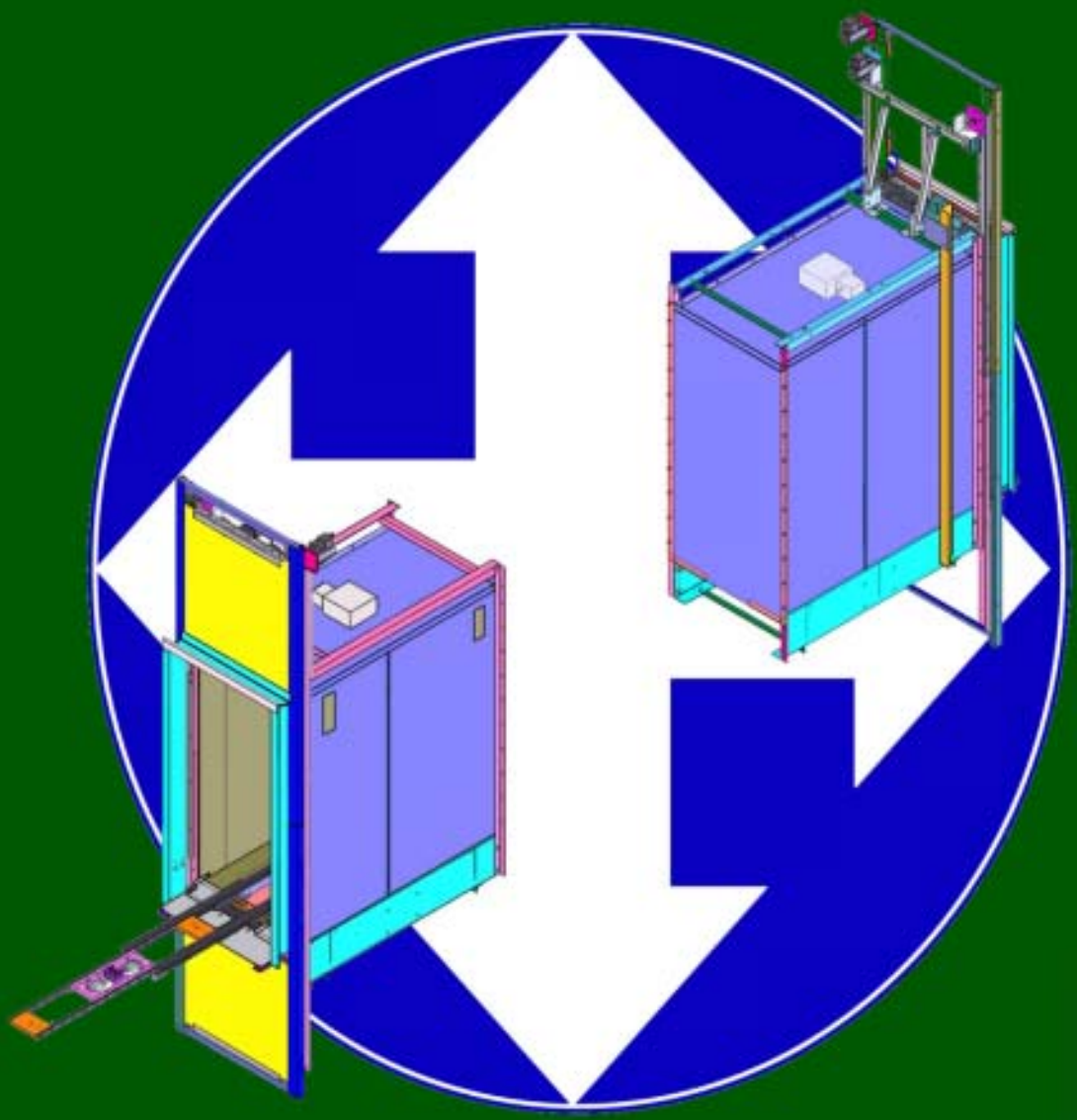
ONE COMPANY
So Many Options

# Cart-Matic

**Automatic Material Distribution Systems**



Freight Door Systems

Freight Car Enclosures

IUEC Installation

CART↔MATIC
TOTE↔MATIC

Material Handling Systems

Service Parts

Guilbert

Service Parts

HARRIS PREBLE

Service Parts

ENERGY.

Service Parts

## Parts & Maintenance Manual

Opening Quality Doors Around The World

# Maintenance Overview

This Manual details COURION's recommended maintenance and adjustments for the mechanical portions of COURION's CART-MATIC and Dumbwaiter Door systems. For information concerning COURION's CART-MATIC and Door Control and other electrical issues, please consult Courion's Description of Operation Manual.

**AVAILABLE FROM COURION**

Since 1920, Courion has manufactured state-of-the-art equipment for its COURION and SECURITY Freight Door Systems, and CART-MATIC and TOTE-MATIC Dumbwaiter Systems. In addition, COURION is the exclusive provider of ENERGY, HARRIS PREBLE, and GUILBERT parts.

All replacement parts must be genuine COURION parts and, when required, bear a UL or CSA label. Failure to meet this requirement may void your COURION warranty and/or UL label.

If you have any questions regarding this Manual or need to order COURION, SECURITY, HARRIS PREBLE, or GUILBERT replacement parts, please contact **COURION's Customer Service Department at (314) 533-5700 or (800) 533-5760.**

## What Is Maintenance?

Maintenance is the process of routine examination, lubrication, cleaning, adjustment, and replacement of parts for the purpose of ensuring performance in accordance with the manufacturers specifications and applicable Code requirements. Any alteration, replacement of parts, repair or maintenance should not diminish the level of safety which existed prior to the change.

COURION CART-MATIC and Dumbwaiter equipment should receive the same maintenance as the balance of the elevator equipment. More frequent maintenance may be necessary where the Courion equipment is subject to high wear or corrosive effects of dust, abrasives, moisture, grease, chemicals, abnormal temperatures, or other conditions.

At the back of this Manual is a chart entitled "Routine Maintenance Guidelines" that summarizes the information detailed in the following pages. This chart is meant to be used as a guideline. The actual condition of your specific hoistway, the amount of use the elevator receives, and the age of your COURION equipment should be used to determine the amount of maintenance necessary to properly maintain your COURION equipment.

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With Courion Style Gate Guides

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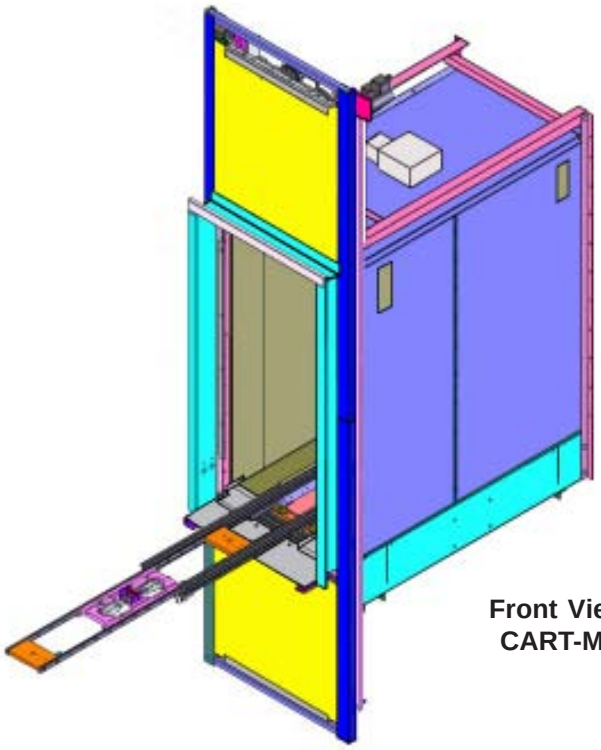
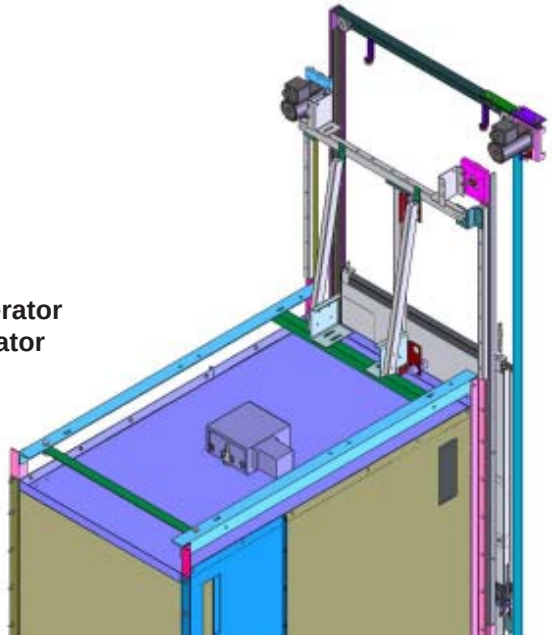
- Gate Drive & Idler Units
- Gate Contact
- Proximity Sensors
- CART-MATIC Transfer Device
- Car & Jamb Roller Guides



