



## ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION

Mechanical Engineering Department, Office of the VC & MD,  
Bus Bhavan, Mushirabad, Hyderabad - 500 624

Lr.No.OP4/462(PU)/2011-MED,

### **CIRCULAR No:38/2011-MED, Dt.08-12-2011**

Sub: UPKEEP -Application of PU Paints for FC vehicles and refurbished vehicles at all Zonal Workshops and patch works at Depots - Certain instructions issued - Reg.

Ref: CME(C&B) Lr.No.TL10/843(1)/AMED/10-MED, dt.02.06.2010.

Proper painting of Buses is one such important activity which enhances the aesthetics of Buses and helps in attracting passengers. Even if the vehicle is mechanically fit and comfortable, it may not attract the passengers if it looks shabby externally. Therefore, attractive and glossy painting is very much essential for all buses in general and for prestigious high-end buses like Garuda, Indra, Super Luxury in particular.

For the past several years, we have been applying PU paints to all high-end buses in view of several advantages like high glossiness, durability, scratch resistance etc. The process of applying PU paints is different from that of SE paints to some extent. Certain special equipment like Spray guns, sanding machines, Paint booth and materials like Puttys, Surfacer, hardeners, degreasing solvents etc are needed in this process. Greater attention is required in Surface Preparation, Putty application, mixing of paints, spraying with paint gun, baking etc.

As the painters at our Depots are not adequately trained in application of PU paint to the buses at the time of FC and while covering the patches after repairs, the normal SE paints are being applied in place of PU paints thus defeating the very purpose of using PU paints.

In order to avoid such practices, it is decided to take up full painting with PU paints for all high-end buses at Workshop level for FC work and for the vehicles undergone refurbishing. With regard to patch work after bus body repairs to high end buses at depot level, the Painters shall be suitably trained to apply PU paints instead of applying SE paints.

The following instructions are issued in this regard.

- 1) Proposals shall be sent for establishing the Paint Booth of standard dimensions and specifications at all Zonal Workshops to undertake PU painting
- 2) Till such time, the Paint booth is erected; a separate area shall be earmarked to carry out PU painting at all Workshops with immediate effect
- 3) The work of surface preparation and full painting with PU paints shall be entrusted to suitable agency on contract basis on evaluation of the field experience and credentials of the agency
- 4) The following equipment and consumables are required to be procured for PU painting

**a) TOOLS & EQUIPMENT**

- Standard Paint Spray Guns,
- Sanding machines (Electrical or Pneumatic),
- Compressed air line with water separator,
- Putty Blades,



Electrical Sander



Pneumatic Sander



Paint Spray Gun

**b) SAFETY EQUIPMENT**

- Nose Filter/ Masks
- Safety Goggles
- Hand gloves



Nose Mask



Nose Filter



Safety Goggles



Hand Gloves

**c) CONSUMABLES REQUIRED FOR SURFACE PREPARATION & PAINTING**

- Emery Papers for Sanding (in various grits 40/80/220/400/600)
- Polyester Putty & hardener of recommended brands
- Check Putty (Combifiller)
- Epoxy primer with Hardener (of recommended brands)
- Surfacer with Hardener
- Thinner (Reducer)
- PU Paints of prescribed colours with hardener
- Masking Tape
- Masking papers



Masking tape



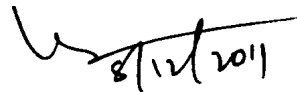
Sanding papers for Sanding machine

- 5) While doing the full painting to the FC vehicles/ refurbished vehicles, the Works Managers shall also undertake the training of Depot Painters so that they can carry out patch works with PU paint at Depot level
- 6) All the Depots shall be supplied with Paint spray guns & sanding machines. The same Sprayer shall also be used for application of SE paints on Ordinary vehicles to get better finish and glossiness. The present practice of Brush painting shall be dispensed whenever the vehicles are taken up for painting irrespective of the type of paint whether it is SE paint or PU paint.
- 7) The Depot painters shall also be provided with the above safety equipment
- 8) The paint material required for PU painting shall be supplied in limited quantities to the Depots where PU painting is taken for touch-up and patch work.

