

DBA LaneWalker Table of Contents

153-3000C (Rev 6:99)

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Section I · Introduction

A. Overview

The DBA LaneWalker “Model C” represents advanced technology in automated lane conditioning. Through the use of an on-board programmable computer, a “user-friendly” keypad to input data and information, and a patented conditioner transfer system, the LaneWalker allows the bowling center to maintain consistent bowling conditions.

With the expandability of the LaneWalker’s Programmable Computer, future upgrades are possible, assuring that your LaneWalker will not become obsolete.

**IT IS EXTREMELY IMPORTANT THAT THE OPERATOR
THOROUGHLY READ AND UNDERSTAND THIS OPERATING
MANUAL BEFORE USING THE LANEWALKER.**

Should you have any questions regarding any procedures pertaining to the proper operation of this machine, please contact your authorized Distributor.

B. Machine Specifications

Power Supply: Class I – Single Phase
110-120 Volts, 50/60 Cycle, 10 Amps

Dimensions: Width - 57-³/₄”
Height - 13”
Length – 29-³/₄”
Weight - 300 pounds

C. Care and Safety Procedures

This machine is manufactured of the highest quality materials, but keep in mind that the DBA LaneWalker is a sensitive piece of equipment. Care should be taken to see that it is not dropped, knocked around, or handled roughly. Doing so may damage the programmable computer, its components, or the conditioner transfer system.

For care and safety reasons, see that the following precautions are exercised:

- AVOID SPILLING ANY LIQUIDS OR CHEMICALS INSIDE OF THE MACHINE**
- DO NOT OPERATE THE LANEWALKER WITH AN EXTENSION CORD OR POWER CORD OTHER THAN THE ONE PROVIDED**
- DO NOT OPERATE THE LANEWALKER WITH POWER CORD SHUT-DOWN SWITCHES DISCONNECTED**
- MAKE SURE THAT THE POWER OUTLET USED PROVIDES THE CORRECT VOLTAGE AND AMPERAGE**
- DO NOT ATTEMPT TO MAKE ANY WIRING MODIFICATIONS**
- DO NOT ATTEMPT TO RE-PROGRAM THE COMPUTER**
- DO NOT OPERATE THE LANEWALKER IN AN UPRIGHT POSITION**

Not following the above recommendations may cause damage to the LaneWalker, its computer, those persons operating it, or void the warranty.

Persons assigned the responsibility of operating the DBA LaneWalker should be trained in its use by an authorized factory-trained Distributor.

Section II - Machine Description

A. Buffing End / Duster End / Right Side / Left Side

With the machine sitting on the approach in a position ready to be operated on the first lane, the following descriptions will be used:

· **BUFFING END:** The BUFFING END shall be the end of the machine closest to the operator and nearest the approach, where the buffing brush is located.

· **DUSTER END:** The DUSTER END shall be the end opposite the buffing end and nearest to the pins, where the DMR duster assembly is located.

· **RIGHT SIDE:** The RIGHT SIDE of the LaneWalker shall be the side where the keypad is located, to the right of the operator as they face the pins.

· **LEFT SIDE:** The LEFT SIDE of the LaneWalker is the side opposite the right, to the left of the operator as they face the pins.

· **REAR:** Items in or toward the buffing end are in the REAR of the LaneWalker (toward the approach).

· **FRONT:** Items in or toward the duster end are in the FRONT of the LaneWalker (toward the pins).

B. Keypad

Located on the right side of the buffing end of the LaneWalker is the computer keypad. This keypad is used to enter all programming information, as well as to start the machine on the first lane.

The keypad consists of 10 input keys and a two-line Liquid Crystal Display (LCD) where the menu items and prompts appear.

The following keys are used on the keypad:

- **NEXT:** Use this key to advance within a main menu from one menu prompt to the next.

- **ENTER:** This key is used to complete an entry of data or information requested by a menu prompt.

- **MAN or MANUAL:** This key starts the manual modes accessed in the LaneWalker's programs, such as manually walking across the approach.

- **LAST:** This key will return the user to the last menu prompt within a main menu.

- **START:** This key will start the LaneWalker.

- **MENU:** This key will display and advance the available main menus for the operator.

- **UP & DOWN ARROWS:** Use of these keys will increment or decrement numbers asked for in certain menu prompts, such as starting lane number, walking distance from one lane to the next, etc.

- **LEFT & RIGHT ARROWS:** Use of these keys will input left or right movement during manual operation on the approach. They also can be used when entering the starting and ending lane numbers from the OPERATORS MENU. The left arrow will display "Lane #1", while the right arrow will display the last lane in the center.

The following keys may also be used on the keypad when trouble-shooting or updating the program:

- **SHIFT**

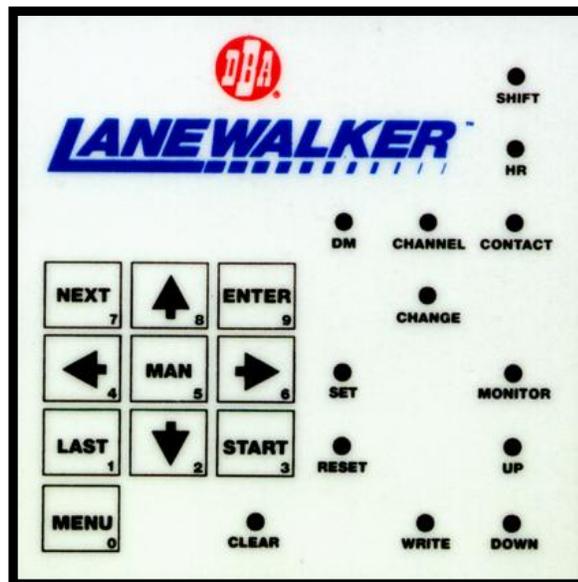
- **HR**

- **DM**

- **CHANNEL**

- **CONTACT**

- CHANGE
- SET
- MONITOR
- RESET
- UP
- CLEAR
- WRITE
- DOWN



LaneWalker Keypad Overlay

C. Buffing End Components

Located on the buffing end of the LaneWalker are the following components:

- **DISTANCE WHEELS:** Located on the outside rear wall of the buffing end and mounted on the ends of the lifting handle are the distance wheels. These wheels measure the distance the LaneWalker travels down the lane. This is done through the use of an infra-red sensor mounted near the center of the counting shaft.

- **POWER SWITCH:** Mounted on the right side of the rear wall under the buffing end hood is the power switch. This switch also controls which power inlet on the LaneWalker will be “live”. Flip the switch in the direction of travel to activate the correct inlet. For example, if lanes are being conditioned from left to right, flip the switch to the right and the left inlet will become “live”.

- **FUSES:** Mounted near the power switch are two fuses. One fuse protects the PC COMMON (6 Amp) and one fuse protects the DC Speed Control Board (4 Amp - Ceramic). Replace with Slow Blow fuses of the same type and amperage size.

- **CONDITIONER TANK:** Under the lid located towards the rear of the buffing end is the conditioner tank and fill tube assembly. This tank, including wicks, holds slightly under $\frac{3}{4}$ gallon of lane conditioner when full.

- **WICKING PADS:** Located on the front edge of the oil tank are the six wicking pad assemblies. Each individual wick sits inside the conditioner tank and draws conditioner through the wick to pass on to the transfer roller. There are two pads which are approximately 10 lane boards wide, two pads which are approximately 7 boards wide, and two pads approximately 3 boards wide. From right to left, these pads shall be referred to as Right Outside (7 boards), Right Track (3 boards), Right Inside (10 boards), Left Inside (10 boards), Left Track (3 boards), and Left Outside (7 boards).

- **TRANSFER ROLLER:** Resting against the wicking pads is the conditioner transfer roller. This stainless steel roller is chain driven and pulls conditioner off the wicking pads and transfers it onto the buffing brush.

- **BUFFING BRUSH:** Located near the rear wall as you open the buffing lid is the buffing brush assembly. The belt-driven buffing brush removes conditioner from the transfer roller and places it onto the lane surface.

D. Duster End Components

Descriptions are given when looking into this compartment from the front wall of the LaneWalker. The following components are located under the lid on the duster end of the LaneWalker:

· **LIFTING DUSTER ASSEMBLY:** Located nearest the operator across the duster end is the patented DMR (Dual Motor Ratcheting) duster cloth assembly. The DMR assembly operates by means of **two** duster motors: the first which unwinds cloth; and the second which winds up used cloth onto the used core. This dual action simulates that of a ratcheting duster, helping to eliminate dirt lines during a conditioning run. The system also better controls cloth usage, and has no clutch mechanism to adjust.

The LaneWalker should ALWAYS be operated with duster cloth in the machine! This will prevent excess dirt and dust build up on the wicking pads and the lane. Operating without cloth will also cause unnecessary drag on the LaneWalker and its motors.

The LaneWalker can use DBA Red Edge Cloth #8443 or #8441.
Approximately 1-1/2" to 1-3/4" of cloth is used per lane
depending on the distance of travel.

