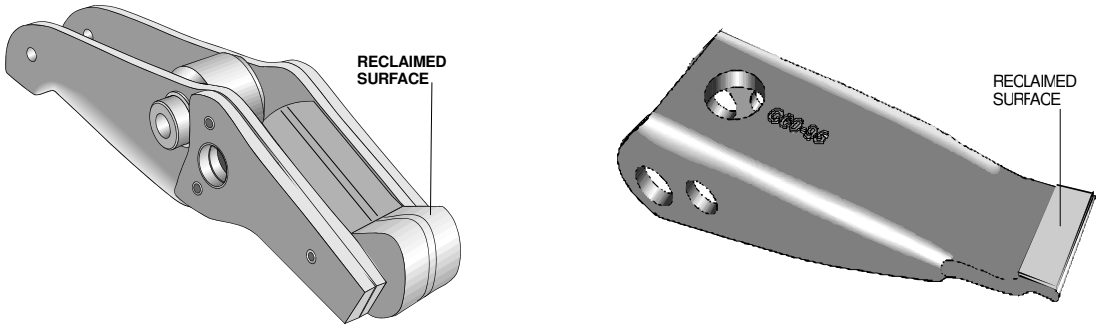
Metallisation
Thermal spray equipment and consumables

THE RECLAMATION OF PRESSED STEEL CLUTCH RELEASE LEVERS BY FLAME SPRAYING

Application Data Sheet AU-DR-003



INTRODUCTION

The wire flame spray reclamation of clutch and many other automotive components has now become common practice. By using the flame spray process, considerable savings may be made over replacement costs.

Savings of up to 50% are common, where on large components savings of up to 90% may be achieved.

The requirement for metalspray may be to repair an obsolete part, correct manufacturing errors or apply hard facings onto areas prone to excessive wear in use.

EQUIPMENT

Metallisation MK61 Flamespray System

MATERIALS

Metallisation 99E Molybdenum (Mo)

Cleaning

(a) Steam clean if equipment available

(b) Degrease by solvent vapour if equipment available

Preliminary Inspection

Check for cracks or faults taking lever below the manufacturers recommended operating tolerances.

Note: Metalsprayed deposits do not impart any strength to the base material

Preparation

(a) Preliminary Machining

Grinding or linishing may be used to remove any major scoring on level tips, blending in to form a uniform and concentric base.

(b) Masking

Mask surfaces adjacent to area requiring treatment with a heavy duty masking tape.

Thoroughly inspect for contamination prior to blasting.

Blasting

Thoroughly blast area to be metalsprayed with clean n° 30-36 Grade Aluminium Oxide Grit.

Application of Sprayed Coating

Masking

(a) Apply sprayshield masking fluid using a small brush to all areas adjacent to the area being sprayed. Ensure fluid is not applied to area being metalsprayed. (Small amounts of masking fluid on area to be sprayed can be removed with emery cloth)

(b) Check thoroughly that area to be sprayed is free from contamination

(c) **IMPORTANT** Areas to be sprayed should not come into contact with oil, grease, hands or any other form of contamination.

Note: Masking is not always required when spraying clutch release lever tips.

Spraying

Spraying should be as soon as possible after preparation and before any visible sign of deterioration occurs. A multiple of levers should be set in a fixture or laid in line ready for treatment.

(a) Bond Coating

A deposit of Metallisation Molybdenum (99E) Wire is applied to a deposit thickness of 0.05mm-0.15mm (0.002"-0.006") at a range of 75mm (3"). The spray stream should be at 90° to the surface being coated and traversed by hand at a surface speed of not less than 18 metres/minute (60 feet per minute).

(b) Main Deposit

Continue to spray the main deposit of molybdenum (99E) using the same spraying parameters as the bond coat but increase spray range to 100mm-150mm (4"-6").

Complete the spraying of the main deposit traversing the spray head to give a uniform coating over the lever tips. The final deposit thickness will depend upon the condition of lever tips prior to spraying and should be adjusted accordingly.

Note: If a hard final deposit is required, oxygen pressure should be increased after bond coat is completed.

Reference Technical Bulletin 1.1.8 - Molybdenum Hard

SPRAYING PARAMETERS METALLISATION MARK 61

Molybdenum Wire (99E)

Acetylene Pressure	1.03 bar	PSI	15
Oxygen Pressure	1.9 bar	PSI	30
Air Pressure	4.5 bar	PSI	65

Flowmeter Pointer Settings

Gas	Oxygen
5.5	2.25

FINISHING

Under normal circumstances, it is possible to use the component in the as sprayed condition without any problems but for cosmetic purposes, a light polish may be required.

- REFERENCE TECHNICAL BULLETIN N°S :-

2.2.4 Metallisation Wire 99E Molybdenum (Mo)

1.1.8 Metallisation Type IV Flowmeters

5.2.2 Surface Preparation by Gritblasting

NOTE: - SEE ALSO

AU-DR-001 Reclamation Of Clutch Pressure Plate Faces

AU-DR-002 Reclamation Clutch diaphragm springs

AU-DR-004 Reclamation of Pressed Steel Clutch Levers by Arc Spraying