

**DO IT THE SAFE WAY  
—OR DON'T DO IT**

**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:

**NWP FOREMAN..... AT MP..... CALLING NWP EXTRA.....**

(After train answers giving his identification): (i.e.) **NWP EXTRA.....**

**Foreman's Response**

**"THIS IS NWP FOREMAN..... IN CHARGE OF THE WORK BETWEEN MP..... AND MP..... NWP 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 NWP EXTRA... 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:  
**"NWP 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."

**SPEED TABLE**

TIME PER MILE	MILES PER HOUR
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

**NORTHWESTERN PACIFIC  
RAILROAD COMPANY**

**AND  
PETALUMA AND  
SANTA ROSA RAILROAD  
COMPANY**



**TIMETABLE**

**5**

**EFFECTIVE SUNDAY, APRIL 24, 1977**

**AT 12:01 A. M.**

**PACIFIC STANDARD TIME**

**FOR THE GOVERNMENT AND INFORMATION  
OF EMPLOYEES ONLY**

**W. M. JONES,**

*Vice President and General Manager.*

**H. B. FOWLER,**

*District Superintendent.*

**TRAINMASTER  
ROAD FOREMAN OF ENGINES**

**J. D. LEWIS.....Willits**

**TRAINMASTERS**

**M. P. FORD.....Eureka**

**G. E. BOSWELL.....Santa Rosa**

**CHIEF TRAIN DISPATCHERS**

**C. L. KENNEDY.....Roseville**

**D. E. SORENSEN.....Roseville**



# PETALUMA AND SANTA ROSA RAILROAD COMPANY

## TIMETABLE NO. 5, APRIL 24, 1977

EAST- WARD	STATIONS AND FACILITIES	Station Number	WEST- WARD
Mile Post Location			Distance from End of Track
0.0	<b>PETALUMA</b>	24220	3.6
NWP 38.5	0.4 BKPQ <b>PETALUMA-NWPRR</b>	24220	
0.4	<b>JUNCTION WEST PETALUMA BRANCH</b>	24315	3.2
NWP 39.2	0.2 <b>PARK SIDING-NWPRR</b>	24241	3.0
3.6	3.0 <b>END OF TRACK</b>	24332	0.0
	(3.6)		
			Distance from Sagu
11.3	<b>TURNER</b>	24334	10.3
15.4	4.1 <b>BASSETT</b>	24343	6.2
16.7	1.3 <b>SEBASTOPOL</b>	24345	4.9
19.0	2.3 <b>MOLINO</b>	24350	2.0
19.6	0.6 <b>BARLOW</b>	24352	2.0
20.9	1.3 <b>GRATON</b>	24355	0.7
21.5	0.6 <b>MANZANA</b>	24357	0.1
21.6	0.1 <b>SAGU</b>	24358	0.0
	(10.3)		
Mile Post Location	Santa Rosa Branch	Station Number	Distance from Santa Rosa
16.7	<b>SEBASTOPOL</b>	24345	6.6
20.2	3.5 <b>LEDDY</b>	24375	3.1
23.3	3.1 <b>SANTA ROSA</b>	24410	0.0
NWP 53.8	BKPQ <b>SANTA ROSA NWPRR</b>	24410	
	(6.6)		
Mile Post Location	West Petaluma Branch	Station Number	Distance from West Petaluma
0.4	<b>JUNCTION WEST PETALUMA BRANCH</b>	24315	0.9
1.3	0.9 <b>WEST PETALUMA</b>	24321	0.0
	(0.9)		

### SPEED RESTRICTIONS

Movements must not exceed the following maximum speeds (shown in miles per hour):

Between:

Turner and MP 15.5	10
MP 15.5 and Sagu	15
Petaluma, West Petaluma and End of Track	10
Santa Rosa and Sebastopol	15

Through sidings, yard and other tracks,  
crossovers and turnouts

## SPECIAL INSTRUCTIONS

**RULE A.** The P&SR operates under the Rules and Regulations of the Transportation Dept. of the NWP.

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

### **RULE 10-H. EXCEPTION:**

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 16.25	10

### **RULE 15. EXCEPTION:**

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

### **RULE 93.** Yard limits are established to include all tracks.

**RULE 103. West Petaluma:** Warning devices at Washington Street are not actuated for movement until equipment is within 50 feet of crossing. Trains and engines must not proceed over crossing until warning devices have been operating 20 seconds. Equipment must not be left standing on track within 100 feet of the crossing.

**Petaluma:** Switching movements over Washington Street must not be made until a member of the crew has provided warning to traffic.

Uncontrolled movement of cars over this crossing is prohibited.

**Bassett:** Warning devices at grade crossing No. 67-14.7 are not actuated until equipment is within 50 feet of crossing. Movement must not be made past stop signs until warning devices have been operating 20 seconds.

**End of Track:** Warning devices at grade crossing No. 67-3.1 are not actuated until equipment is within 50 feet of crossing. Movement must not be made past stop signs until warning devices have been operating 20 seconds.

