

For Air-Free Digital Vehicle Application

General Formulations, Inc. would like to extend to you our appreciation for choosing our **AutoMARK™ 230** - Premium 2.4-mil Calendared gloss white vinyl digital media. Our high performance film, liner and adhesive combination allows for an easy and successful Air-Free Installation!

- 1) The General Formulations, Inc. AutoMARK™ Premium 2.4-mil Calendared gloss white vinyl digital media is specifically engineered for use in most vehicle wrap and decal applications. Surface characteristics include:
 - a. Corrugations
 - b. Rivets
 - c. Flat
 - d. Slight to Moderate curves
 - i. Vehicle Types:
 1. Vans
 2. Trucks
 3. Sedans of all sizes
 4. Fleet
 5. Recreation vehicles

Media Preparation Prior to Application

- 1) Did you choose the **AutoMARK™ 230** Premium 2.4-mil Calendared gloss white vinyl of General Formulations, Inc. digital media for your vehicle decal and wrap application?
- 2) Is the media within proper shelf-life and has it been stored in a reasonably controlled environment (ideal is 1-year shelf-life at 60° - 80°F (15° - 26°C) @ 50% relative humidity)?
- 3) Has the media been allowed to air dry unrolled at 60° - 80°F (15° - 26°C) @ 50% relative humidity for 48hrs prior to applying the **AutoMARK™ 231** 2.4mil UV clear overlamine? Inadequate drying can propagate vinyl and or adhesive degradation and impede optimum performance.
- 4) Was the approved **AutoMARK™ 231** 2.4mil UV clear overlamine used to cover and protect the **AutoMARK™ 230** Premium 2.4-mil Calendared gloss white vinyl digital media?



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* The use of any type of overprint clear varnish or coating other than the recommended **AutoMARK™ 231** 2.4mil UV clear overlaminate voids the media warranty.





Pre-application Checklist:

Prior to application, please use the following list to assist in a successful vehicle wrap.

- 1) The ideal location for an installation is indoors in a climate controlled environment. If this is not possible, do your best to protect the surface from changes in temperature, moisture, wind, and dust as these will affect the integrity of the application.
- 2) Prior to application, remove all trim that may interfere with the wrapping process. This would include: license fixtures, antennas, nameplates, lighting fixtures, etc.
- 3) Identify possible points of failure, which may include: poor paint jobs, clear coat chipping, rust, dents, nicks, scratches, seams, silicon seals, and rubber window gaskets. The adhesive is designed to adhere to the painted vehicle surface, it doesn't stick to silicone, rubber etc... The material must be trimmed around these areas!
- 4) Ensure the vehicle has been kept indoors and surface has been cleaned with IPA (Isopropyl Alcohol, 70% concentration minimum) prior to application. Allow to air dry. The use of towels or rags may contaminate the cleaned surface. Pay special attention to edges, seams, around moldings and gaskets and where objects were removed. Use compressed air or a heat gun to ensure dryness.
- 5) The vehicle and environment temperature should be above 60°F (15°C) (prior to application).
- 6) Always ensure the finished graphic lines up with the vehicle before application.







Tool Kit:

The standard tools needed for vehicle wrap application are:

-  A temperature adjustable industrial heat gun, hair dryer, or propane torch. Be sure not to heat vehicle surface or **AutoMARK™** gloss white vinyl too much or burning may occur.
-  No-touch temperature gauge
-  A hard and soft squeegee, or a hard squeegee with felt tip friction sleeve
-  A sharp knife with many replacement blades!



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-  Tape measure and positioning tape
-  Air release tool (straight pin)
-  Rivet brush
-  Cotton gloves
-  And a helper (if possible)!
-  Masking tape

Application: NOTE* the following instructions are recommendations only and are not meant to override your current installation method or style.

