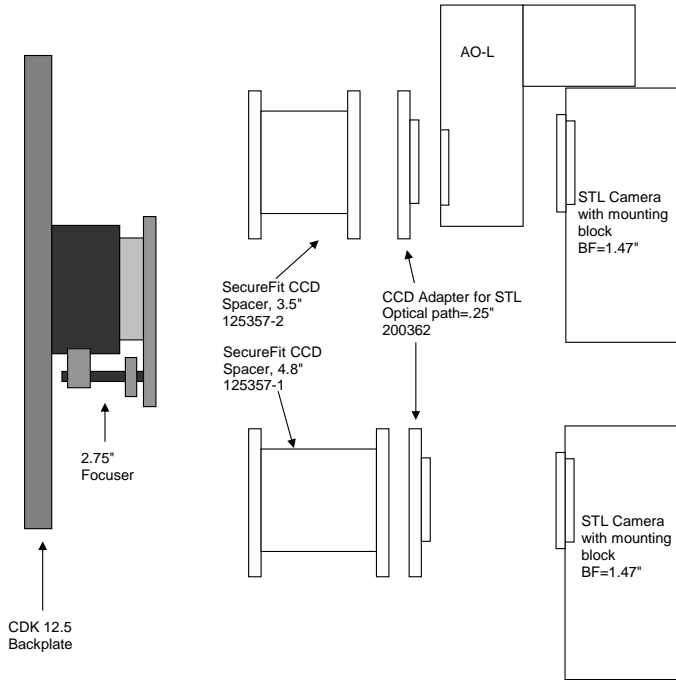


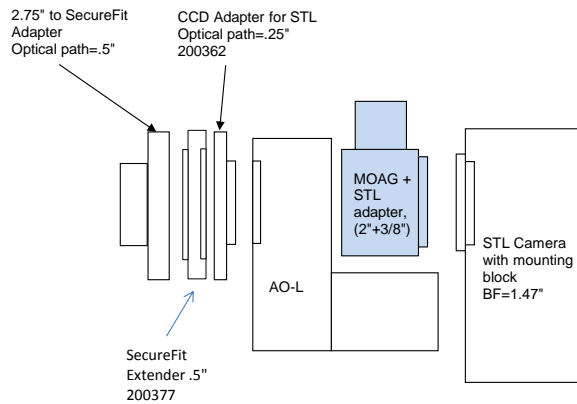
**PLANEWAVE INSTRUMENTS**  
**SECUREFIT CCD SPACERS FOR STL CAMERAS**  
for CDK12.5

← 10.445 →  
Distance from focuser mounting surface to focal plane



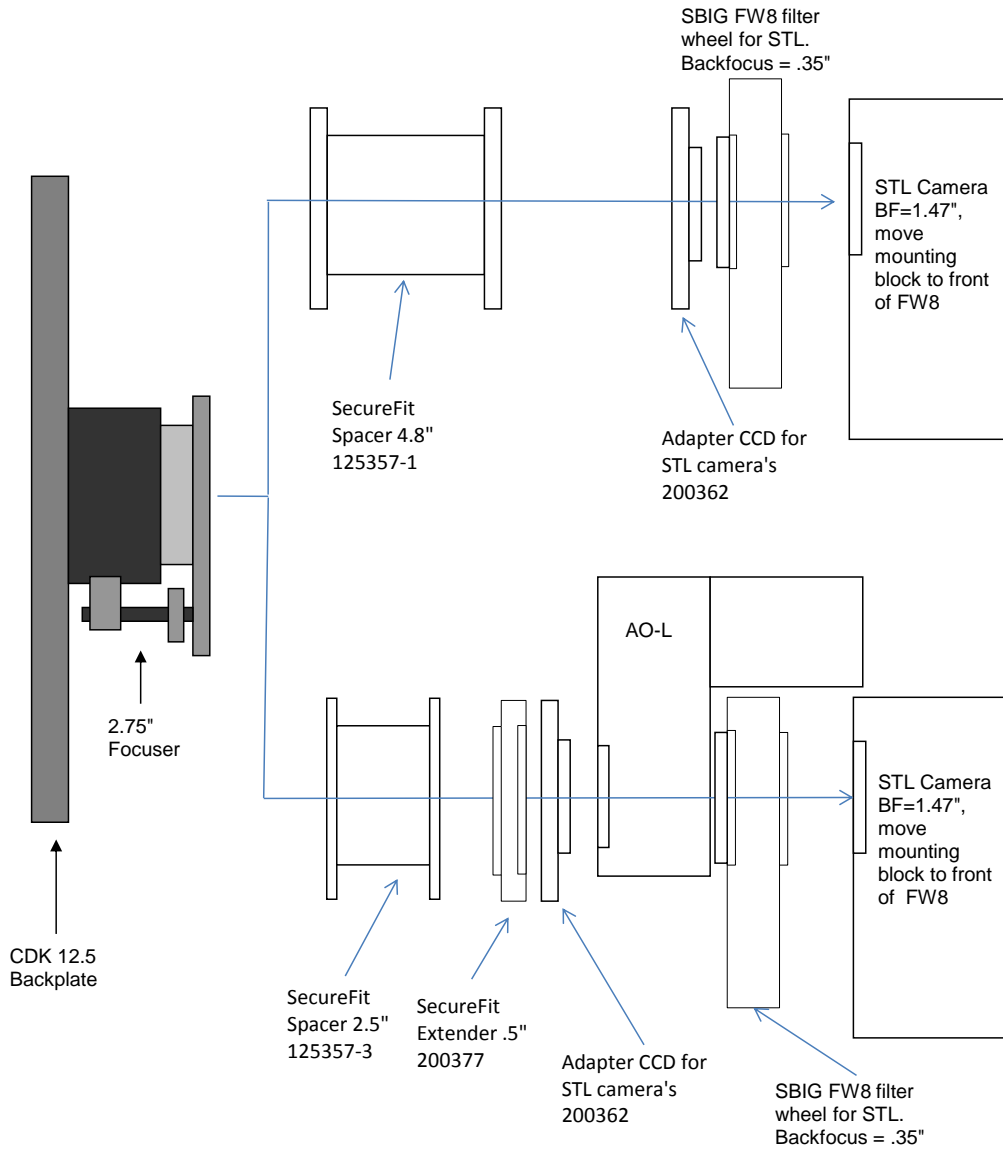
STL and AO-L required spacers	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.485	6.71
SecureFit CCD Spacer 3.5" - <b>125357-2</b>	3.5	3.21
CCD Adapter, STL - <b>200362</b>	0.25	2.96
AO-L	1.49	1.47
STL Back Focus	1.47	0

STL Camera	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.675	6.52
SecureFit CCD Spacer 4.8" - <b>125357-1</b>	4.8	1.72
CCD Adapter, STL - <b>200362</b>	0.25	1.47
STL Back Focus	1.47	0



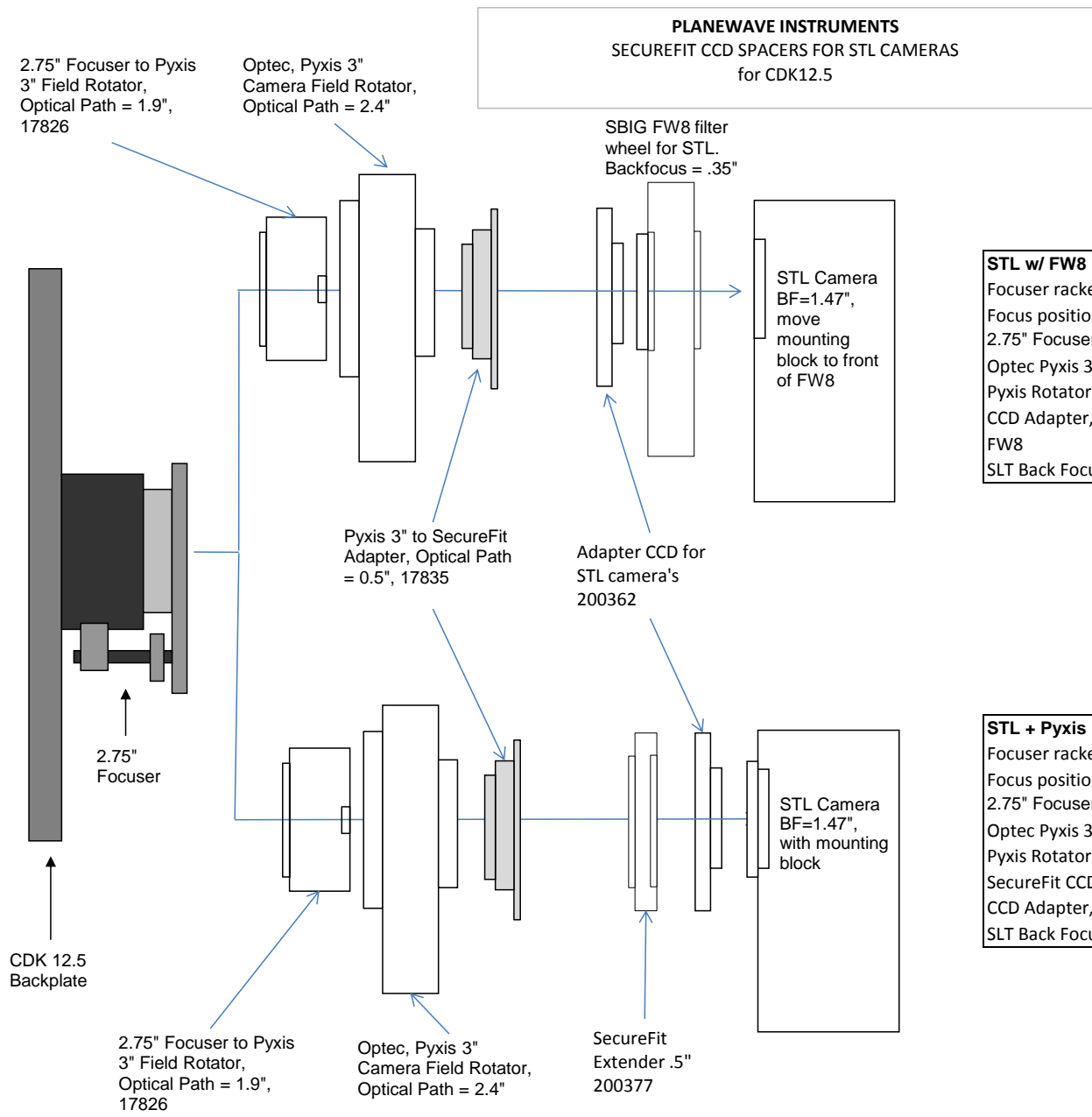
STL, AO-L and MOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0	7.195
2.75" to SecureFit	0.5	6.695
SecureFit Extender - <b>200377</b>	0.5	6.195
CCD Adapter, STL - <b>200362</b>	0.25	5.945
AO-L	1.49	4.455
MOAG from Astrodon (2" of backfocus)	2	2.455
MOAG to SLT Adapter (3/8")	0.375	2.08
STL Back Focus	1.509	0.571

**PLANEWAVE INSTRUMENTS**  
**SECUREFIT CCD SPACERS FOR STL CAMERAS**  
 for CDK12.5



<b>STL w/ FW8</b>		10.445 remaining BF
Focuser racked in	3.25	7.195
Focus position (0 to 1.3")	<b>0.325</b>	6.87
SecureFit CCD Spacer 4.8" - <b>125357-1</b>	<b>4.8</b>	2.07
CCD Adapter, STL - <b>200362</b>	0.25	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

<b>STL + FW8 + AO-L</b>		10.445 remaining BF
Focuser racked in	3.25	7.195
Focus position (0 to 1.3")	<b>0.635</b>	6.56
SecureFit CCD Spacer 2.5" - <b>125357-3</b>	<b>2.5</b>	4.06
SecureFit CCD Extender .5" - <b>200377</b>	0.5	3.56
CCD Adapter, STL - <b>200362</b>	0.25	3.31
AO-L	1.49	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

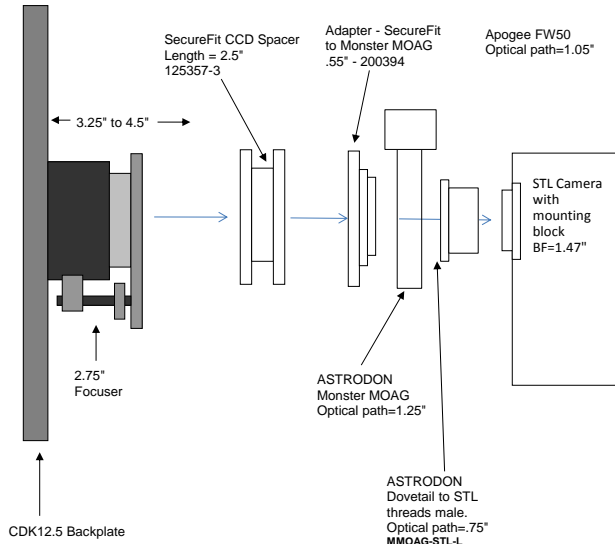


STL w/ FW8	10.445 remaining BF	
Focuser racked in	3.25	7.195
Focus position (0 to 1.3")	0.325	6.87
2.75" Focuser to Pyxis Rotator - <b>17826</b>	1.9	4.97
Optec Pyxis 3" Rotator - <b>PYXIS 3</b>	2.4	2.57
Pyxis Rotator to SecureFit - <b>17835</b>	0.5	2.07
CCD Adapter, STL - <b>200362</b>	0.25	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

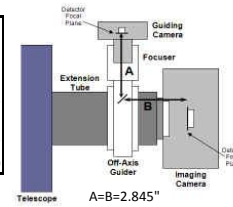
STL + Pyxis	10.445 remaining BF	
Focuser racked in	3.25	7.195
Focus position (0 to 1.3")	0.175	7.02
2.75" Focuser to Pyxis Rotator - <b>17826</b>	1.9	5.12
Optec Pyxis 3" Rotator - <b>PYXIS 3</b>	2.4	2.72
Pyxis Rotator to SecureFit - <b>17835</b>	0.5	2.22
SecureFit CCD Extender .5" - <b>200377</b>	<b>0.5</b>	1.72
CCD Adapter, STL - <b>200362</b>	0.25	1.47
SLT Back Focus	1.47	0

# CDK12.5 - OPTICAL TRAIN: for SBIG STL BODY, AND MMOAG

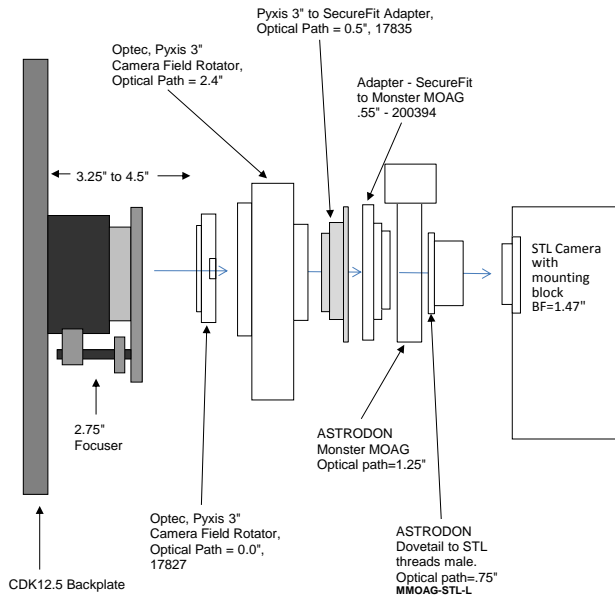
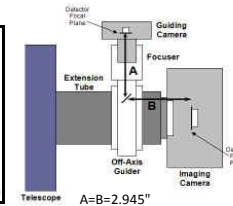
Distance to Focuser Mounting Surface 10.445



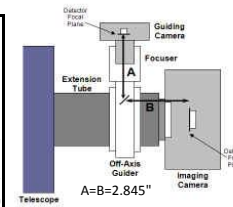
STL CCD & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
<b>Focus position (0 to 1.3")</b>	<b>0.675</b>	6.52
SecureFit CCD Spacer - 125357-3	2.5	4.02
Adapter SecureFit to Monster MOAG - 200394	0.55	3.47
Monster MOAG - MMOAG	1.25	2.22
AstroDon Adapter - MMOAG-STL-L	0.75	1.47
SBIG STL Camera with mounting block	1.47	0



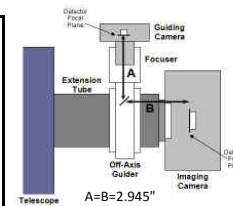
STL CCD, FW8 FILTER WHEEL & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
<b>Focus position (0 to 1.3")</b>	<b>0.575</b>	6.62
SecureFit CCD Spacer - 125357-3	2.5	4.12
Adapter SecureFit to Monster MOAG - 200394	0.55	3.57
Monster MOAG - MMOAG	1.25	2.32
AstroDon Adapter - MMOAG-STL-M	0.5	1.82
SBIG FW8 Filter Wheel	0.35	1.47
SBIG STL Camera with mounting block	1.47	0



STL CCD, Pyxis 3 & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
<b>Focus position (0 to 1.3")</b>	<b>0.275</b>	6.92
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	6.92
Optec Pyxis 3 inch Camera Rotator	2.4	4.52
Optec Pyxis 3 inch to SecureFit Adapter - 17835	0.5	4.02
Adapter SecureFit to Monster MOAG - 200394	0.55	3.47
Monster MOAG - MMOAG	1.25	2.22
AstroDon Adapter - MMOAG-STL-L	0.75	1.47
SBIG STL Camera with mounting block	1.47	0

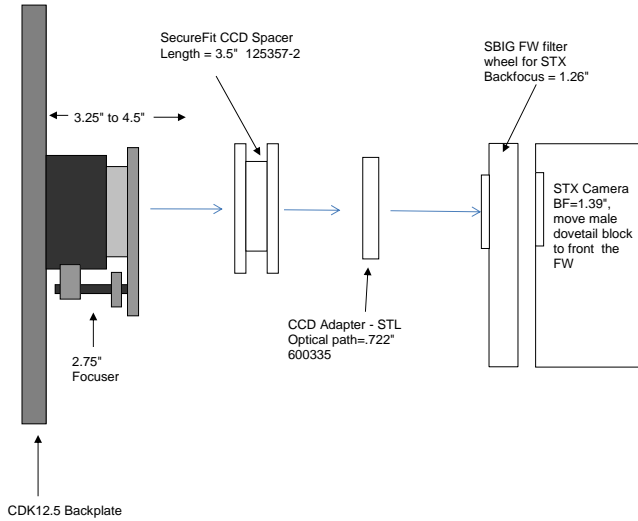


STL CCD, FW8, Pyxis 3 & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
<b>Focus position (0 to 1.3")</b>	<b>0.175</b>	7.02
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	7.02
Optec Pyxis 3 inch Camera Rotator	2.4	4.62
Optec Pyxis 3 inch to SecureFit Adapter - 17835	0.5	4.12
Adapter SecureFit to Monster MOAG - 200394	0.55	3.57
Monster MOAG - MMOAG	1.25	2.32
AstroDon Adapter - MMOAG-STL-M	0.5	1.82
SBIG FW8 Filter Wheel	0.35	1.47
SBIG STL Camera with mounting block	1.47	0

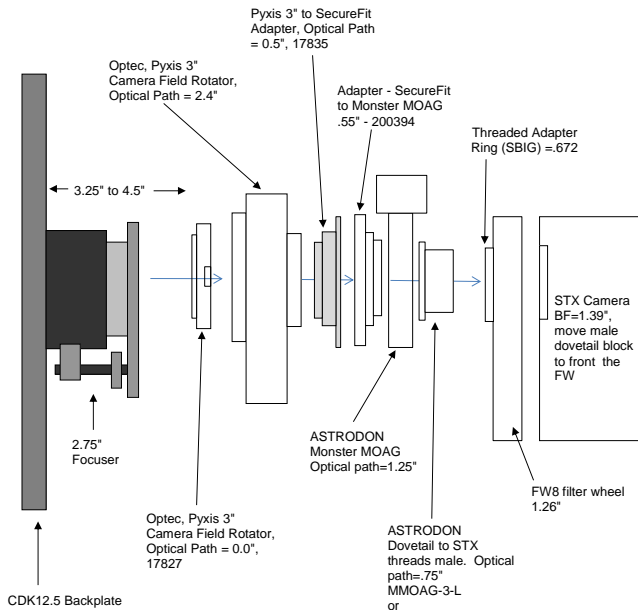


# CDK12.5 - OPTICAL TRAIN: for SBIG STX BODY, AND MMOAG

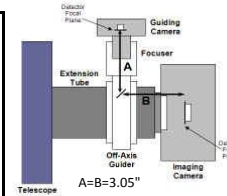
Distance to Focuser Mounting Surface 10.445



STX and FW	10.445 remaining BF	
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	<b>0.323</b>	6.872
SecureFit CCD Spacer - 125357-2	3.5	3.372
CCD Adapter - STL - 600335	0.722	2.65
SBIG FW STX (w/threaded adapter ring attached)	1.26	1.39
STX Camera	1.39	0

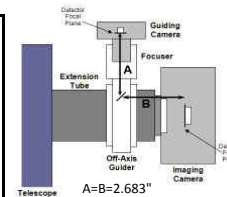


STX CCD, Pyxis & MMOAG	10.445 remaining BF	
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	<b>0.34</b>	6.855
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	6.855
Optec Pyxis 3" Camera Rotator	2.4	4.455
Optec Pyxis 3" to SecureFit Adapter - 17835	0.5	3.955
Adapter SecureFit to Monster MOAG - 200394	0.55	3.405
Monster MOAG - MMOAG	1.25	2.155
AstroDon Adapter - MMOAG-SLT-S	0.1	2.055
SBIG STX Camera with mounting block	2.06	0.00

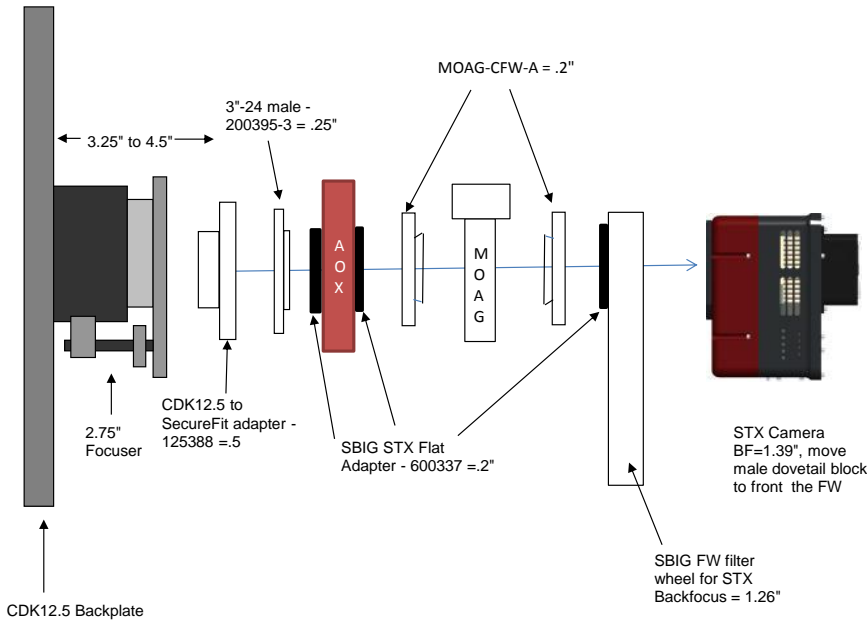


### Does not reach focus without the use of custom adapters

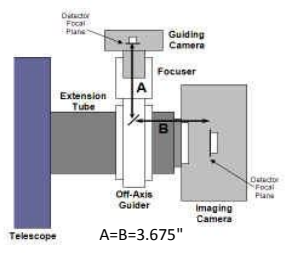
STX CCD, FW8, Pyxis & MMOAG	10.445 remaining BF	
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	<b>0</b>	7.195
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	7.195
Optec Pyxis 3" Camera Rotator	2.4	4.795
Optec Pyxis 3" to SecureFit Adapter - 17835	0.5	4.295
Adapter SecureFit to Monster MOAG - 200394	0.55	3.745
Monster MOAG - MMOAG	1.25	2.495
AstroDon Adapter - MMOAG-SLT-S	0.1	2.395
SBIG FW8 Filter Wheel w/threaded adapter ring attached	1.93	0.465
SBIG STX Camera	1.39	<b>-0.925</b>



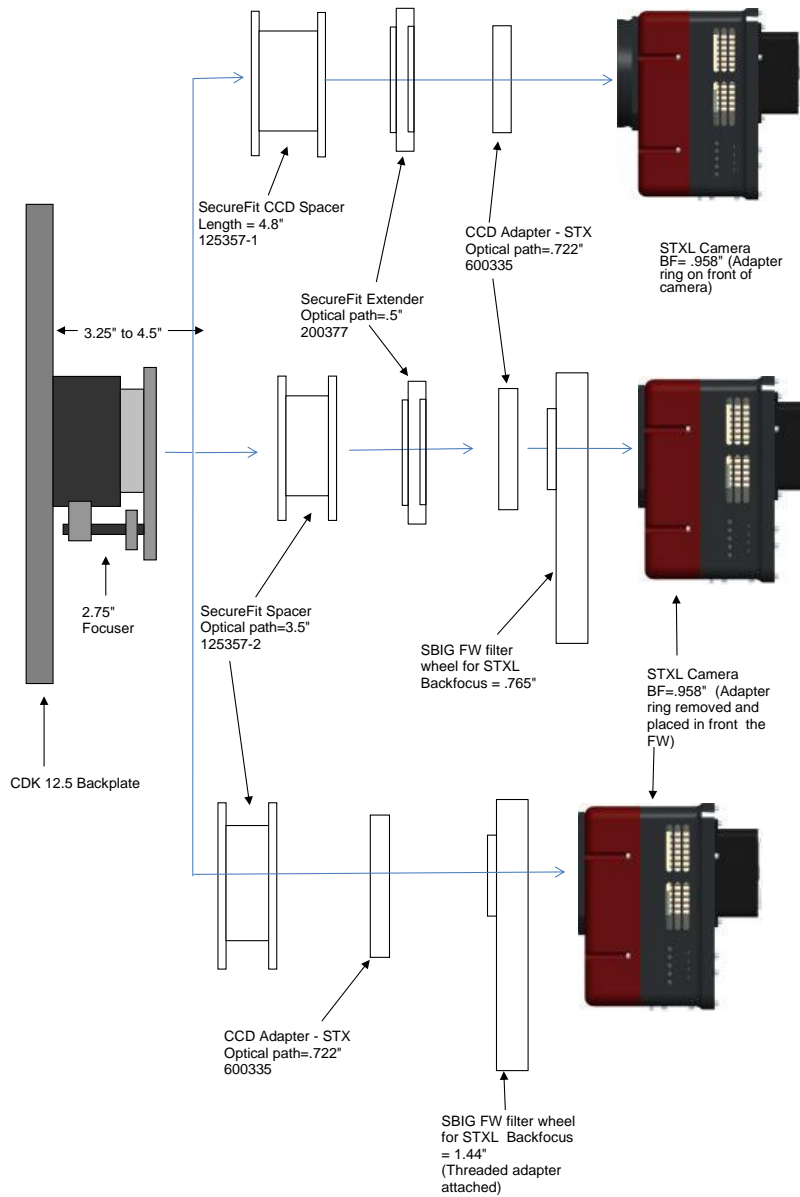
**PLANEWAVE INSTRUMENTS**  
CDK12 SPACERS FOR STX CAMERAS



	10.45	remaining BF
<b>STX camera and MMOAG</b>		
Hedrick Focuser, 2.75"	3.25	7.2
Focuser position (0-1.3")	<b>0.37</b>	6.83
CDK12.5 to SecureFit - 125388	0.5	6.33
SecureFit to 3"-24 male - 200395-3	0.25	6.08
SBIG Flat Adapter (3"-24 female) - 600337	0.2	5.88
AO-X	1.18	4.7
SBIG Flat Adapter (3"-24 female) - 600337	0.2	4.5
MOAG-CWF-A	0.2	4.3
AstroDon part - MMOAG	1.25	3.05
MOAG-CWF-A	0.2	2.85
SBIG Flat Adapter (3"-24 female) - 600337	0.2	2.65
Filter Wheel, FW8	1.26	1.39
SLX Back Focus	1.39	0



