

Overview of Basic Opto-Mechanical Assemblies

In this course we use primarily Newport parts, with some ThorLabs parts, both of which are interchangeable.

Newport parts online: <http://www.newport.com/>

Thorlabs parts online: <http://www.thorlabs.com/>

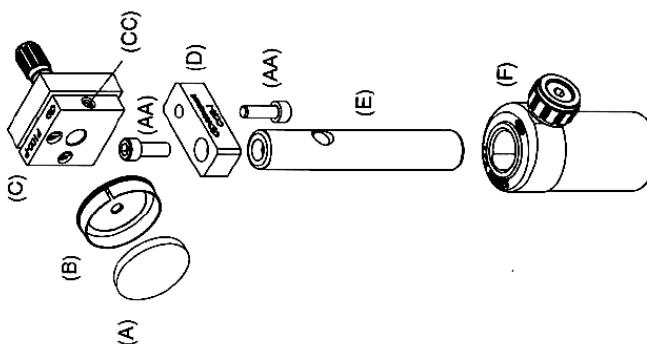
The assemblies are quite self-explanatory, and a parts and diagrammatic listing is provided below. If your kit is missing ANY parts, please alert Prof. Heikenfeld immediately (otherwise, if a later group does, your group will be assumed to have lost the parts). Not all fixtures/assemblies are provided below, some will be provided.

CAERFULLY FOLLOW THE DIAGRAMS, IF NOT, YOU WILL END UP WASTING A LOT OF TIME IN LAB. DO NOT OVERTIGHTEN SCREWS, THESE ARE PRECISION PARTS AND VERY EXPENSIVE.

Beam Steering Assembly: (BSA-I)

This assembly consists of:

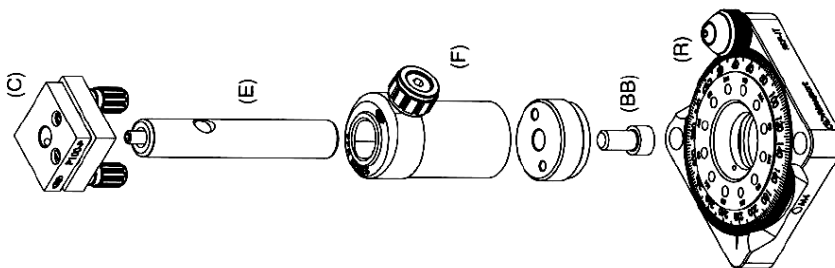
Part Cat # (Metric #)	Qty	Description
A 10D20ER.1	1	Mirror 1 inch
B UPA1	1	Mirror holder
C P100-A (M-P100-A)	1	Mirror mount,adj
D COR-1	1	Center of rotation bar
E SP-3 (M-SP-3)	1	Post, 3 inches
F VPH-2 (M-VHP-2)	1	Post holder, 2 inches
AA 8-32 (M4)	2	Socket hd screws
BB ¼-20 (M6)	1	Socket hd screws
CC 8-32 (M4)	1	Set screw



Modified Beam Steering Assembly: (BSA-II)

This assembly consists of:

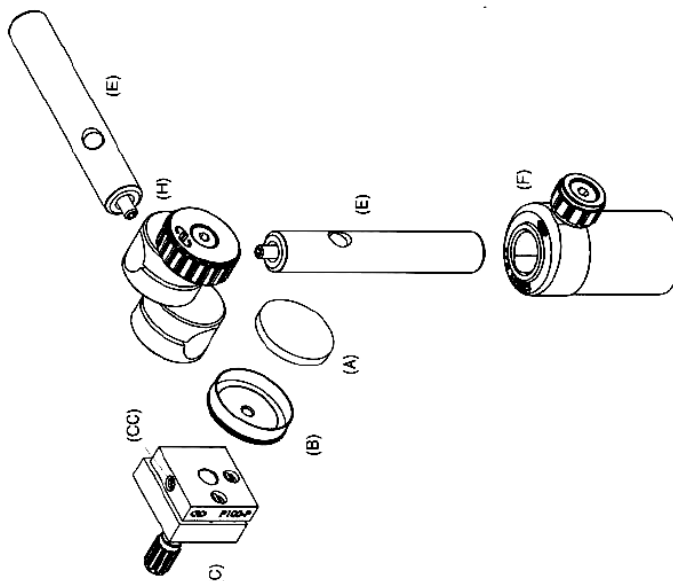
Part Cat # (Metric #)	Qty	Description
C P100-P (M-P100-1)	1	Mirror mount
E SP-3 (M-SP-3)	1	Post, 3 inches
F VPH-2 (M-VHP-2)	1	Post holder, 2 inches
R RSP-1T	1	Rotation Stage
BB ¼-20 (M6)	1	Socket head screws
CC 8-32 (M4)	1	Set screw



