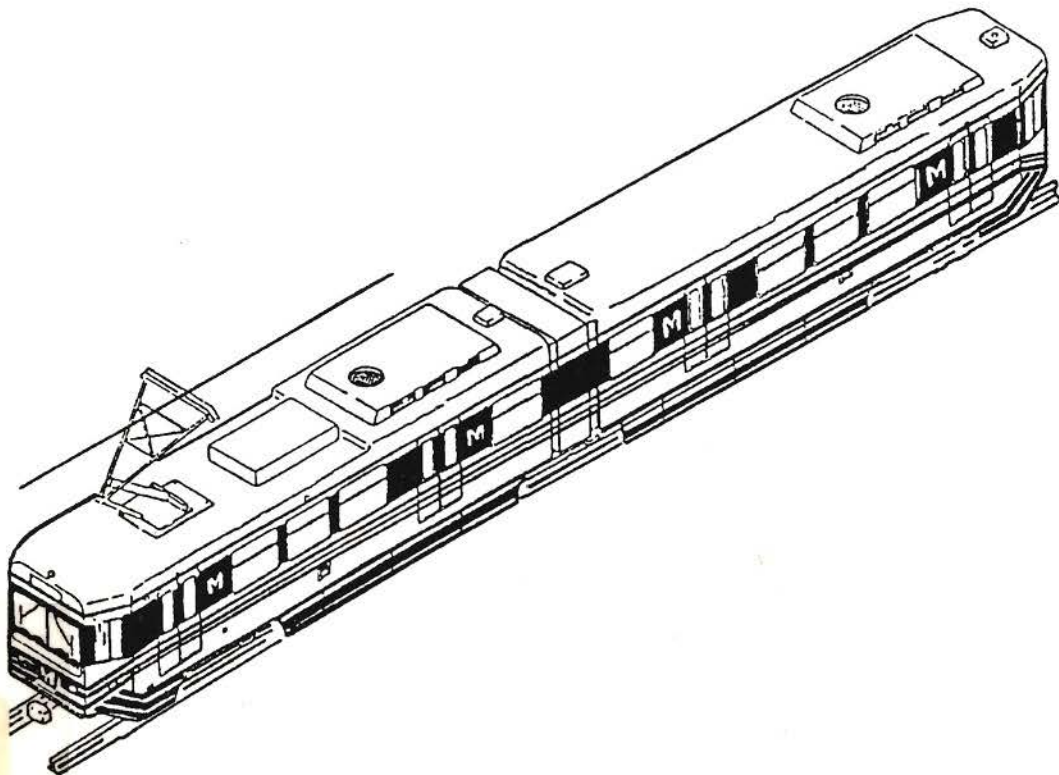




**Los Angeles County
Metropolitan
Transportation Authority**

METRO GREEN LINE: Norwalk - El Segundo

FAMILIARIZATION & CHARACTERISTICS OF THE METRO GREEN LINE



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FAMILIARIZATION
and
CHARACTERISTICS
of the
METRO GREEN LINE

Produced by:
LACMTA
Green Line Rail Operations

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PURPOSE

The purpose of this manual is to familiarize Emergency Response Agency Personnel with operating characteristics and unique features of the Los Angeles County Metropolitan Transportation Authority's (LACMTA) Metro Green Line.

This manual will also provide a general overview of the Light Rail System, including explanations on the vehicle, traction power distribution system, mainline right-of-way and other important elements within the system.

OBJECTIVE

The objectives of this manual are threefold:

- To generate common knowledge among personnel in Emergency Response Agencies, such as Law Enforcement, Fire and Paramedic Units and to enhance their response with Rail Personnel, when emergency interaction between agencies is required.
- To minimize potential danger to passengers and emergency response personnel.
- To maximize the effectiveness of the responding agencies in emergency situations by increasing their knowledge of the Metro Green Line Rail System.

HISTORY OF METRO GREEN LINE

The Metro Green Line is a Light Rail Transit System designed, built and operated by the Los Angeles County Metropolitan Transportation Authority (LACMTA) from funds provided by Proposition A (1/2% sales tax) and two statewide tax measures for Public Transit.

The Metro Green Line will operate in and through the cities of Norwalk, Downey, South Gate, Paramount, Los Angeles, Hawthorne, Inglewood, El Segundo and the unincorporated areas of Willowbrook and Lennox.

The Metro Green Line will interface with the Metro Blue Line at the Imperial Wilmington Station where passengers will be able to transfer northbound to Los Angeles and southbound to Long Beach. Future plans call for an extension of the east terminal in Norwalk to Fullerton so as to connect with Metrolink Trains and in addition, a north extension to LAX and later on into Westchester and Marina Del Rey.

RAIL CONTROL CENTER AND YARD FACILITIES

RAIL CONTROL CENTER

The Rail Control Center, staffed by Rail Transit Operations Supervisors, is the nerve center for Rail Operations. This facility is located at 2000 East Imperial Highway, Los Angeles. The facility operates 24 hours per day, 365 days a year. The Rail Controller works closely with Law Enforcement, Rail Operations Supervisors, Train Operators, Closed Circuit T.V. Monitors and Maintenance Personnel. In addition, contact with Bus Controllers and Bus Operators enhances Rail Operations. Radio and telephone communications link the Rail Controller with the personnel vital to Rail Operations.

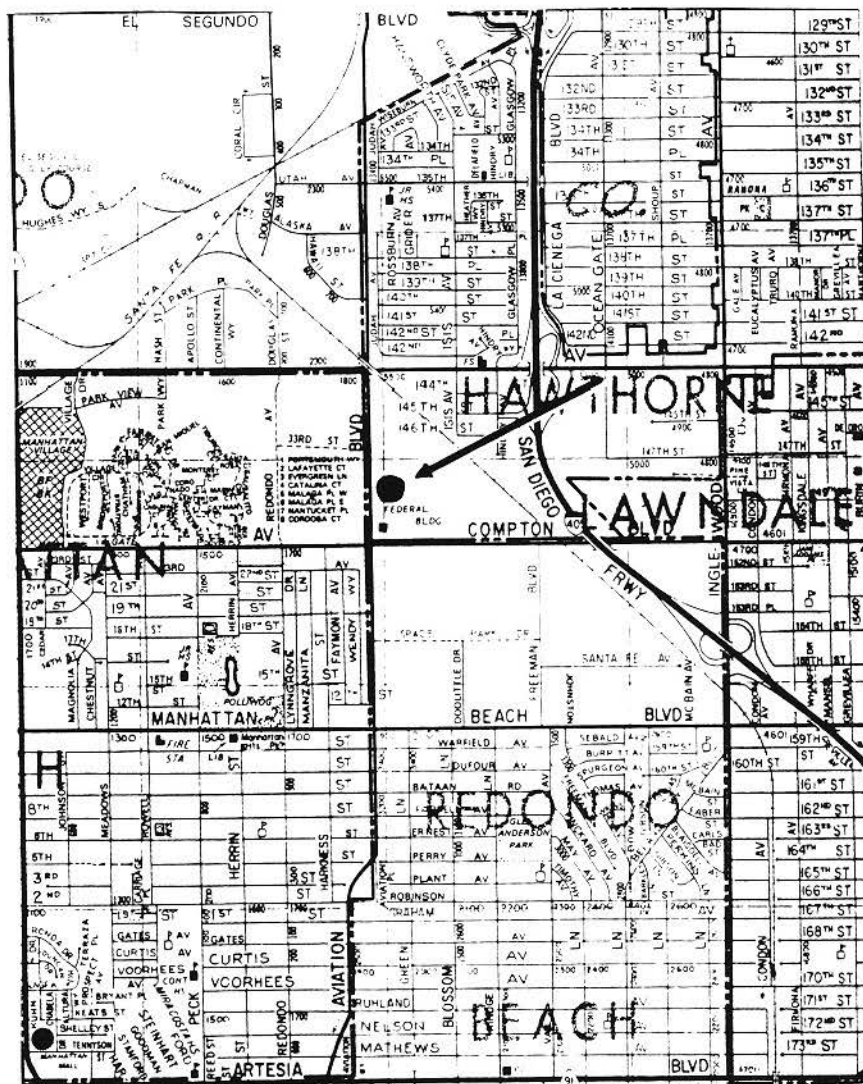
The Rail Controller is also able to monitor a variety of critical functions vital to the system by means of **SCADA** (Supervisory Control and Data Acquisition).

