



ISSUED
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BY-
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PROCESS SPECIFICATION

APPLICATION OF SPRAYED ASBESTOS INSULATION

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GENERAL

THIS PROCESS COVERS THE INSULATION OF STEAM TURBINES WITH A SPECIALLY BLENDED ASBESTOS OR ASBESTOS-MINERAL FIBER COMBINED WITH AN INORGANIC BINDER WHICH IS SPRAYED ON TO THE DESIRED THICKNESS BY MEANS OF A SPRAYING MACHINE.
CAUTION: DO NOT USE THIS MATERIAL ON AUSTENITIC PIPING.

THE INSULATION THICKNESS AND THE TEMPERATURE OF THE METAL ON WHICH THE INSULATION WILL BE APPLIED WILL BE SHOWN ON THE INSULATION DRAWING.

MATERIALS AND MATERIAL SAFETY REQUIREMENTS

ALL MATERIALS USED IN THIS PROCESS ARE TO BE SUPPLIED BY THE INSULATION CONTRACTOR.

THE MATERIALS AND THEIR RESPECTIVE SAFE PRACTICE DATA SHEETS ARE AS FOLLOWS:-

MATERIAL	SPDS
54251AQ SPRAYED INSULATION	A-20
55812CB MINERAL SPIRITS	S-6
46110BA CEMENT	A-20
41511AP - 12 OZ. ASBESTOS CLOTH	A-20
53351DU ADHESIVE	---
20 GAUGE POULTRY NETTING	---
ELECTRIC PRESSURE WELDED STUDS	W-1
10144AB EXPANDED METAL	---
42331AA ASBESTOS PAPER	A-20
10730DX STAINLESS STEEL WIRE, 1/16 DIA.	---

EQUIPMENT

SPRAY MACHINE (UNIVERSAL INSULATING MACHINE OR EQUAL) INCL. 6 OR 9 JET SPRAY GUN.

COMPRESSOR (IF NO COMPRESSED AIR IS AVAILABLE) WHICH CAN SUPPLY AT LEAST 5.5 CUBIC FEET OF AIR PER MINUTE SUCH AS BINKS MODEL 33-1128.

ASSOCIATED AIR, WATER AND FIBER HOSES. SET OF PRESSING AND TROWELING TOOLS FOR TAMPING AND FINISHING.

SAFETY PRECAUTIONS FOR MACHINE OPERATION

THE FOLLOWING PRECAUTIONS MUST BE TAKEN BEFORE AND DURING OPERATION OF THE SPRAY MACHINE.

1. MACHINE MUST BE PROPERLY GROUNDED.
2. STOP MACHINE BEFORE MAKING ADJUSTMENTS.
3. KEEP HOSES FREE FROM KINKS OR BENDS.
4. DO NOT POINT GUN AT ANYONE WHEN MACHINE IS RUNNING.
5. PERSONNEL IN IMMEDIATE AREA OF MACHINE MUST WEAR MASKS.
6. DO NOT REMOVE FIBER FROM FEED HOPPER WHILE MACHINE IS RUNNING.
7. KEEP BELT GUARDS ON WHEN MACHINE IS RUNNING.

THIS PROCESS WILL BE DIVIDED INTO TWO PARTS:-

PART I - APPLICATION OF SPRAYED INSULATION WITH INTEGRAL FLANGE COVERING.

PART II - APPLICATION OF SPRAYED INSULATION WITH REMOVABLE FLANGE COVERING.

PART I - APPLICATION OF SPRAYED INSULATION WITH INTEGRAL FLANGE COVERING

OPERATIONS

1. PREPARATION OF SURFACE
SURFACES TO BE SPRAYED SHALL BE THOROUGHLY CLEANED TO REMOVE ALL DUST, DIRT, GREASE, RUST AND LOOSE PAINT. THE INSULATION WILL BOND TO ANY SURFACE, PAINTED OR UNPAINTED, AS LONG AS IT IS FIRM AND CLEAN.
2. ATTACHING ANCHOR POINTS
ON ALLOY STEEL CASTINGS OR FORGINGS, AT POSITIONS SHOWN ON "CYLINDERS (AND OTHER) INSULATION PAD" DRAWINGS, INSULATION PADS TO STYLE #270A089H01 WILL BE WELDED IN PLACE.
CAUTION: NO FURTHER WELDING OF ANY ANCHOR POINTS DIRECTLY TO ALLOY STEEL CASTINGS OR FORGINGS IS PERMITTED.

