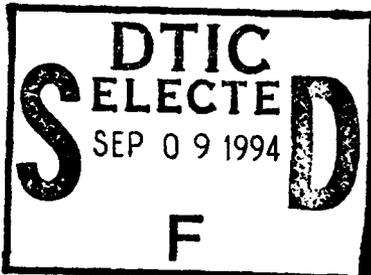


# Dental Items of Significance

SEP 1994

NO. 43

AD-A284 290



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## FEATURED IN THIS ISSUE--

- Megalloy amalgam (LD Caulk)
- Oralsafe handpiece (Oralsafe)
- NuGun (Centrix)
- Steriwater (Palisades Dental)
- Min-X-Ray unit (Min-X-Ray)
- Omni-Matrix (Innovadent)
- Indirect Resin synopsis
- Ultrasonic Scaler synopsis

*Plus, answers to questions most frequently asked of DIS*

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DEPARTMENT OF THE AIR FORCE

ARMSTRONG LABORATORY (AFMC)  
BROOKS AIR FORCE BASE, TEXAS

15 Aug 94

MEMORANDUM FOR BASE DENTAL SURGEONS, COMMANDERS, AND DIRECTORS OF FEDERAL  
DENTAL SERVICES

FROM: AL/AOCD  
2509 Kennedy Circle  
Brooks AFB TX 78235-5117

SUBJECT: DIS Newsletter #43

1. As summer draws to a close in Texas, our staffing picture is finally beginning to take shape. Lt Col Dan Leonard has joined us from Shaw AFB SC and is getting his feet on the ground as OIC of equipment evaluation. He inherited a full slate of projects including chairs, units, lights, ultrasonic cleaners, and high-speed handpieces.
2. The facility design and review function will receive much needed relief when Mr Richard Blankman joins the DIS staff in early September. He is an experienced architect who is currently stationed at Peterson AFB CO. His depth of experience in architecture, mechanical engineering, and construction management will greatly enhance our ability to assist in new construction and renovation projects.
3. This issue contains two inserts provided by dental equipment manufacturers. The first is an update on Midwest Dental Corporation's guidelines for handpiece maintenance. This should help clear up confusion about current recommendations concerning the use of Lifecycle handpiece cleaner and lubricant. Pelton and Crane has provided information on techniques to obtain optimal performance from Validator Plus steam autoclaves. We hope you find this information helpful and informative. Also enclosed is a copy of Dentalnotes supplied by the Academy of General Dentistry. Please pass this on to your public information officer for use in base, post, or local newspapers. Items can be taken directly, word-for-word, from Dentalnotes or modified to fit local needs.
4. Good news for you cyberspace jockeys! DIS is finally on the internet! You can reach us at [username@saturn.brooks.af.mil](mailto:username@saturn.brooks.af.mil). All user names are the last names of the individual except for me. My user name is **smills**. In the near future we have plans to expand our accessibility by providing a bulletin board service for our customers to include the opportunity to download DIS products.
5. Please let us know if we're continuing to meet your needs for information on dental equipment and materials as well as facility design issues. Are there any products or concepts that you would like DIS to evaluate? Are you interested in participating in product evaluations? Use the pre-addressed field assistance request form at the end of this newsletter to let us know (or contact us on E-Mail!).

SHANNON E. MILLS, Col, USAF, DC  
Chief, USAF Dental Investigation Service

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### The USAF Dental Investigation Service

The USAF Dental Investigation Service (DIS) was established on 1 October 1976 by AFR 162-7 to provide investigative guidance and assistance for all US Air Force dental personnel. The DIS consists of clinical, laboratory, and consultative capabilities maintained as an integral part of the Armstrong Laboratory. It has been set up specifically to solve operational problems and to evaluate methods, techniques, procedures, equipment, and materials as identified by military dental activities and by the office of the Air Force Surgeon General. In addition, DIS supports military medical centers and dental training programs in providing technical assistance for investigations that contribute to the training programs.

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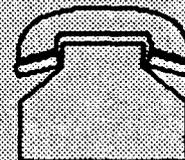
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## **ATTACHMENTS**

- 1. Synopsis of Instrument Washers**
- 2. Synopsis of Indirect Composite Resin Systems**
- 3. Synopsis of Electrosurgery Units**
- 4. Synopsis of Ultrasonic Scalers**
- 5. Synopsis of Handpiece Barriers**

# ADMINISTRATION

## 43-01 DIS Ratings and Project Types

As mentioned in an earlier issue of Dental Items of Significance, DIS assigns one of three ratings to products as a result of its evaluations. We would like to present the definitions of these ratings so that you have a better understanding of them.

**Acceptable:** Product performs all essential functions for which it was designed. Has proven to be reliable and free of significant defects in design and workmanship. Meets critical elements of applicable standards or requirements.

**Unacceptable:** Product fails to perform essential functions for which it was designed. May not meet applicable standards or requirements. May be unsafe to use or is of such poor quality that it is not acceptable for use in federal dental facilities.

**Recommended:** A superior product. User-friendly, reliable, cost-effective and free of defects in design and workmanship. Meets or exceeds all applicable standards or requirements. Has clearly identifiable advantages over similar products currently available for use by the federal services.

The "Recommended" rating is reserved for those products which, on the basis of performance, features, and/or cost, are clearly superior to other products made for the same purpose. We hope that having these definitions available to you will make the ratings more meaningful.

In evaluating products, DIS performs two types of evaluations. One type is called a "Long-Term" evaluation that usually involves laboratory testing and clinical use over a 6-month period. Most evaluations done by DIS are of this type. If a very simple product such as a new enamel etching gel or a disposable suction tip is being evaluated, DIS performs a "Short-Term" evaluation which is usually performed over a period of a few weeks. Many times, these evaluations are performed at DIS and do not require input from outside clinical evaluators. Short-Term evaluations are identified in the newsletter by project numbers that have the letter "S" after them. If you have any questions about the way DIS conducts its evaluations, or if you would like to participate in the clinical evaluation of dental products, please contact us at DSN 240-3502.

(Lt Col Charlton)

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## 43-02 Project Scientist Handbook

Recently, DIS codified the procedures it uses for conducting evaluations of equipment and materials. The resulting *Project Scientist Handbook* describes DIS, its history, purpose, and basic functions. In addition, a detailed step-by-step description of the procedures followed when DIS performs a product evaluation are given. If your organization is interested in conducting product evaluations or would simply like to know more about DIS and the way it operates, please contact me for a copy of the handbook.



(Lt Col Charlton)

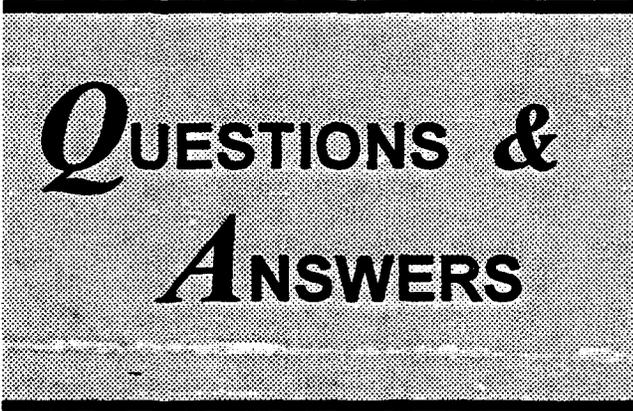
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### 43-03 Recall of Tooth Conditioner Gel Syringes (LD Caulk)

The LD Caulk Company has advised DIS that it is conducting a company-initiated recall of its product, Tooth Conditioner Gel Syringe (3 mL). The syringe contains phosphoric acid for etching enamel as part of resin bonding procedures. The recall was ordered because of incidents in which the etchant gel was inadvertently expressed out of the barrel of the syringe, rather than from its tip. In some cases, this resulted in patient or provider skin exposure to the acid. With the approval of the Food and Drug Administration, the recall is being directed at the distributor level which means that individual end-users are not routinely being notified of the recall. DIS is making this information available so that you are aware of the potential problem and to inform you that you can return unused product to Caulk. It is important to note that the Caulk Company has identified the problems that caused the barrel failure and has corrected them. Caulk has agreed to exchange defective syringes with new, defect-free syringes. Please note that only Tooth Conditioner Gel Syringes manufactured in 1992 and 1993 are affected. To determine if you have syringes involved in the recall, check the lot number that is imprinted on the side of the product box. The first two numbers represent the year the product was manufactured. If you have syringes that were manufactured in 1992 or 1993, you can exchange them for new syringes by contacting Barbara Taylor at (800) 532-2855, Ext. 219. If you want additional information on this recall, please call me at DSN 240-3502 (commercial 210-536-3502).

(Lt Col Charlton)

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## QUESTIONS & ANSWERS

"Questions & Answers" is a feature in the DIS newsletter in which we present and answer the questions we most frequently receive from the field. This month we feature questions about handpiece repair and selection of cassette trays. Should you want more information about a particular topic, please contact the individual whose name follows the specific answer in which you are interested. If you have a question about a topic not discussed in this issue, please feel free to call DIS at DSN 240-3502.

### 43-04 Handpiece Repair

**Question:** What should I do when my dental handpieces are in need of repair?

**Answer:** The first thing to do if you have a handpiece that requires repair is to check to see if it is still under warranty. This can prevent you from unnecessarily paying for repairs that the manufacturer is obligated to make. By the way, it is a very good idea to keep a detailed maintenance record for each handpiece in your clinic. The record should contain a list of all repairs performed on each handpiece. Now, if a handpiece requires repair, there are several options available to you. The best course of action is to have the handpiece repaired by the manufacturer. There are several advantages to this approach. First, you are more assured that the repairs will be done correctly with appropriate parts. Also, there is usually a 6-month warranty on factory repairs and costs will probably be equivalent to purchasing the parts yourself and having the repair done locally.

Another way of accomplishing the repair is to have your medical/dental repairman obtain the

necessary parts from the manufacturer and repair the handpiece himself. Whether this is possible or not will depend to a great extent on the workload of your repair facility and the degree of training the repairmen have received. The major advantage to this approach is the short turnaround time.

The final option is to send the handpiece to one of the many handpiece repair companies located around the country. Before you do this, however, you should check with the manufacturer to see if the repair company is authorized to repair their handpieces. If not, the repair shop will probably repair the handpiece with generic parts which can void the manufacturer's warranty. It is also important to know that most handpiece repair shops warranty their work for only thirty days. The primary advantage of these repair companies is the relatively low cost of the repair. This low cost can be negated, however, if the repair is done poorly and you have to send the handpiece back for additional repairs.

(DT1 Freeman)

---

### 43-05 Selection of Cassette Trays

**Question:** How do we determine which instrument cassette tray system is most suitable for our needs?

**Answer:** Instrument cassettes serve several basic functions in instrument processing. In addition to organizing instruments, they provide a convenient means to transport and store them with reduced potential for personal injury and breach of sterility.

Some important considerations in the selection of instrument trays are their capacity and organizing features (e.g., instrument holders, racks, etc.), external dimensions, and composition. Most 8 1/2 inch by 11 inch cassettes hold from 12 to 14 instruments. Smaller cassettes, usually used for prophy sets, can hold from 6 to 12 instruments. It is important to be sure that cassettes will fit easily into cleaning and sterilization equipment. For cassettes to be effective, the minimum requirement for automated cleaning equipment is a large tabletop ultrasonic. There is no advantage in using cassettes if individual instruments need to be hand scrubbed or manually inserted and removed from small ultrasonic cleaners.

Heat-resistant plastic, stainless steel, and anodized aluminum are all used to make current cassettes. All perform effectively. The alkaline cleaning solutions and acid rinses used in some instrument washers, however, will remove the anodized finish from aluminum cassettes. Plastic cassettes can not be used in rapid dry heat sterilizers such as the Cox or Dentronix systems.

One critically important consideration that is often overlooked is the "openness" of the cassette design. Openness permits access for cleaning and rinsing. Preliminary studies at DIS suggest that a more open design can result in more effective rinsing of organic soil, especially when cassettes are manually rinsed after cleaning in tabletop ultrasonic units. The Aesculap product is ideal in this regard since it is fabricated from a heavy-gauge, stainless steel mesh. Other designs that have performed well in soil removal tests include the Hu-Friedy IMS and CT Med Systems.

Careful inspection of all instrument sets for removal of organic soil prior to wrapping and sterilization may be the most important step in any instrument recirculation program. For additional information on instrument cassettes, see DIS 41-38.

