

ADC Assembly Procedure, Alignment and Test Plan

4/23/2004

Initial Manufacture and Test

- 1 Base Drive Assembly (A1000) and the Cell Assemblies (A2001 & A2002) without the prisms installed to be manufactured and assembled by Lick Shops. This includes aligning ball slides and screws to operate properly.
- 2 Install ADC in test fixture (A8001).
- 3 Perform initial mechanical tests without optics or dummy optics. This is the initial tests and tuning of servo motor operation.

Install Dummy Optics and Test

- 4 Rotate ADC to zenith in test fixture (A8001)
- 5 Remove Cladding & Frame Stiffeners (A1530)
- 6 Position Cell Assemblies at 1000 mm separation
- 7 Install Axial Clamp, Fwd (A2053, A2054, A2055) in Fwd Cell Assembly (A2001)
- 8 Glue Radial Spacer, Fwd (A2064, A2065, A2066) in Fwd Cell Assembly (A2001) with cyanoacrylate glue
- 9 Glue O-ring sections (A2040) 3 ea. into Axial Clamp, Fwd (A2053, A2054, A2055) with cyanoacrylate glue.
- 10 Place Dummy Optic Assembly (dummy for A2012) on Prism Assembly Fixture (A8060), secure with Retainers (A8047).
- 11 Pick up with forklift with thick edge of dummy optic toward lift. Position Dummy Optic assembly in ADC under FWD Prism Cell. Center by hand.
- 12 Lower FWD Cell over Dummy Optic Assembly with ADC drive until contact is made with Axial clamps.
- 13 Install Retainer Optic, Fwd (A2044) 3 ea. & Axial Spacer, Fwd (A2045) 3 ea. to mount dummy optic.
- 14 Lower Prism Assembly Fixture A8060) and remove form ADC.
- 15 Install forward Frame Stiffener (A1530)
- 16 Place Dummy Optic Assembly (dummy for A2012) on Prism Assembly Fixture (A8060), secure with Retainers (A8047) 3ea.
- 17 Pick up with forklift with thin edge of optic toward lift. Position Dummy Optic assembly in ADC under AFT Prism Cell. Center by hand.
- 18 Lower AFT Cell over Dummy Optic Assembly with ADC drive until dummy optic is above cell.
- 19 Install Axial Clamp (A2050, A2051, A2052) in Aft Cell (A2002)
- 20 Install Axial Spacer, 3 ea. (A2060) in Aft Cell (A2002)
- 21 Glue radial spacer (A2061, A2062, A2063) in Aft Cell (A2002) with cyanoacrylate glue.
- 22 Raise AFT Cell over Dummy Optic Assembly with ADC drive until contact is made with axial clamps.
- 23 Glue o-ring sections A2040) 3 ea. into Retainer Optic, Aft (A2041) 3 ea.
- 24 Install Retainer Optic, Aft (A2041) 3 ea. to mount dummy optic.
- 25 Lower Prism Assembly Fixture A8060) and remove from ADC.
- 26 Install aft Frame Stiffener (A1530).

Alignment Check and Testing

- 27 Dummy optics to have 0.375" dia. hole thru with counterbore for mounting pin holes, crosshairs, center points, etc on inner surface.
- 28 Crosshair mount positions will be provided on Ring, Fwd (A1172) and Ring, Aft (1173).
- 29 Use crosshairs and pin holes to establish that axis of travel of Fwd Optic is collinear with axis of travel with Aft Optic an collinear with axis of instrument.
- 30 Install center point locaters in dummy optics and use square to determine tilt of optics to axis defined above.
- 31 Install Cladding

- 32 Perform mechanical tests, servo tuning and operation under full load at 3 elevation angles, 0, 45 and 90 degrees.
- 33 Life Test 36 hours at each of 3 elevation angles (0, 45 & 90 degrees) with software using DCS simulator
- 34 Vibration test using accelerometer.
- 35 Remove cladding.
- 36 Pin all bolted joints, except Frame Stiffeners A1530), to preserve alignment.

Remove Dummy Optics and Install Optics

- 37 Rotate ADC to zenith in test fixture (A8001)
- 38 Remove Cladding & Frame Stiffeners (A1530)
- 39 Position prism cells at 1000 mm separation
- 40 Place Prism Assembly Fixture (A8060) on forklift and lift into position to support fwd dummy optic.
- 41 Remove Retainer Optic, Fwd (A2044) 3 ea. to release dummy optic.
- 42 Raise Fwd Cell over Dummy Optic Assembly with ADC drive until Dummy Optic Assembly is free of cell.
- 43 Remove Dummy Optic from ADC.
- 44 Remove Dummy Optic from Prism Assembly Fixture
- 45 Place Optic Assembly (A2012) on Prism Assembly Fixture (A8060), secure with Retainers (A8047).
- 46 Pick up with forklift with thick edge of optic toward lift. Position Optic Assembly (A2012) in ADC under FWD Prism Cell. Center by hand.
- 47 Lower FWD Cell over Optic Assembly with ADC drive until contact is made with Axial clamps.
- 48 Install Retainer Optic, Fwd (A2044) 3 ea. & Axial Spacer, Fwd (A2045) 3 ea. to mount Optic Assembly.
- 49 Lower Prism Assembly Fixture (A8060) and remove form ADC.
- 50 Install forward Frame Stiffener (A1530)
- 51 Place Prism Assembly Fixture (A8060) on forklift and lift into position to support aft dummy optic.
- 52 Remove Retainer Optic, Aft (A2041) 3 ea. to release Dummy Optic.
- 53 Lower AFT Cell over Dummy Optic Assembly with ADC drive until Dummy Optic is above cell.
- 54 Remove Axial Spacer, 3 ea. (A2060) from Aft Cell (A2002)
- 55 Remove Axial Clamp (A2050, A2051, A2052) from Aft Cell (A2002)
- 56 Raise AFT Cell over Dummy Optic Assembly with ADC drive until Dummy Optic Assembly is free of cell.
- 57 Remove Dummy Optic from ADC.
- 58 Remove Dummy Optic from Prism Assembly Fixture
- 59 Place Optic Assembly (A2012) on Prism Assembly Fixture (A8060), secure with Retainers (A8047).
- 60 Pick up with forklift with thin edge of optic toward lift. Position Optic Assembly (A2012) in ADC under FWD Prism Cell. Center by hand.
- 61 Lower AFT Cell over Optic Assembly with ADC drive until Optic Assembly is above cell.
- 62 Install Axial Clamp (A2050, A2051, A2052) in Aft Cell (A2002)
- 63 Install Axial Spacer, 3 ea. (A2060) in Aft Cell (A2002)
- 64 Raise AFT Cell over Optic Assembly with ADC drive until contact is made with axial clamps.
- 65 Install Retainer Optic, Aft (A2041) 3 ea. to mount Optic Assembly.
- 66 Lower Prism Assembly Fixture (A8060) and remove form ADC.
- 67 Install aft Frame Stiffener (A1530) & Cladding.