

**NO JOB IS SO IMPORTANT
AND NO SERVICE SO URGENT
That We Cannot Take The Time
TO PERFORM OUR WORK SAFELY**

TERMINAL SUPERINTENDENT

J. W. WELSH El Paso

**ASSISTANT
TERMINAL SUPERINTENDENTS**

D. L. RAY El Paso
D. E. TORREY El Paso

TRAINMASTERS

H. C. HANSEN Lordsburg
H. R. RUTLER Tucson
W. H. TANNER Tucson
J. B. HARWELL Phoenix
H. L. CLEPPER Tucson

ASSISTANT TRAINMASTERS

J. G. ALANIZ Hayden
G. A. TONCHEFF Tucson
F. S. ALTERGOTT Tucson
L. F. RODRIGUEZ El Paso
D. H. GREEN Phoenix

ROAD FOREMEN OF ENGINES

T. H. HOLLINGSHEAD Tucson
J. A. HURLEY Tucson
I. L. WHITT, SR. El Paso
J. D. SLADE El Paso

CHIEF TRAIN DISPATCHER

H. L. ANDERSON Tucson

GENERAL YARDMASTER

L. RIETZER El Paso

**Southern Pacific
Transportation Company**



**TUCSON DIVISION
TIMETABLE**

9

**EFFECTIVE SUNDAY, JANUARY 8, 1978
AT 12:01 A. M.
MOUNTAIN STANDARD TIME
FOR THE GOVERNMENT AND INFORMATION
OF EMPLOYEES ONLY**

R. L. KING,
Vice President - Operations

J. D. RAMSEY,
General Manager

**C. T. BABERS,
W. J. LACY,**
Assistant General Managers

J. J. WILLIS,
Asst. Vice President - Transportation.

J. W. BREEN,
Manager Operations Planning & Control.

J. J. TIERNEY,
Superintendent.

**R. V. WILLS,
W. G. LARSON,
P. M. McNAMEE,**
Assistant Superintendents.

TUCSON DIVISION TIMETABLE No. 9, JANUARY 8, 1978

GILA SUBDIVISION

EAST-WARD	Mile Post Location	STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	Distance from PFE Yard	WEST-WARD FIRST CLASS 1 Passenger	EAST-WARD Mile Post Location	Nogales Branch STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	Distance from Nogales	WEST-WARD
2					1					
Passenger					Passenger					
Leave Mon., Wed. & Sat.					Arrive Sun., Wed. & Fri.					
AM 3.38	732.7	Yd. Lmts. { TO-R YUMA BKYPQ } 4.7 EAST YARD	49095	253.2	AM 2.55	986.6	Yd. Lmts. { TO-R PFE YARD BKIYPQ } ↑ TUCSON BKYPQ	52280	62.9	
	737.4 737.5			49099	248.5			983.9	52270	63.0
	743.7	8388 6.2 FORTUNA	50020	242.3		1002.4	Yd. Lmts. 15.5 15.6 SAHUARITA	52322	47.4	
	750.6 750.7	8487 6.9 KINTER	50040	235.4		1021.1	18.7 AMADO	52344	28.7	
	753.5	No. 2 Trk. { 2.8 DOME } 16.5 WELLTON } No. 1 Trk. P	50050	232.6		1049.8	Yd. Lmts. 28.7 TO-R NOGALES BKYPQ	52370	0.0	
4.21 AM	770.0			50080	216.1	2.05 AM				
	776.4	8371 6.4 NOAH	52010	209.7						
	783.8	8415 7.4 COLFRED	52018	202.3						
	792.6 792.7	8401 8.8 MOHAWK	52027	193.5						
	800.5	8386 7.9 STOVAL	52031	185.7						
	811.9	8388 11.4 AZTEC	52038	174.3						
	819.7	8240 7.8 STANWIX	52046	166.5						
	830.0	8369 10.3 SENTINEL	52056	156.2						
	839.9	8392 9.9 PIEDRA	52066	146.3						
	845.5	8356 5.6 THEBA	52072	140.7						
	855.7	10.2 GILA BK	52090	130.5						
	863.0 863.2	8049 7.3 BOSQUE	52107	123.2						
	870.0 870.2	8883 6.8 SHAWMUT	52114	116.4						
	874.6	8305 4.4 ESTRELLA	52119	112.0						
	883.7	8330 9.1 MOBILE	52128	102.9						
	890.0	8359 6.3 ENID	52134	96.6						
	897.8	8309 7.8 MARICOPA	52142	88.8						
	907.7	8330 9.9 BON	52152	78.9						
	918.8	8336 11.1 TO CASA GRANDE BKYPQ	52163	67.8						
	928.4	8344 9.6 TOLTEC	52174	58.2						
AM 8.28	936.7	N-8677 8.3 S-8754 PICACHO Y	52200	49.9	PM 9.42					
	944.2	8381 7.5 WYMOLA	52209	42.4						
	951.4	8337 7.2 RED ROCK P	52216	35.2						
	958.4	8445 7.0 NAVISKA	52226	28.2						
	966.9	8372 8.5 RILLITO P	52238	19.7						
	974.7	8195 7.8 KINO	52251	11.9						
	979.3	W-7890 4.6 STOCKHAM	52258	7.3						
9.20 AM	983.9	Yd. Lmts. { TO-R TUCSON BKYPQ } 4.6	52270	2.7	8.55 PM					
Arrive Mon., Wed. & Sat.	986.6	{ TO-R PFE YARD BKIYPQ } 2.7	52280	0.0						
2		(253.2)			1					

PFE Yd. (62.9) TUCSON (63.0)

ADDITIONAL STATIONS			
Capacity and Direction of entry into Spurs	Mile Post	NAME	Station Number
1450W ..	746.6	Blaisdell..... (Spur)	50080
588E ..	760.2	Ligurta... No. 1 Track (Spur)	50070
450W ..	850.3	Smurr.....	52078
882E ..	921.0	Seco..... (Spur)	52167
1350 ..	933.1	Eloy.....	52179
..	953.5	Avra..... (Spur)	52221
1050E ..	962.2	Marana.....	52231
.. P	968.6	Plata..... (Spur)	52241
1300 P	977.4	Jaynes.....	52254
..	981.2	Petrie..... (Spur)	52263
Nogales Branch			
.. Y	992.4	Aldona..... (Spur)	52312
588E ..	1010.4	Continental..... (Spur)	52332
..	1034.2	Otero.....	52357

PHOENIX SUBDIVISION

EAST-WARD FIRST CLASS 2 Passenger	Mile Post Location	STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	Distance from Picacho	WEST-WARD	EAST-WARD	STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	WEST-WARD
					FIRST CLASS 1 Passenger	Mile Post Location			Distance from Dock
Leave Mon., Wed. & Sat.					Arrive Sun. Wed. & Fri.	923.6			
AM 4.21	770.0	WELLTON P	50080	208.4	AM 2.05	943.2	McQUEEN	51187	19.6
4.32	780.9	3453 10.9 ROLL	51012	197.5	1.53		3087 19.6 DOCK	51199	0.0
4.54	802.5	3686 21.6 KOFA	51034	175.9	1.31		(19.6)		
5.14	822.3	3688 19.8 HYDER	51053	156.1	1.11	915.3	Tempe Branch		
5.34	841.1	3680 18.8 SADDLE	51063	137.3	12.51	917.7	TEMPE 2.4	51172	7.7
5.44	851.0	3551 9.9 GILLESPIE	51068	127.4	12.41	919.2	PETERSON 1.5	51175	5.3
5.54	861.3	3628 10.3 ARLINGTON Y	51073	117.1	12.31	923.0	HELENA 1.5	51177	3.8
5.58	865.7	3537 Yd. Lmts. 4.4 DIXIE	51078	112.7	12.26		3.8 WEST CHANDLER	51179	0.0
6.08	875.7	3707 Yd. Lmts. 10.0 BUCKEYE P	51088	102.7	12.16		(7.7)		
	889.3	13.6 LITCHFIELD JCT.	51110	89.1		889.3	Litchfield Branch		
6.22	889.7	3595 0.4 LITCHFIELD P	51120	88.7	12.02 AM	894.0	LITCHFIELD JCT. Y	51110	4.7
6.26	893.0	4825 3.3 CASHION	51123	85.4	11.58 PM		5.4 LITCHFIELD PARK	51115	0.0
6.29	895.7	2.7 TOLLESON	51126	82.7	11.55		(4.7)		
6.32	898.1	3575 2.4 FOWLER	51128	80.3	11.52	948.9	Hayden Branch		
6.40	904.0	3661 5.9 23rd AVE. PHOENIX	51136	74.4	11.43	959.0	2100 Yd. Lmts. R MAGMA P	51240	51.3
7.00	906.0	2.0 PHOENIX P	51140	72.4	11.35	987.8	10.1 FLORENCE P	51310	41.2
7.03	907.0	1.0 BKYPQ TO-R PHOENIX YARD	51160	71.4	11.10	1000.2	Yd. Lmts. 28.8 R RAY JCT. P	51340	12.4
7.10	911.1	4.1 KENDALL	51164	67.3	11.04		Yd. Lmts. 12.4 TO-R HAYDEN BKYPQ	51360	0.0
7.17	914.4	3835 3.3 TEMPE P	51170	64.0	10.58		(51.3)		
7.27	921.8	3972 7.4 TO MESA KPQ	51185	56.6	10.47				
7.30	923.6	1.8 McQUEEN P	51187	54.8	10.43				
7.34	927.0	Yd. Lmts. 3.4 GILBERT P	51205	51.4	10.38				
7.44	937.2	5785 Yd. Lmts. 10.2 GERMANN P	51218	41.2	10.27				
7.56	948.9	5733 Yd. Lmts. 11.7 MAGMA P	51240	29.5	10.14				
8.08	960.7 962.0	3603 11.8 COOLIDGE Y	51415	17.7	10.02				
8.28 AM	979.7 936.7	N-8677 17.7 S-8754 PICACHO Y	52200	0.0	9.42 PM				
Arrive Mon., Wed. & Sat.		(208.4)			Leave Tue., Thur. & Sat.				
2					1				

RULE 5. Phoenix Yard: Time applies for eastward first-class trains at 6th Street, MP 906.7 and westward first-class trains at 16th Street, MP 907.8.

ADDITIONAL STATIONS			
Capacity and Direction of entry into Spurs	Mile Post	NAME	Station Number
780W ..	793.0	Growler.....	51024
760W ..	812.38	Horn.....	51044
3250 ..	900.4	Pipeola.....	51130
.. ..	900.8	Cotpro.....	51132
.. ..	902.0	Campo.....	51134
3240 ..	909.43	Aristuc.....	51162
.. ..	911.8	Tovrea.....	51166
.. ..	912.4	Auction..... (Spur)	51167
.. ..	912.9	Yeso.....	51169
.. ..	917.1	Normal Jct.....	51182
.. ..	932.0	Higley.....	51211
.. ..	938.1	Rittenhouse.....	51223
P ..	941.6	Queen Creek.. Yd. Lmts.	51229
P ..	966.4	Randolph.....	51421

ADDITIONAL STATIONS			
Capacity and Direction of entry into Spurs	Mile Post	NAME	Station Number
Chandler Branch			
.. ..	925.4	Tremaine.....	51190
3675 ..	929.3	Chandler.....	51193
.. ..	931.0	Pozo..... (Spur)	51195
1630 ..	934.3	Serape.....	51197
Hayden Branch			
.. ..	1003.5	Winkelman..... (Spur)	51380

TUCSON DIVISION TIMETABLE No. 9, JANUARY 8, 1978

LORDBURG SUBDIVISION

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EASTWARD
FIRST CLASS

2 Passenger	Mile Post Location
Leave Mon., Wed. & Sat.	
AM 9.40	983.9
	986.6
	994.8
	1022.2
	1023.6
	1028.2
AM 10.55	1032.5
	1032.6
	1035.4
	1035.8
	1041.0
	1046.7
	1047.2
	1053.9
	1063.9
	1074.7
	1082.6
	1091.0
	1098.4
	1106.6
	1114.2
	1121.8
	1128.7
	1128.9
	1133.7
	1140.8
PM 1.00	1148.3
	1153.0
	1159.0
	1167.0
	1177.0
	1188.0
	1198.0
s 2.03	1208.0
	1219.5
	1229.0
	1238.0
	1248.0
	1259.0
	1269.0
	1279.0
	1285.5
	1289.9
	1317.7
	1323.3
	1295.9
s 3.40 PM	1323.3
	1295.9
	1297.6
Arrive Mon., Wed. & Sat.	
2	

STATIONS
SIDING CAPACITIES AND FACILITIES

No. 2 Trk. Yd. Lmits.	TO-R TUCSON BKPQ	No. 1 Trk.
	TO-R PFE YARD BKIYPQ	
E-6689 8.2		
W-8485 WILMOT		
4226 27.4 P		
	MESCAL	
8099 4.6	CHAMISO	
	4.3 YP	
	BENSON	
8429 2.8	FENNER	
9197 5.2	SIBYL	
8239 5.7	TULLY	
15306 6.7	DRAGOON	
8415 10.0 Y	COCHISE	
8379 10.8 P	WILCOX	
8480 7.9	RASO	
9947 8.4	LUZENA	
8209 7.4 BKYPQ	BOWIE	
8236 8.2	OLGA	
8017 8.2	SAN SIMON	
8028 7.5	VANAR	
10777 6.9	STEINS	
8324 4.8	MONDEL	
8360 7.1	GARY	
Yd. Lmits. 7.5 BKYPQ	TO LORDSBURG	
8378 4.7	ULMORIS	
8457 6.0	LISBON	
8362 8.0	SEPAR	
8385 10.0	WILNA	
8371 11.0	GAGE	
8361 10.0	TUNIS	
8309 10.0 KPQ	TO DEMING	
8352 11.5	CARNE	
8359 9.5	AKELA	
8376 9.0	DONA	
8347 10.0	ADEN	
8352 11.0	AFTON	
8380 10.0	LANARK	
8388 10.0	STRAUSS	
9692 6.5	LIZARD	
	4.4	
	ANAPRA	
Yard Lmits No. 2 Trk	TO-R EL PASO (Tower 198) KIPQ	Yard Lmits No. 1 Trk
	R EL PASO (Union Depot) BKIP	
	EL PASO (Cotton Ave.) BKIYPQ	
	EL PASO (Cotton Ave.)	

Station Number	Distance from El Paso	WESTWARD	1 Passenger
		FIRST CLASS	
			Arrive Tue., Thu. & Sat.
			PM 8.35
52270	310.7		
52280	308.0		
53010	299.8		8.16
53035	272.4		
53041	267.8		
53050	263.5	s 7.35	
53205	260.7		
53212	255.5		
53219	249.8		
53227	243.1		
53238	233.1		
53251	222.3		
53259	214.4		
53268	206.0		
53280	198.6		
53410	190.4		
53419	182.8		
53428	175.2		
53439	168.3		
53446	163.5		
53455	156.4		
53470	148.9	s 5.27	
54115	144.2		
54122	138.2		
54133	130.2		
54138	120.2		
54152	109.2		
54170	99.2		
54200	89.2	s 4.25	
54226	77.7		
54239	68.2		
54248	59.2		
54259	49.2		
54271	38.2		
54277	28.2		
54282	18.2		
54287	11.7		
54290	7.3		
54297	1.7		
54297	1.7		2.50 PM
55042	0.0		
			Leave Tue., Thu. & Sat.
			1

ADDITIONAL STATIONS

Capacity and Direction of entry into Spurs	Mile Post	NAME	Station Number
..	1003.3	Vail No. 1 Track.....	53012
1029W ..	1003.3	Vail No. 2 Track (Spur)	53013
..	1012.6	Pantano-No. 2 Track....	53023
.. 250E ..	1012.9	Marsh-No.1 Track (Spur)	53029
12985E ..	1208.7	Sage..... (Spur)	54213
..	1820.9	Icehouse Crossover.....	..

(312.6 Eastward) (311.1 Westward)

LORDSBURG SUBDIVISION

EAST-WARD		STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	WEST-WARD	
Mile Post Location				Distance from Douglas	
Douglas Branch					
1032.6	Yd. Lmts. R	BENSON YP	53050	78.6	
1058.8	Yd. Lmts.	26.2 LEWIS SPRINGS Y	53129	48.2	
1085.0	Yd. Lmts.	26.2 BISBEE JCT. Y	53155	22.0	
1107.0	Yd. Lmts. TO-R	22.0 DOUGLAS BKYPQ	53190	0.0	
(74.4)					
Ft. Huachuca Branch					
1058.8	Yd. Lmts.	1715 LEWIS SPRINGS Y	53129	12.0	
1070.8	Yd. Lmts.	12.0 FT. HUACHUCA	53140	0.0	
(12.0)					
Bisbee Branch					
1085.0	Yd. Lmts.	1721 BISBEE JCT. YP	53155	5.7	
1088.3	Yd. Lmts.	3.3 CORTA	53157	2.4	
1089.6	Yd. Lmts.	1.3 WARREN	53162	1.1	
1090.5	Yd. Lmts.	0.9 LOWELL	53163	0.2	
1090.7	Yd. Lmts.	0.2 BISBEE	53165	0.0	
(5.7)					
Don Luis Branch					
1088.3	Yd. Lmts.	1721 CORTA	53157	2.5	
1089.8	Yd. Lmts.	1.5 DON LUIS	53159	1.0	
1090.8	Yd. Lmts.	1.0 GALENA	53160	0.0	
(2.5)					
Globe Branch					
1098.4	Yd. Lmts. TO-R	BOWIE BKYPQ	53280	133.8	
1098.1	TO-R				
1137.5		39.4 SAFFORD	53322	94.4	
1221.5	Yd. Lmts. R	84.0 GLOBE BKP	53376	10.4	
1231.9	Yd. Lmts. TO	10.4 MIAMI P	53395	0.0	
(133.8)					
Clifton Branch					
1148.3	Yd. Lmts. TO-R	LORDSBURG BKYPQ	53470	69.9	
1146.4	TO-R				
1165.3		18.9 SUMMIT	54010	51.0	
1184.3		19.0 DUNCAN	54031	32.0	
1186.9	388	2.6 FOX	54036	29.4	
1205.2		18.3 GUTHRIE	54050	11.1	
1209.8	1128	4.6 SOUTH SIDING	54062	6.5	
1216.3	ABB	6.5 CLIFTON P	54070	0.0	
(69.9)					

ADDITIONAL STATIONS			
Capacity and Direction of entry into Spurs	Mile Post	NAME	Station Number
Douglas Branch			
882 ..	1039.8	Curtiss.....	53110
200E ..	1048.2	Fairbank.....	53118
.. ..	1052.4	Land.....	53112
.. ..	1042.4	Naco.....	53150
8088W ..	1081.2	Paul Spur.....(Spur)	53177
2375 P	1096.9	Forrest.....	53175
2872 P	1104.3	Calumet (Yd. Lmts.)...	53183
Globe Branch			
700W ..	1145.6	Pima.....	53329
2450 ..	1176.8	Calva.....	53349
2000 ..	1201.0	San Carlos.....	53361
200W ..	1213.5	Cutter.....(Spur)	53368
200W ..	1227.3	Burch.....(Spur)	53387
Ft. Huachuca Branch			
882 ..	1068.9	Garden Canon.....	53135

TUCSON DIVISION TIMETABLE No. 9, JANUARY 8, 1978

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CARRIZOZO SUBDIVISION

EAST-
WARD

WESTWARD

SECOND CLASS

Mile Post Location	STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	Distance from Tucson	991 993 995		
				Freight	Freight	Freight
				Arrive Daily	Arrive Daily	Arrive Daily
1295.9	R EL PASO (Union Depot) BKIP TO-R 1.7 BKIYPQ EL PASO (Cotton Ave.) IQ	54297	331.5			
1297.6		55042	329.8	AM 7.55	PM 3.55	PM 11.55
1297.6	TOWER 47	55042	329.8			
1301.5	3.9 FORT BLISS	55070	325.9			
1302.3	8726 0.8 PLANEPORT	55080	325.1	7.24	3.24	11.24
1316.1	4897 13.8 NEWMAN	55117	311.3	7.05	3.05	11.05
1332.1	5013 16.0 DESERT	55133	295.3	6.41	2.41	10.41
1345.0	9100 Yd. Lmts. 12.9 OROGRANDE	55147	282.4	6.23	2.23	10.23
1366.0	4604 21.0 DUNES	55169	261.4	5.55	1.55	9.55
1378.2	5359 12.2 OMLEE	55185	249.2	5.37	1.37	9.37
1382.8	9426 Yd. Lmts. 4.6 TO ALAMOGORDO	55200	244.6	5.30	1.30	9.30
1412.9	4882 30.1 THREE RIVERS	55235	214.5	4.50	12.50	8.50
1432.8	5318 19.9 POLLY	55260	194.6	4.26	12.26	8.26
1439.9	5580 Yd. Lmts. 7.1 TO CARRIZOZO	55300	187.5	4.15	12.15	8.15
1446.9	5073 7.0 ROSBART	55309	180.5	4.02	12.02 PM	8.02
1463.5	6186 16.6 ANCHO	55327	163.9	3.40	11.40 AM	7.40
1482.5	9000 19.0 GALLINAS	55347	144.9	3.18	11.18	7.18
1490.9	4911 8.4 CORONA	55351	138.5	3.03	11.03	7.03
1525.4	5803 Yd. Lmts. 34.5 TO VAUGHN	55400	102.0	2.28	10.28	6.28
1533.3	5148 7.9 LEONCITO	55419	94.1	2.08	10.08	6.08
1547.2	4985 13.9 PASTURA	55433	80.2	1.50	9.50	5.50
1558.5	5026 11.3 ARABELLA	55445	68.9	1.33	9.33	5.33
1568.3	5605 Yd. Lmts. 9.8 SANTA ROSA	55500	59.1	1.18	9.18	5.18
1577.4	5168 9.1 LOS TANOS	55521	50.0	1.07	9.07	5.07
1585.8	4821 8.4 CUERVO	55532	41.6	12.55	8.55	4.55
1594.7	4970 8.9 NEWKIRK	55541	32.7	12.45	8.45	4.45
1606.7	4948 12.0 MONTOYA	55554	20.7	12.30	8.30	4.30
1615.5	5380 8.8 PALOMAS	55563	11.9	12.19	8.19	4.19
1621.9	4927 6.4 HARGIS	55574	5.5	12.10	8.10	4.10
1627.4	Yd. Lmts. 5.5 BKYPQ TO-R TUCUMCARI	55580	0.0	12.01 AM	8.01 AM	4.01 PM
(331.5)				Leave Daily	Leave Daily	Leave Daily
				991	993	995

ADDITIONAL STATIONS

Capacity and Direction of entry into Spurs	Mile Post	NAME	Station Number
W ..	1306.4	Tobin..... (Spur)	55105
1370W ..	1307.5	Tobin Safeway.....	55105
2665W ..	1312.6	Bunsen..... (Spur)	55111

DEFINITIONS

Holidays:

New Year's Day, January 1,
 Washington's Birthday, third Monday in February,
 Decoration Day, last Monday in May,
 Independence Day, July 4,
 Labor Day, first Monday in September,
 Veteran's Day, November 11,
 Thanksgiving Day, fourth Thursday in November,
 Christmas Day, December 25.

Speeds: Restricted Speed is revised to read:

A speed that will permit stopping within one-half the range of vision short of train, engine, car, stop signal, derail or switch not properly lined and looking out for broken rail, but not exceeding 20 MPH.

Note. ADD:

Flammable Compressed Gas (FCG): also applies to Flammable Gas (FG).

RULE A. Current Rules and Regulations of the Transportation Department were effective October 31, 1976.

RULE C. First paragraph will not become effective until further notice.

RULE 1. Employee charged with the duty of maintaining standard clock with correct time may obtain standard time by telephone from Tucson extension 412.

RULE 3. Conductors, engineers, train order and/or interlocking operators who go on duty at locations where there is no standard clock may obtain standard time by telephone from Tucson extension 412.

RULE 17-D. First paragraph is revised to read:

Oscillating white light on engines, when leading end is so equipped, must be operated both day and night when moving, except it may be extinguished when meeting trains, passing trains, or during switching operations provided movement does not involve crossing at grade. The same requirements apply when leading end of engine or top of lead unit is equipped with an amber or white light which flashes or rotates.

RULE 21. Trains handling loads of excess dimensions covered by train order must be identified within CTC, Interlocking limits and on double track.

RULE S-72. Westward trains are superior to trains of the same class in the opposite direction.

RULE 81-A. Item (f) is revised to read:

(f) View of track for entire length of block to be occupied and to end of adjoining block in both directions.

RULE 81-A. Where electric or mechanical switch locks are installed, be governed by instructions posted in telephone booths, on doors or on housings of electric or mechanical switch lock.

RULE 93. Is revised to read:

Within yard limits, ENGINES, after complying with provision of Rules 81 or 81-A, may use main track without train-order authority, clearing the time approaching first-class trains are due to leave the last preceding station where time is shown. Flag protection against trains and engines is not required.

All trains and engines must move at RESTRICTED SPEED on main track within yard limits, except where movements are governed by block signal indication.

RULE 98. At interlocked railroad crossings at grade, cars or engines must not be cut off nor left within interlocking limits in such a way as to foul any part of the crossing frogs.

RULE 99. FLAG PROTECTION OUTSIDE OF BLOCK SYSTEM LIMITS: Is revised to read:

When a train is moving on main track at less than half the maximum authorized timetable speed for any train at that location, flagman must drop single lighted fuses at intervals that do not exceed the burning time of the fusee, and continue observation from rear of train. If train is seen approaching, stop signals must be promptly displayed. If necessary, and speed of train and conditions will safely permit, flagman must detain immediately placing torpedoes and proceed toward approaching train displaying stop signals.

When a train is moving on main track at or more than half the maximum authorized timetable speed for any train at that location, under circumstances in which it may be overtaken, flagman must consider grade, track curvature, weather conditions, sight distance, and speed of the train relative to following trains, when deciding if lighted fuses should be dropped.

When a train stops on main track under circumstances in which it may be overtaken by another train, the engineer will orally or by whistle signal promptly instruct the flagman to protect the rear. Unless recalled, flagman must go back immediately to insure full protection against a train moving at MAXIMUM AUTHORIZED SPEED, for any trains at that location, placing torpedoes on rail one mile behind train. He must then continue to a point two miles behind train where he will place additional torpedoes on rail and place a lighted fusee.

Flagman will then return toward rear of his train, remaining a sufficient distance but not less than one mile from rear, to enable him to stop a following train.

When providing the prescribed protection, if a flagman reaches a point within yard limits, he will place torpedoes on rail at yard limit board and it will not be necessary to go any additional distance. Until such time as flagman is recalled, he will remain at that point or at a point not less than one mile from rear of train, whichever is applicable.

When train is ready to proceed, engineer will recall the flagman orally or by whistle signal. When recalled and SAFETY OF TRAIN WILL PERMIT, he must place torpedoes on rail if none have previously been placed. He must leave a lighted fusee and thereafter return to his train, leaving additional lighted fusees at intervals that do not exceed the burning time of the fusee. Torpedoes which have been placed will be left on rail when flagman is recalled. When flagman arrived at rear of train and train commences moving, he must leave a lighted fusee, and drop single lighted fuses at intervals that do not exceed the burning time of the fusee until train attains a speed not less than half the maximum authorized timetable speed for any train at that location.

If a train is seen or heard approaching AT ANY TIME while train is standing, flagman must immediately place torpedoes on rail if they have not been previously placed. He must then proceed toward approaching train displaying stop signals. When safety of train will permit, flagman may return to his train.

