## SCRRA NO 14 TURNOUT

### Bill of Materials & Drawing Numbers

<table>
<thead>
<tr>
<th>Item Description</th>
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<tbody>
<tr>
<td>TIE SCREWS CONCRETE</td>
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<td>TIE SCREWS TIMBER</td>
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<tr>
<td>WASHED FLAT</td>
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<tr>
<td>SPRING WASHER DOUBLE COIL</td>
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<td>TIE PLATE PANDROL</td>
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<tr>
<td>E-CLIP PANDROL (E2039)</td>
<td>342</td>
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<tr>
<td>INSULATED PANDROL NYLON MOTO</td>
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<tr>
<td>PANDROL JOUR CLIP (E2063)</td>
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<tr>
<td>INSULATION PANDROL NYLON 6790</td>
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<td>THE PAD PANDROL WASHER</td>
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### Turnout Layout

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<tr>
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### Switch Pack

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### Concrete Tie Layout

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### Hollow Steel Tie Layout

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### Guard Rail Mainline

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### Guard Rail Turnout

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### Insulated Rail Assembly

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### RAIL

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### RH or TO Side SW Machine Operation

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### Appendix

-frog number
-wood or rsw
-concrete or timber ties
-htst or standard ties
-power or manual
-wl or to side sw

### Revision

DIRECTOR OF ENGINEERING AND CONSTRUCTION

ENGINEERING STANDARDS

REVISION STANDARD SHEET

SCALE:

CADD FILE:

ENG.

DES.

DATE

REV.

DESCRIPTION

DRAWN BY:

DATE:

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03/31/2011

ASSISTANT DIRECTOR: STANDARDS & DESIGN

ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
NOTES:
1. All rails shall have wave identification color code painted on web, clear of joint area.
2. Rail lengths allow ½" gap between rail joints for welding.
3. Guard rails are painted 1" and form a 1½" compound.
4. Switch machine and machine plate (wh) must be coordinated with SCRA.
5. All lengths shall exclude 1½" from the ends to rail centerline except as noted and 180 cant.
6. Guards are welded with double coil spring washers in place.
7. Guards shall be installed and adjusted in the field.
8. Ties are insulated joint (w) welded joint.
9. All rails shall have identification color code painted on web, clear of joint area.

TOTAL LENGTH: 25'-0"
HINGED TIE SCREW: CONCRETE 1" DIA x 6" HEX HEAD
SPRING WASHER DOUBLE COIL (Fe6)

NO 14 - 136 LB RE RH WSM FROG TURNOUT
HST, SWITCH MACHINE ON MAINLINE SIDE

DESIGN SPEEDS:
35 MPH PASSENGER @ 3" UNBALANCE
130 MPH SWITCH MACHINE @ 3" UNBALANCE
### BILL OF MATERIAL

<table>
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<tr>
<th>Item</th>
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<th>DWG No</th>
<th>SCRA Part No</th>
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<td>SWITCH PACK NO. 14-136</td>
<td>G10-61201</td>
<td>BP2</td>
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<td>2</td>
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<td>PROG. PACK NO. 14-136</td>
<td>SF14-136-65RC</td>
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<td>3</td>
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<td>GUARD RAIL ASSEMBLY, BOLTLESS, 28'-0&quot; LONG, 156 LB RE, RATED 1 1/2 STRAIGHT</td>
<td>G10-61202</td>
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<td>GUARD RAIL ASSEMBLY, BOLTLESS, 28'-0&quot; LONG, 156 LB RE, RATED 1 1/2 STRAIGHT</td>
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<td>INSULATED RAIL ASSEMBLY, 45'-0&quot; C/W BONDED INSULATED JOINT</td>
<td>SF14-136-66RC</td>
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<td>DRILLED RAIL, 156 LB RE, 30'-0&quot; LONG</td>
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<td>DRILLED RAIL, 156 LB RE, 48'-0&quot; LONG</td>
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### Notes:
1. All parts have identification color code painted on web, clear of joint area.
2. Insulation, Pandrol Nylon 6790
3. Concrete tie set, 0-83 + (3) 1:80 ties, plate pads, PIM inserts, LH
4. Act. lead: 111'-0" actual lead
5. Insulation, Pandrol Nylon 6790
6. Switch machine and machine plate (incl.) must be coordinated with SCRA.
7. All lengths shown are from end to rail centerline, except as noted and 1/80 canted ties.
8. Tighten tie screw with double coil spring washer in place.
9. Insulated roll ties to be installed and adjusted in the field.
10. U-5 0 CIRCUIT

