

# Drag Conveyor Maintenance

Mark Cloud  
Tramco Inc.



...”Conveyor Systems <sup>Agosto, 2005</sup> That Deliver!”

# Drag Conveyors

En-Masse Conveyors



...”Conveyor Systems <sup>Agosto, 2005</sup> That Deliver!”

# The Every Day New Challenges...

- Contamination
- Spillage
- Space
- Storage
- Wear
- Corrosion
- Reliability
- Horsepower
- Abrasion
- Maintenance
- Housekeeping
- Performance
- Air pollution
- Etc.



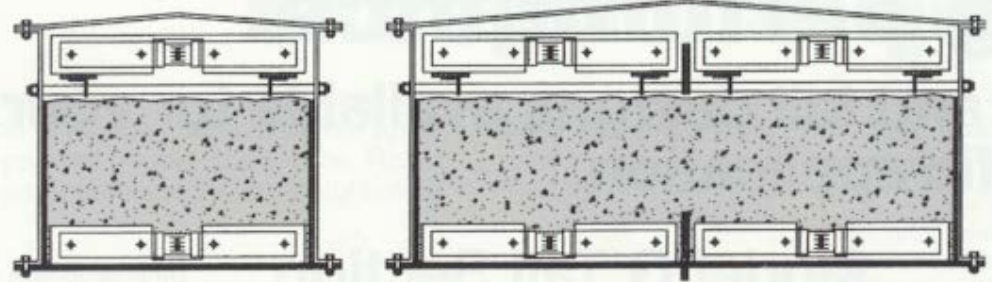
# Model G En-Masse Conveyor



- Horizontal to 15° incline

- Conveys a wide variety of free flowing bulk material.

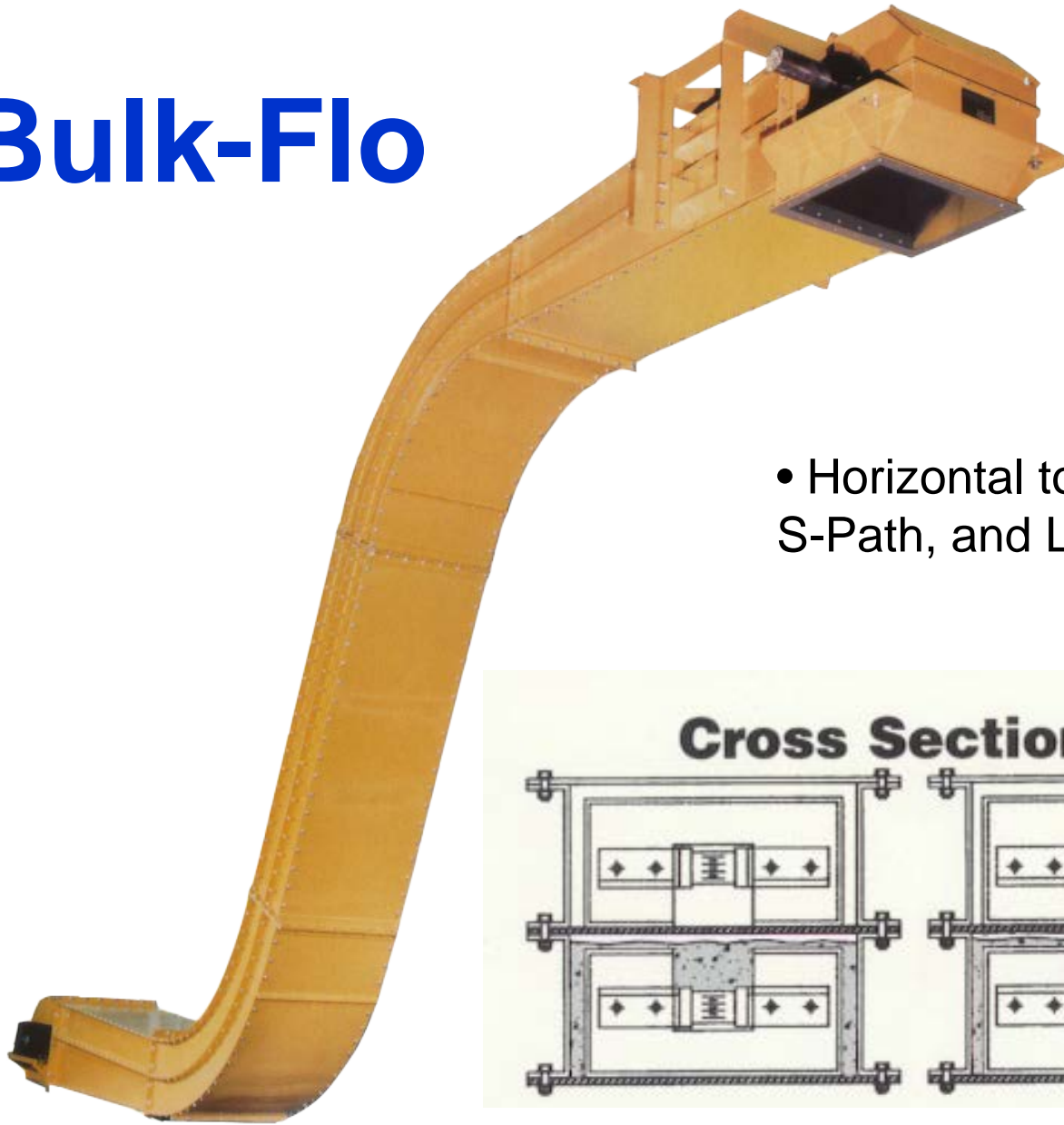
**Cross Section – Model G**



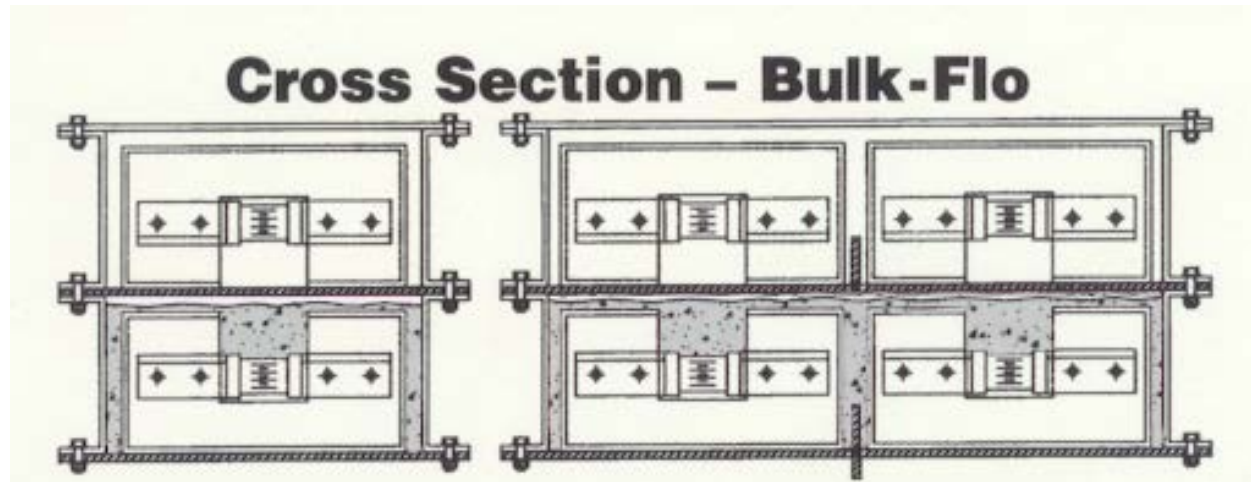
...”Conveyor Systems That Deliver!”