PLANEWAVE INSTRUMENTS  
CDK12.5 SPACERS FOR STXL CAMERAS

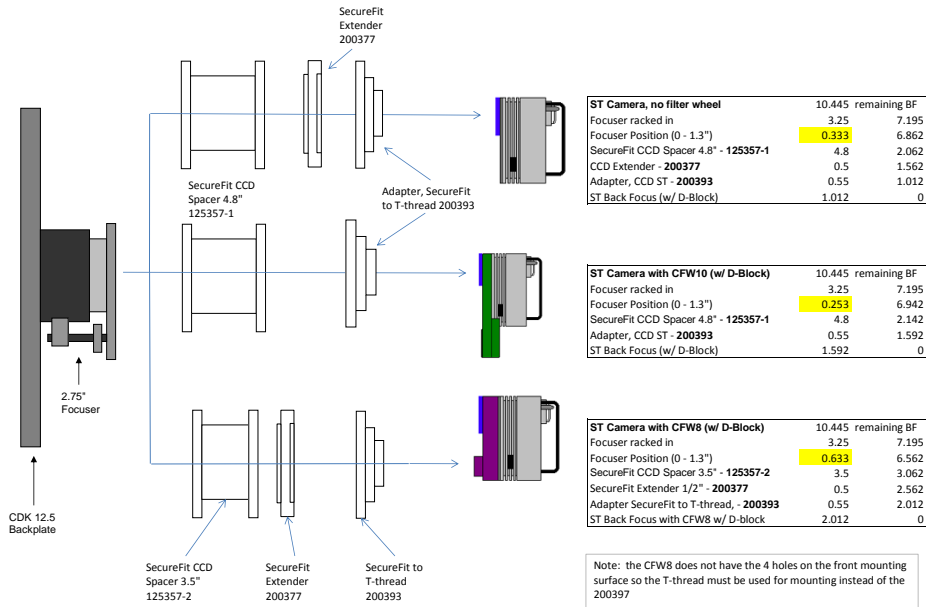


STXL		
	10.445	remaining BF
Focuser racked in	3.25	7.195
Focuser position (0-1.3")	0.215	6.98
CCD Spacer 4.8" - 125357-1	4.8	2.18
SecureFit Extender - 200377	0.5	1.68
CCD Adapter STX - 600335	0.722	0.958
STXL Back Focus (w/Threaded Adapter attached)	0.958	0

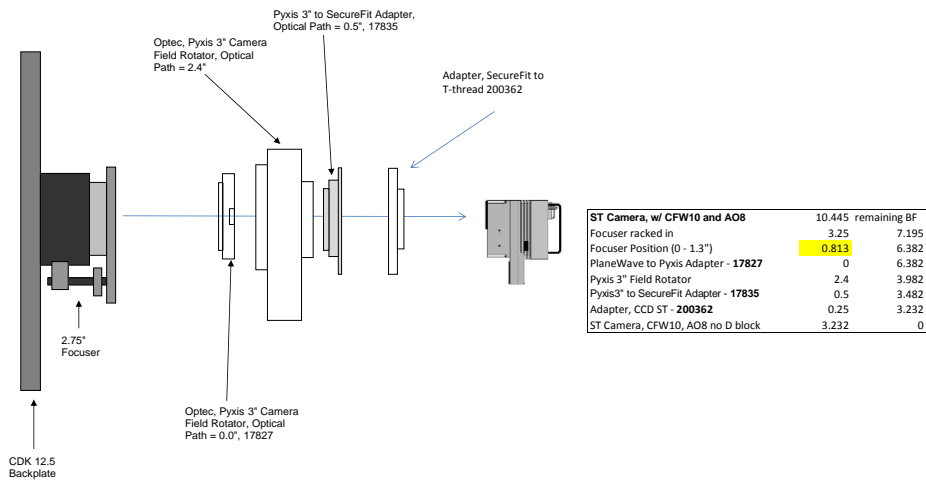
STXL w/ Standard FW		
	10.445	remaining BF
Focuser racked in	3.25	7.195
Focuser position (0-1.3")	0.75	6.445
SecureFit CCD Spacer - 125357-2	3.5	2.945
SecureFit Extender - 200377	0.5	2.445
CCD Adapter STX - 600335	0.722	1.723
Filter Wheel (w/Threaded Adapter Ring attached)	0.765	0.958
STXL Back Focus	0.958	0

STXL w/ Self Guiding FW		
	10.445	remaining BF
Focuser racked in	3.25	7.195
Focuser position (0-1.3")	0.575	6.62
SecureFit CCD Spacer - 125357-2	3.5	3.12
CCD Adapter STX - 600335	0.722	2.398
Filter Wheel, Self Guiding w/threaded adapter ring attached	1.44	0.958
STXL Back Focus	0.958	0

**PLANEWAVE INSTRUMENTS**  
**SECUREFIT CCD SPACERS FOR ST CAMERAS**  
 for CDK12.5

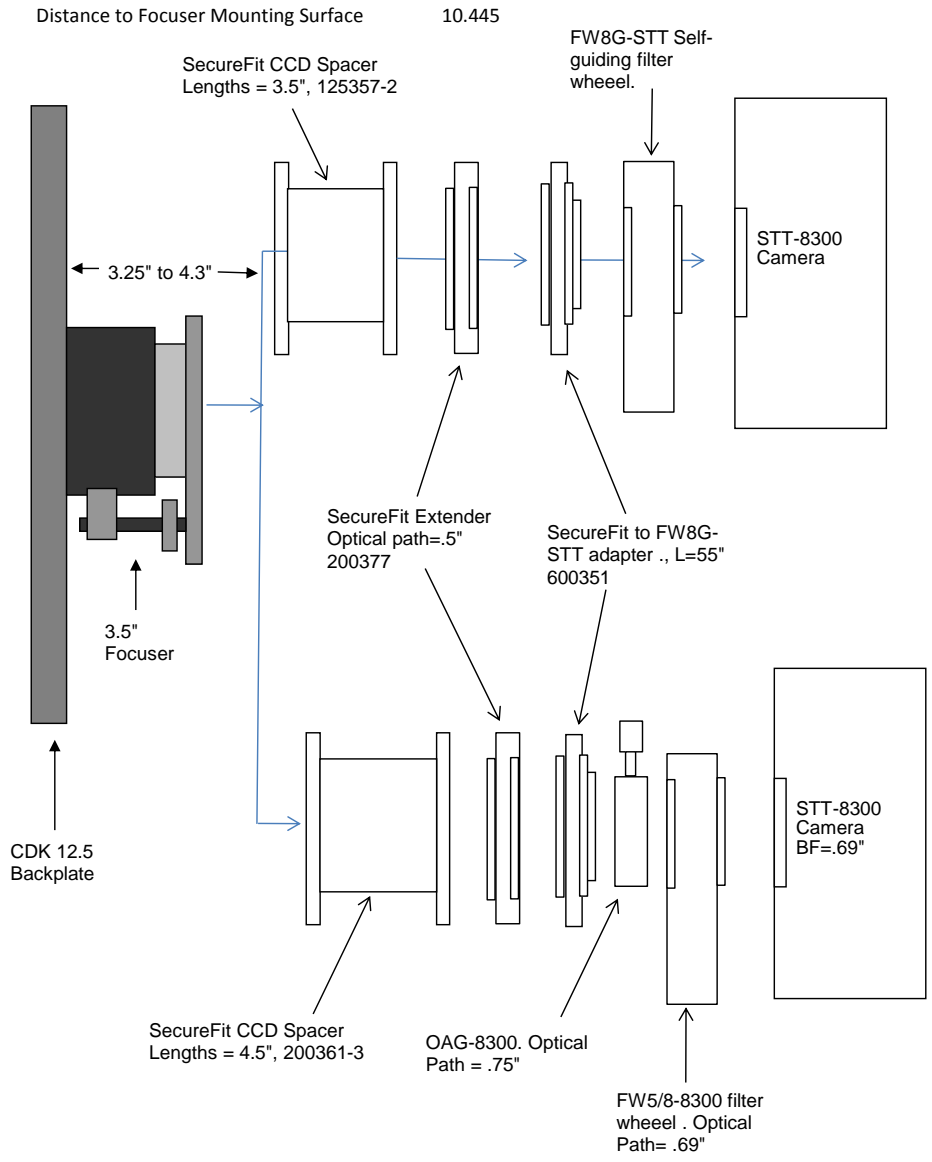


**PLANEWAVE INSTRUMENTS**  
**SECUREFIT CCD SPACERS FOR ST CAMERAS**  
 for CDK12.5





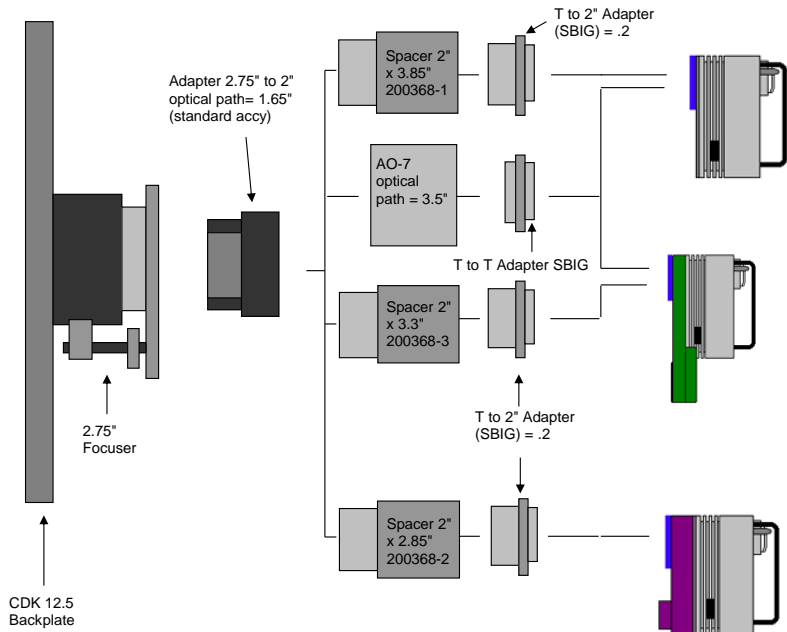
**PLANEWAVE INSTRUMENTS**  
CDK12.5 SECUREFIT SPACERS FOR STT CAMERAS



<b>STT8300 Camera w/ Self Guiding Filter Wheel</b>	10.445	remaining BF
Focuser racked in	3.25	7.195
Focuser position (0-1.3")	0.517	6.678
SecureFit Spacer 3.5- 125357-2	3.5	3.178
CCD SecureFit Extender - 200377	0.5	2.678
SecureFit to FW8G-STT - 600351	0.55	2.128
FW8G-SST attached to STT-8300 Camera	2.128	0

<b>STT8300 Camera w/Filter Wheel, OAG8300</b>	10.445	remaining BF
Focuser racked in	3.25	7.195
Focuser position (0-1.3")	0.415	6.78
SecureFit Spacer 3.5- 125357-2	3.5	3.28
CCD SecureFit Extender - 200377	0.5	2.78
SecureFit to FW8G-STT - 600351	0.55	2.23
OAG-8300	0.75	1.48
FW5-8300 / FW8-8300	0.79	0.69
STT-8300 Camera	0.69	0

**PLANEWAVE INSTRUMENTS**  
**2" CCD SPACERS FOR ST CAMERAS**  
for CDK12.5



ST Camera, no filter wheel		10.445 remaining BF
Focuser racked in		3.25 7.195
Focuser Position (0 - 1.3")	0.483	6.712
Adapter, 2.75 to 2 (standard accy)	1.65	5.062
CCD 2" Spacer x 3.85" - <b>200368-1</b>	3.85	1.212
T to 2 Adapter (SBIG)	0.2	1.012
ST Back Focus (with D-Block)	1.012	0

ST Camera + AO-7		10.445 remaining BF
Focuser racked in		3.25 7.195
Focuser Position (0 - 1.3")	0.835	6.36
Adapter, 2.75 to 2 (standard accy)	1.65	4.71
T to T Adapter (SBIG)	0.2	4.51
ST + AO-7 backfocus	4.51	0

ST Camera with CFW10 w/ D-Block		10.445 remaining BF
Focuser racked in		3.25 7.195
Focuser Position (0 - 1.3")	0.453	6.742
Adapter, 2.75 to 2 (standard accy)	1.65	5.092
CCD 2" SPACER x 3.3" - <b>200368-3</b>	3.3	1.792
T to 2 Adapter (SBIG)	0.2	1.592
ST Back Focus (with D-Block)	1.592	0

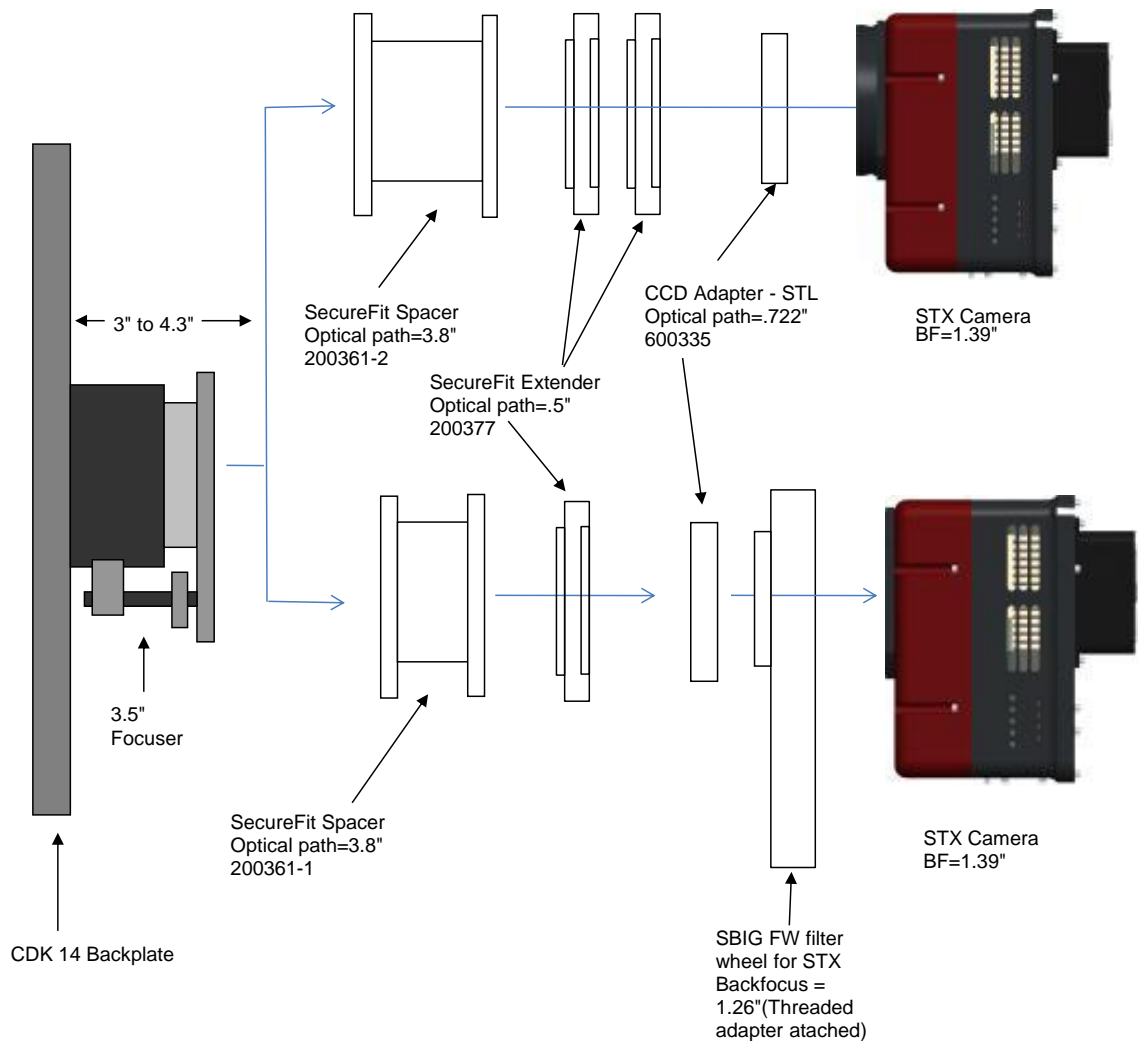
ST + CFW10 + AO-7		10.445 remaining BF
Focuser racked in		3.25 7.195
Focuser Position (0 - 1.3")	0.255	6.94
Adapter, 2.75 to 2 (standard accy)	1.65	5.29
T to T Adapter (SBIG)	0.2	5.09
ST + AO-7 backfocus	5.09	0

ST Camera with CFW8 w/ D-Block		10.445 remaining BF
Focuser racked in		3.25 7.195
Focuser Position (0 - 1.3")	0.483	6.712
Adapter, 2.75 to 2 (standard accy)	1.65	5.062
CCD 2" Spacer x 2.85" - <b>200368-2</b>	2.85	2.212
T to 2 Adapter (SBIG)	0.2	2.012
ST Back Focus (with D-block)	2.012	0

ST + CFW8 + AO-7		10.445 remaining BF
Focuser racked in		3.25 7.195
Focuser Position (0 - 1.3")	0	7.195
Adapter, 2.75 to 2 (standard accy)	1.65	5.545
T to 2 Adapter (SBIG)	0.2	5.345
ST + AO-7 backfocus	5.51	-0.165

**DOES NOT HAVE ENOUGH BACK FOCUS**

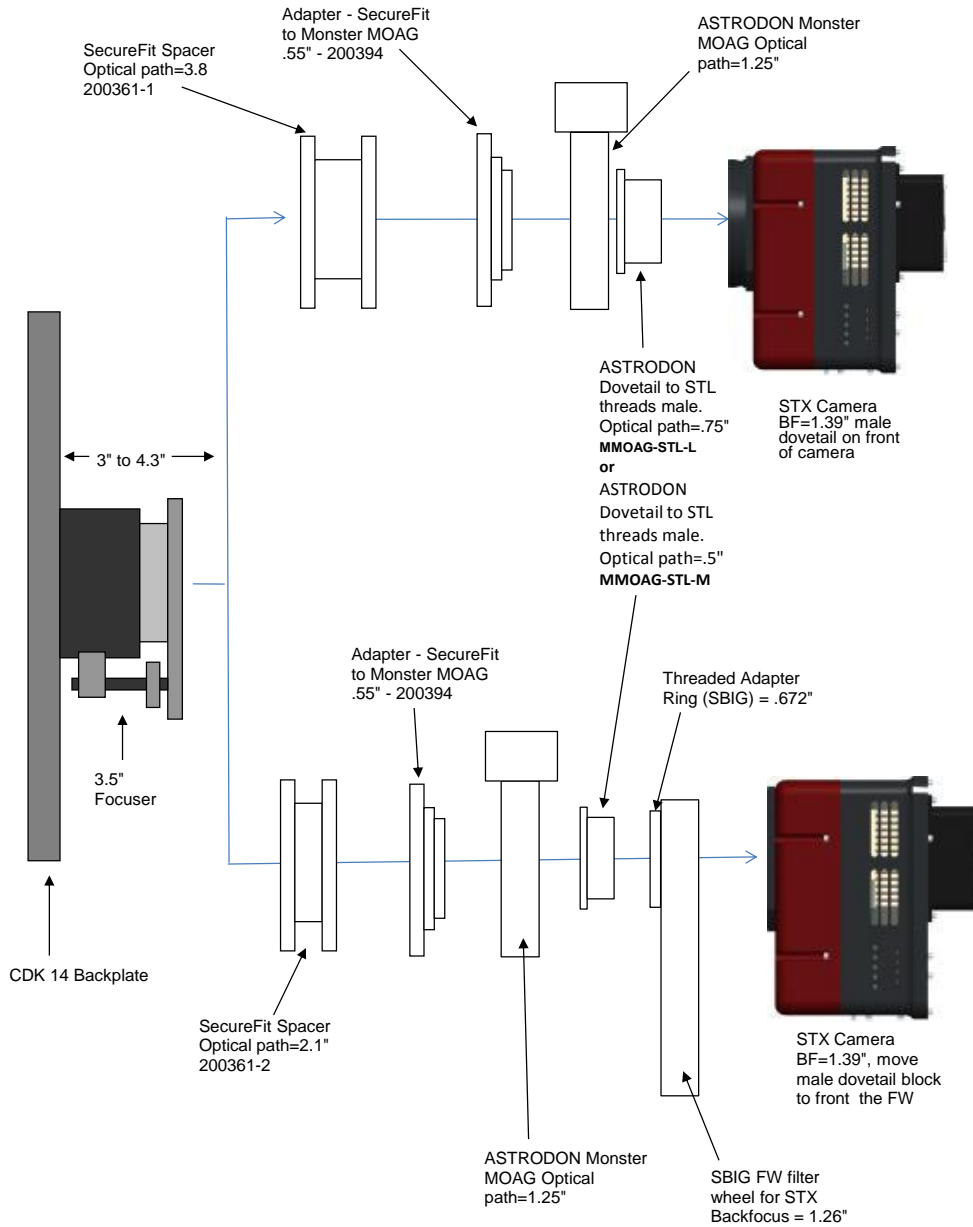
PLANEWAVE INSTRUMENTS  
CDK14 SPACERS FOR STX CAMERAS



STX	11.09 remaining BF	
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.478	7.612
CCD Spacer 4.5" - 200361-3	4.5	3.112
CCD SecureFit Extender - 200377	0.5	2.612
CCD SecureFit Extender - 200377	0.5	2.112
CCD Adapter STX - 600335	0.722	1.39
STX Back Focus w/ mounting adapter	1.39	0

STX w/ FW	11.09 remaining BF	
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.418	7.672
CCD Spacer 3.8" - 200361-1	3.8	3.872
SecureFit Extender - 200377	0.5	3.372
CCD Adapter STX - 600335	0.722	2.65
Filter Wheel (w/threaded adapter ring attached)	1.26	1.39
STX Back Focus	1.39	0

**PLANEWAVE INSTRUMENTS**  
CDK14 SPACERS FOR STX CAMERAS

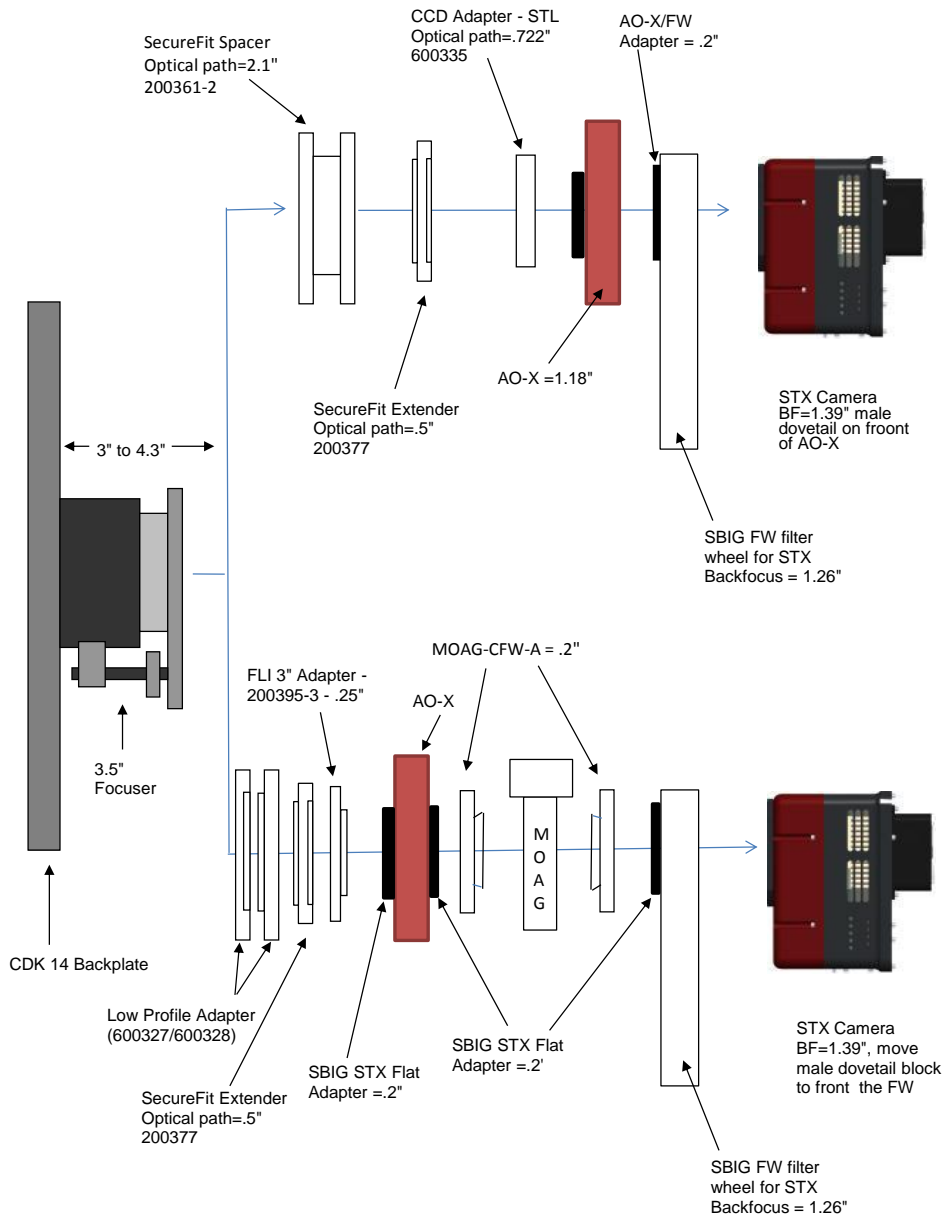


STX camera and MMOAG		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	<b>0.35</b>	7.74
CCD Spacer 3.8 - 200361-1	<b>3.8</b>	3.94
CCD SecureFit to MMOAG - 200394	0.55	3.39
AstroDon part - <b>MMOAG</b>	1.25	2.14
<b>MMOAG-STL-L</b>	0.75	1.39
STX Back Focus	1.39	0

