

### 51-13 Hydro-Air Carver Laboratory Handpiece (Project 96-29) (5/97)



The Hydro-Air Carver is a high-speed (300,000 rpm) laboratory handpiece with water spray capability. It is designed to prevent the possibility of heat-related damage to porcelain by cooling the restoration with water. The unit is air-driven, eliminating the need for electricity and has a self-contained air regulator and water reservoir. The Hydro-Air Carver comes in a metal case with air and water exhaust knobs on the front of the case. The air regulator knob and water reservoir inlet are located on the top of the case. The water can be adjusted from a very fine spray to a stream. The handpiece, mounted to the right side of the case, weighs 101 grams, is 152 millimeters long, and has a water on/off switch located near the tip. It has an on/off foot switch that does not provide variable speed control. A working air supply of 45

psi is needed to achieve the maximum speed of the handpiece. The unit's dimensions are 210 millimeters high, 254 millimeters wide, 155 millimeters deep, and weighs 3.7 kg. It can be wall mounted or placed on a table-top.

#### Manufacturer:

Vident  
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Brea, CA 92622-2340  
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(714) 961-6200  
(714) 961-6299 FAX

**Suggested Retail Price:** \$695.00

**Government Price:** \$590.75

#### ADVANTAGES:

- + Power was comparable to that of a typical operatory high-speed handpiece.
- + Water spray reduces the frictional heat of unit being abraded.
- + Noise level is 74 dB, below maximum level of 85 dB permitted by safety standard.
- + All controls are within easy reach.
- + Minimal maintenance required.
- + Simple and quick installation.

#### DISADVANTAGES:

- Large footprint takes up too much space on the table top if not mounted on the wall.
- Chuck release mechanism requires one and a quarter turns to release or secure a bur.
- Water level window is located on the back of the unit causing the user to move the unit to check water level.

#### SUMMARY AND CONCLUSIONS:

The Hydro-Air Carver is well built and simple to maintain. The handpiece has internal water spray, is well-balanced and is comfortable to use. The water spray cooled and prevented chipping of porcelain in the laboratory evaluation. Clinical evaluators used the spray five to ten percent of the time and anecdotally reported no perceived advantages to the water spray. During DIS testing, water spray that cooled and lubricated the restoration appeared to be more reliable for preventing microcracks than relying on sight and touch to prevent overheating during grinding. This handpiece would be most useful for technicians who carve the majority of their occlusal anatomy with a high-speed handpiece. The water spray eliminates the need for repeatedly wetting a restoration by hand while grinding. The effect of the water spray on the dust collector (if used with the water spray) is unknown. Although the evaluation on this single unit showed only 249,000 rpms, compared to the claimed 300,000 rpms, the evaluators felt the unit performed satisfactorily. The peak power (a function of speed and torque) for the handpiece was measured at 12 watts and adequately performed its intended clinical use. The handpiece is sturdy and capable of finishing porcelain and fine-finishing dental alloys. The unit comes assembled and only requires attaching the appropriate fittings to the air supply tube. Hand tools are needed only if mounting the unit on the wall. The **Hydro-Air Carver** is rated **Acceptable** for use by the federal dental services.