

BNSF Safety Vision

We believe every accident or injury is preventable. Our vision is that Burlington Northern Santa Fe will operate free of accidents and injuries. Burlington Northern Santa Fe will achieve this vision through:

A culture that makes safety our highest priority and provides continuous self-examination as to the effectiveness of our safety process and performance ...

A work environment, including the resources and tools, that is safe and accident-free where all known hazards will be eliminated or safe-guarded ...

Work practices and training for all employees that make safety essential to the tasks we perform ...

An empowered work force, including all employees, that takes responsibility for personal safety, the safety of fellow employees, and the communities in which we serve.

BNSF



System Special Instructions

All Subdivisions No. 7

IN EFFECT AT 0001
Central, Mountain and
Pacific Continental Time

Sunday, January 20, 2002

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In the individual division timetables, the number at the bottom of the schedule column entitled "Miles to Next Station" indicates total miles on the subdivision.

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 speed if passenger train speed is not specified under individual subdivision special instructions.

Unless defined differently in the individual subdivision special instruction, tons per operative brake (TOB) is defined as the gross trailing tonnage of the train divided by the total number of control valves.

Maximum Speeds Permitted

- Freight trains up to 100 TOB 60 MPH.
- Trains 100 TOB and over 45 MPH.
- Trains handling empty cars, except when comprised entirely of passenger/commuter equipment (See 1(C) regarding empty intermodal equipment) 55 MPH.
- Key trains 50 MPH.
- Key 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.
- Trains and engines through turnouts 10 MPH.
- On tracks other than main tracks and sidings 10 MPH.
- Trains operating with lead controlling
 - CN (Canadian National) locomotives 65 MPH.
- Within Mechanical Department limits 5 MPH.
- Movements on or off turntables 1 MPH.
- Trains with welded rail in open end gondolas 35 MPH.
- Light engines must not exceed maximum authorized speed for freight trains.

Equipment	Main Line	Branch Line
Roadrailer equipment (loaded or empty) Exception: Roadrailer equipment maximum authorized speed is 60 MPH when handling empty trailers with the initials ECOZ, SWFZ, TCSZ, AMTZ and WNCZ. Amtrak roadrailer equipment may operate at maximum authorized passenger speed, loaded or empty.	70 MPH.....	70 MPH.....
Flat cars, empty, NP 580400-580739.....	50 MPH.....	50 MPH.....
Flatcars OTTX 90000-97955 (loaded or empty)	45 MPH.....	45 MPH.....
Gondolas: empty cars picked up enroute and not on conductor's 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, EJE 4000 through 4999 and CR 576026 through 579245	45 MPH.....	45 MPH.....
Loram Rail Grinder traveling (not in work mode) as a train on it's own power with a conductor or engineer pilot.....	60 MPH.....	60 MPH.....
When controlling movement from the rear control cab in the lead.....	40 MPH.....	40 MPH.....
Exception: When descending a 1% to 1.4 % grade.	20 MPH.....	20 MPH.....
When descending a 1.5% or greater grade	15 MPH.....	15 MPH.....
Empty bulkhead flatcars picked up enroute and not on conductor's wheel report or work order	45 MPH.....	45 MPH.....
Air dump cars, loaded	45 MPH.....	45 MPH.....
Clay Cars, RARW 3801-4199	45 MPH.....	45 MPH.....

- Empty bulkhead wallboard flatcars:
 - BN 616475 through 616674,
 - CS 616375 through 616474,
 - DJTX 9300 through 9398 and
 - SOU 115250 through 115274 45 MPH..... 45 MPH.
- 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 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
		FGWX 100000-500000
- Ribbon rail cars, (loaded) 35 MPH..... 25 MPH.
- Ribbon rail cars, (empty)..... 45 MPH..... 45 MPH.
- Ribbon rail loading and unloading cars 45 MPH..... 45 MPH.
- Wedge plow or dozer, hauled in tow 35 MPH..... 25 MPH.
- Rotary plow, wrecking derrick, locomotive crane, pile driver or Jordan spreader, handled in trains..... 30 MPH..... 25 MPH.
- Exception: Locomotive cranes/pile drivers ATSF 199454 through ATSF 199468 may be handled in trains at a maximum of 45 MPH. Trains or engines handling this and similar equipment which is moving on its own running gear must operate through the curved side of turnouts at a speed not exceeding one-half the maximum authorized speed for that turnout.
- 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.
- The following equipment when handled in trains will be handled on rear end of train only, and is subject to the following maximum speeds:
 - Kershaw, RKCX 104 and 105 45 MPH..... 45 MPH.
 - Plasser Machines, PACX 281, 293,
255, and 250 45 MPH..... 45 MPH.
 - P 811 50 MPH..... 45 MPH.
 - Loram, BC 09 and BC 17 50 MPH..... 45 MPH.
- When moving coupled with maintenance of way tool cars, they must remain coupled to such cars.
 - Tank cars ACFX 17451 through 17495 .. 45 MPH..... 45 MPH.
 - Tank cars NATX 10841 through 10865 .. 45 MPH..... 45 MPH.
- Tank cars:
 - DVLX 4001 through 4190 and the following UTLX cars:

76517	76742 thru 76745	78287 thru 78293
76539	76747	78326
76556	76748	78328 thru 78333
76558	76750	78336 thru 78340
76568	76751	78343
76595	78256 thru 78269	78344
76649	78272	78347
76656	78274	78348
76696	78278	78350
76733	78281	78353
76736 thru 76738	78285	40 MPH..... 40 MPH.
 - CORX tank cars, when empty 50 MPH..... 50 MPH.
 - CELX 6400-6455 and 10400-10443,
when loaded 45 MPH..... 45 MPH.
 - (CELX 6400-6455 and 10400-10443, when loaded must not be handled nearer than 6 cars from locomotive).
- EMPTY Schnabel type cars:

APWX 1004	GEX 40010, 80002, 80003
BBCX 1000	GPIX 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 empty Schnabel cars listed 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 and TUGX 36001 through 36125 45 MPH..... 45 MPH.

Empty covered hopper cars:

- CRDX 20300-20324
- CRDX 20525-20724
- DJLX 97800-97999
- FLOX 3200-3241
- FLOX 983400-983414
- IMRL 9200-9299
- NRLX 32500-32605
- NS 294220-294319
- RGCX 650-749
- DSWX 9700-9919 40 MPH..... 40 MPH.

Flatcars ATSF 190298, 209144, 209149, 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 13 MPH or less until movement can again exceed 21 MPH.

1(B). Maximum Speed of Engines

Engines	MPH	When not controlled from leading unit (MPH)
Amtrak	90*	45
Metrolink	90*	45
Metra	79*	45
Sounder (Sound Transit)	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.

1(C). Multiplatform Equipment-All Types and Single Unit 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 Containers=C Either=T/C
Articulated cars						
QY	Doublestack	5	308 ft.	12	3	C
QV	Doublestack	3	190 ft.	8	2	T/C
QM	Spine Car	3	189 ft.	8	2	T/C
QC	Spine Car	3	189 ft.	8	2	T
QO	Spine Car	5	291 ft.	12	3	T/C
Q5	Spine Car	5	291 ft.	12	3	C
QE	Spine Car	5	291 ft.	12	3	T
FM	Twin Flat	2	88 ft.	6	2	C
M3F	Automax	2	144 ft.	6	2	
CSX	Superhopper	5	167 ft	12	3	
HT	Trough Car	13	279 ft	26	3/6#	
Non-Articulated Cars *						
QW	Doublestack	3	215 ft.	12	3	T/C
QX	Doublestack	4	286 ft.	16	4	T/C
QT	Doublestack	5	359 ft.	20	5	C
QB QD	Twin Flats	2	186 ft.	8	2	T
QL	Twin Flats	2	186 ft.	8	2	T/C
QDE	Front-Runner	4	188 ft.	8	4	T
Single Unit Intermodal Cars						
QU	Doublestack	1	72 ft.	4	1	T/C
QA	Front-Runner	1	51 ft.	2	1	T
QK	Doublestack	1	72 ft.	4	1	T/C

For TOB calculation purposes, trough cars are counted as 6 cars each divided by total weight of the car. Refer to Special Instructions, Item 3(C) for additional information on handling this equipment.

Note: Multiplatform (articulated or non-articulated) intermodal equipment (other than coal multiplatform equipment) is identified with a signal initial and number and its individual units identified by a letter designation (refer to Special Instruction, Item 41). Individual units of multiplatform solid drawbar-connected (non-articulated) coal equipment are identified as individual cars with a unique initial/number for each unit. Not all conventional intermodal equipment is listed in the table.

Car Kind Codes

Car kind codes are usually 3 characters. On cars shown above, only the first two characters are required to identify car type, with the exception of CSX, M3F and 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 (TOB)

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. Caboose 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 authorized 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, QL, QT 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 (TTEX, FEC and CN) 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 movement at speeds greater than 55 MPH. (More than 90' of total trailer length shown on train documentation indicates each unit is loaded or the car must be visually inspected.)

2. Locomotive Restrictions

Unless individual subdivision special instructions specify otherwise, the powered axle rating of a locomotive consist must not exceed 42.

Exception: Trains with symbols beginning with alpha designations P, Q, S or Z may operate with a maximum powered axle rating of 48.

Locomotives coupled together in multiple-unit configuration must be limited to 12 locomotives.

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.

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 subdivision 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 (excluding loaded bulk commodity 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 (by tonnage).

Helper Tractive Effort Restrictions When Shoving Against Empty or Light Cars

A helper consist at the rear of a train exceeding a powered axle rating of 6 must not shove against any car weighing less than 45 tons or empty units of a multi-platform 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 45 tons or empty units of multi-platform car within rear 10 cars/units of rear of train, helper consist must be entrained 300 tons for each additional powered axle rating above 6.

Note: For multi-platform equipment, cars must weigh a minimum of 45 tons by car count. See Special Instruction, Item 1(C).

Exception: If helpers are not entrained 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.

Intermodal Equipment Restriction

The following intermodal equipment must not be within the first 10 cars/units ahead of any helper, rear end or entrained, regardless of the number of rated powered axles:

1. Intermodal equipment weighing less than 45 tons by car count.
2. Empty intermodal equipment (including empty units/ platforms).
3. Conventional flatcars capable of carrying multiple trailer/ containers loaded with only one trailer or container.

When entraining helpers, placement of helpers may vary by 5 cars/units to comply with helper train make-up requirements.

Note: Amperage limitation method above MAY NOT be utilized in lieu of train make-up restrictions for intermodal equipment.

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 renumbered.

The following tables will be used for determining power and dynamic brake axles 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.
	3300	3300	SW1	EMD	198,000	600	4-NONE	4	0
	375-585	3600-3653	SW10	EMD	250,000	1,000	4-NONE	4	0
	5	3310	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	GP15	EMD	261,000	1,500	4-NONE	4	0
1200-1201		1200--1201	MK 1200G	MK	250,000	1,200	4-NONE	4	0
1460		1460	SWBL-W	EMD	262,500	1,500	4-NONE	4	0
2000-2241		1299-1375	GP7	EMD	249,000	1,500	4-NONE	4	0
2244-2299	1702-1977	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
	1375-1399	1475-1499	GP15, GP15-1	EMD	258,000	1,500	4	4	
	1955	1955	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	2075-2382	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
	3500-3554	3000-3029	GP40M GP40E	EMD	278,000	3,000	4BF	4	4
3800-3809	3040-3064	3030-3064	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	4200-4276	B23-7	GE	268,000	2,250	4EF	4	4
	4000-4119		B30-7A	GE	275,000	3,000	4BF	4	4
	6100-6246	6100-6199	SD9	EMD	368,000	1,750	6	6	6
	6260-6270	6260-6270	SC38P	EMD	391,000	2,000	6BF	6	6

Former Santa Fe	Former BN	BNSF	Type	Make	Weight	Horse-Power	Axles & DB Type	Power-Axle Rtg.	DB Axle-Rtg.
	6289-6299	6289-6299	TEBC6	EMD	387,000	2,000	6B	6	6
1556-1575		6200-6219	SD39	EMD	389,000	2,500	6EF	6	6
5000-5267	6300-6399 6700-8181	6300-8181	SD40 SD40-2	EMD	391,500	3,000	6EF#	6	6
5325-5437 5800-5975		6400-6516	SD45 SD45-2	EMD	395,000	3,600	6ET	6	6
90-98		90-98	SDFP4-5	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		5220-5222	SF30C	GE	319,500	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
EMD 9000-9599	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	6EF	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
HLCX 3621-3695	GP38	EMD	262,000	2,000	4EF	4	4
HLCX 3700	GP38-2	EMD	265,000	2,000	4ET	4	4
HLCX 4291	GP40-2	EMD	265,000	2,000	4BT	4	4
HLCX 6056-6625	SD40-3	EMD	410,000	3,000	6EF	6	6
HLCX 6600	SD45-2	EMD	395,000	3,600	6EF	6	6
LRCX 5490-5491	B30-7	GE	275,000	3,000	4BF	4	4
LRCX 5501-5506	C30-7	GE	388,000	3,000	6BF	6	6
LRCX 7771-7773	B36-7	GE	274,000	3,600	4BF	4	4
LRCX 8099-8119	C307A	GE	395,000	3,000	6BF	6	6
LRCX 8149	C307	GE	395,000	3,000	6BF	6	6
LRCX 9508-9568	SF30C	GE	395,000	3,000	6BF	6	6

Leased Locomotives	Type	Make	Weight	Horse Power	Axles & DB Type	Power Axles	DB Axles
NREX 966-970	GP20	EMD	257,000	2,000	4NN	4	0
NREX 2041	SD20	EMD	391,000	2,000	6NN	6	0
NREX 2601-2602	GP26	EMD	255,000	2,250	4NN	4	0
NREX 2776	GP38	EMD	265,000	2,000	4EF	4	4
NREX 3065	SD40	EMD	391,000	3,000	6EF	6	6
NREX 3076	GP40	EMD	270,000	3,000	4BF	4	4
NREX 3107	SD40	EMD	391,000	3,000	6EF	6	6
NREX 3140	GP40	EMD	270,000	3,000	4BF	4	4
NREX 3186	SD40	EMD	391,000	3,000	6EF	6	6
NREX 5487-5488	B30-7	GE	275,000	3,000	4EF	4	4
NREX 5509	C307	GE	413,000	3,000	6EF	6	6
NREX 6564	SD40	EMD	391,000	3,000	6EF	6	6
NREX 6634	SD18	EMD	300,000	2,000	6NN	6	0
NREX 7200	GP40X	EMD	270,000	3,000	4EF	4	4
NREX 8147	C307	GE	413,000	3,000	6EF	6	6
NREX 9323	SD45-2	EMD	395,000	3,600	6ET	6	6
NREX 9450	SD28	EMD	391,000	2,000	6NN	6	0
NREX 9503-9561	SF30C	GE	395,000	3,000	6EF	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 Rtg.	DB Axle Rtg.
500-582		500-582	B40-8W	GE	288,000	4,000	4EF	4	6
100-162		100-162	GP60M	EMD	274,500	3,800	4EF	4	6
325-347		325-347	GP60B	EMD	270,000	3,800	4EF	4	6
	9200-9299	9200-9299	SD60M	EMD	401,000	3,800	6EF	6	8
200-250 8251-8275		8200-8301	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
4000-4039		8700-8739	GP60	EMD	274,500	3,800	4EF	4	6
7410-7499		8600-8639	B40-8	GE	283,000	4,000	4EF	4	6
		700-799 4300--4999 5300-5499	C44-9W	GE	415,000	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	Horse-Power	Axles & 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					11	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
SD90MAC	EMD		4,300	6EF	11	8
1 truck c/o					5	5

Dynamic Brake Types

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

2(C). TFM Locomotives

TFM 1505 through 1515 must not be used as the lead locomotive in an engine consist.

3. Equipment Restrictions

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

- Outfit cars (Exception: Univans may be placed anywhere in the train.)
- Pile drivers
- Locomotive cranes
- Ribbon rail loading and unloading cars
- Empty ribbon rail cars
- Rear end only cars
- Jordan spreaders
- Rotary snowplows
- Wedge plows
- Dozers

Except as provided in Item 1, scale test cars must be placed ahead of caboose or, on cabooseless trains, ahead of the last car.

Scale test cars must not be humped.

When locomotive cranes/pile drivers, wrecking derricks or similar equipment are being moved on their own wheels or on cars in a train, they will be handled on the rear of the train only.

Exception: Locomotive cranes/pile drivers AT 199454 through AT 199468 must be handled in trains next to the engine.

This equipment 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. Such equipment must not be operated on any subdivision designated as a branch line unless authorized by roadmaster or covered by specific instructions. Equipment of this type must not be humped.

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 and train is equipped with Rail Movement Detectors (RMD).
- 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

All cars equipped with dump door air lines, this includes foreign line cars, having:

- elevated hoses for dump door air line or,
- air brake train line on one side of coupler and the dump door air line on the other side (both hoses at end sill level) must have the dump door air line coupled between cars equipped in unit trains or in proper receptacle to prevent dragging when not in use.

Note: Connect door air line hoses to locomotives only when at unloading facility or shortly before unloading.

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

Speed restrictions—None (unless there are restrictions on individual subdivisions based on gross weight of car and its axle equivalency).

Gross Weight of Trough Car	Axle Equivalency
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 TOB
- when loaded, 100 TOB or more

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 brake 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 three 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.

3(D). 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.

3(E). 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.

3(F). 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 dump 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.

3(G). Caboose Placement

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

- A. Trains operating with helpers on the rear end must have cabooses other than the working caboose placed behind helpers.
- B. Trains or yard movements limited to maximum speed of 10 MPH may operate with caboose placed anywhere in train.
- C. Cars with defective couplers may be transported to repair facilities behind caboose.

3(H). Georgetown Equipment Restrictions

Georgetown Equipment Cars (cars with initials GREX) must not be placed next ahead of caboose or at the rear end of cabooseless trains, except they may be in any location in work trains. They must not be kicked or humped and other cars must not be kicked or humped into these cars. They must not exceed 5 MPH through other than main track turnouts.

3(I). GTTX Equipment

All GTTX cars are restricted to rear end only unless the train consists entirely of GTTX equipment. No more than 25 GTTX cars may be handled in any train unless the train consists entirely of GTTX equipment.

4. Geometry Test Car Instructions

Engine(s) handling geometry test cars(s) 80/81 and 85/86 may observe passenger train speed on curves not to exceed 70 MPH as shown in individual subdivision special Instructions 1(A) provided the purpose of train is to test track structure. Geometry test cars 80/81 and 85/86 are not required to have an ETD at the rear of the car when the car is occupied. Geometry test cars 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.

Switching-geometry car(s) must be handled as outlined in accordance with General Code of Operating Rules 7.3 and 7.9. During testing and deadhead movement, geometry test car(s) must be handled in their own consists. No testing or deadhead moves will be done in a freight train consist. When not on a train, cars must be protected as prescribed by Rule 5.12 or Rule 5.13. These cars are considered to be occupied

at all times. Geometry Test Car 85 is equipped with Hot Bearing Simulators. They are located on the 3 axles on both sides of the "B" end of the car. If a hot bearing is indicated by a detector on these axles, train will proceed. Inspection will not be required.

5. Car Restrictions

Item 2 of the individual subdivision special instructions indicates a maximum gross weight of car and a letter restriction (A through H).

The maximum gross weight of car restriction is applicable only to four-axle cars with a coupled length of 49 feet 6 inches or greater. The maximum gross weight of car restriction for cars shorter than 49 feet 6 inches, six-axle cars, eight-axle cars or other specialty cars can be obtained from Table 5 by cross referencing the car length and the letter restriction for the subdivision.

Example: Item 2, Individual Subdivision Special Instruction of subdivision XXX indicates a maximum gross weight of car of 143 tons, Restriction E.

- for hoppers 53' long, the maximum gross weight/car = 143 tons from Item 2 (or by looking at line 8, column E)
- for tank car 43' long, the maximum gross weight/car = 136 tons (line 6, column E)

Cars that do not meet the weight limits specified in Table 5 or in Item 2 of the individual subdivision special instructions or in any part of the following paragraphs are not permitted without authority of System Structures Department or BNSF Clearance Bureau. 35-ft. cars (BNSF 601090-601179) loaded to 143 tons may operate only on the Hibtac, Casco, Lakes (between Superior and Gunn) and Allouez Subdivisions. These cars must comply with weight limits indicated in Table 5 when operating on all other subdivisions.

Actual car weight may exceed the maximums by up to one ton due to weighing tolerances. Weight and length restrictions indicated in this section and in Item 2 of the individual subdivision special instructions do not apply to multiple-unit double stack well cars.

When single car movements apply to the movement of cars weighing over 143 tons and up to 157.5 tons as specified in Table 5 for '143X', single car movements shall denote that the car shall be separated from the locomotive and from other cars weighing more than 143 tons by at least one car weighing no greater than 143 tons. One train may contain up to ten '143X' cars weighing over 143 tons and up to 157.5 tons with separation meeting the single car movement definition noted above.

Table 5 - Car Restrictions										
Line No.	No/Axles and/or Car Length	Typical Car Types & Partial Listing of Representative Car Number Series	Maximum Weight of Car (Tons) Based on Car Restrictions Class A through H							
			A	B	C	D	E	F	G	H
1	4 axles & length less than 35'0"	Hopper	89	NP	89	NP	NP	NP	NP	NP
2	4 axles & length 35'0" to 36'11"	Hopper, tank cars BN 99000-99949, BN 98000-98189, BNSF 601090-601179	134	117	134	117	110	110	110	110
3	4 axles & length 37'0" to 38'11"	Hopper, tank cars ATSF 82056-82990, 176900-177861	141	123	141	123	117	117	117	117
4	4 axles & length 39'0" to 40'11"	Hopper, tank cars BN 435500-435999	143	131.5	143	131.5	123	123	123	123
5	4 axles & length 41'0" to 42'11"	Hopper, tank cars BN 476000-476019	143	143	143	143	134	134	134	131.5
6	4 axles & length 43'0" to 44'10"	Hopper, tank cars	143	143	143	143	136	136	134	131.5
7	4 axles & length 44'11" to 49'5"	Hopper, gondola, tank cars BN 686000-686054 COILCARE	143	143	143	143	143	136	134	131.5
8	4 axles & length greater than or equal to 49'6"	Hoppers, flats, gondolas, tank cars	143X	143X	143	143	143	136	134	131.5
9	278'	13-unit trough car BN 552000-552022	930	930	930	930	884	884	871	NP

Table 5 - Car Restrictions											
Line No.	No/Axles and/or Car Length	Typical Car Types & Partial Listing of Representative Car Number Series	Maximum Weight of Car (Tons) Based on Car Restrictions Class A through H								
			A	B	C	D	E	F	G	H	
10a	6 axles	CSXT 600908-600910, DODX 39980-40573, DUPX 29400-29439, 29600-29666, HCMX 4402, KCS 700002-700053, NS 185541-185542, SOU 50016-50019, CELX 6400-6458, CELX 10400-10438, ACFX 88348-88373	197	197	197	197	197	197	197	185	NP
10b	6 axles	CN 672001-672009, 673000-673001, CR 766062-766072, 766074, CR 766145-766150, CSXT 600430, DODX 39095-39199, 39810-39832, PC 766149 ZRNX 150	197	197	185	185	185	178	175	NP	NP
11	6 axles	Others	185	185	170	170	170	165	160	NP	
12a	8 axles & length greater than or equal to 80'0"	ATSF 90001-90004, 90006-90007, ATSF 90011-90016, BN 631021	263	263	263	263	263	235	235	NP	
12b	8 axles & length greater than or equal to 55'0" and less than 80'0"		263	255	263	255	235	235	235	NP	
13	8 axles & length less than 55'0"	ATSF 90020-90023	220	195	220	195	180	180	180	NP	

6. Work Order: Instructions for Reporting Work

Conductors and engine foremen are responsible for documenting and reporting all scheduled and non-scheduled work performed during their tour of duty. Timely reporting by fax machine, radio communication, telephone, cellular phones, electronic devices such as the Hammerhead or computers, is key to maintaining current inventory, accurate records and a successful operation.

Work orders issued to train and switch jobs will list all **scheduled work**.

Unscheduled work requested by customer, conductor, supervisor, dispatcher, etc. will be reported on Supplemental Work Order Form.

Train Work Order Package includes the following documents:

- Train list and profile
- FRA 215.9 Mechanical Defective Cars List (if applicable)

- Hazardous manifest (if train contains hazardous materials)
- Work order for each station
- Track list of each track to be worked
- Supplemental Work Order Form

The following reporting codes will be used to report work performed:

Reporting Codes	
Reporting Instructions for Scheduled/Unscheduled Work	
Code	
SP	SPOT - (Code, date, time, zone/track spot) When cars are spotted to an industry track and no spot number is provided, use "01" as a spot number.
PU	PULL - (Code, date, pull time, station name, zone/track where cars are pulled from. Also include date, time station, zone/track where cars were left.)
IP	INTRA-PLANT SWITCH - (Code, date, time, zone/track spot)
RS	RESPOT - (Code, date, time, zone/track spot)
PK	PICKUP - (Code, date, time, station name, track, location in train) Display train location using one of the following codes (HE-Head End, RE-Rear End, FB-Fill Behind). When filling behind cars in the train, enter the initial/number of the car the pickup will follow in standing order.
SO	SETOUT - (Code, date, time, station name, zone, track, timetable direction and standing order) When track length will not hold all cars to be set out, enter first car initial/number and track where remaining cars were moved. If cars are set out on an interchange track, refer to reporting code DD.
TU	CARS TURNED ON WYE OR TURNTABLE - (Code, date, time, station name, zone/track/spot)
OF	CARS OFFERED OR NEEDING OFFERED TO A CONNECTING ROAD - (Code, date, time, station name, zone/track, name of road and person's name refusing cars)
DD	CARS DELIVERED IN INTERCHANGE - (Code, date, time, station name, zone/track, and name of road)
CC	CARRIERS CONVENIENCE - (Code, date, time, station name, zone, track where cars were left) Cars left on an industry track for carrier convenience must not include a spot number.
ND	NOT DONE - (When ND code is used, enter ND explanation code or a full written explanation.)
Not Done Codes and Definitions	
Code	
BE	Car is ordered/billed to wrong customer, wrong zone/track/spot.
BO	Car ordered to spot/pull is bad ordered, derailed or behind derailed equipment.
CM	Car is physically missing from track or is lost.
CN	Car is not ready to be pulled on account of hoses attached, ramps in doorways, plug door open, hazardous placards missing or wrong.
FR	Car is not pulled/spotted on account of customer request directed to crew, rejected by customer or to be held for reloading.
FS	Full spot, no room to spot car.
HS	Could not perform switch on account of Hours of Service.
NA	Could not perform switch as requested on account of another industry's track or a yard track blocked, obstructed or out of service. Car is located in wrong switching zone or location.
OW	Work should be part of another job's assignment.
PR	Locomotive power restricted from operation on yard/industry track, engine failure, excess tonnage, train make-up compliance (hazardous or operating).
RT	Work done on return trip or in other direction.
SA	Substituted another car in place of ordered equipment.
SI	Did not perform switch as requested per supervisory or dispatcher instructions.
TB	Could not perform switch as requested on account of industry track being blocked, obstructed, out of service, or poor track conditions.