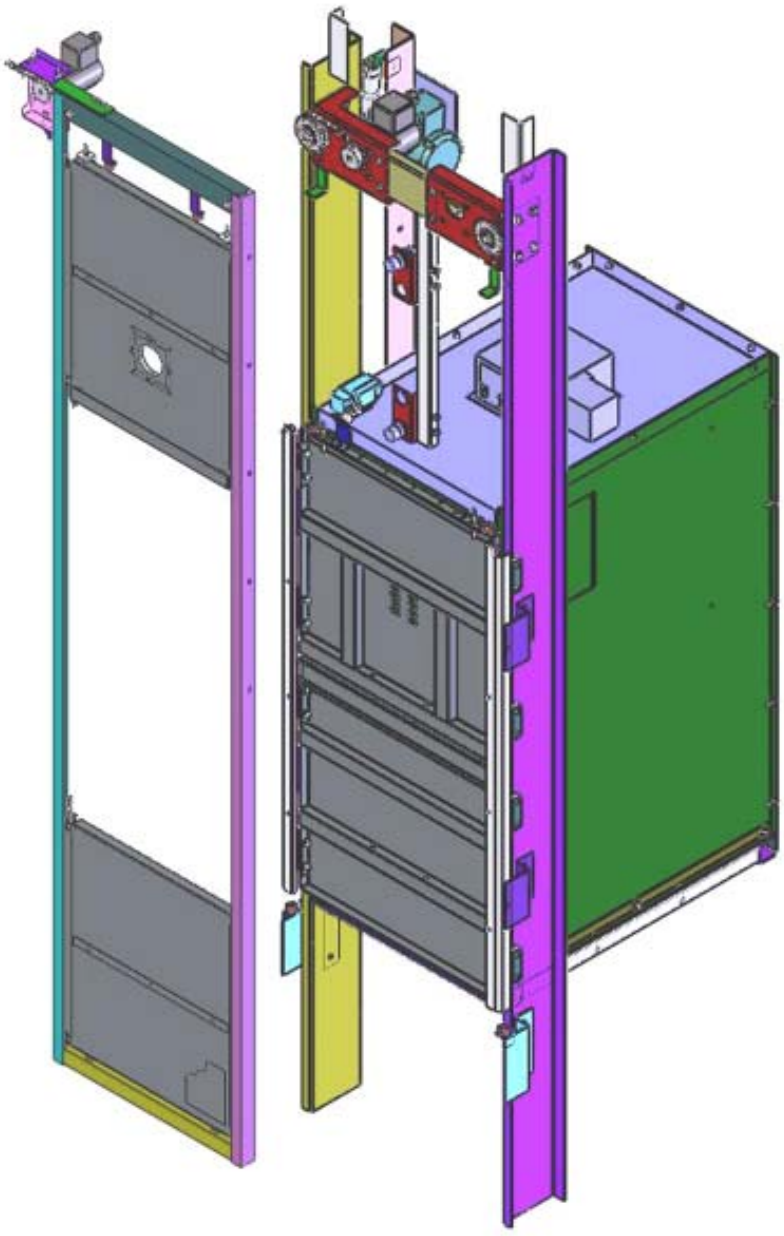
Front View
CART-MATIC Transfer Unit



Rear View
Right Hand Door Operator
Left Hand Gate Operator

# TD Style Doors

With Guilbert Style Gate Guides



Front View
Right Hand Door Operator
Right Hand Gate Operator

- Part Description
- Door Guides, Panels & Chains
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- Gate Contact
- Proximity Sensors
- CART-MATIC Transfer Device
- Car & Jamb Roller Guides

# Hoistway Door Equipment

## Dumbwaiter Door Panels

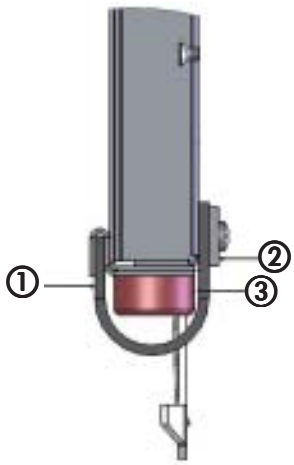
**General:** Make a periodic inspection of all hoistway door panels (front and back) to ensure that they are free from damage. Bending or sagging of a trucking sill is an indication of overloading or that the doors are not in the proper FULL OPEN position. Make sure to replace damaged or missing vision panel glass. COURION door panels should be painted when necessary to prevent deterioration and corrosion. Clean the hoistway pit area underneath the lowest door panel to allow full open travel.

**FULL OPEN Position**: Be sure the lower door panel is resting firmly on the door stops. Use a measure to verify the doors are at their full open height. The full open height is measured from the top of the lower panel to the bottom of the safety astragal on the upper door panel. At FULL OPEN the Upper Panel will be even with the Opening and the Lower Panel will be ¼" (6mm) below the Sill.

| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER REPLACEMENT DOOR PANELS**

## Dumbwaiter Safety Meeting Rail (Safety Astragal)




The upper door panel has two bumpers and a safety astragal. The bumpers are located at each end of the safety meeting rail along the lower edge of the upper panel. These bumpers are vital to sustaining door performance and useful life. Rubber bumpers and the safety meeting rail will deteriorate. They should be periodically inspected and refastened or replaced as necessary. After any astragal replacement, check that the Safety Meeting Rail seals the gap between the upper and lower door panel in the full closed position.

| Key # | Part # and Description | |
|---|---|---|
| ① | Shop Order | Safety Astragal Assembly (includes Astragal & Astragal Hook) |
| ② | Shop Order | Mounting Strip |
| ③ | 09-102300 | Rubber Bumper |

# Hoistway Door Equipment

## Dumbwaiter Door Guide Rails

**General**: Clean and lubricate your door guide rails frequently. The exact frequency will depend on the particular environment of the hoistway and facility. At a minimum, door guides should be cleaned and lubricated on a monthly schedule. Using a clean cloth, wipe the door guides down to remove any dirt or residue. Rails with an accumulation of grease, oil, and dirt should be scrubbed clean with a de-greaser and putty knife. Apply light weight oil (elevator hydraulic oil or automotive #10 oil) to the guide rails. Lubricate rails with a dry lubricant in atmospheres containing dust. **DO NOT USE GREASE**!

Make a periodic (at least annually) inspection of all guide rails to ensure that they are straight and free from damage. Replace rails if necessary.

| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760**
**TO ORDER REPLACEMENT DOOR GUIDE RAILS AND JAMBS**

## Dumbwaiter Door Guide Shoes (Door Gibs)

**General**: Door Guide Shoes are extremely important. Frequently inspect all door guide shoes to ensure that they are free from damage and securely fastened to the door panels. Replace door guide shoes if overall side-to-side play (left to right) is greater than 1/16" (1.5mm), or do not allow free vertical movement of the freight door panels. Refasten or replace as necessary.

**Adjustment**: Adjust the door guide shoes inward or outward to maintain a 1/16" (1.5mm) overall side-to-side play (left to right) at both the top and bottom of each door panel. After adjustment, be sure the door does not bind in the guides and can be operated easily by hand.

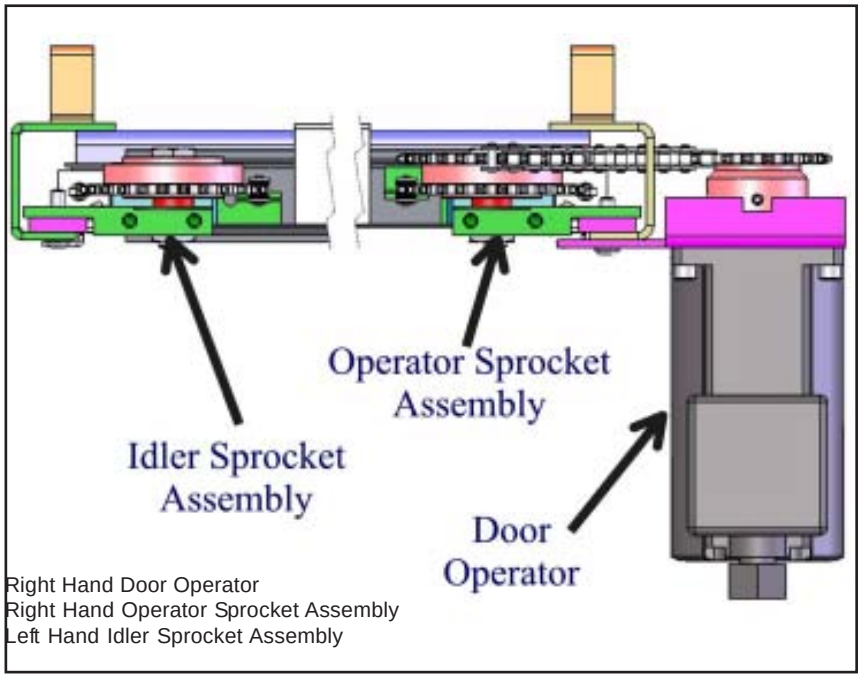
| Key # | Part # and Description |
|---|---|
| | 10-203702 Dumbwaiter Door Shoes |

# Hoistway Door Equipment

## Dumbwaiter Door Operators & Idler Sprockets

**General**: Make a periodic inspection of all Door Operators and Idler Sprockets to ensure that they are clean and free from damage. Inspect the Operator and Idler Sprocket to ensure that the door chains are running true and not causing any significant wear in the sprocket. At the same time, inspect the mounting hardware to ensure that it is tight.

