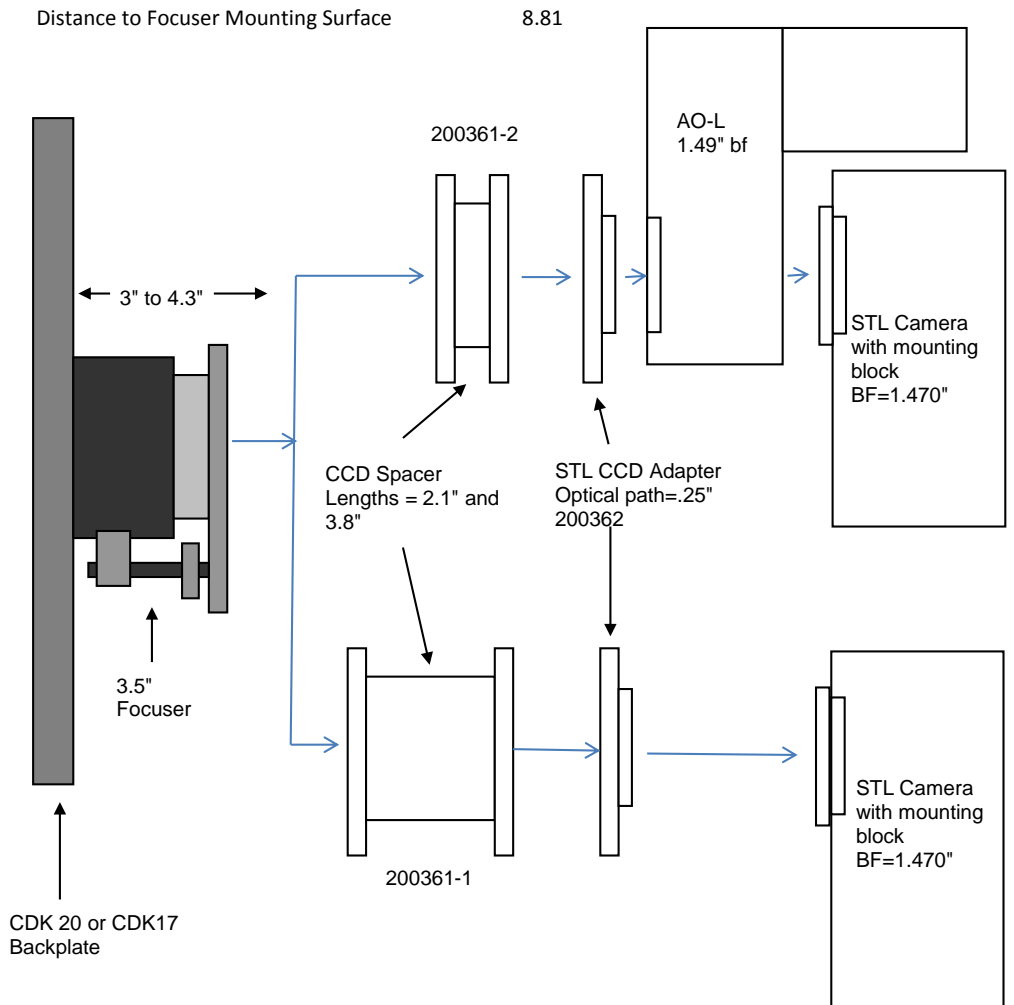


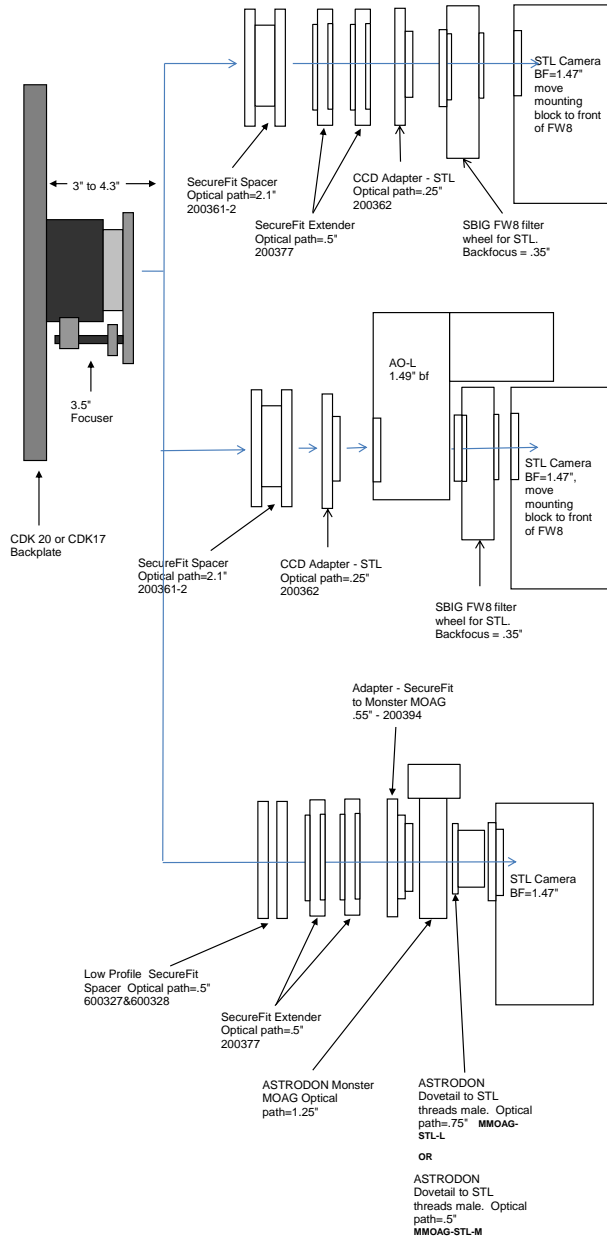
PLANEWAVE INSTRUMENTS
CDK17, 20, 24 SECUREFIT SPACERS FOR STL CAMERAS



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

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

PLANEWAVE INSTRUMENTS
CDK 17, 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

