HIGH PERFORMANCE LANE

MAINTENANCE MANUAL

049-006-000	HPL 9000 New Lanes
049-006-001	HPL 9000 Overlay Lanes
049-006-602	Alliance Head
049-006-610	Alliance Lanes
049-006-675	Alliance With Approach
049-006-685	Alliance With Wood Approach
049-006-603	Integra Lanes
049-006-905	Integra With Wood Approach

AMF Bowling Inc.
8100 AMF Drive
Richmond, VA 23111
1-800-DIAL-AMF

PART # 610-000-496 January 2000 REV. "C"

Attention: New High Performance Lane Owners

1. Read this entire manual thoroughly prior to putting HPL Lanes into service to insure a trouble-free transition and years of enjoyable use.

2. **Dust and other construction hazards may be created during HPL installation. It is your responsibility to insure that installation work does not create hazards for your customers, employees, or the general public. All AMF employees, contractors, and subcontractors will cooperate with you fully in this effort.**

3. The High Performance Lane surface can be easily damaged by ladders, sharp objects, and accumulated grit. Please take the proper steps to protect the High Performance Lane surface prior to any overhead and other related work in the High Performance Lane area. (See Section 6.0, page 18)

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1.0 INTRODUCTION

1.1 High Performance Bowling Lanes (HPL) are a replacement for standard wooden lanes. HPL, eliminates the need for refinishing, refurbishing, sanding, recoating and greatly reduces maintenance related down time. HPL 9000, HPL Alliance, and HPL Integra, all incorporate phenolic laminate, phenolic resin core, and other processed and wood based materials to create these impact, chip, and crack resistant bowling lanes.

1.2 Standard lane care products and equipment should be used to clean and condition High Performance Lanes. We recommended the use of AMFCentury lane care products to protect and maintain your HPL investment because they have been designed and tested for optimum results on HPL. For maximum consistancy in lane conditions, your cleaner and conditioner should be made by the same company.

1.3 Please note that excessive water and other liquids or the use of any materials not specified by AMF to clean, condition or otherwise care for High Performance Lanes ***will void your warranty***. See your HPL warranty statement for details.

1.4 High Performance Lanes have specific humidity and temperature requirements, to insure customer satisfaction and optimal equipment performance. A temperature in the normal comfort range (68‘F to 75‘F) and humidity range (40% to 60% RH) is all that is required. If the temperature or humidity is too low or too high, performance problems, not covered by warranty, may occur. For best results, monitor your temperature and humidity control equipment carefully and maintain them in good working order.

2.0 GENERAL HOUSEKEEPING

2.1 Good HPL maintenance starts with good and complete bowling center housekeeping. At the entrance doors and strategic traffic areas, we recommend the use of special mats, such as 3M Nomad All Weather Matting, that are designed to remove traffic dirt from the bottom of street shoes. Placement in the entry ways and concourse area should be such that the maximum amount of dirt, sand and road salt are removed by these mats. These mats should be cleaned daily, by vacuuming, shaking or as recommended by the manufacturer.

2.2 In the concourse area, good quality carpeting is essential to keep outside dirt, sand, etc. from being tracked onto the settee area and, if applicable, the HPL approach. The concourse carpeting should be thoroughly vacuumed daily.

2.3 In the settee area, tile should be adequately sealed to prevent water penetration that would destroy the tile. If the tile is new, remove the manufacturers wax and then seal, using a good commercial grade tile sealer. If tile has been sealed and waxed previously, remove the old wax and sealer, then reseal with a good commercial grade tile sealer. The sealed tile should then be waxed with a good commercial grade metallic cross linked acrylic polish, which has low powdering characteristics. (Examples: SSS Metallic Floor Finish, marketed by Standardized Sanitation Systems, Inc., or Brulin's Spotlight marketed by Brulin & Company, Inc.). Two or three coats are normally adequate for a year's use. Sealing of the tile and application of the new wax should be done prior to the installation of High Performance Lanes.

2.4 The settee floor should be cleaned with plain water on a daily basis. If desired, a mild detergent solution using a neutral cleaner may be used. (Examples: SSS Neutra-Clean, marketed by Standardized Sanitation Systems, Inc., or NS Low Foam, marketed by Brulin & Company, Inc.). Follow the label instructions and rinse thoroughly to minimize powdering of the floor polish. Alkaline (high ph) cleaners such as ammonia and cleaners that contain acetone, toluene or methylene chloride such as DBA Chlorinate Solvent #008 accelerate the floor polish powdering and slowly destroy the floor polish. In addition, do not use a cleaner that contains Butyl Cellosolve or other wax softeners. Consult the MSDS information if you do not know the contents. Butyl Cellosolve is a solvent that will soften the floor polish and make it sticky and easily tracked onto lane approaches.

2.5 WARNING: FLOOR POLISH WHICH HAS NOT BEEN PROPERLY MAINTAINED CAN POWDER OR SOFTEN. THE POWDER OR SOFTENED POLISH CAN BE PICKED UP BY THE SOLES OF BOWLING SHOES AND BE DEPOSITED ON THE HIGH PERFORMANCE LANES APPROACHES RESULTING IN A STICKY SURFACE.

2.6 Beverage or food spills must be thoroughly cleaned and dried immediately to prevent tracking or absorption by bowlers shoes.

