WPA

Western Pyrotechnic Association

Newsletter

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GIANT SIZE

COLLECTOR'S EDITION



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The WPA Newsletter is published quarterly by the Western Pyrotechnic Association, Inc. Articles submitted to the Newsletter may be on any topic of potential interest to WPA members. The Newsletter Staff will do their best to publish any reasonable manuscript submitted by WPA members. Electronic submissions of manuscripts is strongly preferred. Guidelines for preparing manuscripts appear in the first issue each year. If you have an article, advertisement, or other information you wish to submit to the Newsletter, please send the material to:

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Hawaii - No representative available
Holding own elections

From the President *by Kief Adler*

Welcome to both the first issue of the newsletter for the new year as well as our annual Winterblast issue. I trust that all of you enjoyed the holidays and have made that all important New Year's resolution to attend Winterblast this year! I'm looking forward to seeing many of you there and smelling the smoke with you once again!

This is also our first newsletter since Do It by the River 2 and I would like to take this opportunity, once again, to thank all of you who attended as well as all who helped out. A special thank you to Michael and Anne Hill, new members who volunteered to help us out by vending food on site for us. They came through in a pinch and worked long hours for no profit at all. They deserve our special thanks! You'll find more about Do It elsewhere in this issue, as well as the final financial details.

Your Winterblast committee has been hard at work since last February in order to make this Winterblast one of the best ever. Pyro Spectaculars will be putting together our first ever Saturday night public display, leaving Sunday free for seven hours of uninterrupted shooting. Also on Sunday, our own private mini display dubbed Cake-a-thon is sure to be an event worth watching. New seminars and more hands-on building seminars are worth attending as well. With later shooting hours, multiple shooting areas and nothing at all to stop open shooting, this years Blast will offer you more time to shoot then ever before. Bring the family to sunny Arizona for our 12th annual bash and join the fun!

As I look back on what has been almost a year since my election as your president, I am amazed by the hours of time it takes to help run this organization. Not just my time, but the entire Board of Directors, the countless volunteers for Do It and Winterblast , all come together with one goal in mind: the dedication to help make this one of the best pyro clubs in the world. Volunteering doesn't have to mean giving up your fun at WinterBlast either. Two hours of volunteering for safety duty helps us keep things running smoothly and places you on the front lines, smelling smoke with the rest of your friends. Remember this when you are asked to volunteer a few hours. You might be giving up two hours but the rest of us are giving up one hundred times that so that you can enjoy yourself. I'm happy to give of my time. All I ask in return is that you give a little of yours back to the club so that all of us can enjoy a good time.

Stay green and I'll see you in Lake Havasu City in February.

From the Communications Vice President

by Dimitri Timohovich

Welcome to the first newsletter of 2001 and the new millennium! I hope all our members had a great 2000 and wish all a happy and prosperous 2001. As you probably noticed, this issued is an oversized collector's edition and for a very good reason. Inside you will find extremely important information regarding our next Winterblast as well as great articles on manufacturing, and reflections from Do It By the River 2. You will also find advertisements from some of our vendors that are ready to take your orders for Winter Blast. Please support our vendors and remember to order as much as possible, remember we have longer open shooting hours this year and we don't want dark skies. The newsletter committee hopes that you enjoy this issue and learn from it. I also want to thank all the members who have gotten in touch with me over the last few months with comments regarding the previous newsletters. Member feedback is very important and dictates what material will be presented in future issues. Our goal is to provide a quality newsletter with information that is of interest to all members.

While we are on the subject of future issues, I want to thank the rest of the BOD as well as the membership for giving me the opportunity to serve the club. At the general meeting this Winter Blast, I will be asking for your votes to continue to be your Communications V.P. I hope all of you who have enjoyed the last two issues will support me.

Lastly, I would like to thank everyone who helped with putting this issue together. I want to thank the BOD, the Winter Blast chairs, and committee members for all their input. From the looks of things, this next Winterblast will be one to remember. Special thanks go out to Bob and Irene Allen, who were a key part in the production aspect of this newsletter. I would also like to thank Tom Claderwood, Chris Spurrell, Mike Workman, Keith Midura, Bill Withrow, Guy Lichtenwalter, and, Steve Majdali for their contributions. If there is anyone I missed, I apologize. You can slap me later. This newsletter would not have been possible without the efforts of all these people.

Thank you and enjoy

P.S. I look forward to having a great Winter Blast with you all.
Stop by Camp Timohovich and say "Hi".

From the Vice President

by Mike Workman

What a year! For those of you who rarely get a glimpse behind the scenes of the WPA, I want you to know that you would be fairly impressed. OK, we're not a Fortune 500 company for sure, but if you compare the workings of the club now to recent years past, well, there isn't a comparison. Kief and the team he has assembled work hard, are organized, and competent. Monthly conference calls, email updates, Web page and list maintenance, newsletters and budgets are all humming fairly well. I am not saying that we all (especially me) couldn't improve, but I must say that the club functions well now. For me, this is what I had hoped for when I originally ran for office. We've had our second non-Winterblast event (third if you count the un-official Pow-Wow we did a little over two years ago). We are planning what should be a great Winterblast. Our newsletter is coming out on time with some pretty good content, and I think that the officers are pretty responsive to the members. So, all in all, we are on the right track. Thanks to everyone who supports Kief and his team. Thanks for a great year!

A final note: I am working to get donations for a Cake-a-thon at Winterblast 2001. I need contacts in the industry to help me make sure we get some donations. So far, most manufacturers have not been very responsive. Any help, contacts, or ideas you could give me would be VERY appreciated.

Hope you all had a prosperous and happy year in 2000, and I wish you all the best in 2001.

From the Secretary

by Keath Nupuf

Attention all members if you have not received your membership renewal or winter blast registration please goto the wpa web site at http://wpa.pyro.org and download the PDF files. To join the wpa list send a email to list-admin@pyro.org with the body of your message as:

for the wpa list (every message as they come in)
subscribe wpa-list youremail@domain.com

for the wpa digest (once per day at approximately 5:30pm)
subscribe wpa-digest youremail@domain.com

To be removed from the wpa-list or digest :
unsubscribe wpa-list youremail@domain.com
unsubscribe wpa-digest youremail@domain.com

If you have any questions reguarding the above please send an e-mail to keath@pyro.org.

From the Treasurer

by Kathy Baird

Here is the current count of the WPA money. This does not reflect any of the winterblast or membership renewals that are being tabulated right now, but I'm working on that as fast as I can.

Everyone have safe and happy holidays and I'm looking forward to seeing *everyone* at Winterblast 2001:A Fireworks Odyssey.

Western Pyrotechnic Association

Income/Expense for September 1 to December 3, 2000

Income	
Donations	$3,107.50
Membership	$2,545.00
Advertising	$295.00
Do It	$ 8,490.00
Total income	$ 14,437.50
Expenses	
Convention Exp	-$89.64
Do It	$6,626.34
Equipment	$1,610.27
Telephone	$301.59
Office Supplies	$44.36
Legal Fees	$4,266.33
Corp.Filing Fees	$150.00
State tax refund	$10.17
Printing & Postage	$2,231.00
Total expenses	$15,130.08
Net income	-$692.58

WPA Advisory Committee Formed

At the request of President "I-demand-a-re-count!" Kief Adler and the Board of Directors, former WPA Prez Jim Acker has formed what will now be known as the WPA Advisory committee. The advisory committee will consist of former WPA officers and Winterblast Chairmen only. This group will be able to assist new officers when sticky situations arise. " No sense in re-inventing the wheel," says Adler. "The WPA has been through lawsuits, legal negotiations, earthquakes, fires, floods and puts on a convention each year attended by 1000 people or more. The wealth of knowledge that it takes to do all of this is astounding. The Advisory Committee will be a resource for current officers to draw from when we need to ask, 'how did we do this before?'"

Jim is asking that all past officers and Winterblast Chairmen contact him via e-mail. He will be putting together a list of our past officers. When something comes up with the current BOD that could use the assistance of past officers, they will contact Jim, and he will put them in touch with whomever might be able to provide the best assistance. On major issues, a telephone conference call between past presidents or past secretaries or treasurers could fill the bill. (no pun intended)

Past officers and Winterblast Chairmen are asked to contact Jim right away If you do it quickly, you could be invited to the first annual Advisory Committee lunch to take place at Winterblast 2001. Steve Wilson has agreed to foot the bill! Jim can be contacted via e-mail at Jimfire@JPS.net.

Position Announcement

The secretary position on the Board of Directors will be open at the general meeting this Winterblast. Any interested parties should prepare a brief statement of candidacy to be read at the meeting. If anyone has questions regarding this position, please contact Kief Adler for further information at: Kief@pyro.org.

Candidate's Statement...

by Beckie Timohovich.

I, Beckie Timohovich, being of somewhat sound mind and body (which I am sure will be up for debate by the end of this letter) would hereby officially like to run for the Board of Directors position of Secretary.

I believe that through the planning of Winter Blast this year I have demonstrated the organizational, documentation and planning skills, which I believe would be necessary in this position. I am a very dedicated person who would devote my time and energies to getting things done and making the WPA even better than before.

For those of you who don't know me stop by base camp at Winter Blast and say hello, if I am not there they should know where I am or can call me on the radio.

