GROUP	H
EXHIBIT	
28	

Agency / Organization

Washington Metropolitan Area Transit Authority

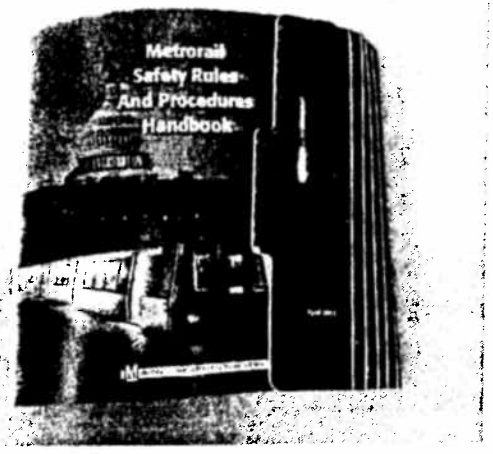
Title

Entry Level Track Walkers Course

Washington Metropolitan Area Transit Authority

ENTRY LEVEL TRACK WALKER'S COURSE WEEK ONE

SAFETY AND TRACK TOOLS



COMMUNICATION RELATED RULES

Communication is a prime factor in the safe and responsible operation of a rail vehicle . All WMATA employees who must move a rail vehicle will need to use the communication equipment. The equipment must also be maintained so that it functions as expected in emergency situations. Communications equipment used at WMATA for moving rail vehicle includes handheld radios and a on board radios. These rules cover the following points:

- following FCC/WMATA rules (1.69)
- guidelines/precautions in the use of radios (1.70)
- communications in emergencies (1.71 - 1.75)
- use plain language when describing emergency situations (1.76)
- interrupting messages (1.77)
- initiating and acknowledging message (1.78 - 1.79)
- restriction on communications (1.80 - 1.81)
- reporting equipment failure (1.82)
- proper radio use (1.83 - 1.84)

EMPLOYEE CONDUCT

WMATA has a very high standard of conduct for its employees. It expects employees to act in a professional manner and to represent the Authority favorably at all times. Rules listed below apply to employees both on and off duty while they are on WMATA property. All employees are required to read, understand, and adhere to the above mentioned rules as stated in the "**Metrorail Safety Rules and Procedures**", Section 2, Rules of Conduct. These rules cover the following points:

- conduct on/off duty (2.1)
- courteous behavior (2.2)
- use of undesirable language (2.3)
- threatening behavior (2.4)
- indecent behavior (2.5)
- dealing with public (2.6)
- employee identification (2.7)
- special favors (2.8)
- solicitation (2.9)
- gambling (2.10)
- arrests or court summons (2.11)
- misappropriation of funds (2.12)
- felony or misdemeanor convictions (2.13)
- firearms (2.14)
- fighting (2.15)
- parking or moving violations (2.16)
- sleeping on duty (2.17)
- eating or drinking (2.18)
- horseplay (2.19)
- illegal work stoppage (2.20)

SAFETY RULES

WMATA has published a set of rules under **Section 4 of the "Metrorail Safety Rules and Procedures Hand book" - Safety Rules.** These rules apply to all employees.

For the purpose of this course, the headings are grouped under the following six general topics:

- Safety Responsibilities and First Aid
- Fire Protection Responsibilities
- General
- Suitable Clothing and Personal Protective Equipment
- Work Area Related Rules
- Safety on the Road Way

The rules cannot cover every situation or hazard but are intended to address the more obvious hazards. Additional rules, regulations or warnings will be issued to supplement this basic list as necessary.

GENERAL SAFETY RESPONSIBILITIES AND FIRST AID RULES

WMATA expects its employees to know their responsibilities in regard to safety and first aid. While not every employee receives extensive training in first aid, all employees must know certain rules for dealing with situations involving injuries.

(1) Safety Responsibilities

- reporting unsafe conditions (4.1)
- supervisor responsibilities (4.2)
- safety devices (4.3)

(2) Treatment of Injuries

- reporting injuries (4.4)
- getting proper treatment (4.5)

FIRE PROTECTION RESPONSIBILITIES

Fire is an ever present danger in WMATA facilities. All rules dealing with fires must be closely followed. These rules cover the following points:

(1) Responsibilities

- reporting a fire (4.6)
- written reports (4.7)

(2) Equipment

- location of alarms and equipment (4.8)
- fire extinguisher (4.9 - 4.10)

(3) Flammable Areas

- smoking in (4.11)

GENERAL

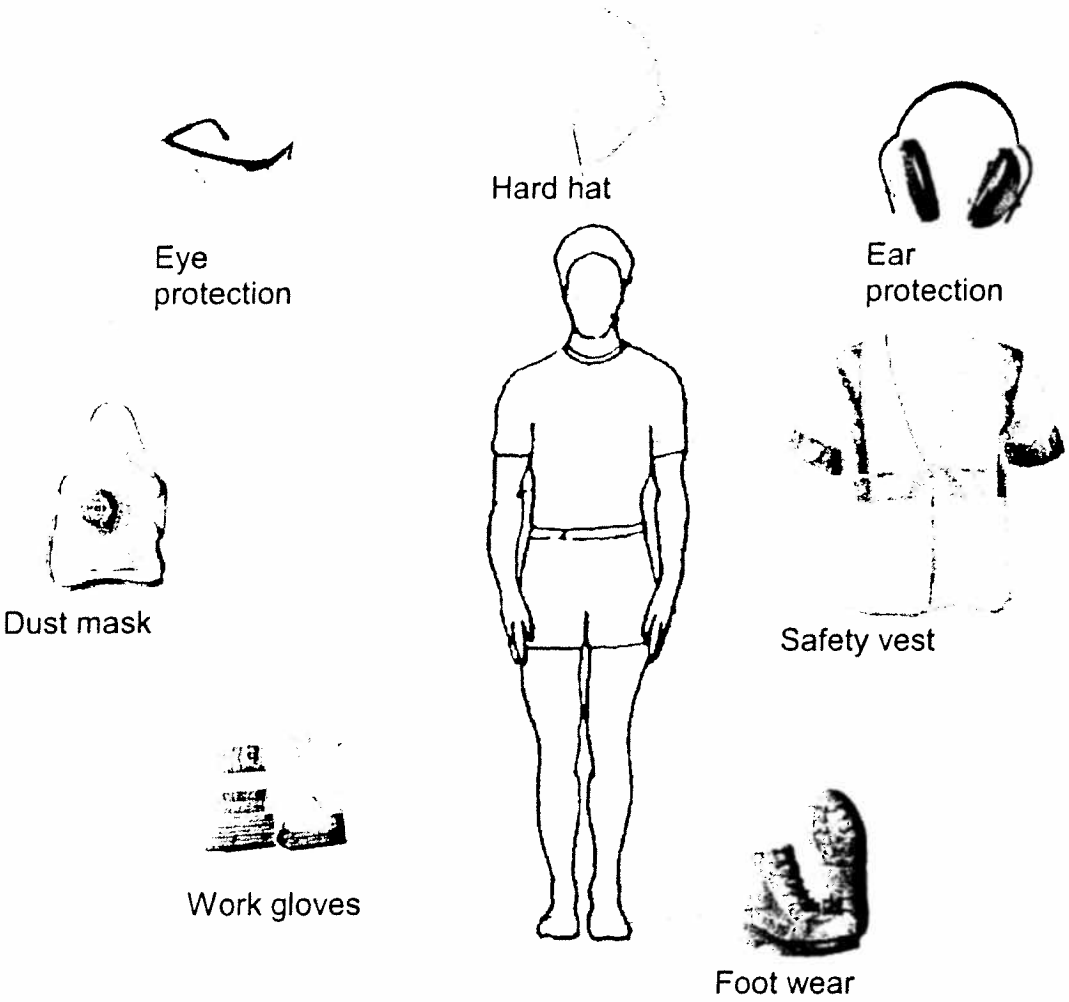
General safety rules are a matter of common sense and awareness of one's surroundings. WMATA expects its employees to exercise vigilance at all times with regard to work related hazards. This requires employee awareness of the rules and guidelines and their application to daily employee activity. These general rules are covered under the following points:

- behavioral guidelines (4.17 - 4.27, 4.30)

SUITABLE CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT

WMATA employees must be suitably and safely dressed for the job being performed. Certain types of dress and jewelry present a hazard in the work place. Rules cover the following points:

- suitable clothing (4.32 - 4.37)
- shoes and boots (4.38 - 4.41)
- eye protection, sunglasses (4.42 - 4.44, 4.50)
- umbrella (4.45)
- ear protection (4.46) **(not when inspecting track)**
- jewelry and keys (4.47 - 4.49)
- hard hats (4.51)
- rubber sleeves, gloves (4.52 - 4.53)



ALWAYS HAVE YOUR FLASHLIGHT BRIGHTNESS 65 LUMENS MINIMUM DAY AND NIGHT

HAVE AN ORANGE WHISTLE WHEN ON THE ROADWAY

HAVE YOUR WMATA ID AND RWP ID

WORK AREA RELATED RULES

Employees must anticipate possible hazards in the workplace and take appropriate action to prevent incidents or accidents. Possible problem areas include: poor housekeeping; electrical hazards; improper material handling; and improper use of tools.