Reporting Codes	
Not Done Codes and Definitions	
Code	
TS	Could not complete work on account of train turned short.
UC	Unsafe conditions caused by debris, weeds, footing, high water, snow/ice/storm.
XX	Work not performed as scheduled for unknown reasons or no listed reason applicable.

Reporting Methods

Fax Machine—Scheduled or unscheduled work documented on the appropriate work order or switch lists may be faxed into the Service Support Specialist for your respective territory. Conductors and engine foremen must call the designated Service Support Specialist that provides service for your respective division or terminal, in order to verify that all lists are received, legible, completed properly and are understood by the Service Support Specialist.

Radio—When radio communication is used for reporting work, conductors and engine foremen are expected to radio their Service Support Specialist as soon as possible after completion of work performed at each station.

Telephone or Cellular Phones—Telephone or cellular phones assigned to conductors and engine foremen may be used when radio communication is unavailable or radio is congested in order to provide timely reporting in the field.

Electronic Device—Hammerhead and computer reporting will not require any written documentation to be forwarded.

The following information must be included when reporting:

1. Date
2. Time of arrival and departure
3. Conductor's or engine foremen's name
4. Job or Train's Identification
5. Location name and track number for all work done

Conductors and engine foremen are required to call their designated Service Support Specialist anytime there are questions or problems with work order information or work to be performed during their tour of duty.

Use of radio, telephone or cellular phone does not relieve conductor or engine foreman from documenting their work by either faxing written work order documents to their Service Support Specialist or by reporting their work on an electronic device such as the Hammerhead computer.

Work Order Codes

There are three types of work order codes that appear on your work orders:

Request Codes	
Displays Work to Be Performed	
Code	
SP	SPOT - Customer request to spot car for loading/unloading.
PU	PULL - Customer request to move a car from an industry track to another track or scheduled destination.
IP	INTRA-PLANT SWITCH - Customer request to move a car originally spotted correctly to another spot or track within the industry. Cars are commonly moved per this request to complete loading, for inspection, etc. This switch is chargeable to the customer.
RS	RESPOT - Customer request to move a car to a different track or spot within the industry after being placed incorrectly. This switch is not chargeable to the customer and should be used only when correcting a railroad error.
MO	MOVE - Request to move cars to a designated location for disposition.

Request Codes	
Displays Work to Be Performed	
Code	
TU	CARS TURNED ON WYE OR TURNABLE - Request to turn a car previously spotted and re-spot.
PK	PICKUP - Cars available to be picked up by train, local, road switcher at station.
SO	SETOUT - Cars scheduled to be set out by train, local, road switcher at station.
Status Codes	
Displays Current Status of Cars (Does not require any work to be performed)	
Code	
PL	PLACED - Car on spot. (Displays car status and not a request.)
CP	CP - Constructive placement. (Condition between carrier and customer.)
OF	CARS OFFERED OR NEEDING OFFER TO A CONNECTING ROAD - Displays to the carrier, cars normally delivered in interchange cannot be delivered due to connecting road's inability or unwillingness to accept cars.
DD	CARS DELIVERED IN INTERCHANGE - Displays cars scheduled for interchange delivery to a connecting road.
Hold Codes	
Carrier/Customer Instructions Have Not Been Provided	
Code	
HOLD MT	Car not scheduled for outbound train. (Hold code appears in the Scheduled Train field.)
HOLD NI	Car has no instructions for spotting. (Hold code appears in the Scheduled Train field.)
HOLD HL	Car is HIWIDE and has not been scheduled to a train. (Hold code appears in the Scheduled Train field.)
HOLD LS	Car is on floating lease. (Hold code appears in the Scheduled Train field.)
HOLD ED	Car to be held for equipment distribution. (Hold code appears in the Scheduled Train field.)
HOLD WH	Car is to be held for weighing. (Hold code appears in the Scheduled Train field.)
HOLD OT	Car is to be held for local order. (Hold code appears in the Scheduled Train field.)
HOLD ME	Car is to be held for mechanical inspection. (Hold code appears in the Scheduled Train field.)
HOLD EH	Car is to be held for embargo. (Hold code appears in the Scheduled Train field.)
NC *	Non-credit customer. DO NOT SPOT. (Code appears in the SCHI field.)
DO *	Written delivery order. DO NOT SPOT. (Code appears in the SCHI field.)
SO *	Car billed shipper's order. DO NOT SPOT. (Code appears in the SCHI field.)
Zn Tk Sp * 00 00 00	* Do not spot cars with '00 00 00' in the ZNTKSP field or cars with NC, DO or SO in the SCHI field. (Cars may be pulled or picked up and moved to a location for further disposition when these codes are displayed.)

Work order documents will display work order codes as outlined by customer or carrier for specific instructions to conductors or engine foremen. They will be located in the Special Car Handling Instructions (SCHI) column or in the Scheduled Train column.

Hours of Service

Conductors or engine foremen should plan ahead and report scheduled and unscheduled work before being overtaken by Hours of Service.

Conductors and engine foremen who relieve crews that were overtaken by Hours of Service will be responsible for reporting work performed during their tour of duty.

If a crew is overtaken by Hours of Service and is unable to report scheduled or unscheduled work, the information must be passed on to the relieving conductor, engine foreman or supervisor who will be responsible to report work for the previous job.

Pick Up in Block—When picking up cars enroute, unless otherwise advised by train dispatcher or if in conflict with current train make-up instructions, trains must pick up in block.

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 one of the following: message included with train's work order; track bulletin; or message issued by BNSF Clearance Bureau.
- 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. To provide for close observation enroute, all dimensional shipments must be placed in a block next to the lead locomotive consist and Boeing dimensional shipments identified as having contents ACFTEQ on the train list, if any, must be ahead of all other dimensional shipments. Note: In the application of the above, FTTX flatcars and autoveyors (car kind M3E and M3F) are not considered dimensional shipments. Exceptions:
 1. On trains destined or operating in the state of California, dimensional shipments must be no closer than the 6th car or platform from the lead locomotive consist.
 2. Dimensional shipments, including idler cars moving with dimensional shipments, must be placed in compliance with minimum weight requirements outlined in train make up rules. However, placement of dimensional shipments must otherwise be as close to lead locomotive as possible.
 3. Trains received from foreign railroads with dimensional shipment placement other than described above, may proceed to a location specified by train dispatcher to correct the condition.
- g. Employees are prohibited from riding excessive dimension cars.
- h. Train crews handling dimensional and/or oversize car or special shipment car(s) approaching locations in CTC, interlocking or double track territory where these car(s) are restricted should communicate with the dispatcher and jointly determine if a meet or pass of any other

equipment at the restricting location(s) can be accomplished safely.

- i. When the dimensional message indicates "Stop, Proceed on Hand Signals" at a bridge in conductor only operations, the following will apply:
 - Stop the train before entering the bridge.
 - Conductor will check the dimensional load for shifted contents.
 - Engineer will protect his side of the train through the mirror.
 - Conductor will protect the other side of the train.
 - Move through the bridge not exceeding 5 MPH until the dimensional shipment clears the bridge.

8. Trackside Warning Devices (TWD)

8(A). Description

Trackside warning devices (TWD) inspect passing trains for defects or monitor for unusual trackside conditions that could adversely affect the safe and efficient movement of trains.

Examples of such devices include the following:

- Overheated journal bearings (hot box) (HBD)
- Hot wheels
- Dragging equipment detector (DED)
- High/Wide/Shifted load (SLD)
- High water detector
- Earth/Rock slide fence

Individual subdivision special instructions identify the following:

- Detector location
- Detector type

Unless otherwise stated, protection will be hot journal and dragging equipment with bidirectional operation.

Exceptions will be shown as follows:

- Eastward direction only (EWD)
- Westward direction only (WWD)
- Dragging equipment only (DED)
- Shifted load only (SLD)
- Radio tone only detectors
- Detectors that inspect trains only in specified direction
- Detectors that protect bridges, tunnels or other structures
- Exception reporting detector (*)

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.

8(B). Detector Radio Message

A message "You have a defect" will be transmitted during train passage if a defect is detected. When this message is received from a TWD, immediately reduce train speed to less than 30 MPH, utilizing train handling methods that minimize in-train forces. After train passes the detector, a radio message will be transmitted (unless defined as exception reporting detector per 8(L)).

This message will indicate "no defects" or will state any "alarms" or "integrity failures" that were detected during train passage.

The detector message is not complete until "Out" is received.

Train Approaching Detector

Except in emergency, when approaching train is within 150 feet of a TWD, DO NOT make a radio transmission until the entire train has passed the TWD.

8(C). Detector Message and Train Crew Action

Use the following table to determine crew requirements when a detector message is received. If detector indicates more than one detector message or circumstance, comply with each train crew action shown.

Type Detector	Non-Alarm Message	Train Crew Action	Additional Instructions
5(A) or 5(B)	When detector announces "...no defects", "Maintenance Required" or when advised by signal maintainer or train dispatcher that there are no defects.	Proceed.	Report "Maintenance Required" to the train dispatcher.
5(A)	"Integrity failure"	Stop, Make a walking inspection of both sides of entire train before reaching bridge, tunnel, or structure being protected.	Report integrity failure to train dispatcher.
5(A)	"Train too slow" or Crew is notified by train dispatcher or signal maintainer that TWD is out of service.	Proceed.	None
5(B)	"Train too slow" "Integrity Failure" or Crew is notified by train dispatcher or signal maintainer that TWD is out of service.	Proceed.	Report integrity failure to the train dispatcher.

Type Detector	Alarm Message	Train Crew Action	Additional Instructions
5(A) or 5(B)	"First hot box right/left side axle XXX" or "First dragging equipment near axle XXX" or "First hot wheel right/left from axle XXX to axle XXX" or "First wide load right/left side near axle XXX" or "Shifted load right/left side near axle XXX"	<ol style="list-style-type: none"> As soon as message "...you have a defect" is received, immediately reduce train speed to less than 30 MPH. Stop the train. inspect the indicated axle(s). If no defect is found, inspect 12 axles forward and 12 axles to the rear of the indicated axle, regardless of whether a defect is found before reaching the 12th axle. Report findings to the train dispatcher. When defective car(s) are set out or continue in train, notify the train dispatcher and Mechanical Help desk. 	<p>Detector alarm message may identify more than one defect. Inspect train for all reported defects before proceeding.</p> <p>If detector alarm message does not include axle designation, inspect both sides of entire train.</p>
5(A) or 5(B)	"Excessive Alarms"	<ol style="list-style-type: none"> As soon as message "... you have a defect" is received, immediately reduce train speed to less than 30 MPH. Stop the train. inspect the indicated axle(s). If no defect is found, inspect 12 axles forward and 12 axles to the rear of the indicated axle regardless of whether a defect is found before reaching the 12th axle. Inspect both sides of the remainder of the train from the last reported defect. Report findings to the train dispatcher. When defective car(s) are set out or continue in train, notify the train dispatcher and Mechanical Help desk. 	<p>Detector alarm message may identify more than one defect. Inspect train for all reported defects before proceeding.</p> <p>If detector alarm message does not include axle designation, inspect both sides of entire train.</p>

Type Detector	Circumstance	Train Crew Action	Additional Instructions
5(A) or 5(B)	Total axle count transmitted varies by more than 16 axles from total axle count transmitted from a previous detector or Speed varies by more than 10 MPH from actual speed.	<ol style="list-style-type: none"> Stop the train. Make a walking inspection both sides of entire train. Report findings to train dispatcher. 	Verify that the marker or EOT device is on the rear car.
5(B) - with recall code	No message or Incomplete message is transmitted.	<ol style="list-style-type: none"> Enter recall code and be governed by message. If still no message or incomplete message, proceed. 	Report no message or incomplete message to train dispatcher.
5(A) - with recall code	No message or Incomplete message is transmitted.	<ol style="list-style-type: none"> If applicable, enter recall code and be governed by message. If still no message or incomplete message, stop the train. Make a walking inspection of both sides of entire train. 	Report no message or incomplete message to train dispatcher.
5(B) - without recall code	No message or Incomplete message is transmitted.	Proceed	Report no message or incomplete message to train dispatcher.
<p>Note: Detector message followed by the word "Out" indicates a complete message. Total axle count is not required for a complete message.</p>			

8(D). Radio Tone Only Detectors

When radio tone is received from a TWD, immediately reduce train speed to less than 30 MPH, utilizing train handling methods that minimize in-train forces.

Radio tone only detectors are identified in the individual subdivision special instructions. They are used to detect dragging equipment only and communicate by radio tone. No voice messages are announced.

Use the following table to determine crew member requirement when passing Radio Tone Only Detector:

Detector Message or Circumstance	Type Detector	Train Crew Action
Intermittent tone immediately after train passed detector.	5(B)	Proceed
Continuous tone while passing detector.	5(B)	1. Stop the train. 2. Inspect both sides of entire train for dragging equipment. 3. Report to train dispatcher.
No tone after train has passed detector.	5(B)	1. Proceed 2. Report to train dispatcher.

8(E). Train Inspection

When alarm message requires inspection, inspect the side of the train in the message. The reference to defect locations will be from HEAD END of train, and references to LEFT or RIGHT side are to engineer's left or right side in the direction of travel.

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.

When this is necessary, inspect all 12 axles in each direction regardless of whether a defect is found before reaching the twelfth axle.

Dragging Equipment/Shifted Load Inspection

When a dragging equipment or shifted load 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. The train may proceed only after walking inspection confirms there is no dragging equipment or shifted load(s), defective car(s) are repaired or permission is received from the train dispatcher or manager to move the defective equipment.

Overheated Equipment Inspection

When an overheated equipment alarm 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 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 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. (For Key Train instructions see Hazardous Material Instructions, Section VI, C.)

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 must closely observe indicated equipment for the next 25 miles or until next inspection by hot bearing detector.

8(F). Testing Bearing Temperature

Use a heat-indicating crayon or handheld infrared device to test bearing temperature. Test bearing temperature by stroking the heat indicating crayon on the bearing cup. A liquid smear will remain on an overheated bearing. (Determine if the bearing is hot by using a Dual Temp. 163 degree - 200 degree Fahrenheit, Mark All Thermal Melt, Millennium ordering reference no. 362090999N.)

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.

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

Set out equipment with overheated bearings.

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

8(G). Consecutive Alarm Messages

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

Exception: Amtrak Trains

When the same axle actuates a second or subsequent wayside hot box detector, and no hot journal or other defect which may have caused the actuation(s) (i.e., 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 after five (5) miles, and all bearings which activated the detector(s) will be re-examined. Equipment ahead of and behind the suspected axle(s) need not be re-examined during this 5-mile inspection.
3. If apparent increases in bearing temperature are noted during the 5-mile re-examination, the car will be set out at the first available point.
4. If no hot bearing is found during the 5-mile re-examination, 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(H). Alarms Indicated 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 TWD equipment, a crew member must notify the train dispatcher. The train dispatcher must notify the signal maintainer and request the TWD equipment be inspected.

When blowing or swirling snow conditions may prevent detectors from making a proper inspection, crew members must reduce train speed to **no more than 30 MPH** to minimize this condition.

8(J). High Water Detectors

High water detectors have been placed under certain bridges and in areas where high water might occur.

When train is notified of high water by rotating red lights or radio message, crew must not proceed over bridge or track until *trackside* examination by crew member has been made to determine that bridge or track has not been weakened by high water.

When train is stopped or is moving at restricted speed because of signal indication governing movement over a high water detector, train must not proceed over bridge or track until *trackside* 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 detectors, if no response is received, trains must not proceed until *trackside* 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 have been placed in certain areas where earth/rock slides might occur.

When a rock slide is indicated by rotating red light or radio message, trains must proceed at restricted speed AND be prepared to stop short of any obstruction through the entire slide detector area.

When train is stopped or moving at restricted speed because of signal indication governing movement through a slide detector, train must ALSO be prepared to stop short of any obstruction through the slide detector area.

Train dispatcher must be promptly notified if slide conditions are observed.

At locations equipped with Radio Readout type detectors, if no response is received, 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 are observed.

8(L). Exception Reporting Detectors

Radios at exception reporting detectors will only transmit a message when an alarm is present.

Where indicated in Individual Subdivision Instruction No. 5, trains will be governed by 8(C) detector message and crew action with the following exceptions:

Detector Message or Circumstance	Type Detector	Train Crew Action	Additional Instructions
No Message	5(B)	Proceed	None
Incomplete message is transmitted	5(B)	1. Stop the train and inspect both sides of entire train. 2. Report findings to train dispatcher.	None

DO NOT 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 at 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 into 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's 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 In Non-Signaled Territory

Within yard limits in non-signaled 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. Shunting the Track

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.

Single Unit Light Engine

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

Movements Consisting of Less Than 12 Axles

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.

12. Turnouts Equipped with Two Switch Machines (Moveable Point Frogs/Swing Nose 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 (swing nose) 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/swing nose frog).

13. In Effect on Burlington Northern Santa Fe Railway

- General Code of Operating Rules, FOURTH EDITION, in effect April 2, 2000.
- Maintenance of Way Operating Rules, in effect January 31, 1999, with revised pages. (See Item 16.)
- Air Brake and Train Handling Rules, in effect April 1, 1998, with revised pages. (See Item 17.)
- Train Dispatcher's, Operator's and Control Operator's Manual, in effect November 1, 2001.
- BNSF TY&E Safety Supplement, in effect April 1, 1998, with revised pages. (See Item 18.)
- Maintenance of Way Safety Rules, in effect January 31, 1999, with revised pages. (See Item 18.)
- Employee Safety Rules, in effect January 31, 1999, with revised pages. (Revised pages available on the Timetable and Rule Books Website).
- Mechanical/P&M Safety Rules, in effect January 31, 1999, with revised pages. (Revised pages available on the Timetable and Rule Books Website).
- 2000 North American Emergency Response Guidebook
- Canadian Rail Operating Rules, in effect April 1, 1999. (For use in Canada only.)
- Rules for the Protection of Track Units and Track Work, in effect April 1, 1999. (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 5.2.2 Signals Used by Employees—the following sentence is added:

Locomotive flagging kits on BNSF must be equipped with a red flag and six fuses.

Rule 5.4.3 Display of Yellow-Red Flags—Item B, Restriction is Not Specified in Writing, item 2a is changed to read:

A crew member has received permission from the employee in charge. Maintenance of Way employees may display yellow-red flags from one hour before to one hour after the time a Form B track bulletin is in effect. During that time, trains may accept the foreman's verbal permission as outlined in Rule 15.2 (Protection by Track Bulletin Form B).

Rule 5.4.6 Display of Flags Within Current of Traffic—this rule is canceled in its entirety.

Rule 5.4.7 Display of Red Flag or Red Light—the third paragraph is changed to read:

Displayed Between Rails. When a red flag or red light is displayed between the rails of a track, the train must stop and not proceed until the flag or light has been removed by an employee of the class that placed it.

Rule 5.4.8 Flag Location—the first paragraph is changed to read:

Flags will be displayed on all main tracks and sidings leading to the track affected.

Rule 5.8.2 Sounding Whistle—Item 1, Succession of Short Sounds, is changed to read:

Use when persons or livestock are on the track at other than road crossings at grade. In addition, use to warn railroad employees when an emergency exists, such as a derailment. When crews on other trains hear this signal, they must stop until it is safe to proceed.

Rule 5.13C Blue Signal readily Visible to Engineer—Item 3 is changed to read:

3. The engine must not be moved. The controls must not be changed unless directed by individuals who placed the blue signal protection.

Rule 6.2 Initiating Movement—the first bullet is changed to read:

Receive a track warrant or general track bulletin.

Rule 6.3 Main Track Authorization—the following is added: Overlapping Limits

When a train receives track and time, track warrant or track permit authority joint with an employee or OCS permission joint with an employee, the train must not occupy the overlapping limits until permission is received to enter the overlapping limits from the employees listed on the authority or on the OCS permission.

Rule 6.4 Reverse Movements—is changed to read:

Make reverse movements on any main track, controlled siding, 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—the following is added as new last paragraph:

When a train or engine is advised that working limits have been established behind their train, obtain permission from the employee in charge to make any reverse movements, including within the same signaled block.

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 the 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—

Item 1(a) is changed to read:

Another authority is not in effect within the same or overlapping limits unless conflicting movements are protected.

Rule 6.13 Yard Limits—the first sentence is changed to read:

Within yard limits, trains or engines are authorized to use the main track not protecting against other trains or engines, only after obtaining a track warrant, listing all track bulletins that affect their movement. Engines must give way as soon as possible to trains as they approach. Engines must keep posted as to the arrival of passenger trains and must not delay them.

Rule 6.14 Restricted Limits—the first sentence is changed to read:

Between designated points specified by signs and in the special instructions, trains or engines are authorized to use the main track not protecting against other trains or engines, only after obtaining a track warrant, listing all track bulletins that affect their movement.

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

The train must not proceed until it has been determined that it is safe to do so by visual inspection of the train or by knowledge that the brake pipe pressure has been restored by observing the caboose gauge, end-of-train device (ETD) control head, or by ascertaining that air pressure is present in the brake pipe by using 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 the automatic brake valve cutout valve in the OUT position. If brake pipe pressure rapidly reduces to zero psi, the entire train must be inspected. If air pressure is present in the brake pipe, the train may proceed.

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

All trains: Trains must be visually inspected before proceeding if unusual slack action was experienced when stopping or if excessive power is required to start the train. If excessive power is not required to start the 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 the train moving.

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

Rule 7.6 Securing Cars or Engines—the first paragraph is amended to read:

Do not depend on air brakes to hold a train, engine or cars in place when left unattended. Engineer and conductor are jointly responsible, through job briefing, to ensure equipment left unattended is properly secured and a sufficient number of hand brakes are applied to prevent movement. If handbrakes are not adequate, block the wheels.

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 by individual subdivision special instructions.

Before dropping cars, crew members 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 8.19 Automatic Switches—the following paragraph is added:

In non-signaled territory, where both ends of a siding are equipped with automatic switches, facing point movements beyond signal displaying stop indication must be made prepared to stop at the next signal at that station.

Rule 8.19 Automatic Switches, the paragraph "On Siding" is cancelled. (Be governed by Rule 9.21, Overlap Circuits).

Rule 9.8 Next Governing Signal—the 2nd sentence is changed to read:
This does not apply when a rule or previous signal indication requires train to be prepared to stop at the next signal or move at restricted speed.

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—the following paragraph is added:

Track Permit Wording
Track Permits will be granted in the words “Track permit, authority (number), granted on (track), between (point) and (point), until (time).”

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

Rule 9.15.2 Clearing Track Permits—the following is added:
Employees reporting clear of track permit authority must state:
- Their name or other identification
- Track permit number being released
- Limits being released.

Rule 9.21 Overlap Circuits—the following is added:
Unless otherwise instructed by the train dispatcher, a train on a siding at a meeting or passing point must not pass an overlap sign location until authorized to leave the siding.

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(1) Passing Signal Displaying Stop or Stop and Proceed Indication—the following is added to Item 1:
The train must move at restricted speed.

Rule 14.7 Reporting Clear of Limits—the following is added:
Employees reporting clear of track warrant authority must state:
- Their name or other identification
- Track warrant number being released
- Limits being released.

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 15.12 Relief of Engineer or Conductor During Trip—the first 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 15.13.1 Voiding General Track Bulletins or Restrictions—the following new rule is added:
To void a bulletin restriction or an entire general track bulletin, train dispatcher may do the following:

1. “Restriction (number) reading ____ is void.”
An employee must repeat this information to the train dispatcher. If the information is correct, the employee must write “Void” in the margin to the left of the restriction made void.

2. “General track bulletin No. ____ is void.”
An employee must repeat this information to the train dispatcher. If the information is correct, the employee must write “Void” across the first page of the general track bulletin being voided.

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.

- Written OCS.
- Proceed indication on a controlled signal.
or
- Verbal permission.

Individual subdivision special instructions or general order will designate locations where permission is granted by:

- Controlled Signal Indication. (Movements against the current of traffic may be authorized by controlled signal indication.)
- Verbal Permission. (Movements against the current of traffic may be authorized by verbal permission.)

Written OCS must be used when permission is joint with Maintenance of Way.

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

The employee requesting OCS will state name, occupation, location and train or other identification. The employee will repeat the permission granted. Written OCS must be copied on the prescribed form. If the permission is repeated correctly, the train dispatcher will acknowledge. The train must not move until the engineer understands the OCS granted. Written OCS record must be retained until OCS is released.

Employees must advise the train dispatcher when they are clear of the limits. Exception: Trains or engines clearing OCS limits at a control point are not required to report clear.

