



Expect Service

Radiation Products Design Inc

INSTRUCTIONS

RPD INFORMATION

Address	5218 Barthel Industrial Drive Albertville, MN 55301
Website	www.rpdinc.com
Email	sales@rpdinc.com
Phone	763-497-2071 or 800-497-2071
Fax	763-497-2295

RPD PRODUCT INFORMATION

Item Number	Description
710-720	Tungsten Rotating Alignment Pattern Device



DISCLAIMER

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ASSEMBLY REQUIRED

Includes:
Threaded Leveling Screws
Snap-in Bubble Levels

OVERVIEW

The Tungsten Rotating Alignment Pattern (TRAP) is an easy to use multi-purpose QA test tool for daily, weekly, monthly, or annual checks of the mechanical and geometric parameters of linear accelerators and simulators.

The TRAP checks the following mechanical and geometrical parameters of accelerators and simulators easily and accurately.

- Radiation field/light congruence
- Collimator rotation and field size accuracy
- Collimator, gantry, and table isocentricity
- ODI accuracy
- Laser alignment
- Uses 10" x 12" Ready-Pack Film

Caution

Even though the TRAP has non-slip rubber-tipped adjustment thumb screws for leveling, care must be taken not to move the TRAP during rotation of the plate. To rotate the plate, use both knobs together when turning. The plate will seat itself easily in the 45° dedents.

PRODUCT SPECIFICATIONS

Field Sizes	5 cm, 10 cm and 20 cm
Rotation	360° in 45° increments
Positioning	Self-seating dedents
Markers	1 mm outside diameter tungsten rods 1 mm tungsten filled lines
Leveling	3-point with 2 bubble levels on plate
Materials	Black acrylic White and clear engraving material
Weight	6 lbs
Shipping	Fully assembled

PRODUCT DIMENSIONS

Maximum Size	33.6cm Wide x 40.5cm Long x 36.7cm High
Screen Size	33.7cm Wide x 30.5cm Long

PRODUCT DESCRIPTION

The TRAP consists of a base with 3 leveling screws, 2 upright supports with delrin handles for rotating the plate and a large rotating plate. The large plate is made of 2 - 1/8" engraving material plates attached to each other. The top plate has tungsten markings for a 10 cm and 20 cm field. The corners of each field size are marked with tungsten as well as 1 cm markings on the x-y axis of the beam. The back plate has dashed lines for viewing CAX and lasers. A 10 x 12 ready-pack film can be inserted between the 2 plates. A clamp holds the film in place so you don't have to tighten screws. The tungsten markers project a sharp image on exposed film. The plate can be rotated 360° with dedents for automatic positioning every 45°.

COLLIMATOR ZERO ROTATION

1. Set gantry to the vertical position pointing toward the floor.
2. Set the collimator to its standard position.
3. Set field size to 30 x 30.
4. Place unit on the table with 0 towards gantry and 180 towards foot of table.
5. Set white plate to horizontal position.
6. Moving the table, position the center of the white plate to the central axis of the beam.
7. Level the unit with the 3 leveling screws and center unit again, if necessary.
8. Set table height to isocenter on the center of the TRAP.
9. Rotate plate to vertical position.
10. Rotate gantry to 90° - CAX should fall on CAX of plate.
11. Rotate gantry 180° to opposite lateral. CAX of beam should fall on CAX of plate. The plate could also be rotated 180°. If CAX of the beam and plate do not line up, collimator is not at the 0 position.

TABLE ISOCENTRICITY

Suggested Procedure

1. Set gantry to the vertical position pointing toward the floor.
2. Set the collimator to its standard position.
3. Set field size to 10 x 10.
4. Place ready-pack film between the plates.
5. Place unit on the table with 0 towards gantry and 180 towards foot of table.
6. Set white plate to the horizontal position.
7. Moving the table, position the center of the white plate on the central axis of the beam.
8. Level the unit with the 3 leveling screws.
9. Set the table height to isocenter on the center of the TRAP.

