Brunswick

Pin Care Manual

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Some Straight Talk About Pins

Successful bowling proprietors use the procedures in this manual to get the most in life and scoring from their tenpins.

The type of tenpin in widest use today has a laminated hard maple wood core coated with a thick layer of thermoplastic and a topcoat. The life of a bowling pin is largely affected by five factors. These factors are:

1. *The inherent strength of the wood core.*
2. *The basic durability of the coating.*
3. *Maintenance of the pins.*
4. *Maintenance of pin decks, pits and the pin handling portion of the pinsetter.*
5. *The percentage of high-speed, heavy-ball bowlers bowling at a particular center.*

The first two items, core and coating strength, are controlled by the manufacturer and, in the case of Brunswick, are developed to a high degree so that the durability of both core and coating as a system is very high. This statement does not mean that no failures will occur. With wood being the natural product it is, a few "early" failures may take place.

The point here is that both the core and coating will last thousands of lines *provided* pin maintenance and equipment maintenance are done properly. The fifth item (high-speed, heavy-ball bowlers) cannot be controlled by either party.

Proper pin and equipment maintenance as well as correct warranty claim evaluation are what this manual is all about. Heavy emphasis is placed on equipment maintenance because, if done conscientiously, pin life is greatly enhanced.

The Life Of A Bowling Pin

The life of a pin depends on:

- *How many games bowled*
- *Maintenance of pins*
- *Maintenance of machines*
- *Type of bowler*
- *Type of bowling ball*
- *Lane conditions*

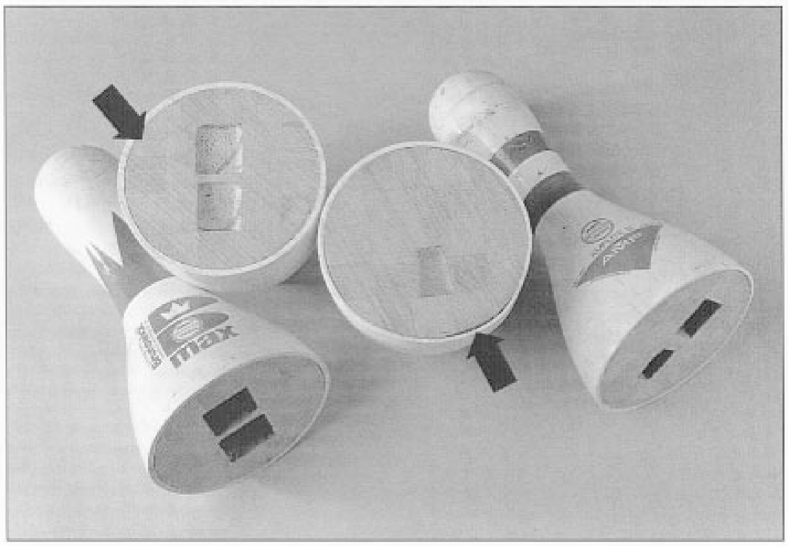
Under normal conditions, with two sets of pins per pinsetter, a pin should last:

• *30 games per day*	*6 months*
• *60 games per day*	*4 months*
• *90 games per day*	*2 months*

Wood Densification

Mechanics will sometimes complain about a dead sound, believing the wood inside is cracked. Because Surlyn® is an extremely resilient material, normal densification (from the constant impact of bowling balls hitting the pins) cannot be seen. Instead, the wood will compress but the Surlyn will not. This causes a small void between the wood and Surlyn. This will occur in the belly as well as the head of a pin. This densification is normal and is not covered by warranty.

NOTE: Many people check for dead sound by taking two pins and banging the bellies together (*Figure 1*). *This is incorrect.* The proper way to check for dead sound is to hold the pin by the belly with both hands and the head pointed down (*Figure 2*). Strike the head on a hard, flat surface, preferably a concrete floor. The pin should make a ringing sound. If it makes a "cracked bat" sound, it could be a dead pin. If it makes a dull sound it is just showing the normal effects of wood densification from routine use. This is common of all pins in use today regardless of the manufacturer.



Normal wood densification.

FIGURE 1 — Incorrect method of checking for wood densification.

