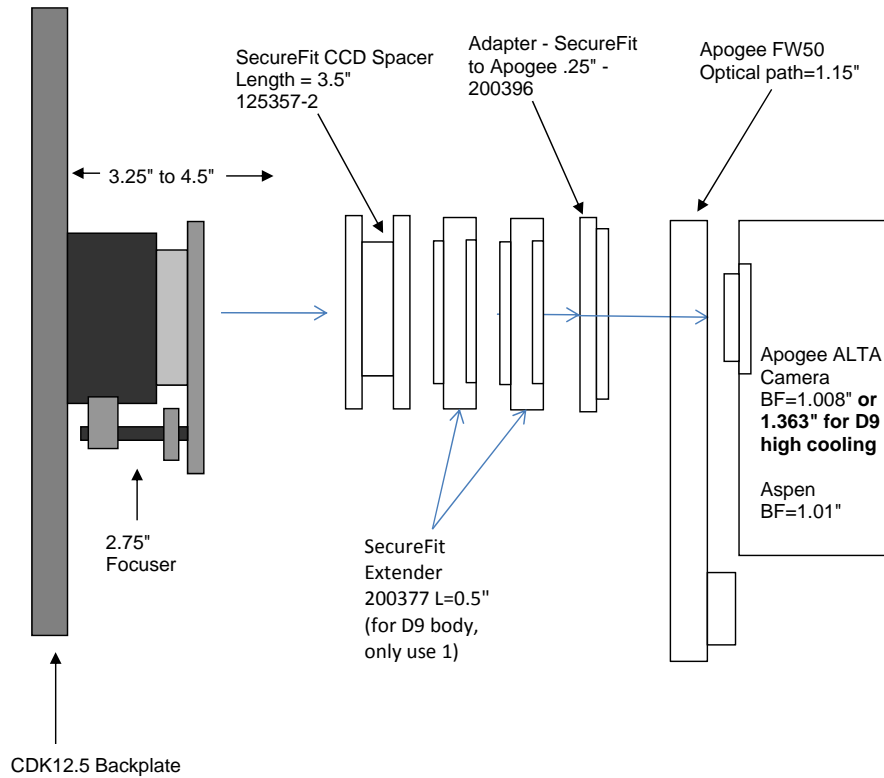


CDK12.5 - OPTICAL TRAIN: for Apogee Alta, Aspen, FW50

Distance to Focuser Mounting Surface 10.445

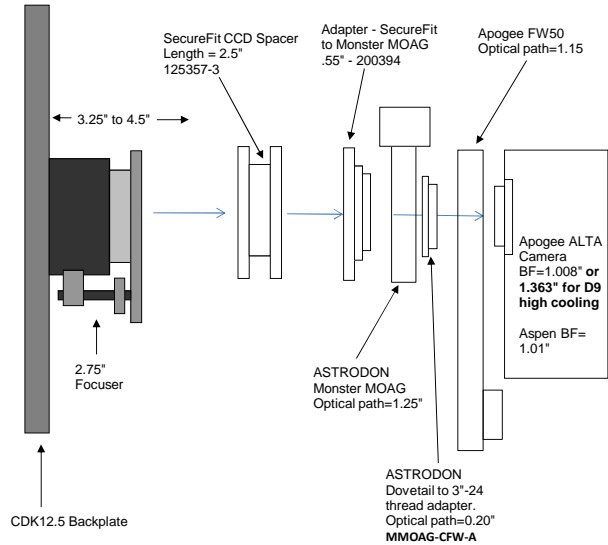


Apogee Alta, Aspen CCD, FW50		10.445 remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.287	6.908
SecureFit CCD Spacer - 125357-2	3.5	3.408
SecureFit CCD Extender - 200377	0.5	2.908
SecureFit CCD Extender - 200377	0.5	2.408
SecureFit to Apogee Adapter - 200396	0.25	2.158
Apogee FW50	1.15	1.008
Apogee Alta U16M CCD back focus	1.008	0

Apogee Alta CCD, FW50, (D9 High Cooling)		10.445 remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.432	6.763
SecureFit CCD Spacer - 125357-2	3.5	3.263
SecureFit CCD Extender - 200377	0.5	2.763
SecureFit to Apogee Adapter - 200396	0.25	2.513
Apogee FW50	1.15	1.363
Apogee Alta U16M High Cooling CCD back focus	1.363	0

