

APPENDIX F: FLEET ID QUALITY CONTROL WORK INSTRUCTION

QUALITY CONTROL PROCEDURES

Fleet ID as an approved convertor have set-up and managed their own procedures, recording the following information per vehicle, livery/part-vehicle and livery/batch of vehicles for a single end-user. The information/retained samples that need to be recorded are as follows;

1. Trace batch codes for all materials used as part of the vehicle livery.
2. Date of converting
3. Operator
4. Ultrasonic horn serial number and wear to date
5. Polyurethane cutting surface wear to date
6. Pre-cut testing results and samples
7. Redundant weed material samples from each colour of material converted
8. End-user and vehicle details
9. Application

1. Batch Codes

Batch Codes can be found on the material box label, as well as on a small white sticker within the roll core. Batch codes are typically in the following format:

<NUMBER> <LETTER> <NUMBER> <NUMBER> <NUMBER> -- <NUMBER> <NUMBER> <NUMBER>
<NUMBER>

For example: 2G-123-4083

2. Date of Conversion

The date of the conversion of the livery is recorded for auditing purposes

3. Operator

The operator setting up and running the conversion of the livery is recorded for auditing purposes

4. Ultrasonic Serial Number and Wear to Date

The Serial Number of the ultrasonic horn can be found on the box label, as well as etched permanently into the metal itself. The serial number is typically of the following format:

Rinco Ultrasonic Horn:

Z - <NUMBER> - <NUMBER> <NUMBER> <NUMBER> <LETTER>
3955E

For example: Z3M

5. Polyurethane cutting surface and Wear to Date

The polyurethane cutting surfaces do not have a serial number marked upon them. Fleet ID mark the cutting surfaces in some to distinguish one mat from another. The date of installation of the cutting surface is recorded in a logbook, along with its daily usage. This usage or life durability should then be converted into an equivalent square metre usage of material.

6. Pre-cut testing results and samples

Before each vehicle livery/part vehicle livery/or batch of liveries for one end-user is run, the correct setup of the conversion process is verified. This will provide confidence that the machine settings are correct, the ultrasonic horn and/or cutting surface are within specification, as well as providing retained samples should any issue arise with the quality of the conversion of the livery after it has been applied. The samples and method to be used are described below in the standard testing regime. The eight samples cut and sealed from this pre-cut testing should be used as follows:

Dye Ingress Test x 2

Keep for Manufactures Audit x 2

Fleet ID own retained samples x 4

Dye ingress tested samples are tested, recorded & stored using the methods outlined by all material manufacturers and comply with the specification limits.

7. Redundant Weed Samples

The conversion of a vehicle livery will never provide a 100% yield from any manufacturer's material roll. As the edge seal process will seal the material on both sides of the cut line, redundant weed material left over from the conversion process is representative of the conversion quality of the panels to be applied to the vehicle.

Redundant test samples, taken at random from across the entire flatbed area are to be retained by Fleet ID for each batch and colour of material converted.

8. End-user and vehicle details

The intended end-user and vehicle model/template design should be recorded for each vehicle livery/part vehicle livery/or batch of liveries. This will greatly assist in tracing of material and in-field inspection should the need arise.

9. Application

As materials can be damaged by poor or incorrect application technique, wherever possible the applicator, application location and date of application should be recorded.

Dye Ingress Test Method

1. Apply test piece to rigid substrate
2. Apply sufficient dye to the edges of the material to ensure that there is a meniscus of dye over the edge
3. Leave for 10 minutes
4. Wipe off excess dye, then clean residuals with solvent
5. Visually inspect edges for evidence of dye ingress
6. Count the number of cells demonstrating dye ingress
7. Count the total number of sealed cells on the sample – the use of supplied transparent counting rulers can greatly assist this process
8. Calculate the percentage of cells demonstrating dye ingress