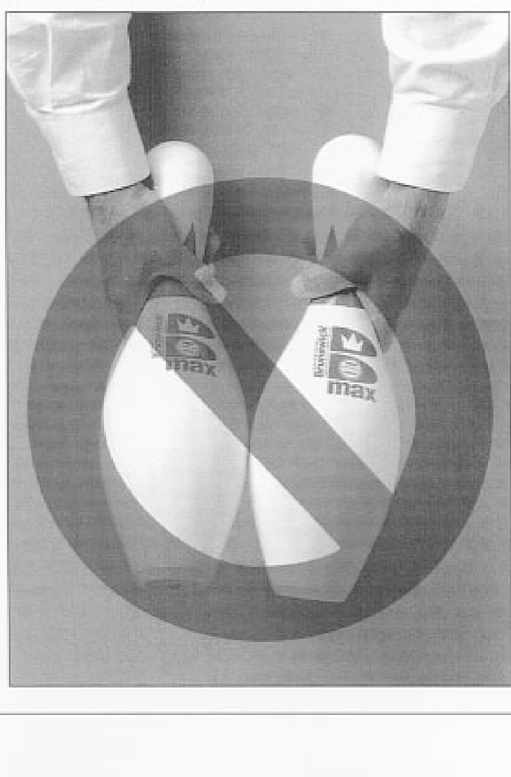
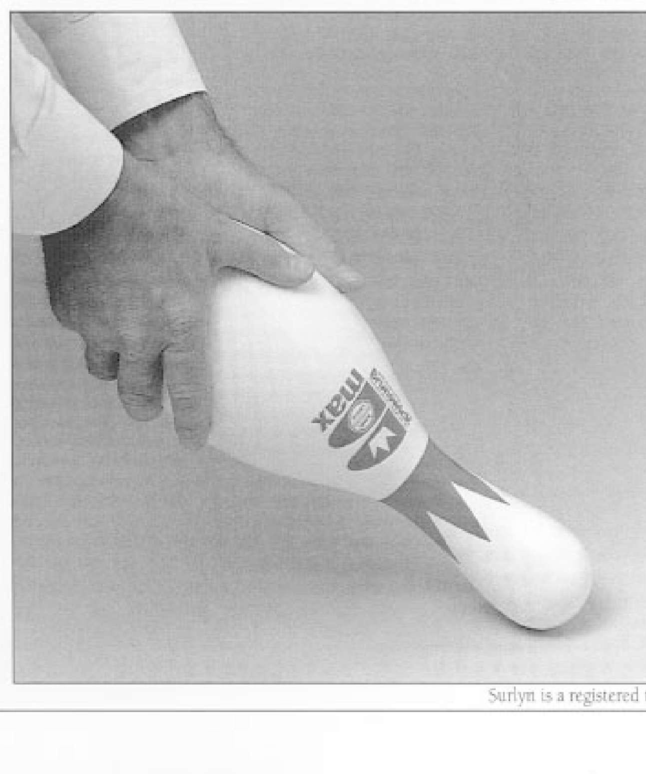


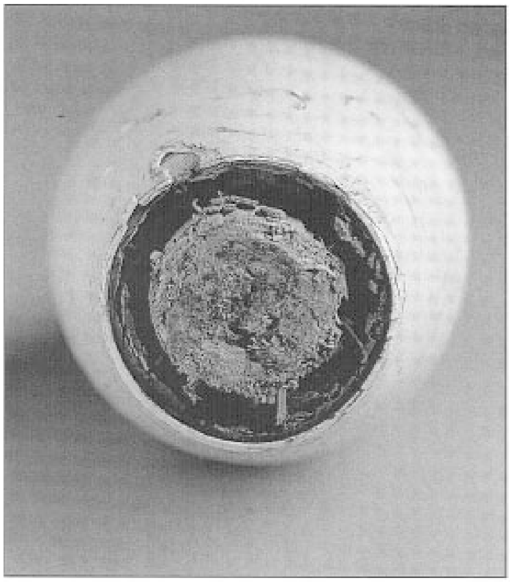
FIGURE 2 — Proper method to check for wood densification.



Surlyn is a registered trademark of DuPont

Pin Damage Due To Water-Soaked Cores

Water damage due to water soaking into base. Bottom wood has dryrot, and wood is deteriorating. Never allow pins to sit in a puddle or soak in water.



