



CMX+™ The "Clean Machine"

THE BEST RAIL CLEANING SYSTEM (HO & N)



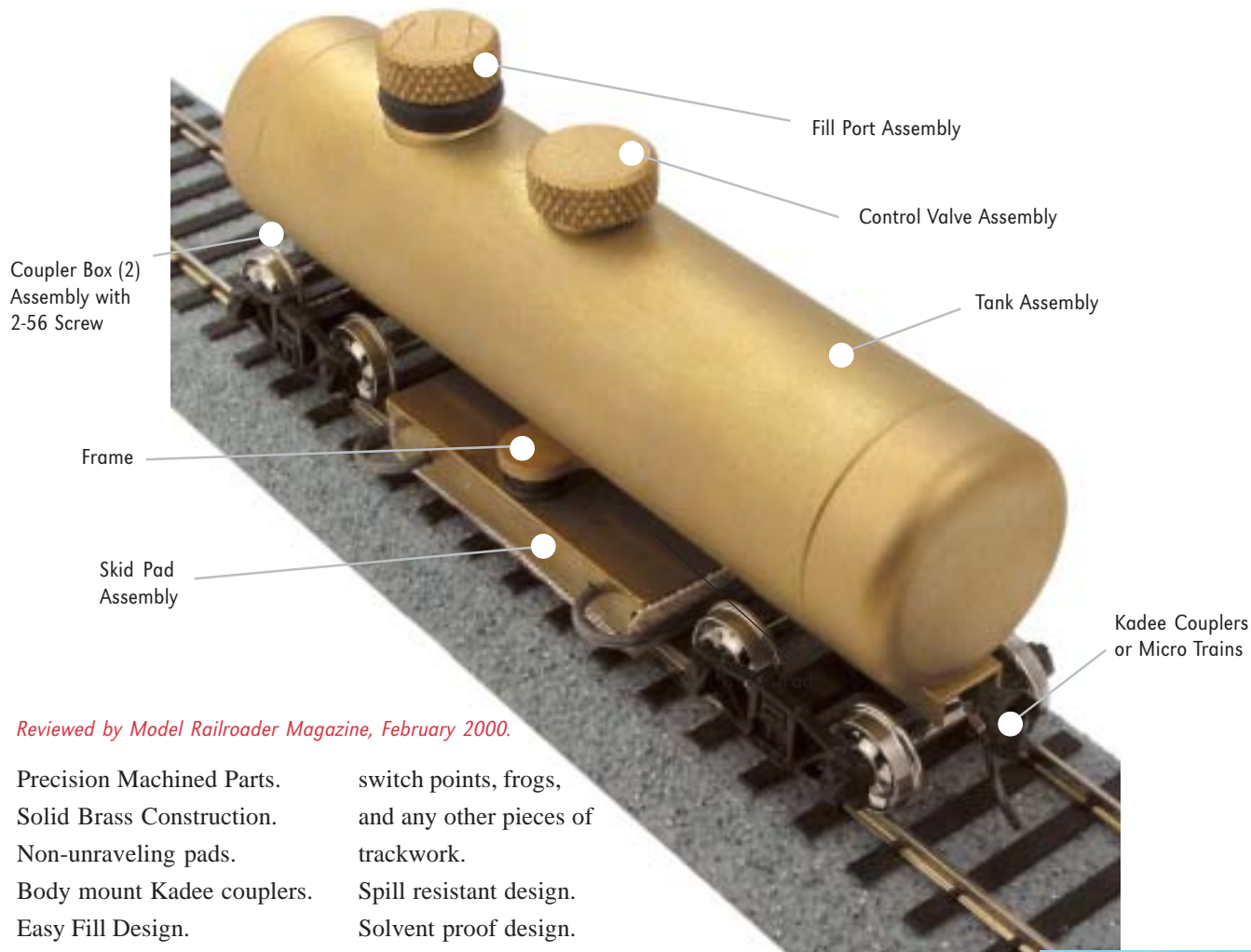
THE CMX CHALLENGE

When used as directed CMX+ will clean your track better than any other method available or your money back.

