

Lunar 100.apd

ID	Name	Feature Type	Feature Size	Best Day 1	Latitude	Longitude	LFA	Rukl Chart
Notes								
L1	Moon		3476					
L2	Earthshine		3476					
L3	Mare/highland dichotomy							
L4	Apennines	Dorsa	70	7	19.9	-3.7	18, 19, 25	22
By far the most magnificent range of mountains on the moon, including some 3000 peaks, and extending in an almost continuous curve of more than 576 miles in length. Some of the peaks are at least 16400 feet high and include Mons Huygens and Mons Wolf. I could detect both these mountains with my 6mm inserted. This mountain range is truly wonderful and there is so much to see and observe.								
L5	Copernicus	Crater	93	9	9.7	-20.1	25	31
Archetypal large complex crater I was looking straight down on to tis wonderful crater Copernicus and with my trusty 9mm ortho at x I could detect two central peaks but by inserting the 4mm ortho to give me a magnification of x457 I could just split one of the peaks into two thus making three peaks but this was very hard to do and needed moments of good seeing. The basin floor surrounding the three mountains is otherwise flat and the crater has steep terraced walls, rims bathed in sunlight. ejecta formations on every side going out some distance I estimate at least 80 miles. Copernicus is situated on the Mare Insularum and is 56 miles in diameter and stands an impressive 11400 feet high. I could even detect a black circular formation embedded into the terraced sides of Copernicus this turns out I think to be Copernicus A a 2 mile diameter crater of unknown height.								
L6	Tycho	Crater	85	8	-43.4	-11.1	22,28	64
What a fantastic object to observe Tycho is a large circular formation crater from the Copernician (From -1.1 billions years to present days) period and is 52 miles in diameter and very high at 14500 feet. Through the 9mm ortho it looked stunning and is perfectly round with very steep sides I could see how steep they were due to the angle I was viewing Tycho from. Very deep floor engulfed in blackness but the central peak was bathed in sunlight as was the surrounding walls. The best view of this crater was through my 6mm ortho at x304 I could actually sense climbing the outer cliffs, they were that clear and looked that near.								
L7	Rupes Altai	Dorsa	425	5	-24.3	22.6	15	57
This wonderful scarp comes from the Nectarian (From -3.92 billions years to -3.85 billions years) period and is 291 miles long and 3000 feet deep, it's width is unknown according to VMA. Using the 12.5mm ortho I could trace the whole length from Piccolomini in the south to where the scarp meets Catena Albufeda in the north. Between the trio of craters Polybius C,F & P and the cliffs that make up the scarp there is a flat piece of land and I could detect a white rectangular formation similar in design to a football pitch, I'm sure this is just a trick of the light as after a few minutes the object dissappeared from view.								
L8	Theophilus, Cyrillus, Catharina	Catena		5	-13.2	24.0	8,14	46,57
Such a wonderful trio of craters, this trio must rank as one of the easiest to note on the moon's surface. Theophilus is 61 miles in diameter and a mighty 13300 feet deep, and tonight it showed. The interior of Theophilus was jet black and only the craters rim was bathed in sunlight. The next two Cyrilius and Catherina looked splendid in the 9mm ortho and I could detect the mighty bridge that connects these two craters together. The bridge is in fact a ridge between the two, but under certain conditions resembles a bridge. With the 6mm ortho inserted I could make out the trio of peaks ontop of the mountain in the centre of Cyrilius.								
L9	Clavius	Plain	225	8	-58.8	-14.1	22,28	72
The highlight of the night due to the angle I was viewing from has to be Clavius, this is one very steep and large crater at 136 miles in diameter. I could only see half of it as the rest was in the blackness of the terminator. The whole floor was bathed in darkness except for the rims of Clavius C & D which were bathed in sunlight. A very magical moment and one I will return to when the terminator has moved on.								
L10	Mare Crisium	Mare	540	3	18.0	59.0	1,2	26,27,37,38
Mare Crisium is full of interesting objects, through my 12.5 ortho I could observe wrinkle ridges running from crater Lick northwards to crater Yerkes E and then very faintly continuing to the west of crater Swift. I could also detect a slight darkening of the lava floor north of crater Picard and surrounding crater Peirce. I could a few of the wrinkle ridges that cover the sothern shore called Dorsum Termier. This is also the site where Luna 15 landed. Luna 15 was launched only three days before the historic Apollo 11 mission to the Moon, was the third Soviet attempt to recover and bring lunar soil back to Earth. Luna 15 entered lunar orbit at 10:00 UT on 17 July 1969. The spacecraft remained in lunar orbit for two days while controllers checked all onboard systems and performed two orbital maneuvers. After completing 86 communications sessions and 52 orbits of the Moon at various inclinations and altitudes it began its descent. Astronauts Armstrong and Aldrin had already set foot on the Moon when Luna 15 fired its main retrorocket engine to initiate descent to the surface at 15:47 UT on 21 July 1969. Unfortunately, transmissions ceased only 4 minutes after deorbit at a calculated altitude of 3 kilometers. The spacecraft impacted the lunar surface on July 21, 1969. The spacecraft had probably crashed onto the side of a mountain. Impact coordinates were 17° north latitude and 60° east longitude in Mare Crisium. It's great using the 6mm ortho to look around this famous site and to guess what mountain Luna 15 crashed into.								

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L11	Aristarchus	Crater	40	11	23.7	-47.4	30	18
This is very interesting region to examine, Aristarchus floor looked like it was made of chalk, it glistened so white that it looked false compared to rest of the moon. I could easily make out the steep sides that appeared to take on a terraced formation, with averted vision I could detect a very small central peak, but this was extremely hard to see. The crater is quite large at 24 miles in diameter and 91100 feet high. I'm not entirely sure where the Aristarchus Plateau is meant to be situated the only feature that looks possible is to the north of Aristarchus, it appears as a flat plain that stretches to the Schröter's Valley. To the East of Aristarchus I could see the formation known as the Rima Aristarchus a series of scratch marks in the surface of the moons, these were really hard to establish as they might be 97 miles long but are only 1 mile wide and the light needed to be just right to see them, so I only got a very rare glimpse of them.								
