

L. B. FOSTER COMPANY
Transit Products Division
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 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 rail 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 5000 to 12,000 pounds per fastener body loading
- ◆ Resists vertical uplift repeated uplift forces of 2000 pounds for greater than 1,500,000 cycles.

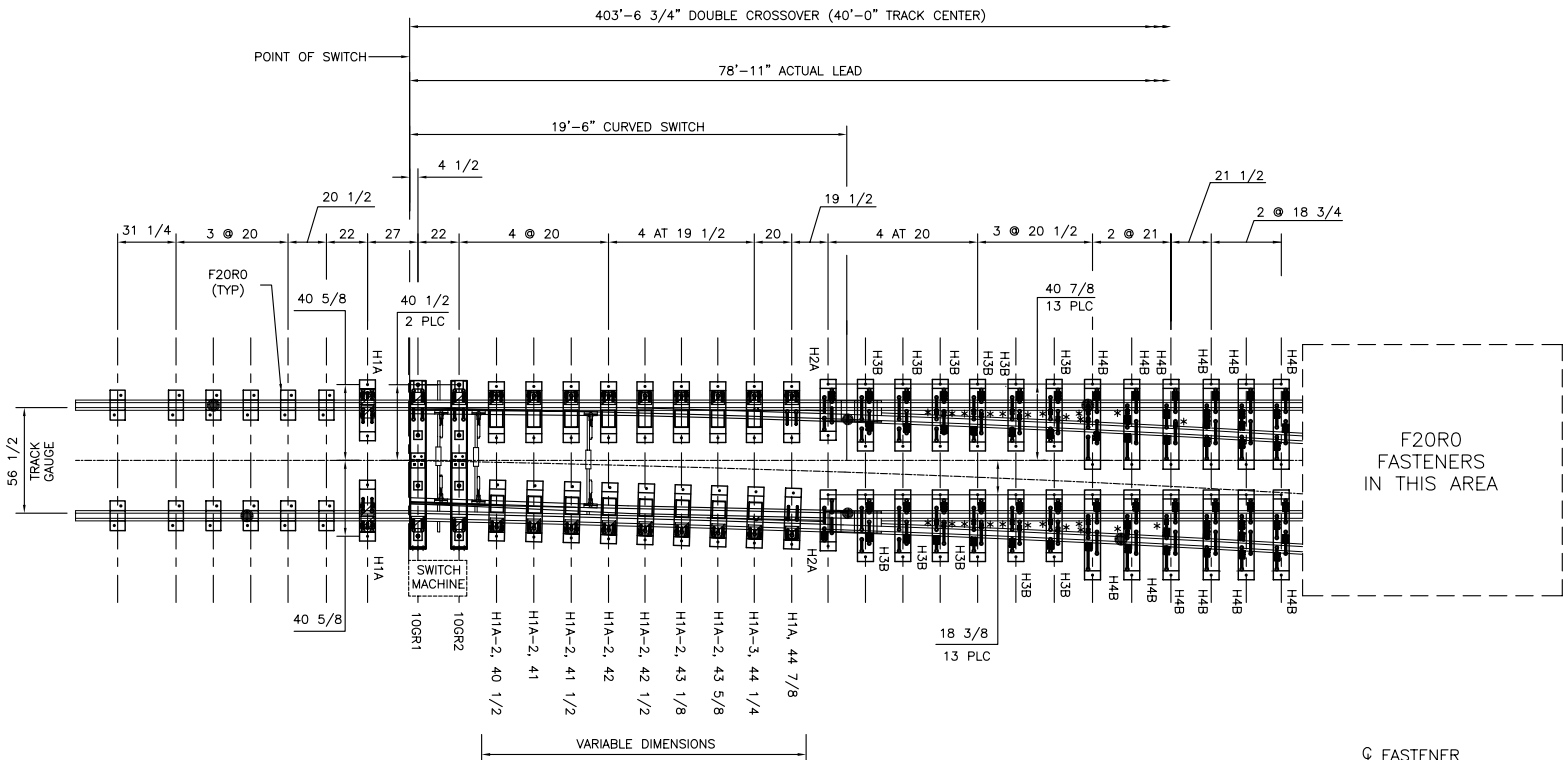
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- ◆ With vertical forces of 13,500 pounds and lateral forces of 7,500 pounds, the rail head is limited to less than 0.300 inches lateral movement
- ◆ Applied repeated loading in excess of 3,000,000 cycles with vertical forces of 13,500 pounds and lateral forces of 3,900 pounds
- ◆ Applied repeated longitudinal loading to the fastener body of +/- 4000 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 e-mail at transitproducts@lbfosterco.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

