



2024 WPA Winter Blast Schedule

Heads Up! This schedule might be out-of-date. Please go to <https://bit.ly/wwwb24-schedule> to access the live up-to-date schedule.

Event Day 1 | Tuesday, February 13th, 2024

Topic/Activity	Time	Presented By	Location	Category	Description
Site Setup	09:00 AM - 05:00 PM	WWB Staff and Volunteers	Sara Park	Social	WWB Staff and volunteer members unpack the containers, transport the racks and do all the things that need to be done before we open the doors on Wednesday. Many hands makes for light work so come out early and give us some help.
Preglow	06:00 - 09:00 PM	WWB Staff	Eagles Aerie	Social	The Preglow is an annual event for all of us who arrive the day before Winterblast actually starts, in this case, Tuesday February 13th. We all need to eat that night anyway so this is an opportunity to gather together, say hello to friends that you haven't seen in a year and enjoy a reasonably priced meal and a drink or ten. MUST be prepaid by Jan. 30th. Eagles Aerie is located at 1561 Marlboro Dr., Lake Havasu City, AZ 86403
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Event Day 2 | Wednesday, February 14th, 2024

Topic/Activity	Time	Presented By	Location	Category	Description
Winterblast Registration (Pre-Registered & Walk-In)	08:30 AM - 12:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
B-Mag Open	10:00 AM - 03:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Trade Show	10:00 AM - 05:00 PM	WWB Vendors	Sara Park	Vendor	Explore the bustling trade show at Winter Blast, where vendors from across the pyrotechnic industry showcase their latest products and innovations. Make sure to visit each booth for a hands-on experience with cutting-edge fireworks technology and to connect with the minds behind the magic. Don't miss the chance to network with top suppliers and take your pyrotechnic passion to the next level at Winter Blast's vibrant marketplace.
Burst Workshop	10:00 AM - 12:30 PM	Mike Garrett, Steve Wilson	Tent 2	Workshop	Fireworks shells built during the workshops need burst in them so they open and display properly in the sky. In this workshop we will make all of the burst required to support the shell workshops. This year we will make two types of burst - black powder coated rice hulls (BPCRH) for the round shell workshops and pulverone for the Italian shell workshop. Pulverone isn't really burst, but it does burn up completely and it needed to help pack Italian shell good and tight. There will be discussion about what we are making and why. Come prepared to get your hands dirty.
Comet Workshop Prep	12:30 - 02:00 PM	Steve Wilson	Tent 3	Workshop	In this session we will weigh, mix, screen and dampen all of the comps that will be used in the Comets Workshop happening the next day. A good opportunity to learn how to handle chemicals.
Winterblast Registration (Pre-Registered & Walk-In)	01:00 - 06:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
Workshop Prep - Fusing & lift sub-assembly (for ball shells & mines)	01:00 - 04:00 PM	Mike Garrett, Steve Wilson	Tent 2	Workshop	All those seminars and workshops take a lot of supplies that need to be prepared so you can enjoy your week. Get your hands dirty with some of the preparation work such as cutting quick match, visco or timefuse. Time fuse needs to be cross-matched and black powder lift needs to be weighed out. The requirements vary from year to year.
Go Getter Prep Workshop	02:00 - 05:00 PM	Monty Gill, Monica Blam	Tent 3	Workshop	In this session we will prime all of the Go Getter inserts that will be used in the 4" & 5" Go Getter Workshop on Thursday. Please come lend a hand on this task, even if you are not registered in the class.
Welcome Orientation	04:00 -	WWB Staff	Bleachers	Meeting	Get the low-down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.

Meeting	04:30 PM				
Open WASP Workshop	04:00 - 06:30 PM	WASP Staff	WASP Tent	Workshop	Utilize our club's WASP for expertly pasting your fireworks, ensuring a perfectly round break with precision application. The WASP machine, coupled with its advanced WASP3 software, guarantees uniform coverage and optimal performance of your spherical shells. Observe the impeccable precision in the tape pattern demonstrated in the image, highlighting the WASP's accuracy and efficiency.
Safety Training (How to be a Safety Volunteer)	04:30 - 05:00 PM	Greg Dandurand, Darrell Fiss	Hospitality Tent	Safety	The WPA and WWB is run by volunteers and you are encouraged to volunteer for as many things as you can. The Safety Volunteer area in particular needs to be fully staffed or the shooting lines shut down until they are staffed. You can be a Safety Volunteer with just a few minutes of training. It's not difficult, can be done by anyone who is willing and is a great way to meet other club members. Greg and Darrell will make sure you are comfortable with being a Safety Volunteer.
Class C Vending	05:00 - 09:30 PM	WWB Vendors	Class-C Tent	Vendor	Class-C Fireworks are now available! Swing by our vending area to add excitement to your celebrations with our top-quality fireworks. Enjoy them safely and light up your event with a bang!
B-Mag Open	05:00 - 10:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Class B Safety Class (How to safely fire your shells)	05:00 - 06:00 PM	Safety Staff	Safety Tent	Safety	To light your product on the B-line you need a sticker on your badge. That sticker tells the line Safety that you are qualified to light your product. Attend this quick seminar and learn how to safely conduct yourself out on the B-line. Each participant will light one B product under the watchful eye of a trained professional (well, mostly). When he is satisfied that you will be safe then you will get a sticker on your badge.
Open Shooting (No salutes after 9PM!)	06:00 - 10:00 PM	Safety Staff	Firing Lines	Shooting	The skies are set to dazzle at the open shooting event—grab your fireworks and revel in the spectacle! Mind the curfew: no loud salutes past 9 PM. Enjoy responsibly and have a blast!
2nd Welcome Orientation Meeting (if missed the 4:00 time)	06:00 - 06:30 PM	WWB Staff	Hospitality Tent	Meeting	Get the low-down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.
Afterglow	10:00 PM - 01:00 AM	WWB Staff	Eagles Aerie	Social	Wind down at the end of each day at the Afterglow, this year hosted by the Eagles who have a fantastic spot for us less than a mile from the host hotel at their Aerie. Food is available for those who have prepaid for it as part of their registration. A no host bar is also available with very reasonably priced beer, wine and spirits. A complimentary shuttle service is also available nightly from the host hotel to the Aerie and back between 10PM and 1AM. Eagles Aerie is located at 1561 Marlboro Dr., Lake Havasu City, AZ 86403
Nightly RV Camping Social & After Party	10:00 - 11:55 PM	WPA Members		Social	Gather with your fellow Pyro Winter Blasters for an enchanting evening social and campfire at the Pyro Pavilion, nestled in the heart of RV camping. Immerse yourself in a lively celebration beneath the starlit sky, where the dazzling art of fireworks breathes life into the night. As dusk settles, converge around the campfire for moments that promise to be etched in memory. Wrap up warm, grab a chair, and bring along your zest for adventure. Contributions of drinks and fireworks are warmly received, enhancing our shared sense of joy. Whenever the campfire's glow lights up the night, it's your sign to join us for an evening brimming with fun and camaraderie.
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Event Day 3 | Thursday, February 15th, 2024

Topic/Activity	Time	Presented By	Location	Category	Description
Winterblast Registration (Pre-Registered & Walk-In)	08:30 AM - 12:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
New Member Orientation	09:00 - 09:30 AM	Dennis Miele	Hospitality Tent	Meeting	Are you new to the WPA or a first timer at Western Winter Blast? This seminar is just for you. Attendees will be given a brief history of the WPA, an overview of our policies and safety procedures. Time will be given for individual questions and answers followed by a guided site tour of the WWB site given by some of our current officers and key staff personnel. Get the lay of the land in the sunlight!
Trade Show	09:00 AM - 05:00 PM	WWB Vendors	Sara Park	Vendor	Explore the bustling trade show at Winter Blast, where vendors from across the pyrotechnic industry showcase their latest products and innovations. Make sure to visit each booth for a hands-on experience with cutting-edge fireworks technology and to connect with the minds behind the magic. Don't miss the chance to network with top suppliers and take your pyrotechnic passion to the next level at Winter Blast's vibrant marketplace.
Star Plates & Comet Pumps Overview	09:00 - 10:00 AM	Ben Smith, Steve Wilson	Tent 3	Seminar	This seminar is a required prerequisite for the 2" comet workshop that immediately follows this presentation. In this seminar the details of using star plates and comet pumps will be discussed. Force vs. pressure calculations will be presented so the participants get a good understanding of how and why they are different and why it matters. We will also address techniques to keep your fingers out of harms way.
B-Mag Open	10:00	Security	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.

	AM - 03:00 PM	Staff			
5" Ball Shell Workshop - Part I, Introduction to Ball Shells	10:00 - 11:00 AM	Jim Widmann, Mike Garrett	Tent 1	Seminar	Lecture session - Have you ever wanted to build a round ball shells? Then this workshop is a good place to start. This workshop will teach you how to make your own 5" paper ball shell. Working with experienced shell builders, you will get hands-on knowledge that will guide you in building a ball shell that looks and performs just like the pros. There are three workshop parts: The first part, 'Introduction to Ball Shells', has a tutorial, demonstration and Q&A. That is followed by Part II for the assembly and wrapping of your shell. A fleet of WASP machines will be used to expedite this procedure. The shell is then dried overnight. On the following day, in the third session, you will apply the lift and leader to the shell. Your shell can be fired that night on the B-line in a special area just for us. 'Introduction to Ball Shells' is available free to everyone but is a required prerequisite for the Ball Shell workshops.
2" Comets - Part I	10:00 AM - 01:00 PM	Steve Wilson, Scott Morton, Clara Carstensen	Tent 3	Workshop	This is a multi-part workshop with a prerequisite seminar. To attend this workshop participants are required to attend the session 'Star Plates & Comet Pumps Overview' - No Exceptions. This will get the participants set up to be successful and safe in the next parts. In this workshop participants will make two 2" comets that they can fire on the B-line the following day. Various compositions will be available to choose from to give a little creative variety. Participants will have the choice of making glitter comets, married comets, cavity or crossettes. Once pressed, the comets need to dry overnight in our heated drying box. On the following day participants can lift and leader the comet to make a finished device. Completed devices will be available on the B-line for firing Friday evening.
Advanced Cylinder Shell Considerations	11:00 AM - 12:00 PM	Whitney Petersen	Tent 2	Seminar	In this session large and complicated cylinder shells will be discussed. Details such as what does it take to get these bad boys into the air successfully, what happens when you try to do multiple breaks with complicated timing, etc. It will be an open discussion where ideas and techniques can be shared.
PGI Shooter's Certification Course - Lecture	12:00 - 05:30 PM	Josh Lazarus, John Steinberg, Paul Smith	Tent 1	Seminar	This course is an accepted safety course for licensing in many states. It is a must do course for anyone who wants to increase their knowledge of current NFPA regulations, requirements, and safety protocols for commercial fireworks displays. The course includes a classroom lecture, hands on field work, and a written test. Those who desire to apply for PGI certification must attend all parts of the course and pass the test. Everyone can learn something new from this class. The class will be held over 2 days. The lecture portion will be held on Thursday February 15th from noon to 5pm. The hands on field work and test will be held on Friday February 16th from 9am to 1pm. Bring a pen and/or highlighter to the class for taking notes. For the field portion you will need the following personal protective equipment: safety glasses, hard hat, closed toe shoes, long sleeve shirt and pants made of 100% cotton or other flame retardant material (turnout gear is acceptable.) Also bring something to drink and snacks if you desire. Winter Blast registrants will receive their WPA "B" firing line wristband and stickers at the conclusion of the Friday session. Please be on time, as due to a tight time schedule, no information can be repeated for late attendees.
5" Ball Shell Workshop - Part II, Group 1	12:30 - 01:00 PM	Mike Garrett	Tent 2	Workshop	Have you ever wanted to build a round ball shells? Then this workshop is a good place to start. This workshop will teach you how to make your own 5" paper ball shell. Working with experienced shell builders, you will get hands-on knowledge that will guide you in building a ball shell that looks and performs just like the pros. There are three workshop parts: The first part, 'Introduction to Ball Shells', has a tutorial, demonstration and Q&A. That is followed by Part II for the assembly and wrapping of your shell. A fleet of WASP machines will be used to expedite this procedure. The shell is then dried overnight. On the following day, in the third session, you will apply the lift and leader to the shell. Your shell can be fired that night on the B-line in a special area just for us.
Winterblast Registration (Pre-Registered & Walk-In)	01:00 - 06:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
5" Ball Shell Workshop - Part II, Group 2	01:00 - 01:30 PM	Mike Garrett	Tent 2	Workshop	Have you ever wanted to build a round ball shells? Then this workshop is a good place to start. This workshop will teach you how to make your own 5" paper ball shell. Working with experienced shell builders, you will get hands-on knowledge that will guide you in building a ball shell that looks and performs just like the pros. There are three workshop parts: The first part, 'Introduction to Ball Shells', has a tutorial, demonstration and Q&A. That is followed by Part II for the assembly and wrapping of your shell. A fleet of WASP machines will be used to expedite this procedure. The shell is then dried overnight. On the following day, in the third session, you will apply the lift and leader to the shell. Your shell can be fired that night on the B-line in a special area just for us.
5" Ball Shell Workshop - Part II, Group 3	01:30 - 02:00 PM	Mike Garrett	Tent 2	Workshop	Have you ever wanted to build a round ball shells? Then this workshop is a good place to start. This workshop will teach you how to make your own 5" paper ball shell. Working with experienced shell builders, you will get hands-on knowledge that will guide you in building a ball shell that looks and performs just like the pros. There are three workshop parts: The first part, 'Introduction to Ball Shells', has a tutorial, demonstration and Q&A. That is followed by Part II for the assembly and wrapping of your shell. A fleet of WASP machines will be used to expedite this procedure. The shell is then dried overnight. On the following day, in the third session, you will apply the lift and leader to the shell. Your shell can be fired that night on the B-line in a special area just for us.
6" Double Petal Ball Shell Workshop - Part I	02:00 - 05:00 PM	Ellen Webb	Tent 3	Workshop	In this hands-on workshop participants will build 6" round double petal chrysanthemum shells. Using the traditional Japanese method, the inner petal will be formed with only black powder-coated rice hulls and tissue paper. It is recommended that participants have some shell-building experience beforehand. The 5" Ball Shell workshop, for instance, would provide an excellent background.
5" Ball Shell Workshop - Part II, Group 4	02:00 - 02:30 PM	Mike Garrett	Tent 2	Workshop	Have you ever wanted to build a round ball shells? Then this workshop is a good place to start. This workshop will teach you how to make your own 5" paper ball shell. Working with experienced shell builders, you will get hands-on knowledge that will guide you in building a ball shell that looks and performs just like the pros. There are three workshop parts: The