(1) Housekeeping

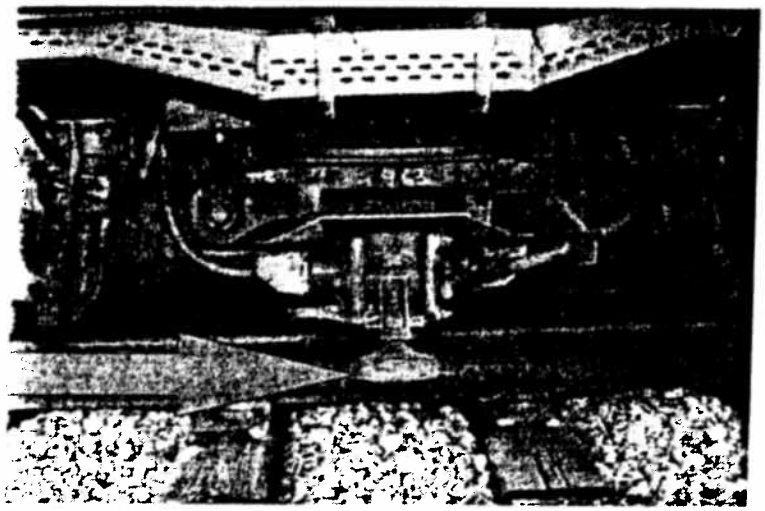
Proper housekeeping practices and procedures are necessary for a safe and efficient work place. The rules cover the following points:

- proper storage of materials and equipment (4.56)
- keeping areas clean (4.57 - 4.59)

(2) NEED TO KNOW

- bleeding air reservoirs (4.208)
- contact with rail, collector shoes
  If one shoe is hot (energized) all are hot

collector shoe



SAFETY ON THE ROAD WAY

(1) Working or Walking in Track Area

WMATA employees may be required to walk or work in track areas. These employees must be aware of the hazards that are present in these areas and the safety rules that apply at all times. Rules cover the following points:

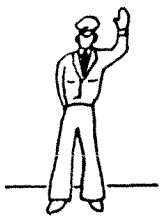
- reporting hazardous conditions (4.166 - 4.167)
- crossing the track (4.168 - 4.172, 4.177, 4.178)
- movement around trains (4.173 - 4.182)
- walking or working on tracks (4.183 - 4.188)
- third rail (4.189 - 4.202)

Aspect yellow stripes, black background

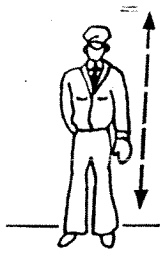
(2) Hand Signals

Signals used to give direction from someone outside a train to the train operator are called hand signals. The motions can be made with the hands, a flag or a light. These signals must be given correctly as illustrated in the rules. All personnel on the road way must be familiar with hand signaling. (Rule 3.167)

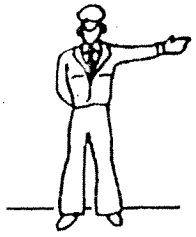
- indications and aspects (Rule 3.167)
- general procedures (Graphics Fig. 22,23 - Fig. 24,25) (there is no Fig in book for apply brakes)



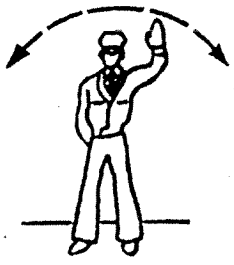
Release Brakes



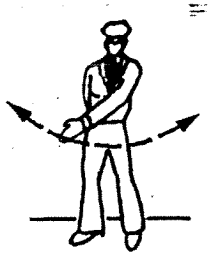
Move Forward



Reduce Speed



Apply Brakes



Stop

STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES

OUTLINE OF RAIL OPERATIONS CONTROL CENTER (ROCC) SUPERVISOR'S FUNCTIONS - SOP #1

This SOP details the responsibilities of the ROCC Supervisor throughout his/her tour of duty, whether it is during normal operations or during emergencies and unusual occurrences. Should you notify ROCC of an emergency or unusual occurrence, the ROCC Supervisor becomes responsible for coordinating all activities to alleviate that condition, and requires from you:

- your name, title and department
- the reason for the call
- the location (track number, line identification and the nearest station)
- the seriousness of the condition

You will be responsible for following all instructions from ROCC and for carrying out the procedures laid down in the relevant SOP, being aware that WMATA's primary concern is the safety of passengers and employees and the protection of property and equipment.

EMERGENCY REMOVAL AND RESTORATION OF THIRD RAIL POWER - MAINLINE SOP # 2

Third rail power may be removed for the following reasons:

- emergency maintenance
- a person under a train or in contact with the third rail
- an obstruction or person on the roadway
- a derailment or collision
- malfunctions of car equipment
- fire or smoke on cars

When an employee encounters a situation requiring emergency removal of third rail power, he/she must proceed to the nearest Emergency Trip Station (ETS) and remove third rail power in accordance with the procedure posted on the door of the ETS box. This, in fact, involves contacting ROCC, who then becomes responsible for the removal of third rail power in the section designated by caller.

Employees calling ROCC must provide the following information:

- the caller's identification
- the track number and location
- the reason for operating the ETS switch

Never assume that third rail **power** has been removed. Always wait for verification from ROCC.

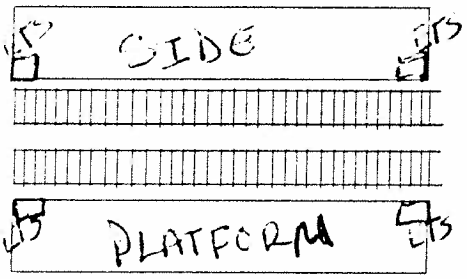
Note: Only ROCC can authorize restoration of third rail power.

Employees are then responsible for following the instructions of ROCC and for carrying out the relevant procedures laid down in SOP #2.

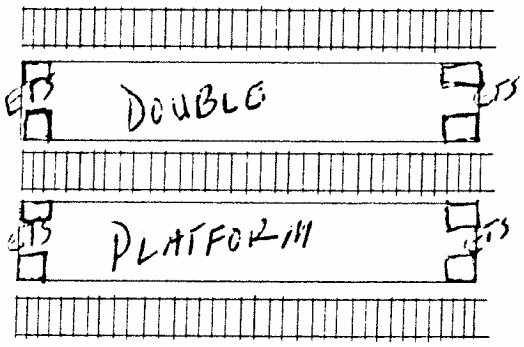
Where is the nearest Emergency Trip Station (ETS)?

DRAW A BOX WHERE THE ETS IS LOCATED

ON EACH STYLE OF PLATFORM



L A B E L



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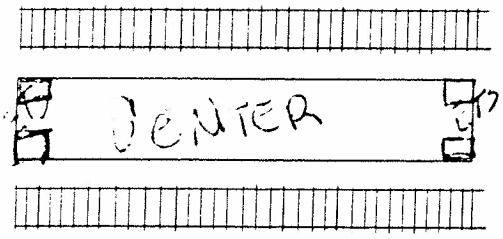


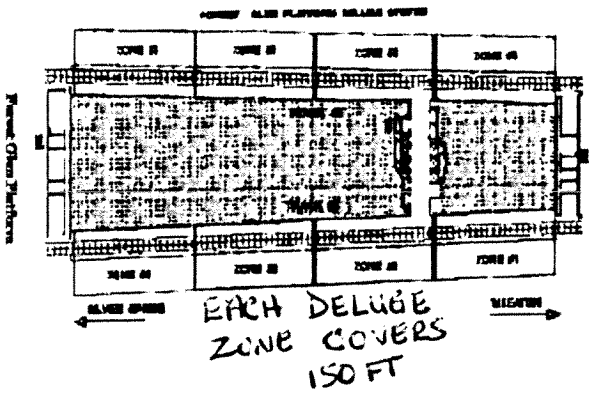
O F P L A T F O R M

FIRE AND SMOKE IN A STATION - SOP #8.59

NOTIFICATION

Employees, discovering or being notified of smoke or fire in a passenger station shall immediately notify the Rail Operations Control Center. If the employee is not the Station Manager, the Station Manager shall also be notified immediately.

A deluge system has been installed in the Forest Glen Station in the track bed, within the platform limits, to extinguish under-car fires on passenger trains and/or track vehicles.



BOMB THREATS - SOP #14 (14.5.3.7)

When employees receive a bomb threat call, they must obtain the following information from the caller and are to promptly relay this information to ROCC:

- the location of the bomb
- the scheduled time of explosion
- any identification of the bomb container: size, color, material, etc.
- the type of bomb

Employees are then responsible for following the instructions of ROCC and for carrying out the relevant procedures laid down in SOP #14.