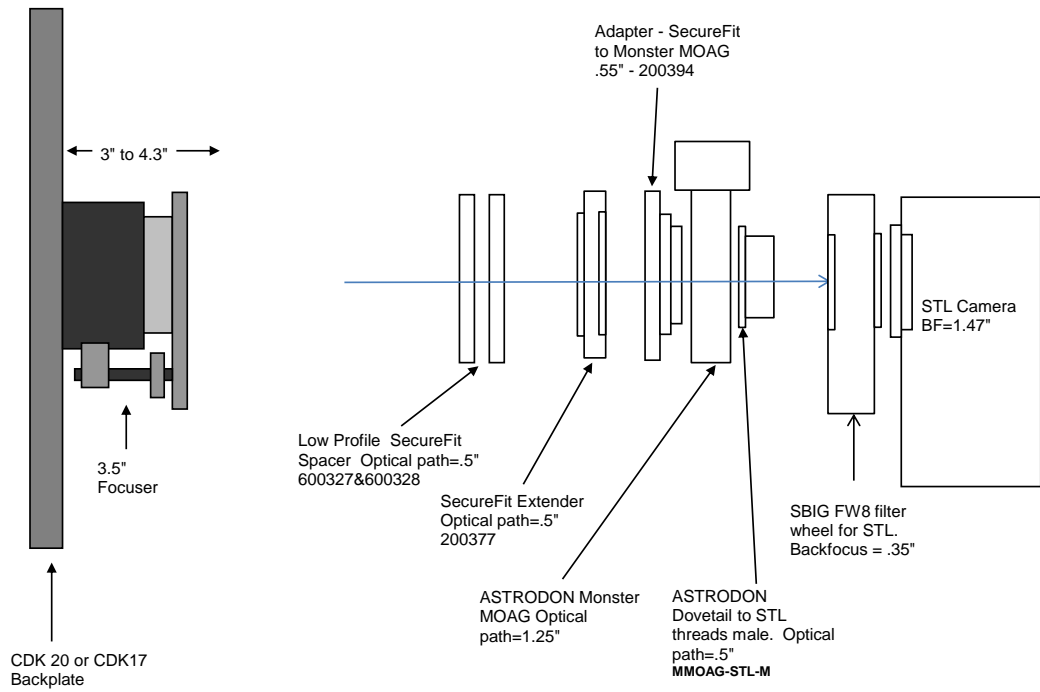
STL w/ FW8 and AO-L		8.81 remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	0.15	5.66
CCD Spacer 2.1 - 200361-2	2.1	3.56
CCD Adapter STL - 200362	0.25	3.31
AO-L	1.49	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

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 MOAG	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

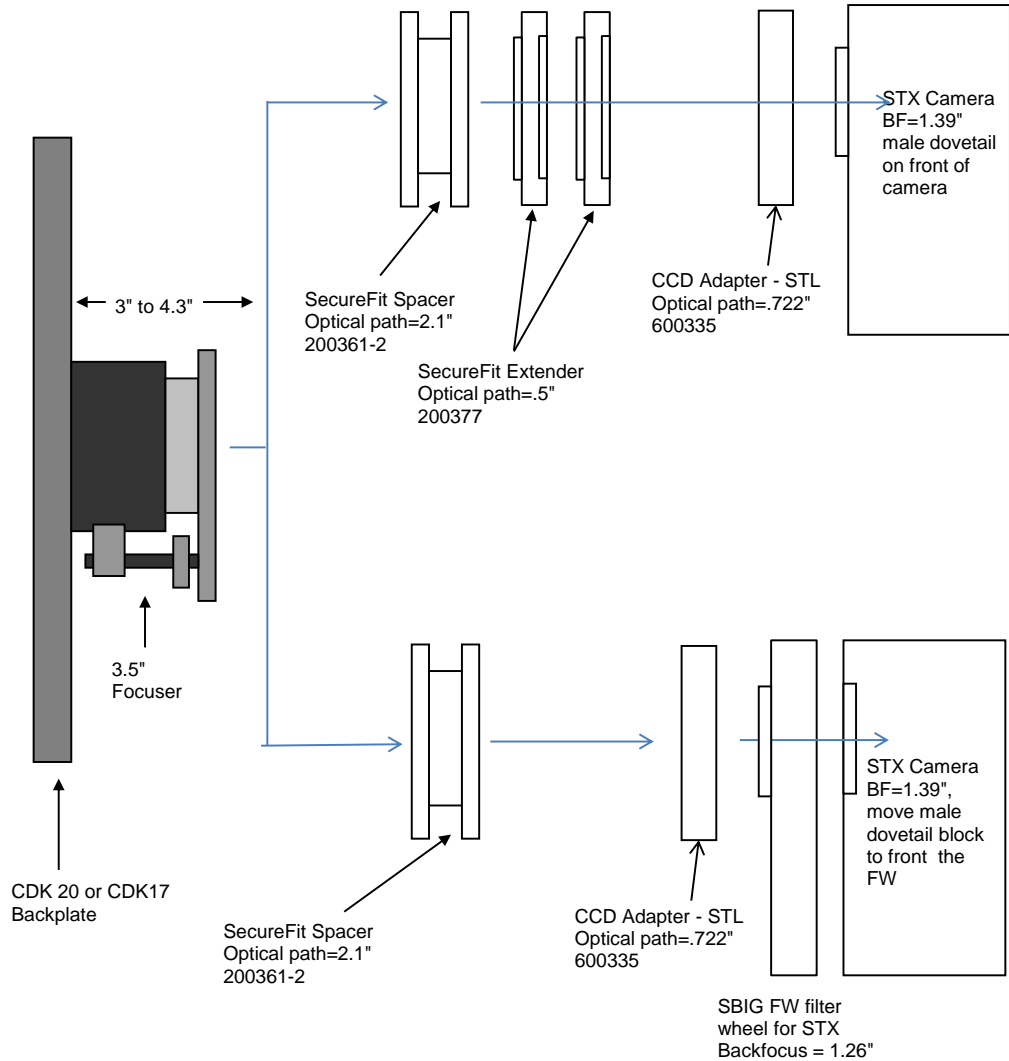
OR
ASTRODON
Dovetail to STL
threads male. Optical
path=.5"
MMOAG-STL-M