STX camera and MMOAG		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	<b>0.6</b>	7.49
CCD Spacer 2.1 - 200361-2	<b>3.8</b>	3.69
CCD SecureFit to MMOAG - <b>200394</b>	0.55	3.14
AstroDon part - <b>MMOAG</b>	1.25	1.89
AstroDon part - <b>MMOAG-STL-M</b>	0.5	1.39
SLT Back Focus	1.39	0

STX camera and MMOAG		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	<b>0.37</b>	7.72
CCD Spacer 2.1 - <b>200361-2</b>	2.1	5.62
CCD SecureFit to MMOAG - <b>200394</b>	0.55	5.07
AstroDon part - <b>MMOAG</b>	1.25	3.82
AstroDon part - <b>MMOAG-STL-M</b>	0.5	3.32
Filter Wheel, FW8	1.93	1.39
SLX Back Focus	1.39	0

**PLANEWAVE INSTRUMENTS**  
CDK14 SPACERS FOR STX CAMERAS & AO-X

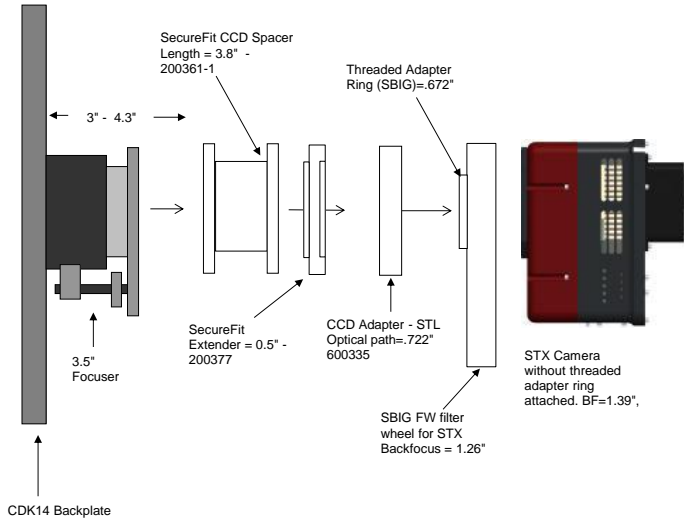


STX camera, AO-X, CFW		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.74	7.35
SecureFit Spacer- 200361-2	2.1	5.25
SecureFit 1/2" Spacer - 200377	0.5	4.75
CCD SecureFit to STL - 600335	0.722	4.03
AO-X	1.18	2.85
AO-X to FW Adapter	0.2	2.65
SBIG Filter Wheel	1.26	1.39
STX Back Focus	1.39	0.00

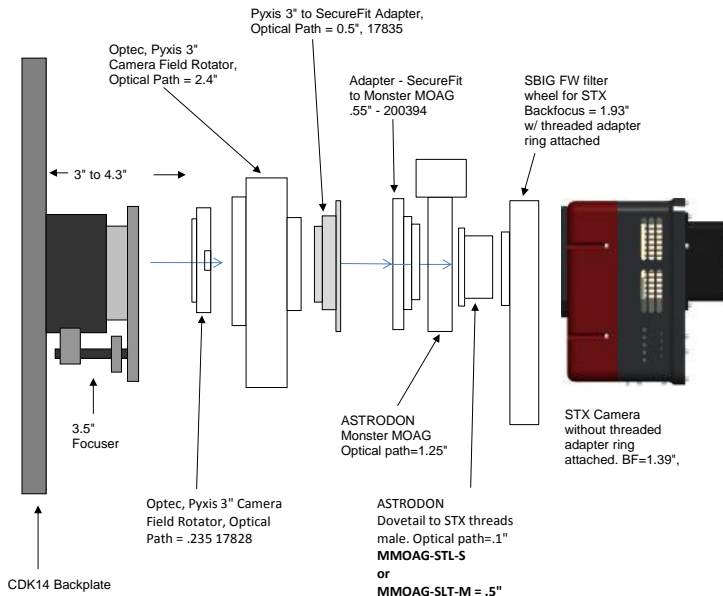
STX camera and MMOAG		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.76	7.33
Low profile adapters- 600327/328	0.5	6.83
SecureFit 1/2" Spacer - 200377	0.5	6.33
SecureFit to 3"-24 male (FLI and SBIG) - 200395-3	0.25	6.08
SBIG Flat Adapter (3"-24 female) - 600337	0.2	5.88
AO-X	1.18	4.7
SBIG Flat Adapter (3"-24 female) - 600337	0.2	4.5
MOAG-CWF-A	0.2	4.3
AstroDon part - MMOAG	1.25	3.05
MOAG-CWF-A	0.2	2.85
SBIG Flat Adapter (3"-24 female) - 600337	0.2	2.65
Filter Wheel, FW8	1.26	1.39
SLX Back Focus	1.39	0

**CDK14- OPTICAL TRAIN: for SBIG STX BODY, AND MMOAG**

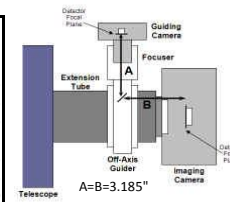
Distance to Focuser Mounting Surface 11.09



STX and FW		11.09 remaining BF
Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	<b>0.418</b>	7.672
SecureFit CCD Spacer - 200361-1	3.8	3.872
SecureFit Extender - 200377	0.5	3.372
CCD Adapter - STL - 600335	0.722	2.65
SBIG FW STX (w/ threaded adapter ring attached)	1.26	1.39
STX Camera	1.39	0

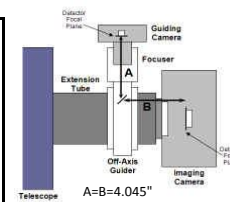


STL CCD, Pyxis & MMOAG		11.09 remaining BF
Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	<b>0.595</b>	7.495
PW 14/17/20 to Optec-3600 dovetail adapter - 1782	0.235	7.26
Optec Pyxis 3" Camera Rotator	2.4	4.86
Optec Pyxis 3" to SecureFit Adapter - 17835	0.5	4.36
Adapter SecureFit to Monster MOAG - 200394	0.55	3.81
Monster MOAG - MMOAG	1.25	2.56
AstroDon Adapter - MMOAG-SLT-M	0.5	2.06
SBIG STX Camera with threaded adapter ring attached	2.06	0

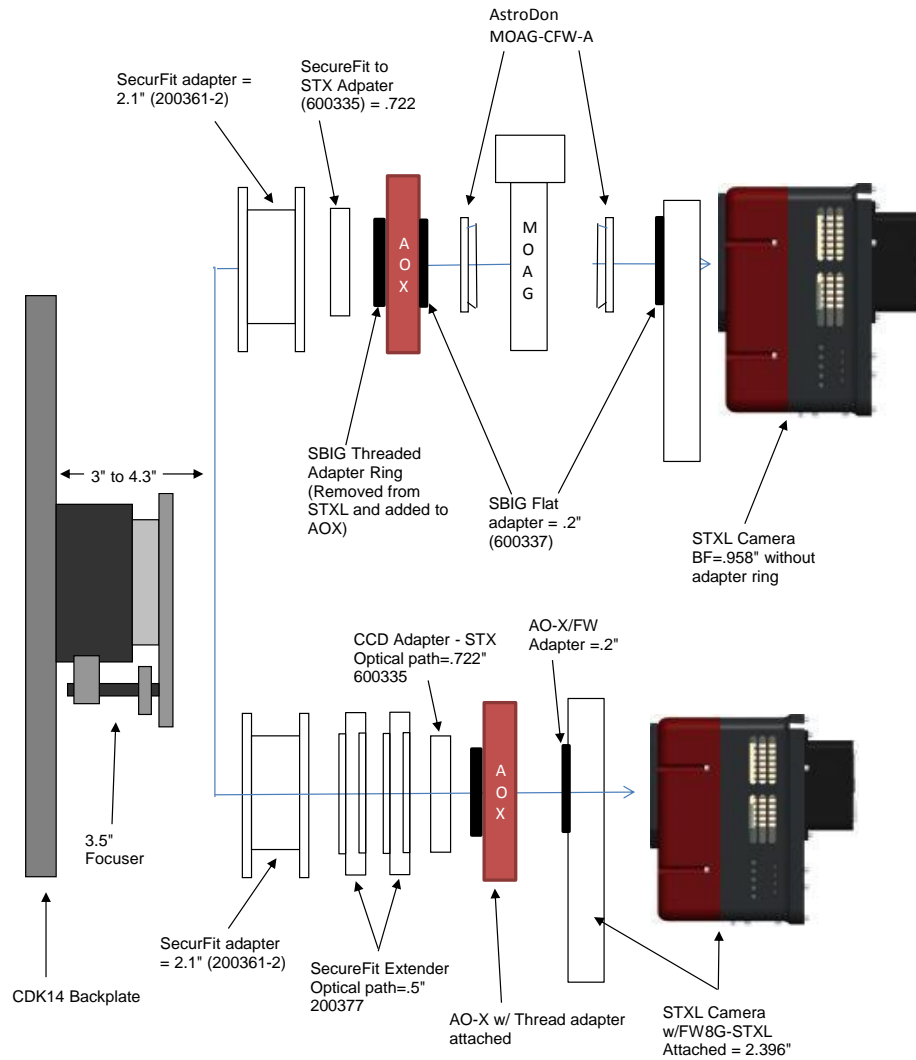


**Does not reach focus without the use of custom adapters**

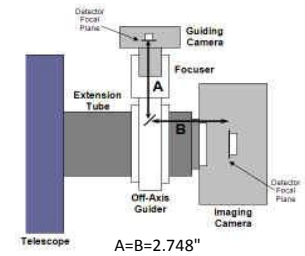
STL CCD, FW8, Pyxis & MMOAG		11.09 remaining BF
Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	<b>0</b>	8.09
PW 14/17/20 to Optec-3600 dovetail adapter - 1782	0.235	7.855
Optec Pyxis 3" Camera Rotator	2.4	5.455
Optec Pyxis 3" to SecureFit Adapter - 17835	0.5	4.955
Adapter SecureFit to Monster MOAG - 200394	0.55	4.405
Monster MOAG - MMOAG	1.25	3.155
AstroDon Adapter - MMOAG-SLT-M	0.1	3.055
SBIG FW8 Filter Wheel with threaded adapter ring attached	1.93	1.125
SBIG STX Camera without threaded adapter ring	1.39	<b>-0.265</b>



**PLANEWAVE INSTRUMENTS**  
CDK14 SPACERS FOR STXL CAMERAS

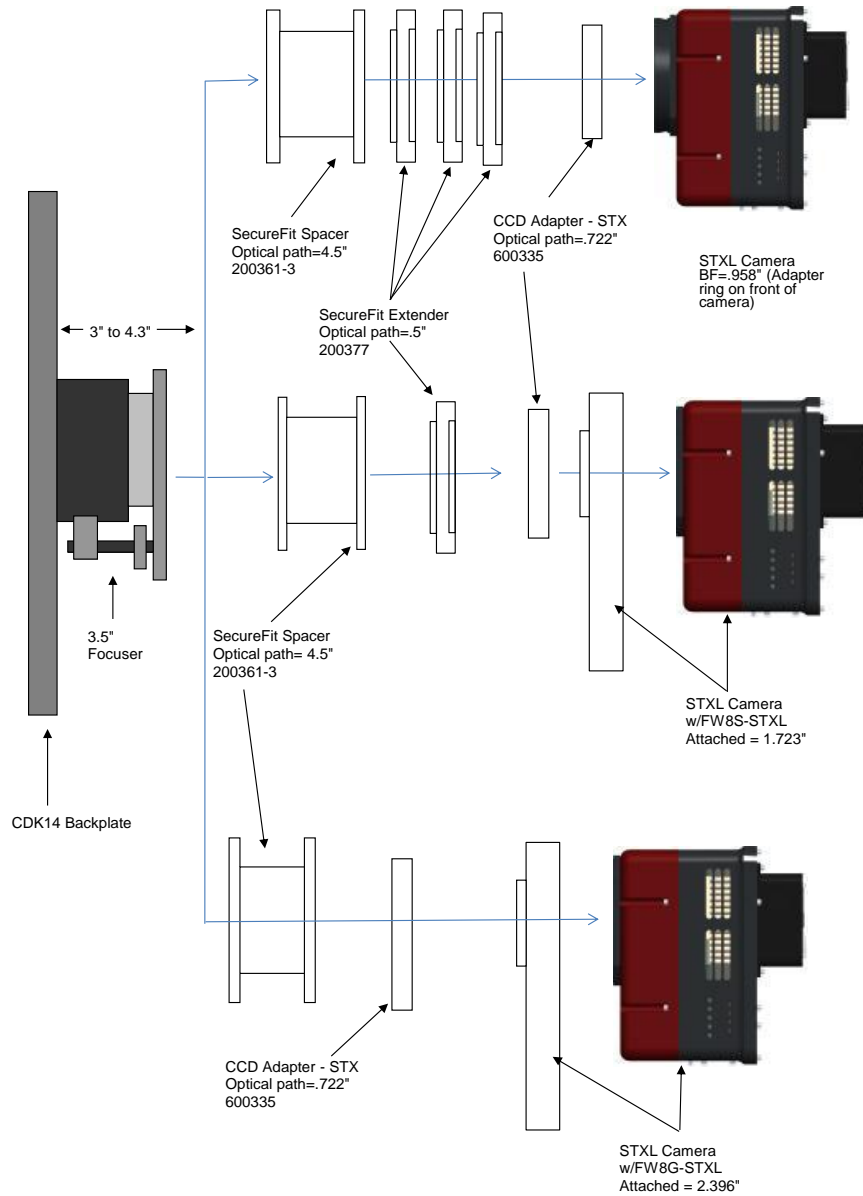


STXL camera w standard FW and MMOAG	11.09	remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.32	7.77
SecureFit CCD Spacer - 200361-2	2.1	5.67
CCD Adapter STX - 600335	0.722	4.95
AO-X	1.18	3.77
SBIG Flat Adapter (3"-24 female) - 600337	0.2	3.57
AstroDon MOAG-CFW-A	0.2	3.37
AstroDon - MMOAG	1.25	2.12
AstroDon MOAG-CFW-A	0.2	1.92
SBIG Flat Adapter (3"-24 female) - 600337	0.2	1.72
STXL w/filter wheel FW8S-STXL	1.723	0.00



STXL w/ Self Guiding FW	11.09	remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.492	7.598
SecureFit CCD Spacer - 200361-2	2.1	5.498
SecureFit Extender - 200377	0.5	4.998
SecureFit Extender - 200377	0.5	4.498
CCD Adapter STX - 600335	0.722	3.776
AO-X (w/ threaded adapter attached)	1.18	2.596
AO-X to FW adapter (SBIG)	0.2	2.396
STXL Camera w/FW8G-STXL Attached	2.396	0

PLANEWAVE INSTRUMENTS  
CDK14 SPACERS FOR STXL CAMERAS



STXL		11.09 remaining BF
Focuser (200340) racked in	3	8.09
Focuser position (0-1.3")	0.41	7.68
SecureFit CCD Spacer - 200361-3	4.5	3.18
CCD SecureFit Extender - 200377	0.5	2.68
CCD SecureFit Extender - 200377	0.5	2.18
CCD SecureFit Extender - 200377	0.5	1.68
CCD Adapter STX - 600335	0.722	0.958
STXL Back Focus w/ threaded adapter ring attached	0.958	0

STXL w/ Standard FW		11.09 remaining BF
Focuser (200340) racked in	3	8.09
Focuser position (0-1.3")	0.645	7.445
SecureFit CCD Spacer - 200361-3	4.5	2.945
SecureFit Extender - 200377	0.5	2.445
CCD Adapter STX - 600335	0.722	1.723
STXL Camera w/FW8S-STXL Attached	1.723	0

STXL w/ Standard FW & IRF0		11.09 remaining BF
Focuser (600180) racked in	3.5	7.59
Focuser position (0-1.3")	0.345	7.245
SecureFit CCD Spacer - 200361-3	3.8	3.445
SecureFit Extender - 200377	0.5	2.945
SecureFit Extender - 200377	0.5	2.445
CCD Adapter STX - 600335	0.722	1.723
STXL Camera w/FW8S-STXL Attached	1.723	0

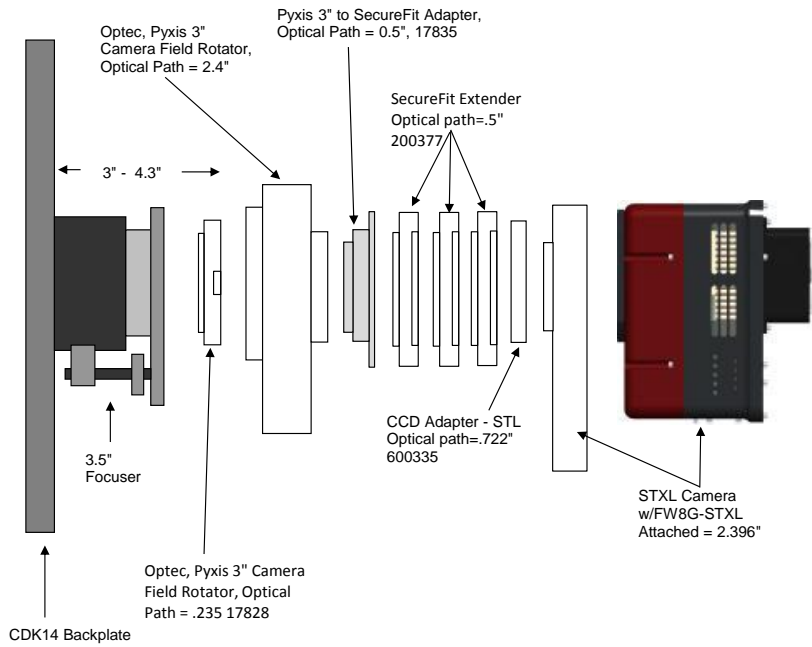
STXL w/ Self Guiding FW		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.472	7.618
SecureFit CCD Spacer - 200361-3	4.5	3.118
CCD Adapter STX - 600335	0.722	2.396
STXL Camera w/FW8G-STXL Attached	2.396	0

STXL w/ Self Guiding FW & IRF90		11.09 remaining BF
Focuser (600180) racked in	3.5	7.59
Focuser position (0-1.3")	0.672	6.918
SecureFit CCD Spacer - 200361-1	3.8	3.118
CCD Adapter STX - 600335	0.722	2.396
STXL Camera w/FW8G-STXL Attached	2.396	0

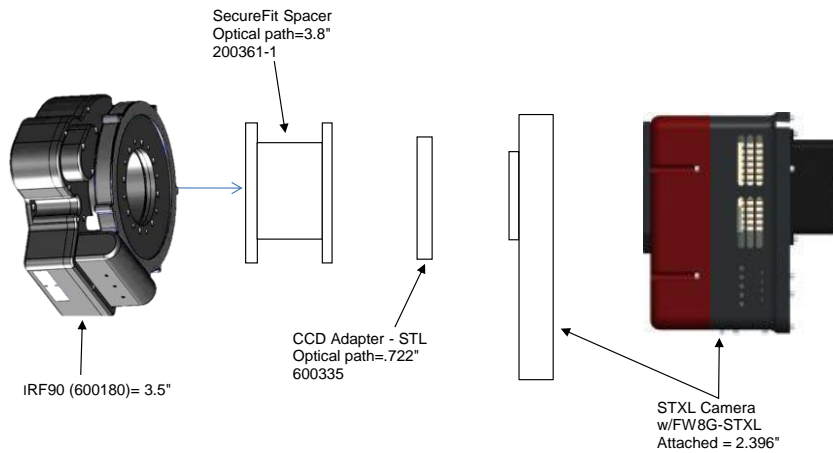


# CDK14- OPTICAL TRAIN: for SBIG STXL CAMERA & IMAGE ROTATORS

Distance to Focuser Mounting Surface 11.09



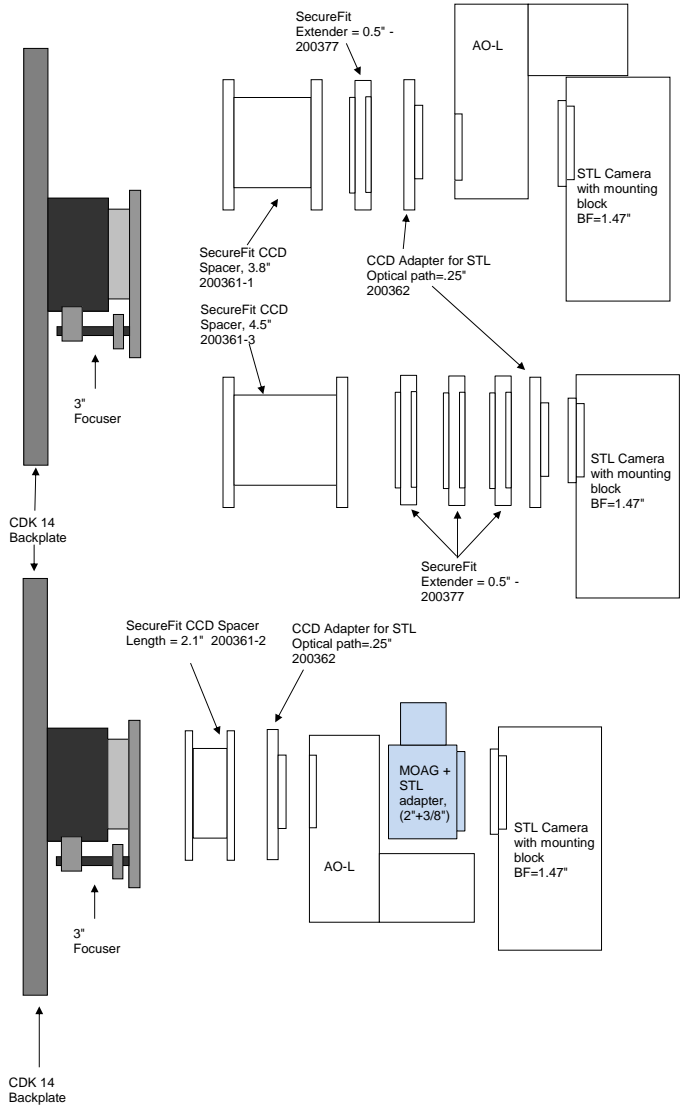
STXL, Self-Guiding FW, Pyxis	11.09	remaining BF
Focuser (racked in)	3	8.09
<b>Focus position (0 to 1.3")</b>	<b>0.337</b>	7.753
PW 14/17/20 to Optec-3600 dovetail adapter - 17828	0.235	7.518
Optec Pyxis 3" Camera Rotator	2.4	5.118
Optec Pyxis 3" to SecureFit Adapter - 17835	0.5	4.618
<b>SecureFit Spacer (200377)</b>	0.5	4.118
<b>SecureFit Spacer (200377)</b>	0.5	3.618
<b>SecureFit Spacer (200377)</b>	0.5	3.118
<b>CCD Adapter STX - 600335</b>	0.722	2.396
STXL Camera w/FW8G-STXL Attached	2.396	0



STXL, Self-Guiding FW, IRF90	11.09	remaining BF
IRF90 (600180)	3.5	7.59
<b>Focus position (0 to 1.3")</b>	<b>0.672</b>	6.918
<b>SecureFit adapter 200361-1</b>	3.8	3.118
<b>CCD Adapter STX - 600335</b>	0.722	2.396
STXL Camera w/FW8G-STXL Attached	2.396	0

**PLANEWAVE INSTRUMENTS**  
**SECUREFIT CCD SPACERS FOR STL CAMERAS**  
 for CDK14

← 11.09 →  
 Distance from focuser mounting surface to focal plane

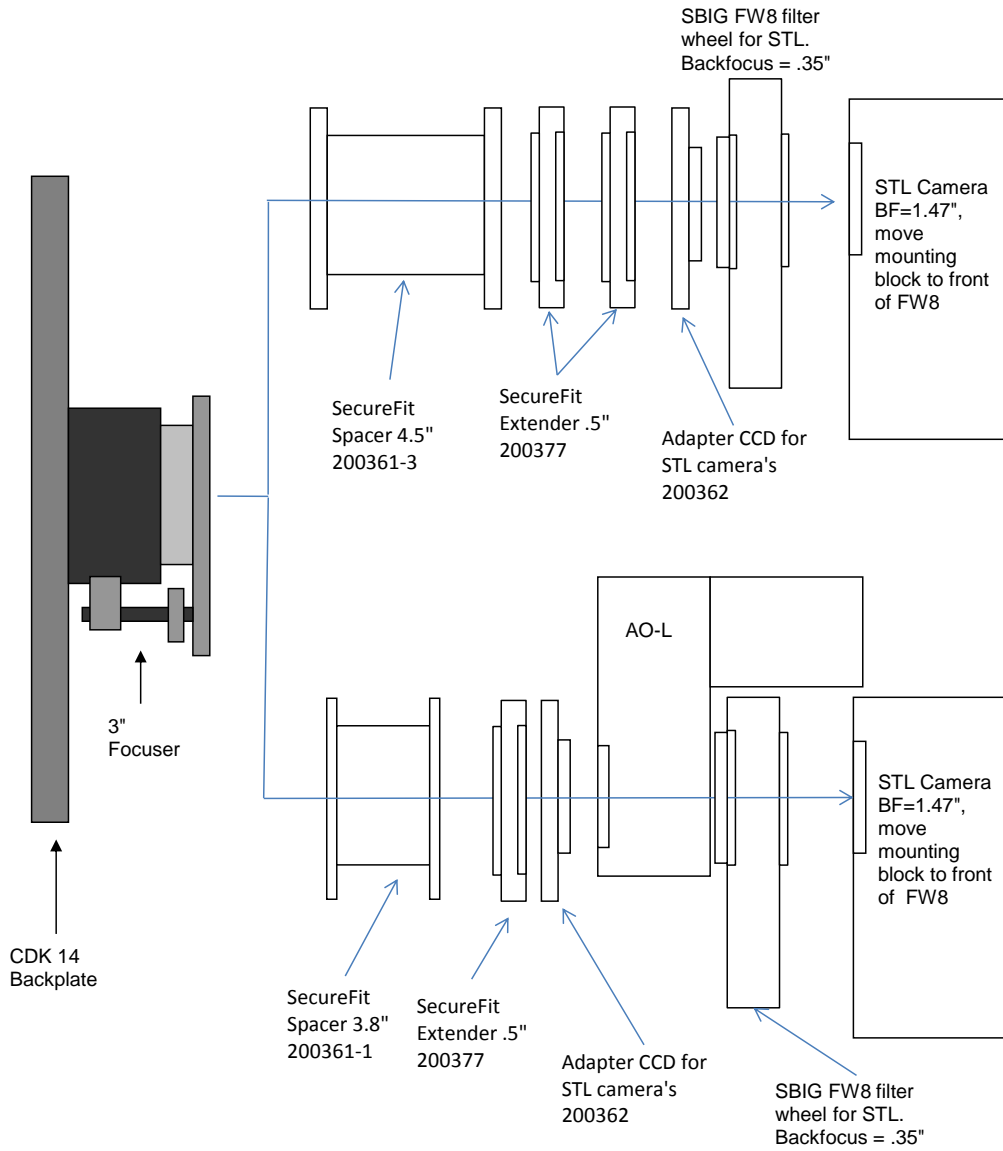


STL and AO-L required spacers	11.09 remaining BF	
Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	<b>0.58</b>	7.51
SecureFit CCD Spacer 3." - 200361-1	3.8	3.71
SecureFit Extender - 200377	0.5	3.21
CCD Adapter, STL - 200362	0.25	2.96
AO-L	1.49	1.47
STL Back Focus	1.47	0