MAINTENANCE AND TESTING ON REVENUE FACILITIES - SOP #19 (19.5.5)

The purpose of this SOP is to ensure consistency and provide guidance for all personnel requiring use of the revenue railroad for maintenance or testing of vehicles or facilities. This SOP is applicable to contractors, consultants, WMATA employees, and all other personnel desiring access to the revenue railroad or Rail Transportation (RTRA) facilities for maintenance or testing.

EMERGENCY IN A COMMON CORRIDOR - SOP #31

Essentially this SOP is directed toward ROCC Supervisors. A common corridor is a section of Metrorail track running alongside or between railroad (B&O, Amtrack, and/or Conrail) Mainline tracks. An emergency in a common corridor could be a derailment or intrusion of either WMATA or Railroad System Equipment onto the right-of-way of the other, or a fire or other occurrence that could impede or endanger operations in the common corridor.

Intrusion Detection and Warning (IDW) System is fitted in each common corridor area and will immediately indicate to ROCC the location of an intrusion if either WMATA or Railroad equipment impacts or penetrates the fence and intrudes into the right-of-way of the other.

Any employee having knowledge of or observing an emergency in a common corridor must immediately notify ROCC and provide all known details to the ROCC Supervisor. Employees are responsible for following the instructions of ROCC, and where other SOPs apply, employees are to carry out the relevant procedures under these SOPs as well as those procedures laid down in SOP #31.

BLOCKING AND CLAMPING OF SWITCHES - SOP #35 (35.4.4.4.1)

This SOP establishes guidelines and procedures for employees blocking switches, when blocks or clamps are installed without any known switch failure or related track defect (e.g., for a work area) then qualified persons who installed the blocks or clamps may be authorized to remove them.

You will be responsible for following ROCC Instructions and complying with the procedures in the SOP 35.5.1 Blocking and Clamping of Switches.

HOW TO USE FIRE EXTINGUISHER

Note : The following instructions are general nature intended to familiarize the user with the basic operating techniques of Amerrex Hand Portable Extinguisher. All operate by removing the ring (safety) pin and squeezing the handles together. Since Extinguisher differ, The Extinguisher nameplate (label) must be consulted for specific procedures and starting distances.

1.) Hold the Extinguisher upright and pull the ring (safety) pin breaking the plastic seal.

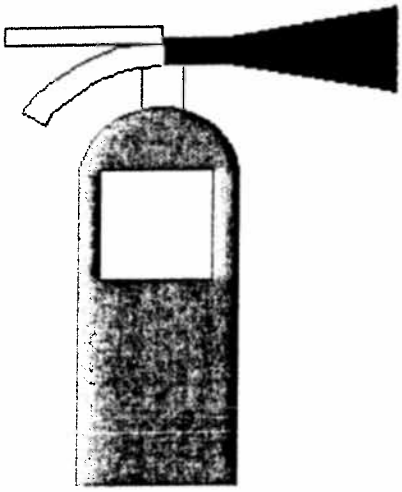
2.) Stand back from the fire (the minimum distance stated on the nameplate) and Aim at the base of the fire nearest you.

3.) Keeping the Extinguisher upright, squeeze the handles together to discharge and sweep from side to side. Move closer as the fire is extinguished but not so close as to scatter the burning material or liquid.

4.) When the fire is out, back away while watching for possible re-ignition.

5.) Evacuate and ventilate the area immediately after use. The fumes and smoke from any fire may be hazardous and can be deadly.

6.) Once the Extinguisher is used, refer to rules 4.9 & 4.10.



Q. **The "PASS" method is the correct way to use a fire extinguisher, list what each letter stands for:**

P PULL

A AIM

S SQUEEZE

S SWEEP

GENERAL ORDERS

Purpose

General Orders are of extreme importance to track personnel. General Orders can be found under the Deputy General Manager of Operations web page.

Copies of General Orders should be posted on the bulletin boards at all reporting locations. **IF NOT ASK.** It is the track walker's responsibility to acquaint themselves with General Orders when coming on duty. Each track walker should know the effect any General Order will have on his or her inspecting or traveling the Metro system.

Each issue is marked "Report # General Order" and has an issue number on the left hand side. The issue number gives the year of issue and a sequential number for that order. Each General Order has an effective date and time of issue.

TEMPORARY OR PERMANENT ORDERS

The information given by temporary and permanent orders are of extreme importance as it affects the rules and regulations under which all personnel work.

The Rule Book Committee or relevant subject matter authors Permanent and Temporary Orders.
Subject matter experts get consensus from impacted offices and the Rule Book Committee Chair prior to issuing Orders to ensure Orders address valid concerns and are in the proper format.

Permanent Order — Revision to, addition to or deletion of a rule and/or procedure requiring physical page, replacement of old with new rule and/or procedure in employee's Rule Book.
Each issue is prominently marked " **PERMANENT ORDER** ". Each issued has an issue number and an issue date. The issue number is made up from the year and a sequential number.

Temporary Order — A rule or procedure change existing for a specified time period not to exceed one year from issuance. Temporary orders are added to the back of the Rule Book.
Each issue is prominently marked " **TEMPORARY ORDER** ". Each issued has an issue number and an issue date. The issue number is made up from the year and a sequential number.

Subsequent changes to an active **Temporary Orders** shall be issued under a new Order number with an attached revision number. For example, if Temporary Order T-08-03 was revised to extend the expiration date, the new Order number would be T-08-03-1.

ANSWER EACH QUESTION BY CIRCLING TRUE OR FALSE

1. A yellow lamp placed between the running rails is a signal to proceed with caution.

   TRUE FALSE

2. General Orders are relate to daily operational restrictions and conditions on the Metrorail system mainline and yards.

   TRUE FALSE

3. Temporary Orders can be issued to make a ruling on a situation that is not currently covered by existing rules, regulations or procedures for a specified time period.

   TRUE FALSE

4. A common corridor is a section of Metrorail track running alongside or between railroad (B&O, Amtrack, and/or Conrail) Mainline tracks.

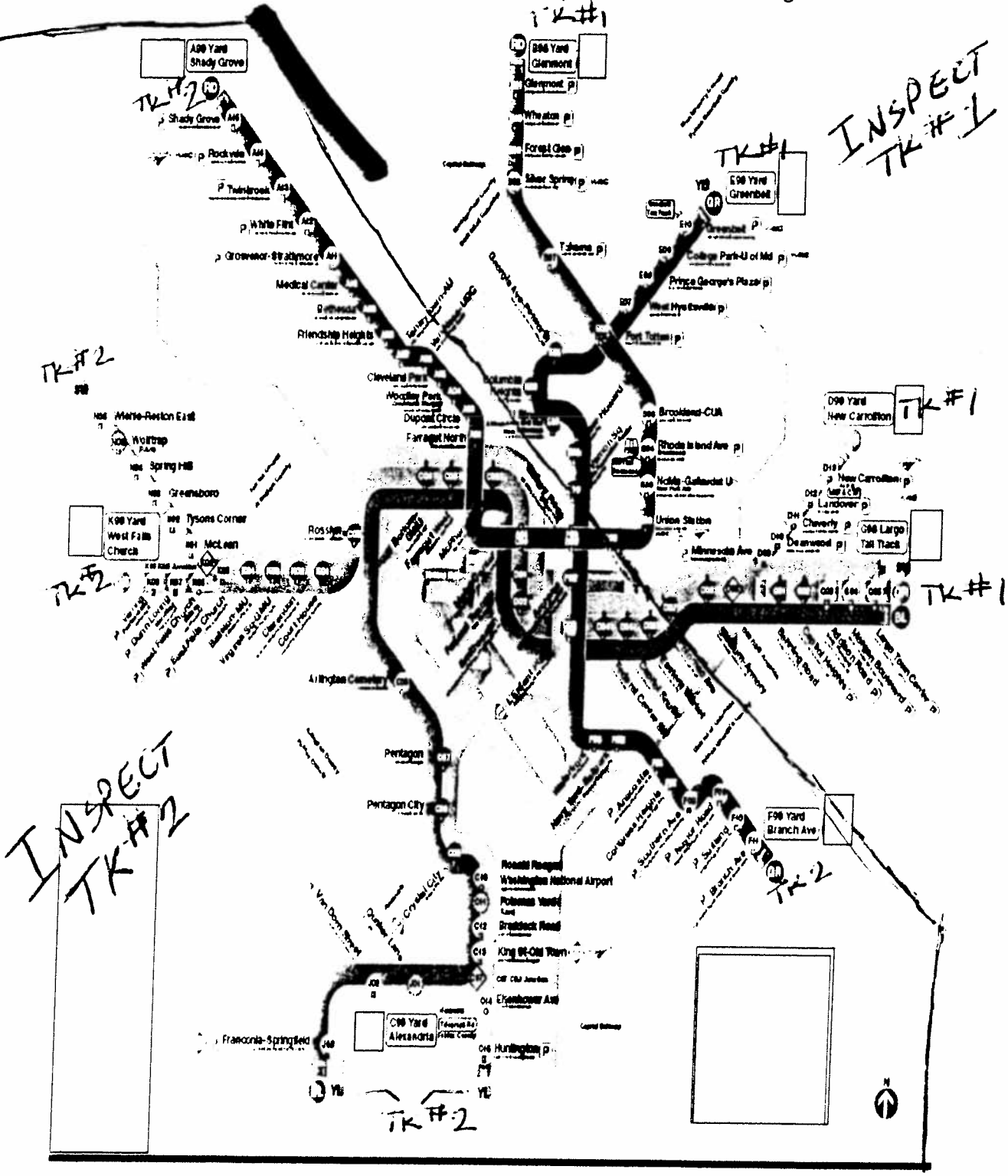
   TRUE FALSE

5. This SOP establishes guidelines and procedures for employees blocking switches, when blocks or clamps are installed without any known switch failure.

