

10  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0

**RULE 15.2 RESPONSES**

Before entering Track Bulletin Form B limits, the engineer must attempt to contact the employee in charge by radio to avoid delay. When granting verbal permission, use the following:

**"Foreman (name) using Track Bulletin No. \_\_, line No. \_\_ between MP \_\_ and MP \_\_."**

In granting verbal authority for movement through limits of Track Bulletin Form B, the following alternatives will be used by foreman:

1. To permit a train to pass a red flag without stopping, add the following:

**"(Train) may pass red flag located at MP \_\_ without stopping."**

The train may pass red flag at restricted speed without stopping.

2. To permit a train to proceed at other than restricted speed, add the following:

**"(Train) may proceed through the limits at \_\_ MPH (or at maximum authorized speed)."**

The train may move through the limits at the speed specified, unless otherwise restricted.

3. To require the train to move at restricted speed but less than 20 MPH, add the following:

**"(Train) must proceed at restricted speed but not exceeding \_\_ MPH." (Specify distance if necessary.)**

The train must proceed at restricted speed and not exceed the speed specified.

The engineer must repeat the above instructions, and the employee giving the instructions must acknowledge them before they can be acted upon.

**SPEED TABLE**

Time per mile		MPH	Time per mile		MPH	Time per mile		MPH
Min.	Sec.		Min.	Sec.		Min.	Sec.	
60	00	1	2	51	21	1	28	41
30	00	2	2	44	22	1	26	42
20	00	3	2	37	23	1	24	43
15	00	4	2	30	24	1	22	44
12	00	5	2	24	25	1	20	45
10	00	6	2	18	26	1	18	46
8	34	7	2	13	27	1	17	47
7	30	8	2	09	28	1	15	48
6	40	9	2	04	29	1	13	49
6	00	10	2	00	30	1	12	50
5	27	11	1	56	31	1	11	51
5	00	12	1	53	32	1	09	52
4	37	13	1	49	33	1	08	53
4	17	14	1	46	34	1	07	54
4	00	15	1	43	35	1	05	55
3	45	16	1	40	36	1	04	56
3	32	17	1	37	37	1	03	57
3	20	18	1	35	38	1	02	58
3	09	19	1	32	39	1	01	59
3	00	20	1	30	40	1	00	60

**GRAND CANYON  
RAILWAY**

**TIMETABLE No.**

**7**

In effect  
Wednesday, October 1, 1997  
at 12:01 A.M.

**For the information of employees only.**



**Max L. Biegert**  
Chairman, Chief Executive Officer

**W. David Chambers**  
President, Chief Operating Officer

**Robert LaCivita**  
Vice President, Operations

**Ervin H. White**  
Trainmaster

**Robert C. Franzen**  
Chief Mechanical Officer

**Samuel J. Imbleau**  
Roadmaster

**Karl V. Zicopoulos**  
Hostler Foreman

**Richard M. Ferguson**  
**Paul D. King**  
Traveling Engineers



## Telephone Directory

### EMERGENCY

#### All Fire, Medical, Police EMERGENCIES

At Grand Canyon or Williams .....	911
AIR AMBULANCE, Flagstaff .....	(800) 523-9391
AMBULANCE, Eddingfield, Williams .....	635-2233
CLINIC, Grand Canyon .....	(520) 638-2551
CLINIC, Williams .....	635-4441
FIRE DEPARTMENT, Williams .....	635-4421
FIRE, Forest Service Dispatcher .....	635-2601
MEDICAL CENTER, Flagstaff .....	779-3366
N.P.S. Dispatcher .....	(520) 638-7805
POISON CONTROL CENTER .....	(800) 362-0101
POLICE, Flagstaff .....	774-1414
POLICE, State D.P.S. ....	773-3600
POLICE, Williams .....	635-4461
SHERIFF, Coconino County, Flagstaff .....	774-4523
SHERIFF, Coconino County, Williams .....	635-4487

### GRAND CANYON RAILWAY

Car Shop .....	635-2424
Dispatcher .....	635-9369
Fray Marcos Hotel .....	635-4010
General Offices, Flagstaff .....	773-1976
Grand Canyon Depot (Williams Local) .....	635-2182
Grand Canyon Depot .....	(520) 638-2471
Locomotive Shop .....	635-9360
Reservations .....	(800) 843-8724
Ticket Office, Williams .....	635-4253
Trainmaster .....	635-5359

### OTHER

TIME - Naval Observatory .....	(202) 762-1401
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**ETERNAL VIGILANCE IS THE PRICE OF SAFETY  
KEEP YOUR EYES AND EARS OPEN**

## INDEX

Abbreviations .....	13
Bridge and Road Crossing Locations .....	22
Charts:	
Coupling Speed .....	23
Equipment Identification .....	21
Equipment Statistics .....	24
Locomotive Ratings .....	24
Speed Table .....	Rear Cover
Tank Car Weights .....	25
Tonnage Ratings .....	24
Track Lengths and Distances .....	25
Fire Danger Ratings .....	5
Grade Crossing Accidents .....	27
Maps:	
Condensed Grade Profile .....	17
Grand Canyon and Williams .....	14
Railway .....	16
Public Relations .....	26
Radio Channels .....	7
Rule 15.2 Responses .....	Rear Cover
Schedule .....	4
Special Instructions and Rule Modifications:	6
Air Brakes .....	20
Automatic Crossing Devices .....	12
Blue Signal Rule 5.13 .....	8
Conductors and Engineers .....	7
Dispatchers .....	7
Flagging Rule 6.19 .....	11
Hand Signals .....	8
Permanent Speed Signs Rule 5.5 .....	8
Maintenance of Way .....	19
Radio Communications .....	7
Standard Clocks .....	7
Steam Heat .....	7
Track Warrants .....	12
Whistle Signals .....	8
Station Special Instructions:	
Grand Canyon .....	18
Williams .....	13
Speed Regulations & Restrictions .....	5
Tons Per Operative Brake Restriction .....	6
Unusual Delays .....	26
Utility Employee .....	8

**SAFETY  
FIRST,  
ALWAYS!**

SOUTH WARD	TIMETABLE No. 7			NORTH WARD		
3	October 1, 1997			2		
Depart P.M.	Ruling Grade Ascending	Stations	MP	Method of Operation	Ruling Grade Ascending	Arrive A.M.
3:15	0.0	Grand Canyon RTYW 1.0	63.7	Y	2.0	11:45
3:21	0.0	Grand Canyon YL 5.5	62.7	L	2.5	11:31
3:35	2.2	Coconino 5.2	57.2	▲	0.0	11:17
3:49	0.0	Apex A 2.0	52.0	▲	3.0	11:03
xxx	0.0	Hopi 5.1	50.0	▲	3.0	xxx
4:03	0.0	Anita 1.1	44.9	▲	1.5	10:49
xxx	1.5	Woodin 6.1	43.8	T	1.2	xxx
4:13	1.5	Willaha S 8.7	37.7	W	2.5	10:39
4:28	2.2	Valle 8.5	29.0	C	1.2	10:24
4:41	2.0	Quivero A 5.7	20.5	▲	2.0	10:11
xxx	3.0	Bly 5.8	14.8	▲	1.3	xxx
4:59	2.2	Red Lake 2.5	9.0	▲	1.5	9:53
xxx	3.0	Pitt 5.2	6.5	▲	2.6	xxx
5:13	1.4	Williams YL 1.3	1.3	▼	1.3	9:39
5:30		Williams BFRTWY	0.0	Y	L	9:30
P.M. Arrive	(64.3)					A.M. Depart

### Explanation of Characters:

A - Auxiliary Track	S - Siding
B - General Orders, Circulars, Notices	T - Turning Facility
F - Fuel	W - Water
R - Radio Base Station	Y - Yard Limits

Distance from MP 0.0 to MP 1 is 8160 feet.