Employees releasing OCS must state the following:

- Their name.
- The OCS number being released, if applicable.
- The track limits being released.
- The time OCS limits 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.

B1. Proceed from _____ to _____ on _____ track.

B2. 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
- WBSCS Westbound Controlled Signal
- NBCS Northbound Controlled Signal
- SBCS Southbound Controlled Signal
- SS Station Sign
- NA Not Applicable
- WE West End
- EE East End
- CNT Connection
- RESTRN Restriction

Glossary—New glossary term is added:

General Track Bulletin—A notice containing track bulletin restrictions and other conditions affecting train movement.

15. General Code of Operating Rules and Maintenance of Way Operating Rules, Supplemental Instructions

Several rules in the General Code of Operating Rules and the Maintenance of Way Operating Rules allow and/or require that supplemental instructions be carried in the timetable or special instructions. The following are 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.

GCOR and MWOR Rule 3.3 Time Signals—Dial 8-998-8463 (8-WVV-TIME) or 8-435-6000 to obtain coordinated universal time signal.

GCOR and MWOR 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

GCOR and MWOR Rule 5.5 Permanent Speed Signs—the following paragraphs are added:

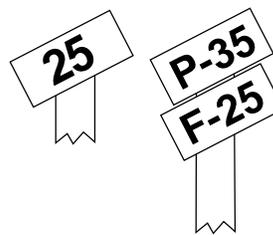
Reduced speed limits may be designated by Advance Warning sign (diagonally upward), Reduce Speed sign (rectangle) and Resume Speed sign (vertical).

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.

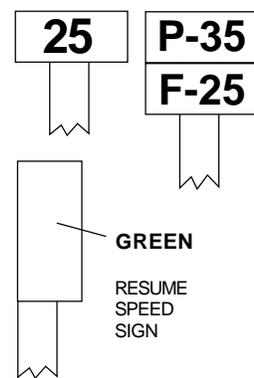
At the end of a reduced speed zone, a train or engine will be governed by a Speed sign displaying a higher speed or a Resume Speed sign which will authorize the maximum permissible speed on that subdivision. In either case, the speed must not be increased until the entire train has passed the sign displayed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

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



SPEED SIGN



Note: Advance Warning Sign and Speed Sign have yellow background and black letters and/or numbers, except signs for TALGO operations have black backgrounds and yellow letters and numbers (not shown).

These signs, as illustrated, apply to train and engine movements as follows:

Figures preceded by letter P apply to passenger trains, except TALGO, if there is a TALGO sign.

Figures preceded by letter F apply to freight trains.

Figures preceded by letter T apply to TALGO passenger trains.

Figures not preceded by a letter apply to all trains.

GCOR Rule 6.1 Repeat Instructions—the following supplemental instruction is 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)

GCOR and MWOR 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 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.

GCOR and MWOR 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.

GCOR and MWOR Rule 15.1 Track Bulletins—the following supplemental instruction is added:

BNSF Railway may use a general track bulletin instead of a track warrant to deliver track bulletin restrictions. All rules that apply to track bulletins apply to general track bulletins. Additional, conductor and engineer may receive a general track bulletin instead of a track warrant listing all restrictions affecting their train movement.

Track and Time—the following supplemental instructions are added:

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 that 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 must not move until the engineer understands the track and time granted.

The employee who requests track and time must retain the written track and time record until track and time is released.

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.

Track Warrants—the following supplemental instructions are 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.

When track warrant requires "Not in Effect Until After the Arrival of _____," the limits must not be occupied until the train to be met has been identified by engine number and the rear end marker has passed the point of restriction. In non-signal territory, the train being restricted must establish positive radio contact with the train to be met in order to confirm the identity of the passing train. If radio contact cannot be established, the train dispatcher must be contacted to provide the required confirmation. The train identification, time passed, location passed, or current time and location must be written on the track warrant form by both the conductor and engineer of the train being so restricted.

Engineer and conductor are jointly responsible, through job briefing, to ascertain and agree on their train's exact location before reporting past a specific point or clearing their track warrant.

In non-signal TWC territory, when a train is approaching a siding or potential meeting point, a crew member must transmit the following by radio:

"Train identification (initials, engine number and direction) is approaching siding at (location name) at (speed) MPH"

This transmission must be made approximately 2 miles in advance of any station or location where a train could meet another train in non-signal territory.

Mechanically Transmitted Track Bulletins—Mechanically transmitted track bulletins from TSS provide summary information indicating the total number of lines or restrictions issued. Employees who receive these documents must cross reference the summary with the document to ensure all items are listed.

16. Maintenance of Way Operating Rules, Changes and Additions

The following pages are revised or added effective October 10, 1999: i-9, i-10, 2-1, 2-2, 2-3, 2-4, 5-5, 5-6, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-15, 6-16, 6-16a, 6-16b, 8-1, 8-2, 9-3, 9-4, 10-1, 10-2, 14-3, 14-4, GL-1, GL-2, GL-3, GL-4.

The following pages are revised or added effective April 2, 2000: Title page, i-2, i-3, i-4, 6-2a, 6-2b, 6-7, 6-8, 6-13, 6-14, 15-1, 15-2, 15-3, 15-4.

Rules listed in Item 4, General Code of Operating Rules Items, of the individual subdivision timetables are in effect for employees governed by the Maintenance of Way Operating Rules when applicable.

MWOR Rule 1.11 Sleeping - the 1st sentence is changed to read:

Employees must not sleep while on duty, except as outlined under Rule 1.11.1 (Napping).

MWOR Rule 1.11.1 Napping, the following rule is added:

Napping is permitted under the following conditions:

- During meal period.
- or
- When employee is working outside their normal working hours or when they have worked outside their normal working hours in the last 24 hours.

The employee in charge must approve all naps. Naps may be approved when work group is waiting for authority, waiting for other work groups, etc.

EXCEPTION: Lone workers must enter the word "Nap" and the time the nap was initiated on the line captioned "time form completed" of the Statement of On-Track Safety.

Before napping the employee must take the necessary precautions to protect themselves and railroad property. The nap period must not exceed 45 minutes. The period is not limited to the time sleeping but includes the advance

time needed to fall asleep.

The normal requirements of the MWOR, Timetable Special Instructions, MW Safety Rules, and other operating instructions are suspended for the employee taking the nap. All employees are encouraged to perform stretches prior to returning to work after taking a nap.

MWOR Rule 2.14 Mandatory Directive—is amended in its entirety to read:

Mandatory directives are authorities to occupy a main track or speed restrictions that affect the movement of equipment.

Mandatory directives are:

- * Track warrants
- * Track bulletins
- * DTC authority
- * Track and time
- * Track permits

When transmitted by radio, a mandatory directive must be transmitted according to applicable operating rules and the following:

* The train dispatcher must state that a mandatory directive will be transmitted.

* The employee must inform the train dispatcher when ready to copy, stating the employee's name, identification and location.

An employee operating the controls of moving equipment may not copy a mandatory directive. In addition, a mandatory directive must not be transmitted to moving equipment if the operator of the equipment feels that the transmission could adversely affect safe operation.

* The employee receiving a mandatory directive must copy it in writing using the format outlined in the operating rules.

* Mandatory directives that have been fulfilled or canceled shall be marked in accordance with applicable operating rules and retained for the duration of that tour of duty.

A mandatory directive may not be released by an employee at the controls of moving equipment.

MWOR Rule 5.4.3 Item B, Restriction is Not Specified in Writing —Item 2a is changed to read:

a. A crew member has received permission from the employee in charge. Maintenance of Way employees may display yellow-red flags from one hour before to one hour after the time a Form B track bulletin is in effect. During that time, trains may accept the foreman's verbal permission as outlined in Rule 15.2 (Protection by Track Bulletin Form B).

The display of yellow-red flags as described does not extend the authorized working time beyond the times listed on the Form B track bulletin. However, it does allow Maintenance of

Way employees to work the full time limits listed on the bulletin under the protection of the yellow-red flags.

MWOR Rule 5.4.3 B, Restriction Is Not Specified in Writing—Item 2b is changed to read:

b. The leading wheels of movement are 4 miles beyond the yellow-red flag, and the train dispatcher has verified that no track bulletin or track warrant protecting men or equipment is in effect at that location.

MWOR Rule 5.11 Engine Identifying Number—is changed in its entirety 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 leading unit.

MWOR Rule 6.2.2 Electronic Display of Authority—the following new rule is added:

A. Authority Displayed on Electronic Device

Employees may receive authority via an approved electronic

device such as a laptop computer, printer or other device. Written authority is not required when using this electronic device.

When received, the authority must be acknowledged using the prescribed method associated with the device and remain accessible via the electronic device used to receive this authority.

B. Loss of Electronic Device Functionality

Should the electronic device become inoperable, and the granted authority text is no longer available, the vehicle must be stopped.

Employees must not continue movement until:

* The electronic device returns to normal operation and the granted authority text becomes viewable,
or

* Train dispatcher or control operator is contacted and written authority is obtained, recording information on the prescribed form.

MWOR Rule 6.3.1 Track Occupancy—is changed in its entirety (with the exception of the last section "Train Coordination"):

Except as provided for below in Minor Work and Routine Inspection or in Train Coordination, MW employees must apply one of the following types of authority or protection when on-track or off-track equipment is used on or foul of the track or when work is performed on or foul of the track.

Use one of the following on main tracks, controlled sidings or any track where a block signal system is in effect:

Authority Rules

- Rule 6.14 (Restricted Limits)
- Rule 6.15 (Block Register Territory)
- Rule 9.15 (Track Permit)
- Rule 10.3 (Track and Time)
- Rule 11.0 (Train Location Lineup)
- Rule 12.0 (Track Car Operator Lineup)
- Rule 14.0 (Track Warrant)
- Rule 15.2 (Track Bulletin Form B)
- Rule 16.0 (Direct Traffic Control Limits)
- Rule 17.0 (Foul Time)
- Rule 18.0 (Occupancy Control System)

Yard limits do not authorize equipment to occupy a main track.

Within yard limits, on track equipment must proceed as the way is known to be clear.

To establish working limits:

* When receiving an authority that is not "joint", working limits are considered to be established at the limits of your authority. Red flags do not need to be established.

* When receiving an authority that is "joint", you must display red flags if working limits must be established. Working limits must be established at exact points, such as switches, mileposts or other identifiable points.

* Where authority overlaps Form B track bulletin limits, make all movements under the direction of the employee in charge of the track bulletin Form B. Do not display red flags within the limits of the track bulletin Form B.

When employees are unable to obtain authority and it is necessary to foul or occupy a main track or controlled siding, protection must be established in both directions using Rule 6.19 (Flag Protection).

Use one of the following on other than main tracks, controlled sidings or any track where a block signal system is in effect:

- Rule 6.3.2 (Protection on Other Than Main Track)
- Rule 6.28 (Movement on Other Than Main Track)

When requesting authority or establishing protection, the employee in charge must ensure that equipment and

employees do not occupy or foul the track until authority is received or protection is established. 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.

Additionally, an employee receiving an authority, when the work group consists of two or more employees, at least one other employee (rules qualified, if available) in that work group must read, understand and initial the authority prior to equipment or employees fouling the track.

Overlapping Authority

When an employee receives track and time, track warrant, track permit, DTC, or OCS joint with another employee or train or when authority received overlaps with a track bulletin Form B, the employee must not occupy the overlapping limits until employees and/or trains listed on the authority are contacted and a job briefing determines the location of each working limit within the joint authority limits and the employee in charge (EIC) within any overlapping working limits. All working limits that have been established within authority limits must be documented on the "Working Limits" form.

Where authority limits overlap track bulletin Form B limits, make all movements within the Form B limits under the direction of the employee in charge of the track bulletin Form B. Do not display red flags within the limits of the track bulletin Form B.

When authority is granted behind a train, working limits may not be established until the employee in charge contacts the train(s) listed on the authority to inform them that working limits have been established behind their train. The employee in charge will also inform the train crew that no reverse movements may be made without first contacting the employee in charge.

When more than one work group (including on-track equipment or off-track equipment fouling the track) are using the same authority, the employee in charge of the authority must have a job safety briefing with each work group who will use the authority. The employee in charge of the authority must record the name of the employee in charge of each work group using the authority on the "Multiple Work Groups Using the Same Authority" section of the authority form. The employee in charge of the authority must record the time the job safety briefing is acknowledged, and the time the other work group(s) are clear of the limits. The employee in charge of the other work group(s) must record on the "Working Limits" form, the working limits and the employee in charge of the working limits.

Minor Work and Routine Inspection

Lone workers or employees protected by a lookout may perform minor work or a routine inspection without authority or protection when they meet all of the following conditions:

- On main tracks, controlled sidings and any track where a block signal system is in effect:
- The work will not affect the movement of trains.
- The lone worker or lookout is able to visually detect the approach of a train moving at maximum authorized timetable speed and position himself or herself in a predetermined place of safety at least 15 seconds prior to the arrival of the train as indicated on the Statement of On-Track Safety.
- Power operated tools or roadway maintenance machines are not in use within hearing distance of lone workers.
- The ability to hear and see approaching trains and other on-track equipment is not impaired by background noise, lights, precipitation, fog, a passing train or other physical condition.
- Except when protected by a designated lookout, the work is

performed outside the limits of a control point. Automatic interlockings are not control points.

(The section starting with the heading "Train Coordination" is unchanged.)

MWOR Rule 6.19 Flag Protection—the following sentence is added to the 1st paragraph:

Within restricted limits, flaggers must immediately go at least the distance necessary to stop a movement and protect all possible access to the restriction.

MWOR Rule 6.51 Maintaining a Safe Braking Distance—under the section, "On-Track equipment operators must", the following is added after the second paragraph of the second bullet following the sentence:

After stopping, the lead machine operator must do the following:

- Dismount the machine.

MWOR Rule 6.53 Getting On and Off Equipment—is amended in its entirety to read:

Employees must not get on or off work equipment while it is moving.

Exception: In an emergency, employees may get on or off work equipment while it is moving. In addition, employees may get on or off the following equipment while it is moving in work mode: P8-11 Concrete Tie Laying Machines, High Speed Undercutters, TLM Concrete Tie Laying Machines, and Rail Heaters. Work mode means when the equipment is engaged in its normal operation, moving less than 1 MPH, and not while traveling to a new work site.

MWOR Rule 8.2 Position of Switches—the following paragraph is added:

When the position of a derail or main track switch is changed, the employee in charge must record the location of the derail and/or main track switch used and the time the derail is secured in derailing position and/or the main track switch is returned to normal position. This record must be retained for at least 48 hours after tour of duty is completed.

In non-sigaled TWC or Double Track ABS Territory, when a main track switch is operated for any reason, on track equipment shall:

- Stop short of the switch until activity is completed when possible.
- When activity is completed, if authority allows, make a facing point movement over the switch to ensure switch is lined properly for the main track.
- If authority does not allow for a facing point movement over the switch, make a walking inspection of the switch points to ensure proper fit and route.
- Make entry on prescribed form.

When on track equipment is not being used, a walking inspection of the switch points must be made to ensure proper fit and route, making entry on prescribed form.

MWOR Rule 15.2 Protection by Track Bulletin Form B—the following is added:

Before occupying a main track, controlled siding or any track where CTC is in effect, employees must have information concerning all Form B track bulletins in effect that may overlap their authority.

MWOR Rule 15.2 C Stop Column—the 1st two sentences are changed to read:

"Stop" must always be written in the Stop column. Trains and employees must not enter the limits unless instructed by the employee in charge.

A red flag or red light must be displayed at the beginning of the limits and at main track junctions within the limits.

Exception: On-track equipment authorized under the provisions of Rule 15.2.1 (Authorization for On-Track Equipment) is not required to display red flags when traveling. When establishing working limits, red flags must be displayed at the location of the working limits.

Glossary—the following abbreviations are added:
 WE West End
 EE East End
 CNT Connection
 RESTRN Restriction

Glossary—New glossary term is added:
 General Track Bulletin—A notice containing track bulletin restrictions and other conditions affecting train movement.

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

The following pages are revised effective October 30, 1998: 17, 18.

The following pages are added or revised effective October 10, 1999: 25, 26, 27, 28, 31, 32, 35, 36, 37, 38, 39, 40, 49, 50, 71, 72, 73, 74, 83, 84, 85, 86, 89, 90.

The following pages are added or revised effective April 2, 2000: Title Page, 2, 3, 4, 5, 6, 7, 8, 11, 12, 15, 16, 19, 20, 21, 22, 23, 24, 29, 30, 33, 34, 41, 42, 42a, 42b, 45, 46, 47, 48, 65, 66, 67, 68, 69, 70, 77, 78, 79, 80, 81, 82, 82a, 82b, 87, 88, 91, 92.

ABTH Rule 101.0 Air Brake Tests, Car Equipment and Components—Chapter 101 in the Air Brake and Train Handling Rules is replaced in its entirety below:

ABTH Rule 101.1 General Responsibilities

ABTH Rule 101.1.1 Compliance with FRA Regulations
 Inspect and test brake equipment on locomotives and cars according to Federal Railroad Administration (FRA) regulations contained within these rules. In addition, all cars at the initial terminal or that are added enroute must be given a safety inspection as per rule 1.33 in the General Code of Operating Rules (GCOR).

Inspections and air brake tests may be performed by either a "Qualified Person" or a "Qualified Mechanical Inspector". A "Qualified Person" refers to a trainman given fundamental training on freight car inspections and air brake tests and a "Qualified Mechanical Inspector" refers to a person such as a carman who has been given more extensive training that provides for a more detailed inspection. All BNSF trainmen are "Qualified Persons" in the application of the following rules. Inspection and air brake tests by Qualified Mechanical Inspectors provide for a greater distance that a train may travel before additional inspections and tests are required.

Inspection of equipment, when required, must be performed on both sides at some point during an inspection and air brake test to be able to examine and observe the functioning of all moving parts of the brake system on each car. Roll-by inspections do not constitute an inspection for that side of a train

ABTH Rule 101.2 Air Brake Tests

These requirements apply to air brake tests and inspections:

- Unless brakes fail en route, air brakes on all cars must be operative unless being moved for repairs and properly tagged by a Qualified Mechanical Inspector.
- Cars discovered with brakes that fail en route must be noted on space provided on TRAIN PROFILE and left in controlling locomotive cab form holder for relieving crew.
- TRAIN PROFILE may also reflect such cars by

electronic means to subsequent crews after defective brakes are initially discovered and reported.

- At least 85 percent of the cars in a train must have operative brakes under all circumstances.
- When departing terminals, engineers must allow their trains to be inspected where required.

ABTH Rule 101.2.1 Person in Charge

The person(s) performing the air brake test is in charge of the train while the tests are being conducted. Before authority is given to apply or release the brakes or move the train, the person(s) in charge must determine that all employees are safely positioned.

ABTH Rule 101.2.2 Engineer Responsibilities During Test

Unless authorized by the person(s) in charge, an engineer must not:

- Apply or release train brakes.
- Move the train until the air test is complete.

ABTH Rule 101.3 Charge Brake System

Charge an empty brake system for the appropriate amount of time to ensure that the system functions as needed. When charging the system:

1. Do not charge a train's air brake system with more than one automatic brake valve cut in unless utilizing distributed power locomotives.
2. Do not increase diesel engine RPM to maintain main reservoir pressure unless the pressure fails to stay 10 psi above the regulating valve setting.
 - a. If engine RPM must be increased, do not exceed throttle position 4.
3. In yards where trains are made up, unattended locomotives may be used to charge the brake system when ambient temperature requires additional charging time if:
 - a. There is a sufficient number of hand brakes applied to hold the cars to be charged.
 - b. Locomotive consist must have all hand brakes applied.

Note: Locomotive consists with locomotives equipped with electric air compressors may only require Run 1 for maximum efficiency. EMD SD70, SD80 or SD90 locomotives (identified by electronic displays ICE or FIRE) automatically increase locomotive engine speed for main reservoir charging as required. No manual throttle increase is required to speed charging when any of these locomotives are within a locomotive consist.

A. Standard Brake Pipe Pressures

- a. Yard service—80 psi
- b. Freight service—90 psi
- c. Mountain grade territory identified by special instructions—100 psi
- d. Trains consisting entirely of business car or passenger equipment—100 psi

B. Charging Time Chart

When the brake system is empty, use Table 101A to determine the minimum and maximum charging times:

Table 101A. Charging Time Chart

Minimum and Maximum Charging Times When Brake System is Empty		
Brake Pipe Length (in feet)	Minimum Charging Time (in minutes)	Maximum Charging Time (in minutes)
2,500 or less	8	25
3,000	10	30
4,000	15	35
5,000	20	40
6,000	26	55
7,000	35	65
8,000	45	75
9,000	57	100
10,000	71	125
11,000	80	160

C.Reducing Charging Time

Temperature, train length, leakage, and cars partially charged affect the time required to charge cars in the train. To reduce charging time:

1. Remove snow, ice, dirt, and other obstructions before coupling the air hoses.
2. Repair any brake system leakage.

D.Inspecting for Leakage or Obstructions

Immediately inspect for leakage or obstructions if one or more of the following occurs during charging:

- The rear car brake pipe pressure stops rising before it reaches the required pressure.
- The air flow indicator holds steady above 60 CFM or above the calibration mark.
- The maximum charging time is reached. (See Table 101A)

E.Reducing Brake Pipe Pressure

When higher than standard pressure is no longer required, reduce it as soon as possible, but no later than the next crew change point.

F.Reducing Pressure in Overcharged Train Brake Systems

Reduce pressure in overcharged train brake systems as follows:

1. Adjust the regulating valve to the desired pressure.
2. Make a full service brake pipe reduction with the automatic brake.
3. Wait at least 30 seconds after the brake pipe exhaust stops. Move the automatic brake handle to RELEASE and charge the system to the required pressure.

ABTH Rule 101.3.1 Train Kept Charged

If the train or portion of the train is not kept charged, perform an initial terminal air brake test on the part of the train not kept charged.

Note: A train considered “kept charged” has had air pressure in its brake pipe within the last 4 hours.

ABTH Rule 101.4 End-of-Train Telemetry Devices

When conducting an air brake test, you may determine if the brakes apply or release on the rear car by checking the end-of-train telemetry device as follows:

- When the rear brake pipe pressure decreases at least 5 psi, the brakes are applied.
or
- When the rear brake pipe pressure increases at least 5 psi, the brakes are released.

Exception: Rear car must be visually inspected to determine if brakes apply and release when rear car is being given initial terminal air brake test. Do not use an end-of-train device if the difference between the brake pipe pressure readings on the end-of-train device and the head-of-train device exceeds 3 psi.

ABTH Rule 101.5 Brake Pipe Leakage Test

Test brake pipe leakage when conducting the initial terminal air brake test and Intermediate air brake test, and when adding cars not pretested. Test brake pipe leakage using the:

- Air Flow Method (AFM)
or
- Brake Pipe Leakage Method

ABTH Rule 101.5.1 Air Flow Method (AFM)

AFM is the preferred method to test brake pipe leakage.

A.Equipment Required for AFM

To qualify a train’s air brake system using AFM, the train must be equipped as follows:

- The controlling locomotive has an operational self-lapping, maintaining-type automatic brake valve.
- The train has an operational end-of-train telemetry device.
- The locomotive has an air flow indicator with:
 - Orange or red calibration mark
or
 - A direct reading of air flow in increments no greater than 10 cubic feet per minute (CFM)

B.Procedure for Conducting AFM Test

If the train meets the above conditions, conduct an AFM test as follows:

1. Charge the brake system to within 15 psi of the regulating valve setting, but not less than 75 psi.
 - Air flow must not exceed 60 CFM.
or
 - Air flow pointer must be to the left of the calibration mark.
2. When you receive a signal to apply the brakes, make a 20 psi brake pipe reduction with the automatic brake valve.
3. Inspect the car(s) or train according to the appropriate train air brake test.
4. When you receive a signal to release the brakes, move the automatic brake valve handle to RELEASE.

ABTH Rule 101.5.2 Brake Pipe Leakage Method

The brake pipe leakage method is performed by measuring the amount of leakage in a closed system.

A.When To Use Brake Pipe Leakage Method

If the train does not meet AFM test conditions or is equipped with distributed power, conduct a brake pipe leakage test

B.Procedure for Conducting Brake Pipe Leakage Test

To conduct a brake pipe leakage test:

1. Charge the train brake system to within 15 psi of the regulating valve setting, but not less than 75 psi.
2. Wait for the signal to apply the brakes.
3. When you receive the signal, reduce brake pipe pressure by 20 psi.
4. Allow the brake pipe exhaust to stop.
5. Wait 60 seconds.
6. Cut out or lap the automatic brake valve.
7. Wait 60 seconds again.
8. Time the brake pipe leakage for 60 seconds.
 - a. Make sure leakage does not exceed 5 psi during the 60-second test.
 - b. Do not actuate during the leakage test.
9. Use the appropriate air brake test to inspect the cars.
10. When you receive the signal to release the brakes, move the automatic brake valve to RELEASE position and cut the automatic brake valve in.

ABTH Rule 101.6 Initial Terminal Air Brake Test (Class 1 Air Brake Test)

A qualified person or mechanical inspector must conduct an initial terminal air brake test to inspect air brake and safety appliances and to test brake pipe integrity.

ABTH Rule 101.6.1 Engineer Notification

A qualified person or mechanical inspector who participated in the test and inspection or who knows the test was completed must notify the engineer in writing that the initial terminal air brake test has been completed satisfactorily including date, time, location and number of cars inspected.

Engineers receiving written notification of the air brake test must:

1. Accept the notification as authority that the initial terminal air brake test has been completed satisfactorily.
2. Maintain written notification of the inspection(s) and test(s) in the cab of the locomotive in the form holder provided until train reaches final destination.

