

# Genuine Brunswick Parts



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Note: To report catalog errors, please e-mail [aftermarketcatalogs@brunbowl.com](mailto:aftermarketcatalogs@brunbowl.com).

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Brunswick Warranty Support: performance you can count on for the long run.

Warranty coverage on all Brunswick products, equipment and supplies begins with the date of purchase. Warranty coverage period is 90 days on most materials, but be sure to check with your distributor for the exact warranty coverage period and restrictions. The option of repairing or replacing parts remains at the discretion of Brunswick warranty service personnel.



Brunswick Advanced Performance Parts are created using cutting-edge technology and innovative designs. The resulting premium products provide a series of Brunswick exclusives and breakthroughs that consistently outperform everything on the market today.



**A•2**

### Fiberglass Pit Board Assembly

**12-860620-003**

This heavy-duty, durable, lightweight fiberglass pit board not only outlasts wood pit boards, it also minimizes wear and tear on pit frame components. We've increased the density and thickness in high-impact areas. The lightweight yet tough design prevents unnecessary wear on bearings, pit mounts, rubber blocks and frames. It also reduces distracting noise and interference with efficient pin conveying. Its performance and durability is so good it's backed with a five-year warranty on the board only. Proprietors that use this pit board say it is the best in the industry.

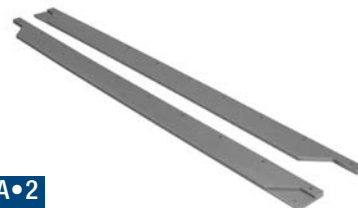


**A•2**

### Top-Notch Deck Bumper

**90-200114-600**

This patented product is designed to minimize deck jams. It's a great alternative to deck rollers. Unlike deck rollers, the Top-Notch Deck Bumper has no moving parts to wear out or cause performance issues. Constructed from a special urethane, the Top-Notch Deck Bumper will outlast standard designs. The strategic "notch" makes sure the scissors and other moving parts won't interfere with performance or action. The added width of the bumper also assures proper pin set in the chute and on the lane.



**A•2**

### FX Ball Lift Track

**90-520172-600**

Used on Frameworkor® ball lifts, this one piece, urethane foam ball lift track provides a perfect fit, durability, ball protection, and maximum oil resistance. Independent lab tests showed little wear after one million balls. What more could you ask for in durability and performance?



**A•2**

### Urethane Foam Ball Lift Track

**90-520171-600**

The material that works well as a lift rod cover also performs exceptional as a ball lift track — outlasting the standard OEM rubber and leather lift tracks. Won't absorb lane oils and swell like conventional lift tracks. Urethane grommets strengthen the mounting holes to prevent tearing.

*Note: Package of 2 each. For 2000 ball lift.*



**A•2**

### High Friction Poly "V" Power Lift Belt

**53-520235-600**

This power lift belt provides more power transmission to lift all types of bowling balls. The high friction "back-side" works efficiently with idler pulleys to provide consistent and reliable performance to minimize ball lift problems.



**A•2**

### Urethane Deck Chutes

12-200808-602 (#1 Pin)

12-200808-603 (#7 & #10 Pin)

12-200837-600 (#5 Pin)

12-200900-600 (Multi-pin)

Testing has shown that this deck chute has 50% less weight loss than other manufacturer chutes which means it will outlast all the rest. The only injection molded urethane chute on the market today also means that this deck chute has less porosity – the most common cause of cracking in other manufacturer, poured urethane chutes. The #1 pin and #7, 10 pin chutes now offer larger mounting holes for easier installation. This chute also exhibits the lowest coefficient of friction of any chute on the market and is backed by a 2-year warranty.



### Urethane Foam Ball Lift Tire

90-520060-600

Durable? After more than 1.5 million ball impacts, there is virtually no wear. Specially formulated foam material is manufactured to the proper density to optimize ball lift performance. This is especially important in today's "oily" environment. The tire is now designed with a smaller diameter for better performance. The tire is made with the same technology used to manufacture Reactive resin bowling balls.



**A•2**

### Modular Pin Wheel

12-860071-000

Since its introduction in 1993 the Brunswick Modular Pin Wheel has always delivered Advanced Performance! Now, new material and manufacturing process result in a segment with TWICE the impact resistance of the original material; (based on repetitive impacts to initiate cracking). Quality Assurance guaranteed. Now with an extended 2-year warranty!



**A•2**

### Urethane Foam Ball Lift Rod Cover

90-400048-600

So incredibly flexible and easy to install, you can even do it yourself. No help needed! This special formulated foam material wears 60% less than any other rod cover on the market — and will outlast gum rubber and urethane covers.

*Tip: Lift Rod Assembly – replacing lift rod covers can be an easy chore if you use the Brunswick air attachment (12-700268-000), hose clamp and talcum powder only. Never use liquids (dish soap, water, brake fluid) to install lift rod covers, The life of the lift rod cover will be reduced because rust will form on the lift rods and make it difficult to rotate the cover when it begins to wear.*



**A•2**

### Glow in the Dark Sweep Arm

90-252037-602 Gray

90-252037-224 Neon Banana

90-252037-225 Neon Strawberry

Add some excitement to standard pinsetters with these brightly colored rake sweep arms in Conventional Gray, Neon Banana (bright yellow) and Neon Strawberry (pink). They'll create quite an amazing effect in glow-in-the-dark environments.



### Urethane Transition Track

90-520075-600

Do bowling balls fail to roll out of the ball lift onto the ball rack? Worn rubber transition tracks may be the cause. These all urethane transition tracks just snap into place and will not absorb lane oils. Designed to be wear resistant to today's abrasive balls and will last 2 to 1 over OEM rubber track.





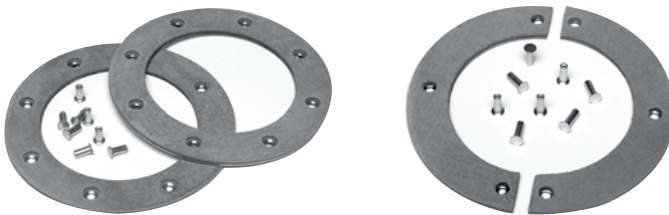
### FX Ball Return Storage Rack

*53-861111-604 (4-ball) 20 3/4" x 4 1/4" x 20 1/2"*

*53-861111-606 (6-ball) 25 3/4" x 3 1/2" x 17 1/2"*

*53-861111-608 (8-ball) 35 1/2" x 3 1/2" x 17 1/2" (not shown)*

How many times do your bowlers need more room for their bowling balls? This product is perfectly integrated to the best-selling Frameworkx® ball return, and other Frameworkx ball rack look-alikes. In 4-ball, 6-ball, or 8-ball additions. Made from rugged, all steel construction that won't damage balls. Available in Frameworkx gray or B2000 brown, and is especially easy to install.



### A•2

#### A•2 Pinsetter High Wear Clutch Facing

*12-862864-603 (Full Circle/AP Heavy Duty Clutch Facing for Clutch pulley)*

*12-862864-605 (Semi-circle/AP Heavy Duty Clutch Facing for Clutch disk)*

This 3-layer material has demonstrated 3 to 5 times the life of conventional liners and increases the life of your Gear Box clutch parts. The top layer: Kevlar space age material. The two under layers: designed to indicate if replacement is ever needed — before you ruin an expensive clutch drive disk. Made from the same material used for brake liners on UPS™ trucks, which obviously do a lot of starting and stopping. Won't create dust like the OEM liners, and the non-asbestos material is not hazardous to the environment.



**A•2**

**Ball Spinning/Ball Jam Eliminator Kit**

**12-860229-600**

Now available: two of Brunswick's most effective performance-enhancing products in one unique kit, to assure you maximum ball return performance. The spinning ball eliminator includes the new Advanced Performance foam urethane rod cover.

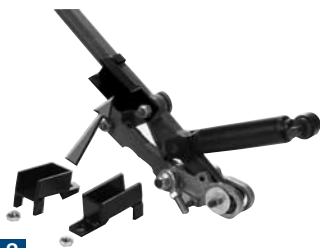


**A•2**

**Ball Accelerator Pan**

**12-502320-600**

Ever tried to retrieve a pin from under the subway ball return? Sometimes, no matter how well things are adjusted, a pin can be carried up the ball lift rods and center ball return by a bowling ball. This new pan includes a "trap door" to drop the pin — and save you lots of time and hassles.



**A•2**

**Pit Curtain Bracket Kit**

**12-860227-600**

This handy curtain bracket mounts to the cushion support arm, NOT the pit cushion. Easy to install, won't come loose and WON'T put unnecessary stress on the expensive pit cushion assembly.



**A•2**

**Turret Clamp Plates Kit**

**12-860228-600**

These plates make changing turret wires a snap. The unique design eliminates the need for a tool to hold the bottom nut. This kit contains one top and bottom plate — a significant savings over purchasing individually.



**A•2**

**Sand Cast Deck Hook Assembly**

**12-350802-600**

We have re-introduced this heavy duty, long lasting deck hook — weighing more than twice as much as the standard OEM die cast item. Hook only (12-350803-600) and Hub only (12-350804-600) are also available.



**GS**

### GS Series Overflow Pin Wiper Cloth

**47-860003-000**

Used on GS machines, series 406 and above, including GS-X™. This cloth fits the plastic overflow chute used on GS-X pinsetters to help keep your pins clean and your bowlers happy. Packaged 2 cloths per bag. Easy to install, long lasting and washable.



**GS**

### GS 13 mm Polycord

**47-092300-005**

Works better than the standard 12mm OEM belt: reducing distributor jams by 80%, minimizing the stops in the 4/7 and 10-pin areas of the distributor. Green polyurethane belt sold in convenient 20 meter lengths.



**GS**

### GS Heavy Duty Overflow Sock

**47-092529-600**

The GS Overflow Sock is now better than ever! We integrated new heavy-duty polyester fabric and added more stitching and a redesigned sock exit to improve performance and durability. The new fabric is designed to keep your pins clean and absorb excess oil. The added stitching also improved the sock life, durability and value. The greater angle of the sock exit also helps to retard pins as they fall through the chute saving wear and tear. This improved Overflow Sock is compatible with all series GS machines. Alternative socks are available - black (47-022531-000) and white (47-092529-000).



**GS**

### GS Sintered Iron Pinion Gear

**47-071449-604**

Used on all pre-Tower Down GS pinsetters. Heavy-duty Setting Table pinion gear replaces the OEM plastic gear for extended life and better performance.



**GS**

### GS Oversize Spotting Tong Damper

**47-051758-500 (Vinyl Black)**

**47-051758-600 (Urethane Clear)**

Used on all series GS machines, including GS-X. Worn spotting tongs can cause pinsetter malfunctions, but these oversize tongs provide extended life and eliminate pinsetter downtime caused by pins falling over. Order two different types — Advanced Performance vinyl or Advanced Performance urethane — for maximum life span. Ships in packages of ten.



# SAFETY PROCEDURES

## Safety Tips

Following a few basic safety procedures can help avoid injury to yourself and others who work on your pinsetters.



Wear the proper clothing when working on the pinsetter. Don't wear neckties or loose clothing that may get caught in the machine. Wear pants without cuffs to prevent tripping. Wear shoes with safety, non-slip soles.



Use the right tool for each job to prevent injury to yourself and to the machine. Remove all tools from the machine before turning it on.



Avoid the use of cleaners that are toxic.



To prevent slipping, immediately wipe up any oil or liquids that have spilled.



Store oily rags and any other combustibles in a fireproof container.



When the safety guards are removed from the pinsetter, be extra cautious while the machine is turned on. Replace the guards immediately when the work is complete.

## General Safety Regulations

- > As with all machinery, there is an element of risk working on the pinsetter if the rules of safety are disregarded. Common sense, a knowledge of the machine and a knowledge of basic safety procedures will prevent injury to personnel working on the machines.
- > Wear the proper clothing when working on the pinsetter. Do not wear neckties or loose clothing that may be caught by the machine. Wear trousers without cuffs to prevent tripping. Wear shoes with safety, non-slip soles.
- > Use the right tool for each job to prevent injury to yourself and the machine. Remove all tools from the machine before turning it on.
- > Avoid the use of cleaners which are toxic.
- > Immediately wipe up any oil or liquids that have spilled to prevent slipping.
- > Store oily rags and any other combustibles in a fireproof container.

## Pinsetter Safety Regulations

- > The mechanic must teach all personnel who will work on the pinsetter enough about the machine to prevent accidents through ignorance.
- > When safety guards are removed from the pinsetter, be extra cautious when the machine is turned on. Replace the guards immediately when work is completed.
- > Always open the pinsetter circuit breaker or disconnect the pinsetter power plug from the electrical box before working on the machine.
- > When the pinsetter shuts itself off electrically, be sure to open the circuit breaker or disconnect the pinsetter power plug from the electrical box before looking for, and clearing, the cause of the jam.
- > Always reach over or around the machine assemblies, never through or between the shafts, arms and levers.
- > Use the rods provided to securely lock the rake compression spring guide tube before assembling the rake or deck.
- > The desk man must never turn on a machine from the manager's control desk without first making sure that no one is working on the machine.
- > Position the rake in its down position when working on the front of the machine to prevent being hit by a bowling ball.
- > When more than one person is working on the machines, never turn on a machine without checking to see if everyone is clear of the machine.
- > Under no circumstances allow an unqualified person to work on the pinsetter.

## A•2 GEAR BOX ASSEMBLY



**Clutch Reset Lever Assembly  
(Model A•2)**

Avoid pinsetter recycling without full yoke design.

- High-strength part will not twist. Twisting can cause improper clutch actuation.
- To order individual parts:  
Bearing 11-434000-000,  
Stud 12-102443-000,  
Nut 11-176000-001,  
Washer 11-191532-000,  
Pin 12-100166-019,  
X-Washer 11-230000-001,  
Roller 12-100030-002,  
Keys Nut 11-176000-001,  
Rivet Pin 12-100493-002.



**Clutch Lever Assembly  
12-100486-000**

Avoid unnecessary recycles caused by assemblies with oilite bearings.

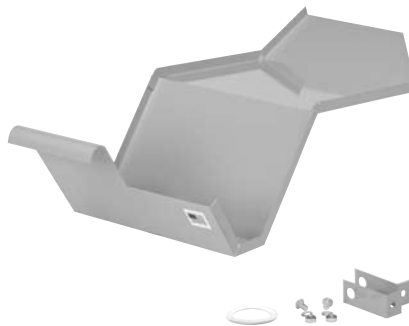
- Precision machined lever provides the press fit necessary to prevent shaft movement.
- To order individual parts:  
Bearing 11-435501-000,  
Pin 12-100487-000,  
Lock Nut 11-170004-001.



**Clutch Reset Lever Assembly  
(Model A)  
12-100176-002**

If you have a Model A pinsetter, don't settle for substitutes.

- This design prevents unnecessary pinsetter recycling.
- To order individual parts:  
Stud 11-436001-000,  
Bolt-on Stud 11-437000-000,  
Washer 12-100170-019,  
Lockwasher 11-195010-001,  
Hex Nut 11-125005-001,  
Spacer 12-100170-021,  
Spring Pin 12-100115-003,  
X-Washer Pin 12-100166-019,  
X-Washer 11-230000-001,  
Roller 12-100030-002.



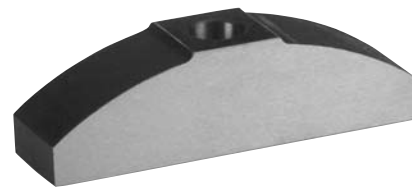
**Gear Box Oil Pan  
12-100316-000**

NOW LARGER! 3" wider and 4" longer.  
Also includes removable collection jar.



**Deck Hook Cam Lever  
12-100178-000**

- To order individual parts:  
Bearing 11-435001-000,  
Bearing Stud 12-100069-000.



**Clutch Shoes  
12-100146-000**

Our clutch shoes are precision machined original parts. Oversized shoes can be easily ruined by rivet contact on a worn out clutch drive disk facing.



**Clutch Lever  
Support Kit  
12-862138-000**

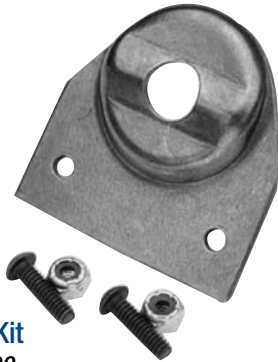
Eliminate unnecessary recycles caused when clutch does not disengage properly.

- Eliminates excessive clutch face wear by centering shoes in the clutch drive disc.
- Eliminates vibration that causes noise and wear of other parts: clutch yoke and clutch lever.
- Drastically reduces the number of clutch adjustments.
- Extends life of clutch shoes.
- Eliminates the need for oversized clutch shoes.
- Includes all parts necessary for easy installation.



## Clutch Yoke and Bearing Assembly 12-100370-000

Ensure positive 360° cycling. Comes complete with oilite bushings and specially grooved steel pins that won't come out and destroy clutch shoes



## Yoke Repair Kit 12-860672-000

Restore clutch adjustability and extend yoke life by installing our money-saving yoke repair kit.

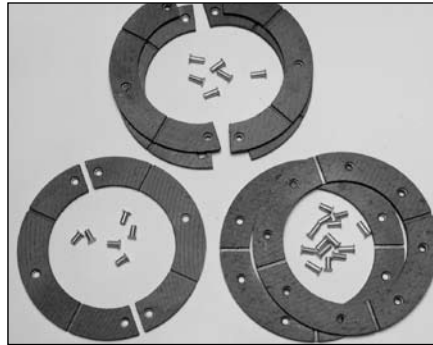
- Kit comes complete with fasteners and is quick and easy to install.



## Clutch Drive Disc Assembly 12-860613-000

Precision balanced clutch drive disc eliminates vibration, extending worm shaft spline life.

- Universal close tolerance spline fits Model A, A•2, and Japanese pinsetters.
- Maximum thickness at friction surfaces for long life.



## Clutch Facing Replacement Kits

**12-862864-004 (For clutch drive disc kit, series number 7,598 and below)**

**12-862864-005 (For clutch drive disc kit, series number 7,599 and up)**

**12-862864-003 (For clutch pulley kit, series number 24,001 and up)**

Brunswick's specially qualified clutch facings are custom formulated.

- Highest grade, non-asbestos friction material designed to resist wear and provide the longest life in the industry.
- Includes spec rivets.
- Use our exclusive clutch facing rivet set tool (12-700111-000) for convenience and perfect installation every time.
- 11-301002-001: Rivet, 3/16" - 1/2", for series number 7,599 and up.
- 11-301001-001: Rivet, 3/16" - 3/8", for series number 7,598 and below.



## Clutch Drive Disc 12-860626-000

Superior engineering guarantees the correct disc weight for the job.

- Made from strong chromium-hardened SAE III cast iron for long life.



## Worm Shaft Oil Leak Repair Kit 12-860603-000

Solve oil-leak nightmares. Oil in the pit gets on the pins, the balls, and eventually the bowlers...while a lack of oil on the shaft accelerates wear of gear box parts.

- Stop leaks by replacing old seals and shims whenever you remove the worm shaft or see any signs of oil.
- Our kit includes the shims you need to fit every machine, regardless of serial number.
- Comes with complete installation instructions.

*Note: This package is included with the worm shaft assembly 12-860172-000.*



## Gear Box Input Rebuild Kit 12-862861-000

Includes:

- (1) 12-860172-000 Worm Shaft Gear Assembly
- (1) 12-860626-000 Clutch Drive Disc
- (1) 12-860613-000 Clutch Drive Disc
- (1) 12-860717-000 Clutch Pulley Assembly
- (2) 12-100146-000 Clutch Shoe
- (1) 12-862913-000 Gear Box Input Hardware Kit

## A•2 GEAR BOX ASSEMBLY



### 60 to 1 Worm Shaft

**12-860171-000**

Don't be misled. Brunswick has the industry-standard worm shaft.

- State-of-the-art gear cutting, close tolerance grinding, and precision threading operations assure perfect match fit with clutch drive disc, worm gear, and other mating parts.
- Our spline design will always match with the clutch drive disc – beware, others may not.
- Splines are dry-film lubricated for corrosion resistance and shipped in special protective packaging guaranteeing undamaged receipt and long shelf-life.
- Includes our heavy-duty Flanged Nut 11-131516-000, Locknut 11-160005-001, and Tabbed Lock Washer 11-231005-001.
- To do your installation right, also purchase our Worm Shaft Oil Leak Repair Kit (12-860603-000).



### Complete Clutch Pulley and Bearing Assembly

**12-860171-000**

- No other design lasts longer.
- It's always interchangeable with your original equipment clutch pulley, unlike other manufacturer parts.
- Our bearing bushing is harder and more wear-resistant than bronze and is the thickest available.
- Bearing bushing is designed to ensure a minimum 1,000 lbs. of axial pulling force so it will not slip and cause premature bearing wear and disc chatter.
- Exclusive wave spring eliminates the possibility of the bearing coming loose.
- Non-asbestos, long-life facings.
- Replacement parts are available for rebuilding.
- Best performance, best value available anywhere!



### 60 to 1 Worm Shaft Assembly

**12-860172-000**

Top mechanics confirm this kit includes everything needed for a great worm shaft replacement job.

- Factory-assembled unit saves time and is a perfect fit.
- Comes with all bearings and hardware in place.
- One size does not fit all. Our assembly includes an oil seal kit (12-860603-000) for leak-free installation on all serial number machines.
- For the most thorough installation instructions, order the Brunswick Automatic Pinsetter Gear Box Disassembly Manual (12-900903-000).





### Bearing Assembly for Clutch Pulley 12-860716-000

The best direct replacement clutch bearing in the industry.

- Complete assembly fits Brunswick's clutch pulleys (12-860630-000 and 12-860717-000).



### A•2 Pinsetter High Wear Clutch Facing

12-862864-603 (Full Circle/AP Heavy Duty Clutch Facing for Clutch pulley)

12-862864-605 (Semi-circle/AP Heavy Duty Clutch Facing for Clutch disk)

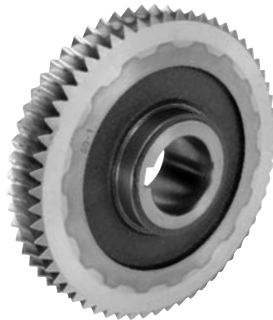
This 3-layer material has demonstrated 3 to 5 times the life of conventional liners and increases the life of your Gear Box clutch parts. The top layer: Kevlar space age material. The two under layers: designed to indicate if replacement is ever needed — before you ruin an expensive clutch drive disk. Made from the same material used for brake liners on UPS™ trucks, which obviously do a lot of starting and stopping. Won't create dust like the OEM liners, and the non-asbestos material is not hazardous to the environment.



### Heavy-Duty Worm Shaft Flanged Nut 11-131516-000

Protect your cone assembly (clutch drive disc) and keep your gear box clutch in adjustment.

- Solid one-piece nut and washer forged from high-strength alloy steel.
- Heat-treated for maximum toughness and torque.
- Radiused washer shoulder prevents breakage.



### 60 to 1 Worm Wheel 12-100174-002

Trust only a Brunswick original part to be the driving force of your pinsetter.

- Our worm wheel is constructed of tough chill-casted bronze alloy that provides exceptional durability and high-tensile strength for maximum output torque.
- A precise fit with your worm shaft is essential for optimum pinsetter performance.
- Genuine Brunswick worm wheels are guaranteed to be compatible with Brunswick worm shafts every time.
- Our worm wheel's teeth and keyway are precision machined to extremely close tolerances and checked for perfect match fit.
- For machines equipped with the 27:1 Worm Gears, order 12-100902-002.



### Rake Crank Housing Kit 12-860633-000

Eliminate oil leaks and improper rake action caused by a faulty rake crank housing.

- Our precision high-strength aluminum die casting has been engineered to meet the toughest strength and weight requirements.
- Now use less oil! High-quality design reduces oil requirements from 1 1/5 quarts in the original-style sandcast housings to just 24 ounces!
- Includes a support plate, bearing, retainers, spacers and shimming gaskets so you can properly align the housing with the worm gear, all necessary hardware, and complete installation instructions.
- Pin for Rake Crank Housing Kit 12-100169-008.



### Housing Shimming Gaskets 12-102166-002 (0.005" Shim) 12-102166-003 (0.010" Shim) 12-102166-004 (0.020" Shim)

Ensure proper alignment of your worm gear with the worm shaft. These gaskets prevent your worm gear from wearing out before its time.

- Eliminates leaks.



## A•2 GEAR BOX ASSEMBLY



### Worm Wheel Gauge Block

12-100512-000

Simplify worm wheel shimming.

- Use this tool to extend the life of your bronze gear and to assure proper alignment.
- Tool is made from precision-ground hardened steel.
- Conceived by a mechanic for easy adjustment.
- Use on all types of 4-1 housings.



### Cable and Tube Assembly

12-100281-000

Don't let a deck jam endanger your pinsetter because your cable and tube assembly is malfunctioning. Keep this machine-saving assembly in stock.



### Cover and Pin Assembly

12-860628-002

Don't risk cracking your 1:1 cover by buying weaker off-brand castings.

- Keep your deck, detector, and rake operating smoothly and leak-free.
- Tests have proven that our support webs and mounting feet are the strongest in the industry.
- We include everything you need for proper installation:  
Cover and Pin 12-100366-000\*,  
Oil Seal 12-100088-000,  
Bearing 11-430011-000,  
Paper Gasket 12-100339-000, Rubber  
O-ring 11-625530-000, Copper Mounting  
Gasket 12-100344-002.

\* Not sold separately.



### 1 to 1 Rebuild Kit

12-862859-000

Eliminate oil leaks and worn bearings in your 1 to 1 that can lead to erratic deck and rake movement.

- Rebuild it like the pros – top mechanics use these same parts.
- Includes all the hardware you need for rebuilding, repairing, and installing the 1 to 1 assembly on any Model A or A•2 pinsetter, regardless of machine serial number.
- We give you more than any other kit on the market.

*Note: This kit is included with the 1 to 1 assembly.*



### 1 to 1 Shaft

12-100130-000

- Our keyways are machined by Brunswick toolmakers to extremely close tolerances for sure fit and alignment of gears and all models of extended cycle and moving deck cams.



### 1 to 1 Spur Gear

12-100140-000

The original 1 to 1 spur gear...and still the best.



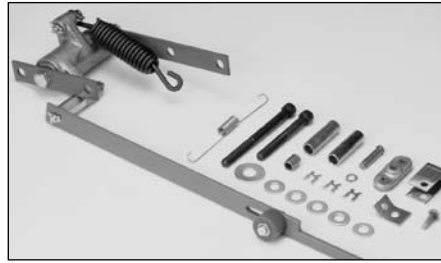
## Extended Cycle Cams

**12-100122-000 (All Models)**

**12-100123-000 (For series number 89,999 and below) with overtravel**

Some manufacturers make cams that break due to casting brittleness, but not Brunswick. Buy the toughest cam on the market!

- For over 35 years, our cams have been precisely machined from steel blanks heat-treated to Rockwell levels.
- Cam surfaces are tempered to provide long life and wear resistance.
- Cam angles are controlled to 1/4 of a degree so the pinsetter stops and starts properly.
- Keyway and hub dimensions assure proper fit with 1 to 1 shaft.



## Mechanical Deck Jam Protection Kit

**12-862122-000**

Avoid breaking expensive pinsetter parts by installing this machine-saving safety feature.

- Safety engineered by Brunswick to protect all Brunswick pinsetters.
- When a deck jam occurs, the machine shuts off instantaneously with no coasting of the gear box.
- Immediate disengagement of the clutch prevents pressure build-up and unnecessary wear.
- Reduces expensive downtime and maintenance by eliminating breakage of 1 to 1 cover plate, shaft, and spotting fingers.
- Use this kit when you have the new universal electric box with a relay (kit plus this box provides complete electro-mechanical protection).
- Includes complete installation instructions.
- If you have the electro-mechanical Turret & Deck Jam Protection Kit and need a new Relay, please order 11-672518-000.



## Moving Deck Cam Follower

**12-100313-000**

Why settle for a copy? Our original has been keeping top mechanics happy for over 40 years.



## Moving Deck and Scissors Cams

**12-102794-000 (For machines with Scotch yoke)**

**12-100828-002 (For machines with deck lowering link)**

Save installation time with our genuine Brunswick split-hub cam design.

- Our precisely machined cam surfaces guarantee proper pinsetting and respotting.
- Keyway and hub dimensions assure proper mating with the 1 to 1 shaft.

*Tip: The 12-100828-002 and 12-102794-000 moving deck cams are very similar – but be careful! Using the wrong cam can cause “wobbling pins”. Use 12-100828-002 if you have a deck lowering link. Use 12-102794-000 if you have a scotch yoke.*

## A•2 GEAR BOX ASSEMBLY



### 1 to 1 Mounting Plate

**12-100207-000**

Precision flatness is critical to optimum performance of this part.

- This is the original Brunswick 1 to 1 mounting plate...don't rely on a copy.
- Our toolmakers machine all holes to exact dimensions for perfect mating with the 1 to 1 cover and detector assembly shafts.



### Rake Lift Cam Conversion Kit

**12-860578-000**

Eliminate 90° overtravel on your Model A pinsetter. Upgrade to the A•2 style rake lift cam and improve your automatic scoring while speeding up bowling.

- Cam surfaces are precision machined to ensure proper lifting of the rake.
- Surfaces are hardened to ensure compatibility with cam follower and long part life.
- Comes with detailed installation instructions.
- Includes everything you need for a successful conversion...complete with rake cam, link, pin, and hardware.
- To order separate parts:  
Link only 12-102033-000  
Pin only 12-100166-005



### 4 to 1 Rake Crank Housing Assembly

**12-862863-003 (New for Model A•2)**

- Fully-assembled unit installs quickly to minimize downtime.
- Package comes with a factory-assembled rake crank housing assembly including the deck cable and tube assembly, support plate, crank shaft, worm wheel, and spur gear.

*Note: Please check for availability of rebuilt assemblies.*



### 1 to 1 Gear Box Cover Assembly

**12-860065-000 (New for Model A, A•2, or Jet Back with deck lowering link)**

Don't jeopardize the life of your Brunswick gear box and detector. Use only this genuine Brunswick 1 to 1 cover assembly... the standard of the industry for more than 35 years.

- This fully-assembled unit includes the 1 to 1 cover, 1 to 1 gear, 1 to 1 shaft, detector mounting plate, moving deck and scissor cam, extended cycle cams, detector drive gear, plus all the hardware you need.



## Deck Lowering Link Assembly

**12-100503-000**

Is it time to replace your old-style, forged deck lowering link?

- Used with 12-100220-000 bearing stud.
- Includes Bearing 11-481030-000, Bearing Block 12-100507-000, U-bolt 12-100506-000, and Ring 12-100504-000.



