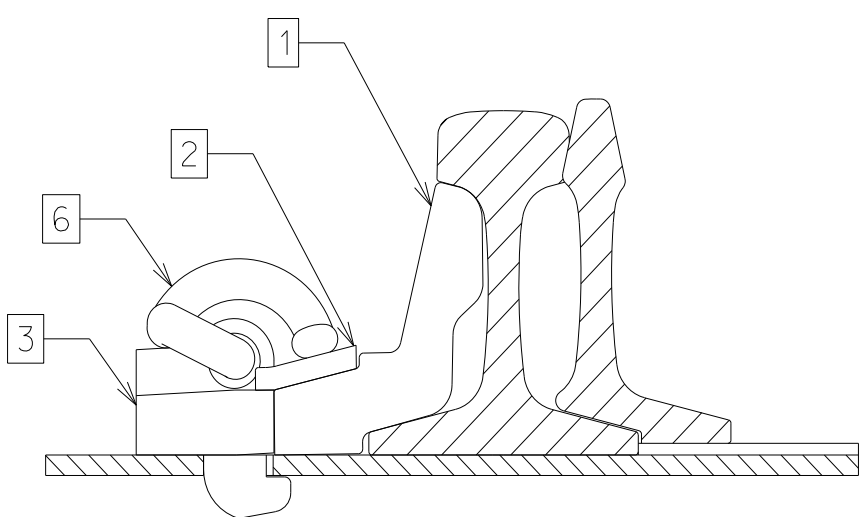
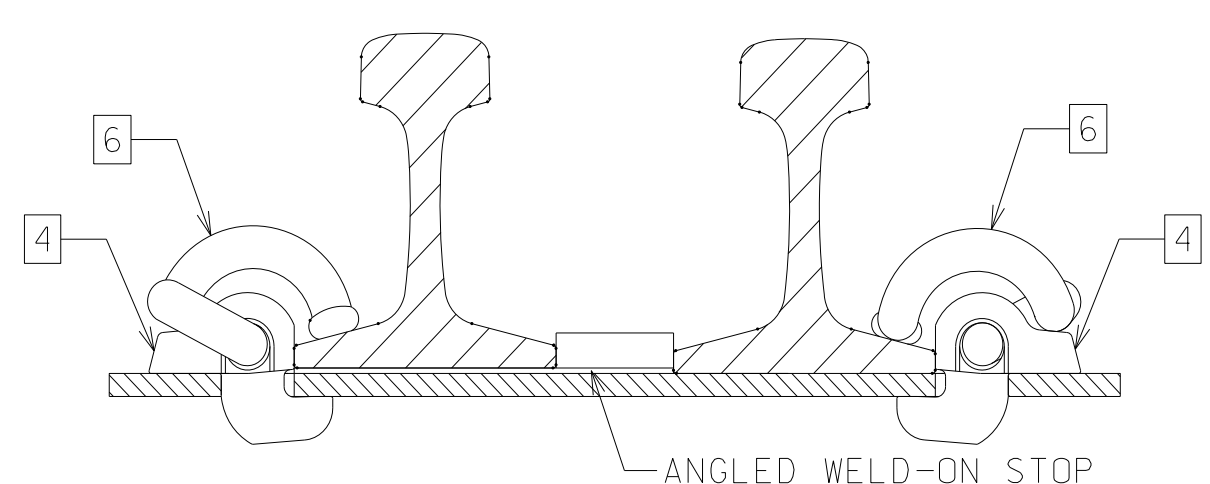


ROD	POSITION FROM POINT OF SWITCH
1	1' 5"
2	3' 1"

