Duluth, Missabe and Iron Range Railway Company

Time Table No. 95

EFFECTIVE
12:01 A.M.
CENTRAL STANDARD TIME

February 21, 1990

(Including Special Instructions)
FOR THE GOVERNMENT OF EMPLOYEES ONLY

D. H. HOFFMAN President

M. R. SEIPLER Vice President-Operations

C. O. FERNER General Manager

P. D. STEPHENSON Superintendent

DISPATCHER'S OFFICE
AT KEENAN

TELEPHONE NUMBERS:

Company System 185, 186, 187, 188

Virginia Exchange 744-1216, 744-1217

Duluth Exchange 628-2741

G. R. BRADT, Chief Train Dispatcher

TRAIN DISPATCHERS

J. C. BEEBE

C. A. GERSETICH

D. L. JOHNSTON

T. R. KENNEDY

M. C. NELSON

S. J. NOVAK

J. H. OBERBILLIG

L. J. SOJKA

A. W. SUIHKONEN

G. L. VAN DERVORT

R. H. AHO, General Trainmaster

M. C. FAIR, Trainmaster

M. S. HELMER, Manager of Government Testing and Training

W. J. HENDERSON, Trainmaster and Traveling Engineer

D. F. OVIATT, Trainmaster — Rules Examiner

R. J. RINGHOFER, Trainmaster and Traveling Engineer

J. C. STEPAN, Trainmaster

P. A. SULLIVAN, Trainmaster

F. L. UDENBERG, Trainmaster

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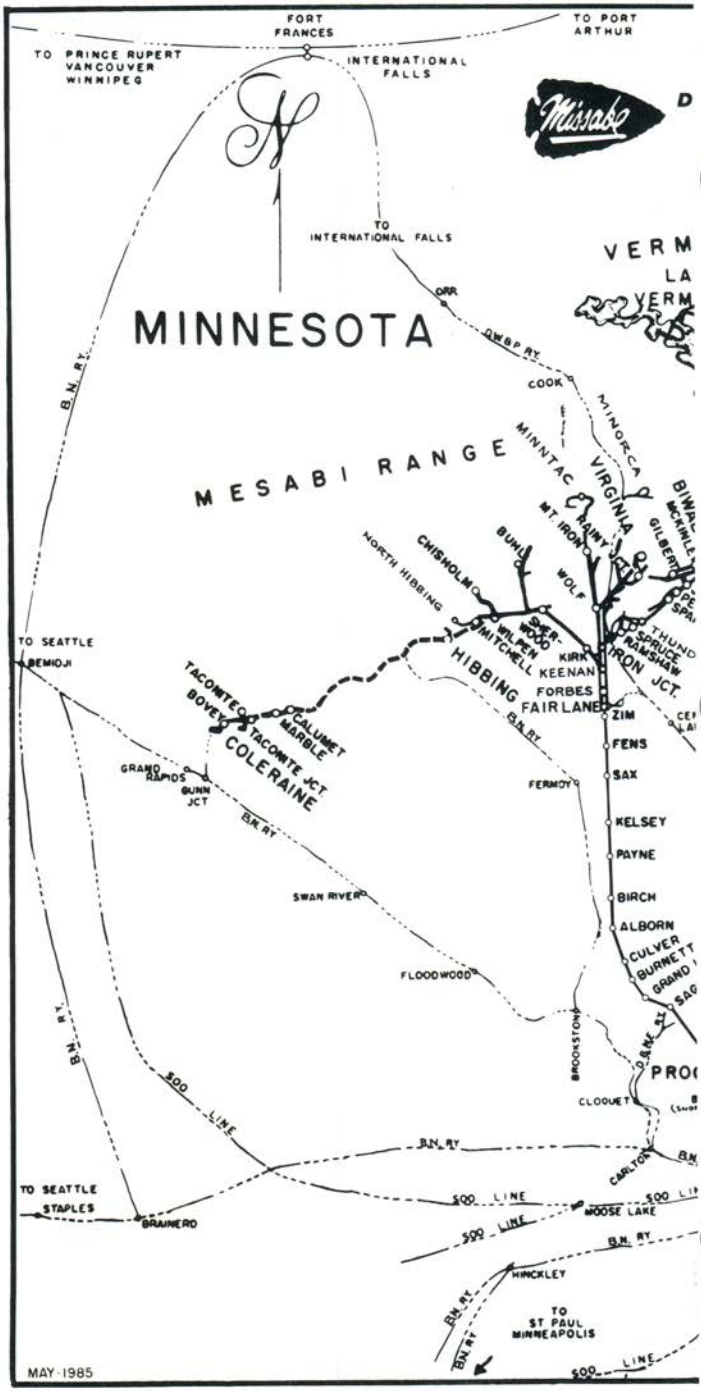
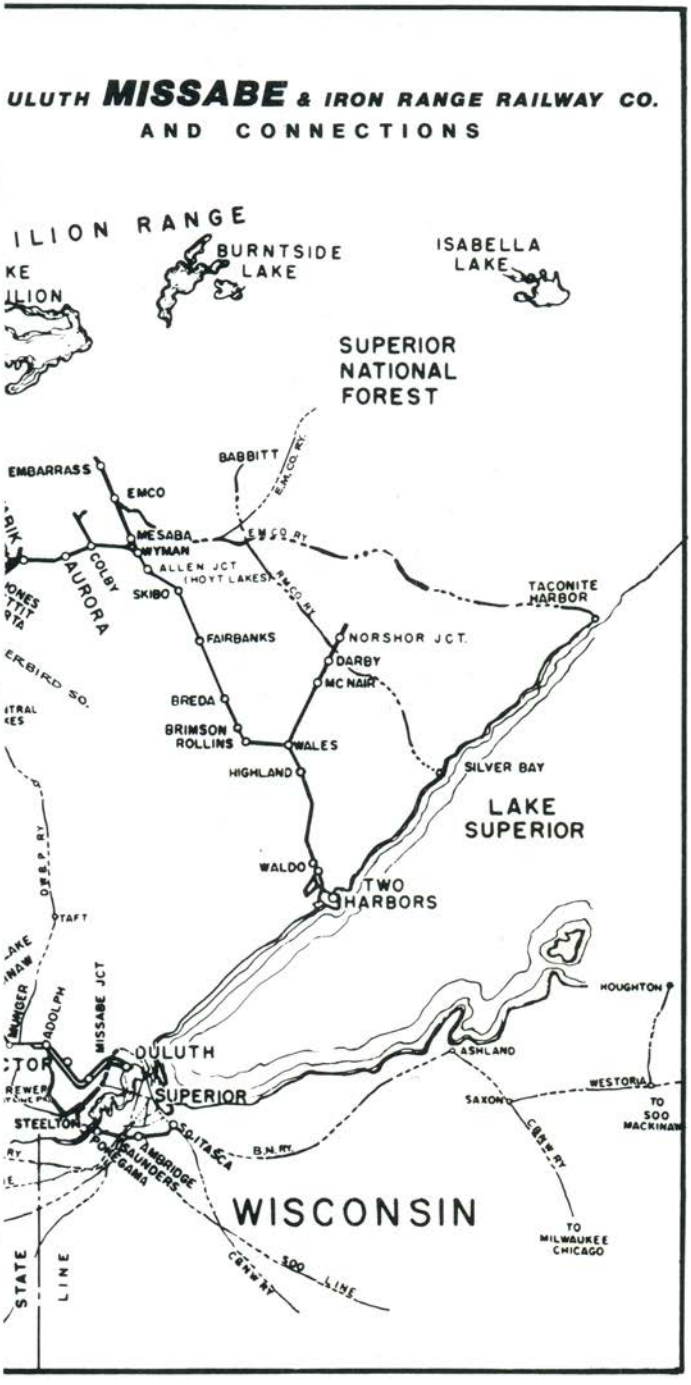
INDEX


FORT FRANCES
TO PORT ARTHUR
TO PRINCE RUPERT
VANCOUVER
WINNIPEG
INTERNATIONAL FALLS
Missabe
TO INTERNATIONAL FALLS
MINNESOTA
ORR
DWBP RY
B.N. RY.
COOK
MINORCA
MINNTAC
VIRGINIA
MESABI RANGE
MT IRON
RAINY
BUHL
WOLF
CHISHOLM
NORTH HIBBING
SPAR-WOOD
WILPEN
MITCHELL
KIRK
KEENAN
FORBES
HIBBING
FAIR LANE
IRON JCT.
SPRUCE
RAMSHAW
ZIM
FENS
SAX
FERMOY
KELSEY
PAYNE
BIRCH
ALBORN
CULVER
BURNETT
TO SEATTLE
BEMIDJI
TACONITE
BOVEY
TACONITE JCT.
CALUMET
MARBLE
COLERAINE
GRAND RAPIDS
GUNN JCT
B.N. RY
SWAN RIVER
FLOODWOOD
BROOKSTON
CLOQUET
CARLTON
SOO LINE
TO SEATTLE
STAPLES
BRAINERD
MOOSE LAKE
HINCKLEY
TO
ST PAUL
MINNEAPOLIS
MAY·1985


ULUTH MISSABE & IRON RANGE RAILWAY CO.
AND CONNECTIONS
ILION RANGE
KE
ILION
BURNTSIDE LAKE
ISABELLA LAKE
SUPERIOR NATIONAL FOREST
BABBITT
E.M.CO.RY.
EMBARRASS
EMCO
MESABA
WYMAN
E.M.CO.RY.
ALLEN JCT.
(HOYT LAKES)
COLBY
AURORA
SKIBO
E.M.CO.RY.
TACONITE HARBOR
FAIRBANKS
NORSHOR JCT.
DARBY
MC NAIR
BREDA
BRIMSON
ROLLINS
WALES
HIGHLAND
SILVER BAY
LAKE SUPERIOR
WALDO
TWO HARBORS
D.S.S.P. RY.
TAFT
ADOLPH
MISSABE JCT.
HOUGHTON
ASHLAND
DULUTH
SUPERIOR
WESTORIA
SAXON
TO SOO MACKINAW
STEELTON
SAUNDERS
AMBRIDGE
SOUTH GAMA
SOUTH ITASCA
B.N. RY.
C&NW RY.
WISCONSIN
TO MILWAUKEE CHICAGO
STATE LINE
C&NW RY.
SOO LINE

MISSABE DIVISION

DULUTH TO MINNTAC

Rule 6(A)	Passing Sidings Length in Feet (Ore Car Cap.)	Distance from Missabe Jct.	North ◀ STATIONS ▶ South	
			DULUTH	
JXY		.0	MISSABE JCT.	
BCFKPQRY			DULUTH DOCKS	
IPY		1.7	Interlocking — COLLINGWOOD — Interlocking	ABS
BCFKPQRTYZ		7.1	PROCTOR	
IPTY		10.8	ADOLPH — Interlocking	
P		12.4	CARSON	
		14.2	MUNGER	
P	7661	18.8	SOUTH COONS	
P	(306)	20.5	NORTH COONS	TWC

P		20.7		SAGINAW	ABS
		26	TWC	BURNETT	
P	7380	32.5		SOUTH ALBORN	
P	(295)	34		NORTH ALBORN	
		41.2		PAYNE	
P	7396	42.6		SOUTH KELSEY	
P	(245)	44.2		NORTH KELSEY	
		48.9		SAX	
P		51.0		M.P.51	
P		55.6		ZIM	
PQTX		59.0		FAIRLANE	
P		60.1		FORBES	
JPTX		60.9	CTC	KEENAN	CTC
JPT		61.8		NO. KEENAN	
JPQTXZ		63.5		IRON JCT.	
JPTX		65.7		WOLF	
JP		66.4		NOMI JCT.	
PY		71.8		MT. IRON	
		73.9		SOUTH MINNTAC	
QY		75.2		MINNTAC	

D.M.&I.R. trains are governed by Burlington Northern Railway Timetable, Signals, Rules and Instructions between Duluth and Missabe Junction. Mile Post signs on Minntac Hill Main Line Trackage are designated M-1 (Mt. Iron) through M-5 (Minntac).

MISSABE DIVISION

KEENAN TO HIBBING AND PANAMA

Rule 6(A)	Station Numbers	Distance from Keenan	North ◀ STATIONS ▶ South	Branch Track Designation
JPTX	65	.0	KEENAN	
		.9	SOUTHGATE	
BCFKOPQRY	C1		CTC — KEENAN YARD — CTC	Shaw Cut Off
		2.0	NORTHGATE	
		3.6	TWC — KIRK — TWC	
JP	C6	8.1	SHERWOOD	
JP	G3	11.4	WHITESIDE JUNCTION	Woodbridge

	G4	11.8	BUHL SHARON	Branch
JP JTY	C6 C11	8.1 12.2	TWC { SHERWOOD WILPEN } TWC	Superior Br. Portion
	D4	16.8	CHISHOLM	Chisholm Br.
JTY JY Y	C11 C14	12.2 15.0 15.4	TWC { WILPEN EMMERT } TWC MITCHELL	Superior Branch Portion
JY 	 M1	15.0 17.9	EMMERT HIBBING	(BN Lakes Div., 12th Subdiv'n)
Y JY Y	J17 J16 J15	19.6 20.6 20.7	RUST CRUSHER JCT. PANAMA	Hull Rust Short Line Portion

Trains operating between Wilpen and Mitchell, between Wilpen and Chisholm, between Hibbing and Panama, and on the Woodbridge Branch, are governed by Operating Rule 93. Dispatcher permission must be obtained prior to movements on the Chisholm Branch and Woodbridge Branch. D.M.&I.R. trains are governed by B.N. Railroad Timetable, Signals, Rules, and Instructions between Emmert and Hibbing. D.M.&I.R. trains operating between Hibbing and Calumet via Keewatin are dispatched by B.N. Railway, unless otherwise provided, and are governed by B.N. Railway Timetable, Signals and Instructions except train speeds which are governed by D.M.&I.R. Timetable Special Instructions where more restrictive than speeds authorized by B.N. Railway.

MISSABE DIVISION

SOUTH ITASCA TO ADOLPH

Rule 6(A)	Station Numbers	Distance from Adolph	North ◀ STATIONS South ◀	Branch Track Designation
JPY	R-23	23.0	SOUTH ITASCA	
		21.97	Begin CTC — MP R-21.97 — End CTC	
AP		19.4	AMBRIDGE (Interlocking Soo Ry. WCL Ry.)	
AJ		19.2	LADYSMITH CONN.	
AJ		19.1	NORTH AMBRIDGE CONN. (Interlocking Soo Ry. WCL Ry.)	
JPY	R-18	17.8	BN SAUNDERS CONN. (CTC)	Interstate Branch
JPY		17.3	SOO SAUNDERS CONN. (CTC)	

JY		17.2	MILWAUKEE CONN.	
JP		16.9	SOUTH POKEGAMA	
	R-16		DW&P POKEGAMA YARD	(DW&P RY.)
JP		14.7	NORTH POKEGAMA	
JPQY	R-11	11.2	STEELTON	
P		7.8	BREWER	Spirit Lake Branch
JP		5.8	NOPEMING JCT.	
Y		4.5	NEVADA	
TPY		.0	ADOLPH	

CTC

CTC

Trains operating between Adolph and Nopeming Jct. and on DMIR trackage south of END CTC Mile R-21.97 are governed by Operating Rule 93. Movements in either direction between Adolph and Nopeming Jct., and all northward movements beyond the north switch of South Itasca Yard require verbal permission from the dispatcher.

Before occupying the connecting track at Saunders from either direction (Track between DMIR Main Track and BN M&J Junction) permission must be obtained from the DMIR train dispatcher. Authorized movements must also be reported when clear of the connecting track.

Electric lock switches are located at each end of the Saunders Siding, and dispatcher permission is required for all movements entering or exiting the Saunders Siding.

An electric lock switch is located at Ladysmith Connection, and dispatcher permission is required to use this switch for movements to or from the Connection.

MISSABE DIVISION

MISSABE JCT. TO STEELTON

	Rule 6(A)	Station Numbers	Distance from Steelton	North ◀ STATIONS South ◀	Branch Track Designation
	JXY	2	6.0	MISSABE JCT.	(BN Duluth-Superior Line Segments Nos. 235, 508)
			5.0	BN — BOSTON YARD	
			4.0	BN — MIKES YARD	
			3.8	63RD AVE. W.	
	Y		3.3	72ND AVE. W. JUNCTION	
	Y		2.1	RIVERSIDE JCT.	
	JPY	R11	.0	STEELTON	

Trains operating between Steelton and Missabe Junction will be governed by Operating Rule 93, and by B.N. Railway Timetable, Signals, Rules and Instructions.

CALUMET TO COLERAINE - BOVEY

	Rule 6(A)	Station Numbers	Alborn Branch Milepost	Distance from Calumet	North ◀ STATIONS ▶ South	Branch Track Designation
		E43	43.8	0.0	CALUMET	(BN Lakes 12th subdiv'n)
		E45	44.7	.9	MARBLE	
	J		48.2	4.2	HOLMAN JCT.	
		E49	49.2	5.4	TACONITE JCT.	Alborn Branch Portion
		E52	52.2	8.4	COLERAINE-BOVEY	

TWC ABS — TWC ABS

D.M.&I.R. trains operating between Calumet and Coleraine-Bovey and between Calumet and Hibbing via Keewatin are dispatched by B. N. Railway unless otherwise provided; and are governed by B.N. Railway Timetable, Signals, Rules and Instructions except train speeds which are governed by D.M.&I.R. Timetable Special Instructions where more restrictive than speeds authorized by B.N. Railway. Trains operating between Kelly Lake and Coleraine-Bovey must obtain a track warrant from B.N. Dispatcher (612) 782-3409.

MISSABE DIVISION

IRON JCT. TO SPARTA JCT.

Rule 6(A)	Station Numbers	Distance from Iron Junction	North ◀ STATIONS ▶ South	Branch Track Designation
JPQTXZ AMP	66	.0	CTC { IRON JCT. — DWP Interlocking — RAMSHAW — DWP Interlocking } CTC	Biwabik Branch Portion
JP	A1	1.6	SPRUCE JCT.	
PT	A3	3.7	THUNDERBIRD SOUTH	
JP	A1		CTC { SPRUCE JCT.	
	A5	4.9	DAVIS	
J	Z5	6.5	SPARTA JCT. } CTC	

Trains operating on Thunderbird South Siding, Wye tracks and all Thunderbird South mine plant tracks, will be governed by Operating Rule 93.

An Automatic Yard System (AYS) is in service at Thunderbird South.

WOLF TO VIRGINIA AND MINORCA

Rule 6(A)	Station Numbers	Distance from Wolf	North ◀ STATIONS South ▶	Branch Track Designation
JPTX	68	.0	CTC — WOLF	Virginia Branch
JP	B1	1.0	MT. IRON JCT.	
J	B2	1.9	D.W.&P. JCT. — CTC	
J	B2.8	2.8	CTC — SHELTON JCT.	(D.W.&P. Ry.)
J	B8	8.9	MINORCA JCT. — CTC	
QY	B9	9.4	MINORCA	
J		1.9	D.W.&P. JCT.	Virginia Branch
AMP			CTC — D.W.&P. Interlocking — SHELTON — D.W.&P. Interlocking — CTC	
JP	B3	2.9	LARGO JCT.	
QXY	B4	3.4	THUNDERBIRD NORTH	
JPY	B5	4.7	RAINY JCT.	
Y	B7	6.4	VIRGINIA	

D.M.&I.R. trains are governed by D.W.&P. Ry. Timetable, Signals, Rules and Special Instructions between Shelton Junction and Minorca Junction. Trains operating on the Sliver Branch, between Minorca Junction and Minorca, and between Largo Junction and Virginia, will be governed by Operating Rule 93.

IRON RANGE DIVISION

TWO HARBORS TO EMBARRASS

Rule 6(A)	Passing Sidings Length in Feet (Ore Car Cap.)	Milepost	North ↓ STATIONS South ↑	
BFIKOPQRTYZ		27	TWO HARBORS	Interlocking
		29.5	BRIDGE 30-A	Verbal
P		30.7	WALDO	Control
P		40.3	SOUTH HIGHLAND SCALE	
		40.4	SOUTH HIGHLAND SIDING	
PZ		42.3	NORTH HIGHLAND SCALE	
		42.4	NORTH HIGHLAND SIDING	
		43.9	SOUTH WALES (WYE)	

TWC — TWC

JPTY		44.2		NORTH WALES (WYE)	
P	4870	50.0		SOUTH BRIMSON	
	(194)	51		NORTH BRIMSON	
		53.5		BREDA	
	5451	57.9		SOUTH FAIRBANKS	
P	(218)	58.2		FAIRBANKS CROSSOVER	
		59		NORTH FAIRBANKS	
		67		SKIBO	
JP		72.5	CTC	ALLEN JCT.	CTC
P		73.6	CTC	WYMAN	CTC
		76.7		MESABA	
		79.7	TWC	HINDSDALE	TWC
		84	TWC	EMBARRASS	TWC
		84.75		(END OF TRACK)	

IRON RANGE DIVISION

ALLEN JCT. TO SPARTA JCT.

Rule 6(A)	Station Numbers	Distance from Allen Junction	North ◀ STATIONS ▶ South	Branch Track Designation	*Missabe Division Branch Track Designation*
JP	N72	.0	ALLEN JCT.		
P	N74	1.1	WYMAN	Western Mesaba Branch Portion	
TP	X5	4.5	COLBY		
P	X8	7.7	AURORA		
FKPQRY	X15	13.0	BIWABIK		
JP	X18	16.6	CTC McKINLEY CTC		
JP	Z1	17.4	JONES JCT.		
	Z3	19.1	PETTIT	Z-Branch	

P	Z4	20.1	GILBERT YD.	Portion	*Biwabik Branch Portion*
		20.5	SPARTA		
JP	Z5	21.4	SPARTA JCT.		

The distance from Jones Junction to Biwabik via the Missabe Division is 4.1 miles.

McKINLEY TO GILBERT AND JULIA

Rule 6(A)	Station Numbers	Distance from Allen Junction	North ◀ STATIONS ▶ South	Branch Track Designation	
JPY	X18	16.6	McKINLEY	Western Mesaba Branch Portion	
	X19	17.6	CORSICA		
Y	X21	19.4	GILBERT		
T	X23	21.5	MARISKA		
		22.8	UNION		
		22.9	JULIA		

Trains operating between McKinley and Julia will be governed by Operating Rule 93.