Some of the functions that are monitored by **SCADA** are:

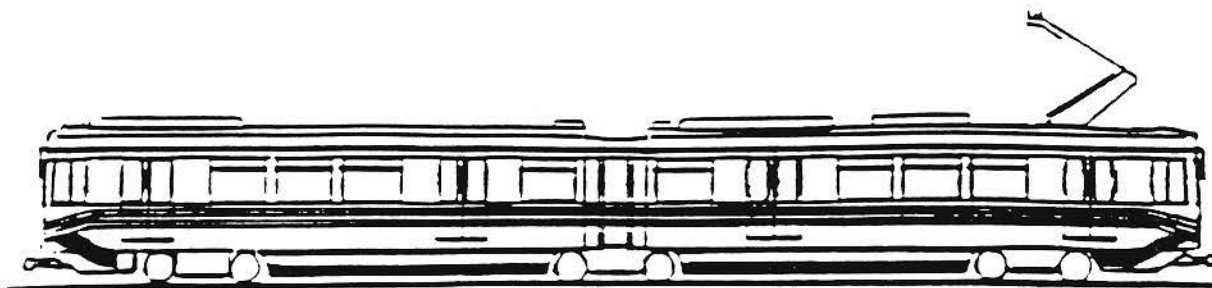
- Traction Power and related facilities
- Train Control and Communication Buildings
- Track Circuitry
- Passenger Stations
- Platform Intrusion Systems
- Wayside Intrusion Systems
- Building Intrusion Detection
- Fire Detection at vital facilities
- Radio Communication Systems

YARD

The Yard facility includes a combined Maintenance and Operation building located at 14724 Aviation Blvd., Hawthorne, CA.. Tracks adjacent to the buildings are for maintenance, storage and movement of the Light Rail Cars. There will be a Yard Controller available 24 hours a day, 7 days a week. Once Driverless Operations commence, Yard Control will be operated from the Central Control Facility (CCF).



RAIL VEHICLE CHARACTERISTICS



TYPE	Six-axle, rail vehicle, similar to those used in San Diego, San Jose and San Francisco. Articulated (flexible in the middle) for ease in turning. Double-ended (either end of the trains operating cab) can be utilized as the operating end allowing for bi-directional movement.
SUPPLIER/ MANUFACTURER	Sumitomo Corporation of America/Nippon Sharyo of Japan.
NUMBER ORDERED	15 (initial order)
COST	Approximately \$2,974,000.00
DIMENSIONS	Length: 90' Width: 8' - 8 3/4" Height: Top of rail to top of roof - 11' 6" Height: Including extended Overhead Power Collector (Pantograph) - 23' 5" Floor Height: From Floor to Ballast is 4' Floor Height: From Floor to Concrete Guideway is 4' 7". Weight Empty: 94,000 lbs. Number of Seats: 76 Capacity: Crush load of 276 seated and standing passengers, including space for two wheelchairs.

PERFORMANCE

Powered by electric motors; The ride is quiet, smooth and comfortable.

Maximum operating speed: 55 mph.

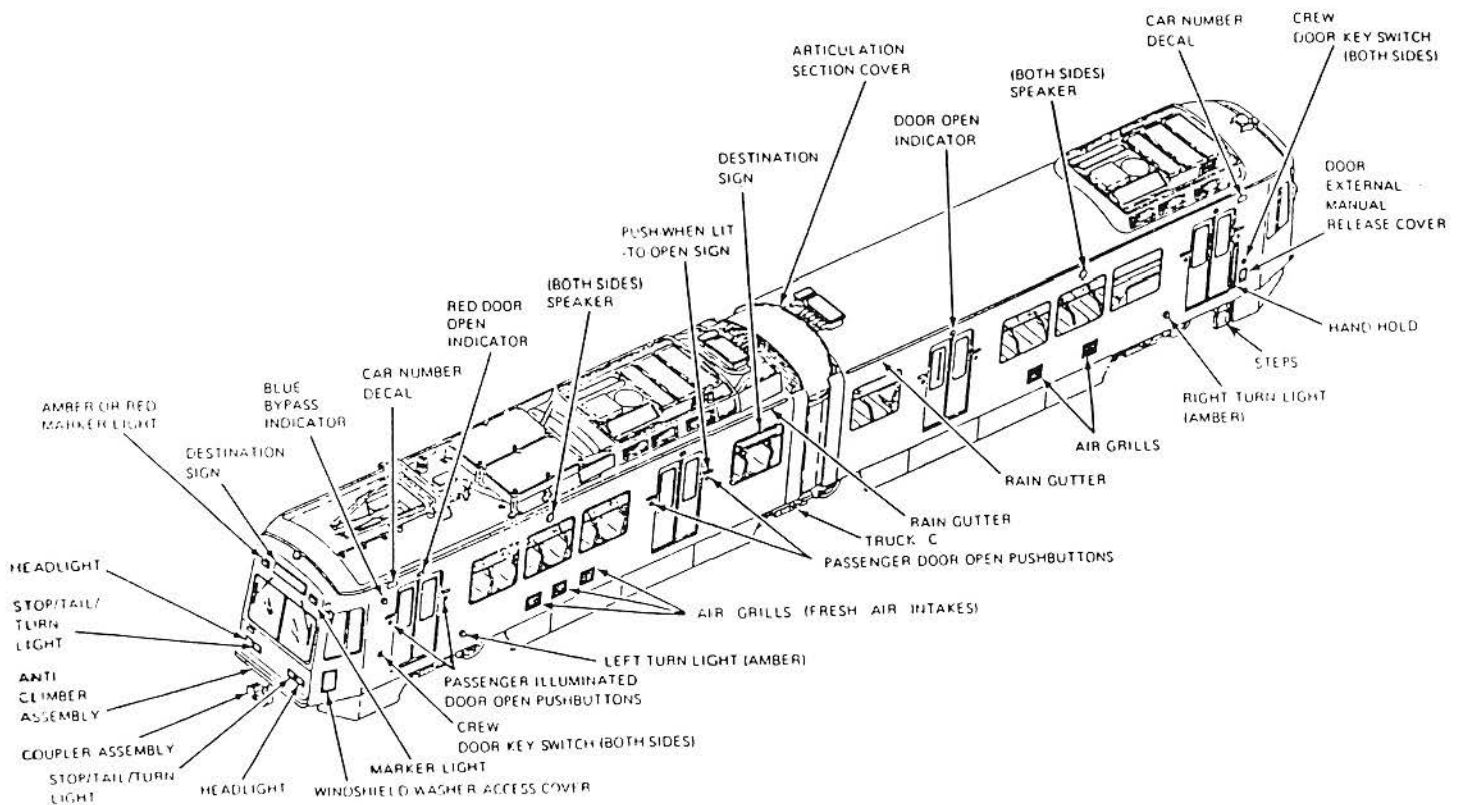
Acceleration: 0 to 55 in 45 seconds.

Braking distance (non-emergency or "service" braking): 55 mph to full stop within 750 feet.

NOTE: Rail Vehicles manufactured by Siemens-Duewag for the P-2000 contract will be introduced to the Metro Green Line at a later date. This document will be updated at that time to show the different vehicle characteristics.