PLANEWAVE INSTRUMENTS
 CDK 17, 20, AND 24 SPACERS FOR STL CAMERAS



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

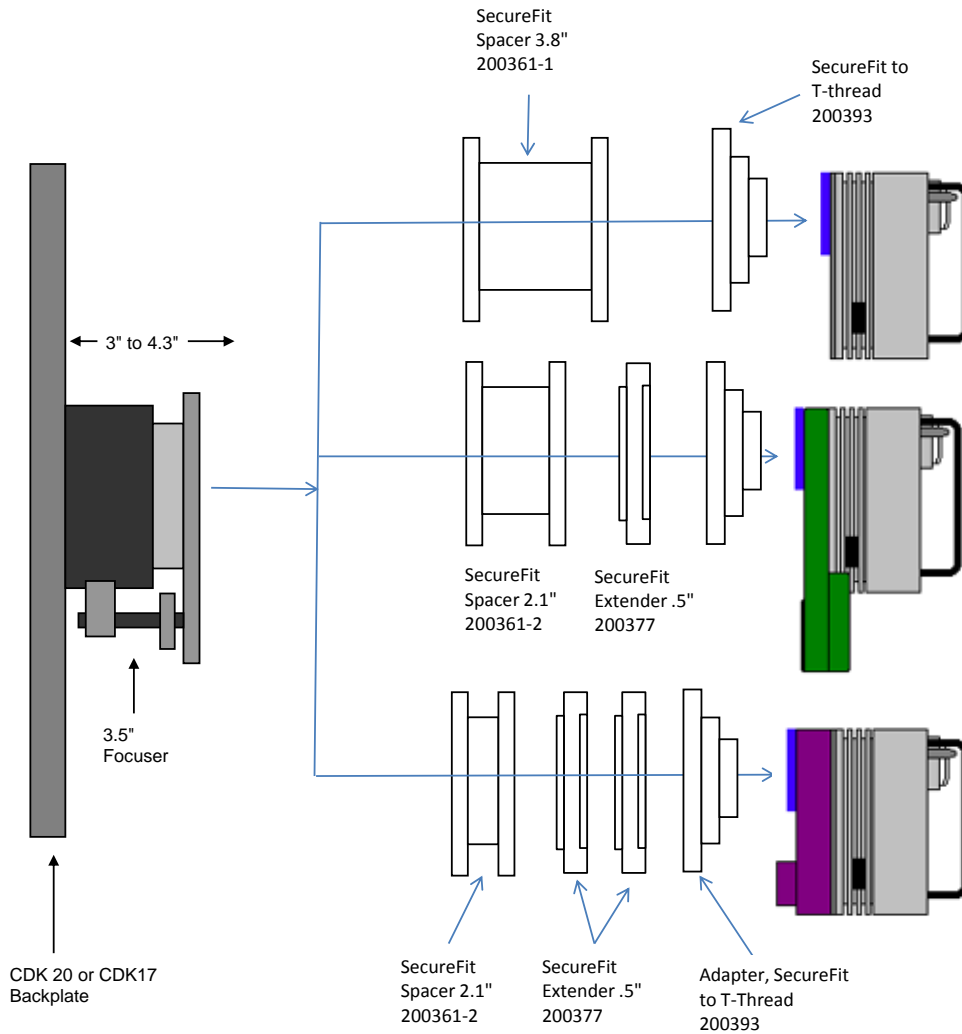
PLANEWAVE INSTRUMENTS
CDK17, 20, 24 SPACERS FOR STX CAMERAS



STX		8.81 remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	0.598	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
SLT Back Focus	1.39	0

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

PLANEWAVE INSTRUMENTS
CDK17&20 SECUREFIT CCD SPACERS FOR ST CAMERAS



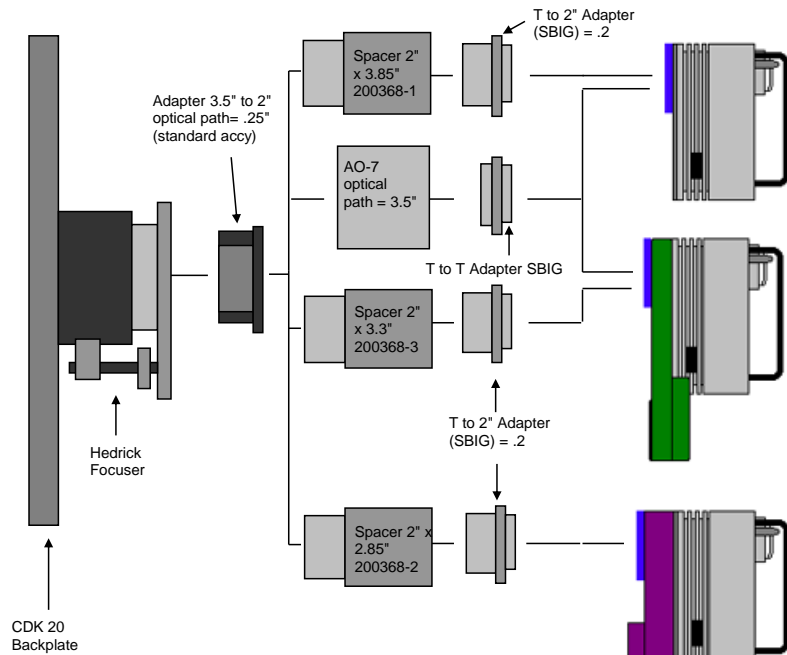
SecureFit w/ ST	8.81 remaining BF	
Focuser racked in	3	5.81
Focuser Position (0 - 1.3")	0.77	5.04
SecureFit 3.8 - 200361-1	3.8	1.24
Adapter, SecureFit to T thread - 200393	0.55	0.69
ST Back Focus (with D-block)	0.69	1.11022E-15