3.0 LANE CARE AND MAINTENANCE

Proper lane maintenance is a critical part of the care and maintenance of your HPL surface, both to protect the product and to provide the proper sporting condition to the customers using your high performance lane surface. The distribution of lane dressing on any lane surface combined with the cleanliness of the lane surface itself form the lane condition that the bowler uses as a field of play. It is critical that the movement of the bowling ball down the lane and the lane condition applied to the HPL surface work with each other. The bowler should not have to fight the lane condition, rather it should work with the movement of the ball down the lane.

The basis of most conditioning distribution rules used around the world are units of oil. A unit of oil is a measurement of the film thickness of the lane oil. One unit of oil is equal to 0.000007 inches of lane oil. The scoring level of any lane condition is directly related to the film thickness of oil on the outsides of the lane. That is why all lane conditioning rules regulate the film thickness of oil that must be used as a minimum film thickness of lane conditioner on the outside of the lane. In the United States, the ABC & WIBC regulate that at least 3 units of oil be used as a minimum film thickness of conditioner. The FIQ requires at least 5 units be used as a minimum film thickness of conditioner.

The overall conditioning pattern on a High Performance Lane surface should have the minimum units of oil allowed by local country rule for the first seven to twelve boards on both the right and left sides of the lane. The specific board where the conditioner distribution changes from the minimum allowed to the maximum allowed is one of the variables that the center must decide. The board on which this change occurs can be different on the right side of the lane compared to the left side of the lane. The recommended number of units of oil in the middle of the lane is at least 20 units or more of lane oil. The rate of change from the minimum number of units used on the outsides to the maximum number of units of oil used in the center of the lane may also be controlled by local country rule. In the United States, there is no control on this rate of change and therefore, very abrupt rates of change are used in the United States.

The lane dressing should be applied to at least twenty feet and buffed out to approximately 35 feet. These numbers are recommendations only. Exact distances must be decided by the bowling center operational and maintenance personnel. The back ends of the lanes should be stripped free of old conditioner and dirt daily to insure proper back end reaction of the ball to the High Performance Lane surface. The entire lane should be stripped frequently to prevent a build-up of conditioner and dirt that would limit the scoring effectiveness of your High Performance Lane surface. Daily stripping of the entire lane surface provides the most consistent condition possible from day to day, the best performance of your High Performance Lane surface, and the best value for you bowlers.

As ABC tournament results indicate, AMF High Performance Lanes provide the best possible bowling surface for your center. AMF also provides the most complete choice of lane maintenance equipment and supplies for your High Performance Lanes under the AMFCentury brand name.

Proper maintenance of the lanes is necessary to provide an ideal condition for good ball action, as well as maintaining a pleasing appearance. The following schedule of maintenance is a minimum recommendation. Your cleaning and conditioning frequency could vary due to location and lineage, so use this schedule as a starting point and adapt it accordingly.

3.1 LANE DUSTING

3.1.1 On a daily basis, the lanes should be dusted before each conditioning unless the conditioning immediately follows stripping (cleaning) of the lanes. It is also recommended to dust the lanes just prior to league competition and after every 15 lines of bowling.

3.1.2 Using an AMFCentury Hot Duster, dust the pin deck area first, dragging the lane duster from the pin deck toward the foul line. Let the weight of the lane duster provide its own natural pressure against the lane. The duster base of the AMFCentury Hot Duster is flexible and will conform to the lane surface. Advance new cloth into position and repeat this process on the next lane to be dusted.

3.1.3 Avoid contacting the approach with the lane duster. Do not walk on the approach with shoes that may have been contaminated with lane conditioner. If lane conditioner is tracked onto the approach, clean the area with AMF Approach Spot Cleaner. Spray on sparingly and wipe the surface dry with a clean cloth. The approach should then be dusted, using the methods and products referenced in Section 4.0.

3.2 LANE CONDITIONING

3.2.1 Condition your HPL using an AMFCentury conditioning machine. Adjust the machine to apply a "crown" of conditioner to the lane in accordance to ABC/WIBC, FIQ or your country's lane dressing specifications and rules. Set the machine to condition approximately 35 feet. Complete directions for programming your lane maintenance machine are provided in the machine operations manual.

3.2.2 The following AMFCentury conditioners are recommended for use on High Performance Lanes:

1. Reactor Lane Conditioner
2. VisFlo 12.7
3. VisFlo 19.5
4. VisFlo 32.5
5. VisFlo 39.0
6. VisFlo 48.5

3.2.3 It is critical that the ball impact area on your High Performance Lanes surface be properly protected by lane conditioner. The distance of the ball impact area is from the foul line to approximately ten feet down the lane. Depletion of lane conditioner in the head area of the lane is normal and is dependent on the number of lines bowled.

3.2.4 Lanes should be conditioned daily and after every 30 games of bowling. If the anticipated lineage exceeds 30 games, the lanes should be conditioned twice. For example: You have 3 leagues today, 1 in the morning and 2 in the evening, totaling 45 lines per lane. Condition the lanes prior to the morning league, and then just prior to the evening leagues.

3.2.5 If you change the type of lane conditioner being used, completely strip the lane surface of old conditioner using a AMFCentury vacuum lane stripper. Also, we recommend that when you change lane conditioners, you should replace the oil felt assembly in your AMFCentury lane machine, and the oil tank assembly should be cleaned of old conditioner.

