SECTION 32 31 09

GATE OPERATORS, COMMERCIAL ELECTROMECHANICAL

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\*\* NOTE TO SPECIFIER \*\* HySecurity Gate Operators; automated gate systems.  
This section is based on the products of HySecurity Gate Operators, which is located at:  
6705 S. 209 St. Suite 101  
Kent, WA 98032-2327  
Toll Free Tel: 800-321-9947  
Tel: 253-867-3700  
Fax: 253-867-3702  
Email: [request info (sales@hysecurity.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=HySecurity+Gate+Operators&coid=33166&rep=&fax=253-867-3702&message=RE:%20Spec%20Question%20(02836hys):%20%20&mf=)  
Web: <http://www.hysecurity.com>   
 [ [Click Here](http://www.arcat.com/arcatcos/cos33/arc33166.html) ] for additional information.  
HySecurity and Nice automated gate systems and accessories are installed where high performance, highest reliability, longest life, and lowest maintenance are demanded. These automated gate systems cycle residential, commercial, industrial, barrier arm gate operators and anti-terrorist vehicle barriers around the world. Our rigorous quality control systems, managed by highly-certified Quality Managers and staff ensure unparalleled installer and end user performance and reliability.  
All HySecurity and Nice products offer extensive programmable functionality, allowing installers to dial in site-specific functionality.  
HySecurity and Nice products cycle several hundred thousand gates at single family residences, commercial facilities, most U.S. international airports, the Pentagon, Fort Knox, petrochemical facilities, utilities, server farms, and traffic / parking control applications in the United States and around the world.  
HySecurity was acquired in 2016 by The Nice Group, resulting in the merger of HySecurity and Nice USA. Nice USA added residential, rural and solar linear actuators to the HySecurity commercial through anti-terrorist product lines. Installers know many of those operators under their former Apollo brand name. The combined U.S. entity offers the most extensive product line in the United States.  
HySecurity and Nice USA are represented worldwide by a network of highly skilled and professional distributors and installers. Together, we offer national and international, sales, technical, specification and system design support.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Commercial slide gate operators.
    2. Commercial swing gate operators.
    3. Commercial barrier arm Operators.
    4. Commercial wedge and barrier arm operators.
    5. Required monitored entrapment sensors.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 32 31 13 - Chain Link Fences and Gates.
    2. Section 03 30 00 - Cast-in-Place Concrete.
    3. Section 26 05 23 - Control-Voltage Electrical Power Cables.
    4. Section 48 00 00 - Electrical Power Generation.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
       1. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
       2. ASTM F2200 - Standard Specification for Automated Vehicular Gate Construction.
       3. ASTM F2656 - Standard Test Method for Crash Testing of Vehicle Security Barriers
    2. National Electrical Code (NEC):
       1. Fieldwork to be performed and completed to journeyman standards.
    3. Underwriters Laboratories (UL):
       1. UL 325 - ANSI/CAN/UL Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data and Shop Drawings: Under the provisions of Section 01 3300.
        1. Connections to adjacent construction.
        2. Range of travel.
        3. Electrical and mechanical connections to operator.
        4. Underground runs of electrical lines and inductive vehicle obstruction loop locations.
        5. Size and location of the concrete mounting pad.
     3. Installation instructions: Two copies of manufacturer's installation instructions for this specific project.
     4. Manufacturer's completed warranty registration form.
     5. Project List: Product installations comparable to project specified. Include date of product installation, installer, and owner's name and location of the project.
     6. Test Reports: Affidavits from manufacturer demonstrating gate operator mechanisms have been tested to 200,000 cycles without breakdown.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum three years documented experience with projects of similar scope and complexity.
        1. Proof of attending HySecurity Technical Training in the past three years, or other significant manufacturer endorsement of technical aptitude, if required, during the submittal process.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
     3. Store products upright in the original shipping containers, covered, ventilated and protected from all weather conditions.
  4. WARRANTY
     1. To ensure validation of warranty, complete warranty registration form online at www.hysecurity.com/warranty. Warranty registration form is also included in the printed materials shipped with the operator.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: HySecurity Gate Operators, which is located at: 6705 S. 209 St. Suite 101; Kent, WA 98032-2327; Toll Free Tel: 800-321-9947; Tel: 253-867-3700; Fax: 253-867-3702; Email: [request info (sales@hysecurity.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=HySecurity+Gate+Operators&coid=33166&rep=&fax=253-867-3702&message=RE:%20Spec%20Question%20(02836hys):%20%20&mf=); Web: <http://www.hysecurity.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. PERFORMANCE REQUIREMENTS
     1. Operators shall comply with UL 325 and be listed by a nationally recognized testing laboratory.
     2. Complete all electrical work according to local codes and National Electrical Code.
     3. Provide multiple external sensors capable of reversing the gate in either direction upon sensing an obstruction.
     4. Gate shall comply with ASTM F2200.
     5. Gate shall be designed and labeled for specific usage classes.