## Roller Bearing

**11-450101-000**

*(For machines with Scotch yoke)*

**11-481030-000**

*(For machines with deck lowering link)*

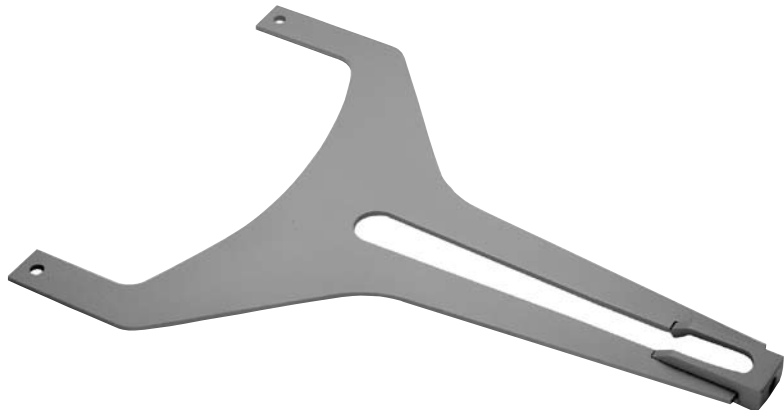
Don't let your bearing freeze up and scar your bearing stud. Keep it maintained properly. In cases where that's not possible, keep one of these on hand.



## Bearing Stud

**12-102754-000**

*(For machines with Scotch yoke)*



## Scotch Yoke Plate

**12-102816-000**

Don't entrust the life of your 300 lb. deck to other manufacturers' potentially weaker Scotch yoke plates.

- Many top mechanics believe the Scotch yoke system sets pins to the deck more smoothly than deck the lowering link.
- This plate is the heart of the Scotch yoke system.
- High-strength steel plate won't break or bend, guaranteeing sure and steady deck lifting and lowering.
- This genuine Brunswick plate is accurately machined to ensure smooth harmonic movement with your exclusive Brunswick T-track (12-102815-000).

- Upgrade kit for Scotch Yoke Bearing Stud 12-862073-000 includes one each of: Spacer 12-102753-000, Bearing Stud 12-102754-000, Bolt - Hex Head 11-001384-001, Screw - Flathead Hex Soc. 11-007384-001, Lockwasher 11-195016-001, Bearing-Cam Follower 11-450101-000, Countersunk Washer 10-193013-000, and Spacer 10-385529-000.



## Crank Pin

**12-100220-000**

*(For machines with deck lowering link)*

Don't jeopardize the integrity of your scotch yoke or lowering link because of an inferior bearing stud.

## A•2 DETECTOR ASSEMBLY



### Complete Detector Rod Assembly

**12-100261-000**

Is your detector having problems detecting strikes, standing pins, or out-of-range pins? Your detector rod could be defective or out of adjustment.

- A defective rod can cause binding and throw the rod out of time. You can replace only the rod (12-100017-000).
- Broken or missing pins will allow the rod to collapse too far, throwing the detector out of adjustment.
- Pins sold in convenient packages of 20 – bottom pin (11-360257-000) or the pins that straddle the stop bracket (11-360258-001).
- Worn or broken springs may make it difficult to get the rod in adjustment or to keep it there. To replace the spring, order 12-100167-000.
- Is poor adjustment causing the pinsetter to mis-detect strikes? The rod is too high, that's why the scissors close on phantom pins and new pins aren't set.
- Mis-detecting standing pins? The rod is too low, that's why the scissors don't close and the deck sets new pins.
- Mis-detecting out-of-range pins? The rod is too high if the pinsetter sweeps the out-of-range pins. The rod is low if the pinsetter stops at 90° without an out-of-range pin.

*Tip: Remember to check for worn deck pads before you start adjusting the detector.*



### Out-of-Range Reset Link

**12-100040-004**

Keep your detector in tune with the rake and other matching parts during an out-of-range. This ensures precision machine timing for smooth pinsetter operation and reduced part wear.



**Advanced  
Performance**

### Sand Cast Deck Hook Assembly

**12-350802-600**

We have re-introduced this heavy duty, long lasting deck hook — weighing more than twice as much as the standard OEM die cast item. Hook only (12-350803-600) and Hub only (12-350804-600) are also available.



### Deck Holding Hook

**12-350802-000 (Assembly)**

**12-350803-000 (Hook only)**

Having problems with your deck dropping on standing pins? Your deck lowering hook may be worn.

- The assembly includes Hook 12-350803-000, Deck Hook Hub 12-350804-000, Assembled Oilite Bearings 11-421107-000, and Locking Hardware Hex Head Cap Screw 11-001344-001, Washer 11-190014-001, and Nut 11-170110-001.





## **“D” Shaft Assembly** **12-100189-000**

Avoid the embarrassing problem of bowlers waiting for pins to set after a strike or the problem of pins crashing to the deck.

- Replace a bent “D” shaft (12-100188-000) that’s binding or causing interference with the strike mechanism.
- Assembly includes the following parts:

Qty.	Part No.	Part Name
1	12-100097-000	Moving deck/ scissors controller
1	12-100129-000	Scissor cam selector
1	12-100175-000	Moving deck/ scissors selector
1	12-100188-000	Shaft
1	12-100086-000	Spring
1	12-100077-000	Spring guide
1	11-436000-000	Stud bearing
1	11-360465-000	Spiral pin
1	11-360364-000	Spiral pin
1	11-360264-000	Spiral pin
2	11-345304-000	Spiral pin



## **Moving Deck/Scissors Selector** **12-100175-000**

We’ve answered mechanics’ requests. Here’s a money-saving repair for the strike mechanism.

- Does not come pre-drilled. Each detector has unique tolerances. The position of the mounting hole must be fine tuned for your detector.
- We understand that drilling the hole can be difficult. For best results, we recommend that you remove the assembly and take it to your local machine shop.
- Manganese-bronze part is easy to drill.
- Machined to critical tolerances for proper match fit with mating parts.
- If you prefer not to drill the hole, we also offer a complete “D” shaft assembly (12-100189-000).



## **Deck Holding Hook Control Links** **12-100057-000 (Lower link)** **12-100054-000 (Upper link)** **12-100087-000 (Lower spring)** **12-100089-000 (Upper spring)**

Ensure that your deck holding hook is controlled properly. Replace worn links and springs.

## **Moving Deck/ Scissors Latch (Flag)** **12-100238-051**

Don’t let a worn blocking surface cause frustrating pinsetter problems, such as sweeping standing pins after the first ball.

- Includes replaceable bearing (11-420018-000).



## **Hook Selector** **12-100410-000**

Heavy-duty hook selector

- Easy-to-replace linkage pins.
- Durable, long-lasting cam follower bearing.
- Includes replaceable bearing (11-436000-000).



## **Out-of-Range Stop Link** **12-100337-000**

Don’t allow a bent link to interfere with proper out-of-range detection.

- A bent or improperly aligned link could cause your gear box clutch to disengage at the wrong time.
- Link is flat and straight to prevent binding and interference with nearby parts.
- Holes and slots are positioned and dimensioned so the link will actuate properly.
- Spring hook is securely riveted to prevent it from coming off.

## A•2 TURRET ASSEMBLY



### Center Chute Assembly

12-150108-000

Is your old center chute damaging pins? Has the constant impact of pins worn it out? Maybe it's time for a new one.

- Made of high-strength carbon steel with a continuous weld for durability and long life.
- Entire surface is free of imperfections that could damage or wear bowling pins.

- Properly contoured and fully dimensioned so pin can slide without resistance.
- Interlock probe brackets are perfectly positioned and continuously welded to chute surface.
- Thickest mounting plate on the market is continuously welded to eliminate breakage.
- Flanged mounting holes are properly dimensioned to ensure easy installation.

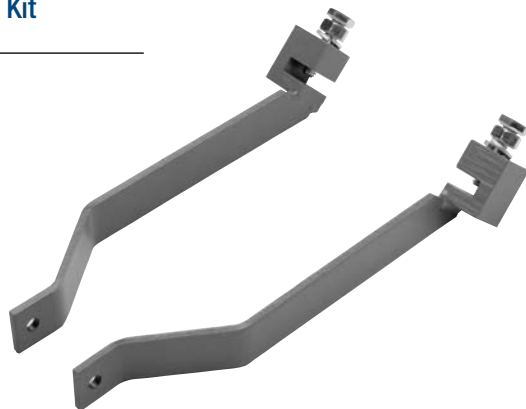
### Interlock Probe Bracket Repair Kit

12-860119-000

Rewelding broken interlock probe brackets may jeopardize their strength and positioning.

- Use this quick, easy, and economical repair kit instead.
- Simply remove the broken bracket(s), install replacement bracket on probe, then connect to seam of center chute.

Note: Face the 5 pin chute to the machine front for easiest installation.



### Center Chute Repair Plate

12-150109-000

Don't make the bowler wait for pins. Eliminate 180° stops that happen when your mounting plate is broken or loose.

- Made of thick 11-gauge, high-strength steel.
- As thick and strong as any flange on the market, and even thicker than the original design.
- To replace this flange, have the broken flange cut off and the new one continuously welded on in the same place by a professional welder.
- Tacking the new plate onto the broken one is another way to repair it. We do not recommend this method to the inexperienced technician. Improper alignment of the mounting holes will make it difficult to mount the plate to the turret ring and cause the plate to break before its time.

*Tip: Keep hardware tight to avoid having to repair this part.*

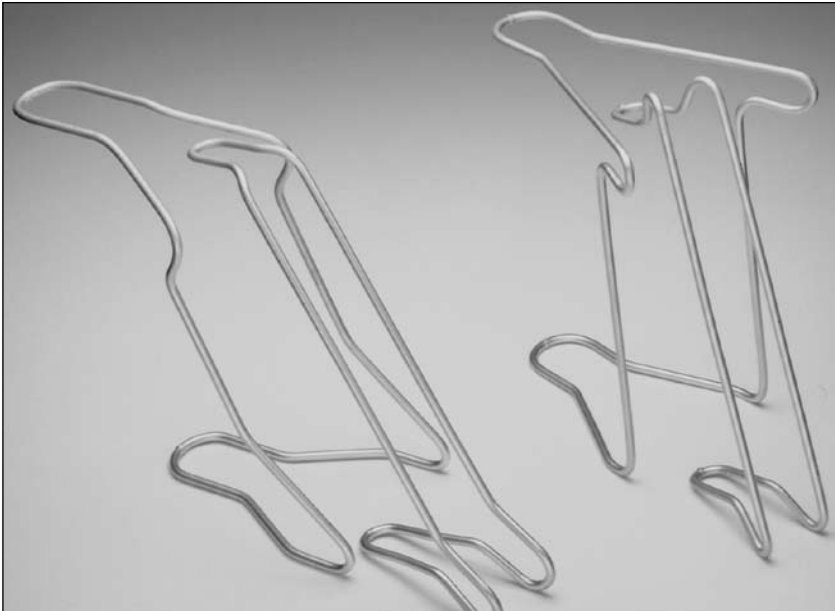


### Interlock Probe Assembly

12-150086-000

Prevent deck jams and 180° stops by making sure your interlock probe is in top working order.

- Bearings are press-fit and sized so the pivot shaft moves smoothly with no binding
- Factory assembled for easy installation.
- To order individual parts:
  - Top Bearing (2 required) 11-421026-000,
  - Lower Bearing 11-420046-000.



### Pin Guide Wires

12-150294-000

*(Inside wires for #2, 3, 4, 6, 8, 9)*

12-150295-000

*(Inside wires for #1, 7, 10)*

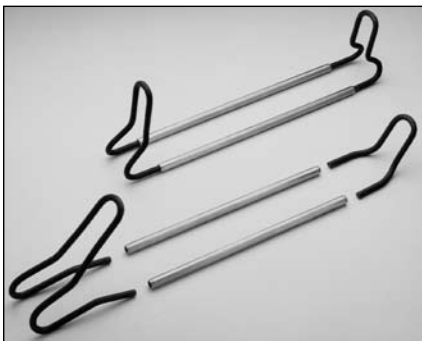
12-150296-000

*(Outside wires for #1, 7, 10)*

12-150297-000

*(Outside wires for #2, 3, 4, 6, 8, 9)*

Protect your bowling pin investment from weak, imperfect guide wires.



### Pin Guide Wires

12-862116-000 *(For #2, 3, 4, 6, 8, 9)*

12-862113-000 *(For #1, 7, 10)*

You may prefer the stronger, four-piece inner guide wires that are repairable.

- Factory-assembled guide wires made from upper and lower wire forms and a strong center rod.
- Upper and lower wire forms are made from high-strength spring steel wire with a phosphate-and-oil finish for protection and long wear life.



### Pin Guide Wire Pad and Cushion

90-150182-000

Are the heads of your pins being scuffed or cut by turret wires?

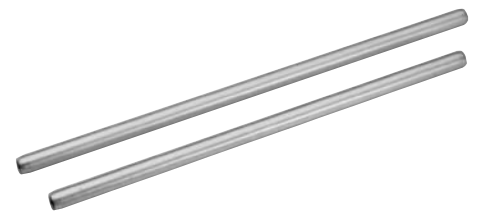
- This unique Brunswick part protects your large pin investment by preventing pin head damage.
- Provides a cushion for pin heads to hit and rest against.
- Can be used on all turret wire positions.



### Pin Guide Wire Cushion Only

12-150182-000

Original cushion.



### Inside Wire Assembly Repair Rod

12-150324-000 *(For #2, 3, 4, 6, 8, 9)*

12-150309-000 *(For #1, 7, 10)*

The most economical fix for a broken inside pin guide wire.

## A•2 TURRET ASSEMBLY



### Turret Index Pulley Assembly 12-150290-000

Ensure that your turret indexes to the correct position and prevent 180° stops and turret jams.

- Must be used with split style drive pulley, 12-150306-000.

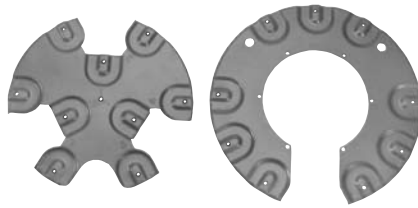


### Turret Release Lever Assembly 12-150214-000

- Bearings (11-421008-000) are press-fit and sized to prevent interference between the spoons and the pins.

### Turret Clamp Plates Kit 12-860228-600

These plates make changing turret wires a snap. The unique design eliminates the need for a tool to hold the bottom nut. This kit contains one each top and bottom plate, a significant saving over purchasing individually.

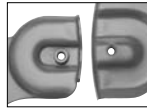


Kit includes  
one lower &  
one upper



### Turret Clamp Plates 12-150106-000 (Lower) 12-150107-000 (Upper)

Use only one tool! When changing turret wires, the Turret Clamp Plates eliminate the need to hold the bottom nut with a tool. These clamp plates make changing your turret wires a snap. Instead of a through hole, the plates include a stationary cinch nut so the bottom nut is not necessary.



### Bumper 12-150265-000

Be sure to replace the bumper when worn, to prevent turret alignment issues.



### Pin Release Lever Assembly 12-150049-000

Guarantee that pins drop to the deck when the 5-pin goes through the chute.

- Bearings are press-fit into the release lever and sized for proper part pivoting.
- Factory assembly makes it easy to install.
- To order individual parts:  
Upper Bearing (2 required)  
11-421004-000,  
Lower Bearing 11-421045-000.



### Trip Lever 12-150079-000

Is your turret failing to index after the five-pin? A new trip lever may do the trick.

- Hardened to reduce wear and provide long life.



### Turret Spoon 12-150283-000 (Long) 12-150284-000 (Short)

Millions of pin impacts can bend your spoons out of shape. Replace with this fully dimensional and contoured design that cradles pins and smoothly drops from the turret to the deck.



### Turret Ring 12-150040-000

Eliminate jerky turret indexing caused by wear from improper lubrication.

- Constructed from high-strength turned steel for durability.
- Ball bearing contact surface is machined to tight tolerances for a precision fit.
- Contact surface is also case hardened for wear resistance.
- Holes precisely positioned and drilled to ensure perfect alignment with the turret basket.
- Inside surface buffed to prevent wear on pins.
- Concentric surfaces provide smooth turret indexing.
- Why take a chance on other manufacturers part that may not mate properly with your bearing seals and spider rings?



### Turret Ring Ball Bearings 11-575093-000

Replace worn bearings to prevent excessive and costly turret ring damage.

- Proper material and sizing is critical to prevent excessive wear on the turret ring and jerky turret movement.
- Carbonized steel bearings are precisely dimensioned and filed hard to resist wear.
- Package includes 10 bearings. 149 are needed for a complete turret.



### Turret Ring and Bearing Jig 12-150326-000

Every bowling center should have one of these handy tools!

- This helpful jig provides a safe and convenient way to repair your turret ring and bearing assembly.
- The jig allows you to disassemble and reassemble the part by collecting the bearings and properly positioning the rings.
- Its rugged aluminum casting won't deform like a plastic one.



### Turret Ring and Bearing Assembly 12-862874-000

Fix your turret ring problems efficiently and economically with this complete assembly.

- Use your valuable time effectively by replacing the entire turret ring and bearing assembly.
- Study the problem unit on your bench and replace only the damaged parts.
- The repaired unit keeps matched parts together and can become the spare for the next repair job.
- This high-quality assembly is made from strong, durable Brunswick parts.
- All parts are precision machined for perfect mating and smooth turret indexing.
- Factory assembled and lubricated, it's ready to be installed.
- Shipped in protective packaging with corrosion inhibitors to ensure long shelf-life.

*Note: The newer Turret Rings have a larger 1/4-20 threaded hole for the 5 pin chute. The old rings had a 10-28 thread.*



## A•2 TURRET ASSEMBLY



### Turret Delay Gear Assembly

**12-150138-000**

Correct multiple indexing caused by broken or worn gear teeth or a worn blocking surface.

- Oilite bearings are sized for snug fit with stud (12-150254-000).
- Black oxide coating resists corrosion.
- Teeth hardened and tempered for long life and wear resistance.
- Replacement bearing 11-421035-000 (2 required).

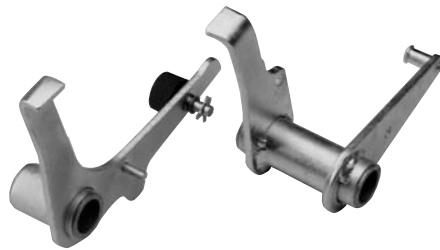


### Torsion Latch Assembly

**12-150011-000**

Here's a part that will take a beating and keep your turret indexing only when it's supposed to.

- Replacement bearing 11-421065-000 (2 required).



### Latch Assemblies

**12-150200-000 (Right Hand)**

**12-150176-000 (Left Hand)**

Make sure the pins are dropping smoothly when the deck is empty and up.

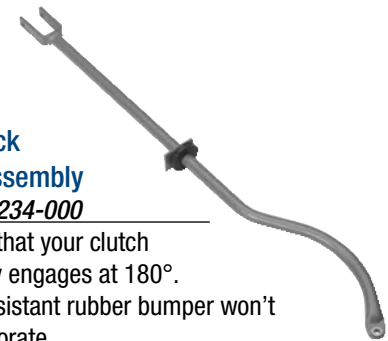
- Precisely dimensioned to prevent interference with the pins.
- Blocking surface is fully hardened to resist wear.
- Oilite bearings are sized to properly fit on mounting shaft, providing the latch with full up and down motion.
- Right-hand latch includes an assembled spring wheel (12-150130-006) and a rubber bumper (12-150142-002).
- The rubber bumper is made to specific hardness absorbing shock effectively as latch pivots. It's oil resistant for long life.



### Blocking Finger Tension Spring

**12-150213-000**

Stop annoying turret jams and pin damage caused by pins not falling from the turret properly.



### Interlock Link Assembly

**12-150234-000**

Ensure that your clutch properly engages at 180°.

- Oil-resistant rubber bumper won't deteriorate.
- Factory-assembled with bearings in place.
- To order replacement parts: Bearing 11-421061-000, Bumper 12-150142-003.



### Short Turret Link

**12-150289-000**

Insist on a solid, non-adjustable link for optimum performance in this critical chain of turret parts.

- Think about this – if your short link doesn't fit properly, that may mean something else is out of adjustment, like your bellcrank.
- The ends are coined to assure proper alignment and correct assembly.
- Use X-washers and X-washer pins for stable connection.



### Turret Stop Lever

**12-150231-000**

Control the stopping and starting of the turret with the best turret stop lever on the market.

- This high-strength non-malleable iron casting controls your turret indexing action.
- Precision dimensioned and machined for mating with the turret indexing roller and the stop roller.
- Free from burrs and defects that could interfere with the performance of other turret indexing parts.



### Turret Indexing Bellcrank Assembly

**12-150051-000**

A poorly maintained bellcrank can cause major turret indexing problems.

- Eliminate worn holes by replacing your old assembly with a new high-strength malleable iron casting.
- Comes fully assembled with bearings (11-421048-000).
- Includes an oil hole for convenient lubrication of the bearings and bellcrank shoulder screw (12-150252-000). Without proper lubrication, the bellcrank would loosen the screw while rotating and cause slop.

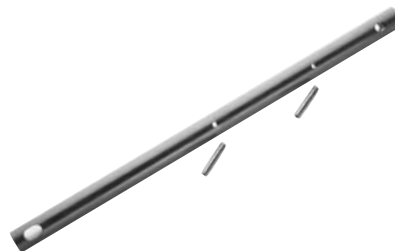


### Turret Index Latch Assembly

**12-150235-000**

Eliminate multiple indexing caused by worn indexing faces on your latch.

- High-strength ductile iron casting is hardened and tempered for wear resistance and increased life.
- Fully-assembled bearing is fit and sized so the latch will pivot freely.



### Trip Lever Shaft

**12-150069-000**

Extend the life of a worn turret frame.

- Longer shaft extends into unworn area of turret frame casting.
- Helps eliminate “failure to index” caused by sloppy trip levers.



### Trip Lever Assembly

**12-150064-000**

- High-strength ductile iron is cast to control the part contours so it won't interfere with other moving parts that cause jams in the turret or cross-conveyor.
- Protective finish is free from defects that could abrade or wear a bowling pin.
- Factory-assembled bearings are sized for solid mounting on the shaft, eliminating vibration that can shorten the life of the part.



### Stop Roller and Bushing Assembly

**90-150303-000**

Tests have proven that this Delrin® roller will last longer than nylon or plastic rollers.

- Abrasion-resistant surface ensures long roller life.
- Durable, Teflon®-impregnated roller smoothly follows the contours of the turret index cam without wearing cam surface.
- One-piece design ensures bind-free rolling.
- Requires no lubrication for smooth turret indexing.
- Grease-resistant material stands up to dirty turret environment.

## A•2 TURRET ASSEMBLY



### Friction Disk Assembly

**12-860804-000**

These customized clutch facings can help eliminate multiple indexing and failure to index problems.

- Premium, white high-density polyethylene (HDPE) clutch facings are specially formulated to maximize drive and minimize wear.
- Need facings only? Order 12-860805-000 for the premium faces. This package includes three facings and six rivets. Order 12-150305-000 for the standard faces, as needed. Order three each 12-150305-000 to repair a complete disc.
- Rivets only – order 11-301001-001 (package of 10).



### Turret Clutch Drive Pulleys (Top)

**12-150219-000** (*Offset style for cast turret indexing cam*)

**12-150306-000** (*Split style for stamped turret indexing cam*)

- Pulley model 12-150306-000 is a split pulley. You must order two of the 12-150306-000 part plus a spacer (12-150307-000).

*Tip: When installing solid offset model, place the offset in the down position so the belt is raised and level with the turret indexing cam and it will drive properly.*



### Turret Clutch Assembly

**12-150198-000**

A good replacement part to keep as a spare.

- Assembled and ready to install.
- Use on serial number 12,644 and down.



### Turret Clutch Drive Pulley (Top)

**12-150220-000**

Choose the strongest, most robust pulley available – and know that your turret will index when it's supposed to.



### Sleeve and Plate Assembly

**12-150258-000**

Why rely on a copy that may not be perfectly flat?

- High-grade, steel-alloy plate is pressed and formed to precision flatness. This is critical for smooth sliding and proper indexing.

# DECK CHUTES

We know the critical surface characteristics of the pins that slide through the chutes, and we know exactly how to design chutes to provide you with the ultimate in trouble free performance, lower maintenance costs, and durability.

Brunswick's chute designs feature untrimmed skirts. Trimming jeopardizes strength and support and puts more stress on the mounting flange leading to cracks and tears. Brunswick chutes are also easier to clean than textured chutes. And Brunswick chutes are properly contoured, for smooth and quiet performance. Other new innovations, such as multi-positional chutes, allow you to reduce inventory. Six equally spaced mounting holes allow for positioning the 2,3,4,6,8,9 spots. The #1 pin and #7, 10 pin deck chutes now offer larger mounting holes for easier installation. And the introduction of our new Urethane Deck Chute offers even greater durability and performance than ever before.



## Urethane Deck Chutes

*12-200808-602 (#1 Pin)*

*12-200808-603 (#7 & #10 Pin)*

*12-200837-600 (#5 Pin)*

*12-200900-600 (Multi-pin)*

Finally, a premium urethane deck chute worthy of the Brunswick name. Testing has shown that this deck chute has 50% less weight loss than other manufacturer chutes which means it'll outlast all the rest. The only injection molded urethane chute on the market today also means that this deck chute has less porosity – the most common cause of cracking in other manufacturer, poured urethane chutes. This chute also exhibits the lowest coefficient of friction of any chute on the market and is backed by our new 2-year warranty.



## Rubber Deck Chutes

*12-200808-002 (#1)*

*12-200837-000 (#5)*

*12-200808-003 (#7,10)*

*12-200900-000 (#2,3,4,6,8,9)*

These anti-stick rubber deck chutes offer you the best balance of performance and value available today. Manufactured by a state-of-the-art special Brunswick molding process, these chutes feature a special rubber formula developed by Goodyear Tire and Rubber Company. This top-grade formula ensures a better coefficient of friction for stick-free sliding. Our rubber molded chutes go through a chlorinating process that lowers the coefficient of friction to provide minimum pin resistance and virtually eliminate deck jams.



## Polypropylene Deck Chutes

*12-200864-002 (#1)*

*12-200895-000 (#5)*

*12-200864-003 (#7,10)*

*12-200894-000 (#2,3,4,6,8,9)*

Your best value in deck chutes, these economical deck chutes were designed for tight budgets. Strong, durable and impact resistant polypropylene provides you with the best low-cost alternative to other chutes. And best of all our polypropylene deck chutes offer a good coefficient of friction without requiring the use of lubricants.

## A•2 DECK ASSEMBLY



### Nylon Spotting Fingers

**90-200892-000 (R.H.)**

**90-200893-000 (L.H.)**

**12-860771-000 (R.H. and L.H. package)**

Here's what you've been asking for – an easy-to-install spotting finger. No more fussing with hex key wrenches.

- Eliminates the need for wrenches to hold the mounting screw.
- Molded hex socket head holds the screw in place for you.
- The material is non-marking, and it won't damage pins.
- Unlike flexible urethane alternatives, this finger will spot pins accurately every time.
- Steel insert securely reinforces the mounting.
- Our special package comes complete with both the right-hand and left-hand fingers and the proper hex head hardware. (11-001186-001 Hex Head Bolt, 2 each) (11-001198-001 Hex Head Cap Screw, 2 each)



### Aluminum Spotting Fingers

**12-200892-000 (R.H.)**

**12-200893-000 (L.H.)**

Our tried-and-true aluminum spotting fingers are anodized to provide the best in strength and durability.



### Urethane Deck Pad

**12-860571-000**

**(Bolt-on Pinfinder pkg. of 10)**

**12-860570-000**

**(Glue-on Non-Pinfinder pkg. of 10)**

- Hard deck pads can damage pins and bend decks. Why take a chance? Protect the investment of your moving deck and bowling pins. Choose our soft, open-cell foam urethane pad that cushions your pins.
- Some top mechanics recommend replacing all 10 pads at the same time to assure proper strike/standing pin detection.



### Geneva Cam Plate

**12-200035-000 (L.H. Plate)**

**12-200036-000 (R.H. Plate)**

Having difficulty adjusting your moving deck cable to correct pin wobble? Maybe your cam slots are worn.



### Deck Right Kit

**12-862858-000**

Experiencing a deck that shifts sluggishly? It may be warped or bent. Get it straightened out with this kit for a smooth operating deck.

- Turnbuckle-style tensioned for a wide range of adjustment.



### Drilling Template

**12-200178-000**

Save time and money.

- Have old decks that need to be drilled? This easy-to-use template will help you drill more accurately so you can install deck pads.



### Deck Shield

**12-862037-002**

**(Gray shield without Brunswick decal)**

**12-862037-010**

**(Brown shield with Brunswick decal)**

Is it time to replace your original Brunswick deck shield? Use this improved Brunswick replacement deck shield.





## Scissor Arms

12-200018-000 (Short with Gripper pad)

12-200016-000 (Long with Gripper pad)

12-200019-092 (Short w/o Gripper pad)

12-200017-092 (Long w/o Gripper pad)

12-200016-091 (Complete assembly with Gripper pads)

Brunswick continues to offer you many alternatives.

- Stainless steel arms have controlled flatness to prevent dragging or binding when operating.
- Factory-assembled unit includes long and short arms, pads, and all hardware. These parts are assembled to controlled tolerances for accurate respotting of pins. Assembly works perfectly on the spot.



## Gripper Pad

12-200120-004 (Neoprene Rubber)

If bowling pins aren't respotting in the exact position, try new gripper pads.

- Oil-resistant neoprene rubber pad slips onto scissor arm and stays there.



## Cross Biased Gripper Pad

90-200120-000

For the most exact pin placement, try our cross biased urethane scissor pads.



## Rubber Deck Roller Assembly

12-200114-000

## Rubber Deck Roller Only

12-200115-000

You asked for it...the original is here.

- Oilite Bearing 11-423000-000



## Deck Roller and Bearing Assembly

90-200114-000

Are split rollers setting wobbly pins or causing deck jams? Buy our top-of-the-line deck roller.

- Durable urethane roller exhibits excellent rebound characteristics, so bowling pins don't bounce off and cause deck or turret jams.



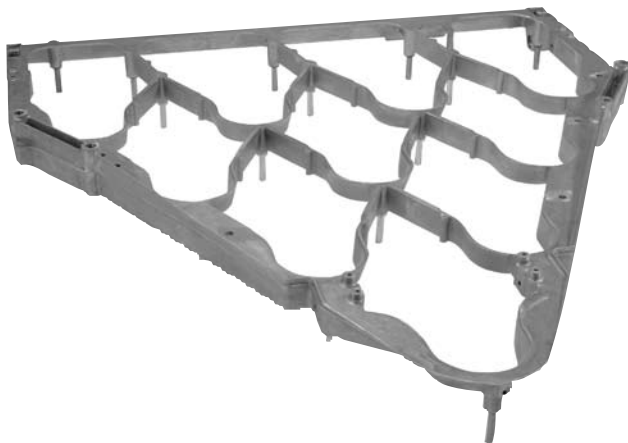
## Top-Notch Deck Bumper

90-200114-600



This patented product is designed to minimize deck jams. It's a great alternative to deck rollers. Unlike deck rollers the Top-Notch Deck Bumper has no moving parts to wear out or cause performance issues. Constructed from a special urethane, the Top-Notch Deck Bumper will outlast standard designs. The strategic "notch" makes sure the scissors and other moving parts won't interfere with performance or action. The added width of the bumper also assures proper pin set in the chute and on the lane.