### Turnout Data
- NO. 14
- 111'-0"
- 45'-0"
- 40'-0"

### Engineering Standards
- SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
- METROLINK
- TURNOUT LAYOUT
- NO. 14-136 LB RE, 14'-3" FROG TURNOUT
- HST, SWITCH MACHINE ON TURNOUT SIDE
NOTES:
1. ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
2. RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
3. GUARD RAILS ARE RATED 1' P AND FORM A 1/8" FLANGEWAY.
4. SWITCH MACHINE AND MACHINE PLATE MUST BE COORDINATED WITH SCRRA.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN THE SCREW WITH DOUBLE COIL SPRING WASHER IS PLACED.
7. SHIM, TO REDUCE PLATE FLEXURE.
8. 1'-7½" PS TO PI.
9. 1'-7½" HVY HEX.
10. 1'-7½" L99-00666.
11. 1'-7½" L99-00666.
12. 1'-7½" G10-08966.
13. 1'-7½" G10-08966.
14. 1'-7½" G10-08966.
15. 1'-7½" G10-08966.
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109. 1'-7½" G10-08966.
110. 1'-7½" G10-08966.
NOTES:
1. SEE DRAWING ES2805-31 FOR THE LOCATION DIMENSIONS.
2. SWITCH RODS SHALL BE PRE-ADJUSTED TO DIMENSIONS SHOWN IN DETAIL FOR EACH ROD LOCATION. MODIFY SPREADS AS NECESSARY WHEN INSTALLING INTO LAYOUT.
NOTES:
1. SEE DRAWING ES2805-31 FOR TIE LOCATION DIMENSIONS
2. SWITCH RODS SHALL BE PREADJUSTED TO DIMENSIONS SHOWN IN DETAIL FOR EACH ROD LOCATION. WOOD SPREADS AS NECESSARY WHEN INSTALLING INTO LAYOUT.
### BILL OF MATERIAL

**ITEM** | **QTY** | **DESCRIPTION** | **PART NO** | **ITEM** | **QTY** | **DESCRIPTION** | **PART NO**
--- | --- | --- | --- | --- | --- | --- | ---
1 | 1 | SAMSON POINT RAIL, 45'-0" Long, UR MANG Tip, SPRAIGHT, LH | | | 10 | BOLT, 1/4" DIA x 2 1/2" LONG, THIN SQ HEAD DRILLED @ 3/8", GR 5 | | 11 | BOLT, 1/4" DIA x 4" LONG, THIN SQ HEAD DRILLED @ 3/8", GR 5 | | 12 | BOLT, 1/4" DIA x 2 1/2" LONG, THIN SQ HEAD DRILLED @ 3/8", GR 5 | | 13 | NUT, 3/8" DIA HEAVY HEX, GR 5 | | 14 | NUT, 1" DIA HEAVY HEX, GR 5 | | 15 | SPRING WASHER, 1/8" OAL | | 16 | SPRING WASHER, 3/8" OAL | | 17 | COTTER PIN, 1/8" DIA x 1 1/2" LONG | | 18 | COTTER PIN, 1/4" DIA x 3" LONG | |

**NOTES:**
1. ROUND EDGES OF SWITCH STOPS AT CONTACT AREAS, 3/8" R.
2. SELECT ALL BOLT HOLE MARKER OR PAINT.
3. WRITE SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.
### Bill of Material

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<th>ITEM</th>
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<td>MANGANESE TP, RH FOR 29'-0&quot;, 136 LB RE SAMSON SWITCH POINT</td>
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<td>REINFORCING BAR, STOCK SIDE, 1/4&quot; x 23'-11&quot; LONG, SAMSON, RH POINT</td>
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<td>POINT STOP 2 1/2&quot; HIGH</td>
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<td>POINT STOP 2 1/2&quot; HIGH</td>
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<td>HEEL BLOCK ASSEMBLY, FLOATING C/W HARDWARE</td>
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<td>BOLT, 1/4&quot; DIA x 4&quot; LONG, SQ HEAD DRILLED @ 3&quot;, GR 5</td>
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<td>COTTER PIN, 1/4&quot; DIA x 1 1/2&quot; LONG</td>
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### Notes:
1. Round edges of switch stops at contact areas, 1/8" R.
2. Drill all bolt holes.
3. Write SCRRA ES number on web of rail with waterproof marker or paint.
rail end/hole beveling detail
rail head only - not base