(TSgt Springstead)

# FACILITIES AND CONSTRUCTION

## 43-06 Meeting Requirements of the Americans with Disabilities Act Accessibility Guidelines and the Uniform Federal Accessibility Standards

In October 1993, then Secretary of Defense Les Aspin issued a memorandum stating that "the requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS) are to be met in providing access for people with disabilities in buildings and facilities designed, constructed, altered, leased, or funded by the Department of Defense".

This means that any dental clinic project involving items that are not easily moved such as dental chairs, casework, laboratory benches, etc. must comply with the UFAS and the Americans with Disabilities Act (ADA). The easiest way to do this is to instruct the individual or company that is doing the project design work to comply with the UFAS and ADA. For example, if a casework manufacturer offers to design new dental treatment room (DTR) casework, instruct them to comply with the UFAS and ADA. Copies of the UFAS manual and the ADAAG are available free of charge from the Architectural and Transportation Barriers Compliance Board at (800) USA-ABLE, (202) 272-5434, or by FAX at (202) 272-5447.

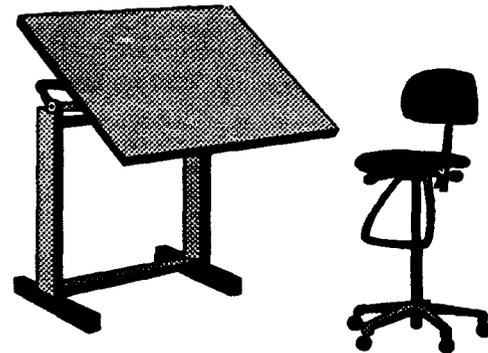


Figure 1 at right shows a sample DTR with proper UFAS/ADA door clearances, a five-foot turning circle, and adequate space between the casework and the dental chair for a wheelchair to pass. A single wheelchair requires a minimum passage of 32 inches; 36 inches is preferred. While 32 inches is the minimum permitted, a passage can not narrow to the minimum clearance of 32 inches for more than a distance of two feet. Because of the natural taper of most dental chairs, the passage way between the dental chair and the casework only narrows to 32 inches for a short distance near the armrests or base of the dental chair. Therefore, these areas in the DTR usually do not present problems with regard to minimum clearance.

Since the casework and dental chairs are often not bought at the same time, problems can arise. If a dental clinic currently had dental chairs that were only 25 inches wide rather than 27 inches wide as shown in the figure, they may correctly conclude that they could put casework in a 10 foot 6 inch-wide operatory that was 18 1/2 inches deep rather than 17 1/2 inches deep as shown in the figure.

However, if at a later date they wished to purchase 27 inch-wide dental chairs, they would not have the

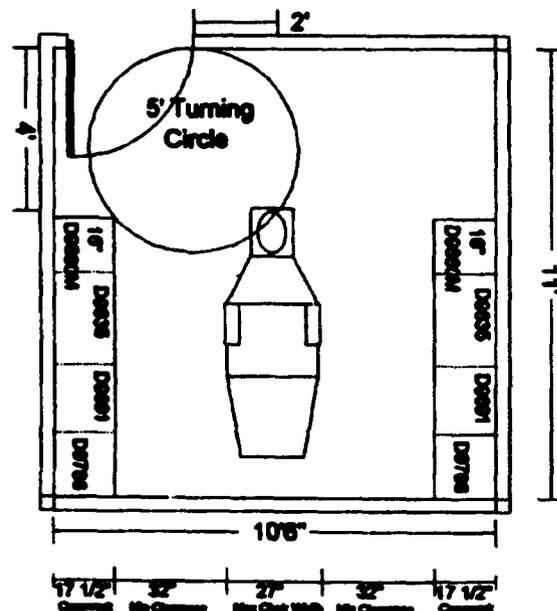


Figure 1  
Scale: 1/4"=1'

minimum clearances required. While casework of greater depth does provide slightly more storage space, that greater depth can come back to haunt you.

In DTRs that are less than 10 feet 6 inches wide, casework on both sides of the room is not feasible. An alternative is to put casework along the wall at the foot of the chair. Because a sink in a corner where two sections of casework meet is not as accessible to a handicapped employee as would be a sink along a straight run of casework, this design should be avoided.

The government agency charged with enforcing the ADA is the U.S. Equal Employment Opportunity Commission (EEOC). Within the first 19 months after the ADA went into effect, 23,000 complaints were filed with the EEOC. The EEOC offers a free technical assistance manual on ADA-related employment issues; to obtain it, call (800) 669-EEOC. The ADA requires that an employer make "reasonable accommodation" for an employee's disability. The question of what "reasonable accommodation" is can be difficult to answer but may include the purchase of special equipment or remodeling of a work area to accommodate a disabled employee.

**43-07 Air Force Instruction 32-1032** This new AF instruction describes the planning and programming of real property maintenance projects. It will be of interest to any clinic planning a modification, including functional upgrades of a Dental Instrument Processing Center (DIPC). Under this instruction, repair projects can include restoration of a building area to functional standards even if this includes moving walls or other renovations previously classified as minor construction. Since repair projects up to \$3 million can be approved at the MAJCOM level, this provides a way to reclassify projects previously limited by the \$300,000 cap on minor construction.

**43-08 Instrument Washers** The greatest benefit of using mechanical instrument washers as a substitute for hand scrubbing instruments is that the instrument washers reduce the chance of percutaneous injury to dental personnel. Instrument washers can also disinfect and dry instruments. Disinfecting instruments makes subsequent processing safer, and drying them prepares them for wrapping and terminal sterilization. While instrument washers are available which permit the cleaning of dental instruments with a minimum of instrument handling, they vary in size, expense, and installation complexity. This overview of several types of instrument washers and their characteristics will help clinics choose the best type for their needs. For additional information, please refer to Attachment 1 which is a synopsis of instrument washers.

**Loading Height and Door Type** This is the distance from the floor to the bottom of the wash chamber. Heights of less than 34 inches require most workers to bend down while loading the washer. As a result, this can be disadvantageous. Fold-out doors require more floor space and can get in the way while loading. Vertical doors slide up into the washer and make it easier to load.

#### **Instrument Washer Cycles**

**Cold water pre-rinse** One of the greatest challenges for instrument washers is the removal of blood and other proteins. Loyal readers of the "Heloise" column found in many newspapers know that the best way to remove a fresh blood stain is with cold water, not hot water. Hot water coagulates the protein and sets the stain. As a result, most instrument washers start with a cold water rinse to remove uncoagulated protein or blood. One popular unit, the Miele (Miele Professional Products Group, Somerset, NJ), uses a thermodisinfection program (DESIN 93°C, 10 minutes) that does not include a cold water pre-rinse component. A cold water pre-rinse, however, is available as a separate program.

**Enzyme option during pre-rinse** Some washers offer the option of using an enzyme during the pre-rinse to further help remove blood and protein.

**Neutral detergent wash versus alkaline detergent wash with acid rinse** Some washers use a neutral detergent wash cycle and some use a combination of an alkaline detergent wash followed by an acid rinse neutralization. The idea behind the alkaline detergent wash is to use the alkaline wash to further dissolve or break down protein. The acid rinse also serves to dissolve and remove protein and

restore a neutral pH environment. As a secondary benefit, the acid rinse helps to dissolve mineral deposits from tap water. There does not appear to be a significant cleaning advantage to either system. Neutral detergent washing is preferred if aluminum objects are to be cleaned that may be pitted by the alkaline/acid wash. Although ideally all water supplied to instrument washers should be soft (i.e., less than 5 grains per gallon), if the facility does not have a water softener, an alkaline/acid rinse may be a better choice since detergent effectiveness is reduced by hard water and the acid rinse may help remove mineral deposits. The wash temperature is typically 185°F and remains at this temperature for a minimum of 10 minutes. During the wash cycle, the wash solution is recirculated at rates sometimes exceeding 200 gallons per minute. At the end of the cycle, the wash water can either be saved for the next wash cycle or sent to the drain. On most models, the length and temperature of the wash cycle is programmable as is the overall combination of cycles that is desired.

**Wash agent pump** Some washers have pumps to automatically dispense the correct amount of neutral or alkaline detergent when the wash cycle is started. Other units require the worker to put the correct amount of detergent in the washer much like a household dishwasher. However well intentioned, when workers add the detergent they tend to add too much because they want the instruments really clean. This can literally "gum up" the wash water recirculating pump and cause the unit to drain slowly. Wash agent pumps are a convenience feature but also serve the practical purpose of more accurately dispensing the correct amount of detergent.

**Deionized water rinse** A tap water rinse typically follows the wash cycle. Ordinary tap water may leave mineral deposits on the instruments. An optional deionized water rinse is available on most models to remove tap water mineral deposits and promote better wetting which leaves instruments cleaner and easier to dry. A source for piped deionized water is required for this option which can be included in most projects if space permits. Some deionizing equipment, however, may not produce enough water on demand to meet the volume required for the rinse cycle. Internal reservoirs are available (standard on some models) that collect and store deionized water to meet the demand of the cycle. In addition to the deionized water rinse, another option is instrument lubrication or "milk bath". This chemical treatment, which is accomplished in conjunction with rinsing, is used to improve the operation of hinged instruments and reduce corrosion from terminal steam sterilization. The instrument lubrication option is exclusive to units equipped with deionized water rinse.

**Vented drying** 200°F forced-air drying is available to produce dry, ready-to-wrap instruments, however this requires an exhaust vent to the outside. The Miele does not use forced air and does not require an external vent but instead has a built-in steam condenser vent. Although both MDT and AMSCO offer steam condenser vents that do not require connection to the outside, they do not work as well as external vents. For that reason, they should be avoided.

**Pass-through Option** When the clean and decontamination sides of a Dental Instrument Processing Center (DIPC) are in separate rooms, the instrument washer should ideally be located in the wall separating the clean and decontamination sides. By placing it there, instruments can be loaded on the decontamination side and clean, dry, ready-to-wrap instruments can be unloaded on the clean side. A double-door, pass-through option is available for all the models except the Miele.

#### **Utilities**

**Water temperature** Typically, hot water supplied to instrument washers should be at least 140°F and cold water should be less than 80°F. Be sure that the hot water and the cold water being supplied to your instrument washer meet these temperature requirements.

**Drain** A floor drain is required for all brands of instrument washers except the Miele which uses a dishwasher-type drain hook-up.

**Electricity** All except the Miele require 115 volts service to run the control electronics. If steam is not provided, then they also need 208, 240, or 480 volt service to heat the water in addition to the 115 volts for the control electronics. This higher voltage power is used to heat the water with an electric coil.

**Steam** As an option, all except the Miele can use steam as an energy source to heat water instead of the higher voltage electrical service mentioned above. If piped steam is available (98%

condensate free), it is usually more economical to use it than electricity.

**Price** The cost of an instrument washer varies greatly depending on options. For the MDT and AMSCO models, you should expect prices to vary over a \$10,000 range depending on the options selected. These prices should only be used as "ball park" figures. They reflect washers with a single door (not pass-through), electric heat (not steam), and vented drying. The price does not include racks or baskets to put cassettes or instruments on/in.

(Lt Col Kane)

## GENERAL DENTISTRY

### 43-09 Megalloy Amalgam

(Project 94-40)

Megalloy is a single-composition spherical, high-copper amalgam alloy that, according to the manufacturer, consists of 57% silver, 29% tin, and 14% copper. It uses a mercury to alloy ratio of approximately 41.5%. The product is provided in ultrasonically-welded capsules that are broken open following trituration. This project consisted of a clinical user evaluation of the product at four Air Force dental clinics.

**Manufacturer:**

L.D. Caulk  
L.D. Caulk Division  
Dentsply International, Inc.  
P.O. Box 359  
Milford, DE 19963-0359  
(800) 532-2855  
(302) 422-4511  
(800) 788-4110 FAX

**Retail Cost:**

\$22.95 50 capsules, 1 spill size, (each capsule containing 400 mg of alloy) product no. 603001  
\$28.35 50 capsules, 2 spill size, (each capsule containing 600 mg of alloy) product no. 603002  
\$34.60 50 capsules, 3 spill size, (each capsule containing 800 mg of alloy), product no. 603003

**Government Cost:**

\$13.75 50 capsules, 1 spill size, (each capsule containing 400 mg of alloy) product no. 603001  
\$17.00 50 capsules, 2 spill size, (each capsule containing 600 mg of alloy) product no. 603002  
\$20.75 50 capsules, 3 spill size, (each capsule containing 800 mg of alloy), product no. 603003

**ADVANTAGES:**

+ Is significantly less expensive than Tytin (Sybron/Kerr) and Valiant (Ivoclar); regardless of spill size, 50 capsules of Megalloy cost approximately 44% less than Tytin and, depending on spill size, from 46% to 56% less than Valiant.

