Canadian Tenpin Federation, Inc.
Fédération Canadienne des Dix-Quilles, Inc.

CERTIFIED LANE INSPECTION PROGRAM MANUAL

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CLIP Introduction

Welcome and thank you for taking part in the Certified Lane Inspection Program!

This program serves two principal functions:

- It is the text for participants in the Certified Lane Inspection Program. The material will help you in mastering the technical aspects of training and understanding the environment in which inspections take place; and

- It is a reference, a guide to help reinforce and refresh your training. After you complete the course, you have the responsibility for improving your skill levels and for retaining a good understanding of the responsibilities of an inspector. Since you may not have the opportunity to conduct many inspections, you are encouraged to review the materials to keep things fresh in your mind.

Section 1 - The first section provides background on the origins of this training program. This section also includes some things you need to know before starting out on the lanes.

Section 2 - The second section provides by a brief introduction to how bowling lanes are built and what kinds of major maintenance is performed on them.

Section 3 - The third section provides background information on certification inspections, with some suggestions on how to make the job easier and more efficient. Inspection tools are described, and, finally, there are some comments to help complete the application form correctly. This section also contains step-by-step instructions on how to do each part of a certification inspection.

Section 4 - The fourth section deals with the public relations aspects of the inspector's job.

Section 5 - The fifth section contains information regarding the maintenance and conditioning of the lanes. It will provide an overview on lane dressing inspections, the optical reader and the specifications for tenpins.

Section 6 - The final section contains a glossary of commonly used terms and a section on working with fractions

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Section 1 - Program Background

Safety Information

To assure that the lanes and equipment we bowl on meet these standards, annual inspections are performed by representatives of chartered local associations.

The annual certification program provides a valuable service to the bowling proprietor, because it calls attention to any lane or equipment areas in need of repair or attention and serves as a means to evaluate the workmanship of resurfacing contractors who have performed services for the proprietor.

Technical innovations and changes in maintenance procedures and product development in recent years have interjected a greater need for knowledge and experience not only for lane maintenance personnel, but for lane inspectors as well.

Lane and equipment specifications can best be divided into two categories:

1. The physical measurements and tolerances which are maintained through the annual certification inspection procedure.

2. The application of lane conditioner (dressing) in accordance with the requirements of CTF Rules.

The entire industry contributed to the development of the lane inspector training program upon which you are about to embark. In brief, it is designed to do two things:

1. Provide all inspectors with a high degree of training to improve their skills as inspectors

2. Train inspectors to be more uniform and consistent in the way they perform their responsibilities

In other words, the program was designed to improve the credibility and skills of lane inspectors. Upon successful completion of this program, you will become an asset to the bowling game.

Safety Information - General Safety Guidelines

Inspecting bowling lanes can be a safe job if you take certain simple precautions to avoid injury. However, the job carries certain hazards that could cause you to get hurt if you fail to take those precautions.

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As a lane inspector you should be aware of:

- Being injured because someone accidentally turns on the pinsetter while you are inspecting the pit end.
- Slipping and falling on dressed lanes.
- Getting splinters in your skin while crawling or sliding on lanes.
- Hitting your head on the pin setting machinery or masking unit.

You can avoid these dangers if you always follow these safety rules:

- Notify proprietors well ahead of time so they can have appropriate staff there to oversee your safety.
- Try to conduct certification inspections at times when no bowling is taking place anywhere in the centre.
- Make certain yourself that all pinsetter machines are turned off and tagged with a warning notice so no one will turn them on by mistake.
- Wear shoes with soft, non-skid soles. Even bowling shoes can slip on a dressed lane.
- Do not carry too many tools on the lanes at one time. Full hands add to the danger of slipping.
- Wear sturdy clothing with long sleeves and long legs. Heavy twill is best.
- Be sure you are well clear of machinery, in the pin deck area, before you stand or straighten up.

About Walking on the Lanes

Avoid walking on the lanes as much as you can. It is preferred that you get where you need to be without walking on the lanes. Walk on the lanes if you absolutely need to, but try to take certain precautions to minimize the damage you do.

First, never walk on the lanes if you are wearing shoes that have hard soles or heels, or have any hard things, such as nails, projecting from the bottom of them. Sneakers or bowling shoes are preferred. But, make sure that there are no small stones or thumbtacks or other items stuck to the bottom of your soft soles. Such items can and will scratch the lane surface.

But, even with your soft soles on, it is preferable to avoid walking on the lanes when you can. So where should you walk? You may feel a little like a tight rope walker at first, but you will soon find that gutter-walking isn't too bad, and it is

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one way to show the proprietor that you are being considerate. But be sure you are in the gutter. Some proprietors prefer that you walk on the capping over the ball returns. Ask the proprietor which he or she prefers.

Here is another point: if you do walk on lanes with oil on them, be sure to clean off the soles of your shoes before walking on the approach area. The right amount of oil on a lane is a very small amount indeed, but the right amount of oil on the approach is NONE. Do not track oil on the approach. Wipe the soles of your shoes with a towel, if going from lane to approach, otherwise, try to walk elsewhere ...other than on the approach...when you first come off the oiled lane, so that any oil on your shoes is not deposited on the approach.

If you must walk on a lane, try to keep to the left of the lane (the 7-pin side). As you walk, your shoes will remove some of the dressing on the lane. Most bowling is done on the right-hand side. If you are going to disturb the oil on the lane do it on the left side where it is least affected.

Please note:

CTF is not liable for any injury sustained during the course of this program or during the work being performed by a volunteer. However, if injury occurs, your options may be to: check with your associations to see if they carry accident or injury insurance, check to see if you are covered under worker's compensation insurance, or check with your private insurance company.

If you, as an inspector, follow these guidelines, the proprietor will very likely recognize your courtesy and consideration, and you will be considered as a professional and a welcome guest.

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Section 2 - Lane Construction and Maintenance

Introduction

For an inspector to know the reasons for what he/she is doing, he/she needs to have a fair understanding of how bowling lanes are put together, and what kind of care they require to keep them in good shape. This section of the program gives you a brief outline of this information.

Lane Construction

Basically there are two types of bowling lanes in use today wood and synthetic.

Wood Lane

The wood lane is made up of two different species of wood. The approach areas and the first fifteen to seventeen feet of the lane are made up of hard rock maple, a very strong, dense wood. The last four feet of the lane, the pin deck, also is made of maple. The area in between is made of pine, a somewhat coarser and looser grained wood that is much softer than maple.

The approach area is a minimum of 15 feet in length from the facing board in the bowlers' area to the foul line. The playing surface from the foul line to the centre of the head pin is 60 feet.

The lane is 41-1/2" wide (plus or minus 1/2" for USBC tolerances) and is made up of 39 to 42 individual boards that are 2-3/4" thick. Each board is nailed one on top of the other and then the 41- 1/2" wide lane is laid down. The reason for the difference of 39 to 42 boards is that some lanes are made of boards that are exactly one inch wide and some are made with boards that are 1-5/64" wide.

The gutters or channels on each side of the lane are 9-5/16" wide, plus 3/16" or minus 5/16". All of the dimensions of a bowling lane are strictly controlled by USBC and at least once every 12 months, every CTF certified lane must be inspected by a CTF representative. If any physical dimensions are outside of allowable tolerances, the discrepancies must be immediately attended to so that the lane is within specification for all CTF certified play.

Synthetic Surface

The other type of lane used today is the synthetic surface. These are sometimes referred to as "plastic" lanes. Actually, the synthetic surfaces are high pressure laminates with a melamine coating that are extremely tough and durable. There is very little difference in the actual playing surface between wood and synthetics. Very exhaustive USBC tests are required before this type of lane can be used in certified play.

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Regardless of the top surface of the lane, every lane has a very strong but resilient foundation, called “cribbing,” under it that is as important as the top surface. This special type of foundation allows the lane to “flex” or “bend,” just like the springs on an automobile.

The lane is firmly fastened to the cribbing by tie-down screws, set so they run at an angle, through the sides of the outermost boards and down into the cribbing. As the wood in the lane dries out with age, it may tend to shrink, and then to sag. The result is for the lane to “belly out.” On the other hand, it may expand and “crown.”

If the lane inspector finds that either of these conditions is so severe that the lane no longer meets CFT specifications, repairs are made by removing the gutters and ball returns, and adjusting the tie-down screws to restore the proper flat condition.

A wood bowling lane must be covered with a chemical substance to seal the moisture out of the wood and to protect the wood grain from the constant pounding of the bowling ball. This coating takes many forms and each different type of material creates a slightly different surface; which in turn affects the way the bowling ball grips the surface as it rolls down the lane.

The four major finishes used today are:

1. urethane
2. epoxy-urethane
3. water based
4. 100 percent solid finishes.

The final bowling surface used today is synthetic lane surface. This is a laminated plastic (melamine) material, which is extremely smooth and has no texture at all.

While lanes are rarely resurfaced more than once a year or every other year, it is common for them to be refinished (recoated) once or twice a year. Depending on the amount of lineage and corresponding wear in the ball track area, an extra recoating (strip coating) may take place to protect the ball track.

Please remember that following resurfacing, an inspection is required. Refinishing, on the other hand, does not require an inspection.

Resurfacing is not cheap and each time the sander is used a vital part of the proprietor's inventory is swept away. So the proprietor must make a careful decision about how often the job is done. In general, more frequent maintenance is better maintenance, and contributes to longer life of equipment. So the proprietor must examine the trade-offs. CTF does not require annual resurfacing, but many centres resurface their lanes every one or two years.

The resurfacing of a lane is important for the inspector. Many of the things an inspector is responsible for checking do not change much from year to year. But

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running a large sander on the lane can create big changes. As a result, lanes that have been resurfaced must be inspected before they can be certified for certified league or tournament play.

Routine Lane Maintenance

The surfaces of bowling lanes need to be sanded down and refinished from time to time. This process is called resurfacing the lanes. There are other substantial repairs that may be made, such as removing and replacing boards that are broken or split, correcting any "belly out" or "crowning" of lanes, and so on.

Apart from those relatively infrequent repairs, there are other things that a proprietor must do to keep the lanes attractive, consistent and appropriate for the bowlers, and to minimize the wear and tear that makes major repairs necessary. Basically, these routine maintenance procedures consist of recoating, stripping, dusting and dressing the lanes.

The three major factors that affect the appearance and durability of a bowling centre are:

1. the pounding impact of the ball
2. the friction generated as it travels down the lane
3. just plain dirt.

The routine maintenance procedures are designed to help the lanes withstand the potential damage from friction and dirt, in particular.

Recoating or refinishing the lanes means cleaning or screening the old finish and refinishing it with fresh coats of top coat material. The lanes need not be sanded, in order to be recoated, but the old finish must have all the oil removed and then be scuffed with a rotary and a screen pad. The new finish is applied to the scuffed surface, and allowed to dry thoroughly before bowling is resumed. Recoating is necessary when the old finish shows signs of wear.

Stripping means removing all of the lane dressing (or "conditioner" or "oil") that has been placed on the lane to help reduce the friction caused by the balls. Stripping is accomplished either by:

- soaking a cloth with a special cleaner, putting the cloth beneath a lane broom and pushing it up and down the lane while applying downward pressure.

- utilizing one of several vacuum strippers on the market today removing all of the built up oil.

NOTE: Lanes should be dressed after stripping to protect the lane from damage caused by bowling balls.

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Dusting is essentially what the name implies. A cloth, usually a specially made non-woven fabric, is pushed along the lane to remove the considerable amount of dust and dirt that has settled on the lane, or been deposited there by the balls. While the special fabric used for dusting is designed to remove the dust and dirt particles, it also leaves the oil on the lanes. Dressing the lanes also is referred to as conditioning or oiling them. This is the process of spreading specially formulated oil on the lanes, called lane dressing or conditioner, to reduce the ball's friction and protect the lane surface.

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Section 3 - Lane Certification Inspection

Introduction

The first part of this section explains the when and why of lane certification inspections and:

- explains the procedures for an inspector
- describes the various tools and their uses
- gives suggestions for getting things efficiently organized
- tells how to complete the necessary forms

The second part contains step-by-step instructions for each element of any certification inspection, whether a partial inspection or an inspection of new lanes or those that have undergone major work.

All of these instructions are placed in a logical order, following the order in which the items can most conveniently be inspected. This is not necessarily the same order in which they appear on the forms.

CTF requires that lanes in certified leagues or tournaments be inspected and certified once a year. In addition, if some lanes are resurfaced or have other major work done on them, they must be reinspected before they can be certified for certified play. And, of course, any lanes that are newly built-either for a whole new centre or for one that has expanded (added lanes) or replaced some lanes that are worn out-must be certified before certified play is allowed.

A complete inspection is conducted on lanes that are new or if any of the following has been done:

- synthetic overlays installed
- lanes added
- lanes, lane sections, pin decks or pinsetters replaced
- headers or pin decks injected

Note: It is also recommended every three (3) years for lanes having a synthetic surface.

The same extensive inspection also is required if, for any reason, an earlier certification was allowed to lapse or was withdrawn, and the centre wishes the lanes to be certified again.

The routine annual inspection is much less extensive, because many of the important conditions of a lane do not change much from year to year. So the annual inspection focuses on those elements that are most subject to change by virtue of a year's wear and tear. Note: For synthetic lanes it is recommended that a complete inspection be done every three (3) years.

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Who Makes the Inspection?

CTF rules provide that "the CTF local association representative(s) designated by the association manager shall measure and inspect the lanes and equipment for compliance with CTF physical specifications." It is the responsibility of the local association manager to designate as many inspectors as necessary to handle the workload.

When are Inspections Done?

All CTF Bowling Centre Certificates expire on August 31 every year. For new certificates to be issued before the old ones expire, lanes must be inspected well in advance. To permit CTF to handle the necessary paperwork, and to permit bowling centres to do any necessary corrective work without delaying their new certificates, regular annual inspections should be completed before June 15. To meet this deadline, the association manager should contact all the centres in the area during the first week in April and arrange a schedule for inspections. The rules state that these inspections "may be made as early as April 1 prior to and should be made no later than August 31 after the start of the season for which the certification is to apply, but not prior to any resurfacing or alteration of the lanes scheduled to be completed by August 31 of the season."

If a centre plans to resurface some or all of its lanes before the new season, it makes no sense, of course, to do the inspection before that work is done. The association manager should encourage the centre proprietor to complete the work as far as possible in advance of August 31, to permit the completion of the inspection and paperwork, and to avoid delaying the certification past that date. Other major work, as outlined above, requires the same kind of handling.

