

**BNSF**



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# **System Special Instructions**

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## **All Subdivisions No. 2**

**IN EFFECT AT 0001  
Central, Mountain, and  
Pacific Continental Time**

**Saturday March 1, 1997**

**All signals are subject to modification indicated under individual subdivision special instructions.**

**DISTANT SIGNALS**

Aspects shown in Rules 9.1.3 through 9.1.8 may be displayed with a "D" sign on the signal mast to identify the signal as a Distant Signal.

When a "D" sign is displayed, if train is delayed per Rule 9.9 or Rule 9.9.1 between a distant signal and the next signal, proceed prepared to stop short of the next signal.

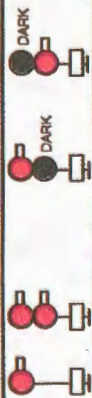



Absolute signals at automatic switches, outside of block system limits, convey main track distant signal information for the other end of the siding.

**BLOCK AND INTERLOCKING SIGNALS**






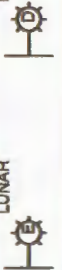
Aspects shown in Rules 9.1.3 through 9.1.8 and 9.1.13 may be displayed on signals with or without a number plate on signal mast.

Rule	Aspects of Color Light and Semaphore Signals	Cab Signal Aspects	Name	Indication
<b>9.1.3</b>			CLEAR	Proceed
<b>9.1.4</b>			APPROACH LIMITED	Proceed prepared to pass next signal not exceeding 60 MPH and to advance on diverging route.
<b>9.1.5</b>			ADVANCE APPROACH	Proceed prepared to pass next signal not exceeding 50 MPH and to advance on diverging route.
<b>9.1.6</b>			APPROACH MEDIUM	Proceed prepared to pass next signal not exceeding 40 MPH and be prepared to enter diverging route at prescribed speed.
<b>9.1.7</b>			APPROACH RESTRICTING	Proceed prepared to pass next signal at restricted speed.






Rule	Aspects of Color Light and Semaphore Signals	Cab Signal Aspects	Name	Indication
9.1.14			STOP AND PROCEED	Stop, then proceed at restricted speed.
9.1.15			STOP	Stop.

## SPECIAL ASPECTS WHICH ARE NOT PART OF AUTOMATIC BLOCK, CTC, AND INTERLOCKING SYSTEMS

Rule	Aspects	Name	Indication
9.1.16		TAKE SIDING INDICATOR	When illuminated, hand operate switch to enter next siding or to leave siding and enter main track.
9.1.17		BLOCK INDICATOR	Block clear
9.1.18		BLOCK INDICATOR	Block occupied
9.1.19		SPRING SWITCH INDICATOR	When lunar is not illuminated, stop and inspect spring switches per Rule 8.9.
9.1.20		FAILED EQUIPMENT INDICATOR	When illuminated continuously, or when not illuminated, stop train and inspect for failed equipment. Advise dispatcher reason for delay by first available means of communication.
9.1.21		FAILED EQUIPMENT INDICATOR	When flashing, no failed equipment has been detected.




Rule	Aspects	Name	Indication
9.1.22	LUNAR 	SLIDE FENCE INDICATOR	When illuminated continuously or when not illuminated, slide fence has been activated; proceed at restricted speed.
9.1.23	LUNAR 	SLIDE FENCE INDICATOR	When flashing, slide fence has not been activated.
9.1.24	GREEN 	RESUME SPEED	End of slide fence restriction; resume speed.


## GENERAL SIGNAL INSTRUCTIONS

In addition to Rule 9.1 of the General Code of Operating Rules, the following General Signal Instructions apply on Burlington Northern Santa Fe Railway:

- When a track intervenes to the right between a signal and the track governed, a stub post with a blue light will be attached to the right of the signal mast.
- When a track intervenes to the left between a signal and the track governed, a stub post with a blue light will be attached to the left of the signal mast.
- Dwarf signs will display the same aspects and indications as high signals.
- The following symbols are used in diagrams of signal aspects:

 To indicate a number plate

 To indicate flashing light

 To indicate color light signal head

 To indicate position of semaphore arm

 To indicate grade marker

## ALL SUBDIVISIONS

## 1. Speed Restrictions

All speeds are subject to modification by speed restrictions indicated under Individual Subdivision Special Instructions.

Passenger trains will be governed by freight train speeds if passenger train speed is not specified under Individual Subdivision Special Instructions.

Unless defined differently in the Individual Subdivision Special Instructions, tons per operative brake (Tons/OB) is defined as the gross trailing tonnage of the train divided by the total number of cars having operative brakes.

To determine if train exceeds 100 tons per operative brake, add two zeros to the number of cars having operative brakes. If train has greater trailing tonnage than the resulting figure, train exceeds 100 tons per operative brake. Example: 85 cars with operative brakes plus two zeros equals 8500. An 85 car train with 9182 tons would exceed 8500 and hence would exceed 100 tons per operative brake.

**Maximum Speeds Permitted**

Freight trains up to 100 Tons/OB ..... 60 MPH.  
Trains 100 Tons/OB and over ..... 45 MPH.

Exception: This does not apply where " % " is shown with speed in Individual Subdivision Special Instruction 1(A).

Trains handling empty cars, except when comprised entirely of passenger/commuter equipment ..... 55 MPH.  
Key Trains and Haz Trains ..... 50 MPH.  
Haz Trains on Sidings ..... 10 MPH.  
Trains moving in non signaled territory ..... 49 MPH.  
Trains moving against current of traffic ..... 49 MPH.  
Solid consist of military equipment ..... 55 MPH.  
Locomotives equipped with friction bearings ..... 35 MPH.  
On sidings ..... 20 MPH.  
Trains and engines through turnouts ..... 10 MPH.  
On tracks other than main tracks and sidings ..... 10 MPH.  
Within Mechanical department limits ..... 5 MPH.  
Movements on or off turntables ..... 1 MPH.

**Equipment**

	Main Line	Branch Line
Flat cars, empty, NP 580400-580739 .....	50 MPH.	50 MPH.
OTTX Flatcars 90000-97955 (loaded or empty) .....	45 MPH.	45 MPH.
Gondolas: empty cars picked up enroute and not on conductors wheel report or work order .....	50 MPH.	50 MPH.
Gondolas: loaded and empty		
PC 598500 through 598999, CR 598500 through 598990 or SP 345000 through 345699 .....	45 MPH.	45 MPH.
Gondolas: empty KCS 801011 through 802930 .....	45 MPH.	45 MPH.
Bulkhead flat cars: empty cars picked up enroute and not on conductors wheel report or work order .....	45 MPH.	45 MPH.
Empty bulkhead wallboard flatcars:		
BN 616475 through 616674, CS 616375 through 616474 and SOU 115250 through 115274 .....	45 MPH.	45 MPH.
Air dump cars, loaded .....	45 MPH.	45 MPH.
Clay Cars, RARW 3801-4199 .....	45 MPH.	45 MPH.
Ore cars,		
Loaded .....	45 MPH.	20 MPH.
Empty .....	50 MPH.	20 MPH.
Exceptions: BN 98000-98150, BN 99000-99949, and BN 551000-551500 (No speed restrictions)		
Scale test cars .....	35 MPH.	25 MPH.

Exception: Scale test cars listed below have a minimum gross weight of 100,000 pounds and may move in any position in the train and at maximum authorized speed for which your train is qualified:

WWBX 199917	MP 15510	UP 900700
WWBX 199918	MP 15511	UP 903600

WWBX	199919	MP	15512	BN	979019-979024
MP	15507	UP	167579	BN	979026-979036

Ribbon rail cars, (loaded) .....	35 MPH.	25 MPH.
Ribbon rail cars, (empty) .....	45 MPH.	45 MPH.
Wedge plow or dozer, hauled in tow .....	35 MPH.	25 MPH.

Rotary plow, wrecking derrick, locomotive crane, pile driver, clamshell, shovel, Jordan spreader, hauled in tow .....	30 MPH.	25 MPH.
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The following equipment when handled in trains will be handled on rear end of train only, and are subject to the following maximum speeds:

Kershaw .....	45 MPH.	45 MPH.
Plaser Machines .....	45 MPH.	45 MPH.
P 811 .....	45 MPH.	45 MPH.
Loram .....	45 MPH.	45 MPH.

When moving coupled with maintenance of way tool cars they must remain coupled to such cars.

Locomotive cranes, wrecking derricks and other types of heavy work equipment must not be operated on any subdivision designated as a branch line unless authorized by dispatcher and roadmaster or covered by specific instructions.

ACFX tank cars 17451 through 17495 .....	45 MPH.	45 MPH.
NATX tank cars 10841 through 10865 .....	45 MPH.	45 MPH.

Tank cars:

DVLX 4001 through 4190 and the following UTLX cars:

76517	76742 through 76745	78287 through 78293	
76539	76747	78326	
76556	76748	78328 through 78333	
76558	76750	78336 through 78340	
76568	76751	78343	
76595	78256 through 78269	78344	
76649	78272	78347	
76656	78274	78348	
76696	78278	78350	
76733	78281	78353	
76736 through 76738	78285 .....	40 MPH.	40 MPH.

EMPTY Schnabel type cars:

APWX 1004	GEX 40010, 80002, 80003	
BBCX 1000	GPWX 100	
CAPX 1001	HEPX 200	
CEBX 100, 101	KWUX 10	
CPOX 820	WECX 101, 102, 200-203, 301	
CWEX 1016 .....		40 MPH. 40 MPH.

All Schnabel cars listed above must be handled on or near the rear of trains not exceeding 100 cars in length, must not be handled in trains requiring pusher service and must not be humped or switched with motive power detached.

Hopper cars WFAX 84654 through 84700 .....	45 MPH.	45 MPH.
Trains RSGV handling loaded sulphur cars .....	40 MPH.	40 MPH.
Trains GVRs handling empty sulphur cars .....	40 MPH.	40 MPH.
Flat cars loaded with track panels .....	35 MPH.	35 MPH.

#### 1(A). Control of Harmonic Rocking on Jointed Rail

Under certain conditions, operation of trains between 13 MPH and 21 MPH can cause derailments due to harmonic rocking of cars. Where specified by Individual Subdivision Special Instructions or general order, the following restrictions apply when operating on jointed rail:

Freight trains, other than coal trains, ore trains, or trains consisting entirely of empty equipment, which cannot maintain a minimum speed of 21 MPH, must reduce speed to not exceed 13 MPH until movement can again exceed 21 MPH.

#### 1(B). Speed - Main Tracks

Unless otherwise restricted by Individual Subdivision Special Instructions, when authorized by Individual Subdivision Special Instruction 1 (A) by an asterisk (\*) in the freight column, the maximum speed for freight trains is 70 MPH provided:

(1) Train does not contain empty car(s). Ten-pack cars, articulated double stack cars and cabooses are considered loads. Five-pack cars and conventional flatcars

loaded with empty trailer(s), empty containers or container chassis are considered loads.

- (2) Train does not exceed 8,500 feet.
- (3) Train does not average more than 80 tons per operative brake.
- (4) Engineer can control speed to 70 MPH without use of air brakes.

(If unable to control speed at 70 MPH on long, descending grades, two additional attempts are allowed to control speed with dynamic brake at slower speeds before speed must be reduced to 55 MPH while negotiating descending grade.)

#### Exceptions:

Trains consisting entirely of intermodal equipment:

Same as above except train must not average more than 90 tons per operative brake under item (3).

Trains consisting entirely of loaded double stack equipment:

Same as above except train must not average more than 105 tons per operative brake under item (3).

Note: Double stack exception does not apply on the following subdivisions: Newton, La Junta, Raton, Glorieta, Needles, Mojave, Bakersfield and Stockton.

Additionally, trains operating with solid double stack equipment only may use a maximum of 32 axles of dynamic braking per engine consist.

#### 1(C). Speed Restrictions-Tonnage

Where indicated by Individual Subdivision Special Instruction 1 (A) by a pound sign (#) in the freight column, the maximum speed for freight trains is 45 MPH when:

- (1) Train exceeds 10,000 feet; or
- (2) Train averages 90 tons or more per operative brake.

#### 1(D). Maximum Speed of Engines

Engines	MPH	When not Controlled From Leading Unit (MPH)
Amtrak	90*	45
Metrolink	90*	45
Metra	79*	45
All other classes	70	45

Exception: When the controlling locomotive of the train is a car body type or has comfort design cab and is in the backing position, maximum speed is 45 MPH.

\*Engine without cars must not exceed 70 MPH.

#### 2. Locomotive Restrictions

The number of powered axles in a locomotive consist must not exceed 36.

##### Hauled-In-Tow

The number of locomotives hauled-in-tow, regardless of placement in train, must not exceed two times the number of locomotives coupled for MU operation.

Locomotives not coupled to the head end, or helper consist, must have the Dead Engine Feature cut in and if possible be placed not more than 15 cars from the head end consist.

##### Alignment Control Couplers

Unless otherwise authorized, handle locomotives not equipped with alignment control couplers as follows:

Trains of 18 or more powered axles, pulling 5000 or more trailing tons, must:



- Have a locomotive with alignment control coupler next to the train.
- Not have two locomotives without alignment control couplers coupled to each other.

Locomotives not equipped with alignment control couplers are not restricted when handling trains with locomotive consists of less than 18 powered axles or trains less than 5000 trailing tons.

Unless stenciled on the locomotive, the following BN locomotives are not equipped with alignment control couplers:

5-585, 1000-1004, 1400-1438, 1966-1970, 6100-6237

Note: Some foreign line locomotives are not equipped with alignment control couplers.

## 2(A). Helper Operations

Placing helpers behind caboose is prohibited unless using coupler lock blocks. When helpers shove against caboose, employees are prohibited from occupying that caboose.

### Helper Restrictions:

Unless individual special instructions specify otherwise, the following powered axle limitations apply to each helper consist at the rear of the train: (Use Locomotive Data Table to determine powered axle ratings)

All trains – 12 powered axle rating, or less

Solid, loaded bulk commodity trains – 24 powered axle rating, or less

(Coal, grain, potash, taconite, molten sulphur, etc.)

Note: Helper locomotive consist exceeding powered axle rating above must be cut in at least 300 tons per additional powered axle from the rear of the helped train, but no closer to the head end than mid-train.

### Helper tractive effort restrictions when shoving against empty or light cars:

Any helper consist at the rear of a train exceeding a powered axle rating of 6 must not shove against any car weighing less than 50 tons or empty units of a multiplatform car within 10 cars and/or units of the helper consist. If more than 6 powered axles of tractive effort needed to help train with cars less than 50 tons or empty units within rear 10 cars/units of rear of train, helper consist must be entrained 300 tons for each additional powered axle rating above 6.

If not possible to entrain helpers as outlined above, limit tractive effort as follows:

6 rated powered axles or less – No restriction

8 rated powered axles – 1050 amps

10 rated powered axles – 950 amps

12 rated powered axles – 900 amps

Note: When helping with AC locomotives as outlined above, limit tractive effort to 100,000 lbs. by utilizing tractive effort gauge of controlling locomotive and multiplying by number of AC locomotives in consist. Example: Lead controlling AC locomotive of a two-unit AC locomotive consist should not indicate more than 50,000 lbs. shoving against light cars as outlined above.

### Distributed Power:

Distributed Power remote consist(s) placement will be determined by dispatcher or local supervision.

**2(B). Locomotive Data Tables**

The table below shows the current Santa Fe and BN engine numbers and the new BNSF numbers when engines are re-numbered.

The following tables will be used for determining power and dynamic brake axle limitations for conventional, helper and distributed power operation:

Former Santa Fe	Former BN	BNSF	Type	Make	Weight	Horse Power	Axles & DB Type	Power Axle Rtg	DB Axle Rtg
	3,300	3,300	SW1	EMD	198,000	600	4-NONE	4	0
	375-585	3600-3646	SW10	EMD	250,000	1,000	4-NONE	4	0
	5	3,310	NW12	EMD	252,000	1,200	4-NONE	4	0
	171-255	3500-3546	SW12	EMD	250,000	1,200	4-NONE	4	0
	20-65, 300-324	3400-3470	SW15	EMD	262,000	1,500	4-NONE	4	0
	1000-1004	3700-3704	MP15	EMD	261,000	1,500	4-NONE	4	0
	1-2	1-2	F9-2, F9-2B	EMD	241,000	2,000	4-NONE	4	0
	3-4	3-4	E9	EMD	338,000	2,400	4-NONE	4	0
1200-1201		1200-1201	MK 1200G	MK	250,000	1,200	4-NONE	4	0
1,460		1,460	SWBLW	EMD	262,500	1,500	4-NONE	4	0
2000-2241		1299-1399	GP7	EMD	249,000	1,500	4-NONE	4	0
2244-2299	1702-1977	30-57, 1600-1684	GP9	EMD	259,000	1,750	4-NONE	4	0
	600-604	1700-1703	GP9B	EMD	248,000	1,750	4-NONE	4	0
	1400-1438	1400-1438	GP10	EMD	260,000	1,800	4-NONE	4	0
	1475-1499	1475-1499	GP15, GP15-1	EMD	258,000	1,500	4	4	
	1995	1995	GP18	EMD	248,000	1,800	4	4	
3000-3066	2048-2063	2000-2059	GP20	EMD	261,000	2,000	4BT	4	4
	1500-1599	1500-1599	GP28 M/P	EMD	260,000	1,800	4BF	4	4
2700, 2779		2400-2477	GP30	EMD	262,900	2,500	4BT	4	4
2801-2954		2500-2649	GP35	EMD	266,000	2,500	4BT	4	4
2300-2380	2060-2369	2062-2369	GP38, GP38-2	EMD	285,000	2,000	4ET	4	4
3400-3704	2700-2984	2700-2985	GP39, GP39-2	EMD	270,000	2,300	4EF#	4	4

Former Santa Fe	Former BN	BNSF	Type	Make	Weight	Horse Power	Axles & DB Type	Power Axle Rating	DB Axle Rating
	3500-3554	3000-3027	GP40M, GO40E	EMD	278,000	3,000	4BF	4	4
3800-3809	3040-3064	3040-3074	GP40-2, GP40X	EMD	278,000	3,000	4BF	4	4
3810-3854		3163-3207	GP50	EMD	275,000	3,600	4EF	4	4
	3100-3162	3100-3162	GP53, GP53L	EMD	272,000	3,000	4EF	4	4
6350-6419	MNCW 801-807	4200-4275	B23-7	GE	268,000	2,250	4EF	4	4
	4000-4119	4000-4119	B30-7A	GE	275,000	3,000	4BF	4	4
	6100-6246	6100-6176	SD9	EMD	368,000	1,750	6	6	6
	6260-6270	6260-6270	SD38P	EMD	391,000	2,000	6BF	6	6
	6289-6299	6289-6299	TEBC6	EMD	387,000	2,000	6B	6	6
1500-1575		6200-6219	SD39	EMD	389,000	2,500	6EF	6	6
5000-5267	6300-6399 6700-8161	6300-8181	SD40, SD40-2	EMD	391,500	3,000	6EF#	6	6
	5325-5437 5800-5975	7530-7539	SD45, SD45-2	EMD	395,000	3,600	6ET	6	6
90-98		90-98	SDFP45	EMD	395,000	3,600	6ET	6	6
8099-8166	5000-5141 5500-5599	5000-5209 5500-5599	C30-7	GE	417,000	3,000	6EF#	6	6
9508-9568		5210-5279	SF30C	GE	391,500	3,000	6EF	6	6

# BN or BNSF locomotives with green paint scheme in this class have basic dynamic brakes instead of extended range as shown.

## Leased Locomotives

Leased Locomotives	Type	MaKe	Weight	Horse-power	Axles & DB Type	Power Axles	DB Axles
LMX 8500-8599	B39-8	GE	280,000	3,900	4EF	4	6
OWY 9000-9099	SD60	EMD	401,000	3,800	6EF	6	8
EMD 741-838	GP38E	EMD	285,000	2,000	4ET	4	4
EMD 6402-6430	SD40E	EMD	391,500	3,000	6EF	6	6
GATX 1237-1245	SD38-2	EMD	391,000	2,000	6BF	6	6
GATX 7349-7378	SD42G	EMD	415,000	3,000	6BF	6	6
EMD 2000-6382	SD42E	EMD	415,000	3,000	6BF	6	6

## High Horsepower Locomotives with High capacity Dynamic Brakes (3800HP+)

Former Santa Fe	Former BN	BNSF	Type	Make	Weight	Horse-power	Axles & DB Type	Power Axle Rating	Dyn Brake Axle Rating
500-582		500-582	B40-8W	GE	288,000	4,000	4EF	4	6
		8600-8634	B40-8	GE		4,000	4EF	4	6
100-162		100-162	GP60M	EMD	274,500	3,800	4EF	4	4
325-347		325-347	GP60B	EMD	270,000	3,800	4EF	4	4
	9200-9299	9200-9299	SD60M	EMD	401,000	3,800	6EF	6	8
200-250 8251-8275		8200-8299	SD75M	EMD	394,000	4,300	6EF	6	8
800-951		800-951	C40-8W	GE	394,200	4,135	6EF	8	8
600-699		600-699 960-1123	C44-9W	GE	392,000	4,400	6EF	8	8

Note: For locomotives above, cutting out traction motors reduces power axle rating a like amount. Cutting out traction motor(s) on above DC locomotives nullifies dynamic brake.