The front of the train must be protected in the same manner when necessary by the brakeman or by another crew member if brakeman not available, except flagman must not return toward his train under any circumstances until recalled.

The train must be protected in the same manner before fouling main track when protection by flagman is required as prescribed by Rule 81, except within yard limits protection will be provided in direction(s) necessary a sufficient distance beyond switch where movement is to enter main track, to be able to stop any train or engine which may approach. When recalled, and if conditions warrant, flagman will leave a lighted fusee.

Before a train makes a reverse movement on main track, necessary additional protection must be provided.

Flag protection is not required when relieved from doing so by train order.

When rear of train is standing within interlocking, A-PB or yard limits, flag protection to the rear is not required.

During stops on main track where flag protection is not required, member of crew of train carrying passengers must take a position on ground at rear vestibule of rear car.

Note: SUFFICIENT DISTANCE. A distance from train where a flagman will place or give signals to engineer of an approaching train to permit engineer to take immediate action consistent with good train

SPECIAL INSTRUCTIONS—ALL SUBDIVISIONS

handling techniques, without emergency brake application, where he can stop his train short of train, equipment, or obstruction being protected. In making decision as to distance required, flagman is expected to exercise good judgment, taking into consideration the following:

- (a) Maximum authorized speed in territory.
- (b) Grade conditions.
- (c) Weather conditions.
- (d) Visibility.
- (e) Curvature of track.

RULE 102. Should a passenger train break in two or an emergency application of brakes occur while in motion on grade, head brakeman will immediately go towards rear, close angle cock at opening if train has parted, apply hand brakes, and turn up retaining valves on detached portion. After train is coupled air must be applied from engine before hand brakes and retaining valves are released.

If necessary to leave detached portion on main track, rear truck of detached portion on ascending grade or lead truck of detached portion on descending grade must be blocked or chained in such manner as to derail car should there be an uncontrolled movement.

RULE 103. General Order R-1 issued by the Arizona Corporation Commission October 10, 1973 requires compliance in the State of Arizona with the following:

In the event of any uncontrolled blockage involving more than one grade crossing and a peace officer is on the scene, primary consideration shall be given to the clearing of that crossing which, in the peace officer's judgment, will result in minimum delay to vehicular traffic.

Train or yard crew member of a train blocking a public crossing shall immediately take all reasonable steps, consistent with the safe operation of such train, to clear the crossing upon receiving information from a peace officer, member of any fire department, or operator of an emergency vehicle, that emergency circumstances require the clearing of the crossing.

In the event of any uncontrolled blocking not otherwise provided for in this rule, crossing shall be cleared with reasonable dispatch.

- A. When necessary to shove a railroad car or cars over a public grade crossing not having automatically controlled crossing signals, employes shall flag the crossing.
- B. When during normal train operations at night it becomes necessary to block a public grade crossing with standing railroad cars, and the crossing does not have automatically controlled crossing signals, flares or fuseses shall, as soon as possible, be placed in the center of the roadway on both sides of the track at not less than ten (10) feet from the railroad car or cars to warn motorists that the crossing is occupied.
- C. Detached railroad cars containing explosive or hazardous material shall not be left standing on any grade crossing during normal train operations.
- D. It shall be unlawful for railroad employees to "drop" or "kick" railroad car or cars across a grade crossing unless the crossing is flagged by a flagman or traffic is restricted by automatic gate arms.

Arizona Revised Statutes relating to the blocking of crossings reads as follows:

"40-852. **Allowing engine or car to remain upon public crossing; penalty**

An engineer, conductor or other employee or officer of a railroad company who permits a locomotive or cars to be or remain upon the crossing of a public highway over such railway so as to obstruct travel over the crossing for a period exceeding fifteen minutes, except in cases of unavoidable accident, is guilty of a misdemeanor."

This Statute must be complied with by all concerned.

RULE 104-D. Running switches will be made only when in the judgment of the conductor it is necessary and with his personal supervision.

AUTOMATIC BLOCK SIGNAL SYSTEM

RULE 505. Where signal protection is provided for movements from an adjacent track to main track, push buttons and lights are installed in box near each of the two signals, with time-release feature, to clear signals on one track when the control circuit on the other track is occupied.

Train on main track to let train on siding pass may clear signal on siding by pressing button bearing number of signal on siding. Train on siding to let train on main track pass should not pass APPROACH CIRCUIT sign, but when necessary to do so, may clear signal on main track by pressing button bearing number of signal on main track.

Further instructions posted inside push-button box.

RULE 508. Is revised to read:

Except as provided in Rules 509, 663 or 744, when an automatic block signal governing movement ON SINGLE TRACK WITHIN YARD LIMITS displays stop indication, train or engine, after stopping, may proceed at RESTRICTED SPEED under one of the following conditions:

- (a) When a preceding train is seen in the block and intervening track is seen to be clear.
- (b) When view of track is clear to end of second block.
- (c) When no movement is seen or heard approaching, train or engine must be moved forward until leading wheels are past insulated joints at the signal and wait five minutes at that point.

RESTRICTED SPEED must not be exceeded until rear of train or engine has passed out of block.

LETTER-TYPE INDICATORS

RULE 705. For information concerning letter-type indicators in connection with Hot Box Detectors and their appurtenances, refer to Rule 827, All Subdivisions.

GENERAL REGULATIONS

RULE 812. Section entitled "Safety Rules," pages II-1 through II-12, and portion of section entitled "Emergency Procedures" on pages III-4 through III-6, contained in Amtrak's Manual of Instructions for Conductors and Trainmen in Amtrak Service, do not apply to employes of Southern Pacific Transportation Company.

RULE 822. Second paragraph is revised to read:

If uncoupling lever on one side fails to work, lever on other side must be used. When necessary to raise lock pins or change alignment of couplers on cars or engines, **THEY MUST BE SEPARATED NOT LESS THAN 50 FEET AND STOPPED.** Under no circumstances may feet be used to make adjustments.

RULE 825. At terminals where instructions require application of hand brakes on freight trains, outgoing crews must not release hand brakes until road engine is coupled and brake system charged.

Many new cars are equipped with truck mounted brakes. The hand brake is effective on these cars on "B" end only. It will be necessary to check "B" end of these cars to determine if hand brake has been released.

Rail skids are hung on posts at locations listed under subdivisions. When using rail skid it must be placed on rail and leading wheel of first car in descending direction run onto rail skid and hand brakes applied if brakes are operative, before engine is detached. Train crews picking up cars from these locations must remove rail skid, return to proper location and lock in place where lock is provided.

RULE 827. Engines running light on descending grade without dynamic brake in operation must stop a sufficient length of time to permit wheel heat radiation if there is INDICATION OF OVERHEATING.

When trains are stopped by hot box detectors, dragging and/or derailed equipment detectors at locations where bridges, trestles, etc. are not provided with walkways train may be moved slowly ahead a sufficient distance to permit inspection.

DRAGGING AND/OR DERAILED EQUIPMENT DETECTORS

Where dragging and/or derailed equipment detectors are installed as listed under subdivisions, revolving red beacon will be mounted on Hot Box Detector House, on post or relay case adjacent to detector and will be normally dark. When dragging and/or derailed equipment detector is activated, the revolving red light will be displayed.

Unless otherwise provided revolving red beacon will apply to trains in both directions, and when activated, enginemen or trainmen must stop train promptly in accordance with Air Brake Rule 5, Sec.D. and make inspection of train and track, advising train dispatcher of conditions found.

LOOSE WHEEL DETECTORS

If indication is for loose wheel, all wheels and journals must be inspected on car indicated as well as on the car ahead and the car behind.

ROLLER BEARINGS LOOSE OR MISSING CAP SCREWS

During inspection by trainmen, if any roller bearing is found with one cap screw loose or missing and hot box detector has not been activated and check with tempilstick reveals no overheated condition, train may proceed to the next terminal where car must be set out.

Under the same circumstances, when two or more roller bearing cap screws are found loose or missing, train may proceed with caution to the first available track where car must be set out.

HOT BOX DETECTORS

Three basic types of Hot Box Detectors are utilized. Crew members are to be familiar with the types and locations of these detectors.

Hot box detector scanner sites have a white light continuously displayed on track side of instrument house, except when a hot bearing is detected, at which time light will start flashing. Crew members must be alert for the light and, when flashing, conductor and engineer must immediately orally compare observation when means of communication is available.

Absence of white light must be promptly reported to train dispatcher and does not require train inspection.

TYPE A. LETTER "H" INDICATOR (RULE 705.) WITH DIGITAL READ-OUT.

When letter "H" is illuminated or it is known hot bearing has been detected by crew member observing the flashing white light at scanner site, train must be brought to immediate stop and inspection made to determine that it is safe to proceed. Where possible, inspection must be made before passing over switches or structures. After inspection, train must not exceed 15 MPH from point of inspection until stop is made at location of readout locator and be governed by instructions posted inside case.

Member of crew must make a physical count of axles from rear of train to axle indicated by digital readout and when hot bearing is not located then all journals of car indicated by detector as well as five cars on either side of the car involved must be inspected.

Unless entire train has previously been inspected after stopping for detector, all journals of train must be inspected when "H" is illuminated provided any of the following conditions exist:

1. No count shown on readout locator.
2. Red light below readout mark "Locator Out of Service" is illuminated.
3. Digital readout locator displays erroneous indication such as a duplication of numbers.
4. Numbers displayed exceed the number of axles in train.

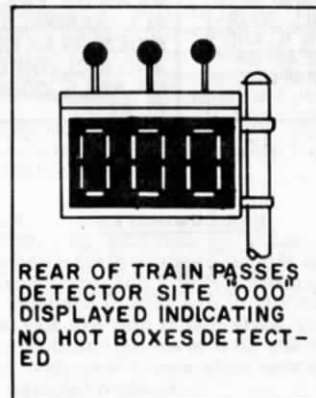
After inspection has been completed train dispatcher must be notified of condition found. When it is safe to proceed, member of crew must push button below indicator panel to cancel numbers on the indicator. Case door must be closed and secured with switch lock.

When letter "W" is displayed it is an indication that preceding train has stopped due to a hot bearing indication but has not cancelled out system. Following trains must stop and not proceed until light is extinguished or permission is obtained from train dispatcher. After stopping, speed of 10 MPH or more should be obtained if possible before passing over detector provided restrictions permit.

TYPE C. MONITOR DISPLAY BOARD WITH INDICATOR LIGHTS.

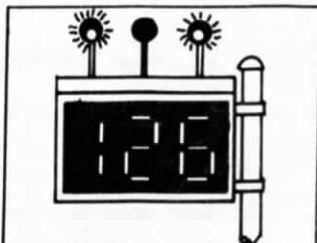
A Monitor Display Board and hot box indicator lights, as shown in diagram, are mounted on a signal mast at side of track. The display board is illuminated as train passes and will display zeros in the absence of a hot bearing. Two seconds after the train passes the detector, the display board will display numerals indicating the accumulated axle count from the hot bearing to the rear of the train.

Absence of any numerical display after passage of a train must be promptly reported to train dispatcher.



The indicator lights are normally dark, but when hot bearing is detected, will display flashing white aspect as illustrated below:

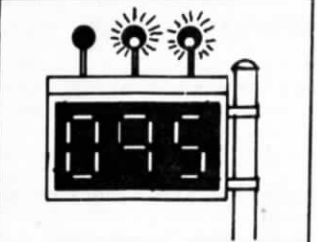




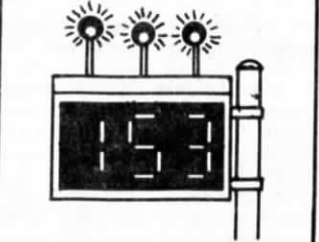
ONE HOT BOX EACH SIDE OF SAME AXLE COUNT (126) FROM REAR OF TRAIN INSPECT ALL BEARINGS OF CAR INDICATED AS WELL AS EACH ADJOINING CAR.



TWO OR MORE HOT BOXES ON RIGHT SIDE OF TRAIN IN DIRECTION OF MOVEMENT. AXLE COUNT (118) FROM REAR OF TRAIN. INSPECT ALL JOURNALS, REAR OF TRAIN TO AND INCLUDING CAR AHEAD OF AXLE COUNT ON DISPLAY.



TWO OR MORE HOT BOXES ON LEFT SIDE OF TRAIN IN DIRECTION OF MOVEMENT. AXLE COUNT (095) FROM REAR OF TRAIN. INSPECT ALL JOURNALS, REAR OF TRAIN TO AND INCLUDING CAR AHEAD OF AXLE COUNT ON DISPLAY.



ONE OR MORE HOT BOXES ON EACH SIDE OF TRAIN. AXLE COUNT (153) FROM REAR OF TRAIN. INSPECT ALL JOURNALS ON BOTH SIDES, REAR OF TRAIN TO AND INCLUDING CAR AHEAD OF AXLE COUNT ON DISPLAY.

LEGEND

UNILLUMINATED

FLASHING

INDICATOR LAMP



As the train passes the detector, the right or left hot box indicator light on top of the board starts to flash immediately upon detection of a hot journal, indicating the side of the train having the overheated journal.

A flashing indicator light in the center indicates that another hot bearing (or bearings) was detected subsequent to the hot bearing which is numerically indicated on the display board.

When any indicator light displays flashing white aspect, train must be stopped promptly and inspection made to locate car with hot bearing.

Lights and illuminated numerals will automatically cancel out 90 seconds after entire train passes detector.

When hot bearing is not located then all journals of car indicated by detector as well as five cars on either side of the car involved must be inspected.

When it is known hot bearing has been detected by crew member observing the flashing white light displayed on track side of instrument house, and a numerical readout is not displayed on the display board, then train must be stopped promptly and all bearings of train must be inspected.

TYPE D. REMOTE READOUT BY RECORDER AT TERMINAL.



Instrument House

Readout is by recorder located at nearby terminal as shown under Rule 827 on each subdivision.

When white light is flashing on instrument house, train must be stopped promptly and when means of communication is available, crew member must contact personnel at location of recorder to determine location of hot bearing. If location of hot bearing cannot be determined by personnel at recorder, inspection must be made of all bearings.

Terminal personnel at recorder will advise train crew of location of overheated journal, location will be given as number of cars from caboose and location of journals from trailing end of car right or left: 1, 2, 3, 4 such as "R-3."

If lead truck of lead locomotive does not appear on tape, train crew is to be advised to carefully hand feel this truck.

If location of journal is furnished by personnel at recorder, but defect cannot be found, inspect all bearings of indicated car as well as all bearings of five cars on either side.

CHECKING FOR JOURNALS SUSPECTED OF OVERHEATING

Whenever an overheated journal is suspected due to hot box detector activation, rolling inspection or visual symptoms, a walking inspection must be made to find the exact car and journal and to observe for other physical defects on the train.

For roller bearing cars special attention must be given to proper use of tempilstiks, loose or missing cap screws, temperature sensitive cap screws and loose or leaking seals.

For plain bearing cars, look for low oil; brass, pad or wedge defective or out of place, or water in journal box.

REPORTING OF HOT BOXES

When hot box detectors are actuated the following information is to be reported at next terminal in telegraph message form identified by symbol HB addressed jointly to Superintendent, Division Engineer, Signal Supervisor, and Chief Train Dispatcher, also General Manager—Amtrak, San Francisco when an Amtrak passenger train is involved.

1. Date and time stopped and M.P. location.
2. Train identification.
3. Car number and location in train (whether or not defect found).
4. Box location (1, 2, 3 or 4 from hand brake end of car, right or left side facing hand brake).
5. Disposition of car: If set out, state where. If inspection shows that it was not necessary to set out even though bearing was warm enough to activate the detector, advise what corrective action was taken to permit movement of car. If roller bearing equipped, so state.

NOTE: Report all cases where train passes over the detector without an indication having been displayed, but develops a hot bearing between detector and a point 20 miles beyond detector.

Whenever a roller bearing car experiences two successive hot box detector actuations and overheated journal or other cause of actuation cannot be found after required inspections were made and five cars checked either side, car may be continued in train with provision that conductor must report same at next terminal and inspection is made by qualified maintenance personnel.

Train dispatcher to notify terminal of mandatory inspection when brought to his attention.

If a roller bearing car experiences three successive hot box detector actuations, it must be set out.

Train dispatcher must:

1. Notify Car Department of cars set out.
2. Notify Car Department of cars which are known to have had two successive hot box detector actuations.
3. Submit CS-7159A "Preliminary Report of Overheated Journals" whenever hot box is experienced except if on actuation of type "D" yard approach hot box detector.

Connecting crews, if any, must be notified by incoming crew of failure to locate hot bearing if indication is received on any hot box detector system and car is not set out.

CONTINUOUS WELDED RAIL (CWR) TRAINS

Continuous welded rail trains consist of a tiedown car and a number of roller-rack cars and may contain other cars, such as threader cars and elevator cars to accompany movement. A steel-end box car, refrigerator car, or high-side gondola car must be positioned on each end of CWR train as a buffer car during all movements except preparatory to and during unloading.

In addition to other requirements of this rule, when a CWR train is stopped for any reason, inspection must immediately be made of as much of train as practicable and the following items checked if train is carrying a full or partial load:

- a. Check for undesired movement of rail. The tops of rails are painted adjacent to the tiedown rack on the tiedown car which is located near center of train. Paint marks on each tier of rail must be in line; otherwise, this is an indication of an undesired movement of rail.
- b. Check each rail end to make certain it overhangs the last supporting roller by at least 12 feet and is no closer than 12 feet from the next empty roller. Rails are marked 12 feet from each end.
- c. When a load contains continuous lengths of rail made up of more than one piece, check to see that rail joints are secured with at least four bolts, properly tightened, and that rail ends have not pulled apart.
- d. Check coupler operating levers to make certain they are in position to prevent uncoupling and that coupler operating lever locking devices are in position and locked.

When any of these conditions are not as required, train must not be moved until train dispatcher has been contacted and further instructions are received.

RULE 827-A. FLAMMABLE COMPRESSED GAS.

Following are shipping names of Flammable Compressed Gas:

Standard Transportation Classification Code	Shipping Name
4905705	Butadiene, inhibited (butadiene from alcohol)
4905704	Butadiene, inhibited (butadiene from petroleum)
4905703	Butadiene, inhibited (butadiene, impure, for further refining)
4905706	Butane
4905706	Liquefied petroleum gas (butane)
4905702	Butane (butane, impure, for further refining)
4905702	Liquefied petroleum gas (butane, impure, for further refining)
4905727	Compressed gases, n.o.s. (dispersant gases, nec. flammable)
4905748	Compressed gases, n.o.s. (iso-butene)
4905775	Compressed gases, n.o.s. (refrigerants, nec. liquid, flammable)
4905713	Cyclopropane
4905716	Difluorethane

Standard Transportation Classification Code	Shipping Name
4905719	Difluoromonochloroethane
4905510	Dimethylamine, anhydrous
4905725	Dimethyl ether
4905734	Ethylene
4905749	Hydrocarbon gas, liquefied
4905749	Liquefied hydrocarbon gas
4905746	Hydrogen
4905745	Hydrogen, liquefied
4905410	Hydrogen sulfide
4905747	Isobutane
4905747	Liquefied petroleum gas (isobutane)
4905750	Isobutane (isobutane for further refinery processing)
4905750	Liquefied petroleum gas (isobutane for further refinery processing)
4905752	Liquefied petroleum gas
4905707	Liquefied petroleum gas (butene gas, liquefied)
4905711	Liquefied petroleum gas (butylene, impure for further refining)
4905780	Liquefied petroleum gas (pintsch gas)
4905758	Methylacetylene—propadiene, stabilized
4905761	Methyl chloride
4905764	Methyl chloride—methylene chloride mixture
4905520	Methyl mercaptan
4905530	Monomethylamine, anhydrous
4905781	Propane
4905781	Liquefied petroleum gas (propane)
4905785	Trifluorochloroethylene
4905540	Trimethylamine, anhydrous
4905792	Vinyl chloride
4905795	Vinyl methyl ether, inhibited

When necessary to provide helper engine for trains handling tank cars containing Flammable Compressed Gas, helper engine must be placed in accordance with helper service instructions and there must be a proper separation of the helper engine from tank cars containing Flammable Compressed Gas.

Unless specifically authorized by Superintendent, trains or cuts of cars containing Flammable Compressed Gas must not exceed 8,000 feet.

RULE 829. In addition to other train inspection requirements, when a train stops to be met or passed by a continuous welded rail train, the CWR train must also be inspected to determine rails are in position in the roller racks, that ends of continuous rail are not closer than 12 feet from the next empty roller and that they overhang the last supporting roller by at least 12 feet, and to see that cars are properly coupled with locking devices in place.

RULE 834. Loaded multi-level cars in other than solid trains must be entrained at least four cars behind working locomotives in road movement; also loaded multi-level cars must not be entrained next to hopper, gondola or tank cars loaded with stone, gravel, sand, lime, coal, soda ash, chemicals, etc., subject to wind, vapor, or fume action on adjacent cars, nor placed next to empty cars previously loaded with such commodities. Loaded multi-level cars must not be entrained next to open-top loads of lumber, poles, steel, etc., when lading extends beyond top of car.

Open-top cars with lading height exceeding 15 feet six inches, except cars transporting highway trucks or trailers, multi-level freight cars either loaded or unloaded, and automobile underframe cars, shall be entrained at least five cars distance from engine or caboose if length of train permits on train operating in or through the States of California, Nevada and Arizona.

Additionally, in California, wood chip cars transporting wood chips when loaded and covered in such a manner so as to preclude any material from being dislodged enroute, are exempted from restrictions above.

RULE 874. Forward brakeman on freight trains will ride the lead unit when a seat is available.

RAILROAD RADIO RULES

GENERAL

RULES 950, 950-A, 950-B, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 963, 964, 965, 966, and 967 are cancelled and following new radio rules are in effect:

RULE 950. Following rules and requirements cover use of railroad radio systems and govern employes using such systems.

RULE 950-A. A railroad radio communication system is one employing radio for the transmission of intelligence between moving equipment, between moving equipment and a fixed point, or between fixed points.

RULE 950-B. Radio communications systems are under the jurisdiction of the Federal Communications Commission. The Railroad Company and its employes are governed by the Commission's operating rules including those incorporated herein. Violation is a Federal offense for which severe penalties are provided.

RULE 950-C. The locations of radio base and wayside stations, times such stations are attended, and assigned channels will be designated by timetable or other instructions.

RULE 950-D. When radios are manned, they must be turned on to the appropriate channel with volume adjusted to receive communications. When radios are not manned or when employes are not in position to receive radio calls, battery-operated radios must be turned off.

RULE 951. Only employes specifically authorized to do so by the FCC are permitted to make any internal adjustments to a railroad radio. Authorized employes must carry their FCC operator license or verification card when on duty. If it appears that a radio transmitter is not operating properly its use shall be discontinued and the designated official notified as soon as possible.

The designated railroad official will be named in notice posted in cab of engine, in caboose or in the base station.

RULE 952. No employe shall knowingly transmit any false emergency communication, any unnecessary, irrelevant or unidentified communication, nor utter any obscene, indecent, or profane language via radio.

RULE 953. No employe shall divulge or publish the existence, contents, purport, effect or meaning of any communication (emergency communications excluded) except to the person for whom the communication is intended or to another employe of the railroad whose duties may require knowledge of the communication. The above applies either to communications received directly or to any that may be intercepted.

RULE 954. Before transmitting, any employe operating a radio transmitting set shall listen a sufficient interval to be sure that the circuit is not already in use, particularly for emergency traffic.

When a train order is being transmitted to a train by radio, employes not addressed shall not use the radio, except in case of emergency, until the train order has been completed.

RULE 955. An emergency call must be preceded by the word "Emergency" repeated three times. Such calls must be used only to cover initial reports of derailments, collisions, storms, washouts, fires, obstructions to track, or other matters which would cause serious delay to traffic, damage to property, injury to employes or the traveling public, and contain as complete information thereon as possible. All employes must give absolute priority to emergency calls from another station and, except in answering or aiding a station during an emergency, must refrain from sending any communication until there is assurance that no interference will result to the station initiating emergency calls.

RULE 956. The railroad company is required to answer an official notice of violation of the terms of the Communications Act of 1934, as amended, within ten days from receipt of notice and any employe receiving inquiry concerning any violation shall answer such inquiry within 48 hours after receipt of notice.

RULE 957. Employes must permit inspection of the radio equipment in their charge and all FCC documents pertaining thereto, by a duly accredited representative of the Federal Communications Commission at any reasonable time.

RULE 958. An employe transmitting or acknowledging a radio communication must begin with positive identification which must include the following in the order listed:

- (a) Base or wayside stations.
 1. Name or initials of the railroad.
 2. Name of office or other unique designation and the name and location of the station.
- (b) Mobile units.
 1. Name or initials of the railroad.
 2. Train name (number), engine number, location, or words that identify the precise mobile unit.

EXAMPLE: "SP Caboose Train Second 802 calling SP Engine Second 802, over" and to answer a call, announce, for example: "This is SP Engine, Train Second 802, over."

In all yard operations, after initial positive identification is established, short identification may be used.

Station identification must be repeated at the end of any transmission exceeding three minutes in length. If an exchange of communication continues without substantial interruption, positive identification must be repeated each 15 minutes.

In radio transmissions, if necessary for clarity when using letters, words or numerals, be governed by Rule 206 for spelling or pronunciation.

RULE 959. In certain cases at crossings, junctions or paralleling tracks some interference may develop with another railroad. In such cases special care in making identification shall be used and the employes concerned shall co-operate in handling their business by alternating calls and being as brief as possible.

RULE 960. If any communication from a station other than another railroad radio station interferes with railroad radio service, the railroad employe will endeavor to ascertain the identity of such station. Employe will report the occurrence as soon as possible through authorized channels to the designated railroad official, giving the exact time, nature of communication and identity of the station, if possible.

Internationally, the word "Mayday" indicates a distress message, the word "Pan," an urgent message and the word "Security," a safety message. Railroad employes may hear such messages sent by aircraft or, by boats in coastal areas. Railroad employes hearing such messages must report them immediately through authorized channels to the designated railroad official in addition to taking such appropriate action to relieve the distress as may be possible.

RULE 961. The radio must be used only in connection with railroad business and in compliance with the operating rules.

Except for emergency situations, radio transmitter must not be used within 500 feet of a Hot Box Detector scanner site.

RULE 963. RADIO COMMUNICATION, IF DISTINCT, MAY BE USED THE SAME AS ANY OTHER MEANS OF COMMUNICATION, including usage as follows:

- (a) Operator communicating direct with member of crew, after assured train is stopped, may authorize train to pass an interlocking signal displaying stop indication, as prescribed by Rule 663(b).
- (b) Operator communicating direct with member of crew may authorize train to make reverse or forward movement within interlocking limits as prescribed by Rule 670 when no interlocking signal is provided to authorize movement.

- (c) Operator communicating direct with engineer may authorize train to proceed under provisions of Rule 211.
- (d) Train dispatcher communicating direct with member of crew after assured train is stopped, may authorize train to pass an absolute signal displaying stop indication within CTC limits as prescribed by Rule 776. **EXCEPTION:** Refer to Rule 783.
- (e) Train dispatcher communicating direct with member of crew may designate work limits and clock time limit as prescribed by Rules 765 and 767.

RULE 964. Radio communication, if distinct, may be used to transmit and receive track car time and movement limits under provisions of Rule 766-A, or line-up of trains for track car operators. Radio communication, when distinct, may also be used by MofW&S foremen to receive and release work limits and clock time limit under provisions of Rules 766 and 767.