IRON RANGE DIVISION

WALES TO JORDAN

Rule 6(A)	Station Numbers	Distance from Wales	North ↓	STATIONS	South ↑	Branch Track Designation
JPRTY	N44	.0		WALES		
	W7	7.1		MCNAIR		
	W11	11.1	TWC	NORSHOR JCT.	TWC	Wales Branch
	W12	11.7		JORDAN		
		12.1		(end of track)		

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SIDINGS AND SPURS
LENGTHS AND ORE CAR CAPACITY

MISSABE DIVISION

NAME OF TRACK	Side	Usable Length Track Feet	Ore Car Capacity
1 Main Line			
Munger Spur	West	570	22
Coons Siding	West	7661	306
Coons Gravel Pit Spur	West	2578	103
Coons No. 1 Load Track Gravel Pit	West	1032	41
Coons No. 2 Load Track Gravel Pit	West	632	25
Coons Tail Track #1 Gravel Pit	West	403	16
Saginaw Spur	West	3184	127
Saginaw SW Wye to D&NE	West	1823	72
Burnett Siding	East	2174	86
Alborn Spur	West	529	21
Alborn Siding	West	7380	295
Payne Spur	East	496	19
Kelsey Siding	West	7396	295
Sax Spur	East	404	16
Zim Spur	East	187	7
Forbes Spur	West	597	23
Wolf Set-Out Track (old N.B.)	East	1400	56
Mountain Iron Siding at Wolf, from South Switch to Wye Switch		1750	70
East Ballast Track (MP M-2)	West	2250	90
West Ballast Track (MP M-2)	West	2250	90
Minntac Loop Track		4740	189
Minntac Sales Tails Track		1080	43
Minntac West B.O. Track		285	11
2 Keenan Cutoff			
Kirk Spur	West	180	7
3 Superior Branch			
Macon Stub	East	2875	115
Sherwood Siding	West	2912	116
4 Virginia Branch			
Mickey Mouse Track	West	675	27
Water & Light Runaround	East	600	24
5 Biwabik Branch			
Iron Junction No. 1 Siding	East	1600	64
Iron Junction No. 3 Track	West	564	22

NAME OF TRACK	Side	Usable Length Track Feet	Ore Car Capacity
Spruce Siding—			
Spruce Passing Track	West	4628	185
Spruce Siding	West	1961	78
No. 3 Spruce Siding	West	1694	67

6 Spirit Lake Branch

Nevada Siding	East	2409	96
Brewer Siding	West	521	20
Steelton Passing Track	East	6500	260

7 Interstate Branch

Pokegama Maintenance Spur	West	312	12
Saunders Siding	West	1700	68
Track No. 5 B.N. Saunders Yard			54
Track No. 7 B.N. Saunders Yard (Spur)		1250	50
Ladysmith Connection to Soo Line	West	1848	73
Peyton Siding	East	683	27
South Itasca:			
Track No. 1 (left track facing south)	East	2986	119
Track No. 2 (right track facing south)	West	3050	122

IRON RANGE DIVISION

1 Main Line

Louisiana Pacific Spur	East	1800	——
Waldo Siding	East	643	25
Campbell Spur, Waldo	East	775	31
Highland Scale Track	East	9499	379
Highland Scale Test Car Spur	East	127	5
Highland West Siding:			
Lower Portion South of Crossover	West	5500	220
Upper Portion North of Road Crossing	West	4500	180
Brimson East Siding	East	700	28
Brimson Passing Track	West	4870	194
Fairbanks Dock Spur	West	366	14
Fairbanks Passing Track	West	5451	218
Skibo — No. 1	East	1070	42
Skibo — No. 2	East	1030	41
Allen Junction Oil Spur	West	556	22
Allen Junction Track No. 4 Spur	West	230	9
Allen Junction Track No. 1	West	1765	70
Allen Junction Track No. 2	West	1627	65
Allen Junction Old N.B. Main	West	4837	193
Allen Junction Old Ely Main Line	East	4618	184
Mesaba South Siding	East	1403	56
Mesaba Team Track	East	568	22

Main Line—Cont'd

NAME OF TRACK	Side	Usable Length Track Feet	Ore Car Capacity
Mesaba No. 1 Siding	West	2240	89
Hinsdale Siding	East	1627	65
Embarrass—Industry Spur	East	1485	59
Embarrass—Dock Track	West	457	18

2 Wales Branch

Stock Chute Spur	East	291	11
Wales Team Track	West	185	7
Wales Yard No. 1 Siding	West	1420	56
Wales Yard No. 2 Siding	West	1420	56
McNair Spur—Mile W 7.06	East	920	36
Norshor Jct. Interchange Track	East	2105	83
Siding	East	662	26
Jordan Siding	West	1609	64

3 Western Mesaba Branch and Z-Line

MP&L—South of Road Crossing	West	2733	109
MP&L—North of Road Crossing	West	1958	78
MP&L—Empty Track	West	2210	88
MP&L—Load Track	West	2210	88
Mesaba Blasting	East	MILE	X-6.9
Nitro Chem	East	MILE	X-10.1
Minn Ex	West	MILE	X-11.2
Thermex	East	MILE	X-15.4
Corsica Siding		1882	75
Hercules Powder Spur MP X22		300	12
Mariska Siding MP X23	West	1740	69
Gilbert Yard Track No. 1	East	1875	75
Gilbert Yard Track No. 2	East	1760	70
Gilbert Yard Spur	East	218	8
Largo Siding—South of Crossover	East	1425	57
Largo Siding—North of Crossover	East	560	22

LOCATION OF CROSSOVERS

MISSABE DIVISION CROSSOVERS

Main Track

M.P.	M.P.
1.5	10.7
1.6	60.8
7.0	63.3
7.1	63.8
9.9	65.6

Virginia Branch

M.P.
B 3.4
B 4.1

IRON RANGE DIVISION CROSSOVERS

Z-Branch

M.P.
Z 1.2
Z 1.3
Z 3.0

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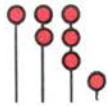
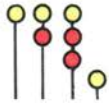
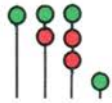
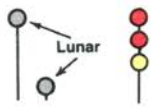
BLOCK AND INTERLOCKING SIGNALS

RULE	ASPECTS	NAME	INDICATION
240A		Stop	Stop before any part of train or engine passes the signal.
240B	 Number Plate	Stop and proceed	Stop before any part of train on engine passes the signal then proceed at restricted speed through entire block.
240D		Approach	Proceed prepared to stop before any part of train or engine passes the next signal. Trains exceeding 40 MPH must immediately reduce to that speed.
240E		Clear	Proceed.
240G		Approach diverging	Approach next signal prepared to proceed on diverging route at prescribed speed.
240L		Diverging approach	Proceed on diverging route at prescribed speed prepared to stop before any part of train or engine passes the next signal.
240M		Diverging clear	Proceed on diverging route at prescribed speed.
240N	 Lunar	Restricting	Proceed at restricted speed.
240P	 Such markers will be attached to signal mast.	Permissive	Proceed at restricted speed without stopping.

SPECIAL INSTRUCTIONS

A Location of Bulletin Books:

Missabe Division

Foreman's Office, Duluth Docks: Trainmen's and Enginemen's Lunch Room and Board Room, Headquarters Building, and Diesel Facility, Proctor; Dispatcher's Office; Yard Offices at Proctor, and Keenan.

Iron Range Division

Yard Office at Two Harbors.

B Any train operating without a caboose will be equipped with an end of train monitoring device which includes a highly visible marker and transmitter at the rear of the train, and a receiver-monitor on the locomotive. Instructions for the operation of this equipment may be secured at the Crew Dispatcher Office-Proctor, Yard Office-Two Harbors and Yard Office-Keenan.

C References to Consolidated Code of Operating Rules:

1. Rule G in the Consolidated Code of Operating Rules is amended as follows:

Employees shall not report for duty or perform service under the influence of, or use while on duty or on Company property, any drug, medication or other substance, including prescribed medication, that will in any way adversely affect their alertnes, coordination, reaction, response or safety.

The use of alcoholic beverages or intoxicants by employees reporting for duty, or their possession or use while on duty or on Company property, is prohibited.

The use of any illicit drug, on or off duty, or the possession of any illicit drug while on Company property is prohibited.

Any violation of this rule is sufficient cause for dismissal.

2. Definitions:

The definition of RESTRICTED SPEED is changed to read:
A speed that will permit stopping within one half the range of vision, short of train, engine, railroad car, stop signal, derail or switch not properly lined, looking out for broken rail, not exceeding 20 MPH.

3. Rule 2 Supplemented—

Employees required to have a railroad approved watch must have a reliable timepiece while on duty, of a construction and in a condition to run within a gain or loss of 30 seconds per week in use.

Employees are encouraged, but not required, to carry a timepiece bearing official railway watch certification.

Wrist watches may have expanding or non-expanding bands, but must not be worn while working on and around electrical equipment where danger of electric shock or burn exists.

4. **Rule 9 Amended—**

Reflectorized material of prescribed color may be used instead of lights by night.

5. **Rule 14(A)—Also applicable to the following ore dock operations:**

Dumping of ore and pellets at all dock locations when not dumping with engine attached.

The loading of cars via front end loaders at all facilities.

Any maintenance work on the docks that results in fouling one or more tracks.

When using a track crane to perform work on the docks or leads.

During cleanup and repairs of a derailment or wreck, a track or portions thereof will be red flagged.

6. **Rule 15(M)—Engine Whistle Signal, does not apply in CTC territory of the D.M.&I.R.**

7. **Rules 19, 19(A), 19(B), and 19(C) are cancelled and the following Rule 19 is in effect:**

A marker of the prescribed type in Red-Orange-Amber color range will be displayed at the rear of every train to indicate the rear of the train.

From one hour before Sunset to one hour after Sunrise, when weather conditions restrict visibility to less than one half mile and at times as may be prescribed by special instructions, the marker must be illuminated either steady or flashing. Note: portable markers that are photo electrically actuated will comply with this requirement.

When an engine is operating as a train without cars, or at the rear of a train, the trailing headlight illuminated on dim may be used as a marker.

A train may proceed without a marker to the next forward location where the marking device can be repaired or replaced when:

(1) The marker becomes inoperative enroute.

(2) A defective car must be placed at the rear for movement to a car repair point; or

(3) The rear portion of the train is disabled and prescribed marker cannot be displayed on rear car or portion to be moved.

The marker must be inspected at each crew change point to assure that it is properly displayed.

When a crew leaves a portion of their train, they must not handle a caboose as the rear car of the head portion which would indicate that the train is complete.

8. Rule 90 Amended—

When a train approaches a point where it is to wait, meet or be passed by another train or is restricted in any manner by track warrant the conductor must call attention of engineer to the restriction when practicable, after passing the last station, but not less than 2 miles from point of restriction.

Should engineer fail to act to comply with restriction, the conductor must stop train.

9. Rule 99 Supplemented—

The following definitions are applicable:

MAXIMUM SPEED—The highest speed authorized for the operations of trains and engines on main track except as otherwise restricted by special instructions.

MINIMUM FLAGGING DISTANCE—When a train stops on main track and protection against following trains must be provided, a crew member must go out at least one mile or further if darkness, grade, visibility or other conditions require, in order to provide protection.

10. Rule 102—First paragraph is changed as follows:

When a train is disabled or stopped suddenly by an emergency application of air brakes or other causes, immediate radio transmission must be made giving exact location and status of train. Trains receiving this warning must approach at reduced speed. A lighted red fusee must be immediately displayed on adjacent tracks at front and rear of train and adjacent tracks as well as tracks of other railroads that are liable to be obstructed must at once be protected in both directions as prescribed by Rule 99, until it is ascertained they are safe and clear for the movement of trains. When train involved does not have a caboose, such protection must be provided as soon as possible.

11. Rule D-151 Amended—

On Double track, trains must keep to the left unless otherwise provided.

12. Rule 214—Sentence is added to the fourth paragraph:

If train does not have a caboose, conductor's copy of all track warrants in effect and messages will be placed in envelope on engine.

13. Rule 269 Amended—

When a train or engine will be or has been stopped by a stop indication, if no conflicting movement is evident, a member of the crew must immediately communicate with the Control Operator and be governed by instructions received. The instructions must be repeated to the Control Operator.

14. Rule 275 Dual Control Switches

The third paragraph shown below is not adopted or applicable on the D.M.&I.R.:

"Before proceeding from a STOP indication over a dual control switch, a crew member must precede the movement and examine each dual control switch to see that it is properly lined."

15. Track Warrant Control (TWC) System Rules

RULE 400. *AUTHORITY:* Where designated by Time table, use of the main track will be authorized by issuance of track warrant, under the direction and over the signature of the train dispatcher.

Track warrants must be numbered consecutively from the beginning of each calendar date.

Within TWC territory there is no superiority of trains and trains will not be authorized by train order or Time table schedule.

Extra trains will not display white lights per Rule 21.

RULE 401. *DESIGNATED LIMITS:* The limits of a track warrant must be designated by specifying track, where required, and exact points such as switches, mile posts or identifiable points, except station names may be used.

When a station name is used to designate the first named point, the authority will extend from, and including, the last siding switch or from a station sign if no siding.

When a station name is used to designate the last named point, the authority will extend to the first siding switch or to the station sign if there is no siding. At the last named point, authority will extend to, but not including, the last siding switch when track warrant specifies "hold main track at last named point."

RULE 402. *REQUESTING.* Employee requesting track warrant must advise the train dispatcher of the movements to be made and, when applicable, tracks to be used and time required.

RULE 403. *COPYING.* The Conductor (Foreman) and the Engineer must have a copy of the track warrant addressed to their train or engine showing date, location, name of employee who copied it and any specific instructions issued. All information and instructions must be entered on track warrant form provided and repeated to the train dispatcher who will check, and if correct, will give "OK," the time, and his initials. The OK time and initials will be entered on the track warrant and repeated to the train dispatcher. The track warrant must not be considered in effect until OK time is shown on it. If the track warrant restricts movement or authority previously granted, it must not be considered in effect by the train dispatcher until acknowledgment of the OK has been received.

Track warrants may be relayed by employees, who must make record on track warrant form.

RULE 404. *DESIGNATION OF TRAINS:* In track warrants, trains will be designated by engine number and direction when applicable.

When an engine of another company is used, it will be designated by the initials or name of the company preceding the engine number.

RULE 405. *SPECIFIC INSTRUCTIONS:* Track warrants will include specific instructions which must be complied with by those addressed. Each track warrant, once in effect, must not be added to or altered in any manner.

RULE 406. *CHANGING TRACK WARRANT:* When a track warrant is in effect and it is desired to change the limits or instructions, a new track warrant must be issued with the desired instructions and include the words, "Track Warrant No. _____ is void" giving the number of the track warrant being changed. When a track warrant of a previous date is voided, the date must be included. The previous track warrant mentioned will no longer be in effect.

RULE 407. *OPERATING WITH TRACK WARRANT:* Track warrant authorizes the train or engine addressed to occupy the main track within designated limits but must not foul a switch at either end of the limits which may be used by an opposing train to clear the main track. Movement must be made as follows:

(1) When authorized to proceed from one point to another, movement is authorized in the direction specified. When a crew member reports to the train dispatcher that the train has passed a specific point within the authorized limits, track warrant authority is to be considered void up to that point: or,

(2) When authorized to *"WORK BETWEEN"* two specific points, movement may be made in either direction between those points without flag protection.

RULE 408. *OCCUPYING SAME LIMITS:* Not more than one train may be permitted to occupy the same or overlapping limits of a track warrant at the same time except when:

(1) All trains within the limits have been authorized to move only in the same direction and required to provide flag protection to the rear as prescribed by Rule 99. The last train may be relieved of providing flag protection when instructed not to foul limits ahead of any preceding train within the limits.

A train required to provide flag protection to the rear must report clear of limits if main track is cleared before reaching second named point unless a flagman is left to prevent a following train from passing: or,

(2) Two or more trains authorized to "WORK BETWEEN" two specific points have been instructed by track warrant to move at restricted speed within the overlapping limits: or,

(3) Trains are moving through the limits of a train authorized to "WORK BETWEEN" two specific points and all trains have been instructed by track warrant to move at restricted speed within the overlapping limits. Flag protection is not required within these limits.

RULE 409. IN EFFECT. A track warrant, once in effect, is in effect until crew member has reported clear of the limits or it has been made void. Crew member must report to the train dispatcher when they have cleared the limits.

If a time limit is shown on the track warrant, train or engine must be clear of the limits by the time specified, unless another track warrant has been obtained. When unable to contact train dispatcher and time limits have expired, authority is extended until train dispatcher can be contacted.

RULE 410. *MARKING VOID:* The word *VOID* must be written by crew member across each copy of the track warrant when train has been reported clear of the limits or track warrant has been made void.

RULE 411. *MOVEMENT AGAINST THE CURRENT OF TRAFFIC:* When a track warrant authorizes movement against the current of traffic, the train must use only the track designated within the limits specified. Such train must not allow a following train on the same track to pass unless authorized by train dispatcher.

16. Rule 505. Automatic Block is in service:

South End of Proctor Yard to 40th Avenue West, Southbound Track:

Signal 7.2 South end of "C" Yard governs movements to top of Proctor hill where signal 6.6 is located. Signal 6.6 governs movements to 40th Avenue West. Signal 2.0 located north of the first curve above 40th Avenue West governs movements to the first interlocking signal entering Ore Dock Interlocking at 40th. Signal aspects are interconnected with the interlocking.

Southbound Main Line M.P. 51 to point just north of the Ore Scale House, Proctor.

Biwabik—Main Line from McKinley entering Biwabik Yard:

Signal No. X16.6 governs movements, entering Biwabik Yard from McKinley.

17. Rule 701 (C) Amended—

Employees must not read magazines, newspapers, or other literature, use radios, or play games while on duty unless they are job related except when such does not interfere with the safe and efficient performance of their duties. Horseplay and the use of recreational television will not be tolerated on the property.

18. Rule 702(C) Amended—

Employees must not engage in another business or occupation which would create a conflict of interest with their employment on the railroad or when engagement in such other business or occupation would interfere with their availability for service or the proper performance of their duties.

Noncompliance with the above will be considered sufficient cause for discipline.

19. Rule 712—paragraph added:

Employees observing trains must also advise crew members on trains operating without cabooses when the train is not complete.

20. Rule 713(D) does not apply to crews of cabooseless trains.

21. New Rule 713(F)

Crew on any train meeting or passing a train operating without a caboose must advise that train when the cabooseless train is not complete.

22. New Rule 713(G)

Trains operating without cabooses must ascertain that their train is complete after completing movement against the current of traffic.

23. Rule 804(A) Amended (second paragraph)—

On freight trains, a trainman must ride in control cab of engine at front of train when train is moving between stations, except when a fireman is assigned and is in the control cab with the engineer. On these occasions, if the locomotive consists of more than one unit, the trainman will be permitted to ride in the cab of the trailing unit. It must be determined that the train radio in that unit is operative and set to the proper channel and volume.

24. Rule 957—Line-ups

Last paragraph of Rule 957 authorizing mechanical duplication of line-ups, is not adopted or applicable on the D.M.&I.R.

E Restrictions (Applicable to Locomotives, Wreckers and other equipment):

1. Locomotives not permitted on or beyond the following structure:
   Virginia District
   T-Bird North
   Course Tailings Unloading Track Pocket
2. Class RS-8 locomotives, Nos. 209-215 cannot be coupled to any passenger car from locomotive front end account intereference of the anti-climbing feature with vestibule diaphragm plates on passenger equipment.
3. Locomotives not permitted south of derail on track No. 2, Loading Track, at Burnett Pit. Idler cars must be used as necessary to service track.
4. Locomotive or cars must not be coupled to any car end having a STU Rear End Marker in place. A marker device must always be removed before coupling is made.
5. Wrecker X-7, stationed at Proctor, must not be placed on any track restricted for movement of engines.
6. In the movement and operation of locomotive cranes and other machines with movable parts, employees must make sure that booms or other movable parts are adjusted to clear any overhead or side obstructions.

7. Due to the possibility of damaging a crane and/or boom car, and to maximize the availability of this equipment, the following guidelines are established for handling cranes in main line and transfer movements.

   All D.M.&I.R. cranes must be handled on the rear of trains unless a serious operating situation requires another position. Under these circumstances, the type of crane and train consist must be reviewed carefully to determine the best position for movement, bearing in mind that all possible efforts must be made to minimize drawbar stress and slack action. In these unusual or emergency movements, it may be necessary to seek assistance in determining the most suitable train location, at which time one of the following may be called upon:

   Car Superintendent, Proctor
   Wrecking and Car Foreman, Proctor
   Trainmasters, Proctor, Two Harbors, or Keenan
   Chief Train Dispatcher
   Roadmaster (Cranes X-16, X-19)

   Cranes X-7 and X-20 each weigh in excess of 150 tons and must also be handled in accordance with SPECIAL EQUIPMENT RULE 90 of the Air Brake Book when moved up the Proctor, Steelton, or Highland to Two Harbors hills.

8. Locomotive cranes must not be operated on the high rail North side of Dock 2, Two Harbors, account of inadequate clearance.

9. Standard cupola cabooses must not be moved under the loading pocket at Minntac.

F Maximum Speed of Trains:

Trains in either direction on main line tracks, both divisions, except as otherwise provided—

	MPH
with ore	30
without ore	35

Speed approaching Junctions and Yards—all trains must reduce speed approaching Junctions and Yards and will be governed by the provisions of Consolidated Code Rule 93 when entering and passing through yard limits.

