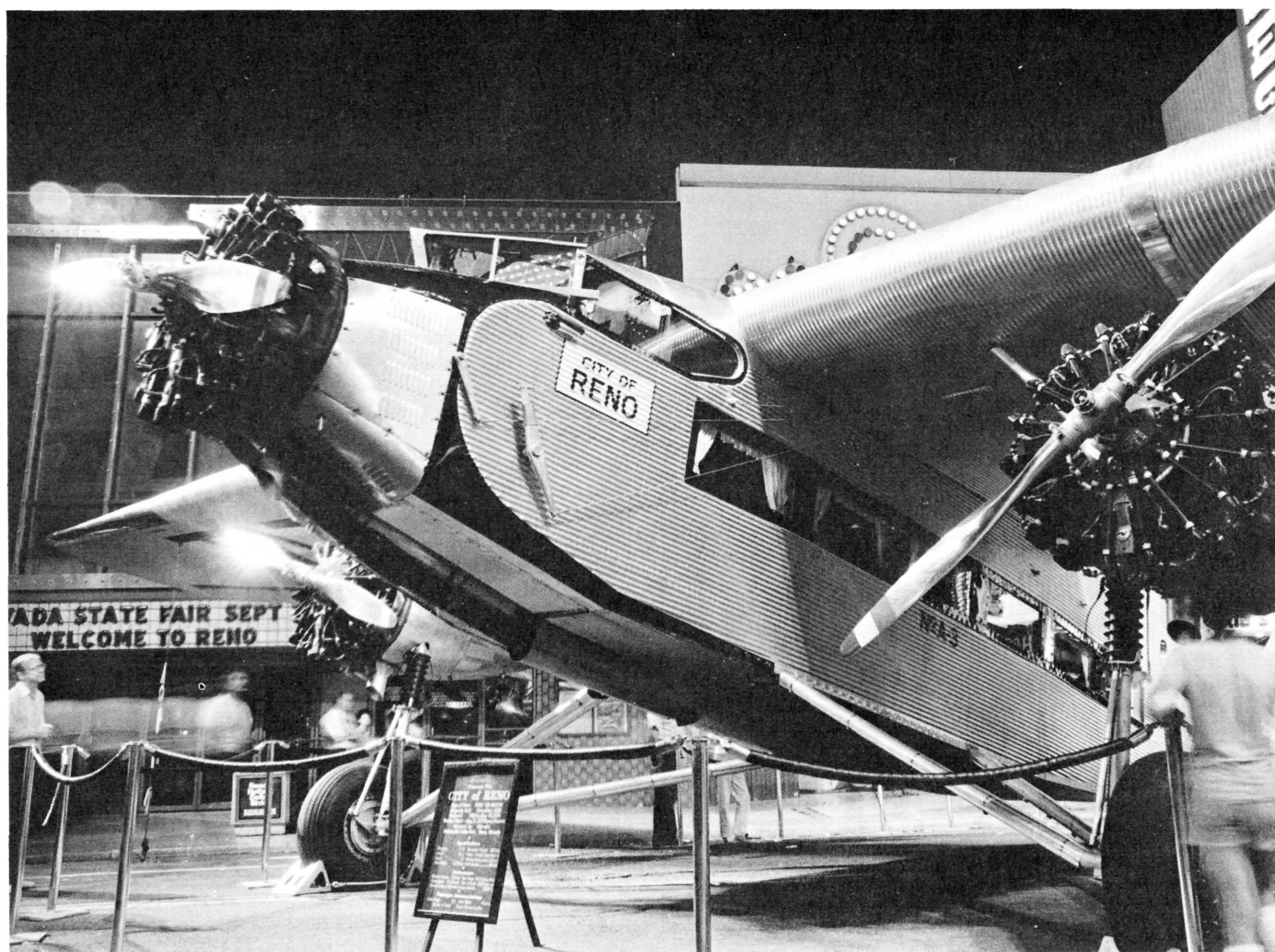




Reno Races Night Scenes

by Birch J. Matthews.

The National Championship Air Races have been held every September just outside Reno, Nevada, for each of the past 20 years. Over these two decades, Reno race officials have fashioned a truly diverse and spectacular program. Indeed, Reno has become the longest running annual air race in the world.

