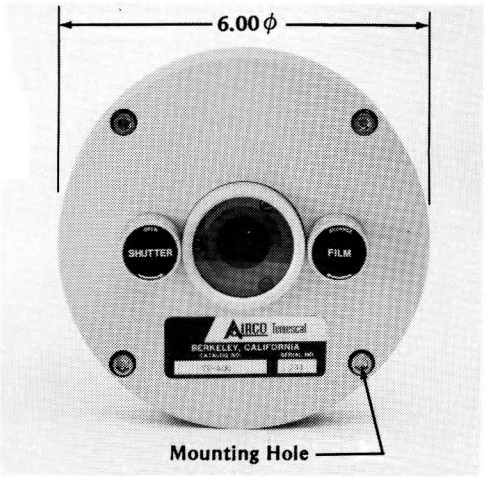
POLARIZED WINDOW VIEWING PORT - Model VV-400

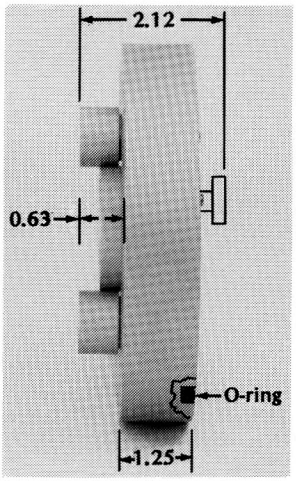
This viewport is designed for systems which generate considerable amounts of evaporant, or systems in which direct viewing of bright objects is desired.

A clear, low vapor pressure Teflon film is interposed between the evaporant source and the viewing window. As the film is coated and becomes opaque, it is advanced to expose fresh film. The unit is equipped with a shutter which allows conservation of the film during periods when viewing is not necessary. The 60 feet of film provided allows approximately 4000 full-aperture exposures. With careful use, as many as 10,000 exposures can be expected. When the film supply is nearly exhausted, an indicator wire appears at the edge of the window.

The Model VV-400 is equipped with a set of polarized filters which allow direct viewing of bright objects. The opacity of the filters is varied by rotating the outer window housing.

Dimensions in inches





SPECIFICATIONS	
Field of View	90°
Construction	No. 416 stainless steel shaft No. 304 stainless steel on all other surfaces exposed to vacuum Viton O-ring seal
Vacuum integrity	10^{-8} torr range
Bake-out temperature	212°F (100°C)

MOUNTING DIMENSIONS (inches)
(Mounting surface should be spot-faced to a number 32 finish or better.)

Spot face to a no. 32 finish	6.250
Through hole	4.000
Bolt circle	5.500
Bolts	1/4 - 20
Bolt hole	.375

REPLACEMENT FILM

Two types of film are available for use in the VV-440:

KAPTON is used primarily in high temperature applications where the viewing port is mounted close to the heat source or is subjected to extremely high evaporation rate situations. KAPTON is supplied in 1 1/2" diameter spools containing 120 feet of 0.001 inch thick film (part number 0502-3701-1).

TEFLON is a clear film which is well suited for use at pressures down to 10^{-9} torr. It is recommended for small systems with limited pumping capacity, as well as systems which are frequently vented to atmosphere. TEFLON is supplied in 1 1/2" diameter spools containing 60 feet of 0.002 inch thick film (part number 0502-3701-2).

