



INSTRUCTION MANUAL

**I P/N 11050, 11110, 11160 SERIES ATR
CRYSTAL REPLACEMENT**

II P/N 11074 AND 11129 GASKET REPLACEMENT KITS

SPECAC LIMITED

River House, 97 Cray Avenue, Orpington, Kent,
BR5 4HE, Tel: 01689 873134 Fax: 01689 878527
www.specac.com

SPECAC INC

500 Technology Court, Smyrna, GA 30082 5211, USA
Tel: 770 319 9999 Fax: 770 319 2488 Toll Free: 1-800 447 2558

The crystals in all Graseby Specac ATR trough top-plates are pressure held in place and not glued-in. This design enables the customer to remove the crystal for cleaning (refer to cleaning ZnSe, Si and Ge crystals guide on separate sheet) to enhance the performance or change the crystal completely at minimal cost without having to pay for a new metal work assembly.

Note: All flat top-plates are glued-in design.

The gasket replacement kits are supplied complete with:

- 1 Kalrez gasket - 57 x 25 x 0.25mm thick for P/N 11074.
- 79 x 25 x 0.25mm thick for P/N 11129.
- 1 Tufnol dummy crystal - 49 x 10 x 5.5mm thick for P/N 11074.
- 71.5 x 10 x 6.4mm thick for P/N 11129.
- 1 Disposable scalpel.

1. Crystal Removal

- 1.1 Lay the top-plate on a clean flat soft tissue covered surface with the satin or polished chromium plated upper trough plate (1) on the bench (refer to Fig.1 or 2).
- 1.2 Using the special hexagon key supplied with the accessory, loosen the grub screw (3) which pressurises the the crystal assembly.
- 1.3 Remove the rectangular pressure bar (4) by sliding it gently along the crystal (8). Take care not to scratch the crystal.

Note that the shiny aluminium side of the pressure bar is in contact with the crystal.

- 1.4 Gently slide the crystal out of its retaining cavity for cleaning. It may be necessary to loosen the crystal from the Kalrez gasket seal (5) by exerting a small pressure on either ends of the crystal from inside the trough. Cover both fore fingers with soft tissue to exert light even pressure on both ends simultaneously from inside the trough without scratching it.
- 1.5 Clean the crystal in a suitable solvent (refer to cleaning ZnSe, Si and Ge crystals guide)

2. Changing the Kalrez Seal

This should be done very occasionally, for example when there is leakage after normal tightening of the rectangular pressure bar or in cases of severe contamination of the seal.

- 2.1 Firstly, remove the crystal as in Section 1 above. Then using a screw driver, remove the four screws (6) (Fig.1 or 2) which hold the chromium plated upper plate (1) and the lower black anodised plate (2) together.
- 2.2 Remove the Kalrez gasket seal (5) in between the upper and lower plates (1, 2) and clean both faces of the plates that have been in contact with the seal thoroughly with acetone and a soft lint free cloth.
- 2.3 Lay a cut piece of Kalrez centrally in the recessed back face of the chromium plated upper plate (1) from where the old Kalrez gasket seal (5) was removed.

- 2.4 Locate the black anodised lower plate (2) on top of the Kalrez gasket seal and clamp down firmly by replacing the four screws (6) which hold the two plates together.
- 2.5 Insert the " dummy crystal" (Tufnol) supplied in place of the crystal (8) by sliding it into the crystal cavity.
- 2.6 Slide the black anodised rectangular pressure bar (4) over the dummy crystal with the shiny aluminium side in contact with the dummy crystal. Ensure that both ends of the rectangular pressure bar line up with the support bracket (7) on the back of the black anodised lower plate (2). This will ensure that the grub screw (3) lines up with the dimple in the rectangular pressure bar (4).
- 2.7 Screw down the grub screw (3) with the special hexagon key to exert pressure on the dummy crystal - Kalrez gasket seal assembly.
- 2.8 Turn the assembly up the right way and using a sharp scalpel (supplied with crystal replacement kits) carefully cut out the rectangular section of the Kalrez gasket as seen through the inside of the trough. A thin strip will be left under the dummy crystal to act as a crystal seal.
- 2.9 Release the grub screw (3) and remove the rectangular pressure bar (4) and the dummy crystal by sliding them out of the cavity.