Written notification of the initial terminal inspection and air brake test may be provided the locomotive engineer by any one of the following methods:

- a. On Form 15287 at the initial terminal.
- b. By written record on space provided on TRAIN PROFILE if test was performed by a train crewmember. (Qualified Person)
Note: Any written record is acceptable if train profile is unavailable.
- c. By electronic means on the space provided on the TRAIN PROFILE.

ABTH Rule 101.6.2 Test Locations

Test all trains as specified in Rule 101.6.3 (Procedure for Initial Terminal Air Brake Test and Inspection) at the following locations:

On the entire train:

- Where the train is originally made up (initial terminal).
- Where train is not kept charged (Rule 103.1.1).
- Where a unit or cycle train has traveled 3,000 miles since it's last Class I Air Brake Test.
- Where the train consist is changed unless the change is:
 - a. Adding a previously tested single car or a solid block of cars.
 - b. Removing a single car or solid block of cars.
 - c. Removing cars that have been determined to be defective d. A combination of A – C.
- Where the train is received in interchange and the train consist is changed unless the change is:
 - a. Changing motive power.
 - b. Removing or changing the caboose, if used.
 - c. A combination of A and B.

On a portion of the train as specified below:

- On one or more cars added that have not been pretested by the initial terminal air brake test.
- On that portion of train that has not been kept charged (Rule 103.1.1).
- On a solid block of cars being added to train is comprised of cars from more than one previous train.
- On each solid block of cars that is comprised of cars from only one previous train but the cars of which have not remained continuously and consecutively coupled together with the train line remaining connected, other than for removing defective equipment, since being removed from it's previous train.

ABTH Rule 101.6.3 Procedure for Initial Terminal Air Brake Test and Inspection

Begin the test by inspecting the train for air brake system defects.

A. Inspection of Train Before or During Air Brake Test

1. Inspect the angle cocks and verify that they are properly positioned.
2. Inspect the air hoses and verify that they are in condition for service, properly coupled, and have no indication of kinks or restrictions in air flow.
3. Inspect the system for leakage.
4. Make necessary repairs to reduce leakage to a minimum.
5. Inspect the retaining valves and verify that they are in EXHAUST.

Note: Above inspections may be performed while charging or after brakes have been applied.

B. Brake Pipe Leakage Test

When the brake system is charged to within 15 psi of the regulating valve setting:

1. Test brake pipe leakage with the AFM or brake pipe leakage method.
2. After receiving proper signal, make a 20 psi brake pipe reduction with the automatic brake valve.
3. Verify that:

- a. Brakes apply on each car and remain applied until a release is initiated.

Note: Brakes that do not apply or do not remain applied until after a release is initiated must be retested and brake application must be observed to remain applied for a minimum of three (3) minutes and until a release is initiated.

- b. Piston travel is correct.
- c. Brake rigging does not bind or foul.
- d. All brake equipment is properly secured.

Note: On cars with bottom rods that pass through truck bolster or have cotter keys equipped with a locking device that prevent their accidental removal, bottom rod safety supports are not required.

4. Give the release signal when the inspection is complete.
5. After the release, inspect each brake to make sure all are released. The release may be verified during a roll-by inspection. The release may be verified during a roll-by inspection that must not exceed 10 MPH.
6. The engineer must be notified of the results of the release inspection.

C. Test: When Train has Been Previously Tested With Yard Test Plant

When the initial terminal air brake test has been performed with yard air and a locomotive has been added:

1. Make a 20 psi brake pipe reduction.
2. Verify that brakes apply and release on the rear car.

D. Before Leaving Test Location

Before leaving the test location, make sure that 100 percent of the air brakes are operative.

ABTH Rule 101.6.4 Trains Designated as "Extended Haul"

Trains designated as "Extended Haul" must be given air brake inspection and tests performed by a Qualified Mechanical Inspector and train may be operated greater than 1,000 miles but not to exceed 1,500 miles before an additional Intermediate or Initial Terminal Inspection and Air Brake Test is required. To apply the extended distance for this type of inspection and air brake test:

1. Train may not make more than one pick up or set out between Initial Terminal (Class I) and/or Intermediate (Class IA) inspection points. This excludes any set out of defective equipment discovered en route.
2. Any set out en route must be given an inbound inspection by a Qualified Mechanical Inspector.
3. Any cars or solid block of cars added en route must be pretested by a Qualified Mechanical Inspector.
4. Train must not move any cars with defective equipment, regardless of whether tagged appropriately.

5. Train must be given inbound inspection by a Qualified Mechanical Inspector at 1,500 mile intermediate inspection points.

ABTH Rule 101.7 Intermediate Air Brake Test (Class 1A Air Brake Test)

At designated locations and whenever instructed by supervision, conduct an Intermediate train air brake test to test brake pipe leakage and inspect air brake equipment on through freight trains.

To conduct the test:

1. Test brake pipe leakage with the AFM or brake pipe leakage method.
2. With the automatic brake valve, make a 20 psi brake pipe reduction and verify that brakes apply on each car.
3. Verify that the brake rigging is properly secured and does not bind or foul.
4. Brakes must apply and remain applied until release is initiated.
5. Verify that 100 percent of the air brakes are operative before proceeding.
6. Cars with brakes that do not apply or release before release is initiated must be re-tested and it must be determined that brakes remain applied for not less than three (3) minutes.

ABTH Rule 101.8 Application and Release Test (Class III Air Brake Test)

An Air Brake Test for cars pretested is required when:

- adding a block of cars pretested by the Initial Terminal Air Brake Test
- adding one car or solid block of cars from one previous train that have been kept charged (Rule 103.1.1).
- one or more consecutive cars are removed from the train.
- a locomotive or locomotive consist is changed
- a caboose is removed or changed.
- Helper locomotives are added anywhere in the train or removed other than by removing from the rear of the train (see helper air brake test rules contained in ABTH Rule 104.14.)
- Brake pipe continuity is broken or interrupted.

To conduct the test:

1. Charge the brake system to within 15 psi of the regulating valve setting, but not less than 75 psi:
2. Make a 20 psi brake pipe reduction with the automatic brake valve.
3. Verify that the brakes apply on the rear car.
4. Place the automatic brake valve in RELEASE position.
5. Verify that the brakes release on rear car and that brake pipe pressure is being restored at the rear of the train.

ABTH Rule 101.9 Transfer Train and Yard Movements Test

Test the air brake system on a train making a transfer train and yard movement that does not exceed 20 miles in one direction.

To conduct the test:

1. Couple brake pipe hoses between all cars.
2. Charge the brake system to at least 60 psi. If a rear car gauge is not available, refer to the Charging Time Chart (Table 101A) in Rule 101.3.
3. Make a 15 psi brake pipe reduction.
4. Verify that the brakes apply and remain applied on each car until release is initiated.
5. Brakes that either do not apply or remain applied until after a release is initiated must be re-tested and determined that brakes remain applied a minimum of three (3) minutes and until a release is initiated.

ABTH Rule 101.10 Inbound Train Inspection

Inspect inbound trains for defects in the air brake system.

A. Train Speed

When an inspector is present, incoming trains must not exceed 10 MPH.

B. Brake Inspection and Test Required

When an immediate brake inspection and test are required, including an Intermediate Inspection and Air Brake Test:

1. If the locomotive will remain on the train, make a 20-psi brake pipe reduction.
2. If the locomotive will be detached or a cut made:
 - a. Place the automatic brake valve handle in CONTINUOUS SERVICE until the exhaust stops.
 - b. Signal that the brake valve exhaust has stopped by sounding whistle signal 5.8.2, (2), or using the radio.
 - c. Close the angle cock at the rear of the last locomotive or car to be detached.
 - d. Detach the locomotive or locomotive and cars and move at least 50 feet from the cars left standing.
 - e. When available, use the end-of-train telemetry device to ensure that the brake pipe pressure drops to 0 psi.

Do not bottle air or maintain air pressure in the brake pipe when controlling locomotives are detached or yard air is uncoupled. **Note:** After the brake pipe pressure has completely exhausted, the angle cock on the standing portion of the train may be closed to allow a locomotive to switch the cars from the opposite end.

Easy Reference Air Brake Test Chart:

Freight Train Air Brake Test Chart

This chart contains the main points of air brake tests. It does not supersede the requirements of BNSF Air Brake, Mechanical and Train Handling Rules.

Type of Tests		Charge system to within 15 psi of regulating or feed valve	Air flow less than 60 cfm	Brake pipe leakage test	20-psi brake pipe reduction
Initial Terminal Class 1 Note: Extended Haul 1500 Mile Air Test must be performed by a Qualified Mechanical Inspector. Rule 101.6	LKG	*		*	*
	AFM	*	*		*
Intermediate Air Test Class 1A Rule 101.7	LKG	*		*	*
	AFM	*	*		*
Add solid block of pretested cars Class III (Application and Release Test) Rule 101.8		*			*
Transfer Train Rule 101.9		*		*	* #
Locomotive on after a yard air test Rule 101.8		*			*

If available, end-of-train device must be used to note reduction and increase of brake pipe pressure of a minimum of 5 psi.

* Transfer trains require a 15 psi reduction.

Freight Train Air Brake Test Chart

This chart contains the main points of air brake tests. It does not supersede the requirements of BNSF Air Brake, Mechanical and Train Handling Rules.

Type of Tests	Brakes Applied			Brakes Released			Brake pipe pressure being restored
	Car(s) picked up	Rear Car	Entire Train	Entire Train	Rear Car	Car(s) picked up	
Initial Terminal Class 1 Note: Extended Haul 1500 Mile Air Test must be performed by a Qualified Mechanical Inspector. Rule 101.6	LKG		*	*			
	AFM		*	*			
Intermediate Air Test Class 1A Rule 101.7	LKG		*				
	AFM		*				
Add solid block of pretested cars Class III (Application and Release Test) Rule 101.8		#			*#		* #
Transfer Train Rule 101.9							
Locomotive on after a yard air test Rule 101.8		*#			*#		

If available, end-of-train device must be used to note reduction and increase of brake pipe pressure of a minimum of 5 psi.
* Transfer trains require a 15 psi reduction.

ABTH Rule 101.11 Running Air Brake Test

Conduct a running air brake test of all passenger trains and trains consisting entirely of business cars when:

- The train leaves the initial terminal.
- Locomotive, engine crew, train crew, or operating ends have been changed.
- Any angle cocks or cutout cocks have been closed. However, the running test is not required when cars are cut off from the rear end of the train only. • A standing air brake test has been conducted.
- The train reaches points designated by the timetable or general order.
or
- The train has struck debris on the track.

Conduct a running air brake test on freight trains where required by timetable special instruction.

ABTH Rule 101.11.1 Procedure for Running Air Brake Test

To conduct a running air brake test:

1. Begin the running test of the brakes as soon as train speed is high enough to prevent stalling.
2. While using enough power to keep the train stretched:
 - a. Apply the train brakes with enough force to make sure the train brakes are operating properly.

- b. Keep the locomotive brakes released during the test.
- c. Verify that the train brakes create a noticeable retarding force.

3. If the train brakes are operating properly, release the brakes and proceed.

Note: Do not apply the locomotive or dynamic brakes during a running test. If the train fails this test, stop immediately and make repairs.

ABTH Rule 101.11.2 Brakes Not Operating Properly

If the train brakes are not operating properly, stop the train immediately and:

1. Inspect the brakes to identify and correct the problem.
2. Before proceeding, conduct an application and release test as specified in Rule 101.8 (Application and Release Test).
3. Once the train is proceeding, immediately repeat the running test as specified in Rule 101.11.1 (Procedure for Running Air Brake Test).

ABTH Rule 101.12 Identifying Car Ends

Identify car ends as follows:

- On cars with one hand brake, the "B" end of the car is the end with the hand brake. The other end is the "A" end.
- On cars with more than one hand brake, the letters "A" and "B" are stenciled on the appropriate ends of the car.

ABTH Rule 101.13 Wheel and Journal Identification on Cars

To determine the correct wheel numbers on cars:

1. Face the "B" end of the car.
2. From the "B" end of the car, identify the designation of .. wheels, journals, and axles as follows:
 - Axles are designated from the "B" end of the car with "1" for the axle closest to the "B" end.
 - Wheels and journals are designated left or right as viewed from the "B" end.
 - Specific wheels are identified using the axle and wheel designation.

ABTH Rule 101.14 Coupler Assemblies

American railroads use three types of coupler assemblies. Each coupler head and knuckle is marked with a letter indicating its type.

Assembly Type	Description
Type E	Most common. Used on all types of freight cars.
Type F	"Interlocking" coupler assembly. Used on most intermodal equipment and some unit train equipment.
Type H	"Tightlock" coupler assembly. Used on passenger equipment and some work equipment.

ABTH Rule 101.15 Retaining Valves

The retaining valve on each car controls brake cylinder pressure exhaust. All freight cars have retaining valves located at the "B" end of the car or at the side near the control valve. The retaining valve can be positioned to function as follows during a brake release:

- Allow the exhaust of brake cylinder pressure to atmosphere.
- Retain brake cylinder pressure while the system is recharged.

A. Three-Position Retaining Valve

The three-position retaining valve includes these positions.

DIRECT EXHAUST (EX)—Exhausts all brake cylinder pressure. Handle is turned down.

HIGH PRESSURE (HP)—Exhausts brake cylinder pressure to 20 psi. Handle is 45 degrees below horizontal.

SLOW DIRECT EXHAUST (SD)—Exhausts brake cylinder pressure for a blowdown time of approximately 86 seconds and continues to exhaust until all pressure is vented. Handle is 45 degrees above horizontal.

B. Four-Position Retaining Valve

The four-position retaining valve includes the positions listed above and one additional position:

LOW PRESSURE (LP)—Exhausts brake cylinder pressure to 10 psi. Handle is horizontal.

ABTH Rule 101.16 Piston Travel Limits

The following information identifies the piston travel limits for body mounted air brake cylinders, truck mounted air brake cylinders, or a TTOX AIR ACTUATOR single wheel truck air brake system.

101.16.1 Body Mounted Air Brake Cylinders

The cylinder diameter size is cast into the cylinder housing. On 12-inch cylinders, the housing is 90 degrees to the piston rod. On cylinders less than 12 inches, the housing is tapered.

Piston Travel Limits of Body-Mounted Air Brake Cylinders			
Body-Mounted Brake Cylinder Diameter or Manufacturer	Maximum Piston Stroke	Initial Terminal Requirements	Intermediate and 1,000-Mile Inspection Points
12"	10"	5"	8-1/2" max.
7-1/2", 8-1/2", 10"	12"	7" to 9"	10-1/2" max.

ABTH Rule 101.16.2 Truck-Mounted Air Brake Cylinders
Table 101C. Truck-Mounted Air Brake Cylinders

Piston Travel Limits of Truck-Mounted Air Brake Cylinders		
Truck-Mounted Brake Cylinder Manufacturer	Initial Terminal Requirements	Intermediate and 1,000-Mile Inspection Points
WABCOPAC/NYCOPAC (One brake cylinder mounted on each brake beam.)	3/4" to 3"	4" max.
WABCOPAC II (Same as above with slack adjusters in each truck.)	1-3/4" to 3"	3-1/4" max.
TRIAx II	1-1/2" to 3"	3-1/4" max.
ELLCON NATIONAL (One brake cylinder mounted to bracket on each truck bolster.)	2-1/4" to 3-3/4"	4" max.
THRALL/DAVIS (Each brake cylinder mounted directly to truck bolster with a cylinder push rod extending through.)	2-3/4" to 4-1/4"	4-1/2" max.
MISNER/TTX (Air bag designed actuator mounted to each truck bolster. Load indication pointer inside truck on slack adjuster.)	7-1/2" to 10"	10-1/4" max.
WABCO TMX (One brake cylinder mounted to one brake beam within each truck. New models have piston travel indicator on brake cylinder.)	1-1/2" to 3"	3-1/4" max.
TTOX/TTFX AIR ACTUATOR (Single wheel truck air brake system.)	With the brakes applied, shoes must be against the wheels and the indicator pointed to the ON position.	With the brakes applied, shoes must be against the wheels and the indicator pointed to the ON position.
KIM ANGIE (Roadrailer Equipment)	1-1/4" to 3-1/2"	3-5/8" max.

Note: On TTOX single-axle cars only, measure piston travel on the indicator (brake on or off) under the standee at the "B" end of the car. This car has two actuators and one indicator.

ABTH Rule 101.17 Roller Bearing Equipment

Check freight cars or locomotives with roller bearings to ensure that the cars are operating properly and that roller bearings do not overheat. To check the equipment:

1. Stop movement.
2. Determine if the roller bearing is hot.
 - a. Mark the outside of the bearing cup with a 200 degrees F heat-indicating crayon. Use a 163 degrees F crayon if the ambient temperature is below 32 degrees F.

Note: If a liquid smear remains, the bearing is overheated.

b. If a crayon is not available, carefully pass your hand near the bearing without touching it.

Note: If the bearing is radiating more heat than others, it is overheated.

- On locomotives, when a detector indicates hot journal bearing(s), check for an overheated journal, support bearing, or armature bearing.

ABTH Rule 101.18 Setting Out Defective Cars

Set out a defective car whenever it cannot be safely moved to the next repair location. When cars are set out defective, report this fact to the dispatcher and Mechanical Help Desk.

When setting out defective cars:

- Set out mechanically defective cars where maintenance crews can access them.
- If the journal is overheated, inspect the underside of the car immediately if the maintenance crew is not available.
- Put out any fires before leaving the car.
- Promptly report setout cars to the train dispatcher.
- Include location of overheated journal with marking crayon.
- When a derailed car with roller bearings is rerailed by other than Mechanical Department employees, move it carefully to the setout point for inspection and maintenance.

ABTH Rule 101.19 Train Air Brake System

Maintain the train air brake system to ensure it operates properly. Use these guidelines to maintain train air brake systems.

ABTH Rule 101.19.1 End-of-Car Connections

Maintain end-of-car connections to enable the air brake system to function properly throughout the train.

A. Opening or Closing Angle Cocks

When opening or closing angle cocks:

- Do not leave angle cocks partially open or closed.
- When cutting air in with the brake pipe charged:
 - Make a 20-psi brake pipe reduction.
 - Signal that the brake valve exhaust has stopped by sounding whistle signal 5.8.2, (2), or using the radio.
 - Open angle cocks slowly to prevent an emergency brake application.

If releasing the air brakes on locomotives or cars might cause the cars to move when the air is cut in, make a 40-psi brake pipe reduction before opening the angle cock.

Note: Distributed power trains, in some cases, require a different procedure when coupling to rear portion of train with a remote consist. Refer to Rule 107.6.5, Item B.

B. Adjusting Air Hose Height

When adjusting air hose height:

- Couple the air hoses.
- Verify that the brake pipe hose support is adjusted so that the glad hands are at least 4 inches above the top of the rail.

ABTH Rule 101.20 Sticking Brakes

Sticking brakes occur when brakes on a car(s) remain applied after a train brake release. When brakes stick:

- Stop the train as soon as possible.
- Determine why the brakes are sticking. Some reasons for sticking brakes include:
 - Overcharged air brake system.
 - Hand brakes applied.
 - Retaining valve not in EXHAUST.
 - Leak in the air brake system.
 - Releasing a brake pipe reduction with brake pipe air still exhausting.
 - An insufficient brake pipe reduction to ensure proper release.
- Correct the problem.
- If necessary, cut out the control valve or set out the car.

ABTH Rule 101.20.1 Minimizing Sticking Brakes

In order to minimize the possibility of sticking brakes, observe the following:

- Do not overcharge the train air brake system.
- When handling cars to be placed on the rear portion of a freight train, regulating valve pressure setting must be 10 psi less than standard pressure for that train.
- When a running release of train brakes is to be made, if operating conditions permit, increase the brake pipe reduction to at least 10 psi and allow brake pipe exhaust to stop for at least 20 seconds before releasing.
- When the train air brakes are used to stop a train, when operating conditions permit, increase brake pipe reduction to at least 15 psi after stopping. The brakes must not be released until at least 20 seconds after exhaust stops. Some long cars have an A-1 reduction relay valve that helps transmit a service or emergency brake pipe reduction by compensating for the added brake pipe length of the car (Rule 101.20.2A-1, Reduction Relay Valve).

The relay valve functions as follows:

- Service brake reductions are assisted through the B-1 quick service portion.
- Emergency brake pipe reductions are transmitted by the No. 8 vent valve portion.

If the No. 8 vent valve fails to reset after an emergency brake application, causing a continuous blow at the exhaust port, plug the valve by removing the vent protector and screwing in the threaded plug.

ABTH Rule 101.20.2 Freight Cars Equipped With A-1 Reduction Relay Valve

The following freight cars are equipped with the relay valve:

- Cars with AB or ABD control valves and more than 75 feet of brake pipe between hose couplings.
- Cars with ABDW control valves and more than 100 feet of brake pipe between hose couplings.

Note: Cars with ABDW control valves having between 75 and 100 feet of brake pipe have a No. 8 vent valve added.

ABTH Rule 101.20.3 Automatic Vent Valve

Some multi-platform cars are equipped with what is known as an automatic vent valve (AVV), which is simply an emergency portion of a control valve which is used only to propagate an emergency brake application through the brake pipe. Should an AVV become defective, the cutout cock is used to cut it out. 101.21 Cutting Out Air Brake Equipment

Cut out control valves or other air brake devices only if they are defective or if the brake rigging is being serviced. If air brake devices must be cut out enroute, notify the train dispatcher and the Mechanical Help Desk of car number(s) and any other pertinent information. In addition, enter cars with defective brakes on TRAIN PROFILE in space provided and leave in controlling locomotive cab form holder for relieving crew's information.

A. Procedure to Cut Out Control Valve or Automatic Vent Valve

Cut out control valves or automatic vent valve as follows:

- Close the branch pipe cutout cock.
- When cutting out a control valve, drain the air reservoirs completely by operating the brake cylinder release valve.

B. Position of Cut-Out Air Brake Equipment

Follow these requirements when multiple air brake devices must be cut out:

- Make sure no more than two air brake devices that have been cut out are together in a train.
- If necessary to cut out a third consecutive air brake device, separate it from the other two cars with cutout brakes by at least one car with operative brakes.

3. If one air brake device/control valve is cut out on a car with multiple control valves, consider the brakes on that car to be operative.

C. Rear Car Brakes

The rear car of a train must have operative air brakes. However, the rear car brakes possibly could become .. inoperative en route. When this happens, follow these steps:

1. Before moving the train, test the hand brake on the disabled car.
If the hand brake is inoperative, do not move the car until it is repaired and can be moved safely.
2. Chain, strap or cable the disabled rear car to the rear of the train.
3. Move the car directly to the first auxiliary track and switch it ahead of at least one car with operative brakes, or set it out.

Note: Even though the disabled car has inoperative brakes, the air must be cut in to the brake pipe. If the brake pipe on disabled car is broken, car with a broken brake pipe should be handled with brake pipe pressure in air hoses between car ahead and disabled car. With air hoses coupled between rear car and car ahead, cut the air in between the rear car and the closed angle cock on the disabled car. (This is in order to insure an emergency application of the train's air brakes should the disabled car become separated from the train.)

ABTH Rule 101.21.1 Bleed Off Cars

Bleed off cars only when:

- Repairing the brake system.
- Cutting out the brakes on a defective car.
or
- Switching.

ABTH Rule 101.22 Scale Test Cars

Scale test cars handled in a train do not need to be equipped with air brakes.

ABTH Rule 101.23 Securing Equipment Against Undesired Movement

Crew members are responsible for securing standing equipment against undesired movement.

ABTH Rule 101.23.1 Applying Hand Brakes on Cars

When securing cars, a train, or a portion of a train, apply enough hand brakes to prevent movement.

1. When applying hand brakes:
 - a. Use proper body mechanics to prevent injury.
 - b. Do not use additional leverage, such as when utilizing a bar, brake club, or foot.
2. Fully apply hand brakes by operating the mechanism until the slack is out of the chain and the brake shoes are snug against the wheels.
3. Use these hand brake procedures when removing locomotives from a consist or setting out cars:
 - a. When removing locomotives from a consist, apply all hand brakes to prevent movement. Refer to Rule 102.13.2.
 - b. When setting out cars on a grade with slack bunched, apply the hand brakes on the low end of the cut of cars.
 - c. When setting out cars on a grade with slack stretched, apply the hand brakes on the high end of the cut of cars.
4. When necessary, apply all hand brakes on multiple-platform cars.

ABTH Rule 101.23.2 Releasing Hand Brakes

To prevent wheel damage, fully release hand brakes before moving cars or locomotives. When releasing hand brakes:

1. If a hand brake is difficult to release, charge the air brake system and apply the brakes in emergency before attempting to release the hand brake again.

2. Check at least an additional three cars beyond the last applied hand brake to ensure that no other hand brakes are applied.

ABTH Rule 101.23.3 Blocking Wheels

For equipment with defective or inoperative hand brakes, block the wheels securely unless the cars or locomotives are attached to equipment with enough hand brakes to prevent movement.

To block wheels:

1. Obtain wheel chock, wood or chain blocking locally.
2. Place the blocks against the front and back of enough wheels to prevent movement.
3. After applying blocking, release the air brakes to ensure that the blocking prevents movement.

ABTH Rule 101.23.4 Securing Train or Portion of Train With Locomotive Attached

When securing a train or portion of a train with locomotive(s) attached, perform the steps below. In addition, perform Items 1-4 as outlined in Rule 102.13.2 in order to further secure the controlling locomotive:

1. Fully apply the independent brake.
2. Make a 20-psi brake pipe reduction.
3. When required, apply a sufficient number of hand brakes.
4. Increase the brake pipe reduction to 40 psi and leave the automatic brake cut in.

Exception: Do not increase brake pipe reduction to 40 psi if train is left unattended and if advised train will be given an inbound inspection.

ABTH Rule 101.23.5 Securing Train or Portion of Train Before Detaching Locomotives

When any part of a train is left standing and no train brake inspection is required, do not depend on the air brake system to secure the cars.

