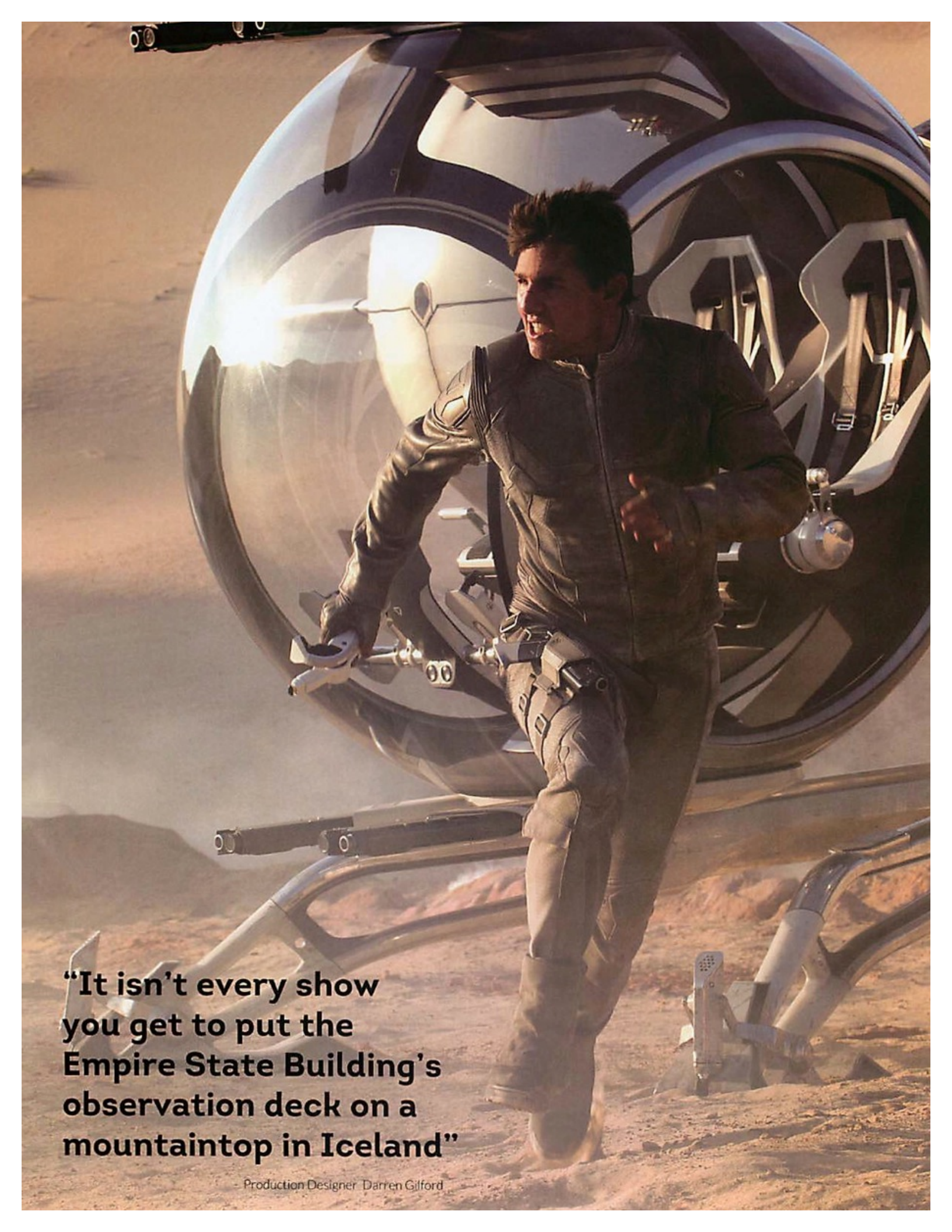

SKY FALL

CLAUDIO MIRANDA, ASC REUNITES WITH VISIONARY SCI-FI
HELMER JOSEPH KOSINSKI FOR A JOURNEY INTO *OBLIVION*

by **KEVIN H. MARTIN** photos by **DAVID JAMES/UNIVERSAL PICTURES**





**“It isn’t every show
you get to put the
Empire State Building’s
observation deck on a
mountaintop in Iceland”**

Production Designer Darren Gilford

While it's been said the future's not what it used to be, for drone repairman Jak Harper [Tom Cruise], the past isn't quite what he believed it to be, either. This mystery is at the core of Universal Pictures' new sci-fi actioner *Oblivion*, releasing this month on both conventional and IMAX screens. Long after a conflict on Earth with extraterrestrials has left the planet in ruins, Harper has been tending to sentinels that search the planet for signs of more alien attackers. His home and workstation is a "domicile in the sky." But when he descends to Earth's surface to rescue a human from a crashed vehicle, everything changes, as Harper begins to question the true nature and purpose of his assignment.



Oblivion is the brainchild of Joseph Kosinski [see *Exposure* page 30], reunited with his cinematographer from *Tron: Legacy*, Claudio Miranda, ASC. It is the first theatrical feature release shot on Sony's SR-memory file-based F65, which boasts an 8K sensor and an impressive 14 stops of dynamic range. (RED Epics were used for close-quarter segments and background plates.) Though M. Night Shyamalan's *After Earth* [shot by Peter Suschitzky] began production earlier, Kosinski's sophomore effort will be the first to arrive in cinemas.

"I love to explore what the possibilities can be with every new camera," Miranda enthuses about using the new system. "I shoot with Alexa all the time on commercials, and I used it for *Life of Pi* [ICG Nov 2012], but the F65 has greater colorspace. So the question becomes, how do I play with that latitude? Some of our environments feature gritty black earth and white skies with puffy clouds, and seeing all those textures was made possible due to the camera's range and sharpness. Like Alexa's Studio, it incorporates a mechanical shutter, which really helps when shooting fast-moving objects."