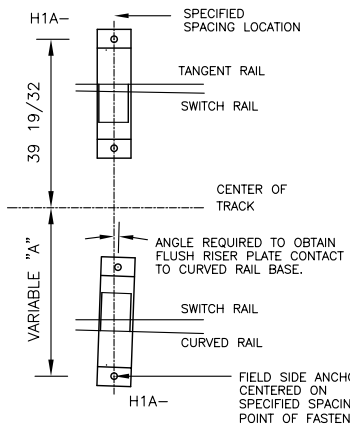
MATCHLINE
SEE DWG STW-041
FOR FROG DETAILS

F20R0
FASTENERS
IN THIS AREA

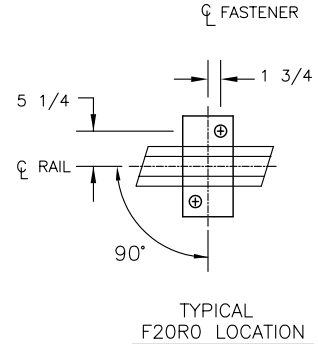
SPECIAL INSTALLATION INSTRUCTIONS

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



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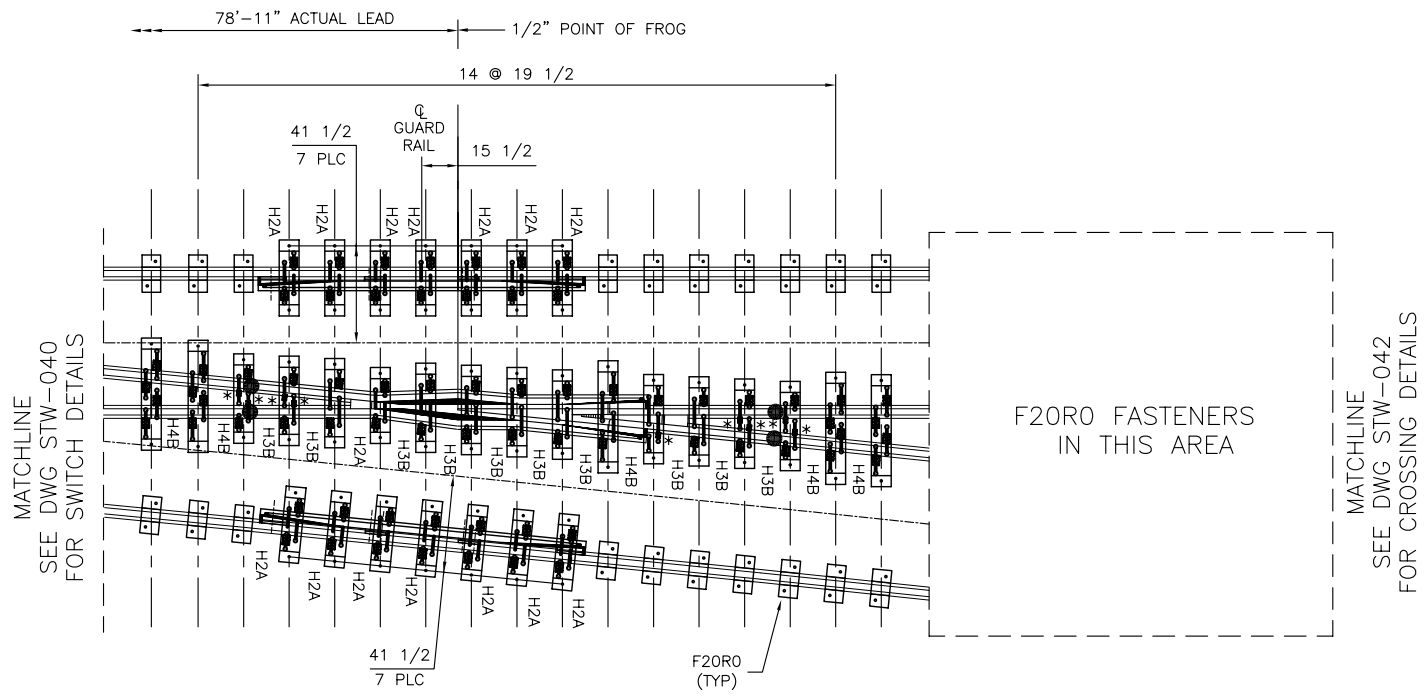
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 ISO 9001 REGISTERED SUPPLIER FS 39086	TRANSIT PRODUCTS DIVISION L.B. FOSTER COMPANY SUWANEE, GA 30024	
	TITLE NO. 10 XX SWITCH DETAILS, RIGHT HAND FOR INFORMATIONAL PURPOSE ONLY	
DESIGN TRANSIT PRODUCTS	REVISIONS	
DWG BY LT 9.21.05	DATE 3.12.07	DESCRIPTION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

