



Instructions for Cleaning an Aircraft with TRAMOS® Aircraft Cleaning Products

Description: TRAMOS® is a specialty line of products that provide superior aircraft cleaning. They are suitable for external and internal cleaning of numerous aircraft surfaces. TRAMOS completely removes difficult substances such as hydraulic fluid, oil, grease, carbon, and brake dust safely, easily, and economically. The products mentioned in these instructions are TRAMOS A.H.F.R. (Aircraft Hydraulic Fluid Remover) and TRAMOS A.C. (Aircraft Cleaner).

Before using TRAMOS, consult the MSDS or EH&S for proper personal protective equipment.

General Application Notes

1. Spray Applicator

- When using a spray applicator, pour the Tramos A.C. into the sprayer first, followed by the water.
- For the first two deep cleanings, use a dilution of 1-part TRAMOS to 3-parts water (1T:3W).
- For future cleanings, reduce the concentration to 1:5, 1:8, or 1:10 provided the result is still acceptable.
- Always use Tramos A.H.F.R. in its concentrated form in a separate sprayer.
- Only use Tramos A.H.F.R. for spot removal of hydraulic oil (Skydrol®).
- When the aircraft cleaning is complete, rinse all sprayers and equipment with water.

2. Brushes

- Use separate brushes for the application of the Tramos A.H.F.R. and Tramos A.C.
- Mark the brushes with tape or use two different colored brushes to make the distinction.
- DO NOT lay brushes on the ground, as FOD will stick to the brush and further contaminate and/or potentially damage the surface.

- Prior to using a new brush, rinse it with Tramos A.C. This will render the brush anti-static and will remove any manufacturing residues.
- At the end of each cleaning job, rinse all brushes well with water.

3. Inspection of the Aircraft

- Before the general cleaning of the aircraft, check for heavy hydraulic fluid (Skydrol) deposits.
- These locations require a pre-treatment with Tramos A.H.F.R.
- Once identified, the cleaning procedure can start in compliance with all safety and security rules and regulations.

A. Exterior Cleaning

1. TRAMOS A.H.F.R. (Aircraft Hydraulic Fluid Remover)

Testing Standards:

AMS-1526B: Cleaner for Aircraft Exterior Surfaces Water-Miscible, Pressure-Spraying Type

Application Notes:

- TRAMOS A.H.F.R. is a spot cleaner designed to remove heavy contaminations of dried hydraulic fluid (Skydrol) deposits from the aircraft fuselage, wheel wells, landing gear, and engine area.
- TRAMOS A.H.F.R. can be slippery on coated concrete surfaces. Use caution in the event of a spill. If cleaning outside, the rougher concrete should not pose an issue.

Cleaning Procedure:

- Spray TRAMOS A.H.F.R. undiluted onto the surface to clean.
- Scrub the area and allow the product to work for one to two minutes. Briefly scrub the surface again.
- Rinse the surface with fresh water

2. TRAMOS A. C. (Aircraft Cleaner)

Testing Standards:

AMS-1526B: Cleaner for Aircraft Exterior Surfaces Water-Miscible, Pressure-Spraying Type

AMS-1550A: Cleaner for interior materials of aircraft, water based.

Boeing D6-17487: Exterior and General Cleaners and Liquid Waxes.

Douglas CSD #1: General Purpose Cleaner.

Application Notes:

- If cleaning the plane during a summer day, cool the surface of the aircraft with water prior to spraying the diluted Tramos A.C. on the surface.
- ALWAYS dilute TRAMOS with water prior to use. Dilutions vary from 1T:3W (deep cleaning) to 1T:10W (after several cleanings).
- Spray the diluted product as fine as possible on the surface. The fine mist facilitates the penetration of the TRAMOS into the dirt. Excessive use of product on the aircraft will NOT bring a better result.
- Keep the spray nozzle 12-18 inches away from the aircraft. In case of windy working conditions, the spray nozzle should be closer to the aircraft to avoid product being blown away.
- Use an approved brush scrub the aircraft surface with the TRAMOS.
- After two (2) deep cleanings, TRAMOS will form an anti-static layer on the fuselage. This means that dirt will no longer stick to the surface as before and consequently it will be easier to remove the contamination in the future. Dilution can then go down to 1:5, 1:8, or lower and the time spent scrubbing will decrease.
- Always work always on limited areas to avoid the product drying to quickly.

