



Volume 34, Issue 1  
January 2018

*Sponsored by LOCKHEED MARTIN*

# MARS STAR



## **MARS Activities This Quarter:**

- **Membership Renewal**
- **Volunteer of the Year**
- **Annual Meeting**

**March 7, 2018**

# MARS Associates: A Social Club for Retirees of Lockheed Martin & United Launch Alliance

## OFFICERS

President	Robin Valore	303-941-6662
President-Elect	Dan Ellerhorst	303 794-0750
VP Activities	Linda Duby	303-249-1665
VP Business	Sherry Vargo	303-517-9520
VP Communication	Bonnie Snodgress	303-660-8408
VP Membership	Linda Stearns	303-797-3557
Treasurer	Larry Stearns	303-797-3557
Secretary	TBD	
Historian POC	Ray Ziehm	303-794-1413

## MARS STAR

Editor	Kathy Campbell	303-870-4893
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Webmaster	Jim Kummer	303-986-3966
Volunteers	Judy Nielsen	303-979-6772
<u>Reporting:</u>		
Baltimore	Dottie Ruth	410-665-3207
Cape Canaveral	Dick Olson	321-452-4015
Colo Springs	Doug Tomerlin	719-594-6392
Vandenberg	Charlie Radaz	805-733-2051

## CLUB CONTACTS

Bridge	Dave & Kathy Martz	303-683-9524
Dinner	Becky & Gary Englebright	303-973-4062
	Anita & Roy Kannady	303-794-9210
Golf	Don Petermann	720-984-4975
Hiking	Sue Janssen	303-936-8339
Photography	John Chapter (Pres)	303-986-8277

## **REMINDER:**

**If you move, please give the membership VP a change of address. Also, if you are a snowbird, let us know when you are leaving and when you plan to return so your MARS STAR can be sent to you. It costs us 70 cents for each STAR package returned.**

*(Published quarterly by MARS Associates, Retirees of Lockheed Martin Corporation and United Launch Alliance, Denver, CO)*

## DIRECTORS

Director	Dick Sosnay, Chairman	303-972-9209
Director	Al Nemes	303-908-0157
Director	Duane Del Duca	303-904-9530
Director	Don Purkey	303-973-0059
Director	Carl Kaminski	303-979-9448
Director	Bill Wise	303-771-4887

## IMPORTANT PHONE NUMBERS

LM Employee Service Center	1-866-562-2363
CitiStreet 401K Hotline	1-800-444-4015
Aetna Plans	1-888-562-8111
Anthem BlueAdvantage HMO	1-866-863-0484
CIGNA Point of Service (POS) (Hourly Only)	1-800-832-3211 1-800-224-6224
CIGNA Healthcare of Colorado for Seniors	303-782-9662
CitiStreet (PSP-SSP-CAP)	1-800-444-4015
Medicare Plus (Aetna)	1-888-562-8111
PacifiCare Secure Horizons	1-800-771-4347
CVS Caremark Prescription Drugs	1-888-562-3784
Vision Service Plan, Rancho Cordova, CA	1-800-877-7195
Kaiser Permanente	303-338-3800
United Dental Health	1-866-487-9301 1-855-868-4955
Delta Dental of Colorado Individual Team	1-800-610-0201 1-877-516-6512
AssuredPartners of Colorado LTC/Vision/Dental	303-863-7788
Jon Elmore	<a href="mailto:jelmore@assuredptrco.com">jelmore@assuredptrco.com</a>
One Exchange	1-844-596-0460

[Individual@ddpo.com](mailto:Individual@ddpo.com)

**MARS Associates  
P. O. Box 1128  
Littleton, CO 80160-1128**

**MARS Website:** <http://www.marsretirees.org>

## **Cover:**

**L:** Lockheed Martin Chairman and CEO Marillyn Hewson presents Orion commemorative items to Vice President Mike Pence at the end of his tour of Lockheed Martin's space facility on Oct. 26, 2017

**R:** Bruce McCandless, astronaut and LMSSC retiree, was the first person to make an un-tethered spacewalk using the Manned Maneuvering Unit. He died 12 December at age 80.

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## **From the Editor's Desk**

Kathy Campbell ([kjcampbell65@msn.com](mailto:kjcampbell65@msn.com))  
Bill Cossaboom ([cwilliam28@comcast.net](mailto:cwilliam28@comcast.net))  
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For comments or corrections, contact Tom (issue editor) or Bonnie Snodgress, V.P. of Communications.

MARS welcomes your submissions. Submissions must be relevant **to the MARS organization**, informative, and **appropriate for this newsletter**. No **personal dialogues or opinion pieces** will be accepted.

Please submit your article for approval **in advance** to the V. P. of Communications. Articles will be included as time / space allows.



## President's Corner

By Robin Valore  
([rvalore@gmail.com](mailto:rvalore@gmail.com))

First order of business – HAPPY NEW YEAR TO ALL OF YOU! I am hoping you and your family members enjoyed a wonderful and safe holiday season. It is hard to believe it is already 2018. It seems like time has passed by so quickly. Speaking of time passing quickly, my time as the President of the organization is about over. I am emotional as this is the last report I will make as the President of MARS Associates. It has been a wonderful and satisfying experience for me. Fortunately for me, I am not done with you all yet as I now move on to a position supporting MARS Associates as a member of the Board of Directors (BOD). I anticipate this position will enable me to continue to make positive contributions to the organization. In March, I will be passing my responsibilities to a capable partner who has served as the President Elect for the last year and a half; Dan Ellerhorst. In addition, I am pleased to announce the Officers and BOD unanimously voted Dick Sosnay (previous Chairman of the BOD) in as the new President Elect. I am confident the organization is in good hands.

Looking back on 2017 for a moment, we ended the year with another superb Holiday Celebration on December 5 at Pinehurst Country Club. We enjoyed the company of Sergeant Keontis Hall and Sergeant Asao Asanuma from the United States Marines who gratefully accepted our donation of \$1,000 to Toys for Tots in honor of our members who passed away during 2017. This was in addition to the many donations of cash and toys you all made at the door. As usual, this venue did not disappoint. The food was spectacular, and the company of the many MARS members who were able to attend was precious. A huge thank you goes to Linda Duby, our VP of Activities, for organizing this event. Please feel free to scan the many holiday pictures at the back of this STAR. They are also posted on the MARS retirees' website: [www.marsretirees.org](http://www.marsretirees.org).

This is the time of year when several enclosures are included in this edition of the STAR mailing. One of them is an invitation to this year's Annual Meeting. This meeting is an opportunity for the officers to report to you, the membership, how we are doing representing

your organization. We will report on our financial state, the general status of the organization and provide an update on each of the Clubs. We will also introduce our incoming officers and directors as well as recognize and thank those who have completed their terms as officers and directors.

Among other enclosures in this STAR are the MARS Annual Membership Renewal application and future Dinner Club flyers for the next several months. Do not forget to renew your membership in MARS, review the Dinner Club venues and make your reservations early. Another important enclosure is the nomination form for the 2017 Volunteer of the Year Award. We have many individuals in this organization who commit a significant amount of time volunteering for various outside organizations that deserve to be recognized for their efforts. Please take the time to submit your nomination for this very important award.

On another note, Dan Ellerhorst, Linda Stearns and I attended the Colorado Springs Holiday Luncheon on Thursday, November 16. This is always a festive event hosted by Doug Tomerlin. We were able to give the group a short summary of the organization and took several copies of the latest STAR and membership applications to give out. We always gain a few new members from this event.

Lastly, we have developed a membership survey that will be sent to you via your personal email. We are anxious to solicit your feedback on activities the organization currently offers and some under consideration going forward. For those of you who do not have an email address, we will post the survey on the website and you will be able to access it and reply that way. It is very short and won't take much of your time. I encourage you to take the time to respond so we can ensure we are meeting the needs of YOUR organization. You can anticipate receiving more information on the survey in about a month.

Remember, the Annual Meeting will be held on March 7 at Pinehurst Country Club. I look forward to seeing you there and I wish you all a prosperous 2018!



## President Elect

By Dan Ellerhorst

([dan.ellerhorst@gmail.com](mailto:dan.ellerhorst@gmail.com))

Wow! That year went fast!

Not quite a year ago, early in 2017, I volunteered to be a candidate for the recently vacated President-Elect position. In the absence of other candidates, I was approved by the Officers and Board of Directors (BOD) and undertook the duties of the President-Elect. As I mentioned once before, these are not too difficult, but they do provide a great opportunity to become acquainted with the business rhythms of the organization and to gain insight into the activities sponsored by our clubs. I met some great people and enjoyed a sampling of the fun events that are available to our members. I've also enjoyed working with the other officers and directors, and look forward to continuing this over the next few years. We have been fortunate as an organization in attracting enthusiastic and dedicated people to leadership roles, and I have been impressed with the energy and new ideas that our latest additions have brought.

