

RECTILUX 3FF-W

OWNERS MANUAL VERSION 1.0

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Forward

BY JOHN BARLOW

RECTILUX is the culmination of over two years work, serious design intent mixed with a fair share of tinkering and computer simulation and realisation. In many ways it is already a mature product, having passed through numerous design iterations and also thoroughly tested in the prototype phase. It has undergone a full product development life cycle.

I thank you for choosing RECTILUX and I sincerely hope that you derive as much fun and pleasure using it as I have had in designing it and I also wish you every success in your filming projects.

John Barlow 2015

RECTILUX comes from the Latin:

Recti = straight

Lux = light

'Light goes straight through with little effect on footage'

Sensible Precautions

HEALTH & SAFETY

I am not about to lecture you on the health and safety aspects of the procedures detailed herein. Suffice to say that a little forethought about what you are about to accomplish will lead you on the correct path. Thus, if a procedure may involve getting something in your eye or cut your finger, then please have the good sense to wear eye protection or a glove. When dealing with chemicals always follow the advice on the container and wear a mask if appropriate. Be heathy, be safe.

LIST OF TOOLS REQUIRED

- A set of precision screwdrivers, cross and blade types
- A lens wrench
- A hex or Allen key
- Lighter fluid
- Cotton buds
- Cotton cloth
- Penetrating oil
- Acetone
- A pin
- A handheld hairdryer

Installing the Coupling Rings

A NOTE ABOUT REMOVING SCREWS

Before tackling screws it is suggested that you use a pin to clear out the slot recess from dirt, paint or lacquer etc. It is important that the screwdriver sits deep in the slot and is the correct size. There are many types of cross head screws, so please ensure you use the correct screwdriver which sits deep in the slot and is snug, no play allowed. If in doubt, visit a hardware store and get some advice.

From many years of dealing with screws I have found that it is either easy or troublesome. The following workflow assumes the latter and if it turns out to be the former, have a cigar!

These are the recommended steps:

- Warm the area with a handheld hairdryer on full heat for about 30-50 seconds so that the metal expands, not so hot that you get scalded, so take care.
- After cooling, apply two drops of acetone around the perimeter of the screw head and see what happens. If the acetone drains away then you can unscrew, if it doesn't it may mean there is lacquer or thread lock on the threads, so repeat and wait a while for the acetone to drain away, then unscrew.
- Insert the screwdriver into the slot and press down firmly and unscrew anti clockwise, if you hear a snap or cracking noise it will be the lacquer or thread lock breaking so do not be alarmed.
- When the screw starts to turn, ease off on the down force and unscrew as normal.

Bolex 16/32/1.5X

The Bolex and the equivalent Moller are the easiest units to adapt to RECTILUX, no tools required.

Here, I will discuss the mounting of the front coupling ring and leave the discussion of the second coupling ring until the section Mounting Your Anamorphic to RECTILUX 3FF-W.



Wear a glove (freshly machined threads can be sharp) and screw the front coupling ring into the front filter ring of the Bolex with reasonable tightness. Take care not to cross the threads.

Now your Bolex is St. Bolex and has a 75mm external thread at the front and is therefore RECTILUX ready.

Job done!

Chrétien Hypergonar 16 STOP

These units come in six flavours or stylings, the discussion flows from each style. STOP stands for SOCIETÉ TECHNIQUE OPTIQUE de PRECISION.

Here, I will discuss the mounting of the front coupling ring and leave the discussion of the second coupling ring until the section Mounting Your Anamorphic to RECTILUX 3FF-W.

IDENTIFYING MODELS 1-2

These units are recognisable from the styling, which is reminiscent of a Maglite flash light.

Model 1 has side cheeks on the front group and no edge grounding for maximum FOV, whereas Model 2 has side cheeks on the front group and also has 4mm edge grounding left and right reducing FOV.

Needless to say Model 1 is highly desirable for the additional 15% FOV with only about 1200 units made, before 20th Century Fox stepped in and spoiled the fun.

IDENTIFYING MODELS 3-5

These are the zebras with subtle differences in overall exterior design, but identical optics to Model 2 including the 4mm edge grounding left and right.

IDENTIFYING MODEL 6

This unit is different than the rest, with a distinctive hooped engraving on the focus ring.

It has a longer track length and has no side cheeks.

CHRÉTIEN HYPERGONAR 16 STOP

PREPARING MODEL 1-2



First, you need to set the Hypergonar16 to the infinity setting but **do not remove** the screw around the front shown by red arrow A in the photo left.

Do not remove this front cover as underneath there are ball bearings which will fall out.

Next, slip the front coupling ring over the top and use the supplied screws to tighten up the coupling ring.

Now your Hypergonar16 is St. Hypergonar and has a 75mm external thread at the front and is therefore RECTILUX ready.

Job done!

CHRÉTIEN HYPERGONAR 16 STOP

PREPARING MODEL 3-5



First, you need to set the Hypergonar16 to the infinity setting and then remove the three screws around the front shown by red arrows A in the photo left that secure the front stop ring from turning.

This stop ring is replaced by the front coupling ring and needs to be removed using a lens wrench. Place the tips of the wrench in the holes B and turn anti clockwise to remove the stop ring.

Store the stop ring for safe keeping.



Next, wear a glove (freshly machined threads can be sharp) and screw in the front coupling ring as a replacement to the stop ring. Take care not to cross the threads.

The tightness will affect the torque needed to focus the Hypergonar16, so adjust to your preference. When done, refit the three screws removed earlier.

Now your Hypergonar16 is St. Hypergonar and has a 75mm external thread at the front and is therefore RECTILUX ready.

Job done!

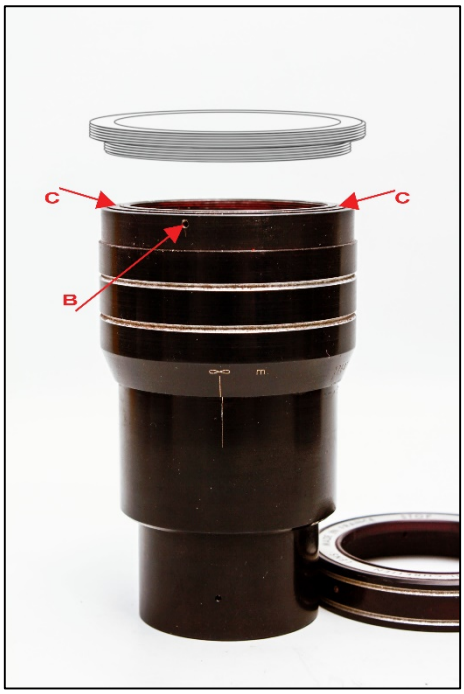
CHRÉTIEN HYPERGONAR 16 STOP

PREPARING MODEL 6



First, you need to set the Hypergonar16 to the infinity setting and then remove the three screws A around the front shown by red arrows in the photo left.

This ring has a decorative function only and when removed reveals the familiar stop ring arrangement that is used in models 3-5.



The stop ring is secured by three additional screws B around the front shown by red arrows in the photo below. They must be removed.

The stop ring is replaced by the front coupling ring and needs to be removed using a lens wrench. Place the tips of the wrench in the holes C shown by red arrows and turn anti clockwise to remove the stop ring. Store the stop ring for safe keeping.

Next, wear a glove (freshly machined threads can be sharp) and screw in the front coupling ring as a replacement to the stop ring. Take care not to cross the threads.

