

THE BELT RAILWAY COMPANY OF CHICAGO

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July 31, 2003

CIRCULAR NOTICE 20030731

TO: All Signal Department Employees

FROM: C. S. Ridgeway

Please be advised that gate gards have been installed at Central Avenue.

Attached are the installation and maintenance specifications.

If you have any other questions, please see me.

Attachment



WESTERN-CULLEN-HAYES, Inc.

GATE-GARD INSTALLATION INSTRUCTIONS

Part Number: D-1049-1

1. Lower the gate mechanism and crossing gate arm to the horizontal position and lock the mechanism in place and/or block up the counterweight to prevent movement of the counterweight support arms.
2. Remove the gate arm from the existing gate arm adapter and remove the existing adapter and conversion bracket from the counterweight support arms.
3. Slide the Gate-Gard over the counterweight support arms. Apply a small amount of anti-seize compound to the threads of the mounting bolts (40) and secure but do not tighten. Remove the wood spacer blocks between the channels, tapping the lower channel to loosen if necessary.
4. Tighten the bolts securing the channels to the counterweight support arms. Tighten the latch spring housing bolts per instruction sticker on the top channel.
5. Re-install the existing gate arm to the Gate Arm Adapter (5).
6. Check the horizontal and vertical torque of the crossing gate mechanism per specifications and re-adjust the counterweight positions if necessary.
7. Grasp the gate arm near the mid length point, rotate the arm 30 degrees or so and release. Repeat 3 or 4 times to allow the Latch Hook (19) to disengage from the Gate Arm Adapter (5) and to break-in the leading edge of bronze Wear Plate (24). Clean off any metallic particles that may accumulate during break-in.
8. Check for zero clearance between the top end of the Latch Spring Rod (18) and the Latch Hook (19). Adjust hex nut (46) and jam nut (47) at the bottom of Rod (18) if necessary.
9. Shear Pin (26) with lock nut (32) can be installed through the Upper Hinge Bracket (3) and the Gate Arm Adapter (5) to provide additional resistance to rotation in high wind areas if necessary.



WESTERN-CULLEN-HAYES, Inc.

THE GATE-GARD

The GATE-GARD is a device installed between a railroad grade crossing gate arm and the arm and the operating mechanism which allows the gate arm to rotate about an axis perpendicular to the gate arm length.

The purpose of the device is to minimize gate arm damage from wind pressure, vandalism or from contact with vehicles. The Gate Gard provides flexibility to the gate arm joint and allowing the lowered gate arm to rotate in a direction parallel with the roadway upon contact with, or pressure to, the traffic facing side of the gate arm.

The GATE-GARD can be installed on new or in service Western-Cullen-Hayes type grade crossing systems without making alterations to the existing gate arm or its operating mechanism. Some counterweight adjustment may be necessary.

GATE-GARD SPECIFICATIONS

Attaches to the counterweight support arms of any standard crossing gate mechanism, replacing the existing gate arm adapter and conversion bracket.

Incorporates a spring loaded mechanical latch hook system to lock the gate arm firmly in its conventional position under normal operating conditions and allows the Latch Hook to release when the gate arm rotating forces are applied.

Features a return spring system capable of bringing a rotated gate arm of up to 40 feet in length back to its normal, locked position when the rotating force is relieved.

Provided with positive mechanical stops to absorb the impact of the returning gate arm and to prevent arm overtravel towards on-coming traffic.

Has a drag brake, with a replaceable bronze wear plate, built into the latch hook system to retard the speed of the returning gate arm.

Includes a brass shear pin with locknut to provide additional resistance to gate arm rotation in high wind areas.

MAINTENANCE

The GATE-GARD requires no lubrication or adjustments. It should, however, be inspected on a regular basis to ensure that there are no loose fasteners or broken parts due to impact damage and to determine that the gate arm rotates and returns properly.

WEAR PLATE

Check the bronze Wear Plate (24) for excessive wear if the unit is in a high usage location. The Wear Plate can be replaced, if necessary, without removing the gate arm from Gate Arm Adapter (5) or removing the GATE-GARD from the crossing gate mechanism. Rotate arm slightly for access to the left front mounting screw.

RETURN SPRINGS

Springs (20) can be replaced, if necessary, without removing the gate arm from the Gate Arm Adapter (5) or removing the GATE-GARD from the crossing gate mechanism.

Remove the lock screws and nuts at the end of the Return Spring Housing (14) and back off the Slotted Nuts (48) to relieve the spring pre-load.

