

LED Forward Lighting Comparison – 7” Round Headlight & 4” Passing Lamps Truck-Lite Phase 7 vs. Truck-Lite Phase 6 vs. JW Speaker (aka Harley-Davidson)

By: Travis Patenaude & Gary 'bogie' Bogolin

Mar, 2012

Travis & I previously wrote a couple of reviews on LED forward lighting offerings from Truck-Lite [TL] (distributed primarily thru Kuryakyn, as well as some auto parts stores and heavy truck distributors) and J.W. Speaker (primarily available as the Harley-Davidson branded products) [JW/HD]. The first compared only head lights [HL] – the TL Phase 5 [P5] vs JW/HD. Shortly after completing that review, TL updated their HL to the Phase 6 [P6] and came out with passing lamps [PL] – so we updated the review to include the P6 and both company's PL. These reviews can be accessed at www.bogiesreviews.webs.com:

Under 2010 – look for the original review – “Truck-Lite / JW Speaker (aka HD) - LED Headlight Comparison”

Under 2011 – look for the updated review – “Truck-Lite / JW Speaker (aka HD) - Updated LED Headlight & Passing Lamp Comparison”

The purpose of this third review is to update for the new release from TL of new technology HL & PL – being commonly called the Phase 7. While there was some reasoning behind the P5 & P6 names (P5 had 5 LEDs energized on low beam and the P6 had 6 LEDs energized), the P7 name was just a logical extension of the P5 & P6 series – even though the technology is much different and the '7' no longer refers to a number of LEDs at all. The name came from the public as rumors of a new release started to leak out. While not specifically accurate, makes for easy reference to the various models. The P5 is no longer available. The P6 remains available as the P7 pipeline is filled up – uncertain of its future.

bogie: For this review, we will be recycling photos from the prior review for P6 & JW/HD, adding photos of the P7 and, to save space, eliminating references to the P5 and halogens. As was determined in the previous reviews – any of the LED offerings make the halogens look like candles in the wind.



TL Phase 6

The exterior lens is flat polycarbonate, with a fluted/textured finish. There is delineation between the upper and lower portions of the light. The Phase 6 has 6 LEDs on for low beam, all 10 for high beam.



JW/HD

The exterior lens is smooth, rounded glass. Of the two main projector lenses, only one is on at a time – the upper is low beam, the lower is high beam. The 4 'D' lenses (2 on each side of the projectors) are on all the time, providing fill light.



TL Phase 7

This picture, extracted from product documentation, shows the new approach in the P7. The exterior lens is a slightly curved, polycarbonate. There is an upper area for low beam; for high beam the lower area is added to the upper (similar to the P6).

We were hoping to update the review before the official release of the P7, but, once again, we had to wait for the weather to cooperate. Two weeks in a row – temps in the 50's during the work week, only to have it snow 8+ inches on each Friday; making riding (or even using the trailer) to the photo shoot site impossible. So we waited – this time temps in the 60's all week got rid of the snow... a good and bad thing. Certainly was warmer; but, changes the overall environment – no snow means less reflected light and no mounds to keep the light contained. Please keep these circumstances in mind when looking at the night shots.