Yard Limits: Williams - MP 0.0 to MP 1.3  
Grand Canyon - MP 62.7 to end of Track 3

Trains 2 & 3 operate when authorized by Track Warrant. Train 2 must not depart Williams Depot and Train 3 must not depart Grand Canyon Depot before time shown. All other station times shown in the Timetable are for informational purposes only. Passenger trains should head into Williams and Grand Canyon Depots. Passenger trains of 9 or more cars should turn, then back into Grand Canyon Depot.

### FIRE DANGER RATINGS

US Forest Service MP 1.3 and MP 4.5  
MP 45.4 and MP 59.9  
GC National Park MP 59.9 and Grand Canyon

When the Fire Danger Rating is *D* or *Red Flag*, torpedoes or fuses will only be used when absolutely necessary. If used, the Dispatcher must be informed as soon as possible of the time and location. Train and Maintenance of Way crews will be notified of *D* or *Red Flag* rating by the Dispatcher when on duty. Crews should call the Forest Service Dispatcher at (520) 635-2601, for rating when the Dispatcher is not on duty. If current rating is not available, crews will be governed by the last known rating. Rating notifications issued on a Track Warrant remain in effect throughout the crew's tour of duty.

### SPEED REGULATIONS AND RESTRICTIONS

Speeds apply to all moves in both directions throughout the entire speed restriction.

#### MAIN TRACK

	MPH
Maximum Speed on Grand Canyon Railway.....	40
7th St. derail to MP 0.6 (Yard Limits) .....	10
Except: Northward Main Track moves only, after head end over Rodeo Road .....	20
MP 0.6 to MP 1.3 (Yard Limits) .....	20
Except: Northward moves only, after head end is by the Yard Limit Sign .....	30
MP 1.3 to MP 4.2 .....	30
MP 4.2 to MP 11.6 .....	35
MP 11.6 to MP 11.9 .....	25
MP 34.8 to MP 36.7 .....	25
MP 46.2 to MP 53.6 .....	30
MP 53.6 to MP 57.8 .....	20
MP 57.8 to MP 62.7 .....	25
MP 62.7 to End of Track (Yard Limits) .....	10
Except: Southward Main Track moves only, after head end over Kennel Road.....	25

#### OTHER TRACK RESTRICTIONS

Williams Auxiliary & Wye Tracks.....	10
Williams Locomotive Shop Tracks 1 & 2 .....	5
Williams Car Shop Tracks 1 & 2 .....	5
Grand Canyon Auxiliary & Wye Tracks .....	10
Equipment Diverging Through Switches .....	10

#### EQUIPMENT SPEED RESTRICTIONS

Lite locomotive(s) and trains averaging 90 tons or more per operative brake on descending grade between:	
MP 48.0 and MP 46.0.....	20
Trains Handling:	
Jordan Spreader in use .....	20
Jordan Spreader not in use .....	30

## TONS PER OPERATIVE BRAKE RESTRICTION

TPOB Restriction: Trains operating with dynamic brake are relieved from the Tons Per Operative Brake Speed Restriction provided train speed can be maintained from exceeding the posted speed limit with the dynamic brake and a maximum 18 lb. brake pipe reduction. If train speed cannot be maintained from exceeding the posted speed limit, trains must adhere to the Tons Per Operative Brake Speed Restriction. Conductors must confer with the engineer regarding the Tons Per Operative Brake Speed Restriction prior to entering the limits.

## SPECIAL INSTRUCTIONS AND MODIFICATIONS TO GENERAL CODE OF OPERATING RULES

General Code of Operating Rules, effective April 10, 1994, are in effect on Grand Canyon Railway.

1.1.3 Grand Canyon Railway Accident/Incident Rail/Highway Grade Crossing Report must be filled out for all train accidents regardless of how slight the injury or equipment damage.

1.2.4 When Power Car 460 is included in a train's consist and operating, it shall be entered and checked for proper operating conditions according to the following: during a trip between Williams and Grand Canyon or Grand Canyon and Williams two checks must be performed; and while laying over at Grand Canyon a check must be performed close to the midpoint of the layover. More frequent checks are encouraged and the above is the minimum number of checks that must be performed. When a mechanical representative is not aboard the train, the operating crew is responsible to ensure that the checks are performed.

1.2.5 All cases of personal injury must be reported to the Dispatcher. All reported cases of personal injury must be recorded on the GCRy Accident/Illness/Incident Report and submitted to the Trainmaster's Office.

1.3 Maintenance of Way employees shall have a copy of, adhere to and be familiar with the GCRy Roadway Worker On-Track Safety Protection Program. Each Maintenance of Way employee must be trained and qualified on the Roadway Worker On-Track Safety Protection Program prior to fouling any track. Train Dispatchers must be familiar with the Roadway Worker On-Track Safety Protection Program. Train and switch crews may be required to operate under provisions of the Roadway Worker On-Track Safety Protection Program depending on the type protection selected by the Roadway Worker(s). The Roadway Worker On-Track Safety Protection Program may be reviewed at the following locations; Vice President - Operations Office, Trainmaster's Office, Dispatcher's Office, Locomotive Shop and Car Shop.

1.3.2 & 1.3.3 General Orders, Operating Circulars and Operations Notices are posted at the Williams Depot, Car Shop and Locomotive Shop.

1.8 The use of any form of tobacco by engine or train service employees on duty while in the presence of passengers or customers is prohibited. Smoking is prohibited on or about locomotives, cars, stations and railroad property where danger of fire exists or as designated by proper authority.

MoW employees fouling a track for the purpose of inspection or maintenance must wear an orange safety vest and orange hard hat. Maintenance of Way employees flagging road crossings must have on the orange safety vest and hard hat.

1.17 Employees subject to Hours of Service must notify the Dispatcher for compliance with rule.

1.28 All fires must be reported to the Dispatcher.

1.44 The Dispatcher will give preference to safety, radio and operating matters. Trains or track cars operating prior to the Dispatcher's shift shall report information required by the rules to the Dispatcher as soon as possible. If operating after the Dispatcher's shift, such information shall be in writing and left in the "Switch Lock Box". Reports of rules violations or irregularities in the movement of trains or Maintenance of Way equipment must be made to the Trainmaster or designated officer.

1.47 A. Conductors must insure the train is properly equipped with the necessary marker and signals, that they are displayed in accordance with the rules and the required equipment and tools are furnished. Bulky packages and articles which obstruct aisles or seats causing inconvenience or hazard to passengers are not allowed in coaches or in the overhead racks. When possible, conductors must walk through passenger trains every 30 minutes to assure the safety and comfort of the passengers.

1.47 C. The Conductor will notify the Engineer or Fireman when steam heat is required on passenger trains. A minimum of 60 psi will be maintained on the system while in use. The steam heat line must be vented of condensate every 20 minutes and prior to being shut off.