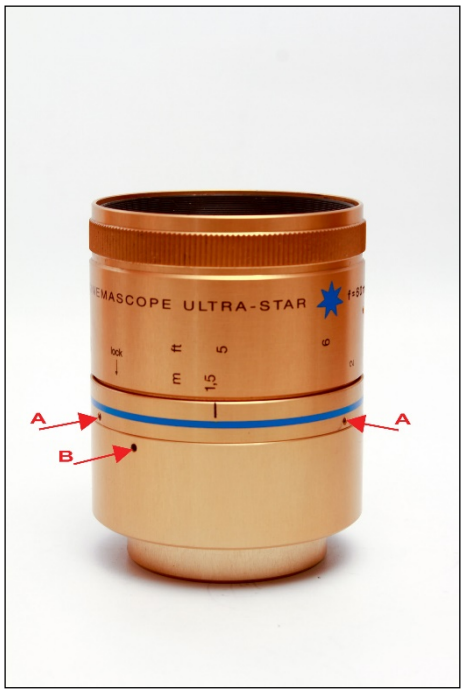
The tightness will affect the torque needed to focus the Hypergonar16, so adjust to your preference. When done, refit the three screws B removed earlier.

Now your Hypergonar16 is St. Hypergonar has a 75mm external thread at the front and is therefore RECTILUX ready. Job done!

ISCO Ultra-Star 2X

Ultra-Stars are based upon the Hypergonar16.

When the patents for the Chrétien units expired, ISCO (the budget arm of Schneider) started to make them in the 70s, initially in black and later gold then red. However they ruined them a bit for filming by layering multi coating which affected flare performance somewhat. The glass index is also different because those early Chrétien STOP units dating from 1955 had a unique recipe, but physically they are the same size, except for the increase in entrance pupil.



Your Ultra-Star is most likely in the form shown left with the back lens removed. The following steps need to be followed to get your Ultra Star RECTILUX-enabled.

There are a total of five (5) screws that need to be removed shown by the red arrows, three (3) are in the thin ring A with a blue band and two (2) in the fat ring B below it.

The arrangement is the same for the red version of this lens, 3 screws in the thin ring and 2 screws in the fat ring below it.

After the 2 screws have been removed from the fat ring, pull the focus decal ring out to the unlock position and then the fat ring can be unscrewed anti-clockwise and removed along with the thin ring.

ISCO ULTRA-STAR 2X



After the rings have been removed, your lens should be in the form shown left.

The focus decal ring is made of thin metal and it needs to be removed to get access to the thicker and stronger metal underneath. Please note that this is a cosmetic feature and focus operations are unaffected.

Remove the 2 screws from the focus decal ring marked by red arrow C. Now place the whole lens in a transparent polythene bag and seal it, then pull back the focus decal ring toward the rear of the lens. Three springs and ball bearings will be ejected but will be caught in the bag for safekeeping. They are for the lock clutch mechanism.

Remove the focus decal ring and put it with the other removed parts for safekeeping.



After the above operations have been performed, your lens should be in the form shown left. The black ring is the real focus ring. You may want to attach some blue self-adhesive vinyl tape to the black focus ring and mark the focus scale on it with a permanent marker and also mark a reference line on the body.

It is a fully functional ISCO Ultra-Star in the minimalist configuration and a perfect lightweight companion for RECTILUX 3FF-W.

Next, slip the front coupling ring over the top aligning to the front of the Ultra-Star and tighten the supplied screws to fix it.

The rear coupling ring can be screwed to the rear thread A of the Ultra-Star, make sure the internal threaded side faces the rear of the lens.

Now your Ultra-Star is St. Ultra-Star and has a 75mm external thread at the front and also a rear coupling ring fitted and is therefore RECTILUX ready. Job done!

Kowa (BH, 8Z, 16H) 2X

The Kowa's are very desirable units, the glass has a significant lead content providing the sought-after micro diffusion that we all love. The Kowa BH is the widest-field of view-projection scope available.



Here, I will discuss the mounting of the front coupling ring and leave the discussion of the second coupling ring until the section Mounting Your Anamorphic to RECTILUX 3FF-W.

First, you need to set the Kowa to the infinity setting and then remove the three screws around the front stop ring shown by red arrows A in the photo left.

The stop ring can then be removed by turning anti-clockwise.

After the stop ring has been removed, store it safely with the screws you removed above.

KOWA (BH, 8Z, 16H) 2X



Wear a glove (freshly machined threads can be sharp) and fit the front coupling ring as a replacement to the stop ring simply by screwing it on with the wrench slots facing the rear. Take care not to cross the threads.

The tightness will affect the torque needed to focus the Kowa, so adjust to your preference.

To take full advantage of the floating zone focus feature with this lens, you need to remove the distance scale skirt by removing the screws marked by red arrows B. Please note that this is a cosmetic feature and focus operations are unaffected.

Before you do this, you may want to attach some blue self-adhesive vinyl tape above the knurled finger grip and mark the focus scale on it with a permanent marker.

Now your Kowa is St. Kowa and has a 75mm external thread at the front and is therefore RECTILUX ready.

Job done!

Sankor 16-D 2X

Here, I will discuss the mounting of the front coupling ring and leave the discussion of the second coupling ring until the section Mounting Your Anamorphic to RECTILUX 3FF-W.



First, you need to remove the small hood by turning it anti-clockwise, then set the Sankor to the infinity setting and remove the three screws around the front shown by red arrows A in the photo left.

The stop ring can then be removed by turning anti-clockwise.

After the stop ring has been removed, store it safely with the screws you removed above.

SANKOR 16-D 2X



Wear a glove (freshly machined threads can be sharp) and fit the front coupling ring as a replacement to the stop ring simply by screwing it on with the wrench slots facing the rear. Take care not to cross the threads.

The tightness will affect the torque needed to focus the Sankor, so adjust to your preference.

To take full advantage of the floating zone focus feature with this lens, you need to remove the distance scale skirt by removing the screws marked by red arrows B. Please note that this is a cosmetic feature and focus operations are unaffected.

Before you do this, you may want to attach some blue self-adhesive vinyl tape below the knurled finger grip and mark the focus scale on it with a permanent marker.

Now your Sankor is St. Sankor and has a 75mm external thread at the front and is therefore RECTILUX ready. Job done!

Schneider Kreuznach MC ES Cinelux 2X

The Cinelux series are the sharpest and fastest mid-sized units out there at the time of writing, not surprising as Schneider has won a number of technical achievement awards - Oscars – over the years.

The flare performance is hindered by the strong multi coating and they tend to be criticised for having too clean a look, however sometimes this look is what is sometimes needed.

Here, I will discuss the mounting of the front coupling ring and leave the discussion of the second coupling ring until the section Mounting Your Anamorphic to RECTILUX 3FF-W.



First, you should slacken the lock nut using a hex or Allen key and then adjust the focus to the infinity setting.

The nameplate decal ring is made of thin metal and it needs to be removed to get access to the thicker and stronger metal underneath.

Remove the four screws on the front nameplate decal ring as shown by red arrows A in the photo left.

After this, you can then remove the nameplate decal ring and store it safely with the screws you removed above.

SCHNEIDER KREUZNACH MC ES CINELUX 2X



You can now fit the front mounting ring by introducing it to the front of the Cinelux where the nameplate decal ring was previously fitted and make it flush with the front of the Cinelux.

Use the provided screws to tighten the front mounting ring.

Now your ES Cinelux is St. Cinelux and has a 75mm external thread at the front and is therefore RECTILUX ready.

Job done!

VidoScope Super 16mm 2X

This unit is believed to be functionally the same as a Kowa Prominar 16-A and has a wide FOV.

Here, I will discuss the mounting of the front coupling ring and leave the discussion of the second coupling ring until the section Mounting Your Anamorphic to RECTILUX 3FF-W.



First, you need to remove the small hood by turning it anti-clockwise, then set the VidoScope to the infinity setting and remove the three screws around the front shown by red arrows A in the photo left.

The stop ring can then be removed by turning anti-clockwise.

After the stop ring has been removed, store it safely with the screws you removed above.

VIDOSCOPE SUPER 16MM 2X



Wear a glove (freshly machined threads can be sharp) and fit the front coupling ring as a replacement to the stop ring, simply by screwing it on with the wrench slots facing the rear. Take care not to cross the threads.

The tightness will affect the torque needed to focus the VidoScope, so adjust to your preference.

To take full advantage of the floating zone focus feature with this lens you need to remove the distance scale skirt by removing the screws marked by red arrows B. Please note that this is a cosmetic feature and focus operations are unaffected.