Remove the lock screw and nut from the Spring Pin Spacer (13) and remove the Return Spring Housing Pin (12). Rotate the Spring Housing (14) away from the counterweight support arms for spring removal clearance.



WESTERN-CULLEN-HAYES, Inc.

Lifting Instructions for the Western-Cullen-Hayes Gate Gard Adapter

The personal protective equipment prescribed by your company should be worn while working with the “Gate Gard”.

“Gate Gards” are shipped from our factory banded to pallets and wrapped in plastic sheeting to protect them from the elements.

Upon receipt of a “Gate Gard” and in preparation for installation, carefully remove the plastic wrap and dispose of properly. Next, cut the plastic banding that secures the “Gate Gard” to its pallet, remembering that the banding is under tension.

The “Gate Gard” weighs approximately 110 pounds so two people should handle the device. One person should firmly grasp each end of the “Gate Gard” upper cross channel and carefully position the device on the mechanism counterweight support arms. Caution should always be used when lifting any item to avoid strains or sprains. Care should also be taken to avoid tripping hazards around the installation site.

If the “Gate Gard” will be lifted from its pallet using a jib crane or boom truck, sling through the space between the upper and lower cross channels of the “Gate Gard” equal distance from each end and lift evenly.

Position the “Gate Gard” on the mechanism counterweight support arms, as described in the installation instructions, and remove the sling.

The Gate-Gard return spring system is designed to provide rotation resistance in high wind conditions and to provide adequate power to return a rotated gate arm of up to forty feet in length, to its normal position.

