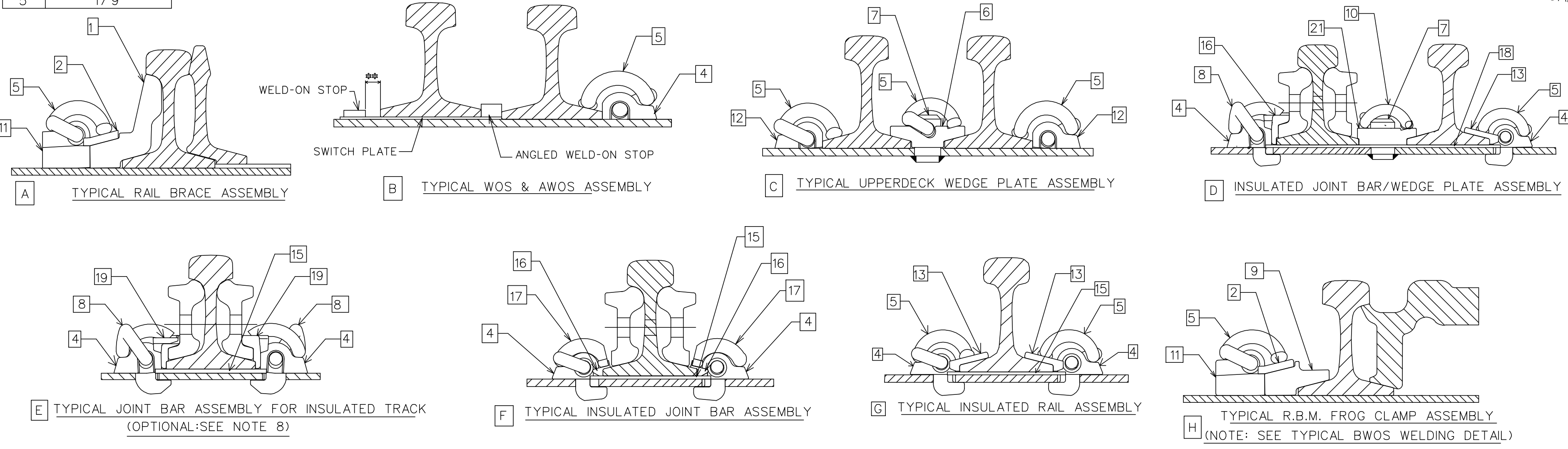
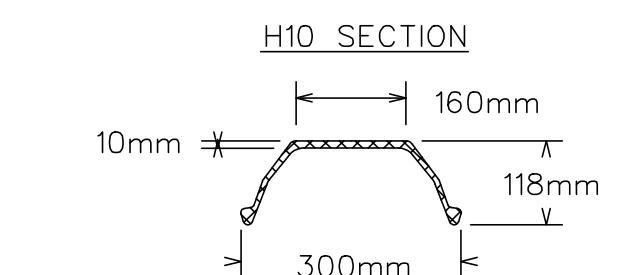


ROD	POSITION FROM POINT OF SWITCH
1	1'5"
2	3'0"
3	6'8"
4	12'2"
5	17'9"



