

BOAT DESIGN CONSIDERATIONS

FOR

TURBOJetTM

*From the makers of
Johnson® and Evinrude® Outboards*

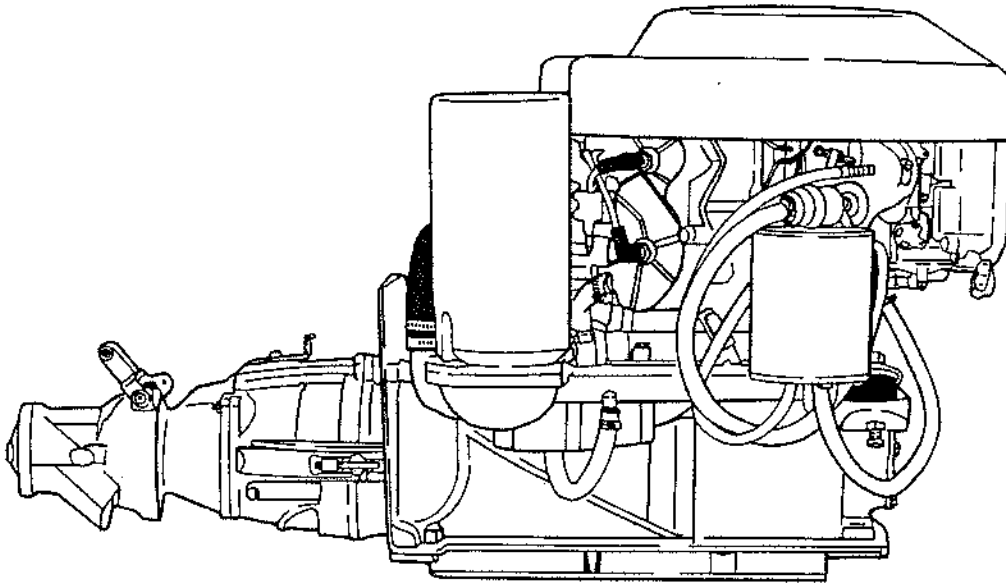
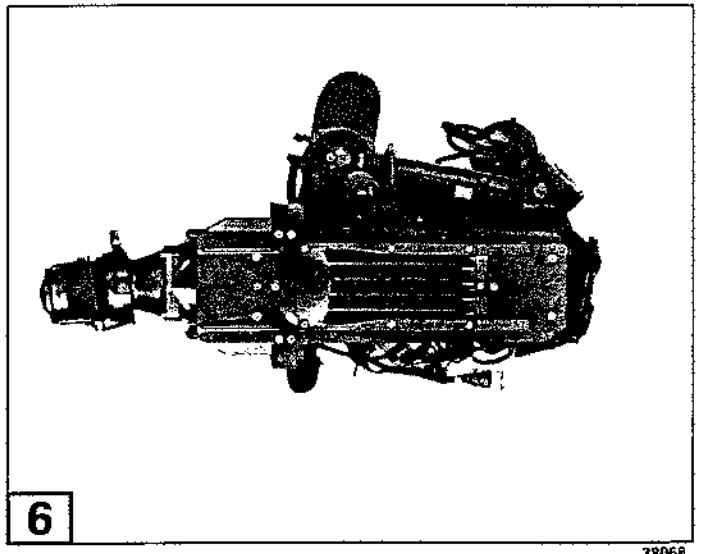
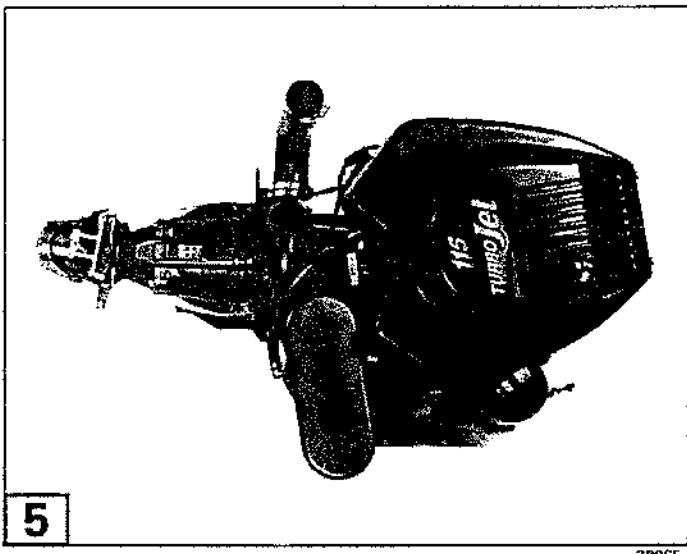
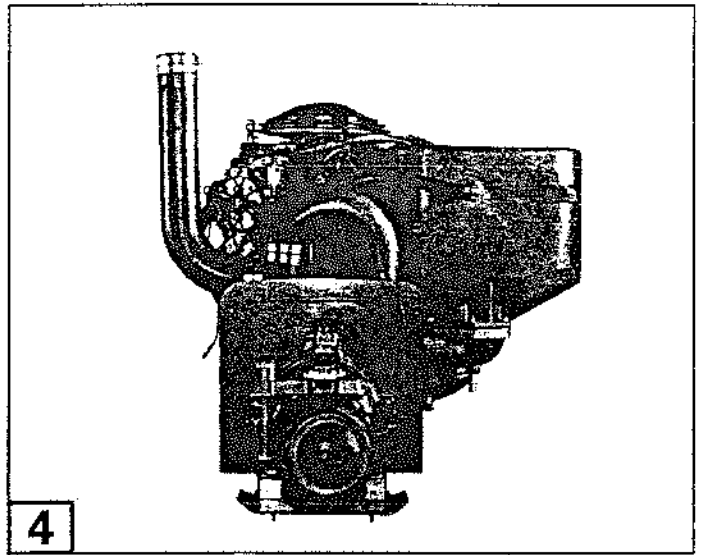
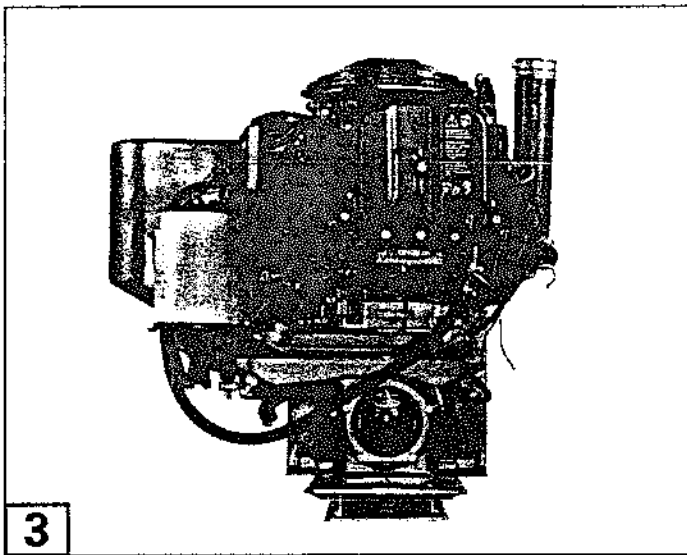
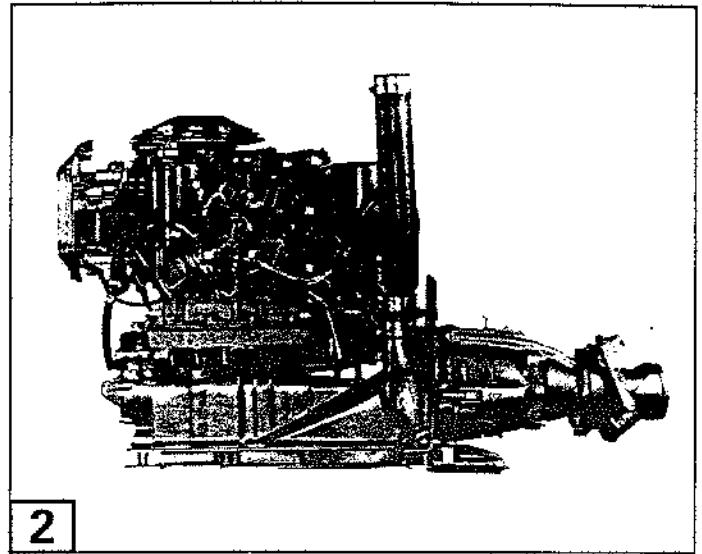
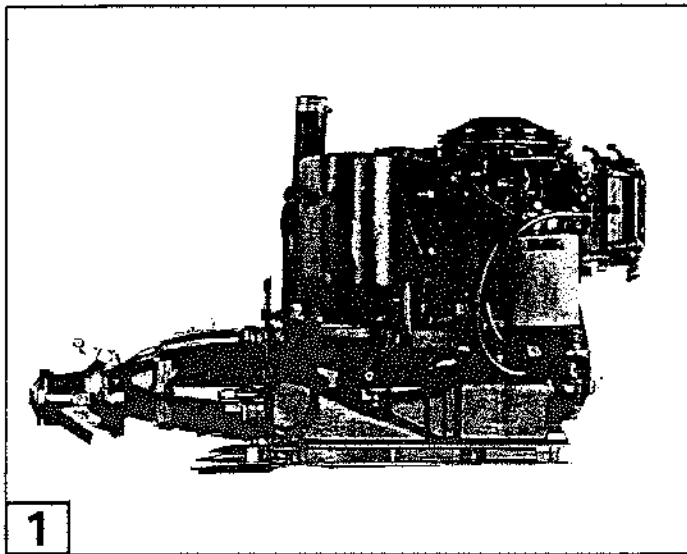