## A•2 DECK ASSEMBLY



### Main Deck

**12-200800-020**

Give your deck assembly the support and strength it needs to operate day in and day out; make sure it has a Brunswick main deck as the backbone.

- Solid, strong, die-cast aluminum deck is a top performer every day.
- Die casting is lighter and stronger than sand casting; Brunswick engineers have designed it that way. It's lighter to limit wear on deck lifting mechanisms, and it's stronger because it's been reinforced in critical areas.
- This premium deck comes complete with all mounting studs.

### Cosmic Bowling® Decals for Rake Board and Deck Shield

**2H9003-00-41 (Deck Shield)**

**2H9003-00-40 (Rake Board)**

Spruce up your glow-in-the-dark bowling with these bright UV decals for your pinsetter or pinspotter.

- Self-adhesive decals for easy application.



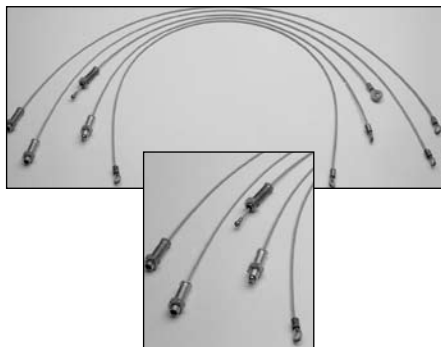
### Deck Lift Stabilizer Assembly

**12-350217-000**

Improved design offers unsurpassed strength and deck control.

- Controlled-position bearings provide maximum stability by eliminating the potential for deck swaying which could happen with the original self-aligning bearings.
- Strong steel stabilizer plates include heavy-duty locknuts for secure connection.
- We still offer all the replacement parts for the original style stabilizers:

PART NO.	PART NAME
12-350122-002	Deck stabilizer rod Rod ends (jam and nut)
12-350122-004	L.H. thread
12-350122-003	R.H. thread
10-427001-000	Bearing 63/64 x 31/64



### Deck Cable Assemblies

**12-200066-002 (Upper scissoring cable)**

**12-200066-003 (Upper deck cable)**

**12-200067-000 (Lower scissoring cable)**

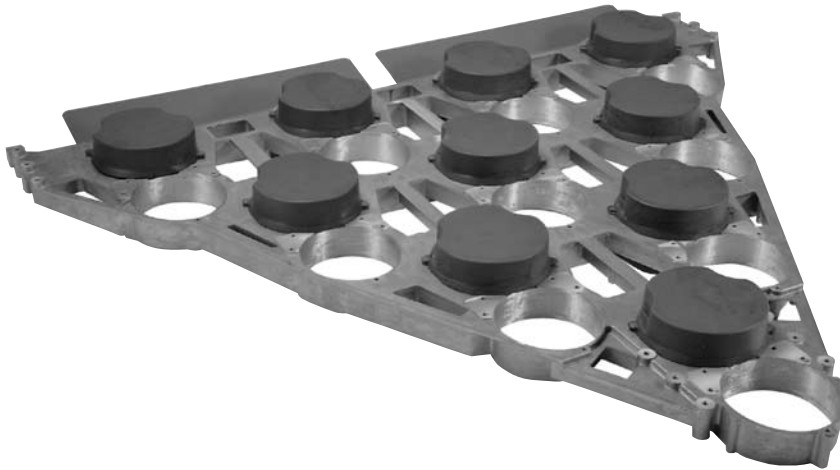
**12-200066-004 (Lower deck cable)**

**12-100280-000**

**(Moving deck cable assembly)**

Buy the most flexible and strongest cables.

- Our 7x19 (133-strand) aircraft cable is more flexible than 49-strand cable to prevent kinking and fraying as the cable moves around pulleys. Flexible wire won't cut fingers either.
- Factory-assembled end fittings are designed to withstand 2,000 pounds of force.



## Moving Deck 12-862117-000

- Brunswick engineers enhanced our deck design for die casting by reinforcing the high stress areas for optimum strength.
- Die casting provides a part that's more consistently machined. This guarantees precision positioning of deck pads, deck chutes, spotting fingers, and other mating parts.



## Deck Lift Shaft 12-862581-000

You couldn't be sure you were getting a trouble-free shaft until Brunswick engineers developed this premium shaft design.

- All shafts are thoroughly inspected for material defects. You can't afford to have a shaft twist or break.
- Our all-steel deck lift shaft is produced on a controlled and exact welding fixture to ensure precision positioning of all components.

- Fully-assembled shaft guarantees proper positioning to all mating parts making it that much easier to install. Be confident knowing that our shaft will fit properly.
- We've answered your requests. Now, our shaft comes complete with the following: Retaining Ring 11-533512-000, Washer 12-100170-017 and Shaft for serial #71489 and up 12-350166-000.
- To order individual parts: Main Pivot Bearing 11-490001-000, Lift Stud Bearing 11-461000-000.



## Deck Post Pin

12-200129-000 (Long, L.H. only)

12-200128-000 (Short, R.H. and L.H.)

Ensure stable and secure deck movement with this sturdy deck post pin.



## Deck Post and Hardware Assembly

12-200135-000 (L.H.)

12-200134-000 (R.H.)

This convenient assembly includes everything you need for a quick and easy replacement.

- Includes the following hardware:

PART NO.	PART NAME
12-350128-000	Washer
11-001344-001	Hex head bolt
11-195016-001	Lockwasher
11-002389-000	Hex head cap screw

## A•2 PIT CUSHION ASSEMBLY



### Pit Cushion

12-862578-000

This heavy, durable cushion is custom engineered to take the constant abuse of speeding ball and pin impacts.

- Includes our premium urethane cushion facing to protect the rubber from damage.
- This cushion is for A•2 and Jet Back models.

*Tip: When cleaning your urethane facing, do not use a solvent-based cleaner. Clean only with a mild detergent and water to protect the non-marking characteristics of the facing.*



### Strap-On Pit Cushion Facing

12-252310-000

(For Model A•2 and Jet Back)

12-250286-000 (For Model A)

This economical facing alternative will help protect pit cushion, pins, and bowling balls.

- Includes foam pad to absorb bowling ball shock.
- Recommendation – For best results use a new urethane facing and a strap-on facing to eliminate ball damage.



### Urethane Pit Cushion Facing

12-252308-000

(For Model A•2 and Jet Back)

11-603114-000

*Tie wraps only - 12 per pkg.*

This dependable premium urethane cushion facing offers you durability and years of protection for your pit cushion.

- Easy-to-install, pre-formed urethane facing leaves none of the cushion rubber exposed and guards it from impact damage.
- Non-marking to pins and the various bowling ball materials used today.
- Tie-wraps secure facing in place to prevent rotating during ball impact.



### Cushion Mount and Bearing Assembly

12-862839-000

Count on Brunswick to design a part you won't have to replace frequently.

- Wear surfaces are hardened to maximize life.
- Assembly includes a special replaceable, grooved bearing (10-424001-000) to extend the life of the cushion mount.



### Rod End Conversion Kit

12-862015-000

Eliminate binding that causes recycling problems.

- Convert old "fixed-position" rod ends to "uniball" rod ends by using this kit.
- Uniball rod ends are self-aligning to increase flexibility and reduce the chance of recycling and cushion binding.
- Includes instructions and parts for one complete cushion, rod end, spacer, washer, hex nut, hex head bolt, and follower link.



### Cushion Link

12-252069-000

- Inside holes are precision machined and finished for bind-free pivoting.
- Uses bushing (2 required) 12-252350-000.



### Patch Kit

12-250281-000

Don't let holes in the rubber of an old pit cushion lead to early wear of a new cushion facing. Patch the holes first.

- Give new life to your old, worn pit cushion with this easy-to-apply kit.
- Simply mix together the two-part urethane compound and fill the hole. The compound will cure to a durable, flexible patch.

*® Flexane is a registered trademark of Devcon.*



## Rubber Pit Curtain

**12-862167-000**

Know the score. Brunswick makes curtains that are compatible with our scanners. Our competitors don't.

- Two-ply, nylon-reinforced rubber belting material.
- Smooth surface is easy to clean, non-marking, and oil resistant.
- Support rod loops are bonded with industrial-strength adhesive, riveted, and can withstand 400 pounds of force.



## Pit Curtain Bracket Kit

**12-860227-600**

This handy curtain bracket mounts to the cushion support arm, not the pit cushion. Easy to install, won't come loose and won't put unnecessary stress on the expensive pit cushion assembly.

- Nut sold separately (11-170115-001).

## Curtain Rod Brackets

**12-252268-000 R.H.**

*(For Model A•2 and Jet Back)*

**12-252269-000 L.H.**

*(For Model A•2 and Jet Back)*

Eliminate unnecessary ball stops!



## Rod End Assembly

**12-252365-000**

*(For Model A•2 and Jet Back)*

For effective, consistent triggering, select fixed-position rod ends.

- Uses bearing 12-250248-000



## Follower Link

**12-252346-000**

Troubled by bowlers continuously using the reset button? You could have a worn follower link.

- Critically-dimensioned link assures proper pinsetter cycling.
- Special die casting method and tough, lightweight aluminum create a smooth surface so all parts pivot easily.



## Follower Link Roller

**12-252351-000 (For A•2 and Jet Back only)**

Replace worn rollers that can wear follower links and interfere with proper triggering.

- Works with:  
Follower spacer (2 required)  
12-252349-000,  
Bronze bearing (2 required)  
11-420094-000.



## Cushion Arm Rebuilding Kit

**12-862580-000 (For A•2 only)**

- Convenient kit includes enough material to rebuild one pit cushion arm.



## Pit Cushion Shock

**12-252173-000**

*(For Model A•2 and Jet Back only)*

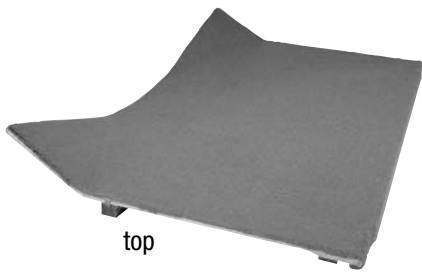
**12-250173-000 (For Model A)**

Don't overlook this critical part if you're experiencing unreliable triggering.

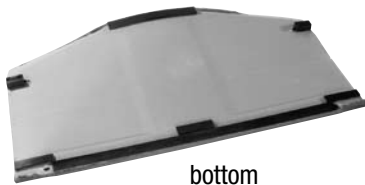
- Rubber bushings installed in the mounting ends extend the connecting pin's life.
- Used in rubber bushing 12-250189-000 and spacer 12-250011-002.



## A•2 PIT CONVEYOR ASSEMBLY



top



bottom



### Fiberglass Pit Board Assembly

**12-860620-003**

Lighter, stronger pit board minimizes wear and tear on your pit frame components.

- Pound for pound, this fiberglass pit board is lighter, stronger, and tougher than any wood pit board on the market.
- High-tech, match metal molding process produces consistently strong parts without the material variations and weak spots inherent in wood grain.
- Molding process also provides increased density and thickness in high-impact areas to dramatically increase the life of the board.
- Ready-to-install board comes fully assembled with carpet and rubber blocks and strips.
- Brunswick is so confident in the performance of this part that we back up this board with a five-year warranty (board only - 12-860620-002).



### Pit Carpet

**12-300103-000**

Special, heavyweight Brunswick pit carpet stands up to years of pin shaking.

- Industrial-grade carpet made from three-ply 100% virgin nylon by a leading carpet manufacturer.
- Tightly woven, continuous loop pile resists wear from bowling pins and balls for many years of service.
- One size fits all; used on Model A, A•2, and Jet Back pinsetters. Suitable for wood or fiberglass boards.



### Pit Carpet Cover

**12-860725-000**

Always keep your pit area clean. This cover is the best way to remove dirt and oil from balls and pins. Wipes them clean.

*Tip: Keep a double round of these on hand. Also, use E-Z wash kit (61-860175-000) for tangle-free washing, and to extend the life of your pit carpet covers.*



### Heavy-Duty Pit Carpet Cover

**12-862919-000**

Keep your pins and your customers' bowling balls clean while reducing 180° stops.

- Heavy-duty material lasts longer and cleans pins better.
- Reinforced stitching prevents unraveling.



### Wood Pit Board Assembly

**12-860620-004**

Trust this time-tested, economical wood pit board that's performed effectively in Brunswick pinsetters for over 40 years.

- Ready-to-install pit board comes complete with deflectors, pit carpet, and rubber blocks and strips.
- Hardwood plywood board is made to Brunswick proprietary specifications by certified vendors.
- Wood pit board only-12-860620-005.



## Vibrator Shaft Drive Pulley

**12-300088-000**

Ensure that your vibrator shaft is being driven properly.

- Use our special hex socket head cap screws with Dri-Lok™ (11-005184-011). These screws will not vibrate loose and allow the pulley to wobble.

™ Dri-Lok is a trademark of Loctite Corporation.



## Vibrator Shaft Bearing and Housing Assembly

**12-300160-000 (Complete assembly)**

**12-300160-003 (Bearing alone)**

Extend the life of your vibrator shaft by replacing worn bearings immediately.



## Vibrator Shaft

**12-300141-000**

Don't neglect the driving force of your pit conveyor. Replace a worn or stressed shaft before it causes costly damage to other pit conveyor parts.

- Strong, hard steel shaft prevents wear at bearing journals.
- Solid, one-piece design.
- Bearing journals and shaft ends are machined for tight fit, extending life of shaft and mating parts.
- Beware of three-piece welded shafts that threaten early failure at the weld or the journals and that can accelerate bearing wear.



## Pit Shaft Drive Pulley

**12-300244-000**

A top-of-the-line alternative.

- Solid steel pulley.
- Machined to tight tolerances for proper fit.
- Extended mounting boss to eliminate wobbling which can damage expensive vibrator shafts.
- Eliminates both spacers.

## Pit Conveyor Idler Pulley Assembly

**12-300075-000**

By far, the most economical pit conveyor idler pulley on the market today – with the potential to last a lifetime.

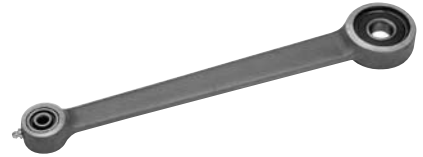
- Split, steel pulley with bolt-together design for easy bearing replacement.
- Replaceable steel bearing (11-434001-000) allows you to replace only the high-wear part.
- Comes fully assembled with hardware.
- For screws only, order six each 11-005088-001.



## V-Belt Idler Pulley

**12-400819-000**

Solid steel, precision machined pulley with replaceable bearing. Replaceable steel bearing (11-434001-000) allows you to replace only the high-wear part.



## Jogger Link

**12-300194-000**

Keep the pins moving across the pit board and avoid making bowlers wait.

- Grease fitting for easy maintenance of the needle bearing.
- Comes completely assembled with bearings and retaining rings. Inner bearing ring, 1 per arm, sold separately.



## Drive Pulleys

**12-300071-000 (Front)**

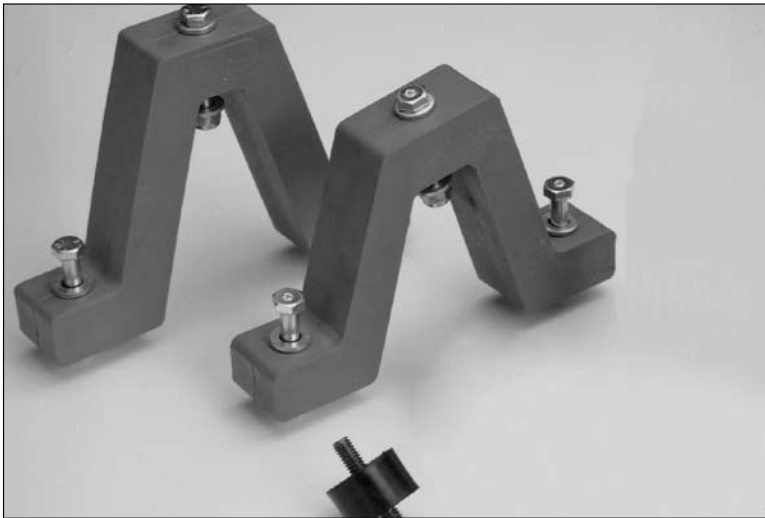
**12-300073-000 (Rear)**

Drive your conveyor belts with the welded, one-piece pulleys that perform as well as solid, cast pulleys and are more economical.

- One-piece steel pulleys are welded and riveted for strength and durability.
- Pulley groove angle is controlled for optimum belt drive.

*Tip: Remember to lubricate your pivot arm monthly with four drops of oil to extend the life of your drive pulley and belt.*

## A•2 PIT CONVEYOR ASSEMBLY



### Santoprene Mounts

**90-300076-000 (Front)**

**90-300077-000 (Rear)**

- Molded from a special, durable, urethane blend that won't deteriorate or tear. Santoprene is made in the U.S.A.
- Come complete with mounting hardware.

### Black Rubber Mounts

**90-675000-000**

- Traditional style pit mounts made from tough, wear-resistant rubber.

*Note: Make sure all four pit mounts are the same type (i.e., all torsional, all rubber, all Santoprene)*

*Note: Urethane mounts can sag after time and cause ball return problems. Replace when necessary.*

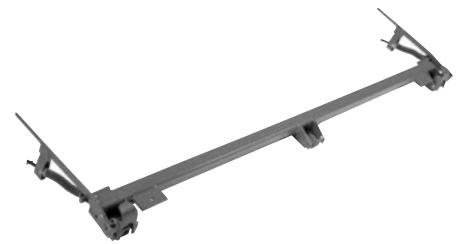


### Bottom Pit Conveyor Frame Assembly

**12-300131-000**

Solidly anchor your pit conveyor components on an original Brunswick bottom frame and eliminate noise from broken or loose frames.

- Includes idler pulley shaft and hardware.



### Pit Conveyor (Quick-Release) Conversion Kit

**12-860624-000**

Tired of standard bolt-on pit frames and the excessive time it takes to remove the board? It's time to order our quick-release pit conveyor.

- No tools are needed with the quick-release model. Just pull a couple of levers to release the board and remove it in no time.
- Positive spring loading holds board in place better than old style.



## Top Pit Conveyor Frame Assembly 12-860659-000

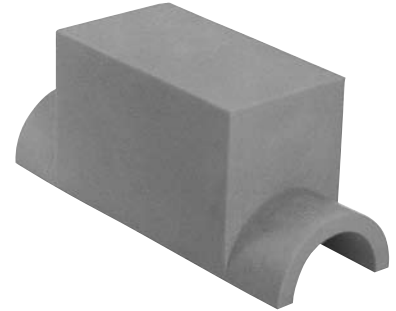
- Quick-release design allows for secure board positioning and easy pit board removal.
- For years, Brunswick has been recognized for our outstanding welding performance. This part is no exception.
- L.H. Lever and Bracket  
12-300193-000. L.H. Clamp and Pin Assembly 12-300169-000.
- R.H. Lever and Bracket  
12-300192-000. R.H. Clamp and Pin Assembly 12-300168-000.



## Pit Board Rubber Block Kit 12-862833-000

Is disturbing pit conveyor noise signaling future pit conveyor damage? Better check your blocks.

- Kit includes:  
Screws - 2 required 11-014090-009,  
Nut - 2 required 11-170005-001, Rubber Strips 12-300146-002  
and 12-300146-004, Rubber Strip - 3  
required 12-300180-000, Rubber Block -  
2 required 12-300212-000,  
Cement and Installation Instructions.



## Pit Board Bumper 12-302212-000

Prevent your pit conveyor board from knocking against the pit frame.

- Sturdy urethane mold.
- Hose clamps available for mounting part number 11-603201-000 (2 required).



## Contact Adhesive 11-676047-000 (Gallon)

This is the perfect adhesive for pit carpets, pit boards, pit cushions, and power lift parts...and numerous other applications.

- Industrial-grade adhesive is specially formulated for Brunswick.
- Fast-drying and super strong.

## A•2 RAKE ASSEMBLY

**Advanced  
Performance**



### Glow in the Dark Sweep Arm

90-252037-602 (Gray)

90-252037-224 (Neon Banana)

90-252037-225 (Neon Strawberry)

Add some excitement to standard pinsetters with these brightly colored rake sweep arms in Conventional Gray, Neon Banana (bright yellow) and Neon Strawberry (pink). They'll create quite an amazing effect in glow-in-the-dark environments.



### Rake Shock Assembly

12-252338-000

Protect your quick drop rake with this tested and true shock.

- Prevents automatic scoring errors caused by rake interference from a slow shock.
- Easy-to-install shock is fully assembled with rubber bushings in mounting holes, nylon spacer, and adjusting hardware.
- Don't overlook this critical part if you are experiencing unreliable triggering. Rubber bushings installed in the mounting ends extend the connecting pin's life.
- Rubber bushing 12-250189-000  
Spacer 12-250011-002.



### Rake Board Assemblies

12-252373-000 (Astrogray board without decal or cushion)

12-252374-000 (Astrogray board with Brunswick decal and cushion)

12-252374-010 (Brown board with Brunswick decal and cushion)

12-252373-010 (Brown board without decal or cushion)

12-252372-000 (Cushion only - gray)

12-252372-010 (Cushion only - brown)

12-252290-010 (Brown Decal)

12-252290-000 (Gray Decal)

2H90030040 (Cosmic Decal)

Sweep the dead wood in style. Choose a rake board that looks the way you want it to look.

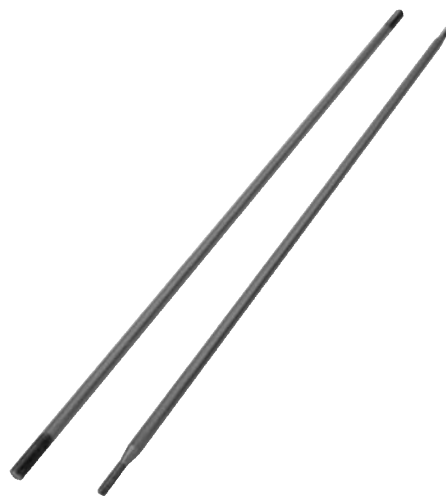


### Sweep Arm

90-252037-000

The strongest, most economical sweep arm on the market.

*Tip: Make sure to use two 90-252037-000 sweep arms on each pinsetter.*



### Solid Rake Crank Rods

12-250278-002

*(For Model A•2, series number 92,000 and up)*

12-250022-002 (For Model A and A•2 converted, series number 91,999 and below)

Prevent pins from bouncing in front of the rake. Buy new rake crank rods.

### Rake Repair Kit

12-860607-000

*(U.S. machines)*

12-860665-000

*(Japanese machines)*

Has the single-wall arm on your old-style rake shaft failed? Here's a quick and easy fix.

- Steel tube is easy to drill through.
- Tube is precision machined for easy installation yet provides snug fit for long life.
- Comes complete with sleeve, all engineering-approved hardware, and easy-to-use instructions.



*Tip: Use the rake shaft repair driver (12-700115-003) to prevent flaring damage to the repair shaft.*





## Rake Shaft Assembly

12-862186-000

12-862187-100

We took the strongest one-piece rake shaft assembly and made it better – now offering two modular designs.

- Three-piece shaft cuts down on shipping, stores easier, and virtually eliminates repairs.

- Arms can be quickly and easily replaced in the event of damage.
- Eliminates the need for welding or rake shaft repair kits
- Both assemblies include complete hardware and instructions.



### 12-862186-000 Components

Part No.	Part Name
11-002248-000	Hex Hd. Cap Screw, ½-13 x 2"
11-195018-001	Lockwasher, ½"
12-252670-000	Key
12-252671-000	Rake Arm - L.H.
12-252672-000	Rake Arm - R.H.
11-421147-000	Bronze Flanged Bearing

### 12-862187-100 Components

Part No.	Part Name
12-252586-000	Spare Arm
11-421027-000	Flange Oilite Bearing

## Spring Loaded Rake Crank Rod

12-252309-000 (Straight ends)

12-250289-000 (Tapered ends)

Prevent the possibility of costly gear box problems, and eliminate the bending of rake crank rods from catching on the tail plank.

- Spring-loaded, steel rod compresses and returns if the rake board jams behind the tail plank during machine operation.
- Absorbs the shock of accidental bowling ball impact on the rake board.
- Prevents potential damage to the expensive 4 to 1 housing or rake crank arm.



## Rake Shock Kit

12-252382-000

Everything needed to ensure that your rake shock absorber is in tip-top operating condition.

- Packaged in a kit for convenience.



## Rake Lift Arm Assembly

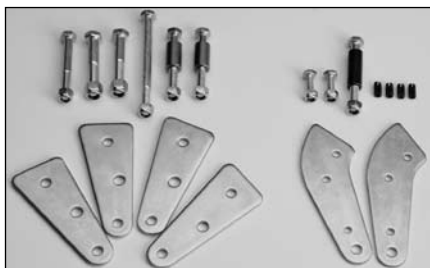
12-252048-000 (For new or converted Model A•2 and Jet Back)

12-250048-000 (For Model A)

Get the best lift for your dollar, plus a guarantee.

- All-steel rake lift arm is produced on a precision welding fixture to ensure exact positioning of V and C levers.
- Lever positioning is critical for smooth rake dropping without binding.
- Continuous welds around pipe for strong, durable joints.
- 12-862582-000 Rake Lift Arm Repair Kit

## A•2 RAKE ASSEMBLY



### Rake Lift Arm Lever Reinforcement Kits 12-862582-000 (V Lever) 12-862377-000 (C Lever)

Are your rabbit ears worn or slotted? Use this handy kit now and avoid costly repairs later.

- Damaged rabbit ears (V levers) or C levers can cause trigger failure, improper rake dropping, and automatic scoring errors.
- Cover elongated holes with new steel reinforcement plates.
- Precisely positioned mounting holes match original mounting hole pattern, bringing the levers back to new condition.
- Use on all pinsetter models.
- Instructions and hardware included.



### Rake Lift Arm Bumper and Bearing Assembly 12-252092-000

One simplified package now works on both the Model A and A•2.

- Installed oilite bearings (12-250091-000) to eliminate vibration and ensure smooth lifting and dropping of rake.



### Rake Latch Assembly 12-252301-000

Always keep a couple of “shotguns” in stock and avoid pinsetter recycling problems and extremely awkward mechanic intervention.

- Ready-to-install unit saves time by avoiding unnecessary downtime.
- Rake Latch Assembly can break due to improperly functioning inferior electronic trigger units. Our electronic trigger (12-862584-400) is specially designed to prevent breakage.



### Trip Arm Assembly 12-252354-002

Don't settle for a weaker sand cast or pot metal part. Trust only a Brunswick die cast trip arm.

- Oilite bearings (11-421103-000) are factory installed.



### Trip Rod Lever 12-252356-000

Always keep a few spares on hand and avoid excessive use of the reset button because the rake won't trigger.

- Cold-rolled steel stamping.
- Trip end is hardened to minimize wear and extend life.
- Replacement oilite bearings - 2 required (11-421102-000).



### Pivot Link 12-252355-091

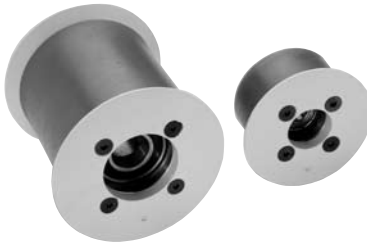
- Fully assembled with flanged oilite bearings (11-421104-000).



## Modular Pin Wheel 12-860071-000

Quiet. Lightweight. Impact resistant. Low cost. Now you know why this is the best-selling pin wheel in the industry.

- The industry's first plastic pin wheel won't rust, or be noisy like steel wheels.
- The heart of this patented design is the individual pin pockets.
- Seven identical pockets create one wheel with unbeatable strength and durability.
- Pockets can be purchased separately for replacement, without buying the entire wheel. Order part number (12-400104-000). For individual Pin Wheel Segment Hardware, order: Spacer 12-400335-000, Hex Head Cap Screw 11-001267-001, Lock Nut 11-170009-001, and Washer 11-190012-001.
- Brunswick includes a Pin Wheel Guide Roller Kit (12-860807-000) with every purchase.
- Modular Pin Wheel Hardware Package 12-860035-000.



## Pin Wheel Guide Rollers

*12-400263-000 Lower pin wheel*

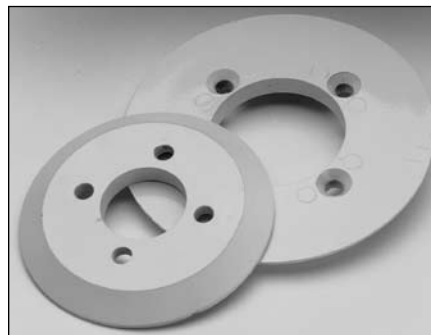
*12-400266-000 Upper pin wheel*

*90-400261-000 Lower pin wheel - Roller Only*

*90-400264-000 Upper pin wheel - Roller Only*

Choose Brunswick's super tough guide rollers that will keep your pin wheel rotating smoothly and quietly.

- Tough, wear-resistant Dyalon™ "B" urethane tire is securely bonded to a steel hub specifically designed for this application.
- Nylon flanges have been improved to eliminate fracturing and deforming problems.
- Factory assembled with bearings, retaining rings, and hardware.



## Pin Wheel Guide Roller Flanges

*12-400262-000 (For lower pin wheel guide)*

*12-400265-000 (For upper pin wheel guide)*

These new and improved flanges won't break or deform.

- Nylon flanges made from a special blend of DuPont Zytel® that won't fracture or deform.
- Eliminates problems of hardware coming loose.
- Flanges are injection molded to eliminate sharp edge that can damage pin wheels.



## Pin Wiper Maintenance Products

*12-860066-000 (Pin Retainer)*

*12-400225-000 (Pin Wiper Shim)*

Keep your pin wiper assembly in adjustment and avoid turn pan jams, turret jams and 180° stops.

- An improperly tensioned or positioned pin wiper assembly can create nuisance problems for you. Put an end to these problems with our handy kits.
- Spring 12-402064-000.
- Pin Wiper Assembly 12-400055-000.



## Pin Wheel Guide Roller Kit

*12-860807-000*

*12-400674-000 (Roller Only)*

## A•2 ELEVATOR ASSEMBLY



### Ball Wheel Guide Rollers

**12-400240-000 Lower L.H. ball wheel**  
(Includes 8 each of 11-008301-001 Screw)

**12-400268-000 Lower R.H. ball wheel**  
(Includes 8 each of 11-008301-001 Screw)

**12-400272-000 Upper ball wheel**

**90-400260-000 Lower R.H. ball wheel - Roller Only**

**90-400258-000 Lower L.H. ball wheel - Roller Only**

**12-400271-000 Upper ball wheel - Roller Only**

Choose Brunswick's super tough guide rollers that will keep your ball wheel rotating smoothly and quietly.

- Factory assembled with bearings, retaining rings, and hardware.