STL Camera	11.09 remaining BF	
Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	<b>0.37</b>	7.72
SecureFit CCD Spacer 4.5" - 200361-3	4.5	3.22
SecureFit Extender - 200377	0.5	2.72
SecureFit Extender - 200377	0.5	2.22
SecureFit Extender - 200377	0.5	1.72
CCD Adapter, STL - 200362	0.25	1.47
STL Back Focus	1.47	0

STL, AO-L and MOAG	11.09 remaining BF	
Focuser (racked in)	3	8.09
Focus position (0 to 1.3")	<b>0.366</b>	7.724
SecureFit CCD Spacer - 200361-2	2.1	5.624
CCD Adapter, STL - 200362	0.25	5.374
AO-L	1.49	3.884
MOAG from Astrodon (2" of backfocus)	2	1.884
MOAG to SLT Adapter (3/8")	0.375	1.509
STL Back Focus	1.509	0

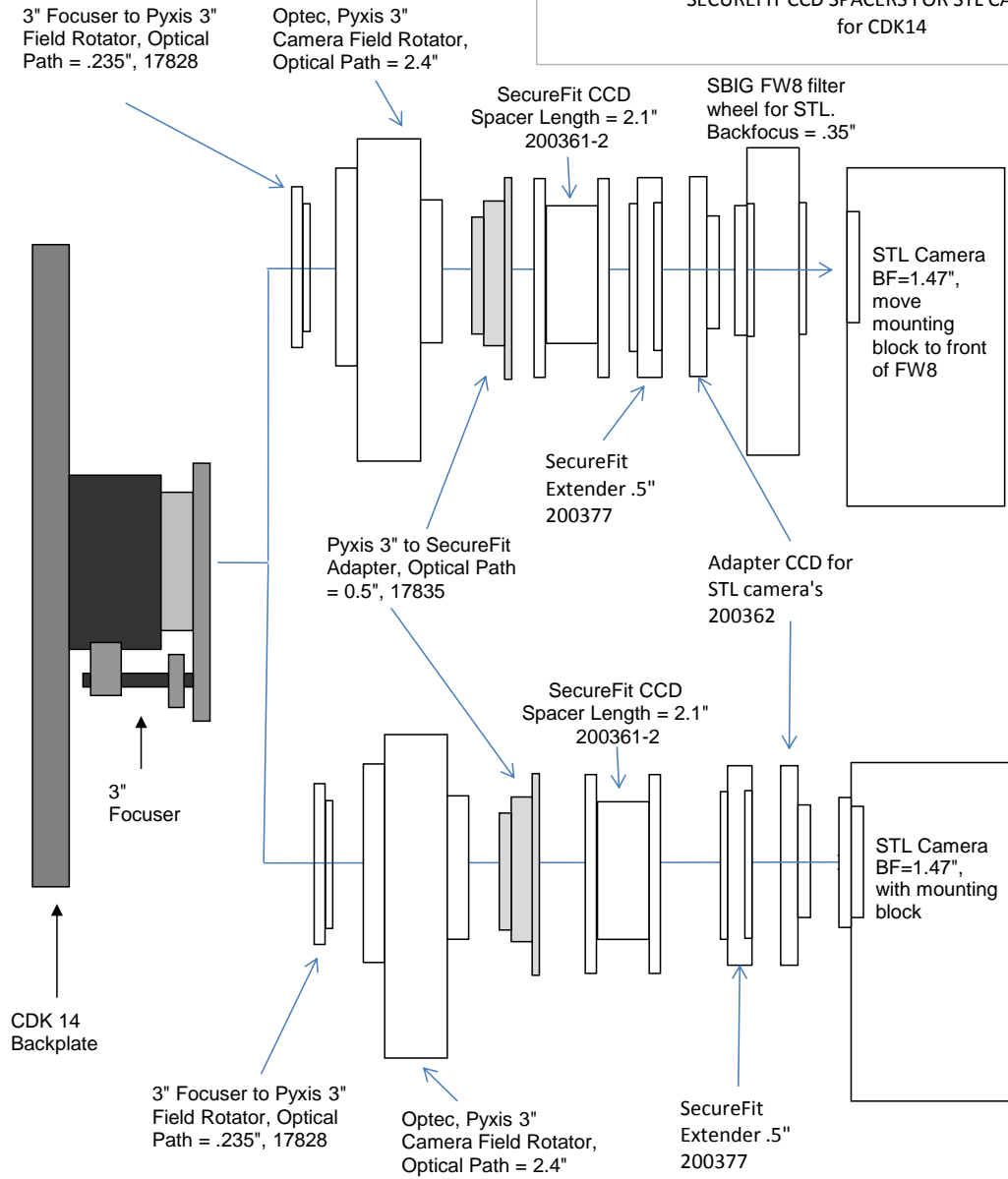
**PLANEWAVE INSTRUMENTS**  
**SECUREFIT CCD SPACERS FOR STL CAMERAS**  
for CDK14



<b>STL w/ FW8</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focus position (0 to 1.3")	<b>0.52</b>	7.57
SecureFit CCD Spacer 4.4" - <b>200361-3</b>	4.5	3.07
SecureFit CCD Extender .5" - <b>200377</b>	0.5	2.57
SecureFit CCD Extender .5" - <b>200377</b>	0.5	2.07
CCD Adapter, STL - <b>200362</b>	0.25	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

<b>STL + FW8 + AO-L</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focus position (0 to 1.3")	<b>0.23</b>	7.86
SecureFit CCD Spacer 3.8" - <b>200361-1</b>	<b>3.8</b>	4.06
SecureFit CCD Extender .5" - <b>200377</b>	0.5	3.56
CCD Adapter, STL - <b>200362</b>	0.25	3.31
AO-L	1.49	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

**PLANEWAVE INSTRUMENTS**  
**SECUREFIT CCD SPACERS FOR STL CAMERAS**  
 for CDK14



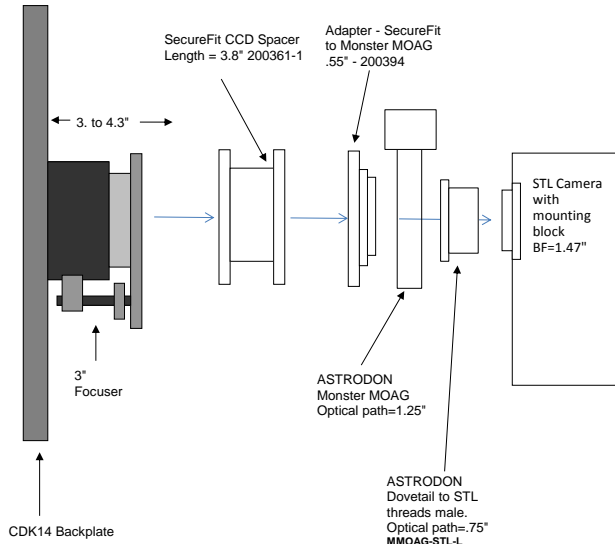
<b>STL w/ FW8</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focus position (0 to 1.3")	<b>0.285</b>	7.805
3" Focuser to Pyxis Rotator - <b>17828</b>	0.235	7.57
Optec Pyxis 3" Rotator - <b>PYXIS 3</b>	2.4	5.17
Pyxis Rotator to SecureFit - <b>17835</b>	0.5	4.67
SecureFit CCD Adapter - <b>200361-2</b>	2.1	2.57
Securefit Extender - <b>200377</b>	0.5	2.07
CCD Adapter, STL - <b>200362</b>	0.25	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

<b>STL + Pyxis</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focus position (0 to 1.3")	<b>0.635</b>	7.455
3" Focuser to Pyxis Rotator - <b>17828</b>	0.235	7.22
Optec Pyxis 3" Rotator - <b>PYXIS 3</b>	2.4	4.82
Pyxis Rotator to SecureFit - <b>17835</b>	0.5	4.32
SecureFit CCD Adapter - <b>200361-2</b>	2.1	2.22
SecureFit CCD Extender .5" - <b>200377</b>	<b>0.5</b>	1.72
CCD Adapter, STL - <b>200362</b>	0.25	1.47
SLT Back Focus	1.47	0

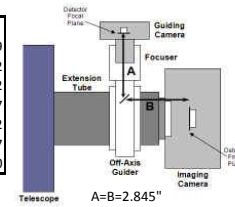
# CDK14 - OPTICAL TRAIN: for SBIG STL BODY, AND MMOAG

Distance to Focuser Mounting Surface

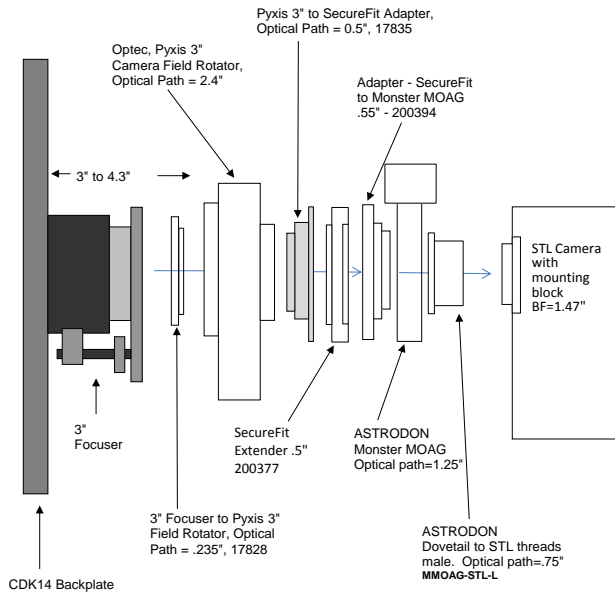
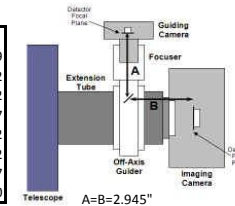
11.09



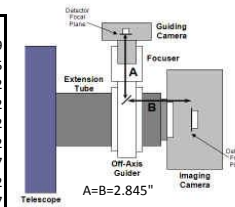
STL CCD & MMOAG		11.09	remaining BF
Focuser (racked in)		3	8.09
<b>Focus position (0 to 1.3")</b>	<b>0.27</b>		7.82
SecureFit CCD Spacer - <b>200361-1</b>		3.8	4.02
Adapter SecureFit to Monster MOAG - <b>200394</b>		0.55	3.47
Monster MOAG - <b>MMOAG</b>		1.25	2.22
AstroDon Adapter - <b>MMOAG-STL-L</b>		0.75	1.47
SBIG STL Camera with mounting block		1.47	0



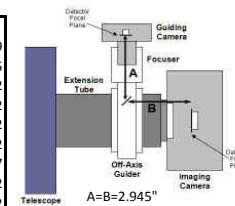
STL CCD, FW8 FILTER WHEEL & MMOAG		11.09	remaining BF
Focuser (racked in)		3	8.09
<b>Focus position (0 to 1.3")</b>	<b>0.17</b>		7.92
SecureFit CCD Spacer - <b>200361-2</b>		3.8	4.12
Adapter SecureFit to Monster MOAG - <b>200394</b>		0.55	3.57
Monster MOAG - <b>MMOAG</b>		1.25	2.32
AstroDon Adapter - <b>MMOAG-STL-M</b>		0.5	1.82
SBIG FW8 Filter Wheel		0.35	1.47
SBIG STL Camera with mounting block		1.47	0



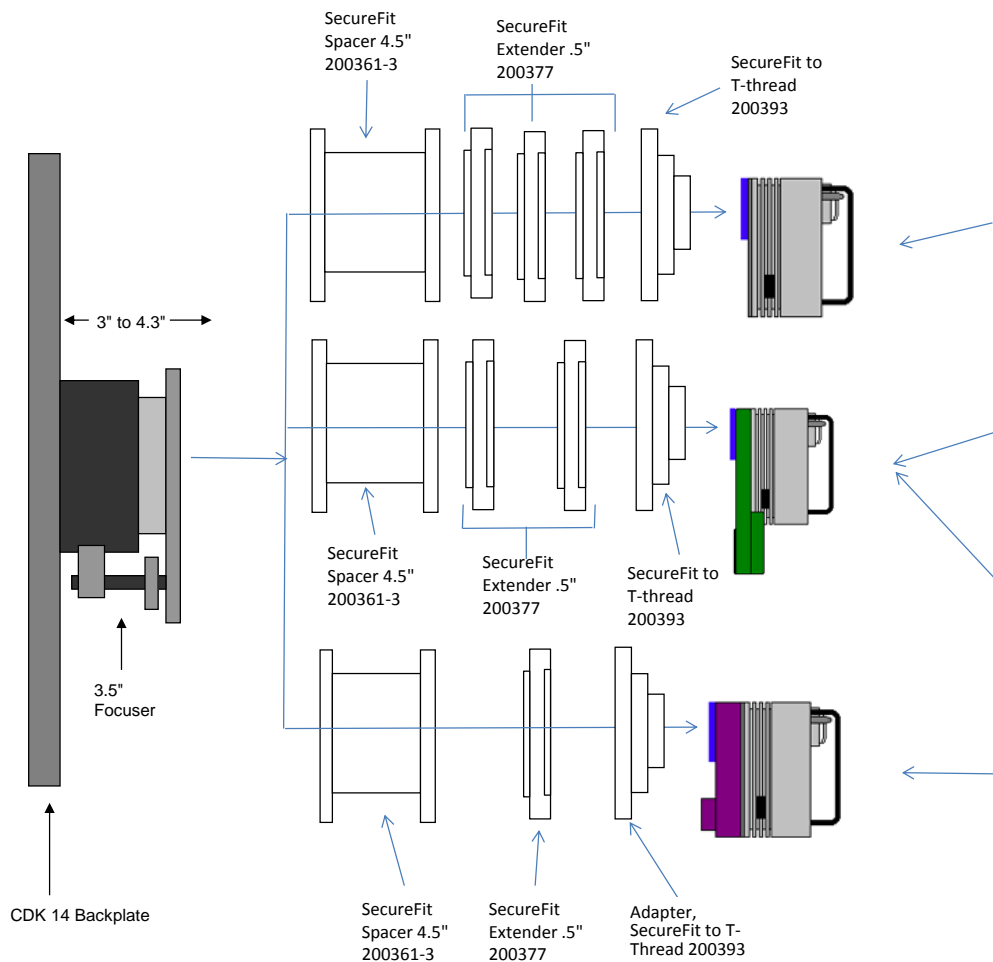
STL CCD, Pyxis & MMOAG		11.09	remaining BF
Focuser (racked in)		3	8.09
<b>Focus position (0 to 1.3")</b>	<b>0.435</b>		7.655
3" Focuser to Pyxis Rotator - <b>17828</b>		0.235	7.42
Optec Pyxis 3" Camera Rotator		2.4	5.02
Optec Pyxis 3" to SecureFit Adapter - <b>17835</b>		0.5	4.52
SecureFit Extender - <b>200377</b>		0.5	4.02
Adapter SecureFit to Monster MOAG - <b>200394</b>		0.55	3.47
Monster MOAG - <b>MMOAG</b>		1.25	2.22
AstroDon Adapter - <b>MMOAG-STL-L</b>		0.75	1.47
SBIG STL Camera with mounting block		1.47	0



STL CCD, FW8, Pyxis & MMOAG		11.09	remaining BF
Focuser (racked in)		3	8.09
<b>Focus position (0 to 1.3")</b>	<b>0.335</b>		7.755
3" Focuser to Pyxis Rotator - <b>17828</b>		0.235	7.52
Optec Pyxis 3" Camera Rotator		2.4	5.12
Optec Pyxis 3" to SecureFit Adapter - <b>17835</b>		0.5	4.62
SecureFit Extender - <b>200377</b>		0.5	4.12
Adapter SecureFit to Monster MOAG - <b>200394</b>		0.55	3.57
Monster MOAG - <b>MMOAG</b>		1.25	2.32
AstroDon Adapter - <b>MMOAG-STL-M</b>		0.5	1.82
SBIG FW8 Filter Wheel		0.35	1.47
SBIG STL Camera with mounting block		1.47	0



**PLANEWAVE INSTRUMENTS**  
CDK14 SECUREFIT CCD SPACERS FOR ST CAMERAS



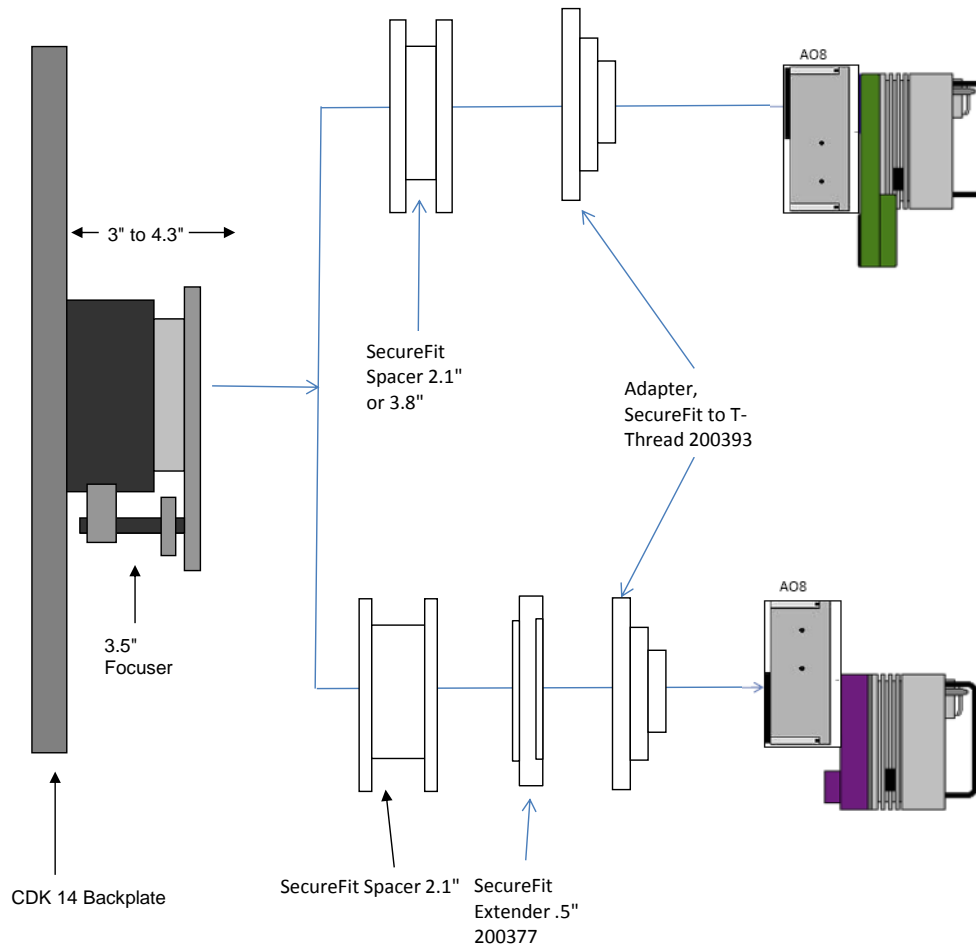
<b>SecureFit w/ ST</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focuser Position (0 - 1.3")	0.528	7.562
SecureFit 4.5 - 200361-3	4.5	3.062
CCD SecureFit Extender - 200377	0.5	2.562
CCD SecureFit Extender - 200377	0.5	2.062
CCD SecureFit Extender - 200377	0.5	1.562
Adapter, SecureFit to T thread - 200393	0.55	1.012
ST Back Focus (with D-block)	1.012	0

<b>SecureFit with ST and CFW10</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focuser Position (0 - 1.3")	0.448	7.642
SecureFit 4.5 - 200361-3	4.5	3.142
SecureFit Extender - 200377	0.5	2.642
SecureFit Extender - 200377	0.5	2.142
Adapter, SecureFit to T thread - 200393	0.55	1.592
ST w/ CFW10 Back Focus (with D-block)	1.592	0

<b>SecureFit with ST and CFW10SA</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focuser Position (0 - 1.3")	0.73	7.36
SecureFit 4.5 - 200361-3	4.5	2.86
SecureFit Extender - 200377	0.5	2.36
Adapter, SecureFit to T thread - 200393	0.55	1.81
ST w/ CFW10 Back Focus, (w/ D-block)	1.81	0

<b>SecureFit with ST and CFW8</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focuser Position (0 - 1.3")	0.528	7.562
SecureFit 4.5 - 200361-3	4.5	3.062
SecureFit Extender - 200377	0.5	2.562
Adapter, SecureFit to T thread - 200393	0.55	2.012
ST w/ CFW8 Back Focus, (w/ D-block)	2.012	0

**PLANEWAVE INSTRUMENTS**  
CDK14 SECUREFIT CCD SPACERS FOR ST CAMERAS

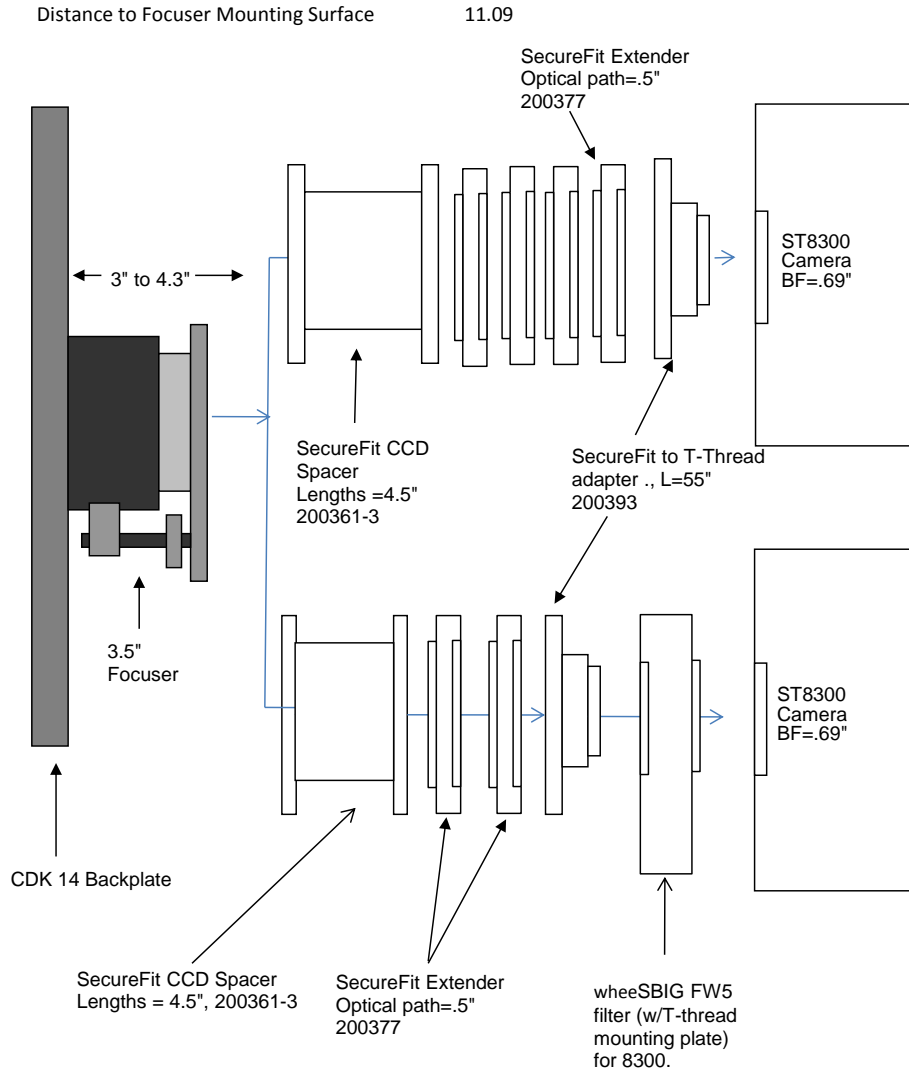


<b>SecureFit with ST, CFW10, &amp; AO-8</b>	11.09 remaining BF	
Focuser racked in	3	8.09
Focuser Position (0 - 1.3")	0.248	7.842
SecureFit Spacer 2.1 - 200361-2	3.8	4.042
Adapter, SecureFit to T thread - 200393	0.55	3.492
AO-8, 1.9" of backfocus + .27 for D-block	2.17	1.322
ST w/ CFW10 Back Focus (w/o D-block)	1.322	0

<b>SecureFit with ST and CFW10SA</b>	11.09 remaining BF	
Focuser racked in	3	8.09
Focuser Position (0 - 1.3")	0.73	7.36
SecureFit Spacer 4.5 - 200361-3	4.5	2.86
SecureFit Extender - 200377	0.5	2.36
Adapter, SecureFit to T thread - 200393	0.55	1.81
ST w/ CFW10 Back Focus, (w/ D-block)	1.81	0

<b>SecureFit with ST, CFW8, &amp; AO-8</b>	11.09 remaining BF	
Focuser racked in	3	8.09
Focuser Position (0 - 1.3")	0.758	7.332
SecureFit Spacer 2.1 - 200361-2	2.1	5.232
SecureFit Extender - 200377	0.5	4.732
Adapter, SecureFit to T thread - 200393	0.55	4.182
AO-8, 1.9" of backfocus + .27 for D-block	2.17	2.012
ST w/ CFW8 Back Focus, (w/ D-block)	2.012	0