Agosto, 2005

# Bulk-Flo



- Horizontal to Incline, L-Path, S-Path, and Loop Designs

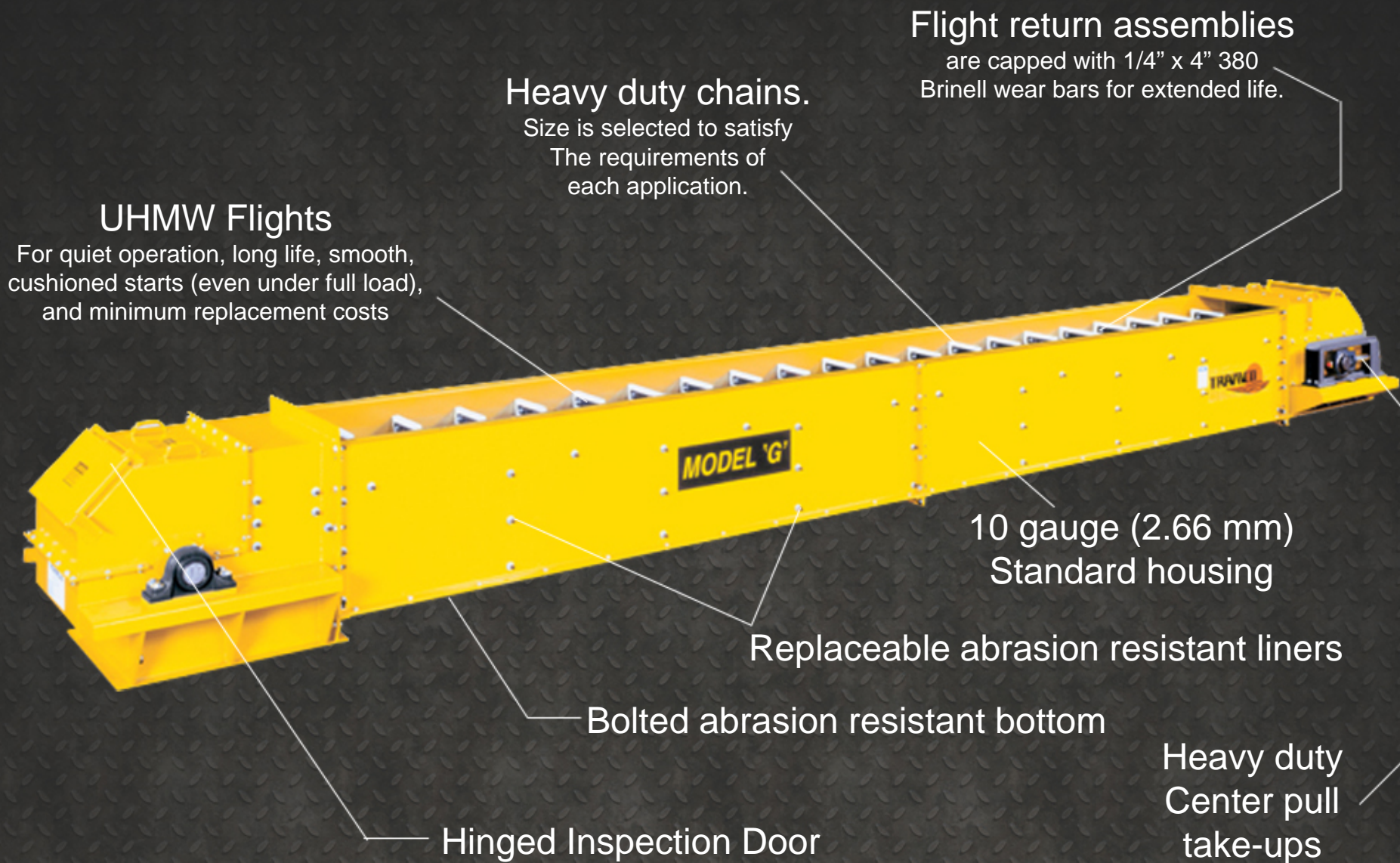


...*"Conveyor Systems That Deliver!"*

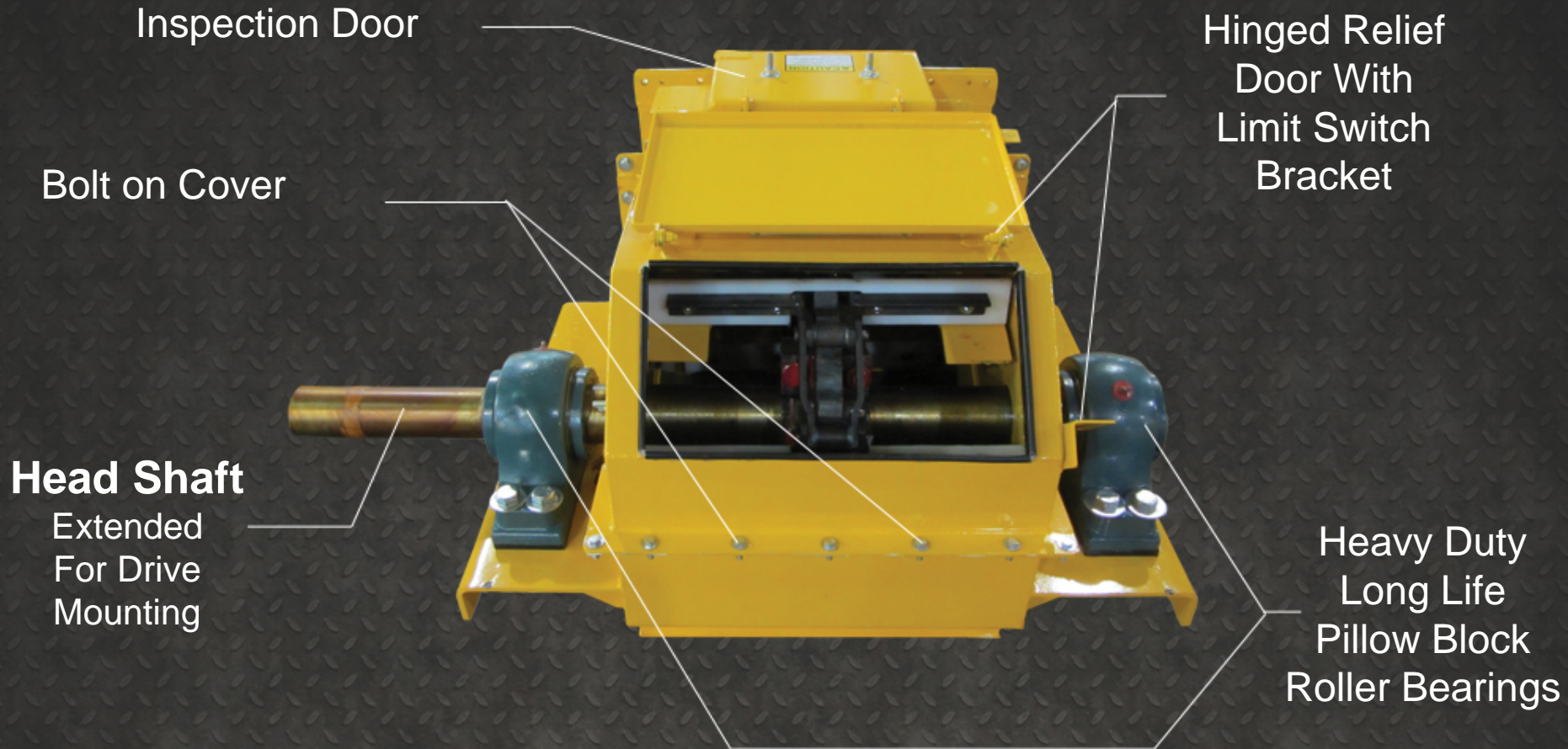
Agosto, 2005



# Model G – Fully Assembled with Covers Removed

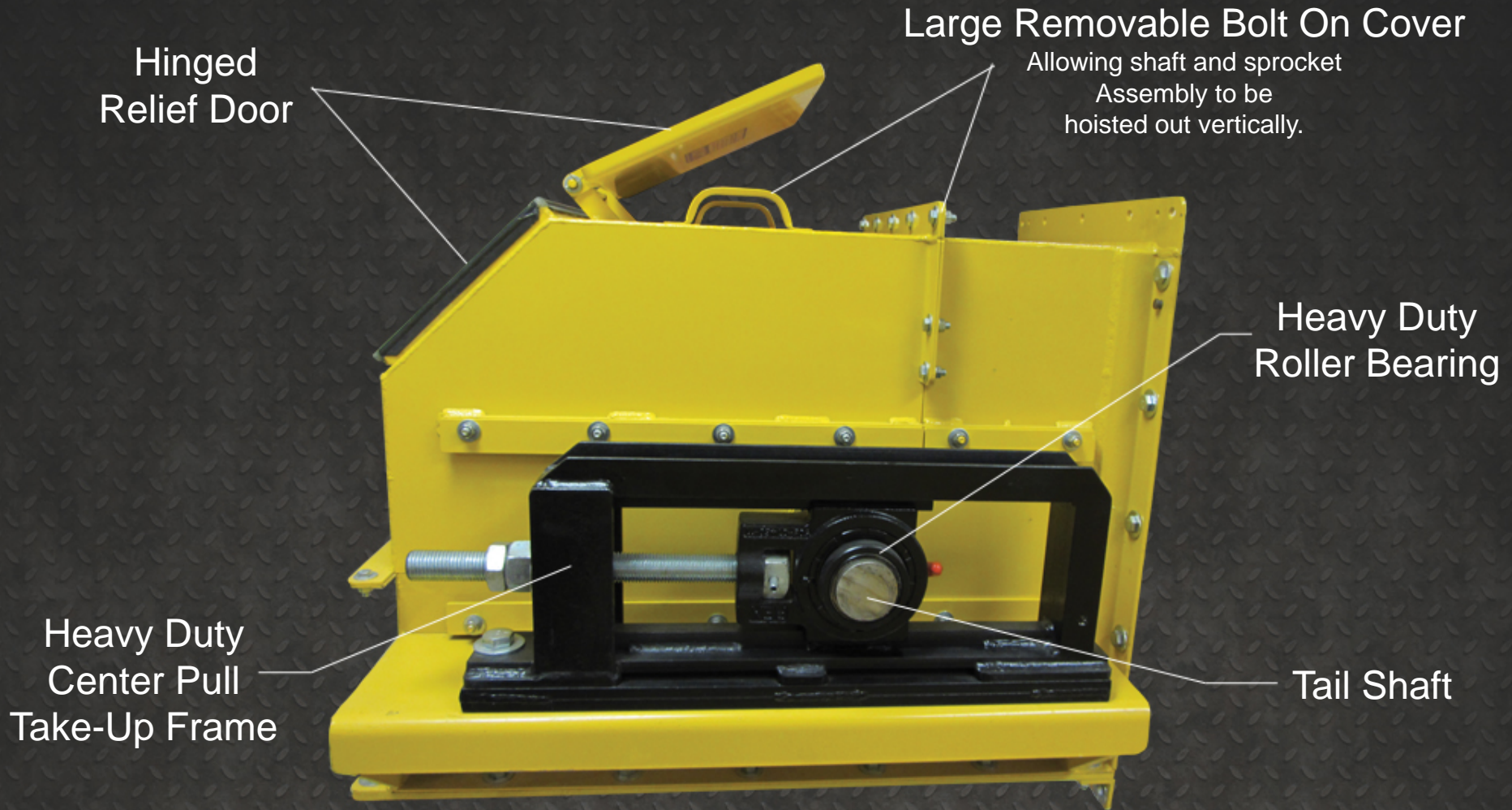


# Model G Head Section





# Model G Tail Section





# Advantages & Disadvantages of Chain Conveyors

- Totally Enclosed. Dust & Weather Tight
- Multiple Inlets & Multiple Discharges
- Discharges Can Be Automated
- Low Maintenance when used appropriately and per design
- Can Be Inclined Up To 90 Degrees
- Can Be Reversed
- Has The Highest Initial Investment
- Larger Horsepower Than Belt Conveyors & Bucket Elevators But Lower Than Screw Type Conveyors
- Shorter Length Than Belt Conveyors
- Are Not Manufactured Under CEMA Standards