· **DUSTER UNWIND MOTOR:** Mounted on the far left hand side of the duster assembly is the duster unwind motor. This motor supplies fresh duster cloth before the LaneWalker travels down the lane.

· **DUSTER WIND-UP MOTOR:** Mounted on the far right hand side of the duster assembly is the duster wind-up motor. This motor takes up the used cloth and lifts the cushion roller off the lane.

· **PROGRAMMABLE COMPUTER:** Located near the center of the duster end is the LaneWalker Programmable Computer (PC).

WARNING: The PC contains a Lithium battery. When it is replaced, the old battery should be discarded in accordance with local regulations.

· **DRIVE MOTOR:** On the left side of the duster end is the drive motor. This two-speed motor drives the LaneWalker up and down the lane and onto the approach. The drive motor also drives the transfer roller.

· **LANE-TO-LANE MOTOR:** Mounted on the outer right side of the duster end is the lane-to-lane motor. This motor drives the LaneWalker on the approach from one lane to the next.

· **BUFFING MOTOR:** Just to the left of the lane-to-lane motor is the buffing motor. This motor drives the buffing brush.

· **PC POWER SUPPLY:** Located just to the left of the buffing motor is the PC Power Supply. This power supply converts 115V AC into the 24V DC needed to operate the PC.

· **SPEED CONTROLS:** Located between the PC and the PC Power Supply is the Drive Motor Speed Control Assembly. The trimpot nearest the Power Supply is the **HIGH** Speed Control, and the trimpot nearest the PC is the **LOW** Speed Control. The LOW Speed Pot regulates the motor speed as the LaneWalker moves from the lane onto the approach. The HIGH Speed Pot regulates the speed of travel on the lane surface itself. This control is normally set at its highest speed, but can be used to slow down the Drive Motor to achieve more “buffs per foot”, thus creating a different conditioning pattern.

· **BUFFING MOTOR CONTACTOR:** Just in front of the PC Power Supply is the Buffing Motor Contactor. When actuated under power, it will operate the buffing motor.

· **POWER CORD HOLDER:** Mounted on the center wall is the power cord holder. The holder can be swiveled either to the right or left side of the machine depending on the direction in which lanes are being conditioned.

· **POWER CORD SHUT-DOWN SWITCHES:** Mounted on both the right and left outside walls of the duster end are the power cord shut-down switches. Under normal operation, the power cord holder will rest on one of these switches. In the event the cord is stepped on, or caught on a foul light or capping, the cord holder will actuate the switch, immediately shutting down the machine.

· **WICKING SOLENOIDS:** Mounted on the center wall across the duster end from right to left are the six wicking solenoids. Each solenoid controls one wicking pad. The pads are designated as Right Outside, Right Track, Right Inside, Left Inside, Left Track, Left Outside.

E. Underside Components (Bottom)

Located on the underside of the LaneWalker are the following components:

- **DRIVE SHAFT:** Located toward the center of the bottom, close to the duster cloth assembly is the drive shaft. This shaft is driven by the drive motor. An infra-red sensor mounted near the drive sprocket indicates the position of the walking wheels.

- **DRIVE WHEELS:** Mounted on the drive shaft approximately $\frac{1}{4}$ of the way in from the side walls are the two drive wheels. These wheels are powered by the drive shaft and drive the LaneWalker up and down the lane.

- **WALKING WHEELS:** Located on each end of the buffing brush are two of the walking wheels; two additional walking wheels are located on end of the drive shaft. The walking wheels move the LaneWalker off the lane surface and onto the approach area.

- **LANE-TO-LANE WHEELS:** Located on the far right and far left side, near the buffing brush, are the lane-to-lane wheels. The left-side lane-to-lane wheel is chain-driven by the lane-to-lane motor and moves the LaneWalker from one lane to the next. The other lane-to-lane wheel (on the right side) counts the distance traveled on the approach with an infra-red sensor.

- **LANE-TO-LANE CASTERS:** Located toward the bottom of the underside, slightly to the middle are two lane-to-lane casters. These casters stabilize the LaneWalker as it is driven from one lane to the next by the lane-to-lane wheels.

- **GUIDE ROLLERS:** Located on either side of the drive shaft are four UHMW guide rollers. These spring-loaded rollers help guide the machine as it travels on the lane.

Section III · Pre-Installation Suggestions

Preparation of the Bowling Lanes

Prior to operating the LaneWalker for the first time, it is highly recommended that a thorough inspection of the bowling lane and approach area take place. All loose foul lights, divisions, cappings and adapter blocks should be tightened, repaired or replaced.

The machine is equipped with a shut-down switch in the event the power cord gets caught on loose items. However, continued operation of the LaneWalker on improperly prepared lanes could cause damage or malfunction. Please contact your Distributor should you need assistance with repair or replacement of these items.

Section IV - Operating Instructions

A. Turning the Unit On

Carefully set the LaneWalker in the operating position on the approach. Line up the machine on the approach so that the side walls will enter the lane area an equal distance or flush with the foul lights on both sides. The LaneWalker should be completely on the approach, with the duster end being approximately 3 to 4 feet behind the foul line.

Connect the power cord to the LaneWalker, and attach the cord to the power cord holder. The power cord holder should be swiveled to the side of the LaneWalker which will be opposite the direction of travel from lane to lane. For example, if you are conditioning lanes from left to right, the cord should be located on the left side of the machine. Be certain that the power cord holder is resting correctly on top of the shut-down switch on the side being used.

Connect the power cord into a suitable outlet. **MAKE SURE THAT THE OUTLET IS SUPPLYING THE CORRECT VOLTAGE AND AMP RATING.** Connecting the power cord into an outlet located towards the center lanes of the establishment will allow more lanes to be conditioned without changing outlets. The 180 foot power cord supplied with the LaneWalker will allow 48 lanes to be conditioned without changing outlets. (To accomplish conditioning 48 lanes the LaneWalker should be plugged into an outlet at approximately Lane 20. This will allow enough cord to be placed out of the LaneWalkers path as it conditions lanes 1-20.)

Open the buffing end lid of the LaneWalker and turn the power switch to the correct position, pointed toward the direction of travel. Both the green LED and the menu screen on the keypad will illuminate indicating power to the machine. Now the LaneWalker is ready to run.

B. Menu Selections And Options

The operation of the DBA LaneWalker is controlled by a series of selectable programs located within the memory of the programmable computer. These programs and settings may be changed or modified by following a simple sequence of prompts within the available menus displayed on the keypad. This section will lead the operator step-by-step through each menu and prompts.

The LaneWalker PC is equipped with a Lithium 5-year rated battery for back-up and retention of information which is input into the memory. Dispose of used battery properly.

To make this section easily understandable, the operator should be familiar with the keypad as detailed in Section II of this manual.

DBA LaneWalker™ Operators Menu Selections

* OPERATORS * 0600 MENU LW4.2	* LINO CTRL&RSET * 0600 HIT MAN ENT	ODOMETER 0000 FT 0000 MI
STARTING LANE ? 01 01		
LAST LANE ? 00 00		
RUN LAST PROGRAM 01 00 00		

DBA LaneWalker™ Managers Menu Selections

* OVERRIDE AUTO PROGRAM?	* CHANGE PROGRAM SETTINGS	* CHANGE AUTO PROGRAM SELECT	* CHANGE LN TO LN DIST?	* SYSTEM CONTROL LINO DUSTER	* TO CLEAR MAINT MESSG HIT MAN KEY
CHOOSE PROGRAM # 00 00	CHANGE PROGRAM # 00 00	MON AM1 PRGRM#00 LANES 00 THRU 00	L-R HIT RT ARROW R-L HIT LF ARROW	PRESENT DUSTER 09 UNWND TIME 09	<i>PRESS MAN KEY</i>
	RUN LINO DUSTER? 01 1-YES,0-NO 01	MON AM2 PRGRM#00 LANES 00 THRU 00	LAN00TO LANE 00 0000 COUNTS 0000	DEFAULT DUSTER 09 UNWND TIME 09	
	TRAVEL DIST. 00 00	MON AM3 PRGRM#00 LANES 00 THRU 00	CONTINUES	LINO EMPTY # LNS 0600 DEFAULT0600	
	RO OIL DIST. 00 00	MON PM1 PRGRM#00 LANES 00 THRU 00	FOR		
	RT OIL DIST. 00 00	MON PM2 PRGRM#00 LANES 00 THRU 00	EACH		
	RI OIL DIST. 00 00	MON PM3 PRGRM#00 LANES 00 THRU 00	LANE		
	LO OIL DIST. 00 00	CONTINUES			
	LT OIL DIST. 00 00	FOR			
	LI OIL DIST. 00 00	EACH			
	RO RETURN OIL 00 00	DAY			
	RT RETURN OIL 00 00	OF			
	RI RETURN OIL 00 00	THE			
	LO RETURN OIL 00 00	WEEK			
	LT RETURN OIL 00 00				
	LI RETURN OIL 00 00				
	2ND RUN TRVL DST 00 00				
	2ND RT OIL DST 00 00				
	2ND RI OIL DST 00 00				
	2ND LT OIL DIST 00 00				
	2ND LI OIL DIST 00 00				

C. Keypad Display

The keypad display is a two line LCD (Liquid Crystal Display). During operation and selection of programs, various prompts, which are simply questions or data requests, will appear in the display, along with possibly some numbers. The prompts will request the operator to input or change data or information within the selecting menu. The numbers will display conditioning program numbers, distances (feet) or “counts”. What the prompts and numbers mean for each menu is explained under each menu heading in this section.