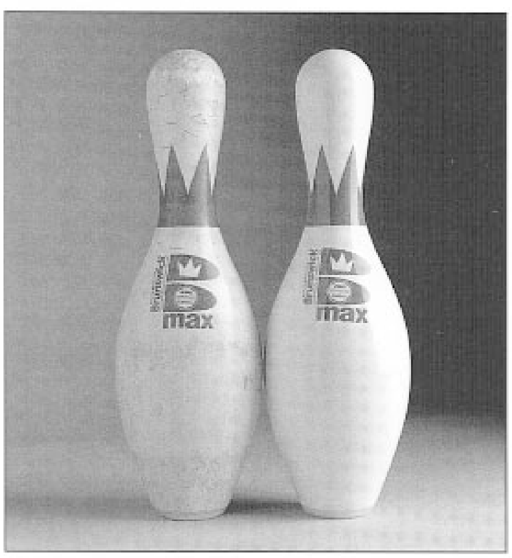
Never let excessive amounts of water soak into the bottom wood of your tenpins. Brief surface wetting that occurs while washing is not harmful, but if the pin is submerged in water or stands in water, the wood will swell and eventually crack. (CAUTION: A widely advertised book on bowling maintenance once actually advocated filling the base hole with water to "rejuvenate" the pin. This procedure can only shorten the life of your pins and must *never* be done.)

The proper way to maintain moisture content in pins is to humidify the pinsetter area to 30-50 percent humidity. Brunswick tests show that pins actually fail about four times faster under dry winter conditions as they do under humid summer conditions.

In cold winter climates, the pinsetter area should be maintained around the clock at approximately 60°F (15°C) during winter in order to reduce heating costs and make humidification easier. Heaters must not blow directly on pins.

Maintenance

Without the protection of the outer clear coat, pins will stain from oil and dirt.



Cleaning

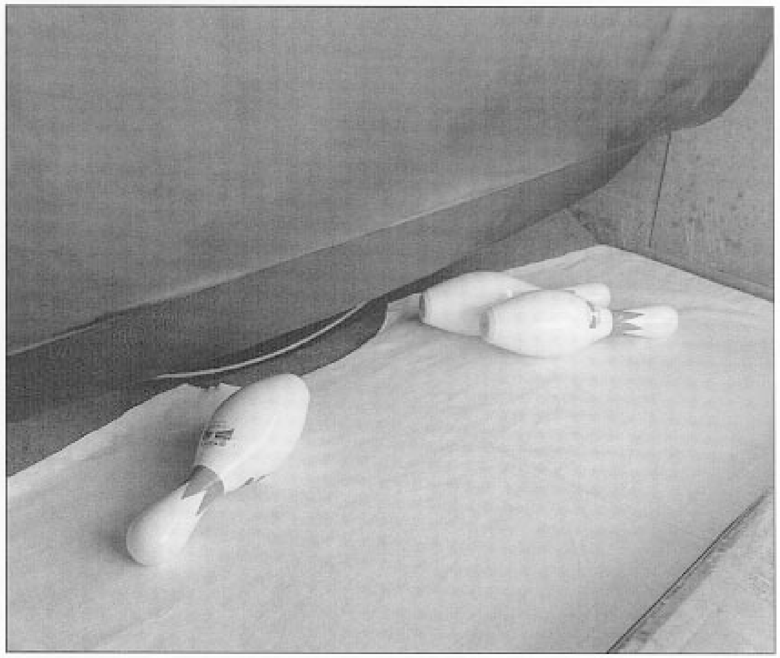
Grit and dust in the pinsetter, on the pindeck, in flat gutters and particularly in the pit, prematurely wear the outer clear coats of the pin. When the clear coats have worn through, the underlying Surlyn is then subject to staining from oil and dirt.

For the A and A-2® machines, one of the functions of a pit carpet is to provide continuous cleaning of the pins. Carpets should therefore be vacuumed and shampooed regularly. For Brunswick pinsetters, use only genuine Brunswick replacement carpets and covers.

