



IN-CAB CLEANING AND DEODORIZING GUIDELINES

PREFACE

The following Recommended Practice is subject to the Disclaimer at the front of TMC's *Recommended Maintenance Practices Manual*. Users are urged to read the Disclaimer before considering adoption of any portion of this Recommended Practice.

PURPOSE AND SCOPE

The purpose of this Recommended Practice (RP) is to offer guidelines for the in-cab cleaning and deodorizing of commercial vehicles. It is meant to provide information on the benefits of establishing a proper vehicle interior cleaning program. It is not intended to endorse any single method or chemistry. This document applies to all commercial vehicles.

NOTE: The information presented was current at time of publication. Technical improvements in cleaning technologies, equipment and chemistry may require re-evaluation at time of protocol adoption.

BENEFITS OF IN-CAB CLEANING/DEODORIZING

In-cab cleaning and deodorizing is incorrectly viewed by some as an expense with little or no return. This is not the case. Clean vehicle cabs help lower maintenance costs and reduce potential health risks, which can increase vehicle safety. Regular cleaning can also increase the longevity of leather and textiles. Since a company's internal and external image is partially determined by the condition of its fleet's cabs, a conscientious cleaning and deodorizing program can also help project a positive corporate image.

Adhering to a continuous program of interior cleaning will result in a cleaner and safer operator compartment. For example:

- Clean windows will allow for unobstructed view of traffic and landscape.
- A clean driver compartment workspace helps prevent mishaps resulting from clutter.
- Clean vehicle cabs support driver attraction and retention and increase employee morale.
- Following a regular cleaning schedule helps reduce the incidence of unscheduled vehicle downtime.

- Regular in-cab cleaning and inspection helps control or prevent infestations of bedbugs, which are a growing problem.

REGULATORY CONSIDERATIONS

Solid Waste Disposal Options

Personnel should dispose of solid wastes, such as foodstuffs, various liquids, trash, etc., in appropriate and approved trash collection bins. Use of a trash hauling company to a local approved disposal site or landfill is recommended.

Liquid Waste Disposal Options

Effluent waters generated from cleaning operations are considered to be an industrial wastewater discharge. The disposal of this effluent needs to be made in accordance with local, state and federal discharge water guidelines.

Discharge of waters used in cleaning operations often may be directed to the local publicly owned treatment works (POTW) by way of sanitary sewer. All requirements, conditions and limits must be observed and required permits must be obtained. Evaporation or incineration may be options worth reviewing if discharge to the POTW sanitary sewer is not available.

BUSINESS CONSIDERATIONS

Fleet managers should consider the following when establishing a vehicle in cab cleaning program:

- Vehicle condition
- Desired cleaning result
- Fleet size
- Fleet type
- Budget
- Frequency
- Designated space availability
- Time constraints/time per vehicle
- Downtime
- Utility requirements/availability
- Capital expenditures
- Throughput
- Available labor

- Contract work
- OSHA compliance issues
- Environmental compliance
- Administration/control

EMPLOYEE PROTECTION REQUIREMENTS

The use of personal protective equipment (PPE) should be required during the cleaning process. The use of gloves, safety goggles and respirator should be employed by cleaning technicians during the performance of their cleaning tasks as directed.

IMPORTANT CONSIDERATIONS WHEN USING THIRD-PARTY COMMERCIAL CLEANERS

Some fleets may choose to outsource the cleaning/deodorizing function. If so, fleet managers should consider the following when evaluating third-party providers of this service:


- What chemicals will the vendor use?
- What is the vendor's policy on any damage caused by cleaning chemicals or cleaning personnel?
- What is the average wait time to complete cleaning process?
- What is the vendor's satisfaction guarantee, if any?

CLEANING SCHEDULE GUIDELINES

Interior cleaning operations should be scheduled during times when other scheduled or unscheduled vehicle maintenance or repairs are being made. The following cleaning schedule serves as a good guideline for cleaning frequency:

- *Daily*—Pick up trash and dispose. Wipe up spills. Clean exterior glass.
- *Weekly*—Vacuum all seats, carpets and bedding. Change and launder bedding. Clean all interior glass. Wipe down smooth surfaces with damp towel.
- *Monthly*—Hot water extraction spot clean.
- *Quarterly*—Full and complete hot water extraction cleaning of textile surfaces. Wipe down all hard interior surfaces. Apply protectant to all applicable surfaces.
- *Semi-Annually*—zone and/or sanitize and deodorize interior of cab.

