BELVAC MODEL NECKERS

PRODUCT UPGRADE & CONVERSIONS

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BELVAC MODEL TRIMMERS

PRODUCT UPGRADE & CONVERSIONS

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480 INTEGRATED PRE-NECK CAN LUBRICATOR

(Waxer Infeed)

Part Number assigned when order is placed

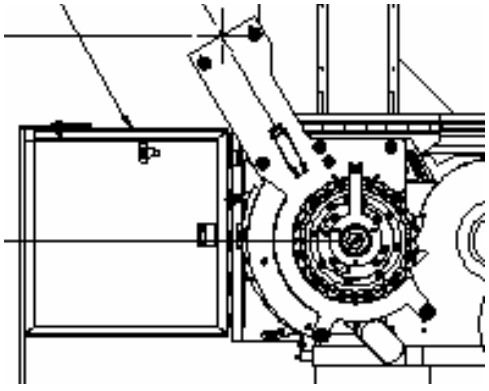
Qualifying Neckers:
Any 595 Necker Fixed-Base or any Modular "K" or "SK" Necker

Function:
The 480 Waxer replaces existing 440 designed waxers and Non waxed infeed trackwork and starwheel for the first transfer station. It applies a strip of hot wax or mineral oil on the outside edge of the can by rolling the open end of the can over a wick assembly.
Note: When replacing a 440 waxer, existing trackwork will have to be modified.

Objective & Benefits:
- May Reduce can damage due to can handling
- Integrates with existing machine, eliminating need for in-line pre-neck lubricator unit
- Offers easy operator & maintainer access
- Hot wax or mineral oil options available
- Capability of matching all rated speeds of existing 595 Necker
- Adjustable wick assembly for lubricant placement for the die necking process.
- Converting from hot wax to mineral oil is accomplished without any additional parts.
- Can size conversions are completed very quickly.
- Starwheel assemblies for alternate can sizes are shipped completely assembled.
- The Waxer retrofit kit includes a starwheel assembly for one can size and all guarding to integrate the 480 Waxer to the existing necker.

Installation:
Requires approximately 8 hours for installing a complete Waxer Assembly

To Order:
Contact Belvac with current Necker machine serial numbers, can size(s), with trim can heights, or fax the convenient form at the end of this section.



480 Integrated Waxer Infeed

(Normal Rotation shown above, Reverse Rotation available upon request)

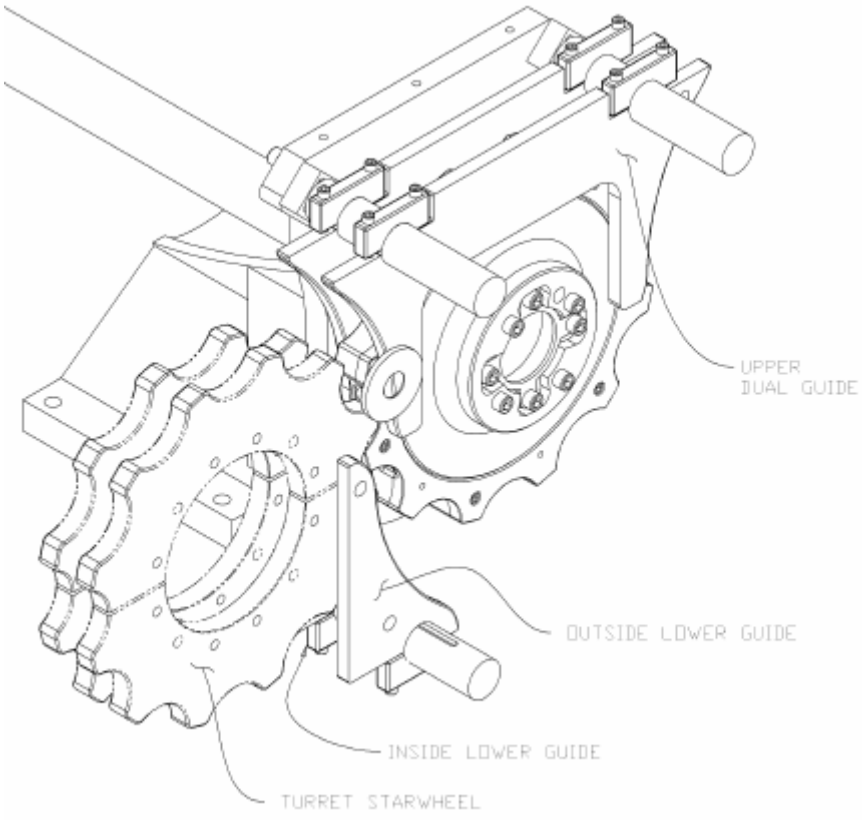
595 ADJUSTABLE UPPER GUIDE CONVERSION

Part Number assigned when order is placed

Qualifying Machines:
Any 595 Welded Fixed-Base or Modular Necker.

Objective & Benefits:
- Directly replaces the existing two-piece upper guides without modifying machine
- Quickly changes between can sizes
- No change parts required for Height Only Conversions
- Saves time converting between can sizes
- Quick Change Brush Assembly mounts without removal of rails.

To Order:
Contact Belvac with existing Necker machine serial numbers, can size, and trim can height or fax the convenient form at the end of this section.



440 WAXER CAN STOP UPGRADE

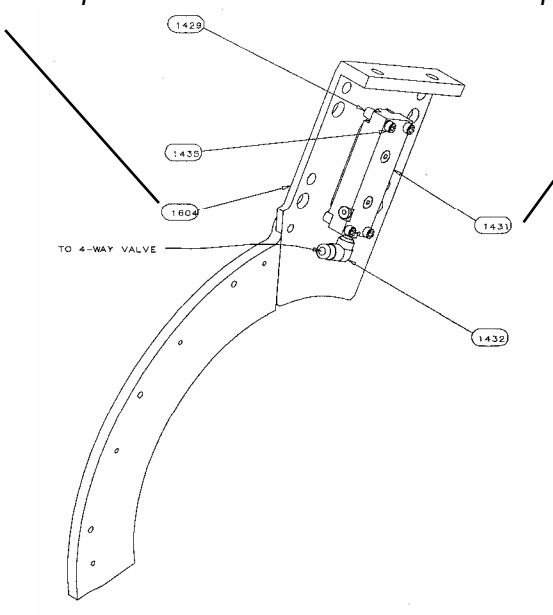
P/N 4410105 Clamp Stop Conversion, 211 Diameter, Normal Rotation
P/N 4410106 Clamp Stop Conversion, 211 Diameter, Reverse Rotation
P/N 4410107 Clamp Stop Conversion, 202 Diameter, Normal Rotation
P/N 4410108 Clamp Stop Conversion, 202 Diameter, Reverse Rotation

Objective & Benefits:

- Replaces the double acting cylinder rod with a substantially more robust, diaphragm air cylinder.
- Designed to withstand increased can stack weight
- Incorporates a 2.50" (64mm) long contact surface with a maximum stroke of 0.2" (5mm), which ensures secure clamping of the can as well as ease of positive retraction.

To Order:
Use part number above with corresponding can diameter and machine rotation.

Left End Infeed Guide *Infeed Clamp Stop Asm.*



211 Ø 595 NECK HEIGHT GAUGE

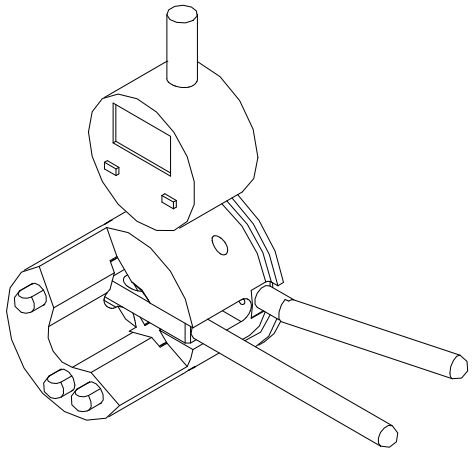
Part Numbers and change parts assigned when order is placed

Belvac's neck height gauge is a precision measuring tool used to precisely determine the pin dimension between the necker push plate and the front of a necking die. The repeatability and accuracy of this measuring tool saves time and adds confidence when setting neck depths on all necking turrets.
Verification of this dimension is easily determined without the use of conventional ID micrometers.

Objective & Benefits:

- Gauge and Fixture Assembly come fully assembled with change parts for one (1) can height.
- Optional can height change parts are available.
- Gage offers spring loaded pins to consistently seat the push ram assembly to the cam.
- The ability to adjust the push plate position while keeping the gauge intact. This negates the need to compensate for thread clearances since the absolute position is digitally displayed during the adjustment process.
- Ease of usage; the gauge body rests directly in the main turret starwheel pocket.
- A programmable display provides versatility for height changes in conjunction with Belvac's Fixture Assembly *(P/N 2702589).*
- Height Range: 330 ml (408) through 500 ml (609) inclusive.
- Gage offers 211 diameter: (other diameters available upon request)

To Order:
Provide pin dimension @ TDC to order gauge with change parts.



Neck Height Gauge Assembly
(Fixture not shown)

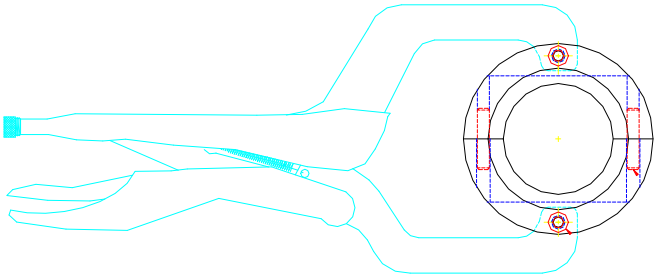
Additional Information available on Technical Bulletin Issue 19, Volume 1

SEAL INSTALLATION TOOL

P/N 2703024

Objective & Benefits:

- Assist in the installation of grease seals on Necker Ram Assemblies
- Reduces assembly time when performing normal preventive maintenance of the ram assembly.
- Eliminated the need to "tap in" seals using a hammer and drift.

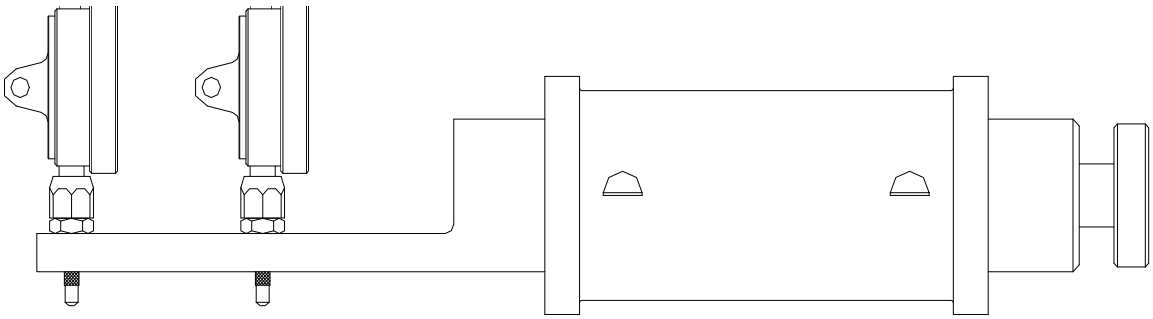


FIXTURE, STARWHEEL ALIGNMENT

P/N 2704341

Objective & Benefits:

- Enhances the turret starwheel for proper alignment functionality.
  (Note: alignment differential between starwheel should be limited to 0.005” (0.13mm) maximum for proper process functioning.)
- Equipped with a pair of digital Brown & Sharp gages for precision measurement
- Directly interchangeable with an existing tooling side ram assembly for accurate assessment

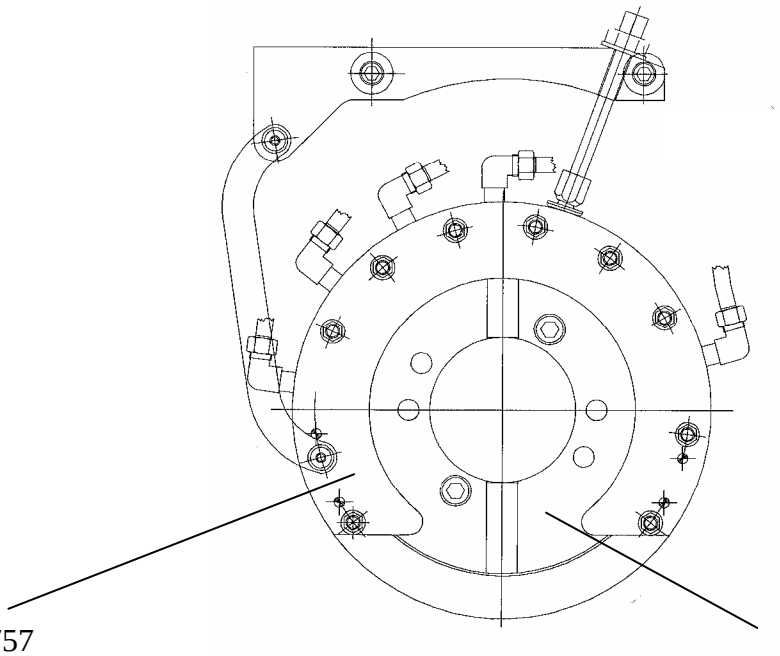


"SPLIT" AIR MANIFOLD DESIGN UPGRADE

P/N 1001139 Air Manifold Rotor

Benefits:

- The split rotor design allows for ease of replacement without removing individual turrets from the machine.
- Replacement is less than one hour.
- Precisely doweled and machined in the assembled state, guaranteeing accuracy and minimal seam visibility.
- All size features and heat treat processing have remained the same, thus ensuring complete interchangeability.



2700757
Manifold Housing

1001139 Split Rotor

DODGE BEARING UPGRADE

Main Turret
P/N 2753022 Bearing, 2.437" expansion

Main Turret:
Belvac has traditionally used a dual setscrew expansion bearing for all 595K and Non-K main turrets. This style of bearing has proved problematic over the years on our equipment due to the setscrews coming loose. When the setscrews become loose, the shaft can become severely damaged, creating considerable downtime for repair.

Belvac has field tested and patented a Clamp Style Bearing Locking Mechanism (U.S. Pt. 6,905,249) offering superior positive bearing clamp for this application. As indicated in the photos, the inner race has been split, allowing a precision-bored locking collar to form-fit around both the race OD on one side and the shaft OD on the other. When clamped together, the inner race of the bearing is securely attached to the main shaft.

Objective & Benefits:

- These bearings have been designed with a pair of jacking screw holes to assist in the disassembly from main bearing plate.
- An increased expansion capability up to 0.34" (8.6 mm), allowing swing line 206/202 adjustments without re-centering the bearing on the shaft.
- No special tools necessary to secure the bearing to the shaft: an ordinary torque wrench is utilized to tighten the SHCS (socket head cap screws) 50-60 ft-lbs (68-82 Nm).
- The assembly cannot be over-tightened causing damage to the bearing or its normal rated function.
- Expansion bearing application (as on our turrets) maintainers easily make adjustments.
- No requirement for flats or other special surface preparation as commonly required for setscrew.
- New bearing #2753022 is directly interchangeable with Belvac'c standard bearing #C20114.