Clean your track by any method then perform the "white glove" test. Notice black lines.

Then use CMX and perform test - no black lines.

"Several years ago, as a result of numerous petitions from fellow model railroaders, I analyzed, experimented and developed the "Clean Machine" track cleaning system."



Reviewed by Model Railroader Magazine, February 2000.

Precision Machined Parts.	switch points, frogs,
Solid Brass Construction.	and any other pieces of
Non-unraveling pads.	trackwork.
Body mount Kadee couplers.	Spill resistant design.
Easy Fill Design.	Solvent proof design.
Leak proof valve and fill port.	Both solvent/abrasive options.
Heavy weight does the job.	Large Reservoir.
Quick Change Pads.	Multi-directional (push or pull)
Drag pads won't catch on	Controllable dispensing rate.

*HO Version above,
N version on the right*



CMX+ furnished complete, ready-to-run with 10 pads, \$99.00.

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Track and Wheel Cleaning

Clean track, and wheels are absolutely necessary for reliable Command Control operations.

Track Cleaning

Semi-Abrasive Pads: Brite Boys, Masonite Pads, Ink Type Erasers, are just a few of the inexpensive semi-abrasive cleaning pads that are available. These pads all remove oxidation and maybe some contaminants but have one serious drawback. As soon as you start using them, the pads begin to load up with organic contaminants and eventually will spread a thin layer of these contaminants on your track. You know the rest!

There is an inexpensive non-loading alternate. Your local paint supply or hardware store should have a special sanding mesh used for sheetrock. This sheetrock sanding mesh is like fiberglass window screen with a #250 grit bonded to the mesh. Due to the fact it's a mesh, it will not load up. You can staple it to an appropriate block of wood and you are all set. It's easy to replace and one sheet will last years. Use gently applying light pressure.

Chemical Deoxidants and Conductivity Enhancers:

A product like Zip and others fit this category. These compounds are generally applied to sections of track and then locos are run around the layout to disperse the compound until a uniform condition is achieved. My understanding is that traction is poor for awhile but then improves. I have no personal experience with these materials and personally have reservations about adding organic material on the rails.

Solvent Cleaners:

Water Soluble Type: Most track cleaning liquids sold are water soluble degreasers and similar to Fantastic* or 409*. While safe to use and environmentally friendly, these cleaners are weak degreasers and can leave a residue. You will have to use these often to maintain a clean track.

Alcohols and Slow Solvents: Alcohols are often used in common liquid track cleaners as described above. Alcohols are also weak degreasers and will leave residues and are flammable. Paint thinner, Naphtha, Goo Gone, etc. These solvents have a moderate evaporation rate, are moderate degreasers, flammable and environmentally restricted. They work better than solvents listed above. Slow solvents are not very effective in removing silicone or rubber residues from loco tires.

Fast Solvents: Nail Polish Remover, Lacquer thinner, Acetone, and MEK.

CAUTION: These solvents are volatile and flammable. Read label carefully and follow all instructions for use. Fast solvents, when properly used, are superior for track cleaning. These solvents are aggressive and virtually vaporize all organic matter, leaving no residue.

Liquid Dispensing Cars:

Tank type with pad dispenser (see Pads). IHC, International Hobby

Company, sells one for about \$20.00. The car is a plastic caboose with metal; pad mount, needle valve and reservoir. The reservoir is small; it will often require refills on large layouts. Because the car body is plastic, it will not be compatible with some of the slow solvents or any of the fast solvents.

Rolling Pad Cars:

This type of car retails for about \$60.00. The cleaning pad is in the form of a roll that rotates while the car is moving. This type of car can only use slow solvents because the roll pad is the reservoir and fast solvents would evaporate. Also, the rolling pad does not scrub the track because the pad is rolling. While this product is in widespread use and is effective, it will fail the white glove test when compared to a pad type car.