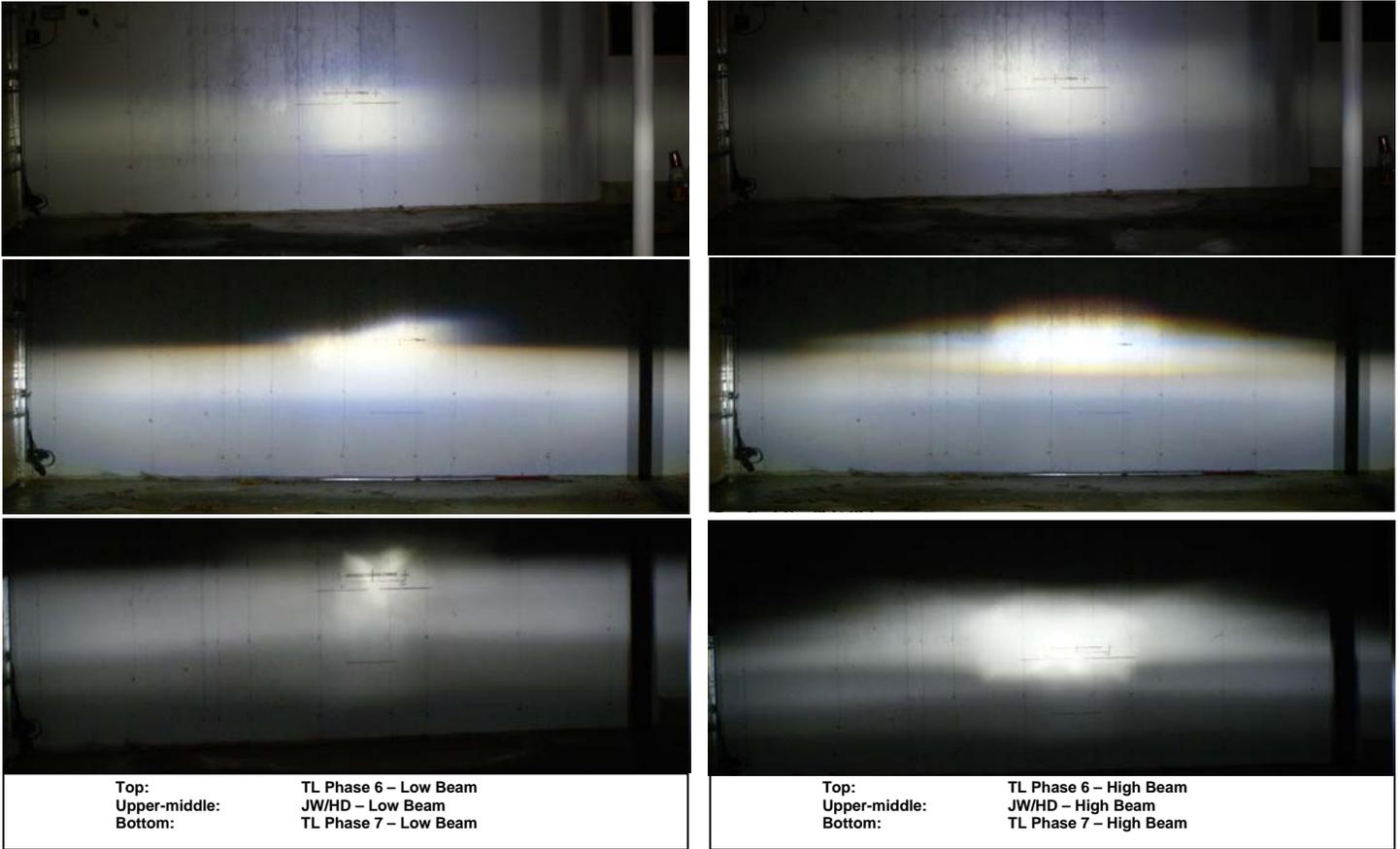
Our night time outdoor photo shoot was still encumbered by gusty winds – flashback to the last time. Well, at least it makes it consistent for the photos; with the distance marker signs we were using oscillating in the wind again and the long exposure (shutter open) time; the signs appear kinda blurred - again. The performance of the lights is still very apparent, and the signs are still a valuable reference.

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Travis: We will be running thru the same scenario with the pictures – first the aiming wall shots of just the headlights:



bogie: The change to the TL is pretty obvious – the ‘hot spot’, while still apparent, is less intense with a different pattern – less of a ‘block’, with a noticeable ‘V’ pattern. There is still light being aimed below; with a more defined upper horizon and the peripheral light redistributed. The change in design and technology utilizes a complex reflector to control the distribution of the light produced by the LEDs – one (yes, one...) LED each for low and high beam. These are obviously high powered LEDs, yet low beam draws only 1.8 amps, when high beam is *added* it doubles to 3.6 amps since the same type of LED is utilized for both beams. Remember low beam stays on when high beam is added. In watts, this is approximately 25 low, 50 high.

The light distribution is more similar to the JW/HD then the P6 was. Note – I realized as I was riding to the photo site that I had the P7 HL aimed too high – the horizon should have been set at the upper, wide black line on the garage wall; so only the tips of the ‘V’ would be above that line. This was corrected at the outside photo shoot. In your mind’s eye, you need to shift the light patterns seen above down accordingly.



The peripheral light was so much different, we took a shot to show how much light is directed to the sides. This translates to a very nice view of the shoulder on the right side and the other lane(s) and onto the shoulder on the left. More on the riding impression later.

One thing we mentioned in the previous review regarding the JW/HD was that the definitive horizon seemed to reduce the light available to the rider, in the direction of the turn, when leaned into a turn (remembering that the bike is being counter-steered).

While the P7 now has a more definitive horizon than the P6, the nicely distributed peripheral light really lights the area you’re heading into when leaning into the turn. Even more so that the combination of the P6 HL & PL did.