- + Capsules are self-activating which eliminates the need for a separate activation device.
- + Ultrasonically sealed capsules reduce the potential for inadvertent mercury release.
- + Is supplied with a plastic instrument to facilitate opening the mixed capsules.
- + Is available in three sizes (1 spill [400 mg of alloy]; 2 spill [600 mg of alloy], and 3 spill [800 mg of alloy]).
- + Capsules bear a numerical imprint on the end identifying spill size.
- + Based on manufacturer-supplied data, properties of compressive strength, creep, and dimensional change compare favorably with those of other popular, single-composition spherical amalgams (e.g., Tytin, Valiant).
- + Easy to condense and produces a smooth, post-carved surface.
- + Capsules consistently produced well-mixed product.
- + Material Safety Data Sheet (MSDS) is included with product.

**DISADVANTAGES:**

- Trituration instructions provided by the manufacturer do not include times and frequencies for several common triturators (e.g., AutoMix [Kerr], CapMix [ESPE], Silamat Plus [Ivoclar]).
- Capsules are somewhat difficult to open after trituration.
- After use, capsules can not be resealed prior to disposal.
- Sets slower than Tytin.

**SUMMARY AND CONCLUSIONS:**

Megalloy compared favorably to the popular spherical alloy, Tytin. It contains slightly less silver, more tin and copper, and uses a lower mercury to alloy ratio. Manufacturer-supplied data indicate that its physical properties compare favorably to those of several other spherical amalgams. It is significantly less expensive than Tytin and Valiant. Clinicians were impressed with its ease of condensation and smooth, post-carved surface. Many felt that its slower setting rate was a disadvantage. The self-activating capsules are ultrasonically sealed to reduce the potential for mercury leakage during trituration, but they are somewhat difficult to open after mixing. Megalloy amalgam is rated Acceptable for use by the federal dental services.

(Lt Col Charlton)

**43-10 Omni-Matrix**

**(Project 94-30)**

The Omni-Matrix is a disposable, plastic retainer preloaded with a 0.0015 gauge stainless steel matrix band. It has an articulating head that swivels and can be snapped into position to allow the retainer to be configured for use in any quadrant. The Omni-Matrix is available in two sizes, "Large" for molars and "Regular" for bicuspsids and smaller teeth. It is supplied in a plastic tray that holds eight retainers and bands. This project consisted of a clinical user evaluation of the product at one Army, one Navy, and four Air Force dental clinics.



**Manufacturer:**

Innovadent Technologies, Ltd.  
 227 Eagle Street  
 Newmarket, Ontario L3Y 1J8  
 (905) 830-9711  
 (905) 830-4241 FAX

**Retail Cost:**

\$86.40 Box of 144; price for Regular size and Large size is the same

**Government Cost:**

\$64.80 as described above

**ADVANTAGES:**

- + Retainer and band are disposable which enhances infection control.
- + Retainer comes preloaded with band which reduces preparation time.
- + Retainer does not impinge on patient soft tissue or clinician's glove material because retainer body is contoured and screw mechanism is housed inside the body of the retainer.
- + Retainer has a locking, articulated head that permits clinician to configure retainer for use in any quadrant of the oral cavity.
- + Icon is printed on retainer shaft to indicate the direction the knob must be turned to tighten/loosen band.
- + Retainer is stable after placement.
- + Two sizes of matrix bands are available.

**DISADVANTAGES:**

- Individual trays of the product are not identified as "Regular" or "Large" size; trays must be opened to determine which size band is in the retainer.
- Retainer can be difficult to remove from band.
- Retainers are not individually packaged.

**SUMMARY AND CONCLUSIONS:**

Clinical evaluators found that the Omni-Matrix was well-designed, easy to use, and worked properly in all quadrants of the mouth. The fact that it was disposable enhanced infection control. Although some problems were encountered with its use, such as difficulty in removing the band from the retainer and occasional breakage of the swivel head, the product generally performed well and was rated as "Excellent" or "Good" by all of the clinical evaluators. The manufacturer is currently working to correct the deficiencies noted during the evaluation. When making a purchasing decision, the cost of the item versus the benefits that result from its disposability should be considered. The Omni-Matrix is rated Acceptable for use by the federal dental services.

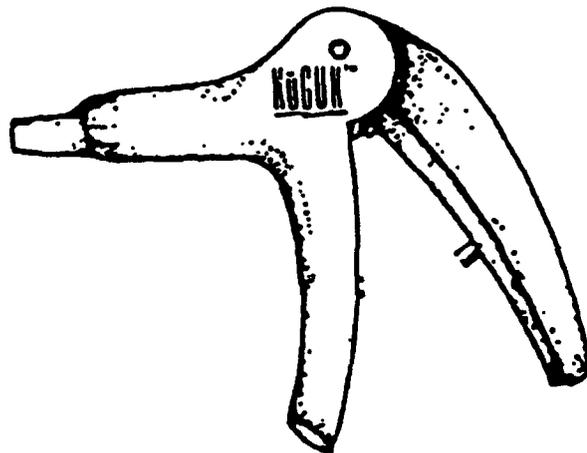
(Lt Col Charlton)

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**43-11 NuGun**

**(Project 94-29S)**

The NuGun is a reusable, plastic, dispenser gun with disposable, plastic tubes and plastic or rubber plugs that is used for the placement of composite resins, cements, and impression materials. The plastic tubes come in a wide variety of shapes and sizes and are placed in the NuGun by snapping them into the tip end. This product is the latest version of Centrix's popular dispenser guns. The most recent version, the Mark III Speed Slot Syringe, was evaluated in DIS 38 (July, 1992). The NuGun Tri-Pack Starter Kit (product number 100615) contains one NuGun dispenser gun and 75 assorted tubes and plugs.



**Manufacturer:**  
Centrix, Inc.  
770 River Road  
Shelton, CT 06484-5458  
(800) 235-5812  
(203) 929-5582  
(203) 929-8804 FAX

**Retail Cost:**  
\$69.95 Tri-Pack Starter Kit

**Government Cost:**  
\$41.95 Tri-Pack Starter Kit

**ADVANTAGES:**

- + Is easier to insert tubes and to remove them from the NuGun compared to the Speed Slot syringe.
- + Accommodates a wide variety of tubes.
- + Can be chemoclaved and autoclaved without adverse effect.
- + Accommodates pre-filled composite cartridges from most major manufacturers (e.g., Herculite XRV [Kerr], Prisma TPH [Caulk], Z100 [3M]).
- + Is well-constructed and durable.

**DISADVANTAGES:**

- Is slightly larger and more bulky than other dispenser guns marketed by Centrix.

**SUMMARY AND CONCLUSIONS:**

The NuGun dispenser gun is an improved version of Centrix's Speed Slot placement syringe. The NuGun is slightly larger but is easier to load than earlier placement syringes from Centrix. The NuGun was well-received by clinical evaluators who found it extremely useful for placing nonencapsulated light activated glass ionomer products and composite resins. A wide variety of tubes can be purchased for use in the dispenser gun. The NuGun is rated **Acceptable** for use by the federal dental services.

(Lt Col Charlton)

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**43-12 Fast Set Vinyl Polysiloxane Bite Registration Material (Project 94-18)**

3M Fast Set Bite Registration Material is a vinyl polysiloxane two-paste product supplied in cartridge form for use in an automix dispenser gun. 3M claims that it represents an improvement over other manufacturers' bite registration pastes because it is purported to combine a mousse-like consistency with a snap set. This project consisted of a clinical user evaluation of the product at a Veterans Administration dental clinic and two Air Force dental clinics. Laboratory testing of the product's detail reproduction, dimensional stability, and setting time was also performed.

**Manufacturer:**  
3M  
Dental Products Division  
3M Health Care  
3M Center, Bldg 275-2SE-03  
P.O. Box 33275  
St. Paul, MN 55133-3275

(800) 634-2249  
(612) 733-1110  
(800) 888-3132 FAX

**Retail Cost:**

\$40.85 3M Fast Set Bite Registration Material (Magenta): two 48 mL cartridges, 12 mixing tips (item no. 9304)  
\$36.15 Mixing Tip Refill Kit: 48 mixing tips (item no. 9415)

**Government Cost:**

\$22.00 3M Fast Set Bite Registration Material (Magenta): contents and item number as noted above  
\$20.60 Mixing Tip Refill Kit: contents and item number as noted above

**ADVANTAGES:**

- + Product sets rapidly (approximately 60 seconds from the start of mixing).
- + Exhibits excellent detail reproduction.
- + Exhibits excellent dimensional stability; meets 24-hour dimensional stability requirement of ISO Specification 4823 and undergoes little additional change from 24 hours to 7 days.
- + Evaluators found the material easy to mix, firm after setting, and easy to trim.
- + Comparable in cost to Stat-BR (Kerr) and Regisil PB (Caulk).

**DISADVANTAGES:**

- Because of its short setting time, product may be inappropriate for cases where more time than normal is required to make record (e.g., when using with a patient with limited proprioception).
- Has slightly grainy consistency.

**SUMMARY AND CONCLUSIONS:**

Laboratory testing revealed that 3M's Fast Set Vinyl Polysiloxane Bite Registration Material has excellent dimensional stability and detail reproduction. Its setting time is shorter than that of many other popular vinyl polysiloxane bite registration materials. Clinical evaluators found the material easy to mix, firm after setting, and easy to trim. Patients appreciated its lack of taste and odor. Although the product's short setting time is useful for simple fixed prosthodontics cases, products with a longer setting time may be necessary if a more complicated registration is to be made and additional working time is required. The product is comparable in cost to Stat-BR (Kerr) and Regisil PB (Caulk) and less expensive than Blu-Mousse (Parkell). Fast Set Vinyl Polysiloxane Bite Registration Material (3M) is rated Acceptable for use in federal dental facilities.

(Lt Col Charlton)

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**43-13 Synopsis of Indirect Composite Resin Systems**

**(Project 94-52)**

Although amalgam remains the most frequently used material for restoring the posterior dentition, interest in the use of esthetic restorative materials continues to grow. Demand has increased for alternative materials, in part because of sensationalized news reports about the potential hazards of mercury in amalgam. Until relatively recently, several negative characteristics of composite resin have limited its widespread use. Chief among these is shrinkage of approximately 2 to 4 percent that occurs during polymerization. This shrinkage frequently leads to microgap formation which, in turn, results in marginal staining, post-treatment sensitivity, and recurrent caries.

In recent years, a number of chairside and laboratory resin-based inlay/onlay products have been developed which employ the use of extraoral polymerization in an attempt to minimize the problems

associated with intraoral shrinkage during polymerization. The fabrication procedures for these products differ but the most important distinction shared by them is extraoral polymerization so that the vast majority of dimensional change that the resin undergoes occurs prior to cementation of the restoration in the mouth.

Some of the materials are employed using a "direct/indirect" technique in which the resin restoration is initially polymerized intraorally and then removed and subjected to extraoral polymerization using a combination of heat, light, pressure, and vacuum. A few products are only polymerized extraorally using an "indirect" technique. This technique uses a model or die on which the restoration is fabricated and processed. Extraoral polymerization not only offers the advantage of a more dimensionally stable restoration at the time of placement but also produces a greater degree of polymerization that results in improved physical properties for the resin (e.g., diametral tensile strength, hardness, color stability). Another advantage of extraoral polymerization is the ability to adjust proximal contacts and to refine normally inaccessible aspects of the restoration.

It is important to note that these resins are most commonly referred to and marketed as "indirect resin systems" but a more accurate term might be "extraorally polymerized". The use of the latter term helps to avoid the implication that they can only be used to make restorations using an indirect fabrication technique. It is also important to note that these products have several different uses. Although some are exclusively used for the fabrication of inlays and onlays, others can also be used for making veneers. One system, however, is exclusively used as a veneering material on metal frameworks and individual castings.

DIS has published evaluations of three individual systems that employ extraoral polymerization. This project, however, is an extensive synopsis of twelve indirect resin systems and presents basic information about the use of these products and their physical properties. A few comments need to be made about specific information contained in the tables (Attachment 2). Most indirect resin systems presented in the synopsis use shades that are keyed to the Vita shade guide. Because most dentists are familiar with the Vita shade guide and because it is readily available in most clinics, indirect resin products that use resins keyed to Vita are usually preferred to products that use a different shade guide. Only two products, Clearfil CR Inlay and SR-Chromasit, are not indexed to Vita. Information on percentage filler content is also included in the synopsis. This data is presented because it provides a general indication of comparative physical properties. A high percentage filler content is usually considered advantageous for a resin because it indicates that the product will have better physical properties than systems with lower filler content. This is particularly true when using percentage filler content by volume because it gives a more accurate indication of the relative amount of the strong filler particles compared to the weaker matrix material. Although one should avoid drawing too many conclusions from this information, it can serve as a useful comparative measure.