**PLANEWAVE INSTRUMENTS**  
CDK14 SECUREFIT SPACERS FOR ST8300 CAMERAS

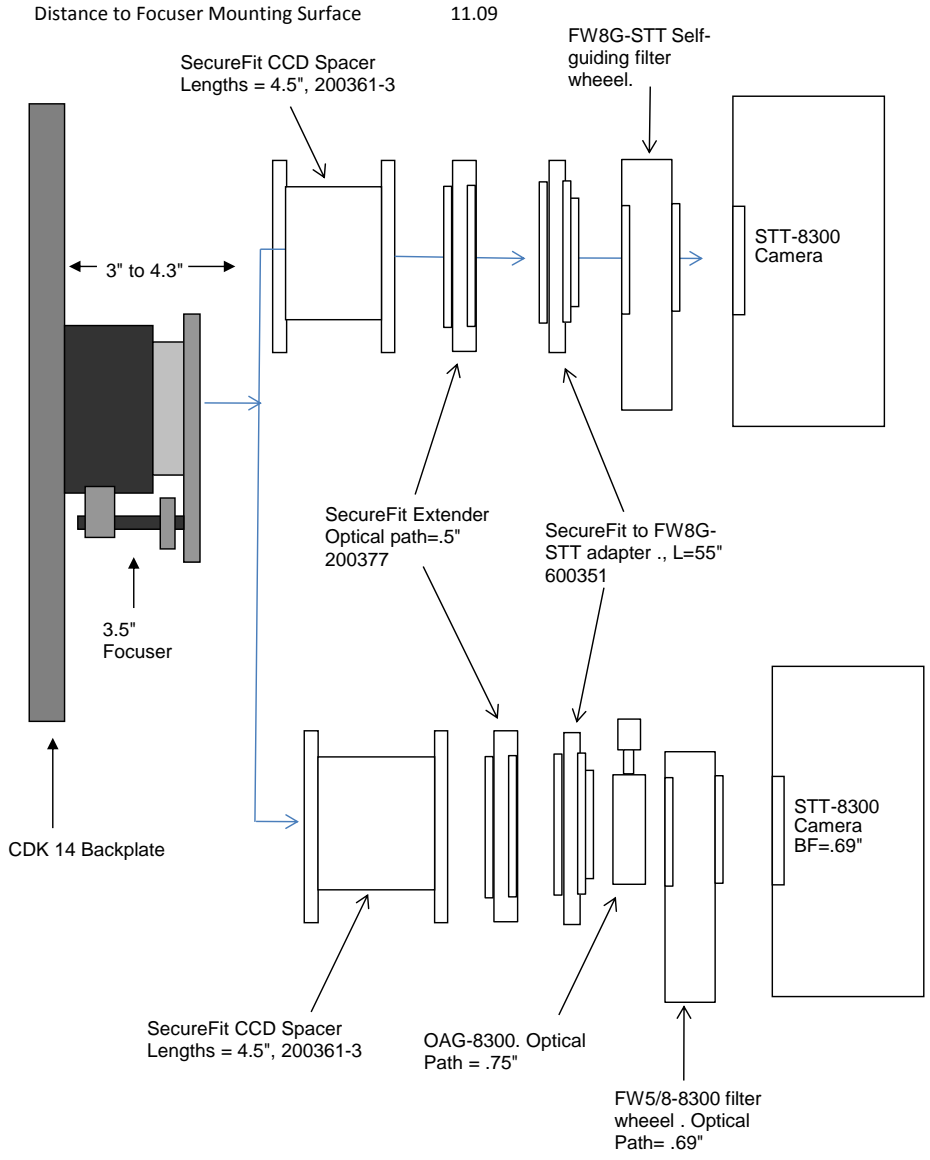


<b>ST8300 Camera Alone</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.35	7.74
CCD Spacer 4.5- <b>200361-3</b>	<b>4.5</b>	3.24
CCD SecureFit Extender - <b>200377</b>	0.5	2.74
CCD SecureFit Extender - <b>200377</b>	0.5	2.24
CCD SecureFit Extender - <b>200377</b>	0.5	1.74
SecureFit to T-Thread - <b>200393</b>	0.55	1.24
SLT Back Focus	0.69	0

<b>ST8300 Camera FW8 or FW5 for 8300</b>		11.09 remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.56	7.53
CCD Spacer 3.8 - <b>200361-1</b>	<b>4.5</b>	3.03
CCD SecureFit Extender - <b>200377</b>	0.5	2.53
CCD SecureFit Extender - <b>200377</b>	0.5	2.03
SecureFit to T-Thread - <b>200393</b>	0.55	1.48
FW5 or 8 for 8300, Back Focus = .79"	0.79	0.69
SLT Back Focus	0.69	0



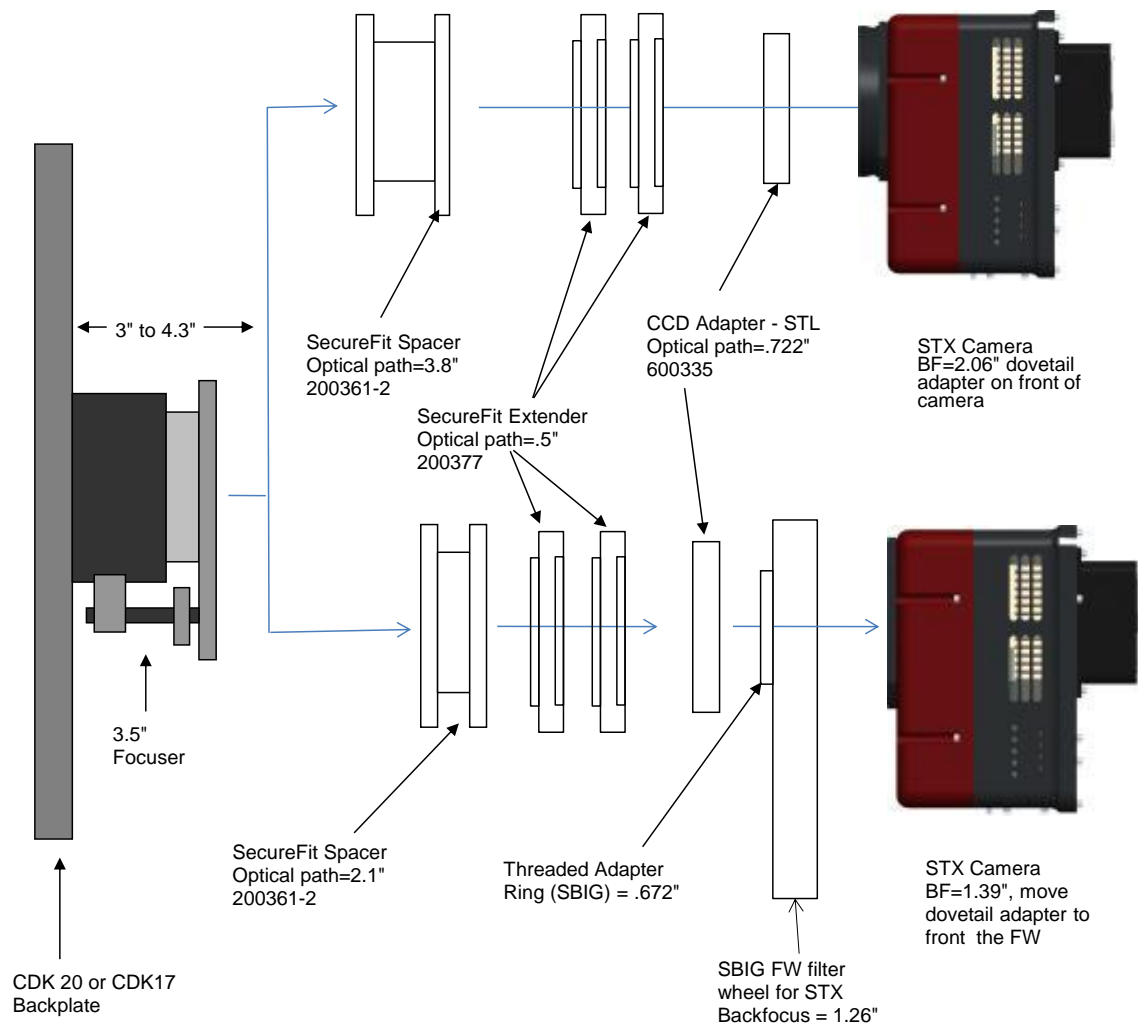
**PLANEWAVE INSTRUMENTS**  
CDK14 SECUREFIT SPACERS FOR STT CAMERAS



<b>STT8300 Camera w/ Self Guiding Filter Wheel</b>	11.09	remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.412	7.678
SecureFit Spacer 4.5- <b>200361-3</b>	4.5	3.178
CCD SecureFit Extender - <b>200377</b>	0.5	2.678
SecureFit to FW8G-STT - <b>600351</b>	0.55	2.128
FW8G-SST attached to STT-8300 Camera	2.128	0

<b>STT8300 Camera w/Filter Wheel, OAG8300</b>	11.09	remaining BF
Focuser racked in	3	8.09
Focuser position (0-1.3")	0.31	7.78
SecureFit Spacer 4.5- <b>200361-3</b>	4.5	3.28
CCD SecureFit Extender - <b>200377</b>	0.5	2.78
SecureFit to FW8G-STT - <b>600351</b>	0.55	2.23
OAG-8300	0.75	1.48
FW5-8300 / FW8-8300	0.79	0.69
STT-8300 Camera	0.69	0

PLANEWAVE INSTRUMENTS  
CDK17 SPACERS FOR STX CAMERAS

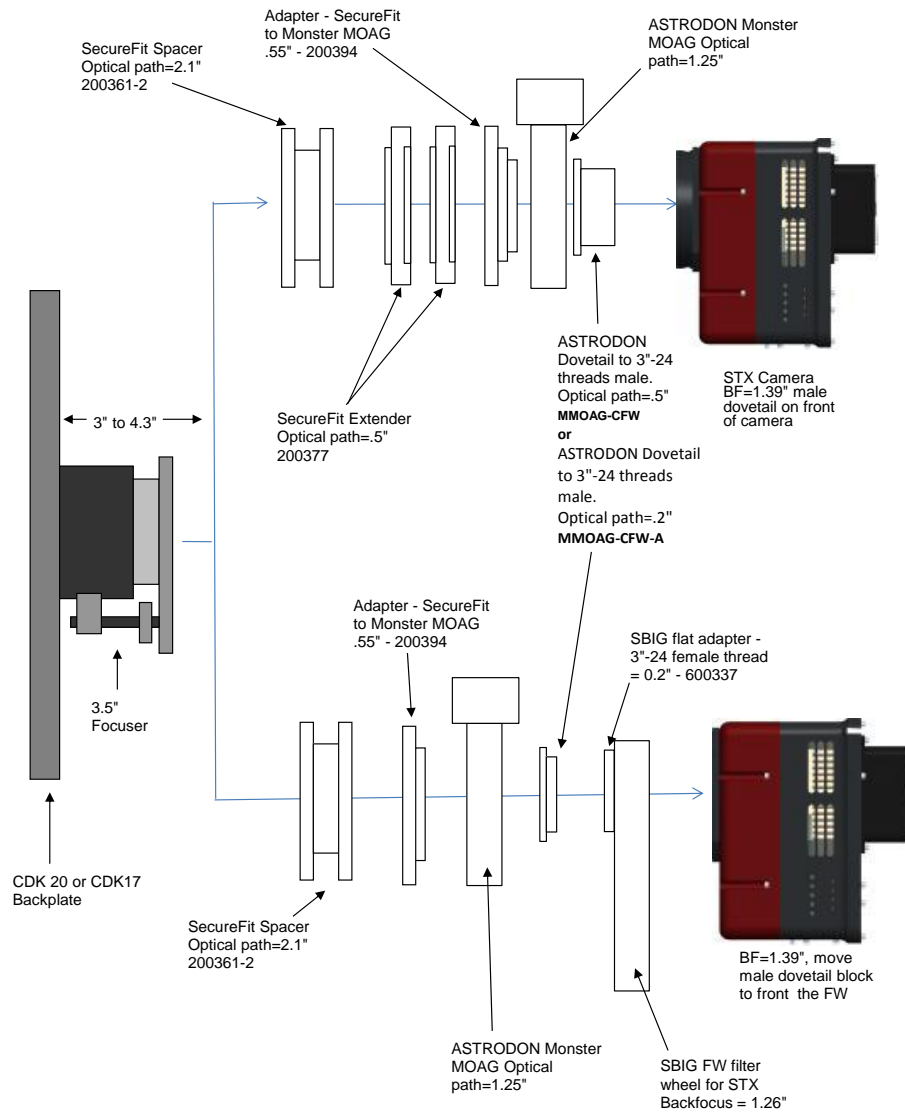


STX	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3") 200340	0.328	6.912
CCD Spacer 3.8" - 200361-1	3.8	3.112
CCD SecureFit Extender - 200377	0.5	2.612
CCD SecureFit Extender - 200377	0.5	2.112
CCD Adapter STX - 600335	0.722	1.39
STX Back Focus w/threaded adapter ring attached	1.39	0

STX w/ IRF90	10.24	remaining BF
IR90 (raked in) 600180	3.5	6.74
Focus Position (0-1.3")	0.328	6.412
SecureFit 3.8" Adapter - 200361-1	3.8	2.612
SecureFit CCD Extender - 200377	0.5	2.112
CCD Adapter STX - 600335	0.722	1.39
SBIG STX 16803	1.39	0

STX w/ FW	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.768	6.472
CCD Spacer 2.1 - 200361-2	2.1	4.372
SecureFit Extender - 200377	0.5	3.872
SecureFit Extender - 200377	0.5	3.372
CCD Adapter STX - 600335	0.722	2.65
Filter Wheel w/threaded adapter ring attached	1.26	1.39
STX Back Focus	1.39	0

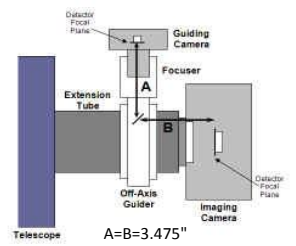
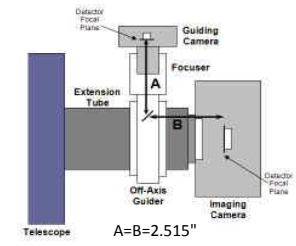
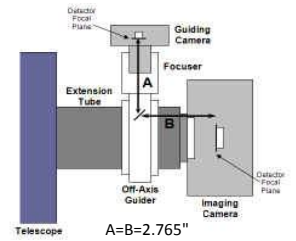
**PLANEWAVE INSTRUMENTS**  
CDK17 SPACERS FOR STX CAMERAS



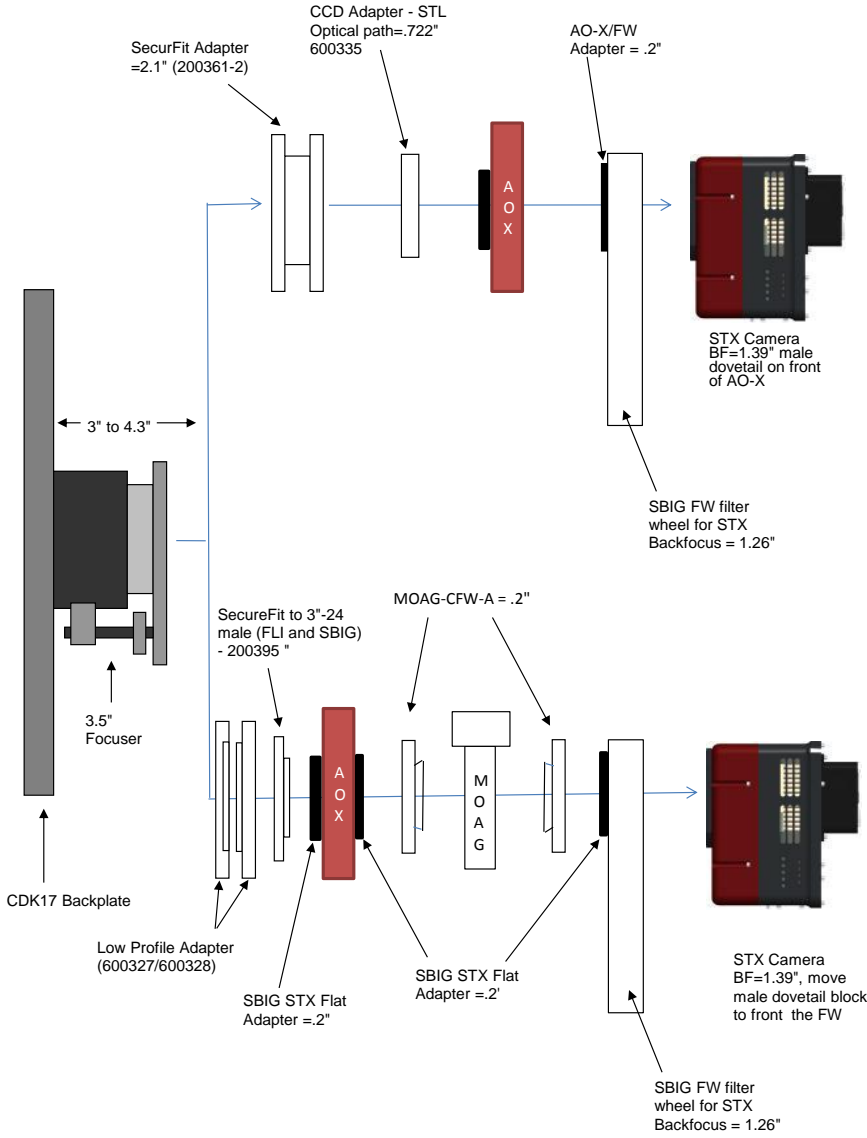
STX camera and MMOAG			10.24 remaining BF
Focuser racked in	3		7.24
Focuser position (0-1.3")	0.7		6.54
CCD Spacer 2.1 - 200361-2	2.1		4.44
SecureFit 1/2" Spacer - 200377	0.5		3.94
CCD SecureFit to MMOAG - 200394	0.55		3.39
Monster MOAG	1.25		2.14
MMOAG-STL-L	0.75		1.39
STX Back Focus	1.39		0

STX camera and MMOAG			10.24 remaining BF
Focuser racked in	3		7.24
Focuser position (0-1.3")	0.45		6.79
CCD Spacer 2.1 - 200361-2	2.1		4.69
SecureFit 1/2" Spacer - 200377	0.5		4.19
SecureFit 1/2" Spacer - 200377	0.5		3.69
CCD SecureFit to MMOAG - 200394	0.55		3.14
Monster MOAG	1.25		1.89
MMOAG-CFW	0.5		1.39
SLT Back Focus	1.39		0

STX camera and MMOAG			10.24 remaining BF
Focuser racked in	3		7.24
Focuser position (0-1.3")	0.29		6.95
CCD Spacer 2.1 - 200361-2	2.1		4.85
CCD SecureFit to MMOAG - 200394	0.55		4.3
AstroDon part - MMOAG	1.25		3.05
AstroDon part - MMOAG-CFW-A	0.2		2.85
SBIG Flat Adapter - 600337	0.2		2.65
Filter Wheel, FW8	1.26		1.39
SLX Back Focus	1.39		0

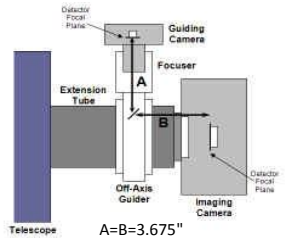


**PLANEWAVE INSTRUMENTS**  
CDK17 SPACERS FOR STX CAMERAS

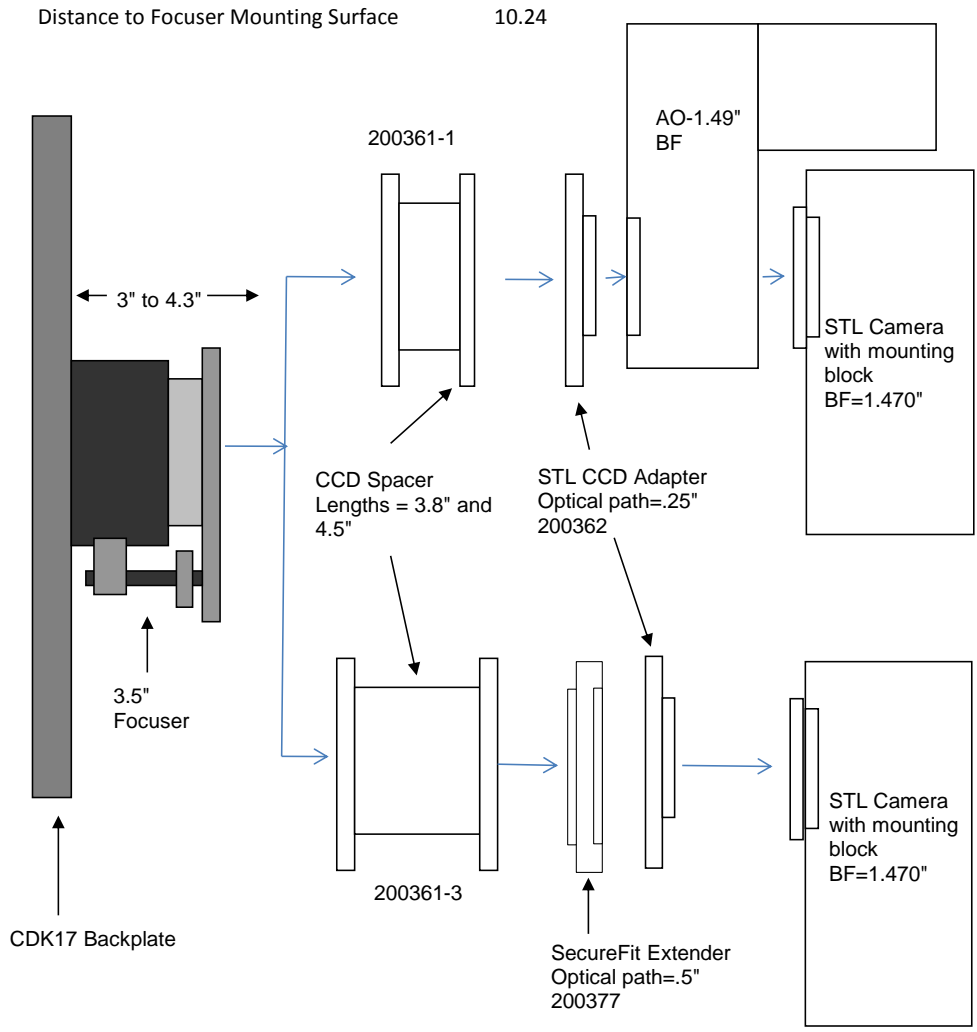


STX camera, AO-X, CFW		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.388	6.852
SecureFit adapter (200361-2)	2.1	4.752
CCD SecureFit to STL - 600335	0.722	4.03
AO-X (w/ threaded adapter attached)	1.18	2.85
AO-X to FW adapter (SBIG)	0.2	2.65
SBIG Filter Wheel (w/.2" adapter)	1.26	1.39
STX Back Focus	1.39	0

STX camera and MMOAG		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.41	6.83
Low profile adapters- 600327/328	0.5	6.33
SecureFit to 3"-24 male (FLI and SBIG) - 200395-3	0.25	6.08
SBIG Flat Adapter (3"-24 female) - 600337	0.2	5.88
AO-X	1.18	4.7
SBIG Flat Adapter (3"-24 female) - 600337	0.2	4.5
MOAG-CWF-A	0.2	4.3
AstroDon part - MMOAG	1.25	3.05
MOAG-CWF-A	0.2	2.85
SBIG Flat Adapter (3"-24 female) - 600337	0.2	2.65
Filter Wheel, FW8	1.26	1.39
SLX Back Focus	1.39	0



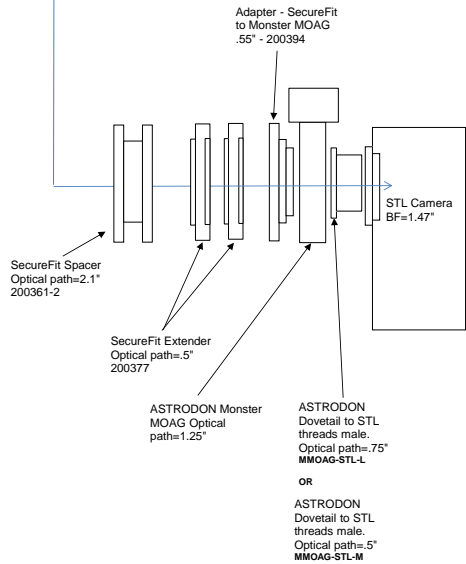
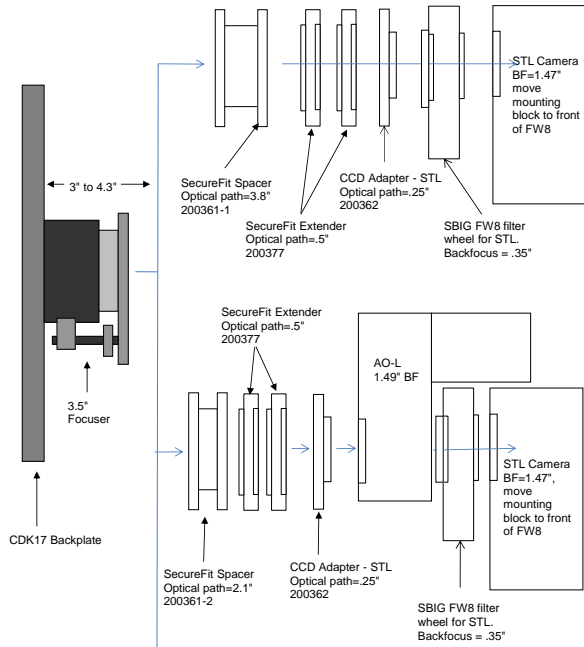
**PLANEWAVE INSTRUMENTS**  
CDK17 SECUREFIT SPACERS FOR STL CAMERAS



<b>STL and AO-L</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.23	7.01
CCD Spacer 3.8 - 200361-1	3.8	3.21
CCD Adapter STL - 200362	0.25	2.96
AO-L	1.49	1.47
STL Back Focus	1.47	0

<b>STL Camera Alone</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.52	6.72
CCD Spacer 4.5" - 200361-3	4.5	2.22
CCD SecureFit Extender - 200377	0.5	1.72
CCD Adapter STL - 200362	0.25	1.47
SLT Back Focus	1.47	0

PLANEWAVE INSTRUMENTS  
CDK 17 SPACERS FOR STL CAMERAS



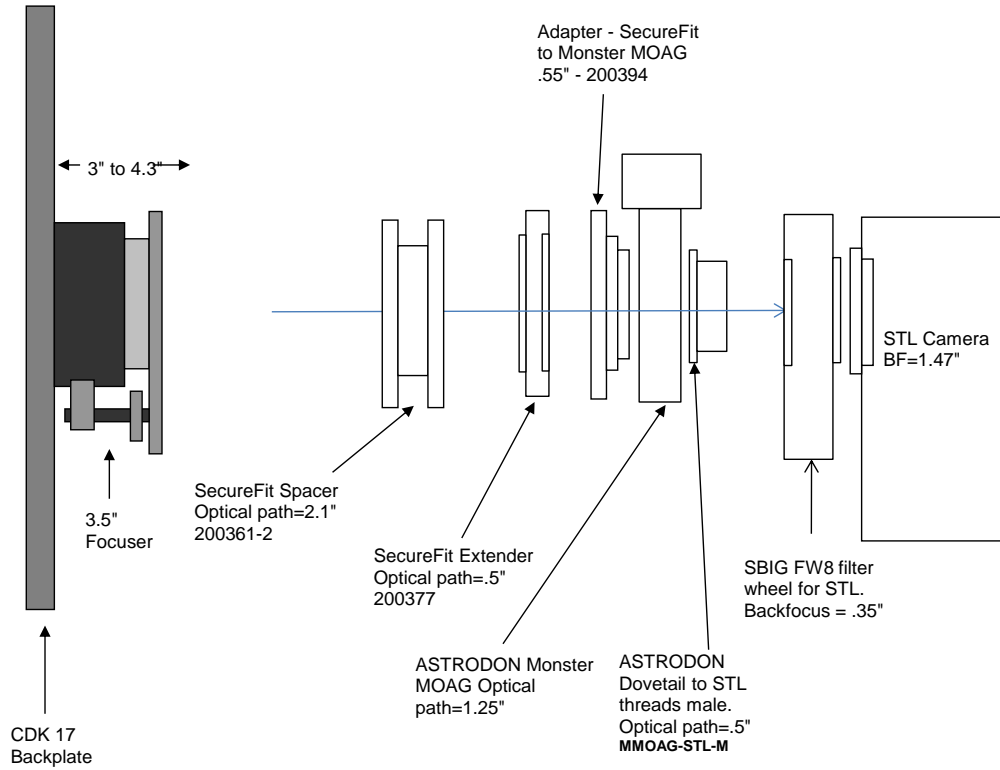
STL w/ FW8	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3')	0.37	6.87
CCD Spacer 3.8" - 200361-1	3.8	3.07
CCD SecureFit Extender - 200377	0.5	2.57
CCD SecureFit Extender - 200377	0.5	2.07
CCD Adapter STL - 200362	0.25	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