**Lubrication**: Most COURION Operators and Manual Idler Sprockets have grease-sealed ball bearings which do not require additional lubricant.




Right Hand Door Operator
Right Hand Operator Sprocket Assembly
Left Hand Idler Sprocket Assembly

This picture is provided to show the relationship of the Idler Sprocket Assembly, Operator Sprocket Assembly, and Door Operator to the Door Guide Rails. Please note that the Idler Sprocket and Operator Sprocket Assemblies are bolted on the INSIDE edge of the Door Guide Rail, and the Door Operator is bolted on the OUTSIDE edge of the Door Guide Rail.

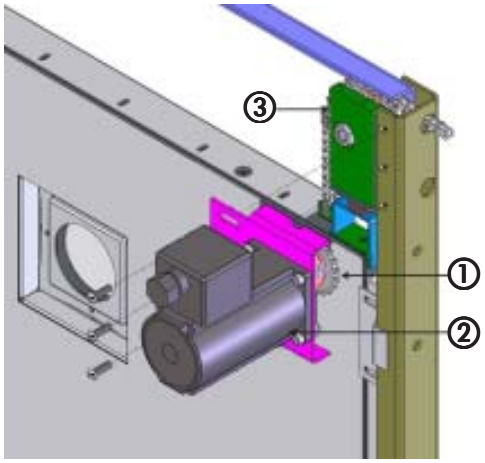
## Dumbwaiter Door Operators & Idler Sprockets (con't.)

**Dumbwaiter Door Operator**
**22-250000**
**Right Hand Shown**

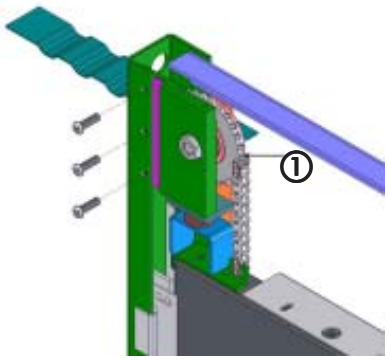
**Dumbwaiter Drive Sprocket**
**22-255600**
**Left Hand Shown**

**Dumbwaiter Idler Sprocket**
**22-255000**
**Right Hand Shown**

| Key # | Part # and Description | |
|---|---|---|
| | 22-250000 | Dumbwaiter Door Operator Assembly (need to specify Right or Left Hand) |
| ① | 22-250200 | Operator Sprocket |
| ② | 90-702700 | Geared Motor |
| | 22-255600 | Dumbwaiter Drive Sprocket Assembly (need to specify Right or Left Hand) |
| ③ | 22-255700 | Drive Sprocket |




| Key # | Part # and Description | |
|---|---|---|
| | 22-255000 | Dumbwaiter Idler Sprocket Assembly (need to specify Right or Left Hand) |
| ① | 22-255200 | Idler Sprocket |



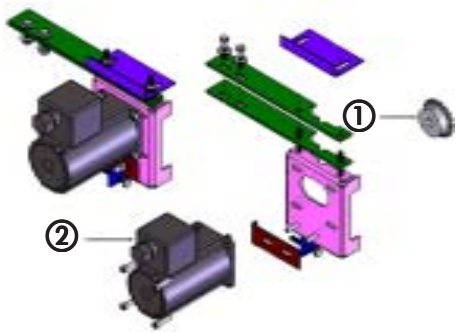
# Hoistway Door Equipment

## Dumbwaiter Door Operators & Idler Sprockets (con't.)

**Guilbert Modernization**: The following Dumbwaiter Door Operator and Sheave Replacement Kit is used by Courion when modernizing an existing Guilbert installation and the existing Guilbert Dumbwaiter Door Guide Rails are reused.

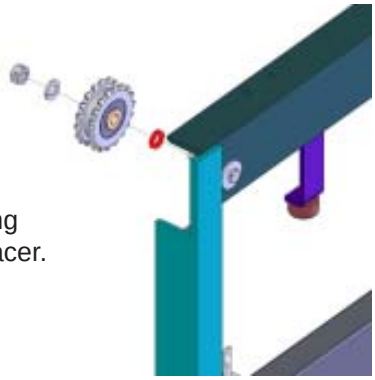
**Dumbwaiter Door Operator For Guilbert Conversion 22-205000 Right Hand Shown**

| Key # | Part # and Description | |
|---|---|---|
| | 22-205000 | Dumbwaiter Door Operator Assembly For Guilbert Conversion (need to specify Right or Left Hand) |
| ① | 22-250700 | Operator Sprocket |
| ② | 90-702700 | Geared Motor |




| Key # | Part # and Description | |
|---|---|---|
| | 22-206000 | Dumbwaiter Door Sheave ReplaceMent Kit For Guilbert Conversion |

**IMPORTANT** - When replacing the Double Sprocket, the copper bushing flanged end MUST face the 1/8" spacer.



## Replacement of Motor in Dumbwaiter Door Operator

**Courion Gearmotor**
**90-702700**

Disconnect the power source so that the motor leads are not "hot". Remove the motor outlet box cover and disconnect the three (3) motor leads. Disconnect the conduit connection from the motor's integral junction box. Remove the Operator Sprocket from the motor shaft - **DO NOT LOSE THE SPROCKET KEY**. Remove the four (4) bolts attaching the motor to the operator mounting bracket. Firmly hold motor and remove from mounting bracket.

Slide the new motor into the operator mounting bracket and tighten the four (4) motor mounting bolts progressively and evenly. Each of the four (4) mounting bolts should be uniformly set "wrench" tight – DO NOT OVERTIGHTEN the bolts. Re-install the Operator Sprocket. Reconnect the conduit and wiring. Check for proper rotation of the motor; if the motor rotation is incorrect, reverse the connection of any two (2) of the three (3) motor leads. Insulate the wiring connections and secure the cover to the junction box.

**Environment Considerations**

| | |
|---|---|
| • Ambient Temperature | 14° to 104° F |
| • Ambient Humidity | less than 85% |
| • Altitude | less than 3300' |
| • Atmosphere | No corrosive gas, explosive gas, steam, or excessive dust, and with good ventilation. |

**Motor Shaft:** Clean all machined shaft areas before attempting to mount the Operator Sprocket. Be careful not to hammer or bang on the shaft as this can cause damage to the bearings.

**Lubrication-Maintenance Free:** Your Courion Gearmotor was shipped with the correct quantity of high quality synthetic grease. Under normal operating conditions and for the life of the drive, no additional grease or grease change is required.

# Hoistway Door Equipment

## Dumbwaiter Door Chains

**General:** Make a periodic inspection of all dumbwaiter door chains to ensure that they are not showing signs of wear. While some chain stretch is normal, replace chains if worn or stiff. Chain wear is exhibited as chain stretch. Most chain wear takes place on the interior surface of the chain pins as the chain leaf wears through the pins. This wear is not detectable by visual inspection of the chain. Be sure to replace any chains which exhibit a noticeable increase in pitch as compared with new chain. Links should move freely. At the same time you are inspecting the door chains, inspect the operator sprockets to ensure that the door chains are running free and true as the door panels open and close, and not causing any significant wear in the sprocket teeth.

Door Chains should be cleaned and lubricated at the same time you clean and lubricate the door guides. Lubricate the door chains frequently with light weight oil (elevator hydraulic oil or automotive #10 oil). To properly lubricate your Courion chain, it is necessary for the oil to penetrate to the wearing surfaces of the chain (i.e., the chain pins). Surface lubrication is unnecessary and undesirable. Place a liberal quantity of lubricant on the chain at the pivots and allow the oil to penetrate the chain link. Wipe the surface of the chain to remove excess lubricant. **DO NOT USE GREASE!**

**Adjustments**: Adjust the Door Chains when necessary to allow proper locking of the doors. After a time, chain stretch may cause the Lock Bar to ride on top of the Locking Dog on the Interlock, interfering with the free operation of the door lock and zone switch. Before this condition occurs, take up the chain using adjustment at the bottom of the chain rods. The clearance between the Lock Bar and the Locking Dog should be about 1/16” after adjustment with the door at FULL CLOSED.

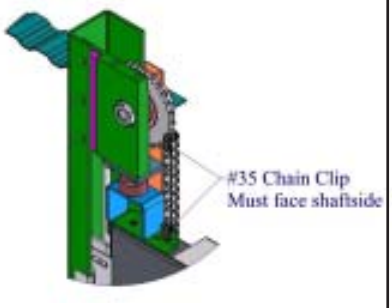
**NOTE**: The Chain Clip MUST face the shaft side of the hoistway. CHAINS MUST BE SHORTENED ON BOTH SIDES OF DOOR WHEN ADJUSTMENTS ARE MADE.