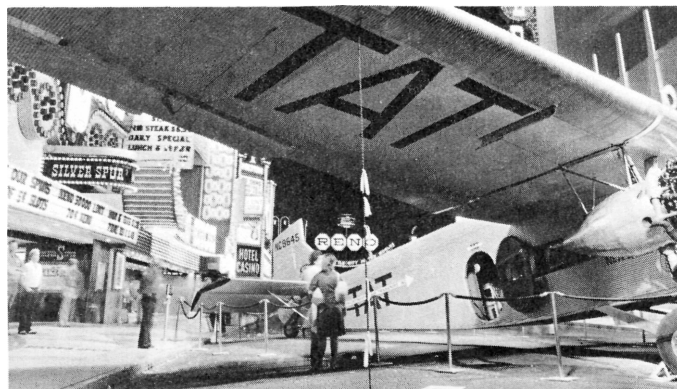
The races are held at Reno Stead Airport, approximately 10 miles north of Reno on Route 395. Reno offers the enthusiast, historian and photographer a wide range of sights and sounds. There are four generic racing classes, a variety of aerobatic demonstrations and numerous static and flying displays. Racing classes include the unlimited category (almost exclusively Warbirds), T-6/SNJ type aircraft, sport and racing biplanes as well as formula class racers.

I find the photographic potential at Reno large and challenging due to the dynamics of race week. In all of my previous years of attending the races, however, I never attempted available light photography of aircraft scenes after dark. Reno '83 seemed a fitting time for experimentation and thus my first attempt at recording night scenes. The purpose of this brief article is to recount my efforts for those who may be similarly interested.

The 1983 races offered two possibilities for night photography. One night scene replayed virtually every year is in the unlimited class pit area where crews often work far into the evening. Typically, this work is accomplished with the aid of two or more floodlights pow-

The outstanding restoration work on Ford Trimotor NC 9645 is evident in this photograph taken during race week on Virginia Street in the center of downtown Reno, Nevada. Specular reflections may be seen on the propeller blades of the center and starboard engines. A minor amount of flare can also be seen just above the propeller of the center engine.

Another view of NC 9645. Taken from a low angle, the camera was first rotated upward to obtain a precise focus on the wing leading edge. The camera axis was then adjusted to frame the desired scene. An aperture of f/16 was used to achieve good depth-of-field. Slightly blurred images of people occurred as they moved during the time exposure.



ered by portable motor generators. The resulting illumination is adequate for timed exposures.

Last year provided a second and somewhat unique night photographic opportunity. To commemorate the 20th anniversary of Reno air racing, one entire block of Virginia Street in downtown Reno was cordoned off to automobile traffic and a static aircraft display installed. The centerpiece of this exhibit was a magnificent Ford Trimotor restoration. Illumination was more than adequate for photography. In addition to street lighting, bright lights from adjacent hotels and casinos together with temporary floodlights provided a reasonable level of light intensity and uniformity.

I photographed the unlimited class pit area one night early in the week when crews were working on five different aircraft. Downtown Reno static displays were shot the next evening as combining these two geographically separated photographic sessions would have been too time-consuming.

Pit shots of the unlimiteds were made using a tripod-mounted Mamiya 645M 6cm x 4.5cm format camera equipped with an eye-level viewfinder and 55mm focal length f/2.8 Mamiya-Sekor lens. This is a moderate wide-angle lens with an included viewing angle of 65 degrees and approximately equivalent to a 35 mm focal length lens for a 35mm camera. I find this focal length lens quite useful in the pit area where unlimiteds are tightly situated.