## AC Traction Locomotives

Type	Make	Weight	Horsepower	Axles and DB Type	Power Axle Rating	Dynamic Brake Axle Rating
CW4400AC	GE	408,000	4,390	6EF	11	9
1 TM c/o					11	8
2 TM c/o					7	6
3 TM c/o					5	5
4 TM c/o					4	3
5 TM c/o					2	2
CW6000AC	GE		6,000	6EF	12	11
1 TM c/o					12	9
2 TM c/o					8	7
3 TM c/o					6	5
4 TM c/o					5	3
5 TM c/o					3	2
SD70MAC	EMD	415,000	4,000	6ET	11	8
1 truck c/o					5	5
SD80MAC	EMD		5,000	6EF	12	9
1 truck c/o					6	6
SD90MAC	EMD		6,000	6EF	13	10
1 truck c/o					7	7

E=Extended Range

B=Basic Range

F=Flat or grid control

T=Taper or speed control

#### AC Locomotives:

EMD AC traction locomotives have a single inverter per truck, therefore individual trucks are cut out when troubleshooting or when limiting power or dynamic brake axles.

GE AC locomotives have one inverter per axle and can have individual traction motors cut out as with a DC locomotive.

Note: Unlike DC locomotives, dynamic brake is still operative with traction motors or a truck cut out on AC locomotives.

The above table to be used to determine appropriate rating of power axles/dynamic brake axles with traction motors/trucks cut out.

### 3. Equipment Restrictions

The following equipment must be placed next ahead of caboose or at rear of cabooseless trains, except in work trains, unless otherwise indicated in the individual subdivisions.

- Outfit cars, **EXCEPTION:** Univans may be placed anywhere in the train.
- Pile drivers
- Locomotive cranes
- Empty ribbon rail cars
- Rear end only cars
- Jordan spreaders
- Rotary snowplows
- Wedge plows
- Dozers.

Scale test cars must be placed ahead of caboose or, on caboosless trains, ahead of the last car. **EXCEPTION:** BN 979019-979024 and BN 979026-979036 may be placed anywhere in the train.

Scale test cars must not be humped.

When pile drivers, cranes, derricks or similar equipment are being moved on their own wheels or on cars in a train, they must be properly loaded and secured. Booms must be properly secured and, when possible, boom must be trailing. Equipment must be inspected before being moved.

Spreaders and dozers being moved in trains must, when possible, be headed in the direction train is moving and wings must be properly secured.

DODX 40000-40100 are cars belonging to the Department of Defense. Handbrakes on these cars must not be used to control movement and must be applied from a ground position while car is standing.

Loaded ribbon rail cars must not be:

- Coupled to other cars except buffer cars. (Buffer cars will be placed ahead of and behind ribbon rail cars at welding plant).
- Handled in freight service with other cars unless authorized.
- Separated for maintenance or repairs unless under direct supervision of a roadmaster.

### 3(A). Multi-Platform and Stack Intermodal Cars

Unless otherwise indicated in the Individual Subdivision Special Instructions multi-platform stack intermodal cars are authorized for movement on tracks with weight limit of 177,000 pounds or more.

These cars must not be cut off in motion or struck by any car moving under its own momentum.

### 3(B). Rotary/Rapid Discharge Coal Cars

On the following sets of Rotary/Rapid Discharge coal cars, the dump door line air hoses, must be coupled or placed in proper receptacle when provided, prior to releasing the train for service:

- MCHX 30815-31044
- NSPX 90001-90240 & 90501-90744
- WCSX 12001-12123

Note: These are the cars that have the trainline on one side of the coupler and the dump door line on the other side, with both hoses being at end sill level.

### 3(C). Trough Cars-BN 552000 through BN 552022 (13 section articulated coal cars, 278 ft. long)

Speed restrictions-None (there may be restrictions on individual subdivisions based on gross weight of car and its axle equivalency).

<u>Gross Weight of Trough Car</u>	<u>Axle Equivalency</u>
855 tons	263,000 lb.
871 tons	268,000 lb.
884 tons	272,000 lb.
904 tons	278,000 lb.
917 tons	282,000 lb.
930 tons	286,000 lb.

Tons per operative brake- when empty, less than 100 tons O/B  
when loaded, more than 100 tons O/B

Switching Restrictions-Trough cars must not be cut off in motion or struck by any car moving under its own momentum.

Coupling Speed Restrictions-Due to unique design and experimental nature of this equipment, when coupling to or coupling with **loaded** Trough Cars, maximum speed must not exceed 2 MPH. To comply with this speed, when coupling to or coupling with **loaded** Trough Cars, stop movement 10 to 20 feet short of a coupling, then proceed to couple cars.

Hand Brakes-(there are four hand brakes per Trough Car)

- All four hand brakes are accessible only from the left side of the Trough Car.
- Operate hand brakes only when car is stopped. Do not attempt to apply hand brake while car is moving.
- When hand brake is required, apply all four hand brakes on a car.



- When applying hand brakes because of grades, use the same required percentage of cars, rounded upward to the next whole car. For example: if there are 22 trough cars in a train, and the requirement is 10% of cars need hand brakes applied, then the requirement for hand brakes is 2.2 cars, rounded upward to 3 whole cars, so apply all four hand brakes on 3 trough cars.

Air cut-out cocks (there are 3 air cut-out cocks per Trough Car)

- All three air cut-out cocks are accessible only from left side of the trough car.
- Each air cut-out cock controls four trucks—two on each side of the control.
- To cut out air, pull up on rod end and pull out away from car—directions are on a decal above the air cut-out cock.

Dump door line air hoses

- The dump door line air hoses must be coupled between all trough cars, and must be coupled above train line air hoses.
- At front of train and rear of train, dump line air hoses must be secured so as not to drag on ground.
- Connect dump door air line hoses to locomotives only when at unloading facility (or when near unloading facility shortly before unloading).

#### 4. Air Repeater Operation

Air repeater cars BNH 3-14, 20-29, and 30-35 must be operated at a position approximately 60% from the head-end.

EXAMPLE: In a 100 car train, the air repeater car will be the 60th car.

There are flashing lights on each end of the roof and two lights on either car side, at ground level. Flashing roof light and illuminated side light indicates which end of the car is cut in for repeater operation. The illuminated light, must be the light nearest the controlling locomotive.

If charging in the wrong direction, bring the brake pipe of the air car to zero PSI with an emergency application of the brakes. Then recharge in the normal manner.

Air repeater cars increase the brake pipe pressure by a fixed percentage. Higher brake pipe pressure at the rear of a train will be noticed with this arrangement. It is possible for the brake pipe pressure on the rear car to be greater than the brake pipe pressure setting of the controlling locomotive. This does not constitute an overcharge with the air repeater car operating.

If an air repeater car fails enroute, an automatic valve will operate to bypass the repeater equipment making it operate like any other car in the train. It is not necessary to do anything at the air repeater car. The air repeater car diesel engine contains antifreeze and draining of the engine is not required with engine shutdown.

If brakes do not release on the train when the air repeater rack is cut out from the bypass valve, it will be necessary to reduce the overcharged condition.

#### 5. Car Restrictions

Cars that are either shorter than minimum length or are heavier than limits specified in Item 2 of the Individual Subdivision Special Instructions or in any of the following paragraphs are not permitted without authority of Division Superintendent or BNSF Clearance Bureau.

6 axle cars listed in Table 5A can weigh up to the indicated weights and still be in compliance with Item 2 of the Individual Subdivision Special Instructions.

Table 5A

6 Axle Car Number Series	Maximum Gross Weight of 6 Axle Car If Item 2 Max. Gross Weight of Car Equals			
	143 Tons	138 Tons	136 Tons	134 Tons
CSXT 600908-600910 DODX 39980-40573 HCMX4402 KCS 700002-700053 NS 185541-185542 SOU 50016-50019 ZRNX 150	185 Tons	180 Tons	177 Tons	175 Tons
CN 672001-672009, 673000-673001 CR 766062-766072, 766074, 766145-766150 CSXT 600430 DODX39095-39199, 39810-39832 PC 766149 RSUX 200	170 Tons	165 Tons	162 Tons	160 Tons
ATSF 90010 BLE 4601-4602 CR 766026-766061 CSXT 600349, 600390-600394 DH 16159 IAPX 1001, 1003-1005, 1008 LV 9661 MP 863002-863015, 866000 NS 185209-185210, 185400, 185403 -185423 PC 766043-766051 SEX 1 SP 500502-500521 SSW 80005-80006 UP 50000 OTHERS	150 Tons	145 Tons	142 Tons	140 Tons

8 axle cars listed in Table 5B can weigh up to the indicated weights and still be in compliance with Item 2 of the Individual Subdivision Special Instructions.

Table 5B

8 Axle Car Number Series	Maximum Gross Weight of 8 Axle Car If Item 2 Max. Gross Weight of Car Equals			
	143 Tons	138 Tons	136 Tons	134 Tons
ATSF 90001-90004,90006-90007, 90011-90014,90016 BAWX106-107 BN 631021 FWLX 81 HCMX4400 NS 185300-185301,185550, 185522-185531,185550- 185555 NW 70103,70108-70111 PLMX 100-101 PSOX 1 QTTX 130500-130503,130550-130562, 130600-130604,130700-130707 RAIX 4301-4319 UP 50002-50003 VAPX 20000 WP 1601-1602 WPEX100 ZRNX 151	250 Tons	235 Tons	226 Tons	220 Tons
ATSF 90015 BPAX 855-883,900-901 CN 674100-674102,675000-675001 CNW 48017-48019 DODX38860-38861,39780-39782, 39800-39809,39833-39847 EL 7600-7601 NS 185009,185100-185108,185501- 185503,185505-185506 PC 766090-766091,766152 QTTX 131025-131051 UTLX 83699	225 Tons	212 Tons	205 Tons	200 Tons
BLE 4607-4610 CN 670002,67400-67403 CNW 48003 CP 309965-309970 DODX38865-38867,38870-38885 NS 185005-185007,185521 QTTX 131000-131005 SOU 50088-50089 SP 500605-500606	200 Tons	190 Tons	184 Tons	180 Tons
ATSF 90020-90023 BLE 4604-4605 DH 16153-16156 DODX39900-39907 NS 185000 RDG 9100 RTRX 1-4 USAX 39902 WECX100 OTHERS	150 Tons	145 Tons	142 Tons	140 Tons

Actual car weight may exceed the maximums by up to 1 ton, due to weighing tolerances.  
 Cars weighing between 134.01 and 143 tons must be at least 52 feet long.  
 Cars weighing between 110.01 and 134 tons must be at least 44 feet long.  
 Cars weighing between 89.01 and 110 tons must be at least 38 feet long.  
 Cars weighing 89 tons or less must be at least 35 feet long.  
 Ore cars weighing between 110.01 and 134 tons must be at least 35 feet long.  
 Ore cars weighing 110 tons or less must be at least 24 feet long.

Weight and length restrictions indicated in this section and in Item 2 of the Individual Subdivision Special Instructions apply to four axle cars, do not apply to articulated cars such as trough cars or multiple unit double stack well cars.

## 6. Instructions to Conductors and Switch Foreman

### 6(A). Crews reporting to Ft. Worth Customer Support Center

#### Wheel Report-

A wheel report is a printed list of cars in a train that provides car initial and number, standing order of cars, destinations, station blocks, and other car and train information necessary to the train crew. This is the conductor's working list for his train (cars to be set out, spotted, delivered, etc. enroute to the final destination of the train or crew). Other types of printed switch lists may be used as a wheel report.

Also, a wheel report can be made by using the BNSF printed form entitled "TRAIN LIST AND WHEEL REPORT", used by conductors and switch foremen, by adding car numbers, car movement activity, and train information whenever other printed wheel reports or switch lists are not available.

#### Switch Lists-

A switch list is a track, switch, spot or pull list that shows car initial and numbers, car locations in YMS + S or CARS inventory, switching instructions (spot, pull, move, deliver), and other car and customer information (destination stations, spins numbers, car status, etc.). Switch lists that are provided and used for performing and documenting industry switching may be used in lieu of a wheel report.

#### Wheel Report and Switch List Preparations-

Wheel reports are required by conductors and switch foremen when setting out or moving cars outside of, and between terminals and stations. Moving, delivering, spotting or pulling cars within a terminal or station should be documented on a switch list or noted on a wheel report.

Trains that have a wheel report and are merely setting out or picking up at a station must document the required information (below) on their wheel report. The actual spotting or pulling of those car(s) is a separate activity and must be documented in addition to the initial set out. For example, if a train sets out at a minor station, the required information (below) is documented on the wheel report. If those same cars are spotted to an industry, the required spotting information must be entered either on the wheel report or switch list (if one has been provided). Therefore, a set out activity must be recorded on the wheel report AND a spot activity must be shown on either the wheel report or switch list.

If a wheel report is required and/or a switch list is used, the following information must be documented by the conductor or switch foreman:

#### Cars Set Out-

- Exact location including station number, track name or SPINS, and location of track (E or W position).
- Time and date of set out.

#### Cars Spotted-

- Exact location including station number, track name or SPINS, and location of track (E or W position).
- Spot time and date.

#### Cars Pulled-

- Date and time that car was pulled. If unable to pull for whatever reason, document date and time that an attempt was made to pull the car and the reason it couldn't be pulled, i.e. broken rail, blue flag, locked gate, etc. When this occurs conductors and switchmen should make the following notation on their list: "Could not pull because" \_\_\_\_\_ (blue flag, auto on track, requested by supervisor \_\_\_\_\_, etc.)

**Cars Moved-**

- Location where cars were picked up showing station number, track name or SPINS, time and date.
- Location where cars were set out. (See "Cars Set Out" above)

**Cars Interchanged-**

- Delivery time and date (if different than "Set Out" time and date), and track name or SPINS, if applicable.

**Note-Cars Moved WITHIN Terminals and Stations Need Only:** Track name or SPINS where cars were moved, time and date.

**Note-Cars Interchanged WITHIN Terminals and Stations Need Only:** Delivery time, date and track name or SPINS, if applicable.

**All Locations-**

If unable to set out, spot, pull, deliver or move cars, indicate where cars were placed or left, time, date, and the specific reason or conditions which prevented it.

Some valid reasons for exceptions are:

- Request by BNSF personnel (explain)
- Power overweight or axle restrictions
- Derailment (explain)
- Track or switch out of service (explain)
- Unsafe conditions (explain)
- Track full, unable to spot
- Per customer request (explain)
- Customer gates locked/doors closed
- Customer reject (explain)
- Crew short of time
- Track obstructed (explain)

If an industry supervisor gives instructions not to pull a car, document the supervisor's name and, if an additional list of switching instructions is provided, retain that list and fax it and all other switch lists, wheel and delay reports.

If an industry supervisor requests work that does not show on a list, document by track name or SPINS where cars moved from and to, times and the name of the supervisor requesting move.

Wheel reports and switch lists must be submitted to a clerk or agent at the end of each tour of duty. If a station or terminal has transferred freight and yard office functions to a centralized agency center, for example, Fort Worth Customer Support Center, conductors and switch foremen must fax all accurately documented wheel reports and switch lists to that Customer Support Center. **After faxing wheel reports and switch lists, the conductor or switch foreman must call the designated clerk or specialist that provides service for your respective division or terminal in order to verify that all lists have been received, are legible and have been completed properly.** This information is necessary to maintain expedient service to our customers, maintain proper records for car movement, and to support billing charges due BNSF.

Signature indicating that conductor or switch foreman has performed the work and has entered and completed the information, as required above, on wheel reports and/or switch lists (including work that was left undone).

Conductors are required to submit train delay report with their timeslip whenever operating outside the switching limits of their headquarters (also fax train delay report to designated centralized agency center).

Conductors and switch foremen who have been assigned a cellular phone are encouraged and expected to call the station agent or clerk that provides service for your respective division, or the CSC specialist at Fort Worth anytime there are questions or problems with car set outs, pickups, deliveries, movements or switch lists.

**6(B). Crews Reporting to CQS Topeka**

Printed work orders issued for trains and switch jobs list the work scheduled for that tour of duty. Conductors and engine foremen are responsible for documenting and reporting all scheduled work performed and for noting any exceptions.

Any unscheduled work performed must also be reported on the Supplemental Work Order form.

Work orders include the following documents:

- Work Order of Entire Train
- Train List and Profile
- Hazardous Manifest (if train contains hazardous materials)
- FRA 215.9 Mechanical Defective Cars List (if applicable)
- Work Order for Each Station
- Track List of Each Track to be Worked
- Supplemental Work Order Form

Scheduled work is printed on a work order for each station where work is to be performed. Work performed should be reported according to outstanding instructions.

#### **Reporting Scheduled Work**

Upon arrival or departure at each station where work is to be performed, enter day and time you arrived or departed that station, as applicable, in the fields provided at the top of the work order.

Upon completion of work at a station, indicate how work was reported in the fields provided at the bottom of the work order. Enter date and time reported, then sign the work order.

#### **Setouts And Switching Within Station**

Enter time car(s) set out or moved in "HHMM" field. Enter track number in "LEFT AT LOCATN" field if car left on yard track or siding. Enter interchange railroad's reporting marks in "LEFT AT LOCATN" field if car is interchanged to another road. Enter zone-track-spot preceded by "S" in "LEFT AT LOCATN" field if car is set for loading or unloading. If car left on industry track and NOT set for loading or unloading, see "REPORTING EXCEPTIONS" under "Cars Left On Industry Track Not Placed (OTNP, OTCC)" for proper marking of list.

#### **Pickups**

Enter time picked up in "HHMM" field. Enter station name where cars are to be left in "LEFT AT LOCATN" field. In space immediately below car line, indicate where car(s) is placed in train by showing "HE" for head end pickup, "RE" for rear end pickup. When filling behind cars already on train, enter "FB" and the init/number of the car the pickup will follow.

#### **Reporting Exceptions**

##### **Setout (Not at Location Indicated)**

Enter setout time in "HHMM" field. Enter station name where cars were setout in "LEFT AT LOCATN" field. In space immediately below car line, indicate track where cars setout.

##### **Cars Left on Industry Track Not Placed (OTNP, OTCC)**

Enter time car setout in "HHMM" field. Enter left at zone-track number only, followed by "NP" to indicate car left on any industry track BUT not placed for loading or unloading due to customer's inability to accept car. Enter left at zone-track number only, followed by "CC" to indicate car left on any industry track but not placed for loading or unloading due to carrier's convenience. In space immediately below car line, enter reason car(s) was not spotted.

##### **Work Not Done**

Enter "ND" in the "LEFT AT LOCATN" field. In space immediately below car line, enter reason for not completing the work as instructed on the work order.

##### **Unscheduled Work (Supplemental Work Orders)**

Any work performed that is not listed on the printed work order should be reported on a Supplemental Work Order form. Any time this form is used, you must enter train symbol and your signature in the space provided.

##### **Setout**

If a car is setout, enter date, time, car initials/number, station where track is located and track number. If placing a car on an industry track but not spotting it, indicate zone-track number only, followed by "NP" or "CC". If spotting a car, indicate the zone-track spot number preceded by "S".



**Pickup**

When a car is picked up, enter date, time, car initials/number, station where car is located and where being taken. Also, indicate in the "REMARK" field where car(s) is placed in train by showing "HE" for head end pickup, "RE" for rear end pickup. When filling behind cars already on train, enter "FB" and the init/number of the car the pickup will follow.

**Pull**

If car is pulled from industry spot and left on a local yard track, enter date, time, car initials/number, station where car located and track where was left.

**Spotting Car**

If a car is spotted on an industry track, enter date, time, car initials/number, station where car located and zone-track-spot where car placed preceded by "S".