**Sebastopol:** Movements over Bodega-Santa Rosa Ave. must not enter the crossing until traffic signal on Main St. displays flashing yellow signal. When flashing yellow light is displayed and movement does not enter crossing within 1½ minutes, crossing must not be entered until traffic light displays green aspect for Main St. traffic.

Trains and Engines must stop before crossing Sebastopol Avenue and then proceed over crossing with caution.

### MISCELLANEOUS

**1.** All engines are restricted from operating on the PSR except the following: ES408, ES409, ES415, AS407, AS409, AS410 and GS407.

**2. Sebastopol:** Chain across main track must be replaced after movement is completed.

**3. LOAD LIMIT (car and contents):**

Petaluma-End of Track	263,000 pounds
West Petaluma-Park Siding	220,000 pounds
Turner-Sagu	220,000 pounds
Santa Rosa-Leddy	263,000 pounds
Leddy-Sebastopol	220,000 pounds

# NORTHWESTERN PACIFIC TIMETABLE NO. 5, APRIL 24, 1977

EAST- WARD	STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	WEST- WARD
Mile Post Location			Distance from Eureka
40.4	Yd Lmts R <b>SCHELLVILLE</b> BY	23730	273.1
	11.6 IPQ		
28.8	TO <b>BLACK POINT</b>	24043	261.5
25.6	Yd Lmts R <b>IGNACIO</b> YP	24050	258.3
25.8	6078 5.5		
31.3	<b>BURDELL</b>	24209	252.8
	4354 Yd Lmts 7.2 BKIPQ		
38.5	TO-R <b>PETALUMA</b>	24220	245.8
	5574 Yd Lmts 15.3 BKYPQ		
53.8	TO-R <b>SANTA ROSA</b>	24410	230.3
	3638 Yd Lmts 14.2 BKYPQ		
68.0	TO-R <b>HEALDSBURG</b>	24441	216.1
	6492 Yd Lmts 7.8 P		
75.8	<b>GEYSERVILLE</b>	24454	208.3
	9.4 P		
85.2	<b>CLOVERDALE</b>	24463	198.9
	4175 14.9 P		
100.1	<b>HOPLAND</b>	24473	184.0
	Yd Lmts 13.9 BKYPQ		
114.0	TO-R <b>UKIAH</b>	24479	170.1
	6993 Yd Lmts 8.1 P		
122.1	<b>REDWOOD VALLEY</b>	24486	162.0
	Yd Lmts 17.4 BKYPQ		
139.5	TO-R <b>WILLITS</b>	24500	144.6
	6501 13.0		
152.5	<b>LONGVALE</b>	24533	131.6
	1360 5.6		
158.1	<b>FARLEY</b>	24538	126.0
	1050 17.4		
175.5	<b>NASHMEAD</b>	24557	108.6
	Yd Lmts 19.0 PQ		
194.5	<b>ISLAND MOUNTAIN</b>	24607	89.6
	7060 Yd Lmts 22.1 PQ		
216.6	<b>FORT SEWARD</b>	24632	67.5
	2939 20.7		
237.3	<b>SOUTH FORK</b>	24705	46.8
	3628 18.3 B		
256.6	R <b>SCOTIA</b>	24729	28.5
	1613 7.1		
262.7	R <b>ALTON</b>	24740	21.4
	3711 1.8		
264.5	<b>ROHNERVILLE</b>	24805	19.6
	1800 4.2		
268.7	<b>FERNBRIDGE</b>	24815	15.4
	3890 9.1		
277.8	<b>SOUTH BAY</b>	24831	6.3
	Yd Lmts 6.3 BKYPQ		
284.1	TO-R <b>EUREKA</b>	24840	0.0
	(273.1)		

EAST- WARD	STATIONS SIDING CAPACITIES AND FACILITIES	Station Number	WEST- WARD
Mile Post Location			Distance
<b>San Rafael Branch</b>			
14.3	Yard Limits	<b>DETOUR</b> 2.7 Y	24110 11.5
17.0		<b>SAN RAFAEL</b> 8.8 YP	24105 8.8
25.8		<b>IGNACIO</b>	24050 0.0
(11.5)			
<b>Sonoma Branch</b>			
44.2	Yd. Limits	<b>SEBASTIANI</b> 3.8 BY	24003 3.8
40.4		<b>SCHELLVILLE</b> 3.8	23730 0.0
<b>Carlotta Branch</b>			
262.7	1613 R	<b>ALTON</b> 5.0	24740 5.0
267.7		<b>CARLOTTA</b> (5.0)	24745 0.0
<b>Korblex Branch</b>			
284.1	Yard Limits	<b>EUREKA</b> 8.4 Y BKYPQ	24840 11.1
292.5		<b>ARCATA</b> 2.7	24920 2.7
295.2		<b>KORBLEX</b> (11.1)	24930 0.0
<b>Samoa Branch</b>			
292.5	Yd. Limits	<b>ARCATA</b> 8.0 Y	24920 8.0
300.5		<b>SAMOA</b> (8.0)	24950 0.0

