AUTO REFINISH TECHNICAL SUPPORT LABORATORY TEST REPORT

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Title:	Specification for the repair of Mazda vehicles painted in 46V Soul Red Crystal using mechanical paint removal
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CONTENTS:

1) Background.

2) Safety & Environment.

Recommendations:

3) Preparation of Panels to be painted
Painting Process.

4) Preparation of Substrate (for plastic components)
Painting Process.

1) Background

The following recommendation is for the refinishing of Mazda vehicles affected by stone chipping painted in Soul Red Crystal (code 46V) using the MaxMeyer AQUAMAX® Extra paint system where the substrate has been affected. This specification also incorporates the process for pre-repaired vehicles and its plastic components if damaged.

Ensure all affected panels, fittings, badges, moulds, etc are removed prior to commencement of any work.

2) Safety & Environment:

The following recommended paint products are free from Lead and Chromate materials.

The recommendations involve the spray application of 2-pack paint products that contain polyamines or polyisocyanate activators. It is essential that the processes described below are carried out only by trained operators in an area specifically adapted for the spray application of paint. It is also essential that an air-fed breathing respirator is used during the spray application of 2-pack paint products. Refer to the SDS's for the individual products. Up to date SDS's are available on www.protec.com.au

Recommendations:

Pre - Painting Process:

Following inspection of the vehicle for stone chip effected areas, further inspection of panels should be conducted for additional damage such as dents and defects in the substrate. An agreement with the owner should be reached on how these areas should be treated.

3) Preparation of Panels to be painted:

- Wash the complete vehicle using SU408 OneChoice Bodykleen before proceeding to the paint removal process
- Clean paint surface using AA–6822 Heavy Duty Wax and Grease Remover
- Blend areas and areas to be clearcoated are to be abraded with P800 dry disc followed by Grey fine Mirlon scourer 150 mm disc using a vacuum exctracted sander .
- Hard to get at areas, such as belt mold, door handle recess areas should be done by hand using a fine Mirlon hand scourer and SWX250 Water Methylated Spirits Cleaner. This step may also be done during the washing of the vehicle with SU408 Bodykleen outlined in step one.
- Thoroughly sand stone chip effected areas areas using P180-240 abrasive discs until a sound surface is achieved. It is important to remove all affected areas of paint to a sound substrate.
- Rather than blowing off, vacuum the sanded area with a Gey Mirlon 150mm disc pad using a vacuum assisted sander.
- A final thorough surface clean is recommended using SWX250 Water Methylated Spirits Cleaner followed by AA – 6822 Heavy Duty Wax and Grease Remover
- Surfaces should be wiped clean using one rag to apply and a clean rag to wipe off.

Painting Process:

Once the repair process has been agreed to, stone chips only or additional repairs and stonechips, then the appropriate method should apply.
Proceed to either an HP Multigrey WOW process (with no substrate damage) or an HP Primer Filler Sanding process (for severely damaged areas)

Bare Metal substrates:

AP-4110 PROTEC EPOXY PRIMER
Mixing
Use AP-4110 Protec Epoxy Primer for maximum adhesion and holdout over bare metal areas.
For conventional or HVLP spray equipment activate and thin as follows:

AP-4110 Primer	5 Parts
AH-4120 Hardener	1 Part
Thinner Selection by Temperature	
PS-6200 Up to 25°C	15%
PS-6300 Over 25°C	

Application
Apply 2 full, wet even coats to a dry film thickness of 20-35 μm.
Allow AP-4110 to flash for 25-30 minutes at 25°C before applying 9706 HP Multigrey. Paint only small credit card size body filler repairs, or use 8717 HP Primer Filler in Sanding Mode where required for large body filler repairs.

ALTERNATIVELY: Repairs smaller than A4 size can be done using the UV8080 UV Primer process followed by 9706 HP or using 8717 HP Primer Filler as outlined below.