3. Replacing Crystal

- 3.1 Position the crystal assembly as in Section 1, 1.1.
- 3.2 Gently slide the crystal into the crystal cavity with the chamfered face downwards (see Fig.1 or 2) but remember your assembly is upside down). The direction of the crystal chamfer should be the same as the chamfer on the black anodised aluminium lower plate (2) for P/N 11050 series (Fig.1). For the P/N 11110 and P/N 11160 series (Fig.2) the direction of the crystal chamfer should be opposite to the chamfer on the black anodised aluminium lower plate (2) so that the two chamfers form a 'V' shape. The ends of the crystal should line up or be equi-distant from the engraved lines (9) to the left and right in the black anodised lower plate (2). This will ensure that the crystal is centrally positioned in the cavity. It is important to realise that if the crystal sits on the metal chamfer, breakage will occur during clamp down.
- 3.3 Gently slide the shiny aluminised side of the rectangular pressure bar (4) along the crystal until both ends of the rectangular pressure bar line up with the support bracket (7) on the back of the black anodised lower plate (2). This will ensure that the grub screw (3) lines up with dimple in the rectangular pressure bar (4).
- 3.4 Screw down the grub screw (3) with the special hexagon key to exert sufficient pressure on the pressure bar and subsequently on the crystal and the Kalrez gasket seal to form a liquid tight assembly. Do not over tighten as this will damage the crystal.
- 3.5 Test the assembly for leakage by using a 50% mixture of acetone/water in the trough and leaving to stand on a tissue on the bench for 30 minutes. (Do not leave top-plate on the optical bench).
- 3.6 If any leak is observed, tip the mixture out, rinse the trough with acetone and dry the assembly completely. Then give the grub screw (3) another quarter turn to further tighten the assembly and test again.

4. Possible Causes of Leaks

1. Assembly not tightened sufficiently.
2. Lower and upper plate faces not cleaned properly after dismantling.
3. Lower and upper plates not tightened sufficiently after dismantling.
4. Kalrez gasket seal not lying flat.
5. Crystal is defective (eg. chipped, dirty, warped).
6. Crystal not symmetrically located.

5. ACCESSORY PARTS IDENTIFICATION LIST

5.1 Fig.1 and 2 :- Trough Top-Plate Assemblies

1. Satin or polished chromium plated upper plate.
2. Black anodised aluminium lower plate.
3. Grub screw.
4. Rectangular pressure bar.
5. Kalrez gasket seal.
6. Upper and lower plate securing screws.
7. Black anodised aluminium support brackets.
8. Crystal
9. Left and right crystal positioning marker lines.

