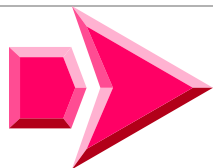


DESERT FALCON FLYER



Year: May, 2005

Issue 5



**LAST MEETING UNTIL SEPTEMBER —
NO MEETINGS DURING JUNE, JULY AND AUGUST**

May Meeting Information

Date: **May 14, 2005**

Place: **FLAGSTAFF — See back cover for information and directions**

Time: **5:30PM**

PLEASE MARK YOUR CALENDARS!!!!



Arizona Emissions Test Exemption for Collectible Vehicles

URGENT LEGISLATIVE UPDATE

Arizona Emissions Test Exemption for Collectible Vehicles Signed Into Law by Governor



A bill (H.B. 2357) to exempt qualified collectible vehicles 15 years old and older from the state's mandatory emissions inspection and maintenance program has been signed into law by Arizona Governor Janet Napolitano. Under the new law, qualifying vehicles would have to maintain appropriate collectible or classic automobile insurance to retain these benefits.

The new law:

- Defines collectible vehicles as 15 years old or older, OR of unique or rare design, of limited production and an object of curiosity and maintained primarily for car club activities, exhibitions, parades, etc. and is used infrequently for other purposes.
- Provides for a rolling 15-year emissions inspection exemption that would exempt qualifying vehicles upon enactment and would pick up an additional model year for each year the law is in effect.
- Provides for an emissions inspection exemption for collectible vehicles for which the owner holds appropriate insurance coverage.
- Acknowledges the relatively minimal environmental impact of older vehicles, such as the older vehicles targeted for this exemption.

Recognizes that such vehicles constitute a small portion of the vehicle fleet and are well-maintained and infrequently operated.

ARIZONA CHAPTER OFFICERS

- Pres.-Bill Hardin
(623) 544-2445
- Vice-Pres.-Vern Hastings
(480) 354-7640
- Sec.-Katie Warhus
(480)980-7129 (cell)
- Treas.-Reba Schweitzer
(480)888-0589

BOARD MEMBERS

- John Binder (480)837-3118
- Michael Gallegos (928)527-3378
- Jim Vanell (480)491-9417
- Greg Lyons—Webmaster
(928)527-0156

FOR CLUB INFORMATION

Bill (President) & Kathi
(623)544-2445
kbhardin@cox.net

OR

Wendell & Reba (Treasurer)
(480) 888-0589
santan2@msn.com

PRESIDENTS MESSAGE

May 2005

The elections of officers at the last meeting went very well and a great time was had by all. I would like to thank outgoing Secretary Vii Hastings and outgoing board members Jim Bycroft and Bill Lind for a job well done. Thank you all for your extra effort and time spent to help the club.

I have the honor of being your President for another year and would like to give congratulations to returning Vice President Vern Hastings, Treasurer Reba Schweitzer, Board Member Jim Vanell and newly elected officers Secretary Katie Warhus, Board members John Binder and Michael Gallegos. Again Congratulations to all and we are looking forward to another great year.

The plan for the club cruise to the Falcon Club of America's 26th National Convention in San Ramon, California July 14 thru 16 has no change. They will meet at the Circle K on Jackrabbit road and I-10 Tuesday morning at 0900 (9AM) and head out for California. The room reservations are at the Marriott in San Ramon. John Binder has all the information. John will be leading the group. If you can make it, it is going to be a great time.

The plan for the Globe show has not been set as of yet however the 5 room reservations are all spoken for at the Travel Lodge in Globe. So if you are planning going and staying overnight you will need to make your own room reservation. The show is May 20th & 21st. I will have extra entry forms at May the club meeting. On the way up on Friday Morning we stop for breakfast and at the Antique stores. You do not need a car to go and have fun with the rest of us, in the words of the Village People "We want you". All the shows we have planed look to be a great time, if you can get away for any of them we would love to have you and you do not need your Falcon to come join in the fun.

Don't forget the May meeting will be in Flagstaff on Saturday 14 May 2005 starting a 5:30 PM. This is the last meeting for the summer and the details will be posted somewhere in the newsletter. The last meeting in Flag was a great time and fun was had by all.

Hope to see you there.

Bill Hardin

MEETING MINUTES FOR 04/9/2005

Meeting opened at 5:25 pm by Pres. Bill Hardin. Introduction of members.

Minutes read and approved after correction of postage amount. Treasurer report read and approved-new balance \$1270.26.

Old Business:

Bill Hardin commended Ted Lyons on the quality of the web site he has set up -- www.geocities.com/Azfalcon.

