New York City Transit
Manhattan and Bronx Surface Transportation Authority

SUPERVISORY EXAM REFERENCE BOOKLET

PROMOTION TO MAINTENANCE SUPERVISOR EXAM # 3700

PROMOTION TO LINE SUPERVISOR EXAM # 3200

The multiple-choice test may include questions on the installation, troubleshooting, inspection, repair, testing and maintenance of automotive/bus equipment, including tools and equipment used in automotive maintenance; safe and efficient work practices and procedures; reading and interpreting technical drawings, wiring diagrams and schematics; the effective application of supervisory methods and practices; New York City Transit rules, regulations, policy instructions, procedures and labor-management practices; the ability to perform basic arithmetic calculations; and other related areas.

The multiple-choice test may include questions that require the effective application of reference material on safe and efficient work practices and procedures, and supervisory and labor management policies, practices and procedures from this reference booklet. There are eight pages of reference material in this booklet.

Information contained in this booklet does not replace or supersede any current or future policies, rules or procedures.

You will NOT be permitted to refer to this booklet during the test.

Page intentionally left blank

DAILY DUTIES OF A MAINTENANCE SUPERVISOR

1. Sign in.
2. Review maintenance needs including the list of buses held over from the previous shift and scheduled preventative maintenance.
3. Review employee availability: number of employees on duty including the number of employees on overtime.
4. Establish a priority list. Evaluate whether any of the scheduled, preventative maintenance can be deferred if necessary.
5. Check on the availability/condition of tools, equipment, parts and material needed to perform specific jobs.
6. Distribute assignments to maintainers based on their knowledge and skill. For example, a maintainer requires specialized training and certificates to repair an air conditioning defect.
7. Discuss special safety needs for individual assignments with individual maintainers as needed. For instance, a hybrid bus has a high voltage electrical system that requires extreme caution.
8. Manage by walking around (MBWA). Check the status of bus repairs on an hourly basis.
9. Update the maintenance database with information on work that was assigned.
10. Prepare new work orders for buses returning to the depot with defects.
11. Establish new priority list based on new work orders and existing workload.
12. If you or your staff experience coverage conflicts and/or staffing issues, you are required to notify the manager on duty.

SCHEDULED OPERATIONS INSPECTION

The Scheduled Operations process is critical to our maintenance program. The Scheduled Operations Inspection is a complete bus inspection done by a maintainer. Here are five steps the supervisor must follow for Scheduled Operations Inspections:

1. Review the Scheduled Operations Inspection sheet. The inspection sheet is a list of bus components that are to be inspected by the maintainer.
2. After the maintainer performs the inspection, validate the completed inspection sheet handed in by the maintainer. The supervisor must physically check the defects found by the maintainer.
3. Sign the inspection sheet.
4. Update the database.
5. Create a work order based on the verified inspection sheet.

DELEGATION

Delegation means to trust another person to do a job for which you are responsible. Supervisors are always accountable for the work of their units. Supervisors are also accountable for the effectiveness of their delegations. The factors to consider when determining which maintainer you should delegate a particular assignment to, includes:

1. The assignment to be performed.
   - What type of knowledge is required to perform the assignment? For instance, does the assignment require knowledge of hydraulics?
   - Does the assignment require a particular skill, such as troubleshooting of electrical systems?
   - It is critical that the maintainer possess the knowledge and skills required to complete the assigned task.
2. The knowledge and skills of the maintainers on duty.
   - What are the knowledge and skills of the maintainers who are available to perform the assignment?
3. The requirements of the shop or depot.
   - Do you need to restore a bus to operating service as soon as possible?
4. Can you restore a bus to operating service *safely*?
   - For instance, maintenance of the brake system is critically important to the safe operation of a bus. Therefore, a bus with defective brakes should not be restored to service until the brakes are fully operational.

The Four Steps of Delegation are:

1. Make sure that the maintainer understands the assignment and agrees to perform the assignment.
2. Make sure that the maintainer has the resources such as tools, parts and material, to perform the assignment.
3. Tell the maintainer how you will check his or her work, or how he or she is to report completion.
4. Follow up in a timely manner. For a typical maintenance assignment, check up approximately one hour after the task was assigned.