9706 Dark Grey M6 2K Primer (High Build Mode)
Mixing
For maximum chipping performance use 9706 2K Primer.
For conventional or HVLP spray equipment activate and thin as follows:

9706 Primer	2 Parts
6700 Hardener	1 Part
Thinner	
7501 Accelerator Thinner	15%

Application
Apply 2 even coat to a dry film thickness of 25-35 μm.

Bake 9706 at 60°C for 20 minutes

Sanding:
Thorough sanding is necessary when 2K primers have been cured before top-coating. Guidecoat and level any defects using P240 dry for the initial sand followed by P400dry.

8717 HP Primer Filler (Sanding Mode for large repairs)
Mixing
For maximum chipping performance use 8717 2K Primer.
For conventional or HVLP spray equipment activate and thin as follows:

8717 HP Primer	4 Parts
4317 Hardener	1 Part
Thinner Selection by Temperature	
4307 Below 18°C	5-10%
4317 18°C - 30°C	
4327 above 30°C	

Application
Apply 2 even coats to a dry film thickness of 40-60 μm.
Allow 8717 to dry overnight at 25°C or bake at 30°C for 60 minutes.

Sanding: As described above for 9706

Mazda 46V 3-coat colour has special process guidelines – please refer to the following Technical Bulletins TCB100 before proceeding

MIXING RATIOS FOR GREYMATIC SHADE M5

% by weight	M5
9701	--
9704	48
9706	52

Recommended clears for this Specification is PC-5950 Paraglaze Ultra Finish Clearcoat for both the Tinted Clearcoat layer and the final topcoat.

Technical Bulletin TCB100

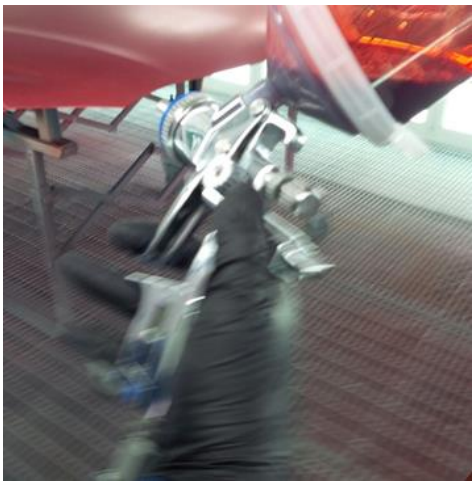
Red Tinted Clearcoat Colour Check Process

PRODUCT DESCRIPTION

Certain newer model car colours utilise tinter in a 2K CLEARCOAT mid-coat layer to produce a very clean candy apple effect. Ford Ruby Red and Toyota Infra Red / Sonic Red are examples of this.

The example contained on the following pages is of Ford RR, A, K / Ruby Red and 46V Soul Red Crystal. Other OEM colour repairs using tinted 2K clear as a mid-coat will be similar.

The repair process utilises a 2K CLEARCOAT tinted mid-coat layer that is applied over the *AQUAMAX* Extra basecoat system. The tinted translucent mid-coat layer is made by combining the recommended tinter with PC-5950 Paraglaze Ultra Finish Clearcoat.



This refinish repair consists of a 3 layer process made up of a red metallic ground coat layer, a tinted translucent mid-coat layer followed by a final clearcoat layer. See illustration below.

Clearcoat Layer
Tinted Translucent Mid-Coat Layer
Metallic Ground Coat Layer
Specific M-shade Sealer
OEM Substrate

Brand specific formulas for the ground coat and the tinted mid-coat layer are available in PROTEC® *PaintManager* by calling Customer Service; 1800 076 466.