# Hoistway Door Equipment

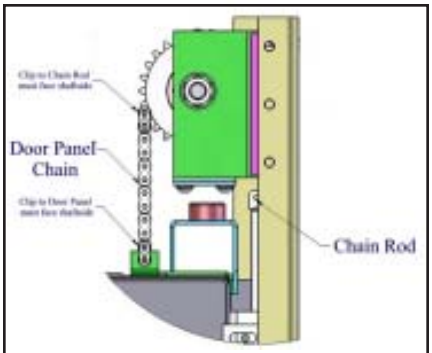
## Dumbwaiter Door Chains (con't.)

CARE MUST BE EXERCISED TO SEE THAT BOTH CHAINS ARE SHORTENED EQUALLY WHEN ADJUSTMENTS ARE MADE.

When your Dumbwaiter Door Chains are properly adjusted, your Upper Door Panel will be even with the Opening and the Lower Door Panel will be 1/4" (6mm) below the Sill in the FULL OPEN Position.




Idler Sprocket - Left Hand Shown




Operator Sprocket-Right Hand Shown

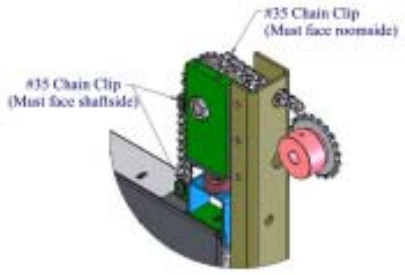
| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER REPLACEMENT DOOR CHAINS**

## Dumbwaiter Door Operator Chains

The General Maintenance Instructions for Dumbwaiter Door Chains apply to the Dumbwaiter Door Operator Chain.

**Adjustments**: The Dumbwaiter Door Operator Chain is connected with a #35 Chain Clip. NOTE: The Chain Clip MUST face the Hall side of the Hoistway. Move the Door Operator away from the Door Guide to tension the Motor Chain. DO NOT OVER TENSION THE MOTOR CHAIN. The Motor Chain is correctly tensioned when there is 1/8" to 3/16" of deflection with light finger pressure at the chain's mid point. Make sure that the chain does not rub on the Door Guide or Spreader Angle.




Operator Sprocket-Right Hand Shown

# Hoistway Locks & Switches

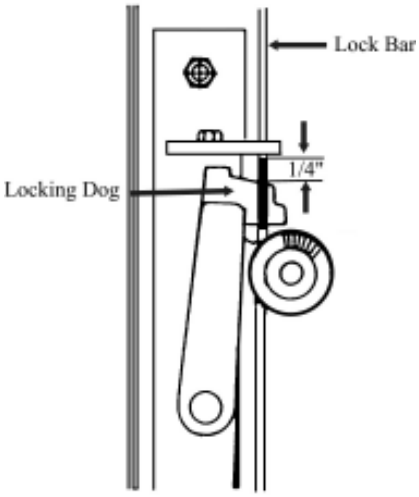
## Interlocks, Limit Switches & Lock Bars

**CAUTION!** Wires from the interlock contact are connected to the elevator vertical lift control, and may therefore be charged even when the safety switch for the door control is off. **TURN ALL POWER OFF BEFORE REMOVING THE COVER OF THE INTERLOCK AND PERFORMING ANY WORK ON THE INTERLOCK CONTACTS.**

### Interlocks

**General**: Frequently inspect the condition and operation of the Interlocks. Make sure that the Interlock and Retiring Cam are functioning properly, free from damage, and securely attached to the door guide rails. With the Interlock in the locked position, the Door Panel should not be able to open more than ¾" (19mm). Ensure that in order for the elevator to operate, all hoistway doors are closed and locked at each opening.

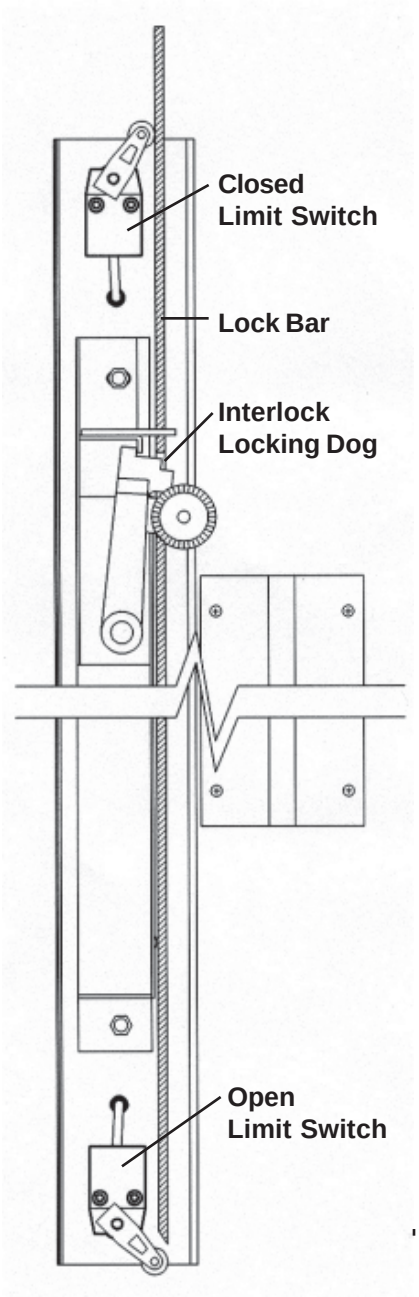
Frequently inspect the condition and operation of the Interlock contacts. Clean all exposed contacts in the Interlock. Very fine sandpaper may be used on very dirty or burned contacts. Wipe out the area between contact surfaces with a lint free cloth to avoid leaving dust, oil or lint behind. Replace contacts as required.




**PA-Style Interlock**

**Adjustments**: With the door panels in the FULL CLOSED position, check to see that the Interlock Locking Dog is inside the rectangular hole in the Lock Bar and that there is a 1/16" (1.5mm) clearance between the bottom of the Locking Dog and the bottom edge of the Lock Bar hole. Ensure that the Lock Bar runs through the Lock Bar Guide freely when the Door Panels open and close. Adjust the Interlock Roller Arm so that the clearance between the Lock Bar and Interlock Locking Dog is 1/8" to 1/4" when the roller is at rest on the face of the retiring cam.

## Interlocks, Limit Switches & Lock Bars (con't.)




Side Elevation

### Limit Switches

**General**: Frequently inspect the condition and operation of the Door Limit Switches and related Lock Bar. Make sure that the Limit Switches are functioning properly, free from damage, and securely attached to the Interlock Mounting Plate.

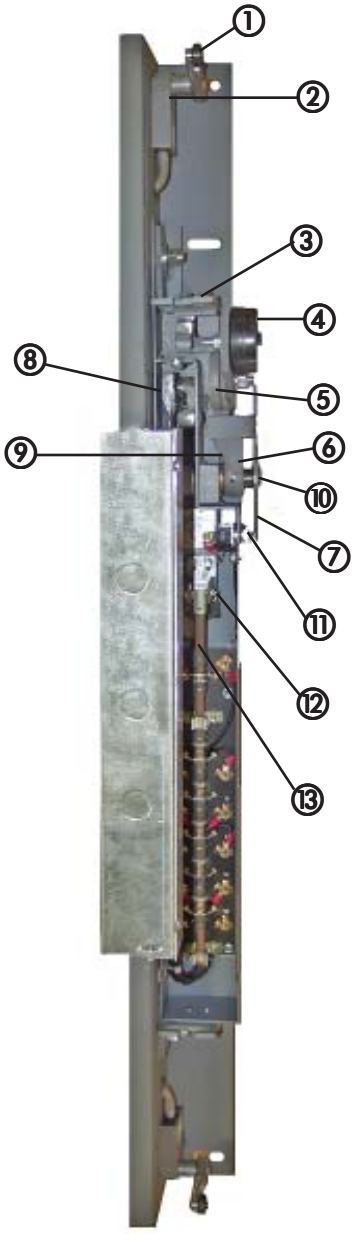
**Adjustments**: Adjustment is made by changing the location of the switch roller arm. The Limit Switches are actuated by the lock bar. Positioning of the Limit Switches roller arm determines where the braking cycle begins.

Pull the Doors to the FULL CLOSED position. Adjust the Closed Limit Switch (upper switch) so that there is a 1/4" clearance between the chamfered end of the Lock Bar and the actuator on the Closed Limit Switch.

Pull the Doors to the FULL OPEN position. Adjust the Open Limit Switch (lower switch) so that there is a 1/4" clearance between the chamfered end of the Lock Bar and the actuator on the Open Limit Switch.