In some circumstances, when short gate arms are used, it may be desirable to reduce the return spring energy. This will slow the return speed of a rotated gate arm as well as reduce the impact energy necessary to rotate the gate arm.

The Gate-Gard's spring force can be reduced in any of three ways:

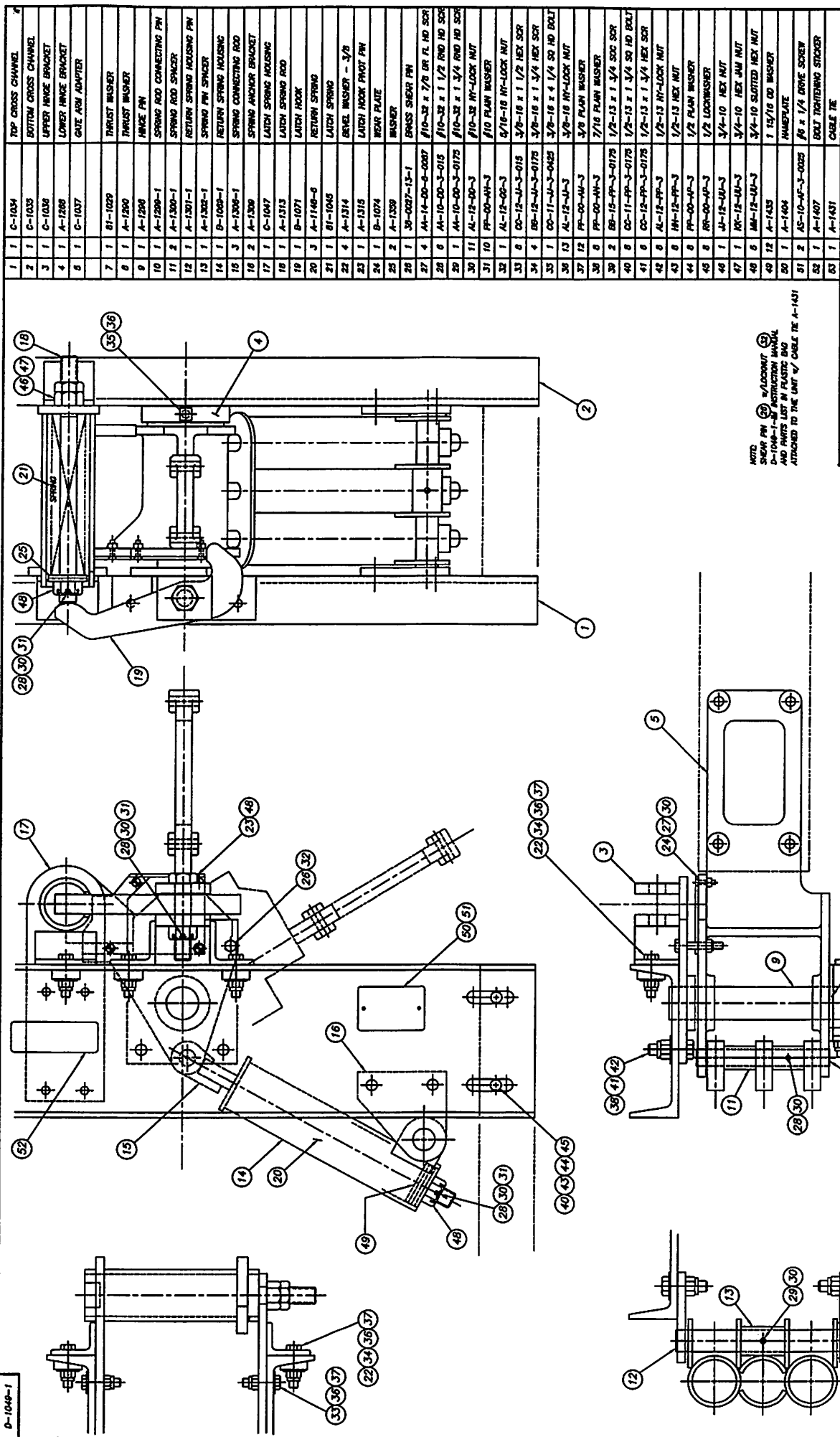
1. Reduce the number of washers, (49) at the end of each return spring housing tubes (14) from four to one. The Gate-Gard does not have to be removed from the crossing gate mechanism to do this modification. Simply remove the locking hardware (28) (30) (31) and back off the slotted nut (48). Remove all but one washer (49) and reinstall nut (48), tightening until washer is flush with end of tube. This procedure will reduce the gate arm's resistance to rotation from its normal position but will have minimal effect on the gate arm's return speed.
2. Remove the middle return spring (20) from the Gate-Gard. Again, the Gate-Gard does not have to be taken off the gate mechanism to do this modification. Remove the nuts (48) and washers (49) from all three return springs assemblies as outlined in Step 1. Remove the locking hardware (29) (30) and remove the return spring housing pin (12), spring pin spacer (13) and thrust washer (8). Next, swing the spring housing (14) away from the Gate-Gard and slide out the center spring (20). Thread a $\frac{3}{4}$ - 10-jam nut, one washer (49) and slotted nut (48) onto the end of this center connecting rod (15) to keep it centered in the tube. Reposition the spring housing (14) and reinstall the housing pin (12) with spacer (13), washer (8) and locking hardware. Reinstall the four washers on each of the other two connecting rods (15) with nuts (48) and locking hardware.