For additional information, contact Belvac or refer to Technical Bulletin Issue 10, Volume 1

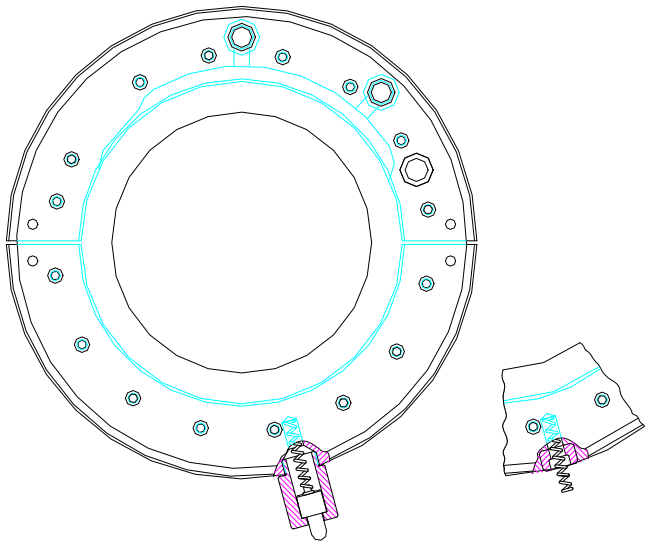
FLANGER VACUUM MANIFOLD SPRING SUPPORT DESIGN

P/N 2704797 Plunger, Vacuum Spring
P/N 2704798 Housing, Vacuum Spring Support
P/N 2704799 Rework Drawing, Vacuum Flanger Manifold

Belvac redesigned the flanger vacuum manifold to include a die spring to support manifold weight. This feature originally designed for the *welded push* cam support, had 90% of the spring captured in the cavity of the manifold. When Belvac designed the *cast* cam support, incorporating a larger inside diameter, a spring spacer was added to maintain the same degree of compression as on the welded cam support assembly.

When properly assembled, the spring and spacer design functions adequately.
Note: Caution when installing the manifold to keep manifold orientation. Rotating the manifold during assembly of the outer guard (anti-rotation device), will cause the spring spacer will fall out.
The assembling of the anti-rotation devise to the manifold without rotating the manifold is completed by installing the top half first.
Belvac has redesigned this spring support, using an existing spring (C21467) which will require a minor rework to all existing manifolds.

For additional information, contact Belvac or refer to Technical Bulletin Issue 21, Volume 1



ADJUSTABLE VACUUM FLANGER MANIFOLD

P/N 2704926 Adjustable Vac Flanger Manifold, Normal Rotation, Cast Design
P/N 2704927 Adjustable Vac Flanger Manifold, Reverse Rotation, Cast Design
P/N 2704928 Adjustable Vac Flanger Manifold, Normal Rotation, Weldment Design
P/N 2704929 Adjustable Vac Flanger Manifold, Reverse Rotation, Weldment Design

Typically, a lack of transfer into the discharge trackwork is due to snaking of the cans through the final transfer discharge starwheel after the flanger. The cause of this snaking appears to be two-fold:

- Lack of vacuum manifold timing capability for high-speed operation.
- Lack of vacuum venting/release during high-speed operation.

The present system was designed to have the vacuum pushplate shut off at the horizontal position, at which point the can would be transferred to the vacuum starwheel. With increasing speed, the time available for the vacuum to exhaust and effectively release the can becomes more critical. If the vacuum is not exhausted, the transfer starwheel is forced to "strip" the can off the pushplate, thus causing the can to become unstable as the vacuum is expelled. Belvac has provided the means to retard the vacuum timing, allowing venting to take place sooner, as well as create a greater vent capability. Both features allow the vacuum to be expelled prior to transfer to the take-away starwheel.

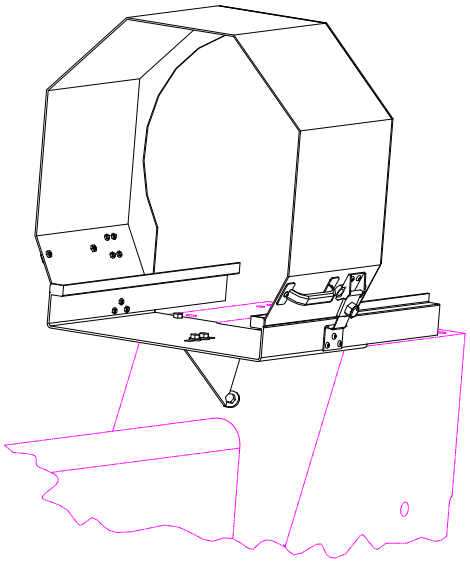
To Order:
Use the corresponding part number with type of machine base. Contact Belvac with Machine Serial numbers for part number verification.

PUSH CAM GREASE GUARD DESIGN UPGRADE

P/N 2751188 Necker, Reformer/Reprofiler Turret Kit No.
P/N 2751221 Flanger Turret Kit No.
P/N 2704908 Drilling Template N/R, F/R, Ref/Rep
P/N 2704909 Drilling Template Ref/Rep Spacer

Belvac has designed a quick access guard for the push rams (operator side). The original guard design required the Customer to unscrew fasteners to remove guards. The new guard design is very similar to that of the fixed base machinery where the guard slides in a set of tracks and is secured with a pair of quarter-turn security clamps.

To Order:
Please provide machine serial numbers with part numbers above upon ordering.



For additional information, contact Belvac or refer to Technical Bulletin Issue 8, Volume 2

595 AUTOLUBE (2400 CPM) CONVERSION

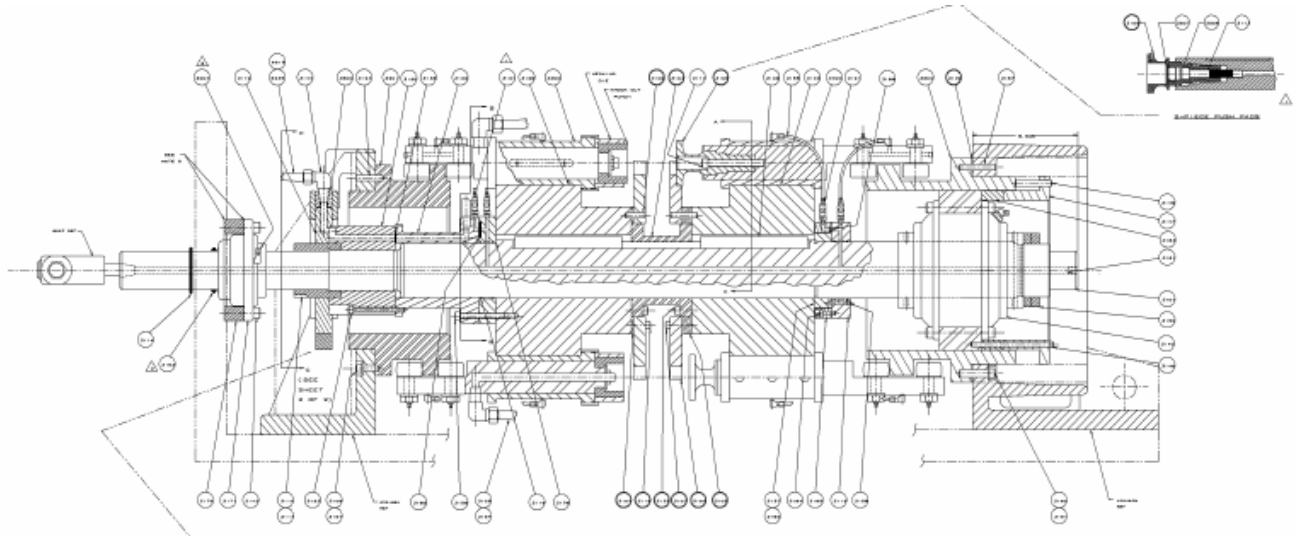
Part Number assigned when order is placed

Qualifying Machines:
All 595 “non-K” and “A” Necker turrets fixed-base rated at 1800 CPM

Benefits:
This conversion increases production by 25%
Automatically provides adequate lubrication to most existing manual lubrication places on the machine.

Parts Included:
New shafts (only on certain serial numbers), basic turret autolube kit, autolube panel for non-K, or panel upgrade for A model Necker’s, ribbed push cam, new push ram and knockout ram assemblies with the double cam followers and grease fittings.

To Order:
Please provide machine serial numbers, can size, and project details when requesting quotation and/or ordering.



595 GENERATION II FACE SEAL MANIFOLD
With FibreComp®

Part Number List

PART NUMBERS FOR ORDERING NEW FSM ASSEMBLIES:

Machine Type	Part Number
595K Fixed Base	**104155**
595SK Fixed Base Normal Rotation	**104179**
595SK Fixed Base Reverse Rotation	**104180**
595SK Fixed Base Link Normal Rotation	**104178**
595SK Fixed Base Link Reverse Rotation	**104181**
595K Modular (Phase I or Phase II)	**104156**
595SK Modular Normal Rotation	**104157**
595SK Modular Reverse Rotation	**104158**
595K Link Turret	**104159**
590 Necking Turret	**104160**
810K Necking System	**104166**
595K-VE (Solid Rotor) Normal Rotation	**104146**
595K-VE (Solid Rotor) Reverse Rotation	**104147**

The Belvac Face Seal Manifold (FSM) was designed and introduced in January 2002 to reduce the air consumption on all 595 Necker machinery (non-K, K, & SK). This unique air recirculation feature has become a proven design to successfully enable customers to significantly reduce ever-increasing utility costs with a dramatic 30% - 50% reduction in overall machine air consumption, as compared to the conventional Necker air manifold.

Belvac Production Machinery has successfully produced the original Face Seal Manifold (FSM) with a Rulon® lined wear surface. These units have a proven track record of exceeding the standard three-year warranty. Customer feedback has requested Belvac to explore alternate materials for even greater longevity.

Belvac is now pleased to inform the industry of our intent to convert to a self-lubricating bearing surface manufactured by HyComp. FibreComp® material is ideal for high speed, medium load applications and is widely accepted in the industry. The FibreComp® material will be supplied on all future FSM upgrades and new machinery shipped after January 1, 2009;
Belvac will continue to offer our valued three-year warranty on new, complete FSM assemblies.

BELVAC'S FLANGER FACE SEAL MANIFOLD

Qualifying Machines: All 595 Flanger's.

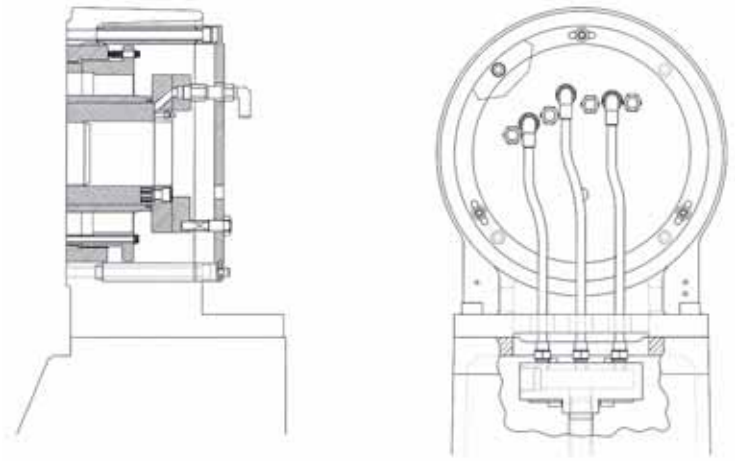
P/N 2709057 Normal Rotation Fixed Base 595K w/ Welded Cam Supports
P/N 2709058 Reverse Rotation Fixed Base 595K w/ Welded Cam Supports
P/N 2709059 Normal Rotation Fixed Base 595K w/ Cast Cam Supports
P/N 2709060 Reverse Rotation Fixed Base 595K w/ Cast Cam Supports
P/N 2752729 Normal Rotation Modular 595K
P/N 2752737 Reverse Rotation Modular 595K
P/N _____ Swing Cam 595K Mod

Belvac has developed a face seal style vacuum manifold for 595K modular flanging turrets, increasing vacuum efficiency to the push plate. The conventional vacuum manifold provided clearance to the rotor which by design allows for a little air gap and a degree of lost vacuum.

Included in each kit listed above are the appropriate drawings and Bills of Materials.

The **Flanger Face Seal Manifold** incorporates the following design features & advantages:

- Minimum vacuum losses due to the manifold rotor interface.
- Self-supporting manifold that compensates for run-out and side loads.
- Directly interchangeable with existing Modular 595K and Non-K Flanging Turrets.
- Accommodates the full range of can heights ensuring consistent pressure between the rotor and the manifold.
- Only one replacement wear part (Manifold).
- Comes with a Three-year warranty and life expectancy of five years.



Normal Rotation

*Contact Belvac Aftermarket Sales for a Quotation or interest in fixed base 595K Flanger.

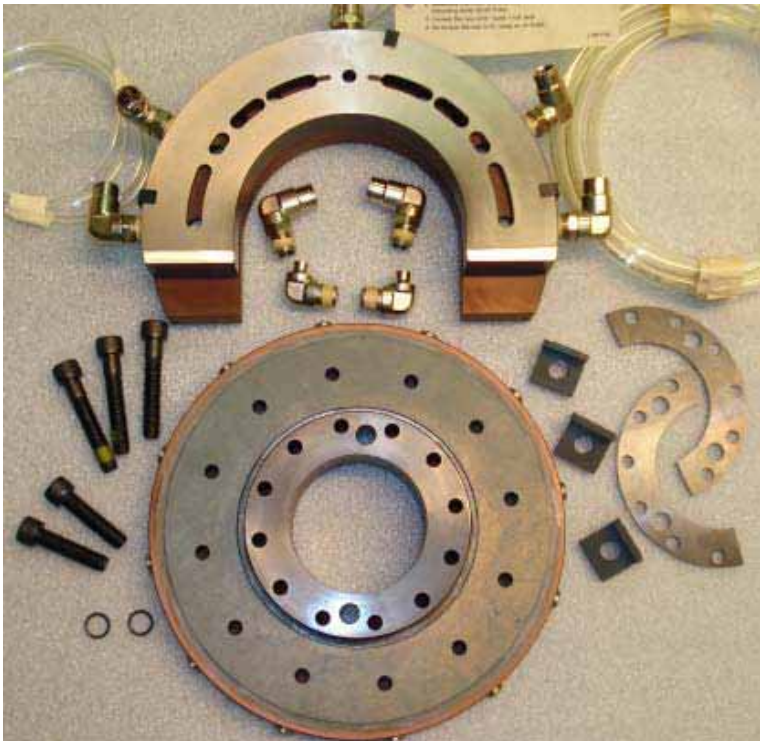
This Generation II (Gen II) FibreComp® designed FSM offers the following advantages:

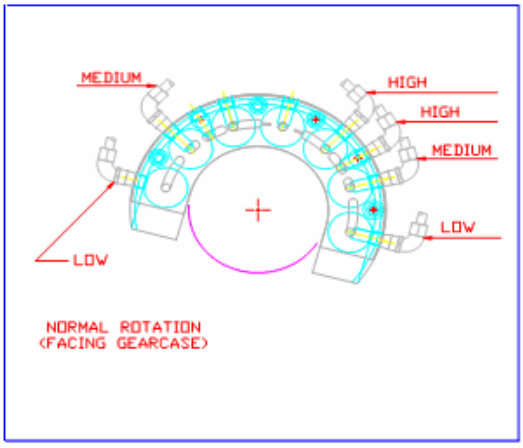
- Re-workable timing shoe – long life and ease of refurbishment with no post heat-treated operations necessary after re-facing
- With the Face Seal Manifold properly installed the total air requirement will be 80 SCFM (2.32 m3/min) @ 60 PSIG (414 KPa) per Belvac 595 Necking Station.
- Recommended air pressure settings are 30 PSI high, 10 PSI medium (fixed) and 5 PSI low.
- All necessary hardware is included in Assembly kits

The **Face Seal Manifold** incorporates the following design features:

- Floating Pistons Accommodate Shaft Adjustments (Neck Depth Changes),
- Directly Retrofittable to both Fixed Base and Modular Necking Turrets,
- Manifold Pilots off the Knockout Cam for True Position,
- Adjustable Timing to Accommodate Specific Die-to-Can Contact Position,
- Closed Loop Piston Priming from Main Air Supply,
- Low, Medium and High Air Ports to Efficiently Use Supply Air,
- Split Rotor Design for Ease of Maintenance,
- Suited for both 1.375” and 1.500” Cam Strokes

The following shows the concept of the **Face Seal Manifold:**





LUBRIQUIP INJECTOR UPGRADE

P/N 2752187; CAM FOLLOWERS INJECTOR KIT
P/N 2752188; RAM BUSHINGS INJECTOR KIT

Belvac has introduced an injector upgrade for all 595K, fixed base and modular machines. The ***Lubriquip Injector*** upgrades listed above replace the SL33, Lincoln Injectors since January 2001. The Lubriquip injectors are a direct replacement to the existing Lincoln injectors, which were supplied on your machine.