Before you do this, you may want to attach some blue self-adhesive vinyl tape below the knurled finger grip and mark the focus scale on it with a permanent marker.

Now your VidoScope is St. VidoScope and has a 75mm external thread at the front and is therefore RECTILUX ready.

Job done!

Rathenower Rectimascop 48/2x

These premium German export quality 1Q units have a beautiful classic vintage look and blue flares. Fans of movies from the 60s and 70s will know what I mean.

I have worked hard to add them to the RECTILUX stable and some modification is necessary to fit these large anamorphic lenses into the RECTILUX 3FF-W, discarding 60% of the weight along the way, and is a most worthwhile process which I will detail in a forthcoming guide.



The Rectimascop 48/2X is shown at left. The easy to follow guide will detail how to harvest the front and rear anamorphic groups as shown overleaf.

Once harvested, the anamorphic groups are then mounted into a specially designed sabot which neatly screws inside RECTILUX 3FF-W.

The carcass accounts for 60% of the weight of the Rectimascop and will be used for a later complete single focus fixed 2X anamorphic lens project, based around a KMZ Helios 58mm or possibly an unnamed lens of longer focal length. It will be special. The carcass is a high quality precision unit with superb helicoid focusing and it is simply too good to dispose of it.

Therefore in true re-cycle fashion, all of the Rectimascop will find a new life in both RECTILUX 3FF-W and the fixed lens project.

RATHENOWER RECTIMASCOP 48/2X



The guide will detail how to disassemble the Rectimascop and the tools required to harvest the anamorphic groups shown left and will also fully illustrate the assembly process with the new sabot. It is not difficult and will be lots of fun for those wishing to have a hand in the making and customisation of the equipment that they use.

The conversion will feature the standard 0.6m to infinity focus range available on every 3FF-W.

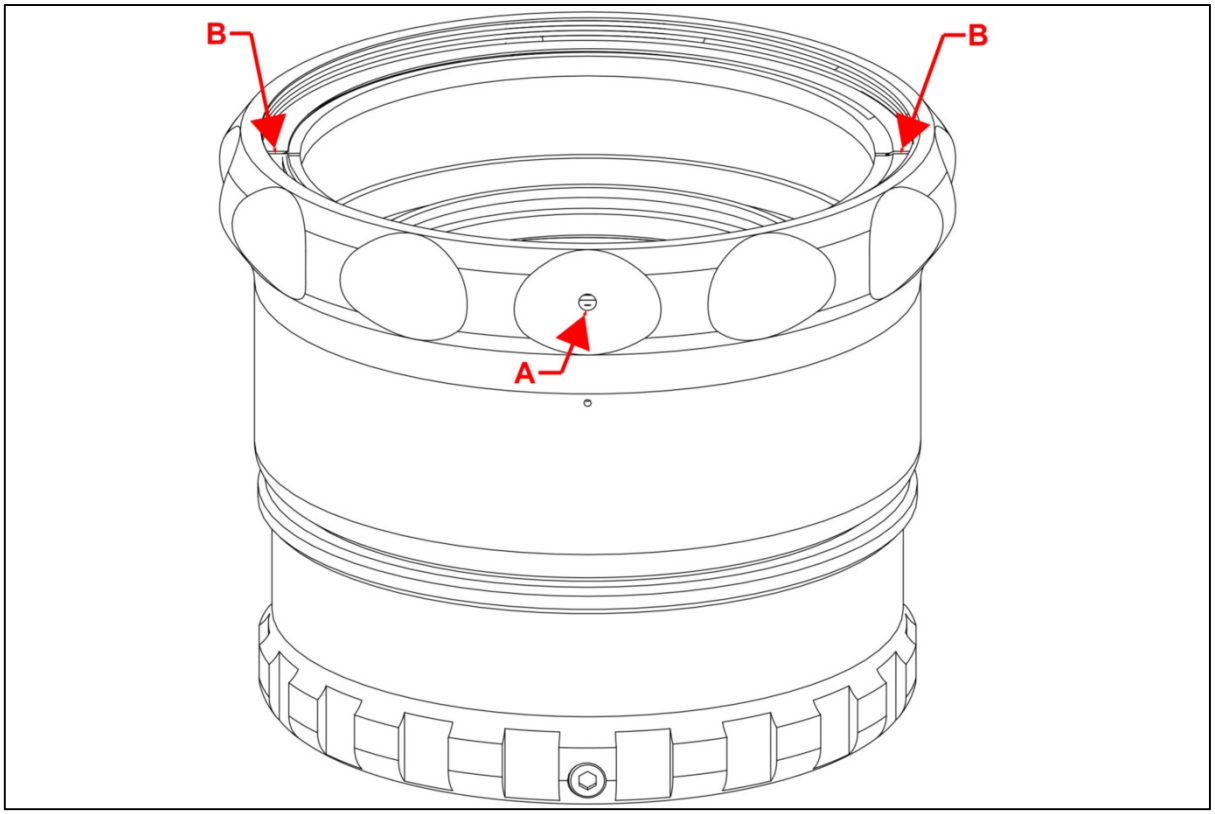
Floating Zone Focus will not be supported.

Mounting Your Anamorphic To RECTILUX 3FF-W

So now you have your anamorphic lens with the front coupling ring firmly attached and below you will learn how to mount it to RECTILUX.

RECTILUX 3FF-W will arrive partly assembled with the glass precision fitted and also the focus ring greased and mounted to the inner tube. The front lens holder assembly will also be screwed in and it is advisable to check that it is screwed in properly, as it may have worked loose in shipping. Use a lens wrench on the outer slots marked B, but **do not overtighten** it. Once you have done this, you can insert **just one** of the supplied M3 grub/set screws into one of the three threaded bores marked A, which fixes the lens holder from being unscrewed.

Only fit one screw A leave the other two bores empty.