### Ball Wheel Guide Roller Flanges

**12-400257-000 (For lower ball wheel guides, L.H. and R.H.)**

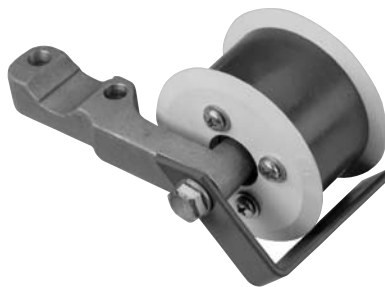
**12-400269-000**

**(For top ball wheel guide)**

**12-402107-000**

**(For heavy-duty ball wheel guide)**

These new and improved flanges won't break or deform.



### Heavy-Duty Upper Left Hand Ball Wheel Guide Roller

**12-862823-000**

For this high-pressure, high-stress application, choose the roller that gives you the longest life and superior performance.

- Heavy-duty roller replaces two standard ball wheel guide rollers on the upper left-hand (lift rod) side.
- Comes complete with hardware. Order 11-022385-001 Screw and 11-190010-001 Washer separately.
- Hub and Tire – 90-402108-000.
- Flange – 12-402107-000.
- Bearing – 11-430007-000.  
May also replace with 11-430028-000 Bearing.



### One-Piece Upper Ball Wheel Guide Roller

**90-400272-000**

Here's an economical one-piece alternative to our assembled guide rollers.

- Tough, one-piece roller is injection molded from an abrasion-resistant urethane.
- Fully assembled with a replaceable bearing (11-430004-000).



### Lower Ball Wheel Guide Roller Shaft Repair Kits

**12-400256-000**

**(Bolt-on shaft, series number 14,097 and up)**

**12-400291-000**

**(Straight sleeve, series number 14,097 and below)**

**12-400294-000**

**(Tapered sleeve, series number 14,097 and below)**

Here are simple solutions to a common problem. Repair guide roller shafts without welding.

- A worn shaft can make a ball wheel unstable and wear rollers prematurely.
- Solid, bolt-on, steel shaft directly replaces worn shafts on newer machines.
- Use tapered and straight sleeves formed from steel to repair older machines with non-replaceable shafts.
- Choose the straight sleeve (12-400291-000) when grooves are worn into the shaft. Use the tapered sleeve (12-400294-000) when a flat side has worn on the shaft.
- When ordering the sleeves also order one 12-400293-002 spacer, one 12-400293-003 spacer, and two 11-431011-000 bearings (with larger inside diameters but an outside diameter that fits in the standard hub and flange).



## Urethane Foam Ball Lift Rod Cover 90-400048-600

So incredibly flexible and easy to install, you can even do it yourself. No help needed! This special formulated foam material wears 60% less than any other rod cover on the market — and will outlast gum rubber and urethane covers.



## Pure Gum Rubber Lift Rod Covers 12-400048-091 (50' roll) 12-400048-005 (90" cover)

New 50' rolls eliminate the need to stock special length rod covers.

- Cut exactly the length you need for your spinning ball eliminator, ball lift rods, and ball lift guide rods.
- Natural tan covers are made from pure gum rubber.
- The cover's ability to grip balls and its fabric-like texture are controlled to ensure optimum ball lift and return.

*Tip: Lift Rod Assembly – replacing lift rod covers can be an easy chore if you use the Brunswick air attachment (12-700268-000), hose clamp and talcum powder only. Never use liquids (dish soap, water, brake fluid) to install lift rod covers. The life of the lift rod cover will be reduced because rust will form on the lift rods and make it difficult to rotate the cover when it begins to wear.*

## Heavy-Duty Rod Cover 90-400048-000 (50' roll)

Premium red rod cover is made from special tough rubber blend.

- Wear-resistant rubber offers extra long life.
- Resists twisting on rods for more effective ball lift and return.
- Ability to grip balls (ideal coefficient of friction) for optimum ball transfer.



## Urethane Lift Rod Cap Kits 12-860614-000 (For Model A) 12-862860-000 (For Model A•2 shown)

Extend the life of the leading and trailing ends of your ball lift rod covers. Use these extra-durable urethane lift rod caps.

- Comes complete with tie wraps and hose clamps.
- To order individual parts:  
Bottom Front 12-402432-000,  
Top Rear 12-402043-000,  
Top Front 12-402042-000, and  
Clamp 11-603201-000.



## Ball Lift Arm Rebuilding Kit 12-862866-000

Extend the life of your ball lift shaft without welding.

- Slide-on sleeve provides a long-lasting surface for your ball lift arms to pivot on.
- Use this unique Brunswick kit if your ball lift shaft is so worn that you can't adjust your ball lift rods or you're having constant ball stops.
- This kit includes oversized ball lift arms, oversized bore on spacers, ball bearing, ball lift pin, and cotter pin for cast clapper box.
- All parts are made from high-strength steel and cast iron.



## 18-Inch Ball Rod Cover 90-400048-005

A quick fix.

- Made from heavy-duty, long-lasting urethane.
- Simple to use – cut out 18 inches of your damaged rod cover.
- Easy to install (tie wraps not included).





## Ball Spinning/Ball Jam Eliminator Kit

12-860229-600

Two of Brunswick's most effective performance-enhancing products in one unique kit, to assure maximum ball return performance. The spinning ball eliminator includes the new Advanced Performance foam urethane rod cover.



## Spinning Ball Eliminator (SBE)

12-860583-000

Ensure that balls get back to the bowlers without your assistance. Install the SBE on all your pinsetters.

- Eliminates ball calls caused by spinning balls.
- Floating arm automatically adjusts to variations in ball diameter.
- Requires no driving mechanism.
- Installs in minutes.
- Thousands in use, and our satisfied customer list keeps growing.
- Comes complete with rod cover.

**MECHANIC DESIGN**

## SBE II

### **NEW PRODUCT COMING SOON!**

The new SBE II offers all the great benefits of the original SBE, while eliminating rubber and foam covers that may swell or split over time. The SBE II will be available as a replacement slip on kit and full assembly. Look for more information in the fall of 2009.



## Anti Yo-yo Kit

12-862014-000

Make bent and twisted rods work like new and eliminate yo-yo problems.

- After years of use, rods get out of alignment and cause the ball to yo-yo.
- Forget about helper springs and carpet strips now. This kit allows you to center the ball lift rods with the ball wheel and revive your lift rod assembly.
- Comes complete with installation instructions.



## Ball Jam Eliminator

12-860548-000

Repairing damage to bowling balls can be very expensive, not to mention an inconvenience to your customers. The Ball Jam Eliminator is an innovative product that will eliminate ball jams between the pit cushion and the ball lift rods that can cause serious damage to bowling balls. The product mounts to the front ball lift rod and installs in minutes using the included mounting hardware and installation instructions. No pinsetter is complete without one!



## Ball Wheel Traction Material

12-860330-000

Give oily balls the extra traction they need to get up the ball wheel.

- Made from a tough synthetic thermoplastic to withstand oil and dirt and last a long time.
- Self-adhesive back provides quick and easy installation without contact cement.
- Tested and proven to last a long time without coming off.
- Conveniently packaged in 10' rolls.



## Ball Lift Rod (Track) Support

12-862180-000

Your supports are under a lot of stress. Old supports may break and create ball return problems.

- Fits all A•2 and converted models.
- Includes instructions and mounting hardware.

*Note: Some inferior parts do interfere.*



### Ball Lift Rod Assembly

**12-860579-000 (For Model A)**

**12-862579-000 (For Model A•2/Jetback)**

Put an end to your ball lift return problems. Install a new ball lift rod assembly.

- The Model A and Model A•2 versions BOTH have the original cast clapper box. Durable weld on box will not crack.
- Fully assembled with non-marking, pure gum rubber rod covers and bottom urethane lift rod cap for greater protection.
- Also includes lift pin, adjusting screw, mounting hardware, and top urethane rod caps (unassembled).

*Tip: Through experience we've learned that natural rubber rod covers shift after they've been installed and used awhile. That's why the top rod end caps are not assembled. Once the rubber cover has seated, install the top caps.*



### Spring Rod Bumper

**90-400123-000 (Urethane)**

**12-400123-000 (Rubber)**

Know that lift rods will pick up the ball. Keep these bumpers in good shape so the spring stays in adjustment.

- Tough, abrasion-resistant urethane bumper is twice as thick as the original rubber bumper. One urethane bumper does the job of two rubber bumpers.
- Brunswick continues to offer our oil-proof rubber bumpers for those mechanics who prefer them.
- Two required.



### Spring Rod

**12-400193-000**

Look no further, you've just found the strongest spring rod on the market.



### Shaft Collar

**12-400300-000**



### Spring Rod Bushing

**90-400803-000 (Premium Delrin bushing)**

Help the ball get back to the bowler every time.

- Delrin® material is precisely formed through injection molding process that keeps the spring rod from binding.
- Delrin bushing is twice as thick as steel, creating more pressure on lift rods for better ball return.
- Teflon®-impregnated Delrin bushing allows the ball lift spring to slide through smoothly without abrasion.

**12-400803-000**

**(Conventional steel bushing)**

- Our conventional bushing is precision machined from hard drill-rod steel.
- Steel is hardened and tempered for wear resistance and long life.

*Note: Both styles fit all ball lift support brackets.*

*®Delrin and Teflon are registered trademarks of E.I. DuPont de Nemours and Company.*



### **Magnetic Clutch Assembly** **12-862163-000**

Highly sophisticated magnetic clutch positively stops and starts pin wheel to eliminate turn pan jams, cross conveyor jams, and turret jams.

- Originally designed by Brunswick for Brunswick pinsetters.
- 100 inch-pound torque requirement ensures that the pin wheel will start without slipping.
- Special non-asbestos clutch facing is tightly bonded and provides long, quiet operation.
- Steel mounting bracket welded to clutch body to prevent clutch from rotating.
- Comes complete with replaceable bearing (11-430045-000), heavy-duty cord and restraint, and the standard Brunswick twist-lock plug that ensures proper mating with your Brunswick wire channel.



### **Universal Jack Shaft** **(Pin and Ball Wheel Drive)** **12-400810-000**

Here's a jack shaft that's easy to assemble.

- Solid steel bar stock is tight tolerance machined so bearings slide on easily without slop, eliminating bearing journal wear.
- Shaft ends are proper length to ensure that bearings are clamped securely into position when fully assembled.
- All keyways are machined for correct component fit.
- Keyway for ball wheel pulley has always been precisely spaced to avoid interference between the magnetic clutch and ball wheel pulleys.
- Fits both the pin wheel and ball wheel.
- Jack Shaft Bearing 10-430001-000.



### **Pin Wheel Drive Pulley Assemblies** **12-400126-000 (Small, for Model A)** **12-402126-000 (Large, for Model A•2 and converted)**

Choose the speed of your pin wheel. Let Brunswick tell you how.

- It doesn't matter what machine you have...if you want your pin wheel to run faster, use the larger pulley (12-402126-000). If you want a slower pin wheel, use the smaller pulley (12-400126-000).
- Solid, one-piece pulleys are machined from steel bar stock.
- Bearing (11-420045-000) is installed and sized for proper press fit onto shaft.



### **Pin Deflector** **12-402413-000**

Keeps pins and balls from getting damaged the pit cushion mount.



## Ball Guide Rod 12-502172-000

Prevent expensive ball damage by keeping balls out of the pin wheel.

- Welded steel rod is easy to install.
- For machines with mini-kit conversions.
- Comes complete with cover and mounting hardware.
- Hardware is:  
U Bolt 12-502171-000,  
Lock nut 11-170011-001, and  
Washer 11-190014-001.

*Tip: Replace worn covers to guard against ball damage*



## Idler Pulley Arm Assembly 12-400254-000

Having belt tensioning problems? The bearings and mounting hole in the idler pulley arm may be worn.

- Comes fully assembled with a replaceable oilite bearing (11-421019-000) that won't seize to idler arm stud.

*Tip: Your Brunswick Service Manual recommends that this part be oiled with two drops of oil quarterly. Do not grease this part. Other manufacturers' parts with grease fittings may mislead you to improperly maintaining this part.*



## Pin Wheel Brake 12-402422-000

Upgrade from your old-style pin wheel tensioned to this dual-purpose pin wheel tensioned and brake.

*Tip: To properly tension pin wheel brake and cross conveyor idler arm, use a torsion spring (12-400252-000).*



## Universal Urethane Wheel Guard 90-400840-000

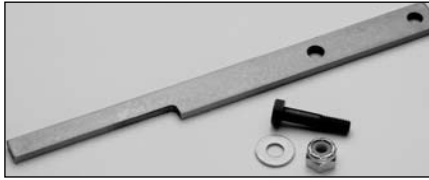
Prevent expensive damage to your pins. Keep them in the pit area away from moving belts and elevator wheels.

- Half-inch thick urethane wheel guards are very tough and durable and non-marking to pins and balls.
- Universal design allows urethane guard to be mounted on either right or left side of the elevator.
- Mounting holes are slotted to fit the wide variety of mounting brackets available.
- High-density nylon inserts increase life of mounting holes by preventing mounting bolts from coming loose.
- Special mounting hole provided for a pin deflector.
- Comes complete with all mounting hardware.



## Wheel Guard Assembly 12-400837-000 Left Hand 12-400838-000 Right Hand

## A•2 CROSS CONVEYOR ASSEMBLY



### **Deluxe Pin Gate Strap Package** **12-860808-000**

Buy some “life insurance” for your turret – install this premium pin gate strap.

- Precision machined from a tough “drill rod” type of steel.
- Includes a hardened shoulder bolt that’s much easier to replace than a roll pin and will last longer, too.
- Corrosion-resistant packaging for long shelf-life.



### **Pin Gate Latch Assembly** **12-450032-000**

Eliminate turret jams caused by a faulty latch that locks and unlocks the gate improperly.

- Tie bar will not break.
- Oilite bearing is press fit and sized to provide bind-free pivoting.
- Now includes a hardened shoulder bolt that’s much easier to replace than a roll pin and will last longer, too.
- To order individual parts:  
Bolt, washer and nylock nut 12-252016-000, and  
Oilite (2 required) 11-421053-000.

### **NEW! Hizar Gate** **12-862251-000**

Eliminate the need to replace pin gate straps and roll pins with this great mechanic designed product. The Hizar Gate not only replaces these wear parts, but also improves cross conveyor performance by being easier to push down.



### **Snubber Assembly** **12-450075-000**

Is your turret failing to index? Are you experiencing nagging turret jams? Maybe it’s time to replace your snubber.

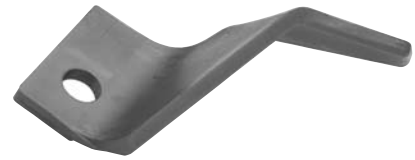
- Precision contour guides pins smoothly into the turret without excessive pin bouncing.
- Durable steel snubber resists wear for long life.
- Protective finish ensures that pins will slide into turret without being marked.
- Direction of steel grain is controlled to eliminate cracking.
- Pin guide is fillet welded and stress relieved to prevent breakage.
- Make sure your rubber spacer (12-450080-000) is in place and in good condition. It absorbs the shock of pins sliding over the top of the snubber, extending its life. Also helps eliminate vibration and noise.
- Give your snubber even longer life by ordering the snubber bumper and shaft kit (11-650010-000). It supports the bottom of the snubber and absorbs the shock of pins sliding. It also eliminates vibration and noise.



### **Pin Gate Strap (Standard)** **12-150057-003**

Don’t let a worn or broken pin gate strap cause turret, cross-conveyor, or elevator turn pan jams that can damage your turret.

- This high-grade steel strap is the same as the one installed on the original equipment.
- The shoulder is case hardened after precision machining, providing wear resistance and long performance life in this abusive environment.



### **Turn Pan Cam** **12-402434-000**

Replace metal turn pan cams before they are worn sharp and damage pins.

- Super tough nylon cam is more durable than any other cam on the market.
- Resists wear – won’t develop sharp edges the way metal cams do.



### **Pin Guard Shield Assembly** **12-450087-000 (For U.S. machines)** **12-450088-000 (For Japanese machines)**

Protect your pin investment. Prevent damage caused by pins getting in drive belts during turn pan jams.

- All-steel, welded construction, guards moving belts that run above the cross conveyor.
- This is the easiest guard to install – one end is fixed and one slotted for quick adjustment to all conveyor frames.



### **Turret Spring** **12-400806-002 (Spring)** **12-400806-003 (Spring Hook)**

Keep your turret running smoothly with the correct amount of tension.

- Adjustable spring for all model pinsetters.
- Made from the highest-grade spring material.





## Cross Conveyor Pin Wiper Cloth 12-862941-000

Remove oil from pins to help keep pinsetter clean and to lessen the chance of out of ranges.

- Special filter cloth absorbs oil from pins and reduces the frequency of pin cleaning.
- Improves pin transfer in the cross conveyor.
- Easy to install. Instructions included.
- Cloths are machine washable. Keep an extra set of cloths on hand so you can rotate them for cleaning.
- For refill pin wiper clothes, order 12-860803-000 (pkg of 6).



## Top Cross Conveyor Idler Pulley Assembly 12-450090-000

Here's the idler pulley for you – it's economical and has the potential to last a lifetime.

- Expensive, solid idler pulleys are unnecessary in this non-driving application.
- Split, steel pulley with bolt-together design for easy bearing replacement.
- Replaceable steel bearing (11-434003-000) allows you to replace only the high-wear part.
- By properly maintaining the replaceable bearings, these split pulleys won't wear out.
- Pulley groove angle is controlled for correct belt fit.
- Comes fully assembled with hardware.



## Universal Pinsetter Motor 12-752056-000

Here's the best pinsetter motor on the market. This universal motor will drive any Brunswick pinsetter – domestic or export.

- Energy-efficient design provides enough torque to operate gear box and elevator.
- Motor will continue to run even when there are voltage fluctuations.
- One-horsepower motor.
- Universal voltage and cycle – 115/208/230 volts, 50/60 cycle.
- 1725/1450 rpm.
- Heavy-duty 7/8" shaft.
- Totally enclosed, fan cooled (TEFC).
- Thermal overload protection, manual reset.
- Heavy-duty cord and Brunswick twist-lock plug.



## Pinsetter Motor Pulleys

12-400081-000 (Slow, Model A)

12-502410-000 (Medium, Jet Back)

12-402081-000 (Fast, Model A•2)

Brunswick's wide variety of pulleys allows you to determine how fast your rake and deck move.

- The speed of the gear box is controlled by the diameter of the pulley – the slow speed pulley has a 5 1/4" O.D., the moderate speed pulley has a 6 1/4" O.D., and the fast pulley has a 7 3/4" O.D.
- All three models supply the optimum elevator speed. We've eliminated the need for a special Jet Back pulley to slow your elevator.
- Any pulley can be used on any style machine.

*Tip: Many mechanics are using slower gear box speeds to extend the life of their pinsetter parts.*

### Gear Box/Elevator/Motor Pulley Table

Part Number	Description	Motor/Elevator Pulley O.D.	Motor/Gear Box Pulley O.D.
12-400081-000	Model A Motor Pulley	3 1/16"	5 1/4" – Slow
12-502410-000	Jet Back Motor Pulley	3 1/16"	6 1/4" – Medium
12-402081-000	Model A•2 Motor Pulley	3 1/16"	7 3/4" – Fast

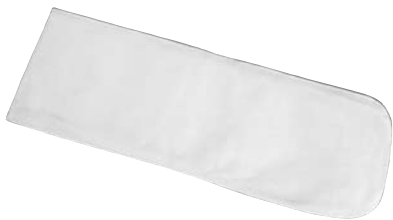
## A•2 BALL RETURN ASSEMBLY



### High Crown Accelerator Pulley 12-502349-600

Eliminate the problem of long-ball accelerator belts coming off and causing ball jams with our new high crown accelerator pulley.

- Design keeps long-ball accelerator belt tracking properly – especially effective on slowed down ball accelerators.
- Use in front or rear position in the ball accelerator.
- Comes fully assembled with bearings and spacer – for installation on either Brunswick shaft arrangement.
- Replacement bearings 11-430013-000.



### Ball Accelerator Wiper 12-252377-000

This handy ball wiper takes the oil off the ball before it gets on the bowler.

- Outer sleeve made from special filter cloth that absorbs oil from balls and resists wear.
- Inner foam pad cushions ball for better cleaning.
- Easy to install.
- No hardware to fuss with.
- Fits right in the ball track pan.
- Pre-shrunk sleeve is machine washable and dryer safe.
- Ensure that balls stay clean, have a double round of sleeves on hand.



### Pulley Support 12-502303-000

Trust this tried-and-true support design to keep your ball return operating trouble-free.

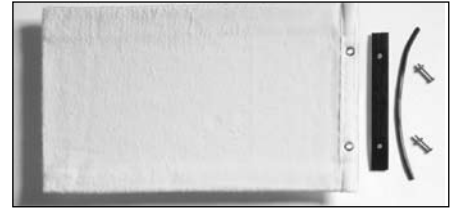
- Use with our high crown pulley (12-502349-600) and virtually eliminate ball return stops caused by long-ball accelerator belts coming off.



### Ball Accelerator Frame Wiper Cloth 12-862042-000

For the most effective ball cleaning, use this superior ball wiping system.

- Machine-washable covers absorb oil from balls, keeping balls clean and bowlers happy.
- Foam pads are securely fastened to metal frames and cushion ball for optimum cleaning.



### Drop Sweep Ball Wiper 61-860246-000

One of the most effective ways to keep your bowlers clean and happy.

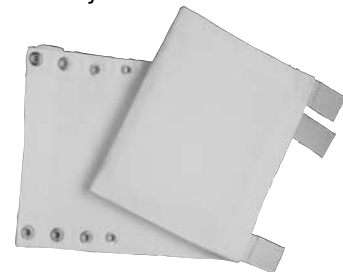
- Velcro® on both sides to get longer use before washing.
- Easy to change.
- Installs securely on drop sweep.



### Ball Accelerator Pan 12-502320-600



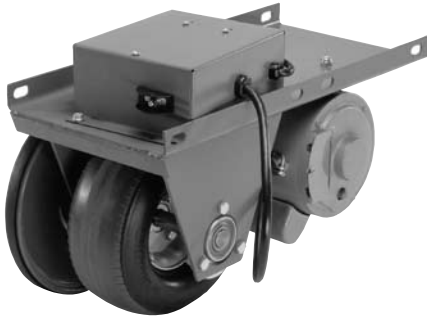
Ever tried to retrieve a pin from under the subway ball return? Sometimes, no matter how well things are adjusted, a pin can be carried up the ball lift rods and center ball return by a bowling ball. This new pan includes a “trap door” to drop the pin — and save you lots of time and hassles.



### Easy-Change Duster Cloth 61-860028-000

Here's the only effective way to clean a ball if you're using a ball booster.

- Installation is a snap. Simply attach to your ball booster track.
- Won't slow passing balls.
- Special, machine-washable filter cloth absorbs oil from bowling balls.



### Ball Booster Kit 12-862602-008

Help your Model A get the ball back to the bowler faster. Install this Brunswick ball booster kit.

- Returns ball to bowler more quickly than the standard gravity feed does.
- Limits wear on ball lift components better than accelerators do.
- Comes equipped with motor, pulleys, ball booster wheel, and hardware for Jet Back machine.
- Control box only **12-506335-000**

*Note: Does not include ball return track or hardware.*

*Tip: Some mechanics use the urethane ball wheel (90-520060-000) in this application with great success.*



### Ball Lift Wheel Assembly 53-520060-000

Here's our original hub and tire assembly that you can count on for years of reliable ball boosting.

- Durable, rubber tire is securely molded to a welded steel hub to prevent the hub and tire from separating.
- Molded rubber tire is designed to absorb ball impact energy without tearing and boost the ball back to the bowler.
- High-wear area of tire is coated with a special, non-marking, abrasion-resistant material called Paracril-ozo, to maximize its life.



### Ball Accelerator/Booster Motor 12-802059-003

Want to reduce the wear and tear on your ball lift components? Slow your accelerator.

- This 1/4-horsepower motor not only increases the life of your ball lift components, it also reduces your energy costs.
- Universal voltage and cycle – 115/208/230 volts, 50/60 cycle.
- 1725/1425 rpm.
- Heavy-duty 1/2" shaft.
- Totally enclosed, fan cooled (TEFC).
- Thermal overload protection.
- We offer a wide array of motor pulleys to let you decide precisely how fast the ball gets back to the bowler.



### Heavy-Duty Ball Accelerator Motor 12-802059-004

For accelerators with more power, choose this heavy-duty motor.

- 1/2-horsepower motor.
- Universal voltage and cycle – 115/208/230 volts, 50/60 cycle.
- 3450/2850 rpm.
- Heavy-duty 5/8" shaft.
- Totally enclosed, fan cooled (TEFC).
- Thermal overload protection.
- We offer a wide array of motor pulleys to let you decide precisely how fast the ball gets back to the bowler.

Pulley Diameter	Accelerator Speed	Pulley Part# 1/2"-Bore	Pulley Part# 5/8"-Bore	Belt Part#
1-1/2"	Slowest	12-502474-000	12-502554-000	10-635124-000
1-11/16"	Slow	12-502351-000	12-502553-000	10-635113-000
2-1/32"	Medium	12-502355-000	12-502551-000	10-635118-000
2-23/32"	Fast	12-502332-000	12-502550-000	10-635112-000
3-17/64"	Fastest	12-502352-000	12-502549-000	10-635114-000



### Motor Start Relay for Ball Accelerator 12-862830-000

Keep bowlers bowling by returning their balls. This relay ensures that the ball accelerator motor will start.

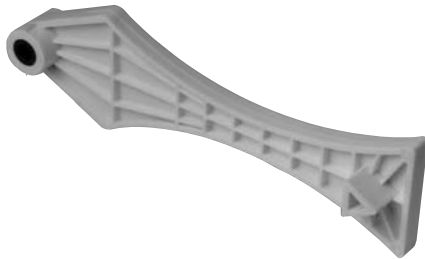
- Properly rated to start the ball accelerator motor.
- Double pole relay.
- Contacts meet UL specifications.

## A•2 BALL RETURN ASSEMBLY



### Y Switch Spacer 12-502155-000

Replace worn spacers and save yourself the time and hassle of future welding.



### Nylon Y Switch 90-502153-000

This superior Y switch can take a beating and continue to guide balls for many years.

- We still offer the original die cast aluminum Y switch (12-502159-000) that won't break. Comes with sound deadening tape to reduce noise.



### Regular Y Switch Bumper 12-502154-000

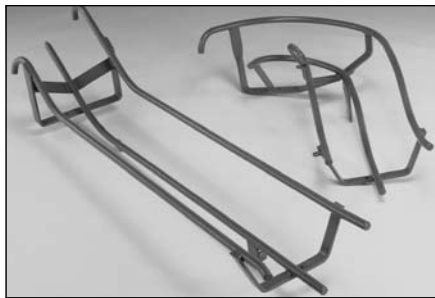
Keep balls in the bowlers hands – not stopped in front of the accelerator.

- Worn or missing bumpers can cause the Y switch to interfere with balls and cause ball stops.



### Y Switch Shaft 12-502134-000

*Tip: Pin Damage – Build up of white shavings in the ball return area, or on the upper turret clutch pulley indicates that these assemblies could be causing pin damage. Watch for the pin flow into, and from these assembly to determine the cause. Check for sharp edges.*

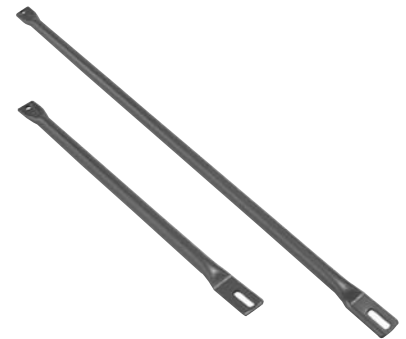


### Internal Ball Track 12-502105-000 (Curved) 12-502115-000 (Straight)

Prevent expensive ball damage by replacing broken and welded tracks.

- Designed for A•2 and Jet Backs.

*Tip: Make sure your fence assembly (12-502162-000) is in place. It keeps pins out of the ball return and avoids embarrassing, time-consuming downtime.*



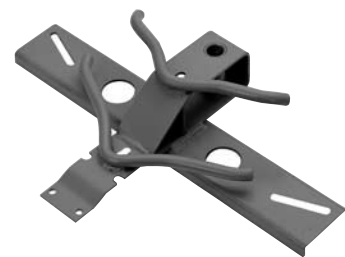
### Internal Track Braces 12-502139-000 (Short) 12-502140-000 (Long)

- Welded steel tubing effectively supports ball return track so the ball returns to the bowler.



### Y Switch Stop 12-502131-000

Replace bent Y switch bars and reduce Y stop problems.



### Y Switch Track 12-502100-000

Reinforced bottom plate won't break!

- Strong, welded reinforcement eliminates breakage across the mounting holes for the Y switch plate.
- Rods are formed for optimum ball transfer and micro-finished to protect balls from damage.
- No special mounting hardware needed.



### OEM Style Pinsetter Cycle Solenoid with Plunger

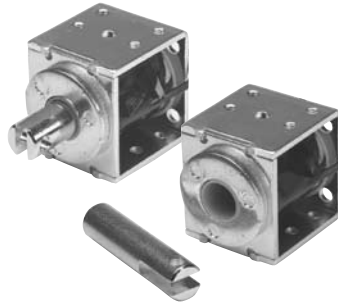
10-688003-000 (208/230V)

10-688009-000 (115V)

10-688003-003 Plunger only

Here's the key to powering up your pinsetter and ensuring that it starts cycling.

- Intermittent duty solenoid is especially designed for the automatic pinsetter to use less energy.
- Strong plunger (10-688003-003) has a powerful stroke (pulling force) so that gear box clutch engages properly, starting the pinsetter cycling.
- Internal coil is coated to prevent plunger from seizing and binding, ensuring that the clutch engages and disengages.



### Pinsetter Cycle Deltrol Solenoid with Plunger

10-688006-000 (208/230V)

10-688006-003 Plunger only

- More than 10% stronger than the OEM solenoid to help minimize failure to trigger.
- Intermittent duty solenoid helps save energy.
- Made in the U.S.A.
- Includes mounting hardware.



### Solenoid Kits

12-862905-115 (115V kit)

12-862905-230 (208/230V kit)

Upgrade your Model A solenoid to a Model A•2 and get more reliable triggering and longer lasting links.

- Use this kit when converting a Model A machine to a Model A•2. Or, use it when converting a machine from 115V to 230 volts.
- Comes with either a 115V solenoid (10-688009-000) or a 230V solenoid (10-688003-000), plunger, bellcrank assembly, spacers, and everything else you need for a successful conversion.



## A•2 ELECTRICAL COMPONENTS



### Electronic Triggering Control System 12-862584-400

Don't let slow or light balls create triggering problems for your center.

- Full-time safety shut-off system.
- Won't interfere with rake or bumper bowling.
- Completely compatible with all Brunswick scoring systems.
- Doesn't require expensive solenoids.
- No manual time-delay adjustments.
- Microprocessor-based system matches USBC-approved specifications, for maximum pin fall at ball speeds.
- Eliminates "banana stops" by ignoring the reset button if it's pressed while the pinsetter is cycling.
- Sold in lane pairs. System includes: Universal Trigger System, Large Dual Reflector Assembly, Dual Output Ball Detector, Time Delay Control Board only, and 1 amp fuse Control Board Fuse.