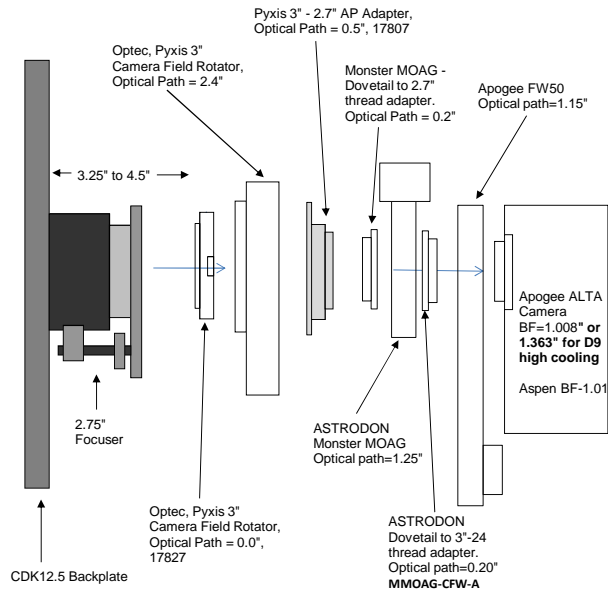
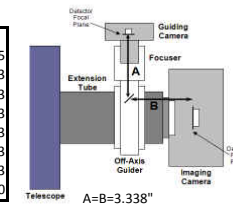
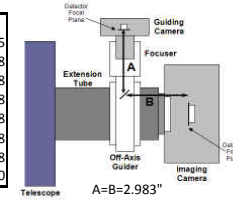
CDK12.5 - OPTICAL TRAIN: for Apogee Alta, Aspen, FW50 and MMOAG

Distance to Focuser Mounting Surface 10.445



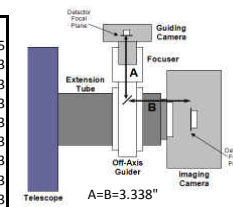
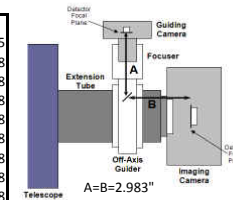
Apogee Alta, Aspen CCD, FW50, & MMOAG		10.445 remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.537	6.658
SecureFit CCD Spacer - 125357-3	2.5	4.158
Adapter SecureFit to Monster MOAG - 200394	0.55	3.608
Monster MOAG - MMOAG	1.25	2.358
AstroDon Adapter - MMOAG-CFW-A	0.2	2.158
Apogee FW50	1.15	1.008
Apogee Alta U16M CCD back focus	1.008	0

MonsterMOAG, FW50, ALTA D9 High Cooling		10.445 remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.182	7.013
SecureFit CCD Spacer - 125357-3	2.5	4.513
Adapter SecureFit to Monster MOAG - 200394	0.55	3.963
Monster MOAG - MMOAG	1.25	2.713
AstroDon Adapter - MMOAG-CFW-A	0.2	2.513
Apogee FW50	1.15	1.363
Apogee Alta U16M High Cooling CCD back focus	1.363	0

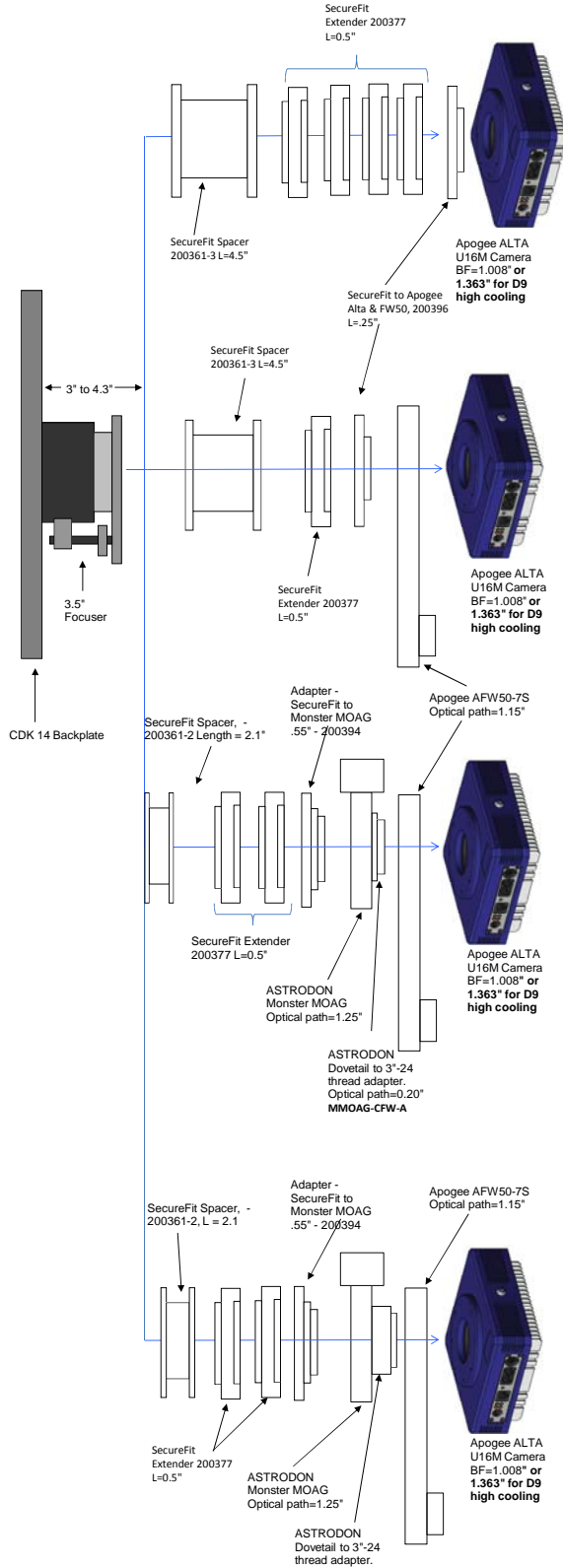


Alta, Aspen CCD, FW50, Pyxis & MMOAG		10.445 remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.487	6.708
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	6.708
Optec Pyxis 3" Camera Rotator	2.4	4.308
Optec Pyxis 2.7" AP Adapter - 17807	0.5	3.808
Monster MOAG -Dovetail to 2.7" adapter	0.2	3.608
Monster MOAG - MMOAG	1.25	2.358
AstroDon Adapter - MMOAG-CFW-A	0.2	2.158
Apogee FW50	1.15	1.008
Apogee Alta U16M CCD back focus	1.008	0