   SOP # 28 SOP # 35

S Y S T E M M A P

The Metrorail system is made up of ~~ten~~ 11 different lines These lines are used to control the traffic on the system. The lines are coded by a letter. WMATA uses the letters A through N to designate stations, maintenance yards and interlockings.



Location on the Metrorail System

The usual method of identifying stations on the Metrorail system is by name, but a code is also used to give a more precise location. An alphanumeric system is used to designate stations and maintenance yards, numbered sequentially, from Metro Center and Gallery Place to the end of the line. The further one travels away from Metro Center and Gallery Place, the larger the alphanumeric code.

A 3-digit code is used to identify a station and interlocking. Consider the code "**A01**".

The letter "A" stands for the A-line, which is the Red line from Metro Center to Shady Grove.

The "01" is the designation for the first station on that line, which is Metro Center.

Similarly, "**A02**" is Farragut North, (the second station from Metro Center on the A-line), and "A03" is Dupont Circle (the third station from Metro Center) and so on to "A15", which is Shady Grove, the last (or 15th) station on the A-line. This same numbering system is used for each line.

A feature of the 3-digit code is that any location that is not a station has the designation of "97", "98" or "99" as the last two characters of the 3-digit code.

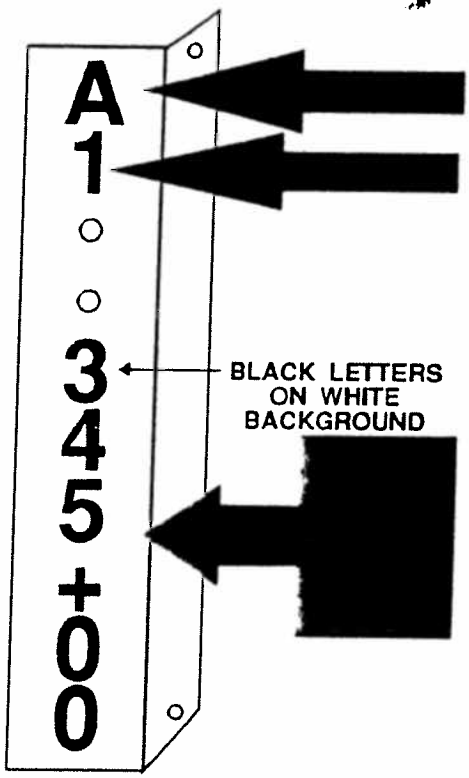
The "97" codes identify a **junction** of two lines, like **C97**, which is the C and J junction (or where the C-Line meets the J-Line).

The "98" codes identify a **junction** of two lines, like **D98**, which is the D and G junction (or where the D-Line meets the G-Line). "98" is also a Service and Inspection (S&I) Yards. (B98 Glenmont)

The "99" codes identify **Service and Inspection (S&I) Yards.** For example, D99 is the New Carrollton Yard; K99 is the West Falls Church Yard.

CHAIN MARKER SYSTEM (STATIONING MARKER)

Chain markers **(cm)** are signs placed throughout the Metrorail system to indicate the distance (**in feet**) that particular sign is from Metro Center or Gallery Place (on the E & F- Lines). They are placed a distance of 100 feet apart. These signs can be found in places such as, on the tunnel walls, on the fence along the road way, and in between the two tracks on ballasted tracks. Chain markers are also used when confirming the 3rd rail power down with ROCC. Between each chain marker there are 10 insulators, each being 10 feet apart.



STATIONING MARKER

There are two (2) sets of numbers on each chain marker and a letter.

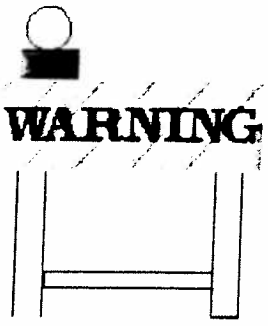
A represents the Line the chain marker is on.

1 represents the **Track number** you are on.

represents the **distance** (in feet) from Metro Center or Gallery Place (on the E & F- Lines)

If you are standing at chain marker 345+00, you are 34,500 feet from the Metro Center Station if on the A - line.

The numbering system begins at Metro Center or Gallery Place and increase in magnitude in all directions.



PERSONS ON THE ROAD WAY SHOULD ALWAYS CONSIDER THE THIRD RAIL TO BE ENERGIZED (HOT), UNLESS THEY CAN ACTUALLY TEST THE THIRD RAIL AND CONFIRM DE-ENERGIZATION. EVEN WHEN THE THIRD RAIL IS DE-ENERGIZED, TREAT THE SYSTEM AS THOUGH IT IS 'HOT'.

Mainline Configuration

LINE CODE	FROM	TO
A - LINE	Metro Center Upper Level	Shady Grove
B - LINE	Metro Center Upper Level	Glenmont
C - LINE	Metro Center– Lower Level	Huntington
D - LINE	Metro Center – Lower Level	New Carrollton
E - LINE	Mt. Vernon Sq.	Greenbelt
F - LINE	Gallery Place	Branch Avenue
G - LINE	D & G Junction	Largo Town Center
J – LINE	King Street turnout	Franconia-Springfield
K - LINE	Rosslyn turnout	Vienna
L - LINE	Pentagon turnout	L'Enfant Plaza
N – LINE	K 98 Turnout	Wiehle-Reston East

Signal Numbering

Metrorail is a double tracked system with 7 three (3) track / pocket track locations through out the system. Every line has a Track 1 and a Track 2. The Track Equipment Operator must know the track number of any track upon which he/she is traveling..

Each turnout / interlocking on the Metrorail system has a signal associated with it. All signals are referred to by a number. On main line the interlocking signals are referred to by an even numbers.

Track 1	Track 2	3 Tracks or Pocket Track		
02 & 04	08 & 06	Track 1	Track 3	Track 2
		26 & 36	34 & 44	30 & 40
		38 & 28		42 & 32

FIND YOUR WAY

DIRECTIONS FILL IN THE BLANK SPACE WITH THE CORRECT ANSWER.

- If you are working on the tracks at chain marker D -1 459 + 00. What does that mean:

  the line is D - LINE

  the track number is TRACK #1

  how far from metro center are you 45,900 FT.

- If you are working on the tracks at chain marker F -2 059 + 00. What does that mean:

  the line is F - LINE

  the track number is TRACK # 2

  how far from gallery place are you 5,900 FT.

- A Fixed Blue light located along the road way indicates the location of:

  ETS BOX

- If you are inspecting the track bed and stopped at a fixed blue light at chain marker C1 800+00, what chain marker should the next fixed blue light be if you are traveling towards Metro Center?

  792 +00

- If you are inspecting the track bed and stopped at a fixed blue light at chain marker F1 200+00, what chain marker should the next fixed blue light be if you are traveling away form Gallery Place?

  208 +00

- If you are at D -11 Interlocking, name the Interlocking. CHEVERLY

- What Alphanumeric code is the Twinbrook Station? 113 LINE

- If you are located at K-04 Interlocking, Name the Interlocking. BALLSTON

- What Alphanumeric code is the Branch Ave Station? F11 LINE

How did you sleep before coming to work?

F A T I G U E

In the track dept, it is a 24 hour operation, work crews work different shifts. The shift may be days, evening on nights. So what ever shift you work, sleep is important.

- **What is sleep?** "The natural periodic suspension of consciousness during which the powers of the body are restored."

- **How much sleep do you need per day?** So, how do you measure how much steep you truly need? If you have trouble staying alert during boring or monotonous situations you probably aren't getting enough good quality sleep. Other signs are a tendency to be unreasonably irritable with co-workers, family or friends, and difficulty concentrating or remembering facts.

WHAT CAUSES SHIFT LAG?

✓ Work Schedule

Evidence suggests that it best to work days. then evening and then nights other wise if you work a different combination you can make shift lag worse.

✓ Working at night

The main cause of shift lag is working on a night shift, after 11:00pm and before 6:00am. This period is when the body naturally resets its daily biological clock.

✓ Overtime

Overtime is the amount of time someone works beyond normal working hours. Normal hours may be determined in several ways:

by custom (what is considered healthy or reasonable by society),
by practices of a given trade or profession, by legislation,
by agreement between employers and workers or their representatives.