bending details
5'-8" ± 1/8" overall length

machining details
1. all burning methods prohibited
2. all bolt holes to be beveled per detail
3. point of switch to be marked on gauge side of web
with a white line using waterproof marker or paint
4. write SCRRA ES number on web of rail with waterproof
marker or paint
RAIL END/HOLE BEVELING DETAIL
RAIL HEAD ONLY - NOT BASE

PARTIAL SECTION A

SECTION B

MACHINING DETAILS

NOTES:

1. ALL BURNING METHODS PROHIBITED
2. ALL BOLT HOLES TO BE BEVELED PER DETAIL
3. POINT OF SWITCH TO BE MARKED ON GAUGE SIDE OF WEB
   WITH A WHITE LINE USING WATERPROOF MARKER OR PAINT
4. WRITE SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF
   MARKER OR PAINT.

MATERIAL:
RAIL, 136 LB RE 57'-8" LONG

BILL OF MATERIAL

<table>
<thead>
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<th>ITEM</th>
<th>QTY</th>
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<td>1</td>
<td>1</td>
<td>RAIL, 136 LB RE 57'-8&quot; LONG</td>
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SCRR ENGINEERING STANDARDS
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L.A., CA 90012

METROLINK
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L.A., CA 90012
FOR NO 14 136 LB RE LH SWITCH PACK

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ENGINEERING STANDARDS
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STANDARD
SHEET
SCALE:
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DES.
DATE
REV.
DESCRIPTION
DRAWN BY:
DATE:
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UserName=> carlosa
Date Plotted: 3:53:35 PM
Plot Driver=> S:\Plot Drivers\pdf.plt
FileName=> s:\V8EngStds\2000\Turnouts\No 14 Turnout\ES2805-26.DGN
RAIL END/HOLE BEVELING DETAIL
RAIL HEAD ONLY - NOT BASE

PARTIAL SECTION A

SECTION B

57'-8" ± " OVERALL LENGTH

RAISED ROLLING MARKS THIS SIDE

MARK FOR PS

RUNOUT

1/8" DIA (+1/8" - 0")

4 1/2" RUNOUT

MACHINING DETAILS

NOTES:
1. ALL BURNING METHODS PROHIBITED.
2. ALL BUILT HOLES TO BE BEVELED PER DETAIL.
3. POINT OF SWITCH TO BE MARKED ON GAUGE SIDE OF WEB WITH A WHITE LINE USING WATERPROOF MARKER OR PAINT.
4. WRITE SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.
RAIL END/HOLE BEVELING DETAIL

PARTIAL SECTION

SECTION

RAIL HEAD ONLY - NOT BASE

MARKED ROLLING MARKS THIS SIDE

BENDING DETAILS

MACHINING DETAILS

NOTES:

1. ALL BURLING METHODS PROHIBITED
2. ALL BOLT HOLES TO BE BEVELED PER DETAIL
3. POINT OF SWITCH TO BE MARKED ON GAUGE SIDE OF WEB WITH A WHITE LINE USING WATERPROOF MARKER OR PAINT
4. WRITE SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR
L. A., CA. 90012

RF 2000-14  136 LB RE RH SWITCH PACK

FOR NO 14 136 LB RE RH SWITCH PACK

PART NO

ES2805-28

ENG. DES.