Due to the component-intensive nature of each system and the wide variety of units available for polymerizing them, it is somewhat difficult to establish a clear basis for comparison. Please note that the "Comments" section of the table only partially lists the contents of the kits. Because many of these kits contain dozens of individual components, it is important to thoroughly review their contents when deciding on a particular product. In determining the actual cost of a system, it is essential that the price of an extraoral polymerization unit be considered. Please also be aware that some of the kits are available as laboratory systems and as dental office systems. Typically, the laboratory systems contain accessories and components that are of value to the technician during fabrication of the restoration (e.g., color modifiers, characterization tints, etc.). The dental office versions, on the other hand, commonly include a resin cement and dentin bonding agent to facilitate the clinical aspect of the procedure.

(Lt Col Charlton, MSgt Thibadeau)

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## **43-14 Synopsis of Electrosurgery Units**

**(Project 94-32)**

Electrosurgery units are used as a method of soft tissue management. They are particularly useful for hemorrhage control and can provide improved visibility of the operative site. A unit with 70 to 100 watts is desirable and research has shown that a frequency of 3 to 4 MHz produces the least tissue destruction. The purpose of this synopsis (Attachment 3) is to provide information to dental officers and supply personnel who are interested in purchasing an electrosurgery unit. The following facts are given to supplement the information contained in the synopsis.

### **Ellman 90 FFP:**

**Certifications and approvals:** UL, CSA, ADA

Comes standard with 1 autoclavable handpiece and 6 electrode tips.

### **Macan Engineering MC-6:**

**Certifications and approvals:** ADA

Comes standard with 1 autoclavable handpiece and 6 electrode tips.

### **Macan Engineering MC-4:**

**Certifications and approvals:** ADA

Comes standard with 1 autoclavable handpiece and 5 electrode tips.

### **Whaledent International Perfect TCS 57115:**

**Certifications and approvals:** UL, CSA

Comes standard with 3 autoclavable electrode sheaths and an instructional video. This product differs from other electrosurgical units in that the electrodes are not tips but sheaths.

### **Parkell Sensamatic 500SE:**

**Certifications and approvals:** None

Comes standard with 6 electrode tips. Additional handpieces and tips are available for purchase.

### **Amadent Neosurge:**

**Certifications and approvals:** None

Is manufactured by Macan Engineering and is the same as the MC-6. Comes standard with 6 electrode tips.

It is important to note that some vendors offer quantity discounts. Inquire about special pricing when ordering units and/or accessories.

(DT1 Freeman, Lt Col Leonard)

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## **43-15 Min-X-Ray Portable Unit**

**(Project 93-83)**

A radiographic survey and clinical user's evaluation were performed on a P200D portable X-ray unit and X100S tripod stand manufactured by Min-X-Ray. Weight of the P200D unit is 18 pounds and weight of the X100S tripod stand is 7 pounds. Total weight, including carrying case, is 33 pounds.

### **Manufacturer:**

Min-X-Ray, Inc.

3611 Commercial Ave.

Northbrook, IL 60062-1822

(800) 221-2245  
(708) 564-0323  
(708) 564-9040 FAX

**Retail and Government Cost:**  
\$2795.00 P200D portable X-ray unit  
\$275.00 X100S tripod stand

**ADVANTAGES:**

- + Compact, solid, and light-weight (i.e., good portability).
- + Easy to assemble, disassemble, and store.
- + Easy to operate.
- + Good, predictable radiographic quality.

**DISADVANTAGES:**

- Two evaluators thought the exposure cord should be longer.
- Tripod base may be a bit awkward for some.

**SUMMARY AND CONCLUSIONS:**

Overall the Min-X-ray unit was well liked by the evaluators. It was described as compact, solid, easy to move around and light-weight. It was said to be simple to operate, easy to assemble, easy to store and it gave predictably good quality of radiographs. The Min-X-Ray Portable Unit and tripod stand are rated Acceptable for use by the federal dental services.

(LCDR Kuehne)

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**43-16 Oralsafe Disposable Handpiece**

**(Project 93-11)**

The Oralsafe Disposable Handpiece is a high speed handpiece consisting of a white, plastic casing and a plastic air turbine with stainless steel bearings and bearing race. It is intended for single use and disposal. It retains the bur by a simple friction grip method. The top of the container (plastic tube) has a metal pin for removal of burs. Each handpiece is supplied in a sealed plastic tube and there are twelve handpieces per box. The handpiece has a fiberoptic bundle for light transmission.

**Manufacturer:**

Oralsafe, Inc.  
43529 Ridge Park Drive  
Temecula CA 92590  
(909) 695-4562  
(909) 694-6823 FAX

**Government Representative:**

Mr. Mark Kowalski  
99 Bernes Road  
Skippers VA 23879  
(804) 634-2985

**Retail Cost:**

\$14.95

**Government Cost:**  
**\$8.95**

**ADVANTAGES:**

- + Eliminates maintenance and recirculation procedures.
- + Advantageous when sterilization can not be accomplished.
- + Guaranteed replacement of inoperative handpieces.
- + Adequate power to satisfactorily perform most restorative work.
- + Simple friction grip chuck makes it easy to change burs.

**DISADVANTAGES:**

- Need to lubricate handpiece prior to use.
- Noise level higher than autoclavable handpieces.
- Fiberoptic light transmission lower than autoclavable handpieces.
- Power performance comparable to a one- to two-year-old handpiece.
- Not cost-effective for regular use.
- Water spray not always on target.

**SUMMARY AND CONCLUSIONS:**

This handpiece, which is intended for one time use only, provides adequate cutting performance and is useful when sterilization of reusable handpieces can not be accomplished for some reason. Noise level is higher for this handpiece than for any standard autoclavable handpiece tested. A power profile curve (speed over a range of torque) was generated and demonstrates that cutting performance for this handpiece is similar to a group of Midwest Quiet Air handpieces with 810 sterilization cycles of accelerated wear testing (approximately two years of military clinic use). One of the major disadvantages is cost which is approximately three times the estimated government cost of reusing standard sterilizable handpieces. Therefore, it would not be cost-effective for routine use. Also arguing against regular use is a potential disposal problem in generating a large amount of biological contaminated waste. The Oralsafe Disposable Handpiece is rated Acceptable for use by the federal dental services when sterilization cannot be accomplished.

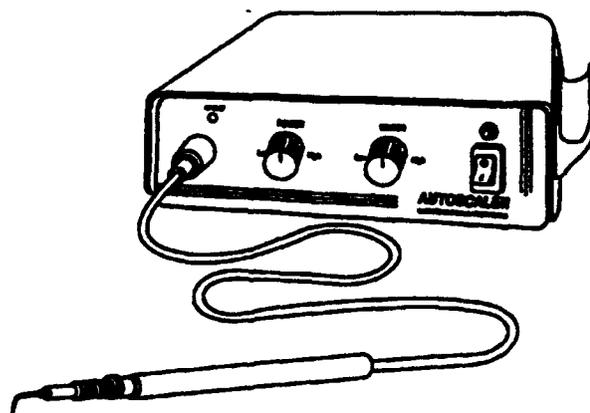
(LCDR Kuehne)

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**43-17 Autoscaler Ultrasonic Scaler**

(Project 93-43C)

The Autoscaler is a magnetostrictive type of ultrasonic scaler for use in periodontal and prophylaxis treatment, as well as other areas of use in operative dentistry. The unit consists of an electronic generator, a handpiece, interchangeable inserts, and a foot control. The generator converts ordinary AC house current (110 to 120 volts, 50/60 hertz) to 25,000 hertz current which is then converted in the stack within the handpiece to 25,000 microscopic mechanical strokes per second at the insert tip. This mechanical action at the tip, together with the flushing action of the coolant water, removes calculus and stain. A 30 kHz model is also available using 30K inserts. The unit is also available in a 220 volt option.



**Manufacturer:**  
South East Instruments Corp.  
3706 NW 97th Blvd.  
Gainesville, FL 32606  
(800) 648-9445  
(904) 332-0125  
(904) 332-0186 FAX

**Retail Cost:**  
\$850.00 no tips included; a total of 13 tips are available for order; tips are approximately \$65 each

**Government Cost:**  
\$399.50 no tips included; tips are \$53 each

**ADVANTAGES:**

- + Satisfactory performance in removal of calculus.
- + Lower cost than the Cavitron 3000 (Dentsply International).
- + Clear and concise operating and maintenance instructions.

**DISADVANTAGES:**

- Depends upon unit water for irrigation.
- Nonsterilizable handpiece and hose.
- No UL, CSA, or equivalent electrical safety certification.
- Little or no corporate history with the military for service.

**SUMMARY AND CONCLUSIONS:**

The quality of materials and workmanship, clarity of operating and maintenance instructions, and ease of access for repair and maintenance are all excellent. Overall efficiency of calculus removal, including tip design and water adjustment, was average compared to other ultrasonic scalers evaluated. However, this unit offers no significant advantage over other ultrasonic scalers. The Autoscaler is rated Acceptable for use by the federal dental services.

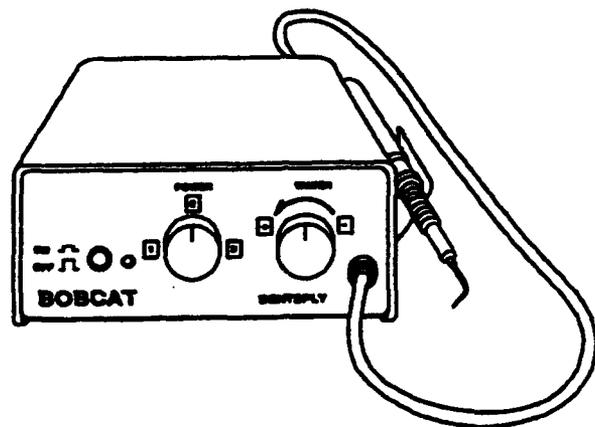
(LCDR Kuehne)

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**43-18 Bobcat Ultrasonic Scaler**

(Project 93-43C)

The Bobcat is a magnetostrictive type of ultrasonic scaler for use in periodontal and prophylaxis treatment, as well as other areas of use in operative dentistry. The unit consists of an electronic generator, a handpiece, interchangeable inserts, and a foot control. The generator converts ordinary AC house current (110 to 120 volts, 50/60 hertz) to 25,000 hertz current which is then converted in the stack within the handpiece to 25,000 microscopic mechanical strokes per second at the insert tip. This mechanical action at the tip, together with the flushing action of the coolant water, removes calculus and stain. It does not have a sterilizable handpiece similar to the Steri-Mate for the Cavitron 3000 (Dentsply International). Also, Cavitron 30K-style tips cannot be used in this



handpiece; 25K inserts are required for the Bobcat.

**Manufacturer:**

Dentsply International, Equipment Division  
11-40 Borden Avenue  
Long Island City, NY 11101-9916  
(800) 877-0020, Ext 471  
(717) 845-7511, Ext 471  
(717) 854-2491 FAX

**Retail Cost:**

\$922.00 no tips included; a total of 13 tips are available (25K type); tips are \$75 to \$94 each

**Government Cost:**

\$465.08 includes 3 tips; additional tips are \$43 to \$63 each

**ADVANTAGES:**

- + Excellent efficiency in removing calculus.
- + Good corporate history of service and reliability.
- + Has UL certification.

**DISADVANTAGES:**

- Tips are not interchangeable with Cavitron 30K-style tips.
- Depends upon unit water for irrigation.
- Nonsterilizable handpiece and hose.

**SUMMARY AND CONCLUSIONS:**

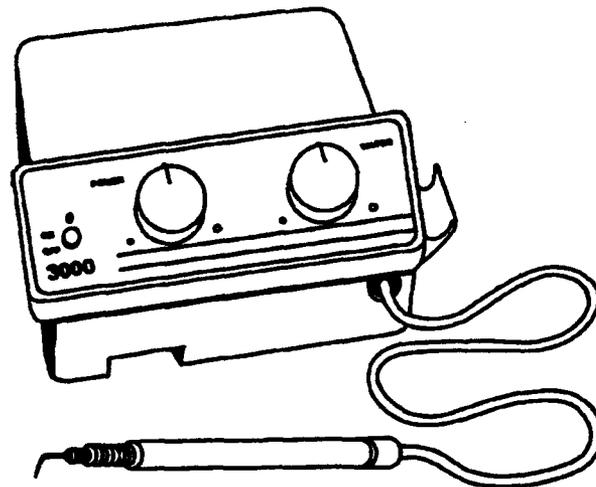
The Bobcat has slightly less power than the Cavitron 3000, but this was not a problem for the clinical users in this evaluation. It still provided excellent efficiency of calculus removal overall. The quality of materials and workmanship, clarity of operating and maintenance instructions, and ease of access for repair and maintenance are all excellent. Tip design, operator comfort, and water adjustment were excellent compared to other ultrasonic scalers evaluated. The Bobcat is rated **Acceptable** for use by the federal dental services.