✓ Lack of Quality Sleep

Many shift workers never fully recover from shift lag. Even if the shift work schedule is an easy one, like two nights on and five days off. The reason is the lack of quality sleep.

WHO GETS SHIFT LAG?

✓Many shift workers

✓People who work 2 jobs or overtime a lot

✓People who don't manage their time

TIPS FOR REDUCING SHIFT LAG

✓ Quality sleep after shift

Quiet, dark, temperature controlled, comfortable

Establish a consistent bedtime routine

✓ Extra Exercise

Exercise can make you feel better and reduce stress

Engage in physical activity- like walking, biking, swimming etc..

✓ Support from family and friends

An understanding partner and family does help

✓ Drinking plenty of fluids

An adequate intake of fluids during your shift will help reduce dehydration.

✓ Help from venders and delivery people

Schedule household repairs for after your sleep time

Put a 'Do Not Disturb" sign on the front door so that delivery people and friends will not knock or ring the doorbell (if not working days)

R E V I E W

GR 1.69 Employees shall use WMATA communications equipment in compliance with Federal Communications Commission Rules and Regulations, and in compliance with WMATA RULES, PROCEDURES and GENERAL Notices.

GR 1.70 Employees shall use only WMATH ISSUED communications devices, unless otherwise authorized by the General Superintendent of Systems Maintenance.

GR 1.71 Authority telephones and radios shall be used only for official WMATA business, and CALL PREFERENCE shall be given to business pertaining to train operations or emergencies.

GR 1.72 Employees shall obtain CLEARANCE from their respective radio control points PRIOR to initiating train-to-train, train-to-wayside, or portable-to-portable communications.

GR 1.73 Employees shall not KNOWINGLY transmit nor cause to be transmitted any unnecessary, irrelevant, unidentified, FALSE, or false emergency communications.

GR 1.74 EMERGENCY messages shall be transmitted over the most expedient means of communication consistent with clear UNDERSTANDING

GR 1.75 Employees shall give PRIORITY to emergency communications, keeping communications channels CLEAR until the emergency is over.

GR 1.76 Employees shall use PLAIN LANGUAGE when describing emergency situations.

Code No.: 5485

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

POSITION DESCRIPTION
Track Walker Trainee
RAIL/TSSM

Date: 3-7-08

FLSA: NON-EXEMPT
ROLE: 2

REVIEW
RAIL: [redacted]
COBN:
LABR:

REPORTS TO: Assigned Maintenance Manager

SUMMARY:

This is a student level position leading to completion of the Track Walker Inspection Training Program (TWITP). Upon completion the trainee's will be placed in a Track Walker D position. Employee is responsible for satisfactory completion of all assigned formal training and on-the-job training (OJT). Employee is expected to complete the training in twenty-seven (27) weeks and pass the Track Walker certification exam. While on OJT, the employee works under the close supervision of the Maintenance Manager and under the guidance of "Mentor" supervisors in the respective divisions of TRST.

MAJOR DUTIES:

Employee is assigned to formal training classes related to flagging, cleaning, lubrication, inspection, required adjustments, testing, troubleshooting and minor repairs on track sections in accordance with WMATA track standards, layout, diagrams, schematics, operation manuals and manufacturer's maintenance instructions.

Works in conjunction with assigned "AA" Track Walkers to perform schedules and unscheduled inspections, troubleshooting and testing of track and track components. Uses precision measuring equipment such as track levels, track gauges and other related measuring devices.

Performs all tasks in conformance with safety and maintenance practices and procedures.

Completes written and electronic documentation and reports for the operation and maintenance of TRST.

During operational emergencies, employee responds to and provides assistance including but not limited to securing and safeguarding WMATA property.

Performs related duties as required.

The above duties and responsibilities are not intended to determine specific duties and responsibilities of any particular position. It is not intended to limit in any way the right of supervisors to assign, direct and control the work of employees under their supervision.

KNOWLEDGE, SKILLS AND ABILITIES:

Knowledge of and demonstrated ability to perform all fundamental and rudimentary track inspection duties.

Knowledge of and demonstrated ability to identify and apply basic facts and principles of the Authority's operating, maintenance and safety rules, regulations and procedures.

Ability to communicate effectively orally and in writing.

Ability to accept supervision and complete duties and work assignments timely and accurately.

Ability to work variable hours, locations and days.

Ability to deal courteously and effectively with others.

MINIMUM QUALIFICATIONS:

Graduation from high school or possession of a high school equivalency certificate.

Must pass written standardized tests for reading, mathematics and mechanical aptitude (Bennett type). Will be required to demonstrate proficiency in writing.

Must be willing to commit to and sign an agreement to remain in the Track Walker position for a period of two years upon completion of the program. The twenty-seven weeks in training will be credited towards the two year period.

LICENSE:

Possession of a valid motor vehicle operator's license issued from the jurisdiction of residence.

OBJECTIVES

Upon completion of this section participants will be able to:

- **Identify** each tool on the basic hand tool list
- **Recall** the job functions of each tool on the basic hand tool list

A major part of track maintenance work is accomplished by using specialized and expensive machinery. However, hand tools are needed to perform day-to-day maintenance work. Hand tools are required when machines break down, are unavailable or are unsuitable for a particular job.

Track work is highly specialized. The track tools that are utilized to do this work are also specialized. Most of them are designed to do one or two specific job functions very well, but are unsuitable or unsafe for other work functions. Each track employee should learn how to properly use each tool and know its limitations. Use the proper tool but let the tool do the work intended. Defective tools must be repaired or clearly marked and set aside. When clearing the track for trains or when their use is not required, be sure that tools are clear of the track and placed where they cannot endanger passing trains or create a safety hazard to fellow employees.

Tools can generally be classified in three basic groups:

- ☞ Fastening and Unfastening tools
- ☞ Moving tools
- ☞ Measuring tools

The following pages depict those tools most commonly used on our railroad.

THINK SAFETY

Wear approved eye protection.	Do not touch both rails at the same time with the claw bar or lining bar; this may short circuit the signal system on signalized track.
Do not insert a lining bar into a bolt hole to turn a rail over.	Before using a hammer check for signs of hairline cracks or mushrooming on the striking surface.
Do not swing hammers until you are sure that there is no one close by.	Do not use a spike maul to strike other tools.
Carry the claw bar and lining bar in a safe manner to avoid injury to yourself and others.	Never carry the claw bar or lining bar over the shoulder.
Check the jaws of the track wrench for chips or cracks.	Do not put a pipe extension on a track wrench.
Do not insert the pointed end of a track wrench into a bolt hole to turn a rail over.	Do not use a track wrench as a drift pin.
Do not strike the jaw end or the pointed end of a track wrench.	Do not use the track wrench when the jaw is worn and will not grip a nut properly.
Never straddle the rail when using a track wrench to tightening a nut on a bolt.	Do not use a jerking motion when tightening a nut on a bolt with a track wrench.
Avoid getting hands caught in any of the moving parts of a jack.	Never leave the jack bar in the socket when the jack is no actually being raised or lowered.
Always place track jack on the field side of the rail unless the track is protected.	Be careful that the jack bar does not slip when jacking.

ALL WAYS WEAR A HARD HAT WHEN WORKING WITH HAND TOOLS ON OR AROUND THE TRACKS.

Report defective tools to the Track Supervisor

FASTENING AND UNFASTENING TOOLS

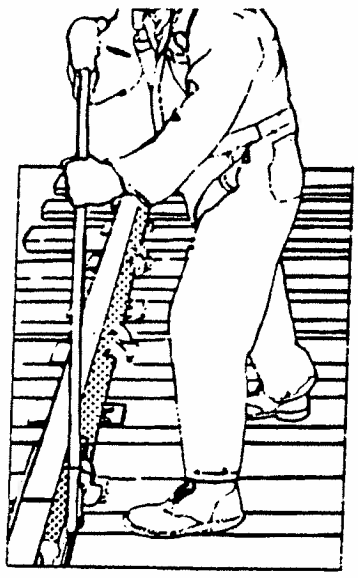
1. Track Wrenches

Approximate weight 8 to 18 lbs., length 30" to 54". Track wrenches come in three types: single end, double end and speed wrench. It is designed to fit only one nut size which can range from 1—1/4" to 2—3/16". The size is written on the handle. A track wrench is used to install and remove track bolts. Always use a wrench that fits the nut. Inspect wrench for metal burrs and slivers, and all foreign material such as grease, oil, cresote, etc. With firm footing and grip on handle, properly braced guarding against the wrench slipping off the nut. Always pull (never push) on the wrench, apply or remove the nut. (Always face the nut).

Function: Track wrenches are used to tighten or remove nuts from track bolts.