first part, 'Introduction to Ball Shells', has a tutorial, demonstration and Q&A. That is followed by Part II for the assembly and wrapping of your shell. A fleet of WASP machines will be used to expedite this procedure. The shell is then dried overnight. On the following day, in the third session, you will apply the lift and leader to the shell. Your shell can be fired that night on the B-line in a special area just for us.

5" Ball Shell Workshop - Part II, Group 5	02:30 - 03:00 PM	Mike Garrett	Tent 2	Workshop	Have you ever wanted to build a round ball shells? Then this workshop is a good place to start. This workshop will teach you how to make your own 5" paper ball shell. Working with experienced shell builders, you will get hands-on knowledge that will guide you in building a ball shell that looks and performs just like the pros. There are three workshop parts: The first part, 'Introduction to Ball Shells', has a tutorial, demonstration and Q&A. That is followed by Part II for the assembly and wrapping of your shell. A fleet of WASP machines will be used to expedite this procedure. The shell is then dried overnight. On the following day, in the third session, you will apply the lift and leader to the shell. Your shell can be fired that night on the B-line in a special area just for us.
4" & 5" Go-Getter Shell Workshop	03:05 - 05:00 PM	Monty Gill, Monica Blam	Tent 2	Workshop	'Introduction to Ball Shells' is a required prerequisite for this workshop. Participants will build two Go-Getter shells in this workshop; a 4" Go-getter shell to shoot at the B-line whenever you like, and (optionally) a 5" Go-getter shell that will be featured in a member display. A Go-Getter is a novel firework effect. These are special stars made in a tube with an energetic color formula that causes it to jet around in random directions.
Welcome Orientation Meeting	04:00 - 04:30 PM	WWB Staff	Bleachers	Meeting	Get the low down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.
Open WASP Workshop (priority given to the 3 Ball Shell workshops)	04:00 - 06:30 PM	WASP Staff	WASP Tent	Workshop	Utilize our club's WASP for expertly pasting your fireworks, ensuring a perfectly round break with precision application. The WASP machine, coupled with its advanced WASP3 software, guarantees uniform coverage and optimal performance of your spherical shells. Observe the impeccable precision in the tape pattern demonstrated in the image, highlighting the WASP's accuracy and efficiency.
Safety Training (How to be a Safety Volunteer)	04:30 - 05:00 PM	Greg Dandurand, Darrell Fiss	Hospitality Tent	Safety	The WPA and WWB is run by volunteers and you are encouraged to volunteer for as many things as you can. The Safety Volunteer area in particular needs to be fully staffed or the shooting lines shut down until they are staffed. You can be a Safety Volunteer with just a few minutes of training. It's not difficult, can be done by anyone who is willing and is a great way to meet other club members. Greg and Darrell will make sure you are comfortable with being a Safety Volunteer.
Class C Vending	05:00 - 09:30 PM	WWB Vendors	Class-C Tent	Vendor	Class-C Fireworks are now available! Swing by our vending area to add excitement to your celebrations with our top-quality fireworks. Enjoy them safely and light up your event with a bang!
B-Mag Open	05:00 - 10:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Class B Safety Class (How to safely fire your shells)	05:00 - 06:00 PM	Safety Staff	Safety Tent	Safety	To light your product on the B-line you need a sticker on your badge. That sticker tells the line Safety that you are qualified to light your product. Attend this quick seminar and learn how to safely conduct yourself out on the B-line. Each participant will light one B product under the watchful eye of a trained professional (well, mostly). When he is satisfied that you will be safe then you will get a sticker on your badge.
Open Shooting (No salutes after 9PM!)	06:00 - 10:00 PM	Safety Staff	Firing Lines	Shooting	The skies are set to dazzle at the open shooting event—grab your fireworks and revel in the spectacle! Mind the curfew: no loud salutes past 9 PM. Enjoy responsibly and have a blast!
2nd Welcome Orientation Meeting (if missed the 4:00 time)	06:00 - 06:30 PM	WWB Staff	Hospitality Tent	Meeting	Get the low-down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.
Afterglow	10:00 PM - 01:00 AM	WWB Staff	Eagles Aerie	Social	Wind down at the end of each day at the Afterglow, this year hosted by the Eagles who have a fantastic spot for us less than a mile from the host hotel at their Aerie. Food is available for those who have prepaid for it as part of their registration. A no host bar is also available with very reasonably priced beer, wine and spirits. A complimentary shuttle service is also available nightly from the host hotel to the Aerie and back between 10PM and 1AM. Eagles Aerie is located at 1561 Marlboro Dr., Lake Havasu City, AZ 86403
Nightly RV Camping Social & After Party	10:00 - 11:55 PM	WPA Members		Social	Gather with your fellow Pyro Winter Blasters for an enchanting evening social and campfire at the Pyro Pavilion, nestled in the heart of RV camping. Immerse yourself in a lively celebration beneath the starlit sky, where the dazzling art of fireworks breathes life into the night. As dusk settles, converge around the campfire for moments that promise to be etched in memory. Wrap up warm, grab a chair, and bring along your zest for adventure. Contributions of drinks and fireworks are warmly received, enhancing our shared sense of joy. Whenever the campfire's glow lights up the night, it's your sign to join us for an evening brimming with fun and camaraderie.

Event Day 4 | Friday, February 16th, 2024

Topic/Activity	Time	Presented By	Location	Category	Description
Winterblast	08:30	Lonny Ross,	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association

Registration (Pre-Registered & Walk-In)	AM - 12:00 PM	Dennis Miele, Michelle Joye			and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
PGI Shooter's Certification Course - Practical	09:00 - 11:30 AM	Josh Lazarus, John Steinberg, Paul Smith	B-Line	Seminar	
New Member Orientation	09:00 - 09:30 AM	Dennis Miele	Hospitality Tent	Meeting	Are you new to the WPA or a first timer at Western Winter Blast? This seminar is just for you. Attendees will be given a brief history of the WPA, an overview of our policies and safety procedures. Time will be given for individual questions and answers followed by a guided site tour of the WWB site given by some of our current officers and key staff personnel. Get the lay of the land in the sunlight!
Trade Show	09:00 AM - 05:00 PM	WWB Vendors	Sara Park	Vendor	Explore the bustling trade show at Winter Blast, where vendors from across the pyrotechnic industry showcase their latest products and innovations. Make sure to visit each booth for a hands-on experience with cutting-edge fireworks technology and to connect with the minds behind the magic. Don't miss the chance to network with top suppliers and take your pyrotechnic passion to the next level at Winter Blast's vibrant marketplace.
4" Italian Shell Workshop - Part I	09:00 AM - 12:30 PM	Kurt Medlin, Scott Morton, Joseph Madziarczyk, Steve Wilson	Tent 2	Workshop	Make a cylinder shell using traditional Italian methods. This workshop has two parts happening on successive days. The first part will be a lecture/discussion in the beginning and then each participant gets to build their own 4" Italian Shell. This includes rolling a case, filling it with stars and burst, sealing it up, spiking and paste wrapping. The pasted paper wrap needs to dry overnight. On the following day Part II will have the participants apply the lift and leader parts of their shell. Completed shells will be transported to the B-line for firing. Find you completed shell in the red ready box towards the left side of B-line.
Building Multiple Rockets with One Set of Tooling	09:00 - 10:00 AM	Ben Smith	Tent 3	Seminar	This seminar will detail the general construction of a variety of rockets using one set of tooling. Information detailing making fuels and basic shop safety guidelines will also be covered. Nozzled BP, nozzleless BP, whistle and strobe rocket construction will all be detailed. Though this class will use the FireSmith Super BP Core Burn tools, the basic techniques, fuels and safety guidelines are applicable to the construction of just about any type of rocket. A batch of benzoate whistle fuel will be made during this seminar. The making of strobe fuel will also be covered.
Walking Tour of Shooter Lines (Meet at entrance to firing lines)	09:30 - 10:00 AM	Greg Dandurand	B-Line	Safety	This walking tour gives participants a look behind the scenes not normally afforded to the public. If you plan to do open shooting in the evening but haven't been out on the firing lines this orientation is perfect for you to attend. During this walk, we will go to the various WWB firing sites at SARA Park. Doing this during the daylight will certainly help you navigate the rocks, stones, pebbles, dips, and washes off the back area where the shooting lines are located. We will discuss how to be a Safety, and how to make the Safeties happy (and everyone safer) when you bring your live product in during open shooting
Pyros In Training Kickoff	09:30 - 10:30 AM	Bill Stevenson, Dave Tanner, PIT Crew Staff	PIT Tent	PIT Crew	Pyros in Training (PIT) is a seminar and workshop series targeted at families and youth members, but is open to anyone who wants to learn about the basic science and techniques involved in pyrotechnics. In this kickoff session, we will go over program details and safety considerations.
CASFM Licensing Procedures and Current Topics	09:30 - 11:00 AM	Caleb Phillips, Vijay Mepani, Margo Lund	Tent 1	Seminar	This course will be taught by representatives from the California Office of the State Fire Marshal. Topics include Regulations Update, an overview of the licensing system and a Q&A. This class is great opportunity for those interested in updates to Title 19 and those who are considering becoming licensed or upgrading their license.
B-Mag Open	10:00 AM - 03:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
PIT Black Powder and Cut Stars Workshop	10:30 AM - 12:00 PM	Bill Stevenson, PIT Crew Staff	PIT Tent	PIT Crew	Learn how to create the most basic pyrotechnic elements you'll need to build fireworks: the black powder that will propel your effects and the stars that will illuminate the night with colored light. Bind them together with paper, paste, and string, and you can make anything!
6" Double Petal Ball Shell Workshop - Part II	10:30 AM - 12:30 PM	Ellen Webb	Tent 3	Workshop	Lift and Leader of 6" round double petal chrysanthemum shells. Using the traditional Japanese method, the inner petal will be formed with only black powder-coated rice hulls and tissue paper. It is recommended that participants have some shell-building experience beforehand. The 5" Ball Shell workshop, for instance, would provide an excellent background.
Pyrotography - How to Set Up and Take Killer Fireworks Photos	11:15 AM - 12:15 PM	Tom Calderwood, Tom Handel	Tent 1	Seminar	Photographing fireworks with a digital camera is a challenge. Tom is an accomplished fireworks photographer who will give many tips during this seminar for getting that *perfect* fireworks picture. The class discussion will include camera and related equipment use, camera settings, computer processing, and setup locations. Tom has a no-secret policy and is more than willing to share if you want to catch him later. He has a passion for the beauty that fire has, and is ever in pursuit of getting better in his craft. Tom Handel will be on hand during this seminar to moderate.
Fire Extinguishers - Various Types and How to Use Them	12:00 - 01:00 PM	Antonio Restivo	Member Bleachers	Seminar	Fire Safety is EVERYONES responsibility and as professionals in the business we should know what to do in case of an emergency. This class includes a fun tutorial of many different types of fire extinguishers and the uses and types of fire, to actually starting a small fire where each student has to perform PASS (Pull Aim Squeeze Sweep) and put it out. Basic skills learned in this fire safety class will stay with you the rest of your life.
PGI Shooter's Certification	01:00 -	Josh Lazarus,	Hospitality Tent	Seminar	