* * *

Minutes from Board of Directors Meeting - November 6, 2000

DATE: November 6, 2000
8:35p.m. – 9:33p.m.
PLACE: N/A (Conference Telephone Meeting)
ATTENDED: Kief Adler (President)
Keath Nupuf (Secretary)
Kathy Baird (Treasurer)
Dimitri Timohovich (Communication VP)

Meeting

8:35 Call to order
Kief motions: To set up a Board of Advisors. Membership in said board will be open to former BOD, life members, and charter members only for the purposes of advising the current BOD when requested.
Kathy seconds
8:50 Votes: All
Kief motions: To appoint Bill Daly to chair BOA
Kathy seconds
8:51 Votes: all
8:53 Do It wrap up:
Kudos to Keath and Miki for taking photos and putting them up on the website
Kudos to our food vendors, Michael and Ann Hill, and recommendation to refund their registration costs as they lost money on the deal
8:55 Winter Blast contract from Lake Havasu
9:09 Kief motions: To approve Winter Blast Contract from Lake Havasu pending approval from WPA lawyers.
Dimitri seconds
Votes: all
WWB public display
Keath motions: To have public display late Saturday night.
Dimitri seconds
Votes: All
9:13 Discussed and decided not to send membership & WWB reg. letter to former members
(280 of them)
9:22 Discussion regarding the WPA clothing line as proposed by Pyro Novelties
WPA will pay $120 for artwork and $100 setup fee.
WPA will make 15% for retail, 10% for members sales.
Cost of items will be discounted to members
Jackets to be made by Official Ware Lmtd, shirts/hats/mugs by Pyro Novelties
Kief motions: For Pyro Novelties to make WPA clothing line and authorize payment for artwork
Kathy seconds
Votes: 3 in favor, 1 opposed… motion passes

9:27 Kief motions: To purchase a new container for the club's storage needs at Sara Park. Cost will be approx. $1100
Dimitri seconds
Votes: All
9:29 Volunteer Encouragement Policy for WWB
Discussion tabled for next BOD meeting due to time constraints
9:31 Class B sales at WWB – discussed
Winter Blast is too large of an event – Tabled for further research
9:33 Kief motions to adjourn
Dimitri seconds
Votes: All

Minutes from Board of Directors Meeting - December 4, 2000

DATE: December 4, 2000
8:39p.m. – 9:28p.m.
PLACE: N/A (Conference Telephone Meeting)
ATTENDED: Kief Adler (President)
Mike Workman (Vice President)
Keath Nupuf (Secretary)
Kathy Baird (Treasurer)
Dimitri Timohovich (Communication VP)
Kurt Medlin (Winter Blast 2001 Chairman)
Beckie Timohovich (Winter Blast 2001 Co-Chairman)

Meeting

8:39 Meeting called to order
In attendance Kief, Keath, Kathy, Dimitri
Guests – Kurt & Beckie
8:40 Kief motions to approve WWB XII artwork
Seconded by Dimitri
Votes: All in favor
8:42 Class B sales, using the club's permit as at Do It decided against by the Board
8:45 Discussion on Winter Blast issues with Kurt & Beckie
8:46 WinterBlast budget items discussion
8:51 Workman Joins meeting
9:06 Kief motions to approve preliminary Winterblast budget
Seconded by Kathy
Votes: All in favor
9:10 Kief motions to amend Winter Blast compensation policies as recommended by WWB committee chairs
Seconded by Kathy
Votes: All in favor
9:11 Beckie outlines volunteer encouragement policy for the Blast
Board discussed and liked idea

9:11 Beckie outlines volunteer encouragement policy for the Blast
Board discussed and liked idea
9:13 Attempt to get donations from companies for Cake-a-thon
Mike Workman volunteers to get donations
9:28 Adjourn meeting

Amendment by email

Kief motioned for Board of Advisors (BOA) to be limited only to former Board of Directors; Initial chairman to be Jim Acker.
Seconded by Keath
Votes: All in favor



LEAVING DO IT

Do It Again and Again *by Kief Adler*

If you missed Do It number 2, you will not want to miss number 3! What can I say to sum it all up except, boy, is my fusee tired! The amount of B product that went up at Do It was amazing and I am happy to "report" that the most popular items at Do It were Gary's 3" and 4" salutes! The new policy of allowing B sales under the clubs' permits went off without a hitch. In fact, thanks to Larry Hughes, many first timers learned how to safely light shells. Next time we might forget about the shell in the wrong size mortar example, though, Larry!

Thanks to our safety chairs, Don and Russ for a perfect job, thanks to Jill and Paul for one well organized registration booth, thanks to Dimitri and Beckie for being everywhere all of the time. Thanks to Kurt for organizing some terrific seminars and to the instructors for taking the time to teach. Additional thanks go out to Steve Humphries for handling all things electric and to Bill Daly, our communications guru, for dealing with the radios again. A special thank you to Danielle Humphries for being the most enthusiastic pyro on the B rocket line.

Special thanks are in order for our vendors, Firefox and Flash Fireworks as they drive a long way to support us and, without them, there would be no event.

Here's to new member Michael Hill who, along with his fiancée Ann, came through when we needed them and put together some tasty food and snacks to keep us from starving at Do It. They worked their tails off and did a fantastic job.

Thanks to my new, and balder, friend Joe for the greatest quote of Do It: "Man, I love this club!!!" Thanks to Keath and Miki for coming out, taking pictures and posting them on the website. Thanks to Mike Workman for spending a crap load of money on shells, and then letting others light them.

Thanks to all those who volunteered, especially the clean up crew who braved the wind and the set up crew who braved the sun (and the rain in Havasu)! Bless the donators of product to Armageddon II and to Paul and Greg who put on one hell of show (and thanks to my wife who usually stays home and doesn't fully know the pyro that I've helped to create…).

Thanks, as well, to Bill Daly's proximate pyro demos as well as his jumping jack extravaganzas. Thanks to Lance and Louise Griffin for some great mines, fortunately fired in the correct area. Many thanks to new member Scott Brister for also spending a bunch of money and letting all of us enjoy watching the fruits of his labors…

Thanks to the AVI for being so incredibly dumb in wanting too much money for an Afterglow setup that they gave us permission to do our own at the Do It site. Thanks to Greg Boyd for finding us a liquor store within 5 minutes of Do It that sold us the kegs. Having everything in one place, and minutes from the hotel, is the joy that makes Do It such a terrific site.

Thanks to all those who helped and are not mentioned here and thanks, most of all, to all who came because without your support of the event, there would be no event. I came, I saw, I taught, I learned a few things and I got to blow stuff up.

What more could one ask for?

What Does Do It Have That WWB Doesn't? *by Tom Calderwood*

1) If you have been following the WPA mailing list, you will undoubtedly have seen references to 'large ground salutes'. Want to know what 100g of flash will do to a watermelon? Pumpkin? A roll of kraft paper? No problem at Do It. The ground is very much like sand at a beach, while the soil at SARA park is full of rocks. Try a ground salute at WWB and you have unplanned flying shrapnel and some very peeved bystanders on your hands.

2) $20 hotel rooms with a 99¢ breakfast. You can actually plan on having 3 decent meals a day! ($20 was only for Wednesday and Thursday nights, but that still beats anything Havasu has offered!)

3) Hotel rooms about 5 minutes away. Major plus. Build all day, get all dirty, go back for a quick clean-em-up (and maybe a nap for the older of us) and back to shoot away.

4) Food on site. To see how well a group can work, you need to see how people pitch in to help, while sacrificing their own free/fun time. Michael Hill is a new member, and pitched in to have food service on site. He, and his fiancé Ann, got some barbeques together and had folks packed with dogs, burgers, and brats all night long. Michael only got to go out and shoot for a few minutes and had to man to booth the rest of the time. This would have been darn close to impossible at WWB.

5) Armageddon II. Greg Adler put on a fantastic display using primarily Class C product, and wove it into a class as well. At WWB you get to see these put on, but at Do It you can put it together.

6) Class B shells. This was a big thing. We were able to purchase and shoot Class B shells under the club's license. The logistics are waaaaay to difficult to handle at WWB. You can make shells at both venues, but we were able to launch many more at Do It. Imagine: "Hey Tom. Whaddaya wanna do now?" "I dunno. It's what – 8 o'clock? I think I'll go over and put a couple of 6's into the air, just for S-N-G.*"

7) Crowds. Rather, the lack thereof. This is a double edged sword – the more people hear that the crowds are small, the more they'll come to Do It. It was just easier to get stuff shot off with fewer people around. At WWB last year, there was a huge backup on the rocket and B-shell line. This year's WWB promises to address these concerns. On the flip side, there was no complaint at Do It. You got to shoot when you wanted to shoot, and as often as you wanted to shoot.

8) Day-time tests. On the rocket line, it is sometimes frustrating to be working on a propellant, only to realize after you have closed down

construction that your formula isn't up to spec or needs some tweaking. At Do It, we were able to make up a test batch, load up a rocket and test it out. For me, this is a BIG plus. The results bear this out – we had relatively few catos. (Also did an interesting test at the rocket seminar. Laid out a 20" line of BP comp and a 20" line of copper oxychloride comp on the ground. The BP burned slower than expected. The whistle comp went "CRACK" – uncontained. Scary stuff.)

9) Attitude. The folks at Do It seem more laid back to me. There is still a high concern for safety, folks wanting to learn, and folks are willing to talk, but it's all done without a sense of rushing around. Even with a 10 p.m. curfew, everybody seemed to get their ya-ya's off without having to rush around. Especially on the rocket line. That alone was worth the price of admission. Although it *was* getting a little tedious to keep hearing on the radios "Hey, Dimitri. Can you pull somebody else out of the sand?"**

10) Afterglow – on site! You shoot all night, close down the line at 10, lock up all the bunkers, and then break out the afterglow. Beer, stories, shrimp (on one night!), and smoke on the river. It just don't get much better than this.

If you can make it to Do It, then go. I would not hesitate for a moment to recommend to a member to check it out. If there was a down side to Do It, it was some long moments of dark sky. Next year we need some help to fill it up. So – how 'bout it?

*S-N-G – Smiles and Grins. Non-military definition.
**The sand by the river is rather, uh, soft. If you left the road bed, even by one foot, you would sink your wheels up to the axel. Dimitri was the one with the big 4X4 and a long enough tow rope to help folks out. (Although that tow rope sure got small after breaking apart 5 or 6 times.)

Free hint: Chris Spurrell gave me a hint that can really pay off if you shoot BP rockets. There are a lot of formulas that call for 10% sulfur and 10% air float charcoal. Try this out: Ball mill the sulfur, then screen it one-to-one with air float. They are both fuels, no oxidizers are involved, and are both safe around each other. The air float will keep your sulfur from clumping(!!!), and this will help to speed up your mixing process. Make sure you clearly mark your container (I use a large freezer bag) of the contents (C:S 1:1). And yeah, it works for other percentages as well.