One of the new initiatives that has been gaining momentum this past year is the formation of a Marketing Committee under the leadership of Bill Wise. Bill joined the BOD in 2016 and, as a recent retiree, recognized that we could do a better job informing recent retirees and potential retirees of the existence and advantages of joining the MARS Associates. We have updated the membership application, created a welcome letter from Robin and me, and developed a fact sheet describing the organization activities and benefits. We provided this information to our HR contacts at both ULA and LM Space Systems. During our meetings with Liane George at ULA and Reese Reynolds at LMSSC, Robin and I explored a number of other ideas for getting the word to new retirees. I want to recognize and thank the other Marketing Committee members for their time and ideas: Bill Wise, Sherry Vargo, Roger Rieger, Dick Sosnay, Mike Carroll, and Robin Valore.

The concept of using temporary committees to tackle specific problems took form a few years ago when the BOD decided to focus on the problem of succession planning. That committee has had good success in developing a pool of interested potential directors and officers and the BOD will continue this work going forward. Another proposal was for a Caring Committee, to encompass the work that Bev Baugher has been doing to collect our In Memoriam information, but also to look for other ways we can reach out to members who are dealing with illnesses or other losses. Finally, during the course of some of our marketing discussions,

we tossed around ideas for organizing one-time or special interest events such as a car club drive, or group museum tours, or group tickets for concerts. It might make sense to form a committee(s) to pursue these ideas and organize some outings. Anyone who has an interest in leading or participating in a committee should contact any one of the officers or directors.

I would be remiss if I did not mention how pleased I was that Dick Sosnay volunteered and was confirmed by the officers and board to be the next President-Elect. I have enjoyed working with Dick on the BOD for the past four years and I look forward to working together when we formally assume our new roles at the Annual Meeting this March. Thank you Dick!



## Director's Notepad

By Dick Sosnay, Chairman

([richardsosnay@gmail.com](mailto:richardsosnay@gmail.com))

As the year draws to a close, we are making progress in the succession planning activities we started at the beginning of last year. The positions that have been successfully filled include the following:

**Board of Directors** – The two new members of the Board of Directors (BOD) starting in March 2018 are Roger Rieger and John Janczy.

**Vice-President – Communications** –The new Vice President of Communications starting in March 2018 is Mike Carroll.

**President-Elect** – The new President-Elect starting in March 2018 is Dick Sosnay (Yes, I decided that I would like to take on this new role. I enjoyed my role on the BOD and enjoyed working with the great people that volunteer to help our MARS organization.)

There are 2 other positions that we were looking to fill, but have not had the success we were hoping for:

**Treasurer** – We have not found a volunteer willing assume the position of Treasurer in March 2018, so

Larry Stearns has graciously agreed to continue on in that position.

**Secretary** – We did not find a volunteer willing to take over the position of secretary. That position is currently vacant, so different officers and members of the BOD have been volunteering to take minutes at each meeting. This is the most urgent open position we currently have, so again, members of MARS, please consider volunteering for that position, or encouraging people you know to volunteer. It would be your chance to participate, and contribute to our MARS organization.

One of the interesting questions that came up during the process of looking for volunteers for the open officer and director positions was how much time the various positions require. We felt that was a very good question and deserved an answer. So we have asked the current officers and BOD members to estimate how much time they spend in fulfilling their tasks. We are currently finishing that activity, and we hope to have the results early 2018 to support us in seeking out volunteers to fulfill open positions.

Finding volunteers to support the MARS organization is a continuing effort. If you are interested in volunteering to support your MARS organization, and would be willing to fulfill one of these functions, please contact any of the officers or BOD members. We would love to invite you to one of our monthly breakfast meetings, so you can get a better idea of what the individual officer and BOD responsibilities are, and for us get to know you better.



## Activities Updates

By Linda Duby  
([lindaduby@comcast.net](mailto:lindaduby@comcast.net))

Happy New Year to everyone! It's hard to believe it's 2018 already.

The annual Holiday Celebration held on December 5, 2017 at Pinehurst Country Club was very successful and everyone seemed to enjoy themselves. We had 205 members and guests attend. As usual Pinehurst provided great food and the service was outstanding.

Pictures from the event are already posted on the MARS website.

The Annual Meeting is the next event and will be held on March 7, 2018 at Pinehurst Country Club. The flyer for the event is included in this edition of the STAR. Hope to see lots of members at this event!

Upcoming events for 2018 include the Senior Luncheon on July 11 and the MARS Day at the Rockies on August 8. The Rockies will be playing the Pittsburgh Pirates. I am still researching venues for the Senior Luncheon, so more to come on that event.

Wishing everyone a great 2018 and hope to see you at the events this year!



## Business

By Sherry Vargo  
([shervargo@comcast.net](mailto:shervargo@comcast.net))

Happy New Year to you all! I hope you had a wonderful holiday and are now ready for another great year with the MARS Association. We have lots of great events and activities planned for this year. In addition, we are adding some fun and interesting events, presentations and even some new vendors to provide our members with more discounts. Here are some of the things I have been working on:

- 1) Shirts & Hats with the MARS Logo – If you have not had an opportunity yet to check out our new catalog for ordering shirts and hats, please check out the MARS website. We have a new company called US Recognition that is providing this service for us.
- 2) Alzheimer's Lunch & Learn Sessions – In the STAR Mailing, you will find a flyer that explains the subject of each presentation. There are three sessions and they will be on Feb. 23<sup>rd</sup>, Mar. 23<sup>rd</sup> and Apr. 23<sup>rd</sup>. They are free and include lunch -- you can sign up for just one or all three. There is a maximum of 35 attendees for each session. Please RSVP per the instructions on the flyer, if you are interested, before the sessions fill up. If there is a great interest shown, I will provide these sessions again later this year.

- 3) Vernon B. Selby Memorial Volunteer of the Year Award – The flyer for nominations for this award is also in the January STAR mailing. This award is given out each year to one of our members for their positive impact on our communities made through their volunteer efforts. Please take the time to nominate a MARS member who would be a great candidate. The winner of the 2017 Volunteer of The Year Award will be presented at the MARS Annual Meeting Luncheon on March 7, 2018.
- 4) Perfect Time Tours - We now have a senior travel company called "Perfect Time Tours" that offers discounts for MARS Members only. Please check out this new vendor under the MARS Discounted companies listed on the MARS Website. They offer 1, 2, & 3 day trips throughout the year. The discount for MARS Members is 10% on all tours in addition to a 5% discount if you sign up early. That is a total of 15% discount on fun senior trips and tours. I'm very excited about this new opportunity for our members.

I would really like to hear your comments on any of these new activities and opportunities that I have presented for you. Your comments are important to me and they will help me work on new ideas for the future and improve upon the existing ones. It is your organization and it is important that we "as officers" know what is working well and what is not. Please feel free to email me at [shervargo@comcast.net](mailto:shervargo@comcast.net) with your suggestions and comments. I look forward to hearing from you.



## Membership

By Linda Stearns  
[linda80120@comcast.net](mailto:linda80120@comcast.net)

In this package you will find the 2018 MEMBERSHIP DUES NOTICE. **PLEASE** complete this form with your dues payment. As you know, documents on a computer

can become corrupted—we need that information to maintain your record. The treasurer removes the check before I see your renewal, so don't rely on me seeing your preprinted address on your check. Also, if you have a service prepare your payment, please have your name inserted in the MEMO section so we apply your dues payment to YOUR records. If you have any questions or are missing your dues notice, contact me at [linda80120@comcast.net](mailto:linda80120@comcast.net). THANK YOU!!!

## MEMBERSHIP STATISTICS

As of December 31, 2017, MARS Associates' active membership is 1,416 which includes 767 seniors.

Please welcome the following new or reinstated (\*) members:

### Colorado

Arvada	Alan & Joanne Siebert
Aurora	Mable Jordan Marykay & Steven Tomlinson
Centennial	Cynthia Amack Brenda & Timothy Beauchamp Timothy & Margot Boland
Colorado Springs	Ricky Johnson Michael & Nancy Pollock John & Tawna Surek
Conifer	Thomas & Suzanne Dugan
Highlands Ranch	William Baer Valor & Julie Dodd Barbara & Steven Sande
Littleton	John & Jeannette Karas Cheryll Protz Joseph & Lucinda Stuckenschneider

### Other States

ARIZONA	
Oracle	Charles & Cynthia Cannon
LOUISIANA	
New Orleans	Thomas & Debbie Fierke

## MARS Membership Unit

MARS membership is defined in the policy manual as a family unit consisting of the retiree and spouse (or significant other), although the membership card and mailing data are in the retiree's name. In the event the retiree dies, the spouse becomes the member in his/her own name and may remain a MARS member by continuing to pay the annual dues.

Senior membership status (age 75 and above as of March 1) is based on the retiree's date of birth, even for the surviving spouse member.

### **Change of Address, email address or phone number?**

Please remember to include the MARS membership team in your list of people to notify when you move. The U.S. Postal Service may not forward standard mail and MARS is charged for all returned mail and address change notices from USPS.

**We had 18 addresses that USPS identified as being changed or undeliverable in the October, 2017, mailing. THANK YOU to all of you who provided address change information!**

*"Snow Bunnies" remember to let us know when you will travel to your seasonal residence! Where your STARS are mailed depends on you keeping us informed—standard mail is not forwarded for temporary address changes. Thanks!*

### **In Memoriam Data**

Please contact Bev Baugher ([bevbaugher@earthlink.net](mailto:bevbaugher@earthlink.net)) with any information regarding the passing of a member or their spouse. We want to make sure their passing is acknowledged in the ***In Memoriam*** section of the STAR.

