

NOTE:

Never remove O-rings with a metal tool, as this could scratch the O-ring groove, and cause a leak. Use a plastic or wooden (or any soft material) tool to remove the O-ring by inserting the tool between the inside of the O-ring and its groove and then sliding the tool around the inside of the O-ring. This will cause the O-ring to pop up. An O-ring may have to be held on its opposite side to prevent its turning in the groove. This procedure usually gives much better results than trying to pry the O-ring from its groove.

O-rings are susceptible to absorbing large quantities of the solvents used in cleaning. Subsequent evaporation of these solvents when the system is later evacuated (during testing) must be avoided, therefore O-rings and gaskets should be removed from flange grooves and treated as a separate cleaning problem. O-rings and gaskets are either replaced at the time of re-assembly (recommended), or carefully wiped clean with a lint-free material and inspected for surface damage of any kind before they are used again. If a new O-ring is used, it should be wiped clean, inspected and lubricated with a light film of vacuum grease, essentially the same procedure as would take place when reusing an old O-ring. Use vacuum grease as sparingly as possible since it later may become a source of system contamination.

Cleaning the Mass Spectrometer

Refer to Figure 4-2 for an exploded view of the mass spectrometer.

1. Refer to Section 4.9 for an explanation of how to remove the source from the MS-40.
2. Disassemble the two half sections of the spectrometer housing and remove the center slit plate and O-ring.
3. Clean the two sections. The interior of both sections should be lightly sanded or bead blasted to remove all stains. Blow out the bead blast residue with dry, oil-free air. The sections should then be cleaned ultrasonically in freon and dried with a hot air gun. Make sure to handle the sections when wearing lint free gloves. Reassemble the two sections and install a new O-ring.

4. The source may be cleaned as follows:

- a. Remove the source's O-ring and wipe away any excess grease from the O-ring groove.
- b. Remove the source's filaments as stated in the Section 4.9. Clean the area using a fine emery cloth held with needle nose pliers or tweezers. Be careful to not use excessive force; any bending or shifting of the filament area may cause an electrical short. Rinse the source in freon and clean it ultrasonically. Install new filaments as described in Section 4.9.

5. The collector may be cleaned as follows:

- a. Remove the collector's O-ring and wipe away any excess grease from the O-ring groove.
- b. Clean ultrasonically in boiling freon for two minutes.
- c. Bake the entire assembly at 50°C for 30 minutes.
- d. Apply a light film of vacuum grease on the O-ring and reinstall the collector assembly into the mass spectrometer.