S:\V8EngStds\2000\Turnouts\No 14 Turnout\ES2805-28.DGN

ASSISTANT DIRECTOR: STANDARDS & DESIGN

DIRECTOR OF ENGINEERING AND CONSTRUCTION

REVISION

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03/31/2011

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FileName=>

UserName=>

Date Plotted:
NOTE:
1. SET TO INCLUDE TIES 0, 3 & 6 THROUGH 8 AND 10 THROUGH 83.
2. THREE 1:80 CANTED TIES. TIE PADS FOR ALL PLATES AND PIM INSERTS.
3. TRANSITION TIES (QUANTITY 3) INCORPORATE 1:80 CANTED TIE PLATING.
4. ALL RAIL SEATS ARE FLAT EXCEPT 1:80 CANTED TIES.
5. USE OPPOSITE HAND FOR SWITCH MACHINE ON RH TURNOUT SIDE.
6. USE DRAWING ABOVE FOR TIES 1, 2, 5 AND 9.
NOTES:

1. SET TO INCLUDE TIES 0, 3 & 4. THROUGH 6 AND 10 THROUGH 83.
2. USE 1:80 CANTED TIES. THE PADS FOR ALL PLATES AND PIM INSERTS.
3. TIE SPACING ARE DETERMINED BY ADDING 1'-10" TO BETWEEN STRAIGHT RAIL GAUGE LENGTH ON MAINLINE SIDE.
4. TRANSITION TIES (QUANTITY 3) SHALL INCORPORATE 1:80 CANTED RAIL SEATS AND LENGTH SHALL BE 8'-3".
5. THIS DRAWING SHOWS TIE "O" PLACEMENT FOR SWITCH MACHINE ON RH/MAINLINE SIDE.
6. USE 4'-8" BETWEEN STRAIGHT RAIL SEAT GAUGES. LENGTH SHALL BE 8'-3".
7. TIE LENGTHS ARE DETERMINED BY ADDING 1'-10" FROM RAIL GAUGE LINE (OR 1'-9"
8. TRANSITION TIES (QUANTITY 3) SHALL INCORPORATE 1:80 CANTED RAIL SEATS AND LENGTH SHALL BE 8'-3".
9. ALL TIES ARE FLAT (NON-CANTED) EXCEPT 1:80 CANTED TIES.

BILL OF MATERIALS

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<tr>
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<tbody>
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<td>TIES 1, 2, 5 AND 9, POWER SWITCH MACHINE ON MAINLINE SIDE FOR LH TURNOUT (HOLLOW STEEL)</td>
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<tr>
<td>2.</td>
<td>4</td>
<td>TIES 1, 2, 5 AND 9, POWER SWITCH MACHINE ON MAINLINE SIDE FOR LH TURNOUT (HOLLOW STEEL)</td>
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## Bill of Material

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<td>Rodding Assembly for NO 14-136 LB RE, Switch Machine on Left Side</td>
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<td>2</td>
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<td>Hollow Tie Assembly (HT-1RL-14-136)</td>
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<td>Hollow Tie Assembly (HT-2RL-14-136)</td>
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<td>Hollow Tie Assembly (HT-5RL-14-136)</td>
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<td>Cover Plate No. 1, Hollow Switch Tie</td>
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<tr>
<td>7</td>
<td></td>
<td>LV Brace for 136 LB RE</td>
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<tr>
<td>8</td>
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<td>Separated Washer for LV Brace</td>
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<tr>
<td>9</td>
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<td>Nut, Washer, Cotter, Slotted 1&quot; Hex</td>
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<td>Push Pin Assembly for No Covers</td>
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<tr>
<td>17</td>
<td></td>
<td>Steel Side End Cover Plate Assembly for No Tie</td>
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<td>18</td>
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<td>21</td>
<td></td>
<td>HST Switch Plate HTP-209-R</td>
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<td>22</td>
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<td>HST Switch Plate HTP-206-STR</td>
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<tr>
<td>23</td>
<td></td>
<td>Pillow Block Mounting Plate</td>
</tr>
</tbody>
</table>

*Not shown on assembly for clarity*

## Notes:
1. Switch machine and machine plates (N/E) must be coordinated with SCRRA.
2. See drawing ES2805-73 for center to center pin switch rod dimensions.