Linda Stearns, VP, Membership  
MARS Associates  
P.O. Box 1128, Littleton, CO, 80160-1128  
Phone 303-797-3557; or email  
[linda80120@comcast.net](mailto:linda80120@comcast.net)

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## **MARS Associates in Memoriam**

By Beverly Baugher  
([bevbaugher@earthlink.net](mailto:bevbaugher@earthlink.net))

*Please contact me at the above e-mail address or at 303-978-0371 with information about the passing of a member, the spouse of a member or other MM/LM/ULA retirees so they can be acknowledged in the In Memoriam section. Thank you.*

### ***Members***

Bond, Stanley "Stan" R. (D: November 2017)  
(Survived by Anne Bond)  
Lakewood, CO  
<https://tinyurl.com/ybsaoo24>

Brier, Rosalie "Lee" G. (D: November 2017)  
(Survived by Richard "Dick" Brier, Jr.)  
Naples, FL  
<https://tinyurl.com/y7uplc8x>

Campbell, Jack (D: October 2017)  
(Survived by Kathleen Campbell)  
Parker, CO  
No obituary published.

Casias, Mary Lynnette (D: 2016)  
(Survived by Randy Casias)  
Aurora, CO  
No obituary published.

Dalconzo, Lily (D: December 2017)  
Centennial, CO  
<https://tinyurl.com/yblbnoev>

Faulhaber, Edward W. (D: November 2017)  
(Survived by Shirley Faulhaber)  
Littleton, CO  
<https://tinyurl.com/y7gekxqk>

Hegarty, Carl "Charlie" F. (D: November 2017)  
Denver, CO  
<http://tinyurl.com/ycn657uk>

Hovland, Linda K. (D: November 2017)  
(Survived by Alan Hovland)  
Morrison, CO  
<https://tinyurl.com/y76qbvyl>

Hughey, Harold "Hal" E. (D: December 2017)  
(Survived by Sue Hughey)  
Grand Junction, CO  
<https://tinyurl.com/yddykwrt>

Kassy, Dorothy A. (D: December 2017)  
Littleton, CO  
<https://tinyurl.com/yc29lezz>

Lamb, Ervin L. (D: March 2017)  
(Survived by Barbara Lamb)  
Centennial, CO  
No obituary published.

Lippy, Lester "Les" J. (D: November 2017)  
(Survived by Lisa Sabia)

Englewood, CO  
Obituary not yet published.

Lohmar, Robert "Bob" A. (D: October 2017)  
(Survived by Susan Lohmar)  
Poinciana, FL  
<http://tinyurl.com/ycv72y8a>

McCormick, Jack L. (D: September 2017)  
(Survived by Lois McCormick)  
Highlands Ranch, CO  
No obituary published.

McKechnie, Marie W. (D: August 2017)  
Littleton, CO  
<http://tinyurl.com/y9ke4mrf>

Mlady, Karen A. (D: October 2017)  
Highlands Ranch, CO  
No obituary published.

### ***Non-Members***

Bikle, Fred (D: October 2017)  
Centennial, CO  
<https://tinyurl.com/y9f8qdvv>

Fourney, Eugene "Gene" J. (D: September 2017)  
(Survived by Saranne Fourney)  
Highlands Ranch, CO  
<https://tinyurl.com/yaj87axh>

Guderjohn, Evelyn M. (D: December 2017)  
Medlothian, VA  
<https://tinyurl.com/y9k7gf7t>

Jensen, Carl (D: October 2017)  
Littleton, CO  
No obituary published.

Kohut, Floyd L. (D: September 2017)  
Littleton, CO  
<http://tinyurl.com/ybu6ydb7>

Macy, Jack L. (D: March 2017)  
(Survived by Jeannine McCauley)  
Mahomet, IL  
<http://tinyurl.com/yb4p5ahv>

McCandless, Bruce II (D: December 2017)  
(Survived by Ellen Shields McCandless)  
Conifer, CO  
Obituary not yet published.

Shafer, Carol (D: September 2017)  
Shelby, OH  
No obituary published.

Todd, Don (D: November 2017)  
(Survived by Sandy Todd)  
Denver, CO  
<https://tinyurl.com/y9ovalkk>

Van Pelt, John "Jack" M. (D: November 2017)  
Denver, CO  
<https://tinyurl.com/ycvothac>

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## **Historian's Corner**

Ray Ziehm (POC)  
([rzandmm@comcast.net](mailto:rzandmm@comcast.net))

### **USAF Manned Orbiting Laboratory Early Flight Test on Titan IIIC-9**

By Brian Etheridge

#### ***Introduction***

The USAF Manned Orbiting Laboratory (MOL) Program was announced in December 1963 for the purpose of establishing the utility of manned space operations by the military; however, most observers understood that the USAF's primary, if not almost exclusive, emphasis would be on reconnaissance activities.

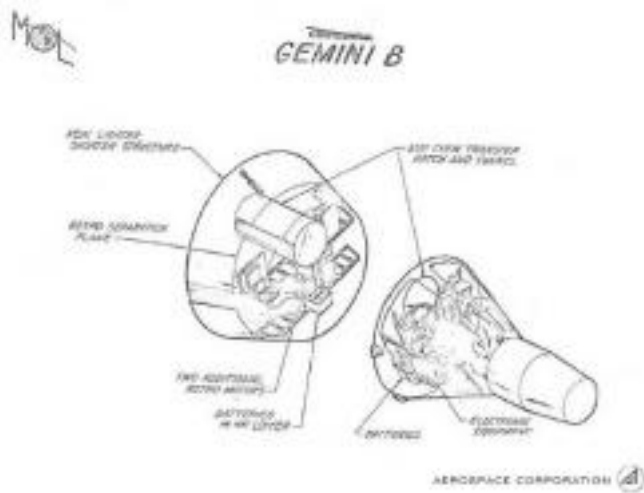


Artist's depiction of the orbiting MOL. Credit: National Reconnaissance Office (NRO)

Douglas Aircraft was to build the MOL, using a modified Gemini (Gemini B) capsule to provide access for the two-person MOL crew. Unlike the Gemini capsules launched on modified Titan II's, Gemini B had modifications to allow astronaut movement to and from the MOL while



on orbit. Accordingly, early qualification of the Gemini B Heat Shield and its new egress hatch was high priority to ensure crew safety.



Martin Marietta was chosen to provide the MOL/Gemini B launch vehicle, a modified Titan IIIC called Titan IIIM, which would have more powerful Solid Rocket Motors (SRMs) to accommodate the MOL's weight and to provide an upgraded (Man-Rated) Flight Control System.

The MOL's 10 ft. diameter cylinder would match that of the Titan's core, and would weigh in at 32,000 lbs. distributed over its 72 ft. length. Adding the Gemini B to the top of the 'stack' increased the overall payload length to about 83 ft. with a combined weight of 36,400 lbs. This combination of length and weight represented a payload challenge unlike anything previously launched by Titan.



Titan IIIC-9 with Simulated MOL & Gemini B at VAB Rollout. Credit USAF

At the beginning of the MOL Program, flight planners agreed that an Early Flight Test (EFT) was needed to minimize concerns with the Gemini B Heat Shield/Access Hatch and to establish the integrity of the Titan core launch vehicle before committing to a full-scale development program. Since the Titan IIIM existed only

on paper, it was decided to create a MOL mockup from a Stage 1 taken from the Titan II ICBM Program, and launch this structure with a Gemini B on an existing flight proven Titan IIIC. Although the diameter of the MOL Mockup was identical to the MOL's diameter, it was little more than half the planned MOL's length and not nearly as heavy. However, this Titan II Stage 1 was immediately available and considered fully adequate to support qualification of the heat shield. Secondary mission objectives included validating the core structural integrity and the Flight Control System of a Titan IIIC as a 'stepping stone' to the Titan IIIM.

The Gemini B was mated to the forward end of the MOL Mockup, and several smaller satellites and experiments were installed inside the MOL mockup to utilize available 'free rides', due to excess booster lift capacity. Thus, the primary objectives of the MOL/HSQ Mission focused on qualifying the Gemini B Heat Shield; however, validating the Titan core's ability to handle a lengthy and heavy forward structure was also considered important.

### ***MOL/HSQ Mission Profile***

The Titan IIIC-9 (MOL/HSQ) Mission began just before 9 am EST on November 11, 1966 with a perfect Lift-Off from Launch Complex 40 at Cape Canaveral, Florida. Performance of Stage 0, I, II, and 1<sup>st</sup> Burn of the Stage III (Transtage) main engines were all within predicted limits, resulting in a vehicle altitude of about 100 miles. Of particular interest was how well the Titan Stage 0 Load Relief Autopilot handled the effects of Aerodynamic Pressure with such a long structure. The Autopilot performed perfectly and kept aerodynamic loads well within acceptable levels.



Launch of Titan IIIC-9 with MOL/HSQ Payload November 11, 1966

Unlike most Titan missions, the Transtage 1<sup>st</sup> Main Engine Burn (1<sup>st</sup> Burn) left the remaining vehicle configuration pitched down toward the earth to allow the Gemini B/Heat Shield test to proceed with the proper reentry angle. Less than 30 seconds after 1<sup>st</sup> Burn shutdown, while the Transtage Attitude Control System (ACS) maintained the proper attitude, the Gemini B was separated successfully from the MOL Mockup.