# Hoistway Locks & Switches

## Interlocks, Limit Switches & Lock Bars (con't.)




**Interlock with Limit Switches Right Hand Shown**

| Key # | Part # and Description | |
|---|---|---|
| | Shop Order | PA Interlock Assembly with Limit Switches (need to specify Right or Left Hand) |
| ① | 90-983250 | Roller Lever Arm |
| ② | 90-876950 | Limit Switch |
| ③ | 04-041601 | Lock Bar Guide |
| ④ | 08-003303 | Roller Assembly |
| ⑤ | 08-032900 | Rachet Washer |
| ⑥ | 04-011700 | Locking Dog Lever (need to specify Right or Left Hand) |
| ⑦ | 04-011800 | EUD Switch Lever (need to specify Right or Left Hand) |
| ⑧ | 04-015700 | Contact Lever |
| ⑨ | 04-009900 | Interlock Spring |
| ⑩ | 04-000100 | Interlock Shaft |
| ⑪ | 90-908400 | EUD Toggle Switch |
| ⑫ | 04-355200 | Contact Pin |
| ⑬ | 04-359600 | Contact Assembly |
| ⑭ | 04-300602 | Interlock Cover (not pictured) |

# Hoistway Locks & Switches

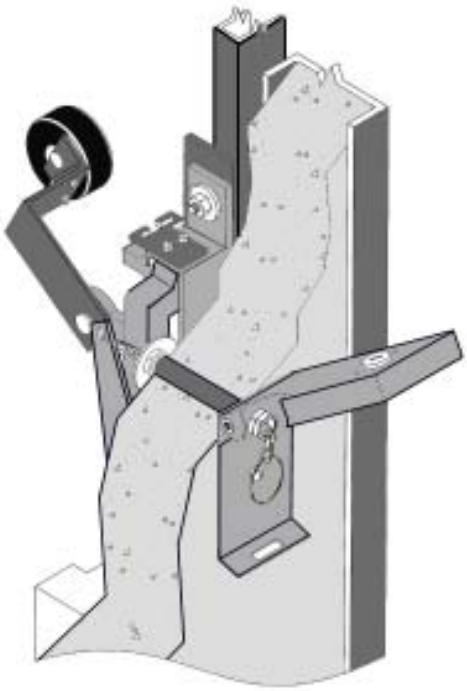
## Emergency Unlocking Device (EUD)

**General**: Frequently inspect the condition and operation of the Emergency Unlocking Device (EUD). Make sure that the EUDs are functioning properly, free from damage, and securely attached to the hallway wall. If an EUD is missing, it must be replaced.

**EUD**
**08-899502**

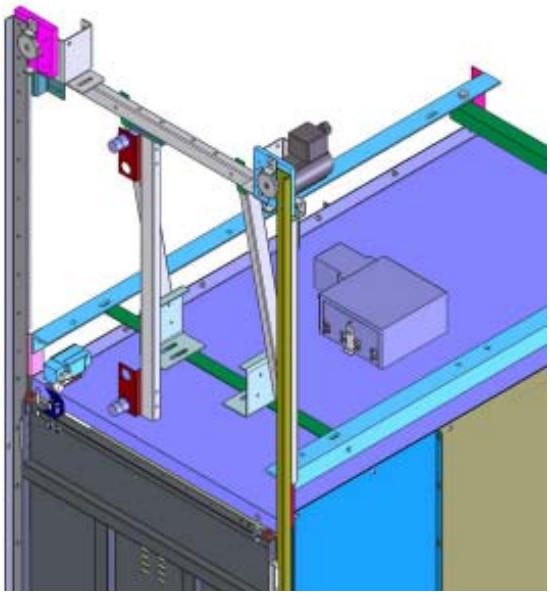
**OPERATION OF THE INTERLOCK BY THE EUD PULL CHAIN UNLOCKS THE HOISTWAY DOORS WHEN THE CAR IS NOT PRESENT AT THE LANDING. FOR THIS REASON, PLEASE KEEP THE EUD COVER LOCKED AND LIMIT ACCESS TO THE EUD KEYS.**

| Key # | Part # and Description |
|---|---|
| | 08-899502 Emergency Unlocking Device |

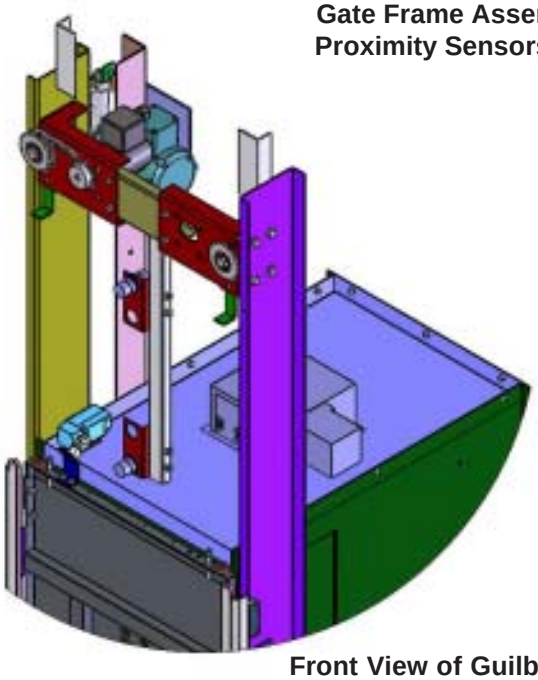


# TD Style Car Gate Layout

| Part Description |
| --- |
| Gate Panels |
| Gate Guides |
| Gate Chains |
| Gate Drive Unit |
| Gate Idler |
| Gate Guide Shoes |
| Gate Support Frame |
| Gate Proximity Sensors |
| CARE Light Curtain |
| Gate Contact |



Front View of Courion Car Gate Assembly
Left Hand Gate Operator
Gate Frame Assembly
Proximity Sensors



Front View of Guilbert Gate Modernization
Right Hand Gate
Proximity Sensors

# Car Gate Equipment

## Gate Panels

Make a periodic inspection of all Car Gate Panels (front and back) to ensure that they are free from damage. If applicable, make sure to replace damaged or missing rubber bumpers.

| Key # | Part # and Description |
|---|---|
| | Call Courion at (800) 533-5760 to order Replacement Car Gate Panels |

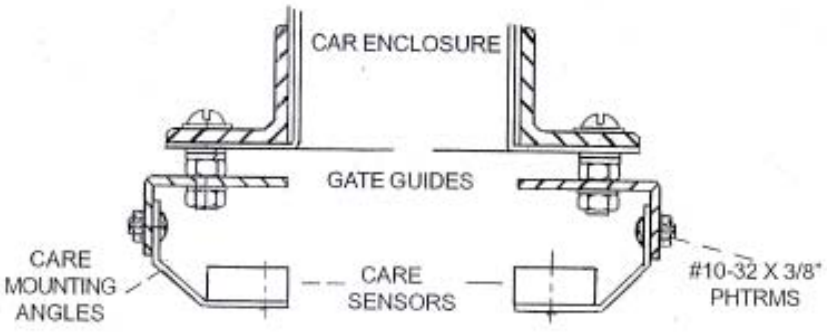
## CARE Light Curtain (Non-Contact Re-opening Device)

Make a periodic inspection of the light curtain Transmitter/ Receiver Edges and power supply. Replace the CARE if damaged or if not fully operational. Check the CARE power cables for wear; replace if any frayed conditions are obvious.

With the Edges connected and the CARE Control Box powered up, a GREEN LED indicates that power is present. The RED LED indicates that the system has identified an obstruction and the relay has dropped out.

COURION's CARE Reversing Edge is recommended in addition to the Gate Reversing Edge. The CARE can be added to almost any existing Car Gate. Call COURION at 314-533-5760 for additional information.

| Key # | Part # and Description |
|---|---|
| ① | Shop Order CARE F Light Curtain |
| ② | 90-514001 CARE F Power Unit |



# Car Gate Equipment

## Car Gate Guides

**General**: Clean and lubricate your car gate guide rails frequently. The exact frequency will depend on the particular environment of the hoistway and facility. At a minimum, car gate guides should be cleaned and lubricated on a quarterly schedule. Using a clean cloth, wipe the car gate guides down to remove any dirt or residue. Rails with an accumulation of grease, oil, and dirt should be scrubbed clean with a degreaser and putty knife. Apply light weight oil (elevator hydraulic oil or automotive #10 oil) to the guide rails. Lubricate rails with a dry lubricant in atmospheres containing dust. **DO NOT USE GREASE**!

Make a periodic (at least annually) inspection of all guide rails to ensure that they are straight and free from damage. Replace rails if necessary. At the same time, inspect the guide rail mounting bolts and guide rail supports to be sure that they are tight.

| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER REPLACEMENT CAR GATE GUIDE RAILS**

## Gate Guide Shoes

**General**: Gate Guide Shoes are extremely important. Frequently inspect all Gate Guide Shoes to ensure that they are free from damage and securely fastened to the Gate Panels. Replace Gate Guide Shoes if overall side-to-side play (left to right) is greater than 1/16" (1.5mm) or if the Guide Shoes do not allow free vertical movement of the Car Gate Panels.