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**Section A**: Hollow Tie Top Cover Detail

**Section B**: End Cover Plate

**Section C**: Hollow Tie Side End Cover Detail

**Section D**: Welding Detail

**View**: HST Switch Machine on Mainline Side

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**Engineering Standards**

Hollow Steel Tie Layout

Switch Machine on Mainline Side

No 14-136 LB RE RH

---

**Metrolink**

Southern California Regional Rail Authority

One Gateway Plaza, 12th Floor, L.A., CA 90012

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**SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY**

**DIRECTOR OF ENGINEERING AND CONSTRUCTION**

**ASSISTANT DIRECTOR: STANDARDS & DESIGN**

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**USER NAME => carlosa**

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**Date Plotted:** 10/5/2011

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**HOLLOW TIE ASSEMBLY (HT-1RL-14-136)**

**HOLLOW TIE ASSEMBLY (HT-2RL-14-136)**

**HOLLOW TIE ASSEMBLY (HT-5RL-14-136)**

**HOLLOW TIE ASSEMBLY (HT-9RL-14-136)**

**STEEL COVER PLATE FOR HST TIE, TOP END**

**END COVER PLATE FOR HST TIE, SHORT TOP VERSION**

**PUSH PIN ASSEMBLY FOR HST COVERS**

**STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE**

**COVER SUPPORT BRACKET**

**SERRATED WASHER FOR LV BRACE**

**RAIL ANCHOR UNIT DRIVE-ON TYPE S**

**STEEL COVER PLATE FOR HST TIE, TOP END**

**COVER PLATE NO 1, HOLLOW SWITCH TIE**

**COVER PLATE NO 2, HOLLOW SWITCH TIE**

**COVER PLATE NO 3, HOLLOW SWITCH TIE**

**CLIP, SAFELOK AB 2000**

**LV BRACE FOR 136 LB RE**

**PILLOW BLOCK MOUNTING PLATE**

**CLIP, PANDROL, E2055**

---

**ES2805-32**
NOTE:
1. Switch machine and machine plates (NIC) must be coordinated with SCRRA.
2. See drawing ES2805-75 for center to center pin switch rod dimensions.
NOTES:
1. RETARDER CLOSING TIME RANGES FROM 1 TO 3 MINUTES.
2. SPRING BOX ASSEMBLY WITH 5" MAXIMUM FLANGE TRAVEL.
3. SPRING WING SHALL BE THROWN TO A 1 1/8" FLANGEWAY AT THE ACTUAL POINT TO DETERMINE THE SPRING BOX REMOVED FOR CLARITY.
4. FLAT RAIL BRACES ITEM NO 17 SHALL BE WELDED WHERE SHOWN, IN FRONT OF SPRING BOX WHEN FULLY THROWN.
5. FLAT RAIL BRACES ITEM NO 18 SHALL BE WELDED WHERE SHOWN.
6. ALL RAIL HOLE EDGES SHALL BE ROUNDED WITH A 1/2" R.
7. RAIL END DRILLING SHALL BE AT 1" AND 1'-3"
8. SPRING WING IN THROWN POSITION.
9. SPRING WING RAIL, NO 14-136 LB RE, RH, C/W HARDWARE
10. SPRING BOX LOAD IS 300 LBS/IN.
11. RETARDER CLOSING TIME RANGES FROM 1 TO 3 MINUTES.
12. RETARDER PLATE BRACKET FOR FROG C/W HARDWARE REMOVED FOR CLARITY.
13. SECULAR LOCK NUT, 1" DIA kWh (3259), GR 8
14. RAIL WASHER, FLAT H 1/2"
15. DIRECTOR OF ENGINEERING AND CONSTRUCTION
16. ASSISTANT DIRECTOR: STANDARDS & DESIGN
17. BILL OF MATERIAL
18. TIE PLACEMENT
19. ACTUAL POINT
20. PASS 3 PLACES
21. TIE SPACING
22. SPRING BOX REMOVED FOR CLARITY
23. SPRING BOX DETAIL
24. DETAIL
NOTES:
1. ID CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

FORGED SHOULDER WELDING DETAIL

ENSURE CLEARANCE FOR 1/2" DIA. CLIP

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L.A., CA 90012

METROLINK.

CONCRETE TIES-136 LB RE RAIL

FROG BASE PLATES 14-50LC AND 14-51LC

NO 14 WSM FROG LH

BILL OF MATERIAL

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<td>FLAT BAR ASTM A36 1/2&quot; x 8&quot; x 2'-9½&quot; LONG</td>
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<td>1</td>
<td>FLAT BAR ASTM A36 1/2&quot; x 8&quot; x 2'-7½&quot; LONG</td>
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<tr>
<td>3</td>
<td>4</td>
<td>4</td>
<td>SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1</td>
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NOTES:
1. I.D. CHARACTERS TO BE 1/16" MINIMUM HEIGHT
2. CLEARLY STAMPED AS SHOWN
3. RAILS TO BE DRESSED FLUSH WITH SHOULDER
4. NOT TO PROTRUDE INTO RAIL SEAT
5. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