Travis: I was very interested to see the new TL P7, and how it functions compared to the last version P6 and the JW/HD. With the placement of the heat sink and the reflectors, the headlight has a smoked look to it. The JW LED has a small fan in the headlight to help cool the LED’s, TL went with a larger heat sink for the LED’s so a fan would not be needed. The black heat sink is what gives the headlight the smoked look as you see its reflection in the headlight. I’m not a big fan of the looks of the new P7. I really do not like the

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look of the heat sink, it looks out of place. The passing lamps also have a heat sink that takes up the bottom portion of the passing lamps. I think these could have been blended in better to hide the heat sink.

As for performance of the P7, I must say the new style did bring it much closer to the JW/HD headlight both in good and bad ways. In the 'great white wall photos', there is something missing in the photos of both TL Headlights. If you have read our other reviews you should know what is missing and what the JW/HD shows. If you have not read them, you have more reading to do after you finish this review, but in the lower left hand corner of the JW/HD picture you clearly see the garage door sensor. The TL does not light this area up as well, and if that was an animal running across the road at night you may have a better chance at seeing it with the JW/HD. The P7 light pattern has continued to improve by removing the "hot spot" it had in the original P5 version. The light does have a longer swath, which wraps around onto the garage door, and a good amount of light does hit the floor. This was a problem with the P5, there was a very defined area where the light was missing (see first review TL dusk picture). P6 did a good job with cleaning that up, and now with the P7 that "missing light" returns. We did not take a dusk shot with the P7, but looking at the garage floor you can see the circle of light, and then small spot of missing light. On the street it does not look like it shows up as much. I will have to say that the JW/HD still has a more uniformed light pattern and coverage area.

bogie: Unfortunately, some of what Travis refers to with the 'missing light' & the garage door sensor, I believe, is related to my aiming the light too high. If you lower the totality of the light distribution down so the horizon is at the dark, thick line – these two issues would be at least mitigated, if not resolved.

Passing Lamps



bogie: The TL P7 passing lamps are also completely different in design and technology. The upper portion of the unit is where the LED (yep – one again) and reflector reside. Each passing lamp draws 0.7 amps (or about 10 watts). The lower portion has a polished chrome finish, acting as a heat sink. LEDs do generate heat, so in such a small unit, intended to be inserted into a shell, a dedicated heat sink was necessary. The HL is large enough that the case can serve double duty as the heat sink. The JW/HD HL has a small fan inside (that can be heard running at times), not sure about their PL.

The P7 passing lamps provide a much more controlled light pattern than the P6. The use of the complex reflector allows the light to be directed where it's most useful. The indoor wall shots do not show the full picture, as some of the light is directed in front of the bike. The following pictures demonstrate that. Also shows in the outdoor pictures presented later.