When the numbers appear, there will often be two numbers, both the same, displayed in the LCD. When this occurs, both numbers refer to the current setting for that particular prompt. When changing the setting with the use of the **UP** or **DOWN ARROWS**, only the number on the right side of the display will change. The number on the left will remain at the previous setting until the ENTER key is pressed, at which time both numbers will change to the new setting.

THE FOLLOWING MENU SELECTIONS CAN BE ACCESSED BY THE OPERATOR

1. Operator's Menu

The Operators Menu will display the time remaining on the current duster cloth roll, the conditioning program being used, and allow the operator to select the starting and ending lane number. The LaneWalker is also started from this menu.

Once the LaneWalker is turned on, OPERATORS MENU will appear on the two-line LCD of the keypad. Also appearing will be a four digit number on the left hand side of the second line. This number designates the number of lanes of usable cloth remaining on the current duster roll. It will appear similar to the following:

*** OPERATORS MENU *
0045 MENU LW4.2**

The “0045” means that approximately 45 lanes are left on the current roll of cloth. The “4.2” refers to the program version of Kegel ThoughtWare currently installed in the LaneWalker PC.

To begin operation of the LaneWalker, press **NEXT** on the keypad. The following prompt will appear:

STARTING LANE ?
00 00

The LaneWalker is asking the operator to input the starting lane number. Also appearing in the LCD Display will be two numbers, one on the lower left side and one on the lower right side. These numbers indicate the starting lane number the last time the LaneWalker was operated. If these numbers are not the starting lane numbers for this conditioning run, they must be changed.

To change the starting lane number, push either the **UP ARROW** or **DOWN ARROW**. The number on the lower right hand side of the LCD will change, while the number on the left side will remain the same. (The left number will always remain the same while the right number is being changed until the ENTER key is depressed.)

NOTE: *When entering the starting lane number, depressing the Left Arrow key on the keypad will automatically input "Lane #1" as the starting lane. Depressing the Right Arrow key will input the number of the last lane in the center.*

Once you have reached the desired starting lane number, press **ENTER**. Now both the right and left side numbers should be the same as the new starting lane number you selected. If this is correct, depress the **NEXT** key.

The following prompt will appear:

LAST LANE ?
00 00

Now you must input the number of the last lane to be conditioned. Appearing with the above prompt will again be two numbers, this time displaying the number of the last lane conditioned during the previous run of the LaneWalker. If these numbers are incorrect, you must enter the correct number. Using the UP or DOWN ARROWS again, change the number to the number desired. Once again, only the right side number will change.

NOTE: *When entering the last lane number, depressing the Left Arrow key on the keypad will automatically input "Lane #1" as the starting lane. Depressing the Right Arrow key will input the number of the last lane in the center.*

Once you reach the desired number, depress **ENTER**, and both numbers will change to the one you selected. If this is correct, depress the **NEXT** key.

At this point, this prompt will appear:

RUN LAST PROGRAM
01 24 01

Along with this prompt, the starting lane number, last lane number and conditioning program number will appear in the LCD. (The example above shows the LaneWalker starting on lane #1, ending on lane #24, and applying conditioning program #1.)

If the starting and ending lane information is incorrect, depress the **LAST** key until you return to the starting and ending lane number prompts. If the conditioner program is incorrect, it will be necessary to access the Managers Menus to change the program selection. Once all information is acceptable, depress the **START** key and the LaneWalker will begin its operation. (IMPORTANT! The “**ENTER**” key **MUST** be depressed to accept starting and ending lane information, even if new starting and ending lane numbers are not needed. If the “**ENTER**” key is not depressed, the LaneWalker will not start.)

NOTE: Manual operation of the LaneWalker can also be done from the Operators Menu.

To manually operate the LaneWalker in the forward, reverse, right or left direction, depress the “**MAN**” key while OPERATORS MENU is displayed on the screen. The following will appear:

*** MANUAL OVERRIDE**
ONE HOP-ONE LANE

Depress the “**RIGHT**” arrow to move the LaneWalker to the right, the “**LEFT**” arrow to move to the left, the “**UP**” arrow to move forward, or the “**DOWN**” arrow to move backwards. The LaneWalker will move side to side approximately one lane, or one “hop” forwards or backwards, depending on the directional key depressed.

For continuous manual operation, depress the **NEXT** key while in the above screen. The following will appear:

DRIVE RPM 0000
CONTINUOUS RUN

Now when a directional key is depressed, the LaneWalker will move in that direction until stopped. To stop the LaneWalker, simply depress any key on the keypad or pull on the power cord holder to actuate the cord-holder shut-down switch.

When the LaneWalker is operated in the manual mode, a tachometer is available to assist in adjusting the high and low speed settings of the drive motor. The tachometer appears on the first line of the keypad screen during a continuous run.

When adjusting for low speed travel on the approach, the tachometer should read between **42** and **46**. If the speed is set too slow, an error message may occur. If too fast, crooked approach travel or pre-mature wheel wear may occur.

2. Lino Control Menu

Depress the **MENU** key until the following appears on the screen:

*** LINO CTRL&RSET
0600 HIT MAN ENT**

To reset the cloth counter, depress the **MAN** then **ENTER** keys while this screen is displayed. Be certain to perform this procedure each time a new roll of duster cloth is installed in the LaneWalker. When reset, the counter will read "0600".

NOTE: *If usable duster cloth still remains after counting down from "0600", reset the counter, then note how many additional lanes can be conditioned before cloth runs out. After noting the additional lanes of cloth, access the SYSTEM CONTROL LINO DUSTER Menu. Within this menu access the LINO EMPTY # LANES DEFAULT screen. By using the Up or Down Arrow, change the default value to the correct number of lanes of cloth.*

When this screen is displayed, the **UP** and **DOWN ARROWS** will **NOT** operate the duster motors. A red push button on each Model C duster plate will operate the motor when depressed. These buttons will work any time power is applied to the machine.

3. Odometer Menu

Depress the MENU key until the following screen appears:

**ODOMETER
0000 FT 0000 MI**

The Odometer will display the feet and miles the LaneWalker has traveled up to that point.

**THIS CONCLUDES ALL MENUS AND FUNCTIONS
ACCESSIBLE BY THE OPERATORS PASSWORD!**

**TO ACCESS THE FOLLOWING MENU SELECTIONS, IT WILL BE
NECESSARY TO INPUT THE MANAGERS PASSWORD!**

The **Managers Password** is a series of three key entries on the keypad which will allow access to the LaneWalker Manager Menus. To enter the password, the keypad LCD must be displaying the **LINO CTRL&RSET** screen. The factory-set password information is recorded in the Quality Control Inspection envelope which is included with this manual. To have the Managers Password changed, please contact your Authorized LaneWalker Distributor.

4. Override Auto Program

This menu allows the Supervisor to override the auto program selection and enter a manual program selection for the current conditioning run.

To reach this menu, depress the **MENU** key until the following appears:

***OVERRIDE AUTO
PROGRAM?**

To continue within the menu, depress **NEXT**. The following prompt will appear:

**CHOOSE PROGRAM #
00 00**

Two numbers will be displayed with this prompt, one on the lower right side of the display and one on the lower left. These numbers refer to the last program entered. Use the UP or DOWN ARROWS to change the program number. When the desired program number is reached, press the **ENTER** key. If both numbers display the correct number, press the **NEXT** key.

NOTE: *Programs selected in the Override Menu will only override the normal Auto Program selection for one conditioning run, whether it is the entire center or only a portion. Once all designated lanes have been conditioned, the conditioning program used will revert back to the Auto Program Selections.*

This concludes the OVERRIDE AUTO PROGRAM menu.

5. Change Program Settings

When the Managers Password is first entered, the following screen will appear:

*** CHANGE PROGRAM
SETTINGS**

This menu will allow the operator to do the following:

- Change the distances of the conditioner application for each wicking pad within a selected conditioner program;
- Choose a double oil or second run option if desired; and
- Designate whether or not the DMR duster assembly should be “On” or “Off” during each program.

Eleven factory-preset conditioning patterns are stored in the LaneWalker's computer memory at the time of manufacture. These preset programs may be altered in the **CHANGE PROGRAM SETTINGS** menu. To see a sample graph of the patterns applied by each of these programs, please see the appendix in the back of this manual.