PRIORITIZATION

The following method of prioritizing tasks has been found to be useful, although it may seem counter-intuitive:

1. At the beginning of your shift, make a “To Do” list.
   - First, make a list with all of the tasks that need to be done.
   - Then, next to each task, mark the importance of each task with a letter to indicate how important it is, from A (very important) to F (less important).
   - Then, re-do your list in order of priority, with the most important task at the top of the list.
2. After you complete the first task on the list:
   - *Don’t* do the next task on the list.
   - Review the remaining items on the list and think about whether the next item on the list is still your highest priority. You may find that your priorities have changed. If your priorities have not changed, perform the second task on the list.
   - If the priorities for many tasks have changed, make a new “To Do” list with the tasks organized in the new order of priority.

CONFLICT RESOLUTION

Conflict resolution can be defined as the methods involved in resolving a conflict. Conflicts occur when people disagree and perceive a threat to their needs, interests or concerns. Below are techniques that supervisors can use to resolve workplace conflicts:

Resolution Techniques

- Identify and define the conflict in specific terms.
- Focus on areas of common interest and potential areas for agreement.
- Never jump to conclusions or make assumptions about what another is feeling or thinking.
- Listen without interrupting; ask for feedback if needed to assure a clear understanding of the issue.
- Generate alternative solutions.
- Discuss the pros and cons of the alternatives. Listen as well as state your case.
- Select the best course of action that all can agree upon.
- Implement only the parts of the plan that are in agreement. Remember, when only one person’s needs are satisfied in a conflict, it is NOT resolved and will continue.
- Follow-up to evaluate the effectiveness of the plan and make adjustments as required.

SAFETY AUDIT PROCEDURES

Safety auditing is a core safety management activity which provides a means of identifying potential problems before they have an impact on safety. The improvement of safety performance depends largely upon the reduction of unsafe acts through detection, immediate corrective action, and follow-up to prevent their recurrence. Supervisors should employ these observation techniques when performing a safety audit:

1. React immediately to unsafe acts or conditions.
2. Stop as you enter an area and observe the reaction to your presence. Employees may correct unsafe practices when you enter. You need to recognize these unsafe acts if you are to prevent them from happening.
3. Observe activity. Do not avoid the action.
4. Remember ABBI. This means look **A**bove, **B**elow, **B**ehind, **I**nside.
5. Maintain a balanced approach. Observe all phases of the job.
6. Make notes for your follow-up or someone else's action. For example, you might plan to review the procedure for a job you observe.

PREVENTIVE MEASURES

Preventive measures mean all useful, practical and effective methods that make it possible to avoid the occurrence of a hazardous situation. In order to address identified and assessed hazards, employers must take preventive measures to address the assessed hazard **in the following order of priority**:

1. The elimination of the hazard, including using engineering controls which may involve mechanical aids.
2. The reduction of the hazard through warning signs or lights.
3. The provision of personal protective equipment, clothing, devices or materials.
4. Administrative procedures such as the management of hazard exposure and recovery periods and the management of work patterns and methods.

As part of the preventive measures, the employer must develop and implement a preventive maintenance program in order to avoid failures that could result in a hazard to employees.

Employers must ensure that any preventive measure does not in itself create a hazard and should take into account the effects on the work place.

The preventive measures should include steps to address:

(a) A newly identified hazard immediately;

(b) Hazards that are identified when planning the implementation of change to the work environment or to work duties, equipment, practices or processes.

ACCIDENT INVESTIGATION PROCEDURES

An accident can be defined as an unplanned event that interrupts the completion of an activity, and that may (or may not) include injury or property damage. The accident investigation process involves the following steps:

1. The supervisor should immediately provide first aid to injured person(s) if necessary.
2. The supervisor should perform a preliminary damage assessment.
3. The supervisor should report the accident to the Bus Command Center.
4. The Bus Command Center should inform the Office of System Safety.
5. The Office of System Safety should:
    a. Investigate the accident
    b. Identify the root causes
    c. Report the findings
    d. Develop a plan for corrective action
    e. Implement the plan
    f. Evaluate the effectiveness of the corrective action
    g. Make changes for continuous improvement

FUEL STATION SAFETY

When working on or near the Fuel Station there are important guidelines that must be followed.

Five Fuel Station Safety Guidelines (in order of importance)

1. Smoking on or near the fuel station is prohibited.
2. Spills are to be cleaned up in a timely fashion.
3. Debris and rags are to be properly disposed of immediately.
4. Posted signs and lighting are to be in working order.
5. Record all fuel readings prior to opening up the fuel station.

BASIC STEPS TO LOCK OUT

Lockout is the use of locks to prevent machinery or equipment from being started up accidentally when maintenance work is being done.