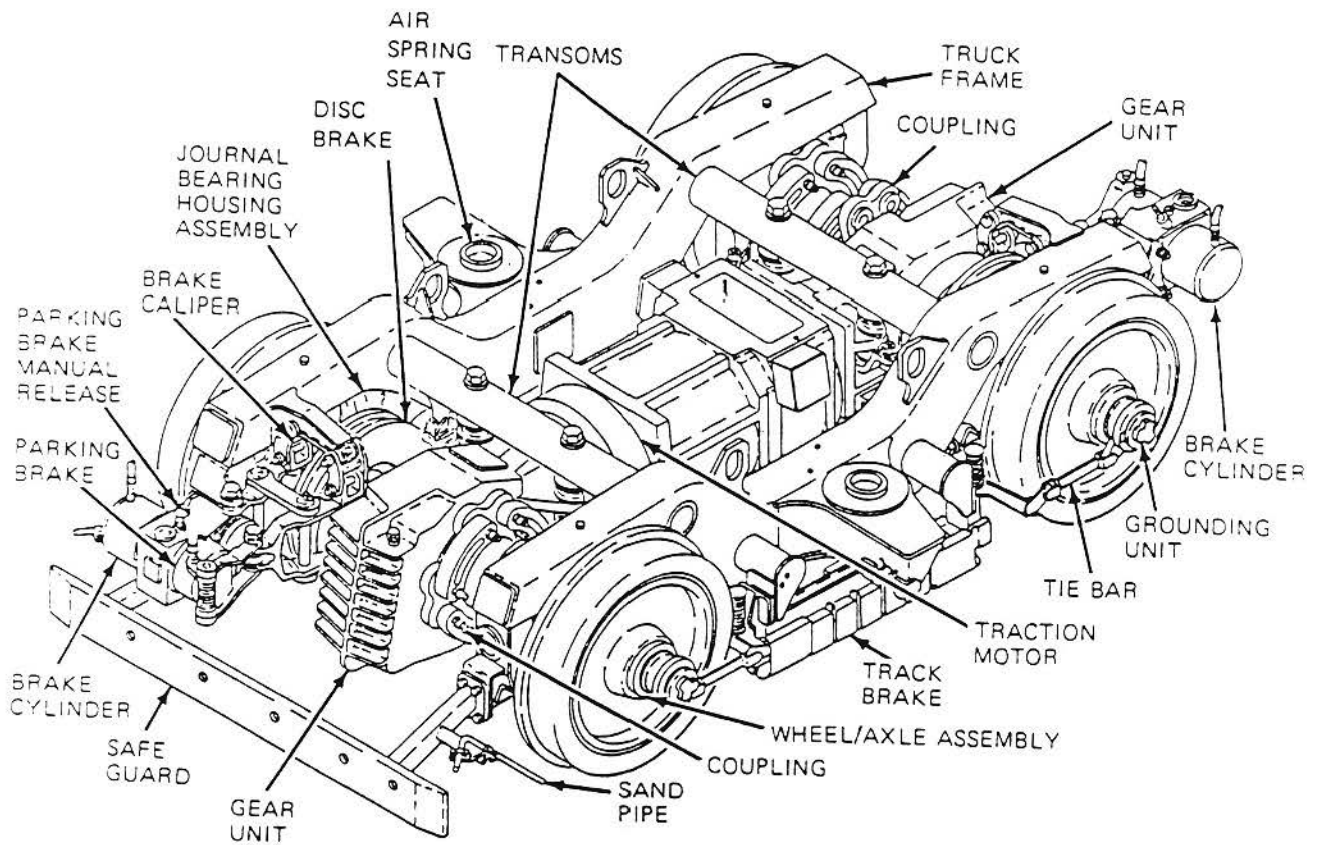
CAR EXTERIOR

The passenger vehicles operating on the Metro Green Line are built by Sumitomo Nippon Sharyo of Japan. The car is 90 feet long and is constructed of light weight steel with a "A" end, "B" end and articulated (center) section. Each vehicle has three truck assemblies. Truck assemblies support the vehicle and contain vital parts such as the wheels, axles, traction (electrical) motors, gear boxes and friction (disc) brakes. Trucks located on the A and B end are equipped with traction motors, the center truck under the articulated section is not powered, however, it is equipped with a pair of friction brakes on each axle.



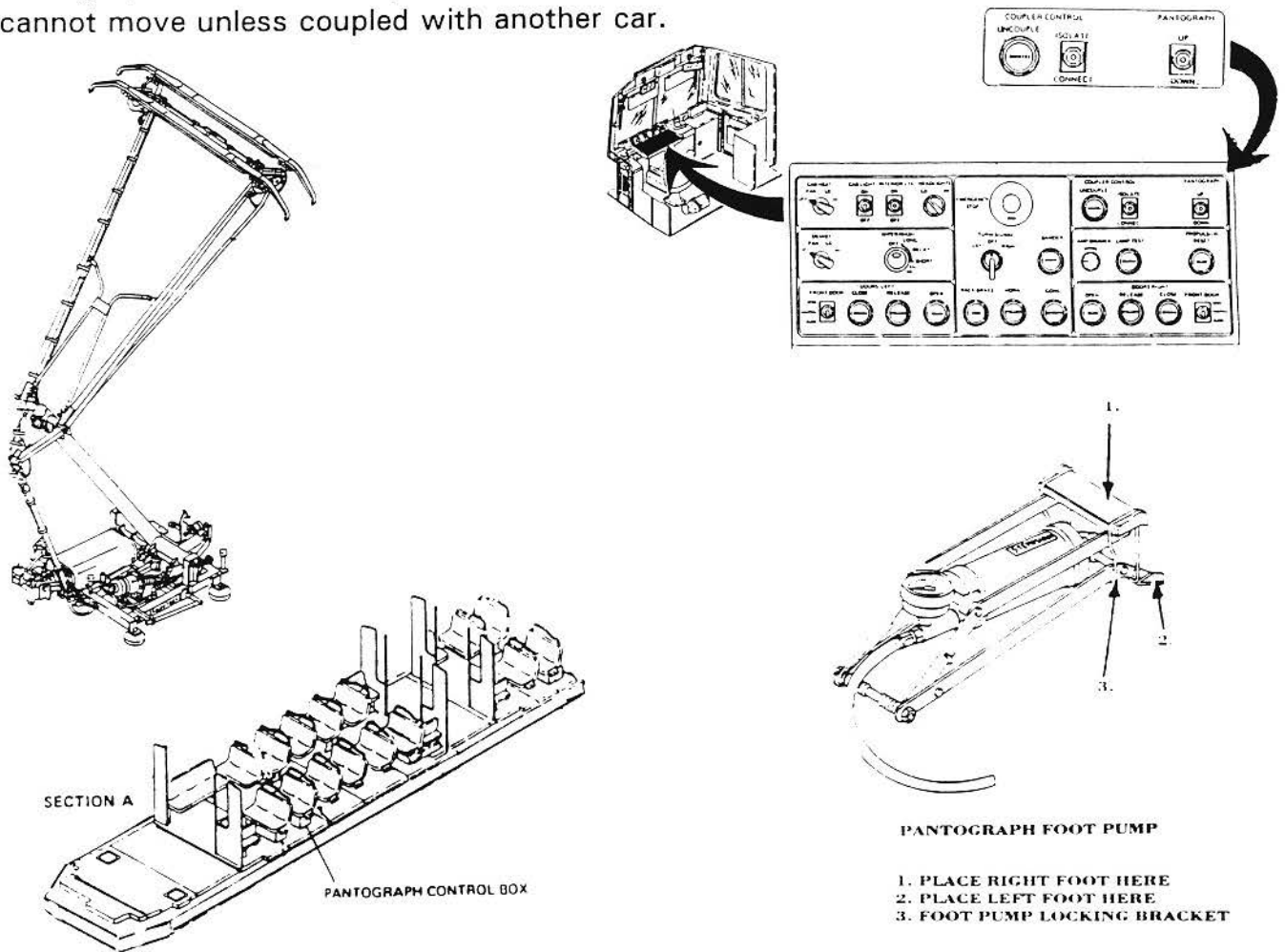
BRAKES

There are three types of brakes on each vehicle: dynamic, friction (disc), and magnetic track brakes. Normal braking is a combination of dynamic and friction brakes referred to as blended braking. Dynamic braking is the primary braking system in which electric current, derived from the motors, acts as a generator and provides controlled braking. The track brake is used primarily in emergency situations.



PANTOGRAPH

The Pantograph is a graphite and metal device mounted on top of the "A" end which draws high voltage (750v DC) power from the overhead contact wire to propel the car. It may be lowered electrically from the Operator's cab, or manually by using the foot pump located under the second forward facing seat on the left side "A" section, which will require up to 55 foot pumps. When the Pantograph is in the down position, the car has no high voltage DC power and cannot move unless coupled with another car.

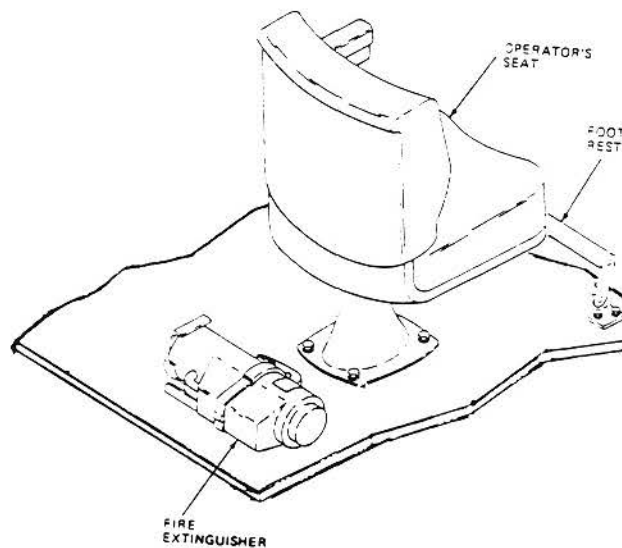
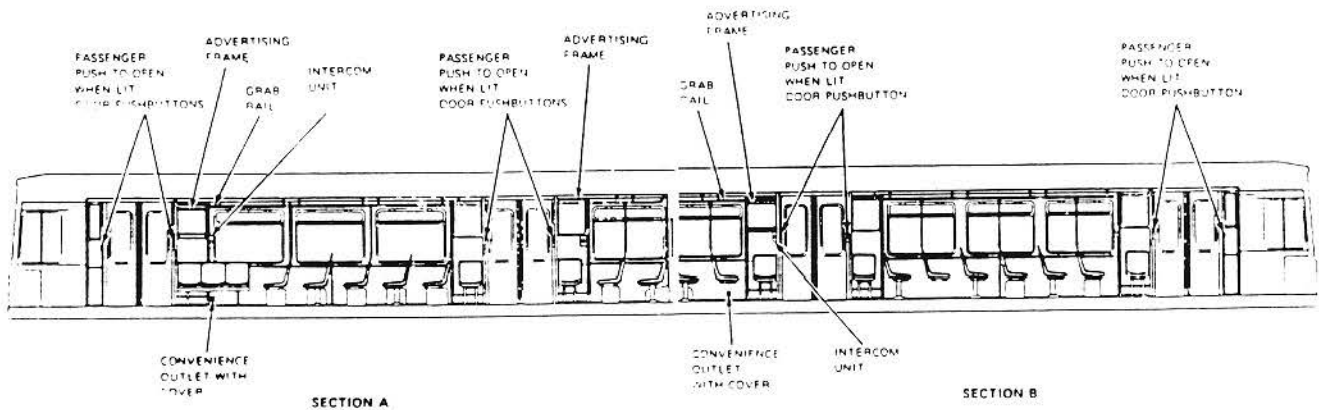


NOTE: The purpose on lowering the Pantograph during an emergency is that this procedure will remove power from the affected train without affecting other trains in the area. All Pantographs on a train must be lowered to remove power from multi-consist trains.