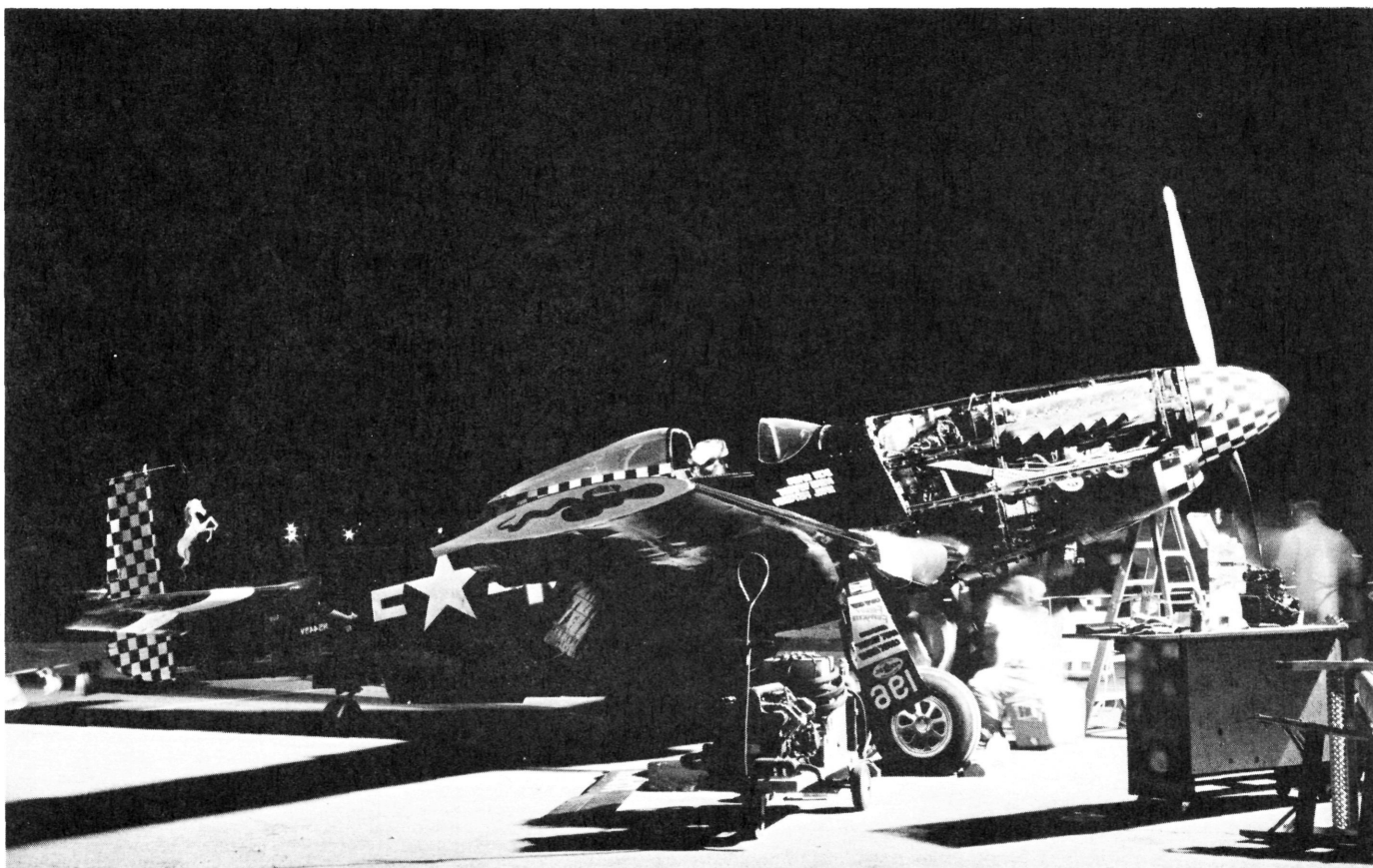
Static display aircraft in downtown Reno were recorded with a Bronica EC 6cm x 6cm format camera also tripod mounted. Unlike the Mamiya, my Bronica has a waist-level viewfinder incorporating a retractable magnifying glass as a focusing aid. I found this to be much more satisfactory for night photography. A Nikor H 50mm focal length, f/3.5 lens was used with a viewing angle of 77 degrees. Again, this approximates a 35mm lens on a 35mm camera. Neither the Mamiya nor the Bronica lens is particularly fast. This made precise focusing difficult, especially in the pit area where light levels were lowest. To compensate, I usually recorded with an aperture of f/11 or greater to obtain reasonable depth-of-field. I also checked depth-of-field for a given aperture as indicated on the lens barrel.