L12	Proclus	Crater	28	4	16.1	46.8	2,7	26
Crater Proclus comes from the Copernician (From -1.1 billions years to present days) period of the Moon's history and is a medium size crater at 17 miles in diameter and 7300 feet high. With the 99mm inserted I could make impact rays running from Proclus over the crater Carmichael & Hill. If you look south-east from Proclus is the area of Promontorium, the site of the somewhat infamous O'Neill's Bridge. Click on the following link to find out more: http://the-moon.wiki...ntorium Olivium. Luck was with me on this one as the light was just right and I managed to see the famous bridge. It looks like a > < formation, like a bridge narrowing in the middle crossing a large canyon. It was only visible in 12.5 and ortho's and not in 6mm as the seeing made this impossible. The bridge is made up from the rims of two craters that are side by side, essentially just a trick of the light but one that I enjoyed.								
L13	Gassendi	Crater	101	10	-17.6	-40.1	32,33	52
Wow what a crater situated on the northern shores of Mare Humorum is a magnificent crater called Gassendi it is a mighty 67 miles in diameter and I could detect the mountain range within the crater and counted 7 mountain peaks with the 6mm ortho. I could also see two more peaks towards the south terraced walls. The crater has very steep terraced sides that were illuminated by the sunlight. Gassendi A was easily seen cut into the northern wall of Gassendi. This is one very disturbed crater with so many geological features within it's basin you spend a whole night just observing the crater alone. The little craterlets of the Mare Homorum caught my eye next so I decided to count how many I could see through the 6mm ortho, eventually I settled on a figure of 20, pretty impressive I thought.								
L14	Sinus Iridum	Sinus	260	10	45.0	-32.0	23,24	10
Situated on the Mare Imbrium is a very large crater called Sinus Iridum at 242 miles in diameter, what's striking about this crater is it is missing its southern rim, making it appear like a cove, it's bordered to the north by the Jura Mountains. Scanning along the coastline through my 6mm ortho I could detect very steep terraced cliffs which were bathed in sunlight, the basin floor is lava filled but I could make out a couple of small craters such as Laplace A and Heraclides F the latter just 2 miles in diameter and only visible in the 4mm Uwan at x. If I looked over the Jura Mountains I my eyes come across the crater Pythagoras, sitting on the terminator only it's upper rim and the central peak is illuminated, what a lovely magical sight.								
L15	Rupes Recta/Straight Wall	Rupes	110	8	-21.8	-7.8	21	54
Rupes Recta : I have seen this one on numerous occasions and it must be the most famous and observed lunar feature, it is actually a gentle slope not a wall and is 67 miles long and has a gradient of 40°. Through my 9mm ortho at x 203 it look fantastic, I could trace its entire length, and the crater Birt A dominates near by. I could also detect the very small Rima Birt this geological feature is just 30 miles long and 1 mile wide. Moving further away from Rupes Recta is a very strange feature that resembles a snake coming out of the crater Nicollet, it's unnamed on VMA but in my mind it really looked like a wriggling snake on the lunar surface.								
L16	Petavius	Crater	177	3	-25.1	60.4	4	59
One of the best craters ever, amazing steep terraced sides and the central peak was stunning, Petavius is 107 miles in diameter and has crater walls 10,000 feet high. I could detect the sunlight bouncing off two higher formations on top of the peak. The Rima Petavius at 48 miles long and only 1 mile wide looked like it was emerging from the central mountain and running westward and was easy to see. I could even detect Petavius A just behind the peak, very stunning indeed best in 9mm ortho.								
L17	Vallis Schroteri	Vallis	168	11	26.2	-50.8	30	18
The Schröter's Valley Is a giant rille 97 miles long and 6 miles wide that snakes its way near to crater Herodotus. In the 9mm Ortho I could trace the entire length. I could even detect sunlight bouncing off the top of the rille. I could even make out the tip of the rille as it breaks into two near its end, I think this is known as "The head of the cobra".								
L18	Mare Serenitatis dark edges	Mare	24	5	17.8	23.0	12,13	24
Staying in the area of Mare Serenitatis I went hunting for the dark edges around the southern shores of the sea. Through the 9mm ortho I could easily detect the dark edges in the area known as Dorsa Lister, it carries on for quite a long way round the outer rim of Mare Serenitatis								
L19	Alpine Valley	Vallis	165	7	49.0	3.0	17	4
The Alps Mountains really looked fantastic in the 7 Uwan at x231. I could see the entire length of the Alpine Valley which is 79 miles long and 7 miles wide. The valley starts in the middle of the Alps and ends on the Plains of Frigoris. The 4 Uwan at x471 was a little soft but it gave you the feeling of flying above the Alpine Valley looking down at all its beauty.								

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L20	Posidonius	Crater	95	5	31.8	29.9	6,12	14
Floor Fracture: On the eastern side of Mare Serenitatis sits the fantastic looking crater Posidonius, in my mind it looks oval in shape but according to VMA it's actually circular being 58 miles in diameter, it's height is unknown. This crater comes from the Upper Imbrian period in the moon's history which makes it approximately 3.6 billion years old. Through my trusty 9mm ortho I could detect higher walls on the eastern side and the lovely 13 mile diameter crater J cutting into Posidonius northern rim. There is a crater just of centre within Posidonius and with the 4mm Uwan inserted giving x 457 I could just detect with averted vision three formations surrounding the centre crater.								
L21	Fracastorius	Crater	124	5	-21.5	33.2	9	58
On the Southern shores of Mare Nectaris lies the lovely crater Fracastorius, this is a lave filled crater 75 miles in diameter. The Northern walls are missing swallowed up by the lava but steep walls can be seen on the eastern side. I decided to count the craters on the floor of Fracastorius and with the 9mm ortho giving x 203 I managed 3 craters with fracastorius L being the biggest at 3 miles in diameter. With the 6mm inserted I could see a further two bringing the total to five. With this eyepiece I could detect a few darker lines going across the crater's floor were these the fractures I was meant to find, if so they were very hard to spot.								