### Cable Triggered/Jet Back Supplement for Electronic Trigger 12-862898-000

Eliminate the cable triggering in your Jet Back by upgrading to an electronic triggering.

- Designed for machines that already have an A•2 style pit cushion and shotgun for quick-drop rake action.
- Provides more reliable triggering.
- Comes complete with microswitch assembly, wires, hardware, and installation instructions for one lane pair.
- Should be ordered with electronic trigger package (12-862584-400).



### Diagnostic LED Display 12-862585-101

LED Display provides diagnostic codes when plugged into new style, non-LED universal trigger board. With the following outputs:

- 0 Control running, waiting for output
  - 1 Pinsetter triggered by IR sensor - 1st ball
  - 2 Pinsetter triggered by IR sensor - 2nd ball
  - 3 Pinsetter triggered by reset or cycle button
  - 4 Rake switch triggered - 1st ball
  - 5 Rake switch triggered - 2nd ball
  - 6 Cycle solenoid did not activate
- A Lockout on power up, no rake up/rake down sensed  
B Lockout after rake switch triggered, no rake down sensed  
C Lockout after cycle solenoid triggered, no rake down sensed

### Time Delay Module 12-862890-000

This time tested universal time delay module works on all A•2 machines. The solid state board has been tested to assure flawless function. Includes 7 insulated spade terminals for the conversion of Japanese machines.

#### Kit Summary

Qty.	Part No.	Part Name
2	12-862918-400	Universal Trigger PC Board Assembly
1	57-861237-000	Dual Output Ball Detector
2	12-752396-000	Rake Down Switch
2	12-752401-000	Safety Lock Out Harness
2	12-752402-000	Ball Detect Cable Assembly
2	*12-752403-000	Scorer Wire Harness Assembly
1	*12-762895-000	Hardware Package
1	*17-600702-000	Dual Reflector Assembly
1	12-902262-000	Electronic Trigger Manual

\* = not available separately

#### How To Order Brunswick's Electronic Control System

Pinsetter type	Order 1 each per lane pair
<i>Model A•2:</i> With time delay module and quick-drop rake	12-862584-400 Control System Package
<i>Model A:</i> No time delay module or quick-drop rake	12-862584-400 Control System Package and 12-860811-000 Model A Supplement Package
<i>Cable-triggered Jet Back:</i> With quick-drop rake, no time delay module	12-862584-400 Control System Package and 12-862898-000 Jet Back Supplement Package and 12-862918-400 Spare Board Only



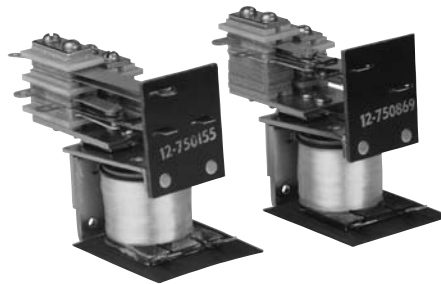
### Microswitch Assemblies

**12-860205-000 (Cross conveyor)**

**12-860563-000 (Turret jam, deck jam, frame counter, first and second ball light)**

Don't hassle with rebuilding a microswitch anymore. Buy a fully-assembled microswitch that installs quickly and easily.

- We've eliminated the repair guesswork by offering you economical assemblies.
- Metal cover protects microswitch from damage.
- Rubber dust seal keeps oil and dirt out of the switch, extending the life.
- Cross conveyor switch comes fully assembled with a switch actuator.
- To replace, adjust the spring and circle clip that retains the spring on a microswitch assembly. Order a convenient package (12-700041-000).
- To order switch only:  
Cross Conveyor 11-615053-000,  
for all others 11-615052-000.



### Automatic Pinsetter Motor Start Relays

**12-862827-000 (Three pole)**

**12-862829-000 (Two pole)**

- Powers the contactor and provides safety shut off.
- The 12-862827-000 is three pole; the 12-862829-000 is two pole.
- Single throw.
- Continuous duty.
- Use the 12-862827-000 on a Model A.  
Use the 12-862829-000 on a Model A•2.
- Made in the U.S.A.

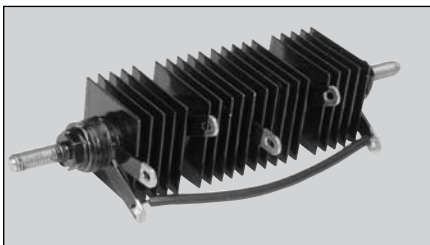


### Recycle Relay

**12-862828-000**

Ensure that your Model A pinsetter gearbox recycles.

- Single pole relay used on Model A machines.
- Single throw.
- Continuous duty.
- Pinsetter vibration won't cause contacts to close.
- Contacts meet UL specifications.
- Made in the U.S.A.



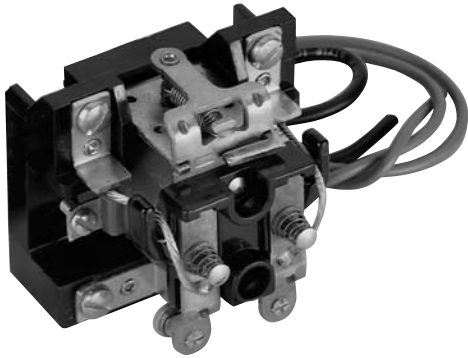
### Selenium Rectifier

**12-750079-000**

Don't risk being without this important part. The purpose of this product is to supply DC voltage to the magnetic clutch allowing the pinsetter to deliver pins to the cross conveyor.

### Other Solenoids and Switches Available from Brunswick

Part No.	Part Name
12-100291-000	Recycle Solenoid, for Model A pinsetters with electronic trigger
12-100022-000	New Pins Solenoid, for use with Brunswick automatic scorers
53-100425-000	Ball Rack Solenoid Assembly
11-615501-000	Toggle Switch, for all masking units and rear mechanic's switch
11-615502-000	Toggle Switch, for ball lift, ball accelerator and booster control boxes
11-615014-000	Bowler's Reset Button Switch, for ball rack
12-750054-000	Mechanic's Reset Button Switch, for wire channel
12-750410-000	Manager's Control Panel Rocker Switch
11-616015-000	Automatic Scorer 0° and 44/144° Switch
11-697142-000	Automatic Scorer Interlock Switch
12-750362-000	Strike Light Mercury Switch
53-100247-000	Ball Director Mercury Switch



### Automatic Pinsetter Motor Contactor

**12-862111-000**

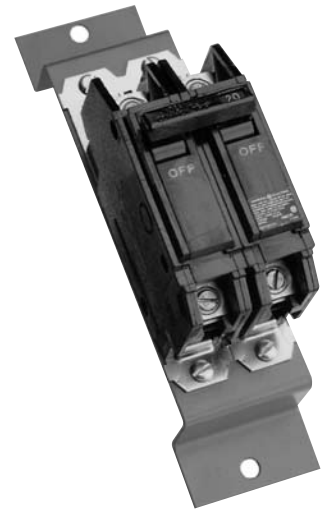
Make sure your pinsetter motor starts when you want it to.

- Deltron contactor replaces old Allen Bradley and Federal Pacific contactors.
- If your motor has built-in overload protection, you need only the contactor (12-862111-000).
- If your motor does not have built-in overload protection, order the motor overload relay 10-679151-000.
- For the motor overload relay and contactor order 12-860621-000.

*Note: 10-679151-000 relay requires a heater to operate. Heater must be selected on basis of motor output in Amps. This is stamped on the motor I.D. plate. Select the heater which best meets the requirement and order accordingly. 10-679151-000 Overload Relay is required on Model A machines converted to Model A•2.*

10-679157-000 Heater 4.65 Amps  
10-679160-000 Heater 6.32 Amps  
10-679163-000 Heater 8.37 Amps  
10-679165-000 Heater 9.96 Amps  
10-679167-000 Heater 11.7 Amps  
10-679169-000 Heater 14.1 Amps  
10-679171-000 Heater 16.9 Amps

10-679159-000 Heater 5.69 Amps  
10-679161-000 Heater 6.99 Amps  
10-679164-000 Heater 9.13 Amps  
10-679166-000 Heater 10.8 Amps  
10-679168-000 Heater 12.9 Amps  
10-679170-000 Heater 15.4 Amps



### Circuit Breaker

**12-860627-000 (Circuit breaker and bracket assembly)**

Protect your wiring and yourself by making sure the power is off when doing repairs.

- Safety device that's properly rated to protect the pinsetter.
- Provides automatic overload protection.
- Used to turn the pinsetter on and off.
- Reliable and easy-to-install.
- Made in the U.S.A.



### Pinsetter Transformer

**12-862164-000**

Select this transformer that's specifically designed for Brunswick pinsetters running on a single voltage.

- Used on Model A and Model A•2 pinsetters.
- Always used on single voltage systems.
- Five black leads and four colored leads.
- Supplies proper voltage to each accessory.



### Ball Accelerator Flat Drive Belts

10-635124-000 (For 1 1/2" pulley)

10-635113-000 (For 1 11/16" pulley)

10-635118-000 (For 2 1/32" pulley)

Across the country, mechanics are slowing down their accelerators, minimizing maintenance problems.

- Slowing the accelerator reduces the wear and tear on the accelerator as well as the retarder and power lift.
- The trend shows mechanics choosing pulleys that are less than two-inches in diameter.

10-635112-000 (For 2 23/32" pulley)

10-635114-000 (For 3 17/64" pulley)

- Flat, concentric belts with straight, smooth splice move freely around pulleys and won't jump off the pulley edge.
- Durable, long-lasting belts are flexible and won't become brittle.

### How to Choose a Motor Pulley\*

One of the most important considerations you have to make is determining the optimum speed for your gear box and elevator.

- If your pinsetter cycles faster than the ball gets back to the bowler, you're abusing your pinsetter.
- The motor pulley determines how fast the gear box cycles and how fast the elevator moves. The bigger the diameter of the pulley, the higher the gear box speed.
- Top mechanics are choosing the Jet Back pulley (12-502410-000) to provide ideal performance.
- The Jet Back pulley provides a faster cycle time than a Model A, improving league start and finish time and increasing open bowling time.
- The Jet Back pulley also slows the cycle time compared to the Model A•2 pulley, reducing wear and tear on your pinsetter.
- All three elevator pulleys have a standard diameter to provide the optimum elevator speed.
- Several years ago our Jet Back pulley had a larger elevator pulley, providing a faster elevator speed. This is no longer true. Since 1985, our Jet Back pulley has provided the same optimum elevator speed as the Model A and A•2 pulleys.

### Choosing the Proper Belt Tension is Critical for Smooth Operation of Your Pinsetter.

- If too little tension is applied, the belts may slip.
- Too much tension can reduce belt and bearing life.
- The correct tension is the lowest tension at which belts will not slip when the drive is under full load.



### Long Accelerator Belt

10-635126-000 (Light-colored)

10-635126-600 (Dark-colored)

Brunswick lets you choose the long accelerator belt that meets your needs.

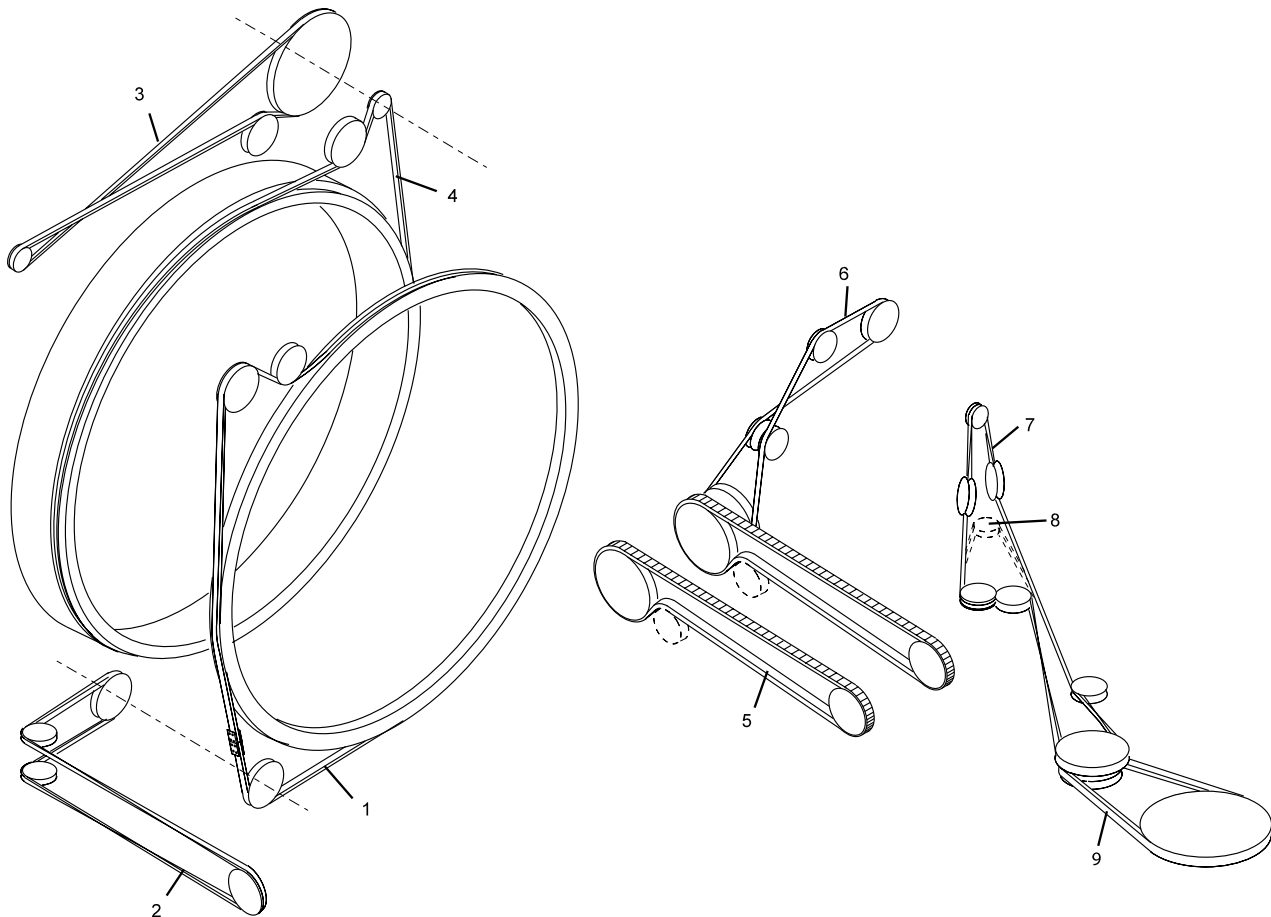
- Standard light-colored belt is made by the leader in the belt industry. Its non-marking to balls and provides excellent acceleration for oily balls.
- Dark-colored fabric-based belts have a slippery surface ideal for reactive-resin balls. They're non-marking to balls, too.
- Both types of belt will track straight and true when used in conjunction with our high crown pulley (12-502349-600).

### Brunswick Highly Recommends Using a Poly V-belt for the Ball Lift.

- Poly V-belts offer increased flexibility and reduced heat build-up, extending belt life.
- They're ideal for operating at higher speeds on small pulleys.
- They provide enough drive power to lift two or three balls at a time.
- To convert from a flat belt or V-belt to a poly V-belt, order Brunswick's handy conversion kit (53-860431-000).

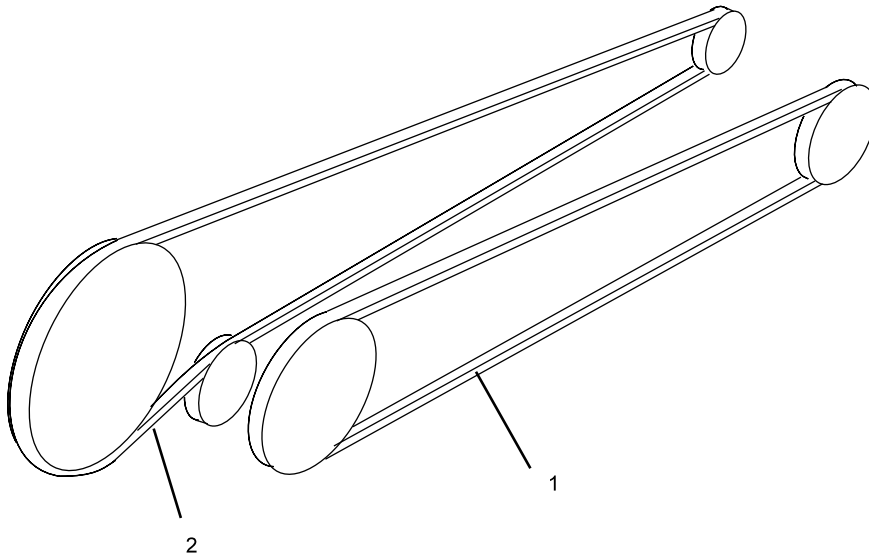
Pulley Diameter	Accelerator Speed	Pulley Part #		Belt Part #
		1/2" Bore	5/8" Bore	
1 1/2"	Slowest	12-502474-000	12-502554-000	10-635124-000
1 11/16"	Slow	12-502351-000	12-502553-000	10-635113-000
2 1/32"	Medium	12-502355-000	12-502551-000	10-635118-000
2 23/32"	Fast	12-502332-000	12-502550-000	10-635112-000
3 17/64"	Fastest	12-502352-000	12-502549-000	10-635114-000

# A•2 BELT ASSEMBLY



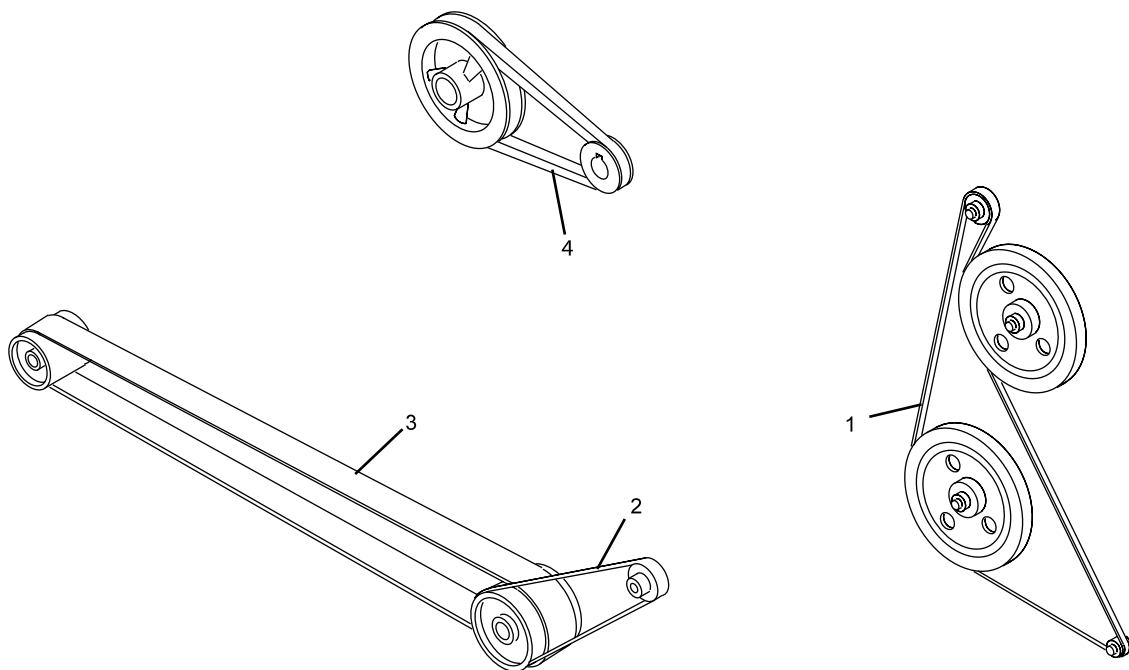
INDEX	PART NUMBER	DESCRIPTION	INDEX	PART NUMBER	DESCRIPTION
1	12-400227-000	Ball Wheel Belt, endless	6	10-635309-000	Cross Conveyor Drive Belt, "V"
	12-400279-000	Ball Wheel Belt, spliced		12-400034-007	Cross Conveyor Drive Belt, round
2	12-300082-003	Pit Conveyor Drive Belt	7	12-400223-000	Turret Drive Gear Belt, non-beveled
3	12-400034-004	Jack Shaft Belt, cross drive	8	12-400314-000	Turret Drive Gear Belt, beveled
4	12-400034-005	Pin Wheel Belt	9	12-150113-000	Short Turret Drive Belt, 49.5"
5	12-450037-000	Cross Conveyor Belt (order 2, replace in pairs)		12-150113-600	Short Turret Drive Belt, 50"





INDEX	PART NUMBER	DESCRIPTION	COMPARATIVE EFFECTIVE LENGTH
1	10-635309-000	Motor to Gear Box Belt, Jet Back (2.5" longer)	81.5"
	12-400329-000	Motor to Gear Box Belt, standard for Jet Back	79.0"
	10-635323-000	Motor to Gear Box Belt, Model A and Jet Back	77.5"
	12-400034-002	Motor to Gear Box Belt, standard for Model A	77.1"
	10-635321-000	Motor to Gear Box Belt, 27 to 1 Gear Box, Model A and Jet Back	75.0"
	10-635326-000	Motor to Gear Box Belt, Model A•2 (2.5" longer, use for 50 cycle)	69.5"
	10-635304-000	Motor to Gear Box Belt, standard for Model A•2	67.0"
	10-635325-000	Motor to Gear Box Belt, Model A•2 (1.5" shorter)	65.5"
	10-635320-000	Motor to Gear Box Belt, 27:1 Gear Box, Model A•2	60.0"
	2	10-635328-000	Motor to Elevator Belt, Model A and Jet Back, (1.5" longer)
12-400034-003		Motor to Elevator standard for Model A and Jet Back	107.1"
10-635327-000		Motor to Elevator Belt, Model A and Jet Back, (1.5" shorter)	105.6"
10-635315-000		Motor to Elevator Belt, Model A•2 with 12-862162-000 tension conv. kit	98.0"
10-635330-000		Motor to Elevator Belt, Model A•2 (1.5" longer)	93.8"
10-635306-000		Motor to Elevator Belt, Model A•2, 50 cycle	93.3"
10-635303-000		Motor to Elevator Belt, standard for Model A•2	92.3"
10-635329-000		Motor to Elevator Belt, Model A•2 (1.5" shorter)	90.8"

# A•2 BELT ASSEMBLY



INDEX	PART NUMBER	DESCRIPTION
1	10-635303-000	Subway Lift V-Belt
	10-635128-000	Subway Lift Flat Belt, 91
	24-200947-000	Subway Lift Flat Belt, 88
	53-520235-000	Subway Lift Poly V-Belt, 89
	53-520148-002	Concealed Surface Poly V-Belt
2	53-520235-600	Advanced Performance High Friction Power Lift Poly V-Belt
	10-635112-000	Ball Accelerator Flat Drive Belt, for 2 23/32" pulley
	10-635113-000	Ball Accelerator Flat Drive Belt, for 1 11/16" pulley
	10-635114-000	Ball Accelerator Flat Drive Belt, for 3 17/64" pulley
	10-635118-000	Ball Accelerator Flat Drive Belt, for 2 1/32" pulley

INDEX	PART NUMBER	DESCRIPTION
10-635124-000	10-635124-000	Ball Accelerator Flat Drive Belt, for 1 1/2" pulley
	10-635125-000	Ball Accelerator Flat Drive Belt, for 1 13/16" pulley
3	10-635126-000	Long Accelerator Flat Belt, light colored
	10-635126-600	Long Accelerator Flat Belt, dark colored
4	10-635307-000	Ball Booster V-Belt, for Jet Back with 8" pulley
	10-635308-000	Ball Booster V-Belt, for 2.7" driver and 8" driven
	10-635314-000	Ball Booster V-Belt, for 2.3" driver and 9" driver

Refer to your Automatic Pinsetter Service Parts Catalog (12-902908-000) for more information on the Guard Assembly.



### Rear Elevator Guard Assembly

**12-400046-000**

Protect people in the rear aisle way by covering the top elevator belts, pulleys, and shafts.

- Made from heavy-gauge steel painted gray.
- Free of sharp edges that can hurt people or damage clothing.
- Includes mounting brackets and rubber mounting plugs.



### Warning Label

**12-700206-000**

Do all your pinsetters have this warning label placed on them?

- Promote a safe work environment – keep all warning labels in place.
- Pressure sensitive gray plastic film sticker with red lettering.
- Label is 3 1/2" x 2 3/4".

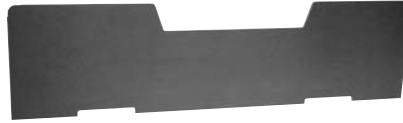


### Cross Conveyor Belt Guard

**12-450081-000**

New guard covers the pinch point where the cross conveyor belt enters the pulley.

- Protects fingers, hands, clothes, and rags from getting caught between the pulley and belt.
- Installs quickly and easily.
- Made from top-grade steel.
- Includes mounting hardware and installation instructions.



### Rear Pin Deflector

**12-402405-000**

Avoid serious injury caused by pins flying out the back end.

- Protects people behind the pinsetter from being struck by speeding pins.
- Keeps pins in the pinsetter and prevents the turret from running out of pins.
- Constructed from durable Masonite® material.
- Order 12-402401-000 Mounting Bracket Assembly if you are installing this rear pin deflector for the first time.

® Masonite is a registered trademark of Masonite International Corporation



### Pit Conveyor Drive Guard

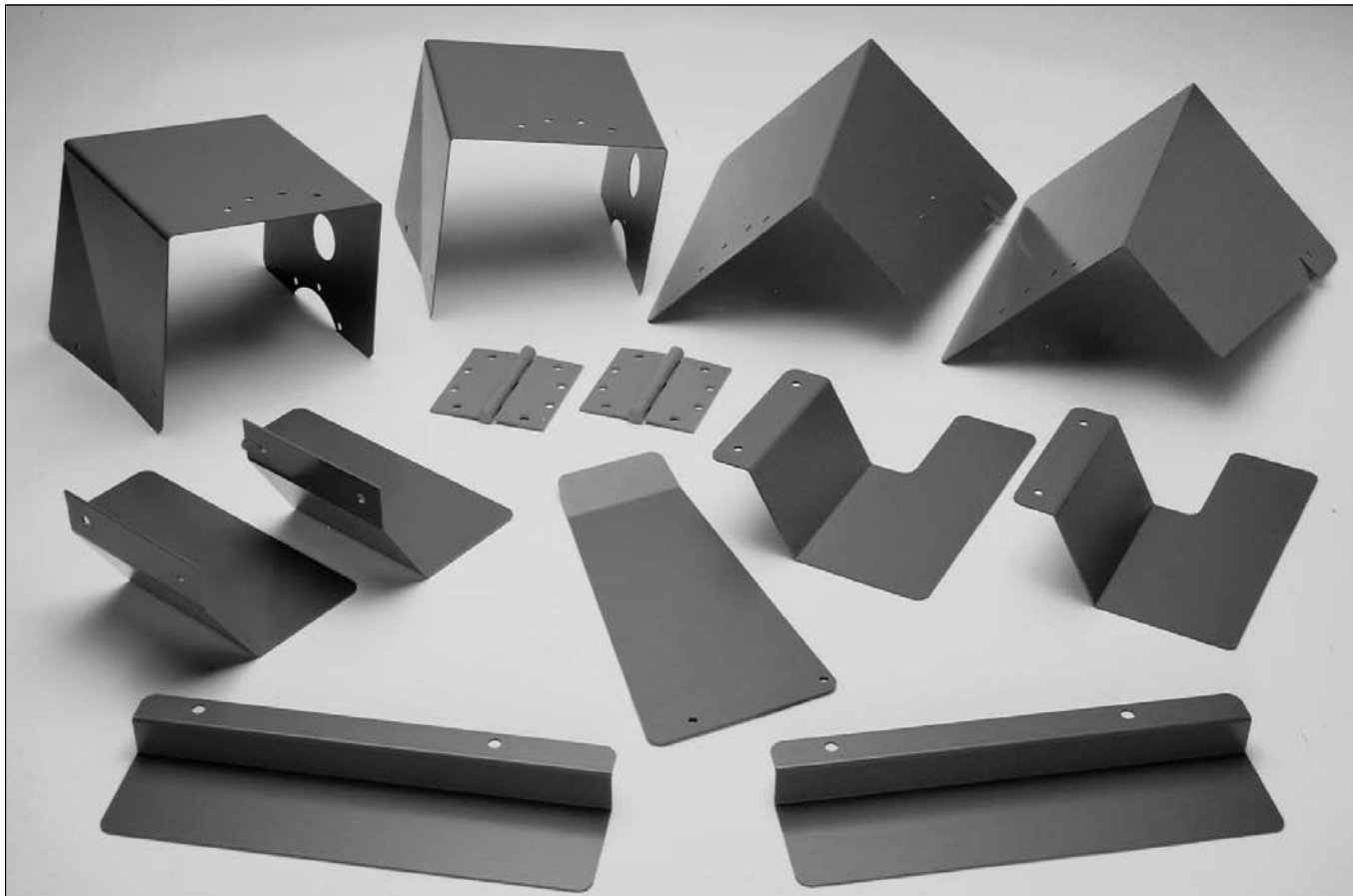
**12-302003-000**

Avoid personal injury caused by feet getting into the pit conveyor drive system.

- Newly designed guard keeps pins out of the pit conveyor drive system where they can cause costly damage.
- Easy-to-install guard comes with hardware and installation instructions.

## A•2 GUARD ASSEMBLY

Refer to your Automatic Pinsetter Service Parts Catalog (12-902908-000) for more information on the Guard Assembly.



### Guard Package – New / Converted A•2

**12-802013-010**

Here's a convenient way to ensure that you have many special Brunswick guards.

- Made from high-grade steel.
- Guards are painted gray and have no sharp edges.
- This package includes the following parts for a pair of pinsetters:

QTY.	PART NO.	PART NAME
2	*12-750567-000	Foot guard
2	*12-750570-000	Rake crank guard
2	*12-750571-000	Rake crank guard
2	*12-752574-000	Motor pulley guard
1	*12-750579-000	Foot guard extension
1	12-862044-010	Hardware package

\* Not sold separately.



**3-1/2 oz. Grease Gun Kit**

**12-700120-000**

Compact grease gun allows you to lubricate in areas where a big gun won't fit.

- This small, easy-to-use grease gun is critical for proper pinsetter maintenance and extending the life of critical pinsetter parts.
- Comes complete with grease gun, standard grease fitting coupler, and a 3 1/2 oz. lithium grease cartridge.
- Avoids the mess of bulk filling by using a 3 1/2 oz. lithium grease cartridge. Cartridges are available in handy two-packs (12-700129-000).
- Following convenient adapters make repacking bearings simple: needle adapter (12-700121-000), 5.5" grease pipe (12-700130-000), and 12 grease needles for repacking bearings (12-700126-000).
- Brunswick sells convenient 14 oz. grease cartridges .  
11-676305-000 (A•2 and GS) Lithium grease for use on metal parts. 11-676361-000 (GS) Non-Lithium grease for use on non-metal parts.

