



## L.B. Foster Company

### SPECIAL TRACKWORK DIRECT FIXATION FASTENING SYSTEM

L.B. Foster's special trackwork direct fixation fastening system was originally designed and tested for the Metropolitan Atlanta Rapid Transit Authority (MARTA) in the late 1970's. Subsequent systems have been delivered to the Niagara Frontier Transit Authority (Buffalo NFTA), Southeast Pennsylvania Transit Authority (SEPTA), Los Angeles Metropolitan Transit Authority (LAMTA) and Chicago Transit Authority (CTA), among numerous others. This system of fasteners provides the following functions:

- > Secures special trackwork rail, frogs, and switches to concrete track bed
- > Stabilizes vertical and lateral rail movement
- > Controls longitudinal rail movement
- > Provides track noise and vibration dampening
- > Electrically isolates rail from track bed
- > Utilizes bolted or spring clip type rail fastenings

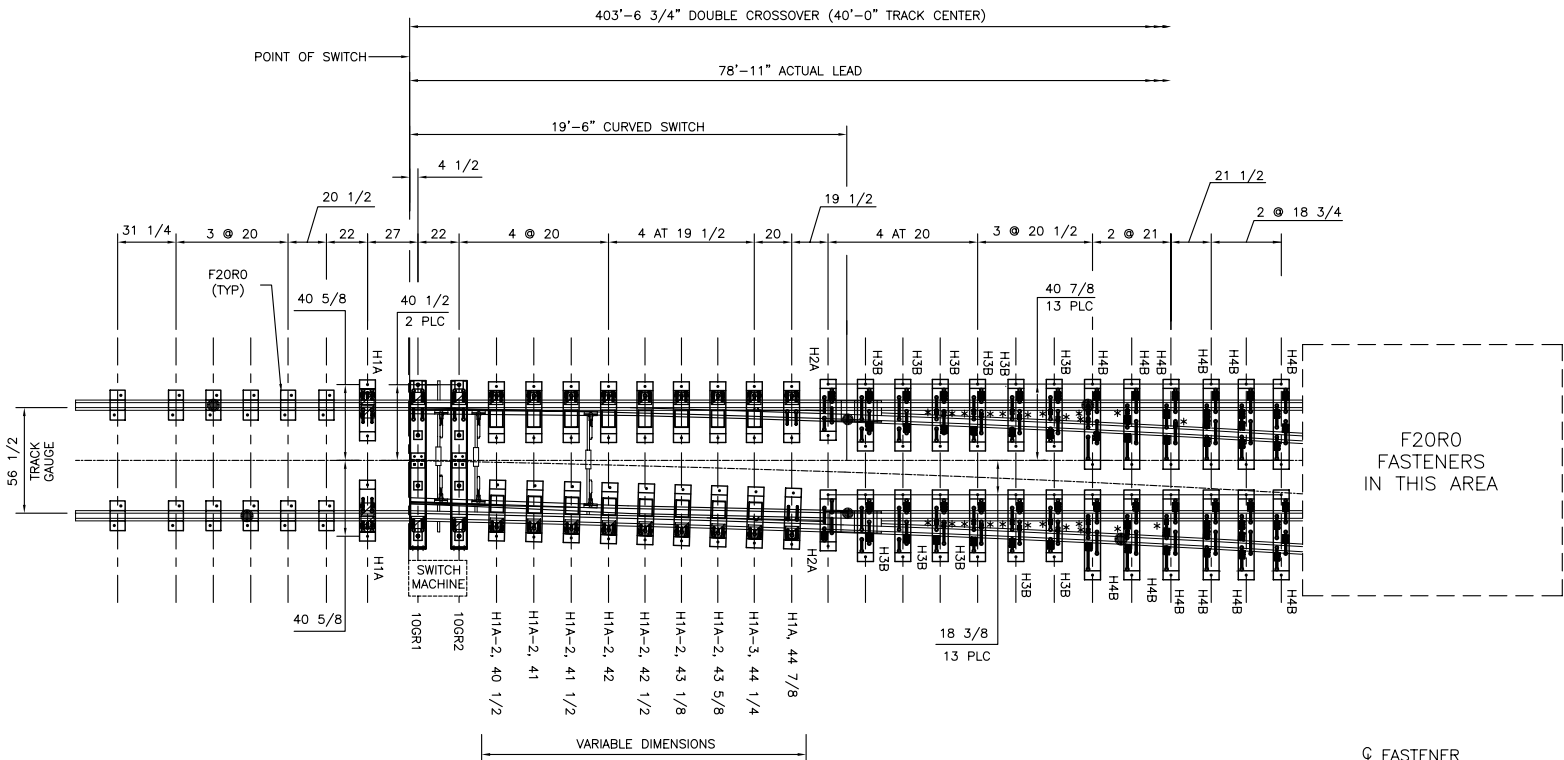
This system of direct fixation fasteners has completed extensive Qualification and Production testing, based on the Model H2 fastener body results. The test programs were designed to determine the fastener response to various load environments and electrical applications. Based on the results of these test programs, the special trackwork system fasteners provide the following fundamental characteristics:

- > Vertical stiffness of approximately 130,000 pounds per inch deflection as determined between a range of 5,000 to 12,000 pounds per fastener body loading
- > Resists vertical uplift repeated uplift forces of 2,000 pounds for greater than 1,500,000 cycles
- > With vertical forces of 13,500 pounds and lateral forces of 7,500 pounds, the rail head is limited to less than 0.300 inches lateral movement
- > Applied repeated loading in excess of 3,000,000 cycles with vertical forces of 13,500 pounds and lateral forces of 3,900 pounds
- > Applied repeated longitudinal loading to the fastener body of +/- 4,000 pounds for greater than 1,000,000 cycles
- > Withstands 15,000 volts (DC) without damage
- > Electrical resistance at 500 volts (DC) is greater than 1 million ohms (wet) and 10 million ohms (dry)

Variations to this system can be made to accommodate various custom requirements. For more information concerning this fastening system or other product needs, please contact us by email at, [transitproducts1@lbfoster.com](mailto:transitproducts1@lbfoster.com) or call us in our Suwanee, Georgia office at (678) 926-5200.

**NOTES**

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
2. USE WRITTEN DIMENSIONS, DO NOT USE SCALED OFF DIMENSIONS IN PRODUCTION.
3. MODIFIED FIXED CLIPS ARE REQUIRED AT LOCATIONS WHERE SPRING CLIP HOLDER WILL NOT FIT. \* KNOWN LOCATIONS HAVE BEEN MARKED WITH AN ASTERISK AT JOINTS AND NARROW AREAS. OTHER AREAS MAY OCCUR DURING INSTALLATION.



BILL OF MATERIAL	QTY
F20R0	82
10GR1, GAUGE PLATE	1
10GR2, GAUGE PLATE	1
H1A, DF FASTENER	4
H1A-2, DF FASTENER	14
H1A-3, DF FASTENER	2
H2A, DF FASTENER	2
H3B, DF FASTENER	12
H4B, DF FASTENER	12

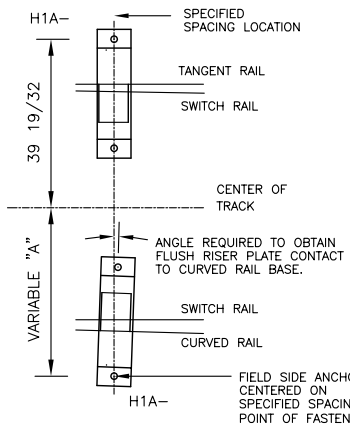
MATCHLINE  
SEE DWG STW-041  
FOR FROG DETAILS

F20R0  
FASTENERS  
IN THIS AREA

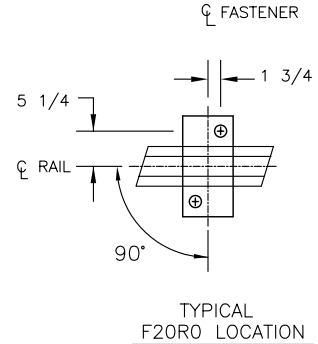
**SPECIAL INSTALLATION INSTRUCTIONS**

ANCHOR INSERT LOCATION DIMENSIONS ARE SHOWN FOR REFERENCE ONLY AND SHALL NOT BE USED FOR SPECIFIC INSERT INSTALLATION DUE TO CONSTRUCTION AND MANUFACTURING TOLERANCE ACCUMULATIONS THAT WILL AFFECT ACTUAL POSITIONS. ALL ANCHOR INSERT LOCATIONS MUST BE DETERMINED FROM ACTUAL FIELD LAYOUT PERFORMED UNDER THE GUIDANCE OF REFERENCED DIMENSIONS. ADDITIONALLY, FOR FASTENERS WITH WELDED RISER PLATES LOCATED IN THE SWITCH RAIL AREA, THE PROPER ANCHOR LOCATION MUST BE DETERMINED AFTER RISER PLATES HAVE BEEN POSITIONED FLUSH WITH THE CURVED RUNNING RAIL.