To continue within this menu, press the **NEXT** key and the following prompt will appear:

CHANGE PROGRAM #
00 00

Along with this prompt two numbers will appear, one on the lower left side of the display, and one on the lower right. Both numbers will display the current program number.

To change the program number, use the **UP** or **DOWN ARROWS**. The number on the right side of the display will change. When the correct number is reached, depress the **ENTER** key. At this time, both numbers on the display will be the same as the program number you selected. If this is correct, depress **NEXT**.

The following prompt will appear:

RUN LINO DUSTER?
01 1-YES,0-NO 01

This screen controls the operation of the DMR Duster assembly during use of this program number.

Use the UP or DOWN ARROW to change the number on the left to either "00" or "01", then depress ENTER when the desired number is reached. "00" will turn the DMR Duster "Off" during this conditioning run; "01" will leave it operational.

NOTE: It is recommended that the duster shut-off option be used ONLY when conditioning freshly cleaned lanes! Not operating the duster cloth on a previously conditioned lane has been known to cause wick contamination and poor conditioner flow!

To continue in this menu, depress the **NEXT** key and the following screen will appear:

TRAVEL DIST.
00 00

This prompt will be displayed with two numbers showing the current travel distance (buff out in feet) for the conditioning program selected. To change this distance, use the UP or DOWN ARROWS. Once again, the right side number will change. Once the correct distance is reached, depress ENTER and both numbers will display the new travel distance. If this is correct, depress the **NEXT** key.

The following prompt will appear:

RO OIL DIST.
00 00

This prompt, along with the two numbers displayed, refers to the distance down the lane that the Right Outside wicking pad should be activated. To change this number, use the UP or DOWN ARROWS. Again, only the right side number will change. Once the correct distance is reached, depress ENTER and both numbers will display the new Right Outside Oil Distance. If this number is correct, depress the **NEXT** key.

The following prompt will appear:

RT OIL DIST.
00 00

This prompt and the two numbers displayed refer to the distance that the Right Track wicking pad will be activated. To change this distance, follow the instructions for changing the Right Outside wicking pad. Once the correct number is reached, depress the **NEXT** key.

The following prompt will appear:

RI OIL DIST.
00 00

Now the numbers displayed refer to the Right Inside wicking pad. Continue through this menu repeating the previous procedures.

The operator will be allowed to change distance for the following:

<u>Displayed Prompt</u>	<u>Wicking Pad</u>
LO OIL DIST.	Left Outside
LT OIL DIST.	Left Track
LI OIL DIST.	Left Inside

After depressing the **NEXT** key and exiting from the LI OIL DIST prompt, the operator will be given the option for a “Return Oil” run on each wicking pad. The double oil run will activate the specified pads on the return trip to the foul line.

The first prompt will read:

RO RETURN OIL
00 00

Along with the prompt there will again be two alike numbers in the display. The procedure for changing these numbers is exactly the same as for the previous distances.

After exiting this prompt, the operator will be allowed to set distances for the remaining pads:

<u>Displayed Prompt</u>	<u>Wicking Pad</u>
RT RETURN OIL	Right Track
RI RETURN OIL	Right Inside
LO RETURN OIL	Left Outside
LT RETURN OIL	Left Track
LI RETURN OIL	Left Inside

After pressing the **NEXT** key following the input of the LI RETURN OIL distance, the operator will be given the chance to choose a Second Run option.

The following prompt will appear:

2ND RUN TRVL DST
00 00

The Second Run option means that following the first application of conditioner on one lane, the LaneWalker will make a second conditioning run on the same lane before moving on to the next lane. Depress the **NEXT** key and the following will appear:

2ND RT OIL DST
00 00

Again a set of numbers designating the current distances will appear with the prompt. Use the same procedure for changing these numbers as in setting previous wicking pad distances.

The operator will be given the opportunity to set distances for the following wicking pads:

<u>Displayed Prompt</u>	<u>Wicking Pad</u>
2ND RI OIL DST	Right Inside
2ND LT OIL DIST	Left Track
2ND LI OIL DIST	Left Inside

NOTE: Due to the thickness of the wicks and the heavy amount of conditioner applied by them during a normal conditioning run, the two outside wicking pads (RO and LO) cannot be activated during a Second Run option.

If a Second Run option is not desired, simply enter a “zero” for all wicking pad distances.

This will conclude the selections within the CHANGE PROGRAM SETTINGS menu.

6. Change Auto Program Select

To reach this menu, depress the **MENU** key until the following screen appears:

***CHANGE AUTO PROGRAM SELECT**

This menu allows the supervisor to choose the specific conditioning programs to be used for each day of the week within each time period of the day, and the flexibility to change conditioning patterns up to a maximum of three times per operation across the center.

The “real time” clock in the LaneWalker keeps track of the time of day and will run the program selected for that specific time period. The time periods are not broken down by the hour, but rather are separated into two time categories, AM and PM. For example, a conditioning program selected for Monday AM means that operation of the LaneWalker anytime between 12:01 AM and 12 Noon will apply that selected conditioner program.

To continue within this menu, depress the **NEXT** key and the following prompt will appear:

**MON AM1 PRGRM#00
LANES 01 THRU 00**

When this screen first appears, the current program number will flash on and off, designating that the selection being made will be for the program number. Use the UP or DOWN ARROWS to select the number, and depress **ENTER** once it has been reached. At this point the last lane number will flash. Again use the UP or DOWN ARROW to select the number, depressing **ENTER** when it has been reached.

The following screen will now appear:

**MON AM2 PRGRM#00
LANES 00 THRU 00**

When this screen first appears, the current program number will flash on and off. Use the UP or DOWN ARROWS to change the program number, and depress **ENTER** once it has been reached.

At this point again, the last lane number will flash. (The first lane # will automatically be one more than the last lane selected in the previous menu screen.) Use the UP or DOWN ARROW to select the correct number, depressing **ENTER** when it has been reached.

The following screen will now appear:

**MON AM3 PRGRM#00
LANES 00 THRU 00**

Again the program number will flash. Select the correct number by using the UP or DOWN ARROW. (The last lane will automatically be displayed as the last lane in the bowling center.)

Depress **ENTER** and the following screen will appear:

**MON PM1 PRGRM#00
LANES 01 THRU 00**

Continue through these screens using the same procedure for entering numbers as explained previously for Monday AM. The manager will have the opportunity to select programming for the following days and times:

<u>Displayed Prompt</u>	<u>Day / Time</u>
MON AM (1, 2, 3)	Monday, 12:01 AM - 12 Noon
MON PM (1, 2, 3)	Monday, 12 Noon - Midnight
TUE AM (1, 2, 3)	Tuesday, 12:01 AM - 12 Noon
TUE PM (1, 2, 3)	Tuesday, 12 Noon - Midnight
WED AM (1, 2, 3)	Wednesday, 12:01 AM - 12 Noon
WED PM (1, 2, 3)	Wednesday, 12 Noon - Midnight
THU AM (1, 2, 3)	Thursday, 12:01 AM - 12 Noon
THU PM (1, 2, 3)	Thursday, 12 Noon - Midnight
FRI AM (1, 2, 3)	Friday, 12:01 AM - 12 Noon
FRI PM (1, 2, 3)	Friday, 12 Noon - Midnight
SAT AM (1, 2, 3)	Saturday, 12:01 AM - 12 Noon
SAT PM (1, 2, 3)	Saturday, 12 Noon - Midnight
SUN AM (1, 2, 3)	Sunday, 12:01 AM - 12 Noon
SUN PM (1, 2, 3)	Sunday, 12 Noon – Midnight

This concludes the selections on the AUTO PROGRAM SELECT menu.

7. Change Lane-to-Lane Distances

This menu allows changes to be made in the lane-to-lane distance being traveled by the LaneWalker. The distance of travel from one lane to the next is reflected in this menu as “counts”, with each count being 1/3”. For example, if the LaneWalker misses entering the next lane on-center by 1 inch, the distance count would need to be adjusted by 3. Counts will also need to be adjusted for large distances between pairs of lanes, such as poles, walkways, etc.

The LaneWalker is factory-set for standard distances between ball return lanes and division lanes (169 and 148 for left-to-right or right to left operation). These factory settings are to be used as a starting point, as most centers will have to adjust the lane-to-lane travel distance during the installation procedure.

NOTE: It is perfectly normal for differences in counts to occur between the factory settings and the bowling center. It is also common that counts differ in the center from one pair of lanes to the next.

Counts may also need adjustment in one direction (left to right, for example), but no adjustment in the other direction (right to left).

There may be a need to re-adjust lane-to-lane distances if new lane-to-lane wheels are installed.

It will be necessary to walk with the LaneWalker as it conditions and walks from lane-to-lane. Write down the estimated number of counts to adjust between lanes 1 and 2, 2 and 3, 3 and 4, etc. A Lane-to-Lane Distance Chart is located in the appendix of this manual for ease of collecting the new lane-to-lane distances.