SELECTING THE PROPER PAINT SYSTEM FROM PAINTMANAGER® SOFTWARE

- Searching for the appropriate code in *PAINTMANAGER* program software will enter the user into their primary paint system. Choose one of these 3 layer systems below for optimum colour match.
    - *AQUAMAX* Extra 3CT

- All 3 Layer formulas start with a basecoat formula using toners from that specific paint system.
- All of these 3 layer systems use the same type of tinter for the mid-coat. (Ruby Red uses VM4350 Vivid Ruby) This special mid-coat tinter is generally from the VIBRANCE COLLECTION® and it is a limited use tinter, so please check available stock prior to mixing.
    - Note: 1 container holds 4 oz. of tinter and will tint approximately 12 litres of mid-coat/clearcoat.
- Each of the 3 layer paint systems will express the mid-coat formula as 2 components; tinter and a common clearcoat code.
    - *AQUAMAX Extra* 3CT
    - *PC-5950 Paraglaze Ultra Finish Clearcoat*

- The common clearcoat codes refer to PC-5950 Paraglaze Ultra Finish Clearcoat.
    - Note: This instruction is given as a reminder within the mid-coat formula screen.
- To determine the proper hardener and reduction options proceed in *PaintManager* program software for your selected clearcoat.

PREPARATION OF SUBSTRATE

- Damaged body work must be repaired using the approved MaxMeyer repair process including selecting the correct under coating system for aluminium, steel and plastic substrates.
- For proper colour alignment, finish the body work with the recommended ground coat for the basecoat system using the correct M-Shade as directed in *PaintManager* program software.

PREPARATION OF COLOUR CHECK PANEL

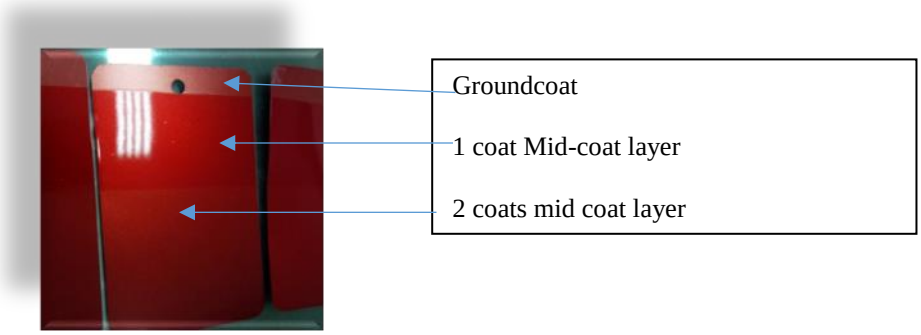
NOTE: Due to OEM colour variation from model to model it is essential that a colour check panel be prepared to align the colour before applying any ground coat colour to the vehicle. The colour check panel should be prepared as follows:

- Using the correct M-Shade COLOUR SPRAYOUT PANEL – mix and apply the Main Layer (ground coat) until proper coverage is achieved. (Waterborne systems require a control coat as outlined in the *AQUAMAX* Product Data Sheet.)
- Mix and apply the ground coat until proper coverage is achieved (Waterborne systems require a control coat).
- Prepare the tinted mid-coat by mixing appropriate tinter (e.g. VM4350) with your chosen clearcoat following the supplied formula.

**When completing a colour check panel it is strongly recommended to use the same clearcoat/s that will be used throughout the repair process. A minimum of one final clear layer must be applied over the tinted mid-coat colour check panels.

***The tinted mid-coat must be reduced and catalysed as normal following the addition of Tinter. See the specific clearcoat product bulletin for proper reduction prior to application.*

- Apply one tinted mid-coat layer over two colour check panels. After flash off, remove one panel and apply a second coat to the remaining panel. Allow to flash completely or IR cure for 10 minutes. *You can use one colour check panel for this and split into two sections as below or use two separate panels*



- Apply one coat of clear only over all panels and allow to dry.