ADDITIONAL STATIONS			
Capacity and Direction of Entry into Spurs	Mile Post	NAME	Station No.
	900W	Novato.....(Spur)	24205
	2463	Park Siding.....	2424
	460W	Crown.....(Spur)	24244
	780E	Cotati.....(Spur)	24251
	375W	Wilfred.....(Spur)	24254
	250E	Todd.....(Spur)	24257
	390W	Fulton.....(Spur)	24426
	1126	Windsor.....(Spur)	24432
	407W	Grant.....(Spur)	24436
	1169E	Lytton.....(Spur)	24450
	1840	Asti.....	24459
	800E	Calpella.....(Spur)	24484
	502W	Laughlin.....(Spur)	24488
	320	Ridge.....	24493
	1835	Dos Rios.....	24497
	630	Bell Springs.....	24565
	220W	Alderpoint.....(Spur)	24623
	2416	Glynn.....	24727
		Yoder Jet.....	24731
	942E	Stone.....	24737
	1148	Fortuna.....	24810
	440W	Loleta.....(Spur)	24818
		<b>San Rafael Branch</b>	
	385W	Greenbrae.....(Spur)	24109
		<b>Sonoma Branch</b>	
	183E	Vineburg.....(Spur)	24008

**RULE 5. Schellville:** Time applies at east switch.

**Willits:** Time applies for trains via Longvale at MP 141.35 (just west of Highway 101 crossing).

**Eureka:** Time applies at west switch to train yard MP 282.1.



**SPECIAL INSTRUCTIONS—NORTHWESTERN PACIFIC**

**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.

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

MP	Location	Description
37.8	Schellville	Bridge . . . . . Side
28.5	Black Point	Drawbridge . . . . . Side
37.2	Petaluma	Drawbridge Overhead and side
68.0	Healdsburg	Steel bridge over Russian River . . . . . Side

**RULE 1.** Until further advised that equipment has been installed for purpose of setting "Standard Clocks," standard time will temporarily continue to be obtained, as in the past from authorized observatory through time checks.

**RULE 4-B. Scotia:** Bulletins will be posted and maintained in cabooses.

**RULE 10-H. EXCEPTIONS:**

- On the San Rafael Branch
- Sonoma Branch
- Carlotta Branch
- Korblex Branch
- Samoa Branch

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

**RULE 10-J.** First sentence second paragraph is revised to read:

Speed signs that prescribe reduction in speed will be located one and one-half miles from initial point of restriction, and where used to authorize increase in speed will be located at point where higher speed commences.

**Speed signs to left of track:**

Westward	Reading
MP 264.25	35
MP 113.50	30
Eastward	Reading
MP 54.45	40

**RULE 15. EXCEPTIONS:**

- On the San Rafael Branch
- Sonoma Branch
- Carlotta Branch
- Korblex Branch
- Samoa Branch

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

**RULE 17-D. 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 S-72.** Westward trains are superior to trains of the same class in the opposite direction.

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

West MP		East MP
14.33	Detour (San Rafael Branch) . . . . .	Ignacio 25.82
26.80	Ignacio . . . . .	27.05
44.25	Sebastiani (Sonoma Branch) . . . . .	Schellville 38.25
40.38	Schellville . . . . . (SP Schellville Branch)	71.25
36.38	Petaluma . . . . .	40.30
53.00	Santa Rosa . . . . .	56.56
64.98	Healdsburg . . . . .	69.71
74.26	Geyserville . . . . .	78.39
111.67	Ukiah . . . . .	116.10
120.21	Redwood Valley . . . . .	122.39
137.90	Willits . . . . .	141.40
193.94	Island Mountain . . . . .	195.62
214.25	Fort Seward . . . . .	218.50
280.56	Eureka . . . . .	End Korblex Branch
292.84	Arcata (Samoa Branch) . . . . .	End of Branch

**RULE 99-C.** Will apply between Redwood Valley and Eureka.

**RULE 103.** A grade crossing which is blocked by a stopped train, other than a passenger train, must be opened within ten minutes, unless no vehicle or pedestrian is waiting at the crossing. Such a cleared crossing must be left open until it is known that train is ready to depart. When recoupling, trains shall be moved promptly consistent with safety.

Switching movements over grade crossings should be avoided whenever reasonably possible. If not reasonably possible, such crossings must be cleared frequently to allow a vehicle or pedestrian to pass and must not be occupied continuously for longer than ten minutes unless no vehicle or pedestrian is waiting at the crossing.

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.

Crew member of a train blocking a 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.

**CROSSING GATES EQUIPPED WITH KEY RELEASE:**

Station	Location	Mile Post
*Santa Rosa	Third Street	53.7
**Ukiah	Perkins Street	114.0

\*May be operated for movements from other than main track by operating key release on side of instrument case on east side of crossing and on relay post on west side of crossing.

\*\*May be operated for movement over Track 614 by operating key release on relay post on west side of crossing.

Switch key may be removed but circuit must be occupied within one minute or gate will rise.

**San Rafael:** Pedestrian crosswalk located at Los Gallinas Avenue, MP 19.3, must not be blocked by standing trains or cars.

