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Tasco luminova telescope lenses

customprnt-69770ProtectionS\$407.16Brand newFree shippingS\$35S\$45Like newrandomcheapoitemProtectionS\$11Brand newS\$10Well usedProtectionS\$40Brand newS\$3.500Well usedProtectionS\$45Brand newS\$10Well usedsaf_good_and_cheapS\$45Brand newS\$200Like newProtectionS\$12NewProtectionS\$65Brand newfruitfulproductProtectionS\$55Brand newgadget_storageProtectionS\$15Brand newS\$130Brand newS\$80Like newS\$400Like newProtectionS\$88S\$188Brand newFree shippinggadget_world01S\$15Brand newProtectionS\$259.99Brand newProtectionS\$130Brand newFree shippingS\$50Like newProtectionS\$400Like new Updated April 24, 2017 By Darren Hunter The Tasco Luminova Telescope is fairly easy to use. It's lightweight and transportable as well. It's considered a reflector telescope with some advanced features. Reflectors deliver excellent magnification relative to their smaller size as compared to much larger "radio" telescopes, for example. Reflector telescopes are a good fit for the amateur astronomer since they achieve a long focal length through the use of mirrors and are very portable. The Tasco Luminova's slow-motion mirror controls work with an equatorial mount. It also has an 1.25-inch eyepiece and a wide field of view. Properly adjust your finderscope for proper navigation. Choose initially the lowest-power eyepiece, which is marked with the highest number. (Conversely the highest-powered eyepiece is marked with the lowest number). This will provide you the clearest images and a large field of view. Wait until you're proficient with finding intended objects before moving up to higher-powered eyepieces. At that time you can also increase magnification by adding a Barlow lens. Do not tighten the screws at the bottom of the Tasco. These screws are used to align the main mirror, and tightening them will cause your your reflector telescope to lose alignment and objects will be far less clear. Adjust the finder scope. The finder scope is the small telescope on top of the bigger telescope. After adjusting the finder scope, objects you have centered in it will also be visible in the main telescope, and this is very important for night viewing. Polar-align-align the mount with the North Star--as described in the instructions in your Tasco Luminova manual. Insert the eyepiece marked with the biggest number in the telescope as described in Step 1. Focus at dusk on any distant object on the horizon and center it in the eyepiece. Lock the telescope into position on the tripod. Adjust the finder scope until the object centered in the middle of the telescope is also centered in the finder scope. When you begin your actual stargazing, make additional adjustments to your finder scope. The best location for viewing with the Tasco Luminova is a back yard away from street lights. Although this model is not recommended for advanced astronomers, it's well suited for beginners. A small reflector telescope in conditions with no light and no moon can equal the performance of a larger telescope used under a moonlit sky. Use a star map or websites such as Stardate.org for up-to-date viewing "destinations" for your Tasco Luminova before heading outdoors. Be sure to allow a half-hour of uninterrupted darkness outdoors for the pupils of your eyes to adjust and be able to pick up distant objects in the night sky. Use some red plastic to cover your flashlight lens to better see the controls on your telescope. The reflecting Newtonian telescopes offer the lowest cost for their light gathering capacity and a German-type equatorial mount tracks your subject in its natural paths. The Luminova gives a good combination of focal length, aperture, weight and cost that will appeal to beginning and advanced amateur astronomers. A full-featured 900 mm focal length reflector telescope for beginning and intermediate astronomy enthusiasts Barlow lens doubles eyepiece for more magnification options Finderscope assists initial locating of object before using higher powers within the telescope Distinctive champagne silver finish Barlow lens doubles eyepiece for more magnification options Distinctive champagne silver finish Finderscope assists initial locating of object before using higher powers within the telescope Series: Tasco Luminova Shopper Why Did You Choose This? John R. Power of the scope and reputation of the product. Shopper what is the power of the telescope? *JP* Share this item: Updated 20 Nov 2008 Amateur Astronomer's Notebook Update for November 2002: Tasco filed for bankruptcy earlier this year, and Celestron has been "bought back" by some of the founders of Celestron. Tasco scopes continue to be marketed widely however. Some of the Tasco models have shown signs of improvement recently. For example, some of them now come with 1.25" (diameter) eyepieces. However, the eyepieces supplid are still of generally low quality. Although the change to 1.25" eyepieces on some scopes is a step in the right direction, this alone is not enough to make Tasco a recommended brand (in my opinion). Tasco markets a huge number of telescopes with all kinds of model numbers. Many of