

SECTION 11150 - PARKING CONTROL EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Entry stations (ticket dispensing device).
 - 2. Entrance and exit barrier gates.
 - 3. Vehicle detectors and loops sensors.
 - 4. Parking management software system, installed on existing facility management computer system.
 - 5. Ticket reader, fee computer system, fee display.
 - 6. Placards and warning signs directly associated with equipment of this section (non-illuminated).
- B. See Division 13 Section "Parking Control Booths" for attendants' parking booths.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include details of installation.
 - 1. Include wiring diagrams.
- C. Operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Preinstallation Conference: Conduct conference at Project site.

1.4 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Gate Arms: One breakaway gate arm for each gate installed, complete with accessory components.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturers:
 - 1. Provide products manufactured by indicated companies.

2. Submit Prior Approval request for other proposed manufacturers, with complete descriptive data.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:
 1. Sheet: ASTM B 209 (ASTM B 209M).
 2. Extruded Shapes: ASTM B 221 (ASTM B 221M).
- B. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- C. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, commercial quality, with G60 (Z180) coating designation; mill phosphatized.
- D. Anchorages: Anchor bolts, hot-dip galvanized according to ASTM A 153/A 153M.

2.3 ENTRANCE / EXIT BARRIER GATES

- A. General: Provide UL-approved parking control device consisting of operator and controller housed in cabinet enclosure with gate arm. Device shall be activated by a signal from access device and/or attendant. Fabricate unit with gate arm height in down position of not more than 35 inches (889 mm) to prevent even small vehicles from passing under gate arm.
 1. Controller: Factory-sealed, solid-state, plug-in type, with galvanized steel box for wiring connections. Equip unit with the following features:
 - a. Capable of storing successive inputs and sequentially processing each one.
 - b. Automatic instant-reversing mechanism that stops downward motion of gate arm if arm strikes an object and that immediately returns arm to upward position. Include a 0- to 60-second variable-time reset device.
 - c. Automatic-manual switch.
 - d. Differential counter.
 - e. Directional arming logic.
 - f. Data communication port.
 - g. Broken gate-arm monitoring.
 - h. Programmable timer.
 - i. Plug-in connectors for vehicle loop detectors.
 - j. Vehicle loops.
- B. Basis-of-Design manufacturer 'Amano Cincinnati, Inc.', product AGP-1700 Series.
- C. Cabinets: Fabricated from metal sheet with seams welded and ground smooth; approximately 15 inches square by 40 inches (381 mm square by 1016 mm) tall. Provide single, gasketed access door for each cabinet with flush-mounted locks. Furnish two keys for each lock, all locks keyed alike. Fabricate cabinet with internal reinforcing and four mounting holes accessible only from inside cabinet.
 1. Material: 0.0966-inch- (2.5-mm-) thick steel sheet or 0.125-inch- (3.2-mm-) thick aluminum sheet.
 - a. Finish cabinet, interior and exterior, with manufacturer's standard yellow baked-enamel finish over primer.
- D. Straight Gate Arm: Manufacturer's standard wooden arm with breakaway feature to ensure clean break if arm is struck by vehicle. Provide painted finish and black diagonal stripes on traffic-side face. Length: 12 feet (3.7 m) or as indicated on Drawings.

- E. Operator: 1/2 hp; 120V, 60 Hz, single-phase, instant-reversing, continuous-duty motor for operating gate arm. Transmit power to gate-arm drive shaft through speed reducer to harmonic-acting crank and connecting rod. Fabricate crank, rod, and drive shaft of galvanized solid bar steel. Provide an operable cam for adjusting arm travel.

2.4 VEHICLE DETECTORS

- A. Vehicle Loop Detector System: Provide self-tuning electronic detector with adjustable detection patterns, adjustable sensitivity and frequency settings, and panel indicator light designed to detect presence or transit of a vehicle over an embedded loop of wire and to emit signal activating gate-arm operator. Include automatic closing timer with adjustable time delay before closing, timer cut-off switch, and vehicle loop detector designed to open and close gate arm, and to hold gate arm open until traffic clears (depending on gate function). Provide number of loops consisting of multiple strands of wire, number of turns, loop size, and method of placement at location shown on Drawings, as recommended in writing by detection system manufacturer for function indicated.

- 1. Field-Assembled Loop: Wire, in size indicated for field assembly, and sealant; style for saw-cut installation.

- B. Vehicle Presence Detector: Provide retroreflective or emitter/receiver-type detector with adjustable detection zone pattern and sensitivity, designed to detect the presence or transit of vehicle in gate-arm pathway by interrupting infrared beam in zone pattern and to emit signal activating gate-arm operator. Include automatic closing timer with adjustable time delay before closing, timer cut-off switch, and vehicle presence detector designed to open and close gate arm or hold gate arm open until traffic clears (depending on gate function).

2.5 TICKET DISPENSERS: Amano AGP-2000 Entry Station, with options and features for manual issuance of tickets (push button) and badge reading.

2.6 ENTRY STATION.

- A. Basis-of-Design Unit: Amano AGP-2050.

2.7 FEE COMPUTER

- A. Basis-of-Design: Amano AGP-5200 series.
 - 1. Stand-alone capability, and communicating with Facility Management Software System.
 - 2. For Exit Cashiering with AGP-5600 validator.

2.8 VALIDATOR

- A. Basis-of-Design: Amano AGP-5600.

2.9 FEE INDICATOR

- A. Basis-of-Design: Amano AGP-5900 series.

2.10 CABINETS:

- A. Fabricated from metal sheet with seams welded and ground smooth; approximately 15 inches square by 40 inches (381 mm square by 1016 mm) tall. Provide single, gasketed access door for each cabinet with flush-mounted locks.

- B. Furnish two keys for each lock, all locks keyed alike. Fabricate cabinet with internal reinforcing and four mounting holes accessible only from inside cabinet.

2.11 ACCESSORIES

- A. General: Provide manufacturer's standard and specialized accessories as required for proper installation and operation of the devices.
- B. Signage: Provide painted aluminum sign panels as required to inform and warn approaching drivers of device's operation and hazards.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine roughing-in for electrical systems to verify actual locations of connections before parking control equipment installation.
- B. Automatic Barrier Gates: Anchor cabinets to concrete bases with anchor bolts or expansion anchors and mount barrier-gate arms.
- C. Entry Stations: Anchor cabinets to concrete bases with anchor bolts or expansion anchors
- D. Vehicle Loop Detectors: Cut grooves in pavement and bury and seal wire loop at locations indicated on Shop Drawings. Connect to parking control equipment operated by detector.
- E. Adjust parking control equipment to operate smoothly, easily, and properly. Confirm that locks engage accurately and securely without forcing or binding.
- F. Lubricate hardware, gate operators, and other moving parts.
- G. Control Equipment: Coordinate with layout and arrangement of workspace of Control Booth specified in Section 13046. Install control equipment in Control Booth and attach firmly to structure.
- H. Remove barrier-gate arms during the construction period to prevent damage, and install them immediately before Substantial Completion.

3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections. Report results in writing.
- B. Perform the following field tests and inspections and prepare test reports:
 - 1. Each electrical test and visual and mechanical inspection shall be stated in NETA ATS, Section 7.15 and compliance with test parameters shall be certified.
 - 2. Operational Test: After electrical circuitry has been energized, units shall be started to confirm proper motor rotation and unit operation.
 - 3. Controls and safeties shall be tested and adjusted. Report any damaged and malfunctioning controls and equipment.

- C. Remove and replace parking control equipment where test results indicate that it does not comply with specified requirements.

3.3 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain parking control equipment.

END OF SECTION 11150