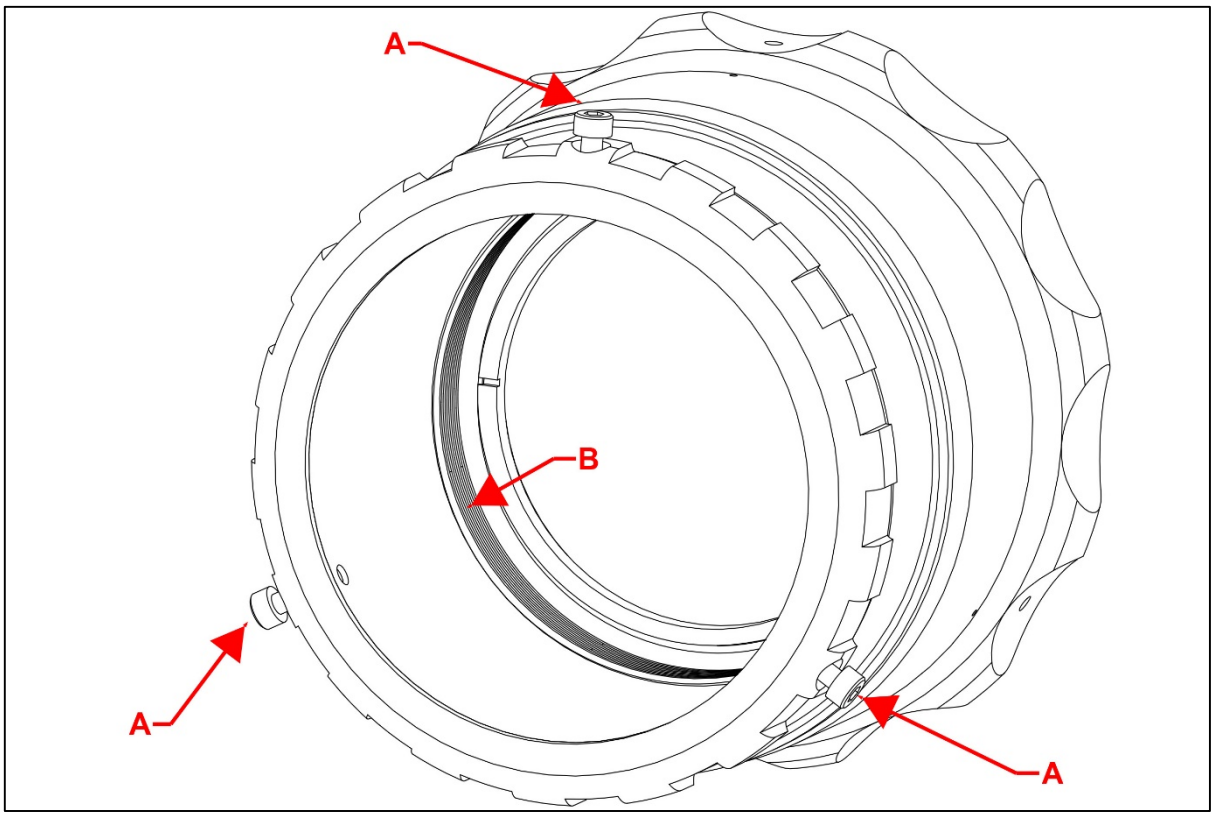


Instructions for fitting the rear focus guard are discussed next.

MOUNTING YOUR ANAMORPHIC TO RECTILUX 3FF-W

The focus guard will be loosely attached to the rear so the first step will be to insert the correct M3 screws to attach it to the inner tube.

Refer to the image below and slip the focus guard over the rear of the inner tube and align the three threaded holes on the focus guard with the three matching holes on the inner tube.



There are three (4 are supplied) M3 socket cap screws which screw through the threaded bores at the rear of the focus guard and also pass through the inner tube when aligned correctly. For now, make sure you do not thread them beyond the inner surface of the inner tube, but just enough so that the inner tube is held in place. These M3 screws are supplied in sets of different lengths depending on the anamorphic lens you wish to use, so it is a good idea to mark or colour paint them for Kowa, Bolex etc. so you can identify each set as appropriate.

Insert your anamorphic lens into RECTILUX from the rear, mating the 75mm male thread on the coupling ring to the equivalent 75mm internal female thread of RECTILUX marked B in the image above.

Take care to not cross the threads. A good test for this is that it takes about ten (10) turns before the coupling ring becomes fully threaded. If it seems that the threading is becoming stiff much earlier before ten turns have happened, then the threads might be crossed, so you should not force it, but unwind and start

again. There is no need for this to be super tight, so as soon as ten turns have happened you should stop threading at the first sign of resistance.

The next step is dependent on the anamorphic lens you are mounting to Rectilux. The procedure appears complicated in written form, but really is simple and quick in practice. This is the basis of the quick change plug & play feature of RECTILUX and with practice can be performed in about a minute and become second nature to you.

BOLEX

All that is required is to slip the rear coupling ring over the back of the Bolex until it passes its rear threads and stops at the back face of the Bolex and also fits inside the inner tube of RECTILUX. Once in place, the M3 screws marked A in the image above can then be tightened such that the screws pass through the focus guard, the inner tube and press onto the rear coupling ring. It is not necessary to over tighten these screws as their function is 90% to stop rotation of the Bolex and only 10% for support. In this way the rear coupling ring acts like a plug or bushing. Job done!

HYPERGONAR16

All that is required is to slip the rear coupling ring over the back of the HyperGonar16 and on to the wider part beyond the rear tube. The rear coupling ring should be orientated so that the U shaped slots are facing forward and fits inside the inner tube of RECTILUX and also aligned with the bores on the focus guard and inner tube. Once in place, the M3 screws marked A in the image above can then be tightened, such that the rear face of the coupling ring is flush with the rear face of the focus guard and the screws pass through the focus guard, the inner tube, the rear coupling ring and press onto the wider part of the HyperGonar16 beyond the rear tube. It is not necessary to over tighten these screws as their function is 90% to stop rotation of the HyperGonar16 and only 10% for support. In this way the rear coupling ring acts like a plug or bushing. Job done!

ISCO ULTRA-STAR

The rear coupling ring is already mounted in place so the M3 screws marked A in the image above can then be tightened, such that the rear face of the coupling ring is flush with the rear face of the focus guard and the screws pass through the focus guard, the inner tube and press onto the rear coupling ring. If the rear faces of the coupling ring and the focus guard are not flush then you can unscrew the rear coupling ring a tiny bit until it becomes flush. It is not necessary to over tighten these screws as their function is 90% to stop rotation of the ISCO Ultra-Star and only 10% for support. In this way the rear coupling ring acts like a plug or bushing. Job done!

KOWA

All that is required is to slip the rear coupling ring over the back of the Kowa and on to the wider part beyond the rear tube and fits inside the inner tube of RECTILUX and also aligned with the bores on the focus

guard and inner tube. Once in place, the M3 screws marked A in the image above can then be tightened, such that the rear face of the coupling ring is flush with the rear face of the focus guard and the screws pass through the focus guard, the inner tube, the rear coupling ring and press onto the wider part of the Kowa beyond the rear tube. If the rear faces of the coupling ring and the focus guard are not flush then you need to reverse the coupling ring and try again. It is not necessary to over tighten these screws as their function is 90% to stop rotation of the Kowa and only 10% for support. In this way the rear coupling ring acts like a plug or bushing. Job done!

SANKOR

All that is required is to slip the rear coupling ring over the back of the Sankor and on to the wider part beyond the rear tube and fits inside the inner tube of RECTILUX and also aligned with the bores on the focus guard and inner tube. Once in place, the M3 screws marked A in the image above can then be tightened, such that the rear face of the coupling ring is flush with the rear face of the focus guard and the screws pass through the focus guard, the inner tube, the rear coupling ring and press onto the wider part of the Sankor beyond the rear tube. If the rear faces of the coupling ring and the focus guard are not flush then you need to reverse the coupling ring and try again. It is not necessary to over tighten these screws as their function is 90% to stop rotation of the Sankor and only 10% for support. In this way the rear coupling ring acts like a plug or bushing. Job done!

SCHNEIDER KREUZNACH CINELUX

All that is required is to slip the rear coupling ring over the back of the Schneider Kreuznach Cinelux tube and fits inside the inner tube of RECTILUX and also aligned with the bores on the focus guard and inner tube. Once in place, the M3 screws marked A in the image above can then be tightened, such that the rear face of the coupling ring is flush with the rear face of the focus guard and the screws pass through the focus guard, the inner tube, the rear coupling ring and press onto the tube of the Schneider Kreuznach Cinelux. If the rear faces of the coupling ring and the focus guard are not flush then you need to reverse the coupling ring and try again. It is not necessary to over tighten these screws as their function is 90% to stop rotation of the Schneider Kreuznach Cinelux and only 10% for support. In this way the rear coupling ring acts like a plug or bushing. Job done!

VIDOSCOPE

All that is required is to slip the rear coupling ring over the back of the VidoScope and on to the wider part beyond the rear tube and fits inside the inner tube of RECTILUX and also aligned with the bores on the focus guard and inner tube. Once in place, the M3 screws marked A in the image above can then be tightened, such that the rear face of the coupling ring is flush with the rear face of the focus guard and the screws pass through the focus guard, the inner tube, the rear coupling ring and press onto the wider part of the VidoScope beyond the rear tube. If the rear faces of the coupling ring and the focus guard are not flush then you need to reverse the coupling ring and try again. It is not necessary to over tighten these screws as their

function is 90% to stop rotation of the VidoScope and only 10% for support. In this way the rear coupling ring acts like a plug or bushing. Job done!

You have now completed mounting your anamorphic to RECTILUX 3FF-W, the next step is to fit the RectiGrip and start shooting.

Fitting & Mounting the RectiGrip to Anamorphic & Taking Lenses

The best method is to screw the RectiGrip into the filter thread of your taking lens. You can use a step ring to accommodate the difference in thread size.

