

	SURFACE VEHICLE RECOMMENDED PRACTICE	
	SAE	J2608 MAY2012
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Superseding J2608 SEP2003		
Off Throttle Steering Capabilities of Personal Watercraft		

RATIONALE

J2608 has been reaffirmed to comply with the SAE five-year review policy.

1. **Scope**—This SAE Recommended Practice defines the test conditions, procedures and performance requirements for evaluating the off throttle steering capabilities of personal watercraft. This document covers both single and multiple rider craft commencing in 2006 model year. No provision of this section shall apply to PWC intended to be operated by a single operator who either stands or kneels in a tray located behind a moveable handlepole.
2. **References**—There are no referenced publications specified herein.
3. **Definitions**
 - 3.1 **Advance**—Distance along an extension of a previous straight line course measured from the completion of steer input.
 - 3.2 **Apex Marker**—The Test Triangle marker closest to the turn markers.
 - 3.3 **Entrance Chute**—Area of the test course between the Gate Markers and the Turn Markers.
 - 3.4 **Gate Markers**—The markers at the beginning of the entrance chute.
 - 3.5 **Off Throttle Condition**—Condition where the throttle lever is completely released by the operator.
 - 3.6 **Off Throttle Steering System**—Any means provided with the personal watercraft which allows maneuvering of the craft in an off throttle condition.
 - 3.7 **Personal Watercraft**—A craft less than 4 m (13 ft) in length, which uses an internal combustion engine powering a water jet pump as its primary source of propulsion, and is designed to be operated by a person or persons sitting, standing or kneeling on the craft rather than in the confines of the hull.
 - 3.8 **Test Triangle**—The area, outlined by markers that the craft shall not enter during the test. The base of the triangle is 26 ft and the height, from base to apex marker is 30 ft.
 - 3.9 **Transfer**—Perpendicular distance from an extension of a previously straight line course.
 - 3.10 **Turn Markers**—The markers at the end of the entrance chute.

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4. Test Requirements

4.1 Test Equipment

- 4.1.1 SPEED MEASURING EQUIPMENT—Capable of displaying miles per hour (mph) with an accuracy of ± 1 mph.
- 4.1.2 ANEMOMETERS—Capable of measuring wind speed in mph with an accuracy of ± 2 mph.
- 4.1.3 Position measuring equipment capable of measuring the position and course of the craft within ± 12 in with a data sampling rate of not less than 10 samples per second.
- 4.1.4 Throttle lever release indicator capable of indicating the instant of release within ± 12 in of the craft's forward motion.
- 4.1.5 Steering control turn indicator capable of indicating the end of steering input within ± 12 in of the craft's forward motion.

4.2 Test Course (Remote Data Access)

- 4.2.1 The test course shall be arranged as shown in Figure 1. The test course is used as a reference point for the test operator to release the throttle and initiate the start of the turn. The actual course of the craft shall be determined based on measurements of the craft position at the point of throttle release, completion of steer input and completion of the test run.

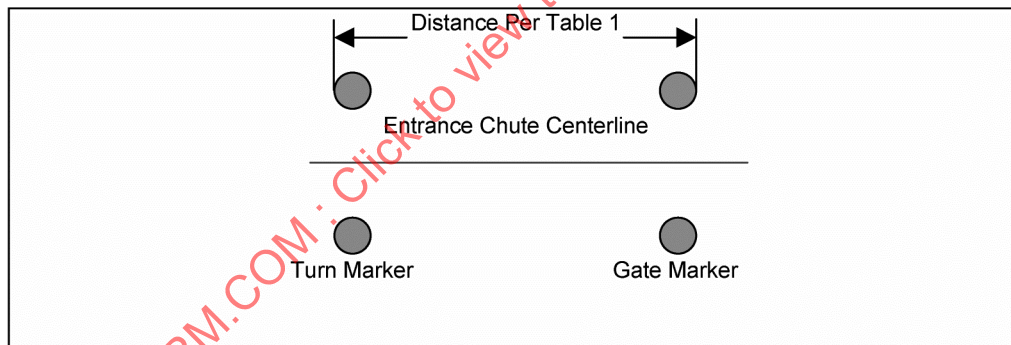


FIGURE 1—OVERHEAD VIEW OF ENTRANCE CHUTE

- 4.2.2 The distance between the gate marker and the turn marker shall be in accordance with Table 1, with a tolerance of ± 12 in. These distances are the equivalent of the distance traveled in $1/2$ s at the specified test speeds. If the test craft is unable to achieve the 50 mph test speed, it shall be tested at the highest achievable speed listed in Table 2. The width of the entrance chute shall be no greater than 24 in (± 0) wider than the widest portion of the PWC being tested.

