

CHAPTER J2

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J2.00 Introduction

This chapter contains information relevant to the Highway Operations Program HM46.

The goal of the Highway Operation Program is to provide appropriate levels of transportation service on the existing highway system through the operation of roadway facilities such as drawbridges, ferries, tubes and tunnels. These facilities have been provided by previous improvement programs and are operated under this program. This program also provides electricity required to energize overhead lights, signals, and all other electrical facilities.

Refer to Maintenance Manual Volume 2 for administrative details covering this program.

J2.00.1 Public Contact

Operators of the drawbridges, tunnels tubes, and ferries have frequent contact with the public.

Maintenance personnel shall remember at all times that they are representatives of Caltrans.

They should perform their duties quickly and with courtesy.

Such employees shall under no circumstance engage in any argument. Any criticism of highway matters, or any request for information which, cannot be readily answered or supplied, are to be referred to the employee's supervisor.

J2.01 Drawbridge Operations

Drawbridges shall be maintained in a serviceable condition and shall be operated at intervals frequent enough to make certain that the machinery is in proper operating condition.

When an opening is made, the drawbridge shall be fully opened to preclude the possibility of collision between vessels and the movable spans.

J2.01.1 Rules and Regulations

All drawbridges shall be operated in accordance with Title 33, Part 117 of the Code of Federal Regulations (<http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=33:1.0.1.10.61>) issued by the United States Coast Guard and such other instructions as may be issued by the Department of Transportation.

Bridges must have navigational lights in accordance with Title 33, part 68 of the Code of Federal Regulations.

Bridges presenting obstructions to air navigation are lighted in accordance with the requirements of “Obstruction Marking and Lighting” as issued by the Federal Aviation Agency. All personnel charged with the operation of drawbridges shall be familiar with their duties and responsibilities under these regulations. Visitors will be allowed only with prior approval of the supervisor of this facility. Visits shall be kept brief and occasional.

J2.01.2 Data to be Posted

One copy of each of the following shall be posted inside each drawbridge control house. By posting it, is meant to attach to one wall of the control room in a noticeable location or placing in a clearly labeled binder or file.

- (A) Maintenance Manual Volume 1
- (B) Federal Drawbridge Operation Regulations, Title 33, Part 117 of the Code of Federal Regulations (<http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=33:1.0.1.10.61>)
- (C) Bridge specific “California Drawbridge Regulations” 33 CFR parts 117.140 to 117.201 issued by the United States Coast Guard. (<http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=33:1.0.1.10.61#33:1.0.1.10.61.2.67>)
- (D) “Aids to Navigation” CG-208, U.S. Coast Guard. The U.S. Coast Guard no longer updates this publication, but the information pertaining to the navigation lights is still valid.
- (E) A separate listing of boat signals for the particular bridge
- (F) “General Operating Instructions” posted in a prominent location near the controls
- (G) Special or supplemental orders or maintenance manuals which apply to the particular bridge
- (H) “Obstruction Marking and Lighting”, Federal Aviation Agency (only at bridges where air navigation lights are installed)
- (I) Print of the schematic wiring diagram if the bridge is electrically operated
- (J) Superintendent’s name, address, and telephone number
- (K) Name and telephone numbers of the SM&I Area Bridge Maintenance Engineer (ABME), Area Senior and Office Chief assigned to the bridge

- (L) Names and telephone numbers of The Division of Engineering Services Office of Electrical, Mechanical, Water and Wastewater (OEMW&W) Mechanical and Electrical inspectors and their supervisors.

J2.01.3 Duties of Drawbridge Operators

It shall be the duty of the drawbridge operator to operate the bridge in accordance with Section J2.01.1 "Rules and Regulations". The drawbridge operator shall be familiar with the operation of all switches, breakers and other safety or operating equipment and he or she shall keep a daily log showing all operating information.

A special report shall be made of accidents, either involving the public or the equipment, which occur within the area of duty. The operator shall also make such reports as are required by the United States Coast Guard.

All special reports shall be forwarded to the drawbridge operator's supervisor, who in turn shall forward them to the district office. Reports shall be available for use by the Legal Service Center, without alteration, but accompanied by such recommendation or comment as the matter justifies, so that all matters, particularly repairs, will receive attention by the proper parties without unnecessary delay. Copies of these reports shall also be forwarded to the ABME assigned to the district.

Whenever operating difficulties or conditions that require early attention are encountered, the drawbridge operator shall immediately report the full details to the supervisor. Any verbal report must be confirmed in writing. In order to have definite records available at the bridge for the information of inspectors or repair crews, drawbridge operators shall be provided with a bound memorandum book and shall list in this book a record of all difficulties experienced in the handling of the bridge. The records will be of sufficient detail to aid tracing the trouble. The books will be kept in the bridge control house.