CHECKING THE COLOUR

- Use the completed colour check panels to evaluate the colour on the car.
- When one of the colour check panels is considered "blendable" to the car, proceed in refinishing the vehicle. Be sure to spray the vehicle in the same manner and technique as the colour check panels to achieve proper colour alignment.
- If a colour adjustment is necessary tint the ground coat or mid-coat layer in the appropriate colour direction and prepare another series of colour check panels by repeating the above process. Continue in this fashion until a blendable match is achieved. Be sure to spray the vehicle in the same manner and technique as the colour check panels.
- **Important:** The tinted mid-coat layer **can only** be tinted with the tinter recommended in the formula. Any colour adjustments must be made to the ground coat.

NOTE: When completing the repair in AQUAMAX Extra PC-5950 Paraglaze Ultra Finish Clearcoat may be applied over the tinted mid-coat layer. The mid coat layer must be cured/baked for 30 minutes prior to final clearcoat application.

This product is for professional use only.

The information given in this sheet is for guidance only. Any person using the product without first making further inquiries as to the suitability of the product for the intended purpose does so at his own risk and we can accept no liability for the performance of the product or for any loss or damage (other than death or personal injury resulting from our negligence) arising out of such use. The information contained in this sheet is liable to modification from time to time in the light of experience and our policy of continuous product development.

Drying times quoted are average times at 20°C/68°F. Film thickness, humidity and shop temperature can all affect drying times.

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Technical Bulletin TCB100

Red Tinted Clearcoat Application Process

PRODUCTS	
Tinter	VM4350 Vivid Ruby
Tinter	1.550.AL05 – Required in Groundcoat for 46V AL05 Alluminio Liquido 2
Process also requires :-	
Clearcoat - Mid Coat layer	PC-5950 Paraglaze Ultra Finish Clearcoat
Clearcoat - Top layer	PC-5950 Paraglaze Ultra Finish Clearcoat
Hardener	Appropriate for above clearcoats (see relevant PDS)
Thinners	Appropriate for above clearcoats (see relevant PDS)

PROCESS DESCRIPTION

VM4350 is added to the clearcoat chosen for the mid-coat layer to give the enhanced depth and clarity required in the latest OEM Candy Apple type colours e.g Mada 46V Soul Rd Crystal repair.
1.550.AL05 is required in the Groundcoat layer for 46V.

1. REPAIR AND PREPARATION OF SUBSTRATE

1.1 The damaged body work of the vehicle should be repaired using a PPG repair
and undercoating system for the substrate of the body panels being repaired
(Aluminium, Steel, Plastic etc.)

1.2 When preparing the substrate, suitable colour check panels should be prepared alongside in the same Multigrey shade for use when checking the colour/effect as described in the Technical Bulletin for Colour Check.

2. SYSTEM APPLICATION PROCESSES – FADE OUT

- Finish the repair with the recommended Wet-On-Wet Multigrey Primer shade for the specific colour to be applied, M5 in this case. Alternatively, Basecoat Multigrey may be used. This is important to achieve the final colour.
- Prepare panel as recommended for a blending process.
- Apply the basecoat as described in the relevant PDS.
- Flash off between coats as recommended.
- Use recommended fadeout process for the basecoat being used.
- Mix the tinted midcoat layer as described in *PaintManager* and activate accordingly.
- Apply the appropriate number of coats as decided in the Colour Check Process.

- Avoid any heavy application to reduce risk of fat edges/ framing.
- Melt the edge of midcoat layer with AS-5700 Protec Blending Thinner
- Bake as per PDS for the clearcoat used. Leave to cool down and de-nib any blemishes using P1000-2000 ABRALON.
- Clean and apply non-tinted clear PC-5950 Paraglaze Ultra Finish Clearcoat as per PDS for final gloss.