**Adjustment**: Adjust the Gate Guide Shoes inward or outward to maintain a 1/16" (1.5mm) overall side-to-side play (left to right) at both the top and bottom of each Gate Panel. After adjustment, be sure the gate does not bind in the Guides and can be operated easily by hand.

| Key # | Part # and Description | |
|---|---|---|
| ① | 10-201902 | Gate Guide Shoes |
| ② | 10-202103 | Guide Shoe Shim |

# Car Gate Equipment

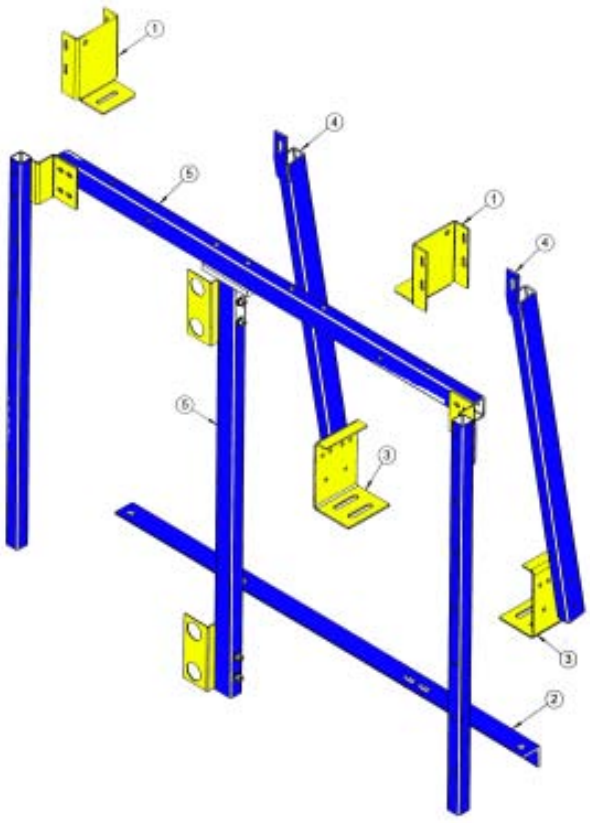
## Gate Frame

Make a periodic inspection of all Car Gate Frame to ensure that it is free from damage. Make sure all fasteners are tight and secure.

| Key # | Part # and Description |
|---|---|

Call Courion at (800) 533-5760 to order
Replacement Car Gate Frame

① Gate Frame Legs
② Horizontal Frame Support
③ Proximity Switch Frame
④ Car Enclosure Angle Brace
⑤ Gate Support Brackets
⑥ Gate Frame Brace Supports
⑦ Gate Drive Support Brackets



# Car Gate Equipment

## Car Gate Drive Unit & Gate Idler

**Dumbwaiter Gate Drive Unit 22-260000**

**General**: Make a periodic inspection of the Gate Drive Unit and Gate Idler to ensure that they are operating properly and are clean and free from damage. Inspect the Drive Unit's sprocket to ensure that the Gate Chains are running true and not causing any significant wear. At the same time, inspect the mounting hardware to ensure that it is tight.

Most COURION Gate Drive Units and Idler Sprockets have grease-sealed ball bearings which do not require additional lubricant.

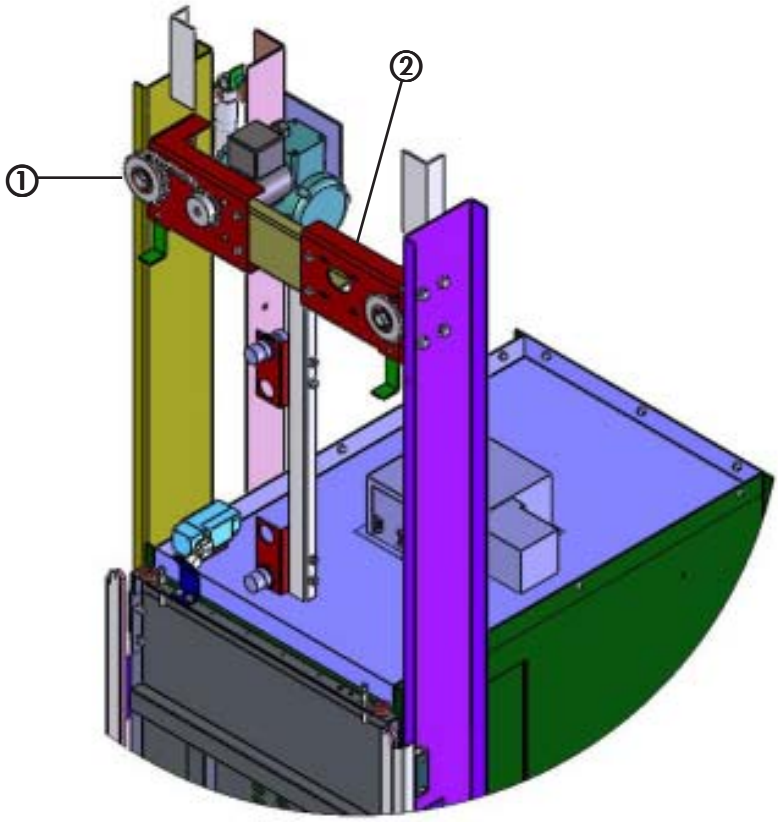
| Key # | Part # and Description | |
|---|---|---|
| | 22-260000 | Dumbwaiter Gate Drive Unit Assembly |
| ① | 22-260100 | Drive Unit Sprocket |
| ② | 90-702700 | Geared Motor |

**Dumbwaiter Idler Sprocket 22-260500**

| Key # | Part # and Description | |
|---|---|---|
| | 22-260500 | Dumbwaiter Idler Sprocket Assembly |
| ① | 22-260100 | Idler Sprocket |
| ② | 90-804400 | Idler Bearing |

## Car Gate Drive Unit & Idler Sprocket (con't.)

**Guilbert Modernization**: The following Dumbwaiter Car Gate Drive Unit and Idler Sprocket is used by Courion when modernizing an existing Guilbert installation where the existing Guilbert Dumbwaiter Car Gate Guide Rails are reused.




| Key # | Part # and Description | |
|---|---|---|
| ① | 22-270000 | Dumbwaiter Gate Drive Assembly For Guilbert Conversion (need to specify Right or Left Hand) |
| | 22-270200 | Drive Unit Sprocket |
| | 90-702700 | Geared Motor |
| ② | 22-275000 | Dumbwaiter Gate Idler (need to specify Right or Left Hand) |
| | 22-255200 | Idler Sprocket |

# Car Gate Equipment

## Replacement of Motor in Dumbwaiter Gate Drive Unit

**Courion Gearmotor**
**90-702700**

Disconnect the power source so that the motor leads are not "hot". Remove the motor outlet box cover and disconnect the three (3) motor leads. Disconnect the conduit connection from the motor's integral junction box. Remove the Operator Sprocket from the motor shaft - **DO NOT LOSE THE SPROCKET KEY**. Remove the four (4) bolts attaching the motor to the operator mounting bracket. Firmly hold motor and remove from mounting bracket.

Slide the new motor into the operator mounting bracket and tighten the four (4) motor mounting bolts progressively and evenly. Each of the four (4) mounting bolts should be uniformly set "wrench" tight – DO NOT OVERTIGHTEN the bolts. Reinstall the Operator Sprocket. Reconnect the conduit and wiring. Check for proper rotation of the motor; if the motor rotation is incorrect, reverse the connection of any two (2) of the three (3) motor leads. Insulate the wiring connections and secure the cover to the junction box.

**Environment Considerations**

| | |
|---|---|
| • Ambient Temperature | 14° to 104° F |
| • Ambient Humidity | less than 85% |
| • Altitude | less than 3300' |
| • Atmosphere | No corrosive gas, explosive gas, steam, or excessive dust, and with good ventilation. |

**Motor Shaft:** Clean all machined shaft areas before attempting to mount the Drive Unit Sprocket. Be careful not to hammer or bang on the shaft as this can cause damage to the bearings.

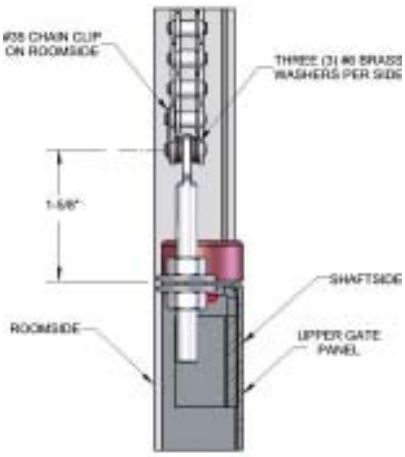
**Lubrication-Maintenance Free:** Your Courion Gearmotor was shipped with the correct quantity of high quality synthetic grease. Under normal operating conditions and for the life of the drive, no additional grease or grease change is required.

# Car Gate Equipment

## Car Gate Chains

**General:** Make a periodic inspection of all gate chains to ensure that they are not showing signs of wear. While some chain stretch is normal, replace chains if worn or stiff. Chain wear is exhibited as chain stretch. Most chain wear takes place on the interior surface of the chain pins as the chain leaf wears through the pins. This wear is not detectable by visual inspection of the chain. Be sure to replace any chains which exhibit a noticeable increase in pitch as compared with new chain. Links should move freely. At the same time you are inspecting the gate chains, inspect the operator sheave to ensure that the gate chains are running free and true as the gate panels open and close, and are not causing any significant wear in the sheave.

