

HP7i Fan

Service Manual

169" through 216" Diameter—6 Blade

SM-HP7-169-216C



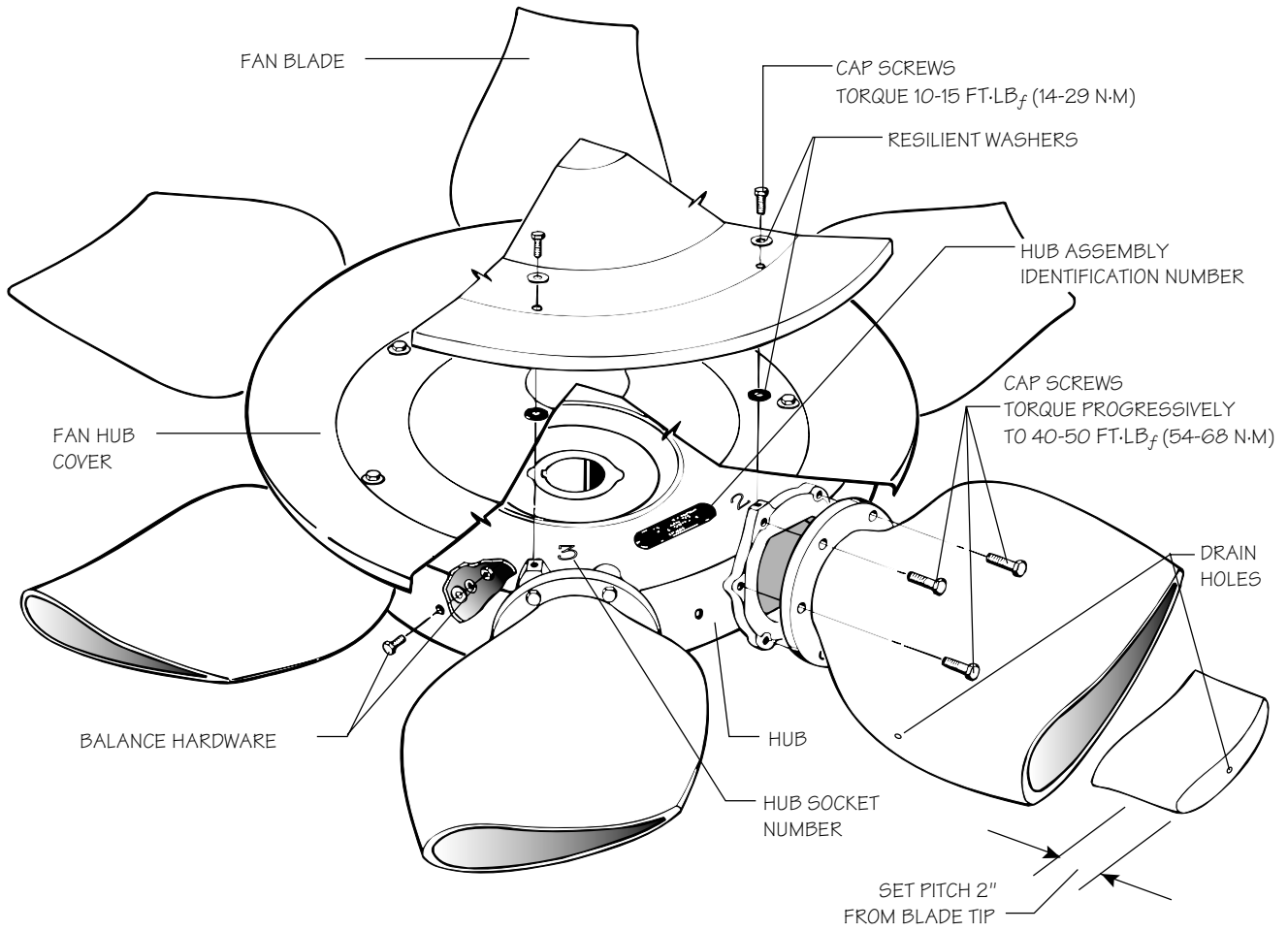
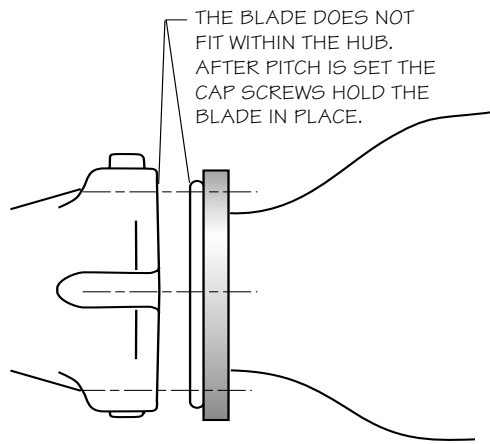