EYE BOLT STUDS, STYLE #270A091H01, SHALL BE WELDED TO THE INSULATING PADS ONLY WHERE REQUIRED TO ANCHOR INSULATION, USING A NELSON OR EQUAL STUD WELDING GUN.

IF ANY OTHER ANCHOR PINS OR ATTACHMENTS ARE REQUIRED, THEY MUST BE WELDED ONLY TO THE INSULATION PADS.

ON CARBON STEEL CASTINGS OR FORGINGS ONLY, EYE BOLT STUDS OR OTHER ANCHOR PINS MAY BE WELDED DIRECTLY TO THE CASTING OR FORGING BY USING A NELSON OR EQUAL STUD WELDING GUN.

THESE STUDS OR PINS ARE TO ANCHOR THE POULTRY NETTING AND SHOULD BE OF SUCH LENGTH AS TO BE A MINIMUM OF 1/2 INCH UNDER THE SURFACE OF THE FINISHED INSULATION. REFER TO PROCESS SPECIFICATION 600465 FOR ELECTRIC PRESSURE STUD WELDING.

3. APPLICATION OF SPRAYED INSULATION

NUTS SHALL FIRST BE WRAPPED WITH ASBESTOS PAPER OR CLOTH.

INSULATION MATERIAL 54251AQ SHALL BE SPRAYED WITH THE SPRAYING MACHINE TO AN APPROXIMATE DRY DENSITY OF 12 LBS. PER CU. FT. THE INSULATION SHALL BE BUILT UP TO THE REQUIRED THICKNESS IN A MINIMUM OF TWO LAYERS. (NOTE THAT THICKNESS WILL BE REDUCED BY ABOUT 1/2 INCH BY PRESSING.) THE ELAPSED TIME BETWEEN THE APPLICATION OF THE LAYERS SHOULD BE HELD TO A MINIMUM. IF TWO OR THREE HOURS ELAPSE BETWEEN LAYERS, THE PREVIOUS LAYER MUST BE SPRAYED WITH WATER TO INSURE A GOOD BOND.

SPRAY INSULATION TO WITHIN 1/2 INCH OF FINAL THICKNESS. APPLY 20 GAUGE POULTRY NETTING OVER THE SPRAYED INSULATION AND ANCHOR IN PLACE BY FASTENING NETTING TO ANCHOR PINS. FINISH SPRAYING INSULATION TO REQUIRED THICKNESS.

4. FINISH OF SPRAYED INSULATION

THE FINISHED SURFACE MUST BE PRESSED TO LINK THE FIBERS IN ORDER TO FORM A MONOLITHIC COATING AND ASSURE A GOOD CONTACT WITH THE SUB-SURFACE. SINCE THIS PRESSING WILL REDUCE THE THICKNESS OF INSULATION, THE AMOUNT THAT IS SPRAYED SHOULD BE GREATER THAN THE FINISHED THICKNESS BY ABOUT 1/2 INCH TO TAKE INTO ACCOUNT THE REDUCTION IN THICKNESS WITH PRESSING. THE PRESSING SHOULD SMOOTH OUT THE SURFACE, BUT WILL NOT CORRECT FOR A POORLY SPRAYED SURFACE.

5. APPLICATION OF FINISH COAT*

A THIN COAT OF INSULATION FINISHING CEMENT MATERIAL 46110BA SHALL BE APPLIED OVER THE SPRAYED INSULATION TO GIVE A SMOOTH SURFACE. THE THICKNESS OF THE CEMENT WILL VARY DUE TO THE ROUGHNESS OF THE SPRAYED INSULATION, BUT IN NO CASE SHALL THE CEMENT COATING BE LESS THAN 1/4 INCH THICK.

OVER THIS, PASTE A COVERING OF 12 OZ. PER SQUARE YARD MATERIAL 41511AP USING ADHESIVE MATERIAL 53351DU. A FINAL COAT OF PASTE SHALL BE APPLIED OVER THE ASBESTOS CLOTH.