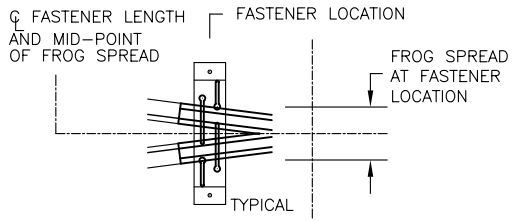


F20R0 FASTENERS IN THIS AREA

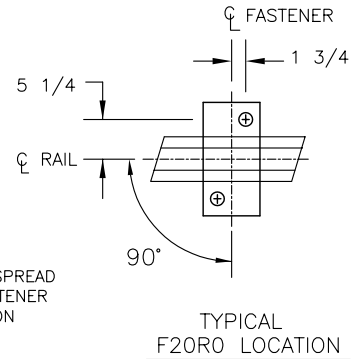
SPECIAL INSTALLATION INSTRUCTIONS

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



"H" SERIES LOCATION DETAIL (EXCEPT AS NOTED)



TYPICAL F20R0 LOCATION

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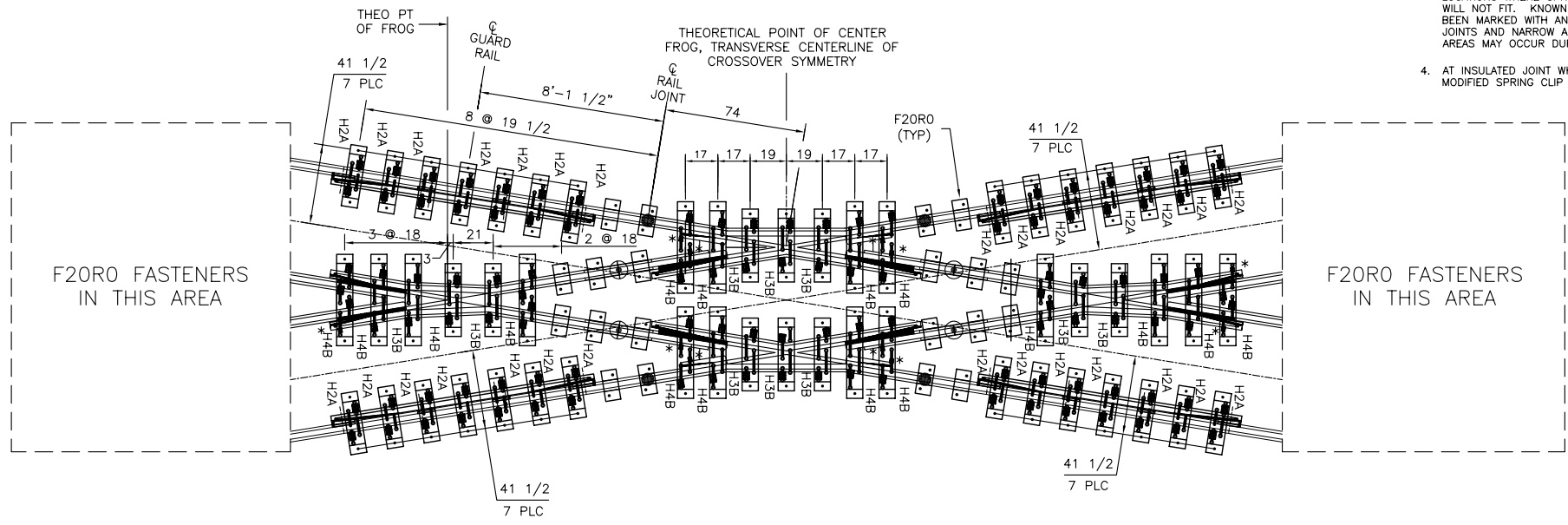
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	TRANSIT PRODUCTS DIVISION L.B. FOSTER COMPANY SUWANEE, GA 30024		
	TITLE NO. 10 XX FROG DETAILS, RIGHT HAND FOR INFORMATIONAL PURPOSE ONLY		
DESIGN	TRANSIT PRODUCTS	REVISIONS	
DWG BY	LT 9.21.05	DATE	DESCRIPTION
APPR'D		3.12.07	① UPDATE FASTENERS
SCALE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