MISSABE DIVISION — Exceptions

Trains on the Missabe Division Main track between M.P. 58 and M.P. 38:	with ore	35
	without ore	40
NOTE: Trains hauling limestone are considered in the "without ore" category		
Trains on the Missabe Division Main track between M.P. 38 and M.P. 37: all trains		35
Over Adolph Road crossing when absolute signal displays stop		10
Pellet Reclaim Track, Missabe Junction Hole Yard		5
Brewery Spur off Soo Curve		3
Missabe Junction Hole Track		10
Ore Dock Crossover—Northbound movements		5
Ore Dock approach		20

Ore Dock 5 East and West Storage Tracks 10

Trains operating against current of traffic, Second Street, Proctor:
Southbound trains on Northward track 5
Southbound trains from "C" Yard lead to Southward track ... 5
Northbound trains on Southward track 15

Northbound trains moving through upper crossover below 2nd Street 5
Proctor hill 20
Proctor yard
Handling loaded commercial cars and loaded side dump cars on yard tracks and through turnouts 10

Between Adolph and South Itasca on both Spirit Lake and Interstate Branch 25
Between Rices Point and West End of Boston Yard on Main tracks 12
Between West End of Boston Yard and End of B.N. Main track at Hulett Avenue 10
On all B.N. yard and auxiliary tracks in Duluth/Superior terminal 10
Between Hulett Avenue and North End of Long Siding at Steelton 10
On all former Duluth Works tracks at Steelton 10
On South leg of CNW Wye track at South Itasca 5

Highway No. 7 crossing, Fairlane 17
Over Bridge 16.6 between Calumet and Taconite Junction 10
Over Bridge A-49-A, Holman Junction 20
Highway No. 169, crossing, Taconite Junction 15
Village limits, Hibbing 12
Between Ruby Junction and M.P. 16 Superior Branch 15
Between B.N. Wilpen Junction and Chisholm 15
Minntac Hill, southbound trains 20
Minntac Yard tracks, between road crossings Nos. 2 and 3 10
Through Minntac East and West Pellet Loadout Pockets 5
Minntac Transfer Yard, all tracks 5
Minntac Loop track 10
Shelton Siding 20
Shelton Diamond 25
Thunderbird South armored truck crossing 5
At Thunderbird South when making southward movements on west leg of Wye prior to receiving a restricting aspect on signal 2AL for movement over AYS Switch No. 1 5
Rainy Junction, all yard tracks 10
Keenan Yard, all tracks 10
Keenan Yard—for T-Bird crew backing train into yard 7

IRON RANGE DIVISION—Exceptions

	MPH
Over protected crossings on Two Harbors loop line	20
Over south main line switch Highland Scale Track	20
Between Waldo and Two Harbors:	
Southbound trains on Southbound Track	22
Southbound trains on Loop Line (Northbound Track)	18
Between Highland and Waldo, southbound trains	30

Entering main lead to New Yard, Two Harbors ..... Restricted Speed

Wales Branch 25
Between M.P. N49 and N62 ..... without ore 40
Between M.P. N48 and N62 ..... with ore 35

Between Allen Junction and Wyman on Old NB 20
Between M.P. X7 and Wyman: ..... with ore 35
without ore 40

Highway 135 Road Crossing at mine end of Missabe Yard, Biwabik 4

Entering and leaving Jones & Laughlin plant yard at McKinley 10

Over Bridge X-24-A, Western Mesaba Branch 15

Over truck haul road crossing at Main Track, Mile N 77.3 ... 20

Mile N80 to end of I.R. Division Main track at Mile N84.75 20

Exceptions Applicable to Both Divisions

Backup movements shoving cars 20

Over any scale track, weighing or otherwise 2

Handling wrecking cranes, pile drivers, locomotive cranes and similar equipment 30

City of Virginia street crossings 5

All mine and industrial spurs 20

Through crossovers and turnouts in either direction except as otherwise provided 20

Over any locomotive service track 5

Iron Junction—around north leg of Wye 20

G Spring Switch Locations:

Missabe Division
- Adolph—crossover Mile 10.7—southend
- Adolph—north leg of Wye
- Carson—Mile 12.4
- North Coons—Mile 20.2
- North Alborn—Mile 34.0
- North Kelsey—Mile 44.2

Iron Range Division
- Waldo—Mile N30.7
- South Highland Scale—Mile N40.3
- North Highland Scale—Mile N42.3
- North Brimson—Mile N52
- North Fairbanks—Mile N59

A lunar aspect at these locations indicates switch points are in proper position for normal movements.

In ABS territory, ABS rules are in effect.

Employees are governed by Rule 104(H) at these locations.

GENERAL INSTRUCTIONS

A-I All Locations or Both Divisions:

1. When protecting highway crossings, giving other than stop signals to highway traffic is prohibited.
2. State law provides that highway grade crossings shall not be blocked for more than ten (10) minutes, unless otherwise provided. Trains must be operated to prevent violation.
3. Making flying switches or dropping cars over street crossings within any incorporated village or city is prohibited. When handling cas over such street crossings, they must be attached to the locomotive.
4. Before making reverse movement over grade crossings protected by automatic signals, member of crew must protect the crossing until leading wheels of movement have passed over crossing. Exception is made at 40th Avenue West crossing, Duluth, on southbound track, as provision of crossing control circuit provides restart of crossing protection for southbound movement.
5. Grade crossing signals and gates at 2nd Street, Proctor and at Lake County #12, Waldo, Mile N-30.78 are equipped with motion sensors and work as follows:

   An engine, or car, enters the crossing circuit and the gates and signals become activated. If a stop is made short of crossing, they become de-activated shortly after the stop is made. (They are activated again after motion is resumed toward the crossing.)

   Train and Engine crews are to ascertain crossing gates are down prior to moving on to crossing.
6. Grade crossing protection will not operate for vehicular traffic on County Road No. 97, Ely Lake Road and Crossing. Sparta C.T.C. Location No. 53, and at County Road No. 13, Midway Road Crossing, Adolph, if absolute signals display a stop aspect.

   Crews receiving instructions from the Dispatcher to proceed at restricted speed may do so at speed not to exceed 10 M.P.H. until train occupies crossing.
7. Locomotives can remain coupled to cars when dumping on the ore docks only when the operation is under the control of the Ore Dock Foreman.
8. Cars must not be dropped under loading pockets at mines where cars are handled by mining company car riders.
9. When making cut on loads at mine load tracks, train crews must leave at least two (2) car lengths above derails and sufficient hand brakes must be set to prevent movement of car or cars. Properly securing the brakes on the first group of cars is of utmost importance.
10. Trains and engines must not leave their initial terminal before the calling time of their assignment, to avoid conflict with instructions issued to operators of On-track equipment.
11. The lunar aspect displayed at spring switch locations is qualified by the addition of a triangular marker attached to the mast with a black letter "S" appearing on a yellow background. If lunar aspect is not displayed, switch must be operated by hand before movement is made over switch.

12. Normally, Thunderbird crude ore crews run via southbound track Largo to Thunderbird North on each movement. Southbound crews out of Rainy Junction must not pass crossover B-3.4, and position of this crossover must not be changed without permission from the C.T.C. Dispatcher. Also, the switches on the main line to all Thunderbird North locations must be left lined for the main line except when authorized by the C.T.C. Dispatcher. Occupying this track or opening these switches could take the signal away from a northbound train.

13. All trains leaving Biwabik yard will not occupy southbound track between Biwabik and M.P. X-17 unless permission is obtained from the C.T.C. Dispatcher.

14. Crews servicing Mesaba Blasting, Nitro Chem, Minn Ex or Thermex must:

    1. Reduce to a single unit.

    2. Check bill box for customer instructions.

15. The following procedure will govern the proper handling of excessive dimension loads, including high cubic capacity cars. Excessive dimension loads have excessive dimension notification tags affixed to each car side, and the High Cube cars are marked with a 13 inch circle located immediately to the right of reporting marks and contain the words "EXCEEDS PLATE C."

    ADVANCE INFORMATION: Clearance information and movement authorization will be issued from the Car Distributor's Office to affected Yardmaster and the Chief Train Dispatcher prior to the receipt of excessive dimension cars in interchange or before car movement is made between points on line. This clearance data will also be furnished to Car Inspection personnel at inspection points for their information in accepting or rejecting these cars for movement and assistance in alerting all concerned in handling.

    MOVEMENT: Conductors of trains having cars with excessive dimensions must determine that proper routing and clearance for such cars has been secured before movement is made. This determination will normally be made by either receiving or securing information from the Yardmaster most immediate to the location or routing of the Car. Under unusual or emergency conditions, clearance information can also be obtained from the Chief Train Dispatcher.

    Cars with excessive dimensions MUST NOT BE FORWARDED in the absence of proper clearance and routing authority, or when it is known that conditions have changed or are improper for safe movement.

16. If a car is found having a defect which could contribute to an accident or personal injury, such defect should be reported immediately to the Chief Train Dispatcher's Office for advice on special handling of car.

17. When handling cars loaded with wire mesh, rail, or ties, cars must be shoved to coupling. These cars must not be kicked or dropped while switching under any circumstances.

18. When spotting tank cars for unloading, hand brakes must be set on all cars.

19. When a train comes to a stop with engine standing on the live rails of a scale, the engine must pull ahead a sufficient distance to clear the scale before a reverse movement is

made. Locomotives will be moved off the scale until, in the judgment of the engineer, the train can reach sufficient momentum to continue reverse movement without stopping locomotive on scale.

20. Safety glasses or other eye protection and hard hats must be worn by all employees except enginemen while on the property of Eveleth Mines, Minntac, Minorca; in the Proctor Car Shop; while employed as pilots, herders, or on crews working with wrecking trains, work trains, cranes, or other assignments with maintenance forces. Safety glasses and hard hats are available at the Headquarters Building at Proctor, Keenan Yard Office, and Two Harbors yard office.

21. When diesel locomotives are handled dead in a train, they will be placed on the head end next to the locomotive consist controlling the train.

22. A trainman must always be stationed in cupola of caboose when descending any hill, ready to use conductor's valve if an emergency requires it. If, in the judgment of conductor, control of train has passed from the hands of the engineer, he must open conductor's emergency valve at once. This rule is not applicable for trains operating without a caboose, on which employees will be governed by Rule 34 of the Consolidated Code of Operating Rules.

23. To prevent possible damage to diesel units, enginemen must not stop or permit a diesel unit to stand over switch heaters when in operation.

24. Commercial crews operating up the Proctor-Duluth, Steelton, and Highland-Two Harbors hills, and any crews assisting, will be governed by the following:

    When the leading locomotive is unable to handle train, and when assistance is provided, the train will be cut and each locomotive will pull their respective portions.

    When conditions are such that cutting the train is not possible, doubleheading is permitted.

    Track and train dynamics do not permit shoving commercial trains safely.

25. The following instructions will govern the movement of trains and engines stopped by signal indication at the Interlocking at SHELTON when no conflicting movement is evident:

    1. Member of crew must communicate with the D.M.&I.R. Dispatcher.
    2. Once the Dispatcher has ascertained that there are no conflicting movements and has so notified the crew, a member of the crew must Open Knife Switch (in lieu of pushbutton) on lock box on instrument house.
    3. Wait three minutes and then give proceed hand signal to train.
    4. After train has occupied crossing, close knife switch and lock the box.

    Rule 613 of the Consolidated Code of Operating Rules is not applicable at the Shelton Interlocking.

26. When a hot box or a suspected hot box is discovered in a moving train, or when a train crew is alerted to a tripped dragging equipment detector, the train must be stopped at once with a service application of the brakes regardless of

the grade condition. Subsequent action shall be dependent on examination of the defect, and whether or not the defect can be remedied.

If a hot box is found and it is determined that the car can be moved, the car may then be moved as slow as practical but not to exceed 10 MPH to the nearest set out point at which it must be set out.

When a train is stopped for a tripped dragging equipment detector, if defect can be located and condition corrected for safe movement, or if not defect is found, train movement may be resumed. The dispatcher must be so advised and given the car number so that arrangements can be made for a more thorough inspection at destination, as may be deemed necessary.

Hot Box and Dragging Equipment Detectors on the Main Tracks will repeat a voice message relating to any train movement on the Main Track. The messages will be broadcast over the appropriate D.M.&I.R. train radio channel within about 10 seconds after the movement has passed the detector.

The four messages programmed into the detector are as follows:

1. "D.M.&I.R. HOT BOX DETECTOR (AT LOCATION), NO DEFECTS"
2. "D.M.&I.R. HOT BOX DETECTOR (AT LOCATION), SYSTEM NOT WORKING"
3. "D.M.&I.R. HOT BOX DETECTOR (AT LOCATION), HOT BOX EAST (WEST) RAIL, AXLE NUMBER_____"
4. "D.M.&I.R. HOT BOX DETECTOR (AT LOCATION), DRAGGING EQUIPMENT NEAR AXLE NUMBER___"

If message No. 2 is received, the train dispatcher must be notified at the first opportunity.

If message No. 3 or No. 4 is received, stop must be made, train dispatcher notified, inspection made and results of inspection given to the train dispatcher.

The axle count will begin with the first axle of the lead locomotive, and will count from HEAD end of train.

If no defect is located at the indicated axle, an inspection must be made on the two cars on either side of the indicated axle.

27. Location of Main Track Hot Box and Dragging Equipment Detectors:

Division	Hot Box & Dragging Equip.	(Monitored by Dispatcher) Dragging Equip. only
Missabe	Mile 22.5 main track	Mile R-16.97, Interstate Branch
	Mile 46.0 main track	
	Mile 60.1 northward track	Mile R-19.1, Interstate Branch
	Mile 60.1 southward track	
	Mile Z-4 Sparta	
Iron Range	Mile N-43.2 main track	
	Mile N-58.1 main track	
	Mile X-2.7 West Mesaba Br.	
	Mile Z-4 Sparta	

28. Employees using radio communications will be governed by the following radio channel assignments and information:

Stations, Trains	Channel Assigned	Channels Monitored
MISSABE DIVISION		
Asst. Chief Dispatcher, Keenan	2	1, 2, 3, 5, BN1, DWP2, CNW1
C.T.C. Dispatcher, Keenan	1	1, 2, 3, 5, 6, BN1, DWP1-2, CNW1
D.W.P. Dispatcher, Pokegama	2	2
B.N. Control Operator, Kelly Lake	1	1
Keenan Yard Office	3	1, 2, 3, BN1
Fairlane Loading Pocket	2	2
Fairlane Dumping Pocket	3	3
Thunderbird North, South	3	3
Minntac Loading Pocket*	2	2
Minorca Loading Pocket	2	2
Proctor Yard Office	3	2, 3
Duluth Ore Docks	3	1, 2, 3, 4
Train Operations:		
Main Track north of M.P. 48	1	
Main Track south of M.P. 48	2	
Between Emmert and Keewatin	1	
Between Keewatin and Calumet	2	
Coleraine Area	2	
Loading at Fairlane, Minorca, Minntac*	2	
Loading at T-Bird North, South	3	
Unloading crude Fairlane (until train clears dragging equip. detector)	3	
Spirit Lake, Interstate Branches	2	
Proctor Hill	2	
Ore Docks switch crews	3	
Proctor Yard	3	

*All-rail trains with CNW locomotives must use CNW channel No. 1 to contact CNW yardmaster

IRON RANGE DIVISION		
Asst. Chief Dispatcher, Keenan	2	1, 2, 3, 5, BN1, DWP2, CNW1
C.T.C. Dispatcher, Keenan	1	1, 2, 3, 5, 6, BN1, DWP1-2, CNW1
Two Harbors Yard Office	3	3
Train Operations:		
Main Track north of M.P. N-60	1	
Main Track south of M.P. N-60	1	
Wales Branch	1	
Two Harbors Yard	3	

A-II Hazardous Material Handling

1. All hazardous material cars moving in any train between locations must be accompanied by proper shipping document (Waybill, Bill of Lading, etc.) and such document must be in the possession of a member of the transporting train crew.

   Conductors of all trains picking up one or more hazardous material cars at interchange or enroute must promptly notify the Chief Train Dispatcher's office via telephone or train radio of such pick up.

Car information on such pick-ups should include the car initial and number, commodity name and/or code, and position in train.

2. When a train is to be operated caboose less, and one or more placarded cars are in the consist, such cars must not be handled as the last car in that train.
3. Conductor of any train having collision or derailment of cars containing hazardous materials must immediately inform Chief Dispatcher by telephone or train radio.
4. Explosives, position in the train:
   A. In moving or standing trains, cars placarded "Explosives" must not be placed closer than the sixth car from the engine or occupied caboose, length of train permitting. When the length of train will not permit explosives to be so placed, they will be placed as near the middle of the train as possible, but not less than the second car from the engine or occupied caboose.
   B. Cars placarded "Explosives" must not be placed next to any loaded placarded car other than a car placarded with the same placard or one placarded "Combustible." They may not be placed next to a car placarded "Poison Gas."
   C. Cars placarded "Explosives" must not be placed next to engine, occupied caboose, occupied passenger car, or any car with a heating apparatus in operation or automatic refrigeration system.
   D. Cars placarded "Explosives" must not be placed next to loaded flat cars or any car containing a shiftable load, such as pipe, lumber, or pulpwood.
   E. When *switching* cars placarded "Explosives":
      1. They must be separated from the engine by at least one car.
      2. They must never be cut off while in motion, nor should other free-rolling cars be allowed to strike against them, nor should cars be coupled to them with more force than necessary to complete the coupling.
      3. Explosives must be spotted where they will be safe from any hazard of fire, and they must never be left under highway overpasses, bridges, nor in or alongside passenger sheds or stations, except during actual loading or unloading operations.
      4. Closed cars placarded "Explosives" must have doors closed before they are moved.
5. Position in train of loaded placarded tank cars, other than cars placarded combustible:
   A. When length of train permits, loaded placarded tank cars shall not be closer than the sixth car from the engine or occupied caboose.
   B. When length of train will not permit loaded placarded tank cars to be so placed, they shall be as near the middle of the train as possible, but not nearer than the second car from the engine or occupied caboose.
   C. Loaded placarded tank cars other than cars placarded "Combustible" must not be handled next to occupied passenger cars, or any car placarded "Explosives," "Poison Gas," loaded flat cars, any car with a shiftable

load, or any car with a heating apparatus in operation or automatic refrigeration system.

D. Loaded placarded tank cars must never be cut off in motion until previously cut-off cars have cleared leads. Such placarded cars must be in the clear before releasing a following car.

6. Position in train of empty placarded tank cars:

In a moving or standing train, empty placarded tank cars, except empty cars last containing combustible liquid, may not be placed nearer than the second car from the engine or occupied caboose.

7. Position in train of loaded or empty placarded cars—other than tank cars:

Loaded or empty placarded cars, other than tank cars (such as covered hoppers) may be placed at any position in a train.

8. In a freight train, either standing or moving, any placarded car must not be handled next to:

A. Any car placarded "Explosives."

B. Any loaded tank car placarded "Poison Gas."

C. Any car placarded "Radioactive."

9. FRA Emergency Order No. 5 issued October 27, 1974, requires that DOT specifications 112A and 114A Tank Cars, not equipped with FRA approved head shields transporting *flammable gasses,* must not be cut off while in motion and no car moving under its own momentum shall be allowed to strike these cars. Such cars must not be coupled to with more force than is necessary to complete the coupling.

Shipping papers must carry the notation "DOT 112A or DOT 114A must be handled in accordance with FRA E.O. No. 5." Employees must be informed of the presence of these cars and instructed to handle them in accordance with the requirements of this order. All switch lists and train lists must be plainly marked to indicate when cars are loaded with *flammable gas.*

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HOW TO USE THIS CHART

To determine where a placarded car can be placed in a train follow these steps:

- Determine the type of placard that is applied to the car.
- Refer to column 2 on chart and locate same placard wording.
- Follow horizontally across chart and note which vertical columns apply.
- The symbol "x" indicates wording at top that applies. See footnotes for explanation of reference marks.

POSITION IN TRAIN OF CARS CONTAINING EXPLOSIVES AND OTHER HAZARDOUS COMMODITIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			WHEN TRAIN LENGTH PERMITS	WHEN TRAIN LENGTH DOES NOT PERMIT	MUST NOT BE PLACED NEXT TO:										
TYPE OF CAR	PLACARD APPLIED ON CAR	No RESTRICTIONS	Must Not Be Nearer Than Sixth Car From Engine or Occupied Caboose	Must Be Placed Near Middle of Train But Not Nearer Than Second Car From Engine or Occupied Caboose	ENGINE	Loaded Flat Car ①	Open Top Car When Lading Protrudes Beyond Car Ends Or When Lading Extending Above Car Ends Is Liable To Shift	Any Car, Piggyback, Container, Or Other Unit Having Automatic Refrigeration Or Heating Internal Combustion Engine Operating: Lighted Heaters, Stoves Or Lanterns	OCCUPIED Car ③	OCCUPIED Caboose ⑤	EXPLOSIVES A	POISON GAS	RADIOACTIVE	UNDEVELOPED Film	Any Loaded PLACARDED Car Except Combustible

ANY CAR (INC. FLAT CARS CARRYING TRAILERS OR CONTAINERS)	EXPLOSIVES A		X	X	X	X	X	X	X①	X③		X	X		X
ANY CAR EXCEPT TANK CAR	POISON GAS				X	X	X	X	X①	X③	X		X		X
TANK CAR	POISON GAS		X	X	X	X	X	X	X①	X③	X		X		X
ANY CAR	RADIOACTIVE				X					X	X	X		X	X
LOADED TANK CAR	ANY PLACARD EXCEPT POISON GAS OR COMBUSTIBLE		X	X	X	X②	X	X	X	X	X	X	X		
TANK CAR	ANY RESIDUE PLACARD				X					X					
ANY CAR	COMBUSTIBLE OR COMBUSTIBLE RESIDUE	X													
ALL OTHER LOADED CARS	ANY PLACARDS										X	X	X		

① A flat car equipped with permanently attached ends of rigid construction is considered to be an open-top car.

② Other than a specially equipped car in trailer-on-flat car or container-on-flat car service or a flat car loaded with vehicles secured by means of a device designed for that purpose and permanently installed on the flat car, and of a type generally accepted for handling in interchange between railroads.

This exception for cars in trailer-on-flat car service does not apply to loaded flat-bed trucks, loaded flat-bed trailers, loaded open-top trailers or loaded trucks without securely closed doors.

③ A rail car placarded "Explosives A" or "Poison Gas" in a moving or standing train must be next to and ahead of any car occupied by the guards or technical escorts accompanying this car. However, if a car occupied by guards or technical escorts is equipped with a lighted heater or stove, it must be the fourth car behind any car requiring "Explosives A" placards.

B Missabe Division Road

1. The normal position of the Adolph Interlocking will be lined for the Scale Lead Track. All crews and on-track equipment operators entering or leaving Proctor via the Southward Main Track at Adolph must contact the dispatcher via radio in advance of their movement for proper routing.
2. Electric lock on the north switch to the scale tracks, Proctor, operates as follows:

   When only one track is occupied, the switch can be set for the unoccupied track and locked, after which the switch cannot be returned to the occupied track.

   Ore trains of 180 cars or less which are to move over scale, will not move from Signal 12.4 at Carson, except on signal indication green or yellow. Green will indicate that track is clear to scales and yellow will indicate that track is clear to Bridge 10-A. Ore trains of 181 cars or more will move into scales on green indication only on Signal 12.4 at Carson.

   Prior to a northward movement from east or west scale lead over the north switch, the Dispatcher must be notified, due to such movement affecting the Adolph Interlocking.

   When it is necessary to line the switch for the occupied track to remove caboose or cars, the yard engine must be in the scale bond area south of the switch and a crew member may then unlock the box at switch and set lever to UNLOCK. The engine may then proceed north of the switch and switch used. When movement is completed, switch must be restored to unoccupied track, lever restored to LOCK and box locked.
3. The following instructions govern weighing at the ore scale at Proctor:

   Train movements are governed by a four-light system in which only a single aspect will be displayed at any one time, as follows:

   GREEN ..... PROCEED

   YELLOW ..... DECREASE SPEED

   RED ..... STOP

   FLASHING RED ..... STOP—DRAGGING DETECTOR TRIPPED

   Lighting system reset pushbuttons for reweighing and dragging equipment detector are located on outside of scale building.

   Weighing lights which govern train movements also protect scale components from overspeed damage.