When detaching locomotives or locomotives and cars:

1. Make a 20-psi brake pipe reduction and wait for exhaust to cease.
2. Secure equipment against undesired movement as required.
3. Close angle cock on rear locomotive or last car to be detached from portion left standing. Leave angle cock open on portion left standing.
4. Detach the locomotive or locomotive and cars, and move at least 50 feet from the cars left standing.
5. Allow brakes on any standing portion to apply in emergency.
6. When available, use the end-of-train telemetry device to make sure that brake pipe pressure drops to 0 psi.

Do not bottle air or maintain air pressure in the brake pipe when locomotives are detached or yard air is uncoupled.

Exception: When separating a train in temperatures below 25 degrees F and the train is on a grade of less than 1 percent, follow the steps in Rule 101.10B(2) (Inbound Train Inspection) to prevent vent valves from sticking open.

Note: After the brake pipe pressure has completely exhausted, the angle cock on the standing portion of the train may be closed to allow a locomotive to switch the cars from the opposite end.

ABTH Rule 101.23.6 Determining Number of Hand Brakes

The number of hand brakes depends on:

- Grade and adhesion.
- Number of loaded and empty cars.
- Weather conditions (wind and temperature).

Use Table 101D to determine the minimum number of hand brakes to apply or wheels to block to hold equipment on a grade.

Table 101D. Percentage of Cars on Which to Apply Hand Brakes or Blocking Fully

Grade	Percentage of Cars on Which to Apply Hand Brakes or Blocking Fully	
	Empties	Loads
Level	1% of cars	2% of cars
0.1 - 0.5%	7% of cars	14% of cars
0.6 - 1.0%	15% of cars	30% of cars
1.1 - 1.5%	23% of cars	45% of cars
1.6 - 2.0%	30% of cars	60% of cars
2.1 - 2.5%	38% of cars	75% of cars
2.6 - 3.0%	45% of cars	90% of cars
3.1 - 3.5%	53% of cars	100% of cars
3.6% and over	100% of cars	100% of cars

ABTH Rule 101.24 Reporting Flat Spots

While inspecting car and locomotive wheels, measure and report flat wheels to the train dispatcher and Mechanical Help Desk so they can be repaired.

- Determine the length of the flat area.
- If the length of the flat area is more than 1 inch, report it.
- In cases of a flat wheel(s) on a switch locomotive, inform:
 - Maintenance facility
 - Yardmaster
 - Supervisor
- If flat spots exceed 1 inch, handle cars or locomotives according to Table 101E.

Table 101E. Speed Permitted for Flat Wheels

Speed Permitted for Flat Wheels		
Length of Single Flat Spot	Length of Two Adjoining Flat Spots Less Than 1-1/2" Apart	Maximum Speed
Locomotives		
2" or less	1" or less	Normal speed
2" to 2-1/4"	1" to 1-1/2"	40 MPH
2-1/4" to 2-1/2"	1-1/2" to 2"	25 MPH
2-1/2" or more	2" or more	10 MPH; set out at first available point
Cars		
2-1/4" or less	1-1/2" or less	Normal speed
2-1/4" to 2-1/2"	1-1/2" to 2"	50 MPH
2-1/2" or more	2" or more	10 MPH; set out at first available point

ABTH Rule 101.25 Emergency Application Capability from Rear of Train

All trains must be operated with the ability to initiate an emergency application of the brakes from the rear of the train. Exceptions: Locals, road switchers and work trains that do not operate on grades described in Rule 101.25.4 or a continuous grade of 1% or more for a distance of three miles or more are exempt

from these requirements. In the application of this rule, locals, road switchers and work trains are defined as a train that can be operated by a single crew in a single tour of duty that do not exceed 4,000 trailing tons. Divisions may individually issue instructions concerning which locals, road switchers and work trains are excepted from the above. Engine(s) without cars are also excluded from this rule.

ABTH Rule 101.25.1 Methods of Providing Emergency Application Capability at the Rear of the Train

One of the following methods of providing emergency capability at the rear of the train must be utilized:

- An operable two-way end of train device (ETD) which must be armed and tested at point of installation. This device consists of an (ETD) mounted on the coupler of the last car and a head-of-train device (HTD) mounted on a locomotive at the head end of the train. An ETD with a calibration date exceeding 365 days must not be used. Brake pipe pressure readings displayed on the HTD must be accurate to within 3 psi of brake pipe pressure displayed at the ETD.
- Remotely controlled locomotive(s) capable of initiating an emergency application placed at the rear of the train.
- Trains with a helper locomotive(s), caboose or passenger equipment at the rear of train equipped with an emergency brake valve and manned with an employee equipped with two-way voice radio communication with the engineer at head end of train. Train must be stopped if radio communications has failed before train proceeds on grades described below. If already moving on grades described below when radio communications has failed, train may proceed as long as train is under control.

ABTH Rule 101.25.2 Testing Emergency Function

The functional capability of ETD, caboose or passenger equipment emergency valve must be tested at the installation point as follows:

- Couple the brake pipe on the train to the ETD, caboose, or passenger equipment.
- Arm the ETD as outlined in Rule 108.4.1 (all parts).
- Close the angle cock between the train and ETD, caboose or passenger equipment.
- Initiate an ETD emergency from the lead locomotive HTD or by using the emergency valve on the caboose or passenger equipment being used.
- Note the brake pipe pressure on the ETD, caboose or passenger equipment reduces to 0 psi. 6. Open the angle cock between the ETD, caboose or passenger equipment and train. Determine that brake pipe pressure is restored before proceeding.

Note: Allow ETD emergency valve to automatically close before opening angle cock. UP/CNW ETD's require manual reset of emergency valve. ETD emergency valve will require a minimum of 15 seconds to reset after actuated. No attempt to restore brake pipe pressure should be made until emergency brake valve on ETD has reset. Failure to wait a minimum of 15 seconds after testing valve before again opening brake pipe to valve may result in an erroneous "Valve Fail" indication.

Should an ETD emergency test at the installation location be performed in the absence of all train crew members (including the locomotive engineer on the controlling locomotive), a written record of the date, time, location and the person who performed the ETD emergency test will be provided. (Any change in lead locomotive (HTD) or ETD en route will require an additional emergency ETD test and an updated record if performed in the absence of all train crew members.) The train profile may be used to record this information if no other form is provided. This information may be entered by any employee and does not require a signature. The ETD test record, if required, need only be retained by the engineer

operating the train from where ETD installation and testing was performed and may be discarded after the completion of his/her trip.

ABTH Rule 101.25.3 Conditions Indicating Enroute Failures

A failure is indicated when:

1. ETD/HTD indicates one of the following:
 - a. Loss of front to rear communication. Message = FR NOCOM, EOT COMM or NO CONT depending on HTD type.
 - b. Emergency valve not enabled. Message = NOT ARMED and/or "Emergency Enabled" indicator NOT illuminated.
 - c. Emergency valve failure. Message = VALVFAIL.
 - d. Battery failure. Message = DEAD BAT, REPL BAT or BATTERY LOW.

Note: Some foreign railroad HTD devices are self-arming and indicate emergency enabled condition with " * " displayed.
2. Remotely Controlled Locomotives: Loss of communication as indicated by control console for remotely controlled locomotive on lead, controlling locomotive at head end of train.
3. Manned helper, caboose or passenger equipment: A loss of voice radio communication that occurs between manned helper locomotive(s), caboose or passenger equipment and the lead, controlling locomotive.

ABTH Rule 101.25.4 Action Required When Enroute Failures Occur

When an enroute failure occurs, train must not exceed 30 MPH until failure is corrected or another method of compliance is secured. Exception:

- On the following grades, train must not proceed until failure is corrected or another method of compliance is secured:
- Cajon Subdivision, MP 56.6 to MP 80, both tracks
 - Raton Subdivision, MP 639 to MP 660
 - Glorieta Subdivision, MP 775 to MP 810 and MP 818 to MP 842
 - Pikes Peak Subdivision, MP 52 to MP 66
 - Hi Line Subdivision, MP 1151 to MP 1166, both tracks
 - Midway Subdivision, MP 0.5 to MP 5, both tracks
 - St. Paul Subdivision, MP 430 to MP 5, both tracks
 - Scenic Subdivision, MP 1694.5 to MP 1731.3
 - Stampede Subdivision, MP 41.0 to MP 58.5
 - San Diego Subdivision, MP 250 to MP 255 (SDN RR)
 - Gateway Subdivision, MP 178.0 to MP 188.0
- On UP/SP Railroad:
- Mojave Subdivision, MP 331.3 to MP 381.3
 - Moffat Tunnel Sub., MP 19 to MP 50 and MP 58.1 to MP 61.7
 - Provo Sub., MP 630.5 to MP 638.1 and MP 652 to MP 682
 - Roseville Sub., MP 115 to MP 170 and MP 195 to MP 210

If stopped or moving on grades described above when loss of ETD or remote controlled locomotive radio communications occurs due to train being in a location of poor communications (tunnel, rock cut, overpass, etc.), train may be moved in an attempt to regain communications. If communications cannot be restored after clearing the poor communications area, train must be stopped. The failure must be corrected or alternative method of compliance secured.

Should a train separation and/or locomotive failure occur while on the ascending grades of the locations described above which require the train to be moved in segments ("doubling the hill"), it is permissible to move the head portion of the train without emergency capability at the rear of the head portion being moved. All train crew members on trains operating on grades above must take action to stop train, with an emergency application of the brakes should train exceed 5 MPH over maximum authorized speed.

Note: Normal HTD to ETD communications is at a much lower strength than the command to initiate an emergency application from the HTD to the ETD. In the event of a need to utilize the emergency feature of the ETD, the command to initiate an emergency must be attempted even if no communications is indicated at the HTD.

ABTH Rule 101.26 Dynamic Brake Requirements

Locomotives discovered to have inoperative dynamic brakes must be individually tagged and an additional defect tag must be left the controlling locomotive of the locomotive consist as information to the locomotive engineer. Inoperative dynamic brake information may also be provided to the locomotive engineer by electronic means on the TRAIN PROFILE under locomotive information, which will show for each locomotive whether locomotive dynamic brake is "operative". The requirement to identify inoperative dynamic brakes only includes dynamic brakes that are defective or ineffective due to malfunction and does not include tagging dynamic brakes that are simply cut out to comply with dynamic brake axle limitations.

Tags indicating inoperative dynamic brakes should include the following information:

1. Locomotive number.
2. Name of discovering railroad.
3. Location and date condition discovered.
4. Signature of person discovering the condition.

ABTH Rule 101.26.1 Inoperative Dynamic Brake on Lead, Controlling Locomotive

When a locomotive consist is equipped with any operative dynamic brakes, the lead, controlling locomotive must be equipped with:

1. An operative dynamic brake.
- or
2. An operative accelerometer that displays current change in speed or predicted change in speed in miles per hour per minute.

ABTH Rule 102.2.1 Responsibility for Inspection—the following new 2nd sentence is added:

Locomotive inspection is not required when taking charge of locomotives at a mechanical facility where employees are on duty for the purpose of servicing locomotives.

ABTH Rule 102.2.3, A. Previous Inspection recorded—Item 2 is amended to read:

2. If you have time to reach your final terminal before 2359 hours, inspect the locomotive at that terminal, unless:
 - * The proper authority informs you that the relieving engineman or mechanical department employee will perform the inspection.
 - * Locomotives will be tied up at a location where mechanical employees are on duty for the purpose of servicing locomotives.

ABTH Rule 102.4.1 Procedure for Locomotive Air Brake Test—the following paragraph is added:

On some locomotives, an emergency application command from the HTD is automatically sent to the ETD to which it is "armed" should an emergency application from any source be initiated on that locomotive. Therefore, insure all ETD's in your consist are disarmed before performing a locomotive air brake test on the locomotive consist when employees are working on or inspecting cars to which your ETD is attached.

ABTH Rule 102.8.1 Deactivate Device Temporarily—is changed in it's entirety to read:

ABTH Rule 102.8.1, Deactivate Device Temporarily on Locomotives Not Equipped With ICE (EMD), Fire (EMD) or IFC (GE) Display Screens

To deactivate the device temporarily for loading/unloading:

1. Cut out the automatic brake valve.
Note: If train has foreign distributed power remote(s) without electronic screens, place remote(s) in Remote Mode "Idle".
2. Adjust the regulating valve to 120 psi.
3. Move the automatic brake valve handle to SUPPRESSION.
4. Cut in the automatic brake valve to PASS.
5. Make sure the brake pipe pressure is at the required 90 psi.
To restore the electronic alertness device control:
 1. Cut out the automatic brake.
 2. Move the automatic brake handle to RELEASE.
 3. Adjust the regulating valve to the required pressure.
 4. Cut in the automatic brake.

ABTH Rule 102.8.2 Restore Electronic Alertness Device Control—is changed in its entirety to read:

ABTH Rule Rule 102.8.2 Deactivate Device Temporarily on Locomotives Equipped With ICE (EMD), Fire (EMD) or IFC (GE) Display Screens

To deactivate the device temporarily for loading/unloading:

1. Determine that lead unit Engine Control Switch is in "RUN" position on lead controlling locomotive.
2. On DP trains, place DP REMOTE MODE to "IDLE".
3. Select SLOW SPEED.
4. Select a direction of travel by moving reverser.
5. On all GE lead, controlling locomotives, whether conventional or DP, and on EMD lead, controlling locomotives on conventional trains, throttle position must be left in IDLE and disregard prompt message to advance throttle to a "Run" (power) position.
6. Screen displays "Slow Speed ON - Set Speed XX MPH." Slow Speed mode is now active. Do not select a speed setting or leave Set Speed to 0.0 MPH.
7. Alertness device is now nullified as long as speed of train remains below 5 MPH.
8. Place Engine Control Switch (Isolate Switch) on all lead locomotives in "ISOLATE" position and open GEN FIELD switch on lead controlling locomotive. (On EMD units, an error message will appear when unit is ISOLATED but alertness device is still disabled.)

To restore the electronic alertness device control and normal operation:

1. End SLOW SPEED CONTROL.
2. To restore power, return Engine Control Switch (Isolate Switch) on all lead locomotives to "RUN" position and close GEN FIELD switch on lead controlling locomotive.
Note: When cutting away from remote DP unit for any reason at loading or unloading facility, change DP REMOTE MODE to "SET OUT". Return REMOTE MODE to "IDLE" mode prior to recoupling and restoring brake pipe pressure to remote unit.

ABTH Rule 102.14.2 Coupling Locomotives for Multiple-Unit Operation—first paragraph is amended to read:
When building locomotive consists, locomotives rated at less than 2000 horsepower and not equipped with a dynamic brake must be placed so they are trailing no more than sixteen (16) rated dynamic brake axles.

ABTH Rule 102.14.4 Powered Axle Limitation—is amended to read:

Unless otherwise restricted by local instructions, the powered axle rating of an individual locomotive consist must not exceed 42.

EXCEPTION: Trains with symbols beginning with alpha designation P, Q, S or Z may operate with a maximum powered axle rating of 48.

ABTH Rule 103.9.1 Special Handling Requirements and Operating Practice Guidelines for Roadrailer Equipment—delete both paragraphs under item 2.

ABTH Rule 104.4 Throttle Handling—add new item as follows:

8. When standing, close throttle and center the reverser until movement is desired.

ABTH Rule 106.1, Fuel Conservation—the following paragraph is added:

Unless otherwise directed by the NOC, the following locomotives must be shut down or isolated as outlined by Rule 106.1.6 when operating in through freight service (excluding locals, road switchers and work trains) on the Kansas, Texas, Gulf, or Southwest Divisions, regardless of scheduled hpt: SW 10, SW 12, SW 15, MP 15, GP 7, GP 9, GP 9B, GP 10, SD9.

ABTH Rule 106.1.1 Regulating Horsepower per Ton—is amended by adding the following after the first paragraph: In addition to the above, engineer must utilize DB Only (dynamic brake only) position on Engine Control Switch on the lead locomotive, when equipped, except when lead unit is needed starting, accelerating and to maintain maximum authorized speed.

ABTH Rule 106.1.3 Empty Unit Trains-Horsepower Restriction—is amended by deleting Red River Valley and Wichita Falls Subdivisions from the exception.

ABTH Rule 107.2 Preparing for Distributed Power Service—add new first paragraph as follows:

When selecting a locomotive to be used as a distributed power unit, first determine from local supervision or the NOC Mechanical Desk that locomotive has properly function DP equipment. This is not required when locomotive is provided for DP service from a mechanical maintenance facility.

ABTH Rule 108.3.2 HTD Alarms and Alarm Messages—new item G, End of Train and Head of Train Device Failures, is added:

One cause of communication failures (Front-to-Rear) between the HTD and ETD, may be within the HTD (LCU-08) module. En route failures and train crew change outs of the HTD have resulted in lost HTD (LCU-08) modules. Therefore, the following will apply when an HTD (LCU-08) fails en route. At Mechanical Repair locations: Contact local personnel for instructions.

Between terminals; Contact NOC Mechanical Desk, (South Desk 234-2300, North Desk 234-6258) and be governed by their instructions on the change out procedures and tagging instructions for defective HTD (LCU-08) modules.

Troubleshooting ETD/HTD Communications problems: Only Front-to-Rear ETD radio communications failures (FR NO COMM) and other failures that result in a FR NO COMM represent an enroute failure as outlined by ABTH Rule 101.29.3, Item 1a. Rear-to-Front (RF NO COMM) failures alone require no action and train may proceed at maximum authorized speed if only a RF NO COMM has occurred. Communication Problems:

1. For FR communications problems, attempt to clear the condition by running a "COMMUNICATIONS TEST" from the lead, controlling HTD unit.
2. If possible, move the train (not exceeding 30 MPH) not less than the train's length or a sufficient distance from any obvious obstruction (overpasses, rock cuts, tunnels, etc.) that may be restricting radio communications to see if condition is corrected.

If FR communications failure is not corrected by either of the actions above:

1. Determine if controlling locomotive's HTD has failed by entering the ETD code on a trailing unit and running a communications check (select a locomotive facing the

direction of movement, if available).

2. If communications with ETD is possible from a trailing unit HTD, be governed by Mech Desk's instructions as to whether HTD unit on this locomotive type can be easily moved to controlling unit or whether or not it will be necessary to switch this locomotive to the point as a new controlling unit.
3. New HTD must be armed to train's ETD.
4. Any exchanging of HTD (LCU08) modules must be reported to the Mechanical Help Desk so that the defective HTD can be identified and repaired.

Low or Dead Battery Indication

If no trailing unit's HTD's can communicate with ETD, or if HTD display indicates Low or Dead Battery condition, replace ETD or ETD battery as necessary to correct the problem.

18. Safety Rules, Changes and Additions Maintenance of Way Safety Rules

The following pages are revised effective October 10, 1999: Title page, 2, 3, 4, 17, 18, 29, 30, 53, 54, 75, 76, 77, 78.

MW Rule S-1.1 Job Safety briefing—the following paragraph is added:

Employees Fouling the Track

Employees must always be alert and expect the movement of trains, engines, cars or other moveable equipment at any time, on any track and in either direction. Before fouling any track, employees have an individual responsibility to determine it is safe to do so. If the track is occupied by rail equipment, employees must insure appropriate protection has been provided for the task to be performed as indicated in the following rules:

Safety Rule S-13.1.3 - Tracks (Crossing tracks, stepping on rails and fouling tracks

Safety Rule S-13.1.11 - Installing or Removing Marker

Safety Rule S-13.2 - Coupling/Uncoupling Rail Equipment

Safety Rule S-13.3 - Air Hoses and Angle Cocks

Safety Rule S-13.4 - Crossing Over Rail Equipment

Safety Rule S-13.6 - Operating Hand Brakes

Safety Rule S-13.7 - Operating Switches and Derails

MWOR Rule 5.13 - Blue Signal Protection of Workmen

MW Rule S-1.4.5 On and Off Moving Equipment—is deleted in its entirety.

MW Rule S-1.5.3, Footing—the following sentence is added: Except in emergency, running is not permitted in the performance of duty.

MW Rule S-7.3.2 Jacks (Other Than Track Jacks)—the following new rule added:

Use cushioning material of appropriate construction and thickness between jack and equipment to prevent slippage. Do not allow metal-to-metal contact.

MW Rule S-12.1.2 Speed Limits—is cancelled in it's entirety. (Rule S-12.1.1 will govern concerning speed limits).

MW Rule S-12.5 Seat Belts—is amended by adding the following exception:

Exception: Seat belts are not required when employees are operating vehicles while performing train inspections or coupling air hoses. When operating the vehicle in travel to and from such work activities, seat belts must be worn.

MW Rule S-13.1.1 Going Between Cars or Locomotives Coupled to Locomotives—is deleted in it's entirety.

MW Rule S-13.1.3 (A) Crossing Tracks—the first bullet is changed to read:

Do not cross within 25 feet of the end of standing equipment.

MW Rule S-13.1.5 (B) Riding In or On Cars—is amended as follows:

Change first bullet to read:

Do not ride on the crossover platform or end ladder of any car other than tank cars as specified in this rule.

Add new 8th bullet reading:

Tank Cars: If so equipped, employees may ride on the outer portion of the crossover platform, positioned outside the nearest rail. When riding on a tank car crossover platform, face the direction of movement, and:

1. When riding the trailing end, face the horizontal hand hold, maintaining three-point contact.
2. When riding the leading end, with your back against the horizontal hand hold, loop your arm closest to the center of car around the horizontal hand hold."

MW Rule S-13.5.1 Getting On Moving Equipment —the first line is changed to read:

In an emergency, or when it is authorized to get on moving equipment:

MW Rule S-13.5.2 Getting Off Equipment—the first line is changed to read:

In an emergency, or when it is authorized to get off moving equipment:

MW Rule S-13.6.3 Position to Operate—is amended by adding the new Item E:

E. Vertical wheel hand brakes may be operated without getting on intermodal or coil steel cars if:

1. The car remains stationary.
2. Both feet remain flat on the ground and outside the rail.
3. Elbows are slightly bent during operation.
4. One hand can hold onto the grab iron while the other hand is used to operate the brake wheel.

MW Rule S-13.7.2 Operating Ground Throw or "Flop Over" Switch—add the following to Item 2:

Use two hands when operating the switch.

MW Rule S-13.7.5 Switch Heaters—is changed to read:

When working around burning switch heaters, avoid contact with heaters or switch rails.

MW Rule S-15.1 Storing Gas Cylinders—Item 3, the 2nd sentence is deleted reading:

No more than three cylinders may be chained together.

MW Rule S-16.24, Fouling Machinery—new rule added:

Before fouling the potential reach or turning radius of any part of a machine, a job briefing must be held with the operator.

MW Rule S-17.5.1 Working Near Equipment—the 1st sentence is changed to read:

Do not walk, stand, or work under a suspended load. When possible, avoid walking, standing, or working under crane booms, or in close proximity to pile driver leads.

MW Rule S-17.2.5 Power Line Clearance—the distance chart is changed to read:

Power Line Voltage	Distance from Power Line
50 kV or below	10 feet
50 kV - 200 kV	15 feet
200 kV - 350 kV	20 feet
350 kV - 500 kV	25 feet
500 kV - 750 kV	35 feet
750 kV - 1000 kV	45 feet

The following chart is added:

Clearances for Cranes or Other Equipment in Transit Near Power Lines

Power Line Voltage	Distances From Power Line
0.75 kV or below	4 feet
0.75 kV - 50 kV	6 feet

over 50 kV - 345 kV	10 feet
over 345 kV - 750 kV	16 feet
over 750 kV - 1000 kV	20 feet

Note: 1 kV = 1,000 Volts

MW Rule S-21.30 PPE and Clothing Chart—the following is modified:

Under the section “Chain saw, chop saw” remove the “X” under spats, leggings. Under the special remarks add “chaps required”.

MW Rule S-21.32 Work Glove Chart—the following added: Add entry to the matrix entitled “Spike Keg Handling”. Show an “X” in the column entitled “Cut Resistant”.

MW Rule S-25.2 Stretches, is changed in its entirety to read: **Overview**

Check with your physician before beginning a new exercise program, or if you have had recent joint trouble, muscle problems, or surgery.

- Don't bounce.
- Keep the stretch mild and comfortable.
- Relax muscles as you stretch.
- BREATHE, don't hold your breath.
- Hold your stretch until tension releases, and then go further into another mild stretch.
- You should NEVER feel pain during or after a stretch.
- Stretch before you work, before any physical exertion and periodically to relieve muscle tension.
- A good rule of thumb is to stretch every 20 to 30 minutes.
- Don't forget to stretch both sides of the body when stretching.
- Tension for the initial stretch should release within 60 seconds. If it doesn't, reduce the intensity of the stretch slightly.

Benefits

- Increases range of motion, reducing risk of injury near joint limits.
- Warms muscles, reduces internal friction, and “resets” discs prior to activity.
- “Pre-fuels” muscles with oxygen before activity.
- Helps muscles relax and reduces soreness after activity.

BACK OF LEG

- Put one foot forward, on heel.
- Bend back knee slightly.
- Bend forward at hips with straight back.
- Support upper body with hands on your bent knee.
- Arch your back slightly.
- Gently move your butt straight back to put tension on the back of leg.
- Using chair for support, bend at the hips and keep the three natural curves of your back.
- Continue to bend forward at the hips until you feel mild tension in the muscles at the back of the leg.

FRONT OF THE HIP

- Place one foot forward.
- Keep your feet parallel to each other.
- Do not arch your back.
- Rotate your butt under until you feel mild tension in the front of hip of the straight leg.

UPPER BACK

- Cup your hands together in front of you.
- With elbows slightly bent, move your cupped hands down.
- Move your cupped hands away from your body until you feel mild tension.

FOREARM

- Slowly bend or extend your wrist.
- You can do this either with or without a gentle pull from the

opposite hand.

- Stretch until you feel mild tension in the forearms.

SHOULDER AND ARM

- Let your arms hang comfortably at your sides.
- Slowly rotate your hand and arm outward until you feel mild tension.
- Rotate your arm and hand in the other direction until you feel mild tension.
- Repeat 5 times.