When adjusting counts, it is not always necessary to get the LaneWalker to enter the lane exactly on-center. In some instances, the LaneWalker may even “seat” itself better on the lane surface if it enters a bit off-center.

To get to this menu, depress the **MENU** key until CHANGE LN TO LN DIST appears on the display:

*** CHANGE
LN TO LN DIST?**

To continue within the menu, depress **NEXT**. The following prompt will appear across both lines of the LCD:

**L-R HIT RT ARROW
R-L HIT LF ARROW**

This prompt is requesting information as to the direction of travel in which the counts need to be adjusted. If you are adjusting the left-to-right travel, depress the **RIGHT ARROW**. If you are adjusting right-to-left travel, depress the **LEFT ARROW**. For example purposes in this manual, let's assume that we are adjusting the left-to-right travel.

The **RIGHT ARROW** would be depressed and the following prompt would appear:

**LAN01TO LANE 02
0171 COUNTS 0171**

The top line of the display shows the lane number being traveled from (01) and the lane number being traveled to (02). The two numbers on the second line display the current number of counts (0171) between these two lanes. Again, both numbers will be the same.

Use the **UP** or **DOWN ARROW** to adjust the number of counts until the desired number is reached. Press the **ENTER** key and both numbers will change to the new count number. If both numbers displayed are correct, depress **NEXT**.

The following prompt will appear:

**LAN02TO LANE 03
0150 COUNTS 0150**

Once again, use the **UP** or **DOWN ARROWS** to adjust the counts. When the desired number is reached, depress **ENTER**. If both numbers are correct, depress **NEXT**. This menu will continue through all lane-to-lane distances until you have reached the last lane in the bowling center.

After all lane-to-lane distances have been adjusted, it is recommended to walk with the LaneWalker during the next conditioning run to re-check the distances. It is not uncommon for these distances to have to be adjusted two or three times.

This concludes the selections within the CHANGE LN TO LN DIST menu.

8. System Control Lino Duster

This series of screens will be used to adjust the duster unwind time. It is also possible to change the default number of lanes that a new roll of cloth will dust.

Depress the **MENU** key until the following screen appears:

*** SYSTEM CONTROL LINO DUSTER**

Depress the **ENTER** and then the **NEXT** key. The following screen will appear:

PRESENT DUSTER 09 UNWND TIME 09

This screen will display the current unwind time setting for each “ratchet” of cloth. This number will automatically increase as the size of the supply cloth roll decreases. This value will return to the default setting when a new roll of cloth is installed and the cloth counter is reset. **NO CHANGES SHOULD BE NEEDED IN THIS MENU.**

Depress the **ENTER** and then the **NEXT** key. The following screen will appear:

DEFAULT DUSTER 09 UNWND TIME 09

This screen will display the default time for the unwinding of duster cloth. This is the unwind time for the cloth when a new roll of cloth is installed and the duster counter is reset. If the value is increased more cloth will be unwound. If the value is decreased less cloth will be unwound. Changes can be made to this number by using the UP or DOWN ARROWS.

Depress the **ENTER** and then the **NEXT** key. The following screen will appear:

LINO EMPTY # LNS 0600 DEFAULT0600

This screen displays the default number of lanes that a new roll of cloth will complete. When the duster counter is reset, after installing a new roll of cloth, this is the value that will be displayed. If changes have been made to the default unwind time, this value may need to be changed. Use the UP or DOWN ARROWS to change the value. When the correct value is displayed press **ENTER**.

This concludes the selections within the SYSTEM CONTROL LINO DUSTER menu.

9. Clear Maintenance Messages

Depress the **MENU** key to advance to the following screen:

*** TO CLEAR MAINT
MESG HIT MAN KEY**

This screen will allow the Supervisor to clear all maintenance messages that have been activated. Simply depress the **MAN** key, then the **ENTER** key when this screen appears and all messages will be cleared.

IMPORTANT: Supervisor should be certain that all items on the maintenance inspection have been completed prior to clearing maintenance messages!

**THIS CONCLUDES ALL MENUS AND FUNCTIONS
ACCESSIBLE BY THE MANAGERS PASSWORD!**

Section V - Adjustments

A. Buffing Brush Replacement and Adjustment

The buffing brush on the LaneWalker is manufactured of a long-lasting synthetic bristle which, under normal circumstances, can be expected to last approximately 18 months.

To check the buffing brush adjustment, stand the LaneWalker in an upright position and hold a level across the drive wheels and rear lane distance counting wheels. The buffing brush material should extend approximately 3/16" to 1/4" beyond the level for proper adjustment. The buffing brush is factory adjusted prior to being shipped.

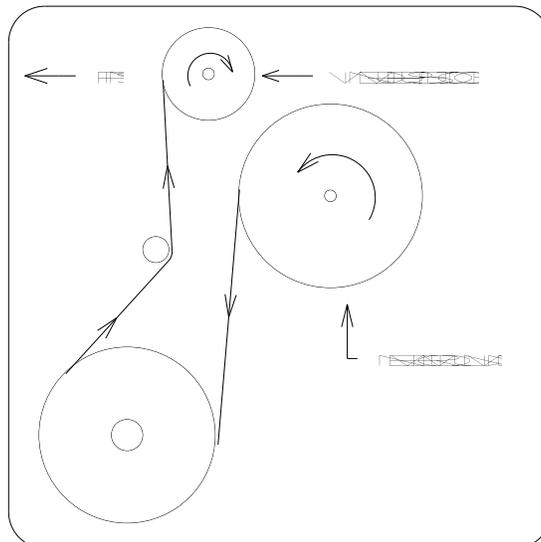
If adjusting is needed, place the machine in operating position. Operate the LaneWalker on the lane, stopping it at a point just past the arrows. Loosen the jam nuts on the adjusting screws, along with all three adjusting blocks.

Turn adjusting screws until proper adjustment is reached. (Each full turn on an adjusting screws is equal to about 1/16" adjustment.) Tighten jam nuts and outside two adjusting blocks, leaving the center block loose. Operate the LaneWalker back onto the approach and shut down.

Stand the LaneWalker in an upright position, and move the center adjusting block until the shaft spins as freely as possible, then re-tighten the center adjusting block.

B. Duster Cloth Replacement and Adjustment

The LaneWalker DMR (Dual Motor Ratcheting) duster cloth assembly is very similar to a hand-held lane duster - it is gravity-operated and needs very little adjustment. Duster cloth should be loaded into the assembly as shown in the diagram below:



(Figure 8 - DUSTER CLOTH ROUTING)

C. Duster Cloth Counter

The LaneWalker is equipped with a Duster Cloth Counter which indicates the number of lanes remaining on the current roll of duster cloth, and also warns the operator when no cloth is remaining.

When not enough cloth is left to do the entire center, the following screen will appear when power is first applied to the LaneWalker:

**LINO ALMOST OUT!
0020 MINUTE WARNING!**

When the Duster Cloth counter reaches zero, the LaneWalker will stop on the approach and display the following message:

**LINO CLOTH EMPTY
PULL POWER CORD**

The LaneWalker will continue stopping on each lane until the duster cloth is changed and the counter is reset. To reset the counter, follow the instructions in this manual under LINO CTRL & RSET. After resetting the counter, re-program the LaneWalker to continue operation.

D. Filling of Conditioner Tank

To fill the conditioner tank, the LaneWalker should be in the upright position on a level surface. Connect the conditioner fill tube to the tank vent on the front panel of the LaneWalker. Disconnect the overflow tube from the inside wall of the buffing end, remove end plug, and hang into an empty clean container. Through the fill tube, either siphon or funnel conditioner into the tank. The tank will be full when conditioner begins to flow through the overflow tube into the empty container.

E. Wicking Adjustments

The wick pressure can be adjusted for balance of left and right side pressure across each wick by adjusting an eyebolt connected to the wicking pad springs. It is suggested that the lanes be conditioned with the LaneWalker, then graphed using an ABC Take-Up Device and Lane Reader. If conditioner patterns seem to vary in an area conditioned by one wicking pad, either increase or decrease the wick pressure by adjusting the springs on either end of the pad. Generally, springs pulling the pads harder into the transfer roller will increase conditioner flow, lighter will decrease. Adjust spring pressure and graph lanes again. (NOTE: Wicking pad springs should not be adjusted so tightly that it causes the wicking pad solenoids to pull too hard.) If several adjustments on the wicking pad springs do not balance the condition being applied, replace the wicking pad and re-adjust.