SecureFit with ST and CFW10	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

SecureFit with ST and CFW10SA	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

SecureFit with ST and CFW8	8.81 remaining BF	
Focuser racked in	3	5.81
Focuser Position (0 - 1.3")	0.42	5.39
SecureFit Spacer - 200361-2	2.1	3.29
SecureFit Extender - 200377	0.5	2.79
SecureFit Extender - 200377	0.5	2.29
Adapter, SecureFit to T thread - 200393	0.55	1.74
ST w/ CFW8 Back Focus, (w/o D-block)	1.74	0

PLANEWAVE INSTRUMENTS
CDK17&20 SECUREFIT CCD SPACERS FOR ST CAMERAS



ST Camera, no filter wheel		8.81 remaining BF
Focuser racked in	3	5.81
Focuser Position (0 - 1.3")	0.498	5.312
Adapter, 3 to 2 (standard acy)	0.25	5.062
CCD 2" Spacer x 3.85" - 200368-1	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		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

ST Camera with CFW10 w/ D-Block		8.81 remaining BF
Focuser racked in	3	5.81
Focuser Position (0 - 1.3")	0.468	5.342
Adapter, 3 to 2 (standard acy)	0.25	5.092
CCD 2" SPACER x 3.3" - 200368-3	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		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

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

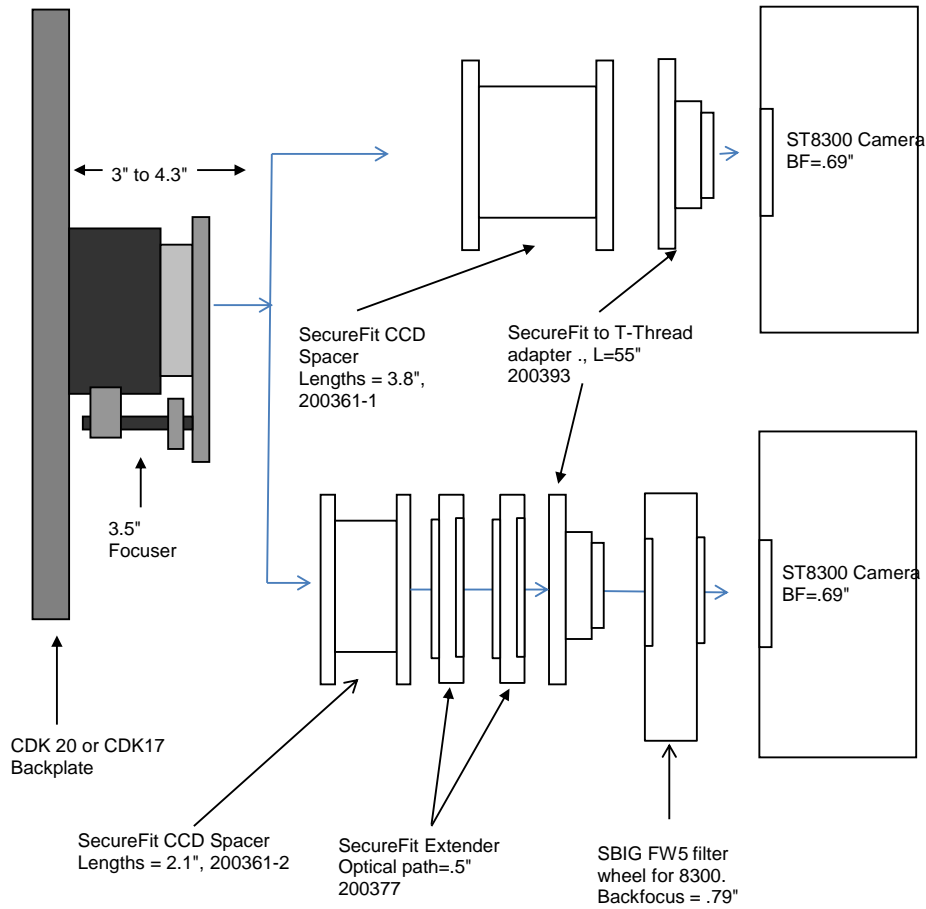
DOES NOT HAVE ENOUGH BACK FOCUS

ST + CFW8 + AO-7		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
CDK17, 20, 24 SECUREFIT SPACERS FOR STL CAMERAS

Distance to Focuser Mounting Surface

8.81

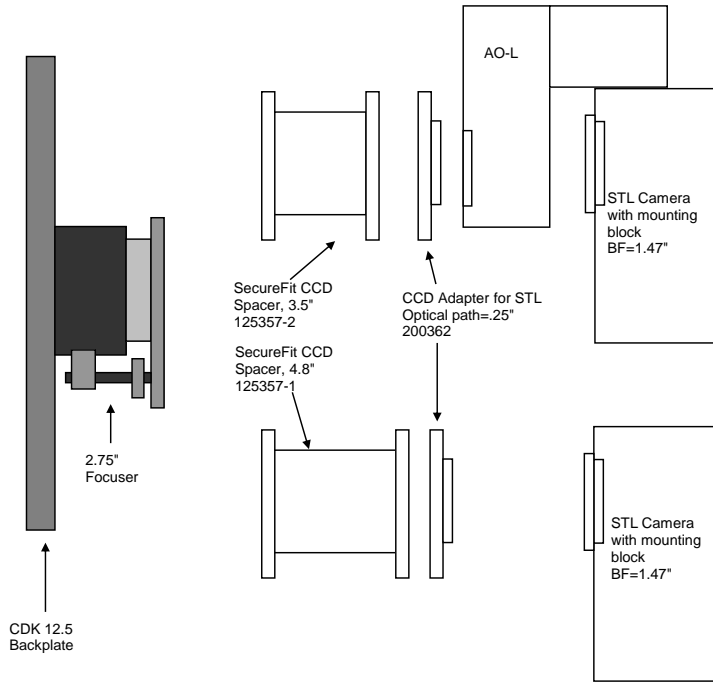


ST8300 Camera Alone	8.81	remaining BF
Focuser racked in	3	5.81
Focuser position (0-1.3")	0.77	5.04
CCD Spacer 3.8 - 200361-1	3.8	1.24
SecureFit to T-Thread - 200393	0.55	0.69
SLT Back Focus	0.69	0.00