BACK OF NECK

- Stretch up as tall as you can through your spine.
- Tuck chin into neck.
- Lower your chin slightly until a mild stretch is felt.
- Hold until tension goes away.

SIDE OF NECK

- Stand or sit up with “Tall” posture.
- Tip ear toward shoulder. Hold mild stretch until tension goes away.
- Keep head tipped and rotate chin down towards shoulder. Hold until tension goes away.
- Lower chin towards shoulder. Hold until tension goes away.

CHEST

- Slowly round your shoulders and arms forward and back. Do 5 to 10 times each.
- Hold mild stretch in either position until stretch releases (up to 60 seconds).

UPPER ARM AND LOW BACK

- Stand up tall, stretching rib cage away from hips.
- Stretch your elbow upwards. Hold your stretch until tension goes away.
- Bend SLIGHTLY to opposite side, if needed, to increase stretch.

The last paragraph, Tips for People Leading Stretches, is unchanged.

TY&E Safety Supplement

The following pages are added effective October 30, 1998: 4a, 4b.

The following pages are revised effective January 31, 1999: 3, 4, 5, 6, 9, 10, 21, 22, 25, 26, 29, 30, 33, 34.

The following pages are revised effective October 10, 1999: Title page, 2, 7, 8.

TY&E Rule S-1.1 Job Safety briefing—the following paragraph is added:

Employees Fouling the Track

Employees must always be alert and expect the movement of trains, engines, cars or other moveable equipment at any time, on any track and in either direction. Before fouling any track, employees have an individual responsibility to determine it is safe to do so. If the track is occupied by rail equipment, employees must insure appropriate protection has been provided for the task to be performed as indicated in the following rules:

Safety Rule S-13.1.1 - Going between or Working on the End of Rail equipment

Safety Rule S-13.1.3 - Tracks (Crossing tracks, stepping on rails and fouling tracks)

Safety Rule S-13.1.11 - Installing or Removing Marker

Safety Rule S-13.2 - Coupling/Uncoupling Rail Equipment

Safety Rule S-13.3 - Air Hoses and Angle Cocks

Safety Rule S-13.4 - Crossing Over Rail Equipment

Safety Rule S-13.6 - Operating Hand Brakes

Safety Rule S-13.7 - Operating Switches and Derails

GCOR Rule 5.13 - Blue Signal Protection of Workmen

GCOR Rule 7.2 - Communication Between Crews Switching

GCOR Rule 7.13 - Protection of Employees in Bowl Track

TY&E Rule S-1.2.10 “Bill of Rights” Relative to Employees Riding in Transport Vehicles—Right 1 is changed to read: Expect transport vehicles to be properly serviced, maintained, and in good working order. In addition, contract vans must be clean with all seat belts and all safety appliances working.

TY&E Rule S-1.5.3, Footing—the following sentence is added:

Except in emergency, running is not permitted in the performance of duty.

TY&E Rule S-12.1.2 Speed Limits—is cancelled in its entirety. (Rule S-12.1.1 will govern concerning speed limits).

TY&E Rule S-12.5 Seat Belts—is amended by adding the following exception:

Exception: Seat belts are not required when employees are operating vehicles while performing train inspections or coupling air hoses. When operating the vehicle in travel to and from such work activities, seat belts must be worn.

S-13.1.1 Going Between or Working on the End of Rail Equipment—is changed to read:

Going between or working on the end of rail equipment means an employee has placed all or part of his body where it could be struck by rail equipment if it were to move. Operating an uncoupling lever is not considered going between rail equipment.

Before crew members may go between or work on the end of rail equipment they must wait for movement to stop, slack to adjust, and ensure that all members of the crew have a clear understanding of the work to be performed. Unless another form of protection has been established, the following steps must be taken:

If a locomotive is not coupled to the rail equipment:

1. By radio or hand signal, notify all members of the crew who could affect movement in that track.
2. Crew members who could affect any movement of the equipment in that track must acknowledge that they understand a crew member will be going between or working on the end of rail equipment.

If a locomotive is coupled to the rail equipment:

1. Announce by radio “going between” or give the prescribed hand signal.
2. The crew member at the controls of the locomotive must fully apply the independent brakes, center the reverser, and then acknowledge by radio response “set and centered” if radio is being used or sound whistle signal “one long” if hand signals are being used. If no crew member is at the controls of the locomotive, another form of protection must be ... established.
3. The brakes must remain applied and the reverser centered until the crew member requesting protection gives a radio or hand signal to move or announces by radio “in the clear”.

Prescribed hand signals to indicate “going between”:

1. By day, give a stop signal. Raise arm farthest from the rail equipment straight above the head. Point the arm nearest the rail equipment at a 90-degree angle toward the rail equipment.
2. By night give a stop signal. With the arm extended forward parallel to the ground, move the light from left to right.

When stepping from between rail equipment, be alert for movement on adjacent tracks or vehicles moving on the walkway or roadway.

TY&E Rule S-13.1.3 (A) Crossing Tracks—the first bullet is changed to read:

Do not cross within 25 feet of the end of standing equipment.

TY&E Rule 13.1.5 (B) Riding In or On Cars—is amended as follows:

Change first bullet to read:

Do not ride on the crossover platform or end ladder of any car other than tank cars as specified in this rule.

Add new 8th bullet reading:

Tank Cars: If so equipped, employees may ride on the outer portion of the crossover platform, positioned outside the nearest rail. When riding on a tank car crossover platform, face the direction of movement, and:

1. When riding the trailing end, face the horizontal hand hold, maintaining three-point contact.
2. When riding the leading end, with your back against the horizontal hand hold, loop your arm closest to the center of car around the horizontal hand hold.

TY&E Rule S-13.6.3 Position to Operate—is amended by adding the new Item E:

E. Vertical wheel hand brakes may be operated without getting on intermodal or coil steel cars if:

1. The car remains stationary.
2. Both feet remain flat on the ground and outside the rail.
3. Elbows are slightly bent during operation.
4. One hand can hold onto the grab iron while the other hand is used to operate the brake wheel.

TY&E Rule S-13.7.2, Operating Ground Throw or “Flop Over” Switch—add the following to Item 2:

Use two hands when operating the switch.

TY&E Rule S-13.7.5, Switch Heaters—is changed to read: When working around burning switch heaters, avoid contact with heaters or switch rails.

TY&E Rule S-25.2 Stretches, is changed in its entirety to read:

Overview

Check with your physician before beginning a new exercise program, or if you have had recent joint trouble, muscle problems, or surgery.

- Don't bounce.
- Keep the stretch mild and comfortable.
- Relax muscles as you stretch.
- BREATHE, don't hold your breath.
- Hold your stretch until tension releases, and then go further into another mild stretch.
- You should NEVER feel pain during or after a stretch.
- Stretch before you work, before any physical exertion and periodically to relieve muscle tension.
- A good rule of thumb is to stretch every 20 to 30 minutes.
- Don't forget to stretch both sides of the body when stretching.
- Tension for the initial stretch should release within 60 seconds. If it doesn't, reduce the intensity of the stretch slightly.

Benefits

- Increases range of motion, reducing risk of injury near joint limits.
- Warms muscles, reduces internal friction, and “resets” discs prior to activity.
- “Pre-fuels” muscles with oxygen before activity.
- Helps muscles relax and reduces soreness after activity.

BACK OF LEG

- Put one foot forward, on heel.
- Bend back knee slightly.
- Bend forward at hips with straight back.
- Support upper body with hands on your bent knee.
- Arch your back slightly.
- Gently move your butt straight back to put tension on the back of leg.

- Using chair for support, bend at the hips and keep the three natural curves of your back.
- Continue to bend forward at the hips until you feel mild tension in the muscles at the back of the leg.

FRONT OF THE HIP

- Place one foot forward.
- Keep your feet parallel to each other.
- Do not arch your back.
- Rotate your butt under until you feel mild tension in the front of hip of the straight leg.

UPPER BACK

- Cup your hands together in front of you.
- With elbows slightly bent, move your cupped hands down.
- Move your cupped hands away from your body until you feel mild tension.

FOREARM

- Slowly bend or extend your wrist.
- You can do this either with or without a gentle pull from the opposite hand.
- Stretch until you feel mild tension in the forearms.

SHOULDER AND ARM

- Let your arms hang comfortably at your sides.
- Slowly rotate your hand and arm outward until you feel mild tension.
- Rotate your arm and hand in the other direction until you feel mild tension.
- Repeat 5 times.

BACK OF NECK

- Stretch up as tall as you can through your spine.
- Tuck chin into neck.
- Lower your chin slightly until a mild stretch is felt.
- Hold until tension goes away.

SIDE OF NECK

- Stand or sit up with "Tall" posture.
- Tip ear toward shoulder. Hold mild stretch until tension goes away.
- Keep head tipped and rotate chin down towards shoulder. Hold until tension goes away.
- Lower chin towards shoulder. Hold until tension goes away.

CHEST

- Slowly round your shoulders and arms forward and back. Do 5 to 10 times each.
- Hold mild stretch in either position until stretch releases (up to 60 seconds).

UPPER ARM AND LOW BACK

- Stand up tall, stretching rib cage away from hips.
- Stretch your elbow upwards. Hold your stretch until tension goes away.
- Bend SLIGHTLY to opposite side, if needed, to increase stretch.

The last paragraph, Tips for People Leading Stretches, is unchanged.

19. Train Dispatcher's, Operator's and Control Operator's Manual, Changes and Additions

Rule 40.4.8 Crossing Warning/Power Off Indicators—1st bullet point under *Malfunctioning Crossing Warning* is amended to read:

Notify all affected trains that "Crossing warning is malfunctioning at (MP). Protect per Rule 6.32.2." This notification may be done verbally or in writing.

Rule 40.13 General Orders, Superintendent's Notices & Dispatcher's Notices—is amended as follows:

Change "Superintendent's Notices" in title and body to read "General Notices".

Rule 42.9 Changing Track Warrants or General Track Bulletins—change format of verbal permission to read as follows:

"(_____) has permission to change track warrant (or general track bulletin) (number) to read (____)".

Rule 43.10.1 Switches Included in CTC—the following paragraph is deleted:

Until job briefing determines otherwise, all dual control switches within Form B limits must have blocking or marking devices applied during the effective time of the track bulletin Form B.

Rule 55.14.1 Failure of Signal—1st bullet point under *Malfunctioning Crossing Warning* is amended to read:

Notify all affected trains that "Crossing warning is malfunctioning at (MP). Protect per Rule 6.32.2." This notification may be done verbally or in writing.

20. Hazardous Material Instructions, Changes and Additions Section II, No. 2, Acceptable Shipping Papers—the last paragraph is changed to read:

If hazmat packets are used, conductors will be responsible for the envelope or packet during their tour of duty. (The packets should be opened and coupons looked at to be sure that hazardous materials information is available for all shipments.) Upon arrival at off-duty point, the inbound conductor will advise the outbound conductor of the location of the hazmat packet. The outbound conductor will check the new train list and determine the need to maintain the hazmat packet. If all shipments requiring hazmat descriptions have the information printed on the train list, the hazmat packet will no longer be needed. When crews are changed enroute, or when it is not possible for the inbound conductor to furnish such information to the outbound conductor, the train dispatcher or terminal supervisor must be contacted regarding disposition of the hazmat packet. Conductors are responsible to see that the hazmat packet for cars set out enroute is handled per an accompanying message or the train dispatcher's instructions. When cars set out enroute are picked up, the conductor will receive a message or train dispatcher's instruction regarding location of a hazmat packet. As a last alternative to replacing a missing hazmat packet, the conductor may secure a packet from the trailer/container door.

Section II, No. 4, Reviewing Shipping Paper Entries—the following is added:

10. Exceptions

- A. A shipment that originates as an Elevated Temperature Materials which does not meet any other hazard class definition and is a not a hazardous substance (no RQ shown on the loaded shipping paper), can be returned for loading in either of the following methods:
 1. As a hazardous material with the proper shipping name of "Residue Last Contained: Elevated Temperature Material, N.O.S.", or
 2. As a non-hazardous material. (i.e. One Empty Tank Car).

NOTE: Markings do not have to be removed from the tank car if this option is chosen.

Section III, No. 1, Policy—the following is added:

- B. Each bulk packaging (for example: bulk bags, intermodal (IM) portable tanks, portable tanks, portable bins, gondola cars, hopper cars, or tank cars), containing any quantity of a hazardous material must be placarded on each side

and each end with the type of placards specified in Tables 1 and 2.

Section IV, No. 6—the last three bullets are changed to read:

- If completed car certificates are not in place at a shipper's facility, at interchange points, or at points where an inspection is required:
 - Contact the train dispatcher, your supervisor or the customer.
 - Do not move the car until the car certificates are in place.

Section V, No. 4—the first bullet is changed to read: Class 2.3 or 6.1 Zone B poison-inhalation hazard (PIH) material (SCHI codes PC and PO).

Section VI, No. 3, A—the first bullet is changed to read: Five (5) tank car loads of class 2.3 or 6.1 Zone A or Zone B poison-inhalation hazard (PIH) material (SCHI codes PA, PL, PO and PC).

The third bullet is changed to read: Class 2.3 or 6.1 Zone A or Zone B PIH material (SCHI codes PA, PL, PO and PC).

The following new bullet is added: One (1) car load of spent nuclear fuel (SNF) or high level radioactive waster (HLRW).

Section VI, No. 3, C—the fourth bullet is changed to read: When a key train is stopped by a trackside warning detector, the indicated car (hazmat or not) must be set out. (Also see System Special Instructions Item 8(E).)

Section VI, No. 4—Figure 6 is changed to read:

Allyl Chloride	Ethylene Dibromide
Carbon Tetrachloride	Ethylene Dichloride
Chlorobenzene	Methyl Bromide and Ethylene
Chloroform	Dibromide Mixtures, Liquid
o-Dichlorobenzene	Methylene Chloride/Chloroform
Dichloromethane	Mixture
Dichloropropane	Dichloropropane/Dichloropropene
Dichloropropene	Mixture
Epichlorohydrin	Tetrachloroethylene
1,1,1 Trichloroethane	Trichloroethylene
Ethyl Chloride	

Hazardous Material Train Placement Chart

Column under "Other Than Tank Cars" that contains 6 placard examples with SCHI codes PA and PL:

Delete top 4 placard examples.

Column under "Other Than Tank Cars" that contains 30 placard examples:

Delete the two placard examples designated with SCHI code PO.

Column under "Tank Cars" that contains 6 placard examples with SCHI codes PA and PL:

Delete top 4 placard examples.

Column under "Tank Cars" that contains 14 placard examples: Delete the placard example designated with SCHI code PO.

Add SCHI code PC "Poison-Inhalation Hazard" to chart on top right of page entitled "Hazardous Material SCHI Codes"

Description of the new SCHI code PC placard: The new placard is identical to the current SCHI code PL placard except it does not have the white square background. An example of this placard can be found in the column under "Other Than Tank Cars" that originally contained 6 placard examples. It will be identical to the 6th placard from the top, but without the white square background. This placard and SCHI code should be added to the column under "Other Than Tank Cars" that contains 30 placard examples and to the column under "Tank Cars" that contains 14 placard examples.

Description of the new SCHI code PO placard: The new placard is identical to the current SCHI code PA placard except it does not have the white square background. An example of this placard can be found in the column under "Other Than Tank Cars" that originally contained 6 placard examples. It will be identical to the 5th placard from the top, but without the white square background. This placard and SCHI code should be added to the columns that currently have placard examples with SCHI code PO.

21. Hy-Rail Limits Compliance System (HLCS)

On-track equipment equipped with Hy-rail Limits Compliance System (HLCS) must use the system if operational. When problems are experienced with HLCS, tracking issues, radio problems, etc. or the system is not operational, contact the Signal Call Desk (817) 593-5900, choose option 1 and then option 2 to open a trouble ticket. If you receive an exceed alarm (red warning light) immediately contact the dispatcher for that territory.

22. Automatic Cab Signals

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

23. Verification of Rules Examination

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

24. 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; Canadian Rail Operating Rules; Rules for the Protection of Track Units and Track Work (Canada); notation of the change must be made. When revised pages are inserted, notation of amendment is not required. The same will apply if a general order contains an amendment to the timetable.

25. 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.

26. Rule of the Week

All employees must review the requirements of the Rule of the Week. Please direct any questions you may have to your immediate supervisor. You should be prepared to discuss the requirements of the "Rule of the Week" with your supervisor. "Rule of the Week" will be included in the field testing (Operations Testing) procedures.

27. Cars Set Out 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. If the car setout is a military shipment, immediately contact the Resource Operation Center, Ft Worth at (817) 234-7200 or (800) 832-5452, Option 3.

28. 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.

29. 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.

30. 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.

31. Securing Track Warrants

When reporting for duty at initial terminal, a crew member will secure track warrants, track bulletins, and track condition messages or general track bulletin, unless otherwise instructed. A rescue/relief crew member must contact the dispatcher before departing to determine if additional documents are required, and advise if all crew members are present and ready to depart.

At locations where track warrants or general track bulletins are received by printer or fax, crew members must verify that the route description, if printed, covers the intended route of their train. If it does not, contact the train dispatcher. Also, crew members must check the date and "OK" time and if over four (4) hours old, contact the train dispatcher.

If the identifying unit is not shown correctly on the address line, contact the train dispatcher and correct the address line before departing the initial station.

32. Engineer Training Assistance Hotline

For questions concerning:

- A. SD70MAC, AC traction and ICE systems
- B. SD75M and GE AC 400
- C. Integrated Distributive Power
- D. Electronic Air Brake System

Call Overland Park Training Center—(913) 319-3996.

33. 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, all trains and equipment, except light engines and loaded unit type trains handling coal, grain, ore, taconite, ballast, molten sulfur or potash must stop during the time and within the limits stated.

Exception: If a crew on a train, other than those listed above, observes that local weather conditions are not as severe as

the weather warning and would not impact their safety or that of the train, they may proceed, advising the train dispatcher as soon as possible.

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 usually exists 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 acknowledgment 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 center but not less than for magnitude 7.0 to 7.49.

Flash Flood Warnings

Weather information received by BNSF from WeatherData, Incorporated, is categorized as a “Warning” when it describes conditions that require immediate action by the train dispatcher to notify train crews of imminent danger. These warnings are immediately distributed to the relevant train dispatchers by the Service Interruption Desk.

When WeatherData, Incorporated, issues a “Flash Flood Warning,” the Network Operations Center will immediately advise all involved trains of the specific conditions. When crews of these trains are so advised and are not operating through areas which have been designated by the Division Engineer as being “critical,” passenger-carrying trains will be operated at a maximum of 50 MPH through the limits identified in the warning, and freight trains will be operated at a maximum of 40 MPH through those limits.

Division Engineers will identify “critical” areas by subdivision, segmented by milepost locations based upon their susceptibility to flooding or their history of being prone to washouts or side-scour wash. In identifying these locations, consideration should be given to shallow-foundation bridges, availability of operable culverts, and other conditions as necessary.

If the “Flash Flood Warning” limits include locations identified as being “critical,” all trains will be further limited to restricted speed until the track structure has been inspected on a priority basis at the request of the Network Operations Center. These temporary speed restrictions must remain in place until the warning has expired or is canceled by WeatherData, Incorporated, or the track has been inspected. Once the warning has expired or is canceled, or the track has been inspected, local personnel will assess the need for modifications to the speed restrictions as conditions warrant.

Local Observations

When local maintenance personnel become aware of current conditions that might produce flash flooding that could result in damage to BNSF track or structures, they will:

- immediately place the speed restriction described above on the affected route.
- inspect the track for washouts, side-scour wash, surface irregularities, and/or water over the rail.

- carefully inspect bridge foundations and drainage structures, with careful attention to bridges with mud sills, for erosion behind dump planks and head walls, erosion around piers and footings, and obstructions from drift and debris.
- if water level, turbulence, or other conditions make a thorough inspection impossible at the site of such a bridge, operations of all trains will be reduced to no more than restricted speed until it is possible to make a proper inspection.
- if, during the initial track inspection, there is any doubt about the safety of train operations over bridges, a qualified Structures employee must be called at once, and any speed restrictions that have been placed on bridges will not be lifted until authorized by the Structures employee.
- track and bridge foremen must continue to patrol past their respective territories if an adjoining territory is likely to have been damaged, and such damage might not have been discovered.

COLD WEATHER RESTRICTIONS:

The correlations that exist between rail service failures, temperature, train axle load, track and equipment conditions, and train speed are complex and involve many factors including equipment and track component design and material properties, their relative wear conditions, and the rail/wheel interaction for various traffic mixes and operating conditions.

In order to maximize safety with regard to extreme temperatures and temperature changes, rail laying temperatures and weather extremities across our railroad have been considered. In that effort, the railroad has been divided into two regions as follows:

Region 1 contains the following divisions:

Northern California, Southern California, Southwest, Kansas, Springfield, Texas, Gulf, Northwest, and Chicago.

Region 2 contains the following divisions:

Twin Cities, Montana, Powder River, and Nebraska.

Cold Weather Train Speeds:

The Engineering Department has identified two factors which require Cold Weather Train Speeds, as follows:

Low Temperature Threshold:

In Region 1, this threshold is 0 degrees Fahrenheit.

In Region 2, this threshold is -20 degrees Fahrenheit.

Temperature Differential Threshold:

In Region 1, this is any temperature of 50 degrees Fahrenheit or warmer that falls to 10 degrees Fahrenheit or colder within 24 or fewer hours.

In Region 2, this is any temperature of 40 degrees Fahrenheit or warmer that falls to 0 degrees Fahrenheit or colder within 24 or fewer hours.

Low Temperature Threshold:

Unless further restricted by individual subdivision Special Instructions, be governed by the following:

When ambient (air) temperature drops below the Low Temperature Threshold (0 degrees Fahrenheit in Region 1 and -20 degrees Fahrenheit in Region 2), trains must not exceed the following speeds.

In non-signalized territory:

40 MPH for all trains.

In block signal system limits:

40 MPH for trains exceeding 100 tons per operative brake and key trains.

50 MPH for trains less than 100 tons per operative brake.

65 MPH for passenger trains, Z-symbol intermodal trains, or single-level loaded intermodal trains.

If in doubt as to the temperature, contact the train dispatcher. Notify the train dispatcher when your train is restricted due to this requirement.

These restrictions remain in effect until the ambient (air) temperatures rise above the Low Temperature Threshold.

Temperature Differential Threshold:

The train dispatcher will make notification to trains that temperature has exceeded the Temperature Differential Threshold. When so notified, trains must observe Cold Weather Train Speeds, by Region, as shown above. The Engineering Department will perform a track inspection, reporting results to the train dispatcher. If no further restrictions result from the track inspection, the train dispatcher will verbally notify the trains affected.

Be aware that Cold Weather Train Speeds may still be required due to Low Temperature Threshold. In other words, once track inspection is completed following a Temperature Differential Threshold, the ambient (air) temperature may still be below the Low Temperature Threshold, requiring that Cold Weather Train Speeds must still be observed.

However, if the ambient (air) temperature is above the Low Temperature Threshold and no further restrictions resulted from track inspections, observance of Cold Weather Train Speeds is not required.

34. Duplicate Mile Posts

On subdivisions where duplicate mile posts exist, an alpha suffix has been added (i.e. 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.

35. Handling Business Cars in Train

Passenger car placement in trains should be governed by the following criteria, with preference given to Item 1, (next to road power):

1. All equipment classified "Heavy Weight" or "Light Weight" style passenger equipment (includes business cars, business support cars and railway service cars) may be handled at the head-end of a freight train, "next behind road power," provided the train does not exceed 3,500 trailing tons or 45 cars, whichever is less. Note: Research and Test Cars BNSF 82 (former Kootenai River) and BNSF 83 are exempted from these rules at the direction of Technical Research and Development as required by testing parameters. These two cars can be placed "next behind road power" in any train operation.
2. If head-end placement criteria can not be met, the following placement "rear of train" should be followed in priority order:
 - a. Articulated train not exceeding 75 cars, excluding business cars.
 - b. Three cars or less on conventional intermodal or vehicle trains in restricted corridors (check with NOC) and not exceeding 5,000 feet, excluding business cars.
 - c. 4 or 5 cars on conventional trains not exceeding 4,000 feet, excluding business cars.
 - d. Three cars or less on conventional intermodal trains in restricted corridors (check with NOC) not exceeding 2,500 feet, excluding business cars. Note: When cars are rear-of-train, adhere to Air Brake and Train Handling rules concerning Stretch Braking.

3. Non BNSF Passenger Equipment—Business cars of Amtrak, other railroads and private car owners are also covered by this policy.
4. Business Car Moves—The following instructions will be complied with in regard to movement of these cars:
 - a. Cars are to be considered occupied at all times whether they are moving in the train or setting on a yard track. Please ensure cars are protected as such and General Code of Operating rules concerning occupied cars is complied with.
 - b. If temperatures are expected to go below zero degrees along the trip route, continuation of the trip must be authorized by Asst. Vice President, Passenger car Services. If canceled and cars are already enroute, please make arrangements to move cars to the nearest heated facility if possible.
 - c. Provide suitable mechanical and Resource Protection Team coverage. Resource Protection Hot Line number is 1-800-832-5452 or company line 8-234-7200. Please report any suspicious or illegal activity as soon as possible.
5. Train Handling—If business cars are moved in other than solid articulated equipment, the train may be handled as outlined in Air Brake and Train Handling rules concerning Stretch Braking.
6. Switching Business Cars—The following instructions will be complied with in regard to movement of these cars in other than assembled trains. Business cars must be handled as outlined in accordance with General Code of Operating Rules 7.3 and 7.9.
 - a. Air Brakes—The business car air brake system must be connected to the locomotive and the automatic air brake used in controlling movement during switching.
 - b. Coupling—When coupling into business cars, business car equipment or when it is coupled to other equipment, the movement must be stopped approximately 50 feet from point at which the coupling will be made. All movements to accomplish coupling must be governed by a crew member on the ground using hand signals. Business cars must not be cut off while in motion and no car moving under its own momentum should be allowed to couple to them.
 - c. After Coupling—Once the coupling is made to the business car, the couplers must be fully compressed and stretched to know the couplers are locked before making air, electrical or communications connections.