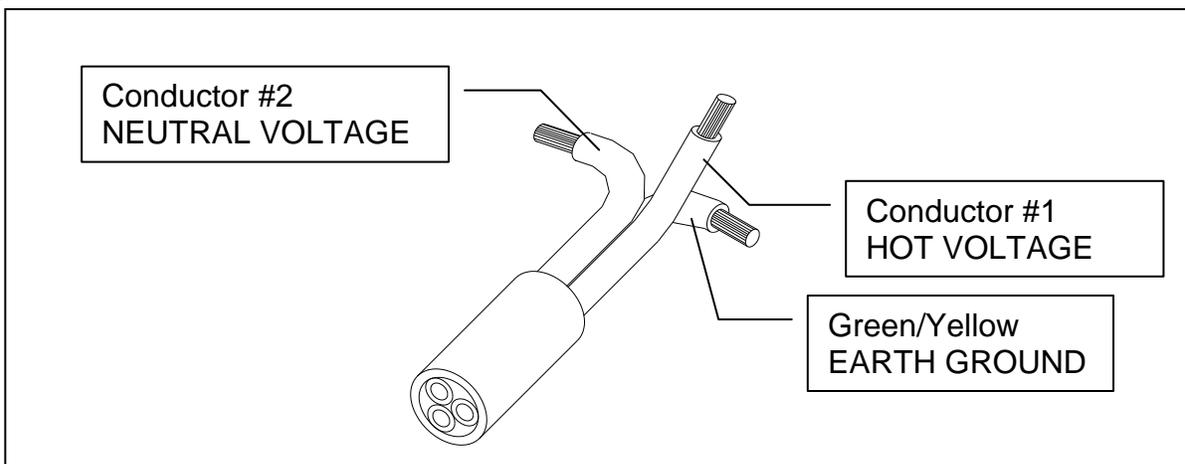
Section VI - Maintenance

Regular Maintenance: The following items should be done to the LaneWalker on a regular basis:

A. Care of the Power Cord

Care should be taken to see that the LaneWalker power cord is handled properly and stored correctly. Do NOT wrap the cord around the machine for storage. Some type of cord wrap or cord spool should be used for storage. This will add life to the use of the cord.

Should the power cord become damaged or frayed, it should be repaired or replaced IMMEDIATELY!



B. Wicking pads

Clean any accumulation of dirt and dust from wicking pads after every conditioning run. USE A SOFT RAG ONLY!! Metal or abrasives will tear at the wick material, causing wick deterioration and irregular conditioner flow.

WICKING PAD REMOVAL: Periodically it will become necessary to remove a wicking pad for cleaning or replacement. To do this, disconnect the solenoid cable from all wicking pads. Disconnect the springs from each pad that will be removed, and pull the pad out of the tank. To replace the pads into the tank, simply reverse the procedure.

WICKING PAD CLEANING: To clean the wicking pads, wipe the wick material with a clean, dry cloth until all loose dirt particles are removed.

WICKING PAD REPLACEMENT: When it becomes necessary to replace the wick material on the LaneWalker wicking pads, use only genuine DBA replacement material and adhesive. These items may be ordered from your DBA Distributor. Follow the instructions included with the replacement items for proper installation.

Check the size and direction of the shim(s) in the tank. A different size configuration may be required when changing wick pads. Two shim sizes are used (0.090" and 0.125") to ensure the wick stay seated in the tank during reverse travel.

CHANGING OF CONDITIONERS: It is not always necessary to replace the wicking pad material when the type of conditioner being used is changed. When changing conditioners, remove all six wicking pads from the machine. Drain the conditioner tank completely. Using a clean, dry towel, squeeze the wicking pads to remove as much of the conditioner as possible. Use several towels if necessary.

Before replacing wicking pads into the conditioner tank, saturate each pad with the new lane conditioner to be used. This can be done by using a dispenser such as a clean, empty ketchup bottle, or by laying the pads into a small shallow pan filled with about ½” of lane conditioner. Once saturated, re-install all pads into the tank. Fill tank with the new lane conditioner and the LaneWalker is ready for use.

C. Buffing Brush

Should be wiped with a clean cloth daily.

D. Sensors

Clean during Maintenance Checks by spraying each sensor lightly with electrical contact cleaner or an air compressor. This will remove oil and dust build-up which could cause false sensing.

E. Lane-to-Lane Wheels

Dust daily.

F. Drive Wheels

Clean after each operation.

G. “Hopping” Wheels

Clean after each operation.

H. Inside machine

Wipe up excess dust and dirt daily.

NOTE: *For best operation, it is recommended that approaches be dusted before operation of the LaneWalker. Excess dust on the approach can cause lane-to-lane and hopping wheels to slip, possibly resulting in inaccurate “counts” on the approach and between lanes!*

I. Automatic Maintenance Checks

The LaneWalker features an Automatic Maintenance program which alerts the operator as to when to perform regularly scheduled maintenance. In addition to normal daily maintenance, the LaneWalker requires inspections at 10, 50 and 100 miles of travel. Each time these distances are reached, a maintenance message will appear. These messages can only be cleared by the Supervisor once the operator has completed the required maintenance inspection.

An odometer in the LaneWalker records distance traveled through the LDS, then displays it on the keypad in the menu immediately following the Duster Cloth menu. When the pre-determined maintenance distances are reached, maintenance messages will toggle on the screen opposite the OPERATORS MENU screen:

**MAINTENANCE INSP
10 MI NOW DUE**

(or 50 MI NOW DUE or 100 MI NOW DUE)

To clear a maintenance message, access the Managers Menus by using the Managers Password and depress the **MENU** key until the following screen appears:

*** TO CLEAR MAINT
MESG HIT MAN KEY**

Depress the **MAN** key and the maintenance message will now be cleared.

If the maintenance message is not cleared by the seventh day after it first appeared, the LaneWalker will stop functioning halfway through the bowling center and display the following message:

**MAINTENANCE INSP
NOW OVERDUE**

When this message appears, the LaneWalker can be restarted by pulling the power cord. This will continue to occur until the maintenance message has been cleared by the Supervisor.

Section VII • DBA LaneWalker Maintenance Inspections

The following pages contain the suggested maintenance to be performed at 10, 50, and 100 miles of operation. These inspections and adjustments are necessary so that the DBA LaneWalker can operate in peak condition.

It is recommended that the operator check off the maintenance items as they are completed for each inspection. Upon completion, the bowling center supervisor should review the inspection with the operator, sign the form, and then clear the maintenance message on the LaneWalker keypad.

Estimated time to complete each maintenance inspection is as follows:

- 10 Mile: 30 to 45 minutes
- 50 Mile: 45 minutes to 1 hour
- 100 Mile: 90 minutes to 2 hours

COMPLETE EVERY 10 MILES OF OPERATION

(Use special 50 and 100 Mile Checklist at Appropriate Times)

NOTICE TO LANEWALKER OPERATORS: When the LaneWalker 10 Mile Maintenance Inspection is due, please examine the entire machine thoroughly, paying close attention to the items listed below on the 10 Mile Maintenance Checklist. When your inspection and repairs are complete, review what has been done with your Supervisor, then have him/her clear the Maintenance Message on the LaneWalker keypad.

	10 mile	20 mile	30 mile	40 mile	60 mile	70 mile	80 mile	90 mile
Clean entire machine thoroughly								
Inspect lane to lane casters								
Inspect lane to lane wheels								
Inspect "hopping" wheels								
Check all chain tensions								
Remove wicks: inspect & clean thoroughly with clean, dry cloth								
Inspect wick cables, loops and eye bolts for tightness and proper operation								
Operator's Initials								
Date								
Actual Mileage								
Supervisor's Initials								
Date								

COMPLETE EVERY 50 MILES OF OPERATION

NOTICE TO LANEWALKER OPERATORS: When the LaneWalker 50 Mile Maintenance Inspection is due, please examine the entire machine thoroughly, paying close attention to the items below. When your inspection and repairs are complete, review what has been done with your Supervisor, then have him/her clear the Maintenance Message on the LaneWalker keypad.

	COMPLETE ALL ITEMS IN 10 MILE MAINTENANCE INSPECTION
	Lubricate all drive chains with 2-3 drops of 30W or 50W oil
	Oil felt lube rings at bushings with 2-3 drops of 10W oil
	Lubricate LDS shaft bushings with 2-3 drops of 10W oil
	Lubricate pivot bolts and bushings on duster assembly with 2-3 drops 10W oil
	Lubricate buffer belt idler with 2-3 drops of 10W oil
	Check condition of tank vent hose and tank overflow hose

Operator's Signature

Date

Supervisor's Signature

Date

Actual Mileage

COMPLETE EVERY 100 MILES OF OPERATION

NOTICE TO LANEWALKER OPERATORS: When the LaneWalker 100 Mile Maintenance Inspection is due, please examine the entire machine thoroughly, paying close attention to the items below. When your inspection and repairs are complete, review what has been done with your Supervisor, then have him/her clear the Maintenance Message on the LaneWalker keypad.