**Vineburg:** Warning devices at crossing No. 5H-42.3 are not actuated until equipment is within 50 feet of crossing. Movement must not be made past stop sign until warning devices have been operating 20 seconds.

**Alton:** Warning devices at crossing No. 5R-262.85, on Carlotta Branch, are not actuated until equipment is within 50 feet of crossing. Movement must not be made past stop sign until warning devices have been operating 20 seconds.

**RULE 104. Alton:** Normal position of Jct. switch of Carlotta Branch is for siding.

**Carlotta:** Normal position of Jct. switch is for NWP track.

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

**RULE 105. Burdell:** Eastward Trains will use Siding at Mile Post 31.3.

At the following stations, sidings are located as shown below:

**Santa Rosa:** On east side of main track, from East Switch MP 54.97 to MP 53.85 (10 feet east of Sixth St.).

**Healdsburg:** On east side of main track, from east switch MP 67.40 (10 feet west of Bailhache Ave.) to west switch.

**RULES 201 and 221-A.** Train orders will be issued by authority and over initials of Chief Train Dispatcher C. L. Kennedy and OK'd clearances must bear initials of Chief Train Dispatcher C. L. Kennedy.

**RULE 206.** Will not apply to Southern Pacific engines.

**RULE 211(c). Is revised to read:**

Oral authority to engineer of closely approaching train as follows:

"This is N.W.P. Operator (station). I have a Form 'N' train order to advance (train) on main track."

**RULE 221.** Unit for display of flashing light installed at the following locations:

Station	Location	Direction
Petaluma	East end siding	Eastward trains
Healdsburg	West end siding	Eastward trains

**Black Point** is train-order office for eastward trains only.

**Santa Rosa** is train-order office for trains originating and terminating between 12:01 AM and 5:59 PM only.

**RULE S-240. MOVEMENTS OF TRAINS BY STAFF SYSTEM**

Applies at following location:

Territory	Register Location
Alton to Carlotta	Alton

When engine is changed before completion of a trip, crew must indicate on train register that trip was originated with Engine No. .... and completed with Engine No. ....

**RULE S-244.** At locations where movement of extra trains or engines are authorized by use of train register, all lines of each page of the train register must be used and filled in before turning and starting a new page.

**SPRING SWITCHES**

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

Location	Normal Position
Burdell	West Switch
Burdell	East Switch
Geyserville	East Switch
Redwood Valley	East Switch

**RULE 540.** Switch point indicator, indicating position of switch for facing point movement at above locations, are located from 25 to 100 feet in approach to switch.

**INTERLOCKING**

**RULE 606. Black Point Drawbridge:** Limits extend from eastward signal at MP 29.01 to westward signal at MP 28.70.

**Petaluma Drawbridge:** Limits extend from eastward signal at MP 37.10 to westward signal at MP 37.30.

**GENERAL REGULATIONS**

**RULE 825.** 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 that hand brake has been released.

At Willits train crews must not release hand brakes until engine is coupled and brake pipe is charged.

Rail skids are located at Ridge and Rounds lumber company spur.

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.

Cars set out on grade with defective hand brake must have another car with hand brake applied placed below and against the bad order car.

**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, 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.

**Dragging and/or derailed equipment detector and indicator installed at the following locations:**

MP	Direction(s)	Location
28.0	Both	Black Point
72.0	Both	Lytton
258.7	Both	Stone
273.9	Both	Loleta-South Bay

#### 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 tempilstik 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

Crew members are to be familiar with the locations of these detectors:

##### SCANNER SITES:

MP	Direction(s)	Location
48.9	Both	Wilfred
256.0	Both	Scotia

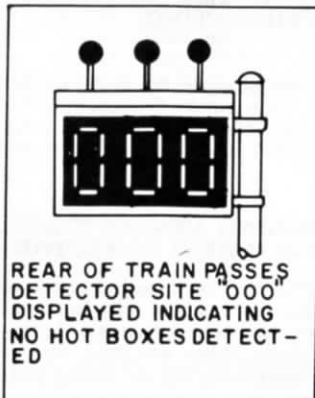
Hot box detector scanner sites have a white light continuously displayed on track side of instrument house, except when a hot bearing is detected, at which time light will start flashing. Crew members must be alert for the light and, when flashing, conductor and engineer must immediately orally compare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

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

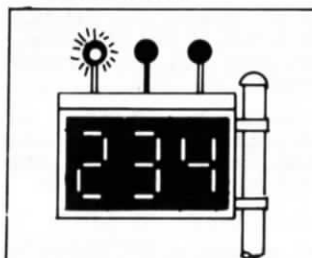
#### TYPE C. MONITOR DISPLAY BOARD WITH INDICATOR LIGHTS.

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.

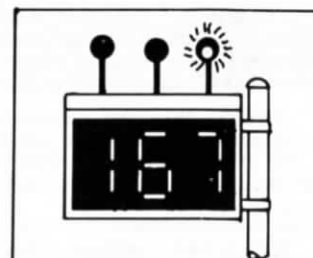
Absence of any numerical display after passage of a train must be promptly reported to train dispatcher.