3.3 LANE CLEANING

3.3.1 High Performance Lanes are stripped in the same manner as traditional wooden lanes. For optimum performance, the lanes should be stripped daily to remove conditioner and dirt buildup from the lanes. Stripping daily provides the most consistent, uniform condition possible. Excessive conditioner build-up on the "back-end" of the lane (from the end of the oiling mark to the tail plank) called "carry-down" will occur if the lane is stripped infrequently. Removal of carry-down will be necessary after approximately 30 games bowled. It is important that when lanes are stripped, that they are stripped completely, without any film of conditioner or cleaner being left on the lane. If a film of conditioner or cleaner is left on the lane after the lanes are stripped, inconsistent ball reaction will occur. Before full lane or back end stripping, the capping, downsweep, and channels should be dusted. Stripping is best accomplished by the use of an AMFCentury Vacuum Lane Strippers (i.e. *VLS-PLUS or HVO Summit).*

3.3.2 Following the label instructions, the AMFCentury cleaners listed below are recommended for use on High Performance Lanes:

1. Formula ACC, All Conditioner Cleaner
2. VisClean Concentrate
3. Formula 388
4. EcoClean

3.3.3 Ball marks in the ball impact area are usually in the lane conditioner and should be removed by stripping the lane. If the stubborn marks are not removed, use AMFCentury Approach Spot Cleaner as instructed in Section 4.0, Approach Spot Cleaning: Stubborn Marks.

3.3.4 WARNING: DO NOT USE HARSH CLEANERS THAT CONTAIN ALKALINE OR CAUSTIC MATERIAL SUCH AS AMMONIA, LYE, MURIATIC ACID, ETC. CLEANERS THAT CONTAIN ACETONE OR METHYLENE CHLORIDE SUCH AS DBA CHLORINATE SOLVENT #008 SHOULD NOT BE USED EITHER. ALL OF THESE CLEANERS CAN DAMAGE THE HIGH PERFORMANCE LANES SURFACE.

3.3.5 WARNING: EXCESSIVE WATER OR OTHER LIQUIDS ON SURFACE NEAR PANEL JOINTS MAY CAUSE PANEL EDGES AND LANE JOINTS TO SWELL. AVOID EXCESSIVE AMOUNTS OF MOISTURE.

4.0 APPROACH CARE AND MAINTENANCE

4.1 GENERAL REQUIREMENTS

4.1.1 Proper maintenance of the approach area is necessary to control slide conditions and to maintain approach appearance. The following schedule of maintenance is a minimum recommendation. Your cleaning frequency could vary due to location and lineage, so use this schedule as a starting point and adapt it accordingly.

4.1.2 On a daily basis, the approaches should be dusted before the morning, afternoon and evening shifts. In addition, spot cleaning of the approaches should also be done after the last shift to remove stubborn ball and shoe marks.

4.1.3 It may be necessary to spot clean during bowling to clean up spills, marks or lane conditioner tracked onto the approach. Approach conditioners may also be required at this time to help restore the slide conditions affected by the cleaning. Generally, a properly cleaned HPL approach will not require approach conditioner.

4.1.4 Weekly inspection of the entire approach area should be done to check the over all cleanliness of the approach area. If dirt, spills or marks are not removed by the daily dusting and spot cleaning, a thorough cleaning is necessary.

4.1.5 On a weekly basis, damp mop entire approach with a clean, well wrung mop using hot water only. Do not use the mop for any other purpose.

4.2 APPROACH DUSTING

4.2.1 Approaches should be dusted with an untreated lane duster or a soft clean towel. Chemically treated lane dusters are not recommended, as they may leave unwanted residue on the approach area.

4.2.2 The method used to dust the approach is to start at the back of the approach, push the mop to the foul line, turn and return back to the settee area pushing any dust and unwanted residue into the settee area to be cleaned up later. See fig. 1, page 14.