\*\* NOTE TO SPECIFIER \*\* Operators manufactured by HySecurity are intended for use in controlling vehicular traffic and are not intended to be used by pedestrians or to control pedestrian traffic. Always install a separate pedestrian gate.

* 1. COMMERCIAL GATE OPERATORS
     1. Common All Models:
        1. Solid State Control Board: Smart DC controller.
           1. Electronic Circuit Boards: Conformal coated to resist moisture induced failures.
           2. Inherent entrapment sensor.
           3. Audible "warn before operate" system built in alarm.
           4. Built in timer to close.
           5. Liquid Crystal Display (LCD): 32 character reporting functions and codes with 5 button user interface.
           6. Electromechanical and Solid State Relays: With multiple programmable output relay options.
           7. Anti-tailgate mode.
           8. Built-in power surge/lightning strike protection.
           9. Multi-stage intelligent battery charging under microprocessor control.
           10. Menu configuration: Event logging and system diagnostics

Easily accessible with a PC and HySecurity's free Smart Touch Analyze and Retrieve Tool.

* + - * 1. Peripheral Connection:

RS-232 port for laptop or other peripheral.

RS-485 connection for network interface.

* + - * 1. Dual Gate Communication Connection: For bi-parting, sally port, or sequenced gates.
        2. Radio option outputs.
        3. 15 inputs for site specific configurations.
        4. Pulse width modulated control of brushed DC motor using 110 A rated solid state switching devices.
      1. Motor: 1/2 hp brushed DC motor with ball bearings.
      2. Transformer: 250 VA, dual voltage (N/A for solar models).
      3. Input power: 115V, 208V/230V Field selectable. 24V solar panels for solar models.
      4. Accessory power: 12 VDC and 24 VDC.

\*\* NOTE TO SPECIFIER \*\* Delete paragraphs not required.

* + 1. Commercial Slide Gate Operators:

\*\* NOTE TO SPECIFIER \*\* Delete model options not required.

* + - 1. Basis of Design Model: SlideSmart DC 10F as manufactured by HySecurity.
      2. Basis of Design Model: SlideSmart DC 15 as manufactured by HySecurity.
      3. Basis of Design Model: SlideSmart DC HD25 as manufactured by HySecurity.
      4. Basis of Design Model: SlideSmart DC HD30 as manufactured by HySecurity.
      5. Operation: Brushed DC electric motor driving a single reduction gear reducer with an output sprocket driving No. 40 plated roller chain.
         1. When Gate is Stopped: Motor applies a brake to drive assembly which inhibits any forced, manual operation of gate.
         2. Monitoring: Gate position is constantly monitored allowing for automatic reposition if motion is detected without operator receiving a run command.
         3. Opening and Closing Speeds: User adjustable; 1.75, 2.0, or 2.25 ft/s (533, 609, or 685 mm/s).
         4. Gate Size: Up to 40 ft (12,192 mm) and weighing up to 1,000 lb (685 kg).
         5. Power Failure Operation: Uninterruptible power supply mode to extent the two 8 Ah batteries can maintain adequate power.
      6. Standard Mechanical Components:
         1. Two-piece linear low density polyethylene cover with top locking latch. Protects bystanders from pinch hazards of roller chain traveling through idlers and drive sprocket.
         2. Frame: 10 ga (3 mm) or greater steel plate, welded.