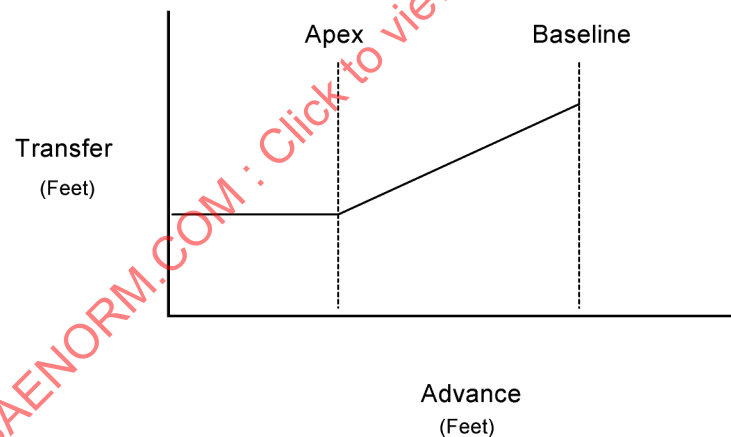
TABLE 1—LENGTH OF ENTRANCE CHUTE

Test Speed, mph	Distance Between Gate and Turn Markers
30	22 ft 0 in
35	25 ft 8 in
40	29 ft 4 in
45	33 ft 0 in
50	36 ft 8 in

TABLE 2—ADVANCE DISTANCE (ft)

Speed (mph)	Transfer (ft) 0	Transfer (ft) 3.25	Transfer (ft) 6.5	Transfer (ft) 9.75	Transfer (ft) 13.0
30	58	66	73	81	88
35	73	81	88	96	103
40	88	96	103	111	118
45	103	111	118	128	132
50	117	124	132	139	147

- 4.2.3 The advance and transfer distances from the point of the handlebar reaching the hard over full lock position shall be in accordance with Table 2. The results may be recorded in a manner similar to the illustration in Figure 2. These distances are the equivalent of the distance traveled at the specified test speeds. The craft shall be tested at 30 mph and the highest achievable speed listed in Table 2.

**FIGURE 2—SAMPLE ILLUSTRATION FOR RECORDING ADVANCE/TRANSFER DISTANCES**

4.2.4 Data shall be plotted as advance and transfer coordinates.

4.3 Test Craft—Manufacturer's original specification shall be used having a minimum of 1/2 tank of fuel and required safety equipment. The total payload, including operator, shall not exceed 250 lb.

5. Physical Test Course Layout

5.1 A test course layout as shown in Figure 3 may also be used for determining compliance. The course shall be constructed with a rigid frame or equivalent, located a minimum of 4 ft below the water surface, and securely anchored to reduce drifting of the course markers. The test triangle shall be positioned such that the apex marker is located on the centerline of the entrance chute and the base of the triangle is perpendicular to the centerline of the entrance chute.

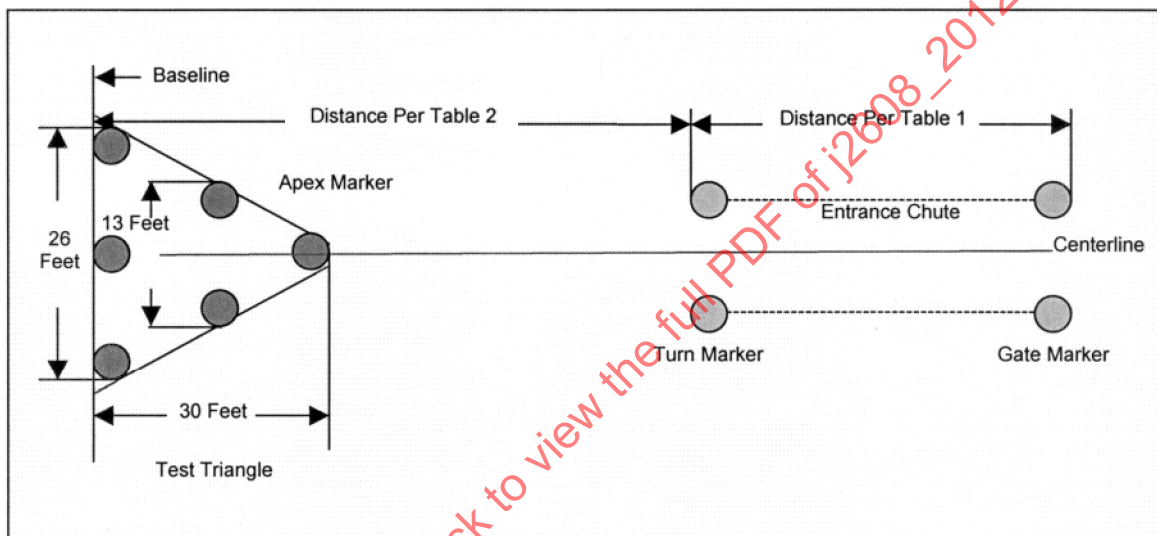


FIGURE 3—OVERHEAD VIEW OF PHYSICAL TEST COURSE LAYOUT

5.2 The layout of the test course entrance chute shall be identical to the entrance chute layout described in 4.2.

5.3 The distance between the turn markers and the base of the test triangle shall be in accordance with Table 2. These distances are the equivalent of the distance traveled at the specified test speeds. The test craft shall be tested at 30 mph and the highest achievable speed listed in Table 2.

6. Test Procedure

6.1 The tests shall be conducted in calm water and with the wind speed below 10 mph. Wind speed and average direction that the wind is blowing shall be documented along with test results. Water surface current shall not exceed 1 mph.

6.2 The operator shall set the throttle to achieve and maintain the desired target speed within ± 2 mph prior to the beginning of the test course.

6.3 The operator shall release the throttle at the gate marker. The position of the bow of the craft when the throttle is released shall be within ± 24 in of the entrance chute gate marker.