CAR INTERIOR

Each car seats 76 passengers, but can accommodate 276 passengers in a standing "crush load". The cars are designed with no end doors between them, therefore, movement by passengers from one car to the other is not possible. Most of the seats are arranged to accommodate two passengers in a transverse arrangement, with the exception of a single 3-passenger and/or wheelchair seat and 5 individual seats in each section.

Each vehicle is equipped with a 10 pound fire extinguisher rated 4A:20 BC, located in each cab behind the Operator's seat.



WINDOWS

Sixteen large, laminated, Lexan windows provide passenger viewing and cannot be opened. Vent windows, above the passenger windows may be opened to provide additional ventilation should the air conditioning system malfunction.

DOORS

There are four double-sliding doors on each side of the vehicle. Door operation is controlled from the operating cab and allows the Operator to open all doors on either or both sides of the train, or enables passengers to activate doors for entering and exiting by pushing the "push when lit" buttons located to the sides of doors inside and outside.

BATTERY

The batteries are Nickel Cadium located under the car's right side, behind a skirting on the "B" end. The car battery supplies 37.5v DC to the interior lighting system, doors and the unit for raising and lowering the Pantograph.

EMERGENCY DOOR OPERATION

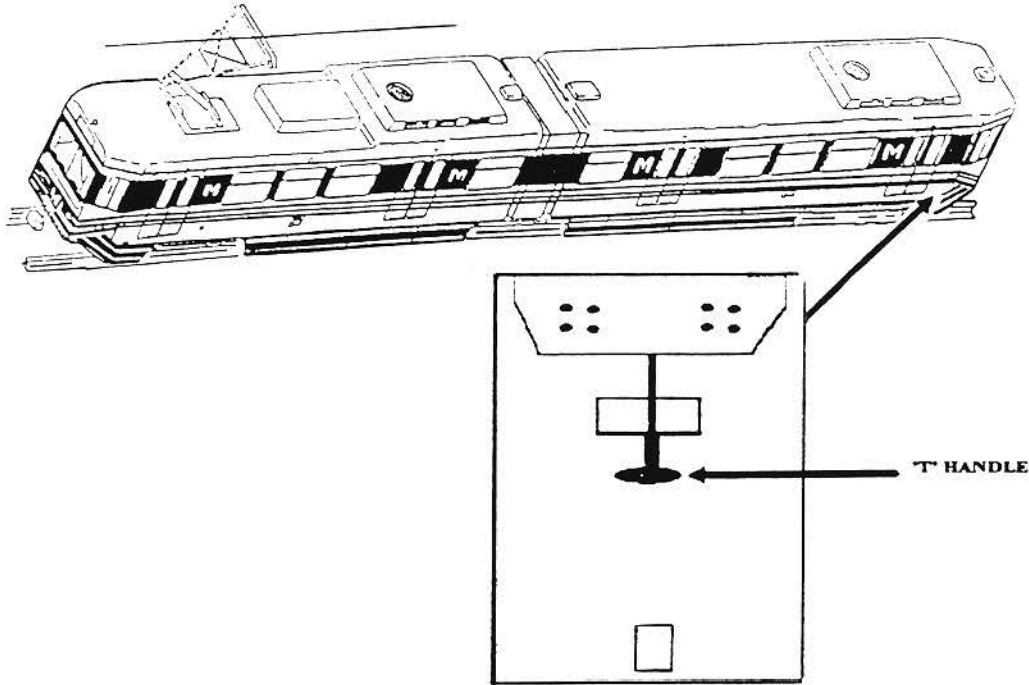
All doors may be manually opened in an emergency from inside the car by pulling downward on the red "T" handle located just above each door. Once the handle is pulled down, the air to the door is released and the doors can be separated. (See illustration on the next page.)

For personnel outside the vehicle, entry can be gained by use of two doors that may be opened from the outside of the train. A small access door located on the right front side of both the "A" and the "B" ends of each car just below the Operator's cab window will allow door operation. To open the doors on the train from this location, just slide the shield back (clear of key slot) and insert any small round object into the exposed slot and the compartment door will open. Pull down on the "T" handle to release the air. After waiting 5 seconds the doors may be separated. (See illustration on the next page.)

If entry into the Operating Cab of a train is required, hands may be placed on the plexiglass cab window, push in firmly and at the same time pushing down should release the window. (See illustration of cab window on the next page.)

ILLUSTRATIONS OF EMERGENCY DOOR ENTRY

OUTSIDE



INSIDE

PLEXIGLASS WINDOW



CAB DOOR

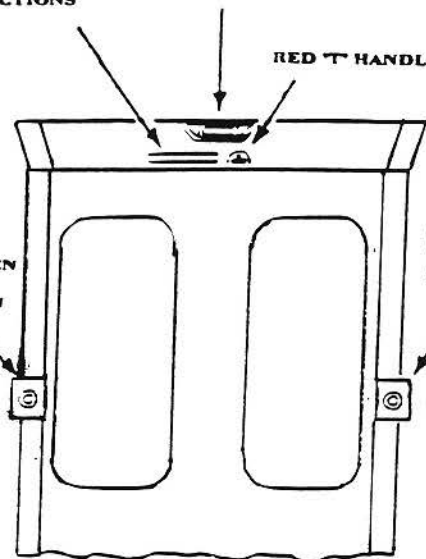
EMERGENCY DOOR
RELEASE INSTRUCTIONS

OUT OF SERVICE SIGN

RED T HANDLE

PUSH TO OPEN
WHEN LIT
PUSHBUTTON

PUSH TO OPEN
WHEN LIT
PUSHBUTTON



MAINLINE CHARACTERISTICS

CAB SIGNALS

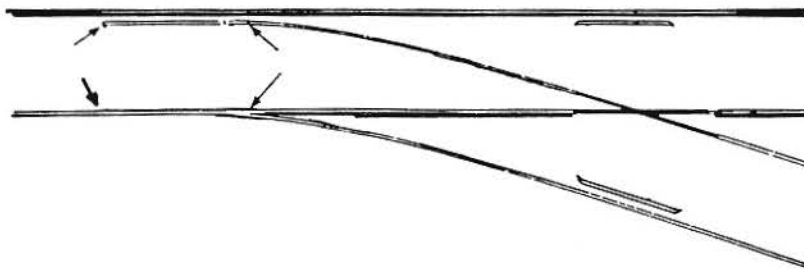
Cab Signals primary functions are to maintain distance between trains to ensure separation of all trains in the system. The Automatic Train Protection (ATP) assures train location and speeds are constantly monitored to prevent one train from overtaking another. By controlling train speeds, separation distance is maintained. Should one train overtake another and reduce the separation, the Cab Signal System will impose a lower speed, or **STOP** signal to restore the distance.

Speed commands are transmitted to the train through the track rails and picked up by receiver coils mounted under the operating cab of each train. The Train Operator must respond by braking to the displayed speed on the train Operating Console.

Should the Train Operator fail to respond to the speed commands received by the (ATP), an overspeed situation develops and the train will automatically be stopped.

TRACK SWITCHES

The Metro Green Line contains remote controlled track switches which are used to move a train from one track to another. These same switches can also be manually operated. Remote switches in Cab Signal Territory can move at anytime, in any direction. Always stand clear of all track switches. The illustration below shows points to be avoided on switches.



NOTE: Tampering with track switches is prohibited and could potentially cause an accident and/or derailment.

MILEMARKERS

For ease of identification and as a specific reference point, mile post markers are used between eastern and western terminals.

WAYSIDE INTRUSION DETECTION SYSTEM (WIDS)

The Metro Green Line will be traveling down the middle of the I-105 Freeway. A Jersey Barrier/K-Rail type divider will separate train Right-of-Way from vehicular traffic. This barrier will consist of a 42 inch tall cement base and a 5 foot wire mesh type fence. The wire mesh fencing will have four detection wires installed running parallel with the track. If sensors detect movement of this wire in any direction more than 8 to 12 inches and hold that position for more than 5 seconds, an alarm will activate in the Rail Control Center. If automation of trains is in place, this alarm will also cause train control to stop the train. In addition, the WIDS system is used at the grade portion of the Metro Green Line adjacent to the Sante Fe Railroad in Hawthorne.

PLATFORM INTRUSION DETECTION SYSTEM (PIDS)

If pedestrians should enter the Right-of-Way in station areas, up to 50 feet on either side of the station, an alarm will activate in the Rail Control Center to indicate an intrusion on the Right-of-Way. Sensors will detect anything over 5 pounds. If automation of trains is in place, this alarm will also cause train control to stop the train.

EMERGENCY WALKWAYS

In an emergency, passengers will always exit according to the instructions received from the Train Operator. There is a designated walkway area between the tracks to allow emergency personnel access to equipment and trains, and to off-load passengers in cases of extreme emergencies. On bridges, the walkways are located in the middle of the bridge between the east and west mainline tracks. When track switches are present, the emergency walkway is on the outside part of the guideway.