(LCDR Kuehne)

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**43-19 Cavitron 3000 Ultrasonic Scaler  
(Project 93-43C)**

The Cavitron 3000 is a magnetostrictive type of ultrasonic scaler for use in periodontal and prophylaxis treatment, as well as other areas of use in operative dentistry. The unit consists of an electronic generator, a handpiece, interchangeable inserts, and a foot control. The generator converts ordinary AC house current (110 to 120 volts, 50/60 hertz) to 30,000 hertz current which is then converted in the stack within the handpiece to 30,000 microscopic mechanical strokes per second at the insert tip. This mechanical action at the tip, together with the flushing action of the coolant



water, removes calculus and stain. A Steri-Mate detachable, sterilizable handpiece is now provided for the Cavitron 3000.

**Manufacturer:**

Dentsply International, Equipment Division  
11-40 Borden Avenue  
Long Island City, NY 11101-9916  
(800) 877-0020, Ext 471  
(717) 845-7511, Ext 471  
(717) 854-2491 FAX

**Retail Cost:**

\$1522.00 includes 3 tips; a total of 13 tips are available for order; tips are \$71 to \$93 each

**Government Cost:**

\$699.08 includes 5 tips; additional tips are \$43 to \$63  
\$672.60 if three or more units are ordered

**ADVANTAGES:**

- + Excellent efficiency in removing calculus.
- + Detachable, autoclavable handpiece.
- + Good history of military service and reliability.
- + Has UL certification.

**DISADVANTAGES:**

- Depends on unit water for irrigation.
- Nonsterilizable hose.

**SUMMARY AND CONCLUSIONS:**

The quality of materials and workmanship, clarity of operating and maintenance instructions, and ease of access for repair and maintenance are all excellent. Overall efficiency of calculus removal, including tip design and water adjustment, was excellent compared to other ultrasonic scalers evaluated. The Steri-Mate sterilizable handpiece is an important addition for improved infection control. The Cavitron 3000 is rated Acceptable for use by the federal dental services.

(LCDR Kuehne)

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**43-20 Odontoson Ultrasonic Scaler**

(Project 94-14)

The Odontoson is a multi-purpose, 42,000 Hz magnetostrictive ultrasonic scaler (ferrite rod) with autoclavable handpiece and cable. A 500 mL beaker and silicone tubing are provided which, together with an integrated roller pump, allow the delivery of any sterile liquid for irrigation. The unit is recommended by the manufacturer for use in prophylaxis, periodontal and endodontic treatment.

**Source:**

PERIOgiene  
P.O. Box 9  
Fort Collins, CO 80522  
(800) 368-5776  
(303) 493-8616  
(303) 498-0543 FAX

**Retail Cost:**

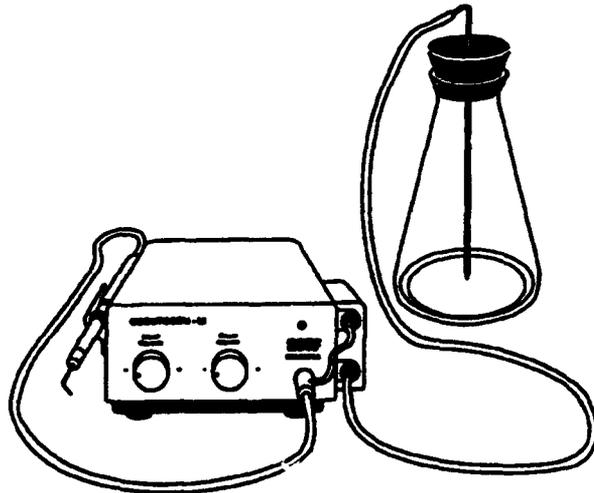
\$2595.00 includes handpiece, cable, liquid reservoir and tubing

**Government Cost:**

\$1795.00 same as above

**ADVANTAGES:**

- + Completely autoclavable handpiece and cable.
- + Ability to deliver sterile irrigating solution of choice.
- + Good operator comfort - low noise and vibration during use.
- + Efficient in removal of calculus.
- + Relatively easy to set up and disassemble.



**DISADVANTAGES:**

- Cost.
- Difficult to adjust manual control knobs in sterile manner.

**SUMMARY AND CONCLUSIONS:**

The Odontoson is an important alternative to currently available ultrasonic scalers because it has the advantage of offering complete sterility for a surgical environment and the added ability of delivering any irrigating solution desired by the surgeon. The Odontoson Ultrasonic Scaler is rated Acceptable for use by the federal dental services.

(LCDR Kuehne)

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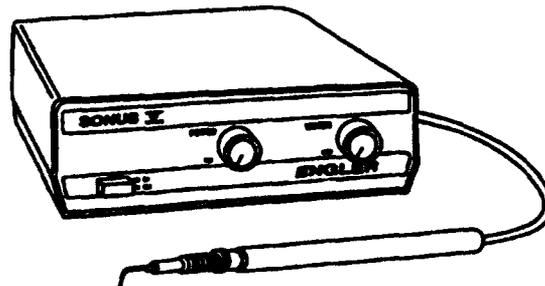
**43-21 Sonus V Ultrasonic Scaler**

(Project 93-43C)

The Sonus V is a magnetostrictive type of ultrasonic scaler for use in periodontal and prophylaxis treatment, as well as other areas of use in operative dentistry. The unit consists of an electronic generator, a handpiece, interchangeable inserts, and a foot control. The generator converts ordinary AC house current (110 to 120 volts, 50/60 hertz) to 18,000 hertz current which is then converted in the transducer stack within the handpiece to 18,000 microscopic mechanical strokes per second at the insert tip. This mechanical action at the tip, together with the flushing action of the coolant water, removes calculus and stain. The unit is also available in a 220 volt option. It differs from other ultrasonic scalers evaluated in that it does not utilize Cavitron type inserts, but screw-in tips which attach to the handpiece containing the transducer stack.

**Manufacturer:**

Engler Engineering Corp.  
1099 East 47th Street  
Hialeah, FL 33013  
(800) 445-8581  
(305) 688-8581  
(305) 685-7671 FAX



**Retail Cost:**

\$569.00 includes 4 tips; a total of 8 tips (Engler design) are available; tips

are \$28.15 each

**Government Cost:**

\$512.10 includes 4 tips; a total of 8 tips (Engler design) are available; tips are \$25.34 each

**ADVANTAGES:**

- + Very quiet operation.
- + Lower cost than the Cavitron 3000 (Dentsply International).

**DISADVANTAGES:**

- Tips not interchangeable with Cavitron style.
- Tips are bulky, making calculus removal difficult.
- Depends upon unit water for irrigation.
- Nonsterilizable handpiece and hose.
- Handpiece and screw-in tips not as durable as inserts.
- No UL, CSA, or equivalent electrical safety certification.
- Little or no corporate history with the military for service.

**SUMMARY AND CONCLUSIONS:**

The quality of materials and workmanship, clarity of operating and maintenance instructions, and ease of access for repair and maintenance are all excellent. However, the screw-in tip was bulky and not interchangeable with Cavitron-style inserts. The handpiece and transducer stack had a tendency to come apart when the tip was removed, and they were difficult to reinsert. This scaler provided less power but had the quietest operation of all the scalers evaluated. Overall efficiency of calculus removal, including tip design, was rated below average compared to other ultrasonic scalers evaluated. The Sonus V is rated Acceptable for use by the federal dental services.

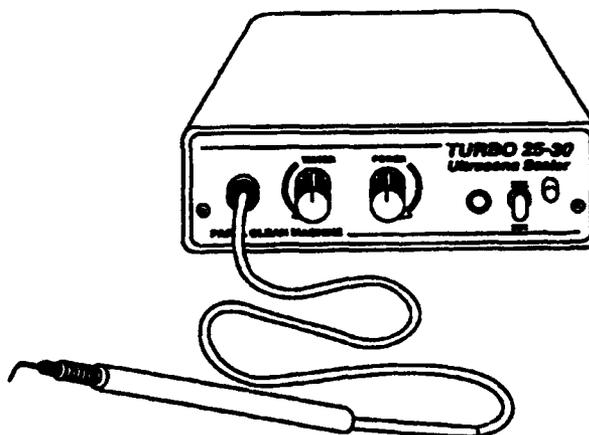
(LCDR Kuehne)

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**43-22 Turbo 25-30 Ultrasonic Scaler**

(Project 93-43C)

The Turbo 25-30 is a magnetostrictive type of ultrasonic scaler for use in periodontal and prophylaxis treatment, as well as other areas of use in operative dentistry. The complete system consists of a transformer, control unit, foot control, handpiece, and interchangeable inserts. The transformer converts ordinary AC-house current (110 to 120 volts, 50/60 hertz) to 24,500 hertz current which is then converted in the stack within the handpiece to 24,500 microscopic mechanical strokes per second at the insert tip. This mechanical action at the tip, together with the flushing action of the coolant water, removes calculus and stain. The control unit is exceptionally small and light-weight because the transformer is supplied as a separate component rather than contained within the unit. This may or may not be advantageous depending on individual space restrictions. This unit can be converted to a 30 kHz model by a toggle switch located on the front panel of the unit. It accommodates any 25K or 30K Cavitron type insert. The insert used (25K or 30K) must be consistent with the setting on the control unit.



**Manufacturer:**  
Parkell  
Box 376, 155 Schmitt Blvd.  
Farmingdale, NY 11735  
(800) 243-7446  
(516) 249-1134  
(516) 249-1242 FAX

**Retail and Government Cost:**  
\$475.00 no tips included; a total of 4 tips are available from Parkell; tips are: \$60 each

**ADVANTAGES:**

- + Satisfactory performance in removal of calculus.
- + Compact, light-weight control unit (transformer separate).
- + Toggle switch can convert unit to 30 KHz.
- + Clear and concise operating and maintenance instructions.
- + Sterilizable handpiece.

**DISADVANTAGES:**

- Depends upon unit water for irrigation.
- Nonsterilizable hose.
- No UL, CSA, or equivalent electrical safety certification.
- No handpiece holder on the unit.

**SUMMARY AND CONCLUSIONS:**

The quality of materials and workmanship, clarity of operating and maintenance instructions, and ease of access for repair and maintenance are all excellent. The control unit is very small which can be an advantage if there is little available space for the unit. Overall, efficiency of calculus removal, tip design, and water adjustment were average compared to other ultrasonic scalers evaluated. Total cost is about the same as the Cavitron 3000 (Dentsply International). In general, this unit offers no significant advantage over other ultrasonic scalers. The Turbo 25-30 is rated Acceptable for use by the federal dental services.

(LCDR Kuehne)

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### 43-23 Synopsis of Ultrasonic Scalers

This synopsis (Attachment 4) is a tabular listing of the ultrasonic units described in detail in the entries 43-17 to 43-22. The synopsis provides information on weight, government cost, and manufacturer phone numbers. It is made available to enable readers to easily compare basic information about the products.