**7. Dimensional and Special Shipment Restrictions**

All employees involved in handling dimensional or special shipments must be familiar with and are governed by these instructions:

- a. Any dimensional and/or oversize car or special shipment must be accompanied by a movement authorization message issued by BNSF Clearance Bureau or by track bulletin.
- b. Before a dimensional or special shipment can be moved in a train, yard forces or employee in charge of station where no yard forces on duty, must obtain permission from the train dispatcher. This does not relieve conductor from complying with Rule 1.47 of the General Code of Operating Rules. When yard supervisors are notified of expected arrival of wide cars, precautions must be taken to safeguard employees in yard.
- c. Before a dimensional shipment is picked up on line, conductor must obtain permission from the train dispatcher. When dimensional or special shipment is set out on line, conductor must notify train dispatcher as soon as possible.
- d. Train dispatcher must issue appropriate track warrant, track bulletin or message when dimensional shipment restricts opposing train and confirm message received.
- e. Train with dimensional shipment must not pass or be passed by a train in the same direction unless authorized by the train dispatcher or proper safeguards taken.
- f. Within or when destined for the state of California, and train room permits, they shall be blocked together in one place and trained at least five cars distant from both caboose and engine.
- g. Employees are prohibited from riding excessive dimension cars.
- h. Following code words are authorized for use involving movement of dimensional or special shipments, and when so used in movement authorization message, trainmen, enginemen and yard forces will be governed by restriction indicated.

**RESTRICTIONS APPLICABLE TO CODE WORDS ALPHA THROUGH MIKE INCLUSIVE**

**Handle cautiously through yards.**

**When load is handled through turnouts and crossovers, keep adjacent tracks near these turnouts and crossovers clear of other on-track equipment.**

**CODE****RESTRICTION APPLICABLE****ALPHA**

**LOAD WIDTH 11 ft. 1 in. to 11 ft. 8 in. INCLUSIVE**

Load must not pass or be passed by loads over 12 ft. 6 in. wide on 13 ft. track centers and loads over 13 ft. wide on 13 ft. 6 in. track centers. Observe track center restrictions for 11 ft. 6 in. wide loads.

**BRAVO**

**LOAD WIDTH 11 ft. 9 in. to 12 ft. 1 in. INCLUSIVE**

Load must not pass or be passed by loads over 12 ft. wide on 13 ft. track centers and loads over 13 ft. wide on 13 ft. 6 in. track centers. Observe track center restrictions for 12 ft. wide loads.

**CHARLIE**

**LOAD WIDTH 12 ft. 2 in. to 12 ft. 5 in. INCLUSIVE**

Load must not pass or be passed by loads over 11 ft. 8 in. wide on 13 ft. track centers, loads over 12 ft. 8 in. wide on 13 ft. 6 in. track centers and loads over 13 ft. wide on 14 ft. track centers. Observe track center restrictions for 12 ft. 4 in. wide loads.

**DELTA**

**LOAD WIDTH 12 ft. 6 in. to 12 ft. 9 in. INCLUSIVE**

Load must not pass or be passed by loads over 11 ft. 4 in. wide on 13 ft. track centers, loads over 12 ft. 4 in. wide on 13 ft. 6 in. track centers and loads over 13 ft. wide on 14 ft. track centers. Observe track center restrictions for 12 ft. 8 in. wide loads.

**ECHO** LOAD WIDTH 12 ft. 10 in. to 13 ft. 2 in. INCLUSIVE

Load must not pass or be passed by loads over 11 ft. wide on 13 ft. track centers, loads over 12 ft. wide on 13 ft. 6 in. track centers and loads over 13 ft. wide on 14 ft. track centers. Observe track center restrictions for 13 ft. wide loads.

**FOXTROT** LOAD WIDTH 13 ft. 3 in. to 13 ft. 6 in. INCLUSIVE

Load must not pass or be passed by loads over 10 ft. 8 in. wide on 13 ft. track centers, loads over 11 ft. 8 in. wide on 13 ft. 6 in. track centers and loads over 12 ft. 4 in. wide on 14 ft. track centers. Observe track center restrictions for 13 ft. 4 in. wide loads.

**GOLF** LOAD WIDTH 13 ft. 7 in. to 13 ft. 9 in. INCLUSIVE

Load must not pass or be passed by loads over 10 ft. 4 in. wide on 13 ft. track centers, loads over 11 ft. 4 in. wide on 13 ft. 6 in. track centers and loads over 12 ft. 4 in. wide on 14 ft. track centers. Observe track center restrictions for 13 ft. 8 in. wide loads.

**HOTEL** Reduce speed to 5 MPH or less when passing or meeting moving trains on adjacent tracks. Normal speed may be resumed if other train has stopped.

**INDIA** Reduce speed to 5 MPH or less when passing or meeting moving trains on curved portion of adjacent tracks. Normal speed may be resumed if other train has stopped.

**JULIET** Reduce speed to 5 MPH or less when meeting trains or cars on adjacent tracks. Observe movement of load and be prepared to stop if necessary. Trains passing or meeting this load must not exceed 5 MPH.

**KILOGRAM** Reduce speed to 5 MPH or less when meeting trains or cars on curved portion of adjacent tracks. Observe the movement of load and be prepared to stop if necessary. Trains passing or meeting this load must not exceed 5 MPH.

**LIMA** Load may not clear equipment on adjacent tracks. Adjacent tracks must be clear when necessary and possible. Passing or meeting is permitted only if equipment on adjacent track has stopped and the oversize load has speed reduced to 5 MPH or less. If oversize load cannot be moved past the other train, then other train may attempt to move by such load at 5 MPH or less. Observe the movement of the load at all times and be prepared to stop instantly and arrange to pass safely by switching, if necessary.

**MIKE** Load may not clear equipment on curved portion of adjacent tracks. Adjacent tracks must be kept clear when necessary and possible. Passing or meeting is permitted only if equipment on adjacent track has stopped and the oversize load has speed reduced to 5 MPH or less. If oversize load cannot be moved past the other train, then other train may attempt to move by such load at 5 MPH or less. Observe the movement of the load at all times and be prepared to stop instantly and arrange to pass safely by switching, if necessary.

**NOVEMBER** When passing other loads carrying NOVEMBER restriction, do not pass on curved part of adjacent tracks.

**OSCAR** Do not pass loads wider than \_\_\_\_\_ on adjacent parallel tracks.

**PAPA** Stop and proceed on hand signals only while watching for very close side or overhead clearance to bridge or structure.

**QUEBEC** Reduce speed not to exceed 13 MPH.

**ROMEO** Give careful handling and keep adjacent track clear at turnouts, crossovers and other sharp curves in yard, interchange or industry tracks. Load may, or may not, clear man on side of car or engine when on adjacent track. Employees on train handling and other trains involved should be notified.

- SANDWICH** The above restrictions apply to load(s) of wire mesh securely loaded and fastened down to car so that load cannot shift and exceed loaded measurements given above.
- TANGO** Due to extreme high valuation, arrange for proper policing in transit. This shipment must not be humped, switched with motive power detached, or allowed to run free. Do not kick other cars against this shipment.
- UNIFORM** Shipment urgently required at destination. Give best handling consistent with safety and restrictions. Do not set out if safe to move.
- VICTOR** This shipment must not be detoured or rerouted without further clearances.
- WHISKEY** No further restrictions necessary, however, due to nature of shipment, handle with extreme care through all yards, turnouts, switches and at locations where there are close track centers. Protect against other wide loads and equipment on adjacent tracks. Attach copy of restrictions to waybill. Post connecting division. Advise yard forces and train and engine crews handling.

## 8. Trackside Failed Equipment Detectors (FED)

### 8(A). Description

Failed Equipment Detectors (FED) are devices that inspect passing trains for defects such as:

- Overheated journal bearings
- Hot wheels
- Dragging equipment

Individual Subdivision Special Instructions identify the following:

- Detector location
- Shifted Load
- Dragging Equipment Only Detectors (DED)
- Radio Tone Only Detectors
- Detectors that protect bridges, tunnels, or other structures
- Detectors that inspect trains moving only in specified direction

When a shifted load or dragging equipment detector is actuated at a point where an adjacent main track or controlled siding may be obstructed, crew must provide protection as prescribed by Rule 6.23. (See Rule 6.29.2)

Note: If direction is not specified, FED equipment inspects trains moving in both directions.

### 8(B). Detector Message and Radio Tone

#### Radio Tone

A four (4) second radio tone sounds or message received "you have a defect" when a defect is detected by an FED or when the FED experiences an "Integrity Failure" or "System Failure".

Note: An "Integrity Failure" or "System Failure" message indicates a fault within the system that may interfere with a complete inspection of the train.

When a radio tone is received or message received "you have a defect" from an FED, immediately reduce train speed to less than 30 MPH utilizing train handling methods that minimize in-train-forces.

#### Detector Message

The detector message is transmitted by radio after the entire train passes the detector. The detector message may include multiple alarm messages.

The detector message is not complete until either "Out" or "End of Transmission" is received or at some locations message is repeated except "No Defect" message may only be stated once.

Some FED equipment is capable of transmitting axle count and/or speed as part of the detector message.

#### Train Approaching Detector

Except in emergency, when an approaching train is within 150 feet of an FED do not make a radio transmission until the entire train has passed.

**8(C). Detector Message and Train Crew Action**

Use the following table to determine crew member requirements when a detector alarm message is received.

Detector Message	Train Crew Action	Additional Instructions
"... No Defects." or "...Train too slow" with no additional alarm message(s).	1. Proceed	None, unless FED equipment protects bridge, tunnel, or other structure.
"...Integrity failure" or "System failure" with no additional alarm messages(s).	1. Train may proceed unless other messages require inspection.	Report "Integrity failure" or "System failure" message to the train dispatcher.  If FED equipment protects bridge, tunnel, or other structure, additional train crew actions are required.
When FED equipment protects bridge, tunnel, or other structure and message is:  "...Integrity failure" or "System failure." "...Train too slow." or Track bulletin or track warrant states that FED equipment is out of service.	1. As soon as a radio tone is received, immediately reduce train speed to less than 30 MPH.  2. Stop. Inspect both sides or entire train before reaching bridge, tunnel, or structure being protected.	Report "Integrity failure" or "System failure" message to the train dispatcher.

Detector Message	Train Crew Action	Additional Instructions
<p>"..First hot box right/left side axle XXX."</p> <p>"First dragging equipment near axle XXX."</p> <p>"First hot wheel right/left side from axle XXX to axle XXX."</p> <p>or</p> <p>Detector alarm message(s) followed by "...Integrity failure"</p> <p>or</p> <p>"System failure"</p>	<p>1. As soon as a radio tone is received, immediately reduce train speed to less than 30 MPH.</p> <p>2. Stop the train</p> <p>3. Inspect the indicated axle.</p> <p>4. If no defect is found, inspect 12 axles either side of the indicated axle(s).</p>	<p>Detector alarm message may identify more than one defect. Inspect train for all reported defects before proceeding.</p>
<p>"..Excessive alarms."</p> <p>Axle count varies by more than 16 axles.</p> <p>Speed transmitted varies by more than 10 MPH from actual train speed.</p> <p>Detector alarm message does not include axle designation.</p> <p>or</p> <p>No message or incomplete message is transmitted.</p>	<p>1. As soon as a radio tone is received, immediately reduce train speed to less than 30 MPH.</p> <p>2. Stop and inspect both sides of entire train.</p>	<p>Note: Crew member must receive "Out", "End of Transmission", or hear message is repeated before message is complete.</p> <p>Verify that the marker or EOT device is on the rear car.</p>

EXCEPTION: On the Kansas, Oklahoma, Texas, Southeastern, New Mexico, Arizona, Northern California and Southern California divisions, if no radio message is transmitted, no radio message is received or incomplete radio message is transmitted, train may proceed at prescribed speed and must be observed closely enroute.

The train must be stopped and both sides inspected if:

- Detector protects bridge, tunnel or other structure.
  - Train is operating on concrete ties.
  - Train will not pass another detector within 30 miles.
- or
- Train is designated as Haz Train.

- 8(D). Radio Tone Only Detector locations are identified in the Individual Subdivision Special Instructions. They are used to detect dragging equipment only and communicate by radio tone. No voiced messages are announced.

Use the following table to determine crew member requirements when passing Radio Tone Only Detectors.

Detector Message	Train Crew Action	Additional Instructions
Intermittent Tone immediately after train has passed detector.	1. Proceed. No dragging equipment has been detected.	None.
Continuous tone while passing detector or No tone after train has passed detector.	1. Stop. Inspect both sides of entire train for dragging equipment.	None.

**8(E). Train Inspection**

When alarm message requires inspection, inspect the side of the train in the message. The side identified is based on the direction of train movement.

Determine the location of the indicated axle by physically counting axles from the head end of the train, including locomotive axles. Do not depend on wheel report information for correct axle count.

When alarm message requires, inspect indicated axle(s). If inspection does not reveal a defect, inspect 12 axles forward and 12 axles to the rear of the indicated axle.

If a train receives 4 hot wheel alarms, 4 hotbox alarms, 2 or more dragging equipment alarms, 2 wide or high load alarms on 'light beam' shifted load detectors, or one wide or high load alarm on all other shifted load detectors, remainder of train must be inspected for additional defects.

**Dragging Equipment Inspection**

When a dragging equipment alarm message is received, make a walking (trackside) inspection of the train until the inspection is complete or until an obstruction (bridge without a walkway) prevents further inspection. When obstruction prevents completion of inspection, move train at no more than 5 MPH to complete the inspection per Rule 6.29.2, as amended.

**Overheated Equipment Inspection**

When an overheated equipment alarm message is received, follow this procedure to inspect equipment:

- Crew member positioned on the ground must count axles.
- Move train at no more than 10 MPH until the indicated axle is near the crew member or until inspection is complete.

**Freight Trains**

If no defect is found, train may continue, but crew members must closely observe indicated equipment for the next 25 miles or until the next inspection by hot bearing detector.

Exception: If indicated axle is on a loaded placarded non-intermodal car containing hazardous material and no defect is found during the inspection, set out the loaded placarded non-intermodal car.

**Passenger Trains**

If no defect is found after inspecting 12 axles forward and 12 axles to the rear of the indicated axle, inspect both sides of the entire train.

If no defect is found, train may continue, but crew members must closely observe indicated equipment for the next 25 miles or until the next inspection by hot bearing detector.

Exception: Amtrak Trains:

When the same axle actuates a second or subsequent wayside hot box detector, and no hot axle bearing or other defect which may have caused the actuation(s) (e.g., hot traction motor bearing, sticking brakes, etc.) is found after the prescribed inspections, the following actions will be taken:

1. The train will not exceed 30 MPH for the next five (5) miles.
2. The train will be stopped at that point and all bearings which activated the detector(s) will be reexamined. Equipment ahead of and behind the suspected axle(s) need not be reexamined during this 5-mile inspection.
3. If any apparent increase in bearing temperature is noted during the 5-mile reinspection, the car will be set out at the first available point.
4. If no hot bearing is found during the 5-mile reinspection, the Dispatcher will be notified, and the train may proceed to the next point where railroad mechanical personnel are available to inspect the car and authorize further movement or direct the car to be set out. If any station stops are made before the mechanical inspection point, the crew will inspect the car at such locations.

When a train actuates a wayside hot box detector before a crew change location, the relieving crew will be advised of the equipment that activated the detector so that they can inspect the car and follow the above procedure if the equipment actuates a subsequent detector enroute.

**8(F). Testing Bearing Temperature**

Use a heat indicating crayon, or hand held infrared device to test bearing temperature.



Test bearing temperature by stroking the heat indicating crayon on the bearing cup. Aliquid smear will remain on an overheated bearing.

When ambient temperature is 32 degrees Fahrenheit or above, use a 200 degree Fahrenheit heat indicating crayon to test bearing temperature.

When ambient temperature is below 32 degrees Fahrenheit, use a 163 degree Fahrenheit heat indicating crayon to test bearing temperature.

If a heat indicating crayon, or hand held infrared device is not available, carefully pass your hand near the bearing without touching it. If a bearing is radiating more heat than the others, it is overheated.

Use crayon marker to write date and letter "X" above each journal indicated or found to be overheated and the date and letter "W" above each wheel indicated or found to be defective or overheated if the car is set out or remains in train.

Set out equipment with overheated bearing.

If it is safe to move equipment, set out any car with an overheated bearing at a location accessible to repair personnel.

#### **8(G). Consecutive Alarm Messages**

If the same equipment is indicated by 2 successive hot bearing alarm messages, set out the indicated equipment.

Note: Do not include Dragging Equipment Only Detectors (DED) when counting successive FED equipment inspections.

EXCEPTION: Train crew must request and be governed by instructions from the dispatcher concerning further handling of Ten-Pack equipment after second detector stop.

#### **8(H). Indicating on Locomotive or Caboose**

When unable to locate a defect indicated on a locomotive or caboose, notify the following:

- Connecting crew members
- Mechanical personnel
- Supervisor

Do not set out a caboose with a generator belt attached to the indicated axle unless a hot bearing, hot wheel or dragging equipment is found.

#### **8(I). Special Conditions**

When a hot bearing is found within 25 miles of FED equipment, a crew member must notify the train dispatcher. The train dispatcher must notify the signal maintainer and request the FED equipment be inspected.

When blowing or swirling snow conditions may prevent detectors from making a proper inspection, crew members must reduce train speed to minimize this condition.

#### **8(J). High Water Detectors**

High water detectors have been placed under certain bridges and in certain areas where high water might occur. When train is notified of high water by detector, they must not proceed over bridge until examination by crew member has been made to determine that bridge or track has not been weakened by high water.

At locations equipped with radio readout type high water detectors, if no radio response is received, trains must not proceed until thorough examination has been made to determine that bridge or track has not been weakened by high water.

Trains moving against the current of traffic must approach all locations protected by high water detectors prepared to stop unless it has been determined that tracks are clear, high water is not present, approaches to bridges are intact or examination has been made to determine that bridge or track has not been weakened by high water.

#### **8(K). Slide Detectors**

Slide detectors placed in certain areas will cause adjacent signals to be red or rotating red lights to become illuminated if the circuit is broken. Due precaution for slides must be taken by crews in such areas when observing the requirements of Rules 9.12.1, 9.12.2, 9.12.3, 9.12.4, or 9.16. When a rock slide is indicated, trains must proceed at restricted speed until track at this location is known to be clear of any obstruction. Train dispatcher must be promptly notified if slide conditions observed.

#### **8(L). Dragging Equipment Detectors on Concrete Ties**

Where indicated in individual Subdivision Special Instruction no. 5, with a reference to

System Special Instruction 8(L), trains will be governed as follows in connection with dragging equipment detectors so designated.

When alarm message requires inspection, axle count will be given from the front of the train. When alarm received, train must be stopped and inspected by making a walking (trackside) inspection of the train until the inspection is complete or until an obstruction (bridge without a walkway) prevents further inspection. When obstruction prevents completion of inspection, move train at no more than 5 MPH to complete the inspection per Rule 6.29.2.

If no radio message is transmitted, train may proceed at prescribed speed and must be observed closely enroute. Radios at these designated detectors will only transmit a message when an alarm is present. It is not necessary to report a failure to transmit to the train dispatcher as required with other types of detectors.

## 9. Amtrak Instructions

### Equipment

Unless otherwise provided, equipment that cannot be safely operated at maximum speed must be set out at first available location unless train can arrive final destination in less time than would be required to make the set out.

- Maximum speed for freight locomotives in Amtrak service is 70 MPH.
- Movement with locomotives between cars is prohibited.
- Double stretch is required after pick up or set out of cars or locomotives.
- Required hand tools and supplies must be available on locomotive.
- Train garbage/refuse to be off loaded into FDA approved containers.

### Head End Power (HEP Requirements)

- Departure from originating station with HEP cables short looped is prohibited.
- In the event of HEP failure, crew members must determine if train may be handled safely and every effort made to advance train to the next siding or scheduled stop before repairs are made.
- All HEP cables must be secured with approved tie down grommets.
- Air hoses and HEP cables must be secured no less than 4 inches above top of rail.

### BNSF Crews Operating Amtrak Trains

When a BNSF crew relieves or helps an Amtrak crew, a freight locomotive must be used to handle Amtrak trains. Amtrak crews being relieved or helped by BNSF crews must handle all 480 volt AC power and set up Amtrak locomotives in the trail position. The speed in which the train will operate is the maximum speed allowed on that territory for freight train service. BNSF crews are prohibited from handling, adjusting or performing work between or under cars when Head End Power (HEP) 480 volt AC is energized.