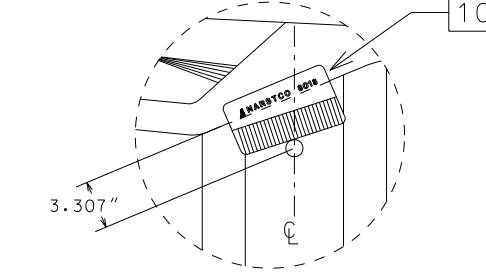


A TYPICAL RAIL BRACE ASSEMBLY

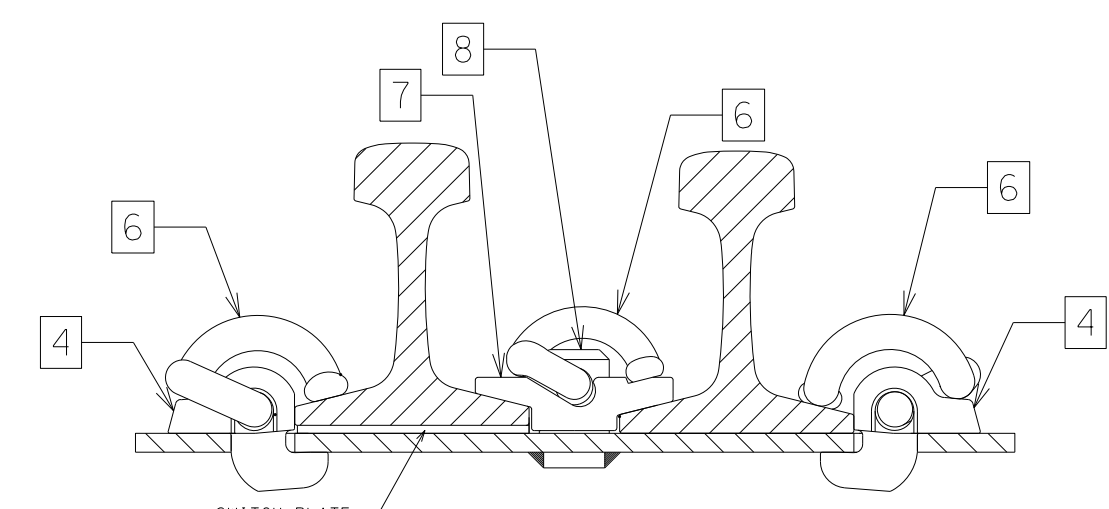


B TYPICAL AWOS ASSEMBLY

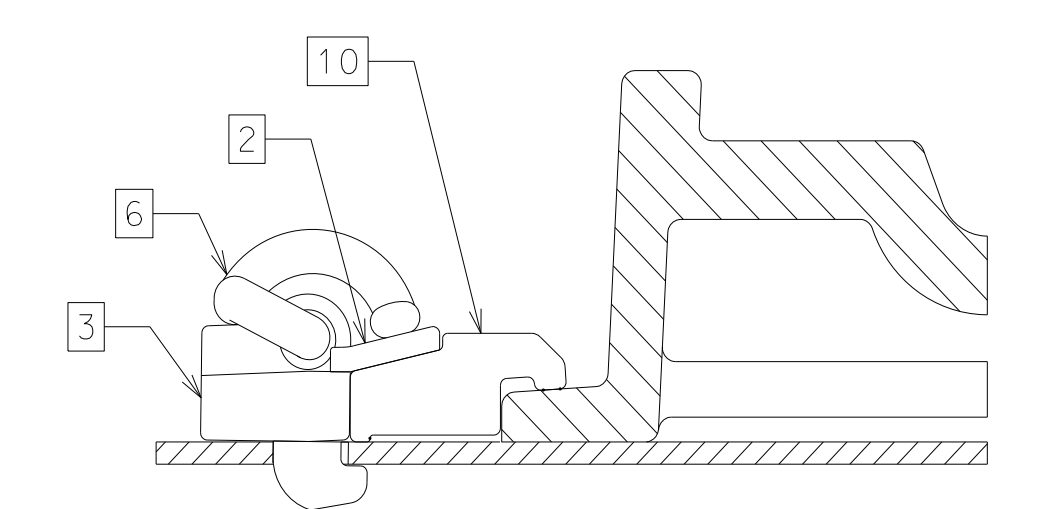
TYPICAL FROG CLAMP DRILLING DETAIL



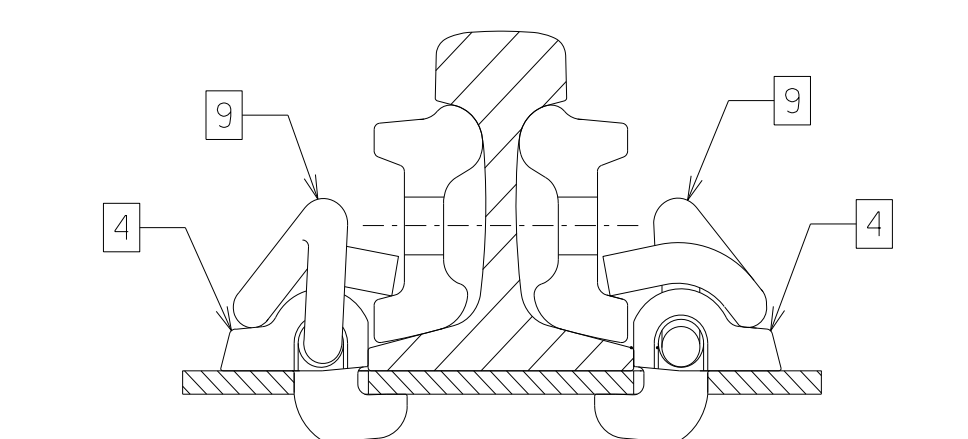
FROG CLAMP DRILLING PROCEDURE  
 IN PRACTICE:  
 - LOCATE 8018 FROG CLAMP AS SHOWN IN DETAIL  
 - PLACE ANNULAR CUTTER AGAINST FROG CLAMP ON TIE CENTER  
 - ENERGIZE MAGNET AND REMOVE FROG CLAMP  
 - DRILL HOLE  
 - PLACE HOOK-IN SHOULDER 8016 IN HOLE AND DRIVE FROG CLAMP 8018 IN FROM RIGHTHAND SIDE  
 - INSTALL SERRATED WASHER AND THEN CLIP.