Finish: Zinc plated. Other components zinc plated or non-corroding.

* + - * 1. Gear Reducer: Filled with synthetic lubricant allowing operation down to - 13 degrees F (- 25 degrees C) without a heater.
        2. Position Sensing Device: For setting the limit position and maintaining position in non-volatile memory.
        3. Magnetic absolute position sensor to verify the gate position.
        4. Roller Chain: Zinc or nickel plated No. 40 with mounting brackets and connecting hardware.

\*\* NOTE TO SPECIFIER \*\* Delete configuration options not required or delete entire subparagraph.

* + - 1. Optional Configurations:
         1. Solar Ready Model: SlideSmart DCS 10F.
         2. Solar Ready Model: SlideSmart DCS 15.
         3. Solar Ready Model: SlideSmart DCS HD25.
         4. Solar Ready Model: SlideSmart DCS HD30.
         5. Extended battery backup using two 50Ah batteries with base riser.
      2. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Hy5B plug in type vehicle detectors.
        2. Hy8Relay providing eight additional programmable user relay outputs.
        3. Communications package delivering Internet Protocol (RJ-45 copper or SFP fiber), managed switch and web-based interface to operator via HyNet Gateway.
        4. Base riser.
        5. Post mount bracket.
      1. Warranty: Against all defects in materials or workmanship for five years after the date of installation.
         1. For single-family residential applications the warranty will be seven years after the date of shipment from the manufacturer.
         2. Defective Material: Replaced at manufacturer's discretion with new or reconditioned materials furnished by manufacturer, at no cost to Owner.
         3. Freight, labor and other incidental costs are not covered under the factory warranty but may be covered by a separate service agreement between installing company and the owner.
    1. Commercial Swing Gate Operators
       1. Basis of Design Model: SwingSmart DC 20 as manufactured by HySecurity.
       2. Operation: Brushed DC electric motor driving a double reduction gear reducer with 600:1 ratio and an articulating arm to rotate from 0 to 90 degrees.
          1. Closing action of articulating arm must cause gate to be mechanically locked in place without using externally operated electric or mechanical locks.
          2. Opening and Closing Cycle Times: 10 to 15 seconds. Time will vary depending on gate size and weight.
          3. Gear Reducer Output: Protected from excessive torque loads by an adjustable breakaway torque limiter. Also functions as emergency means of opening gate.
          4. Power Failure Operation: Uninterruptible power supply mode to extent the two 8Ah batteries can maintain adequate power.
       3. Capacities per Gate Size:
          1. Gate, 12 ft (3,657 mm): 1,300 lbs (590 kg).
          2. Gate, 16 ft (4,876 mm): 800 lbs (363 kg).
          3. Gate, 20 ft (6,096 mm) Maximum Length: 600 lb. (272 kg).
       4. Standard Mechanical Components:
          1. Two-piece linear low density polyethylene cover with locking toggle action latches. Access to electronics does not require removal of gate arm linkage.
          2. Articulating Linkage: For actuation of gate with covers to protect bystanders from pinch hazards and provision to bolt linkage as well as weld linkage. Spherical connection at gate
          3. Frame: 1/4 inch (6 mm) thick steel plate, welded.
          4. Finish: Frame to be zinc plated. Other components zinc plated or non-corroding.
          5. Gear Reducer: Filled with synthetic lubricant allowing operation down to - 13 degrees F (- 25 degrees C) without a heater.
          6. Easily adjustable limit switches to limit travel in each direction.

\*\* NOTE TO SPECIFIER \*\* Delete configuration options not required or delete the entire subparagraph.