Globe rooms for the May 20-21 car show are all taken per Bill. He also reminded the group of the National Falcon Show in San Ramon, California, July 14, 15, 16. So far 3 cars are signed up -- Vanell's, Hastings', and Binder's. Rooms will be at the Marriott.

New Business:

Bill asked for a vote of approval to spend \$25.00 for 500 new flyers -- approved. The last T-shirt just sold. Approximately, \$144.00 will purchase 36 T-shirts in several sizes. John Van Hassel to arrange for the transaction. He will have more details at the May meeting. Vern Hastings moved to vote \$200.00 available for John's purchase, seconded by Wendell Schweitzer, and passed.

The T-shirts should be available for purchase at the first meeting in September.

New officer selection:

Bill Hardin agreed to remain as president. Richard Bauer made motion to accept, Vern seconded Vern agreed to remain as Vice-President -- Ted Lyons made motion to accept- Kathi Hardin seconded Katie Warhus accepted nomination for Secretary. Wendell Schweitzer made motion to accept and Kathi seconded. Reba Schweitzer agreed to continue as treasurer, and editor of our excellent Bulletin. Motioned and seconded by all!!!

Board members will be: John Binder, Michael Gallegos, and Jim Vanell. Many thanks to all for accepting.

John Binder won the "end of meeting raffle"--a Falcon cap.

Next, and last, meeting for the season (May 14) will be in Flagstaff -- see bulletin or call Bill Hardin for details.

Motion to end meeting at 6:20pm by Vern Hastings -- seconded by Kayleigh Van Hassel. On to dinner at Fuddruckers as weather a little cool for the patio at Red Robin.

Respectfully,

Vii Hastings, Secretary

PRICES OF CLUB JACKETS AND SHIRTS

Price list for shirts and jackets.

Club Price		Club Price	
Men's Power Hitter Shirt.....	\$28.00	T-shirts.....	\$9.00
Men's Jacket Windward.....	\$34.50	Baseball Caps.....	\$5.00
Women's Power Hitter Shirt.....	\$27.00		
Women's Competitor Shirt.....	\$27.00	See Kathi Hardin for current stock	
Women's Jacket Windward.....	\$33.50		

Future Car Shows - Please confirm times and dates – phone numbers provided with most listed events. If you have information on Car Shows or Events not listed here please notify the editor

UPCOMING CAR SHOWS AND EVENTS

2005

May 14 - Cruisin' Under the Stars to Benefit Make-A-Wish Foundation at the Victory Lane Sports Complex - Entry \$20, Vendor \$20 - Dash Plaques and T-shirts - Phoenix - Info: Bill 602-300-5606 after 4pm or Dick 623-206-3492

May 20-21 - 13th Annual Gold-N-Oldies "Just a Car Show" - 30 classes+ - 50/50, Door Prizes - prereg before May 1 \$25, \$30 after Globe - Info: Michael 928-473-2331, Jim 928-425-9271 or Merle 928-473-4360

May 28 - Cars On Main Car Show at Firth Park - Parade 1-2pm, Reg. 2:30pm, Show 3-8pm, Awards 7pm - Reg. before May 21 \$20, \$25 after, includes t-shirt, dash plaque and Goodie Bag for 1st 100 entries - May 27-29: Antique Show and Sale at the Safford High School - 10am-5pm - Craft Show, Quilt Show, Trap Shoot, Lawn Tractor Pull, Live entertainment, Street Dance and talent show - Safford - Info: Kim 928-348-4611

June 10-12 - Show Low Days-Still Cruizin Car Show at the Show Low City Park (Hwy. 60 & 260) - \$25 before May 15, \$35 after - Fri. Burger Burn 5-7pm, Cruise the Deuce 7-9pm, Sat. Reg. 7-10am, Car Show 8am-4pm, Awards 4pm, Sun. Continental Breakfast 8-10am, Show and Shine 8-10:30am, Poker Run 10:30-12am - Show Low - Info: Steve 928-537-2326

June 17-18 - 3rd Annual Chrome in the Dome Classic Car and Truck Show sponsored by the Springerville-Eager Regional Chamber of Commerce - limited to 200 1977 and older vehicles, first 110 vehicles registered park inside the dome - pre-reg before June 10 \$30, \$40 after, includes T-shirt, Dash Plaque and burger burn - Cruise, Burger Burn, dance, breakfast, judged show - Springerville/Eager - Info: Wayne 928-333-4001

June 18 - 5th Annual Classics at Prescott Valley Car Show and Swap Meet presented by Yavapai Classic Cruisers of Arizona will be held at the K-Mart parking lot at the corner of Hwy 69 and Lake Valley Road - Open to Original/Restored and Modified vehicles, 1979 and older - 10am-3pm, Awards 3pm - Minimum of 23 trophies, 50/50 drawing, food vendors - \$15 Pre-Reg. Car and Swap spaces, Cars only Day of Show \$20 - Info. Rick 928-443-9013