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

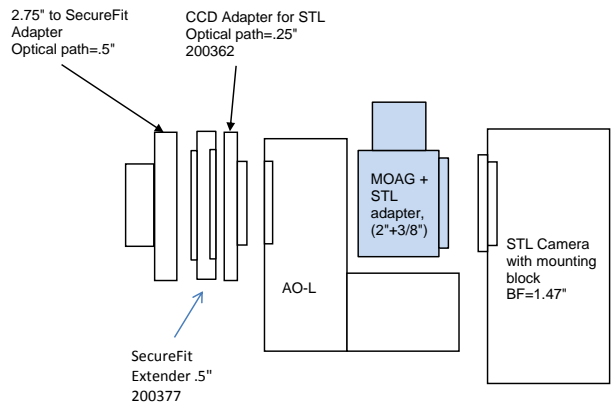
PLANEWAVE INSTRUMENTS
SECUREFIT CCD SPACERS FOR STL CAMERAS
for CDK12.5

← 10.445 →
Distance from focuser mounting surface to focal plane



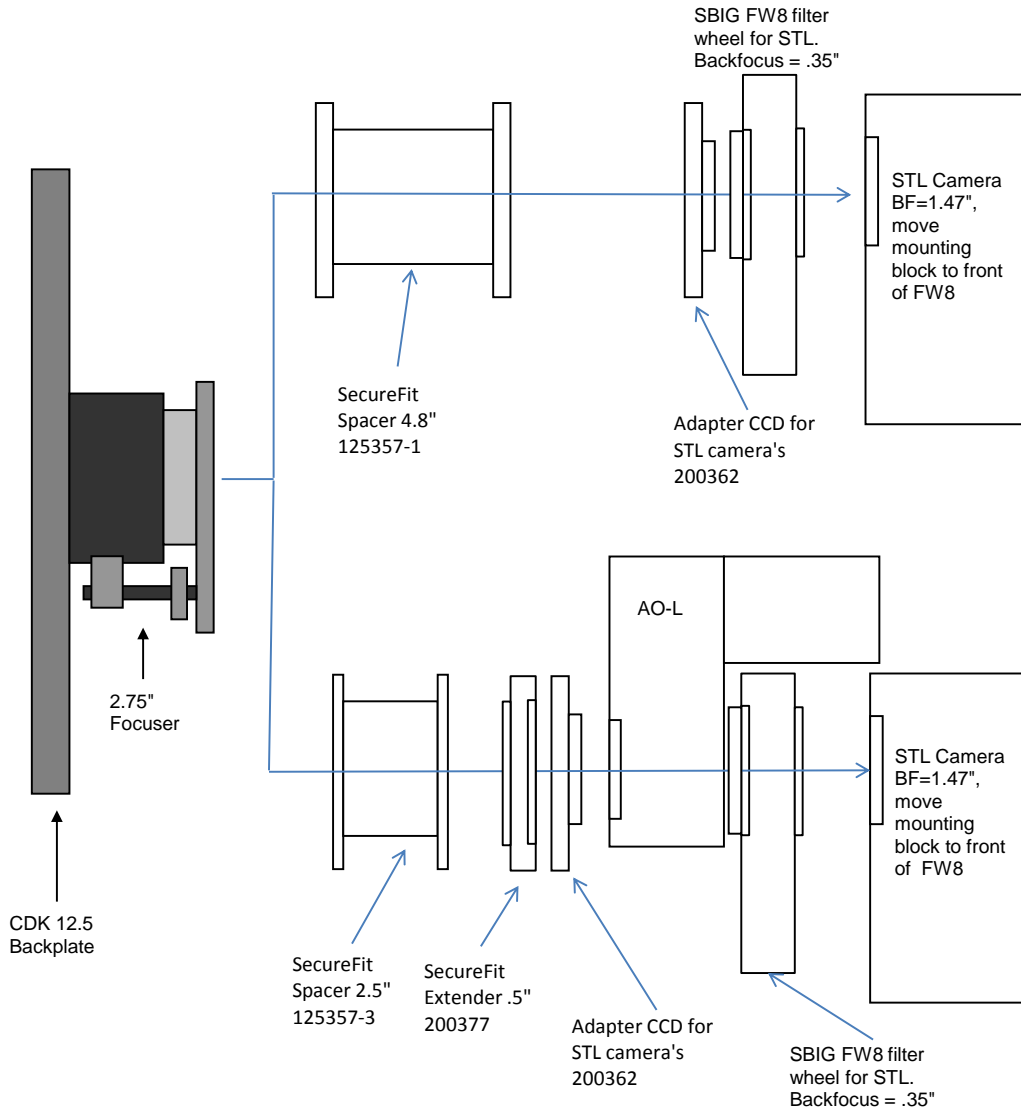
STL and AO-L required spacers	10.445 remaining BF	
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.485	6.71
SecureFit CCD Spacer 3.5" - 125357-2	3.5	3.21
CCD Adapter, STL - 200362	0.25	2.96
AO-L	1.49	1.47
STL Back Focus	1.47	0

STL Camera	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" - 125357-1	4.8	1.72
CCD Adapter, STL - 200362	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 - 200377	0.5	6.195
CCD Adapter, STL - 200362	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