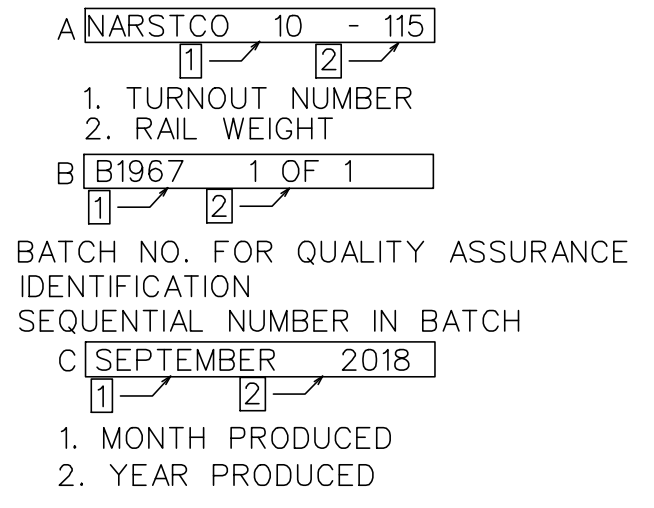
- NOTE:**
- TRANSITION TIES ARE FLAT SEAT DESIGN (NO CANT) REF. GTS-2106.
 - LABELS A, B & C AFFIXED TO TOP TIE IN EVERY BUNDLE ONLY.
 - TO AVOID VARIANCE IN RAIL GAUGE, DUE TO RAIL HEAD TO BASE ECCENTRICITY, ENSURE THAT THE RAIL BRAND OF ALL RAILS FACES IN THE SAME DIRECTION.
 - a. UNIFORM RISER PLATE THICKNESS:
 - 1/4" FOR TIES 2 TO 15
 - 3/16" FOR TIE 16
 - 1/8" FOR TIE 17
 - 1/16" FOR TIE 18
 - b. UNIFORM RISER PLATES SHALL CONFORM WITH LATEST ISSUES OF ASTM A36.
 - TIES WILL BE PUNCHED FOR 7/8" DIA. INSPECTION HOLES, LOCATION VARIES WITH RAIL POSITION.
 - POINT AND FROG AREA TIES ARE NARSTCO PATENTED INSULATED MULTI-STACK DESIGN. NARSTCO PATENT NO.7731099.
 - USE OFF-SET RAIL PADS IN RAIL SEATS FOR TIES WITH HOLES PUNCHED OFF CENTER, (TIES 20, 21 & 56)
 - JOINT BARS SHOULD BE USED AS NECESSARY, JOINTS CAN BE WELDED TO PRODUCE CONTINUOUS RAIL IF REQUIRED.
 - ADJUSTABLE MJ CLIPS WITH VERTICAL SWITCH RODS SHOULD BE USED IN CHANNEL TIES.
 - HEELS ARE FLOATING AND POINTS ARE EXTENDED POINT LENGTHS ARE 31'6".
 - WELD ON STOPS ARE USED ON THE FOLLOWING TIES FOR POINT FLEX (SEE DETAIL B):
 - ***3/4" FOR TIE 16
 - TIES 60-70 ARE 15' OR OVER IN LENGTH.
 - TRANSITION TIES NOT INCLUDED IN TURNOUT PACKAGE.
 - HEADBLOCK TIES ARE FIELD-DRILLED TO ACCEPT POWER OR MANUAL SWITCH STANDS.
 - ⊙ =MECHANICAL JOINT LOCATIONS TO BE FIELD WELDED OR REMAIN AS STANDARD JOINTS AS DIRECTED BY METROLINX.
 - ⊠ =INSULATED JOINT LOCATIONS TO BE INSTALLED WHEN TRACK CIRCUITS EXIST OR ARE REQUIRED AND SHALL BE THE CONTINUOUS GLUED TYPE WITH THE INSULATED JOINT UNDRILLED (BLANKED) RAIL ENDS FIELD WELDED.



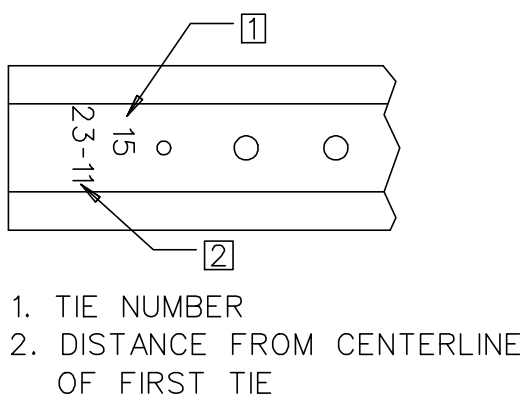
SECTION PROPERTIES
 WEIGHT OF BAR: 30.8kg/m
 YIELD STRENGTH: 345MPa (min)
 SECTION MODUL I: Z TOP-153 X 10³ mm³
 : Z BOT-79.7 X 10³ mm³

- IN PRACTICE:**
- LOCATE 8017 FROG CLAMP AS SHOWN IN DETAIL
 - PLACE BWOS AGAINST FROG CLAMP ON TIE CENTER
 - TRACK WELD BWOS IN PLACE
 - USING 7018 WELDING ROD, 3/16" OR BIGGER, PLACE 1/2" FILLET WELD ON OUTSIDE EDGES OF BWOS
 - DRIVE 8017 FROG CLAMP IN FROM RIGHTHAND SIDE
 - INSTALL SERRATED WASHER AND THEN CLIP
 - FOR MORE DETAILED INSTRUCTIONS, SEE S.O.P MG 045