Course - Test	03:00 PM	John Steinberg, Paul Smith			
Winterblast Registration (Pre-Registered & Walk-In)	01:00 - 06:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
5" Ball Shell Workshop - Part III	01:00 - 03:30 PM	Mike Garrett	Tent 2	Workshop	Lift and leader the ball shell that you made in Part II of this workshop.
Set Pieces for Beginners	01:00 - 04:00 PM	Lynden King, PIT Crew Staff	Tent 3	PIT Crew	Set pieces, also known as brightwork, have been made for hundreds of years to augment various kinds of displays. Often shown as large words or flags, many approaches to this art can be used, sometimes dictated by materials available and/or how the piece will be displayed. Using lance, drivers, and a bit of woodworking know-how, we'll build dynamic set pieces to be displayed in Saturday and Sunday night's displays.
Getting the most out of Electrical Firing and Wiring: the basics	01:15 - 02:15 PM	Don Kark	Tent 1	Seminar	A lot of people use their electrical firing systems today with a bit of luck. They run their wires, attach their e-matches, and hope for the best. This session will shed some light on how electrical firing works, and how to get the most out of electrical firing, especially when using one cue to fire multiple devices. You will learn how some common types of initiators work, how to wire them in both serial and parallel arrangements (and which style is best in certain situations). We will discuss the simple "ohms law" and it's use in electrical firing. We will also show some rules of thumb to simplify the calculations when using long runs of wire of various lengths and diameter. Finally, we will also touch on cold-weather firing of devices, and why certain types of initiators are better than others. With a pencil and a calculator, you can take the guesswork out of your site planning.
One Island - 72 Fireworks Factories	02:30 - 03:45 PM	Mark Devon, Mitch Piatt, Kevin Mather	Tent 1	Seminar	This presentation will begin with international man of mystery and wanna be Maltese shell builder Mark Devon doing a slide show travelog style about his first time visit to the island last April for the 2023 international fireworks symposium and visit to the factory in Gudja arranged by his low life Austria fireworks BFFs he met at the host hotel bar. Followed by Mitch Piatt who has been to the island 10 times, knows several of the big cheeses in the Maltese fireworks lasagna. Between him and our outgoing club president probably is the repository for 99% of what is known about Maltese fireworks in the United States.
Welcome Orientation Meeting	04:00 - 04:30 PM	WWB Staff	Hospitality Tent	Meeting	Get the low-down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.
PIT Display Planning	04:00 - 05:00 PM	Dave Tanner, Bill Stevenson, PIT Crew Staff	PIT Tent	PIT Crew	In this kickoff meeting, we'll inventory donated product and work out the basic goals and choreography for Sunday night's display.
Chlorate and Colored Flames in 19th Century Pyrotechny	04:00 - 05:00 PM	Barry Sturman	Tent 1	Seminar	The addition of potassium chlorate to the pyrotecnist's stock of ingredients in the early 19th century led to the development of a full range of bright, distinctive colours. The story of that development will be outlined, along with a discussion of some of the early compositions in the light of modern science
Introduction to Black Powder Rockets	04:00 - 05:30 PM	Kurt Medlin, Steve Majdali, Scott Morton	Tent 2	Seminar	Traditional black powder rockets are a perennial favorite at Winter Blast. We will demonstrate how to make a "one-pound" black powder rocket. Starting with a few simple tools, a tube, some clay, a few ounces of black powder composition, and a stick, the presenters will explain all the elements that go into making a successful rocket as they demonstrate the technique.
Open WASP Workshop	04:00 - 06:30 PM	WASP Staff	WASP Tent	Workshop	Utilize our club's WASP for expertly pasting your fireworks, ensuring a perfectly round break with precision application. The WASP machine, coupled with its advanced WASP3 software, guarantees uniform coverage and optimal performance of your spherical shells. Observe the impeccable precision in the tape pattern demonstrated in the image, highlighting the WASP's accuracy and efficiency.
Free BBQ @ Fireworks America campsite	04:00 - 06:00 PM	Fireworks America		Social	Free BBQ Friday night (2/16) from 4-6pm at the Fireworks America campsite.
Safety Training (How to be a Safety Volunteer)	04:30 - 05:00 PM	Greg Dandurand, Darrell Fiss	Hospitality Tent	Safety	The WPA and WWB is run by volunteers and you are encouraged to volunteer for as many things as you can. The Safety Volunteer area in particular needs to be fully staffed or the shooting lines shut down until they are staffed. You can be a Safety Volunteer with just a few minutes of training. It's not difficult, can be done by anyone who is willing and is a great way to meet other club members. Greg and Darrell will make sure you are comfortable with being a Safety Volunteer.
Class C Vending (closed during Public Displays)	05:00 - 10:00 PM	WWB Vendors	Class-C Tent	Vendor	Class-C Fireworks are now available! Swing by our vending area to add excitement to your celebrations with our top-quality fireworks. Enjoy them safely and light up your event with a bang!
B-Mag Open (closed during displays)	05:00 - 10:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Class B Safety	05:00	Safety Staff	Safety	Safety	To light your product on the B-line you need a sticker on your badge. That sticker tells the

Class (How to safely fire your shells)	- 06:00 PM		Tent		line Safety that you are qualified to light your product. Attend this quick seminar and learn how to safely conduct yourself out on the B-line. Each participant will light one B product under the watchful eye of a trained professional (well, mostly). When he is satisfied that you will be safe then you will get a sticker on your badge.
2024 WPA Wine Tasting & Foodie Competition	05:30 - 07:45 PM	WPA Members		Social	Announcing the 2024 Wine Tasting! A 20+ year old tradition in a steep decline! This year's theme, same as past year's theme: "It might (not) get better, but it still won't go away!" A light tasting of the chemistry of our peers - Celebrating 2 decades of wine-tasting comradery! We are continuing the multi-decade tradition of taking a break from the serious business of fire & light to test the fruits & labors of the greatest chemists of all. PLUS: We celebrate the WPA's 35th Birthday! WHAT: Liquid Competition: Bring a bottle of your finest choosing; categories are "ALL!" For you foodies: an Artisanal Food Competition with awards will hopefully bring out the best in you. PLEASE PARTICIPATE - Bring your favorite, most secrete dish - the judges are salivating! Remember, this is a light, fun tasting competition; not a full dinner with an open bar. Tiny cups & plates provided. 1st and 2nd prizes will be awarded for each category plus any other categories the judges damn well please. WHEN: 5:30pm Friday, PROMPT! Note time and day. We're going to taste, judge, cheat & wrap this up in 45 minutes. So don't be late! WHERE: At the Pyro Pavilion in the RV area of the parking lot. HOW: An objective judging process has been established and trust me, it will be completely honest. It is as follows: Last year, Todd went AWOL after 20 years of tasting, but fear not! He has returned, so when it comes to standing on a table telling the crowd to shut up, all will be as it was. Linda is absent this year, so Molly & Amber will be our electoral college: Amber will manage/discipline the crowd and Molly will award the prizes. Losers take home all the leftovers. Everyone gets ballots to cast as they chose. AGAIN THIS YEAR: Kief Adler, has been declared by the Wine Bored Of Directors to be our Cheater-In-Residence and thus will be forcibly recused from competing. AS BEFORE: The wine gods have chosen Steve Wilson to be the democratically selected winner of Friday night's vote. Our esteemed judges will be struggling to count votes without either interfering. We'll see how well that works. Selling votes, twisting arms, lying & cheating is expected and encouraged of course. And, like last year, Steve Yoss will be hosting the event at the Pyro Pavilion in the RV Area of the parking lot. So, be there or be square. And be on time! Our crowd will be huuuuuuuuuge!
Open Shooting (No salutes after 9PM! Lines closed during Public Display)	06:00 - 10:00 PM	Safety Staff	Firing Lines	Shooting	The skies are set to dazzle at the open shooting event—grab your fireworks and revel in the spectacle! Mind the curfew: no loud salutes past 9 PM. Enjoy responsibly and have a blast!
2nd Welcome Orientation Meeting (if missed the 4:00 time)	06:00 - 06:30 PM	WWB Staff	Hospitality Tent	Meeting	Get the low-down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.
Tonight's National Anthem is provided by Hauter Fireworks	07:30 - 07:40 PM	Hauter Fireworks	Race Track	Display	A rousing choreographed National Anthem presented by Hauter Fireworks.
Jakes Fireworks	07:40 - 07:55 PM	Jakes Fireworks	Race Track	Display	
Black Rock FX	07:55 - 08:10 PM	Black Rock FX	Race Track	Display	
Big Sky Fireworks	08:10 - 08:30 PM	Big Sky Fireworks	Race Track	Display	
Afterglow	10:00 PM - 01:00 AM	WWB Staff	Eagles Aerie	Social	Wind down at the end of each day at the Afterglow, this year hosted by the Eagles who have a fantastic spot for us less than a mile from the host hotel at their Aerie. Food is available for those who have prepaid for it as part of their registration. A no host bar is also available with very reasonably priced beer, wine and spirits. A complimentary shuttle service is also available nightly from the host hotel to the Aerie and back between 10PM and 1AM. Eagles Aerie is located at 1561 Marlboro Dr., Lake Havasu City, AZ 86403
Nightly RV Camping Social & After Party	10:00 - 11:55 PM	WPA Members		Social	Gather with your fellow Pyro Winter Blasters for an enchanting evening social and campfire at the Pyro Pavilion, nestled in the heart of RV camping. Immerse yourself in a lively celebration beneath the starlit sky, where the dazzling art of fireworks breathes life into the night. As dusk settles, converge around the campfire for moments that promise to be etched in memory. Wrap up warm, grab a chair, and bring along your zest for adventure. Contributions of drinks and fireworks are warmly received, enhancing our shared sense of joy. Whenever the campfire's glow lights up the night, it's your sign to join us for an evening brimming with fun and camaraderie.
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Event Day 5 | Saturday, February 17th, 2024