Gate Chains should be cleaned and lubricated at the same time you clean and lubricate the gate guides. Lubricate the gate chains frequently with light weight oil (elevator hydraulic oil or automotive #10 oil). To properly lubricate leaf chain, it is necessary for the oil to penetrate to the wearing surfaces of the chain (i.e., the chain pins). Surface lubrication is unnecessary and undesirable. Place a liberal quantity of lubricant on the chain at the pivots and allow the oil to penetrate the chain link. Wipe the surface of the chain to remove excess lubricant. **DO NOT USE GREASE!**




**Adjustments**: Any required chain length adjustment may be made at the upper gate panel chain rod. **DO NOT** make chain length adjustment at the lower gate panel chain hitch.

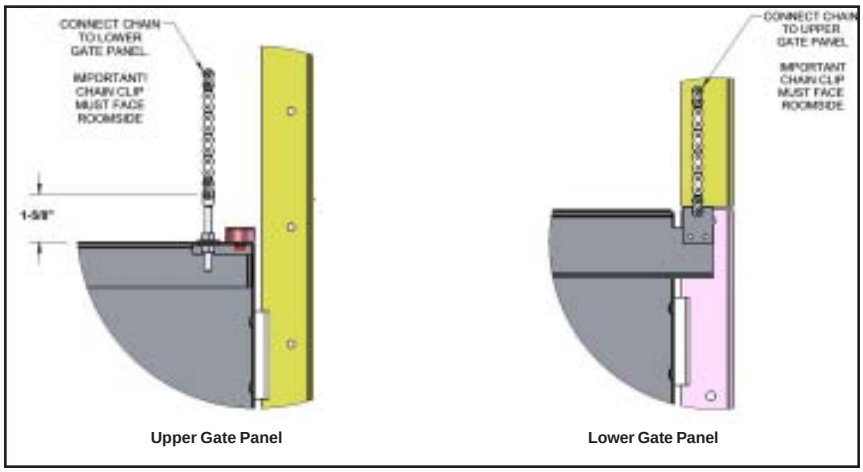
**NOTE**: The Chain Connecting Clip MUST face the room side of the hoistway and there should be three (3) #6 brass washers per side.

**CHAINS MUST BE SHORTENED ON BOTH SIDES OF CAR GATE WHEN ADJUSTMENTS ARE MADE. CARE MUST BE EXERCISED TO SEE THAT BOTH CHAINS ARE SHORTENED EQUALLY WHEN ADJUSTMENTS ARE MADE.**

# Car Gate Equipment

## Car Gate Chains (con't.)

When your Dumbwaiter Gate Chains are properly adjusted, your Upper Gate Panel will be even with the opening and the Lower Gate Panel will be 1/4" (6mm) below the Sill in the FULL OPEN Position.




Upper Gate Panel | Lower Gate Panel

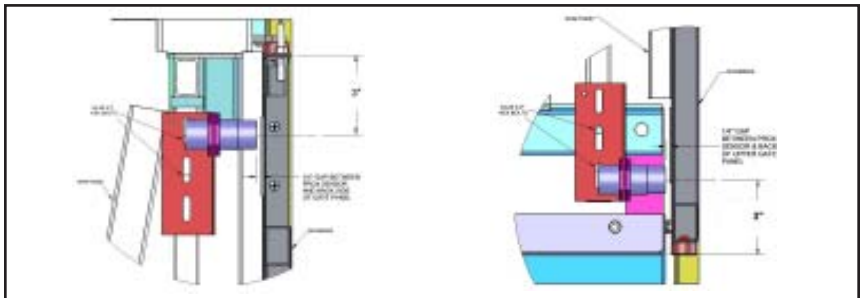
| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER REPLACEMENT DOOR CHAINS**

## Proximity Sensors

Install two (2) Proximity Sensors onto the Proximity Switch Mounting Frame located directly behind the Car Gate. Adjust the depth of the switches to about **1/4"** from the backside of the Gate Panel.

**Proximity Sensor and Cable 22-210000**



**TOP GATE PROXIMITY SENSOR (GP1)** with Car Gate in FULL CLOSED position

**LOWER GATE PROXIMITY SENSOR (GP2)** with Car Gate in FULL CLOSED position

| Key # | Part # and Description |
|---|---|
| | 22-210000 Proximity Sensors & Cables (1 Pair) |

# Car Gate Equipment

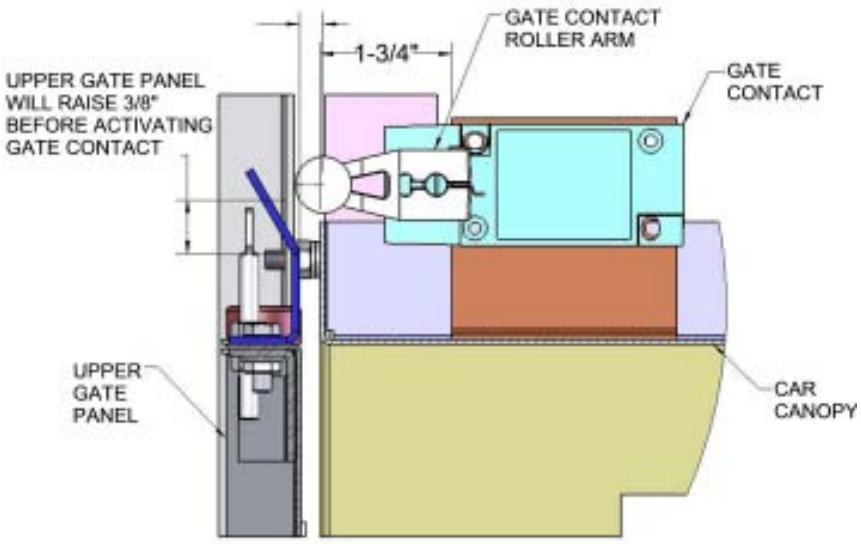
## Gate Contact

**Gate Contact Switch Assembly 02-605900**

The Gate Contact circuit should be closed only when the Car Gate is in the FULL CLOSED position. The Car Gate Closed circuit is intended for use with the lift control and does not interface with Courion's Door Controller.

**General:** Make a periodic inspection of the Gate Contact to ensure that it is operating properly, and is clean and free from damage. At the same time, inspect the mounting hardware to ensure that it is tight.

**Adjustment:** The Gate Contact is actuated by a cam located on the Upper Gate Panel. The Upper Gate Panel should raise 3/4" (20mm) before activating the Gate Contact.




| Key # | Part # and Description | |
|---|---|---|
| | 02-605900 | Gate Contact Switch Assembly |
| | Shop Order | Gate Contact Cam |

# Retiring Cam

## Retiring Cam

**General**: Make a periodic inspection of the Retiring Cam to ensure that it is operating properly, and is clean and free from damage. At the same time, inspect the mounting hardware to ensure that it is tight. Apply a light weight oil (elevator hydraulic oil or automotive #10 oil) to the pivot points on the cam and cam power unit and chain. Inspect the chain to ensure that it is not showing any signs of wear. While some chain stretch is normal, replace chains if worn or stiff. Check the location of the Retiring Cam relative to the position of the Interlock Roller Arm to be sure that the Retiring Cam properly actuates the Interlock. [See Section on Interlock]. Also make sure that the Retiring Cam does not interfere with the Interlock Roller Arm as the car passes. When applicable, examine the air checks.

**Adjustments**:

If the Retiring Cam seems to be too noisy, or bounces too much when retiring or extending, check the following:

Adjust the air check located on the retiring cam power unit, and resistor R3 located at the top of the door control panel. To adjust the Retiring Cam unit, first make sure the chain from the power unit to the top of the cam is not slack. Using the Adjustment screw at the top of the Retiring Cam, adjust the screw until the Retiring Cam is at its most extended position with the Retiring Cam arms horizontal. Manually pick and drop the cam. Adjust the air check valve screw for the best operation of the cam. Turning the screw inward increases the checking, or backing the screw out decreases the checking. Too little checking will permit excessive slamming at the end of the stroke. Too much checking will cause excessive bouncing, as the pressure will build up too fast in the cylinder. There is an in-between point, which will give quiet operation, with a minimum amount of bouncing. BE SURE TO REPLACE THE LOCK NUT SECURELY ON THE ADJUSTING SCREW AFTER COMPLETING THE ADJUSTMENT.
Locate the Power Resistor in the upper right hand corner of

## Retiring Cam (con't.)

the Courion Control cabinet. The Cam Power Unit is designed to work smoothly and quietly at or near the maximum resistance setting. Adjust the Cam Resistor until the cam picks smoothly. As the resistance is increased, the power developed by the motor is decreased.

**Troubleshooting**

If the Retiring Cam is not operating properly, check the following:

Refer to the Elevator Control manual to verify proper operation and adjustment of the retiring cam control circuit.

If the Elevator Control is operating properly, and Retiring Cam does not drop when the car stops, check for binding in the Retiring Cam mechanism.

If the Retiring Cam drops but the door does not operate, check the setting of the Retiring Cam and the Interlock Roller Arm position. The Retiring Cam must engage the lock sufficiently for the zone contacts inside the Interlock to make.