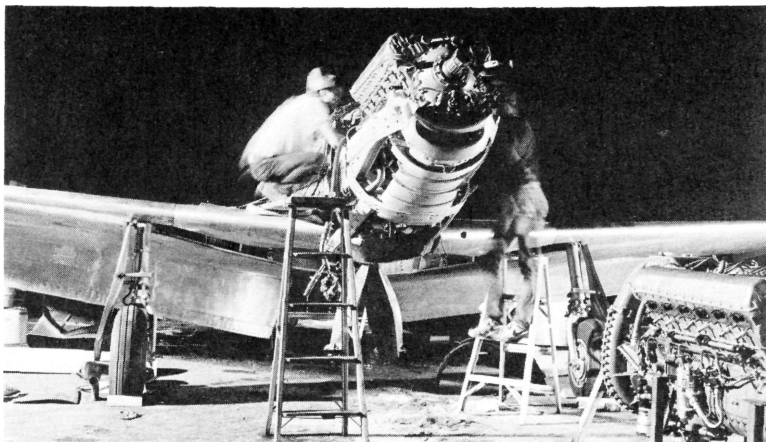
The accompanying illustrations were photographed using Kodak Plus-X Pan Professional 120 roll film. Kodak rates this film at a



Don Whittington's Race 09, P-51D-25 "Precious Metal" is yet another example of the highly modified *Mustangs* racing at Reno. N5483V carrying AAC serial 44-73518 was photographed on September 13. Both left- and right-hand banks of the Rolls engine had been removed. Only two floodlights were in use and concentrated on the engine compartment. The lower port wing surface was dodged for a few seconds during printing to lighten the shadow in this area.

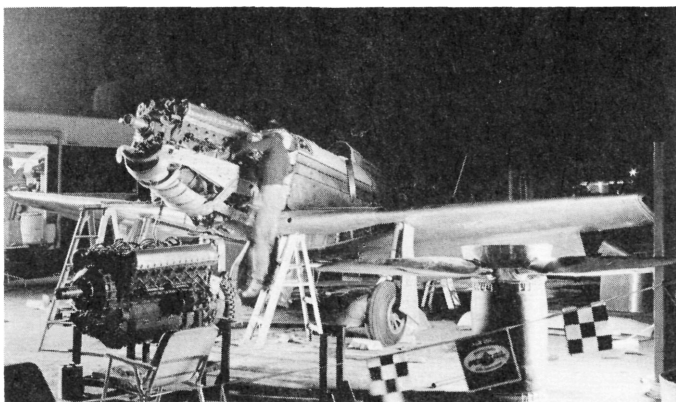
Mustang N5449V is a modified P-51 D-25, serial number 44-73196. In stark contrast to Specter, Race 81 is painted all black with limited red and white trim. Photographing a black airplane after dark is a real challenge. Fortunately, the area was reasonably illuminated. An f/8 aperture was used with a 4-second exposure. Focus was accomplished on the bright areas of the *Merlin* engine with subsequent attention to depth-of-field.





Jimmie Leeward's Specter was photographed Tuesday evening, September 13, 1983, in the unlimited pit area at Reno Stead Airport. Specter is a P-51D-15, AAC serial number 44-15651. Carrying race number X (Roman numeral 10) and license N 79111, this highly modified Mustang was twice a prior Reno unlimited champion. The racing history of this aircraft dates back to 1946 at Cleveland. Flare may be seen in the upper left-hand section of the photo. This can be eliminated by burning in.

Another view of Specter recorded the night of September 13. The aircraft underwent a complete engine change. The second *Merlin* engine is seen in the foreground. Specter wears the shortest wingspan of any P-51 flying, at about 29 feet. A stock span is 37 feet. Available illumination in Specter's pit was above average with several floodlights operating. Reflectance from the natural aluminum finish was an asset.



speed of ASA 125; however, my exposures were made at ASA 100 which is a personal preference. Average exposure measurements were determined using a Gossen Luna-Pro hand-held light meter. This meter has a separate scale for low available light situations and is ideal for night photography applications. Depending upon available light, my exposures at Reno ranged from 0.5 to 4 seconds with lens apertures typically between f/8 and f/16.