Three forward thrusting retro rockets had been attached to the 'up' side (off target) of the vehicle on the forward end of the MOL Mockup, and two additional forward thrusting retro rockets were attached similarly to the 'down' side (on target), shown as item 15 in the nearby General Arrangement diagram. All five of these rockets were simultaneously fired at Gemini B separation to provide adequate clearance from the Gemini B before pitching the vehicle up in preparation for Transtage Main Engine 2<sup>nd</sup> Burn. In addition to providing separation, the asymmetric retro rocket arrangement was intended to impart a 2 deg/sec pitch up motion to the vehicle to conserve ACS propellant for the remainder of the mission. The ACS then stabilized the vehicle in the proper pitch up position allowing 2<sup>nd</sup> Burn to begin. At the end of 2<sup>nd</sup> Burn, the vehicle was in an elliptical orbit with apogee of 165 nautical miles. Later, 3<sup>rd</sup> Burn circularized the orbit at the apogee altitude.

The ACS then executed a series of maneuvers in support of the 'free rider' satellites to be ejected into orbit. After all of the satellites were ejected, the mission called for four more orbits to support the 'free rider' experiments that remained onboard the MOL mockup while the ACS provided 'station keeping' services, i.e., keeping the Target position always pointing down. However, the ACS ran out of propellant during the 4<sup>th</sup> orbit before the end of the planned mission. Fortunately, all Primary and Secondary Mission Objectives were achieved before ACS propellant depletion.

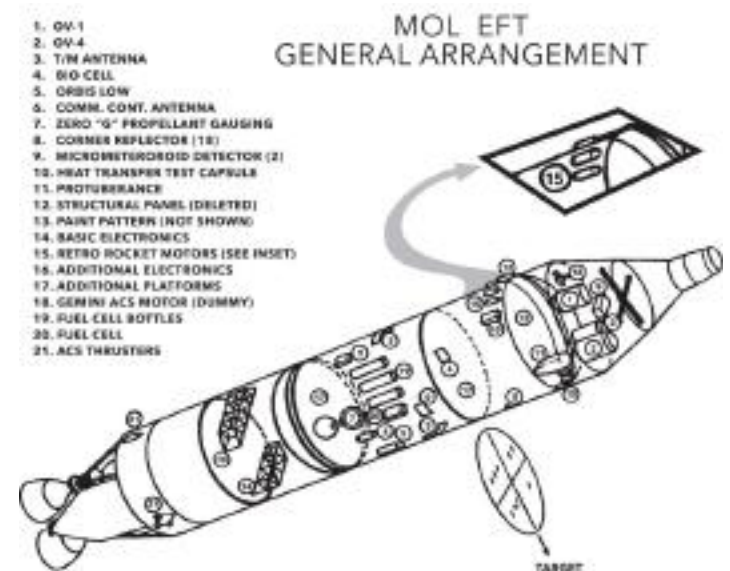
**Discussion & Analysis**

Why did the ACS run out of propellant and cause an early end to the mission? Analysis of the flight telemetry data quickly showed where the first problem occurred. Just after the Gemini B separation, the retro rockets failed to cause the expected 2 deg./sec. upward pitch rate; in fact, a pitch down rate of 1/2 deg./sec. was observed! The ACS compensated for this, but in so doing used too much propellant. So, what caused the retro maneuver to rotate in the opposite direction?

As mentioned previously, this mission had by far the longest payload Titan had ever flown. The long payload with its distributed weight caused the longitudinal center of gravity (CG) of the entire structure to move forward

well beyond the normal CG position on previous Transtage missions. Even with the forward CG, the position of the retro rockets on the front end of the MOL Mockup was still about 30 ft. forward of the CG.

After considerable post-flight analysis, the answer became inescapable; the retro rockets generated an expanding thrust plume that impinged on the forward end of the MOL Mockup, providing an unexpected force perpendicular to the vehicle centerline, and in opposition to the intended effect of the retro rocket thrust. The rated thrust of the all of the retro rockets was 500 lbs.; therefore, the predicted torque (force x moment arm) of the extra top side retro rocket was expected to be about 500 lbs. x 5 ft. = 2,500 ft. lbs. The unexpected impingement torque had to be larger and in the opposite direction from that of the intended retro rocket torque to cause a pitch down motion. The Author's analysis indicates that the unexpected impingement torque needed to be about 3,225 ft. lbs. to cancel all of the predicted retro rocket torque and provide the actual downward pitch rate of 1/2 deg./sec. Dividing the impingement torque by its 30 ft. moment arm indicates that the implied impingement force was between 105 lbs. and 110 lbs. Note that the impingement effects of the other four symmetrically positioned rockets would have cancelled each other without affecting vehicle rotation.



However, to this day, there remain uncertainties about the intended MOL Mockup retro maneuver. With such a significant impingement action, it is likely that the rated retro rocket thrust did not fully translate into the desired pitch up torque. Thrust plume friction together with the energy from the plume particles/molecules was significant enough to produce a counterproductive torque. If some of the retro rocket's energy was

'consumed' in applying the impingement force, the actual useful retro rocket thrust should be less than the 500 lb. rating. If less than full retro rocket thrust contributed to the intended pitch up maneuver, then the implied impingement force would also be reduced.

As it turns out, all we really know from flight data is that the impingement torque had to be greater than the actual retro rocket torque to result in the downward pitch rate of the MOL Mockup vehicle. Additionally, with such significant retro rocket thrust plumes acting on the MOL Mockup, some erosion of the vehicle's alloy skin would not be surprising. Of course, this too will remain something of a mystery since no applicable flight measurements were taken, and no post-flight retro rocket tests were conducted.

Yet another problem showed up in the flight telemetry data that added to the increased ACS propellant usage. ACS thruster performance was found to be degraded for the same reason: thrust plume impingement. The longitudinal CG of previous Transtage missions had always been within 2 ft. to 3 ft. of the ACS thruster location, shown as item 21 in the General Arrangement diagram. Therefore, any effects of ACS thruster plume impingement were not obvious. However, on this Transtage mission segment the CG was over 13 ft. forward from the CG location of previous missions, and caused significantly reduced ACS thruster torque (known as control authority), but not significant enough to produce a net torque in the opposite direction as with the retro rocket. However, planned ACS maneuvers would now require additional propellant to accomplish. Also, the excessive ACS burn time caused thruster propellant valve damage due to 'heat soak back'. This further reduced thruster performance causing yet more rapid propellant usage to achieve the required maneuvers.

The challenging MOL/HSQ Mission taught much to the relatively new Titan III Team, which included the author. Some say that 'experience is the best teacher'; others say that 'experience is the teacher of last resort'. In any event, the 'lessons learned' from this mission would prove invaluable on Titan III missions to come, e.g., the original bipropellant ACS was replaced with a less costly and more robust monopropellant ACS system. Fortunately for Martin Marietta and the Titan team, all of this valuable knowledge and experience was gained, while still fully achieving all Primary and Secondary MOL/HSQ Mission Objectives. (For more detail on the MOL/HSQ flight results and the fate of the 'free riders', see the now declassified post-flight report at: <http://www.dtic.mil/dtic/tr/fulltext/u2/378020.pdf>)

## **Epilog**

Of course, the actual MOL and Titan IIIM never made it from the drawing board all the way to the launch pad; before having any additional test flights, the MOL Program was terminated in 1969. The Nixon Administration decided that budget pressures of the Vietnam War, funding the previous Administration's new Great Society Programs, and escalating MOL Program cost estimates, simply did not warrant both the USAF (MOL) and NASA (Skylab) continuing to pursue parallel manned space programs. Hence, after considerable Administration infighting, the decision was made that the USAF would rely solely on satellites to satisfy their reconnaissance requirements and NASA would have the 'charter' for all manned space activities. MOL and Titan IIIM became just a distant but still exciting memory.

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## **Bridge Club**

By Dave & Kathy Martz  
([martz20@comcast.net](mailto:martz20@comcast.net))

*"Many games provide fun, but bridge grips you. It exercises your mind. Your mind can rust, you know, but bridge prevents the rust from forming."  
- Omar Sharif*

Come join us at our monthly get together! All MARS members and their guests are welcome. We play on the **3rd Friday of each month at the Buck Community Recreation Center (Littleton) from 10 AM to 2 PM** (pack your lunch). The club provides the cards and all requirements for the games as well as coffee, tea, and hot water, for your enjoyment. There is a small fee to the Buck Center as well as a small fee to the club (which helps with supplies and the year-end party in December).

We have couples, as well as singles, playing. If you don't have a bridge partner, the club can assist in finding one for you, but you need to let us know in advance.