NOTES

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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



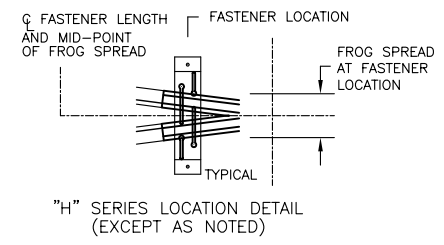
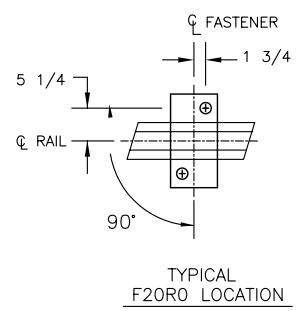
MATCHLINE
SEE DWG STW-041
FOR SWITCH DETAILS

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

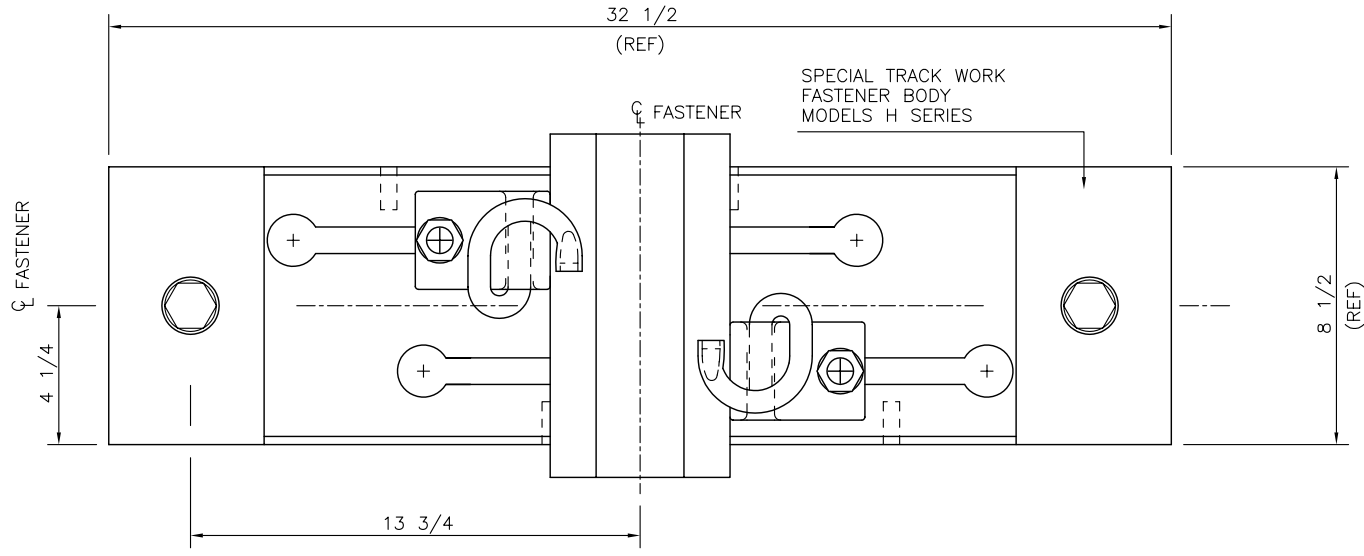
SYMBOL LEGEND	
	STANDARD JOINT
	INSULATED JOINT (SEE NOTE 4)
	SPRING CLIP (e2055)
	MODIFIED FIXED CLIP