MonsterMOAG, FW50, ALTA D9 High Cooling		10.445 remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.132	7.063
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	7.063
Optec Pyxis 3" Camera Rotator	2.4	4.663
Optec Pyxis 2.7" AP Adapter - 17807	0.5	4.163
Monster MOAG -Dovetail to 2.7" adapter	0.2	3.963
Monster MOAG - MMOAG	1.25	2.713
AstroDon Adapter - MMOAG-CFW-A	0.2	2.513
Apogee FW50	1.15	1.363
Apogee Alta U16M High Cooling CCD back focus	1.363	0



CDK14 - OPTICAL TRAIN: for Apogee Alta, FW50 and MMOAG



ALTA CCD		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.332	7.758
SecureFit, 4.5" - 200361-3	4.5	3.258
SecureFit Extender - 200377	0.5	2.758
SecureFit Extender - 200377	0.5	2.258
SecureFit Extender - 200377	0.5	1.758
SecureFit Extender - 200377	0.5	1.258
SecureFit to Apogee Alta & FW50 - 200396	0.25	1.008
Apogee Alta U16M CCD back focus	1.008	0

ALTA D9 High Cooling		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.447	7.643
SecureFit, 4.5" - 200361-3	4.5	3.143
SecureFit Extender - 200377	0.5	2.643
SecureFit Extender - 200377	0.5	2.143
SecureFit Extender - 200377	0.5	1.643
SecureFit to Apogee Alta & FW50 - 200396	0.25	1.393
Apogee Alta U16M High Cooling CCD back focus	1.363	0.03

ALTA CCD, FW50		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.682	7.408
SecureFit, 4.5" - 200361-3	4.5	2.908
SecureFit CCD Extender - 200377	0.5	2.408
SecureFit to Apogee Alta & FW50 - 200396	0.25	2.158
Apogee AFW50-7S	1.15	1.008
Apogee Alta U16M CCD back focus	1.008	0

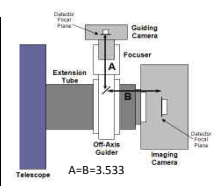
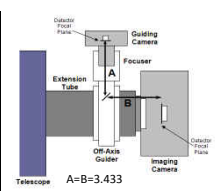
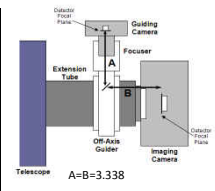
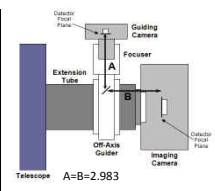
ALTA D9 High Cooling, FW50		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.327	7.763
SecureFit, 4.5" - 200361-3	4.5	3.263
SecureFit CCD Extender - 200377	0.5	2.763
SecureFit to Apogee Alta & FW50 - 200396	0.25	2.513
Apogee AFW50-7S	1.15	1.363
Apogee Alta U16M High Cooling CCD back focus	1.363	0

MonsterMOAG, FW50, ALTA		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.832	7.258
SecureFit Spacer - 3.8" - 200361-2	2.1	5.158
SecureFit CCD Extender - 200377	0.5	4.658
SecureFit CCD Extender - 200377	0.5	4.158
Adapter SecureFit to Monster MOAG - 200394	0.55	3.608
Monster MOAG - MMOAG	1.25	2.358
AstroDon Adapter - MMOAG-CFW-A	0.2	2.158
Apogee AFW50-7S	1.15	1.008
Apogee Alta U16M CCD back focus	1.008	0

MonsterMOAG, FW50, ALTA D9 High Cooling		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.477	7.613
SecureFit Spacer - 200361-2	2.1	5.513
SecureFit CCD Extender - 200377	0.5	5.013
SecureFit CCD Extender - 200377	0.5	4.513
Adapter SecureFit to Monster MOAG - 200394	0.55	3.963
Monster MOAG - MMOAG	1.25	2.713
AstroDon Adapter - MMOAG-CFW-A	0.2	2.513
Apogee AFW50-7S	1.15	1.363
Apogee Alta U16M High Cooling CCD back focus	1.363	0

MonsterMOAG, FW50, ALTA		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.282	7.808
SecureFit Spacer - 200361-2	2.1	5.708
SecureFit CCD Extender - 200377	0.5	5.208
SecureFit CCD Extender - 200377	0.5	4.708
Adapter SecureFit to Monster MOAG - 200394	0.55	4.158
Monster MOAG - MMOAG	1.25	2.908
Adapter, Astrodon dovetail to 3 inch-24 MMOAG-3-L	0.75	2.158
Apogee AFW50-7S	1.15	1.008
Apogee Alta U16M CCD back focus	1.008	0