*Note: For use on metal parts only.*



**Pistol Oiler**

**12-700105-000**

This little oiler is one of the keys to proper pinsetter preventative maintenance.

- Preventative maintenance is essential for decreasing malfunction rate, preventing major breakdowns, and lengthening the life of your pinsetter.
- Hand-held oiler features a 6 oz. capacity body with a 6" flexible spout, ideal for general purpose oiling.
- Wide base allows oiler to stand upright.
- Flow is controlled by the pressure put on the trigger (flow is not metered).
- Use Brunswick general purpose lubricating oil (11-676353-000).



**A•2 Pinsetter Gear Box Oil**

**12-752024-000**

Trust your pinsetter's health to the A•2 gear box oil that Brunswick stands behind.

- Proper pinsetter maintenance is critical for trouble-free pinsetter operation – scheduled oiling is imperative.
- High-grade oil comes in a one-gallon, easy-to-pour plastic container.
- Use Brunswick Stop Leak oil if needed 12-700127-000 (90/140 weight).

*Note: If you have a Model A pinsetter with a dashpot, use a Brunswick general purpose oil (11-676353-000, one gallon).*

*Tip: Gear box oil leaks – By adding one ounce of a transmission sealer to the gear box, oil leaks through gaskets or seals of gear box components can be minimized. This of course is only a temporary fix until the gasket or seals can be replaced.*





### Deck Chute Conditioner 62-860029-000 (Quart)

Improve the durability and performance of your deck chutes with Brunswick's new and improved deck chute conditioner. Longer lasting, and more stable, this Advanced Performance deck chute conditioner has been designed to minimize deck jams by allowing pins to slide easily through the chutes.

- Improved formula promotes longer chute life.
- Durable and more stable.
- Minimizes deck jams and downtime.

*Tip: Some top mechanics use this conditioner to lengthen the life of deck pads.*



### Dura-Patch Universal Repair Kit 12-860606-000

Get extra life out of the rubber parts in your pinsetter and around your center.

- Great for repairing rubber deck chutes.
- Includes two-part epoxy kit, woven glass cloth, cup, stir sticks, and complete instructions.



### Installation Air Fitting 12-700268-000

This tool will make your job easier.

- Used to "blow on" ball lift rod covers.
- Decreases this installation time dramatically.
- Standard compressor fitting.



### Automatic Pinsetter Grey Paint 62-860062-000

Keep your pinsetter looking as good as new. Fix nicks, scratches, and scrapes quickly and easily.

- This is the original gray paint used on the automatic pinsetter. It's guaranteed to match.
- Lacquer spray paint dries quickly to a durable finish.
- Comes in a 12 oz. can.

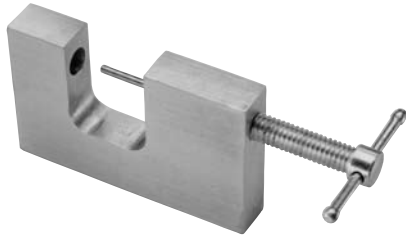


### Automatic Pinsetter Cleaner 62-860083-005

Here's an earth-friendly way to degrease and clean your metal pinsetter parts.

- New, environmentally safe formulation meets even California's strict environmental regulations.
- Strong, solvent-based cleaner cuts through tough pinsetter grease and grime.

*Tip: Do not use on non-metal parts.*



**Roll Pin Installation Tool**

**12-900181-000**

Replacing a worn roll pin in the pin gate latch doesn't have to be a tough job.

- This handy tool removes the worn pin and installs a new one in a single operation.
- Easy screw operation eliminates the need for hammer and pin punch.
- You can use this tool without removing the pin gate latch from the pinsetter.



**Belt Fastener Tools**

**12-800502-000 (Double V-belt holder)**

**12-400279-003 (Double V-belt fasteners, box of 10)**

**12-400180-000 (Single V-belt fasteners, box of 10)**

**12-800503-000 (Rocker pin tool)**

Quickly repair spliced ball wheel belts using these tools.

- Holders clamp the belts firmly so the fasteners can be easily and securely attached.
- Metal fasteners temporarily splice broken belts until you can get a replacement.
- Rocker pin tool ensures that the belt is held together securely by locking the rocker pin in place.



**Worm Thread Chaser**

**12-860660-000**

Damaged worm shaft threads? Oil leaks at the gear box seal?

- Avoid the expense of purchasing a new worm shaft or the hassle of a trip to the machine shop just because your threads are damaged.
- This time-saving tool comes in handy anytime you're doing work on your worm shaft.
- Don't force the locknut on, because cross-threading jeopardizes this critical seal point.
- Use this specialty tool to clean and repair your threads on the spot.



**X-Washer Pliers**

**12-800517-001 (1/16" slot)**

**12-800517-002 (3/32" slot)**

Exclusive Brunswick pliers save time and reduce frustration when installing X-washers.

- Special grooved jaws that hold an X-washer and prevent it from slipping out.
- Allow you to install and remove X-washers with one hand.
- Jaws tips are designed to eliminate interference with X-washer pin, allowing you to close an X-washer completely.
- Simple procedure reduces maintenance time substantially.



### Scissor Spring Installer 12-700271-000

This tool takes the work out of removing/installing the 12-200022-000 scissor spring.

- Easy and safe to use.



### Special Bearing Wrench 12-800506-000

Here's the tool you need to remove the deck lift shaft bearing.

- Ultra-thin wrench is the proper thickness to fit the deck lift shaft bearing.
- 1 3/4" head is case-hardened for added strength.
- Handle is 12" long for increased leverage.



### Deck Pin Gauge 12-700003-000

Don't let USBC/WIBC surprise you. Check your pin spotting before they do.

- Tool is so accurate that the USBC/WIBC uses it to check pin spotting during inspections.
- Base is cut away so you can easily see pin spot.
- Use it to check pin spotting before a tournament or when making deck adjustments, such as changing a moving deck cable or stabilizer arm.



### A•2 Preventative Maintenance Wall Chart 12-700108-000

This reusable wall chart takes the guesswork out of scheduling preventative maintenance.

- 23" x 35" chart shows Brunswick's recommended preventative maintenance schedule for daily, weekly, monthly, quarterly, bi-yearly, and yearly items.
- Allows you to record your progress using water-soluble markers.
- Reminds you of unfinished work so it doesn't get neglected.
- Marks wipe off easily using a damp cloth.



### BrunsParts Preventative Maintenance Manual 12-900260-000

Here's everything you need to know to keep your pinsetter running efficiently – and it's all in one handy reference manual.

- Pages of helpful procedures, tips, and illustrations showing you how to maintain your pinsetter correctly.
- Comes with a work schedule, lubrication charts, and new functional tune-up sheets for each subassembly.
- Excellent resource for new maintenance technicians.

MACHINES

# \_\_\_\_\_ THRU # \_\_\_\_\_



MACHINES

# \_\_\_\_\_ THRU # \_\_\_\_\_



MACHINES

# \_\_\_\_\_ THRU # \_\_\_\_\_



MACHINES

# \_\_\_\_\_ THRU # \_\_\_\_\_



Preventative MAINTENANCE WORK SCHEDULE BRUNSWICK AUTOMATIC PINSETTER (MODEL A•2)		FOUR WEEK PERIOD ENDING																												
	ASSIGN TO	TRI-WEEKLY SERVICE (% OF PINSETTERS PER DAY)																												
		M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
1	CHECK STOP SHEET (ALL MACHINES DAILY)																													
<b>CLEANING</b>																														
2	BALL & PIN ELEVATORS & PIN GUIDE (WIPE)																													
3	TURNAROUND PAN (WIPE)																													
4	BALL LIFT RODS & RETURN TRACKS (WIPE)																													
5	PIT CUSHION & PIT CURTAIN (WIPE)																													
6	CROSS CONVEYOR BELTS, SIDES & PLATE (WIPE)																													
7	TURRET 5 PIN CHUTE, SPOONS & SNUBBER (WIPE)																													
8	PIT CARPET (VACUUM CLEAN)																													
9	WORK AREA (BENCH, ROOM & AISLE)																													
<b>CLEANING</b>																														
10	ALL BELTS (WIPE)																													
11	DECK CHUTES (WIPE)																													
<b>LUBRICATION</b>																														
12	GEAR BOX OIL LEVEL (CHECK)																													
13	DETECTOR (CLEAN & OIL)																													
14	LUBRICATION CHARTS (WEEKLY ITEMS)																													
<b>MONTHLY SERVICE (% OF PINSETTERS PER WEEK)</b>																														
<b>INSPECT AND CORRECT</b>																														
15	CHECK JAM SWITCHES (ALL MACHINES)																													
<b>CLEANING</b>																														
16	ACCELERATOR BELTS (CLEAN)																													
17	FRAMES & CROSS MEMBERS (WIPE)																													
18	GEAR BOX (WIPE)																													
19	DECK (WIPE)																													
20	PIT CARPET (CLEAN)																													
<b>LUBRICATION</b>																														
21	CAM SURFACES (CLEAN & OIL)																													
22	LUBRICATION CHARTS (MONTHLY ITEMS)																													
<b>QUARTERLY SERVICE (% OF PINSETTERS PER MONTH)</b>																														
<b>LUBRICATION</b>																														
23	LUBRICATION CHARTS (QUARTERLY ITEMS)																													
<b>TIGHTEN</b>																														
24	KICKBACK CHANNELS & SIDE FRAMES																													
25	ALL PULLEY BOLTS & NUTS																													
26	GEAR BOX SUPPORTS																													
27	MOTOR SUPPORTS																													
28	DETECTOR MOUNTING BOLTS																													
29	SCISSOR CAM FOLLOWER MOUNTING BOLT																													
30	DECK SHAFT BOLTS																													
31	ELEVATOR GUIDE ROLLER BOLTS & NUTS																													
32	PIT CUSHION BOLTS																													
33	PIT CUSHION ARM TRIANGULAR PLATES																													
34	FIXED RAKE ARM STOPS																													
35	SCISSOR DECK SCREWS																													
36	TURRET INDEX PULLEY SCREWS																													
37	SUB PLATE & PIT CONVEYOR BOLTS																													
38	BALL TRACK & PREFERENCE BAR																													
<b>ANNUAL SERVICE (% OF PINSETTERS PER MONTH)</b>																														
<b>LUBRICATION</b>																														
39	GEAR BOX OIL (CHANGE)																													
40	GEAR BOX CLUTCH																													
41	ELECTRIC MOTOR (GREASE)																													
42	LUBRICATION CHARTS (ANNUAL ITEMS)																													
<b>INSPECT &amp; CORRECT</b>																														
43	BALL LIFT ROD COVERS																													
44	SHOCK ABSORBERS																													
45	MOVING DECK & SCISSOR CABLES																													
46	ELECTRICAL CONTACT POINTS																													
47	WELDED ASSEMBLIES																													
48	PIVOT & WEAR POINTS																													

REMARKS:

\_\_\_\_\_  
CHIEF MECHANIC'S SIGNATURE

\_\_\_\_\_  
PROPRIETOR'S SIGNATURE



**Pinsetters Tool Kit**

**12-860670-000**

No mechanic should be without these time-saving tools.

- Don't waste time and risk damaging parts by using tools that aren't appropriate for your pinsetter.
- Each tool was specifically designed by Brunswick with your needs in mind.
- Kit includes the following tools, which can be ordered individually.

QTY.	PART NO.	PART NAME
1	12-700110-000	Deck jam cable spring tube servicing fixture
1	12-700111-000	Clutch facing rivet set
1	12-700112-000	Tri-plate bushing puller
1	12-700113-000	Worm nut alignment socket
1	12-700114-000	Worm shaft holding wrench
1	12-700115-001	Worm shaft bearing driver
1	12-700115-002	Shaker shaft bearing driver
1	12-700115-003	Rake shaft repair driver
1	12-700115-004	Large jogger link bearing driver
1	12-700119-002	O-ring
1	12-700115-005	Small jogger link bearing driver
1	12-700119-004	O-ring
1	12-700115-006	Guide roller bearing driver
1	12-700116-001	Adapter plate for elevator drive shaft
1	12-700116-002	Adapter plate for clutch bearing sleeve
1	12-700116-003	Adapter plate for magnetic clutch
1	12-700116-004	Adapter plate for seals on 2 to 1 and 1 to 1
1	12-700116-005	Adapter plate for seals on 4 to 1 and worm
1	12-700116-006	Adapter plate for guide roller bearings
1	12-700118-000	Safety glasses





**Deck Jam Cable Spring Tube Servicing Fixture**  
**12-700110-000**

Replace your deck jam cable quickly and safely with this specialty tool.

- Easy to use by mounting on a table or in a vise.
- Reversible head allows easy servicing of both Model A and A•2 tube types.
- Safety mechanisms within the ram head secure the pressurized springs in the fixture.



- Makes replacing weak spring easy.

**Clutch Facing Rivet Set**  
**12-700111-000**

Use this helpful tool to replace clutch facings without damage.

- Press action of the tough steel screw allows you to control rivet pressure, preventing damage to facing material.
- Precision end flare properly sets rivets against facing material.
- Use on all pinsetter facings, including clutch drive, hub drive pulley, and turret clutch.
- Die cast from lightweight aluminum.

*Tip: Use with Brunswick's Gear Box Clutch Repair Kit DVD (61-860200-100)*



**Tri-Plate Bushing Puller**  
**12-700112-000**

Remove and install the tri-plate bushing easily with this unique and innovative tool.

- Changes the tri-plate bushing in one simple step.
- Eliminates stress cracks in bracket and bushing distortion commonly caused by the hammer driving method.



**Worm Nut Alignment Socket**  
**12-700113-000**

This specially designed tool ensures proper installation of the worm nut.

- Self-centering on worm shaft for accurate alignment and starting of the worm nut.
- Standard 1 - 1/8" hex head to tighten worm nut.



**Worm Shaft Holding Wrench**  
**12-700114-000**

Prevent damage to your worm shaft spline during a repair job.

- Use with the worm nut alignment socket to tighten the worm nut properly.
- Eliminates the use of improper holding devices, such as pliers, which tend to damage splines and result in gear box clutch malfunctions.



**Jack Shaft Installation Tool**  
**12-700270-000**

Tool designed by a mechanic for mechanics.

- Installs the jack shaft and bearings easily.
- Extends life of bearings.
- Saves time and money.



**Deck Jam Switch Checker**  
**12-700207-000**

Ensure proper deck jam switch operation.

- Easy to use.
- Includes simple step-by-step instructions.
- Eliminates expensive repairs.
- Guarantees safe running condition of deck jam switch.



### Pin Deflector Support Bracket

**47-024036-002**

New and improved pin deflector support bracket is made from a stronger material with strengthened welds.

- 47-023986-001 RH Pin Deflector
- 47-023987-001 LH Pin Deflector



### Trouble Light Bulbs

**47-861047-000 (24 volt) – New LED Bulb!**

Extend the life of your trouble light! The new LED works for up to 50,000 hours! For 24 volt assemblies only.

- 47-015646-004 24 volt assembly (series 466 and above).
- 47-013817-004 12 volt assembly (series 42 and below)
- 47-014687-004 12 volt assembly (series 43-465)
- 47-223170-000 12 volt bulb only



### **NEW!** Rear Display Package

**47-861048-000 (Nex Gen)**

**47-861046-000 (Consolidated)**

Now you can see error codes from the back of the machine!



### Elevator Chain Repair Kit

**47-013873-004**

A stretched chain can cause elevator jams. Every center needs a chain repair kit and a spare master link on hand. Kit contains tool and master link with pin.

- 47-013871-004 Master Link with Pin Only
- 47-013872-004 Elevator Chain Break Tool Only



**Polycord 12mm - 20 meter length**  
**47-275804-009**

The original distributor belt.

- Beware of other manufacturer look-a-likes.
- Minimal stretching for increased life and performance.
- Sold in 20 meter roll.

**Polycord 12mm - 44 meter length**  
**47-092300-004**

**Polycord 13mm - 20 meter length**  
**47-092300-005**

Improve your distributor performance with a larger diameter polycord.

- Increased diameter can improve pin transfer throughout the distributor.
- Sold in 20 meter roll.

**Polycord 15mm - 7 meter length**  
**47-024838-005**

The ultimate in GS power transmission.

- More power and speed can help minimize pins in the ball door.
- Made from non-stretch high grade polyurethane.
- Sold in 7 meter roll.



**Front Transport Band Roller Shaft**  
**47-023933-004**

**Front Transport Band Roller Assembly**  
**47-023981-002**

New stronger material ensures better shaft to bearing fit.



**Transport Band Belt Upgrade Kit**  
**47-862842-000**

More power means less elevator & distributor jams.

- Increases horsepower on the transport band.

**GS Upgrade Kit**

**47-862842-000 (For transport band and upgrade only)**

Includes: V-Belt (2 each) 11-053910-000, Polycord 15mm (1 each) 47-024838-005, Pulley (2 each) 47-024839-002, Pulley (2 each) 47-025049-004.

**IMPROVED DESIGN**



**Transport Band Belt**  
**11-053581-000 (Long Pit)**  
**11-635201-000 (Short Pit)**

A failed transport band belt can put the machine down for hours.

- This belt is made with the best splice in the business.
- Will not stretch - assuring long life.
- Belt is made to stringent specifications to assure it will run straight.

**Certified Transport Band**  
**11-635201-100 (Short Pit)**

Finally, a lower cost durable belt that can stand up to the performance of GS® pinsetters.

- Double-finger splice construction with wider joint provides more surfaces contact, relieving impact stress more effectively.
- Thicker material gives the belt higher ultimate tensile strength and higher bearing load.
- More resistant to initial stretching.



**V-belt**

- 11-053901-000 (10mm x 6mm x 875mm)**
- 11-053902-000 (10mm x 6mm x 1160mm)**
- 11-053903-000 (13mm x 8mm x 1375mm)**
- 11-053904-000 (10mm x 6mm x 950mm)**
- 11-053907-000 (10mm x 6mm x 92mm)**
- 11-053909-000 (10mm x 6mm x 2560mm)**
- 11-053910-000 (10mm x 6mm x 2650mm)**

These V belts not only provide the important power necessary to run the GS machines, they offer increased flexibility and reduced heat build-up that extends the life of the belt.

# GS SETTING TABLE



## GS Oversize Spotting Tong Damper

**47-051758-500 (Vinyl Black)**

**47-051758-600 (Urethane Clear)**

Used on all series GS machines, including GS-X. Worn spotting tongs can cause pinsetter malfunctions, but these oversize tongs provide extended life and eliminate pinsetter downtime caused by pins falling over. Order two different types — Advanced Performance vinyl or Advanced Performance urethane — for maximum life span. Ships in packages of ten.



## Spotting Tong Assembly

**47-055117-009 (Pin 1, 4, 5, 6) shown**

**47-055118-009 (Pin 2, 3, 7, 8, 9, 10)**

**47-051758-003 Damper Only**

USBC requires proper accurate pin spotting.

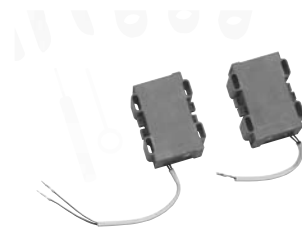
- Improved fit for more reliable pin pick up.
- Assembled to OEM specifications.
- All parts injection molded for consistency.



## GS Sintered Iron Pinion Gear

**47-071449-604**

Used on all pre-Tower Down GS pinsetters. Heavy-duty Setting Table pinion gear replaces the OEM plastic gear for extended life and better performance.



## Solenoid

**99-060242-004 (Silver Box)**

**99-060351-004 (GS-X Box)**

Properly maintained, these solenoids prevent setting table jams.

- Powerful solenoid made from high grade iron.
- Designed to activate pin holder pin grippers properly time after time.



## Pin Holder Assembly Complete - GS-X

**47-055314-009**

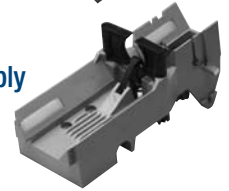
Pin holder switch actuation is imperative!

- Produced and assembled to exact specifications.
- Increased switch area for more reliable and consistent use.
- Includes longer reliable pivot pins.
- Stronger torsion spring to increase life.



## Pin Holder Only with Damper - GS-X

**47-054980-201**



## Pin Holder Assembly - Double Switch - GS96 and GS98

**47-054699-009**

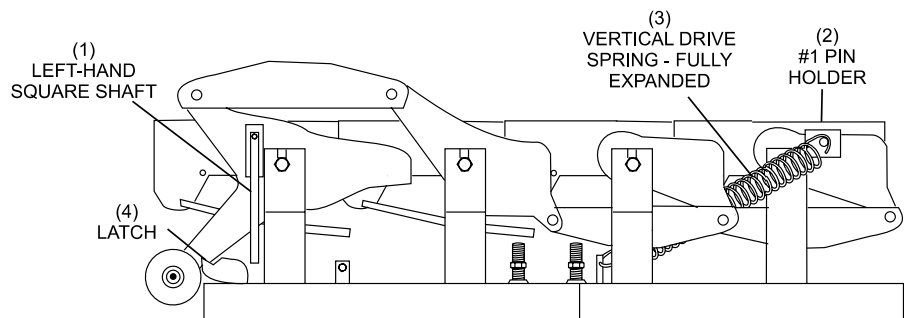


## Setting Table Repair Kit

**47-275620-009**

A great addition to a great pinsetter.

- Can be used on all GS series pinsetters.
- Increases support of setting table frame.
- Long lasting - easy to install.





### Lever

**47-054989-001**

Improved design with extra material and radius to the tab area of this part. The tab connects the setting table latch assembly and holds the pin holders in the horizontal position during pinsetter operation.



### Switch Lever

**47-054985-001**

Now with improved pin holder switch actuation reliability. Flatter contact surface of the switch actuator reduces double loading of the setting table pinholders



**IMPROVED!**

### GS-X Switch Finger

**47-054982-002**

New design puts less wear on switch lever.



### Setting Table Motor (1/2 HP)

**99-040116-002 230/380 VAC**

**99-040294-004 208 VAC**

Motors are the "heartbeat" of the pinsetter.

- Designed and tested to meet the most stringent requirements.
- Available in different two different voltages to meet your needs.
- Includes heavy duty brake for improved reliability and durability.
- OEM design - don't trust "off the shelf" motors for this important application.



### Setting Table Repair Kit

**47-275850-009**

For the bottom frame, this kit straightens out the bending area on the GS-X pinsetter.

- Applicable on GS-X series 13 through 574 pinsetters.



### Pin Detector Plate

**47-054298-001**

Improved durability prevents pin detector plate break-off at the pivot pin mounting holes and cracking across bottom surface.

### Tube Guide

**47-085349-003**

Provides long-lasting consistent support for table setting and resetting of pins.



### Pivot Pin

**47-860005-000**

Increased length. Package of ten.



### Torsion Spring

**47-055006-004**

Now stronger to better return the switch actuator during pin holder operation.



# GS BALL CUSHION AND PIT CURTAIN



## New Features!

### OEM Overflow Sock

47-022531-000

The improved OEM sock helps to prevent pin and transport band wear. This design introduces a locking strap to keep socks from swinging excessively as pins exit and offers a new reinforced bottom slowing pins entrance onto the transport band.



### Heavy Duty GS Overflow Sock

47-092529-600

This sock integrates heavy-duty polyester fabric, added stitching, and an improved exit design to improve sock life, durability, and value. The fabric is designed to keep your pins clean and absorb excess oil.



### Ball Cushion Frame

47-025639-009

Don't get caught with a broken ball cushion frame.

- New design conforms to the most stringent specifications.
- Increased material thickness where necessary.
- Made from high grade steel.
- Improved welding.
- Improved shock mounting system.

### Ball Cushion Flap Kit

47-274888-009

Put this kit in place and minimize "pins in the ball door".



### Ball Cushion Board with Facing

47-025044-009 (L.H.)

47-025045-009 (R.H.)

Properly maintained and efficient pit cushion boards are a must!

- Cushion molded to board to prevent delaminating.
- Special cushion facing to minimize ball energy.
- Includes 47-274888-009 Ball door flap kit.

### Overflow Sock Pin Cleaner

47-275812-009

This new heavy duty pin cleaner has a mop – like material that cleans pins better than traditional pin wipers. It is easy to install and maintain. The mounting plates eliminate the need for Velcro® and it has pockets on both sides for the mounting plates, allowing the cover to be flipped when one side is dirty.



### Overflow Chute Pin Wipe for Metal Chute

47-092527-000

Keep your pins clean and performing properly. This cloth fits the metal overflow chute used on GS-X pinsetters. Packaged 1 cloth per bag. Easy to install, long lasting, and washable.

### Advanced Performance Overflow Chute Pin Wipe for Plastic Chute

47-860003-000

Keep your pins clean and performing properly. Used on GS machines, series 406 and above, including GS-X. This cloth fits the plastic overflow chute used on GS-X pinsetters to help keep your pins clean and your bowlers happy. Packaged 2 cloths per bag. Easy to install, long lasting, and washable.



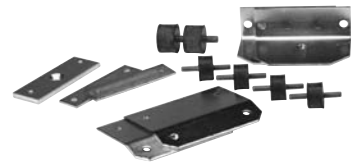
### Overflow Chute Assembly without Sock

47-095739-009 (L.H.)

47-095740-009 (R.H.)

Make sure there is nothing stopping your distributor overflow.

- Polyethylene design eliminates noise.
- Shock mounted for durability.



### Overflow Chute Upgrade Kit

47-275731-009

An inexpensive way to keep your distributor performance working properly.

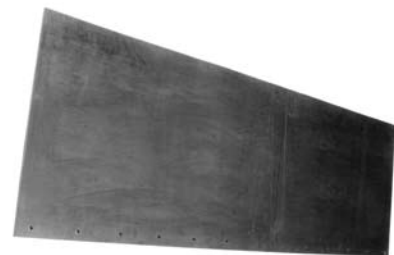


### Ball Cushion Hydraulic-Complete

99-026121-000

Keep your pit cushions working correctly with properly maintained shocks.

- New design with no messy reservoir for all GS pinsetters.



### Pit Curtain

47-021084-004

Smooth surface is easy to clean, non-marking, and oil resistant.



**Accelerator Motor with Driving Drum-208/230/380**  
99-030363-004

Motor and driving drum together.

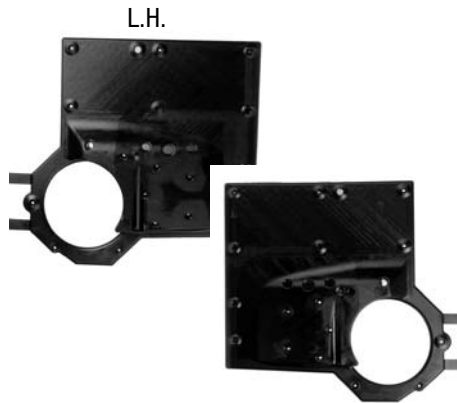
- No v-belts to cause dirt and performance issues.
- Rigorously tested to assure long life.
- For series 420 and below, order motor 99-040295-004.



**Ball Door Key**  
47-031055-003 (R.H.)  
47-031056-003 (L.H.)

Broken and/or damaged ball door keys can cause unwanted bowler delays.

- Made from impact resistant polyethylene.
- Redesigned injection molding.
- Designed with exact tolerances.



**Ball Door Protector Plate** R.H.  
47-035240-001 10-pin side (left Hand)  
47-035241-001 7-pin side (Right Hand)  
Now with increased durability. For Ball Door Arms, order the following:  
47-033556-009 Right Hand  
47-033555-009 Left Hand

*Replacement note:*

*When removing old units from ball accelerators, it is no longer necessary to remove the transport band boards to get to the bottom screws in the ball door protector plates. These two bottom screws can be cut off and discarded. The latest ball accelerators no longer use these two screws to fasten the ball door protector plates to the accelerator (starting Series 490). This will save a great deal of time when changing out units.*



**Accelerator Flat Belt**  
10-635127-000

Keep your bowlers happy with proper ball returns.

- Well tested to minimize stretching and long life.
- Produced from engineered materials.



**Locking Bolt**  
47-031797-002

Make certain the ball door is positively locked so pins do not follow the ball into this critical area.

- Designed to OEM specifications.
- Redesigned injection molding.

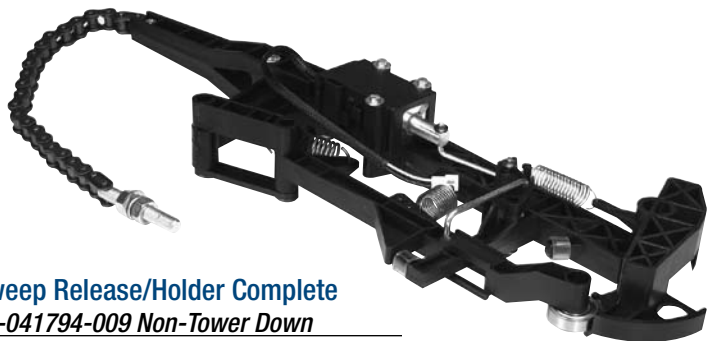


**Solenoid Assembly**  
99-070356-004

Correctly maintained, this solenoid keeps the sweep release working properly.

- Powerful solenoid made from high grade iron.
- Designed to activate ball door mechanism under the highest load.
- Designed housing minimizes malfunction due to dirty/oily environmental conditions.
- Also used in GS Drive Frame Assembly and Sweep Wagon to keep sweep release working properly.

## GS SWEEP WAGON



### Sweep Release/Holder Complete

47-041794-009 Non-Tower Down

47-045566-009 Tower Down

Make sure your bowlers aren't delayed. A must to have in inventory.

- Complete assembly, includes all linkages and solenoid.
- Easy to change and repair if necessary.



### Hitch Pin

11-054301-001 (3mm x 25mm)

11-054300-001 (2mm x 25mm)

Eliminate hitch pin breakage and top shaft mounting plate wear by replacing with this re-designed hitch pin.

- Thicker pin size and pin alignment to the shaft and keeper tab.



### Sweep Attenuator Hydraulic-Complete

99-046122-000

Good shocks are a major contributor to improved machine performance.

- New design with no messy reservoir.
- Strong plunger shaft manufactured from high grade steel.
- Keeps the GS sweep performing at a high level.



### Plastic Roller Assembly

99-040249-004

Keeps the sweep wagon operating smoothly.



### Gutter Adapter

47-041721-002

Now made of stronger material to last even longer.



## Pivot Bearing

**47-075352-004**

Takes the place of the original clevis.

- New design with steel collar for additional support.
- Easy to install.



## Shock Absorber Series 442 and Below

**99-076123-000**

Used for horizontal or vertical mounted stroke limiter solenoids - prior to Series 443.



## Shock Absorber Series 443 and Above

**99-076120-000**

Good shocks are a major contributor to improved machine performance.

- New design with no messy reservoir for machine series 443 and above.
- Strong plunger shaft manufactured from high grade steel.
- Stroke limiter shock will ensure the setting table functions correctly - all the time.



## Shock Bumper

**99-070398-004**

Is your stroke limiter shock bumper bending. Replace with this improved sock bumper. The harder material blend prevents bending.



