



Application Instructions & Maintenance for 3M[™] Scotchlite[™] Diamond Grade[™] Conspicuity Marking Series 983

Introduction

3M[™] Scotchlite[™] Diamond Grade[™] Conspicuity Marking Series 983 is coated with an aggressive pressure sensitive adhesive for application to most flat rigid surfaces (with and without rivets).

The adhesive is protected with an easy release translucent plastic liner.

Series 983 marking is intended to be applied to the side and rear perimeter of vehicles according to UN/ECE Regulation 104 to enhance visibility and recognition by motorists. See examples at the end of this bulletin.

Applications are not recommended to rusted or corroded metal, loose or chalking paint, irregular shaped framework, bolts, rivets larger than 12mm high, support plates, within 3mm of door hinges, exterior posts, weld joints and ends of vehicle.

Important: The following information should be carefully reviewed before proceeding with individual instructions.

Preparation

Tools

- 3M Plastic Applicator, PA-1 (blue or gold); available from Commercial Graphics Division or Traffic Control Materials Division.
- 3M Low Friction Sleeve, SA-1 (used on the plastic applicator to minimize surface scratching); available from Commercial Graphics Division or Traffic Control Materials Division.
- Utility Knife; available locally at hardware or industrial supply stores.
- Diamond Grade Rivet Cutting Tool RCT-1 (used as the tip on an electric soldering gun in the 100-320 Watt range); RCT-1 is available from Commercial Graphics Division or Traffic Safety Systems.
- Industrial heat gun with a temperature range of approximately 250-400°C; available at industrial supply stores.
- Clean cloth or lint-free paper towels and recommended cleaning solvent.

Application Temperature

For optimum adhesion and durability, Marking Series 983 should be applied when air and application surface temperatures are within the following limits:

Product	Minimum	Maximum
Series 983	10°C	38°C

Check the proper temperature using an Infrared-Thermometer like 3M[™] Scotchtrak[™] IR-500.

The marking may also be applied when air and application surface temperatures are beyond these limits with the following precautions:

- Above 38°C
 - If applied at temperatures above 38°C care must be taken to avoid pre-adhesion.
- Below 10°C
 - If the substrate is below 10°C, the substrate surface may be mechanically heated to this temperature by using a portable heater, heat lamps, hot water or steam. If hot water or steam is used, the surface must be thoroughly dry before application.
 - In addition, when outside temperatures are below the minimum application temperature, the applied marking must also be heated using an industrial heat gun. The heat gun should be held 20 - 30 cm from the marking to avoid burning, melting or distorting the marking.

CAUTION: To ensure marking is not distorted, applied heat should be regulated so that the marking surface is comfortable to the touch.

Following this heat treatment, the marking must be re-squeegeed or left inside for 12 hours minimum to assure adequate adhesion in cold temperatures.

Surface Preparation

All surfaces must be considered contaminated and must be cleaned prior to application. Wash surface with detergent and water to remove dirt and road film. Solvent wipe using a clean cloth or paper towel saturated with Isopropyl alcohol. Immediately dry surface before solvent dries, paying close attention to rivets, seams and door hinge areas.

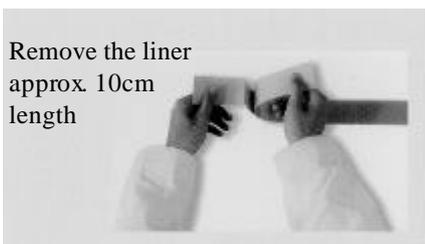
Note: An application surface that has been washed, dried, solvent wiped and dried can still have poor adhesion in the area around rivets and seams due to liquid retention caused by capillary action. This problem can be overcome by allowing a cleaned vehicle to stand overnight prior to application of markings, or by the use of a heat gun to dry out retained solvent.

Application to rusted, severely pitted, loose or chalking painted surfaces is not recommended. These surfaces must be clean of rust and painted using recommended standard practices before applying conspicuity marking.

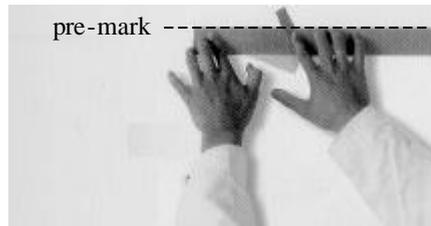
Application

If possible marking should be applied in an essentially continuous stripe; see examples at the end of this bulletin. Cut around rivet heads as recommended in this bulletin. Apply marking no closer than 3mm to door hinges, door hardware, ends of the trailer and weld and the lower panel of tank trailer expansion joints.