Each kit comes complete with grease tubes, elbow adapter w/ indicator, preset metered injectors for each specific application.

The injectors in these kits have been factory set to meter the correct amount of grease for that specific application.

This design offers the same functionality, and installation, with the following attributes:

- *Installs to existing turrets without turret disassembly*
- *Indicator is mounted on ram or bushing in plain view not hidden beneath the ram*
- *Requires no turret modifications*
- *Replaces individually as required*

2-PIECE PUSHPLATE DESIGN FOR HEIGHT CONVERSIONS

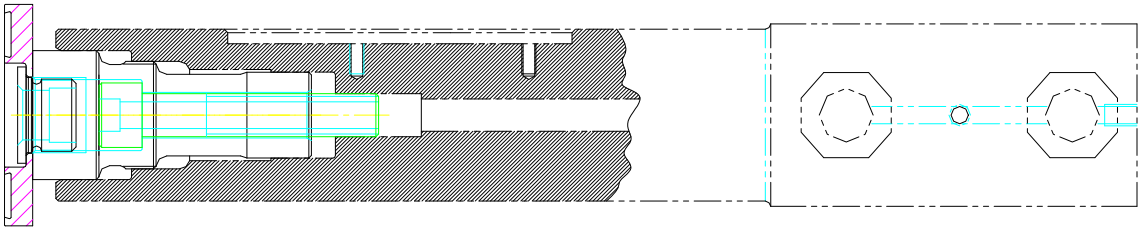
Part Numbers assigned when order is placed

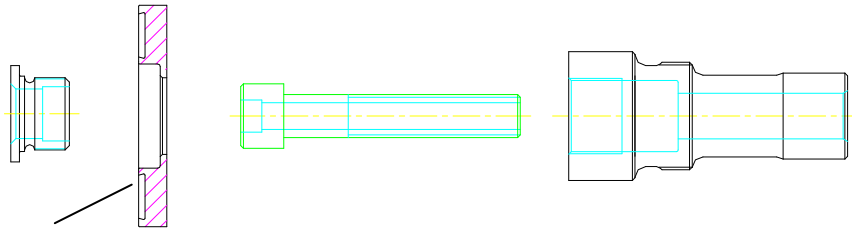
Belvac currently offers an innovative design for all 595K Necker and Flanger push plates. Height changes can now be made without resetting or indicating the push plates. This design still maintains the adjustability feature for changing neck sizes from 211/202 and 211/206 at the push plate.

The "Body" of the push plate is secured to the ram regardless of the specific height of the Push Plate. Belvac Engineering uses a common design to identify all can sizes so that once the operator installs push pads onto a turret, of a specific size, and indicating them to zero. Additional sizes would only require changing the pads. Belvac's thickness tolerance ensures accuracy with respect to all twelve (12) stations on that turret. Since the design uses common fasteners for all sizes, no extra mounting bolts need to be inventoried.

This new design push plate is standard on all new 595K Necker and Flanger turrets supplied by Belvac on Modular Machines after 1996. Since this new design is completely interchangeable with the present adjustable push plate, customers may order this new design for existing 595K Necker and Flanger turrets. This design is especially useful for customers planning to make a variety of height conversions on swing line machines.

To Order:
Please provide machine serial numbers, can size, and Trim Can Height when ordering. When ordering a conversion, please specify this style push plate.





Push pad (only part needing replacement for height changes)

HEIGHT AND DIAMETER CHANGE PART KITS

Part Number assigned when order is placed

All 795 and 595 Neckers are capable of running cans ranging in height 307 to 610 with diameters ranging between 202 and 211. If additional sizes are required, contact Belvac Production Machinery. Each kit is engineered specifically for the customer's machines.

Shipment Lead Times:
All Change Part Kits are engineered specifically for each machine and can size for each order. Please allow 9-10 weeks for delivery from receipt of purchase order and can specifications.

For quotation and/or ordering:
1. Please provide Serial Numbers of each machine (include each turret, and waxer if applicable)
2. Please provide Trim Can Height for current can size and proposed can size.
3. If the machine has a Flanger, please provide the Factory Finish Can Height.

LONG TERM 595 IDLE THRU KITS

See individual listings below for part numbers

A long term idle thru kit is required on a 595 turret of which cans must move through, but the turret's designed operation is not required. All kits below are used on fixed base and modular machines. Several variations exist according to the number of turrets required per machine as well as the specific style:

P/N 2702444 - Long Term 595K Kit, Necker Turret

- For idling-thru (1) Necker turret per machine, 3 weeks or longer
- For 595K (2400 cpm rated) and 595A (2000 cpm rated) model Neckers.
- Involves removal of the tooling, both push and knockout ram assemblies, and the air selector ring to save the wear of these parts. Two can guide plates would be installed to transport/guide cans through the turret. Conversion per kit requires approximately 3 to 4.5 hours.

P/N 2704240 - Long Term 595K Kit, Necker Turret

- For idling-thru (2) or more Necker turrets per machine, 3 weeks or longer
- For 595K (2400 cpm rated) and 595A (2000 cpm rated) model Neckers.
- Involves removal of the tooling, both push and knockout ram assemblies, and the air selector ring to save the wear of these parts. Two can guide plates would be installed to transport/guide cans through the turret. Conversion per kit requires approximately 3 to 4.5 hours.

P/N 2701140 - Standard Non-K Kit, Necker Turrets

- For idling-thru (1) or more Necker turrets per machines
- For non-K (1800 CPM rated) Necker turrets. *This does not include "A" turrets.*
- This kit involves removal of the push ram assemblies and the Necker tooling, with installation of a brush assembly, stabilizer nuts, and push side can guide plate. Conversion per kit requires approximately sixty (60) minutes. If a non-K turret is expected to be idled for an extended period of time, it is in the best interest of the plant to opt for a Long Term 595K Kit in order to save unnecessary wear on the cams and air manifold.

P/N 2704006 - 595K Long Term Flanger (Normal rotation)
P/N 2704007 - 595K Long Term Flanger (Reverse rotation)

- For idling-thru a Flanger turret, 3 weeks or more
- Involves removal of push side ram assemblies and installation of the pre-loaded push ram assemblies, transferring the existing push plates to the new ram assemblies. The upper compression fitting in their existing grease ring (nearest the operator side of the machine) is to be replaced with the conversion fitting and Branch-Y fitting. From the "Y" connector, attach the equal length tubes to the ram bushings. The customer will need to attach the "replacement" spin assemblies *(PIN 2703832)* using their existing flanger tool bolts. Also, the brush assembly must be attached to the upper center spacers.

595 IDLE THRU KITS (continued)

P/N 2704013 - 595 Non-K Long Term Flanger (Normal rotation)
P/N 2704014 - 595 Non-K Long Term Flanger (Reverse rotation)

- For idling-thru a Flanger turret, 3 weeks or more
- Involves removal of push side ram assemblies and installation of the pre-loaded push ram assemblies, transferring the push plates to the new ram assemblies. The customer will need to attach the "replacement" spin assemblies *(PIN 2703832)* using their existing flanger tool bolts. Also, the brush assembly must be attached to the upper center spacers.

P/N 2704861 - 595K Base Reformer Idle Thru Kit (413) Long Term

- For idling-thru a turret, 3 weeks or more
- Involves removal of the push side ram assemblies as well as the air manifold to save them from unnecessary wear. The tool side ram assemblies will remain in the turret. However, the tooling itself will need to be removed as in the case of the short-term kit.

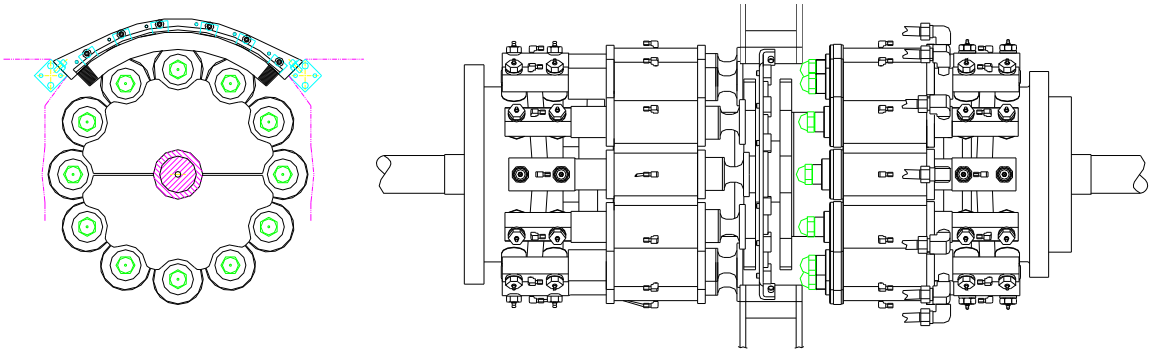


Illustration above shows brush assembly mounting only. Some of the above kits require removal of ram assemblies, though they are pictured to the right.

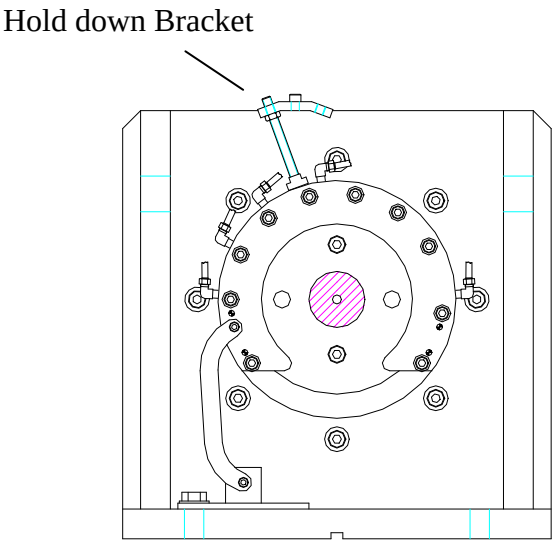
STOP ASSEMBLY FOR SELECTOR RING

Belvac offers an Air Selector Ring Stop Assembly retrofit kit that will control the movement and increase the life of the Air Selector Ring Assembly. Previously, the Air Selector Ring Assembly had a tendency to move upward, prematurely wearing the bottom portion of the assembly when air pressure was applied. An installation drawing is included in the kit.

To Order:
Use the part number below. Kit comes with installation drawing.

Kit # 2705105	Fixed Base Machinery, Normal Rotation
Kit # 2705104	Fixed Base Machinery, Reverse Rotation
Kit # 2751840	Modular Machinery, Normal Rotation
Kit # 2751829	Modular Machinery, Reverse Rotation

For additional information, contact Belvac or refer to Technical Bulletin Issue 29, Volume 1



BASE REFORMER / REPROFILER: DOME EJECTOR UPGRADE

See part numbers & ordering options below

Objective & Benefits:
The base ejector upgrade for all Base Reformer and Base Reprofiler Turrets installs easily conserving wear on push pads and manifolds by eliminating vacuum. The customer can modify their existing upper guide, or has the option to order a full upgrade including a new upper guide.

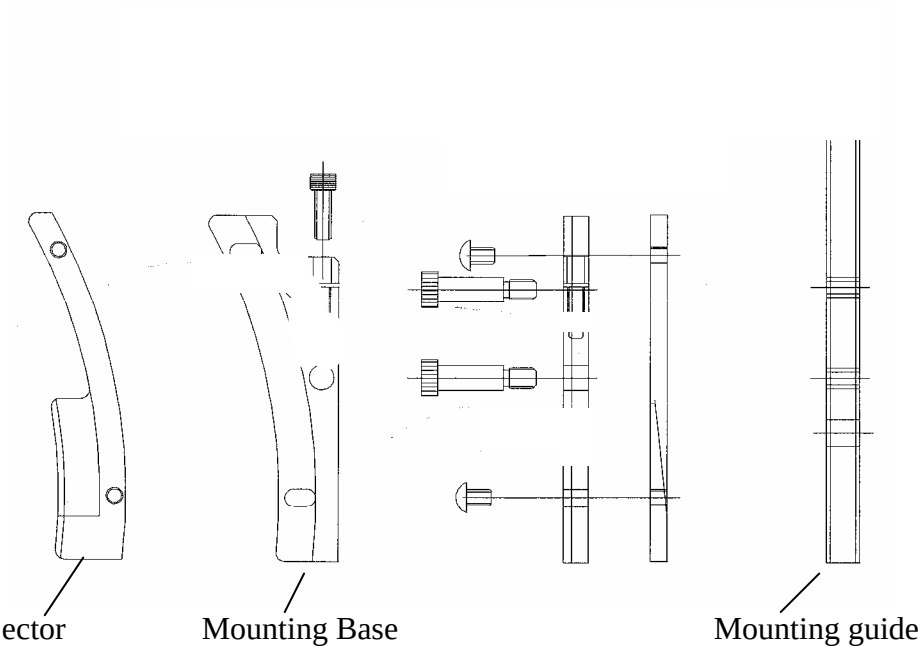
To Order:
Select the desired option below:

Full Upgrade Option for Reverse Rotation machines:
1700771 Base Ejector Assembly, RR (211 diameter)
1700998 Base Ejector Assembly, RR (202 diameter)

Full Upgrade Option for Normal Rotation machines:
1700772 Base Ejector Assembly, NR (211 diameter)
1701015 Base Ejector Assembly, RR (202 diameter)

Purchase option for In-field guide modification are available: Contact Belvac for part numbers

Note: *Belvac highly recommends purchasing a* ***C31169*** *regulator gauge with all the above upgrade. Because this upgrade would result in a lesser vacuum requirement, installing this regulator would reduce plant push pad vacuum being supplied.*
Installing 2-piece push pads would help reduce maintenance time when worn pads are required to be replaced.