### Amtrak Qualified BNSF Engineers Operating Amtrak Trains

Addition of a freight locomotive will not be necessary when one or both of the following apply:

- When the BNSF engineer who is to relieve or help an Amtrak crew is Amtrak qualified.
- When a BNSF engineer is accompanied by an Amtrak qualified engineer or qualified Amtrak supervisor.

The locomotives need not be set up in the trail position. All other requirements as listed above will be followed.

### Dumping Toilets

Except when discharged in to appropriate container, dumping of toilets from Amtrak trains is prohibited while:

- Passing through limits of track bulletin form B or joint track and time.
- In Nelson Bennett, Seattle, Everett, Cascade and Flathead tunnels.

Train and engine crews will coordinate their efforts to ensure compliance. Train crews are responsible for notification of on board personnel.

Speed Sensor Override Switch must not be placed in DUMP BELOW 25 MPH position except when an employee is in attendance.

**Delay Reports**

Prior to tie-up, engineer or conductor must furnish train dispatcher office with official delay report. The BNSF Passenger Services Desk must also receive a copy of the delay report (Fax 817-234-7283). Such delay reports will include:

- All time lost based on station dwell times and best possible run times.
- Reasons for delay over dwell times and all other time lost, i.e. passengers, baggage, slow order, hot/cold weather restriction, locomotive malfunctions, etc. each individual reason for delay must be separate from other types of delay. For example, do not list time lost due to a slow order and locomotive malfunction together.
- Car/locomotive initial and number, axle and journal if applicable, and reason for inspection and defect, if any found.
- SD relief numbers authorizing "hold" or "delay".

**10. Storage of Cars Within Yard Limits Non-Signaled Territory**

Within yard limits in non-signalized territory, the main track must not be used as a storage track except in case of emergency. When it becomes necessary to leave cars on main track in such territory, they must be protected by track warrant or track bulletin. This does not modify requirements of Rule 6.13.

**11. Commodities Insulating Track In CTC And ABS**

Employees should be alert for insulating commodities such as clay, chips, oil, etc., on top of rails. This condition could possibly insulate the track and cause loss of train shunt. Such conditions should be promptly reported and trains protected per rules while in CTC and ABS territory.

**12. Turnouts Equipped with Two Switch Machines (Moveable Point Frogs)**

Locations where turnouts are equipped with two switch machines will be identified under Individual Subdivision Special Instructions.

When dual control switches equipped with two switch machines are operated by hand, the switch machine which operates the switch points and the switch machine which operates the moveable point frog must both be placed in hand operation.

When turnouts are equipped with crank operated machines the hand crank must be turned an additional 10 revolutions after the switch points are in the desired position to insure sufficient closure tension at the switch points.

Rule 9.13.1 applies at all locations where turnouts are equipped with two switch machines (moveable point frogs).

**13. In Effect on Burlington Northern Santa Fe Railway**

- General Code of Operating Rules, THIRD EDITION, effective April 10, 1994. Page 15-14 of the General Code of Operating Rules, Third Edition, may be missing due to a printing error. Therefore all employees governed by the GCOR must replace page 15-13 with reprinted pages 15-13 and 15-14 in order to have a complete rule book.
- Air Brake and Train Handling Rules, effective August 1, 1996.
- Train Dispatcher's, Operator's and Control Operator's Manual, effective March 1, 1997.
- Maintenance of Way Operating Rules, effective August 1, 1996.
- Safety Rules and General Responsibilities for all Employees, effective March 1, 1997.
- 1996 North American Emergency Response Guidebook
- Canadian Rail Operating Rules 1990, revised December 1, 1996 (For use in Canada only).
- Rules for the Protection of Track Units and Track Work 1990, revised December 1, 1996 (For use in Canada only).

**14. General Code of Operating Rules Changes and Additions**

The following rules apply only on Burlington Northern Santa Fe Railway:

**Rule 1.5.1 Motor Vehicle Driving Records--new rule added:**

Employees certified as locomotive engineers, whatever class of service, must report convictions for:

- Operating a motor vehicle while under the influence of or impaired by alcohol or a controlled substance.

- Refusal to undergo such testing when a law enforcement official seeks to find out whether a person is operating under the influence of alcohol or a controlled substance.

An employee must report any conviction to an employee assistance representative no later than the end of the first business day immediately following the day that the employee received notice of the conviction.

**Rule 1.14 Employee Jurisdiction**—first bullet point is amended to read:

- Safety rules, air brake and train handling rules, and hazardous material instructions of the railroad they are employed by.

**Rule 1.17 B. Exceeding the Law**—add as last sentence:

Except as provided by this paragraph, employees are then relieved of all duties.

**Rule 1.26 Gratuities**—second sentence is changed to read:

Employees must not accept gifts or rewards from customers, suppliers, or contractors of the railroad unless authorized by the proper manager.

**Rule 1.30 Riding Engine**—the following paragraph is added:

In conductor only train operations during over the road movements the conductor will occupy the controlling locomotive.

**Rule 1.33 Inspection of Freight Cars**—the last paragraph that reads, "A freight car with three bad order tags indicating that the car is safe to move may be moved to the nearest car repair point. The conductor will remove one bad order tag from the side with two tags. The conductor will use this written information from the tag to inform other crew members of the restriction."

Is changed to read:

Freight car with bad order tags indicating that car is safe to move may be handled to nearest repair point.

**Rule 2.3 Repetition**—change the first bullet to read:

- Concerns yard switching operations.

**Rule 2.17 Radio Testing**—the following paragraph is added:

All road trains must have an operable radio in the controlling locomotive. If the radio should fail enroute, the locomotive may continue as the controlling locomotive only if no other locomotive is available to be picked up or switched to the controlling position, and then only to the next radio repair facility.

**Rule 5.4.2 Display of Yellow Flag**—

Paragraph B, Restriction Not Specified in Writing, item 2.a. is changed to read:.

a. Passed a green flag. If the rear of the train passes a green flag prior to traveling 2 miles from the yellow flag, speed may be resumed at that time.

**Rule 5.4.3 Display of Yellow-Red Flag**—

Item 2b which reads, "The rear of the train has passed a green flag" is cancelled.

The following paragraph is added:

Green flags must not be placed to release a train from the requirements of a yellow-red flag.

**Rule 5.4.5 Display of Green Flag**—is changed to read:

A green flag indicates the end of a speed restriction. If a series of locations requires reduced speeds, the green flags could overlap yellow flags. When this is the case, employees must:

Place a yellow flag before each speed restriction.

Place a green flag at the end of the last speed restriction.

Green flags must not be placed to release a train from the requirements of a yellow-red flag.

**Rule 5.4.6 Display of Flags Within Current of Traffic**—

Change the heading "B. Yellow-Red and Green Flags" to read "Yellow-Red Flags".

**Rule 5.5 Permanent Speed Signs**—the following paragraphs are added:

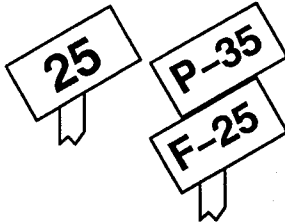
Reduce speed limits may be designated by Advance Warning Sign (diagonally upward), Reduce Speed Sign (rectangle) and Resume Speed Sign (vertical).

The Advance Warning Sign will be placed two miles in advance of the location where the lower speed takes effect. At the point where the reduced speed applies, a speed sign will repeat the permissible speed. The lower speed will be in effect until a Resume Speed Sign or another Speed Sign is displayed.

At the end of a reduced speed zone, a train or engine will be governed by a Speed Sign displaying a higher speed or a Resume Speed Sign which will authorize the maximum permissible speed on that subdivision. In either case, the speed must not be increased until the entire train has passed the sign displayed.

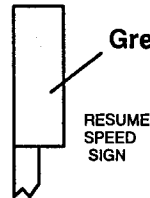
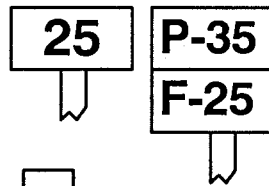
Locations where reduced speeds are required, but which are not indicated by signs, are listed in the special instructions for each subdivision.

#### ADVANCE WARNING SIGN



Note:  
Advance Warning Sign and  
Speed Sign have yellow  
background and black letters and/or  
numbers

#### SPEED SIGN



Green

RESUME  
SPEED  
SIGN

These signs as illustrated, apply to train and engine movements as follows:  
Figures preceded by letter P apply to passenger trains.  
Figures preceded by letter F apply to freight trains.  
Figures not preceded by a letter apply to all trains.

**Rule 5.8.2 Sounding whistle**—add the following as the new 4th paragraph and the current 4th paragraph will now be the 5th paragraph:

Sound whistle signal (11) and ring the bell when approaching roadway workers on or near the track, regardless of any whistle prohibition.

**Rule 5.11 Engine Identifying Number**—is changed to read:

Trains will be identified by initials and engine number, adding the direction when required. When an engine consists of more than one unit or when two or more engines are coupled, the number of one unit only will be illuminated as the identifying number. When practical, use the number of the leading unit.

Note: The following will apply for purposes of engine identification: All former Santa Fe engines painted red and silver or blue and yellow (including engines with MK or BNSF on the side) will be identified as ATSF engines.

**Rule 5.13.1 Utility Employee**—the following new rule added:

This rule outlines the requirements for allowing utility employee to work without blue signal protection.

As used in this rule, a Utility Employee is a railroad employee assigned as a temporary member of a train or yard crew.

#### A. Requirements to Start Work

A utility employee may work with more than one crew during the same shift or tour of duty, but may work as a member of only one train or yard crew at a time.

No more than three utility employees may work with one train or yard crew at the same time.

A utility employee may become a member of a train or yard crew under the following conditions;

- The utility employee establishes communication with the designated crew member of the train or yard crew before starting work.

- The designated crew member identifies the utility employee to each member of the crew, and each crew member acknowledges the utility employee's presence.
- The designated crew member authorizes the utility employee to work as a temporary member of the crew.

#### B. Requirements While Working On, Under, or Between

Before a utility employee will be on, under, or between rolling equipment, the following applies:

- All members of the crew must communicate with each other to understand the work to be done.
- The engineer must be in the cab of the assigned controlling locomotive. However, another member of the same crew may replace the engineer when the locomotive is stationary.

#### C. Requirements When Work Ends

A utility employee is released from a train or yard crew when:

- The utility employee notifies the designated crew member the work is completed.
- The designated crew member notifies each crew member that the utility employee is being released.
- After the designated crew member releases the utility employee from the train or yard crew, each crew member acknowledges this notice.

#### Rule 6.1.1 Direction and Numbers—new rule added:

When issuing or repeating track and time limits, track warrants, track bulletins, train location lineups, track permits and OCS, observe the following guidelines:

**Directions**—Directions (North, South, East, West) must be pronounced, then spelled.

**Numbers**—When the figure has more than one number:

1. State the number in words. (Example: Three-hundred sixty five)
2. State each figure in the number. (Example: Three, six, five)

When the figure has only one number:

1. State the number. (Example: Three)
2. Spell the word. (Example: T, H, R, E, E)

#### Rule 6.2.1 Train Location—Add new rule reading:

Train or maintenance of way employees who receive authority to occupy the track after the arrival of a train or to follow a train must ascertain the train's location by one of the following methods:

- Visual identification of the train
  - Direct communication with a crew member of the train.
- or
- Receiving information about the train from the train dispatcher or control operator.

#### Rule 6.3 Main Track Authorization—following last paragraph is added:

Requesting Authority

The employee requesting authority must be qualified on these rules and must tell the train dispatcher or control operator exactly where the main track will be entered. Employees and equipment must not enter the main track at any other point unless otherwise authorized.

#### Rule 6.4 Reverse movements—is changed to read:

Make reverse movements on any main track or on any track where CTC is in effect at restricted speed and only within the limits a train has authority to occupy the track.

#### Rule 6.4.1 Permission for Reverse Movements—Amended to read:

Obtain permission from the train dispatcher or control operator before making a reverse movement, unless the movement is within the same block in any of the following territories:

- CTC
- ABS
- Rule 9.14 (Movement with the Current of Traffic)

#### Rule 6.4.2A Control Points or Manual interlockings—is changed in its entirety to read:

##### A. Control Points or Manual Interlockings

Except within track and time limits, obtain permission from the control operator:

1. Before making a reverse movement if the trailing end of the train is between the outer opposing absolute signals of a control point or manual interlocking.
2. Before making a forward movement after making a reverse movement if the engine is between the outer opposing absolute signals of a control point or manual interlocking.



**Rule 6.5 Handling Cars Ahead of Engine**—is changed in its entirety to read:

When cars or engines are shoved and conditions require, a crew member must take an easily seen position on the leading car or engine, or be ahead of the movement, to provide protection. Cars or engines must not be shoved until the engineer knows who is protecting the point of the movement and how protection will be provided. Cars or engines must not be shoved to block other tracks until it is safe to do so.

When cars are shoved on a main track or controlled siding in the direction authorized, movement must not exceed:

- 20 MPH for freight trains
- 30 MPH for passenger trains
- Maximum timetable speed for snow service unless a higher speed is authorized by employee in charge.

Note: When plowing snow and all employees are on the equipment, one common authority may be used by both maintenance of way employees and the train crew.

**Rule 6.6 Picking Up Crew Member**—is amended as follows:

The 1st sentence is changed to read:

A train may back up on any main track or on any track where CTC is in effect to pick up a crew member under the following conditions.

Item 4 is changed to read:

4. Movement will not be made into or within yard limits, restricted limits, or interlocking limits.

Item 6, which reads as follows, is cancelled:

6. Movement does not exceed 5 MPH.

Add new last sentence reading:

Trains backing up under the provisions of this rule may pass signals indicating Stop and Proceed, without stopping.

**Rule 6.12 FRA Excepted Track**—Change last bullet to read:

- No movement will be operated that contains more than five cars placarded according to Hazardous Material Regulations.

**Rule 6.13 Yard Limits**—is amended as follows

First paragraph is changed to read:

Within yard limits, trains or engines are authorized to use the main track not protecting against other trains or engines. Engines must give way as soon as possible to trains as they approach. Engines which have not received track warrant authority to occupy main track must keep posted as to the expected arrival of passenger trains and must not delay them.

**Rule 6.20 Portion of Train Left on Main Track**—add a 4th bullet which reads:

- Make the return movement at restricted speed within the authorized limits of the rear portion of the train. However, an engine without cars may return at a higher speed when governed by block signal indication.

**Rule 6.23 Emergency Stop or Severe Slack Action**—is amended by adding:

Train must not proceed until it has been determined that it is safe to do so by visual inspection of train or knowledge that the brake pipe pressure has been restored by observing caboose gauge, End of Train Device (ETD) control head, or ascertaining that air pressure is present in the brake pipe by the following procedure:

- A) After air brakes have had sufficient time to release following an emergency application, make a 20 psi. brake pipe reduction: and,
- B) After brake pipe exhaust ceases, place automatic brake valve cutout valve to "OUT" position. If brake pipe pressure rapidly reduces to zero, entire train must be inspected. If air pressure is present in brake pipe, train may proceed.

Exception: If train exceeds 5,000 tons, train must be visually inspected unless emergency application of the brakes occurs at a speed above 30 MPH and it can be ascertained that brake pipe is continuous by observing pressure being restored on rear car after emergency application is released, or by performing steps "A" and "B" above.

ALL TRAINS: Train must be visually inspected before proceeding if unusual slack action was experienced when stopping or if excessive power is required to start train. If excessive power is not required to start train, and physical characteristics prevent a complete walking train inspection, inspect as much of the train as possible. The train may then be moved, but may not exceed 5 MPH for the distance necessary to complete the inspection, and must be stopped immediately if excessive power is required to keep train moving.

The last paragraph under heading "Train on Adjacent Track" is amended to read: A train on an adjacent track that receives radio notification must approach location at restricted speed and stop short of any obstruction or flagman. When advised track is clear and it is safe to proceed, these restrictions no longer apply.

**Rule 6.29.1 Inspecting Passing Trains**—the last paragraph entitled "Trackside Warning Detectors and Inspections" is amended to read:

Crew members must be aware of trackside warning detectors and signals from persons inspecting their train.

Stop the train immediately for inspection when:

- crew member receives stop signal
- a trackside warning device indicates a train defect or failed equipment
- or
- notified of a dangerous condition.

Movement must not proceed until it is safe.

**Rule 6.29.2 Train Inspection by Crew Members**—is supplemented by adding a new first paragraph reading:

If trackside warning detector or visual inspection notes a dragging equipment or shifted load defect, a walking inspection is required. The train may be moved only after:

- walking inspection confirms there is no dragging equipment or shifted load(s)
- defective car or cars are repaired
- or
- permission is received from the train dispatcher or manager to move defective equipment.

Second paragraph (former first paragraph) is amended to read: At other times when a walking inspection of the train is required, and physical characteristics prevent a complete train inspection, inspect as much of the train as possible. The train may then be moved, but may not exceed 5 MPH for the distance necessary to complete the inspection.

**Rule 6.32.2 Automatic Crossing Devices**—is changed in its entirety to read:

Under any of the following conditions, a movement must not foul a crossing equipped with automatic warning devices until the device has been operating long enough to provide warning and the crossing gates, if equipped, are fully lowered:

- Movement has been delayed or stopped within 3,000 feet of the crossing
- Movement is closely following another movement
- Movement is on other than the main track or siding

Employees must observe all automatic crossing warning devices and report any that are malfunctioning to the train dispatcher or proper authority by the first available means of communication. Notify all affected trains as soon as possible.

#### A. Automatic Warning Devices Malfunctioning

Use the following table to properly complete movement over the crossing:

Movement When Automatic Warning Devices Are Malfunctioning	
If...	Then...
The crossing is not protected by someone at the crossing	<p>Stop before occupying the crossing. After a crew member is on the ground at the crossing to warn highway traffic, proceed over the crossing on hand signals from that crew member.</p> <p>or</p> <p>If devices are seen to be working or when relieved by the train dispatcher, proceed over the crossing at 15 MPH without stopping until the head end of the train completely occupies the crossing. Then proceed at normal speed.</p>

The crew is notified that the crossing is protected by 1 equipped flagger who is unable to protect the crossing in all directions of approaching traffic	Proceed over the crossing at 15 MPH without stopping until the head end of the train completely occupies the crossing. Then proceed at normal speed.
The crew is notified that the crossing is protected by 1 or more equipped flaggers who are able to protect the crossing in all directions of approaching traffic	Proceed over the crossing at normal speed without stopping.
<b>NOTE:</b> An <u>equipped flagger</u> is a person other than a crew member who is equipped with an orange vest, orange shirt, or orange jacket. At night, the vest, shirt or jacket must be fluorescent. The flagger must have a red flag or stop paddle by day and a light at night.	

### B. Whistle for Crossing

When notified that automatic warning devices are malfunctioning, sound whistle signal 5.8.2(11) regardless of any prohibition.

### C. Train Dispatcher and Yardmaster Responsibilities

When notified that automatic warning devices are malfunctioning, the train dispatcher or yardmaster must:

- Notify all trains.
- Contact the Signal Maintenance Desk to ensure that local law enforcement agents are contacted.

**Rule 7.1 Switching Safely and Efficiently**—amended by adding second paragraph reading:

Do not leave cars or engines where they will foul equipment on adjacent tracks or cause injury to employees riding on the side of a car or engine.

**Rule 7.7 Kicking or Dropping Cars**—is amended to read: Kicking cars is permitted only when it will not endanger employees, equipment or content of cars. Dropping cars is permitted only on territory where specifically authorized.

Before dropping cars, crewmembers must fully understand the intended movement. They must verify that the track is sufficiently clear and that switches and hand brakes are in working order. If possible, the engine must run on a straight track.

**Rule 7.8 Coupling or Moving Cars on Tracks Where Cars are Being Loaded or Unloaded**—

Delete sentence reading: "Properly close or secure plug-type and swinging doors on cars."

Add a 5th bullet under "In addition:"

- Ensure plug-type and swinging doors on cars are properly closed or secured.

**Rule 8.2 Position of Switches**—new second paragraph is added:

Do not operate a switch that is tagged. If a switch is spiked, do not remove the spike unless authorized by the craft or group that placed it.

**Rule 8.3 Main Track Switches**—the following is added: When a switch is returned to normal position as required by the last bullet of rule 8.3 (Main Track Switches) the employee is considered at that location if their train or engine is occupying the switch.