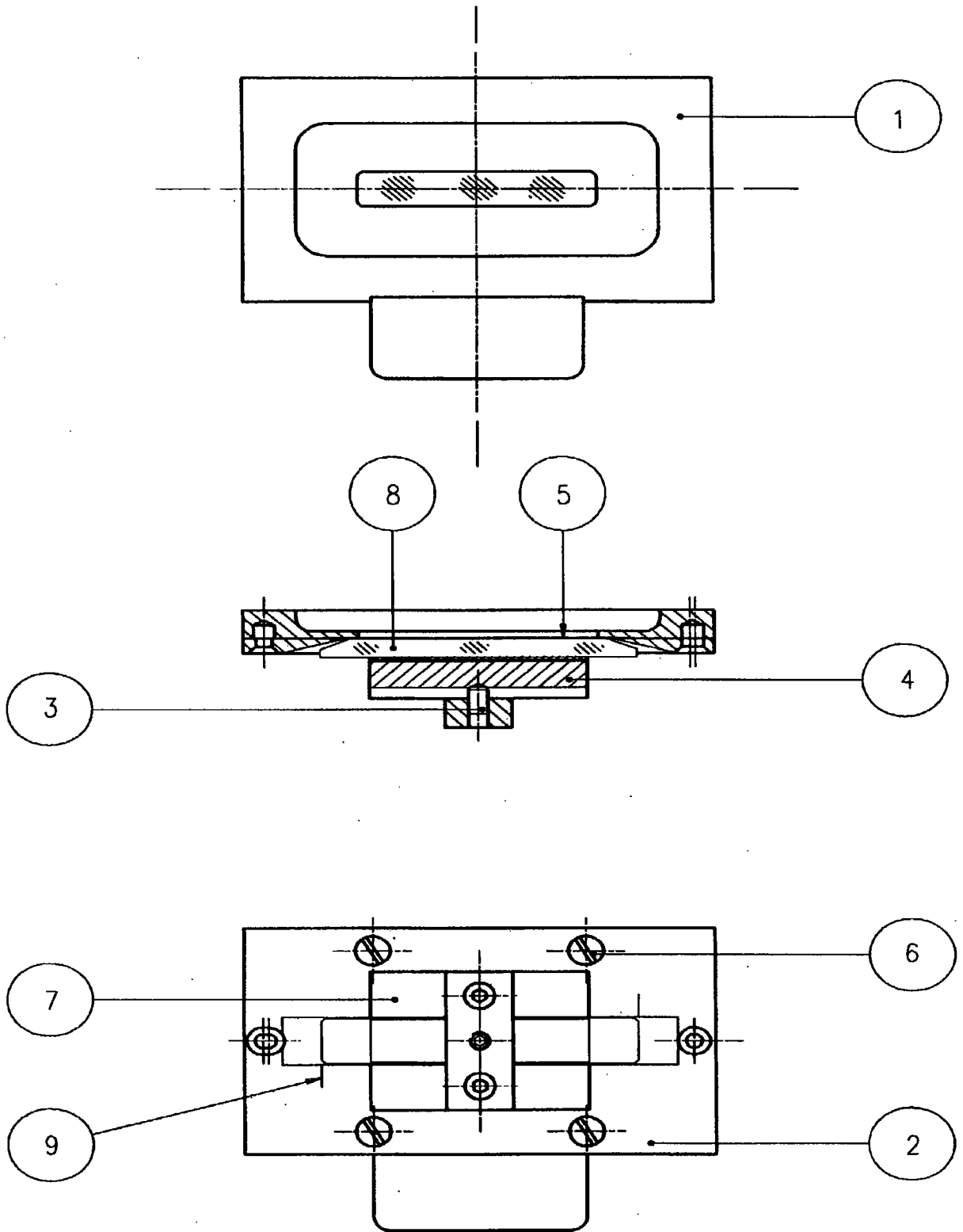


Fig.1: Trough top-plate of P/N 11050 ATR - crystal removal and replacement

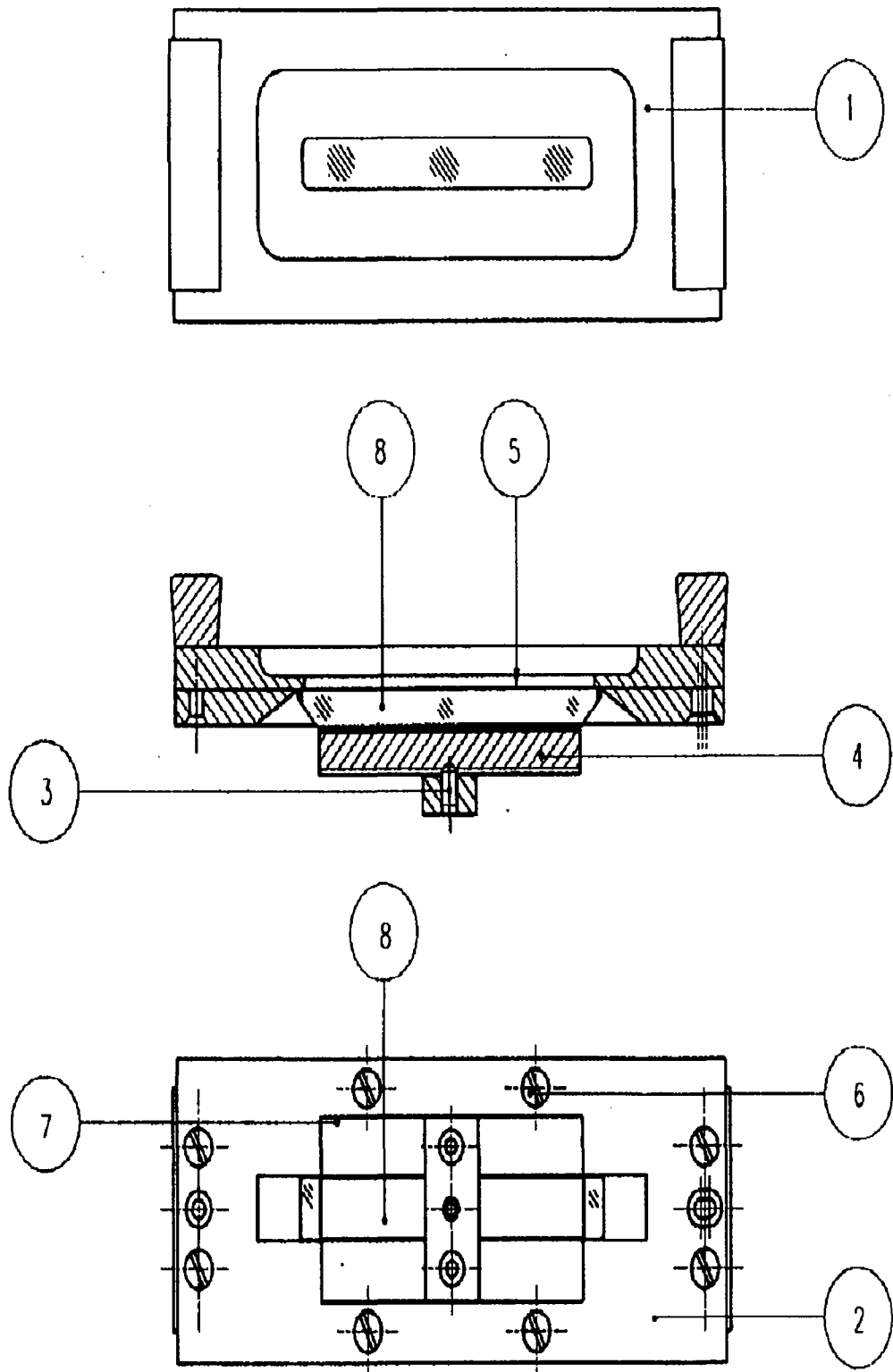


Fig.2: Trough top plate of P/N 1110 and P/N 11160 seriesATR - crystal removal and replacement

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