

General information and contacts for the Orange County Astronomers club can be found at www.ocastronomers.org

July 2026

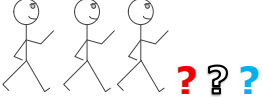
Free to members, subscriptions \$12 for 12 issues

Volume 53, Number 7



Omega Centauri (NGC5130) appears as the largest globular cluster visible from Earth. Dave Kodama captured it from the club's Anza site in March 2025 from the club's Anza site using a Nikon D850 camera and 300mm Nikon f/2.8 lens. It is seen here barely clearing Beauty Mountain to our South.

Upcoming Events - free and open to the public

<p>Beginner's class</p>	<p>Monday, 7 August at 7:00 to 9:00 PM</p> <p>This is session 6 of the class. It covers the basics of astrophotography, different types of imaging, how different types of cameras are used for this kind of photography, other equipment and considerations for taking a good picture.</p> <p>This class is at Orange Coast College, near Building 40, Astronomy House</p>	<p>ONLINE</p>
<p>Club Meeting</p> 	<p>Friday, 10 July at 7:30 to 9:30 PM</p> <p>"What's Up": Chris Butler from OCA</p> <p>Main speaker: Robin Metcalfe from York University</p> <p>Whose talk will be "Searching for Signs of Life on Jupiter's Ocean-Bearing Moons"</p>	<p>ONLINE, IN PERSON ? ? ?</p> <p>ONLINE, IN PERSON ? ? ?</p> <p>ONLINE</p>
<p>Astro-Physics SIG</p>	<p>Friday, 17 July, at 7:00 PM to 9 PM</p> <p>Orange Coast College, Building 40, Astronomy House</p>	<p>IN PERSON</p>
<p>Star Parties</p>	<p>Saturday, 11 July at the OCA Anza site.</p> <p>Irvine site star party is unresolved at time of newsletter release.</p>	

The monthly club meeting is viewable in progress on Zoom and our social media platforms. The recording is available on these platforms after the meeting is over.

<https://www.facebook.com/OrangeCountyAstronomers>
<https://www.youtube.com/@ocastronomers>

Please consult the calendar on the OCA website to RSVP online meetings (required)

President's Message

By Barbara Toy

As a couple of reminders of upcoming events, our 2026 Annual Starbecue will be on the evening of the July Anza Star Party, on July 11. I discussed the details last month, so you can check there if you want a refresher. These are always a lot of fun and the food and socializing are a great way to get into a good mindset for a night of viewing or imaging!

We're hoping our next Orange County Star Party will be the Saturday after the Starbecue, on July 18. As I write this, we're still waiting for confirmation from OC Parks and the Irvine Conservancy. Alan Smallbone is following up with them and will send out notice on the email groups and will put it on the website calendar when it's confirmed. We'll also try to get information out on Facebook, for those who get their updates that way.

Unfortunate Development for Our General Meetings

As many of you know, the in-person portion of our June General Meeting had to be cancelled on short notice, an hour before the meeting was to start. If you were planning to come in person, I hope you saw the emails about the cancellation in time to save yourself from the trip. Our speaker, Dr. Jeffrey Mo from Cal Tech, planned to be there in person as did our "What's Up" presenter, John Garret from Temecula Valley Astronomers. My brother generously let us use his house, which was fairly close and had sufficient networking capability, so we shifted operations there. Sam Saeed reached John in time to save him the full trip to Orange County and was able to send the speaker to the new location. Despite these changes, the meeting started on time. On the fortunate side of things, our Vice President, Reza AmirArjomand, could join us this month and handled the administrative side of the meeting, which made it easier.

We don't yet have a full explanation of why Chapman University cancelled our access so abruptly, or whether we will be able to resume holding meetings there. From the limited information we have, Chapman has a new president, who has decided that outside groups will no longer be allowed to meet on campus under the terms that applied in the past.

OCA's relationship with Chapman goes back a long time, at least 35 years. Over that time, we've been sponsored by different professors in the Physics Department, and we've always welcomed anyone from Chapman who wanted to attend our meetings. By our understanding, Chapman had a strong interest in supporting educational non-profit organizations like ours as part of their community relations efforts, and felt that our meetings, which have always been free and open to the public and feature excellent speakers, were consistent with their objectives.