Budget - Do It 2
Oct 19-21, 2000

Revenue:	projected quantity	actual quantity	Projected $	Actual $
Vendor Tables	6	12	$150	$0
Member Registrations	150	141	6000	5640
Spouse/Child Fees	25	84	500	1680
Spouse Seminar Fees	20	7	200	140
Extra T-shirts	50	40	750	640
Misc. (safety glasses)	10	0	20	0
Total Revenue:			$7,620	$8,100
Expenses:				
Flyers and Programs	1	1	$80.00	$112.00
Wrist Bands	500	500	100	100
Tent Rentals	1		provided	
Port-a-potties	4	4	192.5	192.5
Radio Rental	15	15	250	262.5
First Aid	1	0	100	0
Signs	3	0	200	0
Insurance	1	1	25	25
Site Set-up Supplies	1	1	100	91.75
Water (bottled)	20 cases	12	200	60.9
Postage	150	141	30	118.53
Security (staff)	32 hrs.	63	480	878.85
Transportation	1	0	100	0
Seminar materials	1	1	550	260
T-Shirts	215	177	1800	1793.64
Badges and Holders	200	200	275	320.63
Contingency and Misc.	1	1	250	0
Magazine Rentals	3	3	200	233.19
Afterglows	0	3	0	260.6
Fire Brigade	3 days	3 days	1400	1191
Generator Rental	1	0	125	0
Registration Supplies	1	0	50	0
Registration Refunds	10	2	400	100
Staff Thank You Gifts	0	12	0	240
Total Expenses:			$6,907.50	$6,241.09
Net Profit:			$832.10	$1,858.91

F I R E W O R K S!!

Joy To The World

"I often use the word, 'JOY' when describing fireworks. It is a considered word, deliberate in choice. Not just amusement, entertainment,or astonishment, but—

J O Y!!

Our ART makes us all into children again for a while. We become one in our experience for the moment: lost in the sound and color and light.

We see large forces, stronger than we could ever be, yet beautiful in their effects. Sometimes violent, sometimes restrained; Delicate beyond imagination at times, but coarse and rude at others.

Deadly force, dangerous, dirty stuff, crafted with sweat; controlled by the artist, and bringing joy to many.

Bringing J O Y!

To me the art encompasses all of life. Pain and work, plan and mistakes, joy and tragedy.

For all the pain, injury and failure we suffer, our efforts bring the joy---the magic, to thousands---Not a bad return.

Though very few ever recognize the effort, nearly all remember the result and for a few moments, all have the—

J O Y!

The world is better for an instant. What more could we want?

Bill Withrow
15 September 1992

Winter Blast 2001

A Fireworks Odyssey

February 15-18, 2001

TIME IS RUNNING OUT . . . .

All hotel reservations must be booked through the Lake Havasu Tourism Bureau to receive discount rates.

Reservation deatline extended to:

January 22, 2001

Western Winter Blast 2001 Crew

The WPA would like to officially name and recognize the Western Winter Blast 2001 Crew. These are the people who have spent the better part of this past year planning and coordinating the events and activities for this coming Winter Blast.

Most of the paperwork and general planning started back in March of 2000 with the Chairman Kurt Medlin, Co-Chairman Beckie Timohovich and President Kief Adler. The first few months were spent with once a month meetings between the Kurt and Beckie. Along the way they have asked the people listed below to join them in the ongoing task of planning our annual event. Through hard work, dedication, and meticulous planning this group has strived to make this year's event the best that it has ever been.

Please take the time to stop any one you see with a WWB Crew shirt on, or stop by base camp by the front gates and tell them how you think the convention is going. After eleven months of planning they really want to know what worked and what you think could be better. Only if you voice your opinion can it be heard.

WWB Chair: Kurt Medlin **WWB Co-Chair:** Beckie Timohovich
Security Chair: Jon Cooper
Security Crew: Dean Oesterle, Scott Boydstun, Mark Solvera
Safety Chair: Dimitri Timohovich
Safety Crew: Tom Keech, Bob Allen, Russ Laurie
Site Foreman: Greg Boyd
Lighting and Electrical Chair: Matt Riley, Steve Humphries, Danielle Humphries
Vendor Chair: Richard Cole **Vendor Co-Chair:** Don Oesterle
Registration Chair: Kathy Baird **Registration Co-Chair:** Jill Salverson
Work Crew Chair: Cathie Barber **Work Crew Co-Chair:** Brian Erfurth
First Aid Chair: Randy Pritchard
Public Display Chair: Ron Dixon
Corporate Solicitor: Larry Mattingly
Cake-a-thon solicitor: Mike Workman
Registration Booklet Design/Layout: Irene Allen
Seminar Chair: Steve Wilson **Seminar Co-Chair:** Bob Winokur
Communications Chair: Bill Daly
Sound system: Blue Water Sound
Man of many hats, including, Compliance Chair, Hotel/Shooting Site Liaison, Public Relations Chair, and all around good guy: Kief Adler

Winter Blast 2001 – A Fireworks Odyssey

ne months in the planning, "Winter Blast 2001 – A Fireworks Odyssey" is now s than a month away. In case you haven't heard, the Western Pyrotechnic ssociation's most celebrated event is happening February 15-18 in Lake Havasu, izona. Here are the particulars:

egistration forms are available on the WPA Web site (http://www.wpa.pyro.org). o until January 31st, the registration fee for members is $110 with spouse and ildren being $20 each. On site registration will be $140 with spouse and children maining $20 each. On site meals can be preordered when you register for $8 per eal per night. You can also buy them on site during the Blast for a dollar more, but s best to preorder to make sure you don't miss out on a tasty and convenient meal. e've lined up a new food vendor this year – Havasu's biggest caterer of this type, d just to make sure it's up to a hungry pyro's expectations. Our own Kief Adler, PA president and known hungry pyro has personally inspected the vendor's menu d portable kitchens and deemed them adequate!

egistration will be open at Sara Park with longer and later hours than ever before:

ursday: 9:00 a.m. – 10:00 p.m.
iday and Saturday: 8:30 am – 10:00 p.m.
nday: 1:00 p.m. – 3:00 p.m.

ne host hotel is the newly remodeled Ramada Inn, which has much more nvenient access to I-95, making the trip to and from the shooting site (Sara Park) icker and more convenient. By the time you read this, the Ramada will probably full, but you may want to call and check at (520) 855-1111.

ther hotels in the area include:

est Western Lake Place Inn (520) 855-2146
ays Inn (520) 855-4157
avasu Travelodge (520) 680-9202
land Inn (520) 680-0606
autical Inn Resort (520) 855-2141

r the 12th year in a row, Richard Cole is promising to deliver the biggest Flea arket ever, and to accommodate the expected number of vendors it will be located the London Bridge Resort Convention Center. This gives us twice the space we sually have and the London Bridge Resort Convention Center is located just a few inutes away from the Ramada Inn.

a break from WPA tradition, this year's Public Display will be held at 9:00 on

Saturday at Spectator Point. There will be special 'up-close' seating for WPA members on the Point and afterwards an afterglow that will be early enough for everyone to attend. Why the Switch? Since moving the public display to Spectator Point a few years ago, there have been problems getting back to Sara Park with enough time and safeties to make it practical to reopen shooting. Since many of us really enjoy the jubilant atmosphere of the final hours of open shooting on Sunday night, we thought, "Why not avoid the frustration and hassle of going back and forth between Sara Park and downtown Havasu and just have the display on Saturday followed by an afterglow?" This way, we get to end the convention with an all night pyro party at Sara Park on Sunday night enjoying the main activities for which most of us attend the Blast – watching, talking, and shooting fireworks! But don't worry, we didn't give up a full night of open shooting on Saturday - there will still be three hours of open shooting at Sara Park before the public display, from 5:00 to 8:00. Other nights of open shooting include Thursday from 5:00-11:00, and Friday and Sunday nights from 5:00 to midnight.

Speaking of the Public Display, this year's display is being put on by Pyro Spectaculars. Public Display Chairman and chief choreographer Ron Dixon tells us that Jim Souza (president of Pyro Spectatulars) personally told him that he wants this show to, "make a statement!" And make a statement it will – preliminary reports tell of no less than one hundred eight-inch shells in the show – that's right – 100, with a number of larger ones as well! As many of you know, Ron Dixon is considered one of the best choreographers in the business, and Sam Bruggama, a veteran choreographer himself, is assisting him in this 'statement-making show'. This is not one to be missed!

Our Seminar Chairman Steve Wilson has been lining up three days of interesting seminars to start on Friday. There is something for everyone, from the beginner to the advanced pyro, with subjects covering the art, science and technique of fireworks. Also being offered this year is the official PGI Shooter's Certification course.

Rather than go into any more detail, I'll just encourage everyone to look elsewhere in this newsletter for Winter Blast related stories that explain everything from the new safety policy to the volunteer encouragement program. As Winter Blast chairman, I would like specifically recommend reading and taking to heart the article on this year's work crew approach of filling as many shifts as possible before the convention. It really helps make the Blast run smoother to have people already committed and ready to show up for there shift before hand, and it gives you more of an opportunity to pick the day and time you prefer. So if you are at all able, please sign up for a volunteer work crew shift before the Blast.

With that said, let me close by saying that the officers and organizers of Winter Blast 2001 are looking forward to one of the best conventions yet. So if you haven't already, send in your registration today and get ready for four full days of total immersion in fireworks!"

RV, Trailer Owners, and Campers

Looking for hook-ups for your RV or a place to camp over Winter Blast weekend? Try the following:

⇒ Islander RV Resort
(520) 680-2000
$30, 500 sites, pool, etc.

⇒ Crazy Horse RV Resort & Campground
(520) 855-4033
$24, 326 sites

⇒ Havasu Falls RV Park
(877) 843-3255
$25, 129 sites, pool

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VOLUNTEER ENCOURAGEMENT

We are trying some new things at Winter Blast this year. One of which is a rewards policy for the members who take that extra step to help out the Winter Blast staff members.

Each time you volunteer for a safety shift, to help clean-up, set-up, be a runner, or just help out you will receive a ticket. Write your name and home phone on one side of it and after you have completed the volunteer duties that you had signed up for you will find the person responsible for that area, (i.e. if you are a safety you will find a full time safety staff member that was roving your area) and get them to initial your ticket. On your way out of the gates of Sara Park that night drop your tickets into the box at the front gate.

On Sunday evening at the afterglow all the tickets will be counted. The top five people who have the most tickets will receive their choice of five gifts. The remaining tickets will be placed into the box and five additional tickets will be drawn at random. These people will have a choice of 5 other gifts.

