

Rennicks Gold Converters Warranty:-

Warranted performance of Nikkalite® Crystal grade sheeting for Emergency Service Liveries

AdvantEdge seal Warranty Terms & Conditions.

For Emergency Service Liveries AdvantEdge sealed Crystal grade kits are warranted to be at least 95% sealed when initially processed by the Gold Converter. Over the life of the warranty the seal may start to degrade under normal conditions but will maintain at least 80% seal over the 10 year warranty.

AdvantEdge sealed kits should be fitted in accordance with Rennicks fitting instructions. The 10 year warranty commences at the date of fitting to newly registered vehicles by an experienced fitter.

Rennicks (UK) Ltd., liability for failing to meet the stated sheeting or edge seal performance processed by a Gold Converter is limited to the costs of cutting, edge sealing and replacing the affected parts. The warranty does not cover costs for travel, accommodation or additional manufacturing or vehicle operator costs.

The fleet manager / organisation maintaining the vehicle / livery shall adhere to the Rennicks washing procedure at all times. Damage caused by incorrect maintenance (such as close use of high pressure water jet, cleaning chemicals or solvents), abrasion, damage in use and vandalism are excluded from the warranty.

The warranty does not apply where the above conditions have not been adhered to or due to incorrect application or tension introduced into the kit during application.

Replacement livery shall carry the unexpired warranty of the parts it replaces.

For Emergency Service Liveries Approved Gold Converters shall:

- 1) operate the AdvantEdge approved Rinco Ultrasonics generator and flatbed equipment supported by maintenance agreements and regular inspections.
- 2) use Rennicks ultrasonic horn and mat to provide the AdvantEdge seal.
- 3) establish and maintain production quality procedures acceptable to Rennicks for recording edge sealing sample results following red die testing on the standard test shape at the start of production and this must achieve 95% plus integrity of the kit on a rolling 6 month basis and the converter can demonstrate this through test records.
- 4) ensure that its employees which process the sheeting are satisfactorily trained with the ultrasonic process, and have knowledge and understanding of the Gold Converter responsibilities.
- 5) be able to run flatbeds for at least 4 hours continuously with no deterioration in results by inclusion of the standard test shape sealing during production and the results logged.
- 6) record and retain the lot numbers for all colours in all kits.
- 7) have a Rennicks approved process for templating and digitizing kits.
- 8) agree to Rennicks spot testing.
- 9) suitably pack kits flat for storage and dispatch ensuring no pressure and bruising to Crystal grade sheeting.
- 10) provide Rennicks washing procedure to the fleet manager / organisation maintaining the vehicle.
- 11) in the event of a complaint relating to the livery the converter shall within 2 weeks provide full details to Rennicks in writing.



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Non Gold Converter Warranty

Where Crystal grade sheeting is processed by converters who have not attained Gold Converter status the sheeting shall be warranted for 10 years to the retroreflectivity and chromaticity performance shown in tables 1 and 2.

The edge sealing process shall be warranted by the converter.

Retroreflectivity

The minimum coefficients of retroreflectivity for new 92800 series Crystal grade with AdvantEdge seal are shown in Table 1.

Over the 10 years of the warranty retroreflectivity will be greater than 80% of these values.

Table 1 minimum initial retroreflectivity

Minimum initial retroreflectivity	EA 5° OA 0.33°	EA 30° OA 0.33°
White	340	180
Yellow	220	116
Red	68	36
Blue	22.4	12
Green	32	16
Fluorescent Yellow Green	220	116
Fluorescent Orange	168	88

Above values are shown in $\text{cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$ for original colour
Above values are shown at fixed rotation angle of 90°.

Daytime Chromaticity & Luminance

Over the 10 years of the warranty daytime chromaticity and luminance factor shall remain within the limits in Table 2, when measured according to PSDB publication High Conspicuity Livery for Police Vehicles 14/04.

Table 2 Daylight chromaticity and luminance factor limits

Colour	Daytime Chromaticity co-ordinates								Luminance factor
	1		2		3		4		β
	x	y	x	y	x	y	x	y	
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329	$Y \geq 0.40$
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472	$0.45 \geq Y \geq 0.24$
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346	$0.15 \geq Y \geq 0.03$
Blue	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216	$0.10 \geq Y \geq 0.01$
Green	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771	$0.12 \geq Y \geq 0.01$
Fluorescent Yellow Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540	$Y \geq 0.60$
Fluorescent Orange	0.583	0.416	0.535	0.400	0.595	0.351	0.645	0.355	$Y \geq 0.25$

Rennicks Gold Converter Declaration

At Rennicks UK, we take the quality of our Nikkalite® products very seriously, all the way from the factory floor to the end user.

We know that the vast majority of our Nikkalite® product is converted prior to use and that the quality of the conversion process is critical to the performance of the product and it is for this reason we have introduced the concept of a Gold converter for Emergency Service Liveries.

Gold converters represent the very highest standards of process, quality control, traceability and delivered product, hence the reason we are happy to endorse their work.

In the Emergency Service Liveries arena, our Gold Converters must meet the following key standards:-

- ✓ They operate the AdvantEdge equipment on Nikkalite® products
- ✓ They have a documented sealing and edging process
- ✓ They achieve 95% plus sealing on their Emergency Service Liveries kits and can demonstrate this through testing records.
- ✓ They are able to run flatbeds for at least 2 hours continuously with no deterioration in results
- ✓ They record which tools and mats were used to make each kit
- ✓ They agree to Rennicks spot testing any kit at any time
- ✓ They have a Rennicks approved process for templating and digitizing

Following these rigorous procedures, Rennicks is happy to recommend our Gold converters to produce Emergency Service Livery kits.

Rennicks are also happy to support converters who wish to achieve this standard.

Declaration:

I [Name] of [Company Name], [Company Address] confirm that I currently meet all the above criteria

..... Signed

..... Date