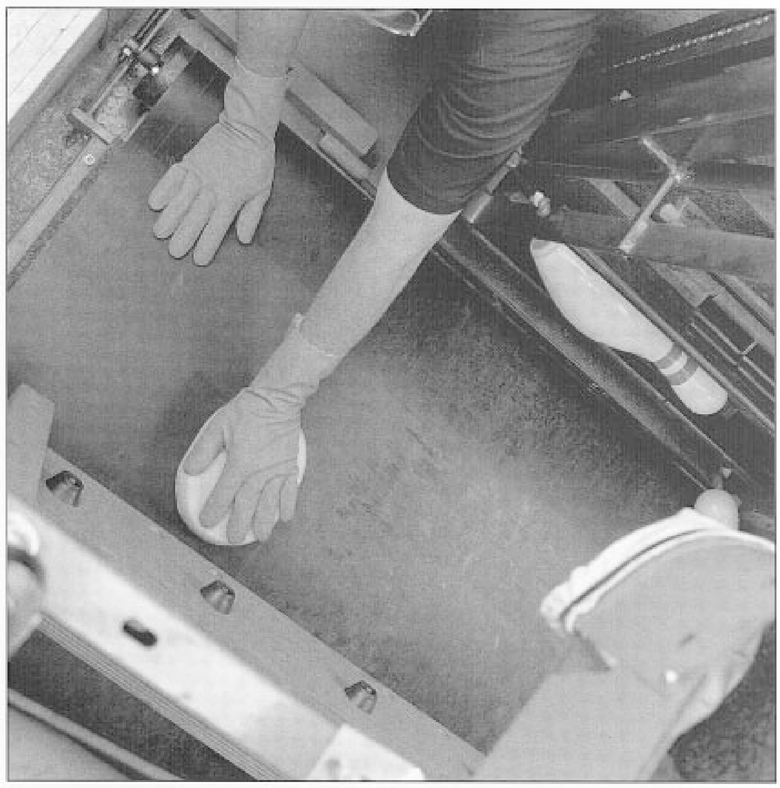
On GS series and AMF pinsetters utilizing a transport belt and overflow socks, it is necessary to properly maintain the belt and overflow devices, keeping them clean using approved cleaners.

Use of other types of belts and covers, less expensive carpeting, or other nonstandard material, generally does not pay off in the long run due to their inferior cleaning action on the pins, and/or actual abrasion of the pin coating by these nonstandard parts.

On other machines, follow the suggested cleaning procedures outlined in the appropriate service manuals.



Pit carpet.



Mechanic cleaning transport belt.

Machine And Pit Damage

Any exposed screw heads or sharp edges in the pit area or pin handling equipment will cause damage to the plastic coating on the pins.

Pins must be inspected frequently and, if a pattern of cuts, nicks, gouges, etc., begins to show, locate the offending part and correct the problem *before* major damage is done. The following section (Typical Pin Damage) contains photographs of pin damage and identifies the source. Usually, the shape of the cut or nick gives a good clue to the cause.

Typical Pin Damage

The following photographs show typical coating damage caused by improperly maintained equipment. Regular examination of pins and quick corrective action when coating damage is noted can virtually eliminate these types of damage.

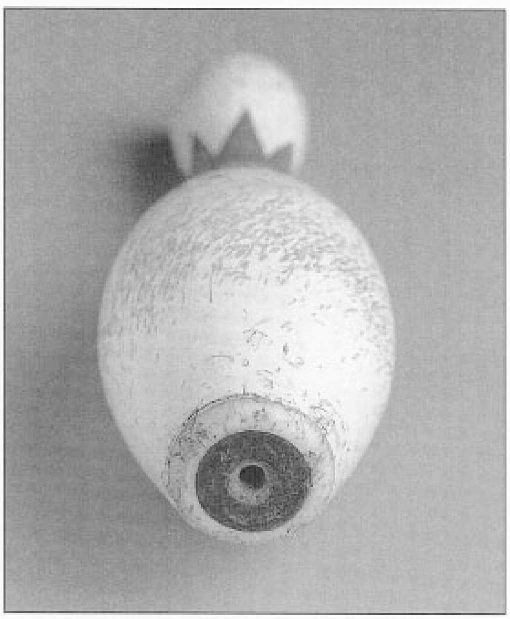


FIGURE 3 — Plastic and bottom ring damage due to pin bottoms incorrectly hitting misadjusted machine parts.

