



SoAR571.com

March-April 2002



## New SoAR Special Interest Groups

by Steve Bellio

### Inside this issue:

Special Interest Groups	1
Taking Rocket Launch Photos	1
Taking Rocket Launch Photos (cont)	2
Taking Rocket Launch Photos (cont)	3
Taking Rocket Launch Photos (cont)	4
From the Web Site	5
Taking Rocket Launch Photos (Conclusion)	5
Special Interest Groups (Conclusion)	5

### Special points of interest:

- N3FNC Special Interest Group (pages 1 and 5)
- Taking Rocket Launch Photos (Pages 1-5)
- SoAR at the Air Show! (Page 5)

**Forward** (from website) - Two new special interest groups (SIGs) have formed in recent weeks.

SoAR-N3FNC is the SoAR Rare and Unusual Rockets Special Interest Group dedicated to the pursuit and sharing of new knowledge and experience with rockets that are NOT "three fins and a nose cone" or have implemented unusual and unique techniques. Soarhpr is a group started for discussion of high power rocketry concerns and issues. To join in on either of these groups, go to <http://www.yahogroups.com>

**The SoAR - Not 3 Fins and a Nose Cone Special Interest Group is really flying!** The SoAR rare and unusual rockets Special Interest Group (SIG) is dedicated to the pursuit and sharing of new knowledge and experi-

ence with rockets that are NOT 3 Fins and a Nose Cone (3FNC) or are 3FNC, but have a unique or exceptional staging technique (gap staging or electronic staging for example), a different recovery technique (window shade recovery, rear ejection, etc.) or involves some other wildly different and unconventional system during flight or recovery (guidance system for example). Our goal is to have fun learning and sharing! This group is open to all SoAR members and anyone else that is interested in chasing the unique and unusual. At this point, we have 14 members and one of them is from California. So far, the group has only had e-mail discussions about various topics, but thanks to an idea by Ken Frye, we are taking the activities of the group to a new level. Five of us in the

*(Continued on page 5)*

## Taking Rocket Launch Photos by Doyle Tatum (Part one of a three part series)



We have all at one time or another been captivated by amazing photos of rockets, smoke and fire, blasting into the skies. It increases the pleasure when it is your own creation caught in the moment. Quality rocket shots are somewhat difficult to come by. There are a lot of

things to think about when taking great action photos. I'll touch on a few of them in this article and hopefully give you some ideas to try. In part one, of a three part series, I mainly refer to 35mm cameras and

*(Continued on page 2)*

*(Continued from page 1)*

traditional film. Next issue – it's all digital! While most of the concepts are the same, I'll discuss the differences next time and offer some purchasing suggestions should you wish to get into digital photography.

## Location, Location, Location!

You can only photograph things you can see. The closer you are to something, the better you can see it. This is where range safety comes into play. Typically you will not be allowed any closer, to a launch, than the safety fence line. If you have a zoom lens, this is plenty close enough. The LCO may make a special exception, from time to time, for a photographer to be on the range. You must ask permission and stay very still once you are there. The LCO has control of the range and will not allow you to photograph in the future if you cause him/her reason for distrust.

You also have to be familiar with rocket flying to be able to capture the moment. This means knowing where to position yourself for the best action. This is critical because of angular momentum that will be discussed in the section on freezing action. Not only does it matter with the subject, but the background. Look at what is going to be behind your subject. While we will try to minimize the impact that a background has, it will still be unavoidable. So you need to position yourself where the background is the most pleasing.

## The Decisive Moment

Action photography is all about timing. It's about reacting. It's about being in the right place at the right time and its about execute. The launching of rockets has predictable and unpredictable moments. By knowing these moments you can anticipate the action. This helps in two ways, one it helps you with focus which will be discussed in a later segment, and secondly it helps you snap the shutter at the right time. The saying goes "If you see the action you missed it." This basically means if you wait to see the rocket in the air, you'll probably just get a trail of smoke. You have to push the button before the action so that the mirror has time to flip out of the way and the shutter open and close. There is a delay between the image hitting your optical nerve and the shutter closing. You have to, through experience, learn what that time is and adjust for it.

## Required Equipment

Most blast offs are shot on 35mm or digital

cameras because of their portability. You can also use a digital video camera (capturing the entire launch and then choosing the frames of the best action – while sacrificing quality)

"Its not the equipment but the photographer who makes the picture" is generally a true statement. Generally, for a 35mm camera, each 100mm in lens focal length gets you about 10 yards (9 meters) in coverage. This coverage means that on a vertical format photo, a normal human will fill the frame fairly well. A zoom lens is not required but will increase your chances of properly framing and getting a great shot.