RULE 965. Radio communication, when distinct, may also be used as herein provided:

- (a) Train dispatcher may transmit train order to train-order operator as prescribed by Rule 206-A.
- (b) Train-order operator may relay train order as prescribed by Rule 206-C.
- (c) After assured train is stopped, train order may be transmitted to conductor or engineer or designated employe promoted to conductor or engineer as prescribed by Rule 208-B.

The information contained in train orders shall not be acted upon by other than those to whom the train orders are addressed.

Except as provided in paragraph (c) and in Rule 211, train dispatcher and train-order operator must not use radio to inform enginemen or trainmen as to the contents of any train order. Operator may advise approaching train when he holds restricting order addressed to that train.

RULE 967. Enginemen or trainmen must not request train-order operator to advise indication of train-order signal. Train-order operator must not furnish this information.

RULE 968. An employe receiving a radio call must not delay acknowledgment unless it would interfere with duties relating to safety.

RULE 969. An employe who receives a transmission must repeat it to the transmitting party except when the communication:

- (a) Relates to yard switching operations;
- (b) Is a recorded message from an automatic alarm device; or
- (c) Is general in nature and does not contain any information, instruction or advice which could affect the safety of a railroad operation.

RULE 970. To indicate that a transmission is ended and that a response is expected, the transmitting employe must say "over." To indicate that a transmission is ended and that no response is expected, the transmitting employe must state his identification and say "out."

RULE 971. Radios used in train operation outside yards must be tested at the point where the train is originally made up.

During each tour of duty, engineers and conductors must check to see that engine and caboose radios are working.

Radio check must consist of an exchange of voice communication with another radio, determining quality and readability of transmission.

A malfunctioning radio must not be used and each crew member and the train dispatcher or other designated employe must be so notified as soon as practicable.

RULE 972. Except between members of the same crew, no information may be given by radio to a train or engine crew about the aspect of a fixed signal.

Unless specifically authorized by operating rules, radio must not be used to convey instructions which would override the indication of a fixed signal.

RULE 973. The use of citizen band radios for railroad operating purposes is prohibited.

RULE 974. When radio is used to transmit train orders, rules for movement by train order and the following instructions apply:

- (a) When a train order is to be transmitted directly to a train by radio, the train dispatcher will call the train and state this fact. The crew members who are to copy the order must state their names, positive identification and exact location and that they understand a train order is to be transmitted and that they are prepared to receive it.
- (b) Train orders transmitted shall be copied in the prescribed form by the employe receiving order. After the conductor and engineer have both made or received written copy of the train order and, unless copied in manifold, have repeated it to each other, employe who received order from train dispatcher or operator shall then repeat order to dispatcher or operator.
- (c) "Complete" must not be given to a radio-transmitted train order until it has been repeated and dispatcher has verified the accuracy of the repetition. Dispatcher will then state "Complete," the time, and the initials of the Chief Train Dispatcher. Crew members copying the order must then acknowledge by repeating "Complete" and the time.
- (d) "Complete" and time must not be given to a radio-transmitted train order for an inferior train until response "Complete" and time have been acknowledged by the superior train.
- (e) Train orders transmitted by radio directly to two or more trains must be transmitted simultaneously to as many of them as practicable.
- (f) Radio communication must not be used to inform a train of the contents of a train order not yet transmitted to or received by that train.

AIR BRAKE RULES

RULE 3. A full independent brake application on road engine classes EP 636, GF 628, EF 630, EF 636, EF 642, GF 630, GF 633, EF 623 results in a brake cylinder pressure of 72 lbs. This brake cylinder pressure must be maintained to provide required braking power at very low speed or when stopped. Under no circumstances must self-lapping portion of independent brake valve be changed except to obtain brake cylinder pressure of 72 lbs. from a full independent brake application.

RULE 9. The following series of cars are equipped with ABEL brake system which has automatic change-over feature to provide proper brake function when car is loaded and when empty:

SSW 75700-75799	Gondolas
SSW 78500-78599	Hoppers (open top)
SP 333500-334399	Gondolas
SP 337500-337599	Gondolas
SP 345000-345669	Gondolas
SP 354000-354749	Gondolas
SP 463500-464899	Hoppers (open top)
SP 467500-467549	Hoppers (open top)
SP 480000-480193	Hoppers (open top)
SP 491000-491059	Hoppers (covered)
SP 492000-492039	Hoppers (covered)
SP 500604	Flat car
SP 590000-590099	Flat cars

SPECIAL INSTRUCTIONS—ALL SUBDIVISIONS

The following series of cars are equipped with ABDEL brake system, which has automatic change-over feature to provide proper brake function when car is loaded and when empty. This feature is fully automatic on these series and requires no action on part of engineer:

SP 337600-337699	Gondolas
SP 354750-355299	Gondolas
SP 463337-463486	Hoppers (Open Top)
SP 464000-465699	Hoppers (Open Top)
SP 590100-590131	Flat Cars (Anode)
SP 595500-595624	Cradle Flats
KCC 1401-1524	Hoppers (open top)

RULE 17. When dynamic brakes are not used on helper engine(s), tonnage of such engine(s) must be added to that of train in determining the number of retaining valves required.

RULE 21. Coupling caboose and road engine to train will be considered as an indication that train is made up and switchmen have completed their work. Switchmen must not perform switching on or couple other cars to a train on which the road engine and caboose have been attached without instructions from the yardmaster, who will see that members of the crew are notified in advance.

RULE 27. First paragraph is revised to read:

Refer to Rule 102 of the Rules and Regulations of the Transportation Department regarding procedures when a train or engine with a cut of cars, in motion, on main track or siding has an emergency application of air brakes.

RULE 33. Trains WCESP, YUESP and PXESP containing not less than 90 percent mechanical refrigerator cars or any restricted cars, not exceeding 120 cars and/or 90 tons per operative brake may be authorized by train order to operate at Column 1 speeds not exceeding 65 MPH unless otherwise restricted.

When tonnage exceeds 80 tons per operative brake, the following trains: BSMFF, GSLAF, APLAA, LAEST, and LAHOT, when consisting of not more than 50% multi-level equipment may be authorized, by train order, to operate at maximum speed otherwise allowed but not exceeding speed shown in following table:

TONS PER OPERATIVE BRAKE

Number of Cars:	Between 80 & 85 tons	Between 85 & 90 tons
1-50	70 MPH	65 MPH
51-60	65 MPH	65 MPH
61-65	65 MPH	55 MPH
65-70	60 MPH	
71-80	50 MPH	

In all other cases not covered in the above table Air Brake Rule 33 will apply.

MISCELLANEOUS

1. HELPER SERVICE

The following covers engine tractive effort in pounds:

Engine Model	Classification	Starting Tractive Effort
C 415	AS415	62,750
RS 11	AS418-1 to 6	65,000
RS 32	AS420	63,750
C 630	AS600-1	102,000
RSD 15	AS624-1	92,500
C 628	AS628-2	97,750
C 630	AS630-1	101,000
GP 9	EF418-1 to 9; EF418C-1-2; EF418E-1-2-3	64,200
GP 20	EF420-1-2; EF420C-1-2	65,100
GP 30	EF423-1; EF423C-1	66,100
GP 35	EF425-1 to 4; EF425C-1-2-3	66,000
GP 40	EF430C-1	67,560
SD 9	EF618-1 to 5; EF618E-1-2	89,700

Engine Model	Classification	Starting Tractive Effort
SD 39	EF623-1-2	104,150
SD 35	EF625-1	95,540
SD 40	EF630-1-2	102,750
SD 40-2	EF630-3-4	102,100
SD 45	EF636-1 to 6; EF636C-1 to 5	103,470
SD 45-2	EF636-7 to 10-12-15; EF636C-6 to 9	102,600
SD 45X	EF642-1-2	103,240
DD 35	EF850B-1	131,750
GP 40P-2	EP430-1	70,200
SDP 45	EP636-1	102,500
SW 1200	ES412	62,250
SW 1500	ES415-1 to 6	65,000
MP 15	ES415-7	65,400
SD 7	ES615-1 to 4	82,500
SD 38	ES620-1	104,000
U 25 B	GF425-1-2-3	67,800
U 28 B	GF428-1	67,890
U 28 C	GF628-1	103,120
U 30 C	GF630-1-2	104,850
U 33 C	GF633-1 to 10	104,710
U 50	GF850	139,250

NOTE: For classification of engines, see Item 3.

A. Rule for entraining one helper engine:

- (1) On trains of less than 100 cars, helper engine consisting of not more than two six-axle operating units totaling 179,400 pounds tractive effort nor more than two four-axle operating units totaling 135,600 pounds tractive effort or a combination of one four-axle and one six-axle operating unit totaling 157,600 pounds tractive effort may be placed behind caboose.
- (2) On trains of 100 or more cars helper engine consisting of only one unit may be placed behind caboose.
- (3) Helper engine that does not qualify under (1) or (2) must be entrained as near as practicable to shove 1/3 and pull 2/3 of tonnage handled by helper engine.
- (4) Helper engine consisting of not more than two units operating remote controlled totalling 210,000 pounds tractive effort may be entrained anywhere ahead of caboose in the rear portion of the train. But must not be entrained to shove less than 30% of tonnage remote helper will handle.

B. Rule for entraining more than one helper engine:

- (1) Trains having more than one helper engine must have each engine entrained as near as practicable so that it will shove 1/3 and pull 2/3 of tonnage handled.
- (2) Trains powered with two helper engines, one of which qualifies to be placed behind caboose, must entrain the swing helper as near as practicable to shove 1/3 and pull 2/3 of tonnage handled by the swing helper.

C. Air must be cut in on all helper engines and helper engine must not be coupled nor uncoupled while train is in motion.

D. Road engineer and helper engineer must communicate any change affecting the operation of their train when means of communication is available. When speed is being held above 8 MPH on ascending grade, helper engineer must regulate amperage during speed reductions or speed increases to maintain the amperage indicated before speed change; if speed of train drops below 8 MPH or when coming to a stop on ascending grade, helper engineer must regulate amperage during speed reduction to maintain the amperage indicated before speed change, then close throttle just before train stops.

E. When speed of trains powered with 12,000 or more horsepower on the head end and with helper engine drops below 16 MPH, road engineer must reduce throttle to Run 6.

When train speed drops below 16 MPH, head end power being reduced to Run 6 may result in helper power working in short time rating. The short time rating must not be exceeded. If it appears that short time rating will be exceeded, assistance must be requested from train dispatcher. If assistance cannot be obtained, grade must be doubled.

F. Trailing tonnage must not exceed that amount of tonnage listed under column "Maximum Tonnage to be Handled by Road Engine With Helper Entrained" for territory over which helper will be used. Should the amount of tonnage computed exceed the maximum tonnage listed, it may be necessary to isolate road units or add helper power. If practical, isolate units behind the lead unit leaving operating units next to the train. Weight of those units isolated and separated from the train by operating units need not be added to train weight in computing location of helper.

If units have to be isolated next to the train, weight of these units must be added to the train when computing location of the helper.

If units are moved dead in consist, they should be placed next to the train and their weight added to the tonnage of the train.

UNLESS OTHERWISE RESTRICTED MAXIMUM TONNAGE TO BE HANDLED BY ROAD ENGINES WITH HELPERS ENTRAINED:

TERRITORY

Tucson-Lordsburg	6,500
Yuma-Tucson	8,500
Lordsburg-Mescal	7,500

UNLESS OTHERWISE RESTRICTED MAXIMUM TONNAGE TO BE HANDLED BEHIND HELPER ENGINES:

TERRITORY

Tucson-Lordsburg	5,525
Yuma-Tucson	7,225
Lordsburg-Mescal	6,375

G. In locating helper engine(s) in train, the following example of calculating tonnage for road engine and helper engine(s) will be used:

EXAMPLE:

Train: 42 loads, 87 empties = 5756 tons.
 Four-unit road engine (2-GF630, 1-EF623, 1-EF625).
 Three-unit helper engine (2-EF623, 1-EF630).

Total road horsepower	10800
Total helper horsepower	7600
Total horsepower	18400

(1) Divide total horsepower by tonnage =

$$\frac{18400}{5756} = 3.196 \text{ HP/T}$$

(2) Divide road horsepower by HP/T factor =

$$\frac{10800}{3.196} = 3379 \text{ tons}$$
 Road engine will handle 3379 tons

(3) Divide helper horsepower by HP/T factor =

$$\frac{7600}{3.196} = 2377 \text{ tons}$$

(4) To determine 1/3 of helper tonnage divide

$$\frac{2377}{3} = 792 \text{ tons}$$
 Helper engine will shove 792 tons.

(5) To determine 2/3 of helper tonnage multiply 792 x 2 = 1584 tons
 Helper engine will pull 1584 tons.

- (6) Under no circumstances should the tonnage that will trail the helper engine exceed that amount indicated in the chart.
- (7) Should tonnage trailing road or helper engine, as computed above, exceed the amount indicated in the chart it will be necessary to:
 - (a) Reduce tonnage or
 - (b) Relocate helper in compliance with instructions. (Item D under General) or
 - (c) Add additional helper(s) of sufficient horsepower to handle tonnage in excess of amounts indicated in chart. Additional helper(s) may be placed behind caboose if they meet requirements of item A 1., if not they are to be entrained as follows:

EXAMPLE:

Train: 170 loads, 2 empties = 13,980 tons.
 Three-unit road engine (1-EF630, 1-EF636, 1-GF633).
 Four-unit swing helper (1-EF630, 2-EF636, 1-GF633).
 Two-unit rear helper (1-EF618, 1-EF630).

Total road horsepower	9900
Total swing helper horsepower	13500
Total rear helper horsepower	4800

Total horsepower 28200

(1) Divide total horsepower by tonnage =

$$\frac{28200}{13980} = 2.017 \text{ HP/T}$$

(2) Divide road horsepower by HP/T factor =

$$\frac{9900}{2.017} = 4908 \text{ tons}$$
 Road engine will handle 4908 tons

(3) Divide swing helper horsepower by HP/T factor = 13500

$$\frac{13500}{2.017} = 6693 \text{ tons}$$
 Swing helper will handle 6693 tons (total)

(4) To determine 1/3 of swing helper tonnage =

$$\frac{6693}{3} = 2231 \text{ tons}$$
 Swing helper will shove 2231 tons

(5) To determine 2/3 of swing helper tonnage =

$$2231 \times 2 = 4462 \text{ tons}$$
 Swing helper will pull 4462 tons

(6) Divide rear helper horsepower by HP/T factor = 4800

$$\frac{4800}{2.017} = 2380 \text{ tons}$$
 Rear helper will handle 2380 tons (total)

(7) To determine 1/3 of rear helper tonnage =

$$\frac{2380}{3} = 793 \text{ tons}$$
 Rear helper will shove 793 tons.

(8) To determine 2/3 of rear helper tonnage =

$$793 \times 2 = 1586 \text{ tons}$$
 Rear helper will pull 1586 tons.

GENERAL:

- A. At locations designated by the Superintendent, road power must not exceed 24 axles of operative power.
- B. Helper engine must not be placed on head end of train without authority being obtained from train dispatcher.

SPECIAL INSTRUCTIONS—ALL SUBDIVISIONS

C. AS415, AS420, ES412 and ES415 class, except ES415 class numbers 2680-2759 units must not be cut into train in helper service. ES415 class numbers 2400-2679 may be cut into train and used in helper service providing coupler stops are applied and locked on both ends of the engine. No more than two of these units may be placed behind the caboose.

D. Should it become necessary to relocate the helper at other than the shove 1/3, pull 2/3 location in order to separate helper from restrictive cars or in compliance with maximum tonnage trailing helper limitations, the helper may be relocated, but under no circumstances in relocations may helper shove less than 30% nor more than 45% of the total tonnage to be handled by the helper.

2. PLACEMENT OF RESTRICTED CARS IN TRAIN WITH OR WITHOUT HELPER:

(a) When average weight of cars in train, other than switchers and locals not exceeding 45 cars, LAEST, and LAHOT is more than 60 tons per car, do not entrain any cars with gross less than 50 tons within 5 cars of road engine.

The above will not apply to continuous welded rail (CWR) trains nor to GSLAF between Tucumcari and Yuma when total tonnage does not exceed 5000 tons or to the Hayden Local between Magma and Tucson.

The first five cars in the Hayden Local, Westward Hayden to Magma, must each have a gross weight of not less than 85 tons.

(b) Following series of USAX or DODX cars are restricted to movement on rear of train and behind any helper engines:

38016 thru 38666 and
39095 thru 39199

(c) Cars measuring less than 35 feet over coupler pulling faces must not be handled in train coupled to cars longer than 60 feet over coupler pulling faces.

In addition, empty tank cars under 35 feet outside length will be entrained within 20 rear cars of train.

Either the Train Mass Profile (graph), conductor's train list and/or switch list furnished crew members will identify a car measuring less than 35 feet over coupler pulling faces with letter "S," tank cars with the letters "TS." Cars measuring over 60 feet between coupler pulling faces will be identified by the letter "L."

3. CLASSIFICATIONS ARE DESCRIPTIVE OF ENGINES AS FOLLOWS:

E F 4 15 A C 01

Denotes Order of Purchase for Units of same Classification.

Denotes Ownership if other than SPT Co.:
C = SSW Ownership.

E = SP Equipment Co. owned, leased to SPT Co.
S = SP Equipment Co. owned, leased to SSW Ry.

Denotes Car Body Type with Control Cab;
B = Booster; No Letter = Road Switcher Type.

Denotes Horsepower in Hundreds: 00 = Not Powered; 18 = 1750-1800 HP, etc.

Denotes Number of Axles.

Denotes Service Assignment: F = Freight; M = Misc.; P = Passenger; S = Switcher.

Denotes Builder: A = Alco; E = EMD; G = GE; S = SPT.

4. SPEED RESTRICTIONS FOR ENGINES: Maximum speed shown below is subject to further restriction applicable to certain territories as shown in Speed Restrictions for Trains:

MAXIMUM SPEED AND LENGTH OF ENGINES (Between pulling face of couplers)

CLASSIFICATION	ENGINE NUMBERS	MAXIMUM SPEED EXCEPT #	LENGTH (FEET)
AS600	1000-1002	70	70
ES406	1004	45	44
ES408	1100-1128	65	44
ES408B	1150-1153	65	44
ES409	1190-1199	65	44
AS409	1200-1281	60	45
ES410	1300-1337	65	44
ES615	1400-1442	70	61
AS410	1820, 1842	60	45
ES412	2250-2316	65	44
AS415	2400-2409	65	54
ES415	2450-2689	65	45
ES415	2690-2759	65	48
AS418	2900-2903; 2905-2936	70	57
AS618	2951-2970	70	58
ES620	2971-2976	50	69
EP418	3001-3002; 3004-3010	70	56
AS624	3100-3102	25*	67
AS628	3110-3136	25*	69
AS630	3140-3153	25*	69
EP418	3186-3196	70	56
EP430	3197-3199	70	63
EP636	3200-3209	70	71
EF418	3300-3857	70	56
EF618	3870	70	61
EF418	3871-3873	70	56
EF618	3875	70	61
EF418	3877-3883	70	56
EF618	3893	70	56
EF618	3902-3964	70	61
AS420	4000-4009	70	57
EF420	4030-4153; 4500-4553; 4560-4576	70	56
EF618	4300-4451	70	61
EF620	4700-4724	70	61
EF423	5000-5037	70	56
GS407	5100-5109	55	37
EF623	5300-5325	70	66
EF425	6300-6303	70	56
EF425	6500-6681	70	56
GF425	6700-6767; 6800-6865	70	60
EF625	6900-6953	70	61
GF428	7025-7028; 7030-7033	70	60
GF628	7150-7159	70	67
EF435	7200-7201; 7230-7231	70	60
EF430	7600-7607	70	59
GF430	7800-7803	70	62
GF630	7900-7936	70	67
EF630	8300-8306; 8350-8356	70	71
EF630	8400-8488	70	66
GF633	8585-8796	70	67
EF636	8800-9156	70	66
EF636	9157-9404	70**	71
	**Except: 9213, 9219, 9228, 9237, 9241, 9242 and 9247 restricted to 50 MPH.		
EF642	9500-9505	70	71
EF850B	9900-9902	70	88
GF850	9950-9952	70	84
	AMTRAK ENGINES:		
EP415A	Model F7, 110-123; 376-377	79	51
EP430A	Model F40PH, 200-229	70	56
EP630A	Model SDP40F, 500-649	70	72
GP630A	Model P30CH, 700-724	70	72
	ATSF ENGINES:		
EF630	5000-5019	70	66
EF636	5500-5624	70	66
EF636	5625-5714	50	69
EF636	5900-5939	70	68
EF636	5940-5948	70	72

SPECIAL INSTRUCTIONS—ALL SUBDIVISIONS

CLASSIFICATION	ENGINE NUMBERS	MAXIMUM SPEED EXCEPT #	LENGTH (FEET)
GF633	8500-8524	70	67
GF636	8700-8799	70	67
BN ENGINES:			
EF630	6800-6807	70	71
B&O/C&O ENGINES:			
EF430	GM-50	70	59
EF618	1831-1840	70	61
EF430	1977	70	59
EF423	3000-3046	70	56
GF630	3300-3312	70	67
EF425	3500-3584	70	56
EF430	3684-3799	70	59
EF420	3800-3899	70	59
EF423	3900-3919	70	59
EF430	4000-4261	70	59
EF420	4800-4829	70	59
EF418	5901-6260	70	56
EF418	6425-6683	70	56
EF423	6900-6976	70	56
EF618	7300-7318	70	61
EF625	7400-7440	70	61
EF630	7445-7496	70	66
EF630	7500-7536	70	66
EF630	7550-7594	70	66
EF630	7597-7599	70	66
EF630	7600-7619	50	71
GF425	8100-8137	70	60
GF430	8200-8234	70	60
CR ENGINES:			
EF420	2100-2112	70	56
EF423	2168-2249	70	56
EF425	2250-2399	70	56
GF425	2500-2685	70	60
GF423	2700-2816	70	60
GF428	2822-2823	70	60
GF430	2830-2889	70	60
GF433	2890-2974	70	60
EF430	3000-3312	70	59
EF425	3620-3692	70	56
EF625	6000-6051	70	61
EF636	6066-6239	70	66
EF630	6240-6440	70	66
GF625	6500-6519	70	65
GF628	6520-6534	70	67
GF630	6535-6539	70	67
GF633	6540-6578	70	67
GF630	6579-6583	70	67
GF636	6587-6599	70	67
GF630	6600-6609	70	67
EF636	6654-6666	50	71
GF623	6700-6718	70	67
EF618	6900-6924	70	61
EF620	6925-6959	70	66
EF418	7000-7483	70	56
EF418	7496-7530	70	56
EF420	7656-8180	70	59
L&N ENGINES:			
EF418	501-545	70	56
EF418	900-904	70	56
AF418	910-914	70	60
AF418	950-959	70	57
EF423	1000-1060	70	56
EF425	1100-1128	70	56
EF625	1200-1220	70	61
EF630	1225-1258	70	66
EF630	1259-1278	50	71
GF630	1470-1499	70	67
GF625	1500-1525	70	60
GF628	1527-1533	70	65
GF630	1534-1582	70	67
GF425	1600-1626	70	60
GF428	2500-2504	70	60
GF430	2505-2509	70	60
GF423	2701-2772	70	60
GF423	2800-2824	70	60
EF430	3000-3029	70	59
EF630	3554-3583	50	71
EF420	4000-4099	70	59

CLASSIFICATION	ENGINE NUMBERS	MAXIMUM SPEED EXCEPT #	LENGTH (FEET)
NW ENGINES:			
EF425	200-239	70	56
EF418	500-521	70	56
EF423	522-565	70	56
EF418	620-962	70	56
EF425	1300-1328	70	56
EF430	1329-1388	70	59
EF625	1500-1579	70	61
EF630	1580-1624	70	66
EF630	1625-1652	50	71
EF636	1700-1814	70	66
GF428	1900-1929	70	60
GF430	1930-1964	70	60
EF418	2448-2534	70	56
EF418	2700-2709	70	56
EF418	2800-2814	70	56
EF423	2900-2909	70	56
EF425	2910-2918	70	56
EF418	3484-3495	70	56
EF420	4100-4159	70	59
EF630	6073-6138	50	71
GF630	8000-8002	70	67
GF430	8465-8539	70	60
RI ENGINES:			
GF433	190-199	70	60
GF425	200-238	70	60
GF428	240-281	70	60
GF433	285-299	70	60
EF425	300-333	70	56
EF430	340-396	70	59
EF418	1312-1353	70	56
EF420	4300-4355	70	56
EF418	4550-4559	70	56
GF630	4582-4589	70	67
EF430	4700-4719	70	59
EF630	4790-4799	50	71
SCL ENGINES:			
GF418	250-392	70	55
EF420	500-555	70	59
EF415	700-1002	70	56
EF418	1003-1055	70	56
EF418	1063-1065	70	56
AF418	1202-1211	70	57
AF420	1212-1239	70	60
AF430	1275-1277	70	63
EF423	1300-1343	70	56
EF425	1400-1415	70	56
EF430	1500-1635	70	59
EF430	1640-1656	70	59
GF430	1700-1718	70	60
GF436	1720-1855	70	60
EF625	1900-1970	70	61
EF636	2000-2044	70	66
EF636	2045-2059	50	71
GF630	2121-2124	70	67
AF630	2200-2213	70	60
UP ENGINES:			
GF628	2800-2809	70	65
GF630	2810-2919	70	67
EF630	3000-3122	70	66
EF630	3123-3304; 3335-3399	50	71
EF636	3600-3649	70	66
EF630	8000-8074	50	71

Engines handled dead must not exceed speed shown in table.

#When operated in multiple unit control, on head end of train or running light and engineer is in other than the leading control cab in direction of movement, speed must not exceed 30 MPH. 'A' type units (indicated by letter 'A' following classification numerals) operating in reverse as lead unit in direction of movement must not exceed 30 MPH.

*May be handled isolated in multiple, dead in multiple, or dead in train at maximum speed of 70 MPH.

Any locomotive not listed in these tables is not to be operated in trains unless authorized by train order indicating maximum permissible speed for locomotive which is then subject to any further restrictions imposed by the timetable or otherwise.

5. MOVEMENT OF LOCOMOTIVES

RULES GOVERNING MOVEMENT OF ENGINES NOT EQUIPPED WITH ALIGNMENT CONTROL COUPLERS

1. AS415, AS420, ES415, and following ES412 (2266, 2271, 2272, 2275, 2276, 2279, 2282, 2283, 2284, 2285, 2286, 2287, 2288) class engines must if practicable, be MU'd in accordance with rules. These engines are equipped with dynamic brake wire.