L22	Aristarchus Plateau	Crater	150	11	26.0	-51.0	18	18
'Pyroclastic Aristarchus' : This is very interesting region to examine, Aristarchus floor looked like it was made of chalk, it glistened so white that it looked false compared to rest of the moon. I could easily make out the steep sides that appeared to take on a terraced formation, with averted vision I could detect a very small central peak, but this was extremely hard to see. The crater is quite large at 24 miles in diameter and 91100 feet high. I'm not entirely sure where the Aristarchus Plateau is meant to be situated the only feature that looks possible is to the north of Aristarchus, it appears as a flat plain that stretches to the Schröter's Valley. To the East of Aristarchus I could see the formation known as the Rima Aristarchus a series of scratch marks in the surface of the moons, these were really hard to establish as they might be 97 miles long but are only 1 mile wide and the light needed to be just right to see them, so I only got a very rare glimpse of them.								
L23	Pico	Mons	25	8	45.7	-8.9	17	11
I started off by crossing the Mare Frigoris and to the place where Plato was just emerging from the terminator and within the terminators blackness the tops of Mount Pico and the Mountains of Teneriffe were visible as white beacons among the darkness.								
L24	Hyginus Rille	Rima	220	6	7.4	7.8	19	34
I have already seen the opposite side of the Hyginus Rima but now with very intense observing I could see the point where the Rima Hyginus dissects the Rima Ariadaeus, this is extremely hard as the rille is only 2 miles wide. I managed this by using the 6mm ortho as I found the 4mm ortho darkened the area too much.								
L25	Messier, Messier A	Crater	11	4	-1.9	47.6	3	48
These craters make a striking pair, slightly oval in shape and look deep. Messier A is slightly larger and has a 100 km ejecta ray heading westward across the Mare Fecunditatis. I tried to find Rima Messier but this was hard and needs to be more on the terminator, Virtual Moon Atlas states you need a scope of at least 500mm. I could make out a fuzzy rima with the 4mm ortho inserted and just a darker smudge with the 12.5mm inserted but no definite rimae was visible.								
L26	Mare Frigoris	Mare	1600	9	56.0	1.4	11,17,23	2-6
I started off by crossing the Mare Frigoris and to the place where Plato was just emerging from the terminator and within the terminators blackness the tops of Mount Pico and the Mountains of Teneriffe were visible as white beacons among the darkness.								
L27	Archimedes	Crater	83	7	29.7	-4.0	18	12,22
Archimedes is a very large crater 50 miles in diameter and 6500 feet in height and has no central peak, it's steep walls looked fantastic in 12.5 and 9mm orthos with the sunlight illuminating top of the cliffs making it a very magical scene. Two great craters nearby they are Autolycus and Aristilus the latter has some interesting ejecta rays emerging from it. Below Archimedes are some fantastic mountains which leads into many rilles. A very interesting area that was really bought to life with my orthoscopic eyepieces.								
L28	Hipparchus	Crater	150	7	-5.5	4.8	20	44,45
A very large crater with deformed and wrecked sides, it was the place where TinTin landed on the Moon in the Herge novels. Few high walls to the North by Horrocks and to the East by Hipparchus G. Very large flat floor containing Hipparchus N and the ghost crater Hipparchus X which could be seen pretty well in the 6 mm ortho it looked like a horseshoe with one side of its crater walls totally missing. The crater was formed in the Pre-Nectarian (From -4.55 billions years to -3.92 billions years) period and is 91 miles in diameter and of unknown height.								
L29	Rimae Ariadaeus	Rima	250	5	6.4	14.0	13	34
Rimae Ariadaeus comes from the mbrian (From -3.85 billions years to -3.2 billions years) period and is 133 miles long and reaches 4 miles wide, it is also 1500 feet high. It was quite easy to trace it's entire length from Ariadaeus E in the east to the point where it meets Rima Hyginus in the west. Just to the south of the rimae lies Silberschlag and around this crater the land seems very dark.								
L30	Schiller	Crater	180	10	-51.9	-39.0	28	71
Next on my list was the elongated crater Schiller, very easy to find and large at 108 x 43 miles. With the 9mm ortho inserted I could clearly see the steep sides that are 11800 feet high and I could even detect the mountain range that lies in the North West end of Schiller.								

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L31	Taruntius	Crater	56	4	5.6	46.5	2,3,7	37
A round and pretty low sided crater, I could see central peak, the northern rim is impacted by crater Cameron, nothing special but another one ticked off the lunar 100 list.								
L32	Arago, Alpha & Beta	Crater	26	5	6.2	21.4	13	35
Just to the right of Arago is two while patches which are the volcanic domes Alpha and Beta Arago, easily seen and distinguished in the 9mm ortho as white domes, a very pretty site and one that would finish the nights viewing just perfectly.								
L33	Dorsa Smirnov/Serpendite Ridge	Dorsa	155	5	27.3	25.3	12	24
Just to the west of Posidonius is a north to south wrinkle ridge known as the Serpentine Ridge and also by the name Dorsa Smirnov, it is quite long at 79 miles and VMA states 12 miles wide. The libration was not ideal but the 6mm ortho easily picked it up and I travelled the whole distance of the magical ridge, I came accross a little crater about halfway up the Serpentine's length, it is known by the strange name crater Very and is only 3 miles in diameter. If you follow it towards the southern end it joins up with many rilles but these were extremely hard to see.								
L34	Lacus Mortis	Lacus	152	5	45.0	27.2	11	14
Next up to a very old crater VMA states at least 4.3 billion years old it is called Lacus Mortis and is 91 miles in diameter and has a very uneven shape. It contains the crater Burg which was very easy to see, but through the 6mm at x 304 I could detect many rilles running accross Lacus Mortis crater floor, a very pretty view and these wrinkle ridges really stood out.								
L35	Triesnecker Rilles	Rima	215	7	4.3	4.6	19	33
I then turned my attention onto the feature known as the Rilles of Triesnecker, these are a system of ramified rilles spreading from the North slope of Rhaeticus to Rima Hyginus and situated on the slope East slope of the crater Triesnecker. Through the 6mm Ortho I could quite easily see the Rilles and could even pick out the little crater Triesnecker F which sits just above the "V" formation that the Rilles form. This little crater is very small at only 2 miles in diameter and of unknown height.								
L36	Grimaldi Basin	Plain	440	13	-5.5	-68.3	37	39
A very large pre-nectarian crater that is 134 miles in diameter. The crater appears darker then the surrounding area due to it's lave filled floor, I could make out through my 9mm ortho craters Q,D, and E on it's north eastern rim and crater B on it's northern side. I could also see Rimae Grimaldi to the south east of crater Grimaldi, the rimae only appeared twice as it's pretty narrow at 139 miles long but only 1 mile wide.								