Figure 1 –Typical Fan Assembly
 actual component appearance may vary



Marley Order No. _____

Trial Pitch Angle _____

Final Pitch Angle _____

Speed-RPM _____

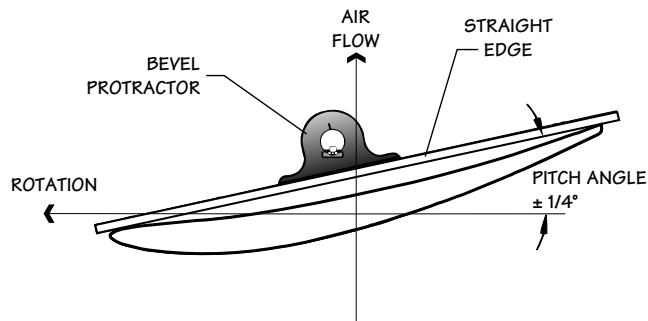
Contract HP _____

Fan Assembly

1. Visually inspect all tapped blade mounting holes for any debris which could cause problems when tightening cap screws.
2. Install blades with rotation arrow on top side and pointing in a clockwise direction.
3. Hold each blade level and tighten the six cap screws just enough to hold the blade level.
4. Do not torque cap screws. Blades must be free to turn in retaining ring to adjust pitch.

△ Note

The trial pitch angle is the calculated setting for design conditions (water rate, heat load, air density, and brake horsepower). The trial blade pitch is provided by Marley—see page 2.



Blade Pitching

5. Select a position on the fan circumference and rotate each blade to this common location when setting or checking blade pitch. All blades must be pitched with the blade axis pointing in the same direction. Support the blade tip to maintain the proper plane of rotation while setting the fan pitch.
6. Set the pitch angle and torque cap screws for each blade. Set the pitch angle using a straight edge and bevel protractor 2" (51mm) from blade tip as illustrated. Blades should be within $\pm 1/4^\circ$ the desired pitch. After the desired pitch is obtained progressively tighten blade cap screws to 40-50 ft-lb_f (54-68 N·m) torque. A crowfoot wrench may be necessary to torque cap screws that cannot be reached with a socket.
7. Install hub cover using cap screws and resilient washers.
8. Tighten cap screws between 10 and 15 ft-lb_f (14-20 N·m) torque.

Fan Maintenance

Preventative maintenance will prolong useful life and assure continued trouble-free operation. After the first week of operation and subsequently at six month intervals:

1. Visually inspect the fan for airborne debris damage and corrosive attack.
2. Torque blade cap screws.
3. Remove any accumulated scale or dirt.
4. Clear blade drain holes.



Motor load

1. The corrected horsepower should be close to but not exceed the contract horsepower specified by Marley—see page 2. Determine corrected horsepower with this equation:

$$HP_C = \frac{VOLTS_A \times AMPS_A \times DENSITY_D}{VOLTS_N \times AMPS_N \times DENSITY_A} \times HP_N$$

HP _C	=	Corrected Horsepower	VOLTS _N	=	Nameplate Volts
VOLTS _A	=	Actual Volts	AMPS _N	=	Nameplate Amperage
AMPS _A	=	Actual Amperage	HP _N	=	Nameplate Horsepower
DENSITY _A	=	Actual Air Density	DENSITY _D	=	Design Air Density

Actual volts and amperage must be obtained with the fan running and the specified rate of water flowing over the tower after the motor and Geareducer have reached operating temperature (approximately 30 minutes of operation).

2. The blade pitch can be changed to obtain contract horsepower. A one degree pitch change will change the power about eight horsepower. If blades are repitched, follow pitching and fastener tightening instructions detailed in the Fan Assembly section of this manual.

△ Caution

Measurements taken on motors operating with Variable Frequency Drive controls may read up to 15% high from errors in measuring the approximated sine wave. Instruments capable of measuring a squared off wave form accurately should be used for measuring power in this situation.

When checking and/or changing blade pitch or cycling fan in normal operation, do not exceed 30 sec/hour total motor starting time as motor may be overheated.

Fan Service

When contacting the Marley sales representative for repair or replacement parts, please refer to the tower serial number.

Replacement blades can be installed without rebalancing. The fan series—HP7i—and diameter are required when ordering replacement parts.

If rebalancing is required, return the fan hub to Marley Cooling Tower for factory rebalance. Obtain a **Customer Return Material** tag from your Marley sales representative in your area.



Marley Cooling Tower

A United Dominion Company

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