test specimens shall be macro-examined to the requirements of QW-183.

QW-181.1.1 Production Assembly Mockups . Production assembly mockups may be used in lieu of QW-181.1. The mockups for plate-to-shape shall be cut transversely to provide five approximately equal test specimens not to exceed approximately 2 in. (50 mm) in length. For pipe-to-shape mockups, the mockup shall be cut transversely to provide four approximately equal test specimens. For small mockups, multiple mockups may be required to obtain the required number of test specimens. The test specimens shall be macro-examined to the requirements of QW-183.

QW-181.2 Performance. The dimensions and the preparation of the fillet-weld test coupon for performance qualification shall conform to the requirements in Figure QW-462.4(b) or Figure QW-462.4(c). The test coupon for plate-to-plate shall be cut transversely to provide a center section approximately 4 in. (100 mm) long and two end sections, each approximately 1 in. (25 mm) long. For pipe-to-plate or pipe-to-pipe, the test coupon shall be cut to provide two quarter sections test specimens opposite to each other. One of the test specimens shall be fracture tested in accordance with QW-182 and the other macro-examined to the requirements of QW-184. When