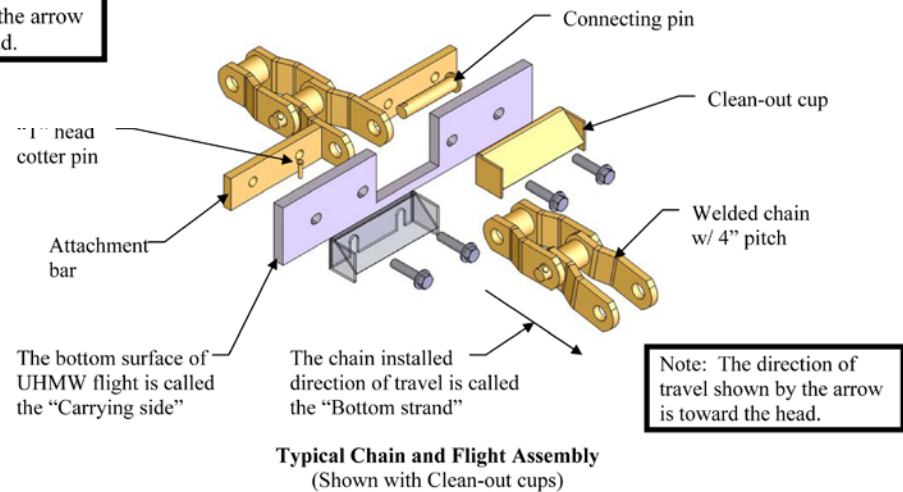
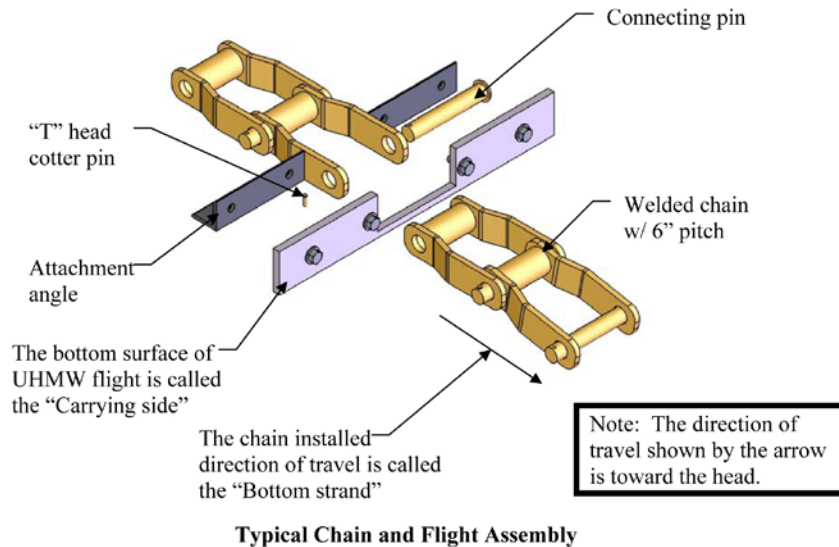


# Products to be Handled in Chain Conveyors

- Corn Products (Whole, Meal, Bran, Feed, Gluten, Fiber)
- Cottonseed Products (Delinted, Meats, Hulls, Cake, Meal)
- Linseed and Flaxseed Products (Cake, Screenings, Meal)
- Peanut Products (Shelled, Unshelled, Meal)
- Soybeans Products (Whole, Meal, Flakes, Hulls)
- All Other Grains (Rice, Sorghum, Wheat, etc.)
- Others (Coal, Salt, Cement, Coke, Fertilizer, Wood Chips, Fiber etc.)



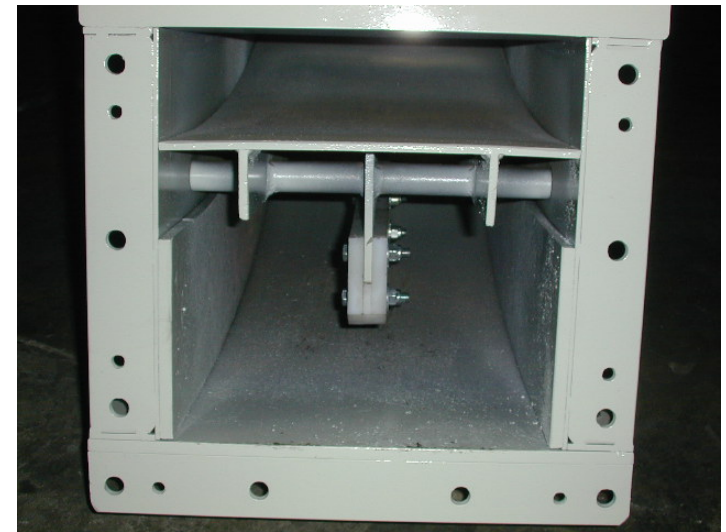
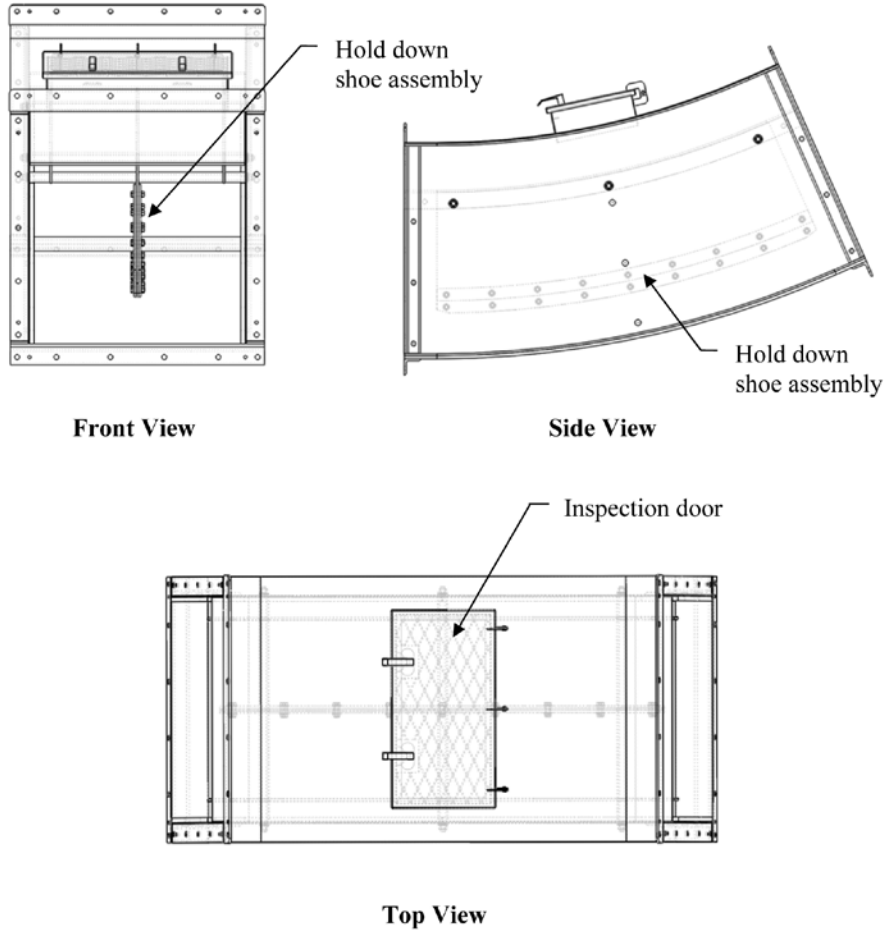
# Chain Assembly Direction & Return Cups





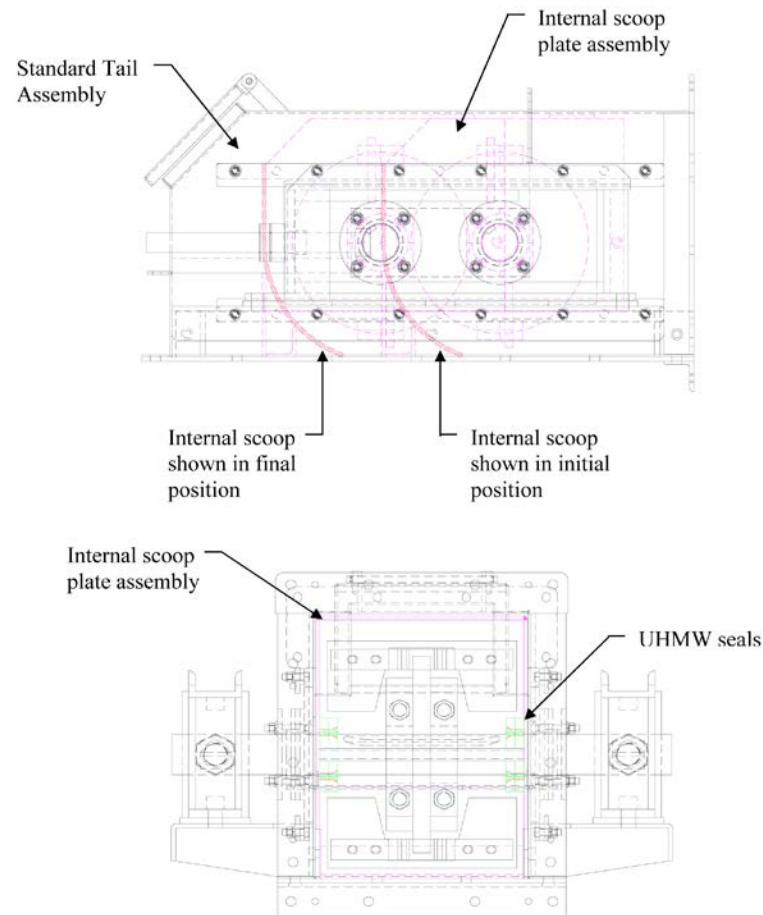
# Hold Down Assembly

Intermediate Curve-Up  
(Shown for a MODEL G™ model)