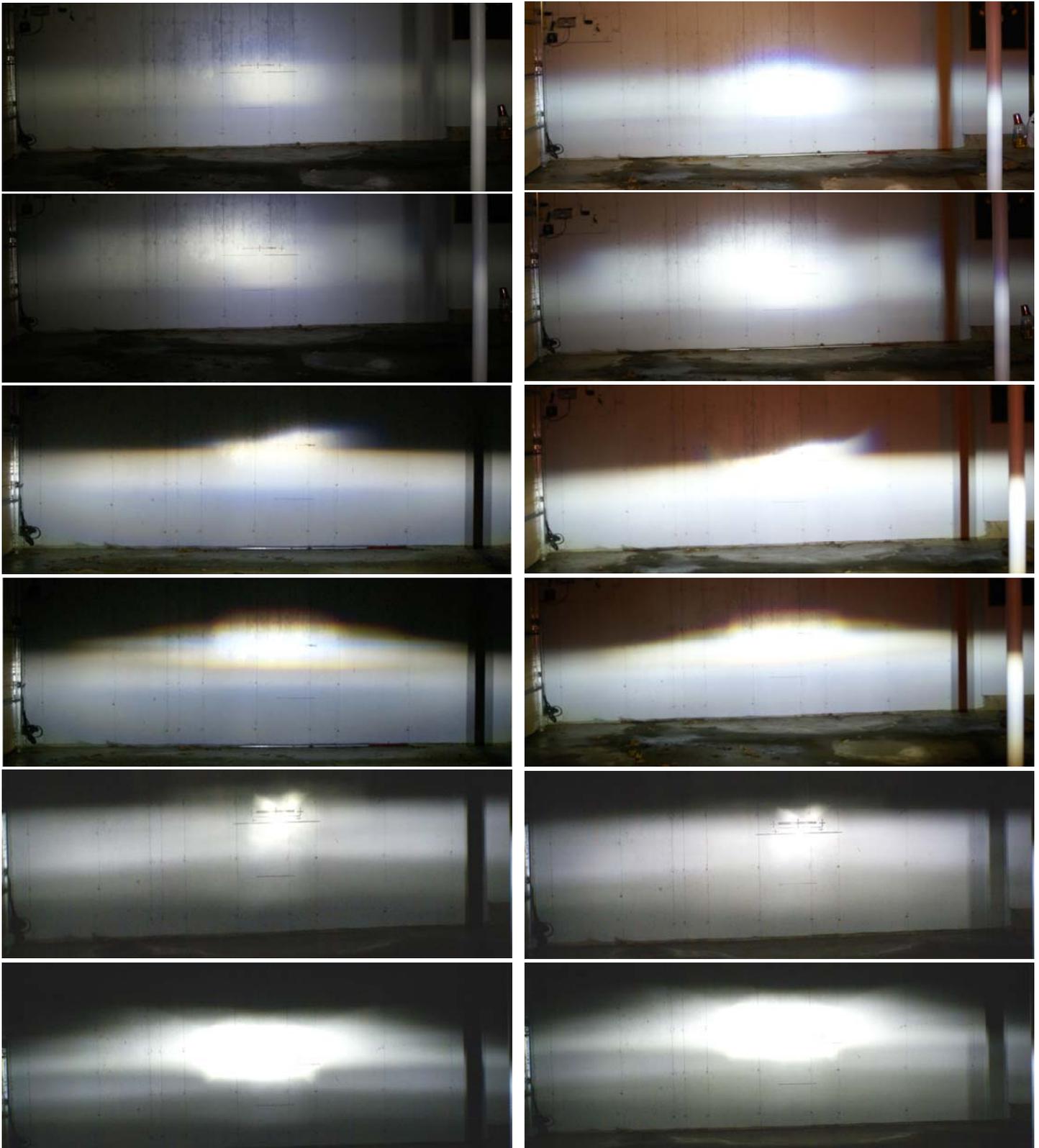


The P7 PL really fills in the light pattern directly in front of the bike. Also adds to the peripheral lighting.

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Top: TL Phase 6 – Low Beam
Second: TL Phase 6 – High Beam
Third: JW/HD – Low Beam
Fourth: JW/HD – High Beam
Fifth: TL Phase 7 – Low Beam
Bottom: TL Phase 7 – High Beam

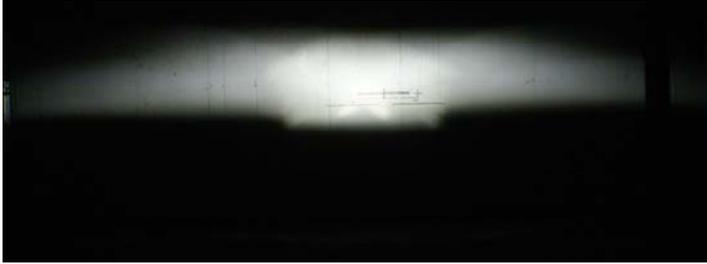
Top: TL Phase 6 – Low Beam - w/ Passing Lamps
Second: TL Phase 6 – High Beam - w/ Passing Lamps
Third: JW/HD – Low Beam - w/ Passing Lamps
Fourth: JW/HD – High Beam - w/ Passing Lamps
Fifth: TL Phase 7 – Low Beam - w/ Passing Lamps
Bottom: TL Phase 7 – High Beam - w/ Passing Lamps

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bogie: The shots on the previous page easily show the change in the PL. The P6 is much more a flood light, with some control on the peripheral light (to prevent totally blinding oncoming traffic); the P7 is harnessing all the light and making it very controlled and directional, focusing the light where it will do the most good – below the HL, illuminating the area immediately in front of the bike and left and right, but low as to not bother oncoming drivers.



This shot is with the low beam portion of the HL manually blocked to display the high beam only light pattern. Again, I remind – this is added to the low beam pattern. A couple of things to note:

- the high beam 'hot spot' is above and to the left of low beam target.
- there is no light added to the area covered by the low beam below the horizon.

Clearly only adding light 'down the road' – at what appears would be the full width of the road.