L37	Bailly	Plain	303	13	-66.5	-69.1	11	71
Bailly is very easy to find as it's 183 miles in diameter, I could trace the entire rim and could see that within Bailly are the following craters A and B which are touching each other. I could also see craters C, D F and T that were near the centre of Bailly.								
L38	Sabine and Ritter	Catena	30	5	1.7	19.7	13	35
This couple form a fantastic pair, very similar in size approximately 19 miles in diameter. I could just make out a split between these two but it is very small indeed maybe just a couple of miles. I could just see Sabine A cut into the SW side of Sabine. Both craters had steep sides and flat floors.								
L39	Schickard	Crater	227	12	-44.3	-55.3	34	62
This one was at the perfect angle just on the southern limb of the moon near the terminator. It's a large crater and I could see the extent of the very steep sides. Best viewed in the 9 mm ortho I could detect a gathering of about 5 craters on the basin floor towards the southern rim of the crater and two towards the northern rim. Schickard is huge at 137 miles in diameter and has a immense flat basin floor. It's height is unknown but VMA sys that a few of it's cliffs do reach 2700m in height.								
L40	Janssen Rille	Rima	190	5	-45.4	39.3	7	67,68
There is so much going on in this area of the moon, I located the crater via the two craters Fabricius and Metius, Janssen lies just south of these two craters. Janssen is very old and deformed and has numerous craters inside and outside it's walls. I could detect the series of ramified rilles inside the crater with my 6mm ortho.								
L41	Bessel Ray	Ray		6	21.8	17.9	12	24
Situated on the Mare Serenitatis not far from the Serpentine ridge is a strange looking bessel ray. With the 9mm ortho inserted I could see the white stripe accross the mare's floor which shows the ray cutting through the crater Bessel and heading towards the crater Menelaus								
L42	Marius hills	Dome	125	11	12.5	-54.0	36	28,29
Through the 6mm ortho I could detect quite a few of the hills that pepper the floor north of the crater Marius, I counted maybe 10 of these little mounds. Marius E to the west was easily seen as was the little crater Marius G which is just 2 miles in diameter and resides inside Marius itself.								
L43	Wargentín	Crater	84	12	-49.6	-60.2	34	70
Lying just above Schickard are three large craters the bottom one is the crater Wargentín. The crater looks extremely flat in the 12.5mm ortho, the northern rim is missing and through the 4mm ortho I could detect a wrinkle ridge running through the middle. The crater comes from the Nectarian (From -3.92 billions years to -3.85 billions years) period and is 51 miles in diameter and has slopes 900 feet high.								

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L44	Mersenius	Crater	84	11	-21.5	-49.2	33,38	51
A stunning crater and due to angle it looked like I was mountain climbing up the side of the crater. Whole of the top of the ridges was illuminated as was the floor, I could detect no central peak but through the 4mm Ortho I could see two craters embedded into the South terraced walls, the largest being the 9 miles diameter Mersnius H the latter has no name or designation. This crater is very old and comes from the Nectarian (From -3.92 billions years to -3.85 billions years) period of the moons history, it is 51 miles in diameter and 7000 feet high.								
L45	Maurolycus	Catena	114	6	-42.0	14.0	15,16,22	66
Maurolycus is a large crater measuring 69 miles in diameter it is cut into by lots of others little craters. I could see very steep sides that were illuminated by the sun. The crater contains a lovely large proud central peak surrounded by numerous little cratlets on the basin floor. A fine specimen and looked awesome in all eyepieces especially 12.5mm ortho at x146.								
L46	Regiomontanus central peak	Crater	124	7	-28.0	-0.6	21	55
A pretty large irregular shape crater 76 miles in diameter and of unknown height, cut into it's western side by the crater Purbach. Through the 9mm ortho at x203 it looks like the central peak of Regiomontanus is attached to the western slope of Purbach. The sun illuminated the central peak really well. The area between Purbach, Regiomontanus and Werner is the area fabled for the Lunar X sightings. This is a very impacted and confusing area to observe, so much happening that my eye was always capturing objects to look at.								
L47	Alphonsus dark spots	Crater	119	7	-13.7	-3.2	20	44
A very large crater 71 miles in diameter and 8400 feet in height, Alphonsus comes from the Nectarian (From -3.92 billions years to -3.85 billions years) period in the Moon's history, it's central peak was very prominent and the light illuminated the top of the central peak. Unfortunately never got to see the dark lave spots that are meant to come from volcanos on the crater basin floor as the floor was dark for ages even after the terminator had departed the area, just goes to show how deep the wonderful crater is. The view through my 6mm ortho at x304 was astonishing, so much detail emerged. It is famous for the probe Ranger 9 which was launched on 21st March 1965 at 21.37(UT) from Cape Kennedy. It took 5814 pictures of the moons surface before crashing into Alphonsus on the 24th March 1965 at 14.08. Another promienent feature of this crater is the wonderful central peak and some rilles which according to VMA require 500mm of aperture. Not sure if I caught this but through the 6mm ortho I definitely saw rilles within Alphonsus's basin so I think I may have seen this extremely rare sight								
L48	Cauchy region	Rima	130	5	10.5	38.0	7	36
Fault, rilles and domes - Had a look around the area of Cauchy on the eastern shores of Mare Tranquillitatis, saw the Rima Cauchy through my 6mm ortho at x 304 it's 127 miles long and just 2 miles wide and very hard to spot, also there are numerous little craters and domes situated around the Crater Cauchy itself, a very interesting area of the moon.								
L49	Gruithuisen Delta&Gamma	Dome	20	11	36.3	-40.0	30	9
Head west from the Sinus Iridum along the Jura Mountains you come to a point where the mountains reach the sea. At this point I can see through the 7 Uwan at x little mountains or volcanic domes among the Mare Imbrium floor. Maybe all those years ago this was one of the volcano's that flooded the Mare Imbrium. The domes are approximately 12 miles in diameter and of unknown height and come from the Imbrian (From -3.85 billions years to -3.2 billions years) period in the moons history.								