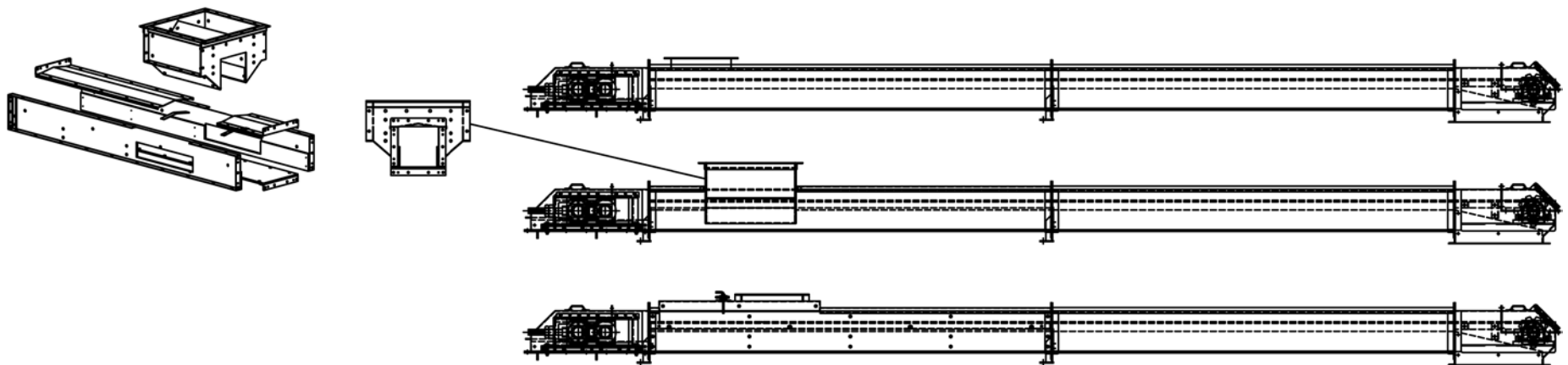
Agosto, 2005  
... "Conveyor Systems That Deliver!"

# Scoop Plate Assembly



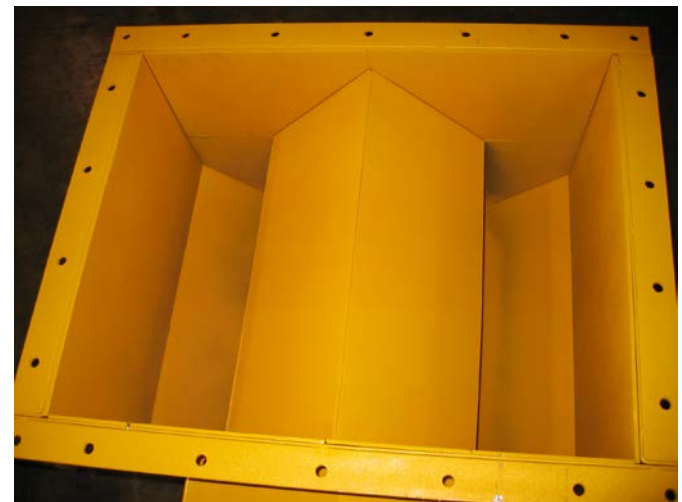
**Internal Scoop Assembly**  
(Shown on a tail section of MODEL G™)

# G-Model Inlets





# Bypass Inlets



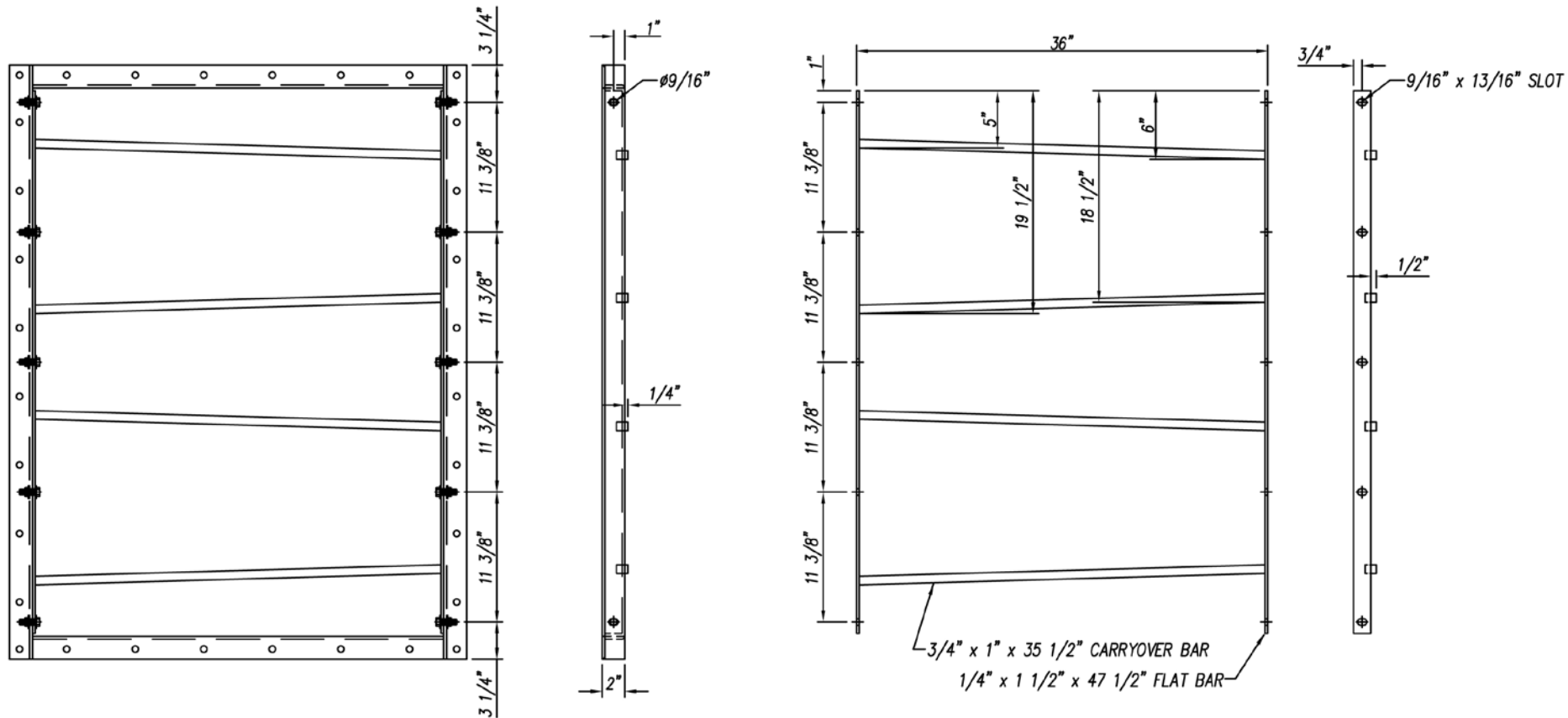
...*"Conveyor Systems That Deliver!"*

Agosto, 2005



...*"Conveyor Systems That Deliver!"* Agosto 2005

# Intermediate Discharge Flange



SEE MASTER DRAWING FOR HOLE PATTERN, ANGLE SPACING & HOLE SIZE & MATERIAL TYPE

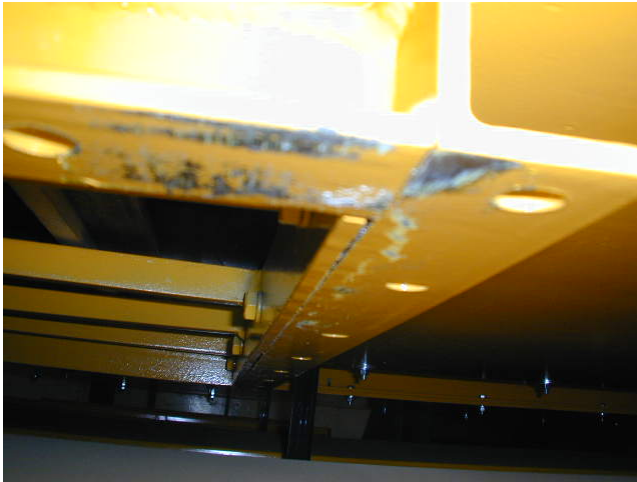


... "Conveyor Systems That Deliver!"