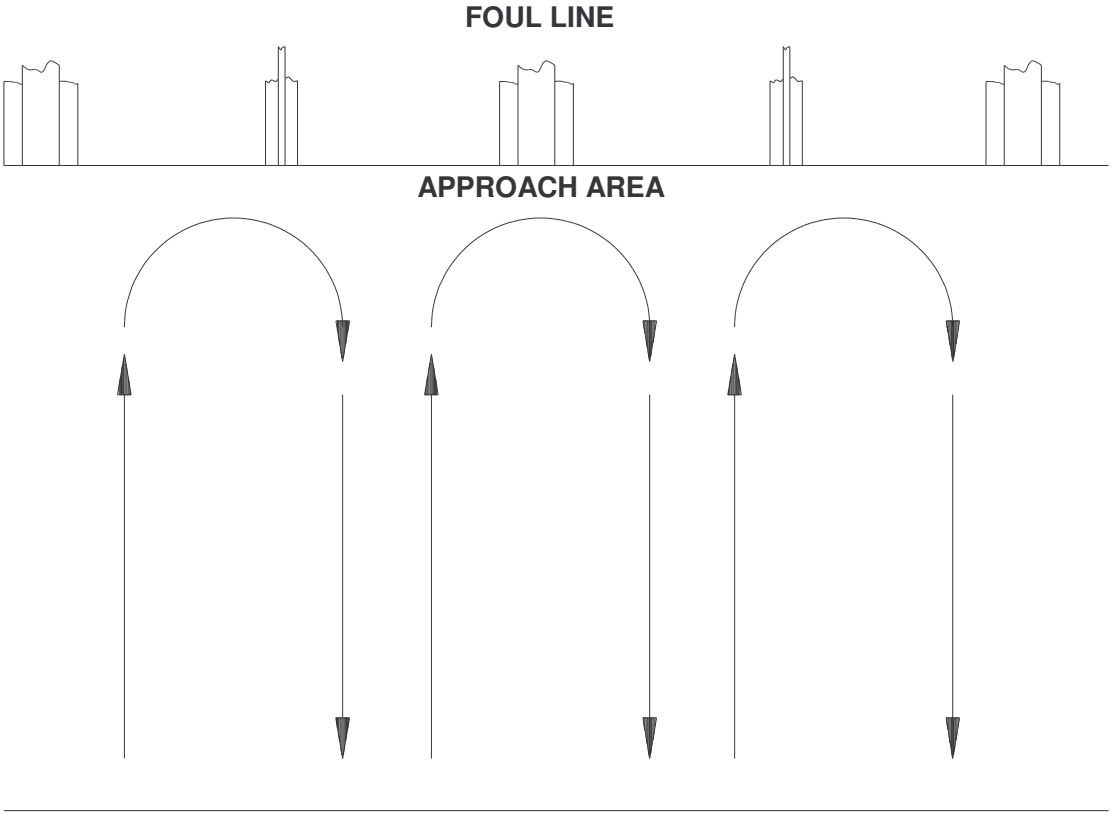

Fig. 1

DUSTING THE APPROACH AREA

4.3 SPOT CLEANING: MARKS

4.3.1 To remove marks from the approach area, use AMF Approach Spot Cleaner and a clean dry cloth. Spray on and wipe the surface dry with a clean dry cloth, turning the cloth over frequently to expose clean surfaces. The cleaner should not be allowed to dry on the approach surface. The approach area should then be dusted to remove any additional residue.

4.3.2 WARNING: DO NOT USE HARSH CLEANERS THAT CONTAIN ALKALINE OR CAUSTIC MATERIAL SUCH AS AMMONIA, LYE, MURIATIC ACID, ETC. CLEANERS THAT CONTAIN ACETONE OR METHYLENE CHLORIDE SUCH AS DBA CHLORINATE SOLVENT #008 SHOULD NOT BE USED EITHER. ALL OF THESE CLEANERS CAN DAMAGE THE HIGH PERFORMANCE LANES SURFACE.

4.4 SPOT CLEANING: STUBBORN MARKS

4.4.1 If the approach cleaner and a cloth will not remove marks, then try cleaning these marks with a Pink Pearl soft pencil eraser. Clean the eraser residue from the approach and dust the area.

4.4.2 WARNING: DO NOT USE STEEL WOOL, SCOTCH-BRITE PADS OR ANY ABRASIVE GRIT CLEANERS THAT MAY SCRATCH THE SURFACE.

4.5 SPOT CLEANING: EXCESS LANE CONDITIONER

4.5.1 If excessive lane conditioner is tracked onto the approach, clean the affected area with AMF Approach Spot Cleaner. Apply and wipe the surface dry with a clean cloth. The approach should then be dusted to ensure uniform slide conditions.

4.6 SPOT CLEANING: SPILLS

4.6.1 Spills from beverages such as soda and alcoholic beverages should be wiped up with a damp cloth followed by a dry cloth to remove all moisture from the approach surface. Dust the approach after cleaning and drying of the spill.

4.6.2 WARNING: IF MOISTURE IS STILL PRESENT, APPROACH SURFACE MAY BE STICKY.

4.6.3 WARNING: EXCESSIVE WATER OR OTHER LIQUIDS ON SURFACE NEAR PANEL JOINTS MAY CAUSE PANEL EDGES AND LANE JOINTS TO SWELL. AVOID EXCESSIVE AMOUNTS OF MOISTURE.

4.7 THOROUGH APPROACH CLEANING

4.7.1 When the weekly inspection of cleanliness indicates that it is necessary to do a thorough cleaning of the approaches, a mop or cloth dampened with plain water only should clean the approach area in most cases. The cleaning water must be changed frequently to prevent leaving residue on the approach. A mild detergent solution using a neutral cleaner may be used if desired. (Examples: SSS Neutra-Clean, marketed by Standardized Sanitation Systems, Inc., or NS Low Foam, marketed by Brulin & Company, Inc.). Thoroughly rinse the approach after cleaning and as before, change the rinse water frequently. The entire approach area should be dusted to remove any additional residue. Dusting of the approach after cleaning helps to ensure uniform slide conditions from lane to lane.

4.8 APPROACH CONDITIONER

4.8.1 Approach conditioners are not necessary most of the time. If a conditioner is used, extreme care must be taken to wipe off the excess to prevent too slippery of an approach. AMF SureSlide approach conditioner may be used sparingly following instructions on the label.

5.0 RECOMMENDED CLEANING FREQUENCY

		DAILY	WEEKLY	AS NOTED
I.	Concourse entry mats cleaned.	X		
II.	Concourse carpet vacuumed.	X		
III.	Settee flooring cleaned.	X		
IV.	Lane dusting.	X		
V.	Lane conditioning.	X		
VI.	Dust capping, channels and downsweep.	X		
VII.	Entire lane cleaning.	X		
VIII.	Backend lane cleaning.			After 30 lines
IX.	Approach dusting.	X		
X.	Approach spot cleaning.	X		
XI.	Approach conditioning.			See Section 4.8.1
XII.	Approach inspection for thorough cleaning.		X	
XIII.	Thorough approach cleaning.			See Section 4.7.1

6.0 PROTECTING HIGH PERFORMANCE LANES

6.0.1 While doing maintenance or repairs to the associated equipment, care should be taken to protect high performance lanes from damage. The lanes should be covered with lane paper, cardboard or a tarpaulin like material.

