



L.B. Foster Company

Direct Fixation Rail Fastener Model F23R4

The F23R4 Direct Fixation Fastener was originally designed, tested, and supplied to the Portland, Oregon Tri-Met Authority in the mid 1990's. Subsequent supplies of the Model F23R4 have been delivered to San Diego's MTDB, Chicago Transit Authority (CTA), New Jersey Hudson Bergen LRT, and Honolulu HART among others. Based on original design requirements, the fastener bodies provide the following basic functions:

- > Secures 115RE rail (5 1/2 inch rail base) directly to a supporting surface at a 1:40 cant.
- > Stabilizes vertical and lateral rail movement.
- > Controls longitudinal rail movement.
- > Provides track noise and vibration dampening.
- > Electrically isolates rail from track bed.
- > Utilizes non threaded rail hold down spring clip type clips.

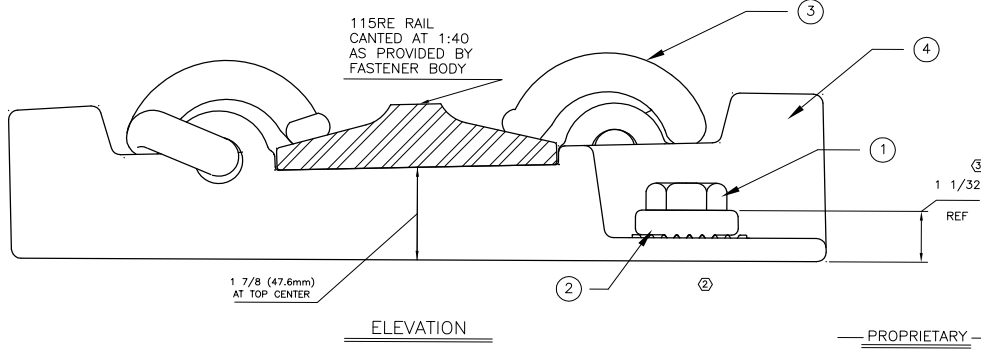
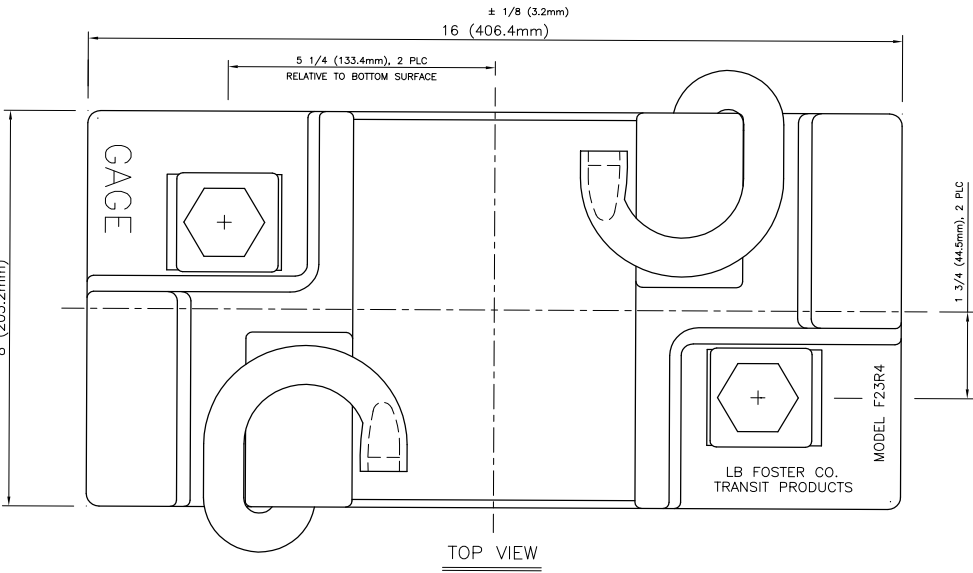
The Model F23R4 has completed extensive Design Qualification and Production testing to demonstrate the fastener's response to various load environments and electrical applications. Based on the results of these tests, the F23R4 Direct Fixation Fastener provides the following fundamental performance characteristics:

- > A Vertical stiffness of approximately 135,000 pounds per inch deflection as determined by "static" loading between a range of 5,000 to 12,000 pounds per fastener body loading.
- > With a "static" vertical force of 16,200 pounds per fastener body (offset 3/4 inch towards gage) and a "static" lateral force of 9,000 pounds per fastener body, the rail head movement along the gage line is limited to less than 0.360 inches.
- > Allows continuous longitudinal "slippage" of rail at approximately 2,500 to 3,000 pounds longitudinal force per fastener body.
- > Withstands a minimum of 15,000 volts (DC) per fastener body in a clean and dry test environment without material breakdown or electrical flashover.
- > Provides individual fastener body electrical resistance properties of greater than 1 million ohms (wet) and 10 million ohms (dry) at 500 volts (DC).
- > Exhibits a "dynamic" vertical stiffness of approximately 1.5 times that of the "static" stiffness throughout a similar load range.
- > Resists repeated combined vertical and lateral "dynamic" loading in excess of 3,000,000 cycles with a vertical force of 14,000 pounds per fastener body and a lateral force of 4,000 pounds per fastener body
- > Resists repeated vertical uplift forces of 2,000 pounds per fastener body for greater than 1,500,000 cycles.
- > Resists repeated longitudinal loading of +/- 2,000 pounds per fastener body for greater than 1,000,000 cycles.

The above performance characteristics are provided for informational purpose only and are based solely on previous testing. Actual performances may vary from those stated above.

Variations to Model F23R4 can be made to accommodate various custom requirements. For more information concerning this Direct Fixation Fastener model or other product needs, please contact us at www.lbfoster.com or call us in our Suwanee, Georgia office at (618) 714-6730.

Direct Fixation Rail Fastener – Model F23R4



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

BILL OF MATERIALS

ITEM	PART NO.	DESCRIPTION
1 (2 EA)	TBD	7/8-9 UNC CLASS 2A BOLT OR 7/8 SCREW SPIKE MATERIAL AND LENGTH AS REQUIRED (22mm)
2 (2 EA)	31-261-015	ADJUSTABLE COVER PLATE, 1/8 INCH INCREMENTS (3.2mm) CAST DUCTILE IRON, GRADE 65-45-12
3 (2 EA)	10-334-002	RESILIENT SPRING CLIP, #2055 (RIGHT HAND) PANROL PROPRIETARY STEEL 5160 MODIFIED (OR EQUAL)
4 (1 EA)	00-041-104	FASTENER BODY MODEL F23R4, CANTED 1:40

GENERAL INFORMATION

THE FASTENER BODY CONSISTS OF DUCTILE IRON, 65-45-12, TOP AND BOTTOM PLATES FULLY "VULCANIZE" MOLDED WITH AN ELASTOMER COMPOUND INTO A SINGLE FASTENER UNIT. THE MOLDED ELASTOMER COVERS THE ENTIRE PLATE SURFACES WITH THE EXCEPTION OF THE RAIL SUPPORT AREA, THE BOTTOM BODY SUPPORT AREA AND THE MATING SERRATED ANCHOR AREA WHICH PROVIDES 1/8 (3.2mm) INCREMENTAL ADJUSTMENT TO A FULL ± 1/2 INCH (12.7mm) BODY MOVEMENT.

AS A RESULT OF THE PLATE AND ELASTOMER MANUFACTURING PROCESS, THE FASTENER BODY PROVIDES EXCELLENT NOISE AND VIBRATION CONTROL, ELECTRICAL ISOLATION AND CORROSION RESISTANCE.



TRANSIT PRODUCTS DIVISION
L.B. FOSTER COMPANY
SUWANEE, GA 30024



TITLE
DF FASTENER MODEL F23R4, ASSEMBLY

FOR
INFORMATIONAL PURPOSE ONLY

DESIGN	TRANSIT PRODUCTS	DATE	REVISIONS	BY
DWG BY	RLA	11.27.96		
APPRO'D		05.31.00	① ADD METRIC	RLA
SCALE	NONE	5.28.03	② GEN REV	RLA
DWG NO.	DF-009	01.21.10	③ ADD ANCHOR HEIGHT	RLA
CONTRACT				
REF	03-041-122			

PROPRIETARY

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