2.7 Railroad Radio Assigned Frequencies:

<u>AAR</u>	<u>CHANNEL</u>	<u>USE</u>
97	1	Dispatch South
97	2	Dispatch North
25	3	Switching
48	4	Maintenance of Way
--	5	Administrative
16	6	Train Crew

3.1 Standard Clock locations                      Responsibility  
Dispatcher's Office                              Dispatcher  
Locomotive Shop                                 Foreman

3.3 Approved time services are the Naval Observatory and radio stations WWV and WWVH.

5.1 Roadway Workers assigned as Watchmen/Lookouts must have with them an air horn to signal other Roadway Workers of approaching trains or equipment. All Roadway Workers will use whistles to warn others of unsafe conditions, approaching trains or equipment. When the display of visual signals is required by the Watchmen/Lookouts, use the signal devices as prescribed in Rule 5.2.2 - Signals Used by Employees.

5.3.1 Hand Signals

<u>Description of Signal</u>	<u>Indication</u>
3) Swung slowly in a circle at right angle to track.	Back up
4) Slight horizontal movement at arm's length at right angle to track.	Reduce speed
5) Swung horizontally above the head.	Apply air brake
6) Held at arm's length above the head.	Release air brake

5.4 Distances are changed as follows:  
 '4 miles' - is changed to - '2 miles'  
 '2 miles' - is changed to - '1 mile'

Yellow-red flags and Red flags placed for the protection of men or equipment working will apply the same to Maintenance of Way equipment as to trains.

5.4.3 B. Restriction Is Not Specified in Writing, Is not used on Grand Canyon Railway.

5.4.4 Not used on Grand Canyon Railway.

5.4.7 When a Red flag is displayed in a coupler or between the rails on a track protected by a Blue Signal (Rule 5.13) it indicates an immovable piece of equipment and no moves past the Red flag may be made without the Foreman's authorization.

5.5 Permanent Speed Restriction Signs are displayed 1 mile in advance of restrictions.

5.7 The '2 miles' distance is changed to '1 mile'.

5.8.1 The locomotive bell must be rung when approaching or passing Roadway Workers along the railroad right-of-way.

5.8.2 The following whistle signals are changed or added:

<u>SOUND</u>	<u>INDICATION</u>
(11) — — O —	Sound when approaching Roadway Workers along the right-of-way.
(13) O O —	Second locomotive take control of air brakes.
(14) — O	Warning at bridges or tunnels for people on or near track.

5.13 Utility Employee(s): A railroad employee temporarily assigned to and functioning as a member of a Train or Yard Crew whose primary function is to assist a Train or Yard Crew in the assembly, disassembly or classification of rail cars or operation of trains (subject to the following conditions):

1. Utility Employees are subject to the following:
  - a. Hours of Service
  - b. Training and testing
  - c. Control of Alcohol and Drug use (i.e. alcohol and drug testing, random and for cause)
2. Conditions: A Utility Employee must comply with the following:
  - a. May perform service as a member of only one Train or Yard Crew at any given time. Service with more than one crew may be sequential, but not concurrent.
  - b. May be assigned to and serve as a member of a Train or Yard Crew without the protection otherwise required by Blue Signal Protection of Workmen - GCOR Rule 5.13 only under the following conditions:
    - 1) The Train or Yard Crew is assigned a controlling locomotive that is under the actual control of the assigned locomotive engineer of that crew;
    - 2) The locomotive engineer is in the cab of the controlling locomotive, or, while the locomotive is stationary, be replaced in the cab by another member of the same crew.
    - 3) The Utility Employee establishes communication with the crew by contacting the designated crew member on arriving at the train (defined as one or more locomotives coupled, with or without cars) and before commencing any duties with the crew;
      - a) Designated Employee is the conductor (switchman) of the crew or the engineer (hostler) if the conductor is not present.
      - b) When the Utility Employee establishes or ceases working with a crew, communication with the designated employee must be direct verbal contact, radio communication or oral telecommunication.
    - 4) Before each Utility Employee commences duties, the designated crew member shall provide notice to each crew member of the presence and identity of the Utility Employee. Once all crew members have acknowledged this notification, the designated crew member shall advise the Utility Employee that he is authorized to work as part of the crew. Thereafter, communication shall be maintained in such a manner that each member of the Train or Yard Crew understands the duties to be performed and whether those duties will cause any crew member to go on, under, or between the rolling equipment; and
  - 5) The Utility Employee is performing one or more of the following functions:
    - a) set or release hand brakes;
    - b) couple or uncouple air hoses and electrical or mechanical connections;
    - c) prepare cars for coupling;
    - d) set wheel blocks or wheel chains;

### 5.13 Utility Employee(s) con't:

- e) conduct air brake tests to include cutting air brake components in or out and position retaining valves;
  - f) inspect, test, install, remove or replace a Rear End Marking Device or End of Train Device.
  - g) Under all other circumstances a Utility Employee working on, under, or between railroad rolling equipment must be provided with Blue Signal Protection in accordance with Blue Signal Protection of Workmen - GCOR Rule 5.13.
3. When the Utility Employee has ceased all work in connection with that Train or Yard Crew and is no longer on, under, or between the equipment, the Utility Employee shall notify the designated crew member. The designated crew member shall then provide notice to each crew member that the Utility Employee is being released from the crew. Once each crew member has acknowledged the notice, the designated crew member shall then notify the Utility Employee that he is released from the Train or Yard Crew.
  4. No more than three (3) Utility Employees may be attached to one Train or Yard Crew at any given time.

**One-person Crew:** An engineer working alone as a one-person crew shall not perform duties on, under, or between rolling equipment, without Blue Signal Protection of Workmen - GCOR Rule 5.13 except for the duties listed and with the following protections:

1. set or release hand brakes;
2. couple or uncouple air hoses and other electrical or mechanical connections;
3. prepare cars for coupling;
4. set wheel blocks or wheel chains;
5. conduct air brake tests to include cutting air brake components in or out and position retaining valves;
6. inspect, test, install, remove or replace a Rear End Marking Device or End of Train Device.
7. Each locomotive in the locomotive engineer's charge is either:
  - a. coupled to the train or other railroad rolling equipment to be assisted; or
  - b. stopped a sufficient distance from the train or rolling equipment to ensure a separation of at least fifty (50) feet; and
8. Before a controlling locomotive is left unattended, the one-member crew shall secure the locomotive as follows:
  - a. throttle in the IDLE position;
  - b. generator field switch in the OFF position;
  - c. reverser handle removed;
  - d. isolation switch in the ISOLATE position;
  - e. locomotive independent (engine) brake valve fully applied;
  - f. hand brake on the controlling locomotive fully applied; and

### One-person Crew con't:

- g. a bright orange Engineer's Tag (a tag that is a minimum of three by eight inches with the words **ASSIGNED LOCOMOTIVE - DO NOT OPERATE**) displayed on the control stand of the controlling locomotive.
9. When assisting another Train or Yard Crew with the equipment the other crew was assigned to operate, a Single Engineer must communicate directly, either by radio or by oral telecommunication with the train crew of the train to be assisted. The crews of both trains must notify each other in advance of all moves to be made by their respective equipment. Prior to attachment or detachment of the assisting locomotive(s), the crew of the train to be assisted must inform the Single Engineer that the train is secured against movement. The crew of the train to be assisted must not move the train or permit the train to move until authorized by the Single Engineer.

**5.13 C** On diesel locomotives, the reverse lever must be removed and placed in charge of the employee performing work. On steam locomotives, throttle must be locked, reverse lever centered and cylinder cocks opened.