**Rule 8.19 Automatic Switches**—"Operating an Automatic Switch by Hand"—the following is added as the last paragraph:

After switch is placed in hand position, signal governing movement over the switch will display Stop indication and movements will be governed by hand signals.

**Rule 8.20 Derail Location and Position**—is amended as follows: Third paragraph is amended to read: Sidings having hand-thrown derails will have derail locked off rail, except when engines or cars are left unattended on siding. On auxiliary tracks other than siding, except when derails are placed in non-derailing position to permit movement, make sure they are always in derailing position regardless of whether cars are on the track they are protecting. Lock all derails equipped with a lock.

**Rule 9.12.4 ABS Territory**—Change the current #2 to #3 and add new #2 as follows:

2. Proceed at restricted speed to permit an engine, with or without cars, to couple to its train or to a standing cut of cars, if the track between the engine and cars is clear.

**Rule 9.15 Track Permits**—is amended by adding the following between the existing paragraphs:

Limits designated by a switch extend only to the signal governing movement over the switch unless otherwise designated.

**Rule 9.15.1 Issuing Track Permits**—is amended as follows:

"Track permit wording" amended to read: Track permits will be granted in the words "Track permit, authority (number), granted on (track), between (point) and (point), (time) until (time)."

New last paragraph is added, reading: Track Permit authority must be recorded on and repeated from form provided for that purpose.

**Rule 9.16 Stop and Proceed Indications**—e. is changed in its entirety to read:

e. Proceed from a Stop indication in CTC territory, when authorized by the control operator as prescribed in Rule 9.12.1 (CTC Territory). This will apply to each succeeding signal displaying a Stop and Proceed indication or a signal displaying a Restricting indication designated by a grade marker ("G" sign).

**Rule 9.18 Electrically Locked Switches and Derails**—the 2nd paragraph is changed to read:

To enter a track within manual interlocking or CTC limits, employees must not open the case door or unlock an electrically locked switch or derail without authority from the control operator.

**Rule 10.1 Authority to Enter CTC Limits**—is amended as follows: the first bullet is changed to read:

- A controlled signal displays a proceed indication.

**Rule 10.3 Track and Time**—the instructions inside the box are changed to read:

Track and time does not authorize trains to occupy the main track within automatic interlocking limits.

**Rule 10.3A. Passing Signal Displaying Stop or Stop and Proceed Indication**—first line is changed to read:

Except at automatic interlockings, trains granted track and time.

**Rule 10.3C Track and Time Release Within the Limits**—Following is added:

Employees releasing track and time limits must state the following:

- Their name
- The track and time limit number being released
- The authorized track limits being released

**Rule 10.3.3 Joint Track and Time**—Diagram B is deleted and the 2nd paragraph is changed to read:

When track and time is granted to protect maintenance or repair work, trains must not be allowed into the work limits unless the trains and foreman in charge of the work understand the conditions and movements that will be made.

**Rule 10.3.4 Record Track and Time**—the first paragraph is changed to read:

The employee requesting track and time will state name, occupation, exact location and train or other identification. The employee will copy the authority granted on the form provided for the purpose, and repeat from the form the authority granted. If the authority is repeated correctly, the control operator will acknowledge with "That is correct". The train can make no movement until the engineer understands the track and time granted. The employee who request track and time must retain the written track and time record until track and time is released.

**Rule 10.3.4 Record Track and Time**—the following paragraph is added:

When requesting track and time, if communication is lost or incomplete message is received while control operator is issuing track and time, or if after repeating the authority to the control operator, you do not hear the response from the control operator "That is Correct", employee must not occupy the track. Employee requesting track and time must contact the control operator as soon as possible and confirm with the control operator the track and time was not received.

**Rule 14.3–Operating with Track Warrants**–is amended as follows: Item number 1 is amended to read: 1. Proceed from one point to another in the direction the track warrant specifies. When a crew member informs the train dispatcher that the entire train has passed a specific point, track warrant authority is considered void up to that point. When the train dispatcher instructs a train crew to report passing a designated station or mile post, if the station has a siding, the report must be made after the rear car of the train passes over the last siding switch or rear car of train passes the mile post. If the designated station does not have a siding, the report must be made when the rear car of the train passes the station sign.

**Rule 14.4–Occupying Same Track Warrant Limits**–the 2nd paragraph of item 1 is changed to read:

A train must inform the train dispatcher when it leaves the main track before reaching the last named point, unless a flagman is left to prevent a following movement from passing.

**Rule 14.10 Track Warrant in Effect**– Following is added:

An employee releasing a track warrant must state the following:

- Their name
- The track warrant number being released
- The track limits being released
- Time track warrant was reported clear

**Rule 15.1.1 Changing Address of Track Warrants or Track Bulletins**–is changed to read:

If the address must be changed on a track warrant or a track bulletin that does not grant authority, the train dispatcher may change the train symbol, engine number, direction, or date verbally.

**Rule 15.2 Protection by Track bulletin form B**– the third paragraph is changed to read: However, trains do not need to comply with the above requirements if instructed as stated below, or if the entire train has cleared the limits.

**Rule 15.2 Protection by Track Bulletin Form B**

**A. Verbal Permission**–the following paragraph is added:

4. To permit a train to move at a higher speed after receiving permission to pass a red flag or light at a specific speed for a specific distance, add the following:

“(Train) may pass red flag (or light) located at MP \_\_\_\_\_ (without stopping) at \_\_\_\_\_ MPH until the entire train has passed MP \_\_\_\_\_. You may then proceed at (higher speed) MPH (or at maximum authorized speed).”

**Rule 15.2.1 Protection for On–Track Equipment**–the first paragraph is changed to read: Track bulletin form b may be used to protect on–track equipment, such as rail detectors, without using yellow red flags. Identify protected equipment in the track bulletin.

**Rule 15.12 Relief of Engineer or Conductor During Trip**–the 1st two paragraphs are changed to read:

When a conductor, engineer, or both are relieved before trip is finished, they must contact the train dispatcher and comply with instructions concerning the handling of their track warrants, track bulletins, and other instructions.

When a crew member is called to relieve a train at other than the initial station, crew members must contact the train dispatcher before leaving the initial station and determine if any track warrants, track bulletins, or other instructions must be obtained.

**Rule 18.0–Occupancy Control System (OCS)**

**Rule 18.1–OCS for Trains and Engines**

In addition to GCOR Rule 6.13 (Yard limits), the following also applies at locations designated under the Individual Subdivision Special Instructions:

**Occupy the Main Track**

Before occupying the main track, trains or engines must receive one of the following permissions from the train dispatcher or control operator.

- Written OCS
- Signal indication of a controlled signal.
- or
- Verbal permission.

Locations where permission is granted by signal indication or verbal permission will be designated in the Individual Subdivision Special Instructions or by General Order.

Written OCS must be used when permission is joint with Maintenance of Way or when operating against the current of traffic.

**OCS does not relieve a train or engine from complying with restricted speed in non signaled territory.**

The employee requesting OCS will state name, occupation, location and train or other identification. The employee will then copy and repeat the permission granted. If the permission is repeated correctly, the train dispatcher or control operator will acknowledge. The train can make no movement until the engineer understands the OCS granted. The employee who requests OCS must retain the written OCS record until OCS is released. Employees must advise the train dispatcher or control operator when they are clear of the limits.

Employees releasing OCS must state the following:

- Their name
- The OCS number being released
- The track limits being released

#### **Designated Limits**

OCS limits must be designated by specifying track, where required, and exact points such as switches, mile posts, or other identifiable points.

#### **Direction of Movement**

When trains or engines receive permission to proceed from one point to another, they must only move in the direction specified.

When trains or engines receive permission to work between two specific points, they may move in either direction between those points.

#### **Same Limits with a Train or Engine**

Before a train or engine receives permission to occupy the same limits with a train or engine working between two locations, a crew member of each train or engine must be notified. When notified, all movements must be made at restricted speed.

#### **Same Limits with Men or Equipment**

Before a train or engine receives permission to occupy the same limits with men or equipment, the maintenance of way employee in charge and a crew member of the train or engine must be notified. When notified, all movements must be made at restricted speed.

#### **Permission Expired**

When unable to contact the train dispatcher and OCS permission expires, permission is extended until the train dispatcher can be contacted.

#### **OCS Form—**

The following is an example of the OCS form:

**"OCS" Occupancy Control System**

No \_\_\_\_\_ 19 \_\_\_\_\_

To: \_\_\_\_\_ At: \_\_\_\_\_

- ☐ A. OCS No. \_\_\_\_\_ is cancelled.  
☐ B.1 Proceed from \_\_\_\_\_ to \_\_\_\_\_ on \_\_\_\_\_ track.  
☐ B.2 Proceed from \_\_\_\_\_ to \_\_\_\_\_ on \_\_\_\_\_ track.  
☐ C. Work between \_\_\_\_\_ and \_\_\_\_\_ on \_\_\_\_\_ track.  
☐ D. Do not proceed until \_\_\_\_\_ arrives at \_\_\_\_\_.  
☐ E. Following \_\_\_\_\_.  
☐ F. Limits occupied by train or engine between \_\_\_\_\_ and \_\_\_\_\_.  
☐ G. Limits occupied by men or equipment between \_\_\_\_\_ and \_\_\_\_\_.  
☐ J. This permission expires at \_\_\_\_\_.  
☐ K. Do not exceed \_\_\_\_\_ MPH between \_\_\_\_\_ and \_\_\_\_\_.  
☐ L. Other specific instructions \_\_\_\_\_

OK \_\_\_\_\_ Issued by \_\_\_\_\_ Limits reported clear at \_\_\_\_\_

(Mark X in box of each item instructed.)

**Glossary** – The following abbreviations are added:

AS Absolute Signal

RL Restricted Limits

EBCS Eastbound Controlled Signal

WBCS Westbound Controlled Signal

NBCS Northbound Controlled Signal

SBCS Southbound Controlled Signal

SS Station Sign

**15. General Code of Operating Rules Supplemental Instructions**

Several rules in the General Code of Operating Rules allow and/or require that supplemental instructions be carried in the timetable or special instructions. Following find the supplemental instructions that apply to Burlington Northern Santa Fe Railway.

**Application of Hours of Service & Change to GCOR Rule 1.17**—Apply the following when reporting Hours of Service:

Time spent waiting for deadhead transportation must not be counted when determining time on duty for hours of service purposes when relieved of all duties as outlined in GCOR Rule 1.17.

**Rule 3.3 Time Signals**—Dial 8-998-8463 (8-WVV-TIME) to obtain coordinated universal time signal (only minutes and seconds will be given). Dial 8-435-6000 to receive central standard time in hours, minutes and seconds.

**Rule 4.3 Timetable Characters—**

- A – Automatic Interlocking
- B – General orders, notices, and circulars
- C – Radio communication
- g – Gate, normal position against conflicting route
- G – Gate, normal position against this subdivision
- J – Junction
- M – Manual interlocking
- P – Telephone
- R – Restricted limits
- S – Railroad crossing protected by permanent stop sign
- T – Turning facility
- U – Railroad crossing not protected by signals or gates
- X – Crossover
- X(2) – Multiple crossovers
- Y – Yard limits

**Rule 6.23 Train Inspection Checklist:**

	Walking Inspection Needed	Proceed — No Inspection Needed
Brake pipe pressure is not restored	X	
Under 5,000 tons & brake pipe is not restored	X	
Under 5,000 tons & brake pipe is restored		X
Over 5,000 tons but under 30 MPH	X	
Over 5,000 tons; over 30 MPH & brake pipe pressure is not restored	X	
Over 5,000 tons; over 30 MPH & brake pipe pressure is restored		X
Excessive slack action when stopping	X	
Excessive power required to start train	X	

**4 Ways to Determine if Brake Pipe Pressure is Being Restored—**

1. Observe caboose air gauge
2. End of Train Device
3. Air Flow Meter Indicator gauge
4. Make a 20 psi brake pipe reduction and after brake pipe exhaust ceases, place automatic brake valve to "OUT" position. If brake pipe drops rapidly, train must be inspected.

**Rule 6.19 Protection Against Following Trains**—the following supplemental instruction is added:

Unless otherwise specified in Individual Subdivision Special Instructions, when necessary to provide protection against following trains, a crew member must go back at least the distance prescribed below:

Where Maximum Authorized

<u>Timetable Speed is</u>	<u>Distance</u>
35 MPH or less	1 mile
36 MPH to 49 MPH	1 1/2 miles
50 MPH or over	2 miles

**Rule 6.26 Use of Multiple Main Tracks**—the following supplemental instruction is added:

Unless otherwise indicated in the Individual Subdivision Special Instructions, when using main tracks, except double track, in westward or southward timetable direction, they will be numbered consecutively from right to left beginning from Main 1. When using in eastward or northward timetable direction, they will be numbered from left to right beginning with Main 1.

**Rule 6.32.6 Blocking Public Crossings**—the following supplemental instruction is added: In the state of Texas, if possible a standing train or switching movement must avoid blocking a public crossing longer than 5 minutes.**Rule 9.7 Signal Failure**—the following supplemental instruction is added:

Trains operating under the direction of the SOC Schaumburg, also advise signal help desk at the SOC of a signal failure.

**Rule 9.12.3 Automatic Interlockings**—the following supplemental instruction is added:

At a signal displaying a Stop indication, in addition to complying with the instructions in the release box, the following must be complied with:

If signal does not change its indication at expiration of time release interval, train may then proceed on hand signal from a member of the crew at the crossing if there is no train approaching on conflicting routes.

If a train is approaching on a conflicting route, hand proceed signal must not be given until such movement has been completed over the crossing, or has come to a stop at the governing signal.



If a train is standing between the absolute signals on a conflicting route, the proceed signal must not be given until after thorough understanding has been had with the crew of the train on the conflicting route.

**Track Warrants**—the following supplemental instruction is added:

Track Warrants issued electronically print only items checked. The item numbers checked will be listed on the bottom of the track warrant. Notify the dispatcher if:

- The track warrant does not contain all items listed on the bottom.
  - Computer generated line on the bottom listing the items checked is missing.
  - or
  - Track warrant is missing text or is otherwise not legible.
- When contacted, train dispatchers will arrange to provide crews with complete, legible copies and report incident to their supervisor.

**Track Bulletin Form D**—the following supplemental instruction is added:

Form D Track Bulletins sent electronically include the number of lines of text on the bottom of the track bulletin. The computer will count and list all lines that contain at least one character. Notify the train dispatcher if:

- The track bulletin does not have the same number of lines shown on the bottom.
  - The computer generated line on the bottom listing the number of lines is missing.
  - or
  - The track bulletin is missing text or is otherwise not legible.
- When contacted, train dispatchers will arrange to provide crews with complete, legible copies and report incident to their supervisor.

Mechanically transmitted track bulletins from SOC, Schaumburg, must indicate in space provided, the total number of lines used. Employees receiving copies must assure that the lines used correspond with the number indicated.

## 16. Maintenance of Way Operating Rules Changes and Additions

### Rule 3.3 Time Signals

Dial 8-998-8463 (8-WWW-TIME) to obtain coordinated universal time signal (only minutes and seconds will be given). Dial 8-435-6000 to receive central standard time in hours, minutes and seconds.

### Rule 4.3 Timetable Characters

- A – Automatic Interlocking
- B – General orders, notices, and circulars
- C – Radio communication
- g – Gate, normal position against conflicting route
- G – Gate, normal position against this subdivision
- J – Junction
- M – Manual interlocking
- P – Telephone
- R – Restricted limits
- S – Railroad crossing protected by permanent stop sign
- T – Turning facility
- U – Railroad crossing not protected by signals or gates
- X – Crossover
- X(2) – Multiple crossovers
- Y – Yard limits

**Rule 5.4.2 Display of Yellow Flag**—Paragraph B, Restriction Not Specified in Writing, Item 2.a. is changed to read:

- a. Passed a green flag. If the rear of the train passes a green flag prior to traveling 2 miles from the yellow flag, speed may be resumed at that time.

**Rule 5.11 Engine Identifying Number**—the following second paragraph is added:

**Note:** The following will apply for purposes of engine identification: All former Santa Fe engines painted red and silver or blue and yellow (including engines with MK or BNSF on the side) will be identified as ATSF engines.

**Rule 6.3.1 Main Track and Controlled Sidings**—the following paragraph is added after the 9 types of authorizations listed:

People or equipment may perform maintenance within these authorized limits by placing a red flag or light to protect the work limits. Place the red flags or lights as outlined in

Rule 5.4.7 (Display of Red flag or Light), except torpedoes are not required. On-track equipment may move within these authorized limits without displaying a red flag or light.

**Rule 9.51.1 Maintenance of Way Release Box**—the first sentence is changed to read: Automatic interlockings may be equipped with a maintenance of way release box.

**Rule 10.3 Track and Time**—the box on page MWOR 10-2 is changed to read:

Track and time does not authorize trains, maintenance of way employees, or equipment to occupy or foul a main track within automatic interlocking limits.

**Rule 10.3.3 Joint Track and Time**—Diagram A is deleted and the 3rd paragraph is changed to read:

When track and time is granted to protect maintenance or repair work, trains must not be allowed into the work limits unless the trains and foreman in charge of the work understand the conditions and movements that will be made.

**Rule 10.3.4 Record Track and Time**—the following paragraph is added:

When requesting track and time, if communication is lost or incomplete message is received while control operator is issuing track and time, or if after repeating the authority to the control operator, you do not hear the response from the control operator "That is Correct", employee must not occupy the track. Employee requesting track and time must contact the control operator as soon as possible and confirm with the control operator the track and time was not received.

**Rule 14.8 Track Warrant Requests**—is changed in its entirety to read:

An employee requesting a track warrant must inform the train dispatcher of the following:

- The subdivision.
- The exact location where the track will be entered.
- The limits to be occupied.
- and
- Time required.

**Rule 15.2.1 Protection for On-Track Equipment** — the first paragraph is changed to read:

Track bulletin form b may be used to protect on-track equipment, such as rail detectors, without using yellow red flags. Identify protected equipment in the track bulletin.

**Rule 28.0 Hy-Rail Vehicles**—the following paragraph is added:

Exception: When it is not practical for an escort to occupy the front seat of a contractor's vehicle, that person should ride in the next seat behind the front seat in that vehicle. If the vehicle is not equipped with other seats within the passenger compartment, the escort should ride in the front seat of another hy-rail vehicle which immediately precedes the contractor's vehicle during the performance of the assigned duties.

**Glossary** — The following abbreviations are added:

EBCS Eastbound Controlled Signal  
 WBCS Westbound Controlled Signal  
 NBCS Northbound Controlled Signal  
 SBCS Southbound Controlled Signal  
 SS Station Sign

## 17. Air Brake and Train Handling Rules Changes and Additions

**Rule 103.10 End-of Train Telemetry Device**—is changed in its entirety to read:

When any train is equipped with a two-way radio telemetry system that consists of:

1. End-of Train device (ETD) mounted on the coupler of the last car,  
and
  2. Head-of-Train device (HTD) mounted on the lead locomotive,
- the system must be armed and tested as per instructions in Rule 112.4 (all parts).

Do not use an ETD telemetry device if:

1. Its most recent calibration was more than 92 days  
or
2. The difference between the brake pipe pressure readings on the ETD and on the HTD exceeds +/-3 psi.

**Rule 103.10.1 Test Emergency Function of Two-Way ETD**—the following new rule is added:

The functional capability of the ETD must be tested at the point of installation by the following procedure:

1. Couple the brake pipe on the rear car to the ETD and note brake pipe pressure on ETD increases.
2. Arm the ETD as outlined in Rule 112.4 (all parts).
3. Close the angle cock between ETD and rear car.
4. Initiate an ETD emergency from the lead locomotive HTD.
5. Note the brake pipe pressure on the ETD reduces to 0 psi.
6. open the angle cock between ETD and rear car. Note that brake pipe pressure on the ETD is being restored.

This emergency application test must be made after all other required brake tests have been completed.

**Rule 104.3.1 Automatic Brake**—the following sentence is added to paragraph (c), Item 4: Closely observe equalizing reservoir pressure with brakes applied and if leakage occurs, make a locomotive defect report of this fact at the first opportunity.

**Rule 104.3.1 Automatic Brake**—the following paragraph is added:

G. During extreme cold weather conditions (25 degrees and below) when operating conditions and outstanding instructions permit, throttle manipulation and dynamic braking must be used in lieu of train air brakes whenever possible in controlling and stopping freight trains.