Topic/Activity	Time	Presented By	Location	Category	Description
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Pancake Breakfast	08:30 - 10:30 AM	Lake Havasu Sea Scouts	Sara Park	Social	Come out and support this Lake Havasu Sea Scouts fund raising event. They typically have pancakes, sausage, eggs, coffee and juice all for a modest donation towards their Sea Scout activities. It beats making your own breakfast and it's for a good cause!
New Member Orientation	09:00 - 09:30 AM	Dennis Miele	Hospitality Tent	Meeting	Are you new to the WPA or a first timer at Western Winter Blast? This seminar is just for you. Attendees will be given a brief history of the WPA, an overview of our policies and safety procedures. Time will be given for individual questions and answers followed by a guided site tour of the WWB site given by some of our current officers and key staff personnel. Get the lay of the land in the sunlight!
PIT Hand Fountains and Dipped Sparklers Workshop	09:00 - 10:30 AM	Peggy Purner, Bill Stevenson, PIT Crew Staff	PIT Tent	PIT Crew	Hand Fountains and Sparklers are enjoyable fireworks for kids young and old. Learn the chemistry and production of these popular hand-held fireworks by building your own, and enjoy it at the C-Line.
Winterblast Registration (Pre-Registered & Walk-In)	09:00 AM - 12:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
Trade Show	09:00 AM - 05:00 PM	WWB Vendors	Sara Park	Vendor	Explore the bustling trade show at WinterBlast, where vendors from across the pyrotechnic industry showcase their latest products and innovations. Make sure to visit each booth for a hands-on experience with cutting-edge fireworks technology and to connect with the minds behind the magic. Don't miss the chance to network with top suppliers and take your pyrotechnic passion to the next level at WinterBlast's vibrant marketplace.
Introduction to Building Fireworks	09:30 - 11:00 AM	Eric Krug	Tent 2	Seminar	This seminar is for people that want to start building pyro and don't really know where to start. Topics include the following: Legalities, Good Reference Websites, Safety, Setting up a place to work, What to steal from the kitchen when nobody is looking, Low-cost tools to purchase, and Basic chemicals. A few projects will be demonstrated including making Meal Powder, Cutting Stars, and Pumping Comets.
2" Comets - Part II, Lift & Leader	09:30 - 11:30 AM	Steve Wilson, Scott Morton, Clara Carstensen	Tent 3	Workshop	In part two of the 2" Comets workshop married comets will be joined and all participants will lift and leader their comets. The finished comet devices will be available on the B-line for firing later that evening.
B-Mag Open	10:00 AM - 03:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Getting an ATF Explosive License/Permit	10:00 - 11:00 AM	Joey Rothman, Paul Smith, John Steinberg	Tent 1	Seminar	What is the ATF and why should you care? This seminar will go over the ins and out of getting an ATF explosive license/permit for commercial and amateur fireworks. Questions to be answered are: When are you required to have a license? What am I allowed to do with a license? How do you get one? What are the penalties for not having a license? Is it worth the trouble to get a license?
Walking Tour of Manufacturing	10:30 - 11:30 AM	Myrl Wieland	Manufacturing	Meeting	Take a guided walk around the Manufacturing area and learn how to join their ranks. We have many very talented fireworkers who are happy to share what they are building.
PIT Mines for Beginners	10:30 AM - 12:00 PM	Tom Sklebar, Bill Stevenson, PIT Crew Staff	PIT Tent	PIT Crew	In this seminar, participants will learn about and construct mines to take to the C-Line or to incorporate into Sunday night's PIT Crew display.
Falling Leaves Utilizing Lance Tubes	11:00 AM - 12:00 PM	Lewis Dirks	Tent 2	Seminar	Lewis has been on a quest to make falling leaves inserts since 2017. He has attempted so many different methods of making them that he has lost count. At some point in that time he overheard someone talking about finding a small tube on the ground from a falling leaf shell. The lightbulb in Lew's head lit up (it was dim, but it was lit). He has worked for the last several years to get a falling leaf star made in a lance tube that worked to his satisfaction. The method he is currently using will be discussed during this session.
The Many Interests of Ken Kosanke	11:15 AM - 12:15 PM	Bonnie Kosanke	Tent 1	Seminar	This collection of videos was prepared by Ken Kosanke and presented at WWB XIX and revised for WWB XXIV. Ken showed many interesting pyrotechnic phenomena, many in slow or stop motion, so that the details may be more easily observed. These include items that interested Ken: research projects, safety testing, accident videos and more. Included are some cautionary tales on what went wrong. And, of course, lots of stuff "blowing up".
4" Italian Shell Workshop - Part 2	12:00 - 02:00 PM	Kurt Medlin, Scott Morton, Roberto Ramirez, Joseph Madziarczyk	Tent 3	Workshop	Lift and Leader the 4" Italian Shells made on Friday morning. In this session we will cover finish the shells by adding a length of quickmatch, wrapping the shell in a decorative paper, measure out the right amount of lift powder and tie it all in with string for a professional and festive appearance, ready to shoot.
62" Mortar Design, Mathematical Model and Results	12:30 - 01:15 PM	Eric Krug, Jim Widmann	Tent 1	Seminar	A team was formed in North America to attempt the launch of a 1,575 mm aerial shell with the goal to obtain a new world record. The design of large shell casings, internal pyrotechnic components, and the engineering design of the required mortar has previously been published. The first attempt on February 9th, 2019, resulted in a malfunction of the shell in the mortar producing a large flowerpot failure. The resulting

integrity of the mortar and the failure mechanism of the shell were of great concern. Undeterred, the team immediately began work on a second attempt that resulted in a successful launch on February 8th, 2020. This paper will review the analysis of the mortar after the failure, the process of rebuilding the mortar, additional engineering analysis, and changes to the shell design. A successful internal pressure profile was obtained and will be compared to the previously published internal and external ballistic mathematical model.

Chaotic and Cantankerous Caduceus Rockets	01:00 - 03:00 PM	The Jackalopes	J-Line	Workshop	Another chapter in the Jackalope's pyrotechnic exploration of all things twisty and spinny. These little sizzling and searing serpents consist of two black powder endburner rocket motors secured askew to a crossed rocket stick such that a serious amount of corkscrew accent will be achieved. Think of these as akin to an expedient version of the thrilling and at times terrifying girandola. Less materials, less fusing and less assembly time but darn near the same amount of pyro fun. This seminar will begin with a brief technical discussion of the endburner motors used, how these fun devices are built and then switch into the hands-on building domain where participants will assemble their very own Caduceus Rocket with spectacular effects. Participants can then return to the J-line during openshooting to light their creation. A 'lighting time' schedule will be announced during the seminar to make enjoying your creation straight forward. Participation limitations: We will have supplies for the construction of 40 Caduceus Rockets. Buddying up is encouraged. Make fee payments directly to the Jackalopes when you arrive at the workshop. Safety: Eye protection required during seminar. Evening open shooting - You will be in Jackalope Gulch so of course you will need all the usual B-line safety gear. Come prepared and have a fun time. Jackalope line safeties will oversee all pyro device ignitions.
PIT Smoke Bomb Workshop	01:00 - 02:30 PM	Bill Stevenson, PIT Crew Staff	PIT Tent	PIT Crew	The evening isn't the only time for fireworks! Learn how to build popular daytime smoke effects in a variety of colors, and make your own to take to the C-Line.
Winterblast Registration (Pre-Registered & Walk-In)	01:00 - 05:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
3" Bag Mines Workshop	01:00 - 03:30 PM	Gina Papini	Tent 2	Workshop	In this workshop participants will learn about mines, a mid-level firework device that sprays lit stars into the sky. This workshop will concentrate on the basic bag mine which is simple, effective, and easy to build. Since there are very few wrong ways to make a mine, we will show you most of the right ways. If there is enough time, we will even show you the wrong ways. Each participant will have the opportunity to make a 3" bag mine. These will be available at the B-line for you to light that same evening. Impress your friends with your newfound pyro-making abilities. There is no extra charge for the advice of the experts (it's worth every penny).
Modern Spectacle: Design, Technology, Considerations and Management		Eric Tucker, Martin Hildeberg, Patrice Guy, Peter Rogoz	Tent 1	Seminar	A roundtable discussion of show design concepts with some of the most accomplished pyrotechnicians in the world. Discussions include creative inspiration, workflows, technical developments, and the future of fireworks. What mediums outside of pyro, if any, do you seek inspiration from? Are there particular artforms that influence your work? What are the differences in your approach between designing a stand alone fireworks display vs being part of a multimedia production? Is designing as support for a live entertainer different than designing as part of a multi media show without a live entertainer? How does story influence your design work? Does story outweigh technical knowledge/effects when designing? Walk us through how live entertainment workflows have changed with the integration of several multimedia technologies driving a display at once. How does software like Finale3D and tools like timecode help you integrate a show? Given where the pyro performance industry is now ie: Music/video based, Drone integration, multi media effects like Laser, Water, Projections, Fire etc - where do we think we will be and/or want to be in 5 years? What excites you about fireworks/pyrotechnics? Is there any effect, show, venue, or project in particular that gets your juices flowing? Is there a difference in your approach when designing for a competition rather than a client? If you could give one piece of advice to current and future pyros, what would it be?
PIT B-Line and Bunker "Behind the Scenes" Tour	02:30 - 03:30 PM	Darrell Fiss, PIT Crew Staff	PIT Tent	PIT Crew	The C-Line is a good time, but the really big stuff is set off at the B-Line. Learn about how the club safely stores purchased and manufactured fireworks in a magazine and how they are launched at the B-Line with a behind-the-scenes tour!
The Art of Poi	03:00 - 04:00 PM	Antonio Restivo	Member Bleachers	Workshop	Poi is a performing art and also the name of the equipment used for its performance. As a skill toy, poi is an object or theatrical prop used for dexterity play or an object manipulation. As a performance art, poi involves swinging tethered weights through a variety of rhythmical and geometric patterns. Poi artists may also sing or dance while swinging their poi. Poi can be made from various materials with different handles, weights, and effects (such as fire). Poi originated with the Māori people of New Zealand, where it is still practised today. Poi has also gained a following in other countries. The expansion of poi culture has led to a significant evolution of the styles practiced, the tools used, and the definition of the word "poi." Increase your dexterity, and movement. Fun for all ages. This class will be in the basics of Poi and students will not be lighting anything on fire....JUST YET!!!
PIT Display Preparation	03:30 - 05:00 PM	Dave Tanner, Bill Stevenson, PIT Crew Staff	PIT Tent	PIT Crew	In this working session, we'll arrange elements of our display onto boards, choreographing groups of effects with the cues of our pyromusical.
Welcome Orientation Meeting	04:00 - 04:30	WWB Staff	Hospitality Tent	Meeting	Get the low-down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.