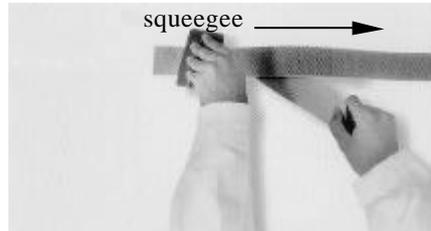
1. Remove a small section of the liner from back of marking, position and align the marking on the vehicle and tack down lightly to hold in position.



2. Firmly hold 50-70cm (arm length) in position against the surface with your left hand and slowly remove the liner from the back with your right hand by pulling down on the liner. Do not lose alignment. Removing liner from the marking before aligning will cause pre-adhesion and misalignment.



3. Using a PA-1 applicator with a low friction sleeve, press the marking to the surface using firm, overlapping strokes. Be sure all edges are adhered.



4. Apply the remainder of vehicles using the above procedures. It is recommended to use a 3M designed product dispenser.
5. Apply marking over rivets and body panel seams using firm pressure leaving a bridge which will adhere when the marking is cut in these areas.
6. Cut marking between all body panels and door openings using a sharp utility knife and squeegee the marking to the surface. Cut marking no closer than 3mm to exterior post weld joints, door hinges, door hardware and ends of the trailer and the lower panel of tank trailer expansion joints to avoid lifting and wrinkling.
7. Cut marking around rivets using a heated rivet cutting tool RCT-1 on the end of a soldering gun, or a gasket pouch of the appropriate size. Let the RCT-1 warm up by turning the soldering gun on a few minutes. Cut around rivets by melting marking around the rivets. No pressure is required on the RCT-1. The heat should cut the marking. A slight twist (1/4 turn) will assure marking is completely cut. When using a gasket cutting tool, place tool over the rivet and tap lightly with a hammer to cut marking. Squeegee the marking around the rivet with firm pressure. The cut film on the rivet head can be left on the rivet but will eventually come off during washing.

Avoid applying marking over closely spaced rivets where possible. Apply the marking above the bottom row of closely spaced rivets on side panels.

Note: Do not apply the sheeting beyond the panel edges where moisture and dirt can get to the adhesive. Sheeting should not be overlapped but should be butted together to make seams and join pieces.

Maintenance and Cleaning

Hand wash with sponge, cloth, or soft brush using warm water and detergent. The cleaner must be wet, non-abrasive, without strong solvents and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline). Rinse thoroughly.

To remove grease, oil, or tar, use cloth moistened with heptane, VM&P naphtha or mineral spirits. Wash with detergent and water and rinse thoroughly.

Using high pressure cleaning equipment, the following conditions should be applied/ set up:

- Maximum pressure 80 bar
- Maximum temperature 60°C
- Minimum of 1 metre distance of cleaning jet from sheeting surface
- Cleaning wand to be held at no greater angle than 15 degree from perpendicular to the sheeting surface
- Wide spray pattern

Caution 

Any dirt collecting at the outer edges of the Diamond Grade sheeting will not affect the products' overall performance. Do not attempt to remove this dirt with aggressive use of the pressure washing equipment as it may result in the edge lifting and/or top film layer delamination.

Acid brightening and cleaning solutions can have an adverse affect on Diamond Grade™ Conspicuity Marking Series 983, over time, by lowering the surface gloss and retroreflection. These solutions should not be allowed to soak on the marking to avoid immediate damage.