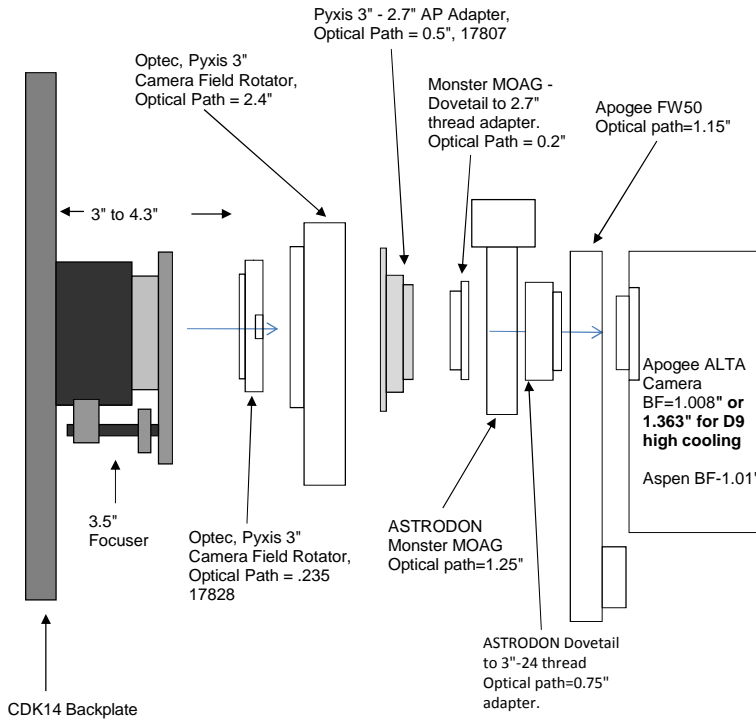
MonsterMOAG, FW50, ALTA D9 High Cooling		11.09 remaining BF
3.5" Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	0.527	7.563
SecureFit Spacer - 200361-2	2.1	5.463
SecureFit CCD Extender - 200377	0.5	4.963
Adapter SecureFit to Monster MOAG - 200394	0.55	4.413
Monster MOAG - MMOAG	1.25	3.163
Adapter, Astrodon dovetail to 3 inch-24 MMOAG-3-L	0.75	2.413
Apogee AFW50-7S	1.05	1.363
Apogee Alta U16M High Cooling CCD back focus	1.363	0



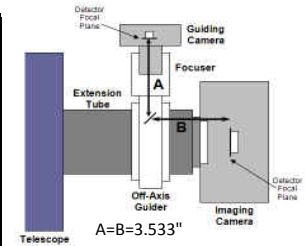
CDK14 - OPTICAL TRAIN: for Apogee Alta and Pyxis Rotator

Distance to Focuser Mounting Surface

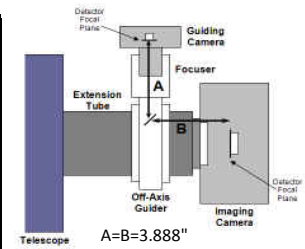
11.09



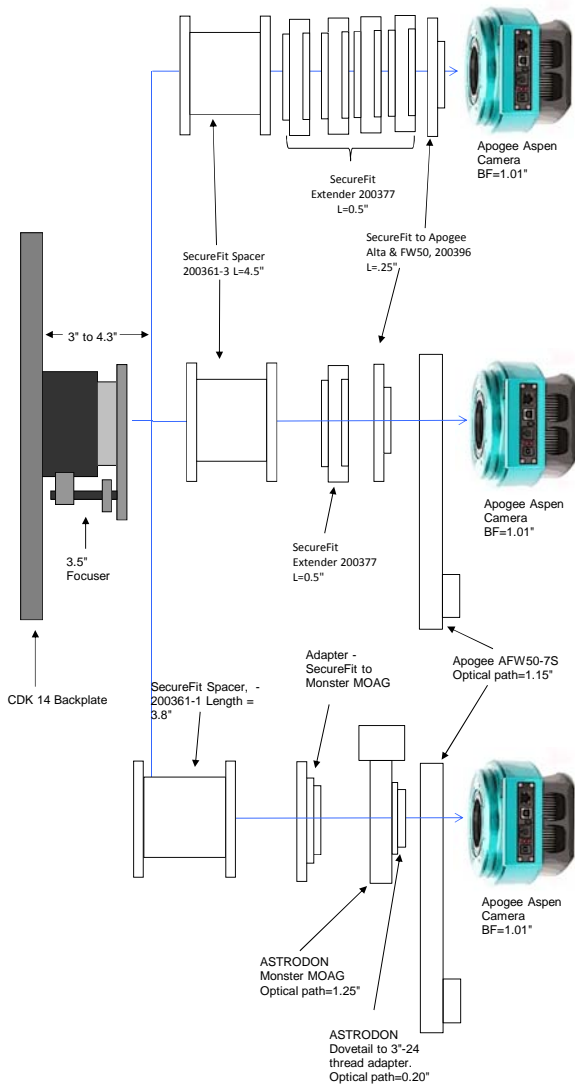
Alta, Aspen CCD, FW50, Pyxis & MMOAG			11.09 remaining BF
3.5" Focuser (racked in)	3	8.09	
Focus position (0 to 1.3")	0.597	7.493	
PW 14/17/20 to Optec-3600 dovetail adapter - 17828	0.235	7.258	
Optec Pyxis 3" Camera Rotator	2.4	4.858	
Optec Pyxis 2.7" AP Adapter - 17807	0.5	4.358	
Monster MOAG -Dovetail to 2.7" adapter	0.2	4.158	
Monster MOAG - MMOAG	1.25	2.908	
Adapter, Astrodon dovetail to 3"-24 MMOAG-3-L	0.75	2.158	
Apogee FW50	1.15	1.008	
Apogee Alta U16M CCD back focus	1.008	0	