Uncertified centres requesting certification and being inspected after December 15 or certified centres that have been resurfaced and inspected after December 15 will be issued certificates for the current season and such certificates may be renewed effective August 1 of the next season without further inspection.

Inspectors often find that lanes have one or more defects that require correcting. In many instances, this means that the inspector will have to make a return trip to inspect after the repairs have been made.

The inspection should be scheduled to make the least possible interference with the centre's activity.

How is an Inspection Done?

First, the inspector provides all his/her own tools, equipment and work clothes. The tools are described in another part of the workbook. The equipment an inspector needs includes:

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Towels – Made of cloth or paper. Although lanes may not have oil on them, for a certification Inspection, it is possible that they will. And oily lanes mean oily and dirty hands and knees, unless the inspector is equipped to keep clean. The inspector can also get dirty from un-oiled but dusty lanes. A supply of towels is useful for wiping oil or dirt from hands (or tools, sometimes). A towel can also be placed on the lane, if you need to kneel or lie on it.

Inspection Forms - The inspector must have at least one copy of the current application for CTF Bowling Centre Certificate and as many copies of the measurement form as will be necessary, since each measurement form covers just 16 lanes. One neat and clearly legible copy must be completed and be available if required by CTF.

It is a good idea to work on one form, which can be completed "in draft," so that the data can be copied more neatly on the copy that may be requested by CTF.

Clipboard - To keep the forms and other papers handy, a clipboard is strongly recommended.

Note Paper - Lined or unlined paper on which the inspector can write figures, notes and comments. There are frequently items included in the inspection that are not provided for on the form.

Reference Material - This includes the USBC Bowling Equipment Specifications Manual; a current issue of CTF's Rule book and the Lane Measuring Tool Instruction Manual. We suggest that they also be a part of the inspector's "reference library" and taken along whenever an inspection is made.

It also is very helpful for the inspector to have someone to work with him/her. The inspector alone is responsible for the accuracy and completeness of the inspection report and findings. The helper's role is largely to serve as an extra pair of hands, arms and legs. He/she can hold or carry things for the inspector, and can write notes, readings, or comments called out by the inspector. The inspector should arrive on time, and with all tools and equipment

The first responsibility is to meet with the proprietor, introduce oneself, and explain what the inspection will entail. The inspector should give a general outline of how he/she will proceed and should explain what kinds of assistance he/she will need. This may include turning pinsetting machines off or on, assistance in opening masking units, turning on lights or foul detection devices, and so on

The inspector should go over certain parts of the form, to be sure the information on the centre's address, owner's name is correct. The inspector should offer to answer any questions the proprietor may have at this point, and then ask permission to begin the inspection. The inspector is a guest in the centre, and must ask the proprietor's permission before starting work.

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Another discussion topic should be the place the inspector will start, and which lanes, if any, will be used for bowling during the inspection. It is neither wise nor pleasant to inspect a lane next to one that is being bowled on.

It is recommended that the inspector invite the proprietor to name at least one employee to observe the inspection. He/she can often see, first hand, where there are problems, and where conditions may lead to problems. The actual inspection should be done quickly and without interference with the centre's activity.

When all the measurements and examinations have been completed, the inspector should review all notes, to be sure that the notes and measurements are clear and complete. This may mean copying facts and figures from the "working copy" of the form to a "clean copy," to be sure that everything is clear, complete and legible.

When the inspection has been completed, the inspector should compare the figures on the form with the specifications indicated on the form or in one of the other reference manuals mentioned above, and then should make a list of all the defects that were found.

Again, the inspector should meet with the proprietor, and give a brief review of the findings. The inspector will be filing sending a detailed report if there are things that are wrong. It is a courtesy to let the proprietor know, in general, at this point.

Finally, the inspector should ask the proprietor to notify the inspector or the association manager as soon as possible when all the corrections have been made, to arrange for the follow-up inspection. The follow-up should, if possible, be handled by the same inspector who made the earlier inspection.

The inspector completes the form-a clean, neat copy, attaches a narrative portion, if appropriate, signs both and turns them over to the association manager for processing and filing with CTF. Verification of any necessary corrections should be called in to CTF or sent under separate cover when completed.

We recommend that the association manager retain a copy of the completed application in the files for a period of two years.

What Must Be Inspected?

Many factors affecting the travel of the ball and the fall of the pins must be inspected. These items are listed briefly below.

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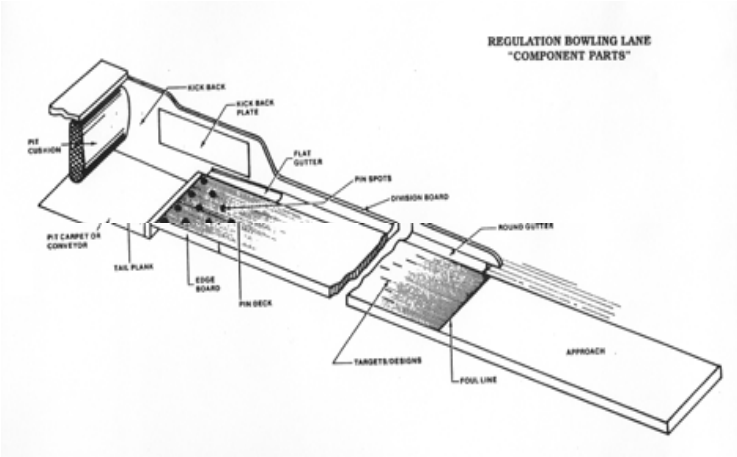

- The length of the approach, from the end of the approach to the foul line
- *The surface of the approach-to detect extreme depressions
- *Foul detection devices-to ensure that they work properly o Markings, targets, and designs, to be sure they are properly located
- The length of the lane, from the foul line to the centre of the head pin
- The round gutters, to ensure that they are not too high
- The stamp or stencil that identifies the resurfacing firm
- The drop and gap between panelized lane sections (when present)
- *The surfaces of the lanes, to be sure they are level and do not contain excessive depressions or grooves
- *The bottoms of flat gutters
- Fibre edge strips on the pin deck and tail plank
- The thickness of the kickback plates
- *The distance between the kickbacks
- The width of the lane itself~ in the pin deck area
- The width of the flat gutters on either side of the pin deck
- The location of the pin spots, with respect to the lane's edges
- The diameters of the pin spots and their distance from one another
- *The surfaces of the pin decks, for lengthwise and crosswise tilt
- *The depth of the gutters on either side of the pin deck
- The depth of the pit, being the distance from the pin deck surface to the highest point on the pit carpet
- The distance from the end of the lane to the pit cushion
- The size and condition of the tail plank
- *The accuracy with which the pin-setting machine places the pins upon the pin spots

The measurements on this list that are marked with an asterisk (*) MUST be completed yearly regardless of resurfacing, recoating, or no work performed. Other inspections, for complete certification of new lanes, or after major work has been done in a centre, require that all of the items listed be inspected.

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Who Pays for Inspections?

CFT has set forth certain guidelines for inspection fees, which are to be paid by the bowling establishment. Fixed fees are paid to CTF, and there is a limit on how much the local association inspection committee may charge.

For initial certification of lanes in a new centre, CTF receives a flat fee of $5 for the first four lanes, and 75¢ for each additional lane. A large new centre with, say, 40 lanes, would pay $47 in fees to CTF.

Local associations also are permitted to charge a fee for the inspection service. A limit of $5 per lane is set, regardless of the number of lanes inspected, and for complete and partial inspections alike. Thus, the association portion of the fee for a 40-lane centre might be $200.

This fee paid to the association includes two callbacks for re-inspection of items that did not meet CTF specifications. If there are more than two callbacks, the association may charge an additional fee not to exceed $20 per callback.

CTF's portion of the fee goes to cover the administrative costs involved in processing the inspection form (which also is the certification application form) and for issuing the centre's certificate and decal.

The inspector should collect the inspection fee from the proprietor when the inspection is completed. The centre's check should be made out to the association, and should be turned over to the association manager, along with the completed application form.

Inspection Tools

Introduction

The tools necessary for lane certification inspections are neither elaborate nor expensive. The basic tools can be bought at a hardware store for a few dollars. They consist of a spirit level at least 42" long, a long steel tape measure (at least 60'), and a feeler gauge set with blades of varying thickness up to .040. A short (6 foot) steel tape measure also is very desirable.

While a perfectly adequate inspection can be made with these "off-the shelf" items, USBC has developed specially designed tools to make the inspector's job much quicker, easier, and more efficient. These are:

- Gutter, Pit and Pit Cushion Checking Gauge (No. G-G-83
- 42-inch Level (No. LL-92-B)
- Official Bowling Lane Gauge (No. LL- 92-A)
- Pit End Gauge (No. P-P-83)

NOTES:

These USBC tools cannot be bought at your favourite hardware store; they can only be obtained from USBC.

The procedures contained in this program are written so that they describe the way to make each inspection check with the off-the-shelf tools, and, where appropriate, with the special USBC tools. The inspector must know both methods. Each inspector must be able to use off-the-shelf tools if the USBC tools are not available.

The following pages contain descriptions of the necessary tools, and names used in this workbook for their various parts. These names will be used to make the step-by-step procedures easier to follow.

Feeler Gauge

This is a precision-made device with six leaves of different thickness. Each leaf is marked with its thickness. The different thicknesses are:

.005” - 5 one-thousandths of an inch
.010” - 10 one-thousandths of an inch
.020” - 20 one-thousandths of an inch
.030” - 30 one-thousandths of an inch
.040” - 40 one-thousandths of an inch
.095” - 95 one-thousandths of an inch

The leaves can be used in combination for measurements different from what is available on a single leaf. For instance, the .010 and .005 leaves may be used together to measure a space of .015” (15 one-thousandths of an inch).

The gauge also has a blade that is tapered (graduated) for measurement of spaces larger than .200. The measurements indicated on the blade are:

1/8” - one-eighth of an inch (.125)
3/16” - three-sixteenths of an inch (.187)
1/4” - one-fourth of an inch (.250)
5/16” - five-sixteenths of an inch (.312)
3/8” - three-eighths of an inch (.375)
7/16” - seven-sixteenths of an inch (.437)

To measure the space with the leaf, insert it flat on the surface being measured. To measure space with the blade, insert it on edge perpendicular to the surface being measured.

Care: Although the feeler gauge is made of quality hardened steel, it can rust. It should be lightly coated with oil from time to time, to prevent rust. Like all tools, it should also be wiped clean occasionally.

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Feeler Gauge

Gutter, Pit and Pit Cushion Checking Gauge

Because its name is so long, it is usually referred to as the "Gutter and Pit Gauge." It bears that label, stamped on it. Like other USBC tools, this gauge is precision-made to perform specific tasks in the inspection of lanes. It is made of black and gold (or blue and silver) anodized aluminum. Consider that the gauge is shaped somewhat like a large pistol.

Four parts of the gauge can be moved:

1. The grip part is used for measuring gutter depth.

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Gutter, Pit and Pit Cushion Checking Gauge

2. The butt has a small silver (or gold) slide (the butt slide") that is used to steady the gauge when measuring the pit's depth.

Gutter, Pit and Pit Cushion Checking Gauge Measuring Gutter Depth

3. The black top part of the "barrel" will slide out past the butt. We call that the "barrel slide."

Barrel Slide

4. And on the top surface of the barrel is a silver(or gold) slide with a piece fastened on it that we have called the "sight." This piece will also slide out to the rear. We call it the "sight slide."

These terms will be used in describing the procedures to be followed with this gauge, to simplify the instructions. Both the butt slide and the sight slide (the two silver or gold pieces) have spring-loaded devices inside them to stop their travel when they are extended the proper (full) distance. They go "click" at this point. They can go farther, and no damage is done. But that is as far as they need to go. The grip slide also has a spring-loaded "click" stopping device, for when it is fully extended, and another for when it is fully closed.

Each of the slides has a device to stop it from going too far in the "closed" direction. For the long life of the gauge, however, do not slam these slides home. Treat them with care, and they'll last longer.

Care: Because it is made of aluminum, there is no rust problem with this gauge. It needs no special care other than keeping it clean and sensible handling.

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Official Bowling Lane Gauge

Official Bowling Lane Gauge *Official Bowling Lane Gauge – Dial Indicator*

The lane gauge is a specially designed combination of tools. It is a precision level, mounted on two feet. It has a sensitive gauge that can measure minute variations in the height of a surface. You read those measurements from a dial, which indicates the amount of variation (by number) and whether the irregularity is up (+) or down (-) from a starting height (0). It can measure a positive or negative variation as much as .100" (one tenth, or a hundred thousandths of an inch), in steps of .001".

The gauge usually is stored and carried separately from the level. To attach the gauge, place it so that one flange of the top of the level fits in the groove on the bottom of the gauge and the body of the gauge rests on top of the level. The dial faces upward.

Insert the knurled knob on the screw near the other flange of the level's top, so that it will screw upward. Tighten the knurled knob until the gauge is steady on the level's top, but will still slide easily. (To remove the gauge, unscrew the knurled knob.) There is a small knob at either end of the top of the level, to prevent sliding the gauge all the way off the end.

The dial is on the top of the gauge. The measurement indicated by the dial's needle may be adjusted by grasping the case around the dial face and twisting gently in one direction or the other. The dial should always be set at zero to begin measuring depressions. The needle on the dial is activated by the gauge's stem assembly, which moves up or down as it is slid across a surface.

The level is equipped with feet at either end. These feet raise the level above the surface to avoid the problem of measuring a surface's tilt if that surface itself is not flat. In exaggerated form, this is the way such a surface might cause a problem:

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But the feet overcome this problem, like this:

The spirit level consists of a fluid in a glass vial. There also is an air bubble in the vial. When the air bubble is perfectly centered, as indicated by the vial's markings, the level is level. The bubble always moves toward the high end of the level. You will use the leaves of the feeler gauge, placed under one of the level's feet, to obtain tilt measurements.

The Bowling Lane Gauge is used to measure the crosswise tilt of the lane and pin deck, the lengthwise tilt of the pin deck, and depressions in the lane's surface.

Care:

Although the level is sturdy and durable, it can cease to be accurate as a result of rough handling. It should not be banged against other surfaces, nor should it be used for purposes other than those for which it was intended. More than most of the tools you will be using, this one can be affected by extremes of temperature. As a rule you should avoid storing this gauge where it will be too hot or too cold.