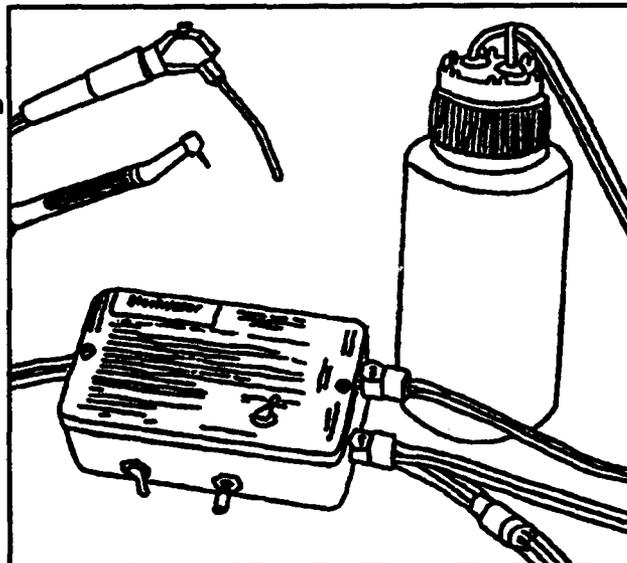
(LCDR Kuehne)

# INFECTION CONTROL

## 43-24 Steriwater

(Project 94-09)

The Steriwater is a device designed to run and control a dental handpiece or sonic scaler while dispensing sterile water through them. This device is intended to be used for surgical applications where sterile water is required. Although it is a complete system in itself, it does use the air supply and foot peddle from a commercial dental unit. All components of the Steriwater system can be sterilized by autoclaving or chemiclaving. Two chemical vapor cycles are required for sterilization if this method is used. Only one cycle of steam sterilization is required. The Steriwater system utilizes a standard four-hole adapter for use with an autoclavable four-hole handpiece or sonic scaler. The purpose of this project was to determine the product's performance as a sterile water delivery system for use with dental high speed handpieces and to evaluate the convenience, durability, and ease-of-maintenance of the product during clinical use. Clinical and laboratory trials were accomplished to determine the acceptability of the Steriwater for use by the federal dental services.



**Manufacturer:**  
Palisades Dental  
Division of Palisades Pharmaceuticals, Inc.  
P.O. Box 579  
64 North Summit Street  
Tenafly, NJ 07670  
(800) 237-9083  
(201) 569-8502  
(201) 569-7416 FAX

**Retail and Government Cost:**  
\$1095.00

### ADVANTAGES:

- + Steriwater is totally sterilizable by steam or chemical vapor methods.
- + Delivers sterile water through a four-hole dental high speed handpiece or sonic scaler.
- + Delivers sterile water and clean air through a three-way syringe for irrigation.
- + Prevents air embolism because no chip air is delivered to the handpiece.
- + No dental unit plumbing changes are required.
- + Creates a sterile surgical system when used in combination with the Impact Air handpiece or sterilizable sonic scaler.
- + Constructed from quality materials.

- + Rugged external construction.
- + Internal control box components are easy to replace and repair.

**DISADVANTAGES:**

- No fiberoptic capability.
- The operation and setup is not intuitive and requires careful attention to the instructions.
- Due to the number and length of hoses the unit is cumbersome to bag and sterilize.
- A sterilizer with a chamber of at least eight inches is required to accommodate the unit.
- If the device is placed on the floor it can be a trip hazard.
- The earlier model of this device showed frequent failure of two control valves.
- High cost.
- The three-way syringe is awkward to use for prolonged irrigation.
- Setup time is considerable.

**SUMMARY AND CONCLUSIONS:**

The laboratory evaluation of the final prototype showed that the Steriwater is a well-made device with acceptable reliability. It provides an effective method of delivering sterile water in combination with high speed handpiece or sonic scaler operation. The majority of the evaluators found the system easy to operate and effective for its intended function. Even though the Steriwater is a less than ideal solution for delivering sterile water while running dental handpieces, the device is a useable system that has many advantages over bulb irrigation and use of a conventional dental unit. The Steriwater System is rated Acceptable for use by the federal dental services.

(Lt Col Shaffer)

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**43-25 Custom Ultrasonic Cleaner**

**(Project 93-46)**

The Custom Ultrasonic Cleaner System 81-24D is an automated ultrasonic cleaner for medical and dental instruments that provides programmable cycles for ultrasonic cleaning, rinsing, and chemical disinfection. The model that was evaluated does not have an integrated drying cycle and was configured as a fiberoptic endoscope washer. A separate dryer is available at additional cost. Each Custom Ultrasonic Cleaner is custom built upon request to meet individual needs. The model evaluated was 42 inches high by 32 inches wide by 27 inches long with a maximum cleaning capacity of three 8 1/2 inch X 11 inch cassettes per cycle. This product has received Food and Drug Administration (FDA) pre-market approval (K842754) as an instrument cleaner/disinfector.

**Manufacturer:**

Custom Ultrasonics, Inc.  
144 Railroad Drive  
Ivyland, PA 18974  
(215) 364-1477

**Retail Cost:**

\$18,277.00 Ultrasonic Cleaner  
\$ 8,900.00 Dryer

**Government Cost:**

\$16,037.00 Ultrasonic Cleaner  
\$ 8,600.00 Dryer

**ADVANTAGES:**

- + Contaminated instruments are cleaned and disinfected in cassettes without handling.
- + Use of disinfection cycle increases margin of safety for dental health care workers.
- + Top of Custom Ultrasonic can be used as additional counter space when the lid is down.
- + Custom Ultrasonic can be custom fitted to existing cabinetry.
- + Equipped with hand-held water sprayer to facilitate rinsing.

**DISADVANTAGES:**

- Costly when compared to tabletop-model ultrasonic cleaners.
- Drying cycle only available as an expensive option.
- Requires large quantities of expensive chemical germicides.
- Requires manual changing of chemical solution.
- Automatic rinsing cycle did not consistently remove all residual organic soil when used with instrument cassettes.
- Relatively small capacity when compared to comparably priced large volume medical ultrasonic cleaners or instrument washers.

**SUMMARY AND CONCLUSIONS:**

The Custom Ultrasonic Cleaner System 81-24D allows dental healthcare providers to clean and disinfect instruments with minimal handling. The manufacturer will custom make the ultrasonic cleaner to fit existing cabinetry. The Custom Ultrasonic Cleaner was very effective in loosening organic soil. The rinsing cycle, however, was not always sufficient to remove all residual organic soil and instruments contained in cassettes often required manual rinsing at the end of the cycle. The Custom Ultrasonic System 81-24D is rated Acceptable for use by the federal dental services.

(Col Mills, DT1 Freeman, TSgt Springstead)

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**43-26 Phoenix II Safety Eyewear****(Project 93-20)**

Many requests have been received for information on acceptable prescription and non-prescription safety eyewear. Air Force Regulation 167-3 requires dental services to pay for all safety eyewear provided to dental personnel. The OSHA Bloodborne Pathogens Standard, CFR 1910.1030, requires employers to provide healthcare workers with personal protective equipment (PPE) including eye protection, for situations where exposure is reasonably anticipated. This project was designed to evaluate the user acceptance of U.S. Safety's prescription safety eyewear provided for evaluation.

**Manufacturer:**

U.S. Safety  
8101 Lenexa Drive  
P.O. Box 15965  
Lenexa, KS 66285-5965  
(800) 821-5218  
(913) 599-5555  
(800) 252-5002 FAX

**Retail Cost:**

Cost per prescription (includes prescription lenses, carrying case, and standard frame; other frames available at additional cost):

Single Vision:	\$26.00	Bifocal:	\$47.00
Trifocal:	\$59.00	Dual Seg:	\$75.00

The Phoenix II frame selected for this evaluation is available at an additional cost of \$15.00.

**Government Cost:**

Cost per prescription (includes prescription lenses, carrying case, and standard frame; other frames available at additional cost):

Single Vision:	\$21.00	Bifocal:	\$38.00
Trifocal:	\$47.00	Dual Seg:	\$60.00

The Phoenix II frame selected for this evaluation is available at an additional cost of \$12.00 (Add \$0.60 each for side shields). The plano (non-prescription version) is priced at \$4.60 each with side shields when purchased in lots of 10 or more. U.S. Safety has a wide variety of additional frames available, ranging in price from \$2.00 to \$34.00.

**ADVANTAGES:**

- + Meets OSHA and ANSI standards for protective eyewear.
- + Light weight graphite polymer frame.
- + Lower cost than retail optical shops.
- + Good compliance with prescriptions submitted for this evaluation.
- + Good overall protection from aerosols and spatter in both frame styles evaluated.
- + Prompt and convenient mail order service.
- + Good durability.
- + Excellent field of view.
- + Same frame available with both prescription and nonprescription lenses.

**DISADVANTAGES:**

- Lack of adjustable nose pads.
- Lenses susceptible to scratching and fogging without optional coatings (true of all plastic and polycarbonate lenses).
- User perception of inadequate brow protection.
- More expensive for most prescription types than competing mail order service evaluated.

**SUMMARY AND CONCLUSIONS:**

Overall, the U.S. Safety Phoenix spectacles were very well-received by clinical users. The most highly rated features were: weight, field of view, comfort, and fit. All other features were rated as acceptable. Users with prescription lenses reported that all spectacles were within the parameters of the prescriptions provided. Prices for this product were higher, overall, than for a competing mail order service recently evaluated. Although few problems were encountered with the Phoenix II frame, results of the concurrent evaluation emphasized the inherent difficulty in selecting a single frame that will be acceptable to all users as well as the need for careful examination and fitting by an optometrist. Phoenix II Safety spectacles are rated Acceptable for use by the federal dental services.

(Col Mills)

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**43-27 Disposable Infection Control System (CasCo)****(Project 94-15S)**

The Disposable Infection Control System is a series of prepackaged, disposable barriers and personal protective equipment items used to enhance infection control in the dental treatment room. The packages include items such as patient napkins, provider mask, cotton rolls, gauze squares, and suction tips. Eight different packages are available and each includes different combinations of disposable items as noted on the following page.

**Dentist Kit #D-G-111**

- 1 Chair Shield
- 1 Delivery System Shield
- 1 Patient Bib
- 2 T-Light Handle Covers
- 2 Earloop Masks
- 2 Syringe Sleeves
- 1 Saliva Ejector
- 1 HVE (Combo) Tip
- 1 Gingicaine One Topical Swab
- 6 Gauze Sponges (2X2)
- 6 Cotton Rolls

**Dentist Kit #D-G-222**

Includes #D-G-111  
plus 1 Plastic Tray Shield

**Dentist Kit #D-G-333**

Includes #D-G-111  
plus 1 Plastic Tray Shield  
plus 1 Paper Tray Cover

**Dentist Kit #D-G-444**

Includes #D-G-111  
plus 1 Paper Tray Cover

**Hygienist Kit #H-G-111**

- 1 Chair Shield
- 1 Delivery System Shield
- 1 Patient Bib
- 1 T-Light Handle Cover
- 1 Earloop Mask
- 1 Syringe Sleeve
- 1 Saliva Ejector
- 1 HVE (Combo) Tip
- 6 Gauze Sponges (2X2)
- 6 Disposable Prophy Angle
- 1 Prophy Paste (Mint)

**Hygienist Kit #H-G-222**

Includes #H-G-111  
plus 1 Plastic Tray Shield

**Hygienist Kit #H-G-333**

Includes #H-G-111  
plus 1 Plastic Tray Shield  
plus 1 Paper Tray Shield

**Hygienist Kit #H-G-444**

Includes #H-G-111  
plus 1 Paper Tray Shield

**Manufacturer:**  
CasCo Systems, Inc.  
P.O. Box 9247  
Memphis, TN 38109  
(901) 789-0908

**Government Cost:**  
These prices include freight in the continental United States.

	D-G-111	H-G-111	D-G-222	H-G-222
100 Cases	1.46	1.50	1.52	1.48
1,000 Cases	1.42	1.46	1.48	1.44
5,000 Cases	1.39	1.43	1.45	1.41
10,000 Cases	1.35	1.39	1.41	1.37

Hygienist's Kit can include Gingicaine swab if requested at a cost of 20 cents per kit.

**ADVANTAGES:**

- + Enhances aseptic technique in the dental treatment room (DTR).
- + Reduces multiple packaging for different quantities.
- + Reduces storage space in the DTR.
- + Facilitates more rapid preparation of the DTR.
- + Supply only needs to order one item instead of as many as 13 separate items.

**DISADVANTAGES:**

- Not all users like earloop masks.
- Light handle covers only fit T-Bar lights.
- Some users may prefer brand items other than those provided in the kit.

**SUMMARY AND CONCLUSIONS:**

The cost of the Disposable Infection Control Systems was compared with current supplies used in U.S. Air Force dental clinics. A USAF dental clinic using its own supplies would spend approximately \$1.00 for items comparable to those included in the CasCo dentist kit and \$1.20 for items comparable to those included in the CasCo hygienist kit, not including the shipping and packaging costs. Although the CasCo products are approximately 20 cents more per pack, they may be more efficient and cost-effective to use because instead of ordering and stocking as many as 13 separate items and paying 13 separate surcharges, only one item is ordered and stocked, and only one surcharge is paid. DTR set-up is facilitated because everything needed is in the kit. This reduces the chance that the assistant will forget a barrier or other item which would necessitate ungloving and regloving, thereby interrupting patient care. *This product could be very beneficial in dental clinics that use a central sterilization system as long as the disadvantages are reviewed and discussed prior to purchasing.* CasCo Systems will custom design kits. The CasCo Systems are rated Acceptable for use by the federal dental services.