If you have any questions, please contact any of the following Bridge Club Officers:

Presidents:

Dave & Kathy Martz, 303-683-9524

Vice-President:

Bill Kacena, 303-973-2685

Secretary:

Theodore Bornhoeft, 303-933-9730

The 4th Quarter 2017 winners are as follows:

### October 20 (4 ½ tables)

N-S 1<sup>st</sup> – Ed & Laurie Bock  
2<sup>nd</sup> – Sally Sanders & Sharon Snook  
E-W 1<sup>st</sup> – Ernie & Cecile Berliner  
2<sup>nd</sup> – Trudy White & Jerry Baab

### November 17 (5 tables)

1<sup>st</sup> – Bart & Diane Wright  
2<sup>nd</sup> – Ernie Berliner & Jay Kimose  
3<sup>rd</sup> – Bill & Mavis Kacena  
4<sup>th</sup> – Loman & Pat Park

### December 15 (3 ½ tables)

1<sup>st</sup> – Ernie & Cecile Berliner  
2<sup>nd</sup> – Theodore Bornhoeft & Trudy White  
3<sup>rd</sup> – Bart & Diane Wright

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## Dinner Club

By Becky and Gary Englebright  
([Englebright@Earthlink.Net](mailto:Englebright@Earthlink.Net))  
and  
Anita and Roy Kannady  
([AnitaKannady@Yahoo.Com](mailto:AnitaKannady@Yahoo.Com))

We have scheduled the next set of monthly outings for MARS members for the 2<sup>nd</sup> quarter of 2018. Attendance was steady in 2017 and hopefully will continue thru 2018. With that said, we still had room for additional reservations at most venues. Please remember, venues have attendance limits, so you should make your reservation sooner than later if you wish to attend.

The restaurants scheduled, so far, in 2018 are as follows:

- April 17th: Red Lobster
- May 16th: Maggiano's Little Italy
- June 12th: Inverness Garden Terrace

Check the Calendar on the back of the STAR for additional luncheon dates that are scheduled. We continue to explore the restaurant scene looking for new and interesting places to have lunch. If you have a suggestion for a new venue, please let us know; by email or phone (if we are not home, please leave a message).

We have chosen restaurants each month with the goal of keeping our costs in check, recognizing that increases are likely. In addition, we will continue to strive to provide luncheon opportunities that are on the lower end of the scale to help balance the cost. Remember,

the luncheon prices always include the tax and a 20% tip.

"The only time to eat diet food is while you're waiting for the steak to cook."

Chef Julia Child

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## Golf League

By Don Petermann  
([donnarlen3@gmail.com](mailto:donnarlen3@gmail.com))



Don Petermann  
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[Donnarlen3@gmail.com](mailto:Donnarlen3@gmail.com)  
Golf League President

Bo Rodriguez  
(303)798-9157  
[boandpat@comcast.net](mailto:boandpat@comcast.net)  
Golf League Vice Pres.

Kathy Rieger  
(303) 870-6915 (cell)  
[Korieger@gmail.com](mailto:Korieger@gmail.com)  
Membership Committee

Bob Knickerbocker  
(303) 550-1408 (cell)  
[knick@ftml.net](mailto:knick@ftml.net)  
Membership Committee

Only 3 months until the 2018 MARS Golf League begins and we are encouraging all of our members, men and women alike, spouses or significant others who enjoy the game of golf to join our league.

The MARS Associates Golf League invites you to participate in our weekly summer golf league that begins on Thursday, April 5<sup>th</sup> 2018. Our league play will be each Thursday, exclusively at Englewood's Broken Tee Golf Course. Our primary purpose as a club is to realize a pleasurable golfing experience by promoting social interaction and friendly competition. We are having our annual "Kick-Off" Golf Meeting on Thursday, March 1, 2018 at the Broken Tee Golf Course grill at 10:00 A.M. (2101 W. Oxford Ave. in Englewood, Colorado). We hope you will attend this meeting as we will review our league's order of business and the golf course rules and procedures. In the event that you are unable to attend the kick off meeting, but are still interested in joining our league, kindly contact any of the members listed above to reserve a spot for league play and/or answer any questions.

Come join us this season for fun and exercise! The green fees are competitively low; our first foursome tee time will be improved to 9:05 A.M. in April then move to 8:31 A.M. in June. Our experience from last year has shown that all levels of golfers shared in winning prize money, based on their established handicap. As in the

past, league members get "Happy Hour" prices on select bar beverages at the golf course grill.

See the enclosed flier for more information.

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## Photography Club

By John Chapter

[johnchapter@msn.com](mailto:johnchapter@msn.com)

303-986-8277



### **Background for the 2017 Last Quarter**

We had two recent meetings in October and November 2017 (see Meeting Highlights below). On December 8, 2017 we had our *Holiday Luncheon* at the Golden Corral Restaurant located at Hampton Ave. and Santa Fe Dr.

### **Overview: When and Where We Meet**

The Club meets at the *Littleton Bemis Library*, located at 6014 S. Datura Street, in Littleton Colorado, usually on the second Thursday of the month, from 1:00pm to 3:30pm. The MARS Photography Club does not meet during June, July and August as many club members are traveling and entertaining visitors.

Every meeting we have a program by a *club member or an outside presenter* that is often on travel or photography education. We also have a friendly photography competition and the selected images, First, Second and Third, as well as, one or two Honorable Mentions, are shown on the *MARS Retirees-Photography Section web page*. In addition upcoming scheduled meeting programs and past meeting competition winners are also shown.

### **Meeting Highlights**

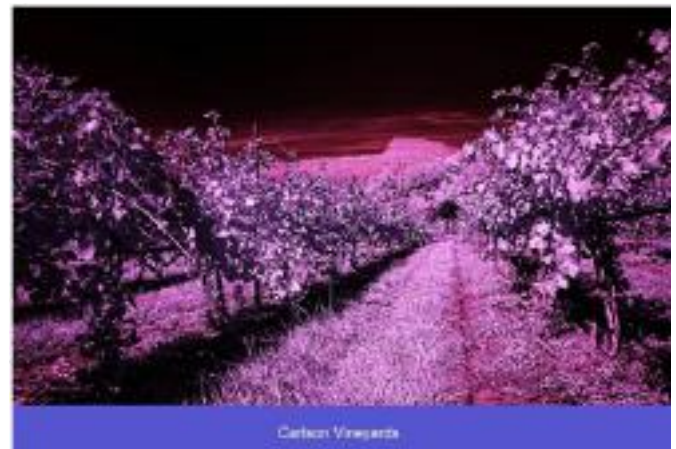
Please check-out our *Photo Competition Winners* shown on the MARS Retirees web site.

Our recent meetings for this quarter were on October 12 and November 9, 2017. The October presentation was given by Larry Stearns who shared his images and photography methods from the August 21 total solar eclipse. His presentation was well received.

Larry was also the first place competition winner for October that was a wonderful mountain landscape. His winning image is shown below.



The November presentation was by John Chapter on his wine tasting trip to several wineries in the Grand Junction area. This trip was organized by the Colorado AAA (American Automobile Association) and had about 50 participants. The trip was by Amtrak from Denver with return by bus. John enjoyed the opportunity to photograph the grape orchards and experimenting with Infrared (IR) photography.



This image was taken with an IR Converted camera that gives the reddish tone to the image. Garfield peak is shown in the far background.

The first place competition winner for November was a moody seascape of an Alaskan beach by *Tom Frickell*. The image was enhanced by his using a slow shutter speed.



**Bob, Linda, Paul and Lonnie learning about Petra from our guide who is an archeologist born in a cave in Petra.**



**Lee, Sue, Bob, Linda, Lonnie and Paul admire the view of the walled city of Jerusalem from the Mount of Olives.**

Tara O'Brien organized the hike in November. Sixteen hikers strolled through Fairmount Cemetery, and we found that it was the day of the "3's." For 3 miles we toured the Little Ivy Chapel (usually locked but open for us); we saw prominent Den & Colo founding names on the "Millionaire's Row" in the cemetery; we also toured the Mausoleum. We then walked 3 miles of the nearby Highline Canal, where 3 wild coyotes greeted us! We quenched our thirsts afterwards at the 'Bout Time Pub & Grill on South Platte River Drive.



### **Upcoming Programs for 2018**

We have several especially exciting programs for 2018. We start in January 2018 with an Educational DVD Projection Program produced by *National Geographic*, by two of their professional photographers. Sometime later in 2018, John Chapter will present a recently finished updated presentation of his trip to *India* to see a solar eclipse. The 1980 trip included New Delhi, Agra and the Taj Mahal, Jaipur and more. This program's images were converted from film-capture to enhanced digital.

### **Become a Photography Club Member**

You can become a member of the *MARS Photography Club* by just stopping by one of our meetings. We would love to have you be a part of our club. Club membership is fun and there are no requirements. If you have any questions or comments, please contact John Chapter, our club President, email address, [johnchapter@msn.com](mailto:johnchapter@msn.com).

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## **Hiking Club**

By Sue Janssen  
[susan.g.janssen@gmail.com](mailto:susan.g.janssen@gmail.com)

Whoa! 2017 went by so quickly! I guess that means we are keeping busy in retirement. I often wonder how I ever had time to work 40+ hours a week.

No "official" hike was planned for October – so many club members had other commitments. Several MARS members hiked on an adventurous trip in the Middle East! Bob and Linda Berry, Paul and Lonnie Jones, and Lee and Sue Janssen spent about a month touring the West Bank, Jordan, Egypt and Israel. We hiked in Petra, a UNESCO World Heritage site. We also walked many miles in Jerusalem. The sights, food, and people were wonderful!