595K RAM ASSEMBLY REWORK PROGRAM

Part Number assigned when order is placed

Recommended Necker maintenance schedules suggest all rams be reworked on an annual basis, Belvac has designed a program to assist in this reworked ram assemblies:

- Minimizes maintenance downtime on multiple stage Neckers and Flangers
- Saves plant maintenance costs
- Saves plant inventory costs
- Coordinates with plant's maintenance schedules to ensure scheduled rams are available

The program includes the following depending on plant's level of participation:

- Belvac service engineer could audit entire machine and recommend replacement parts if necessary. The audit will ensure that all parts are on site prior to scheduled maintenance.
- On a pre-scheduled maintenance day, a Belvac service engineer would be available to install all serialized rebuilt ram assemblies along with items identified during the audit.
- Belvac service engineer would prepare a maintenance log for machine.
- Scheduled maintenance between Belvac and customer on an annual basis.
- Reworked ram assemblies include a 12-month warranty on parts and installation labor if installed by a Belvac Service Engineer.

To Order:
Contact a Belvac Sales Representative for more details and to schedule this program for your plant.

ALL STEEL AIR SELECTOR RING REWORK

P/N 1001227RWK (Flanger, Normal Rotation)
P/N 1001197RWK (Flanger, Reverse Rotation)

Belvac will rework all steel air selector ring assemblies for half the price of a new assembly. The rulon lining would be replaced provided the steel parts are not damaged.

To order:
Use part number above and contact Belvac's Sales Department for a return authorization number.

TRIMMER AUTOMATIC LUBRICATION SYSTEM UPGRADE

P/N 12443-CC92 CC92 models, includes new cutting head retainer plate
P/N 12440-CC93 CC93 models, includes new cutting head retainer plate

Qualifying Trimmers:
All CC92 and CC93 model Trimmers

Objectives and Benefits:

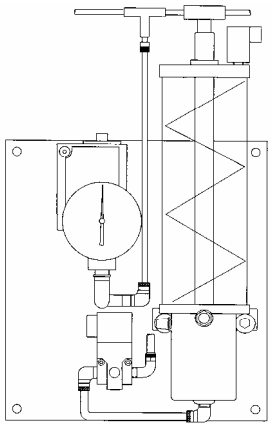
- Eliminates most manual lubrication points saving maintenance time *(points that will still need manual lubrication after conversion are: main cams and associated cam followers; spindle drive bearing; and cartridge drive bearing)*
- Offers consistent lubrication for critical assemblies extended life of wear parts.
- Reduces overall spare parts required
- Increases can quality directly related to over worn parts
- Part numbers listed above include a cutting head retainer plate, and rework drawings to modify existing smaller components.

Installation:
A Belvac Service Engineer is recommended to perform this conversion. It requires 1.5 to 2 days per trimmer to complete.

To order:
Choose the appropriate part number above and fill out the information page at the end of Section 4 for Trimmer Maintenance Quality Upgrades and forward to Belvac with purchase order.

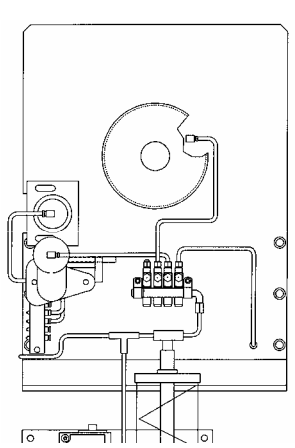
General Arrangement of Autolube System:

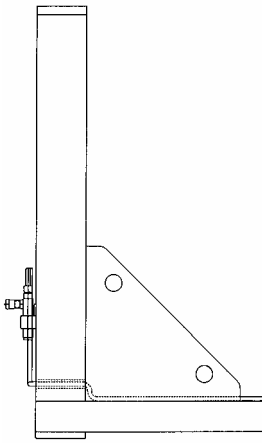
Pump Assembly (Mounts to Operator's Side End Frame)



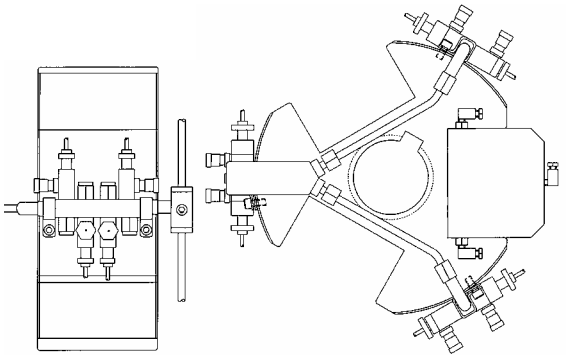
General Arrangement of Autolube System Continued:

Operator's Side End View:

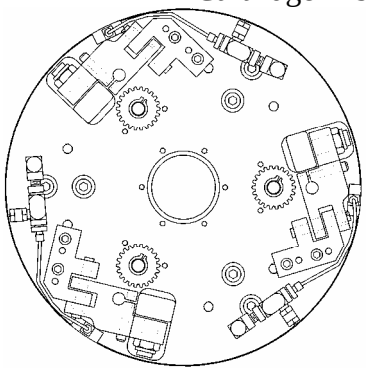




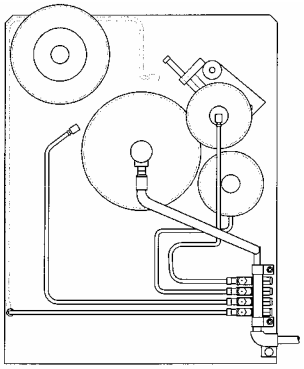
Spindle Frame

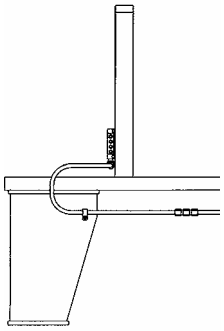


Cartridge Disc



Drive Side End View:





STAINLESS STEEL SLIDING GUARDS UPGRADE

Part Number assigned when order is placed

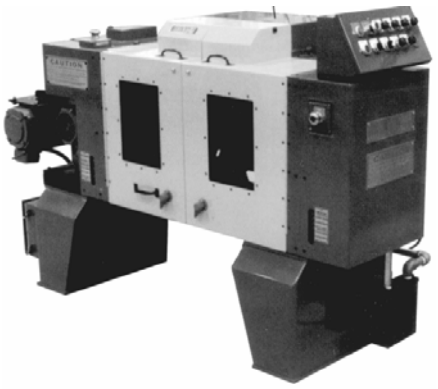
Qualifying Trimmers:
Any "R" style CC92 and CC93 Model Trimmer, with painted 4 or 5-door guard designs.

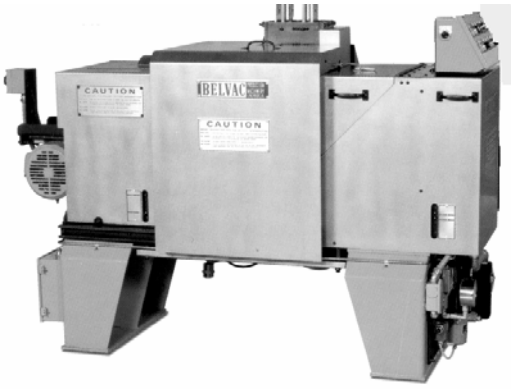
Benefits:
- Allows improved accessibility to machine components for maintenance, setup and size changes conversions, reduces downtime
- Eliminates need for periodic painting.

Drive Configurations for Stainless Steel Guards (see diagram below):
Parallel drive configurations will require a new gearbox for proper guard fit. Trimmers with front drive configurations will require 180 degrees gearbox rotation, or a Compact Drive Upgrade.
Compact and Discharge drive configurations will not have to change for proper guard fit.

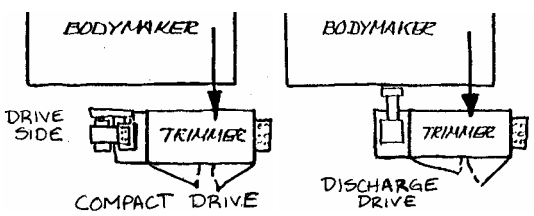
Installation:
Requires approximately 1 full day for installation. Customer must ensure installation of all electrical safety switches.

To order:
Please fill out the information page at the end of Section 4 for Trimmer Maintenance Quality Upgrades and forward to Belvac with purchase order.

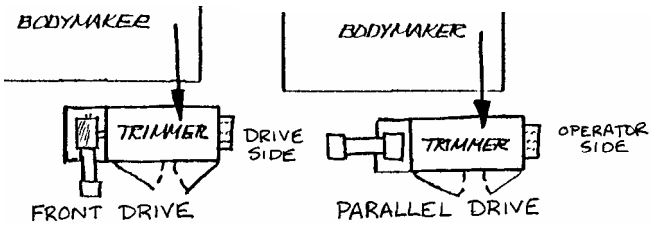




4 & 5 Door Guards



Stainless Steel Guards



PIVOTING LOWER DISCHARGE RAIL RETROFIT KIT

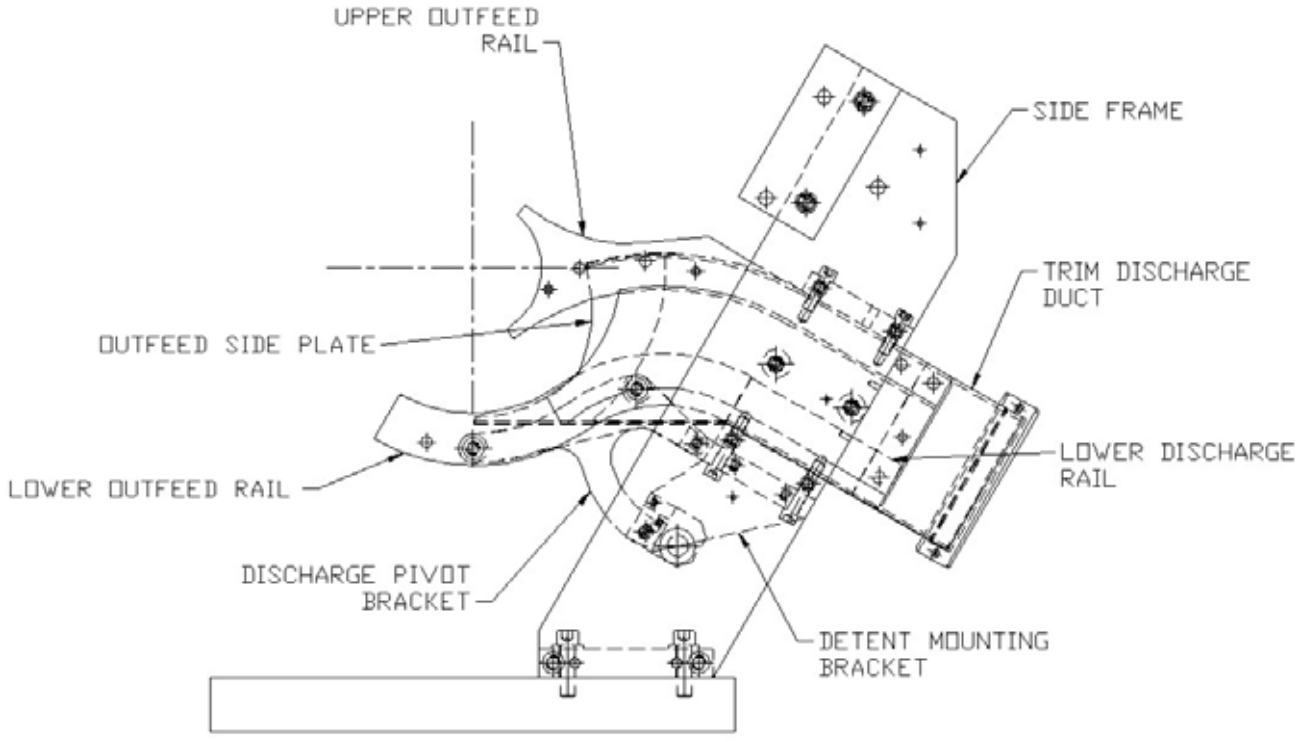
P/N 15506-CC93 + Change Parts

Qualifying Trimmers:
All CC92 and CC93 R/RML model Trimmers.
Note: Pivoting discharge rails are common on all C/CL model Trimmers and is now a standard feature on all new R/RML trimmers since 7/91.

Objective and Benefits:
- Greatly decreases amount of time removing damaged or jammed cans in Discharge trackwork.
- Ease to use.
- Kit comes complete with installation drawing and retrofit to existing trackwork.

Installation:
Requires only approximately 1-2 hours for installation

To order:
Please fill out the information page at the end of Section 4 for Trimmer Maintenance Quality Upgrades and forward to Belvac with purchase order.



DIRECT INFEED CONVERSION

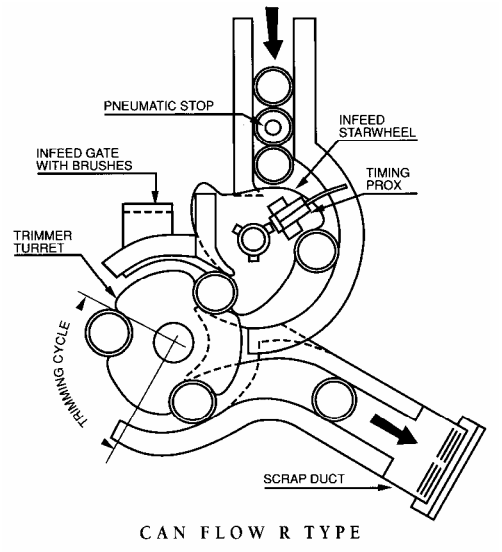
Part Number assigned when order is placed

Qualifying Trimmers:
All CC92 and CC93 R/RML model Trimmers.
Direct Infeed Conversion removes main turret starwheels, infeed starwheels and can stop mechanism, feeding cans directly onto a new CV main turret style starwheel.
Note: This conversion reduces maximum trimmer speed to 300 CPM.

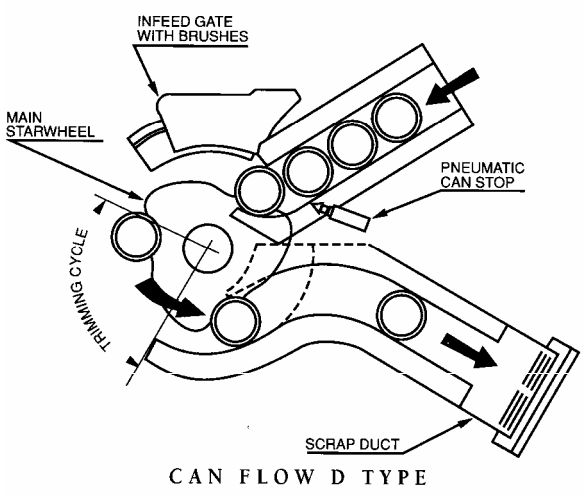
Objective and Benefits:

- Reduces changeover time on lines that have frequent can diameter changes.
- Replaces existing cam drop or CV Infeed and eliminated the infeed starwheels.
- Cans feed directly onto the main turret starwheel
- Some customers have elected to purchase complete towers, for each can size diameter they run, reducing changeover time even more. Each tower is equipped with pin can stop, height and diameter change parts.