## Crank Arm (GS-X)

**47-075357-003**

- Tighter pin fit into the crank arm.
- Pin welded on both sides.



## Tube Guide

**47-085349-003**

Provides long-lasting consistent support for table setting and resetting of pins.



## Stop Post

**47-075699-004 (6mm) Heavy Duty**

You must also order two each of the 11-053482-001 6mm starlock for each stop post being changed.



## Motor Drive Pulley 10% Reduced

**47-075743-004**

Improve the performance of the distributor - the most important sub-assembly in your GS machine.

- New smaller diameter pulley slows down the distributor approx. 10%.
- Tested and proven to minimize distributor jams.
- Designed to fit and perform.
- No more phantom table jams at the 1, 2, 3, 5 area.



## Slider Assembly - Complete

**47-091284-002**

Maintaining distributor reliability is the key to GS pinsetter performance.

- New longer design improves reliability by centering pin movement to the pin holder.
- Minimizes distributor jams and table switch problems.
- Manufactured from impact resistant polyethylene.
- Easy to install.



## Release Lever Universal

**47-095154-009**

## Release Button (available separately)

**47-094782-003**

Make sure the transition from the distributor to the setting table is accurate and reliable.

- Wider button improves performance by minimizing release levers slipping off pin grippers.
- Used on all universal pin stations.



## Extender Sleeve Retaining Bow

**47-862931-000**

**47-094232-004 Rubber Grommet**

**47-094778-001 Universal Housing**

Designed by a mechanic!

- Retaining bow extended minimizes pin station jams.
- No more diving pins in the 4,7,10 positions.
- Well tested throughout the world.
- Packaged conveniently in 6 pack.



## Repair Kit- Distributor Feed 1 & 4 Pin Stations

**47-275730-009**

Distributor repair kit. Easy to install.



## GS98 Electrical Upgrade

**47-862868-400**

The GS98 consolidated direct v3.3.10 is an upgrade path to some of the Nexgen electrical box features, including:

- A four second-ball door lock.
- Expanded distributor time-out function.



## Universal Pin Station

**47-094792-009 (Pins 2, 3, 4, 8 & 9) shown**

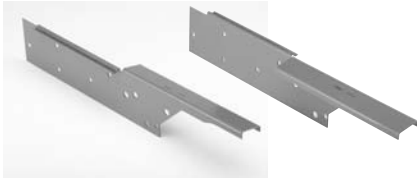
**47-094793-009 (Pins 1, 5 & 6)**

**47-094794-009 (Pins 7 & 10)**

Improved housing design! We have replaced the plastic pin for the release lever with a steel pin, giving you a more durable pin station. The complete assembly and housing only come with the new steel pin design with all necessary hardware.

- Universal housing only: 47-094778-009
- Steel shaft (pkg of 10): 47-861045-000
- Retaining Ring (pkg of 20): 47-861044-000
- Plastic bushing (pkg of 10): 47-861043-000





## Guide

**47-095103-001 Left Hand**

**47-095104-001 Right Hand**

Now with a radius at the bed to prevent cracking.



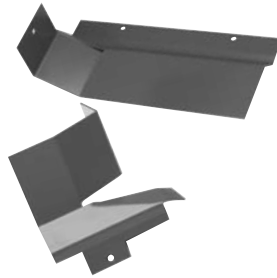
## Two-Piece Spur Gear

**47-275746-009 (For Front Distributor Shaft)**

**47-274669-004 (For Rear Distributor Shaft)**

Prevent pinsetter down situations by keeping a couple of easy to install two-piece gears on hand. These are great temporary replacements that do not require removal of the front or rear distributor shaft for installation.

- Saves time and money
- Hardware included
- To order permanent replacements:  
47-090547-004 Spur Gear for Front Distributor Gear  
47-093900-003 Spur Gear for Rear Distributor Gear



## Pin Deflector Shoe

**47-095172-003 (R.H)**

**47-095173-003 (L.H)**

Maintaining distributor reliability is the key to GS pinsetter performance.

- New two-piece design properly centers bowling pin on the green belt.
- Shock mounted and made with thicker steel for longer life.
- Rubber Grommet 47-094232-004



## Square Spindle

**47-094790-003**

Prevent pin station housing and retaining pin wear with the new and improved square spindle. Now with a bushing on each end.



## GSX Shark Fin (Gray)

**47-095106-001**

New stronger material improves the durability of the shark fin.



## Round Belt Pulley

**47-095745-004**



## Round Belt Geared Pulley

**47-095744-004**

New and improved material allows room for variation in the pulley alignment, much like our current distributor belt pulleys.



## Rubber Mount

**11-053579-000**

Absorbs vibration between the elevator and shark assembly and helps to prevent wear of the assemblies.



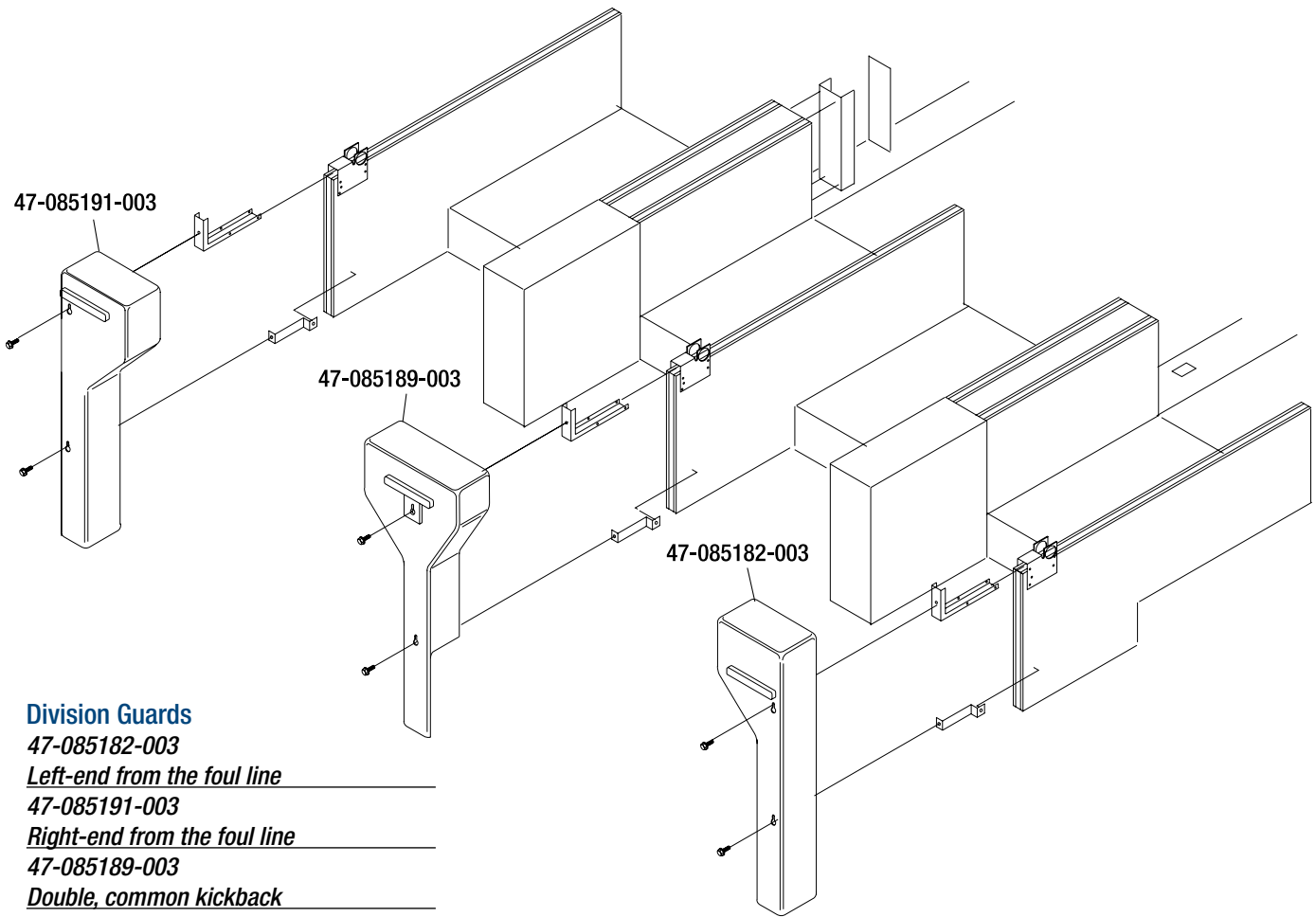
## Solenoid

**99-060387-004**

Ensures proper pin distribution in the distributor.

# GS GUARD ASSEMBLY

Refer to your Automatic Pinsetter Service Parts Catalog (12-902908-000) for more information on the Guard Assembly.



## Division Guards

**47-085182-003**

***Left-end from the foul line***

**47-085191-003**

***Right-end from the foul line***

**47-085189-003**

***Double, common kickback***

Improve your safety environment with Brunswick division guards.

- Easy to install.
- Why wrestle with your old plexiglass guards?

## PREVENTATIVE MAINTENANCE WORK SCHEDULE - GS PINSETTER

Machines # \_\_\_ thru # \_\_\_ Machines # \_\_\_ thru # \_\_\_ Machines # \_\_\_ thru # \_\_\_ Machines # \_\_\_ thru # \_\_\_

### DAILY SERVICE (1/2 OF THE PINSETTERS PER DAY)

ASSIGN TO	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
CHECK STOP SHEET (ALL MACHINES DAILY)																													
TROUBLESHOOT, REPAIR, AND ADJUST REPORTED FAILURES																													
CLEAN PINS																													

### MONTH \_\_\_\_\_

### WEEKLY SERVICE (1/4 OF THE PINSETTERS PER DAY)

ASSIGN TO	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
CLEAN																													
PIN WIPES AND OVERFLOW CHUTE WIPES																													
SHARK SWITCH PIN GUIDE ASSEMBLY																													
TRANSPORT BAND BELTS																													
INSPECT OPERATION & WEAR - CORRECT/ADJUST/TIGHTEN																													
BALL DOOR SHAFT COLLAR																													
DISTRIBUTOR POLYCORD TENSION																													
HYDRAULIC SHOCKS																													
OVERFLOW SOCKS																													
TRANSPORT BAND BELTS																													
V-BELTS / ROUND BELTS																													

### MONTH \_\_\_\_\_

### MONTHLY SERVICE (1/4 OF THE PINSETTERS PER WEEK)

ASSIGN TO	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
CLEAN																													
DISTRIBUTOR BELTS - POLYCORD																													
FEED DEFLECTORS																													
FRONT OF BALL CUSHION, PIT CURTAIN																													
OVERFLOW SOCKS																													
VACUUM DISTRIBUTOR DUST PAN																													
INSPECT OPERATION & WEAR - CORRECT/ADJUST/TIGHTEN																													
BALL DOOR LOCKING OPERATION																													
ELEVATOR PIN COUNT SWITCH																													
PIN FEED DEFLECTOR CLEARANCE																													
SETTING TABLE CABLE/CONDUIT																													
FASTENING SCREWS ON TRANSPORT BAND BOARDS																													
LUBRICATE																													
BALL DOOR COMPONENTS																													
PIN HOLDER SWING SHAFTS																													
PIN SHOVELS AND ROLLERS																													

### QUARTERLY SERVICE (1/3 OF THE PINSETTERS PER MONTH)

ASSIGN TO	J	F	M	A	M	J	J	A	S	O	N	D
CLEAN												
BALL DETECT LENS & REFLECTORS												
SWEEP & TABLE DRIVE GEARS, PINIONS AND PULLEYS												
SWEEP TRACKS AND CHECK SWEEP GUIDE ROLLERS												
INSPECT OPERATION & WEAR - CORRECT/ADJUST/TIGHTEN												
ACCELERATOR RAIL												
ANGLE 1 & 2 OF TABLE CRANK ARM/CHAIN												
DISTRIBUTOR BEARINGS/SHAFTS/PULLEYS												
DISTRIBUTOR HARDWARE												
FUNCTION SWITCHES												
OVERFLOW CHUTES												
PIN HOLDER MOUNTING HARDWARE												
TABLE CRANK MOUNTING BOLT KEY/PIVOT BEARING												
TABLE & ELEVATOR DRIVE CHAIN												
TABLE RACK & PINION												
SWEEP RELEASE PIVOT BEARING												
LUBRICATE												
BALL CUSHION BUSHINGS												
BALL DOOR BUTTON SHAFT												
BALL DOOR LOCKING MECHANISM												
DISTRIBUTOR SPUR GEARS												
DRIVE CHAINS												
ELEVATOR CHAIN												
FRONT DISTRIBUTOR SHAFT & GEARS												
GEAR CLUSTER PIVOT												
SETTING TABLE PINION GEARS												
SHARK SWITCH GEARS												
SHOCK BUSHINGS												
SPOTTING TABLE SQUARE SHAFT/BEVEL GEAR												
SPOTTING TONG CLUTCH GEAR												
SPOTTING TONG DRIVE GEARS												
STROKE LIMITER SHOCK												
SWEEP ATTENUATOR												
SWEEP DRIVE BUSHINGS												
SWEEP RELEASE PIVOT BEARING												
SWEEP RELEASE PIVOT LINK												
SWEEP RELEASE MECHANISM												
SWEEP WAGON ROLLER SHAFT												
SWEEP WAGON LINK BEARINGS												

### SEMI-ANNUALLY (SERVICE 1/6 OF THE PINSETTERS PER MONTH)

ASSIGN TO	J	F	M	A	M	J	J	A	S	O	N	D
CLEAN												
BALL ACCELERATOR BELT												
INSPECT OPERATION & WEAR - CORRECT/ADJUST/TIGHTEN												
BALL ACCELERATOR BELT												
BALL CUSHION FRAME/COLLARS/BEARINGS												
BALL IMPACT STRIPS												
DRIVE FRAME HARDWARE												
ELEVATOR HARDWARE												
HARDWARE ON KICKBACKS/ACCELERATOR PLATES												
PIN HOLDER SWING SHAFT BUSHINGS												
SPOTTING TONG RACKS & GEARS												
STROKE LIMITER OPERATION												
SWEEP ARM CONNECTING RODS												
SWEEP RELEASE												
SWEEP SHAFT BEARING RETAINER HARDWARE												
SWEEP TRACK & GUIDE ROLLERS												
LUBRICATE												
MOTOR MOUNT BRACKETS/SHAFTS/BUSHINGS												
PIN HOLDERS												
PIN STATION ASSEMBLY												
SETTING TABLE SHAFT ROLLER												
TRANSPORT BAND FRAME ROLLERS												

### ANNUAL SERVICE (1/12 OF THE PINSETTERS PER MONTH)

ASSIGN TO	J	F	M	A	M	J	J	A	S	O	N	D
INSPECT OPERATION & WEAR - CORRECT/ADJUST/TIGHTEN												
CABLING FOR WEAR/STRESS												
ELECTRONIC BOX MOUNTING HARDWARE/GROUND STRAPS												
PIT CURTAIN BRACKET & MOUNTING BOLTS												
PIVOT POINTS												
WELDMENTS												
LUBRICATE												
DISTRIBUTOR SHAFT BEARINGS												
TRANSPORT BAND ROLLERS												
REVIEW												
SAFETY GUIDELINES WITH ALL PERSONNEL												
MANUALS AND SERVICE BULLETINS												
PINSETTER PARTS INVENTORY												
TOOL/LUBRICATION AND CLEANING SUPPLIES												

FOR ADJUSTMENTS, MAINTENANCE, LUBRICATION, AND DETAIL REFER TO THE GS OPERATION AND SERVICE MANUAL.

COMMENTS:

CHIEF MECHANIC \_\_\_\_\_

PROPRIETOR/MANAGER \_\_\_\_\_



## Metric Tool Kit 47-273865-009

All the metric tools you need to maintain the GS pinsetter!!



## Metric Hardware Kit 47-860002-000

A necessity to have one on hand. Includes everything you need to service your GS pinsetter.

- Includes 1,316 pieces of 126 commonly used hardware items: Chain Links, Hex Head Cap Screws, Cotter Pins, Socket Head Cap Screws, Hex Nuts, Self Locking Nuts, Lock Washers, Internal and External Retaining Rings, Roll Pins, Speed Nuts, Flat Washers, Keys, and Allen Wrench set.

## Non-Lithium Grease 11-676361-000

Preventative maintenance is the key to your pinsetter's performance. Be sure to lubricate parts appropriately.

*Note: For use on metal parts only.*



## Belt Weld Kit 47-093877-004 (220 Volt) 47-094206-004 (110 Volt)

Any stretched or broken green belting can cause pinsetter stops. This kit contains all the items you need to repair your poly cord. Kit contains belt welding iron, belt welding clamp, and belt cutter.

Also available separately:

- 47-094208-004 Belt Welding Iron Only 220v
- 47-094211-004 Iron Only (110v)
- 47-093876-004 Belt Cutter
- 47-862770-000 Belt Welding Clamp



## Gauge Block 47-900012-000

Perform GS adjustments with this easy to use all-in-one tool. Use for pin detector, setting table lowest position, setting table highest position, transport band tension spring, pin count switch, shovel guide, distributor guide wedge to elevator adjustments...and more. No need for a tape measure!

## Spud Wrench 47-900011-000

No need for multiple tools! The GS spud wrench combines 13mm and 17mm twelve point sockets in one tool. Save time by using one tool for your GS pinsetter maintenance.



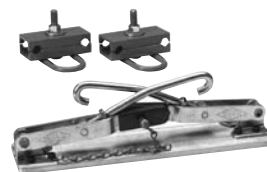
## Cable Terminators 57-900102-000 (Molex Round Extractor) 57-900103-000 (Molex Crimper) 57-900108-000 (Miller Cutter/Stripper)

Repairing cables can cause bowler delays!



## Polycord Round Belt Trim Tool 47-860009-000

Keeping proper tension on the green polycord is important to maintain top notch GS pinsetter performance. Welding the green polycord belt together to achieve this proper tension is "easy"; but properly trimming the belt after welding can sometimes be a chore. This trim tool makes the trimming process painless. Simply wrap the tool around the weld bead, rotate the tool and cut the old bead away.



## Belt Welding Installation Tool 47-860001-000

A "stretched" distributor belt will cause performance issues.

- New and improved design.
- Designed by a mechanic.
- Makes it easy to properly tension belts, while in place on the pinsetter.
- Easy to use. Instructions included.

## GSX Spare Parts Kit

- 47-275578-009 Large (230/380 Volt)
- 47-275794-009 Large (200/208 Volt)
- 47-275580-009 Small (230/380 Volt)
- 47-275795-009 Small (200/208 Volt)

## GS Preventative Maintenance Wall Chart 47-902401-000

This reusable wall chart takes the guesswork out of scheduling Preventative maintenance.

- 24" x 36" chart shows Brunswick's recommended preventative maintenance schedule for daily, weekly, monthly, quarterly, bi-yearly, and yearly items.
- Allows you to record your progress using water-soluble markers.
- Reminds you of unfinished work so it doesn't get neglected.
- Marks wipe off easily using a damp cloth.



## Urethane Foam Ball Lift Tire

**90-520060-600**

**11-195015-001 (Hardware pkg of 25)**

Durable? After more than 1.5 million ball impacts, there is virtually no wear. Specially formulated foam material is manufactured to the proper density to optimize ball lift performance. This is especially important in today's "oily" environment. The tire is now designed with a smaller diameter for better performance. It is made with the same technology used to manufacture Reactive resin bowling balls.

*Tip: For the best lifting results with highly reactive balls, install a urethane lift wheel in the bottom position and a rubber hub and tire power lift wheel in the top position.*



## Urethane Power Lift Wheel

**90-520060-000**

As the new highly reactive balls become more popular, it's more important than ever that urethane ball lift wheels be kept in top condition to prevent balls from getting stuck in the lift.

- Red/orange V-shaped urethane wheels are a continuous one piece urethane part. Therefore, eliminating separation problems.
- Mounting hardware is included. For Frameworx metric ball lifts, please also order Hex Head Bolt (8mm x 30mm) 11-051044-001.
- This power lift wheel has a good reputation for long life. It tends to become more flexible with age, however. It gradually loses its ability to apply pressure on the ball in order to transfer it up the power lift. Urethane power lift wheels that become too flexible should be replaced, even though it may visually appear to be in good condition.



## Ball Wheel Lift Assembly

**53-520060-000**

**11-001258-001 (Hardware pkg of 25)**

Still the mechanic's favorite, our original power lift wheel can be counted on for years of positive ball lifting.

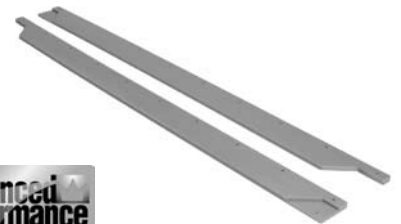
- For Frameworx metric ball lifts, please order hardware 11-051038-001 (pkg of 10)



## Urethane Transition Track

**90-520075-600**

Do bowling balls fail to roll out of the ball lift onto the ball rack? Worn rubber transition tracks may be the cause. These all urethane transition tracks just snap into place and will not absorb lane oils. Designed to be wear resistant to today's abrasive balls and will last 2 to 1 over OEM rubber track.



## FX Ball Lift Track

**90-520172-600**

Used on Frameworx ball lifts, this one piece, urethane ball lift track provides a perfect fit, durability, ball protection, and maximum oil resistance. Independent lab tests showed little wear after one million balls. What more could you ask for in durability and performance? Sold in pairs.



## POWER LIFT ASSEMBLY



### Poly V-Belt Conversion Kit

**53-860431-000**

Increase the driving power of your power lift – convert your flat belt to a poly V-belt.

- Maximizes the life of pulleys, belts, and bearings by reducing the belt tension – and at the same time provides more power.
- Compared to standard V-belts, poly V-belts offer longer life around the small twists and turns found in the power lift.
- Installs quickly and easily.
- Comes complete with belt, idler arm, motor pulley, tension spring, hardware and installation instructions.
- This kit eliminates the need for a hex head stud.
- To order individual parts:  
Poly V-Belt 53-520235-000  
Idler Assembly 53-520244-000  
Bearing 11-430028-000  
Set Screw 11-101202-001  
Key 10-621058-000  
Motor Pulley 53-520159-000  
Tension Spring 53-520301-000

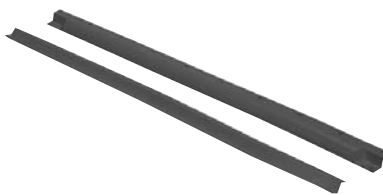


### Idler Pulley Mounting Stud

**53-520071-000**

- This low-profile steel stud won't break.
- Compatible with all power lift idler pulleys.

*Tip: To completely eliminate the need for a hex head stud, use our Poly V-Belt Conversion Kit.*



### Urethane Foam Ball Lift Track

**90-520171-600**

The material that works well as a lift rod cover also performs exceptional as a ball lift track — outlasting the standard OEM rubber and leather lift tracks. Won't absorb lane oils and swell like conventional lift tracks. Urethane grommets strengthen the mounting holes to prevent tearing. Package of 2 each. For B2000.



### Rubber and Leather Power Lift Track

**53-520171-000 (Rubber for B2000)**

**53-520172-000 (Leather for B2000 or FX)**

**53-520686-000 (Rubber for FX)**

Here's another proven performer even with high performance bowling balls.

- You could make these tracks last forever by periodically replacing the leather and retouching the glue that adheres the rubber to the steel.
- Flexible rubber lift track fits the steel contours better than some molded urethane tracks do, providing excellent ball lift.
- High-grade, bolt-on leather strips protect rubber without tearing or marking balls.



### Santoprene Power Lift Track

**90-520171-000**

- One-piece santoprene track is injection molded to ensure proper fit with your steel track.
- Red/orange material won't mark balls.
- Resists oil and wear for long life. For B2000.

*Tip: Extend the life of your santoprene track by bolting a leather track (53-520172-000) on top of it. Short of replacement, it is possible to swap the right and left santoprene lift tracks to move the worn area from the critical transition spot to the less critical top exit area.*



## Power Lift Motor

**53-860322-010**

Choose a motor that has enough power to lift balls up the track, yet uses less energy. (For B2000 ball lifts only)

- 115/208/230 volt – 50/60 cycles
- ¼ horsepower
- 1150/960 RPM
- 5/8" shaft
- For 56 frame

## 1/3 HP Power Lift Motor

**53-529999-000**

For higher voltage centers, this universal voltage motor will hold strong.

- 110/220/115/230 Volt – 50/60 cycles
- 1/3 horsepower
- 1150/950 RPM
- 5/8" shaft
- Continuous Duty
- Push button thermal overload reset
- For 48 or 56 frame

## Frameworkx Power Lift Motor

**53-860328-000**

Motor for Frameworkx lifts only.

- 110/220/115/230 Volt – 50/60 cycles
- 1/4 horsepower
- 1475/1725 RPM
- 5/8" shaft
- Continuous Duty
- Push button thermal overload reset
- For 48 frame



## Blower Motors

**53-860359-002 (115 volt)**

**53-860359-003 (230 volt)**

Make sure you have a spare in your inventory.



## Power Lift Drive Shaft

**53-520066-000**

Is a worn shaft causing balls to stick in the power lift?

- Strong shaft is made from a solid piece of stress-proof steel that won't wear or break.



## Power Lift Clutch

**53-860555-000**

Keep this clutch in good shape, and you'll extend the life of your power lift wheels.

- Based on a replaceable, high-performance, Torrington clutch and bearing assembly (11-500552-000).
- Fully assembled with a special, heat-treated, hex head cap screw that won't shear under repeated ball impact.

### Motor Pulley Table

Belt Type	Pulley Diameter	Pulley Part No.
Poly V-Belt	1 5/8"	53-520159-000
Poly V-Belt	1"	53-520582-000
Flat Belt	1 29/32"	24-204378-000
V-Belt		53-520027-000

# POWER LIFT ASSEMBLY



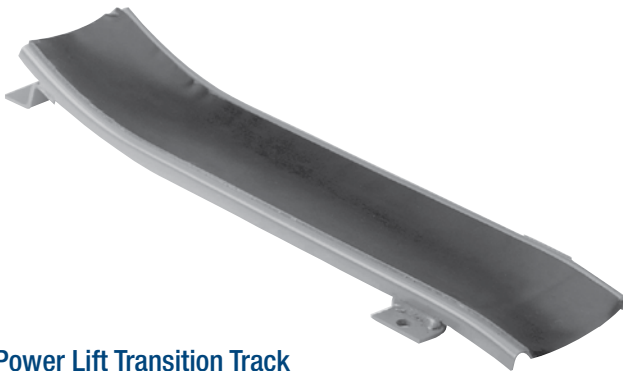
## FX Ball Return Storage Rack

*53-861111-604 (4-ball) 20 3/4" x 4 1/4" x 20 1/2"*

*53-861111-606 (6-ball) 25 3/4" x 3 1/2" x 17 1/2"*

*53-861111-608 (8-ball) 35 1/2" x 3 1/2" x 17 1/2" (not shown)*

How many times do your bowlers need more room for their bowling balls? This product is perfectly integrated to the best-selling Framework<sup>®</sup> ball return, and other FX ball rack look-alikes. In 4-ball, 6-ball, or 8-ball additions. Made from rugged, all steel construction that won't damage balls. Available in FX gray and is especially easy to install.



## Power Lift Transition Track

*19-204370-000*

Protect the bowler's investment. Replace broken or worn tracks before balls are damaged.

- Leather-covered metal track is shaped to deliver balls into the ball lift safely.
- Replace worn leather strips (19-204375-000) before the exposed track damages passing balls.



## Power Lift Idler Pulley Assemblies

*53-520026-000 (For V-belt)*

*53-520244-000 (For poly V-belt)*

Replace worn and broken pulleys to eliminate belt tensioning problems.

- Solid steel pulleys come fully assembled with a replaceable bearing (11-430028-000) and a retaining ring.



**Model A•2 Retarder Ball Wiper**

**53-520405-000**

You can never have too many ways to keep your customers and your center clean.

- Cleans ball right before it enters the power lift.
- Easily attaches to leather retarder frame.
- 36" long.



**Retarder Carpet and Back Plate Assembly**

**19-204350-000**

Eliminate costly damage to bowling balls and excessive wear on your power lift by properly retarding balls.

- To replace carpet strips only, order 19-204352-000.



**High Friction Poly "V" Power Lift Belt**

**53-520235-600**

This power lift belt provides more power transmission to lift all types of bowling balls. The high friction "back-side" works efficiently with idler pulleys to provide consistent and reliable performance to minimize ball lift problems.



**Vinyl Track**

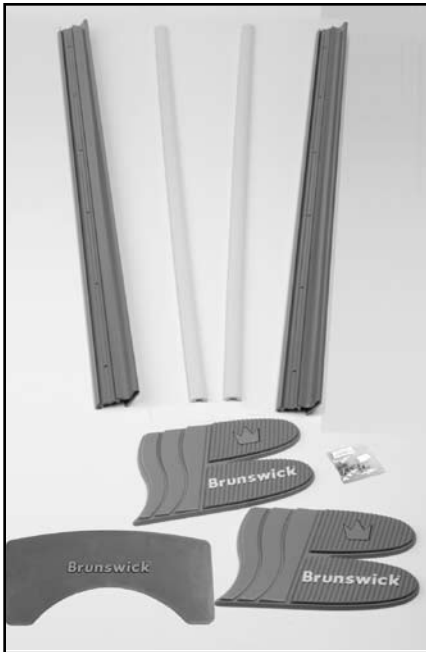
**53-520095-014**

Replace worn track inserts before they cause expensive ball damage.

- 74" lengths sold individually for your convenience.

*Tip: Don't let this be an "out-of-sight, out-of-mind" maintenance item. Clean the residue from these strips periodically to extend their life and prevent ball damage.*

# BALL RACK ASSEMBLY



### Color Kit

**\*53-861090-xxx**

Includes:

- (1) package - Ball Rail Extrusion Package 53-861026-xxx
- (1) - Vent Decal 53-400043-xxx
- (2) - Wear Strip 53-400057-xxx
- (1) - Throat insert 53-400009-xxx
- (2) - Hood logo 53-400048-xxx

### \*Color Chart

Part No. Suffix	Primary Color	Secondary Color
-220	Blueberry	Banana Accent
-221	Kiwi	Blueberry Accent
-222	Cranberry	Banana Accent
-223	Grape	Kiwi Accent
-224	Banana	Grape Accent
-225	Strawberry	Banana Accent



### FX Ball Return Wear Strip

**\*53-400057-xxx**



### Frameworkx Touch-Up Paint

**53-861005-101**

Keep your furniture weldments looking new! Dark Grey paint.



### FX Ball Rack Safety Switch

**53-861135-000**

For Frameworkx and B2000 lifts. Must use 53-520060-000 Ball Lift Wheel or 90-520060-600 Urethane Foam Tire, not v-style wheel.