STL w/ FW8 and AO-L	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3')	0.58	6.66
CCD Spacer 2.1 - 200361-2	2.1	4.56
CCD SecureFit Extender - 200377	0.5	4.06
CCD SecureFit Extender - 200377	0.5	3.56
CCD Adapter STL - 200362	0.25	3.31
AO-L	1.49	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

STL camera and MMOAG	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3')	0.62	6.62
CCD Spacer 2.1 - 200361-2	2.1	4.52
SecureFit 1/2" Spacer - 200377	0.5	4.02
CCD SecureFit to MMOAG - 200394	0.55	3.47
Monster MMOAG	1.25	2.22
MMOAG-STL-L	0.75	1.47
SLT Back Focus	1.47	0

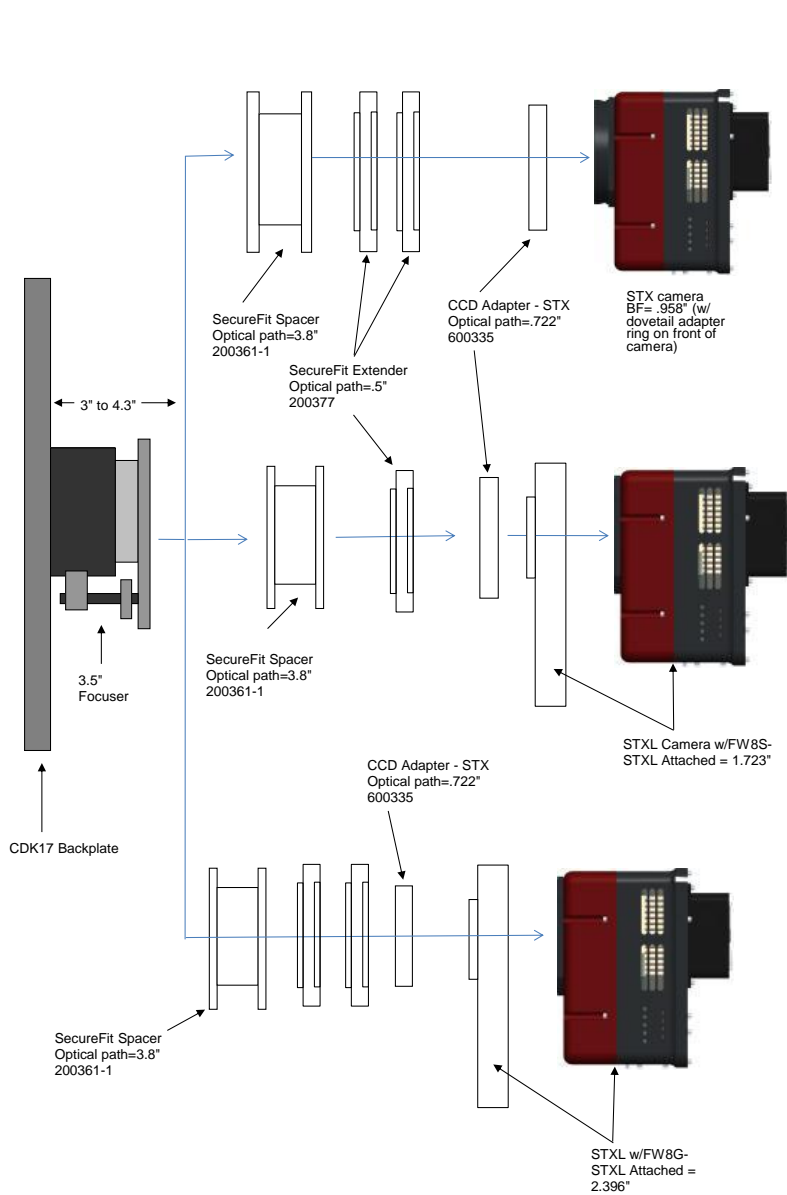
STL camera and MMOAG	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3')	0.37	6.87
CCD Spacer 2.1 - 200361-2	2.1	4.77
SecureFit 1/2" Spacer - 200377	0.5	4.27
SecureFit 1/2" Spacer - 200377	0.5	3.77
CCD SecureFit to MMOAG - 200394	0.55	3.22
AstroDon part - MMOAG	1.25	1.97
AstroDon part - MMOAG-STL-M	0.5	1.47
SLT Back Focus	1.47	0

**PLANEWAVE INSTRUMENTS**  
CDK 17 SPACERS FOR STL CAMERAS



<b>STL camera and MMOAG</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	<b>0.52</b>	6.72
CCD Spacer 2.1 - 200361-2	2.1	4.62
SecureFit 1/2" Spacer - <b>200377</b>	0.5	4.12
CCD SecureFit to MMOAG - <b>200394</b>	0.55	3.57
AstroDon part - <b>MMOAG</b>	1.25	2.32
AstroDon part - <b>MMOAG-STL-M</b>	0.5	1.82
Filter Wheel, FW8	0.35	1.47
SLT Back Focus	1.47	0

PLANEWAVE INSTRUMENTS  
CDK17 SPACERS FOR STXL CAMERAS



STXL	10.24 remaining BF	
Focuser (200340) racked in	3	7.24
Focuser position (0-1.3")	0.76	6.48
CCD Spacer 3.5" - 200361-1	3.8	2.68
CCD SecureFit Extender - 200377	0.5	2.18
CCD SecureFit Extender - 200377	0.5	1.68
CCD Adapter STX - 600335	0.722	0.958
STXL Back Focus w/threaded adapter ring attached	0.958	0

STXL & IRF90	10.24 remaining BF	
IRF90 - 600180	3.5	6.74
Focuser position (0-1.3")	0.26	6.48
CCD Spacer 3.5" - 200361-1	3.8	2.68
CCD SecureFit Extender - 200377	0.5	2.18
CCD SecureFit Extender - 200377	0.5	1.68
CCD Adapter STX - 600335	0.722	0.958
STXL Back Focus w/threaded adapter ring attached	0.958	0

STXL w/ Standard FW	10.24 remaining BF	
Focuser (200340) racked in	3	7.24
Focuser position (0-1.3")	0.495	6.745
SecureFit CCD Spacer - 200361-1	3.8	2.945
SecureFit Extender - 200377	0.5	2.445
CCD Adapter STX - 600335	0.722	1.723
STXL Camera w/FW8S-STXL Attached	1.723	0

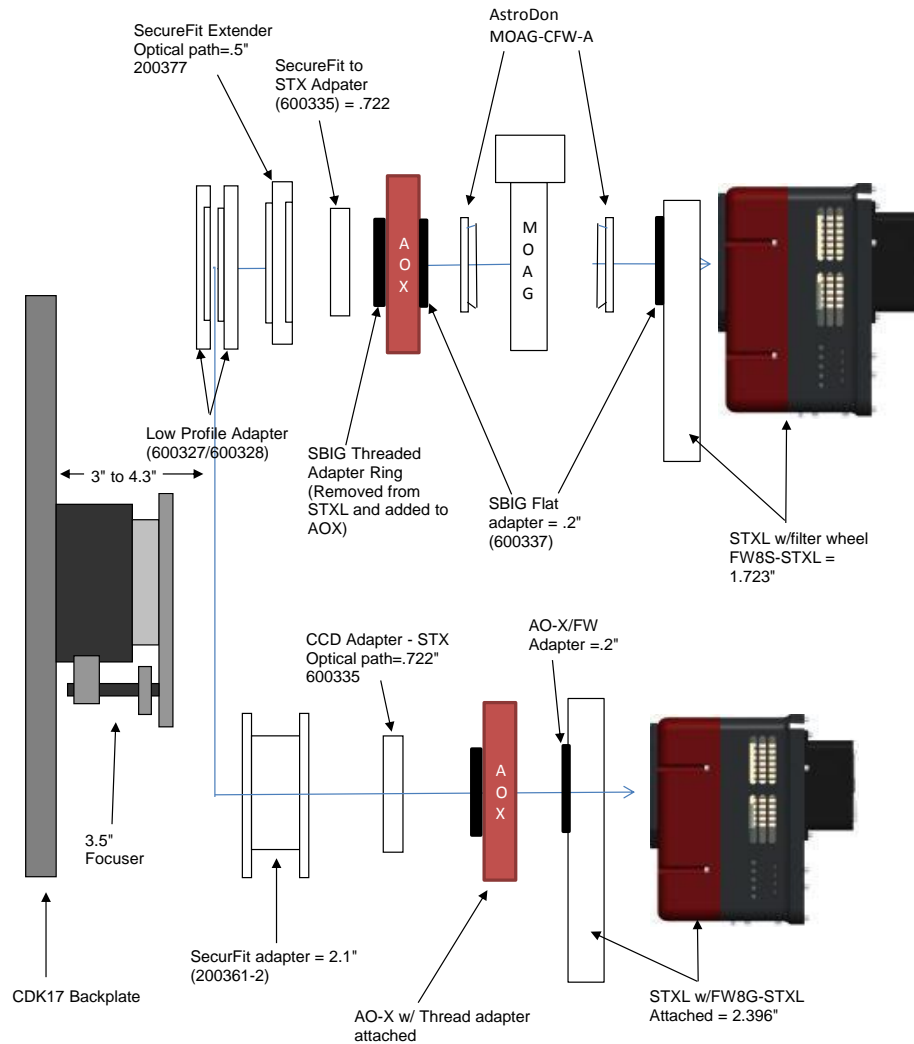
STXL w/ Standard FW & IRF90	10.24 remaining BF	
Focuser (600180) racked in	3.5	6.74
Focuser position (0-1.3")	0.495	6.245
SecureFit CCD Spacer - 200361-1	3.8	2.445
CCD Adapter STX - 600335	0.722	1.723
STXL Camera w/FW8S-STXL Attached	1.723	0

STXL w/ Self Guiding FW	10.24 remaining BF	
Focuser (200340) racked in	3	7.24
Focuser position (0-1.3")	0.322	6.918
SecureFit CCD Spacer - 200361-1	3.8	3.118
CCD Adapter STX - 600335	0.722	2.396
STXL w/FW8G-STXL Attached	2.396	0

STXL w/ Self Guiding FW & IRF90	10.24 remaining BF	
Focuser (600180) racked in	3.5	6.74
Focuser position (0-1.3")	0.522	6.218
SecureFit CCD Spacer - 200361-2	2.1	4.118
SecureFit Extender - 200377	0.5	3.618
SecureFit Extender - 200377	0.5	3.118
CCD Adapter STX - 600335	0.722	2.396
STXL w/FW8G-STXL Attached	2.396	0

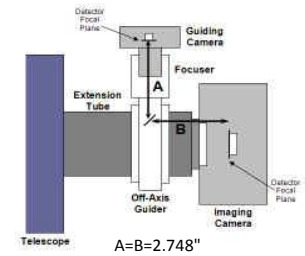


**PLANEWAVE INSTRUMENTS**  
CDK17 SPACERS FOR STXL CAMERAS

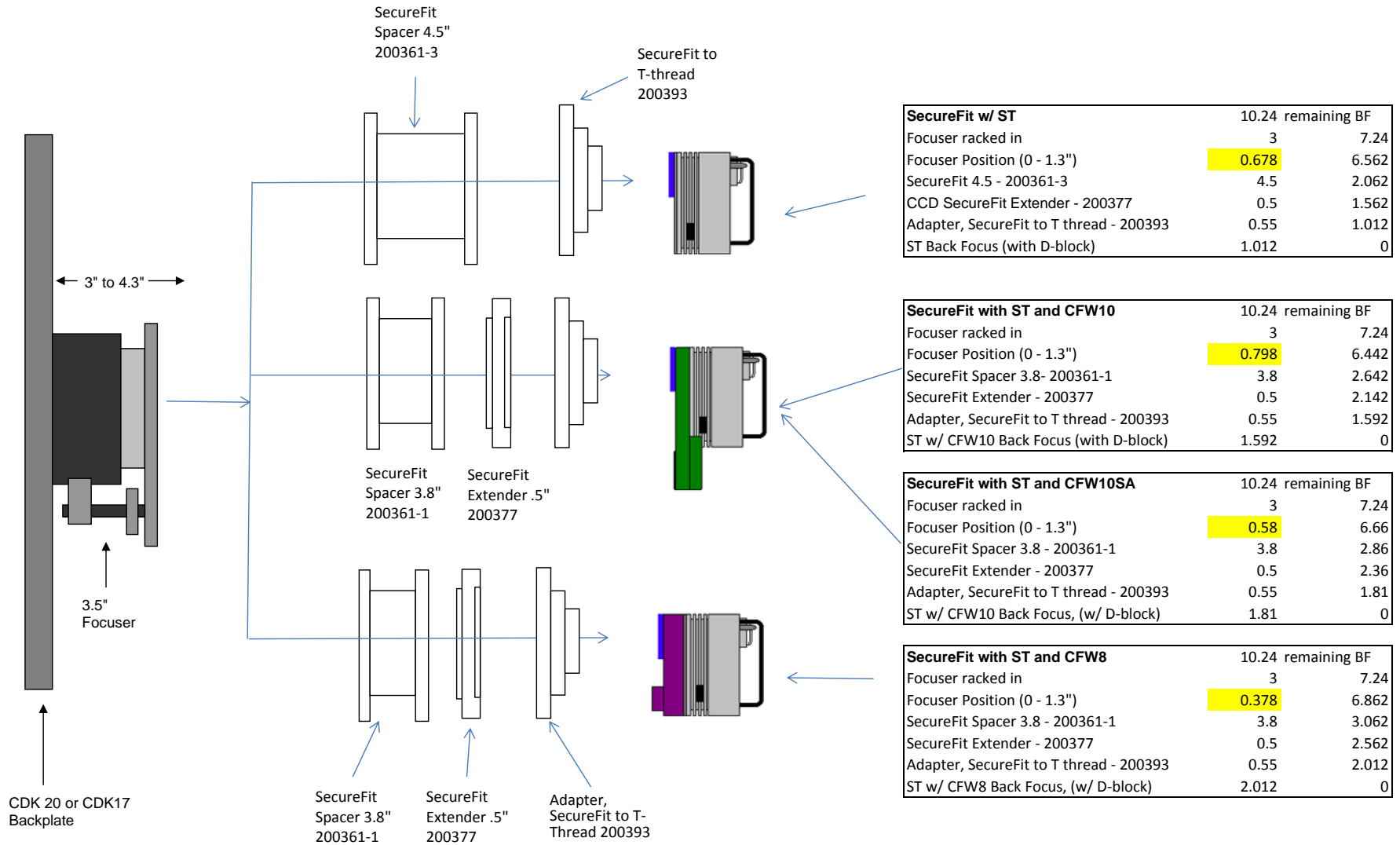


STXL camera w standard FW and MMOAG		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.565	6.675
Low profile adapters- 600327/600328	0.5	6.175
SecureFit Extender - 200377	0.5	5.675
CCD Adapter STX - 600335	0.722	4.953
AO-X	1.18	3.773
SBIG Flat Adapter (3"-24 female) - 600337	0.2	3.573
AstroDon MOAG-CFW-A	0.2	3.373
AstroDon - MMOAG	1.25	2.123
AstroDon MOAG-CFW-A	0.2	1.923
SBIG Flat Adapter (3"-24 female) - 600337	0.2	1.723
STXL w/filter wheel FW8S-STXL	1.723	0

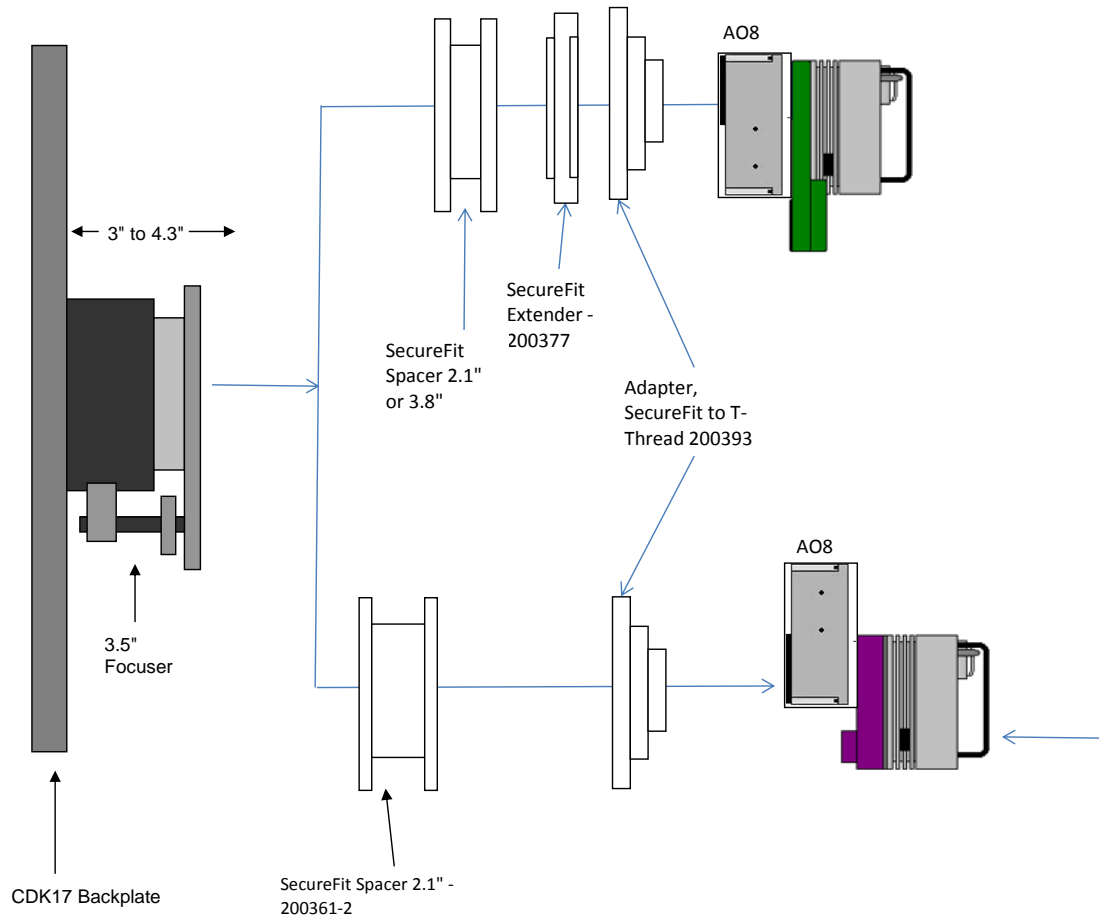
STXL w/ Self Guiding FW		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.642	6.598
SecureFit CCD Spacer - 200361-2	2.1	4.498
CCD Adapter STX - 600335	0.722	3.776
AO-X (w/ threaded adapter attached)	1.18	2.596
AO-X to FW adapter (SBIG)	0.2	2.396
STXL w/FW8G-STXL Attached	2.396	0



**PLANEWAVE INSTRUMENTS**  
CDK17 SECUREFIT CCD SPACERS FOR ST CAMERAS



**PLANEWAVE INSTRUMENTS**  
CDK17 SECUREFIT CCD SPACERS FOR ST CAMERAS

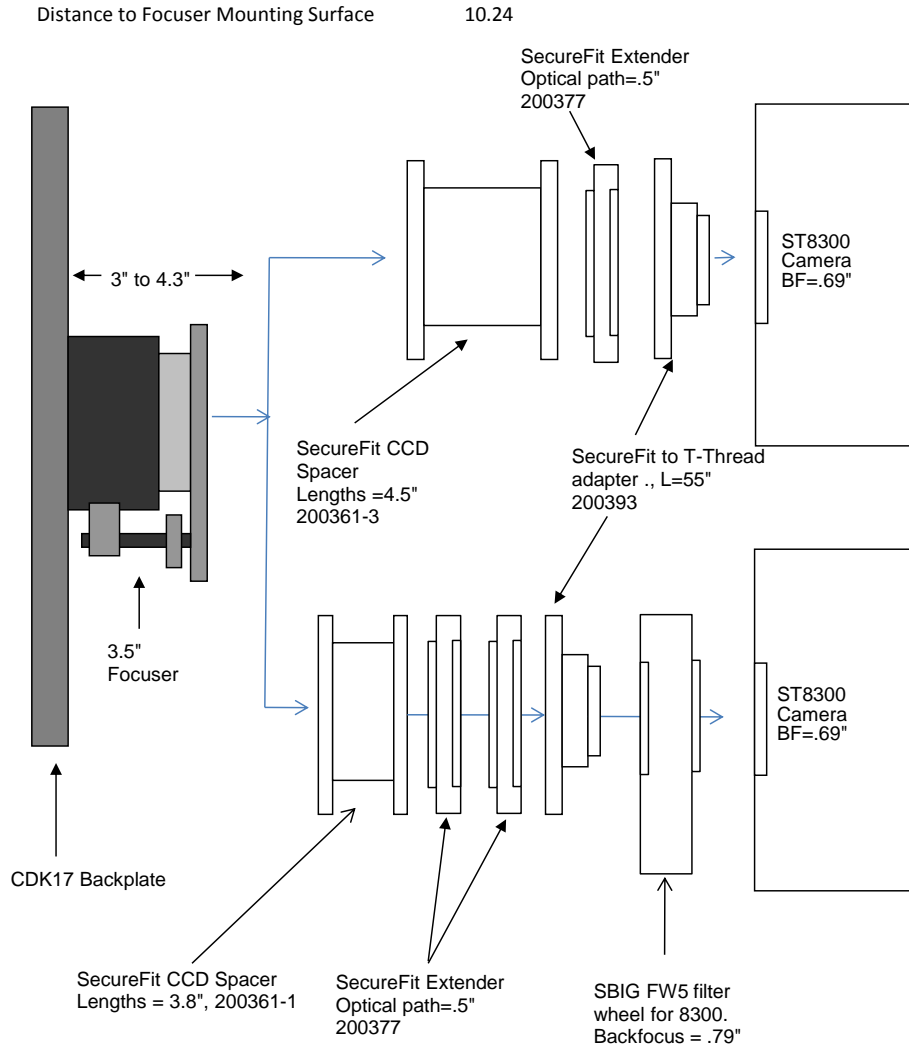


<b>SecureFit with ST, CFW10, &amp; AO-8</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser Position (0 - 1.3")	0.598	6.642
SecureFit Spacer 2.1 - 200361-2	2.1	4.542
SecureFit Extender - 200377	0.5	4.042
Adapter, SecureFit to T thread - 200393	0.55	3.492
AO-8, 1.9" of backfocus + .27 for D-block	2.17	1.322
ST w/ CFW10 Back Focus (w/o D-block)	1.322	0

<b>SecureFit with ST and CFW10SA</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser Position (0 - 1.3")	0.58	6.66
SecureFit Spacer 3.8 - 200361-1	3.8	2.86
SecureFit Extender - 200377	0.5	2.36
Adapter, SecureFit to T thread - 200393	0.55	1.81
ST w/ CFW10 Back Focus, (w/ D-block)	1.81	0

<b>SecureFit with ST, CFW8, &amp; AO-8</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser Position (0 - 1.3")	0.408	6.832
SecureFit Spacer 2.1 - 200361-2	2.1	4.732
Adapter, SecureFit to T thread - 200393	0.55	4.182
AO-8, 1.9" of backfocus + .27 for D-block	2.17	2.012
ST w/ CFW8 Back Focus, (w/ D-block)	2.012	0

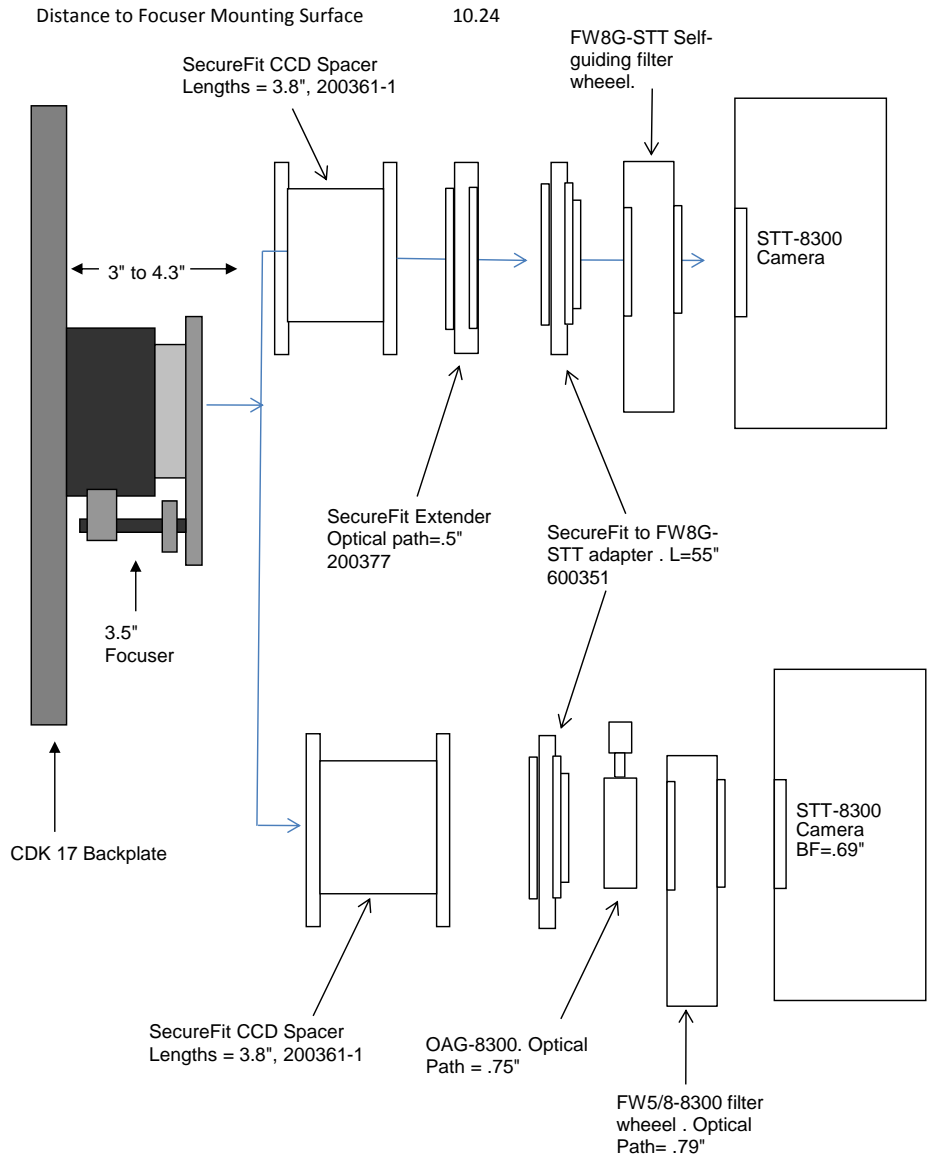
**PLANEWAVE INSTRUMENTS**  
CDK17 SECUREFIT SPACERS FOR ST8300 CAMERAS



<b>ST8300 Camera Alone</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	<b>1</b>	6.24
CCD Spacer 4.5- <b>200361-3</b>	<b>4.5</b>	1.74
CCD SecureFit Extender - <b>200377</b>	0.5	1.24
SecureFit to T-Thread - <b>200393</b>	0.55	0.69
SLT Back Focus	0.69	0