This is just a little hint of the appreciation we would like to show to the members who help out with so much of their time and energy.

Thank you for all your help and hard work,
without you Winter Blast could not happen…

Beckie Timohovich, Winter Blast Co-Chair

DEMOS AND EXHIBITONS

Anyone interested in doing a demo or exhibition at Winterblast needs to contact our Convention Chair, Kurt Medlin at:

Kcmedlin@aol.com

MANUFACTURING AT THE BLAST

Attention all you pyros who plan on building rockets, shells, or other devices at Winter Blast. This year's committee has sectioned off a special area at Sara Park just for you. This special manufacturing area will be open to all members who are interested in building devices at the Blast. We want to thank Guy Lichtenwalter for volunteering his time to be "den mother" for the area. Please be aware, the WPA is only supplying the space for manufacturing. Members will need to supply all the necessary materials for their projects.

With this new manufacturing space, we will be issuing special parking permits. We realize that some manufacturing processes require equipment that is just not possible to carry by hand. It is for these people that we are going to issue these parking permits. The cost will be $20.00 and only 10 permits will be issued. So what does this permit entitle the bearer to do? It allows the bearer open vehicle access into the manufacturing area and class B magazine at Sara Park during the times it is open. This permit will not allow you to drive all around Sara Park. You will be allowed to drive your vehicle from the gate to the manufacturing area, or the class B magazine and back out. The up side is that it is an unlimited pass; come in, build, leave, take a nap, come back and build some more. And now for the bad news, if you are caught joy riding around Sara Park or if your vehicle is parked somewhere other than the designated area, YOU WILL BE TOWED at your expense. So there you have all the good, the bad and the in-between.

By now you're thinking, just how are we going to issue permits? Well, we will be holding a raffle. To enter the raffle, interested members must send their name, address, telephone, and member number to: P.O. Box 362 Verdugo City Ca. 91046. All entries must be post marked by January 31st and received no later than February 6th. The drawing will be held February 7th; our president will draw the names and the winners will be notified that evening. Please remember that we are holding this raffle for members who will be manufacturing devices at the Blast, these permits are not intended for individuals who just want to park inside the gate, members trying to do so will also have their vehicles towed.

Members who are chosen in the raffle can pick up their permits at the registration desk at Winter Blast. You will need to bring your ID, membership card, vehicle license plate number, and remittance in order to receive your permit. Your name, membership number, and vehicle license plate number will be written on the permit and will only be good for the member and vehicle it is issued to.

So what about the members that want to bring in tooling, but did not receive a permit. My suggestion is to make friends with someone that does and if you are real nice, they might bring your stuff in and out for you. Another thing to remember, since the manufacturing area is close to the B shooting areas, all chemicals must be properly stored and all vehicles must be outside the gate before open shooting can start. A half hour warning will be given each day so that you can clean up and be ready to shoot by 5 pm. If there are any other questions, feel free to email me at rvtemt@yahoo.com.

With all that said, Good luck and see you at the Blast!

P.S. Please remember that these permits are intended for members who are planning to build a substantial amount of devices and will need more equipment that can be carried in by hand or hand truck. If you plan on building a small amount of devices please bring the equipment you need into Sara Park by hand or hand truck.

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VOLUNTEERING IS FUN ! *by Cathie Barber-Work Crew Chair*

With the holidays over we can all start to eagerly look forward to WINTER BLAST. Go ahead scream 'WINTER BLAST' at the top of your lungs and do the happy dance. So what if your neighbors think you're nuts, we know you are, because we are your fellow pyros and we're dancing for joy too.

As in any great endeavor there is a group that is the backbone, but we need help building the whole skeleton that will hold this event together and make it work. That is where YOU come in, our volunteer staff. Thousands of hours over the past ten months have already gone into the planning and preparation of this incredible event, in hopes that this years WINTER BLAST will be the best one yet. To ensure that it happens we need as many people as possible to donate some of their time to help out. No groaning allowed, remember this is a volunteer organization and needs to remain such to help keep down expenses that would be passed on to you the member. Take it from me VOLUNTEERING at WINTER BLAST is FUN. It will give you a chance to meet lots of new people. There are plenty of ways to help out. Safeties are always needed at the firing lines; help with ID checks at the gate; gophers...Oops, runners that is, for equipment and such.

As an added incentive this year we have devised a plan to have prizes awarded to the top 5 people who turn in the most volunteer hours. In addition to that there will be a random drawing for five more people who have put in time helping us out.

So don't procrastinate, join the fun. Sign up early to ensure you can do all the hours you want, at the times and locations that will give you the most fun. Volunteer and be part of the Elite WINTER BLAST Volunteer Group.

If you have any questions or comments contact me at
kajitchen3@aol.com.

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[ATF license required on all Class B (1.3G) orders]

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Off Season Office: (ph) 316 788 5801; 316 788 5869 (FAX)
Warehouse: (ph) 785 734 2464; 785 734 2299 (FAX)
Email: flashfw@yahoo.com or flashfw@aol.com

Winter Blast 2001 "Gate" Policy

It has always struck me as a great irony that we hold the Winter Blast in Arizona because, in part, it is easier to deal with their legislative requirements for holding a fireworks convention than it is California's - despite Arizona's total ban on selling any type of fireworks to the public. Yes, Arizona is a "dry" state – if memory serves, they don't even allow 'Safe and Sane' as a local option. And yet, to my knowledge, we have never had a problem getting the officials having jurisdiction to grant us the proper permits needed to sell and shoot class C/G1.4 fireworks for the few days we hold the Winter Blast. I believe the main reason the authorities are comfortable with our activities is because the WPA has always been careful to live up to its responsibilities and take steps to not allow fireworks to leave the Winter Blast without the proper paperwork. These steps have always included both a policy stating what is not allowed past the gates of Sara Park, and a person at the gate reminding people (should they inadvertently 'forget' and start walking out with a bag of live product, sans the proper permits, etc.).

While having a 'gate policy' has not always been a popular practice, it has served us well in terms of keeping the WPA in good standing with both the authorities and the community in general. In the interest of avoiding any misunderstandings regarding exactly what will and won't be allowed out of Sara Park (and hopefully avoiding disappointment on anyone's part), this article will present the "gate policy" with regard to what is sold in the class C vending tent at Sara Park.

Before I continue, I should make it clear that it is not the WPA's intent to stop anyone from legally purchasing live product on site and legally transporting it off site. The key word here is, "legally" and anyone in possession of the proper permits, licenses, and transportation papers appropriate for the material in question, will be allowed to leave with their live product.

To get right down to it, the items allowed out of Sara Park without any paperwork are:

- Black powder in the manufacturer's 1lb. cans labeled for retail sale
- Visco fuse (all diameters)
- Time fuse
- StickyMatch
- Electric matches
- All non-mixed chemicals
- Pyrotechnic comps/mixtures available via mail order without a permit or sold over the counter for consumer use in Arizona.
- All inert materials (i.e., paper and plastic products; all printed materials, etc.)

The items not allowed through the gate without proper paperwork are:

- Any class C/1.4G or class B/1.3G firework items. This includes live antique fireworks sold as collectibles.
- Bulk packaged black powder
- Quick match
- Stars and live pyrotechnic inserts (whistles, serpents, small insert shells, lance etc.)
- Pyrotechnic comps/mixtures not available via mail order without a permit or sold over the counter for consumer use in Arizona.

The basic reasoning used behind the above list is this: Any pyrotechnic thing that normally requires paperwork to purchase and transport outside of Winter Blast, will also require the same paperwork to leave Winter Blast.

One of the above items likely to raise eyebrows and cause disappointment is the inclusion of live antique fireworks sold as collectibles. While this may seem a bit harsh when it comes down to a 60 year old pack of 16 ladyfingers, as long as the local, state and federal authorities make no legal and enforcement distinction between these items and other class B and C items, we cannot make the distinction either.

Like wise, the inclusion of quick match may seem a bit harsh, especially considering Sticky Match is allowed. The distinction basically comes down to whether an item is 1.4g ('Class C' fireworks, quick match, shell inserts, etc.) or 1.4s (visco, time fuse, electric matches, Sticky Match).

Rest assured that the Winter Blast organizers and the WPA Board of Directors are aware that this policy will not prove popular with a number of members and even some vendors. But given the legal problems and associated expenses the WPA has experienced these last few years, we can't responsibly conduct Winter Blasts with policies that aren't grounded in legal compliance. Our past legal problems may not have been associated with what was officially allowed through the gate, but no good purpose would be served by adopting an official-in-writing gate policy containing exceptions allowing the above 1.3g and 1.4g items to leave without the same licenses and permits they require for purchase outside the Winter Blast.

In the interest of full disclosure, here are the general sales policies that each vendor is required to follow in order to vend at Winter Blast:

Vendor Sales restrictions

- Only those who have previously registered with the Vendor Chairman will be allowed to conduct sales.
- Sales will only be made to the appropriate designated attendees.
- Sales will only be made to those who are 18 years of age or who are

otherwise accompanied by an appropriate attendee and they must have a proper convention badge.

- A sale, gift or other means of distribution will not be made to anyone who appears to be under the influence of alcohol or drugs, or who is acting in an irresponsible manner.
- Only class 'C' items will be offered for sale. The Vendor Chairman must clear any questionable items.
- All vendors are obligated to challenge anyone suspected of not meeting the above eligibility requirements.
- Sales will only be conducted in buildings or sales areas designated for this purpose.
- Vendors and/or the Vendor Chairman will have full authority to require anyone causing a safety hazard to leave the area.
- Flea Market Sales will be divided into two categories, those materials of a hazardous nature and those of a non-hazardous nature. The vendor Chairman is responsible for making specific decisions regarding whether a material is considered hazardous or non-hazardous.
    - Items of a hazardous nature such as fireworks, stars, and flammable components will be sold in the class C sales area.
    - Items of a non-hazardous nature such as some chemicals, casings, tools, and literature, may be sold anywhere designated by the vendor chairman.
- All hazardous materials must be in closed containers. Sealed plastic bags are permitted for non-deflagrating materials only.