### 6.3 Main Track Authorization

- a. Main Track use within Yard Limits may also be permitted after a Roadway Worker has established Inaccessible Track. All movements within the Inaccessible Track Limits will be made under the direction of the Roadway Worker.
- b. Work Trains operating on Main Track outside of Yard Limits in conjunction with Roadway Workers may do so after Exclusive Track Occupancy with Train Coordination is in effect. During the time that Train Coordination is in effect, all movements will be made under the direction of the Roadway Worker In Charge. A train may not release Exclusive Track Occupancy until the Roadway Worker has released Train Coordination with the train. The procedures outlined below must be adhered to when establishing Train Coordination:
  1. Only one train has Exclusive Occupancy of the limits.
  2. The Roadway Worker who establishes Working Limits with the train communicates with the Conductor or Engineer.
  3. The train is stopped and visible to the Roadway Worker who is establishing Working Limits.
  4. Further movements of the train may only be made as permitted by the Roadway Worker In Charge while the Working Limits remain in effect.
  5. The train crew may not give up its Exclusive Occupancy until the Roadway Worker In Charge has released his Working Limits with the train.
  6. The Roadway Worker In Charge must have a copy of the Exclusive Authority issued to the train.

**6.19** Flagging distance on Grand Canyon Railway is a minimum of 1/2 mile.

6.28 Movements on Other Than Main Track are to be made at Restricted Speed.

After a Roadway Worker has established Working Limits by Inaccessible Track on Other Than Main Track, all movements will be under the direction of the Roadway Worker In Charge.

6.32.5 When Automatic Crossing Signals are cut out or returned to service, the Dispatcher must be notified as soon as possible.

7.7 Kicking or dropping of equipment will only be allowed if absolutely necessary.

8.2 Roadway Worker(s) using derails or switches to establish Working Limits by Inaccessible Track, must secure and tag each switch or derail used to establish the limits with an effective securing device.

8.15 The Dispatcher or Trainmaster must be notified when a switch is run through. If the Dispatcher is not on duty, a Track Foreman must be notified and a report made to Dispatcher. No movement will be made over a run through switch until permission is given by Track Foreman.

8.20 Temporary derails used to establish Inaccessible Track will be identified by a red or orange target displayed at the derail location.

14.3 Trains operating on Track Warrant Line 2 or 3 authority must report by the following stations: Williams Yard Limit, Red Lake, Quivero, Valle, Willaha, Anita, Apex, Coconino, Grand Canyon Yard Limit and other locations as instructed. Passenger trains must report departure and arrival time at Williams and Grand Canyon Depots.

14.5 Item (2) of this rule is not used on Grand Canyon Railway.

14.7 When "reporting clear the limits" of a Track Warrant, the location where cleared must also be given.

14.9 Track Warrant(s) issued to or relayed by Train Crew members must be kept in their possession until the end of their tour of duty unless relieved. Track Warrant(s) issued to or relayed by Track Foremen must be kept in their possession until the end of their work shift.

14.9 & 15.7 Track Warrants or Track Bulletins may only be copied or relayed by rules-qualified employees.

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

a. Before entering Track Bulletin limits, the engineer must attempt to contact the employee in charge by radio to avoid delay and report the train's location.

b. Track Bulletin Form B's issued to protect men or machines working will not include an entry in the 'Until' column. Track Bulletin Form B's issued to protect men or machines working, once in effect, will continue in effect until the Foreman releases the limits to the Dispatcher.

**15.2 con't:**

c. **A. Verbal Permission**, The Roadway Worker In Charge may not authorize a train to enter the limits until all Roadway Workers are notified of the operation of trains and all men and machines are clear of the track or On-Track Safety is accorded by Train Approach Warning.

d. **B. Repeat Instructions**, The engineer must repeat the instructions.

e. **C. Stop Column**, Track Bulletin Form B's issued to protect men or machines working must include 'STOP' in the Stop column.

**Glossary** Additional authorized abbreviations:

FRM - Foreman TC - Track Car

GC - Grand Canyon WMS - Williams

**SPECIAL INSTRUCTIONS FOR STATIONS**

**WILLIAMS**

5.13 Locomotive Shop Tracks 1 & 2 are Engine Servicing Areas as defined by Rule 5.13 and no moves over these tracks may be made without proper Foreman's permission.

Car Shop Tracks 1 & 2 are Car Shop Repair Areas as defined by Rule 5.13 and no moves over these tracks may be made without proper Foreman's permission.

6.2 When the Dispatcher is not on duty, notification of Track Bulletins affecting operations within the Williams Yard will be posted at the Locomotive Shop.

6.32.1 When shoving cars over Grand Canyon Boulevard between sunset and sunrise or when visibility is poor, crossing must be flagged with a lit fusee.

6.32.2 Before trains or switching moves occupy Grand Canyon Boulevard crossing, the automatic crossing device must be activated for not less than twenty (20) seconds or the crossing must be flagged.

6.32.3 Trains must not cross Grand Canyon Boulevard while trains are approaching or passing on adjacent track.

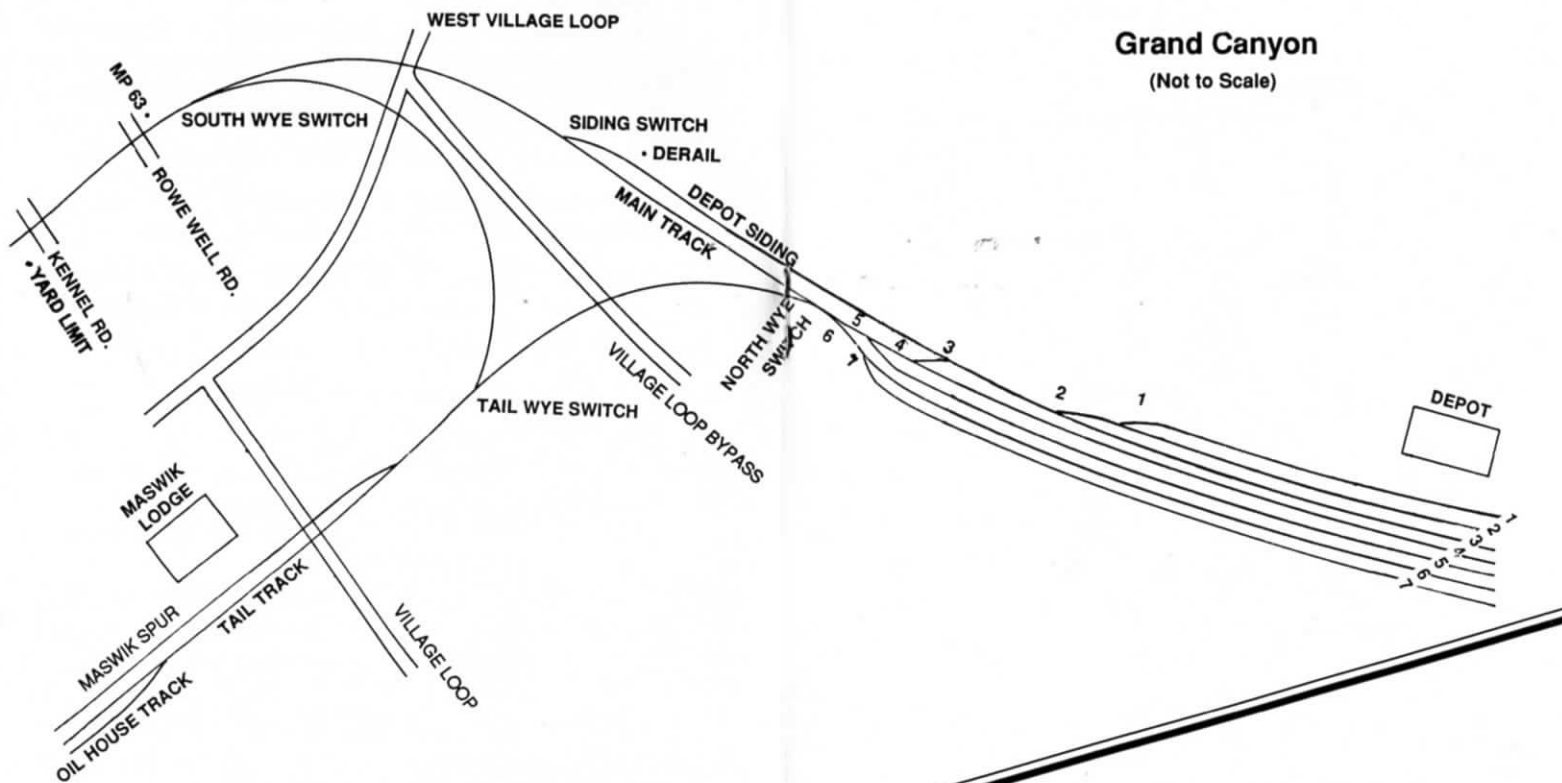
7.6 Cars and locomotives or more than one car or locomotive coupled together left on tracks one or two at the Locomotive Shop must have a sufficient number of wheels blocked to prevent movement, with a minimum of one (1) wheel blocked.