<b>ST8300 Camera FW8 or FW5 for 8300</b>		10.24 remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	<b>0.41</b>	6.83
CCD Spacer 3.8 - <b>200361-1</b>	<b>3.8</b>	3.03
CCD SecureFit Extender - <b>200377</b>	0.5	2.53
CCD SecureFit Extender - <b>200377</b>	0.5	2.03
SecureFit to T-Thread - <b>200393</b>	0.55	1.48
FW5 or 8 for 8300, Back Focus=.79"	0.79	0.69
SLT Back Focus	0.69	0

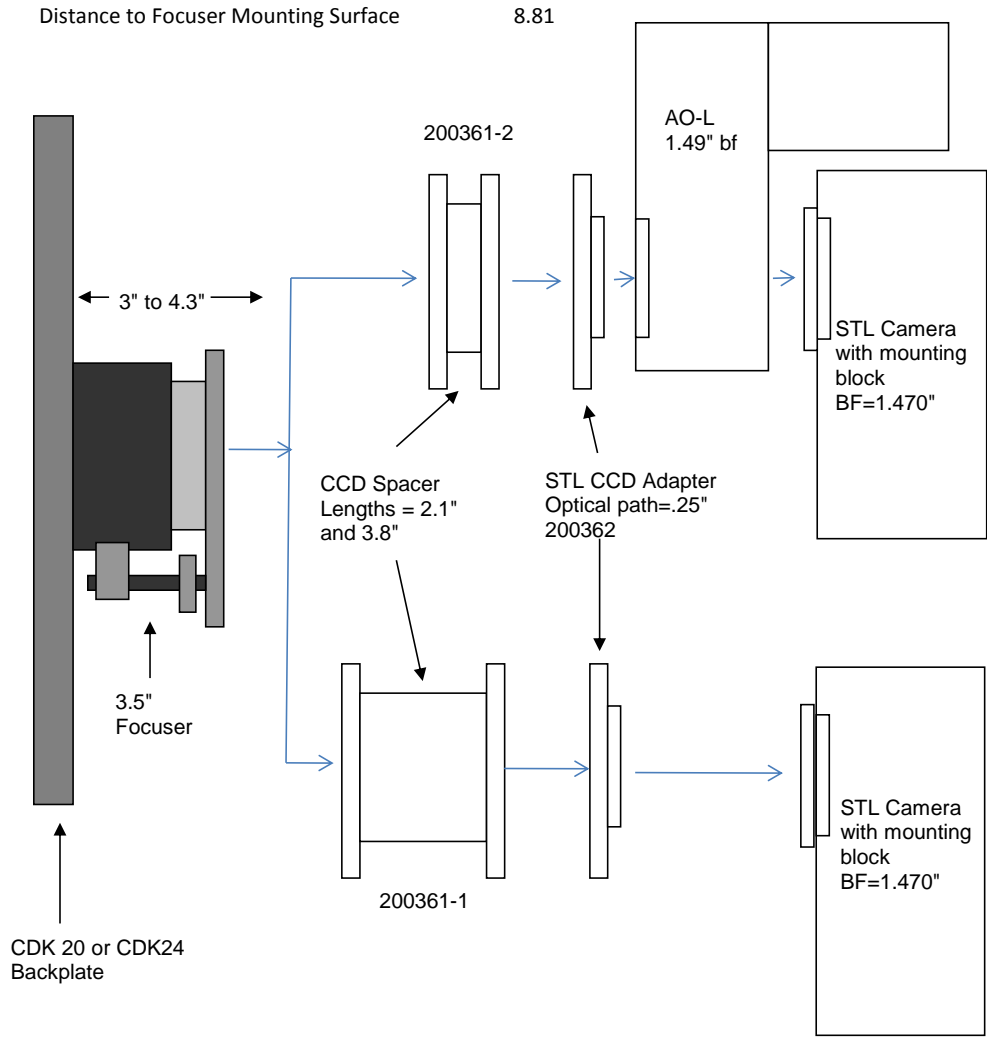
**PLANEWAVE INSTRUMENTS**  
CDK17 SECUREFIT SPACERS FOR STT CAMERAS



<b>STT8300 Camera w/ Self Guiding Filter Wheel</b>	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.262	6.978
SecureFit Spacer 3.8- <b>200361-1</b>	3.8	3.178
CCD SecureFit Extender - <b>200377</b>	0.5	2.678
SecureFit to FW8G-STT - <b>600351</b>	0.55	2.128
FW8G-SST attached to STT-8300 Camera	2.128	0

<b>STT8300 Camera w/Filter Wheel, OAG8300</b>	10.24	remaining BF
Focuser racked in	3	7.24
Focuser position (0-1.3")	0.64	6.6
SecureFit Spacer 3.8- <b>200361-1</b>	3.8	2.8
SecureFit to FW8G-STT - <b>600351</b>	0.55	2.25
OAG-8300	0.75	1.5
STT-8300 w/ FW5-8300 attached	1.5	0

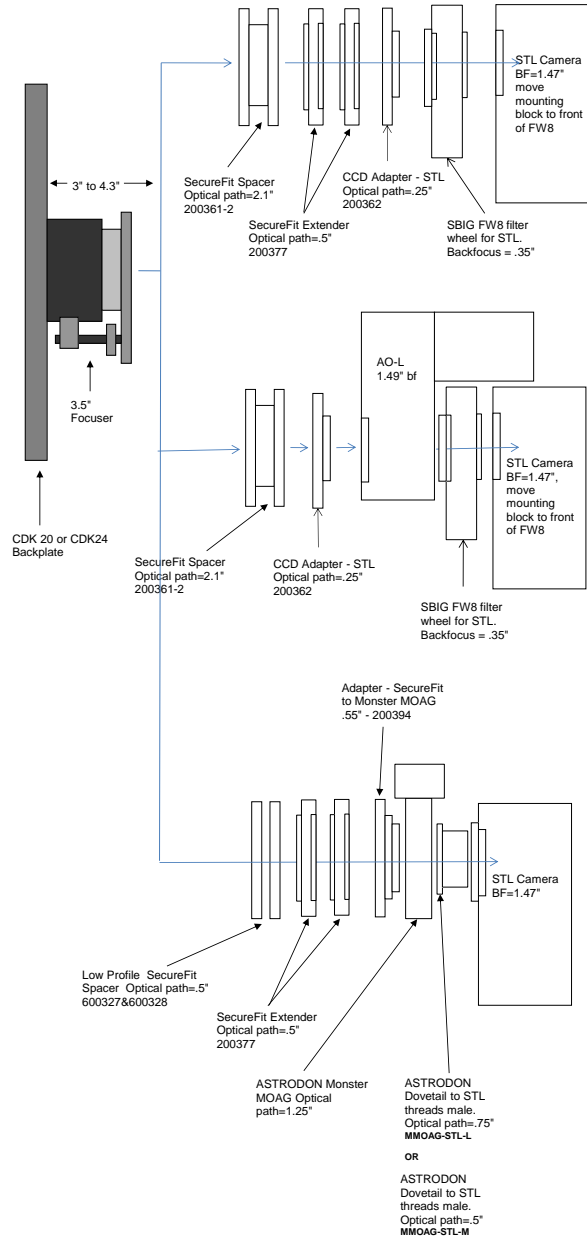
**PLANEWAVE INSTRUMENTS**  
 CDK20, 24 SECUREFIT SPACERS FOR STL CAMERAS



<b>STL and AO-L</b>	8.81 remaining BF	
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.5</b>	5.31
CCD Spacer 2.1 - 200361-2	<b>2.1</b>	3.21
CCD Adapter STL - 200362	0.25	2.96
AO-L	1.49	1.47
STL Back Focus	1.47	0

<b>STL Camera Alone</b>	8.81 remaining BF	
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.29</b>	5.52
CCD Spacer 3.8 - 200361-1	<b>3.8</b>	1.72
CCD Adapter STL - 200362	0.25	1.47
SLT Back Focus	1.47	0

PLANEWAVE INSTRUMENTS  
CDK 20, AND 24 SPACERS FOR STL CAMERAS



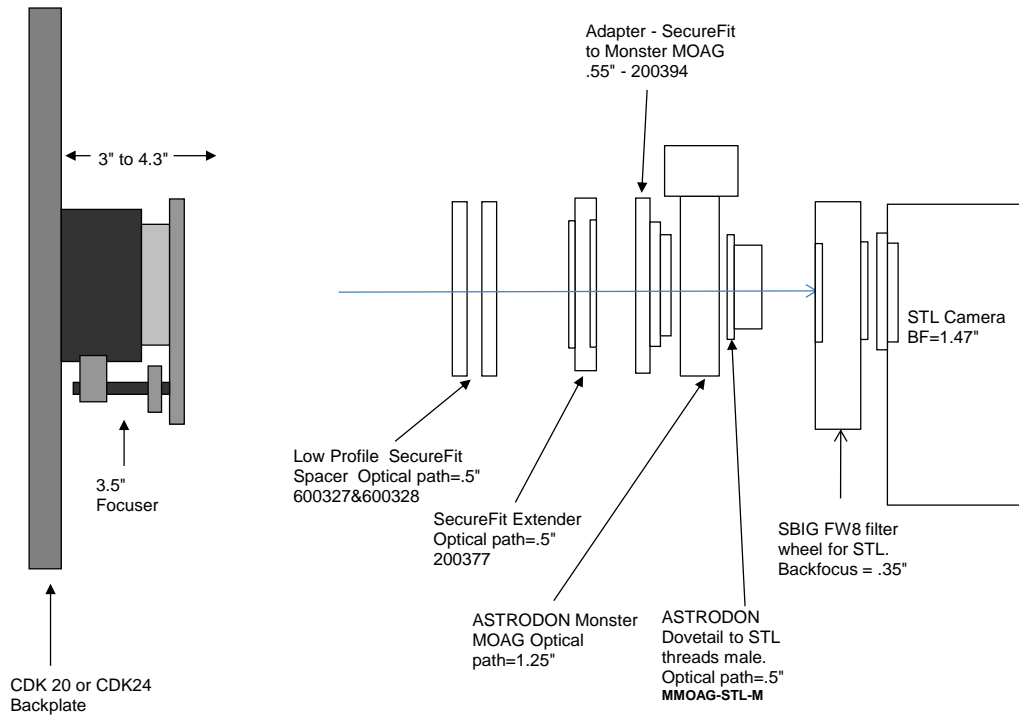
STL w/ FW8			8.81 remaining BF
Focuser racked in	3		5.81
Focuser position (0-1.3")	0.64		5.17
CCD Spacer 2.1 - 200361-2	2.1		3.07
CCD SecureFit Extender - 200377	0.5		2.57
CCD SecureFit Extender - 200377	0.5		2.07
CCD Adapter STL - 200362	0.25		1.82
FW8	0.35		1.47
SLT Back Focus	1.47		0

STL w/ FW8 and AO-L			8.81 remaining BF
Focuser racked in	3		5.81
Focuser position (0-1.3")	0.15		5.66
CCD Spacer 2.1 - 200361-2	2.1		3.56
CCD Adapter STL - 200362	0.25		3.31
AO-L	1.49		1.82
FW8	0.35		1.47
SLT Back Focus	1.47		0

STL camera and MMOAG			8.81 remaining BF
Focuser racked in	3		5.81
Focuser position (0-1.3")	0		5.81
LowProfile SecureFit Spacer - 0.5", 600327&328	0.5		5.31
SecureFit 1/2" Spacer - 200377	0.5		4.81
CCD SecureFit to MMOAG - 200394	0.55		4.26
Monster MMOAG	1.25		3.01
MMOAG-STL-L	0.75		2.26
SLT Back Focus	1.47		0.79

STL camera and MMOAG			8.81 remaining BF
Focuser racked in	3		5.81
Focuser position (0-1.3")	0		5.81
LowProfile SecureFit Spacer - 0.5", 600327&328	0.5		5.31
SecureFit 1/2" Spacer - 200377	1		4.31
CCD SecureFit to MMOAG - 200394	0.55		3.76
AstroDon part - MMOAG	1.25		2.51
AstroDon part - MMOAG-STL-M	0.5		2.01
SLT Back Focus	1.47		0.54

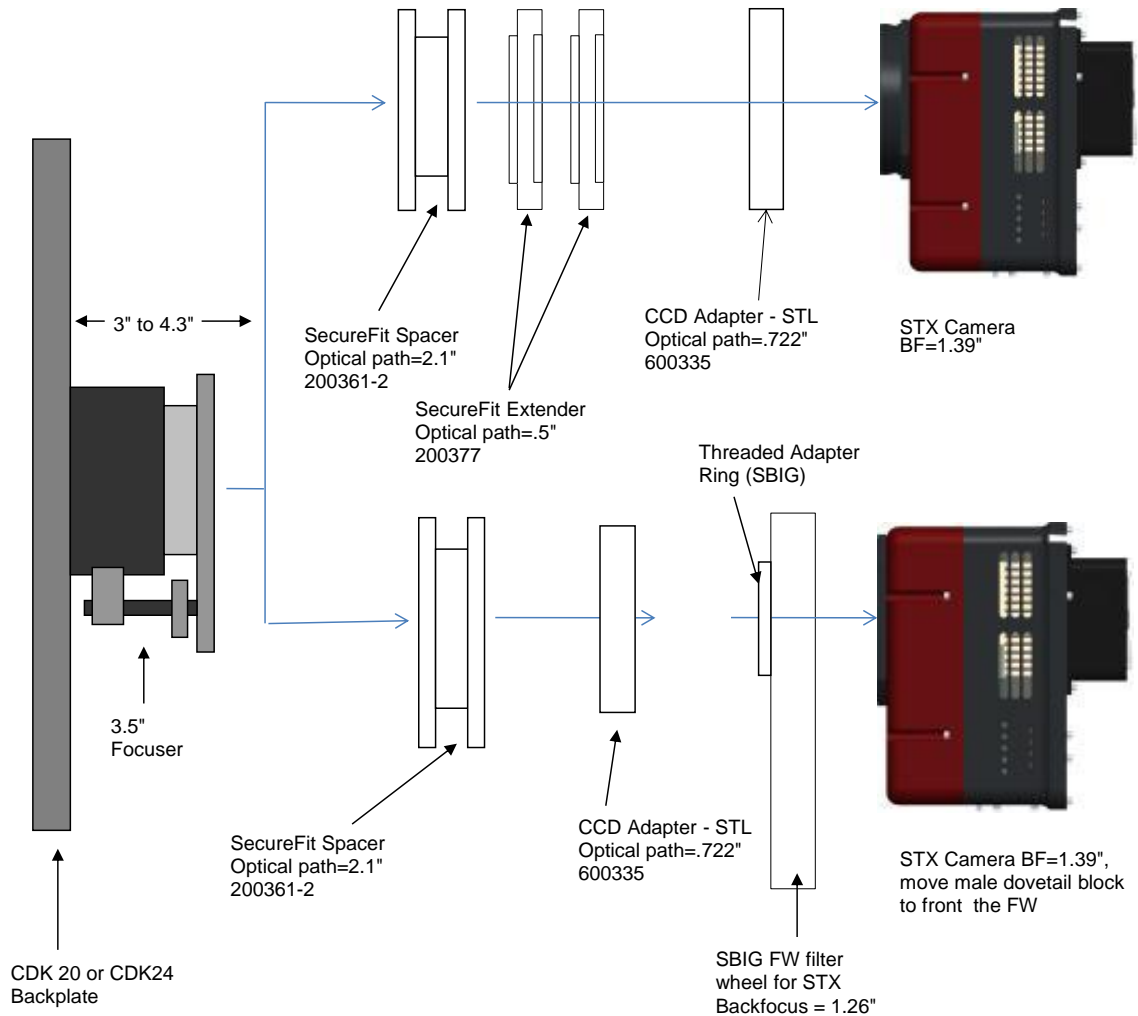
**PLANEWAVE INSTRUMENTS**  
**CDK 20 AND 24 SPACERS FOR STL CAMERAS**



<b>STL camera and MMOAG</b>	8.81	remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.69</b>	5.12
LowProfile SecureFit Spacer - 0.5", <b>600327&amp;600328</b>	<b>0.5</b>	4.62
SecureFit 1/2" Spacer - <b>200377</b>	0.5	4.12
CCD SecureFit to MMOAG - <b>200394</b>	0.55	3.57
AstroDon part - <b>MMOAG</b>	1.25	2.32
AstroDon part - <b>MMOAG-STL-M</b>	0.5	1.82
Filter Wheel, FW8	0.35	1.47
SLT Back Focus	1.47	0



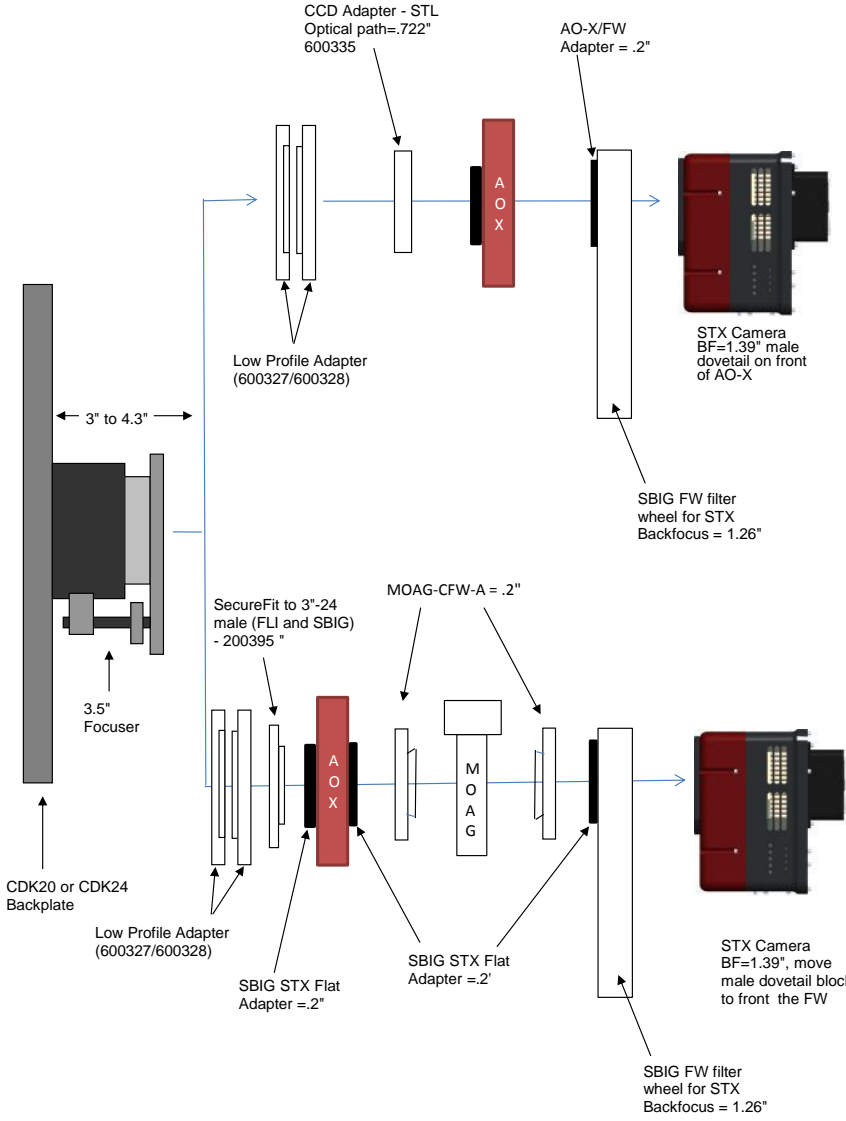
**PLANEWAVE INSTRUMENTS**  
CDK 20 and 24 SPACERS FOR STX CAMERAS



<b>STX</b>		8.81 remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.598</b>	5.212
CCD Spacer 2.1 - 200361-2	2.1	3.112
CCD SecureFit Extender - 200377	0.5	2.612
CCD SecureFit Extender - 200377	0.5	2.112
CCD Adapter STX - 600335	0.722	1.39
STX Back Focus w/threaded adapter ring attached	1.39	0

<b>STX w/ FW</b>		8.81 remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.338</b>	5.472
CCD Spacer 2.1 - 200361-2	2.1	3.372
CCD Adapter STX - 600335	0.722	2.65
Filter Wheel w/threaded adapter ring attached	1.26	1.39
STX Camera	1.39	0

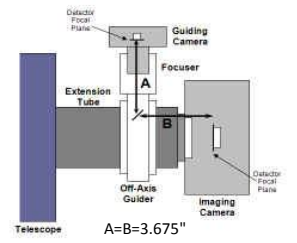
**PLANEWAVE INSTRUMENTS**  
CDK20 SPACERS FOR STX CAMERAS



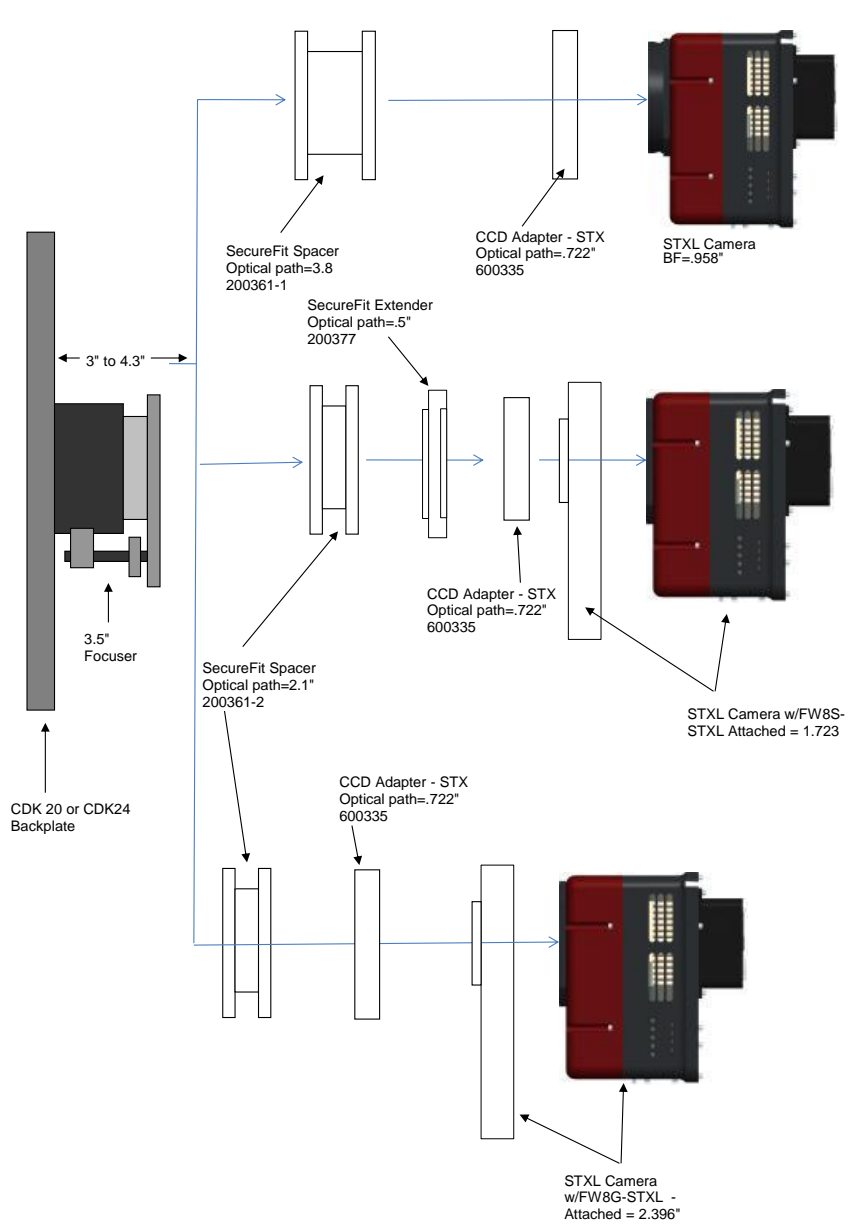
STX camera, AO-X, CFW	8.81	remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	0.558	5.252
Low Profile Adapters = .5" (600327/328)	0.5	4.752
CCD SecureFit to STL - 600335	0.722	4.03
AO-X (w/ threaded adapter attached)	1.18	2.85
AO-X to FW adapter (SBIG)	0.2	2.65
SBIG Filter Wheel (w/.2" adapter)	1.26	1.39
STX Back Focus	1.39	0

*\*This configuration will not reach focus with the CDK20 but can work on the CDK24 with custom adapter*

STX camera and MMOAG	8.81	remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	0	5.81
Low profile adapters- 600327/328	0.5	5.31
SecureFit to 3"-24 male (FLI and SBIG) - 200395-3	0.25	5.06
STX Flat adapter	0.2	4.86
AO-X	1.18	3.68
STX Flat adapter	0.2	3.48
MOAG-CWF-A	0.2	3.28
AstroDon part - MMOAG	1.25	2.03
MOAG-CWF-A	0.2	1.83
STX Flat adapter	0.2	1.63
Filter Wheel, FW8	1.26	0.37
SLX Back Focus	1.39	-1.02



**PLANEWAVE INSTRUMENTS**  
CDK 20 & 24 SPACERS FOR STXL CAMERAS



STXL		
	8.81 remaining BF	
Focuser (200340) racked in	3	5.81
Focuser position (0-1.3")	0.33	5.48
CCD Spacer 2.1 - 200361-1	3.8	1.68
CCD Adapter STX - 600335	0.722	0.958
STXL Camera	0.958	0

STXL w/IRF90		
	8.81 remaining BF	
Focuser (600180) racked in	3.5	5.31
Focuser position (0-1.3")	0.53	4.78
CCD Spacer 2.1 - 200361-2	2.1	2.68
CCD SecureFit Extender - 200377	0.5	2.18
CCD SecureFit Extender - 200377	0.5	1.68
CCD Adapter STX - 600335	0.722	0.958
STXL Camera	0.958	0