**A large contingent from the MARS hiking club enjoyed the beautiful weather and interesting history at Fairmont Cemetery: Tara O'Brien, Pat & Joe McDermott, Ken Ruiz, Pam Alstott, Tom & Sue Pawlowski, Al McKinney, Gerry & Sharon Boisvert, Harold & Elaine Feldman, Ellen & Patric Albert, Mike Bartlett, Val Gregory**

2018 promises to be a good year on the trails. If you wish to join the MARS Hiking Club, contact Sue Janssen at [susan.g.janssen@gmail.com](mailto:susan.g.janssen@gmail.com) who will add you to the club distribution list. Please provide your email address, home phone and cell phone for the roster. The schedule of hikes is posted on the MARS website (<http://www.marsretirees.org/>). Even if you have never gone snowshoeing or hiking you are welcome to join in the fun.

Happy trails!

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## The MARS Associates Website

By Jim Kummer  
([jkummer@comcast.net](mailto:jkummer@comcast.net))

Recently MARS Associates distributed a message to all Colorado MARS members for whom we have email addresses. This email provided information about discounts that the officers had arranged for the National Western Stock Show. Because of timing, the announcement could not wait for this STAR to publish, so the email approach was utilized. We may use this means of communication again at times where appropriate in the future. If you want to receive such messages, make sure to put the MARS email address, [marsretirees@marsretirees.org](mailto:marsretirees@marsretirees.org), in your email address book, so that our messages don't get considered SPAM. Also, if your email address is listed on the MARS website, be sure that it is correct. If you absolutely do not wish to receive such messages from MARS Associates, please send an email message to that effect to Linda Stearns, Membership VP ([linda80120@comcast.net](mailto:linda80120@comcast.net)).

The website committee is seeking an additional member of the group. MARS officers are interested in establishing a presence on FACEBOOK, so we'd like someone familiar with that element of social media. The committee meets but once a month for lunch, so the time commitment is minimal. Interfacing the website and FACEBOOK can be done from your own home computer at your convenience. Send email to Jim Kummer ([jkummer@comcast.net](mailto:jkummer@comcast.net)) if you'd like to join our group.

You are encouraged to access the MARS website, [www.marsretirees.org](http://www.marsretirees.org), where you will find excellent

information resources for MARS members. Here are the websites of the month from the last quarter.

**Oct – Check out the information resource on [infoplease.com](http://infoplease.com)**

**Nov – All Things Weather at [intellicast.com](http://intellicast.com)**

**Dec – Research Colorado Health Professionals at [Co Health Professional Check . Other states.gov](http://Co Health Professional Check . Other states.gov) may have similar sites**

Your website committee members welcome your suggestions for improvement, and for proposed websites of the month. Email them to me at [jkummer@comcast.net](mailto:jkummer@comcast.net). Your website committee members are: Bob Knickerbocker, Linda Stearns, Paul Bingham, Duane "Smitty" Smetana, and Jim Kummer (Webmaster).

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## Colorado Springs Lockheed Martin Retiree Group News

By Doug Tomerlin  
([dougincs@aol.com](mailto:dougincs@aol.com))

Our fall luncheon was held on November 16, 2017 at the Lockheed Martin Colorado Springs Building 2 cafeteria. Nearly 100 attended and again this year we enjoyed a traditional Thanksgiving buffet prepared by the cafeteria staff. Several new retirees attended the luncheon joining those who have been retired for up to 32 years!

The group was honored to have JD Hammond, Lockheed Martin Corporation Rotary and Mission Systems Program Director & Colorado Springs General Manager, and Sue Spence, Colorado Springs Senior Engineering Manager, attending the luncheon. The retirees greatly appreciated the opening remarks and top level status briefing by Mr. Hammond. In addition, Ms. Spence provided an interesting briefing on current happenings at Lockheed Martin Colorado Springs. We look forward to having Lockheed Martin senior managers attend future luncheons. Three officers from MARS Associates also attended the luncheon. These included President Robin Valore, President Elect Dan Ellerhorst, and Vice President in charge of membership Linda Stearns. Ms. Valore spoke on the benefits of becoming a member of MARS Associates. Ms. Stearns distributed MARS information packets and stayed after the luncheon to discuss membership with individual retirees. Thanks to Lockheed Martin Colorado Springs for coordinating and preparing the luncheon, especially Nadine Veed and her staff. A special thank you is extended to Lockheed Martin for providing a photographer.

We welcome the following retirees who have joined the retiree group since the last newsletter:

- Mike Pollock
- Brenda Fritz
- Bill Glasford
- Joe Kailey
- Bill and Sarah Marcy
- Larry Orth

Our spring luncheon is tentatively planned for May, 2018 at the Lockheed Martin facility in north Colorado Springs. If you would like more information about the Colorado Springs Lockheed Martin Group or the luncheon, please contact Doug Tomerlin at [dougincs@aol.com](mailto:dougincs@aol.com).

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## RAMM – Baltimore News

By Andy Bauer and Dottie Ruth  
([dotruth725@comcast.net](mailto:dotruth725@comcast.net))

After thirty-one years, it is with deep regret that the Baltimore Middle River Retiree Association of Martin Marietta (RAMM) will cease to exist. Due to the aging of our members and the declining treasury, the Director, Officers and staff have no choice but to retire our organization. Many of our members were employed by that genius of aviation, Glenn L. Martin. Many stories of that early Martin Company were often related at our RAMM meetings. Our mission, in 1986, was to promote goodwill and fellowship on a nonprofit basis. Have we accomplished our mission of goodwill and fellowship? As the lone founder of the RAMMs, I say, definitely. Harry Mettee and Mel Ruth would have agreed with my response. It is sad to bid goodbye to the friends we made during these thirty-one years. The organization will end but the memories will live on.

In mid-November, Dottie had another fall but after being checked at the hospital, no harm occurred from the fall; however, her spinal stenosis is causing more mobility and dexterity issues along with a great deal of pain. Even checking email is painful. If you need to get a message to her, please contact Chris Lorber, her daughter, at [sus503@yahoo.com](mailto:sus503@yahoo.com); They will periodically check her email but it may be a bit of time between checking it. The RAMMs had their last meeting in November, and their last activity was the Christmas Party December 13.

Just before Christmas, Dottie was moved to hospice at Gilchrist. Chris will continue to monitor her email and give her the messages. For now she is comfortable and

safe. We must wait to see if her condition improves or worsens. Thanks for all of your prayers!

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## Cape Canaveral News

By Dick Olson  
([Olsons5145@aol.com](mailto:Olsons5145@aol.com))

### Luncheons

**October** – The list of attendees from the lunch last Thursday: Abram Smith, Frank Indihar, Bill Masterson, Ken Hawes, Jerry Moskovitz, Hank Ambrosch, Larry Gleason, Dave Kintigh, Walt Starky, Dick Hinshaw, Chris Hutchmaker, Danny Molina.

Want to remind everyone that they are invited to our Old Car BBQ Nov. 4 at KARS Park around 1:00. Hope you can make it.

**November** -- Pretty good turnout for lunch considering it kind of snuck up on us. Present were Dick Hinshaw, Larry Gleason, Danny Molina, Wendell McDaniels, Jerry Teague, Bob Matschner, Bill Masterson, Bob Anderson, Jimmie Weddle, Frank Indihar, Rich Tennis, Roger Wright and Jerry Moskovitz.

We had a good turnout for our Old Car BBQ with quite a few of the Titan old timers present. Had somewhere around 125 show cars and fed 325+ people. I hope a good time was had by all.

**December** – Had a pretty fair turnout for our December lunch. Making the scene were Jerry Teague, Abe Smidth, Don Anderson, Bob Rodamer, Bob Anderson, Larry Gleason, Frank Indihar, Jerry Moskovitz, Ken Hawes, Bill Rhode, Roger Wright, Hank Ambrosch, Cal Moser, Dick Hinshaw, Walt Starkey, Danny Molina, Cecil Snipes and Bob Matschner.

Bob Anderson bought in a bunch of old pictures from the Titan II days and we all tried to figure out who those young guys were. Bob Rodamer, Larry Gleason and Jerry Moskovitz were able to name quite a few of them.

Take a moment to reflect on some of the Canaveral Titan Team that are no longer with us. This past year we lost Lou Favata, Gene Eley, E.G. Smith, Col. John Hungerford, Bobby Grissom, Mike Desanto, Reed DeLavergne, Bill Polk, Farley Adams, Mak Mannen, Larry Cuppett, Robert Cromwell, Robert Kern, Junior Stark, Chuck Harris and Marty Blankfield. Our ranks are thinning out.



Wish everyone a Merry Christmas and a Happy Holiday Season. See you next year,  
Dick

**January --** Had a pretty fair turnout on a chilly (38 degrees) Florida morning. Attending were Wendell McDaniels, Herbie Puugh, Walt Starkey, Bill Masterson, Bill Rhode, Abe Smith, Jerry Moskovitz, Roger Wright, Jinny Weddle, Ken Hawes, Don Anderson, and a few we haven't seen for a while, Vince Alderman, Wes Hutcheson, Dave Kintigh, and Tom Savage. Tom is to be installed as the Florida Potentate of the Shriners organization tonight.

Congratulation to Jim and Linda Milby who will be celebrating their 50th wedding anniversary soon.

Hope everyone had a happy holiday season and wish you all the best for the coming year.