	COMPLETE ALL ITEMS IN 10 MILE INSPECTION
	COMPLETE ALL ITEMS IN 50 MILE INSPECTION

MISCELLANEOUS:

	Check buffing brush adjustment
	Check and tighten guide rollers
	Check for loose or unsecured wiring
	Check tightness of screws on terminal strips and wiring blocks
	Check for excessive play in ADS and LDS shafts

MAIN HOPPING WHEEL DRIVE SHAFT: Inspect following for tightness

	Left hopping drive sprocket - 1 set screw
	Left hopping drive wheel - 2 set screws
	Left hopping main drive to secondary drive sprocket - 1 set screw
	Left hopping wheel - 2 set screws
	Left lane drive wheel - 2 set screws
	Wheel position indicator collar - 1 set screw (2 set screws on replacement collar)
	Drive shaft drive sprocket - 1 set screw
	Right lane drive wheel - 2 set screws
	Right hopping wheel - 2 set screws

SECONDARY HOPPING DRIVE: Inspect the following for tightness

	Secondary drive sprocket - 1 set screw
	Secondary hopping wheel adjustment hub - 1 set screw
	Transfer drive sprocket - 1 set screw
	Buffer bearing collar to buffer shaft - 2 set screws (right)
	Left buffer shaft bearing collar - 2 set screws

LEFT SECONDARY HOPPING ASSEMBLY: Inspect the following for tightness

	Secondary hopping assembly adjustment hubs - 1 set screw
	Secondary drive sprocket - 1 set screw

LANE-TO-LANE WHEELS: Inspect the following for tightness

	Left LTL wheel - 2 set screws
	Left LTL wheel sprocket - 1 set screw
	Right LTL wheel - 2 set screws
	Right LTL wheel measuring sprocket - 1 set screw

LANE DISTANCE SENSOR SHAFT: Inspect the following for tightness

	Right LDS wheel - 2 set screws
	Right LDS sprocket - 1 set screw
	Left LDS wheel - 2 set screws

CONDITIONER TRANSFER AREA: Inspect the following for tightness

	Transfer roller drive sprocket - 1 set screw
--	--

DUSTER AREA: Inspect the following for tightness

	Main drive motor sprocket - 1 set screw
	Main drive motor support bearing collar - 2 set screws
	Buffer motor drive sprocket - 1 set screw
	Lane to lane motor drive sprocket - 1 set screw
	Duster motors drive hubs - 1 set screws

INSPECT THE FOLLOWING FOR TIGHTNESS:

	Lane guide rollers (4)
	Lane guide roller brackets (4)
	Lane-to-lane caster support bolts
	Lane-to-lane caster wheel bolts
	Lane-to-lane wheel pillow blocks (4) and bolts (8)
	Main drive shaft pillow blocks (6) and bolts (12)
	Conditioner tank mounting nuts (4)
	LDS pillow blocks (3) and bolts (6)
	LDS adjustment block bolts (2) and jam nuts (2)
	Rear bumper wheel adjusting blocks (2) and Bolts (4)
	Rear bumper wheel mounting bolts (2) and jam nuts (2)
	Solenoid mounting bolts (24)
	All frame assembly bolts

Operator's Signature

Date

Supervisor's Signature

Date

Actual Mileage

Section VIII • Inputs and Outputs

The LaneWalker PC has 16 inputs (only 7 are used) and 12 outputs (all of them are used). Inputs accept data from various components in the LaneWalker, then use that information to control functions of the machine through its outputs. As an example, distances are input to the PC from the distance sensors, at which point data in ROM or RAM chips activate certain outputs as programmed. An output in this case might be one of the wicking pad solenoids.

Here is a list of the Inputs and Outputs of the LaneWalker PC along with their designations:

<u>INPUT #</u>	<u>FROM:</u>
014	LDS (Lane Distance Sensor)
013	ADS (Approach Distance Sensor)
015	WPS (Wheel Position Sensor)
012	Cord Holder Shut-Down Switches
010	Wind-Up Microswitch (DMR duster assembly)
006	On The Lane Microswitch

<u>OUTPUT #</u>	<u>CONTROLS:</u>
203	RO Pad solenoid
202	RT Pad solenoid
208	RI Pad solenoid
204	LI Pad solenoid
201	LT Pad solenoid
200	LO Pad solenoid
206	CR1 (Control Relay #1 - Forward)
207	CR2 (Control Relay #2 - Reverse)
205	CR3 (Control Relay #3 - High Speed)
	CR4 (Control Relay #4 - Duster)
209	Lane To Lane Motor (Right to Left) & Duster Unwind Motor
210	Lane To Lane Motor (Left to Right) & Duster Wind-Up Motor
211	Buffer Motor

As listed, all inputs have a prefix of "0", and all outputs a prefix of "2". These prefixes are used for programming purposes and are not shown on the PC Input/Output indicators.

Outputs have a relay assigned to them in the PC. This relay engages when the Output is activated. These relays are located inside the PC. To replace a relay, disconnect the two PC terminal strips, then remove the four screws on the PC cover. A relay removal tool is located in the cover of the PC. Use the tool to grasp the relay by the sides and carefully pull the relay off of the circuit board. To replace a relay, simply snap back into place on the circuit board. Replace the tool, the PC cover, and reconnect the PC terminal strips.

Each input and output also has an LED indicator on the cover of the PC. If a particular input or output is engaged, a light will illuminate. (The “0” and “2” prefixes are dropped from the Input and Output numbering on the PC cover.) For example, if the LDS is sensing, an LED will light at Input #14. If the LO Pad solenoid is activated, an LED will light at Output #00. These lights can be extremely helpful in troubleshooting various functions of the LaneWalker.

• Inputs

1. LDS (Lane Distance Sensor)

The LDS (Lane Distance Sensor) is mounted near the lifting handle which also acts as a drive shaft for the Lane Distance Wheels. This sensor is a “pass-thru” type sensor. Sprockets mounted near the sensor turn as the wheels roll along the lane surface. The sensor shoots an infra-red beam through the teeth on the sprocket. Every time the beam passes through the teeth, the sensor senses one count” and passes it along to the PC. Each count is equal to approximately one inch, twelve counts to a foot.

When the LaneWalker is on the approach, the LDS does not turn. As the machine sets itself onto the lane surface, the LDS begins to turn. Once two turns or “counts” have been sensed, the PC knows the LaneWalker is on the lane and then begins counting distance, as well as activating the high speed on the drive motor.

2. ADS (Approach Distance Sensor)

The ADS is located on the lane-to-lane wheel shaft and measures the distance traveled on the approach from one lane to the next. The ADS is also a pass-thru” type sensor, however each count is approximately 1/3 of an inch. This allows for more accurate and exact distances when traveling from one lane to the next.

3. WPS (Wheel Position Sensor)

The WPS (Wheel Position Sensor), counts the number of “steps” or “hops” the “walking” wheels make onto the approach. This sensor is also a “pass-thru” type. Once the pre-programmed number of “hops” is counted, the PC stops the drive motor and engages the lane-to-lane motor.

This sensor also assures that the “walking” wheels are in the “up” position when the LaneWalker stops on the approach. This prevents the wheels from dragging on the approach as the LaneWalker moves from lane to lane.

4. Cord Holder Shut-Down Switches

There are two microswitches, one on each side of the LaneWalker, which the cord-holder rests upon. These are the cord-holder shut-down switches. Unlike most miniature switches which are “normally open” or “normally closed” to determine their function, these switches function differently. The PC recognizes the LaneWalker as ready for operation as long as one switch is actuated and the other is not. Should both be actuated at the same time, the LaneWalker will not operate.

Once the LaneWalker has begun operation, if one switch actuates, the machine will go into interlock and shut-down until that switch is returned to the operating position again.

5. On The Lane Switch

The On The Lane Switch is mounted to the right lane distance pillow block. As the LaneWalker sets down on the lane at the foul line, the lane distance shaft begins to turn and actuates the on the lane switch. This switch sends a signal to input #006 on the PC. Upon receiving this signal from input #006 the PC will accept two counts from input #014 and the LaneWalker will switch from low to high speed for its travel down the lane.

6. Wind Up Microswitch

The Wind Up microswitches are mounted on both sides of the duster side plates. These two switches signal the PC that the DMR duster assembly is functioning correctly.

The time that the duster will unwind is indicated at the PRESENT DUSTER UNWIND TIME screen. This value allows the motor to unwind enough cloth so the cushion roller rests on the lane surface. At the end of the conditioning run the cloth will wind-up, lifting the cloth and cushion roller off the lane.

As the cloth is wound up the duster pivot arm is pulled tight against the wind-up microswitch. The wind-up switch sends a signal to the PC input #010, this turns output #210 off and the wind-up motor stops. If the PC does not receive a signal from input #010 within 5 seconds of output #210 being turned on, the machine will stop on the lane and Error Message #10 will be displayed.

• **Outputs**

1. Wicking Pad Solenoids

Outputs #200 through #204, and #208 control the wicking pad solenoids.

2. CR1 Control Relay #1

Output #206 operates CR1, which is the Forward Relay of the Drive Motor. This relay is engaged when the LaneWalker is in a forward motion on the lane and approach.

3. CR2 Control Relay #2

Output #207 operates CR2, or Reverse Relay of the Drive Motor. This relay is engaged when the LaneWalker is in reverse on the lane or approach.