Matters of importance such as collisions with vessels or highway traffic, unusual deflections of bridge or bridge deck, or unusual operating conditions shall be reported immediately by telephone, radio or messenger. If contact cannot be made with the supervisor or superintendent, the appropriate ABME or supervisor with Structure Maintenance and Investigations (SM&I) shall be called.

The drawbridge operator shall be thoroughly familiar with emergency operating procedures especially the use of bypass switches.

The drawbridge operator shall also be responsible for policing the control house and the immediate area of the bridge. Burned out lamps shall be replaced and light fixtures and windows shall be kept clean.

Particular attention shall be given to the maintenance of the navigation lights. Grease and oil shall be cleaned up. Newspapers, magazines and other trash shall not be allowed to accumulate.

The drawbridge operator is responsible for all operations within the hours of their assigned shift, for any articles brought into the control house that may cause a distraction from their assigned duties. The drawbridge operator is not to relinquish control of the drawbridge to the next shifts' operator if it is obvious that the relieving operator will not be able to fully perform the required duties. If this happens, the supervisor must be immediately notified of the situation. If there is any reason to question the relieving operators' ability to perform his or her duties, the supervisor should be notified of the situation.

All consideration for safety must be observed. Before opening the bridge, the drawbridge operator shall thoroughly check that all pedestrians or vehicles are safely behind the provided barriers and that the movable portions of the bridge are free of vehicles and pedestrians. Upon arrival on shift, the operator is required to follow the pre-operational checklist to ensure safe operation of the structure.

J2.02 Tunnel and Tube Operations

J2.02.1 Data to be Posted

One copy of each of the following shall be posted in each tunnel (tube) control room. By posting, it is meant to attach to one wall of the control room in a noticeable location, or placing in a clearly labeled binder or file.

- (A) Maintenance Manual Volume 1.
- (B) Special supplemental orders or manuals that apply to the particular tunnel (tube), including all wiring diagrams.
- (C) Instructions covering the operator's duties in case of fire in or about the tunnel (tube).
- (D) Superintendent's name, address, and telephone number.
- (E) Name and telephone numbers of the SM&I Area Bridge Maintenance Engineer (ABME), Area Senior and Office Chief assigned to the tunnel or tube.
- (F) Names and telephone numbers of The Division of Engineering Services Office of Electrical, Mechanical, Water and Wastewater (OEMW&W) Mechanical and Electrical inspectors and their supervisors.

J2.02.2 Duties of Tunnel and Tube Operators

Operators shall operate the tunnel (tube) operating system consisting of the ventilating fans and drives, electrical and lighting systems, the carbon monoxide analyzer systems, telephone and fire alarm systems and other auxiliary equipment.

A bound logbook shall be provided in the control room of each tunnel (tube). The operators shall keep a record of all events affecting the operation of the tunnel (tube) in the logbook. All operating difficulties shall be recorded in the logbook; however, the details of the difficulty shall be recorded in the bound memorandum book mentioned later in this section.

A special report shall be made of accidents, either involving the public or equipment, which occurs within the area of duty. All reports shall be made in triplicate. One copy shall be placed in a binder provided for that purpose and retained at the tunnel (tube) and one forwarded to the Area Bridge Maintenance Engineer. The original shall be forwarded to the operator's supervisor, who in turn shall forward it to the district office without alteration.

The reports will be accompanied by such recommendations or comments as the matter justifies, so that all matters, particularly repairs, will receive attention by the proper parties without unnecessary delay.

Whenever operating difficulties or conditions that require early attention are encountered, the operator shall immediately report the full details to the supervisor. Any verbal report must be confirmed in writing. In order to have definite records available in the tunnel (tube) for the information of inspectors or repair crews, operators shall be provided with a bound memorandum book and shall list in this book a record of all difficulties experienced in the operating system.

Records will be of sufficient detail to aid tracing the trouble. The books will be kept in the control room.

Matters of importance shall be reported immediately by telephone, radio or messenger. If contact cannot be made with the Superintendent or the district office, the ABME assigned to the district should be called.

The operator shall be responsible for policing the control room, fan rooms, and other areas in and about the tunnel. Burned out lamps shall be replaced and light fixtures and windows shall be kept clean. Grease and oil shall be cleaned up. Newspapers, magazines and other trash shall not be allowed to accumulate.

The operator is also responsible for all operations within the hours of their assigned shift: their relief, being capable of performing the tasks required any articles brought into the control room that will cause a distraction from their assigned duties, and for shift changes being made as scheduled.

J2.03 Ferry Operations

J2.03.1 Rules and Regulations

All ferryboats shall be operated in accordance with “Rules and Regulations for Small Passenger Vessels” CG-323, as issued by the United States Coast Guard and such other instructions as may be issued by the Department of Transportation.