* + - 1. Optional Configurations:
         1. Solar Ready Model: SwingSmart DCS 20.
         2. Extended battery backup using two 50Ah batteries.
      2. Available Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Hy5B plug in type vehicle detectors.
        2. Hy8Relay provides eight additional programmable user relay outputs.
        3. Communications package delivering Internet Protocol (RJ-45 copper or SFP fiber), managed switch and web-based interface to operator via HyNet Gateway.
      1. Warranty: Against all defects in materials or workmanship for five years after the date of installation.
         1. For single-family residential applications the warranty will be seven years after the date of shipment from the manufacturer.
         2. Defective Material: Replaced at manufacturer's discretion with new or reconditioned materials furnished by manufacturer, at no cost to Owner.
         3. Freight, labor and other incidental costs are not covered under the factory warranty but may be covered by a separate service agreement between installing company and the owner.
    1. Commercial Barrier Arm Operators

\*\* NOTE TO SPECIFIER \*\* Delete model option not required.

* + - 1. Basis of Design Models: StrongArm Park DC 10 as manufactured by HySecurity.
      2. Basis of Design Models: StrongArm Park DC 14 as manufactured by HySecurity.
      3. Operation: Brushed DC electric motor with an integral primary spur gear reducer driving a single reduction gear reducer with the gate arm mount fixed to the output shaft via a splined connection.
         1. The motor to contain an integral position feedback encoder where limits are set in software.
         2. Include provisions for re-establishing previously set limits in the event of power failure.
         3. Operator capable of handling arms up to 14 ft (3,048 mm) in length made from extruded aluminum, wood, or PVC.
         4. Travel Time: Adjustable as fast as 1.5 seconds from fully closed to fully open position.
         5. Power Failure Operation: Uninterruptible power supply mode to extent the two 8Ah batteries can maintain adequate power.
      4. Standard Mechanical Components:
         1. Chassis: 14 gauge (2 mm) galvanized steel.
         2. Cover: 14 gauge (2 mm) galvanized steel with keyed lock.
         3. Finish: Textured TGIC polyester powder coat finish in white, proven to withstand 1,000 hour salt spray test.
         4. Gear Reducer: Filled with synthetic lubricant allowing operation down to - 13 degrees F (- 25 degrees C) without a heater.
         5. Gear Reducer: No. 60 with splined output shaft.
         6. Arm Striping: Highly reflective alternating red and white vertical stripes, 16 inch (406 mm) intervals measured horizontally per MUTCD standards.
      5. Barrier Arms:
         1. Arm Bracket for Wood Arm: 1 x 4 inch (25 x 102 mm).
         2. Arm Bracket for Square PVC Arms: 2.5 inch (63 mm).
         3. Single Piece Aluminum Arms: 1-1/2 x 3-1/4 inch (38 x 82 mm); 8, 9, or 10 ft (2,438, 2,743 mm or 3,048 mm) long.

LED light strip on top surface.

Rubber bumper on lower surface.

Mounted to a hinged mount with a proximity sensor that stops further arm movement and is capable of sending a signal indicating the arm has been hit.

* + - * 1. Articulating Arm: 1-1/2 x 3-1/4 inch (38 x 82 mm); 7, 8, or 9 ft (2,133, 2,438, or 2,743 mm) clearance.

Optional LED light strip on top surface.

Rubber bumper on lower surface.

May be shortened as needed.

Mounted to a hinged mount with a proximity sensor that stops further arm movement and is capable of sending a signal indicating the arm has been hit.

\*\* NOTE TO SPECIFIER \*\* Delete configuration option not required or delete entire subparagraph.

* + - * 1. Optional Configurations:

Solar Model: StrongArm Park DCS 10.

Solar Model: StrongArm Park DCS 14.