The gauge is sturdy, but much more delicate than most other tools. It should be kept in its own case when not in use. The gauge should not be subjected to heavy shocks, and the stem assembly should not be jammed into its sleeve, nor pulled beyond its normal stop position.

This tool is not normally a victim of rust, but, like all tools, it should be kept clean. A very light coating of oil may be good for the level, but you should never oil the gauge.

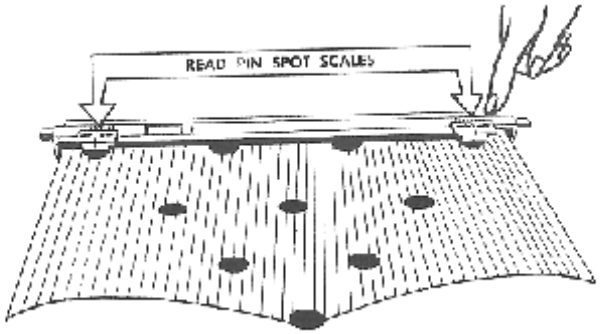
Pit End Gauge

The Pit End Gauge is a carefully designed multi-purpose tool made of extruded and anodized aluminum. There are two versions: one is primarily silver and blue in color, the other is newer and is mostly black and gold. It features a number of sliding parts, with appropriate scales for different measurements.

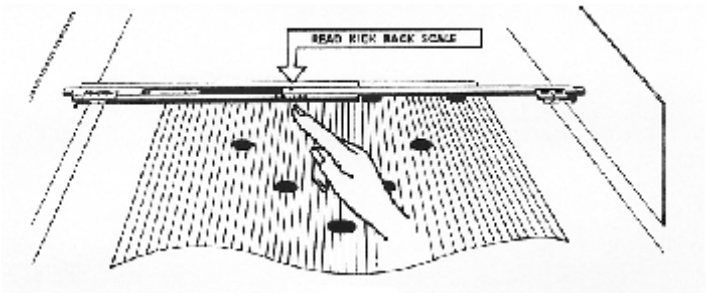
NOTES:

Pit End Gauge

The gauge has feet that will fit against the pin deck's edge boards. This is the way it is used for measuring the width of the lane, using the lane width scale on the upper surface. At either end, near the feet, is a gold (or silver) pin spot guide, which is used in measuring the 7 and 10 pin locations by reading the pin spot scale.



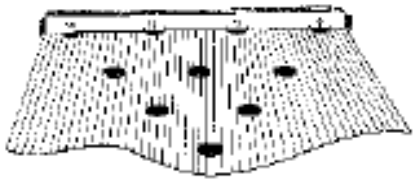
The slide on the gauge's top surface can be extended, for distance between kickbacks from the kickback scale.



The small tips at either end of the gauge are also the "tip slides") used for measuring the width of the gutters.

NOTES:

On the bottom of the gauge is a set of four markings, which constitute the pin spot guide, used for measuring the distances between pin spots.



Care: Keep the tool clean, and do not abuse it. If the slides work only with difficulty, a small amount of lubricant may help. The slides should not be so loose or slippery, however, that they move because of their own weight; they should move only when you push or pull them.

Tape Measures

For the kinds of measurements the inspector needs to make, two tape measures are recommended:

- The first is a long steel tape measure. It needs to be at least 60 feet long, and normally the ones that can be found that are long enough are 100 feet long.

- The second is a shorter measure. A six-foot steel tape is perfectly adequate.

The long steel tape is used for measuring the lengths of approaches and lanes, and can also be used for measuring the width of the foul lines, even though they are not more than an inch across.

The six-foot steel tape is handier for measurements that must be made in the pit, if you don't have the USBC tools. While the long tape can be used for these measurements, the short steel tape is generally more satisfactory, because it is easier to manage.

NOTES:

Care:

Neither of these tape measures requires any special care, except for sensible handling. Both of them should be extended and retracted with care, to avoid breaking, twisting or otherwise damaging them.

You and Your Helper

The lane inspection process is much easier, faster and more enjoyable if the inspector has a helper. The helper need not be a trained inspector, but should be a willing and reliable person-for example, your spouse, or a colleague from the association. The helper does not do the inspection, but assists the inspector. Here are some rules regarding the use of a helper.

1. The helper never makes the measurements: the inspector does.

2. When working with a tape measure, the helper holds the end of the tape (the "zero end") and holds it where the inspector directs.

3 The helper records on the form the readings found by the inspector. Ask your helper to repeat back to you each reading, after writing it on the form, to be sure it is correct.

4. It is the inspector's responsibility to be sure the helper writes the findings in the right place.

5. If a helper is writing the findings on the form for you, look it over after every pair of lanes or so, to make sure things are right. Check it more frequently with a less experienced helper.

Set-Up For Inspection

1. Look over the centre, and divide it, in your mind, into sets of lanes to be inspected in groups. The number may depend, for instance, on whether bowling is in progress on some lanes, or the centre is not operating. Make each group of lanes an even number. Usually, a group of four, six, or eight lanes constitutes a good, workable number.

2. Discuss with the proprietor or his representative, as appropriate, how you plan to work. Be sure he understands what you will be doing, and that your plans do not intrude unnecessarily on the centre's operations or its personnel.

3. Invite the proprietor/manager or one of his staff to observe your inspection. It can be helpful to the centre for its personnel to learn more about what is inspected and how.

NOTES:

4. Organize your tools. Place them where they will be convenient and safe, but out of trouble's way. You can start by putting your Pit and Gutter Gauge and Pit End Gauge down near the pin deck of the first lane to be inspected.

5. Be sure you have everything you need before you begin. If the lanes are dressed and/or dirty, for instance, you will probably want towels for cleaning your hands and/or tools.

6. As a rule, unless conditions indicate otherwise, start at the far left (lane #1) and work across, in groups of lanes, to the right. This will be more orderly, make it easier to complete the form, and be less disruptive of other activities in the centre.

Inspection Patterns

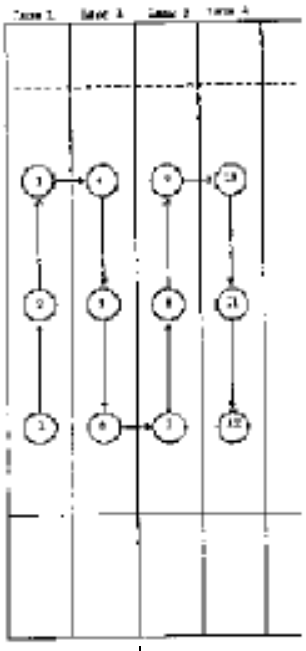
In general, the inspection is easiest when following the order indicated on the inspection form, with some variations as indicated below.

After obtaining permission for the inspection and collecting the appropriate information from the centre management for page 1 of the form, perform your tasks in the order indicated and illustrated in the diagrams on the next few pages.

The patterns shown here are an attempt to avoid too much walking back and forth, and to make maximum efficient use of tool sets for carrying out related sets of measurements. The system illustrated here is the result of years of practice and experience, and should give you a good starting place.

For the complete certification inspections (initial certifications and those following resurfacing or other major work) all of these steps are to be done. For partial inspections, do only those items indicated on the diagrams (and on the inspection forms) with asterisks (*).

The first set of items diagrammed covers the approaches, long tape measurements, and the examination of targets and designs. The pattern illustrated here works equally well with any even number of lanes.



A Pattern for the First Set of Measurements
Approaches , the Long Tape and Targets

Item 1: Approach length
Item 2: Foul line width
Item 3: Approach surfaces (depressions)
Item 4: Foul detection devices
Item 5: Targets and Designs
Place marker pins in gutter for later measurements of tilt and depression
Item 6: Lane length

NOTES:

The second diagram illustrates an efficient way of handling the lane surface measurements for any even number of lanes.

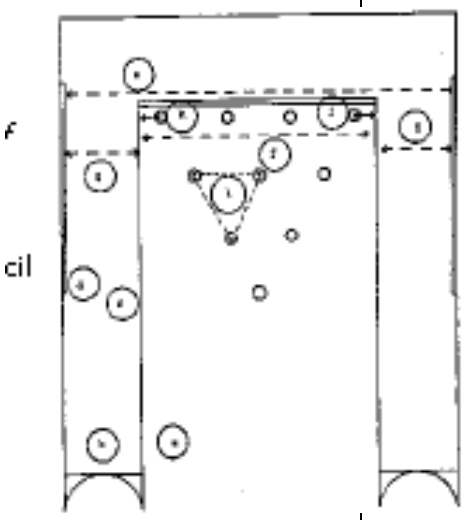
A Pattern for the Second Set of Measurements Lane Surfaces - Depressions and Tilt

*Page 4- Depression and Tilt

The next two diagrams, instead of covering four or more lanes at a time, deal with only one lane at a time. After completing the measurements shown on the earlier diagrams, you can do the rest of the measurements, one lane at a time, until you are ready to start another group of lanes.

The first of these diagrams shows an efficient way to manage a series of inspection steps in the pit end. This set includes some visual observations and measurements made using the Pit End Gauge.

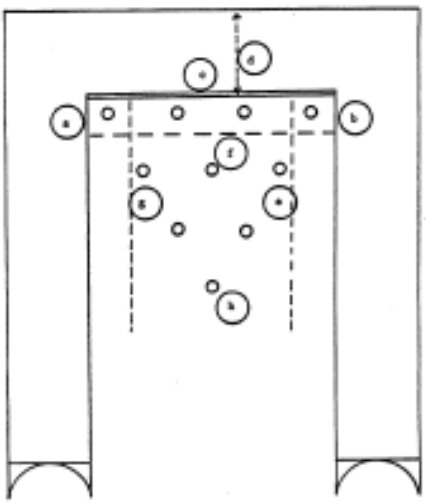
A Pattern for the Third Set of Measurements Pit End, Including Pit End Gauge



a. Page 1: Resurfacer's Stencil
b. Item 8: Flat gutters, slope
c. Item 10: Fibre edge strips
d. Item 11: Kickback plates
e. Item 13: Kickback separation
f. Item 14: Lane width
g. Item 15a Gutter width (7 pin side)
h. Item 16a Pin spot distance (7 pin side)
i. Item 15b Gutter width (10 pin side)
j. Item 16b Pin spot distance (10 pin side)
k. Item 9: Pin spot diameters and distances

The final diagram shows a useful sequence for the remaining pit end measurements, and includes the use of the Pit and Gutter Gauge and the Bowling Lane Gauge, and concludes with your checking the accuracy of the pin spotting.

A Pattern for the Fourth Set of Measurements Including Pit and Gutter Gauge and Bowling Lane Gauge



a. Item 19: Gutter depth (7 pin side)
b. Item 19: Gutter depth (10 pin side)
c. Item 7: Pit depth
d. Item 8: Distance to cushion
e. Item 21: Pin deck lengthwise tilt (10 pin side)
f. Item 20: Pin deck crosswise tilt
g. Item 21: Pin deck lengthwise tilt (7 pin side)
h. Item 13: Pin spotting accuracy

NOTES:

Completing the Form

The application for CTF Bowling Centre Certificate serves both as an application form for certification and a detailed report of the inspection itself. The same form is used for all certification inspections, complete, partial or supplemental. The referenced page of the form can be accessed by clicking on the links that follow.

Page 1

All inspections: The inspector should, at the beginning of the visit to the centre, review with the proprietor the items on the top half of this page, down to and including the name and address of the firm that has resurfaced or installed lanes.

The inspector should check for the resurfacer's stamp or stencil, on every lane, in the course of the inspection. Do not mark the "Yes" or "No" box until all lanes have been checked for the stamp or stencil. If it is missing from one or more lanes, mark the "No" box and write in the number(s) of the lane(s) without it, under Remarks on page 4.

When defects are discovered in the course of the inspection, they should be brought to the attention of the proprietor, who should be requested to have them corrected. A further inspection is necessary to ensure that all necessary corrections have been made. Send verification of any necessary corrections under separate cover when completed.

As an inspector, you should sign the application, after the inspection is completed after "Signature of Inspector." Also obtain the signature of the centre owner or authorized representative.

Page 2

Sections A, B and C must be completed following installation or replacement. (If replacement occurs, only answer affected areas). Section B and C must be completed following installation, replacement or resurfacing. Section C must be completed yearly regardless of resurfacing, recoating, or no work performed.

Page 3

All items must be completed following installation or replacement of lanes. Synthetic overlays, lane sections, pin decks, pinsetters, or following resurfacing. However, only items 15, 19, 20, 21, and 22 if no work other than cleaning or recoating has been performed since the last inspection. In the case of an inspection for an annual renewal, however, only the items marked with an asterisk on pages 2, 3 and 4 need to be completed.

NOTES:

Page 2

Page 2 should be completed only after the inspection is completed. In the course of the inspections you should examine the items listed on this page, and make note of your findings on a separate page. If all lanes meet specifications indicated in an item, then the "Yes" box should be checked; if any lane does not meet the stated specifications the "No" box should be checked. Write on the form the number(s) of any lane(s) where the specifications are not met.

For your convenience, these areas are shaded in addition to an asterisk appearing next to the item number.

Item 14: It is presumed that, if fibre strips are installed, they will all be of the same dimensions. The inspector should measure them at each lane, however, and if they are not all the same, the measurements of each should be written down with the number of the appropriate lane.

The space provided under "remarks", can be used to provide such specifics or exceptions as are indicated above.

Page 3 and Page 4

These pages are largely self-explanatory. Enter the lane numbers in the spaces across the top, beginning with lane number 1 at the left. If there are more than16 lanes to be inspected, use additional forms.

Note that there are two points where the inspector must double-check his figures, to ensure that measurements are properly made and properly recorded. The measurement in item 15 must be equal to the total of Items 16 and 17 (both 17A and 17B). And the measurements recorded in 17A plus 18A must be in the range of 12W - 12-1/8". The same is true for 17B and 18B. Use these checkpoints to be sure that your measurements are correct and correctly written on the form.

For the surface inspection, on page 4, in addition to writing in the lane numbers, be sure to write in the location of the inspection points. They must be within the ranges indicated for each of the three points.

Extra pages: It is possible that all the information that needs to be recorded can be contained on the application form. It is very likely, that there will be other points that the inspector should report on, which can not be accommodated by the form. The inspector should attach additional pages for the information that cannot be included on the form.

Extra pages can be used to report on the lanes for crosswise tilt and/or depressions at points other than those indicated on the form.