When the Retiring Cam is extended, the parallel link members should be horizontal or tipped slightly above horizontal. If the links are below horizontal, or there is slack in the Retiring Cam Chain, the cam chain should be adjusted.

| Key # | Part # and Description | |
|---|---|---|
| | Shop Order | Retiring Cam Assembly (must specify Right or Left Hand) |
| ① | 90-103000 | Air Check |
| ② | 90-958600 | Retiring Cam Motor |
| ③ | 06-400401 | Drive Chain Assembly |
| ④ | Shop Order | #35 Roller Chain |
| ⑤ | 06-400200 | Cam Assembly |

**Retiring Cam Assembly Right Hand Shown**

# CART-MATIC Units

## CART-MATIC Transfer Device

**Cart Trigger Assembly:** The Cart Trigger Assembly is attached to the top center of the fast carriage. The Cart Trigger Assembly is also referred to as the Cart Pick-Up Assembly. The Cart Trigger Assembly engages the coupler located on the bottom of each cart. The Cart Trigger Assembly is attached to the fast carriage with four (4) screws, and can be removed from the fast carriage for maintenance. The Cart Trigger Assembly bushings require periodic lubrication with light machine oil.

**Fast Carriage Assembly:** The Fast Carriage Assembly travels in tracks located inside the Main Carriage, and supports the Cart Trigger Assembly. Rollers on each side of the Fast Carriage are pre-lubricated and do not require additional lubrication. The Fast Carriage can be removed from the Main Carriage by disconnecting the Drive Chains which dead end at both ends of the CART-MATIC Unit.

**Main Carriage Assembly:** The Main Carriage Assembly travels in tracks located within the Main Frame, and supports the Fast Carriage Assembly. Rollers on each side of the Main Carriage are pre-lubricated and do not require additional lubrication. The Main Carriage assembly is driven by Roller Chains located on each side of the Main Carriage. Stops located on the Main Frame of the CART-MATIC Unit prevent removal of the Main Carriage Assembly unless the CART-MATIC Unit is removed from the car and one side of the Main Frame is removed.

| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER REPLACEMENT PARTS FOR YOUR CART-MATIC TRANSFER DEVICE**

## CART-MATIC Transfer Device (con't)

**Centering Switches:** The Centering Switches are located at each end of the CART-MATIC Transfer Unit and are operated by the Main Carriage. Centering Switches do not usually require adjustment unless replaced. Proper adjustment of the switch location must be checked with power applied to the CART-MATIC Unit. Adjust the Centering Switch location to allow the carriages to center with no oscillation.

| Key # | Part # and Description |
|---|---|
| | **CALL COURION AT (800) 533-5760 TO ORDER A REPLACEMENT CENTERING SWITCH** |

**Drive Chain and Belt Adjustment:** Adjustment to the Drive Chain and Motor "V" Belt must be made in the following order, from the top of the Main Frame with the carriage fully extended:

1. Adjust the Drive Shaft for proper chain tension between the Drive Shaft and the Jackshaft.

2. Adjust tension in the Motor "V" Belt at the Motor.

3. Adjust tension in the Encoder Limit Switch Chain at the Encoder Switch.

| Key # | Part # and Description |
|---|---|
| | **CALL COURION AT (800) 533-5760 TO ORDER A REPLACEMENT CENTERING SWITCH** |

**CART-MATIC Unit Removal:** The entire CART-MATIC Transfer Device can be removed from the Car for service. Two (2) bolts at each end of the unit secure the CART-MATIC unit to the Enclosure floor. After removing the bolts, Lifting Chains are used to partially lift the CART-MATIC Unit from the car. UNPLUG THE CORD FROM THE CART-MATIC JUNCTION BOX BEFORE ATTEMPTING COMPLETE REMOVAL.

# CART-MATIC Units

## CART-MATIC Encoder

Encoder PLC Assembly

The CART-MATIC Encoder is used to monitor and control the Transfer Units LOAD and UNLOAD position. The CART-MATIC Encoder is connected to a pre-programmed PLC located beneath the Transfer Unit and should require no additional maintenance or adjustment.

Please consult Courion's Control Manual and Description of Operation for more information about your Courion CART-MATIC Encoder and PLC.

**General:** Make a periodic inspection of the CART-MATIC Encoder to insure that it is operating properly, and is clean and free from damage. At the same time, inspect the mounting hardware to insure that it is tight. Periodicaly lubricate theTransfer Unit Encoder Chain.

| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER**
**A REPLACEMENT CART-MATIC ENCODER ASSEMBLY**

| | |
|---|---|
| **22-225000** | **Encoder Assembly** |
| **22-220000** | **Encoder & Connection Cable (7')** |
| **Shop Order** | **Encoder PLC Assembly** |

## CART-MATIC Chains

**Adjustment:** Adjustment of the Fast Carriage Assembly Chains is made at the dead end locations on the Main Frame. If the Main Carriage Assembly Chains require adjustment, they must be adjusted prior to adjustment of the Fast Carriage Assembly Chains. To adjust the Chains for the Fast Carriage Assembly, first center both the Main and Fast Carriage Assemblies, and then adjust the Fast Carriage Assembly Chains with the adjustment bolts located at each end of the chains. Keep both carriages centered during the adjustment procedure.

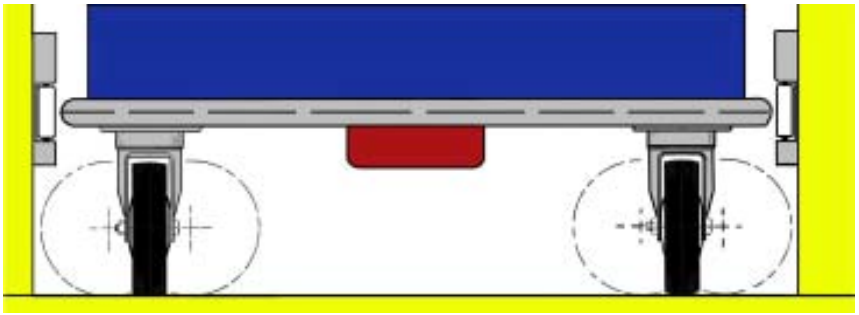
| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER**
**REPLACEMENT CART-MATIC Chains**

# CART-MATIC Units

## CART-MATIC Jamb and Car Roller Guide System

**General**: Make a periodic inspection of the Jamb and Car Roller Guide Assemblies to ensure that they are operating properly, and are clean and free from damage. At the same time, inspect the mounting hardware to ensure that it is tight.



| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER A REPLACEMENT JAMB OR CAR ROLLER GUIDE ASSEMBLY**

## CART-MATIC Hinged Sill Plates

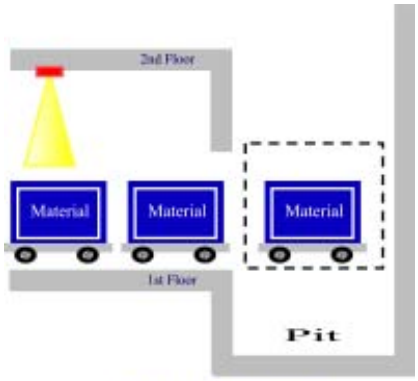
**General**: Make a periodic inspection of the Hinged Sill Plates to ensure that they are operating properly, and are clean and free from damage. At the same time, inspect the mounting hardware to ensure that it is tight.

| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER A REPLACEMENT HINGED SILL PLATE ASSEMBLY**

# CART-MATIC Units

## Lobby Full Cart Detectors




Lobby Full Sensor

**General**: Make sure the Lobby Full Sensor Assembly is located directly above the final “UNLOAD” Cart position in the Lobby.

Inside of the Lobby-Full Cart Detector housing is an ultrasonic sensor with relay output and a sensing range of 20” to 20’ (0.5 to 6 meters). With the Lobby-Full Cart Detector in place, set a cart immediately below the sensor beam. Turn the RANGE potentiometer to the fully counterclockwise position, then turn the control clockwise until the sensor’s RED LED indicator comes on. Verify this range setting by moving the cart away from the sensor beam (the RED LED indicator should go out), then back towards the sensor beam (the RED LED indicator should go on).

It is best to set the range of the sensor beam with the cart at the MAXIMUM distance at which you expect to detect the cart.

Minimum target size required for proper operation of the Lobby-Full Cart Detector Units is about 1 square foot of SOLID SURFACE for each 10’ of sensor-to-object distance.

For proper operation, the Lobby-Full Cart Detector Units must be at least 24” away from side walls, and at least 48” is required between adjacent sensing beams.

| Key # | Part # and Description |
|---|---|

**CALL COURION AT (800) 533-5760 TO ORDER**
**A REPLACEMENT LOBBY-FULL DETECTOR ASSEMBLY**

# CART-MATIC Units

## Controllers

Please consult Courion's Control Manual and Description of Operation for maintenance and adjustment information about you Courion Controller and the Transfer Unit Encoder PLC.


*Opening Quality Doors Around The World*

(800) 533-5760 or (314) 533-5700
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sales@couriondoors.com