6.0.2 Before working on the pinspotter, the pin deck should be covered to protect it from damage and unnecessary exposure to dirt and oil that may drop down during the repairs. Loose parts and tools could also damage this area .

6.0.3 Care should be taken to protect the lanes when doing any repairs that could damage the lanes. Working on the masking units, overhead monitors, disassembling the ball return mechanism, and even changing the ceiling light bulbs are a few examples. When using a ladder on high performance lanes, a clean piece of cardboard or other protective material should be used to guard the high performance lanes surface.

6.0.4 Cover the lanes when painting to guard the surface from splatters and spills. Paint that does get on the lanes should be cleaned up immediately using water or mineral spirits depending on the paint used. If the paint is allowed to dry, use a scraper blade to remove, being careful not to gouge the surface.

6.0.5 No one should be allowed to walk or step onto the lanes and approach areas unless they are wearing bowling shoes or tennis type shoes. Other types of shoes can scratch, scuff, or leave unwanted residue that could affect the lane conditions.

7.0 MINOR REPAIRS

7.1 GENERAL INTRODUCTION: Minor repairs may be necessary over the years to keep high performance lane's appearance and guarantee bowlers satisfaction. This section covers how to make these repairs.

7.2 REMOVE AND REPLACE DOWEL PLUG

7.2.1 The 1/16” dowel plugs which cover the screw heads holding the high performance lane panels in place are glued and then pressed into place.The 1/8" plug, is a pressure forced fit.

7.2.2 REMOVAL: To remove a dowel plug, hammer a small screw driver or chisel into the center of the dowel plug. Be careful not to contact and/or damage the panel around the dowel plug. Carefully Remove the plug out of the counterbore.

7.2.3 REPLACEMENT: Look through the extra dowel plug assortment for a replacement plug that matches the color and board pattern of the surrounding lane area. Apply glue to the corner of the dowel plugs, if necessary, (11/16" and 3/4" dowels only) and install into counterbore. Tap into place with a block of wood and hammer. Immediately clean any excess glue with a wet rag.

7.3 SURFACE REPAIR

7.3.1 If the surface cracks or chips, a patch kit (AMF Part #049-006-175) and instructional video is available to quickly and easily repair the affected area.

7.3.2 The affected area is routed out with a template gage. A matching piece is then cut to the exact size using a corresponding template. The piece is then glued into the routed area.

7.3.3 The high performance lanes patch kit has complete details.

8.0 CORRECTING ABC SPECIFICATIONS: NEW & OVERLAY INSTALLATION

8.1 DURING WARRANTY: AMF or the installer guarantees that the high performance lanes will meet ABC specifications upon completion. Certification should be scheduled by the proprietor/owner prior to the departure of the installation crew so that corrections can be made immediately.

8.2 AFTER INSTALLATION: The bowling center operator is responsible for ABC adjustments. The following tools are required: a hammer, feeler gauge, chisel, screw driver and ABC level.

8.3 PANEL STEP DOWN ADJUSTMENT: On synthetic lanes, ABC allows the panel to step down at the joints between adjacent panels. The leading edge must be flush to not more than .015 " below the trailing edge of the adjacent panel. See figure #2 , pg. 34.

8.4 1-3/4" PANELS: First, remove dowel plugs and try loosening or tightening the top screws to bring panel edge into ABC tolerance. If there is insufficient adjustment, proceed with alternate adjustment.

8.4.1 ALTERNATE ADJUSTMENT: If a joint step down must be corrected to meet this ABC specification, measure the difference between the panel and the adjacent panel elevations to determine how much a panel needs to be shimmed. Remove the dowel plugs, (See section 9.2) and screws necessary to lift the end of the panel.

8.4.2 Use duct tape (AMF Part #724-021-029), as required, to shim only the low area. The strips of duct tape may not be needed all way from gutter to gutter. One piece of duct tape is approximately .008" thick. Tighten the screws and check the panel step down again. Repeat as needed until the panel step down is within ABC's specification. Install new dowel plugs (AMF Part #049-006-034) per instructions in section 9.2.

8.5 PANEL LEVELING:

8.5.1 If a lane area warps or tilts out of ABC specification (.040"), remove all the dowel plugs. (See section 9.2)

8.5.2 1-3/4" PANELS: Tighten the #16 x 5" flat head wood screws (#814-852-802) which hold the panel. You may also need to add additional screws to pull down the affected area. Drill a pilot hole (9/64" dia.), shank hole (17/64" dia.) countersink (9/16" dia.) and counterbore (.75" dia.). (See figure #3, page 35). There is a tapered drill bit (Fuller Part #203-00-281) and adjustable countersink (Fuller Part #C169), which will make drilling these holes easier, marketed by:

F.L. Fuller Inc.
7 Cypress Street
P.O. Box 8767
Warwick RI 02888

8.5.3 **1/2" PANEL:** Tighten the #10 x 1-1/4" flat head wood screws (AMF Part #829 642-202) which hold the panel. You may also need to add additional screws to pull down the affected area. Drill a pilot hole (7/64" dia.), shank hole (7/32" dia.) countersink (1/2" dia.) and counterbore (.75" dia.). (See drawing #4, page 36). There is a tapered drill bit (Fuller Part #20100218) and adjustable countersink (Fuller Part #C12), which will make drilling these holes easier, marketed by Fuller Inc.