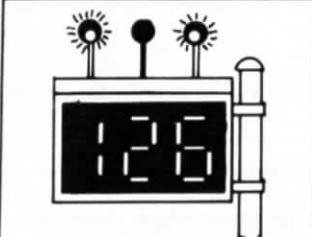
The indicator lights are normally dark, but when hot bearing is detected, will display flashing white aspect as illustrated below:



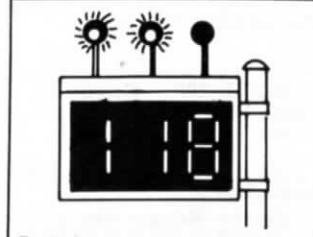
ONE HOT BOX ON RIGHT SIDE OF TRAIN IN DIRECTION OF MOVEMENT. AXLE COUNT (234) FROM REAR OF TRAIN. INSPECT ALL BEARINGS OF CAR INDICATED AS WELL AS EACH ADJOINING CAR.



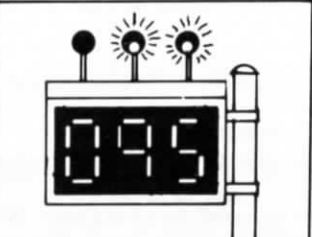
ONE HOT BOX ON LEFT SIDE OF TRAIN IN DIRECTION OF MOVEMENT. AXLE COUNT (167) FROM REAR OF TRAIN. INSPECT ALL BEARINGS OF CAR INDICATED AS WELL AS EACH ADJOINING CAR.



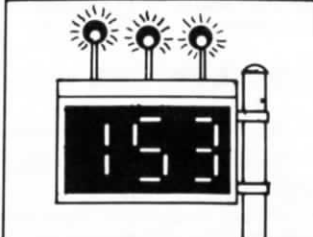
ONE HOT BOX EACH SIDE OF SAME AXLE COUNT (126) FROM REAR OF TRAIN. INSPECT ALL BEARINGS OF CAR INDICATED AS WELL AS EACH ADJOINING CAR.



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.

**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 H.B. 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.

**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. 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	Difluoroethane
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 872. Eureka, Willits and Schellville:** Engine-men taking charge of engines at Eureka, Willits and Schellville will consider engines as having been amply supplied with fuel, sand and equipped with prescribed signals, tools, supplies and flagging equipment in serviceable condition.

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

**RULE 958. First paragraph is revised to read:**

Employes shall identify the radio station from which they are calling by prefacing their call with the railroad name, for example: 'NWP Caboose Train Second 802 calling NWP Engine Second 802, over' and to answer a call, announce, for example: 'This is NWP Caboose, Train Second 802, over.'

**AIR BRAKE RULES**

**RULE 3.** A full independent brake application on road engine classes EP636, GF628, EF630, EF636, EF642, GF630, GF633, and EF623 results in a brake cylinder pressure of 72 lbs. This brake cylinder pressure must be maintained to provide required braking power at very low speeds 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 463500-463999	Hoppers (Open Top)
SP 464000-464899	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

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

**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.

**Retaining valves must be used on freight and mixed trains on descending grades as follows:**

Redwood Valley to Willits  
Willits to Redwood Valley

**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 10 MPH.

**With dynamic brake in operation:**

Permissible Tons Per Unit  
Without Retaining Valves

	Basic Dynamic Brake		
	4-Axle	6-Axle	8-Axle
With dynamic brake in operation but WITHOUT pressure maintaining system of braking:			
Redwood Valley to Willits.....	525	800	
Willits to Redwood Valley.....	375	550	
	Extended Range Dynamic Brake		
	4-Axle	6-Axle	8-Axle
With dynamic brake in operation but WITHOUT pressure maintaining system of braking:			
Redwood Valley to Willits..	675	1000	1325
Willits to Redwood Valley..	450	675	900
	Basic Dynamic Brake		
	4-Axle	6-Axle	8-Axle
With dynamic brake in operation and WITH pressure maintaining system of braking:			
Redwood Valley to Willits.....	1600	2400	
Willits to Redwood Valley.....	800	1200	
	Extended Range Dynamic Brake		
	4-Axle	6-Axle	8-Axle
With dynamic brake in operation and WITH pressure maintaining system of braking:			
Redwood Valley to Willits..	2000	3000	4000
Willits to Redwood Valley..	1000	1500	2000

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



**RULE 25-B.** When radio communication is available, employe at rear of train will notify road engineer the amount of air pressure as indicated on the caboose gauge approximately one mile before reaching Ridge.

When helpers are employed and radio communication is available, they will also notify road engineer the brake pipe pressure and speedometer reading as shown on the helper unit.

**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. Redwood Valley-Willits:**

Maximum tons per operative brake—80 tons except with not more than 200 tons per axle of dynamic brake, pressure maintaining system of braking in operation and speed not exceeding 15 MPH.....110 Tons.