Cleaning Procedures:

- First, remove the Skydrol spots with Tramos A.H.F.R. See Section 1 above.
- The cleaning of the aircraft can start from the bottom to the top. This method will avoid the creation of stripes on the fuselage. Due to the antistatic properties of TRAMOS, the contamination that will run down from the top to the bottom cannot adhere to the cleaned surface anymore. A proper rinsing is of course required.
- Treat the complete bottom part of the fuselage with Tramos A.C. (so the areas were Skydrol was removed are treated twice)
- When the bottom part is finished, the cleaning personal split into two teams:
 - Team A (two persons) starts working on one side of the aircraft just before the wing and work from the middle up to the front of the aircraft. They continue on the other side and stop just before the wing.
 - Team B (one-person) starts behind the wing and works from the middle to the end (stabilizers & elevator), continue on the other side, and stop just before the wing.
- Both teams then clean the underside of the wing and engines followed by the top of the wing (if required).
- The cleaning process should take between 4 and 5 hours (4.5 hours for a B-757-200) depending of the actual condition and size of the

aircraft. By the third wash, the anti-static effect will reduce the time to a maximum of 4 hours to finish the job.

Specific cleaning problems

In case the aircraft has been cleaned in the past with solvent-based products or was not maintained on a regular basis, the following procedure should be followed to obtain a 100% clean surface.

- Spray the diluted product on the surface
- Scrub the surface with a brush
- Allow the product 15 to 30 seconds to work
- Spray again, brush, and rinse with water

Black deposits (carbon) on the fuselage (APU & engine exhaust)

- Spray the diluted product on the surface
- Scrub the surface with a brush
- Let it work for 3 to 5 minutes
- Spray the product again on the surface
- Scrub the surface with a brush again
- Rinse with water
- Depending on the contamination, repeat this action 2 to 3 times

B. Interior Cleaning

TRAMOS A. C. (Aircraft Cleaner)

Standards:

AMS-1526B: Cleaner for Aircraft Exterior Surfaces Water-Miscible, Pressure-Spraying Type

AMS-1550A: Cleaner for interior materials of aircraft, water base.

Boeing D6-17487: Exterior and General Cleaners and Liquid Waxes.

Douglas CSD #1: General Purpose Cleaner.

1. Cleaning Of Ceilings, Tables, Plastic Side Walls, and Toilets

- Dilute TRAMOS, 1T:5W, and spray as fine as possible on the surface.
- Use a professional soft haired brush to work in the product.
- Rinse with water or damp sponge.
- If necessary, dry the surface with a clean towel.

2. Cleaning Of Carpets, Upholstery

- For manual cleaning, dilute TRAMOS, 1T:10W, and spray as fine as possible on the surface.
- For machine cleaning, dilute the TRAMOS, 1T:15W, and fill the cleaning machine.
- Scrub the surface with a brush.
- Remove the product and contamination with a clean sponge.
- Retreat the surface with a damp sponge.

3. Cleaning Of Leather Seats

- Dilute TRAMOS, 1T:10W, and spray as fine as possible on the surface.
- Massage surface with a soft brush (avoid stiff brushes).
- Remove the product and contamination with a sponge.
- Retreat the surface with a damp sponge and dry.
- Follow manufacturers suggesting for treating the leather with an appropriate leather conditioner.

4. Cleaning Of Ovens

- Dilute TRAMOS, 1T:3W, with HOT water.
- Spray the product on the inside walls of the oven.
- Let it work for 5-10 minutes.
- In case of heavy contamination, repeat this action a second time.
- Remove the product and contamination with a sponge.
- Rinse the inside with water and dry.

TRAMOS Package Sizes

TRAMOS A.H.F.R.

1-quart spray poly bottles
12 x 1-quart poly bottle cases
1-gallon poly bottle
4 x 1-gallon poly bottle case
66-gallon poly drum

TRAMOS A.C.

"Ready to Use"

1-quart spray poly bottles
12 x 1-quart poly bottle cases
1-gallon poly bottle
4 x 1-gallon poly bottle case
66-gallon poly drum

"Concentrate"

1-gallon poly bottle
4 x 1-gallon poly bottle case
66-gallon poly drum

Please direct any questions or comments regarding any of these products or application procedures to:

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