Chapman has been very generous during the years of our association with them. We are grateful that they have allowed us to use the Irvine Auditorium for our meetings through all this time. I hope we can work out some arrangement that will allow us to continue using the auditorium, but it does not seem likely as I write this that we will be able to do so in time for the meeting on July 10. If we are ultimately unable to continue meeting at Chapman, we will have to determine if there is any other location where we can meet in person on terms that will work for us, or if we will have to go back to holding our meetings entirely online.

We'll be discussing this issue at the next Board meeting, on July 26, 2026; if you want to attend, please email Alan Smallbone. If you have information that you think would be helpful on this issue, including possible alternative meeting locations, please email Alan or me.

We plan to send an update through the email lists and the website regarding the July meeting when we know for certain whether or not we can hold it at Chapman, so please check for updates. Whether we're able to meet in person or not, we have an excellent program – our main speaker, Dr. Robin Metcalfe from York University in Toronto, will discuss searching for life on Jupiter's moons, and Chris Butler, who we share with Griffith Observatory, will show us "What's Up" in the sky this month. We hope to see you there – online if not at Chapman!

© Barbara Toy, June 2026

Help Wanted

- OCA representative to the Western Amateur Astronomers
- Anza Maintenance Coordinator
- Orange County Star Party assistants

Both you and the club can benefit with your participation. For the WAA coordinator position, please send Barbara an email and give her a chance to tell you about it.

For the Anza Maintenance coordinator and Orange County Star Party assistants, Alan Smallbone at alan@ocastronomers.org is the person to contact. He can describe the jobs.

News About Our Anza Site

Kuhn Shipping Container Cleanup

Pretty much done now.

Upper Pads Area

A load of gravel will be spread over some of the areas that were cleared of vegetation last year to limit erosion and make the area less prone to mud following rain and snow. This will happen sometime during the next couple of months.

Anza House

A second air conditioner has been installed to improve cooling performance.

June Star Party at Anza

There were between 26 and 32 people at the Anza site on 13 June for the monthly star party.

From the Editor

Has anybody an idea for a new article or interesting column of articles for the newsletter ? The NASA column will no longer be available.

The newsletter is once again looking for front cover picture contributions. We have had one suggestion that is being looked into and are very open to additional ones.

Due dates for submission of articles, pictures and advertisements are generally 13 days prior to the subsequent general club meeting.

<u>Issue</u>	<u>Due date</u>
August	1 August
September	29 August
October	26 September

AstroSpace Update

July 2026

Astronomy and space news summarized by Don Lynn from NASA and other sources

Brightness Gap – Astronomers plotted a Hertzsprung-Russell (HR) diagram of all the well-measured stars located in the nearby globular cluster NGC 6397 using data observed by the European Euclid space telescope. An HR diagram plots brightness versus color (or temperature, which determines color). HR diagrams show a bunching of stars along a diagonal line known as the Main Sequence. This one showed a discontinuity in the Main Sequence at a certain brightness in the area of red dwarf stars. There just were no stars in this small gap. Essentially the same gap was seen only once before in an HR diagram of nearby stars made from Gaia space telescope data in 2018, but such a gap had never been seen previously in globular cluster data. The gap was probably not discovered until recently because data taken by the best modern space telescopes yields more accurate color and brightness measurements than was previously possible. Astronomers believe the gap is due to stars of a certain mass (about 35% of the Sun's mass) hitting an instability in their cores causing a rise in brightness. The stars in the globular cluster are all ancient, having formed about 13.4 billion years ago, but the Gaia study included many younger stars. So, the brightness gap exists regardless of star age.

Radio Transients Explained – Long-period radio transients (LPTs) are defined as objects that emit radio bursts that repeat minutes or hours later. There are only about a dozen known. The source of these has been subject to debate. The ASKAP radiotelescope array in Australia discovered another one, which has now been carefully studied. It was determined that the source is a white dwarf star having material dumped on it by a companion star orbiting quite closely. The period at which the signal repeats (1.4 hours for the newly discovered case) is the orbital period of the companion star. As is sometimes the case for LPTs, there is also X-ray emission repeating at the same interval as radio but offset somewhat in time. The radio bursts occur when the pair of stars approach each other in their orbit and the stars' magnetic fields interact. The X-rays are emitted by hot material falling into the white dwarf.

Dark Energy – In 2011 a Nobel Prize was awarded for the discovery that the expansion of the Universe is speeding up. The unknown force causing this was dubbed dark energy. A paper published last year claimed that the speed up was weakening; in other words, dark energy has not been constant over time. The latest paper in this debate was just published, and it points out an error in last year's paper, so new calculations show Dark Energy is likely constant.