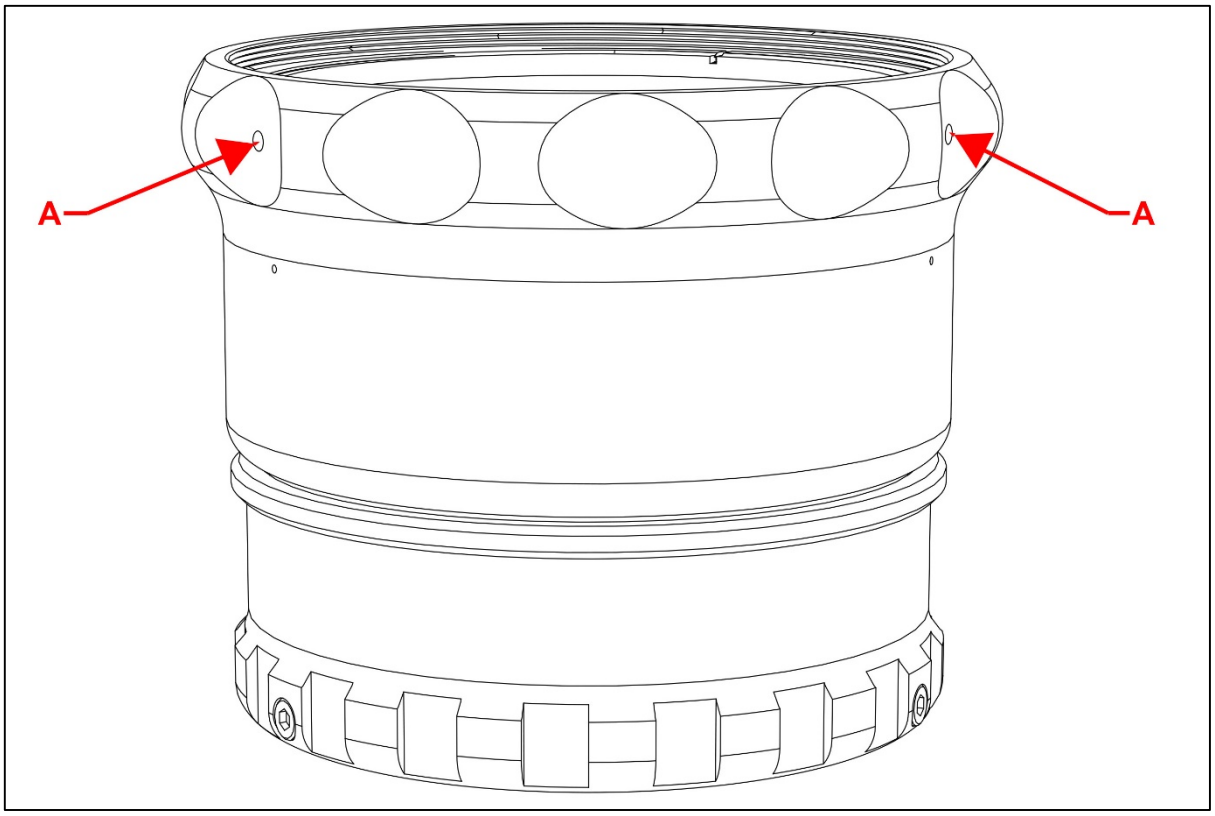
Next, introduce the rear of your anamorphic-plus-RECTILUX 3FF-W into the bore of the RectiGrip and adjust for vertical alignment, then tighten the socket cap hex bolt with a hex wrench or Allen key.

RectiGrip has two threaded bores diametrically opposite each other, **only use one of these**, the second is there for rigging reasons when you need the bolt on the opposite side. RectiGrip makes use of the additional friction on the inside of its main bore which is many times greater than a three bolt design, thus only one bolt creates the necessary pressure to make use of this.

Always use the supplied steel bolt or equivalent and avoid the temptation to use nylon bolts as they have lower friction and are prone to breaking.

RECTILUX 3FF-W Adjustments

You will notice RECTILUX 3FF-W has three small screw holes embedded in the crown marked by arrows A in the image below:



On delivery, your RECTILUX will have the front lens holder screwed in as far as it may go (please check this), and you will need to **insert just one screw** and tighten it to prevent the lens holder from moving. Leave the other screw holes free for now. The reason for this is that the grub/set screw will crush the thread on the lens holder so that its position is burnt-in, so this will leave just two additional adjustment positions, in case they are needed.

The purpose of this section is to lay down a marker in this manual for advanced adjustments in cases where the anamorphic lens or taking lens focuses past infinity or back focus issues arise. There is the facility to add a small additional positive dioptre adjustment component which can ameliorate these issues.

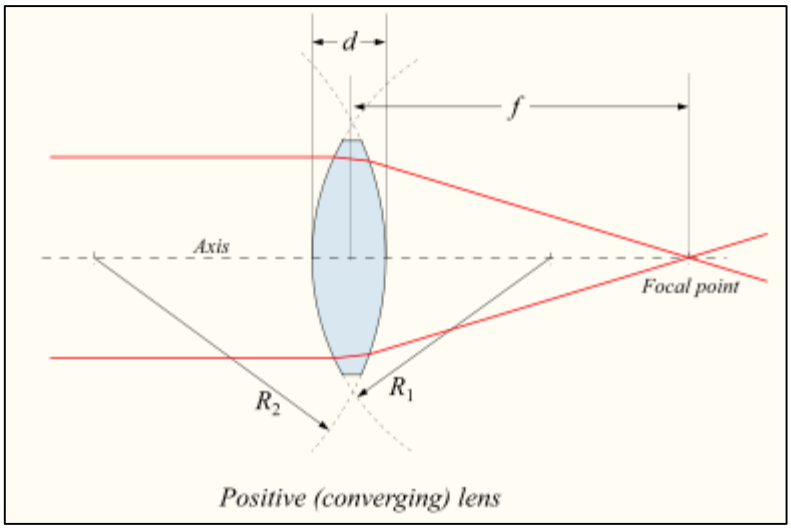
RECTILUX 3FF-W Floating Zone Focus Feature

If you have read my white paper, you will know how single Focus Attachments work. Here I will describe the Floating Zone Focus Feature.

Nikon calls this Close Range Correction and Canon calls it Floating Element, so for the sake of accuracy RECTILUX calls it Floating Zone Focus.

Back in the day, when lenses were focused by moving the whole cell forward and back from the film plane, it was noticed that when close focused, the image quality suffered. For example, it is usually found that say a vintage 135mm lens would typically be limited to 1.5m close focus for this reason.

To understand this, take a look at a simple lens diagram below, where the light rays are coloured red.



The light rays are shown as constant thickness, which of course is a lie. When light passes through a lens, the light rays fan out or diverge just a tiny bit and so if the lens is further away from the film plane, then the light rays do not converge to a point but a disc resulting in softness. So the further away the lens is from the film plane the disc is bigger and the softer the image becomes, unless something is done to ameliorate this effect.

Nikon found that by shuffling the distance between lens elements, using a mechanical cam system that they could tighten up the dispersion of the imaging rays to give much improved close focusing capability. RECTILUX does the same thing but manually as detailed below.

As you know RECTILUX 3FF-W will focus from 0.6m to infinity when the anamorphic and taking lenses are simultaneously set to infinity. Call this configuration 'INF-INF'.

Now say you are on set and the shot-list says you don't need to focus on anything beyond 5m. Just set your anamorphic and taking lenses simultaneously to 5m. Call this configuration '5-5'. Thus 5m is the new infinity

and means that you can shoot from 5m down to much closer than 0.6m (I will leave you to do the calculation) and the close shots will be much crisper than the configuration 'INF-INF'. Of course the whole stroke is available to you so much precise focus is easily obtained.

Now say you have a romantic candlelit dinner scene. You want lots of bokeh and also want to use it to blot out background distractions. Storyboard calls for reverse head shots and you tell your AC to configure RECTILUX to '2-2', meaning set the anamorphic and taking lenses simultaneously to 2m, so now 2m is the new infinity and gives you very close focus capability, so that when the guy proposes and puts the engagement ring on his GFs finger you are there to scoop it up, filling the entire frame with this shot.