The project reunited other *Tron* collaborators, some of whom had worked with Miranda on David Fincher's *The Curious Case of Benjamin Button* [ICG Dec 2008]. "Like me, Joe has Fincher roots, having been brought into Anonymous Content [Fincher's commercial firm], where I did commercials with him," Miranda shares. "Since *Tron* posed some VFX challenges similar to *Button*, Joe brought on Digital Domain."

Along with DD VFX supervisor Eric Barba, production designer Darren Gilford was also carried over from Kosinski's maiden feature. "We broke the script down in order to decipher what would get built, be done as a location or achieved through CGI," Gilford describes. "I love the process of finding the waterline separating practical work from VFX; working that out with Claudio, who embraces new technology but keeps all of the other departments involved, provided a game plan before previsualization, handled by The Third Floor."

Kosinski's early development efforts for *Oblivion* included a graphic novel, with Swedish artist Andrée Wallin conceptualizing the distinctive future environment.

"Joe found Andrée, and my inheriting him for the feature was one of the best decisions we made," adds Gilford. "I come from conceptual illustration, so being tapped into that world, I like to cross-pollinate, using artists who can provide different perspectives. From the gaming industry, I was able to get Tom Tannery, whom I've wanted to work with for years, while our *Tron* vehicle designer Daniel Simon created Jak's aircraft, the bubbleship."

Kosinski wanted to visualize a futuristic New York that avoided a cliché post-war devastation look. "Iceland fit Joe's mandate of not wanting to see an ugly post-apocalyptic world," Gilford continues. "Even though everything has been turned upside-down by a catastrophic event, the landscape had to be attractive, which was a story point since Tom's character wants



to stay behind after his job is done."

Gilford wanted the landscape to read like Earth is reclaiming elements of embedded architecture, "that they are melting back into the environment." Since the volcanic terrain was a very hostile environment, construction coordinator Robert Blackburn's team pre-built location set pieces in Baton Rouge, LA, including Cruise's bubbleship, rendered as a full-scale mockup, and then shipped them overseas.