FROG BASE PLATE 14-136-50RC

FROG BASE PLATE 14-136-51RC

ENSURE CLEARANCE FOR ½" HOLES
NOTES:

1. I.D. CHARACTERS TO BE 1/8" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

FORGED SHOULDER WELDING DETAIL

14-136-52LC

FROG BASE PLATE 14-136-52LC

1. BURNT PLATE, 1/8" THICK
2. BURNT STOP, 1/8" THICK TAPERED 1/8" TO 1/4" 6" LONG
3. BURNT STOP, 1/8" THICK TAPERED 3/8" TO 3/4" 6" LONG
4. SHOULDERS, PANDROL, FORGED TONGULESS, TYPE 1
BUL OF MATERIAL

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<td>BURNED PLATE, ½&quot; THICK</td>
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<td>1</td>
<td>BURNED STOP, ½&quot; THICK TAPERED ⅜&quot; TO ¼&quot; 6&quot; LONG</td>
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<tr>
<td>3</td>
<td>1</td>
<td>BURNED STOP, ⅜&quot; THICK TAPERED ⅜&quot; TO ¼&quot; 6&quot; LONG</td>
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<tr>
<td>4</td>
<td>4</td>
<td>SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1</td>
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FROG BASE PLATE 14-136-52RC

NOTES:
1. I.D. CHARACTERS TO BE ¼" MINIMUM HEIGHT, CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
NOTES:
1. LD CHARACTERS TO BE \( \frac{1}{2} \)" MINIMUM HEIGHT
2. HOLES TO BE DRESSED FLUSH WITH SHOULDERS AND TIPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WEED AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

BILL OF MATERIAL

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<td>BURNT PLATE, ( \frac{1}{8} )&quot; THICK</td>
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<td>1</td>
<td>CAPTURE BLOCK FOR SPRING BOX</td>
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<td>5</td>
<td>CAPTURE BLOCK FOR PLATE CLIP</td>
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<td>4</td>
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<td>CAPTURE BLOCK FOR HORN KEEPER</td>
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<td>5</td>
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<td>FLAT BAR, ASTM A36, ( \frac{1}{8} )&quot; THICK x 3&quot; x 6&quot; LONG</td>
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<td>6</td>
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<td>SHOULDER, FORGED TONGLLESSES, TYPE 1</td>
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ENSURE CLEARANCE FOR \( \frac{1}{8} \)" DIA CLIP

FORGED SHOULDER WELDING DETAIL

FROG BASE PLATE 14-136-55LC

CONCRETE TIES 136 LB RE RAIL
NOTES:
1. I.D. CHARACTERS TO BE \( \frac{1}{8} \)" MINIMUM HEIGHT
2. CLEANSLY STAMPED AS SHOWN.
3. WELDS TO BE DRESSED FLUSH WITH SHOULDER.
4. OPENINGS IN BOLT CAPTURE BLOCKS TO BE FREE OF WELD AND SPATTER.
5. CAPTURE BLOCK FOR PLATE CLIP SHALL BE FREE OF WELD AND SPATTER.
6. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
NOTES:
1. I.D. CHARACTERS TO BE 1⁄2" MINIMUM.
2. WEBS TO BE DRESSED FLUSH WITH SHOULDERS.
3. OPENINGS IN BOLT CAPTURE BLOCKS
   SHALL BE FREE OF WELD AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

D A T U M

FROG BASE PLATE 14-136-62RC

FROG BASE PLATE 14-136-64RC

BILL OF MATERIAL

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<td>FLAT BAR ASTM A36, 3.5&quot; x 8&quot; x 2'-4&quot; LONG</td>
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ENGINEERING STANDARDS
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L.A., CA 90012

CONCRETE TIES-136 LB RE RAIL
FROG BASE PLATES 14-62RC AND 14-64RC
NO 14 WSM FROG RH

ENFORCE CLEARANCE FOR 1⁄8" DIA CLIP
NOTES:
1. ID CHARACTERS TO BE ½" MINIMUM
   HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER &
   NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON
   DRAWING.