It has been a longstanding practice at Winter Blasts for vendors to allow members to store their unfired live class C product over night in the vending tent after open shooting ends. The member's bag(s) of product are clearly labeled and the member simply returns the following night, picks up their product, and continues having fun in open shooting. Since it is not class B material, it is not required to be in the magazine making this system much more convenient for the members since, unlike the magazine, the class C vending tend is on the way to the class C firing sites. Anyone purchasing class B material (with the proper paperwork of course) would need to place those purchases in the class B magazine for storage.

It is the hope of the Winter Blast organizers and WPA Board of Directors that presenting these guidelines now will prevent anyone from coming to Winter Blast and going away disappointed.

If you have specific questions regarding what type of paperwork is required to leave with what type of items, you can contact Winter Blast Safety Chairman Dimitri Timohovich at (818) 662-9721 or e-mail him at rvtemt@yahoo.com.

BLACK POWDER SPECIAL ! ! ! !

If you plan on being at the 2001 Western Winter Blast, plan ahead and GUARANTEE your order of black powder TODAY! Think about it... you're going to be at the show and you'll have your truck there already placarded. Why not pickup some black powder and save on the freight charges!

Elephant Black Powder is planning on participating in the 2001 Western Winter Blast and we would like to know what type of black powders to bring. We currently have in stock:

2Fa, 3Fa glazed, 4Fa and 4Fa glazed, 5Fa glazed, 7Fa and 7Fa glazed

Packaged 2 x 25 pound bags per case. Price: $3.50 per pound (glazed or unglazed).

All orders must be received prior to January 26th, 2001.

All buyers must be BATF Licensed and all orders must be accompanied with a signed copy of their BATF license, Statement of intended use and a list of authorized buyers.
(But you knew that already!)

Orders will be delivered at the 2001 Western Winter Blast, payment to be made at that time unless other arrangements are made prior to delivery. Send orders to:

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Arlington, Texas 76001
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email: petro@fastlane.net

Mark Your Calendar: Winter Blast Feb 15-18



SAFETY GUIDELINES FOR WWB 2001

The following outline is the safety guidelines for our next Winter Blast. Please review them carefully before attending the Blast. If you have any questions regarding any of the information, please e-mail me at rvtemt@yahoo.com. I will be happy to answer any questions. I know that some of you will not like the changes being implemented, but please understand; we have the entire club member's best interests in mind. As the club expands and more and more people come out to the event, there is a higher chance that problems can occur. Most organizations implement new policies after things have gone wrong, we are trying to learn from others' mistakes and have rules in place before things go wrong. Your cooperation in complying with these changes will be greatly appreciated. We want everyone to have a safe and happy Winter Blast experience.

1.0 General Shooting Guidelines.

For the safety of the club, both physically to its members and legally, we should adopt and follow all NFPA regulations.

1.1 Safety Classes.

Safety classes will be taught for both adults and youth. These classes will be mandatory in order to obtain the privilege of purchasing and shooting of class B or C product.

1.2 Wrist Band Code.

The colors for the wristbands will be decided upon availability and a chart will be posted in the vending areas.

1.2.1 Color 1

Color 1 wristbands will be given to each member as they complete the registration process.

1.2.2 Color 2

Color2 wristbands will be given to each member in place of the Color 1 wristband after they have successfully gone threw a safety seminar. This allows them to purchase product, and grants them access to the firing site.

1.2.3 Color 3

Color 3 wristband will be given to all underage (Under the age of 17) attendees of Winter Blast.

1.2.4 Issuing of an upgrading wristband.

A wristband upgrade can only be preformed by a member of the full time safety staff, or immediately following a safety seminar by the instructor. Once the class has ended and everyone who attended the class has their wristband the remaining wristbands will be immediately returned to a full time safety staff member for proper storage.

1.2.5 Removal of the wristbands.

If you remove your wristband for any reason and wish to enter the Winter Blast convention area you will not be permitted unless you return to registration, return the cut wristband, pay a $2.50 fee and receive a new wristband. You will not be allowed to purchase more than one at a time.

1.2.6 Cutting of the wristband.

If for any reason a full time safety staff member or any other member of the full time Winter Blast crew deems you an unsafe, for yourself or others, they will cut your wristband off. This will remove you from the firing lines and you will not be allowed to return until after you have had one reissued.

1.2.7 Reissuing of the wristband.

In order to have your wristband reinstated if it has been removed by a full time Winter Blast staff member you will need to meet with the Safety Chairman, Security Chairman and the individual who removed the wristband to plead your case. This meeting will be held at the convenience of the Safety, Security and individual who removed the wristband, and may not necessarily be immediately following the situation.

1.3 Class C Shooting.

All Class C shooting will be done on the Class C lines as marked. There will be safety volunteers at each firing site to observe and assist when necessary, in addition to this there will be a full time safety staff person floating around this area if there are any problems.

If anyone under the age of 18 is at the firing line it is mandatory that they have an adult companion with them to guide them. If a child is found without such companionship they will be sent back to the general area and instructed to return only when they have an adult with them. No exceptions will be made. Class C is not a babysitting station.

1.4 Class B Shooting.

Each time you visit the Class B shooting area you must demonstrate your ability to fire class B product safely.

There will be volunteers at each firing site who have some knowledge of Class B safety and will instruct and assist you if you are not sure, we will also have one full time safety staff floating around the Class B shooting area if there are any problems.

1.5 Baby B and Experimental Shooting.

This area will be set aside for the firing of Baby B cakes, Mines, comets, and experimental product.

1.6 B Rockets.

The B Rockets group prefers to and we don't see a problem with, them policing themselves. The firing site for B Rockets will be an acceptable distance from the firing of B shells as to keep the concerns of shells and rockets pre-igniting one another.

1.7 Shooting gear requirements.

All people at the shooting lines will be required to have the following gear on when at the firing ranges. Long Sleeved shirt, Long pants, closed toed shoes, safety glasses.

For the B shooting range there will be an additional requirement of Hardhat and gloves.

All of the clothing should be of a natural fiber to prevent injuries of the clothing melting into the skin in the result of a burn.

If you do not have the proper type of clothing or gear you will be asked to leave the firing lines and return only when you do.

1.8 Ready Boxes.

There will be a ready box placed at each of the firing sites. This is to be used for the product that is intended to be shot off in the immediate future.

If there is not enough room in the ready box for all of the product then some of it will have to be returned to the bunker until room is made.

If product is left in the ready box past the close of the shooting hours it will be returned to the bunker unmarked and fired off by whomever claims it.

1.9 Unfired Product.

Any product left unfired by the Monday following Winter Blast will be taken care of in the following manner. Any product that is safe to fire will be fired off.

The Safety and Security Chairman will dispose of all other product safely.

2.0 Access to Sara Park.

2.1 General access.

Parking is outside of the park and the main access gates will be open. You will need both your name badge and wristband in order to enter the inner gates to Sara Park.

2.2 Underage attendees.

All Winter Blast attendees that are under the age of 18 shall be in the company of an adult. They will not be permitted into the class B firing lines, and will not be allowed to purchase any product.

2.3 Access to the firing line and purchase of product.

Access to the firing lines will only be permitted to those who have attended a safety meeting and received a wristband upgrade. If you do not have the wristband upgrade you will not be allowed to shoot, or purchase product.

2.4 Vehicle access.

2.4.1 Paid permits

There will be a lottery to decide who is allowed a parking permit that will grant access to the manufacturing area. This will be a specific number of permits that will have the vehicle license plate number

the members name and the membership number of the holder of the permit. This is only good for the manufacturing site and will not allow anyone to drive around the track. If we find this permit being abused we will revoke the permit.

2.4.2 Towing Service

There will be a towing service on hand to remove any vehicles that are parked within the gates of Sara Park without the proper permits. This is non-negotiable and the vehicle's owner will pay the towing expenses.

2.4.3 Transporting of product to bunkers.

Transport of product to the bunkers will be the responsibility of the person who purchased the product. Bring a hand-truck or cart to move your boxes as we will not be able to do it for you.

2.4.4 Other recreational vehicles.

No other recreational vehicles are to be allowed into the gates of Sara Park unless they are for the sole use of the full time Winter Blast Staff. This includes but is not limited to ATCs, ATVs, dune buggies, etc. Bicycles and scooters will be allowed, but will not be permitted within the firing areas.

3.0 Layout of Sara Park.

The layout of Sara Park will be determined in coordination of the Safety Chairman, Security Chairman, and Site Chairman.

4.0 Safety Crew

4.1 Full time safety staff

There will be four full time safety staff members; they are as follows, Dimitri Timohovich (Safety Chairman) Tom Keech, Bob Allen, and Russ Laurie. The purpose of this is to have one full time staff member in each area, Class B, Class C, and Baby B, with the Chairman to roam as needed. All full time safety personnel will be assigned a radio for the duration of Winter Blast.

These officers are the safety law, if asked to do something differently please comply as they are ask you to do so for a good reason. Please feel free to ask them the reasoning behind the request as to learn and make you a safer shooter. Non-compliance will result in having your wristband removed and you will loose your ability to participate in open shooting.

4.2 Volunteer Staff

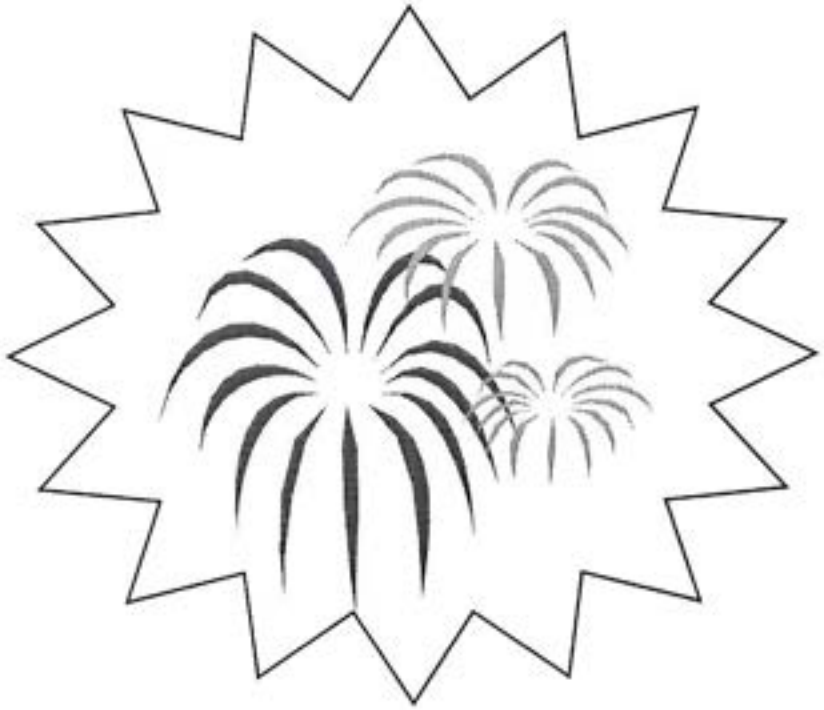
In addition to the full time safety staff there will also be a need for volunteer staff, the number of volunteer staff is to be determined by the safety chairman once the final layout of the firing sites is decided.