   Lights are activated by train speed, from wheel sensors located in the first bond.

   A train stopped by a Red aspect must be backed out of the bond, scale reset button depressed, and reweighing started.
4. It is a requirement of the Conductor at pellet loading pockets and stockpile tracks to complete a Terminal Delay Time Form #11. With regard to item No. 4—elapsed time to load—Conductors *must* explain nature and cause of abnormal delay in loading, as required by the form. (Delays could be caused by many reasons—*Railroad:* equipment failure, etc., or *Plant:* steam conditions, pellet spillage, ice in pocket, belt problems, computer problems, etc.

5. Upon arrival at any pellet loading pocket, a D.M.&I.R. crew member must inspect, from the ground, for any pellets leaking from the pocket before engine consist travels under pocket. If leakage is occurring, it must be brought to the attention of the pocket operator before further movement can be made.

   Engine must not be operated under pocket while this condition is occurring.

6. Any load over 16'0" from top of rail to top of load must not be moved under pellet loading pockets at Minntac, but must be moved via the runaround tracks.

7. Verbal authority must be obtained from the C.T.C. Dispatcher before leaving Minntac for Mountain Iron and beyond.

8. The main track switch to the M.O.O. Transfer Yard at Minntac must be lined and locked for the Transfer Yard.

9. Conductors of all movements over the D.W.&P. Railway Company joint trackage to Minorca will contact the D.M.&I.R. train dispatcher prior to departure from their D.M.&I.R. yard or terminal. This contact will verify with the train dispatcher that crews to Minorca have the current D.W.&P. Railway Company bulletin or other special instructions governing their movement.

10. Crews servicing the Minorca plant will be governed by the following instructions:

    The normal position of the Minorca Main Line switch to the Load Track will be for the Load Track.

    Locomotives and cabooses must not go under loading pocket until it is known that the Topper (retractable) Pocket is in its storage position. When loading pellets, the caboose must be cut off north of the Crossover Track switch. After loading is completed and the Topper Pocket is retracted into its storage position, and track is sufficiently clear of spilled pellets, the train can be recoupled to the caboose.

11. Train crews spotting commercial cars at the Fairlane plant will be governed as follows:

    A. Railroad personnel will use the public address system just inside pelletizing plant track to contact a plant foreman. In the pelletizing plant this should be a pelletizing plant foreman. These men wear white hard hats with a green stripe. Only supervisors should be contacted for authorization to enter the building with railroad equipment.

    B. Crews servicing the Coal Unloading Facility at Fairlane, must ascertain that the wheels on the car mover are in the DOWN POSITION before movements are made over the car mover. The car mover is located immediately south of the coal dumping shed and is painted yellow.

12. Grade crossing protection will not operate for vehicles on crossing No. 47 County Road No. 7 at Fairlane, if absolute signal at C.T.C. Location Fairlane displays a stop indication. Trains required to operate past the stop indication must protect the crossing until crossing protection starts operating. Crossing protection will operate as leading wheels of movement pass the signal.

13. Train speed and movement at the Fairlane loading pockets are governed by the TRAIN SPEED CONTROL SYSTEM light at Fairlane, the following instructions apply:

    A. D.M.&I.R. employees are not allowed to enter the lunch room at Dump Pocket (if in an emergency situation, access must be from outside of building—south side).

    B. Eveleth Taconite employees are not allowed to cross through trains and D.M.&I.R. employees are not authorized to allow for crossing through.

    C. D.M.&I.R. employees are not allowed to use brooms to help clean up spillage.

    D. D.M.&I.R. employees are required to maintain a position at their station at the south end of the Dump Pocket.

14. Crews loading pellets at Fairlane will be governed by the following procedure:

    Locomotives or cabooses must not go under loading pocket until it is known that the Topper (retractable) Pocket is in its storage position. When loading pellets the caboose must be cut off at tell-tales, account of no clearance under loading pocket.

    After loading is completed and Topper (retractable) Pocket is moved back into its storage position and track is sufficiently clear of spilled pellets, train can be recoupled to caboose.

    Crew member in Observation Hut near pocket will communicate with the Mining Company Loader or D.M.&I.R. dispatcher if pellet spillage prevents moving train to caboose and is not cleaned promptly.

    When making a cut on cars at the Fairlane Pellet Loading Pocket account of derailment or spillage, cut at least 8 car lengths north of the loading pocket to permit front end loaders to clean the pocket properly and safely.

15. When operating crews at Fairlane have loaded out on the East or West load out pocket and are required to change sides to complete loading.

    The train will be pulled South and last car will be loaded before shove back under opposite pocket is made.

    If there are not enough pellets left in bin to load last car, a cut must be made behind the last load and that load will be switched into position as the last car in train.

    Empty cars must not be shoved under either pocket without being preceded by a loaded car.

16. Automatic car rerailers are located immediately south of the loading pocket on the load-out tracks at Fairlane, Minntac, Minorca, Thunderbird North and Thunderbird South; also on the East Loadout Track at Minntac, immediately north of the loading pocket. When loading at these points, a trainman will station himself at the rerailer and signal an immediate stop to the engineer in the event a car fails to rerail. Any cars that rerail and return to the rail must be reported to the Dispatcher immediately and the car inspected by Car Service personnel before the train departs from the loading point.

17. An Automatic Yard System (AYS) is in service at Thunderbird South to facilitate train movements at that location. This AYS is not interconnected with the adjacent C.T.C.

system. If an AYS proceed signal is not obtained, and after manually operating switch in accordance with Operating Rule 275(A), train movement may be made under the provisions of Operating Rule 93.

Crew will advise C.T.C. dispatcher when ready to leave Thunderbird South loading pocket.

18. An armored road crossing for mining company truck traffic is installed on the Thunderbird South crude ore loading track immediately north of the West Wye Switch.

    Trains and engines approaching this road crossing from either direction must not exceed a speed of 5 MPH, and must not increase to normal speed until the locomotive or car leading the movement has passed over the crossing.

    During back-up movement approaching this crossing, a trainman must be on the leading car, prepared to stop the train with an emergency brake application if necessary, unless crossing is protected by flagging.

    Due to expected heavy truck traffic over this crossing, trainmen and enginemen will be alert to the possibility of derailment account packed or frozen debris in crossing flangeways.

19. Loading procedure at Thunderbird north and south:

    A light mounted above the tunnel will display green when activated by the loader. Crews will contact the loader when beginning their shove back toward the pocket and, after receiving a green signal, they will also be advised by the loader on the radio that they have permission to enter the loading pocket. After they have shoved their train into the pocket, the loader will spot the first car under the first loading chute via radio. The entire train will then be loaded by radio instructions from the loader with a brakeman observing the loading from the observation hut.

C Proctor Yard, Hill, Ore Docks and Missabe Junction

1. The normal switching schedule for the north end of the Car Shop calls for the switches to be lined against movement and locked by 7:00 A.M. Monday through Friday. Switches should be unlocked by 3:30 P.M. each night. Switching the Car Shop should be avoided during this period. If it is necessary to switch the shop during normal shop operating hours, the yard office will notify the Manager—Proctor Car Shop, and he will coordinate unlocking switches to allow switch crew access to Shop Tracks. A Car Maintenance Supervisor will monitor movement of cars by switch crew into or out of the shop area, and will alert employees working on inside or outside Repair Tracks of the impending switch crew movement. Cars must not be kicked in on any of these tracks at any time. In placing cars at the north end of the Car Shop, cars should be spotted as close as possible to the north side of the north end derails. Cars must not be spotted between the derails and the doors to the north end of the Car Shop. Cars spotted inside the Car Shop will be uncoupled from each other.

    Trainmen will couple up all cars on the car shop floor before moving them out of the shop. A trainman must be stationed outside and inside of the doors and be in position to pass signals. A trainman must precede cars as they are pushed through the shop.

2. Any roller bearing-equipped cars spotted on outside shop tracks, including the Proctor Rip Track, must have hand brake applied or wheels blocked.
3. Crews must not operate locomotives beyond the stop sign at the clearance point of the crossover south of the Diesel House on Tie-Up Track without authority of the Locomotive Foreman. Locomotives may be placed short of the stop sign whether or not a blue flag or light is displayed north of stop sign.
4. The Proctor south yard limit is at 40th Avenue West, Duluth, and provisions of Rule 93 are in effect for operating on the Proctor Hill. Prior to entering the Proctor Hill from either direction, crews and on-track equipment operators must obtain verbal permission from the dispatcher to make each movement, and advise the dispatcher of any delays that may occur. Whenever the Proctor Hill must be operated as single track, the current of traffic changed, or any other unusual situation occurs that may affect Proctor Hill operations, the dispatcher must be so advised immediately, or in advance when possible, and all movements are to be made under the direction of the dispatcher.
5. Trainmen riding locomotive of Hill Ore crews must not detrain locomotive upon arrival at the Duluth Ore Docks until complete stop is made.
6. Trains moving foreign-line ore cars from Proctor to ore dock No. 6 must stop clear of dock approach and turn down retainers before proceeding in on low lead.
7. Crews in hill transfer service must display markers as prescribed by Rule 19.
8. Whenever a hill train is stopped by a red block at 40th Avenue West, the engineer must contact the dock general foreman without delay.
9. When dock engine couples onto a loaded train, preparatory to pushing it onto the dock, a trainman must be stationed at the leading car and angle cock tested before train is pushed onto the dock. A string of cars, loaded or empty, must not be pushed without the shove being protected. Trains moving from the docks must be observed at the crosswalk adjacent to the first inner pocket by trainmen prepared to stop movement if necessary.
10. Trains and engines entering dock No. 6 will use the east lead and trains leaving dock No. 6 will use the west lead.
11. When the suttle conveyor is in operation, track No. 4 must not be used by other crews unless approval has been received from the General Foreman.

    When the suttle conveyor on track No. 4 is stored, cars may be placed ahead of conveyor if permission is obtained from the General Foreman. The General Foreman will communicate the pocket number beyond which cars must not be shoved.

    Cars must not be kicked into track No. 4.

    When the flip-flop is in operation and fouling track No. 6 or No. 3, it will be protected by a flashing red light located on the structure and permission to use such track must be obtained from the General Foreman. The General Foreman will communicate the pocket number beyond which cars must not be shoved. Cars must not be kicked into such track when the flip-flop is in operation.

12. The warning sirens activated by tripping the dragging equipment detector on dock No. 6 at Duluth will not be operational during the hours of 10:00 P.M. to 6:00 A.M. daily. During this time period, the red flashing lights only will be activated by a tripped detector.

    The sirens and red flashing lights are both operational as warnings during the hours of 6:00 A.M. to 10:00 P.M.

    When the warning siren and/or flashing red lights are activated, the train or engine must be stopped at once and inspection promptly made for cause.

    The use of siren warnings at night is eliminated to minimize disturbance to the adjacent residential area.

13. When a movement is to be made into dock 5 storage tracks, the General Foreman will notify the train dispatcher of the movement before the crew leaves Missabe Junction or the docks.

    A restricted speed signal indication will be displayed to govern movement southbound to the locked switch, and the switch may then be hand operated as follows:

    Indicators should show UNLOCKED. If not, contact the General Foreman. When indicator shows UNLOCKED, crank handle may be rotated to the left and switch may then be hand operated.

    Dwarf signal on cantilever mast will govern northbound movements from dock 5 storage tracks, and signal cannot be cleared until switch position is reversed.

    The seal on the emergency release must not be broken except on instructions from the general foreman or the train dispatcher. If the seal is broken, Rule 282-A of the Consolidated Code must be complied with.

14. When setting cars into dock No. 5 storage tracks, cars must be shoved to the south limit of the track. If there are cars on the track, each cut must be shoved to a coupling. Sufficient hand brakes must be applied to secure all cars.

15. The switches at the inner end of the Duluth dock approach must be lined for a clear track whenever possible. When crossover switches are lined for southbound loaded trains, both ends of crossover must be lined.

    Trains or engines on the dock must not make switching movements which will interfere with southbound loaded trains approaching dock.

    It is the responsibility of the ore dock foreman to see that switches are properly lined for southbound loaded trains approaching dock.

16. When operating with a caboose, Hill ore trains entering the dock will cut off caboose between relay control bungalow at Collingwood and cantilever signal, unless otherwise instructed. When signal indication at crossover permits, caboose may be dropped.

17. Crews and on-track equipment operators requiring movement from Missabe Junction to Collingwood or beyond must obtain verbal permission from the train dispatcher prior to such movement.

18. Signal indication of Signal 7.2 at the south end of the Proctor yard will govern all trains and engines moving out of the south end of the Proctor yard and entering southbound main.

19. When switching cars on the Duluth ore dock, cars cut off when engine is moving must be stopped before leading car is ten (10) car lengths from the outer end of the dock..

20. Any load over 16′ high from top of rail to top of load or 12′ wide must not be put through "Hole" track at Missabe Junction without authorization from yardmaster or agent. Oversize loads have "Dimensional Load" cards attached to each end of the car.

    If there is any doubt as to dimensions of a car, it must not be moved through this track until authorized by either the yardmaster or the agent.

21. Crews servicing the Pellet Reclaim Track, Missabe Junction Hole Yard, must not leave cars blocking the Storage Facility road crossing.

D Steelton Hill, Steelton Yard, Spirit Lake, and Interstate Branches

1. Conductors of trains departing or arriving Proctor yard over Spirit Lake Branch will report time of departure or arrival to the dispatcher. Before entering main track at Bridge 10-A, crews entering Proctor yard from Steelton must contact Proctor yardmaster for information on northbound trains and be governed by instructions from the yardmaster.

2. The following instructions govern the use of the Saunders Connecting Track between D.M.&I.R. Main Track and B.N. M&J Junction:

   Before occupying the Connecting Track from either direction permission must be obtained from the D.M.&I.R. train dispatcher.

   When requesting track permission, give your name, location and engine number or M/W equipment identification.

   Track permission from the D.M.&I.R. dispatcher will be received in the following manner:

   "(Train, engine, or name of employee in charge of M/W track car or on-track equipment) may use Connecting Track between _____ and _____, and report when clear."

   Instructions received must be repeated to the train dispatcher, who will make record of it in train order book and name of employee repeating instructions.

   All movements authorized by the train dispatcher must be reported clear of the Connecting Track when movement or work is completed.

3. Electric lock switch control boxes are located at both ends of Saunders Siding on the Interstate Branch.

   Dispatcher authority must be obtained for all movements entering and exiting the siding, and the following guidelines apply:

   TO ENTER SIDING

   1. Prior to unlocking and opening the control box, the leading wheels must be stopped within 75 feet of the siding switch.
   2. Once control box is opened, move lock release lever to the unlock position. (If not within 75 feet of the switch as above instruction indicates, a 3 to 6 minute time delay may occur before unlock indication is received).

3. Hand throw switch.

TO EXIT SIDING

1. Unlock and open control box.
2. Move lock release lever to the unlock position. (A 3 minute time delay on the north end and a 6 minute time delay on the south end will occur before unlock indication is received).
3. Hand throw switch.

When movement is complete, switch must be restored to normal position and locked, lock release lever must be placed in locked position and control box locked.

4. An electric lock switch is located at Ladysmith Connection on the Interstate Branch. Use of this switch for movements to or from Ladysmith Connection requires D.M.&I.R. dispatcher authority, and under the following instructions:

TO CONNECTION:

1. Move engine to within 75 feet of the switch, after a favorable aspect has been received at the interlocking home signal.
2. Unlock and open control box.
3. Request dispatcher to unlock switch.
4. Move lock release lever to unlock position, hand throw switch.
5. When movement is complete, restore switch to normal and lock, restore lock release lever to locked position and lock control box.

FROM CONNECTION:

1. Stop before interlocking home signal.
2. Request dispatcher to unlock switch.
3. Walk to switch; unlock and open control box.
4. Move lock release lever to unlock position, hand throw switch.
5. Proceed under signal indication.
6. When movement is complete, restore switch to normal and lock, restore lock release lever to locked position and lock control box.

5. The D.M.&I.R.-SOO Automatic Interlocking at Ambridge, Mile R-19.4 on the Interstate Branch is equipped with an automatic time release feature that provides for first-come, first-serve movements. The first train or engine into Interlocking approach circuit has a time limit of 8 minutes, if there is opposing traffic, in which to move into or through the Interlocking on permissive signal indications.

The first, second and last paragraphs of Rule 613 in the Consolidated Code of Operating Rules are not applicable at this Interlocking, and the following instructions govern:

When a train or engine is stopped by a signal indication and no immediate conflicting movement is evident, a member of the crew must communicate with the train dispatcher promptly.

The train dispatcher will determine if there is a conflicting movement within the approach or Interlocking limits, contacting the Soo Line Ry. as necessary. If the train dispatcher determines that there is no conflicting move-

ment in that area, the crew will be instructed to proceed in the following manner:

1. Proceed past the signal at restricted speed and stop short of the crossing in the clear.
2. If there is no conflicting movement evident, proceed at restricted speed to the next signal or end of block.
3. Track and switches in the interlocking limits must be examined to determine movement can be safely made.

E Keenan Yard Area

Account of grade condition, when leaving cars on Keenan Yard tracks, sufficient hand brakes must be applied on the south end to secure cars.

F Mitchell-Hibbing Area

1. All train and engine movements over Grant Street Crossing, Hibbing, (adjacent to South Hibbing freight house) must be flagged.
2. Due to infrequency of train movements over the road crossings at 31st Street and 37th Street, Hibbing (near Panama), trainmen must make certain that crossing signals are functioning before train moves over crossing. The manual signal control must be used if necessary.

G Virginia Area

1. Within the city limits of Virginia, trains and engines operating over public road crossings are permitted to proceed over crossings without stopping provided:
   a. A railway employee extends a flag beyond the leading end of the movement, warning vehicular traffic to stop.
   b. Speed of trains or engines does not exceed 5 MPH over any of the railroad crossings.
   c. Bell is rung when in motion and approaching any street or avenue.
2. Crews servicing Virginia Water and Light must reduce to single unit.

H Iron Range Division Road

1. All train movements at County Highway 21 road crossing at Mile N-84.15 at Embarrass must be protected by hand flagging.
2. Trains weighing over the electronic ore scale at Highland will be governed by a four-light system in which only a single aspect is displayed at any one time, as follows:

   Red ..... Stop
   Yellow ..... Decrease speed
   Green ..... Proceed
   Red, flashing ..... Stop—Drag detector tripped

   Locomotives must enter scale on a Green aspect.

   A train stopped by a Red aspect must be backed out of the bond beyond the yellow signal, scale reset button depressed, and reweighing started.

   Duplicate electronic equipment is available at this scale. In the event of scale malfunction, there is a switch in a box on

the scale house which must be positioned for the alternate scale equipment. That box also contains a reset button for the dragging equipment detector and one for the scale reset. Whenever train is stopped by tripped dragging equipment detector, and after train is determined to be safe to proceed. ONLY the dragging equipment detector button is to be reset to permit continuation of weighing.

As further information, the weighing lights that govern train movements also protect scale components from overspeed damage. Lights are activated by train speed from wheel sensors in the first bond.

3. At North Highland, southward trains may leave the north switch to the Highland Scale Track positioned as last used. A lunar aspect at this spring switch governing southward movements will indicate that points are in proper position for the Main Track. A yellow aspect at this location governing southward movements will indicate that points are in proper position for the Scale Track.

   When no aspect is displayed, trains and engines must stop at this spring switch to make certain it is properly lined for movement, in accordance with Rule 104(H).

4. An interlocking is in service at the north end of the Ore Receiving and Commercial Yards at Two Harbors. The interlocking is controlled from the Train Dispatcher's Office at Keenan. All movements within the interlocking limits are governed by signal indication or instructions from the C.T.C. Dispatcher.

   Instructions must be requested and received over appropriate D.M.&I.R. radio channel.

   An approach signal is located south of Waldo at Mile N29.7 and governs movements to the interlocking. A PROCEED aspect will indicate that a route has been lined into the Ore Receiving Yard. An APPROACH DIVERGING aspect will indicate that a route has been lined to the Commercial Yard or the Duluth Line.

   Power operated switches are in service at Old Safety Switch, switch leading to the Duluth Line and Ore Receiving Yard Tracks 3, 4 and 5. A hand operated switch governs movements to Tracks 6 and 7 and shall be left lined as last used unless otherwise instructed.

   All trains pulling into the Ore Receiving Yard must stop with rear of train clear of dwarf signal on track being used.

   Permission must be obtained from the C.T.C. Dispatcher before fouling the main line, using switch at 8th Avenue or for movement into Receiving Yard from the south end.

   All Southbound trains betwen Highland and Waldo will call the C.T.C. Dispatcher for authority to enter the Waldo to Two Harbors Interlocker.

   Conductors on Southbound trains will call and report when they clear the Spring Switch at Waldo and upon arriving in the clear at Two Harbors.

I Two Harbors Area

1. Prior to pushing ore to the ore dock, a trainman must be stationed on the leading car and angle cock tested before train is pushed onto the dock. A string of cars, loaded or empty, must not be pushed without a man on the leading

car. Trains to be moved from the ore docks must be observed by a trainman prior to or during movement off the docks, being prepared to stop movement if necessary.

2. Instructions governing train movements and operation in the dumping pocket at Two Harbors Yard:

TRAIN SPEED CONTROL SYSTEM

A train speed control system governs train speed and movement at the dumping pocket. Light indications are as follows:

GREEN ..... Proceed
YELLOW OVER GREEN ..... Reduce speed
RED ..... Stop
FLASHING RED ..... Stop, dragging detector tripped

The PROCEED and STOP indications may be activated manually in the Dump Pocket Control Room. During dumping operation, light indications governing train speed are electrically-controlled by the dump station conveyor belts. The YELLOW over GREEN light indication, once activated by a train overspeed, will remain on for a minimum of 45 seconds. At the end of this 45-second period, light indication will change to GREEN if speed is reduced sufficiently.

PRIOR TO TRAIN ENTERING DUMPING POCKET

1. Trainmen and enginemen must ascertain that air is cut in on cars being moved through the dumping pocket.
2. Trainmen will perform a radio check with enginemen in locomotive servicing the dumping pocket to assure proper radio functioning.
3. Trainman will obtain authority from Storage Facility personnel to move train into building, and with this authority will signal train to enter building. The PROCEED indication will be displayed automatically when doors are fully opened and conveyor belts are operating.
4. Other train or light engine movements, not for car dumping operations, are permitted through dumping pocket only when alternate routes are blocked. Trainman must first ascertain that all equipment and personnel in building are in the clear.

DUMPING OPERATION

1. Train will move into dumping pocket after receiving proper signal. Train speed during dumping operation should normally be maintained as follows:

   40 seconds per car at the 6,000 ton per hour rate.

   30 seconds per car at the 9,000 ton per hour rate.