"It's an advantage of the in-camera approach to build important elements practically," says Gilford. "It isn't every show that you get to put the Empire State Building's observation deck on a mountaintop in Iceland." In fact, the peak was inaccessible by car or foot, so 50-foot and 30-foot Technocranes were flown up with cast and crew via helicopter, which also served as a third mobile camera platform.

As Miranda prepped the film out of Keslow Camera, DIT Alex Carr realized he needed to build new custom carts. "Claudio wanted very high-quality images for the monitors and instant review," Carr recalls. "He is very precise with his ratios while lighting and didn't want to have to leave his monitor. I built him a cart not unlike my own, which let him see cameras A and B and output to VTR. When we were on cranes or a special mount, it would have taken time to bring the camera down and change settings, so I handled those changes remotely, leaving him free to frame up the next shot. Sony's web interface for camera control was great and let me change ND, frame rate and shutter."

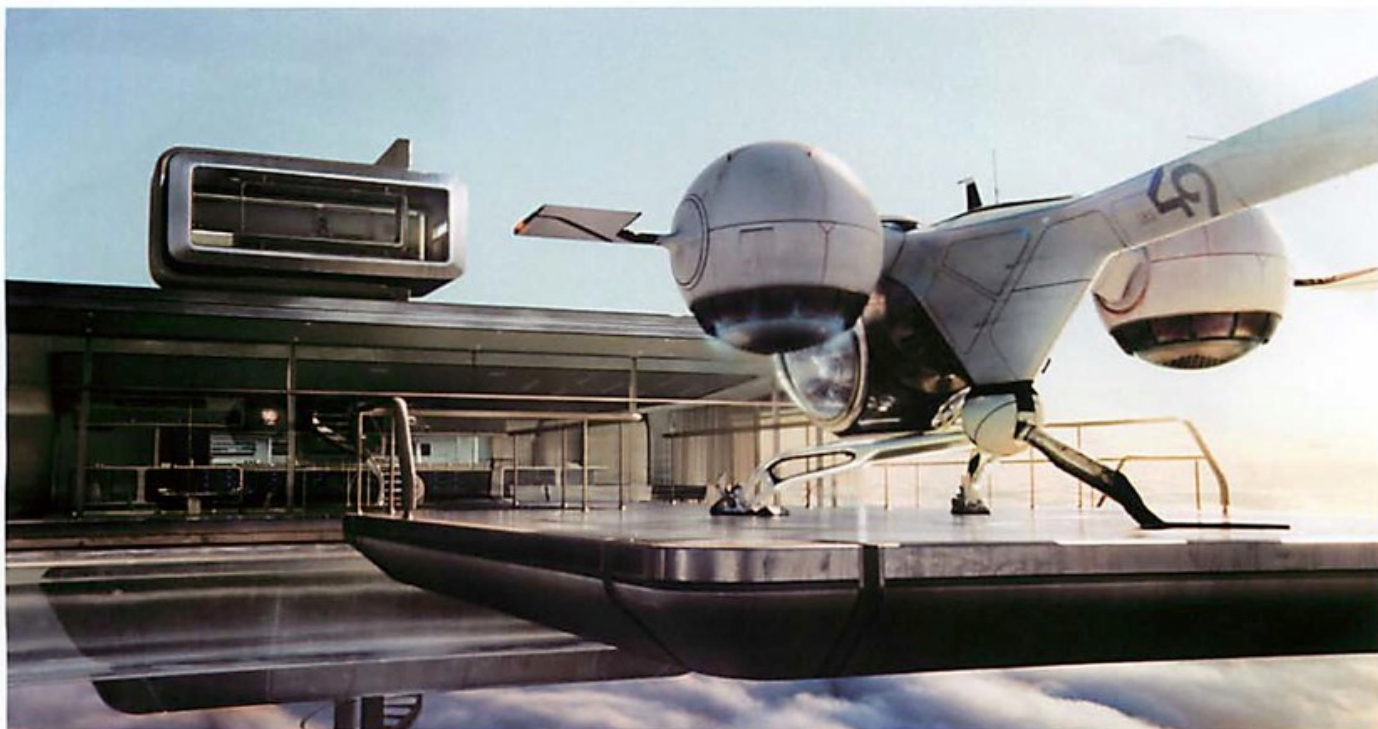
Carr chose Sony's BVM OLED F-250 monitors, where he says "there was just a bit of color variance between green and magenta if you were off optimum viewing angle, which falls between 90 degrees and 180. I spent two days calibrating the four monitors, and wound up so happy that I bought one for myself after the shoot."