Tightening track bolts:

- Select the correct wrench size to fit the nut.
- Stand on the same side of the rail as the nut being tightened.
- Hold the wrench with one hand on the end of the wrench, and the other hand 8 to 10 in down the shaft.
- Tighten the nuts on the center bolts first. (Joint bars)
- On joint bars leave the nuts in a horizontal position when tightening, so track walkers can tell if the nut has come loose.
- Make sure that the wrench is properly applied to the nut.
- Firmly brace your right foot.
- Pull the wrench toward your body, applying a Continuous pressure until the wrench is at a 45 angle.



Safety Precautions:

- Check the jaws of the wrench for chips or cracks.
- Do not put a pipe extension on a track wrench
- Do not use a track wrench as a drift pin.
- Do not insert the pointed end of a wrench into a bolt hole to turn a rail over.
- Do not strike the jaw end or the pointed end of a wrench.
- Do not use the wrench when the jaw is worn and will not grip a nut properly.
- Never straddle the rail when tightening a nut on a bolt.

2. T-Wrench (socket Wrench With T-Handle)

Another type of wrench used in track work is a socket wrench with a T-shaped handle. Two people can use this type of wrench if necessary, in order to develop additional torque.

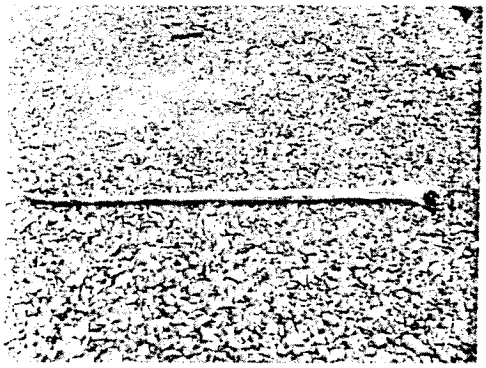
Function:

One use of this wrench is to install and remove stud and clip nuts on direct fixation track. It is also used to remove drive spikes when they are used. Also, some types of adjustable stock rail braces have bolts for which this type of wrench is suited.

- make sure it is the correct size for clips or studs nuts.(measure it)
- look inside of the socket to be sure it is free of stones and mud.

3. Claw Bar

Approximate weight 27 lbs., length 5'. This bar has a claw on one end and a chisel point on the other end. The claw end is used to pull spikes by placing claw under the head of the spike and pulling down on the bar. The chisel end is used to pry up the edge of the tie plate to loosen the spike. If unable to get the claw under the head. Inspect claw bar for burrs on handle, broken jaws, broken chisel point, grease, oil or other foreign material. Position claw bar with firm footing, place hand closest to spike palm up and other hand palm down on claw bar. Position hands on bar in such position they will not strike opposite rail or other objects. Place claw end under spike head. Pull spike, work bar up and down. Repeat as necessary. (Note If claw bar will not fit under spike or spike refuses to pull, place chisel pointed end of bar under tie plate and raise plate and spike).



Function: The main use is for pulling spikes. The pinch end can be used as a pinch bar.

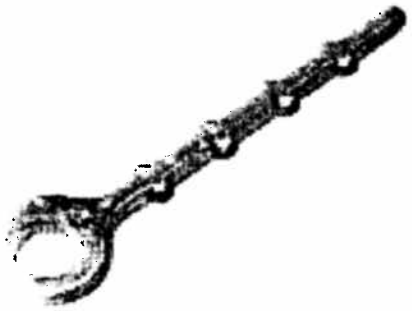
Pulling a spike:

- Place one hand in the middle of the claw bar.
- Place the other hand 3/4 of the way up the claw bar.
- If pulling a spike on the gauge side of a rail Shorten the distance between the two hands sufficiently to protect hands and fingers.
- Hold claw bar firmly.
- Place claw end of claw bar completely under the head of the spike.
- Ensure firm footing with both feet on one side of the claw bar.
- Remove the spike by using a downward jerking motion, not by applying continuous pressure.

Safety Precautions:

- Before using, check for signs of hairline cracks or mushrooming on the striking surface.
- Never carry the claw bar over the shoulder.
- Carry with the claw end down and to the side.
- Keep hands and fingers away from the pinch end, and the rail contact point when prying.
- Do not touch both rails at the same time with the claw bar; this will short circuit the signal system on signalized track.

4. Spike Puller — Approximate weight 2—1/2 lbs., length 12". The head of this tool has rounded jaws and the handle has several protrusions. This tool requires two men, and it is always used with the claw bar.



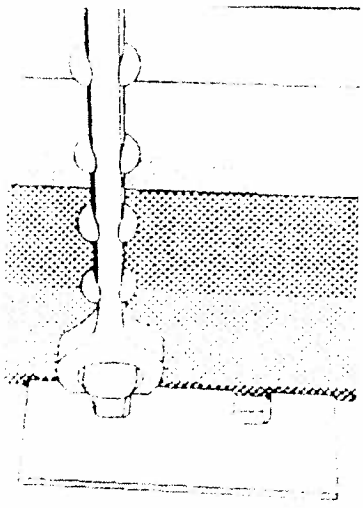
Function:

This tool is used in confined spaces to pull spikes such as guard rails, around the toe and heel of frogs and highway crossings.

To use one man slides the jaws over the head of a spike. The second man will hook the jaw of the claw bar under the protrusions and pull down on the bar using short strokes.

Safety Precautions:

- When positioning the spike puller, keep fingers clear of the area between the puller and the spike or rail.
- When using a jerking motion to pull a spike, ensure spike puller does not slip off the spike.



5. Spike Maul — A 10 lb., 15" long hammer with two different size striking faces the large end for normal spiking and the smaller end for spiking in tight places such as toe and heel of frogs, heel of a switch and guard rails.

Function: Used to drive spikes into wood ties.

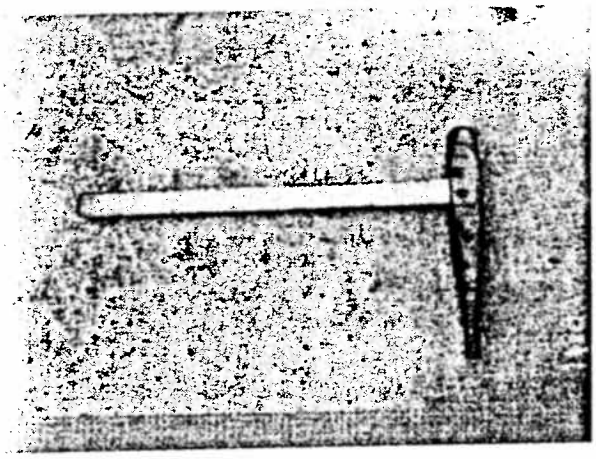
How to spike:

- Plug all spike holes (except for pre-bored holes in hardwood ties) before spiking.
- To start a spike, point the lip of the spike head toward the rail.
- Hold spike perfectly perpendicular with your palm up and all fingers away from the rail.
- Tap the spike with the maul to set it firmly.
- Give the spike several light taps to ensure it is well set without swinging the maul fully.
- Place one hand near the end of handle farthest away from the spike maul head and the other hand 3/4 of the way up the handle.
- Hold the spike maul firmly.
- Stand on the same side of and along side the rail being spiked. Do not spike over the rail. (Handle may break)
- Stand about the length of the spike maul away from the spike.
- Do not straddle the rail.
- Raise the maul to shoulder height.
- Swing the spike maul downward, sliding the hand in the center of the handle towards the hand near the end of the handle.
- Bend the knees and back to ensure the spike is struck squarely.
- While swinging the spike maul, keep an eye on the head of the spike.
- Drive the spike until the underside of the spike head is within 1/8 in of the rail base. The spike should not contact the rail base.

Safety Precautions:

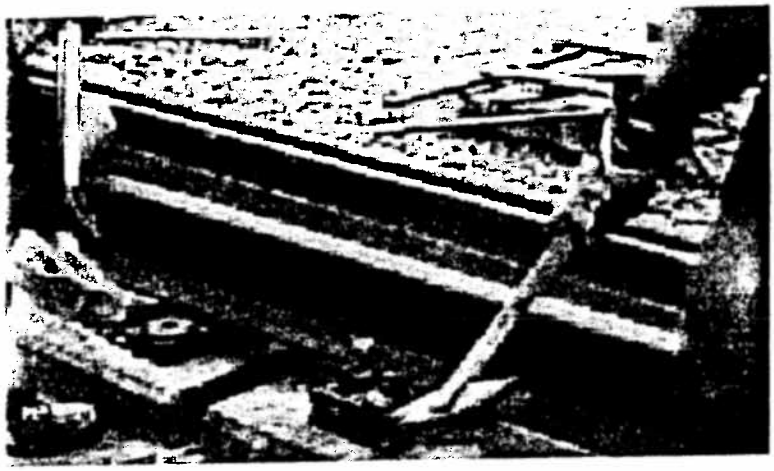
- Wear approved eye protection.
- Before using, check for signs of hairline cracks or mushrooming on the striking surface.
- Do not swing the spike maul until you are sure that there is no one close by.
- Do not use a spike maul to strike other tools.
- Do not bend the spike if so, remove, straighten, and start over.