### **Obituaries**

**Robert Kern**, 57, aka "Bobo" unexpectedly passed away on Friday, October 13, 2017.

**Junior Lee Stark**, 86, passed away on October 9, 2017. Junior served in the US Army and was a lead aerospace electrical engineer from Martin Marietta over the PACE (Programmable Aerospace Control Equipment) group during his days on Titan.

**Chuck Harris**, 98, passed away on October 12th. Chuck was the supervisor of the CMA area, backup ordnance engineer and was highly respected by the folks in his area and other employees as well.

**Martin S. Blankfield**, 91, of Merritt Island, who retired from Lockheed Martin Launch Operations, passed away Nov. 25, 2017.

**Jeffrey Eric Ford** – Jeff, 41, son of Butch and Letha Ford passed away on Tuesday, March 21st, 2017.

**Vona Webb**, 84, wife of Kenneth Webb Sr. for 69 years passed away unexpectedly Tuesday December 19, 2017.

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## **Martin Marietta Retiree's Club (Vandenberg News)**

By Charlie Radaz  
([fcmjradaz@aol.com](mailto:fcmjradaz@aol.com))

Our luncheon in September was held on the 28<sup>th</sup> with 29 attendees at Pea Soup Andersen's in Buellton. Our guest speaker was Tom Heter III, ULA VAFB Manager

for Atlas V & Delta IV. He gave an excellent summary of the program's successes and future plans -- a very exciting and informative presentation with lots of questions afterwards! There was no 50-50 drawing since Larry Los, the ticket salesman, was traveling.

We are sad to acknowledge the passing of: Waunita Thompson, wife of Lenny Thompson, Titan Engineering, who passed away in September and Anne Kenworthy, faithful member and wife of Gene Kenworthy who died on October 3rd at the age of 95.

On October 26th, we met at Rooney's Irish Pub in Old Orcutt with 28 attendees. Since we did not have a speaker, President April Hardy proposed that members stand up and tell a short story about what happened on the job. Jerry Wetterholm, Charlie Radaz, Larry Curtis, April Hardy, Terry Murdock, Arlene Brown and Augie Aguilar all shared humorous stories -- it was good to hear the variety of stories told! The 50-50 drawing was won by Polly Phillips (\$20.00) and Larry Los (\$25.00).

We did not meet in November due to proximity to Thanksgiving.

We enjoyed a fine Christmas Party at the Santa Maria Airport Radisson on 7 December with 32 attendees enjoying the meal and entertainment by a quartet, Larry Los & the Central Coast Chordsmen. They performed and then led us in Christmas songs! The 50-50 drawing was won by Heather Quinn for \$44.00.

The first meeting of 2018 will be on 25 January at Pea Soup Andersen's in Buellton. As has been our custom for some time now, we will have a speaker talk about income tax changes. Beverly Wilson, CPA and Senior Partner of Walker, Wilson & Hughen Accountancy Corporation will inform us on the subject.

The Club normally meets the last Thursday of each month at noon. We rotate between Santa Maria, Orcutt, Lompoc and Buellton. All former employees, their spouses and associate contractors are welcome to attend, visit and share informal stories.

Please call Aubrey Collins (805) 937-8299 for the location and reservations.

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## **Lockheed Martin (LM) News**

**Vice President Mike Pence tours LM Space Systems, promises America will "lead in space once again"**

Vice President Mike Pence visited NASA's next Mars probe and the latest Air Force GPS satellites being built during a whirlwind tour of the Lockheed Martin Space Systems Co. campus in Jefferson County on Thursday, 26 October. Snow flurries accompanied the vice president as his motorcade, Secret Service detail, a traveling press corps, Douglas County Sheriff's deputies and some rooftop snipers followed his movement between buildings on the 5,600-acre campus.



**Flanked by Marillyn Hewson, CEO and chairwoman of LM Corp., Rick Ambrose, executive vice president of LM Space Systems division, and Heather Wilson, USAF Secretary**

Pence saw workers putting finishing touches on NASA's InSight lander, scheduled to launch to Mars on May 8 to study the planet's interior. InSight, for Interior Exploration Using Seismic Investigations, Geodesy and Heat Transport, will launch from Vandenberg Air Force Base — the first interplanetary launch in history from America's West Coast. InSight will land on Mars in November of 2018, where it will be the first mission to explore Mars' deep interior. InSight investigation will improve our understanding about the formation and evolution of all rocky planets, including Earth. InSight is part of NASA's Discovery Program, managed by NASA's Marshall Space Flight Center.



**United States Vice President Mike Pence, middle, looks at InSight, NASA's next Mars Lander, in background**

Vice President Mike Pence toured the Reverberance Acoustics (RA) Laboratory and CHIL or Collaborative Human Immersive Laboratory. Pence viewed the InSight Mars lander in the RA lab and in the CHIL lab Pence saw virtual reality of the Mars Base Camp which

simulates a human orbiting outpost on Mars. LMSS' virtual reality design lab is used by engineers to virtually examine life-sized digital representations of space hardware they're designing. Pence watched as Air Force Secretary Wilson donned a VR headset and maneuvered around a digital version of Lockheed's proposed Mars Base Camp, an orbiting spaceship from which astronauts could access Martian surface, fly drones and conduct research.

Pence was then whisked in his limo to a hangar-sized clean room where Lockheed Martin Space Systems is building the first five new, more powerful global positioning satellites for Air Force and civilian use. Pence and Ms. Wilson donned coats to explore the GPS III satellite clean room, taking a look at an Air Force-cleared satellite that should be launched next year.

Pence signed a piece of thermal blanketing that will be put on a satellite before heading off into space. He gave the lined-up crew of engineers a thumbs-up before posing for a picture and shaking their hands.

Pence deemed the visit inspirational as Hewson presented him with an American flag that was taken into orbit on a 2014 test flight of the Orion deep-space capsule. Pence said the flag would go on display at the White House next week.

The visit came as the White House builds a national space policy that will shape the civilian and military government space projects done by Lockheed Martin and other aerospace contractors in coming years. President Trump has expressed enthusiasm for the space program as a symbol of American greatness. But tight Congressional budgeting and a burgeoning commercial space industry have muddled the direction of U.S. space policy, particularly in human space flight.

The vice president has said the U.S. intends to return to the moon as a proving ground for technologies taking astronauts to Mars and sees a role establishing commercial activity on the moon.

"We appreciate the historic partnership between Lockheed and the United States' space program in so many ways," Pence said, adding he's "absolutely confident, with President [Donald] Trump re-starting the National Space Council ... that America will be leading in space once again."

Pence leads the National Space Council, a White House advisory body meant to coordinate space policy across military and civilian government agencies. The NSC disbanded in 1993, but the president re-formed it this summer. Lockheed's Hewson is among executives of aerospace contractors at the council's first meeting in

Washington D.C. in early October. Beyond Pence, the council includes several high-ranking Cabinet and agency officials, signaling an interest in space programs from the Trump Administration.

The country hasn't had a U.S. spacecraft to put astronauts into orbit since the 2011 retirement of NASA's space shuttle fleet, and has purchased seats on Russian Soyuz capsules.

Lockheed Martin Space Systems (LMSS) is the prime contractor building the nation's first spacecraft for deep-space missions, the Orion. LMSS has led NASA's 11-year, multi-billion-dollar development of Orion space capsules to take astronauts to Mars in the early 2030s. NASA is funding development of SpaceX and Boeing Co. space capsules to take astronauts to the International Space Station in low-earth orbit.

Matt Kramer, a spokesman for Lockheed Martin Space Systems, said the company was honored by the vice president's visit and appreciated the Trump Administration's vision to secure America's lead in space. "(Lockheed is) ready to do what we can to help the administration achieve its goal," Kramer said.

### **Lockheed's CEO wants Congress to pass a new defense authorization to stabilize the company**

Bethesda, Md.-based Lockheed Martin held on as the No.1 recipient of government contracts in 2016, receiving \$43 billion, according to federal procurement data. The company has 8,600 employees in Colorado, 4,000 of who are based out of the Jefferson County facility.

In the company's third-quarter earnings call, Hewson urged Congress to adopt a new defense budget in the final National Defense Authorization Act. A continuing resolution for fiscal year 2018 limits the Department of Defense spending to the previous fiscal year levels through Dec. 8. Most of the 2017 orders are already funded and would not be affected, Hewson said. But if the budget constraints continued past Dec. 8, the CEO warned that 2018 orders would be impacted.

The Trump Administration proposed a \$575 billion defense budget. The House passed a base defense budget of \$593 billion while the Senate passed one of \$611 billion. The two need to be consolidated but will exceed the current budget caps, requiring legislation to adjust spending limits.

"We continue to urge our lawmakers to work toward an agreement, which modifies the budget caps, provides the defense funding required to capitalize our military

assets and delivers to our military the resources vital to our nation's security," Hewson said during the call.

Lockheed Martin missed its quarterly profit estimates for the second time this year. Space Systems fared the worst of the company's four units, with profit dropping 52 percent to \$218 million. The year-over-year drop is due largely to a one-time \$127 million jump in profits in third quarter of 2016 as the company had an increased stake in AWE, which manages nuclear missile systems in the United Kingdom. Lockheed Martin attributed the rest of the decline to where the company is in the production cycle and to reduced profits from its joint venture United Launch Alliance, a rocketmaker based in Centennial.