LEFT HAND OPPOSITE TO SHOWN WITH EXCEPTION OF GAUGE PLATES



SYMBOL LEGEND	
	RAIL BRACE
	SPRING CLIP (e2055)
	STANDARD JOINT
	MODIFIED FIXED CLIP



— PROPRIETARY —

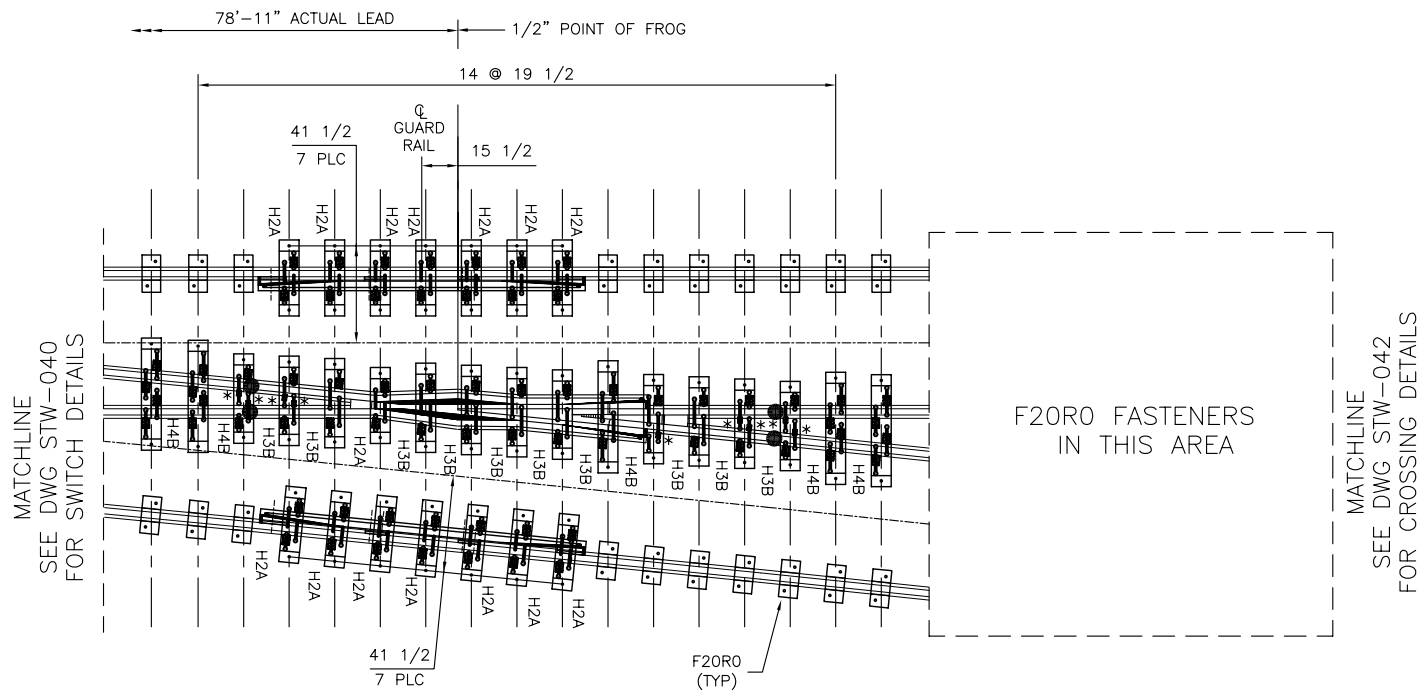
NOT TO BE DIRECTED, USED OR DUPLICATED FOR PROCUREMENT, MANUFACTURE OR ANY OTHER PURPOSE EXCEPT AS AUTHORIZED, IN WRITING, BY TRANSIT PRODUCTS DIVISION.