The Clean Machine +:

After struggling through all of the cleaning options stated above, TTE is now manufacturing Clean Machine +, tank type/pad cleaning cars. See Picture on mailer. All brass, except trucks, HO weighs about 1 pound, N weighs 8 oz. CMX+ is guaranteed to clean your track safely and effectively when used as directed.

Cleaning Pad Material:

TTE has found all cloth type cleaning pads, supplied by hobby stores, to be inferior. Your best bet is a corduroy type of upholstery fabric with backing. This will not unravel and the ribs can be oriented perpendicular to rails to assist scrubbing action while minimizing pad loading. NOTE: The liquid pad type cleaning cars described above can be converted to abrasive type cleaners by changing pads to the same mesh TTE described above or fine 600+ Emmory cloth.

Wheel Cleaning

All Wheel Drive Diesels: Use strong paper towel or light cloth, soak with any commercial alcohol, lay flat on straight section of track with power on. Place one truck set at a time on cloth. Power up loco to spin wheels on cloth. Repeat for other truck set. When complete, place loco on clean towel to let surfaces dry. Caution alcohols are flammable.

All Other Steam/Diesel Locos And All Rolling Stock: Use cotton swab dipped in acetone or preferred solvent, apply to wheels and rotate until visibly clean. Caution: Metal and Nylon/Delrin (most plastic wheels) are not affected by acetone, but plastic car body/parts (usually acetate) will be dissolved, etched or bonded by acetone. Observe cautions stated herein.

Crusted Wheels: Some wheels accumulate a thick crust of gunk usually after many hours use without cleaning. This crust is best removed by using an appropriate X-acto type knife, followed by swab and acetone. Notes: Wire and nylon brushes used on roto tools may be used with caution. Plastic wheels can be melted and nickel plating may be removed.

Operating Instructions

Getting Started

Please read and follow all recommendations and instructions stated herein for CMX+

Clean the Clean Machine

Contaminants from the machining and assembly processes may remain in the tank of your CMX+. To clean, fill the tank as stated per Sect B. Use an aggressive solvent. Insure that both fill cap & control valve are tightened securely. Shake well to agitate to clean. Empty contents in suitable container by draining & removing control valve completely.

(A) SKID PAD ADJUSTMENT, CLEANING PAD INSTALLATIONS

- 1) The skid pad is designed to snap on/off via skid pad spring clips.
- 2) The cleaning pad is installed by rotating spring clip appropriately and wrapping cleaning pad, velvet side down, around skid pad, so that cleaning pad is centered and the pad ends do not protrude into large hole on skid pad.
- 3) CMX+ may be used as abrasive type cleaner by installing abrasive type pads. Sheet rock sanding mesh (Fine) is good or 600+ Emory paper

(B) SOLVENT HANDLING AND FILLING

Solvents are most easily and safely dispensed by using a 5 - 10 cc syringe which is available at pharmacies for dispensing children's liquid medicines, and cost about \$1.50. Handling and filling should be performed on suitable surface in suitable area.

- 1) Close control valve, turn screw knob clockwise until valve seats.
- 2) Remove fill port cover. Screw.
- 3) Use syringe and draw 3CC solvent. Transfer solvent slowly to CMX+ through fill port, use from 4CC to 9CC.

4) Keep fill port cap on during use, but do not tighten completely or vent will be closed preventing proper drip rate.

5) Crack open control valve, observe drip rate by holding CMX+ above surface and viewing nozzle.

6) Adjust drip rate to about 10-15 drops per minute or less. CW reduces drip rate, CCW increases.

7) NOTES

7.1) No drip, drip not adjustable or drip migrates up nozzle exterior.