8.5.4 If tightening the screws does not correct the problem, then the other side of the lane must be shimmed. When shimming the lane it may be necessary to remove sections of the gutter. In most cases though, tightening the screws will correct the tilt problem.

8.5.5 To reinstall the high performance lanes panel, be careful not to scratch the panel or another panel near by. Locate the panel so the joint gap is equal on both ends. The gap should not be larger than (.050") on either end. Fasten the panel to the foundation with #16 x 5" flat head wood screws. Check the trailing and leading edges of the panels to see that they are within the allowable ABC specification.

8.5.6 The leading edge must be flush to not more than .015" below the trailing edge of the adjacent panel (see fig. 2, page 34). If a joint step down must be corrected to meet this ABC specification, measure the difference between the panel and the adjacent panel elevation to determine how much a panel needs to be shimmed.

8.5.7 Remove the screws necessary to lift the end of the panel. Once the end of the panel is raised, use duct tape (AMF Part #724-021-029) as required to shim only the low area. The strips of duct tape may not be needed all the way from gutter to gutter. One piece of duct tape is approximately .008" thick. Tighten the screws and check the panel step down again. Repeat as needed until the panel step down is within ABC specification. Install new dowel plugs (AMF Part #049-006-034) per instructions on section 9.2.

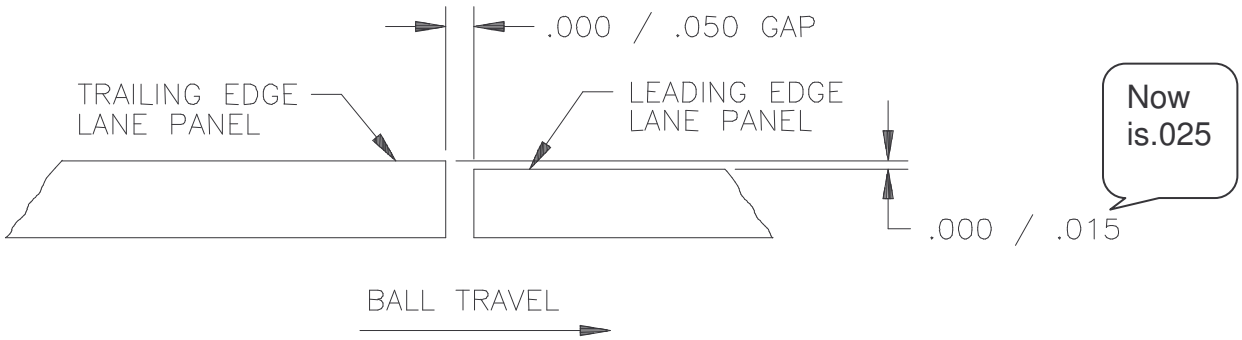
.000 / .050 GAP
TRAILING EDGE
LANE PANEL
LEADING EDGE
LANE PANEL
Now
is.025
.000 / .015
BALL TRAVEL

Figure 2

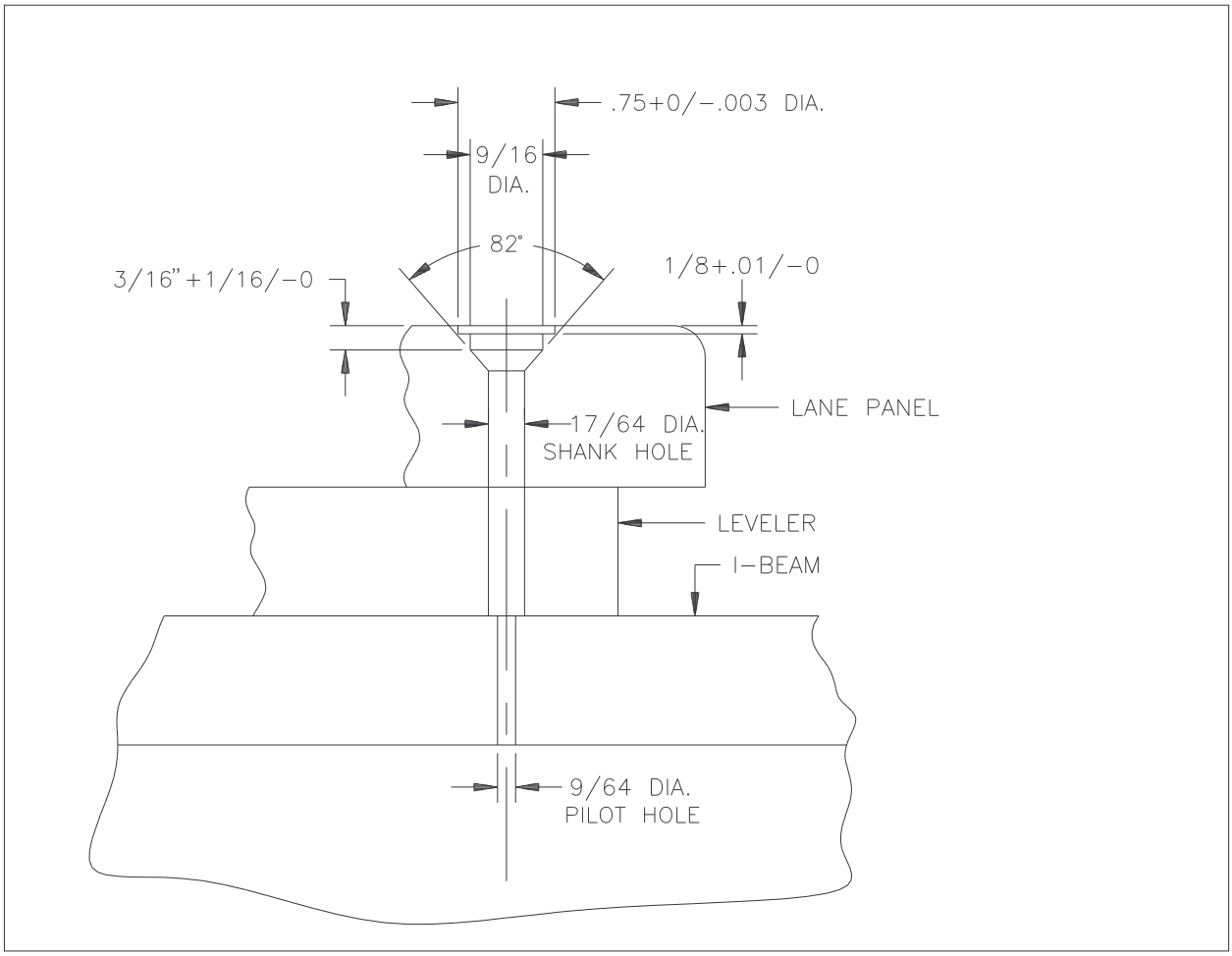
.75+0/−.003 DIA.
9/16
DIA.
82°
3/16" +1/16/−0
1/8+.01/−0
LANE PANEL
17/64 DIA.
SHANK HOLE
LEVELER
I−BEAM
9/64 DIA.
PILOT HOLE