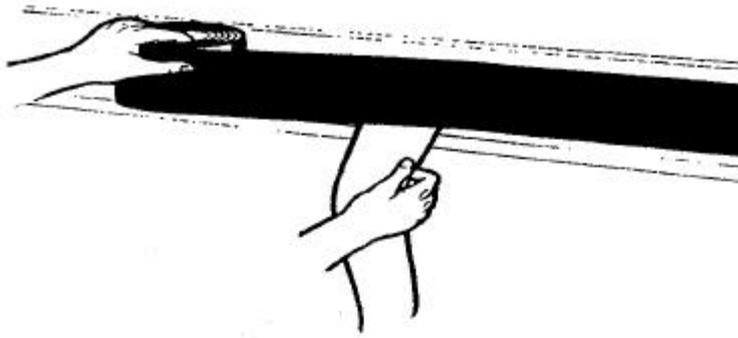


Figure 1

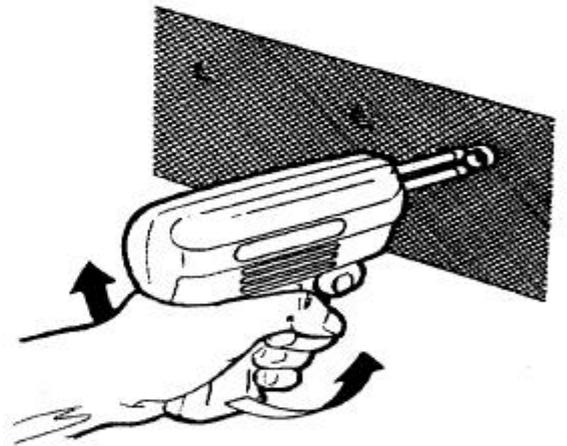


Figure 2

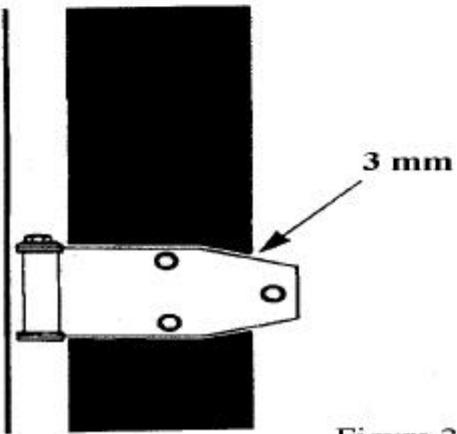
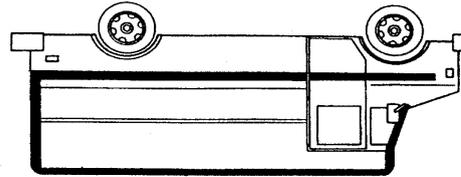
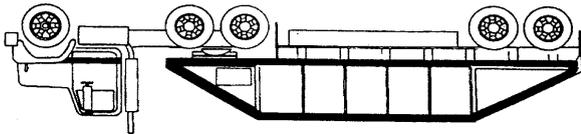
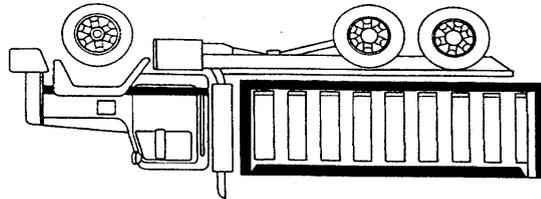
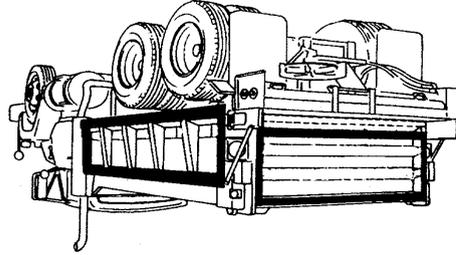
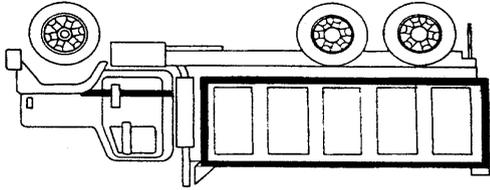


Figure 3

SUGGESTED APPLICATIONS



Application and Substrates: 3M shall not be liable and no warranty shall apply for films not applied according to published 3M Information Bulletins or which are applied to unsound surfaces or to surfaces which subsequently crack, peel, outgas, or become damaged beneath the markings.

Purchasers and users of 3M products, and not 3M supplying companies, are always solely responsible for deciding on the suitability of the 3M product for their required or intended use.

Health & Safety

Refer to the package label and the Material Safety Data Sheet for health, safety, and handling information on the products referenced in this bulletin. For 3M products, if necessary, you may contact our Toxicology/Product Responsibility Department on 01344 858000.

Important Notice to Purchaser

The 3M products described in this publication are covered by a 3M warranty and limitation of liability.

3M's warranty provides that if 3M finds that goods are defective in material or workmanship they will be replaced or the price refunded at 3M's option but note that 3M does not accept liability for other direct losses (except for personal injury or death) or consequential losses relating to defective products or from information supplied by 3M.

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Technical Assistance

For help on specific questions relating to 3M Commercial Graphics Division Products, contact your local Technical Service Representative.

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