Lens speed is also a critical factor. The faster the lens, the faster the shutter speed you can use, which as the lens grows longer, this becomes even more important. This will be covered in the freezing action section in more depth. You need fast shutter speeds to freeze action with long lenses. Every F Stop you give up requires a faster film or less freezing potential.

Most consumer grade long lenses and zooms have variable apertures, but most are F5.6 at the long end of the lens. F5.6 is good for outdoor day time shots. Lenses that are F2.8 or faster are very expensive.

Besides these long lenses, you need a camera that can drive them. Today, most new cameras are auto focus. Auto focus makes this easier on us, but the AF systems are not fool proof.

Other equipment which can come in handy are remote triggers. These allow you to place the camera in a remote location, like just under the launch pad, and get a dramatic shot of the blast from below.

## Depth of Field -- Isolating the subject.

Most all dramatic photos are shot with the lens wide open or one stop from wide open. This is done for two reasons. First you need all the shutter speed you can get, which means shooting wide open, but just as important, it has to do with isolating the subject. As the aperture on a lens opens up, less and less of the photo is in focus. The longer the lens, the more dramatic the change. The larger the distance between the subject and the background the more out of focus the background will come. If you use a long lens and a fast aperture, then your

*(Continued on page 3)*



*(Continued from page 2)*

subject will stand out and the background elements will have less impact on your photo.

Reducing background noise is an important goal in many photographs, action or not. In studio or landscape settings, you have time to control the elements that make up the picture. Action photography is a "grab it now" type of shooting and you live with the background that is there. If you open up the lens to its maximum, you will find your subjects standing out and becoming memorable.

Fences, signs, poles, trailers, canopies, and people at the safety line can really mess up a good shot. Even though you might be shooting wide open, the background will be too prominent in these shots. Should they be avoided? If you have better shots, don't use it. However, it may be your best shot. Shoot it, just be aware that distracting backgrounds are more problematic on shots on the far side of the field. But, remember to get some shots of the crowd too. The best shots often include the crowd craning their necks to follow the rocket into the sky.

## Focus

An out of focus shot is pretty useless. There isn't much you can do with them other than throw them away. So achieving crisp focus should be a goal of every one. Today's AF cameras do a very good job of focusing, and focusing quickly. AF has really made a lot of photographers lazy. I used to manual focus everything, but now that I have an AF system with AF lenses, I let it do my work for me.

However, many times, manual focus works better. To understand this, you need to know how auto focus works. The camera takes a series of measurements across its AF sensors. It looks for contrasting lines. It moves the lens until these lines achieve the maximum sharpness. These sensors are located in the viewfinder of the camera. Different camera models have different sensor configurations and different capabilities. These sensors either are a simple spot meter in the center of the viewfinder, a line of three sensors that run across the viewfinder, or a cross which run side to side and top to bottom. Generally, these sensors do not cover the full range of the viewfinder and your viewfinder will have markings showing where the AF sensors are.

If you are preparing to take a picture of the launch, you start by pointing the camera at the

rocket. If you have a spot AF sensor, you have to be dead on the subject or you will find a focused background and a blurry subject. Wide horizontal sensors will allow you to lead your subject a little bit or allow you to compose shots that are off center. However, when you turn the camera to shoot a vertically framed shot, your sensors now run up and down. There are two things to be aware of here. First the AF is now vertical, thus your subject now has to be in the middle of the frame again, just like the spot sensor. Depending on the AF sensors in your camera, they may not focus on horizontal lines as well as vertical and you may find the AF less than responsive.

Many rocket launch photos are shot vertically. I've found that my odds of getting a good shot are increased when I hold the camera in this position. I try to place the base of the launcher across the bottom of the photo and show several feet above the end of the launch rod. Some of the high end cameras have a cross pattern of AF sensors and they are generally selectable. By using a sensor array in this format, you have good vertical and horizontal sensor patterns regardless of which way you hold the camera.