   Train speed is also controlled by the speed control light system.
2. A sustained blast of the trapping machine horn will indicate that the trapping machine operator wants the train stopped. At the sound of this horn, trainman will immediately radio the engineer to stop the train.
3. Trainmen will observe dumping and be alert for any condition which may require them to stop the train.
4. Engineer must stop immediately upon receiving STOP signal, taking precaution to cause as little slack action as possible, due to possible attachment of trapping machine to cars.

5. The dragging equipment detector is located at the West end of the building. When the warning horn and/or flashing red light is activated, trains and locomotives must be stopped immediately and inspection made for cause.
6. Trainman will notify engineer when dumping is completed and train has cleared the building.

J Biwabik Area

1. Southbound road or yard crews will not pull out of Biwabik yard while other crews are yarding trains at this location.

   After train is stopped in clear, southbound crews may proceed.
2. Trains leaving Biwabik yard southbound via turnout located at M.P. X12 should contact the dispatcher before passing Signal X12.6, unless Signal X12.6 displays proceed indication per Rule 240-E, figure 1, of the Consolidated Code.
3. Crews requiring use of the running track between Signal X12.6 and M.P. X12 shall contact the dispatcher before proceeding past Signal X12.6 when signal is displaying a red aspect.
4. All train movements over Highway 135 (Main Street) road crossing at the north end of Missabe Yard at Biwabik must be protected by hand flagging.

K Regulations Governing Railroads Operating in the Following Cities or Villages

CITY OF AURORA

Section 1: It shall hereafter be unlawful to ring any bell on, or sound the whistle of, or permit noise to emanate from the loudspeaker of any railroad locomotive within the limits of the Village of Aurora, except as a warning against immediate threatened danger, or only upon starting an engine.

Trains and engines are authorized to sound the locomotive whistle and bell when operating on the MAIN LINE at Aurora.

CITY OF CHISHOLM

Ord. 19, Section 1: No railroad shall run a locomotive or train of cars within the Village limits without having and ringing a bell of sufficient size at all times when in motion and approaching any street or avenue.

Section 3: No railroad shall make any flying switch or make or unmake trains, or kick or shunt any car upon or across any public street.

CITY OF DULUTH

Section 42-1. Bell to be rung while train in motion:

No railroad company or corporation or their agents or employees shall run a locomotive or train of cars within the City without having a ringing bell of sufficient size at all times while so in motion and approaching any street or avenue.

Section 42-2. Blowing of locomotive whistle within certain limits:

No railroad company or corporation or employees of any railroad or corporation shall blow the whistle of a locomotive at any point between Fifth Avenue West and Third Avenue East in the City, at any point between Eighty-fifth Avenue West and Fourteenth Avenue West in the City or any point between Fortieth Avenue East and Sixtieth Avenue East in the City, except as an alarm in case of fire or as a warning to any person or an object upon or in dangerous proximity to the track; provided, that such whistle may be blown in a modified or modulated tone to signal tower man, to call for semaphore signals, as a safety precaution in backing cars or locomotives, or as a signal in testing air brakes.

Section 42-5: Obstruction of Streets:

No railroad company, any conductor, engineer, yard, or trackmaster, or other agency or employee of such company or any person whatsoever shall obstruct or cause to be obstructed any public street or highway with any locomotive, cars, freight, goods, wares, or merchandise or in any way obstruct the clear and free passage for vehicles or foot passengers over any street or avenue in the City for a period longer than ten minutes, with the exception of those two certain railroad crossings located at Fifth Avenue West and First Avenue East, respectively, which two railroad crossings shall not be obstructed for a period exceeding five minutes. Such allowable obstruction by any railroad company shall terminate immediately upon the giving of a proper warning of the approach of any fire, police, or ambulance vehicle. No such person or company shall make, cause or allow to be made any flying switch or make or unmake trains upon or across any such public street.

CITY OF HIBBING

The locomotive whistle and bell must be used at Hibbing in accordance with Operating Rules 15, 15(1) and 30.

"It is unlawful for any person operating or in charge of a railroad train, car, engine, or other railroad equipment, or combination of such equipment, to permit the same to be parked or left standing upon any street crossing so as to close such crossing to vehicular traffic for a longer period than ten (10) minutes."

VILLAGE OF OLIVER

Trains operating over road crossings within the Village of Oliver must have the engine bell ringing and sound the whistle in a moderate manner when approaching all road crossings.

CITY OF PROCTOR

Section 1. Obstruction of Streets: No railroad company, conductor, engineer, yard, or trackmaster or other agents or employees of such company or any person whatsoever shall obstruct or cause to be obstructed any public street or highway with any locomotive, cars, freight, goods, wares, or merchandise or in any way obstruct the clear and free passage for vehicle or foot passage over any street or avenue in the Village of Proctor for a period longer than ten minutes. Such allowable obstruction by any railroad company shall terminate immediately upon the giving of a proper warning of the approach of any fire, police, or ambulance vehicle. No such person or company shall make, cause, or allow to be made any flying switch or make or unmake trains upon or across any such street.

No railroad company or corporation or employee of any railroad or corporation shall blow or cause to be blown a steam whistle or whistle of any locomotive or steam engine within the City Limits of Proctor.

The exception of the aforementioned restriction shall be in the case of an alarm, in case of fire, or as a warning to any person of an object upon or in dangerous proximity to the track.

Said whistles may be blown in a modified or modulated tone to signal tower men, to call for semaphore signals, as a safety precaution in backing cars or locomotives.

CITY OF VIRGINIA

Ordinance 6-A, Section 1: That no railroad company or corporation or their agents or employees shall run a locomotive or train of cars within the limits of the City of Virginia, Minnesota, without having thereon a bell of sufficient size and at all times when so in motion and approaching any street or avenue, ring the same.

Section 2: No railroad company or any employee of any railroad company or corporation or any other person whatsoever shall blow or cause to be blown a whistle on any locomotive at any crossing or in any railroad yard within said City, except as an alarm in case of fire or to warn persons or animals on the track in immediate danger.

Enginemen operating locomotives within the limits referred to must comply with provisions of this Ordinance, but will be permitted to use whistle signal in starting and completing air brake tests and in calling for signal in interlocking plant. They will modulate the sound of the whistle to meet the requirements only.

Section 4: No railroad company or corporation shall make a flying switch over any crossing in any yard within the City or cause any locomotive to stand pumping air within 100 feet of any highway crossing or kick any cars within the limits of the City.

Within the city limits of Virginia, trains and engines operating over public road crossings are permitted to proceed over crossings without stopping provided:

a. A railway employee extends a flag beyond the leading end of the movement, warning vehicular traffic to stop.

b. Speed of trains or engines does not exceed 5 MPH over any of the railroad crossings.

SAFETY INSTRUCTIONS

A General

1. Safety requires a knowledge of and compliance with all rules and instructions.
2. All warnings or instructions given either verbally or in writing by supervisors on bulletins, signs or notices must be complied with.
3. All engines moving on the Ore Docks will have a trainman on the leading end of locomotive in direction of movement.
4. Never get on or off a moving turntable.
5. Couplers, or any other obstructions must not be left or placed between rails or in walkways, where trains may strike them or persons may stumble over them. If you are unable to remove such obstructions, report them to your supervisor at once.
6. Standing near a cable or chain when a heavy pull is being made is prohibited. Before pulls are made with a cable or chain, the employee who is directing the move must make sure that other employees are well back from the cable or chain in case it should break when the pull is made.
7. Any hazard which may cause injury, such as manholes, openings in floors, and holes along the right of way must be covered, filled or protected by a barrier. When protection is not provided, the condition must be reported to your supervisor.
8. Fusees and torpedoes must be kept in the container provided for them.
9. When giving signals with a fusee, care should be exercised to prevent slag from dropping on your hands, face, feet or clothing.
10. When lighting a fusee, hold the end to be lighted away from and to the side of your body and rub with striker cap away from the body.

B Proper Clothing

1. Employees must be suitably shod and clothed to safely perform their duties. Snug fitting work clothes must be worn. Shoes must be at least six inches high in order to give ankle support and must have good soles and heels. Laced boots are suggested as being preferable for maximum ankle support. Wedge-type soles should not be worn because of the hazard of slipping through stirrups.
2. During the winter season or in adverse weather when ear covering may impair hearing, it is of the utmost importance to maintain a shart lookout in all directions.
3. Gloves or mittens with non-elastic wrists must be worn at all times when working with moving equipment.
4. Hard hats must be worn where required.
5. Employees having hair long enough to impair vision must wear a cap or head band.

C Walking, Crossing or Standing On or Near Tracks

1. Before crossing over or walking foul of tracks or when stepping out from between engines or cars, employees must

look in both directions. Walking between rails of any track unless necessary in the performance of duty is hazardous and should be avoided.

2. When crossing tracks keep at least 15 feet away from the end of a standing train, engine or car. (This rule does not apply to trains, engines or cars on which an employee is working when protection against unexpected movements has been provided by Rule 26 of Consolidated Code.
3. No sitting, lying or crossing under cars is permitted, except where required in performance of duty, and then only when proper protection is afforded as prescribed by Rule 26 of the Consolidated Code.
4. When walking out of doorways leading across tracks or around corners or obstructions, look in both directions to determine whether the way is clear.
5. To avoid being struck by falling or protruding objects on passing trains, employees should stand back as far as conditions will allow.
6. Walking or stepping on rails, frogs, switches, guard rails, interlocking machinery or movable connections of such equipment is prohibited.
7. When walking or running, keep a close watch for obstructions to avoid tripping, slipping, falling or turning of an ankle. If necessary to look back, STOP before doing so.
8. Sitting on rails, ends of ties, bridge railings or any part of track structure is dangerous and must be avoided.
9. Hands must be kept out of your pockets when going up or down stairways or when walking in yards, crossing tracks, or where any stumbling or slipping hazard may exist.

D Getting On or Off Cars and Engines

1. When practical to do so, employees must board or leave moving engines or cars on the engineer's side. Getting on or off moving equipment must be done only at a safe speed.
2. Before getting on or off cars and engines, look in both directions. When riding on or getting on or off moving equipment, watch closely in the direction equipment is moving to protect yourself from objects, either above or alongside the tracks or cars and engines on adjacent tracks.
3. When getting on or off moving equipment, watch the ground closely to avoid any condition that could cause falling, slipping, tripping or turning of an ankle. If necessary, stop movement so that you may alight safely.
4. When stepping down the ladder of an engine or when getting down from the brake platform of a car equipped with vertical steps or ladders, face equipment and have the ball of your foot firmly placed before releasing full weight of your body on the step or ladder.
5. When riding steps or ladders of any equipment, have a firm grip with one hand before releasing the other hand.
6. When getting off standing engines or cars, face the car or engine and maintain a handhold on the rung or railing until your foot is firmly placed on the ground.
7. Whenever possible, boarding or alighting from a car or engine must be done at the rear end of the movement. Rear platform must be used when boarding a moving caboose.

8. Employees must never place themselves between the rails in front of a moving locomotive while boarding or dismounting. Employees must use the side ladders on locomotives.
9. Employees riding on the platforms of cabooses or engines or on other equipment must keep at least one hand firmly gripped to the grab iron or railing at all times.
10. Employees riding in cabooses must be especially alert to the possibility of slack action at any time. Extreme care must be exercised when moving around the inside of the caboose or when climbing the ladder to the cupola. Employees must also guard themselves against unexpected changes in speed of the train when they are moving about in the caboose.
11. Getting on or off engines or cars by any means other than the steps, ladders and hand holds provided for that purpose is prohibited.

E Coupling or Uncoupling Engines, Cars, Air Hose and Work Incidental Thereto

1. When adjustment of a drawbar, knuckle or locking block is necessary prior to making a coupling or when coupling fails, engine or cars must be separated not less than 10 feet and movement stopped before going between cars.
2. Never use your foot or hand to adjust a drawbar or knuckle while cars or engine are in motion or about to couple.
3. When going between cars or units for any reason, extreme care must be exercised to avoid placing your foot, hand or body in any position where it might be stuck or caught, such as crotch of frog, heel block of switch, coupler horn and end sill, center sill and car body of cushion underframe cars.
4. Coupler lever must be used to couple and uncouple. If lever is inoperative, stop movement and have definite understanding for full protection before lifting pin by any other means.
5. Never use a finger to adjust the lock block through the hole at the bottom of the coupler.
6. When uncoupling air hoses—
   A. *Close both angle cocks.*
   B. Take a firm grip on the hose coupling and apply upward pressure.
   C. Break connection gradually to reduce pressure in hose before uncoupling completely.
   D. Turn your face away from air hose connections as pressure is being released.
7. Before starting to reduce brake pipe pressure by opening the angle cock, hold the end of the hose firmly to prevent the hose coupling from whipping around and striking you.
8. Yard air hoses must be placed alongside of rail when not in use to eliminate a stumbling hazard.

F Operating Hand Brakes

1. Employees must take position on car as required by the type of hand brake to be operated and must have a secure footing and a firm hand hold to prevent slipping, falling or body strain.

2. Employees should check the brake wheel, lever, pawl or ratchet, and chain for defects before operating. Brake must be tested before cars are cut.
3. When controlling the speed of cars by use of hand brakes (except when making a running switch as provided in Consolidated Code Rule 811), the employee must take the safe course, getting off if the movement cannot be controlled safely for any reason.
4. When applying or releasing hand brakes, the following instructions apply:
   A. When type of equipment permits, take a position which will lean your body toward the car rather than away from it when pressure is applied.
   B. Use of any part of an adjacent car as a foot rest must be avoided.
   C. Apply steady pressure on wheel, never apply pressure by jerking.
   D. Keep in the clear of moving parts.
   E. Release brake gradually so slack can adjust itself. If unable to operate release lever or to release pawl, without forcing from ratchet, obtain help to prevent brake wheel from spinning when brake releases.
5. When applying or releasing hand brakes while standing on the ground, the following instructions apply:
   A. Car must be stopped and employee must ascertain that there will be no unexpected movement.
   B. Look in both directions to see that no cars or engines are approaching on that track.
   C. Have a firm grip on grab iron or ladder rung with left hand, applying or releasing brake with right hand.
   D. Keep both feet outside of nearest rail.
6. Never use feet to apply pressure to brake wheel.

G Operating Switches

1. Before operating switch levers or power operated switches, warn employees who are repairing or cleaning switches and make certain they are clear of the switch.
2. To operate a switch—
   A. Place your feet firmly to prevent slipping or falling, keep your hands and feet in such position that they cannot be caught or struck by lever, and keep your body clear of line of travel of lever.
   B. Lift with your legs rather than your back and avoid twisting movement of your body.
   C. Keep your body in a position where it will not be struck or caught between moving equipment and the switch lever or stand.
   D. Keepers and switch locks must be replaced after operating switch.
   E. Do not try to force a switch which is hard to throw. Get help and report switch to your supervisor.
3. Employees must not attempt to clean snow or other debris from switch points of a dual control switch while it is in power.

H On or About Engines, Cars or Trains

1. Never walk or stand in front of or between moving cars.
2. Never give a signal to move engines or cars when anyone is between equipment to be moved.
3. Employees should never ride the sill steps of high cube cushion underframe, tri-level, bi-level and TTX-type flat cars when cars are moving through turnouts or around curves. Employees must not ride the side ladders of high cube cushion underframe, tri-level or bi-level cars when such cars do not have side ladders high enough to permit climbing the ladder a sufficient height so that all parts of the body will clear the top of switch stands.
4. When train is moving in yards or any place where it is known that it is likely to stop, reduce speed, or where slack action may occur, employees must have firm hand and foot holds and, if possible, must be seated in engines and cabooses to avoid injury from sudden starts, stops, lurches, or jerks.
5. Avoid riding on the side of an engine or car, or leaning beyond the line of cab while equipment is being moved over a turntable, in or out of a building, enginehouse, or other restricted clearance area.
6. While employees are working on air brakes or brake rigging on engines or cars, air brakes must be cut out. When work is completed the air brakes will be restored to operating position. Whenever it is necessary for employees to work under such equipment and a blue flag is not available, workers must be protected against movement of the equipment and application or release of air brakes by a verbal understanding between engineer and an employee from work crew.
7. Employees must never ride—
   A. Anywhere on an engine except in the cab when running between stations.
   B. On drawbars, brake beams, truck side frames and brake wheels at any time. Employees may ride on end ladders and end sills of ore cars which are equipped with an air hose above the drawbar only for the purpose of controlling the movement through use of the air brakes.
   C. In open-top cars containing lading which might shift. Employees must use extreme caution when duties require them to ride on these cars.
   D. On sides or ends of cars going in or out of depressed tracks.
8. When using ladders on cars or engines, employees must:
   A. Face the equipment and look in direction of movement.
   B. Keep feet turned slightly sideways.
   C. Place maximum portion of ball of foot on ladder rung.
   D. Hold body close to ladder.
   E. Grasp a SEPARATE grab iron with EACH hand.
9. Employees must not stand or ride on top of, or ride on the sides of air dump cars when air dump line is cut in.
10. Employees should never carry anything in their hands when boarding or alighting from ladders or steps of moving equipment.

11. Never place clothing, tools or other objects on grab irons, hand holds, footboards, running boards, steps or other safety appliances of engines or cars.
12. Never sit on steps or drawbars of engines or cars.
13. Engine cab doors must be kept latched whenever engine is in motion.
14. When cab windows are used to inspect train, etc., be sure and keep a sharp lookout for restricted side clearances.
15. Engines must be kept clean of sand, oil or obstructions on steps, platform, walkways or engine rooms.
16. When engines are used to shove a train from the rear, employees are not permitted to ride in or on the caboose of the train being shoved while train is being started.
17. Employees must avoid swinging from the side step of one unit to the side step of another while the units are in motion.
18. Never tamper with door closers and latches.

Operating Engines

1. Employees must not place their hands, feet or any part of their body inside electrical cabinets on engines unless they are qualified to do so and then only if the power plant is isolated.
2. Safety chains and connecting walkways on engine units so equipped must be kept in their proper position while the engine is in service. Safety chains and walkways must be up at the front and rear of all locomotives, including single units and units coupled in multiple.
3. On engine units equipped with outside walkways, never pass from one unit to another until the speed is reduced to not more than 20 MPH. Under severe storm or other adverse weather conditions, the train must be brought to a stop before attempting to pass from one unit to another.
4. When pushing engines coupled together, or when pushing car or cars in or about roundhouse or service tracks, the employee in charge of the movement must see that couplings are made and that an employee is stationed at the leading end to relay signals. At night a white light must be displayed in the direction of movement and when possible, the movement must be controlled from the leading unit.
5. Before opening pressure valves of any kind, employees must exercise care to assure that no one will be injured by doing so.
6. Employees must check to see that no one will be injured before blowing down manually controlled steam separators on engines or heater cars.
7. Rings and wristwatches must not be worn while working on and around electrical equipment. When flashlights are used near electrical equipment, they must have a nonmetallic case.
8. Hatches, doors or inspection covers leading to V-belts, radiators or cooling fan areas must not be opened while engine is running.

J Fire Prevention

1. Employees must familiarize themselves with the location of fire extinguishers including those provided on engines and cabooses and, also, the instructions for proper handling and use of such equipment.
2. In the event that a fire extinguisher on a locomotive or caboose is discharged for any reason, it must be reported upon tie up so it can be recharged.
3. If a fire occurs on a caboose or diesel unit multiple consist that is beyond the control of fire extinguishers available, the affected unit must be separated from adjacent equipment if possible.
4. Never burn waste paper or refuse of any kind in oil stoves.
5. Employees handling fusees must be especially careful to see that they are extinguished after use.
6. When opening a tank or barrel which contains or has contained flammable liquids or gases, open lights, or other sources of ignition must be kept away.
7. When necessary to set out equipment due to a hot journal or for other reasons where a possibility of fire exists, all traces of fire must be extinguished before equipment is left unattended.
8. Greasy waste, paint rags and other similar material must be disposed of promptly. Such items must not be placed in or behind lockers, under benches, steam pipes or radiators, or in other out-of-the-way places.
9. Never use gasoline, kerosene or other flammable liquids to start or encourage a fire.
10. Never smoke or use an open light in the engineroom of diesel locomotives.

