

STANFORD LINEAR ACCELERATOR CENTER

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IR-2 RIGGING PROCEDURE and JOB HAZARD ANALYSIS FOR SPECIAL PURPOSE HANDLING FIXTURE EMC FLEXIBLE SUPPORT ARM

1.0 Loads:

EMC Flexible Support Arm	475 lbs
Fixture	244 lbs
Total Load (excluding rigging)	719 lbs

2.0 Rigging Loads and Attachment Points:

See Figure 1.

3.0 Rigging Equipment:

The 10 ton hoist shall have a 10,000 lb capacity digital crane scale (Scale 10) supported from the hook. The crane scale shall support a 4-ft long sling of 5,000 lb minimum working load rating with a 6.5 ton minimum capacity screw pin shackle on each end. The 50 ton main hoist shall also support a 4-ft long sling of 5,000 lb minimum working load rating with a 6.5 ton minimum capacity screw pin shackle on each end.

4.0 Removal Procedure:

Refer to Figure 1. The fixture is designed such that Point A represents the CGZ of the combined fixture plus the EMC Flexible Support Arm weight. The EMC Flexible Support Arm must be unloaded for removal.

- 4.1 10-ton hoist: Connect the sling shackle to Point A on the fixture.
- 4.2 50-ton hoist: Connect the sling shackle to Point C on the fixture.
- 4.3 Raise the fixture using both hoists and bring to the detector area. The load on Scale 10 should read 134 lbs. The load on the 50-ton hoist is 110 lbs.
- 4.4 Release the solenoid axial swivel foot support.
- 4.5 Position the fixture to mate with the appropriate EMC Flexible Support Arm.
- 4.6 Position the trolley so that the 10-ton hoist is directly over Point A on the fixture.
- 4.7 Gently adjust the 50-ton hoist to position the fixture perpendicular to the support arm.
- 4.8 Bolt the fixture to the EMC Flexible Support Arm.
- 4.9 Gently raise the 10-ton hoist until Scale 10 reads 719 lbs.

- 4.10 Slowly remove any bolts that still fasten the EMC Flexible Support Arm to the detector. Adjust the two hoists to minimize side loading of the bolts until all bolts are removed.
- 4.11 Bring fixture/support arm assembly to the IR-2 assembly area.
- 4.12 Raise the 50-ton hoist and lower the 10-ton hoist until the EMC Flexible Support Arm is horizontal.
- 4.13 Lower EMC Flexible Support Arm on to wood dunnage.
- 4.14 Unbolt fixture from Support Arm.
- 4.15 Lift the fixture with the 50-ton hoist and then raise the 10-ton hoist until the fixture rotates to horizontal.
- 4.16 Take fixture away.

5.0 Installation Procedure:

- 5.1 Connect the 10-ton sling shackle to Point A on the fixture.
- 5.2 Connect the 50-ton sling shackle to Point C on the fixture.
- 5.3 Lift the fixture using both hoists.
- 5.4 Raise the 50-ton hoist until the fixture rotates to vertical.
- 5.5 Lower the fixture and bolt same to the EMC Flexible Support Arm.
- 5.6 Lift the fixture/support arm assembly using the 50-ton hoist.
- 5.7 Raise the 10-ton hoist until the Support Arm rotates to vertical. Scale 10 should read 719 lbs. There will be almost no load on the 50-ton hoist at this point.
- 5.8 Lift the fixture/support arm assembly using both hoists and bring the fixture to the detector area.
- 5.9 Position the Flexible Support Arm to mate with the appropriate EMC mounting pin.
- 5.10
- 5.11 Bolt the Flexible Support Arm to the FWD Middle Corner Block.
- 5.12 Take up the slack in the 50-ton hoist sling. Lower the 10-ton hoist slightly until Scale 10 reads 134 lbs.
- 5.13 Gently unbolt the fixture from the Flexible Support Arm.
- 5.14 Take fixture back to IR-2 assembly area.

6.0 Potential Hazards:

- 6.1 Crushed extremities.
- 6.2 Personnel in path of load movement or under load.
- 6.3 Unexpected load movement.
- 6.4 Operator error.
- 6.5 Equipment failure.