INTERIOR CLEANING METHODS

 **CAUTION** : Take care when cleaning around delicate electronics (including gauges) to prevent physical damage or harm due to excessive moisture. This can be done by covering delicate electronics with plastic or restricting cleaning of these components.

Remove solid debris by hand, broom and/or vacuum as required. On soft surfaces, (e.g., upholstery, fabric and carpeting), apply a pre-spray conditioner and follow up with hot water extraction to loosen, remove and flush contaminants from soft surfaces.

For restorative cleaning of interior spaces, removal of seats, consoles and bedding may be desirable or required. Carpeting may need removal due to damage or debris underneath. Removal of all items to be laundered will allow personnel to focus on cleaning the remainder of the truck.

Wipe down all solid surfaces with a suitable cleaner diluted with water to the proper concentration. When required, brush solution on the surface in a circular motion to remove soils not removed during the wiping process. Re-apply as needed.

Wipe all surfaces with a water-dampened towel to remove remaining cleaning agents. Use air movement, heat and/or dehumidification as required to dry all surfaces. Clean glass with a glass cleaner or water. Apply protectants to hard and soft surfaces to prevent future soiling and prolong cleaning intervals.

Textile Cleaning Methods

There are two general methods available for cleaning fabrics and textiles: encapsulation and hot water extraction.

- Encapsulation*—Encapsulation cleaner is scrubbed into surfaces to be cleaned. Debris is dry vacuumed after dry. Encapsulation cleaning replaces shampoo cleaning as a low-moisture cleaning method.

Pros:

- Quick
- Effective on light soils
- Inexpensive

Cons:

- Interim cleaning method, only suitable for maintenance cleaning
- Post-vacuuming required
- Ineffective on heavy soils
- Not restorative
- Trained labor required

- Hot Water Extraction*—Emulsifier application-cleaning agent is mixed into the supply tank of hot water extractor. A pre-spray conditioner-cleaning agent is mixed and applied separately from hot water extractor. Surfaces

to be cleaned have pre-spray conditioner applied and are extracted with clear water in supply tank. The application of heat improves the cleaning process and reduces the time involved.

Pros:

- Restorative
- Effective on heavy soils

Cons:

- Special equipment required
- Trained labor required
- Time intensive

BEDBUG INFESTATION AND TREATMENT

A thorough cleaning will help reduce the extent of a bedbug infestation, but will not entirely eliminate them. Additional treatment and preventive measures will be required.

Bedbugs (*Cimex lectularius*) are small, flat, parasitic insects that feed solely on the blood of people and animals while they sleep. Bedbugs are reddish-brown in color, wingless, range from 1-7 mm in size (roughly the size of Lincoln's head on a penny), and can live several months without a blood meal, according to the Centers for Disease Control (CDC).¹

Although the presence of bedbugs has traditionally been seen as a problem in developing countries, it has recently been spreading rapidly in parts of the United States, Canada, the United Kingdom, and other parts of Europe. Bedbugs have been found in five-star hotels and resorts and their presence is not determined by the cleanliness of the living conditions where they are found, according to the CDC.

Bedbug infestations usually occur around or near the areas where people sleep, hiding during the day in such places as the seams of mattresses, crevices, etc. Bedbugs have been shown to be able to travel more than 100 feet in a night but tend to live within eight feet of where people sleep.

CDC officials report that bedbugs should not be considered as a medical or public health hazard. Bedbugs are not known to spread disease. However, bedbugs can be an annoyance because their presence may cause itching and loss of sleep. Sometimes

the itching can lead to excessive scratching that can sometimes increase the chance of a secondary skin infection.

According to the CDC, one of the easiest ways to identify a bedbug infestation is by the tell-tale bite marks on the face, neck, arms, hands, or any other body parts while sleeping. However, these bite marks may take as long as 14 days to develop in some people so it is important to look for other clues when determining if bedbugs have infested an area. These signs include:

- the bedbugs' exoskeletons after molting,
- bedbugs in the fold of mattresses and sheets,
- rusty-colored blood spots due to their blood-filled fecal material that they excrete on the mattress or nearby furniture, and;
- a sweet musty odor.