the model numbers appear to be some combination of the lens (or mirror) diameter in millimeters, the focal length, and the maximum advertised magnification. Tasco continues to claim preposterous maximum magnifications for many of their scopes (Tasco does this because they know that most people equate magnification with the "power" of the scope). Below in this article you will see that magnification is one of the least important factors to consider when purchasing a telescope! Also: Previously, I had recommended Orion (www.telescope.com) as a source for good quality replacement eyepieces in the .965" size. Orion has dropped this line of eyepieces, so the only path is to get what is known as a "hybrid diagonal" (described below) and some good quality 1.25" eyepieces. This is actually the better way to go, the downside is that the cost of the diagonal is about \$35, something that you would not have to get if quality .965" eyepieces were still available. Update for January 2001: There have been some changes in the low end telescope market. For one, Tasco (a marketer of telescopes that are generally considered the bottom of the barrel) has acquired Celestron (a company that has a reputation for making some good to excellent telescopes). I do not know the details of this merger but it is amazing to me that a company like Celestron would want to be even remotely associated with Tasco. Tasco has a reputation of making near fraudulent performance claims for many of their telescopes, and Tasco scopes are for the most part among the most cheaply made scopes available. Celestron has a long history of making quality products, especially the US made scopes (which include the SCTs they are famous for). In any event, I for one will now look at Celestron with a much more critical eye. If I see hints of Tasco quality entering into Celestron products, I will cease to recommend Celestron products. Because of this merger, it is more difficult to recommend a Celestron telescope (we're talking entry level scopes here) over a Tasco (or similar low end scope) because the Celestron entry level scopes may in fact now be Tasco scopes! The entry level telescope market has gone in so many different directions in the last few years. Even Meade (another manufacturer of decent scopes) now markets a large number of scopes which are "consumerized" versions of their better scopes. Such scopes usually provide a cheaper mounting, a cheaper, smaller finder scope, and the ever present battery of worthless H20, H12.5 and SR4mm eyepieces, and worst of all, they include a 2x or 3x barlow that isn't even useful as a doorstop! On the positive side, I have seen some Tasco scopes in the last year or so that have signs of improvement over the typical Tasco (do note that the majority of the Tasco scopes are still unchanged). The improvements noted include 1.25" diameter eyepieces and 1.25" drawtubes. Also, a few Tasco scopes actually come with eyepieces that are sensible for the scope!! I even have seen some Meade 4.5" Newtonian scopes that have 2" focusers! This is actually overkill for a scope in this class, because most 2" eyepieces cost more than the entire Meade 4.5" scope... Please note... This article is in no way meant make you feel bad nor is it intended to insult those who have Tasco (or similar) telescopes. The vast majority of people who have these scopes are just starting out in astronomy (and often acquired them without prior knowledge), and Tasco telescopes are marketed all over the world. Hence, Tasco is the only telescope brand that many people know. The intent of this article is to try and assist those who have invested money in a Tasco scope and who do not want (or cannot) return the unit to the retailer. Introduction This article will explain why most Tasco telescopes should be avoided if you are to have a frustration free introduction to amateur astronomy. And, if you have received a Tasco telescope as a gift or if you fell into the "Tasco trap" and purchased one of these telescopes, this article will provide information on how to significantly improve the performance of the telescope at a reasonable cost. If you are considering the purchase of a telescope, you have likely seen Tasco telescopes in most every department and toy store in existence. If you do not yet own a telescope, the best recommendation is to avoid purchase a Tasco telescope! What's Wrong with Tasco Telescopes? Tasco telescopes were not always as poor as they are today. Back in the 60's and early 70's, Tasco actually marketed a decent product (excluding eyepieces). I have a Tasco 60mm refractor from 1973. It has a metal optical tube, a machined metal rear cell, all metal focuser with machined metal focusing knobs, a metal dew cap, and a decent objective lens. The tripod and eyepieces left a lot to be desired, but at least they were all made of metal. Many Tasco scopes (especially the very entry level ones) utilize a great deal of plastic. For the same (or slightly more) money, a much better telescope of similar size can be obtained (see my page Excellent First Telescopes for recommendations). One of the problems with Tasco is that there are so many