 ISO 9001 REGISTERED SUPPLIER FS 39086	TRANSIT PRODUCTS DIVISION L.B. FOSTER COMPANY SUWANEE, GA 30024			
	TITLE NO. 10 XX SWITCH DETAILS, RIGHT HAND FOR INFORMATIONAL PURPOSE ONLY			
DESIGN	TRANSIT PRODUCTS	REVISIONS		
DWG BY	LT 9.21.05	DATE	DESCRIPTION	BY
APPR'D		3.12.07	① UPDATED FASTENERS	LT
SCALE	NONE			
DWG NO.	STW-040			
CONTRACT				
REF				

**NOTES**

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
2. USE WRITTEN DIMENSIONS, DO NOT USE SCALED OFF DIMENSIONS IN PRODUCTION.
3. MODIFIED FIXED CLIP ARE REQUIRED AT LOCATIONS WHERE SPRING CLIP HOLDER WILL NOT FIT. KNOWN LOCATIONS HAVE BEEN MARKED WITH AN ASTERISK AT JOINTS AND NARROW AREAS. OTHER AREAS MAY OCCUR DURING INSTALLATION.

BILL OF MATERIAL	QTY
F20R0	159
H2A, DF FASTENER	15
H3B, DF FASTENER	11
H4B, DF FASTENER	5

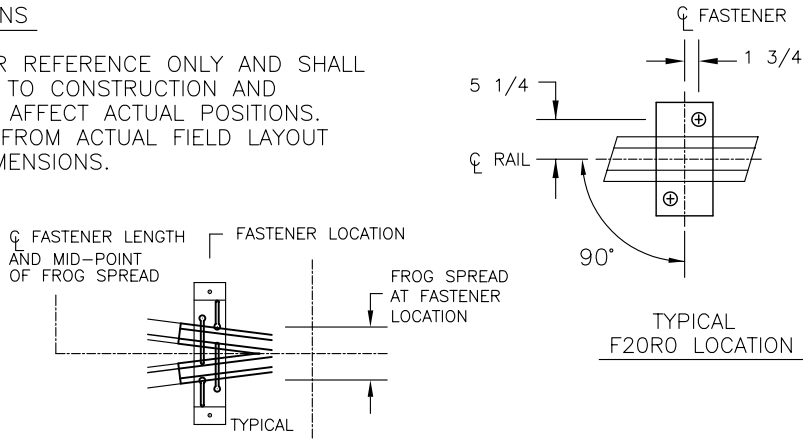


F20R0 FASTENERS IN THIS AREA

**SPECIAL INSTALLATION INSTRUCTIONS**

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SYMBOL LEGEND	
	STANDARD JOINT
	SPRING CLIP (e2055)
	MODIFIED FIXED CLIP



"H" SERIES LOCATION DETAIL (EXCEPT AS NOTED)

— PROPRIETARY —

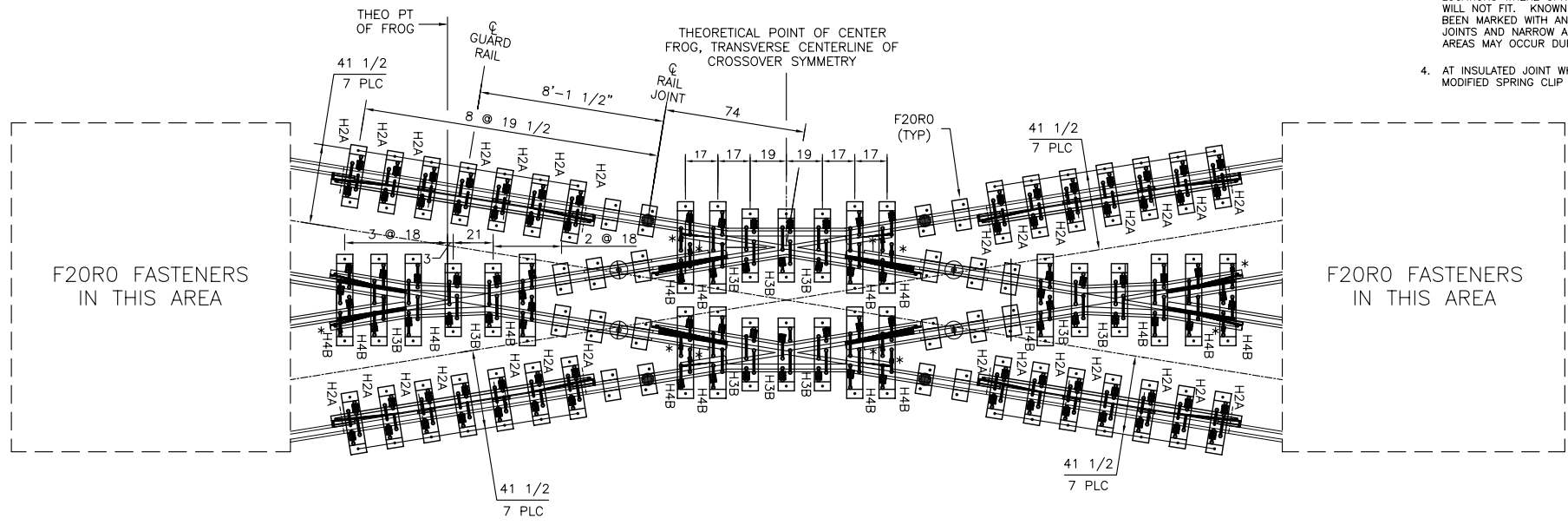
NOT TO BE DIRECTED, USED OR DUPLICATED FOR PROCUREMENT, MANUFACTURE OR ANY OTHER PURPOSE EXCEPT AS AUTHORIZED, IN WRITING, BY TRANSIT PRODUCTS DIVISION.