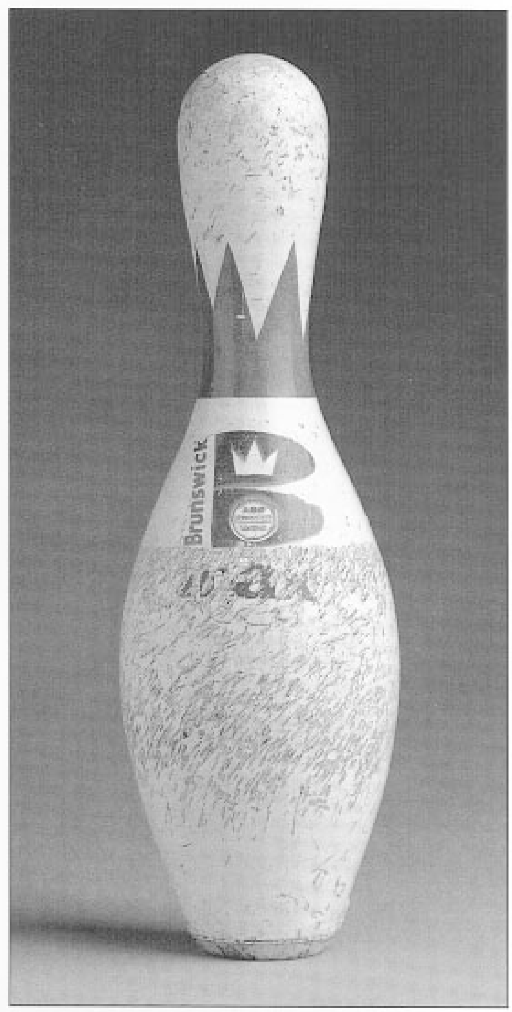


FIGURE 4 — Belly plastic gouges due to sharp edges in the distributor, broken spotting cells, etc.

FIGURE 5 — Head damage from striking pit frame, sharp feed deflectors, transport band board mounting hardware, elevator parts or distributor parts that are incorrectly adjusted.

FIGURE 6

FIGURE 7 — Head cuts due to sharp deflectors/spotting cells, spotting tongs or transport band board mounting screws in the openings (as arrows indicate).

FIGURE 8 — Cuts due to a projecting screw head. Note the curved nature of the cuts. The offending screw can be identified by the bits of white plastic adhering to it, or stuck under the head.

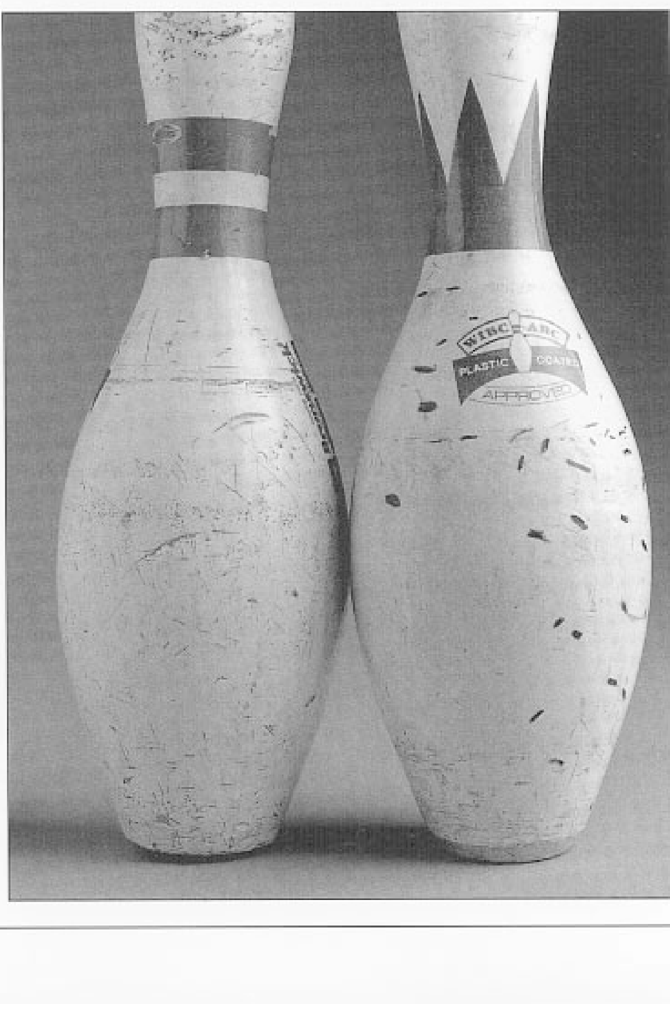


FIGURE 9 — Sharp projections in the pit, such as defective kickback or loose or nonapproved flat gutters, or pin handling equipment. The offending area can usually be identified by the white plastic adhering to it.

FIGURE 10 — Nicks due to pins hitting sharp edges on parts such as the distributor centering device and distributor pin tabs. Note that all marks are oriented horizontally. You will also find small pieces of white coating on or near these parts. Proper adjustments will eliminate this type of damage.