Not A Globular – Terzan 5 has been considered a globular cluster since its discovery in 1968. However, a new study using observations from both the James Webb Space Telescope (JWST) and the Hubble Space Telescope show that it is instead a stellar system that formed when the Milky Way was forming and managed by the gravity of its dense makeup to survive until now. Terzan 5 was found to have four different dates of star formation, while globulars have usually one date or at most two dates of star formation. The motion of Terzan 5 was found to not correspond to globular orbits. It is now being classified as a bulge fossil fragment, that is, a fragment left over from the formation of the Milky Way's bulge. There is only one other known



bulge fossil fragment, which is known as Liller 1. The team that studied Terzan 5 plans to study other objects now classified as globulars, but located near the Milky Way's bulge, to see if they could possibly be bulge fossil fragments. Terzan 5 lies behind substantial dust, so JWST's infrared capabilities were key to seeing through that dust.

Binary Supernova – New analysis shows that two supernova remnants located in the constellation Gemini are related. They are the Jellyfish Nebula (IC 443) and remnant G189.6+3.3. The stars that exploded to create these remnants were originally a binary star pair orbiting each other closely. When the first of these stars reached the end of its life and exploded, the shock released the other to go shooting away in space. But that one also exploded as a supernova thousands of years later, becoming the Jellyfish Nebula. Both of the two remnants are roughly 6000 light-years away from Earth. The Jellyfish was discovered in 1892 in visible-light photographs, and the other remnant was discovered in 1994 by the German ROSAT X-ray space telescope.

Long-Period Exoplanet Pair – A new study was made of a pair of gas giant exoplanets known as HD 114082 b and c. Their star is only 15 million years old, so the planets are quite young. The system lies about 311 light-years away. They orbit in resonance, that is, the orbital period of one is exactly a fraction of the other. They transit (pass in front of) their star as they orbit. They have the longest known period of any pair of transiting exoplanets, at over 200 Earth days apiece, and are also among the youngest. It is probably not the case that long period transiting planets are rare, but that they are difficult to detect. Both are roughly the size of Jupiter, but the somewhat larger one is much less massive and is therefore extremely low in density. Astronomers believe the pair had to have formed much farther away from their star than they now orbit. Therefore, they must have migrated inward, likely simultaneously while maintaining orbital resonance.

Exoplanet With Methane – JWST was used to study a Saturn-sized exoplanet known as TOI-199g, orbiting a Sun-like star about 335 light-years away. Its temperature is about 175°F, which is considered temperate for a gas giant. Methane was identified in its atmosphere. This is the only known temperate gas giant in which methane has been found. Further observations should confirm other gases in the atmosphere and determine abundances of them.

Hot Super Earth – Astronomers used JWST to observe the exoplanet 55 Cancri e, located only about 41 light-years away. Having 1.88 times the diameter of Earth, it is classified as a super Earth. It orbits quite close to its Sun-like star, taking only about 18 hours to orbit. It is tidally locked, that is, it keeps one side always toward its star. This proximity to its star keeps the day side hot enough to melt rock. Efforts to identify atmospheric constituents have yielded conflicting results. The best theory is that the atmosphere is carbon dioxide or carbon monoxide.

Toasted Exoplanet – JWST observed a gas giant exoplanet, designated HD 80606 b, that has an extremely eccentric orbit about its Sun-like star, which takes 111 Earth days. This causes extreme temperature changes (1100°F) between the close and far points of the orbit. In turn, the temperature variation causes changes in chemistry and weather.

Salt Clouds – In 2013 an object orbiting a Sun-like star 57 light-years away was discovered that became known as the Pink Planet, or formally GJ504b. Efforts to measure its mass have resulted in widely divergent results, so it is still not known if it is a planet or a brown dwarf (failed star), which are usually distinguished at about 13 times the mass of Jupiter. But since Pink Brown Dwarf does not alliterate well, the Pink Planet name stuck. Strict astronomers call it a planetary-mass companion though. Why Pink? It is still warm (about 550°F) from its formation a few billion years ago, causing it to glow pink. The Pink Planet became news again because astronomers were finally able to get a spectrum of it, using JWST. Scientists found it difficult to duplicate the observed spectrum with computer simulations of the Pink Planet and found that any kind of match required adding salt clouds in its atmosphere. Which kind of salt remains debated, but potassium chloride and zinc sulfide are the best candidates. A weather report for the Pink Planet might read “salt cloudy today”.