### Ball Rail Extrusion

**\*53-861026-xxx**

Includes:

- (2) - Ball Rail Extrusion 53-400079-xxx (not available separately)
- Hardware
- Instruction Sheet



## LIGHT BULBS

Gold Crown	Astroline	Astro II	System 2000	Frameworkx B2000	
Starlights	11-675513-002 11-675517-002 #94	#90	#794		
Strikelight	11-675501-000 28V #308	11-675517-002 #94 Clear	11-675513-002 #90 Clear	11-675521-002 #1692 11-675523-000 (AMF)	N/A #68
1st & 2nd Ball Light	11-675501-000 28V #308	11-675521-002 #1692	11-675521-002 #1692		
<b>TELESCORE</b>					
Projection	17-213927-000 150 WATT	17-213927-000 150 WATT	17-213927-000 150 WATT	17-213927-000 150 WATT	N/A
<b>TELEFOUL</b>					
Foul Indicator	N/A #90 Clear	11-675513-002 #90 Clear	11-675513-002 #90 Clear	11-675513-002 #90 Clear	11-675513-002
Light Source	15-609567-000 6 VOLT	11-675514-002 #1876	11-675514-002 #1876	11-675514-002 #1876	11-675514-002 #1876
<b>PINFINDER</b>					
Display	11-675503-000 #1252	N/A	N/A LED	N/A	N/A
<b>AUTOMATIC SCORER</b>					
Service Light	N/A	N/A #1252	N/A	11-675503-000	N/A
Scanner	11-675514-002 Model 79'	11-675514-002 Model 79'	N/A	N/A	N/A
Ball Detector	11-675514-002 #1876	11-675514-002 #1876	N/A	N/A	N/A

### Pinsetter

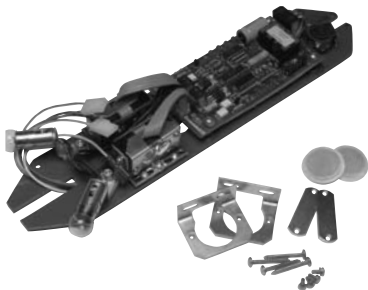
*Pinlight 40W (normal) 12-750992-000*

*Blacklight 48" 12-862933-000 Pkg. of 6*

### Lustre Kleen Conditioner

*LED Lights Assembly 61-100199-000*

## ELECTRICAL COMPONENTS



### Tel-E-Foul System

**53-861076-000**

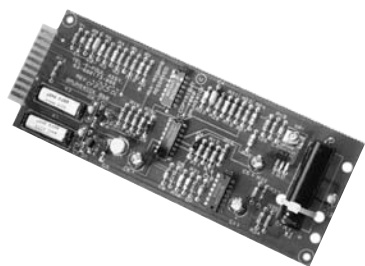
Brunswick introduces a new state-of-the-art microprocessor-controlled foul unit.

- Infrared technology – to last millions of hours instead of short life incandescent bulbs.
- Operates on 110/220 VAC at 50/60 Hz.
- Requires additional transformer for installation: 53-860327-115 for 115 volt or 53-860326-230 for 230 volt.
- Self diagnostics for easy adjustment and no interruptions in league play.
- All modular design makes it easy to troubleshoot and change parts.
- Board is spring mounted to limit vibration which can damage electronics.
- Compatible with all scoring systems.
- Easy to install - includes detailed operating instructions.



### Sensor Assembly

**53-600181-003**



### Tel-E-Foul PCB

**53-860215-000**

- For Astro and B2000 Foul units.



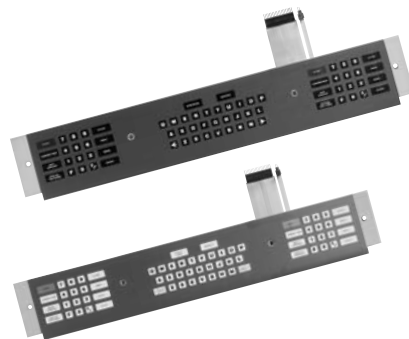
### Tel-E-Foul Covers

**84-860602-000 FX Telefoul Division Cover**

**84-860603-000 FX Telefoul Return Cover**

**includes R.H. and L.H. lenses**

**84-200249-000 Lens Set for R.H. and L.H.**



### Tactile Switch Keyboards

**57-860607-002 Black Keys/White**

**Numerals**

**57-860608-002 White Keys/Black**

**Numerals**

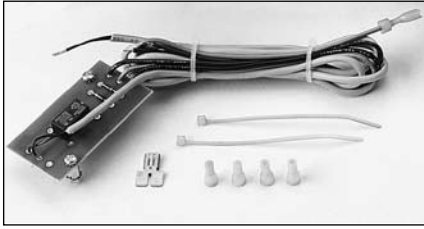
Replacement for automatic scorer membrane keyboards; provides a click-free contact when touched. Easier activation and increased durability means longer product life.



### Pin Lamp Holder

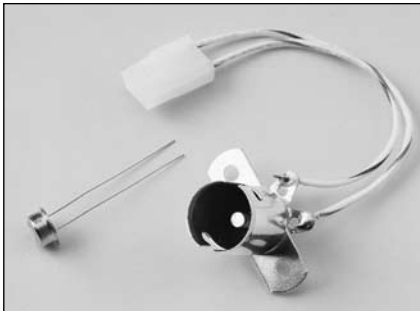
**12-860770-000**

- This kit offers easy installation in the existing opening on both U.S. and Japanese pinsetter versions.
- It comes complete with all necessary hardware and installation instructions.



**Take Data Relay Kit**

*57-860109-000 (Reset Button Kit)*



**Photocell Socket and Connector Assembly**

*53-600097-000*



**Dual Output Ball Detector/Reflector**

*57-861237-000 (Detector)*

*57-860507-000 (Reflector w/hardware)*



**Dual Pin Lamp**

*12-862920-000 (Model A/A•2)*

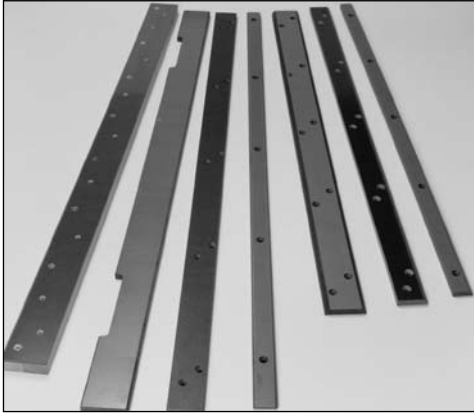
*12-862922-000 (GS Series)*

The no. 1 Dual Pin Lamp on the market. Brunswick unveils a new way to bowl that is sure to grab everyone's attention.

- Update the image of your center using black light.
- Illusion of floating pins has been made possible and practical with Brunswick's Pin Lamps and Glow-In-The-Dark Pins.
- The black light fixture features two bulbs that go from normal lighting to black light conditions with the flick of a switch.

- Keep current customers coming back and attract new bowlers with Brunswick's Black Light Pin Lamps!
- Package of six lamps (48")  
12-862933-000
- Toggle Switch 11-615519-000
- Ballast Only  
A•2 12-750994-000  
GS 12-750604-000 (220 volt)

## PIT END ASSEMBLY



Part numbers are listed in order from left to right.

### Side Pin Deck Edge Molding

52-100243-001 (48" x 2 1/16", for old-style phenolic pin decks/synthetic lanes)

52-100078-000 (48" x 2 3/4", for old-style phenolic pin decks/wood lanes)

84-200084-010 (48" x 1 3/8", for integral pin deck/synthetic lanes)

### Rear Pin Deck Edge Molding

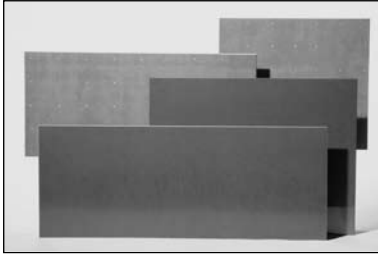
52-100079-000 (40 3/4" x 2 3/4", for old-style phenolic pin decks/wood lanes)

52-100244-000 (40 3/4" x 2 1/16", for old-style phenolic pin decks/synthetic lanes)

84-200083-010 (40 3/4" x 1 3/8", for integral pin decks/synthetic lanes)

Extend the life of your pin deck by protecting the edges properly.

- Tough edge boards made from X-grade phenolic material can withstand the abuse of flying pins.
- Rounded edges protect pins and balls from damage.
- 1/2-inch thick for durability.
- Countersunk holes prevent screws from damaging pins and balls and make the boards easy to install.
- The 52-100078-000 edge boards have cut-outs to ensure proper fit. Install these edge boards with glue only (no screws necessary).
- When installing edge boards with glue, use Brunswick's strong adhesive (11-676047-000).



### Kickback Plate

52-200005-002 /004 R.H. or L.H. (16" x 40" front plate for GS-92 or armor frame)

52-200005-003 (29" x 22" front plate for GS-92)

21-088674-000 (21 3/4" x 19" rear plate pre-drilled)

21-088675-000 (33" x 15" front wood kickback plate pre-drilled)

This solid, active kickback plate will provide improved pin action and more consistent scoring than old, dead plates.

- When kickback plates become soft or loose, they absorb energy from pins, reducing the amount of pin action and affecting bowlers' scores.
- Durable, impact-resistant plate is made to protect your wood kickback from damage for a long time.
- Flexible material won't delaminate or splinter.
- All sharp edges are removed to prevent damage to ball and pins.
- Surface is non-marking to pins.
- Sanded back surface ensures secure mounting. For strongest bond, use Brunswick's 11-676047-000 adhesive.



### Adapter Block for Plywood or VOS Round Gutters

52-100020-600 (Gray, R.H. one piece)

52-100021-600 (Gray, L.H. one piece)



### Polypropylene Heavy-Duty Flat Gutter

84-860504-000

Choose a gutter that can provide good pin action for a lifetime.

- Solid, high-strength UHMW polypropylene gutters are virtually indestructible.
- One-piece gutters are a full inch thick and install easily.
- Dark brown material won't mark or damage pins and balls.
- Easy to clean and maintain.
- Sold in packages of 2, enough for 1 lane.



### Adapter Blocks for UOS or VOS V Gutters

84-200117-002 (L.H.)

84-200117-003 (R.H.)

Precisely contoured adapter blocks provide a smooth transition from a V gutter to a flat gutter.

- Strong, impact-resistant adapter blocks are made from hard maple.
- Countersunk mounting holes prevent hardware from damaging balls.
- Brunswick original brown paint matches your V gutters.
- Use one left-hand piece and one right-hand piece for one complete gutter. Or, replace only the half that needs replacing.

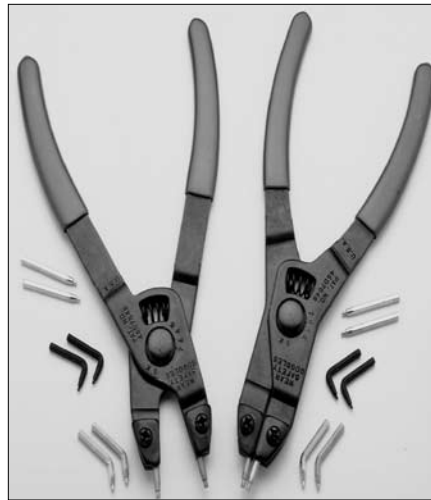


**Multimeter**

**57-860295-000**

This meter is an absolute necessity for making the precise power supply adjustments required in your automatic scorer.

- This multimeter measures voltage, current, and resistance, and tests diodes and continuity.
- Rotary switch ensures that only one test is run at a time.
- Meter automatically sets ranges for the most accurate reading.
- Shows readings on a digital display and an analog bar graph.
- Comes complete with a holster that attaches to a belt or converts into a table top stand.
- Backed up with a three-year manufacturer's warranty.



**Retaining Ring Plier Set**

**12-900172-000**

These helpful pliers make retaining ring replacement a snap.

- Set comes complete with one pair of internal pliers, one pair of external pliers, and an assortment of tips.
- 6 3/8" long pliers with vinyl covered handles for comfortable grip.
- Tips come in various sizes and angles for a majority of the pinsetter retaining ring applications.



**Hex Bit Socket Set**

**12-900180-000**

Brunswick makes it convenient for you to order all your tools, including this top-of-the-line socket set. Simply call your direct line sales person at 1-800-YES-BOWL.

- Set of seven sockets includes the following sizes: 1/8", 5/32", 3/16", 7/32", 1/4", 5/16", 3/8".
- Sockets fit 3/8" square drives.
- Chrome-plated sockets resist corrosion



**Urethane (No-Bounce) Mallet**

**90-750069-000**

Here's the mechanic's best friend.

- No-bounce urethane head drastically reduces rebound that can damage parts or cause personal injury.
- Contoured handle provides a firm, non-slip grip.
- It's virtually unbreakable.



**Hardware Kit**

**12-860331-000**

Don't waste time and money searching for an X-washer needed to get the pinsetter running again.

- We've put 440 hardware items in one location.
- Easy to use, with all part numbers labeled.
- Hardware box only is part 12-860331-001.





## Model A Automatic Pinsetter Service Manual 12-900900-000

Here's the ideal manual for any bowling center back room.

- This manual thoroughly describes the functions and operation of the major pinsetter assemblies.
- A detailed adjustment section explains how to keep your pinsetter running smoothly and trouble-free.
- You can also find specific solutions to common pinsetter problems in the troubleshooting section.



## Hardware Catalog for Model A and A•2 Pinsetters

12-900250-000 (U.S. standard hardware)

Ordering hardware for your pinsetter has never been this easy.

- Catalogs give you two easy ways to order your hardware – either by type and size or by matching your hardware to an illustration.
- The quick-reference section “Hardware by Type and Size” matches the name and size of the part with the appropriate Brunswick part number.
- In the illustration pages, all hardware is illustrated to actual size. Simply take your hardware and match it to the drawing in the catalog. Beside each drawing you'll find the part number you need to order – it's as easy as that.



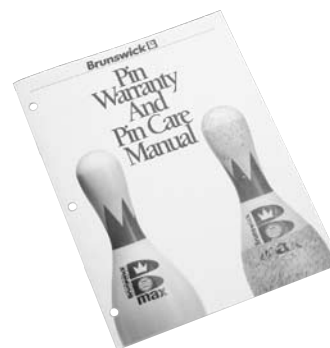
## A•2 Pinsetter Service Manual 12-752828-000

Don't be without the ultimate resource on the Model A•2 pinsetter.

- Contains everything you need to know about the Model A•2.
- Thoroughly describes pinsetter operation, maintenance and repair, covering every major assembly and many sub-assemblies.
- Uses detailed line drawings and photographs to illustrate points made in text.
- Special preventative maintenance section provides detailed instructions, a preventative maintenance chart, and quick-reference lubrication charts to make your job easier.
- Also comes complete with electrical wiring diagrams, a pinsetter adjustment section, and a comprehensive troubleshooting guide.
- It's an essential reference tool in any mechanics shop.

## Hardware Catalog for GS-Series Pinsetters

47-902741-000 (metric hardware)



## Pin Care Manual

This manual includes everything on maintaining one of the largest annual investments a bowling proprietor makes.

- Complete with photos and methods on how to eliminate machine damage.
- Explains how to store your bowling pins.
- Explains wood densification and the proper way to check if a pin is “good.”
- To request a manual, call your Authorized Brunswick Distributor or your sales representative at 1-800-YES-BOWL or 231-725-4966.



## Service Parts Inventory Control Record 12-900259-000

Part ordering is a snap if you keep a record of your inventory.

- This preprinted inventory record takes the guesswork out of replacing part orders because it identifies all the parts you should keep in stock.
- Lists all parts used on Model A and A•2 pinsetters by name and part number.
- Recommends how many should be kept in inventory based on how many lanes you have.
- Identifies how parts are sold – individually or package size – for no-fuss ordering.
- Inventory columns allow you to keep ongoing track of parts as they are ordered and used.



## GS® Series Service Parts Catalog 47-902712-000

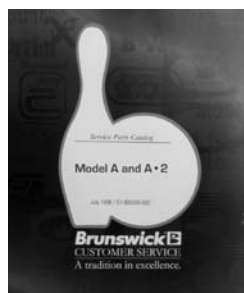
Repairing your GS Series pinsetter becomes easier when you have the most comprehensive service parts catalog available.

- Detailed drawings of pinsetter assemblies and sub-assemblies help you identify the parts you need to order.
- Find parts quickly and easily to minimize downtime.



## Bowling Service Parts Catalog 28-201739-000

- Provides part ordering information for synthetic/wood lanes and gutters, pinsetter back end, Tel-E-Score, Tel-E-Foul, seating, ball returns and much more.
- Detailed drawings of components and complete parts lists make ordering a snap.



## Model A and A•2 Service Parts Catalog 12-902908-000

This valuable catalog takes the guesswork out of ordering pinsetter parts.

- The most complete parts catalog available for the Brunswick Model A and A•2 pinsetters.
- Allows you to find parts quickly and easily to minimize downtime.
- Detailed drawings of pinsetter assemblies and sub-assemblies help you identify the parts you need to order.
- Part ordering information is also provided for Jetback models.
- Completely Revised.



## Automatic Scorer Service Parts Catalog 57-900306-000

Always be sure that you're ordering the right parts for your automatic scorer.

- This information-packed catalog covers Brunswick scorers, desk equipment and BowlerVision.
- Colorful index tabs help you quickly find the equipment you're looking for.
- Find the part ordering info you need on detailed drawings of scoring equipment and office computers.



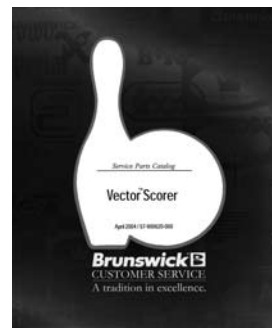
## Framework® Scorer Service Parts Catalog 57-900360-000

A complete listing of scorer parts for the Framework scoring system. Includes pinsetter, camera, console, overheads, control desk office, and able assembly information as well as detailed component information.



## Classic Scorer Service Parts Catalog 57-900608-000

Includes a complete listing of the available replacement parts for the Classic Scoring System.



## Vector® Scorer Service Parts Catalog 57-900620-000

Includes a complete listing of the available replacement parts for the Vector Center Network System.



**GS Series Operation and Service Manual**

**47-902735-000**

If you're maintaining GS Series pinsetters, this manual is a must.

- This manual explains how to service, repair and maintain the GS Series safely and efficiently.
- Contains a comprehensive troubleshooting section to help you reduce downtime.
- The manual is fully illustrated with detailed line drawing and photographs.
- Explains how to make the necessary adjustments that keep your pinsetter running smoothly and trouble-free using clear, concise instructions and illustrations.
- A complete preventative maintenance section provides a basic maintenance schedule and explains how to do many of the tasks.
- System and cable diagrams are also included in the manual.



**Brunswick Video Library**

**61-860200-100 Gear Box Clutch Repair and Maintenance DVD**

**61-860201-100 Electrical System Overview DVD**

**61-860202-100 Motor Contact Replacement DVD**

**61-860227-100 Basic Pinsetter Operation DVD**

Save your valuable time by using the Brunswick video/DVD library to efficiently train new mechanics.

- Gear Box Clutch Repair and Maintenance teaches mechanics step-by-step how to replace the clutch drive disc, clutch facings, clutch bearing pulley system, and other related parts.
- Electrical System Overview provides a basic understanding of high and low voltage pinsetter electrical systems.
- Motor Contact Replacement shows how to easily replace old-style contactors (Federal Pacific and Allen Bradley) to new-style contactor (12-860621-000).
- Basic Pinsetter Operation describes each subassembly and its operation in very basic terms. Offers many troubleshooting and maintenance tips.



### **Brunswicks Parts Preventive Maintenance Manual**

**12-900260-000**

Here's everything you need to know to keep your pinsetter running efficiently – and it's all in one handy reference manual.

- Pages of helpful procedures, tips, and illustrations showing you how to maintain your pinsetter correctly.
- Comes with a work schedule, lubrication charts, and new functional tune-up sheets for each subassembly.
- Excellent resource for new maintenance technicians.



### **Gear Box Disassembly Manual**

**12-900903-000**

Protect the investment of your gear box through proper maintenance and repair.

- Invest in the ultimate guide that has been relied on by mechanics for years.
- It provides complete installation and removal instructions for all gear box parts including the worm shaft, 4 to 1, 2 to 1, and 1 to 1 shaft assemblies and even the detector assembly.



### **Automatic Pinsetter Detector Manual**

**12-900907-000**

Fixing the detector is no simple task if you don't have the right tools – make sure this manual is the first tool on your list.

- This manual is the most important tool when repairing the detector.
- It includes 36 drawings that serve as simple, convenient references, eliminating the need to retain detailed information.
- Descriptions of each detector mechanism's operation help you understand how the "brain" of the pinsetter works, making it easier to repair the detector.
- The key to smooth operation of the detector and ultimately the pinsetter is making the proper adjustments – this manual tells you how.
- Any mechanic who is serious about repairing a detector needs this manual.

Quick Reference

A and A•2 Pinsetters

PART NUMBER	DESCRIPTION
12-752828-000	A•2 Automatic Pinsetter Service Manual
12-900250-000	Hardware Catalog for “A” & A•2 Pinsetters
12-900259-000	Service Parts Inventory Control Record for A & A•2 Pinsetters
12-900260-000	BrunParts Preventative Maintenance Manual
12-900261-000	Supplemental Instructions for Installing the Brunswick Electronic Pinsetter
Trigger/Control	System onto Model “A” Pinsetters
12-902262-000	Electronic Pinsetter Trigger/Control System Installation & Operations Manual
12-902908-000	A/A•2 Pinsetter Service Parts Catalog
12-902920-000	A•2 Pinsetter Service Manual (Spanish)
12-902921-000	Motor Repair Manual

Bowling Equipment

PART NUMBER	DESCRIPTION
14-400003-000	Lustre-King Custom Ball Conditioner Service Manual
14-900214-000	Lustre Kleen Service Parts Catalog
28-201739-000	Bowling Service Parts Catalog
61-900015-000	Brunswick Lane Duster Operation and Service Manual
61-900020-000	Brunswick Computer Lane Monitor Operator’s Manual for Windows

GS Series Pinsetters

PART NUMBER	DESCRIPTION
47-902712-000	GS Series Pinsetter Service Parts Catalog
47-902727-000	GS Series Pinsetter Service Parts Control Record
47-902741-000	Hardware Catalog for GS-92 Pinsetters
*47-902735-000	GS Series Pinsetter Operations & Service Training Program

Automatic Scorers

PART NUMBER	DESCRIPTION
57-900300-000	Scoring System Service Manual
57-900306-000	Automatic Scorer Service Parts Catalog
57-900204-000	Model 86 Scanner Service Manual
*57-900360-000	Frameworkx Scorer Service Parts Catalog
*57-900384-000	Frameworkx Scoring Solutions 3, 4, & 5 User’s Guide
*57-900620-000	Vector Scorer Service Parts Catalog
*57-900608-000	Classic Scorer Service Parts Catalog



Part Number	Product Description	Page
2H9003-00-40 (Rake Board)	Cosmic Bowling® Decals for Rake Board	182
2H9003-00-41 (Deck Shield)	Cosmic Bowling® Decals for Deck Shield	182
2H90030040 (Cosmic Decal)	Rake Board Assembly	190
7-013872-004	Elevator Chain Break Tool Only	222
7-862842-000	Transport Band Belt Upgrade Kit	223
10-193013-000	Scotch Yoke Bearing Stud - Countersunk Washer	169
10-385529-000	Scotch Yoke Bearing Stud - Spacer	169
10-424001-000	Special replaceable, grooved bearing	184
10-427001-000	Deck Lift Stabilizer - Bearing 63/64 x 31/64	182
10-430001-000	Jack Shaft Bearing	198
10-621058-000	Key	236
10-635112-000	Ball Accelerator Flat Drive Belt, for 2 23/32" pulley	212
	Belt - 2-23/32" Diameter - Fast	203
	Belt - 2-23/322" Pulley Diameter - Fast	209
10-635112-000 (For 2 23/32" pulley)	Ball Accelerator Flat Drive Belt	209
10-635113-000	Ball Accelerator Flat Drive Belt, for 1 11/16" pulley	212
	Belt - 1-11/16" Pulley Diameter - Slow	203, 209
	Ball Accelerator Flat Drive Belt	209
10-635113-000 (For 1 11/16" pulley)	Ball Accelerator Flat Drive Belt, for 3 17/64" pulley	212
10-635114-000	Belt - 3-17/64" Diameter - Fastest	209
	Belt - 3-17/64" Pulley Diameter - Fastest	203
	Ball Accelerator Flat Drive Belt	209
10-635114-000 (For 3 17/64" pulley)	Ball Accelerator Flat Drive Belt, for 2 1/32" pulley	212
10-635118-000	Belt - 2-1/32" Diameter - Medium	209
	Belt - 2-1/32" Pulley Diameter - Medium	203
	Ball Accelerator Flat Drive Belt	209
10-635118-000 (For 2 1/32" pulley)	Ball Accelerator Flat Drive Belt, for 1 1/2" pulley	212
10-635124-000	Belt - 1-1/2" Pulley Diameter - Slowest	203
	Belt - 1/2" Bore - 1-1/2" Pulley Diameter - Slowest	209
	Ball Accelerator Flat Drive Belt	209
10-635124-000 (For 1 1/2" pulley)	Ball Accelerator Flat Drive Belt, for 1 13/16" pulley	212
10-635125-000	Long Accelerator Flat Belt, light colored	212
10-635126-000	Long Accelerator Belt	209
10-635126-000 (Light-colored)	Long Accelerator Flat Belt, dark colored	212
10-635126-600	Long Accelerator Belt	209
10-635126-600 (Dark-colored)	Accelerator Flat Belt	227
10-635127-000	Subway Lift Flat Belt, 91	212
10-635128-000	Motor to Elevator Belt, standard for Model A•2 - 92.3"	211
10-635303-000	Subway Lift V-Belt	212
	Motor to Gear Box Belt, standard for Model A•2 - 67.0"	211
10-635304-000	Motor to Elevator Belt, Model A•2, 50 cycle - 93.3"	211
10-635306-000	Ball Booster V-Belt, for Jet Back with 8" pulley	212
10-635307-000	Ball Booster V-Belt, for 2.7" driver and 8" driven	212
10-635308-000	Cross Conveyor Drive Belt, "V"	210
10-635309-000	Motor to Gear Box Belt, Jet Back (2.5" longer) - 81.5"	211
	Ball Booster V-Belt, for 2.3" driver and 9" driver	212
10-635314-000	Motor to Elevator Belt, Model A•2 with 12-862162-000 tension conv. kit - 98.0"	211
10-635315-000	Motor to Gear Box Belt, 27:1 Gear Box, Model A•2 - 60.0"	211
10-635320-000	Motor to Gear Box Belt, 27 to 1 Gear Box, Model A and Jet Back - 75.0"	211
10-635321-000	Motor to Gear Box Belt, Model A and Jet Back - 77.5"	211
10-635323-000	Motor to Gear Box Belt, Model A•2 (1.5" shorter) - 65.5"	211
10-635325-000	Motor to Gear Box Belt, Model A•2 (2.5" longer, use for 50 cycle) - 69.5"	211
10-635326-000	Motor to Elevator Belt, Model A and Jet Back, (1.5" shorter) - 105.6"	211
10-635327-000	Motor to Elevator Belt, Model A and Jet Back, (1.5" longer) - 108.6"	211
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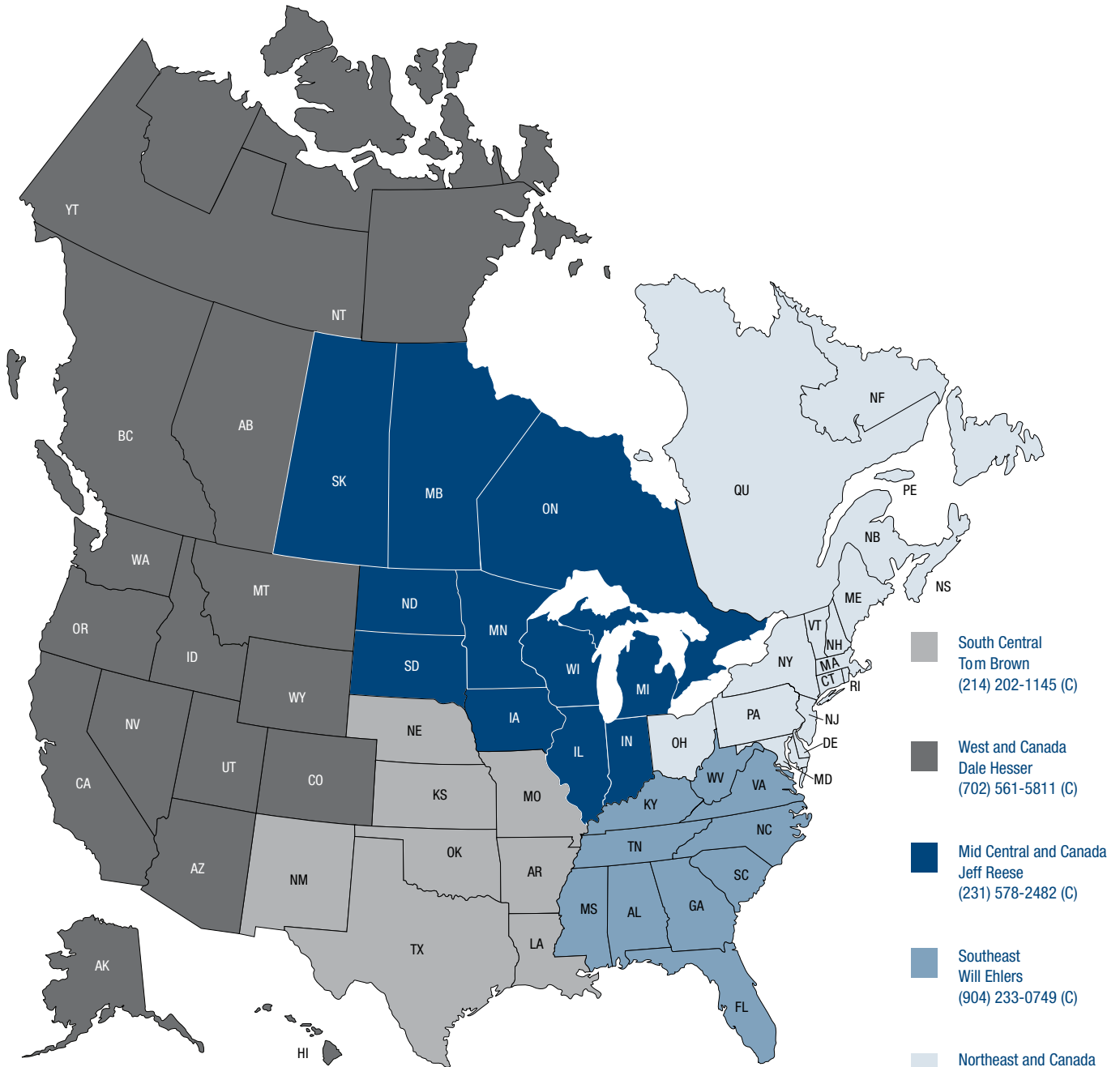


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