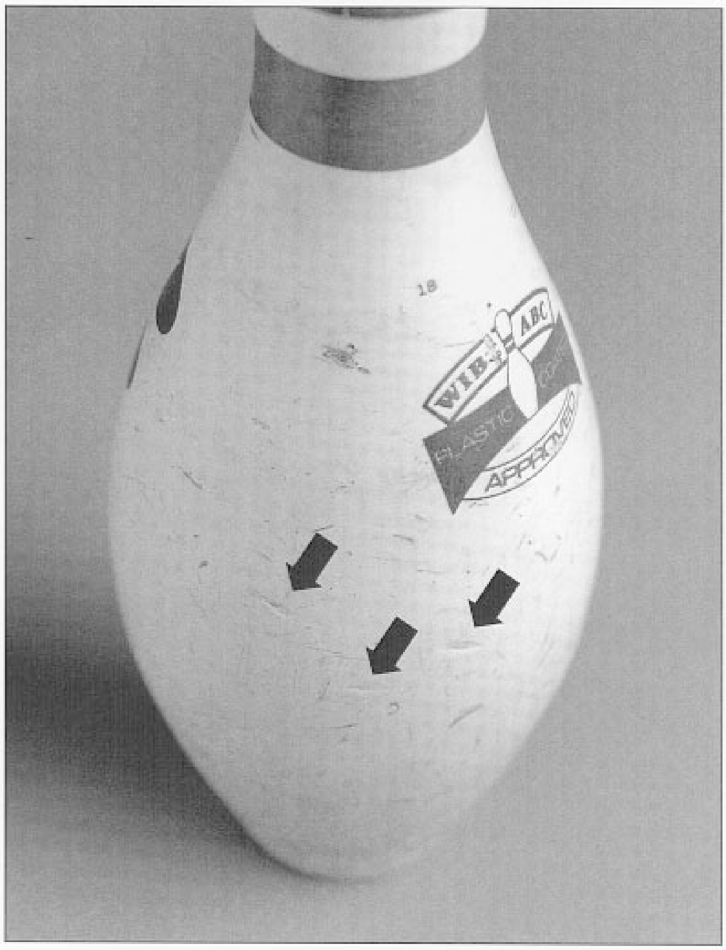
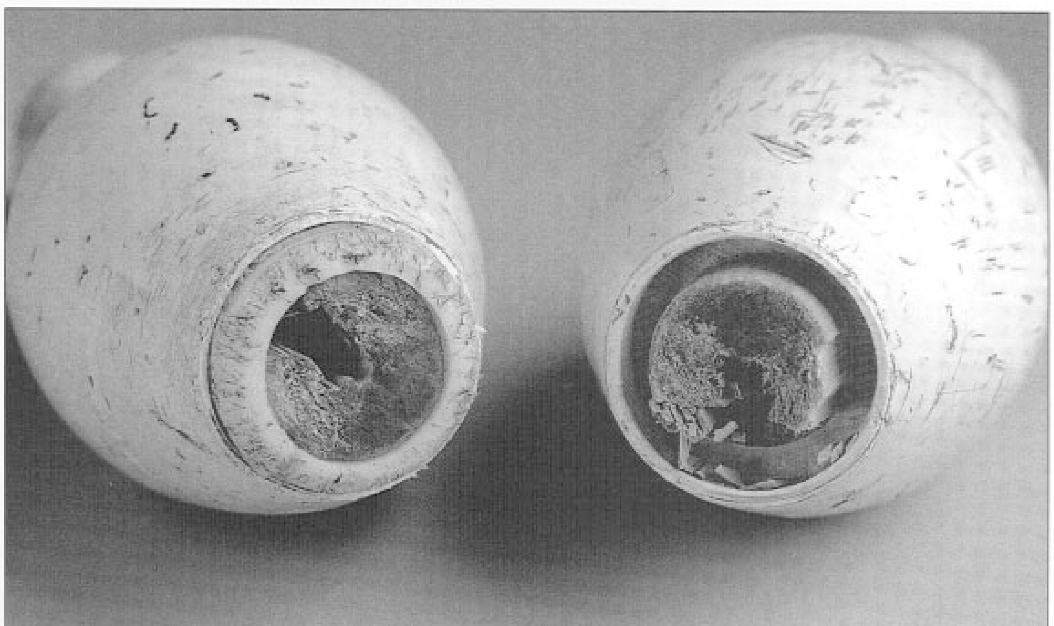


FIGURE 11 — Broken pin sliders or broken pin turn devices or distributor rails protruding into the pin path.