L50	Cayley Plains	Palus	14	6	4.0	15.1	13	34
Cayley Plains lies just to the south of the Ariadaeus Rimea and consists of an open plain within the plain is Crater Cayley and Crater Whewell. This seems to me to be a remarkably flat piece of land only slightly peppered by a few small craters.								
L51	Davy Crater Chain	Catena	50	8	-11.1	-6.6	20,26	43
In December's issue of Astronomy Now it lists the crater chain Catena Davy as a good object to find. Virtual moon atlas lists it as interesting formation needing at least 200mm of aperture to see it. Well I started by finding Crater Davy a large crater of about 22 miles in diameter that has steep sides but is relatively shallow. It is cut through on it's South Eastern wall by Davy A a bowl crater of 9 miles in diameter. Emerging eastward out of the Davy Crater is Catena Davy. A crater chain of about 30 miles in length which looks like a mountain range in my 6mm Orthoscopic at x304 mag. But by replacing this with the 4mm Orthoscopic giving me x457 I could definitely see this chain as cratlets. I counted at least 7 of them in a very straight line. Also visible within the Davy basin is Davy C and Y. Both little craters off aproximately 2 miles across. These were only visible in the 4mm orthoscopic eyepiece.								
L52	Cruger	Crater	45	13	-16.7	-66.8	37	50
The time is 20.04 crater Cruger is just emerging from the terminator, the sunlight illuminating it's entire rim. At 21.39 and Cruger resembles a crater within a crater. The outer crater is the Pyroclastic South Crugar crater wall. I had to wait till gone 22.45 to see the whole of Cruger, what a wonderful circular crater at 28 miles in diameter and 1500 feet high it's pretty impressive and with my 4mm ortho inserted I even caught a rare glimpse of a cratlet on the lava filled floor.								

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L53	Lamont	Crater	106	5	4.4	23.7	13	35
Not far from the Ranger 8 landing site and the crater Arago I could see the ghost crater Lamont, you could just make out the walls of the crater and maybe a central peak, which is now lava filled and almost invisible.								
L54	Hippalus Rilles	Rima	240	10	-24.5	-29.0	33	52.53
I spotted four rilles running from Rupes Kelvin in the south across the Promontorium Kelvin and northwards towards crater Hippalus. One of these rilles cuts across the floor of crater Hippalus and continues on the other side. These rilles are 145 miles long and 2 miles wide. They were easily spotted in all my eyepieces but the best one being the 12.5 mm ortho that gave me x 146.								
L55	Baco	Crater	69	5	-51.0	19.1	16	74
A very hard to spot crater as it was situated in the area near the bottom of the moon. Baco is a circular formation crater 42 miles in diameter and 11800 feet high I could detect very steep slopes. With moments of better seeing I could just detect a small central peak but the floor looked very flat.								
L56	Austrole Basin	Crater	880	2	-49.8	84.5	10	76
Towards the South Eastern rim of the moon just passed the Vallis Rheita lies Mare Australe coming from the Pre-Nectarian (From -4.55 billions years to -3.92 billions years) of the moon's history this basin is large at 303 x 61 miles. I could not see to much detail but could make out the black patches on the surface which indicate the presence of the Australe Basin.								
L57	Reiner Gamma	Swirl	70	12	7.7	-59.2	36	28
This object was extremely hard to see, just to the west of crater Reiner there appears to be a bright spot on the moons surface, just below this is a very small crater maybe 3 miles wide, surrounding this is a buried crater with it's northern edge just clipping the white formation, this as far as i know is the ghost crater Reiner Gamma. This ghost crater comes from the Copernician (From -1.1 billions years to present days) period of the moons history and is 24 x 18 miles in size. I found the 9mm ortho picked up the detail best and once you knew what you were looking at the details started to emerge.								
L58	Vallis Rheita	Crater	445	4	-42.5	51.5	9	68
To the south-west of crater Rheita lies the Rheita valley, this looked like a very wide valley heading southwards towards crater Young D. This valley is old coming from the Pre-Imbrian (From -4.55 billions years to -3.85 billions years) period, it is also pretty long at 303 miles long and an impressive 18 miles wide. Through the 9mm ortho it looked like it was formed from lots of impact craters as the edges of the valley resembled crater walls. But this valley is very impressive and well worth observing.								
L59	Schiller-Zucchi basin	Crater	335	11	-56.0	-45.0	28	70,71
Not dead sure what I'm meant to be looking at, but my copy of the Lunar 100 states the Schiller-Zucchi Basin is 335 miles in diameter so I knew I was searching for a very large object. I found the crater Zucchi and by inserting a wider field eyepiece like my 16 uwan I could detect a basin type crater, it was very large encircling the craters Weteelh, Zucchi and Segner and bordering Schiller. To the East of Weteelh there appears to be a crater ridge running from Rost A to Zucchi, this to my untrained eye looked like the sides of an enormous crater.								
L60	Domes Kies Pi	Dome	45	9	-26.9	-24.2	27	53
The volcanic dome Kies Pi was easily observed in the 6mm ortho as being south west of crater kies, very small and at the bottom of a mountain range in the form of a semi arc. The volcanic dome appeared white in colour and was your classic dome like structure.								
L61	Mosting A	Crater	13	7	-3.2	-5.2	20	43
Just west of Ptolemaeus lies Mösting a 16 mile diameter and 8400 feet high crater, nothing spectacular about it just a very nice circular crater but our destination is Mösting A which turns out to be alot harder to detect. It is a circular formation situated on the slopes of Flammarion. I needed the 6 mm ortho to actually pick out the formation but once you have detected the oval shape crater truncated to the north by Rima Flammarion it's quite easy to spot.								
L62	Mons Rumker	Dome	70	12	40.8	-58.1	30	8
Heading over the Jura Mountains towards the terminator I came across Mons Rumker a circular volcanic dome that is a mighty impressive 42 miles in diameter and of unknown height. With the 7 Uwan I could actually see the exact shape and could even see the sides of the dome and could imagine climbing up it. This is one very impressive geological feature and one I will continue to observe at later dates.								
L63	Imbrium Sculpture	Ejecta Material		6	11.0	12.0	13	34
This one took some finding as I had to crater hop and it's something I'm still getting used to. The Imbrium Sculpture are basin ejecta near and overlying the Boscovich & Julius Caesar craters. I found these craters eventually and through the 6mm ortho I could detect all the features between these two landmarks but to tell the truth I didn't know exactly what I was supposed to be looking for, around the area there are numerous rimas such as Rima Ariadaeus which was a very striking feature.								