* + - 1. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Textured polyurethane finish in chosen color over G60/G90 galvanized steel, proven to withstand 1,000 hour salt spray test.
        2. Warn-before-operate buzzer.
        3. Hy5B plug in type vehicle detectors.
        4. Hy8Relay provides eight additional programmable user relay outputs.
        5. Communications package delivering Internet Protocol (RJ-45 copper or SFP fiber), managed switch and web-based interface to operator via HyNet Gateway.
      1. Warranty: Against all defects in materials or workmanship for two years or 1,000,000 gate cycles (whichever occurs first) after the date of installation.
         1. Defective Material: Replaced at manufacturer's discretion with new or reconditioned materials furnished by manufacturer, at no cost to Owner.
         2. Freight, labor and other incidental costs are not covered under the factory warranty but may be covered by a separate service agreement between installing company and the owner.
    1. Commercial Wedge and Barrier Arm Operators
       1. Basis of Design Model: WedgeSmart DC as manufactured by HySecurity.
       2. Barrier Plate Operation: Brushed DC electric motor driving a double reduction gear reducer with wedge plate connected to output shaft by means of link chain and sprocket.
          1. Compression Spring: Utilized to offset the load imposed by the plate.
          2. Motor contains integral position feedback encoder. Limits are set in software.
          3. Provisions for automatically re-establishing previously set limits in event of power failure.
          4. Power Failure Operation: Uninterruptible power supply mode to extent the two 50 Ah batteries can maintain adequate power.
          5. The load of a vehicle hitting the plate up to its rated load to be taken into the road surface rather than being transferred to equipment structure.
          6. Open/Close Time: Adjustable as fast as 5.0 seconds from fully closed to fully open position.
          7. Engineered to meet ASTM F2656 and FS30 rating.
       3. Barrier includes integral barrier arm to help regulate traffic flow across barrier. The barrier arm must operate independently of barrier plate.
       4. Barrier Arm: Brushed DC electric motor with an integral primary spur gear reducer driving a single reduction gear reducer with the gate arm mount fixed to the output shaft via a splined connection.
          1. The motor contains an integral position feedback encoder.
          2. Limits are set in software. Include provisions for re-establishing previously set limits in event of power failure.
          3. Maximum Arm Length: 10 ft (3,048 mm).
       5. Standard Mechanical Components:
          1. Chassis: 1/4 inch (6 mm), 12 gauge (3 mm) and 14 gauge (2 mm) mild steel.
          2. Cover: 14 gauge (2 mm) galvanized steel with keyed lock.
          3. Finish: Zinc plated, and then textured TGIC polyester powder coat finish in white, proven to withstand 1,000 hour salt spray test.
          4. Gear Reducer: Filled with synthetic lubricant allowing operation down to - 13 degrees F (- 25 degrees C) without a heater.
          5. Arm Striping: Highly reflective alternating red and white vertical stripes, 16 inch (406 mm) intervals measured horizontally per MUTCD standards.
          6. Polyurethane pads on bottom of wedge plate.

\*\* NOTE TO SPECIFIER \*\* Delete plate width options not required.

* + - 1. Plate Width: For 9 ft (2,743 mm) lanes.
      2. Plate Width: For 10 ft (3,048 mm) lanes.
      3. Plate Width: For 12 ft (3,657 mm) lanes.
      4. Plate Width: For 14 ft (4,267 mm) lanes.
      5. Barrier Arms:

\*\* NOTE TO SPECIFIER \*\* Delete barrier arm option not required and arm lengths not required.

* + - * 1. Single Piece Aluminum Arm: 1-1/2 x 3-1/4 inch (38 x 82 mm).

Length: 9 ft (2,743 mm) long.

Length: 10 ft (3,048 mm) long.

LED light strip on top surface.

Rubber bumper on lower surface.

* + - * 1. Articulating Arm: 1-1/2 x 3-1/4 inch (38 x 82 mm).B633

Length: 7 ft (2,133 mm) clearance. May be shortened as needed.

Length: 8 ft (2,438 mm) clearance. May be shortened as needed.

Length: 9 ft (2,743 mm) clearance. May be shortened as needed.

\*\* NOTE TO SPECIFIER \*\* Delete optional configuration if not required.