Should dynamic brake failure occur while handling in excess of 80 tons per operative brake train may proceed at speed not exceeding 10 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.

**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	65,000
RS 32	AS420	63,750
C 630	AS600	102,000
RSD 15	AS624	92,500
C 628	AS628	97,750
C 630	AS630	101,000
GP 9	EF418	64,200
GP 20	EF420	65,100
GP 30	EF423	66,100
GP 35	EF425	66,000
GP 40	EF430	67,560
SD 9	EF618	89,700
SD 39	EF623	104,150
SD 35	EF625	95,540
SD 40	EF630	102,750
SD 40-2	EF630	102,100
SD 45	EF636	103,470
SD 45-2	EF636	102,600
SD 45X	EF642	103,240
DD 35	EF850B	131,750
GP 40P2	EP430	70,200
SDP 45	EP636	102,500
SW 1200	ES412	62,250
SW 1500	ES415	65,000
MP 15	ES415	65,400
SD 7	ES615	82,500
SD 38	ES620	104,000
U 25 B	GF425	67,800
U 28 B	GF428	67,890
U 28 C	GF628	103,120
U 30 C	GF630	104,850
U 33 C	GF633	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.

**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**

Willits-Redwood Valley (W).....	4,800
Redwood Valley-Willits (E).....	3,000

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

**TERRITORY**

Willits-Redwood Valley (W).....	4,080
Redwood Valley-Willits (E).....	2,550

**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 (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 =  

$$\frac{13500}{2.017} = 6693 \text{ tons}$$

Swing helper will handle 6693 tons (total)

$$(4) \text{ To determine } 1/3 \text{ of swing helper tonnage} = \frac{6693}{3} = 2231 \text{ tons}$$

Swing helper will shove 2231 tons

$$(5) \text{ To determine } 2/3 \text{ of swing helper tonnage} = 2231 \times 2 = 4462 \text{ tons}$$

Swing helper will pull 4462 tons

$$(6) \text{ Divide rear helper horsepower by HP/T factor} = \frac{4800}{2.017} = 2380 \text{ tons}$$

Rear helper will handle 2380 tons (total)

$$(7) \text{ To determine } 1/3 \text{ of rear helper tonnage} = \frac{2380}{3} = 793 \text{ tons}$$

Rear helper will shove 793 tons.

$$(8) \text{ To determine } 2/3 \text{ of rear helper tonnage} = 793 \times 2 = 1586 \text{ tons}$$

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.
- 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) Between Eureka and Redwood Valley empty 70-foot-long or longer equipment must be entrained ten or more cars behind road engine and ten or more cars ahead of helper engine. A flat with one van or one container, whether loaded or empty, must be considered as an empty.
- (b) When average weight of cars in train, other than locals or switchers, with less than 50 cars, is more than 60 tons per car, do not handle any cars which weigh less than 50 tons within five cars of road engine. These instructions will not apply to continuous welded rail (CWR) trains.
- (c) 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

Restricted cars will be indicated on conductor's train list at terminals. When cars listed in above series are picked up at locations other than terminal, they must be entrained on rear of train and behind any helper engine, unless it is determined that cars are not restricted.



(d) 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 restrictions 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
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	3300-3869	70	56

CLASSIFICATION	ENGINE NUMBERS	MAXIMUM SPEED EXCEPT#	LENGTH (FEET)
EF618	3870	70	61
EF418	3871-3872	70	56
EF618	3873-3875	70	61
EF418	3877-3879	70	56
EF618	3880-3964	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	70	60
GF628	7150-7159	70	67
EF430	7600-7607	70	59
GF630	7900-7936	70	67
EF630	8300-8306; 8350-8356	50	71
EF630	8400-8488	70	66
GF633	8585-8796	70	67
EF636	8800-9156	70	66
EF636	9157-9404	50	71
EF642	9500-9505	50	71
EF850B	9900-9902	70	88
GF850	9950-9952	70	84
<b>UP ENGINES:</b>			
GF628	2800-2809	70	65
GF630	2810-2919	70	67
EF630	3000-3122	70	66
EF630	3123-3304	50	71
EF636	3600-3649	70	66
EF630	8000-8064	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	ES412	ES415*
ES408	AS409	FS412	AS415
ES408B	ES410	GS407	AS420

Placement in train will be as follows:

- Foreign line engines not equipped with alignment control 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.

- d. 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.
- e. 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.
3. 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.
4. One AS415, AS420, ES412 and ES415\* unit may be MU'd on the head end of one road unit.
5. 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.
6. 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 |      |
- a. If one unit is used it will be placed as second unit in engine consist.
- b. If two units are used, they will be placed as second unit and third units in engine consist.
- c. A road unit must be coupled against the train.
- d. If necessary to make a reverse move with cars or train, lead unit must be isolated.
7. 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.
8. 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.

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.

Not more than 12600 operating horsepower will be used on head end of train between Willits and Redwood Valley. Excess horsepower and/or units in road consist, must be either isolated, or if tonnage requires, transferred to helper consist.