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ID	Name	Feature Type	Feature Size	Best Day 1	Latitude	Longitude	LFA	Rukl Chart
Notes								
L64	Descartes	Crater	48	6	-11.7	15.7	14	45
Apollo 16 landing site; putative region of highland Descartes lies among an area scattered with volcano's, it is a 29 mile in diameter crater from the Nectarian (From -3.92 billions years to -3.85 billions years) period and is off unknown height. It is also the area where Apollo 16 landed on April 21 1972. Through my 6mm ortho the crater looks very irregular and has a impacted crater called Descartes A just clipping one of it's side walls. Through the 4mm ortho at x457 I could see rille like structures on the crater's basin floor.								
L65	Hortensius Domes	Dome	10	10	7.6	-27.9	31	30
Dome field north of Hortensius near hortensius 4 - Crater Hortensius is a 9 mile wide crater and is deep at 8700 feet. Through my 7mm Uwan at 261 I can detect five volcanic domes just to the north between Hortensius and a mountain range.								
L66	Hadley Rille	Rima		7	25.0	3.0	18	22
Half way between Archimedes and the Hadley Mountains is an area called Palus Putredinis, if you follow the Hadley Rille until you come a cove like formation this is where Apollo 15 landed on the moon. It was launched on 26 July 1971 from Cape Kennedy at 13.34, Apollo 15 was sent to test the lunar soil and to activate surface sismometers. Apollo 15 Impacted on August 3. 1971 at 03.03. Through my 6mm Ortho I can trace with the help of VMA the exact area the lunar module landed. It's really wonderful to be able to see this area, as a child I always fascinated by the Apollo moon landings and now I know exactly where this remarkable event occurred.								
L67	Fra Mauro formation	Mare		8	-3.6	-17.5	26	42
With the 9mm Ortho inserted I could detect a flat floor with medium walls with a gap in the eastern wall, and a few little cratlets along the northern wall. Fra Mauro comes from the Pre-Nectarian (From -4.55 billions years to -3.92 billions years) period and is 58 miles in diameter. Fra Mauro makes a striking triplet with Parry and Bonpland. I could detect a rille cutting across crater Bonpland and also emerging out of crater Parry and heading into Fra Mauro.								
L68	Flamsteed P	Crater	112	11	-3.0	-44.0	32,37	40
The crater Flamsteed makes the top point of equilateral triangle with the other points denoted by Flamsteed K and Flamsteed D. At first I thought Flamsteed K was the crater I was looking for but it is not, I now know that Flamsteed P is 61 miles in diameter and is a lava filled crater, with only a few outer walls remaining, I could now see it with the 12.5 mm ortho. The craters Flamsteed, Flamsteed K and Flamsteed D are all within the walls that make up Flamsteed P. I counted six breaks in the wall, I really enjoyed observing this one. Also Surveyor 1 landing site landed not far from Flamsteed K. Surveyor 1 was the first lunar lander in the American Surveyor program that explored the Moon. The program was managed by the NASA Jet Propulsion Laboratory, utilizing spacecraft designed and built by Hughes Aircraft. It was launched May 30, 1966 and landed on June 2, 1966. It took a total of 11,237 images that were transmitted to Earth. The successful soft landing in the Ocean of Storms was the first ever by the U.S. on an extraterrestrial body, and came just four months after the landing of the Soviet Luna 9 mission. With the help of VMA I could see the actual area that this fantastic event occurred, to say I was humbled was an understatement.								
L69	Copernicus secondary craters	Crater	4	9	19.6	-19.1	25	20
Through my 12.5mm ortho I could easily detect many little cratlets no more then 2 miles across littering the floor around crater Pytheas. I counted at least 10 between Pytheas and Montes Carpatius the mountain to the north of Copernicus.								
L70	Humboldtianum basin	Crater	650	2	57.0	80.0	5	7
Quite easy to locate but hard to see any internal details. Mare Humboldtianum is 97 miles in diameter and comes from the Nectarian (From -3.92 billions years to -3.85 billions period of the moons history. Due to its location, the visibility of this feature can be affected by libration, and on occasion it can be hidden from view from Earth. I think that the Mare Humboldtianum is the dark patch I could see just pass Crater Endymion.								
L71	Sulpicius Gallus dark mantle	Crater	12	6	19.6	11.6	12,13	23
Apparently according to my Lunar 100 guide I should be looking for ash eruptions northwest of crater Sulpicius. This area is abundant with loads of geological features and I took a while observing the area with my 12.5mm Ortho. Sulpicius is a isolated bright bowl shaped crater with steep sides and is about 6700 feet deep. I could easily make out the area known as Pyroclastic Sulpicius Gallus as you could see the lava flows from the area around the crater. Also around the area was numerous rilles and rimae the best being Dorsa Buckland.								
L72	Atlas dark-halo craters	Crater	87	4	46.7	44.4	5	15
Through the 6mm ortho I could detect a central peak with a Rima Atlas running through the centre and I think two cratlets within the Crater Atlas. the 9mm ortho really made the two volcanic dark spots appear, one was near the northern edge in the 6 oclock position, the other about 10 oclock on the south eastern edge of craters terraced walls.								
L73	Smythii basin	Crater	740	2	-2.0	87.0	2,3	38,39
I could detect near Mare Crisium the following objects Mare Spurmans and then the craters Dubiago and I think Dubiago B then it becomes very hard to see and make out any detail, but I didn't give up and noted Schubert N that appeared very white in colour. I'm sure the above crater is within the Smythii Basin as I was looking exactly at it just couldn't make out the shape and size. I will come back to this one when libration is better.								

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ID	Name	Feature Type	Feature Size	Best Day 1	Latitude	Longitude	LFA	Rukl Chart
Notes								
L74	Copernicus H	Crater	5	9	6.9	-18.3	25	31
Dating from the Copernician (From -1.1 billions years to present days) period of the Moons history this is a very small round crater at only 3 miles in diameter and 2600 feet highh. Through my 6mm ortho I can detect very little as the crater is pretty deep for it's size so is completely drowned in shadow.								