C TYPICAL WEDGE PLATE ASSEMBLY



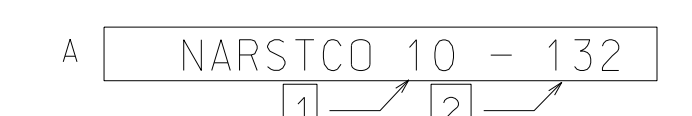
D TYPICAL S.M.S.G. FROG ASSEMBLY  
 (NOTE: SEE TYPICAL FROG CLAMP DRILLING DETAIL)



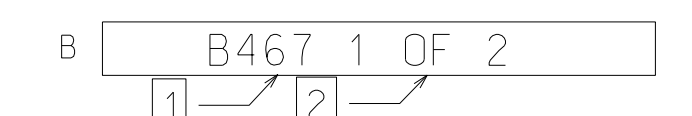
E TYPICAL JOINT BAR ASSEMBLY

- NOTE**
- TRANSITION TIES ARE FLAT SEAT DESIGN (NO CANT) REF. NARSTCO DWG. 1013.
  - LABELS A, B & D AFFIXED TO TOP TIE IN EVERY BUNDLE ONLY. LABEL C AFFIXED TO EVERY TIE EXCEPT TRANSITION.
  - 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.
  - UNIFORM RISER PLATE THICKNESS:-
    - 1/4" FOR TIES 3 TO 12
    - 3/16" FOR TIE 13
    - 1/8" FOR TIE 14
    - 1/16" FOR TIE 15
  - TIES WILL BE PUNCHED FOR 7/8" DIA. INSPECTION HOLES. LOCATION VARIES WITH RAIL POSITION.
  - TIES FOR S.M.S.G. FROG TO BE FIELD-DRILLED FOR ADJUSTABLE FROG CLAMPS. SEE TYPICAL FROG CLAMP DRILLING DETAIL.
  - JOINT BARS SHOULD BE USED TEMPORARILY FOR TURNOUT INSTALLATION ONLY. ALL JOINTS SHOULD BE WELDED TO PRODUCE CONTINUOUS RAIL.
  - SIDE JAW (SINGLE HOLE, NON-ADJUSTABLE) CLIPS SHOULD BE USED WITH HORIZONTAL SWITCH RODS OR VERTICAL SWITCH RODS (PER NS PLAN 3-20B) THAT ARE SEATED IN CHANNEL TIES.
  - CHANNEL TIE SWITCH POINT PROTECTOR REQUIRES THE USE OF TWO 4010s (SEE WCH POINT GUARD PLANS FOR MORE INFO)