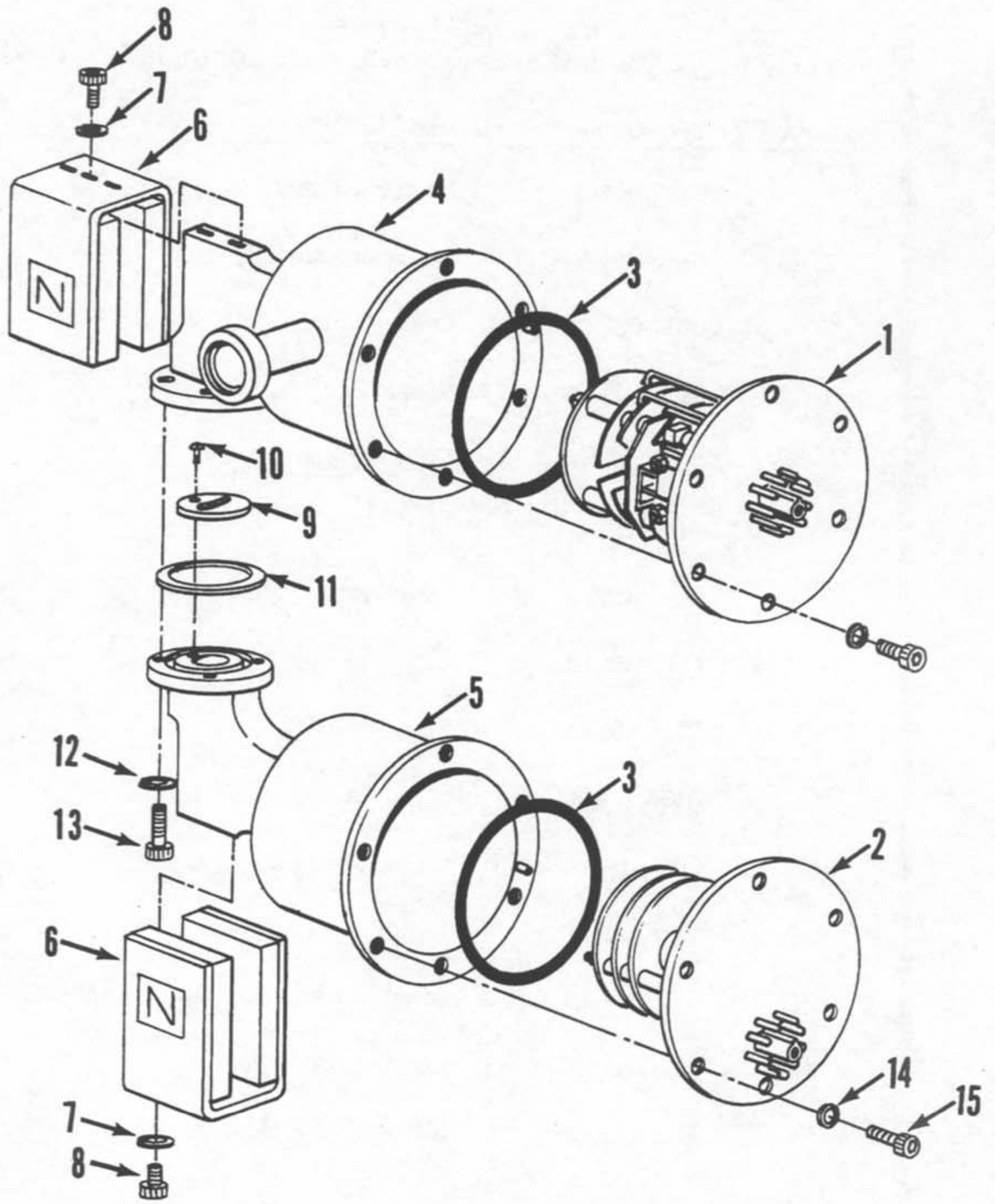


Figure 4-2
MS-40 Mass Spectrometer
(Exploded View)

Parts List for the MS-40 Mass Spectrometer (as illustrated in Figure 4-2):

ITEM #	VIC P/N	DESCRIPTION
1	0137-014-00	Source Assembly
2	0136-051-00	Collector Assembly
3	0011-037-00	O-Ring, 2 1/2 x 1/16
4	0137-011-00	Source Body
5	0135-053-00	Collector Body
6	0130-151-00	Magnet
7	Commercial	Lock-washer, Split #4
8	Commercial	Screw, #4-40 x 3/8
9	0130-195-00	Slit Plate
10	0130-168-00	Screw, vented, #2-56 x 3/16
11	0011-024-00	O-Ring, 1 1/8 x 1/16
12	Commercial	Lock-washer, Split #6
13	Commercial	Screw, Socket Head, #6-32 x 1/2
14	Commercial	Lock-washer, Split #6
15	Commercial	Screw, Socket Head, #6-32 x 1/2

Cleaning the Turbo-molecular Pump

Cleaning of this pump must be in accordance with the procedures recommended by the manufacturer. These procedures are detailed in the pump manufacturer's manual that accompanies the MS-40. For questions regarding servicing the turbo-molecular pump, contact the Customer Service Department at Vacuum Instrument.

1. Vent the MS-40 (as stated in Section 4.6).