2. When necessary to entrain the following class engines:

ES406	ES409	ES410	ES412E
AS407	AS409	ES412	ES415*
ES408	ES410E	FS412	AS415
ES408B	AS410	GS407	AS420

Placement in train will be as follows:

- Foreign line engines not equipped with alignment control couplers are to be considered in above listings.
 - Engines moved dead in train must be prepared for such movement.
 - These engines may be moved on the head end of train, provided train does not exceed 800 tons.
 - On trains of more than 800 tons, these engines must be moved not less than 5 cars nor more than 10 cars ahead of rear of train and behind any helper engine.
 - Not more than two of these engines may be moved in a train and when two are moved they must be separated by a car no longer than 50 feet.
- When only AS415, AS420, ES412 and ES415* units are used in engine consist, not more than two units may be on the line when making a reverse movement with cars or train and on line units must be located adjacent to the train.
 - One AS415, AS420, ES412 and ES415* unit may be MU'd on the head end of one road unit.
 - When a train being handled by a single unit road engine where no dynamic braking is required or reverse movements will be made, a single AS415, AS420, ES412 and ES415* unit may be placed next to the train.
 - When operating with mixed engine consist, where dynamic braking is required, not more than two AS415, AS420, ES415* and following ES412 units will be used:

2266	2279	2286
2271	2282	2287
2272	2283	2288
2275	2284	
2276	2285	

 - If one unit is used it will be placed as second unit in engine consist.
 - If two units are used, they will be placed as second unit and third units in engine consist.
 - A road unit must be coupled against the train.
 - If necessary to make a reverse move with cars or train, lead unit must be isolated.
 - If necessary to operate with more than two AS415, AS420, ES412 and ES415* class units in consist (including pick up of units from outlying points), these units must be placed in the lead. If reverse move is made with cars or train, all units ahead of the two rear units in these classes will be isolated.
 - Extreme caution must be used during dynamic braking or when making reverse moves to prevent jackknifing and track damage.

ENGINES EQUIPPED WITH ALIGNMENT CONTROL COUPLERS

* Class ES415, Nos. 2680-2759 are equipped with alignment control couplers in buff and may be MU'd in Engine consist without regard to location. These engines may be moved dead on the head end of train.

1. Engines equipped with multiple unit controls (MU) and alignment control couplers, weighing 150,000 pounds or more, may be handled on head end of train; if weighing less than 150,000 pounds, must be placed near rear of train in accordance with Item 2.

INSTRUCTIONS FOR USE OF HINGED COUPLER STOPS

For use in switching service the coupler stops must be opened (swung back) against end of engine and locking pin secured in bracket provided.

For use in road service, MU service, or dead in train, the coupler stops must be closed (swung in) into coupler opening against coupler pocket side with locking pin secured behind coupler carrier on both ends of engine.

Locking pins must be in place (whether coupler stop is swung back or swung in) to insure securement of the coupler stop.

With the coupler stops in place, these engines may be MU'd in engine consist without regard to location, or may be moved dead on head of train.

Class ES415, Nos. 2450-2679 are equipped with hinged coupler stops.

PREPARATION OF AIR EQUIPMENT FOR MOVEMENT DEAD IN TRAIN

ALL UNITS: Reduce main reservoir pressure to 25 lbs. above zero.

Cut in dead engine feature.

Remove automatic brake valve handle in running position or with 26-L equipment, remove in handle off position.

If brake valve handles cannot be removed, they must be blocked in running position.

IN ADDITION:

24 RL Equipment:

Close brake pipe cut-out cock and place the dual ported cut-out cock in cut-in position.

Open the end cocks on actuating pipe and independent application and release pipe.

6 SL or 14 EL Equipment:

Close the brake pipe cut-out cock, or place the rotair valve or 3 position brake pipe cut-out cock in dead position.

26 L Equipment.

Place the brake pipe cut-off valve in cut-out position.

Place the dual ported cut-out cock in open or cut-in position, or place the MU 2a valve in lead or dead position.

Open the end cocks on actuating pipe and brake cylinder equalizing pipe.

6. Dead or disabled engines, and equipment listed in timetable which requires movement at reduced speed must first be reported as ready to move to the Chief Train Dispatcher, who will designate the train in which the engine or equipment is to be moved. Any such engine must not be handled in train until train order designating maximum speed is issued.

7. Engines operated with engineer in other than lead unit in direction of movement, must not exceed 20 MPH when approaching highway or street crossing at grade, subject to further restrictions imposed by local conditions.

8. When a unit or units in locomotive consist emit excessive smoke through exhaust stacks other than from a cold start, prompt report must be made to train dispatcher who will arrange to notify roundhouse foreman or locomotive maintenance forces on duty at first maintenance facility where train is scheduled to stop. Unit number, time and location where excessive smoking of unit was first observed must be reported.

When a yard engine is observed emitting excessive smoke, report must be made to roundhouse foreman or locomotive maintenance forces on duty.

In addition, engineer must make appropriate entry on work report, Form CS 2326.

9. Not more than 10 diesel units in operation may be used on head end of any freight train.

10. Unless otherwise authorized, trains handling passenger cars with flat spots on wheels in excess of 3¼ inches in length must not exceed 10 MPH. When flat spots are not in excess of 3¼ inches long such cars may be operated at maximum authorized speeds.

11. Gross weight of SPMW 6400-6439 100-ton air dump cars cannot exceed the gross weight shown in Timetable or Line Clearance Circular for each branch line. Also, cars must not be dumped on curves of 25 degrees or more, or operated through curves of 35 degrees or more.

12. Except when handling cabooses on or near the head end in local or road switcher service when handling only a few cars, cabooses are not to be moved other than at rear of train, unless specifically authorized.

13. When setting out bad order cars enroute, head portion of train, together with bad order car, must be taken to the nearest set out point in direction of movement, bad order car set out, engine detached and head portion of train left at set out point, when practicable. Rear portion of train is then to be brought to set out point and head and rear portions of train coupled together.

14. LOAD LIMIT

Where 315,000 pound load limit applies:

Gross weight of 315,000 pounds applies to uniformly loaded four-axle cars with minimum axle spacing of 6'-0" and minimum distance of 37'-0" center to center trucks; also wheels 38" or more in diameter.

Where 263,000 pound load limit applies:

Gross weight of 263,000 pounds or less applies to uniformly loaded four-axle cars having trucks spaced 23'-0" or more center to center and minimum axle spacing of 5'-6".

15. Units SSW 9052 through 9068 and 9090 through 9110 will have overspeed cut-out cocks blocked open and no attempt should be made to close them. In event overspeed device (or speedometer) malfunctions enroute, unit should be rearranged in the locomotive consist as a train-line unit to clear the condition.

16. Flat cars loaded with copper anodes must not be handled in trains unless cars are equipped with side cleats.

17.

MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT

	MPH MAIN TRACKS OTHER THAN BRANCHES	MPH MAIN TRACKS ON BRANCHES
Double or multiple loads.....		25
Scale test cars, except.....	40**	30
SPMW 2024, WO 3, SPMW 2025.....	65	49
K&J pedestal or center hinged air-dump cars, loaded or empty (except SPMW-5100 to 5289).....	35*	25*
Relief outfits with steam derrick.....	45	25*
Relief outfit SPMW 7140 must not be operated east of MP 972.37 on Hayden Branch, nor east of MP 1088.9 on Douglas Branch.		
Locomotive Crane/Pile Drivers		
SPMW 6603 & 6604:		
With boom in place, either end forward⓪.....	25*	15*
With boom disconnected, heavy end forward.....	45	25
boom end forward.....	20*	15*
With boom disconnected and removable counterweight properly positioned, either end forward.....	55	25
SPMW 4028, 4029, SSW 96405:		
With boom in place, either end forward⓪.....	25*	15*
With boom disconnected, heavy end forward.....	40	25
boom end forward.....	20*	15*
With boom disconnected and removable counterweight properly positioned, either end forward.....	40	25
SPMW 4027 SPMW 5870		
4038 5874		
4091 5899		
5437 6601		
5479 6602		
5595 SSW 96404		
5852 NWPMW 31		
With boom in place, either end forward⓪.....	25*	15*
With boom disconnected, heavy end forward.....	45	25
boom end forward.....	20*	15*
Steam pile driver SPMW 4053.....	35	25*
Jordan Spreaders:		
Running backward.....	25	20
Moving forward (prepared for travel) ..	35	35

*These speeds must not be exceeded, and on curves where authorized speed is more than 15 MPH speed must be reduced to 5 MPH less than shown in timetable and on speed signs.

**Scale Test Car NBS-1 to be handled on trains not more than 20 cars ahead of caboose and speed of train handling NBS-1 not to exceed 60 MPH.

⓪When moving in train with boom in place, operator must be on board.

Unless specifically authorized, all relief outfit cranes and the following locomotive cranes and pile drivers: SPMW 4027, 4028, 4029, 4088, 5479, 5595, 5852, 5870, 5874, 5899, 6601, 6603, 6604, SSW 96404 and SSW 96405 must not operate over lines having maximum load limits of less than 263,000 lbs. and must observe all restrictions applying to cars weighing over 210,000 lbs.

18. OTHER MAXIMUM SPEEDS	MPH PASSENGER TRAINS	MPH FREIGHT AND MIXED TRAINS
Trains of deadhead Passenger equipment with caboose.....	65	.....
Passenger trains with caboose.....	65	.....
Engine, flanger and caboose only, except: On curves.....	.....	40 30
Trains handling empty bulkhead flat cars equipped with roller bearings, except series SP 590000-590111; SP 591100-591124; SSW 88050-88099.....	.....	55
Trains handling pipe loaded on 89 ft. flat cars.....	.....	55
PC 598500 to 598999 (Gondolas).....	.....	55

When moving against current of traffic, or when movement is not protected by block signals, speed of passenger trains and light engines must not exceed 59 MPH, and speed of freight trains must not exceed 49 MPH, nor may speed exceed that applying to normal operation.

NOTE: Light engines, or engine with caboose only, are authorized to operate at Column 1 speeds not exceeding 55 MPH, except on descending grade without dynamic brake in operation must not exceed Column 2 speeds.

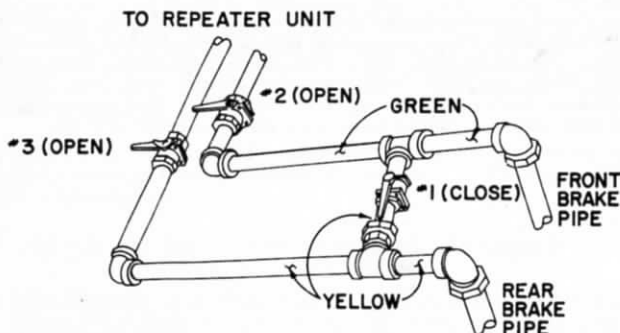
19. REPEATER AIR CARS (RAC) SP-260 Thru 266

The repeater air car is utilized to increase efficiency of train air brakes on long trains and during cold weather. The purpose of repeater relay equipment is to accept pneumatic signals from the brake pipe of forward portion of a train, and by relay action, produce a corresponding response in the brake pipe of the rear section of the train.

The repeater relay car has the ability to produce faster train charging time, reduce or eliminate brake pipe pressure gradient, more uniform braking forces, and faster brake application and release times.

A. Procedure for adding repeater air car to a train to use repeater car air equipment.

- Place as near to center of train as makeup will permit.
- The RAC car is operational in either direction. The front brake pipe must be coupled to the portion of the train to which the road engine is attached. The rear brake pipe must be coupled to the other end of the train.
The angle cock on the unused brake pipe on each end of the car must be closed.
- Where repeater air car is positioned in train and front and rear brake pipes have been properly connected and opened, then close the brake pipe bypass cock No. 1 and open the two repeater relay cut-out cocks Nos. 2 and 3, all located inside of car.

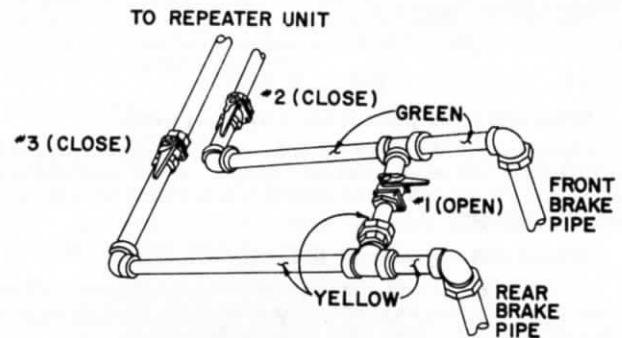


Note: If for any reason it becomes necessary to transfer control of air brakes to the helper engine located in the portion of the train behind the RAC car with the RAC air equipment in operation, the brake pipe hose connections must be changed. The forward brake pipe must be coupled to the portion of the train having the brake valve which is controlling the train. The rear brake pipe must be coupled to the other end of the train.

- The repeater relay valve No. 5 is a variable valve and is employed to reestablish a satisfactory brake pipe pressure on the rear portion of train. A regulator and gage to indicate pounds of differential is provided. Trainline pressure on rear portion of train must not be increased above 90 PSI at RAC car. Preferred adjustment is to have the rear brake pipe 1.5 to 2 lbs. above the front brake pipe.

B. Procedure for cutting the RAC car out of train.

- Close the repeater relay cut-out cocks Nos. 2 and 3.
- Open the brake pipe bypass cock No. 1—All located inside the car.
- The car diesel engine and compressor are to remain running except during layover time.



C. Procedure for adding repeater air car to a train when repeater car air equipment is not to be used.

- Close the repeater relay cut-out cocks Nos. 2 and 3.
- Open the brake pipe bypass cock No. 1—All located inside the car.
- Forward brake pipe must be coupled to portion of the train to which the road engine is attached.
Rear brake pipe must be coupled to the other end of the train. The angle cock on the unused brake pipe on each end of the car must be closed.

D. Train operation of repeater air cars.

- With the repeater air car in operation, proceed with terminal air test as prescribed in the air brake rules and regulations.
- All rules outlined in the air brake rules and regulations governing train handling shall be adhered to while repeater air car is part of any train.

3. If required, the repeater air car may be cut out by closing the repeater relay cut-out cocks Nos. 2 and 3 and opening the brake pipe bypass cock No. 1—**All located inside car.** This provides for normal train operation without the repeater relay equipment operating.
4. If yard air is used to charge the train, it **must** be cut in ahead of the repeater air car.
5. The RAC car must not be kicked, dropped, or humped and must be handled next to switch engine when being cut into or out of train and when being moved to caboose track.
6. During a pickup or setout, or at any time the engine is **separated from the train and the air car is in operation in the train, it is absolutely essential that the trainline angle cock be left open on the train.**

E. Loss of main reservoir air on RAC car.

1. The depletion of main reservoir air to below 100 lbs. will initiate a service brake pipe reduction in the forward and rear portions of the train. The rotating red light on top of car will operate.

2. In addition to the red rotating light, a radio signal will be initiated and will transmit a series of short beeps for a period of approximately ten seconds and then cease. It will reset itself automatically upon an increase of main reservoir pressure above 110 pounds.
3. If in power, throttle must be reduced to idle and automatic brake valve placed in full service zone until train stops.
4. If in dynamic braking, automatic brake valve must be placed in full service zone and dynamic braking lever handled as prescribed by rules.
5. Train must be immediately secured before determining reason for main reservoir air depletion.

F. Setting RAC car out of train.

1. If it becomes necessary to set RAC car out of train, shut down compressor engine in car and secure car per rules.

Instructions for starting and shutting down compressor engine posted inside of car.

SPECIAL INSTRUCTIONS—GILA SUBDIVISION

RULE 7-B. Between Dome and Wellton:

Between MP 753.4 and MP 770.9 on No. 1 and No. 2 tracks, Red **CONDITIONAL STOP** signs and yellow **PROCEED PREPARED TO STOP** signs, for westward trains using No. 2 track, and eastward trains using No. 1 track, will be placed to left of track in direction of approach.

RULE 7-C. Yuma and PFE Yard: Freight trains arriving or departing Yuma Yard and Westward trains departing PFE Yard must receive proceed signal (green flag by day, green light by night), or oral authorization from yardmaster or his representative.

RULE 10-J. Speed signs for eastward movement on No. 1 track, Dome to Wellton are located to left of No. 1 track; speed signs for westward movement on No. 2 track, Wellton to Dome are located to left of No. 2 track, and are located as follows:

Eastward No. 1 Track		Westward No. 2 Track	
MP	Reading	MP	Reading
756.20	55	770.65	70-60
763.00	70-60	770.18	Thru X-over
766.00	Thru X-over		25
	25	765.00	to No. 1 track
768.72	to No. 2 track		55
	50	758.20	40

Other speed signs to left of track:

Eastward	Reading	Westward	Reading
MP 733.01	60	MP 792.54	70-60
MP 734.50	60	MP 829.25	50
		MP 854.25	50
		MP 979.37	70-60

Speed may be increased as soon as lead engine has passed increase in speed sign at following locations:

Westward MP	Eastward MP
855.75.....Gila (Martin Ave.).....	855.76

RULE 21. Identification of superior trains must be made by eastward trains enroute Phoenix Subdivision between Yuma and Wellton to be applied at Wellton, and by westward trains enroute Phoenix Subdivision between Tucson and Coolidge to be applied at Coolidge. Reduce speed sufficiently to permit identification and comply with Rule 14(k).

RULE 82-A. Eastward trains originating Yuma, and westward trains originating PFE Yard or Tucson, enroute Phoenix Subdivision with same conductor and engineer must obtain two clearances, one endorsed Gila Subdivision and one endorsed Phoenix Subdivision. Phoenix Subdivision clearance and orders, if any, addressed to such trains at Yuma, PFE Yard or Tucson authorizes movement on Phoenix Subdivision.

RULE 83. Check of train register at Yuma by eastward trains enroute Phoenix Subdivision will apply at Wellton. Check of train register at Tucson by westward trains enroute Phoenix Subdivision will apply at Coolidge.

RULE 83-A. At following stations only trains indicated will register:

Tucson } Trains originating or terminating.
PFE Yard..... }

RULE 85. Within CTC limits, between East Yard and Wellton and Stockham and Picacho, a section of a regular train must not pass and run ahead of another section of the same schedule without first exchanging train orders with the section to be passed, each section to display signals if necessary.

Rule 93. Yard limits are established at the following locations:

West MP		East MP
732.50	Yuma	737.40
977.96	Tucson (No. 2 Track).....	993.00
	Tucson (No. 1 Track).....	992.09
	Tucson (Nogales Br.).....	991.42
998.74	Sahuarita.....	1005.50
1040.00	Nogales.....	1049.89

Nogales: Trains arriving Nogales with not to exceed 2000 ft. in length unless otherwise instructed, will trail through spring derail in main track at west end of yard, proceed on main track and stop short of fouling point of crossover from main track to No. 1 yard track, west of Court Street. If yard crew is not available on arrival, road engine will be left attached to train.

RULE D-97. Will apply as follows:

On both main tracks between end of CTC, MP 732.45, Yuma and Subway, MP 734.26.
On both main tracks between PFE Yard and Stockham.

RULE 99-C. Will apply on Nogales Branch.

RULE 103. At the following locations, trains or engines moving under the provisions of Rules 771 and 776 must not enter the crossing until warning for vehicular traffic has been afforded by a member of the crew, or it is known that automatic warning devices are operating.

Station	Location	Mile Post
Stockham.....	End of double track—Prince Road...	979.6
Bon.....	AS&R Spur.....	913.8
Maricopa.....	East siding switch, County Highway..	897.8
Kino.....	West Switch—Ina Road.....	974.0

Toltec: Sound detector microphone installed on mast 75 feet west of Toltec Road Crossing. Eastward trains stopping west of crossing MP 928.6 on Toltec siding, before starting must sound whistle to lower or keep crossing gates down.

Sahuarita: When necessary to cross US-89 on Drill Track to AS&R Mine, and Anamax Mine, MP 999.76, west of Sahuarita during night hours, movements must be preceded by a member of train crew displaying lighted red fusee. Except in an emergency, trains must not stop while on the highway right-of-way. Eastward trains entering the Drill Track to AS&R Mine and Anamax Mine will continue across and clear the highway before stopping for brakeman to board train. Westward trains will stop at the highway right-of-way line and not proceed until main track switch has been lined for continued movement across highway. Switching movements must not be made at main track switch to Drill Track.

Stop sign installed on west side of crossing, east leg of wye.

Station	Location	MP
Aldona....	Crossing protection private road crossing	
	Hughes Aircraft.....	992.4

RULE 104.

Derails on main track:

Nogales.... Spring point derail, facing westward movement, just west of west switch of first yard track north of main track may be trailed through in eastward movement.

Sahuarita: On AS&R spur, switch to derailing spur at entrance to AS&R yard is equipped with spring head rod and must be trailed through when moving into AS&R yard.

On Pima Spur, switch to derailing spur at entrance to Pima Yard is equipped with spring head rod and must be trailed through when moving into Pima Yard.

On Duval Spur, derail 9.03 miles east of initial switch and 2830 feet west of entrance to Duval Yard, is equipped with spring head rod and must be trailed through when moving into Duval Yard. Point derails are located east and west end of runaround track.

RULE 204. Trains of Gila and Phoenix Subdivisions with same conductor and engineer may be issued train orders on one Subdivision that affect their movement on Gila or Phoenix Subdivision.

RULE 221. PFE Yard, Tucson and Casa Grande are train-order offices only for trains originating.

RULE D-251. Will apply as follows:

On both main tracks between end of CTC, MP 732.45, Yuma and Subway MP 734.26.

Tucson: On both main tracks between PFE Yard and Stockham.

RULE 306. The following home signals equipped with triangular plate bearing the letter "P" have included in their control limits some special protective device. Absolute signals are listed as "P-A" or "P-SA."

Eastward Signals	Signals	Westward Signals
P-A	Spring switch, east end Colorado River bridge	
	Spring switch, east end No. 1 Yard Track on No. 2 Track, MP 737.5	P-SA
P-7480	Collision Detector, Bridge 748.60	{ P-A West end Kinter
P-A Dome No. 1 Track	Collision detector, Ligurta underpass, MP 760.61	P-7607
P-7606 No. 2 Track		
P-7988	High Water Detector, Bridge MP 798.99	{ P-A West end Stoval
P-8608	High Water Detector, Bridge MP 862.03	{ P-A West end Bosque
P-8674	High Water Detector, Bridge MP 868.88	{ P-A West end Shawmut
P-8778	High Water Detector, Bridge MP 878.34	P-8807
P-8948	High Water Detector, Bridge MP 894.92	{ P-A West end Maricopa
P-A, East end Maricopa	High Water Detector, Bridge MP 898.96	P-8991
P-9488		
P-9488	High Water Detector, Bridge MP 949.28	{ P-A West end Red Rock
P-A	Spring switch, west end westward siding, Stockham	
P-9834	Spring Switch, west end crossover, Sixth Ave., Tucson	
P-I Westward Main track Tucson	Spring switch, west end of crossover, westward main track to eastward main track, Cherry Avenue	
P-I Eastward Main Track Tucson		
P-I Nogales Lead Tucson	Spring switch, west end of west lead, Cherry Avenue	
	Spring switch, east end of double track, Cherry Ave.	{ P-SA East end double track, Cherry Ave.
	Spring switch, east end of crossover from westbound main to eastbound main, Cherry Avenue	{ P-SA west lead P-SA east lead
	East End of crossover from eastward main to east lead	P-SA east lead

AUTOMATIC BLOCK SIGNAL SYSTEM

RULE 505. Yuma: Main tracks between MP 734.26 and MP 737.50 are designated as follows:

- No. 1 track—To North
- No. 2 track—To South

Between MP 734.26 and MP 737.50 trains and engines may use main tracks in either direction, being governed by signal indication.

Signal 7333 governs westward movements through crossover to main track only and will remain dark until crossover switch is open.

Westward signal adjacent to No. 2 Track, MP 734.32 will display red aspect only as per Rule 290, Fig. "I." Trains and engines will be governed by Yardmaster's instructions before passing this signal.

Tucson: Westward Signal 9833 on eastward main track governs westward movement through crossover and displays stop indication until east crossover switch is lined for crossover movement to westward main track.

Eastward 2-unit Signal P-9834 top unit governs movements on eastward main track, bottom unit governs movements to Passenger Track No. 1.

When westward signal 9835 displays stop indication westward freight trains must not pass this signal if there is a westward passenger train in passenger track No. 1, except on instructions from yardmaster.

Trains moving on main track in either direction, will move between MP 987.7 at 36th St. and MP 985.48 at Cherry Ave. by block signals whose indications will supersede the superiority of trains.

SPRING SWITCHES

RULE 538. Spring switches equipped with facing point locks are located as follows:

Station	Location	Normal Position
East Yard . . .	East end of crossover from running track to Track No. 2 . . .	Track No. 2
Stockham . . .	West end westward siding . . .	Main Track
PFE Yard . . .	West end westward siding . . .	Westward Track

Spring switches not equipped with facing point locks are located as follows:

Station	Location	Normal Position
**Yuma	West leg of wye from running track	West leg of wye
	East leg of wye from running track	Running track
	Tail end of wye	West leg of wye
	East end Roundhouse Track No. 1	East leg of wye
	West end Roundhouse Track No. 1	Roundhouse Track No. 1
*Tucson	West end crossover, Stone Ave.	Westward track
*Tucson	West end crossover from passenger tracks	Eastward Track

SPECIAL INSTRUCTIONS—GILA SUBDIVISION

Station	Location	Normal Position
Tucson	Spring switch, west end of crossover, westward main track to eastward main track, Cherry Ave.....	Westward main track
Tucson	Spring switch, west end of crossover from eastward main track to Nogales Lead, Cherry Avenue.....	Eastward main track
Tucson	Spring switch, west end of west lead, Cherry Ave.....	East lead
Tucson	Spring switch, east end of double track, Cherry Avenue.....	Main track
Tucson	Spring switch, east end of crossover from westward main track to eastward main track, Cherry Avenue.....	Crossover
Tucson	East end of crossover from eastward main track to east lead.....	East lead

*Equipped with switch point indicator.

**All engines to diesel facilities will use west leg of wye into roundhouse service track.

INTERLOCKING

RULE 606. Tucson: Limits extend on westward main track from eastward interlocking signal MP 985.15 to westward interlocking signal end of double track MP 985.50. On eastward main track from eastward interlocking signal MP 985.15 to westward interlocking signal end of double track MP 985.50, and from eastward interlocking signal MP 985.2 on Nogales lead to westward interlocking signal MP 985.4 and to westward interlocking signal on west lead MP 985.36.

Signals are under the control of Operator at PFE Yard.

LETTER-TYPE INDICATORS

RULE 705. Indicators located as follows:

Illum. Letter	On Signal	Approaching	Authorizes and requires movement as follows:
W.....	MP 986.8.....	Nogales Branch, Tucson.....	Westward trains must stop east of Indicator. When flashing white light is displayed train is authorized to proceed to PFE yard, or be governed by oral authority from yardmaster.

CENTRALIZED TRAFFIC CONTROL

RULE 760. Limits extend from eastward absolute signals at end of double track, East Yard, MP 737.38 to westward absolute signal at end of double track, Stockham.

East Yard: West switch crossover, between yard track No. 1 and eastward main track is hand operated, normal position for movements to drill track. Eastward absolute signal located on signal bridge just west of this switch governs movements through crossover to eastward main track when switch is lined for movement through crossover, and on drill track when lined for movement to drill track. Westward absolute signal located on drill track just east of this crossover governs westward movements on drill track.

Between Wellton and Dome, westward track is identified as No. 1 track and eastward track identified as No. 2 track. Signals are provided for movement of trains in either direction, on both main tracks, being governed by indications of absolute and automatic block signals. Crossovers equipped with dual control switches installed at MP 768.

PFE Yard: CTC Limits extend from MP 987.7 to east end PFE Yard MP 987.92.

GENERAL REGULATIONS

RULE 825. Instructions for applying hand brakes:

Yuma: Freight trains... {Two hand brakes on east end, Four hand brakes on west end.

East Yard: Freight trains. {Two hand brakes on east end, Five hand brakes on west end.

Tucson: Passenger trains—To prevent uncontrolled movement, rail skid must be placed under west end of train and a sufficient number of hand brakes must be applied, but not less than two brakes on west end and two brakes on east end, unless outbound crew takes charge and engine remains attached.