variations of their telescope models being marketed. Tasco markets telescopes to many retailers; these telescopes range in quality from extremely poor to reasonably acceptable as beginner telescopes. Another reason to avoid Tasco: they (and other vendors of entry level scopes) often use highly deceptive "advertising" on the products they sell. Any company is in business to make a profit (and this is perfectly acceptable); the problem with Tasco is that they try to make a profit by misleading consumers. Take a look at most any Tasco telescope box, and one of the first things you will probably see is an absurd magnification capability for the telescope. For example, a typical Tasco telescope will have written on the box "675X Astronomical Telescope". Ask any seasoned amateur astronomer and they will certainly tell you that telescope "power" is **not**, repeat not dependent on the magnification capability of the unit. The diameter of the mirror or objective (or mirror if it is a Newtonian reflector telescope) is the fundamental specification that determines how "powerful" a telescope is. The bigger the lens or mirror, the more light that the telescope will gather, and the brighter the images. Magnification of a telescope is determined by the focal length of the eyepieces used. By using various eyepieces/lens combinations, most any telescope can be made to operate at magnifications ranging from about 30x to 1000x or more. However, the usefulness of providing one decent quality eyepiece, Tasco typically supplies 2 or 3 marginal to horrible quality eyepieces. Tasco eyepieces are often of the Huygens ("H" and Symmetric Ramsden ("SR") optical configurations. Huygens is among the poorest performing designs (but it is cheap to manufacture). Tasco eyepieces have very narrow apparent fields of view... often 30 degrees or less (most decent eyepieces have apparent fields of view of 45 degrees or more). Eyepieces with narrow apparent fields of view make it harder to locate items in the sky. Trying to look through a narrow field eyepiece is analogous to trying to read a book while looking through a straw. Not only do Tasco eyepieces have narrow fields, the "sweet spot" of the field that is visible is even smaller! Tasco eyepieces use minimal (if any) optical coatings. To top it off, many of the Tasco eyepiece bodies on the entry level scopes are now made almost completely of plastic. To make things worse, Tasco often supplies an "SR4mm" eyepiece with their telescopes. This is an eyepiece with a focal length of 4mm; it is a very poor choice for a beginner level telescope. It will provide magnification that is out of the useful range for the scope, and the "eye relief" of the eyepiece is so small that it will be difficult to get your eye close enough to the small hole to see anything through it (if you wear eyeglasses you can forget about looking through this eyepiece). Many Tasco telescope comes with the following eyepieces: H20mm, H12.5mm, and SR4mm. Sometimes an H25mm is substituted for the H20mm. Eyepieces with higher numbers produce smaller magnifications; these are the only eyepieces you should expect to "see" anything with (you should always start with these eyepieces first!). Anyone who tries to use a Tasco telescope with an SR4mm eyepiece will need to have incredible patience and the ability to withstand significant frustration! My personal recommendation: If you are looking at a telescope to buy and you see it comes with an H20, H12.5 and SR4mm eyepiece set, do not buy it! Star Diagonal: Tasco star diagonals today are at the bottom of the line in quality. As a comparison, the star diagonal that came with my 1973 vintage Tasco telescope is of cast metal construction, has two metal set screws for securing eyepieces, uses a metal barrel, and has a glass prism (note that a mirror is fine if it is of high quality, however the prism acts as a seal to keep dust out of the telescope, an added plus). Many of the Tasco supplied star diagonals today use a plastic body, a plastic barrel, one metal set screw, and uses a mirror (at least the mirror appeared to be made of glass). Note that a mirror can be superior to a prism, however I seriously doubt this is the case with the mirrors in the Tasco diagonals. Overall the diagonal has a very "cheap" look and feel. A design engineer would be hard pressed to find a way to further cheapen this unit (what's next... a plastic mirror?). Accessories: Tasco loads up their telescopes with accessories to make the unit seem like a better deal for the consumer. The box will sometimes claim (nothing else to buy, a "complete" telescope package)! The problem is that the accessories are often of very poor quality and of little practical use. One accessory that it often supplied is a barlow lens. A barlow lens is used to increase the magnification of the telescope; the problem is that most of the telescopes that Tasco markets do not need a barlow lens to reach the maximum useful magnification they are capable of (the exception would be short focal length telescopes, short being defined as less than about 400mm). Tasco barlow lenses tend to be of very marginal quality. Tasco sometimes includes