7.9 When switching passenger equipment within the Williams Yard, a stop within 50 feet of the coupling is waived, but speed may not exceed two (2) MPH when coupling.

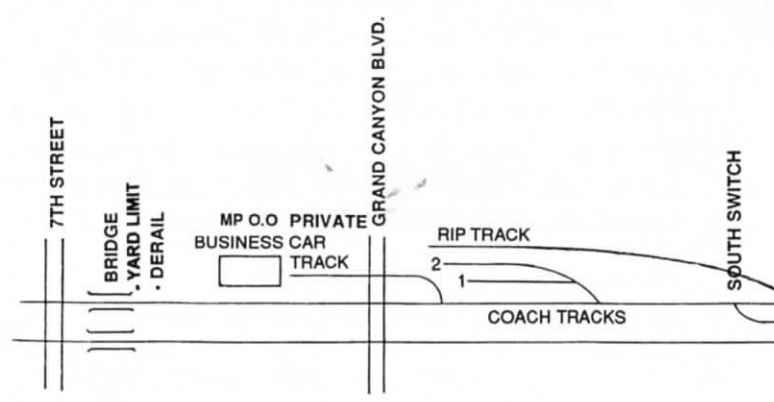
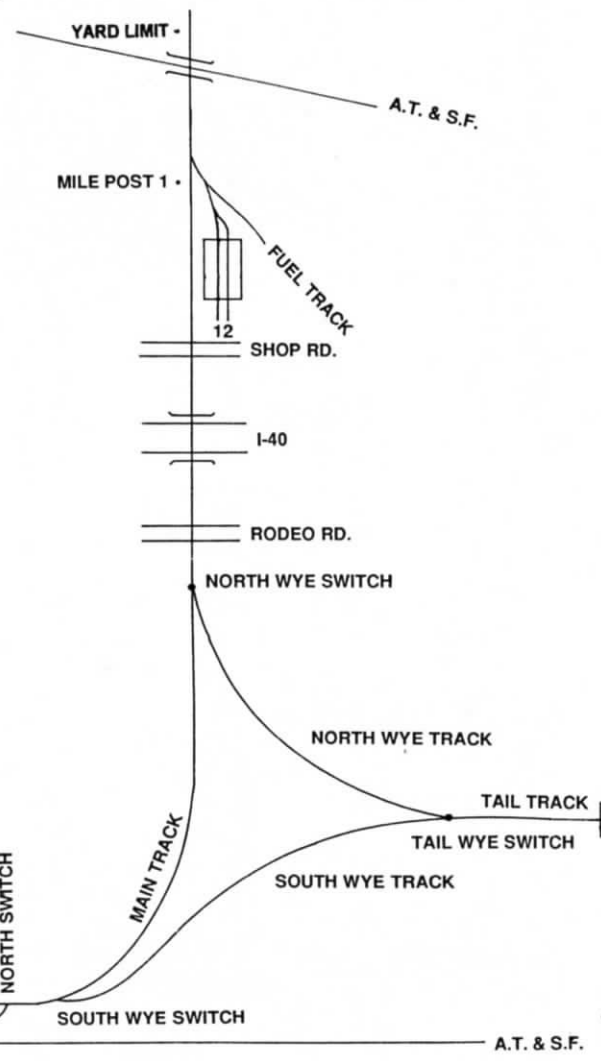
7.10 Close clearance exists in Locomotive Shop on the east side of Track 2 (crane support). Close clearance exists on the east side of Car Shop Track 2 (water shed).

8.3 North Wye Switch may be left lined for North Wye Track. South Wye Switch may be left lined for South Wye Track.

(Continued on page 18.)