July 3 - Car/Motorcycle Show & Swap Meet at Bison Ranch (Highway 260) - all vehicles welcome - 8am-5pm - Bison Ranch - Info: Frank 928-535-3006

July 14-16, FCA 26th National Convention San Ramon, California The Sonoma County Falcons For Fun of the Falcon Club of America, invites you to the "Bridgin' The Bay, California Style" 26th Annual Falcon National Convention July 14-16, 2005, at the Marriott San Ramon, 2600 Bishop Drive in San

Ramon, California 94583, 74.00 + tax per night - Reservations - 1-800-228-9290 or 925-867-9200

Aug. 6 - Cool August Nights at Tal-Wi-Wi Lodge - Reg. \$20, Day of show \$25, Poker Fun \$10, BBQ \$7 per person - Move In 6:30, Show 9am-12pm, Judged Show - Alpine - Info: Mike 928-339-4319

Sept. 22-25 - River Cruizers 14th Annual "Roddin' on the River" at the Riverside Resort and Casino - Laughlin, NV - Info 928-788-2174

Sept. 23-25 - Run to the Pines - Pinetop - Info: Bob 928-368-5325

Oct. 1 - Central Avenue Cruise - Come and enjoy the FUN, Meet at Park Central! - Info: Nancy 602-938-1000

Oct. 8 - 18th Annual Cars in the Park at Veteran's Memorial Park presented by Sierra Vista Car Club - Limited to 325 vehicles - Reg. 8-10am, Awards 3pm - Music by DJ John, Gift Basket Raffle, 50/50, Food & Product Vendors - \$20 before 9-25, \$30 after includes T-shirt & Dash Plaque, Vendors \$40 - Sierra Vista - Info: Leo 520-227-8318

Oct. 14 - Ford Thunderbird 50th Birthday Party sponsored by the VTCI Central Arizona Chapter at 19644 N. 7th Ave - all cars welcome, public invited - This is a free event for participants and spectators - Live 50/60s band, carnival, food beverages - Lighted car parking next to event tent - Come celebrate the Ford T bird's 50 year - On site security - 6-10 PM - Phoenix - Info: Leigh 623-582-3746

Oct.14-16 - Casino Arizona Third Annual Fall Classic Car Show - 35 cash prizes to include several new classes - entry includes a calendar, food, entertainment, and much more - Scottsdale - Info: Char at 480-850-7881 or Mary 480-850-7968

Oct. 19-23 - Relics & Rods 28th Annual "Run to the Sun" - Lake Havasu City - Info: 929-855-0933

2006

Jan. 21 - Tubac Car Show sponsored by the Santa Cruz Valley Car Nuts (Rain Date Jan. 28) at the Tubac Golf Resort - Will have flyer and registration form available late September - Tubac - Info: Duane 520-885-6630

Mar. 18 - 9th Annual Benefit Car Show presented by the Boys & Girls Club of Sierra Vista at the Mall at Sierra Vista - T-shirts, dash plaques, trophies, oldies music, 50/50, and live auction. Registration flyers available in October - Sierra Vista - Info: Joe 520-515-1511

Apr. 23 - 20th Annual Oracle Spring Run Car & Motorcycle Show at the Pinal County Courthouse - more details coming in December - Oracle - Info: Margaret 520-896-2158

For those of you contemplating a move to a four speed automatic, here are some notes from my experience with performing this conversion on a 1963 Falcon Ranchero.