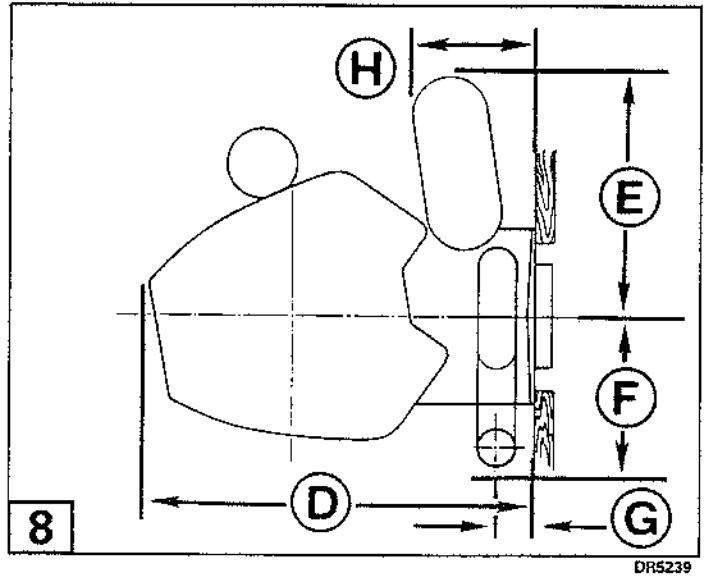
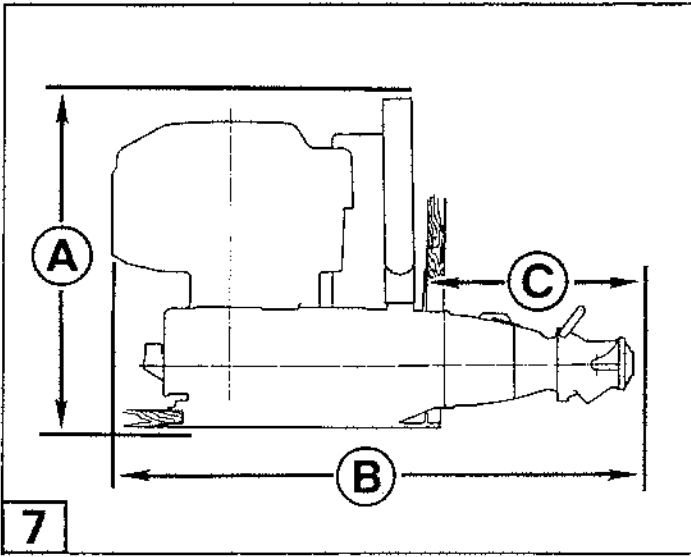
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Reference Pictures - **Note** Flywheel cover removed on figures 1 thru 4 to show detail