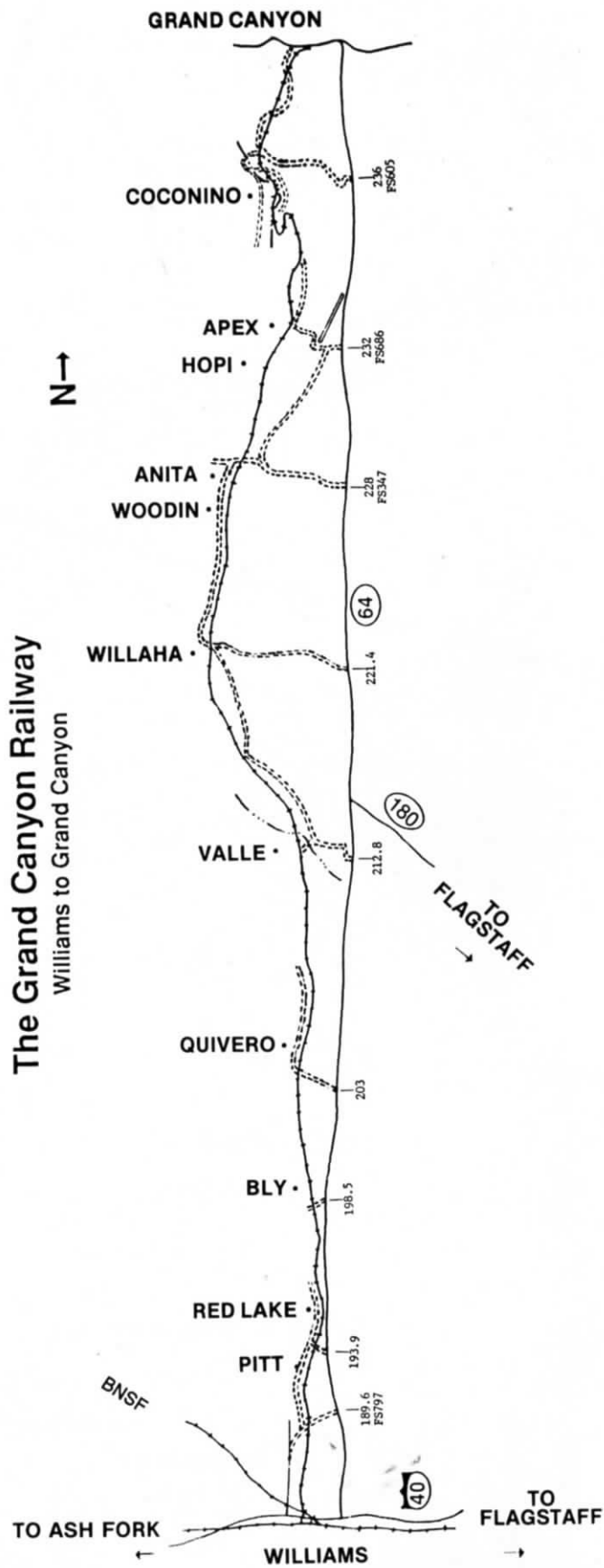


**WILLIAMS**  
(Not To Scale)

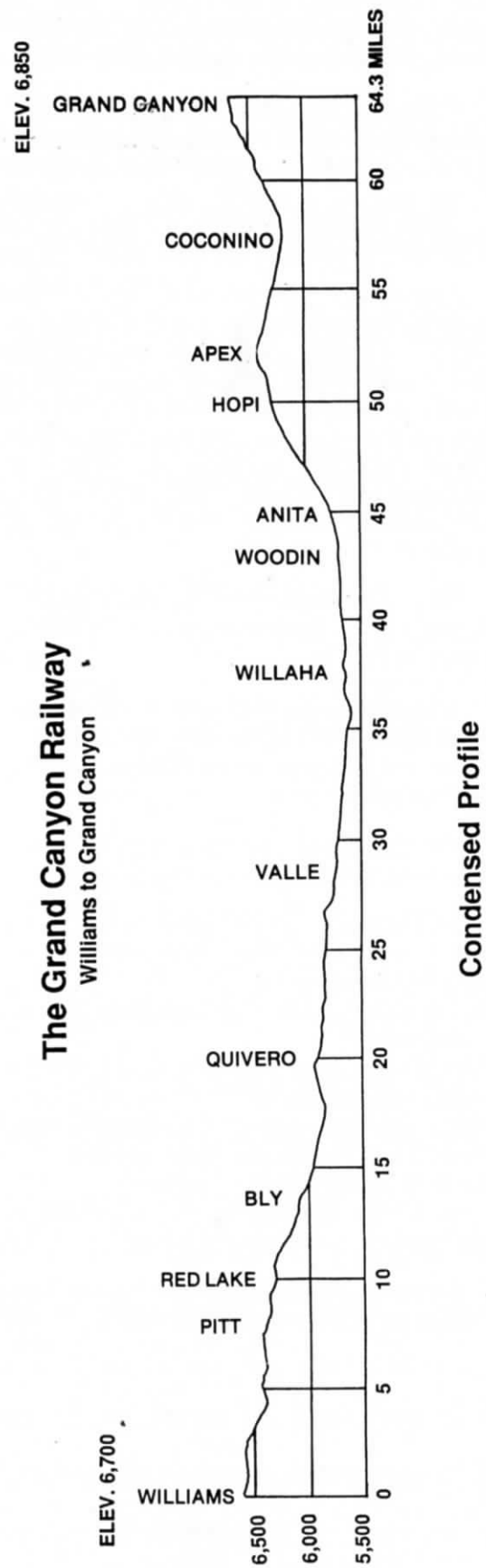




# The Grand Canyon Railway Williams to Grand Canyon



# The Grand Canyon Railway Williams to Grand Canyon



**GRAND CANYON**

- 5.8 Horn or whistle must not be sounded at grade crossings within Grand Canyon Yard Limits unless crossing is occupied. Horn or whistle must not be sounded at Pedestrian Crossing (MP 63.5), unless crossing is occupied.
- 6.5 When shoving cars or locomotives in Yard Limits, a crew member must take an easily seen position on leading end of move or be ahead of movement to provide protection.
- 6.32.1 When shoving cars over Village Loop Bypass and visibility is poor, crossing must be flagged with a lit fusee.
- 7.6 Cars left unattached to a locomotive within the Grand Canyon Yard must have all hand brakes applied and wheels blocked. Unattended trains with running locomotives attached must have a sufficient number of hand brakes applied to prevent movement and a roll test of the hand brakes performed prior to equipment being left unattended. Unattended trains with all locomotives shut down must have a sufficient number of hand brakes applied, wheels blocked and a roll test performed prior to equipment being left unattended.
- 8.3 When unattended equipment or cars are left at Grand Canyon Depot the North Wye Switch must be left lined for the North Wye Track.
- 8.11 When unattended equipment or cars are left between the Tail Wye Switch and the east end of the Maswik Depot Platform, the Tail Wye Switch must be left lined for the North Wye Track.
- 8.12 The 4/3 Crossover switches may be left lined either for normal movement or for movement through the crossover.
- 30.7 All trains not required to perform GCOR Rule 30.6 - Initial Terminal Air Brake Test and Inspection, must comply with the following:
  - 1. Conduct GCOR Rule 30.10 - Air Brake Application and Release Test.
  - 2. Conduct a Leakage Test and ensure that brake pipe leakage does not exceed five (5) psi per minute.
  - 3. Check that brake cylinder piston travel on cars does not exceed; for body mounted brake cylinders - 10 1/2" and for truck mounted brake cylinders - 6".
  - 4. Ensure brake rigging does not bind or foul and brake equipment parts are properly secured.
- 30.10 An Air Brake Application and Release Test must be performed on all trains before departing.

**SPECIAL INSTRUCTIONS AND MODIFICATIONS TO MAINTENANCE OF WAY RULES**

- GCOR Maintenance of Way Rules, effective April 10, 1994, are in effect on Grand Canyon Railway.
- 20.3 Requests for Track Bulletin Form B protection must be submitted to the Dispatcher as soon as possible.
- 21.2 Track Car Operator Lineups may be issued for as long a period of time as necessary. TCO Lineups may only be used for moving hy-rail equipment. No work is permitted to be performed without Roadway Worker On-Track Safety Protection. TCO Lineups will not be issued within the Work Limits of a Roadway Worker protected by Track Warrant or Track Bulletin Form B.
- 21.3 Track car operators must be familiar with the physical characteristics of the territories over which they operate or be under a Foreman's supervision.
- 21.5 Track cars must be equipped with a radio capable of providing communication with the Dispatcher and trains. Track car radios must be tested at beginning of trip or tour of duty.
- 21.10 Track cars operating in reverse must not exceed Restricted Speed.

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**SPECIAL INSTRUCTIONS AND MODIFICATIONS TO  
AIR BRAKE RULES**

GCOR Air Brake Rules, effective April 10, 1994, are in effect on Grand Canyon Railway.

**30.3** Feed or regulating valve pressure will be set at 110 psi. Trains or switching moves that have GCRy locomotives 2134, 6773 or 6793 as the lead or controlling locomotive will have the feed valve pressure set to 100 psi.

**30.6 & 30.7** Both sides of the train must be inspected, except it is sufficient to inspect a car from only one side of the train if all of that car's air brake equipment is capable of being safely observed from one side of the car.

**30.6.5** Only employees involved in performing air brake tests may notify the Engineer or Conductor that air brake tests have been performed.

**30.14** A Running Air Brake Test must be performed on freight trains after a standing test of air brakes has been performed.

**30.17** The engineer/hostler, when taking charge of a locomotive, must know that the locomotive brakes are in operable condition either by ascertaining from the incoming engineer the condition of the brakes, or by conducting the prescribed tests. When assuming control of a lite locomotive or consist, and it has not been ascertained the condition of the brakes from the prior engineer, before moving under power, the following must be performed:

1. Hand brake applied (diesel) or wheels blocked (steam);
2. With independent brake cut in and fully applied, observe brake cylinder gauge for pressure and brake cylinder piston travel for application;
3. Momentarily apply power to insure brakes are cut in and capable of holding locomotive (on steam locomotives limit steam cylinder pressure to fifty (50) psi);
4. Shut off power before releasing independent brake and observe that brake cylinder piston travel releases;
5. Make a service application with the automatic brake and check that brake cylinder pressure develops, then release the automatic brake and check that brakes release;
6. Reapply independent brake and release hand brake or remove blocks before moving.