Note that the washers must be flush with or below the end of each spring tube.

This step will reduce the gate arm's resistance to rotation from the normal position and will reduce the return speed from a rotated gate arm.

3. Steps one and two can be used together to achieve the exact combination of resistance to rotation and gate arm return speed desired for a particular application.

Please contact Western-Cullen-Hayes with any question you have regarding the modification of our Gate-Gard adapter.



D-1046-1

| QTY | DESCRIPTION | REF. DES. | UNIT | REVISION |
|-----|----------------------------|-----------------|------|----------|
| 1 | TOP CROSS CHANNEL | C-1034 | | |
| 2 | BOTTOM CROSS CHANNEL | C-1035 | | |
| 3 | UPPER HINGE BRACKET | C-1036 | | |
| 4 | LOWER HINGE BRACKET | A-1288 | | |
| 5 | GATE ARM ADAPTER | C-1037 | | |
| 6 | THRUST WASHER | B-1029 | | |
| 7 | THRUST WASHER | A-1290 | | |
| 8 | THRUST WASHER | A-1290 | | |
| 9 | THRUST WASHER | A-1290 | | |
| 10 | THRUST WASHER | A-1290 | | |
| 11 | SPRING ROD CONNECTING PIN | A-1290-1 | | |
| 12 | SPRING ROD SPACER | A-1290-1 | | |
| 13 | RETURN SPRING HOUSING PIN | A-1291-1 | | |
| 14 | SPRING PIN SPACER | A-1292-1 | | |
| 15 | RETURN SPRING HOUSING | B-1029-1 | | |
| 16 | SPRING CONNECTING ROD | A-1298-1 | | |
| 17 | SPRING ANCHOR BRACKET | A-1299 | | |
| 18 | LATCH SPRING ROD | A-1313 | | |
| 19 | LATCH HOOK | B-1071 | | |
| 20 | RETURN SPRING | A-1248-6 | | |
| 21 | BRASS WASHER - 3/8 | A-1314 | | |
| 22 | LATCH HOOK PHOTO PIN | A-1315 | | |
| 23 | WEAR PLATE | B-1074 | | |
| 24 | BRASS WASHER | A-1339 | | |
| 25 | BRASS SHEAR PIN | B-0087-13-1 | | |
| 26 | 1/10-32 x 1/2 BR FL HD SCR | A-14-00-9-0087 | | |
| 27 | 1/10-32 x 1/2 RD HD SCR | A-14-00-3-015 | | |
| 28 | 1/10-32 x 1/4 RD HD SCR | A-14-00-3-015 | | |
| 29 | 1/10-32 x 1/4 RD HD SCR | A-14-00-3-015 | | |
| 30 | 1/10-32 NY-LOCK NUT | A-12-00-3 | | |
| 31 | 1/10 PLAIN WASHER | PP-00-44-3 | | |
| 32 | 5/16-18 NY-LOCK NUT | A-12-00-3 | | |
| 33 | 3/8-18 x 1 1/2 HEX SCR | CO-12-4-3-015 | | |
| 34 | 3/8-18 x 1 3/4 HEX SCR | BB-12-4-3-015 | | |
| 35 | 3/8-18 x 1 1/4 SO HD BOLT | CO-11-4-3-0425 | | |
| 36 | 3/8-18 NY-LOCK NUT | A-12-00-3 | | |
| 37 | 3/8 PLAIN WASHER | PP-00-44-3 | | |
| 38 | 1/2-13 x 1 3/4 SOC SCR | BB-12-PP-3-0175 | | |
| 39 | 1/2-13 x 1 3/4 SO HD BOLT | CO-11-PP-3-0175 | | |
| 40 | 1/2-13 x 1 3/4 HEX SCR | CO-12-PP-3-0175 | | |
| 41 | 1/2-13 NY-LOCK NUT | A-12-00-3 | | |
| 42 | 1/2 PLAIN WASHER | PP-00-44-3 | | |
| 43 | 3/4-10 HEX NUT | MM-12-40-3 | | |
| 44 | 3/4-10 HEX NUT | MM-12-40-3 | | |
| 45 | 3/4-10 HEX NUT | MM-12-40-3 | | |
| 46 | 3/4-10 SCOTTED HEX NUT | MM-12-40-3 | | |
| 47 | 1 1/2-18 CD WASHER | A-1435 | | |
| 48 | 1 1/2-18 CD WASHER | A-1435 | | |
| 49 | 1 1/2-18 CD WASHER | A-1435 | | |
| 50 | 1 1/2-18 CD WASHER | A-1435 | | |
| 51 | 1 1/2-18 CD WASHER | A-1435 | | |
| 52 | 1 1/2-18 CD WASHER | A-1435 | | |
| 53 | 1 1/2-18 CD WASHER | A-1435 | | |
| 54 | 1 1/2-18 CD WASHER | A-1435 | | |
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| 88 | 1 1/2-18 CD WASHER | A-1435 | | |
| 89 | 1 1/2-18 CD WASHER | A-1435 | | |
| 90 | 1 1/2-18 CD WASHER | A-1435 | | |
| 91 | 1 1/2-18 CD WASHER | A-1435 | | |
| 92 | 1 1/2-18 CD WASHER | A-1435 | | |
| 93 | 1 1/2-18 CD WASHER | A-1435 | | |
| 94 | 1 1/2-18 CD WASHER | A-1435 | | |
| 95 | 1 1/2-18 CD WASHER | A-1435 | | |
| 96 | 1 1/2-18 CD WASHER | A-1435 | | |
| 97 | 1 1/2-18 CD WASHER | A-1435 | | |
| 98 | 1 1/2-18 CD WASHER | A-1435 | | |
| 99 | 1 1/2-18 CD WASHER | A-1435 | | |
| 100 | 1 1/2-18 CD WASHER | A-1435 | | |