Five Steps to Lock-Out Machinery and Equipment

1. Identify the machinery or equipment that needs to be locked out.
2. Shut off the machinery or equipment. Make sure that all moving parts have come to a complete stop. Also ensure that the act of shutting off equipment does not cause a hazard to other workers.
3. Identify and de-activate the main energy-isolating device (such as a switch or valve) for each energy source.
4. Apply a personal lock to the energy-isolating device for each energy source, and ensure that all parts and attachments are secured against inadvertent movement.
5. Test the lockout to make sure that each energy source has been effectively locked out. First ensure that all workers are in the clear and that no hazard will be created if the lockout is not effective.

FALL PROTECTION

Fall protection is always required when working on top of the bus. The fall protection system is a body harness that is secured with straps attached to a click type cable system. The purpose is to prevent a maintainer from being injured if he or she were to fall. The harness wire length allows for a three foot drop, which will keep the user from hitting the ground. There are several tasks a maintainer should do before and after using a fall protection harness.

Before using the harness:

1. Make sure you are within weight limits.
2. Inspect all locking straps and latching clip locks.

After using the harness:

1. Clean/remove surface dirt with a sponge and water clean.
2. Hang up the harness to dry.
3. Inspect the cable and brackets.

CARBON MONOXIDE

Carbon monoxide is a poisonous gas which is dangerous at high levels. It's created when fuels burn. Carbon monoxide is odorless, colorless and tasteless which is why it's often called the "silent killer."

Carbon monoxide poisoning has symptoms that are similar to the flu: nausea, headache, burning eyes, confusion, drowsiness, and loss of consciousness. The key difference is that there is no fever with CO poisoning. The symptoms tend to disappear when the person gets fresh air. These are all warning signs.

The first **symptom*** of carbon monoxide poisoning is usually a ***tightness across the forehead*****,** followed by ***headache*** and **pounding of the heart**. However, if the carbon monoxide is very concentrated, the victim may pass out without feeling any of these symptoms.

Do **not** enter an enclosed or confined space such as a garage or a maintenance bay if a suspected victim of carbon monoxide poisoning has become unconscious, or has passed out.

Recommended Actions for an Unconscious, Suspected Victim of Carbon Monoxide Poisoning:

- Do not enter the area where the victim has passed out or become unconscious. Don't become a victim yourself.
- The first thing you should do is, *if it is possible to do so safely,* ventilate the affected area where the victim is.
- Then, *if it is possible to do so safely,* eliminate the source of the carbon monoxide.
- You may then, *if it is possible to do so safely,* remove the victim from the affected area and perform first aid as described below.

Recommended First Aid for Victims of Carbon Monoxide Poisoning:

- Move victim away from contaminated area into fresh air and loosen his or her clothing.
- Give artificial respiration or CPR, as appropriate.
- If oxygen is available, give it to the victim by using a face mask.
- Seek medical attention immediately.
- Keep the victim resting.

CHEMICAL SPILLS AND LEAKS

Do You Know What to Do?

There is much that you can do to prevent a spill or leak, but if one occurs, your safety and that of others depend on your quick and appropriate response.

Prevention

Since the best spill is no spill at all, follow these procedures to reduce the chance of one occurring:

- Inspect containers regularly for leaks, corrosion, and worn seals.
- Handle containers with care, removing only as much of their contents as you need at a time.
- Close containers after using them.
- Find out how to dispose of chemicals you no longer need.

Getting Ready

- "Getting ready" for a spill? Yes - unfortunately spills do happen, and there are certain preparations you should make:
- Be familiar with your company's emergency response plan, evacuation routes for your area and your assigned role in a spill situation.
- Check labels and Material Safety Data Sheets of chemicals you use.
- You should know the potential hazards - fire, explosion, reactivity, toxicity - that might be present in a spill.
- Make sure that the phone number of the emergency coordinator to whom you must report a spill is clearly posted.

When a Spill Happens

If a spill occurs, try to avoid touching it, walking in it, or breathing it - whether it has an odor or not.

Contain the Spill

The first step is to try to stop the leak or spill by securing a valve, closing a pump, plugging a hole in a leaking container or shifting a container to stop the flow. A barrel may be placed under the leak, or the leaking container may be placed in a larger container or a bag.

Report the Spill

Report a spill or leak as soon as possible. Be prepared to tell what is leaking or spilled, where it is, the size of the spill or the leak's rate of flow.

Afterward

Following cleanup of a spill, clothing and equipment involved in the cleanup must be decontaminated according to company procedures. OSHA regulations require each spill to be reviewed and reported.