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Secondary Colors in Pyro: Orange, Yellow, Cyan and Purple	04:00 - 05:00 PM	Steve Majdali, Joel Baechle	Tent 1	Seminar	The palette of colors available in pyrotechny is pretty much determined by certain emitting species limited to strontium, barium, copper, sodium and sometimes calcium. This gives us the familiar red, green and blue primary colors with a few variations. All of the secondary colors must be made by carefully mixing the primaries, and that isn't always an easy task. This seminar will investigate how we approach producing the secondary colors, how effective they really are, and the difficulties in coming up with some of the trickiest hues such as purple and turquoise. Hues, Pastels, Tints, Tones and Shades are all terms used in color mixing. Even a simple artist's color paint set can have 24 colors or more. How can this concept be applied to pyrotechnics, and does it even matter? Methods and perception will be presented and discussed.
4 & 5 Inch Maltalian Shell Construction	04:00 - 05:00 PM	Mitch Piatt, Kevin Mather	Tent 2	Seminar	In this seminar you will learn how Maltese & Italian technics are combined to produce a single break color shell that looks Maltese without the need for commercial powders, solid stringing or a lift maroon and sabot.
Open WASP Workshop	04:00 - 06:30 PM	WASP Staff	WASP Tent	Workshop	Utilize our club's WASP for expertly pasting your fireworks, ensuring a perfectly round break with precision application. The WASP machine, coupled with its advanced WASP3 software, guarantees uniform coverage and optimal performance of your spherical shells. Observe the impeccable precision in the tape pattern demonstrated in the image, highlighting the WASP's accuracy and efficiency.
Safety Training (How to be a Safety Volunteer)	04:30 - 05:00 PM	Greg Dandurand, Darrell Fiss	Hospitality Tent	Safety	The WPA and WWB is run by volunteers and you are encouraged to volunteer for as many things as you can. The Safety Volunteer area in particular needs to be fully staffed or the shooting lines shut down until they are staffed. You can be a Safety Volunteer with just a few minutes of training. It's not difficult, can be done by anyone who is willing and is a great way to meet other club members. Greg and Darrell will make sure you are comfortable with being a Safety Volunteer.
Class C Vending (closed during Public Displays)	05:00 - 10:00 PM	WWB Vendors	Class-C Tent	Vendor	Class-C Fireworks are now available! Swing by our vending area to add excitement to your celebrations with our top-quality fireworks. Enjoy them safely and light up your event with a bang!
B-Mag Open (Closed during displays)	05:00 - 10:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Class B Safety Class (How to safely fire your shells)	05:00 - 06:00 PM	Safety Staff	Safety Tent	Safety	To light your product on the B-line you need a sticker on your badge. That sticker tells the line Safety that you are qualified to light your product. Attend this quick seminar and learn how to safely conduct yourself out on the B-line. Each participant will light one B product under the watchful eye of a trained professional (well, mostly). When he is satisfied that you will be safe then you will get a sticker on your badge.
Open Shooting (No salutes after 9PM! Lines closed during Public Display)	06:00 - 10:30 PM	Safety Staff	Firing Lines	Shooting	The skies are set to dazzle at the open shooting event—grab your fireworks and revel in the spectacle! Mind the curfew: no loud salutes past 9 PM. Enjoy responsibly and have a blast!
2nd Welcome Orientation Meeting (if missed the 4:00 time)	06:00 - 06:30 PM	WWB Staff	Hospitality Tent	Meeting	Get the low-down on what is happening at WWB this year. Attendance is mandatory to one session to get your wristband.
Tonight's National Anthem provided by Pyroland	07:30 - 07:45 PM	Pyroland Fireworks	Race Track	Display	
Skylighter	07:45 - 08:00 PM	Skylighter Supply	Race Track	Display	
Ernie's Pyro Pig	08:00 - 08:10 PM	Ernie the Pyro Pig	Race Track	Display	
Fireworks America	08:10 - 08:20 PM	Fireworks America	Race Track	Display	
Grand Public Display by Pyro Spectaculars	08:30 - 08:55 PM	Pyro Spectaculars by Souza	Race Track	Display	
Afterglow	10:00 PM - 01:00 AM	WWB Staff	Eagles Aerie	Social	Wind down at the end of each day at the Afterglow, this year hosted by the Eagles who have a fantastic spot for us less than a mile from the host hotel at their Aerie. Food is available for those who have prepaid for it as part of their registration. A no host bar is also available with very reasonably priced beer, wine and spirits. A complimentary shuttle service is also available nightly from the host hotel to the Aerie and back between 10PM and 1AM. Eagles Aerie is located at 1561 Marlboro Dr., Lake Havasu City, AZ 86403

Nightly RV Camping Social & After Party	10:00 - 11:55 PM	WPA Members		Social	Gather with your fellow Pyro Winter Blasters for an enchanting evening social and campfire at the Pyro Pavilion, nestled in the heart of RV camping. Immerse yourself in a lively celebration beneath the starlit sky, where the dazzling art of fireworks breathes life into the night. As dusk settles, converge around the campfire for moments that promise to be etched in memory. Wrap up warm, grab a chair, and bring along your zest for adventure. Contributions of drinks and fireworks are warmly received, enhancing our shared sense of joy. Whenever the campfire's glow lights up the night, it's your sign to join us for an evening brimming with fun and camaraderie.
Winter Blast Auction	10:30 PM - 12:00 AM	Kief Adler, WWB Staff	Eagles Aerie	Social	Get ready for a night of excitement and giving at the Winter Blast fundraiser auction, happening on Saturday night at the Afterglow! From the moment you step into the room, you'll be surrounded by a buzz of anticipation and energy. With a wide variety of items up for auction, there's something for everyone. Place your bids and feel the thrill of the auction as you compete against other bidders for the items you desire. And best of all, you'll be supporting a great cause while having a fantastic time. So gather your friends and join us for a night of bidding, laughs, and making a difference. See you at the Afterglow!

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Event Day 6 | Sunday, February 18th, 2024

Topic/Activity	Time	Presented By	Location	Category	Description
PIT Display Setup	09:00 AM - 05:00 PM	Dave Tanner, Bill Stevenson, PIT Crew Staff	Race Track	PIT Crew	We'll spend the day out on the racetrack laying out the elements of Sunday night's display and wiring them to be electronically fired in sync with our choreographed pyromusical.
Winterblast Registration (Pre-Registered & Walk-In) - On call, as needed	09:00 AM - 12:00 PM	Lonny Ross, Dennis Miele, Michelle Joye	Sara Park	Registration	Secure your spot for the Winter Blast event hosted by the Western Pyrotechnic Association and get ready for an unforgettable experience! Check in, collect your badge, and immerse yourself in the world of pyrotechnics, where excitement and education ignite. Join the celebration and let the Winter Blast adventure begin!
2nd Annual Winter Blast RV Brunch Pot Luck	09:00 - 10:00 AM	WPA Members		Social	Get ready for an unforgettable Sunday morning at the 2024 Winter Blast fireworks convention in Lake Havasu! We invite you to gather at the Pyro Pavilion in the RV parking area for a delightful potluck brunch beginning at 10 AM. This is your chance to showcase your culinary skills by bringing along your favorite dish to share with fellow fireworks enthusiasts. Don't forget to pack your plate, chair, utensils, and cup to fully enjoy the spread of tasty treats. Set against a backdrop of vibrant tunes, you'll find the perfect setting to mingle with good company, reconnect with old friends, and spark new friendships. Let's create a warm and welcoming atmosphere that complements the cool winter air. Join us in making this Sunday a day filled with joy, laughter, and delicious food. We're excited to see you there and taste what everyone brings to the table!
WPA General Business Meeting, Election & Awards	10:00 AM - 12:00 PM	WPA Board	Bleachers	Meeting	WPA General Business Meeting, Election & Awards.
B-Mag Open every hour, on the hour, for 15 minutes till 3 PM	12:00 - 03:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Members Showcase Deadline to Sign Up	12:00 - 12:15 PM	Margye Damjanovich, Bob Damjanovich	Manufacturing	Shooting	The Members Showcase is chance for our member manufacturers to show their weeks work on dark skies with an eager audience. All entries must be member made devices - not purchased. Typically we see fabulous displays of craftsmanship and art spanning the range or round shells, cylinder shells, rockets, and more. Down load the entry form from the event tab or see Bob D. or Margye D. for a copy of it. Sign-up and entries must be complete and ready for the Membership Showcase team to e-match and drop by 12:30 pm on Sunday. Late entries may be refused depending on size of the show and number of volunteers available to load and wire the show. Here's an idea - volunteer to help the team get 'er done!
Trade Show	12:00 - 04:00 PM	WWB Vendors	Sara Park	Vendor	Explore the bustling trade show at WinterBlast, where vendors from across the pyrotechnic industry showcase their latest products and innovations. Make sure to visit each booth for a hands-on experience with cutting-edge fireworks technology and to connect with the minds behind the magic. Don't miss the chance to network with top suppliers and take your pyrotechnic passion to the next level at WinterBlast's vibrant marketplace.
Members Showcase Deadline to Deliver Product	12:15 - 12:30 PM	Margye Damjanovich, Bob Damjanovich	Sara Park	Shooting	The Members Showcase is chance for our member manufacturers to show their weeks work on dark skies with an eager audience. All entries must be member made devices - not purchased. Typically we see fabulous displays of craftsmanship and art spanning the range or round shells, cylinder shells, rockets, and more. Down load the entry form from the event tab or see Bob D. or Margye D. for a copy of it. Sign-up and entries must be complete and ready for the Membership Showcase team to e-match and drop by 12:30 pm on Sunday. Late entries may be refused depending on size of the show and number of volunteers available to load and wire the show. Here's an idea - volunteer to help the team get 'er done!
Tingles &	12:30	Collin van	Tent 1	Seminar	Pyrotechnic arts can have an impact that we feel both in our bodies and in our