7.0 Hazard Controls:

- 7.1 Crane Operator shall be a SLAC-certified (EFD) rigger or pre-qualified crane operator.
- 7.2 Crane operator shall be Person-in-Charge of lift.
- 7.3 A minimum of two experienced technical support staff is required. An experienced technician is assumed to be an individual that has significant experience working with SLAC riggers and has been pre-qualified by the Project engineer and the SLAC rigger.
- 7.4 No one will be allowed under a suspended load or in the path of a load.
- 7.5 Casual observers will not be allowed in area.

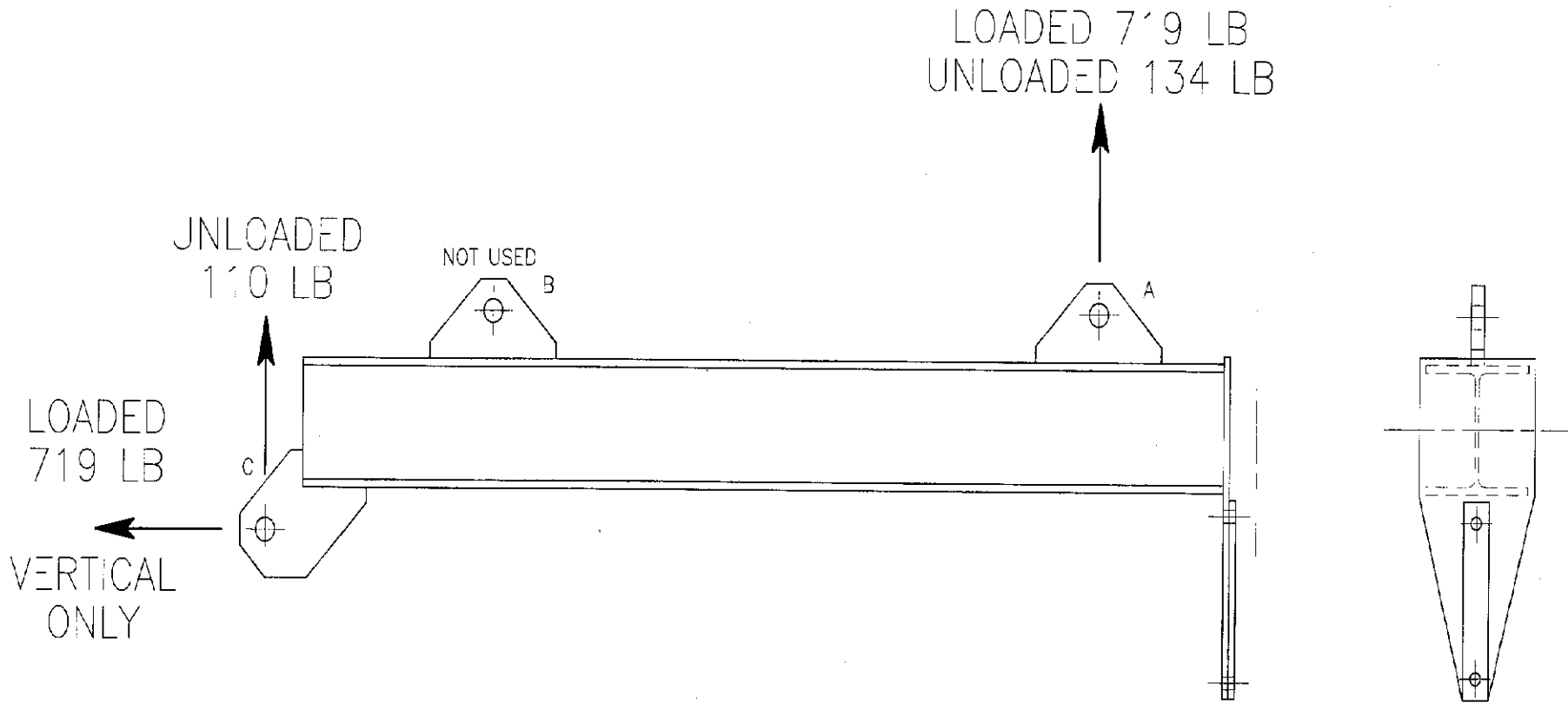


FIGURE 1
SUPPORT ARM HANDLING FIXTURE
BBR-019
RIGGING LOADS