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

STL + FW8 + AO-L	10.445 remaining BF	
Focuser racked in	3.25	7.195
Focus position (0 to 1.3")	0.635	6.56
SecureFit CCD Spacer 2.5" - 125357-3	2.5	4.06
SecureFit CCD Extender .5" - 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

2.75" Focuser to Pyxis
3" Field Rotator, Optical
Path = 1.9", 17826

Optec, Pyxis 3" Camera
Field Rotator, Optical
Path = 2.4"

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

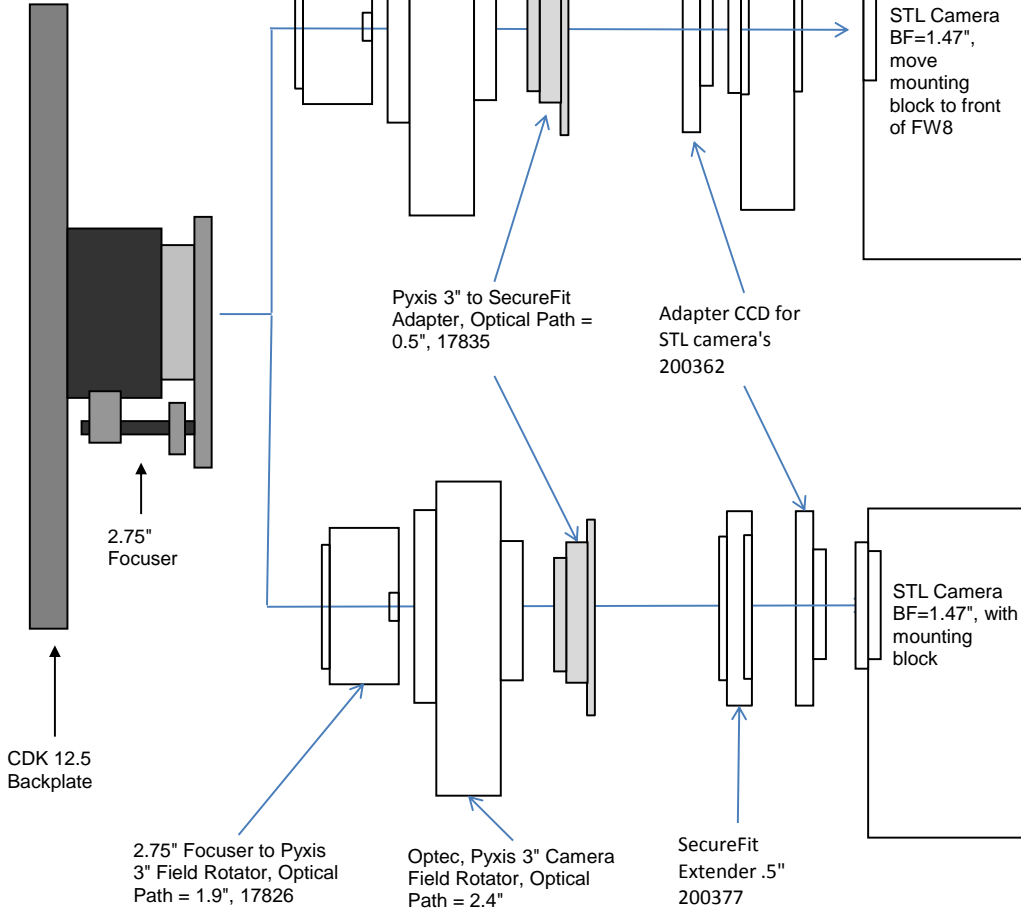
SBIG FW8 filter
wheel for STL.
Backfocus = .35"

STL Camera
BF=1.47",
move
mounting
block to front
of FW8

Pyxis 3" to SecureFit
Adapter, Optical Path =
0.5", 17835

Adapter CCD for
STL camera's
200362

STL Camera
BF=1.47", with
mounting
block



CDK 12.5
Backplate

2.75" Focuser to Pyxis
3" Field Rotator, Optical
Path = 1.9", 17826

Optec, Pyxis 3" Camera
Field Rotator, Optical
Path = 2.4"

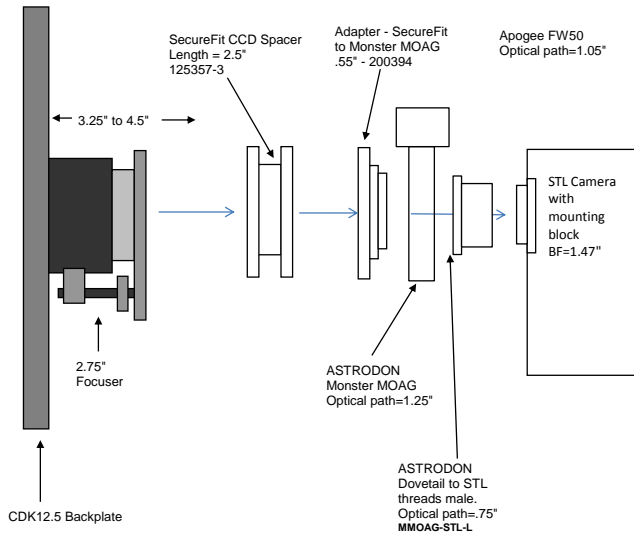
SecureFit
Extender .5"
200377

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 - 17826	1.9	4.97
Optec Pyxis 3" Rotator - PYXIS 3	2.4	2.57
Pyxis Rotator to SecureFit - 17835	0.5	2.07
CCD Adapter, STL - 200362	0.25	1.82
FW8	0.35	1.47
SLT Back Focus	1.47	0

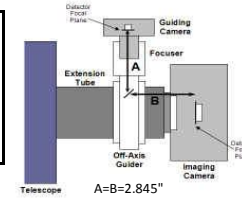
STL + Pyxis		10.445 remaining BF
Focuser racked in	3.25	7.195
Focus position (0 to 1.3")	0.175	7.02
2.75" Focuser to Pyxis Rotator - 17826	1.9	5.12
Optec Pyxis 3" Rotator - PYXIS 3	2.4	2.72
Pyxis Rotator to SecureFit - 17835	0.5	2.22
SecureFit CCD Extender .5" - 200377	0.5	1.72
CCD Adapter, STL - 200362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