 ISO 9001 BS1 CERTIFIED	TRANSIT PRODUCTS DIVISION L.B. FOSTER COMPANY SUWANEE, GA 30024		
	TITLE NO. 10 XX FROG DETAILS, RIGHT HAND FOR INFORMATIONAL PURPOSE ONLY		
DESIGN	TRANSIT PRODUCTS	REVISIONS	
DWG BY	LT 9.21.05	DATE	DESCRIPTION
APPR'D		3.12.07	① UPDATE FASTENERS
SCALE	NONE		
DWG NO.	STW-041		
CONTRACT			
REF			

**NOTES**

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
2. USE WRITTEN DIMENSIONS, DO NOT USE SCALED OFF DIMENSIONS IN PRODUCTION.
3. MODIFIED FIXED CLIP ARE REQUIRED AT LOCATIONS WHERE SPRING CLIP HOLDER WILL NOT FIT. KNOWN LOCATIONS HAVE BEEN MARKED WITH AN ASTERISK AT JOINTS AND NARROW AREAS. OTHER AREAS MAY OCCUR DURING INSTALLATION.
4. AT INSULATED JOINT WHERE F20R0 EXISTS, MODIFIED SPRING CLIP WILL BE PROVIDED.

MATCHLINE  
SEE DWG STW-041  
FOR SWITCH DETAILS



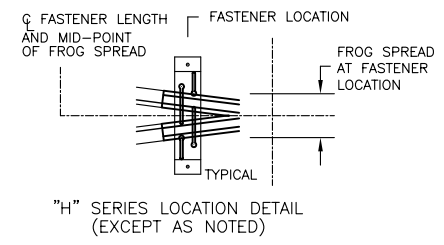
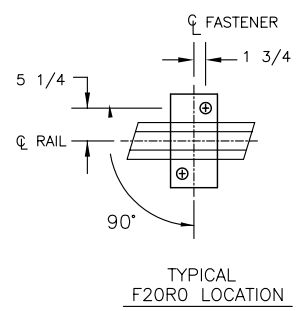
MATCHLINE  
SEE DWG STW-041  
FOR SWITCH DETAILS

**SPECIAL INSTALLATION INSTRUCTIONS**

ANCHOR INSERT LOCATION DIMENSIONS ARE SHOWN FOR REFERENCE ONLY AND SHALL NOT BE USED FOR SPECIFIC INSERT INSTALLATION DUE TO CONSTRUCTION AND MANUFACTURING TOLERANCE ACCUMULATIONS THAT WILL AFFECT ACTUAL POSITIONS. ALL ANCHOR INSERT LOCATIONS MUST BE DETERMINED FROM ACTUAL FIELD LAYOUT PERFORMED UNDER THE GUIDANCE OF REFERENCED DIMENSIONS.

BILL OF MATERIAL	QTY
F20R0	108
H2A, DF FASTENER	28
H3B, DF FASTENER	10
H4B, DF FASTENER	16

SYMBOL LEGEND	
	STANDARD JOINT
	INSULATED JOINT (SEE NOTE 4)
	SPRING CLIP (e2055)
	MODIFIED FIXED CLIP



— PROPRIETARY —

NOT TO BE DIRECTED, USED OR DUPLICATED FOR PROCUREMENT, MANUFACTURE OR ANY OTHER PURPOSE EXCEPT AS AUTHORIZED, IN WRITING, BY TRANSIT PRODUCTS DIVISION.