1 Starboard View **2** Port View **3** Front View **4** Rear View **5** Top View **6** Bottom View



7 Side view of engine and pump assembly

- (A) 28 $\frac{7}{8}$ in. (73 cm)
- (B) 46 $\frac{3}{8}$ in. (118 cm)
- (C) 18 in. (46 cm)

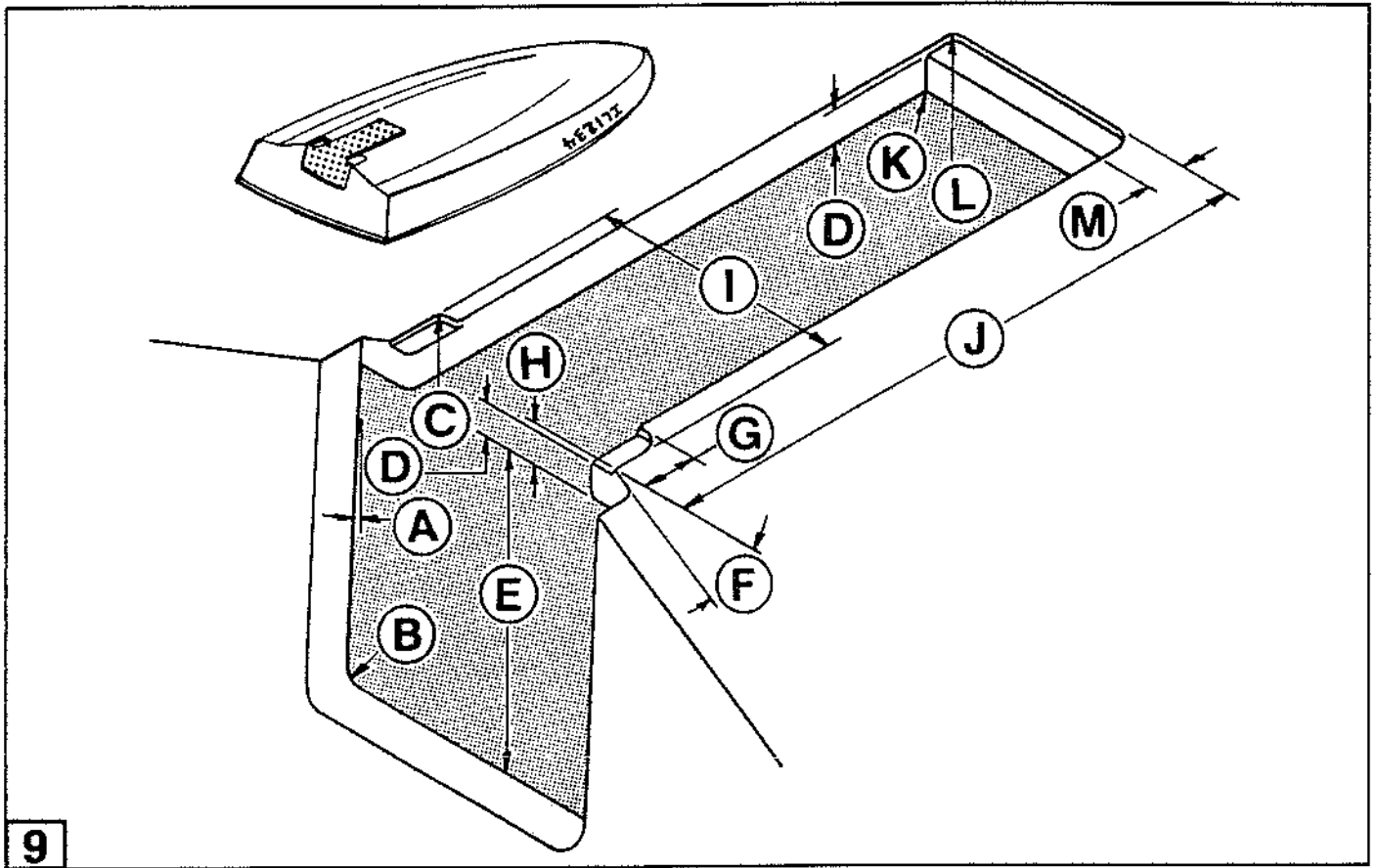
8 Top view of engine and pump assembly

- (D) 28 $\frac{3}{8}$ in. (72 cm)
- (E) 18 in. (46 cm)
- (F) 11 in. (28 cm)
- (G) 2 $\frac{1}{2}$ in. (6,4 cm)
- (H) 9 $\frac{1}{4}$ in. (23,5 cm)

Dimensions are for reference only.