4.2.1 Check in / check out procedures

Volunteer staff members are to report to their assigned area, specifically to the full time safety staff member that is onsite. From there they will be assigned to a certain area for their volunteer duties. When their volunteer shift is over the next volunteer who has signed up will replace them in the same manner.

4.2.2 Compensation

Compensation for the volunteer staff is covered under the 'Volunteer Encouragement policy' written by the WWB Chair and WWB Co-Chair.



LUNA TECH Inc.
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Igniter Cord

WANO igniter cord is packed as an eight meter roll in a small cardboard box. Twenty five of these boxed rolls are packed in an inner carton. Four of these inner cartons are packed into a shipping case, which contains 100 rolls.

The igniter cord comes in two different burn rates: red=8-12 sec/m, and yellow=23 +/- 5 sec/m. It can be used to fuse finale racks, or as a time delay fuse for many other applicatiions.

Quantity	Description	$US
1-24 rolls	yellow, 8m	$10.64
	red, 8m	$9.55
25-99 rolls	yellow, 8m	$8.85
	red, 8m	$7.95
100 rolls (1 case)	yellow, 8m	$8.00
	red, 8m	$7.25
2-5 cases	yellow, 8m	$7.10
	red, 8m	$6.35
6-10 cases	yellow, 8m	$6.55
	red, 8m	$5.90

Black Powder

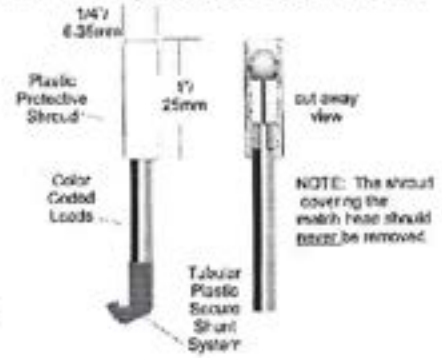
WANO Black Powder is available for immediate shipment in the following types and sizes:

Fireworks 2Fa, 4Fa, 7Fa, Meal D (some are available glazed)
Sporting 1Fg, 2Fg, 3Fg, 4Fg, Cannon

The Fireworks Grades are packed 25Kg/box (Federal License required). The Sporting Grades are packed either 25Kg/box or in 1 lb cans. A carton of 25 one lb. cans can be shipped UPS.

This premium quality powder is reasonably priced and available for shipment from stock in Alabama. Please inquire for pricing.

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Rated Firing Current: 0.5 amperes.
Series: 0.8 amperes per series string.
Resistance: Less than 2 ohms
Secure, but easy-to-remove shunt.
Separate color-coded leads, 2 or 3 meter.

Quantity	2m Lead Price (200 box/1,000carton)	3m Lead Price (150 box/750 carton)
Less than full box	$0.78/match	$0.96/match
1-4 boxes	$0.63/match	$0.73/match
1 carton	$0.53/match	$0.63/match
2-8 cartons	$0.48/match	$0.58/match
9-16 cartons	$0.43/match	$0.53/match
17-32 cartons	$0.40/match	$0.51/match
33-64 cartons	$0.38/match	$0.48/match
65+ cartons	$0.37/match	$0.47/match

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Introduction to the author: Genesis of a Pyrotechnie
Dr. David F. Dye.

I was fortunate to have met "Doc" (as I have been offered use of this title of friendship) in the month of August of 1998, while he was attending the annual PGII convention in Wyoming.

Through a series of correspondence with Doc, I was to find great value in his wit, rather good nature, and frankly, his friendship. (A man may have many an acquaintance, but few friends of value.)

I had been grateful to discover that Doc has taken on writing short stories in the past several years. I have found great endearment to his writing style and worth gathering over these past many decades.

I asked Doc to write a story on the art we all love, *fireworks* – as seen through his eyes during his enriching life's experiences.

I introduce to you, my friend Doc.

Keith Norman Midura

Genesis of a Pyrotechnie

I am proud to state that my youngest son is a licensed Pyrotechnician and other family members are pyro-devotees. I am happy that only a few of the 'sins' of the father have been visit on the child. He is the essence of caution and dictator about safety at any shoot.

It all began about seven decades ago on a July 4th when I discovered the intoxicating aroma of gunpowder and the sheer bliss of the pressure of explosive forces against one's body. As a physician I am skeptical of my own belief that in some way my ears moderate that force from pain to delight and my skin and chest cavity, respectively, tingle and resonate a throb that is derned (sic) near sexual. My cool professional mind finds it as little weird that after the barrage of 200 plus aerial bombs at Gillette, along with most of the audience, I sat in mute awe for ten minutes waiting to generate sufficient energy to walk to my car. What oddballs we pyros are!

My first shooting experience occurred when an older brother kindly traded part of a pack of 'Lady Fingers' and a half dozen single 'One inchers' for my weekly allowance. Mother screamed like a banshee when one of them landed at her feet while she hung laundry, but the poor dear was too busy with diapers to take action so we soothed her by going to the other side of the house to shoot off the rest under cans. Before the July 4th was over I'd bargained away three months allowance for a

pack of 50 'one inchers'. Then and thereafter, we shot them off one

by one and it was over thirty years later that I ran into a wastrel who shot off a pack at a time.

Over the next ten years my best friend, Ivor, and I saved money from Xmas to July 4th and advanced our purchases to flash crackers and cherry bombs.

We had an on-running battle with a gigantic nest of ants -- in the long run, they probably did more damage to our bodies than our crackers did to theirs.

We burned up a pair of overalls on the clothesline and my brother started a grass fire that burned down our garage. Dad was very unhappy!

We discovered that a ¼ nut screwed on to an incher made it far more powerful:

A friend tried to re-light a dud cherry bomb and lost half of his left thumb, index finger and left eye and the rest of us learned a little. I learned to treat and hide from other various contusions, abrasions and sparkler burns.

Additionally we learned two cardinal lessons;

1. Fireworks are always dangerous and that danger is fostered and increased with carelessness.
2. Adults with too much information about juvenile activities are a threat to the continuance of such activity so it was wise not to burden them with details of our trivial pursuits.

At eighteen I wandered off to distant shores to seek fame and fortune. Over the next several years the governing authorities passed stringent laws against fireworks so for a number of years I had no pyro activity.

I married, had children, and built a cabin on a beach of the Pacific Ocean. There were several nearby Indian Reservations whose inhabitants invested in the sales of untaxed cigarettes and fireworks of all kinds. One stand named itself "The Ill Eagle Fireworks Co."

We young fathers began to put on pyrotec shows -- for the kids, of course. My nearest neighbor/friend developed a technique that included observers in the activity. He'd built a fire pit that was big enough to hold a Volkswagen bug and fueled it with timbers suitable for saw logs. When he had a fire huge enough, he'd scoop a shovelful of hot coals into a steel oil barrel, then throw in a hodge podge of fireworks: bundles of Roman Candles or sky rockets, a couple hundred inchers, a handful of M80s, or bundles of 'screamers and

Genesis of a Pyrotechnie - continued . . .

buzz bombs'. Oh, it was exciting all right! For the observers, it was like being in

a cannonade or akin to camping on the flank of Mt. St. Helens during her eruption. The last hour of the night was always spent seeking and dousing embers.

Thus when my 7 yr. Old son, the pyrotech., accompanied an older brother and friends to the Indian's primitive stand he was perhaps responding to the instinct of being a chip off the old blockhead. He purchased a sack of varied items, walked five feet, tore open a wrapper of one inchers, lit a fuse, dropped it, and hurried away. It landed in his sack and for the next ten minutes of pyrotechnics those "White Eyes" boys were midst a press of angry, frightened Indians who's threats made the assault on General Custer's troop look like child's play. There were no serious after effects, but at their request, we never again attempted to patronize that stand and the young culprit, Craig, became as cautious as a pyrotechnician can be and forever after was the inspector/moderator of our festivities and, at times, a wet blanket.

Our town home is situated on a bluff above Puget Sound with a 180° view of Tacoma, the Cascade Mountains including the peaks Rainer, St. Helens, and Baker. The city has an air show and both it and the fireworks from an anchored barge take place directly below us—a perfect backdrop for Craig's shows, which were shot from the deck of our swimming pool. He used class B material in batteries and had fabulous set pieces. Each year was more elaborate than the last and an improvement. We had twenty or so invited guests; each of four children had a like number. In addition, neighbors and strangers increased the audience in our yard to around 200 persons. The neighbors on each side of us had large groups also.

Of course all during the day and night the swimming pool was quite busy. One year we went to bed at 1:00 AM and on hearing people in the swimming pool, I went to my son's bed and demanded that he ask his friends to leave. He replied, "Gee, Dad, I saw them go in while I was searching for duds. I never saw then before and figured they were your friends."

I went out and asked the man, woman and two sub-teen kids to leave. They were passing by and decided to skinny dip.

One year the younger generation had a 'kegger' and picnic to celebrate something. Included, as the guests of a self-invited guest were three far-out hippies/ rockers/delinquent females with the purple hair, aboriginally painted faces, and garbage mouths. I tolerated them, though in past decades I'd have bodily removed them from the area. Ironically, one young father complained and I took a good deal of pleasure telling him, "Heck, Jim, I remember when you were about that age you and your little group were using the same language and I ordered you to clean up or get out. It's your turn to look like a tyrant to your kids. Hop to it." He did! The pyrotech forbade alcohol at shoot area thereafter.

Genesis of a Pyrotechnie - continued . . .