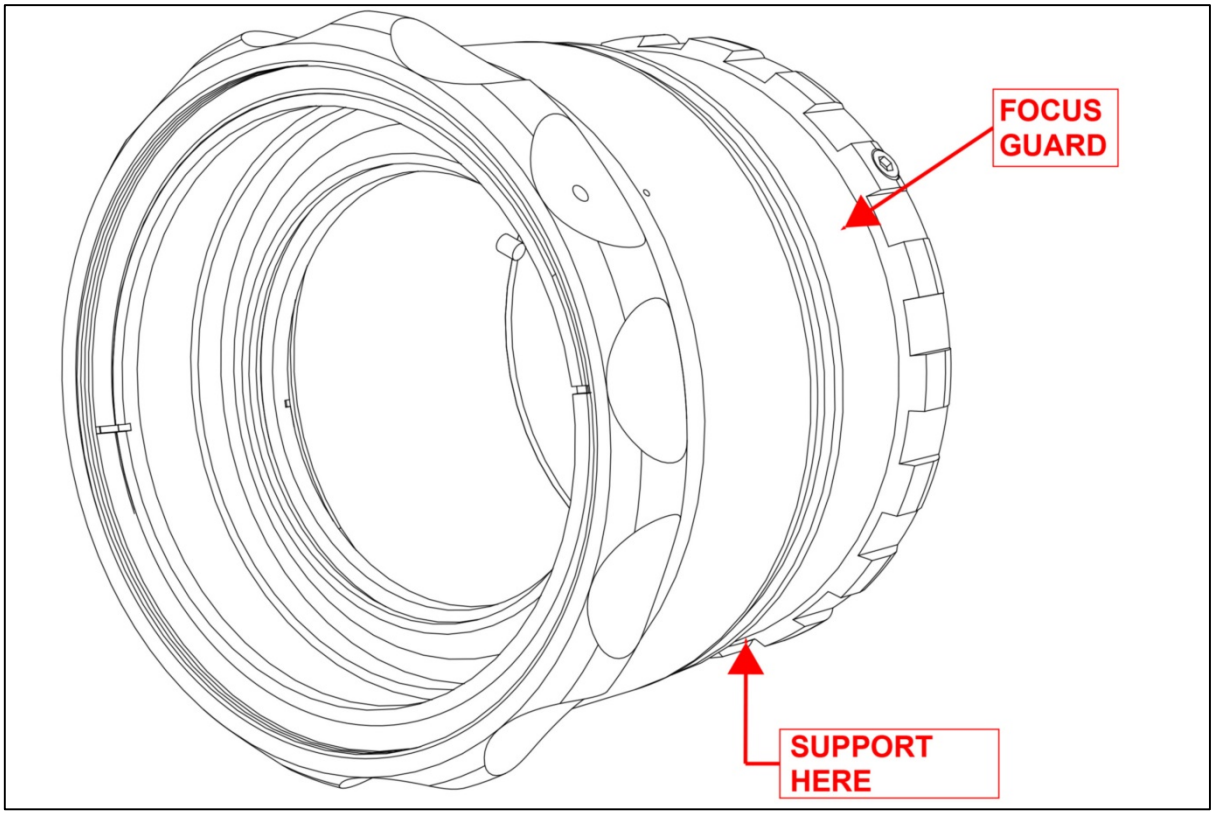
I suspect now you will come to realise the advantage of the quick change system, enabling you or your AC, to quickly remove the anamorphic lens and set it to the desired 'X-X' configuration and put it back ready to shoot.

The Floating Zone Focus Feature is not available with supported anamorphic lenses that cannot focus and also may only be partially supported with anamorphic lenses that have a non-removable distance scale ring which can collide with the rear coupling ring.

Supporting the RECTILUX 3FF-W

RECTILUX 3FF-W has been designed to place the support position as close to the center of gravity, subject to other design constraints and this is especially important when operating from a Steadicam, Jib, Crane or a Cable Rig. There are a variety of lens support options available from third party suppliers.

The focus guard is a strengthened tube where lens support should be placed as shown below:



Where Is The Focus Scale?

In the early designs of RECTILUX, the focus ring had a focus scale engraved on it. Then, when the quick change 'plug and play' coupling ring concept was introduced, I realised that a static focus scale would not work for the following reasons:

- All coupling rings must be fixed at a known angular orientation to the anamorphic lens axis
- All coupling rings must have the same length of thread
- The mating threads inside RECTILUX and also the coupling rings must have identical synchronised start points

You will know from the earlier section on installing the coupling rings that each anamorphic lens has its own personality with regard to coupling rings. Some are screwed in like Bolex and Kowa, whereas some are clamped like Cinelux, also the thread lengths are sometimes different like the short thread on Hypergonar16. Even if those issues could be overcome, there is also the additional labour cost in machining synchronous threads and the cost-benefit of doing this may not be appreciated.

Modern production methods now place greater reliance on the monitor or LCD screen and focus points are often marked off on the white dial of the follow focus unit. Despite all this, a focus scale comes in handy for locked-off shots and remote camera operation.

If there is sufficient interest, I can have manufactured a thin engraved focus band which can slip over the focus ring and be clamped to it. The focus band can be rotated and clamped to line-up with each anamorphic lens that is installed in RECTILUX.

Transport and Storage

RECTILUX 3FF-W is a precision optical instrument and should be suitably protected in transport and storage. Foam-lined Pelican style cases or aluminium flight cases are suitable.

It is advised to transport RECTILUX in the horizontal configuration and also move the focus ring to about 10mm stroke from the infinity position. The fat crown is there for a reason and deflects any impact shock wave around the glass instead of radially towards it, however RECTILUX is not indestructible.

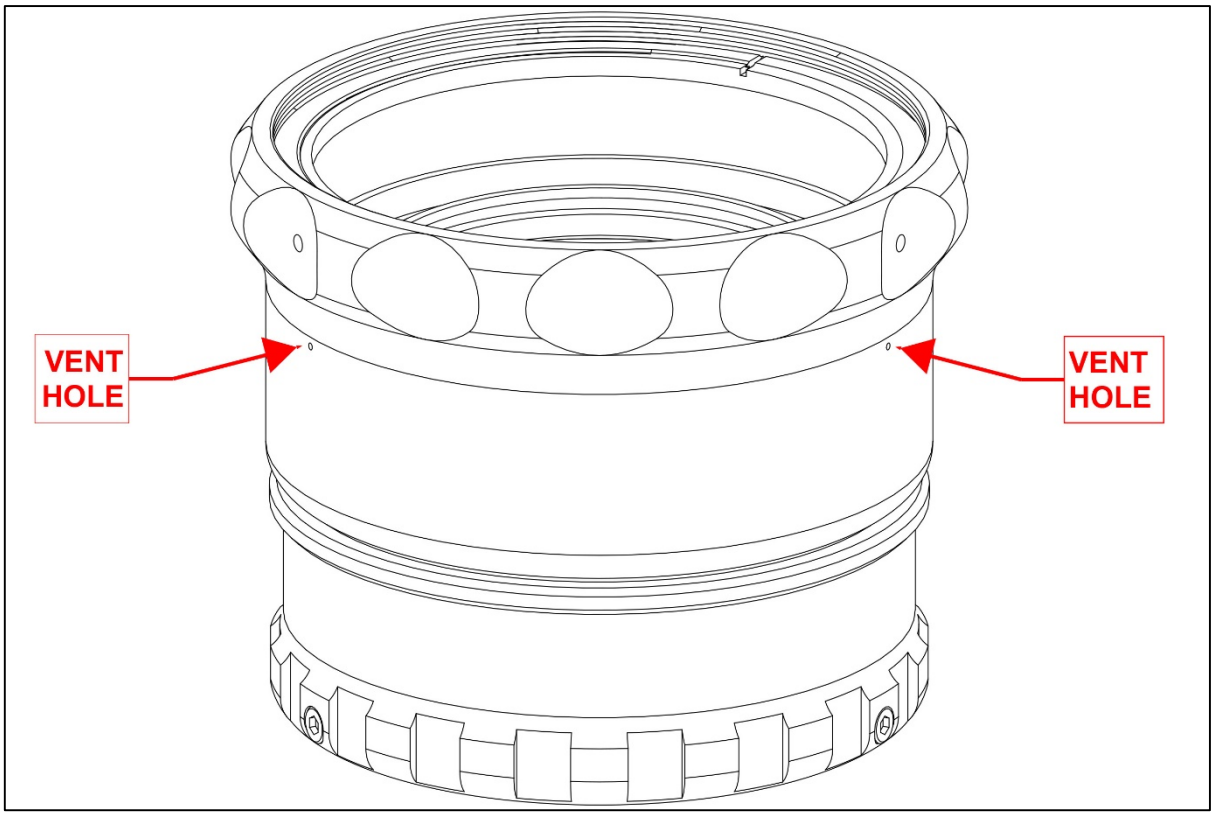
You should never transport RECTILUX in the infinity focus position.