MAINTENANCE

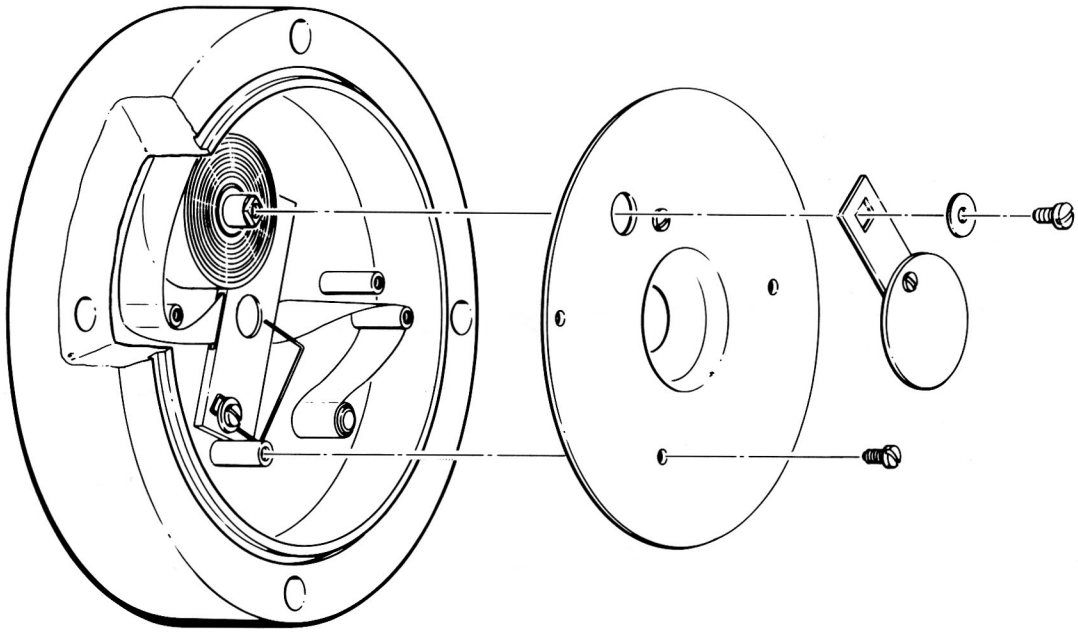
Maintenance on the VV-400 consists of installing new film and periodically relubricating the rotating seals. (Rotating seal leakage is usually due to inadequate lubrication.) Although these two procedures are described separately, it is recommended that the operator inspect the seals each time he changes film.

INSTALLING NEW FILM

1. Remove the unit from the vacuum system.
2. Remove the shutter arm screw and the shutter.
3. Remove the three vapor shield screws and the vapor shield.

4. Remove the exposed film.

5. Install a new spool of film according to the diagram below. Thread the film through the film guide and secure it to the take-up shaft with the tape on the fresh film. Be sure that the film is exactly perpendicular to the take-up shaft by rotating the shaft several times, making sure the film is not climbing up the shaft.



6. Adjust the indicator wire if it was disturbed. It can be adjusted to reach the center of the field of view when the film supply is nearly exhausted.

7. Reassemble in reverse order. The shutter may be adjusted to provide optimum shielding.

LUBRICATING THE ROTATING SHAFT SEALS

1. Complete steps (1) through (4) above.

2. Remove the film supply knob.

3. Clean and inspect the shaft and bushing for burrs and scratches. If damage is found in the seal area, polish the shaft with 600 grit paper lubricated with kerosene. Polish lines must be concentric with the shaft.

4. Very carefully wipe the "Quad" ring and inspect it for damage. If it is damaged, replace it. ("Quad" ring No. 4010, compound 366Y, manufactured by the Minnesota Rubber Company.)

5. Apply a liberal amount of vacuum grease to the inner and outer surfaces of the seal and install the seal in the bushing.

6. Lightly grease the shaft with vacuum grease.

7. While holding the seal retaining washer directly over the seal, insert the shaft. This will prevent pushing out the seal.