Tucson and PFE Yard:

- Freight trains, 1 to 10 cars... All hand brakes.
- Freight trains, 11 to 20 cars... 10 hand brakes west end.
- Freight trains, 21 to 49 cars... {10 hand brakes west end, 5 hand brakes east end.
- Freight trains, 50 cars or more. {15 hand brakes west end, 10 hand brakes east end.

Hand brakes will not be applied if outgoing crew takes charge of train on arrival, and inbound crew is advised by Yardmaster that engine is not to be detached and no switching is to be performed on the train. Hand brakes will not be applied if switch crew takes charge of train on arrival.

Hand brakes on outbound trains must not be released until engine is coupled to train, air test completed, and blue sign removed.

Portable rail skids are hung on posts at the following locations:

- Tucson:** West end No. 1 passenger track.
- Kinter:** West end of siding.
- Mohawk:** East end of siding. West end of siding.
- Sahuarita:** Pima Mine switch off AS&R drill track. Duval Mine switch off Anamax drill track. Duval Mine at east and west end of run-around track.

Refer to Rule 825, All Subdivisions.

RULE 827. DRAGGING AND/OR DERAILED EQUIPMENT DETECTORS AND INDICATORS INSTALLED AT THE FOLLOWING LOCATIONS:

MP	Location
740.40	East Yard Yuma-Fortuna
752.45	Dome-Kinter
773.20	Noah-Wellton
780.40	Colfred-Noah
788.60	Colfred-Mohawk
*790.00	Colfred-Mohawk
796.60	Mohawk-Stoval
805.40	Stoval-Aztec
815.60	Aztec-Stanwix
825.00	Stanwix-Sentinel
836.30	Sentinel-Piedra
843.10	Piedra-Theba
852.00	Theba-Gila
859.80	Gila-Bosque
866.40	Bosque-Shawmut
873.00	Shawmut-Estrella
879.15	Estrella-Mobile
886.40	Mobile-Enid
893.60	Enid-Maricopa
903.60	Maricopa-Bon
912.47	Bon-Casa Grande
922.80	Casa Grande-Toltec
930.80	Toltec-Eloy
940.70	Picacho-Wymola
947.70	Wymola-Red Rock
954.50	Red Rock-Naviska
962.70	Naviska-Rillito
971.60	Rillito-Kino
976.40	Kino-Jaynes

*Revolving red light mounted on Hot Box Detector instrument house at MP 790.0.

HOT BOX DETECTORS

Illum. Letter	On Signal	Approaching	Location of Readout
H.....	Westward Absolute Signal E.E. Wellton	Wellton	MP 769.2 Wellton
W.....	7722	Noah	
H.....	7742	Noah	Eastward Absolute Signal E.E. Noah
W.....	7743	Wellton	
H.....	8035	Stoval	Westward Absolute Signal W.E. Stoval
W.....	8054	Aztec	
W.....	8073	Stoval	
H.....	8092	Aztec	Eastward Absolute Signal E.E. Aztec
W.....	8322	Piedra	
H.....	8323	Sentinel	Westward Absolute Signal W.E. Sentinel
W.....	8349	Sentinel	
H.....	8378	Piedra	Eastward Absolute Signal E.E. Piedra
H.....	Westward Absolute Signal E.E. Estrella	Estrella	Westward Absolute Signal W.E. Estrella
W.....	8778	Mobile	
H.....	8806	Mobile	Eastward Absolute Signal E.E. Mobile
W.....	8807	Estrella	
H.....	P-8991	Maricopa	Westward Absolute Signal W.E. Maricopa

Illum. Letter	On Signal	Approaching	Location of Readout
W.....	8992	Bon	
W.....	9051	Maricopa	
H.....	9052	Bon	Eastward Absolute Signal E.E. Bon
W.....	9398	Wymola	
H.....	9399	Picacho	Westward Absolute Signal W.E. Picacho
H.....	Eastward Absolute Signal W.E. Wymola	Wymola	Eastward Absolute Signal E.E. Wymola
W.....	9600	Rillito	
H.....	9601	Naviska	Westward Absolute Signal W.E. Naviska
W.....	9619	Naviska	
H.....	9640	Rillito	Eastward Absolute Signal E.E. Rillito

SCANNER SITES

MP	Type	Direction(s)	Location
740.2	C	Both	East Yard-Fortuna
772.7	A	Both	Wellton-Noah
790.0	C	Both	Colfred-Mohawk
806.3	A	Both	Stoval-Aztec
834.9	A	Both	Sentinel-Piedra
851.3	C	Both	Smurr-Gila
878.7	A	Both	Estrella-Mobile
902.0	A	Both	Maricopa-Bon
922.0	C	Both	Toltec-Casa Grande
941.4	A	Both	Picacho-Wymola
961.7	A	Both	Naviska-Rillito
979.4	D	Eastward	*Stockham

*Readout at PFE Yard.
Refer to Rule 827, All Subdivisions.

RULE 827-A. Nogales Branch: Eastward trains handling tank cars containing Flammable Compressed Gas will stop at the runaround track at MP 1045 and inspect entire train. Unsafe cars are to be set out on the runaround track and Chief Train Dispatcher immediately notified.

Refer to Rule 827-A, All Subdivisions.

RULE 872. PFE Yard, Tucson and Yuma: Engine-men taking charge of engines will consider engines as having been amply supplied with water, fuel, sand and other supplies.

AIR BRAKE RULES

RULE 2. Taking Charge of Engines.

Section A, will apply at:

Yuma, Tucson, PFE Yard and Nogales

RULE 17. Retaining valves must be used on freight trains on descending grades as follows:

Sahuarita: AS&R, Pima, Anamax and Duval mines.

With dynamic brake in operation:

Permissible Tons Per Unit Without Retaining Valves

	Basic Dynamic Brake		Extended Range Dynamic Brake		
	4 Axle	6 Axle	4 Axle	6 Axle	8 Axle
With dynamic brake in operation and WITH pressure maintaining system of braking.....	1000	1500	1200	1800	2400

If permissible tonnage is exceeded, one retaining valve must be used for each 150 tons in excess thereof.

Refer to Air Brake Rule 17, All Subdivisions.

SPECIAL INSTRUCTIONS—GILA SUBDIVISION

RULE 24. Will apply at PFE Yard.

RULE 24-C. Sahuarita: Before making any switch moves at AS&R, Pima, Anamax or Duval mines, it must be known that air brake system on each car being handled is fully charged, air hoses coupled between engine and cars and angle cocks properly positioned.

Ten minutes must be allowed to charge air brake system on cars picked up at AS&R, Pima, Anamax and Duval mines before making air brake test. All brakes must be operative on loaded and empty cars before leaving AS&R, Pima, Anamax and Duval mines.

After fully charging air brake system, engineer will make a 20-pound brake pipe reduction, and conductor will see that a member of crew observes each car to see that brakes are properly working, then release brakes and wait five minutes before switch move commences. In addition, engineer will check brake pipe leakage as prescribed by Air Brake Rule 22.

RULE 24-E. Will apply at PFE Yard, Tucson and Yuma.

RULE 24-F. Will apply as follows:

Casa Grande: To all switching movements on all Tracks at AS&R, Sacaton Mill.

Tucson: When making movements either direction between PFE Yard and areas outside PFE Yard but within yard limits.

Responsibility to know that above has been done rests upon yard engineer and yard foreman.

RULE 24-G. Will apply at Yuma.

RULE 33. Sahuarita: AS&R, Pima, Anamax and Duval mines.

Maximum tonnage per operative brake 140½ tons.

All retainers will be used. Retainers will be used in high pressure position on loaded cars and low pressure position on empty cars. Descending movement will not be made unless locomotive has an operative dynamic brake but not more than 15 cars for each four axles of dynamic brake at speed not exceeding 15 MPH.

MISCELLANEOUS

1. Casa Grande: Casa Grande Cotton Oil Mill spur. Trainmen must not operate beyond operating limit sign located approximately 600 ft. beyond point of switch.

2. Rillito: Cars must not be kicked or dropped into Arizona Portland Cement Spur, and cars must not be left standing on this spur west of insulated joints at east end of circuit actuating highway crossing signals. Chains across crusher spur at each end of pit are secured by snaps to posts, and may be unfastened to move cars to or from pit. Chains must be fastened across track when there is no car spotted over pit.

Derail on crusher spur, located 80 feet east of crusher pit, must not be lined for movement into spur until it is known that track over pit is ready for the movement.

3. Plata: AS&R belt loader on scale. Engine and cars, other than ore cars, must not pass over scale track.

4. Sahuarita: At AS&R plant, spur to Rod & Ball Mill. Cars must not be moved beyond face of building.

All trains must stop before entering or departing tracks at AS&R Mines, and inspect all switches to see that they are in proper position and in working order.

5. Nogales Branch: Do not block Hughes Road crossing with switching operations between 7:00 A.M. and 8:15 A.M. and between 4:00 P.M. and 5:15 P.M.

6. PFE Yard: Look out for ice and material alongside PFE tracks.

7. Engines listed must not operate on tracks shown below:

Class of Engine	Restricted Tracks
All engines... Smurr	Unloading pit on spur, Gila Feed Yards.
All engines... Casa Grande	Track scales on cotton oil mill spur, and Casa Grande Warehouse spur.
All engines... Seco	50 ft. south of road crossing on East Mill Spur.
All engines... Rillito	On open pit at Arizona Portland Cement Co. Trainmen must not cross pit, but must go around pit via stairway.
All engines... Plata	Track scales, AS&R track.
All engines... Sahuarita	Track scale, Pima mine concentrate track.

8. LOAD LIMIT(car and contents):

Yuma-PFE Yard, except:	263,000 pounds
Gross weight of 263,000 pounds or less applies to uniformly loaded four-axle cars having trucks spaced 23 feet 0 inches or more center to center and minimum axle spacing of 5 feet 6 inches.	
Gross weight uniformly loaded four-axle cars with minimum axle spacing of 6 feet 0 inches, and minimum distance 37 feet 0 inches center to center of trucks; also, wheels 38 inches or more in diameter	315,000 pounds
Ore cars SP 333500 to 334399 and SP 341000 to 341335 and ATSF 64000 to 64099	281,000 pounds
Hopper cars series SP464000	281,000 pounds
PFE Yard-Nogales, except:	263,000 pounds
Gross weight uniformly loaded four-axle cars with minimum axle spacing of 6 feet 0 inches, and minimum distance 37 feet 0 inches center to center of trucks; also, wheels 38 inches or more in diameter	315,000 pounds
Ore cars SP 333500 to 334399 and SP 341000 to 341335 and ATSF 64000 to 64099 between MP 1004.8 and PFE Yard including AS&R spur, Anamax, Pima and Duval mines	
Sahuarita	281,000 pounds
Hopper cars series SP 464000	281,000 pounds
Unless authorized by Superintendent, heavier loads must not be handled.	

9. SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS	With Caution Not Exceeding MPH
Centralized Traffic Controlled sidings, turnouts and crossovers	25
Through other sidings, yard and other tracks, wyes, balloon tracks, crossovers and turnouts	10
Except:	
Spur to AS&R mine, Sahuarita, Eastward	20
Westward	15
Spur to Pima mine, Sahuarita, Eastward	20
Westward	15
Spur to Anamax mine, Sahuarita, Eastward	25
Except through curves #2 and #3	20
Westward	15
Spur to Duval mine, Sahuarita, Eastward	25
Westward	15

SPECIAL INSTRUCTIONS—GILA SUBDIVISION

SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in **SPEED RESTRICTIONS FOR ENGINES** appearing on pages 16 and 17 and **MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT**, appearing on page 19 of Timetable for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

Trains handling tank cars containing Flammable Compressed Gas must not exceed 55 MPH. Where maximum authorized speed is less than 55 MPH and more than 25 MPH, train must be operated at 5 MPH less than maximum authorized speed and must not exceed 30 MPH at the following locations:

Gila	Between MP 854 and MP 857
Casa Grande	Between MP 918 and MP 919
Eloy	Between MP 933 and MP 933.5
Tucson	Between MP 979.6 (Prince Road) and PFE Yard

Trains with AMTRAK EP630A engines in consist, unless otherwise restricted to a lower speed, must not exceed 50 MPH from point where engine enters curve until engine and first car behind engine are again on tangent track between the following mile post locations:

MP 748.58 and MP 770.72
MP 982.88 and MP 983.90
MP 986.60 and MP 987.75

Maximum authorized speed for freight trains is 55 MPH except BSMFF, APLAA, APLAB and GSLAF are authorized to operate at Column One speeds provided train contains no restricted cars, or empties except cabooses, and does not exceed 80 tons per operative brake and/or 120 cars.

Trains BSMFY, LAEST, LAHOT, WCESP, PXESP, YUESP and NGESP are authorized to operate at Column One speeds not exceeding 65 MPH provided they contain no restricted cars, or empties except cabooses, and do not exceed 80 tons per operative brake and/or 120 cars.

Trains BSMFY and SCLAT with operative radio controlled remote locomotives may operate at Column One speeds not exceeding 65 MPH provided train contains no restricted cars, or empties except cabooses, and does not exceed 80 tons per operative brake and/or 150 cars.

Other freight trains may be authorized by train order to operate at Column One speeds not exceeding 65 MPH provided they contain no restricted cars, or empties except cabooses, and do not exceed 80 tons per operative brake and/or 120 cars.

Eastward freight trains arriving main track PFE Yard will reduce train speed to 10 MPH one train length before spotting for fuel to allow for train inspection.

Eastward freight trains arriving main track PFE Yard Tucson, do not exceed 15 MPH while passing yard office building.

Westward freight trains departing main track PFE Yard, will not exceed 15 MPH until caboose passes the yard office building.

Trains handling tank cars containing Flammable Compressed Gas must not exceed 55 MPH. Where maximum authorized speed is less than 55 MPH and more than 25 MPH, train must be operated at 5 MPH less than maximum authorized speed and on the Nogales Branch must not exceed 10 MPH at the following locations:

Between MP 985 and MP 993
Between MP 1002 and MP 1004
Between MP 1010 and MP 1011
Between MP 1041 and MP 1049.8

Nogales Branch: When engines of the following classifications are operated on the Nogales Branch, they must not exceed speeds shown between mile post locations as listed where authorized maximum speeds as shown above are greater:

Class of Engines	MP	MP
	1017.10	1042.78 to
	to 1017.35	1046.37
GF 850-1	25	25

REFER TO SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS ON PAGE 26

EASTWARD			PSGR TRAINS	FRT	WESTWARD			PSGR TRAINS	FRT
MP	MP	Column:	1	2	MP	MP	Column:	1	2
YUMA to TUCSON:					TUCSON to YUMA:				
732.10 to 733.01					987.75 to 982.73			35	35
(Thru Turnout)			25	25	982.73 to 979.37				
733.01 to 734.50					(End Double Track)			50	50
(Eastward)			60	55	979.37 to 928.50			70	55
734.50 to 737.62					928.50 to 913.70			50	50
(Track No. 1 and No. 2)			60	55	913.70 to 875.00			70	55
737.62 to 737.83					875.00 to 866.90			60	55
(End L.A. Divn.)			70	55	866.90 to 825.25			70	55
737.83 to 746.58			70	55	except until engine passes Martin Ave. (MP 855.75)			55	55
746.58 to 748.58			55	55	825.25 to 822.40			60	55
748.58 to 756.20**			40	40	822.40 to 794.30			70	55
756.20 to 763.00**			55	55	794.30 to 792.54			60	55
763.00 to 770.72**			70	55	792.54 to 771.00			70	55
770.72 to 771.00**			50	50	771.00 to 770.72*			50	50
771.00 to 792.54			70	55	770.72 to 763.00*			70	55
792.54 to 794.30			60	55	763.00 to 756.20*			55	55
794.30 to 822.40			70	55	756.20 to 748.58			40	40
822.40 to 825.25			60	55	748.58 to 737.83				
825.25 to 866.90			70	55	(Begin L.A. Divn.)			70	55
except until engine passes Martin Ave. (MP 855.75)			55	55	737.83 to 737.62			70	55
866.90 to 875.00			60	55	737.62 to 735.25*			60	55
875.00 to 913.70			70	55	735.25 to 734.50*			40	40
913.70 to 928.50			50	50	737.62 to 734.50**			60	55
928.50 to 979.37			70	55	734.50 to 732.10				
979.37 to 982.73					(Thru Turnout)			25	25
Begin double track			50	50					
982.73 to 985.19			35	35					
985.19 to 985.27			25	25					
985.27 to 987.75									
except			35	35					
*Track No. 1									
**Track No. 2									
DOME to WELLTON (No. 1 Track):					WELLTON to DOME (No. 2 Track):				
748.58 to 756.20			40	40	770.84 to 770.65			50	50
756.20 to 763.00			55	55	770.65 to 763.00			70	55
763.00 to 770.72			70	55	763.00 to 756.20			55	55
770.72 to 770.84			50	50	756.20 to 748.58			40	40
YUMA to EAST YARD (No. 1 Track):					EAST YARD to YUMA (No. 2 Track):				
733.01 to 734.50			25	25	737.51 to 737.49			35	35
734.50 to 737.51			60	55	(Thru Turnout)				
					737.49 to 734.50			60	55
					734.50 to 732.10			25	25
PFE YARD to NOGALES:			ALL TRAINS		NOGALES to PFE YARD:			ALL TRAINS	
984.18 to 985.10			10		1049.89 to 1048.50			10	
985.10 to 991.42			20		1048.50 to 1040.00			20	
991.42 to 998.74			25		1040.00 to 1005.51			25	
998.74 to 1005.51			20		1005.51 to 998.74			20	
1005.51 to 1040.00			25		998.74 to 991.42			25	
1040.00 to 1048.50			20		991.42 to 985.10			20	
1048.50 to 1049.89			10		985.10 to 984.18			10	

SPECIAL INSTRUCTIONS—PHOENIX SUBDIVISION

RULE P. LOCATION OF OVERHEAD AND SIDE STRUCTURES NOT STANDARD CLEARANCE ON MAIN TRACK AND SIDINGS

Mile Post	Location	Description
778.00	Gila River bridge	Side
891.00	Agua Fria River bridge	Side
914.00	Salt River bridge	Side
959.30	Gila River bridge	Side
971.30	Hayden Branch	
to		
971.77	Rock cuts	Side
972.40	Tunnel No. 1	Side and overhead
972.50	Gila River bridge	Side
973.00	Rock cut	Side
973.04	Rock cut	Side
973.07	Rock cut	Side
976.00		
to		
977.00	Rock cuts	Side
980.00		
to		
982.00	Rock cuts	Side
983.50	Rock cut	Side
985.30	Gila River bridge	Side
985.50	Rock cut	Side
988.30	Rock cut	Side
988.50	Tunnel No. 2	Side and overhead
990.00	Tunnel No. 3	Side and overhead
992.30	Rock cut	Side

RULE 7-C. Phoenix Yard: Freight trains arriving or departing must receive proceed signal (green flag by day, green light by night) or oral authorization from yardmaster or his representative.

RULE 10-H. EXCEPTION:

On the Litchfield Branch
Tempe Branch
Chandler Branch

When a yellow flag is required it will be displayed one-half mile from point of restriction.

RULE 10-J. Speed signs to left of track:

Westward	Reading
MP 892.80	50
Eastward	Reading
MP 905.62	20

RULE 15. EXCEPTION:

On the Litchfield Branch
Tempe Branch
Chandler Branch

The explosion of a torpedo requires movement at restricted speed for one mile from point where torpedo was exploded.

RULE 82-A. Trains authorized at Phoenix Yard or Hayden enroute Gila Subdivision with same conductor and engineer are thereby authorized on both Phoenix and Gila subdivisions.

Trains operating in ore service between Hayden and Ray Junction need not obtain clearance at Hayden.

RULE 83-A. At following stations only trains indicated will register:

- Hayden.....Trains operating via Florence.
- Magma.....Trains to and from Hayden Branch and trains instructed by train order. Register located in telephone booth at crossover.
- Phoenix Yard....Trains originating or terminating.

RULE 93: Yard limits are established at the following locations:

West MP		East MP
770.72	Wellton	782.00
	(End of CTC off Gila line to Phoenix line)	(Phoenix line)
864.34	Dixie	867.10
874.22	Buckeye	877.02
888.80	Litchfield Jct.	890.60
	Litchfield Jct. (Litchfield Branch)	End of track
894.23	Phoenix	916.14
	Tempe (Tempe Branch)	End of track
920.45	Mesa	924.5
923.6	McQueen (Chandler Branch)	Dock 943.2
925.66	Gilbert	928.48
934.45	Germann	939.71
940.50	Queen Creek	943.02
946.84	Magma	951.02
	Magma (Hayden Branch)	950.45
986.84	Ray Jct.	988.72
998.90	Hayden	1004.90

RULE 99-C. Will apply as follows:

On Hayden Branch—Between Magma and Ray Junction.

RULE 103. A flagman must precede all movements over:

Pipeola: Crossings within Southern Pacific Pipe Line reservation.

Phoenix: Zeb Pearce track No. 207 over Lincoln Street.

Tovrea: Washington Street.

Tempe: Fifth Street.

University Drive (Transmission Road) on spur serving Arizona Public Service Plant. All train movements must stop before proceeding over crossing.

Westward movements from Tempe Branch to Main track at 13th Street must stop at stop sign located 128 feet east of 13th St. crossing and wait until crossing gates are down before proceeding.

Crossing at MP 916.46, Creamery Spur, is equipped with stop signs. Trains and engines must stop and not enter crossing until it is known that automatic crossing gates are down. Crossing is equipped with keydown boxes. It is necessary to use S.P.T. Switch Key to operate or restart crossing signals. Insert switch key in either of the key release boxes and turn slowly one complete turn to the right. For eastward movement, key release box post is located on southwest side of crossing. For westward movement, key release box post is located on southeast side of crossing.

Old Creamery Spur—Stop sign installed for westward movement over Dorsey Lane. A Flagman must precede all westward movements over this crossing.

Mesa: Spur track on south side of Main track, South Extension Road, MP 920.98, is equipped with stop signs and key down release. It is necessary to use S.P.T. switch key to operate or re-start crossing signals. Insert key in either of the key release boxes and turn slowly one complete turn to the right. For eastward movement, key release box is on instrument case on southwest side of crossing. For westward movement, key release box is on instrument case southeast side of crossing.

West Chandler.....Tempe Branch, Williams Field Road—MP 923.00

Litchfield.....Stop signs installed and a flagman must precede all movements over Van Buren Avenue MP 891.26.

RULE 104. Normal position of rigid switches at the end of double track and at junctions, is as follows:

- Litchfield Jct. Litchfield Br., for Phoenix line
- Tempe Jct. Tempe Br., for Phoenix line
- McQueen Chandler Br., for Phoenix line
- Magma Magma-Arizona RR main track, for back track
- Ray Jct. Crossover MP 987.7 for Hayden Br.
- Ray Jct. KCCRR main track, for yard track
- Hayden KCCRR line for Hayden Br.
- Hayden SMARR main track, for Hayden Br.

RULE 204. Trains of Gila and Phoenix Subdivisions with same conductor and engineer may be issued train orders on one Subdivision that affect their movement on Gila or Phoenix Subdivision.

RULES 211 and 705. Mesa: Letter-type indicator located on stub mast MP 921.9 for westward trains and on signal 9210 for eastward trains.

RULE 306. The following home signals equipped with triangular plate bearing the letter "P" have included in their control limits some special protective device. Absolute signals are listed as "P-A" or "P-SA."

Eastward Signals	Protection	Westward Signals
P-7916	High water detector, bridge 792.67	P-7927
P-8406	High water detector, bridge 841.30	P-8415
P-8414	High water detectors, bridges 842.75 and 842.86	P-8431
P-8550	High water detector, bridge 857.56	P-8589
P-8662	High water detector, bridge 866.93	P-8673
P-9052	Spring switch, west end passenger lead, Phoenix	
P-9218	Barricade detector for Dead End Streets MP 922.8	P-9231
P-9290	High water detector, bridge 933.71	P-9351
P-9396	High water detector, bridge 941.12	P-9415
P-9756	High water detector, bridge 976.88	P-A, MP 977.1

AUTOMATIC BLOCK SIGNAL SYSTEM

RULE 505. Phoenix: Crossing—ATSF Wye: If signal indicates "Stop" trains and engines must stop, and if wye is clear of intersecting movement, may then proceed as prescribed by Rule 507, but must provide flag protection on intersecting track unless derail is known to be in derailing position.

Phoenix: Top unit of Signal P-9052 governs eastward movement on main track and lower unit of Signal P-9052 governs eastward movement through spring switch to Union Station tracks. Trains or engines to move from main track to passenger lead must stop before reaching Signal P-9052 unless spring switch has been lined for passenger lead, and signals display proceed indication.

Signal protection is provided for westward movement from Passenger Station to main track and for westward movements on new freight main. Push buttons and pilot lights installed in box mounted on side of signal case 9057 with time-release feature, to clear signals on one track when the control circuit on the other track is occupied.

Refer to Rule 505, All Subdivisions.

Coolidge: Trains moving on main track in either direction between Signal 9623 and Signal 9616 will move by block signal indication which will supersede the superiority of trains.

When Signal 9623 displays stop indication and letter "S" is not displayed, westward trains after stopping must obtain permission from train dispatcher before proceeding under the provisions of Rule 507 or entering the siding.

When Signal 9616 displays stop indication eastward trains after stopping must obtain permission from train dispatcher before proceeding under provisions of Rule 507 or entering the siding.

Main track or siding must not be occupied or fouled except as authorized by signal indication or the train dispatcher.

Eastward trains on siding must obtain train dispatcher's permission before fouling main track to proceed to beginning of CTC regardless of the aspect displayed in eastward absolute signal and after permission obtained from train dispatcher, **Rule 81-A** must be complied with before fouling main track.

RULE 516. Overlap posts:

- Tolleson . . . 450 feet east of Signal 8958 . . . Eastward trains
- Tolleson . . . 750 feet east of MP 895.00 . . . Westward trains
- 23rd Ave. Phoenix . . . Middle of siding . . . Eastward trains
- 23rd Ave. Phoenix . . . Middle of siding . . . Westward trains

SPRING SWITCHES

RULE 536. Hayden Jct.: Switch point indicator now in service at MP 1001.81, ore track, will display green indication when switch is in full normal or full reverse position and will display red indication if switch is not in full normal or full reverse position. Switch target will indicate position of switch point. Trains and engines making trailing movement over this switch may leave switch in position to which forced by trailing movement.

RULE 538. Spring switches equipped with facing point locks are located as follows:

Stations	Location	Normal Position
Phoenix	Main track at passenger lead	Freight lead
Hayden	700 feet west of KCC gate. Main track derail	
*Hayden	MP 1001.81	Ore track

*Equipped with switch point indicator.

LETTER-TYPE INDICATORS

RULE 705. Indicator located as follows:

Illum. Letter	On Signal	Approaching	Authorizes and Requires Movement as follows:
---------------	-----------	-------------	--

S 9623 . . East switch Coolidge . . . Enter siding and remain in siding until authorized by timetable or train order authority to proceed.

ABSOLUTE-PERMISSIVE BLOCK

RULE 740. Hayden-Ray Jct.: Limits extend between absolute signal MP 988.7 and absolute signal MP 998.9.

CENTRALIZED TRAFFIC CONTROL

RULE 760. Limits extend from eastward absolute signal east of east switch of siding, Coolidge, to westward absolute signals east of east switch of crossover to Phoenix line and at fouling point of north siding Picacho.

