



Lockheed Martin Management Association Retirees Newsletter

Looking Forward Towards A Wonderful Retiree Future!

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Field of Jeans

Posted Date: 3/28/2014

All eyes will focus on Santa Clara on February 7, 2016 when the 50th anniversary Super Bowl game is played in Levi's Stadium. The date of the most-watched TV program in the U.S. was announced today by the National Football League.

FEBRUARY 7 2016 IS ANNOUNCED AS DATE FOR SUPER BOWL IN SANTA CLARA STADIUM

SANTA CLARA, Calif. — Millions of people around the world will focus on Santa Clara on February 7, 2016 when the 50th anniversary Super Bowl game is played in Levi's Stadium. The date of the most-watched TV program in the U.S. was announced today by the National Football League.

AUGUST 2014

Needed: Staff Help

LMMAR needs volunteers to help keep LMMAR going. We have several vacancies on the Board and we particularly need a newsletter editor. If you think you can help please contact:

Norm Dhom, Membership Chair – (408) 732-2742

Jerry Vaughan, Treasurer – (408) 985-2708

It is the latest milestone for Levi's® Stadium as the new home to the San Francisco 49ers and one of the world's best outdoor sports and entertainment venues. The \$1.2 billion venue will have 1.85 million square feet, seat up to 72,000 and will feature an expected 165 luxury suites and 8,500 club seats. It was designed to be a multi-purpose facility with the flexibility to host a wide range of events, including domestic and international soccer, college football, motocross, concerts and various civic events, and will be expandable for major events such as Super Bowl 50.

"We are incredibly proud to have been selected as the best place in America to host the golden anniversary of the Super Bowl," said Santa Clara Mayor Jamie Matthews. "Every event broadcast from Levi's® Stadium will showcase our region's beauty, culture and innovation. The Super Bowl multiplies that positive recognition exponentially."

The Santa Clara Chamber of Commerce and Convention-Visitors Bureau expects that numerous hotel and motel rooms in the City will be fully booked during Super Bowl, with fans pouring money into the local economy at local restaurants, shops and other businesses. Sales tax and Transient Occupancy Tax paid on hotel/motel rooms generate revenues for the City's General Fund that pays for core services such as police, fire, library, parks and streets.

"The stadium is a catalyst for significant economic development opportunities for Santa Clara," said Mayor Matthews. "It is encouraging private investment in development as well as bringing thousands of 49er fans and other stadium event attendees to our community to enjoy our perfect weather, museums, and other dining and entertainment venues."

The schedule for the 49ers inaugural

season in Levi's® Stadium is expected to be announced in April. The first Levi's® Stadium event will be a Major League Soccer match on August 2nd between the San Jose Earthquakes and the Seattle Sounders FC.

Windshield Wash Di(Trif?)lemma

Dennis Beaver — "You and the Law"

The Sentinel. February 04, 2012

Today, in most of California, no one can find either pre-mixed or concentrated solutions such as Ultra Clean All Season Windshield Wash Concentrate from Scottsdale, Arizona-based Unelko Corp. It was sold everywhere in the state last year, but is not found anywhere now. Even though it is an excellent product, carried by auto supply stores here for years, Unelko informed us that it is simply not being ordered by retailers.

To find out why, we spoke with the Air Resource Board's chief of consumer products and new strategies, Carla Takemoto. "It is an air pollution issue. In early 2011 a regulation went into effect which made the sale of ready-to-use winter solution illegal, except in areas of the state where freezing temperatures are quite common in winter-time," she explained.

"Many of these products contain high levels of VOCs (Volatile Organic Compounds, typically methanol) which contribute to the formation of ground level ozone and air pollution. The general public should not buy products which contribute to ozone. The ready-to-use winter products typically contain 25

percent VOCs, while those for the warm areas of the state can have no more than 1 percent. Consumers there gain nothing by having high, winter formula concentrations," Takemoto stated.

But then she went on to say something which makes it clear why a lot of people in the state want the Air Resources Board to be boarded-up permanently:

"But our regulations do allow auto supply stores to sell concentrated solutions anywhere in the state. The consumer can then dilute to either a winter (high-VOC) formula if they are in those mountain areas, or the no-more-than-1-percent warm area requirement. It is legal to order these products and have them shipped to California. We have informed manufacturers about this, and only recently distributors and trade organizations who we hope will tell retailers."