PART II APPLICATION OF SPRAYED INSULATION WITH REMOVABLE FLANGE COVERING.

INSULATION IS TO BE APPLIED TO THE TURBINE IN THE SAME MANNER AS DESCRIBED IN PART I, WITH THE FOLLOWING ADDITIONS:-

1. THE INSULATION OF THE TURBINE CYLINDER IS STOPPED AND SQUARED OFF A SUFFICIENT DISTANCE FROM THE TURBINE JOINTS TO ALLOW CLEARANCE FOR THE REMOVAL OF BOLTS.
2. EXPANDED METAL HOLDERS, EACH ABOUT TWO FEET LONG, SHALL BE FORMED AS SHOWN IN FIG. 1, OF MATERIAL 10144AB, .070 THICK, AND WIRED IN PLACE TO SUPPORT THE INSULATION OVER FLANGE AREAS AND BOLTS AND TO ALLOW FOR EASY REMOVAL. ASBESTOS PAPER MATERIAL 42331AA SHALL BE APPLIED AT THE CYLINDER JOINTS, ABOVE THE EXPANDED METAL HOLDER ADJACENT TO THE CYLINDER CURVATURE, AND BETWEEN THE TWO FOOT SECTIONS ALONG THE FLANGE TO CREATE A SEAM OR PARTING. SPRAY INSULATION SHALL THEN BE APPLIED TO PROPER THICKNESS, ANCHORED WITH POULTRY NETTING, SPRAYED AND PRESSED, FINISH COATED WITH CEMENT 46110BA AND COVERED WITH ASBESTOS CLOTH 41511AP PASTED ON WITH ADHESIVE 53351DU AS DESCRIBED IN PART I.

* NOTE:- THIS FINISH IS NOT REQUIRED ON THE TURBINE CYLINDER WHEN TURBINE IS COVERED WITH AN ENCLOSURE.

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WESTINGHOUSE ELECTRIC CORPORATION, LESTER, PA., U.S.A.

STEAM DIVISION



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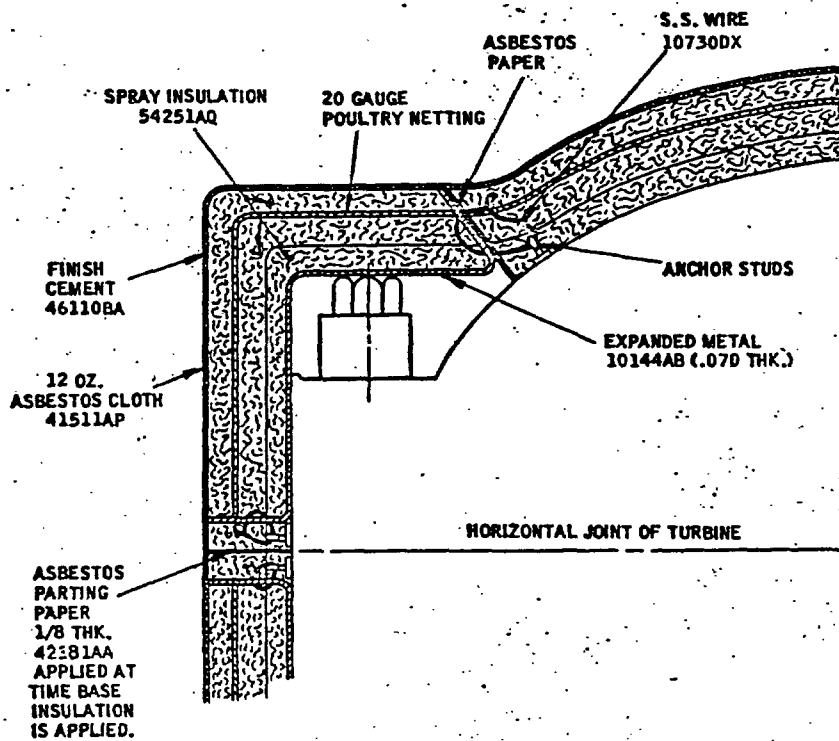


FIGURE 1

REF.