Figure 3

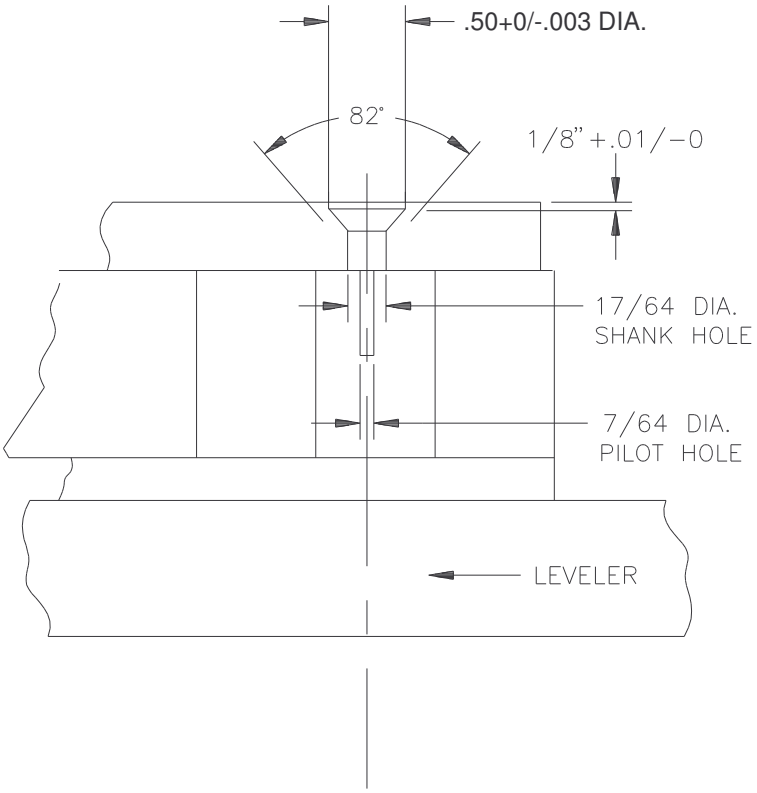
.50+0/-.003 DIA.
82°
1/8" +.01/−0
17/64 DIA.
SHANK HOLE
7/64 DIA.
PILOT HOLE
LEVELER

Figure 4

9.0 TROUBLE SHOOTING SUMMARY

9.1 APPROACH SLIDE CONDITIONS: STICKY

CAUSE	SOLUTION
I. Lane conditioner tracked onto the approach.	Spot clean area affected and dust approach.
II. Dirty shoes or wax picked the up on shoe soles.	A light wire brushing of shoe soles.
III. Excess cleaner residue.	Spot clean residue and dust approach.
IV. Wet shoes.	Allow shoes to dry before use or change shoes.
V. New shoes not yet broken in.	Break in shoes.
VI. Shoe residue (toe or heel) from low grade shoes.	Clean approach to remove residue and dust.
VII. Excess bowler drying aids deposited on approach.	Clean approach to remove residue and dust.
VIII. Beverage spills.	Clean and dry area and dust.
IX. Grit or dirt on shoes or approach.	Brush shoe soles, clean approach and dust, also vacuum concourse and clean settee area.
X. Moisture.	Dry area and dust.

9.2 APPROACH SLIDE CONDITIONS: SLIPPERY

CAUSE	SOLUTION
I. Excessive dust.	Dust approach.
II. Lane condition tracked onto the approach.	Spot clean approach and dust.
III. Excessive approach conditioner.	Spot clean approach and dust
IV. Excessive bowler slide aids.	Spot clean approach and dust. May need to brush shoe soles, also.