I can't buy pre-mixed winter solution where I live because it pollutes, but I can use a concentrate which, when mixed, will be just as polluting — with the same high VOC levels — if I mix it that way. The ARB only now just began advising auto supply distributors that they can legally sell concentrated solution. So drivers in much of the state are only finding pre-mixed "summer" formulas and not the legally available concentrates. So much for ARB's care and concern for the welfare of California drivers.

"Auto supply stores are terrified of a possible daily \$50,000 fine for even accidentally violating ARB regulations. That's why we don't even carry the concentrates," we were confidentially

told by one national auto supply marketing manager.

Hosted Payload Solutions

WASHINGTON, D.C., July 23, 2014 – Lockheed Martin [NYSE: LMT] has been competitively selected for the U.S. Air Force's Hosted Payload Solutions (HoPS) initiative, which is aimed at integrating some government payloads – electronics and sensors packages designed for specific missions – on commercial satellites. Hosted payloads share satellite launch, propulsion, power and other services, as well as some of their costs. With this selection in HoPS first phase, Lockheed Martin is now eligible to competitively bid on future payload hosting opportunities covered under a \$495 million Indefinite Delivery Indefinite Quantity contract. Bidding contractors will be expected to match government-provided payloads with appropriate commercial satellites and to integrate these to meet critical launch timelines.

"In these challenging budgetary times, HoPS is an innovative, cost-effective approach that will allow the Air Force to leverage commercial spacecraft to host some of its future space missions," Mark Valerio, vice president of Lockheed Martin's Military Space line of business, said. "We plan to bring our experience in both payload integration and commercial satellites to bear on HoPS, supporting the Air Force's goal of reaching the nexus of capability, affordability, and resilience for its future space architecture."

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Lockheed Martin comes to HoPS with a long history of developing and integrating hosted payloads onto spacecraft. Since 2000, the company has delivered 84 payloads on 16 different types of satellites from multiple manufacturers. Three of these were government payloads placed onto commercial hosts, where integration challenges including both the business and technical aspects of the satellite's mission had to be resolved.

"Lockheed Martin also has built and launched more than 100 commercial satellites. We know the commercial industry and have strong ties there," Valerio added. "Combined with our experience in mission engineering and system solutions, we are confident we can bring forward affordable hosted payload opportunities at the right time and the right place for mission needs."

The HoPS acquisition is managed by the Air Force Space and Missile Systems Center's Advanced Systems and Development Directorate at Los Angeles Air Force Base, California.

Louis Zamperini Dies

New York Times By IRA BERKOW JULY 3, 2014

Louis Zamperini, an Olympic runner who as an airman during World War II crashed into the Pacific, was listed as dead and then spent 47 days adrift in a life raft before being captured by the Japanese and enduring a harsh imprisonment, died on Wednesday in Los Angeles. He was 97.

A statement released by his family said he had had pneumonia.



Capt. Louis Zamperini, right, and Capt. Fred Garrett at Hamilton Field, Calif., after their release from a Japanese prisoner of war camp in

Mr. Zamperini's remarkable story of survival during the war gained new attention in 2010 with the publication of a vivid biography by Laura Hillenbrand, "Unbroken: A World War II Story of Survival, Resilience, and Redemption." It rose to No. 1 on the New York Times best-seller list and was adapted into film in 2014, Unbroken, directed by Angelina Jolie, adapted by the Coen brothers, and with Jack O'Connell playing Zamperini.

Note from LMMAR member Carol Osborne

Dear Friends: I had hoped Louis would be here on Christmas Day when his book becomes a Hollywood Blockbuster. I met Louis several times when I attended Aero Club dinners and dinners at Cal Tech, etc., at the invitation of Bob Gilliland, who

was one of Louie's best friends. Bob was First to Fly the SR-71 Blackbird on Dec. 22, 1964 (it will be 50 years this December). He was a dear friend to Louis and they attended many activities and events together. Louis was a dear man, a great WWII Hero!

Carol

International Space Station

ROCKVILLE, Md., July 21, 2014 – As part of an SGT, Inc.-led team, Lockheed Martin [NYSE: LMT] will provide mission and flight crew operations support to NASA for the International Space Station (ISS) and future human space exploration. These support services within the Integrated Mission Operations Contract II (IMOC II) are critical to the safe operation of all NASA human spaceflight missions.