Miranda says he's not a fan of developing elaborate LUTs on set. "I know I'm going to be at the DI, so it isn't like I've got to protect myself," he states. "I created a LUT for lighting, then set a different grade in the trailer to create a CDL value that can go to the DI as a rough base." Carr could color shots from a laptop or iPad, without need for Truelight or other external boxes.

"Having started off using S-log," Carr continues, "we knew the camera was more sensitive than this could reveal. On the back end, Technicolor helped make us more comfortable with what it was showing us. Then, when we got S-log 2, it showed the full gamut, but was much lower in contrast and even harder to interpret, since we'd been thinking in terms of the F35 gamma."

Recording RAW to 512 gig high-speed cards allowed the production to use variable frame rates, while 1-TB cards were employed for aerial and witness cameras and long dialog scenes. Carr would confirm file integrity and timecode before sending the cards to Technicolor, which prepared dailies using their FrameLogic file-based software through Colorfront's On-Set Dailies system. Data was backed up on a primary server and saved to a pair of LTO5 decks.

"On our most data-intensive day, we used 9 terabytes, which took up 60 percent of our available cards," Carr adds.



"Technicolor processed as fast as they could, but it could take them 24 hours to catch up due to the huge load. After that we bought ten more 1-terabyte cards."

The physical and photographic center of *Oblivion* is Jak's home in the clouds, the "Sky Tower," ringed with huge picture windows revealing an enormous expanse of sky.

"The question was how to build an environment with clouds visible all around," Miranda notes. "With blue screen, they would have had to flatten out all the reflective surfaces and we'd have had to remove the glass panels and lose all the interaction of light on the set. Probably realizing that I seem to get jobs that require a lot of problem solving," Miranda smiles, "Joe assumed I'd respond to that kind of challenge."

Capturing moving backgrounds in very high resolution was the initial part of the process, with A-camera 1st AC Jonas

Steadman sent from the mainland to a Hawaiian volcano-top, where he shot panoramic cloudscape with a trio of RED Epics. The combined imagery from these cameras resulted in a 15K background. Back at Raleigh's Baton Rouge Studios, where production was based, Gilford had to design a structure that balanced Kosinski's aesthetic needs with enough stage space for projectors.

"We baked in the size of the set and length of the throw to fit the dimensions of their largest stage, but it wasn't designed to take full weight loads," Gilford recounts. "So while Claudio could hang rags and these 45-foot-tall projection screens, which needed a clear line of sight with no posts or interference, all of the projectors were on the floor. It had to be bulletproof, meaning nobody moving on the set would cause any jiggle. Bob Blackburn helped figure out the support structures and noise-reduction boxes for the projectors."



Claudio Miranda, ASC on location in Iceland with Sony F65

Lighting and projection specialist PRG was engaged to install and synchronize 21 projectors that provided a sweeping 270-degree field of view of the sky around the tower set. "But even after we had it set up, the producers weren't too sure about the in-camera approach," Miranda recalls. "Then Tom Cruise walked through and said, 'I really love being in this environment - it is like I am really there.' And the problem was solved."

A-camera operator Lucas Bielan recalls that getting the separate projected images to dovetail seamlessly required some finessing. "Looking at the setup by eye, it seemed a little dark," he admits. "But looking through the camera and with the prepared LUT, it was so beautiful. For Joe, sets are pieces of art, and the projections put everything in the desired light." (Kosinski's Kubrick-esque preference for symmetry inspired the on-set expression "Everything's nodal," which soon adorned crew T-shirts.)