- Make sure you get an '89-'93 Ford AOD. It has the better rear oiling system. Also, and this really had me on pins and needles, it is less complicated than earlier AOD. The accumulator in the front left corner of the tranny is deleted. Also be sure to get the shorter tailshaft version like that used on the Mustang.
- Use the Lokar AOD TV shift linkage kit from Summit. It works! There was a little problem for me regarding the plastic carb linkage connection. My headers would have melted it. My solution was to get a ball and socket swivel and drill it longitudinally with a 5/64" drill just above the level of the flattened ball. Cut the socket piece such that it is as long as the locking collar surrounding the socket. This let me pass the wire through the swivel and then into the Lokar adjustment bead that had the setscrew lock. The bead rests against the ball swivel and works just like the original Lokar piece.
- I used the B & M Hammer shifter from Summit, with the AOD adapter and it work super well. I had to make a bracket between the shifter base and the tranny to firm things up a bit. Also, the bracket allowed me to correctly locate the shifter such that the covering bezel was centered on the tranny tunnel and looked right. Make sure to drill the hole for the cable far enough ahead of the shifter so that the cable doesn't get kinked or bent. Any sharp bends will make the shifting effort pretty difficult.
- I got the tranny cross mount from Dark Horse Performance. What a dream. No issues at all, even with the speedometer cable where it passes between the mount and the tunnel reinforcement member. Use a standard C4 tranny isolator. Take .75" square tubing and duplicate emergency brake arm and weld to mount. I just held the associated brake hardware up near the mount and guessed the length to cut the arm prior to welding it on. There is so much adjustment, there is very little to worry about with exactness.
- I used a speedo cable from Virginia Mustang that is used with a '65-'66 Mustang. Perfect length. The formula for calculating the correct driven speedo gear is: $\text{Driven gear teeth} = \text{drive gear teeth} \times \text{axle ratio} \times \text{tire revs per mile}$ all divided by 1000. Round to nearest tooth. See your Nov 2004 news letter for associated formula.
- Be very careful regarding the Throttle Valve (TV) linkage adjustment. What you must do is this: insure your carb is adjusted such that the throttle plates are closed at idle and wide open (vertical) at WOT; attach the Lokar cable unit at the tranny linkage and determine the exact length of cable that a full stroke of the TV arm at the tranny exposes, ie, mark the cable at TV at rest (TV arm back toward back of car) then pull on the cable until the TV arm is full forward and mark the cable again. The distance between the marks is the TV cable stroke distance; Find or fabricate an arm on the carb throttle linkage that is exactly across from the throttle cable attachment point on a line through the throttle pivot point; measure the distance from a selected point on this arm and measure the distance from that point at throttle at idle and throttle at WOT. this must match the TV cable stroke distance; keep selecting points along the TV arm at the carb until the idle to WOT stroke length matches the TV cable stroke length; drill a hole for mounting the ball from the ball and socket assembly modified above and mount the ball; mount the Lokar cable pull point such that the cable leading to the attachment point on the throttle arm is parallel to the throttle wire.
- I made a gauge block for adjusting the TV cable by taking .25" keystone material and cutting it to length and then slotting it to go over the TV cable at the carb between the ball and swivel assembly and the TV cable adjustment bead/setscrew assy. Follow the instructions given in the Lokar TV cable booklet for final adjustment.
- Note that the TV pressure port is the middle 1/8 FNPT port on the rear side of the transmission. I used a 0-60 PSIG gauge on a piece of soft tubing and barbed hose connections. Worked perfectly. I adjusted to 33.5 PSIG with the TV gauge block installed.
- I had to mount a spring that gently tugged at the TV arm at the transmission to insure it fully returned to rest. I say gently because any serious pull at rest will cause the shaft seal to leak when the car is shut down and the fluid returns to the tranny pan.
- Select a torque converter that is for the locking AOD. I used a low stall speed converter (approx 1700 RPM) to control heat due to slipping at takeoff as well as to soften the takeoffs in a light weight car.
- I purchased a used AOD and gutted it to allow ease of fitup measurements. What a difference that made. It only weighs 40 lbs. I had to shift my rear brake and gas tubes upward slightly and bump the firewall right at the two upper tranny mounting bolts. I also developed a good technique for mounting the tranny.
- I used a Sears 3 ton floor jack with a Summit tranny adapter pan in place of the usual jack pad. Those, and two boat cover straps, were sufficient to mount the tranny single-handedly into the car.
- By the way, you must have the car exactly 24 inches, measured at the frame rail under the door, up in the air to do this job. I did it with bricks, four bottle jacks, two 2-ton floor jacks, and four 6-ton jack stands. My back still hurts. And my Daughter still thanks God that she still has a Dad here on Earth. Be careful!!

Well, that's all I can think of. Good luck. On the return trip from the 18th Annual Route 66 Fun Run, Judy and I traveled at 85 MPH with the air conditioning blasting at 2100 RPM. What a ride. Passed a lot of Chevy's as well. Sure felt good! Many thanks to Wendell, my advisor on this effort. He endured many frantic calls from me.

Submitted by: Jim Vanell

Eureka!!



The '70 Chevelle SS went to its new owner in May, 2004. Colleen and I were without an old car—Oh, what to do!!

I'm driving up Fountain Hills Blvd. in our small town and see a white 1965 Falcon Futura going the opposite way. WOW! What a sharp car—always liked that 2 door H/T look. The next Saturday night at the Pavilions car show I spot the '65 with its owner. We get acquainted, he invites me over to his house in Fountain Hills to look over the car and let's me drive the car. That was it—we've got to have one...