(TSgt Foster)

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**43-28 ASEP-PAK™ Premium Patient Pak**

**(Project 94-74S)**

The ASEP-PAK™ Premium Patient Pak is a prepackaged collection of disposable barrier and personal protective equipment items used to enhance infection control in the dental treatment room. The Premium Patient Pak contains the following disposable items:

- 1 Patient Bib
- 1 Saliva Ejector
- 5 Cotton Sponges
- 2 Cotton Tip Applicators
- 1 HVE Evacuator Tip
- 5 Cotton Rolls
- 2 Earloop Masks
- 1 Half Chair Cover
- 1 Delivery System Cover
- 1 Air/Water Syringe Cover
- 2 Handpiece Tubing Covers
- 2 Sticky-Back Barrier Film Sheets
- 1 Disposable Infectious Waste Bag

**Manufacturer:**

CareTek Protective Products  
A Division of CareTek Resources, Inc.  
P.O. Box 260051  
6355 East Nassau Court  
Highlands Ranch, CO 80126  
(800) 545-7587  
(303) 470-1947  
(800) 545-7587 FAX

**Government Cost:**  
\$1.50 per Pak when ordering 5,000 or more

**ADVANTAGES:**

- + Enhances aseptic technique in the dental treatment room (DTR).
- + Reduces multiple packaging for different quantities.
- + Reduces storage space in the DTR.
- + Standardizes preparation of the DTR; facilitates training in DTR set-up.
- + Supply only needs to order one item instead of 13 separate items.
- + Light handle barrier adapts to various handle configurations.
- + Includes a convenient, easy-to-use infectious waste disposal bag.

**DISADVANTAGES:**

- Not all users like earloop masks.
- Some users may prefer brand items other than those provided in the kit.

**SUMMARY AND CONCLUSIONS:**

The cost of the ASEP-PAK™ Premium Patient Pak was compared with current supplies used in Air Force dental clinics. The results were that USAF dental clinics using their own supplies would spend approximately \$1.30 for items comparable to those included in the ASEP-PAK™ Premium Patient Pak, not including shipping and packaging cost. Although the Pak is approximately 20 cents more, it may be more efficient and cost-effective to use because instead of ordering and stocking 13 separate items and paying 13 separate surcharges, only one item is ordered and stocked, and only one surcharge is paid. DTR set-up is facilitated because everything needed is in the kit. This reduces the chance that the assistant will forget a barrier or other item which would necessitate un gloving and re gloving, thereby interrupting patient care. This Pak could be very beneficial in dental clinics that use a central sterilization system as long as the disadvantages are reviewed and discussed prior to purchasing. CareTek Protective Products is willing to custom design paks for individual clinics with a minimum 5,000 quantity order; price will vary from the cost quoted above. ASEP-PAK™ Premium Patient Pak is rated Acceptable for use by the federal dental services

(TSgt Foster)

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**43-29 Synopsis of Handpiece Barriers**

**(Project 94-35S)**

The purpose of this synopsis (Attachment 5) was to compile a list of commercially available handpiece barrier sleeves to provide dental facilities with quick access to general information for ordering purposes.

Most handpiece barrier sleeves are in the shape of a tube and are plastic. Usually they are non-sterile. Only one of the products listed in the synopsis, Pinnacle's H.P. Sleeve, is plastic on one side and paper on the other. All the others are plastic. Long barrier sleeves are useful for several different applications including barrier protection of ultrasonic scaler handles and high volume evacuation hoses.

The Hose Cover Bag (Better Containers MFG) can be ordered with or without a tape strip. The tape strip provides a tight fit around air and water hoses. The handpiece can be kept covered until ready for use, then the operator can force the working end of the handpiece through the bag and secure it in place with the tape strip.

Some companies, such as CareTek Protective Products, manufacture a complete line of disposable barrier products which, for a nominal fee, can be ordered as a kit. The kits are generic and include

many commonly used disposable items, including handpiece barrier sleeves used during dental procedures.

Although letters requesting information on barrier sleeves were sent to 54 manufacturers, only 8 responded. Therefore, the synopsis is not meant to be all-inclusive, but only represents the eight manufacturers who replied to our request for information.

(TSgt Springstead)

## SYNOPSIS OF INSTRUMENT WASHERS

	MDT 7626	MDT 7622	MDT 7550	AMSCO 410	AMSCO 444	Miele G7781
Chamber Size, W X D	26" X 26"	22" X 22"	24" X 25"	24" X 24"	24" X 24"	19.6" X 21.1"
Chamber Height	26"	15"	26"	20"	26"	19.6"
Load Height & Door Type	34" Fold out or Vertical	34" Fold out or Vertical	34" Fold out only	36" Vertical only	29" Vertical only	11" or 27" with UE40-60 base, Fold out only
Pass-Through Option	Yes	Yes	Yes	Yes	Yes	No
Wash Pump Recirculation Rate	145 Gallons Per Minute	75 Gallons Per Minute	251 Gallons Per Minute	100 Gallons Per Minute	240 Gallons Per Minute	106 Gallons Per Minute
Cold Water Pre-Wash	Standard	Standard	Standard	No	Standard	Standard (Not on all Programs)
Enzyme Pre-Wash	Option	Option	No	No	Option	No
Neutral Wash	Standard	Standard	Option	Standard	Standard	No
Alkaline Wash	No	No	Standard	No	No	Standard
Acid Rinse	No	No	Standard	No	No	Standard
Wash Agent Pump	Option	Option	Standard	Standard	Standard	Option (Model G7796)
Acid Rinse Pump	N/A	N/A	Standard	N/A	N/A	Standard
Wash Temp & Time at That Temp	185°F Time Variable (0-99 Minutes)	185°F Time Variable (0-99 Minutes)	185°F 10 Minute Minimum	140°F 0-9 Minutes	180°F Wash(2-15 Min) & 203°F Rinse(1- 10 Min)	200°F 10 Minutes
Process Time (No Drying)	10 Minutes	5 Minutes	30 Minutes	7 Minutes	20 Minutes	36 Minutes
Drying Time	15 Minutes	15 Minutes	10 Minutes	No	15 Minutes	10 Minutes
Tap Water Rinse	Standard	Standard	Standard	Standard	Standard	Standard

	MDT 7626	MDT 7622	MDT 7550	AMSCO 410	AMSCO 444	Miele G7781
Deionized Water Rinse & Lubricate	Option	Option	Standard (DI water required)	No	Option	No
Drying	Option - External Vent	Option - External Vent	Option - External Vent	No	Option - External Vent	Standard Internal Condenser Vent
Utilities *Optional	Hot water, Cold water, Drain, Electric, DI Water*, Steam*	Hot water, Cold water, Drain, Electric, DI Water*, Steam*	Hot water, Cold water, Drain, Electric, DI Water, Steam*	Hot water, Drain, Electric, Steam*	Hot water, Cold water, Drain, Electric, DI Water*, Steam*, 90 psi Air	2-Cold water, 2-Drains, Electric (208 or 220 only)
Approx Price	\$30,000	\$23,000	\$33,000	\$25,000	\$40,000	\$8,000 UE40-60 Base-\$525; G7796 with one DOS Detergent Pump-\$1685

\* Optional utility requirement

MDT Corporation, Inc.  
1777 East Henrietta Road  
Rochester, NY 14692  
Government Representatives: Ken Sealy and Denise Sanders  
(800) 394-4638  
(410) 757-8585  
(410) 757-1586 FAX

AMSCO  
2424 West 23rd Street  
Erie, PA 16506  
Government Representative: Allan Glasgow  
(800) 333-8838  
(814) 870-8165  
(814) 870-8474 FAX

Miele Professional Products Group  
22D Worlds Fair Drive  
Somerset, NJ 08873  
Government Representative: Dennis O'Brian  
(800) 843-7231  
(908) 560-0899  
(908) 560-9649 FAX

## SYNOPSIS OF INDIRECT COMPOSITE RESIN SYSTEMS

PRODUCT	MANUFACTURER	SUGGESTED USES	COMMENTS	METHOD OF POLYMERIZATION	SHADES AVAILABLE	% FILLER CONTENT (by w/w by vol)	GOVT COST (\$/KIT)
Brilliant D.I.-500 Lab System	Coltene Wholesale, Inc. 750 Corporate Drive Mahwah, NJ 07430 (800) 221-3046 (201) 512-8000 (201) 528-2103 FAX	veneers, inlays, onlays	Contains 15 syringes of resin, characterization colors, separating solution, and D.I.-500 light/heat unit; lab system is not supplied with resin cement; dental office version of product comes with instructional videotape and Duo resin cement	light and heat	6 enamel, 8 dentin, 1 incisal; shades are indexed to the Vita shade guide	78%/59%	\$1121.25
Charisma Kit	Heraeus Kubler, Inc. 10005 Mulhends Blvd., Unit G Irvine, CA 92718 (800) 854-4003 (714) 770-0219 (714) 770-5019 FAX	veneers, inlays, onlays	Contains 14 syringes of resin, shade guide, Dentinefix II bonding agent; is not supplied with a resin cement or polymerization unit	light; Translux ECS light unit with light box is available for \$1195.00	9 body, 1 incisal, 4 opaque; shades are indexed to the Vita shade guide	79%/60%	\$435.00
Clearfil CR Inlay Complete System	J. Morita USA, Inc. 14712 Bentley Circle Tustin, CA 92680 (800) 752-0729 (714) 544-2854 (714) 730-0783 FAX	inlays	Contains 3 syringes of resin, 4 syringes of stains, separating solution, CR Inlay Cement, etching gel, and shade guide; heat unit is not included; material is initially polymerized with hand-held light and then polymerized extraorally in heat unit	light and heat; CRC-100 heat unit is available for \$194.35	6 (3 body and 3 stains; 1 stain is transparent); shades are not indexed to the Vita shade guide	86.5%/72%	\$243.00
Concept	Ivoclar North America 175 Pineview Drive Amherst, NY 14228 (800) 533-8825 (716) 691-0010 (716) 691-2285 FAX	inlays, onlays	Contains 8 jars of resin, separating solution, polishing paste, 3 modeling instruments, and Ivomat IP-3 heat/pressure unit; does not include a resin cement	heat and pressure	7 body, 1 incisal; shades are indexed to the Vita shade guide	73-76%/54-58%	\$2999.00

\* As suggested by the manufacturer

## SYNOPSIS OF INDIRECT COMPOSITE RESIN SYSTEMS

PRODUCT	MANUFACTURER	SUGGESTED USES	COMMENTS	METHOD OF POLYMERIZATION	SHADES AVAILABLE	% FILLER CONTENT (by w/w by vol)	GOVT COST (\$/KIT)
Conquest Crown and Bridge Master Kit	Jeneric/Pentron 53 N. Plains Industrial Road P.O. Box 724 Wallingford, CT 06492 (800) 243-3100 (203) 265-7397 (203) 284-3310 FAX	veneers, inlays, onlays, veneering material on frameworks and individual castings	Contains 36 syringes of resin, 7 color concentrates, 16 opaque, neck and effect pastes, separating solution, and polishing paste; neither a resin cement nor the heat/vacuum unit is included; material is initially polymerized with a hand-held light and then polymerized extraorally in a heat/vacuum unit	light, heat, and vacuum; Litex 660 light unit is available for \$337.50; Conquest heat/vacuum unit is available for \$481.50; vacuum pump is \$301.50	16 body, 16 opaque, 4 incisal; shades are indexed to the V/ta shade guide	78%/68%	\$1214.96
Dentacolor Basic Kit	Heraeus Kulzer, Inc. 10005 Mulfrands Blvd., Unit G Irvine, CA 92718 (800) 954-4003 (714) 770-0219 (714) 770-5019 FAX	veneers	Contains 53 shades of resin, 17 opaque powders, 8 bottles of opaque liquid, 10 intensifiers, and separating solution; light unit is not included	light; Dentacolor XS light unit is available for \$2335.00	53; shades are indexed to the V/ta shade guide	51%/40%	\$1645.00
Herculite XRV-Lab	Kerr Manufacturing Company 28200 Weik Road Box 455 Romulus, MI 48174-0908 (800) 537-7123 (313) 946-7800 (313) 946-8353 FAX	veneers, inlays, onlays	Contains 37 syringes of resin, Kolor Plus modifier kit, Danville Engineering microetcher, die spacers, silane solution, and separating solution; material is initially polymerized with a hand-held light and then polymerized extraorally by immersion in 100°C hot water	light and heat	16 enamel, 16 dentin, 2 incisal, 3 cervical; shades are indexed to the V/ta shade guide	78%/59%	\$569.50
Prelude	Jeneric/Pentron 53 N. Plains Industrial Road P.O. Box 724 Wallingford, CT 06492 (800) 243-3100 (203) 265-7397 (203) 284-3310 FAX	veneers, inlays, onlays	Contains 8 syringes of resin, separating solution, sculpting liquid, and polishing paste; does not include a resin cement or polymerization light unit	light; Cure-Lite Plus light unit is available for \$535.50	6 body, 1 incisal, 1 opaque; shades are indexed to the V/ta shade guide	76%/67%	\$242.96