Modified Beam Steering Assembly: (BSA-III)

This assembly consists of:

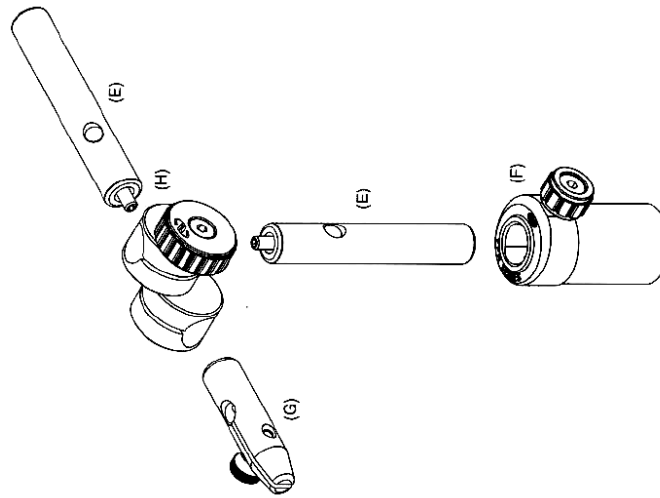
Part Cat # (Metric #)	Qty	Description
A 10D20ER.1	1	Mirror 1 inch
B UPA1	1	Mirror holder
C P100-P (M-P100-P)	1	Mirror mount,adj
E SP-3 (M-SP-3)	2	Post, 3 inches
F VPH-2 (M-VHP-2)	1	Post holder, 2 inches
H CA-2	1	Variable angle holder
BB ¼-20 (M6)	1	Socket hd screws
CC 8-32 (M4)	1	Set screw
DD 8-32 (M4)	1	Set screw



Target Assembly (TA-I)

This assembly consists of:

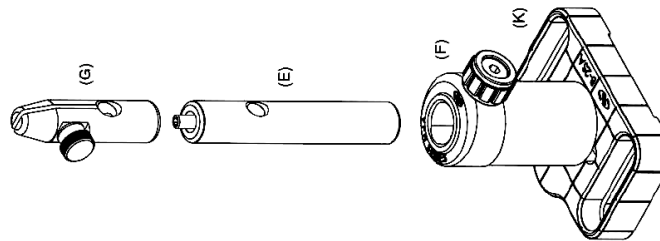
Part	Cat # (Metric #)	Qty	Description
E	SP-3 (M-SP-3)	2	Post, 3 inches
F	VPH-2 (M-VPH-2)	1	Post holder, 2 inches
G	FC-1 (M-FC-1)	1	Filter holder
H	CA-2	1	Variable angle holder
BB	¼-20 (M6)	1	Socket head screw
DD	8-32 (M4)	1	Set screw



Modified Target Assembly (TA-II)

This assembly consists of:

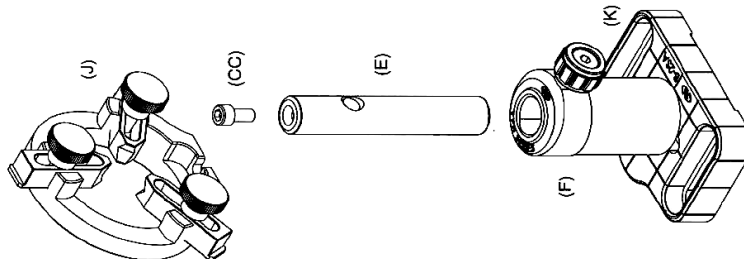
Part	Cat # (Metric #)	Qty	Description
E	SP-3 (M-SP-3)	1	Post, 3 inches
F	VPH-2 (M-VPH-2)	1	Post holder, 2 inches
G	FC-1 (M-FC-1)	1	Filter holder
K	B-2SA	1	Base plate
BB	¼-20 (M6)	1	Socket head screw
DD	¼-20 (M6)	1	Set screw



Lens Chuck Assembly (LCA)

This assembly consists of:

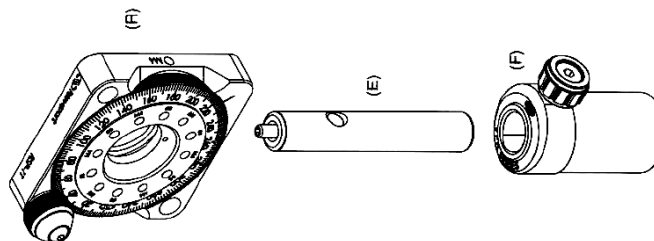
Part	Cat # (Metric #)	Qty	Description
E	SP-3 (M-SP-3)	1	Post, 3 inches
F	VPH-2 (M-VPH-2)	1	Post holder, 2 inches
J	AC-1A	1	Lens chuck
K	B-2SA	1	Base plate
BB	¼-20 (M6)	1	Socket head screw
CC	8-32 (M4)	1	Set screw



Rotational Stage Assembly (RSA-I)

This assembly consists of:

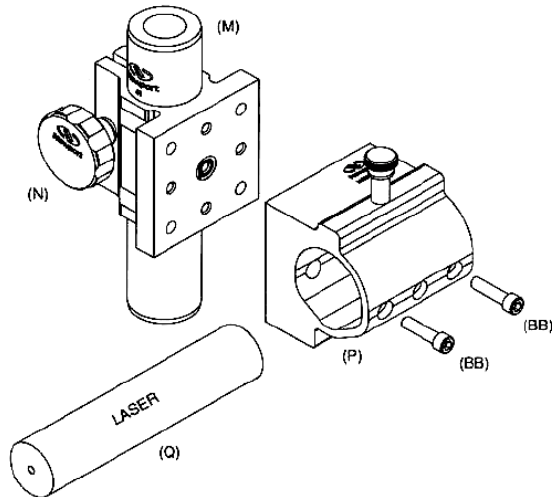
Part	Cat # (Metric #)	Qty	Description
E	SP-3 (M-SP-3)	1	Post, 3 inches
F	VPH-2 (M-VPH-2)	1	Post holder, 2 inches
R	RSP-1T	1	Rotation stage
BB	¼-20 (M6)	1	Socket head screw
CC	8-32 (M4)	1	Set screw



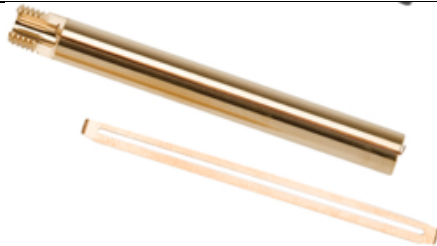
Laser Assembly (LA)

This assembly consists of:

Part	Cat # (Metric #)	Qty	Description
M	41 (M-41)	1	7 inch rod
N	340-RC (M-340-RC)	1	Rod clamp
P	ULM	1	1-3/4 in laser mount
Q	R-31005	1	HeNe laser
BB	1/4-20 (M6)	2	Socket head screw



Fiber Holder (FH)
FPH-S



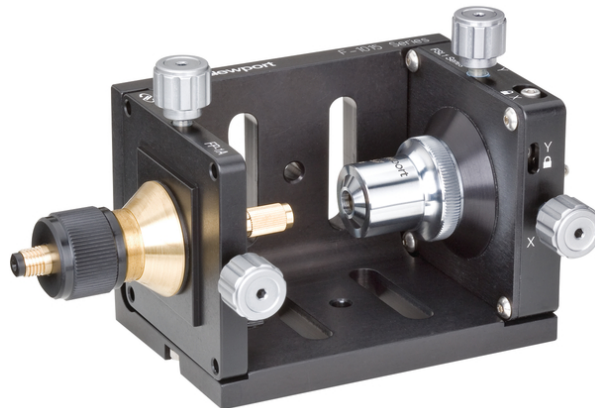
Fiber Positioner (FP)

- VPH-2 Post holder
- SP-2 Post
- FP-1 Fiber positioner



Fiber Coupler (FC) – *note, this comes also with a base that allows better alignment to the laser input.*

- F-916 Fiber coupler (w/o lens)
- M-20X 20X Objective lens



Fiber Mode Scrambler (FMS)
FM-1

**NOTE – DO NOT OVERTIGHTEN THE
SLOT WITH CORRUGATIONS ONTO
THE FIBER! TOO MUCH PRESSURE
ON THE FIBER WILL DAMAGE OR
BREAK IT!**

*Just slightly increase pressure until you
get the desired mode scrambling.*