The conscientious inspector will also check certain elements that are not reflected on the form, such as the condition of the rounded gutters, the surface condition of

NOTES:

the pin deck, the tail plank, and so on. If discrepancies are found they should be reported in detail to the association manager and to the proprietor, so that they can be corrected.

A final note: Even if the inspector is fairly careful, it is likely that the measurements recorded during the actual inspection will not be as neat and clear as they should be. So it is a good idea for the inspector to rewrite all the figures from the "working copy" of the form onto a clean copy, ensuring that all entries are neat and totally legible. A copy of the certification inspection should be given to centre management with any discrepancies circled and explained to them.

Ask the Proprietor

There are several items on page one of the application form that can most easily be handled by asking the proprietor for the needed information. These items apply to all certification inspections.

1. Review with the proprietor

   - Establishment name
   - Street address, city, state, zip code
   - Business phone number
   - Total number of lanes, and the numbers of the lanes to be inspected
   - Name of owner
   - Name of manager
   - Address of owner
   - Business phone number and business fax number if available
   - Date of latest resurfacing or installation, (month, day, year), name of firm that did the work.
   - Information regarding type and brand of finishes for surface coatings
   - Address of resurfacing or installing firm

2. If lanes are synthetic, ask which lanes, pin decks, name of manufacturer.

3. Ask trade name and manufacturer's name of pinsetting machines.

NOTES:

Lane Certification Inspection Instructions

Length of Approach

Specification: Extending back from and exclusive of the foul line there shall be a clear and level approach not less than 15 feet in length.

The Tools: Long tape measure.

Location On Form: Page 2, Item 1.

Instruction: Using a long steel tape measure:

1. Place the zero end at the back of the approach.
2. Extend the tape measure to the foul line.
3. Read the measurement at the edge of the foul line. [Be sure not to include the width of the foul line in your measurement.]
4. If measurement is less than 15 feet, mark the "NO" box on the form. [Page 2, Item 1.]

[Stay where you are, to measure the foul line itself.]

Measuring Length of Approach

If you have a helper, he/she can hold the tape for you. If you have no helper, place a heavy weight near the zero end to keep it in place or use a piece of masking tape or gaffer's tape to hold it temporarily, while you measure.

Foul Line Width

Specification: The foul line shall be not less than 3/8" or more than one inch in width. At a minimum, the entire width of the lane. Distinctly marked upon or

NOTES:

embedded between the lane and approach. It may be required that the foul line be plainly marked on the walls, posts, division boards or any other structure in a bowling establishment, at any point on a line with the regular foul line.

The Tools: Long tape measure.

Location On Form: Page 2 , Item 2.

Instruction: Using a steel tape measure:

1. Place the tape measure over the foul line.
2. Measure its width.
3. If less than 3/8" or more than 1", mark "No" box on form. [Page 2, item 2.]
4. Note also whether the foul line is extended to show on any wall or post within reach of the bowler.

Approach Surface

Specification: A tolerance of 1/4 inch is permitted in depth of depressions or grooves [on the surfaces of the approach.]

The Tools: 42" level or other straight edge, and feeler gauge.

Location On Form: Page 2 , Item 10.

Instruction: Using a level and feeler gauge:

1. Place the level across the approach, about 4-5" behind the foul line.
2. Place one hand firmly on top of the level.
3. Probe with feeler gauge to find area(s) of depression.
4. Insert feeler gauge leaves of increasing thickness until leaf is too thick to fit under level. (Be sure that leaf does not lift level from surface.)

5. If depression is greater than .105" (.200" if gauge has .095" leaf) use graduated blade of feeler gauge.
   A. Insert blade, perpendicular to floor, under level.
   B. Grasp blade with thumb and forefinger, as close to level as possible.
   C. Withdraw blade without moving fingers and read last number visible.

NOTES:

Using Level and Feeler Gauge

6. Note the measurement, being either the thickest leaf to fit under the level or the reading from the graduated blade.

7. Repeat the same process, about one foot behind the foul line.

8. If the highest measurement at either of these two points is greater than 1/4", mark the "No" box on the form [Page 2, item 101, and write details in area provided at bottom of page.

Foul Detection Devices

Specification: Automatic foul detection devices must be equipped with a visible signal, clearly in the line of sight of the bowler and scorekeeper, and remaining illuminated in case of a foul for at least 10 seconds, and not more than 15 seconds. A sound signal may also be provided, and should be audible at the bowler settee area. If automatic devices are not in use, provision must be made for stationing a foul judge in a position to afford him/her an unobstructed view of all the foul lines.

The Tools: None.

Location On Form: Page 2 , Item 11.

Instruction: If the centre is equipped with automatic foul detection devices, it is necessary to be sure that ALL of them are properly functioning.

1. Ask the proprietor to turn on the foul detection devices.

2. Gradually slide a card (such as a credit card) across the centre of the foul line, from the approach side toward the lane, while holding the card on the surface and perpendicular to the surface.

3. Observe whether the foul signal (light) operates and is clearly visible to both the bowler and the scorekeeper.

NOTES:

4. Time the duration of the signal.

5. If the device does not operate properly, according to the specifications, mark the "No" box on the form. [Page 2, item 11.]

If the centre is not equipped with automatic foul detection devices.

1. Determine whether provision is made to station a foul judge in a position to afford him an unobstructed view of vision of the foul line.

2. Record your finding on the form.

Targets And Designs

Specification:

Lanes: Twelve-l6 feet from foul line, not more than seven targets, equally spaced across lane in a uniform position, all identically shaped, maximum dimensions 1 1/4" X 6". Six-eight feet from foul line, not more than 10 guides, round, uniform, not more than 3/4 inch diameter.

Approaches: Permitted at following distances behind foul line: 2-6", 9-10', 11-12', 14-15'. Maximum of seven guides at each point, parallel to foul line, round, uniform, maximum 3/4 inch diameter.

All such installations in any one establishment shall be uniform as to design and measurement and at least on natural pairs of lanes. (Markings are permitted, not required.)

The Tools: Tape measure.

Location On Form: Page 2 , Item 3.

Instruction: Lanes and approaches may contain certain markings or designs ("targets") as aids to bowlers. They should be examined on each lane and approach, to ensure they comply with the specifications.

1. Note the locations, on the lanes and on the approaches, of the sets of markings or designs.

2. Note the size and shape of the markings.

3. Note the spacing of the markings (by measuring the distance between the markings). (Usually, the markings are on every fifth board.)

4. If markings do not comply with the specifications, mark the "No" box on the form, and provide details in area provided at bottom of page 2.

NOTES:

Length Of Lane

Specification: It must be 60 feet from the foul line to the centre of the No.1 pin spot with a tolerance of 1/2 inch permitted.

The Tools: Long tape measure.

Location On Form: Page 2 , Item 4.

Instruction: Using the long tape measure:

1. Place the zero end of tape measure at foul line's lane edge. [DO NOT include width of foul line in measurement.

2. Extend tape to head pin (#1 pin) spot.

3. Read measurement at centre of head pin spot. {If pin spot centre is not marked, measure to the front of the head pin spot and add 1-1/8".)

4. If measurement is less than 59' 11 1/2" or more than 60' 1/2" mark the "No" box on form [Page 2, Item 4], provide details in area provided at bottom of page.

High Round Gutters

The USBC Bowling Equipment Specifications make little mention of the gutters on either side of a lane, except for those in the vicinity of the pin deck. The only provisions for rounded gutters are that they are to run from the foul line to where the square gutters begin, and are to be concave in shape, and at least 1-7/8 inches deep.

It is not normally a responsibility of the inspector to check the round gutters' measurements or construction.

However, there are exceptions. Most round gutters are made of synthetic materials molded or extruded to form the desired size and shape. At the time of their installation they are usually fastened in their proper position. As a result of wear and vibration, however, gutters may tend to move upward, relative to the rest of the lane. This may cause the edge of the gutter to be higher than the lane surface. In such cases, they form ridges, or barriers that tend to keep the balls in the lanes. Such ridges or barriers are not acceptable.

The inspector should make a visual check of all gutters in a centre. If a gutter edge appears to be level with or above the lane surface, run your finger along it to determine its actual position. If the gutter is too high, it should be recorded in

NOTES:

your report, and brought to the attention of the proprietor. A centre cannot be certified if these gutters extend above the lane surface.

The certification inspection form has no place for recording this information. It should be included in an accompanying narrative report, when appropriate, or under "Remarks."

Stamps or Stencils

Specification: Each lane shall be stamped or stencilled with the name of the firm or individual who resurfaced each lane, the city in which such firm or Individual is located, and the month and year of such resurfacing. The type of finish applied to the lane may also be indicated.

The stamp or stencil shall extend across at least three boards and be placed on the bare wood surface in line with a point 5 to 7 feet in front of the head pin and approximately 2 to 5 inches from the 7 pin side of the lane.

In the case of panelized (synthetic) lane surfaces, each panel shall be stamped or imbedded with a product identification code as assigned by USBC.

The identification code shall be imbedded beneath the transparent surface of the lane and shall extend across at least three boards and be in line with a point 2 to 3 inches preceding the trailing edge of each panel and 2 to 5 inches from the 7 pin side of the lane.

Also, in the case of Guardian Protective Lane Surface, the product identification code assigned by USBC (Note: separate code for lane and pin deck) must be stamped or stencilled beneath the area covered by this product.

The Tools: None.

Location On Form: Page 1, middle of page

Instruction:

1. Look for this mark on each lane inspected.

Compare the firm's name and the date with the information given to you earlier by the proprietor. Enter date (month, day, year) on form [page 1, middle of page). (If lanes resurfaced at different times, match up lane numbers and dates.)

Panelized Lanes

Specification: For synthetic lane surfaces, either panelized or overlay, at any point across the width of the lane between adjoining panels, the leading edge of one panel shall be flush with to not more than .040 (40/ l000ths) inch below the

NOTES:

trailing edge of the previous panel. The gap between the leading and trailing edge of adjoining panels, across the width of the lane, shall not exceed .050 (50/1000ths) inch at the time of installation.

If non-wood pin decks are in use with either wood or non-wood surfaces, the leading edge of the pin deck must be flush with to not more than .040 (40/ l000ths) inch below the trailing edge of the adjoining lane section across the width of the lane.

The gap between the pin deck and the adjoining lane section, across the width of the lane, shall not exceed .050 (50/l000ths) inch at the time of installation.

The Tools: Level and feeler gauge, or Official Bowling Lane Gauge and Feeler gauge.

Location On Form: Page 2, under Item 9.

Instruction: Some lanes are "panelized" that is, they are built in sections, then fitted together carefully, end-to-end, to form one long surface. Where two panels meet, there is a joint.

See following illustration of panelized lane, and explanation of terms "leading edge," "trailing edge," "drop," and "separation."

NOTE: It is recommended that a complete certification inspection be done every two years on synthetic lanes.

If the lane is panelized:

A. If using level and feeler gauge:

1. Place level across joint, parallel to lane.

2. Measure difference between surface heights of trailing edge and leading edge of joint, by inserting feeler gauge leaf(s) in any space below level, next to joint.

3. If trailing edge is lower than leading edge, note on separate page to accompany form.

4. If leading edge is more than .040 lower than trailing edge, note on separate page to accompany form.

5. Repeat for every panel joint.

NOTES:

B. If using Bowling Lane Gauge:

1. Place Lane Gauge across joint, parallel to lane.
2. Slide gauge to point just before trailing edge of joint. 3. Set dial to zero.
3. Slide gauge so that feeler moves across joint and onto leading edge, observing movement of needle.
4. If needle moves to positive (+) side of dial, note on separate page to accompany form that leading edge of joint is higher than trailing edge.
5. If needle moves to negative (-) side, and indicates depression of more than .040", note of separate page to accompany form.
6. Repeat for every panel joint.

(Note: If lanes are regular surfaces, unpanelized, and pin deck is separate panel, as is the case when synthetic pin decks are used, joint at front end of pin deck should be measured in same fashion, and recorded in same fashion.)

Lane Surfaces

Specification: The surface must be free of all continuous grooves. A maximum tolerance of 40/ l000ths Inch will be permitted in levelness of the surface of the lane. In addition, there shall be no cross-wise tilt In excess of 40/ l000ths inch.

The Tools: Level and feeler gauge, or Official Bowling Lane Gauge and Feeler gauge.

Location On Form: Page 4.

Instruction: Two factors must be inspected under this heading: the cross-wise tilt of the lane, and the depressions in its surface. Each of these factors must be inspected at three (or more) different distances from the foul line, as indicated on the inspection form.

First, enter on form the location (within the ranges shown) at which each set of measurements is being made. Click here to see the form.

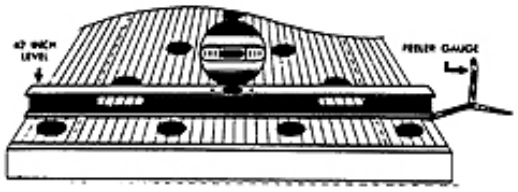
Cross-wise tilt: At the indicated distances from the foul line:

1. Place level across lane.

2. Straddle lane (feet in gutters) or place weight of body in centre of lane (to avoid influencing tilt of lane).

NOTES:

3. If bubble in spirit level is centered, lane is level; enter a zero on form. If not, place increasingly thicker feeler gauge leaf(s) under level at low end, until bubble is centered.



4. Remove feeler gauge and enter on form the thickness of feeler gauge leaf(s) required to centre bubble.

Note: Bowling Lane Gauge has “feet” on its ends, making this measurement fairly easy. A level without feet may be more difficult, if the lane is crowned or has a high board. In either case, you may improvise by making feet for the level: insert a quarter or similar coin under both ends of the level, so that it clears the crown or high board. Then proceed as above.]

Depressions in lane:

CTF has indicated on the inspection form the points across the lane at which the depressions should be measured. These are the points at which a groove might most likely appear, or be detected, which would affect the course along which the ball travels. At the indicated distances from the foul line:

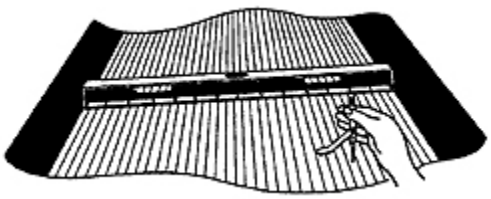
A. If using the level and feeler gauge:

1. Place level across lane. Place one hand firmly on top of level. At indicated point (e.g., 9-15 inches) from right of lane, insert thinnest leaf of feeler gauge between level and lane.

   Use successively thicker leaves until leaf will not easily slide under level.