- 1) Application begins at the back of the vehicle for vertical panels and from the bottom up for horizontal panels. This allows for all overlaps to face the back or the bottom which prevents wind and rain from causing a premature failure. Seams should have a 1/4 to 1/2 inch (0.64 - 1.3 cm) overlap.
- 2) Use firm pressure on the squeegee to apply the media to the surface, starting at the high points in the middle and working out toward the edges.
- 3) For channels, wherever possible lay the media through the channel rather than bridging and stretching the media. Any vinyl film (cast or calendered) can exhibit shrinking or tenting when overstretched or overheated.
- 4) In some instances it is not possible to negotiate complex curves. In this case, you will need to bridge the vinyl. Be sure only to stretch the vinyl and overlaminate combination until firm. Overstretching may result in memory failure. At this point, it is suggested to cut the film in this area to relieve tension.
- 5) In many difficult areas, a thin layer of an adhesion promoter or acrylic spray primer can enhance adhesion. Be sure to use the primer sparingly and allow it to cure completely according to the directions on the can, prior to graphic application.
- 6) To bridge a gap properly, apply the film to the flat areas first as indicated above. Use heat to soften the film, somewhere around 160° to 200°F (71° - 93°C). Immediately stretch the film into the groove, starting at the middle of the groove and working out to both sides. Sometimes using a cotton glove or soft cloth instead of a squeegee is the way to go. Since the film cools quickly, it is important to work in small areas and continue to heat the film as your work moves along. Finally, after the film has been applied, to eliminate the stretching stresses created in this application, you must heat the film to a higher temperature, somewhere between 220° and 250°F (104° and 126°C). Move the heat source slowly. Now that the film has been applied, you are also heating the body of the vehicle and it takes more heat to achieve the final temperature requirement. Using a no-touch

heat gauge is strongly recommended to ensure this very important step is done correctly.

- 7) Edges, seams, and trim should be cut and resqueegeed to ensure good adhesion. It is a very good idea to also use high heat along these areas to speed up the adhesive build (this is to overcome the repositionable adhesive we built into the film for ease of application) and ensure a good application. Do not wrap films around 180° turns, as this will most likely result in failure. Do not wrap films under the edges of the car or into areas that do not clean well.
- 8) ***For over rivets, digital media with an overlaminates may tent and is not considered a reason for failure.*** To apply, use the same technique as the bridging described above, apply the film over the flat areas, bridging the rivet head. Using an air release tool or pin, (do NOT use a knife blade as this will result in a cut propagation issue), poke multiple holes around the rivet head to release the air, then using heat and a rivet brush work the film down. Finally apply high heat to release any tension stresses and to ensure a quick high strength bond. The only proven way to eliminate tenting around rivets with an overlaminated film is to cut completely around the rivet head after application.
- 9) The General Formulations, Inc. **AutoMARK™ 230** Premium 2.4-mil Calendared gloss white vinyl series digital media employs Air-Free technology that allows air to flow easily in all directions. This will minimize the need to pop bubbles. However, it is still possible to get an occasional bubble due to our adhesive having very small channels, which will completely wet out during the squeegee process. Should a bubble appear use an air release tool or pin to prick the bubble. Do NOT use a knife as this starts a tear, which can result in a failure.
- 10) Do not over-heat or over-stretch the graphic media. Channels that result in the film being stretched too far must be cut.
- 11) After all the film has been applied, go back and apply heat to the graphic to a high temperature, 200 to 250°F (71° - 126°C), in the areas the vinyl has been stretched to relieve stresses created by stretching.

Tips and Tricks for Successful Applications:

- 1) Know your surface and its limitations (gaskets, rust, channels)
- 2) Provide a controlled environment and a clean vehicle.
- 3) Always use a sharp knife for trimming (snap-off or replace blades frequently).
- 4) Use an air release tool, not a knife, to relieve air bubbles.
- 5) Heated media applied to cold metal will cool quickly. Apply enough heat to do the job correctly and work in small areas.



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- 6) Use heat to soften the film prior to stretching.
- 7) Use heat to relax the film after it has been stretched into the channels. This also allows the adhesive to build to a high bond quickly.
- 8) Seams and edges are common failure points. Be sure that edges are clean and dry. Cut all seams and then heat and re-burnish all edges to insure a good bond.
- 9) All printed material **MUST** be given a minimum 48hrs at 70°F (21°C) flat exposure to flash off any residual ink solvents before using the **AutoMARK™ 231** 2.4mil UV clear overlaminate. Failure to do so will trap residual solvents altering the performance of this product increasing the potential for premature film and adhesive degradation.