Alta High Cooling, Aspen CCD, FW50, Pyxis & MMOAG			11.09 remaining BF
2.75" Focuser (racked in)	3	8.09	
Focus position (0 to 1.3")	0.242	7.848	
PW 14/17/20 to Optec-3600 dovetail adapter - 17828	0.235	7.613	
Optec Pyxis 3" Camera Rotator	2.4	5.213	
Optec Pyxis 2.7" AP Adapter - 17807	0.5	4.713	
Monster MOAG -Dovetail to 2.7" adapter	0.2	4.513	
Monster MOAG - MMOAG	1.25	3.263	
Adapter, Astrodon dovetail to 3"-24 MMOAG-3-L	0.75	2.513	
Apogee FW50	1.15	1.363	
Apogee Alta U16M High Cooling CCD back focus	1.363	0	



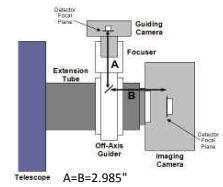
CDK14 - OPTICAL TRAIN: for Aspen, FW50 and MMOAG



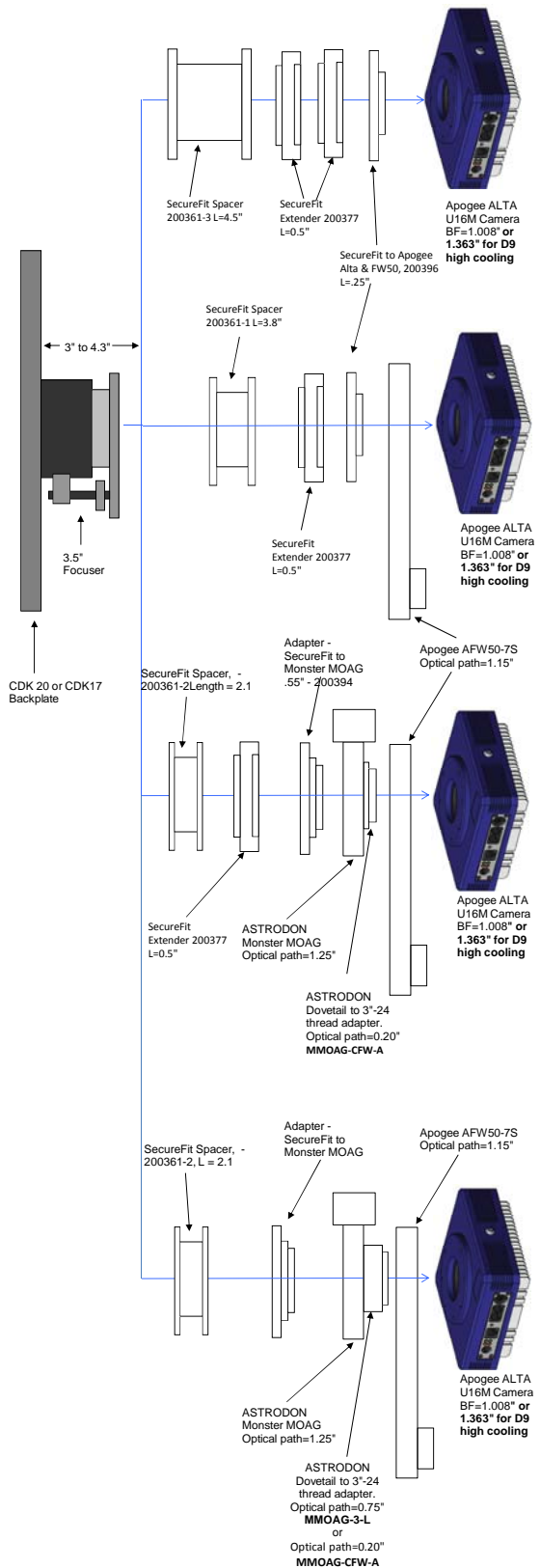
Apogee Aspen CCD	11.09 remaining BF
3.5" Focuser (racked in)	3 8.09
Focus position (0 to 1.3")	0.33 7.76
SecureFit, 4.5" - 200361-3	4.5 3.26
SecureFit Extender - 200377	0.5 2.76
SecureFit Extender - 200377	0.5 2.26
SecureFit Extender - 200377	0.5 1.76
SecureFit Extender - 200377	0.5 1.26
SecureFit to Apogee & FW50 - 200396	0.25 1.01
Apogee Aspen CCD back focus	1.01 0