a Moon filter with their telescopes. In fact, none of the telescopes that Tasco markets are large enough to warrant using a Moon filter! Moon filters are generally used with telescopes in the 6" (diameter) range or larger. Finally, Tasco telescopes sometimes come with a solar projection attachment. While this accessory may work, it is included strictly as a marketing boost (consumers equate more accessories with a "better deal"). If Tasco would leave out all of the extra junk and provide one (or two) good quality eyepiece(s) instead, their telescopes would have significantly better performance! Finderscope: Tasco finderscopes are typically a 5x24 model. This means that they provide 5x magnification and use a 24mm diameter objective lens. However, the lens used in the front of these finders is a single piece of glass (as compared to the much superior two element achromat). As a result, a phenomenon known as chromatic aberration is very apparent on bright objects (this admittedly can be tolerated on a finderscope however. But here's the kicker, because the lens is so bad on these finderscopes, some of the ones I have seen use a "field stop" which effectively masks the lens equal to about a 12mm diameter lens! Overall, a "normal" 5x24 size finderscope is fine for telescopes in this size category. The problem with Tasco 5x24 finderscopes is that quality of the finderscope is rather poor (all plastic). To add to the problems, the finderscope bracket (again all plastic) uses an inadequate "3 point" locking system. This corner cutting design does not allow the finderscope to stay in alignment. If you have Tasco telescope with this type of finderscope, plan on doing a realignment each time you take the unit out for an observing session. Construction: I recently looked at some Tasco telescopes in a department store and I was shocked at the quality of construction. Whereas my 1973 vintage Tasco telescope is fabricated from almost 100% metal components (a number of which are machined metal), some of the Tasco telescopes now made use excessive amounts of cheap molded plastic parts! All of the models I looked at had plastic rear cell assemblies, plastic focusers, plastic drawtubes, plastic star diagonals, plastic dew caps, and some even had plastic optical tubes! The tripods were typically wood or metal, but all were rather unstable. Overall the telescopes have a very cheap look and feel. I would recommend avoiding any telescope that is mostly of plastic construction. How to Improve the Performance of your Tasco Telescope Despite their generally low quality, many people have Tasco telescopes. Young people often receive them as gifts (no doubt purchased by parents who fell victim to the "675x Power" written on the box). Others are purchased by adults who wanted to get into astronomy but did not know that quality telescopes are rarely found in department stores. So what to do if you have a Tasco telescope and are experiencing the "I can't see a #9's**-- thing with this telescope!" syndrome? Chances are that you can't return the unit for a refund. If you are willing to invest some additional money, you can improve the performance of the telescope significantly. The minimum investment will be about \$40 (depending on what scope you have). For some scopes, the amount you will need to spend is more than half of what a new scope would cost, so if you are in that situation your options are more limited. The main reason Tasco telescopes perform poorly is that they often come with poor quality eyepieces and an equally poor quality star diagonal. Fortunately, the Tasco objectives (or primary mirror for reflecting telescopes) still seem to be of decent quality. The upgrades to your Tasco telescope will consist of new eyepiece(s) and a new star diagonal (note if you have a Newtonian Reflector scope DO NOT purchase a star diagonal as it IS NOT NEEDED and WILL NOT WORK with a Newtonian reflector telescope. One of the first things you must do is understand and accept the fact that low magnification is where your Tasco telescope (or any telescope for that matter) will perform at its best. For the typical Tasco telescope, low magnification means 30x - 40x. On the flip side, the highest magnification that should be used with the typical Tasco telescope is in the range of 90x to 150x. Always remember that most of your viewing will be done with low magnification! At 100x, the instability of the typical Tasco telescope tripod will be all you can handle (the shaking gets magnified along with the image), plus the object being viewed will move out of the field faster at higher magnification (unless you have a tracking drive)! The only area where the higher magnification is really useful is when you are looking at the Moon, planets and double stars (but you will find it a lot easier to initially locate such objects using a lower power eyepiece). To determine which accessories you'll need for your particular Tasco telescope, you will need to look up some information on the telescope (fortunately the necessary information is usually marked on the telescope). Specifically you'll need to determine the focal length of the telescope and