Unusual Binary Star – The huge Chinese radiotelescope FAST discovered an interesting pulsar (spinning neutron star). It spins 220 times per second. Spins this fast are the product of a companion star tossing material onto the pulsar, increasing its spin. The pulsar and its companion orbit each other every 15.4 Earth days. From the companion's mass, it is likely a carbon-oxygen white dwarf star. The orbit of the two stars is extremely circular. It is believed that over long time periods dumping mass from one star to the other modifies their orbit from elliptical toward circular. This also strips the outer layers of the companion star until only a white dwarf core is left. It is thought that this history is unusual among binary stars. Astronomers hope to further observe this pair in order to learn more about their properties and history.

Protoplanetary Disk – An infrared instrument on the Very Large Telescope in Chile was used to observe the protoplanetary disk (where planets are forming) about the young star AB Aurigae. The observation was able to measure the rotational motion of the dust grains in the disk. This is the first time the rotation of a protoplanetary disk has been measured. It turned out to be more complex than computer simulations predicted. Variations from smooth flow could be from dust clumps or from planets forming.

Black Hole Wind – Astronomers for about a half century have been trying to detect wind that theoretically should be flowing outward from the supermassive black hole at the center of the Milky Way. The gas and dust between us and the galaxy center and the low level of black hole activity make this difficult. Observations using ALMA radiotelescope array in Chile showed a conical clearing in cold gas near the black hole. That clearing is believed to have been made by black hole's wind. Observations by the Chandra X-ray space telescope also supported this find.

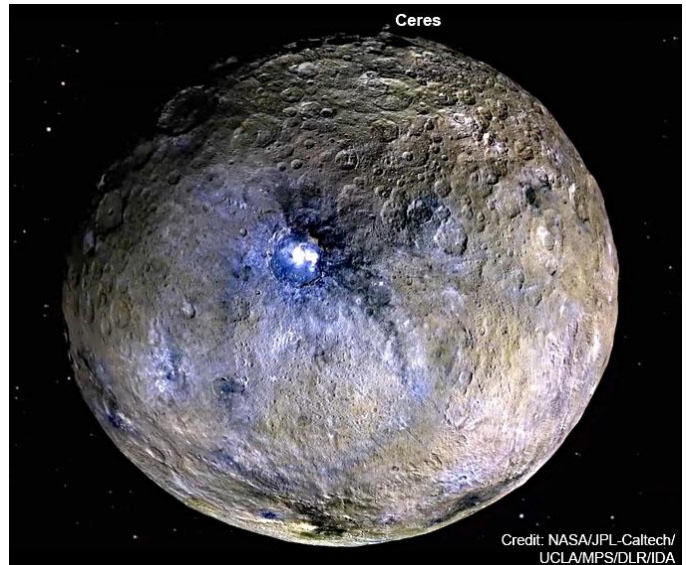
Distant Black Hole Mass – The most accurate method to determine the mass of a black hole is to track the motion of objects orbiting about the black hole and then solve orbit equations for the mass. This was applied for the first time to a really distant (about 10 billion years away in light travel time) supermassive black hole. The reason this was possible is that the black hole happens to lie behind a gravitational lens caused by a massive foreground galaxy, which magnified and brightened the surroundings of the black hole. JWST was used to make the measurement. The mass was found to be about 6 billion times the Sun's mass.

Little Red Dots Explained – Deep images made with JWST show little red dots, which in a lack of originality, are being called little red dots (LRDs). There has been much debate over what these objects could be. They are so distant that the light left them soon less than a billion years after the Big Bang. That would be too soon for that many stars to have formed that would be bright enough to be seen. New observations of one LRD, designated GLIMPSE-17775, were made through a gravitational lens that by chance happened to be in front of it. The lens made the LRD enough brighter that JWST was able to get a spectrum of it. The theory that best fits the spectrum is that this LRD is a black hole surrounded by dense ionized gas. Activity at the black hole provides the brightness of LRDs, while the surrounding gas re-emits the light much redder. The surrounding gas also absorbs most of the X-rays that active black holes emit, matching the weak X-rays seen from most LRDs. The purpose of these JWST observations was to use the gravitational lens to help find the first stars that formed in the early Universe, but they ended up solving the LRD debate instead.