Goosebumps: Resonance in Response to Pyrotechnic Arts	- 01:30 PM	Uchelen			emotions. At times, we are thrilled by awesome brilliance and shocking intensity in a display. At other times, we feel tingles and goosebumps in moments that touch us deeply. “Resonance” is the word I use to describe this experience. In this interactive seminar, we will explore what ingredients help create this tingling energy in response to fireworks and pyro-musical displays.
Lifting and Rising Balls	12:30 - 02:00 PM	Ellen Webb	Tent 2	Seminar	In this demonstration seminar you will learn how to attach a lift line to your ball shells. This method uses a twisted cotton rope that has the individual strings opened and attached to the shell, then glued and taped, giving a sleek, “onion top” appearance. For super a quick attachment, there will also be demo on how to secure by a tie off. To the rope the demonstration will show how to attach rising flower effects. The rising flower effect segment will include discussion on how the ‘flowers’ should be made (size, stars, effects), the timing of the “flowers” and the ignition of the “flowers”. There will also be a demonstration on an easy and secure method of attaching Rising Comets. This seminar is didactic and demo only.
Where Do Stars Come From?	01:45 - 03:00 PM	Joel Baechle	Tent 1	Seminar	Over, under, sideways, down, backwards, forwards, square and round - how do we make stars? What is a star, what are the various kinds and how are they made? Going beyond the usual formulas and techniques, this seminar will start with conventional methods of star-making, and present some of the nuances of production, including solvents, binder solutions, and best uses the many varieties. Time permitting, some of the more specialized or unusual methods may be presented. It's a much bigger subject than is covered in the literature that most are familiar with. A thorough overview of the different kinds of stars used in fireworks, merits and uses.
Fundamentals of Hydraulic Presses	02:00 - 03:00 PM	Ben Smith	Tent 3	Seminar	An overview of hydraulic presses for pyrotechnics. This seminar will cover the basic operation, safety concerns, and applications as it pertains to making pyrotechnic devices.
Finales Roundtable	03:00 - 04:00 PM	Sam Bruggema, Don Kark, Scott Danielson, Aaron Enzer	Tent 1	Seminar	An open discussion about the many ways to approach, assemble and fire a finale. Discussion will address budgets, electrical versus hand fire, types of product and styles. A number of prominent display operators and choreographers will join Sam Bruggema in this vigorous discussion.
Rockets Roundtable	03:30 - 05:00 PM	Kurt Medlin, John Steinberg, Steve Majdali, Ben Smith	Tent 2	Seminar	This session features a panel of experienced rocket builders that will discuss how various fireworks rockets are made, including Black Powder rockets (core and end burning), Whistle Rockets, Strobe Rockets and Hybrid/Colored Tailed Rockets. During the discussion the panel will discuss each of the four rocket types, starting with a brief description of the rocket type and a diagram for reference. The amount of time spent on each will be determined by audience and panelists interest and engagement Discussion topics for each rocket type include – Aesthetics - what makes for a good/successful rocket of this type? – Formulating, mixing, adjusting the propellant – Tooling - differences/similarities to other rocket tooling – Loading the motor - hand ram or press, important considerations – Ignition considerations - how and where to light the propellant – Guidance/stability considerations – Display headings
Class C Vending (may close during the PIT show & Members Showcase)	05:00 - 09:30 PM	WWB Vendors	Class-C Tent	Vendor	Class-C Fireworks are now available! Swing by our vending area to add excitement to your celebrations with our top-quality fireworks. Enjoy them safely and light up your event with a bang!
B-Mag Open (Closed during displays)	05:00 - 10:00 PM	Security Staff	Container	Shooting	Storage Bunker (B-Magazine) is now open for both product drop-offs and pick-ups.
Class B Safety Class (How to safely fire your shells)	05:00 - 06:00 PM	Safety Staff	Safety Tent	Safety	To light your product on the B-line you need a sticker on your badge. That sticker tells the line Safety that you are qualified to light your product. Attend this quick seminar and learn how to safely conduct yourself out on the B-line. Each participant will light one B product under the watchful eye of a trained professional (well, mostly). When he is satisfied that you will be safe then you will get a sticker on your badge.
Open Shooting (No salutes after 9PM! Lines closed during Public Display)	06:00 - 10:30 PM	Safety Staff	Firing Lines	Shooting	The skies are set to dazzle at the open shooting event—grab your fireworks and revel in the spectacle! Mind the curfew: no loud salutes past 9 PM. Enjoy responsibly and have a blast!
PIT show, Members Showcase & Closing Show (Open shooting closed for duration of display)	07:30 - 08:30 PM	WWB Staff	Bleachers	Display	The Members Showcase is chance for our member manufacturers to show their weeks work on dark skies with an eager audience. All entries must be member made devices - not purchased. Typically we see fabulous displays of craftsmanship and art spanning the range or round shells, cylinder shells, rockets, and more.
Closing Party RV Camping Social & After Party	09:00 - 11:55 PM	WPA Members		Social	Gather with your fellow Pyro Winter Blasters for an enchanting evening social and campfire at the Pyro Pavilion, nestled in the heart of RV camping. Immerse yourself in a lively celebration beneath the starlit sky, where the dazzling art of fireworks breathes life into the night. As dusk settles, converge around the campfire for moments that promise to be etched in memory. Wrap up warm, grab a chair, and bring along your zest for adventure. Contributions of drinks and fireworks are warmly received, enhancing our shared sense of joy. Whenever the campfire's glow lights up the night, it's your sign to join us for an evening brimming with fun and camaraderie.
Afterglow	10:00	WWB Staff	Eagles Aerie	Social	Wind down at the end of each day at the Afterglow, this year hosted by the Eagles

PM -
01:00
AM

who have a fantastic spot for us less than a mile from the host hotel at their Aerie. Food is available for those who have prepaid for it as part of their registration. A no host bar is also available with very reasonably priced beer, wine and spirits. A complimentary shuttle service is also available nightly from the host hotel to the Aerie and back between 10PM and 1AM. Eagles Aerie is located at 1561 Marlboro Dr., Lake Havasu City, AZ 86403

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Event Day 7 | Monday, February 19th, 2024

Topic/Activity	Time	Presented By	Location	Category	Description
Tear down and clean up at SARA	09:00 AM - 02:00 PM	WWB Staff and Volunteers	Sara Park	Social	Volunteer to help with clean up and get some or all of your clean up deposit refunded.
# 1					

WinterBlast Presenters and Contributors

Name	Biography
Joel Baechle	Joel Baechle has been involved in pyrotechnics since 1970 when he did his first fireworks display. He started out working at a fireworks stand on the state line and gradually found his way into the proximate pyrotechnics and special effects field, where he continues to innovate today. He tries as best as possible to inspire the creative elements of pyrotechnic progress, the cornerstone of this effort being his 1989 monograph, Pyrocolor Harmony: A Designer's Guide. The purpose of this is to encourage a vision of pyrotechnics that is more artistic and less mechanical in order to bolster its reputation in the face of increasing regulatory issues. He remains committed to a multi-dimensional, American vision of fireworks presentation, rather than a "DJ" approach of launching imports to music. He has a B.A. degree in Sociology, and maintains a keen interest in the evolution of the arts in society through this season of rapid change, especially through the progress of multimedia entertainment. In other words, pyrotechnics should keep pace with changes in lighting design and entertainment presentation, and not become an artifact of the analog era. His wife Barbara has supported him in this difficult field for over 30 years, and their three sons are all involved in music and art as well. He resides in Northern California
Monica Blam	has been working firework shows since 2014, has been licensed since 2017, and attending winter blast since 2015. Her interest in art, rock 'n' roll, punk, and metal music has given her a sense for appreciating the subtle elegance and refinement in fireworks.
Sam Bruggema	Sam is a Pyro Show Designer for Pyro Spectaculars by Souza and has had the privilege of designing shows for a long time - 2024 will be his 27th Year. Sam started working on displays when he turned 18, right after graduating from high school in 1979. In 1988 he got his CA Basic Public display license #1177-02. In 1987 Sam started working at San Diego Fireworks as a shop technician, prepping all kinds of low level devices, aerial shells, building set pieces and crewing on displays, handling all types of fireworks. That's where he learned what they're called and what they do! Over the years he had plenty of mentors including Dick Borgerding, Ron Dixon, Eric Tucker, Ken Nixon, Jim Souza and Jean Star. Since then he had the honor of creating 1000's of friendships that to this day are what makes his pyro tenure worth it. Sam has done a ton of traveling across the globe to work on or watch some of the best pyrotechnics a person can: China, Hong Kong, Japan, Italy, Malta, Canada and Mexico and oodles of events such as Olympics, Super Bowls, NFL, MLB, NCAA, Soccer, Lacrosse and many theme parks and festivals. The KGB Sky Show in San Diego was a display that had been a long time desire to be able to produce, which he has been able to do brilliantly multiple times now. As a show designer, Sam has found that the few who have this privilege pretty much feel as he does. A display is built with many, many looks from the start to the end. He states "Our work is valuable; Our job is to finesse the pyrotechnics to tell the story while unwrapping and revealing the moods and intensity of the audio track. A successful display is leaving the audience begging for more, appreciating the in-show pyrotechnic offerings." He dreads hearing: "That was a great finale" The Finale is Just That, The End! - All parts of a Synchronized and Choreographed Display are equally important.
Tom Calderwood	Tom got hooked on pyro when he was given a (stolen) pack of Black Cats at age 8. He soon discovered Estes and Centuri rockets, and these took priority over 'crackers, sparklers, and smoke bombs. In the WPA, he found his niche with BP rockets. His involvement with the club led him to be involved as the publications chairman with the BOD for 6 years. Tom is a retired photographer and can regularly be found at fireworks displays with his camera in tow.
Greg Dandurand	Greg has been in pyro clubs since 1999. He started in the Michigan Pyrotechnic Arts Guild (MPAG) and is a current member of the Pyrotechnics Guild International (PGI). He has been a member of WPA since 2002. He wears the hats of President, Safety Chair, and BATFE Liaison for this event. He is a Head Pyro for a company that shoots shows in the Phoenix area
Mark Devon	Mark Devon graduated from University of Michigan BSEE '78 and MSEE '80. He has worked as a HW/RF engineer at many of the Silicon Valley companies during this time such as Intel, Apple, Microsoft, Broadcom as well as various startups and consulting jobs. He began with wired data such as Ethernet and token ring moving on to wireless devices following the popularization of frequency hoppers in the 90s and then Wifi in the 2000s. One start up in particular, Silverspring Networks, shipped 25 million devices (the dreaded PG&E smartmeter) with his design in North America and Australia using the 900MHz frequency hopper. He has 10 patents (he thinks). Pyrotechnically, Mr Devon joined the PGI in 1991 and the WPA in 1992. He began shooting shows with San Diego fireworks in the Bay Area and went on doing shows with Pyro Spectaculars for the next 25 years including SF Giants, Oakland A's, SJ Giants and various birthday parties and weddings. Due to some wine tasting episodes gone wrong at some of the early WPA he became the poet laureate of the WPA and threatens to publish more if you won't buy his firing system.
Lewis Dirks	Lewis Dirks was born and raised in Nebraska and moved to Sioux South Dakota in 1986. have been self employed since then. Was a member of 1st Special Forces and serviced in Vietnam as combat engineer.(Demo Man). My family has always liked fireworks and as my children got older we started to shoot more stuff. In the early 2000's we started to put on a class C show for the 4th of July for ourselves and a few friends. Along with other people we are still putting on a fireworks show for our family and friends. Joined PGI in 2010 and have been to all conventions except for 2023. I am also a member of the Iowa Pyrotesticles Association and am proud to be invited to attend and participate in Ozfest. This will be my third trip to Winter Blast. Since 2017, I have been on a quest to make falling leaves. I have attempted so many different methods of making them that I have lost count. Overheard a guy talking about finding a small tube from a falling leaf shell. Have worked for the last three years to get a falling leaf made in a lance tube. The method will be shown to you a Winter Blast 2024.
Darrell Fiss	Darrell Fiss gained most of his Safety knowledge by accident. At age 6 he experimented with fire in the family garage where the fire turned out good and the Volunteer Fire Department responded quickly. When Darrell was about 10 he and a few friends experimented with homemade cannons. They used ½" pipe with an end cap for the barrel, a charge came from a "Blockbuster" firecracker, and marbles or ball bearings were the projectiles. Their test range was a sandbox in the local playground and the target was the wooden shutters on the local Curling Rink across the 2 lane street. Imagine the excitement as they tried to extinguish the lit fuse!
Mike Garrett	Mike has been intrigued by the beauty and ephemeral nature of fireworks for as long as he can remember. However, until 2009 it never occurred to him that anyone could legally make their own fireworks as a hobby. At that time, he discovered two fireworks clubs that changed everything about the way he viewed fireworks and began his journey as a fireworks maker. Those clubs were the Western Pyrotechnic Association (WPA) and Pyrotechnic Guild International (PGI). Mike uses his background in physics and engineering as a foundation to make traditional and not-so-traditional fireworks. He thinks fireworks is the perfect blend of science, technology, engineering, art, and math to express

his creative visions. He strongly believes that education will preserve the art of fireworks and make it safer for the hobbyist to participate. You will often find Mike teaching or facilitating educational seminars and workshops related to fireworks at club events. Don't get him talking about fireworks unless you have an hour to burn.