Apogee Aspen CCD & FW50	11.09 remaining BF
3.5" Focuser (racked in)	3 8.09
Focus position (0 to 1.3")	0.68 7.41
SecureFit, 4.5" - 200361-3	4.5 2.91
SecureFit CCD Extender - 200377	0.5 2.41
SecureFit to Apogee & FW50 - 200396	0.25 2.16
Apogee AFW50-7S	1.15 1.01
Apogee Aspen CCD back focus	1.01 0

Apogee ASPEN CCD, MonsterMOAG, FW50	11.09 remaining BF
3.5" Focuser (racked in)	3 8.09
Focus position (0 to 1.3")	0.13 7.96
SecureFit Spacer - 3.8" - 200361-1	3.8 4.16
Adapter SecureFit to Monster MOAG - 200394	0.55 3.61
Monster MOAG - MMOAG	1.25 2.36
AstroDon Adapter - MMOAG-CFW-A	0.2 2.16
Apogee AFW50-7S	1.15 1.01
Apogee Aspen CCD back focus	1.01 0



CDK17 - OPTICAL TRAIN: for Apogee Alta, FW50 and MMOAG



ALTA CCD			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.482	6.758	
SecureFit, 4.5" - 200361-3	4.5	2.258	
SecureFit Extender - 200377	0.5	1.758	
SecureFit Extender - 200377	0.5	1.258	
SecureFit to Apogee Alta & FW50 - 200396	0.25	1.008	
Apogee Alta U16M CCD back focus	1.008	0	

ALTA D9 High Cooling			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.627	6.613	
SecureFit, 4.5" - 200361-3	4.5	2.113	
SecureFit Extender - 200377	0.5	1.613	
SecureFit to Apogee Alta & FW50 - 200396	0.25	1.363	
Apogee Alta U16M High Cooling CCD back focus	1.363	0	

FW50, ALTA CCD			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.53	6.708	
SecureFit, 3.8" - 200361-1	3.8	2.908	
SecureFit CCD Extender - 200377	0.5	2.408	
SecureFit to Apogee Alta & FW50 - 200396	0.25	2.158	
Apogee AFW50-7S	1.15	1.008	
Apogee Alta U16M CCD back focus	1.008	0	

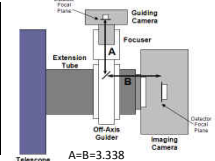
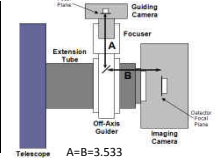
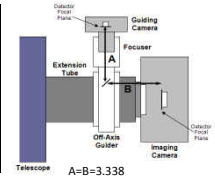
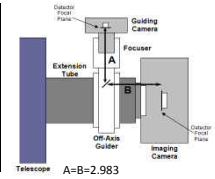
FW50, ALTA D9 High Cooling			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.18	7.063	
SecureFit, 3.8" - 200361-1	3.8	3.263	
SecureFit CCD Extender - 200377	0.5	2.763	
SecureFit to Apogee Alta & FW50 - 200396	0.25	2.513	
Apogee AFW50-7S	1.15	1.363	
Apogee Alta U16M High Cooling CCD back focus	1.363	0	

MonsterMOAG, FW50, ALTA			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.48	6.758	
SecureFit Spacer - 2.1" - 200361-2	2.1	4.658	
SecureFit CCD Extender - 200377	0.5	4.158	
Adapter SecureFit to Monster MOAG - 200394	0.55	3.608	
Monster MOAG - MMOAG	1.25	2.358	
AstroDon Adapter - MMOAG-CFW-A	0.2	2.158	
Apogee AFW50-7S	1.15	1.008	
Apogee Alta U16M CCD back focus	1.008	0	