Operators operating trains in opposite directions are instructed to never pass a person or persons between the tracks at the same time.

SPECIAL NOTE: *Because trains rely on unobstructed tracks to operate, it is essential to maintain at least one clear track whenever there is an accident or incident which requires response and subsequent investigation by local Emergency Response Agencies. It is for this reason that Metro Green Line Rail Operations Supervisor will request at least one track to be opened/cleared when an accident or incident occurs.*

ACCESS TO RIGHT OF WAY (R.O.W.)

In the event access to the R.O.W. is required in an emergency and entry from platform areas is not practical, emergency personnel have three other options:

1. Ride a train from the opposite direction.
2. Make entry at access gates, located at several locations.
3. An opening may be cut in the fencing, once the Rail Controller is aware of the problem.

There is two openings in the Jersey Barrier/K-Rail, one west of Lakewood Station on the eastern end of the line and another one west of Vermont Station on the western end of the line which will allow Hi-Rail Vehicles to enter the tracks. At the Wilmington/Imperial Station, there is access to the Metro Green Line Right of Way from the Non-Revenue Connector Track. In addition, access can be made from the Hawthorne Yard for Hi-Rail Vehicles and necessary personnel.

There are personnel access gates (with attached step ladders to climb over the Jersey Barrier/K-Rail) located at the following locations:

Westbound

West of Atlantic Blvd.
West of Wilmington Ave.
West of Vermont Ave.
East of Imperial Hwy.
West of Nash St.
(Emergency Stairway)

Eastbound

East of Inglewood Ave.
West of Crenshaw Blvd.
East of Wilmington Ave.
East of Atlantic Ave.
East of Paramount St.

TRACTION POWER SUBSTATIONS

CHARACTERISTICS OF TRACTION POWER

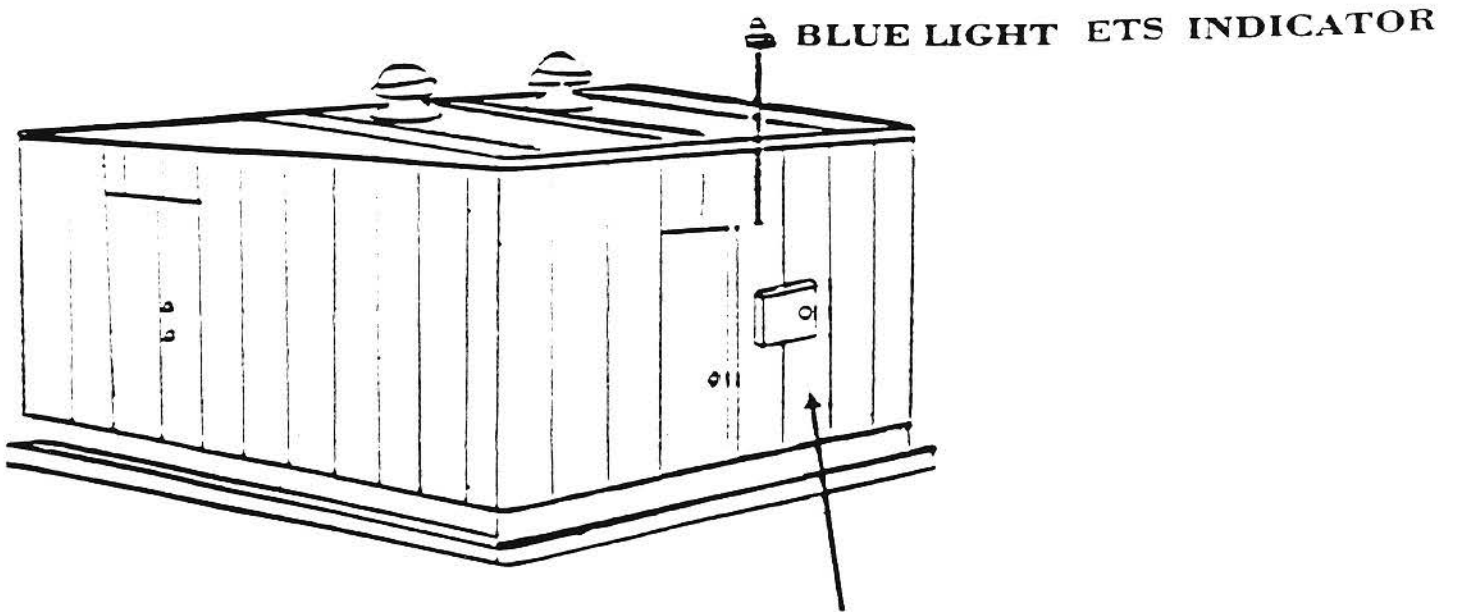
Trains on the Metro Green Line are powered by electricity distributed to the cars by the Overhead Catenary System (OCS). Energy is purchased from Southern California Edison or the Department of Water and Power and is converted from 12 to 16 kilovolts or 34.5 kilovolts of alternating current to 750 volts, direct current (DC), by nineteen Traction Power Substations containing protective switching equipment. From the substations, electricity is distributed by the Overhead Catenary System which covers the entire Metro Green Line. The Rail Controller can de-energize or isolate sections of the OCS by opening appropriate circuit breakers within each substation.

Each substation located along the Right-of-Way and the Yard can be identified by a Blue Light located on the roof of the structure. Some substations have more than one. The light identifies the general location of the Emergency Trip Station (ETS), which when activated, de-energizes that substation and the adjacent substation in either direction immediately. THE EMERGENCY TRIP STATION SHOULD ONLY BE USED IN AN EMERGENCY, so as to avoid affecting trains not involved in the emergency and creating an even larger problem. The Blue Light is for identification of Traction Power Substations and does not indicate power to the substation.

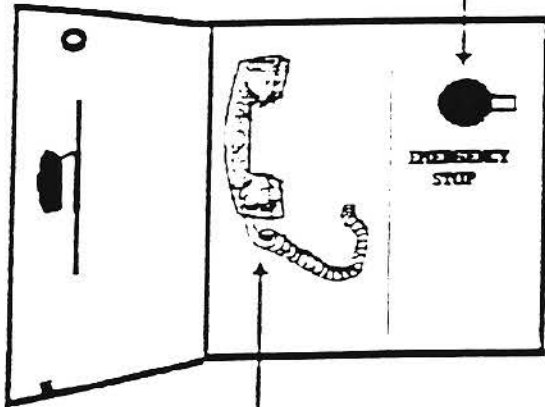
Control can completely remove D.C. power at all Traction Power Substations in a specific area very quickly through remote control. A.C. power can only be removed at a substation by the affected utility company. Department of Water & Power has manually operated switches which have to be thrown by utility company personnel. Southern California Edison (SCE) does not have a manually operated switch to de-energize A.C. power. Their personnel have to access the utility pole to remove A.C. power. Once A.C. power has been removed by Southern California Edison, power in the surrounding neighborhood will also be removed. SCE plans to add manually operated switches prior to revenue service.

Note: TRACTION POWER SUBSTATIONS SHOULD ALWAYS BE CONSIDERED ENERGIZED WITH HIGH VOLTAGE POWER AT ALL TIMES!!!