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		TRANSIT PRODUCTS DIVISION 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
APPR'D		3.12.07	(1) UPDATE FASTENERS
SCALE	NONE		
DWG NO.	STW-042		
CONTRACT			
REF			



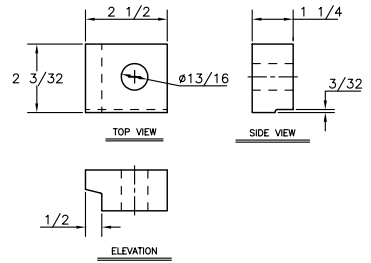
TOP VIEW

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.

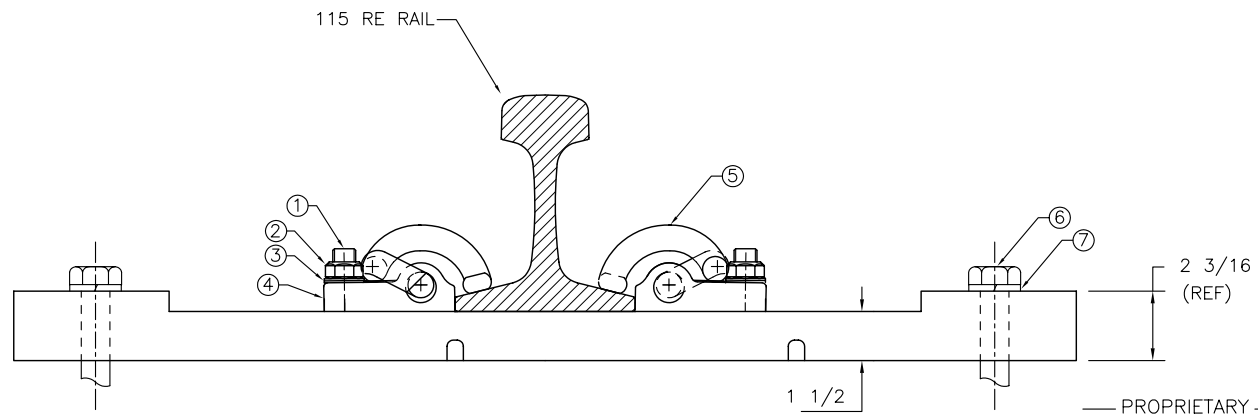


BILL OF MATERIALS (AS SHOWN)

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	MATERIAL & LENGTH AS REQUIRED		
	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