Agosto, 2005



# Intermediate Gates



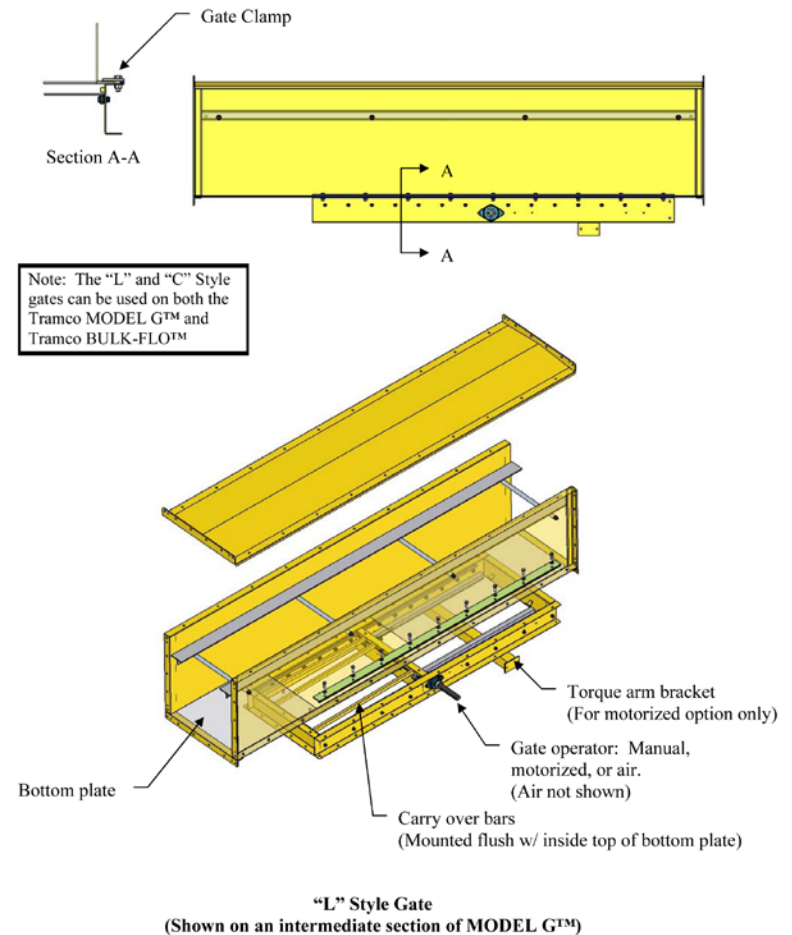
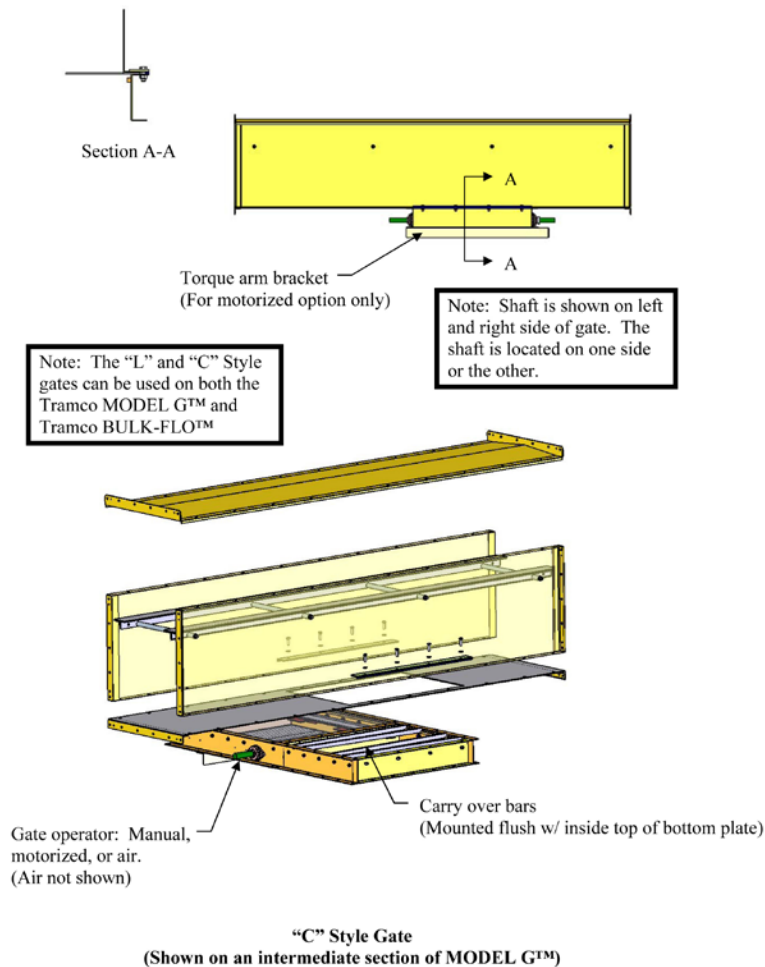
...”Conveyor Systems <sup>Agosto, 2005</sup> That Deliver!”



...”Conveyor Systems That Deliver!”

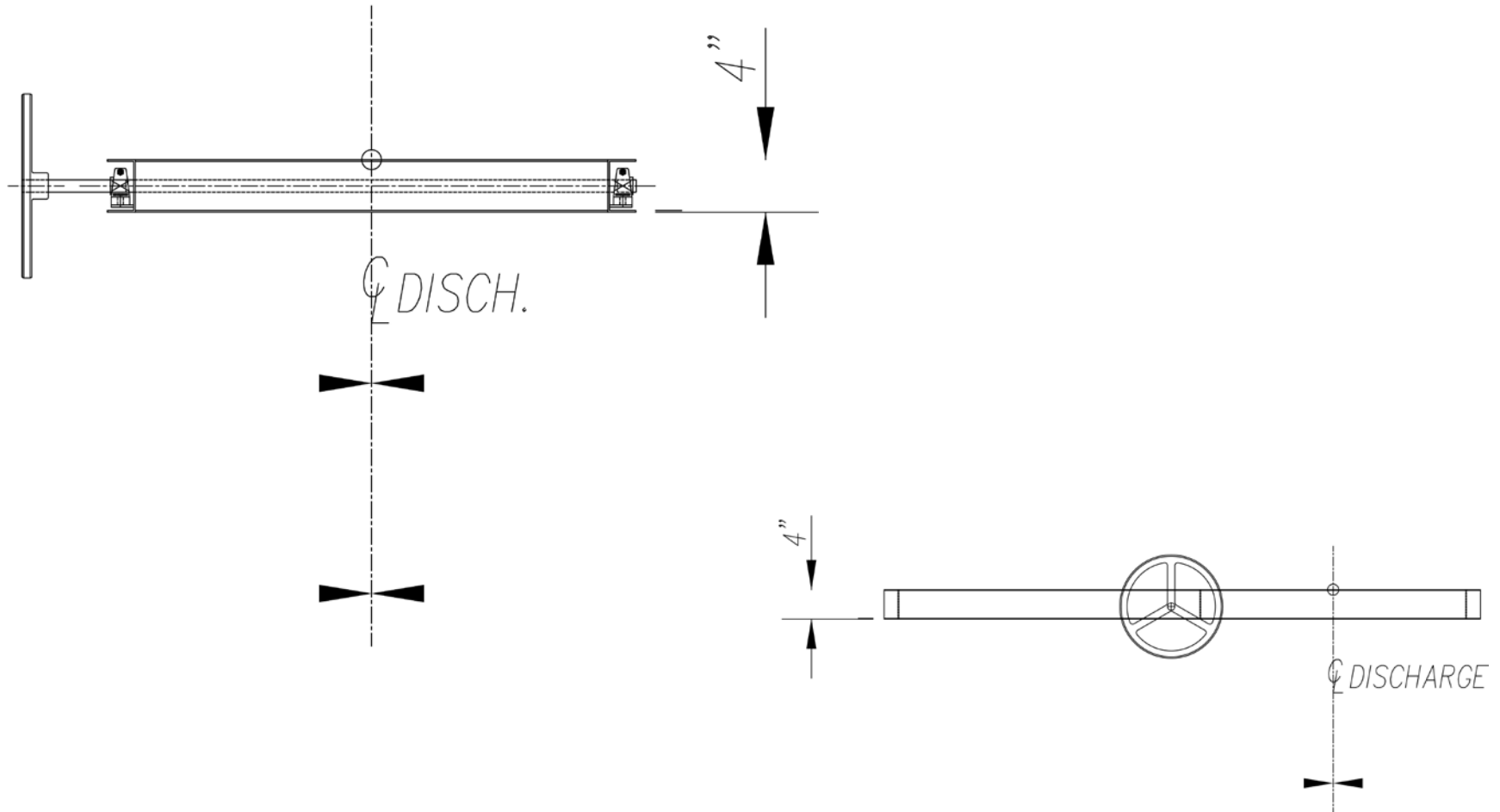
Agosto, 2005

# “C” Style Vs. “L” Style Gates



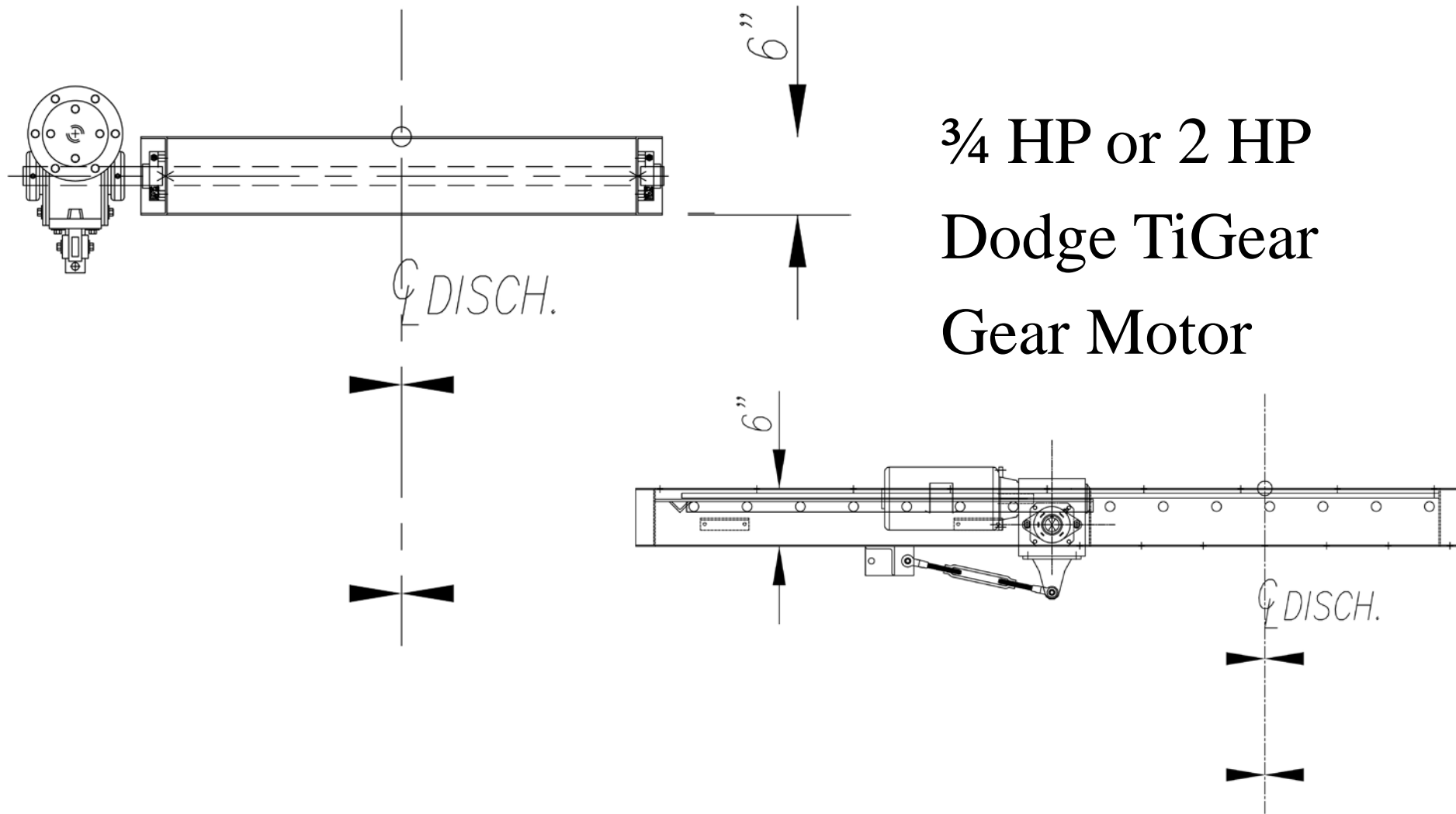
Agosto, 2005  
 ...”Conveyor Systems That Deliver!”