Mike Gerson	Mike Gerson started his fireworks career as a part time crew member before obtaining his operators' license about 10 years ago. Since then he has shot shows all over California as a licensed operator. At some point during that time he met a guy named Tommy who invited Mike to build shells at a WPA event called Do-It. Mike was immediately hooked on manufacturing and joined the WPA to build fireworks at every event he could attend. A few years later Mike caught wind of the fact Harry Gilliam of Skylighter was closing up shop and liquidating the inventory. Would all that wonderful free information about projects and all those handy charts and tables be lost forever? Since Mike had not had a real job in about 10 years (and being basically unemployable) it occurred to him that "Maybe I could be the guy to carry the Skylighter torch for Harry." After a flurry of emails and texts they struck a deal and now it's Mike's problem. Since that time he has updated the Skylighter website and restocked the popular kits and chemicals. Regarding the fireworking community in general, Mike is certain that he has found his people and now owning Skylighter he is "living the dream."
Monty Gill	Monty crewed his first public display Independence Day 2006 and has not looked back since. He joined the WPA a few years later. When not working as a professional bio writer, he is doing mature adult things. Definitely not reading comic books, playing video games, watching cartoons, going to heavy metal shows, watching horror movies, shooting stuff, or playing with fireworks.
Todd Hall	Todd Hall is known to his pyro brethren as "Rainbow" because he brings color into the world. He is one of those anonymous guys who mixed pyrotechnics and performance art at the age of 12 behind the barn (black powder, model cannons, and Polaroid cameras). These developed through the 1970s teenage years with flame fire dives at the public pool and matured on stage in his New York college days with anything that could be legally ignited or exploded in public. Todd received a grant from the NEA in San Francisco in the 80s as a guest sculptor & performance artist at the SF Art Institute where he used all that money on crayons and cheap white wine. Consequently, he was never invited back.
Martin Hildeberg	Martin, a well-known Swedish pyro, has been fascinated by fireworks since the age of 7. He has worked all his life in the design of fireworks and pyromusicals, boasting 27 gold medals from international fireworks competitions. Martin is a recent WPA member and in his private life he enjoys travelling, diving, hunting and cooking.
The Jackalopes	About the Jackalopes... If you ever wondered if them wabbits with horns are for real - wonder no more. Hailing all the way from the dusty domains of Dismal Nevada, Jackalope Brand Fireworks is more conceptual than physical. Drawing inspiration from Maltese, Tultepec and early Americana pyro traditions Jackalope Brand wants to remind folks that pyro has a rich and varied vernacular. To these ends the members of Jackalope Brand draw on a wide array of artistic talents including, but not limited to, pyro art, machine art, painting, paper mache, blacksmithing, cardboard art, set construction and audio design. The most important takeaway is that the Jackalopes put the fun in pyro!
Don Kark	Don Kark has been a licensed pyro for over 30 years, shooting electrically all that time. He is an Electrical Engineers and has built and used several firing systems over the years. He is Co-Founder of SimpliFire LLC, makers of the Mongoose firing system, and has had a variety of Engineering positions over the years, in defense, internet, and Internet of Things device development.
Lynden King	Lynden King was first introduced to fireworks displays by John Sullivan of the old California Fireworks Company (Red Devil) when he was 16 years old. John helped Lynden get his license a month after he turned 21 in 1973 and Lynden did his first show a few weeks after that. He has been putting together firework shows for over 50 years and is involved in about 20 firework displays a year, all of which are partially or completely electrically fired. Lynden has been a member of the WPA since 1997 and several years with PGI.
Bonnie Kosanke	Bonnie Kosanke has an MS with extensive experience conducting and directing research, and as a computer scientist. She is the originator and past publisher of the Journal of Pyrotechnics, a technical journal on pyrotechnics. Historically, the Kosankes commercially manufactured fireworks and performed fireworks displays. More recently they operated a pyrotechnic research facility, specializing in making physical measurements on fireworks and pyrotechnic items. They lectured extensively in several countries on pyrotechnic chemistry and firework display safety and have written approximately 350 articles and papers on fireworks, pyrotechnics, and explosives. In concert with contributing pyrotechnicians around the world, they published Pyrotechnic Chemistry and The Encyclopedic Dictionary of Pyrotechnics and Related Subjects. Their legacy of published works is available for free download from www.jpYRO.co.uk .
Ken Kosanke	Ken Kosanke held a PhD in physical chemistry with post-doctoral work in physics. He conducted research in Nuclear Chemistry for the DoE and for the last 30 years of his life, fireworks. He was a special expert on the National Fire Protection Association's Technical Committee on Pyrotechnics (and on their Technical Committees on Explosives and Special Effects). Ken's favorite pastime, as with many of us, was researching fireworks, pyrotechnics and explosives, for which he consulted and published his results and observations. Historically, the Kosankes commercially manufactured fireworks and performed fireworks displays. More recently they operated a pyrotechnic research facility, specializing in making physical measurements on fireworks and pyrotechnic items. They lectured extensively in several countries on pyrotechnic chemistry and firework display safety and have written approximately 350 articles and papers on fireworks, pyrotechnics, and explosives. In concert with contributing pyrotechnicians around the world, they published Pyrotechnic Chemistry and The Encyclopedic Dictionary of Pyrotechnics and Related Subjects. Their legacy of published works is available for free download from www.jpYRO.co.uk .
Eric Krug	Eric Krug graduated in 1985 from Kansas State University with a Bachelor of Science degree in Electrical Engineering Technology. He then moved to Loveland Colorado and specializes in electrical and mechanical product design. He owns his own development company that includes a full machine shop. Eric also teaches advanced CNC machining at the local community college. Eric has been very active as a licensed professional pyrotechnician since 1981. He has had the opportunity to compete in the Montreal International Fireworks Competition twice and is the lead pyrotechnician for many large pyro productions. Eric is very active in the PGI and other groups. As a part of his product development company, Eric also produces a wide variety of tools for the pyro industry. Eric is also an accomplished musician and plays a variety of instruments.
Josh Lazarus	Josh Lazarus is a licensed display and special effects technician in multiple jurisdictions, having worked on over 200 events including the Super Bowl, Wrestle Mania, the Miss American Pageant, to name a few. He is the owner of J Lazarus Consulting and Training LLC and the former Supervisor of Inspections for the New Jersey State Fire Marshals Office. He is a Co-Director of the PGI training program and one of the editors of the current PGI Display Operator Certification Guide. He is also the immediate Past President of the Florida Pyrotechnic Arts Guild.
Margo Lund	Margo Lund has been working with Pyro Spectaculars since June of 1999 and officially hired in November of 2005. She first began working with Dorris Hennings in the Shipping department, then moved up to Accounting. Now she does her favorite job which is working with large number of Pyrotechnic Operators, assigning shows and taking care of the many details related to putting on fireworks displays of a large scale. Margo is the one to call in the office in Rialto, CA when it's time to get things done!
Joseph Madziarczyk	is an accomplished fireworks maker concentrating on the Italian style of shell building. He is an award-winning photographer of fireworks; he has served as a national judge for PGI fireworks competitions and as the San Diego Area VP for WPA. During his career in fireworks, he had been both a consumer dealer of fireworks and a display operator. But most of all, he loves teaching pyrotechnic basics to beginners.
Steve Majdali	Steve Majdali: is a charter member of the WPA, a member of the PGI since 1984, and is an executive member of the Reaction Research Society (the oldest amateur rocketry organization in the USA). He has been published in several pyrotechnic newsletters as well as Pyrotechnica and American Fireworks News. Always willing to share, Steve has given seminars or demonstrations at every PGI convention attended so far (20 to date) and many more at Winter Blast. A licensed pyrotechnic operator for over twenty years in CA, Steve is a fabricator of pyrotechnic tooling, an amateur chemist, and a pyrotechnic consultant and educator. An electrical mechanic by trade and an inventor/tinkerer by nature, He is mostly self-taught in chemistry, fluid power systems, and writing. He has been a fireworks enthusiast since his youth and learned machining to further his research in pyrotechnics and rocketry.
Kevin Mather	Kevin Mather (aka "Moonbeam") has been mixing chemicals and playing with fire since he was given a chemistry set at age 8. When asked about how he got started in pyro, he quickly answers that his mother is primarily to blame. Growing up in Colorado, fireworks were a common