Weight of engine and pump assembly

- 90 – 246 lbs. (112 kg)
- 115 – 250 lbs. (113 kg)



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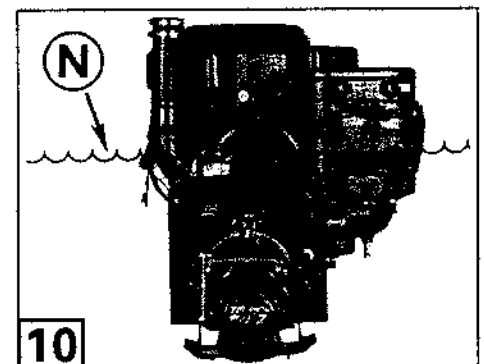
9 Hull OUTSIDE dimensions:

- | | |
|--|--|
| (A) 2° transom angle * | (H) 1½ in. ± ⅛ (3,8 cm ± 1,6 mm) |
| (B) 1 in. (2,5 cm) radius | (I) 9 in. + ⅛ - 0 (22,5 cm + 3,2 mm - 0) |
| (C) ½ in. (1,3 cm) radius | (J) 22⅝ in. ± ⅜ (57,2 cm ± 9,6 mm) |
| (D) 1¼ in. - ⅛ + 0 (3,2 cm - 2 mm + 0) * | (K) ¼ in. (6,35 mm) maximum radius |
| (E) 11½ in. ± ⅛ (29,2 cm ± 3,2 mm) | (L) ½ in. (1,3 cm) radius |
| (F) 23° maximum | (M) 1⅞ in. ± ⅛ (3,7 cm ± 1,6 mm) |
| (G) 2 in. + ⅛ - 0 (5 cm + 3,2 mm - 0) | |

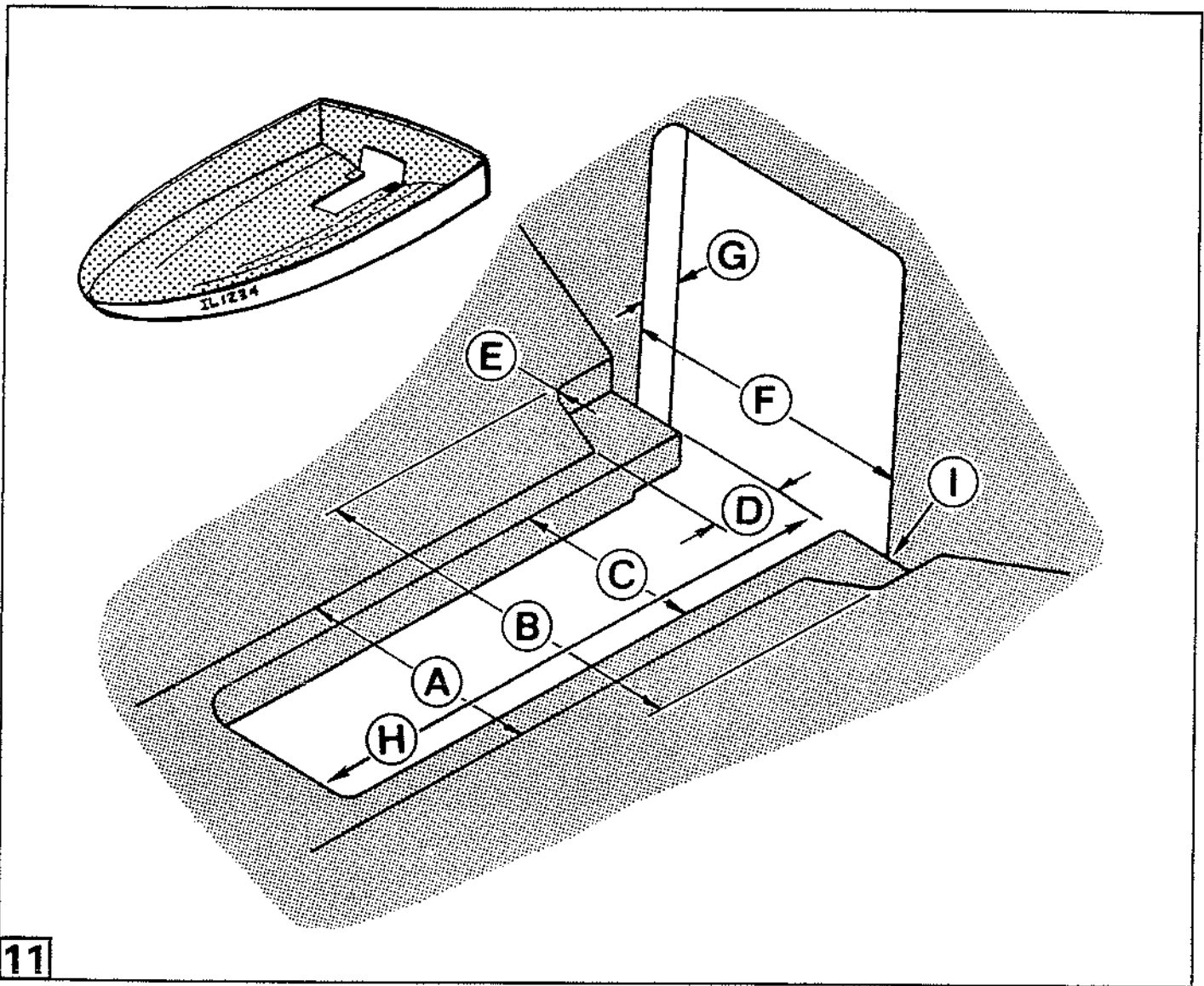
* Dimension is critical and **must** be maintained.

Static Waterline

10 The boat's static waterline must be determined. The static waterline **(N)** must be below the bend in the exhaust hose or water will enter the engine. If the static waterline is too high, the application is not appropriate.