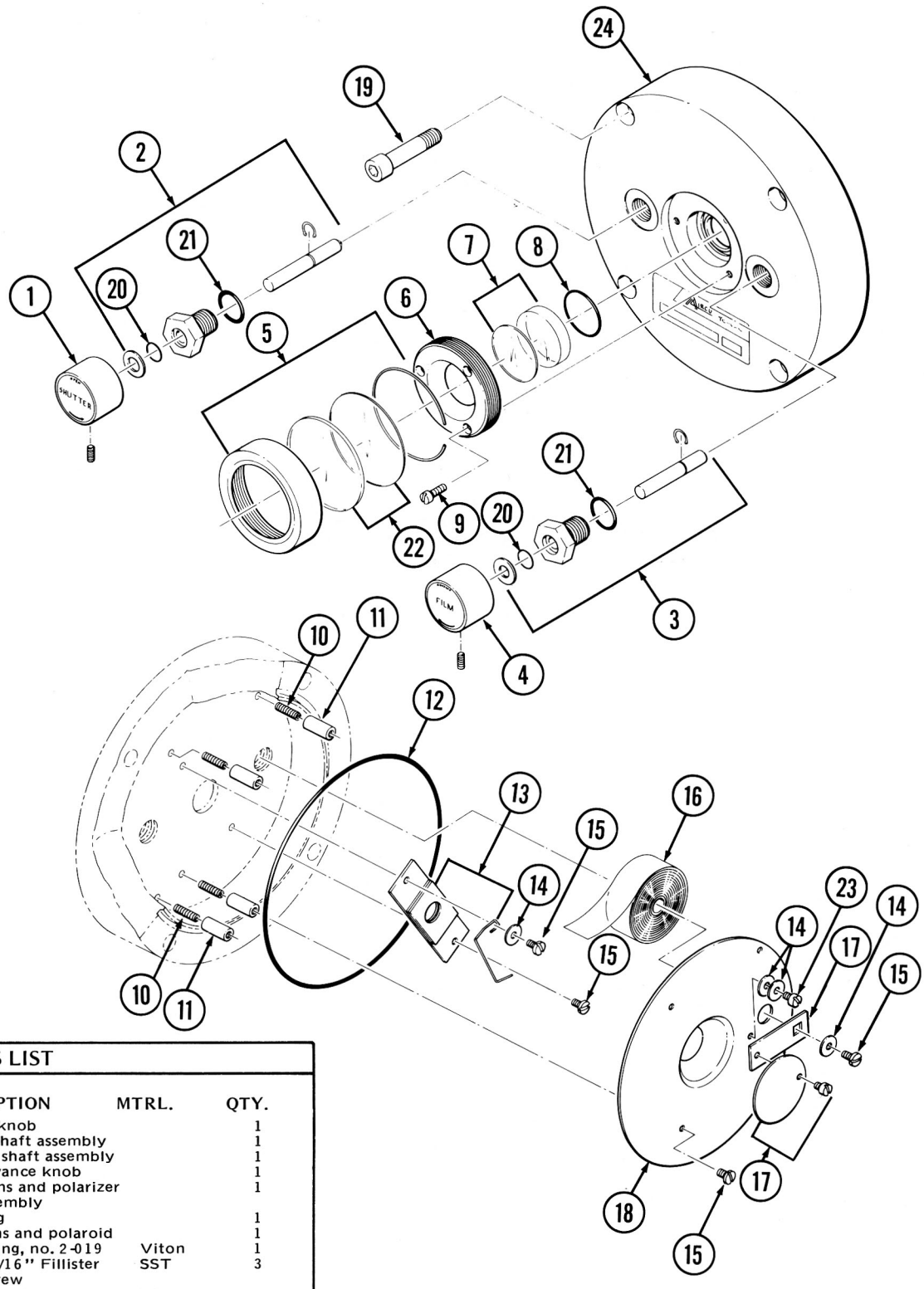
8. Install the knob, allowing a few mils clearance between the knob and fiber washer to insure free shaft rotation.

9. Repeat the above steps for the shutter seal.

10. Reassemble in reverse order.

VV400 FRONT VIEW

VV400 BACK VIEW



PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION	MTRL.	QTY.
1	0802-7531-4	Shutter knob		1
2	0802-7531-7	Supply shaft assembly		1
3	0802-7531-3	Take-up shaft assembly		1
4	0802-7531-5	Film advance knob		1
5	0802-7531-1	Outer lens and polarizer ring assembly		1
6		Lens ring		1
7	0802-7531-8	Inner lens and polaroid		1
8	2231-0019-0	Lens o-ring, no. 2-019	Viton	1
9		6-23 x 5/16" Fillister head screw	SST	3
10	1311-1255-0	6-32 x 1/2" socket head set screw	SST	4
11		Stand-off, VV400-19		4
12	2231-0248-1	Body o-ring, no. 2-248	Viton	1
13	0802-7531-2	Film guide and supply indicator		1
14		Washer, no. 6	SSTQ	4
15		6-32 x 1/4" pan head screw	SST	4
16	0502-3701-1	Film spool	Kapton	1
	0502-3701-2	Film spool	Teflon	1
17	0802-7531-6	Shutter and arm assy.		1
18	0802-7531-0	Heat shield		1
19	1321-1860-0	1/4-20 x 1-1/4" hex head cap screw		4
20		Shaft, seal, Minnesota Rubber Co. no. 4010	Compound 366Y	1
21	2231-0111-1	Bushing o-ring, no.2-111	Viton	1
22	0802-7531-9	Outer lens and polaroid		1
23		6-32 x 1/8" pan head	SST	1
24		Body		