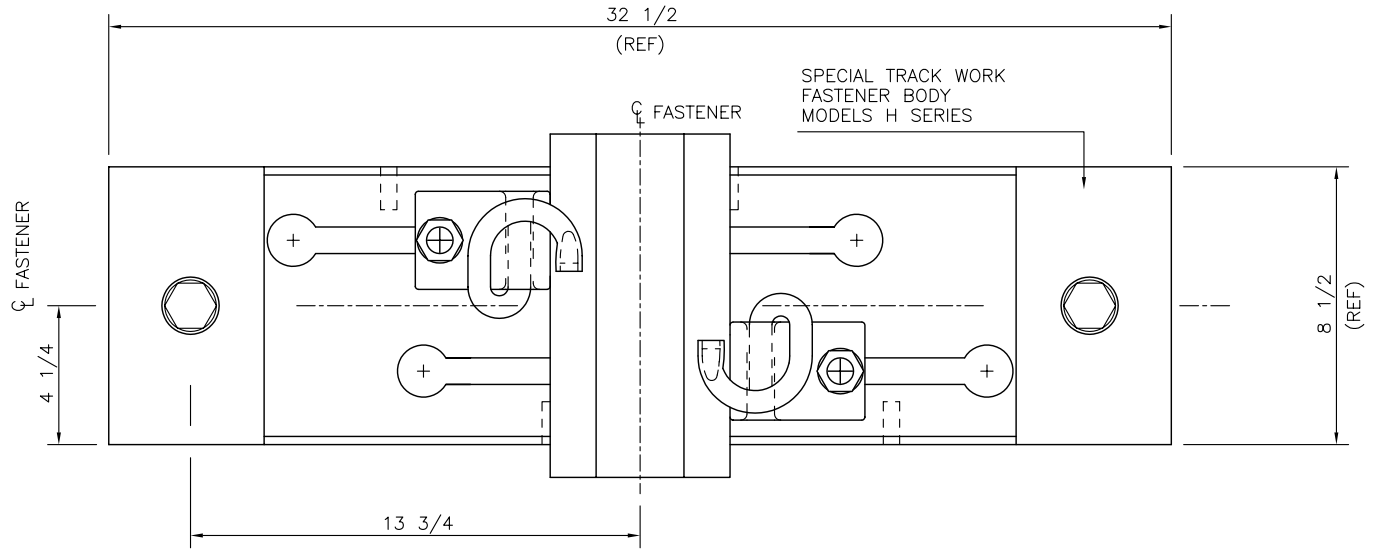
 ISO 9001 CERTIFIED	<b>TRANSIT PRODUCTS DIVISION</b> L.B. FOSTER COMPANY NORCROSS, GA 30071 
TITLE NO. 10 XX CROSSING DETAILS, 18' 14' 58"	
FOR INFORMATIONAL PURPOSE ONLY	
DESIGN TRANSIT PRODUCTS	REVISIONS
DWG BY LT 9.21.05	DATE DESCRIPTION BY
APPR'D	3.12.07 (1) UPDATE FASTENERS LT
SCALE NONE	
DWG NO. STW-042	
CONTRACT	
REF	

**NOTES**

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
2. USE WRITTEN DIMENSIONS, DO NOT USE SCALED OFF DIMENSIONS IN PRODUCTION.

**INSTALLATION NOTES**

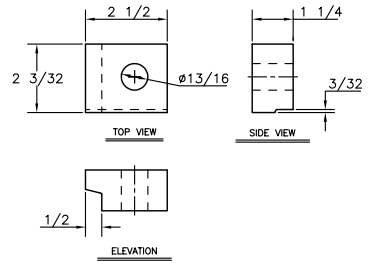
ASSEMBLY SHOWN IS SINGLE RAIL ON H2 FASTENER BODY. ANY OF THE H SERIES FASTENERS MAY ACCOMMODATE MULTIPLE RAILS OR SINGLE FROG. FOR MULTIPLE RAILS ONE BODY WILL GENERALLY REQUIRE FOUR CLIP ASSEMBLIES, TWO PER RAIL. IN SOME CASES WHERE RAIL SPREAD IS NARROW OR WHERE JOINT BARS EXIST, CLIPS MAY NOT FIT DUE TO LACK OF AREA. IN MANY CASES OF THIS TYPE, THE CLIP ASSEMBLY SHOWN MAY BE REPLACED WITH A SMALLER "FIXED" CLIP, PART NO. 31-331-011, AS SHOWN BELOW.