**Rule 104.3.2 Dynamic Braking**—the following item 6 is added to the first section:

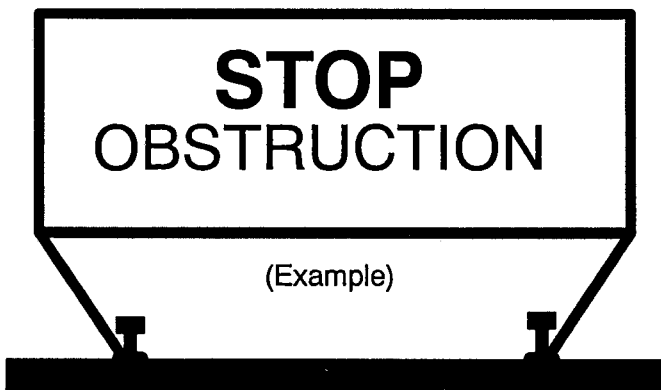
6. The locomotive brake should never be relied on to control your speed when use of the dynamic brake will accomplish the same thing. Extended range dynamic brakes must be utilized to their fullest extent.

**18. Safety Rules and General Responsibilities for All Employees Changes and Additions**

**General Responsibilities**—the information under the heading **Employee Jurisdiction** is cancelled.

**19. Operations Testing**

When operations testing is performed to test for compliance with the following rules, a banner, approximately three feet by eight feet with red reflectorized border and lettering on a white background may be stretched across the track. It will display "STOP" or "STOP OBSTRUCTION".



This banner is considered a stop signal and a simulation of on-track equipment. Whenever required by an operating rule, stop all train, engine, and on-track equipment movements short of the "STOP" or "STOP OBSTRUCTION" banner.

Examples of operating rules where the "STOP" or "STOP OBSTRUCTION" banner may be used as a stop signal are:

- GCOR & MWOR Rule 6.27 Restricted Speed
- GCOR Rule 6.28 Movement On Other Than Main Track

OR

- MWOR Rule 6.50 Approaching at Safe Speed:

Expect to find the "STOP" or "STOP OBSTRUCTION" banner erected at any location, or at any time the rules above restrict movement.

**20. Automatic Cab Signals**

Cab signal equipment must be cut out except on suburban equipment on the Chicago Subdivision.

**21. Verification of Rules Examination**

Employees required to pass rules examination must have a current rules examination card when issued, or engineer's license or certificate in their possession while on duty.

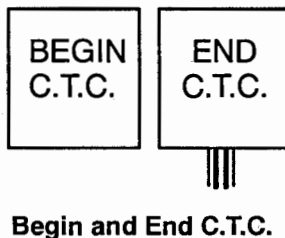
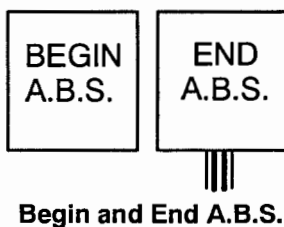
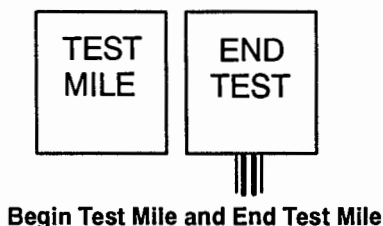
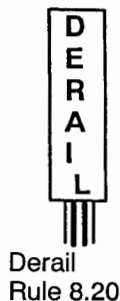
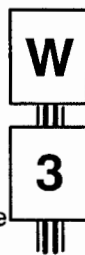
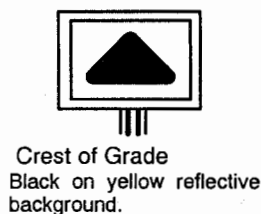
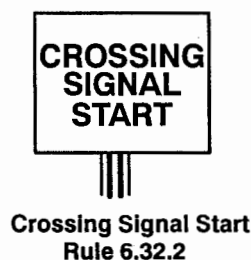
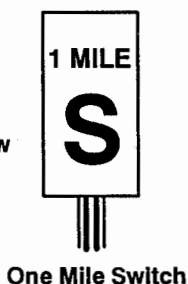
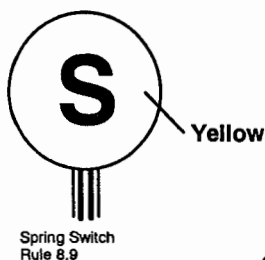
**22. Document Notation**

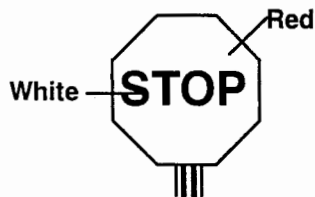
When the timetable or general order contains an amendment to the General Code of Operating Rules, Maintenance of Way Operating Rules, Air Brake and Train Handling Rules, Train Dispatcher's, Operator's and Control Operator's Manual, notation of the change must be made in these rule books. The same will apply if a general order contains an amendment to the timetable.

**23. FRA Random Drug Testing**

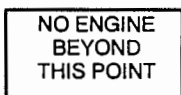
TY&E employees selected for FRA Random Drug Testing must show the start time of the Random Drug Test (RDT) in the remarks column of their timeslip. Start time of RDT begins when a supervisor notifies the employee or hands the employee a letter advising him/her that they are selected for RDT. A stop time on RDT is necessary only if different from their off duty time.

24. Roadway Signs – Except as shown, the following roadway signs have white background and black letters and/or numbers.

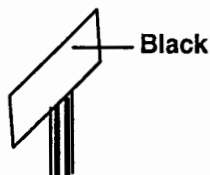




Stop  
Rules 6.16 and 6.18



No Engine Beyond This Point

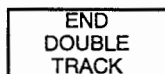


**FLANGER**



Stop

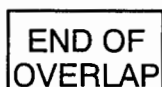
White letters on reflective red background, or black letters on white background.  
Rule 6.32.2



End Double Track



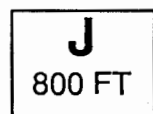
Signal Overlap  
Rule 9.21



End of Overlap  
Rule 9.21



Railroad Crossing  
Rules 6.16 and 6.18



Junction  
Rule 6.18



Fouling Point



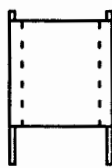
Restricted Limit  
Rule 6.14

**N  
O  
C  
L  
E  
A  
R  
A  
N  
C  
E**

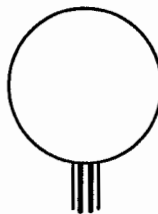


Track Flag

Yellow—Rule 5.4.2  
Yellow—Red Rule 5.4.3  
Red—Rule 5.4.7 or  
Green—Rule 5.4.5



Track Flag



Track Flag



Yard Limit  
Rule 6.13



One Mile Draw Span  
Rule 6.16



No Clearance

**25. Cars Setout Bad Order**

When a car is set out between terminals account bad order, it should, if possible, be left where it can be driven to by truck for making repairs.

**26. Grade Crossing Accidents**

The following information is designed to serve as post grade crossing accident guidelines. It is designed to provide the utmost in safety for you and your crew.

After the accident has occurred and the train is stopped:

- a. Ensure the safety of crew members, accident victims, and the public.
- b. Meet the requirements of rule 6.23.
- c. Contact the dispatcher or any other available radio contact and advise:
  1. exact location; and
  2. what emergency services are needed.

Be sure to include alternate routes for the emergency vehicles if your train is blocking road crossings.
- d. Assess the damage to the vehicle and train to determine if there is any danger to your crew or the public.
- e. Assign a crew member to monitor a radio to provide further information for emergency assistance.
- f. If it is safe, render assistance to accident victims. It is important not to move the victim unless a life threatening situation exists.
- g. Turn "off" the vehicle's ignition and inform the investigating officer you did so. Otherwise, do not disturb the accident scene.  
Do not move the train unless it presents a safety problem, such as emergency vehicles needing to get to the accident through a blocked crossing, etc.
- h. Only give information to :
  1. The investigating officer; or,
  2. Authorized company managers.

Cooperate with the investigating officer. Answer the officer's questions and provide as much information as you can recall.  
Record the badge number and name of the investigating police officer at the scene. Witness with the officer that the headlight is on, and that the whistle and bell on lead unit are in proper working order. Also, note that the crossing warning devices are functioning.
- i. Assign a crew member to verify the accuracy of the train list. Save all train lists, track warrants, track condition messages, and other pertinent documents for the proper BNSF managers.
- j. Ascertain that no part of your train is derailed and that it will be safe to proceed once released by the investigating officer.
- k. Personal counseling will be available to any crew member who might experience post-accident trauma.

**27. System Work Train Policy**

The conductor is in charge of and will be responsible for all work train movements. The safety of the overall train operation is the responsibility of the entire train crew. The engineer shall receive train movement instructions only from a member of the train crew except in cases of emergency.

When Maintenance of Way, Signal, Structures, Mechanical or other work groups are involved with the activities of the work train, a coordinator from such group must be designated. The train crew will communicate with the designated coordinator concerning all train movements and work activities.

An initial job briefing will be conducted before commencing work and additional job briefings must be held at intervals not to exceed four (4) hours until the end of the tour of duty. In addition, when there is a change in assignment or a significant delay in activities has occurred, a job briefing must be conducted prior to commencing work. Employees who subsequently work in the vicinity of a work train after such job briefings have been held, must not commence work until they have received a job briefing from the designated coordinator regardless of authority received to occupy the area. The Conductor is responsible to ensure that no work activity begins until the required job briefings are complete.

Job briefings must include applicable operating rules, safety rules, special instructions and any other work-specific information. The designated coordinator is responsible for communicating impending train movements to the work groups under his control.

All employees assigned to a work train and/or its activities are responsible to be on the lookout for train or track car movements at all times. Lookouts will be utilized when necessary and all movements must be fully protected.

## 28. Track Condition Messages

Track condition messages may be issued by train dispatchers to cover restrictions on other than main track.

Restrictions shown on a track condition message may be cancelled verbally by the Train Dispatcher.

Authority can be given by a Train Dispatcher or supervisor to enter a track shown to be out of service on a track condition message.

When a track warrant indicates a track condition or train message is to be received, conductor is responsible for securing those messages necessary for movement of their train. Track condition messages must be retained and complied with on all trips made during the tour of duty on which they were received.

## 29. Single Unit Light Engine

When a train set out all cars enroute and becomes a single unit light engine within CTC, manual interlocking, or AB territory, the train dispatcher/control operator must be notified.

## 30. Less Than 12 Axle Restrictions

Train, engine and other such movements consisting of less than 12 axles must approach road crossings at grade equipped with automatic crossing warning devices prepared to stop until it is determined that the warning devices are operating properly.

## 31. V Slope Flat Cars

V Slope Flat Car loads of pulpwood logs, without side retainers, are restricted to 35 MPH, and must be observed closely enroute. Trains handling these cars will stop before passing through truss or girder bridges and crew will inspect cars to be safe to pass through bridge before proceeding.

## 32. Two Axle Cars

Hand brakes must not be depended upon to hold two axle cars. When a two axle car is set out, it must be chained to the rail or coupled to a non two axle car with operative hand brake.

## 33. Securing Track Warrants

When reporting for duty at initial terminal, a crew member will secure track warrants, track bulletins, and track condition messages, when required. Except in CTC territory, a crew member must contact the dispatcher before departing to determine if additional track warrants, track bulletins, and track condition messages are required, and advise if all crew members are present and ready to depart.

At locations where track warrants are received by printer or FAX, crew members must verify that the route description at top of track warrant, if so printed, covers the intended route of their train. If it does not, contact the train dispatcher and determine if the track warrant is valid. Also, crew members must check the date and "OK" time on track warrant and if the track warrant is over three (3) hours old, contact the train dispatcher and determine if the track warrant is still valid.

## 34. Radio Controlled Ballast Cars

There are three (3) sets of radio controlled ballast cars. Each 32 car set is split into 2 - 16 car units with couplers padlocked together using mechanical Switch/Derail Locks. Additionally, each 16 car unit has its own CONTROL CAR and can operate independently or in combination with another 16 car unit. The following is the current pool assignment of these cars:

Newberry	32 cars (2ea. 16 car units w/locked couplers). Series ATSF 180400 - 180431 with CONTROL CARS: 180400 & 180425.
Newberry	32 cars (2ea. 16 car units w/locked couplers). Series ATSF 180432 - 180463 with CONTROL CARS: 180440 & 180450.
Davis	32 cars (2ea. 16 car units w/locked couplers). Series ATSF 180464 - 180495 with CONTROL CARS: 180475 & 180490.



These cars are numbered ATSF 180400 through 180495. The ballast car(s) door(s) are operated via pakset signals to each individual car(s) and door(s). The doors can be opened to the inside or outside of the track, or both, to any degree between fully opened and fully closed. These door mechanisms are operated by air motors on each individual car and hydraulics which have sufficient power to crush granite and close the door during the dumping process. Extreme caution should be exercised during door operation.

The 6 control cars are identified by a white vertical stripe painted on the side center rib of the cars. Equipment needed to operate the remote control doors is in a cabinet locked with a M/W lock, on the "B" hopper underneath these control cars. A dummy hose for connecting the locomotive main reservoir hose to the ballast hopper actuating hose is stored underneath the control cars, attached to a standard air hose glad hand, which is attached to the "A" hopper door. (Each ballast car door is stenciled A, B, C or D).

The dumping mechanisms of these cars operate off the locomotive main reservoir air supply and not off the trainline air supply and have dual air hose connections similar to those on our existing air dump cars.

At no time should air be unhooked from the trainline for the purpose of dumping these remote control ballast cars.

Since the doors are air/hydraulic, the locomotive engineer will need to pay close attention to his main reservoir pressure. When charging the system the engineer should not start movement until the main reservoir pressure is restored as indicated by the compressor cycling on and off on the lead locomotive.

During dumping operation, to maintain main reservoir pressure, it may be necessary to keep locomotives in throttle position 3 or 4. It may also be necessary to apply a minimum reduction of the air brakes and shove or pull the train so that throttle position 3 or 4 RPM's can be used to maintain adequate air pressure.

When dumping is complete, all doors on cars must be closed before uncoupling or closing the ballast car actuating line.

After completion of dumping and closing of doors, the dummy air hose must be returned to the holder underneath the control car.

When a bad order condition requires cutting a car out of a train, the entire string of interconnected cars in that block must be set out.

As batteries are replaced in the pakset radios, make sure that the old batteries are properly disposed of and not put back into the storage boxes. All quarries have a supply of batteries and will replenish the storage boxes as the cars are cycled back to their respective quarries.

### **35. Excessive Wind, Tornado, and Earthquake Instructions**

#### **Excessive Wind Instructions:**

When weather bulletins forecasting high winds are received in the Network Operations Center, the train dispatcher will notify all trains in the area, giving the time and limits of the expected high winds.

When notified that winds are forecast to be in excess of 60 MPH in the area, all trains except loaded unit coal and grain trains must stop during the time and within the limits stated.

#### **Tornado Watch and Warning Instructions:**

Tornadoes are the most violent of all storms. Paths of destruction range from a few hundred feet in width to more than a mile and extend the length of a city block to 300 miles. The greatest potential for such storms exist usually from April through September.

A "tornado watch" means atmospheric conditions are such that tornadoes may develop. A tornado watch is generally issued 4-6 hours before the conditions may occur.

During a tornado watch, all train movements and yard activities will continue, keeping alert for any signs of weather change. The danger signs to look for are severe thunderstorms, hail, roaring noise, a funnel cloud or combination of the above. The radio on a locomotive or a pakset should be used to monitor instructions and information to and from the train dispatcher. In the event a crew spots a funnel cloud, the train dispatcher should be immediately notified, consistent with the crew's safety.

If a train or yard assignment has an occupied caboose, upon being notified of a tornado watch, the occupants of the caboose should immediately move to the locomotive consist. While in the process of moving to the locomotive, if the tornado watch turns into a "tornado warning", or a funnel cloud is spotted, those affected should seek shelter in a nearby ditch, ravine, culvert, under a bridge or in a depression. If none of these are available, lie face down on the ground with hands over the head away from the caboose or cars in the train. A "tornado warning" means a tornado has been sighted or verified by the National Weather Service or by persons associated with official weather spotters. The train dispatcher will keep trains and crews apprised of limits of tornado warnings. Train crews are to follow instructions as follows:

During a tornado warning, all train movements and yard activities must stop. Any train enroute will stop and employees should seek appropriate shelter consistent with the safety of all involved, avoiding the stopping of a train on a high bridge, across railroad and highway crossing at grade, or anywhere the presence of a train could be a hindrance.

After the tornado warning has been cleared and such information has reached the train crews, if the path of the tornado crossed the tracks at their location or in the immediate vicinity, crew members must inspect their train before moving to determine if any damage or derailment has occurred to the train or if the track structure has been damaged. After inspecting the train and track, and the train dispatcher has relayed the limits of the tornado's path, the train may proceed, prepared to stop when approaching bridges, culverts, or other points likely to be affected. The train dispatcher must be advised immediately of such conditions.

#### Earthquake Instructions:

When an earthquake is reported, the train dispatcher will do the following:

1. Instruct all trains within 150 miles of the reporting location to "proceed at restricted speed due to earthquake conditions." An acknowledgement must be obtained from each train or engine receiving these instructions.
2. Once magnitude and epicenter are known, the following inspection criteria will apply: If magnitude is less than 5.0: - no inspection is required

If magnitude is 5.0 or greater:

-Response will depend on the group of states and provinces within which the epicenter is located and the following criteria will apply within the designated radius from the epicenter:

Group 1: California and Baja California, Mexico

Group 2: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming; Alberta, Canada and Chihuahua, Mexico

Group 3: All other states (includes area east of Group 2, Oregon, Washington and British Columbia)

Magnitude Range	Criteria for Response	Group 1 Radius	Group 2 Radius	Group 3 Radius
5.0 to 5.49	Trains proceed at restricted speed until signals have been inspected	30 miles	40 miles	70 miles
5.5 to 5.99	Trains proceed at restricted speed until signals, track and bridges have been inspected	30 miles	40 miles	70 miles
6.0 to 6.49	Trains stop until signals, track and bridges have been inspected	50 miles	80 miles	150 miles
6.5 to 6.99	Trains stop until signals, track and bridges have been inspected	70 miles	140 miles	220 miles
7.0 to 7.49	Trains stop until signals, track and bridges have been inspected	100 miles	300 miles	400 miles
7.5 and Above	Trains stop until instructed to proceed after inspection of track, signals and bridges completed	As directed *	As directed *	As directed *

\* Radius at discretion of the command but not less than for magnitude 7.0 to 7.49

**36. Event Recorders**

All trains are restricted to 30 MPH unless at least one locomotive in the lead locomotive consist is equipped with an event recorder.

Train information now being generated should reflect whether or not a locomotive is equipped with an event recorder. Should this information reflect that no locomotive in the lead locomotive consist is equipped with an event recorder, this fact must be reported to the train dispatcher. If no information is available as to whether or not a locomotive is equipped with an event recorder, contact the train dispatcher and be governed by his instructions.

**37. Fuel Conservation – Locomotive Isolation, Shut Down, Starting & Failures On-Line****A. Excessive Horsepower**—To accomplish maximum fuel efficiency and to maintain the horsepower per ton ratio for all trains, be governed by the following:

1. Train and Engine Crews are required to isolate units in a consist that are in excess of their train's scheduled Horsepower Per Ton (HPT) as displayed on the train list and train profile. When train list or train profile does not display scheduled HPT, the Train Dispatcher may advise crew of trains scheduled HPT. Crews working trains with symbols beginning in "Z" (except light engine movements and caboose only moves), "Q", "P", and numeric symbols: 001 through 099, 189 through 199, 398, 399, 698, 791 through 799, 891 through 899, and 981 through 998, must isolate units to be as close to, but not below scheduled HPT.

Crews working with symbols beginning in "Z" (except light engine movements and caboose only moves), "Q", "P", and numeric symbols 001 through 099, 189 through 199, 398 and 399, 698, 791 through 799, 891 through 899 and 981 through 998, must isolate units to be as close to, but not below scheduled HPT. Crews working ALL other trains must isolate excess units, but not more than .5 HPT below scheduled HPT for their train.

EXCEPTIONS: (a) Trains operating on grades exceeding 2.0% may use all available horsepower.

(b) Do not isolate a unit for fuel conservation if it causes your train to exceed 400 tons per operative dynamic brake (TODB).