L75	Ptolemaeus B	Crater	16	7	-8.0	-0.8	20	44
Herschel hugs the outer rim of one of the most famous craters that being Ptolemaeus. At 93 miles in diameter it's pretty impressive. I decided to count the cratlets inside Ptolemaeus and including the large one I saw 9 cratlets, this is with the 9mm Ortho. Ptolemaeus B really stood out ans was pretty impressive.								
L76	W. Bond	Crater	158	7	65.3	3.7	17	4
On the northern limb of the moon just on the shores of Mare Frigoris is the crater W Bond, a wrecked formation crater 96 miles in diameter and of unknown height it has a few steep slopes, with the 6 ortho inserted I could clearly make out two internal craters the bigger called W Bond B at 9 miles in diameter and the smaller W Bond C at 4 miles in diameter. W Bond is the most northerly member of the 100 club but through the 12.5 ortho at x146 really stood out.								
L77	Sirsalis Rille	Rima	425	12	-15.7	-61.7	37	39,50
The crater Sirsalis looks like a double crater and comes from the Eratosthenian (From -3.2 billions years to -1.1 billions years) period, it is 25 miles in diameter and through my 6mm ortho I could detect very steep terracing sides and a lava filled floor, within the floor a small central peak is visible. Just south of the crater lies craters J & F and the Rimea Sirsalis seems to originate from here and travels southwards bisecting the crater Cruger A & Cruger C. Rimae Sirsalis is 182 miles long and it's height and width are unknown.								
L78	Lambert R	Crater	54	9	23.8	-20.6	24	20
Even though the terminator was not illuminating this formation up I could still detect the ghost crater Lambert R. At 24 miles in diameter it's quite easy to see, It's outer walls are very low as the crater has been gobbled by the lava of Mare Imbrium at some stage in it's life.								
L79	Sinus Aestuum	Sinus	90	8	12.0	-3.5	19,25	33
A very flat looking plain from the Pre-Imbrian (From -4.55 billions years to -3.85 billions years) period bordered to the SE of Eratosthenes, to the north by the Wolfe Mountains, and to the East by Rille Bode. The plains include a rather distictive wrinkle edge in the SE corner. I could detect ejecta deposits at the base of Eratosthenes. Also through my 6mm ortho I could only just detect a darkening of the floor around the wrinkle edge between the craters Bode H anf Bode C.								
L80	Oriente Basin	Mare	930	13	-19.0	-95.0	37	50
I could see along the terminator the Cordillera Mountains which mark the rim of the Mare Oriental. This mountain range is very large at 545 miles long and 182 miles wide, there are numerous peaks rising to 5000 metres high, a fantastic sight and one to revisit again. I kept checking on this one as the terminator showed more of the mountains throughout the night I glimpsed a little of the actual mare but not to much as it is rather large and most of it unable to be seen from earth.								
L81	Hesiodus A	Crater	15	8	-30.1	-17.0	27	54
Hesiodus A is a 9 mile diameter crater which resides in the mouth of a bay like formation in Mare Nubrium. Through my 9mm ortho I can detect a rimae running just to the south called Rimae Hesiodus and two little cratlets either side of this rimae. Also there are dark deposits along side the edge of the bay. Hesiodus A looks pretty steep with a flat floor, no central peak was seen. A very interesting area and one I will revisit at a later date.								
L82	Linné	Crater	2.4	6	27.7	11.8	12	23
Not far from Valentine dome is a very small crater called Linne, this little crater just 2 mile in diameter and 1800 feet deep was thought to have disappeared but was easily seen through the 6 mm ortho at x304. When I inserted the 4mm ortho into the focuser giving me x457 I could detect three very small unnamed craters between Valentine Dome and Linne.								
L83	Plato craterlets	Crater	101	8	51.6	-9.4	17	3,4
Plato was formed in the Upper Imbrian (From -3.8 billions years to -3.2 billions years) period and is a very large crater at 61 miles in diameter and of unknown height, Plato looked fantastic in the 12.5 mm ortho at x146 I saw a complete ring of light bouncing off the cliff tops surrounding the crater, enormous jagged shadows cast on to the upper basin floor, very magical indeed. The Lunar 100 tells us to count the little cratlets on Plato's basin floor so with this in mind I inserted my 9mm ortho into the focuser and through this I could just detect just one cratlet towards the northern edge but the 6mm ortho split this cratlet into two and with prolonged seeing I could detect two more as well, bringing the total to four cratlets from x304 magnification. I'm sure if the seeing was better I could detect more.								
L84	Pitatus	Crater	97	8	-29.8	-13.5	27	54
Crater with concentric rilles - Situated on the south shores of Mare Nubiam is a circular formation crater called Pitatus through my 9mm ortho I could see an off centre peak with terraced like sides making the impression of rilles inside the crater, I could detect these around at least 60 % of the craters circumference. Loads of little cratlets around the outside a very interesting crater with so much to observe at a later date. Pitatus is 59 miles in diameter and of unknown height, it comes from the Nectarian (From -3.92 billions years to -3.85 billions years) period in the moons history.								

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Notes								
L85	Langrenus rays	Ray	132	3	-8.9	60.9	3	49
Looked very similar to Petvius but slightly smaller, with the 9mm ortho inserted I could see steep sides and a double central peak, I could see the sunlight casting double peak shadows onto the crater floor. I could also make out 4 rays emerging from crater on to the floor of mare fecunditatis.								
L86	Prinz Rilles	Rima	46	11	27.0	-43.0	30	19
Just as a side note Aristarchus and the Schoter Valley looked magical tonight, they glistened in the sunlight like i've never seen them before. Next over to the horseshoe crater This crater comes from the Lower Imbrian (From -3.85 billions years to -3.8 billions years) period and is a 29 miles diameter crater with the southern edge engulfed by lava. With the 9mm ortho inserted I could detect a few rilles projecting out from the northern edge of Prinz, I could also detect a central dome within the crater Prinz.								
L87	Humboldt	Crater	207	2	-27.0	80.9	4	60
I hopped from Petavius to Lengendre and finally Phillips. Humboldt is a very large a little crater at 125 miles in diameter and through the 9mm ortho I could detect Humboldt N within inside the main crater and I'm sure I could detect a central peak or a mountain chain near the centre.								