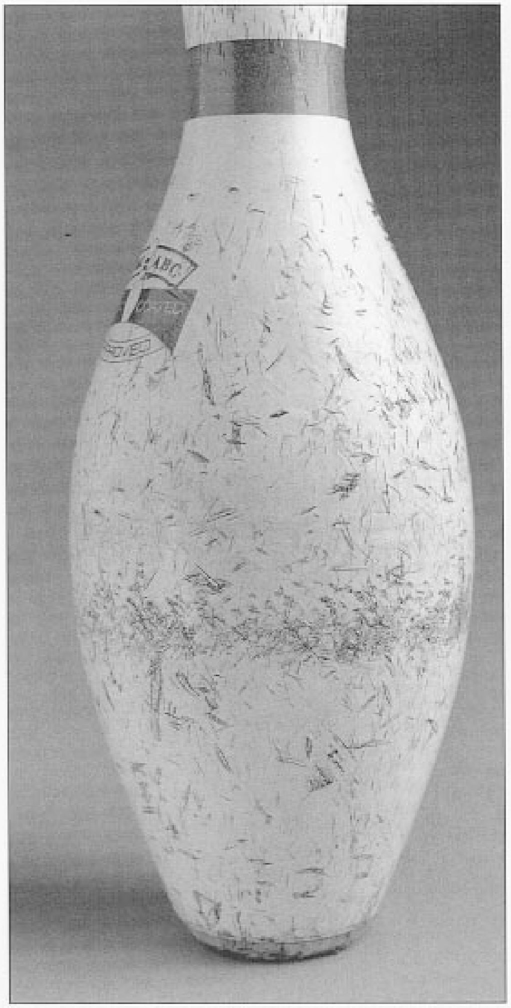


FIGURE 12 — Numerous small dents caused by sharp pin deck/edge board corners. The 5/32" radius required by ABC must be restored. This must be done after each resurfacing and more often when pin damage occurs.

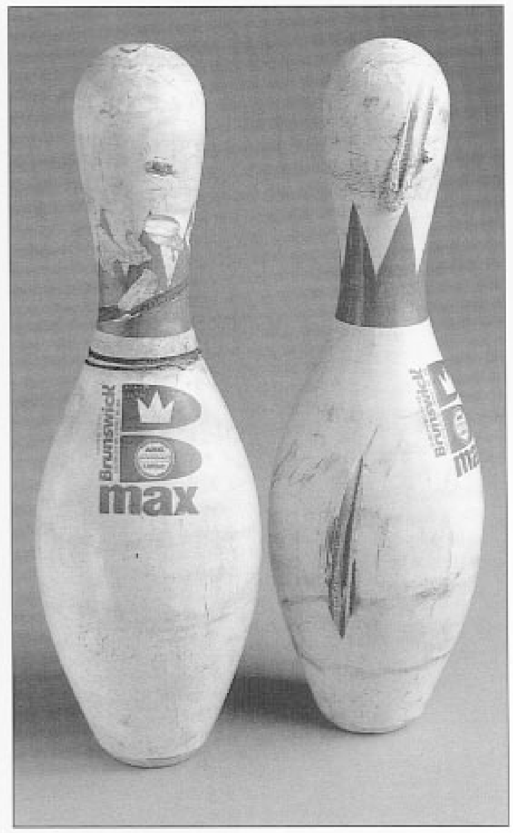


FIGURE 13 — Belt burns caused by transport belts, distributor belts and pin jams at the rear distributor/elevator cross drive belt. Make sure belts are in good condition and properly adjusted. Belts must be cleaned on a regular schedule.

Some Items That Can Cause Pin Coating Damage.

A. Lanes

1. Nail heads protruding from kickback fiber plates
2. Fiber edge boards not radiused after resurfacing
3. Mismatch of flat gutters leaving sharp edges exposed
4. Protruding nails and screws
5. Fiber edgeboards above the pindeck surface

B. Pinsetter Setting Table

1. Sharp edges on the table
2. Sharp edges at the pin openings of the lower table
3. Sharp edges on the pin stations or grippers
4. Missing table parts

C. Distributor

1. Pins striking the edges of the distributor frame
2. Pins striking sharp edges of the pin chutes, release levers and overflow chutes
3. Broken distributor parts
4. Pins striking misaligned distributor rails and tabs