GENERAL REGULATIONS

RULE 821. Hayden Branch: Eastward trains must approach stop sign at MP 984.66 and westward trains must approach stop sign at MP 984.80 prepared to stop until it can be ascertained that Wooley Wash track is safe for passage of trains.

During and after heavy rains and run-off when there are indications that gravel or debris may be found on Wooley Wash track, trains must stop at these stop signs and not proceed until it has been ascertained that track is safe for the passage of trains.

Maximum speed across Wooley Wash must not exceed 10 MPH.

High water detector at MP 972.09, Hayden Branch, equipped with revolving red light. Trains must approach structure at MP 972.09 prepared to stop until it is ascertained that

structure is safe for passage of trains. Train crew must then notify train dispatcher so that Maintenance of Way personnel can be contacted to re-set high water detector and inspect structure at MP 972.09.

RULE 827. DRAGGING AND/OR DERAILED EQUIPMENT DETECTORS AND INDICATORS INSTALLED AT THE FOLLOWING LOCATIONS:

MP	Location
775.50	Wellton-Roll
808.90	Kofa-Horn
880.00	Buckeye-Litchfield Jct.
899.00	Fowler-Pipeola
911.00	At Kendall
929.00	Gilbert-Higley
954.00	Magma-Coolidge
970.30	Florence-Ray Jct.
975.20	Florence-Ray Jct.
976.80	Picacho-Coolidge
979.75	Florence-Ray Jct.

HOT BOX DETECTORS

SCANNER SITES

MP	Type	Direction(s)	Location
856.5	C	Both	Gillespie-Arlington
953.0	C	Both	Magma-Coolidge
798.0	C	Both	Roll-Kofa

Refer to Rule 827, All Subdivisions.

RULE 827-A. Trains handling cars containing Flammable Compressed Gas will stop and inspection will be given entire train both sides at the following locations:

Westward Baseline Road east of McQueen to determine that there is no obvious leakage of Flammable Compressed Gas and that there is no other unsafe condition of equipment before proceeding.

Refer to Rule 827-A, All Subdivisions.

RULE 872. Phoenix: Enginemen taking charge of engines will consider engines as having been amply supplied with water, fuel, sand and other supplies.

AIR BRAKE RULES

RULE 2. Taking Charge of Engines.

Section A, will apply at:
Phoenix

RULE 17. Refer to All Subdivisions.

RULE 21. Phoenix: Trainmen must not couple air hose on outgoing trains at Phoenix until train is made up and caboose and road engine are on train. Coupling caboose and road engine to train will be considered as an indication that the train is made up and switchmen have completed their work. Switchmen must not perform switching on or couple other cars to a train on which the caboose and road engine have been attached without instructions from the yardmaster who will see to it that members of the train crew are notified in advance. After train is so made up switchmen must not place cars or engines behind or ahead of train in the same track.

RULE 24-G. Will apply at Phoenix.

MISCELLANEOUS

1. Phoenix Yard: All cars 65 ft. or longer must be chained, not coupled, thru 27-degree curves on 3rd St. River track between Grant Street and Buckeye Road. 85 ft. T.O.F.C. flats must be chained from Grant Street to spot and return.

2. Litchfield: Gate at entrance Goodyear Aircraft spur is locked with Government lock, and to gain entrance a long and short sound of whistle will be notification to watchman on duty to take care of the opening and closing of the gate.

3. Normal Jct.: Switch serving Smitty's Big Town MP 917.46 has close clearance account side wall on underpass will not permit trainmen to throw switch with ease. Trainmen must use caution and throw switch with care.

4. Hayden Branch: Cars bearing "Exceed Plate C" symbol or words "Excess Height" must not be operated between Magma and Hayden.

Crew of eastward train, before leaving Magma, will make visual inspection of their train to insure there are no restricted cars in their train.

5. Hayden: Weigh-in-motion scale located on Kennecott Copper Company tracks west of ore bins on lead track to ore dump. Scales are equipped with three bi-directional traffic light signals equipped to display three aspects. Traffic light signals govern ore train speeds as follows: Signals will light when engine passes over sensor located beyond first signal in direction of travel. Train must not exceed four MPH until last car has passed over scale. Four MPH or under, signals will display green aspect, yellow aspect when approaching overspeed and red aspect for overspeed. When yellow or red aspect appear on signals, speed must be reduced accordingly. If speed is reduced accordingly and signals continue to show red aspect, Chief Dispatcher's office must be notified of conditions as soon as possible.

Kennecott Copper Corporation Railroad between Hayden and Hayden Smelters is operated by the Tucson Division, is within Hayden yard limits, S.P. Rules apply.

Kennecott Copper Company has installed three signal lights at the entrance to the main track, that portion in front of KCC smelter. Lights are located at the three entrances, which are as follows:

- Hayden Junction.
 - The lower track from ASARCO.
 - The upper track from ASARCO.
- Signal indications are: Yellow. Proceed with Caution.
Red . . . Stop.

When signal system displays a red indication, SP crews will try to locate KCC switch engine on or around main track in front of the smelter. If KCC switch crews cannot be seen working in the vicinity of the smelter, then call the Agent at Hayden, who will report the red signal to the KCC guard shack at the main entrance. When light remains red and Agent has been notified, or crew cannot reach Agent at Hayden, SP may go by red signal preceded by flagman to the point where SP leaves the main track in front of KCC smelter.

Main track in front of KCC smelter shall be that portion from the derail to the ASARCO upper track; also from the derail to ASARCO lower track, also known as the entrance to the bullion hole.

Back-up hose must be used when shoving cars Hayden to Hayden Smelters.

Maximum speed permitted between Hayden and Hayden Smelters is 15 MPH. Grade is 2.2% descending Hayden Smelter to Hayden.

6. Engines listed must not operate on tracks shown below:

Class of Engine	Restricted Track
AS600 series	
EF600 series	
ES600 series	
GF600 series	
EP600 series	
EF850-B	
GF850	Hayden
	Branch All tracks.
All engines . . . Hayden	On trestles to old ore bins and over scales, AS&R tracks.
All engines . . . Hayden	Beyond east derail located east of switches of sidings of San Manuel Arizona Railroad.
EF 630-1 } . . . Normal Jct . . .	Spur serving Smitty's Big Town
EF 850B } . . .	MP 917.46.
All engines . . . Cashion	Beyond clear point spur serving R and R leasing.

7. LOAD LIMIT (car and contents):

Wellton-Picacho, except: 263,000 pounds
 Gross weight of 263,000 pounds or less applies to uniformly loaded four-axle cars having trucks spaced 23 feet 0 inches or more center to center and minimum axle spacing of 5 feet 6 inches.
 Gross weight uniformly loaded four-axle cars with minimum axle spacing of 6 ft. 0 in. and minimum distance 37 ft. 0 in. center to center of trucks; also, wheels 38 in. or more in diameter. 315,000 pounds
 Ore cars SP 341000 to 341335 and ATSF 64000 to 64099. 281,000 pounds
 Litchfield Jct.-Litchfield Park. 240,000 pounds
 Tempe-West Chandler. 240,000 pounds
 McQueen-Dock. 263,000 pounds
 Magma-Hayden. 263,000 pounds
 Except:
 KCC ore cars between Ray Jct. and Hayden 281,000 pounds
 Ore cars SP 341000 to 341335 and ATSF 64000 to 64099. 281,000 pounds
 Cars having truck centers 30 ft. 0 in. or less. 240,000 pounds
 Except: UTLX, GATX and ACFX sulphuric acid tank cars having truck centers 30 ft. 0 in. or less are permitted to operate with load limit. 263,000 pounds
 Unless authorized by Superintendent, heavier loads must not be handled.

8. SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS With caution
Not exceeding
MPH

Through sidings, yard and other tracks, wyes, balloon tracks, crossovers and turnouts. 10
 Except:
 Arlington (MP 859.26) Palo Verde Power Plant Spur. 20
 All movements within plant. 5*
 *and with bell ringing.

SPMW 7140 must not be operated east of MP 972.37, Hayden Branch.
 Refer to Miscellaneous Item 17, Page 19, All Subdivisions.

SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in **SPEED RESTRICTIONS FOR ENGINES** appearing on pages 16 and 17 and **MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT**, appearing on page 19 of Timetable for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

BETWEEN			PSGR TRAINS	FRT	BETWEEN		ALL TRAINS
MP	MP	Column:	1	2	MP	MP	
WELLTON and PICACHO:					LITCHFIELD JCT. and LITCHFIELD PARK:		
770.65	and 770.72	(Thru crossover)	25	25	889.30	and 894.26	20
770.72	and 770.84	Jet. switch	50	40	MAGMA and HAYDEN:		
770.84	and 776.00		60	40	949.44	and 958.75	20
776.00	and 778.20		55	40	958.75	and 970.60	30
778.20	and 845.80		60	40	970.60	and 984.60	20
845.80	and 848.00		50	40	984.60	and 984.80	10
848.00	and 889.30		60	40	984.80	and 988.72	20
889.30	and 894.50		50	40	988.72	and 989.70	25
894.50	and 903.00		50	30	989.70	and 998.90	30
903.00	and 904.77		30	30	998.90	and 1003.25	20
904.77	and 907.91		20	20	MCQUEEN and DOCK:		
except thru spring switch MP 905.6 to depot			15	15	923.74	and 944.00	20
907.91	and 910.15		30	30	TEMPE and WEST CHANDLER:		
910.15	and 912.75		60	30	915.25	and 923.13	20
912.75	and 913.77		40	30			
913.77	and 915.32		20	20			
915.32	and 916.48		30	20			
916.48	and 920.84		60	40			
920.84	and 922.04		25	25			
922.04	and 924.20		50	40			
924.20	and 979.32		60	40			
979.32	and 979.75						
(936.69)			25	25			
except thru crossover Jet. switch			25	25			

Trains handling tank cars containing Flammable Compressed Gas must not exceed 55 MPH. Where maximum authorized speed is less than 55 MPH and more than 25 MPH, train must be operated at 5 MPH less than maximum authorized speed and must not exceed 30 MPH at the following locations:

Buckeye	Between MP 875 and MP 876
Litchfield and Cashion	Between MP 889 and MP 894.3
Gilbert	Between MP 926.5 and MP 927.5
Coolidge	Between MP 961.5 and 962.5

Trains with AMTRAK EP630A engines in consist, unless otherwise restricted to a lower speed, must not exceed 50 MPH from point where engine enters curve until engine and first car behind engine are again on tangent track between the following mile post locations:

MP 770.72 and MP 777.79	MP 904.89 and MP 924.18
MP 845.93 and MP 847.88	MP 958.87 and MP 959.03
MP 875.86 and MP 876.07	MP 979.34 and MP 979.75
MP 887.41 and MP 894.49	

SPECIAL INSTRUCTIONS—LORDSBURG SUBDIVISION

RULE P. LOCATION OF OVERHEAD AND SIDE STRUCTURES NOT STANDARD CLEARANCE ON MAIN TRACK AND SIDINGS

MP	Location	Description
1032.50	Benson... San Pedro River bridge.....	Side
1148.30	Lordsburg. East end No. 4 track.....	Side
Clifton Branch		
1205.10.....	Gila River bridge.....	Overhead and Side
1215.89	Clifton... San Francisco River bridge.....	Overhead and Side
Douglas Branch		
1089.00	Crook Tunnel.....	Overhead and Side
Ft. Huachuca Branch		
1059.00	Lewis Springs.. Bridge over San Pedro River.....	Overhead and Side

RULE 7-B. Red **CONDITIONAL STOP** signs and yellow **PROCEED PREPARED TO STOP** signs will be placed to left of track in direction of approach on No. 1 Track and No. 2 Track between PFE Yard, MP 987.76 and MP 1000.22 west of Vail.

RULE 7-C. PFE Yard: Freight trains arriving or departing PFE Yard must receive proceed signal (green flag by day, green light by night) or oral authorization from yardmaster or his representative.

RULE 10-J. Speed signs to left of track:

Eastward	Reading	Westward	Reading
MP 987.75	55	MP 989.75	35
MP 990.25	70-60		
MP 1279.2	40	MP 990.25	Diverging Route
			15
		MP 992.25	50
		MP 1000.0	70-60

RULES 30 and 31. Curtiss: Whistle signal must be sounded and bell kept ringing approaching and over all crossings Apache Powder Co. tracks.

RULE 81. Globe Branch: No. 2 track Globe Yard will be used as main track.

RULE 82-A. Crews ordered for trains at El Paso (Union Depot) will obtain clearance and train orders, if any, from pneumatic tube receptacle installed in Trainmen's Register Room, El Paso Union Depot.

When interlocking signal Tower 47 displays proceed indication for movement to eastward main track, such indication will authorize engines to move from Tower 47 to Alfalfa unit, El Paso Yard.

RULE 83-A. At following stations only trains indicated will register:

- Tucson.....
 - PFE Yard.....
 - Benson.....
- } Trains originating or terminating.
- } Trains to and from Douglas Branch. Train register is located in box affixed to pole approximately 300 feet east of San Pedro Street crossing, between House tracks Nos. 1 and 2.

RULE 83-B. At open train order offices, trains may register by ticket as follows:

El Paso (Tower 196), Trains originating or terminating Alfalfa or Cotton Avenue units.

Trains originating or terminating El Paso (Union Depot) will register by ticket, placing ticket in pneumatic tube receptacle located in Trainmen's Register Room.

Conductors of trains originating Alfalfa or Cotton Avenue units, El Paso Yard, must show on margin of train register ticket thrown off at Tower 196 time watch was compared with standard clock, and operator at Tower 196 will enter this information on train register.

RULE 93. Yard limits are established at the following locations:

West MP		East MP
977.96	Tucson (No. 2 Track).....	993.00
	Tucson (No. 1 Track).....	992.09
	Benson (Douglas Br.).....	1034.00
1058.30	Lewis Springs.....	Ft. Huachuca-End of Track
1084.27	Bisbee Jct.....	1085.78
	Bisbee Jct. (Don Luis Branch).....	End of track
	Bisbee Jct. (Bisbee Branch).....	End of track
1102.94	Douglas.....	1109.06
	Bowie (Globe Br.).....	1099.50
1218.70	Globe-Miami.....	1232.98
1146.60	Lordsburg.....	1149.77
	Lordsburg (Clifton Br.).....	1148.52
1319.87	El Paso (No. 2 Track).....	
1291.54	El Paso (No. 1 Track).....	
	El Paso (Carrizozo Subdivision).....	1300.54
	El Paso (San Antonio Div.).....	820.00

El Paso: First-class trains enter and leave El Paso Union Depot on yard track within interlocking limits of Tower 196.

Semi-automatic signal on No. 2 Track west of Icehouse crossover will display yellow aspect when switch to crossover from No. 2 Track to San Antonio Division is lined and Signal 8314 at east end of crossover displays Stop indication.

RULE D-97. Will apply as follows:

On No. 1 track and on No. 2 track between PFE Yard and Mescal. Proceed indication in westward "SA" signals at west end Mescal will authorize movement on No. 1 track.

Between Anapra and Tower 47.

RULE 99-C. Will apply as follows:

On Douglas, Globe and Clifton Branches.

RULE 103. Lordsburg: Through freight trains arriving Lordsburg will stop for crew change before blocking crossing east of depot. Trains doing switching will avoid blocking this crossing except when absolutely necessary.

Deming: Ruby Street crossing must not be blocked other than for trains moving over crossing.

A flagman must precede all movements over:

Miami..... Crossing over U.S. Highway 60-70 at MP 1232.61 near end of Globe Branch.

Bowie..... **STOP SIGN** on east and west side of road crossing north side of station track. Trains and engines must stop and not enter crossing until it is known that automatic crossing gates are down.

Clifton Crossing at MP 1216.2 is equipped with Stop Signs and Crossing Signals 12162 and 12162A are equipped with unit for display of flashing white lights.

Display of flashing white lights indicates gates are down. Trains or engines approaching must not enter crossing until flashing white lights are displayed or it is known Crossing Signals are actuated and gates are down.

It is necessary to use S.P. switch key to operate or restart Crossing Signals. Insert switch key in either of the KEY RELEASE boxes and turn SLOWLY one complete turn to the right. For EASTWARD movement key release box is on post located on NORTH side of track. For WESTWARD movement key release box is on case on SOUTH side of track.

Deming Sage spur crossing Highway 80.

RULE 104. Derails in main track:

Ft. Huachuca .378 feet west of west wye track switch.
Lewis Springs..On Ft. Huachuca Br., 237 feet east of junction switch.

Galena West end Interchange Track for Interchange Track.

Globe at MP 1221.4

Miami MP 1230.59

MP 1231.71

MP 1232.03

Mescal: Derails installed 235 feet east of west switch and 350 feet west of east switch. Before siding is used train dispatcher's permission must be obtained, derail lined by hand, then train dispatcher can clear eastward or westward signal to enter siding.

The normal position of rigid switches at end of double track and junctions is as follows:

Lewis Springs.Ft. Huachuca Br., for Douglas line.

Bisbee Jct. Main track switches at east and west ends of yard must be left lined for main track.

Bisbee Jct. Bisbee Br., for Douglas line.

Bisbee Jct. End of west leg of wye must be left lined for west leg of wye.

Corta Bisbee Br., for Bisbee Branch.

Douglas FCP RR, for SP yard track.

RULE D-151. Westward trains will use No. 1 track Mescal to PFE Yard.

Eastward trains will use No. 2 track PFE Yard to Mescal. Double track rules apply.

Between Anapra and Icehouse Crossover MP 1320.90, the two main tracks are designated as follows—

No. 1 Track, current of traffic westward.

No. 2 Track, current of traffic eastward.

Between Icehouse Crossover, MP 1320.90, and El Paso (Union Depot), three main tracks are designated as follows:

North Track No. 1 Track, current of traffic westward;

Middle Track No. 2 Track, current of traffic eastward;

South Track No. 3 Track, current of traffic eastward.

Between El Paso (Union Depot) and El Paso (Cotton Avenue), the two main tracks are designated as follows:

No. 1 Track, current of traffic westward.

No. 2 Track, current of traffic eastward.

Eastward trains may use No. 2 Track or No. 3 Track between Icehouse Crossover and El Paso (Union Depot), being governed by block signal indication.

RULE 221. Tucson, PFE Yard, Bowie, Lordsburg and Deming are train-order offices only for trains originating except:

No. 1 and No. 2 must obtain clearance OK'd by Chief Train Dispatcher at Lordsburg.

RULE D-251. Will apply as follows:

On No. 2 track from MP 987.76, PFE Yard, to beginning of CTC, MP 1023, west end Mescal.

On No. 1 track from end of CTC, MP 1023, west end Mescal, to PFE Yard, MP 987.76.

On No. 1 and No. 2 Tracks between Anapra and Icehouse Crossover; on No. 1, No. 2 and No. 3 Tracks between Icehouse Crossover and El Paso (Union Depot); on No. 1 and No. 2 Tracks between El Paso (Union Depot) and El Paso (Cotton Avenue); on both main tracks between Tower 47 and Alfalfa unit, El Paso Yard.

RULE 306. The following home signals equipped with triangular plate bearing the letter "P" have included in their control limits some special protective device. Interlocking signals are listed as "P-I," Absolute signals are listed as "P-A" or "P-SA."

Eastward Signals	Protection	Westward Signals	
P-I Westward Main Track Tucson	} Spring switch, west end of crossover, westward main track to eastward main track, Cherry Avenue.		
P-I Eastward Main Track Tucson		} Spring switch, west end of crossover from eastward main track to Nogales lead, Cherry Avenue	
P-I Nogales Lead Tucson	} Spring switch, west end of west lead, Cherry Avenue. Spring switch, east end of double track, Cherry Ave.		P-SA East end double track, Cherry Ave.
		} Spring switch east end of crossover from westward main track to eastward main track Cherry Avenue.	P-SA West lead P-SA East lead
	} East end of crossover from eastward main track to east lead		P-SA East lead
P-SA		Spring switch, end double track, PFE Yard, MP 987.7	
P-10140	Collision detector, underpass, MP 1014.00		
P-A	East end Fenner High water detector, Bridge 1037.44	P-10379	
P-A	Spring switch, west end north siding Mescal		
P-A	Collision detector, Luzena underpass, MP 1091.04	P-A	
P-10572	High water detector, Bridge 1057.85	P-10601	
P-10600	High water detector, Culvert 1060.54	P-10625	
P-10862	High water detector, Bridge 1086.93	P-10883	
P-A, West end Olga	{ High water detector, Bridge 1106.32, main track and siding	P-A, East end Olga	
P-A East end San Simon		High water detector, Bridge 1115.34	P-11157
P-11202	{ High water detectors, Bridges 1121.40 and 1121.49	P-A West end Vanar	
P-A, East end Vanar		High water detector, Bridge 1123.30	P-11243
P-11650	High water detector, Bridge 1166.20	P-A West end Separ	
P-11694	{ High water detector, Bridge 1170.64 High water detector, Bridge 1170.76		P-11721
P-A East end Tunis		High water detector, Bridge 1199.02	P-12005
P-12112	{ High water detector, Bridge 1211.92 High water detector, Bridge 1212.92		P-12131

SPECIAL INSTRUCTIONS—LORDSBURG SUBDIVISION

Eastward Signals	Protection	Westward Signals
P-12132	{ High water detector, Bridge 1213.17 } { High water detector, Bridge 1213.58 }	P-12151
P-12152	{ High water detector, Bridge 1215.96 } { High water detector, Bridge 1216.11 }	P-12173
P-12172	High water detector, Bridge 1218.11	{ P-A West end Carne
P-A West end	{ High water detector, Bridge Carne } 1219.02	{ P-A East end Carne
P-12314	High water detector, Bridge 1233.56	P-12337
P-12430	High water detector, Culvert 1244.68	P-12455
P-13198	Fire protection Rio Grande bridge	

AUTOMATIC BLOCK SIGNAL SYSTEM

RULE 505. Tucson: Trains moving on main track in either direction will move between MP 987.7 at 36th St. and MP 985.48 at Cherry Ave. by block signals whose indications will supersede the superiority of trains.

Lordsburg: Trains moving on main track, in either direction, will move between end of CTC, at west switch yard track No. 1, and end of CTC, at east switch yard track No. 1, by block signals whose indications will supersede the superiority of trains.

SPRING SWITCHES

RULE 538. Spring switches equipped with facing point locks are located as follows:

Station	Location	Normal Pos.
PFE Yard	End double track, MP 985.48	Westward track
PFE Yard	End double track, MP 987.7	No. 2 track
*Wilmot	East end, Eastward siding	No. 2 track

*Equipped with switch-point indicator.

Spring switches not equipped with facing point locks are located as follows:

Location	Protection	Normal Pos.
Tucson	Spring switch, west end of crossover, westward main track to eastward main track, Cherry Avenue	{ Westward Main Track
Tucson	Spring switch, west end of crossover from eastward main track to Nogales lead, Cherry Avenue	{ Eastward Main Track
Tucson	Spring switch, west end of west lead, Cherry Avenue	East Lead
Tucson	Spring switch, east end of double track, Cherry Avenue	Main Track
Tucson	Spring switch, east end of crossover from westward main track to eastward main track, Cherry Avenue ...	Crossover
Tucson	East end of crossover from eastward main track to east lead	East Lead
Mescal	West end, north siding	No. 1 track

INTERLOCKING

RULE 605. Tucson: Limits extend on westward main track from eastward interlocking signal MP 985.15 to westward interlocking signal end of double track MP 985.50. On eastward main track from eastward interlocking signal MP 985.15 to westward interlocking signal end of double track MP 985.50, and from eastward interlocking signal MP 985.2 on Nogales lead to westward interlocking signal MP 985.4 and to westward interlocking signal on west lead MP 985.36.

Signals are under the control of Operator at PFE Yard.

LETTER-TYPE INDICATORS

RULE 705. Indicators located as follows:

Illum. Letter	On Signal	Approach- ing	Authorizes and Requires Movement as Follows
S	12060	Deming	Train to enter station track at west switch, MP 1207.2.

Refer to Rule 705, All Subdivisions.

CENTRALIZED TRAFFIC CONTROL

RULE 760. PFE Yard: Limits extend from MP 987.7 to East end PFE Yard, MP 987.92.

Mescal-Anapra: Limits extend from west switches of controlled siding Mescal, MP 1023.00, to west switch of No. 1 yard track, Lordsburg, MP 1146.6; and from fouling point at east end No. 1 yard track, Lordsburg, MP 1149.77, to clear point on North main track at Anapra, MP 1290.

Deming: Portion of old siding west of MP 1208.17 is a station track, capacity 5000 feet. This track must be kept clear of cars and may be used for meeting or passing trains when directed by train dispatcher. Permission must be obtained from train dispatcher before using this track for switching movements.

GENERAL REGULATIONS

RULE 825. Instructions for applying hand brakes:

Tucson: Passenger trains—To prevent uncontrolled movement, rail skid must be placed under west end of train and a sufficient number of hand brakes must be applied, but not less than two hand brakes on west end and two hand brakes on east end, unless outbound crew takes charge and engine remains attached.

TUCSON AND PFE YARD:

Freight trains, 1 to 10 cars	... All hand brakes.
Freight trains, 11 to 20 cars	... Ten hand brakes west end.
Freight trains, 21 to 49 cars	{ Ten hand brakes west end, Five hand brakes east end.
Freight trains, 50 cars or more	{ 15 hand brakes west end, 10 hand brakes east end.

Hand brakes will not be applied if outgoing crew takes charge of train on arrival, and inbound crew is advised by yardmaster that engine is not to be detached and no switching is to be performed on the train. Hand brakes will not be applied if switch crew takes charge of train on arrival.

Hand brakes on outbound trains must not be released until engine is coupled to train, air test completed, and blue sign removed.

Portable rail skids are hung on posts at the following locations:

Mescal	..... Both ends of siding.
Dragoon	..... Ore Spur.
Deming	..... West end of Murray Lane.
Corta	..... West end of siding.
Miami	..... MP 1231.71

Deming: Trains setting out tank cars containing flammable compressed gas must secure car with hand brake and rail skids.

Refer to Rule 825 All Subdivisions.

SPECIAL INSTRUCTIONS—LORDSBURG SUBDIVISION

RULE 827.

DRAGGING AND/OR DERAILED EQUIPMENT DETECTORS AND INDICATORS INSTALLED AT THE FOLLOWING LOCATIONS:

MP	Location
991.5 (No. 1 Track)	36th St., PFE Yard and Wilmot
991.5 (No. 2 Track)	36th St., PFE Yard and Wilmot
998.8 (No. 1 Track)	Wilmot-Vail
1013.0 (No. 1 Track)	At Marsh
1017.5 (No. 2 Track)	Pantano-Mescal
1025.9	Mescal-Chamiso
1029.8	Mescal-Chamiso
1035.9	Between Switches main track, Fenner
1039.5	Fenner-Sibyl
1044.0	Sibyl-Tully
1050.3	Tully-Dragoon
1059.3	Dragoon-Cochise
*1069.3	Cochise-Willcox
1077.9	Willcox-Raso
1086.1	Raso-Luzena
1094.0	Luzena-Bowie
1101.3	Bowie-Olga
1110.0	Olga-San Simon
1118.0	San Simon-Vanar
1125.8	Vanar-Steins
1130.5	Steins-Mondel
1136.9	Mondel-Gary
1144.9	Gary-Lordsburg
1156.2	Ulmoris-Lisbon
1163.12	Lisbon-Separ
1174.25	Separ-Wilna
1183.4	Wilna-Gage
1192.2	Gage-Tunis
1203.3	Tunis-Deming
1213.1	Deming-Carne
1233.5	Akela-Dona
1243.0	Dona-Aden
1255.1	Aden-Afton
1264.0	Afton-Lanark
1273.0	Lanark-Strauss
1282.2	Strauss-Lizard
1288.7	Lizard-Anapra
1288.9	At Anapra

*Revolving red beacon mounted on Hot Box Detector house.