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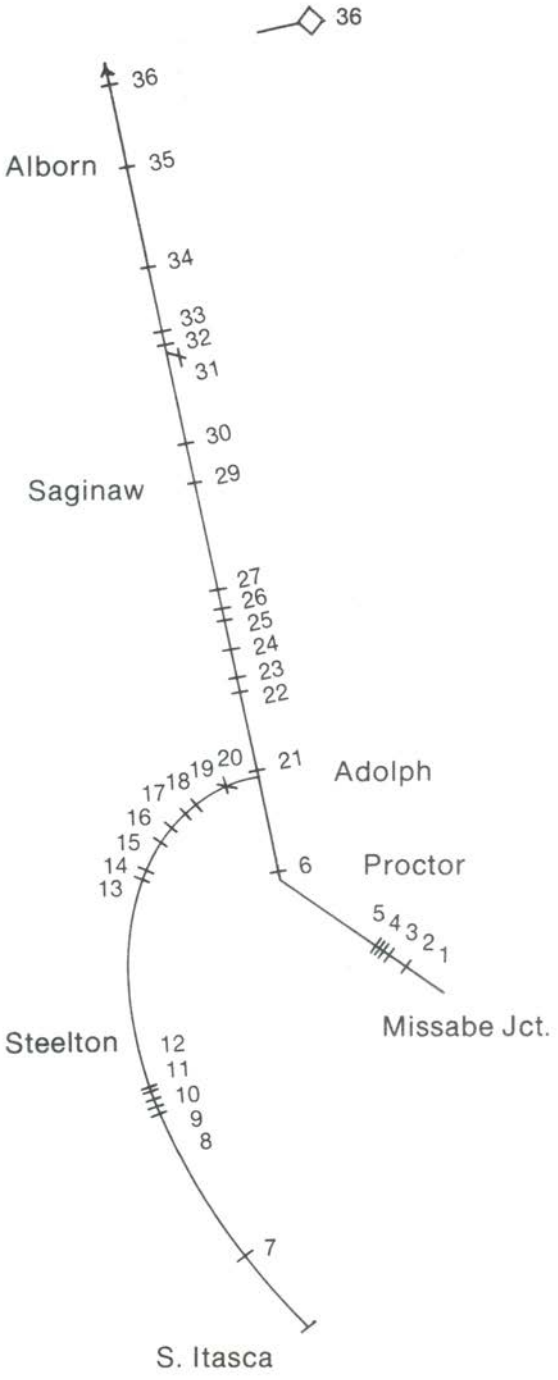
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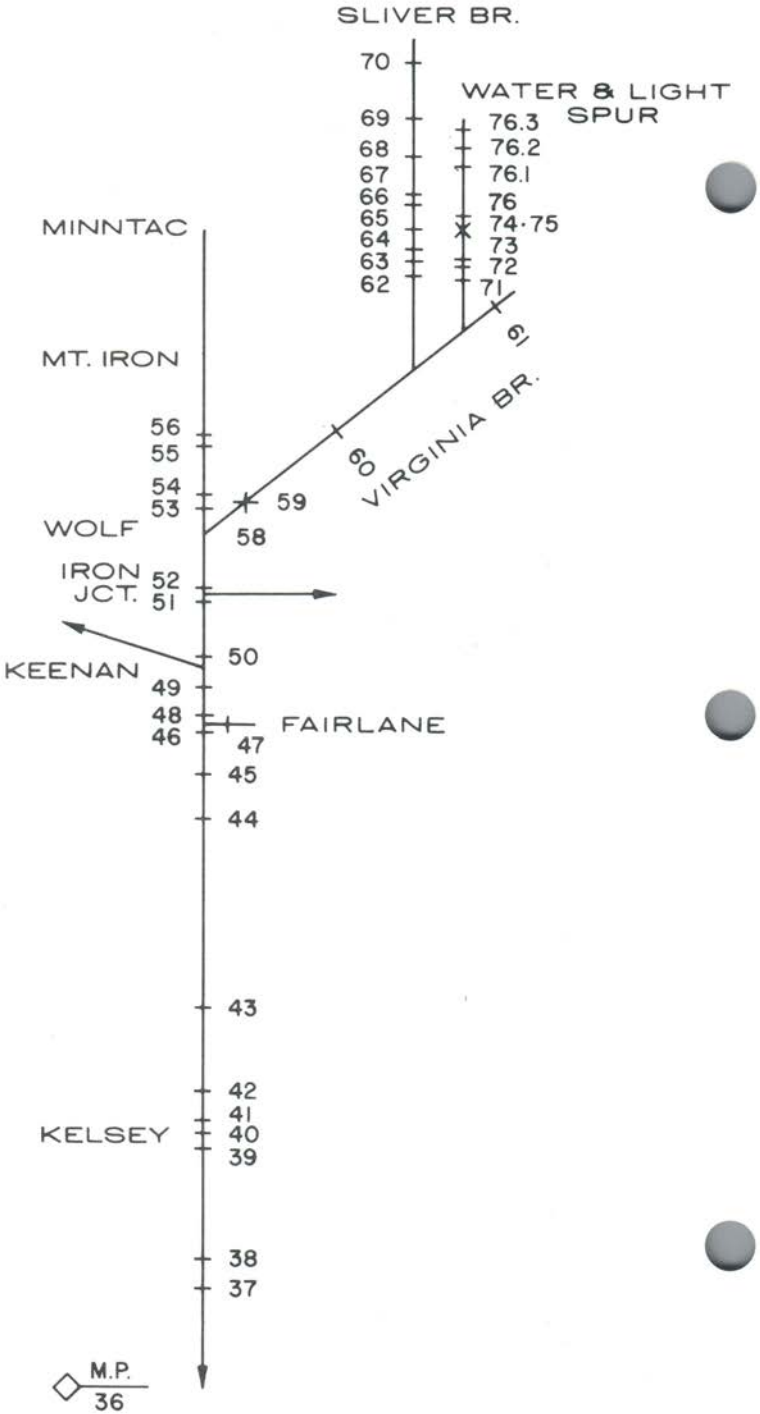
Public Grade Crossings

	MILE	D.O.T. NO.	LEGAL NO.	NAME
MISSABE DIVISION MAIN				
1.	1.69	251887W	Co. 91	40th Ave. W.
2.	2.34	251889K	City St.	57th Ave. W.
3.	2.50	251890E	City St.	59th Ave. W.
4.	2.75	251892T	City St.	62nd Ave. W.
5.	2.92	251893A	City St.	64th Ave. W.
6.	7.18	251900H	City St.	2nd St.
INTERSTATE BRANCH				
7.	19.58	251880Y	Co. A	
8.	13.93	251877R		Mitchell Ave.
9.	13.61	251876J		Broadway Ave.
10.	13.33	251875C		Grand Ave.
11.	13.07	251874V		Minneapolis Ave.
12.	12.94	251873N	Co. W	Chicago Ave.
SPIRIT LAKE BRANCH				
13.	5.13	251859T		Ratica Rd.
14.	4.94	251858L		Solway Rd.
15.	3.77	251855R	Twshp 5487	Tree Farm Rd.
16.	3.24	251854J	Co. 45	
17.	2.46	251853C	Twshp 5482	
18.	2.22	251852V	Co. 894	Stark Rd.
19.	1.07	251850G	Co. 696	St. Louis River Rd.
20.	1.07	251850G	Co. 13	Midway Road
MISSABE DIVISION MAIN				
21.	10.79	251905S	Co. 13/56	Midway Road
22.	13.69	251907F	Twshp.	Jeffery Road
23.	14.23	251908M	Co. 223	Munger Shaw Road
24.	15.21	251909U	Co. 98	Canosia Road
25.	16.26	251911V	Co. 880	Leiste Road
26.	16.57	251912C	Co. 864	Maple Grove Road
27.	20.28	251917L	Co. 873	Seville Road
29.	21.11	251920U	Twshp 875	Vibert Road
30.	22.47	251923P	Co. 874	Grand Lake Road
31.	Bentonite Spur	251927S	Co. 7	
32.	26.06	251928Y	Co. 694	Center Line Road
33.	26.51	251930A	Co. 867	
34.	28.79	251933V	Co. 8	
35.	32.41	251934C	Co. 47	
36.	35.27	251935T	Co. 142	Tremblay Road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MINNTAC
MT. IRON
56
55
54
53
59
60
61
VIRGINIA BR.
WOLF
58
IRON JCT.
52
51
KEENAN
50
49
48
46
47
FAIRLANE
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44
43
42
41
KELSEY
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39
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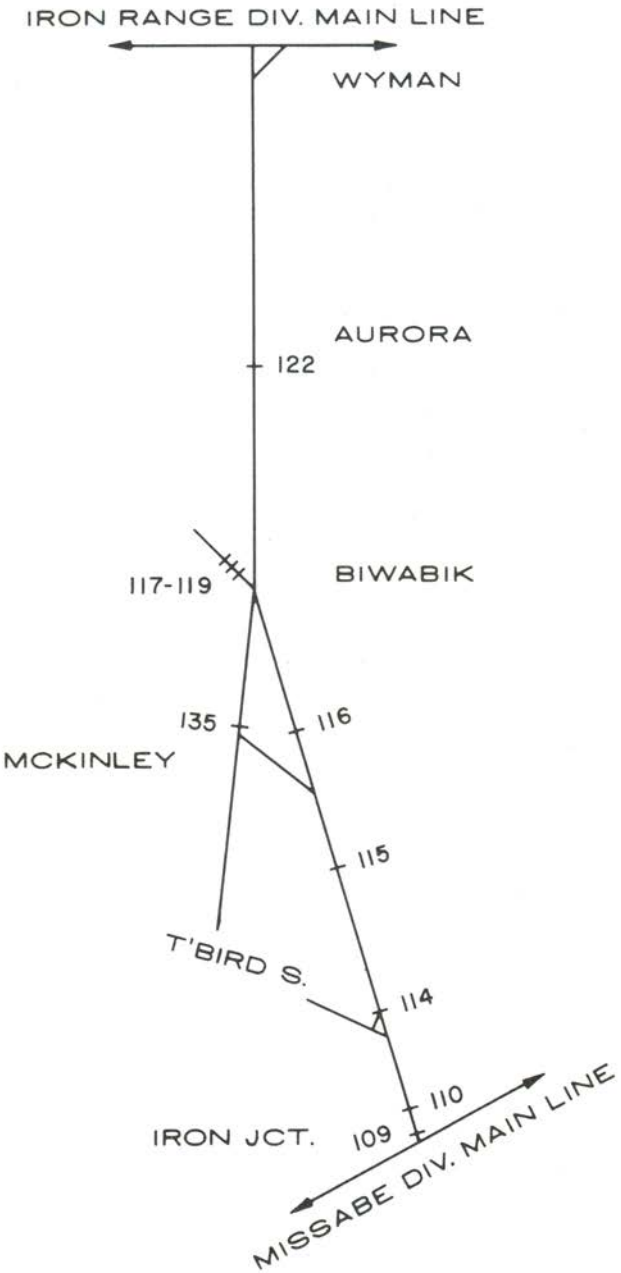
37
M.P.
36

	MILE	D.O.T. NO.	LEGAL NO.	NAME
MISSABE DIVISION MAIN				
37.	39.32	251937X	Co. 133	Berklund Road
38.	40.32	251938E	Co. 155	Swenson Road
39.	44.14	251941M	Co. 980	McKay Road
40.	44.68	251942U	Co. 29	
41.	45.14	251943B	Co. 160	
42.	46.14	251945P	Co. 52	Arrola Road
43.	49.12	251948K	Co. 28	Sax Road
44.	55.70	251950L	Co. 27	
45.	57.17	251951T	Co. 312	Norway Road
46.	58.70	251952A	Co. 311	Fermoy Road
47.	Fairlane Main	251953G	Co. 7	
48.	59.20	251962F	Twshp 6845	
49.	60.19	251963M	Co. 16	
50.	61.24	251965B	Co. 310	Keenan Road
51.	63.21	251967P	Co. 452-127	
52.	63.50	251968W	Co. 127	
53.	66.38	251970X	Co. 101	Kane Road
54.	66.64	251971E	Co. 955	Butler Road
55.	68.45	251974A	Co. 316	Maxwell Road
56.	68.93	251975G	Co. 955	Kendall Road
VIRGINIA BRANCH				
58.	0.77	252070K	Co. 19	Voss Road
59.	0.77	252070K	Co. 101	Kane Road
60.	2.94	252071S	Co. 372	Shelton Road
SLIVER SPUR				
62.	0.78	252085A	City	18th St. South
63.	0.90	252086G	City	Southern Dr.
64.	1.00	252087N	U.S. 53	
65.	1.18	252088V	City	13th St. So.
66.	1.41	252089C	City	12th Ave. W.
67.	1.49	252090W	Co. 103	8½ St. South
68.	1.82	252091D	City	5th St. South
69.	2.14	252092K	City	W. Chestnut St.
70.	2.62	252093S	Mn 169	9th Street North
WATER & LIGHT SPUR				
71.	0.22	252080R	City	11th St. South
72.	0.27	252081X	City	5th Ave. West
73.	0.30	252082E	City	10th St. South
74.	0.44	252083L	City	6th Ave. West
75.	0.44	252083L	City	8½ St. South
76.	0.49	252084T	City	8th St. South
76.1	0.67	260140T	City	5th St. South
76.2	0.80	260141A	City	3rd St. South
76.3	0.86	260142G	City	2nd St. South

COLERAINE
B.N.
99
TACONITE
98 JCT.
CALUMET
B.N.
HIBBING
93
94
95
91
108.1
108
90
WILPEN
89
88
107
BUHL
CHISHOLM
87
86
106
85
105
SHERWOOD
84
102
83
82
81
80
KEENAN
78
77
79
MISSABE DIV. MAIN LINE

	MILE	D.O.T. NO.	LEGAL NO.	NAME
SHAW CUT OFF				
77.	0.35	252008A	Co. 310	Keenan Road
78.	0.59	252009G	Co. 555	Cobb Road
79.	N. Wye	252010B	Co. 555	Cobb Road
80.	2.56	252013W	Co. 62	Admiral Road
81.	3.62	252014D	Co. 452	Iron Jct. Road
82.	4.95	252015K	Co. 137	Fraser Road
83.	5.25	252016S	Co. 106	Allavus Road
84.	7.27	252017Y	Co. 25	
SUPERIOR BRANCH				
85.	7.69	252026X	Co. 453	Morse Road
86.	8.18	252027E	Co. 592	McSweeney Road
87.	9.83	252028L	Co. 451	Shaw Road
88.	Coliseum Spur	252030M	Co. 763	Wilpen Road
89.	Coliseum Spur	252031U	Co. 92	Spudville Rd.
90.	12.55	252032B	Twshp	Stuckel Rd.
91.	15.69	252037K	City	16th Ave. E.
92.	BN Conn	252043N	City	Grant St.
HULL RUST BRANCH				
93.	14.97	252050Y	City	37th Street
94.	15.46	252051F	City	31st Street
95.	15.77	252052M	City	27th Street
ALBORN BRANCH				
98.	48.92	252141E	Co. 15	
99.	Hi-Grade	252151K	U.S. 169	
WOODBRIDGE BRANCH				
102.	0.63	252019M	Co. 642	Hayes Road
105.	3.81	252022V	Twshp 7933	
106.	5.00	252025R	Co. 25	
OLIVER ST. CLAIR BRANCH				
107.	1.15	252061L	Co. 642	Hayes Road
108.	3.89	075992N	U.S. 169	City Route
108.1	4.36	252064G	City	Industrial Ave.


IRON RANGE DIV. MAIN LINE
WYMAN
AURORA
122
117-119
BIWABIK
135
116
MCKINLEY
115
T'BIRD S.
114
110
IRON JCT.
109
MISSABE DIV. MAIN LINE

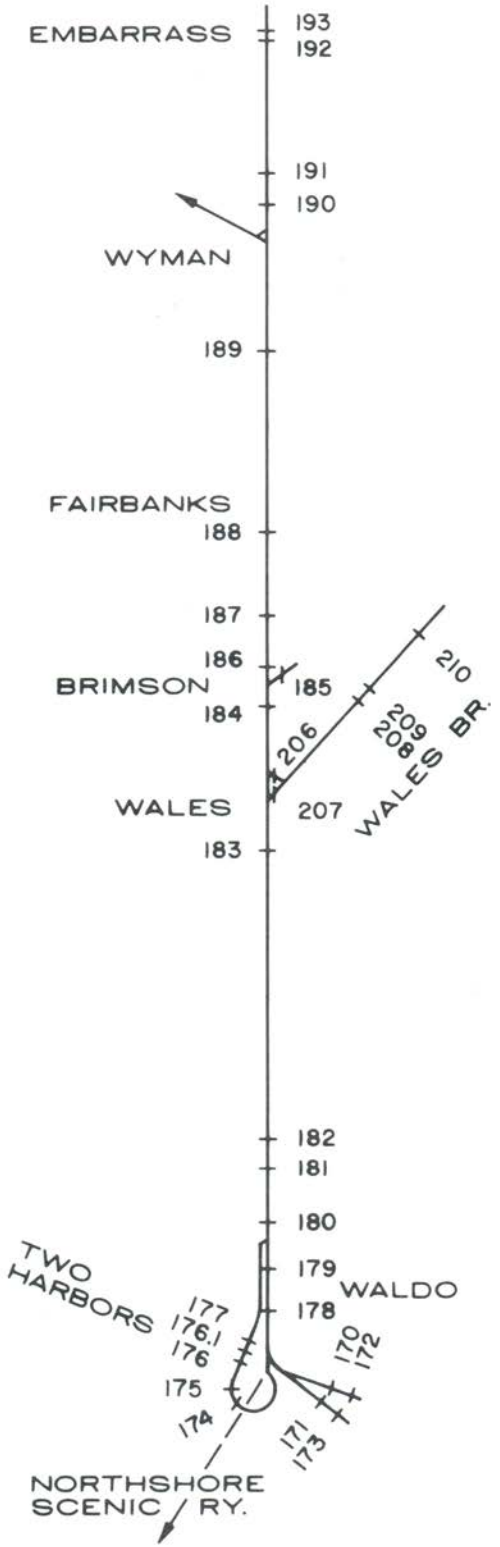
	MILE	D.O.T. NO.	LEGAL NO.	NAME

BIWABIK BRANCH

109.	0.13	251990J	Co. 127	
110.	0.76	252375H	Co. 7	
114.	3.34	251996A	Twshp 6721	
115.	7.33	252001C	Co. 97	
116.	11.19	252003R	Co. 20	
117.	15.05	252005E	Mn. 135	Main St.
118.	15.12	252006L	City	2nd St.
119.	15.24	252007T	City	Alley

X BRANCH

122.	7.85	252305T	Co. 100	Main St.
135.	18.02	252330B	Co. 20	


EMBARRASS
193
192
191
190
WYMAN
189
FAIRBANKS
188
187
186
BRIMSON
185
184
210
209
208
206
WALES BR.
WALES
207
183
182
181
180
179
WALDO
178
TWO HARBORS
177
176.1
176
175
174
170
172
171
173
NORTHSHORE SCENIC RY.

MILE	D.O.T. NO.	LEGAL NO.	NAME

IRON RANGE DIVISION MAIN

170. Merchandise Track	252233S	City	6th St.
171. Coal Dock	252234Y	City	6th St.
172. Merchandise Track	252236M	City	3rd St.
173. Philgas Spur	252237U	City	3rd St.
174. L 2.40	252239H	Co. 61	
175. L 3.14	252241J	Co. 11	7th Ave.
176. L 4.19	252242R	Co. 19	15th St.
176. L 4.95	252245L	UT 30	Nyrstrom Rd.
177. L 5.47	252247A	UT 33	Nursery Rd.
178. 29.03	252248G	UT 33	Nursery Rd.
179. 29.60	252249N	Co. 122	
180. 30.78	252250H	Co. 12	
181. 32.21	252251P	Co. 13	
182. 33.04	252252W	UT 38	Eliason Rd.
183. 41.51	252254K	UT47	Highland Rd.
184. 49.02	252256Y	Co. 44	Pequaywan Lake Rd.
185. Gravel Pit	252257F	Co. 44	Brimson Rd.
186. 51.10	252258M	Co. 547	
187. 53.73	252260N	Twshp 2199	
188. 58.01	252261V	Co. 16	Town Line
189. 67.49	252265X	USFS	
190. 74.94	252267L	USFS 117	
191. 76.71	252268T		
192. 83.58	252271B	Co. 362	
193. 84.15	252272H	Co. 21	

WALES BRANCH

206. Wye Trk.	252351U	Co. 14	
207. .10	252352B	Co. 14	
208. 7.00	252353H	USFS 122	
209. 8.00	252354P	Co. 2	
210. 11.78	252356D	USFS 397	

Location of Medicine Cases

First aid kits, bandages, disinfectants and burn sprays are supplied in all engines and yard offices.

Stretchers are provided in all yard offices.

Reporting of Injuries

Serious injuries must be given immediate medical attention. All injuries incurred while on the property must be reported to the employee's supervisor before the employee leaves the property at the end of his tour of duty. An injured employee's supervisor or the Chief Dispatcher must be notified immediately if medical attention is required. Conductors must also furnish information concerning injuries to any member of their crew in the proper place on their time slips.

All employees are hereby notified that the Railway is required by law to make timely, factual reports of all employee injuries to the Federal Railroad Administration. Tardiness in reporting and falsification of data with respect to injuries can result in severe fines and penalties being imposed by the Federal Railroad Administration.

Returning to Service

All employees who have not performed service for more than six months will be required to take a company physical which will include a drug screen.

All employees who have not performed service for more than thirty days will be required to complete a Return to Service form before they are allowed to return to service. This form is available at all points where employees normally report for work. It requires employees to state whether they are in good physical condition and to provide information on any illness or injury which may have occurred during the period when service was not performed.

All employees who have not performed service for any period less than thirty days, returning from vacation or other off-duty time are responsible for notifying their immediate supervisors of any off-the-job injury or illness which required medical treatment or which might in any way affect their ability to perform their work.

All employees who have been hospitalized or received treatment for an off-the-job injury must arrange through the Safety Department to have their physical condition reviewed and approved by the Chief Surgeon prior to returning to service. Employees will be requested to arrange for a letter from their doctor to the Chief Surgeon stating results of treatment and ability to perform their regular duties. An appointment will then be arranged with the Chief Surgeon by the Safety Department.

MEDICAL SERVICE AND EMERGENCY TELEPHONE

Duluth Area

Dr. P.D. Pretter, Chief Surgeon
Monroeville, Pa. ..... (216) 754-6616

Dr. J. Downs, Examining Physician,
105 Northland Medical Building 726-5345

Dr. Peter Austin, Eye Surgeon 722-6655

Gold Cross Ambulance 722-0807
Duluth, Proctor 911

St. Mary's Hospital 726-4000

St. Luke's Hospital 726-5555

Miller-Dwan Hospital 727-8762

North End Area

East Range Clinic-Virginia 741-0150

East Range Clinic-Aurora 229-3311

Virginia Regional Medical Center—
Emergency Room 749-9412

Virginia Regional Medical Center (Hospital) 741-3340

Virginia Ambulance Service 741-1488

Hibbing General Hospital 263-7591

Hibbing Ambulance Service 263-8808

Itasca Memorial Hospital-Grand Rapids 326-3401

Northland Ambulance Service,
Grand Rapids 326-3477

White Community Hospital-Aurora 229-2211

Hoyt Lakes Ambulance 225-2800

Two Harbors Area

Community Health Center & Clinic 834-2171

Lakeview Memorial Hospital 834-2211

Dr. Carl Griesy 834-2176
Residence 834-3633

Two Harbors Ambulance 834-2171

If no answer, call 834-2211

SPEED TABLE

Time Per Mile Min.	Sec.	Miles Per Hour
1	20	45.0
1	22	43.9
1	24	42.9
1	26	41.9
1	28	40.9
1	30	40.0
1	33	38.7
1	36	37.5
1	39	36.4
1	42	35.3
1	45	34.3
1	50	32.7
1	55	31.3
2	—	30.0
2	10	27.7
2	20	25.7
2	30	24.0
2	40	22.5
3	—	20.0
3	30	17.1
4	—	15.0
5	—	12.0
6	—	10.0
7	—	8.6
8	—	7.5
9	—	6.7
10	—	6.0

INDEX

DEFINITIONS

AB - ABD - ABDW Type Valves: The operating device used on freight cars for charging, applying and releasing the air brakes according to the varying pressures in the brake pipe.

Aftercooler: A radiating means used to insure the proper cooling of compressed air, thus causing the moisture entrained by compression to condense and collect in the main reservoir.

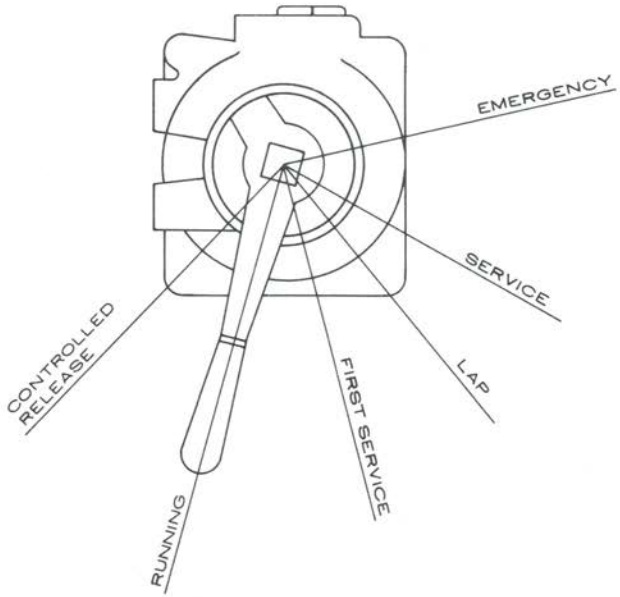
Air Brake: A combination of parts operated by compressed air and controlled manually, pneumatically or electrically, by means of which the motion of a car or locomotive is retarded or stopped.