   Be careful that, in sliding leaf under level, level is not lifted from lane

2. Record on form the depression Indicated by the thickest leaf that did fit under the level.



3. Repeat for other indicated points across lane before moving level.

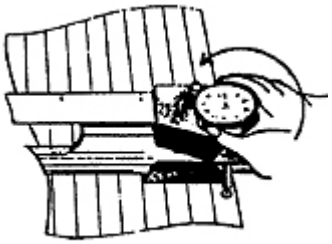
NOTES:

B. If using Bowling Lane Gauge:

1. Place tool across lane.

2. Slide depression gauge to extreme right (10 pin side) of level with stem assembly centered on outside board.

3. Set dial indicator to zero.



4. Slide gauge to indicated point on 10 pin side. (Lower flange of level is marked in 3" increments to make this easier.)

5. Read the dial indicator as you slide the depression gauge across the described area, i.e., 6" to 12" from the 10 pin side. Record the greatest reading in that area along with the appropriate sign on the inspection form. Click here to see the form.

6. Repeat for other indicated points, before moving level.

Gutters - Bottoms And Slope

Specification: From a point opposite or within 15 inches ahead of the No. 1 pin spot, the gutters must have square bottoms. The square section of the gutters must gradually decline.

The Tools: Level.

Location On Form: Page 2, Item 12.

Instruction: Lying on the pin deck:

1. Examine bottoms of gutters on each side of lane.

2. Note whether square or rounded.

3. Note whether they slope gradually toward pit.

4. If slope is not apparent to your eye, place level in bottom of gutter. If bubble moves toward foul line (i.e., away from pit), slope is toward pit.

5. Observe point where square-bottomed gutters begin (called the "adapter block").

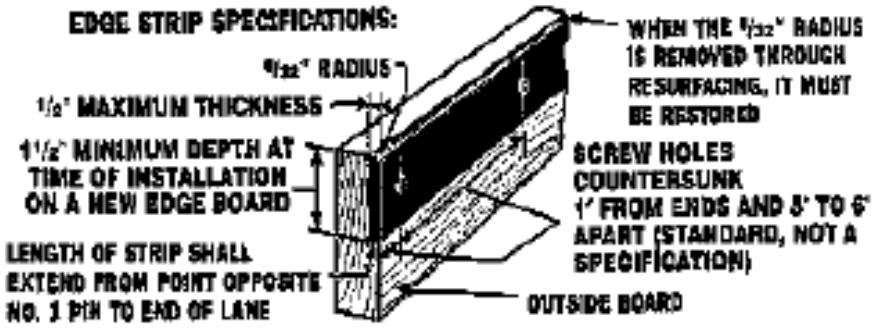
6. If gutter bottom is not square from point even with or within 15" of head pin to end of gutter, or if gutter does not slope gradually toward pit, mark "No"

NOTES:

box on form [Page 2, Item 121, provide details in area provided at bottom of page.

Fibre Edge Strips

Specification: A fibre strip, measuring not more than 1/2 inch in thickness, and not less than 1-1/2 inches in width at the time of installation, may be attached to the side of the pin deck nearest the gutters and shall extend from a point opposite the No. 1 pin spot to the pit. Such fibre strip must be installed vertically so that the width of the fibre exposed on the pin deck surface not in excess of 1/2 inch. Pin deck edgeboards must be rounded on a radius of not more than 5/32 inch. When the 5/32 inch radius is removed by resurfacing. Such radius must be restored.



The Tools: Tape Measure.

Location On Form: Page 2, Item 14.

Instruction: Fibre strips may be attached to the edge of the pin deck, to protect that edge from the heavy wear and tear inflicted by balls and flying pins. The following diagram illustrates the specifications for such strips at the time of their installation.

Note that the surfaces of the strip are to be flush with the surfaces of the lane - on the top or the side of the lane. The curve on the edge of the strip (the “radius”) is intended to avoid having a sharp edge against which pins and balls might be damaged. Similarly, the screws’ heads are driven into a countersunk hole, so that they do not protrude again, to avoid damaging balls and pins.

When lane surfaces are sanded, the top part of these strips also gets sanded, and in the process the curved part, or radius, is gradually removed. Consequently, it must be checked after resurfacing to be sure it is still rounded.

NOTES:

1. Look to see whether fibre strips are attached to the sides of the pin deck. If not, note in the area provided at the bottom of page 2.

2. If there are fibre strips, measure their length, from pit end forward.

3. Measure the thickness of the strip.

4. Measure the depth of the strip.

5. Run index finger along side of strip, to determine whether screw heads are flush with the surface or recessed. If screw heads protrude, note that on inspection report.

6. Run index finger along edge of strip. Strip edge should be curved in a 5/32" radius, which means that it should be rounded as indicated in the diagram. If the edge is square, rather than rounded, note that on the inspection form.

[Note: If there are not fibre strips, the outermost boards of the pin deck should be rounded as described above. Examine these edges as indicated in step 6, above.]

Kickback Plates

Specification: The kickbacks may be covered with one layer of hard vulcanized fibre not to exceed 3/ l6 inch in thickness.

Laminated phenolic material Grade "C" or "CE" or rigid thermo-plastic vinyl copolymer may be used as an alternate type of installation for the hard vulcanized fibre kickback plate. Such material not to exceed 3/16 inch in thickness.

The Tools: Tape measure.

Location on Form: Page 2 , Item 6.

Instruction:

1. Place zero end of steel tape against wood of kickback, adjacent to kickback plate on 7 pin side.

2. Measure thickness of plate from wood to plate's surface.

3. If plate is more than 3/16" thick, write measurement in area provided at bottom of page 2 and mark "No" box [Page 2, Item 6].

4. Repeat same steps on 10 pin side. 5. Make note of thickness of each plate. Note: Usually, fibre kickback plates are manufactured 3/16" thick; phenolic plastic plates, 1/8" thick.

NOTES:

Kickbacks

Specification: The kickbacks or side partitions shall not be less than 17 nor more than 24 inches in height above the lanes and shall extend from a point opposite or within 15 inches ahead of the No. 1 pin spot to the rear cushion wall

The kickbacks shall be placed parallel to the lane. The distance between the wood faces of the two kickbacks shall be 60-1/8 inches with a tolerance of plus or minus 1/8 inch permitted. The

Tools: Tape measure, or Pit End Gauge

Location on Form: Page 3 , Item 15.

Instruction:

A. If Using a Tape Measure:

1. Extend tape measure across the rear row of pin spots (7- 10 pin row).

2. Place zero end of tape against kickback plate on one side, and measure distance to kickback plate on other side. Measure the distance between the surfaces of the kickback plates; then add thickness of both kickback plates to this reading to get distance between kickbacks.

3. Record reading on form. [Page 3, item 15.]

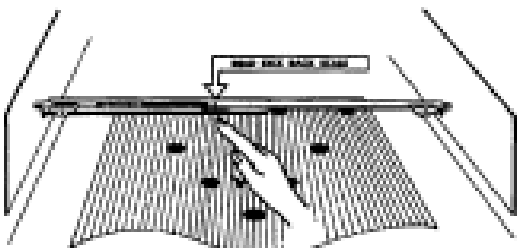
B. If Using Pit End Gauge:

1. Lay gauge across 7-10 pin row, with feet at end of gauge hanging down into gutters.

2. Be sure "gutter width" slides (blue or gold parts) are fully retracted.

3. Extend gauge by moving main part (silver or black all the way to the left, until touching the kickback plate, and the measuring arm (blue or gold) all the way to the right, until touching the kickback plate.

4. Read kickback measurement scale, on top of gauge, approximately over the 8 pin spot.



NOTES:

5. Add the reading from the kickback scale to the thickness of both kickback plates (from previous inspection).

6. Enter the total of these three numbers on the form.

[Do not remove gauge; you will use it in about the same place for the next measurement.]

Lane Width

Specification:

The lane shall be 41-1/2 inches in width with a tolerance of a plus or minus 1/2 inch permitted.

The Tools: Tape measure, or Pit End Gauge

Location on Form: Page 3, Item 16.

Instruction: Make measurements across the rear row of pin spots.

A. If Using Steel Tape Measure:

1. Place zero end of tape measure at left side of lane. If edge of lane is worn or tapered, place the straight-edge (such as a level) against side of lane to determine actual width.

Measuring Lane Width with a tape measure

Record measurement on form. [Page 3, item 16.1

NOTES:

B. If Using Pit End Gauge: (In same position as for previous measurement.)

1. Slide gauge elements back together from kickback measurement, to the point that feet at either end of gauge are snug against edges of lane.

2. Check to ensure feet are against the lane itself, not hung up on extraneous material on lane's side

3. Read measurement, on top of gauge approximately over 8 pin spot.

4. Record measurement on form. [Page 3. item 16.1

[Do not remove gauge from this position; you will use it here for the next measurement.]

Gutter Width

Specification: The gutters shall be 9-5/16 Inches wide with 3/16" plus or 5/16" minus tolerances permitted. The gutters plus lane shall not be less than 60 or more than 60-1/4 inches wide.

The Tools: Tape measure, or Pit End Gauge

Location On Form: Page 3, Item 17.

Instruction:

A. If Using Steel Tape Measure:

1. Place the end of the tape measure against the kickback plate on the left (or kickback) and extend the tape until it meets the 7 pin side edge of the lane.

2. Read the measurement for that distance.

NOTES:

3. If the measurement is to the kickback itself (wood), record that measurement, in the box marked “7 pin side.”

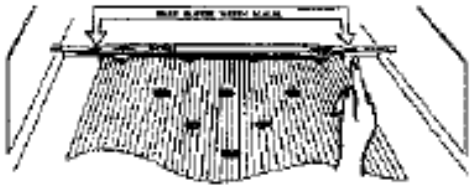
4. If the measurement is to the kickback plate, add the measurement shown to the thickness of that kickback plate (from kickback plate measurements), and enter on form, in the box marked “7 pin side.”

Repeat procedure on 10 pin side of lane, and enter measurement in box marked “10 pin side.”

B. If Using Pit End Gauge: (In same position as for previous measurement.)

1. With feet of gauge still firmly against lane edges, extend left tip slide until it touches kickback plate.

2. Read gutter width measurement from scale on top of tip slide. 3. Add to that number the thickness of the kickback plates on that side (as measured during your check of kickback plates).



3. Record the total on the form, in box marked “7 Pin Side.” [Page 3, Item 17.]

4. Repeat same steps on right (10 pin) side of lane, and record measurement in box marked “10 Pin Side.” [Page 3. item 17.]

[Do not remove gauge from this position; you will use it here for the next measurement. You may push gutter width slides (tip slides) back into body of gauge, however.]

Stop: 

At this point, add the measurements you have for:

- ☐ lane width
- ☐ gutter width, 7 pin side
- ☐ + gutter width, 10 pin side

The total of these three measurements should equal the kickback measurements, item 15 on the form.

NOTES:

If these items do not add up right, go back and do the measurements again. A form submitted on which these measurements do not add up correctly will not be accepted, but will be returned to the inspector for correction.

Pin Spots - Location

Specification: It must be 3 inches from the centre of the 7, 8, 9 and 10 pin spots to the pit (not including the tail plank). It shall not be less than 2-1/2 or more than 3 Inches from the centre of the 7 and 10 pin spots to the adjacent side of the pin deck. The distance between the centre of the corner pin spot and the edge of the lane plus the width of the adjacent gutter shall measure not less than 12 or more than 12-1/8 Inches.

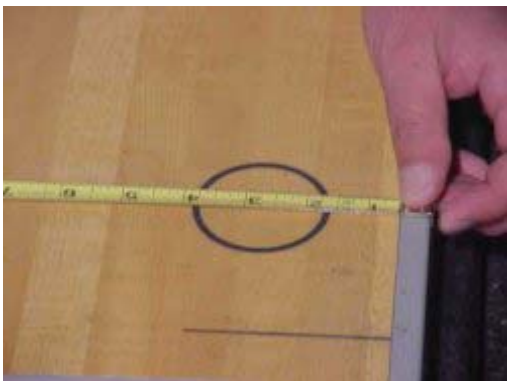
The Tools: Tape measure, or Pit End Gauge

Location on Form: Page 3, Item 18.

Instruction:

A. If using steel tape measure:

1. Measure distance from left-hand edge of lane to centre of 7 pin spot. If lane edge is worn or rounded, make measurement in same fashion as when measuring lane width. If spot's centre is not marked, measure from lane edge to nearest edge of spot, and add 1-1/8" to your reading.



Measurement of Pin Spot Location

2. Record measurement on form, in box marked "7 Pin Side."

3. Repeat on right-hand side of lane, measuring distance to centre of 10 pin spot.

4. Record measurement on form, in box marked "10 Pin Side."

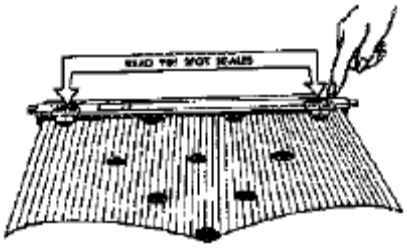
NOTES:

B. If Using Pit End Gauge: (In same position as for previous measurement.)

1. Be certain that gauge's feet are still firmly engaged with sides of lane, and edge of gauge nearest you is squarely over the centre of the back row of spots.

2. Without moving the entire gauge, move the left pin spot slide until it coincides exactly with the 7 pin spot.

3. Read the scale on the top of the gauge. The reading is where the slide's line intersects with the scale.



4. Record the measurement on the form, in box marked "7 Pin Side."

5. Repeat on right-hand side of lane, with 10 pin spot.

6. Record the measurement on the form, in box marked "10 Pin Side"

Stop: 

At this point, add the measurements you have for:

Gutter width (7 pin side) and 7 pin spot distance from centre to lane edge.
Gutter width (10 pin side) and 10 pin spot distance from centre to lane edge.
Each of these totals must equal at least 12" and not more than 12-1/8".

If these items do not add up right, go back and do the measurements again. A form submitted on which these measurements do not add up correctly will not be accepted, but will be returned to the inspector for correction.

Pin Spots - Diameter And Distance

Specification: The pin spots shall be clearly and distinctly described (stamped or printed) or embedded In the lane and shall be 2-1/4 inches in diameter, plus/minus 1/16 Inch and spaced 12 inches plus/minus 1/16 Inch from the centre of each spot to the centre of each adjacent pin spot.

NOTES:

The Tools: Tape measure, or Pit End Gauge

Location on Form: Page 2, Item 5.