2. Train and Engine Crews must have authority from the train dispatcher to place excess locomotives back on line.

**B. Speed Reduction for Fuel Conservation**

The Train Dispatcher may also issue instructions for train speed to be reduced to less than maximum authorized timetable speed for fuel conservation. However, to take advantage of descending grade situations, the restriction only applies when your train is in power (for these instructions power is defined as throttle positions 3 through 8). When operating at locations where power is not required, train may be operated at maximum authorized timetable speed for that location.

**C. Empty Unit Trains—Coal, Taconite, Grain, Potash, Sulfur**

1. Empty unit trains must not operate with more than 9000 working horsepower (HP) on-line and must isolate excess units.

EXCEPTIONS: Empty COAL trains may operate with a maximum of 12,000 working HP on-line on the following Subdivisions: Black Hills, Butte, Orin and Canyon Subdivisions.

2. Empty unit COAL trains must not exceed 50 MPH. However to take advantage of descending grade situations, the 50 MPH restriction only applies when locomotive is in power (for these instructions power is defined as throttle positions 3 through 8). When operating at locations where power is not required, train may be operated at maximum authorized timetable speed for that location.

EXCEPTIONS: Empty COAL trains may operate at maximum authorized timetable speed on the following Subdivisions: Ravenna, Brush and Dickinson Subdivisions.

**D. Movement of Light Engine Consists and Engines with Caboose Only Moves**

1. Only one axle of power and operative dynamic brake per each 120 tons of consist may be on-line to handle movement, excess power must be isolated.
2. When consist is operated on sustained grades exceeding 2.0%, then one axle of power and operative dynamic brake per each 90 tons of consist may be on-line to handle movement, excess power must be isolated.

**E. Isolated Locomotives and Failed Locomotives On-Line**

When instructions require to isolate a locomotive for fuel conservation or when a locomotive fails enroute and is unable to produce tractive effort and the engine continues to idle (i.e. failure to load, ground relay, etc.) the following will apply: When ambient temperature is expected to be:

1. **Above 40 degrees Fahrenheit**, locomotive must be SHUT DOWN, do not drain.
2. **Below 40 degrees Fahrenheit**, locomotive must be ISOLATED, do not shut down.
3. **Below 32 degrees Fahrenheit**: All locomotives DO NOT have alarm protection when an isolated engine dies nor are all engines equipped with auto-water drain valves and must be handled as follows:
  - a) Failed locomotives must be shut down and drained to prevent freezing.
  - b) Locomotives must not be isolated for fuel conservation.  
**EXCEPTION:** BN's SD60M, SD60MAC, SD70MAC, OWY's SD60. BNSF C44 are equipped with alarm protection and/or auto-water drain valves except ATSF's GP7 and GP9. Locomotives equipped with alarm protection and/or auto-water drain may be isolated below 32 degrees Fahrenheit.
4. **Below 0 degrees Fahrenheit**, locomotive will be isolated in Winter/Isolate position to prevent freezing. LOCOMOTIVES NOT EQUIPPED WITH WINTER/ISOLATE FEATURE:
  - a) Must NOT be isolated for fuel conservation.
  - b) Must be shut down and drained if locomotive fails enroute.
  - c) When a locomotive is left standing and is not equipped with the Winter/Isolate feature, the locomotive throttle must be left in RUN 3 position.

When locomotives are left unattended and temperatures are expected to drop below 0 degrees Fahrenheit, locomotives must be handled as outlined in Step 4 above. If in doubt as to expected low temperature contact the Train Dispatcher or local supervisor.

While in consist, the train crew must observe locomotive and be alert for wheel, traction motor, bearing and truck problems, as most isolated locomotives do not have wheel slip protection.

In all cases when ambient temperature is below 32 degrees Fahrenheit, if diesel engines dies and can not be restarted immediately, the diesel engine cooling must be completely drained to prevent freezing and subsequent damage to the engine.

**F. Locomotive Shut-Down Policy**

At ALL points when a locomotive(s) will not be used within 1 hour, all units will be shut down when the ambient temperature is 40°F or above. When in doubt as to the temperature or the length of time locomotive(s) will not be used, contact the train dispatcher or local supervisor.

Exceptions:

1. When a locomotive(s) will not be used within 1 hour and is left attached to a train, the lead locomotive will be left idling, with engine isolated and the remainder of the consist will be shut down. This is done in order for brake pipe to remain charged.
2. Do not manually shut down units equipped with *Smart Start* except to perform maintenance or unless *Smart Start* is defective.  
 These units can be identified by *Smart Start* labels, instructions and warnings displayed in the cab of the locomotive. Warning labels are also placed on the outside of the locomotive at the start station and at other maintenance points. A green *Smart Start* enabled light is positioned on the engineers control stand. Units also have small warning horns that sound in the cab and outside the locomotive before an automatic shutdown or restart occurs.  
 Locomotives equipped with *Smart Start* will automatically shut down when operating conditions permit. These units will also automatically restart when operating conditions require a startup. This requires the unit be left setup as a running unit. Do not open battery knife switch or turn off Autostart Circuit Breaker.

Exception: Autostart Circuit Breaker must be turned off and tagged before performing maintenance to prevent an accidental engine restart.

### Shut Down Procedures

Shut down units left standing as follows:

1. Isolate the engine
2. Depress the Engine Stop Button to stop the diesel engine  
Note: Immediately after unit(s) are shut down, attempt to restart. If unit(s) fail to restart, notify the Mechanical Coordinator or the Train Dispatcher immediately and place yellow tag or note on the isolation switch. If restart is successful, shut unit(s) down, record the time of shut down on Locomotive Shut Down Report, Form 1236 Std. and proceed with step 3.
3. Turn off all switches and circuit breakers on the circuit breaker and engine control panels to conserve battery life, except the following switches:
  - a. Auto Water Drain Circuit Breaker on all engines equipped
  - b. Auxiliary Turbo Lube Oil Pump Circuit Breaker on EMD turbocharged engines
  - c. Computer Control Circuit Breaker if equipped

Shut down units in consist (entrained) as follows:

When units are shut down in consist, such as light engines and excess power in a train, in order to maintain event recorder and trainline electrical functions, the following switches and circuit breakers must be left closed or on, in addition to those above:

- a. Battery Knife Switch
- b. Control Circuit Breaker
- c. Local Control Circuit Breaker

### G. Locomotive Starting

On former Santa Fe "GE" classes 500, 600, 800, 7410 and former BN class LMX 8500, there is a 5–10 second delay after placing the start switch to start before the engine will begin to turn over.

On ALL classes when an attempt to restart fails, train and engine crew must not attempt to jump start the engine, unless under the direction of the Mechanical Team.

### How to Calculate HPT—For the following examples:

train tonnage = 8,000 tons and locomotive consist = 4–3,000 HP, 6 axle, 195 ton units.

### Horsepower Per Ton (HPT):

Total horsepower divided by tonnage = HPT

Ex.: 12,000 HP divided by 8,000 tons = 1.5 HPT or

Total HP divided by train tonnage plus tonnage of isolated units = HPT – (Assume 1 unit isolated)

Ex.: 9,000 HP / (8,000 + 195) = 1.09 HPT

### Tons Per Operative Axle of Dynamic Brake (TODB):

Train tonnage divided by operative axles of dynamic brake

Ex.: 8,000 tons / 24 axles = 333 TODB

8,000 tons / 18 axles = 444 TODB (1 unit isolated)

### Light Engine Movements:

Consist weight divided by 120 tons = axles allowed

Ex.: 780 tons / 120 = 6.5 axles (2 units) of power or dynamic brake on line.

### 38. Engineer Training Assistance Hotline

For questions concerning:

1. SD 70MAC, AC traction and ICE systems
2. SD 75M and GE AC 400
3. Integrated Distributive Power
4. Electronic Air Brake System

call Overland Park Training Center (913) 469–3996.

### 39. Duplicate Mile Posts

On subdivisions where duplicate mile posts exist, an alpha suffix has been added (ie. MP 345X, MP 420Z). This alpha character may not be on the physical mile post sign at this time. When the alpha suffix is indicated in track warrant, track bulletins and other documents, reference must be made to the timetable individual subdivisions for station locations of the mile posts indicated.

**40. Test Cars 83, 85, 86, and B-9**

Dynamometer Test Car 83, Geometry Test Car 85, and Geometry Test Car B-9 must not be cut off in motion. Other cars must not be kicked to couplings with these cars. They must not be coupled with more force than is necessary to complete the coupling, not exceeding coupling speed of 2 MPH. These cars must receive careful handling at all times.

All deadhead movements of Geometry Test Car 85 must be on head end of train only. Trains handling Geometry test Car(s) No. 85, 86, and B-9 may observe passenger train speed on curves not to exceed 70 MPH as shown in individual subdivision instruction 1 (A) provided:

(1) Purpose of train is to test rail; and,

(2) There are no 6-axle locomotives in the engine consist.

Such trains are not authorized to observe passenger train speed on tangent track.

Geometry Test Cars 85 and B-9 are not required to have an ETD at the rear of the car.

**41. Locomotives Left Unattended**

Locomotives without cars must not be left unattended on a main track. When this equipment is left unattended on auxiliary tracks which are connected to a main track, it must be protected by derail(s) or a facing point switch lined and locked to prevent movement to the main track.

**42. Test Cars and Passenger Equipment in Freight Trains**

Except as outlined below, no passenger equipment will be moved in BNSF freight service unless authorized by the System Operations Center or Network Operation Center. The authority must include all restrictions for the movement.

Authority to handle former Santa Fe business cars is not required when: (1) cars are placed as rear cars of an all-articulated train, or; (2) cars are operated as a special train made up entirely of these cars. The Santa Fe business car fleet consists of ATSF 50, 51, 52, 53, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 77, 89, and 1869. ATSF 83, 85, 86, 88 and 196806 are not considered passenger equipment and are covered below. None of the above mentioned cars are to be coupled to cars that are equipped with shelf couplers.

ATSF 196806 Quality car must move in train, rear end only, not exceeding 55 MPH.

ATSF 88 Exhibit Car - Unless otherwise instructed by train dispatcher when being handled by itself, car must be handled in trains that do not exceed 5,500 tons and must be placed on rear of train. This car can be placed anywhere within the consist of a business car fleet on the rear of such trains.

Test cars 83, 85, 86, and B-9 - Dynamometer Test Car 83, Geometry Test car 85, and Geometry Test Car B-9 must not be cut off in motion. Other cars must not be kicked to couplings with these cars. They must not be coupled with more force than is necessary to complete the coupling, not exceeding coupling, not exceeding coupling speed of 2 MPH. These cars must receive careful handling at all times.

All deadhead movements of Geometry Test Car 85 must be on head end of train only. Trains handling Geometry Test Car(s) No. 85, 86, and B-9 may observe passenger train speed on curves not to exceed 70 MPH as shown in individual subdivision timetable item 1 (A), provided:

(1) Purpose of train is to test rail; and,

(2) There are no 6-axle locomotives in the engine consist.

Such trains are not authorized to observe passenger train speed on tangent track.

Geometry Test Car 85 and B-9 are not required to have a ETD at the rear of the cars.

**43. Instructions For Handling Continuous Rail**

(excluding articulated loads of 80 ft. length rail or less)

Rail trains loaded with continuous rail must not be kicked, nor allowed to be struck by other kicked cars; and, must be handled through all turnouts with extreme care. Before a switching move is made, an air brake inspection and test as prescribed by rule 101.11 must be performed.

When handled in other than special service, loaded rail trains must be on head end and train length restricted to a maximum of 64 cars. A suitable car should be placed at each end of the "rail" cars to act as a buffer. Trains handling rail trains should not be required to make setouts or pickups enroute. Two loaded rail trains must not be moved together in same train, unless authorized by the manager of the rail facility or his representative. When a two loaded rail movement is authorized, the maintenance representative will designate which rail train will be placed at the head end. The other rail train must then be positioned in the train immediately at the rear of the first or head end of rail train.

Routing of rail trains from the Rail Welding Facility, Pueblo, CO., to points west should be via Amarillo, TX. instead of the northern route through raton, NM; unless train has stop(s) to deliver rail between La Junta, CO. and Belen, NM. When a rail train is to be routed via the northern route, loading parameters of welded rail strings will be held more restrictive to allow a greater degree of safety for movement through tight curves and mountains. unless under special service, the 6x12 rail train (center tie-down car number ATSF 187023, ordinarily consisting of 32 cars rail and 2 buffers) should always be routed through Amarillo, TX. because of its greater amount of slack due to the increased number of cars and limited ramp car length.

Full length rail strings, when loaded, will have their lengths constructed so that the ends will fall between the green stripes painted on end ramp cars. When the rail train is stretched or bunched, and during transit, rail ends must be between the red stripes painted on end rampcars, or else the train must be held until released by the general roadmaster or his representative. A white stripe will be applied across top of all rails between tie-down stands on center car of the rail train so it can be determined at inspection points whether rail has slipped or shifted.

Rail trains are equipped with "Rail Movement Detectors" (RMD) to alert operating crews if any rail string(s) should become loose during movement. If the RMD system (i.e. strobe lights) become inoperative enroute, a maintenance representative must accompany each train during transit (a "Rider"). When the RMD system is inoperative each time train stops the rider must inspect the cars carrying the continuous rail for shifted, bowed or broken rail; also, that each base clamp (tie-down block) is tight. If any of the above or other unusual condition is observed, train must be held for instructions from general roadmaster. defective strobe lights must be reported to train dispatcher who will notify the manager of the rail facility so that problems can be documented and repairs can be arranged as soon as possible.

Strobe lights at each end ramp car must be observed frequently enroute. When observed flashing, train must be immediately stopped and all cars carrying continuous rail be inspected to determine any rail movement.

If movement is found, observe and complete the following:

1. If adjacent track or standard clearances are not fouled, train may be moved to clear main track not exceeding speed of 10 MPH.
2. If adjacent track or standard clearances are fouled, protection must be provided and train not moved until inspected by proper personnel.

If no movement is found, cancel flashing strobe lights by depressing the reset button at control box for three seconds duration and train may proceed at authorized speed.

The RMD consists of an electrically activated screens/gates, four amber colored strobe lights, and associated controls. There are two 12-volt absolute batteries, charged by an array of solar cells mounted between the tunnel stand strobe lights, to power the system. RMD are installed on all rail train ramp cars, which are placed at each end of a rail train. If a rail string becomes loose and makes contact with the screen, strobe lights will commence flashing. The strobe lights are mounted on the ramp cars positioned at the uppermost corners toward each end (two are mounted on each side of the adjustable ramp stand and the other two are mounted on each side of the tunnel stand).

The "ramp or tunnel" strobe lights operate in a parallel mode with a common activation (redundancy), thus each set will flash independently.

To check that strobe lights are operational, use metal rod, bare wire or other metal object to make simultaneous contact between the screen and any rail in the load or other metal ground. After observation of the lights flashing, depress the reset button, which is located on the control box, for three second duration to turn off and conserve the batteries. the lights should flash at approximately 60 times per minute; and fully charged batteries will operate them for about sixteen hours.

The RMD System is inspected and tested by Pueblo Rail Facility before rail trains are released for movement. When second hand welded rail is picked up and loaded in the field, the RMD System will be inspected and tested by the rail train supervisor before train is released for movement.

At designated intermediate inspection points, make mechanical inspection of cars in compliance with FRA requirements. Manager Rail facility in Pueblo must be advised if any mechanical repairs needed.

#### OPEN END GONDOLA CONSIST (ANY OWNERSHIP)

Maximum authorized speed for trains handling short lengths of continuous welded rail in open end gondola consist is 35 MPH.

Open end gondola consist loaded with continuous rail must not be kicked; nor allowed to be struck by other kicked cars.

Loaded open end gondola consist should be handled within 25 cars of the head end of trains.

Loading of rail into open end gondola consist shall comply with the following instructions:

1. Continuous lengths of welded rail will not be loaded more than one layer high.
2. Width of layer will not exceed 67 percent of the inside width of the narrowest gondola.
3. Rail will be centered width wise in open end gondola consist. If practical, spikes, cleats or blocks will be driven into bearing timbers (raised fashion) to prevent walking of load near sides. Rail lengths will be spotted lengthwise from outboard ends of open end gondola consist to allow sufficient distance to exist for clearance (i.e. to exceed the amount of coupling slack). Amount will be determined by number of cars in consist.
4. Continuous lengths of rail will be supported upon timbers with a minimum size of 4" x 4" hardwood. These timbers will be spaced equally throughout load in sufficient number to prevent rail from contacting floor of cars or bottom flanges used for gondola end retention, and provide friction necessary to limit rail shifting.
5. Couplers of cars will be gagged and locked to prevent accidental opening.
6. Outboard ends of pen end gondola consist will have ends installed or stacked timbers arranged into a barricade with a minimum height that exceeds the height of rail.
7. Continuous welded rail lengths will be loosely banded (to allow the required linear movement of the individual lengths of rail when consist is negotiating a curve) to keep all pieces grouped together.

#### EMPTY RAIL TRAIN BLOCKS (ANY OWNERSHIP)

When handling empty 'rail train' blocks, all cars weighing 50 tons or less, by car count, must be placed behind all cars weighing more than 50 tons per car.

#### 44. Electric Air Brake System (EABS)

The BNSF is operating double stack unit trains with "Electric Air Brake System" (EABS) equipment manufactured by Technical service and Marketing. This equipment is an electronically controlled pneumatic brake system and will be referred to as an "ECP" brake system. this is an overlay brake system that can be operated in either ECP or conventional pneumatic mode.

When operating in ECP mode, all service and emergency brake applications are performed with the Head End Unit (HEU) which is applied to the top of the control stand.



**WARNING:** The automatic brake valve is used only to charge the system and can only be used to initiate a pneumatic emergency brake application when operating in ECP mode. A pneumatic emergency application from any source can always be initiated whether in conventional pneumatic or ECP mode. (Emergency valve, 2-way ETD emergency valve, or from any other sudden drop in pressure in the brake pipe).

This equipment will only be operated by a qualified locomotive engineer who has operated ECP equipment a minimum distance of 50 miles previously or when an ECP-qualified locomotive engineer is acting as a pilot.

#### **SPEED**

As long as train is being operated in ECP Mode, double stack ECP train may be operated at maximum authorized speed of 70 MPH, regardless of tons per operative brake.

#### **TRAIN MAKE UP**

Test car (business car) moving with ECP equipment may be placed at head end of train ahead of all double stack equipment. This regardless of whether train is operating in ECP or Conventional pneumatic mode.

#### **DISCONTINUING ECP BRAKING**

ECP braking is to be discontinued enroute when any of the following conditions exist:

- if there is any indication the ECP system is not functioning properly.
- if less than 95% operable is indicated on the HEU.
- if a loss of communication with last car occurs ("Loss of EOT" as indicated by HEU which requires an acknowledgment on the HEU)
- if a setout or pickup is required and no TSM technical support personnel are available to reconfigure the ECP system (ECP cannot be operated with non-ECP equipped freight equipment).
- If no ECP qualified locomotive engineer available to operate or act as pilot
- if train is left unattended
- when performing air brake tests.

#### **PROCEDURE FOR DISCONTINUING ECP BRAKING**

When discontinuing ECP braking because of the above, shutting off HEU switch at rear of HEU results in immediate return to pneumatic control of the air brakes on train, if no ECP brake application was in effect.

If an ECP brake application was in effect at the time the HEU is turned off, the application will remain in effect for 5 minutes.

**WARNING:** To prevent a release of the brakes when discontinuing ECP operation, make a brake pipe reduction with the automatic brake valve to an amount greater by at least 5 psi than that in effect through ECP and wait for brake pipe exhaust to cease before shutting off the HEU.

#### **RETURNING TO CONVENTIONAL, PNEUMATIC MODE**

Should ECP braking be discontinued for any reason, verify normal pneumatic air brake function by determining that all brakes on train apply and release from a service reduction of the brake pipe in response to the automatic brake valve.

Additionally, make a running air brake test of the brakes to determine the holding force of the air brake system at first opportunity.

#### **ACTIVATING OR RETURNING TO ECP MODE**

When activating ECP braking, the system initializes with an ECP full service application. When system is first activated or when returning to ECP mode, make a running air brake test to verify the effectiveness of ECP braking, at first opportunity.

**POWER LOSS TO ECP**

If ECP power supply is disrupted or lost, pneumatic penalty brake application will occur. ECP battery backup on each car will maintain last command for a period of approximately 5 minutes, regardless of pneumatic recovery of PCS and brake pipe pressure, at which time system automatically returns to conventional pneumatic control. If ECP brake application in effect at the time penalty brake application occurs, a release of the brakes and return to conventional pneumatic braking will not occur for approximately 5 minutes.