TYPICAL TRACTION POWER BUILDING

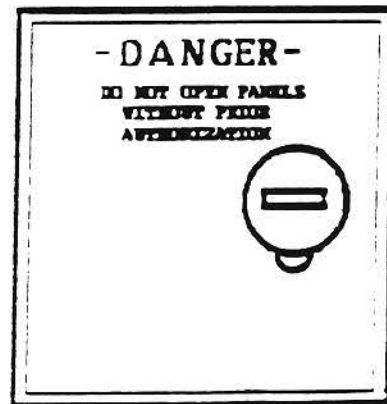


EMERGENCY STOP BUTTON



IN-HOUSE PHONE

DIRECT DIAL TO
CENTRAL CONTROL FACILITY 3-5599



ETS BOX



TRACTION POWER SUBSTATION (TPSS) BUILDING ADDRESSES

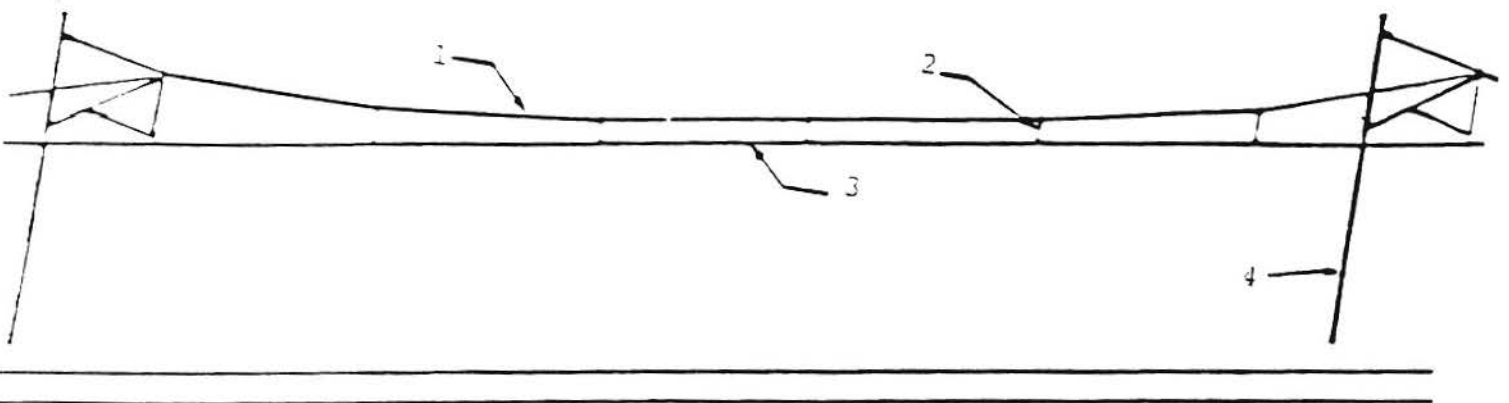
#1	5350 Imperial Highway Power Source: DWP	Los Angeles
#2	None	
#3	11230 So. Acacia Power Source: SCE	Inglewood
#4	3301 W. 120th Street Power Source: SCE	Inglewood
#5	11725 So. Manhattan Place Power Source: SCE	Los Angeles
#6	11520 So. New Hampshire Power Source: SCE	Los Angeles
#7	139 W. 117th Street Power Source: DWP	Los Angeles
#8	11706 Bel Haven Street Power Source: DWP	Los Angeles
#9	11650 Willowbrook Ave. Power Source: SCE	County of Los Angeles
#10	2920 Fernwood Ave. Power Source: SCE	Lynwood
#11	11502 Long Beach Blvd. Power Source: SCE	Lynwood
#12	4160 Fernwood Ave. Power Source: SCE	Lynwood

- | | | |
|-----|---|------------|
| #13 | 11750 Wright Road
Power Source: SCE | Lynwood |
| #14 | 6170 Florence Ave.
Power Source: SCE | South Gate |
| #15 | 12939 Lakewood Ave.
Power Source: SCE | Downey |
| #16 | 13046 Leahy Ave.
Power Source: SCE | Downey |
| #17 | 13027 Flatbush Ave.
Power Source: SCE | Norwalk |
| #18 | 151 North Nash Street
Power Source: SCE | El Segundo |
| #19 | 700 South Douglas Street
Power Source: SCE | El Segundo |
| #20 | 14724 Aviation Blvd.
Power Source: SCE | Hawthorne |

OVERHEAD CATENARY SYSTEM

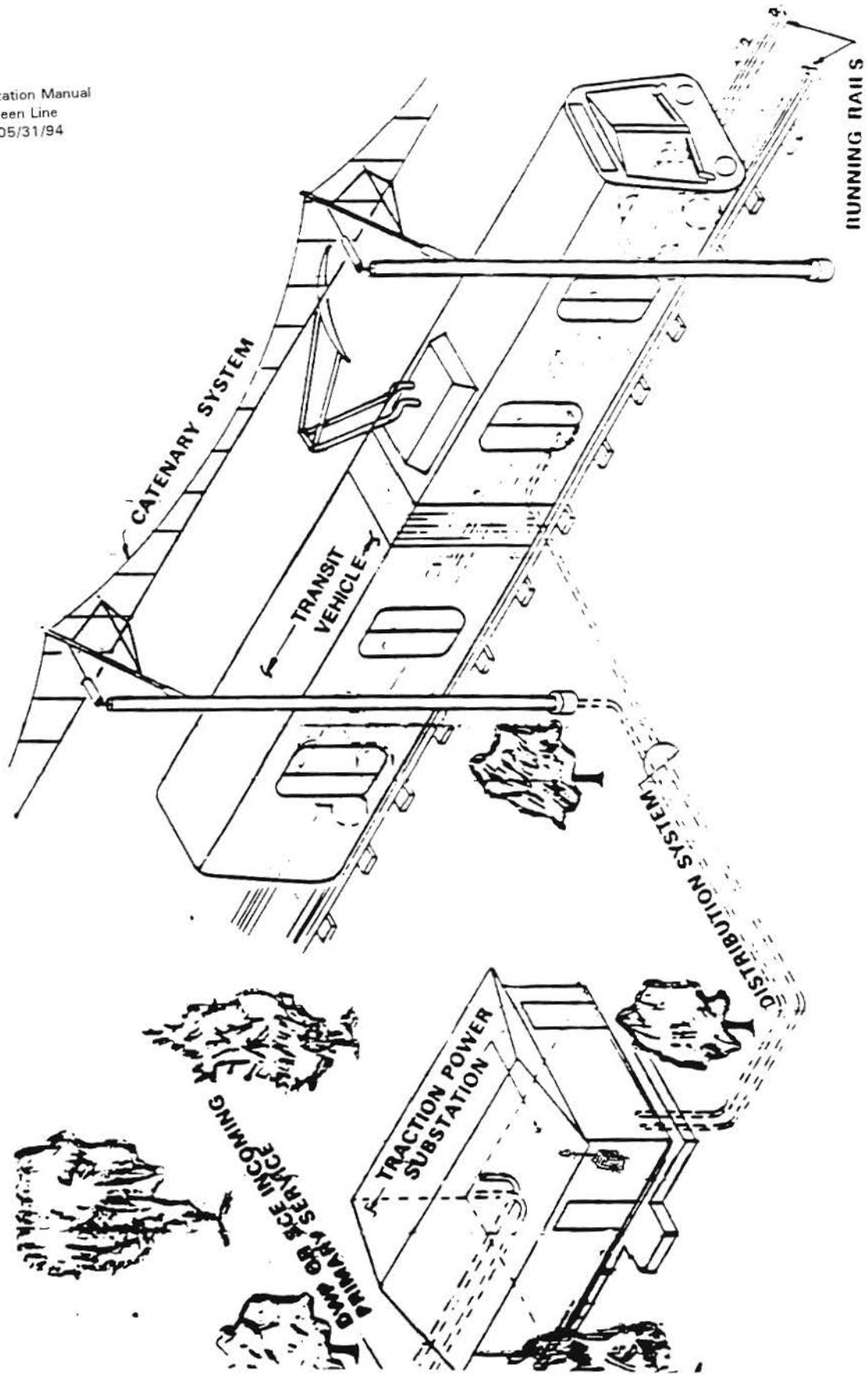
The Overhead Catenary System (**OCS**) contains several interdependent components called the messenger wire, the contact wire and the hangers. (See illustration below) The height of the **OCS** above the track varies from 13'3" to 22'. The constant tension messenger wire supports and energizes the contact wire which actually contacts the Pantograph located on the roof of the train. Hangers provide constant spacing between the messenger and contact wires. Constant tension is made possible by sliding weights within Catenary poles, which allow for expansion and contraction of the messenger and contact wires.

At no time shall any object or person come within 10' of the Overhead Catenary System without prior approval from Central Control.



1. Messenger Wire
2. Hanger
3. Contact Wire
4. Catenary Pole

Note: THE ENTIRE OVERHEAD CATENARY SYSTEM SHOULD BE CONSIDERED ENERGIZED WITH HIGH VOLTAGE AT ALL TIMES.



STATION CHARACTERISTICS

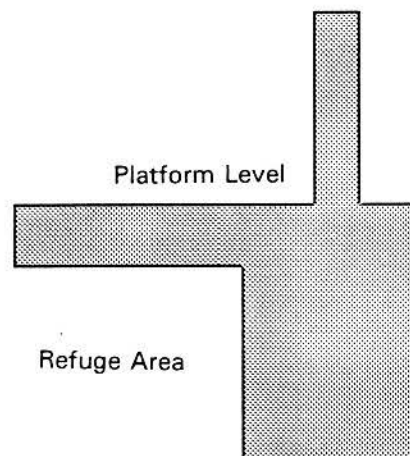
There will be a total of 14 stations upon completion of the METRO GREEN LINE.

Station characteristics range from at-grade, aerial and guideway placement. Locations were established because they:

- Provide reasonable station spacing for maximizing service coverage and operating speed.
- Provide cross-corridor transit connections.
- Serve major sources of ridership.

Access to stations can be accomplished by a combination of stairways, elevators and escalators. Not all stations have escalators.

If someone should become trapped on the Right-of-Way at station locations, there is a refuge area directly under the platform overhang.



Sideview of Platform

Each of the stations have Fire Department Standpipe Connections located at each end of the platform, near the emergency exit stairways. In addition, most platforms have a standpipe located in the center of the platform, with some stations having two platform level standpipes.

If an emergency at a station should occur and evacuation is required, patrons may exit at stairways to street level or parking lot levels. In addition, emergency exits are located at each end of the platform, which will allow the patrons to exit the platform and enter the Right of Way.

Most stations have auxiliary rooms located in different locations which house electrical equipment which may include elevator/escalator system wiring and apparatus, signaling circuitry and traction power sources. Detailed explanations of each room will be provided at a later date.