The next year, one teenage son had his rock band supplying music to supplant

our symphonies during the afternoon festivities. Parachuters and stunt planes filled the sky intermittently. Suddenly three C141s (4 jet cargo planes) roared over at nearly housetop level closely followed by a 'V' of jet pursuit planes. The roar of the engines improved the air of celebration. Suddenly, even as the echoes were dying, three young adult males from the neighbor's group appeared, beating wildly at the ground with cardboard tubes, semi-delirious with laughter. Their efforts produced screeching and hasty withdrawal by the onlookers. Hearing the din, the band played louder and the singer, believing it was acclaim for her efforts, increased the volume of her caterwauling. When the beaters burst into the main area of picnickers it was obvious they were after a huge, panicky wharf rat. Said rat race across forty feet of lawn, ducked under two picnic blankets set up as luncheon cloths creating pandemonium and spilled food, then leaped down a three foot wall to the swimming pool deck where he was confronted with a wall of shrieking sunbathers. His options were nil so he leaped into the swimming pool and swim for his life.

The many swimmers evacuated in a stampede, with a cacophony of sound and a maelstrom of water. The rat crossed the pool surfing the tidal waves to the edge of the coping, climbed up to the deck, and disappeared through a forest of jitterbugging legs to a patch of ivy and safety. It was two hours before I could breathe normally and stop my maniacal, laughter, and even today, I must smile at the memory. Never had so little generated so much in so many. There were tales from 150 observers, all different and they are now part of the folklore every July 4th.

Our pyrotech studied and observed other's shoots as often as possible. Both his skill and imagination accelerated, with bigger productions choreographed to music. I was always the firefighter and stood nearby with the garden hose fighting the impulse to douse set-ups. He made ever more spectacular set pieces each year. In different years, both a twelve-foot 'Statue of Liberty' and a ten-foot facsimile of rocket blasting off was propped against my bath/pump house and on ignition, disappeared in the flare and smoke of match and lances. Only fear of being lynched by an angry audience prevented me from hosing them down before the beauty of his work revealed itself through the scarves of rolling smoke that were suggestive of the dance of the Houri with their veils.

Sadly, his progress led to the loss of our personal shows for he became a producer for a local company, Eagle Fireworks Co. and like many pyros spends most of his vacation time planning, preparing or shooting shows in anticipation of the glory, exhilaration, and total fulfillment that pyros and few other people experience. BLESS THEM!!

* * * *

Ghost Mines and Colored Alcohol Flames *By Chris Spurrell*

In the normal evolution of fireworks; you learn how to make something, then you make a larger one, then you make and incredibly huge one, then you make a couple more of those, then you start to look for ways to make it more interesting, maybe even prettier and smaller. Well, that's been my experience with liquid fueled fireballs – especially ones that can be fired out of steel mortars.

I started small. A friend of mine, that is a professional storyteller, wanted to create some "atmosphere" at one of his outdoor gigs. He wanted some flames in the background to burn with an "eerie" light. Well, I had a bit of experience with coloring alcohol flames and thought I'd give it a shot.

Green is easy. You mix a teaspoon or two of boric acid in a gallon of methyl alcohol and you're set. The boric acid actually reacts with the methyl alcohol to give you methyl borate, which is volatile. The boron in the flame gives it a very pronounced green color. The mix can be burned in an alcohol lamp or in the open (sterno can sort of thing). My buddy used a stainless steel bowl placed in a dish full of sand. Of course, once he had green he wanted other colors. But, those were a little more difficult.

In order to get an element to color an alcohol flame you have to get it into the flame itself. And, unlike the boron, it's either tough or undesirable to produce a volatile metal compound. We fussed with that a while until we hit on the idea of a wick. Turned out that a piece of steel wool in the bowl of alcohol did the trick. So now we could produce colored alcohol flames in a rainbow of colors.

The elements chosen are obvious but the actual chemicals are a comprise among solubility in methyl alcohol, cost and availability. Turns out that roughly 50 grams per gallon always works. In some cases that doesn't all dissolve but with $CaCl_2$ or NaCl, who cares?

Red	Lithium chloride (actually any soluble lithium salt)
Orange	Calcium chloride
Yellow	Sodium chloride
Green	Boric acid
Blue	(nothing - alcohol burns blue)
Violet	Potassium iodide

Ghost Mines and Colored Alcohol Flames - continued . . .

This was a fun, low-level, non-pyrotechnic back yard project. The next step was to go large. I had been firing gasoline fireballs out of some mortars I had. Starting with a half gallon I had gradually worked up to blowing three gallons of gasoline out of a six inch steel mortar using a charge of 40 to 120 grams of FFG for lift. So why not shoot colored alcohol flames? Several folks at the "Do-It" had a chance to witness my first shots of the half-gallon "Lampare Mines". Admittedly that was a bad name because many people were expecting an aerial effect. Upon seeing a daytime mpeg of these colored alcohol fireballs Harry Gilliam coined the phrase: "Ghost Mines". I like it.

I'll launch some of these at the WWB XII using the following gear:

Mortar: 4" iron pipe 2' long

Lift: 40g FFg powder, a pinch of sponge titanium and an electric match in a very small (jeweler's supply) zip lock baggie that is tightly wrapped with both clear packing tape and masking tape to minimize any in leakage of alcohol.

Fuel: One gallon methyl alcohol with 50g of coloring agent

Method: fill mortar with alcohol-salt solution. Lower in the black powder charge. If the charge is tightly packed it won't float. From the friendly end of 50' of shooting wire fire that thang!

Drawbacks: Typically there is some burning alcohol left behind in the mortar. HDPE and paper don't last too long.

Supplies: I get the methyl alcohol at the local lab supply, or fancy hobby shop, for $10/gal. Ethyl alcohol may work on some but the denaturing agent tends to give you a yellow flame. I hear the boric acid doesn't work with ethyl alcohol.

No Man's Land: To get a really beautiful sky blue color you add six grams of $CuCl_2$ and 200 ml. of methylene chloride (chlorine donor) to the gallon of methyl alcohol. Great color but it also makes phosgene. Any chlorine donor will do that. That is why I shied away from strontium and barium.

References: Unfortunately after pulling this stuff together I found out it was also in Weingart and in an early issue of Pyrotechnica. Well, at least when you reinvent the wheel there is some satisfaction in knowing that it came out round.

* * * *

Exhibition Comets

© *Steve Majdali November 18, 2000*

Exhibition comets are larger sized stars shot singly from standard fireworks mortars. They can be fast burning color comps but usually tailed comps like flitter, glitter or charcoal "fire dust" are used.

If you have the comp, tools, time and patience, you can make a lot of comets in a single session. For accuracy, weigh the moistened comp for each comet and dump the composition through a large funnel into the sleeve/base assembly (this refers to the unique exhibition comet tools made by the author). After removal of the funnel, push in the plunger till as much air is removed as possible, manually or using a mallet. Next put the assembly under the press (it is suggested to use a hydraulic press with a 2 Ton minimum capacity) and apply the desired pressure to consolidate the comet.

When using a press the comet is usually jammed tightly in the sleeve. The sleeve for the pump should have a thick wall, which allows pressing the comet loose. Remove the base and invert the sleeve/plunger/comet and press against the edge of the sleeve, which starts the comet moving. Then take the assembly out of the press and, grasping the sleeve firmly, manually push the plunger downward against a hard bench (or other firm work surface) which pushes the comet upward towards you. Remove the comet, set it in a drying rack, and continue to make others till the composition is used up.

This information ought to explain why the tools are so expensive. They're designed for a LOT of use, as well as being versatile.

One point of caution though, with aluminum comet pumps, avoid using any hard metals in your comps (titanium, steel, iron, ferro-titanium alloy, etc.). They can get between the plunger and sleeve and gall the aluminum so badly it's like welding the two together (you WON'T get them apart and they're useless afterward). The only way I've used those metals successfully was with a special pump made of a hard sleeve and a nylon plunger and even those took a real beating. The best results have been with charcoal comps and glitters using aluminum and/or magnalium. There are mountains of research that can be done with those materials. Some excellent large comet formulations are listed below. Enjoy!

continued . .

MATERIAL	Glitter W-39	Firefly	Tiger Tail	Fish Glitter
Potassium nitrate, fine	51	49	44	56
Charcoal, air float	19	29	30	8
Charcoal, 80 mesh		11	14	
Sulfur flour		6	6	21
Antimony sulfide, fine	12			
Aluminum, 12ì atomized	2			4
Aluminum, 30ì atomized	2			3
Aluminum, firefly (comet blend)		5		
Magnalium, 200 mesh	2			
Magnalium, 60 mesh	2			
Barium carbonate	5			
Magnesium carbonate				3
Wheat paste, par-boiled		Ad lib		6
dextrin	5			5

Shine On, Or Not: The Strobe Star

by Mike Workman

My personal favorite star of all time is undoubtedly the strobe star. Unlike glitter which produces a somewhat random size twinkle or sparkle in the tail of a comet or star, strobe stars behave a lot more like a flashing light, with a pretty constant frequency, and usually very bright, hence the term "strobe". Uniquely, strobe stars produce a single "pulsing" of light per star, versus a glitter star that fills a volume with hundreds to thousands of smaller sparkles of light.

The problems with making strobe stars are many-fold. They can be really finicky, they can be hard to light, and they can be "over-lit". Many, especially the ones bound with nitrocellulose lacquer, are a real pain in the butt to cut. Strobe stars work best when cut, and when rolled can be hard to light. Some of the most beautiful strobe stars are made with our friend ammonium perchlorate as the oxidizer, which makes getting them near a black powder, or for that matter any compound containing even a trace of potassium nitrate, a fatal mistake (not explosively fatal, just soggy, as ammonium nitrate is formed which is very hygroscopic). Finally, many strobe stars must contain potassium dichromate, a much feared chemical. In fact, a movie was made about a young lady who discovered workers at a power company were continuously exposed to Cr+6 hexavalent chromium and fell victim to dozens of medical problems, providing the basis for a huge class-action lawsuit. It was a good movie too.

I have endeavored to overcome the above issues because I love strobe stars. As is the usual theme of this feature article, I will share as many tricks as I can with you that made my strobe stars work, tricks that are not in any of the published literature on strobes that I have been able to find.

