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LICK-51

General Procedures

M1 Mirror Packing Procedure

PS-12964-1

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1.0 PURPOSE

- 1.1 The purpose of this outline is to list the steps involved in placing the LICK-51 Primary Mirror into its protective shipping crate (ASY-12194).

2.0 RESPONSIBILITIES

- 2.1 It shall be the responsibility of the Engineer or Technician performing the mirror packing process to be completely familiar with the contents of this document and to have an appreciation for the risks of handling large optics in the shop and site environments.

3.0 MIRROR PACKING SAFETY

- 3.1 PERSONNEL safety is the top priority.
- 3.2 MIRROR safety is the second priority.
- 3.3 Remove any loose items from pockets. Pens, coins, keys, etc. can damage the mirror surface or coating if dropped onto the mirror surface.
- 3.4 If glasses are to be worn, use a strap to secure them so they will not fall from around the neck.
- 3.5 Remove all jewelry from wrists, necks and fingers.
- 3.6 Wear latex gloves and a dust mask while working around unprotected optics.

4.0 MIRROR PACKING STEPS

- 4.1 Properly "blue coat" the polished M1 mirror surface.
- 4.2 Clear the work area to allow unfettered access to the mirror support (ASY-5760), mirror and mirror crate (ASY-12194).
- 4.3 Insure access to a crane or gantry capable of lifting 3.5 tons. This capacity accounts for a 2X safety margin.
- 4.4 Attach the M1 Handling Fixture (ASY-11983) to the crane and lower onto the mirror. Care should be taken to avoid touching any glass with the metal parts of the fixture.

- 4.5 Secure the lifting hooks, (COM-11988) to the lifting fixture with the “leg” of the hooks engaging the bottom surface of the mirror.
- 4.6 Raise the crane/gantry until there are a few pounds of pressure from the mirror on the cable. This is to insure that the mirror does not “drop” when mounting flexures are released.
- 4.7 Loosen the bolts holding the M1 Lateral Adjustment (COM-6900, “push brackets”) to the support structure and move the push brackets away from the sides of the mirror.
- 4.8 Remove the 27 Noodle Flexure Clamps (COM-5166). Package these together with the Noodle Flexure Clamp Pads (COM-5165) to facilitate re-assembly.
- 4.9 Remove the bolts holding the M1 Rotational Anchor Puck Flexure (COM-5778) to the M1 Rotational Restraint Anchor Puck (COM-5775).
- 4.10 Check that there are no further attachments of the mirror to the support and insure that there are no impediments to lifting the mirror off of the support.
- 4.11 Carefully lift the mirror high enough to completely clear the support with enough clearance to allow the support to be safely moved from under the mirror.
- 4.12 Move the support out of the way and prepare it for insertion into the shipping crate supplied for it.
- 4.13 Arrange the packing materials in the M1 Mirror Crate (ASY-12194), and move it under the suspended mirror.
- 4.14 Carefully lower the mirror into the crate.
- 4.15 Remove the lifting fixture from the crane and properly store it.
- 4.16 Place a layer of “Kay-Dry” tissues over the surface of the mirror.
- 4.17 Place the packing foam on top of the mirror and insure that the crate is ready to close. The mirror should be firmly and safely packed to insure that it cannot move in the crate and that no damage will occur to the mirror.
- 4.18 Secure the crate lid to the crate with the supplied lag bolts.
- 4.19 Properly label the crate for shipping.