To order:
Please fill out the information page at the end of Section 4 and forward to Belvac with purchase order.



CAN FLOW R TYPE



CAN FLOW D TYPE

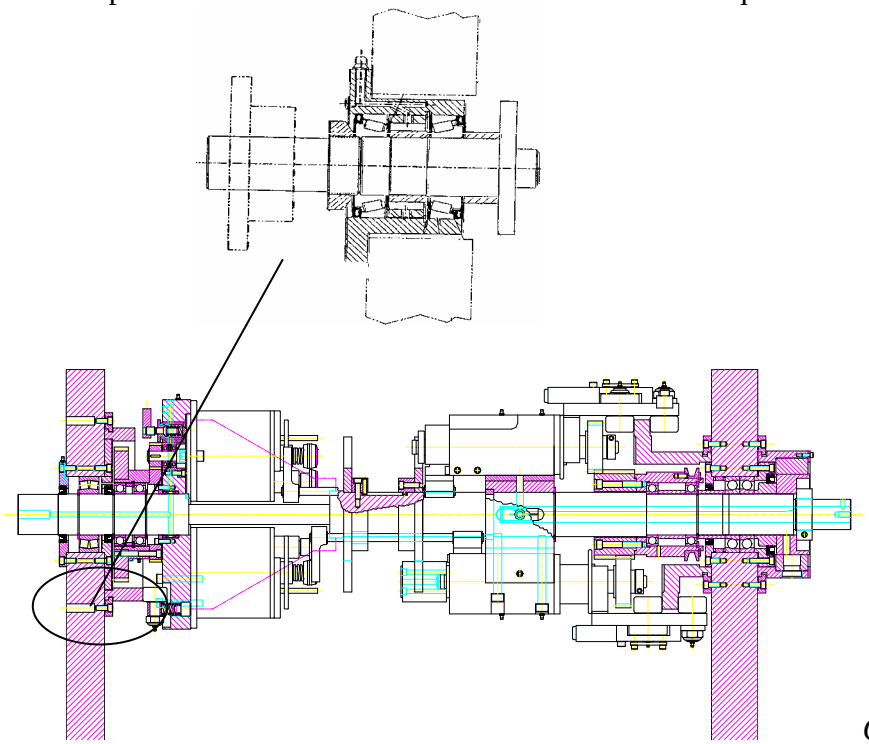
HEAVY DUTY JACK SHAFT (CARTRIDGE DRIVE) UPGRADE
P/N 10317-CC93

Qualifying Trimmers:
All CC series Trimmers manufactured prior to mid 1987.
(This feature is standard on all CC series Trimmers except QC Trimmers)

Objective and Benefits:
- Eliminates premature breakage and bearing failure due to excessive side loading.
- Tapered roller bearings replace the cartridge type bearings used previously.
- The increased spread between these bearings and their inherently greater capacity to handle the side load of the main drive belt, along with a positive pre-load set during assembly, ensure a longer service life of this assembly.
- A single split clamp nut replaces the original shaft nut and lock washer design. *(Refer to Technical Bulletin Issue 24, Vol. 1 for more information)*

Installation:
This unit is shipped assembled and directly replaces the existing assembly.

To order:
Use the part number above. No additional information required.



Operator's side

Trimmer Shaft, Side View
Note: Jack Shaft Assembly not shown on shaft view, area circled to clarify its actual location

CT500 TRIM STATION RESTORATION KITS

P/N 7503663 for 211 diameter, Standard Trim
P/N 7503664 for 300 diameter, Standard Trim
P/N 7503665 for 202 diameter, Standard Trim
P/N 7503666 for 211 diameter, Break Trim Style
Other diameters available upon request

Qualifying Trimmers:
All CT500 Trimmers

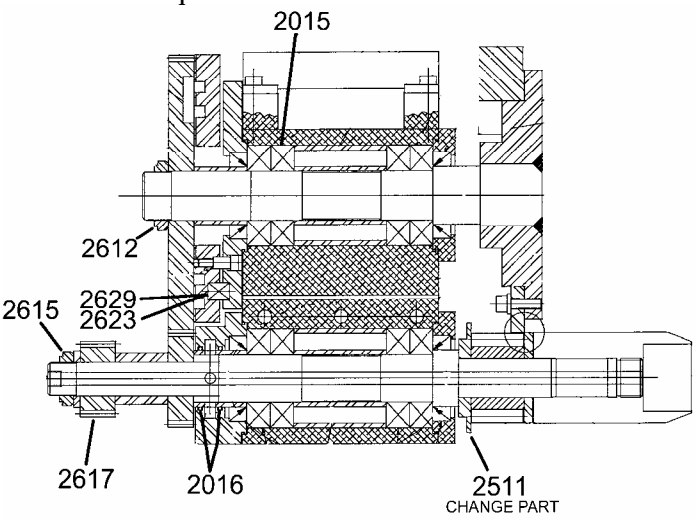
Objective and Benefits:

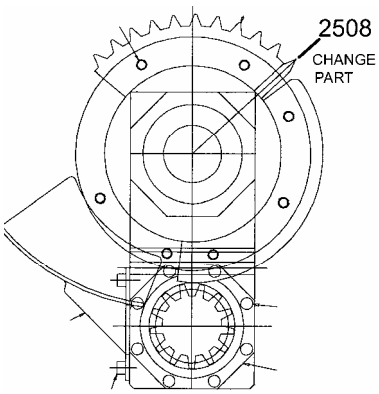
- Provides all parts necessary for the customer to restore a Trim Station. (See diagram below)

Note: *Gears, manifold, and knives* are not included because they should be inspected as part of a regular maintenance program, and only replaced as needed. *These items may be reground or replaced with new.*

- Customer only needs to order and stock (1) part number instead of eleven parts.

Installation:
Restoration of each Trim Station requires 2-4 hours.
To order: Use the part number above with the corresponding can diameter. No additional information required.

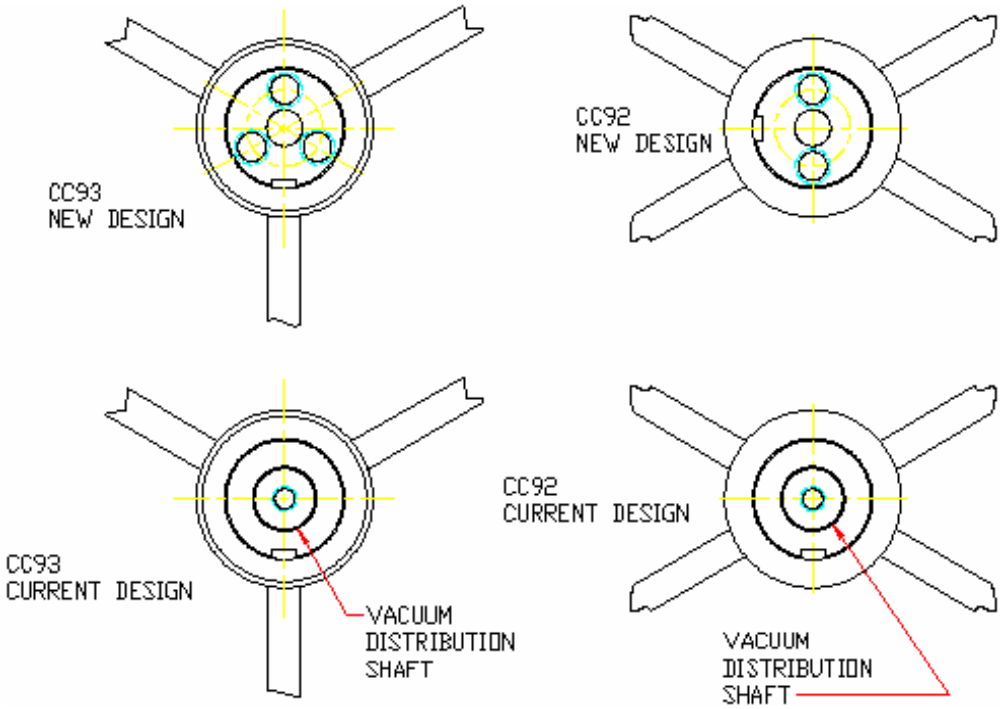




CT500 TRIM STATION, Side View **Front View**

CC92 & CC93 VACUUM DISTRIBUTION SHAFT ELIMINATION

Belvac has designed and introduced an individual vacuum port design, which takes the place of the current vacuum distribution shaft. This design incorporates 0.44 diameter vacuum ports, replacing the grooved distribution shaft.



Customer's replacing original shafts for their CC92 & CC93 should also order the following parts for port maintenance:

Brush - C21359
Brush Handle - C21360

Reference: Technical Bulletin Issue 12 Volume 8 March 2000.

EASY MAINTANENCE "EMC" CARTRIDGE

Belvac has designed the patented, **Easy Maintenance "EMC" Cartridge** to replace the Standard Duty and Heavy Duty Trimmer Cartridges. Today's limited workforce does not always have the luxury of providing technical personnel to focus specifically on cartridges. Belvac has designed the EMC cartridge assembly to accommodate a workforce with wider, less specialized skills.

This design offers the same functionality, and process precision of the Heavy Duty cartridge, with the following design attributes:

- Average Maintainer Skill Level is Sufficient for Assembly
- Typical cartridge rebuild time has been reduced from 4-hours to 1.5 hours.
- High precision angular contact bearings assure run out specification is readily attained and maintained.
- Shaft height (knife gap) is obtained via a micrometer style adjustment screw external to the cartridge.
- Depth of cut is factory preset.
- Inside and Outside Burr Specific
- Directly Retrofittable to Existing Trimmers.

Installation:
This unit is shipped assembled and directly replaces the existing assembly.

To order:
Please provide burr type, can diameter, can material and knife material.

EMC Cartridge Accessories, Part Number & Description:

9310113 ***Trimmer Handle Kit***
This kit consists of Qty (3) handles and (3) mounting bolts, a full complement for a 3-head trimmer.

9310099 ***Transport Fixture***
This spring loaded fixture allows positive grip capability during transport.

9310120 ***Knife Closure Fixture Assembly***
Fixture provides a secure method to close knives for measurement. One required per plant.

9310121 ***Knife Height Setup Fixture***
Fixture holds an indicator, which attaches to the unit and is utilized to accurately measure knife gap. One required per plant.

EMC CARTRIDGE PART NUMBERS

Select Part Number below by burr type, can diameter, can material and knife material.

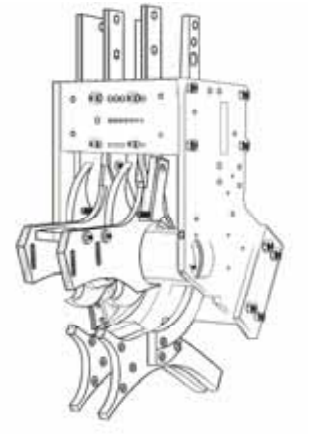
PART NUMBER	DESCRIPTION
Outside Burr:	
9310000-OB202AL-CA	**Outside Burr, 202 Diameter, Aluminum Can, Carbide Knife**
9310000-OB202AL-M2	**Outside Burr, 202 Diameter, Aluminum Can, M2 Knife**
9310000-OB202AL-D2	**Outside Burr, 202 Diameter, Aluminum Can, D2 Knife**
9310000-OB211AL-CA	**Outside Burr, 211 Diameter, Aluminum Can, Carbide Knife**
9310000-OB211AL-M2	**Outside Burr, 211 Diameter, Aluminum Can, M2 Knife**
9310000-OB211AL-D2	**Outside Burr, 211 Diameter, Aluminum Can, D2 Knife**
9310000-OB211ST-CA	**Outside Burr, 211 Diameter, Steel Can, Carbide Knife**
9310000-OB211ST-M2	**Outside Burr, 211 Diameter, Steel Can, M2 Knife**
9310000-OB211ST-D2	**Outside Burr, 211 Diameter, Steel Can, D2 Knife**
9310000-OB300-CA	**Outside Burr, 300 Diameter, Aluminum or Steel Can, Carbide Knife**
9310000-OB300-M2	**Outside Burr, 300 Diameter, Aluminum or Steel Can, M2 Knife**
9310000-OB300-D2	**Outside Burr, 300 Diameter, Aluminum or Steel Can, D2 Knife**
Inside Burr:	
9310090-IB202AL-CA	**Inside Burr, 202 Diameter, Aluminum Can, Carbide Knife**
9310090-IB202AL-M2	**Inside Burr, 202 Diameter, Aluminum Can, M2 Knife**
9310090-IB202AL-D2	**Inside Burr, 202 Diameter, Aluminum Can, D2 Knife**
9310090-IB211AL-CA	**Inside Burr, 211 Diameter, Aluminum Can, Carbide Knife**
9310090-IB211AL-M2	**Inside Burr, 211 Diameter, Aluminum Can, M2 Knife**
9310090-IB211AL-D2	**Inside Burr, 211 Diameter, Aluminum Can, D2 Knife**
9310090-IB211ST-CA	**Inside Burr, 211 Diameter, Steel Can, Carbide Knife**
9310090-IB211ST-M2	**Inside Burr, 211 Diameter, Steel Can, M2 Knife**
9310090-IB211ST-D2	**Inside Burr, 211 Diameter, Steel Can, D2 Knife**
9310090-IB300-CA	**Inside Burr, 300 Diameter, Aluminum or Steel Can, Carbide Knife**
9310090-IB300-M2	**Inside Burr, 300 Diameter, Aluminum or Steel Can, M2 Knife**
9310090-IB300-D2	**Inside Burr, 300 Diameter, Aluminum or Steel Can, D2 Knife**

SOFT TOUCH INFEED (STI) – ALL CC93 MODEL TRIMMERS

The ***STI*** is now standard on all Belvac CC93 Trimmers.

Belvac has introduced a quality improved infeed design ***"Soft Touch Infeed" (STI)*** for all CC93 model trimmers to virtually eliminate scuffing and scratches. This advanced technology was designed in response to changes in the industry's metal thickness and increased line speeds, offering significantly greater can control throughout the infeed path, and a gentler transition into the main turret of the CC93.

Refer to the following diagram for the Half Tower Retrofit:



Other features and benefits for the STI are:

- Maintained existing drive & pulley ratios.
- Non-adjusting rails eliminate operator guesswork
- Economically viable - CC93 half tower retrofits available
- Utilizes the existing lower rails, scrap duct, jam detection, guarding, and side plate spacers
- Field-tested resulted in over 90% reduction of "scuffing" and "scratching".
- Field-testing with aluminum and steel cans at speeds of 350-400 CPM.

Retrofit kits for all existing CC93 Model Trimmers are now available. Please contact Belvac Technical Sales Representatives with Trimmer serial numbers, for STI retrofit quotations or additional information. (Note: CC93 Trimmers shipping prior to 1982 will require additional parts to complete retrofit)

Note:
Existing infeed height change parts will not be acceptable with the STI design. Additionally, older era CC93 Trimmers will require upgrades to the latest technology, e.g. pin stop mechanism.

Installation:
This unit requires approximately 6 hours to install. It can be purchased as a complete half tower.