* + - 1. Optional Configuration: Solar Model, WedgeSmart DCS.
      2. Options:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. Battery mount kit to relocate batteries to rear of chassis if side door is obstructed.
        2. Additional rear mounted red and green traffic light assembly for bi-directional traffic.
        3. Hy5B plug in type vehicle detectors.
        4. Hy8Relay provides eight additional programmable user relay outputs.
        5. Communications package delivering Internet Protocol (RJ-45 copper or SFP fiber), managed switch and web-based interface to operator via HyNet Gateway.
      1. Warranty: Against all defects in materials or workmanship for two years or 500,000 gate cycles (whichever occurs first) after the date of installation.
         1. Defective Material: Replaced at manufacturer's discretion with new or reconditioned materials furnished by manufacturer, at no cost to Owner.
         2. Freight, labor and other incidental costs are not covered under the factory warranty but may be covered by a separate service agreement between installing company and the owner.
    1. Monitored Entrapment Sensors: For meeting UL 325.
       1. Independently monitored safety devices installed on each automated gate system.
          1. Refer to UL 325 for use and placement of monitored safety devices for each gate type.
          2. Identify possible entrapment zones in automated gate system and use approved safeties to mitigate any entrapment hazards.
          3. The operator to monitor for the presence of each safety device at least once during each open and close cycle.

\*\* NOTE TO SPECIFIER \*\* Refer to manufacturer's instructions for a complete and updated list of approved sensors. Delete safety devices not required.

* + - 1. Acceptable Monitored Safety Devices:
         1. Photo Eyes: Omron E3K-R10K4-NR.
         2. Photo Eyes: EMX NIR-50-325.
         3. Photo Eyes: EMX IRB-RET.
         4. Photo Eyes: EMX IRB-MON.
         5. Photo Eyes: Seco-Larm E-931-S50RRGQ.
         6. Photo Eyes: Seco-Larm E-960-D90GQ.
         7. Gate Edge Sensors: ASO Safety Sentir Series.
         8. Gate Edge Sensors: Miller Edge CPT210-2U-No-T2.
         9. Gate Edge Sensors: Miller Edge The Solution - MIM-62.
         10. Gate Edge Sensors: Transmitter Solutions iGAZE RE Kit.
         11. Gate Edge Sensors: EMX WEL-200.
  1. FACTORY TESTING
     1. Assemble and test, each gate operator at factory, assuring smooth operation, sequencing and electrical connection integrity.
     2. Mechanical Connections: Check for tightness and alignment.
     3. Welds: Check for completeness and continuity.
     4. Finishes: Inspect for completeness. Touch up imperfections prior to shipment.
     5. Electrical Wiring: Inspect and assure chafing cannot occur during shipping or operation.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Confirm concrete mounting pad is located per approved shop drawings and in compliance with local building codes.
      2. Make sure gate is operating smoothly under manual conditions before installation of gate operators. Do not proceed until gate panel is aligned and operates without binding.
   3. INSTALLATION
      1. Install gate operator in accordance with the safety regulations and the manufacturer's product literature and installation instructions, current at the time of installation. Coordinate locations of operators with contract drawings; other trades and shop drawings.
      2. Installer shall ensure that the electrical service to the operator is at least 20 A. Electrical wiring to conform to NEC and manufacturer's installation instructions. SlideDriver 15 is 1500 W.
   4. FIELD QUALITY CONTROL
      1. Test operator through ten full open and close cycles and adjust for operation without binding, scraping or uneven motion. Test limit switches for proper open and close limit positions.
      2. Fully tighten all anchor bolts in the finished installation.
      3. Owner, or owner's representative, to complete "check list" with installing contractor prior to final acceptance of the installation and submit completed warranty documentation to manufacturer.
   5. CONTINUED SERVICE AND DOCUMENTATION
      1. Train owner's personnel on how to safely shut off electrical power, release and manually operate the gate.
         1. Demonstrate general maintenance of gate operator and accessories and provide one copy of "Programming and Operations Manual" for the owner's use.
         2. Manuals will identify parts of equipment for future procurement.
         3. Direct maintenance personnel to the technical support sections on manufacturer's website.

END OF SECTION