We also did a few side-by-side shots of the P6 next to the P7 in the garage and daytime.



This shot is of my wife's bike with the P6 HL & PL parked to the right of my bike with the P7's. The reason the P6 'hot spot' is so much lower is that her bike is lowered a *bunch* (and I had the P7 aimed a bit too high). We took this shot to show the difference in the 'hot spots' side-by-side. It also illustrates the different light level to either side of the center. The P7 has a brighter band that extends out further.

These next two shots are off at a bit of an angle from head on, first with the P6 & P7 HL on low beam, then adding the passing lamps.

Illustrates the less directional light of the P6 HL & PL versus the P7.

Using reflectors in the P7 gives a more controlled approach to the light output. This does several of things:

- Puts more light in the path being traveled
- Puts less light in the eyes of on-coming traffic
- Puts less light in the mirrors of traffic in front of the bike
- The offset is there is a bit of sacrifice to the 'Be Seen' visibility of the bike to other traffic



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bogie: The shots on this page are obviously taken outside during the day (yes, I am the master of the obvious). Because of the slope of my drive, in the first two shots the camera is directly in the 'line of fire'. The amount of light creates the starburst affect, giving some idea of the amount of light being presented. I can tell you, if you look directly into any of these lights you will not see anything but white spots for a very long time.



bogie: This shot was off at an angle of about 45° - showing the somewhat less visibility the P7 gives when viewing from off to the side; similar, to the JW/HD, but is somewhat more noticeable than the JW/HD.

Travis: Now, this is where the P7 picks up on JW/HD bad areas. We were surprised by how the lights compared to each other in day light. The Halogen and P6 completely out shined the JW/HD (see the second review). The P7 really almost look just like the JW/HD, not extremely noticeable unless you are in its direct path. As we walked around the front of the bike, the P7 headlight was not very consistent on how bright or noticeable the light was. This was mainly due to how the reflectors handle the direction and focusing of the light.



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bogie: We used the same street for the nighttime shots as was used in the second review, with the signs to mark distance again. As previously mentioned – due to the wind, the actual printing on the signs is not readable, same as last time. The first sign visible to left is at 20 yards, then every 10 yards to 100. Each sign has a 1” square of retro-reflective tape. Not having the snow piled on the side of the road, reflecting the light does have an impact on how the pictures appear. And we forgot our 'road kill' stand-in...

Low Beam Only:

High Beam Only:



In both series of photos, from top to bottom:
Truck-Lite Phase 6
JW Speaker/HD
Truck-Lite Phase 7

Travis: At night, if you are in the path of the light, (I think bogie was trying to burn a hole in my head using my rear view mirror!!) it's like having a welder's arc in your rear view mirror. My auto-dim rearview mirror gave up and just said 'close your eyes!!' After taking the night time shots I followed Bogie back to his house. I was surprised on how much around the bike was lit up; it looked as if he was riding through a tunnel of light

bogie: I had noticed the aiming issue as I rode over, so prior to taking the pictures I lowered the aim two full turns of the aiming screw. Made a big difference for the ride home.

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Low Beam with Passing Lamps:

High Beam with Passing Lamps:



In both series of photos, from top to bottom:
Truck-Lite Phase 6
JW Speaker/HD
Truck-Lite Phase 7



bogie: The shot to the left is of the high beam of the P7 only – covering up the low beam. Notice only the top edge of the distance markers are illuminated on the left; the upper portion of the trees on the right; almost no light on the street directly in front of the bike; but, the curbing and pavement are lit at and well beyond the 100 yard marker.

Travis: Now this is where the P7 picked up the JW/HD's good side. The light pattern on the street was very good, much improved over P6. The passing lamps really helped light up the road and shoulders. Where the P7 really out shined the P5, P6 and JW/HD was with the high beam. You actually have a high beam that you can see and use. The JW/HD was not useful at all, but in the right conditions (sitting still with the bike, on the kick stand, taking a picture) the high beam seemed go very far. The P7 makes like a landing light on a 747, about 250 yards down you can still see the curb along the road on the left side.

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bogie: Comparing the P7 pictures of high and low beam to the P6 pictures in the prior review, I think it's clear to see the changes the Phase 7 brings to the light distribution. P7 makes the coverage/pattern even closer to, but better than, the JW/HD than the P6 did. Adding the passing lamps brightens and fills in the pattern of all LED versions.