For those times where AF isn't working well, or if you have a manual focus camera, you need to understand how to focus. There are two primary means of focusing a camera: Follow focus and zone focus. Follow focus is where you keep your camera on your subject, rotating the focus collar attempting to keep the subject in focus. This works very well on side to side movement, where the camera to subject distance is not changing rapidly. You might use this method for football, auto racing, or other events where you turn side to side following the action (not really for rocketry). This requires practice to get down. The second method is called zone focus. Here you expect the action to take place at a particular place. You can focus on the area (the rocket) you want to be sharp and when the subject moves into the zone, you then take the photo. This is timing related. You need to practice the timing on this as well. Both of these methods allowed photographers to capture fantastic photos before the invention of auto focus and will continue to into the future. Even if you have an AF system, you should learn to follow focus and zone focus because there may be times where your AF isn't available (low light, low contrast situations for instance) and you need

*(Continued on page 4)*





(Continued from page 3)

to be able to come back with the shot.

## Composition

### Faces

"Give me faces" or "I want to see faces" is a common cry from the photo editor because that is the cry he gets from his bosses. The face is the primary source of emotion in a shot and that emotion is what makes or breaks a shot. Shots of the subjects backside just don't cut it. Don't waste the film on a back shot unless you can see part of their face. As mentioned before, expressions of the crowd as the rocket blasts off are sometimes nice composites.

### Vertical/Horizontal

There are two ways to hold a 35mm camera that effects the composition. This was discussed somewhat in the focus section regarding the AF sensors. You can hold the camera in the traditional way where the long side of the film is horizontal to the ground. This is a horizontal or landscape format. If you turn the camera so that the long side of the film is perpendicular to the ground, you are now shooting vertical or portrait format.

Many modern cameras have an additional release that allows you to hold a camera in a traditional manner (left hand under the lens, right hand along the right side of the body) as opposed to the old way of shooting vertically (left hand under the lens, right hand on top of the camera since the camera was rotated 90 degrees left). These vertical releases have been a wonder for action photography since it allows the camera to be held in a more stable fashion.

Why would you want to do this? Think about the shape of rockets. They are taller than they are wide. To fill the frame with a rocket launch, it fits the frame better while holding the camera vertically. Even in a tight shot, it fits better vertically.

### Individual vs. Conflict.

The vertical vs. horizontal decision needs to be made based on your desired goal in capturing the scene. If you are highlighting a rocket, you should shoot vertical. However, there are times where you want to show the conflict in the scene, for instance capturing a launch of multiple rockets or just showing other rockets on their pads while one blasts off. To capture these multiples, you typically will have to

shoot horizontal. You should make a conscious decision before you fire the frame as to your goals in capturing the shot.

### Rule of Thirds

There is a common photograph rule called "The Rule of Thirds", which says that if you divide the frame into thirds, vertically and horizontally and place the subject where the lines intersect, the resulting photo is more interesting. Camera manufacturers don't believe in this because their AF sensors are centered in the camera.

### Framing

Depending on how you get your photo output, you should be aware that many cameras do not show the full frame. Because of this many labs "enlarge" standard prints to approximate what you see in your viewfinder. If your camera shows the full frame, like many high end cameras do, and you fill the frame with a person, the 4X6 coming from the lab will in all probably crop part of the frame in a way you do not like. If you are using digital (recommended if you own a computer), you can crop the picture any way you wish once downloaded.

## Anticipate The Action

It takes a lot of practice to capture the rockets in action. You must come up with your own preferred method of snapping a photo. I usually snap the shutter when I see the first smoke or hear the first sound. This generally works, but you will get a lot of photos with the rocket sitting on the pad – smoke billowing from the motor. Snap a little too late and you will get a trail of smoke – no rocket. Practice, practice, practice...and you will be rewarded.

## Freezing Action Shots

So far, we have discussed each event and the types of shots to be taken. Safeties generally are taken at times where the action is minimal, and we don't have to concentrate as much on freezing the action. But what the viewers want to see are rockets suspended in mid-air just above the launch rod with a giant cloud of smoke engulfing the pad! To do that, we must freeze the action.