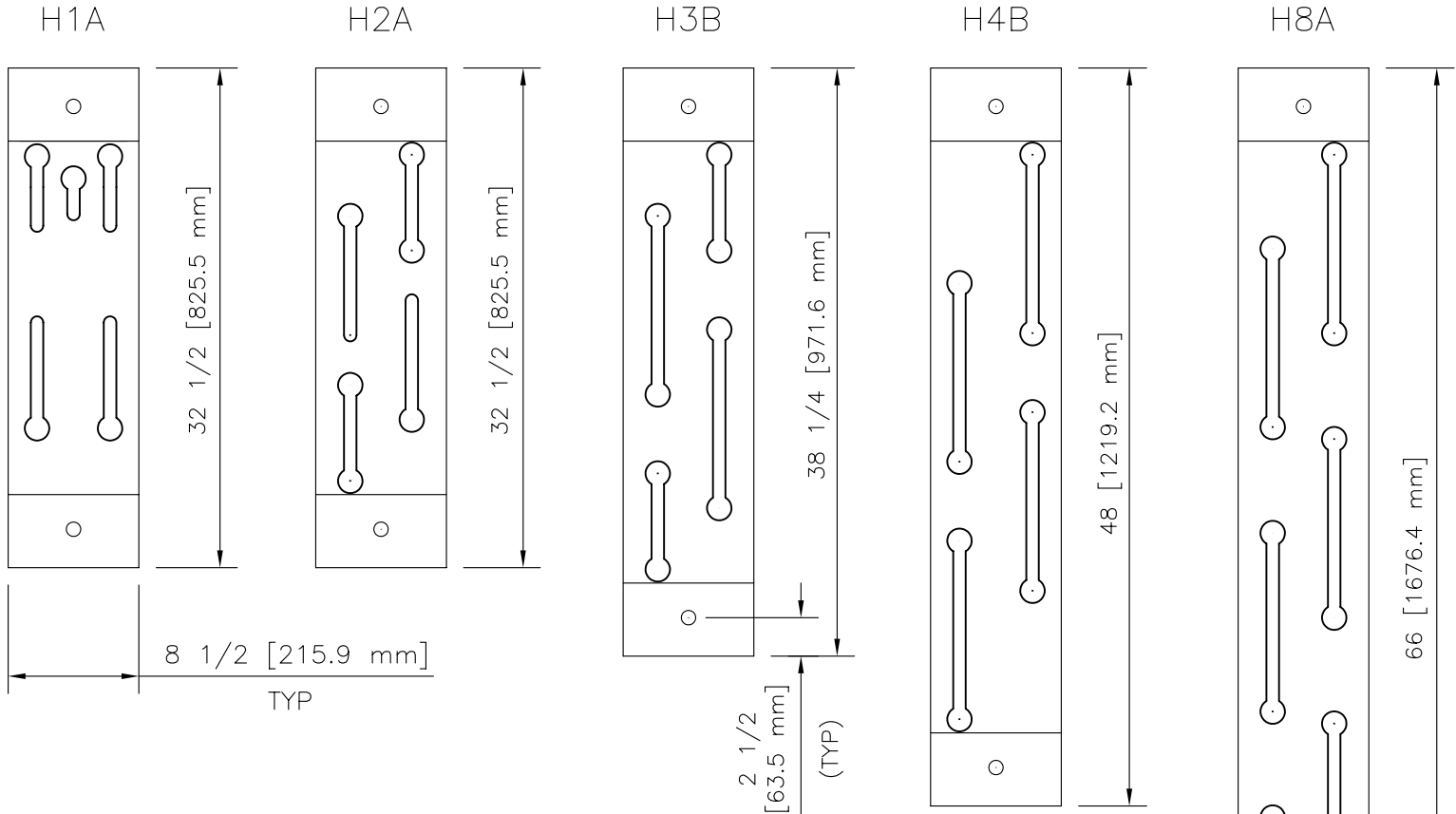
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ISO 9001 		TRANSIT PRODUCTS DIVISION L.B. FOSTER COMPANY NORCROSS, GA 30071 	
TITLE TYPICAL STW H-SERIES MODEL, ASSEMBLY			
FOR INFORMATIONAL PURPOSE ONLY			
DESIGN	TRANSIT PRODUCTS	REVISIONS	
DWG BY	LT 5.20.03	DATE	DESCRIPTION
APPR'D			
SCALE	NONE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

NOTES

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
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ALL FASTENERS
1 1/2 INCH [38.1 mm]
ALONG RAIL SEAT AREA

		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 4.07.05	DATE	DESCRIPTION	BY
APPR'D				
SCALE	NONE			
DWG NO.	STW-035A			
CONTRACT				
REF				

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