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11 Hull INSIDE dimensions:

(A) 9½ in. (23,2 cm) minimum

(B) 13½ in. (33,3 cm) minimum

(C) 7 in. + ¼ - 0 (17,5 cm + 2,3 mm - 0)

(D) 2½ in. (6,7 cm) minimum

(E) ½ in. (1,3 cm) radius

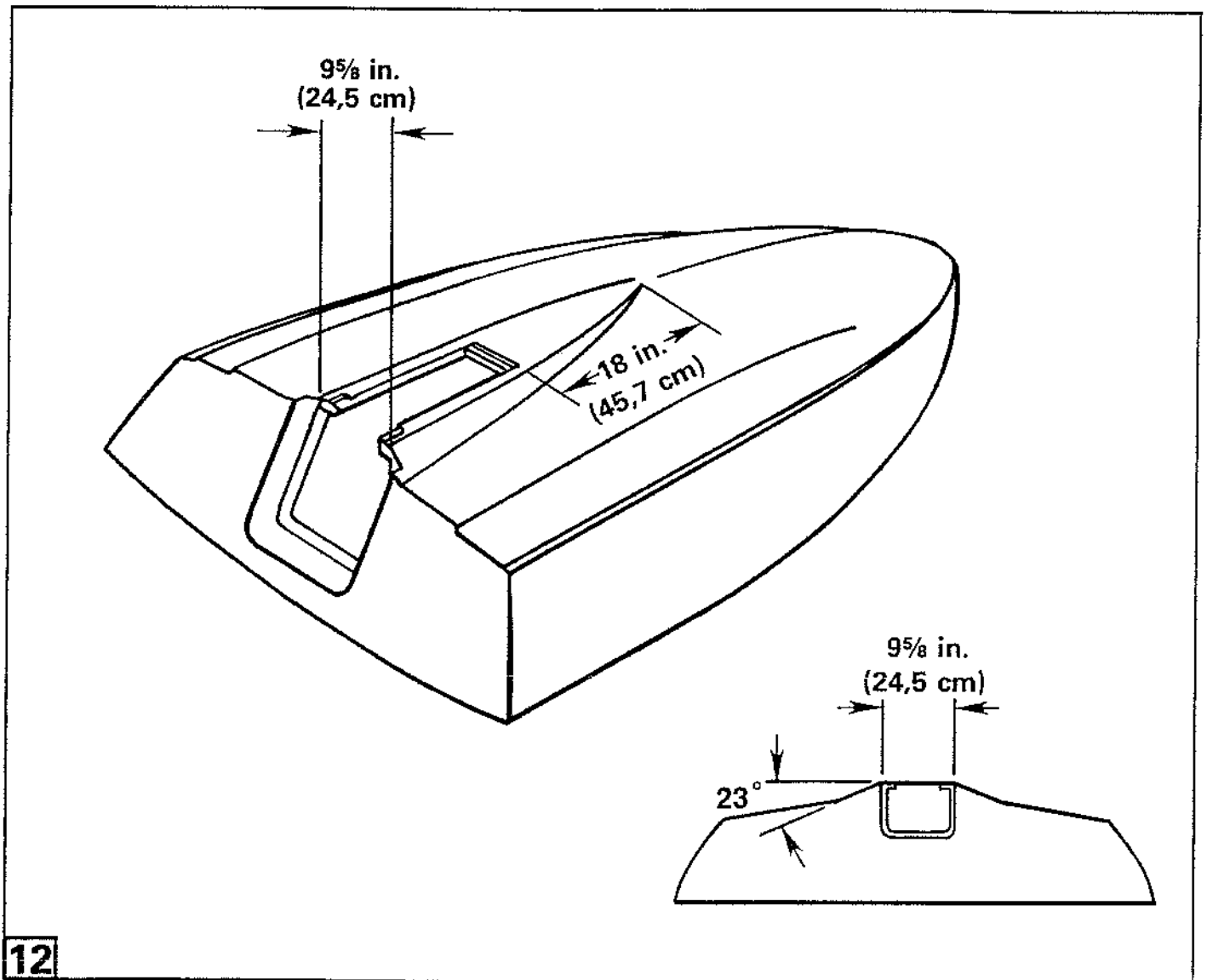
(F) 11 in. ± ¼ (27,5 cm ± 3,2 mm)

(G) 1½ in. (3,7 cm) maximum

(H) 21⅞ in. (53,7 cm) maximum

(I) ½ in. (1,3) radius

(Between boat bottom and transom)



12

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General Specifications

- Boat Length – 12 to 17 ft. (3,6-5,2 m)
- Boat Width – 60 to 70 in. (1,5-1,8 m)
- Weight W/O Jet Unit – 600 to 1500 lbs. (272-680 kg)
- Dead Rise Angle – 10° to 23°
- Pad Width – 9 5/8 in. (24,5 cm)
- Weight Distribution – 40% fore/60% aft

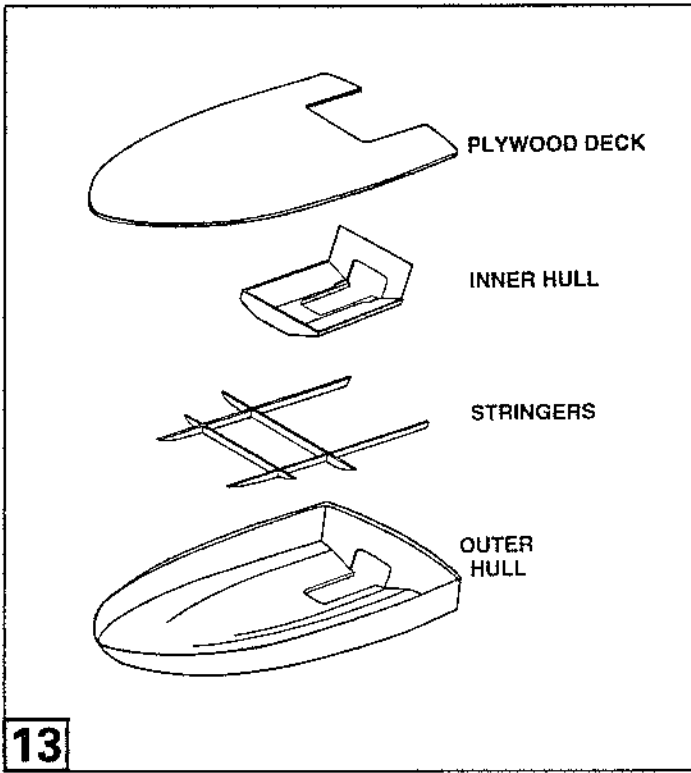
12 Jet drives being flush mounted contribute little to handling and stability. This has to be accomplished in the hull design.