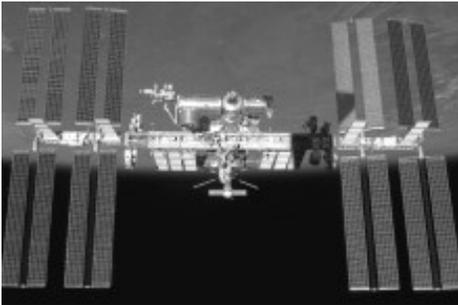
Under IMOC II, Lockheed Martin will provide expertise to support mission planning and preparation, crew and flight controller training and real-time mission execution at NASA's Johnson Space Center in Houston. Lockheed Martin also will provide ground-based human spaceflight services for the Orion Multi-Purpose Crew Vehicle, for which Lockheed Martin is the prime contractor, and new commercial cargo vehicles.

"We are thrilled to be a part of this contract, as it allows us the opportunity to support future exploration and human spaceflight missions," said Rick Hieb, vice president of Exploration & Mission Support in Lockheed Martin's Information Systems & Global Solutions business. "Together with SGT, we can apply resources and experience to en-

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sure we are advancing NASA's mission through IMOC II."



In addition to this new NASA support contract, Lockheed Martin manages, stores and maintains more than 3 million items for the ISS crew and keeps the station supplied with critical items to sustain the crew and continue important scientific research. Lockheed Martin also supports Johnson Space Center by providing a broad range of engineering, science and technical services.

Where Were You July 20, 1969?

Apollo 11 was the spaceflight that landed the first humans on the Moon, Americans Neil Armstrong and Buzz Aldrin, on July 20, 1969, at 20:18 UTC. Armstrong became the first to step onto the lunar surface six hours later on July 21 at 02:56 UTC. Armstrong spent about two and a half hours outside the spacecraft, Aldrin slightly less, and together they collected 47.5 pounds (21.5 kg) of lunar material for return to Earth. A third member of the mission, Michael Collins, piloted the command spacecraft alone in lunar orbit until Armstrong and Aldrin returned to it just under a day later for the trip back to Earth.

Launched by a Saturn V rocket from Kennedy Space Center in Merritt Island, Florida, on July 16, Apollo 11 was the fifth manned mission of NASA's Apollo program. The Apollo spacecraft had three parts: a Command Module (CM) with a cabin for the three astronauts, and the only part that landed back on Earth; a Service Module (SM), which supported the Command Module with propulsion, electrical power, oxygen, and water; and a Lunar Module (LM) for landing on the Moon. After



Neil Armstrong
Commander

being sent toward the Moon by the Saturn V's upper stage, the astronauts separated the spacecraft from it and traveled for three days until they entered into lunar orbit. Armstrong and Aldrin then moved into the Lunar Module and landed in the Sea of Tranquility. They stayed a total of about 21½ hours on the lunar surface. After lifting off in the upper part of the Lunar Module and rejoining Collins in the Command Module, they returned to Earth



Michael Collins
Command Module Pilot

and landed in the Pacific Ocean on July 24.

Broadcast on live TV to a world-wide audience, Armstrong stepped onto the lunar surface and described the event as "one small step for [a] man, one giant leap for mankind." Apollo 11 effectively ended the Space Race and fulfilled a national goal proposed in



Buzz Aldrin
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Lunar Module Pilot

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1961 by the late U.S. President John F. Kennedy in a speech before the U.S. Congress: "before this decade is out, of landing a man on the Moon and returning him safely to the Earth."

Six Minutes of Suspense

LOI. Lunar Orbit Insertion. That was the vital maneuver needed to reach the moon's surface, and Apollo 11's crew was prepared for any contingency. The astronauts would be out of contact with Mission Control, and just before they lost signal, CapCom radioed, "Apollo 11, this is Houston. All your systems are looking good going around the corner, and we'll see you on the other side, over."

"Roger," Neil assured them as Apollo 11 vanished.