- 9) The Dy.CMEs shall prepare advance programme for full painting of high-end buses based on the depot-wise FC planner and re-furbishing demands. This programme shall be communicated to the respective Workshops to undertake full painting of vehicles with PU paint. The cost of painting shall be charged on individual depots.
- 10) The Works Managers and Dy.CMEs shall jointly monitor the activity of training Depot Painters and ensure that they invariably apply PU paint at Depots whenever a patch work or minor repair is carried out on high-end buses.
- 11) Proper care shall be taken while washing of buses (painted with PU paints) by avoiding use of hard brushes and high pressure jets so that the shining and glossiness of paint remain for longer time. Detailed guidelines issued through Circular No.23/2011-MED on mopping of S/LUX , Garuda etc buses shall be adhered to.

The procedure for application of PU paints and carrying out patch work is furnished at annexure.

The Executive Directors (Zones) are advised to initiate immediate action to implement the above instructions at all Workshops and report compliance within one month.



VICE CHAIRMAN & MANAGING DIRECTOR

To

**All Works Managers and Depot Managers** for necessary action.

Copy to: Dir (V&S), ED (E&IT), ED (O&MIS), ED (A&AM), FA, CAO, ED (HRD&Med) for infn.

Copy to: all EDs (Zones) for necessary action.

Copy to: All RMs for necessary action.

Copy to: CME (O), CCOS, CA, CFM, CME(C&B), CE (IT), CPM, CM (HRD) for information

Copy to: DyCME (O), DyCME (P), DyCME(C&B), DyCME (IED), DyCAO (SP&A), CSTO, COS(C) I & II for information.

Copy to: All DyCMEs, COSs & DyCAOs for necessary action.

Copy to: All AOs for information & n/action.

Copy to: All Principals of ZSTCs, BTC, HPT & TA/HPT for information.

Copy to: All Maintenance In-charges for necessary action.

Copy to: RAO, AG Audit, Bus Bhavan, Hyderabad for information.

Copy to: Manuals section for record.

## PROCEDURE FOR PAINTING BARE METAL SURFACES

### Preparation of Surface:

1. Surfaces to be painted shall be cleaned thoroughly to make them free from contaminants like dirt, oils, waxes etc which may cause loss of adhesion
2. To remove the contaminants from surface, proper **solvents (thinners)** recommended by the Paint Manufacturer shall be used. Surfaces shall be wiped and cleaned in small areas with clean cloth soaked in solvent
3. Dry sand the surfaces with **240/280 grit sand papers**
4. Clean the surfaces with recommended solvent and wipe clean
5. Apply recommended **Polyester Putty** - The Polyester Putty is supplied in **two components viz., Putty and Hardener**. The hardener shall be **mixed in recommended ratio on a plate with Putty knife**
6. Apply Putty on body surface to fill the dents and uneven surfaces in smooth thin filmy layers. Avoid air bubbles between layers
7. Application of Putty shall be **completed within 10 minutes** after mixing. Otherwise, the mixture becomes harder for application. The mixture shall be prepared in small quantities based on the requirement to avoid wastage due to hardening.
8. Putty applied on surface shall be allowed to **dry for 20 minutes**
9. Dry sand the Putty surface to match the body profile with **240/280 grit sand paper**
10. Wipe surface once again with recommended solvent to remove loose particles

### Application of Epoxy Primer

1. **Epoxy primer** is supplied **in two components - Epoxy primer and Hardener**
2. Epoxy primer shall be **mixed with hardener and recommended thinner** in the prescribed ratio as specified by the Paint Manufacturer
3. Epoxy primer shall be **spray-painted in two coats with 10 minutes flash off time between coats**
4. Leave the surface to air **dry for 5 sufficient time**
5. Apply **check putty** in required and **air dry for 20 minutes**
6. Dry sand the surface with **320/420 grit sand paper** and clean the surface with solvent

### Application of Primer Surfacer:

1. **Mix Primer Surfacer and Primer surface hardener** in the ratio indicated by the manufacturer
2. **Spray the Primer surface and allow to cure for about sufficient time**
3. Sand the surface with **400 grit sand paper (for dry)** or with **800 grit sand paper for wet sanding**
4. Use **Check Putty if necessary** to repair scratches or small damages
5. Clean the surfaces with solvent