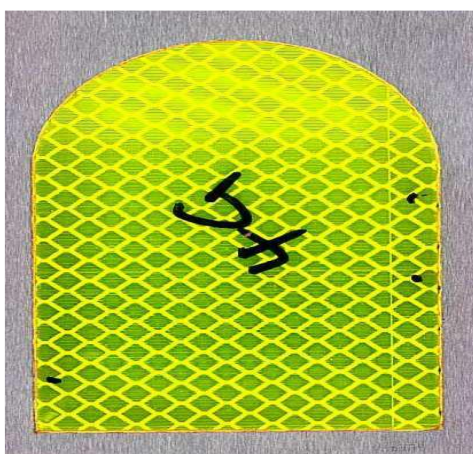
Sealing Thresholds

Table A

Defects Description Action

D 10% Fail

1. Test more samples from across the entire flat-bed area. If mean of samples exceeds 10% continue to step 2
 2. Check operating settings and flat-bed set-up & re-run samples
 3. Reject conversion batch
 4. Change / rotate ultrasonic horn and polyurethane cutting surface as appropriate 10% > D >5% Acceptable
 5. Test more samples from across the entire flat-bed area.
 6. Check operating settings and flat-bed set-up & re-run samples.
 7. Closely monitor subsequent converted liveries.
- 5% Ideal 1. Continue standard testing regime D = Percentage of total cells that demonstrate dye ingress



Sample applied to rigid substrate Circle Diameter = 5cm
Total height = 7.5cm

Substrate Preparation

Proper application surfaces and preparation methods are essential for the application of materials in order to achieve the excellent, long lasting performance these products can achieve.

Surface Testing

Tape Snap Test

Test for improper surface preparation or contamination by firmly applying a strip of 3M Scotch™ Transparent Tape Series 610 using a clean cloth to the surface to be tested. After the tape has been applied, holding one end of the tape (unapplied) snap the tape up at a right angle to the surface. Any loose material on the tape or visual change in the colour or sheen where the tape has been applied indicates a heavy, loosely coated, or otherwise contaminated surface, which may be unsatisfactory for sheeting application.

Water Break Test

Test for oil or wax contamination by pouring water onto a flat horizontal surface; the water should not bead up, but should flow out to form a uniform film on the 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.

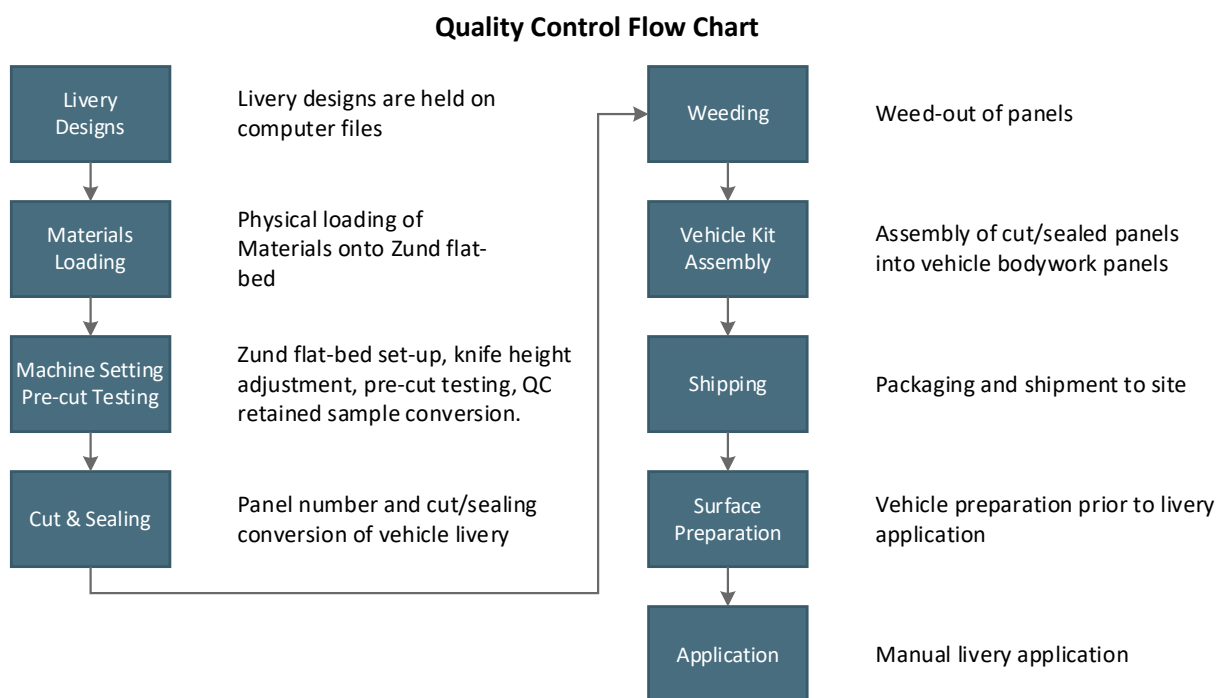
Application to rusted, severely pitted, loose or chalking painted surfaces is not recommended. These surfaces must be clean of rust and painted using recommended standard practices before applying conspicuity marking.