also the diameter of the objective or primary mirror. This information is usually located on a sticker near the eyepiece area of the telescope. A typical marking might read "D=60mm F=700mm" (another common one is D=114mm F=900mm). "D" refers to the diameter of the objective lens (or mirror) in millimeters. "F" refers to the focal length of your telescope (again in millimeters). You might also see a marking such as "F8" or "F11.7"; this is the focal ratio of the telescope (the focal ratio is often used when judging the suitability of a telescope for astrophotography, smaller numbers mean less exposure needed). Finally, you will need to determine what size eyepiece barrel your telescope uses; it will be either .965" or 1.25". To determine which one you have, measure the barrel diameter of one of your eyepieces with a ruler (the barrel end is typically the "shiny" end, the end opposite that which you look through). Here's another tip: a 35mm film canister will fit perfectly in the eyepiece holder of scopes which have 1.25" eyepieces (they also make great dust caps for diagonals). If you can fit a 35mm film canister where eyepieces normally go, you have a 1.25" system. Once you have these basic information listed above, you can determine which items to purchase in order to upgrade your telescope. Upgrade Options: There are three basic paths to choose from when considering an upgrade to a Tasco telescope. They are as follows: Obtain one quality eyepiece (approximate cost \$55) NOTE: If your scope uses .965" eyepieces you MUST go to the next option! Obtain one quality eyepiece and a new star diagonal (approximate cost \$90) Obtain two quality eyepieces and a new star diagonal (approximate cost \$150) (Note: if you plan to spend this much you might as well abandon the upgrade idea as you can get a new telescope for that cost). REMEMBER: Note that if your telescope is of the reflecting type (uses a mirror instead of a glass lens for the light gathering element) DO NOT purchase a star diagonal (it will not work with reflecting telescopes)! Chances are you won't be able to bring the scope to focus because of the additional length the diagonal adds to the light path. Source for Quality Components: There are a number of vendors who offer quality accessories for improving "department store" telescopes. I personally recommend products offered by Orion Telescopes and Binoculars. I recommend Orion as I have used their products for 20+ years and find them to be of very high quality. Which Eyepieces do I Select? If your budget allows only one eyepiece you should select one that produces a low magnification. If funds allow, another eyepiece can be selected that produces a higher magnification (note that by "higher" I mean around 100x, not the absurd 675x that Tasco provides!). Eyepieces are available in a various focal lengths (this is the number written on the side of the eyepiece). The magnification produced by an eyepiece depends on what telescope the eyepiece is used in. To determine the magnification that a particular eyepiece produces, divide the focal length of your telescope by the focal length of the eyepiece. Example: The focal length of your telescope is 700mm and you wish to know what magnification a 25mm eyepiece will produce. Divide 700 by 25 and you get 28; this eyepiece/telescope combination results in a magnification of 28x. Path 1: Obtain One Quality Eyepiece: As mentioned above, if your scope uses .965" eyepieces (or diagonal), you cannot use this option (go to path 2 below)! For scopes that take 1.25" eyepieces, use the list below (based on the focal length of your telescope) to find the recommended eyepiece: Path 2: Obtain One Quality Eyepiece and a Quality Star Diagonal: Make sure you know whether your telescope takes .965" or 1.25" eyepieces. If your scope does use .965" eyepieces, you must purchase what is called a "hybrid diagonal". A hybrid diagonal fits into a .965" drawtube but it accepts 1.25" eyepieces. If your scope takes 1.25" eyepieces (or diagonal), use the following list to determine which star diagonal to purchase: Remember: If your telescope is of the reflecting type (uses a mirror instead of a lens), do not purchase a star diagonal! As far as eyepieces are concerned, the recommended choices are the same as those listed above for Path 1. Important: Be sure to consider what this upgrade will cost compared to what you paid for the scope. If the upgrades are going to cost more than about half the cost of the scope you might be better off buying a completely new scope (one of decent quality all around). If you are in this jam see my page for recommended scopes: Excellent First Telescopes Path 3: Obtain Two Quality Eyepieces and a Quality Star Diagonal: For selecting the star diagonal see Path 2; for the first eyepiece, see Path 1. Your second eyepiece will be one that produces a higher magnification, high enough to allow you to discern some fine detail on things like the Moon, planets and double stars, but not so high of a magnification to result in blurry, shaky images. As before, make sure you know which size eyepieces (.965" or 1.25") your telescope takes. Then use the list below