Air Compressor: A device on the locomotive for compressing the air used in operating the air brake, air signal and all other air-operated appliances on both locomotives and cars.

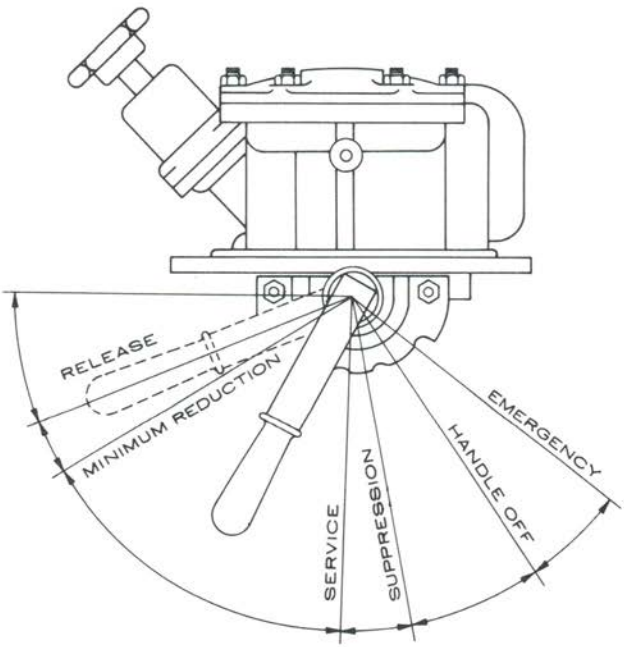
Air Gauges: Instruments used on locomotives, cabooses and end of train devices to indicate the amount of air pressure being maintained. Duplex gauges are equipped with two pointers and register two pressures, such as auxiliary reservoir pressure and brake pipe pressure. Single pointer gauges register one pressure only.

Automatic Air Brake: An arrangement of equipment on locomotives and cars with necessary piping and reservoirs for its operations, which upon a reduction of brake pipe pressure, regardless of how made, will automatically apply the brakes. An increase of brake pipe pressure will normally cause a release.

Automatic Brake Valve: A valve, manually operated primarily to control the flow of air into and out of the brake pipe. This provides a means for the engineman to control the rate (service or emergency) of brake pipe reduction and the air supply (main reservoir or feed valve) into the brake pipe for charging, recharging and releasing the brakes on both locomotives and attached cars.



24-RL Brake Equipment: Automatic Brake Valve Handle Positions



26-L Brake Equipment: Automatic Brake Valve Handle Positions

Automatic Drain Valve: A Valve which automatically drains condensation from locomotive reservoirs.

Brake Application: A sufficient reduction of brake pipe pressure (no matter how made) to cause the control valves to move to applied position which if made in the service position(s) of the automatic brake valve may consist of one or more reduction.

Brake Cylinder Release Valve (Bleed Valve): A valve designed to bleed brake cylinder pressure without necessity of draining car reservoirs when preparing cars for switching.

Brake Pipe: The pipe, including branch pipe, angle cocks, cutout cocks, centrifugal dirt collectors, strainers, hose and hose couplings, used to distribute compressed air throughout the train. The brake pipe connects the automatic brake valve on the locomotive with the brake apparatus on all the cars in the train.

Brake Pipe Flow Indicator: An instrument giving visible indications of the rate of air flow into the brake pipe and conditions affecting brake pipe pressure.

Brake Pipe Vent Valve: A valve on engines and cars used to provide means of local exhaust of brake pipe air and to insure propagation of quick action when an emergency application of the brake is initiated.

Brake System: Includes all coordinated brake apparatus on locomotives and cars, such as the air brake, dynamic brake, electro-pneumatic brake, hand brake and foundation brake gear.

Brake Valve Cut-Out Cock: A device for cutting out the automatic brake valve on all except the controlling unit of an engine consist, when two or more engines, or units, are in the same train.

Compressor Governor: A device to automatically regulate air compressor operation between fixed maximum and minimum pressures in the main reservoir.

Conductor's Valve: A valve placed in the caboose for applying brakes from the rear, when necessary, at a service or emergency rate of reduction.

Control Valve: A valve on the locomotive which applies and releases the brakes on the locomotive, directly or through relay valves, and automatically maintains the pressure against leakage in the brake cylinders during brake application.

Cutoff Valve: A valve used on 26-L equipment that allows the charging or reduction of brake pipe as determined by the manual setting of the valve.

Dead Engine Feature: Provision made on locomotive for charging main reservoirs from the brake pipe when the locomotive is dead or the compressor is inoperative.

Duplex Release Valve: An appliance permitting manual reduction or depletion of auxiliary reservoir pressure alone, or auxiliary and emergency reservoir together.

Dynamic Braking: An electrical means of employing the momentum of the locomotive and train to cause a braking effect.

Emergency Application: A rapid reduction of brake pipe pressure which will cause all control valves to move to emergency position and transmit quick action. It may be made by the engineman with the automatic brake valve, or by the trainmen with the caboose valve, emergency valve, or angle cock; it is also made automatically when the brake pipe is broken or the train parts.

Emergency Relay Valve: A valve that makes it possible to obtain an emergency brake application at any time when the brake system is charged, regardless of the position of the double-heading cock.

Emergency Valve: A valve placed in all passenger-carrying cars, baggage and mail cars, locomotive cabs, and on some work equipment cars and cranes for the purpose of applying the brakes.

End Of Train Device: A device comprised of a head unit (Receive and Display Unit) located in the locomotive consist, and a rear unit (Sense and Transmit Unit) located on the rear car of the train. The purpose of the rear unit is to determine the rear car brake pipe pressure and transmit that information to the front unit. The front unit is designed to receive data messages from the rear unit and display the rear car brake pipe pressure.

Full Service Application: A service rate reduction of brake pipe pressure sufficient in amount to cause equalization of pressure in the brake cylinder, auxiliary reservoir, and brake pipe.

Gradient: The difference in brake pipe pressure between the control unit and maximum obtainable on the rear of the train. It is the direct result of leakage or trainline obstruction.

Independent Brake Valve: A valve to operate the air brakes on the locomotive independently of the train brakes.

Intercoolers: A device for cooling compressed air between stages of the compressor.

Main Reservoirs: Cylindrical receptacles on the locomotive for storing and cooling the main supply of compressed air.

Main Reservoir Selector Cock: A device which regulates the flow of air between main reservoir and brake pipe when brake valve is in release position.

MU-Valve: A manually positioned valve which enables the air brake equipment of one unit to control or be controlled by that of another.

Quick Service Valve: A valve which propagates quick service by making a local brake pipe reduction on each car so equipped.

Reducing Valve: A valve that reduces main reservoir pressure to the pressure desired and automatically maintains it for use where lower air pressures are required.

Regulating Valve: (Sometimes referred to as **Feed Valve.**) A valve that reduces main reservoir pressure to the pressure desired in the brake pipe, maintaining that pressure automatically while the brake valve handle is in running position or when the pressure maintaining feature is cut in.

Retainer: A manually operated selector valve by means of which a portion of the pressure in the brake cylinder may be retained. This permits the brake pipe pressure to be increased (after brake applications) to recharge the auxiliary reservoirs without causing a complete release of train brakes.

Rotair Valve: A valve used on 24 RL equipment to prepare the unit as a leading or trailing unit in multiple unit operation. This valve cuts in or cuts out the operation of the independent brake valve.

Safety Valve: A valve designed to open at a predetermined pressure setting, thus preventing an accumulation of pressure in excess of that prescribed.

Service Application: A reduction of brake pipe pressure at a rate that will produce an application of the locomotive and train

brakes short of an emergency application.

Service Rate of Reduction: A decrease in brake pipe pressure at a rate sufficiently rapid to move the control valve on locomotives and cars to service position, but at a rate not rapid enough to move the valve to emergency position.

Signal Valve: A valve which operates to cause the signal whistle to give audible sounds in the locomotive cab.

Straight Air Retainer System: A system that performs the function of manual retainers except that the pressure retained in the brake cylinder is adjusted and controlled by the straight air brake valve in the cab of the controlling unit of the locomotive and through a special arrangement on the cars so equipped.

Undesired Emergency: An emergency application of the brakes which originates from a source other than the automatic brake valve, ie: burst hose, broken pipe, service pipe leak, train separation or other unknown origin.

Piping Dream of the Complete AB Freight Car Brake With Straight Air Piping Used on D.M.&I.R. Mini Quad Ore Cars

INSPECTION AND OPERATION
of
LOCOMOTIVE AND CAR BRAKES

LOCOMOTIVE INSPECTION

1. Enginemen must know that the brakes are in safe and operative condition, and, when taking charge of an engine or if lead unit is changed enroute, will ascertain that:
   (A) Hand brake is set.
   (B) Brakes of each unit apply and release from a full service application of the automatic brake valve on the control unit.
   (C) Brakes of each unit apply and release with the independent brake valve on the control unit.
   (D) Brakes, when applied with the automatic brake valve, release on each unit when the independent brake valve is depressed in release position.

   NOTE: The independent brake valve handle should be depressed for six (6) seconds per unit in consist after the brake pipe exhaust has stopped.
   (E) Brake pipe leakage does not exceed five (5) pounds per minute after a reduction of ten (10) pounds has been made from brake pipe air pressure of not less than seventy (70) pounds.
   (F) The Rotair valve and cutoff valve are in correct position. (See Rule 7)
   (G) Sanders are operative.
   (H) Dynamic brake is operative as indicated by test outlined in Rule 6.
   (I) Hand brake is completely released on all units.
2. After initial inspection is completed on locomotives at all locations, it is required that the locomotive engineer initial and date the locomotive inspection card on each unit of the locomotive consist, if the card has not previously been initialed on that date.
3. When other than lead unit is changed, an application and release test of the air brakes shall be made by ascertaining that:
   (A) Brakes of each unit apply and release from a full service application of the automatic brake valve on the control unit.
   (B) Brakes of each unit apply and release with the independent brake valve on the control unit.
   (C) Brakes, when applied with the automatic brake valve, release on each unit when the independent brake valve on the control unit is depressed in release position.
   (D) Sanders are operative.
   (E) Hand brake is completely released.
4. Minimum brake cylinder piston travel of truck-mounted brake cylinders must be sufficient to provide proper brake shoe clearance when brakes are released. Maximum piston travel must not exceed six (6) inches.

5. Standard pressure of air pressure regulating devices are as follows:

(A) Locomotives

Main reservoir	130-140 P.S.I.
Air compressor safety valve	175 P.S.I.
Main reservoir safety valve	150 P.S.I.
Air compressor intercooler safety valve	55-65 P.S.I.
Independent brake valve	
Cast Iron Shoes	40 P.S.I.
Composition Shoes	72 P.S.I.
Control Valve Safety Valve (D-22,24,26)	60 P.S.I.
Control air pressure (on units so equipped)	87-93 P.S.I.

Deviation from these pressures must be reported to proper authority.

(B) Brake pipe pressure

All commercial and ore trains 80 P.S.I.
EXCEPT:

Both divisions -	
Passenger trains	90 P.S.I.
Jordan Spreader (Dozer Operation)	
Normal	100 P.S.I.
Maximum	125 P.S.I.
Missabe Division -	
Southbound all rail trains and unit trains south of M.P. 30	90 P.S.I.
Hill trains between Proctor and Duluth or Steelton:	
Southward loaded trains	90 P.S.I.
Mixed (50% loads or more)	90 P.S.I.
Iron Range Division -	
Southward loaded trains	
Highland to Two Harbors	90 P.S.I.

Terminal Test of Dynamic Brake and Interlock

6. Enginemen will conduct the following tests to ascertain that the dynamic brake and interlock are operative on units so equipped:

(A) After protecting engine by applying hand brake, test dynamic brake and interlock while standing as follows:

(1) Make fifteen (15) pound application with automatic brake valve and leave valve handle in lap position.

(2) Move selector lever to B (brake) position, advance throttle to #1 position, and ascertain that brakes release on all units.

(3) Move independent brake valve to full application position and ascertain that brakes apply on all units. Release independent brake valve and ascertain that brakes release on all units.

(4) Move automatic brake valve to emergency position and ascertain that brakes apply on all units. Move automatic brake valve to lap position and ascertain that brakes release on all units.

(5) Move automatic brake valve to running position. Move independent brake valve to full application. Move throttle to IDLE and selector lever to OFF.

(B) If track space and condition permit, test dynamic brake while running before putting engine on train as follows:

(1) Attain a speed of 15-20 mph and reduce throttle to IDLE.

(2) Set engine consist for dynamic braking in accordance with Rule 50.

(3) Ascertain that dynamic brake is operative by observation of the load meter gauge.

(4) Return engine consist to power operation.

LOCOMOTIVE OPERATION

7. Under normal conditions, when two or more units are used in multiple the engine must be operated from the leading unit. Cab controls in the engine consist must be positioned as follows.

24-RL Equipment
CONTROLLING UNIT

	Psgr, or Freight Svc.	Engine in Tow Shut Down or Running	Double-Heading or Helper
Rotair Valve	PASS*	PASS	PASS
Automatic Brake Valve	As required	Running	Running
Independent Brake Valve	As required	Release	Release
Brake Valve Cut-Out Cock	OPEN	CLOSED	CLOSED
Dead Engine Feature	LIVE	DEAD	LIVE
Air Compressor Cut-Out Cock	Loaded	Unloaded	Loaded

*Passenger

24-RL Equipment
TRAILING UNIT

	Psgr, or Freight Svc.	Engine in Tow Shut Down or Running
Rotair Valve	PASS LAP	PASS
Automatic Brake Valve	Running	Running
Independent Brake Valve	Release	Release
Brake Valve Cut-Out Cock	CLOSED	CLOSED
Dead Engine Feature	LIVE	DEAD
Air Compressor Cut-Out Cock	Loaded	Unloaded

26-L Equipment
CONTROLLING UNIT

	Psgr, or Freight Svc.	Engine in Tow Shut Down or Running	Double-Heading or Helper
Automatic Brake Valve	As required	Handle Off	Running
Independent Brake Valve	As required	Release	Release
MU-2 Valve	LEAD	DEAD	LEAD
Cut-Off Valve	IN	OUT	OUT
Dead Engine Feature	LIVE	DEAD	LIVE
Actuating Air Hose	Closed except between operating units	Open	Closed except between operating units

TRAILING UNIT

	Psgr, or Freight Svc.	Engine in Tow Shut Down or Running
Automatic Brake Valve	Handle Off	Handle Off
Independent Brake Valve	Release	Release
MU-2 Valve	TRAIL 26 OR 24	DEAD
Cut-Off Valve	OUT	OUT
Dead Engine Feature	LIVE	DEAD

8. An engine shall not be reversed while in motion except as a last resort to protect life and property, and only then when engine is moving light and brakes fail.
9. The engine throttle must not be left open when engine is unattended, unless otherwise instructed.
10. The generator field switch must be in "off" position whenever engine is left unattended.
11. When operating over railroad crossings at more than twenty-five (25) mph, reduce throttle to at least # 4 position eight (8) to ten (10) seconds before the engine reaches the crossing. If the engine is already in # 4 position or lower or running less than twenty-five (25) mph, allow the same time interval and place the throttle in the next lower position. Throttle may be advanced after all units are over crossing.
12. The independent brake on the controlling unit must be cut in at all times. The handle must not be blocked or wedged.
13. The independent brake should be locked in full application position at all times while engine is refueling, being repaired or temporarily left standing.
14. When necessary to separate units for any reason, the electric jumper cables, safety chains, and air hoses between units must be disconnected before units are uncoupled. Jumper cables must not be permitted to hang with one end free.

15. When changing controls from one end to another, control at the opposite end must be taken without delay and brake controls on the trailing units must be positioned in accordance with Rule 7.

16. The procedure for changing ends is:

    (A) On 24-RL equipment:

        (1) On unit being cut out:

            (a) Make a twenty-five (25) pound brake pipe reduction with the automatic brake valve, then move the independent brake valve handle to release position and observe that the brakes remain fully applied.

            (b) Close the brake pipe cut-out cock. Place the Rotair valve in the PASS LAP position.

            (c) Move the automatic brake valve handle to running position and remove handle. Remove the independent brake valve handle from the release position, taking care not to release automatic brake application.

        (2) On unit being cut in:

            (a) Insert the independent brake valve handle and move the handle to full application. Position the Rotair valve to PASS position.

            (b) Open the brake pipe cut-out cock and insert the automatic brake valve handle. Adjust feed valve for pressure required and make a twenty (20) pound brake pipe reduction. Place the independent brake valve in running position and depress the handle noting that brake cylinder pressure can be released.

    (B) On 26-L equipment:

        (1) On unit being cut out:

            (a) Remove automatic brake valve in handle off position.

            (b) Position cut-off valve in OUT position.

            (c) Remove independent brake valve handle and then position MU-2 valve in TRAIL 26 or 24 position.

        (2) On unit being cut in:

            (a) Insert independent brake valve handle and move to full application position. Insert automatic brake valve handle and place in running position.

            (b) Position cut-off valve to IN position. Make twenty (20) pound brake pipe reduction and depress independent brake valve in release position and note the brake cylinder pressure can be released.

    (C) On Straight Air Equipment:

        (1) On unit being cut out:
        Remove brake valve handle from straight air retainer brake valve. Place both cut-out cocks in the CLOSED position.

(2) On unit being cut in:
Insert brake valve handle in straight air retainer brake valve. Place both cut-out cocks in OPEN position.

TRAIN BRAKE TESTS

17. (A) Inspectors, enginemen and trainmen are responsible for condition of air brake and air signal equipment on locomotives and cars to the extent that it is possible to detect defective equipment by required air tests.

    (B) Upon installation of an end-of-train device, it shall be determined that the identification code entered into the front unit is identical to the unique identification code on the rear-of-train unit.

    (C) The functional capability of the device shall be determined at the point of installation, after charging the train, by comparing the quantitative value displayed on the front unit with the quantitative value displayed on the rear unit or on an air gauge. The end device may not be used if the difference between the two readings exceeds three pounds.

18. While a brake test is being made, the train is under the jurisdiction of employees making such tests. The train must not be moved without their authorization.

19. Ore trains arriving at terminals shall be left with air brakes applied by a service reduction of twenty (20) pounds. Any trains with commercial cars arriving at terminals or setting out enroute will leave such cars with brakes applied by an emergency application. Trainmen will not close any angle cock or cut off engine until the twenty (20) pound reduction or emergency application has been made and Trainman receives confirmation from Engineer.

Initial Terminal Road Train Air Brake Test (CFR232:12)

20. All freight trains must be given inspection and test as specified by Rules 21 through 24 at points where: (1) a train is originally made up (initial terminal), (2) train consist is changed other than by adding or removing a solid block of cars previously tested in accordance with Rules 21 through 24 and train brake system remains charged, (3) train is received at interchange.

21. With 24-RL equipment, train brakes will be tested as follows:

    (A) After the train brake system is charged to within fifteen (15) pounds of the locomotive regulating valve setting, but to not less than sixty-five (65) pounds as indicated by a rear car gauge or device, cut out the pressure maintaining feature.

    (B) After receiving signal to apply brakes make a fifteen (15) pound service reduction and wait at least sixty (60) seconds after discharge ceases before timing brake pipe leakage which must not exceed five (5) pounds per minute.

    (C) Reduce brake pipe pressure to equivalent of a full service application, if not accomplished by leakage.

    (D) After receiving signal to release brakes, place automatic brake valve in running position and cut in pressure maintaining feature.

22. With 26-L equipment, train brakes will be tested as follows:
    (A) After the train brake system is charged to within fifteen (15) pounds of the locomotive regulating valve setting, but to not less than sixty-five (65) pounds as indicated by a rear car gauge or device and upon receiving signal to apply brakes, make a fifteen (15) pound service reduction.
    (B) After discharge ceases, set brake pipe cut-off valve in OUT position to nullify the pressure-maintaining feature.
    (C) Wait at least sixty (60) seconds before timing brake pipe leakage which must not exceed five (5) pounds per minute.
    (D) After reducing equalizing reservoir pressure to brake pipe pressure but not more than three (3) pounds below brake pipe pressure, set brake pipe cut-off valve in IN position and reduce brake pipe pressure to equivalent of a full service application by leakage.
    (E) Set brake pipe cut-off valve in OUT position and complete test. After test is completed, set cut-off valve in IN position and release brakes.
23. After full service application is made as specified in Rules 21 and 22, the train will be inspected to determine that brakes are applied on each car, angle cocks are open, brake rigging does not bind or foul, piston travel is correct, and all parts of the brake equipment are properly secured. After completing this inspection, enginemen will be instructed to release brakes and it will be ascertained that all have released.
24. When handling unit dead in train, the main reservoir must be charged to within twenty (20) pounds of brake pipe pressure before the test is made. Brake test made before reservoir is properly charged will result in brakes not applying and/or a false indication of brake pipe leakage due to less than train line pressure in main reservoir.

Initial Terminal Road Train Air Brake Test with Yard Air (CFR232.12)

25. When train brake system is tested from a yard test plant, an engineer's brake valve or a suitable test device must be used to provide increase and reduction of brake pipe air pressure and release at a rate no greater than with engineer's brake valve. Yard test plant must be connected to the end which will be nearest to the engine.
26. The train brake system must be charged to required air pressure and must be kept charged until road engine is coupled to train.
27. After road engine is coupled to train, if train is kept charged, brakes must be tested by making a twenty pound brake pipe reduction. Following the application of the brakes on the rear car, the engineer is required to make an emergency application, and then release.

    *Note: The emergency application portion of this instruction does not apply to commercial trains or all rail hopper trains.
28. If train is not kept charged, brakes must be tested as prescribed by Rules 21 through 24.
29. When disconnecting yard air hose, angle cocks must first be closed, hose bled, and hose parted by hand.

30. Condensation must be blown from the pipe from which air is taken before connecting yard line or engine brake pipe to train.

31. Upon completion of train air brake test as prescribed by Rule 25, a qualified person participating in the test and inspection or who has knowledge that test is made shall notify the engineer that the initial terminal road train air brake test has been satisfactorily performed. The qualified person shall provide the notification in writing if the road crew will report for duty after the qualified person goes off duty. The qualified person also shall provide the notification in writing if the train is to be moved in excess of 500 miles without being subjected to another test.