To Receive A Quotation:
Please fill out the information page at the end of Section 4 for Trimmer Maintenance Upgrades and forward to Belvac Sales.

FAX TRANSMITTAL

TO: _____ **FROM:** _____
Belvac Production Machinery, Inc.

_____

FAX: (434) 832-8356 or (434) 239-9252

FAX#: _____

DATE: _____

BELVAC TRIMMER SPECIFICATIONS

TYPE OF UPGRADE/CONVERSION PURCHASING: _____

MACHINE SERIAL NUMBER (S): _____

TRIMMER MODEL: ____**CC92** ____**CC93** _____**CT500**

___ R ___ RML ___ RXL ___ D ___ C ___ CL

CAN SIZE (DIA. & LENGTH): _____ **TCH:** _____

CURRENT SPEED OF TRIMMER: _____ CPM

CAN MATERIAL _____ Aluminum ____ Steel

SENSOR PREFERENCE: ____ AC ____DC SINKING _____DC SOURCING
(Applies to Infeed & discharge conversions only)

ANY ADDITIONAL CUSTOMER COMMENTS ABOUT THE MACHINE (S) TO BE CONVERTED
(Please note any conversions, if any, done to machine since original shipment)

_____

_____

_____

Belvac Thanks you for assisting with the above information

CC92 TO CC93 CONVERSION

Part Number assigned when order is placed

Qualifying Trimmers:
Available for all CC92 (2-head) model Trimmers.

Objective & Benefits:
- Increase production by 50% at same RPM's
- Increase speed capacity limit to 400 CPM (if speed change parts are purchased)
- Efficient use of existing equipment
- Provides opportunity to replace major parts on older, well-worn machines.

Parts Included:
Complete cartridge assembly
Complete spindle assembly
Main shaft (drilled prior to shipment)
Main spindle frame for 3-spindles
3-pocket Cutting head retainer plate
M/T Starwheels
Infeed Starwheels
Stripper housing assembly
Main Shaft Bearings & Seals Kit
Vacuum selector ring
Cut drive assembly
Can chuck
All necessary hardware to complete conversion

Note: Speed change parts optional. Belvac recommends a 3 HP motor for speeds over 300 cpm.

To Order:
Fill out the Trimmer Model Type Conversion Specification sheet at the end of Section 5 and forward to Belvac when placing an order.

CC92/CC93 TO CC95 TRIMMER CONVERSION

Part Number assigned when order is placed

Qualifying Trimmers:
All CC92 and CC93 model Trimmers.

Objective & Benefits:
- Increased speed capability (up to 500 CPM)
- Efficient use of reusable CC92 and CC93 components
- Minimal Downtime required for conversion
- Common parts and maintenance programs
- No retraining of plant personnel required
- Factory trained service Engineer installs and sets up machine

Hardware that may be reusable from existing CC92/CC93 trimmers:
- Cartridge assemblies
- Spindle assemblies w/main follower assemblies *(Replace starwheel segment and gear; Optional anti-rotation assembly can be added.)*
- Main follower assembly cartridge
- Cartridge jackshaft assemblies
- Spindle jackshaft assemblies
- Pushbutton assemblies
- Cut drive assemblies (Replace gear)
- Autolube panel assembly
- Air input panel assembly

Note: Existing usable parts will vary by model, machine set-up, and condition.

Conversion Includes:
- Skeleton CC95 model Trimmer complete with legs, SS sliding guards, and all piping and electrics
- Factory trained service engineer to audit machine, install kit and qualify machine (one day per kit)
- 12 month warranty on replaced parts and labor

Conversion does not include:
- Worn parts identified during audit
- Travel and living expenses of service engineer
- Freight and/or import duties

To order:
Contact a Belvac Sales Representative with existing Trimmer serial numbers to coordinate identification of available parts and new parts required for this conversion. (It would be helpful to fill out the Trimmer Conversion Specification sheet at the end of Section 5 for quotation.)

C TO CL AND R TO RML MODEL CONVERSIONS

Part Number assigned when order is placed

Qualifying Trimmers:
CC92 and CC93 model "R" and "C" trimmers.

Objective & Benefits:
- Increase the maximum can height of the trimmer from 605 (160mm) to 805 (211mm)
- Provides a new main shaft which is 2 in. (50.8 mm) longer

Installation:
Requires approximately 2-days to install *(Note: An alignment fixture is required to set the end frames. Customers must order P/N 705297 - CC93 SWEEPING FIXTURE, returning it for credit)*

Parts Included:
Main follower assemblies, spacers, infeed starwheel hub, infeed drive shaft, stripper pull rods, spindle drive gears, main shaft, main spindle frame, drip pan, main base plate, all M/T seals and bearings and necessary hardware for conversion.

To order:
Provide information on the Trimmer Conversion Specification sheet at the end of Section 5 when ordering.

TRIMMER SPEED CONVERSIONS

Part Number assigned when order is placed

Qualifying Trimmers:
Available for all CC92, CC93, CC95, CC96, and CT500 trimmers that have drive setups for less than the trimmer's maximum rated speed.

Objective & Benefits:
- Upgrade a machine's speed and drive parts to utilize the machine's maximum rated speed.
- Factory engineered speed-up conversion for assurance of quality drive setup

To Order:
Provide the information as requested on the Trimmer Conversion Specification sheet at the end of Section 5 when ordering.

CAN HEIGHT AND/OR DIAMETER CHANGE PART KITS

Part Number assigned when order is placed

Qualifying Trimmers:
All model Trimmers are capable of running a minimum and maximum can height and diameter range. Consult Belvac (or Belvac brochures) for the range capability of each machine. Each kit is engineered specifically for the customer's machines. Please allow 12 weeks for delivery.

For Quotation:
Contact Belvac with the machine serial numbers, current and proposed can sizes for size change part quotation. Providing Trim Can Heights (TCH) as well allows for a more accurate quotation.

Delivery:
Please allow 12 weeks for delivery of change parts from receipt of specifications and purchase order.

Installation:
Height Changes approximately 1-½ hour per Trimmer. Height and Diameter changes require approximately 6 hour per Trimmer. Diameter changes require approximately 6 hour per Trimmer. Note: add at least ½ hour to times above for CT500 Trimmers.

To Order:
Provide the information as requested on the Trimmer Conversion Specification sheet at the end of Section 5 when ordering.

Belvac Production Machinery, Inc.
A DOVER DIVERSIFIED COMPANY

FAX TRANSMITTAL

TO: _____ **FROM:** _____
Belvac Production Machinery, Inc.

_____

FAX: (434) 832-8356 or (434) 239-9252 FAX#: _____

BELVAC CC93 TRIMMER CONVERSION SPECIFICATIONS

MACHINE SERIAL NUMBER (S): _____

TRIMMER MODEL: ____ R ____ RML ____ RXL ____ D ____ C ____ CL

CURRENT CAN SIZE: _____ **CURRENT TCH:**_____

NEW CAN SIZE: _____ **NEW TCH:** _____

CURRENT SPEED OF TRIMMER: _____CPM

DESIRED TRIMMER SPEED (if different from above): _____CPM

BODYMAKER SPEED FOR 3-HEAD TRIMMER: _____

INFEED TYPE:
____ CV starwheel
____ CV starwheel with air actuated pin stop
____ Drop leaf (cam)
____ Mechanical

SPEED RELATED PARTS:
Current Gear Ratio _____
Number of Teeth on Main Drive Pulley _____
Number of Teeth on Reducer Output pulley _____
Motor Hp _____
_____ Variable frequency drive or _____ Speed Drive

_____ At least (6) Customer-supplied cans required to manufacture vacuum can chuck. PLEASE SHIP THESE CANS TO BELVAC WITHIN (2) WEEKS OF ORDERING.

_____ Please attach a dome profile drawing if dome profile is changing.

ANY ADDITIONAL CUSTOMER COMMENTS ABOUT THE MACHINE (S) TO BE CONVERTED:

_____

_____

CV INFEED CONVERSION

Part Number assigned when order is placed

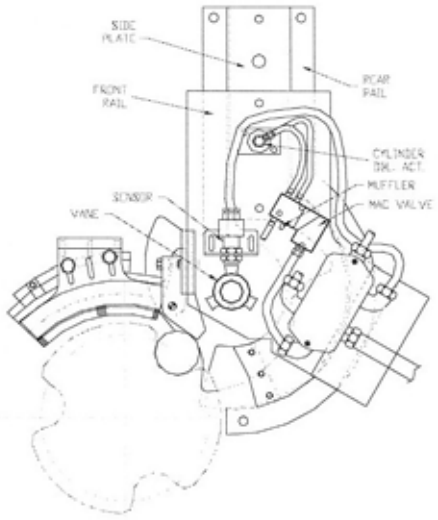
Qualifying Trimmers:
All CC92 and CC93 model Trimmers.

Objective and Benefits:

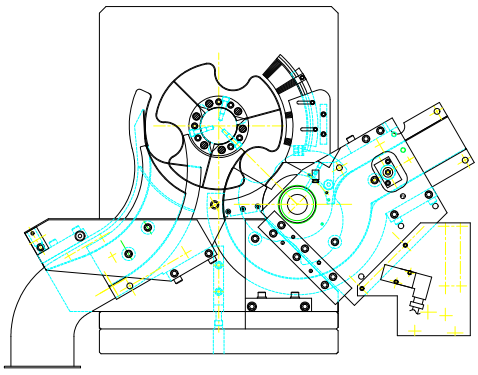
- Constant Velocity (CV) infeed system provides a smooth, continuous and uninterrupted flow of cans into the main turret starwheel.
- Downtime replacement parts or adjustment to the infeed mechanism is greatly reduced because most of the moving parts associated with the cam drop infeed are eliminated.
- Includes pin stop conversion, which utilizes an air cylinder and rubber stop that is actuated against the dome end of the can.
- *(Note: Option to purchase CV Infeed conversion without Pin Stop is available)*
- Eliminates can sidewall damage when can flow is stopped increasing the operating latitude.
- Side plates are diameter specific.
- Modification drawings are supplied when a customer wants to modify existing infeed side plate and side frame. Additional side plates must be purchased for each can size.

Installation:
Requires approximately 4-6 hours per machine.

To Order:
Please fill out the data spec sheet and forward to Belvac with purchase order.



CV Infeed (shown with Pin Stop)
R/RML Models



CV Infeed (shown with Pin Stop)
C/CV Models

***211Ø* CAN INFEED PIN STOP**

P/N 17511-CC93 + 211Ø Ch/Pts; R/RML non-CV models, complete kit
P/N 17512-CC93 + 211Ø Ch/Pts; R/RML CV models, complete kit
P/N 455005-CC93 + 211Ø Ch/Pts; C/CL models, complete kit

***211Ø* CAN INFEED PIN STOP w/MODIFICATION DWGS**

P/N 455006-CC93 + 211Ø Ch/Pts; C/CL models, customer modification dwgs
P/N 17514-CC93 + 211Ø Ch/Pts; R/RML CV models, customer modification dwgs
P/N 17513-CC93 + 211Ø Ch/Pts; R/RML non-CV models, customer modification dwgs

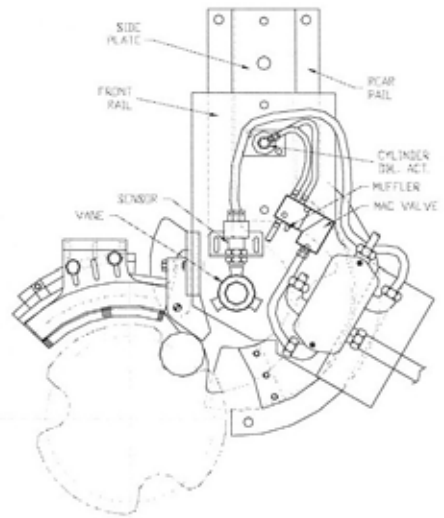
Additional sizes are available upon request.
Note: The Pin Stop requires a CV style Infeed and a pneumatic air panel. Trimmers with a non-CV infeeds must be converted to CV infeed and purchase an air panel to operate the Pin Stop.
Note: Dome Side Infeed plates require modification for pin stop, making them diameter dependent part. Additional side plates must be ordered for each can size.

Qualifying Trimmers:
All CC92 and CC93 model Trimmers.

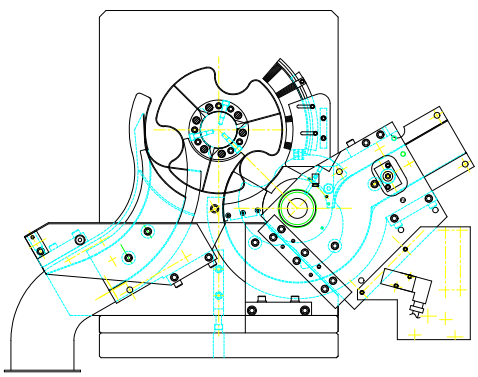
Objective and Benefits:
- Decreases damage to can sidewall when can flow is stopped
- Less adjustment and maintenance which decreases downtime
- Pin Stop bumper positioned in the dome of the can stops the flow of cans when the infeed level falls below the stack proximity sensor.
- The Pin Stop utilizes an air cylinder with a rubber stop contacting the dome of the can.
- Option to purchase complete kit or with customer modification drawings for any customer who will modify existing sideframe and sideplate.

Installation:
Requires approximately 4-6 hours to install per machine.

To Order:
Please fill out the data spec sheet and forward to Belvac with purchase order.



R/RML Models



C/CL Models

SPINDLE OVERRUN SPRING ASSEMBLY (with upgrade)

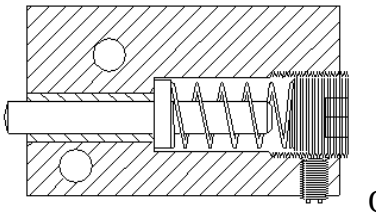
P/N 122404-CC93

Qualifying Trimmers:
All CC92 and CC93 Trimmers manufactured prior to 1991. This upgrade is standard on machines manufactured after 1991.

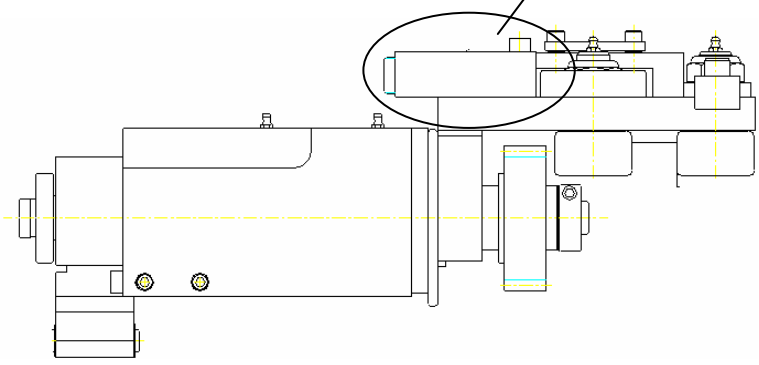
Objective and Benefits:
- Controls homing ring and spindle overrun assembly when trimmer rotates to the on cam position.
- Utilizes a heavy-duty die spring in place of original cut and ground spring eliminating premature spring breakage.
- Positive spring load on homing ring ensures zero movement in spindle sleeve during the trim cycle. This prevents steps, slivers, and trim edge variation on the can.
- Features nylon set screw to lock adjustment in place once it is set.
- The spring and pushrod can be replaced without removing assembly reducing downtime.
- Rework drawing 122410-CC93, included in assembly above to modify the follower pivot bracket.
- Mating Pivot Arm, P/N 12222-CC93, incorporates a carbide insert (C21300 sold separately).
- Override drill Template (704255 available upon request) offers easier and faster hole placement for first time installation.