to determine the recommended second eyepiece: Important: Be sure to consider what this upgrade will cost compared to what you paid for the scope. If the upgrades are going to cost more than about half the cost of the scope you might be better off buying a completely new scope (one of decent quality all around). If you are in this jam see my page for recommended scopes: Excellent First Telescopes Help! My telescope focal length is different than any you list! Not to worry. Chances are it is close to one of those listed above. Just pick the one that is closest; the exact magnification numbers will be slightly off, but the basic performance will be the same. Have more money to spend? If you want to go "one better" in quality, you could consider the Orion Telescopes and Binoculars Sirius Plossl series of eyepieces (see more about them on my Telescope Eyepiece Fundamentals Page. These eyepieces are of very good quality and will allow any Tasco telescope to perform to its limits. The Orion Sirius Plossl eyepieces are a bit more expensive than the Explorer II eyepieces. The Sirius Plossl eyepieces are a good choice if you plan to move up to a better scope in the future. These eyepieces offer performance that is very, very good, to get significantly better performance you will have to spend a LOT more \$\$. Not just Tasco! While Tasco appears to be the most popular brand of "department store" telescopes, be aware that there are others out there as well. Other brands to carefully scrutinize include Bushnell, Jupiter, and Saturn. Even some of the Meade and Celestron telescopes (brands previously known only for the high quality instruments they offered) are nothing more than cheap "mass market" telescopes. More than likely, if you see the telescope in a department store or toy store (K Mart, Toys R Us, Wal-Mart, etc.) it is most likely one that would not be the best choice for a first telescope. The only place I have seen quality telescopes for sale in malls are in "The Discovery Store" (however some of the scopes they sell fall into the "avoid" category so be careful). If not Tasco, what should I Buy? If you have not yet purchased a telescope (or if you want to move up from Tasco), Orion Telescopes and Binoculars has offered (and continues to offer) some of the best telescopes for people just starting out. My page Excellent First Telescopes suggests several models (for most any budget) that are all outstanding choices for a first telescope. Orion's web site has a number of good tutorials on how to pick a telescope. As mentioned previously, I have dealt with Orion a number of times and the service has always been very good. See my other article Advice for first time telescope buyers formore on picking out a good first telescope. Commentary While I do not recommend Tasco telescopes to a beginning astronomer today, I will admit that I my first telescope was indeed a Tasco. As I mentioned earlier however, the Tasco telescope of some 25 years ago was a much better unit (especially as far as physical construction was concerned) as compared to most of the Tasco scopes available today. I did manage to get quite a bit with my Tasco telescope, especially after I obtained a good quality low power eyepiece for it! Of course, back in the mid 1970's the light pollution problem was far less than it is today. If you do have a Tasco telescope do not let it cause you to give up on astronomy without giving astronomy a "fair shake". If you have a Tasco telescope you are by no means alone, and you can have some acceptably good viewing from the unit if you make the upgrades described in this article (or if you cannot afford an upgrade at least use the eyepiece with the lowest magnification). The upgrades described will do nothing for the stability of the telescope, but it will result in a nice overhaul of the optical performance. Resist the temptation to use high magnification! You really will see a lot more using low magnification. Any experienced amateur astronomer will testify to this statement. A reader did write in and made a suggestion for improving the stability of Tasco tripods. Basically you add weight to the tripod. To do this, hang a weight (5 to 10 pounds) from the center of the tripod (make sure to keep the center of gravity low to avoid having a topheavy scope). I have not personally tried this upgrade but I do believe it will work. It is hoped that this article will save some of the people who might have otherwise given up and dropped out of astronomy due to sheer frustration caused by a Tasco (or other similar) telescope. The people of Tasco will not like this article to be sure, but I do not like to see so many people (especially young people) having so much frustration with a telescope that promises too much! "Back" links, e-mail and Copyright Use your browsers' "back" button, or use links below if you arrived here via some other path: This page is part of the site Amateur Astronomer's Notebook. E-mail to Joe Roberts Images and HTML text © Copyright 1998-2008 by Joe Roberts. Please request permission to use photos for purposes other than "personal use".

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