

SHOOTING FROM THE HIP

REPLACING CHERRY'S LEG...WITH A MACHINE GUN!

CHRIS OLIVIA, TMDS Artist: Robert started talking about this character with a gun for a leg, and we were trying to figure out how the hell we were going to achieve this. To find out the best way to shoot this on set so it would be easy to get rid of the leg and to track it in post. The actor's leg was supposed to be totally stiff, but you can't completely immobilize the leg without putting the actor in a certain amount of danger. Alex Toader came up with a few designs and Robert had me start experimenting with tracking some leg footage that we shot of him. I was trying to come up with a design for a boot that the actor could wear safely, what it would look like and what sort of tracking we would use for it.

STEVE JOYNER: The developmental concept from Troublemaker Digital was to provide something green that could be motion-tracked. But what we discovered was that, on a real person, we needed to make her leg completely stiff from the thigh down to the toe and taking all the flexibility out of it, putting her center of gravity on her heel as if it was a straight peg. It all came down to acting, getting Rose to feel like she had her leg replaced by a peg. We probably went

through five or six generations of experimental legs before we finally got it right.

ALEX TOADER, TMDS Artist: We did some early tests actually filming Robert using a green leg sock. After considering the initial leg test a success, we quickly realized that we didn't take into consideration night shoots (the whole *Planet Terror* part takes place at night), particles or debris, heavy motion blur, sequences filmed at different speeds, different lighting and atmosphere situations at the set. Rodney Brunet suggested that we do some tests with LED (Light-Emitting Diode) markers that light her leg. We also had to figure out how we can keep her leg straight and mount all the LEDs on the leg prop for tracking purposes.

During the shoot, Robert delivered some sequences to us to start implementing the gag, removing the green leg prop and adding the wooden or gun leg. To our disappointment, we realized that the tests we did were only a partial success. While the leg tracked well, there was too much green spill on the other leg. So we had to paint the prop leg gray and dim

BELOW: A final, composited shot of Cherry's gun in action; **OPPOSITE (FROM TOP):** Robert Rodriguez acts as guinea pig in an early visual effects test. • The prop version of Cherry's gun leg.

the LEDs, which made it nearly impossible to key or track. The task of removing a limb, adding a thinner prop on top of the missing background behind the limb is already quite a difficult task, so the one bit of automation that we thought we could rely on—tracking and keying out the green leg—went away.

RODNEY BRUNET, TMDS Artist: We then moved on to testing in dim lighting since *Planet Terror* was going to be a night shoot. Testing was conducted outdoors as



well as indoors with dim lighting by employing every technique imaginable. To find solutions for tracking data we tried glow in the dark paint to LED, fiber-optic battery powered tracking lights to multiple colored stockings and rigid casts. In the end—mostly due to discomfort and safety for the actress and her stunt double—the immobilization of her leg became less and less important.

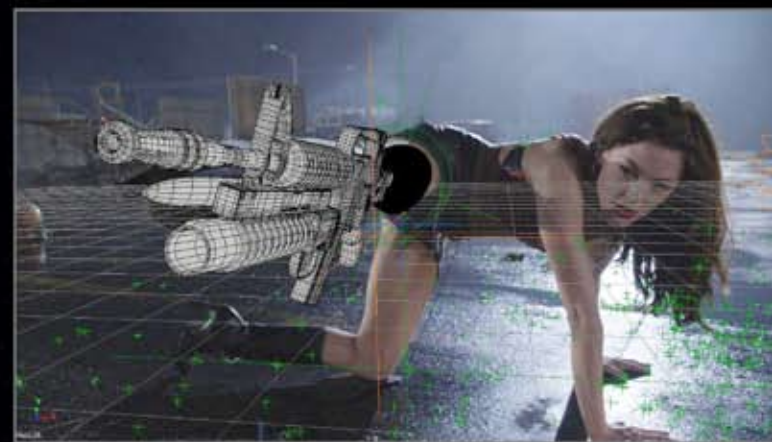
CAYLAH EDDLEBLUTE: As the process evolved, we began focusing on the sleek factor, minimizing awkwardness in the actual device. If you show up with a chunky, awkward-looking piece of shit, the actor won't want to put it on. You want to present something that you would be willing to put on yourself, possibly for an extended period of time—you don't know if the shoot's going to be five minutes or three hours. We're fortunate to be working with [lead prop fabricator] Jeff Poss who's a phenomenal sculptor, really high end. His attention to detail is really superb. Jeff, along with [production designer] Steve Joyner and [visual effects coordinator] Keefe Boerner took the leg through a number of evolutions, ultimately coming up with something very light and very clean.

JEFF POSS: At the very end, the final version was a combination of everything we experimented with. We realized the most important part to lock off was the back of the leg. We used a combination of really lightweight material and one central rib down the back that was actually velcroed or taped into place. This allowed her leg to breathe a lot, was really quick to put on and could go right over her boot.

STEVE JOYNER: Such a big part of filmmaking is experimental because we have limited time with the actors and the limited prep time. Then when we actually shoot, it's like war—everybody is really hard on all the props, all the sets, all the equipment. So it's really tested at that point and that is just part of that R&D phase so everything gets better and better, and it will only be perfect on the very last day you shoot it.

CHRIS OLIVIA: It ended up being something that evolved through all the different departments over several months and ultimately changed quite a bit from the original plan. Robert shoots so quickly that we went from trying to be very high-tech with LED tracking





markers and a very detailed model to having the brace be really minimal. The thinking was, when we digitally paint the leg out, we're not having to paint out a lot of extra bulky stuff. It just became apparent that the most time-consuming part wasn't tracking the leg, but digitally painting the leg out and replacing the background that wasn't originally there. The thinner the leg apparatus was, the better.

I found that there was enough detail in the bandage itself for me to track it by eye. We have a couple of automatic, 3D tracking softwares, but unless it was a locked-off shot with minimal movement where we had tracking markers, it was almost impossible to use the tracking software. Because Cherry was doing all these acrobatic twirls and the leg was rotating completely around, it seemed easier to put a CG dummy representation in there, track that by eye and then have a separate CG gun, constrained to that bandage, but with the flexibility to animate the tip of it, so you can lock it to the ground.

One of the other challenges was that her thigh and bandage are not solid pieces of material, they're flexible, they're flesh and blood. That's when we had to ask ourselves, where do we blend our CG bandage into the live-action bandage and if we do that, are you going to notice fluctuations in her actual flesh that you're not going to notice in the hard CG bandage? What seemed to be the easiest solution was to do a blend half-way between our CG bandage up to her actual leg. That seemed to be easiest, quickest and most natural solution.

ALEX TOADER: In the end, we had to do the old-fashioned roscope process. Sometimes you do have to use old school skills! In all the shots that you see the wooden or gun leg, they are digital, the actress's leg was removed digitally, then the background and the digital prop was added in. We roscoped them out using our 2D team: two artists using two Flame stations and three artists using Shake. The 3D models of the props were animated and rendered in Softimage XSI; the cameras were either tracked by hand or with Boujou and PFtrack. We also used Particle Illusion to create smoke and other debris, and all the shots were composited using Shake or Flame.

OPPOSITE: Production Designer Steve Joyner sizes up a prop M-16 on stuntwoman Dana Reed while Troublemaker Digital artist Alex Toader observes; **THIS PAGE (FROM TOP):** The unaltered HD frame. • Erasing the background information. • Tracking the movement of the camera and the leg and adding in the CG elements. • The final composited shot. **UPCOMING SPREAD:** Director Robert Rodriguez holds the prop M-16 up to Rose McGowan to provide a CG lighting reference for Troublemaker Digital.