A word of caution regarding metering is appropriate in context with night photography in the Reno pit area. My Luna-Pro meters reflected light within a 30-degree conical angle of acceptance. I believe this acceptance angle is representative of similar instruments. Floodlights used to illuminate night work on the aircraft are very bright point sources of light. For this reason, care must be exercised to ensure that direct rays from the floods do not enter the light meter and bias the exposure measurement. This can be avoided by shielding the meter or metering the aircraft at close range; however, most of the unlimiteds are roped off to keep spectators away. As an alternative, carefully scan the meter across the scene and note variations in readings. This will allow you to select a representative reading. In addition, I was forced to use a flashlight to read the meter scale. Be sure the flashlight beam is not contributing light to your meter reading.

After exposure, I refrigerated my film in a Coleman cooler until it could be processed. This minimized latent image degradation possible from the usually high mid-September temperatures of Reno's

semi-arid climate.

I processed my Plus-X Pan film in Kodak D-76 developer diluted 1:1 with distilled water at a controlled solution temperature of 68 degrees Fahrenheit. Development time was reduced by 15 percent from the normal time recommended by Kodak's film data sheet. As noted earlier, the film was exposed at ASA 100 in contrast to the manufacturer's rating of 125. As a consequence, the film was moderately overexposed and underdeveloped.

To provide illustrations for this article, I printed selected negatives on 8"x10" Ilford Multigrade enlarging paper. A Kodak No. 2 Polychrome contrast acetate filter was used in my Beseler 23C II enlarger. I was extremely careful to ensure that each negative was clean and free of particles and lint. Such residue is highly visible especially against skies rendered jet black in night photographs when the enlarged image is printed.

For those individuals interested in trying night photography but not equipped with a tripod, utilize any convenient structure to steady the camera during film exposure. If you do not have access to a suitable hand-held meter or built-in light meter in your camera (which may be unreadable at night), record a series of exposures at say, f/8 to f/16 aperture with shutter speeds ranging between 1/25 and about 5 seconds. This should bracket the ideal exposure and provide a printable negative.

In retrospect, my night photography technique needs improvement. This is especially true in the unlimited pit area. Unlike the reasonably diffuse relatively high light levels in downtown Reno, available light in the pit area poses several problems to the photographer. Pit illumination is characterized by two or more floods typically at 12 to 15-foot elevations acting as intense point sources of light. Further, the lighting is often concentrated on one area of the aircraft where work is being performed. In addition, the photographer is usually constrained insofar as camera placement. As a result of these conditions, I found evidence of flare in about 30 percent of my negatives. I made a mental note to be more cautious in positioning and shielding my camera lens in the future.

Overcoming flare during the printing of a given negative was generally easy requiring a few extra seconds of burn-in time for the offending area. Improving overall image quality of my pit photographs will be a greater challenge. Three thoughts come to mind. One is to photograph from an elevated position. This may reduce the flare problem and take advantage of the downward illumination of the aircraft by 15-foot-high floodlights. A stepladder or car roof could be used as long as the camera can be stabilized. Another approach may be to use one or even two remotely positioned electronic flashes to provide added light in desired areas of the scene. And finally, I may use my Pentax Spotmeter V (light acceptance angle of 1 degree) in combination with the Luna-Pro for more precise exposures.

In addition, I will pay more attention to film reciprocity effects encountered with relatively long duration exposures. * Kodak recommends a one stop increase in aperture over that determined by metering for timed exposures of 1 to 9 seconds. In other words, if my light meter indicated 2 seconds at f/11, I really should set up for 2 seconds at f/8 to account for film reciprocity effects. Or one might choose to keep an f/11 aperture and double the time exposure to 4 seconds. Additionally, Kodak recommends a 10 percent reduction in development time from a normal value. In my case, I partially offset my oversight by a 20 percent reduction in film speed (as opposed to Kodak's recommended 50 percent) together with a 15 percent reduction in development time.

During the 1984 races, I plan to use Kodak's Tri-X rated at ASA 400. I'll derate this film to ASA 200 to account for reciprocity effects. This will provide more flexibility in aperture/shutter speed combinations in context with depth-of-field. Remember, focusing will always be more difficult at night. Increased depth-of-field will help overcome minor focusing errors.

*A discussion of film reciprocity effects is covered in photography books and manuals. See, for example, "Kodak Professional Black-and-White Films," Kodak Publication No. F-5, Eastman Kodak Company, Rochester, N.Y.