D. Elevator

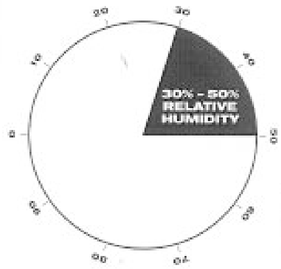
1. Sharp edges on elevator shovels, cams and centering guides
2. Sharp edges on rear deflector mounting brackets
3. Welding done on elevator frames that are not ground smooth
4. Sharp edges on pin centering devices
5. Incorrectly adjusted pin deflectors

E. Pin Cushion and Curtain

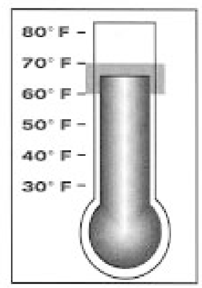
1. Worn pit curtains allowing pins to strike hardware
2. Sharp edges on cushion frames
3. Exposed transport hardware
4. Sharp edges on pin deflectors

Original pinsetter parts are designed and manufactured to protect pins from damage. Any makeshift repairs done with sheet metal, wire, certain epoxies, or other hard materials will scratch the pins and cause premature wear.

Pin Storage



Pins must be stored in a cool (60°-70°F) area where humidity can be maintained at 30%-50% relative humidity. If the pins have been stored below 40°F (5°C), open cartons and allow to stand 48 hours at room temperature before using. All pins must stand a minimum of 48 hours to adjust to center temperature and humidity to prevent early failures.



Cleaning Pins

Equipment and Materials

Cloth or Sponge for Washing

Cloth for Rinsing

Pin Rack with Pegs for Draining

Waterproof Gloves

Dura Pad for Heavy Precoat Cleaning

Pin Cleaning Machine (61-860202-110—110v) (61-860202-220—220v)

Pinbrite Cleaner (63-860156)

Comment

Cleaning pins regularly helps pins last longer and flow through the pinsetter better. Thorough cleaning removes built-up dirt and grit that can quickly abrade the protective slip coating causing machine handling problems and Surlyn deterioration. Many centers clean their pins at least once a month. Others will clean them up to twice a month to make their pins last longer, maintain good machine pin handling and to give their customers a good impression of how well their center is maintained. Bowlers want and deserve to bowl in a clean center.

NOTE: When pinsetters are cleaned often and properly, the frequency of pin cleaning can be greatly reduced.

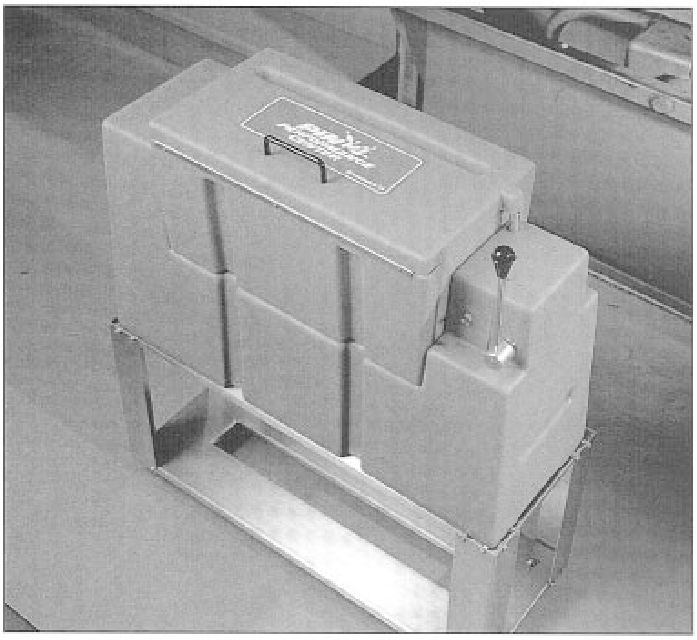
Procedure

LIGHT CLEANING (BY HAND):

1. Wipe pins with sponge or cloth dipped in Pinbrite Cleaner (63-860156). *DRAIN PINS ON PEGS OR RACKS. NEVER LET THEM STAND IN A PUDDLE OF WATER.*

2. Rinse with cloth dipped in clean water to remove any detergent residue.

While cleaning pins by hand is acceptable, you can save time by using Brunswick's new Pin Cleaning Machine (part# 61-860202—110/220).



Above: Pin cleaning machine.
Right: Machine in use by mechanic.

Ordering Information

To order Brunswick pin supplies, or for information about Brunswick products:

CALL BRUNSWICK TOLL-FREE
1 800-YES BOWL
(1-800-937-2695)