

SECTION 18320

POWER SWITCH AND LOCK MOVEMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Section includes requirements for dual control switch and lock movement, including switch target, for each interlocked track switch at new switch locations as shown on the Drawings. In addition, relocate existing switch machines where indicated on the Contract Drawings
- B. Refer to Division 19, Trackwork, for track construction requirements.

1.02 REFERENCE STANDARDS

- A. American Railway Engineering and Maintenance of Way Association (AREMA):
 - 1. Communications and Signals Manual of Recommended Practices (C&S Manual). When following the recommendations of the AREMA C&S Manual substitute the word "shall" for the word "should" in the applicable Manual Part.

1.03 SUBMITTALS

- A. Submit installation drawings showing the tie straps and the mounting details of the switch and lock movement, including the connections to the track switch points and target.
- B. Submit Acceptance Test documentation on switch and lock movement prior to shipment of the movements.
- C. Submit copies of all field test reports.

1.04 QUALITY ASSURANCE

- A. Switch and lock movements shall meet the recommendations of AREMA C&S Manual Part 12.2.1 for dual control high voltage applications, where they do not conflict with any requirements specified herein.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect switch and lock movements and their component layout parts against damage during handling and shipment.
- B. During storage, properly lubricate and maintain switch and lock movement layouts on a regular timed program.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Furnish complete dual control Electric Switch and Lock Movement Layouts, including switch targets.
- B. Contractor-furnished Junction Box shall be RSE 6K1 Model N349656 manufactured by Ansaldo STS USA or Engineer approved equal.
- C. Furnish Insulated Vertical No. 1 Rod with Basket.
- D. Miscellaneous Fittings: Furnish all connectors such as threaded nipples, cable clamps, and electrical fittings as required for each switch and lock movement layout including 18-inch-long, 2-inch-diameter flexible conduit and connectors from movement to junction box.

2.02 SECURITY

- A. Padlocks will be Owner-furnished.

2.03 SOURCE QUALITY CONTROL

- A. Test each switch and lock movement before shipping it to the job site. Conduct this acceptance testing in accordance with the Contractor's Acceptance Test Procedure for switch and lock movements. Submit a copy of the Contractor's documentation of acceptance testing to the Engineer prior to shipping.

PART 3 - EXECUTION

3.01 GENERAL

- A. Mount and adjust the complete switch and lock movement layout as specified herein and as indicated on the Contract Drawings.
- B. Wire control and indication circuits for power-operated switches as shown on the Contract Drawings.

3.02 INSTALLATION

- A. Prior to installation, coat all parts of the switch and lock movement that are not painted, or made of non-corroding material with an approved grease to prevent corrosion. Suitably plug or cap unused threaded outlets.
- B. Where existing concrete ties are not used, install two 14 foot long timber ties for mounting the switch mechanisms where shown on the Contract Drawings. If a helper assembly is required, one of the switch mounting ties shall be 16 foot long.
- C. Prior to mounting the switch mechanism on either concrete or timber ties, align the switch headblock ties at right angles to the straight stock rail, and space the

ties in accordance with the switch shop drawings, and condition the switch points to move without binding.

- D. Install the switch and lock movements at the locations shown on the Contract Drawings.
 - 1. Secure switch and lock movement to the switch ties using eight 7/8-inch bolts.
- E. Remove any ballast necessary for the installation of each switch and lock movement layout and replace and tamp ballast after the installation has been completed. Spread excess ballast evenly between ties in the vicinity of the switch and lock movement layout. Remove ballast from between ties to allow unrestricted movement of switch rods.
- F. Make a preliminary adjustment of switch and lock layout at the time of installation and a final adjustment when placing it in service, which shall result in the adjusting nuts being centered on the threads plus or minus 30 percent of the thread length. Make final adjustment at the time of the functional test. Make final adjustments in conformance with the recommendations of AREMA C&S Manual Parts 12.2.1 and 2.4.1, and the PCJPB Test and Maintenance Manual Chapter 2.
- G. Do not apply power to the motor until the switch machine has been fully lubricated, thrown, and adjusted in hand throw. There shall be no rubbing or binding of switch rods or points on gauge plates, rails or ties. Follow manufacturer's adjustment and installation procedure.
- H. During storage and after installation, properly lubricate and maintain switch and lock movement layouts on a regular timed program until accepted by the Engineer.
- I. Exercise care and ensure that the switches, including switch tie plates, are thoroughly lubricated at all lubricating points, that all machined surfaces susceptible to rusting, both external and internal, are thoroughly coated with grease, as acceptable to the Engineer, and that threaded portions of switch rods and nuts are similarly coated and protected.
- J. Lubricate the switch tie plates with graphite lubricant, as acceptable to the Engineer. Thoroughly steam clean the plates to remove all oil or grease prior to application of the graphite. Periodically renew the protective coating until such time as the Owner assumes responsibility for maintenance of the equipment.

3.03 SECURITY

- A. Install Owner-furnished switch padlocks on trainman's access side of electric locks, and power and hand-throw levers of switch and lock movements.

3.04 TOUCH-UP

- A. Touch-up the finish of equipment described in this Section in accordance with the AREMA C&S Manual, Part 1.5.10. Color shall match factory finish.

3.05 FIELD QUALITY CONTROL

- A. Inspect each switch and lock movement after it has been installed and correct any deficiencies noted. Conduct this inspection in conformance with the requirements of the Contractor's Installation Inspection Procedure as accepted by the Engineer.
- B. Conduct final operational tests of switch and lock movements as described in Section 18600, Signal Systems Testing.

END OF SECTION