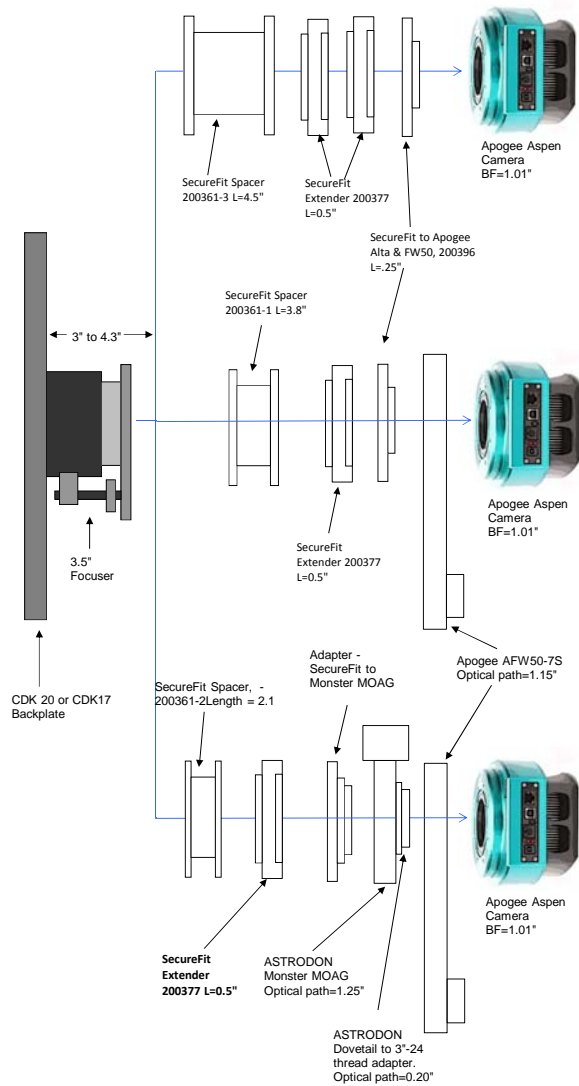
MonsterMOAG, FW50, ALTA D9 High Cooling			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.13	7.113	
SecureFit Spacer - 200361-2	2.1	5.013	
SecureFit CCD Extender - 200377	0.5	4.513	
Adapter SecureFit to Monster MOAG - 200394	0.55	3.963	
Monster MOAG - MMOAG	1.25	2.713	
AstroDon Adapter - MMOAG-CFW-A	0.2	2.513	
Apogee AFW50-7S	1.15	1.363	
Apogee Alta U16M High Cooling CCD back focus	1.363	0	

MonsterMOAG, FW50, ALTA			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.432	6.808	
SecureFit Spacer - 200361-2	2.1	4.708	
Adapter SecureFit to Monster MOAG - 200394	0.55	4.158	
Monster MOAG - MMOAG	1.25	2.908	
Adapter, Astrodon dovetail to 3"-24 MMOAG-3-L	0.75	2.158	
Apogee AFW50-7S	1.15	1.008	
Apogee Alta U16M CCD back focus	1.008	0	

MonsterMOAG, FW50, ALTA D9 High Cooling			10.24 remaining BF
3.5" Focuser (racked in)	3	7.24	
Focus position (0 to 1.3")	0.627	6.613	
SecureFit Spacer - 200361-2	2.1	4.513	
Adapter SecureFit to Monster MOAG - 200394	0.55	3.963	
Monster MOAG - MMOAG	1.25	2.713	
AstroDon Adapter - MMOAG-CFW-A	0.2	2.513	
Apogee AFW50-7S	1.15	1.363	
Apogee Alta U16M High Cooling CCD back focus	1.363	0	



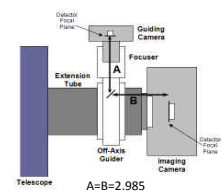
CDK17 - OPTICAL TRAIN: for Aspen, FW50 and MMOAG



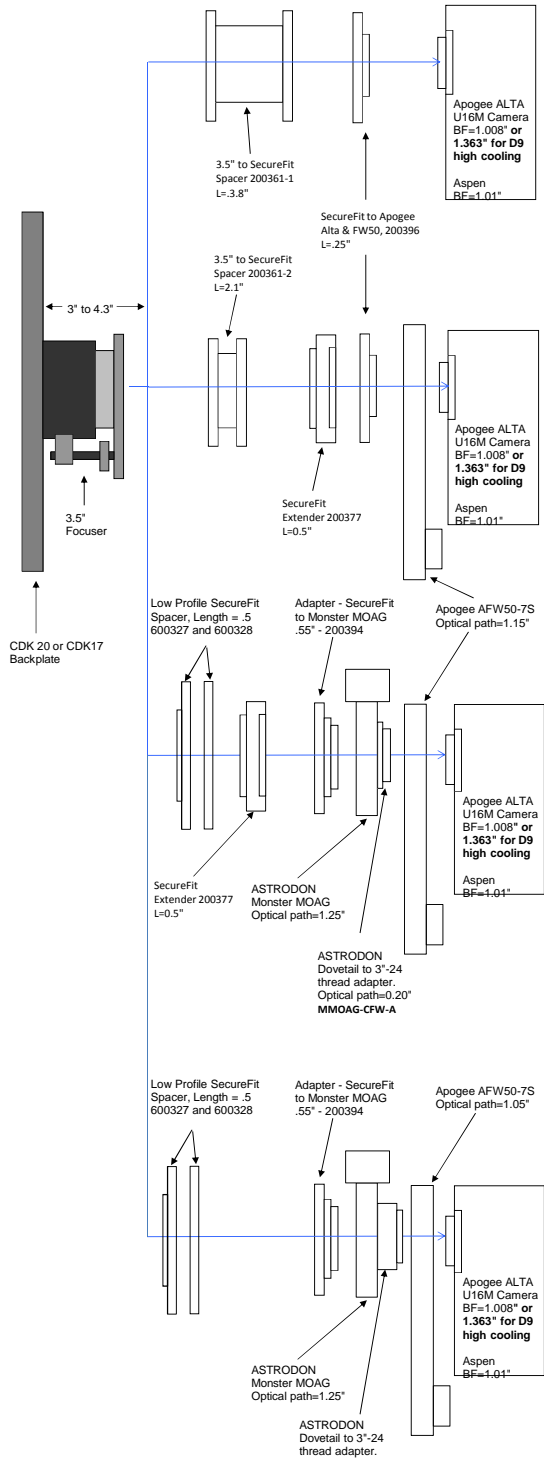
Apogee Aspen CCD	10.24 remaining BF
3.5" Focuser (racked in)	3 7.24
Focus position (0 to 1.3")	0.48 6.76
SecureFit, 4.5" - 200361-3	4.5 2.26
SecureFit Extender - 200377	0.5 1.76
SecureFit Extender - 200377	0.5 1.26
SecureFit to Apogee & FW50 - 200396	0.25 1.01
Apogee Aspen CCD back focus	1.01 0