Bill Hardin, President of Arizona Falcon Club chapter, invited us to meet him and his wife Kathi at a west Phoenix car show. We attended, met the Hardins and looked over their '63 convertible. In conversation, Bill said the National Falcon convention was going to be held the middle of July [2004] in Kansas City. Great place to find a car for sale. A trip was put together and we were on our way.

Prior to leaving on the trip, I found a '65 Sprint for sale on the internet, called the owner for information on the car in Bentonville, Arkansas. It sounded good – so I put this one in the "Maybe" file.

We spent 2 ½ days at the National's -- great bunch of cars and a really great group of people. Many people had more than one car; one guy had 10 Falcons at home. No one wanted to sell their Falcon's -- everyone seemed to have a "Love Affair" with each one!! So off to Bentonville we went to look at the '65 Sprint.

The next morning we found the owner and the car. We looked the car over real good, drove it and agreed on a price — we bought the car! We found a U-Haul trailer, loaded it up and were off to Phoenix by noon.

The '65 Sprint has a 289ci motor, C4 automatic transmission and power steering. It seems to be one of the last '65 Sprints built with a VIN number #102846. Since owning the car, disc brakes were installed on the front as well as a power brake booster and dual pot master cylinder. Its bright Tropical Turquoise color makes you take a 'second look'.

Needless to say, Colleen and I have "Bonded" with this car....

Submitted by John Binder

A BIT OF AUTOMOBILE HISTORY.....PAY ATTENTION PLEASE!

It was a sweltering August day in 1937 when the three Cohen brothers (Norman, Hiram, and Maxwell) entered the posh Dearborn, Michigan, offices of Henry Ford, the car maker. "Mr. Ford," announced Norman Cohen, the eldest of the three. "We have a remarkable invention that will revolutionize the automobile industry." Ford looked skeptical, but their threat to offer it to the competition kept his interest piqued. "We would like to demonstrate it to you in person."

After a little cajoling, they brought Mr. Ford outside and asked him to enter a black automobile parked in front of the building. Hyman Cohen, the middle brother, opened the door of the car. "Please step inside, Mr. Ford."

"What!" shouted the tycoon, "Are you crazy? It must be two hundred degrees in that car!" "It is," smiled the youngest brother, Max, "but sit down Mr. Ford, and push the white button." Intrigued, Ford pushed the button. All of a sudden a whoosh of freezing air started blowing from vents all around the car, and within seconds the automobile was not only comfortable, it was quite cool.

"This is amazing!" exclaimed Ford. "How much do you want for the patent?" Norman spoke up, "The price is one million dollars." Then he paused. "And there is something else: The name 'Cohen Brothers Air-Conditioning' must be stamped right next to the Ford logo!" "Money is no problem," retorted Ford, "but no way will I put your names next to my logo on my cars!" They haggled back and forth for a while and finally they settled. Five million dollars, but the Cohens' name would be left off.

However, the first names of the Cohen brothers would be forever emblazoned upon the console of every Ford air conditioning system. And that is why, even today, whenever you enter a Ford vehicle, you will see those three names clearly printed on the air conditioning control panel: NORM, HI and MAX. [Editor: I don't know whether this is true or not, but makes a nice story]

IN THE KNOW.....

What Makes A Good Filter?

Engine oil filters have one purpose in life: to filter out the particles that enter the oil so that they don't act as abrasives when the oil recirculates. The filter is a cellulose (paper) or synthetic media that is usually contained in a steel can. The front of the can typically has a threaded center with surrounding holes. Oil enters through the surrounding holes, passes through the filter media, and exits through the threaded center. The filters usually screw right onto the engine block using an o-ring gasket to prevent leakage. Many filters have an anti-drainback valve to prevent dirty oil from backwashing back into the oil pan. They also have a pressure relief or bypass valve that will allow oil to bypass the filter element in the event that it becomes too plugged to pass enough oil. This prevents engine oil starvation and the possibility of destroying the element, possibly causing pieces of it and the junk it filtered to enter the engine. Also, when the oil is cold and very thick, it will tend to bypass the filter through the pressure relief valve because it cannot pass through the element until it thins out somewhat. If it did not do this, the filter element media would tear open.

A good filter has a strong steel can to withstand the high oil pressure (60-80psi when cold), an anti-drain back valve that actually works without creating too much backpressure, a pressure relief valve that doesn't leak, and a strong paper element and cap that can withstand the pressure and flow of oil without falling apart. The element media has to be able to trap small particles, but without restricting the flow too much. Cellulose (paper) media is used on economy filters and works OK. The fibers in the paper act as a mesh to block particles down to a certain average size, while allowing the oil to pass through. Some manufacturers add other media, such as cotton, to the cellulose to improve its performance. There is synthetic fiber media for the high-end filters that has smaller passages to trap smaller particles, but can pass more fluid through it because it has more of them. There is also media that is a blend of these two. There are also "depth" filters that are usually made of synthetic material that has a passage size gradient to it. In other words, the deeper into the element the oil goes, the smaller the passages get. This way, large particles are trapped in a different spot than small particles, which allows the filter to hold more particles before it "blocks" (becomes too restrictive).