TOP VIEW

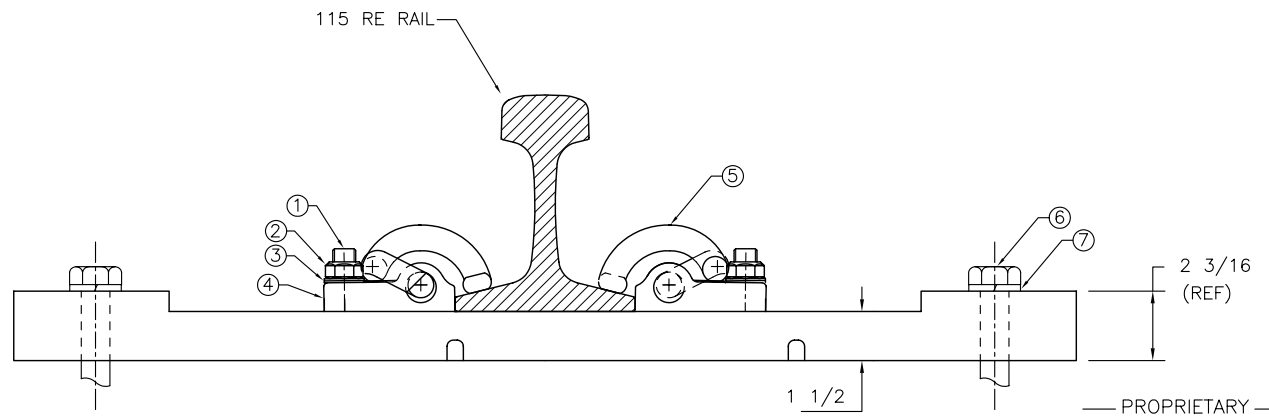
**BILL OF MATERIALS (AS SHOWN)**

ITEM No.	DESCRIPTION	PART No.	QTY
1	3/4" PAN HEAD BOLT	10-504-044	2
2	3/4" LOCK NUT	10-531-005	2
3	3/4" DISC LOCK SET	10-548-006	2
4	CLIP HOLDER	30-311-009	2
5	SPRING CLIP (e2055)	10-334-002	2
6	7/8" -9 UNC CLASS 2A OR 7/8" SCREW SPIKE	TBD	2
7	SPRING CLIP (e2055)	10-334-002	2



GENERAL INFORMATION

THE FASTENER BODY CONSISTS OF STEEL, A36, TOP PLATE FULLY "VULCANIZE" MOLDED WITH AN ELASTOMER COMPOUND INTO A SINGLE FASTENER UNIT. AS A RESULT OF THE PLATE AND ELASTOMER MANUFACTURING PROCESS, THE FASTENER BODY PROVIDES EXCELLENT NOISE AND VIBRATION CONTROL, ELECTRICAL ISOLATION AND CORROSION RESISTANCE.

