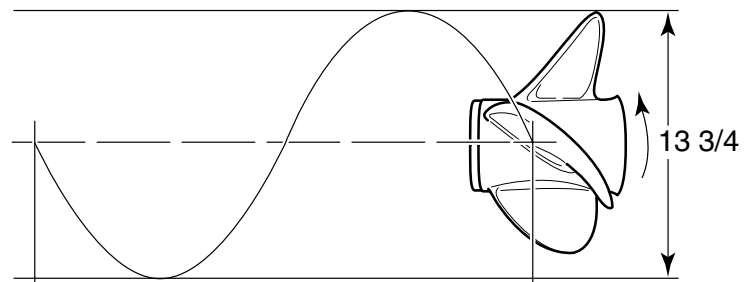


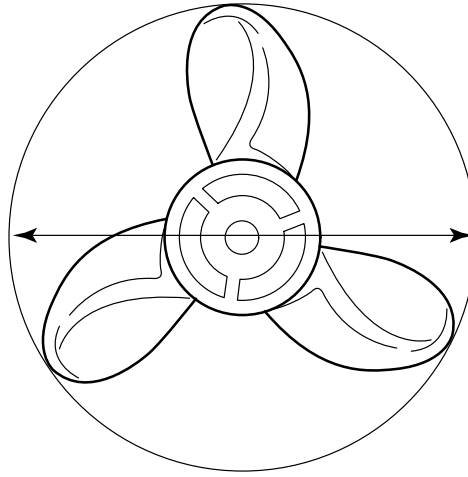
# PROPELLER BASICS



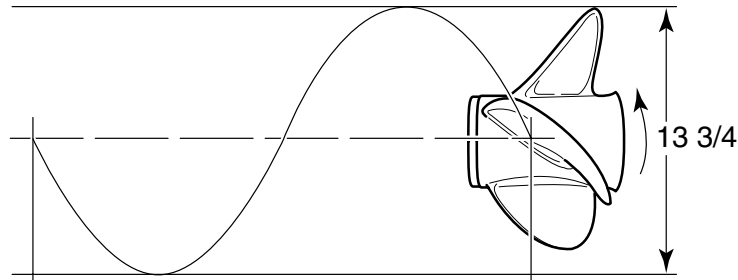
# General Definitions

## General Definitions

**Diameter** – the distance across the imaginary circle made when the propeller rotates.



**Pitch** – the theoretical distance, in inches, that a propeller travels forward during one revolution. Think of pitch as speed. The higher the the propeller pitch that the engine can turn, the faster the boat will usually go. You only need to choose the correct pitch propeller for the boat and engine. The correct diameter for that propeller has been predetermined by the engineers at Mercury.



### **⚠ CAUTION**

Operating the engine outside of the recommended RPM range can cause severe damage to you customer's engine and may void the engine warranty. Always test the boat on the water after you install a new propeller.

## Determining the Correct Pitch

Consult the engine owner's manual to find the recommended wide-open-throttle (WOT) range for your customer's engine. If his current propeller is giving him a WOT RPM within the specified RPM range, select a replacement or upgrade propeller with the same pitch as he's been using.

If his current propeller isn't giving him a WOT RPM within the recommended RPM range, select a replacement or upgrade propeller with a larger or smaller pitch using the following rules:

- Adding 1 inch of propeller pitch will reduce WOT RPM by 150 to 200.
- Subtracting 1 inch of propeller pitch will increased WOT RPM by 150 to 200.
- If you're upgrading from a three blade to a four blade propeller, remember that a four blade propeller generally turns 50 to 100 RPM less than a three blade prop with the same pitch.

## Propeller Materials

Mercury Marine makes most of its propellers in either aluminum or stainless steel. Aluminum is inexpensive and suitable for general purpose use. Stainless steel is more expensive, but it's over five times more durable than aluminum.

## 4-Blade Propeller Facts

Four blade propellers usually:

- Plane the boat faster than 3-blade propellers.
- Keep the boat on plane at a lower speed.
- Give improved mid-range speed at the same RPM as a 3-blade propeller
- Provide quicker acceleration than most 3-blade propellers.
- Run smoother than 3-blade propellers.
- Have better holding power in rough conditions.
- Are less likely to ventilate in sharp turns.
- Provide better low speed handling.
- Are not quite as fast on the top end as a comparable 3-blade propeller.