All filters have to undergo SAE (Society of Automotive Engineers) tests to prove that they meet the engine manufacturer's requirements. The SAE J806 test uses a single-pass test, checking for contaminant holding capacity, size of contaminant particles trapped, and ability to maintain clean oil. As an amendment of the J806 test, the multi-pass test also looks for filter life in hours, contaminant capacity in grams, and efficiency based on weight. The efficiency of the filter is determined only by weight through gravimetric measurement of the filtered test liquid. Typical numbers for paper filter elements are 85% (single pass) and 80% (multi-pass). A new test, the SAE J1858, provides both particle counting and gravimetric measurement to measure filter capacity and efficiency. Actual counts of contaminant particles by size are obtained every 10 minutes, both upstream (before the filter) and downstream (after the filter), for evaluation. From this data filtration ratio and efficiency for each contaminant particle size can be determined as well as dust capacity and pressure loss as a function of time. Typical numbers for paper element filters are 40% at 10 microns, 60% at 20 microns, 93% at 30 microns, and 97% at 40 microns.

Recommended Filters

Based on the simple criteria above and the information I gathered in

Engine Oil Filters Overview

the Oil filter Study (<http://minimopar.knizefamily.net/oilfilterstudy.html>), I have found some filters that are readily available and are of good quality in my opinion. I have disassembled many filters and made observations and measurements on them. Sadly, some of the most common and popular filters don't cut it in my book. Those filters are described in the next section. The filter names are also links to the Oil Filter Study page (<http://minimopar.knizefamily.net/oilfilterstudy.html>), which gives the intimate details of that filter in the Ford 5.0L V8 version. You will find all the hard data for these filters there. What follows are filters that I recommend in alphabetical order:

AC Delco Ultraguard Gold (<http://minimopar.knizefamily.net/oilfilterstudy.html#delco>) This filter appears to be a Champion Labs filter. This is not surprising given that Champion Labs also manufactures other AC Delco filters for some European vehicles. See the German Oil Filter Study at <http://minimopar.knizefamily.net/oilfilterstudy-german.html>

Amsoil (<http://minimopar.knizefamily.net/oilfilterstudy.html#amsoil>) No real information yet. I have cut it open and it looks like a very nice filter. The manufacturer appears to be the same as Baldwin. I am not sure they are worth the rather high price (over \$10 shipped).

Baldwin (<http://minimopar.knizefamily.net/oilfilterstudy.html#baldwin>) They look like tough filters inside. Similar design to the Hastings and Amsoil. These are the filters I have been using lately.

Bosch (<http://minimopar.knizefamily.net/oilfilterstudy.html#bosch>) This is yet another Champion Labs filter that is sold at AutoZone. I am not a big fan of Champion filters. They seem flimsy on the inside to me.

Car And Driver (<http://minimopar.knizefamily.net/oilfilterstudy.html#cardriver>) This is a Champion Labs filter that is sold at Target.

Deutsch (<http://minimopar.knizefamily.net/oilfilterstudy.html#deutsch>) This is a Champion Labs filter that is sold at AutoZone.

Fram Tough Guard (<http://minimopar.knizefamily.net/oilfilterstudy.html#fram-tg8a>) Even with all the problems of the other Fram filters, this one is not too bad. It has a heavier filter element with more surface area, a silicone anti-drainback valve, the cheap pressure relief valve, but with a clever integral screen to keep out large particles, and enough inlet holes for good flow. The only other drawback to this filter is that it is capped on each end with cardboard instead of metal. Looking in through the center outlet does not reveal any paper end caps, but they are there. I personally do not use this filter, but the design didn't have enough bad qualities to cause me to tell others to avoid it.

Hard Driver (<http://minimopar.knizefamily.net/oilfilterstudy.html#harddriver>) This is one of the few oil filters that uses a synthetic filter element. It has a dual-density layering "depth" filter element. The construction of the filter is what you would expect from a quality filter with steel filter element caps and special epoxy-coated steel mesh retainers to keep the element from flexing. It also has a good flowing, strong steel case and a zinc-coated backplate to prevent pre-installation corrosion. I have disassembled but have not measured this filter. I used these for a few years with no problems until they seemed to go out of business.