9.3 LANE CONDITIONS

CAUSE	SOLUTION
I. Oily ring on ball after delivery.	Use less conditioner.
II. Ball consistently crosses over the pocket.	Stop line of the lane machine should be moved closer to the head pin.
III. Ball continually fails to come up to the pocket.	Stop line of the lane machine should be moved closer to the foul line.
IV. Pin slides off spot.	Excess oil in the pit area, clean backends more frequently.
V. Lane sticky or gummy.	Lane conditioner contaminated. Clean lanes and lane machine.
VI. Ball marks in impact area of the lane.	Clean marks. See spot cleaning Section 4.3 and condition impact area per instruction Section 3.3.

9.4 LANE REPAIR

CAUSE	SOLUTION
I. Scratches on ball.	Check entire lane and equipment for sharp edges and repair.
II. Dowel plug loose or missing.	To replace plug, see Section 9.2.
III. Lane no longer in ABC tolerances.	To correct tolerance, see section 10.

10.0 SERVICE AND REPLACEMENT PARTS LIST

Approach and Lane Maintenance

Part #	Description
041003542	Lane Brush with Handle, 42"wide
041003711	Lane & Gutter Mop, Refill
041003722	Lane & Gutter Mop
041003911	Gutter Mop, Refill
041003921	Gutter Mop with 60" Handle
041007400	Rotary Floor Machine, 20", 115V
041041012	Pad-Cloth-Buffing-pkg 6
041740096	Rotary Floor Machine, 20", 230V
045007200	Bowling Center Vacuum, 110V
045720096	Bowling Center Vacuum, 220V
049006638	3M Trouble Shooter Aerosol Approach Cleaner
294007037	Approach Spot Cleaner, Solvent Style for all approaches
294007038	SureSlide Approach Conditioner for synthetic approaches
294007040	DoodleDuster Approach Dusting Tool
294007042	DoodleDuster Replacement Cloth (250sheets/roll)
294007059	Approach Mop, 36"
294007060	Approach Mop Refill, 36"
294007061	Bassine Brush
294007091	Multi-Use Telescoping Handle
294118237	Lane Towel, Strip 'N Dust
730025000	Handy Sprayer, Hudson
049006393	Dowel Plug ¾” diameter X 1/8” thick
049006386	Dowel Plug ½” diameter X 1/8” thick
814852802	#16 x 5” Flat head wood screw
829642202	#10 x 1¼” flat head wood screw
724021029	Duct tape

Lane Cleaners

294006012	EcoClean Enviro Rational Lane Cleaner, hand or vacuum stripping (2x2.5 gal)
294006014	EcoClean Enviro Rational Lane Cleaner, hand or vacuum stripping (30 gal drum)
294006021	Formula 388 All Purpose Cleaner (2x2.5 gal)
294006022	Formula 388 All Purpose Cleaner (30 gal drum)
294006033	VisClean Concentrate Lane Cleaner, vacuum stripping, 1 bx, 6qts A & 6qts B
294006047	Formula ACC Lane Cleaner (2x2.5 gal)
294006052	Formula ACC Lane Cleaner (30 gal drum)

Lane Conditioners

294006004	Visflo 19.5 100% Solids, Med Viscosity Lane Conditioner (2x2.5 gal)
294006009	Visflo 32.5 100% Solids, High Viscosity Lane Conditioner (2x2.5 gal)
294006025	Visflo 19.5 100% Solids, Medium Viscosity Lane Conditioner (4x1 gal)
294006026	Visflo 32.5 100% Solids, High Viscosity Lane Conditioner (4x1 gal)
294006031	Visflo 48.5 100% Solids, Ultra High Viscosity Lane Conditioner (4x1 gal)
294006032	Visflo 48.5 100% Solids, Ultra High Viscosity Lane Conditioner (2x2.5 gal)
294006039	Visflo 12.7 100% Solids, Low Viscosity Lane Conditioner (4x1 gal)
294006040	Visflo 12.7 100% Solids, Low Viscosity Lane Conditioner (2x2.5 gal)
294006041	Visflo 39.0 100% Solids, Super High Viscosity Lane Conditioner (4x1 gal)
294006042	Visflo 39.0 100% Solids, Super High Viscosity Lane Conditioner (2x2.5 gal)
294006049	Reactor Lane Conditioner (2x2.5 gal)
294006050	Reactor Lane Conditioner (4x1 gal)

Duster Cloth

041001432	Duster Cloth 43-B 43 In
041001433	Duster Cloth 43-C 43 In
294008400	Duster Cloth, 40 1/2", all DBA maple dusters (3 rolls/carton)
294008410	Duster Cloth, 40 1/2", K & B Duster (3 rolls/carton)
294008423	Duster Cloth, AMF 42" Unimatic, Lane Duster,Super Lane Duster (3 rls/carton)
294008430	Duster Cloth, DBA 43" Lane Runner,Aluminum Dusters, Lane Maid (3rls/carton)
294008443	Duster Cloth, 43" DBA LaneWalker;Excel, new Brunswick duster, P/A Champion, P&S Lane Pro, all Century machines & dusters (4 rls/carton)
294008460	Duster Cloth, 43", DBA LaneWalker LCM, Arrow, Phoenix & Phoenix-S (4 rls/carton)
294844142	Duster Cloth, 43", AMF and older Brunswick dusters (3 rls/carton)