# Intermediate Gates - Manual

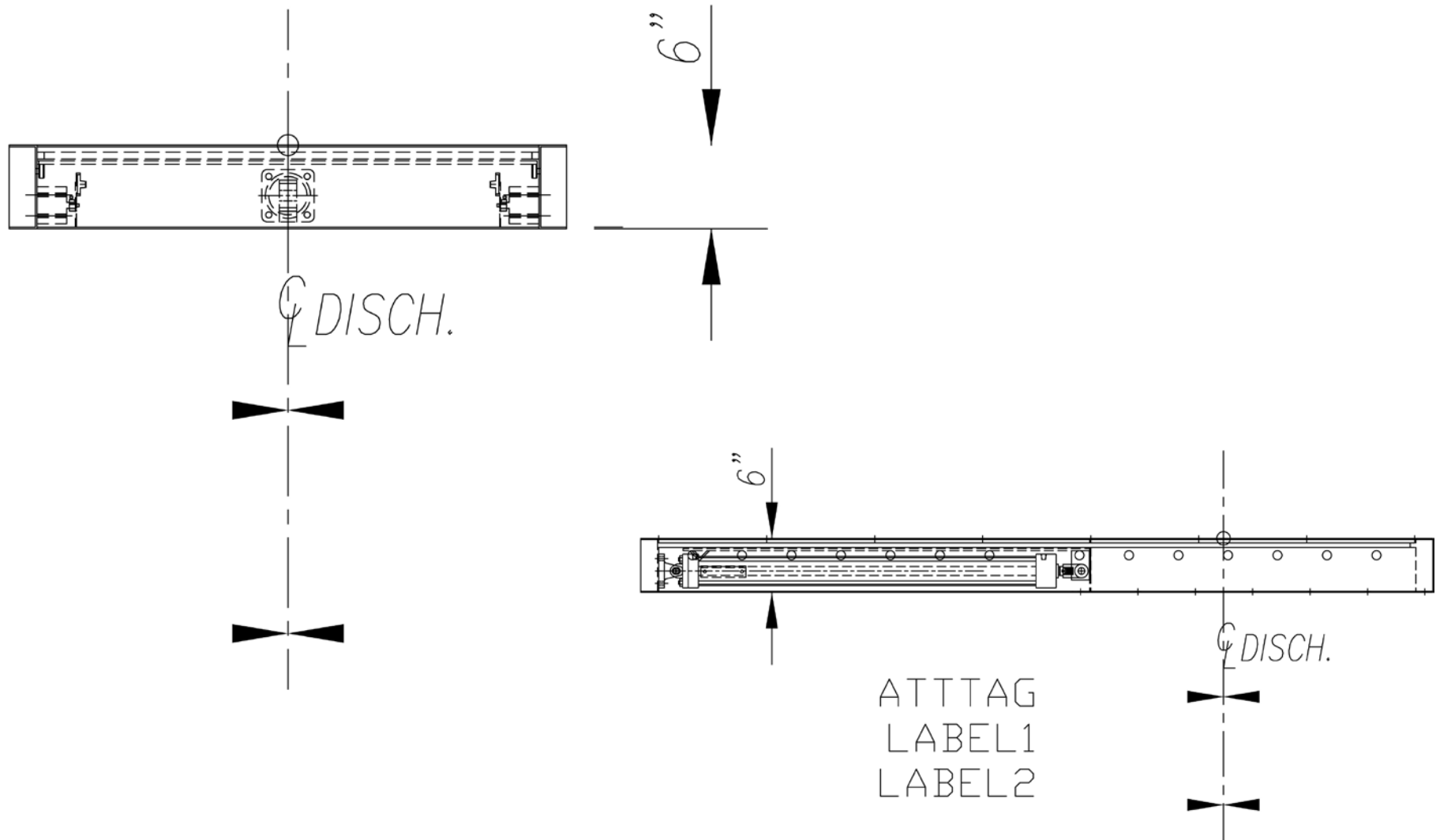




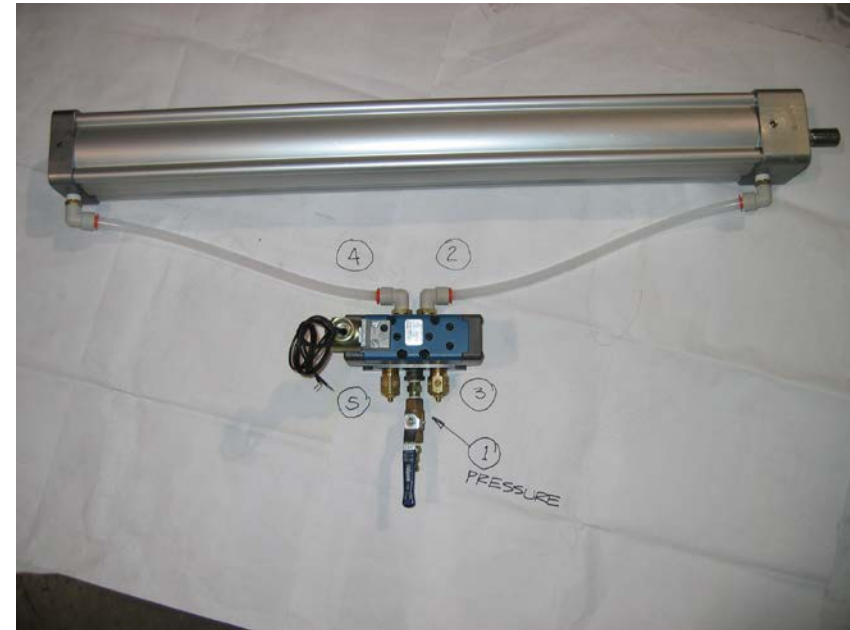
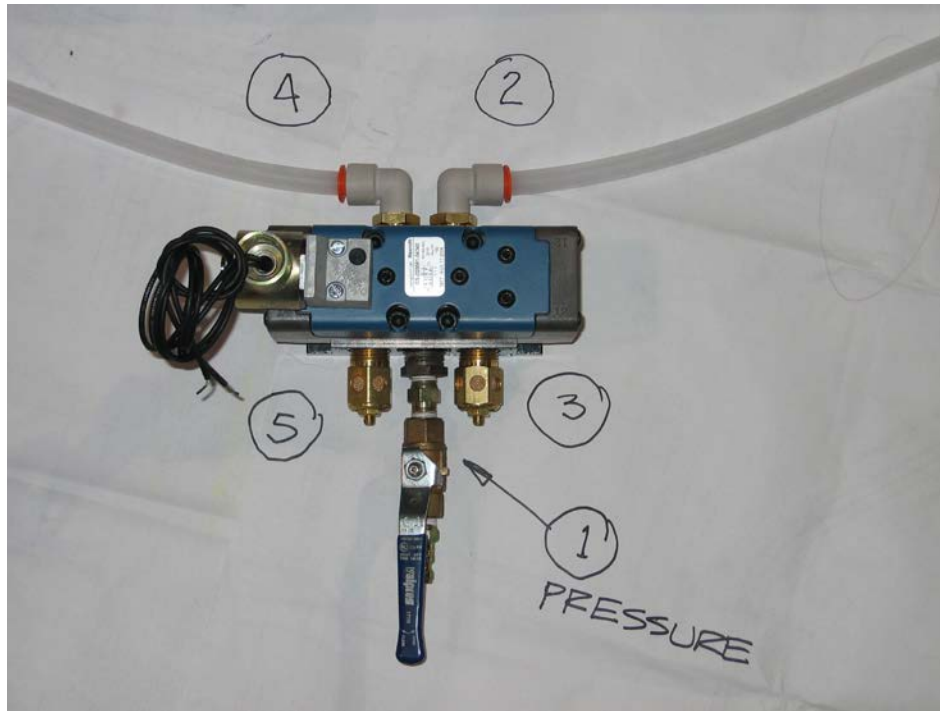
# Intermediate Gate - Motorized