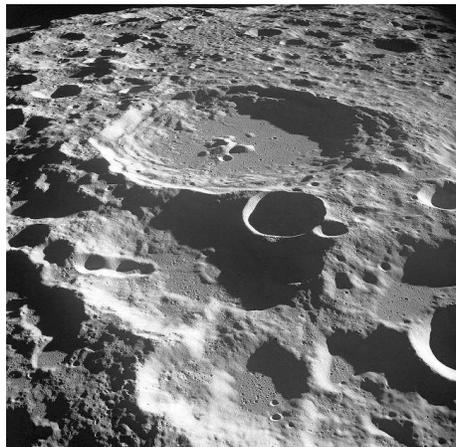
Behind the moon it was as if Armstrong, Collins and Aldrin didn't exist. They could not communicate with Mission Control. No signals in, none out. The mission now existed only in their small world inside a spacecraft.

They were in their seats, with the Apollo command and service modules docked to the lunar lander, moving backward 300 miles above the moon — a moon they would not see again until they turned around, following the 6-minute, 2-second burn that was needed to brake their speed from 5,000 to 3,000 miles per hour. If the burn was successful, lunar gravity would secure them in an orbit ranging between 61 by 169.2 miles.

The crucial rocket firing was set to begin 7 minutes and 45 seconds into

their far-side pass. Neil and Mike and Buzz checked their settings — once, then again, and then a third time to make sure they did it right the first time. It had to be perfect. Just one digit in the computer out of place could send them into a lunar mountain, or turn them and send them into an orbit around the sun.

But that wasn't going to happen. Apollo 11's crew made sure of that. When they reached the mark, they felt the gentle ignition and heard the satisfying rumble of the SPS propulsion system burning. The numbers told them the rocket had fired and was running — burning smoothly and evenly for what seemed an eternity to Neil and Mike and Buzz.



They stared into the blackness, unable to see the moon — only sensing it — as their SPS propulsion system slowed their speed, moving them to within 61 miles of the surface. Their only worry was that the rocket burn might last too long, crashing them into the moon that was ever so near.

For 6 minutes and 2 seconds they rode Apollo 11 to its slower speed. When it was over, finally over, it was a splendid

and epochal moment: Seventy-five hours and 55 minutes after ridding itself of its shackles on the launch pad, the Apollo 11 spacecraft locked itself in lunar orbit.

No one on Earth knew this had happened. In Mission Control, this was a time of cliff-hanging suspense — a time to count the minutes and seconds that had to pass before Apollo 11 emerged from the lunar far side to signal success.

On Apollo 11, the celebration was already under way. The numbers were perfect. The astronauts had turned their spacecraft around and were looking down at the moon, excitedly pointing out one spectacular feature after another. When they came around the lunar limb, and Mission Control could hear them at the instant they should have ... it was Earth's turn to celebrate.

Mobile User Objective System

SUNNYVALE, Calif., July 10, 2014 – Lockheed Martin [NYSE: LMT] has successfully completed environmental testing of the U.S. Navy's third Mobile User Objective System (MUOS) satellite. It recently cleared thermal vacuum trials, which validate performance in simulated space conditions, and the satellite is now in final check out.

"We are committed to quality, and our rigorous environmental testing regimen ensures this system is ready for the harsh environments of space," said Iris Bombelyn, vice president of Narrowband Communications at Lockheed Martin. "It's important to check out every aspect of the satellite at this

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stage so we can prepare it for service. We are on track for delivering the third MUOS satellite to the Navy this year.”

The Navy plans to launch this addition to the constellation in January 2015.



The MUOS satellite was stressed at extreme hot and cold temperatures in a vacuum at Lockheed Martin's Dual Entry Large Thermal Altitude chamber, simulating the environments the satellite will experience throughout its mission life.

The satellites are equipped with a wideband code division multiple access (WCDMA) payload that leverages commercial cell phone technology. MUOS provides a 10-fold increase in communications capacity compared to the current legacy Ultra High Frequency (UHF) system. Additionally, the WCDMA payload gives users the advantage of high-speed data and priority access that legacy systems did not.

Lockheed Martin Space Systems, in Sunnyvale, California, is the MUOS prime contractor and system integrator of the five-satellite constellation, which includes four operational assets and one on-orbit spare. The Navy's Program Executive Office for Space Systems and its Communications Sat-

ellite Program Office, San Diego, California, are responsible for the MUOS program.