ENSURE CLEARANCE FOR ½" SHOE CLIP
NOTES:
1. I.D. CHARACTERS TO BE 1/8" MINIMUM.
2. WELDS TO BE DRIED FLUSH WITH SHOULDER & HEIGHT CLEARLY STAMPED AS SHOWN.
3. SLOTTED HOLES ARE INDICATED ON DRAWING.

FORGED SHOULDER WELDING DETAIL

ENSURE CLEARANCE FOR 1/8" DIA CLIP
### BILL OF MATERIAL FOR SWITCH ROD 14-136-1

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<tr>
<td>2</td>
<td>2</td>
<td>SWITCH CLIP ASSEMBLY, ADJUSTABLE FOR HOLLOW TIE COMPOSITE RODS</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>CONNECTOR LUG FOR POINT DETECTOR/LOCK RODS</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>HUCK BOLT, ½&quot; DIN (C50LR-BR24-36)</td>
<td>-</td>
<td>-</td>
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<tr>
<td>5</td>
<td>2</td>
<td>HUCK COLLAR, ½&quot; DIN (LC-2R24B)</td>
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</table>

### BILL OF MATERIAL FOR SWITCH ROD 14-136-2

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>DWG NO</th>
<th>SCRRA PART NO</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>BLUE ROD, PULTRUDED COMPOSITE, ½&quot; x 2½&quot; x 2'-7&quot; LONG, 14-136-2A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>SWING LUG ASSEMBLY W/ SWITCH, ANTI-ROLLOVER DESIGN LH</td>
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<td>-</td>
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<tr>
<td>3</td>
<td>4</td>
<td>HUCK BOLT, ½&quot; DIN (C50LR-BR24-36)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>HUCK COLLAR, ½&quot; DIN (LC-2R24B)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>SLICE FLYE, FOR BLUE ROD BASKET ASSEMBLY RODS</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>BASKET/ROD ASSEMBLY FOR WT WITH ROTARY ASSIST</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>BLUE ROD, PULTRUDED COMPOSITE, ½&quot; x 2½&quot; x 2'-7&quot; LONG, 2-B ROD</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### MONTAGE

**SWITCH ROD ASSEMBLY 14-136-1**

![Diagram of Switch Rod Assembly 14-136-1](image1)

**SWITCH ROD ASSEMBLY 14-136-2**

![Diagram of Switch Rod Assembly 14-136-2](image2)

**SWITCH ROD ASSEMBLY 14-136-3**

![Diagram of Switch Rod Assembly 14-136-3](image3)

**SWITCH ROD ASSEMBLY 14-136-4**

![Diagram of Switch Rod Assembly 14-136-4](image4)

### NOTES:

1. Rod identification to be engraved on rod clearly as shown, ⅛" min height.
2. Switch rods must be parallel within ⅛" over length of 2-B rod.

---

**HOLLOW STEEL TIE SWITCH RODS**

- 14-1, 14-2, 14-3 AND 14-4
- 14-136 LB RE

---

**METROLINK**

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

ONE GATEWAY PLAZA, 12TH FLOOR, L.A., CA 90012

HOLLOW STEEL TIE SWITCH RODS

- 14-1, 14-2, 14-3 AND 14-4
- NO 14-136 LB RE
### Bill of Materials

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>FLAT BAR, ASTM A36, 1&quot; x 6&quot; x 2'-2&quot;*</td>
</tr>
<tr>
<td>2</td>
<td>FLAT BAR, ASTM A36, 1-1/2&quot; x 6&quot; x 1'-2&quot;*</td>
</tr>
<tr>
<td>3</td>
<td>FLAT BAR, ASTM A36, 1-1/2&quot; x 6&quot; x 1'-2&quot;*</td>
</tr>
<tr>
<td>4</td>
<td>FLAT BAR, ASTM A36, 1&quot; x 6&quot; x 2'-2&quot;*</td>
</tr>
</tbody>
</table>

### Notes:

1. **Standard**: SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY (SCRRA) ENGINEERING STANDARDS are intended for SCRRA approved uses only. For non-SCRRA approved uses, SCRRA shall not be responsible for the accuracy or completeness of information. SCRRA agrees that it assumes all liability arising from such use.

2. **Skew**: All I.D. characters to be 1/2" minimum height clearly stamped as shown.