# Intermediate Gate - Air



# Pneumatic Gate Air Cylinder and Solenoid Valve



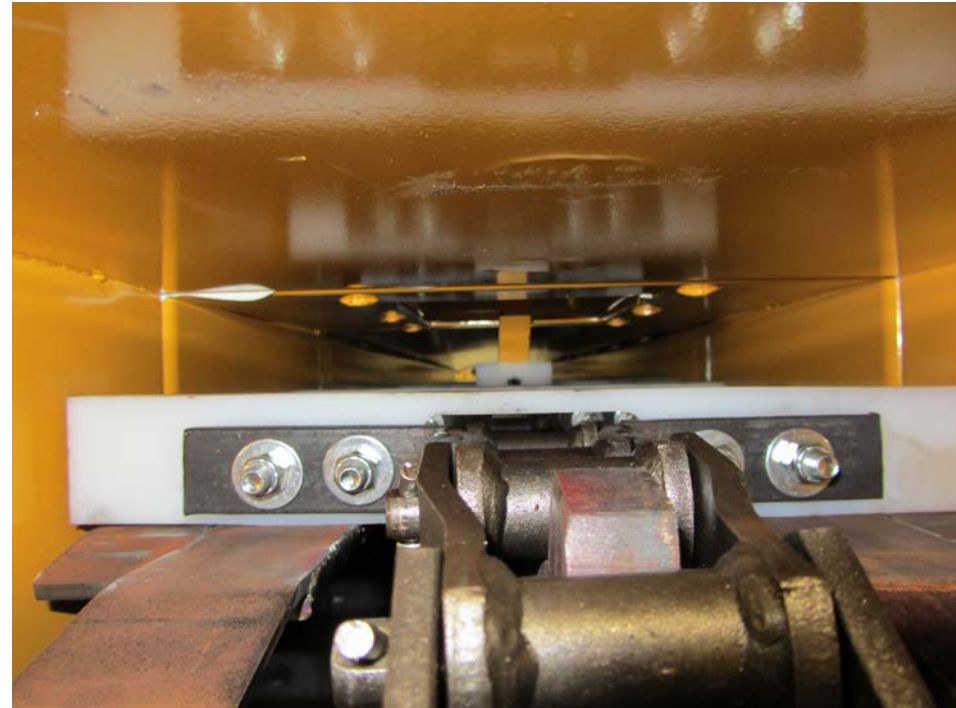


...”Conveyor Systems That Deliver!”

Agosto, 2005



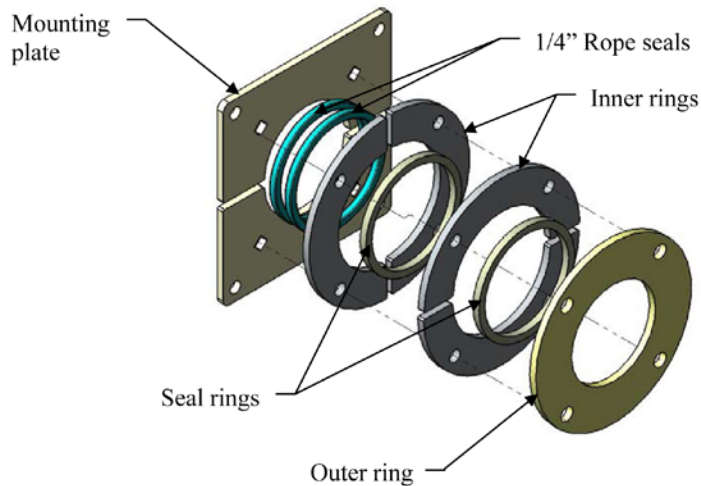
# Slack Chain Detector



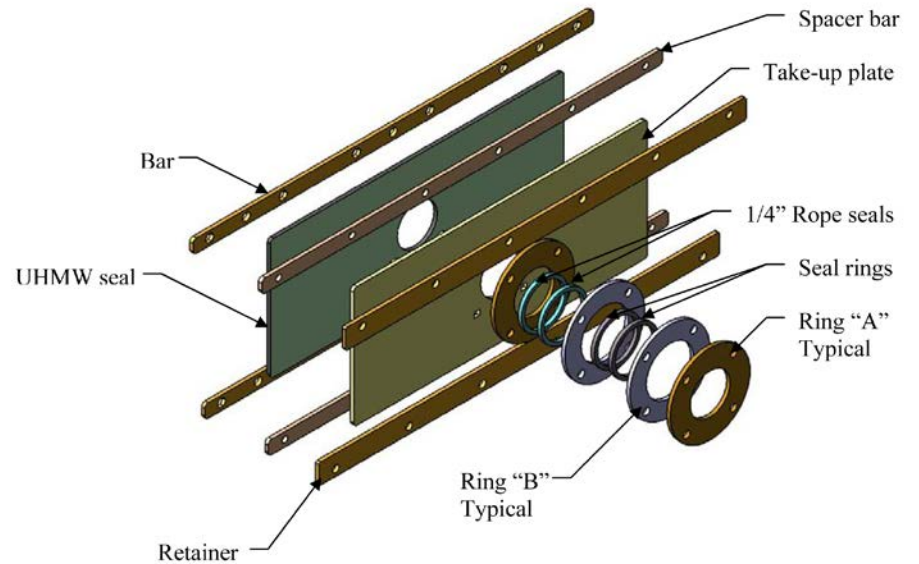
...”Conveyor Systems That Deliver!”

Agosto, 2005

# Head and Tail Seals



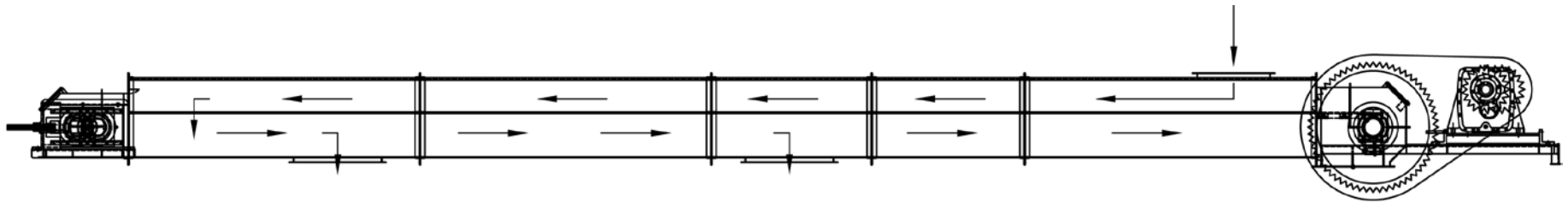
**Head Rino Seal**



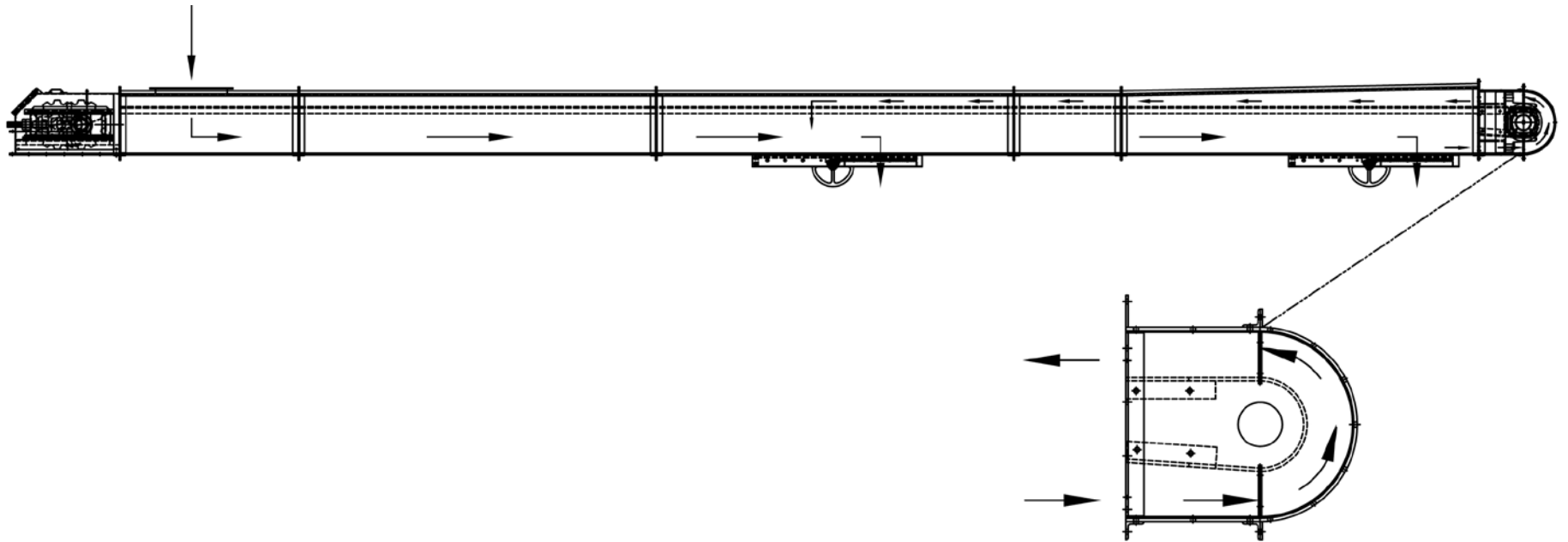
**Tail Rino Seal**



# G-Model Two Way Assembly



# Recycling Head Assembly





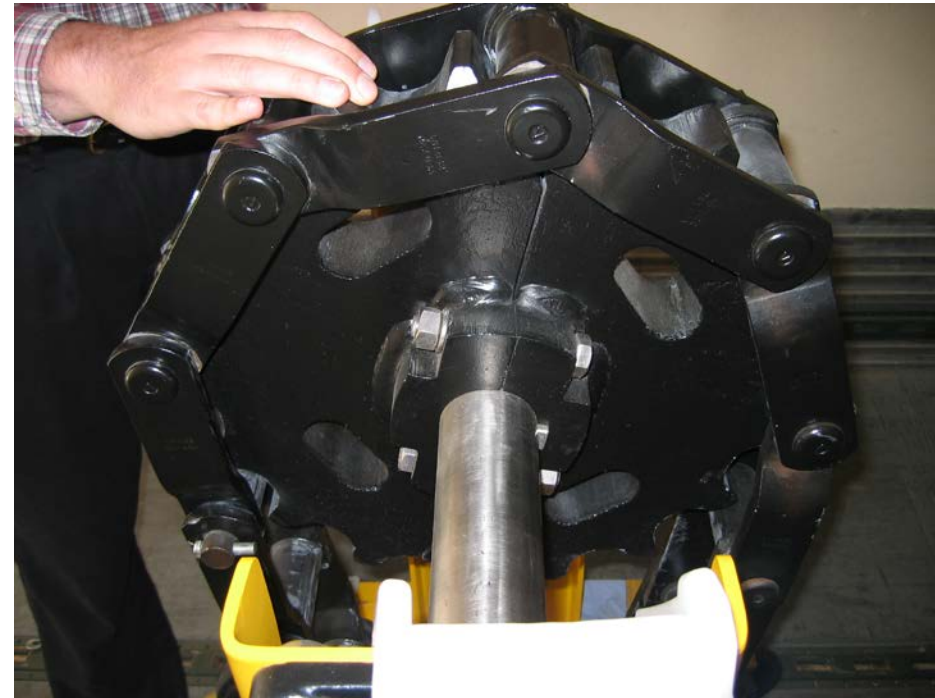
# Reloading Head Section



...”Conveyor Systems That Deliver!”