HOT BOX DETECTORS

Illum. Letter	On Signal	Approaching	Location of Readout
H	12215	Carne	Westward Absolute Signal W.E. Carne
W	12234	Akela	
W	12251	Carne	
H	12268	Akela	Eastward Absolute Signal E.E. Akela

SCANNER SITES

MP	Type	Direction(s)	Location
991.5	D	West	*Wilmot
1016.4	C	West	Marsh-Mescal
1038.1	C	Both	Fenner-Sibyl
1069.3	C	Both	Cochise-Willcox
1102.6	C	Both	Bowie-Olga
1126.2	C	Both	Vanar
1152.0	C	Both	Ulmoris
1181.2	C	Both	Wilna-Gage
1224.2	A	Both	Carne-Akela
1252.0	C	Both	Aden-Afton
1289.3	C	Both	Lizard-Anapra
1289.3	D	East	**Lizard-Anapra

*Readout at PFE Yard.

**Readout at El Paso Yard.

RULE 872. Enginemen taking charge of engines at El Paso, Lordsburg, Tucson, and PFE Yard will consider engines as having been amply supplied with water, fuel, sand and other supplies.

Lordsburg: Inbound rolling inspection of all freight trains will be made by the outbound crew.

Refer to Rule 827, All Subdivisions.

AIR BRAKE RULES

RULE 2. Taking Charge of Engines.

Section A, will apply at:

El Paso, Lordsburg, Douglas and PFE Yard.

RULE 17. Retaining valves must be used on freight and mixed trains on descending grades as follows:

Pinal to Burch, Pinal to Cutter, between Clifton and Guthrie, Galena to Corta, Don Luis Branch, Bisbee to Bisbee Jct., Ft. Huachuca to Lewis Springs.

Without dynamic brake in operation: One retaining valve for each 80 tons in train. If gross tonnage exceeds 80 tons per operative brake, retaining valves must be used on all cars and speed must not exceed 15 MPH.

With dynamic brake in operation:

PERMISSIBLE TONS PER UNIT WITHOUT RETAINING VALVES

	Basic Dynamic Brake		Extended Range Dynamic Brake		
	4 Axle	6 Axle	4 Axle	6 Axle	8 Axle
With dynamic brake in operation but without pressure maintaining system of braking	600	900	725	1075	1450
With dynamic brake in operation and with pressure maintaining system of braking	1500	2250	1800	2700	3600

If permissible tonnage is exceeded, one retaining valve must be used for each 150 tons in excess thereof.

Refer to Rule 17, All Subdivisions.

RULE 21. Refer to All Subdivisions.

RULE 24. Will apply at PFE Yard, Tucson, and El Paso.

RULE 24-E. Will apply at PFE Yard and Tucson.

RULE 24-F. Will apply as follows:

Bisbee Branch, Don Luis Branch, Fort Huachuca Branch, on all tracks at Curtiss Powder Plant, Paul's Spur at Forrest and on unloading trestle at P.D. Smelter at Calumet.

Tucson: When making movements either direction between PFE Yard and areas outside PFE Yard but within yard limits. **Responsibility to know that above has been done rests upon yard engineer and yard foreman.**

RULE 24-G. Will apply at: Lordsburg.

RULE 25. Will apply as follows:

Fort Huachuca.....Westward trains.

AIR BRAKE RULE 26. Before descending grades specified below with a freight train when the temperature is 32° F. above zero or less, and at other times that may be designated by the proper authority, the brake pipe hose must be blown out on the head end of train in the manner prescribed in last paragraph of Air Brake Rule 26:

South Siding	East and West
Bisbee	West
Ft. Huachuca-Garden Canon	West

RULE 33. Pinal to Burch, Pinal to Cutter, between South Siding and Guthrie, South Siding and Clifton, Don Luis Branch, Bisbee to Bisbee Jct. and Ft. Huachuca to Lewis Springs:

Maximum tonnage per operative brake..... 80 tons except with dynamic brake and pressure maintaining system of braking in operation with not more than 15 cars for each four axles of dynamic brake; with speed not exceeding 15 MPH and with all retaining valves on loaded cars in high pressure position... 140½ tons

Should dynamic brake failure occur while handling in excess of 80 tons per operative brake train may proceed at speed not exceeding 15 MPH if in judgment of conductor and engineer it is safe to do so, and provided retaining valves are used as prescribed by Air Brake Rule 17.

Restrictive grades are as follows:

Westward	MP	to MP	MPH
Fairbank-Benson.....	1046.4	1032.7	25
Ft. Huachuca-Lewis Springs...	1070.8	1058.8	20
Globe-Cutter.....	1217.52	1213.5	20

*Descending grades of 1.4 percent or over are as follows:

Eastward:

MP 1023.69 (Mescal) to MP 1033.6 (Benson)
MP 1128.93 (Steins) to MP 1132

Westward:

MP 1128.93 (Steins) to MP 1121.8 (Vanar)
MP 1041.32 (Sibyl) to MP 1033.6 (Benson)

*Refer to Rule 33 3rd par. of Air Brake Rules and Regulations.

MISCELLANEOUS

1. Engines listed must not operate on tracks shown below:

Class of Engine	Restricted Tracks
All engines except ES406-1, AS409-4, AS410-1, only.....	Calumet..... Trestle to ore bins at Smelter.
All engines except a single four-axle unit.....	Curtis..... All tracks beyond clear point of main track switch (MP 1039.52) Apache Powder Co.
All engines except a single four-axle unit.....	Don Luis Branch..... All tracks
All engines.....	Don Luis..... White Tail Deer spur, beyond impaired clearance sign.
All engines except a single four-axle unit.....	Bisbee Branch..... All tracks
All engines.....	Lowell..... Trestle 1091.38 on approach to ore bin, Shattuck Denn mine.
AS600 series FP600 series EF600 series ES600 series GF600 series EP600 series EF850-B GF850.....	Clifton Branch... Must not be operated east of Fox.

2. PFE Yard: Look out for ice and material alongside PFE Co. tracks.

3. Douglas Branch: Crook Tunnel (MP 1089) look out for fallen rocks at east and west ends of tunnel.

4. Bisbee Branch: Campbell shaft track and Denn spur track at Lowell must not be used beyond points indicated by signs: "Limit of Southern Pacific switching operations."

5. Calumet: On Phelps-Dodge track No. 5 in smelter plant at Calumet the "Impaired Clearance" sign located in advance of trackage operated by Phelps-Dodge electric locomotives refers to side clearance of signal lights and 400 volt electric trolley overhead wire.

Before entering this area crews must stop at Phelps Dodge scale house and receive assurance from scale house foreman that electric power is off. In addition it must be known that cars and engines will clear.

Switching service on Phelps-Dodge track No. 5 must be done during daylight hours only.

6. Willcox: Do not leave cars spotted on house track or Standard Oil spur within 600 feet east of west house track switch.

7. Paul Spur: Paul Lime Plant. Gate is located on east end of first building approximately 500 feet west of the derail.

Prior to any switching movement into Paul Lime Plant, gate must be secured with latch in open position and red light located on wall of building must be illuminated. If red light does not illuminate after securing gate in open position, switching movement must not be made into plant beyond the gate until member of crew has contacted supervisor in charge of Paul Lime Plant, who must assure SP crew members that it is safe to make the switching movement.

After switching movement is complete, gate must be closed. Engine bell must be rung at all times during switching movement within Paul Lime Plant.

8. LOAD LIMIT (car and contents):

Tucson-El Paso, except.....	263,000 pounds
Gross weight of 263,000 pounds or less applies to uniformly loaded four-axle cars having trucks spaced 23 feet 0 inches or more center to center and minimum axle spacing of 5 feet 6 inches.	
Gross weight uniformly loaded four-axle cars with minimum axle spacing of 6 ft. 0 in. and minimum distance of 37 feet, 0 inches center to center of trucks; also, wheels 38 in. or more in diameter.....	315,000 pounds
Ore cars SP 333500 to 334399.....	281,000 pounds
Ore cars SP 341000 to 341355 and ATSF 64000 to 64099.....	281,000 pounds
Sulphuric acid tank cars.....	281,000 pounds
Hopper cars SP 464000 series.....	281,000 pounds
Bowie-Miami, except.....	281,000 pounds
Air dump cars SPMW 6400-6439.....	263,000 pounds
Lordsburg-Clifton	
Cars having truck centers:	
24 ft. 0 in. and less.....	240,000 pounds
Over 24 ft. 0 in. to 30 ft. 0 in.....	263,000 pounds
Over 30 ft. 0 in.....	281,000 pounds
Benson-Douglas	
Cars having truck centers 30 ft. 0 in. or more.....	281,000 pounds
Cars having truck centers less than 30 ft. 0 in.....	240,000 pounds
Hopper cars SP 464000 series.....	281,000 pounds
Ore cars SP 467500 to 467549 between Bisbee Jct. and Douglas.....	281,000 pounds
Lewis Springs-Ft. Huachuca.....	240,000 pounds
Corta-Galena, except.....	240,000 pounds
Ore cars SP 467500-467549.....	281,000 pounds
Bisbee Jct.-Bisbee, except.....	240,000 pounds
Ore cars SP 467500-467549.....	281,000 pounds

Unless authorized by Superintendent, heavier loads must not be handled.

9. SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS	With Caution Not Exceeding MPH
Centralized Traffic Controlled sidings and turnouts.....	25
Except: Through other sidings, yard and other tracks, wyes, balloon tracks, crossovers, turnouts and over slip switches.....	10

SPECIAL INSTRUCTIONS—LORDSBURG SUBDIVISION

SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS

With Caution
Not Exceeding
MPH

Except:

Lordsburg (Through No. 1 track)	25
Willcox: On all tracks and turnouts serving Red Barn Chemical	5
Benson: On south house track	5
Through west turnout MP 1320.90 and east turnout MP 1293.98 Icehouse crossovers	30
Curtis: On all tracks beyond clear point of main track switch (MP 1039.52) Apache Powder Co.	5
Cochise (MP 1061.66), Arizona Electric Power Coop. Inc.: on tangent track	20
on curved track	10
within plant	5*

*with bell ringing.

SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in **SPEED RESTRICTIONS FOR ENGINES** appearing on pages 16 and 17 and **MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT**, appearing on page 19 of Timetable for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

EASTWARD			PSGR TRAINS	FRT	WESTWARD			PSGR TRAINS	FRT
MP	MP	Column:	1	2	MP	MP	Column:	1	2
TUCSON-MESCAL AGAINST CURRENT OF TRAFFIC ON NO. 1 TRACK:					MESCAL-TUCSON AGAINST CURRENT OF TRAFFIC ON No. 2 TRACK:				
987.75 to 992.09			20	20	1023.08 to 1003.88			25	25
992.09 to 1021.74			59	49	1003.88 to 993.00			49	49
1021 to 1021.74 (Mescal..... Spring Switch)			35	35	993.00 to 987.75			20	20
TUCSON to EL PASO:					ALFALFA UNIT to EL PASO COTTON AVE. NO. 1 TRACK:				
982.73 to 985.19			35	35	820.00 to 825.00			30	30
985.19 to 985.27			25	25	825.00 to 826.90			20	20
985.27 to 988.40			35	35	826.90 to 827.71 (1297.60).....			15	15
988.40 to 990.25 (No. 2 Track)			55	55	EL PASO to TUCSON:				
990.25 to 1003.88			70	55	1297.76 to 1295.40			15	15
1003.88 to 1010.36			25	25	except				
1010.36 to 1012.48			40	30	via slip switch				
1012.48 to 1014.00			30	30	opposite Tower			10	10
1014.00 to 1016.77			40	30	47			40	40
1016.77 to 1018.08			30	30	1295.40 to 1281.20			40	40
1018.08 to 1023.10			40	40	1281.20 to 1279.70			50	50
1023.10 to 1031.60			55	55	1279.70 to 1128.68			70	55
1031.60 to 1036.79			60	55	1128.68 to 1124.40			40	40
1036.79 to 1052.43			40	40	1124.40 to 1121.40			50	50
1052.43 to 1058.00			60	55	1121.40 to 1078.00			70	55
1058.00 to 1074.00			70	55	1078.00 to 1074.00			60	55
1074.00 to 1078.00			60	55	1074.00 to 1058.00			70	55
1078.00 to 1121.40			70	55	1058.00 to 1052.43			60	55
1121.40 to 1124.40			50	50	1052.43 to 1036.79			40	40
1124.40 to 1128.68			40	40	1036.79 to 1031.60			60	55
1128.68 to 1279.70			70	55	1031.60 to 1023.10			55	55
1279.70 to 1281.20 (No. 2 Track)			50	50	(1021.74) Mescal			55	55
1281.20 to 1320.15			40	40	1021.74 to 1021.29			40	40
1320.15 to 1320.60 (No. 2 Track)			30	30	1021.29 to 1008.40			65	50
					1008.40 to 1007.45			60	50
					1007.45 to 990.25			70	55
					990.25 to 988.40			50	50
					988.40 to 982.73			35	35

EASTWARD			PSGR TRAINS	FRT
MP	MP	Column:	1	2
TUCSON to EL PASO:				
1320.60 to 1320.90				
(West switch Icehouse Cross-over) (No. 2 Track)			30	30
1320.90 to 1322.28			30	30
(No. 3 Track)			25	25
1322.28 to 1322.87			30	30
(No. 3 Track)			25	25
1320.90 (1293.54) to 1295.40 (No. 2 Track)			30	30
1295.40 to 1297.76			15	15
except				
via slip switch opposite Tower 47			10	10
EL PASO COTTON AVE. to ALFALFA UNIT, NO. 2 TRACK:				
(1297.60) 827.71 to 826.90			15	15
826.90 to 825.00			20	20
825.00 to 820.00			30	30

Trains handling tank cars containing Flammable Compressed Gas must not exceed 55 MPH. Where maximum authorized speed is less than 55 MPH and more than 25 MPH, train must be operated at 5 MPH less than maximum authorized speed and are restricted as follows:

MPH	LOCATIONS
30	Benson—Between MP 1032 and MP 1033
30	Willcox—Between MP 1074 and MP 1075
30	Deming—Between MP 1207.5 and MP 1208.5
20	Anapra—Between MP 1289.9 and MP 830 (San Antonio Div.)
10	El Paso—Between MP 830 and Dallas St. Yard
25	El Paso—Between MP 827 and MP 823.1 (Texaco Crossover)

and must not exceed 30 MPH departing Lordsburg until caboose has passed depot.

Trains with AMTRAK EP630A engines in consist, unless otherwise restricted to a lower speed, must not exceed 50 MPH from point where engine enters curve until engine and first car behind engine are again on tangent track between the following mile post locations:

- MP 982.88 and MP 983.90
- MP 986.6 and MP 990.26 on No. 2 track
- MP 1003.9 and MP 1023.8 on No. 2 track
- MP 1021.74 and MP 1007.46 on No. 1 track
- MP 990.26 and MP 982.88 on No. 1 track
- MP 1023.6 and MP 1057.94
- MP 1082.88 and MP 1090.92
- MP 1121.42 and MP 1128.77

Maximum authorized speed for freight trains is 55 MPH except BSMFF, APLAA, APLAB, and GSLAF are authorized to operate at Column One speeds provided train contains no restricted cars, or empties except cabooses, and does not exceed 80 tons per operative brake and/or 120 cars.

Trains BSMFY, LAEST, LAHOT, WCESP, PXESP, YUESP and NGESP are authorized to operate at Column One speeds not exceeding 65 MPH provided they contain no restricted cars, or empties except cabooses, and do not exceed 80 tons per operative brake and/or 120 cars.

RULE 7-C. Freight trains must not enter receiving tracks unless proceed signal (green flag by day, green light by night), or on oral instructions from yardmaster or his representative.

RULE 93. Yard limits are established at the following locations:

West MP		East MP
1319.87	El Paso	
1291.54	El Paso (No. 1 Track)	
	El Paso (Carrizozo Subdivision)	1300.54
	El Paso (San Antonio Div.)	820.00
1301.50	Fort Bliss-Tobin	1308.00

RULE 98. Railroad crossings at grade not interlocked. Joint SP Santa Fe Levee Track crossing Santa Fe connection to International Bridge located 387 feet North of the center of the Santa Fe International Bridge. Stop signs are located on both sides of the Santa Fe connection to the International Bridge. Movements over this crossing may be made after stopping and flagman has preceded the movement.

RULE 103. Automatic crossing warning device on No. 3 track at Globe Mills is not connected with industry track.

Flagman must precede all movements over:

Globe Mill—Road crossing over industry track.
Fort Bliss Drill—Airport Road.

Ashley: State Highway crossing on Fort Bliss spur. Approach circuits of automatic crossing warning device indicated on rail joints on each side of crossing. When these circuits are occupied and crossing is not entered within one minute signals cease to operate.

To operate or restart signals, insert switch key in either of the **KEY RELEASE** boxes located on each signal mast and turn **SLOWLY** one complete turn to right.

RULE 104. Split point derail in A, B, C and D units of El Paso yard are located on west end of tracks Nos. 17, 18, 29, 33, 34 and west end of lead opposite A-B yard unit.

RULE D-151. Between Ice House Crossover, MP 1320.90, and El Paso (Union Depot) the three main tracks are designated as follows:

North track No. 1 Track, current of traffic westward;
Middle track No. 2 Track, current of traffic eastward;
South track No. 3 Track, current of traffic eastward.

Eastward trains may use No. 2 Track or No. 3 Track being governed by block signal indication.

RULE D-251. Will apply as follows:

On No. 1 and No. 2 Tracks between Anapra and Icehouse Crossover; on No. 1, No. 2 and No. 3 Tracks between Icehouse Crossover and El Paso (Union Depot); on No. 1 and No. 2 Tracks between El Paso (Union Depot) and El Paso (Cotton Avenue); on both main tracks between Tower 47 and Alfalfa unit, El Paso Yard.

RULE 306. The following block signals equipped with triangular plate bearing the letter "P" have included in their control limits some special protective device:

Eastward Signals	Signals	Westward Signals
P-8232	Barricade Detector for Dead End Streets	P-8231 P-8233
P-13188 (No. 2 Track)	Slide Detector Fence MP 1319.42 to 1319.57	

AUTOMATIC BLOCK SIGNAL SYSTEM

RULE 505. Signals 8231 and 8233 located on signal bridge west end Alfalfa unit govern movements as follows:

Signal 8231 governs movement on Westward Track.

Signal 8233 governs movement from drill track to Westward Track.

Westward trains or engines stopped by Signal 8231 must actuate push button, wait 45 seconds and if signal does not display a proceed indication may proceed under the provisions of Rule 507.

Westward trains or engines leaving Alfalfa unit from drill track and stopped by Signal 8233, provided no westward movement is approaching on Westward Track, may actuate push button and, if after waiting 2 minutes and 50 seconds, signal does not display a proceed indication, may proceed under the provisions of Rule 507 after first complying with Rule 81-A.

Signal 8226 located west of facing point crossover from Eastward Track to Westward Track Alfalfa unit governs movements as follows:

Top unit governs movement on Eastward Track;
Bottom unit governs movement into yard.

When Signal 8226 displays stop indication an eastward train or engine to enter Alfalfa unit at this location, after stopping, may proceed at restricted speed if proceed signal received from yardman, green flag by day, green light by night or oral authorization from yardmaster or his representative which will indicate protection on Westward Track has been provided in the directions necessary to safeguard movement.

Signals 8223 and 8225 located on signal bridge Alfalfa unit (near Little Flower Road) govern movements as follows:

Signal 8223 governs movement on Westward Track;

Signal 8225 governs movement from yard to westward track and will not display any indication unless crossover is lined for movement from yard to westward track.

SPRING SWITCHES

RULE 538. Spring switches not equipped with facing point locks are located as follows:

Station	Location	Normal Position
Alfalfa Unit	West end of crossover from drill to Westward Track	Westward Track
*Tower 47 El Paso	{ No. 6 Lead to Tucumcari Connection	Tucumcari Conn.
*Tower 47 El Paso	{ West end Crossover 3 and 6 Diesel Shop Track	Track 3
*Tower 47 El Paso	{ East end Crossover 29 to 30 Track	Track 30

*Equipped with switch-point indicator.

INTERLOCKING

RULE 605. Ice House Crossover, MP 1320.90: Eastward SA signal governs movement as follows:

Top unit To No. 3 Track;
Bottom unit To No. 2 Track.

When signal displays stop indication a member of crew must call operator at Tower 196. Telephone located on instrument case.

El Paso (Union Depot) Tower 196: Limits on track Nos. 1 and 2 extend from eastward interlocking signals located opposite signal 8299 at MP 1295.40 to westward interlocking signals at MP 1297.07. Limits on track No. 3 extends between Interlocking signal at MP 1296.25 east end Union Depot yard and interlocking signal at MP 1296.79 Campbell Street overpass.

Conductor, brakeman and/or engineer will inform tower operator when passenger trains are ready to leave.

Tower 47: Limits on track Nos. 1 and 2 extend from eastward interlocking signals at MP 1297.07 east end of trainway to westward interlocking signals at MP 1298.22 just west of San Marcial Street and on the Carrizozo subdivision to absolute signal at MP 1297.82.

Tidwell Alley and Azar Nut: Limits extend from eastward interlocking signal at MP 1298.00 on MoPac Main to westward interlocking signals at MP 1298.16 on MoPac Main and River track. On Tidwell Alley track from eastward interlocking signals MP 1298.10 to westward interlocking signals MP 1298.14. On Azar Nut track from eastward interlocking signals MP 1298.07 to westward interlocking signals MP 1298.08.

MoPac Yard: Limits extend from eastward interlocking signals MP 1298.43 to westward interlocking signals MP 1298.49.

MoPac Main Lead & Hussman Spur: Limits extend from westward interlocking signal MP 1297.95 on MoPac Main to eastward interlocking signal MP 1297.98. On Hussman Spur from westward interlocking signal MP 1297.95 to eastward interlocking signal MP 1297.98.

Westward-three-unit signal at MP 1297.82 Carrizozo Subdivision governs movements as follows:

- Top unit..... Westward to No. 1 Track;
- Middle unit..... Eastward to No. 1 Track;
- Bottom unit..... To other diverging routes.

Eastward two-unit signal on East leg of wye at connection with No. 1 Track governs movement as follows:

- Top unit..... To No. 1 Track;
- Bottom unit..... Through crossover to No. 2 Track.

Westward three-unit signal on No. 1 Track at MP 1298.22 just west of San Marcial St., governs movements as follows:

- Top unit..... Westward on No. 1 Track;
- Middle unit..... To T and P connection;
- Bottom unit..... To other diverging routes.

Crank required to operate dual control switches and telephone for communication with operator located on instrument house just west of Piedras Street crossing.

Dwarf signal governing movements from Tracks 203 or 206 does not check position of inside switch 206, observance of points must be made to assure proper line-up for movement.

ABSOLUTE-PERMISSIVE BLOCK

RULE 740. Limits extend between MP 1297.82 (east limit Tower 47), El Paso, and MP 1302.2 (west end siding), Planeport.

RULE 741. When absolute signal at either end of A-PB displays stop indication, train or engine must obtain authority from operator at Tower 47 to proceed. If signal cannot be cleared and there is no opposing train or engine causing signal to display stop indication, operator Tower 47 may authorize train or engine to proceed on main track to limit of A-PB as prescribed by Rule 507.

Trains or engines must not enter main track or use main track switches within A-PB limits without first obtaining permission from operator Tower 47.

If, for any reason, proceed indication of absolute signal cannot be acted upon at once operator Tower 47 must be notified immediately.

Rule 744 will not apply within these limits.

GENERAL REGULATIONS

RULE 812. The El Paso Terminal is under the jurisdiction of the Superintendent of the Tucson Division.

RULE 825. Unless relieved of responsibility by yardmaster, crews of freight trains or transfer cuts arriving in a unit of El Paso Terminal with 15 or more cars will apply five hand brakes on west end and five hand brakes on east end.

Hand brakes on outbound trains must not be released until engine and caboose are coupled to train, and it is known that air is through train.

Sufficient hand brakes must be applied on all trains arriving Union Depot and not less than two hand brakes at any time on the east end of the train. Any employe releasing any of these brakes must first apply as many others to replace them.

Refer to Rule 825, All Subdivisions.

RULE 827. Alfalfa and Cotton Ave. Units, El Paso Yard: First two paragraphs will not apply to crews of westward freight trains while departing these units.

AIR BRAKE RULES

RULE 17. Refer to All Subdivisions.

RULE 21. Refer to All Subdivisions.

RULE 24. Will apply at El Paso.

RULE 24-F. Will apply as follows:

El Paso: Direct movements between:

- Planeport and Cotton Avenue Yard,
- Slag pit and Cotton Avenue Yard,
- Chamizal Yard and Cotton Avenue Yard,
- Cotton Avenue Yard and Alfalfa Yard,
- Rod Mill Refinery and Alfalfa Yard,
- Phelps Dodge Refinery and Alfalfa Yard,
- Standard Oil Refinery and Alfalfa Yard,
- Chevron Asphalt and Alfalfa Yard,

All tracks in Zone No. 10 and Alfalfa Yard, when there are no set-outs or pick-ups enroute. Responsibility to know that above has been done rests upon yard engineer and yard foreman. Carman on duty at El Paso, Cotton Avenue, or Alfalfa Yards, will couple air hose and make test as prescribed by Air Brake Rule 24-F.

MISCELLANEOUS

1. The main tracks between El Paso (Union Depot) and Tower 47 are designated:

- North track.....No. 1 Track;
- Middle track.....No. 2 Track;
- South track, between Union Depot and Campbell Street overpass.....No. 3 Track.

2. **SPEED RESTRICTIONS ON MAIN TRACK** Not Exceeding MPH

Between west limits Tower 196, MP 829.90 and MP 826.90.....	15
Between MP 826.90 and MP 825.00.....	20
Between MP 825.00 and MP 820.00.....	30
Between Dallas Street MP 827.71 and east limits Tower 47 (Carrizozo Subdivision), MP 1297.76.....	15
Except: Over slip switches, straight side.....	15
Over slip switches, turnout side.....	10

3. SPEED RESTRICTIONS ON OTHER THAN MAIN TRACK

	With Caution Not Exceeding MPH
Through sidings, yard and other tracks, wyes, balloon tracks, crossovers and turnouts	10
Except:	
East and west turnouts Ice House Crossover	30
Industry tracks Repair, store and material tracks, shop yard, Diesel service facility tracks	5

4. OPERATIONS OVER MISSOURI PACIFIC TRACKS

Movements over Missouri Pacific Tracks between Tower 47 and/or in Missouri Pacific Yard will be governed by Southern Pacific Rules except the following Missouri Pacific Rules will apply:

RESTRICTED SPEED—Proceed prepared to stop short of train, engine, obstruction, or switch not properly lined.

RULE 103(a). PRECAUTIONS IN SWITCHING—When cars are shoved by an engine and conditions require, a trainman must take conspicuous position on the leading car.