**30.28** Retainers may be set up on passenger trains without stopping.

Passenger trains exceeding 500 tons total train weight, departing Grand Canyon without an operable dynamic brake, must use retainers when available. When retainers are necessary, they will be used at the minimum rate of one for each 250 tons of total train weight, and left on until the train is at the Picnic Table Shelter - MP 60.6.

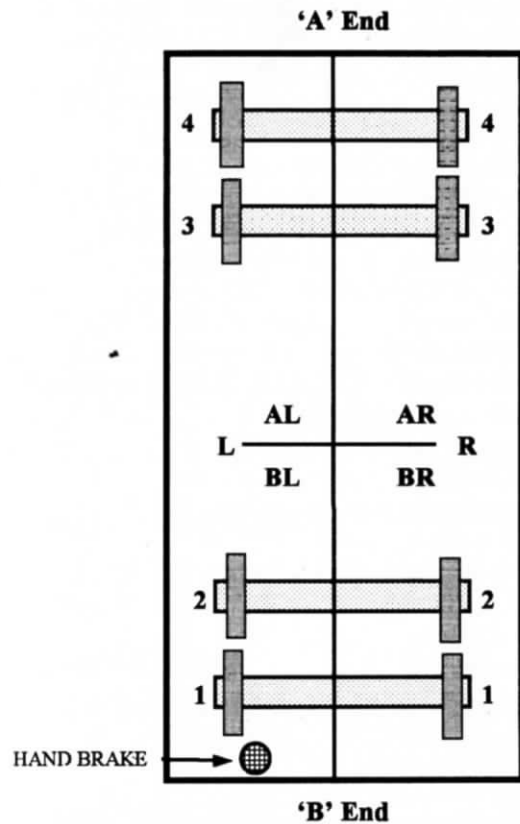
Passenger trains exceeding 500 tons total train weight, departing Grand Canyon with an operable dynamic brake, must use retainers if the combination of dynamic brake and a maximum of 18 lbs. brake pipe reduction does not keep train speed from exceeding the posted speed limit.

**30.30** Live steam locomotives must be left in charge of a competent employee and if left unattended, must be conditioned as follows:

1. Throttle locked.
2. Independent brake cut in and fully applied.
3. Automatic brake cut in and a 20 psi service application made.
4. Cylinder cocks and house valves left open.
5. Reverse lever centered.
6. Proper level of water left in boiler.

Diesel locomotives equipped with 24-RL air brakes left unattended must have the automatic brake valve cut in and left in running position.

**CAR IDENTIFICATION CHART**



(Note: If there are two hand brakes on a car then the 'B' end is designated by the direction the brake cylinder faces.)

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## BRIDGE AND ROAD CROSSING LOCATIONS

<u>MP</u>	<u>Bridge or Crossing</u>	<u>DOT No.</u>
0.05	Grand Canyon Blvd. (Public)	025-302Y
0.30	Ballast Deck Bridge	
0.55	Rodeo Road (Public)	025-960W
0.80	Shop Road (Private)	
1.10	Open Deck Bridge	
3.30	El Paso Gas Line (Private)	025-961D
4.00	Ballast Deck Bridge	
4.40	Ballast Deck Bridge	
4.50	Prong Horn Road (Public)	025-962K
4.60	Open Deck Bridge	
5.50	Open Deck Bridge	
6.10	Ballast Deck Bridge	
8.40	Espee Road (Public)	025-963S
8.70	Open Deck Bridge	
8.90	Private Crossing	025-964Y
9.80	Open Deck Bridge	
11.1	Open Deck Bridge	
13.1	Private Crossing	025-965F
13.2	Open Deck Bridge	
14.1	Open Deck Bridge	
14.5	Open Deck Bridge	
15.4	Ballast Deck Bridge	
15.8	Open Deck Bridge	
16.9	Open Deck Bridge	
17.2	Open Deck Bridge	
18.9	Ballast Deck Bridge	
19.1	Coal Slurry Road	025-967U
19.6	Quivero Road (Private)	025-968B
20.8	Open Deck Bridge	
21.1	Open Deck Bridge	
21.3	Open Deck Bridge	
21.8	Open Deck Bridge	
22.2	Open Deck Bridge	
22.2	Private Crossing	025-969H
22.4	Open Deck Bridge	
23.3	Open Deck Bridge	
23.6	Ballast Deck Bridge	
24.4	Ballast Deck Bridge	
25.4	Ballast Deck Bridge	
25.9	Ballast Deck Bridge	
28.9	Valle Road (Private)	025-970C
33.1	Open Deck Bridge	
33.8	Open Deck Bridge	
34.9	Open Deck Bridge	
35.0	Open Deck Bridge	
35.2	Ballast Deck Bridge	
35.5	Ballast Deck Bridge	
35.6	Ballast Deck Bridge	
36.1	Ballast Deck Bridge	
37.2	Open Deck Bridge	
37.8	Willaha Road (Public)	025-971J
38.1	Ballast Deck Bridge	
38.8	Open Deck Bridge	
39.7	Ballast Deck Bridge	
39.9	Open Deck Bridge	
43.8	Open Deck Bridge	
44.1	Open Deck Bridge	
44.8	Anita Road (Public)	025-972R

<u>MP</u>	<u>Bridge or Crossing</u>	<u>DOT No.</u>
52.3	Apex Road (Public)	025-973X
53.9	Ballast Deck Bridge	
54.1	Ballast Deck Bridge	
54.3	Open Deck Bridge	
55.1	Ballast Deck Bridge	
55.2	Ballast Deck Bridge	
56.6	Ballast Deck Bridge	
56.8	Ballast Deck Bridge	
56.9	Ballast Deck Bridge	
57.1	Ballast Deck Bridge	
57.5	Ballast Deck Bridge	
58.9	Coconino Road (Public)	025-974I
59.3	Highland Mary Road (Public)	025-975L
60.9	Public Crossing	025-976T
61.0	Ballast Deck Bridge	
61.6	Public Crossing	025-977A
61.7	Ballast Deck Bridge	
62.7	Kennel Road (Public)	025-978G
62.9	Rowe Well Road (Public)	025-979N
63.2	Ballast Deck Bridge	
63.3	Lower Village Loop (Public)	025-980H
63.5	Pedestrian Crossing (Public)	025-983D
SLY	Upper Village Loop (Public)	025-980H
TTY	Maswik Road (Public)	025-981P
NLY	Village Loop Bypass (Public)	025-982W
NLY	Ballast Deck Bridge	

**AVOID DAMAGE -- SWITCH CARS  
CAREFULLY**

### **OVERSPEED COUPLINGS ARE DAMAGING**

Here's what happens:

2-4 MPH	<b>1 2 3 4</b>	Safe coupling
5 MPH	<b>1 2 3 4 5</b>	Damage begins
6 MPH	<b>1 2 3 4 5 6</b>	2 times as damaging as 5 MPH
7 MPH	<b>1 2 3 4 5 6 7</b>	3 times as damaging as 5 MPH
8 MPH	<b>1 2 3 4 5 6 7 8</b>	4 times as damaging as 5 MPH
9 MPH	<b>1 2 3 4 5 6 7 8 9</b>	5 times as damaging as 5 MPH
10 MPH	<b>1 2 3 4 5 6 7 8 9 10</b>	6 times as damaging as 5 MPH