Most platforms have been designed to accommodate 3-car trains and those that cannot accommodate 3-car trains can be extended to do so. All stations will have center platforms, where passengers will wait for trains from either direction.

Station amenities will include canopies, which will cover approximately 90 feet of each loading platform. Benches will be provided. Each station should have public telephones. Parking will be available at the following stations:

- I-105/I-605 (2058 spaces)
- Lakewood (545 spaces)
- Long Beach Blvd. (650 spaces)
- Wilmington (976 spaces)
- Avalon (152 spaces)
- I-105/I-110 (410 spaces, with future connections to Harbor Freeway Transitway)
- Vermont (290 spaces)
- Hawthorne (606 spaces)
- Aviation (800 spaces and shuttle service to LAX)

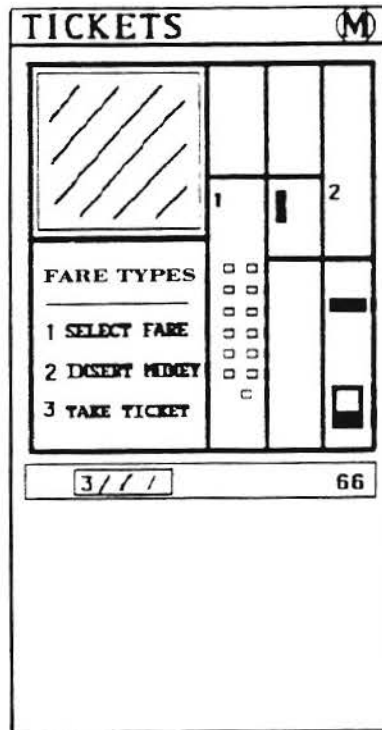
- El Segundo (275 spaces)
- Marine (374 spaces)

Restroom facilities will not be provided, for security purposes.

Stations and associated equipment have been designed to function without a station agent on duty. Any necessary control of the station and/or contact with patrons will be accomplished by using closed circuit television (CCTV), public address equipment and other electronic monitoring systems.

FARE COLLECTION FOR METRO GREEN LINE

Each station will have at least two Ticket Vending Machines. The TVM's are located in an area known as "Free Zones".



The ticket vending system is a self-service, barrier free system. Passengers will not have to pass through any turnstiles or barriers, allowing for quick and easy boarding or egress.

The system is "user-friendly". The video display screen, as well as written instructions, will show passengers where to insert money and push buttons. The machines will print custom tickets for various destinations and make change.

Once riders have bought tickets, they will wait in a specially marked "paid" area of the platform until their train arrives.

LIGHT RAIL SECURITY

GENERAL DESCRIPTION

Security on the Metro Green Line will work in conjunction with local agencies. Security will consist of uniformed and plain clothed Law Enforcement Officials assigned to the trains. Typical coverage includes officers patrolling the line in a marked patrol vehicle, riding trains throughout the system and requesting proof of fares. Ordinances are enforced by the issuance of a standard criminal citation which is processed through local Municipal Courts.

Additional Law Enforcement responsibilities include: preparing incident or arrest reports, issuance of parking citations and impounding vehicles, testifying in court when subpoenaed, assisting and providing information to the public, and ensuring the safety of passengers on the trains and in the stations.

Inspectors will circulate randomly, verifying that riders have paid their fare and issuing citations to those who have not paid.

A major concern involving all of our stations is the safety and security of our patrons, employees and equipment. The use of Closed Circuit Television will allow surveillance from Central Control. Patrols by Law Enforcement Agencies, along with LACMTA personnel (Supervisors, Operators and Facility Maintenance Personnel) will enhance security. These personnel will be in direct contact with Central Control.

EMERGENCY SITUATIONS

Response to an emergency condition begins when an employee becomes aware of the condition and makes the necessary notification. The employee will contact Central Control and give as much information as possible regarding location, direction, the nature of the problem and remain on scene, giving periodic updates until a Rail Operations Supervisor can arrive or the employee is released by Central Control.

The Rail Operation Supervisors are responsible for line supervision, and when necessary, implementing emergency response programs. Additionally, the Rail Operations Supervisor will conduct special investigations of accidents, prepare follow-up reports and make safety recommendations, for LACMTA purposes.

The Rail Operations Supervisor will act as the **ON-SCENE COORDINATOR** for outside Emergency Response Agencies. The **ON-SCENE COORDINATOR** can be identified by a white vest with lettering identifying this individual as **ON-SCENE COORDINATOR**.

NOTE: The Rail Operations Supervisor functions are intended to assist the Incident Commander during an emergency situation. The knowledge and direct radio contact the Rail Operations Supervisor has can be beneficial and increase safety of all personnel at the scene.

The LACMTA considers the following as being incidents and/or accidents:

- Broken or faulty signals.
- Broken or faulty Control/SCADA indications.
- Broken or faulty wayside equipment.
- Broken or faulty vehicle equipment.
- Violations of instructions, train orders and/or bulletins.
- Collision of a train with a maintenance vehicle or alighting personnel from a train that requires medical attention.

- Mainline or Yard derailments.
- Any incident and/or accident that requires evacuation of personnel.
- Fire or explosion on a train or LACMTA facility or construction site.
- Collision between trains.
- Collision between trains and track or wayside equipment.
- Incidents and/or accidents involving a runaway train.
- Incidents and/or accidents involving Mainline Interlockings.
- Chemical spills or uncontrolled release of a compressed gas or hazardous materials.
- Any individual with an injury requiring medical treatment.
- Industrial injuries occurring at a LACMTA facility or construction site.
- Intrusions affecting any Rail Property.
- Death

After arriving at the scene, the Rail Operations Supervisor will relay pertinent information between the responding teams and the Rail Controller. In addition, an assessment of damage, injuries, condition of stations, the traction power system and tracks will be conveyed to the Rail Controller while working with all response team members at the scene.

In any situation, once everyone is safe and anyone needing medical attention is attended to, the first priority of the Rail Operations Supervisor is to restore normal train service. It is for this reason that the Rail Operations Supervisor will ask that power be restored, if it has been removed and that the tracks are cleared of all vehicles and/or equipment.

In all incidents/accidents, the **ON-SCENE COORDINATOR** will work closely with outside Emergency Response Agencies, to give support and any information that may be needed. If one track can be cleared, it is a priority to get that track open so that train service can be restored. The Rail Transit Operations Supervisor will remain on scene until the incident scene is released by the appropriate Emergency Response Agency.

***NOTE:** Evacuation of passengers from the trains, except in a dire emergency, must be with the Rail Controllers approval. The Rail Operations Supervisor will monitor and remain in constant radio contact with the Rail Control Center at all times.*

Actual rescue of victims is the responsibility of the local Fire Department. On occasion, however, they may require assistance from transit system personnel or equipment. This assistance shall be provided as requested.

It is recognized that certain operations, such as jacking train cars and removing pinned victims require specialized equipment and should only be done by trained LACMTA personnel. Effective liaison between the Fire and/or Law Enforcement personnel in charge and the Accident Investigation Team is vital to avoid situations which may further endanger personnel or result in excessive damage to equipment.

The Rail Accident Investigation Team for LACMTA is comprised of:

- On-Scene Coordinator
- Rail Operations Manager
- Vehicle Maintenance
- Facility Maintenance
- Rail Safety
- Risk Management

To help address any problems that might occur, emergency scenarios will be set up in the near future. All agencies that might be affected by an emergency will be asked to attend. An attached list is provided, indicating types of scenarios that will be conducted.

Safety training classes are in progress now and arrangements can be made for any interested parties to attend.

EMERGENCY MANAGEMENT PANELS (EMP's)

All stations on the Metro Green Line will have Emergency Management Panels (EMP's) which Fire Services will have access to. Equipped inside will be an Emergency Trip Station (ETS), Public Address System, a button to activate a pre-recorded public address announcement which activates an electronic message board concerning evacuations at the station. An emergency telephone (E-Tel) will provide direct communications to the Rail Control Center. In addition, controls to the elevators and escalators are located within the EMP. Methods of entry into the EMP will be covered with Emergency Response Agencies at a later date.

Fire Department connections and fire sprinkler systems are provided in many locations. As built drawings will be provided later for all Fire Departments to identify the locations of these connections and sprinkler systems. All Departments are invited to do Pre-Planning visits to all facilities.

UPCOMING EMERGENCY SCENARIOS

- Bomb Threat
- Hostage Situation
- Fire/Smoke on board a train
- Disabled Train/Single Tracking
- Accidental Uncoupling
- Person hit by train
- Derailment/Collision
- Fires at Substation
- Evacuations

IMPORTANT ADDRESSES/PHONE NUMBERS

Rail Control Center

2000 East Imperial Highway
Los Angeles, CA 90059

Green Line Controller

(213) 563-5299

Metro Green Line Yard

14724 Aviation Blvd.
Hawthorne, CA 90260

Green Line Operations Manager

(310) 643-3870

Green Line Secretary

(310) 643-3822

(310) 643-3876 (Fax)

Green Line Yard Control

(310) 643-3890

(310) 643-3896 (Fax)

643-3822 = Yard Control - Pick (instructor)

Instruction Department

(310) 643-3861

Field Supervisors

(310) 643-3854

Green Line Vehicle Maintenance Manager

(310) 643-3804

Green Line Vehicle Maintenance Supervisors

(310) 643-3805

Rail Safety Department

425 S. Main Street
Los Angeles, CA 90025
(213) 972-4965

Rail Facility Maintenance

4350 208th Street, South Extension
Long Beach, CA 90810
(310) 816-5575

LACMTA News Bureau

425 S. Main Street
Los Angeles, CA 90025
(213) 972-4675

DEFINITIONS

ASPECT - The appearance of a Wayside Signal (wayside or hand) that provides an indication viewed from the direction of an approaching train.