Application to paints that contain migratory agents is not recommended. Some paints (especially powder coated paints) contain silicones, chlorinated waxes and other agents in relatively high ratios, to which little or no adhesion can be obtained.

Handling and Storage

All material rolls, sheets and finished panels must be handled with care. Materials will be stored horizontally in a cool, dry area and used within one year of purchase. An environmentally controlled area is preferable. Rolls when removed from the shipping carton should be supported by means of a pipe or rod through the core, or returned to the shipping carton with end cores in position in a humidity-controlled area or cabinet.

- Cut sheets or panels should be stored flat
- To protect cut sheets or panels against humidity and dust they are wrapped in plastic and stored in closed boxes
- Maximum height of stacked sheets or panels should not exceed 20cm.
- Do not apply pressure to stacked sheets or panels.



1. Livery Design

Vehicle livery designs are regarded as being proprietary Fleet ID. Vehicle templating and digitisation is complicated, time-consuming and critical part of the overall conversion process we have specialist teams that carry out this full process.

2. Material Loading

Pre-fit the supplied thermoset polyurethane cutting surface to your Zund flat-bed if not already fitted. Feed the material onto the Zund flat-bed so that the material edge is parallel edges of the

flat-bed. Ensure that the material is free of wrinkles and that no debris obstructs the movement of the tool head. Check that no unwanted pieces or material or debris is trapped between the material to be converted and the polyurethane cutting surface.

3. Machine Set-up and Pre-cut testing

The Zund flat-bed should be set-up with the supplied polyurethane cutting surface and ultrasonic cutting horn and utilise the control settings. As part of the edge seal quality control measures, a number of test pieces of material will be converted using production settings. These samples will be used for retained samples, audit samples and ingress testing. These samples will also indicate that the Zund flat-bed is configured correctly and that the polyurethane cutting surface and ultrasonic cutting horn are within specification.

4. Cut/Sealing

After the machine is adjusted and proven to be correctly configured, start with the material conversion.

Note: When converting materials ensure that all text and panels are cut with consideration for the desired application orientation.

5. Weeding

Cut and edge sealed material panels should be weeded immediately after conversion to prevent re-joining of the adhesive. If issues with release from the cutting surface or weeding from other panels are experienced, experiment with weeding the panels with the flat-bed vacuum pump on or alternatively switch to positive pressure (blow) rather than negative pressure (vacuum).

Panels of material will be handled with care to prevent damage to the material. Panels should be stored flat and be stacked no more than 20cm high. The use of SCW 82 slip sheeting between stacked panels may be required to prevent adhesive oozing contamination.

6. Vehicle Kit Assembly

It is common practise for converted panels to be part assembled or pre-spaced according to the vehicle livery lay-out. This greatly assists in the application of the panels to the vehicle.

7. Shipping

Finished panels should be stored indoors. Panels should be packaged appropriately so that the panels are held flat. The use of SCW 82 slip sheeting between stacked panels may be required to prevent adhesive oozing contamination.

8. Surface Preparation

All materials we provide are generally suitable for application to automotive paints. Care should be taken with regard to application to moulded bumpers, bump strips, wing mirrors, rubber gasket seals, automotive glass and other non-painted substrates. Substrates should be tested and prepared in accordance with the manufacturers instruction.

9. Application

Application of reflective panels are typically made by hand. Care should be taken to use suitable application tools that do not damage the surface or edges of any of the reflective panels.

Application of reflective panels over tight curves or compound curves is not recommended. Vehicle livery panels will be designed to avoid sharp bodywork features and compound curved body panels. It is common practise to split panels or leave gaps in the livery to compensate for such difficult substrates.