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

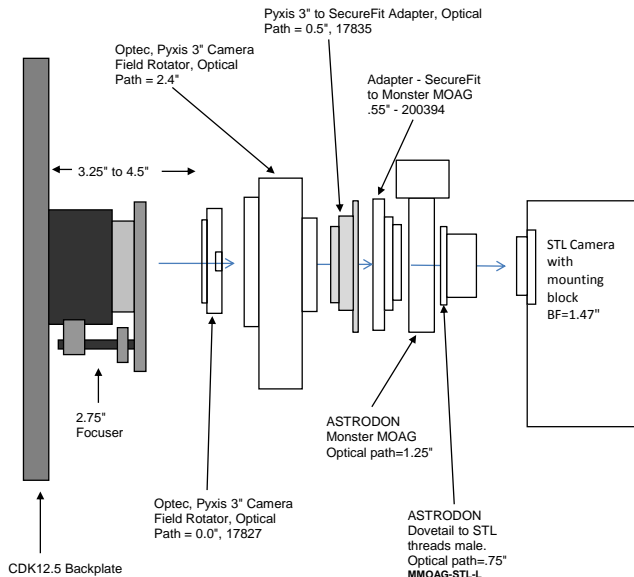
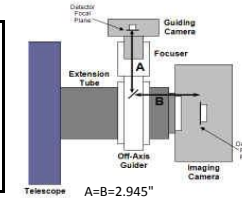
Distance to Focuser Mounting Surface 10.445



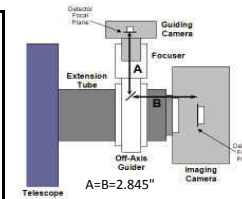
STL CCD & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.675	6.52
SecureFit CCD Spacer - 125357-3	2.5	4.02
Adapter SecureFit to Monster MOAG - 200394	0.55	3.47
Monster MOAG - MMOAG	1.25	2.22
AstroDon Adapter - MMOAG-STL-L	0.75	1.47
SBIG STL Camera with mounting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



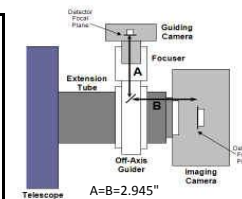
STL CCD, FW8 FILTER WHEEL & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.575	6.62
SecureFit CCD Spacer - 125357-3	2.5	4.12
Adapter SecureFit to Monster MOAG - 200394	0.55	3.57
Monster MOAG - MMOAG	1.25	2.32
AstroDon Adapter - MMOAG-STL-M	0.5	1.82
SBIG FW8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



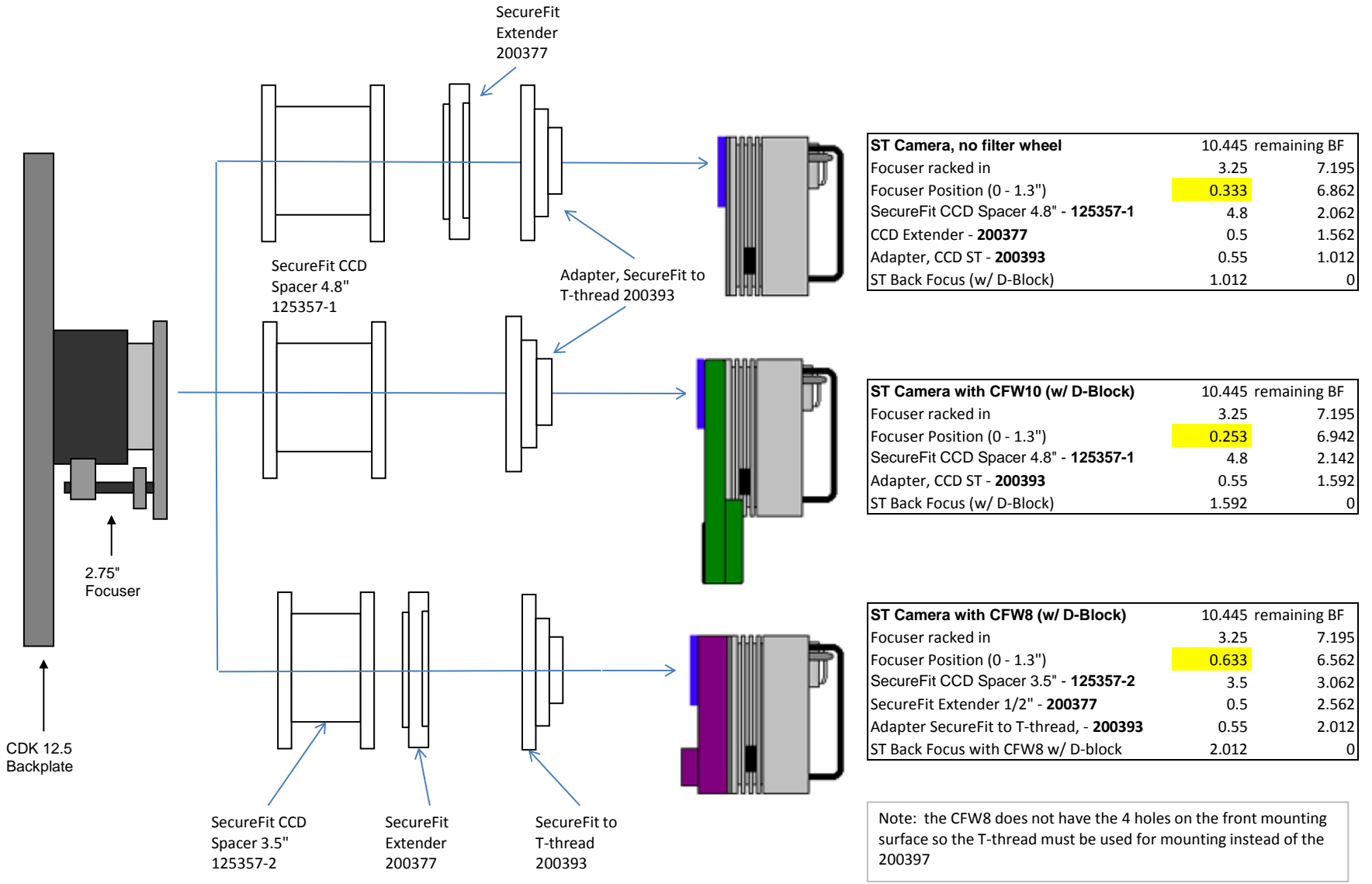
STL CCD, Pyxis & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.275	6.92
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	6.92
Optec Pyxis 3" Camera Rotator	2.4	4.52
Optec Pyxis 3" to SecureFit Adapter - 17835	0.5	4.02
Adapter SecureFit to Monster MOAG - 200394	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