Conclusions

bogie: As far as night riding – the P7 wins hands down. The additional peripheral light, illuminating the shoulders and opposite lane actually takes a while to get used to. You see so much more, it's almost distracting until you get used to it and realize you're going to be safer as a result – seeing those critters waiting to dart out in front of you. It is truly like riding in your own patch of sunshine. Leaning into corners (counter-steering of course) your path is well lit, not the darkness the JW/HD curved, 'smiley' light pattern leaves you in.

The daytime shots of the front of the bike again show an incredible amount of light being sent forward. But, the sacrifice the P7 makes in controlling more of the light forward and to the peripheral is to give up some of the daytime visibility the P6 afforded.

As before, I believe the choice between the LED offerings will come down to personal preference and price. Performance is very comparable, to an even greater level now with the TL Phase 7. MSRP pricing of the P6 & P7 are the same; with the TL offerings significantly different versus the JW/HD. The looks of the units are also very different. If your choice is the TL, be sure to determine whichever supplier you go to will be shipping the correct version of your choice. It remains that Kuryakyn is the only outlet for the TL passing lamps as of this writing.

Personally, after having tested each set in my own bike (the JW/HD in the prior review, riding with the P6 for a year now and a couple of rides with the P7), I will be now be running with the Truck-Lite Phase 7 headlight and passing lamps.

- I definitely like the look better (more traditional look with the clear outer lens that has the curvature to it. Gives a [very?] minor advantage – less obvious the P7 are LED, which may reduce the possibility of someone helping themselves to the lights, which some voiced as a concern in the past).
- I believe the nighttime performance to be the best of the 4 offerings tested over the years (P5, P6, P7, JW/HD)
- I like that high beam remains incremental light added (i.e. the low beam stays on), as opposed to substituting a different source completely as the JW/HD does; and that is truly useful by actually lighting up the road, not the tree tops.
- with the complex reflector, both the low beam and high beam are more controlled and beneficial for motorcycle riding, including while counter-steering and leaned into a turn.
- Improved lighting performance AND *lowered* load on the electrical system.(P7 @ 20% less than the P6; @ 20% less than JW/HD on LB, although on HB the P7 is 50% greater than the JW/HD – but that's because it's adding incremental light. Comparing P7 to stock halogen, LB is 50% less and HB is 20% less).
- I again feel confident recommending the value (i.e. lower price) of the P7 – even more so now with the improvements.
- I'm a somewhat disappointed that the daylight noticeability is less with the P7. This will be a 'time will tell' decision for me. Especially since I have a strobe controller on my passing lamps for escort/parade use...
- The TL products carry a 3 year warranty

It's unfortunate that HD is still not passing along the manufacturer's warranty of 4 years on the HD branded version of the JW product, (HD warrants for only 1 year)

Travis: This is the third version of the Truck-Lite LED headlight we have done. Each time there has been a vast improvement to the design and functionality of the headlight and passing lamps. I can now say that they are equal to the functionality of the JW/HD LED headlight and, for half the cost, you cannot go wrong with them. They are the best bang for the buck. Truck-Lite has really won me over, because it shows that they are listening to their consumers and making the changes they are asking for, and continuing to advance the product. So now, I have to try and put away some money so I can by a P7 head to replace my JW 8700.

bogie and I would like to thank you for reading the reviews and welcome any comments you may have about this latest review. or your experience with the JW/HD or TL headlight and/or passing lamps. Please Ride Safe!!

bogie: This time Travis and I are much more in agreement – the P7 is the best value and the best overall performance.

We hope you found this review to be of additional assistance in evaluating the new LED forward lighting options available. A frequent comment to the first reviews was in regard to HID lighting. We did not have a HID unit to compare; but, with the cost of a good quality HID unit approaching that of the LED offerings, only available for the headlight, replacement burners/bulbs very expensive and the need for (having to have space for) the ballast; LED seems a better overall value.

Respectfully,
bogie & Travis

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Headlight Modulator Test with the P7

bogie: Regarding using the previously reviewed LED headlight modulator with the P7. Due to the fact that the P7 low beam cycles off for a split second when high beam is selected causes the modulator to 'stutter' or 'flicker' during it's high intensity/low intensity cycling. Accomplishes the goal of getting noticed (big time, I might add). The light manufacturer and modulator manufacturer are sharing info to see if something can be tweaked to smooth out 'stutter'.

Companies & distributors mentioned and their websites:

Harley-Davidson	www.harley-davidson.com
J.W. Speaker Corporation	www.jwspeaker.com
Truck-Lite Company	www.truck-lite.com
Kuryakyn	www.kuryakyn.com

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