Installation:
Requires approximately 3 hours to install.

To order:
Use the part numbers above to order. No additional information is required.



Overrun Spring Assembly (enlarged)



Spindle Assembly

ALTERNATE THRUST BEARING ASSEMBLY

P/N 58334-CC93

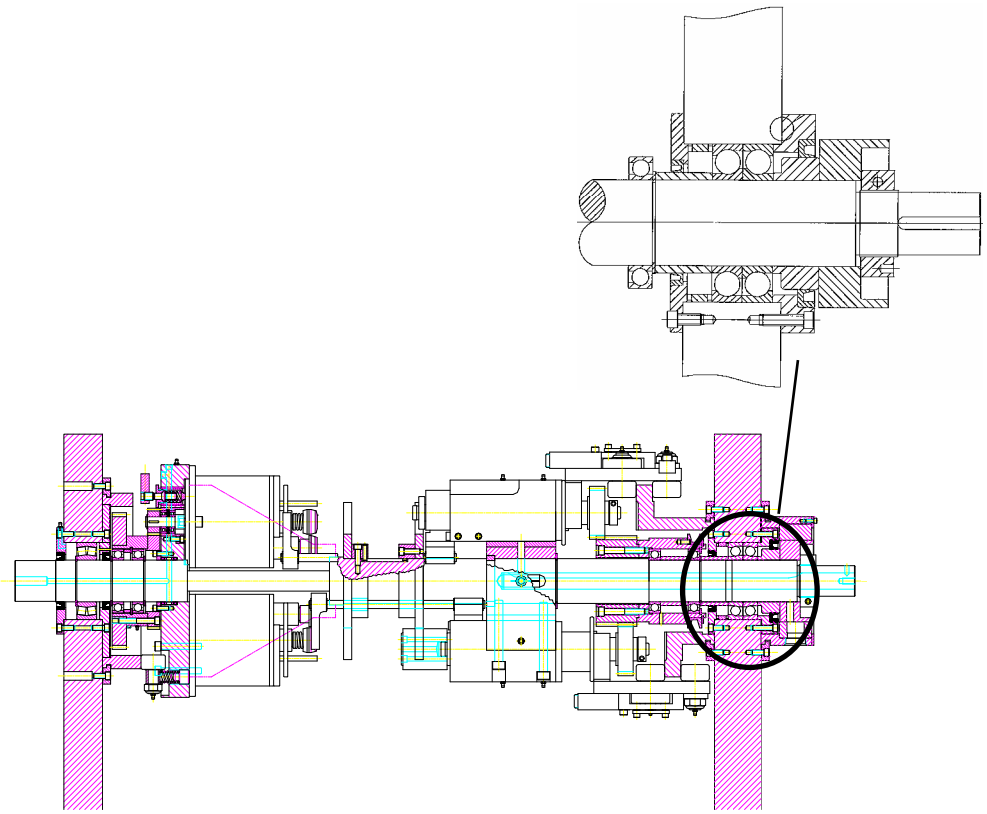
Qualifying Trimmers:
All CC92 and CC93 model Trimmers manufactured prior to 1983 and is standard feature on all new trimmers since that time.

Objective and Benefits*:*

- Reduce excessive pre-load and main shaft damage.
- Prolong the bearing life.
- Bearings have ground pre-load set at .003" at the time of assembly. This pre-load is independent of the main shaft-locking device.
- Pre-load will not change when the shaft nut is removed while cleaning vacuum systems on the main shaft, or when performing general maintenance.
- Pre-load can be adjusted to .003" when new bearings are installed in the trimmer by means of regrinding the grease seal housing.

Installation:
Requires approximately 6-8 hours to install.

To Order:
Use the part number above to order. No further information is required.



Trimmer Shaft, Side View *Operator's Side*

STANDARD & HEAVY DUTY CARTRIDGE ASSEMBLY CONVERSIONS

P/N 014002-CC62 Standard Duty Inside Burr to Heavy Duty Inside Burr
P/N 014002-CC52 Standard Duty Outside Burr to Heavy Duty Outside Burr
P/N 014003-CC52 Heavy Duty Inside Burr to Heavy Duty Outside Burr
P/N 014003-CC62 Heavy Duty Outside Burr to Heavy Duty Inside Burr
P/N 014007-CC52 Standard Duty Inside Burr to Heavy Duty Outside Burr

Qualifying Trimmers:
All CC92, CC93, and CC95 Model Trimmer Cartridge Assemblies.

About the Cartridges:
- Type of burr and inside burr "IB" or outside burr "OB" are the only options available.
- Heavy Duty is considered the preference choice over Standard Duty.
- Standard Duty to Heavy Duty is considered an upgrade.
- Belvac does not recommend converting cartridges in the field.

Benefits of the Standard (SD) to Heavy Duty (HD) Cartridge Upgrade:
- Upper & Lower knives are common, so existing knives may still be used if in good condition
- Standard Duty dowel pins are replaced with keyways in the Heavy Duty to locate the gears
- Drive gears reference are supported on flanges rather than snap rings
- External grease fittings offer easier maintenance/lubrication (SD duty is a sealed unit)
- Conversion available for all standard duty cartridges
- Cartridges will be reworked to "like-new" condition during conversion

To Order:
- Call Belvac Sales for a Return Authorization prior to shipping any cartridges to Belvac.
- Please fill out the data spec sheet and forward to Belvac with purchase order. Provide can size, knife material (carbide, D-2, or M-2), and can material (aluminum or steel).
- We encourage customers to send the knives and stripper-housing assemblies with the cartridges for a more beneficial rebuild. The knives and pins are inspected and replaced only if they are out of specification and if customer approves replacement.

See Cartridge diagrams next page

CARTRIDGE BUTTON OVERRIDE ASSEMBLY UPGRADE

P/N 122364-CC93

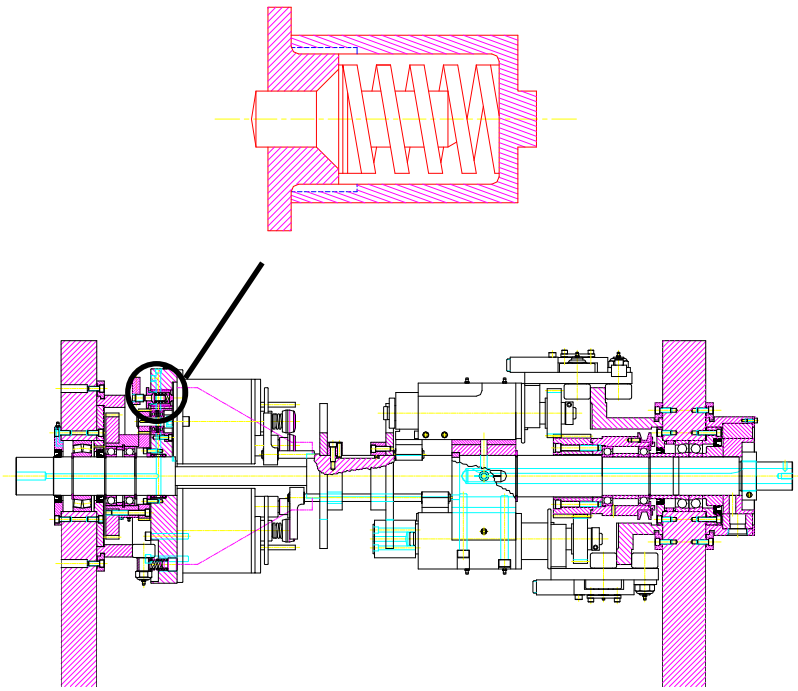
Qualifying Trimmers:
All CC92 and CC93 Model Trimmers manufactured prior to the end of 1990

Objective and Benefits:

- Standard on all Trimmers after 1990
- Controls the override of cartridge knives
- Utilizes a heavy-duty die spring, which decreasing spring breakage.
- Increased spring life will reduce troubleshooting and maintenance downtime, resulting in increased production.
- Offers positive spring load on lower arm assembly throughout the trim cycle.
- Carbide insert on button housing eliminates wear on contact points.

Installation:
Installs without modification to existing machine. Requires approximately 1 hour per machine.

To Order:
Use the part number above when ordering. No additional information required.



Trimmer Shaft, Side View *Operator's Side*

DISCHARGE BRUSH DESIGN TO CONTROL TRIM RINGS

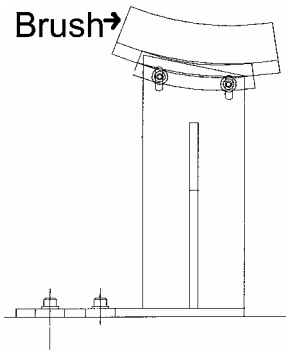
P/N 15477-CC93 CC92/93 R & RL Models
P/N 453044-CC93 CC92/93 C & CL Models

Qualifying Trimmers:
All CC92 and CC93 Trimmers manufactured prior to January 1996.
Refer to Technical Bulletin Issue 17, Vol. 1 for additional information.

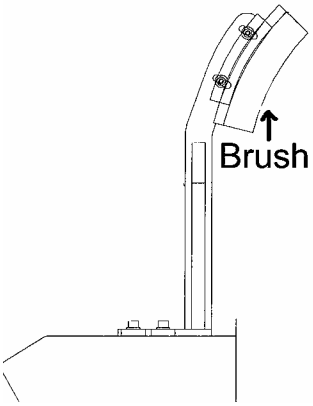
Objective and Benefits:
- Standard on all Trimmers after that date.
- Holding the trim ring with the brush reduces the occasional trim rings entering the can
- Brush Assembly designed to accept a shorter bristle brush (1.50", 38.l mm), and locates the brush such that the bristles barely brush the striper housing pins after the trim cycle.
- Mounts easily to trimmer base and fully adjustable for all can sizes

Installation:
Drill Template drawing provided with order. Requires approximately 2 hours per machine to install.

To order:
Use part numbers above for the appropriate model Trimmer. No additional information is required.



R/RML Brush Assembly



C/CL Brush Assembly

SPINDLE ANTI-ROTATION ASSEMBLY UPGRADE

12357-CC93	KIT, SPINDLE ANTI-ROT 202	123192-CC93	KIT SPINDLE ANTI ROTATION 209
123194-CC93	KIT SPINDLE ANTI ROTATION 206	12390-CC93	KIT, SPINDLE ANTI-ROT 211BUMPER
123191-CC93	KIT SPINDLE ANTI ROTATION 207.5	123193-CC93	KIT SPINDLE ANTI ROTATION 300
123197-CC93	KIT SPINDLE ANTI ROTATION 303		

Note: Kits for other can diameters are available upon request.

Qualifying Trimmers:
All CC92 and CC93 Trimmer Spindle Assemblies manufactured prior to January 1997.

The close tolerance sliding feature of the two Bronze Spindle Twist Retainer Plates and the mating Spindle Wear Block is responsible for proper alignment of the can to the cartridge: maintaining sliver-free cans. By the sliding nature of the design, wear is common.

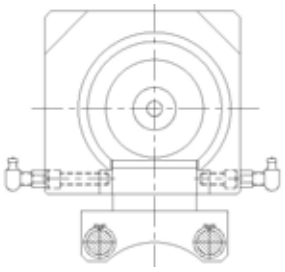
Objective and Benefits:
- The rolling cam follower action between mating parts reduce friction and wear
- Dual dowel alignment on follower plate insures proper alignment to spindle sleeve
- Hardened tool steel roller plates provide long life
- Maintains easy diameter conversion capability
- Direct interchangeability between all CC92 & CC93 trimmers
- Utilizes existing stripper pull rods
- Ease of assembly and maintenance
- No modifications required to existing spindle or spindle housing

Installation:
Installation requires approximately 1 hour per spindle assembly and includes appropriate drawings.

To Order:
Use corresponding part numbers listed above for specific can diameters. No additional information is required.

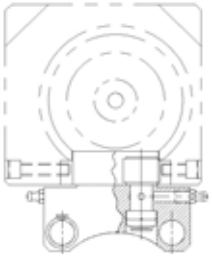
Spindle Assembly cross-section views

ORIGINAL



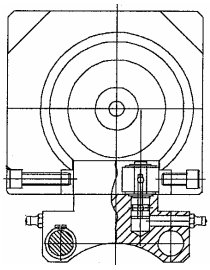
Wear Block Design

CURRENT

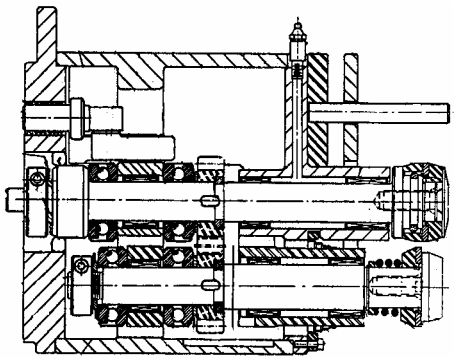


211 Dia. Anti-Rotation (Bumper Design) 2003

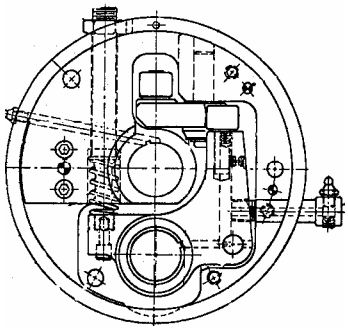
202Ø DESIGN



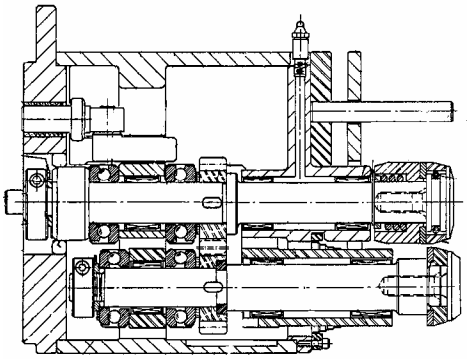
Non 211 Anti-Rotation Design



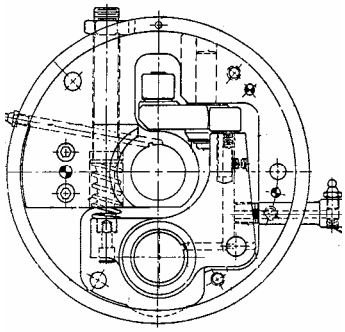
014001-CC62 HD- IB, Side View



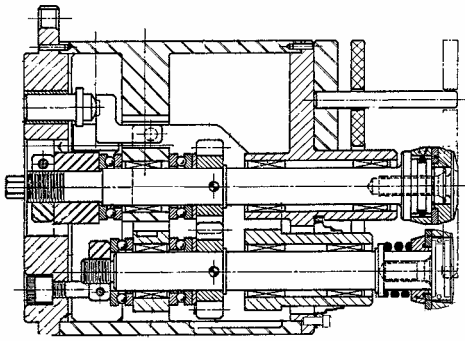
HD- IB, Top View



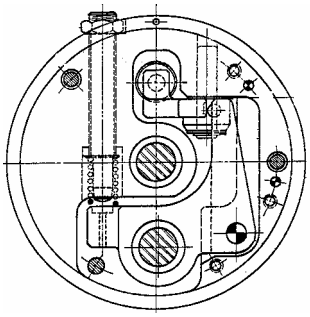
014001-CC52 HD- OB, Side View



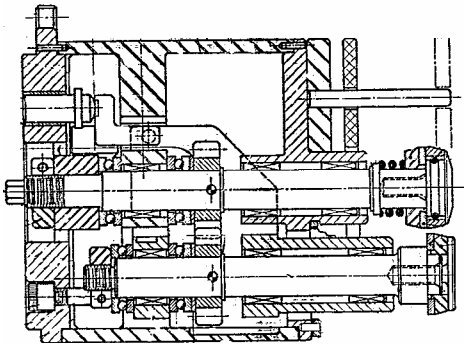
HD-OB, Top View



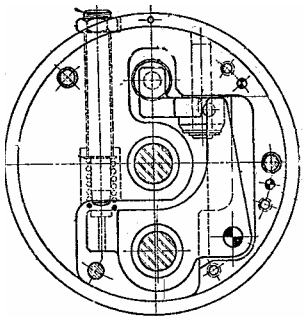
11401-CC61 SD-IB, Side View



SD-IB, Top View



11401-CC51 SD-OB, Side View



SD-OB, Top View

CT500 BREAK TRIM UPGRADE

P/N 7501267: 211Ø CT500 Break Trim Conversion Kit
(Other diameters available upon request)