Check fill port.....Plug should be loose.
Nozzle blocked.....Use wire or needle to clear.
Solvent level too low.....Min. 3CC needed. Add more solvent.

7.2) When drip is adjusted as described above CMX+ will not harm plastic ties or painted areas even when standing still. Cleaning pad allows solvents to evaporate. It is a good practice to tighten fill plug and close valve completely when CMX+ is not in use.

7.3) In some instances droplet from nozzle may migrate up exterior of nozzle and to other surfaces of the CMX. This may happen sometime with certain solvents because of the fluid viscosity. This can be corrected by adding 5 to 10% portion of water to the cleaning solvent.

Warning: Proceed at your own risk. Failure to read, understand, and follow all instructions stated herein and furthermore stated on labels, and by the manufacturers of solvents, will result in damage and harm to you, the environment, or your equipment.

(C) OPERATING

- 1) CMX+ comes to you ready to run.
- 2) CMX+ may be pushed or pulled by any locomotive with

sufficient traction. Short, 8 wheel drive, four axle diesels are ideal. For highly contaminated track place CMX+ before power unit. (2 Loco's may be needed)

3) Cleaning pad should be sufficiently wetted with solvent to clean properly. This can be usually seen as wetness on pad or cool feeling of skid pad. This is about 10 drops a minute. Cleaning pad should be centered on skid pad fore to aft and right to left.

4) Cleaning pad may be cleaned while in use by using a solvent wetted rag and rubbing cleaning pad until dirt is removed. Pads may also be washed in detergent and be reused.

(D) MISCELLANEOUS NOTES

1) CMX+ meets NMRA gauge dimensions (HO).

2) CMX+ is designed so nozzle receives solvent about 1/8" above bottom of tank. This leaves sediments at bottom of tank and protects nozzle from clogging. This is about 3CC volume and gives false impression of being usable solvent.

3) CMX+ has limited spill fill port design. The fill port protrudes about 1/8" into tank creating inside lip to impede spills. Held inverted about 1-2 CC of solvent will still remain in CMX+.

4) Truck mounting screws, #2-56 style, should not be overtightened or thread damage to screws or bolster may result.

5) Standard Athearn delrin trucks have been supplied to minimize short circuits. The mounting is good for many other truck types if you choose.

6) CAUTION: When removing plug, or valve stem from CMX+, be sure "O" rings and packing washers remain in place.

7) Initially, your layout may require several passes with CMX+ to clean properly. Once clean, you will only need to use CMX+ once or twice a year.

(E) Solvent Options:

The following solvents may be used with CMX+:

Most aggressive group

(Observe precautions stated on container and herein)

Nail Polish Remover, Laquer Thinner, Acetone, MEK, Toluene & Xylene.

This group of solvents are the most effective but the most dangerous. You will probably need to use these to start and then once a year thereafter. Plastic from wheels and other organic matter is the most significant contaminant on your track. Since you need to follow the same precautions for all the solvents in this group, use Nail Polish Remover or Acetone, which are readily available.

Moderately aggressive group

(Observe precautions stated on container and herein)

Alcohols, Paint thinner & Water based solvents (Fantastic or 409)

This group of solvents will not remove plastic but are satisfactory for routine maintenance.

P. S.

1. CMX+ is designed to work efficiently at normal speeds (1-2 ft/sec). If you run too slow the pads may pick up dirt & debris that has settled on your layout.
2. If you have trouble inserting pads, try adjusting the spring clips.
3. The skid pad furnished with your CMX+ has been chosen to work for most layouts. Since all layouts are somewhat unique, you may want to choose a pad material to suit your needs.
4. The CMX pad material is cut from corduroy upholstery fabric. Upholstery fabric has a backing which minimizes the unraveling of the fabric. Most fabric stores have corduroy upholstery fabric.
5. You can purchase CMX Accessory Kit which contains 20 CMX pads and 10 cc syringe for \$9.95.

Updated 04/10/2001.