The hull must include stabilizing contours and pivoting characteristics to hold keel position while the transom is being loaded with side thrust.

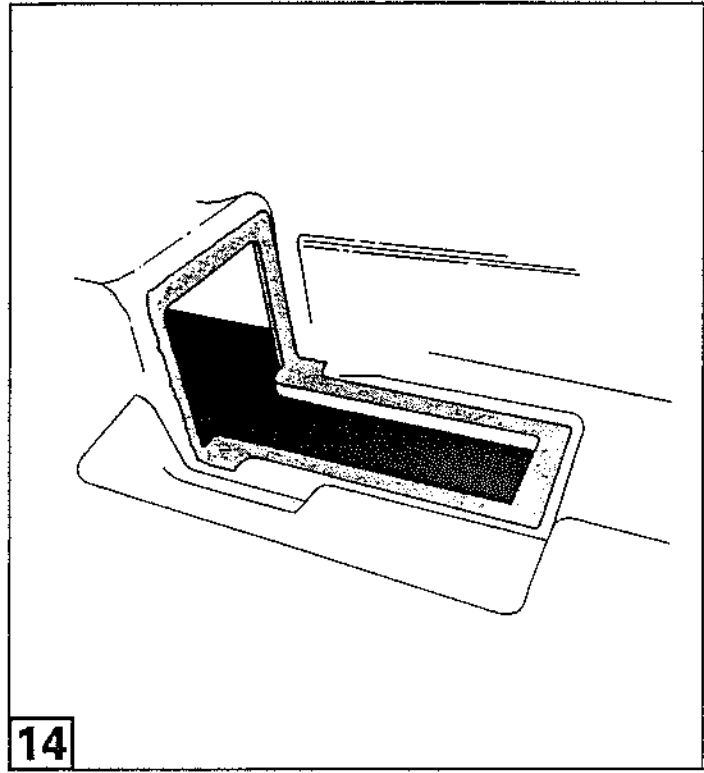
Bow lift does not occur when the thrust axis is above the bottom of the boat. Therefore, avoid "rocker" contours as "porpoising" could result.

Ensuring that water is fed to the intake is most important in the hull design. A flat pad is required for the water inlet. Extending this pad at least 18 in. (45,7 cm) forward and blending it into the hull works well.

Note Flat or nearly flat bottom boats with a moderate to high roll tendency will expose the inlet while turning, resulting in engine overspeed and momentary loss of thrust.



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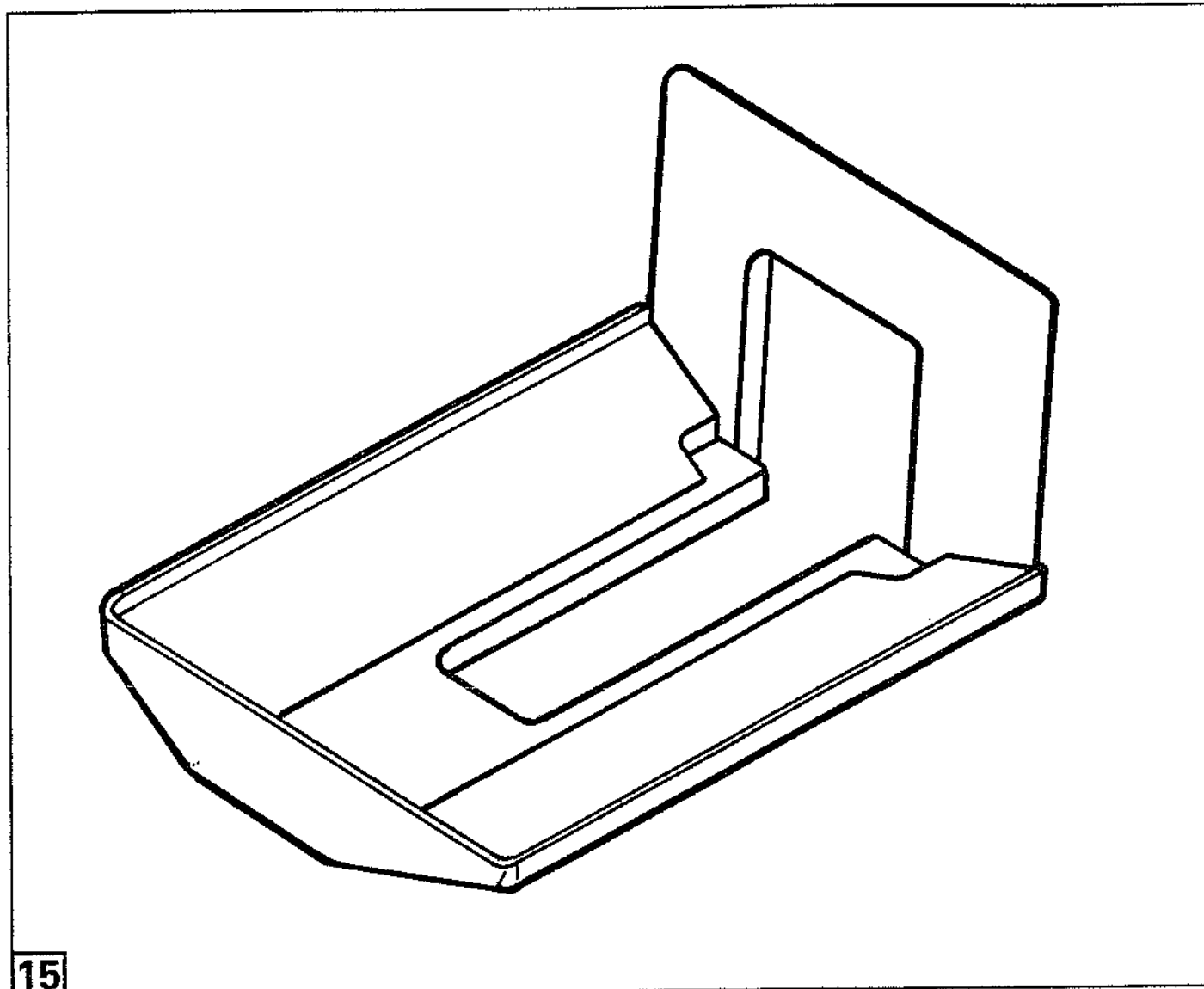


DR5621

There are two approved methods for hull construction.