Gravitational Wave List Released – Astronomers have released a new list of recent gravitational wave detections. These detections were made by the two LIGO instruments and the similar instruments in Italy and Japan. 161 new detections are listed, almost doubling the number of gravitational waves ever detected. As was true in the past, most detections were caused by collisions of black holes, with a few involving neutron stars. The masses of black holes that collided continue to imply that some fraction of the detections involved a black hole that was the result of a previous collision. In other words, the distribution of masses of detected black hole collisions does not quite match the theoretical distribution of masses of black holes produced by massive star collapses.

MAVEN Ended – Last December, contact with the Mars orbiter MAVEN was lost. The last data from it indicated it was spinning, which it should not have been. Since then, spacecraft controllers have tried in vain to determine the root cause of loss of contact, and to reestablish contact. After exhausting all possibilities, NASA has now declared the mission ended. For over 11 years, MAVEN studied the Martian atmosphere and how it leaks into space under various conditions. This has helped to explain how Mars lost most of its atmosphere billions of years ago, resulting in a drop in temperature. The planet is far colder and drier than it was early in its history. MAVEN also functioned to relay radio communications from Mars rovers to and from Earth. Other Mars orbiter missions have had to take over MAVEN's relay duties.

Ceres – A new study of old data from the Dawn mission showed that the surface of the dwarf planet Ceres is more complex than previously thought. Its steep slopes, fractures and albedo (reflectivity) variations were hiding some impact crater features. Gravity measurements showed that there is a less dense piece about 30 miles below the surface. It is likely a reservoir of brine (salty water). Brine likely erupted through cracks to explain some of the surface features. A crater named Occator is quite young, only several million years. Ceres is surprisingly high in water content, mostly frozen. Ceres was discovered in 1801, the first of the asteroids.



Asteroid Encounter – The Lucy spacecraft, on a mission to visit 7 Trojan asteroids, last year made a flyby of a main belt asteroid named Donaldjohanson, which was named after the paleoanthropologist who discovered the pre human fossil Lucy. Trojan asteroids orbit the Sun using Jupiter’s orbit, but are found ahead or behind the planet by about a 60-degree angle. There are thousands of them known. The results of the Donaldjohanson flyby were just published. The asteroid is made of two chunks joined by a narrow neck. Both chunks are completely covered by impact craters. The neck appears to have covered much of the expected craters with landslides. The crater density shows the asteroid is at least 40 million years old. It has long been known that the asteroid is a member of the Erigone asteroid family, which was created by the collisional breakup of a larger asteroid 155 million years ago. Donaldjohanson is tumbling slowly, that is, rotating about two different axes, with periods of 253 and 455 hours. It is believed that sunlight and heat have slowed the rotation to this leisurely rate. Lucy will approach Trojan asteroid Eurybates in about a year.



Alan Hale, one of the two discoverers of Comet Hale-Bopp, has died at age 68. Although he discovered only the one comet, he observed 533 comets over his lifetime, making him one of the greatest comet observers ever. Comet Hale-Bopp is regarded as one of the most spectacular comets of the past century. It was visible to the naked eye in a dark sky for 18 months. It reached peak brightness roughly the same as the brightest star Sirius in spring of 1997. Hale published 3 books with comet topics. Thomas Bopp, the other astronomer who independently discovered Hale-Bopp, died in 2018.



Advertisements

Buy, Sell or Trade some of your gear? This is where club members can place advertisements. Please contact the editor at newsletter@ocastronomers.org to place an advertisement or to learn more about placing one. There is no cost to club members for non-commercial advertisements in the newsletter. The editor may resize and re-arrange ad content to fit and will feed back the formatted ad for approval prior to publishing.

Some policy changes have been made to reflect the expanded capacity of the electronically published newsletter.

- Each advertisement may now occupy up to 1/2 of a printed page and may include small pictures within the space permitted. The editor may resize and re-arrange ad content to fit and will feed back the formatted ad for approval prior to publishing.
- Each advertisement may be run for 3 consecutive issues, after which it will be removed unless the advertiser requests extension of the ad by contacting the editor of the newsletter.

For Sale contact Jerry Floyd jifloyd720@gmail.com

- Stellarvue **SV102EDT** Triplet Refractor, 102mm aperture, 621mm focal length, f/6.1, Serial #23 \$ 500

This is equipped with JMI Focuser, tube rings, and base plate.