6. Track Punch (B & O Hammer) Approximate weight 5.5 lbs, length 13". It features a round punch and striking face. It is used for punching out track bolts that are frozen.



Function:
used for punching out track bolts that are frozen

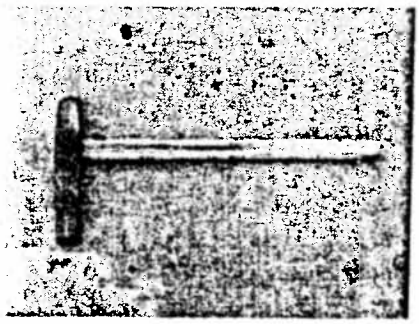
Two men are required to use. One man holds the punch against the object to be driven, the other man strikes the punch on its striking face with a sledge hammer.



Safety Precautions:

- Wear approved eye protection.
- Whenever striking other tools, ensure others stand well clear.

7. Track Chisel Approximate weight 5.5 lbs, length 10—1/2". It features a rounded chisel point and striking face. It is used for cutting rail and frozen nuts from track bolts. This tool requires two men; one to hold the chisel against the object to be cut, the other strikes the chisel on its striking face with a sledge hammer.



Function: Re-moving C-bonds is procedure requires two people, one to hold the track chisel and one to swing the sledge hammer.

Person with the track chisel:

- Hold the track chisel by the handle, extended at arms length.
- Hold the track chisel at an angle of 15 to 30 degrees.
- Place the cutting edge squarely on the C-bond to be re-moved.
- Reset the cutting edge squarely on the C-bond after each blow from the sledge hammer, if necessary.

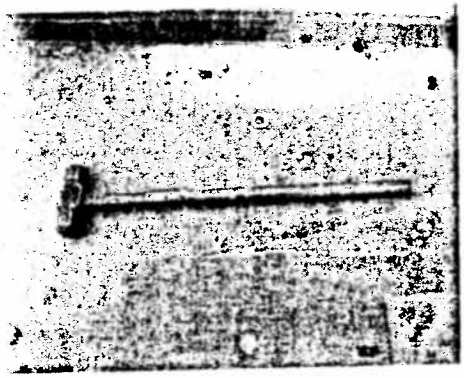
Person with the sledge hammer:

- Position yourself in front of and a little to one side of the person holding the chisel.
- Stand about one sledge hammer handle length away from the chisel.
- Tap the track chisel head with the sledge hammer to set the chisel.
- Strike the head of the track chisel squarely with the sledge hammer.
- After any necessary resetting of the cutting edge, continue striking the track chisel until the C-bond is completely re-moved.

Safety Precautions:

- Wear approved eye protection.
- Whenever striking other tools, ensure others stand well clear..

8. Sledge Hammer Usually a 8 lb. double faced hammer each face the same size. This tool is suited for striking tools such as a spike lifter, punch, or track chisel. Do not drive spikes with it or use it to strike the claw bar when removing tight spikes.



Function:

A sledge hammer is used to strike other tools such as a track chisel or a rail drift pin. It also has other uses, such as installing or removing rail anchors.

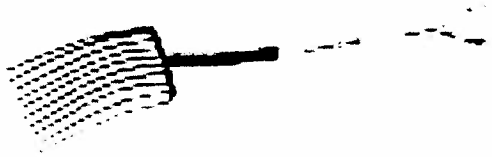
Safety Precautions:

- Wear approved eye protection.
- Whenever striking other tools, ensure others stand well clear.

SOMETHING TO THINK ABOUT

- How do you determine the size of a track wrench? WRITTEN ON HANDLE
- Why should you leave the nuts in a horizontal position when tightening joint bar bolts. TO KNOW IF IT HAS LOOSENED.
- Why should you look into the socket of a T-wrench before using it? TO MAKE SURE ITS CLEAR OF DEBRIS.
- How do you determine the size of a T-wrench? MEASURE IT
- If you needed to pull a spike, and there isn't enough room to use a claw bar, what tools should you use to get the spike out? SPIKE PULLER
- Should you drive a spike over a rail? If yes why, If no why not NO, HANDLE MIGHT BREAK
- Should your hands be apart or together when you start to swing the track hammer down? TOGETHER
- Should you hit a B and 0 hammer with a spiking maul? NO
- What can you use the small end of the B and 0 hammer for? PUNCH OUT FROZEN RAIL BOLTS
- When cutting off C—Bonds, what angle should you hold the track chisel? BC 15 TO 30 DEGREES

9. Ballast Forks — Approximate weight 6—1/2 lbs, length 34" width, 9—3/4". Ballast forks are furnished with ten tines. They are used for cleaning cribs and hand tamping ballast under ties.. If a piece of ballast should stick between the tines, spread the tines on the side of the head of the rail to remove the ballast..



Function: used for cleaning cribs and hand tamping ballast under ties.

Safety Precautions:

- Lay the fork on the ground with the tines down.
- Never bang (hit) the fork on the rail.
- Wear approved eye protection.

10. Track Jacks

Track jacks come in two sizes low and high. We will talk about the high jack. It is used to raise track and switches, renew ties and to line track. Check equipment: (1) Be sure jack is working properly and free of foreign material; (2) Be sure jack bar is straight and free of burrs. (Setting jack): (1) Prepare site for placement of jack on firm footing; (2) Set jack on field side of rail with top of jack slightly canted toward center of track (When conditions require placement of jack inside rail, jack will be set slightly canted toward field side); (3) Be sure lifting paw (foot) is completely under base of rail.

Lifting operation:

(1) Fully insert jack bar and position body properly with good footing;
(2) Operate jack with good, steady pulls and listen for notch clicks;
(3) Bar will be removed from jack upon completion of lifting operation.

Release jack:

(1) Alert persons that jack is being released, and determine that all persons, material and equipment are in the clear;
(2) Fully insert bar and set paws;
(3) When tripping jack, assume a balanced position with firm footing and pull bar to release jack if lowering the jack by walking down, use a steady, even pressure on the bar. Before releasing the pressure on the bar, paws must be fully engaged in the rack.

Safety Precautions:

- Never leave the jack bar in the socket when the jack is not actually being raised or lowered.
- Be careful that the jack bar does not slip when jacking.
- Do not oil or grease the ratchet teeth.
- Keep fingers clear of pinch points.
- Avoid getting hands caught in any of the moving parts.

11 Lining Bar — Approximate weight 18 to 26 lbs., length 5' to 5'6". This bar comes in three types: the pinch, wedge and diamond point.

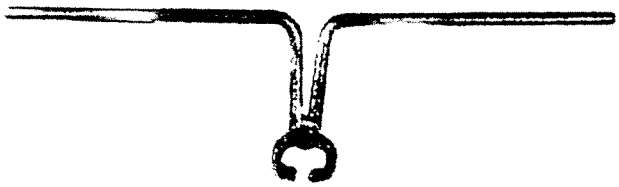
Function: Use lining bar for lining rail or spacing ties with firm footing and good balance. Place bar at an angle to the rail or tie.

Used as a jack bar.

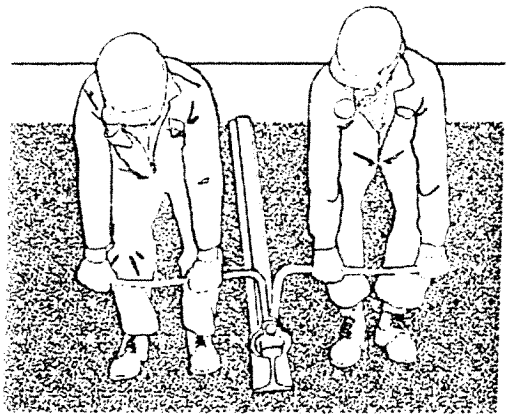
Safety Precautions:

- Before using, check for signs of hairline cracks or mushrooming on the striking surface.
- Never carry the lining bar over the shoulder.
- Carry to the side.
- Keep hands and fingers away from the pinch end.
- Do not touch both rails at the same time with the lining bar; this could short circuit the signal system.

12. Rail Tongs — Approximate weight 18 lbs., length 3'6". Rail tongs have rounded jaws attached to hinged handles. This tool requires two men.



Function: It is used for handling rails by hooking jaws under rail head. Usually 4 to 6 men with rail tongs will handle a 19' 6" rail.



To move rail determine weight to be raised

- Inspect rail tongs for worn jaws, burrs on handled and rivet wear.
- Select clear path of travel.
- With secure footing, grasp handles firmly at ends and lift on signal.
- Walk in step while carrying load.
- On signal, lower rail in designated place.

Safety Precautions:

- Be sure there are enough workers to lift rail.
- Be careful that all feet are clear when lowering a rail.
- Two workers are required per rail tong.
- Workers on each side of rail tongs should be about the same height.