Meet the SR-72

In 1976, U.S. Air Force SR-71 Blackbird crews flew from New York to London in less than two hours, reaching speeds exceeding Mach 3 and setting world records that have held up for nearly four decades.

But those world records may not stay unbroken for long.



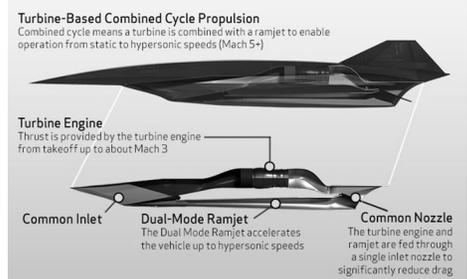
That's because today, at the birthplace of the Blackbird – Lockheed Martin's Skunk Works® – engineers are developing a hypersonic aircraft that will go twice the speed of the SR-71. It's called the SR-72

Son of the Blackbird The SR-71 was developed using 20th century technology. It was envisioned with slide rules and paper. It wasn't managed by millions of lines of software code. And it wasn't powered by computer chips. All that changes with the SR-72.

Envisioned as an unmanned aircraft, the SR-72 would fly at speeds up to Mach 6, or six times the speed of sound. At this speed, the aircraft would be so fast, an adversary would have no time to react or hide.

"Hypersonic aircraft, coupled with hypersonic missiles, could penetrate denied airspace and strike at nearly any location across a continent in less than an hour," said Brad Le-land, Lockheed Martin program man-

ager, Hypersonics. "Speed is the next aviation advancement to counter emerging threats in the next several decades. The technology would be a game-changer in theater, similar to how stealth is changing the battlespace today."



A hypersonic plane does not have to be an expensive, distant possibility. In fact, an SR-72 could be operational by 2030. For the past several years, Lockheed Martin Skunk Works® has been working with Aerojet Rocketdyne to develop a method to integrate an off-the-shelf turbine with a supersonic combustion ramjet air breathing jet engine to power the aircraft from standstill to Mach 6. The result is the SR-72 that Aviation Week has dubbed "son of Blackbird," and integrated engine and airframe that is optimized at the system level for high performance and affordability.

Hypersonic Research and Development SR-72 is not the first hypersonic Skunk Works® aircraft. In partnership with the Defense Advanced Research Projects Agency, engineers developed the rocket-launched Falcon Hypersonic Technology Vehicle 2 (HTV-2). The HTV-2 research and development project was designed to collect data on three technical challenges of hypersonic flight: aerodynamics; aerothermal effects; and guidance, navigation and

(Continued from page 6)

control.

The SR-72's design incorporates lessons learned from the HTV-2, which flew to a top speed of Mach 20, or 13,000 mph, with a surface temperature of 3500 °F.

A hypersonic aircraft will be a game changer.

Space Based Infrared System Satellites

SUNNYVALE, Calif., June 24, 2014 – The U.S. Air Force awarded Lockheed Martin [NYSE: LMT] a \$1.86 billion fixed-price contract to complete the production of the fifth and sixth Geosynchronous Earth Orbit (GEO) satellites, known as GEO-5 and GEO-6, for the Space Based Infrared System (SBIRS). SBIRS provides our nation continuous early warning of ballistic missile launches and other tactical intelligence.

The Air Force awarded initial funding for the two satellites in a 2012 contract to complete non-recurring engineering activities and to procure select long lead parts. In 2013, the service awarded the advance procurement contract to secure additional long lead parts.

“SBIRS provides capabilities critical to our nation’s defense but we also understand in today’s environment that we need to find that perfect balance between capability and affordability,” said Jeffrey Smith, vice president of Lockheed Martin’s Overhead Persistent Infrared mission area. “This contract is the third part of a thoughtful acquisition strategy aimed at further

reducing cost and cycle time for GEO-5 and GEO-6, while still providing exceptional data to the warfighter.”

The SBIRS architecture includes a resilient mix of satellites in GEO, hosted payloads in Highly Elliptical Orbit (HEO), and ground hardware and software. The GEO-1 and GEO-2 satellites both received Air Force Space Command Operational Acceptance in 2013, and have performance that matches, and in some cases exceeds, requirements. On schedule for delivery at the end of 2014, GEO-3 currently is undergoing acoustic and thermal vacuum testing at Lockheed Martin’s Sunnyvale, California satellite manufacturing facility. GEO-4 recently entered final assembly, integration and test.