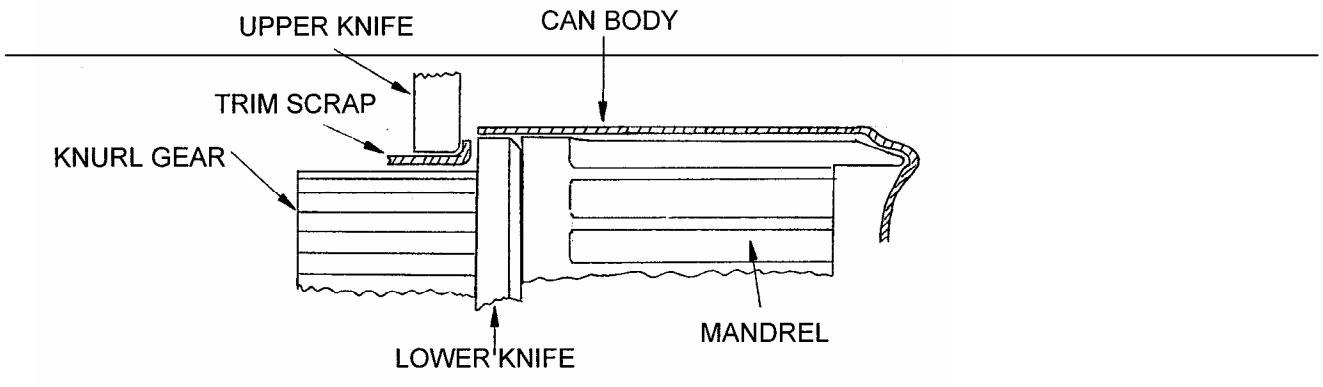
Qualifying Trimmers:
All CT500 model Trimmers

Objective and Benefits:
- Offers a burr-free, trimmed edge on a steel or aluminum beverage container
- Burr is maintained on the scrap improving the trim edge quality
- Considerably increasing tool life
- Design is similar to the old style "D" knife, the exception being that a radius is used on the cut edge of the knife instead of the more common sharp edge.
- Downtime is minimized due to the simplicity of knife changes.

Operation:
The operation with the new "D" knife style consists of the open end of an untrimmed container, minimum 0.125" (3.175mm) hanging over the sharp edge of a tool-steel or carbide lower knife. As the container rotates with the lower knife, a "D" shaped upper knife on the upper shaft penetrates the container with its radiused edge breaking the excess stock over the sharp edge of the lower knife. *Refer to Technical Bulletin Issue 13, Vol. 1 for more details.*

Installation:
Requires approximately 3 hours per Trim Station

To Order:
Use the part number above for all 211-diameter applications. Contact Belvac if other diameter is required. No other information required.



“CL” DETENT TRANSFER BRUSH ASSEMBLY UPGRADE

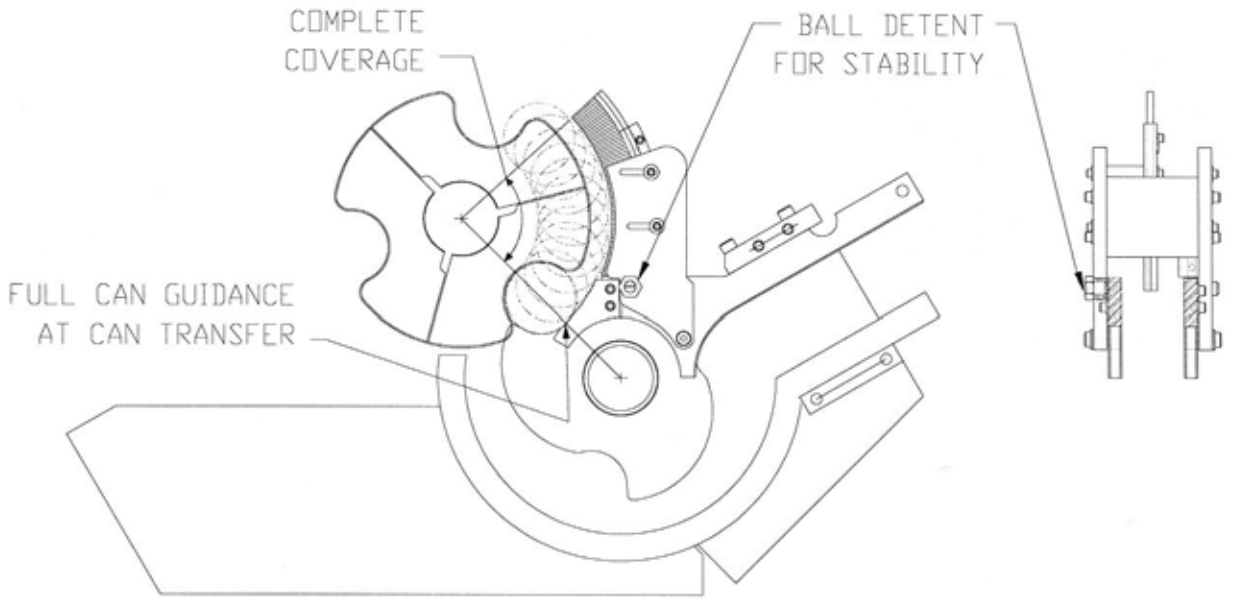
P/N 455027-CC93 211 Diameter Complete Kit
P/N 455025-CC93 211 Diameter Kit W/ Rework Drawings
P/N 455026-CC93 300 Diameter Kit W/ Rework Drawings
P/N 455028-CC93 300 Diameter Complete Kit
Other diameters available upon request

Qualifying Trimmers:
All CC92 and CC93 Crossflow (C/CL) model Trimmers. *(Refer Technical Bulletin Issue 12, Vol. 2 for additional information)*

Objective and Benefits:
- Ideal for customers involved in lightweighting projects
- Greatly improves can transfer for steel and aluminum cans into the main turret starwheel at speeds above 200 cpm
- Designed to control the can throughout the transfer process
- Extends high speed production runs
- Easily retrofits to existing machines
- Customer may order a complete kit with new upper Infeed rails and side gates, or a kit including rework drawings so the customer can modify existing upper rails and side gates

Installation:
Requires approximately 1-2 hours per machine (additional time required when modifying existing parts).

To Order:
Use the part number above to order. Please contact Belvac for other diameters.



“R/RML” DETENT TRANSFER BRUSH ASSEMBLY UPGRADE

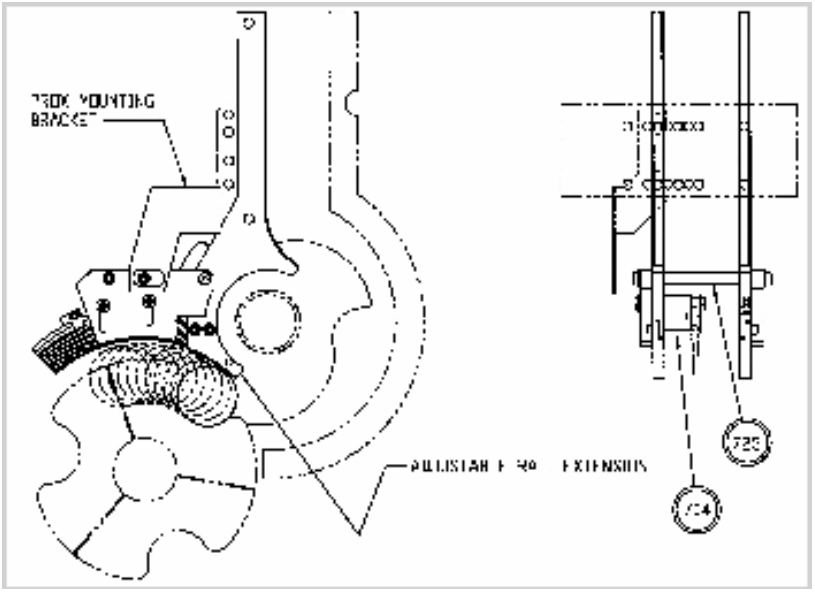
P/N 173214-CC93 211 Diameter Pre-Assembled Kits:
P/N 173212-CC93 202 Diameter Pre-Assembled Kits:
P/N 173229-CC93 211 Diameter Rework Kit:
P/N 173230-CC93 202 Diameter Rework Kit:
Other diameters available upon request
Note: Customers must have crossover rails. Customers with stub nose rails must purchase complete kit. Crossover rails were made standard around 1991.

Qualifying Trimmers:
All CC92 and CC93 (R/RML) model Trimmers. *(Reference Technical Bulletin Issue 4, Vol. 3)*

Objective and Benefits:
- Ideal for customers involved in lightweighting projects
- Greatly improves can transfer for steel and aluminum cans at the transfer point into the main turret starwheel at speeds above 200 cpm
- Reduces Scuffing and denting caused by High Speed Transfer
- Designed to control the can throughout the transfer process with an adjustable rail
- Extends high speed production runs
- Easily retrofits to existing machines
- Customer may order a complete kit with new upper Infeed rails and side gates, or a kit including rework drawings so the customer can modify existing upper rails and side gates

Installation:
Requires approximately 1-2 hours per machine (additional time required when modifying existing parts).

To Order:
Use the part number above to order. Please contact Belvac for other diameters.



INFEED CAN SEPARATOR STARWHEEL UPGRADE

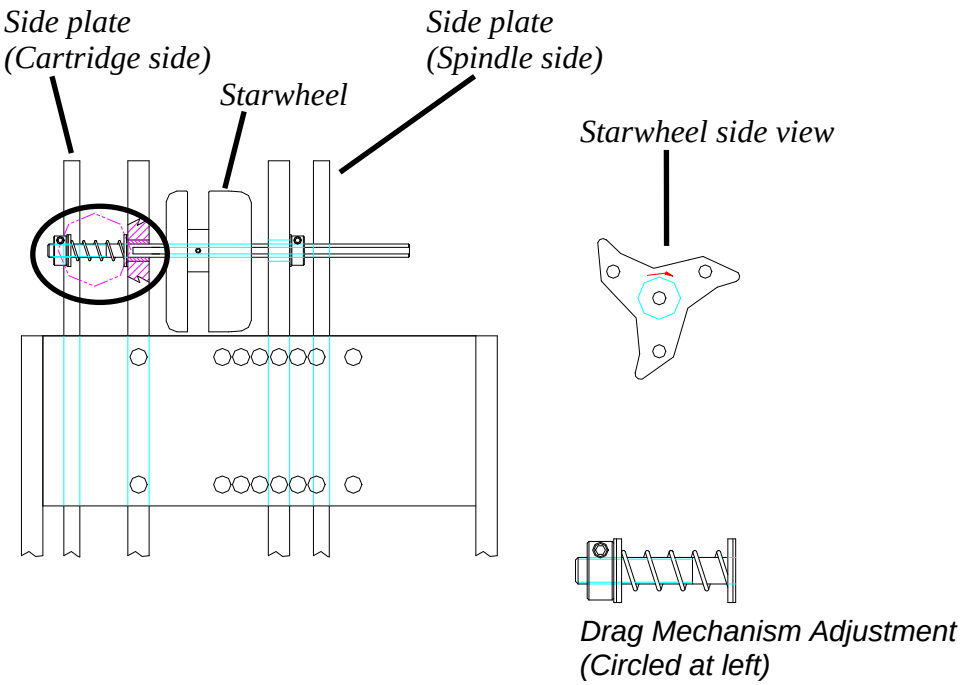
P/N 173208-CC93 211 Diameter Specific R/RML
P/N 173209-CC93 211 Diameter Specific C/CL
P/N 173253-CC93 300 Diameter Specific R/RML
P/N 173255-CC93 300 Diameter Specific C/CL
Other diameters available upon request

Qualifying Trimmers:
All CC92 and CC93 (C/CL & R/RML) model Trimmers.

Objective and Benefits:
- Ideal for customers involved in light weighting projects
- Reduces head pressure onto the Infeed starwheel
- Reduces dents caused by track load on light weighted products
- Separator starwheel is adjustable to customer's needs for specific resistance
- Kit includes a modification drawing for existing front rail.

Installation:
Requires approximately 2-4 hours per machine.

To Order:
Use the part number above to order for 211 diameter. Please contact Belvac if a different diameter is required.



FAX TRANSMITTAL

TO: _____ **FROM:** _____
Belvac Production Machinery, Inc.

_____

FAX: (434) 832-8356 or (434) 239-9252

FAX#: _____

DATE: _____

BELVAC TRIMMER SPECIFICATIONS TRIM QUALITY UPGRADE
(Please fill out all information unless otherwise specified)

TYPE OF UPGRADE/CONVERSION PURCHASING: _____

MACHINE SERIAL NUMBER (S): _____

TRIMMER MODEL: ____**CC92** ____**CC93** _____**CT500**

____ R ____ RML ____ RXL ____ D ____ C ____ CL

CAN SIZE (DIA. & LENGTH): _____ **TCH:** _____

CURRENT SPEED OF TRIMMER: _____CPM

CAN MATERIAL ____ Aluminum ____ Steel

CARTRIDGE: ____ Heavy Duty or ____ Standard Duty
(Needed only for cartridge Conversions) ____ Inside Burr or ____ Outside Burr

____ D-2 ____ M-2 or ____ Carbide Knife

TRANSFER PROXIMITY SENSOR: ____ AC _____DC SINKING _____DC SOURCING
(Applies to any infeed & discharge conversions only)

ANY ADDITIONAL CUSTOMER COMMENTS ABOUT THE MACHINE (S) TO BE CONVERTED:
(Please note any conversions, if any, done to machine since original shipment)

_____
_____
_____

Belvac Thanks you for assisting with the above information!