3. **Self-Welding**: All self-welding features are welded with shoulder & notch to protect into rail seat.

4. **Slot**: 4 slotted holes at 1 4-1 3 6-1 8LR C

5. **Switch Plate**: Switch Plate P14-136-16 LLC

6. **Engineer**: Direct. of Engineering and Construction

7. **Date**: 10/5/2011

8. **Rev.**: 1

9. **Ref.**: 14-16 LLC / LRC through 14-18 LLC / LRC

10. **Scale**: Standard

---

**Engineering Standards**

**Switch Plates**

For No. 14 136 LB Rel. Lh Concrete Tie Turnout
SWITCH PLATE P14-136-19LC

Switch Plate P14-136-19LLC

Switch Plate P14-136-20LC

Switch Plate P14-136-22LC

Switch Plate P14-136-23LC

Notes:
1. LB CHARACTERS TO BE 5/8" MINIMUM HEIGHT
2. CLEARLY STAMPED AS SHOWN
3. WELDS TO BE DRESSED FLUSH WITH SHOULDER
4. NOT TO PROTRUDE INTO RAIL SEAT
5. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING
6. TYPE: PANHANDLE SHOULDER UNLESS NOTED OTHERWISE

Bill of Materials

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FLAT BAR, ASTM A36, 1/8&quot; x 6&quot; x 3'-10&quot;</td>
</tr>
<tr>
<td>2</td>
<td>SHOULD PANDROL FORGED TONGUELESS, TYPE 1</td>
</tr>
<tr>
<td>3</td>
<td>SHOULD PANDROL FORGED TONGUELESS, TYPE 2</td>
</tr>
<tr>
<td>4</td>
<td>FLAT BAR, ASTM A36, 1/8&quot; x 6&quot; x 3'-9&quot;</td>
</tr>
<tr>
<td>5</td>
<td>FLAT BAR, ASTM A36, 1/8&quot; x 6&quot; x 3'-4&quot;</td>
</tr>
<tr>
<td>6</td>
<td>FLAT BAR, ASTM A36, 1/8&quot; x 6&quot; x 3'-3&quot;</td>
</tr>
</tbody>
</table>

14-20LC THROUGH 14-23LC
NOTES:
1. I.D. CHARACTERS TO BE ≈ 1/8" MINIMUM HEIGHT
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
4. TYPE I PANDROL SHOULDER UNLESS NOTED OTHERWISE.

BILL OF MATERIALS

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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>FLAT BAR, ASTM A36, 1/2&quot; x 8&quot; x 2'-8&quot; LONG</td>
</tr>
<tr>
<td>2</td>
<td>FLAT BAR, ASTM A36, 1/2&quot; x 8&quot; x 2'-9&quot; LONG</td>
</tr>
<tr>
<td>3</td>
<td>FLAT BAR, ASTM A36, 1/2&quot; x 8&quot; x 2'-8&quot; LONG</td>
</tr>
<tr>
<td>4</td>
<td>FLAT BAR, ASTM A36, 1/2&quot; x 8&quot; x 2'-9&quot; LONG</td>
</tr>
</tbody>
</table>

SWITCH PLATE P14-136-24LC

SWITCH PLATE P14-136-25LC

SWITCH PLATE P14-136-26LC

ENGINEERING STANDARDS

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L.A., CA 90012

FOR NO 14 136 LB RE LH CONCRETE TIE TURNOUT

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DIRECTOR OF ENGINEERING AND CONSTRUCTION

ASSISTANT DIRECTOR: STANDARDS & DESIGN

ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

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03/31/2011

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NOTES:
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   CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
   & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
4. TYPE 1 PANDROL SHOULDER UNLESS NOTED OTHERWISE.

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<td>FLAT BAR, ASTM A36, 3/8&quot; x 8&quot; x 2'-8&quot;</td>
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<tr>
<td>2</td>
<td>SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1</td>
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<td>3</td>
<td>FLAT BAR, ASTM A36, 3/8&quot; x 8&quot; x 2'-9&quot;</td>
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<tr>
<td>4</td>
<td>FLAT BAR, ASTM A36, 3/8&quot; x 8&quot; x 2'-6&quot;</td>
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SWITCH PLATE P14-136-24RC

SWITCH PLATE P14-136-25RC

SWITCH PLATE P14-136-26RC