36. 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.

Switching movements must be made using automatic air brakes to control slack in either a bunched or stretched condition. Extreme care must be used when stopping movements to avoid injury to employees or damage to equipment. Use of locomotive brake must be avoided, when possible, to stop the movement. When exceeding 12 rated axles of power during shoving movements, use only the minimum amount of tractive effort necessary to begin movement.

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 separated by a suitable buffer car.

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 ramp cars, 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.

Loaded Rail Trains

1. Trains without Rail Movement Detectors (RMD):
 - must be handled in special service.
 - must not be required to make setouts and pick-ups en route.
 - must have suitable cars placed at each end of loaded rail train to act as buffer and idlers.
2. Trains with Rail Movement Detectors (RMD)

May be handled in trains other than special service under the following conditions:

 - Rail train must be on head end.
 - Train length limited to 64 cars.
 - Should not be required to make setouts and pick-ups en route.
 - Suitable cars placed at each end of loaded rail train to act as buffer and idlers.
 - If cars other than loaded rail train are included in movement, and RMD (i.e. strobe lights) becomes inoperative en route, a maintenance representative (a rider) must accompany each train during transit, unless rail train is then moved in special service. When the RMD is inoperative, each time the train stops, the rider must inspect the cars carrying the continuous welded rail for shifted, bowed, or broken rail, and to ensure that each base clamp (tie-down block) is tight. Defective strobe lights must be reported to the train dispatcher, who will notify the manager of rail facility so that the problems can be documented and repairs can be arranged as soon as possible.
 - Strobe lights at each end ramp car must be observed frequently en route. When strobe lights are observed to be flashing, the train must be stopped and all cars carrying continuous welded rail must be inspected to determine any rail movement. If movement is found, observe and complete the following:
 - a) If adjacent track or standard clearances are not fouled, train may be moved to clear main track not exceeding speed of 10 MPH.
 - b) If adjacent track or standard clearances are fouled, protection must be provided and train must not be moved until inspected by proper personnel.
 If no movement is found, cancel flashing strobe lights by depressing the reset button at the control box for three seconds. The train may proceed at authorized speed.

The RMD consists of electrically activated screens/gates, four amber-colored strobe lights, and associated controls. There are two 12-volt absolyte batteries, charged by an array of solar cells mounted between the tunnel stand strobe lights, to power the system. RMDs 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 a 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 observing the lights flash, depress the reset button, which is located on the control box, for three seconds to turn off and conserve batteries. The lights should flash approximately 60 times per minute; and fully charged batteries will operate them for about sixteen hours.

The RMD system is inspected and tested at rail complexes 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.

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.

At designated intermediate inspection points, make mechanical inspection of cars in compliance with FRA requirements. Manager Rail Complex in Laurel, Pueblo, or Springfield must be advised if any mechanical repairs are 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 open 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

37. Handling of FRA Self-Propelled Track Geometry Inspection Car

Federal Railroad Administration (FRA), Office of Safety manages a high-speed railbound track geometry inspection cars (identified as either the FRA T-10 GEOMETRY CAR or the FRA T-2000 GEOMETRY CAR) that measures track geometry for compliance with the Federal Track Safety Standards nationwide. Hereafter the term FRA GEOMETRY CAR refers to both vehicles except where otherwise specified. These instructions supercede BNSF operating rules for operation of the FRA GEOMETRY CARS.

1. Each Train Dispatcher and Locomotive Engineer/Pilot will be furnished with a copy of this enclosure.
2. Prior to each day's survey, the contractor will conduct a safety briefing to all occupants of the FRA GEOMETRY CAR on general safety, applicable operating and protection procedures.
3. Whenever the FRA GEOMETRY CAR is operated, including through a designated "yard or restricted" limits and 'other than main track' territories, the railroad will provide either a Locomotive Engineer/Pilot, Traveling Engineer or Road Foreman to pilot the vehicle. FRA GEOMETRY CAR will be governed by applicable operating rules when operating in either signal or non-signal system territories (except that auto routing and automatic clearing features will not be used and all dual control switches will be blocked). Absolute block protection or alternate protection methods, controls or authority (including within "yard or restricted" limit territory), will be applied to protect the FRA GEOMETRY CAR against following and opposing trains or on-track equipment.
4. FRA GEOMETRY CAR will operate as a train. Authorization will not be issued to the FRA GEOMETRY CAR within the same or overlapping limits of another train or on-track equipment, except to facilitate the FRA GEOMETRY CAR's disabled movement, if necessary, and in accordance with the railroad's operating rules. The FRA GEOMETRY CAR will not be operated by lineup, movement of track cars' or similar on-track equipment authorities.
5. The FRA Operating Practices (OP) inspector, prior to the FRA GEOMETRY CAR operation, will communicate directly with the train dispatcher and Locomotive Engineer/Pilot, to

insure that all operating rules, in effect on the route to be traveled, are understood and confirm the FRA GEOMETRY CAR is being dispatched as a train. Reference to applicable operating documents will be made to confirm such information, prior to departure. The FRA OP inspector will be stationed in the immediate vicinity where the FRA GEOMETRY CAR method of operation, procedures and movement can be monitored.

6. All mandatory directives will be transmitted and received in compliance with railroad rules and instructions. For purposes of this instruction, all references to assigned crewmembers apply only to the Locomotive Engineer/Pilot. The FRA GEOMETRY CAR operator relies on the Locomotive Engineer/Pilot to identify relevant railroad physical characteristics, movement authority limits and authorized speeds, a sufficient distance in advance.
7. In automatic block signal system or traffic control system territory, the FRA GEOMETRY CAR should not be stopped on sand or other similar rail surface conditions affecting the shunting of the track circuit. If such a stop cannot be avoided, the FRA GEOMETRY CAR will be moved immediately a sufficient distance to clear that affected portion of the rail.
8. Interlocking machines will be operated manually for the FRA GEOMETRY CAR movements (automatic clearing and routing features will not be used). The control machine operator will be kept informed of the progress of the FRA GEOMETRY CAR from one control point to another. An interlocking control operator will not change the position of any switch or indication of any signal, until informed that the FRA GEOMETRY CAR is clear of the interlocking or a section thereof. Where provided, electrical or mechanical blocking devices will be used on switch and signal controls. If the FRA GEOMETRY CAR is stopped within the limits of any interlocking, the control operator or dispatcher will be notified of the stop and the precise location. The FRA GEOMETRY CAR will not be stopped within the limits of automatic interlocking or a non-interlocked, at grade, railroad crossing.
9. The FRA GEOMETRY CAR is equipped with operating controls at either end. When appropriate, instructions will be given to the FRA GEOMETRY CAR operator to change ends and operate from the rear of the FRA GEOMETRY CAR. Any reverse movement will be conducted, in accordance with the railroad's operating rules.
10. In the event the FRA GEOMETRY CAR operator is to be relieved for any reason, the Locomotive Engineer/Pilot may be utilized (if agreeable) to continue FRA GEOMETRY CAR operations to the day's final tie-up point. If the Locomotive Engineer/Pilot is not willing or prohibited from operating the FRA GEOMETRY CAR, the survey should be stopped at a suitable point short of the scheduled tie-up or a locomotive will be requisitioned for tow-in. This contingency is one that will be addressed at the beginning of the survey to allow for ample planning.
11. The FRA GEOMETRY CAR will approach all highway-rail grade crossings equipped with automatic warning devices prepared to stop, until it is determined that the warning devices activate and the FRA GEOMETRY CAR occupies the crossing. On ground protection against highway vehicles will be provided when automatic warning devices fail to fully activate, the FRA GEOMETRY CAR interferes with the normal function, or when prescribed by railroad rules or instructions.
12. The maximum operating speed of the vehicle is 90 MPH when self-propelled, and 110 mph when towed by a locomotive. The vehicle is not equipped with automatic

cab signal, automatic train stop, or automatic train control systems. FRA T-2000 GEOMETRY CAR cannot negotiate curves greater than 20-degrees. Additionally, due to truck center length, the center of car swing-out clearance is limited on curves greater than 13-degrees, therefore may restrict safe movement. The FRA T-10 GEOMETRY CAR cannot negotiate curves greater than 23-degrees.

13. Neither FRA nor contractor employees will operate a railroad switch or derail and will rely upon a railroad employee to perform that function. Protective devices (i.e., blue signal, derails and locking devices, owned by FRA) will be applied by contractor employees after receiving authority for placement from the appropriate railroad representative. A 'blue signal' will be displayed on or near the FRA GEOMETRY CAR control stand at a readily visible location and the 'key' removed when on ground instrument verification (i-v's) checks are made. Similarly, positive protection (brakes placed in emergency position and surrendering of the locomotive reverser) will be imposed by FRA when the FRA GEOMETRY CAR is towed by a locomotive.
14. Except within a locomotive servicing area or car shop area, the FRA GEOMETRY CAR may be repositioned by the FRA, at anytime on a track or portion of a track that is exclusively occupied by the FRA GEOMETRY CAR and protected by FRA owned devices. Within a locomotive servicing area or car shop area, a 'railroad's blue signal rules' will be in place and complied with, to protect 'anyone' on, under or about the FRA GEOMETRY CAR. The FRA GEOMETRY CAR may be repositioned, only after the movement is authorized by the railroad employee-in-charge of the workmen and approved by the FRA.
15. When unoccupied and at the request of FRA, FRA GEOMETRY CAR protection will be provided by the railroad. Additionally, the FRA GEOMETRY CAR will not be relocated or coupled to other rolling equipment without permission by the FRA. To prevent undesirable access, a remotely controlled or manually operated switch providing entrance to the track occupied by the FRA GEOMETRY CAR, will be aligned against movement to that track. Where provided, electrical or mechanical blocking devices will be used on the switch and signal controls. Additionally, the switch will be secured with an effective locking device, exclusive to FRA. The switch stand's operating mechanism will be equipped with a visible all-weather display tag warning any users, "**Out of Service-Do Not Operate.**" If a switch cannot be aligned and locked, as described, derails capable of restricting access will be used instead of an effective locking device. The placement (Protective devices, owned by FRA, will be placed not less than 150-feet from each end of the FRA GEOMETRY CAR, where appropriate) of front and rear "portable train control" signs will be displayed in the center of the track, adjacent to derails, marking the presence of the FRA GEOMETRY CAR. The warning sign will consist of 16x24-inch red placard, signifying rolling equipment cannot pass. A FRA GEOMETRY CAR wheel will be securely chocked to prohibit movement on its own.
38. **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 may be used for authority.

Exception: Track warrant protection 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.

39. 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 that 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).

40. Rear End Restricted Cars

Cars restricted to "rear end only" may be in train up to five cars ahead of rear car. Certain cars may require extreme rear end movement because of mechanical deficiencies.

41. Car Identification B-End

Conventional Equipment: The "B" end of the car is the end where the hand brake is located. Face the "B" end of the car. The left side of the car is to your left and the right side of the car is to your right as you face the "B" end. Count axles from the "B" end beginning with No. 1 being closest to you and No. 4 being farthest away. If the defective journal or wheel is the third axle away from the "B" end of the car on the left side as you face the equipment you will report it as "L3."

Articulated Equipment: The important thing is to locate the "B" end of the car. Each segment or unit of such cars is identified by a letter. This letter and the car number are shown on small badge plates located on each segment or unit of the car. The end segments are designated "A" and "B." The interior segments or units are designed (beginning at the "B" end) by the letters "C" through "E" on the five unit or segment cars. Locate the "B" end of the car as indicated by the stencil. Do not rely on the location of the hand brake. Many of these cars are equipped with a hand brake on each end.

Face the "B" end of the equipment. The left side of the car is to your left and the right side of the car is to your right as you face the "B" end of the equipment.

Count axles from the "B" end beginning with No. 1 being closest to you. The axles on this type of equipment are numbered consecutively from No. 1 through No. 9 and then by the alphabet with axle "10" identified by the letter "Z," axle "11" by the letter "Y," axle "12" by the letter "X," etc., going backwards through the alphabet.

There are 12 axles on the five segment or unit equipment. If the defective journal or wheel is the ninth axle away from the "B" end of the car on the right side as you face the equipment, you will report it as "R9." If it is the fourteenth axle away from the "B" end of the car on the right side as you face the equipment, you would report it as "RV." Remember, on this equipment, axles "1" through "9" are identified numerically. Axles "10" through "14" are identified alphabetically beginning with the letter "Z" working backwards. Each axle is stenciled on most multi-segment or unit equipment on the truck side. Use the stencil when available to verify your identification.

42. Gravity Switch Moves

Unless otherwise restricted, a gravity switch move can be utilized where car(s) must be repositioned on the opposite end of the engine. Not more than five cars may be handled at one time in this manner, and only with sufficient hand brakes manned by crew member(s) to insure that the movement can be controlled. Riding the hand brake on shiftable loads must be avoided.

When making this move, the hand brake(s) to be used to control the movement must be tested to insure proper operation. Hand brakes may then be released to allow car(s) to gravity roll into desired track. Crew member(s) must ride the car(s) and use the hand brake(s) to control speed and to stop. Such cars must not be allowed to couple to other equipment while this method of switching is being used. Other methods of handling such moves, historically referred to as "dropping of cars," are prohibited, except at specific locations where authorized.

43. Signal Awareness Form

Subdivision-specific signal awareness forms are available at on-duty points. In addition to observing and calling signals as required by GCOR Rule 5.16, the conductor must fill out one of these forms in ink while operating on BNSF and foreign railroads. Foreign railroads operating on BNSF are allowed to use their own signal awareness forms when approved.

All block signal names or aspects and yellow or yellow/red flags must be recorded. With the exception of CLEAR signals, which only require the name or aspect to be recorded, information must include the location of each flag, the train speed, time the signal or flag is passed and name or aspect of the signal that was called. When speed indicator is not visible to the conductor, the engineer must call out the speed, in addition to the signal name or aspect, if other than CLEAR. Should the conductor be unable to record a signal aspect due to other activities, this fact must be noted on the form, including the reason.

When operating on an Approach or Diverging Approach signal indication, the engineer must notify the conductor when the train speed has reduced to the required speed. The conductor must note the time the train has reduced to the required speed on the Signal Awareness Form and repeat the time to the engineer. A job safety briefing between the conductor and engineer must confirm understanding that the train may be required to stop at the next signal.

In addition, the form must show the location of switches, switch point locks and derails returned to and locked in normal position in non-signaled territory (outside of restricted limits and non-signaled yard limits) and the time that the switch, switch point lock and derail were returned to normal position. The engineer must initial each switch/switch point lock/derail entry as a cross-check measure.

At the completion of each trip, the original form must be turned in as directed by the Division General Manager.

Standard forms:

Signal Awareness Form (Location to Location)										
Date: _____		Conductor: _____ <i>(print name)</i>				Signature: _____ <i>(signature)</i>				
Train Symbol: _____				Engineer: _____ <i>(print name)</i>						
Block System Limits										
Line No.	Signal and Location	Signal Name						*Speed	*Time	Flag Location and Name
		Clear (Mark X)	Approach Medium (Mark X)	Approach (Mark X)	Stop and Proceed (Mark X)	Stop (Mark X)	Other (Mark X)			
1										
2										
3										
4										
5										
6										

* It is not required to indicate speed and time for CLEAR signals.
The following abbreviations may be used: AL - Approach Limited, AA - Advance Approach, AR - Approach Restricting, DC - Diverging Clear, DAD - Diverging Approach Diverging, DAM - Diverging Approach Medium, DA - Diverging Approach, R - Restricting, Y - Yellow Flag, YR - Yellow/Red Flag

Non-Signaled Territory					
Flag Location	Flag Name	Speed	Time	Switches/Derails Normalized in Non-Signaled Territory	Engineer's Initials

The following abbreviations may be used: Y - Yellow Flag, YR - Yellow/Red Flag

44. Report of Unsafe Motorist/Trespasser

The Report of Unsafe Motorist/Trespasser Program is designed to capture information on near collisions between trains and vehicles, trespassers or pedestrians. When an incident occurs, employees must make a report by one of the following methods:

- Pre-addressed/Postage-paid postcard (Form SAF51680)
 - Fill in as much information as possible.
 - Fill in name and address if response is desired.
 - Place in mail.
- Call 1-800-697-6736.
 - Accident/Incident Reporting Center
 - Monday-Friday, 6 a.m. to midnight
 - Saturday-Sunday, 6 a.m. to 2:30 p.m.
 - Voice mail, all other times
 - Provide as much information as possible.
 - Provide name and address if response is desired.

Emergencies must not be reported on the Accident/Incident Reporting Center number. Emergencies must be reported as follows:

- Radio/telephone contact with train dispatcher.
- Radio/telephone/verbal contact with local BNSF resource protection personnel or to the Resource Protection Command Center at 1-800-832-5452

45. Network Operations Center Notification Requirements

BNSF timetable special instructions for individual subdivisions provide a table of radio call-in tones for contacting the Train Dispatcher, Mechanical Help Desk and Service Support. Tone call-in numbers may be a single digit or as many as three digits as outlined by timetable special instructions, depending on radio systems.

Procedures for Contacting Help Desks

- Train Dispatcher—Train crews should continue to contact the train dispatcher as required by current instructions for all delays. When reporting mechanical defects on locomotives,

cars, or other equipment such as an ETD, the dispatcher must be contacted initially in order to manage delays relative to these defects.

- Mechanical Help Desk—After initially recording and providing general information about defective locomotives, cars, or an ETD to the train dispatcher, the Mechanical Help Desk must be communicated with concerning the defect. Crew will report specific details concerning the defect and be governed by that supervisor's instructions concerning handling of the defect.

The Mechanical Help Desk may also be contacted by phone at:

Operations North—(817) 234-6258, Co. Line (8) 234-6258
 Operations South—(817) 234-2300, Co. Line (8) 234-2300

- Signal Desk—Signal Help Desk (SC) radio tone call-in references are no longer valid, and all signal defect/trouble reports should be reported directly to the train dispatcher.
- Service Support—In addition to reporting via radio to Service Support at Fort Worth, the following phone numbers and fax numbers may be used:

Train reporting

BNSF company line—(8) 593-7610
 Toll-free line—(800) 549-4601
 BNSF fax line—(8) 593-7615
 Fax toll-free line—(800) 234-1341

Interchange reporting

BNSF company line—(8) 593-7640
 Toll-free line—(800) 206-3846
 BNSF fax line—(8) 593-7645
 Fax toll-free line—(800) 223-6757

46. 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

- AV Annual Volume
- BN If Bad Order Notify Shipper
- BT Bare Table Flat
- B1 Bad Order
- C Customer Chassis Required
- CC To Be Cleaned and Conditioned
- CD Condemned Car (See Note 1)
- CI Customs Inspection
- CY Certification That This Equipment is for Recycling
- DB Distributed Van Bad Ordered
- DH Do Not Hump
- DI Redistribute at Destination
- DO Delivery Order Shipment
- DT Distributed Intermodal Equipment
- DU Do Not Uncouple
- EC Speed Restriction 55 MPH
- EL Empty Container Mechanical Lock
- ER Return Empty Via Reverse Route
- FM Fumigate Car Now
- FP Fumigation Placards Applied
- HA Cars Held for the Customer in Bond Pending Customs Authority
- HB Hold for Billing—Mini Waybill Indicating Industry to Bill
- HC Hold for FMC Redistribution
- HD Cars Held for Customer Diversion
- HE Head End Only
- HF Car Held for BNSF Rail Clearances (High Wides)

- HG Cars Held for BNSF Pending Customer File Information
- HH Cars Held for Overload Condition
- HI Hold for Inspection
- HJ 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
- HL Excessive Dimension
- HN Cars Held for Specified Local Conditions, **Restricted Usage
- HO Cars Held for Consignee to Surrender Original BOL or Indemnity Bond
- HR Cars Held for Customer Furtherance Instructions After Arr at Dest
- HS Empty (Non-Private) Cars Held on BNSF Trackage Awaiting Placement
- HT Heat Car
- HV High Value Shipment
- HX Cars Held Waiting for Waybill Information from Connecting Carrier
- IB In BNSF Bond
- ID In Bond Beyond BNSF Destination
- IS In Shipper's Bond
- L Tank Surveillance Required
- LC Car Trip Leased to Consignee
- LD Local Distribution Empty
- LG Loaded to Gallonage Capacity
- LO Local Orders
- LQ Loaded to Full Cubic Capacity
- LS Handle in Local Service Only
- LU Unload in Laredo proper
- LV Loaded to Full Visible Capacity
- LX Cleared for export via Laredo
- M Person in Charge of Car
- MB Make Bill of Lading
- MC Measure Car Now
- MD Mixed Destination Intermodal Units
- MN 5 A running reefer unit set at -5 degrees Fahrenheit
- MR 28 A running reefer unit set at 28 degrees Fahrenheit
- NC Non-credit Patron
- ND Do Not Divert
- NH No Hit—Car Distribution
- NP No Placards Required
- NT Do Not Transfer Contents
- OI Oils Marine Pollutant
- ON Oil Notation
- PD Privately Owned Equipment Subject to Demurrage
- PJ Mechanical Project Job
- PR Prospective Loading Empty
- QD Hold for Queue Demand
- RE Rear End Only
- RP Rail Controlled Private
- RS Rule 7 Reject Candidate
- SE Hold for Seasonal Storage
- SF Feed Now
- SO Shipper's Order
- SR Rail Surveillance Required
- SS Surplus Storage
- SW Switch Only Empty Furnished by Foreign Road
- TB Car Control Distributed Bad Order
- TG Transp. Code G—contaminated commodity service. Cars should not be placed at industry other than so designated.
- TS Transit Shipment
- TU Turn This Car Now
- UL Unload from left side of car. Left side of car determined by facing the "B" (brake) end of car.

- UR Unload from right side of car. Right side of car determined by facing the "B" (brake) end of car.
- UP Unload as Placarded
- WA Weigh After Spotted and Released
- WB Weigh This Car Both Before and After It Goes to Spot
- WH Weigh
- WI Waive Inspection
- WL Weigh Light
- Y Mechanical Refrigeration
- Z Expeditor Train
- 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.

Car kind codes M3E (Hi Tri-Levels) and M3F (articulated Hi Tri-Levels) must not be operated on any Branch Line or any location listed below:

- Barstow Subdivision—Barstow to Bettendorf via Crescent Bridge
- Beatrice Subdivision
- Bellingham Subdivision—USA Canada Border to Burlington
- Carlsbad Subdivision
- Carthage Subdivision
- Chicago Subdivision—BRC overpass between MP 6.70 and MP 6.73 (Handle on Mains 4 and 5 only)
- Columbia River Subdivision
- Gateway Subdivision
- Hannibal Subdivision—Burlington to West Quincy
- Helena Subdivision
- Hi Line Subdivision
(Exception: Car kind M3F may operate on this subdivision.)
- Kettle Falls Subdivision—Danville, WA, to San Poil
- Kootenai River Subdivision
(Exception: Car kind M3F may operate on this subdivision.)
- Laurel Subdivision
- Lester Subdivision
- New Westminster Subdivision
- Omaha Subdivision—Handle on Main 1 only at Omaha Depot
- O E Subdivision
- Oregon Trunk Subdivision—Fallbridge to Bend
- Raton Subdivision
- Rockford Subdivision
- Rustler Springs Subdivision

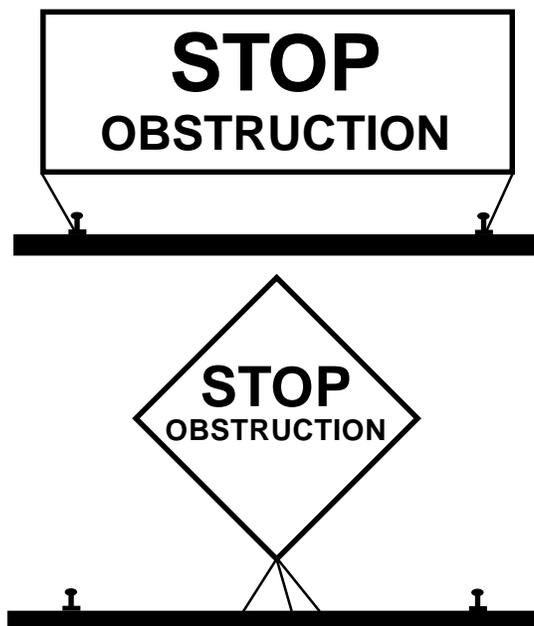
- Scenic Subdivision
- Silsbee Subdivision—Beaumont to Brooks
- Sioux City Subdivision
- Stampede Subdivision
- Stockton Subdivision—Port Chicago to Richmond
(Exception: Car kind M3F may operate on this subdivision).
- Mitchell Subdivision
- Topeka Subdivision—Topeka to Emporia
(Exception: Car kind M3F may operate on this subdivision).
- Wayzata Subdivision
- Wymore Subdivision—Table Rock to Wymore
- York Canyon Subdivision

Car kind M3E and M3F may operate over all other Main Line Subdivisions without clearance wire to protect movement even if car has "HL" code on the train list.

47. 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.' In addition, a banner displayed square on point, colored high visibility orange, and retro-reflective with the words "STOP OBSTRUCTION" may be used. It will be placed between the rails of the track and is considered a STOP signal.

Example:



These banners are 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.