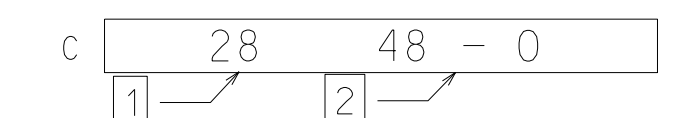
**LABEL FORMAT**



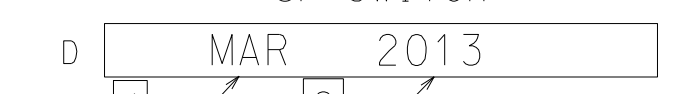
1. TURNOUT NUMBER  
2. RAIL WEIGHT



1. BATCH NO. FOR QUALITY ASSURANCE IDENTIFICATION  
2. SEQUENTIAL NUMBER IN BATCH



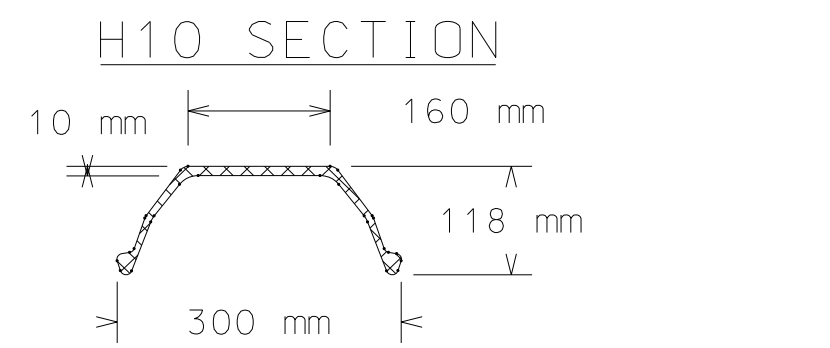
1. TIE NUMBER  
2. DISTANCE FROM THE POINT OF SWITCH



1. MONTH PRODUCED  
2. YEAR PRODUCED

No.	TURNOUT COMPONENTS	PART No.	QTY
1	ADJUSTABLE RAIL BRACE	8020	10
2	RAIL BRACE SERRATED WASHER	8015	26
3	RAIL BRACE HOOK-IN SHOULDER	8016	26
4	NARSTCO HOOK-IN SHOULDER	4020	430
5	INTENTIONALLY LEFT BLANK		
6	'e' CLIP ('e' TYPE CLIP)	'e' CLIP	457
7	WEDGE PLATE	15, 16, 53	5
8*	WEDGE PLATE PIN	15, 16, 53	5
9	'J' CLIP	NJ1	40
10	FROG CLAMP (S.M.S.G.)	8018	16
11	L/H 'e' CLIP	Ne2	5
12	NARSTCO HOOK-IN SHOULDER	4010	2

\* PINS WELDED TO TIE DURING MANUFACTURE



SECTION PROPERTIES  
 WEIGHT OF BAR: 30.8 kg/m  
 YIELD STRENGTH: 250 MPa (min)  
 SECTION MODULI: Z TOP = 153 x 10<sup>3</sup> mm<sup>3</sup>  
 : Z BOT = 79.7 x 10<sup>3</sup> mm<sup>3</sup>

TURNOUT DATA			
FROG S.M.S.G.	NUMBER	10	
	ANGLE	5° 43' 29"	
	LENGTH	TOE	3' 9"
		HEEL	7' 7 1/2"
		TOTAL	11' 4 1/2"
SPREAD	TOE	4"	
	HEEL	9 5/8"	
SWITCH	LENGTH	16' 6"	
	HEEL SPREAD	6 1/4"	
	ANGLE	1° 44' 11"	
	VERTEX DISTANCE	8 1/4"	
	THROW	5"	
TURNOUT	ACTUAL LEAD	78' 9"	
	CURVE ON CENTER LINE	DEGREE	7° 21' 22"
		RADIUS	779' 5 1/16"
	CLOSURE	STRAIGHT	58' 6"
		CURVED	58' 8"
TANGENT ADJACENT TO HEEL OF SWITCH		2' 5 7/16"	
TANGENT ADJACENT TO TOE OF FROG		1/16"	
RAIL GAUGE		4' 8 1/2"	

NORFOLK SOUTHERN REFERENCES	
PLAN #	TITLE
2-6	NS #10-132 16'-6" S.M.S.G.
4-10	SOLD MANGANESE SELF GUARDED FROGS
3-20B	VERTICAL SWITCH RODS
N/A	ATLANTA FAB PLANT CUT POINT JOINT LOCATIONS, AS BUILT FOR THE SOUTHERN RAILWAY TURNOUT CARS

WESTERN CULLEN HAYES REFERENCES	
PLAN #	TITLE
7S270R-19-20	SWITCH POINT GUARD FOR CHANNEL TIE RIGHT HAND
7S270L-19-20	SWITCH POINT GUARD FOR CHANNEL TIE LEFT HAND

REV.	DATE	DESCRIPTION	EC#
01	3/2013	GENERAL BORDER REVISION AND UPDATE	EC13-01

THIS DRAWING AND THE OBJECTS REPRESENTED IN IT ARE THE EXCLUSIVE PROPERTY OF NARSTCO. REPRODUCTION, COPYING OR DISTRIBUTION OF THIS DRAWING OR OF THE OBJECTS IS NOT PERMITTED WITHOUT OUR WRITTEN CONSENT. THIS DRAWING MAY NOT BE USED TO CALL FOR TENDERS AND MAY NOT BE MADE AVAILABLE FOR REVIEW BY PARTIES OTHER THAN THE RECIPIENT.



CLIENT		
NS STANDARD		
DRAWN	APPROVED	DATE
NI	SK	OCTOBER 2, 2008

OWG. NO.	REV.
2184	01
TITLE NO. 10 UNINSULATED TURNOUT FOR 132 LB. RE RAIL WITH 16' - 6" SWITCH & SMSG FROG	
SCALE	

**UNCONTROLLED COPY**  
 THIS COPY IS NOT CONTROLLED  
 SUPPLIED FOR INFORMATION ONLY  
 REVISIONS WILL NOT BE PROVIDED