### Application of Top Coat 2K Paint:

1. Wipe dry the surface to be painted
2. Mix the *two component PU Paint with hardener and thinner* in the recommended ratio in the required quantities
3. Apply *two coats of top coat paint by spray with flash off time of 5-10 minutes*
4. *Air dry for 8 hours or bake at 60° C temperature for 30 minutes*
5. *Polish the surface if required after 8 hours*

## PROCECURE FOR PAINTING REPAIRED SURFACES

### Preparation of Surface:

1. Surfaces to be re-painted shall be dry sanded with *240/280 grit sand papers*
2. Clean the surfaces with recommended *solvents and wipe clean*
3. Apply recommended *Polyester Putty* - The Polyester Putty is supplied in two components viz., *Putty and Hardener*. The hardener shall be mixed in recommended ratio on a plate with Putty knife
4. Apply Putty on body surface to fill the dents and uneven surfaces in smooth thin filmy layers. Avoid air bubbles between layers
5. Application of Putty shall be *completed in 5-6 minutes after mixing*. Otherwise, the mixture becomes harder for application. The mixture shall be prepared in small quantities based on the requirement to avoid wastage due to hardening.
6. Putty applied on surface shall be allowed *to dry for 20 minutes*
7. Dry sand the Putty surface to match the body profile *with 240/280 grit sand paper*
8. Sand the *surrounding areas* with *320 grit paper*
9. Wipe surface once again with recommended solvent to remove loose particles
10. Apply *one coat of Epoxy Primer over Polyester Putty*
11. Dry sand the area with *320 grit paper*
12. Wipe surface once again with recommended solvent to remove loose particles
13. Apply one coat of *Primer Surfacer* over the entire prepared area
14. Apply *second coat of top coat* paint of *Primer Surfacer* staying inside the first coat area
15. Dry sand with *320 grit paper and wet sand with 1000 grit paper*
16. Wipe dry with recommended solvent
17. Apply *two coats of top coat paint with 10 minutes flash off time between coats*
18. Extend second coat beyond the previous one
19. Blend the surface *duly mixing with the fade out thinner*
20. *Air dry the painted surface for at least 2 hours* before putting the bus on road
21. *Polish the surface* if required after dry time.

## ANNEXURE-II

## APPROVED BRANDS AND SHADES OF PAINTS TO BE USED

S No	TYPE OF BUS	TYPE & APPROVED BRANDS OF PAINTS	SHADE REFERENCE
1	SUPER LUXURY	PU Paints of AKZO-NOBEL-SIKKENS ASIAN PPG-DELTON BASF-GLASURIT DUPONT-IMRON9100	1. Light Pink RAL-4003 2. Dark Pink RAL-4010 3. Light Red SV005.50 4. Dark Red SR106.50 5. Light Blue SB074.90 6. Dark Blue SB182.85 7. Light Green SB012.50 8. Dark Green RAL-6018 9. Light Orange RAL-2008 10. Dark Orange RAL-2010 11. Light Yellow RAL-8000/L 12. Dark Yellow RAL-8000/D 13. White Border SB182.50
2	METRO DELUXE	PU Paints of AKZO-NOBEL-LESONAL ASIAN PPG-DELFLEET ICI-ETERNA DUPONT-CENTAR16000/5035	Lesonal Shade reference 1. Medium green - 455/D5 2. White - A110
3	METRO EXPRESS (OLD)	PU Paints of AKZO-NOBEL-LESONAL ASIAN PPG-DELFLEET ICI-ETERNA DUPONT-DUXON BASF-SALCOMIX & L2K	Delfleet shade reference 1. Racing Blue - EFT62250 2. White - EFT00260 3. Satin Black - 169003
4	METRO EXPRESS (SLF) JNNURM	PU Paints of AKZO-NOBEL-LESONAL ASIAN PPG-DELFLEET ICI-ETERNA DUPONT-DUXON BASF-SALCOMIX & L2K	Dupont shade reference 1. Blue (5/308 - G1416) 2. White (1/003-G1283) 3. Red (3/240-G1058)