**10.** Unless otherwise authorized, trains handling passenger cars with flat spots on wheels in excess of 3/4 inches in length must not exceed 10 MPH. When flat spots are not in excess of 3/4 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 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 (car and contents):**

*Schellville-Willits . . . . .	263,000 pounds
Willits-Eureka . . . . .	251,000 pounds
Schellville-Sebastiani . . . . .	240,000 pounds
Ignacio-Detour . . . . .	240,000 pounds
Alton-Carlotta . . . . .	240,000 pounds
Eureka-Korblex . . . . .	240,000 pounds
**Arcata-Samoa . . . . .	240,000 pounds

\*Any car 45' 0" or less in length over end sills having excess of 251,000 gross weight on rail must be handled at speed not exceeding 10 MPH when moving through Russian River Bridge, MP 67.72 Healdsburg.

\*\*Except load limit on wharf Samoa Yard must not exceed 169,000 pounds.

**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".

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

**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.** When helper engines are not used in train ascending grade between Willits and Redwood Valley, tonnage will be reduced for eastward trains 200 tons per unit, not to exceed 3000 tons and/or 90 cars, for westward trains 300 tons per unit, not to exceed 4800 tons and/or 65 cars.

**17. Burdell:** Couple-in-Motion Track Scale located on main track at MP 31.3, designed to weigh on westward movement only.

Westward trains for interchange at Schellville will weigh. Other trains will weigh when instructed.

Westward trains must not exceed 4 MPH from a point 500 feet east of scale until train is clear of scale.

Speed indicator lights will indicate the following:

- Steady white light . . . . Permissive speed for weighing.
- Blinking white light . . . Excessive speed for weighing.

Speed must be controlled to obtain steady aspect while weighing.

**18.** Following units will not be operated between Willits and Eureka.

Class	Model
EF 850B	DD 35
GF 850	U 50
EF 642	SD 45X
EF 636	SD 45-SD45-2
GF 633	U 33C
EF 630	SD 40
GF 630	U 30C
GF 628	U 28
AF 628	C 628
EF 625	SD 35
EF 623	SD 39
ES 620	SD 38

**19. San Rafael Branch:** Main track out of service every weekend from 12:01 PM Friday until 12:01 PM Monday between Greenbrae, MP 14.9, and Detour, MP 14.3 account open structure.

**20. Engines listed must not operate on tracks shown below:**

Class of Engine	Restricted Tracks
All engines . . . San Rafael . . .	Beyond tipple on track 133.
All engines . . . Petaluma . . .	Beyond second road crossing (city yard) on track 258.
All engines . . . Healdsburg . . .	Beyond tipple on track 505.
All engines . . . Firco . . . . .	Beyond engine restriction sign placed 100 feet east of derail.
All engines except ES408 or ES409 series . . . South Bay . . .	Beyond engine restriction sign placed 547 feet from point of switch on Track 980.
All engines except ES408 or ES409 series . Samoa . . .	Beyond engine restriction sign placed 100 feet from end of Track 1245.

**21. LIGHT-TYPE INDICATORS**

**Schellville Yard, MP 39.06:** Advance Switch Point Indicator located 300 feet east of east switch. Green aspect indicates switch points in normal position. Red or dark aspect indicates train must stop and inspect switch points before proceeding over switch.

**Healdsburg:** Warning light has been installed on top of tipple on track 505. No movement will be permitted beyond tipple until green aspect is displayed on this warning light, which indicates that movable overhead gravel loader has been retracted to lawful clearance.

**Scotia Bluff:** Light-type indicators are installed at MP 256.85 and MP 257.49. Protective equipment is installed on trestle to detect disturbance from falling rocks or high water. On approach, lunar aspect indicates proceed; yellow aspect indicates proceed at reduced speed not to exceed 4 MPH over trestle and trainmen and enginemen most closely observe the trestle to determine if trestle has been displaced or damaged.

22. MAXIMUM SPEED PERMITTED WITH CERTAIN EQUIPMENT	MPH MAIN TRACKS OTHER THAN BRANCHES	MPH MAIN TRACKS ON BRANCHES
Double or triple loads.....	..	25
Scale test cars.....	40**	30
Except: SPMW 2042, 2025, WO-3.....	65	49
Locomotive Crane/Pile Drivers		
SPMW 6603 & 6604		
With boom in place, either end forward①.....	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, SSW96405:		
With boom in place, either end forward①.....	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		
4088               5874		
4091               5899		
5437               6601		
5479               6602		
5595               SSW96404		
5852               NWPMW 31:		
With boom in place, either end forward①.....	25*	15*
With boom disconnected,		
heavy end forward.....	45	25
boom end forward.....	20*	15*
Steam Pile Driver: SPMW 4053.....	35	25*
Jordan Spreaders, except SPMW 8001:		
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.

① When 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, 6602, 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.

**Trains handling Pacific Lumber Company (TPL) logging cars must not exceed 15 MPH.**

SP 354000-354199 series wood chip cars exceed clearances east of MP 90 and must not be moved beyond that point. Trains handling loaded cars in above series, must reduce speed of train not exceeding 10 MPH over Healdsburg bridge, MP 67.62. On all movements, cars must be separated at least five cars from engine or caboose, train length permitting.