**OPERATING PRACTICES**

ECP braking works well as the primary braking method for most braking situations. The ECP brake system is extremely responsive and reduces most stopping distances by at least 33% as compared to a conventional pneumatic brake application. This is accomplished by the elimination of brake pipe pressure changes as the method of propagating a brake application or release as required when utilizing a conventional air brake system.

When controlling speed on long, descending grade conditions, utilize the dynamic brake as with non-ECP trains, supplementing with ECP brake applications as needed.

Care should be used when operating this equipment. Although propagation is almost instantaneous throughout the train and in-train forces are greatly reduced due to this fact, heavy ECP brake applications should be avoided. If heavy ECP brake applications are depended upon, only a pneumatic emergency application of the brakes will give comparable stopping distance should ECP braking fail. Small, split ECP reductions/brake applications should be used as with conventional pneumatic systems.

**45. Roadrailer Equipment on Conventional Trains**

The following guidelines must be followed when operating roadrailer equipment on the rear of conventional trains:

1. Roadrailer equipment must be entrained "nose first" for main track operation.
2. The rear couplermate unit may be used for switching purposes, provided overall train forces are kept below 100,000 lbs.
3. Since the roadrailer equipment is not equipped with draft gear, a full stop should be made prior to any coupling involving roadrailer equipment approximately 1/2 to 1 car length from coupling.
4. Roadrailer equipment is rear end only. Loaded roadrailer equipment should not be operated behind trains consisting entirely of empty conventional equipment. This could lead to high slack run-in and train forces.
5. If one roadrailer unit is bad ordered, all roadrailer equipment in train must be set out.

Roadrailer equipment numbers to be operated on BNSF are SFLC series: 460004, 460003, 460002, 460000.

**46. Air Dump Cars**

Employees are prohibited from riding in air dump cars. Cars must not be moved with doors open, except as necessary to clear material just dumped. Air dump cars must not be humped or be impacted by other cars.

When air dump cars are being operated, the conductor must personally supervise the handling to see that all locked devices are in proper position and that all people are in the clear before charging actuating air line and before they are operated.

Only employees who are knowledgeable in the operation of air dump cars may operate such cars in unloading operations. When coupling actuating air hoses, not more than three air dump cars may be charged at a time.

Before charging the actuating air line, or before attempting to dump air cars, it must be known that protection against movement on adjacent tracks which could be fouled by material to be dumped, has been provided as follows:

(A) If the adjacent track is an auxiliary track, except where CTC is in effect, movement must not be permitted to pass air dump cars which are being charged or being unloaded.

(B) If the adjacent track is a main track with ABS in effect, protection must be provided either by track warrant box 12, track bulletin Form B, or flag protection provided in both directions as prescribed by Rule 6.19.

(C) If the adjacent track has CTC in effect, protection must be provided either by securing track and time as prescribed by Rule 10.3 or flag protection provided in both directions as prescribed by Rule 6.19.

#### **47. Caboose Placement**

All cabooses other than the working caboose moving in trains for any reason, are to be handled on rear of train just ahead of working caboose, except:

1. Trains operating with helpers on the rear end must have dead head cabooses and cabooses other than the working caboose placed behind helpers.
2. Trains or yard movements limited to maximum speed of 10 MPH may operate with caboose with caboose at any location.
3. Cars with defective couplers may be transported to repair facilities behind such cabooses.

#### **48. Handling of FRA T-10 Car**

Engineer pilot must notify to T-10 operator of the limits of movement authority and authorized speeds a sufficient distance in advance of any movement or speed restrictions.

The T-10 must approach all interlockings prepared to stop until the route is known to be clear.

If T-10 is stopped within the limits of any interlocking, the control operator or dispatcher must be notified of the stop and the precise location.

T-10 should not be stopped within the limits of an automatic interlocking or a non-interlocked railroad crossing at grade. If such a stop cannot be avoided, T-10 must be fully protected against conflicting movements at once. Flag protection will be provided unless other positive methods of protection are available or T-10 is relieved of this responsibility by the train dispatcher.

In automatic block system or traffic control system territory, T-10 should not be stopped on sand. If such a stop cannot be avoided, T-10 must be moved immediately a sufficient distance to clear the sanded portion of the rails.

T-10 must approach all highway grade crossings equipped with automatic warning devices prepared to stop until it is determined that the warning device is working and continues to work as T-10 passes over the crossing. Flag protection against highway vehicles must be provided when automatic warning device does not operate properly or when required by railroad rules or instructions.

No more than four persons are permitted to occupy the control cab of T-10. These four persons are the vehicle operator, forward observer, engineer pilot and either the FRA operating practices inspector or a carrier supervisor.

#### **49. Rail Detector Cars**

Sperry rail detector cars nos. 124, 132, and 144 will be utilized for rail flaw detection. These units are self-contained rail cars which cannot be depended upon to continuously actuate the block signal circuits and crossing warning devices. When deadheading to a work location, they will require an engineer pilot; when working to detect rail flaws, they will be accompanied by a MW supervisor.

These units should be authorized and protected in the following manner:

##### **CTC TERRITORY:**

When the equipment is working to detect rail flaws, it will be authorized and protected by track and time, Rule 10.3. When being deadheaded to a work location, the equipment will operate by signal indication and must report to the control operator when it has passed each control point. The control operator will apply blocking devices on the control machine behind this equipment as soon as progress report is received.

##### **TWC TERRITORY:**

When the equipment is working to detect rail flaws, it may be authorized and protected by Form B track bulletin under the provisions of Rule 15.2.1. This type of protection may also

be afforded when deadheading the equipment in TWC territory. (Rule 15.2.1 may only be used on divisions where authorized by timetable or general order). Where Rule 15.2.1 is not allowed, track warrant protection, box 4, may be used for authority.  
Exception: Track warrant protection, Box 4, must not be used inside of yard limits in ABS territory since the equipment cannot be depended upon to continuously actuate the block signal system.

#### TRACK PERMIT TERRITORY:

The equipment will be authorized and protected by track permit under the provisions of Rule 9.15.

At automatic interlockings, the units will be handled accordingly to the instructions in the equipment release box and not by the train release box instructions.

At manual interlockings, the control operator will follow instructions for handling track cars rather than trains.

These units must approach all grade crossings equipped with automatic crossing warning devices prepared to stop until it is determined that crossing warning device is operating properly.

#### 50. Intermodal Equipment TOB/Car Count and Speed Restriction

TSS Car Kind Codes	Car Description	Units or Segments	Maximum Car Length	Axle Count	Control Valves and/or Car Count	Trailers = T Contain- ers = C Either = T/C
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#### Articulated Cars

QY	Doublestack	Five	308 ft.	12	3	C
QV	Doublestack	Three	190 ft.	8	2	T/C
QM	Spine Car	Three	189 ft.	8	2	T/C
QC	Spine Car	Three	189 ft.	8	2	T
QO	Spine Car	Five	291 ft.	12	3	T/C
Q5	Spine Car	Five	291 ft.	12	3	C
QE	Spine Car	Five	291 ft.	12	3	T

#### Non-Articulated Cars\*

QW	Doublestack	Three	215 ft.	12	3	T/C
QX	Doublestack	Four	286 ft.	16	4	T/C
QB, QD	Twin Flats	Two	186 ft.	8	2	T
QDE	Front-runner	Four	188 ft.	8	4	T

#### Single Unit Intermodal Cars

QU	Doublestack	One	80 ft.	4	1	T/C
QA	Front-runner	One	51 ft.	2	1	T

#### Car Kind Codes

Car kind codes are usually 3 characters. On intermodal cars shown above, only the first two characters are required to identify car type, with one exception (QDE).

#### Definitions of Multiple Unit Equipment:

**Articulated** – Refers to cars with multiple units (segments) that are connected with an articulated couplings that share a common truck.

**Non-Articulated** – Refers to cars with multiple units (segments) that are connected with solid drawbars. Each unit is a stand-alone unit and does not share a common truck with another unit.

### **Tons Per Operative Brake**

Tons per operative brake on cars above are determined by dividing the number of control valves/car count into the weight of the car. This can be determined without inspection as follows:

Articulated cars=total number of units divided by two, rounded up to next number divided into total weight of the car.

(Example: five unit doublestack, Car kind code QY=3 by car count)

Non-articulated cars=total number of units divided into weight of car.

(Example: Four Unit doublestack Car Kind Code QX=4 by car count)

### **Speed**

In order to limit truck hunting, trains must not exceed 55 MPH unless all cars in train are loads. cabooses and any car loaded with container chassis are considered loads for the purpose of the rule.

#### **Articulated Cars:**

Articulated spine cars (Car kind Codes QM, QC, QO, Q5, QE) are considered loads if it can be determined that car is loaded with at least one empty or loaded, container or trailer.

Due to the load bearing characteristics of shared trucks on articulated cars, truck hunting is limited even when such cars have empty units. Empty articulated doublestack cars (Car Kind Codes QY or QV) may operate at maximum authorize speed when completely empty due to constant contact side bearings which prevent truck hunting.

#### **\* Non-Articulated Cars:**

Non-articulated cars (Car Kind Codes QW, QX, QD, QB and QDE) are restricted to 55 MPH unless each unit is loaded with an empty or loaded trailer or container. These cars do not share a common truck and empty units are subject to truck hunting as with any empty, conventional car. (This may require a review of train documentation to determine). Non-articulated, Twin Flats (initials TTEX only) can be loaded with three 48'-57' or four 45' or shorter trailers. When loaded with three trailers, trailer can straddle the drawbar. Each unit must be loaded with all or one/half of a trailer to be considered loaded for maximum authorized speed above 55 MPH. (More than 90' of total trailer length shown on train documentation indicates each unit is loaded).

### **51. KNORR CCB Electro-Pneumatic Automatic Brake Valves and ABDX Control Valves**

1) When operating a KNORR CCB electro-pneumatic automatic brake valve and initiating an engineer-induced emergency, you must ensure that the handle is positioned forward fully to engage the emergency application. this is the same procedure for making an emergency brake application with any other automatic brake valve. Enough force must be used to ensure the emergency position is engaged.

2) Cars equipped with ABDX control valves in rare cases experience undesired releases with a minimum brake pipe reduction in effect. The railroad industry and BNSF is working in conjunction with the Federal Railroad Administration to expedite a modification to correct this condition. Emergency brake applications are not affected by this problem. Initial brake pipe reductions of 8 to 10 psi prevent any undesired releases with this equipment.

3) Any crew experiencing any unusual condition with train or locomotive braking systems must immediately stop, inspect their train and notify the train dispatcher. Unusual conditions include the inability to propagate a brake reduction, inability to initiate an emergency application, and inability to maintain a brake application with a fully charged system (Undesired release).

**52. Colt ETD Control Heads**

Santa Fe locomotives currently equipped with Colt ETD Control heads can perform only one function at a time. If the "Train Length", Calib Mile", or Odometer Start" features are in use, depressing the emergency button cannot be relied upon to initiate an emergency application from the rear of the train. Therefore, do not use any of these features when the ETD is emergency-enabled for rear-end operation. Colt control heads are the only two-way control heads mounted in the normal ETD control head panel. Pulse control heads are additional modular attachments, and as information, do not have the problems associated with the colt control heads.

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## 53. Special Car Handling Instructions

One or any combination of two of the following codes may be shown on train lists to designate special car handling requirements. These same codes may also appear in the Special Instruction Column of switch lists and yard inventories.

CODE	DESCRIPTION	CODE	DESCRIPTION
AV	Annual Volume	HL	Excessive Dimension
BN	If Bad Order Notify Shipper	HN	Cars Held For Specified Local Conditions**Restricted Usage
BT	Bare Table Flat	HO	Cars Held For Consignee To Surrender Original BOL or Indemnity Bond
B1	Bad Order	HR	Cars Held For Customer Furtherance Instructions After Arr. at Dest.
C	Customer Chassis Required	HS	Empty (Non-Private) Cars Held On BNSF Trackage Awaiting Placement
CA	Placarded Class 2.3	HT	Heat Car
CC	To Be Cleaned and Conditioned	HV	High Value Shipment
CD	Condemned Car (See Note 1)	HX	Cars Held Waiting For Waybill Information From Connecting Carrier
CI	Customs Inspection	IB	In ATSF Bond
CL	Combustible	ID	In Bond Beyond ATSF Destination
CN	Placarded Class 2.2	IS	In Shipper's Bond
CO	Placarded Class 5.1	L	Tank Surveillance Required
CP	Placarded Class 6.1	LC	Car Trip Leased To Consignee
CR	Placarded Class 7	LG	Loaded To Gallonage Capacity
CS	Placarded Class 4.1	LO	Local Orders
CW	Placarded Class 4.3	LQ	Loaded To Full Cubic Capacity
CY	Certification That This Equipment Is For Recycling	LS	Handle In Local Service Only
C3	Placarded Class 3	LV	Loaded To Full Visible Capacity
C9	Placarded Class 9	M	Person In Charge of Car
DB	Distributed Van Bad Ordered	MB	Make Bill of Lading
DH	Do Not Hump	MC	Measure Car Now
DI	Redistribute at Destination	NC	Non Credit Patron
DO	Delivery Order Shipment	ND	Do Not Divert
DT	Distributed Intermodal Equipment	NH	No Hit—Car Distribution
DU	Do Not Uncouple	NP	No Placards Required
EC	Speed Restriction 55 MPH	NT	Do Not Transfer Contents
EL	Empty Container Mechanical Lock	OC	Placarded Code 5.2
ER	Return Empty Via Reverse Route	OI	Oils Marine Pollutant
FM	Fumigate Car Now	PD	Privately Owned Equipment Subject To Demurrage
FP	Fumigation Placards Applied	PJ	Mechanical Project Job
HA	Cars Held For The Customer In Bond Pending Customs Authority	RE	Rear End Only
HB	Hold for Billing—Mini Waybill	RP	Rail Controlled Private
HC	Indicating Industry To Bill	RS	Rule 7 Reject Candidate
HD	Hold for FMC Redistribution	SC	Placarded Class 4.2
HE	Cars Held For Customer Diversion	SE	Hold for Seasonal Storage
HF	Head End Only	SF	Feed Now
HG	Car Held For BNRR Rail Clearances (High Wides)	SO	Shipper's Order
HH	Cars Held For BNRR Pending Customer File Information	SR	Rail Surveillance Required
HI	Cars Held For Overload Condition	SS	Surplus Storage
HJ	Hold for Inspection	TB	Car Control Distributed Bad Order
HK	Cars Held For A Foreign Railroad After Being Offered By BNSF For ICD		
	HK Empty Non-Private Cars Held On BNSF Track And No Car Order Exists		

CODE	DESCRIPTION	CODE	DESCRIPTION
TS	Transit Shipment	2B	Placarded Class 1.2B
TU	Turn This Car Now	2C	Placarded Class 1.2C
UP	Unload as Placarded	2D	Placarded Class 1.2D
WA	Weigh After Spotted And Released	2E	Placarded Class 1.2E
WB	Weigh This Car Both Before And After It Goes To Spot	2F	Placarded Class 1.2F
WH	Weigh	2G	Placarded Class 1.2G
WI	Waive Inspection	2H	Placarded Class 1.2H
WL	Weigh Light	2J	Placarded Class 1.2J
X1	Placarded Class 1.1	2K	Placarded Class 1.2K
X2	Placarded Class 1.2	2L	Placarded Class 1.2L
X3	Placarded Class 1.3	3C	Placarded Class 1.3C
X4	Placarded Class 1.4	3F	Placarded Class 1.3F
X5	Placarded Class 1.5	3G	Placarded Class 1.3G
Y	Mechanical Refrigeration	3H	Placarded Class 1.3H
Z	Expeditor Train	3J	Placarded Class 1.3J
1A	Placarded Class 1.1A	3K	Placarded Class 1.3K
1B	Placarded Class 1.1B	3L	Placarded Class 1.3L
1C	Placarded Class 1.1C	4B	Placarded Class 1.4B
1D	Placarded Class 1.1D	4C	Placarded Class 1.4C
1E	Placarded Class 1.1E	4D	Placarded Class 1.4D
1F	Placarded Class 1.1F	4E	Placarded Class 1.4E
1G	Placarded Class 1.1G	4G	Placarded Class 1.4G
1J	Placarded Class 1.1J	4F	Placarded Class 1.4F
1L	Placarded Class 1.1L	4S	Placarded Class 1.4S
2	Compass Explosives and Poison Gas	5D	Placarded Class 1.5D
		6N	Placarded Class 1.6N
		25	25 MPH Speed Restriction (See Note 2)

Note 1. The 'CD' Condemned Car code will be inserted by the computer when the car is so registered in UMLER (Universal Machine Language Equipment Register). This does not relieve employees of the responsibility of reporting these codes when appropriate.

Note 2. Report numeric MPH speed restriction only, e.g., 25 for a car restricted to 25 MPH. Certain series of cars which have a permanent speed restriction will have the speed restriction code inserted by the computer. When such speed or speeds are shown, trains must not exceed the lowest speed so indicated. This does not relieve employees of the responsibility of reporting the proper code on work order(s) on all cars which for any reason have speed restrictions.

When cars are subject to two special handling instructions, both codes should be reported. If subject to move with more than two, report the two most restrictive and protect other special handling requirements by an administrative message to those offices and/or individuals to whom the train is addressed.

When a car on a train list has the "HL" Car Code, and no clearance wire is received, contact your local CS&S office and obtain a clearance wire for the car. If unable to obtain a clearance wire, the car must be set out.

TTQX cars, BNSF 306000-306153, and GVSF 89000-89058 are all (Hi Tri-Levels) with car code M3E and "cannot" be operated on any Branch Line or any location listed below:

- Chicago Subdivision - BRC overpass between MP 6.70 and MP 6.73 (Handle on mains 4 and 5 only)
- Rockford Subdivisions
- Sioux Subdivision
- Omaha Subdivision - Handle on main 1 only at Omaha Depot
- Wayzata Subdivision
- Casco Subdivision
- Aberdeen Subdivision - Sioux City to Mitchell
- Laurel Subdivision
- Fort Benton Subdivision
- Helena Subdivision
- Hi Line Subdivision
- Kootenai River Subdivision - Whitefish to Sandpoint Jct.
- Scenic Subdivision
- Seattle Subdivision
- Fallbridge Subdivision - Wishram to Vancouver, WA.
- A Line Subdivision
- O E Subdivision
- Oregon Trunk Subdivision
- Hannibal Subdivision - West Quincy to Burlington
- Topeka Subdivision - Topeka to Emporia



- Longview Subdivision
- Raton Subdivision
- Glorieta Subdivision - Las Vegas to Albuquerque
- Stockton Subdivision - Stockton to Richmond

All other subdivisions can handle the car type listed above "without" issuing a clearance wire to protect movement even if car has "HL" code on the train list.

#### 54. Speed Tables

SPEED TABLE								
Time Per Mile		Miles Per Hour	Time per Mile		Miles Per Hour	Time PerMile		Miles Per Hour
Min.	Sec.		Min.	Sec.		Min.	Sec.	
-	36	100	-	58	62.1	1	40	36.0
-	37	97.3	-	59	61.0	1	42	35.3
-	38	94.7	1	-	60.0	1	44	34.6
-	39	92.3	1	02	58.0	1	46	34.0
-	40	90.0	1	04	56.2	1	48	33.3
-	41	87.8	1	06	54.5	1	50	32.7
-	42	85.7	1	08	52.9	1	52	32.1
-	43	83.7	1	10	51.4	1	54	31.6
-	44	81.8	1	12	50.0	1	56	31.0
-	45	80.0	1	14	48.6	1	58	30.5
-	46	78.3	1	16	47.4	2	-	30.0
-	47	76.6	1	18	46.1	2	05	28.8
-	48	75.0	1	20	45.0	2	10	27.7
-	49	73.5	1	22	43.9	2	15	26.7
-	50	72.0	1	24	42.9	2	30	24.0
-	51	70.6	1	26	41.9	2	45	21.8
-	52	69.2	1	28	40.9	3	-	20.0
-	53	67.9	1	30	40.0	3	30	17.1
-	54	66.6	1	32	39.1	4	-	15.0
-	55	65.5	1	34	38.3	5	-	12.0
-	56	64.2	1	36	37.5	6	-	10.0
-	57	63.2	1	38	36.8	12	-	5.0

FEET	TENTHS OF A MILE
528	.1
1,056	.2
1,584	.3
2,112	.4
2,640	.5
3,168	.6
3,696	.7
4,224	.8
4,752	.9

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