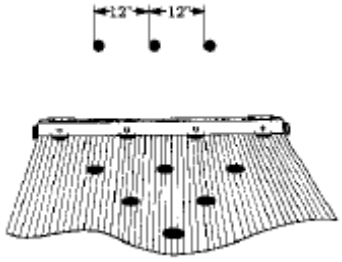
Instruction:

A. **If using a Tape Measure:**

1. Measure the diameter of each pin spot.

2. If any are not 2-1/4 inches in diameter, mark "NO" box on form and write details under "Remarks."

3. Measure the distances between pin spots. Measure from centre to centre, where centres marked. If not marked, measure from edge to same edge on adjoining pin spot.



4. If any pin spots are not exactly 12 inches from each adjacent spot, mark the "No" box on the form [Page 2, Item 5] and write details under "Remarks" (Make a diagram on a separate sheet of paper, if needed, to describe non-complying measurements.)

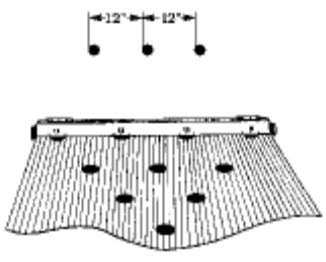
B. If Using Pit End Gauge:

1. Place gauge on edge, so that pin spot markings are toward you.

2. Move gauge so that markings align with rear row of pin spots (7 and 10 pins). Put right-hand mark so that it fits 10 pin spot.

3. All markings should match pin spots in size and location. Note any that do not match.

4. Swivel gauge, with right-hand mark still on 10 pin spot, and repeat measurements on 1, 3, 6 and 10 pins.



NOTES:

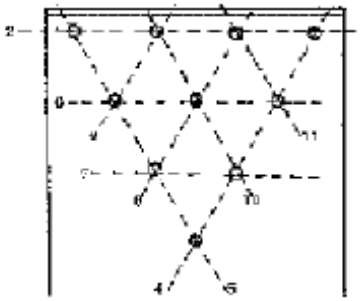
5. Repeat, covering 1,2, 4 and 7 pins.
6. Repeat, covering 4, 5 and 6 pins.
7. Repeat, covering 2 and 3 pins.
8. Repeat, covering 2, 5 and 9 pins.
9. Repeat, covering 4 and 8 pins.
10. Repeat, covering 3, 5 and 8 pins.
11. Repeat, covering 6 and 9 pins.

This diagram shows the placement of the gauge described here. It measures the distance of each pin spot from each neighbouring spot. The dotted lines are numbered to match the steps listed above.

If there are any misfits in size or location, mark the "No" box on form [Page 2, item 51. and write the details in area provided at bottom of page. (Make a diagram, if necessary, to describe non-complying measurements.)

[Now you may remove the Pit End Gauge, since you will not use it for other measurements in this lane.]

Finally, examine pin spots to be sure all are clearly visible and intact. Record on attachment to form any missing or indistinct spots.



NOTES:

Pin Deck Surfaces

The inspection forms do not have a section for reporting on the condition of the surface of the pin decks. Technically, however, the pin deck is a part of the lane, and may be required to comply with the specifications for lane surfaces. Accordingly, a pin deck with surface depressions exceeding .040 inches may be considered not in compliance with specifications.

In practice, however, the surface of a pin deck does not significantly affect the travel of the ball or the fall of the pins until it is quite badly worn. And the constant impact of balls and pins on the surface of the deck rapidly causes deterioration of the wooden surface. (Synthetic surfaces may be in service for years without showing significant wear.)

It is acceptable to CTF for the inspector to observe the condition of the pin deck surface, and to indicate to the proprietor when the wear appears to be so severe as to have an effect on scoring.

If, in your judgment, the pin deck is so badly worn that its condition will affect ball travel or pin fall, inform the proprietor, and make a note accordingly in your report, If you recommend that the deck be repaired, ask that the proprietor inform you when the work is done. If you feel the damage is severe, request that it be repaired.

Be careful that any such recommendation, request, or delay of certification is fully justified by the condition of the surface.

Since the inspection form has no place for recording this information, it should be included in an accompanying narrative report, when appropriate, or under "Remarks".

Gutter Depth

Specification: In line with the centre of the back row of pin spots, they shall not at the shallowest point be less than 3- 3/8 inches, nor at the deepest point be more than 3- 5/8 inches below the surface of the lane.

The Tools: Tape measure and level, or Pit and Gutter Gauge

Location on Form: Page 3, Item 19.

NOTES:

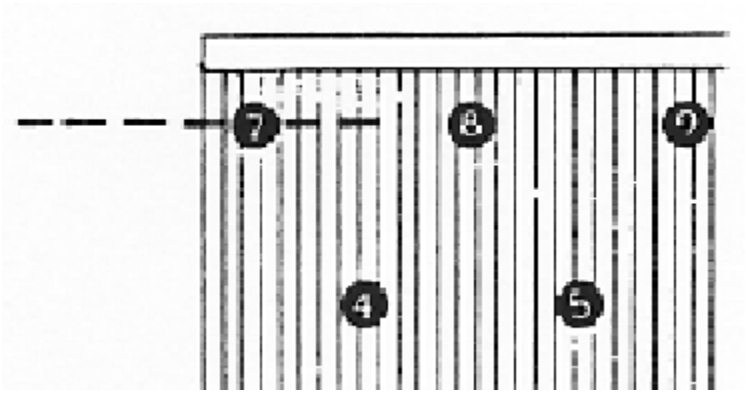
Instruction:

A. If Using Tape Measure and Level:

Lying on pin deck,

1. Move to 7 pin side.

2. Place level on pin deck extending across entire width of gutter on line with rear row of pin spots (7- 10).



3. Extend tape about eight inches from casing.

4. Place right hand on top of level, to hold it firmly in place.

5. With left hand, hold tape against level, with zero end down on bottom of gutter.

6. Move tape across gutter's bottom, still against the level and vertical, to determine shallowest part of gutter. (Be sure to measure to gutter's bottom, not to molding which may be on either side of gutter.)

Determining the Shallowest Part of Gutter with a tape measure and level

7. Read shallowest measurement, from bottom of level to bottom of gutter.

NOTES:

8. Record measurement on inspection form. [Page 3, item 19.]

9. Move yourself and tools to 10 pin side.

10. Repeat procedure on 10 pin side, reversing use of hands.

11. Record measurement on inspection form. [Stay where you are for next measurement.]

B. If Using Gutter and Pit Gauge:

Lying on pin deck,

1. Move to 7 pin side.

2. Extend grip slide all the way (until it clicks in position) by placing two fingers of one hand in small groove on one side of grip, thumb in notch on bottom of other side, and pulling with fingers, pushing with thumb.

3. Place bottom of barrel of gauge gently on pin deck in line with rear row of pins (7-10).

4. With right hand holding barrel of gauge, gently press over grip with left hand until barrel's bottom is flat on pin deck.

Using Gutter and Pit Gauge to Measure Gutter Depth

5. Lift gauge out of gutter, read measurement of "gutter gauge," opposite mark on grip stock.

6. Record measurement on inspection form. Click here to see the form.

7. Move yourself and gauge to 10 pin spot.

8. Repeat procedure on 10 pin side, reversing use of hands.

9. Record measurement on inspection form.

NOTES:

10. Retract grip slide all the way, until it clicks in fully closed position.

    [Stay where you are for next measurement.]

Pit Depth

Specification: It shall not be less than 10 Inches from the pit floor to the top of the lane and it shall not be less than 9- 1/2 inches from the top of the pit mat to the top of the lane.

[With automatic pin-setting devices, the minimum distance between the lane surface and the surface of the pit carpet or conveyor shall not be less than 4- 3/4 inches.]

The Tools: Tape measure and level, or Gutter and Pit Gauge

Location on Form: Page 2, Item 7.

A. If Using Tape Measure and Level:

Lying on pin deck or in gutter (10 pin side),

1. Move back (toward pit) to point where hips are about even with 4-5-6 row of pins.

2. Place level on pin deck so that one end extends past tall plank and over pit

   For AMF machines, measure behind the corner pin spot on the side opposite the ball return door.

   For Brunswick machines, measure at the centre of the pin deck, behind the 5 pin spot.

3. Use tape to measure distance from bottom of level to highest point of carpet, a few inches behind tail plank.

If any pit does not meet the minimum specification mark the "No" box on the form [Page 2, Item 7] and write details in area provided at bottom of page.

[Stay where you are for next measurement.]

NOTES:

B. If Using Gutter and Pit Gauge:

Lying on pin deck, with head and shoulders over pit,

Using Gutter and Pit Gauge to Measure Pit Depth

1. Extend butt slide all the way, until it clicks into position.

2. Place butt of gauge flat on pin deck, with butt slide pointed toward foul line, and so that barrel of gauge is a few inches beyond rear edge of tail plank.

3. For AMF machines, measure behind the corner pin spot, on the side opposite the ball return door.

4. For Brunswick machines, measure at the centre of the pin deck, behind the 5 pin spot.

5. Hold grip of gauge with one hand, resting heel of hand firmly on butt slide, to hold it flat and securely on pin deck.

6. With other hand, extend barrel slide until it touches carpet.

7. Withdraw gauge, without moving barrel slide, turn it over, and read measurement on bottom of barrel slide, near butt.

8. If any pit does not meet the minimum specification mark the "No" box on the form [Page 2, item 7] and write details in area provided at bottom of page.

9. Push butt slide back into original position. Do not retract barrel slide.

   [Stay where you are, for next measurement.]

NOTES:

Distance From Lane End To Pit Cushion

Specification: The pit shall not be less than 30 inches in length from the rear edge of the lane (including the width of the tail plank as a portion of the measurement) to the face of the rear cushion.

[With automatic pin-setting devices, the minimum distance from the end of the lane to the cushion shall be not less than 25 Inches.]

The Tools: Tape measure, or Gutter and Pit Gauge

Location On Form: Page 2 , Item 8.

Instruction:

A. If Using Tape Measure and Level:

In same position as for previous measurement (lying on pin deck or gutter) with hips next to 4-5-6 pin row (10 pin side):

1. Set tape casing on pin deck forward (toward foul line) of tail plank by an inch or so.

   A. For AMF machines, measure behind the corner pin spot, on the side opposite the ball return door.

   B. For Brunswick machines, measure at the centre of the pin deck, behind the 5 pin spot.

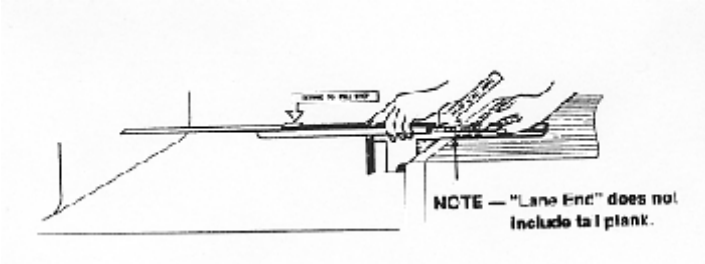
2. Hold casing firmly with right hand. Extend tape, using other hand, until it touches cushion.

Measuring Lane End to Pit Cushion with a tape measure

NOTES:

3. Be sure tape is level and straight (not sagging). (There should be light tension on the tape between your two hands.)

4. Read measurement of distance immediately above joint of lane end and tail plank.



Read Measurement Immediately Above Joint of Lane End when using the Gutter & Pit Gauge

Note: If any pit length does not fall within specifications mark the "No" box on the form and write details in area provided at bottom of page.

B. If Using Gutter and Pit Gauge:

In same position as for previous measurement (lying on pin deck with head and shoulders over pit),

1. Without retracting barrel slide, hold barrel slide in position with one hand, push sight slide toward rear of gauge with thumb or other hand.

2. Extend sight slide all the way to rear until it clicks into position. 3. Place barrel of gauge flat on lane, with "LANE END" marking immediately above lane end/tail plank joint.

NOTES:

A. For AMF machines, measure behind the corner pin spot, on the side opposite the ball return door.

B. For Brunswick machines, measure at the centre of the pin deck, behind the 5 pin spot.

3. Hold barrel firmly in place with one hand.

4. With other hand move barrel slide to rear of gauge until end of sight slide makes contact with cushion.

5. Lift gauge from pin deck, without adjusting slides.

6. Read measurement of distance from "LANE TO CUSHION" scale on top of barrel.

7. If any pit length does not fall within specifications mark the "No" box on the form Page 2, item 81 and write details in area provided at bottom of page.

8. Push sight slide and barrel slide back to fully closed position.

[You are finished with this gauge for this lane, and may set it aside.]

Tail Plank

Specification: A tail plank, not to exceed 2 inches in thickness, may be attached to the rear of the lane. The tail plank shall be constructed of hardwood except that the exposed edge on the pit side of this tail plank may be covered with a piece of fibre or phenolic material. The vulcanized fibre or phenolic must have a radius of not less than 1/2 or more than 3/4 inch at the intersection of the top edge and rear face of the tail plank.

The Tools: Tape measure.

Location on Form: Not shown on form. Report on separate page, or under "Remarks."

Instruction: A tail plank is attached to the rear end of the lane, to protect it from wear and tear of balls and flying pins. It is not a part of the lane, and all lane measurements end at the point where the tail plank meets the end of the lane.

1. Measure the thickness of the tail plank. If it is greater than 2 inches, record the fact on a narrative attachment to the inspection form, or under Remarks."

   Note: It is permitted that there be a fibre or phenolic reinforcing strip on the top rear edge of the tail plank, to protect it. There are several

NOTES:

acceptable methods for installing this protective strip, as indicated on page 7 of USBC Bowling Equipment Specifications manual. The effect of the specification is that, with or without a fibre strip, the top surface of the tail plank must be level with or taper down from the surface of the pin deck, and that it must not be more than two inches in thickness, and that it must be rounded.

2. Look at the tail plank to determine whether its top is level with or slants down from the surface of the lane. If in doubt, place a level or other straight edge so that it rests on the pin deck and extends across the tail plank. The specifications do not indicate any minimum amount of downward taper for the tail plank.

3. Run your finger along the top rear edge of the tail plank. It should feel rounded. If not, record this fact on the narrative attachment to your report.

Pin Deck - Lengthwise Tilt

Specification: At the pin deck, the surface lengthwise shall not have a tilt to front or back of more than .187 inch (3/16th Inch) within a span of 42 inches.