Intermediate Terminal Road Train Air Brake Test (CFR 232.13)

32. Before motive power is detached or angle cocks are closed on a freight train, brakes must be applied with not less than a 20-pound brake pipe reduction. After recoupling, and after angle cocks are opened, it must be known that brake pipe air pressure is being restored as indicated by a rear car gauge or device. In the absence of a rear car guage or device, an air brake test must be made to determine that the brakes on the rear car apply and release.

33. At a point other than an initial terminal where a locomotive or caboose is changed, or where one or more consecutive cars are cut off from the rear end or head end of a train with the consist otherwise remaining intact, after the train brake system is charged to within fifteen (15) pounds of the feed valve setting on the locomotive, but not less than sixty-five (65) pounds as indicated at the rear of a freight train and seventy (70) pounds on a passenger train, a 20-pound brake reduction must be made and it must be determined that the brakes on the rear car apply and release. As an alternative to the rear car brake application and release test, it shall be determined that brake pipe pressure of the train is being reduced as indicated by a rear car gauge or device and then that brake pipe pressure of the train is being restored as indicated by a rear car gauge or device.

34. (A) At a point other than a terminal where one or more cars are added to a train, after the train brake system is charged to not less than sixty-five (65) pounds as indicated by a gauge or device at the rear of a freight train and seventy (70) pounds on a passenger train, a brake test must be made to determine that brake pipe leakage does not exceed five (5) pounds per minute as indicated by the brake pipe gauge after a 20-pound brake pipe reduction. After this test is completed, it must be determined that the brakes on each of these cars and on the rear car of the train apply and release. As an alternative to the rear car brake application and release portion of the test, it shall be determined that brake pipe pressure of the train is being reduced as indicated by a rear car gauge or device and then that brake pipe pressure of the train is being restored as indicated by a rear car gauge or device. Cars added to a train that have not been inspected in accordance with Rules 21 through 24 must be so inspected and tested at the next terminal where facilities are available for such attention.

(B) At a terminal where a solid block of cars, which has been previously charged and tested as prescribed by Rules 21 through 24, is added to a train, it must be determined that the brakes on the rear car of the train apply and release. As an alternative to the rear car application and release test, it shall be determined that brake pipe pressure of the train is being reduced as indicated by a rear car gauge or device and then that brake pipe pressure of the train is being restored as indicated by a rear car gauge or device.

(C) As used in this section, "device" means a system of components comprised of a rear-of-train unit (rear unit or STU) located on the last car of a train and a front-of-train unit (front unit or RDU) located in the cab of the locomotive controlling the train.

The rear unit shall be capable of determining the rear car brake pipe pressure and transmitting that information to the front unit for display to the locomotive engineer.

(D) When a device is used to comply with any test requirement in this section, the phrase "brake pipe pressure of the train is being reduced" means a pressure reduction of at least five (5) pounds and the phrase "brake pipe pressure of the train is being restored" means a pressure increase of at least five (5) pounds.

Special Tests at Intermediate Locations

35. Loaded trains running from Proctor to Missabe Junction, Duluth Ore Docks or Steelton; or Highland to Waldo, Waldo to Two Harbors, must not pass the crest of the grades until a minimum of seventy five (75) pounds is registered by a rear car gauge or device.

Transfer Train and Yard Train Air Brake Test (CFR232.13)

36. Transfer train and yard train movements not exceeding twenty (20) miles must have the air brake hose coupled between all cars, and after the brake system is charged to not less than sixty-five (65) pounds, a fifteen (15) pound service reduction must be made to determine that the brakes are applied on each car before releasing.

37. Transfer train and yard train movements exceeding twenty (20) miles must be tested in accordance with Rules 20 through 31.

38. Empty train movements from Duluth Ore Docks to Proctor must have air brake hose coupled between all cars and after the brake system is charged to not less than sixty-five (65) pounds and brake on rear car is released, a twenty (20) pound service reduction must be made. After it is determined that brake pipe leakage does not exceed five (5) pounds per minute and brake on rear car applies, enginemen must make an emergency application and ascertain that emergency application occurs on rear car. Brakes may then be released and train may proceed when no less than sixty-five (65) pounds registers on a rear car gauge or device.

**The following chart contains points in regard to train and brake test.

FREIGHT TRAIN AND AIR BRAKE TESTING

Type of Test	Charge System To Within 15 PSI of Regulating or Feed Valve	Charge System To Not Less Than 65 PSI	No Specified Charge in Brake System	Full Service Brake Pipe Reduction	Brakes Applied			Brakes Released			Brake Pipe Leakage Test	Brake Pipe Pressure Being Restored
					Entire Train	Rear Car	Car(s) Picked Up	Entire Train	Rear Car	Car(s) Picked Up		
Initial Terminal	X	X		X	X			X			X	
Cut Off Recouple Same Locomotive To Train			X						X			X

Cut Off Car(s) Change Locomotive and/or Caboose	X	X		X		X			X			X
Add Car(s) For Movement Over 20 Miles	X	X		X		X	X		X	X	X	X
Transfer Train Movement Less Than 20 Miles		X		X	X							

OPERATION OF RETAINER SYSTEMS

Manual Retainers

39. Except when straight air retainer equipment is provided and operating properly, retainers must be turned up on loaded cars as follows:

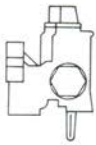
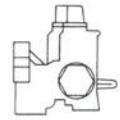
MISSABE DIVISION

1. Proctor Hill Com'l Trains .....
2. Proctor Hill Ore Trains .....
   (After stopping at 3rd St. or on Ore Docks, turn down all retainers)
3. Steelton Hill Com'l Trains .....
4. Steelton Hill Ore Trains .....

IRON RANGE DIVISION

1. Road Ore Trains .....
2. Highland to Waldo-Ore, Commercial and Ore Mixed .....
3. 3 Position Retainer .....
4. Waldo to Two Harbors-Ore, Commercial and Ore Mixed .....
5. 3 Position Retainer .....

RETAINER POSITIONS

 DIRECT RELEASE	 20-POUND	 10-POUND	 RETARDED RELEASE
....	100% (Note #1)	....	....
....	70%	30%	....
....	100% (Note #1)	....	....
....	50%	50%	....
80%	....	....	20%
25%	....	75%	....
....	80%	20%	....
....	100% (Note #1)	....	....
50%	....	50%	....

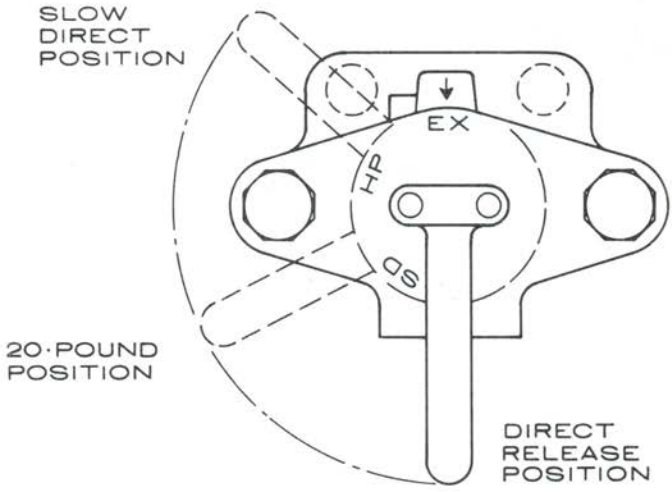
NOTE 1: On commercial trains consisting of 70 cars or less with no more than 50% (35 cars) of the cars being loads, and with dynamic brake functioning on the locomotive, retainers need not be used from Waldo to Two Harbors or on either Proctor or Steelton Hills unless requested by the engineer.

NOTE 2: When handling foreign cars loaded with ore on Proctor or Steelton Hills, all retainers on such cars must be set in high pressure position regardless of the location in train.

NOTE 3: On loaded all-rail hopper trains descending the Steelton Hill, with dynamic brake functioning on the locomotive, the use of retainers will not be required unless a stop is made on the hill, or requested by the engineer.

If a stop on the hill is required, the dispatcher must be notified, and all retainers (100%) must be set in 20-pound position (high pressure) prior to the release of the automatic and independent brakes.

NOTE 4: On all trains descending the Highland to Waldo Hill, with dynamic brake functioning on the locomotive, the use of retainers will not be required.



3 POSITION RETAINING VALVE

40. Highest pressure retainer must always be set on head end of train.
41. Enginemen must check with trainmen to insure that required number of retainers are properly positioned.
42. When retainers are required from Waldo to Two Harbors, trains must stop and trainmen must properly position retainers and must not give signal to proceed until after the end of train device registers not less than seventy-five (75) pounds.

Straight Air Retainer System

NOTE: The straight air retainer system is designed as a supplement to the standard automatic brake system and is found only on mini-quads, certain locomotives, cabooses, and End Train device. The straight air retainer system takes the place of conventional retainers and must never be used by itself to stop a train. When using the straight air system as retainers, the automatic brake should be applied first in an amount sufficient to control train speed. Then a straight air application can be made. The automatic brake may then be released. The advantages of making the automatic application first include a more rapid buildup of brake cylinder pressure and improved seating of packing cups in the brake cylinders in cold weather. Brake cylinder pressure will be retained at the pressure registered on the straight air gauge, and brake pipe and auxiliary reservoir will be recharged to the setting of the regulating valve. Speed can be controlled by changing straight air pressures as dictated by running conditions. If a stop is to be made the automatic brake must be reapplied and the straight air released. Another use of the straight air system is for de-icing brake shoes prior to descending grades.

43. Whenever a straight air retainer system is known to be functioning properly, the manual retainers will not be used.

44. The straight air retainer system must not be used unless the entire train is equipped with straight air retainer equipment and straight air hoses are coupled completely through the train. Straight air line angle cocks must be in the closed position on the leading end of the locomotive and the rear end of the train.

45. Should the straight air retainer system fail while descending Proctor, Steelton, or Waldo to Two Harbors Hills, it will not be necessary to stop train unless a release of the Automatic brake must be made. If train must be stopped and if straight air system cannot be restored retainers must be turned up as prescribed by Rule 39, before brakes are released.

46. If straight air retainer system is restored, manual retainers need not be used and the straight air retainer system must be tested as prescribed in Rule 48(A) before train proceeds.

47. The Straight Air Retainer System may be used on all trains so equipped and functioning properly without restriction on empty cars in train.

    Any occurrence or evidence of sliding wheels on trains should be reported promptly to the proper authority.

Straight Air Retainer System Test

48. To ascertain that the straight air retainer system is operative, the following tests will be made:

    (A) During prescribed air test and before releasing automatic brake application, crews will make a standing test of the system. Enginemen will make a twenty-five (25) pound application with the straight air valve and will ascertain from trainman that twenty (20) pounds registers on the straight air gauge before releasing.

    (B) Road trains will make a running test prior to arrival at Highland. At milepost N-45 enginemen will increase brake pipe pressure to ninety (90) pounds and ascertain

that at least seventy-five (75) pounds registers on a rear car gauge or device before passing Highland. Enginemen will then make a twenty-five (25) pound application with the straight air valve and release same when fifteen (15) pounds has registered on the RDU.

(C) Trains operating through Proctor to Duluth Docks will make a running test through Proctor Yard. Enginemen will make a twenty-five (25) pound application with the straight air valve and will release same when (15) pounds registers on RDU.

(D) If the prescribed straight air pressures cannot be attained, or the engineer has not been qualified in the use of straight air retainer system, the train must be stopped and manual retainers used in accordance with Rules 39 through 42.

49. At Waldo, it will not be necessary to stop if the brake pipe pressure registers at least seventy-five (75) pounds on a rear car gauge or device.

DYNAMIC BRAKING

50. Enginemen will transfer from power operation to dynamic braking as follows:
    (A) Place throttle in IDLE position and selector lever in OFF and pause ten (10) seconds.
    (B) Move selector lever to braking position.
    (C) After slack is adjusted, braking effort can be increased as desired.
    (D) After the brake warning light flashes, do not increase the braking effort until the light goes out. If the light fails to go out after several seconds, slowly decrease the braking effort until the light does go out. Then the throttle may be advanced again.
    (E) If the wheel slip light flashes persistently during dynamic braking, enginemen should reduce dynamic brake. If the condition continues, train should be stopped and engine wheels checked to ascertain that they are rotating freely.
51. Enginemen will release dynamic brakes as follows:
    (A) Gradually shut off dynamic brake.
    (B) After slack has adjusted, move selector lever to RUN and advance the throttle gradually to desired position.
52. The independent air brake is not interlocked with the dynamic brake. The independent air brake and dynamic brake must not be applied simultaneously at speeds over ten (10) MPH, except in an emergency, to avoid sliding the locomotive wheels.

    The use of dynamic brakes to bring a locomotive or train to a complete stop is not effective at a low speed. Under this condition, the dynamic brake may be supplemented with the independent brake at a speed of ten (10) MPH or less to control train slack.

    Extreme care must be taken to avoid sliding the locomotive wheels and severe changes in slack and high head-end buff forces resulting from independent braking forces.
53. While the dynamic brake is in operation, units will not intentionally be isolated or, if already isolated units will not be made operative.
54. If the engine consist has more than twenty-four (24) axles of dynamic brakes, the additional units must be isolated. When

cutting out units, start with the second unit and continue consecutively toward the rear of the consist until the proper number of units have been cut out.

NOTE: Dynamic brakes may be used when braking trains on descending grades, but shall not be considered as superseding the automatic brake. During dynamic braking on D.M.&I.R. units, if a service application is made, the dynamic interlock will prevent air brakes from applying on the engine. If an emergency application is made with the automatic brake, the dynamic interlock will be nullified and brakes will apply on the engine as well as on the train. If the dynamic brake is applied while an automatic brake application is in effect, the engine brakes will release but the train brakes will remain applied. If a unit is isolated, the dynamic interlock will still be energized when using dynamic braking and will keep the brake from applying on the isolated unit during an automatic brake application.

Locomotives from other railroads may or may not have the Dynamic Interlock feature, thus locomotives will have to be bailed-off using the 6 second interval per unit to avoid slidding wheels.

FREIGHT TRAINS

General Rules

55. When employees are riding in or on the last car of train, advice must be given to engineer when the entire slack of the train has been taken.

56. Conductor must ascertain that the engineer is informed at first opportunity of the following:

    (A) Number of loads and empties and location of large blocks of either.

    (B) Location of hazardous material, high, wide, or other restricted cars.

    (C) Presence of any equipment which would restrict train speed or handling.

57. When cutting in air on locomotives and cars, enginemen will make a partial service application of the automatic brakes on locomotives and attached cars and leave brake valve in lap position until air is cut in on train.

58. When approaching a descending grade on which braking is required and the possibility of icing of the brake equipment exists, engineer will, when practical, make an application sufficient to de-ice the brake shoes in advance of the grade.

59. Any train descending Proctor, Steelton, Highland to Two Harbors hills which has had the brake pipe pressure on the locomotive reduced to sixty-five (65) pounds, without train speed being adequately reduced, must be stopped by an emergency application of the train brakes. Under these circumstances the engineer and conductor will communicate by radio whenever possible.

    NOTE: The brake pipe, auxiliary reservoir, and brake cylinder pressure equalize at sixty-four (64) pounds with a ninety (90) pound brake pipe pressure. Further service reductions below sixty-five (65) pounds are not effective and result in a waste of brake pipe air.

60. When necessary to make an emergency stop, the engineer must place automatic brake in emergency position, throttle in IDLE, and operate independent brake valve to achieve maximum locomotive braking. If application is made from train, caboose or an undesired emergency occurs, engineer must place and leave automatic brake in emergency position and operate independent brake valve to achieve maximum locomotive braking.

    NOTE: Maximum braking effort on the locomotive is achieved by operating independent brake in such a way as to allow the locomotive wheels to continue turning rather than sliding.

61. If train has parted on Proctor, Steelton, Minntac or Waldo to Two Harbors hills, all hand brakes must be applied, then the rear angle cock of the head cut will be closed and head end charged. After repairs are made and train coupled up and fully charged, the retainers on the last five cars will be turned down and a brake test made. If the last five cars set and release, the test is satisfactory.

When engineer whistles off, all hand brakes will be released, then retainers will be turned down starting at rear of train, one car at a time. When retainer stops blowing it will immediately be turned up. Trainmen will proceed in this manner until train starts.

62. When a southbound ore train stopped at or near Collingwood is ready to proceed and engineer has difficulty starting the train, trainmen must start at rear of train and turn down retainers until train starts. Retainers turned down in excess of twenty (20) must be turned back up after they stop blowing.

63. When southbound ore trains are stopped for any reason immediately north of the Safety Switch at Two Harbors, trainmen will not turn down any of the retainers on the cars in the train until the engineer has reduced brake cylinder pressure on the engine to fifteen (15) pounds and sounded whistle signal 15 (b), after which the retainers are to be turned down starting at the rear of the train, until train starts. The balance of the retainers on the head end of the train are not to be turned until the train stops in the yard.

64. The automatic brake must not be depended upon to hold a locomotive, cars, or train when standing on a grade, whether locomotive is attached or detached. When required, a sufficient number of hand brakes must be applied before releasing air brakes. Hand brakes must not be released until it is known that the air brake system is properly charged.

65. Enginemen anticipating any difficulty or having any doubt about controlling train with air brakes will request and be governed by the instructions of a Trainmaster or Traveling Engineer.

66. When unusual difficulty has been experienced in controlling trains with air brakes, the incident must be reported to the Chief Dispatcher.

67. Conductor's valve should be used only when:

    (A) An immediate danger to life or property exists, in which case an emergency application must be made.

    (B) Trainman is unable to inform engineer that train must be stopped due to unusual operating conditions.

68. Whenever an emergency application of the brakes is made with the automatic brake valve, conductor's valve, or emergency valve, the valve handle must be left in emergency position until the train stops.

69. The air must be cut in and brakes operative on cars and engines moving between Missabe Junction and the "Hole" yard.

70. When shoving empty cars from the Ore Dock to Missabe Jct., air must be cut in and brakes operative. Retainers must not be turned up.

71. Before pulling loads out of the New Yard at Two Harbors, trainmen and enginemen must ascertain that air is cut and brakes operative.

72. Air brakes on dead engine in any train must be operative.

73. Upon completion of loading at either T-Bird locations, or after dumping a train at Fairlane, engineers will make a Full Service Reduction.

Double Heading and Helper Service (CFR232.15)

74. When two or more engines are coupled together, or to any part of a train, the automatic brake valve must be operated from the leading engine.

    If it becomes impossible to control the brakes from the leading engine, stop the train. A test of the brakes must be made to insure that the brakes are operative from the automatic brake valve of the engine taking control of the train.

75. Brake pipe hose must be coupled through, angle cocks properly positioned, and brake pipe cut-off valve on other than the controlling engine in OUT position.

76. Enginemen on other than the controlling engine must control brake cylinder pressure to avoid overheating wheels, and must permit brakes to apply in stopping, using care to avoid sliding wheels.

Freight Car Air Brakes

77. Each train must have the air brakes on all cars in operating condition with the following exceptions:

    (A) Cars with defective brakes picked up or found enroute may be handled to next terminal where repairs can be made, provided that brakes are operative on not less than eighty-five (85) percent of cars in train.

    (B) If necessary to cut out brakes on defective cars or pick up cars with defective brakes, not more than two consecutive cars with defective brakes will be permitted.

78. Brakes on the car next to engine must always be in operating condition.

79. Conductor must make prompt report to appropriate yardmaster of cars in train with defective air brakes.

80. Under no circumstances must paper or other substances not intended for that purpose be placed between air hose couplings to stop leaks.

INSPECTION AND OPERATION OF PASSENGER TRAINS AND SPECIAL EQUIPMENT

TRAIN BRAKE TESTS

Initial Terminal Test

81. Passenger trains will make air test as prescribed by Rules 21 through 24 except that brake system must be charged to not less than seventy (70) pounds.

Road Train and Intermediate Terminal Brake Test

82. Before engine is detached or angle cocks are closed, automatic air brake must be applied. After recoupling, brake system must be recharged to required pressure. Enginemen and train crew will ascertain that brakes apply and release on rear car.

83. At a point other than initial terminal where engine, engine crew, or train crew is changed or where one or more consecutive cars are cut off from the rear or head end of train with consist otherwise remaining intact, passenger trains will make air test as prescribed by Rule 33 except that brake system must be charged to not less the seventy (70) pounds.

Running Brake Test

84. Before passing crest of grade on Minntac, Steelton, Proctor or Highland to Two Harbors hills, or at any other point where engine, engine crew, or train crew is changed, angle cocks closed except for cutting off one or more cars from the rear of train, or cars have been disconnected, running test of train brakes must be made as soon as train speed exceeds 10 MPH. Running test must be made by applying brakes with sufficient force to ascertain whether or not brakes are operating properly. If brakes do not operate properly, train must be stopped, cause of failure determined and corrected, and running test repeated.

GENERAL RULES

85. Passenger trains, when standing, must keep independent brake applied until signal is given to proceed.

86. The brake on the rear car must not be cut out under any circumstances. If it becomes defective enroute, switch must be made at first opportunity and Superintendent notified.

87. Air brakes must be used when switching passenger or wrecking equipment.

88. Whenever the air signal hose is uncoupled, in recoupling it, the cutout cock farthest removed from the engine must be opened first to avoid giving an unintentional proceed signal.

89. When pusher engine is used, passenger trains must stop before pusher is cut off.

SPECIAL EQUIPMENT

90. Any equipment weighing in excess of 150 tons handled up Proctor, Steelton or Two Harbors to Highland hills must have

at least ten (10) cars with operative brakes on downhill side of movement.

91. When handling side dump cars, the dump line may be cut in only during dumping operation and after an inspection has been made to determine that levers are in proper position. Trainmen will not cut out dump line until cars are cleaned and ready to be trapped. If necessary to cut out dump line in order to move train, dump lines should be cut back in and levers set so cars cannot trap until they are cleaned and men are off.

    When engine is cut off, employees must be kept away from the cars until engine returns and is attached to the train and the dump line is cut in.

    Employees must stand on the opposite side from which the car is dumped.

92. When using locomotives and dozers equipped with the modified air pressure system, the following will apply:

    (A) Dozer must be coupled directly to locomotive.

    (B) Cut-off cock at rear of dozer between brake pipe and pressure tank must be closed.

    (C) Electrical cable must be inserted in the locomotive MU receptacle.

    (D) Feed valve of the locomotive must be set at seventy (70) P.S.I.

    (E) Air tank hose at rear of dozer must be coupled to the main reservoir equalizing hose on the locomotive.

93. Locomotives, cranes and passenger equipment must have hand brakes applied whenever left unattended. Before moving this equipment, all hand brakes will be released.