The SBIRS program delivers timely, reliable and accurate missile warning and infrared surveillance information to the President of the United States, the Secretary of Defense, combatant commanders, the intelligence community and other key decision makers. The system enhances global missile launch detection capability, supports the nation’s ballistic missile defense system, expands the country’s technical intelligence gathering capacity and bolsters situational awareness for warfighters on the battlefield.

The SBIRS team is led by the Infrared Space Systems Directorate at the U.S. Air Force Space and Missile Systems Center. Lockheed Martin is the SBIRS prime contractor, Northrop Grumman is the payload integrator. Air Force Space Command operates the SBIRS system.

LMMAR Bridge

Jul 1 - Individual Duplicate - 1st Place – Chuck Schmidt; 2nd Place – (tie) Dave Himmelblau and Angie Schynert , and 4th Place - Dave Topka.

Jul 3 - Pairs Duplicate – 1st Place – 1st Place – Dave Himmelblau & Dave Topka and 2nd Place – Gary Bea & Chuck Schmidt.

Jul 8 - Individual Duplicate - 1st Place – Dave Himmelblau , 2nd Place - Alex Fucile, and 3rd Place – (tie) Roger Abegg, Chuck Schmidt, and Bob Vigeant.

Jul 10 – Pairs Duplicate – No Game.

Jul 15 – Individual Duplicate - 1st Place – (tie) Roger Abegg and Dave Topka, 3rd Place – (tie) Ted Hinshaw and Angie Schynert.

Jul 17 – Pairs Duplicate – 1st Place – Dave Himmelblau & Dave Topka and 2nd Place – (tie) Roger Abegg & Ted Hinshaw and Gary Bea & Chuck Schmidt.

Jul 22 – Pairs Duplicate - 1st Place – Chuck Schmidt & Bob Vigeant and 2nd Place - Roger Abegg & Ted Hinshaw.

Jul 24 – Pairs Duplicate – 1st Place – Chuck Schmidt et al and 2nd Place – Dave Himmelblau & Dave Topka.

Jul 29 – Pairs Duplicate - 1st Place – Chuck Schmidt & Bob Vigeant and 2nd Place – (tie) Alex Fucile & Wilma Tringaly and Dave Himmelblau & Dave Topka.

Jul 31 – Pairs Duplicate – 1st Place – Don Kies & Chuck Schmidt and 2nd Place – Dick Hacking & Dave Himmelblau.

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AUGUST 2014

Activity Calendar

- **LMMAR Executive Board Meeting.** First Monday of each month unless holiday conflict, then second Monday. 9:30 a.m. Bldg. 157-Satellite Room (off the cafeteria).
- **LMMAR Newsletter Mailing Session.** Volunteers needed. Second Thursday of each month. 9:30 a.m. Bldg. 157-Litrium. Contact Norm Dhom (408) 732-2742.
- **LMMAR Luncheon.** October 31, 2014 at Michael's at Shoreline in Mt. View. Contact Lucille Wilson at 408.225.9566
- **LMMAR Luncheon.** December 5, 2014 at Michael's at Shoreline in Mt. View. Contact Lucille Wilson at 408.225.9566
- **LMMAR Bridge Card Players.** Join the fun! Every Tuesday and Thursday, 12:00 noon at the Willow Park Condominiums located at the NE corner of Moffet Blvd. and Middlefield Road in Mountain View. Entrance is from Moffet Blvd. Contact Dave Himmelblau, 'phone No. 650 968-1121.
- **Lockheed Martin Blood Bank Drive.** Second Wednesday of each month. 8:00 a.m. - 3:00 p.m. Bldg. 163. LMMAR Contact Norm Dhom (408) 732-2742.
- **Lockheed Martin Retirees Investment Group (LMRIG).** Meets last Thursday of each month, 1:00-2:00 p.m. in B163 at the corner of J Street and 1st Ave. (Employee Connection Building). Dues are \$2. Contact Don Kinell (650) 948-1520 or Martin Abelow (408) 253-6924. Join us for lunch in the B-157 cafeteria prior to the meeting between 11:40-12:40.

For your financial needs, please contact Star One Credit Union at www.starone.org or (866) 543-5202 toll free.

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