**SAFETY IS  
EVERYONE'S  
RESPONSIBILITY!**

LOCOMOTIVE RATINGS - TONS						
From - To	18	29	4960	2134	6773	6793
WMS - RL	575	660	705	595	535	535
RL - QV	775	880	980	785	715	715
QV - VL	1340	1530	1760	1340	1230	1230
VL - WL	605	685	745	620	560	560
WL - AN	1040	1185	1345	1045	955	955
AN - AP	485	555	580	505	455	455
AP - GC	620	705	765	635	575	575
GC - AP	700	795	875	710	645	645
AP - VL	1040	1185	1345	1045	955	955
VL - QV	700	795	875	710	645	645
QV - WMS	485	555	580	505	455	455

### MINIMUM CONTINUOUS SPEED

Tonnage ratings are for trailing tons behind locomotive. Tonnage ratings on diesel locomotives are for a minimum continuous speed of 8 MPH on 2134 and 12 MPH on 6773 and 6793.

EQUIPMENT STATISTICS						
Locomotives:						
	18	29	4960	2134	6773	6793
Eng Wt.	95 t	113 t	155 t	---	---	---
Ten Wt.	65 t	72 t	155 t	---	---	---
Total Wt.	160 t	185 t	310 t	124 t	129 t	126 t
Length	67'	71'	94'	57'	54'	54'
T. E. lbs.	42,000	48,000	58,000	41,000	38,000	38,000
Passenger:						
	460	Coach	Dome	Chief		
Mty. Wt.	61.5 t	60 t	72 t	80 t		
Cap. Wt.	14 t	5 t	3 t	2 t		
Total Wt.	75.5 t	65 t	75 t	82 t		
Length	42'	81'	80'	85'		
Miscellaneous:						
	Tank	Hop	Flat	Cab		
Mty. Wt.	30 t	21 t	29 t			
Cap. Wt.	67 t	50 t	50 t			
Total Wt.	97 t	71 t	79 t			
Length	49'	37'	57'			

### CAPACITY AND WEIGHT OF WATER IN TANK CAR

Car numbers 874, 907, 929 and 932

FEET	GALLONS	TONS	TANK	TOTAL
1/2	380	2 t	30 t	32 t
1	1,100	5 t	30 t	35 t
1 1/2	2,060	9 t	30 t	39 t
2	3,120	13 t	30 t	43 t
2 1/2	4,270	18 t	30 t	48 t
3	5,430	23 t	30 t	53 t
3 1/2	6,740	28 t	30 t	58 t
4	8,000	33 t	30 t	63 t
4 1/2	9,260	39 t	30 t	69 t
5	10,570	44 t	30 t	74 t
5 1/2	11,730	49 t	30 t	79 t
6	12,880	54 t	30 t	84 t
6 1/2	13,940	58 t	30 t	88 t
7	14,900	62 t	30 t	92 t
7 1/2	15,620	65 t	30 t	95 t
8	16,000	67 t	30 t	97 t

### TRACK LENGTHS & DISTANCES

Location	Track Identification	Length
Williams	7th Street to GC Blvd. (Xing circuits)	1440'
	Derail to GC Boulevard Xing circuit	1300'
	Business Car Track (Bumper to wall)	390'
	Car Shop Track 1	430'
	Car Shop Track 2	460'
	Rip Track	740'
	Siding	930'
	South Wye Track	1530'
	Tail Wye Track	1620'
	North Wye Track	930'
	Main between SWS & NWS	1430'
	Locomotive Shop Track 1	660'
	Locomotive Shop Track 2	660'
	Fuel Track	730'
Locomotive Shop Switch to Yard Limit	1270'	
Quivero	Spur	910'
Willaha	Siding	1300'
Apex	Spur	700'
Grand Canyon	Siding (derail to crosswalk)	780'
	Siding (derail to crossover switch)	890'
	Track 2 (clearance to platform)	400'
	Track 3 (clearance to end)	1200'
	Track 4 (clearance to end)	1280'
	Tail Wye Track (tail switch to end)	1590'
	Tail Wye Track (Maswik Xing to end)	1240'
	Maswik Spur (Maswik Xing to end)	1170'
Oil House Track	210'	

YOU HAVE THE RIGHT  
AND THE OBLIGATION  
TO WORK SAFELY

## **PUBLIC RELATIONS SECTION**

Trainmen, through direct personal contact with passengers, constantly have the opportunity to demonstrate they are the best railroaders in the business. Some common practices are:

- a. Assuring the safety and comfort of passengers.
- b. Giving correct information in answer to questions and tactfully correcting errors or misinformation which may have been made by someone else along the way.
- c. Giving necessary special attention to the aged, infirm and children traveling alone by assisting them on and off trains and inquiring concerning their comfort while enroute.
- d. Maintaining orderly behavior in coaches.
- e. Avoiding arguments with passengers even when they are discourteous to you. "A soft answer turneth away wrath."
- f. "Watch your appearance, everybody else does." Close attention to neat appearance indicates pride in your job.
- g. Inspect coaches and restrooms for cleanliness. Correct or report any infractions in cleanliness to the Coach Maintenance Foreman.

**Courtesy is:  
"Graceful and considerate  
behavior toward others."**

### **UNUSUAL DELAYS**

Reasons for delay will be transmitted diplomatically to passengers. Normally, people will cheerfully accept an inconvenience which they understand. Conversely, irritation among passengers is bound to result from lack of information.

**DON'T EXCITE,  
BE POLITE!**

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## **GRADE CROSSING ACCIDENTS**

The following information is designed to serve as post grade crossing accident guidelines. It is designed to provide the utmost in safety to you and your crew. After the accident has occurred and the train is stopped:

- a. Ensure the safety of crew members, accident victims and the public.
- b. Complete the requirements of Rule 6.23 of the General Code of Operating Rules.
- c. Contact the Dispatcher or any other available radio contact or supervisor and advise:
  1. Exact location.
  2. What emergency services are needed. Include alternate route for emergency vehicles if your train is blocking road crossing.
- d. Assess the damage to vehicle and train to determine if there is any danger to your crew or the public.
- e. Assign a crew member to monitor a radio to provide information for emergency assistance.
- f. If it is safe, render assistance to accident victims. It is important not to move the victims unless a life-threatening situation exists.
- g. Turn off the vehicle's ignition and inform the investigating officer you did so. Otherwise, do not disturb the accident scene. Do not move the train unless it presents a safety problem, such as emergency vehicles needing to get to the accident through a blocked crossing, etc.
- h. Only give information to:
  1. The investigating officer.
  2. Authorized company officials.Cooperate with the investigating officer. Answer the officer's questions and provide as much information as you can recall. Note the badge number and name of the investigating officer at the scene. Witness with the officer that the headlight is on and that the whistle and bell on lead locomotive are in proper working order. Also note that the crossing warning devices are functioning.
- i. Assign a crew member to verify the accuracy of the Wheel Report. Save all Wheel Reports, Track Warrants, Track Bulletins and other pertinent documents for the proper Grand Canyon Railway officials.
- j. Ascertain that no part of the train is derailed and that it will be safe to proceed once released by the investigating officer.
- k. Review the "Grand Canyon Railway Accident/Incident Rail/Highway Grade Crossing Report" and ascertain you have obtained all the required information.
- l. Personal counseling will be available to any crew member who might experience post-accident trauma.