The use of projections allowed Kosinski and Miranda to work much more quickly, with the director estimating the elimination of 700 VFX shots. "In addition to saving us a ton of money," elaborates Miranda, "it also helped in editorial. With your typical blue screen situation, not knowing exactly what is going on in the background hinders making a good first cut, but we were able to present them with finished scenes."

Jak's adventures in the bubbleship required a combination of physical and visual effects work. For the former, the gimbal-mounted mockup could rotate a full 180 degrees. "Since the ship

only came apart in a few places, we got the camera in there with a Hydrascope," Bielan states. "Working remotely, we could add camera movements that made it seem like the ship was really going through some extreme gyrations."

Further enhancement came from programming lighting rigs for the ship's instrumentation, which, Miranda recounts, "was almost enough to do a pretty good job of lighting Tom just on its own," and for outside the ship. "I tried to take into account where the ship was travelling," he adds. "If he was flying through a series of valleys, each time he exited you'd want a flash of sunlight to come peeking through a corner."

Plate work for the aerial backgrounds was shot with the F65, using the Eclipse camera stabilization system. "You can speed things up by a factor of three or four without the image shaking all over the place," Miranda marvels. "Eclipse has GPS and horizon lock, and if you're shooting 12 frames per second, it gets you a real sense of speed, but without the artifacts that crop up in other systems when you double- or triple-time the action."

In addition to the production plates, Digital Domain used a variety of techniques to get good reference for the aerial backgrounds, including high-dynamic-range photography. "Our on-set survey team got high-dynamic reference for every interior and exterior to ensure matching to what Claudio had done," Eric Barba reports. "We nested a lot of our CG flying elements into the plates. But there's a limit on how fast you can speed things up, so at certain dramatic moments you might need

to really make things move and create the backgrounds in CG.”

DD worked from a mix of 4K and 2K plates. “In a perfect world, I’d like to get 4K all the time,” Barba states. “Tracking, along with paint-and-roto, is a cleaner process with 4K. Even with shaky 4K plates, by the time we cleaned them up in 4K and re-output them, you’d never know there was a problem.”

Creating VFX that matched the visual standard set by the F65 was never an issue. “We’re used to finishing at high res from the days when everything was 35 millimeter,” Barba continues. “Back then we had to work at a lower bit-depth before going back out to film. Now our digital format to render out CG has more bit-depth than film, so as the digital cameras get better, it makes it easier for us to match.”

Originating on the F65 not only enhanced *Oblivion*’s presentation, but made it ideal for an IMAX blowup, presented to audiences a week ahead of general release. Digital Intermediates for both versions were handled at Technicolor by colorist Dave Cole.

For Claudio Miranda, who continues to pull Chuck Yeager-like test-pilot duties in the digital era, the formula for the right stuff seems to be constituted out of equal parts preparation and imagination.

“Claudio has that Fincher/Hitchcock ability to get the whole movie made in his head,” admires Bielan, “and he does his homework like no other cameraman I’ve worked with.”

“It is important to me to know every [new] system’s

capabilities, which helps me deliver a director’s vision,” the cinematographer concludes. “*Tron: Legacy* was based on the original film, so it wasn’t wholly Joe’s own. But this one is really all Joe; the story is the one he wanted to tell with the imagery he always envisioned.” ☸

CREW LIST > OBLIVION

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Dir. of Photography: Claudio Miranda, ASC
 Operators: Lucas Bielan, George Billinger, Michael Stumpf,
 John Skotchdopole, Jeff J. Tufano
 Assistants: Jonas Steadman, Ryan Rayner,
 Sean Hunter Moe, Dan Schroer, Mark Spath, Lee Jordan
 Steadicam Operator: George Billinger, Michael Stumpf
 Digital Imaging Tech: Alex Carr
 Digital Imaging Tech/Aerial Unit: C.J. Roy
 Still Photographer: David James
 Publicist: Claire Raskind

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