3. SYSTEM APPLICATION PROCESSES – RESPRAY / FULL PANELS

- Finish the repair with the recommended Wet-On-Wet Multigrey Primer shade for the specific colour to be applied, M5 in this case. Alternatively, Basecoat Greymatic may be used. This is important to achieve the final colour.
- Mix the tinted midcoat layer and apply as confirmed from the colour sprayout panels.
- Avoid any heavy application to reduce risk of fat edges/ framing.
- Bake as per PDS for the clearcoat used. Leave to cool down and de-nib any blemishes using P1000-2000 ABRALON.
- Clean and apply non-tinted clear as per PDS for final gloss.

Note: Once the mid coat layer is cured it may be sanded with P1000-2000 ABRALON, cleaned then clearcoated with the appropriate clearcoat from the list above.

HEALTH AND SAFETY

These products are for professional use only, and are not to be used for purposes other than those specified. The information on this TDS is based on present scientific and technical knowledge, and it is the responsibility of the user to take all necessary steps in order to ensure the suitability of the product for the intended purpose. For Health and Safety information please refer to the material Safety Data Sheet, also available at: **www.protec.com.au**

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Groundcoat / Main layer: Colour MAZ.46V/1
AQUAMAX Extra basecoat:
Mixing

AQUAMAX Extra Basecoat	100 parts
9970 Thinner	10-15%

Application
Refer to *AQUAMAX* Extra Product Data Sheet for recommended application to give achieve the correct finish and a dry film build of 10 – 25 microns.
Allow *AQUAMAX* Extra Basecoat to flash off until completely matt at 25°C before applying mid layer.

Mid layer: Colour MAZ.46V/2

PC-5950 / VM4350 mix	2 Parts
PH-4200 Hardener	1 Part
PS-6200 Thinner	0-10%

Apply number of coats as determined by
TCB100 Colour Check process above.
Allow 5 minutes flash off between coats.
Low bake for 15 minutes at 65°C.
Recommended dry film thickness: 50 – 60 μm.

PC-5950 PARAGLAZE Ultra Finish Clearcoat: Option for Final Clear Layer.
Activate and thin as follows
For conventional or HVLP spray equipment activate and thin as follows:

Mixing

PC-5950 Clearcoat	2 Parts
PH-4200 Hardener	1 Part
PS6200 Thinner	0-10 %

Application
Apply 1 medium followed by 1 full wet coat.
5-10 flash off is required between coats.
No flash off is required before bake.
Low bake for 45 minutes at 60°C.
Recommended dry film thickness: 50 – 60 μm.

4) Preparation of Substrate (for plastic components)

Clean new plastic components with SU408 OneChoice Bodykleen or SWX250 if they are pre-primed before proceeding.
(If repairing the bumper: after the plastic component is repaired, feather out the damaged area using Abranet 240 and finish using Abranet 400 before proceeding.)
Air blow panel to remove sanding dust.
Wash surface with AA-6800 Protec Plastics Cleaner and dry thoroughly before proceeding.
Apply appropriate plastic adhesion promotor according to plastic type before priming, e.g. AP-4990.
For primer / sealer use 9706 or M5 WOW as described above and for filling and sanding properties use 8717 HP Primer Filler as described below.

Painting Process:

8717 2K Primer (High Build Mode)
Mixing
For maximum chipping performance use 8717 2K Primer in Flex mode.
For conventional or HVLP spray equipment activate and thin as follows:

8717 Primer	5 Parts
AA-5656 Protec Flex Additive	1 Part

Mix thoroughly before adding hardener and thinner

6700 Hardener	1 Part

Thinner Selection by Temperature

4307 Below 18°C	5-10%
4317 18°C - 30°C	
4327 above 30°C	

Application
Apply 2 even coats to a dry film thickness of 30-60 µm.
Allow 8717 to dry overnight at 25°C or bake at 30°C for 60mins.

Sanding:
Thorough sanding is necessary when 2K primers have been cured before top-coating. Level any defects using P180-240 dry for the initial sand followed by P400dry

Paint using the Mazda 46V 3-coat colour process outlined above.
For more detailed information on any PPG Protec products refer to the individual PDS

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