10. Adjust field width to 2 mm.
11. Make an exposure using MU or technique needed for type of ready-pack film being used.
12. Move table 30° and repeat exposure.
13. Repeat in both directions over the table range of motion.
14. Remove film carefully without moving unit.
15. Develop film.
16. Check film for accuracy of isocenter position.

RADIATION / LIGHT FIELD ALIGNMENT

Suggested Procedure

1. Set gantry to the vertical position pointing toward the floor.
2. Set the collimator to its standard position.
3. Set field size to 10 x 10.
4. Place ready-pack film between the plates.
5. Place unit on the table with 0 towards gantry and 180 towards foot of table.
6. Set white plate to the horizontal position.
7. Moving the table, position the center of the white plate on the central axis of the beam.
8. Level the unit with the 3 leveling screws.
9. Set the table height to isocenter on the center of the TRAP.
10. Make an exposure using MU or technique needed for type of ready-pack film being used.
11. Remove film carefully without moving unit.
12. Develop film.
13. Check film for accuracy of radiation and light field congruence.

GANTRY ISOCENTRICITY

Suggested Procedure

1. Set gantry to the vertical position pointing toward the floor.
2. Set the collimator to its standard position.
3. Set field size to 10 x 10.
4. Place ready-pack film between the plates.
5. Place unit on the table with 90 towards gantry and 270 towards foot of table.
6. Set white plate to the horizontal position.
7. Moving the table, position the center of the white plate on the central axis of the beam.
8. Level the unit with the 3 leveling screws.
9. Set the table height to isocenter on the center of the TRAP.
10. Set field width to 2 mm.
11. Rotate plate so 270° is up and 90° is towards the floor.
12. Make an exposure using MU or technique needed for type of ready-pack film being used.
13. Rotate gantry to different angles - recommended angles are 0°, 70°, 135°, 180°, 225°, 290°.
14. Remove film carefully without moving unit.
15. Develop film.
16. Check film for accuracy of isocenter position.

COLLIMATOR ISOCENTRICITY

Suggested Procedure

1. Set gantry to the vertical position pointing toward the floor.
2. Set the collimator to its standard position.
3. Set field size to 10 x 10 or 20 x 20.
4. Place ready-pack film between the plates.
5. Place unit on the table with 0 towards gantry and 180 towards foot of table.

6. Set white plate to the horizontal position.
7. Moving the table, position the center of the white plate on the central axis of the beam.
8. Level the unit with the 3 leveling screws.
9. Set the table height to isocenter on the center of the TRAP.
10. Set field width to 2 mm.
11. Make an exposure using MU or technique needed for type of ready-pack film being used.
12. Rotate collimator 30 degrees and repeat exposure.
13. Repeat in both directions over the collimator range of motion.
14. Remove film carefully without moving unit.
15. Develop film.
16. Check film for accuracy of isocenter position.

LIGHT FIELD READOUT ACCURACY

Suggested Procedure

1. Set gantry to the vertical position pointing toward the floor.
2. Set the collimator to its standard position.
3. Set field size to 10 x 10.
4. Place unit on the table with 0 towards gantry and 180 towards foot of table.
5. Set white plate to the horizontal position.
6. Moving the table, position the center of the white plate on the central axis of the beam.
7. Level the unit with the 3 leveling screws.
8. Set the table height to isocenter on the center of the TRAP.
9. Check for accuracy of light field size.
10. Repeat for 20 x 20
11. Record results.

ODI ACCURACY

Suggested Procedure

1. Set gantry to the vertical position pointing toward the floor.
2. Set the collimator to its standard position.
3. Set field size to 10 x 10.
4. Place unit on the table with 0 towards gantry and 180 towards foot of table.
5. Set white plate to the horizontal position.
6. Moving the table, position the center of the white plate on the central axis of the beam.
7. Level the unit with the 3 leveling screws.
8. Using a front pointer, adjust table height to isocenter on the center of the TRAP.
9. Remove front pointer, check ODI reading for accuracy.
10. Repeat for 10 cm on either side of isocenter.
11. Record results.

OTHER USES

1. Laser alignment.
2. As a platform for HDR autoradiographs.