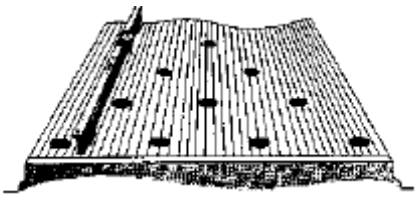
The Tools: 42" level and feeler gauge or Bowling Lane Gauge and feeler gauge

Location On Form: Page 3 , item 21.

Instruction:

Lying on pin deck,

1. Place level or Bowling Lane Gauge on pin deck, aligned with boards, and between the 4 and 7 spots.



2. Be sure that the level is flat on the deck surface, and not lifted by a splinter or other obstacle on the deck. (If level has feet, this is no problem.)

3. Place hand firmly on top of level.

4. If bubble in spirit level is centered, deck is level; if not, place feeler gauge leaf(s) under level at low end, until bubble is centered. If tilt exceeds

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maximum measurable with leaves, use leaves from two gauges or use graduated blade.

5. Enter on form the thickness of feeler gauge leaf(s) needed to centre bubble, placing reading in box marked 4-7.

Move level to similar position, parallel with boards, between 6 and 10 pins. 7. Repeat steps 2-4, placing reading in box marked 6-10**.**

Pin Deck - Crosswise Tilt

Specification: There shall be no crosswise tilt in excess of 40/ l000ths inch.

The Tools: 42" level and feeler gauge, or Bowling Lane Gauge and feeler gauge

Location On Form: Page 3, Item 20.

Instruction:

1. Lying on pin deck, centre your body's weight in middle of lane to extent possible.

2. Place level or Bowling Lane Gauge across lane just before rear row of spots (7-10).

3. Be sure level is flat on lane, not lifted by splinter or other defect on the surface. (If level has feet, this is no problem.

4. If bubble in spirit level is centered, lane is level; if not, place feeler gauge leaf(s) under level at low end, until bubble is centered.

5. Enter on form the thickness of feeler gauge (leaf(s) need to centre bubble. [Page 3, Item 20.]

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Pin Spotting Accuracy

Specification: In establishments using pin-setting devices, such devices must be checked annually at the time lanes are being checked for certification to determine if pins are spotted correctly.

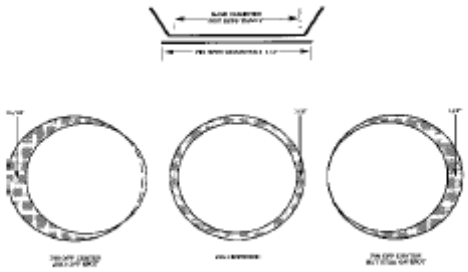
[All pins must be spotted correctly. Pin base must not be off spot.]

The Tools: None.

Location On Form: Page 2 , Item 13.

Instruction: After completing all other examinations of the pit end,

1. Activate the pin-setting machine to set pins on first cycle.
2. Observe the pins on the spots.
3. If any pin is set in such a way that more than 1/4" of the outer edge of its spot is visible, make a record of it on your form. [Page 2, item 13.]



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Section 4 - Guidelines For Inspectors –Public Relations

Guidelines

It is extremely important that all inspectors do their jobs in a manner that is consistent, competent, confident and professional. This applies to all of the technical aspects of your job. But it means more than just that. It means being fair and impartial. It means reporting your findings with only one objective in mind: to uphold the standards of the bowling game and the integrity of your position as a lane inspector. Each inspector should be capable of doing a competent job on the lanes.

There will, almost inevitably, be times when you, as an inspector, will be on the receiving end of someone's bad temper or-perhaps worse-find someone begging for "just a little flexibility." You need to do all you can to keep these situations from arising, but, when they do, you need to be able to deal with them. The inspector needs to be not only a technically competent professional, but also a kind of goodwill ambassador, representing the cause of fair standards, equally applied. You are not automatically an adversary of proprietors and high-scoring bowlers alike. Your role is to help both of them to accept and abide by the standards that benefit the entire bowling family.

One thing you should bear in mind is this: while many proprietors know a lot-maybe more than you do-about how to maintain and condition their lanes, a surprisingly large number of them know very little about it. Whoever has responsibility for operating a bowling establishment usually has many other concerns than "just taking care of the lanes." This means two important things for inspectors as goodwill ambassadors. One is that you can help proprietors who do not know the technical details to understand the importance of maintaining standards and often you can help them understand how to keep things in compliance with the rules. The second is that, since proprietors often have a lot on their minds, you should understand that their time should not be wasted, and you should understand if they don't see "what the fuss is all about."

The more a proprietor understands what you are doing, the more likely he/she will accept your findings in good spirits. A proprietor may honestly be reluctant to accept your statement that the lanes are noncompliant if he does not know how you came to your conclusion. If there is such a problem, tell him you'll be happy to go over it with him, on the lanes, so that he can see for himself. If you are competent and confident, he will more likely be convinced.

But what about those occasions when the "good will" is not enough? There are instances where proprietors have become very angry with inspectors who "accuse them of cheating." While this should not be the rule, you should be prepared for such a thing to happen. The inspector never accuses the proprietor of cheating or of bad faith. The inspector only reports what he/she finds. He/she is not to judge the motives behind it, nor to say who is responsible for it. The competent

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inspector reports accurately and honestly what he/she finds, and stands behind his/her report.

He/she reports "without fear or favour." That means the inspector will not be intimidated by a proprietor. It also means that the inspector will not be intimidated by friends, associates, or fellow bowlers, nor by the wishes of a league or association. These recommendations for goodwill ambassadors can require that you devote time to this business beyond what is required for inspections themselves. But the payoff can make your time investment well worthwhile.

In addition to these suggestions, you are encouraged to understand and abide by the following "rules of etiquette" that can help you maintain status and respect, in the eyes of those you deal with.

Important Reminders For Inspectors

Never

- Cross the foul line without the proprietor's permission.
- Discuss how the inspection is going with anyone other than the proprietor.
- Take up more of the proprietor's time than he/she wants to devote to you.
- Assume that the proprietor knows all about certification inspections, specifications, etc.
- Accuse the proprietor of deliberate violation of any rules.
- Withhold from the proprietor any Information that may be helpful.
- Tell the proprietor how to run the centre.
- Interfere with the centre's normal business activity any more than absolutely necessary.
- Discuss with any bystanders or other "interested parties" your findings or the proprietor's response to negative findings.
- Bad-Mouth" a proprietor-any proprietor.
- Assume a superior or arrogant attitude in dealing with a proprietor or centre staff.
- Refuse a legitimate request for help, in terms of correcting unsatisfactory conditions.
- Fail to be on time for inspections-or notify the proprietor if you are unavoidably detained.
- Be intimidated by anyone who dislikes your findings, if you have done your work professionally.

Always

- Contact the proprietor and explain why you are there.
- Request permission to make the inspection.
- Request permission before crossing the foul line.
- Invite the person in charge, or a designee, to observe the inspection.
- Explain any procedures, if the proprietor wants to know.

NOTES:

- Explain the form(s) you are completing, their purpose, and who gets copies.
- Get correct data-spelling of names, addresses, phone number.
- Answer proprietor's questions about your inspection method and findings.
- If asked, give the proprietor the benefit of your knowledge of specifications.
- Keep to the absolute minimum your interference with the normal activity of the centre.
- Remember that the proprietor has many things to worry about other than your inspection.
- Be prompt, efficient and professional in carrying out inspections.

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Section 5 - Lane Maintenance And Conditioning

Why Are Lanes "Dressed"?

The primary reason is to reduce the friction between the ball and the lane. This serves the proprietor by preserving the finish on the lanes and protecting the surface of the wood.

Secondary reasons are to serve the bowler. The natural bowling motion gives the ball a spin, as well as a forward motion toward the pins. If there is a great deal of friction between the ball and the lane, the spin causes the ball immediately to begin to move to the left (for a right-handed bowler), and the forward motion is reduced considerably, as a result of the ball's being "grabbed" by the surface.

If the surface is "dressed," however, the ball will travel down the lane with less resistance to its forward motion, skidding before it begins to roll. At the same time, the spinning motion of the ball does not cause it immediately to veer to the left. But when the ball gets to the point where no dressing has been applied it "takes hold." Because it is then able to "grab" the surface, the spin imparts a definite movement to the left. This is when the ball hooks.

The hook is important to the bowler. So dressing applied to the lane preserves some of the ball's spinning motion until it hits the dry surface. Then the friction is increased and the hook takes over.

How Should Dressing be Distributed on the Lane?

CTF's rule states:

> *If dressing is used, it shall meet specifications and must comply with the following: Dressing must be distributed from edgeboard to edgeboard for the entire distance that dressing is applied. (In the application of the this rule, buffing the lane is considered applying dressing.) Following any application of dressing, in the dressed portion of the lane there shall be a minimum of 3 units of dressing at all points on the lane surface.*

[Note: CTF considers the buffout area as being a part of the overall dressed area. Therefore, the buffout area must also contain a minimum of 3 units of dressing at all points.]

> *A unit is defined as a measurement of dressing film thickness equivalent to .0167 cubic centimetres of dressing per square foot of lane surface as measured by USBC approved lane dressing measuring equipment. Any stripping (cleaning) of dressing from the lanes must be uniform from edgeboard to edgeboard and at*

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least from the headpin to the distance to which dressing has been applied.

[Note: For the first time dressing is applied on any given day the lanes must comply with the minimum requirement for 3 units of dressing for the entire distance of the lane on which dressing has ever been applied since the lane was last stripped. Any subsequent application of dressing on that same day, with the intent to replenish dressing depleted by bowling, need only meet the minimum requirement of 3 units for the distance of the lane on which dressing is applied at that time. The intent is to allow centres to replenish dressing in the head area at some time after the lanes had been dressed earlier on the same day.]

The amount of dressing that gives best overall results to the bowler and to the proprietor depends on the kind of finish on the lanes, the temperature and humidity of the centre, the level of activity on the lanes, and a number of other factors. Two lanes, side by side, might give different results from the same amount of dressing.

Lane Dressing Inspection

Requirements

- Inspect only on a condition that has been applied for CTF certified league/tournament competition.
- A minimum of one complying inspection per season shall be required from each centre (August 1 through July 31).
- Never inspect during the centre's annual certification inspection. • Inspect as directed by CTF whenever a condition is reported as questionable or noncomplying.
- DO NOT schedule or announce inspections to the centres in advance.

References to inspections in this item shall mean unannounced inspections of randomly selected lanes including measurement of lane dressing applied before bowling.

Note: Although there is a minimum requirement, additional inspections can be performed at the discretion of the local association. Should an inspection note noncompliance, additional inspections should be performed until compliance is met.

These are inspections to determine compliance with the lane dressing rule. (All honour scores are approved, provided all other award recognition requirements have been fulfilled.)

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Procedures

Upon arriving at the bowling centre, contact the manager or person in charge of the centre. Explain the purpose of your visit and ask for permission to make the inspection. You may also request a sample of the centre's lane dressing if you have reason to believe the required additive has not been used. Do not interfere with the normal operation of the bowling centre.

Once you have obtained permission to make the inspection, you can explain the Lane Dressing Inspection Report. Point out that a separate report is completed every time an inspection is made and that the centre will be given an opportunity to review the report and make any written comments deemed necessary. Also, upon completion of the report, they will be asked to sign the report as having received a copy. The original will be sent to CTF and the association manager will retain the third copy.

At this time it may also be possible to complete a portion of the report such as when the lanes were last conditioned/stripped. When you are ready to begin the actual inspection, ask the individual in charge if he/she or another individual, such as the lane maintenance person, would care to accompany you on the inspection.

Inspections must be unscheduled and unannounced, i.e., the centre must not know in advance when you will inspect.

Inspections must be performed before any bowling has taken place on freshly dressed lanes, i.e. zero lineage. Inspections do not need to be done on freshly stripped lanes.

- Select at least two (2) pairs of lanes - not adjoining lanes - and inspect at least one lane of each pair.

- Measure the total distance dressed with a 100' steel measuring tape (include the distance dressing is applied and buffed). The distance is determined by each individual proprietor. They can dress the lane to whatever distance they choose.

- All readings are to be taken from the 10 pin side.

  One reading within two to five feet prior to the end of the dressed/buffed area.

  The tape verifies 3 units edge to edge for the entire distance dressed.

  Note: Although there is a minimum requirement for the number of tapes to be taken, such requirements do not limit or prevent an inspector from taking as many tapes as deemed necessary when questions are raised about carrydown or ball track areas, etc. Tapes should not be taken across footprints or other places where the dressing has been disturbed.

NOTES:

NOT REQUIRED BUT RECOMMENDED -

- Measure depth of Gutters.
- Verify pin spotting.
- Weigh and inspect pins.

Note: While not required it is recommended that spot checks be performed during the bowling season. Should problems be noted that cannot be solved between the local association and the bowling centre, USBC should then be contacted.

Complete a CTF Lane Dressing Inspection Report form. A representative of the centre and the lead inspector should sign the report form.

1. Original inspection form is submitted to CTF within 10 days.

   - Tape readings need not be submitted provided ALL requirements meet with CTF rules/specifications.

   - Tape readings must be submitted whenever any area required for an inspection does not meet CTF rules/specifications.

2. Association manager retains one copy (report and tapes are to be kept for two years).

3. One copy is given to the centre with a copy of the tape readings.

Performing The Inspection

Introduction

There are three parts to the inspection procedure to determine the distribution of dressing:

1. VISUAL - Note, measure and record distance dressed.

2. TAKE-UP - Remove a sample of dressing (one inch wide) on lane surface by encapsulating it between two pieces of tape.

3. READER - Measures the amount of dressing board by board by evaluating the amount of ultraviolet additive in the dressing.

In most cases proper execution of the tape take-up device and the visual tests will reveal whether conditioner applied to the lane surface complies with requirements.

Visual Observation

The inspector observes visually the oil line and measures (with a 100’ tape) the distance this line is from the foul line.

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Utilizing a 100’ tape, measure the distance from the foul line to the point at which the applied oil stops.

- This is to include the buff out area.
- Report the findings on the Lane Dressing Inspection Report.

Take-Up Device/Taping the Lanes

The system is designed to permanently record and read the amount of dressing present on the lane surface, provided the dressing contains an ultraviolet-sensitive additive in compliance with USBC specifications. The system has two separate components: the recorder and the reader.

The tape take-up device consists of an aluminum track, two sliding tape carriages and a wooden push-rod. The device accepts one roll of special 1” wide transparent tape on each carriage. The applicator carriage is pushed from one side of the lane to the other, adhering a length of tape to the lane surface.