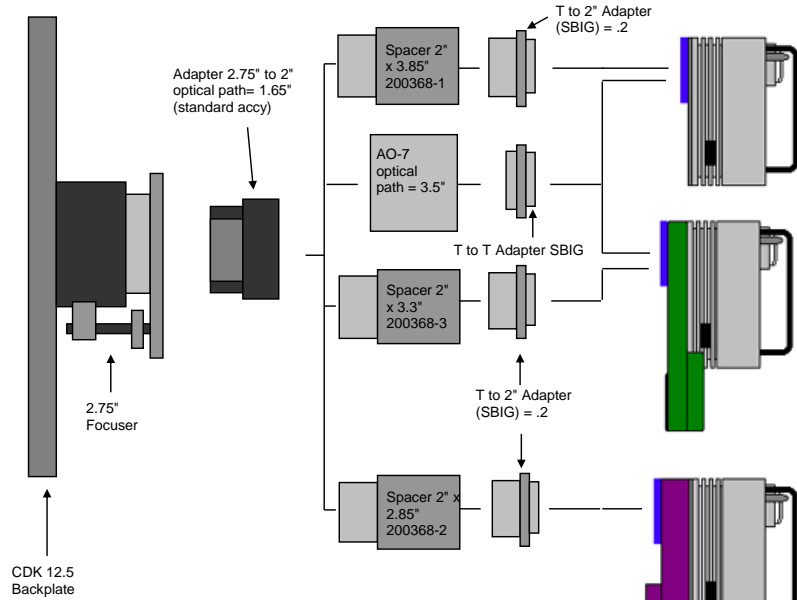
STL CCD, FW8, Pyxis & MMOAG	10.445	remaining BF
2.75" Focuser (racked in)	3.25	7.195
Focus position (0 to 1.3")	0.175	7.02
PW 12.5 to Optec-3600 dovetail adapter - 17827	0	7.02
Optec Pyxis 3" Camera Rotator	2.4	4.62
Optec Pyxis 3" to SecureFit Adapter - 17835	0.5	4.12
Adapter SecureFit to Monster MOAG - 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



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



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" - 200368-1	3.85	1.212	
T to 2 Adapter (SBIG)	0.2	1.012	
ST Back Focus (with D-Block)	1.012	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" - 200368-3	3.3	1.792	
T to 2 Adapter (SBIG)	0.2	1.592	
ST Back Focus (with D-Block)	1.592	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" - 200368-2	2.85	2.212	
T to 2 Adapter (SBIG)	0.2	2.012	
ST Back Focus (with D-block)	2.012	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 + 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	

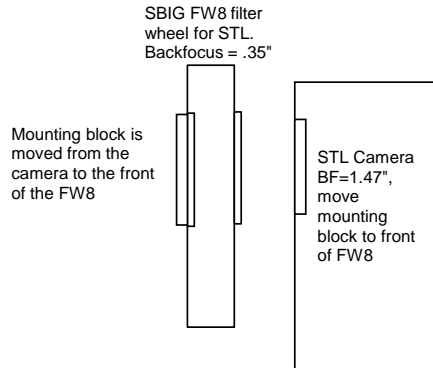
DOES NOT HAVE ENOUGH BACK FOCUS

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	

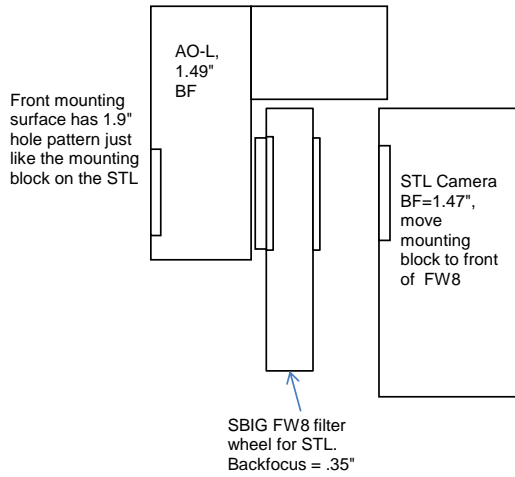
STL Camera and Accessory Backfocus Measurements

STL Backfocus with D-block	1.47	assumes there are filters in the internal filterwheel
STL Backfocus without D-block	1.195	
FW8-STL Filter wheel	0.35	replaces the front of the STL camera and has the same hole pattern as the front plate of the STL
AO-L	1.49	front surface is just like the STL mounting block. It has 4 holes spaced 1.9" apart and the same 2.1" threaded hole in the center
STX	1.39	Optical back focus
STX Filter Wheel	2.68	Adds 1.26" of optical back focus

STL with FW8 1.82 inches of back focus



STL + FW8 + AO-L 3.31 inches of back focus



STL with MOAG and AO-L 5.335 inches of back focus