J2.03.2 Data to be Posted

One copy of each of the following shall be posted in the operator’s quarters on each ferryboat.

By posting it, is meant to attach to one wall of the control house in a noticeable location or placing in a clearly labeled binder or file.

- (A) This Maintenance Manual.
- (B) Special or supplemental orders or manuals, which apply to the particular ferry.
- (C) Instructions covering the operator’s duties in case of fire in or about the ferry.
- (D) Superintendent’s name, address, and telephone number.
- (E) Name and telephone numbers of the SM&I Area Bridge Maintenance Engineer (ABME), Area Senior and Office Chief assigned to the ferry.
- (F) Names and telephone numbers of The Division of Engineering Services Office of Electrical, Mechanical, Water and Wastewater (OEMW&W) Mechanical and Electrical inspectors and their supervisors.

J2.03.3 Duties of Ferry Operators (Masters, Mates and Deckhands

It shall be the duty of the Ferry Operator to operate the ferry in accordance with Section J2.03.1 “Rules and Regulations”. He or she shall inspect the cable on cable operated ferries each shift.

The Ferry Operator shall keep a daily log showing all operating information and conditions warranting attention. A special report shall be made concerning all accidents, involving either

the public or equipment, which occur within the area of duty. He or she shall also make all reports required by the U.S. Coast Guard or other agencies. All reports shall be forwarded to the Ferry Operator's supervisor, who in turn shall forward it to the district office. At the district office, it will be available for use by the Legal Service Center, without alteration, but accompanied by such recommendation or comment as the matter justifies, so that all matters, particularly repairs, will receive attention by the proper parties, without unnecessary delay. A copy of damage reports shall also be forwarded to the ABME.

Whenever operating difficulties or conditions that require early attention are encountered, the Ferry Operator shall immediately report the full details to his or her supervisor. Any verbal report must be confirmed in writing. In order to have definite records available at the ferry for the information of inspectors or repair crews, Ferry Operators shall be provided with a bound memorandum book, and shall list in this book a record of all difficulties experienced in the handling of the ferry. Records will be of sufficient detail to aid in tracing the trouble. The books will be kept in the ferry control house at all times.

Upon arrival on shift, the Ferry Operator is required to perform the pre-operational checklist to insure safe operation of the ferryboat.

Matters of importance shall be reported immediately by telephone, radio or messenger. If contact cannot be made with the supervisor or Superintendent, the ABME assigned to the district should be called.

The Ferry Operator shall adhere to operating regulations, make every effort to avoid mistakes in operation, and give every consideration to safety. The Ferry Operator is responsible for all operations within the hours of their assigned shift, and for any articles brought into the ferry control house that may cause a distraction from their assigned duties. Failure to fulfill these obligations may result in serious accidents.

Ferry Operators must not permit vehicles to leave the ferry until the apron is fully down and making positive contact with the ferry slip. If the ferry is shut down or left unattended for any reason, it shall be securely attached to the slip to prevent it from drifting away from shore. Additionally, it is the responsibility of the Ferryboat Operator to not allow vehicles on the ferry that exceed the posted loads and axle configurations.

The Ferry Operator is not to relinquish control of the ferryboat to the next shift Ferry Operator if it is obvious that the relieving Ferry Operator will not be able to fully perform their required duties. If this happens, the supervisor must be immediately notified of the situation. If there is any reason to question the relieving Ferry Operators' ability to perform his or her duties, the supervisor should be notified of the situation.

J2.04 Toll Collection Systems

Periodic inspections of toll bridge electrical systems listed below are essential to observe and correct potential deficiencies before serious problems develop.

(A) Auto Call System

- (1) Check and test monthly.
- (2) Service transmitters quarterly.

(B) Toll Collection System

- (1) Monthly checks and service on the mainframe as recommended by the manufacturer
- (2) Replace the absolute and pre-filter units every three (3) months and log record of Maintenance

(C) Lane Console

- (1) Check backup tapes weekly. Replace if required.
- (2) Perform monthly preventive maintenance on the operator's control panel and processor section.
- (3) Replace filter every 30 days and vacuum dust from inside the console assembly.
- (4) Complete lane maintenance procedure to be accomplished at least once a year including cleaning of electronic board contacts.

The following items are part of the bridge structure (H Family), and should be charged/coded appropriately:

- (A) High Voltage Power Distribution Switch Gear and Cables.
- (B) Fire and Security System.
- (C) Bridge Air Supply System.
- (D) Fire Hydrant Booster Pumps.
- (E) Standby Emergency Power Systems.

In addition, traffic metering systems that are located at toll plazas are part of K.06-Freeway Meter Signals, and should be charged/coded appropriately.