Blesser's Nitrate Based Strobes

The white strobe of David Blesser's is awesome, and in my opinion should be your first strobe. The reason is that it does not use ammonium perchlorate, it is water bound, it cuts like window putty, it uses magnalium instead of magnesium that requires no coating,

and it works like an electronic beacon. This is great stuff. The only thing it doesn't do is turn into a cheeseburger and a six-pack when the show is over.

Recipe – Nitrate based strobe stars. After making a window putty consistency paste, these stars should be cut cubes between 3/16" and 5/16" on a side. Once hard they form great star cores for water/ alcohol and dextrin bound KP color comps.

	White	Green
Barium nitrate	51	53
Potassium Nitrate	7	0
Magnalium 100m	18	12
Sulfer	19	17
dechlorane		13
Dextrin	5	5
Water / Alcohol	about 8-12 %	
Performance numbers		
Oscillation Rate	2	3.5
Comnsumption Rate	1	1.3

Now of course, barium nitrate is very toxic. So is dechlorane. Very. So if your going to wig out over the potassium dichromate coming soon, think about it a little: Barium nitrate will kill you as dead as a door knob. Wear a respirator (I always wear one of the good ones, not a crappy little paper filter for weekend warriors). Keep your hands clean, don't eat or drink where you're working, don't put your finger in your eye, or in your mouth while working with this kind of stuff. If you haven't read the MSDS' for these kinds of chemicals, please do. There is no reason to avoid these chemicals, as long as you treat them with extreme respect. As most of you know, these are but a few of the many which deserve such respect.

Size Does Matter

Most strobe stars are small, about the size of a pencil eraser. The performance numbers in the formulae tables are used to scale the relative size of the star for consistent burn times. If you make strobe stars too big, much more than a quarter inch cube for red ones, you will probably start fires on the ground, like I have. I have this penchant for making my stars too big. There must be a twelve step program for pyros like me, I just need to find it and enroll. Will we have a secret handshake, and can I get my money back if I'm cured before step 12?

Shimizu's AP Strobe

These strobe stars are a bit fussier. First, let's take a look at the formulae:

	Red	Green	Orange	Yellow	White
Ammonium perchlorate	50	60	60	50	60
Magnesium (60-100M)	30	23	30	40	
Magnalium (100-200m)					25
Strontium Sulphate	20				15
Barium Sulphate		17			
Calcium sulphate			10		
Sodium sulphate				10	
Potassium Dichromate	5	5	5	5	5
Performance numbers					
Oscillation Rate (Hz)	2	3.5	3	3	4
Burn Rate (mm/sec)	4	2	7	10	9

The performance numbers above are not transcribed directly from Shimizu, instead they are the author's experience. To get these things to turn out well, there are a ton of pointers which I have found work well:

1. Ball mill the AP and the potassium dichromate together. When complete you should have a very fine, light orange powder. This helps protect the magnesium and helps create a better cake to make cut stars from. NEVER use a ball mill or media that isn't clean, remember that KN and AP don't mix (actually they mix fine, you just won't like it). What are we protecting the magnesium from? It turns out that AP and magnesium can form magnesium perchlorate and ammonia. You'll smell this if it happens, and it will ruin the stars. Potassium dichromate inhibits this reaction. Intimacy with the AP is definitely a plus here. Most K_2CrO_7 available is very course, large crystals. In this format, it is useless unless ball milled to dust. Given the small amount needed, it is easier to ball mill with the AP than without.
2. Coat the magnesium. Shimizu has a section on coating magnesium in his book. At first, the process frightened me I must admit. Hot water and hot magnesium? Are you nuts? Well, yes if you don't dissolve about 5% potassium dichromate into the water first. The magnesium is heated in an oven to about 250 degrees F. I do small batches at a time, no more than 200 grams. I heat the magnesium in a pie pan. While it is heating, I dissolve the K_2CrO_7 into hot distilled water (about double the weight of the magnesium being treated). Then I add the solution into the pie pan. The bubbling reaction that takes place is forming a chromic coating on the surface of the magnesium, protecting it from attack. Once cool, it's done. I use a large Melita coffee filter setup (marked POISON) to pour the slurry of magnesium, water, and K_2CrO_7 into. The excess solution is reserved for future use (don't use glass, and mark it POISON before hand). When orange, you still have plenty of K_2CrO_7 in the solution. If it turns green, it is now tri-valent chrome and much more benign, but won't do squat for the magnesium in future coatings. A solution some shade of brown is just a mixture of the two extremes. The solution should be refreshed if noticeably away from orange. Please don't dump this down the drain unless you convert it first (turn it green by adding Sodium Bicarbonate to it before throwing it out).

3. I use latex gloves during any operation where I am handling K_2CrO_7 based compositions, or solutions.
4. When drying the coated magnesium, don't rinse the excess K_2CrO_7 off, it's just another layer between the AP and the magnesium. Let this air dry, very well, for quite some time. I let mine sit a week in **gently** moving air. Strong air will blow K_2CrO_7 dust around your work area. Bad idea.
5. To avoid stirring up K_2CrO_7 dust, I add the sulphate salt into the ball mill to integrate it well. Screening stuff with K_2CrO_7 is certainly an option, but I like just using the ball mill to do it. Of course I only make 200-400 grams at a time making this option reasonable. I also don't ball mill with my nose on the rollers: get the thing away from everything in case it blows (this is an awfully oxidizer rich mixture making it reasonable safe). Mine hasn't blown yet, but I act like it will. Read Sponenberg's article in AFN 123112. I wouldn't put magnesium in a ball mill. I never have and you can't talk me into it.
6. Wearing a respirator, screen the dry, coated magnesium into the composition.
7. The binder for these stars is Nitrocellulose lacquer (NCL). I use the 25% solution in acetone. How much binder? Well, I start with about 15% by weight. Make a putty out of the comp by adding the NCL and kneading it with a putty knife. Without enough binder, the putty is like beach sand and about as easy to work with.
8. Keep your tools and workplace clean. Don't get BP, meal dust, or whatever you've coated your workshop with on these stars: they cannot take potassium nitrate contamination.
9. Spread the putty onto a cutting surface. I use a Teflon coated cookie sheet. I make a ¼" thick cake, and slice the cake into cubes using a razor blade and Shawn Hale's "I suck at this" method. The problem with this stuff is that is crumbly. Depending on the mesh you use for the magnesium, it can indeed be like cutting beach sand.
10. Here's the saving grace with this stuff: Make cubes. The ones you don't like, the crumbs, the goof ups, can be collected, and turned back into putty again by adding a bit of

acetone. The ones you like transfer to a drying sheet. These things dry in a day.

11. Keep the lid on your acetone. Besides keeping it from disappearing into the atmosphere, it also keeps it from absorbing water. You don't want too much water in your acetone.
12. When dry, coat with Shimizu's strobe prime. Whatever you do, don't make the mistake of coating these with a meal prime. They quickly become garbage. The strobe prime is very hot, and contains K_2CrO_7 again (sorry) to provide a catalyst for the potassium perchlorate (KP) burn as well as ensure magnesium protection for the strobe star it's being coated onto. How? Well, I use a star roller. I place the little cubes into the barrel, spritz with a 4% solution of NCL and acetone, sprinkle with hot strobe prime, and continue the process until I have about 0.5mm of prime on the strobes if I'm going to coat them with a perchlorate based color composition, 1.5-2mm if I am putting them directly into a shell. Rolling with K_2CrO_7 calls for a respirator for sure. I leave off the BP prime because I have had better luck that way. If a color comp is rolled on, I use NCL as the binder (omit dextrin from the color comp). Perchlorate based color compositions can be primed with BP and NCL because the physical separation between the AP strobe core and the prime is at least 4-5 mm or more. Just keep them dry.
13. Once primed and dry, these little guys make great star cores.
14. Don't make the mistake of taking one of these things into some dark secluded place and lighting with a match to test: When they ignite, they will temporarily blind you. It is amazing how much light these little buggers put out. Back up from it a ways to enjoy the strobe and avoid the spots in front of your eyes for 20 minutes. A little strobe prime and a short piece of visco are worth the hassle.
15. If you test these with a star gun, make sure you get enough altitude or you risk igniting whatever is on the ground where it lands. Don't even think that you can ignite the AP strobes without prime. I use the prime below on the nitrate stars as well.

Shimizu's Hot Strobe Prime

This stuff is hot and fast, and easier to light because of the K_2CrO_7. I use fine potassium perchlorate (KP) and screen the ingredients together very well.

Potassium Perchlotate	74
Red Gum	12
Charcoal (AF)	6
Aluminum (American Dark)	3
Potassium Dichromate	5

Note this does not have any dextrin. This is because it should be applied with 4% NCL spray in a roller. If you intend to use it with a nitrate star and apply it with water, you should add 5% dextrin. If you can get over the K_2CrO_7 component, this makes a great hot prime for any occasion (with or without dextrin as appropriate). Use your respirator, clean up well.

Fine Tuning

One of the goofy things about strobes is that each color formula has a different characteristic oscillation rate (pulse rate) as can be seen in the table (performance numbers). Some of these strobes flicker versus strobe (the nitrate green is especially fast). Also, during each burn phase, each strobe consumes differing amounts of itself. For strobes with relatively high consumption rates like the Orange AP strobe, the stars should indeed be made bigger as they consume themselves faster than the Red AP strobe for example. One way to speed up the strobe rate is to use finer mesh metal. Conversely, slowing down a strobe can be accomplished by moving to coarse metal. Another word of caution however, using 60 mesh magnesium will make the star very hard to light. Without prime, a red AP strobe made with 60m magnesium is very difficult to test because it may not light. Another important point, the frequency of oscillation will

be different falling through the air than on a test surface. Don't be disappointed in your stars until they are properly primed and tested falling through the air.

Final Note

I endeavored to fill in lots of what were originally "blanks" to me when I first set out to make strobe stars. Hopefully, the rather pedantic descriptions above will save you some of the work that I went through to make good strobe. Be very careful, be safe, and have fun.

References:

Shimizu, "Fireworks, The Art, Science, and Technique"
Blesser, Dave "Round Stars and Shells"
Hale, Shawn, WPA Newsletter Jan 1999, "Firefly Stars".

* * * *

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