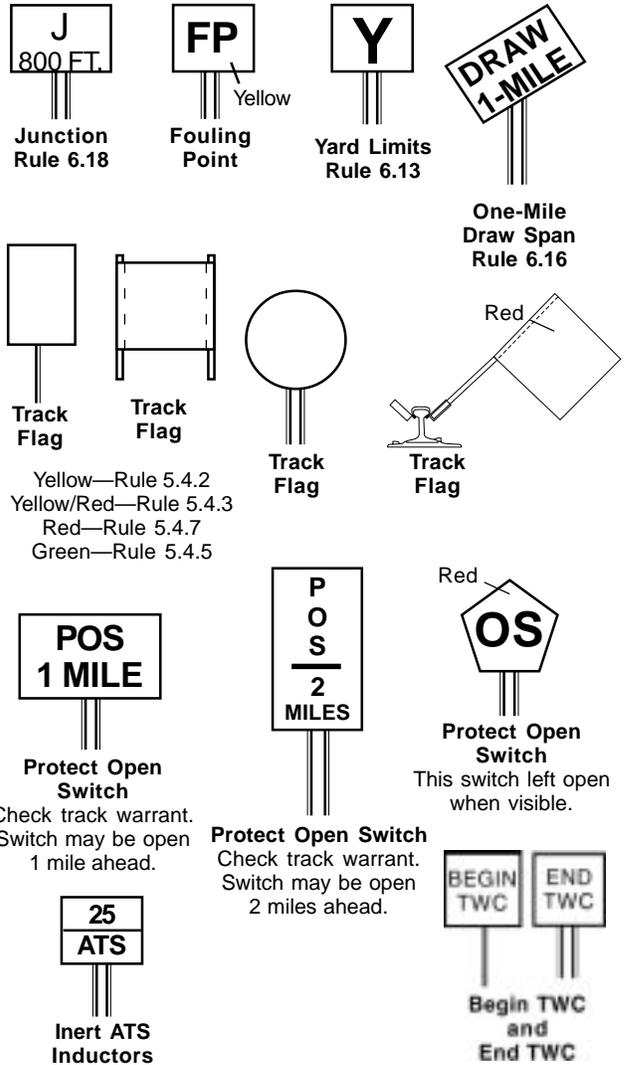
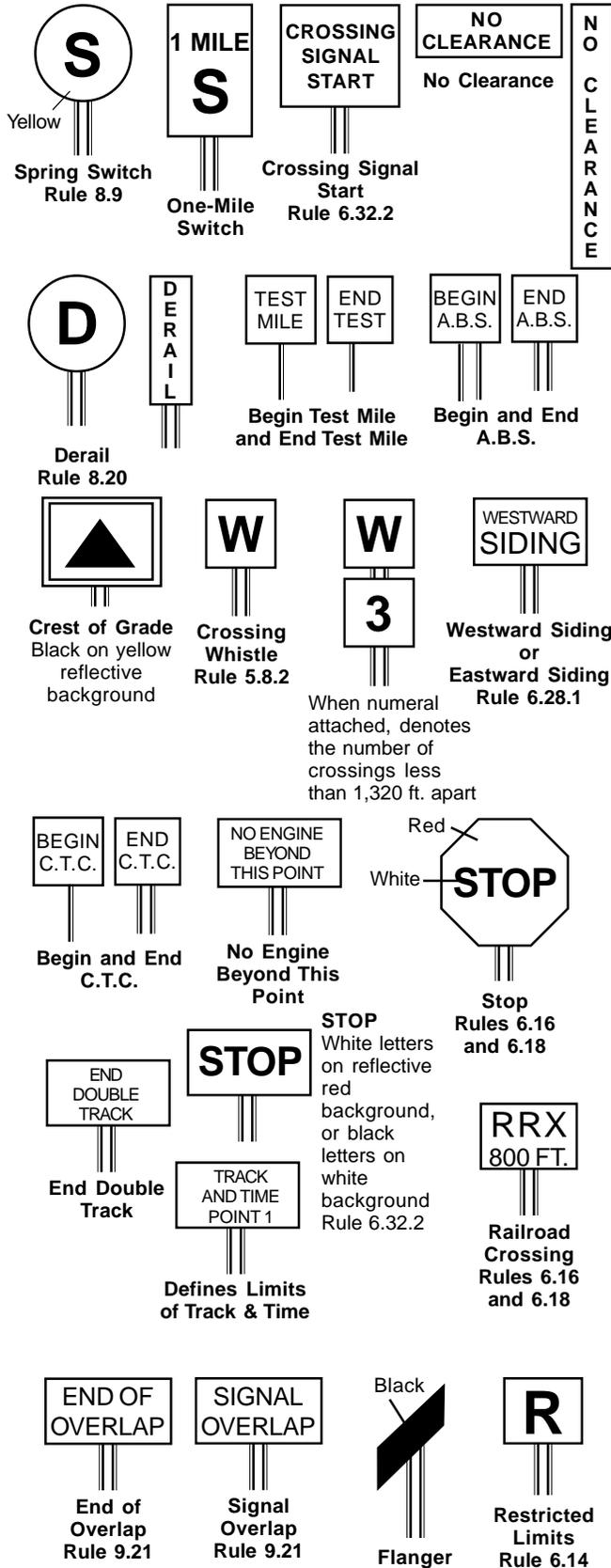
Examples of operating rules where the 'STOP' or 'STOP OBSTRUCTION' banner may be used as a stop signal are:

- GCOR & MWOR Rule 6.27 Restricted Speed.
- GCOR Rule 6.28 Movement On Other Than Main Track.
or
- MWOR Rule 6.50 Movement of On-Track Equipment.

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

48. Roadway Signs

Except as shown, the following roadway signs have white backgrounds and black letters and/or numbers.



49. Track Flagging Examples

The figures in the appendix provide examples for protecting temporary speed restrictions and people or equipment working on or near the track. When reviewing these examples, keep in mind the following:

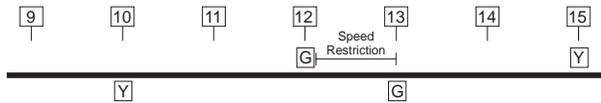
- The examples provided do not cover every situation.
- The distances shown are those specified by the rule.

In multiple main track territory, when a restriction is placed on a crossover, no track flags will be displayed after the restriction is specified by track bulletin or track warrant. This information must be included on the track bulletin or track warrant.

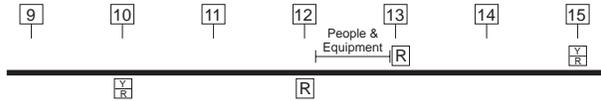
Yellow and yellow-red flags will be placed 2 miles before each restriction with the exception of at foreign line junctions, areas where flags cannot be placed 2 miles in advance and in certain situations at crew change points.

In situations in multiple main track or at sidings, when a train passes a yellow or yellow-red flag and a restriction is specified 2 miles in advance on track bulletin or track warrant, if the train takes a different route from the restricted track, this will not be considered as an unspecified restriction. Crew members must determine the track affected by comparing the flag location with the information contained in the track bulletin.

Single Main Track



[Diagram 1.]



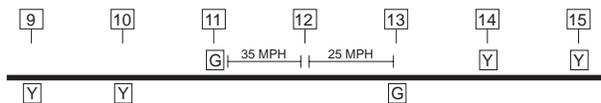
[Diagram 2.]

(Red flags would be placed where work is being performed.)

Display of Green Flags with Overlapping Yellow Flags

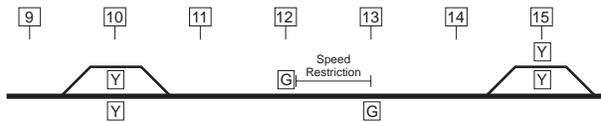
Track flagging for temporary speed restrictions when a series of locations requiring reduced speeds are so closely spaced that the green flags will overlap the yellow flags.

Only one green flag will be placed at the leaving end of the last location.

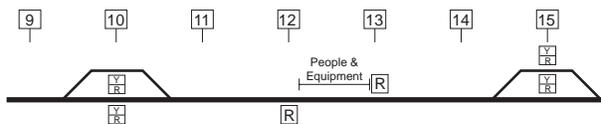


[Diagram 3.]

Single Main Track (Sidings at the 2-mile point)



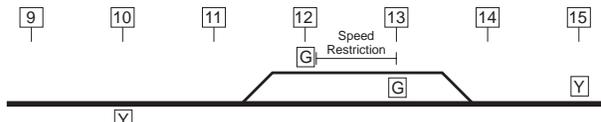
[Diagram 4.]



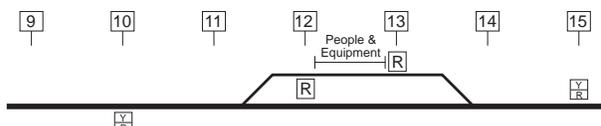
[Diagram 5.]

(Red flags would be placed where work is being performed.)

Restriction on Siding



[Diagram 6.]

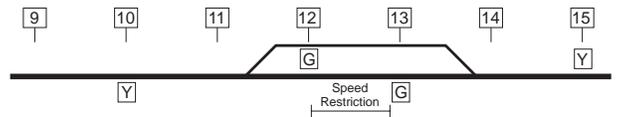


[Diagram 7.]

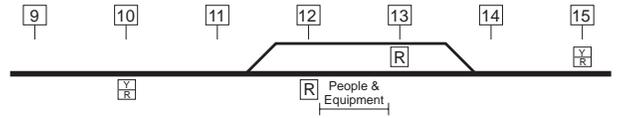
(Red flags would be placed where work is being performed.)

Train crews would determine the track affected by the information contained in their track bulletin.

Speed Restriction on Main Track Where Siding is Adjacent



[Diagram 8.]



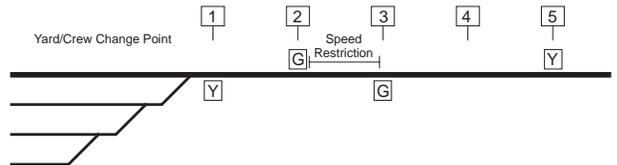
[Diagram 9.]

(Red flags would be placed where work is being performed.)

Train crews would determine the track affected by the information contained in their track bulletin.

Speed Restriction When Flag Cannot Be Placed 2 Miles in Advance

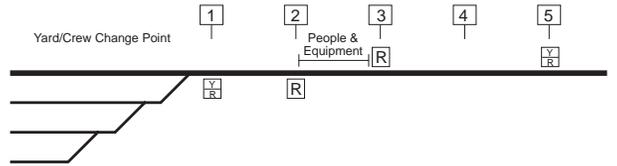
Location of short flag must be indicated in track bulletin or track warrant.



[Diagram 10.]

Impassable Track When Flag Cannot Be Placed 2 Miles in Advance

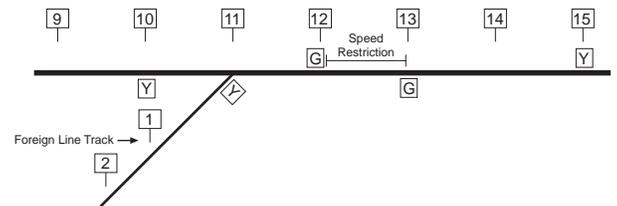
Location of short flag must be indicated in track bulletin or track warrant. (Red flags would be placed where work is being performed.)



[Diagram 11.]

Speed Restriction at Foreign Line Junction

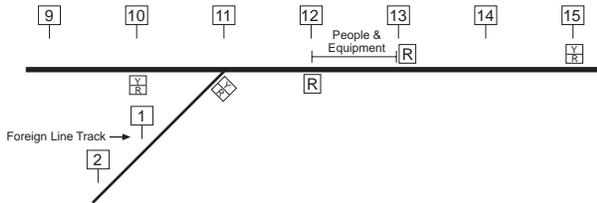
Location of short flag at the junction must be indicated in track bulletin or track warrant.



[Diagram 12.]

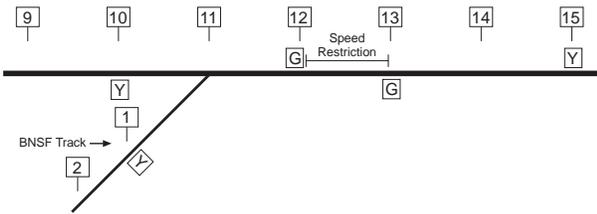
Impassable Track at Foreign Line Junction

Location of the yellow-red flag must be indicated in the track bulletin or track warrant. (Red flags would be placed where work is being performed.)

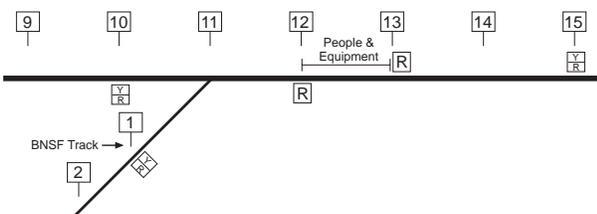


[Diagram 13.]

Speed Restriction at BNSF Junction



[Diagram 14.]

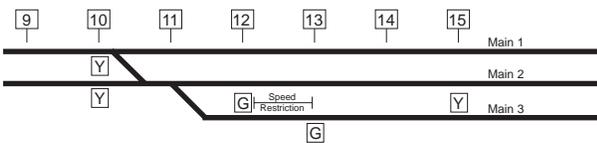


[Diagram 15.]

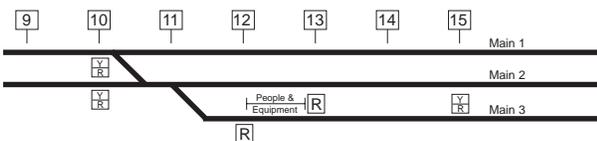
(Red flags would be placed where work is being performed.)

Speed Restriction Just Beyond Turnout to Third Main Track

Train crews would determine the track affected by the information contained in their track bulletin.



[Diagram 16.]

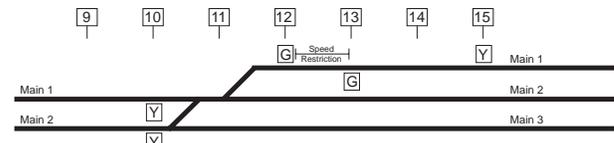


[Diagram 17.]

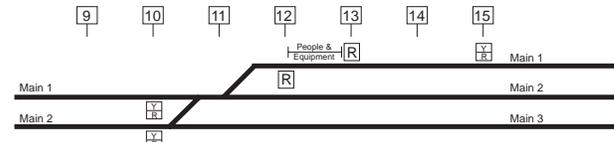
(Red flags would be placed where work is being performed.)

Speed Restriction Just Beyond Turnout to Main 1 (North Track)

Train crews would determine the track affected by the information contained in their track bulletin.



[Diagram 18.]

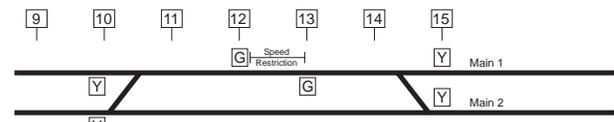


[Diagram 19.]

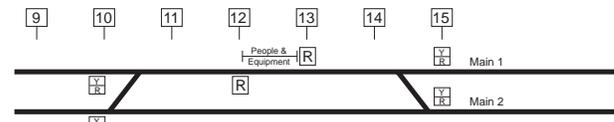
(Red flags would be placed where work is being performed.)

Speed Restriction on Multiple Main Track

Train crews would determine the track affected by the information contained in their track bulletin.



[Diagram 20.]

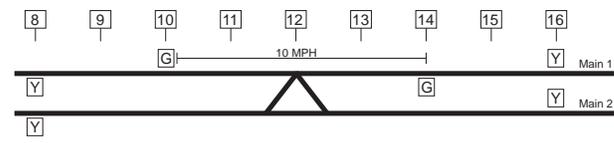


[Diagram 21.]

(Red flags would be placed where work is being performed.)

Speed Restriction on Main 1 (CTC Territory)

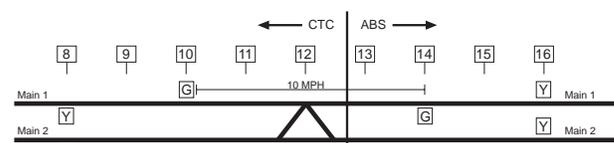
Yellow flags are placed 2 miles from the point of the restriction on both tracks because crews determine the track affected by comparing yellow flag with information on their track bulletin.



[Diagram 22.]

Speed Restriction on Main 1 (CTC and ABS Territory)

Yellow flags are placed 2 miles from the point of the restriction on both tracks. When a restriction, or flags placed for a restriction, includes both CTC and DT ABS, flags will be placed in accordance with rules for flag placement in multiple main track CTC.



[Diagram 23.]

Division Index

Division Subdivisions

Chicago Aurora
 Barstow
 Beardstown
 Brookfield
 Chicago
 Chillicothe
 Hannibal
 La Salle
 Marceline
 Mendota
 Ottumwa (Nebraska Division)
 Peoria
 Thomas Hill
 Yates City

Gulf Bay City
 Conroe
 Galveston
 Houston
 Lafayette
 Lampasas
 Longview
 Mykawa
 Silsbee

Kansas Arkansas City
 Boise City
 Dalhart
 Douglass
 Emporia
 Hereford
 La Junta
 Panhandle
 Plainview
 Slaton
 South Plains
 Strong City
 Topeka

Montana Big Horn
 Big Sandy
 Casper
 Choteau
 Circle
 Cody
 Colstrip
 Crosby
 Dickinson
 Dutch
 Fairfield
 Forsyth
 Ft. Benton
 Glasgow
 Grenora
 Helena
 Hettinger
 Hi Line
 Laurel
 Lewistown
 Milk River
 Niobe
 Sarpy Line
 Scobey
 Sidney Line
 Sweet Grass
 Valier

Nebraska Bayard
 Beatrice
 Bellwood
 Council Bluffs
 Creston
 Des Moines
 Giltner
 Hastings
 Imperial
 Lester
 Napier
 Neb City
 Omaha
 Ottumwa
 Ravenna
 Sioux City
 St. Joseph
 Wymore

Northwest Bellingham
 Burbank
 Cherry Point
 Coeur d'Alene
 Columbia River
 Eureka
 Fallbridge
 Granger
 Kalispell
 Kettle Falls
 Kootenai River
 Lakeside
 Lakeview
 Newport
 New Westminster
 OE
 Oregon Trunk
 Pend Oreille
 San Poil
 Scenic
 Seattle
 Stampede
 Sumas
 Woodinville
 Yakima Valley

Northern California Bakersfield
 Gateway
 Mojave
 Riverbank
 Stockton

Powder River Akron
 Angora
 Black Hills
 Brush
 Butte
 Campbell
 Canyon
 Front Range
 Golden
 Orin
 Pikes Peak
 Pueblo
 Reno
 Sand Hills
 Spanish Peaks
 Twin Peaks
 Valley

Southern California Cajon
 Harbor
 Lucerne Valley
 Mojave
 Needles
 San Bernardino
 San Diego

Southwest Carlsbad
 Clovis
 Coronado
 Defiance
 El Paso
 Ennis
 Gallup
 Glorieta
 Lee Ranch
 Phoenix
 Raton
 Seligman
 Springerville
 York Canyon

Springfield Afton
 Amory
 Avard
 Birmingham
 Cherokee
 Cuba
 Fort Scott
 Lead Line
 Mobile
 River
 Thayer North
 Thayer South

Texas BBRX
 Chickasha
 Creek
 DFW
 Ft. Worth
 Madill
 Red River
 Red Rock
 Sooner
 Venus
 Wichita Falls

Twin Cities Aberdeen
 Allouez
 Appleton
 Brainerd
 Browns Valley
 Canton
 Casco
 Corson
 Devils Lake
 Drayton
 Glasston
 Grand Forks
 Hanley Falls
 Hannah
 Hib Tac
 Hillsboro
 Hinckley
 Hunter, Clifford Line & Warwick
 Jamestown
 KO
 Lakes
 Madison
 Marshall
 Mayville
 Midway
 Mitchell
 Mobridge
 Monticello
 Moorhead
 Morris
 Noyes
 P Line
 Prosper
 Rolla, Westhope & Granville
 Sarles
 Staples
 St. Croix
 St. Paul
 Walhalla
 Watertown
 Wayzata
 Zap Line

Subdivision Index

Subdivision	Division
Aberdeen	Twin Cities
Afton	Springfield
Akron	Powder River
Allouez	Twin Cities
Amory	Springfield
Angora	Powder River
Appleton	Twin Cities
Arkansas City	Kansas
Aurora	Chicago
Avard	Springfield
Bakersfield	Northern California
Barstow	Chicago
Bay City	Gulf
Bayard	Nebraska
BBRX	Texas
Beardstown	Chicago
Beatrice	Nebraska
Bellingham	Northwest
Bellwood	Nebraska
Big Horn	Montana
Big Sandy	Montana
Birmingham	Springfield
Black Hills	Powder River
Boise City	Kansas
Brainerd	Twin Cities
Brookfield	Chicago
Browns Valley	Twin Cities
Brush	Powder River
Burbank	Northwest
Butte	Powder River
Cajon	Southern California
Campbell	Powder River
Canton	Twin Cities
Canyon	Powder River
Carlsbad	Southwest
Casco	Twin Cities
Casper	Montana
Cherokee	Springfield
Cherry Point	Northwest
Chicago	Chicago
Chickasha	Texas
Chillicothe	Chicago
Choteau	Montana
Circle	Montana
Clifford Line	Twin Cities
Clovis	Southwest
Cody	Montana
Coeur d'Alene	Northwest
Colstrip	Montana
Columbia River	Northwest
Conroe	Gulf
Coronado	Southwest
Corson	Twin Cities
Corwith	Chicago
Council Bluffs	Nebraska
Creek	Texas
Creston	Nebraska
Crosby	Montana
Cuba	Springfield
Dalhart	Kansas
Defiance	Southwest
Deming	New Mexico
Des Moines	Nebraska
Devils Lake	Twin Cities
DFW	Texas
Dickinson	Montana
Douglass	Kansas
Drayton	Twin Cities
El Paso	Southwest
Emporia	Kansas City
Emporia	Kansas
Ennis	Southwest
Eureka	Northwest
Fallbridge	Northwest
Fairfield	Montana
Forsyth	Montana
Fort Scott	Kansas City
Fort Scott	Springfield
Front Range	Powder River
Ft. Benton	Montana
Ft. Worth	Texas
Gallup	Southwest
Galveston	Gulf
Gateway	Northern California
Geneseo	Dakota
Giltner	Nebraska
Glasgow	Montana
Glasston	Twin Cities
Glorieta	Southwest
Golden	Powder River
Grand Forks	Twin Cities
Granger	Northwest
Granville	Twin Cities
Grenora	Montana
Hanley Falls	Twin Cities
Hannah	Twin Cities
Hannibal	Chicago
Harbor	Southern California
Hastings	Nebraska
Helena	Montana
Hereford	Kansas
Hettinger	Montana
Hi Line	Montana
Hib Tac	Twin Cities
Hillsboro	Twin Cities
Hinckley	Twin Cities
Houston	Gulf
Hunter	Twin Cities
Imperial	Nebraska
Jamestown	Twin Cities
Kalispell	Northwest
Kettle Falls	Northwest
KO	Twin Cities
Kootenai	Northwest
La Junta	Kansas
La Salle	Chicago
Lafayette	Gulf
Lakes	Twin Cities
Lakeside	Northwest
Lakeview	Northwest
Lampasas	Texas
Laurel	Montana
Lead Line	Springfield
Lee Ranch	Southwest
Lester	Nebraska
Lewistown	Montana
Longview	Gulf
Lucerne Valley	Southern California
Madill	Texas
Madison	Twin Cities
Marceline	Chicago

Marshall	Twin Cities	Staples	Minnesota
Mayville	Twin Cities	Stockton	Northern California
Mendota	Chicago	Strong City	Kansas
Midway	Twin Cities	Sumas	Northwest
Milk River	Montana	Sweet Grass	Montana
Mitchell	Twin Cities	Thayer North	Springfield
Mobile	Springfield	Thayer South	Springfield
Mobridge	Twin Cities	Thomas Hill	Chicago
Mojave	Northern California	Topeka	Kansas
Mojave	Southern California	Twin Peaks	Powder River
Monticello	Twin Cities	Valier	Montana
Moorhead	Twin Cities	Valley	Powder River
Morris	Twin Cities	Venus	Texas
Mykawa	Gulf	Walhalla	Twin Cities
Napier	Nebraska	Warwick	Twin Cities
Neb City	Nebraska	Watertown	Twin Cities
Needles	Southern California	Wayzata	Twin Cities
New Westminster	Northwest	Westhope	Twin Cities
Newport	Northwest	Wichita Falls	Texas
Niobe	Montana	Woodinville	Northwest
Noyes	Twin Cities	Wymore	Nebraska
Oakdale	Gulf	Yakima Valley	Northwest
OE	Northwest	Yates City	Chicago
Omaha	Nebraska	York Canyon	Southwest
Oregon Trunk	Northwest	Zap Line	Twin Cities
Orin	Powder River		
Ottumwa	Chicago		
Ottumwa	Nebraska		
P Line	Twin Cities		
Panhandle	Kansas		
Pend Oreille	Northwest		
Peoria	Chicago		
Phoenix	Southwest		
Pikes Peak	Powder River		
Plainview	Kansas		
Prosper	Twin Cities		
Pueblo	Powder River		
Raton	Southwest		
Ravenna	Nebraska		
Red River	Texas		
Red Rock	Texas		
Reno	Powder River		
River	Springfield		
Riverbank	Northern California		
Rolla	Twin Cities		
San Bernardino	Southern California		
San Diego	Southern California		
San Poil	Northwest		
Sand Hills	Powder River		
Sarles	Twin Cities		
Sarpy Line	Montana		
Scenic	Northwest		
Scobey	Montana		
Seattle	Northwest		
Seligman	Southwest		
Sidney Line	Montana		
Silsbee	Gulf		
Sioux City	Nebraska		
Slaton	Kansas		
Sooner	Texas		
South Plains	Kansas		
Spanish Peaks	Powder River		
Springerville	Southwest		
St. Croix	Twin Cities		
St. Joseph	Nebraska		
St. Paul	Twin Cities		
Stampede	Northwest		