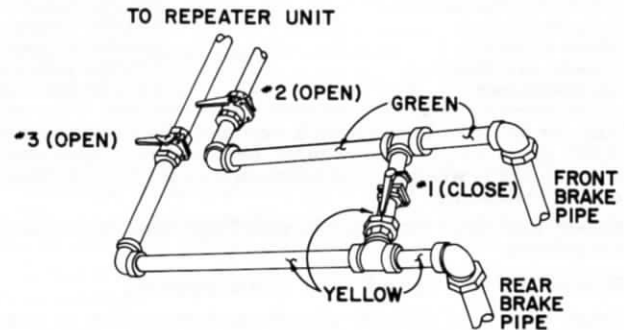
### 23. REPEATER AIR CAR (RAC) SP 260 thru 266

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.

1. Place as near to center of train as makeup will permit.
2. 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.
3. 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 cutout cocks Nos. 2 and 3, all located inside of car.



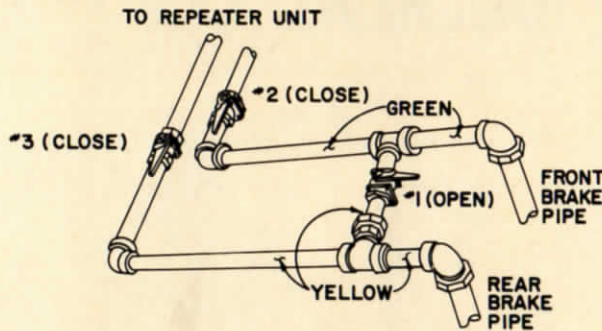
**Note:** If for any reason it becomes necessary to transfer control of air brakes to the helper engine located in the portion of the train behind the RAC car with the RAC air equipment in operation, the brake pipe hose connections must be changed. The forward brake pipe must be coupled to the portion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

4. 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.

1. Close the repeater relay cutout cocks Nos. 2 and 3.
2. Open the brake pipe bypass cock No. 1—All located inside the car.
3. 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.**

1. Close the repeater relay cutout cocks Nos. 2 and 3.
2. Open the brake pipe bypass cock No. 1—All located inside the car.
3. 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.**

1. With the repeater air car in operation, proceed with terminal air test as prescribed in the air brake rules and regulations.
2. 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 cutout 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.**

**MAXIMUM SPEED 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 page 11 of Timetable. Speed must be further reduced as prescribed by speed signs, except as specifically authorized by Special Instructions.

MP	BETWEEN MP	ALL TRAINS	MP	BETWEEN MP	ALL TRAINS
SCHELLVILLE and EUREKA:			DETOUR and IGNACIO:		
40.39 and 29.01	.....	30	14.33 and 17.00	.....	10
29.01 and 28.74 (bridge)	.....	20	17.00 and 25.75	.....	20
28.74 and 25.57 (25.82)	.....	25	25.75 and 25.82	.....	10
25.82 and 30.46	.....	40	SEBASTIANI and SCHELLVILLE:		
30.46 and 31.68 (Burdell)	.....	15	44.25 and 40.39	.....	15
31.68 and 36.85	.....	40	EUREKA and KORBLEX:		
36.85 and 39.25	.....	20	284.10 and 285.80	.....	10
39.25 and 44.10	.....	35	285.80 and 292.10	.....	25
44.10 and 53.00	.....	40	292.10 and 292.23	.....	10
53.00 and 54.45	.....	25	292.23 and 295.57	.....	20
54.45 and 67.60	.....	40	ARCATA and SAMOA:		
67.60 and 68.58	.....	25	292.90 and 293.51	.....	10
68.58 and 85.53	.....	40	293.51 and 300.53	.....	25
85.53 and 88.50	.....	30	ALTON and CARLOTTA:		
88.50 and 98.80	.....	25	262.74 and 262.92	.....	10
98.80 and 113.50	.....	30	262.92 and 267.72	.....	25
113.50 and 114.54	.....	25			
114.54 and 122.15	.....	30			
122.15 and 141.40	.....	20			
141.40 and 228.13	.....	25			
228.13 and 246.85	.....	30			
246.85 and 247.20	.....	25			
247.20 and 257.00	.....	30			
257.00 and 258.08 (Scotia Bluff)	.....	20			
258.08 and 262.75	.....	35			
262.75 and 270.60	.....	40			
270.60 and 271.94	.....	35			
271.94 and 282.00	.....	40			
282.00 and 284.10	.....	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 must not exceed 25 MPH at the following locations:

- Novato—MP 27 and MP 30
- Cotati—MP 45 and MP 47
- Fortuna—MP 265 and MP 267.

SPEED RESTRICTIONS FOR OTHER THAN MAIN TRACKS	With caution Not Exceeding MPH
Through Sidings, yards and other tracks, balloon tracks, crossovers and turnouts . . .	10
Except:	
Through Siding at Burdell . . . . .	35