4. CR3 Control Relay #3

Output #205 operates CR3, or high speed relay. When the LaneWalker is on the lane surface, CR3 energizes, thereby operating the two-speed Drive Motor at high speed.

5. CR4 Control Relay #4

Output #206 also operates CR4 which is the duster & lane to lane motor relay. When the LaneWalker moving forward the duster motors are operational. When the machine is not moving forward the lane-to-lane motor is operational.

6. Lane To Lane Motor

The Lane To Lane Motor is controlled by outputs #209 and #210. Output #209 controls the motor for “right to left” operation on the approach, while output #210 controls “left to right” operation.

7. Buffer Motor

The Buffer Motor is operated by output #211, along with a contactor assembly. When the PC activates Output #211, it energizes the contactor assembly, which then applies power to the Buffer Motor.

Section IX · Troubleshooting

<i>Problem</i>	<i>Cause</i>	<i>Remedy</i>
LaneWalker will not start	1) Did not depress "ENTER" after each prompt 2) Fuse blown	1) Re-start LaneWalker and depress "ENTER" 2) Replace fuse
LaneWalker will not operate on lane; drive motor "sputters" while running	1) Drive motor brushes dirty, twisted or worn	1) Clean, straighten or replace drive motor brushes
No LCD screen	1) Keypad unplugged 2) No power to machine 3) Fuse blown	1) Plug in keypad 2) Restore power 3) Replace fuse
Unable to access Managers Menus	1) Incorrect Password used 2) Password entered at wrong screen	1) Enter correct Password 2) Enter Password at "Lino Ctrl&Rset" screen
Inconsistent distances down the lane	1) LDS not functioning properly 2) LDS counting wheels not turning freely	1) Repair or replace LDS 2) Repair bind or cause of wheel slippage
"Hopping" wheels dragging on approach	1) WPS not functioning properly	1) Repair or replace WPS
Keypad "locked up"	1) Incorrect key hit on keypad	1) Turn off power to machine, then restore power
Unusual error messages; Unusual operation	1) PC connectors out of place or loose	1) Reconnect
Buffing motor not operating	1) Contactor assembly bad 2) Buffing motor bad 3) PC output relay bad	1) Repair or replace 2) Repair or replace 3) Repair or replace
Wicking pad not operating	1) Solenoid inoperative 2) PC output relay bad 3) Fuse blown	1) Repair or replace 2) Repair or replace 3) Replace fuse
Duster cloth will not unwind or wind-up	1) Armature on DMR motor is stuck 2) Bad motor	1) Free up and lubricate armature bushing 2) Replace motor

Section X - Error Messages

NOTE: In most cases, restarting the LaneWalker after an Error Message can be done by simply correcting the problem and pulling the cord arm. In some instances, re-programming of the starting and ending lane numbers may be necessary.

EM #	LOCATION	POSSIBLE CAUSE
EM #1	Approach to Lane	Starting too far back on approach; caught on capping or foul lights; low speed setting too low; faulty, dirty or broken LDS
EM #2	Lane (downward travel)	LaneWalker caught on splinter; guide rollers need adjustment; high speed setting too low; DMR Duster caught on lane
EM #3	Lane (return travel)	LaneWalker caught on splinter; guide rollers need adjustment; high speed setting too low; DMR Duster caught on lane
EM #4	Lane-to-Lane	No ADS signal; dirty or broken ADS; machine caught on foul light or capping; lane-to-lane motor failure; wire loose or broken from PC output to lane-to-lane motor
EM #5	Lane-to-Lane	ADS signal interruption; dirty or broken ADS
EM #6	Lane to approach	No WPS signal; dirty or broken WPS
EM #7	Lane (downward travel 2nd pass)	LaneWalker caught on splinter; guide rollers need adjustment; high speed setting too low; DMR duster caught on lane
EM #8	Lane (return travel 2nd pass)	LaneWalker caught on splinter; guide rollers need adjustment; high speed setting too low; DMR duster caught on lane
EM #10	DMR duster Wind-Up Motor	Duster motor did not wind-up; duster wind-up microswitch not functioning; no signal at PC input #010 from duster wind-up microswitch

Section XI · Worksheets

- A. Left-to-right travel worksheets**
- B. Right-to-left travel worksheets**
- C. Factory-Set Conditioning Programs & Graphs**

**DBA LaneWalker™
Lane-to-Lane Distance
Worksheet**

Left to Right Travel - Page 1

<i>Lane Number</i>	<i>Counts</i>	<i>Counts</i>	<i>Counts</i>
1 to 2	171		
2 to 3	150		
3 to 4	171		
4 to 5	150		
5 to 6	171		
6 to 7	150		
7 to 8	171		
8 to 9	150		
9 to 10	171		
10 to 11	150		
11 to 12	171		
12 to 13	150		
13 to 14	171		
14 to 15	150		
15 to 16	171		
16 to 17	150		
17 to 18	171		
18 to 19	150		
19 to 20	171		
20 to 21	150		
21 to 22	171		
22 to 23	150		
23 to 24	171		

Left to Right Travel - Page 2

<i>Lane Number</i>	<i>Counts</i>	<i>Counts</i>	<i>Counts</i>
24 to 25	150		
25 to 26	171		
26 to 27	150		
27 to 28	171		
28 to 29	150		
29 to 30	171		
30 to 31	150		
31 to 32	171		
32 to 33	150		
33 to 34	171		
34 to 35	150		
35 to 36	171		
36 to 37	150		
37 to 38	171		
38 to 39	150		
39 to 40	171		
40 to 41	150		
41 to 42	171		
42 to 43	150		
43 to 44	171		
44 to 45	150		
45 to 46	171		
46 to 47	150		
47 to 48	171		

**DBA LaneWalker™
Lane-to-Lane Distance
Worksheet**

Right to Left Travel - Page 1

<i>Lane Number</i>	<i>Counts</i>	<i>Counts</i>	<i>Counts</i>
48 to 47	171		
47 to 46	150		
46 to 45	171		
45 to 44	150		
44 to 43	171		
43 to 42	150		
42 to 41	171		
41 to 40	150		
40 to 39	171		
39 to 38	150		
38 to 37	171		
37 to 36	150		
36 to 35	171		
35 to 34	150		
34 to 33	171		
33 to 32	150		
32 to 31	171		
31 to 30	150		
30 to 29	171		
29 to 28	150		
28 to 27	171		
27 to 26	150		
26 to 25	171		

Right to Left Travel - Page 2

<i>Lane Number</i>	<i>Counts</i>	<i>Counts</i>	<i>Counts</i>
25 to 24	150		
24 to 23	171		
23 to 22	150		
22 to 21	171		
21 to 20	150		
20 to 19	171		
19 to 18	150		
18 to 17	171		
17 to 16	150		
16 to 15	171		
15 to 14	150		
14 to 13	171		
13 to 12	150		
12 to 11	171		
11 to 10	150		
10 to 9	171		
9 to 8	150		
8 to 7	171		
7 to 6	150		
6 to 5	171		
5 to 4	150		
4 to 3	171		
3 to 2	150		
2 to 1	171		

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DBA LaneWalker™ Factory-Set Conditioning Programs and Graphs

On the following pages you will find the factory-set conditioning programs for the LaneWalker Model “C”, along with graphs made from those programs.

Graphs have only been made for the “full run” patterns, for example those used following a complete lane cleaning. Programs used as a suggested fill-in pattern have not been graphed. Due to lineage variations from one center to the next, these programs will more than likely need to be modified by each center to satisfy their specific needs.

NOTE: These programs and the accompanying graphs are for **REFERENCE ONLY!** They are designed to be a starting point for your centers lane conditioning procedures. It is recommended that when selecting a conditioning pattern from these programs for the first time, you select one that is closest in distance to those already in use in your center. Any modifications needed can be made from that point on.

Graphs made from the same pattern may vary from one center to the next due to type of lane finish, type of conditioner, wick break-in, etc. Therefore, to duplicate a desired conditioning pattern from these programs, it is probable that some adjustments to wicking pad distances may have to be made to your LaneWalker.

For best results when conditioning lanes:

**CLEAN ENTIRE LANE DAILY
FILL LANEWALKER CONDITIONER TANK DAILY**

**TO ASSURE COMPLIANCE WITH ABC/WIBC OR FIQ RULES,
DBA PRODUCTS CO., INC. STRONGLY RECOMMENDS
THAT EACH BOWLING CENTER MAKE A GRAPH OF THEIR
CONDITIONING PATTERN WITH AN ABC/WIBC APPROVED
TAKE-UP DEVICE AND LANE READER.**

**DBA PRODUCTS CO., INC. ALSO MAKES NO IMPLICATION THAT
USE OF A SPECIFIC LANEWALKER PROGRAM WILL AUTOMATICALLY
PRODUCE A CONDITION IN COMPLIANCE WITH ABC/WIBC OR FIQ RULES.**