Employes must observe the following precautions in switching movements:

- (1) See that cars left on tracks are properly secured, clear other tracks and, when practicable, clear public crossing at least 100 feet.
- (2) When coupling or shoving cars, take proper precaution to prevent damage or fouling of other tracks by stretching coupling, and applying sufficient hand brakes. Make couplings at a speed of not more than 4 miles per hour.
- (3) Before shoving yard tracks, know there is sufficient room to hold the cars. When shoving entire length of track, see that cars are coupled and, unless otherwise provided, send a man to head end to protect the movement.
- (4) When necessary to control cars by hand brakes, know that sufficient brakes are in working order before cars are cut off.
- (5) Kicking or dropping of cars will be permitted only when such movement can be made without danger to employes, equipment, or contents of cars. Know that the track is sufficiently clear, and when dropping cars, know switches and brakes are working properly and run engine on straight track when practicable.
Cars containing flammables, explosives, or other dangerous articles, must not be dropped or kicked.
Cars must not be dropped through spring or remote control switches.
- (6) When engines may be working at both ends of a track, have proper understanding between crews involved.
- (7) Before coupling to or moving cars on tracks where cars are being loaded or unloaded, see that running boards, oil tank couplings, elevator spouts and similar connections are removed and clear, and persons, in or about cars are warned and requested to vacate cars while being switched.
- (8) Passenger cars and occupied outfit cars must not be kicked or dropped. Other cars must not be kicked or dropped into a track on which passenger or occupied outfit cars are standing.

(9) Before switching passenger equipment or occupied outfit cars, see that brake pipe connections are made, angle cocks opened between the cars and brake system charged. Automatic brake valve only must be used by engineers in such switching.

When coupling passenger cars or occupied outfit cars, moving portion must be properly controlled and utmost caution used to avoid rough handling; couplers must be fully compressed and after coupling appears to have been made, couplers must be stretched to know that knuckles are locked, before making air and steam connections.

When a sign reading "OCCUPIED OUTFIT CARS" is attached to switch lock, or to cars, cars must not be coupled to nor moved until occupants have been notified and permission given by the foreman or his representative. Occupied outfit cars protected by these signs, when located on other than sidings, will not be protected by train order or general order.

- (10) Before coupling into cars standing on grade, near ends of tracks, derails, public crossings, cars in process of loading or unloading, a test of hand brakes must be made and fact known that car or cars are secured and coupled, and will not roll away and cause damage in event coupling is missed.
- (11) Trains, engines or cars must not be permitted to stand across another railroad when practicable to avoid it.
- (12) Cushion underframe cars and cars 70 feet long or longer must not be left standing on turnouts or curves when possible to avoid it, but must be left on straight track to permit coupling to them safely.

RULE 104. HAND OPERATED SWITCHES

- (1) Main track switches must be lined and locked for main track when not in use. Other than main track switches, equipped with switch locks, must be lined and locked for normal position when not in use.
The following other than main track switches must be kept lined in normal position, except while movement through them is being made:
 - (a) Crossover switches. Both switches of a crossover must be lined before movement is started. Movement must be completed and clear of other track involved before either switch is returned to normal position.
 - (b) Switches connecting other tracks with a siding.
- (2) Main track switches must not be left open after movement through them is completed except:
 - (a) As prescribed by MoPac Rule 402.
 - (b) When attended by a member of the crew.
 - (c) During switching operations, when a portion of the train is occupying the main track, and it is known that no other train or engine will pass over the switch.
- (3) A main track switch must not be left open for a following train or engine, unless in charge of a member of the crew of such train or engine, or an assigned switch-tender.
- (4) When practicable, the engineer must see that switches and derails near the engine are properly lined and must require other members of crew on engine to observe same.
- (5) A train or engine must not foul a main track or other track until switches connected with the movement are properly lined. Switches must not be lined when conflicting movement is closely approaching switch. Spring switches; and automatic switches identified by letter "V," or bowl or stand painted yellow; may be trailed through when lined either for or against movement, provided it has been ascertained there is no conflicting movement on or closely approaching switch. At least one truck must have trailed through an automatic switch lined against movement before a reverse movement is made.

SPECIAL INSTRUCTIONS—EL PASO TERMINAL

When waiting to cross from one track to another and during the approach or passage of a train or engine on tracks involved, all switches connected with the movement must be secured in the normal position.

Main track switches must not be restored to normal position until the movement is completed or clear of the main track involved.

- (6) Where trains or engines are required to be reported clear of the main track, such report must not be made until switch has been secured in its normal position.
- (7) After restoring a main track switch to normal position, employe must test the lock to know that it is secured and see that switch points fit properly. Defective or missing main track switch locks must be replaced immediately or switch securely spiked for main track movement.
- (8) Derails must be set to derail, and, except pipe connected derails, must be locked (if equipped with locks) in that position, unless lined to permit movements.
- (9) After lining a main track switch for a train, the employe attending the switch must go to the opposite side of main track, when practicable, and not return to the operating switch stand until the movement has been completed.
When not practicable to go to opposite side of track, the employe will stand at least 20 feet from operating switch stand.
- (10) Employes alighting from a moving train to restore main track switch to normal position, must, when practicable, get off the rear end of car, on opposite side of train from the operating switch stand, and must not cross over to switch stand until train is in clear.
- (11) When a train or engine is clear of main track to meet or be passed by a train, employes must not unlock, nor take a position in the vicinity of any main track switch. They must not go beyond the clearance point for the purpose of attending the switch to be used, and must remain at least 150 feet from the switch while the expected train is approaching or passing the switch.
- (12) Employes handling switches must see that they are properly lined for route to be used and that both switch points have moved and fit in proper position, that lever is properly secured, and, when operating lever is equipped with latch, they must not step on latch, except when throwing switch.
- (13) Switches (other than spring or automatic switches) must not be run through. If a switch is run through, it is unsafe, must be protected, and must be spiked unless a trackman takes charge at once. If an engine or a car partially runs through such a switch, the entire movement must be continued.
- (14) Scale track switches must be lined for dead rails when scales are not in use.
- (15) At main track switches in ABS territory, where view is not clear for at least one mile in each direction, train and yard men will operate switch and wait 5 minutes at the switch before giving signal for train or engine movement to main track, except:
 - (a) Where switch is equipped with an electric lock.
 - (b) Where block signals governing movement to main track indicate proceed, a block indicator indicates block clear.
 - (c) Where signals on main track indicate proceed in direction of restricted view.
 - (d) At meeting points where switch is operated before the train met has passed its next signal.
 - (e) When entering the main track between signals to hostile engine or switch train standing between such signals.
 - (f) When entering main track under MoPac Rule 402.

The 5-minute wait does not relieve employes from protecting the movement, when required.

- (16) Main track switch targets will show RED when switch is lined for movement to or from main track.

RULE 104(a) and RULE 104(c), and interlocking rules and interlocking signals must be observed.

Trains and engines must be clear before expiration of the time granted.

If not clear by the time specified, protection must be afforded in both directions as prescribed by Rule 99.

If additional time is required, authority must be obtained from control operator before authorized time limit has expired.

Control operator must be notified when trains and engines are clear of the track limits granted, except when control operator authorizes by signal indication, a train or engine to move out of the track limits in the same direction in which it entered, it will be considered clear when it has passed such signal indication.

To hold track limits for the time authorized on track or tracks specified, such track or tracks must be occupied continuously, or a main track switch left open.

No movement may be made under this rule until engine-men have received and understand the track and time limits granted.

When requesting track and time limits, employe will state his name, occupation, location and when applicable, train or engine number, and will repeat limits and time granted, to the control operator, who will then give his "OK."

Definition of Low Speed: A speed that will permit stopping short of train, engine, obstruction or switch not properly lined and looking out for broken rail, but not exceeding twenty miles per hour.

RULE 105. MOVEMENT ON OTHER THAN MAIN TRACKS—Trains and engines using a siding, or any track other than a main track, must proceed at Restricted Speed.

Sidings of an assigned direction must not be used in a reverse direction unless authorized by the train dispatcher, or in an emergency under flag protection.

Cars must not be left on sidings when possible to avoid it.

When a siding is obstructed, the train dispatcher must be notified at once.

When there is possibility of fouling main track, trains must not take slack on sidings or other tracks adjacent to main track nor make reverse movement, without proper protection, when necessary.

RULE 402. Track and Time Limits. Trains or engines may occupy the main track or a controlled siding within specified limits for time periods authorized by control operator specifying track and time limits and track or tracks to be used, to be worded, for example: "Track and time limits granted on North Track 1:10 AM until 1:25 AM between north and south switches of AB siding," or "between Signal No. 625 and Signal No. 655."

While occupying track limits within time granted, trains and engines may move in either direction without flag protection, but must move at Low Speed.

A train or engine granted track and time limits, after stopping, may pass a block signal indicating Stop. Proceed at Low Speed.

- (1) To enter track and time limits.
- (2) Within track limits.

SPECIAL INSTRUCTIONS—CARRIZOZO SUBDIVISION

RULE 6-A. Carrizozo: Siding is first track south of Main Track formerly known as No. 1 Track, capacity 5580 feet.

Tucumcari: Track No. 2 from west switch to crossover located east of depot is designated as siding.

RULE 10-J. Speed signs to left of track:

Eastward	Reading
MP 1439.65	50

RULE 83-B. At open train order offices, trains may register by ticket as follows:

Conductors of trains terminating at Alfalfa unit of El Paso yard must leave register ticket with waybills.

RULE 93. Yard limits are established at the following locations:

West MP	East MP
1319.87	El Paso (No. 2 Track)
1291.54	El Paso (No. 1 Track)
	El Paso (Carrizozo Subdivision)
	El Paso (San Antonio Div.)
1301.50	Fort Bliss-Tobin
1343.30	Orogrande
1381.05	Alamogordo
1438.53	Carrizozo
1523.65	Vaughn
1567.79	Santa Rosa
1624.95	Tucumcari

RULE D-97. Applies between Anapra and Tower 47.

RULE 103. Alamogordo: Automatic crossing gates at Eighth St., will operate for continuous movement on main track or siding, but if stop is made within 150 feet of crossing, or movement is slow in switching, crossing must not be obstructed until it is known that crossing gates are down, or traffic has been protected by member of the crew. Movements on Rip No. 4 must not be made over Eighth St. crossing until member of crew has protected traffic at the crossing.

Carrizozo: Stop signs on Avenue E road crossing on No. 2 siding. Trains and engines must stop and not enter crossing until it is known that automatic crossing gates are down.

RULE 104. Tucumcari: Normal position of east switch Track No. 2 is lined for Track No. 2. Variable switch is installed on west end Track No. 2.

Normal position of east end balloon track is lined for No. 2 track. Switch point derail located 100 feet west of east switch No. 2 track.

RULE 221. El Paso (Cotton Ave.) is a train order office for trains operating on the Carrizozo Subdivision.

Train order delivery post for trains originating Alfalfa unit of El Paso Yard is located on east leg of Tucumcari Wye.

Unit for display of flashing light installed at the following locations:

Station	Location	Direction
Vaughn	On mast of Signal 15247	Eastward
Santa Rosa	On mast of Signal 15694	Westward

RULE D-251. Will apply as follows:

On No. 2 Track Anapra to El Paso (Cotton Ave.).

On No. 1 Track El Paso (Cotton Ave.) to Anapra.

On both main tracks between Tower 47 and Alfalfa unit, El Paso yard.

RULE 306. The following home signals equipped with triangular plate bearing the letter "P" have included in their control limits some special protective device. Absolute signals are listed "P-A" or "P-SA."

Eastward Signal	Protection	Westward Signal
P-A	{ Barricade Detector for dead end Streets MP 1298.16	P-12989
P-SA	Spring switch, west end siding, Planeport	
P-12988	{ Barricade detector for dead end streets at MP 1300.20 and MP 1300.37	P-13037
	Spring switch, east end siding, Orogrande.	P-13461
P-13468	High water detector, bridge 1349.60	P-13497
P-13738	High water detector, bridge 1374.15	P-13763
P-13788	High water detector, bridge 1378.96	P-13805
P-13838	High water detector, bridge 1384.35	P-13853
P-13804	High water detector, bridge 1381.50	P-13819
P-13886	High water detector, bridge 1389.06	P-13901
P-13922	High water detector, bridge 1393.43	P-13943
P-13972	High water detector, bridge 1399.23	P-13993
P-13994	High water detector, bridge 1399.61	P-14017
P-14068	High water detector, bridge 1407.15	P-14091
P-14092	High water detector, bridge 1409.75	P-14117
P-14364	High water detector, arch 1436.76	P-14379
P-14540	High water detector, bridge 1453.98	P-14559
P-14788	High water detector, arch 1479.90	P-14805
P-14900	Spring switch, west end siding, Corona	
	Spring switch, east end siding, Corona	P-14911
P-15070	High water detector, bridge 1508.08	P-15091
P-15578	Spring switch, west end siding, Arabella	
	Spring switch, east end siding, Arabella	P-15589
P-15616	High water detector, bridge 1561.65	P-15621
P-15616	Fire detector, bridge 1561.65	P-15621
P-15682	Spring switch, west end siding, Santa Rosa	
	Spring switch, east end siding, Santa Rosa	P-15693
	Spring switch, east end siding, Los Tanos	P-15781
	Spring switch, east end siding, Montoya	P-16073
P-15838	High water detector, bridge 1584.00	P-15855
P-15956	High water detector, bridge 1595.82	P-15969
P-16048	High water detector, bridge 1605.89	P-16063
P-16072	High water detector, bridge 1607.39	P-16087
P-16172	High water detector, bridge 1618.37	P-16197
P-16232	High water detector, bridge 1623.27	P-16249
P-16260	Spring switch, west end yard track, Tucumcari.	

RULE 505. Unless otherwise instructed, eastward trains arriving Tucumcari will use Main Track and westward trains arriving Tucumcari via Mater will use track No. 2.

Trains moving on main track in either direction will move between Southern Pacific MP 1626 and Rock Island MP 637 by block signal indications, which indications will supersede the superiority of trains.

Eastward Searchlight type signal 6380 equipped with flashing white light and must display flashing white light indication before Eastward movement may be made from east end of east lead or track No. 2 to Balloon Track.

Push buttons and pilot lights installed in box mounted on side of signal case, south side of track, opposite signal 6380 and signal 1626 with time-release feature, to clear signals on one track when the control circuit on the other track is occupied.

Push buttons and pilot lights installed in box mounted on side of relay case, north side of track, opposite signal 6379 with time-release feature, to clear signals on one track when the control circuit on the other track is occupied.

Refer to Rule 505, All Subdivisions.

SPECIAL INSTRUCTIONS—CARRIZOZO SUBDIVISION

SPRING SWITCHES

RULE 538. Spring switches equipped with facing point locks are located as follows:

Station	Location	Normal Position
Planeport	West end siding	Main track
Orogrande	East end siding	Main track
Corona	West end siding	Main track
Corona	East end siding	Main track
Arabella	West end siding	Main track
Arabella	East end siding	Main track
Santa Rosa	West end siding	Main track
Santa Rosa	East end siding	Main track
Los Tanos	East end siding	Main track
Montoya	East end siding	Main track
Tucumcari	West end yard track	Main track
Tucumcari	East end yard track	No. 2 track

LETTER-TYPE INDICATORS

RULE 705. Indicators located as follows:

Illum. Letter	On Signal	Approaching	Authorizes and Requires Movement as follows:
M	13022	Planeport	Proceed to east end siding.
S	13022	Planeport	Enter siding.
M	13039	Planeport	Proceed to west end siding.
S	13039	Planeport	Enter siding.

Refer to Rule 705, All Subdivisions

ABSOLUTE-PERMISSIVE BLOCK

RULE 740. Limits extend between MP 1297.6 (east limit Tower 47), El Paso, and MP 1302.2 (west end siding), Planeport.

RULE 741. When absolute signal at either end of A-PB displays stop indication, train or engine must obtain authority from operator at Tower 47 to proceed. If signal cannot be cleared and there is no opposing train or engine causing signal to display stop indication, operator Tower 47 may authorize train or engine to proceed on main track to limit of A-PB as prescribed by Rule 507.

Trains or engines must not enter main track or use main track switches within A-PB limits without first obtaining permission from operator Tower 47.

If, for any reason, proceed indication of absolute signal cannot be acted upon at once, operator Tower 47 must be notified immediately.

Rule 744 will not apply within these limits.

GENERAL REGULATIONS

RULE 825. Portable rail skids are hung on posts at east end of siding at:

Arabella and Ancho and in telephone booth at east siding Hargis.

Portable rail skids are hung on post 100 feet east of stock pens on north side at Gallinas.

Refer to Rule 825 All Subdivisions.

RULE 827. DRAGGING AND/OR DERAILED EQUIPMENT DETECTORS AND INDICATORS INSTALLED AT THE FOLLOWING LOCATIONS:

MP	Location
*1305.9	Planeport-Newman
1321.2	Newman-Desert
*1327.2	Newman-Desert
1352.9	Dunes-Orogrande
*1380.4	Omlee-Alamogordo
1398.8	Alamogordo-Three Rivers
1428.5	Three Rivers-Polly
1457.6	Robsart-Ancho
*1476.5	Ancho-Callinas
1502.6	Corona-Vaughn
1551.4	Pastura-Arabella

*Revolving red light mounted on Hot Box Detector Instrument house.

LOOSE WHEEL DETECTOR

MP	Direction
1305.9	Westward

Train crew members must observe white light on side of hot box scanner house at MP 1305.9. If white light is observed flashing, train must be brought to a stop and El Paso Tower yardmaster contacted to the type of indication and location of indication in train.

HOT BOX DETECTORS

SCANNER SITES

MP	Type	Direction(s)	Location
1305.9	D	West	*Newman-Planeport
1305.9	C	Both	Newman-Planeport
1327.2	C	Both	Newman-Desert
1380.4	C	Both	Omlee-Alamogordo
1407.20	C	Both	Three Rivers
1445.6	C	Both	Robsart-Carrizozo
1476.5	C	Both	Ancho-Gallinas
1530.3	C	Both	Vaughn-Leoncito
1563.4	C	Both	Arabella-Santa Rosa
1589.6	C	Both	Cuervo-Newkirk
1622.6	D	East	**Hargis-Tucumcari

*Readout at El Paso Yard.

**Readout at Tucumcari Yard.

Refer to Rule 827, All Subdivisions.

RULE 827-A. Westward trains handling tank cars containing Flammable Compressed Gas will stop at Newman and inspect train.

Refer to Rule 827-A, All Subdivisions.

RULE 872. Tucumcari and El Paso: Enginemen taking charge of engines will consider engines as having been amply supplied with water, fuel, sand and other supplies.

AIR BRAKE RULES

RULE 2. Taking Charge of Engines.

Section A, will apply at:

Tucumcari and El Paso.

RULE 17. Refer to All Subdivisions.

RULE 21. Refer to All Subdivisions.

RULE 24. Will apply at El Paso.

MISCELLANEOUS

1. Alamogordo: On track serving Holloman Air Force Base cars must not be moved beyond derail located 4975 feet from main track switch without proper authority.

2. Bunsen: Only one (1) single engine, not exceeding four (4) axles, may be used when switching on spur tracks diverging from the industrial drill track.

3. LOAD LIMIT (car and contents):

El Paso-Tucumcari, except 263,000 pounds

Gross weight of 263,000 pounds or less applies to uniformly loaded four-axle cars having trucks spaced 23 feet 0 inches or more center to center and minimum axle spacing of 5 feet 6 inches.

Gross weight uniformly loaded four-axle cars with minimum axle spacing of 6 ft. 0 in. and minimum distance 37 ft. 0 in. center to center of trucks; also, wheels 38 in. or more in diameter 315,000 pounds

El Paso-Tucumcari

Air dump cars SPMW 6400-6439 263,000 pounds

Unless authorized by Superintendent, heavier loads must not be handled.

4. SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS With Caution
Not Exceeding
MPH

Through sidings, yard and other tracks, wyes, balloon tracks, slip switches, crossovers and turnouts 10

Except:

Planeport	20
Alamogordo	20
Orogrande	20
Gallinas	20
Tucumcari No. 2 track departing to main track via east or west lead	30
From main track No. 20 turnout, to west lead to No. 2 track	30
From main track No. 20 turnout, to east lead to No. 2 track	20

SPEED RESTRICTIONS FOR TRAINS: Maximum speed of trains in territory shown below is subject to further restrictions applicable to engines in the train as shown in **SPEED RESTRICTIONS FOR ENGINES** appearing on pages 16 and 17 and **MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT**, appearing on page 19 of Timetable for All Subdivisions. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions herein, or by timetable bulletin.

EASTWARD		ALL TRAINS	WESTWARD		ALL TRAINS
MP	MP		MP	MP	
EL PASO to TUCUMCARI:			TUCUMCARI to EL PASO:		
1295.40 to 1297.76		15	1627.40 to 1626.00	30	
except via slip switch opposite Tower 47		10	1626.00 to 1561.81	55	
1297.76 to 1298.83		25	1561.81 to 1555.00	40	
1298.83 to 1302.18		45	1555.00 to 1531.80	55	
1302.18 to 1400.00		50	1531.80 to 1528.55	50	
1400.00 to 1432.10		55	1528.55 to 1519.85	55	
1432.10 to 1434.72		50	1519.85 to 1514.10	40	
1434.72 to 1463.70		55	1514.10 to 1492.00	55	
1463.70 to 1473.85		45	1492.00 to 1487.60	40	
1473.85 to 1487.60		55	1487.60 to 1473.85	55	
1487.60 to 1492.00		40	1473.85 to 1463.70	45	
1492.00 to 1514.10		55	1463.70 to 1434.72	55	
1514.10 to 1519.85		40	1434.72 to 1432.10	50	
1519.85 to 1528.55		55	1432.10 to 1400.00	55	
1528.55 to 1531.80		50	1400.00 to 1302.18	50	
1531.80 to 1555.00		55	1302.18 to 1298.83	45	
1555.00 to 1561.81		40	1298.83 to 1297.76	25	
1561.81 to 1626.00		55	1297.76 to 1295.40	15	
1626.00 to 1627.40		30	except via slip switch opposite Tower 47	10	

Trains handling tank cars containing Flammable Compressed Gas must not exceed 55 MPH. Where maximum authorized speed is less than 55 MPH and more than 25 MPH, train must be operated at 5 MPH less than maximum authorized speed and departing Tucumcari Yard from MP 1627.70, East Switch at Tucumcari, to the West Switch at Tucumcari, MP 1626, must not exceed 15 MPH nor must not exceed 30 MPH at the following locations:

- Santa Rosa Between MP 1569 and MP 1568
- Carrizozo Between MP 1440.5 and MP 1439.5
- Alamogordo Between MP 1384 and MP 1382

and are further restricted to 20 MPH between MP 1303 and MP 1298 and to 10 MPH between Tower 47 and MP 1298.

Tucumcari: Trains arriving will reduce speed to 10 MPH prior to passing initial switch to permit rolling inspection by car inspectors.

THE HISTORY OF THE UNITED STATES

CHAPTER I
THE EARLY HISTORY OF THE UNITED STATES

The first European settlers in North America were the Spanish, who discovered the continent in 1492. They established colonies in Florida, the Southwest, and the Caribbean. The English followed in 1607, settling Jamestown in Virginia. Other English colonies were founded in New England and the Middle Atlantic region.

The colonies grew in population and economic power. They developed a sense of independence from British rule. Tensions increased over issues such as taxation and trade restrictions. The American Revolution broke out in 1775, leading to the Declaration of Independence in 1776.

The new nation faced many challenges, including the need for a strong central government. The Constitution was drafted in 1787 and ratified in 1789. The early years of the republic were marked by political instability and the struggle between Federalists and Republicans.

CHAPTER II
THE AMERICAN REVOLUTION

The American Revolution was a war for independence from Great Britain. It began in 1775 and ended in 1783. The Continental Army, led by George Washington, defeated the British at the Battle of Yorktown.

The Revolution had a profound impact on the young nation. It established the principle of self-government and inspired other nations to seek independence. The Constitution was a direct result of the Revolution.

The Revolution also led to the development of a national identity. Americans began to see themselves as a distinct people, separate from the British. This sense of identity was crucial for the success of the new nation.

The American Revolution was a turning point in the history of the United States. It marked the beginning of a new era of self-determination and democratic governance. The principles established during the Revolution continue to guide the nation today.

The American Revolution was a struggle for freedom and justice. It was a fight for the right of people to govern themselves. The success of the Revolution was a testament to the power of the American people.

RULE 10-I

Oral authorization and acknowledgments between Foremen and Engineers for trains to pass "Red Conditional Stop" signs must be worded in the following forms:

"SP FOREMAN AT MP CALLING SP (Train No.)"

(After train answers giving his identification):
(i. e.) SP Train

Foreman's Response

"THIS IS SP FOREMAN . . . IN CHARGE OF THE WORK BETWEEN MP . . . AND MP SP TRAIN ORDER NO. . . . WE ARE IN THE CLEAR AND YOU MAY PROCEED PAST THE RED CONDITIONAL STOP SIGN AND THROUGH THE LIMITS OF ORDER AT MPH, REPEAT MPH"*

Engineer's Response

"THIS IS ENGINEER SP TRAIN I MAY PROCEED PAST THE RED CONDITIONAL STOP SIGN AND THROUGH THE LIMITS OF ORDER NO. . . . BETWEEN MP . . . AND MP . . . AT (Speed). REPEAT (Speed) MILES PER HOUR."

Foreman must acknowledge Engineer's response as follows:

"SP TRAIN ORDER NO. , BETWEEN MP AND MP MPH* OK."

*When no speed restriction account above Form "Y" Train Order, tell train engineer "At Maximum Authorized Speed."

Oral authorization and acknowledgments between Foremen and Engineers for trains to pass "Red Conditional Stop" signs in multiple main track territory must be worded in following forms:

Foreman's Response

"THIS IS SP FOREMAN IN CHARGE OF THE WORK BETWEEN MP AND MP SP TRAIN ORDER NO. . . . WE ARE IN THE CLEAR OF TRACK . . . AND YOU MAY PROCEED PAST THE RED CONDITIONAL STOP SIGN ON TRACK . . . AND THROUGH THE LIMITS OF ORDER AT MPH, REPEAT MPH."

Engineer's Response

"THIS IS ENGINEER SP TRAIN I MAY PROCEED PAST THE RED CONDITIONAL STOP SIGN AND THROUGH THE LIMITS OF ORDER NO. . . . ON TRACK BETWEEN MP AND MP AT (Speed). REPEAT (Speed) MILES PER HOUR."

Foreman must acknowledge Engineer's response as follows:

"SP TRAIN ORDER NO. ON TRACK , BETWEEN MP AND MP MPH OK."

SPEED TABLE

TIME PER MILE	MILES PER HOUR
36"	100
37"	97.3
38"	94.7
39"	92.3
40"	90
41"	87.8
42"	85.7
43"	83.7
44"	81.8
45"	80
46"	78.3
47"	76.6
48"	75
49"	73.5
50"	72
51"	70.6
52"	69.2
53"	67.9
54"	66.7
55"	65.5
56"	64.3
57"	63.2
58"	62.1
59"	61
1'00"	60
1'01"	59
1'02"	58.1
1'03"	57.1
1'04"	56.2
1'05"	55.4
1'06"	54.5
1'07"	53.7
1'08"	52.9
1'09"	52.2
1'10"	51.4
1'11"	50.7
1'12"	50
1'13"	49.3
1'14"	48.6
1'15"	48
1'16"	47.4
1'17"	46.8
1'18"	46.2
1'19"	45.6
1'20"	45
1'25"	42.4
1'30"	40
1'35"	37.9
1'40"	36
1'45"	34.3
1'50"	32.7
1'55"	31.3
2'00"	30
2'15"	26.7
2'30"	24
2'45"	21.8
3'00"	20
3'30"	17.1
4'00"	15
5'00"	12
6'00"	10
7'00"	8.6
7'30"	8
8'00"	7.5
10'00"	6