This article is a composite of articles from the Denver Post, KUSA 9, the Denver Business Journal, NASA and Lockheed Martin.

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## **United Launch Alliance News**

### **Bigelow Aerospace and United Launch Alliance Announce Agreement to Place a B330 Habitat in Low Lunar Orbit**

**Las Vegas, NV and Centennial, Colo. (Oct. 17, 2017)** – Bigelow Aerospace and United Launch Alliance (ULA) are working together to launch a B330 expandable module on ULA's Vulcan launch vehicle. The launch would place a B330 outfitted module in Low Lunar Orbit by the end of 2022 to serve as a lunar depot. The lunar depot plan is a strong complement to other plans intended to eventually put people on Mars and it will provide NASA and America with an exciting and financially practical success opportunity that can be accomplished in the short term. This lunar depot could be deployed easily by 2022 to support the nation's re-energized plans for returning to the Moon.

The B330 would launch to Low Earth Orbit (LEO) on a Vulcan 562 configuration rocket, the only commercial launch vehicle in development today with sufficient performance and a large enough payload fairing to carry the habitat. Once the B330 is in orbit, Bigelow Aerospace will outfit the habitat and demonstrate it is working properly. Once the B330 is fully operational, ULA's industry-unique distributed lift capability would be used to send the B330 to lunar orbit. Distributed lift would also utilize two more Vulcan ACES launches, each carrying 35 tons of cryogenic propellant to LEO. In LEO, all of the cryogenic propellant would be transferred to one of the Advanced Cryogenic Evolved Stage (ACES). The now full ACES would then rendezvous with the B330 and perform multiple maneuvers to deliver the B330 to its final position.

For more information on Bigelow Aerospace visit [www.bigelowaerospace.com](http://www.bigelowaerospace.com). Connect with Bigelow Aerospace at [www.facebook.com/bigelowaerospace](https://www.facebook.com/bigelowaerospace), [www.twitter.com/BigelowSpace](https://www.twitter.com/BigelowSpace) and [www.instagram.com/bigelowospace](https://www.instagram.com/bigelowospace).

## **United Launch Alliance Selects L3 Technologies to Design Next-Generation Avionics Systems**

**Centennial, Colo., Dec. 4, 2017** – L3 Technologies announced today that it has entered into an agreement with United Launch Alliance (ULA) to become the exclusive provider of avionics and related services for its new Vulcan Centaur rocket system, delivering an estimated \$1 billion-plus in mission-critical systems and services, over a 10-year period.

Under the agreement, ULA and L3 will integrate the companies' design and manufacturing processes to provide ULA with low-cost, custom solutions, enhancing ULA's launch services. Work on this project will be performed by L3's Space & Sensors sector, which is part of the company's Sensor Systems business segment.

To learn more about L3, visit the company's website at [www.L3T.com](http://www.L3T.com). L3 uses its website to distribute company information. Financial and other material information regarding L3 is routinely posted on the company's website and is readily accessible.

## **Recent Launches**

**Cape Canaveral Air Force Station, Fla., (Oct. 15, 2017)** – A United Launch Alliance (ULA) Atlas V rocket carrying a payload for the National Reconnaissance Office lifted off from Space Launch Complex-41 on Oct. 15 at 3:28 a.m. EDT. Designated NROL-52, the mission is in support of national security.

This mission was launched aboard an Atlas V Evolved Expendable Launch Vehicle (EELV) 421 configuration vehicle, which includes a 4-meter payload fairing (PLF) and two solid rocket boosters. The Atlas booster for this mission was powered by the RD AMROSS RD-180 engine, and the Centaur upper stage was powered by the Aerojet Rocketdyne RL10C-1 engine.

**(Vandenberg Air Force Base, Calif., Nov. 18, 2017)** – A United Launch Alliance (ULA) Delta II rocket carrying the Joint Polar Satellite System-1 (JPSS-1) for NASA and National Oceanic Atmospheric Administration (NOAA) lifted off from Space Launch Complex-2 on Nov. 18 at 1:47 a.m. PST. The JPSS program provides the nation's next generation polar-orbiting operational environmental satellite system, delivering key observations for the

nation's essential projects and services, including forecasting weather in advance and assessing environmental hazards. In addition to JPSS-1, this mission includes five CubeSats which launched from dispensers mounted to the Delta II second stage. The miniaturized satellites will conduct research in 3D-printed polymers for in-space manufacturing, weather data collection, bit flip memory testing, radar calibration and the effects of space radiation on electronic components.

This mission was launched aboard a Delta II 7920-10 configuration rocket which includes a 10-ft diameter Payload Fairing (PLF). The booster for this mission was powered by the RS-27A engine and the second stage was powered by the AJ10-118K engine.

For more information on ULA, visit the ULA website at [www.ulalaunch.com](http://www.ulalaunch.com), or call the ULA Launch Hotline at 1-877-ULA-4321 (852-4321). Join the conversation at [www.facebook.com/ulalaunch](https://www.facebook.com/ulalaunch), [twitter.com/ulalaunch](https://twitter.com/ulalaunch) and [instagram.com/ulalaunch](https://www.instagram.com/ulalaunch).

*2017 MARS Associates  
Holiday Celebration*

*December 5, 2016*

*Photos by:  
Theodore Bornhoeft*





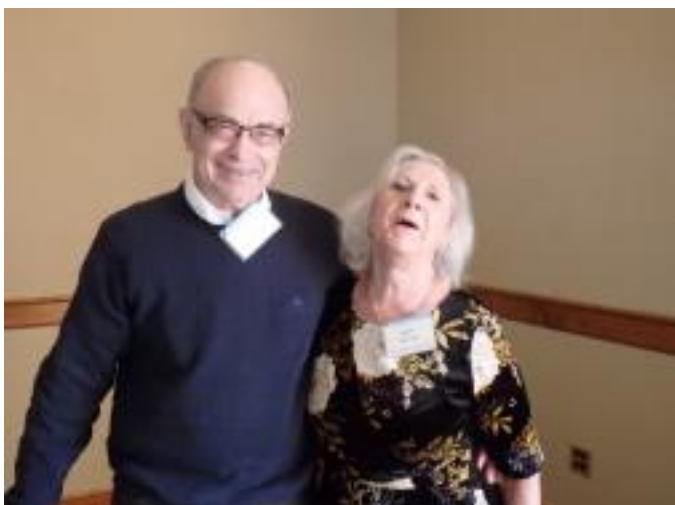












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Photo) at*

[www.marsretirees.org](http://www.marsretirees.org)

## MARS ASSOCIATES EVENT SCHEDULE

DATE: January 2018

EVENT/MONTH	2018											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Board of Directors	3		6		2		3		5		7	
Officers	3	7	6	4	2	6	3	1	5	3	7	4
Bridge	19	16	16	20	18	15	20	17	21	19	16	21
Dinner	16	12	19	17	16	12	TBD	TBD	TBD	TBD	TBD	TBD
Golf	-	-	-	Thur	Thur	Thur	Thur	Thur	Thur	Thur	-	-
Hiking Club	17	21	21	18	16	20	18	15	19	17	21	19
Photo	11	8	8	12	10	-	-	-	13	11	8	13
Web Committee	2	6	5	3	1	5	2	7/31	4	2	6	3
Annual Meeting			7									
Senior Luncheon							11					
CO Rockies Game								8				
Annual Picnic									12			
Holiday Celebration												5
Items due for MARS STAR												
STAR Input to Editor	3			2			3		24			
STAR Flyers Due to Comms	12			13			13			5		
STAR Repro. Deadline	15			16			16			8		
STAR Mailing	24			25			25			17		

1. BOD meets the first Wednesday of every other month at **The Egg & I, Highlands Ranch** at 09:30 am.
2. Officers meet the first Wednesday of every month at **The Egg & I, Highlands Ranch** at 09:30 am.
3. Bridge Club meets the third Friday of every month at 10:00 am at Buck Recreation Center.
4. Dinner Club (All events are lunch unless otherwise noted):  
 January 16 - Three Margaritas (Broadway); February 12 - Zest; March 19 - Imperial Chinese Restaurant  
 April 17 - Red Lobster (Wadsworth); May 16 - Maggiano's (Englewood); June 12 - Garden Terrace@Hilton Inverness  
 July - TBD; August - TBD; September - TBD
5. Photo Club meets the second Thursday of every month (except June, July & August) at 1:00 pm at the Bemis Public Library in Littleton.
6. Golf meets every Thursday from April through Oct of each year.
7. Hiking Club: Outings on third Wednesday of the month. Check the website for place and time.
8. Web Committee meets at Noon at Sweet Tomatoes on West Bowles, Littleton, on the Tuesday prior to BOD/Officer meeting
9. **2018** Annual Meeting - March 7 - Pinehurst Country Club
10. **2018** MARS Senior Luncheon - July 11
11. **2018** MARS Day at the Rockies - August 8
12. **2018** Annual Picnic - September 12 - Clement Park
13. **2018** Holiday Celebration - December 5 - Pinehurst Country Club

Please review dates and times and notify Dan Ellerhorst ([dan.ellerhorst@gmail.com](mailto:dan.ellerhorst@gmail.com)) if you have any changes or additions.