Apogee Aspen CCD & FW50	10.24 remaining BF
3.5" Focuser (racked in)	3 7.24
Focus position (0 to 1.3")	0.53 6.71
SecureFit, 3.8" - 200361-1	3.8 2.91
SecureFit CCD Extender - 200377	0.5 2.41
SecureFit to Apogee & FW50 - 200396	0.25 2.16
Apogee AFW50-7S	1.15 1.01
Apogee Aspen CCD back focus	1.01 0

Apogee ASPEN CCD, MonsterMOAG, FW50	10.24 remaining BF
3.5" Focuser (racked in)	3 7.24
Focus position (0 to 1.3")	0.48 6.76
SecureFit Spacer - 2.1" - 200361-2	2.1 4.66
SecureFit CCD Extender - 200377	0.5 4.16
Adapter SecureFit to Monster MOAG - 200394	0.55 3.61
Monster MOAG - MMOAG	1.25 2.36
AstroDon Adapter - MMOAG-CFW-A	0.2 2.16
Apogee AFW50-7S	1.15 1.01
Apogee Aspen CCD back focus	1.01 0



CDK20 and 24 - OPTICAL TRAIN: for Apogee Alta, Aspen, FW50 and MMOAG



ALTA, Aspen CCD	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.752
3.5" to SecureFit, 3.8" - 200361-1	3.8
SecureFit to Apogee Alta & FW50 - 200396	0.25
Apogee Alta U16M CCD back focus	1.008
	0

ALTA D9 High Cooling	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.397
3.5" to SecureFit, 3.8" - 200361-1	3.8
SecureFit to Apogee Alta & FW50 - 200396	0.25
Apogee Alta U16M High Cooling CCD back focus	1.363
	0

ALTA, ASPEN, FW50	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.802
3.5" to SecureFit, 2.1" - 200361-2	2.1
SecureFit CCD Extender - 200377	0.5
SecureFit to Apogee Alta & FW50 - 200396	0.25
Apogee AFW50-75	1.15
Apogee Alta U16M CCD back focus	1.008
	0

MonsterMOAG, FW50, ALTA D9 High Cooling	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.447
3.5" to SecureFit, 2.1" - 200361-2	2.1
SecureFit CCD Extender - 200377	0.5
SecureFit to Apogee Alta & FW50 - 200396	0.25
Apogee AFW50-75	1.15
Apogee Alta U16M High Cooling CCD back focus	1.363
	0

ALTA, ASPEN, MonsterMOAG, FW50	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.652
Low Profile SecureFit Spacer - 600327 and 600328	0.5
SecureFit CCD Extender - 200377	0.5
Adapter SecureFit to Monster MOAG - 200394	0.55
Monster MOAG - MMOAG	1.25
AstroDon Adapter - MMOAG-CFW-A	0.2
Apogee AFW50-75	1.15
Apogee Alta U16M CCD back focus	1.008
	0

MonsterMOAG, FW50, ALTA D9 High Cooling	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.297
Low Profile SecureFit Spacer - 600327 and 600328	0.5
SecureFit CCD Extender - 200377	0.5
Adapter SecureFit to Monster MOAG - 200394	0.55
Monster MOAG - MMOAG	1.25
AstroDon Adapter - MMOAG-CFW-A	0.2
Apogee AFW50-75	1.15
Apogee Alta U16M High Cooling CCD back focus	1.363
	0

ALTA, ASPEN, MonsterMOAG, FW50	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.602
Low Profile SecureFit Spacer - 600327, 600328	0.5
Adapter SecureFit to Monster MOAG - 200394	0.55
Monster MOAG - MMOAG	1.25
Adapter, AstroDon dovetail to 3"-24 MMOAG-3-L	0.75
Apogee AFW50-75	1.15
Apogee Alta U16M CCD back focus	1.008
	0

MonsterMOAG, FW50, ALTA D9 High Cooling	8.81 remaining BF
3.5" Focuser (racked in)	3
Focus position (0 to 1.3")	0.247
Low Profile SecureFit Spacer - 600327, 600328	0.5
Adapter SecureFit to Monster MOAG - 200394	0.55
Monster MOAG - MMOAG	1.25
Adapter, AstroDon dovetail to 3"-24 MMOAG-3-L	0.75
Apogee AFW50-75	1.15
Apogee Alta U16M High Cooling CCD back focus	1.363
	0