Freezing the action requires fast shutter speeds. Most modern, high end 35mm SLRs have a top shutter speed of 1/8000th of a second. Except for a speeding bullet, this is about fast enough to catch anything you or I are

(Continued on page 5)





*N3FNC (Continued from page 1)*

group have ordered the Fat Cat Rockets I.P.F.I. Strikeship kit (see their collection of amazing kits at [www.fatcatrockets.com](http://www.fatcatrockets.com)). This rocket is really unique. It has 2 body tubes covered with fiber board for the fore section of the rocket. The aft section is a larger body tube that contains the motor mount and rear ejection system. The fin configuration is really wild as well. For \$44.00, you get a slick, seldom seen rocket that is only slightly challenging for the experienced modeler - although the build is time consuming due to the number of parts. Sorry, I'm beginning to sound like an ad for Fat Cat Rockets. Anyway, Ken has ordered the kits and the five of us will be getting together to build them. We intend to have them ready to fly at the May SoAR launch. Now that'll be a wild drag race, eh? Not only are we learning a new construction technique with this project, but we will be building the rocket together and undoubtedly comparing finishing techniques. Camaraderie, new knowledge and fun. That is what the SoAR-N3FNC SIG is all about. Please join us by sending an e-mail to [SoAR-N3FNC-subscribe@yahoo.com](mailto:SoAR-N3FNC-subscribe@yahoo.com). You can also e-mail me and I will add you to the group ([sjbellio@hotmail.com](mailto:sjbellio@hotmail.com)). You've got nothing to lose by joining and everything to gain, so join the group today. You'll be glad you did!

## <http://www.soar571.com>

For up to date club and hobby related material, such as the time and location of the next launch or meeting, keep checking the Website.



The SoAR Spot is published bi-monthly and can be downloaded in PDF format for reading online or printing. Go to—<http://www.soar571.com>

## Right from the WebSite!

### Flying Fields

Don't forget, we are always on the lookout for new fields in and around the Atlanta area. Smaller fields for model rockets or large fields for high power, it doesn't matter. If you know of a field, contact Steve Bellio ([sjbellio@hotmail.com](mailto:sjbellio@hotmail.com)) first!

### SoAR at NAS Air Show in May

SoAR will have a booth and display at the Naval Air Station Atlanta Air Show 2002 on May 18 and 19. We will probably be able to fly some rockets near the beginning and end of the show. We still need volunteers to staff the booth from 9:30am to 4:00pm on Saturday, May 18th and Sunday, May 19th, and possibly to check in and set up our booth between 12:00 and 3:00pm on Friday, May 17th, and tear down exhibit after the show on Sunday, May 19th. Contact Steve Bellio if you can help. Steve plans to write some articles based on SoAR's experiences at the air show.

Also, we could use articles and launch reports. If you attend SoAR launch please feel free to submit a write-up via the newsletter section of the Web-site.

*Taking Photos (Continued from page 4)*

likely to shoot, even the blast of most of our model rockets. But it isn't that simple. Lets first discuss a standard photographic rule of thumb, which is the minimal speed for hand-holding a lens. The minimal shutter speed for hand holding a lens is 1 divided by the focal length of the lens. Thus a 50mm lens should not be hand held any slower than 1/50th of a second. A 300mm lens should not be hand held at less than 1/300th of a second. If your camera does not have shutter speeds between say 1/250 and 1/500, then you round up. So for a 300mm lens, your minimal hand hold speed may be 1/500th of a second. The more proficient you get, the more likely you are to be able to cheat by one shutter speed. A monopod is the preferred way for action photographers to gain additional steadiness. It can generally buy you one to two shutter speeds of hand holding.

Not only has it become more difficult to hand hold these lenses, it becomes harder to freeze the action as well. The lenses get heavier and harder to hold. Your breathing and heart beating and muscle strain are enough to cause still objects hard to capture. Longer lenses not only magnify the scene, they magnify the apparent movement. If a rocket passes through the viewfinder with a 50mm lens



attached in one second, then at 500mm, the same rocket moving at the same speed will pass in 1/10th of a second.

Generally, to freeze action, you need at least two full shutter speeds if not more faster than the hand hold speed. So for our 300mm lens, you will need at least 1/1200 to 1/2400 to freeze action with this lens (rounding up, that's 1/2000-1/4000th of a second). Film is critical in freezing action. Each increase in film speed gets you one more shutter speed. So if you shoot an event with ISO 100 film and the best you can get is 1/500th of a second, switching to an ISO 400 film gets you to 1/2000th which may be enough to freeze the action. Going to ISO 1600, will take you to 1/8000th of a second.

## Summary

One final note. Don't rush your action assignments. Spend some time, and expect to burn some film. Only through practice and looking at the results and going back to it will you get the timing and skills needed to one day capture world class shots.

Next time – we go digital – no more film, no more trips to the drug store for developing! For part 3 of this series, I'll discuss the computer end of the process. Specifically the use of Adobe Photoshop Elements.