# Outboard-Powered Boats

## Prop selector by family

	Aluminum	Stainless Steel
<b>Inflatable</b>		
9.9–15 HP	Black Max	
20–25 HP	Black Max	Vengeance
25 4-stroke	Black Max	Vengeance
30–40 HP	Black Max	Vengeance, Trophy Sport

### Aluminum (under 14')

9.9–15 HP	Black Max	
20–25 HP	Black Max	Vengeance
25 4-stroke	Black Max	Vengeance
30–40 HP	Black Max	Vengeance, Trophy Sport

### Aluminum 14'–21'

9.9–15 HP	Black Max	
20–25 HP	Black Max	Vengeance
25 4-stroke	Black Max	Vengeance
30–60 HP		
(incl. 4-stroke)	Black Max	Vengeance, Trophy Sport
75 HP	Black Max	Vengeance, Laser II, Trophy Plus
135–225 HP	Black Max	Vengeance, Laser II, Trophy Plus, High Five

### Fiberglass to 14'

9.9–15 HP	Black Max	
20–25 HP	Black Max	Vengeance
25 4-stroke	Black Max	Vengeance

### Fiberglass Runabout 14–17'

#### (closed deck or bowrider, same hull...)

30–60 HP		
(incl. 4-stroke)	Black Max	Vengeance, Trophy Sport
75 HP	Black Max	Vengeance, Laser II, Trophy, Plus
135–150 HP	Black Max	Vengeance, Laser II, Trophy Plus, High Five

### Fiberglass Fish-Type 14–17'

#### (fish & ski, side console, center console)

30–60 HP		
(incl. 4-stroke)	Black Max	Vengeance, Trophy Sport
75 HP	Black Max	Vengeance, Laser II, Trophy Plus, Vengeance, Laser II, Trophy Plus, High Five, Offshore
135–150 HP	Black Max	

### Fiberglass Bass 14–17'

30–60 HP		
(incl. 4-stroke)	Black Max	Vengeance, Trophy Sport, Vengeance, Laser II, Trophy Plus
75 HP	Black Max	Vengeance, Laser II, Trophy Plus, Tempest Plus, High Five
135–150 HP	Black Max	

### Fiberglass Runabout 17–21'

#### (closed deck or bowrider, same hull...)

75 HP	Black Max	Vengeance, Laser II
135–150 HP	Black Max	Vengeance, Laser II, High Five
150–175 HP	Black Max	Vengeance, Laser II, High Five, Offshore
200–225 HP	Black Max	Vengeance, Laser II, Mirage Plus, High Five, Offshore

### Fiberglass Fish-Type 17 21' (fish & ski, side console, center console, cuddy)

75 HP	Black Max	Vengeance, Laser II
135–150 HP	Black Max	Vengeance, Laser II
150–175 HP	Black Max	Vengeance, Laser II, High Five, Offshore
200–225 HP	Black Max	Vengeance, Laser II, Mirage Plus, High Five, Offshore

### Fiberglass Bass 14'–21'

75 HP	Black Max	Vengeance, Laser II, Trophy Plus
135–150 HP	Black Max	Vengeance, Laser II, Trophy Plus, Tempest Plus, High Five
150–175 HP	Black Max	Vengeance, Laser II, Trophy Plus, Tempest Plus, High Five
200–225 HP	Black Max	Vengeance, Laser II, Trophy Plus, Tempest Plus, High Five

### Fiberglass Fishing 21' +

#### (side console, center console, cuddy)

135–150 HP	Black Max	Vengeance, Laser II, High Five, Offshore
150–175 HP	Black Max	Vengeance, Laser II, High Five, Offshore
200–225 HP	Black Max	Vengeance, Laser II, Mirage Plus, Offshore, Revolution 4

### Aluminum Pontoon 16'–28'

9.9–15 HP	Black Max	
20–25 HP	Black Max	Vengeance
25 4-stroke	Black Max	Vengeance
30–60 HP		
(incl. 4-stroke)	Black Max	Vengeance
40 4-stroke		
BigFoot	Black Max	
50 4-stroke		
BigFoot	Black Max	
60 4-stroke		
BigFoot	Black Max	Vengeance
135–225 HP	Black Max	Vengeance, Offshore, High Five, Mirage Plus

### Fiberglass Deckboat 16'–24'

30–60 HP		
(incl. 4-stroke)	Black Max	Vengeance
40 4-stroke		
BigFoot	Black Max	
50 4-stroke		
BigFoot	Black Max	
60 4-stroke		
BigFoot	Black Max	Vengeance
75 HP	Black Max	Vengeance
135–150 HP	Black Max	Vengeance, High Five, Offshore
200–225 HP	Black Max	Vengeance, Mirage Plus, High Five, Offshore