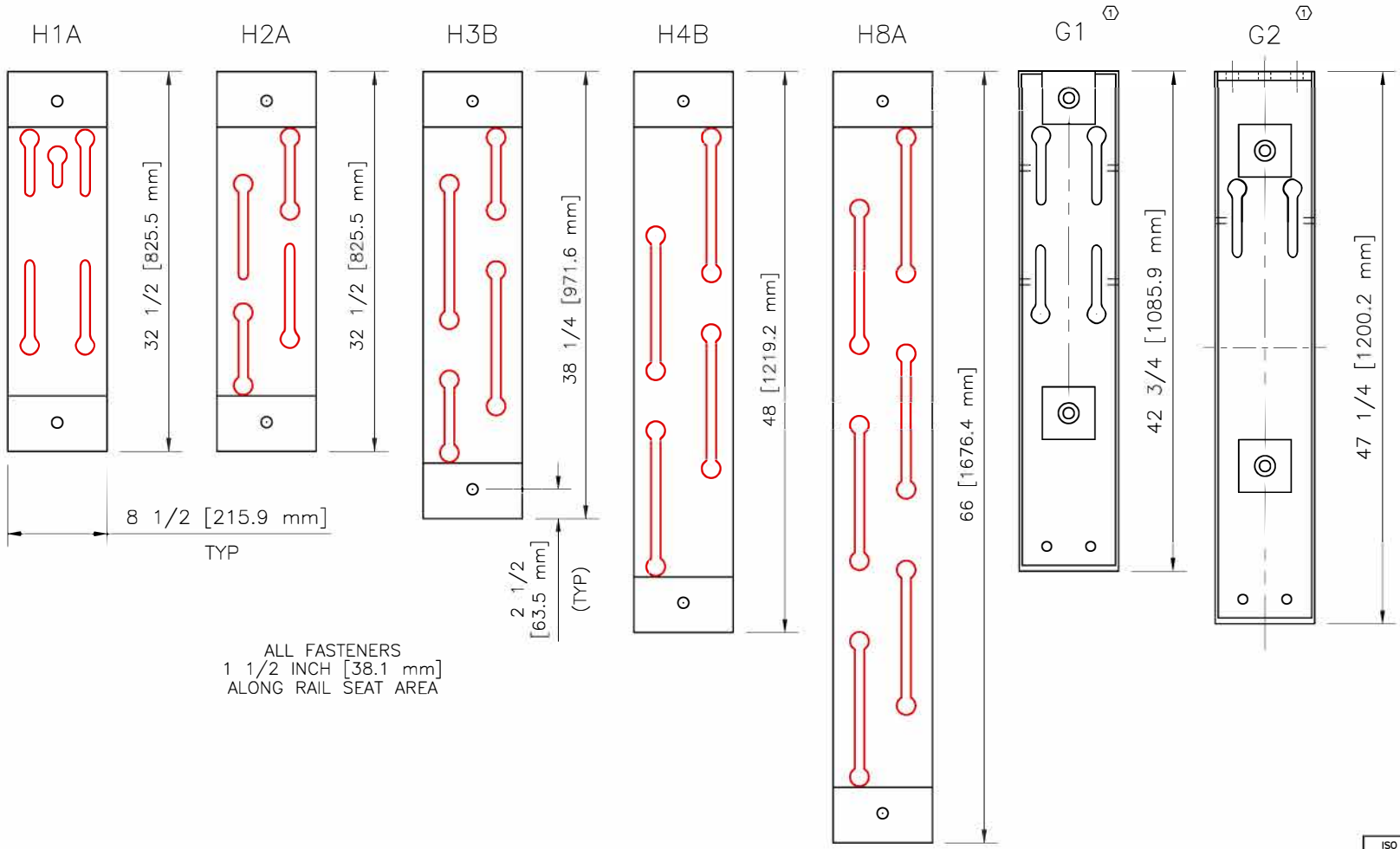


ELEVATION VIEW

NOT TO BE DIRECTED, USED OR DUPLICATED FOR PROCUREMENT, MANUFACTURE OR ANY OTHER PURPOSE EXCEPT AS AUTHORIZED, IN WRITING, BY TRANSIT PRODUCTS DIVISION.

— PROPRIETARY —

ISO 9001 FSIT REGISTERED FS 39086	TRANSIT PRODUCTS DIVISION L.B. FOSTER COMPANY NORCROSS, GA 30071		
	TITLE TYPICAL STW H-SERIES MODEL, ASSEMBLY		
FOR INFORMATIONAL PURPOSE ONLY			
DESIGN	TRANSIT PRODUCTS	REVISIONS	
DWG BY	LT 5.20.03	DATE	DESCRIPTION
APPR'D			
SCALE	NONE		
DWG NO.	STW-005A		
CONTRACT			
REF			





ALL FASTENERS  
 1 1/2 INCH [38.1 mm]  
 ALONG RAIL SEAT AREA

**NOTES**

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
  2. USE WRITTEN DIMENSIONS, DO NOT USE SCALED OFF DIMENSIONS IN PRODUCTION.
- ① FASTENER MODELS G1 AND G2 ARE USED AS SETS TO FORM TRACK GAGE PLATE ASSEMBLIES. ONCE SPLICED WITH INSULATED PLATE ASSEMBLIES THE FORM GAGE PLATE ASSEMBLIES AS FOLLOWS:
1. G1 W/ G2 FORM A #1 OR #2 TRACK GAGE PLATE ASSEMBLY WITH SWITCH MACHINE CONNECTION.
  2. G1 W/ G1 FORMS A #0 TRACK GAGE PLATE ASSEMBLY WITH NO SWITCH MACHINE CONNECTION. USED JUST PRIOR TO THE POINT OF SWITCH.

—PROPRIETARY—

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		TRANSIT PRODUCTS DIVISION L.B. FOSTER COMPANY SUWANEE, GA 30024			
TITLE SPECIAL TRACKWORK FASTENERS					
FOR INFORMATIONAL PURPOSE ONLY					
DESIGN TRANSIT PRODUCTS		REVISIONS			
DWG BY	LT	DATE	09.04.12	DESCRIPTION	BY
APPR'D			①	ADD G PLATES	RLA
SCALE	NONE				
DWG NO.	STW-035A				
CONTRACT					
REF					