13. Tie Tongs — Approximate weight 12 lbs, width 3'8". There are two types of tie tongs: one man and two man. Both have pointed jaws attached to hinged handles, they are used for removing, installing and stacking ties. Before using, inspect timber tongs, check points for sharp rivet for wear, and burrs on handles. (Position timber tongs)

Function: used for handling ties

- Check timber for soundness
- Determine weight to be raised
- Select clear path for travel
- When possible pair off in same weight
- Position tongs square and level on timber work way equal distances from ends, not too close to edges of timber.

(Note Avoid placing points of timber tongs in knots, rotten wood, or metal. Lifting with timber tongs) (1) With secure footing, grasp handles firmly at ends and lift on signal walk in step while carrying load. Place timber with timber tongs) (1) On signal , lower timber in designated place (2) Place tongs clear of work area.)

Safety Precautions:

- Be sure points of tongs have firm bite in the wood before pulling.

14. Rail Fork (Turner)

Approximate weight 13 lbs., length 3'4" Rail turners are used for turning rail out of plates or setting rail upright. The Rail Turner has three notches for grasping the rail. The rail can be grasped on the side of the head, the edge of the base or the web at the rail end. With firm footing and grip on handle tools that move material.

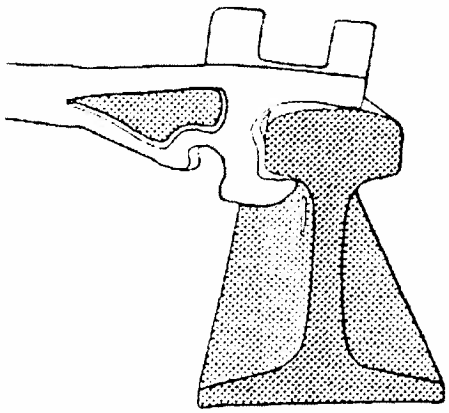
Function: used to roll a rail.

How to roll a rail:

- Bend the knees and keep the back straight.
- Straighten the legs and lift on the bar until the rail rolls over.
- Place the web-grabbing portion of the rail fork to fully contact the underside of the rail base and the lower fillet of the rail.

Safety Precautions:

- Always roll the rail away from yourself.
- Do not turn rail by placing any tool into a bolt hole.

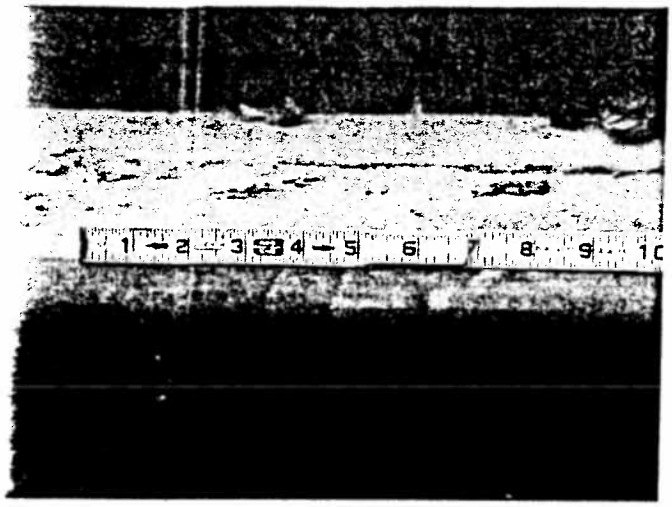


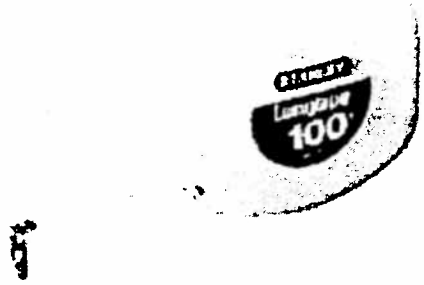
SOMETHING TO THINK ABOUT

- What are the two most common uses of the ballast fork?_____
_____
- What is a mechanical jack used for? _____
_____
- How many men are needed to man one pair of rail tongs?_____
- Should the points of tie tongs be sharp or dull? _____

16. Six foot ruler

Various types of measuring tools are used in track work. The 6' pocket ruler , the 50 foot and 100 foot tapes have a great many uses, such as measuring rail and switch ties, checking clearances, marking the spacing and checking track gages, and when measuring for radius using a crane etc..





15. Track Gage — The track gage has two rail lugs on one end and one on the other end.

Function: used to measure the distance between the rails of a track.

How to measure track gage:

- Place the end with two lugs on one rail insuring both lugs are touching the side of the rail head.
- Then place the end with the single lug on the opposite rail. If gage is proper, the lugs will be snug, but not tight. If the gage is open, you can determine how much by measuring the distance between the single lug and the rail.
- Do not force the gauge between the rails when using.
- Do not remove the gauge by lifting with a spike maul.
- Always check to see if the lugs or bar are bent.

Safety Precautions:

- Do not force the gauge between the rails when using.

SOMETHING TO THINK ABOUT

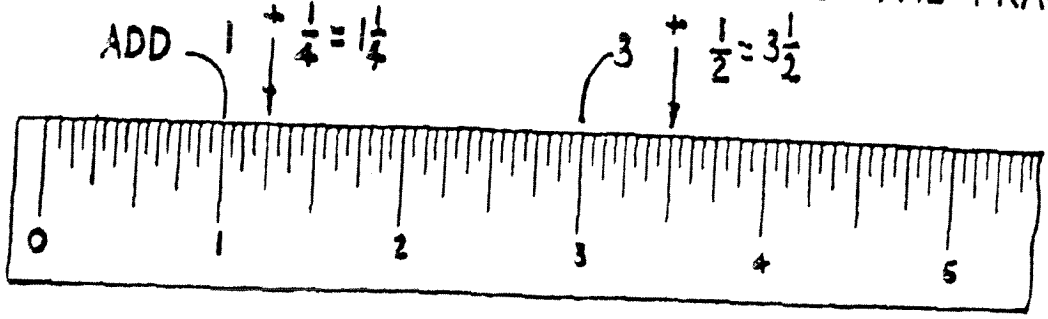
$\frac{1}{16}$	$\frac{2}{16}$	$\frac{3}{16}$	$\frac{4}{16}$	$\frac{5}{16}$	$\frac{6}{16}$	$\frac{7}{16}$	$\frac{8}{16}$	$\frac{9}{16}$	$\frac{10}{16}$	$\frac{11}{16}$	$\frac{12}{16}$	$\frac{13}{16}$	$\frac{14}{16}$	$\frac{15}{16}$	$\frac{16}{16}$
	$\frac{1}{8}$		$\frac{2}{8}$		$\frac{3}{8}$		$\frac{4}{8}$		$\frac{5}{8}$		$\frac{6}{8}$		$\frac{7}{8}$		$\frac{8}{8}$
			$\frac{1}{4}$				$\frac{2}{4}$				$\frac{3}{4}$				$\frac{4}{4}$
							$\frac{1}{2}$								$\frac{2}{2}$
															$\frac{1}{1}$
															1

Math, sometimes referred to as the science of numbers, is a basic skill required when preforming track maintenance. We are always counting or measuring something as part of our day - to - day lives. The most basic function we do is take measurements with a ruler. The ruler we use is mark in 1/16 of an inch.

This system is based on fractions. Remember that fractions are used to describe numbers that are larger than zero but less than one.

When fractions are added or subtracted from each other, they must have the same denominators.

TO READ FRACTIONS GREATER THAN 1 INCH, JUST ADD THE PRECEEDING WHOLE NUMBER TO THE FRACTION.



RULER REVIEW

- ❑ How many 1/16ths are in 1"? _____
- ❑ How many 1/8ths are in 1"? _____
- ❑ How many 1/4ths are in 1"? _____
- ❑ How many ½ are in 1"? _____
- ❑ How many inches are in a foot? _____
- ❑ ½ + 1/4 = _____
- ❑ 3/8 + 1/8 = _____
- ❑ 7/16 + 1/8 = _____
- ❑ 11/16 + 1/8 = _____
- ❑ 5/8 + 3/16 = _____

CHANGE THE FOLLOWING FRACTIONS TO HAVE LEAST COMMON DENOMINATORS

EXAMPLE:

	½ & 11/16	equals	8/16 & 11/16
❑	7/8 & 6/8	equals	&
❑	3/8 & 1/4	equals	&
❑	3/4 & 8/16	equals	&
❑	5/8 & 16/16	equals	&
❑	2/4 & 1/8	equals	&

WHAT CAN YOU REMEMBER

	Track Hand Tools	Function:	Three Basic Groups
	Track wrench		
	T-wrench		
	Claw bar		
	Spike puller		
	Spiking maul (track hammer)		
	Track Punch (B & O hammer)		
	Track chisel		
	Sledge hammer		
	Ballast fork		
	Mechanical Jack (track jack)		
	Lining bar		
	Rail tongs		
	Tie tongs		
	Rail turner		
	Track Gauge		
	100 foot tape		


"SAFETY STARTS
TRACK
WITH ME!"

LABEL THE INTERLOCKING SIGNALS