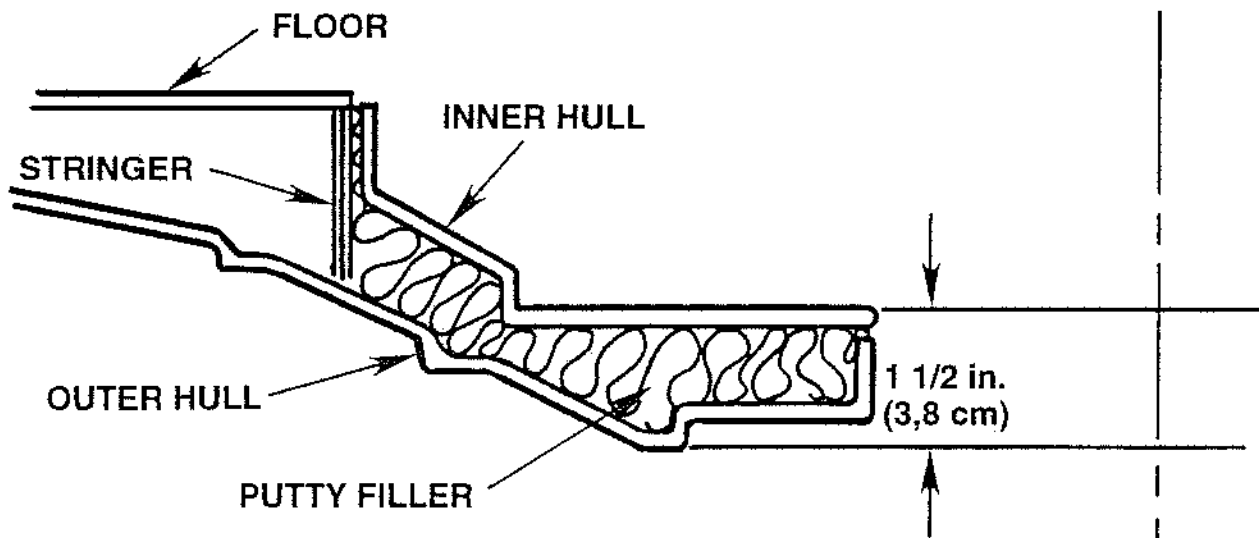
13 Inner Hull - This method consists of a deck, inner hull, stringers, and outer hull.

14 Molded Hull - This method allows the inside mounting shape to be molded at the same time the hull is molded. The tooling for this building method is available from OMC.



DR5318

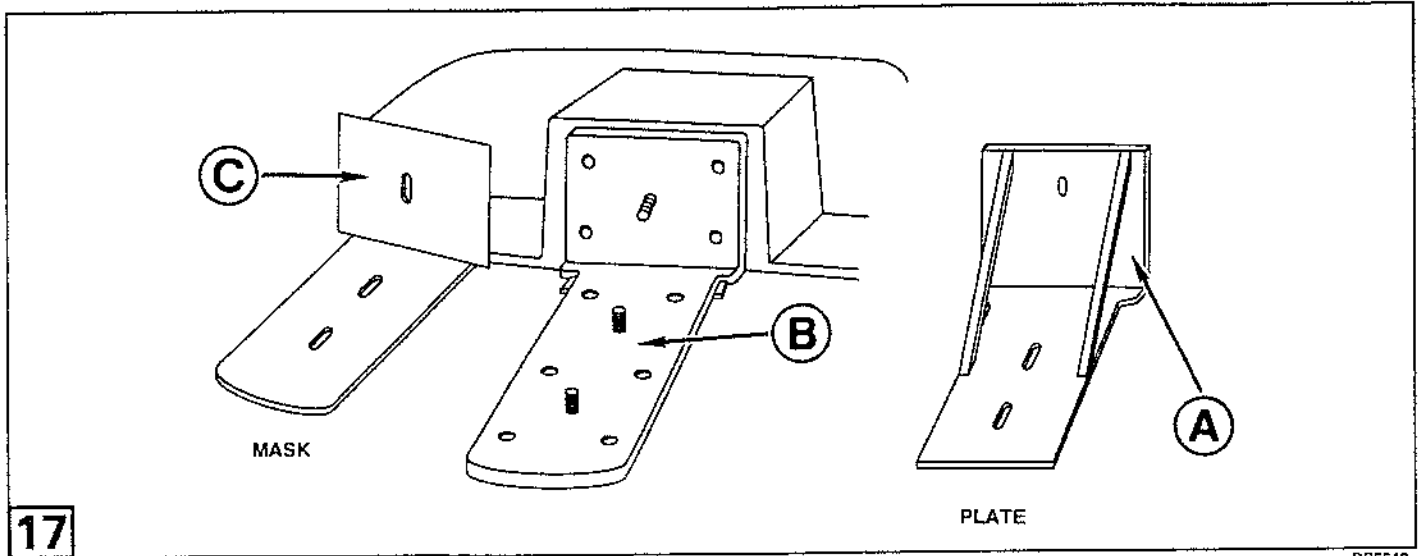
15 When designing the hull, consider using an inner hull molding to ensure proper hull thickness and sealing surfaces for the *TurboJet* engine.