Application and Inspection Report:

Pre-Application Examination

All vehicles should be inspected prior to application to identify any possible compromised areas. Any areas that may cause adhesion problems or that may be damaged by graphics removal should be noted on the following schematics, and the examination report signed by both the applicator and Vehicle owner. Paint damage to areas noted as suspect will not be covered by the General Formulations, Inc. warranty or guarantee, express or implied.

NOTE: It is the graphic printer's responsibility to ensure that the listed signatures are obtained. Misrepresentation of the worthiness of the Vehicle' paint surface on the Pre-Application Examination form voids the limited warranty.

Inspect vehicle and locate any potential troublesome areas on the vehicle, these troublesome areas have a high probability of paint damage upon removal of the graphics.

_____ Locate and mark schematic where there is chipped paint, rust spots, dents, etc.
(NOTE: General Formulations will need photos from the installer to show these defects.)

_____ Locate and mark schematic where portions of the vehicle that have been repainted.
(NOTE: General Formulations will need photos from the installer to show these defects.)

_____ Using the schematic as a guide, check paint anchorage of the indicated areas.* Use 3M 610 tape at a 1" width. Apply firm pressure to the tape and pull off quickly at a 180° angle. If no clear coat or paint is pulled from this test, the area should be satisfactory for application.

See next page for needed warranty information

Finished decal retain required when filing a warranty claim



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Warranty Information Sheet

Job Description: _____

Printer _____

Name: _____

Address: _____

Contact/Phone #: _____

Purchased Media From: _____

Printer and Ink type used: _____

AutoMARK Installer _____

Name: _____

Address: _____

Contact/Phone #: _____

Vehicle Owner _____

Name: _____

Address: _____

Contact/Phone #: _____

Vehicle make and Model: _____

Vehicle VIN #: _____

Did vehicle pass pre-inspection test? _____

Date of installation: _____

Films used:

Coverage: circle one (full/partial)

(Attach photos): Attach all photos of Vehicle from pre and post installation inspection. These photos will be needed for any future warranty claims. Be sure that a photograph of the Vehicle number is included.



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Warranty Information Sheet Cont...

Signatures

Printer: _____

Graphics Installer: _____

Vehicle Owner: _____

Date: ____ / ____ / ____

Please return the warranty information form and all photos to:

General Formulations, Inc.
Concept® Product Manager
309 South Union
Sparta, MI 49345
Fax: 616-887-0537

Check List

Date: / /

Paint/Surface Quality: Excellent / Good / Fair


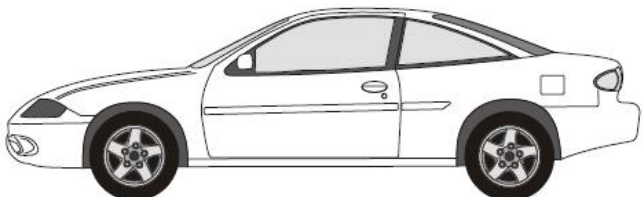

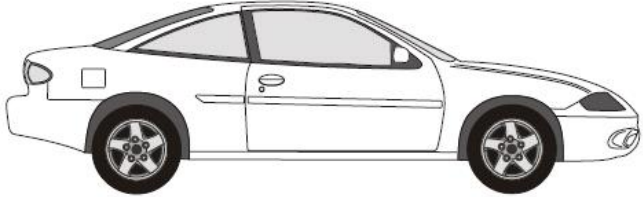
Recent Paint: Y / N: Date:

Rust or Bondo: R / B

Where:

Signature Installer: _____

Signature customer: _____

VISUAL INSPECTION	
	
	
NOTES	

Circle areas that contain:

- 1. Chipped paint
- 2. Rust spots
- 3. Dents
- 4. Scratches etc.