When transporting RECTILUX via airlines in the low pressure cargo hold, please make sure the vent holes **are not covered** as this can create problems with pressure equalisation.

Care and Maintenance

VENT HOLES

There are three small vent holes surrounding the focus ring on the RECTILUX 3FF-W. Their purpose is to relieve the back pressure when fast focusing. Without them, over time, the increase in back pressure would force the grease in the helicoid threads to be pushed out or sucked into the optical chain, which is not desirable.



The vent holes also function to enable moisture or moist air to escape, as for example entering a warm room from the cold outside.

The downside is that they can suck in air from the environment.

Periodically, perform a check that they are clear and not blocked, especially if you have been taping them up for storage reasons to prevent dust ingress. A pin or piece of wire can be used to remove grime and finger grease.

CARE AND MAINTENANCE

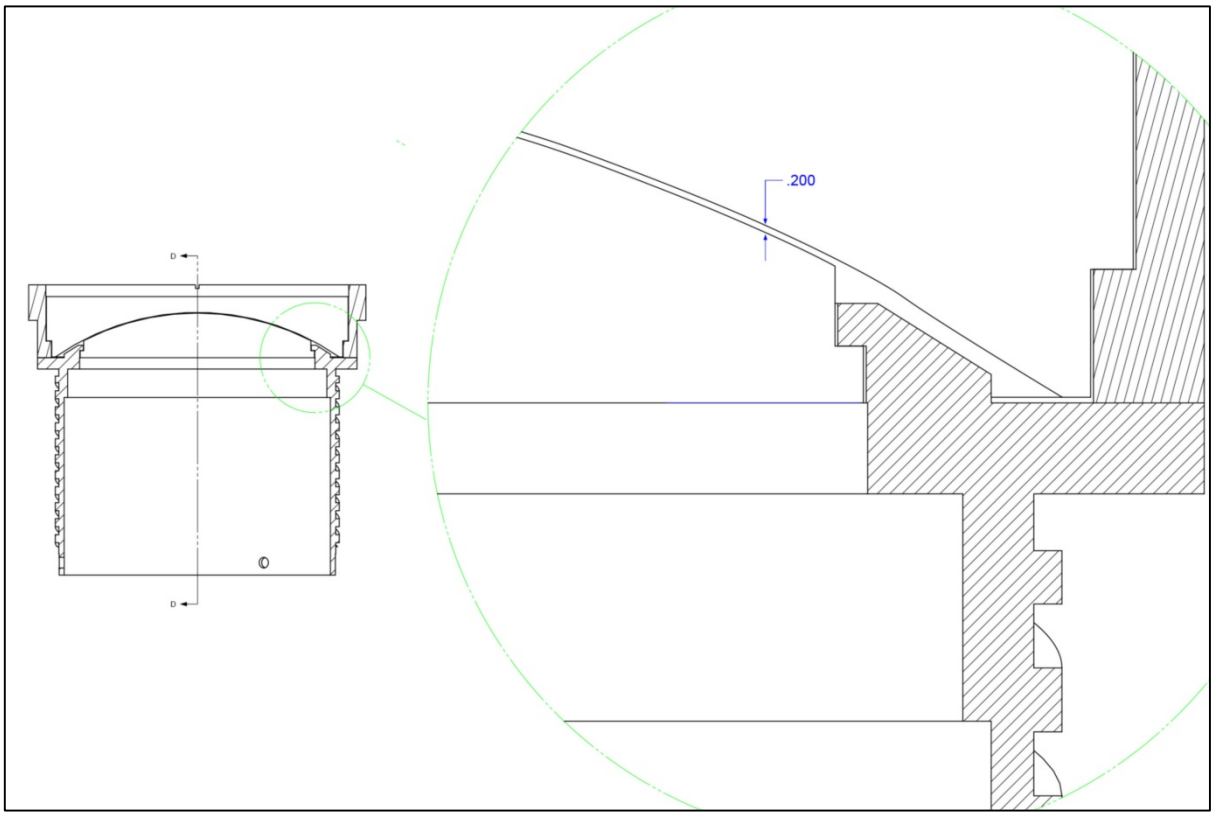
DUST IN THE OPTICS

Looking after your lenses is due diligence for any shooter and RECTILUX is no different. It is good practice before you go on a shoot to check RECTILUX over for clean dust-free glass.

The design of RECTILUX is such that dust and moisture can only get to the inside faces of the optics via the vent holes, so environmental conditions play a part.

The best way to inspect for granular dust inside the optics is with a UV lamp as this type of light will illuminate the large dust particles which you must guard against, micro sized dust is no problem.

To understand the potential dust issue take a look at the section image below:

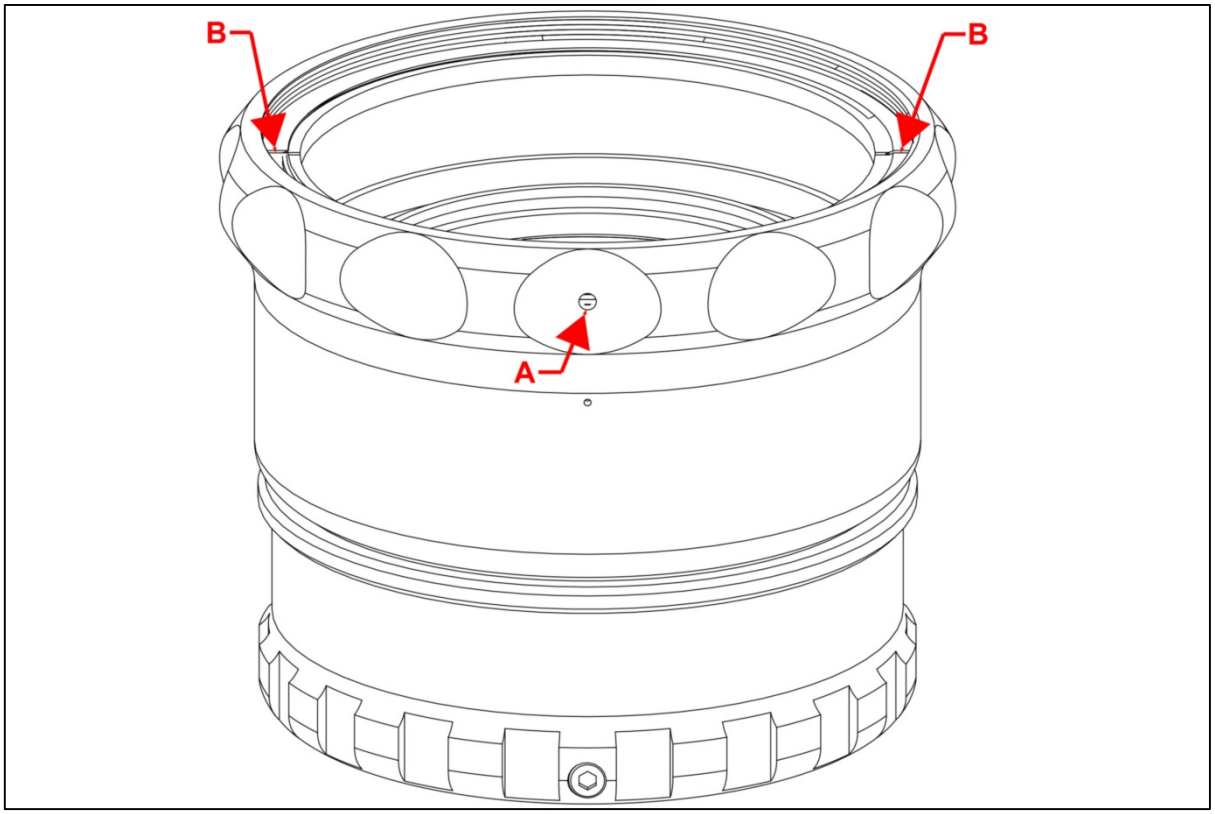


At infinity focus, the front and rear elements in the RECTILUX are in very close proximity of 0.200mm, thus particles such as sand and dirt can be an issue if the granular size exceeds 0.200mm diameter.

It is this very close proximity of the lenses which gives RECTILUX superlative infinity focus performance at wide open apertures, thus if you find some granular dust it is a simple procedure to remove it, as described below:

CARE AND MAINTENANCE

Use a screwdriver to slacken the screw marked A at the crown and then use a lens wrench to unwind the front lens holder anticlockwise using the outer slots marked B, after first making a note of its position for when you reassemble as shown the image below:



Once removed, you have access to the inside surfaces of the RECTILUX focusing optics, which you can then clean. After cleaning, use the lens wrench to screw the front lens holder back to its position noted earlier, taking care not to cross the threads and replace screw A.

CLEANING THE OPTICS

It is recommended to use cotton buds or a small swatch of lint-free pure cotton cloth dampened with lighter fluid. Never use a dry cloth on the optics.

I do not recommend the use of micro fiber cloth.

CARE AND MAINTENANCE

ENVIRONMENTAL ISSUES

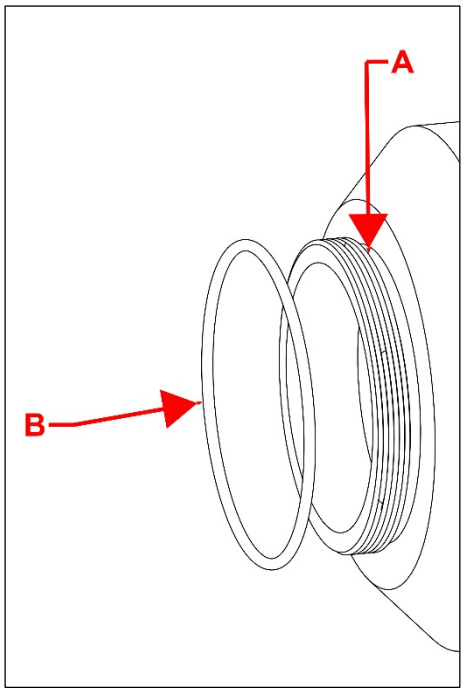
It is not recommended to operate your RECTILUX in dusty or moist environments without taking protective precautions, such as a barney/blimp etc. Please ensure dust and moisture do not get into RECTILUX via the vent holes, without blocking them.

RECTILUX is an all metal construction instrument and thus requires sensible precautions when in use in extreme temperature conditions. Avoid exposure to strong sun as the metal may become hot to touch and may scald and conversely your bare skin may stick to RECTILUX in sub-zero conditions.

Troubleshooting

BOLEX

The bore of the rear coupling ring has to have sufficient diameter for clearance of the rear thread on the Bolex. This thread terminates just before the back face of the Bolex in what is known as thread relief, which under certain circumstances can lead to an undesirable noisy rattle, as shown in the image below.



The solution is to fit a rubber seal or O-ring marked B in the image left and push it to the back face of the Bolex at position A.

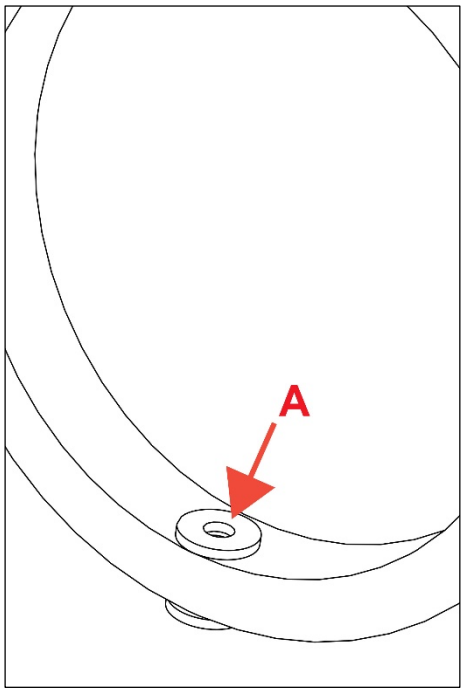
Thus, when the rear coupling ring is fitted it, the Bolex will sit on a cushion of rubber providing a suitable noise-free suspension.

TROUBLESHOOTING

HYPERGONAR16, KOWA, SANKOR, SK CINELUX

These anamorphic lenses may need the following modification to the rear coupling ring to avoid an undesirable noisy rattle.

When designing RECTILUX, due consideration was given to the possible variation in tolerance of the classic anamorphic lenses it would support and also the variation in environmental temperature under which it may operate. Thus, the tolerances were made slightly bigger to counteract these issues.



The solution is to either fix three small strips of adhesive tape on the inside and outside diameters of the rear coupling ring or as shown left, to glue some thin fibre washers marked A and use a blade or file to shim them down to the correct thickness.

Thus, when the rear coupling ring is fitted it, the anamorphic lens will sit on a cushion of fibre providing a suitable noise-free suspension.

Limited Warranty

THE WARRANTY OBLIGATIONS OF TRANSFER CONVERT CINEMANIA ("TCC") FOR THIS PRODUCT ARE LIMITED TO THE TERMS SET FORTH BELOW:

WHAT IS COVERED?

This limited warranty covers defects in materials and workmanship in this product.

WHAT IS NOT COVERED?

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to dust or moisture, impact damage, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, or other acts of nature or Force Majeure.

This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by TCC to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures and accessories used in conjunction with this product. Without limiting any other exclusion herein, TCC does not warrant that the product covered hereby, including, without limitation, the technology included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

HOW LONG DOES THIS COVERAGE LAST?

This limited warranty lasts for one (1) year from the date of delivery of this product.

WHO IS COVERED?

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

WHAT TCC WILL DO

TCC will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1 Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labour to complete the repair and restore this product to its proper operating condition. TCC will also pay the shipping costs necessary to return this product once the repair is complete.

2 Replace this product with a direct replacement or with a similar product deemed by TCC to perform substantially the same function as the original product.

3 Issue a refund of the original purchase price less depreciation to be determined based on the condition of the product at the time remedy is sought under this limited warranty.

WHAT TCC WILL NOT DO UNDER THIS LIMITED WARRANTY

If this product is returned to TCC, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. TCC will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. TCC will not be responsible for any costs related to any setting up this product or any adjustment required for a specific installation of this product.

LIMITATION OF LIABILITY

THE MAXIMUM LIABILITY OF TRANSFER CONVERT CINEMANIA UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, TRANSFER CONVERT CINEMANIA IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY.

Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Owner Provenance History

A certificate of ownership detailing:

- owners name
- customer reference number
- date purchased
- date sold

CERTIFICATE OF OWNERSHIP

RECTILUX 3FF-W

OWNERS NAME	CUSTOMER REFERENCE NUMBER	DATE PURCHASED	DATE SOLD