L88	Peary	Crater	74	6	88.6	33.0	17	4,II
2013: 18-28 feb,19-27 mar I only had one more entry in the Lunar 100 to do and that was crater Peary which is pretty much on the northern limb of the moon and very hard to observe. With the 9mm ortho inserted I easily found the large crater Meton and directly below this are the three craters Scoresby, Challis and Main. These lead your eye onto crater Byrd and it's only a short hop to Peary. I could just make out this 45 mile diameter crater and to be honest it was nothing special but at least I can say I could see it.								
L89	Valentine Dome	Dome	30	6	30.5	10.1	12	13
volcanic dome near linne 3 and linne A1 Sitting on the shores of Mare Serenitatis are the Mountains of Oaucasus and at the bottom of these mountains sits a very hard to observe volcanic feature called Valentine Dome, I could easily see this in most of my eyepieces but with the 9 mm Ortho at x203 I could even detect slight mound like features on top of the dome. I could also detect two craters sitting in just below Valentine's Dome, one cutting into the side of the volcano.								
L90	Armstrong, Aldrin, Collins	Catena	3	5	1.3	23.7	7	35
The best of the night was next, I studied this area for over 1 hour and it was fantastic, I could easily see the crater Armstrong at 3 miles in diameter it wasn't hard, Collins was alot harder and I had to insert the 4mm Uwan and after alot of trying I finally spotted Collins with averted vision, this crater is alot harder at 2 miles in diameter, the strange thing is once spotted I could then detect it quite easily with normal vision. The third crater of this trio was really hard, Aldrin lies among many very faint features and I think I spotted this but cannot be 100% sure but I'm sure I saw the occasional glimpse when viewing allowed. While searching and observing this fantastic area I looked at the landing areas of Surveyor 5 and Ranger 8. On September 8, 1967 Surveyor 5 was launched and landed on September 11, 1967 not far from the crater Collins on the Mare Tranquillitatis, 19049 images were sent back to Earth and we finally lost communication on 16th December 1967. I then moved down to the Ranger site, this was launched on the 17th Feb 1965 from Cape Kennedy and sent back 7137 photographs.								
L91	De Gasparis Rilles	Rima	30	11	-25.9	-50.7	33	51
South of Mersenius you come across the crater De Gasparis and just above these I could detect two large mountain ranges that make up the De Gasparis rilles. With prolonged seeing and with the 6mm ortho inserted I could detect one more rille in the vicinity. The angle I was observing this object from, let me view the height of the object and it looked pretty tall but VMA says these rilles are of unknown height. Just below the crater is a feature known as Rima De Gasparis which I wanted to see but unfortunately the feature was not illuminated and I couldn't see it.								
L92	Gylden Valley	Vallis	47	7	-5.1	0.7	20	44
Lying in between Herschel, Sporer and Gylden is the Gylden Valley, through the 6 mm ortho at x304 I could detect the complete length of the valley and saw the illumined sunshine bouncing of the top of the cliffs. The valley walls clip the sout west side of the Crater Gylden. The surrounding area is dotted with craters and peaks and is full of interesting geological features.								
L93	Dionysius rays	Ray	18	6	2.8	17.3	13	35
Just above where the Rimae Ariadaeus finishes at the crater Ariadaeus E lies crater Dionysius. At 11 miles in diameter and 8200 feet high it's quite small but what makes it striking is at the 10, 2, & 5 O'clock positions I could detect slight black ejecta rays coming from the crater onto the floor below. The crater is very bright and the sunlight really catches the outer rim of the crater.								
L94	Drygalski	Crater	162	14	-79.3	-84.9	28	72,VI
Found the crater Casatus with it's two internal craters J & C very easily through the 12.5mm ortho and if I look towards the limb of the moon I could make out craters A, K, and D and in the distance right on the terminator I could see a range of high mountain like objects, which I presume are the 11800 feet wall of the crater Drygalski. I made this assumption mainly due to the fact as Drygalski is the deepest/highest crater between the limb and Casatus so I must have been looking at it's rim.								

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Notes								
L95	Procellarum basin	Oceanus	3200	10	23.0	-15.0	29-32,35-37	
Oceanus Procellarum is one mighty impressive basin, it's called the Ocean of Storms and is 424 x 303 miles in size and comes from the imbric period of the moon's past. There is only 80m in altitude throughout the ocean's area and generally the basin is very flat.								
L96	Leibnitz Mountains	Dorsa		7	-85.0	30.0	22	73,V
With my trusty 12.5 ortho inserted I could detect the crater Moretus and just above the crater Short, if I then scanned slightly east I could detect the crater Simpelus and between these objects right on the southern limb of the moon I could make out some mountains against the blackness of space, these I think are the Leibnitz Mountain range.								
L97	Inghirami Valley	Vallis	140	13	-44.0	-73.0	33,34	61
Beyond Schickard I could easily see crater Inghirami and crater Inghirami G beyond that. Between Inghirami and Inghirami A, I could make out a ridge which I presume is the sides of the Inghirami Valley running behind this valley is another valley called Vallis Baade. The Inghirami valley is 85 miles long and 13 miles wide and of unknown height. It seems by looking at it that the valley was formed from the ejecta that formed Orientale basin.								
L98	Imbrium lava flows	Lava Flow		9	32.8	-22.0	12	10
I was not dead sure where these lava flows were but I scanned every inch of Mare Imbrium and found some raised plains, similar to white lines that lie between crater Lambert and le Verrier. I could also detect a slight one touching crater Carlini D.								
L99	Ina	Caldera	3	7	18.6	5.3	19	22
Lying within Lacus Felicitatis this little formation took some seeing. I found out that it only really appeared in moments of good seeing. Lying not far from crater Yangel I could only see this caldera by inserting my 4mm Uwan which gave me x457 and letting it drift across my FOV. In those rare moments I could detect a D shape formation, but could not make out if it was sunken or raised. I could also see a couple of really small craters or hills which were extremely close to Ina.								
L100	Mare Marginis swirls	Mare		2	18.5	88.0	2	27,III
If you look past Mare Crisium towards the lunar limb you come across Mare Marginis. With the 9mm ortho inserted I could detect white swirl like deposits on the surface of the moon, and I have taken these to be possible magnetic field deposits.								