TIE BUNDLE LABEL FORMAT



TIE MARKINGS



TURNOUT DATA			
FROG R.B.M.	NUMBER	10	
	ANGLE	TOE	5°43'29"
		HEEL	12'0"
		TOTAL	14'0"
SPREAD	TOE	1'1 53/64"	
	HEEL	1'5 11/32"	
SWITCH	LENGTH	23'2"	
	HEEL SPREAD	6 1/4"	
	ANGLE	0°27'58"	
	VERTEX DISTANCE	0"	
	THROW	4 3/4"	
TURNOUT	ACTUAL LEAD	81'6 1/2"	
	CURVE ON CENTER LINE	DEGREE	7°06'09"
		RADIUS	807.2'
	CLOSURE LENGTH	STRAIGHT	46'4 1/2"
		CURVED	46'6 9/32"
	ACTUAL LENGTH	STRAIGHT	38'0 1/2"
CURVED		38'1 25/32"	
TRACK GAUGE		4'8 1/2"	

METRIC CONVERSION: 1 inch=25.4mm, 1 foot=304.8mm

0	19/03/15	DWG VERSION ESTABLISHED
No.	Date	Revision
		By Approved

Standard / **GO TRANSIT #10-115lb INS CT PS UNIFORM FLHL RBM 13' GUARD RAIL**

Drawn **MR. C** Checked **GWM** Approved **VP Engineering & Asset Management**



Date **MAR 15/2019** Plan Number **GTS-2709** Rev **0**

BILL OF MATERIALS FOR GTS-2709

ITEM	DESCRIPTION	NARSTCO PART NO.	QTY						
TURNOUT COMPONENT									
1	ADJUSTABLE RAIL BRACE	8014	18						
2	RAIL BRACE SERRATED WASHER	8015	44						
3#	RAIL BRACE HOOK-IN SHOULDER	8016	112						
4	NARSTCO HOOK-IN SHOULDER	4010	330						
5	'e' CLIP ('e' TYPE CLIP)	'e' CLIP	560						
6	STEEL WEDGE PLATE	17S,17T,18S, 18T	4						
7*	WEDGE PLATE PIN	17, 18, 19	6						
8	'J' CLIP	NJ1	32						
9	FROG CLAMP (R.B.M.)	8017	26						
10	L/H 'e' CLIP	Ne2	5						
11*	RAIL BRACE WELD-ON SHOULDER	BWOS	44						
12*	WELD-ON SHOULDER	WOS	68						
13	INSULATOR	HD-10	442						
14	OFFSET INSULATING PAD 5 1/2"	3020	10						
15	NARSTCO INSULATING PAD 5 1/2"	IN-0030	152						
16	INSULATED JOINT INSULATOR	J7819	8						
17	INSULATED JOINT CLIP	e2063	8						
18	CUSTOM INSULATOR PAD	19, 55	3						
19	JOINT BAR INSULATOR	N8J-HD	32						
20	NYLON JOINT WEDGE PLATE	19S, 19T	2						
GO TRANSIT REFERENCES									
PLAN #	TITLE								
GTS-0002A-REV1	GEOMETRY FOR NO. 10 ALL WELDED TURNOUTS								
GTS-0282-REV1	NO. 10 TURNOUT 31'6" POWER OPERATED-SAMSON P.T SWITCH UNIFORM RISER DESIGN-ALL WELDED RAIL RBM FROG 115LB. R.E. RAIL-WOOD TIES								
GTS-1125	GUARD RAILS TEE RAIL DESIGN WITH PLANED FLARES AND FLAT PLATES								
VOESTALPINE NORTRAK REFERENCES									
PLAN #	TITLE								
D10948	NO.10-115LB RBM FROG								
FROG CLAMP (AFC) & RAIL BRACE (ARB) LOCATION FOR GUARD RAILS									
TIE NUMBER	45	46	47	48	49	50	51	52	53
THROUGH RAIL	AFC	ARB	AFC	AFC	ARB	AFC	ARB	ARB	AFC
TURNOUT RAIL	AFC	ARB	AFC	AFC	ARB	AFC	ARB	ARB	AFC
LEGEND									
* WELDED TO TIE DURING MANUFACTURING									
# INSTALLED ON TIE DURING MANUFACTURING									