	part of family celebrations and were actively encouraged by his mother. Kevin has been quoted saying, “Birthdays, Christmas, Chanukah, the summer solstice, and most days of the week were all celebrated with fireworks in my family.” Kevin is fascinated by Italian shell construction and attributes this to his love of “cut and paste” in kindergarten.
Kurt Medlin	Kurt Medlin first began trying to make fireworks around age 10 (with the patient tolerance of his mother and the encouragement of his father!). An avid collector of fireworks books and publications, Kurt acquired copies of the classic texts by Weingart, Davis, and Lancaster by his late teens. Kurt joined the PGI in 1982 at age 22, attended his first PGI convention in 1983 and gave his first seminar at the 1986 PGI convention. Kurt worked his first public fireworks display in 1984. Kurt is a life member of both the PGI & WPA and a former board member of both organizations. Kurt has given seminars at previous PGI conventions and WPA Winter Blast conventions on black powder rockets, tourbillions, girandolas, large bore candles, fountain and wheel construction, and traditional Italian shell building. In addition to hands-on firework making, Kurt is interested in fireworks history and collecting antiquarian fireworks literature.
Vijay Mepani	Vijay Mepani has been with CAL FIRE - Office of the State Fire Marshal for 8 years. For the past couple of years, he served as the Fireworks Program Coordinator in the Fire Engineering and Investigations Division. Recently he accepted the Motion Picture & Entertainment Safety Program Coordinator position.
Dennis Miele	Dennis Miele got his start in fireworks in 2001 helping a study group friend with a hand-fired 4th of July show in Mission Viejo, CA. Two more hand-fired shows that season, and Dennis was hooked, becoming a licensed pyrotechnician for Pyro Spectaculars in 2002, shooting many large and small shows ever since. He started attending WWB (unofficially) in 2001, becoming a member of WPA in 2002. Dennis usually can be found at the Registration office during WWB. He is currently Secretary of WPA and loves (almost) every minute of it!
Gina Papini	Victor and Gina Papini work on several pyro crews at night and by day are both retired and run a non-profit daycare (babysitting the grandkids). Victor has loved fireworks his entire life and has some stories to tell about his younger days (can't print because not sure about the statute of limitations). When Victor joined a pyro crew, Gina also joined so she wouldn't have to sit at home alone while Victor had all the fun. Victor learned about manufacturing when he first attended Do-It. He started taping shells on rockets and now puts gasoline in a bottle on rockets. Gina, looking for something to do, started with bucket mines, bag mines, and then progressed to shells. She asked for and got a WASP machine for an anniversary present. Victor also builds shells when he runs out of rockets. Never lighting her own products, Gina lets Victor do the honor while she pretends to take pictures. He thinks she has tried to kill him on several occasions and has since let his life insurance lapse hoping to avoid future “accidents.” Friends Theresa and Jon will be helping out in the seminar to make sure there are no more “accidents.”
Whitney Petersen	Whitney Petersen has enjoyed fireworks since he was a little kid lighting firecrackers that his grandfather brought back from Hawaii in his golf bag. Despite the decades long interest in fireworks, he still considers himself a newbie in manufacturing. In 2018 he discovered Fireworking.com. This led to two trips to Thailand to build with Paul Molder and the good fortune to meet and build with many accomplished pyros. Since that time, Whitney has thrown himself at this hobby with a staggering voracity. He often says it's the number of hours you've done something, not the number of years. While he has a well-rounded interest in all things pyro, he spends most of his time on large, multi-break cylinder shells and rockets.
Caleb Phillips	Caleb Phillips has been with CAL FIRE - Office of the State Fire Marshal for 3 and a half years. He has served as the Fireworks program coordinator for a little over two years. Prior to working for CAL FIRE, he was a chemical engineer at an environmental regulatory agency.
Mitch Piatt	In the early 1990 Mitch first found out individuals could make their own fireworks when looking for red arsenic for a rocket tracer formula. Absolutely amazed at the prospect, he joined the PGI that same year and attended his first convention in Auburn-Weedsport, NY. The following year he set out to get a group of hard-working individuals together to form the Florida Pyrotechnic Arts Guild. When the club was incorporated in 1992, he served as its first President and has sat on the board multiple times since. For the past 32 years, he has built fireworks of all types including fountains, rockets, large ball and multi-break canister shells, and even a 75-foot tall castillo. He's visited Tultepec, Mexico on four occasions and Malta, Europe on seven. Learning on every trip he's agreed to come and share some of what he's learned at this year's Western Winter Blast.
Roberto Ramirez	Roberto Ramirez grew up in Pico Rivera, CA, and fell in love with fireworks as a kid. His fascination with chemistry and fire naturally led him to an interest in pyrotechnics. Roberto joined the WPA in 2004 and hasn't missed a Winterblast since! His initial interest was to find out how to work on commercial displays which led him to shoot shows with Fireworks America and the Flying Monkeys Pyro Team. In 2006 he took a 4" Italian shell seminar led by Steve Wilson and decided to focus on making Italian style shells “the old school way”. Roberto has an A.S. degree in Environmental Technology and is currently working at a staging and production company in Southern California. When not shooting firework shows or cooking (another of his interests) he can be found out and about in SoCal supporting the local punk rock scene.
Antonio Restivo	Antonio Restivo's career with fire started at the late age of 8 when he set his best friends backyard on fire and burned down 6 acres of property. Realizing then, it had to become a career or he would just end up in jail. With his Italian/Sicilian background, it could have gone either way! In the late 90's he learned to spin Poi and traveled around the world spinning and teaching classes. His safety classes developed from using Duvatyne or a wet towel, to the different types of fire extinguishers. After being in Las Vegas and working on some of the biggest pyro shows in the world, Antonio started to put a lot more focus into safety and what that means everyday. He has been a senior fire safety instructor for companies like Cirque du Soleil, Celestia, MGM and even teaching classes for Clark County Fire (mainly teaching inspectors what to look for with fire performances).
Joey Rothman	Joey Rothman has been involved in the pyro community since 1992 which is when he first met Richard Cole and became his protégé. Joey attended several WPA and PGI events with Richard and continues to attend events with his family based out of Alabama. He's dedicated to helping pyros stay in compliance with federal explosives laws and has a Facebook group dedicated specifically to getting and maintaining an ATF explosives license or permit. Joey has an ATF Federal Explosives License (FEL) for manufacturing and a type 4 magazine on his property. Joey is interested in expanding his magazine collection to include a type 2 magazine for high order explosives.
Tom Sklebar	Tom started helping his father dynamite rocks as a kid almost 60 years ago. He is a hobbyist pyro who has built various devices for some time starting in the 1990's. A member of PGI, WPA, FPAG, Northern Lighters, WPAG. For his usual private 4th of July show he builds lance work, gerbs, mines, rockets, wheel, saxons, tourbillions, girandola, comets, ball shells from 3 - 12", Maltese single and multibreak shells, Italian single and multibreak shells and various other articles pyrotechnic. Tom has taught or helped at workshops and seminars for some years now (as well as neighbors and their children and now grandchildren)
Paul Smith	Paul Smith has a degree in chemistry and currently works at Purdue University in Chemical Education. He has over 30 years of experience in demonstrating pyrotechnic chemistry in the classroom and the evening sky. He is a contributing author for the PGI Display Operator Certification Study Guide, a Certified Instructor for the Display Operators Course since 2004, and continues to serve as the PGI President.
Ben Smith	Ben started his pyro career at an early age. As a boy, he saved his pennies throughout the year just to be able to visit the fireworks stands during that one great week in July. While in elementary school, he was exposed to the world of rocketry and began constructing sugar and BP rockets. This led to the experimentation and construction of other pyro devices. Ben currently owns and operates FireSmith Pyrotechnic Tooling. Through this enterprise, he has designed and currently manufactures over 150 different tools and machines used to construct a wide variety of pyro devices.
John Steinberg	John Steinberg, principal author of the PGI Shooters Certification course textbook is a licensed lead operator for 25 years. John serves on the NFPA SFX TC and is a principal member of the NFPA Technical Committee on Pyrotechnics, which writes NFPA-1123, NFPA-1124, and other documents and he will be happy to answer any code questions you may have. Contrary to a popular cultist belief, John is not an anarchist and, in fact, he takes his MSDS very seriously, and brushes after every meal.
Bill Stevenson	By day, Bill is a software project manager in Silicon Valley, and in his free time he enjoys woodworking, leading a Cub Scout Pack, and using fireworking to teach himself and his kids about the intersection between art and science.
Barry	Barry became interested in fireworks in England, at the age of four years, when his dad brought home a big bag of “Standard” fireworks for Guy

Sturman	<p>Fawkes Night, 1950. A couple of years later the family moved to Western Australia, where Guy Fawkes was celebrated each year much as it had been in England. His fascination with fireworks led Barry to take an interest in chemistry, which became his profession. He had a long career as a lab technician, followed by 27 years in the scientific instrument industry, working on various aspects of analytical atomic spectrometry. In the 1980s Barry began collecting books and ephemera relating to fireworks and matches. He joined the PGI in 1988 and for several years worked after hours with a local firework display company under the direction of artist Peter Budarick. At about this time Barry had a part time business providing firework displays for school fetes and community festivals. An article by Barry about one of Budarick's displays was accepted by Robert Cardwell for publication in Pyrotechnica. This was the first of many publications; Barry is a regular contributor to John Bennett's biannual magazine FIREWORKS and his writing has also appeared in Journal of Pyrotechnics, Propellants, Explosives, Pyrotechnics, American Fireworks News, and in the PGI Bulletin. From 2001 to 2007 Barry was a member of the Policy Board of the Journal of Pyrotechnics and a technical editor for that journal. In 1995 Ken and Bonnie Kosanke wrote and published "The Illustrate Dictionary of Pyrotechnics". In a flyer inserted in the book the Kosankes announced a two-year project to expand the work into an "Encyclopedic Dictionary of Pyrotechnics" and invited contributions. Bob Winokur and Barry joined the project as co-authors. The project took seven years and resulted in a 3-volume "Encyclopedic Dictionary of Pyrotechnics (and Related Subjects)" that was published in 2012. The book was well received and a second edition was immediately begun. After another seven years' work the greatly expanded 4-volume second edition was ready for publication in 2019. Rather than producing what would inevitably have been a very expensive set of volumes, the authors decided to make the new edition available free of charge over the Internet. This was done in August 2019. Knowing Barry's particular interest in matches, Ken Kosanke suggested that Barry should collect the match-related entries and present them as an "Encyclopedic Dictionary of Matches (and Related Subjects)". This was done and the resulting book, carefully edited by Bonnie Kosanke, was made available as a free download from the website of the British Matchbox Label and Booklet Society in August 2020. A second enlarged edition is in progress. Having retired in 2007, Barry embarked on post graduate studies in the history of fireworks at Monash University. He was awarded a Master of Arts in Historical Studies in 2012 and graduated as Doctor of Philosophy in 2017. In 2017 Barry presented a small seminar at the 16th International Symposium on Fireworks at Omagari, Japan and in 2019 he presented a full seminar at the 17th International Symposium on Fireworks at Puerto Vallarta, Mexico. In August 2019 Barry was invited to present a seminar at the 50th Convention of the Pyrotechnics Guild International in Gillette, Wyoming. At the Convention Barry had the great privilege of making rockets, Saxons, slat wheels and tourbillions under the expert guidance of Kurt Medlin. Since the Convention Kurt and Barry have collaborated in research on blue fires. Barry and Amercan pyro enthusiast Tom Wenke collaborated for many years on researching the history of the Hitt Fireworks Company. The result, running to almost 500 pages, was made available free of charge on Tom's website in October 2020. Barry lives in Mount Waverley, as suburb of Melbourne, Australia, with his wife Sue. Barry and Sue will celebrate their Golden Wedding in January 2021. They have a son and a daughter, and four grandchildren. Barry and Sue both enjoy gardening and visiting antique markets, and are keen participants in their local old folks' club. During the COVID-19 lockdown Barry and Sue have been producing two online newsletters each month for the old folks' club.</p>
Eric Tucker	<p>1974 to 1985 Theater, Stage Management, Lighting Design, Music Production, Television Production and Theater Systems Design. Scottsdale Arizona 1985 - 1988 Director, Ruggieri USA and International projects for Ruggieri. Paris & Washington DC. 1988 - 1991 Director, Pyrodyne Aerial Productions. Tacoma Washington. 1992 - 2002 Co-founder and President, Performance Pyrotechnic Associates. Dittmer Mo. 2002 - 2003 Managing Director upon sale of company, PPA Spectaculars - Sacramento CA. 2003 - Current President, Eric Tucker Inc.</p>
Collin van Uchelen	<p>Collin van Uchelen, Ph.D., is a Community Psychologist, Conceptual Artist, and Pyrotechnician based in Vancouver, British Columbia, Canada. Collin's appreciation for fireworks is informed by his own experience of sight-loss from a degenerative blinding eye disease. His work in the pyrotechnical arts explores techniques for translating the light of fireworks into non-visual forms, such as descriptive words, sounds, and textures. Currently, he is choreographing pyro-musical displays from his unique position as a blind pyrotechnical designer.</p>
Ellen Webb	<p>Ellen started out in Pyro as so many here do, at a very young age, sneaking supplies from dads garage or shop. Having a fire and rocket obsessed brother, and mostly boys in the neighborhood was destined to skew her childhood world view. Instead of wanting to be a princess in a beautiful castle like many other little girls, she wanted to blow up the castle. At PGI The Mumm shell building class was all it took to completely set the hook and she left the convention with over 100 pounds of chemicals, a thumb drive full of literature, and a star roller on order. Its been pretty much total immersion ever since. She had finally found her peeps. Ellen is retired now, but her day job was as a Registered Nurse for over 3 decades, the last part in Intensive Care and Emergency Room, while the first half was in Psychiatric Emergency and probably goes a long way into explaining her current pyro obsession.</p>
Jim Widmann	<p>Jim Widmann is a long-time fireworks enthusiast and professional. Jim has shot shows for most of the fireworks companies in the Northeast US and in 1985 started a fireworks display company based in Connecticut. He was a founding member and president of the Connecticut Pyrotechnics Association. As a kid, July 5th was Jim's favorite day of the year because he would find leftover dud fireworks from the neighborhood displays and cobble them together into something new and of his own making. Jim is a 30+ year member of the PGI and has competed and won in many of the display shell categories. He has a CT display operator's license and is also licensed in CT as a pyrotechnic manufacturer. Jim is widely known as the inventor of the WASP automatic shell pasting machine and has sold hundreds of these machines in over 22 countries. In recent years, Jim has successfully built and shot world record shells (up to 62") in North America and the Middle East.</p>
Myrl Wieland	<p>Manufacturing Chair</p>
Steve Wilson	<p>Steve got his start pyrotechnically as a boy when he and his brother Bob used to mix and burn whatever they could get their hands on. This included toy caps, ammonium nitrate from the local citrus farmers, calcium hypochlorite tablets for the Doughboy pool, and sulfur from the Gilbert chemistry set. Steve had a lot to learn back then... Eventually, he acquired a copy of Weingart's book, discovered American Fireworks News and then the PGI. Steve's fireworks got a little bit better. In 1988 he had the crazy idea of starting a pyro club in the western USA and soon after the WPA was formed. Formerly a lighting roadie with some 70's bands like ZZ Top, Chicago, and Styx, he still works in local community theater as a lighting designer, technician, and equipment fabricator.</p>