The dressing from the lane is absorbed by the adhesive in the tape. When the lifter carriage is then pushed across the lane, it lifts the first length of tape and laminates it to a second length of tape. The dressing, preserved between the two layers of tape, can then be measured by the reader.

This method of checking a lane surface is extremely accurate and can give, with few exceptions, an exact reading of conditioner amounts and placement on the lane.

All tapes must include an identification label, one inch by one inch, with the following information:

- Date
- Certification No.
- Lane No./Time
- Distance/Lineage
- Inspector/Centre Representative(s) Initials

The label must be sealed between the tapes as described in the Instructions for the take-up device.

All tapes should be taken from the 10-pin side with the identification label placed on the edgeboard. While a minimum number of tapes are required, it does not preclude the taking of additional tapes by the inspector from different portions of the lane.

NOTE: Avoid taking tapes where footprints or other similar marks appear in the dressing. This will prevent abnormal readings not representative of the dressing pattern.

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Upon request from the proprietor/manager, it will be necessary to take a second set of tapes. These tapes should be taken at the same time as the first set of tapes and approximately three inches from the first set. They should be identified and given to the centre representative.

Be sure the rubber roller is dry and free of dressing. If not, clean with rubbing alcohol.

1. Lay the device across the lane in the first reading location with the anchor post assembly on the 10-pin side of the lane.

2. Place the mated carriage assembly in the track with the lifter carriage tight against the anchor post. The tape reels and the rubber roller will be on the starting place.

3. Place a one-inch square of thin paper tape on the outer edge of BOARD NO. 1 to mark the 10-pin edge of the lane.

   Caution: Do not cover any part of BOARD NO.2.

   If the paper tape is not available, a one inch square of THIN paper may be substituted.

4. Insert the wooden push-rod into the hole on the pivot arm of the applicator carriage and slowly push the carriage across the lane. This will cause a length of transparent tape to be adhered to the lane surface. Caution: Hold the rod at the correct angle (approximately 45 degree) too high or too low may cause problems.

5. Insert the push-rod into the recess on top of the lifter carriage and slowly push the carriage across the lane until it fully mates with the applicator carriage. The tape should now be a double thickness and suspended above the lane with the adhesive sides together.

6. Raise the doubled tape slightly, nick it with the tape cutter, and tear it across.

7. Raise the torn end upward at a 45 degree angle to free the tape from the anchor post, being careful to keep the tape clear of the lane surface.

8. Pick up the mated carriages and return them to the starting position.

   Caution: If the rubber wheel makes direct contact with the dressed lane, it will have to be cleaned before the next use.

9. Repeat steps 1-9 at subsequent reading locations.

10. Put tapes on side for later reading.

NOTES:

- If the two tapes are mismatched, trim along both edges to remove the overhang.
- Severely curled tape should be straightened out.
- If there is dressing on the outside surfaces of the tape, it must be wiped dry.

Reading the Tapes

1. If a tape reader is available at the time of the inspection, tapes should be read and recorded.

2. If the association has a tape reader but it is not available for the inspection, the tapes should be read and recorded as soon as possible.

3. If a tape reader is not available, the tapes are sent by the association manager, to the assigned regional site to be read and recorded on the three-part form. The tapes and the completed form are returned to the association manager who then forwards the form to USBC. Also make sure the appropriate forms are given to the bowling centre.

All official tapes must be retained by the association manager for a period of two years from the date they were taken unless:

Should either of the following occur, contact CTF for guidance.

- There is reason to believe the required additive was not in the dressing.
- A reader is not available and a regional site cannot be contacted.
- A centre refuses to allow the inspection to take place.

Black Box Reader:

During the first 1-1/2 hours, the tape reader calibration should be checked before reading each tape. The calibration reading may drift slightly during this warm-up period, so a slight adjustment may be necessary. Also, be sure to zero the tape reader before calibrating and again before reading a sample tape. Please refer to the user guide for operating instructions.

Computer Reader:

For those who have the new Computer Lane Monitor, please refer to the user guide for operation. Should you have any problems, contact Brunswick directly at 1-800-937-2695 as they offer the only technical support for that equipment.

Physical Measurements

In accordance with CTF requirements, certain physical measurements must be made on the lanes that are inspected. These measurements include:

- Gutter depth inspection

NOTES:

- Weighing and inspecting of pins once each season
- Pinspotting accuracy

The information is to be recorded on the Lane Dressing Inspection Report along with the required information concerning the pin examination.

Pin Inspection

While not required, it is recommended that the pins on the lanes be spot inspected for compliance in the following areas:

> A minimum of 11 pins taken at random from selected lanes must be weighed, and must meet the following specifications; Minimum weight 3 lb. 6 oz.; maximum, 3 lb. 10 oz. A postal scale, calibrated at zero before each use, is excellent for weighing pins. (Note: When using a digital scale for weighing pins be sure to indicate if scale is reading in actual pounds and ounces or pounds and hundredths of pounds.)

Again, taking a minimum of 11 pins at random from selected lanes check for uniformity in appearance including construction, material, finish, labels and neck markings, reasonable wear excepted.

Another thing to look for is what is called “post protrusion.” The bottom of the pin is supposed to be flat. Sometimes, however, the wood in the pin’s bottom sticks out beyond the hard nylon reinforcing ring. That wooden part is called the “post,” and it should not stick out, or “protrude,” because then the bottom is no longer flat. Such a pin is not acceptable, and should be noted as non-complying in your report.

Pins must be free of unusual wear or deterioration, such as excessive coating patches (limited to 2 square inches per patch, 6 square inches maximum per pin), neck breakage, or excessive base diameter wear or damage.

Original labels must remain visible. Maintenance procedures such as cleaning, clear coating and white pigment coating are acceptable, provided none of the original labels are obscured.

If the original labels and markings are no longer visible on the pins, you should select one such pin from each set and, after obtaining the permission of the proprietor, submit to USBC for examination.

Under certain circumstances CTF may request that you obtain sample pins from sets that apparently do not comply with specifications, and forward them to CTF for examination. Again, obtain the permission of the proprietor before attempting to remove any pins from the centre.

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Lane Dressing Inspection Report (LDIR)

The Lane Dressing Inspection Report is to be completed on every occasion when a lane dressing inspection is made.

It is imperative that all information requested be obtained and provided on the report. Most of this information can be obtained from the centre representative in charge at the time of the inspection. If any of the information requested is not available at the time of your inspection, do not assume or submit data based on your opinion.

Particular attention should be directed to the information regarding the lane conditioning, the visual observation, and the inspector's comments.

Also, on the right portion of this form is the space for "Tape Reading" information. In this area report the reader's name, the reader's association number, the reader's telephone number and the appropriate date, the lanes on which the tape was pulled, the distance from the foul line that the tape was taken and the exact reading from board 2 on the 10 pin side to board 10 on the 7 pin side.

Under "Inspector's Comments," provide pertinent information relative to your findings.

Centre management or personnel should also be invited to offer their comments, even though their comments may not agree with your findings or conclusions.

Have the proprietor or centre representative sign the report. His/her signature on the LDIR attests only to the fact that a copy of the report was received.

Note: Original inspection form must be submitted to CTF within 10 days in all cases.

- *Tape readings need not be submitted provided ALL requirements meet with CTF rules/specifications.
- *Tape readings must be submitted whenever any area required for an inspection does not meet CTF rules/specifications.
- Association manager retains one copy (report and tapes are to be kept for two years).
- One copy is given to the centre with a copy of the tape readings.

Note: This does not include maintenance inspections. For example, the local inspector working with a particular proprietor in an effort to correct a noncomplying condition, and/or an inspector working with a proprietor to improve the existing condition. In these instances, a report is not required to be filed with CTF.

NOTES:

Discuss Findings with Centre Management

Your inspection is a confidential matter between you, the local association, CTF and the proprietor/management.

To maintain a high degree of confidentiality, the results of the inspection should be discussed in the privacy of the proprietor/manager's office or another suitable place where customers or other employees cannot overhear and possibly misinterpret the conversation.

Pin Examination

SPECIFICATIONS:

Weight:	Minimum	Maximum
All Pins	3 lbs 6oz.	3 lbs 10oz.

Markings Must Include:

- Name and trademark of manufacturer
- USBC Approved (certification mark)
- Controlled weight
- Densified
- Plastic coated
- Rebuilt or "synthetic, as appropriate
- USBC permit number.

The Tools: Small (postal) scale; Tape measure

Technical Specifications for Lane Dressing

Lane dressings must meet the following requirements in order to be acceptable for use on lanes where certified competition is conducted:

- The additive shall be ultraviolet sensitive and shall constitute 333 parts per million (PPM), + or - 33 PPM, of solid content of the dressing. The "solid content" means the lubricants remaining after subtracting all solvents and volatiles.

- The dressing-additive mixture shall be so homogenized as to assure a storage life of not less than six (6) months with no noticeable separation of the additive.

- The dressing-additive mixture shall comply with safety standards and shall not be harmful to health.

NOTES:

- All dressing containers shall bear labels stating, “This product complies with USBC specifications.” In addition, the container shall be marked with a batch number and/or date of manufacturing.

- Samples of dressing shall be submitted to USBC upon request for evaluation of additive content and homogeneous characteristics.

- The purpose of the ultraviolet additive is to provide a media that will enable accurate measurement of the amount of dressing across the width of the lane. There shall be no deviation from an acceptable lane dressing formulation without prior written approval from USBC.

NOTES:

Section 6 - Glossary and Working with Fractions

Glossary

Word	Definition
Approach	The area, a minimum of 15 feet long, on which a player walks to the foul line.
Arrows	Sighting targets imbedded in the lane to help a player align the starting position on the approach with the ball path to the pocket.
Boards	The board, normally 39, in the width of a bowling lane. Also, the aiming target in delivery, such as playing the 10th board", meaning the bowler rolls the ball over a designated point on the 10th board from the gutter.
Certification	The issuance of an annual certificate to bowling centres after a successful check of measurements and maintenance of the approach, foul line, gutters, lane, pin spots and pit area.
Channel	Dropoff area on either side of the lane. The gutter.
Complete Inspection	All measurements performed and recorded per Certification Inspection Form.
Crowning	Raising of the centre of a lane, caused by expansion of boards. The term is also used referring to the amount of condition on centre parts of the lane.
Decks	Pin decks.
Dowels	Wooden pegs imbedded in the approach as sighting guides for delivery of the ball..
Dovetails	Point on lane where maple and pine boards are joined. Also known as splice.
Durometer	An instrument to test the hardness of materials.
Finish	A clear transparent film or coating applied to a lane after it has been resurfaced.
Gutter	Rounded channel on either side of lane. Also known as channel.
Heads/Headers	First 15 to 17 feet of a lane, made of maple.
High Board	An expanded or loose board in a lane that can cause a ball to veer from its intended course.
Kickbacks	The divisions between lanes at the pin deck area onto which kickback plates are affixed.
Lacquer	A coating liquid that dries rapidly by solvent evaporation and contains cellulose esters or ethers as the basic film-forming ingredients.
Maple	A very hard wood used in construction of approaches, headers, pin decks, and ten pins.
Partial Inspection	Only those measurements preceded by an asterisk (*) on Certification Inspection Form.
Pin Deck	Area of lane where pins are spotted.
Pine	A soft wood that is used in the mid-portion of a bowling lane.
Polyurethane	A moisture- or chemically-reactive resin of the dilsocyanate family. A very hard finish.
Resurface	Removal of finish from a lane by sanding to the bare wood in preparation for recoating the lane.
Sanding	The procedure used on an annual or semi-annual basis to remove old lane coating and level wood lanes.

NOTES:

Splice	Same as dovetails.
Spot	The sighting or target area on the lane where the player aims.
Supplemental Inspection	Only those measurements actually affected by work/repairs performed that necessitate an additional inspection.
Synthetic Lane	A lane whose surface is covered with a high-pressure laminate.
Tail Plank	Board affixed to the back edge of the pin deck.
Urethane	See Polyurethane.
Water-Based	A generic type of lane coating that uses water as a solvent.

Working With Fractions

You will find it necessary to work simple addition problems including fractions in order to record some of the measurements required for the lane certification inspection. In case you need to brush up on these procedures, here is a brief review.

Adding fractions with the same denominator (bottom number)

Example: 3/16 + 3/16 = 3/8

1. Add the numerators (top numbers) across (3+3=6)
2. Carry the denominators across – do not add.
3. Reduce the answer to its lowest terms by dividing both numerator and denominator by the largest number that will divide evenly into both (in the example, it's 2)

Adding fractions with different denominators

Example: 5/8 + 3/16 = 10/16 + 3/16 = 13/16

4. Find the lowest common denominator (number that both denominators will divide into evenly). (In the example, it's 16).
5. For fractions with a denominator other than the lowest common denominator (in the example, 5/8), multiply the numerator by the same factor used to convert the original denominator into the new one. (In the example, it's 2).

Another example: ¾ + 1/8 = 6/8 + 1/8 = 7/8

Converting "improper" fractions into "mixed numbers"

Example: 5/8 + 3/8 + 1/8 = 9/8 = 1 1/8

6. Add the factions as directed in A or B above.
7. The answer, 9/8. is greater that 1 (8/8), and thus is an "improper fraction".
8. Convert it into a "mixed number" by dividing the numerator by the denominator (9÷8 = 1 1/8).

Adding mixed numbers and fractions

Example: 59 5/8 + 3/16 + 5/16 = 10/16 + 3/16 + 5/16 = 18/16 = 1 2/16 = 1 1/8.

59 + 1 1/8 = 60 1/8

9. Setting aside the whole number (in the example, 59), add the fractions as directed in A, B, and C above.
10. Add the sum of the fractions to the whole number (59 + 1 1/8)

NOTES:

Reduction of Fractions

1/32
2/32 = 1/16
3/32
4/32 = 2/16 = 1/8
5/32
6/32 = 3/16
7/32
8/32 = 4/16 = 2/8 = ¼
9/32
10/32 = 5/16
11/32
12/32 = 6/16 =3/8
13/32
14/32 = 7/16
15/32
16/32 = 8/16 = 4/8 = ½
17/32
18/32 = 9/16
19/32
20/32 = 10/16 = 5/8
21/32
22/32 = 11/16
23/32
24/32 = 12/16 = 6/8 = ¾
25/32
26/32 = 13/16
27/32
28/32 = 14/16 = 7/8
29/32
30/32 = 15/16
31/32
32/32 = 1