NOTE: (25) 1/2-18 NY-LOCK NUT
 (26) 1/10-32 x 1/2 BR FL HD SCR
 (27) 1/10-32 x 1/2 RD HD SCR
 (28) 1/10-32 x 1/4 RD HD SCR
 (29) 1/10-32 x 1/4 RD HD SCR
 (30) 1/10-32 NY-LOCK NUT
 (31) 1/10 PLAIN WASHER
 (32) 5/16-18 NY-LOCK NUT
 (33) 3/8-18 x 1 1/2 HEX SCR
 (34) 3/8-18 x 1 3/4 HEX SCR
 (35) 3/8-18 x 1 1/4 SO HD BOLT
 (36) 3/8-18 NY-LOCK NUT
 (37) 3/8 PLAIN WASHER
 (38) 1/2-13 x 1 3/4 SOC SCR
 (39) 1/2-13 x 1 3/4 SO HD BOLT
 (40) 1/2-13 x 1 3/4 HEX SCR
 (41) 1/2-13 NY-LOCK NUT
 (42) 1/2 PLAIN WASHER
 (43) 3/4-10 HEX NUT
 (44) 3/4-10 HEX NUT
 (45) 3/4-10 HEX NUT
 (46) 3/4-10 SCOTTED HEX NUT
 (47) 1 1/2-18 CD WASHER
 (48) 1 1/2-18 CD WASHER
 (49) 1 1/2-18 CD WASHER
 (50) 1 1/2-18 CD WASHER
 (51) 1 1/2-18 CD WASHER
 (52) 1 1/2-18 CD WASHER
 (53) 1 1/2-18 CD WASHER

C-1037 GATE ARM ADAPTER
 CASTING PART USED ON 5/4 1468
 ESTIMATED ASSEMBLY WEIGHT = 110 LBS.

WESTERN-COLEN-HAYES, Inc.
 GATE-GARD ASSEMBLY
 THE WESTERN-COLEN-HAYES COMPANY
 1000 W. 10TH ST. DENVER, CO. 80202
 D-1046-1

PRODUCT INFORMATION

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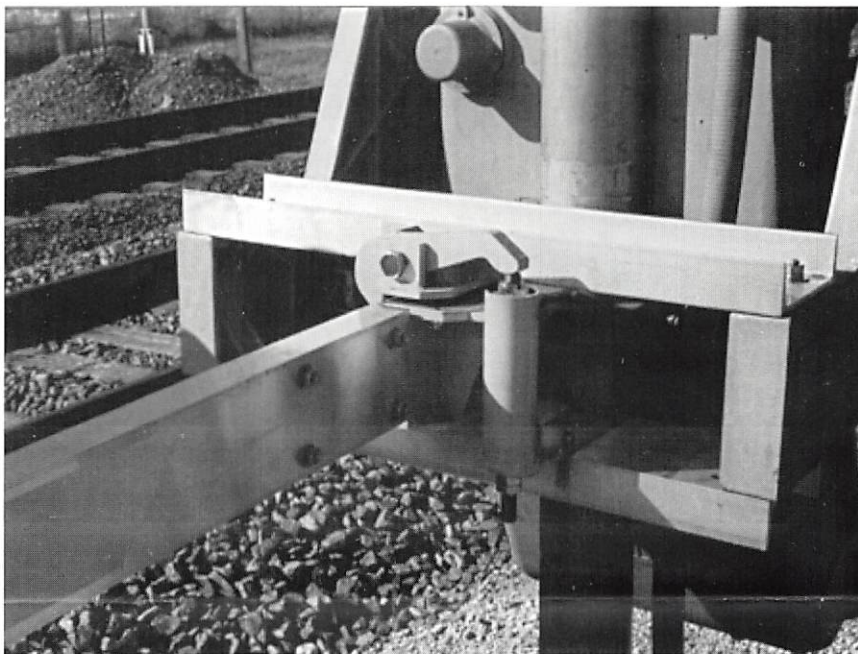
For more information call us,
contact your Sales Person
or visit our web site



The Western-Cullen-Hayes “Gate Gard” Adapter*

If you are concerned with the high cost of replacing damaged crossing gate arms, Western-Cullen-Hayes has a new product that can help reduce those costs.

Our rugged, new, “Gate Gard” adapter permits the gate arm to pivot with the impact of a motor vehicle, and safely return to its normal horizontal position, even with arms as long as forty feet. The unique latch design of the “Gate Gard” reduces the violent rebound that some ordinary spring loaded adapters can generate.



An easily replaceable shear pin is also included in the “Gate Gard” design to provide more resistance to vertical gate arm rotation in high wind areas.

The “Gate Gard” requires no regular maintenance and can be used with fiberglass or aluminum/fiberglass gate arms. Our design permits the counterweight torque to be set properly for gate arms up to forty feet long. Proper torque settings are critical to the operation of gate mechanisms. Improper torque adjustment can cause premature wear of mechanism gears and other components.

Contact Western-Cullen-Hayes for pricing and availability of the “Gate Gard”.

*Patent Applied For