AUTOMATIC TRAIN CONTROL (ATC) - The complete, automated, train control system comprised of ATO, ATP and ATS.

AUTOMATIC TRAIN OPERATION (ATO) - A subsystem within ATC which automatically regulates train speed, performs programmed station stopping and is subordinate to ATP.

AUTOMATIC TRAIN PROTECTION (ATP) - A system maintaining safe Train Operation through a combination of Train Detection, Train Separation, and Regulation.

AUTOMATIC TRAIN SUPERVISION (ATS) - A subsystem within ATC to monitor train operation and maintain traffic patterns. ATS is subordinate to ATP.

BALLAST - Selected material (rocks) placed on the rail roadbed for the purpose of holding the track in line.

BLUE FLAG - A portable blue flag, light or marker placed at both ends of a rail vehicle as an indication that personnel are working on, under or about the vehicle(s).

BRAKE, DYNAMIC - The primary braking system in which electric current, derived from the motors, acting as a generator, provides controlled braking.

BRAKE, EMERGENCY - The maximum braking that can be obtained, but once activated cannot be released until the train has come to a complete stop.

BRAKE, FRICTION - Controlled, air-blended systems applying stopping forces to brake discs on each axle.

BRAKE, TRACK - An electromagnetic brake located between the wheels of each truck, which functions through friction, contact with the running rail.

BRAKING (FULL SERVICE) - The maximum braking that can be obtained without going into an emergency stop condition.

CAB - The operating compartment of a rail vehicle from which control of the vehicle is achieved.

CAB SIGNAL TERRITORY - That part of the mainline where cab signals govern train movement and speed.

CAR MOVER - A self powered auxiliary vehicle used to move a disabled vehicle, or move a vehicle in a de-energized territory.

CATENARY - A system of overhead wires in which the contact wire is supported from one or more longitudinal messenger wires, either directly by hangers or by hangers in combination with auxiliary conductors and clamps. The catenary wire provides the 750 V.D.C. traction power to the vehicle through contact with the Pantograph, which provides the power for the vehicle.

CHOCK, WHEEL - A device placed under a rail vehicle between the top of the rail and the rail vehicle wheel to prevent vehicle movement when brakes are not applied or are defective.

CONSIST - The number and specific identity of the cars that make up a train.

COUPLE - To connect rail vehicle units in order to permit the resulting consist to be operated from one cab.

COUPLER - A device for mechanical, electrical and pneumatic joining of rail vehicles and/or trainline control functions.

CROSSOVER - Switches and track so arranged to provide a route from one track to another.

DEADMAN CONTROL - A device built within the manual controller on the vehicle operating console which must be held in the operating position before any vehicle movement can occur.

DE-ENERGIZE - To shut off electrical power.

DERAILMENT - When a train or car wheel leaves the rails.

DIVERGING ROUTE - A change in a train's directional movement over a reverse track switch to allow for crossover movement, train storage, reversing direction or other purposes.

EMERGENCY TRIP STATION (ETS) - A push button device, located within an orange box, at blue light designated locations that, when activated, de-energizes traction power to each designated track section within the limits of the power feed. Additionally, the ETS houses an emergency telephone, and a hook-up for a fire telephone.

ENERGIZE - To turn on power.

ENERGIZED, EQUIPMENT - Electrical apparatus, wires, cables, switches and motors which are connected to an electrical power source and are considered "live".

FLAG - A device used for relaying hand signals or to indicate conditions on the right-of-way. A flag may be made of cloth, metal or other suitable material, or may be a light during hours of darkness.

FLAGGER - A person designated to protect a work party and/or their equipment on the mainline.

FLAGGING PROTECTION - Flags and lanterns used by work crews for protection while working on or about the track.

GRADE CROSSING - A crossing over the rail at rail level used for a roadway or footpath.

GUIDEWAY - Elevated mainline tracks, from Aviation Station to Marine Station.

HI-RAIL EQUIPMENT - Tire mounted, rail vehicles equipped with flanged steel rail wheels that allow the equipment to be operated either on the rail or a roadway.

INCIDENT COMMANDER - An individual of the emergency response agency, who's duties consist of establishing a Command Post and is assisted by the On-Scene Coordinator.

INDICATION - The information conveyed by the aspect from a fixed signal, a cab signal, or a hand signal as viewed by a Train Operator.

INTERLOCKING - An arrangement of signals, switches, track and control apparatus so interconnected that functions must succeed each other in a predetermined sequence, thus permitting train movements over routes only if nonconflicting conditions exists.

JERSEY BARRIER / K-RAIL - Concrete divider 42" high which separates the right-of-way from vehicular traffic, topped with 5 ft. high fencing along the right-of-way.

LIGHT RAIL VEHICLE (LRV) - An electrically self-propelled, passenger carrying rail vehicle.

MAINLINE - The territory controlled by the Test Controller consisting of: main tracks; interlockings; turnbacks tracks; controlled sidings; tail tracks and yard leads.

MANGATE - Access gates, which allow emergency entry to the right-of-way, which are located on the Jersey Barrier/K-Rail.

MANUAL CONTROLLER - The control handle that allows the Train Operator to manually control the operation of the train, through acceleration and braking.

ON-SCENE COORDINATOR - Rail Supervisor, on the scene of an incident, whom is identified by a white vest, who is also the liaison between Central Control and Emergency response agencies.

O.C.S. - Overhead Catenary System.

PANTOGRAPH - A roof mounted device over the "A" section of a light rail vehicle for collecting the 750VDC power from the catenary system to propel the vehicle.

PIDS - Platform Intrusion Detection System.

PORTAL - The entry and exit point of a tunnel.

POWER (TRACTION) SYSTEM - The substations, feeder cable, contact wire, running rails, switchgear and other equipment interfacing with public utilities or other power sources for the movement of trains and their supporting auxiliary systems.

RAIL VEHICLE - A self propelled vehicle operating on tracks, which could be a light rail vehicle (LRV), hi-rail equipment or other truck and track equipment.

RESCUE TRAIN - Rail equipment used to retrieve disabled rail vehicles or stranded passengers.

R.T.O.S. - Rail Transit Operations Supervisor.

SECTION INSULATOR - A device used in the contact wire at specific locations to isolate the flow of traction power within a defined track section.

SECTIONALIZING - De-energizing a specific section of track area for work or other purpose.

SIGNAL - A method of conveying a visual message to the Train Operator concerning conditions affecting train movement. The signal as viewed by the Train Operator is the "aspect". The information conveyed by the "aspect" is the signal's "indication".

SINGLE TRACK OPERATION - The operation, within defined limits, of trains operating in both directions over a single track on the mainline.

SLIP/SLIDE SYSTEM - An onboard protection system for detecting wheel slip on rail cars that prevents the rail car wheels from locking.

SLOW ZONE - An area of defined limits in which train speed is reduced for trackwork or other purposes.

SPEED, RESTRICTED - The operating speed that will permit stopping a train, within one half the range of vision of the Train Operator, short of an improperly lined switch, track defect, train, rail vehicle or any other obstruction. Restricted speed shall not exceed 15 mph.

SUBSTATION - A facility for distributing electricity identified by an exterior blue light.

SWEEP TRAIN - The first train to operate over the mainline each day or after an interruption of service, operating on sight, prepared to stop within one half the range of vision of the Train Operator.

SWITCH - A device enabling rail vehicle movement from one track to another. There are two types:

1. Remote-controlled - Operated from a distant panel or track impulse
2. Manual- Operated by hand.

T.C.C.R. - Train Control and Communication Room.

TERMINAL STATION - The station located at each end of the rail system where turn-back operations are normally made.

TEST CONTROLLER - The designated employee on duty at the Test Control Facility with absolute authority over all movements on or affecting the Mainline.

TEST CONTROL FACILITY - The location from which all Mainline and Yard operations are authorized, directed, and controlled.

TRAIN - One or more rail vehicles combined into an operating unit, with headlights displayed to the front and taillights/marker lights to the rear.

TRAIN OPERATOR - The employee having direct control and responsibility for the safe movement of the rail vehicle.

TRAINLINE - Electrical and pneumatic functions routed through and between cars by means of couplers so that signals may be transmitted to all cars of the train.

TRUCK - The underframe containing the wheels, motors and braking components of the rail vehicle.

WIDS - Wayside Intrusion Detection System.

YARD CONTROLLER - The designated employee on duty at the division yard with absolute authority over all movements within the yard.