Telrad (mounted on custom wood adapter) and star diagonal are included



Pick up in Hemet, at OCA Anza site, or I will deliver locally in Southern California area, within approx. 100 mile radius.

For Sale contact Jerry Floyd jifloyd720@gmail.com

- Stellarvue **SV80S** apochromatic triplet refractor with High-quality Russian LOMO OK4 glass \$ 500

80mm aperture, 480mm focal length, f/6.0,
Serial #0018. Designed by Thomas Back.
2 inch Feather Touch Focuser, saddle plate instead of
tube rings.
Serial #0018. Designed by Thomas Back.

1.25 inch star diagonal, 2 inch to 1.25 inch reducer,
25mm 1.25" Plossl eyepiece and soft case included



Pick up in Hemet, at OCA Anza site, or I will deliver locally in Southern California area, within approx. 100 mile radius.

For Sale contact Jerry Floyd jlfloyd720@gmail.com

- Stellarvue **SV80L** super apochromatic triplet refractor. 80mm aperture, 600mm focal, f/7.5 \$ 500

2" Feathertouch focuser

Has a single large tube ring with base plate for mounting

Included are 2" star diagonal, Stellarvue red-dot finder, and padded case.

Pick up in Hemet, at OCA Anza site, or I will deliver locally in Southern California area, within approx. 100 mile radius.



For Sale contact Jerry Floyd jlfloyd720@gmail.com

- 11" Celestron Rowe-Ackermann Schmidt Astrograph v2 \$ 2900
- Aperture 11" (279mm), Focal Length 620mm, f/2.2, Ultra-Stable Focus System
OTA Weight 43 lbs/19.5kg.

Includes top and bottom mounting rails,
42 and 48mm T-thread camera adapters,
dust cover, dew shield, Pegasus focus motor.
Does NOT include camera or guide scope.



Pick up in Hemet, at OCA Anza site, or I will deliver locally in Southern California area, within approx. 100 mile radius.

For Sale contact David Pearson (714) 293-5684

- SBIG STF-8300m CCD camera with case and 8 position filter wheel (no filters) \$300
- Orion slow-motion control mount with RA axis polar scope, tripod, and counterweights \$ 50
Great for small scopes including SeeStar and Dwarf lab



For Sale contact Ron Choi rchoi1983@gmail.com

- Orion EON 115mm f/7 Triplet APO Refractor with Orion 3" Field Flatteners \$1100
- Celestron 8" Edge HD Optical Tube with Celestron Padded Soft Case – Like New condition \$1200
- Sky-Watcher EQ6R Pro Equatorial Mount \$1000
- Optcorp TRIAD Filter 2" Ultra \$ 750
- Altair 2 inch Magnetic Filter Drawer \$ 70
- ZWO ASI071MC PRO \$ 700
- ZWO ASI533MC PRO \$ 550
- ZWO ASI174mm Mini \$ 320
- ZWO ASI224MC \$ 100
- QHYCCD Pole Master \$ 190
- ASIAIR PLUS 256 GB – Like-New condition \$ 280
- Tele Vue Delite 11mm \$ 200
- Tele Vue Plossl 32mm \$ 100
- Tele Vue Plossl 8mm \$ 70
- Tele Vue 2x 1.25" Barlow \$ 90
- Orion OAG Off Axis Guider \$ 240
- Orion 9x50 mm Correct-Image Right Angle Finder Scope \$ 100

For Sale contact Larry McDavid lmcdavid@lmceng.com Cell 714-390-9655

- Heavy duty steel pier for German Equatorial mount. Fits Anza 10-inch pier bolt pattern. \$ 100
Pier is 12 inches diameter and 30 inches tall. Very heavy weldment is made from 3/4-inch pipe and includes azimuth adjuster plate. Ready for sand blast and paint. There is a large hole in the pier side wall and in the 14-inch square pier base plate for access to route an electrical conduit up from the Anza pad.

This is a very heavy pier as one should expect from its wall thickness and diameter.

Call or email if questions



For Sale contact Larry McDavid lmcdavid@lmceng.com Cell 714-390-9655

- Original Schaefer equatorial mount with 11-inch Byers RA gear, scope mount plate and tripod. \$1500 obo
All precision machined and painted professionally.
Includes engraved RA and declination dial plates and drive motor with digital electronic drive.

Call or email if questions