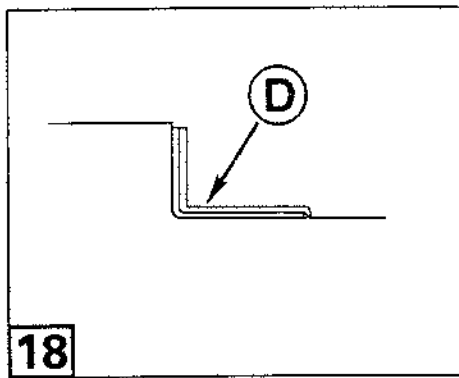
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16 This cross section shows a typical inner hull design detail. The required thickness is 1 1/2 in. \pm 1/16 in. (3,8 cm \pm 1,6 mm). This dimension **must** be maintained.



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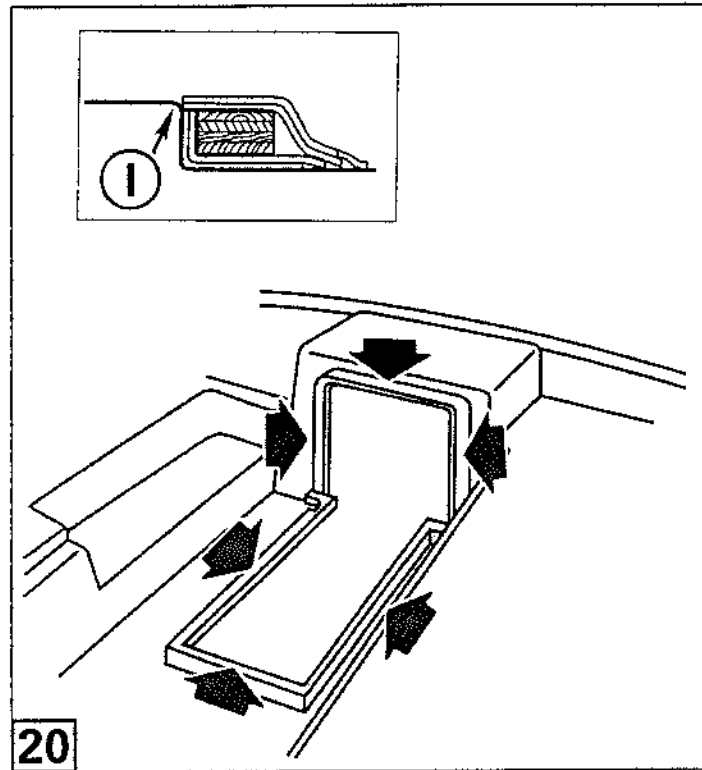
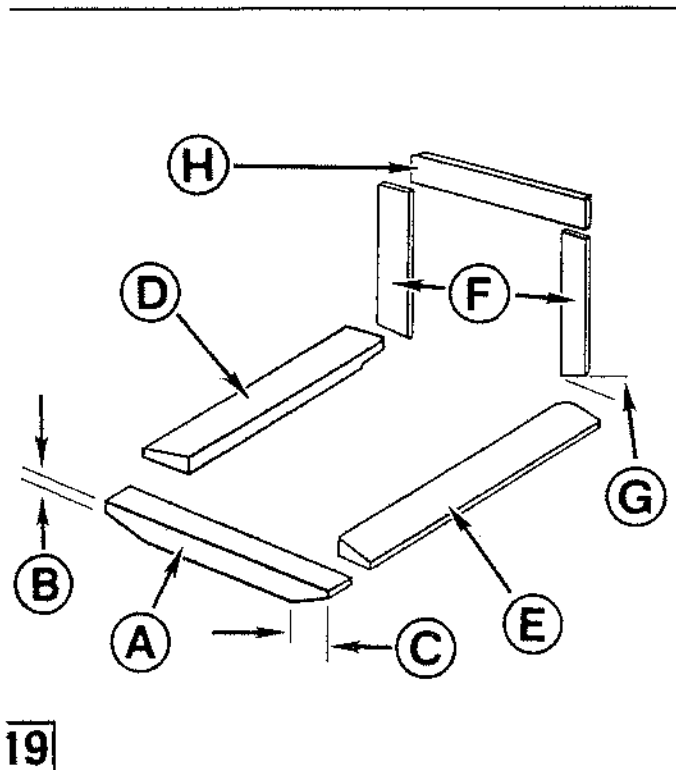


DR5647

17 The following is a procedure to mold the pump opening and mounting area into the hull. This procedure requires the use of Mounting Plate (A), Mold Plug (B), and Gauge Kit (not shown). All items are components of OMC P/N 507083. The Mold Plug (B) must be secured to the boat mold, and Gauge Kit used to ensure proper thickness.

- 17** 1. Mask off or install a thin metal plate (C) over pump hole and secure with hold down nuts.
2. Gel hull.
3. Remove mask or plate while gel is still wet.
4. Cure
5. Skin motor hole area with 1½ oz. mat. Skin only to where gel ends.
6. Chop and skin hull. Chop up to, but not over, mat from previous step.
7. Bulk hull and cure.

18 8. Install two layers of 3 oz. mat (D) to all sides around pump hole to upper radius.



19 DR5648

20 DR5650

19 9. Prepare the following wood pieces (all outside edges routed) for mounting area:

- (A) 2 x 13 x 7/8 in. (5 x 33 x 2,3 cm) Ply.
- (B) 1/4 in. (0,6 cm)
- (C) 2 in. (5 cm) Typ.
- (D) 2 3/4 x 21 1/4 x 1 1/8 in. (7 x 54 x 2,8 cm) Ply.
- (E) Is exactly opposite of (D)
- (F) 1 1/2 x 13 5/8 x 3/8 (3,8 x 34,6 x 0,9 cm) Ply. (2 pieces)
- (G) 11 1/2°
- (H) 1 1/2 x 11 3/8 x 3/8 (3,8 x 28,9 x 0,9 cm) Ply.

20 10. Place two layers of 3 oz. mat over all wood. **DO NOT** lay past radius (I).

17 11. With laminates from the above steps still wet, install Mounting Plate. First, tighten nut at rear to draw the plate against transom. Next, tighten all nuts securely.

2. Cure, remove Mounting Plate, and trim excess.