Put the number in the circle that represents the defect



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Check List

Date: / /

Paint/Surface Quality: Excellent / Good / Fair

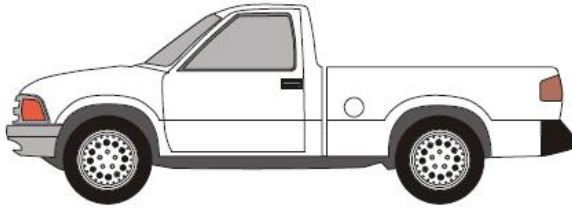

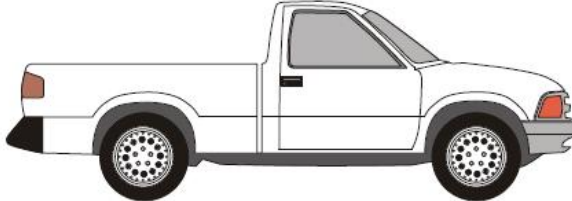

Recent Paint: Y / N: Date:

Rust or Bondo: R / B

Where:

Signature Installer: _____

Signature customer: _____

VISUAL INSPECTION	
	
	
NOTES	

Circle areas that contain:

- 2. Chipped paint
- 2. Rust spots
- 3. Dents
- 4. Scratches etc.

Put the number in the circle that represents the defect



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Check List

Date: / /

Paint/Surface Quality: Excellent / Good / Fair

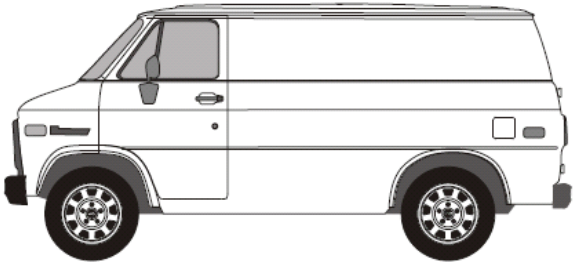
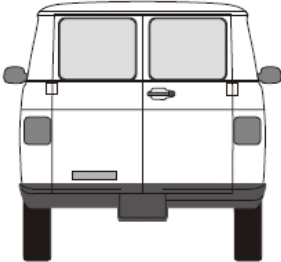
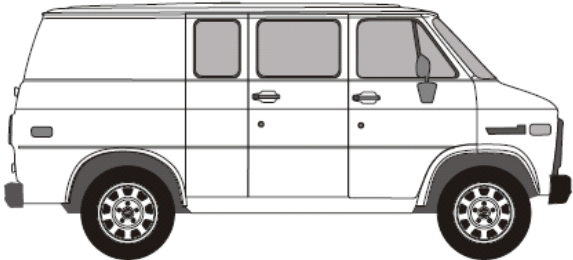
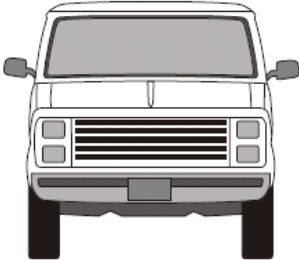
Recent Paint: Y / N: Date:

Rust or Bondo: R / B

Where:

Signature Installer: _____

Signature customer: _____

VISUAL INSPECTION	
	
	
NOTES	

Circle areas that contain:

- 3. Chipped paint
- 2. Rust spots
- 3. Dents
- 4. Scratches etc.

Put the number in the circle that represents the defect



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Check List

Date: / /

Paint/Surface Quality: Excellent / Good / Fair


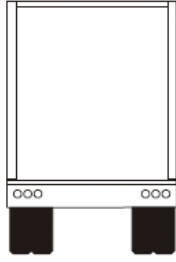


Recent Paint: Y / N: Date:

Rust or Bondo: R / B

Where:

Signature Installer: _____

Signature customer: _____

VISUAL INSPECTION	
	
	
NOTES	

Circle areas that contain:

- 1. Chipped paint
- 2. Rust spots
- 3. Dents
- 4. Scratches etc.

Put the number in the circle that represents the defect



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Warranty and Limited Remedy

*General Formulations, Inc. warrants the vehicle wrap film to perform as stated in the product bulletin for exterior exposure resistance given all the steps are followed therein. Possible partial adhesive transfer does not constitute product failure and General Formulations will not be liable for residual adhesive residue. General Formulations, Inc. will not assume any liability for paint or clear coat failure due to faulty application, poor body, paint and clear coat condition due to age or environmental damage or the failure to follow the steps provided. In addition, any damage caused by “Fallout” **(a dull rust-colored surface condition caused by fossil fuel and turning acidic when mixing with water vapor)** is a result of environmental factors uncontrolled and unrelated to General Formulations, Inc. manufacturing processes and is not considered a product defect. Therefore, General Formulations, Inc. retains the right to deny credit based on any or all of these factors.*



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