Mobil 1 (<http://minimopar.knizefamily.net/oilfilterstudy.html#mobil1>) This filter is made by Champion Labs and uses a synthetic fiber element that can filter out very small particles. It is rated by the manufacturer at just under the Purolator Pure One as far as filtering capability, but is still very much above

conventional paper filters. It also has a very strong construction to withstand high pressure spikes during start-up. Given the choice between the Purolator Pure One and the Mobil 1 filters, I would choose the Mobil 1 because of the restriction concerns of the Pure One. However, as with all Mobil 1 products, expect to pay 2 - 3 times as much for this filter. I have seen this filter sold at AutoZone and K-mart and used them a few times, but I feel they are not worth the money.

Though I have never had problems, I have received feedback from a few people that these filters may leak at the base. It seems that the seal between the backplate and can may burst under high pressure (at startup). These were on Ford engine applications.

Mopar Filters (<http://minimopar.knizefamily.net/oilfilterstudymopar.html>) (various) These filters are Frams, Purolators, or Wixes. Mopar does not manufacture it's own filters, nor do they require anything special from these manufacturers. Since they basically paint them a different color, stamp them with a Mopar logo, and double the price, there is no reason to buy them. Sadly, the Mopar Severe Duty 53020311 filter is actually the worst filter of them all. It is a **Fram Extra Guard** (<http://minimopar.knizefamily.net/oilfilterstudy.html#fram-ph8a>).

Motorcraft (<http://minimopar.knizefamily.net/oilfilterstudy.html#motorcraft>) The one I opened seemed to be a Purolator hybrid. It had the Premium Plus case (anti-drainback valve, gasket, etc), but with what appeared to be a Pure One filter element. This was a cheap way to get a Purolator Pure One. It is sold at many locations including AutoZone, Pep Boys, etc. I have heard from several people that Motorcraft seems to switch between Purolator and Champion Labs as the manufacturer so be observant. **NAPA** (<http://minimopar.knizefamily.net/oilfilterstudy.html#napa>) They sell two lines of oil filters: NAPA Silver and NAPA Gold. They are both made by Dana (Wix) and there is no obvious difference between them. They may have different elements, but NAPA does not state that this is the case.

PowerFlo (<http://minimopar.knizefamily.net/oilfilterstudy.html#powerflo>) This is a Purolator Premium Plus that I have seen at Murray's Auto Supplies.

ProLine (<http://minimopar.knizefamily.net/oilfilterstudy.html#proline>) This is a Purolator Premium Plus that I have seen at Pep Boys. Pep Boys also sells the Purolator Premium Plus brand, which is pretty dumb (to be selling both).

Purolator Premium Plus (<http://minimopar.knizefamily.net/oilfilterstudy.html#130001>) The Purolator is a solid design. It seems to have one of the tougher paper filter elements of the low-end filters and the bypass valve is built right into the cartridge. There are no internal sealing problems with this filter at all. There is an assembly string that is wrapped around the filter element, probably to hold it in place while the glue cures in the end caps. In the **ProLine** (<http://minimopar.knizefamily.net/oilfilterstudy.html#proline>) (one of the Purolator clones), the string was wrapped too tightly and had damaged the filter element. All the other Purolator-made filters (8 in all) had no trouble, and even the damaged one would probably have been fine. I usually go with these in a pinch.

Purolator Pure One (<http://minimopar.knizefamily.net/oilfilterstudy.html#p130001>) This is an interesting filter design made by Purolator. Most of the construction of the Pure One is the same as the Purolator Premium Plus. The big difference is the filter element itself. It has a dense paper/fiber filter element that can filter very small particles. The result of this is cleaner oil exiting the element, but more oil restriction. Purolator addressed this by adding more filter material (more and deeper pleats). After seeing one of these filters cut open, I am apprehensive about this filter. It seems to

have so many pleats that it is almost a solid chunk of filter element. It seems like it would end up restricting the flow, more than anything. Purolator has plenty of data on the filtration abilities of this filter and I don't doubt it, but they have no flow data. Even so, I don't see any major problems with this filter. It also sports a silicone anti-drainback valve and a PTFE treated nitrile rubber gasket.

STP (<http://minimopar.knizefamily.net/oilfilterstudy.html#stp>) This is a Champion Labs filter that I have seen at AutoZone and Walmart. **Wix** (<http://minimopar.knizefamily.net/oilfilterstudy.html#wix>)

Another quality oil filter similar in design to the Purolator. It has metal end caps on the filter element, a standard nitrile anti-drainback valve, and a seemingly good flow. They are manufactured by the Dana corporation. These appear to have a depth gradient filter element, which uses cotton fibers to progressively trap smaller particles as they get deeper in the filter. This helps maintain good flow as the filter gets plugged.

Filters To Avoid

The following list of filters have known problems. You will see well-known names here and will probably be disappointed. This is because many of these brands have stopped making their own filters and buy from a common manufacturer.