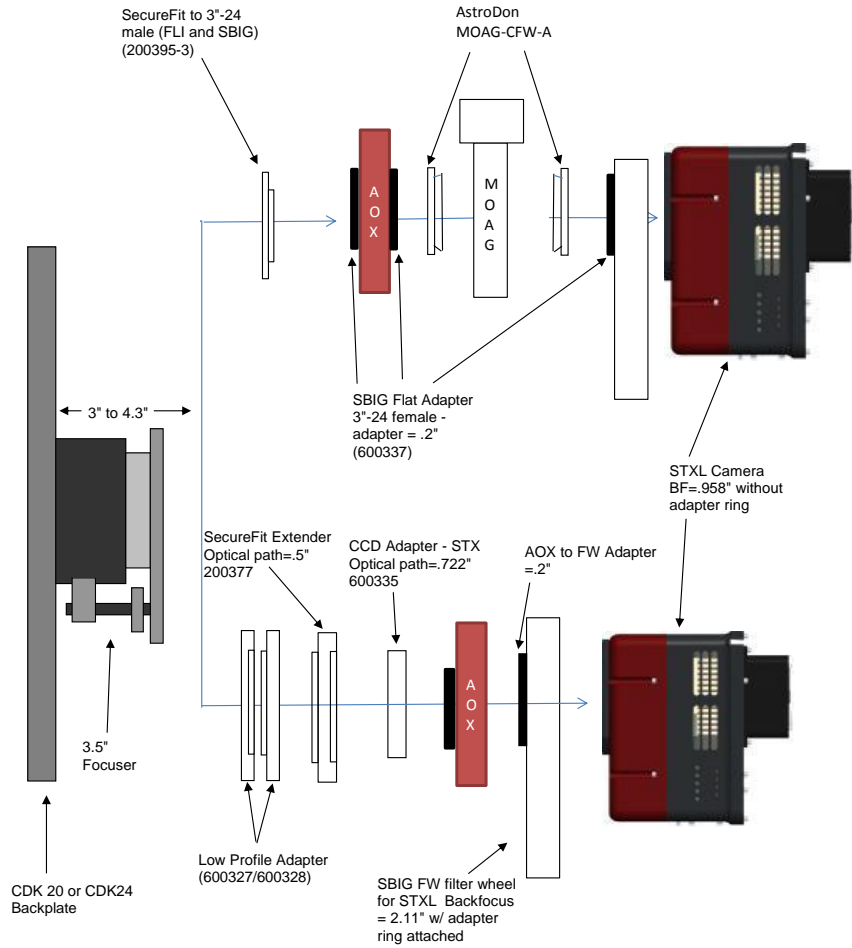
STXL w/ Standard FW		
	8.81 remaining BF	
Focuser (200340) racked in	3	5.81
Focuser position (0-1.3")	0.765	5.045
CCD Spacer 2.1 - 200361-2	2.1	2.945
CCD SecureFit Extender - 200377	0.5	2.445
CCD Adapter STX - 600335	0.722	1.723
STXL Camera w/FW8S-STXL Attached	1.723	0

STXL w/ Standard FW & IRF90		
	8.81 remaining BF	
Focuser (600180) racked in	3.5	5.31
Focuser position (0-1.3")	0.765	4.545
CCD Spacer 2.1 - 200361-2	2.1	2.445
CCD Adapter STX - 600335	0.722	1.723
STXL Camera w/FW8S-STXL Attached	1.723	0

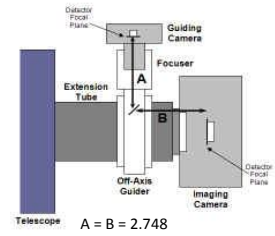
STXL w/ Self Guiding FW		
	8.81 remaining BF	
Focuser (200340) racked in	3	5.81
Focuser position (0-1.3")	0.592	5.218
SecureFit CCD Spacer - 200361-1	2.1	3.118
CCD Adapter STX - 600335	0.722	2.396
STXL Camera w/FW8G-STXL Attached	2.396	0

STXL w/ Self Guiding FW & IRF90		
	8.81 remaining BF	
Focuser (600180) racked in	3.5	5.31
Focuser position (0-1.3")	0.692	4.618
Low Profile SecureFit adapters (600327/600328)	0.5	4.118
CCD SecureFit Extender - 200377	0.5	3.618
CCD SecureFit Extender - 200377	0.5	3.118
CCD Adapter STX - 600335	0.722	2.396
STXL Camera w/FW8G-STXL Attached	2.396	0

**PLANEWAVE INSTRUMENTS**  
CDK20/24 SPACERS FOR STXL CAMERAS & AO-X

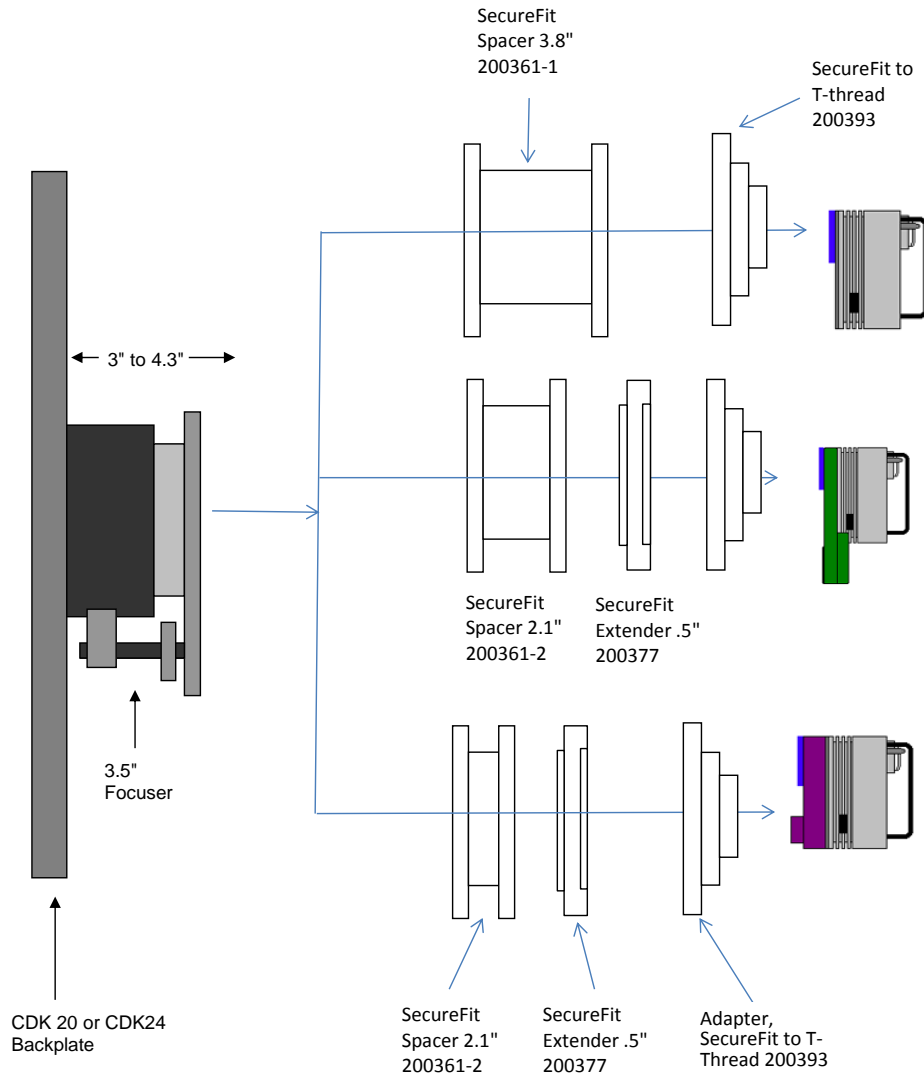


STXL camera and MMOAG &FW8S-STXL		8.81 remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	0.407	5.403
SecureFit to 3"-24 male (FLI and SBIG) - 200395-3	0.25	5.153
SBIG Flat Adapter - 3"-24 female - 600337	0.2	4.953
AO-X	1.18	3.773
SBIG Flat Adapter -600337	0.2	3.573
AstroDon MOAG-CFW-A	0.2	3.373
AstroDon- MMOAG	1.25	2.123
AstroDon MOAG-CFW-A	0.2	1.923
SBIG Flat Adapter - 600337	0.2	1.723
STXL w/filter wheel FW8S-STXL	1.723	0



STXL w/ Self Guiding FW		8.81 remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	0.31	5.5
Low Profile Adapters = .5" (600327/328)	0.5	5
SecureFit Extender - 200377	0.5	4.5
CCD Adapter STX - 600335	0.722	3.778
AOX	1.18	2.598
AOX to FW Adapter	0.2	2.398
Filter Wheel w/threaded adapter ring attached	1.44	0.958
STXL Back Focus	0.958	0

**PLANEWAVE INSTRUMENTS**  
CDK20&24 SECUREFIT CCD SPACERS FOR ST CAMERAS



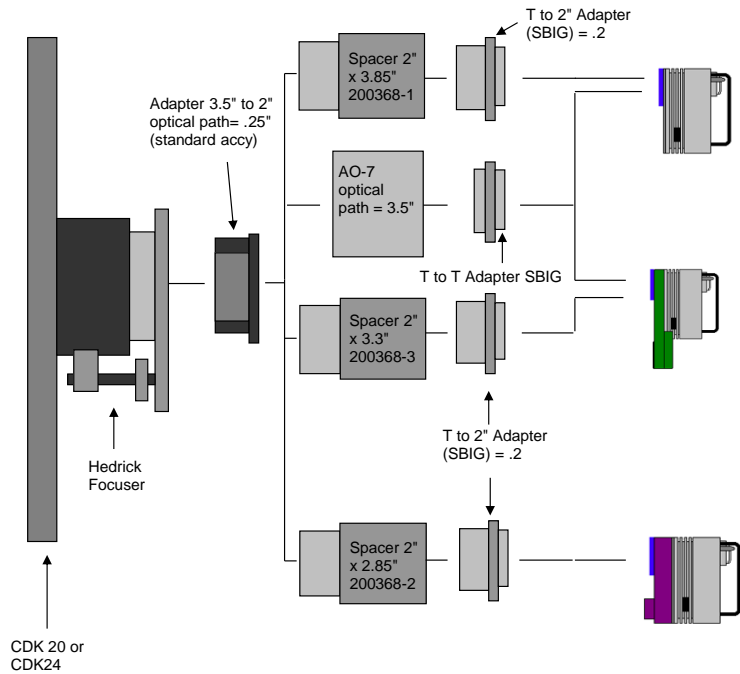
<b>SecureFit w/ ST</b>	8.81 remaining BF
Focuser racked in	3 5.81
Focuser Position (0 - 1.3")	0.45 5.36
SecureFit 3.8 - 200361-1	3.8 1.56
Adapter, SecureFit to T thread - 200393	0.55 1.01
ST Back Focus (with D-block)	1.012 0.00

<b>SecureFit with ST and CFW10</b>	8.81 remaining BF
Focuser racked in	3 5.81
Focuser Position (0 - 1.3")	1.068 4.742
SecureFit Spacer - 200361-2	2.1 2.642
SecureFit Extender - 200377	0.5 2.142
Adapter, SecureFit to T thread - 200393	0.55 1.592
ST w/ CFW10 Back Focus (with D-block)	1.592 0

<b>SecureFit with ST and CFW10SA</b>	8.81 remaining BF
Focuser racked in	3 5.81
Focuser Position (0 - 1.3")	0.85 4.96
SecureFit Spacer - 200361-2	2.1 2.86
SecureFit Extender - 200377	0.5 2.36
Adapter, SecureFit to T thread - 200393	0.55 1.81
ST w/ CFW10 Back Focus, (w/ D-block)	1.81 0

<b>SecureFit with ST and CFW8</b>	8.81 remaining BF
Focuser racked in	3 5.81
Focuser Position (0 - 1.3")	0.648 5.162
SecureFit Spacer - 200361-2	2.1 3.062
SecureFit Extender - 200377	0.5 2.562
Adapter, SecureFit to T thread - 200393	0.55 2.012
ST w/ CFW8 Back Focus, (w/ D-block)	2.012 0

**PLANEWAVE INSTRUMENTS**  
CDK20 & 24 SECUREFIT CCD SPACERS FOR ST CAMERAS



<b>ST Camera, no filter wheel</b>			8.81 remaining BF
Focuser racked in	3		5.81
Focuser Position (0 - 1.3")	0.498		5.312
Adapter, 3 to 2 (standard accy)	0.25		5.062
CCD 2" Spacer x 3.85" - <b>200368-1</b>	3.85		1.212
T to 2 Adapter (SBIg)	0.2		1.012
ST Back Focus (with D-Block)	1.012		0

<b>ST Camera with CFW10 w/ D-Block</b>			8.81 remaining BF
Focuser racked in	3		5.81
Focuser Position (0 - 1.3")	0.468		5.342
Adapter, 3 to 2 (standard accy)	0.25		5.092
CCD 2" SPACER x 3.3" - <b>200368-3</b>	3.3		1.792
T to 2 Adapter (SBIg)	0.2		1.592
ST Back Focus (with D-Block)	1.592		0

<b>ST Camera with CFW8 w/ D-Block</b>			8.81 remaining BF
Focuser racked in	3		5.81
Focuser Position (0 - 1.3")	0.498		5.312
Adapter, 3 to 2 (standard accy)	0.25		5.062
CCD 2" SPACER x 2.85" - <b>200368-2</b>	2.85		2.212
T to 2 Adapter (SBIg)	0.2		2.012
ST Back Focus (with D-Block)	2.012		0

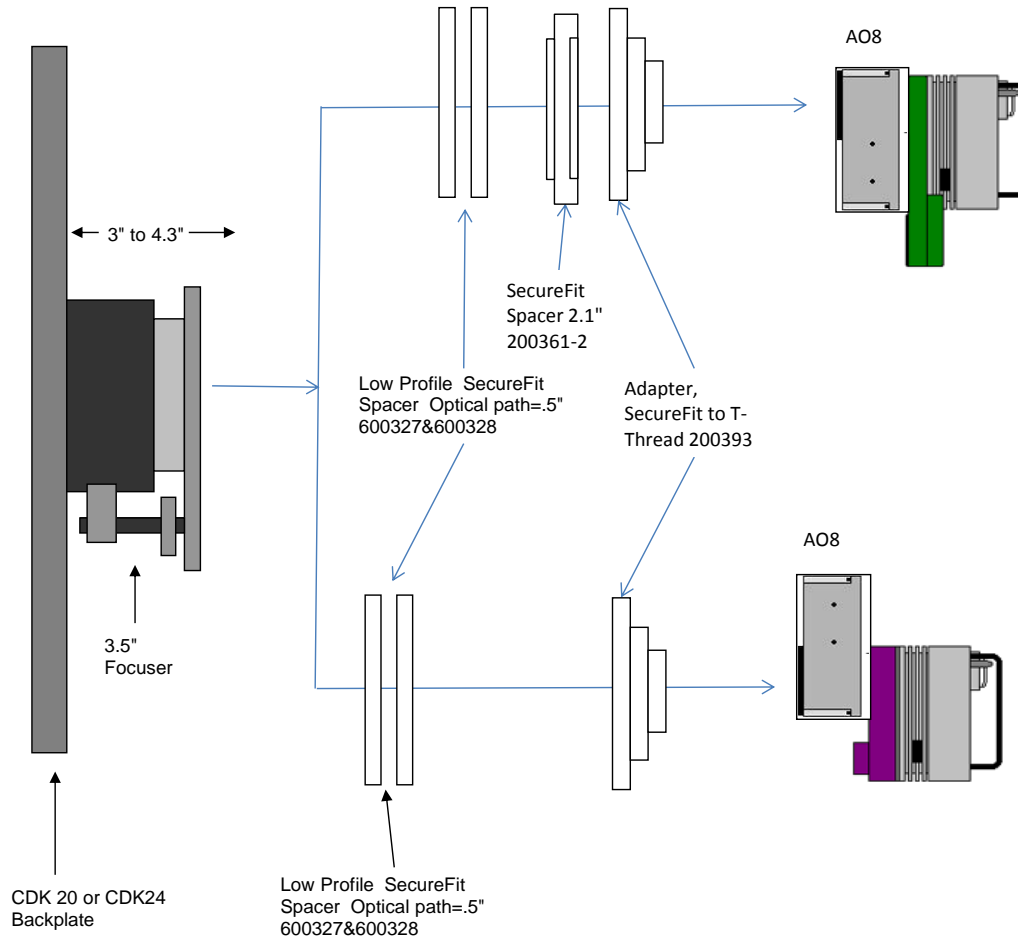
<b>ST Camera + AO-7</b>			8.81 remaining BF
Focuser racked in	3		5.81
Focuser Position (0 - 1.3")	0.85		4.96
Adapter, 3 to 2	0.25		4.71
T to T Adapter (SBIg)	0.2		4.51
ST + AO-7 backfocus	4.51		0

<b>ST + CFW10 + AO-7</b>			8.81 remaining BF
Focuser racked in	3		5.81
Focuser Position (0 - 1.3")	0.27		5.54
Adapter, 3 to 2	0.25		5.29
T to T Adapter (SBIg)	0.2		5.09
ST + AO-7 backfocus	5.09		0

**DOES NOT HAVE ENOUGH BACK FOCUS**

<b>ST + CFW8 + AO-7</b>			8.81 remaining BF
Focuser racked in	3		5.81
Focuser Position (0 - 1.3")	0		5.81
Adapter, 3 to 2	0.25		5.56
T to 2 Adapter (SBIg)	0.2		5.36
ST + AO-7 backfocus	5.51		-0.15

**PLANEWAVE INSTRUMENTS**  
**CDK20&24 SECUREFIT CCD SPACERS FOR ST CAMERAS**



<b>SecureFit with ST, CFW10, &amp; AO-8</b>		8.81 remaining BF
Focuser racked in	3	5.81
Focuser Position (0 - 1.3")	0.768	5.042
SecureFit Low Profile - 600327, 600328	0.5	4.542
SecureFit Extender - 200377	0.5	4.042
Adapter, SecureFit to T thread - 200393	0.55	3.492
AO-8, 1.9" of backfocus + .27 for D-block	2.17	1.322
ST w/ CFW10 Back Focus (w/o D-block)	1.322	0

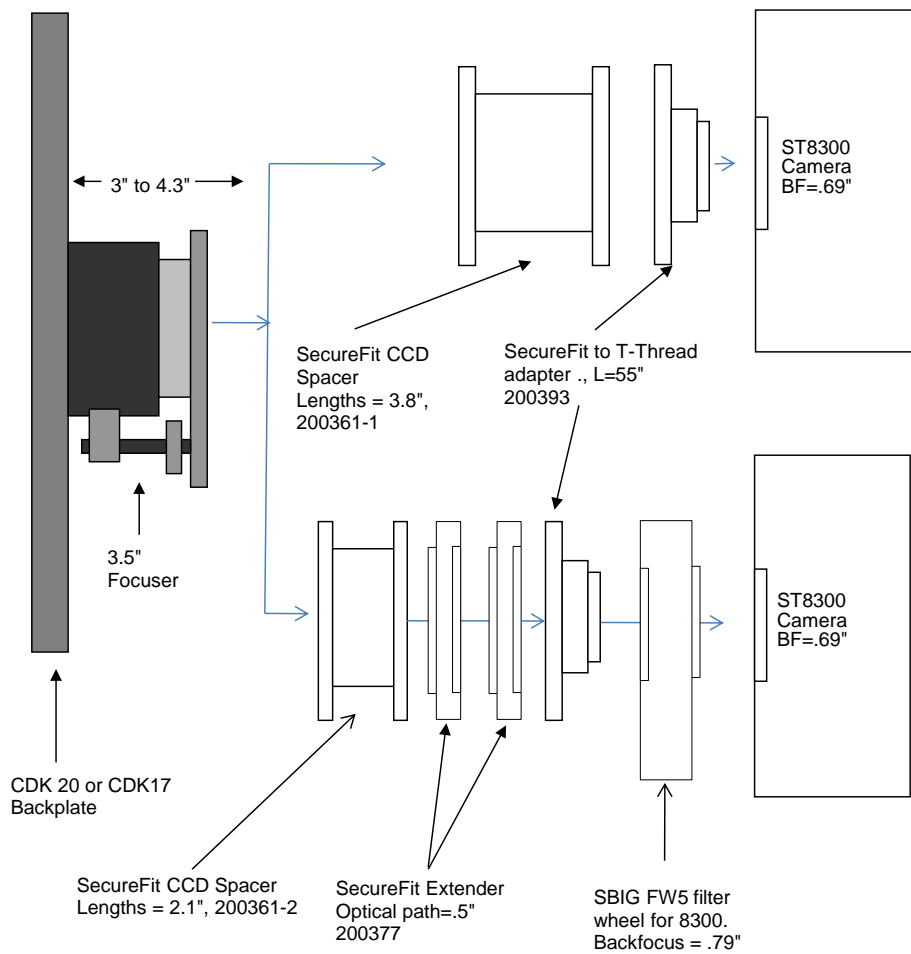
<b>SecureFit with ST and CFW10SA</b>		8.81 remaining BF
Focuser racked in	3	5.81
Focuser Position (0 - 1.3")	0.85	4.96
SecureFit Spacer - 200361-2	2.1	2.86
SecureFit Extender - 200377	0.5	2.36
Adapter, SecureFit to T thread - 200393	0.55	1.81
ST w/ CFW10 Back Focus, (w/ D-block)	1.81	0

<b>SecureFit with ST, CFW8, &amp; AO-8</b>		8.81 remaining BF
Focuser racked in	3	5.81
Focuser Position (0 - 1.3")	0.578	5.232
SecureFit Low Profile - 600327, 600328	0.5	4.732
Adapter, SecureFit to T thread - 200393	0.55	4.182
AO-8, 1.9" of backfocus + .27 for D-block	2.17	2.012
ST w/ CFW8 Back Focus, (w/ D-block)	2.012	0

**PLANEWAVE INSTRUMENTS**  
**CDK20 & 24 SECUREFIT SPACERS FOR STL CAMERAS**

Distance to Focuser Mounting Surface

8.81

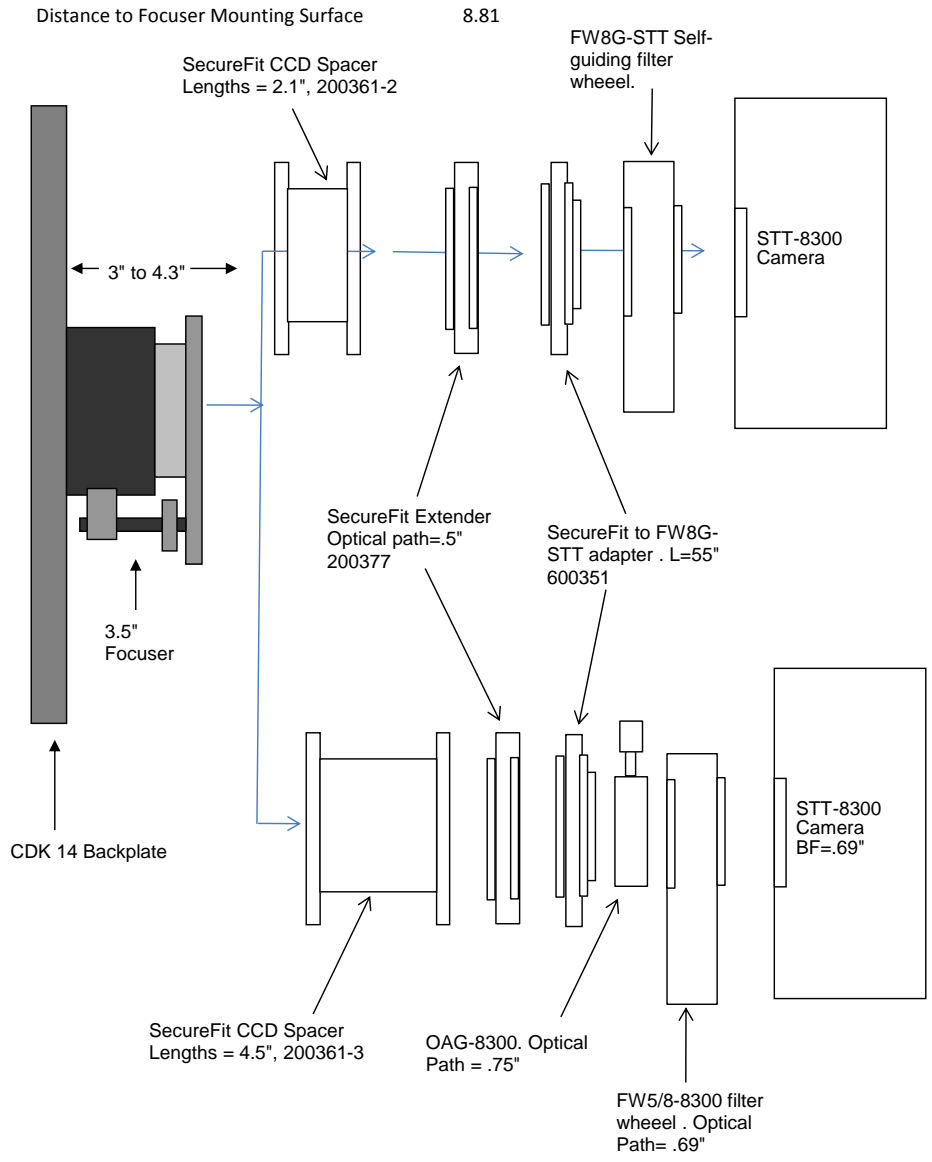


<b>ST8300 Camera Alone</b>	8.81	remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.77</b>	5.04
CCD Spacer 3.8 - <b>200361-1</b>	<b>3.8</b>	1.24
SecureFit to T-Thread - <b>200393</b>	0.55	0.69
SLT Back Focus	0.69	0.00

<b>ST8300 Camera FW8 or FW5 for 8300</b>	8.81	remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.68</b>	5.13
CCD Spacer 3.8 - <b>200361-2</b>	<b>2.1</b>	3.03
CCD SecureFit Extender - <b>200377</b>	0.5	2.53
CCD SecureFit Extender - <b>200377</b>	0.5	2.03
SecureFit to T-Thread - <b>200393</b>	0.55	1.48
FW5 or 8 for 8300, Back Focus=.79"	0.79	0.69
SLT Back Focus	0.69	0



**PLANEWAVE INSTRUMENTS**  
CDK20/24 SECUREFIT SPACERS FOR STT CAMERAS



<b>STT8300 Camera w/ Self Guiding Filter Wheel</b>	8.81 remaining BF	
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.532</b>	5.278
SecureFit Spacer 2.1- <b>200361-2</b>	2.1	3.178
CCD SecureFit Extender - <b>200377</b>	0.5	2.678
SecureFit to FW8G-STT - <b>600351</b>	0.55	2.128
FW8G-SST attached to STT-8300 Camera	2.128	0

<b>STT8300 Camera w/Filter Wheel, OAG8300</b>	8.81 remaining BF	
Focuser racked in	3	5.81
Focuser position (0-1.3")	<b>0.43</b>	5.38
SecureFit Spacer 3.8- <b>200361-1</b>	2.1	3.28
CCD SecureFit Extender - <b>200377</b>	0.5	2.78
SecureFit to FW8G-STT - <b>600351</b>	0.55	2.23
OAG-8300	0.75	1.48
FW5-8300 / FW8-8300	0.79	0.69
STT-8300 Camera	0.69	0