• As suggested by the manufacturer

## SYNOPSIS OF INDIRECT COMPOSITE RESIN SYSTEMS

PRODUCT	MANUFACTURER	SUGGESTED USES	COMMENTS	METHOD OF POLYMERIZATION	SHADES AVAILABLE	% FILLER CONTENT (by wt/by vol)	GOVT COST (\$/KIT)
SR-Chromast Resin System	Inocer North America 175 Pheview Drive Amherst, NY 14228 (800) 533-8825 (716) 691-0010 (716) 691-2265 FAX	veneering material on frameworks and individual castings	Contains 27 containers of resin, 4 Creative Dentin Modifiers, 3 Creative Incisal Modifiers, 9 Intensive (stains), and the Ivomat IP-3 heat/pressure unit; does not include a resin cement	heat and pressure	20 dentin, 5 incisal, 1 gingival, 1 transparent ; shades are not indexed to the V/a shade guide	69.3%/NA	\$2334.90
Triad Laboratory Inlay System-Introductory Kit	Dentaply International 570 W. College Avenue P.O. Box 872 York, PA 17405-0872 (800) 877-0020 (717) 945-7511 (717) 848-4351 FAX	Inlays, onlays	Contains 8 syringes of resin and shade guide; does not include light unit or resin cement; user must also purchase Inlay Accessory Kit for \$29.00 in order to use system	light; Triad 2000 light unit available for \$487.00	8; shades are indexed to the V/a shade guide	79%/53%	\$107.25
Visio-Gem	ESPE-Premier 1710 Romano Drive P.O. BOX 111 Northtown, PA 19404 (800) 344-8235 (215) 277-3800 (800) 542-1072 FAX	veneering material on frameworks and individual castings	Contains 48 dispensers of resin, opaque powders and liquids, and separating solution; comes with Visio Alfa light unit, Visio Beta light/vacuum unit, and vacuum pump; material is initially polymerized with Alfa unit and then polymerized in Beta unit	light and vacuum	16 body, 6 incisal, 3 stain; shades are indexed to the V/a shade guide	NA/38%	\$4254.90
Compaq R System Kit	Ney Dental International 1280 Blue Hill Avenue Bloomfield, CT 06002-3714	veneers, veneering material on frameworks and individual castings	Contains 16 syringes of resin (each with a cervical, incisal, and dentin shade), opaque powders and liquids, modifiers, oxygen inhibiting gel, and Compaq light unit	light	16; shades are indexed to the V/a shade guide	NANA	\$3995.00

• As suggested by the manufacturer

## SYNOPSIS OF ELECTROSURGERY UNITS

Vendor's information	Model Accessories	Price	Dimensions Grounding method	Power output Frequency	Operating modes
Ellman International, Inc. 1135 Railroad Avenue Newlett, NY 11557 (800) 835-5355 (516) 569-1482 (516) 569-0054 FAX	90 FFP Handpiece Standard tips Vari Tip	Retail \$995.00 \$69.95 \$13.95 \$21.00 Gov't \$695.50 \$62.95 \$12.56 \$19.76	5" High 8" Wide 5" Deep 7 lbs Antenna plate	90 watts 3.8 MHz RF output indicator: Light on front panel	Cut Cut/Coag Coag Fulgurate Bipolar-optional
Mecan Engineering 1200 N. Damen Avenue Chicago, IL 60622 (312) 772-2000 (312) 772-2003 FAX	MC-6 Handpiece Standard tips Med and M71 tips	Retail \$795.00 \$35.00 \$6.50 \$9.25 Gov't \$556.00 \$24.50 \$6.50 \$9.25	2 3/4" High 6 1/2" Wide 11 1/2" Deep 5 1/2 lbs Antenna plate	92.5RMS watts 2.9 MHz RF output indicator: Light on front panel	Cut Cut/Coag Coag Fulgurate
Mecan Engineering 1200 N. Damen Avenue Chicago, IL 60622 (312) 772-2000 (312) 772-2003 FAX	MC-4 Handpiece Standard tips Med and M71 tips	Retail \$625.00 \$35.00 \$6.50 \$9.25 Gov't \$437.00 \$24.50 \$6.50 \$9.25	3 1/2" High 8 1/2" Wide 5 1/4" Deep 6 lbs Antenna plate	90 watts 2.9 MHz RF output indicator: Light on front panel	Cut Cut/Coag Coag
Wheledent International 750 Corporate Drive Mahwah, NJ 07430 (800) 221-3046 (201) 512-8000 (201) 529-2103 FAX	57115 Sheaths	Retail \$875.00 \$43.00 Gov't \$521.25 \$18.30	6" High 4" Wide 9" Deep 5 lbs Flexible antenna plate	45 watts 3.69 MHz RF output indicator: Light on front panel and on handpiece	Cut Cut/COAG Coag
Parkell Box 8 Farmingdale, NY 11735 (800) 243-7446 (516) 249-1134 (516) 249-1242 FAX	5008E Handpiece Standard tips	Retail \$425.00 \$45.00 Gov't \$425.00 \$5.25	3" High 11" Wide 6 1/2" Deep 7 lbs Antenna plate	100 watts 2 MHz, RF output indicator: Light on front panel	Cut Cut/Coag Coag Fulgurate
Acadent/American Medical & Dental Corp. P.O. Box 733 Cherry Hill, NJ 08033 (800) 289-6367 (609) 429-2953 FAX	Neocurge Handpiece Standard tips Med and M71 tips	Retail \$699.00 \$45.50 \$8.95 \$10.95 Gov't \$550.00 \$45.50 \$8.95 \$10.95	Manufactured by Mecan; same as Mecan M-6	Same as Mecan M-6	Same as Mecan M-6
All units are available in: 110volts/50Hz 110volts/60Hz 220volts/50Hz 220volts/60Hz All units come standard with autoclavable handpieces and with 3 to 5 electrode tips; extra electrode tips are offered as optional accessories.		Explanation of operating modes: Cut = fully rectified filtered Cut/Coag = full wave rectified Coag = partially rectified Fulgurate = unrectified Unfiltered Bipolar = partially rectified			

**SYNOPSIS OF ULTRASONIC SCALERS**

<b>PRODUCT NAME</b>	<b>MANUFACTURER</b>	<b>FREQUENCY</b>	<b>DIMENSIONS &amp; WEIGHT</b>	<b>GOV'T COST</b>	<b>CALCULUS* REMOVAL</b>	<b>USER** FRIENDLINESS</b>
Odontoson	PERIOgiene Fort Collins, CO (800) 368-5776 (303) 493-8616 (303) 498-0543 FAX	42 KHZ	7"W x 9"D x 2.5"H 6 lbs	\$1795.00 includes 4 tips and holder	Superior	Very Good
Cavitron 3000	Dentsply International Equipment Division Long Island City, NY (800) 877-0020, Ext 471 (717) 845-7511 (717) 854-2491 FAX	30 KHZ	8"W x 8"D x 4"H 6.8 lbs	\$699.08 (\$672.60 for 3 or more) includes 5 tips	Superior	Very Good
Bobcat	Dentsply International (800) 877-0020, Ext 471 (717) 845-7511 (717) 854-2491 FAX	25 KHZ	7"W x 9"D x 3.5"H 6.4 lbs	\$465.08 includes 3 tips	Superior	Very Good
Autoscaler	South East Instruments Gainesville, FL (800) 648-9445 (904) 332-0125 (904) 332-0186 FAX	25 KHZ	9"W x 9"D x 3"H 7.4 lbs	\$558.50 includes 3 tips at \$53 each	Average	Good
Turbo 25-30	Parkell Farmingdale, NY (800) 243-7446 (516) 249-1134 (516) 249-1242 FAX	25 KHZ 30 KHZ also avail.	6"W x 8"D x 2"H 4.5 lbs	\$655.00 includes 3 tips at \$60 each	Average	Good
Sonus V	Engler Engineering Corp Hialeah, FL (800) 445-8581 (305) 688-8581 (305) 685-7671 FAX	18 KHZ	8"W x 10"D x 3.5"H 7.5 lbs	\$512.10 includes 4 tips	Inferior	Good

\* Includes size and shape of tips, power, irrigation, etc.  
 \*\* Includes operating instructions, noise, maintenance, ease of use, etc.

## SYNOPSIS OF HANDPIECE BARRIERS

PRODUCT/ COMPOSITION	MANUFACTURER/ ADDRESS	GOVERNMENT REP/ PHONE AND FAX	PACKAGING	GOVERNMENT COST	COMMENTS
Syringe cover/ Plastic	Barrier Supply P.O. Box 90171 Casper, WY 82609	Bill Bright (800) 443-7338 No FAX	1000 per box	\$11.99 per box	Order #: 2 x 10; 2 inches wide x 10 inches long
Hose Cover Bag/Plastic	Beiler Containers MFG. 530 Hyde Park Avenue Hillside, IL 60162	William Christl (800) 831-6049 (708) 547-7106 FAX	500 per case	\$12.00 per case	Order #: HC0324 (with tape) or S80210NT (no tape); Approximately 2.5 inches wide x 10 inches long
Tube Box/Plastic	Cottrell, Ltd 7399 S. Tucson Way Englewood, CO 80112	Kristin Leonard (800) 843-3343 (303) 799-9408 FAX	500 per box 250 per box	\$16.15 per box \$20.35 per box	Order #: BB-0312H (3 inches wide x 12 inches long) or BB-0336H (3 inches wide x 36 inches long)
Tubing Cover/ Plastic	CareTek Protective Products P.O. Box 250051 6355 E. Neeau Court Highlands Ranch, CO 80126	Karen Johnson (800) 545-7587 (800) 545-7587 FAX	200 per box	\$23.40 per box	Order #: TC3060; 3 inches wide x 5 feet long
Handpiece- Syringe Sleeve/ Plastic	Barrier Protection Products P.O. Box 308 Marlboro, NJ 07746	Frank Tuck (800) 825-5727 (908) 760-8665 FAX	500 per box	\$10.25 per box	Order #: PN es-500; 2.5 inches wide x 10 inches long
Disposa-Shield/ Plastic	Dentaply/Ash 570 W. College Avenue York, PA 17405-0872	Jean Firestone (800) 877-0020 (717) 843-5851 FAX	500 per box	\$12.95 per box	Order #: A880055 (Low Speed Contra Angle) or A990065 (Low Speed Long); Approximately 1.25 inches wide x 7.75 inches long
H.P. Sleeve/ Plastic-Paper	Pinnacle 624 S. Smith Avenue St. Paul, MN 55107	Thomas Lanning (800) 878-3902 (612) 222-3904 FAX	500 per box	\$23.10 per box	Order #: 4000 (Slow speed, scaler, jet polish) or #4050 (Contra angle); Approximately 1.5 inches wide x 9 inches long
H.P. Barrier/ Plastic	The Supply House 11291 Sunrise Park Drive Rancho Cordova, CA 95742	Albert Cabral (800) 800-4939 (916) 638-0116 FAX	500 per box	\$23.95 per box	Order #: 347-00022; 2.5 inches wide x 10 inches long

**DEPARTMENT OF THE AIR FORCE  
USAF DENTAL INVESTIGATION SERVICE  
ARMSTRONG LABORATORY/AOCD  
BROOKS AFB TX 78235-5117**

**FIELD ASSISTANCE REQUEST**

**NAME OF REQUESTOR** \_\_\_\_\_

**RETURN ADDRESS** \_\_\_\_\_

**PHONE: DSN** \_\_\_\_\_ **COMMERCIAL ( )** \_\_\_\_\_ **FAX** \_\_\_\_\_

**INFORMATION REQUESTED:**

**TYPE OF RESPONSE DESIRED: TELEPHONE**\_\_\_\_ **LETTER**\_\_\_\_ **MESSAGE**\_\_\_\_

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**FOR DIS USE ONLY**

**Project Officer** \_\_\_\_\_

**Date Received** \_\_\_\_\_ **Date Completed** \_\_\_\_\_

**DIS NEWSLETTER #43**

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