Fram Extra Guard (<http://minimopar.knizefamily.net/oilfilterstudy.html#fram-ph8a>) Years ago Fram was a quality filter manufacturer. Now their standard filter (the radioactive-orange cans) is one of the worst out there. It features cardboard end caps for the filter element that are glued in place. The rubber anti-drainback valve seals against the cardboard and frequently leaks, causing dirty oil to drain back into the pan. The bypass valves are plastic and are sometimes not molded correctly, which allows them to leak all the time. The stamped-metal threaded end is weakly constructed and it has smaller and fewer oil inlet holes, which may restrict flow. I had one of these filters fail in my previous car. The filter element collapsed and bits of filter and glue were circulating through my system. The oil passage to the head became blocked and the head got so hot from oil starvation that it actually melted the vacuum lines connected to it as well as the wires near it.

Fram Double Guard (<http://minimopar.knizefamily.net/oilfilterstudy.html#fram-dg8a>) Another bad filter idea brought to you by your friends at Fram. The filter itself is a slightly improved design over the Fram Extra Guard, but still uses the same filter element. It has a silicone anti-drainback valve, a quality pressure relief valve, and enough inlet holes for good flow. The big problem is that they are trying to cash in on the Slick 50 craze. They impregnate the filter element with bits of Teflon like that found in Slick 50. As with Slick 50, Teflon is a solid and does not belong in an engine. It cannot get into the parts of the engine that oil can and therefore does nothing. Also, as the filter gets dirty, it ends up filtering the Teflon right out. Dupont (the manufacturer of Teflon) does not recommend Teflon for use in internal combustion engines. Please do not waste your money on this filter.

Penzoil (<http://minimopar.knizefamily.net/oilfilterstudy.html#penzoil>)

This filter is a Fram! It is the exact same design as the Fram Extra Guard filter and it is junk. On the up side, it costs \$1 less than the Fram version.

Quaker State (<http://minimopar.knizefamily.net/oilfilterstudy.html#quaker>) This is another Fram Extra Guard that I have seen at K-mart. It used to be a Purolator, but Quaker State is now owned/controlled by Penzoil...

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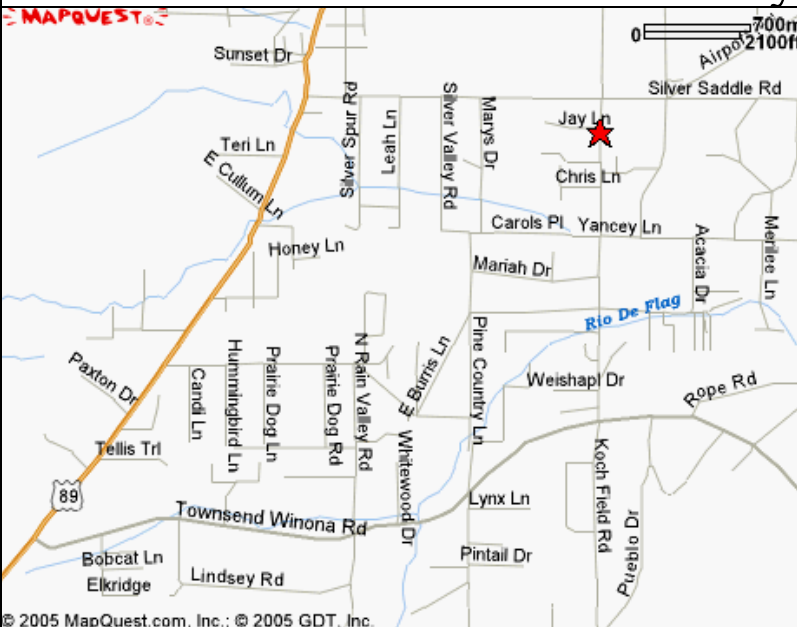
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IN THE KNOW.....

May Meeting Information



The meeting will be held at the Summit Fire Station north of Flagstaff. Take Highway 89 north of Flagstaff for 3 miles to Silver Saddle Road (there is a stop light at this intersection). Turn right (east) onto Silver Saddle Road. Go to the 4 way stop. Turn right onto Koch Field Rd. The fire station is on the left. Drive around to the back and enter the building from the back side.

The Fire Station Address is:
8905 N. Koch Field Rd.

HOTEL INFORMATION

Six rooms have been reserved for Saturday night at the Inn Suites located at 1008 E. Route 66. The cost, including tax will be about \$67. If you would like one of the rooms, contact Ted Lyons by e-mail ted_lyons@yahoo.com or by phone at (928) 527-0156 before Friday, May 13th