Agosto, 2005

# Sprocket and Chain

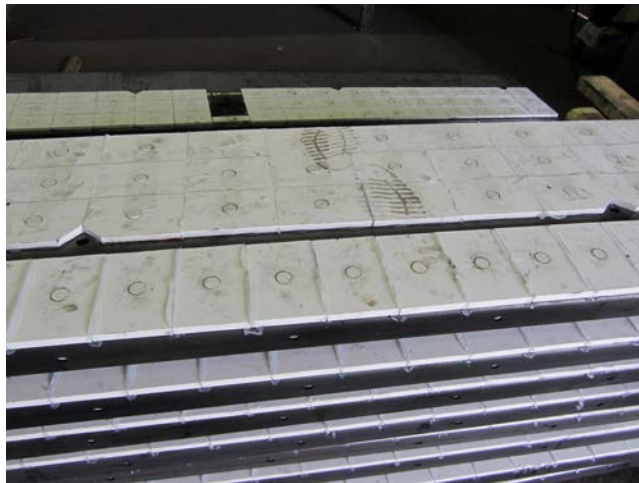




# Relief Tooth Sprocket



# Ceramic Tile



...*"Conveyor Systems That Deliver!"*

Agosto, 2005

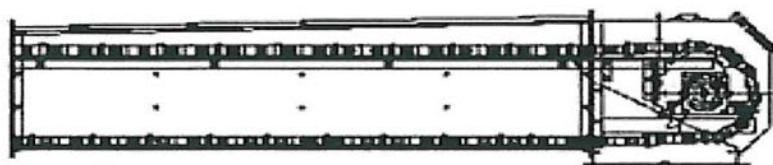




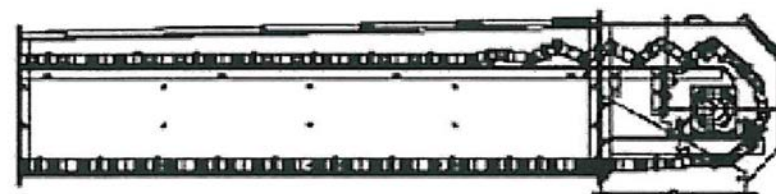
MR.MARK

# Mr. Mark's Maintenance Tips

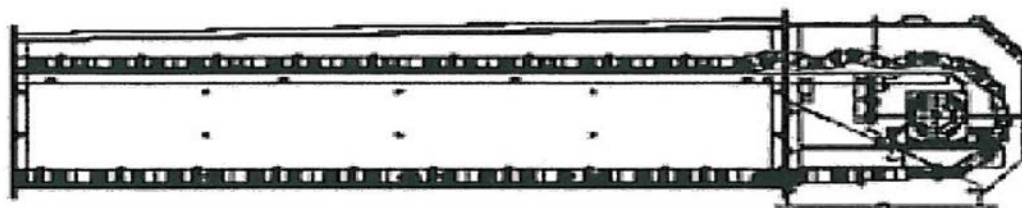
## Chain Tension



*TOO TIGHT*



*TIME TO ADJUST*



*OK*

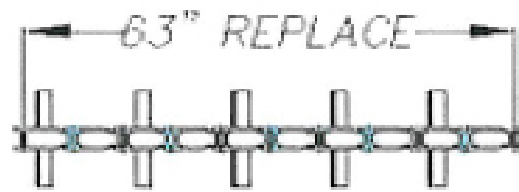
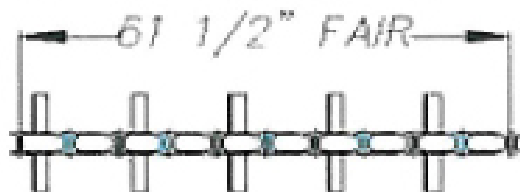


MR.MARK

# Mr. Mark's Maintenance Tips

Chain Failure is Predictable

When measuring 10 links of 6" pitch:



...*"Conveyor Systems That Deliver!"*

Agosto, 2005



**MR.MARK**

# Mr. Mark's Maintenance Tips

## Do Not Grind Chain Pins

- The shoulder is in good condition on this pin. It is needed so that the pin can be pressed into the side bar.



- The shoulder on this pin has been grinded down. This may allow easier installation but will cause the Chain link to wear down at an accelerated rate.



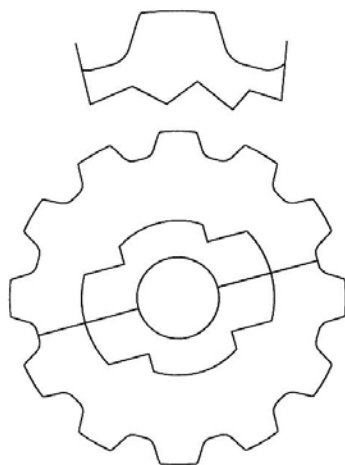
When the pin shoulder has been grinded down it allows movement inside the pinhole on the link, which wears down the inside of that pinhole.





**MR.MARK**

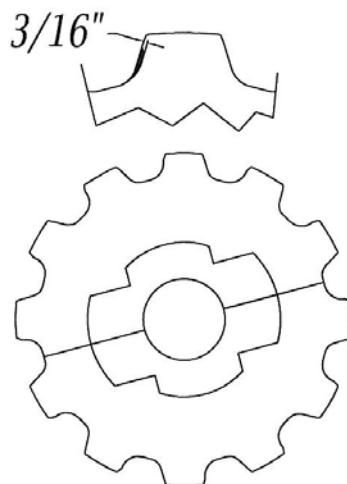
Excellent



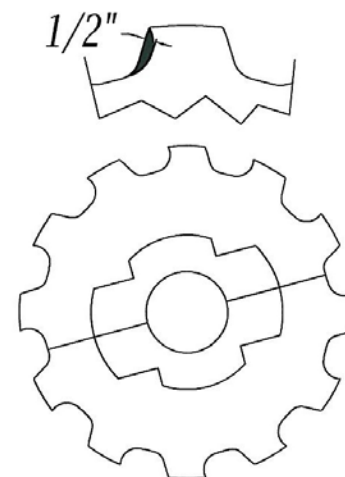
# Mr. Mark's Maintenance Tips

## Sprocket Replacement

Time to Replace



Past Replacement  
Possibly wearing down chain



When Sprocket is worn or hooked from 3/16" to 1/4", it is very important to avoid irreversible harm to the barrel of the chain. As Tramco sprockets are symmetrically made, after you wear off one side of the tooth, you can turn it over and wear the other side.



Agosto, 2005  
...*"Conveyor Systems That Deliver!"*

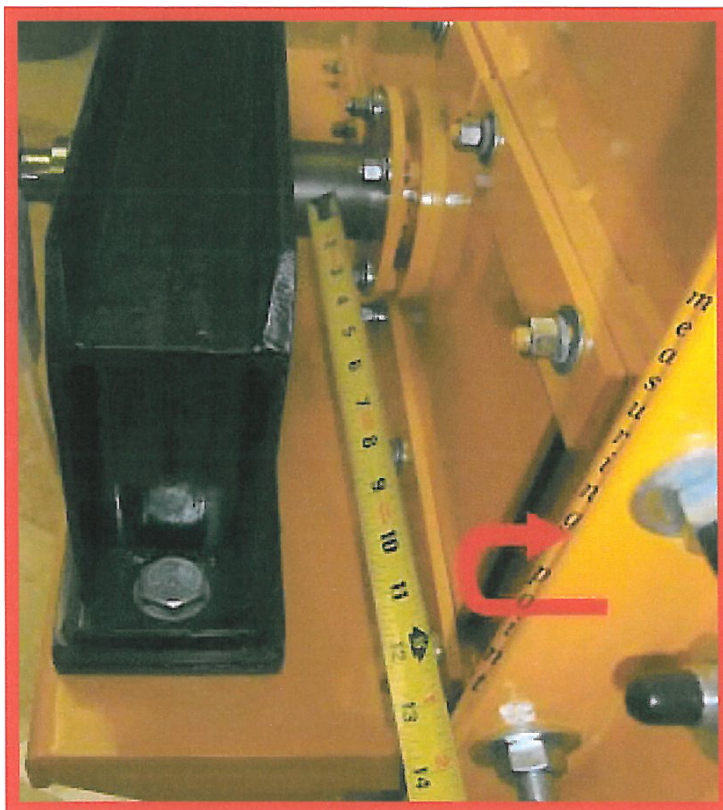




MR.MARK

# Mr. Mark's Maintenance Tips

## Squaring the Steel Shaft



- In order to get the maximum life from your tail bearings it is extremely important that the tail shaft is adjusted in its final position completely square with the flange on the intermediate box.
- When the bearing is under misalignment early failure is possible. That is why it is very important to square the steel shaft when adjusting proper chain tension.

# Questions?

## THANKS!



...”Conveyor Systems <sup>Agosto, 2005</sup> That Deliver!”