To eliminate infestations of bedbugs, remove all components and soft goods that can be laundered. The remaining items can be treated together. Heating the entire area to 118°F for 20 minutes will kill bedbugs. However, a 90-minute treatment is required to kill bedbug eggs. During treatment, heat must rise quickly to prevent migration and the deepest crack/crevice treated must be elevated to 118°F. Inspect after treatment for activity.

Spraying and/or fogging with pesticides can be used as a preventive measure but are not by itself 100-percent effective in treating infestations of bedbugs. Heat is an effective method of initial treatment; however, pesticides may be required to prevent recurrence. Covering mattresses with anti-allergen covers will reduce the incidence of a possibility of bedbug infestation within the mattress.

IN-CAB FILTERS

Take special care to maintain in-cab filtration systems needed for outside air, recirculating in-cab and sleeper compartment filtration. These filters are also important to help prevent pet hair and other debris from blocking heater/condenser coils. In-cab filters should be properly maintained according to manufacturer recommendations and prescribed maintenance intervals.

ODOR CONTROL AND ELIMINATION METHODS

Routine daily activities generate debris that can cause odors. Pets, smoking, food storage are also items that require attention. The first rule of odor control is to remove the source. Once this is done,

1. Centers for Disease Control (CDC) website, accessed June 25, 2013. <http://www.cdc.gov/parasites/bedbugs/faqs.html>

there are choices to be made as to the direction of the treatment.

Deodorants, such as scents, fragrances, offer a quick response, but their effectiveness is limited and short-lived. Other solutions may offer better results, such as counteractants, neutralizers/chemical absorbents and ozone treatments.

A. Deodorants

These are scents or fragrances that cover up or overpower an unwanted odor.

Pros:

- Quick
- Easy
- Inexpensive

Cons:

- Odor source remains active
- Short-term solution, limited effectiveness
- Masks problem

B. Counteractants

These are typically liquid compounds that use masking and paring agents to mask and/or bind odor molecules to eliminate unpleasant odors.

Pros:

- Quick
- Easy
- Provides immediate results

Cons:

- Odor source remains active
- Initially effective, but ineffective over the long-term
- Masks problem
- Labor required

C. Specialty Odor Neutralizers

Specialty odor neutralizers work through combined actions of chemical bonding, physical adsorption and counteraction.

Pros:

- Instant results
- Effective for long term solution
- Odor source inactivated

Cons:

- Relatively more expensive than deodorants and counteractants

- Product application must contact the odor source
- Trained labor required

D. Ozone

Ozone is an oxidizing gas which is introduced into the odor environment to oxidize the odor. Ozone treatment does require certain conditions for effective usage:

- Area must be clean and dry
- Temperature must be less than 80°F. (70°F is optimum. At 60°F, a visible ozone cloud forms)
- Air movement in area is needed to disperse ozone
- Relative humidity should be 40 percent or less (conditioned air)

Typically, the ozone generator will run in the area to be treated for about 15-30 minutes. The cleaning technician will then check the results of the treatment and reapply if needed.

Pros:

- Provides thorough cleaning
- Long-term solution

Cons:

- Specialized equipment required
- Ozone is toxic to organic matter
- Treatment is time intensive
- Trained labor required

E. Protectants

Protectants may be available for certain materials that can help prevent absorption of odors and stains. These solutions are available for leather, vinyl and various textiles.

INCENTIVES

It may be possible to incentivize drivers to perform interior cab cleaning on a daily, weekly, monthly, quarterly, semi-annually and/or annual basis. Truck check-in and check-out procedures can be developed to help control vehicle condition on driver changes.

Surprise spot inspections could provide the motivation to maintain a clean work environment on a regular basis. Make these inspections of cab interiors part of the pre-trip check and inspection process.

FLEET MAINTENANCE MANAGEMENT STUDY GROUP

OBJECTIVE: To develop and disseminate information on advanced maintenance techniques and to provide guidelines for shop design, productivity, and efficiency. The Study Group shall also work towards the development of tools, shop equipment, and training methods which will further the cause of vehicle maintenance.

SCOPE: To obtain and develop information that improves the planning, administration, construction, and utilization of vehicle repair facilities. The Study Group shall also assist appropriate educational institutions and apprenticeships in the development of training programs and curriculum for the purpose of providing skilled personnel to the field of commercial fleet maintenance. The Study Group shall also conduct surveys, collect data, and monitor testing programs and research of affiliated industry groups in order to develop suitable Recommended Practices which fleet equipment users, manufacturers, and educational institutions can follow.